

# **Preliminary Conceptual Water System Design and Management Plan for the Cui Family Land Subdivision**

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This memorandum documents the proposed preliminary conceptual water system design and management plan prepared by Stetson Engineers Inc. (Stetson) in support of the Cui Family Land Subdivision Project (Project) in Point Reyes Station, Marin County, California. It also serves as a response to the NMWD's Letter of Intent (dated 10/22/2024) regarding the required water system facilities.

## **Project Description**

The subject property (82.32 acres) is located near 11798 State Route 1, Point Reyes Station in the unincorporated area of Marin County (APN: 119-050-04, 119-050-09, 119-140-03, and 119-140-09). It is within the village limit boundaries of the community of Point Reyes Station and located within the Coastal Zone. Figure 1a shows the property location in Marin County and Figure 1b shows the project vicinity and the existing property parcels (4 parcels). The property is bounded by Point Reyes-Petaluma Road and Lagunitas Creek on the south, State Route 1 to the west, rural residential housing to the north, and open pastureland to the east. The project site is currently vacant and undeveloped.

Figure 2a shows the Coastal Zone land use zoning and the property location. The property is within the zoning of C-ARP-3 -- Coastal, Agricultural, Residential Planned (1 unit per 3 acres). The C-ARP land use zoning is designed to preserve productive lands for agricultural use through the clustering of allowed residential development.

The project site is subject to the Marin Countywide Plan (CWP)'s C-AG3 (Coastal Agricultural 3; 1 unit per 1 – 9 acres) land use designation. The C-AG3 land use category was established for residential use within the context of small-scale agricultural and agriculturally related uses. According to Map 19e Point Reyes Station Land Use Policy Map, the density associated with C-AG3 is 1 unit per every 1 to 9 acres (see Figure 2b).

The 82.32-acre subject property is proposed to be subdivided into 37 parcels for future single-family residential development (see Figure 3). Of the 37 parcels, 5 parcels are designated as affordable housing. The subdivision considered a density bonus of 35% after meeting the 20% affordable housing requirement. Preliminary plan shown in Figure 3 indicates that individual lots will range between about 1.02- and 8.2-acres, meeting the density requirement for the C-AG3 land use designation (1 unit per 1 to 9 acres).

The land subdivision proposal includes conceptual plans for new driveways to access all the new parcels and driveway tie-in aprons at State Route 1 and Point Reyes-Petaluma Road, roadway improvements to Point Reyes-Petaluma Road at the southeast corner, utility installation and maintenance areas, onsite wastewater treatment systems, limited tree removal, and general grading to accommodate site improvements such as new driveways.

Access to the development will be provided via an eastward extension of the existing Water Tank Road, via a new access driveway from State Route 1 a few hundred yards north of the existing Water Tank Road, and a new driveway extending from Point Reyes-Petaluma Road in the southeast corner of the site (see Figure 3).

### **Preliminary Conceptual Water System Design**

Figure 4 shows the proposed preliminary conceptual water system design. This figure also shows the NMWD's existing water system facilities near the Project site, existing groundwater wells (abandoned), topographic contour lines, and FEMA flood zones.

The proposed preliminary conceptual water system includes two tie-in locations, two new booster pump stations, one new storage tank, and various pipelines along the new driveways. In general, water will be pumped by the new booster station near HWY 1 to fill the new storage tank (at elevation 385 ft NAVD88) and along the way provide water supply to the buildings with elevations around 280 ft or lower. When the tank is fully filled, the booster station will be OFF and the tank water will then flow back by gravity to the buildings with elevations around 280 ft or lower. The second new booster station near the new storage tank will pump water from the tank to the buildings with elevations higher than 280 ft. This way all the buildings will have adequate pressures ranging from 40 psi to 100 psi (water head from 92 ft to 231 ft). The new booster station near the new storage tank will need to have a small capacity pump for normal water supply operations and a large capacity fire pump (standby) for firefighting. This booster station will need to be ON continuously to provide water supply for the high elevation buildings.

Under this conceptual design, there is a need to have parallel pipelines between the new storage tank and building #24. One of the parallel pipelines is dedicated for filling the new storage tank and flowing back by gravity to the buildings with elevations around 280 ft or lower. The other pipeline is used for providing water supply by the second new booster station from the storage tank to certain buildings with elevations higher than 280 ft.

The proposed new storage tank and booster pump stations are located near the paved driveways and are publicly accessible for inspection and maintenance.

No new well is proposed since there is no appropriate location at/near the Project site that is outside of the FEMA 100-year flood zone and can also provide sustainable groundwater supply.

If this design concept is acceptable to NMWD, the next step will be to prepare storage capacity analysis and hydraulic modeling analysis to size the new water facilities so that the system will have adequate pressures and fire flow capabilities. Detailed designs will then be prepared.

## **Financial Arrangement for New Water Source Development**

The NMWD's Letter of Intent requires a new water source to be developed for the Project. As mentioned above, no new well is proposed since there is no appropriate location at/near the Project site. The property owner is willing to discuss with NMWD for the financial arrangement by providing funding to NMWD in lieu of the new source development by the property owner.

According to the NMWD Regulation No.1, the design maximum day demand (MDD) is 210 gallons per day (gpd) per each dwelling unit. The estimated MDD for the Project (37 dwelling units) is 7,770 gpd or about 5.4 gpm. This would be the minimum new source capacity required for the Project. Assuming the ADD to MDD peaking factor at 1.6, the average day demand (ADD) for the Project is estimated to be about 4,856 gpd or 5.4 acre-ft per year.

It would be greatly appreciated if NMWD could provide an initial funding estimate for discussion with the property owner on the new water source development.

## **System Operations Arrangement**

The NMWD's Letter of Intent requires that a new storage tank be constructed at a suitable location so that water pressure between 40 and 80 psi would be provided by the tank (by gravity) to each parcel that cannot be reasonably served by the existing tanks in the Point Reyes area. As shown in Figure 4, the northeast area to the Project site has higher elevations but is outside of the NMWD service area boundary. This means that the new storage tank can only be located within the Project site and will not be able to provide water pressure between 40 and 80 psi for all parcels. That is why the combined storage tank and booster pump station system is proposed for this Project.

It is understood that NMWD doesn't have the resources in west Marin to operate and maintain a complex booster pump system and prefers a gravity system, although the operations of the proposed conceptual system are not really complicated.

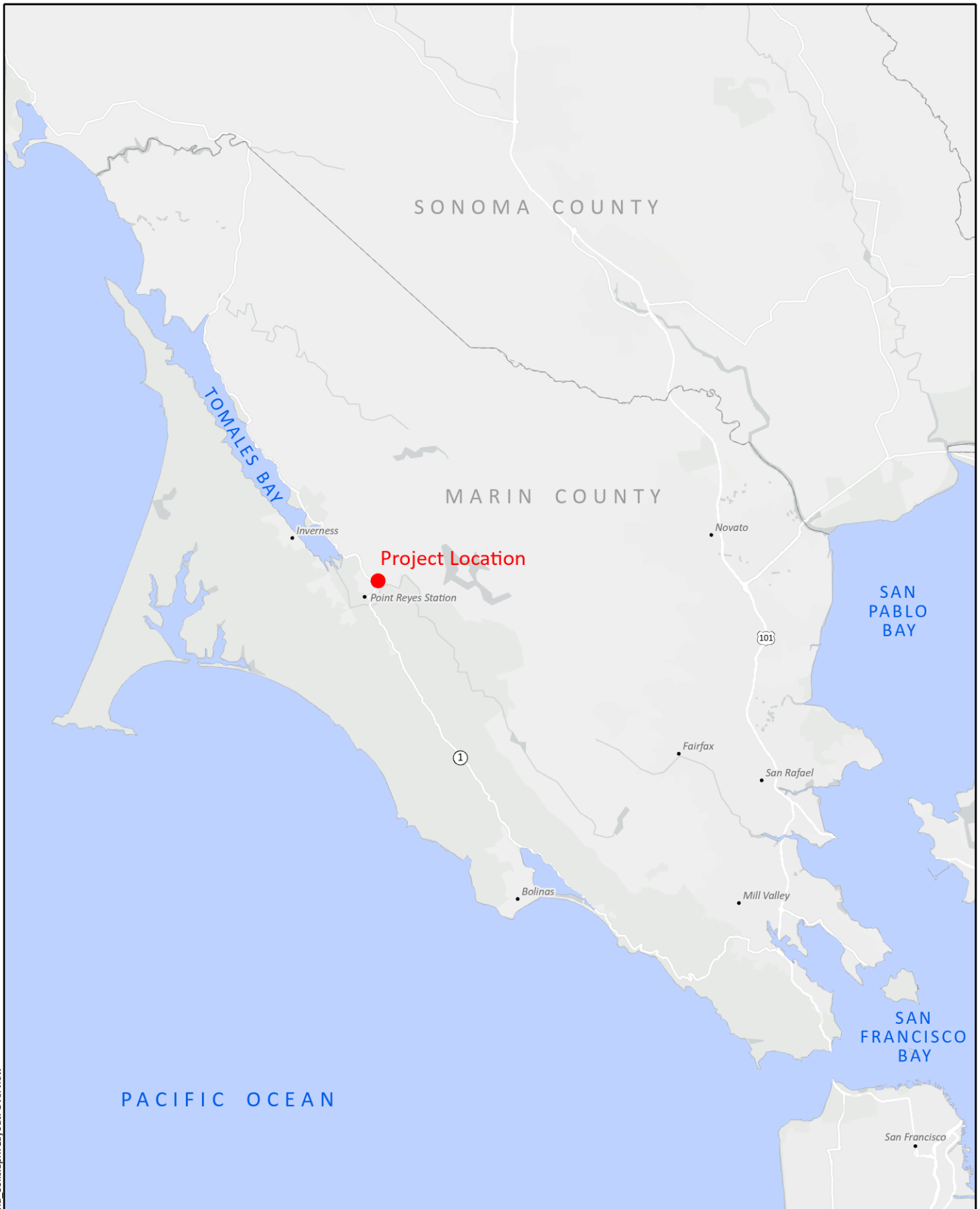
The following two alternatives are proposed:

- 1) The Homeowners Association (HOA) for the Project manages the system operations under the direction of NMWD.
- 2) The property owner provides funding to NMWD to acquire additional resources to manage the system operations. Under this alternative, funding will start at the time when the system operations begin.

## **Other Requirements in the NMWD's Letter of Intent**

The Project will meet all other requirements specified in the NMWD's Letter of Intent. All analyses and designs for the water system will be provided to NMWD for review and approval.

Figure 1a



Path: J:\n2904\Stormwater\_and\_Soils.aprx Layout: Overview



Note:

**PROJECT LOCATION  
POINT REYES STATION, CA**

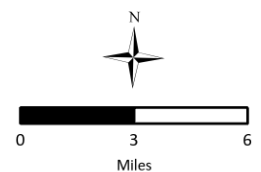
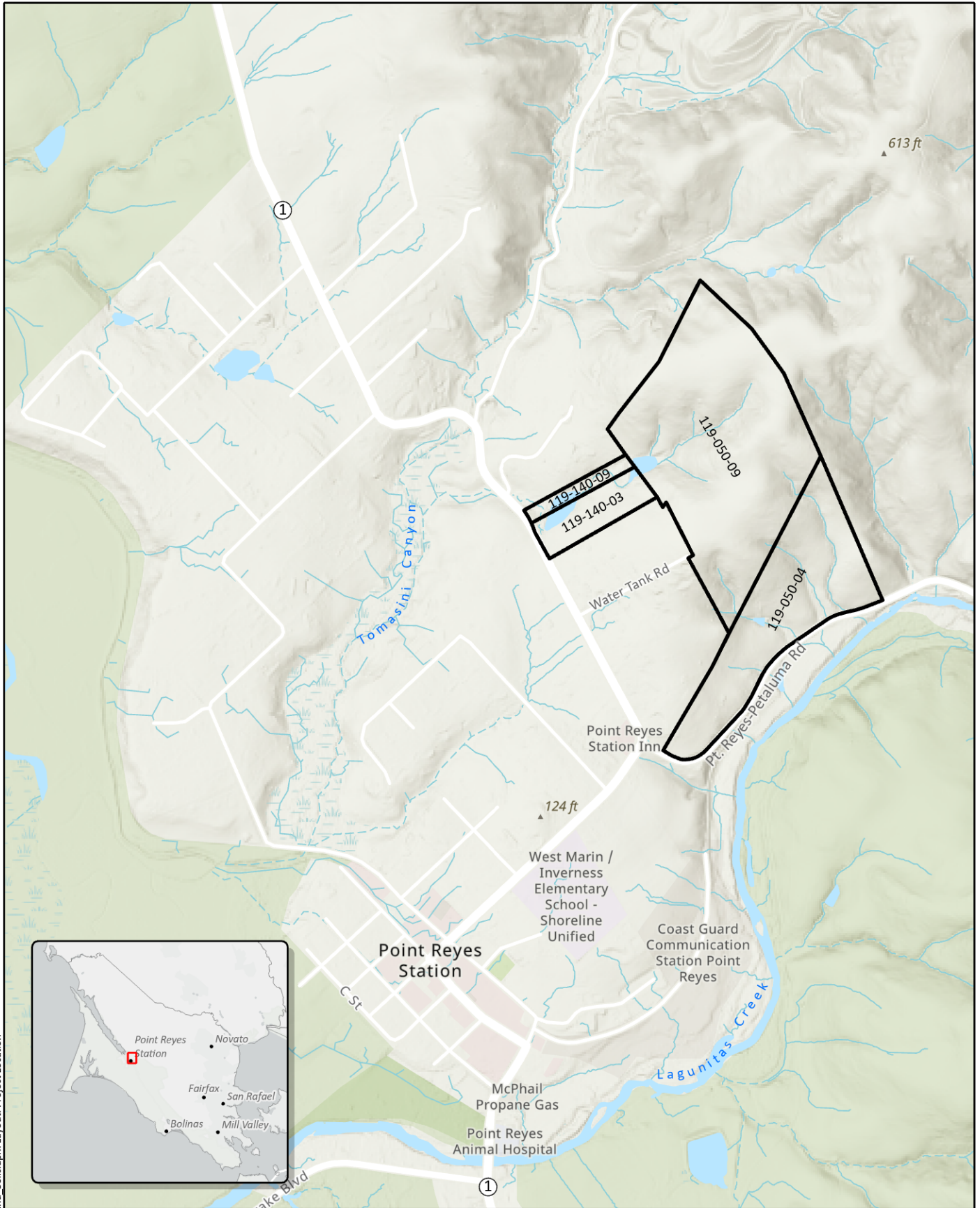


Figure 1b

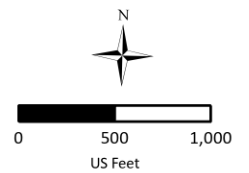


Path: J:\n2904\Stormwater\_and\_Solls.aprx Layout: Project Location

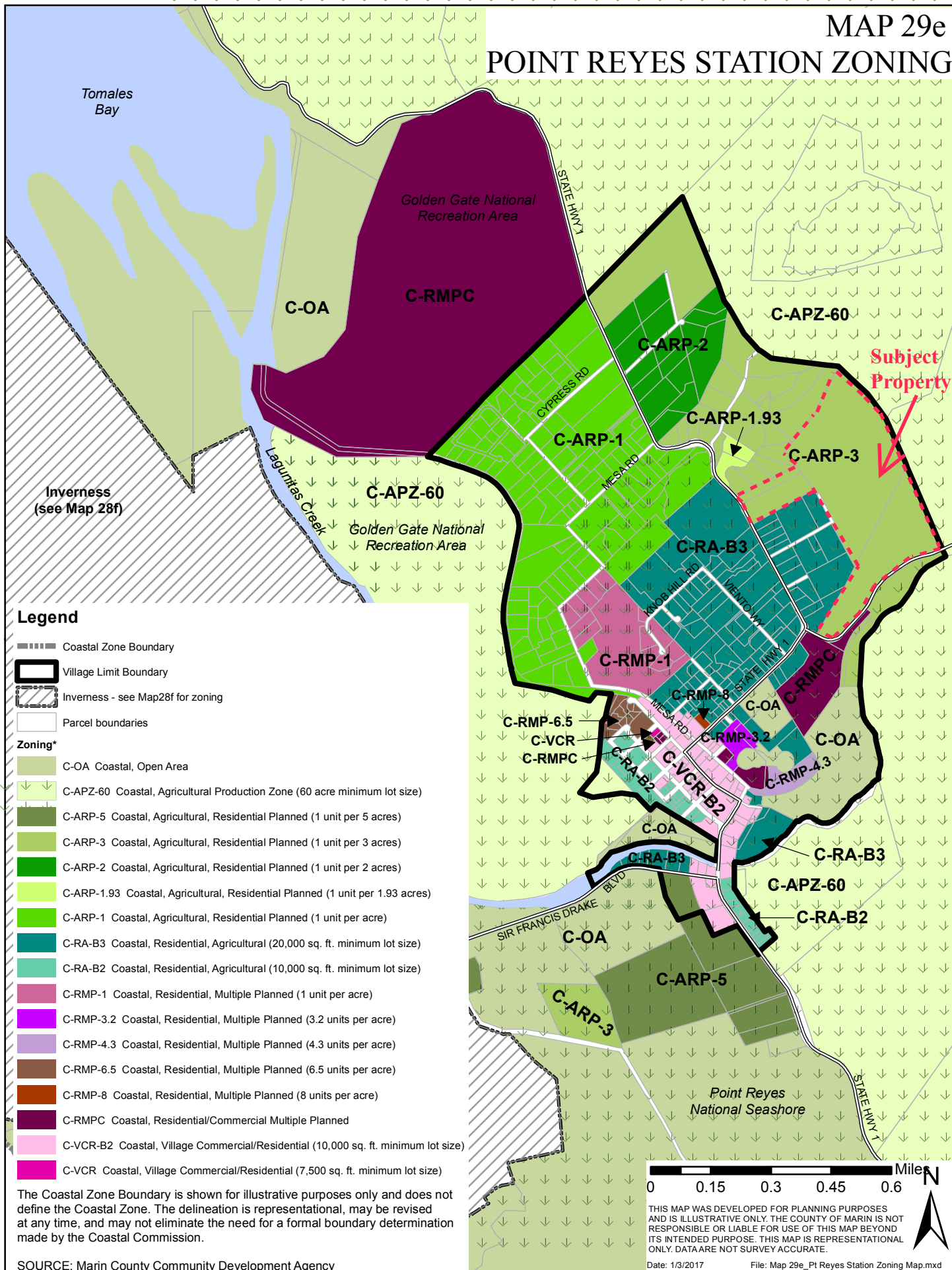


**PROJECT VICINITY AND EXISTING PROPERTY PARCELS  
POINT REYES STATION, CA**

Note: Parcel Boundaries from Marin County.



# MAP 29e POINT REYES STATION ZONING



### Legend

- Coastal Zone Boundary
- Village Limit Boundary
- Inverness - see Map28f for zoning
- Parcel boundaries

### Zoning\*

- C-OA Coastal, Open Area
- C-APZ-60 Coastal, Agricultural Production Zone (60 acre minimum lot size)
- C-ARP-5 Coastal, Agricultural, Residential Planned (1 unit per 5 acres)
- C-ARP-3 Coastal, Agricultural, Residential Planned (1 unit per 3 acres)
- C-ARP-2 Coastal, Agricultural, Residential Planned (1 unit per 2 acres)
- C-ARP-1.93 Coastal, Agricultural, Residential Planned (1 unit per 1.93 acres)
- C-ARP-1 Coastal, Agricultural, Residential Planned (1 unit per acre)
- C-RA-B3 Coastal, Residential, Agricultural (20,000 sq. ft. minimum lot size)
- C-RA-B2 Coastal, Residential, Agricultural (10,000 sq. ft. minimum lot size)
- C-RMP-1 Coastal, Residential, Multiple Planned (1 unit per acre)
- C-RMP-3.2 Coastal, Residential, Multiple Planned (3.2 units per acre)
- C-RMP-4.3 Coastal, Residential, Multiple Planned (4.3 units per acre)
- C-RMP-6.5 Coastal, Residential, Multiple Planned (6.5 units per acre)
- C-RMP-8 Coastal, Residential, Multiple Planned (8 units per acre)
- C-RMPC Coastal, Residential/Commercial Multiple Planned
- C-VCR-B2 Coastal, Village Commercial/Residential (10,000 sq. ft. minimum lot size)
- C-VCR Coastal, Village Commercial/Residential (7,500 sq. ft. minimum lot size)

The Coastal Zone Boundary is shown for illustrative purposes only and does not define the Coastal Zone. The delineation is representational, may be revised at any time, and may not eliminate the need for a formal boundary determination made by the Coastal Commission.

SOURCE: Marin County Community Development Agency

0 0.15 0.3 0.45 0.6 Miles

THIS MAP WAS DEVELOPED FOR PLANNING PURPOSES AND IS ILLUSTRATIVE ONLY. THE COUNTY OF MARIN IS NOT RESPONSIBLE OR LIABLE FOR USE OF THIS MAP BEYOND ITS INTENDED PURPOSE. THIS MAP IS REPRESENTATIONAL ONLY. DATA ARE NOT SURVEY ACCURATE.

Date: 1/3/2017 File: Map 29e\_Pt Reyes Station Zoning Map.mxd

# MAP 19e POINT REYES STATION LAND USE POLICY MAP

The Coastal Zone Boundary is shown for illustrative purposes only and does not define the Coastal Zone. The delineation is representational, may be revised at any time in the future, is not binding on the Coastal Commission, and may not eliminate the need for a formal boundary determination made by the Coastal Commission.

## Legend

- Coastal Single Family
  - C-SF5 2-4 units/acre
  - C-SF4 1-2 units/acre
- Coastal Multi Family
  - C-MF3 5-10 units/acre
  - C-MF2 1-4 units/acre
- Coastal Planned Residential
  - C-PR 1 unit/1-10 acres
- Coastal Neighborhood Commercial / Mixed Use
  - C-NC 1-20 units/acre  
F.A.R. = 0.30 TO 0.50
- C-OS Coastal Open Space
- Coastal Agricultural
  - C-AG3 1 unit/1-9 acres
  - C-AG1 1 unit/31-60 acres
- Village Limit Boundary

F.A.R. = Floor Area Ratio

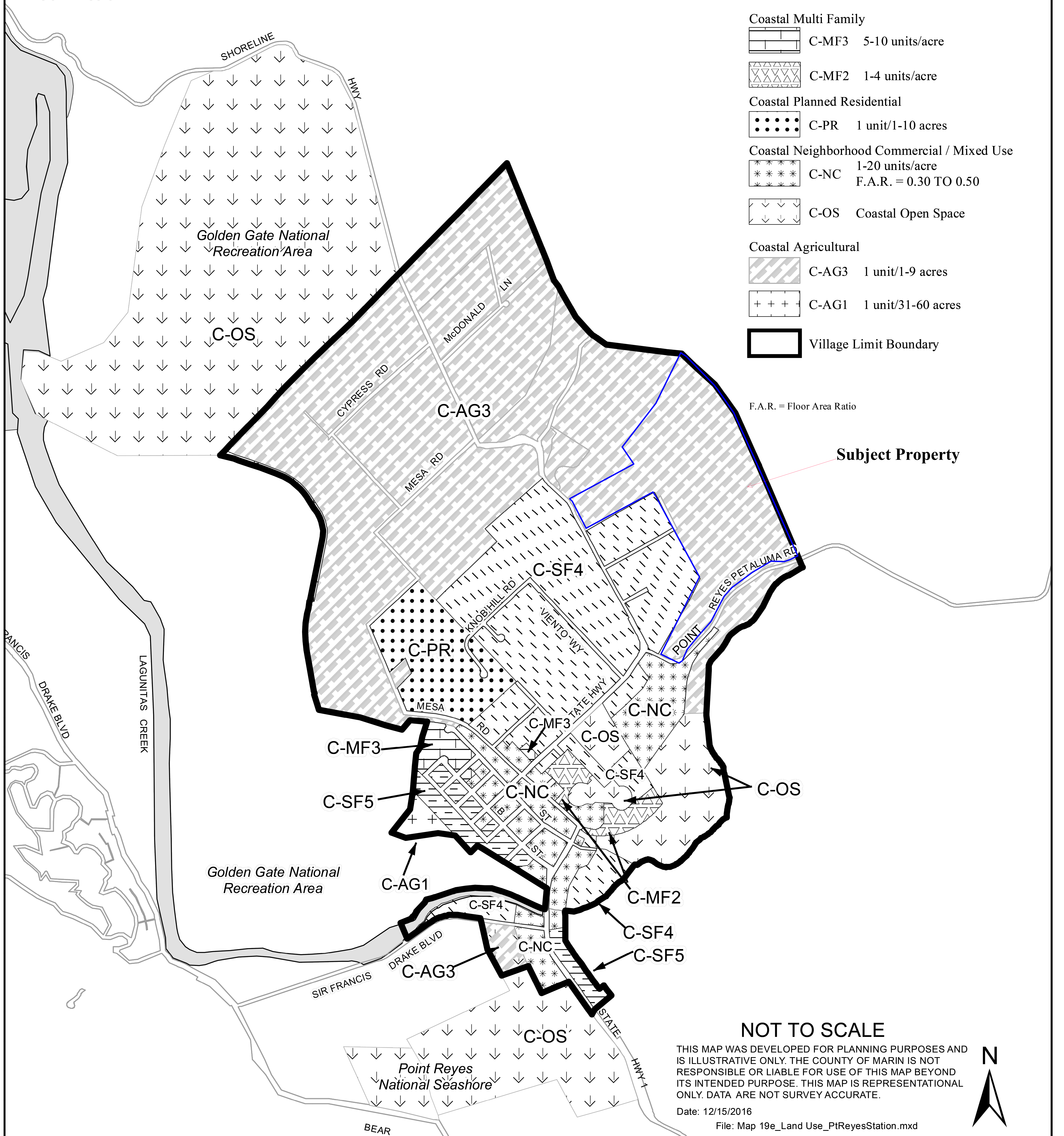
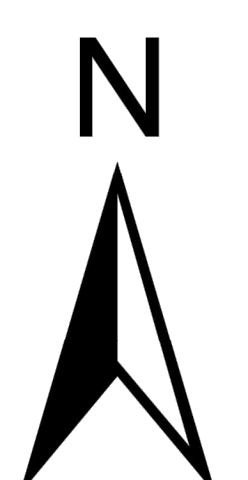
Subject Property

### NOT TO SCALE

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Date: 12/15/2016

File: Map 19e\_Land Use\_PtReyesStation.mxd



# Legend

-  Land Boundary
-  Parcels 20240824
-  Leftovers
-  ESHA
-  Affordable Housing Pad
-  Market Housing Pad
-  Common Area
-  Public Area
-  Cutting Area 20240824
-  Filling Area 20240824
-  Balanced Area
-  Retaining Wall
-  Driveway CenterLine
-  Driveway Curb Line
-  Entrance Centerline
-  Bike Lanes
-  Public Road

Figure 3  
Preliminary Subdivision

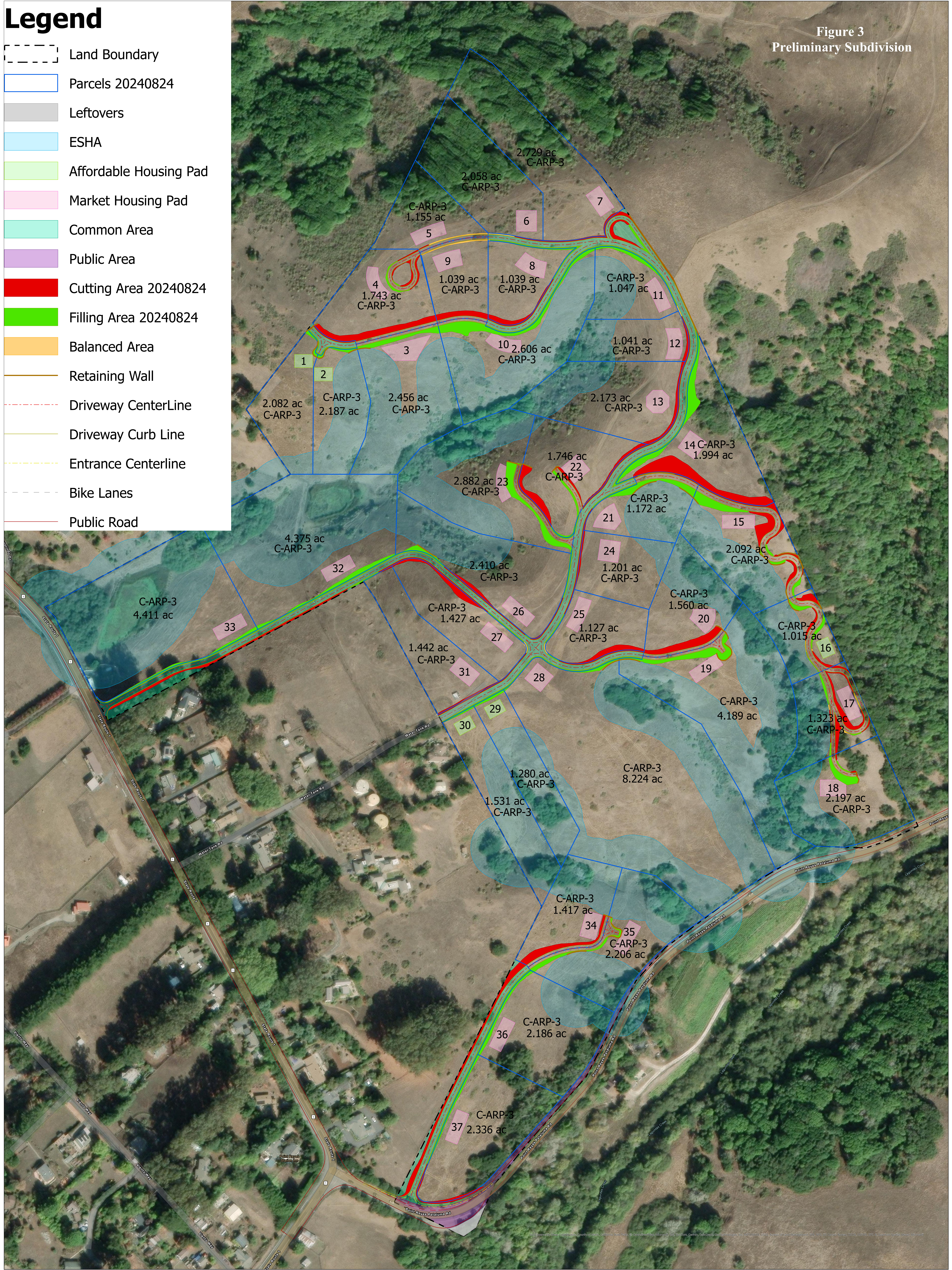
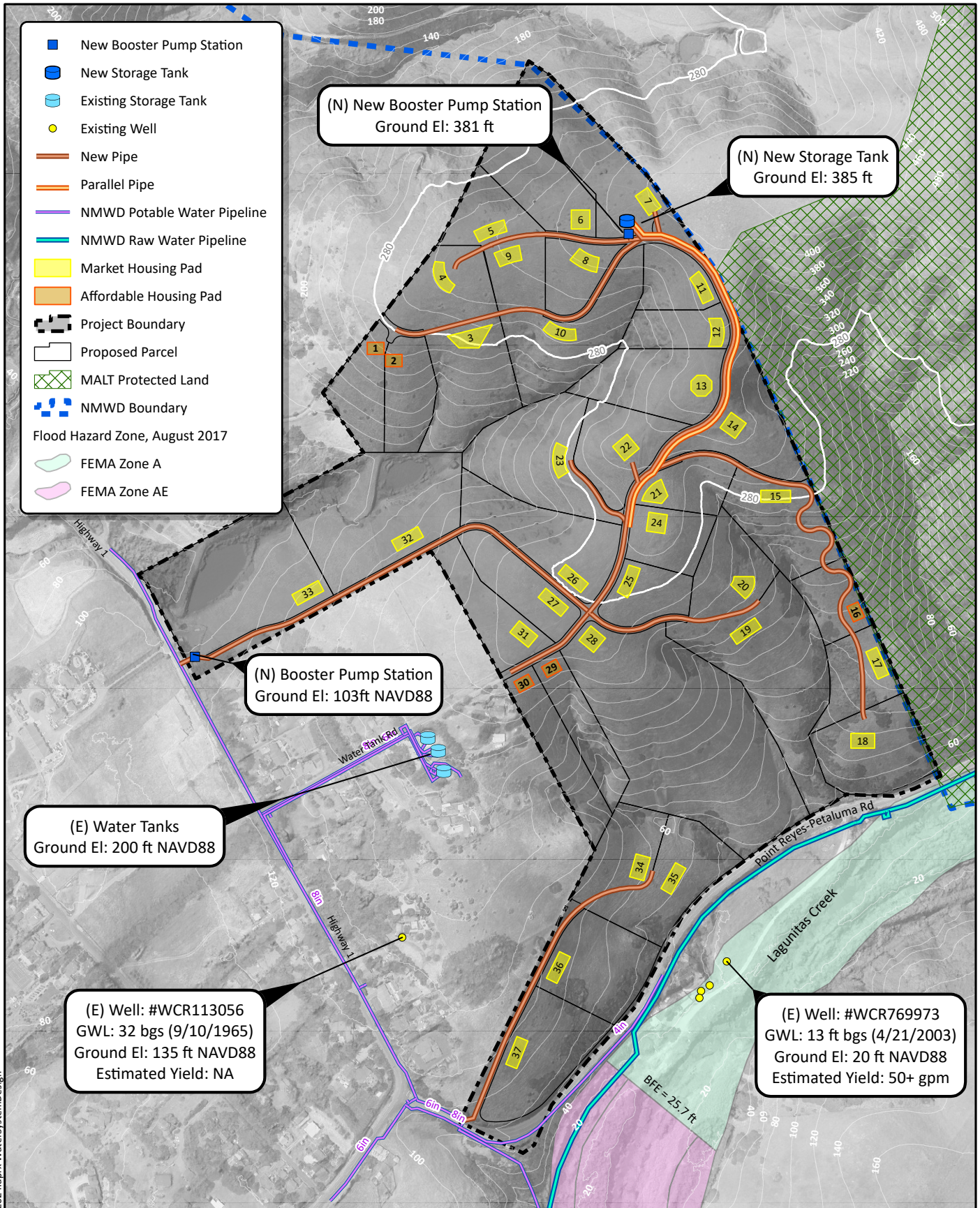


Figure 4



- New Booster Pump Station
- New Storage Tank
- Existing Storage Tank
- Existing Well
- New Pipe
- Parallel Pipe
- NMWD Potable Water Pipeline
- NMWD Raw Water Pipeline
- Market Housing Pad
- Affordable Housing Pad
- Project Boundary
- Proposed Parcel
- MALT Protected Land
- NMWD Boundary
- Flood Hazard Zone, August 2017
  - FEMA Zone A
  - FEMA Zone AE

(N) New Booster Pump Station  
Ground El: 381 ft

(N) New Storage Tank  
Ground El: 385 ft

(N) Booster Pump Station  
Ground El: 103ft NAVD88

(E) Water Tanks  
Ground El: 200 ft NAVD88

(E) Well: #WCR113056  
GWL: 32 bgs (9/10/1965)  
Ground El: 135 ft NAVD88  
Estimated Yield: NA

(E) Well: #WCR769973  
GWL: 13 ft bgs (4/21/2003)  
Ground El: 20 ft NAVD88  
Estimated Yield: 50+ gpm

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**CUI FAMILY LAND SUBDIVISION  
PRELIMINARY CONCEPTUAL WATER SYSTEM DESIGN**

Note:

