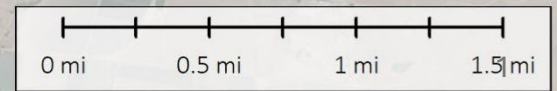


Agenda Date: March 24, 2026
Agenda No.: 15

Santa Rita Creek Drainage Study

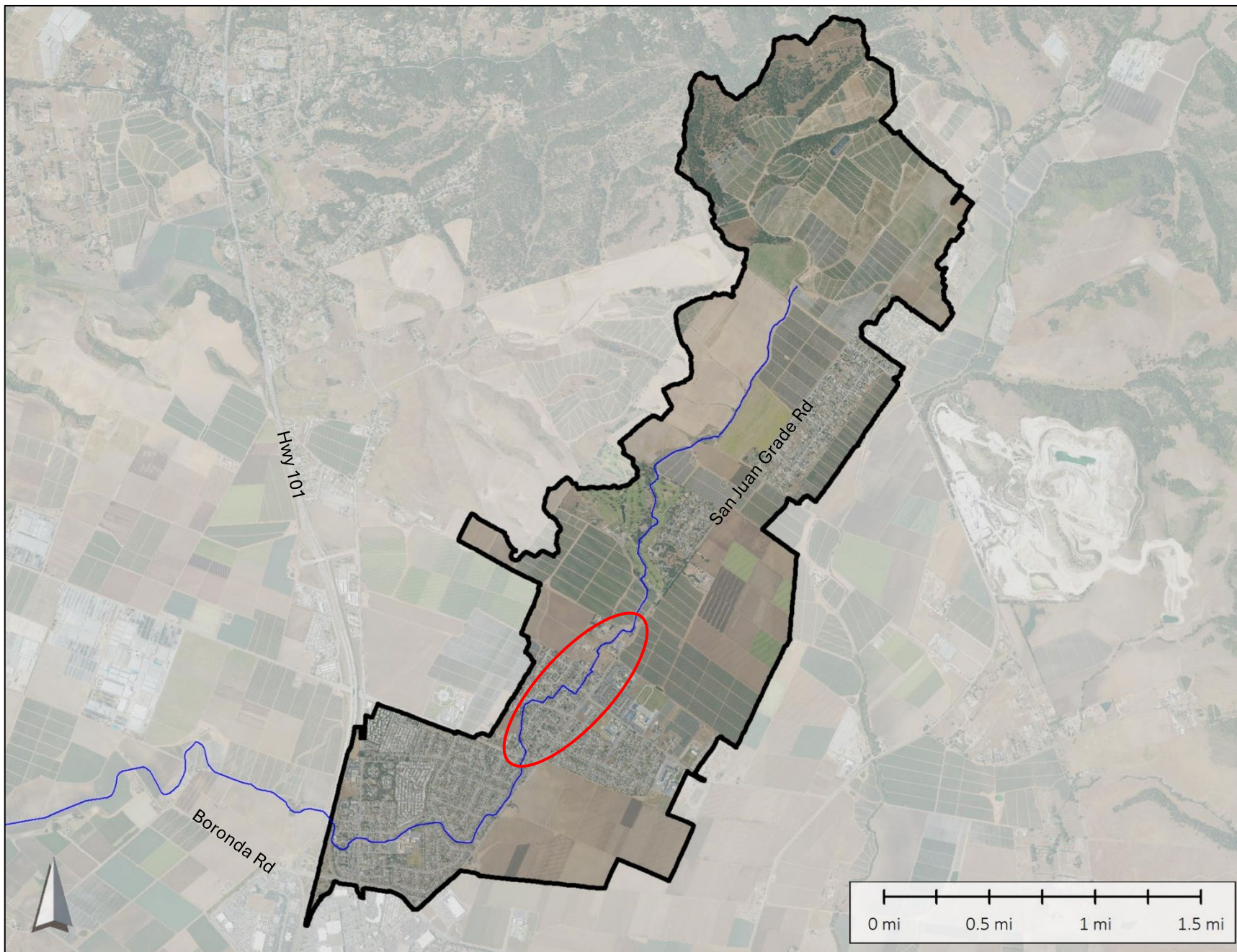
Through Bolsa Knolls
Board Referral No. 2024.04



Santa Rita Creek Flood Study Presentation Overview

- Background Information
 - Watershed
 - Flooding History
 - Balance Hydrologics Inc. Santa Rita Creek Flood Study
- Existing Conditions
 - Hydrologic and Hydraulic Modeling Results
 - Channel Capacity
- Balance Hydrologics, Inc. Recommendations
 - Alternatives 1 – 5
- Other options
- Questions/Comments

Santa Rita Creek Upper Watershed and Bolsa Knolls



Monterey County Floodplain Management Plan 2002

- Identifies Repetitive Loss Properties within Bolsa Knolls
 - Single family dwellings, in the area, are pre-firm structures
 - Built before Monterey County joined the National Flood Insurance Program.
 - Lowest Floor Elevations were not required to be elevated above the base flood elevation .
 - Monterey County Code currently requires the lowest finished floor to be elevated a minimum of 1 foot above the Base Flood Elevation.
 - The Floodplain Management Plan identifies the primary solution for Bolsa Knolls repetitive loss properties = elevating the structures.

Repetitive Flooding In Bolsa Knolls

2014



2017



2021



2022



2023



2025



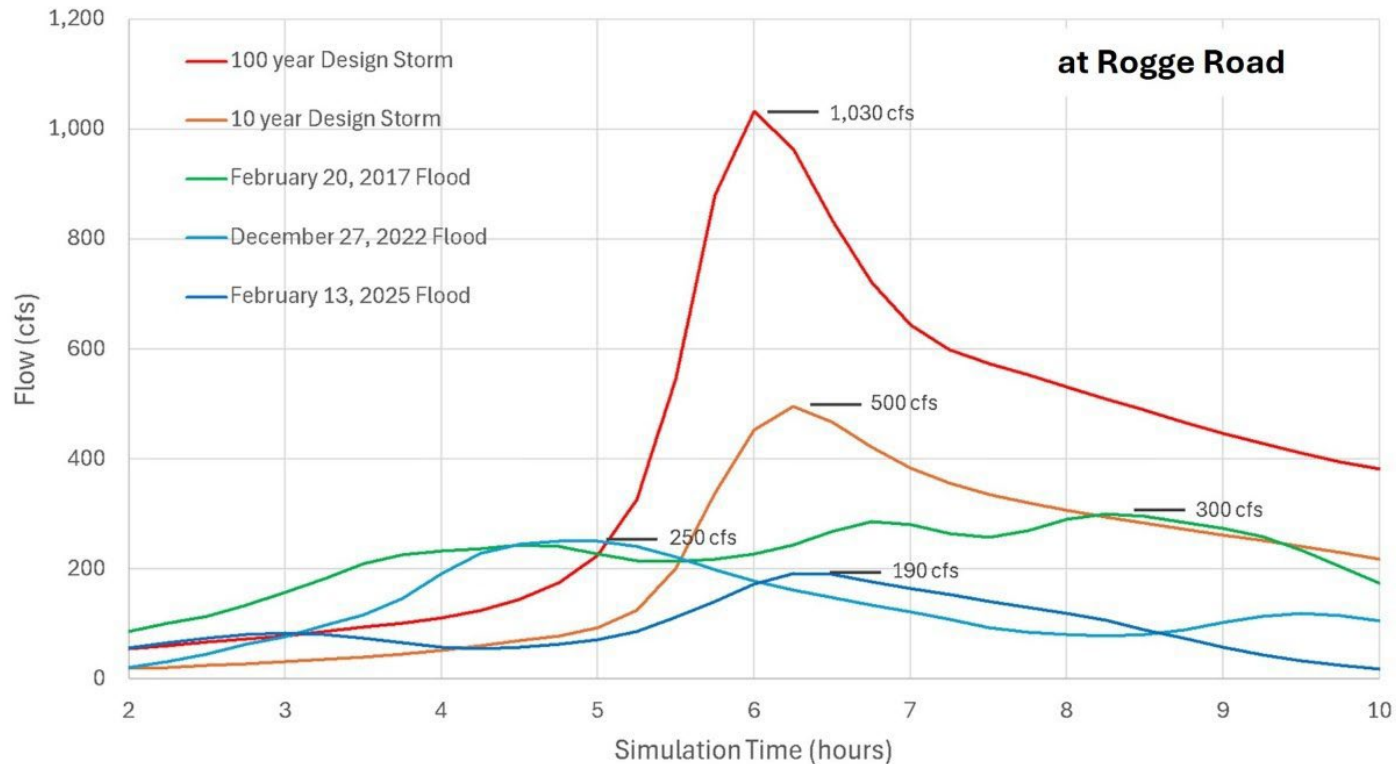
Santa Rita Creek Flood Study

Prepared by Balance Hydrologics Inc.

➤ Objective

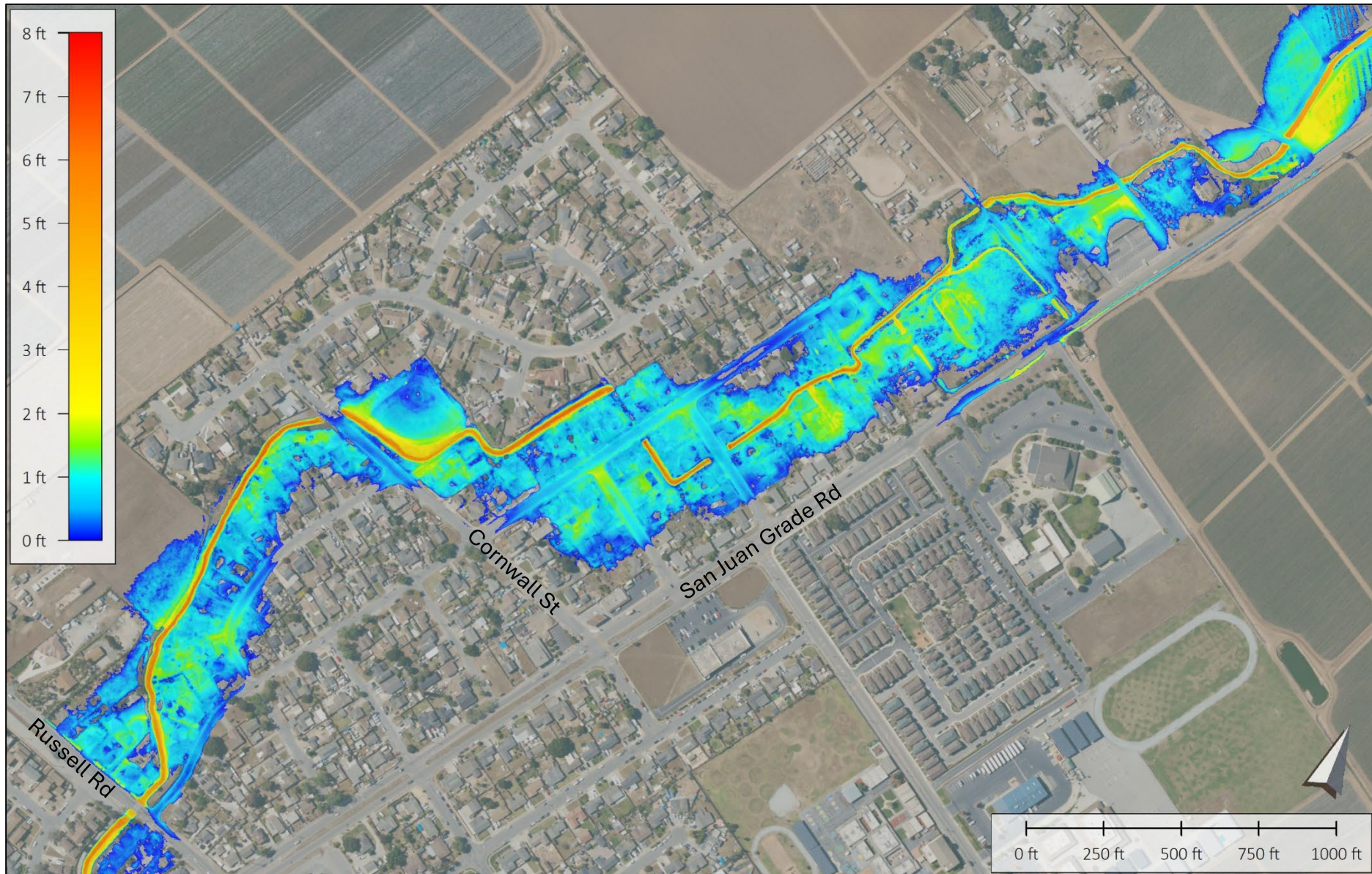
- Develop and evaluate a set of feasible project alternatives to reduce flood risk in Bolsa Knolls.

Existing Conditions Hydrologic and Hydraulic Modeling Results



- 100 CFS is exceeded during most years and multiple times in wet winters.
- Santa Rita Creek, upstream from Rogge Road, currently overtops its banks at a flow rate of around 100 CFS.

Modeled 10-year Flood Depths



Balance Hydrologics Inc. Recommendations

Project 1: Culvert upsizing at Paul Avenue and Rogge Road.

Project 2: Remove sediment, as needed, at culvert crossings.

Project 3: Selective vegetation management within key channel segments.

Project 4: Construction of upstream sediment retention / stormwater detention basins.

Project 1: Culvert Upsizing

- Upsizing the culverts would reduce the conveyance “bottlenecks” at Paul Ave and Rogge Rd.
- It is estimated that capacities would increase from 110 to 230 CFS at Rogge Rd and 130 to 230 CFS at Paul Ave.
- These would be fairly standard culvert replacement projects.
- Permits still need to be acquired.
- Preliminary cost estimate range: \$500,000 to \$1,000,000.

Project 1: Upsize Culverts at Paul Ave

Existing Inlet: Paul Ave
Twin 4.5 ft CMP extending 190 ft

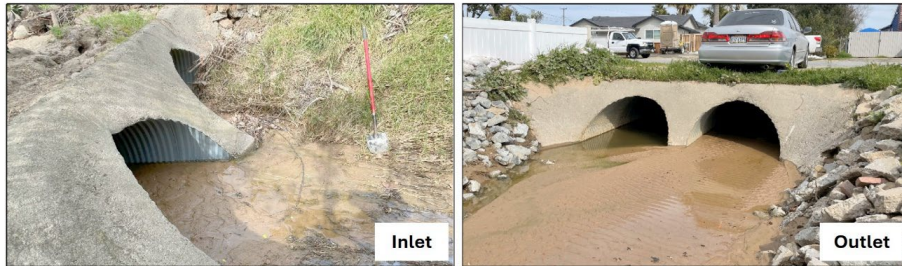


Proposed: Minimum - Twin 8 ft x 5 ft
reinforced concrete box culverts



Project 1: Upsize Culverts at Rogge Rd

Existing: Rogge Road
Twin 4.5 ft CMP extending 76 ft



Proposed: Minimum of Twin 8 ft x 5 ft
reinforced concrete box culverts



Project 2: Remove Sediment at Culvert Crossings

- Ongoing removal of sediment from the culverts would prevent flooding impacts from worsening.
- Sediment removal from Rogge Rd, Paul Ave, and Cornwall St culverts is currently conducted by County Service Area No. 9. The total cost is approximately \$35,000 - \$40,000 per cleaning.

Project 2: Remove Sediment at Culvert Crossings

1/2/25: Rogge Rd Outlet



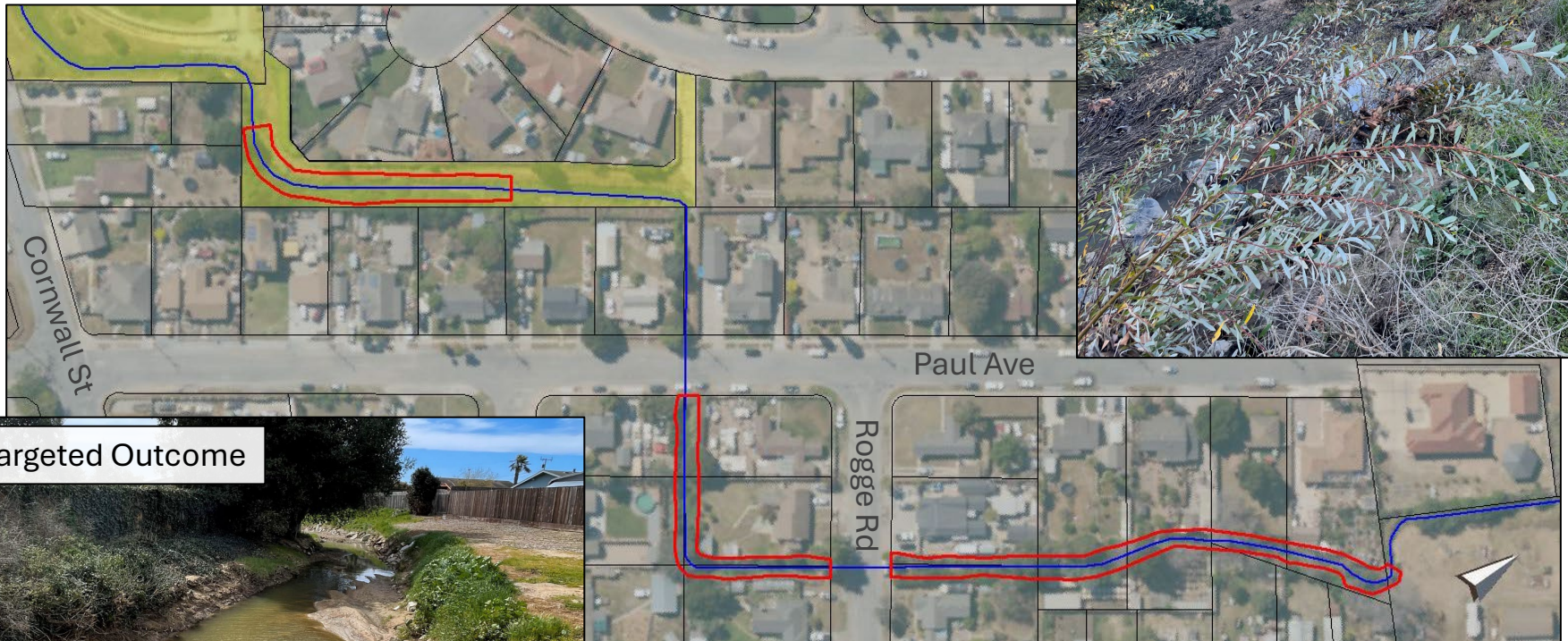
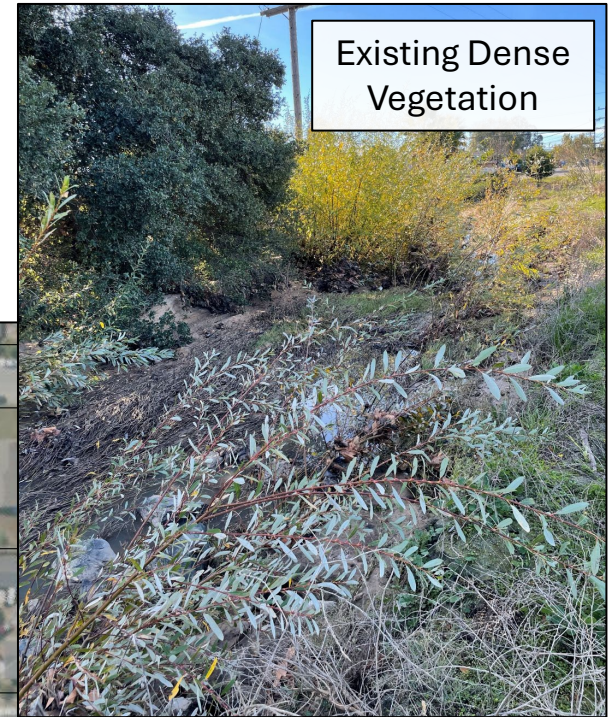
2/27/25: Rogge Rd Outlet



Project 3: Vegetation Management

- Removing vegetation along target channel reaches would reduce conveyance bottlenecks along the study reach.
- Extensive vegetation management (permits required) would be challenging, and regulators would ultimately dictate the extent and type of vegetation that can be removed.
- Selective vegetation management (permits not required) would be relatively straightforward with cost estimates ranging between \$50,000 and \$150,000.

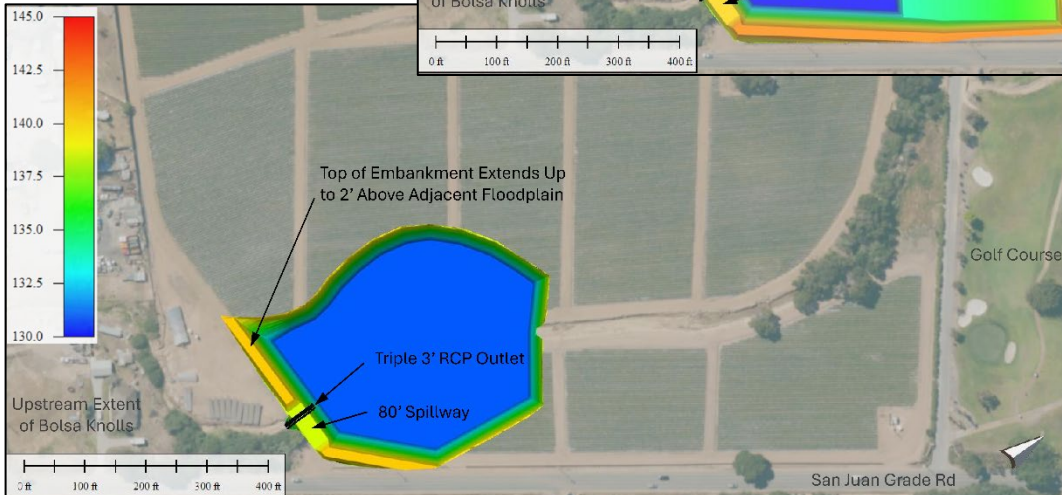
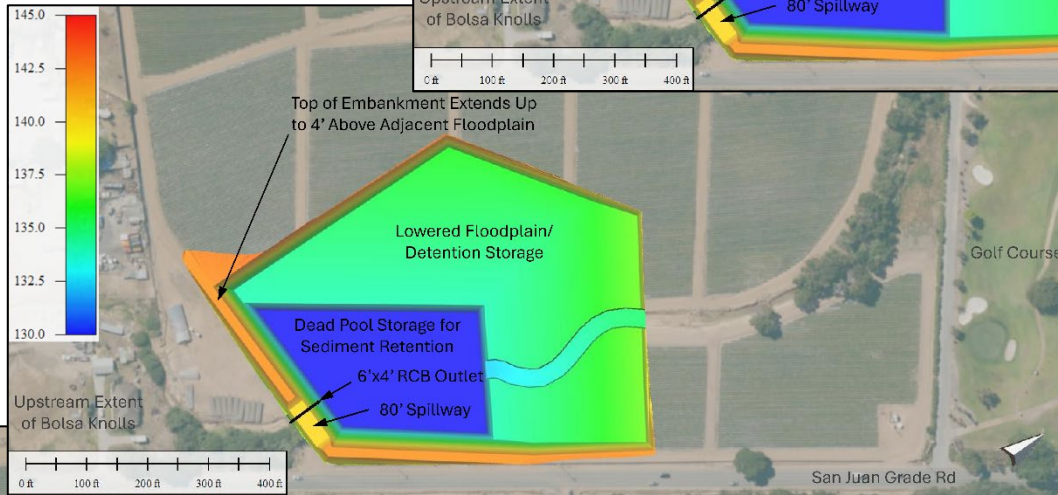
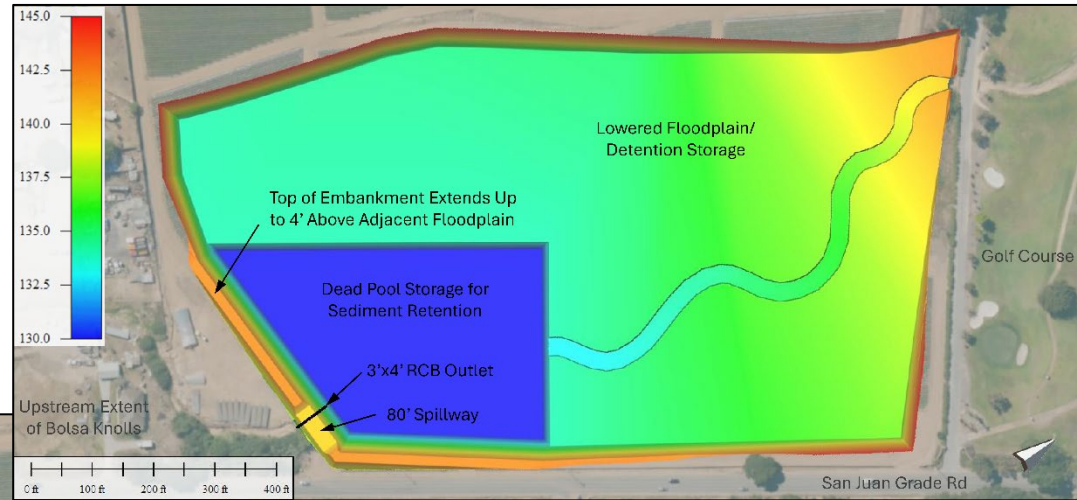
Selective Vegetation Management



Project 4: Sediment Retention / Stormwater Detention Basins

- The basin(s) would serve to 1) reduce sediment loading , 2) lower peak flow rates, and 3) reduce summer nuisance flows entering the study reach that promotes vegetation growth.
- A basin(s) has the potential to significantly reduce flooding realized during past storm events and has been modeled to reduce the number of impacted structures along the study reach from 43 to 4 during the December 2022 storm event.
- The next step would be site selection and reviewing property acquisition options. Then, environmental review and permitting would be required.

Project 4: Sediment Retention / Stormwater Detention Basins



Project Alternatives 1- 4

- **Alternative 1** includes several focused conveyance project elements (i.e. culvert replacement at Rogge Rd and Paul Ave, targeted vegetation removal, and sediment removal at Cornwall St) paired with a single sediment retention basin project.
- **Alternative 2** includes culvert replacement at Rogge Rd and Paul Ave and targeted vegetation removal.
- **Alternative 3** includes several focused conveyance project elements (i.e. culvert replacement at Rogge Rd and Paul Ave, targeted vegetation removal, and sediment removal at Cornwall St) paired with a 35-acre-foot sediment retention and stormwater detention basin.
- **Alternative 4** includes several focused conveyance project elements (i.e. culvert replacement at Rogge Rd and Paul Ave, targeted vegetation removal, and sediment removal at Cornwall St) paired with a 90-acre-foot sediment retention and stormwater detention basin.

Project Alternative 5

- **Description:** Alternative 5 includes restoring the study reach of Santa Rita Creek to conditions consistent with those depicted in the FEMA Flood Insurance Study prepared in the late 1970s.
- Does not offer clear advantages over the other evaluated alternatives when considering effectiveness, constructability, and long-term performance.
- 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 than the other alternatives.
 - NEPA and CEQA compliance.
 - Multiple regulatory permits would be required to authorize this alternative including ACOE, RWQCB, CDFW, and USFWS.
 - Cost estimate for environmental documentation and permitting: \$2,000,000
- Challenges with access (narrow creek) and private improvements near creek
- Project cost estimate: \$1,000,000 - \$4,000,000 (Does not include permitting)
- Would have to be done periodically (AKA: ongoing maintenance)

Flood Reduction Benefits and Costs for Each Alternative

- Alternative 4 would provide the greatest benefit to residential structures in smaller more frequent flooding events, a 10-year flood, and a 100-year flood. Conceptually, this Alt 4 has the greatest cost estimate, followed by Alt 3, and then Alt 1.

Flood Event	Number of Impacted Structures					
	Existing	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
100 Year	81	81	81	78	70	80
10 Year	61	58	61	49	33	57
12/27/2022	43	20	41	8	4	30
2/13/2025	30	7	12	6	4	7
Preliminary Planning Level Cost Estimate :	N/A	\$585,000 - \$1,190,000, plus Real Estate Purchase and grading (cost is not known at this time)	\$550,000 - \$1,150,000	\$585,000 - \$1,190,000, plus Real Estate Purchase and grading (cost is not known at this time)	\$585,000 - \$1,190,000, plus Real Estate Purchase and grading (cost is not known at this time)	\$3,000,000 - \$6,000,000

Other Agency Involvement

- County staff presented a summary of this study to representatives from the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) and the Resource Conservation District of Monterey County (RCDMC).
- Both groups were generally supportive of the project alternatives that included sediment retention/stormwater detention basins.
- Offered insight into the challenges from their experience with regulatory agencies

Other Options

- As another potential course of action, the County could consider Code Enforcement actions against upstream property owners who are not properly controlling erosion under Monterey County Code Chapter 16.12.
 - Note: that the Agricultural Commissioner has conducted outreach on this subject with growers, and has sent correspondence to the public on appropriate steps to protect neighboring properties from erosion and stormwater runoff.
- Another option is to consider the creation of a special district or joint powers authority for the maintenance service of the Creek.

Special Districts Options

- Reclamation Districts (Wat. Code, § 50000 et seq.)
 - May construct, maintain and operate drains, canals, sluices, bulkheads, water gates, levees, embankments, pumping plants, dams, diversion works, irrigation works, or anything else reasonably necessary or convenient which is required to accomplish its purposes.
 - Can be formed by a petition presented to the board of supervisors at a regular meeting. . Petitioners must consist of “owners of one-half or more of any body of swamp and overflowed, salt-marsh, or tidelands subject to flood or overflow” with either the desire to reclaim the land or who are in the progress of reclamation and desire to form a district for the maintenance, protection, or repair of the reclamation works.
 - Board of supervisors must call an election where 3 eligible people will be elected to the reclamation district board of trustees. The number of board members can be increased to 5 or 7 at a later election consistent with the bylaws of the district. 4 year alternating terms.
- Levee Districts (Wat. Code, § 70000 et seq.)
 - May acquire drains, canals, sluices, bulkheads, watergates, levees, embankments, pumping plants and pipelines by purchase, condemnation, gift or any other legal method. May also purchase, construct, or otherwise acquire, maintain and keep in repair all reasonable or convenient mechanisms that protect district lands from overflow and conserve or add water to sloughs and drains in the district.
 - May be formed for the protection of district lands from overflow and to conserve or add water to district sloughs and drains. A levee district is formed by a petition to the county board of supervisors signed by at least 50 percent of the landowners within the portion of the county that will fall within district boundaries; the petition must also be signed by owners of 50 percent of the land to be included, whether that land is incorporated or not.
 - Upon formation, a levee district will have a board of 3 directors. Each director must be an elector of the district and will serve four-year terms,

Special Districts Options

- Protection District Act of 1880 (Deering's Ann. Water Uncod. Acts)
 - Has the power to acquire, by donation or purchase, any real or personal property needed for the district. The district will hold that property for district use and, when necessary and as provided by law, may exercise the right of eminent domain. Will be in charge of all protection works, construction, or repair, and will have the power to perform all acts necessary to accomplish district objectives.
 - Petition by landowners of any land not recognized as swamplands but which is susceptible to and in need of protection from overflow to provide that protection. Must be presented to the Board of Supervisors of the county in which the larger portion of land is situated and include the proposed district boundaries; protection district boundaries may not include boundaries of any other protection or reclamation district. The petition must include the number of acres or city lots included within the proposed district.
 - Direct an election for 3 trustees to be held within 20 days from the date of the order granting the petition. Trustees must be resident landowners of the district. Following the initial election, 2 of the trustees will serve 2-year terms and 1 trustee will serve a 4-year term. Thereafter, the term of office for all trustees will be staggered 4-year terms. Within 20 days of their election, the trustees are to meet to elect a chairman and secretary.

Special Districts Options

- Protection District Act of 1895 (Deering's Ann. Water Uncod. Acts)
 - Board of Supervisors has the power to purchase, receive by donation, or acquire by condemnation any real or personal property necessary to carry out district purposes. The board may employ engineers, surveyors, and others to survey, plan or locate, or supervise the construction or repair of district improvements. District improvements may include: (1) widening, deepening, changing or straightening navigable stream channels, watercourses or washes; (2) construction of new channels for such watercourses; or (3) construction of levees, banks, dikes, conduits, ditches, and canals for the conveyance of water or to confine watercourses to their respective channels.
 - May be formed by a county board of supervisors, upon receipt of a petition from 10 landowners, to engage in any or all of the following purposes: (1) protect property from damage; (2) widen, deepen, change, straighten or navigable stream channels, watercourses or washes; (3) construct new channel(s); or (4) erect levees, dikes or other formations to prevent overflow.
 - Governed and controlled by the board of supervisors of the county in which it is situated. After surveying district land to determine necessary construction or repair of improvements, the board appoints 3 commissioners to estimate costs for the proposed improvements and work required to carry them out. Commissioners have the necessary powers to carry out the provisions of the 1895 PDA, and any actions taken by a majority are considered as acts of the board of supervisors.

Special Districts Options

- **Flood Control and Water Conservation District**
 - May acquire and receive land, money, and other property that may be necessary or useful for district purposes by gift, purchase, lease, contract, or any other legal means. Also has the power to (1) construct dams, protective barriers, and incidental works necessary to carry out flood control and flood water conservation purposes; and (2) condemn property for the purpose of constructing and protecting dams, protection barriers, and other necessary improvements.
 - The district is formed by filing a petition with the board of supervisors in the county where the proposed work is to be performed. The petition must describe the boundaries of the proposed district. The petition must be signed by landowners representing at least 25 percent of the total assessed valuation of all the lands within proposed district boundaries and contain at least 10 signatures of persons who will benefit from the formation of the proposed district and the proposed work. The petition must include a general description of the work contemplated, as well as an estimate of the cost.
 - Governed and managed by a board of 5 trustees, appointed by the county board of supervisors. The trustees hold office for a term of 4 years and receive no compensation but are allowed reimbursement for necessary travel and other expenses incurred in the performance of their duties.

Special Districts Options

- **Public Agency Created by Special Legislation**
 - If none of the options identified above are the right fit, another option is to seek special legislation that creates a new entity which can be designed to fulfill the exact needs.
 - Special legislation is generally appropriate where the area to be covered by the new district or agency has special conditions that are specific to the area and general law cannot address those. The powers granted to districts created by special legislation can be quite broad but tailored to accomplish specific goals.
 - Examples:
 - Brannan-Andrus Levee Maintenance District Act
 - Sierra County Flood Control and Water Conservation District
 - Siskiyou County Flood Control and Water Conservation District

Special Districts Options

- LAFCo formation process/action would be required for all the previous options.
- Another option is a Joint Powers Authority (JPA)
 - Does not require LAFCO process
 - The agency created by a joint powers agreement will possess the common powers specified in the agreement and may exercise them in the manner or method provided in the agreement. If the agency is not one or more of the parties to the agreement but instead a separate entity, then pursuant to the agreement, that agency may enter into contracts; employ agents and employees; acquire, construct, manage, maintain or operate any building, works or improvements; or acquire, hold or dispose of property or incur debts, liabilities or obligations.
- As the County is not the flood control entity, creating an entity for flood control and creek maintenance would allow for a dedicated service to the constituents in Bolsa Knolls for clearing sediment from the Santa Rita Creek, and could strive for the long term project alternatives.

Staff Recommendations

- Receive a presentation and accept the Santa Rita Creek drainage study through Bolsa Knolls; and

- Provide direction to staff on potential next steps. Such as:
 - Select one of the Alternatives from the Study; or
 - Opt to use Code Enforcement; or
 - Further explore establishing a new special district; or
 - Other action

Questions or Comments?

