

# Attachment E

MEMO

To: Monterey County Department of Public Works, Facilities & Parks  
From: Eric Riedner, P.E.  
Date: February 26, 2026

**Subject: Santa Rita Creek Flood Study- Additional Project Alternative to Revert the Channel to 1970s Conditions**

At the request of the Monterey County Department of Public Works, Facilities & Parks, an additional project alternative was developed beyond the four alternatives previously summarized in the *Santa Rita Creek Flood Study* (Balance Hydrologics, 2025). This fifth alternative would restore the study reach of Santa Rita Creek to conditions consistent with those depicted in the FEMA Flood Insurance Study prepared in the 1970s. This “1970s Alternative” was developed and evaluated using the same approaches and methodologies applied in the Santa Rita Creek Flood Study.

**1970s FEMA Study Channel Conditions**

To characterize the channel geometry at the time of the FEMA study, the HEC-2 hydraulic model developed as part of that study was digitized, with particular emphasis on channel cross-section data within the study reach. Two representative cross sections from the FEMA study are presented in Figure 1 along with a channel profile in Figure 2. Additional cross-section plots are provided in Appendix A.

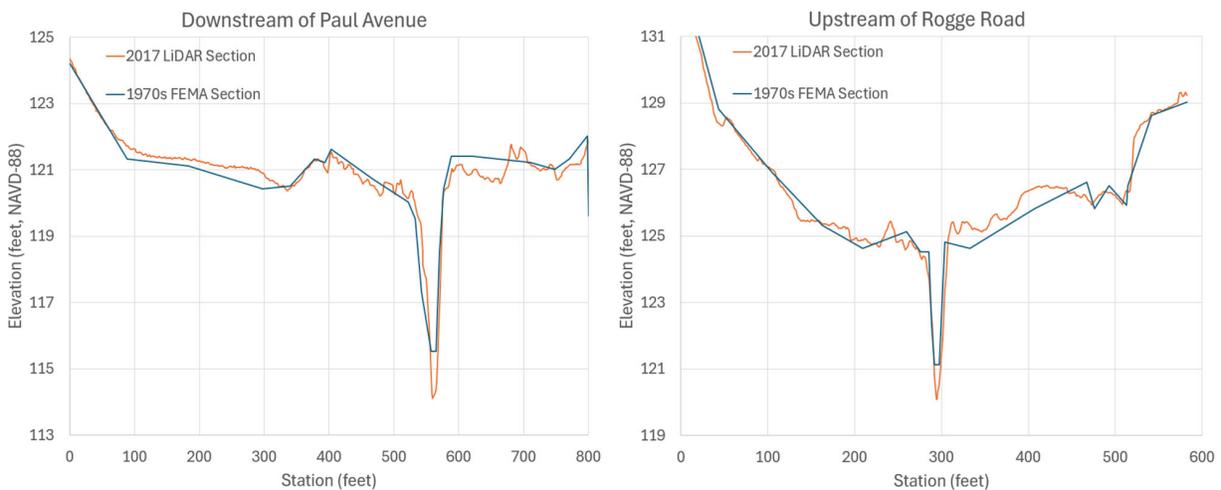


Figure 1. Representative cross sections.

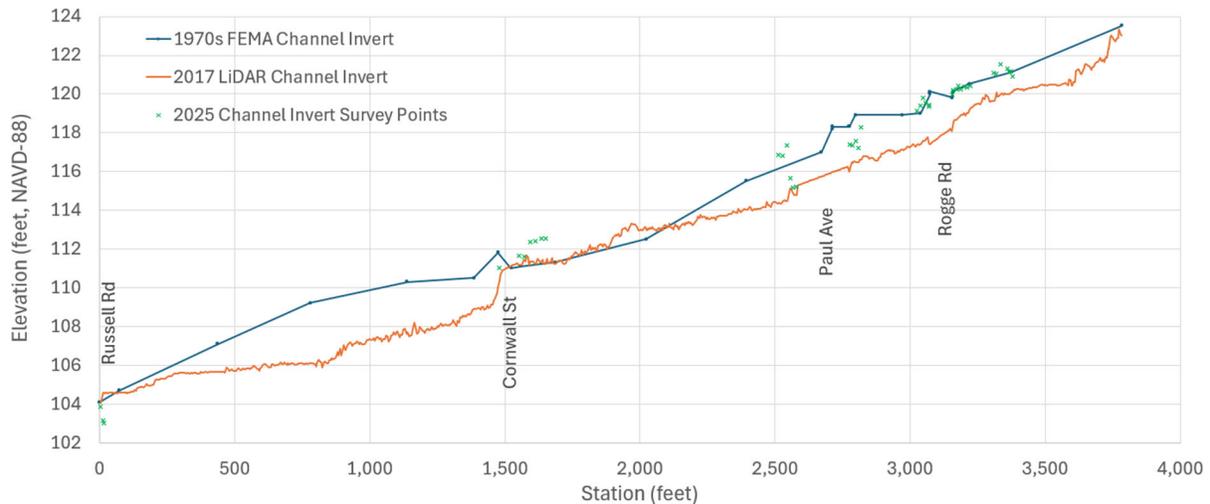


Figure 2. Channel profile.

The digitized channel geometry was compared with existing conditions topography developed for the Santa Rita Creek Flood Study, which is based primarily on LiDAR data collected in 2017. This comparison indicates that channel invert elevations in the 1970s were generally higher than conditions in 2017, averaging approximately 2 feet higher in the vicinity of Paul Avenue and Rogge Road. The triple 36-inch-diameter culverted crossings at Paul Avenue and Rogge Road were upgraded in the late 1970s to early 1980s, following completion of the FEMA study, with double 54-inch culvert arrays installed at lower invert elevations. It is probable that adjacent channel reaches were subsequently graded or experienced erosion in response to the lowered culvert inverts.

Surveyed spot elevation data collected in February 2025 along portions of the study reach is also shown in Figure 2. This data indicates that in the 1970s channel invert elevations in the vicinity of Paul Avenue and Rogge Road were more consistent with elevations corresponding to the tops of recent sediment deposits.

In addition to changes in channel geometry, vegetative cover along the study reach has increased since the 1970s. A comparison of aerial imagery from 1966 and 2025 (Figure 3) shows an increase in vegetation density along the channel upstream of Ferrasci Park. Additional aerial imagery provided in Appendix B, together with a comparison of site photographs from 2014 and 2025 (Figure 4), indicates that much of this vegetation growth has occurred within the last decade.

In summary, although channel conveyance in the 1970s may have benefited from comparatively lower vegetation density, overall conveyance capacity was likely not substantially greater than under existing conditions due to the higher channel invert elevations present at that time. This conclusion is supported by findings in the *Santa Rita Creek Master Drainage Plan* (Monterey County Surveyors, Inc., 1972), prepared during the same general timeframe as the FEMA study, which notes that the conveyance capacity of Santa Rita Creek was “totally inadequate through the Bolsa Knolls area” and included recommendations to replace the existing channel and crossings across the study reach.

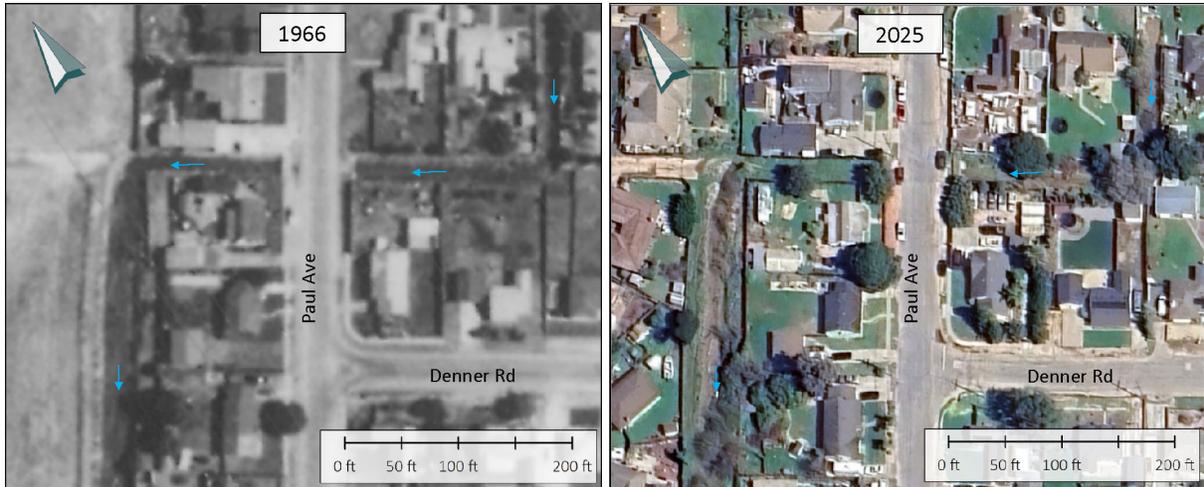


Figure 3. Aerial imagery comparing channel vegetation in 1966 and 2025.



Figure 4. Photos comparing channel vegetation in 2014 and 2025 between Ferrasci Park and Paul Ave.

### ***Alternative 5 Design Concept***

Given the conclusion that channel conditions in the 1970s would not have provided a substantial improvement in conveyance capacity through the study reach, Alternative 5 was instead defined as an enhanced version of the 1970s channel configuration. This approach allows for evaluation of the maximum potential flood control benefit achievable through channel grading and vegetation removal confined largely to the existing channel footprint, which is consistent with the intent of the County’s request for this additional alternative.

The Alternative 5 grading concept would extend along Santa Rita Creek from Russell Road upstream to the first culverted channel crossing upstream of the Bolsa Knolls subdivision. An overview of the proposed grading extents and Digital Elevation Model (DEM) is shown in Figure 5, with higher-resolution conceptual grading exhibits provided in Appendix C.

Channel invert elevations would be lowered to the maximum extent practicable, constrained by the existing culvert invert elevations that bound each reach segment. A comparison of the proposed graded channel invert with existing topography is provided in Figure 6 and indicates

that channel invert lowering of approximately 0.0 to 1.0 feet could be achieved relative to the 2017 LiDAR data, depending on location. Relative to the 2025 survey elevations collected along the sediment deposits near Paul Avenue and Rogge Road, the channel invert would be lowered up to approximately 2 feet.



Figure 5. Alternative 5 conceptual grading extents (higher-resolution grading exhibits provided in Appendix C).

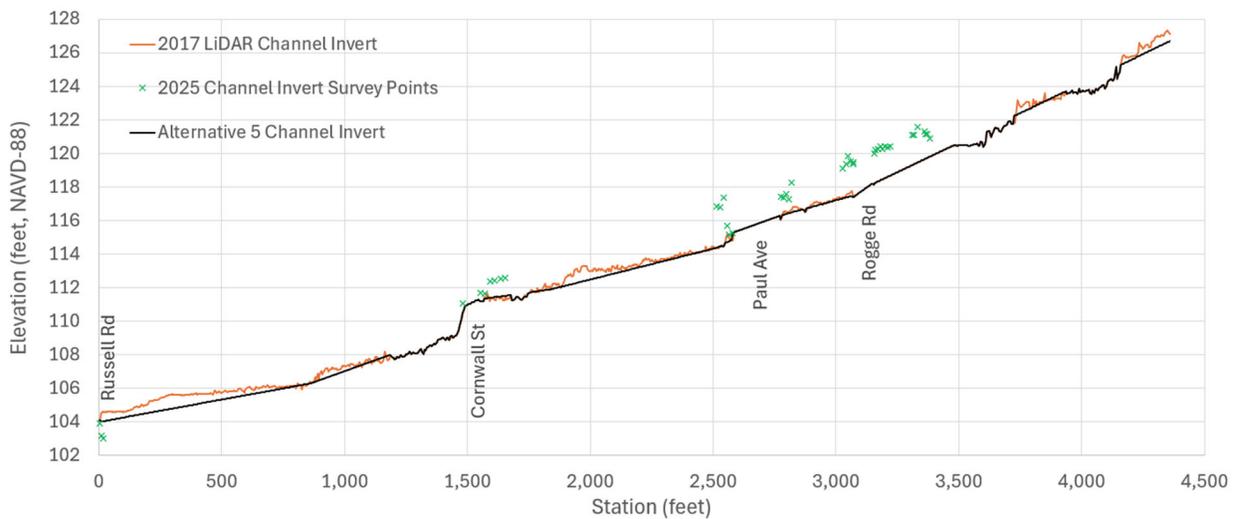


Figure 6. Alternative 5 conceptual graded channel profile.

As described in the Santa Rita Creek Flood Study, the channel corridor within the study reach traverses a combination of drainage parcels, drainage easements, and residential properties, with structures, fencing, and landscaping frequently extending to the existing top of bank. To minimize encroachments into residential parcels, the graded channel configuration would require relatively narrow bottom widths and steep side slopes graded at approximately 1.5 horizontal to 1 vertical (1.5:1). For reference, County design standards typically require minimum graded slopes of 2:1, while channel side slopes are typically set to a minimum of 3:1. Representative graded channel cross sections are provided in Figures 7 and 8.

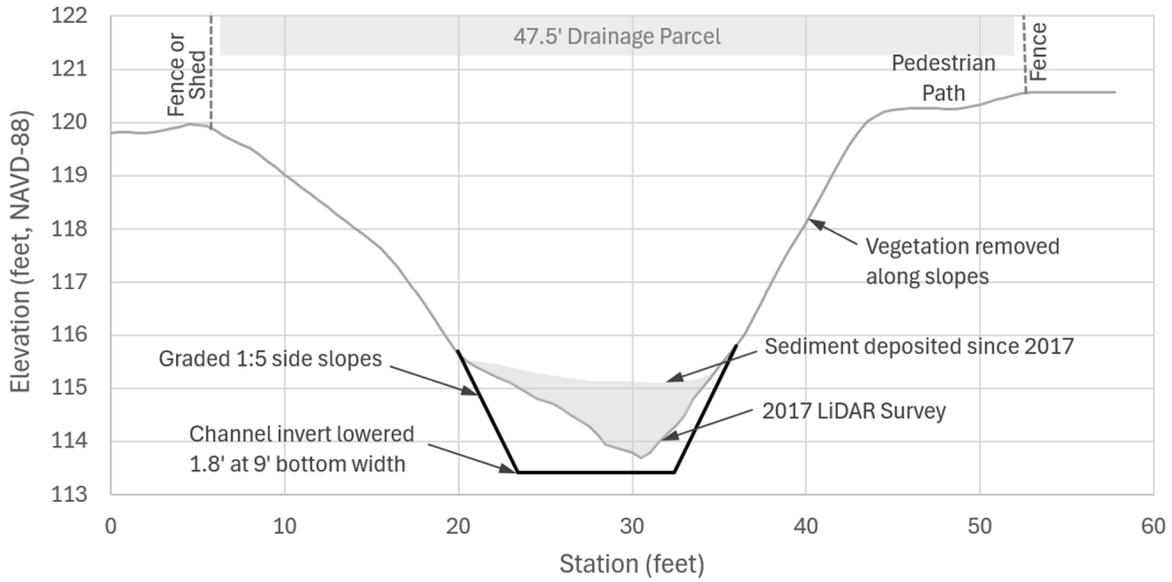


Figure 7. Alternative 5 representative graded section between Ferracci Park and Paul Avenue.

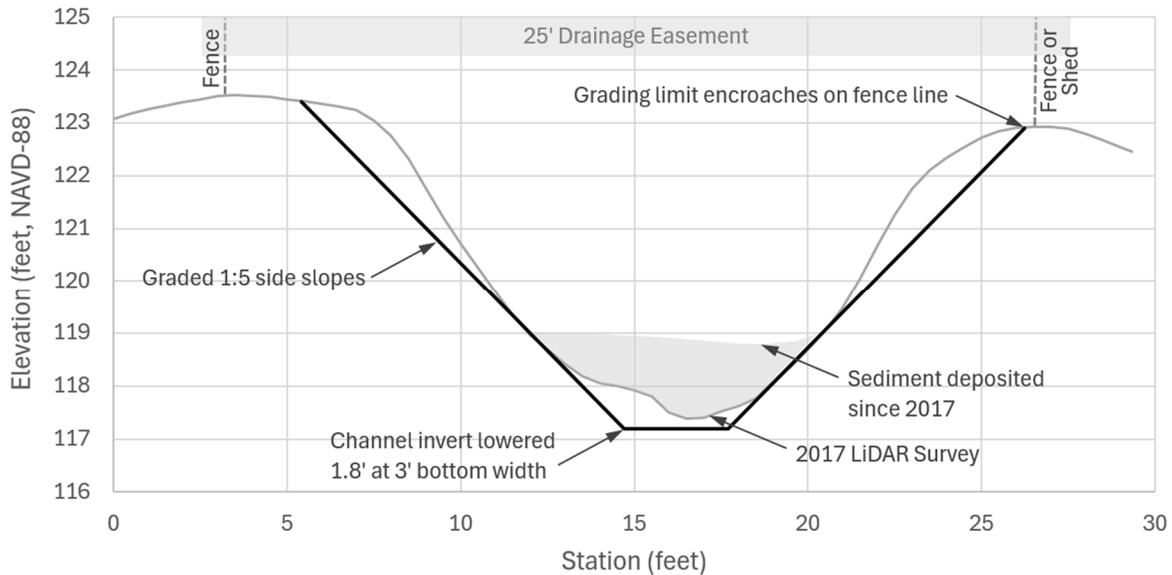


Figure 8. Alternative 5 representative graded section between Paul Avenue and Rogge Road.

The use of steepened side slopes, combined with the extensive removal of existing vegetation, would increase the risk of bank erosion along the study reach. Conventional erosion control measures present notable limitations at this site. Vegetative stabilization would reduce channel conveyance; erosion control fabrics would likely be temporary and susceptible to failure during storm events; and rock slope protection, while effective, would be costly if applied continuously along the full channel length. As a result, the potential for increased bank erosion and/or the need for enhanced erosion protection measures should be considered in the cost-benefit assessment for this alternative.

Constructability also presents an important consideration for Alternative 5, particularly in reaches upstream of Paul Avenue where the channel top width generally ranges from approximately 20 to 25 feet and access along the top of bank is limited. To avoid the need for construction access through residential properties, haul routes and equipment access would likely be confined largely to the channel bottom. Given the narrow proposed channel geometry, specialized equipment and construction methods would be required to excavate and haul material within the channel corridor, increasing overall construction complexity and cost.

In addition, unless sediment delivery from upstream portions of the watershed is addressed, sediment deposition within the study reach would be expected to continue following construction. As a result, periodic sediment removal would be required to maintain the long-term flood control benefits associated with this alternative.

Along with the proposed channel grading, Alternative 5 would include near-complete removal of vegetation along the study reach of Santa Rita Creek. Unlike the more targeted vegetation management proposed under previous alternatives, this alternative assumes full vegetation removal followed by ongoing maintenance to sustain conditions comparable to the grass-lined channel reaches downstream within the City of Salinas. An example photograph representative of the assumed maintained channel condition is provided in Figure 9.



Figure 9. Example photograph of maintained channel vegetation assumed as part of Alternative 5.

Construction costs for the grading and vegetation removal associated with Alternative 5 would be driven less by typical unit costs (e.g., earthwork volumes) and more by access constraints and constructability challenges. At the conceptual level to which this alternative has been developed, costs associated with these factors are highly uncertain; therefore, a preliminary construction cost range of approximately \$1,000,000 to \$4,000,000 is estimated. Additional, and potentially substantial, costs including permitting, engineering, coordination with multiple affected private property owners, mitigation requirements from the permitting agencies, and ongoing sediment removal and vegetation maintenance are not included in this estimate.

A discussion of permitting and environmental implications associated with Alternative 5 prepared by Denise Duffy and Associates is included as Appendix D.

### Alternative 5 Modeling

A flood control benefits assessment of Alternative 5 was completed using the hydraulic model described in the Flood Study and following the same methods applied to the previously evaluated project alternatives. Alternative 5 was represented in the model by updating the terrain to reflect the conceptual grading configuration presented in Appendix C, removing blocked obstructions within culverts that represent deposited sediment, and reducing the channel Manning’s n value to 0.035, consistent with the maintained channel reach downstream of Russell Road. Model simulations were completed for the 10- and 100-year design storm events, as well as for the December 27, 2022 and February 13, 2025 historical storm events.

Model output for Alternative 5 including flood depth, water surface elevation, and changes in water surface elevation for both the design storms and historical storm events is provided in Appendix E.

A high-level summary of the modeling results is presented in Table 1, which compares modeled inundation extents among the analyzed alternatives and Table 2 that compares the number of impacted structures. This comparison indicates that the flood control benefits associated with Alternative 5 would be generally comparable to those of Alternatives 1 and 2 (culvert replacements and targeted vegetation removal, with and without a sediment retention basin), but less effective than Alternatives 3 and 4, which build upon Alternative 1 by incorporating upstream detention basins at varying scales.

Table 1. Modeled inundation areas over the study reach across project and flood event scenarios.

Flood Event	Inundated Area					
	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
-	<i>acres</i>	<i>acres</i>	<i>acres</i>	<i>acres</i>	<i>acres</i>	<i>acres</i>
100 year	44	43	43	40	35	<b>42</b>
10 year	34	31	33	23	14	<b>30</b>
December 27, 2022	20	11	16	8	6	<b>14</b>
February 13, 2025	15	7	9	7	5	<b>7</b>

Table 2. Number of impacted residential structures over the study reach across project and flood event scenarios.

Flood Event	Impacted Structures					
	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
-	-	-	-	-	-	-
100 year	81	81	81	78	70	<b>80</b>
10 year	61	58	61	49	33	<b>57</b>
December 27, 2022	43	20	41	8	4	<b>30</b>
February 13, 2025	30	7	12	6	4	<b>7</b>

Flood control benefits associated with Alternative 5 are most pronounced for smaller, more frequent storm events, with diminishing effectiveness for larger events. A comparison of modeled flood depths for Alternative 5 and existing conditions during the February 2025 storm event is presented in Figure 10 and demonstrates that overtopping into adjacent residential areas would be substantially reduced but not fully eliminated. Similar results shown in Figure 11 for the larger December 2022 storm event indicate that a more modest reduction in flooding would be expected.

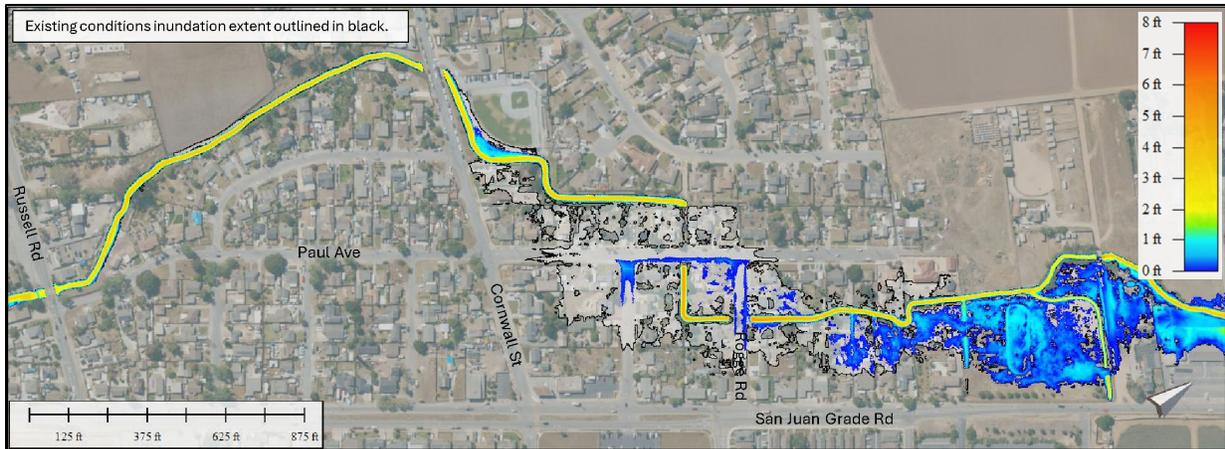


Figure 10. Modeled Alternative 5 flood depths for the February 2025 flood event

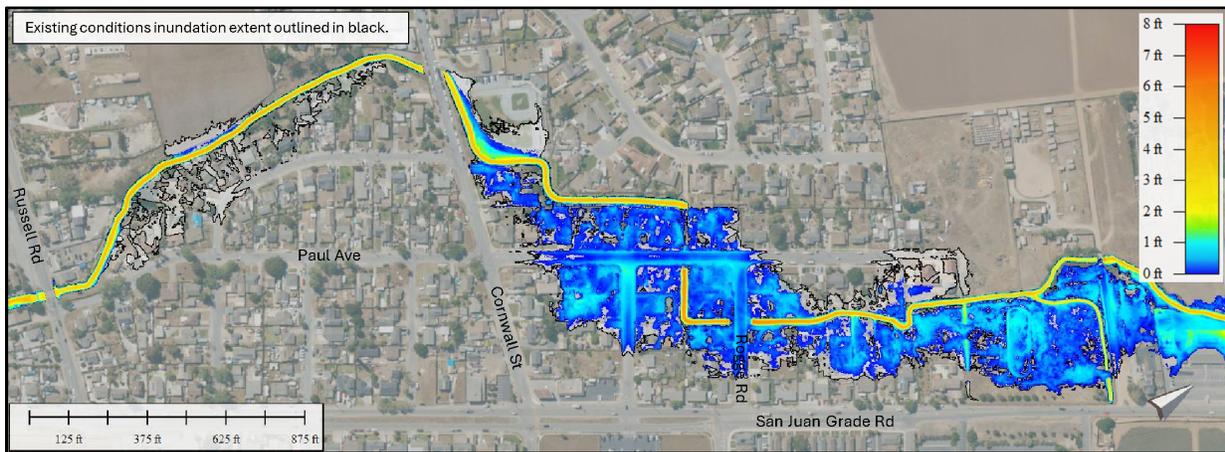


Figure 11. Modeled Alternative 5 flood depths for the December 2022 flood event

## Conclusions

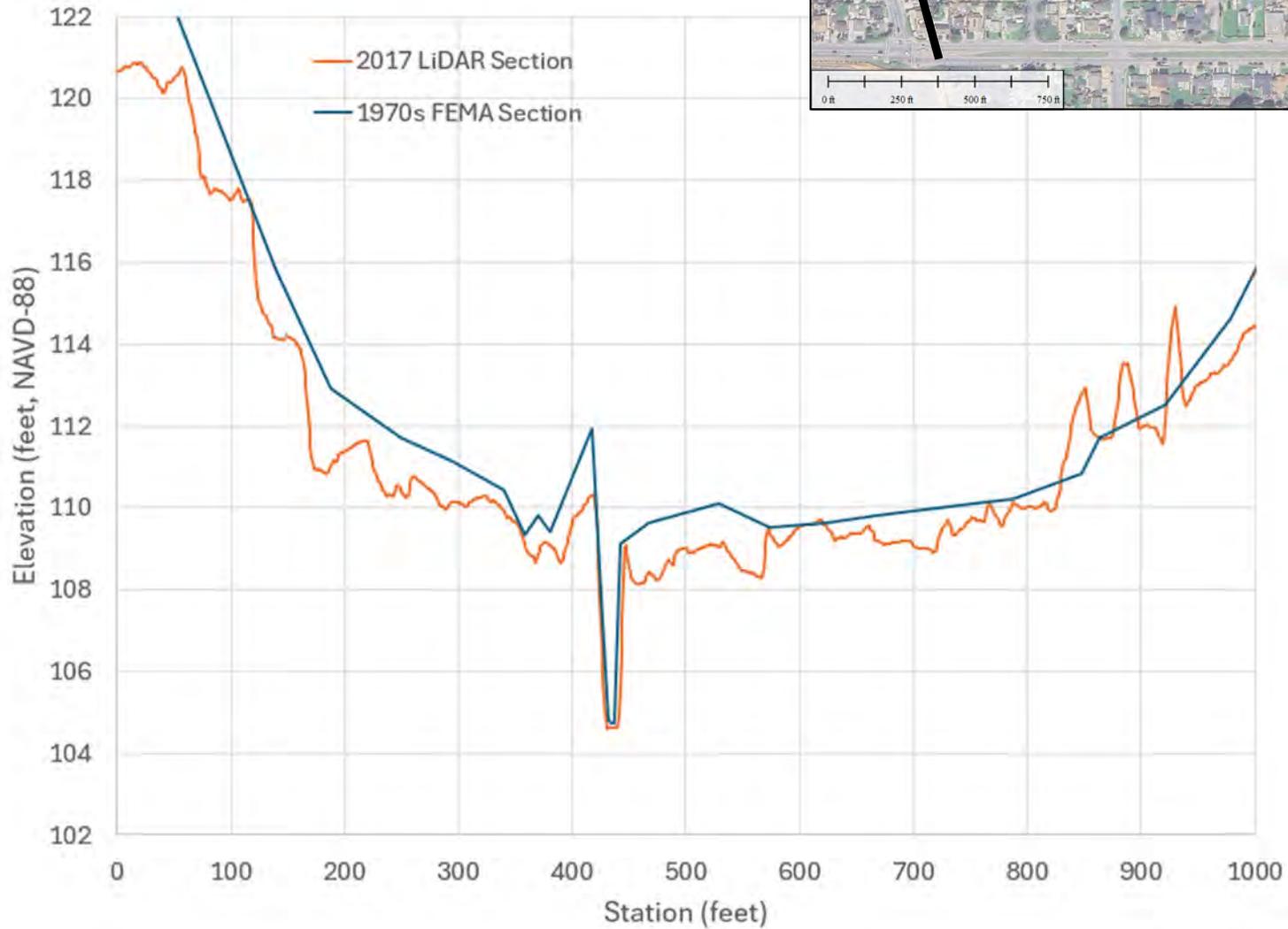
Alternative 5 was developed to evaluate the flood control benefits achievable through channel grading and vegetation removal largely confined to the existing Santa Rita Creek channel footprint. While the modeled flood control benefits associated with this alternative are generally comparable to Alternatives 1 and 2, and less than those of Alternatives 3 and 4, the challenges associated with implementation, particularly permitting, would be greater.

Overall, Alternative 5 provides useful context for understanding the flood control benefits achievable through in-channel grading and vegetation management alone but does not offer clear advantages over the other evaluated alternatives when considering effectiveness, constructability, and long-term performance.

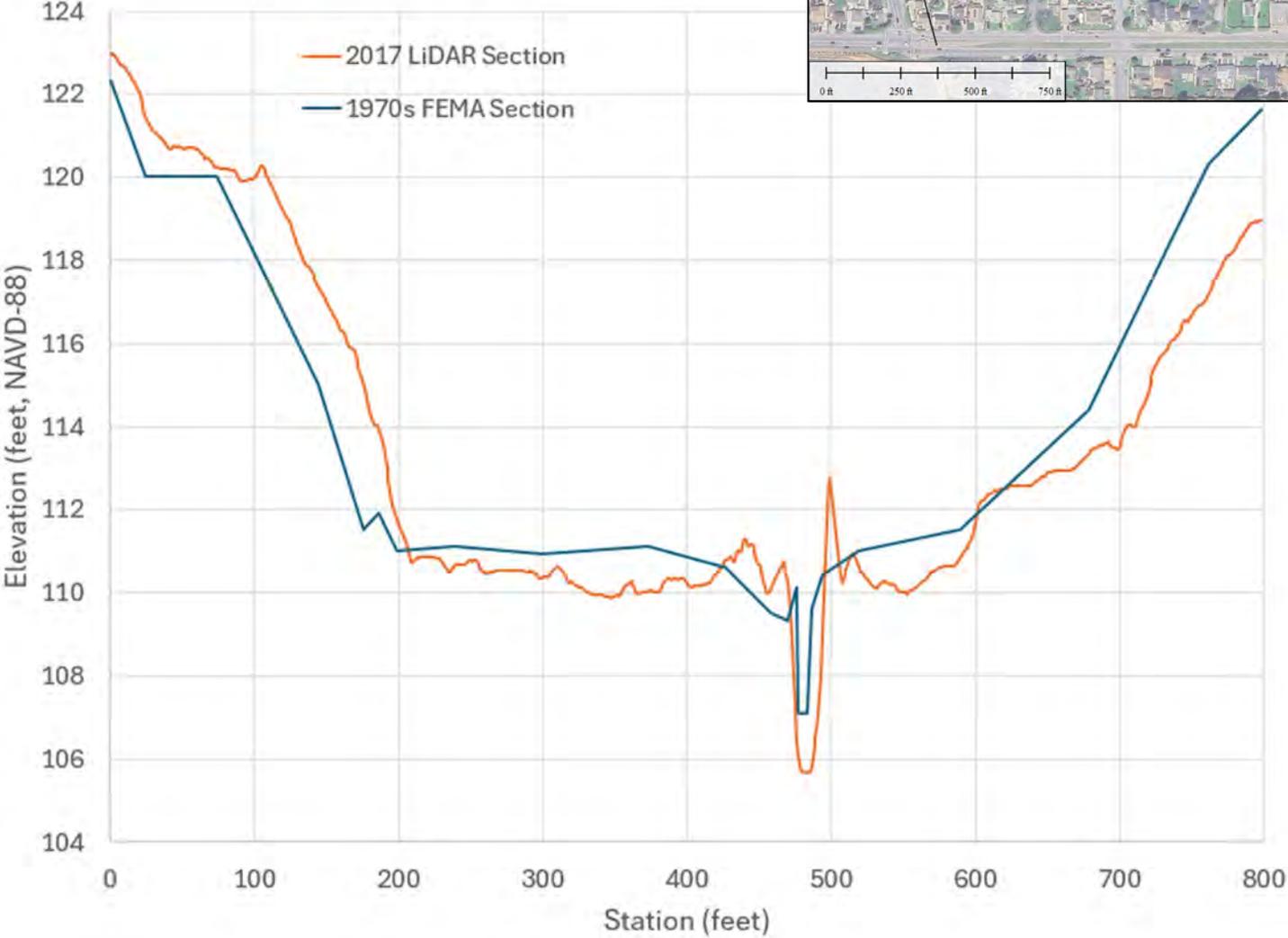
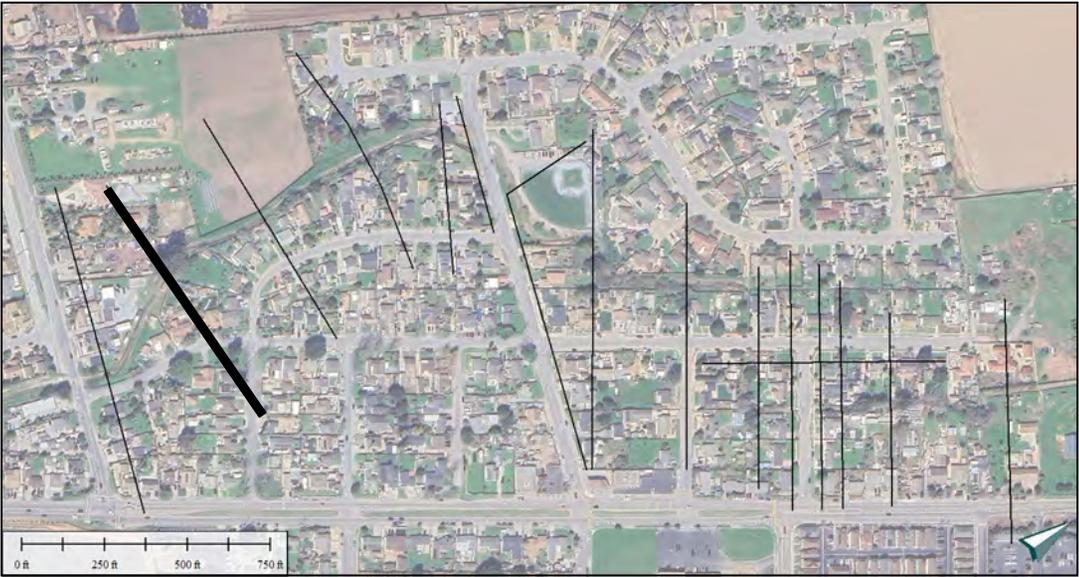
## Appendix A

### Digitized FEMA HEC-2 Cross Sections

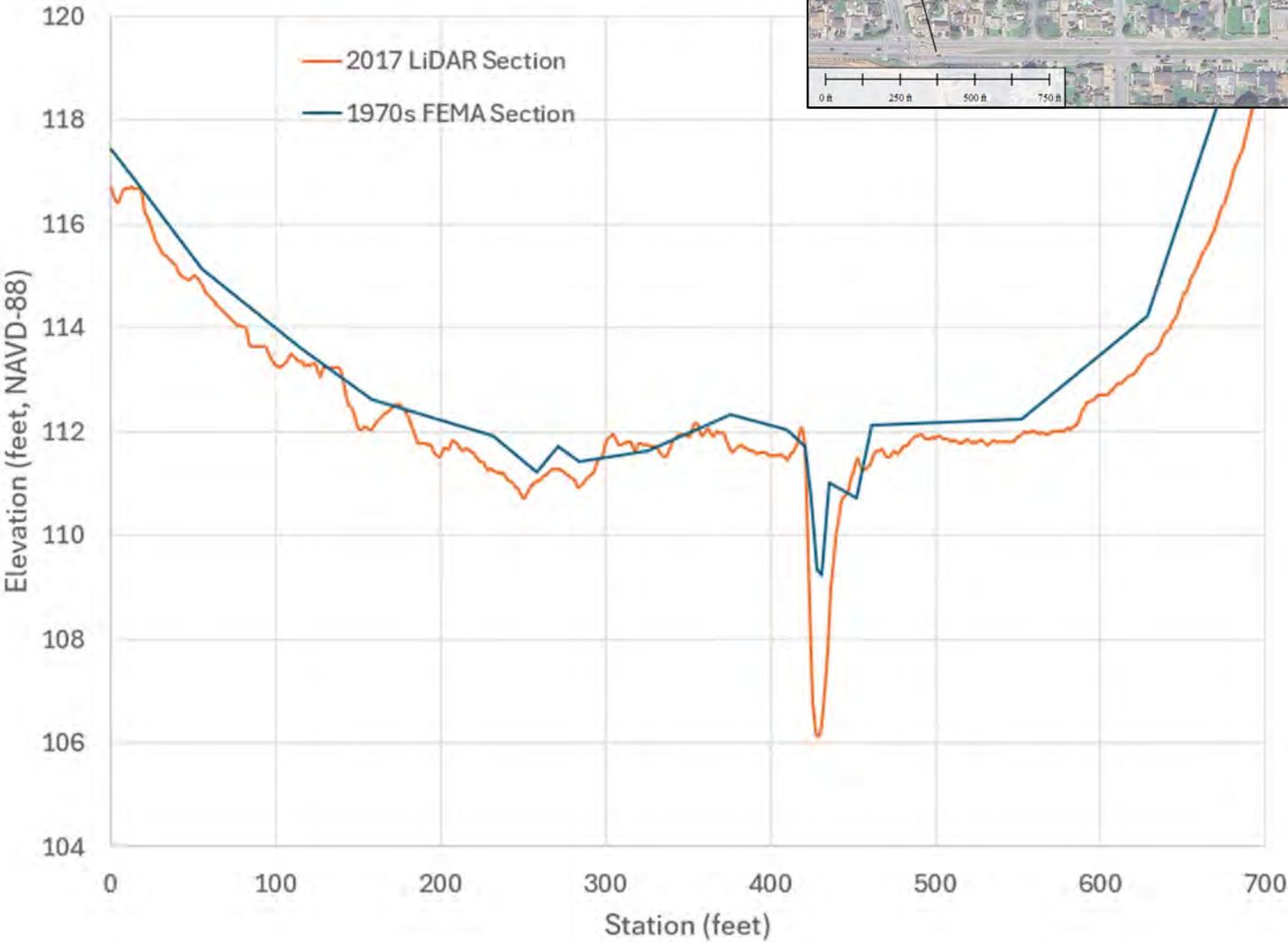
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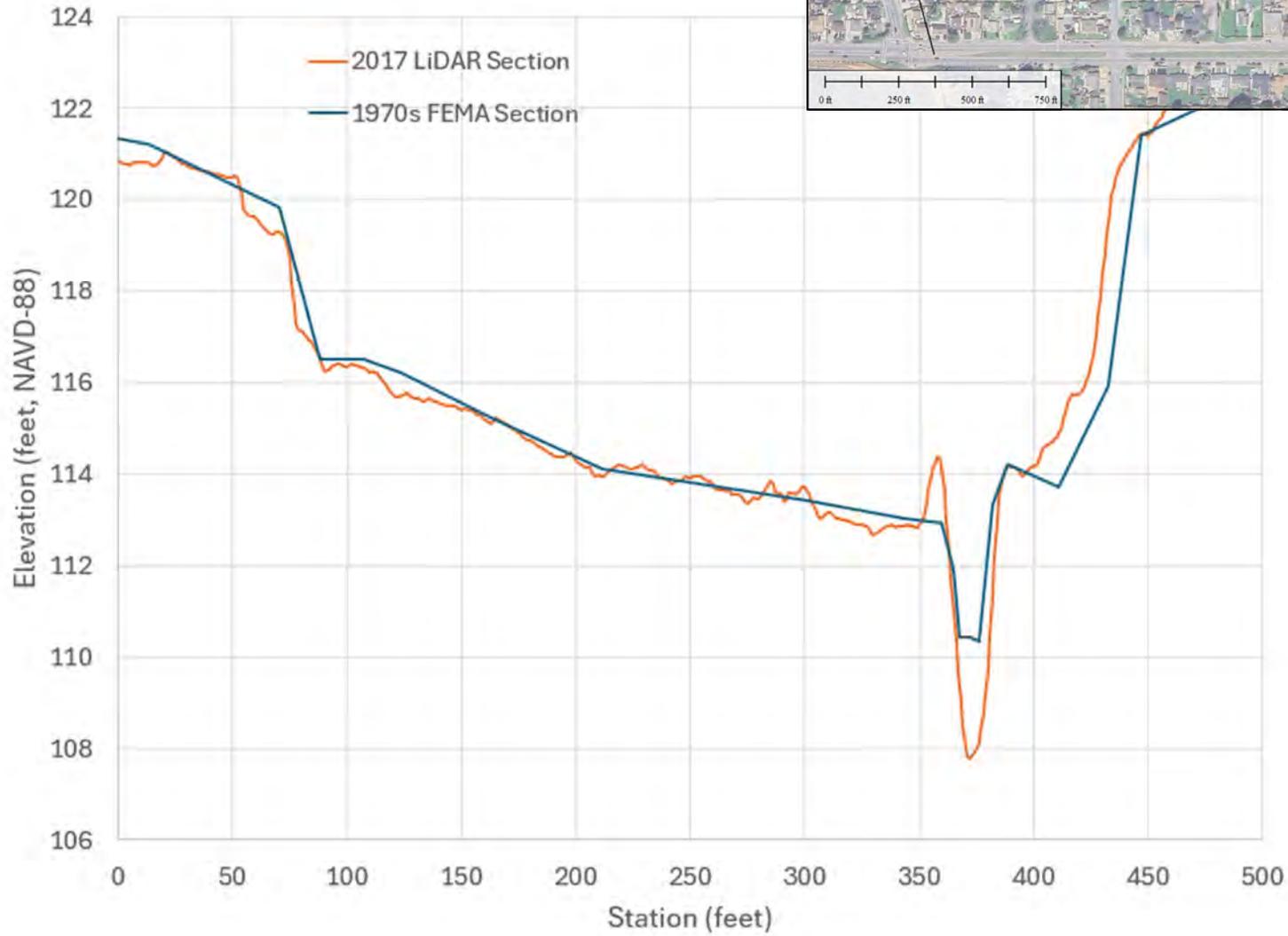
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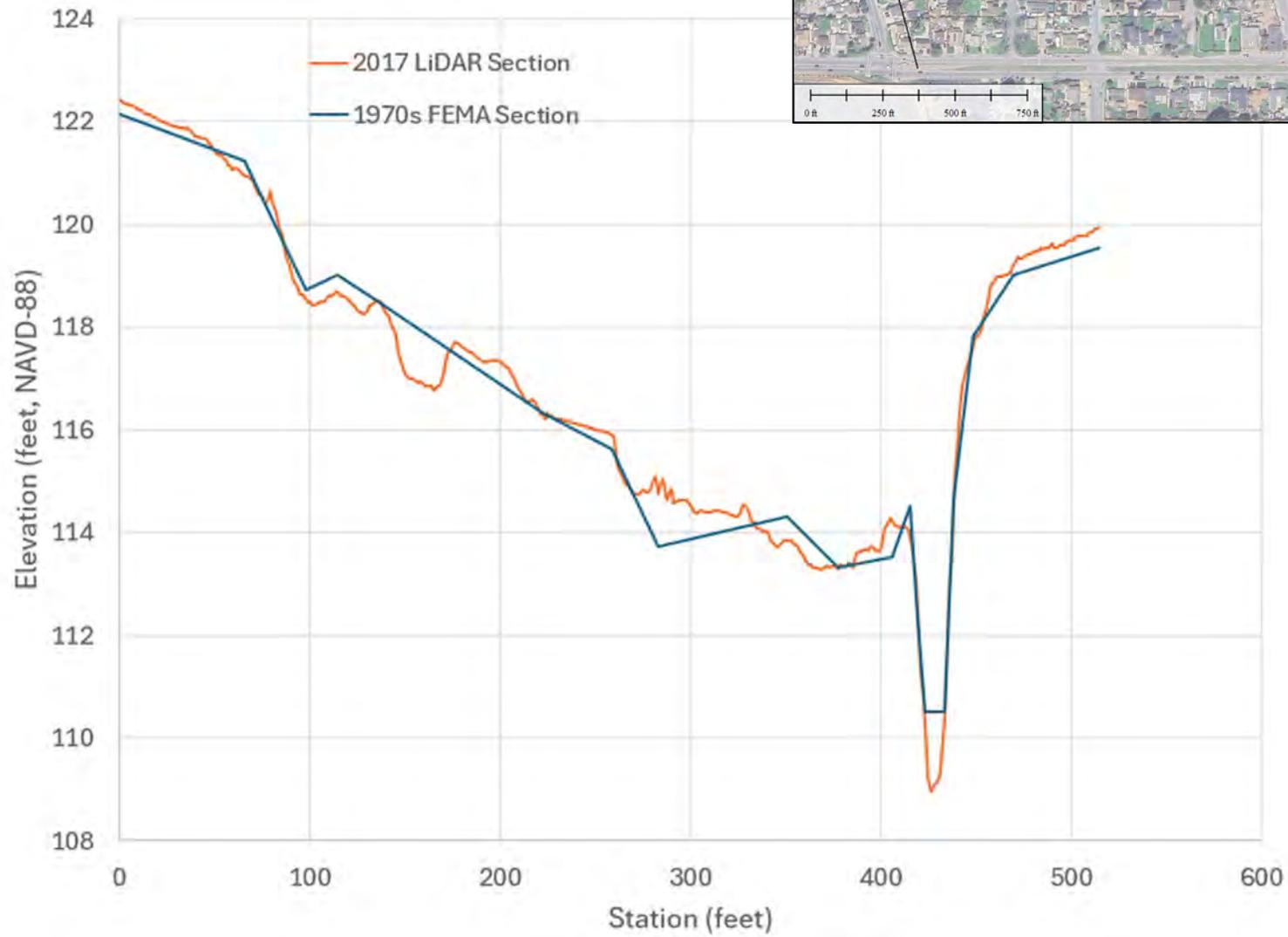
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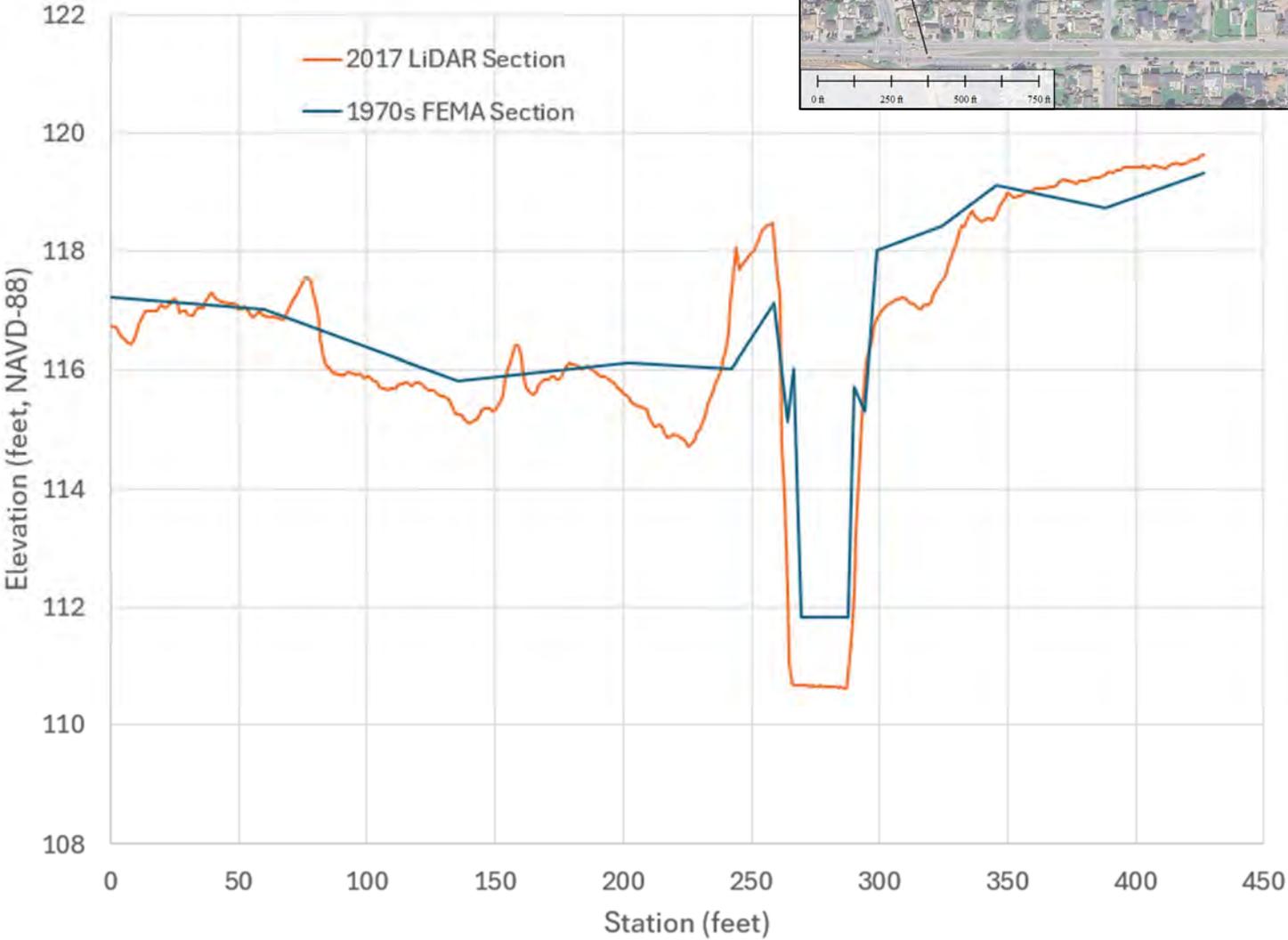
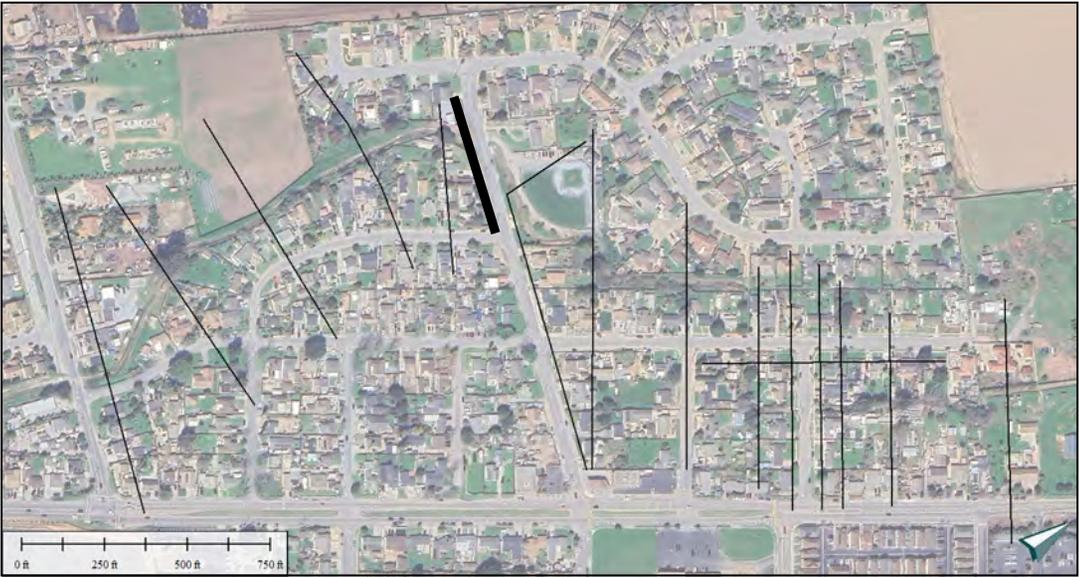
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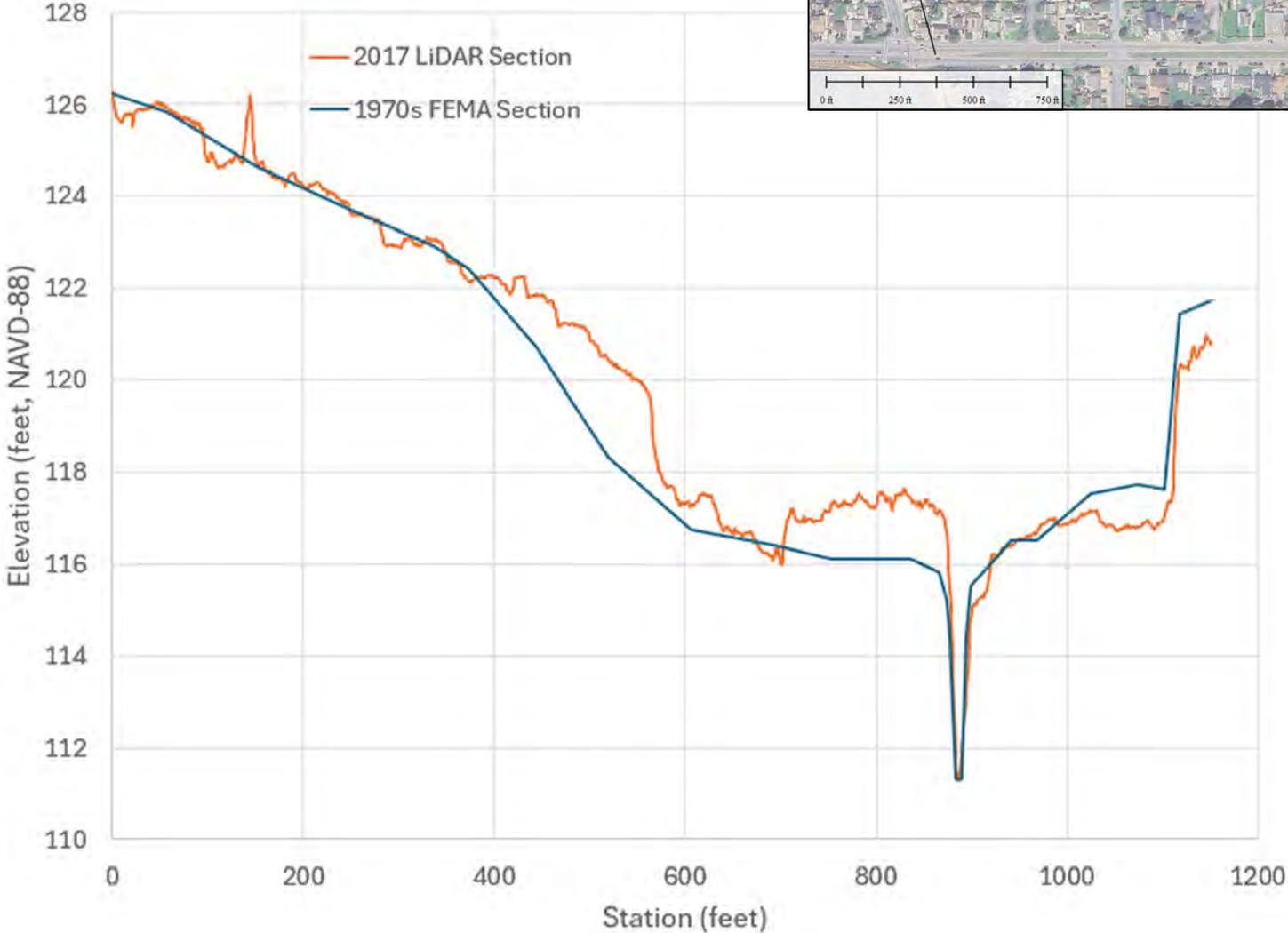
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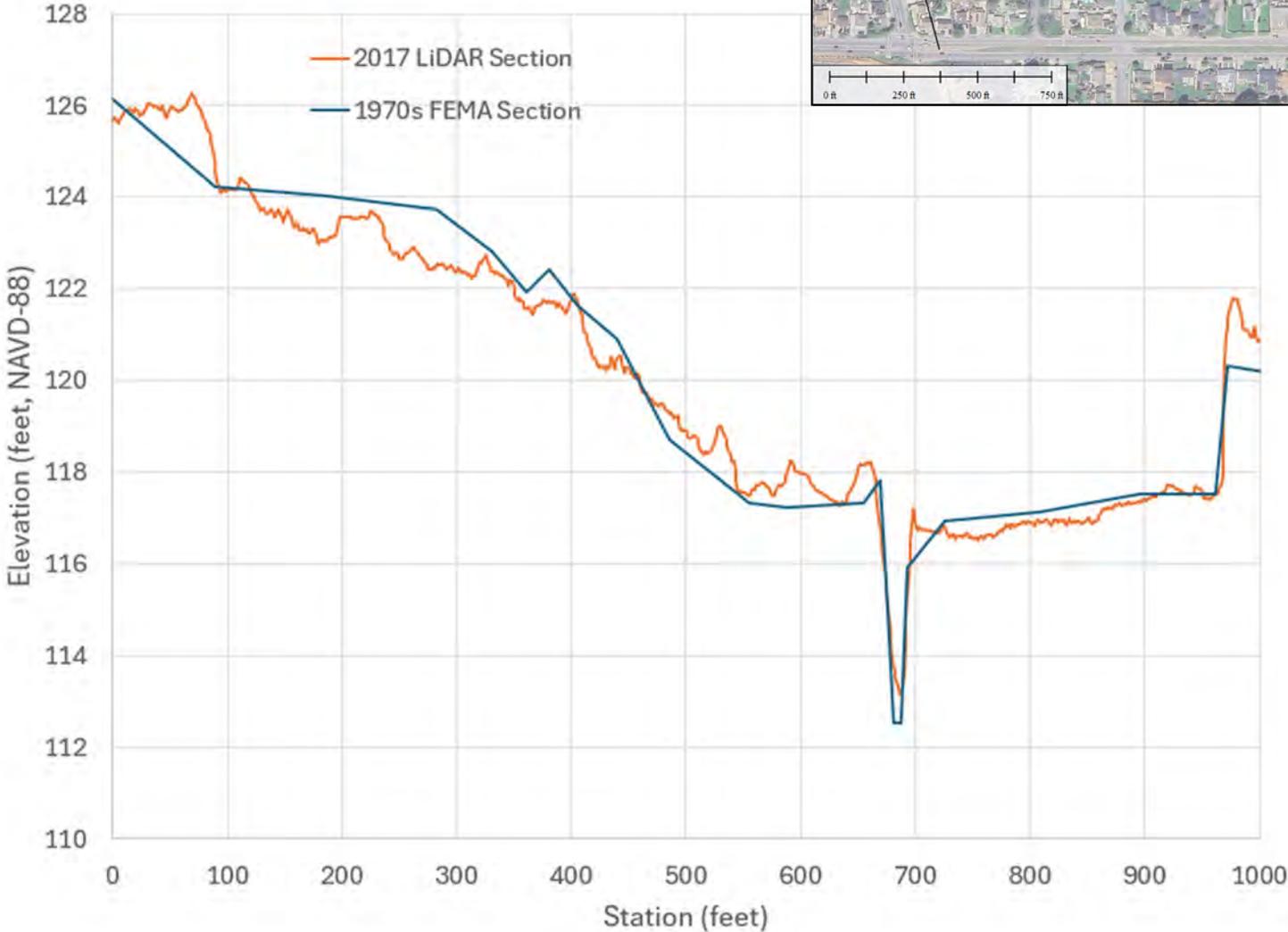
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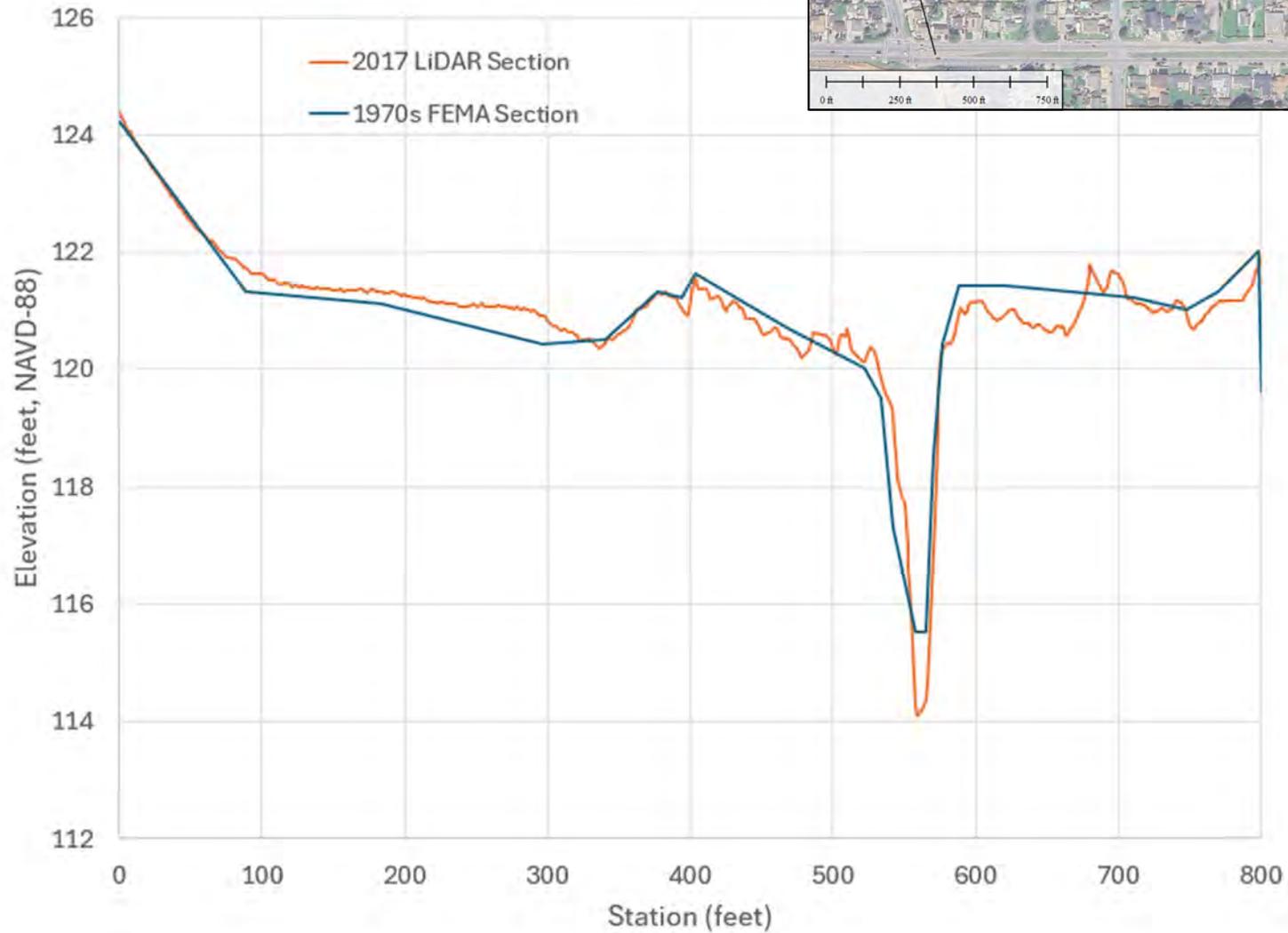
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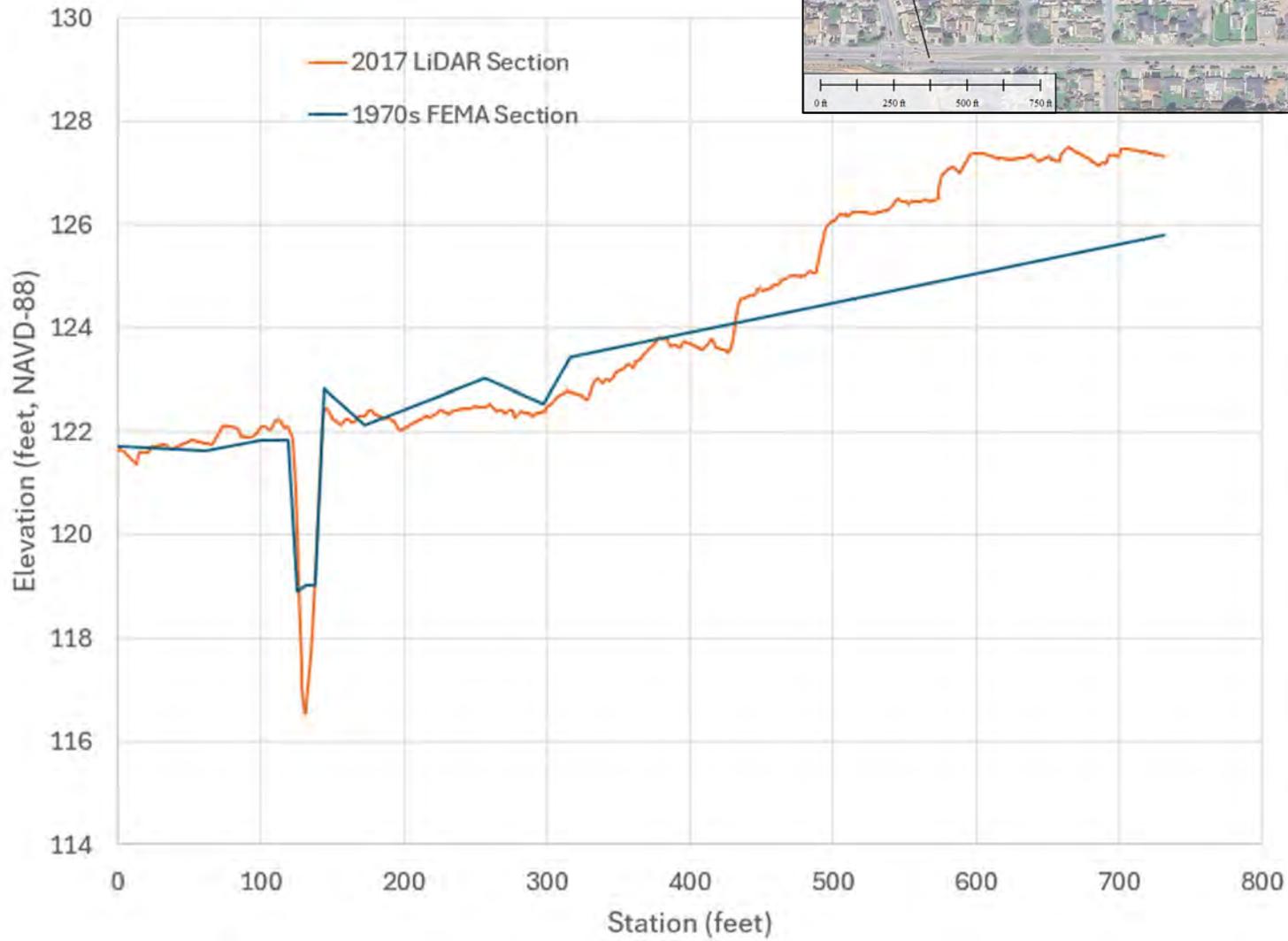
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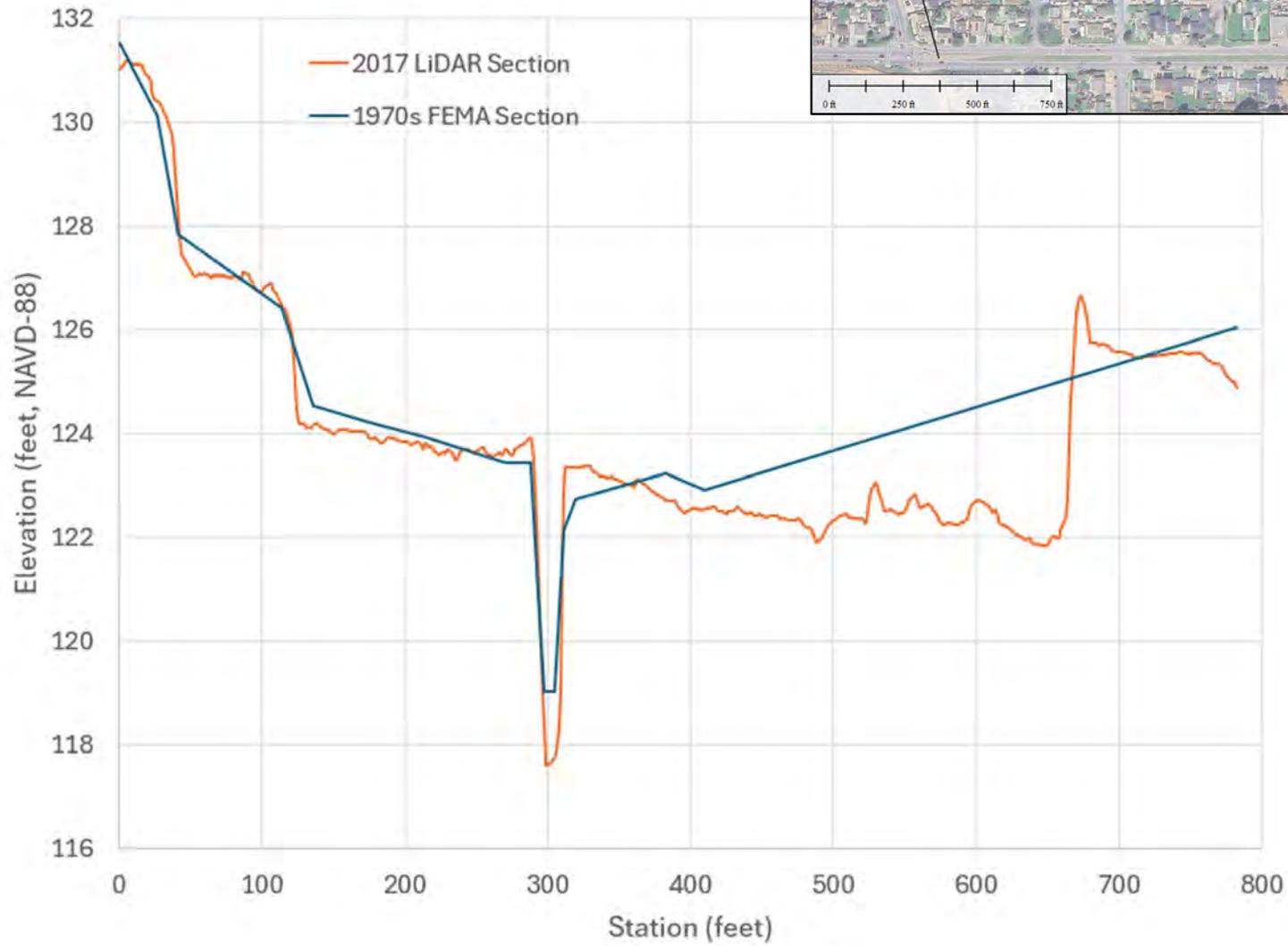
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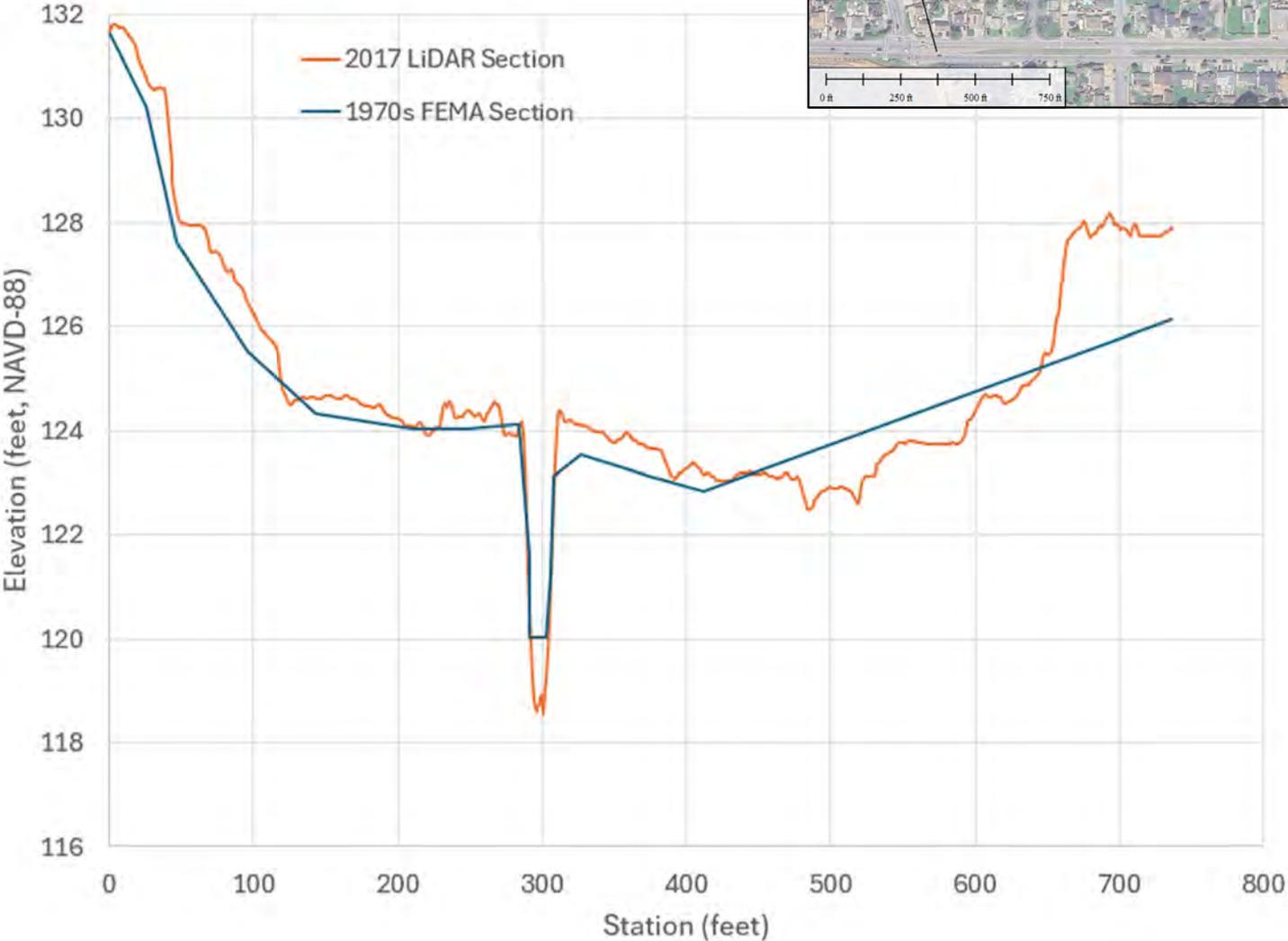
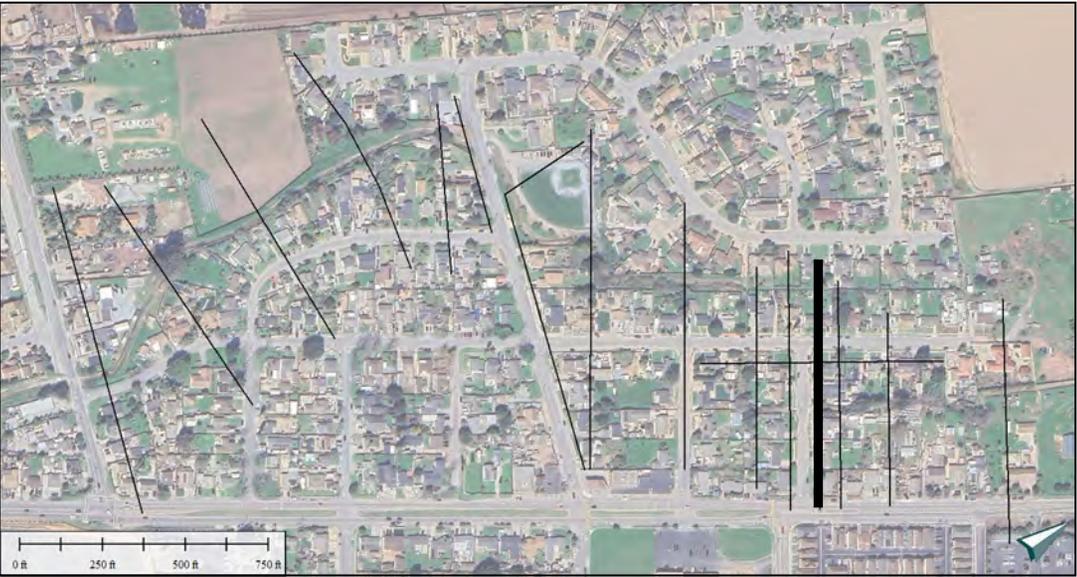
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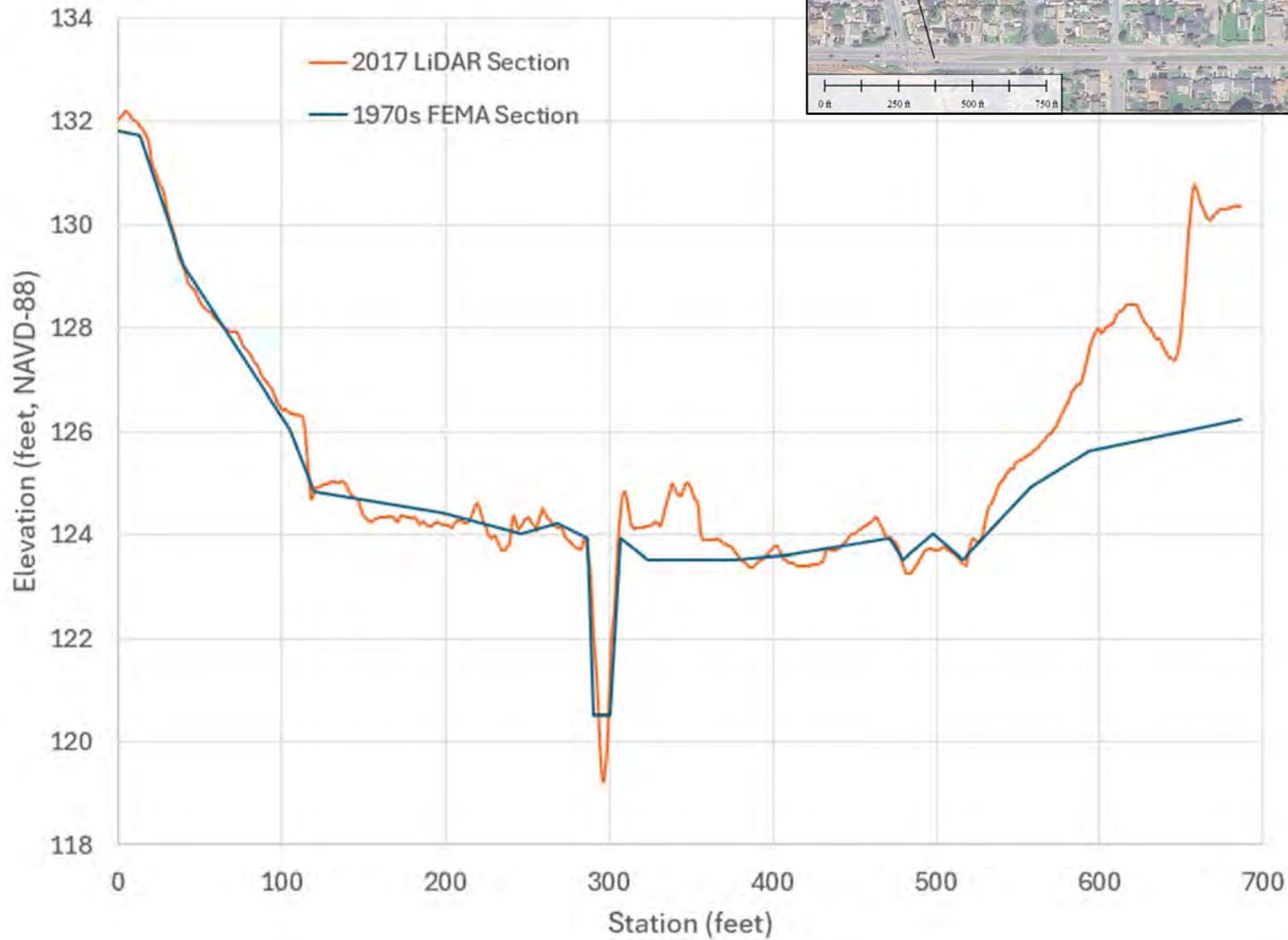
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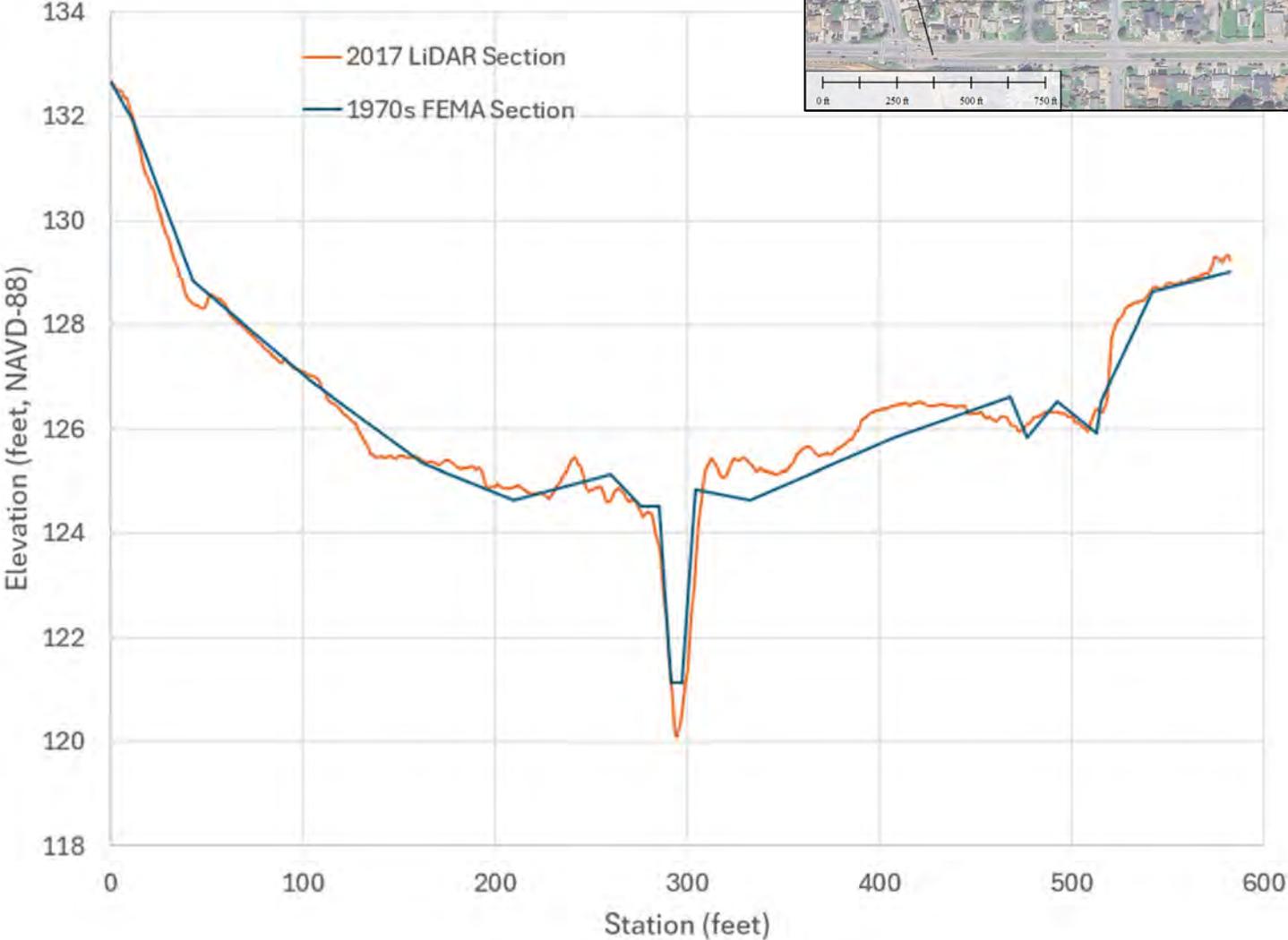
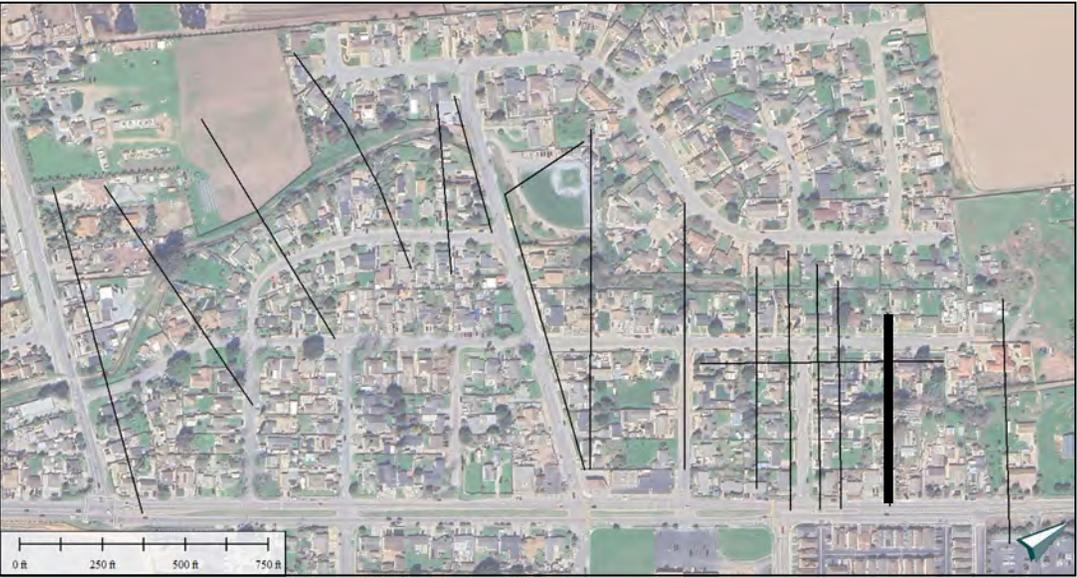
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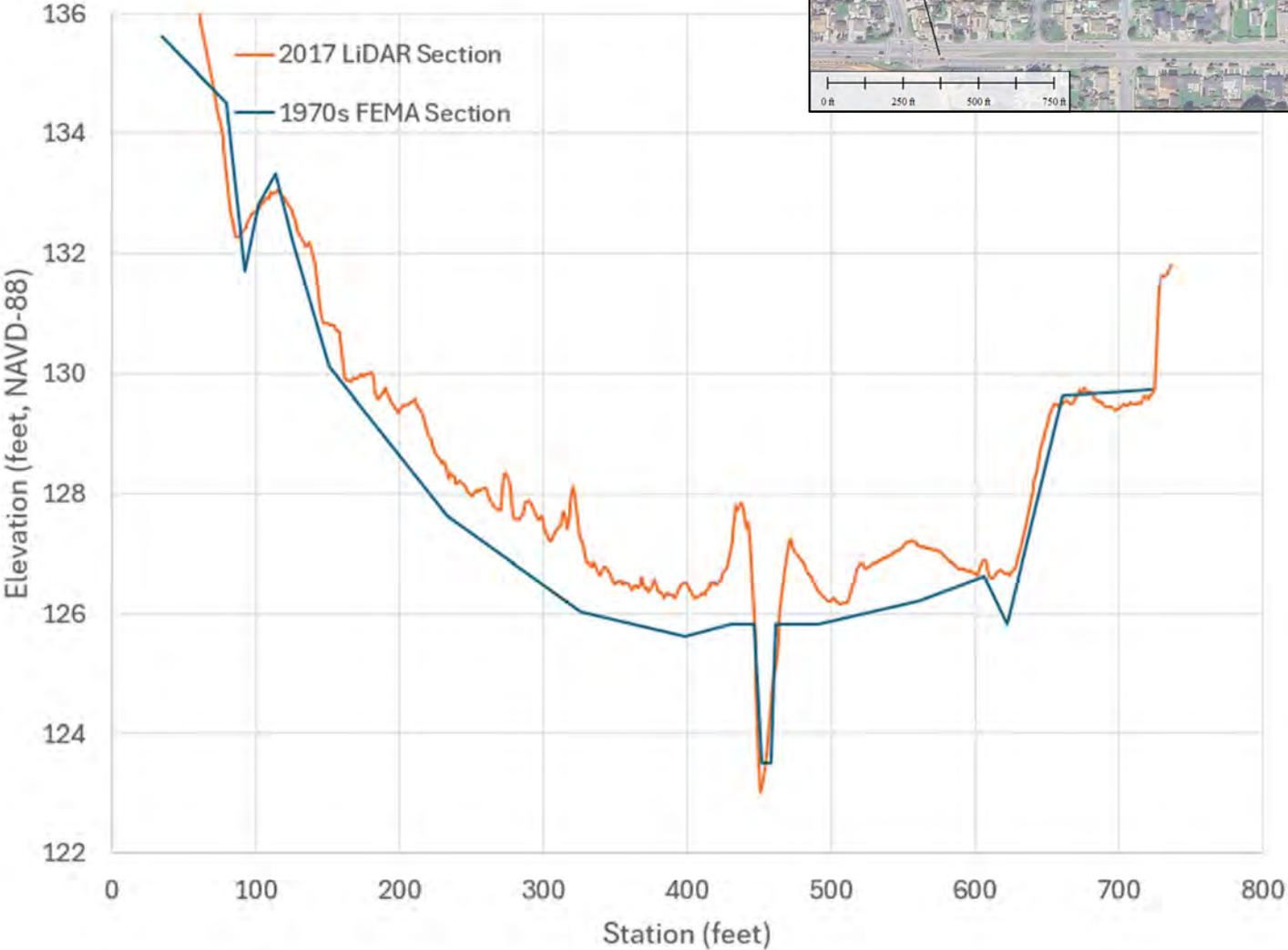
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Appendix B  
Historical Aerial Imagery

September 1966



October 1974



August 2007

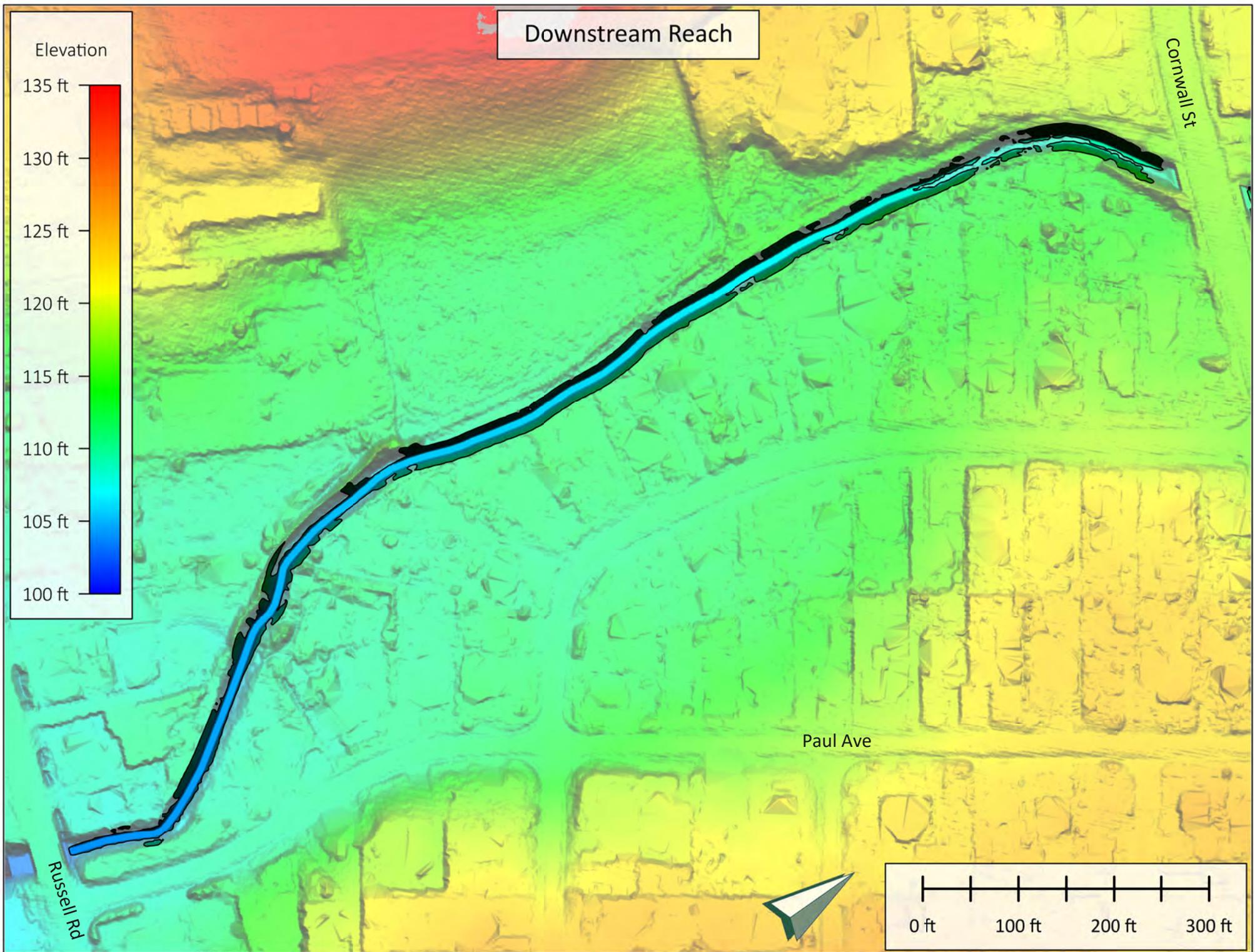


March 2025

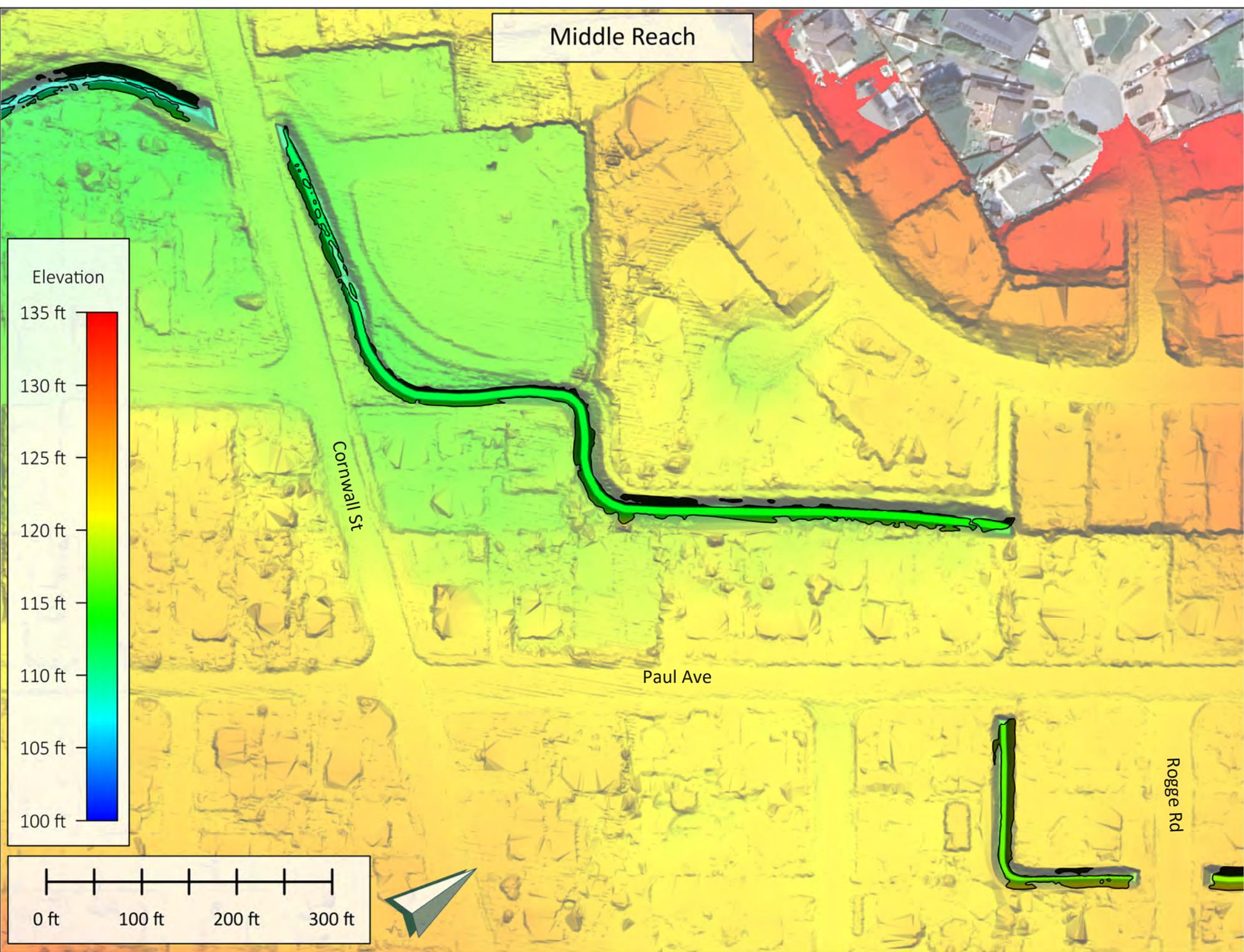


## Appendix C

### Alternative 5 Grading Concept Exhibits



Middle Reach



Elevation

135 ft

130 ft

125 ft

120 ft

115 ft

110 ft

105 ft

100 ft

0 ft

100 ft

200 ft

300 ft

Cornwall St

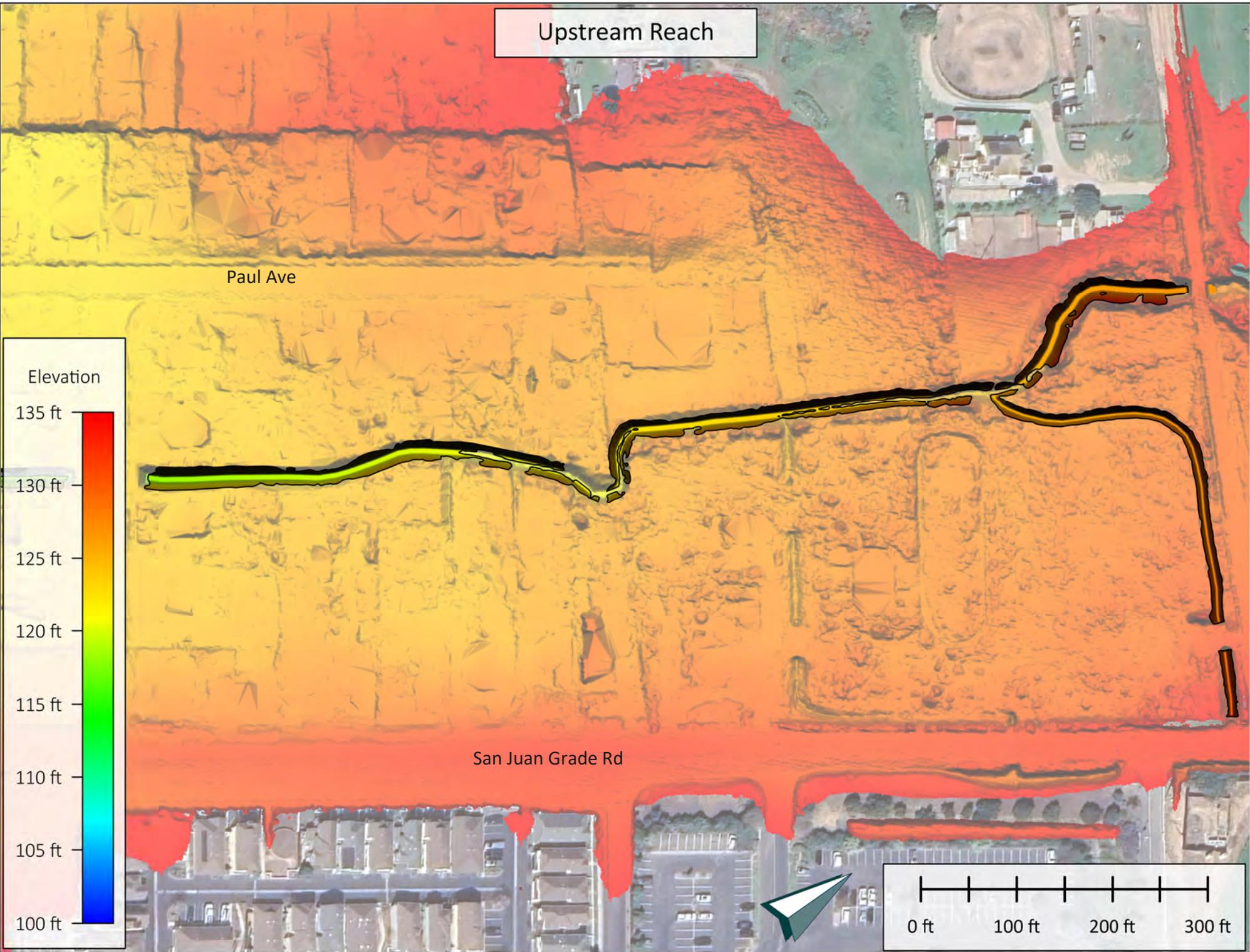
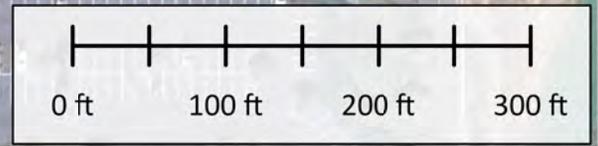
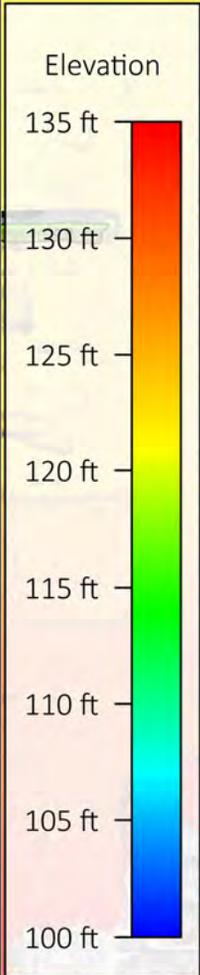
Paul Ave

Rogge Rd

Upstream Reach

Paul Ave

San Juan Grade Rd



Appendix D  
Permitting Memo



## **DENISE DUFFY & ASSOCIATES, INC.**

PLANNING AND ENVIRONMENTAL CONSULTING

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**Date:** February 2, 2026

**To:** Randy Ishii, Director  
Department of Public Works, Facilities and Parks

**From:** Josh Harwayne, Senior Compliance Manager  
  
Denise Duffy & Associates, Inc.

**RE:** **Environmental Review and Regulatory Permitting Requirements for the Santa Rita Creek Project - Alternative #5**

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### **INTRODUCTION**

#### **Overview**

Denise Duffy & Associates, Inc. (DD&A) is contracted by the County of Monterey, Department of Public Works, Facilities, and Parks (County) to provide environmental consulting services for the Santa Rita Creek Project. The following discussion provides an analysis of the regulatory and environmental authorizations and documentation that would likely be required for the implementation of Alternative 5 (alternative). The analysis considers the expected level of National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) review, as well as the anticipated timeline and cost to prepare the required environmental documentation and acquire regulatory permits. The following discussion assumes that the alternative would impact approximately 4,600 linear feet of the Santa Rita Creek and remove approximately 2.6 acres of vegetation; however, project level design details would be required prior to drafting environmental documents and permit applications.

### **BIOLOGICAL RESOURCES**

#### **State and Federally Listed Species**

The primary literature and data sources reviewed to determine the occurrence or potential for occurrence of special-status species within and adjacent to the study reach include current agency status information from the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) for species listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). These sources include CDFW's California Natural Diversity Database (CNDDDB) occurrence reports for the Salinas quadrangle and the eight surrounding quadrangles (Chualar, Spreckels, Seaside, Natividad, Marina, San Juan Bautista, Prunedale, and Moss Landing) (CDFW, 2026) and the USFWS's Information for Planning and Consulting (IPaC) Resource List (USFWS, 2026).

Several federally and/or state-listed species have the potential to occur within or adjacent to the study reach based on the presence of suitable habitat and documented occurrences within the vicinity. All other species evaluated have a low potential to occur or are assumed unlikely to occur. Published occurrence data within

the study reach and surrounding quadrangles were evaluated to compile a table of listed species known to occur in the vicinity of the study reach. Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the study reach. The listed species that have been determined to have a moderate or high potential to occur within or immediately adjacent the study reach are outlined in **Table 1** below.

**Table 1 – Federal and State Listed Species**

Species	Status (USFWS/CDFW)	General Habitat	Potential Occurrence within Study Reach
<p><i>Ambystoma californiense</i> California tiger salamander (CTS)</p>	<p>FT/ST<sup>1</sup></p>	<p>Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.</p>	<p><b>Moderate</b> No suitable breeding habitat is present within the study reach; however, suitable upland and dispersal habitat are present within all undeveloped areas. Additionally, the presence of agricultural ponds in the vicinity may provide aquatic habitat for this species. There are 67 occurrences of this species within the quadrangles reviewed, the nearest of which is located approximately 1.2 miles (1.9 km) from the study reach, which is within the known dispersal distance of the species (2.2 km). There are several other occurrences just outside of the dispersal distance for this species.</p>
<p><i>Rana draytonii</i> California red-legged frog (CRLF)</p>	<p>FT/CSC</p>	<p>Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent riparian vegetation. During late summer or fall adults are known to utilize a variety of upland habitats with leaf litter or mammal burrows.</p>	<p><b>Moderate</b> No suitable breeding habitat is present within the study reach; however, suitable upland and dispersal habitat are present within all undeveloped areas. There are 54 occurrences of this species within the quadrangles reviewed, the nearest of which is located approximately 4.0 miles from the study reach, which is outside the known dispersal distance of the species (1.0 mi). However, the presence of agricultural ponds in the vicinity may provide additional aquatic habitat for this species and permit dispersal between known breeding resources.</p>
<p><i>Bombus crotchii</i> Crotch bumble bee (CBB)</p>	<p>-- / SC</p>	<p>Occurs in open grassland and scrub at relatively warm and dry sites with plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle (early February to late October). Generally nests underground, often in abandoned mammal burrows. Within California this species is known to occur in the Mediterranean, Pacific Coast, Western Desert, as well as Great Valley and adjacent foothill regions.</p>	<p><b>Moderate</b> Suitable habitat is present within all undeveloped areas where flowering plants occur. There are three occurrences of this species within the quadrangles reviewed, the nearest of which is located approximately 11.0 miles from the study reach.</p>

<sup>1</sup> Definitions: FT: listed as threatened under ESA; ST: listed as Threatened under CESA; SC: Candidate for listing under CESA; CSC: California species of special concern.

<i>Bombus occidentalis</i> Western bumble bee (WBB)	-- / SC	Occurs in open grassy areas, urban parks, urban gardens, chaparral, and meadows with plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle (early February to late November). Generally nests underground, often in abandoned mammal burrows. Populations are currently largely restricted to high elevation sites in the Sierra Nevada; however, the historic range includes the northern California coast.	<b>Moderate</b>  Suitable habitat is present within all undeveloped areas where flowering plants occur. There is only one occurrence of this species within the quadrangles reviewed, located approximately 14.0 miles from the study reach.
<b>Plant Species</b>			
<i>Chorizanthe pungens</i> var. <i>pungens</i> Monterey spineflower	FT / --	Maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland on sandy soils at elevations of 3-450 meters. Annual herb in the Polygonaceae family blooms April-July.	<b>Moderate</b>  Suitable habitat is present within all undeveloped areas where suitable non-compacted sandy soils occur. There are 31 occurrences of this species within the quadrangles reviewed, the nearest of which is located approximately 3.0 miles from the study reach.

### Vegetation Types

A habitat analysis was completed within the study reach and a 25-foot buffer. Undeveloped areas consist of two vegetation types: ruderal and intermittent creek. Developed areas consist of paved roads, residential development, and associated infrastructure.

The majority of the study reach consists of the channel of Santa Rita Creek and the immediately surrounding upland habitat. The banks of the creek are dominated by non-native annual grass species with scattered native and non-native shrubs and trees present throughout the reach. The creek directly abuts residential development or agricultural areas along the entire length of the study reach. Santa Rita Creek may provide aquatic non-breeding habitat for CRLF when surface water is present, and the surrounding banks may provide suitable upland and dispersal habitat for CRLF and CTS. Additionally, vegetated areas may provide foraging habitat for CBB and WBB, as well as suitable habitat for Monterey spineflower.

The remaining undeveloped portions of the study reach consist of ruderal areas. Ruderal areas contain little to no native vegetation and are assumed to have been subject to historic and ongoing disturbance. Ruderal areas may provide upland and/or dispersal habitat for CTS and CRLF. The presence of agricultural ponds and ditches in the vicinity may provide additional aquatic habitat for these species. Additionally, ruderal areas may provide foraging habitat for CBB and WBB, as well as suitable habitat for Monterey spineflower.

## ENVIRONMENTAL DOCUMENTATION

### California Environmental Quality Act

The proposed alternative would be subject to the requirements of the California Environmental Quality Act (CEQA). As currently proposed, the appropriate level of environmental review would be an Initial Study/Mitigated Negative Declaration (IS/MND). Pursuant to CEQA requirements, the alternative would be subject to noticing, public review, and similar requirements. The CEQA process, including document

preparation, noticing, and public circulation, can typically take four (4) months to (1) year to complete. Due to overlapping permitting requirements, various resource agencies would be contacted to confirm the appropriate level of environmental analysis sufficient for Monterey County and other state resource agencies. It is assumed that an IS/MND would be required; however, if the alternative becomes controversial, an Environmental Impact Report may be required.

An Administrative Draft Project Description consistent with the requirements of CEQA Guidelines Section 15124 would be developed with the project proponent. An accurate and detailed Project Description is critical to the environmental review process and helps to: 1) avoid uncertainty during the environmental review process, 2) reduce costs, and 3) avoid delays and related expenses.

Preliminary review has determined that additional technical analysis is warranted in the areas of cultural and biological resources; however, additional technical documentation may be required. It is assumed that a Phase I Cultural Resource Inventory summarizing any known cultural resources known in the vicinity of the study reach as well as recommendations to reduce any potential impacts to a less-than-significant level would be required. Additionally, a Biological Resources Report assessing the environmental conditions of the site and its surroundings would be required. This information would be utilized in developing a comprehensive assessment of known environmental constraints affecting the area.

An Administrative Draft IS/MND would be prepared for the proposed alternative pursuant to CEQA Guidelines Section 15063, which would include the following:

- A brief description of the alternative, including its location;
- An identification of the environmental setting in the vicinity of the study reach, as it exists before commencement of the alternative, from both a local and regional perspective;
- An identification of the environmental effects of the alternative using the CEQA Appendix G Environmental Checklist, including brief narratives supporting conclusions identified in the checklist. The explanations may reference another source of information through citation to the document by page or pages where the information may be found;
- Recommended feasible mitigation measures, as necessary;
- Determination of consistency with local plans and zoning; and,
- A listing of report preparers and bibliography.

The Administrative Draft IS/MND would be based on project-specific information developed as part of the technical analyses described above and existing baseline information in the Greater Salinas Area Plan, Zoning Code, and other supporting technical documentation. The timeline for preparation of the IS/MND, noticing, and filing is outlined below in **Table 3**.

**Table 3. Summary of Required Environmental Review**

Environmental Regulation	Environmental Document	Preparation & Acquisition Timeline	Required Technical Documentation	Filing Fee
CEQA	Initial Study/Mitigated Negative Declaration (IS/MND)	Approx. 120 to 365 days: <ul style="list-style-type: none"> <li>• 60 days to prepare IS/MND</li> <li>• 30 days to address comments provided by County</li> <li>• 30-day public review period</li> <li>• 30 days to prepare final IS/MND &amp; file</li> </ul>	<ul style="list-style-type: none"> <li>• Project description</li> <li>• Biological and cultural resources technical reports</li> <li>• Mitigation Monitoring and Reporting Program (MMRP)</li> </ul>	<ul style="list-style-type: none"> <li>• \$3,094 IS/MND filing fee</li> <li>• \$3,044 CDFW review fee</li> </ul>
NEPA	Environmental Assessment (EA)	Approx. 120 to 365 days: <ul style="list-style-type: none"> <li>• 60 days to prepare EA</li> <li>• 30 days to address comments provided by County</li> <li>• 30-day public review period</li> <li>• 30 days to prepare final EA &amp; file</li> </ul>	<ul style="list-style-type: none"> <li>• Project description</li> <li>• Biological and cultural resources technical reports</li> </ul>	<ul style="list-style-type: none"> <li>• No filing fee</li> </ul>

### National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to consider the environmental impacts of proposed federal actions that could significantly affect the environment. The U.S. Army Corps of Engineers (ACOE) and USFWS are required to comply with NEPA as a result of their authorizing certain activities and issuing discretionary permits. While USFWS would complete their own NEPA documentation, the ACOE requires that the Permittee prepares the document. It is assumed that ACOE would require the preparation of an Environmental Assessment (EA) in satisfaction of NEPA for the alternative.

Similar to the CEQA process outlined above, the NEPA process includes document preparation, noticing, and public circulation, which can typically take four (4) months to (1) year to complete. The document would be circulated for a public review period of 30 days, as required for federal agency review under NEPA. An Administrative Draft EA would be prepared for the proposed alternative pursuant to NEPA and ACOE requirements, which would include the following:

- The purpose and need for implementation of Alternative 5;
- An alternatives analysis, described below;
- Environmental impacts of the alternative; and
- A list of consulted agencies

In accordance with NEPA requirements, EAs must define and discuss reasonable alternatives to the proposed alternative, including the No Project Alternative, that could feasibly meet the project objectives and potentially avoid or lessen any significant environmental impacts associated with the proposed alternative. The Alternatives Section in the EA should include a comprehensive analysis of the alternatives carried forward for analysis, as well as describe the alternatives eliminated from the analysis and the rationale for elimination. This section should include a comparison of the alternatives and identify the environmentally superior alternative.

The Administrative Draft EA would be based on project-specific information developed as part of the technical analyses described above and other supporting technical documentation. The timeline for preparation of the EA, noticing, and filing is outlined above in **Table 3**.

## REQUIRED PERMITS AND AUTHORIZATIONS

Alternative 5 proposes significant disturbance within and surrounding the channel of Santa Rita Creek, as well as within and adjacent to the habitats of species regulated under the federal and California Endangered Species Acts; therefore, multiple regulatory permits would be required to authorize the alternative. Santa Rita Creek is considered waters of the U.S. and/or state subject to the jurisdiction of the ACOE, CDFW, and Central Coast Regional Water Quality Control Board (RWQCB). Additionally, as outlined above, suitable habitats for species listed under ESA and CESA are present within the study reach. Therefore, Alternative 5 would require a Clean Water Act (CWA) Section 404 authorization from the ACOE, a CWA Section 401 water quality certification from the Central Coast RWQCB, a CESA Section 2081(b) Incidental Take Permit (ITP) and Section 1602 Lake and Streambed Alteration Agreement (LSAA) from CDFW, and an ESA Section 7 consultation from USFWS.

**Table 2** summarizes the permits anticipated to be required for Alternative 5, including their preparation and acquisition timeline, required technical documentation, and any associated fees. Regulatory permit acquisition is a lengthy process, typically taking between one to two years to complete; however, this timeline could be extended if the alternative becomes controversial. Permit applications require accurate quantified impacts to jurisdictional resources and cannot be drafted until 60% design plans are completed.

**Table 2. Summary of Required Permits and Authorizations**

Permitting Entity	Permit	Preparation & Acquisition Timeline	Required Technical Documentation	Permit Fee
ACOE	Section 404 Authorization	Approx. 75 days: <ul style="list-style-type: none"> <li>• 30 days to prepare pre-construction notification</li> <li>• 30 days for response from district engineer OR 45 days before construction may commence if no response</li> <li>• If incomplete, process restarts</li> </ul>	<ul style="list-style-type: none"> <li>• Project description</li> <li>• Wetland delineation report</li> <li>• Mitigation plan (if applicable)</li> <li>• Biological Assessment</li> </ul>	<ul style="list-style-type: none"> <li>• \$10</li> </ul>
Central Coast RWQCB	Section 401 Water Quality Certification	Approx. 75 days: <ul style="list-style-type: none"> <li>• 30 days to prepare application</li> <li>• 30 days after a pre-filing meeting before application submittal</li> <li>• RWQCB typically processes applications within 60 days for small projects</li> </ul>	<ul style="list-style-type: none"> <li>• Completed application form</li> <li>• Project description and purpose</li> <li>• Site maps and plans</li> <li>• Wetland delineation report</li> <li>• Mitigation plan (if applicable)</li> <li>• CEQA documentation</li> </ul>	<ul style="list-style-type: none"> <li>• \$93,402 project fee based on 2.6-acre impact area</li> <li>• \$3,540 annual fee (until project is complete)</li> </ul>
CDFW	CFGC Section 1602 Lake and Streambed Alteration Agreement	Approx. 120 days: <ul style="list-style-type: none"> <li>• 30 days to prepare notification</li> <li>• 30 days for CDFW to determine if notification is complete</li> <li>• If complete, CDFW typically issues draft agreement in 60 days</li> <li>• If incomplete, process restarts</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed project description, plans, and supporting exhibits showing affected lake, river, or stream</li> <li>• CEQA documentation and filing fee receipt</li> <li>• Biological study</li> <li>• Any technical studies (hydrological study)</li> </ul>	<ul style="list-style-type: none"> <li>• Up to \$6,867 application fee, assuming the project cost is above \$350,000</li> </ul>
CDFW	California Endangered	Approx. 240 days: <ul style="list-style-type: none"> <li>• 30 days to prepare application</li> </ul>	<ul style="list-style-type: none"> <li>• Detailed project description</li> </ul>	<ul style="list-style-type: none"> <li>• Up to \$33,051 assuming the</li> </ul>

	Species Act Section 2081 (b) Incidental Take Permit	<ul style="list-style-type: none"> <li>• 30 days for CDFW to determine if notification is complete</li> <li>• If complete, CDFW typically issues draft agreement in 60 days</li> <li>• If incomplete, process restarts</li> </ul>	<ul style="list-style-type: none"> <li>• An analysis of impacts of proposed species taking</li> <li>• A jeopardy analysis that includes population trends, threats to species, and foreseeable impacts on the species</li> <li>• Avoidance and minimization measures</li> <li>• CEQA documentation</li> </ul>	project cost is greater than \$500,000
USFWS	Endangered Species Act Section 7 Consultation	<p>Approx 175 Days:</p> <ul style="list-style-type: none"> <li>• 30 days for USFWS to notify ACOE that information is complete</li> <li>• 90 days for USFWS to formulate a draft Biological Opinion (BO)</li> <li>• Final BO to be completed 45 days after draft</li> </ul>	<ul style="list-style-type: none"> <li>• Project description</li> <li>• Biological Assessment submitted to ACOE</li> <li>• Avoidance and minimization measures</li> </ul>	<ul style="list-style-type: none"> <li>• No fee</li> </ul>

## BUDGET ESTIMATE

The environmental documentation and regulatory permitting authorizations and estimated costs presented in **Table 4** below reflect assumptions made based on experience and represent the best professional opinion of the author. It is possible that regulatory agencies could decline jurisdiction or conversely assert additional jurisdiction over the study reach, resulting in costs being less or more than the estimates provided. Additionally, the estimated costs presented below assume that Alternative 5 would impact approximately 4,600 linear feet of Santa Rita Creek and remove approximately 2.6 acres of vegetation; however, specific numbers would be required prior to drafting environmental documents and permit applications. However, it is unlikely that the costs would be dramatically different from the estimates provided here.

### Environmental Documentation

#### *California Environmental Quality Act*

The County of Monterey would act as CEQA lead agency and would prepare an IS/MND as the appropriate level of documentation. The cost estimate in **Table 4** reflects this level of documentation. In the unlikely event that the lead agency determines the project eligible for a CEQA exemption, the cost would be reduced and if significant controversy was generated, an Environmental Impact Report would be warranted and increase the estimated cost.

While there would be a significant number of project conditions of approval (COA) resulting from the County of Monterey environmental review, it is likely that the COAs associated with cultural and biological resources would represent the largest cost implications, consisting of preconstruction, construction phase, and post construction surveys monitoring and reporting. COAs specific to these resources typically result in full time archaeological and Tribal monitoring of all ground disturbing activities. In addition, full-time biological monitoring would also be required. As the study reach is linear, it is likely that it would result in new ground disturbance throughout the duration of construction. The cost estimates below reflect the assumption that Alternative 5 can be built in one year. Additional years of construction would increase the estimated costs.

### *National Environmental Policy Act*

The ACOE would require the preparation of an EA in satisfaction with NEPA. The cost estimate in **Table 4** reflects this level of documentation. In the unlikely event that the ACOE determines the project eligible for a Categorical Exclusion, the cost would be reduced and if significant controversy was generated, an Environmental Impact Statement would be warranted and increase the estimated cost.

### **Regulatory Permitting**

#### *ACOE CWA Section 404 Individual Permit*

The ACOE regulates the placement of dredge and fill in wetlands or other waters of the U.S. This includes operating heavy equipment within regulated resources. A wetland delineation covering the full length of the approximately 4,600-foot length of the study reach would be required. The mitigation requirements of the ACOE would depend on the results of the delineation and the relative presence of wetlands versus unvegetated waters. As a result, the direct mitigation cost estimate provided in **Table 4** for the Section 404 permit may vary depending on the results of the wetland delineation.

#### *RWQCB CWA Section 401 Certification*

The RWQCB regulates any project that impacts wetlands and other waters of the U.S. that are regulated by the ACOE. The RWQCB typically requires a 2:1 mitigation ratio for the loss of regulated habitat. The mitigation must create new habitat in an off-site location, preferably in the same watershed. Alternatively, enhancing existing habitat can be approved at a higher mitigation ratio. The County may utilize existing County-owned land or acquire new land for off-site mitigation. The direct mitigation cost estimate does not include land acquisition and assumes seventy-five thousand dollars per acre to accomplish the required mitigation.

#### *CDFW 1602 Lake or Streambed Alteration Agreement*

CDFW regulates wetland and riparian habitat. A notification of work within their jurisdiction initiates the agreement process. CDFW's mitigation requirements are similar to RWQCB's described above. It is assumed the mitigation details provided above would satisfy CDFW's requirements; therefore, there is no mitigation direct mitigation cost estimate within the table below for the LSAA because it is unlikely they would require additional mitigation beyond what would be required by RWQCB.

#### *CDFW California Endangered Species Act (CESA) Incidental Take Permit (ITP)*

Unlike the federal ESA, CESA has no interagency process to authorize the take of listed species. CESA requires that a project proponent apply for incidental take as part of the project permitting. The process has no statutory timeframe, so it is one of, if not the lengthiest authorization to acquire. Depending on the project specifics, a typical schedule is between one to two years to acquire the permit. This authorization is typically the most expensive as well with mitigation requirements typically 3:1 by acre. Mitigation can be accomplished through purchasing credits through a mitigation bank or by acquiring occupied habitat and entering into an endowment agreement to fund the management of the mitigation lands in perpetuity. The direct mitigation cost estimate below assumes seventy-five thousand dollars per acre to accomplish the

required mitigation. There are several protocol presence/absence studies and surveys for these species, and a multi-year study could result in a negative finding and avoid the costs associated with mitigation. Whether to do surveys or assume presence and go through the permitting process is a choice the project proponent would need to make based on their risk assessment.

*U.S. Endangered Species Act (USES) Section 7 Consultation*

The ACOE would be responsible for compliance with USESA by conducting consultation with the U.S. Fish and Wildlife Service (USFWS) for species listed on the USESA. There are several federally listed species with the potential to occur within the proposed study reach and requiring authorization from USFWS through consultation. There are several protocol presence/absence studies and surveys for these species, and a multi-year study could result in a negative finding and avoid the costs associated with consultation. Whether to do surveys or assume presence and go through consultation is a choice the project proponent would need to make based on their risk assessment.

**Table 4** below presents a conceptual level cost estimate to prepare the expected level of environmental documentation, as well as acquire the relevant regulatory permits anticipated for Alternative 5.

**Table 4 – Cost Estimate for Environmental Documentation and Regulatory Permitting**

<b>Task Description</b>	<b>Fees</b>	<b>Consulting Costs</b>	<b>Direct Mitigation Costs</b>	<b>Pre-construction, construction phase, and post construction monitoring, and COAs</b>	<b>Total</b>
<b>Environmental Documentation</b>					
CEQA	\$6,138	\$60,000	--	\$20,000	<b>\$ 86,138</b>
Cultural	--	--	--	\$240,000	<b>\$ 240,000</b>
Biology	--	--	--	\$120,000	<b>\$ 120,000</b>
NEPA	--	\$60,000	--	\$20,000	<b>\$80,000</b>
<b>Regulatory Permitting</b>					
ACOE Section 404	\$10	\$30,000	\$90,000	\$10,000	<b>\$ 130,010</b>
RWQCB 401	\$97,614	\$20,000	\$390,000	\$20,000	<b>\$ 527,614</b>
CDFW 1602	\$6,698	\$20,000	--	\$10,000	<b>\$ 36,698</b>
CDFW ITP	\$36,000	\$80,000	\$585,000	\$90,000	<b>\$ 791,000</b>
USFWS Section 7 Consultation	--	\$20,000	--	\$20,000	<b>\$ 40,000</b>
<b>TOTAL</b>	<b>\$146,460</b>	<b>\$290,000</b>	<b>\$1,065,000</b>	<b>\$550,000</b>	<b>\$2,051,460</b>

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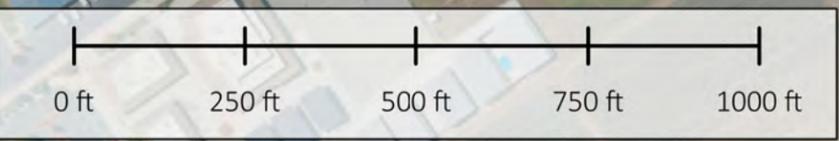
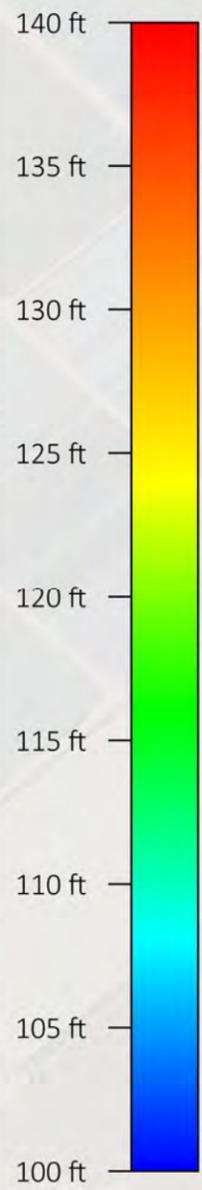
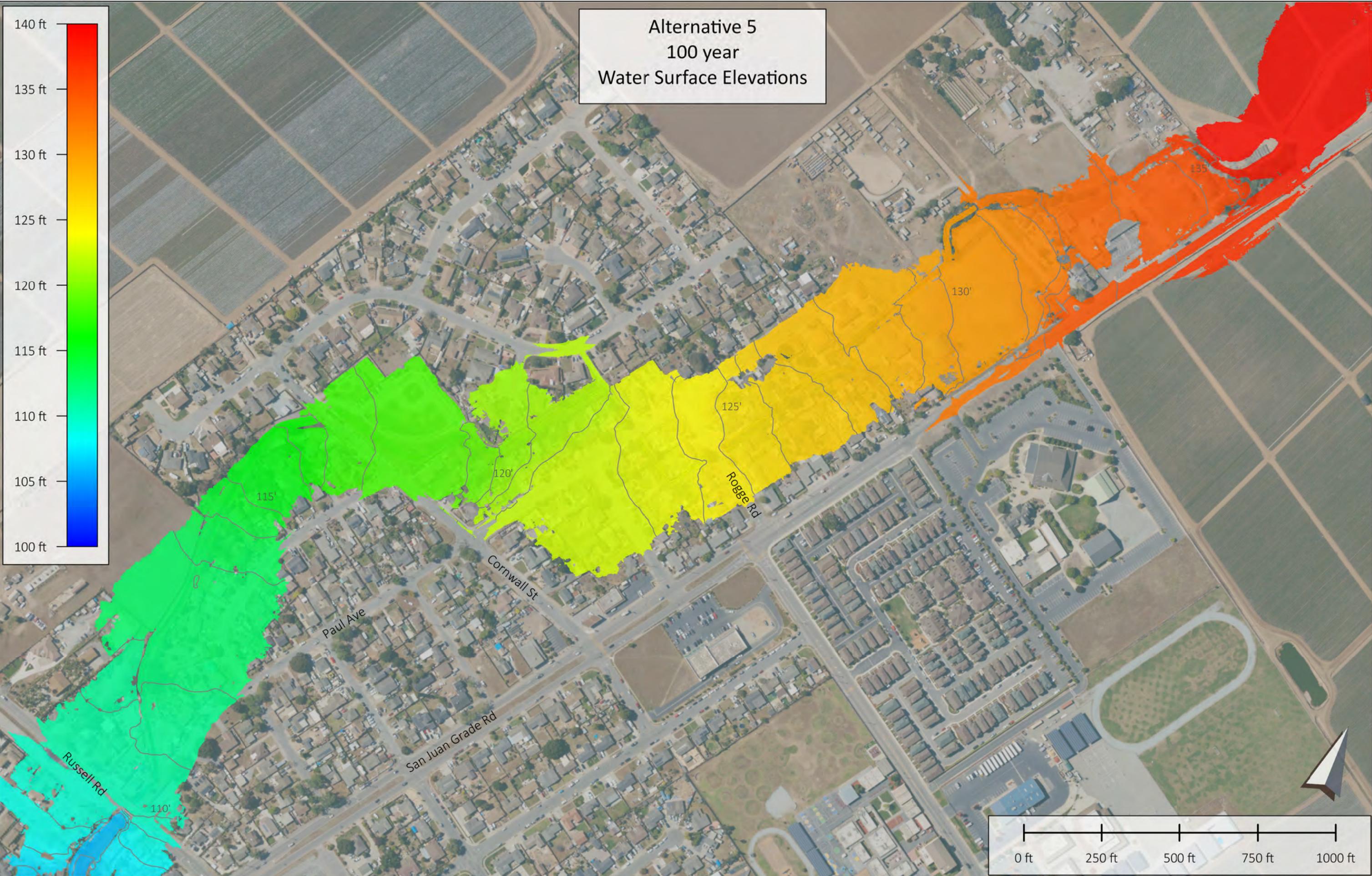
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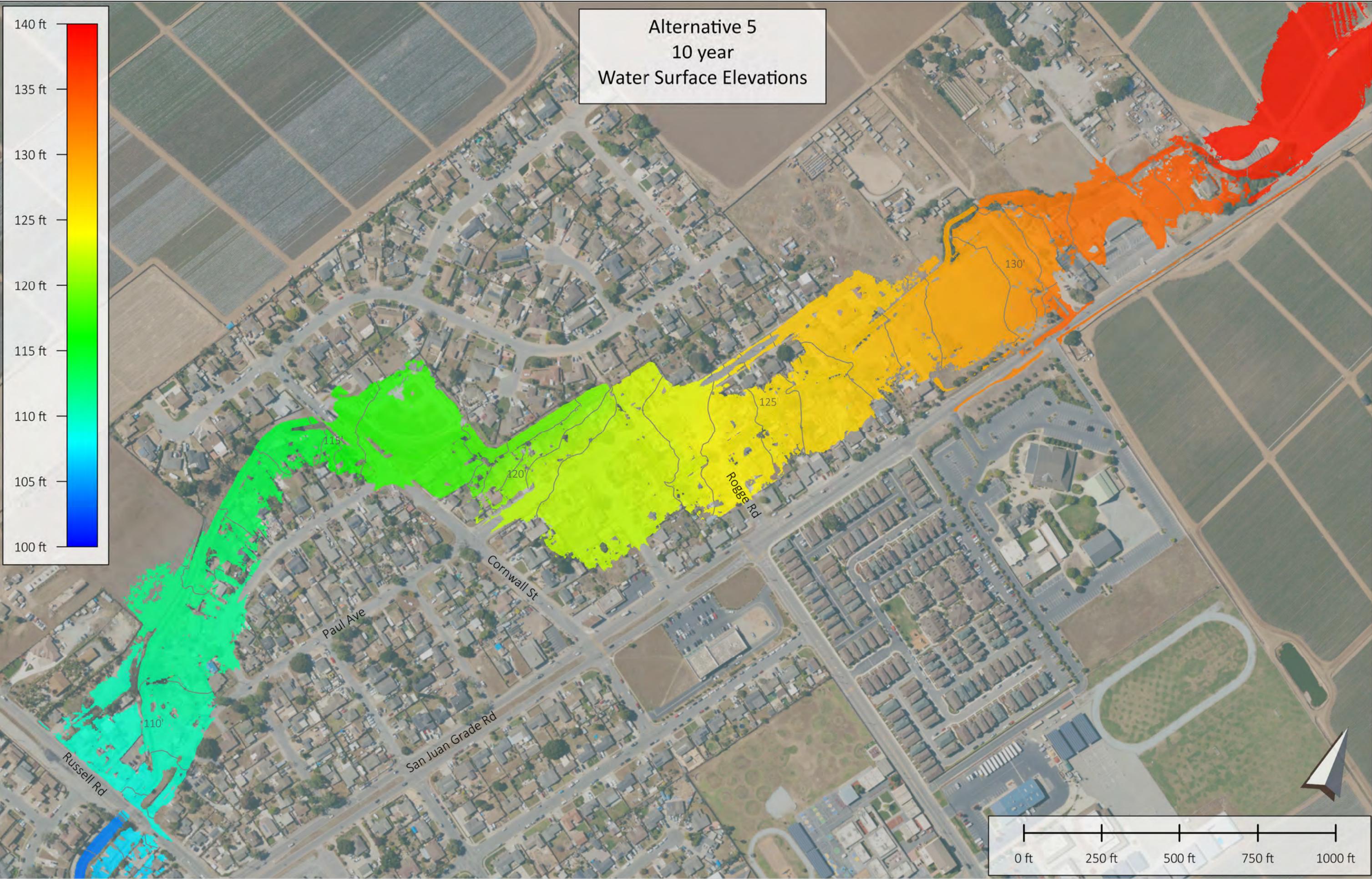
## Appendix E

### Alternative 5 Hydraulic Model Results

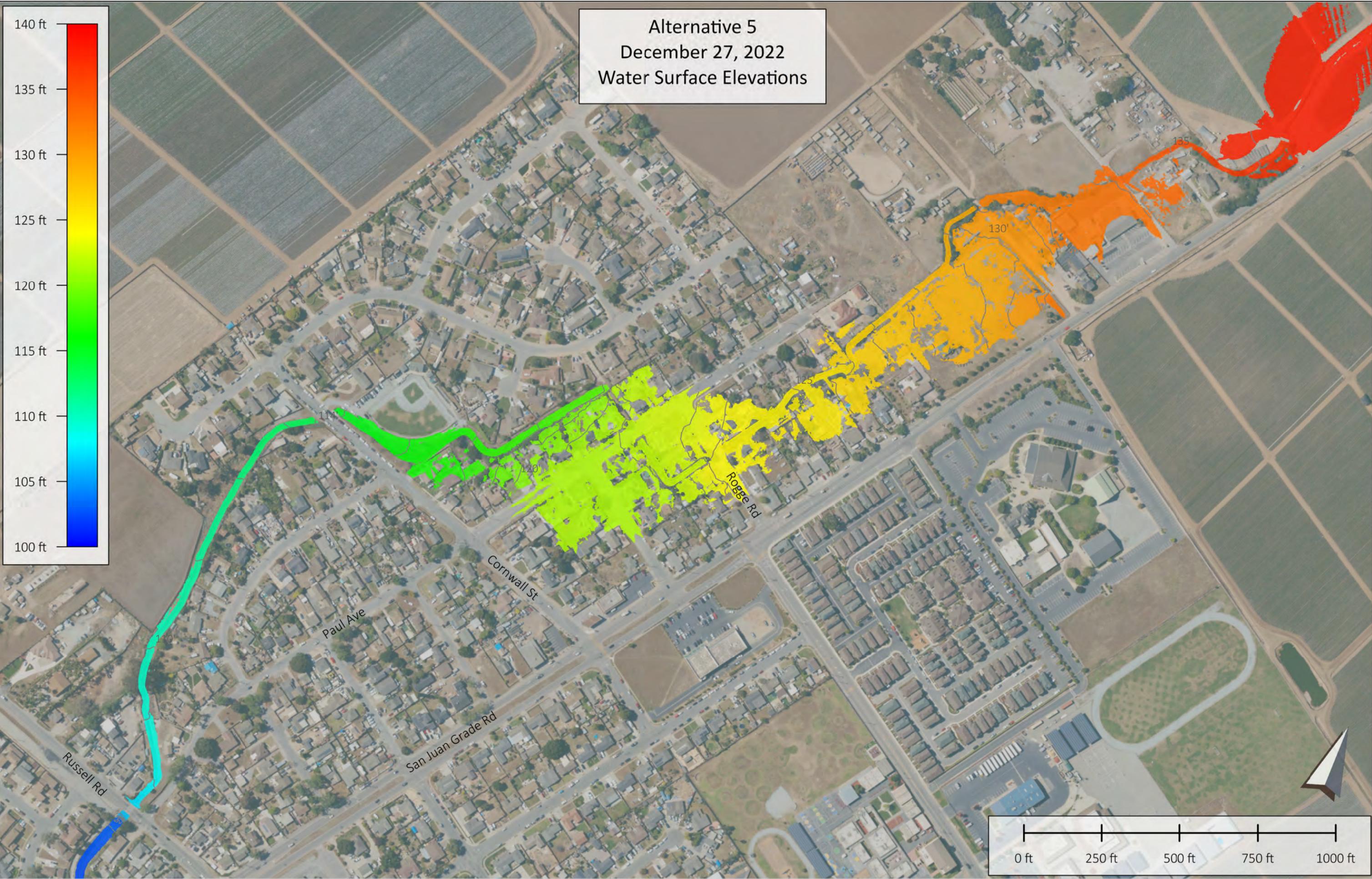
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Water Surface Elevations



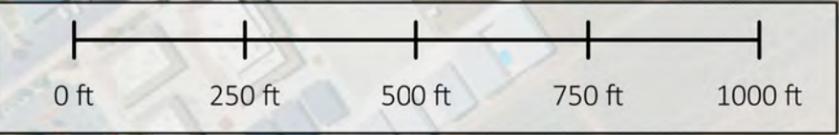
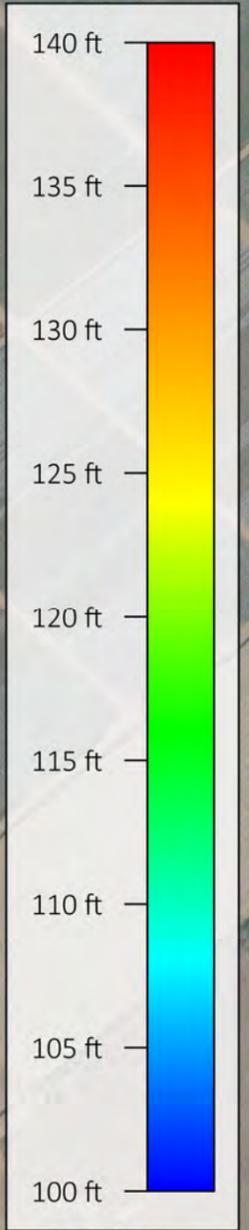
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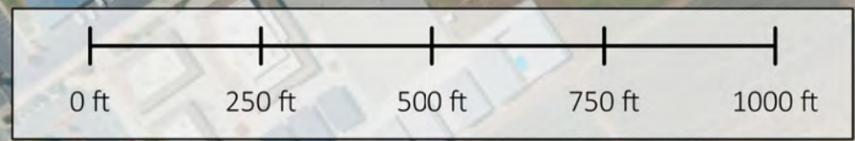
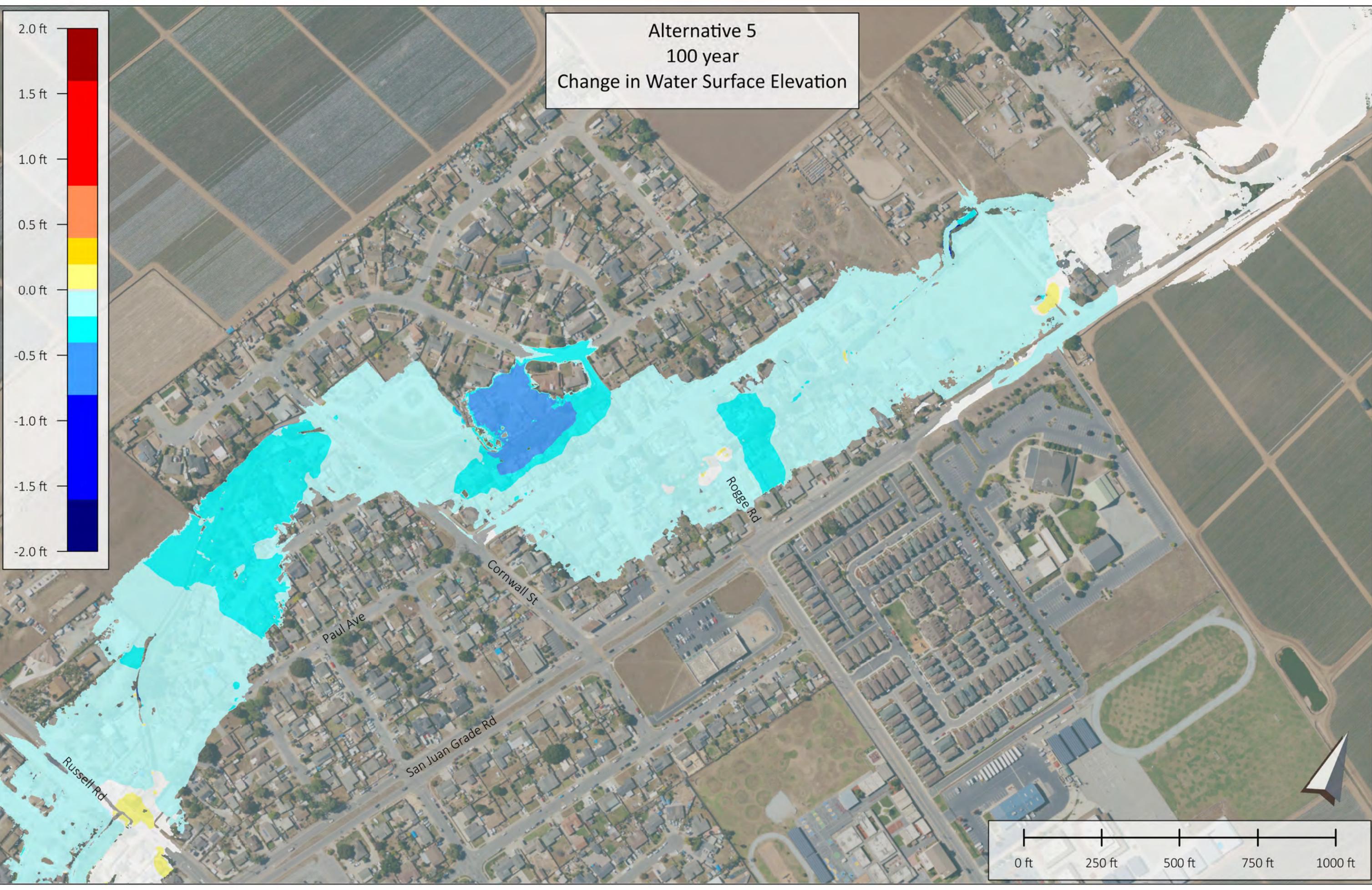
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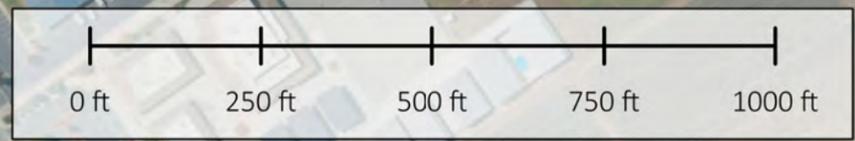
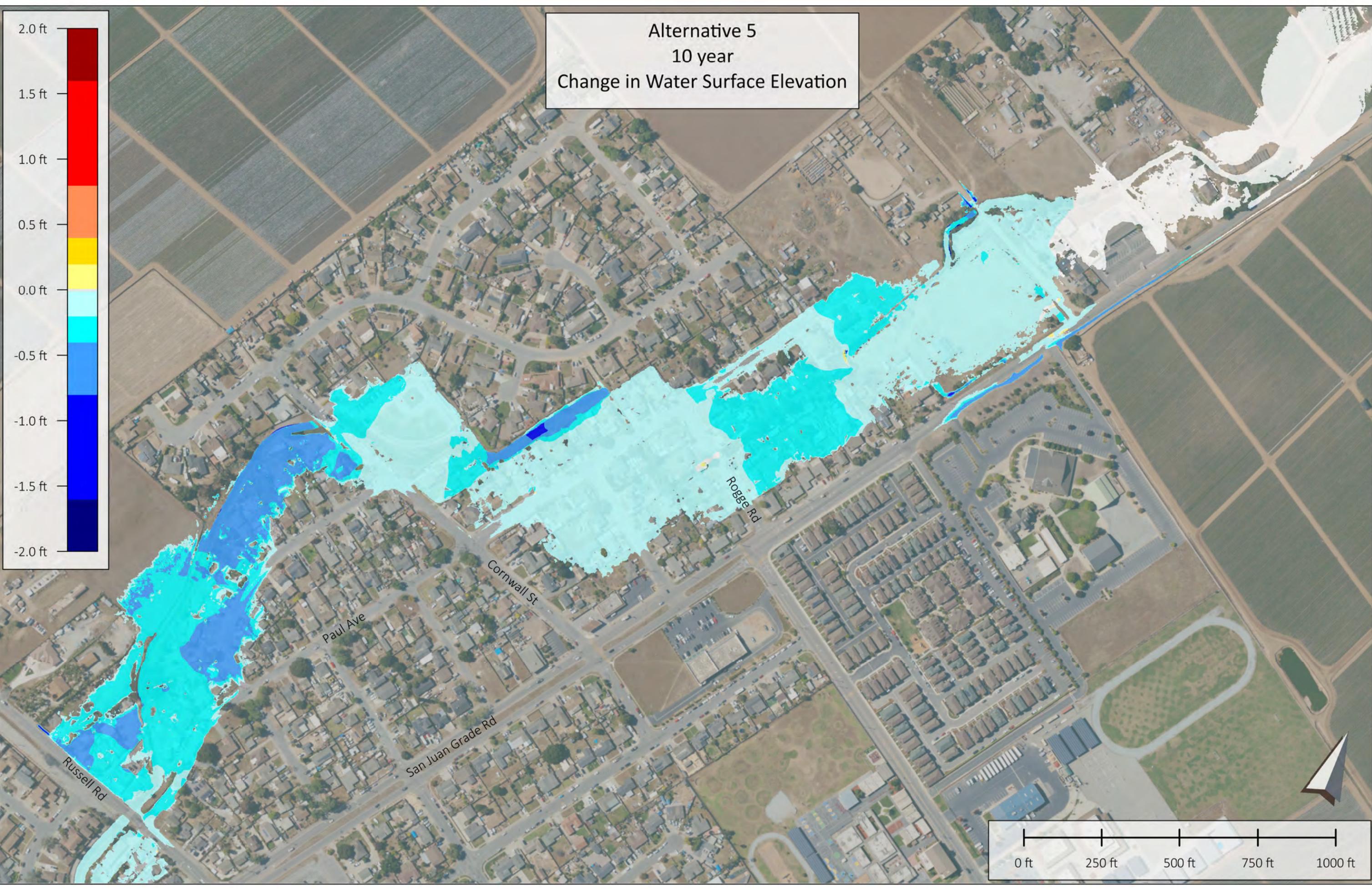
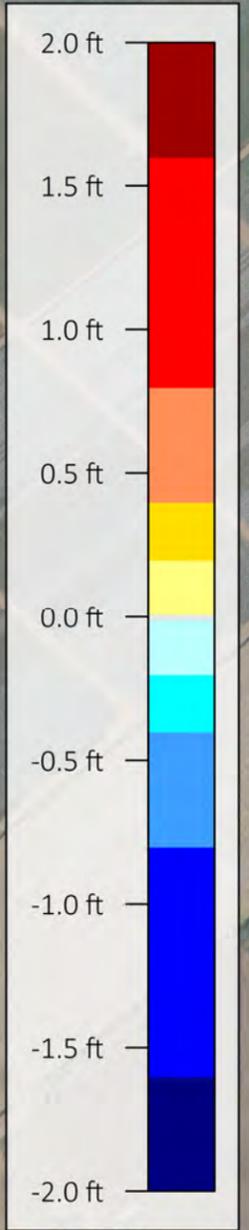
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Water Surface Elevations



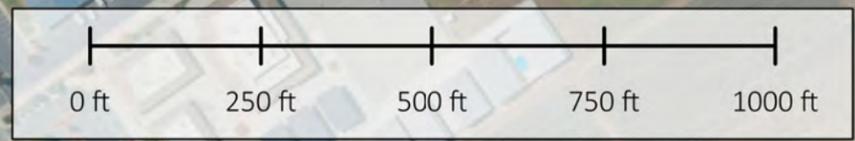
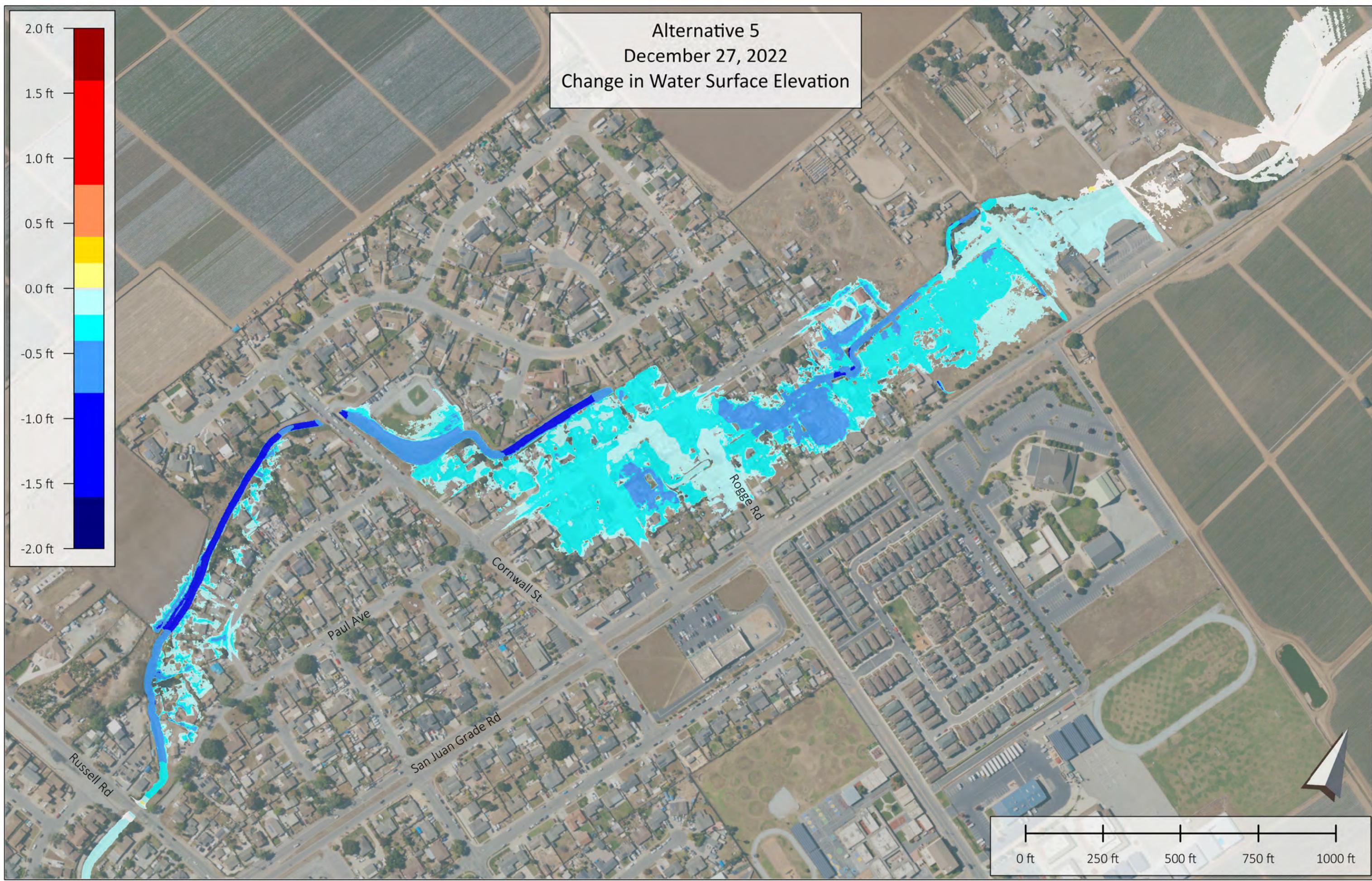
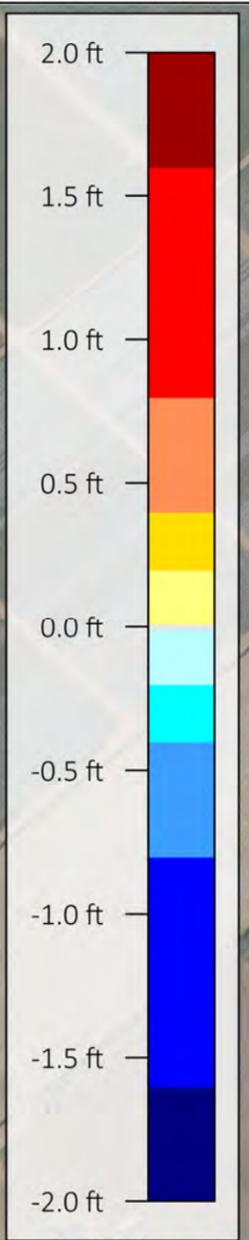
Alternative 5  
100 year  
Change in Water Surface Elevation



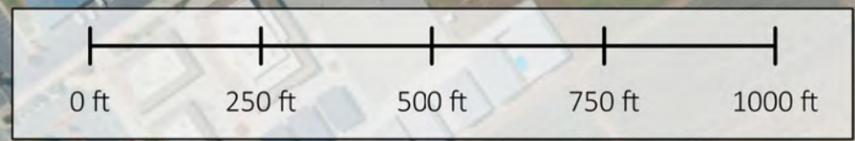
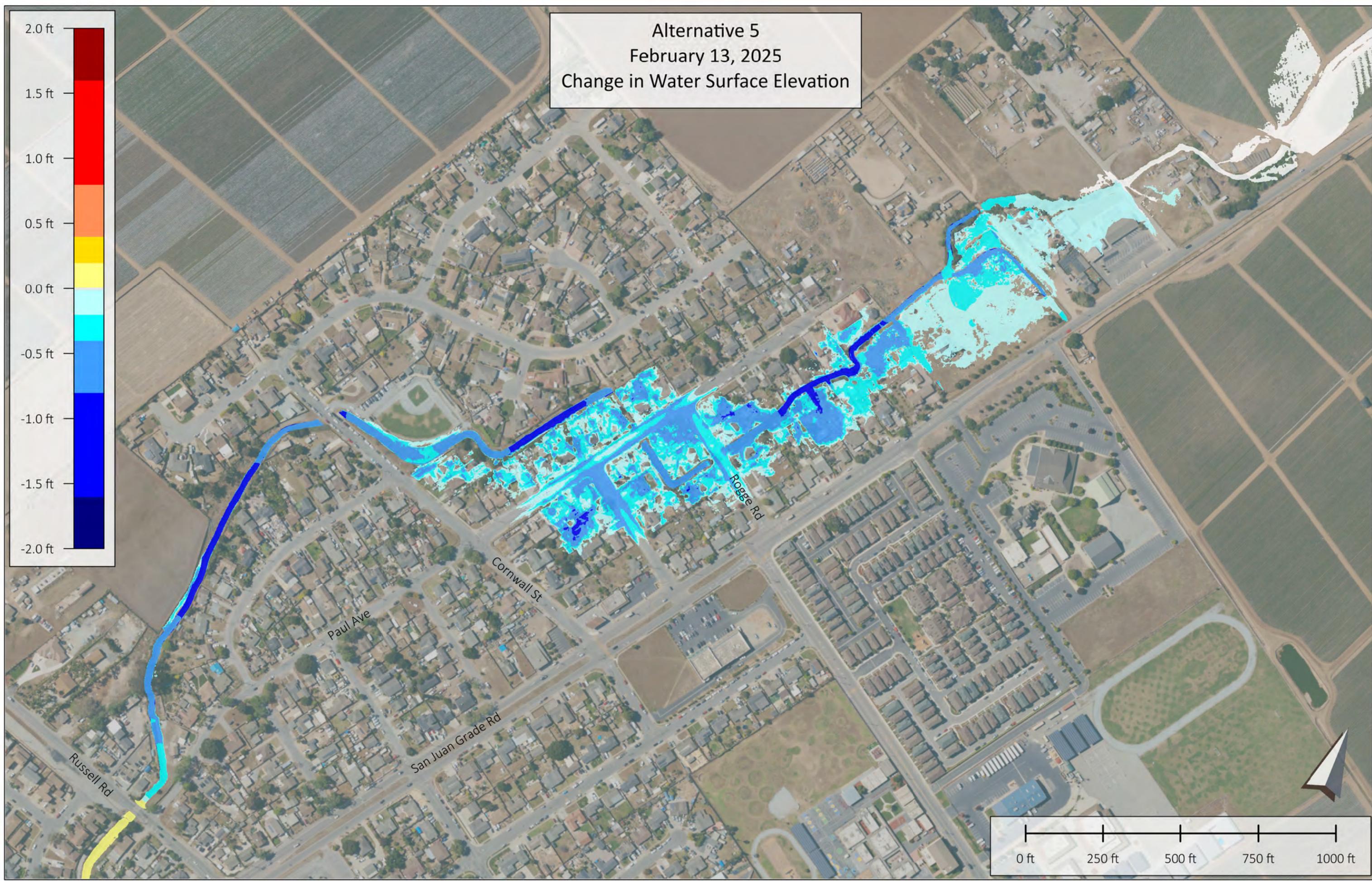
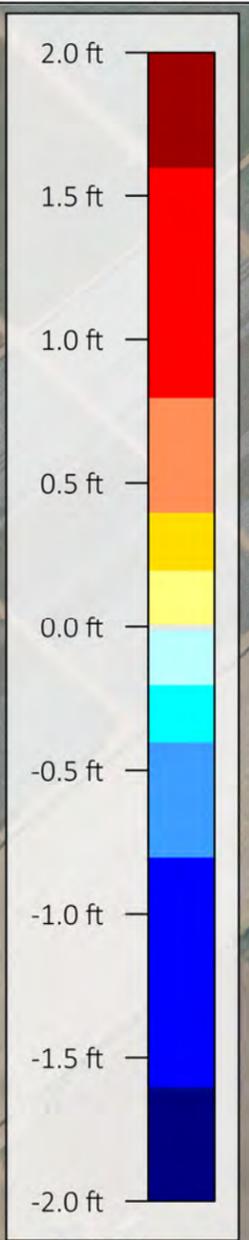
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10 year  
Change in Water Surface Elevation



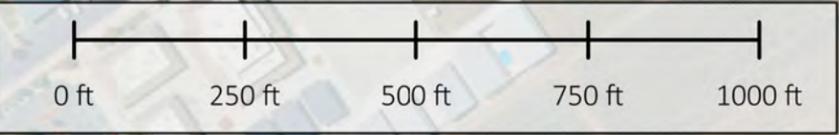
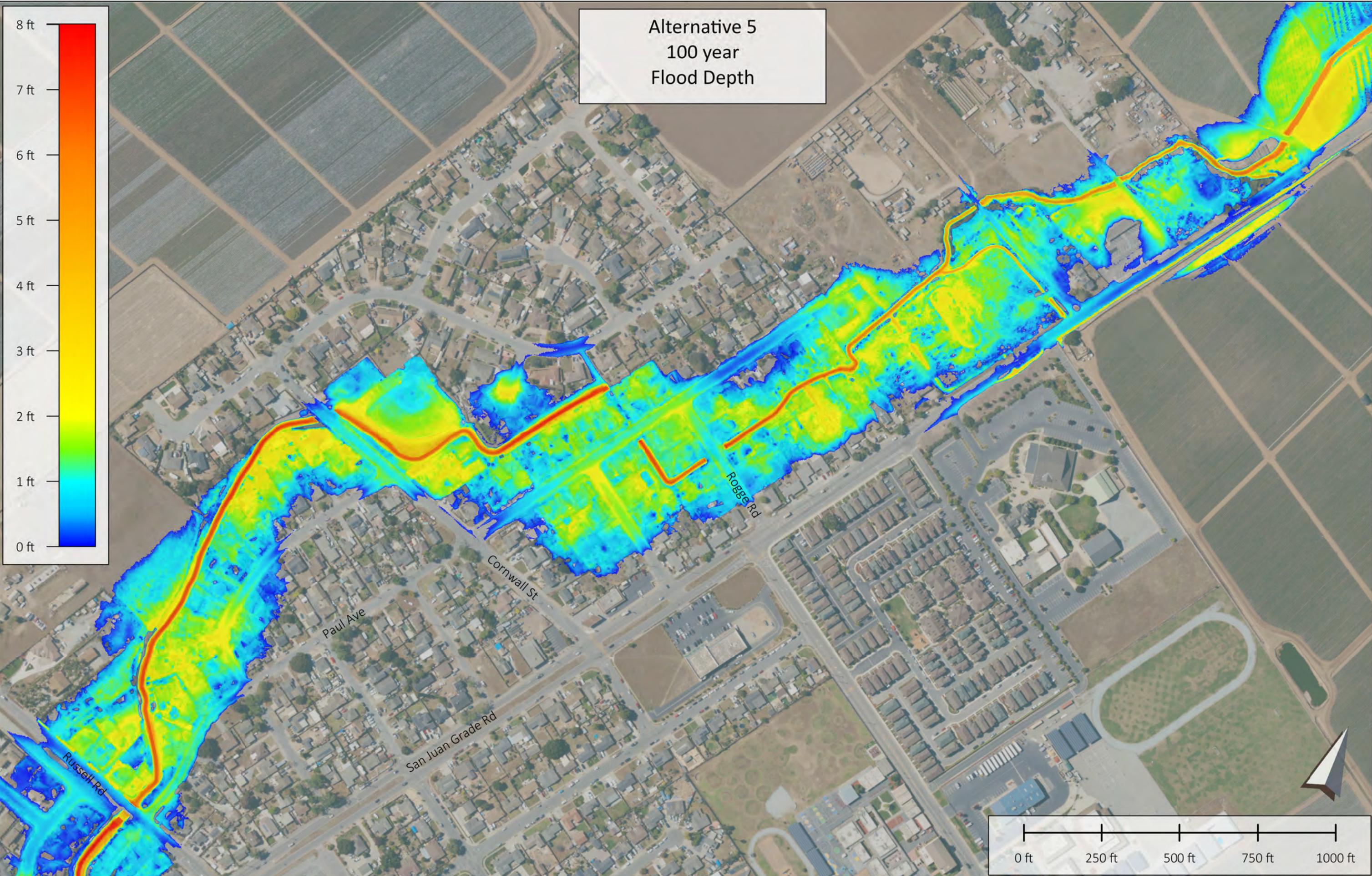
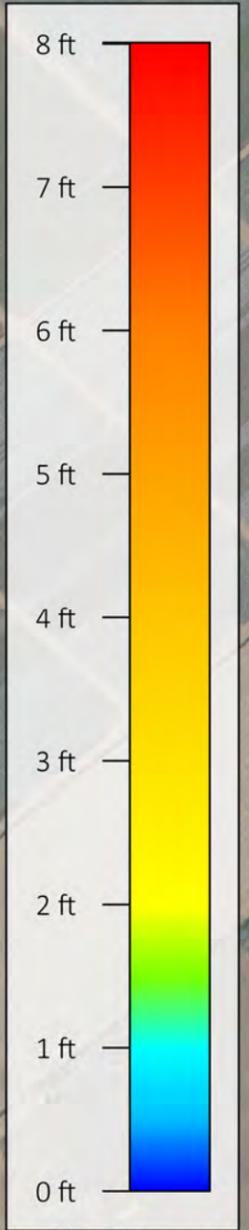
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Change in Water Surface Elevation



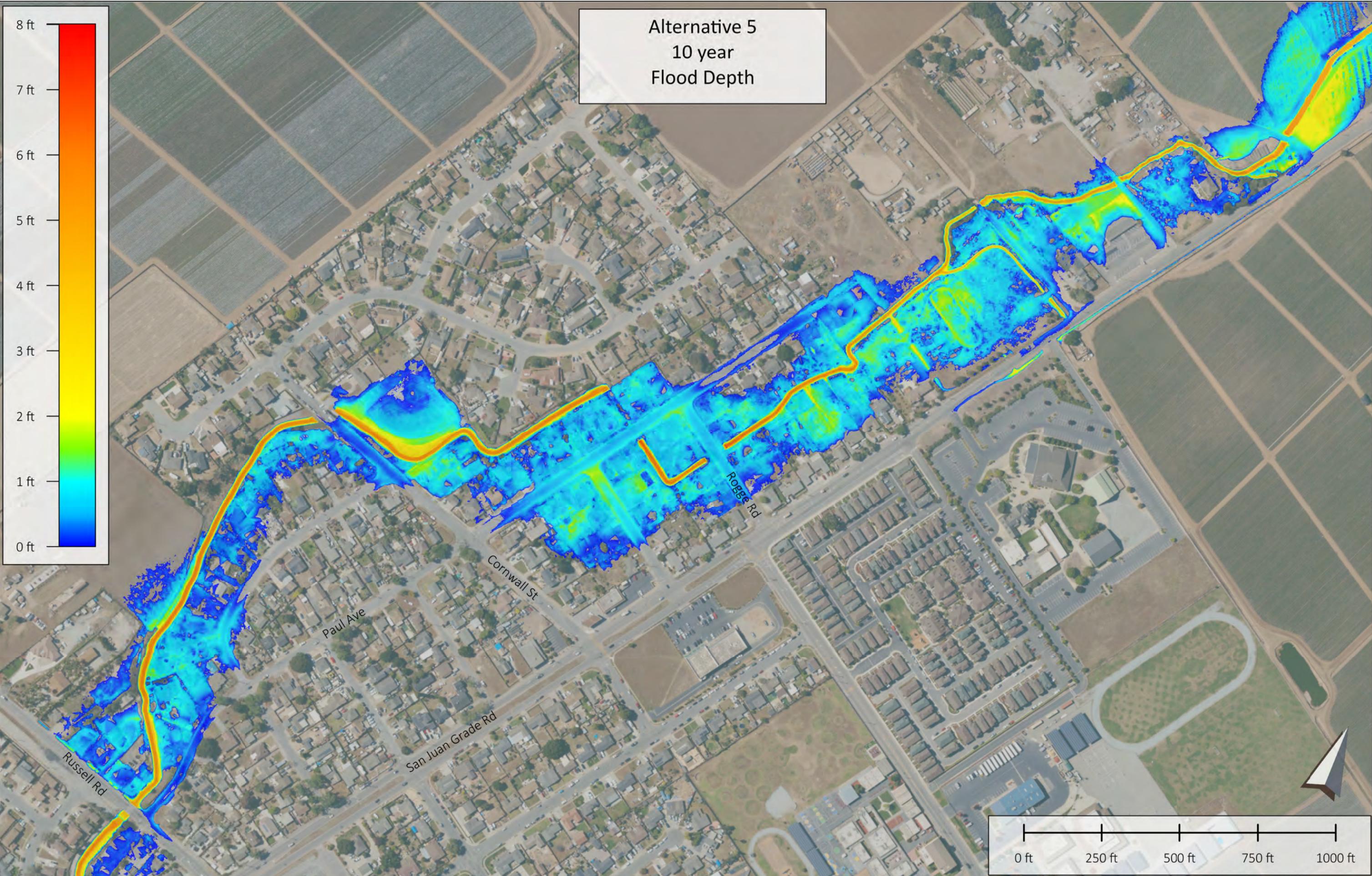
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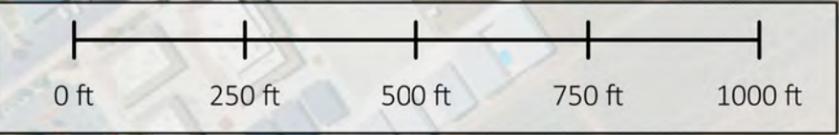
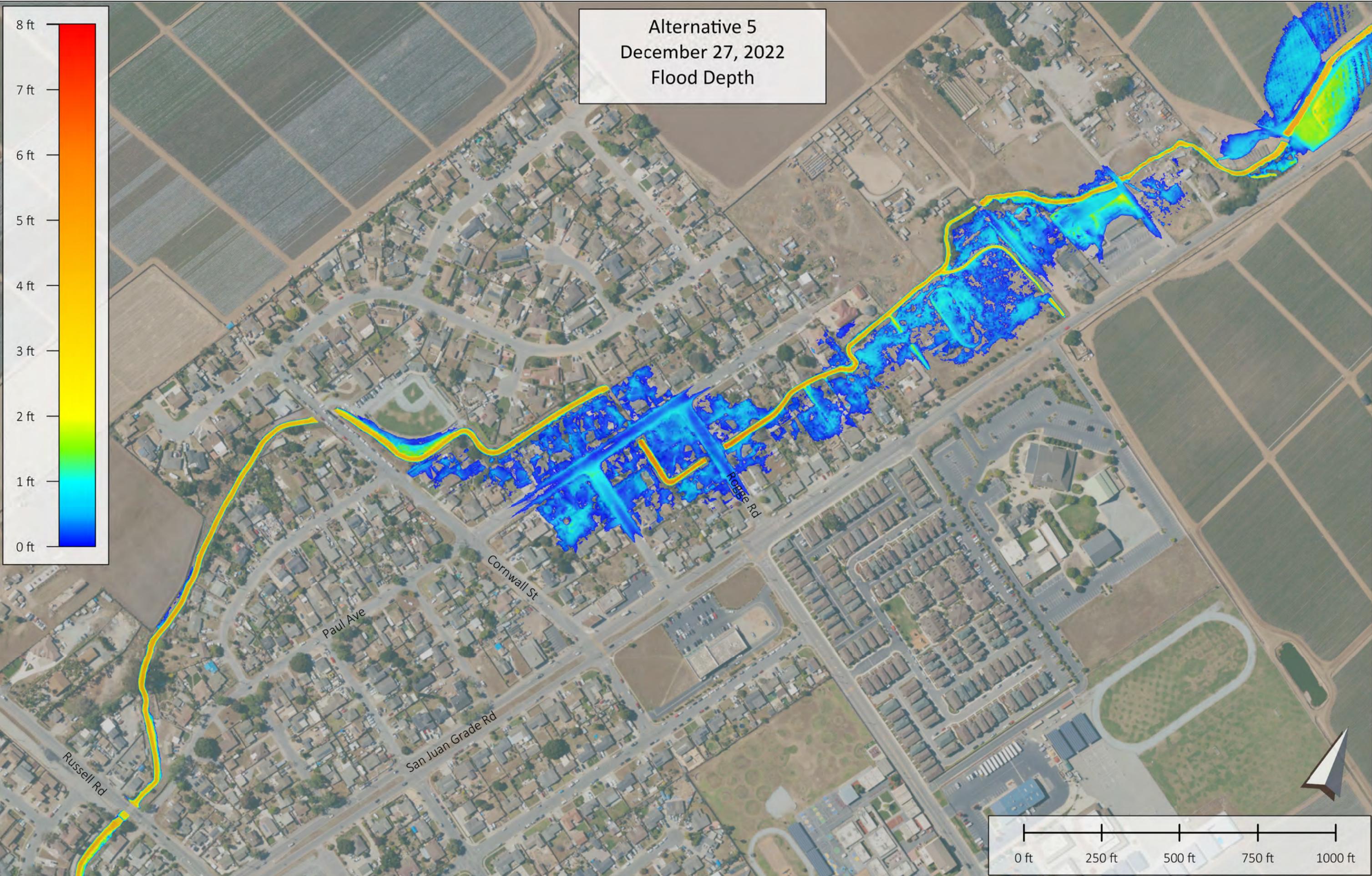
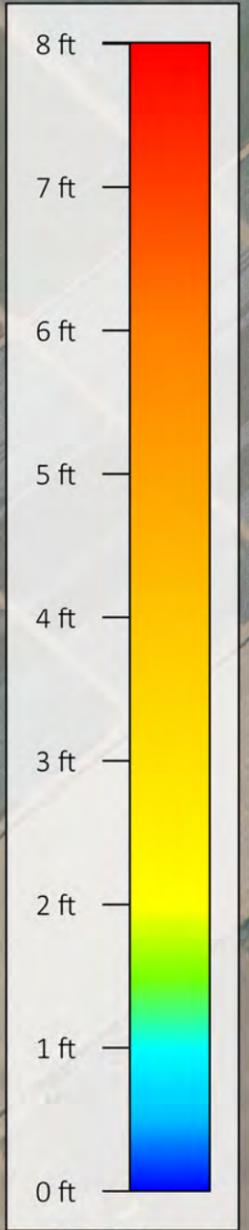
Alternative 5  
100 year  
Flood Depth



Alternative 5  
10 year  
Flood Depth



Alternative 5  
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Flood Depth



Alternative 5  
February 13, 2025  
Flood Depth

