

Visual Impacts Analysis

May 25, 2016

Public views of major landmarks and scenery in West Marin, including Mount Tamalpais and Point Reyes National Seashore, would not be significantly impacted by additional elevation of structures to address sea level rise (SLR). Highway 1 and Sir Francis Drake Boulevard lead residents and visitors past scenic beaches, parks, water bodies and open space areas along the coast. Communities with homes that may be elevated include Stinson Beach, Bolinas, East Shore, and Inverness. Pursuant to County-proposed policy C-EH-9, any structure more than 30 feet high would be required to conduct an individual evaluation of conformance with public views and community character.

Home elevation requirements can be estimated using FEMA base flood elevations (BFEs) based on the 2015 Preliminary Flood Insurance Rate Maps, and SLR projections of flood depth at a 3 foot scenario (USGS CoSMoS model, 2014). For properties located outside of a FEMA Special Flood Hazard Area (SFHAs/A and V Zones) but situated within an area projected to be exposed to the 3 foot SLR scenario, home elevation requirements are based on the site specific SLR flood depths. However, site-specific surveys are required to determine the current height of building floors for FEMA home elevation certificates, and to calculate the amount a structure would need to be elevated to be safe from flooding and sea level rise.

Over the past three years, Marin County Community Development Agency (CDA) staff have spent ample time in West Marin for community workshops, tours, and interviews, and have observed few, if any, instances that additional building elevation would impact public views. To substantiate these qualitative observations, CDA staff analyzed potential visual impacts through tools including GIS mapping, and Google earth/street view, as well as taking photos and videos from Shoreline Highway, Sir Francis Drake and Wharf Road toward the open coast or Tomales Bay. *Through this comprehensive analysis, staff conclude that visual impacts will be minimal as there are only a few places in which additional elevation will block views from public places.* These locations include small clusters of homes in Inverness and East Shore.

This memo outlines visual impact considerations for West Marin communities with homes exposed at a 3-foot SLR scenario lying within SFHAs that may be subject to additional elevation requirements. The information also pertains to properties exposed to 3 feet SLR outside SFHAs. Attached maps and photos support the descriptions below. Additionally, CDA staff will transfer the videos taken along Shoreline Highway in Stinson Beach and East Shore, and along Sir Francis Drake Boulevard in Inverness and to the CA Coastal Commission's ftp site.

Stinson Beach

Stinson Beach has 169 houses exposed to 3 feet of SLR, many of which also fall within SFHA (Map 1). Marin County CDA staff videotaped a drive along Shoreline Highway at Bolinas Lagoon to Stinson Beach and documented our analysis that existing views are already blocked by vegetation and existing development; thus additional elevation would have no impact on these qualities. Please see video footage transferred to the ftp site.

Bolinas

Bolinas has approximately 17 homes that may be exposed to 3 feet of SLR. The BFE for this AE zone is 10 feet, and SLR flood depth varies from 3-5 feet. These homes are located close to one another along Wharf Road and already partially block views toward Bolinas Lagoon and Mount Tamalpais (Map 2). Gaps between the houses, and from the nearby beach, offer visitors unobstructed views of the area. Additional elevation of homes along Wharf Road should have no further visual impacts.

East Shore

The majority of structures along the East Shore of Tomales Bay are located directly adjacent to Shoreline Highway. Several clusters of homes, located from 18115 to 19225 Shoreline Highway (Maps 3-8), are mostly level with the road at an approximate elevation of 10-12 feet. At their current height, these homes and their fences block views of Tomales Bay for an 800-foot stretch of road, though there is still ample room between the clusters of homes to view Tomales Bay. Additional elevation of these homes would not affect views from Shoreline Highway. The BFE in this AE zone ranges from 9-11 feet, and sea level rise flood depth varies from 1 to 4 feet.

Farther north, near the Inn on Tomales Bay and Nick's Cove, several waterfront homes are sited below the level of Shoreline Highway (22175 – 23240 Shoreline Highway, Map 8). Elevation of these homes may impact views from the road toward Tomales Bay. These homes are within SFHAs with BFEs of 11-12 feet, and the depth of additional flooding due to sea level rise varies from 1-4 feet. However, the homes are spaced apart from one another, and cypress and eucalyptus trees already obscure most of the views that elevated homes would occupy.

Inverness

Sixty-three buildings in Inverness fall within SFHA and may be exposed to 3 feet of SLR (Maps 9-13). BFEs vary from 9-10 feet, and SLR depths vary from 2-5 feet. These structures are generally widely spaced, and their elevation would not obscure views toward Tomales Bay from Shoreline Highway, or from the Bay to the forested hills beyond. There is a small number of lower lying houses for a limited stretch of the highway, which may obscure views if raised. These can be observed on the video footage that CDA staff have transferred to the Coastal Commission's ftp site.

Attachments:

- Flood Hazard Maps 1-13 (Stinson Beach, Bolinas, East Shore and Inverness)
- Video Footage of views from Shoreline Highway/Sir Francis Drake Blvd (transferred digitally to Coastal Commission's ftp site).

Stinson Beach 1 Flood Hazard Map - DRAFT



Legend

SLR Building Flood Depth (ft)

- 0
- 1
- 2
- 3
- 4
- 5

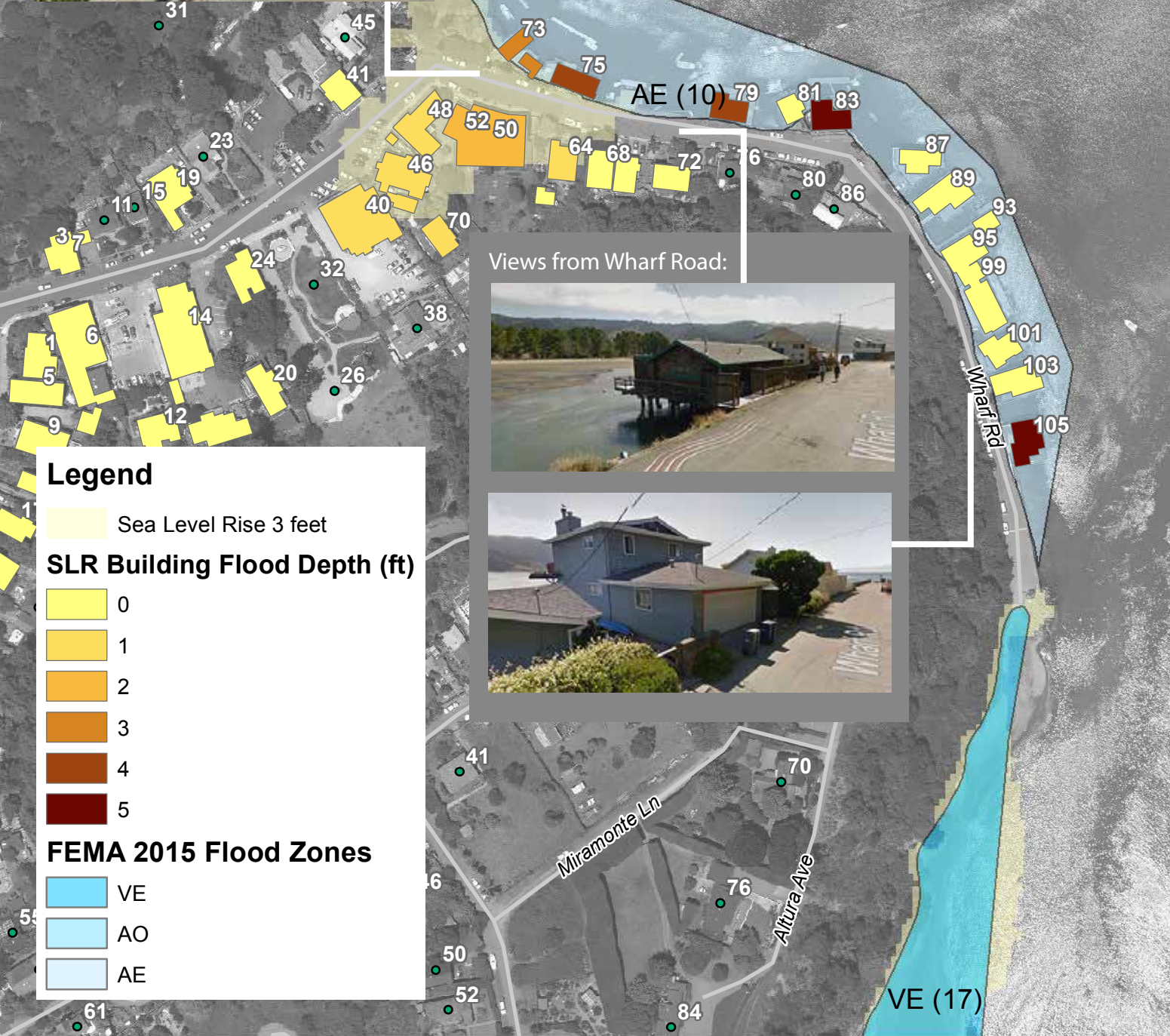
FEMA 2015 Flood Zones

- VE
- AO
- AE



Source: Federal Emergency Management Agency
(FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015
Marin County Community Development Agency, April 2016

Bolinas 2 Flood Hazard Map - DRAFT

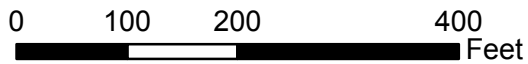


Views from Wharf Road:



Legend

- Sea Level Rise 3 feet
- SLR Building Flood Depth (ft)**
- 0
- 1
- 2
- 3
- 4
- 5
- FEMA 2015 Flood Zones**
- VE
- AO
- AE



Source: FEMA Preliminary Flood Insurance Rate Map 2015
 Our Coast, Our Future/ USGS CoSMos 2014
 Marin County Community Development Agency, May 2016

East Shore Index Flood Hazard Map - DRAFT

Map 8

Snake Rd

Clark Rd

Marshall Beach Rd

Map 7

Marshall Petaluma Rd

Map 6

Shoreline Hwy

Map 5

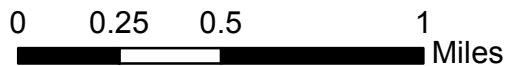
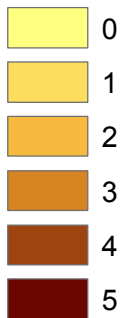
Synanon

Map 4

Map 3

Legend

SLR Building Flood Depth (ft)

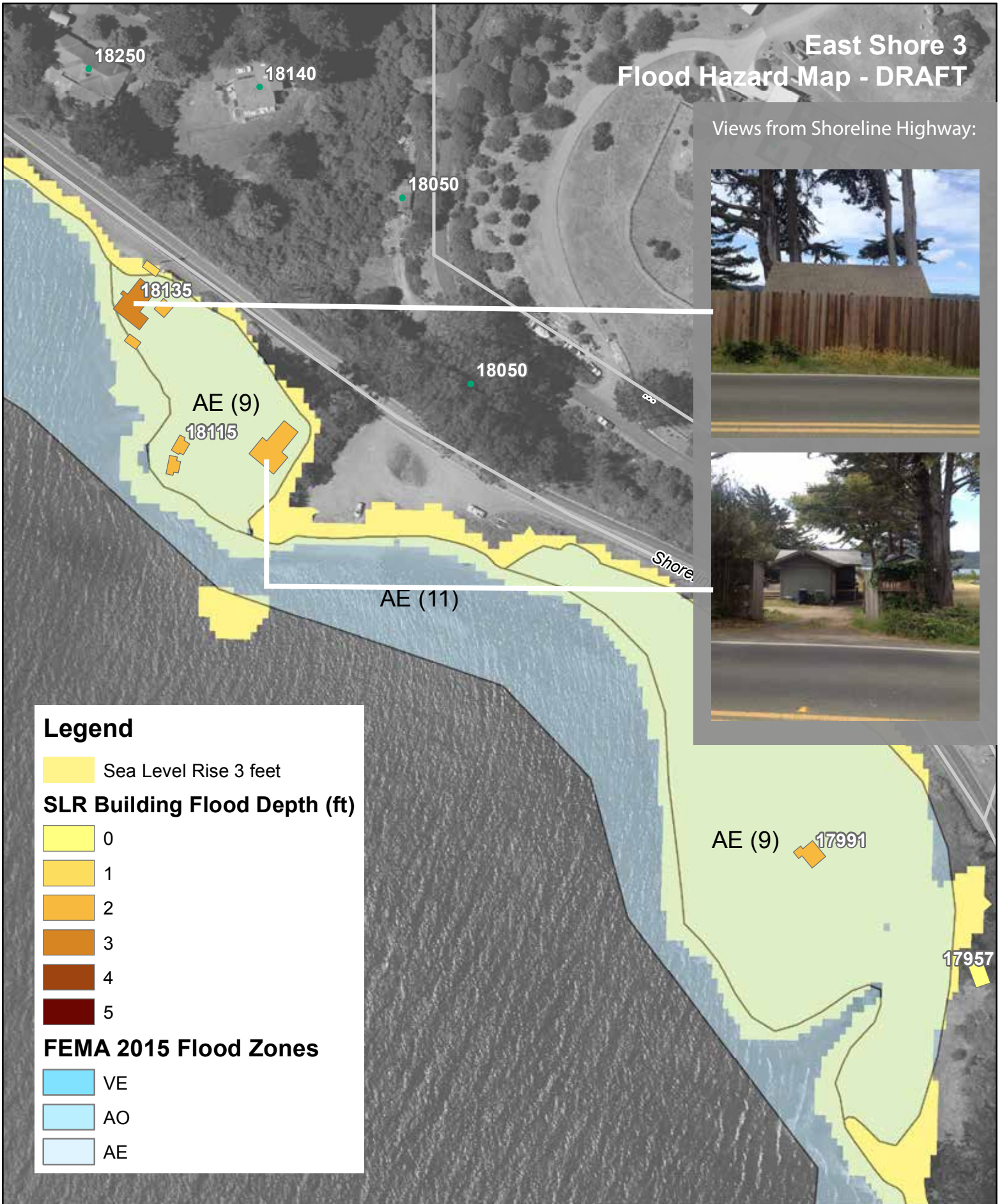


Source: Federal Emergency Management Agency
(FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

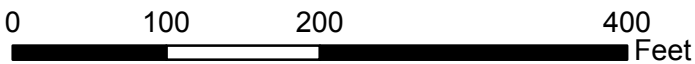
East Shore 3 Flood Hazard Map - DRAFT

Views from Shoreline Highway:



Legend

- Sea Level Rise 3 feet
- SLR Building Flood Depth (ft)**
- 0
- 1
- 2
- 3
- 4
- 5
- FEMA 2015 Flood Zones**
- VE
- AO
- AE



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015
Marin County Community Development Agency, April 2016


Views from Shoreline Highway:



East Shore 4 Flood Hazard Map - DRAFT



Legend

 Sea Level Rise 3 feet

SLR Building Flood Depth (ft)

 0

 1

 2

 3

 4

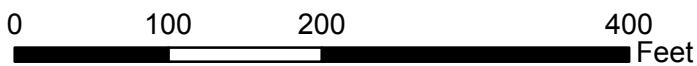
 5

FEMA 2015 Flood Zones

 VE

 AO

 AE

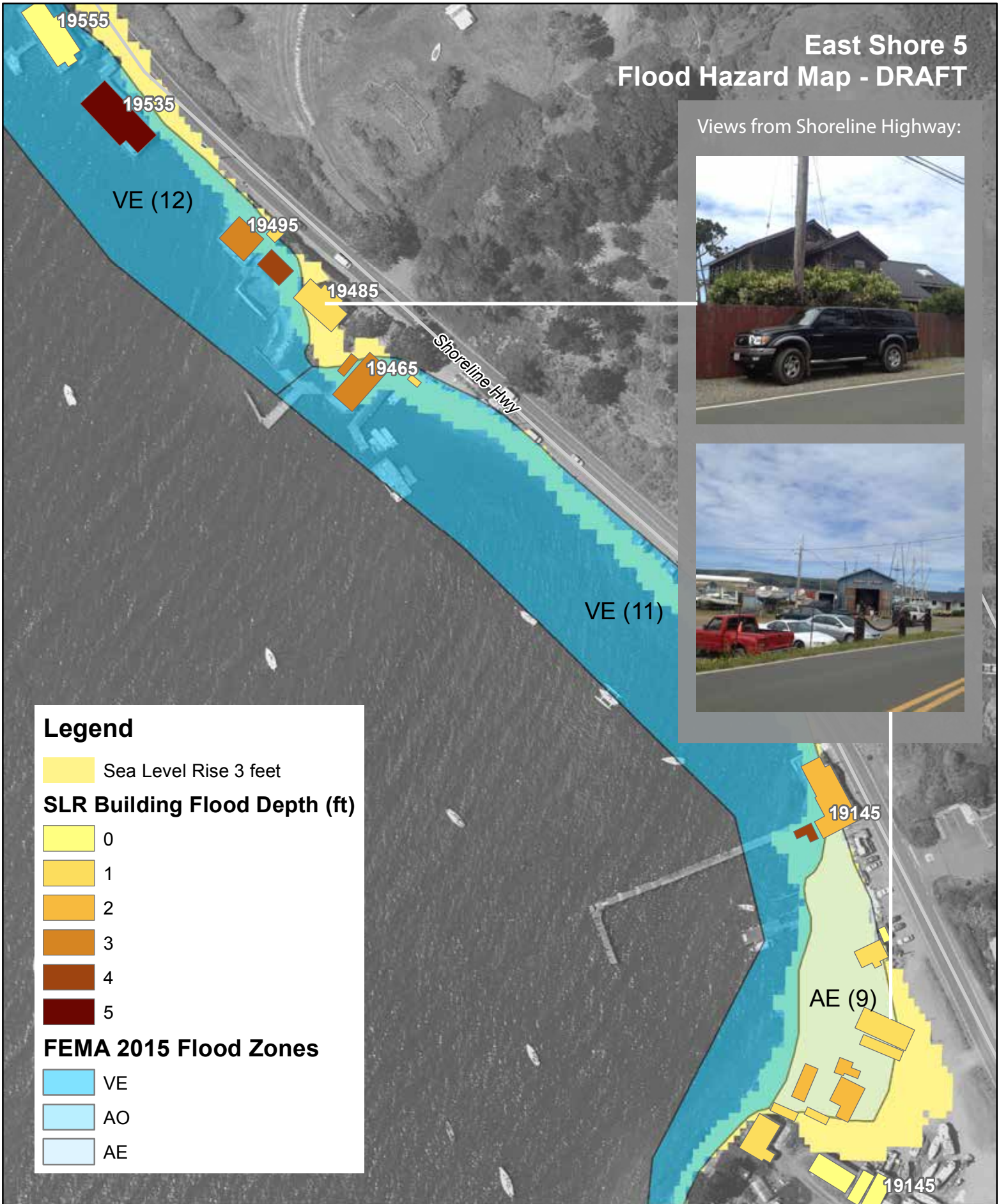


Source: Federal Emergency Management Agency
(FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

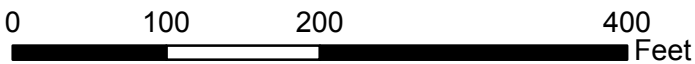
East Shore 5 Flood Hazard Map - DRAFT

Views from Shoreline Highway:



Legend

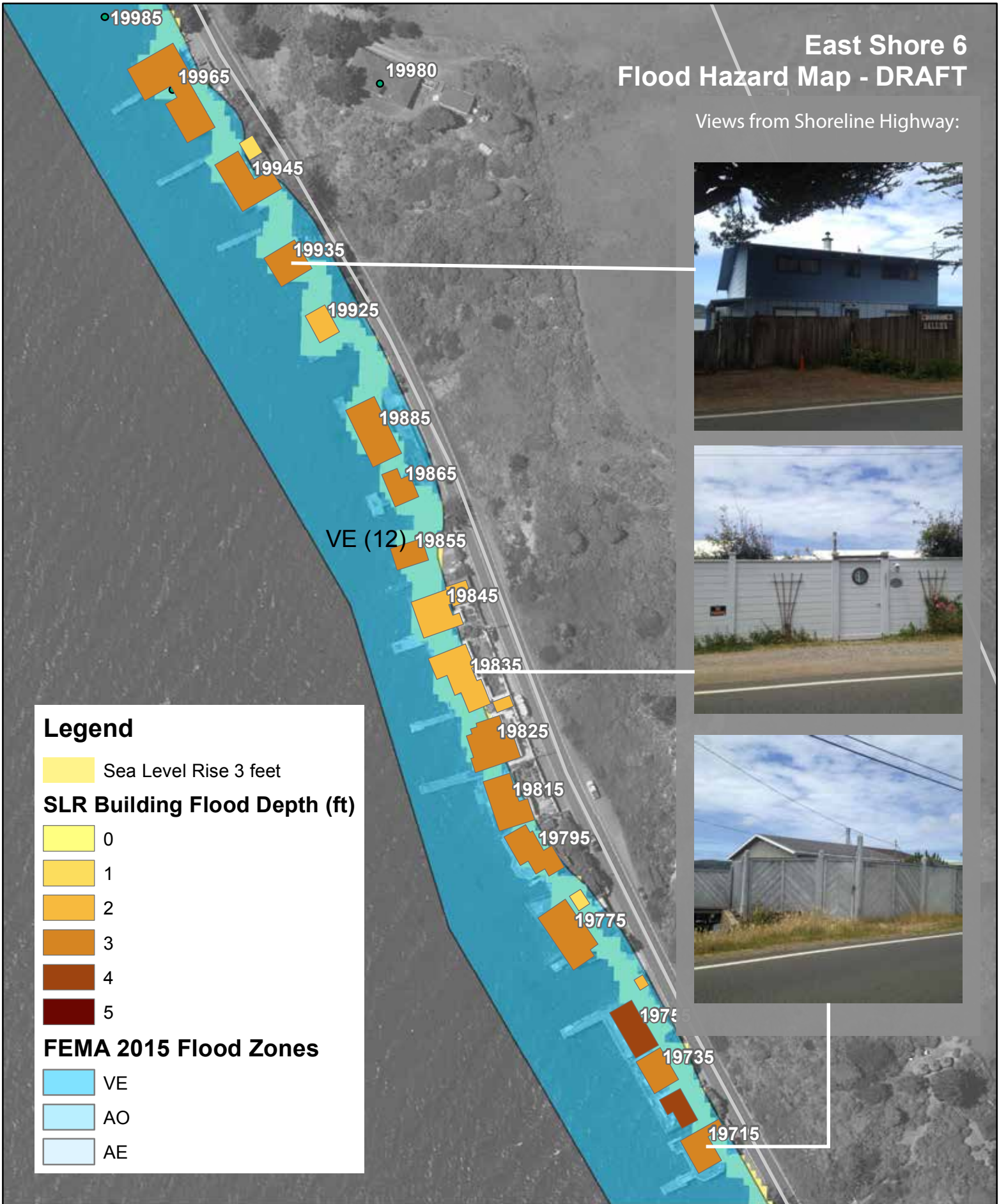
- Sea Level Rise 3 feet
- SLR Building Flood Depth (ft)**
- 0
- 1
- 2
- 3
- 4
- 5
- FEMA 2015 Flood Zones**
- VE
- AO
- AE



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015
Marin County Community Development Agency, April 2016

East Shore 6 Flood Hazard Map - DRAFT

Views from Shoreline Highway:



0 100 200 400 Feet

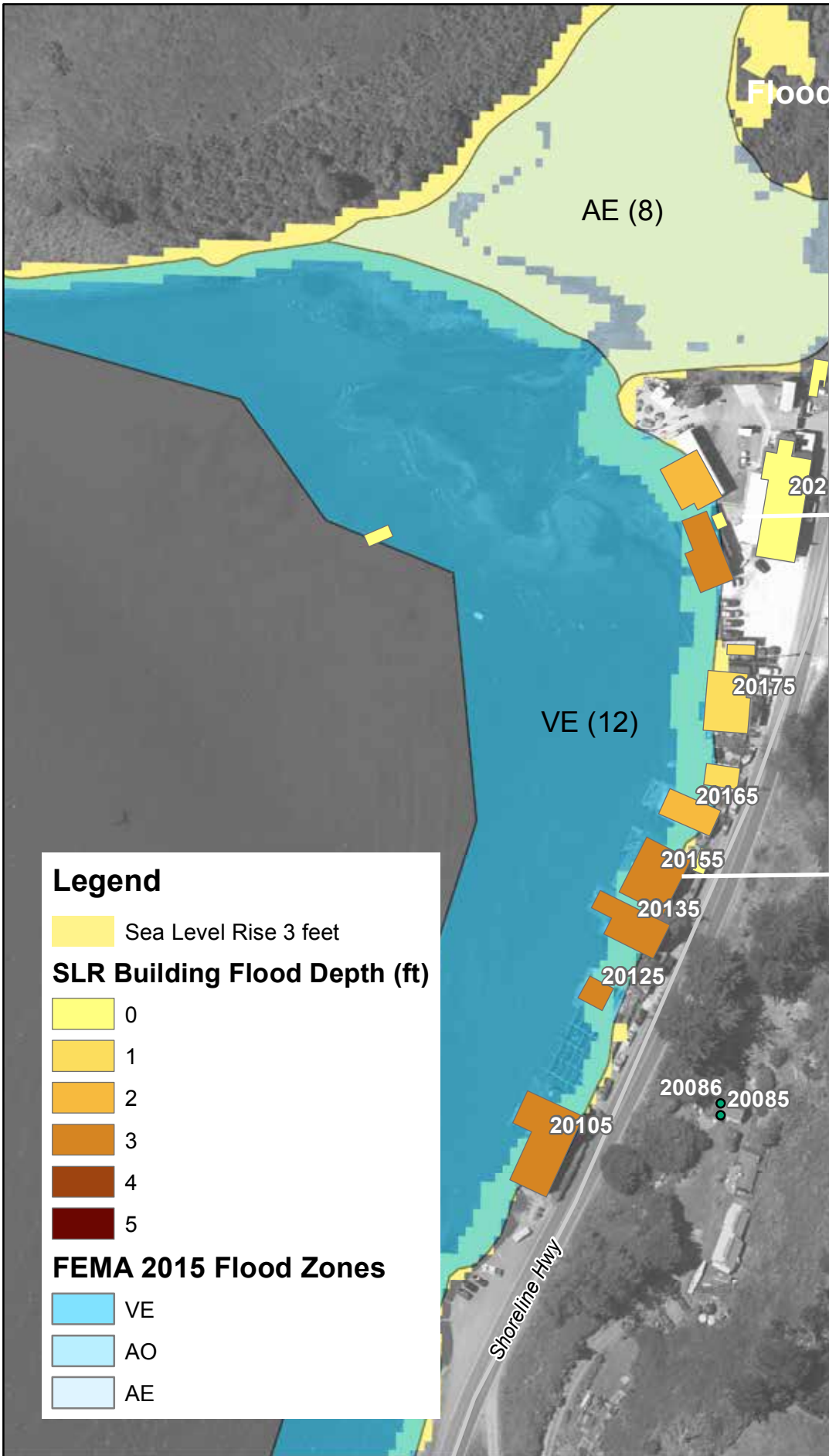


Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

East Shore 7 Flood Hazard Map - DRAFT

Views from Shoreline Highway:



Legend

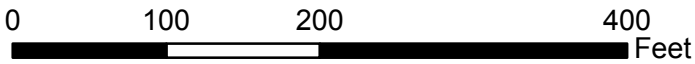
Sea Level Rise 3 feet

SLR Building Flood Depth (ft)

- 0
- 1
- 2
- 3
- 4
- 5

FEMA 2015 Flood Zones

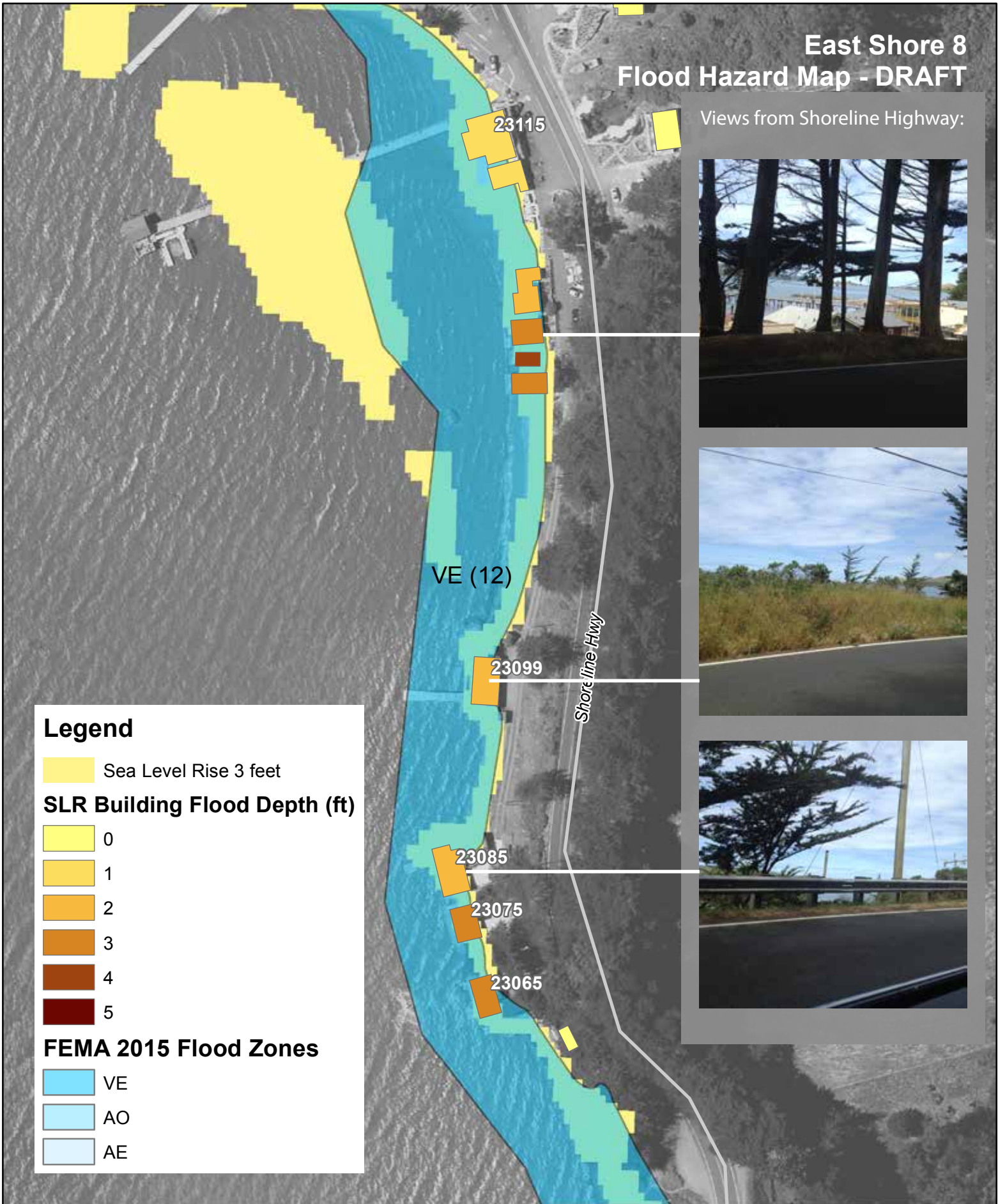
- VE
- AO
- AE




Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015
Marin County Community Development Agency, April 2016

East Shore 8 Flood Hazard Map - DRAFT


Views from Shoreline Highway:



Legend

 Sea Level Rise 3 feet

SLR Building Flood Depth (ft)

 0

 1

 2

 3

 4

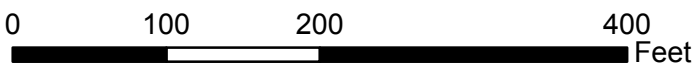
 5

FEMA 2015 Flood Zones

 VE

 AO

 AE



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

Inverness Index Flood Hazard Map - DRAFT

Map 13

Map 12

Map 11

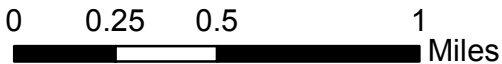
Map 10

Map 9

Legend

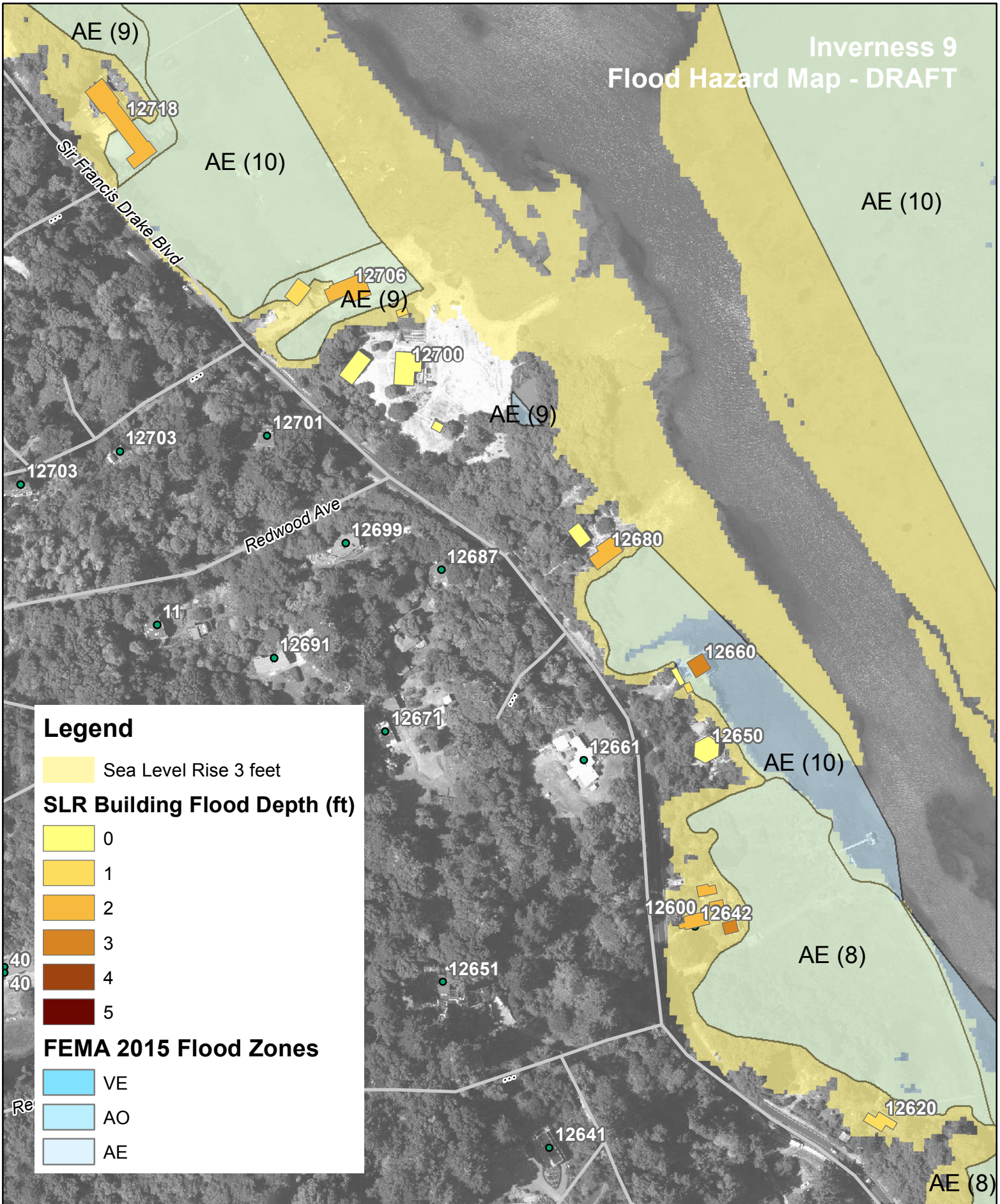
SLR Building Flood Depth (ft)

0
1
2
3
4
5



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015
Marin County Community Development Agency, April 2016

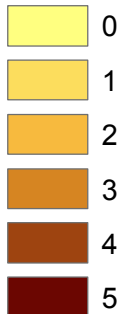
Inverness 9 Flood Hazard Map - DRAFT



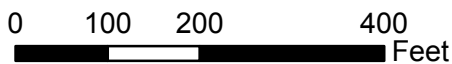
Legend

Sea Level Rise 3 feet

SLR Building Flood Depth (ft)



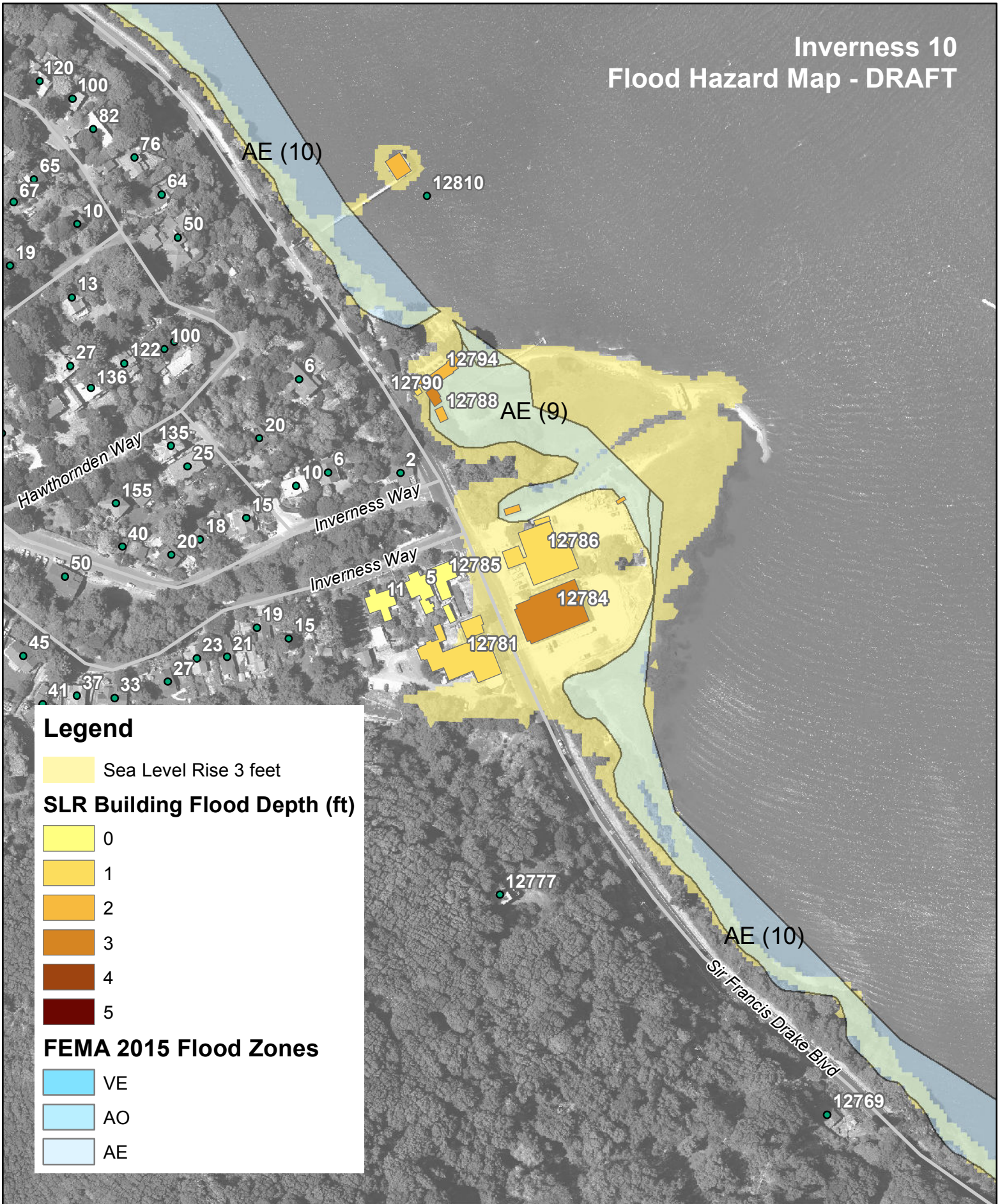
FEMA 2015 Flood Zones



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

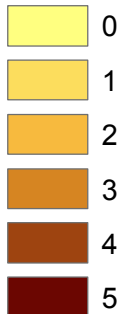
Inverness 10 Flood Hazard Map - DRAFT



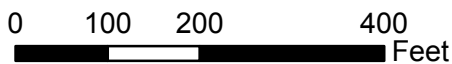
Legend

Sea Level Rise 3 feet

SLR Building Flood Depth (ft)



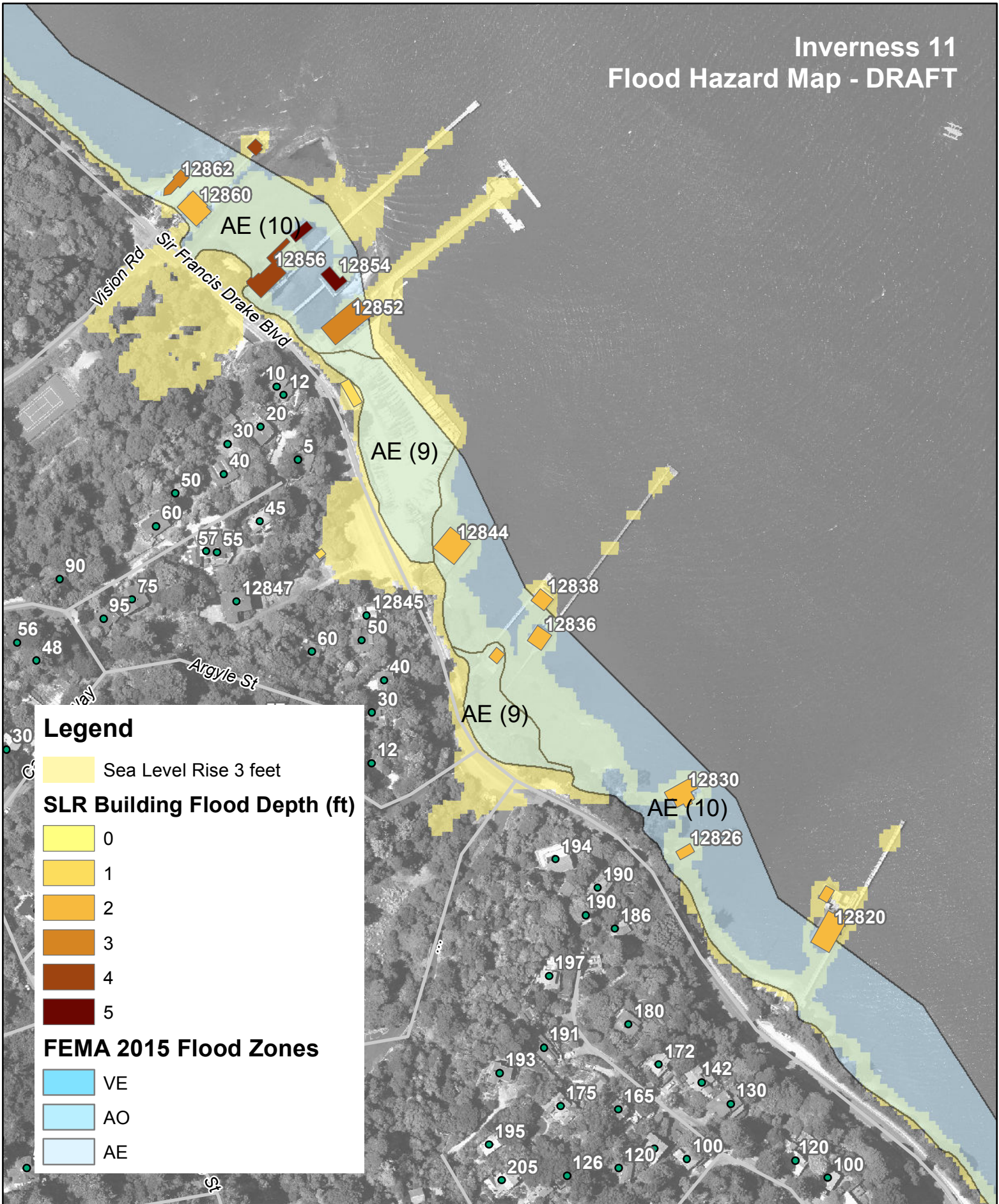
FEMA 2015 Flood Zones



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

Inverness 11 Flood Hazard Map - DRAFT



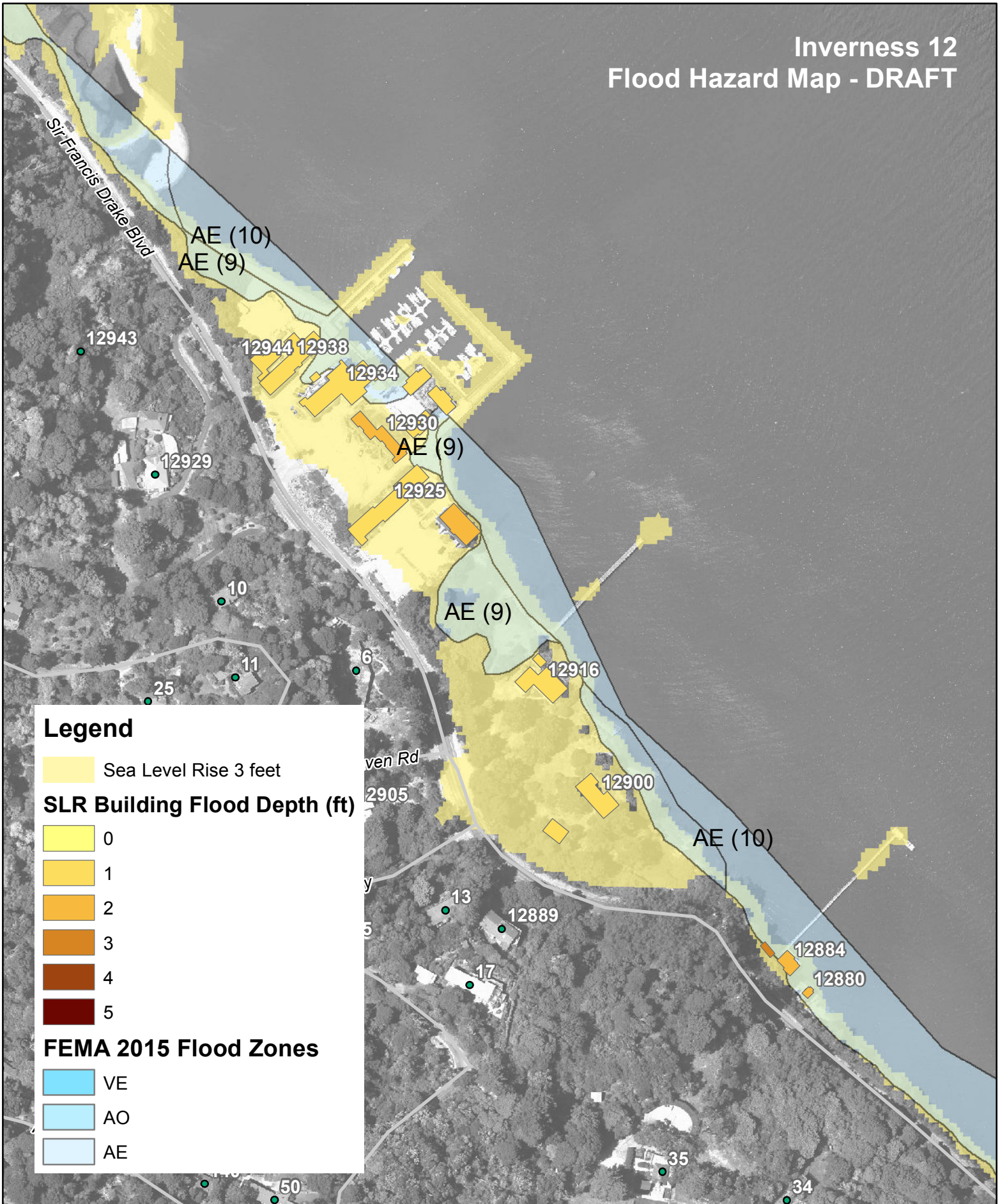
0 100 200 400 Feet



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016

Inverness 12 Flood Hazard Map - DRAFT



Legend

Sea Level Rise 3 feet

SLR Building Flood Depth (ft)

0
1
2
3
4
5

FEMA 2015 Flood Zones

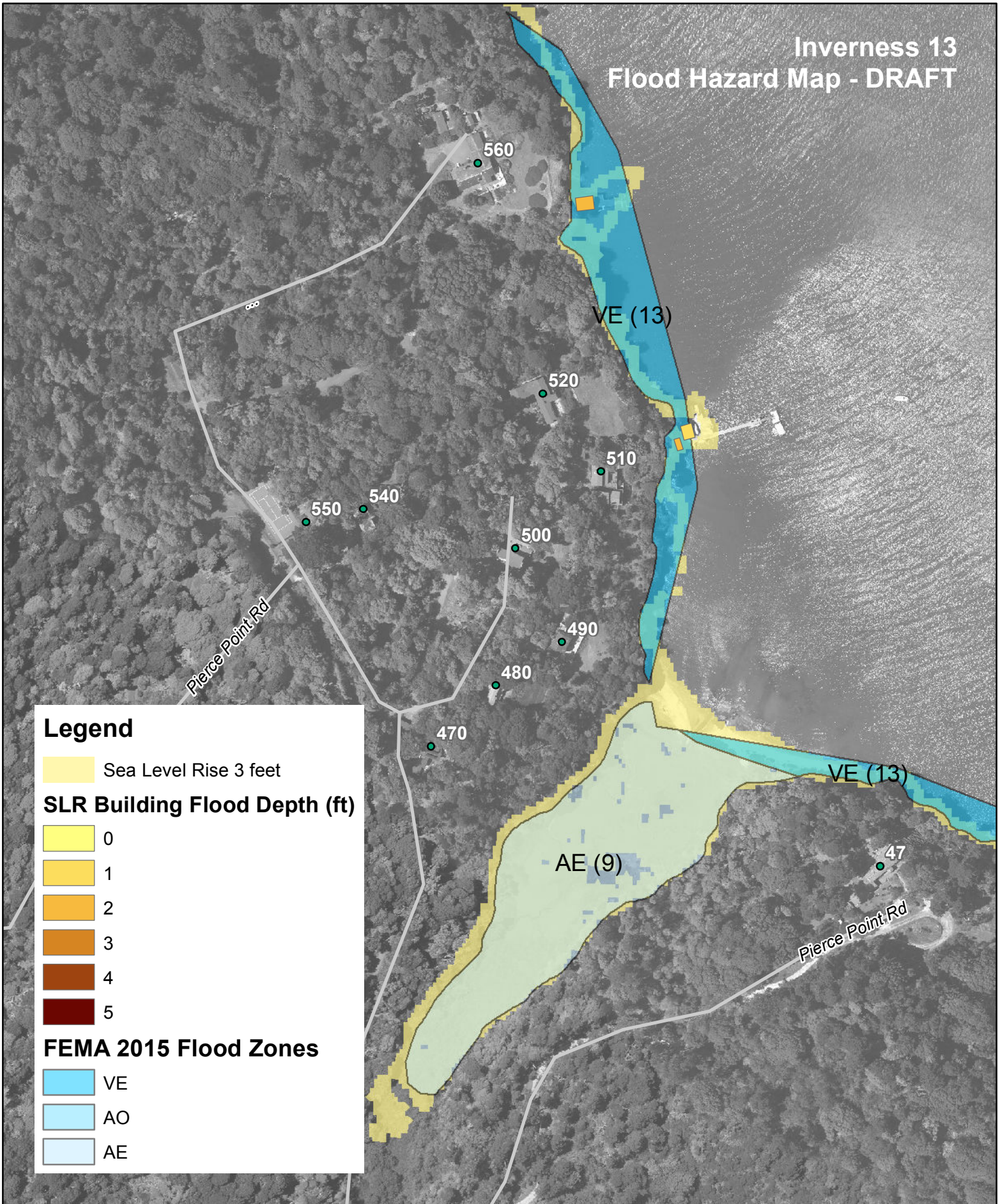
VE
AO
AE

0 100 200 400 Feet



Source: Federal Emergency Management Agency (FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015
Marin County Community Development Agency, April 2016

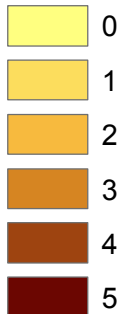
Inverness 13 Flood Hazard Map - DRAFT



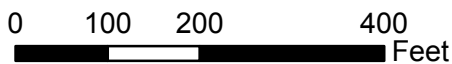
Legend

Sea Level Rise 3 feet

SLR Building Flood Depth (ft)



FEMA 2015 Flood Zones



Source: Federal Emergency Management Agency
(FEMA) Preliminary Flood Insurance Rate Map (FIRM) 2015

Marin County Community Development Agency, April 2016