

Las Lomitas / Town of Atherton



Long Term Flood Mitigation

April 17, 2024

Images, sketches, and concepts courtesy of Callander Associates and prior work for LLESD and Town of Atherton by BKF Engineers and Callander Associates.



Non-Bond Project Funding

- The funding for the non-bond facility and maintenance projects will be through anticipated FEMA grant funds and the additional required funds from sources that can only be used for facilities and maintenance projects.
- It will not impact any programmatic decisions.
- It will not impact any collective bargaining decisions for next year.

Challenges – Prior Considerations

Volume of Flow Approaching School

- Capture and store volume
- Reduce volume upstream
- Bypass school

Barrier of School

- Bypass through existing culverts
- Bypass with new flow path

Shallow Groundwater

- Detention needs to be above seasonal groundwater
- Reduces potential for infiltration

Compatibility with School Use

- Maintain accessible routes and useable slopes for play
- Parking lot is well used

Debris in Channel

- Elimination allows full capacity of main culverts
- Reduce potential for clogging of overflow

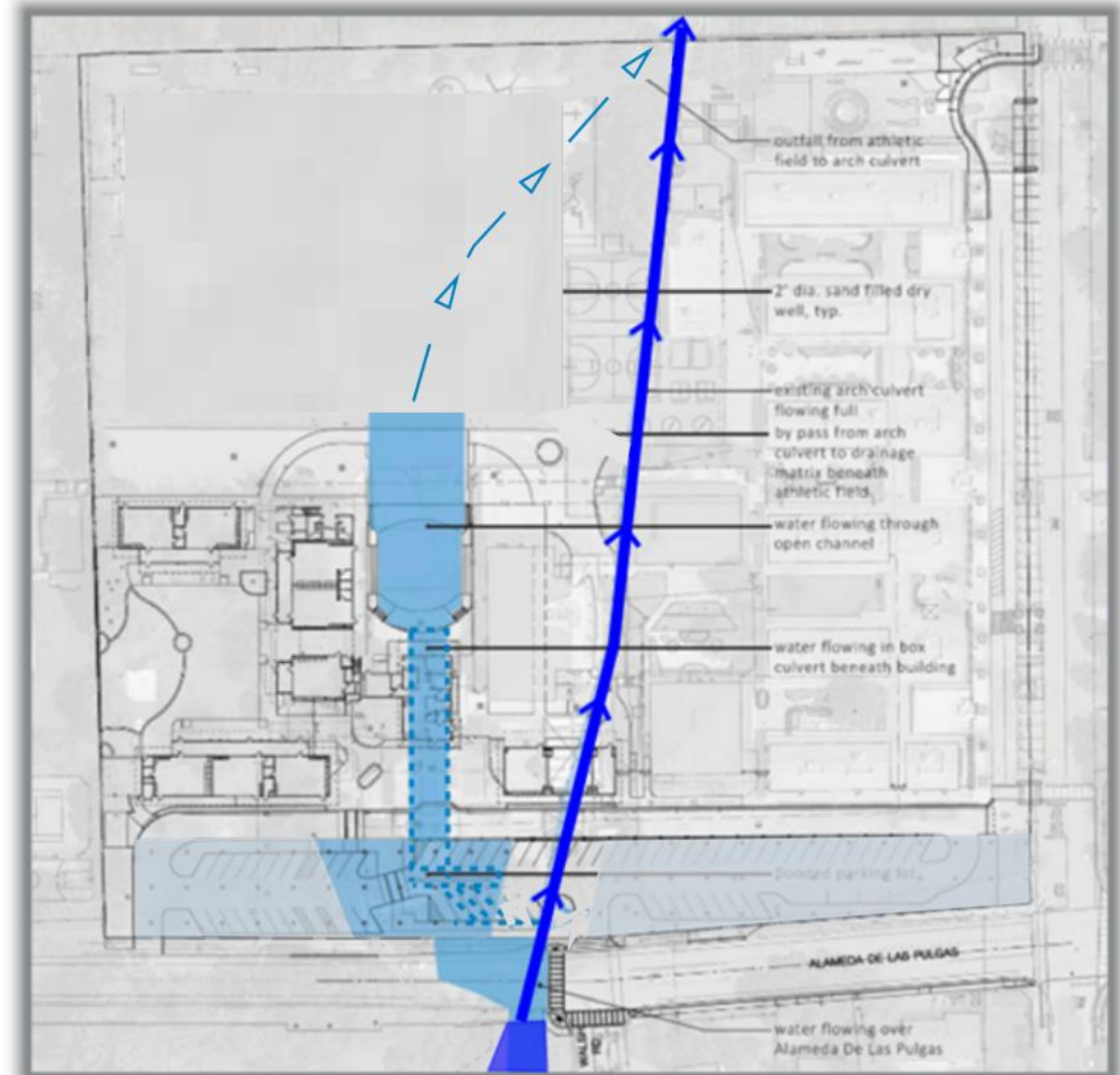
Volume of Flow Approaching School

- Upstream drainage area is about 1,200 acres and involves multiple jurisdictions:
 - Town of Woodside
 - Town of Atherton
 - City of Menlo Park
 - County of San Mateo
 - Caltrans
- Solutions considered for the school include:
 - Reducing flows upstream
 - Bypass school with alternative flow route
 - Capturing and storing on-site



Barrier of School

- School property in path of historic creek alignment – now in culverts under campus
- Existing and new culverts have limited capacity:
400 cfs and 175 cfs, respectively, with no ability to add more capacity



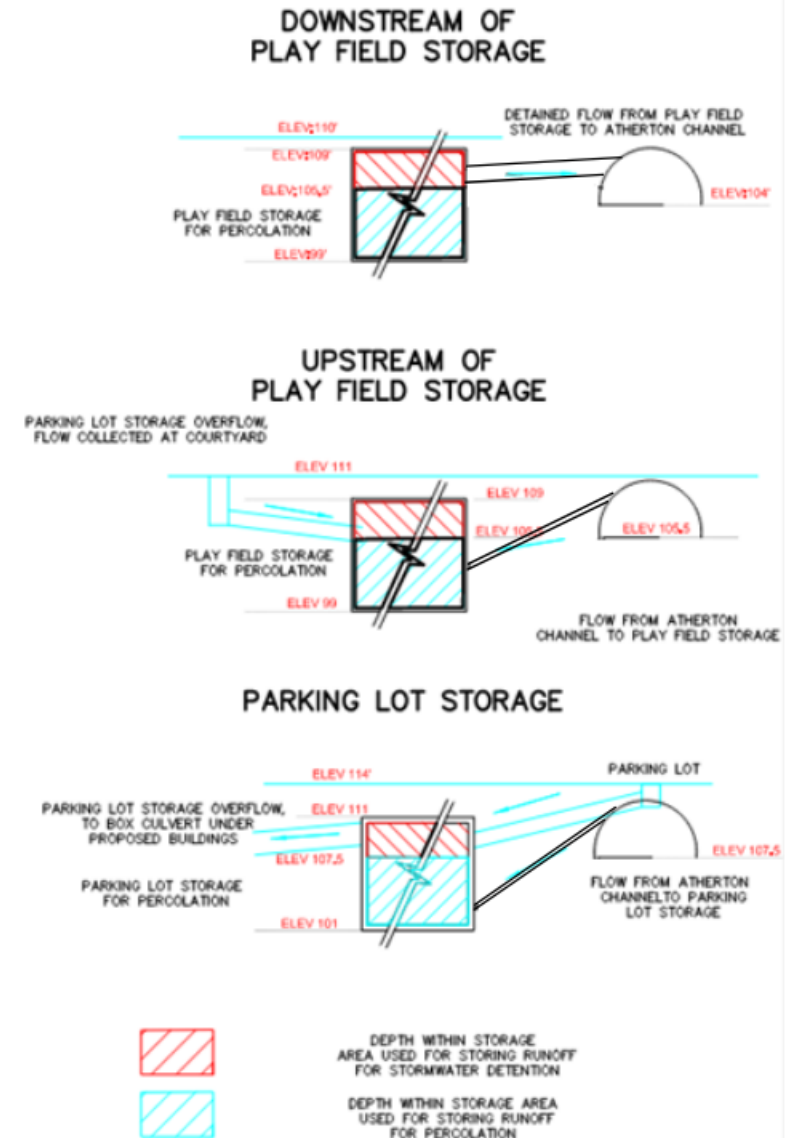
Barrier of School

- Detention/storage can only utilize flow in culverts (overflow or typical)
- Overland path of excess flows are neighboring properties, along Alameda, or through the school



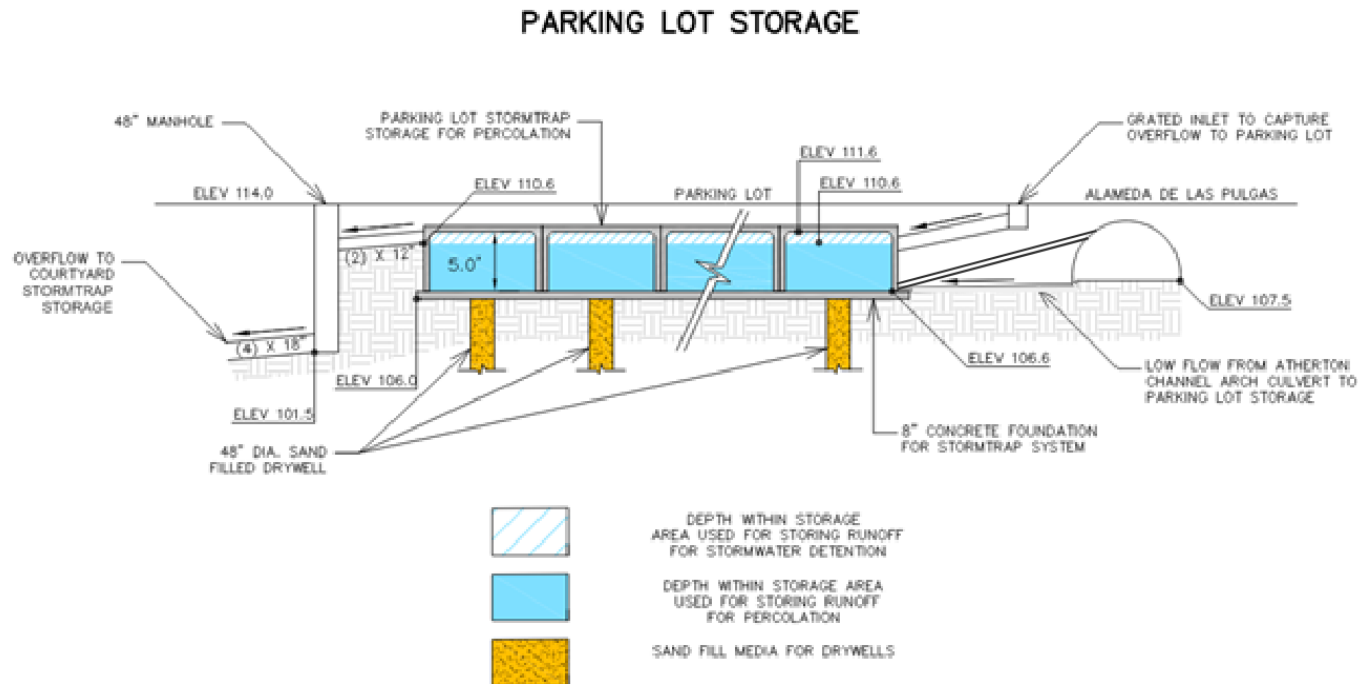
Shallow Groundwater

- Storage of runoff, needs to be above seasonal groundwater elevations, but below creek flow
- Requires isolating storage from groundwater and utilizing pumps to take advantage of potential volume



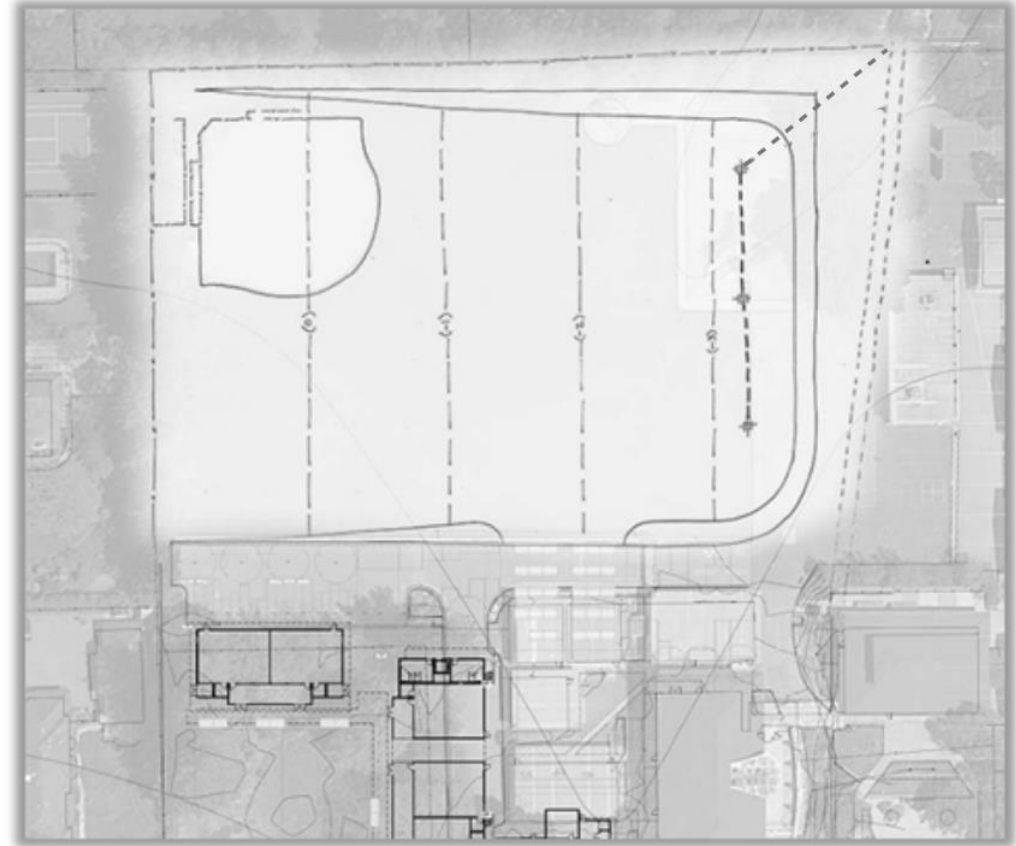
Shallow Groundwater

- Infiltration may only be possible below claystone layer (5 inches per hour per SF)
- Effective infiltration of entire upstream drainage basin: (24) 48" dry wells = 0.032 inches per hour



Compatibility with School Use

- New storage solutions or flow pathways should maintain current uses by the school
 - Maintain area of ballfield
 - No excessive slopes
- Parking lot is well used and should maintain number of parking spaces



Debris in Channel

- Eliminating or managing debris in channel at the culvert opening will allow full capacity
- Reducing the amount of debris in the channel that is carried into the overflow will reduce potential for clogging overflow inlets, clogging outlet screens, and reduces maintenance to clear overflow culverts
- Measures in process
 - Upstream cleaning
 - Creek lining
- Future measures to consider
 - Trash rack



Considerations from Prior Evaluations

Two options for detention on school property do not provide value or relief to the school, only for downstream property:

- 1) Above-grade – lower play field
 - Will be above groundwater but lower portions may remain soggy during wet season
 - Can only take overflow from culverts (including bypass)
 - Does not reduce flood waters approaching school – limited by capacity of culverts
- 2) Below-grade - under play field
 - Groundwater limits storage capacity
 - Same culvert limitations
 - Expensive

Recommendations

Solutions to reduce flood potential from upstream 1,200 acres should be evaluated and may provide some value and relief to the school:

- Add infiltration and detention upstream – green infrastructure in public right of way
 - Alameda can be good barrier opportunity
 - Smaller measures on smaller streets
- Consider dry wells and basins in creek
- Add trash rack at culvert opening to allow full capacity of original culverts
- Consider diversion options

Next Steps

1. Develop Maintenance Plan (with Town of Atherton)
 - a) Existing culvert (disputed)
 - b) Creek (Town)
2. Study Flood Mitigation Measures in upper watershed
3. Present and develop solutions with agency jurisdictions and stakeholders
4. Identify additional funding opportunities (grants, PPP, etc.)
5. Design and Implementation