FEHR PEERS

MEMORANDUM

Date: June 14, 2017

To: Jerry Liang, Sunrise Senior Living Communities

From: Jane Bierstedt and Lilian Ayala, Fehr & Peers

Subject: Sight Distance Assessment for Proposed Sunrise Senior Community in San Mateo County

SJ16-1709

This memorandum presents the sight distance assessment conducted for the proposed Sunrise Senior Living community located at 2915 El Camino Real, an unincorporated San Mateo County parcel near the border of Atherton and Redwood City, California. The site will have two driveways: a driveway on Selby Lane providing access to 63 parking spaces in an underground parking garage and a right-turn in and out only driveway on El Camino Real providing access to two van parking spaces and a fire lane. The driveway on Selby Lane is designed as a full access driveway. There is an existing driveway serving the site at the same location as the proposed driveway on Selby Lane. This existing driveway has a sign prohibiting left-turns out. The site plan showing the locations of the driveways is presented on **Figure 1**.

STUDY PURPOSE

Sight distance studies for development projects are conducted to ensure that drivers of vehicles entering and exiting the site can see approaching vehicles at a great enough distance to safely make their maneuvers. The studies assess whether there are obstructions near the intersections of the driveways and the adjacent streets, such as buildings, monument signs, equipment, or landscaping, that would limit the driver's line of sight.

ANALYSIS METHODS

Sight distance is based on the design speed of the adjacent street and the type of traffic control at the driveway. Both driveways are stop sign controlled. The posted speed limit on El Camino Real is 35 miles per hour. Given that it is a multi-lane major arterial, a design speed of five miles per hour

over the posted speed limit (40 mph) was used as the design speed for El Camino Real. There is no posted speed limit on Selby Lane. Therefore the de facto speed limit is 25 mph. Since it is a low volume street entering a residential area, 25 mph was also used for the design speed.

There are two types of sight distance - stopping sight distance and corner sight distance:

> *Stopping Sight Distance*: Distance required by the driver of a vehicle, traveling at a given speed, to bring the vehicle to a stop after an object on the road becomes visible and in advance of reaching the object.
>
> *Corner Sight Distance*: Intersection line of sight maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle.

Table 1 presents the stopping and corner sight distances for various design speeds.

TABLE 1: SIGHT DISTANCE

Design Speed (mph)	Stopping Sight Distance (ft)	Corner Sight Distance (ft)
20	125	
25	150	275
30	200	330
35	250	385
40	300	440
45	360	495
50	430	550
55	500	605

Source: Caltrans Highway Design Manual, Chapter 400.

Given the low speed and low volume of Selby Lane, stopping sight distance is the appropriate criterion to use that driveway. Since El Camino Real is major roadway corner sight distance is used for the driveway to that street.

The analysis is conducted using a graphic of the site plan and map of the surrounding roadways. Vehicles are placed on the graphic at the driveways and for approaching vehicles at the appropriate sight distances measured along the vehicle travel paths. A straight line is drawn from the driver's location in the vehicle on the driveway to the approaching vehicle to establish a sight triangle. The area within the triangle is where obstructions need to be eliminated or managed.

ANALYSIS RESULTS

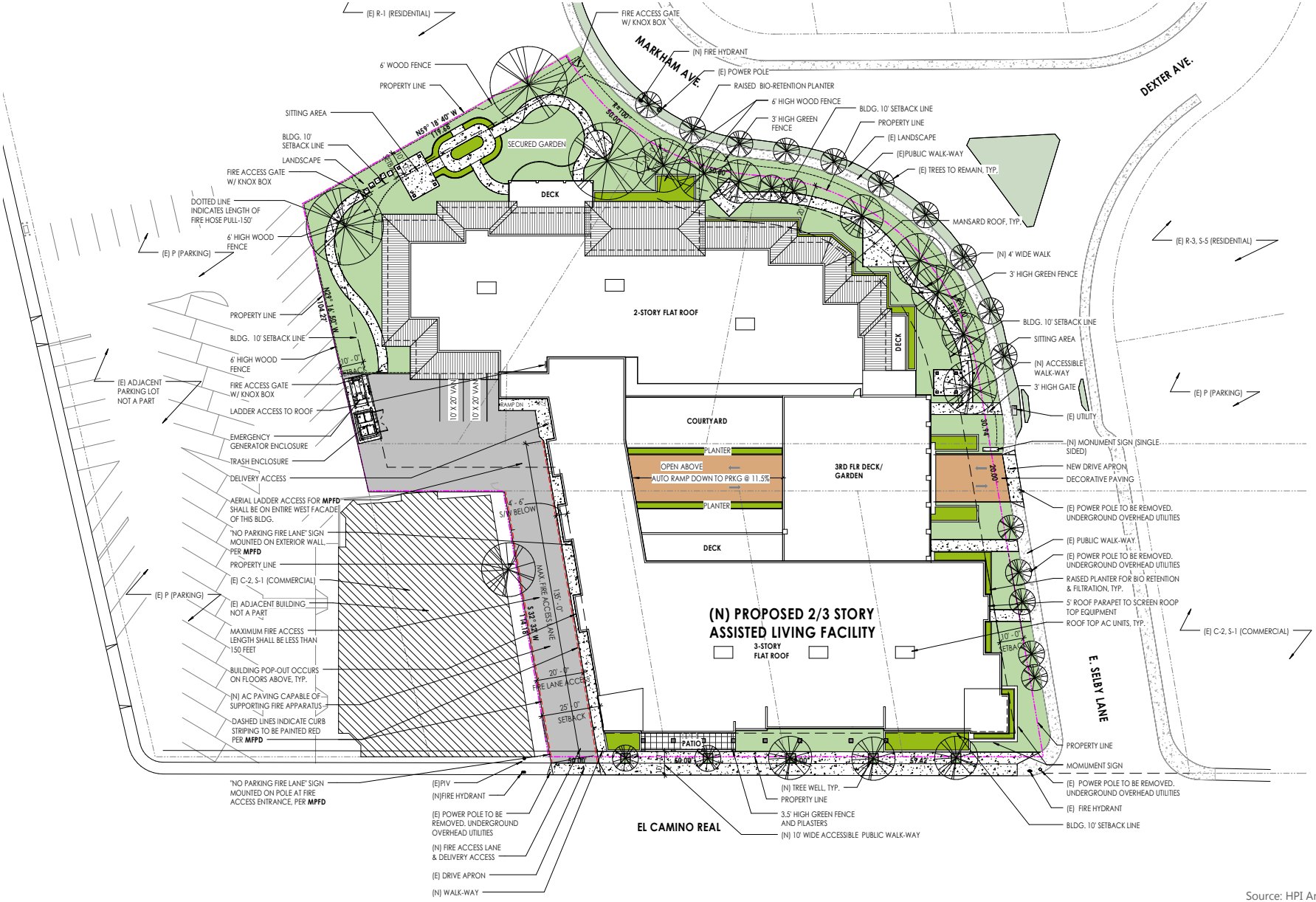
The sight distance illustrations are shown on **Figures 2a, 2b**, and **2c**. The El Camino Real driveway has adequate sight distance since El Camino Real is straight adjacent to the site and there are no obstructions near it, as can be seen in Figure 2a.

Drivers in vehicles exiting the Selby Lane driveway need to see oncoming vehicles a minimum of 150 feet away. They have a clear line of sight of vehicles approaching from all directions except from Markham Avenue. Obstructions need to be removed from the area shown in Figure 2b. These include fences and landscaping that is between two feet and five feet tall. Trees can be planted but they need to be staggered to not create a picket fence effect. The proposed monument sign and utility box can be retained. A speed table could be added on Selby Lane between the small islands just northeast of the driveway to further slow vehicles and enhance the sight distance. A speed table is a section of raised pavement with ramps on both sides, similar to a raised crosswalk.

Vehicles turning left into the Selby Lane driveway would also need obstructions removed from the area northwest of the driveway to have adequate sight distance for vehicles approaching from Markham Avenue as shown on Figure 2c.

CONCLUSIONS

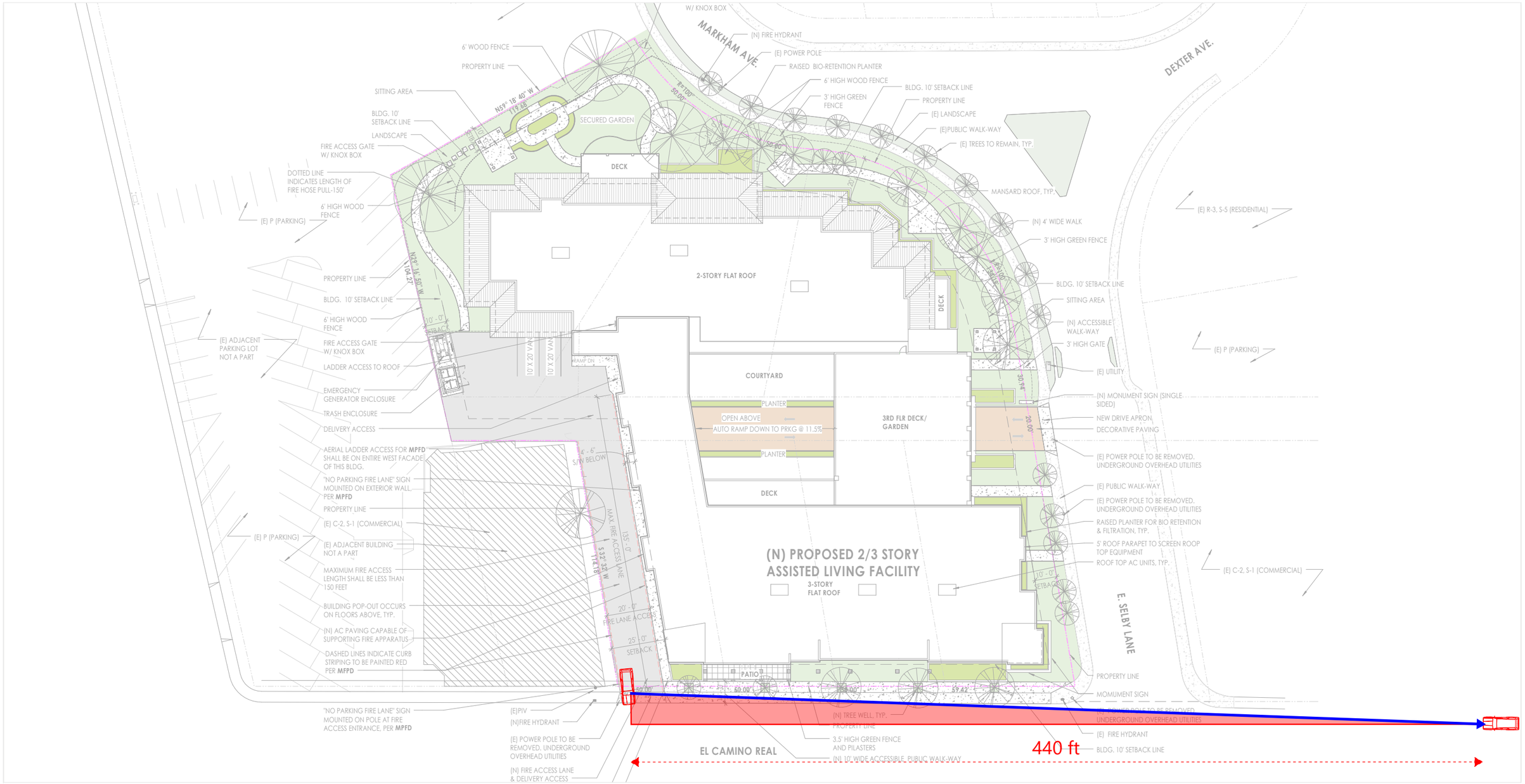
The area on the site to the northwest of the Selby Lane driveway needs to have visual obstructions removed and landscaping pruned to provide adequate sight distance for vehicles exiting the driveway and vehicles and turning left into the Selby Lane driveway. A speed table could be added on Selby Lane between the small islands just northeast of the driveway to further enhance the sight distance at this driveway. It would slow traffic on this section of Selby Lane and act as a traffic calming feature for the neighborhood.



Source: HPI Architecture

Figure 1

Site Plan



Not to scale

Figure 2a

Sight Distance Assessment for El Camino Real Driveway

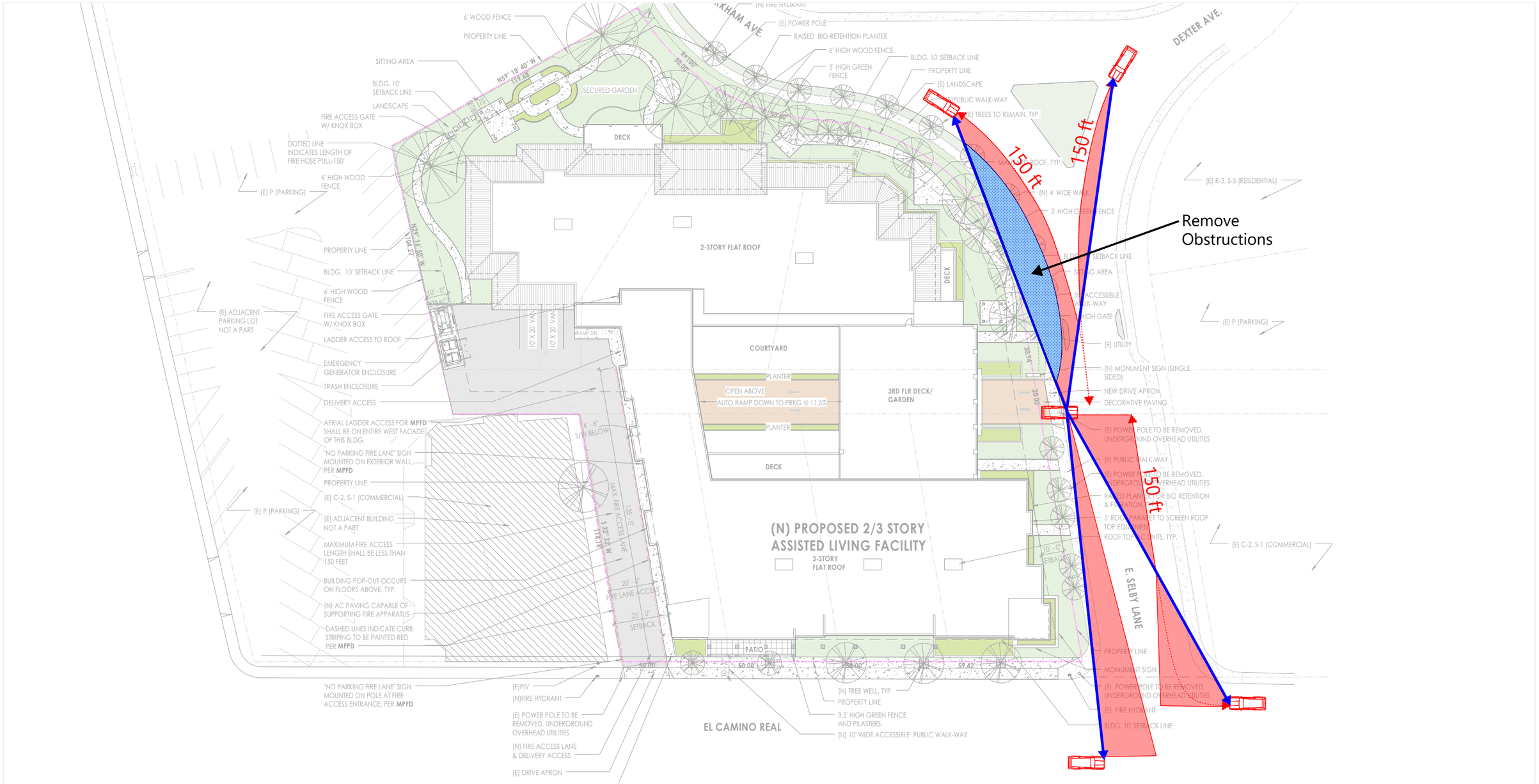


Figure 2b

Sight Distance Assessment for Vehicles Exiting Selby Lane Driveway

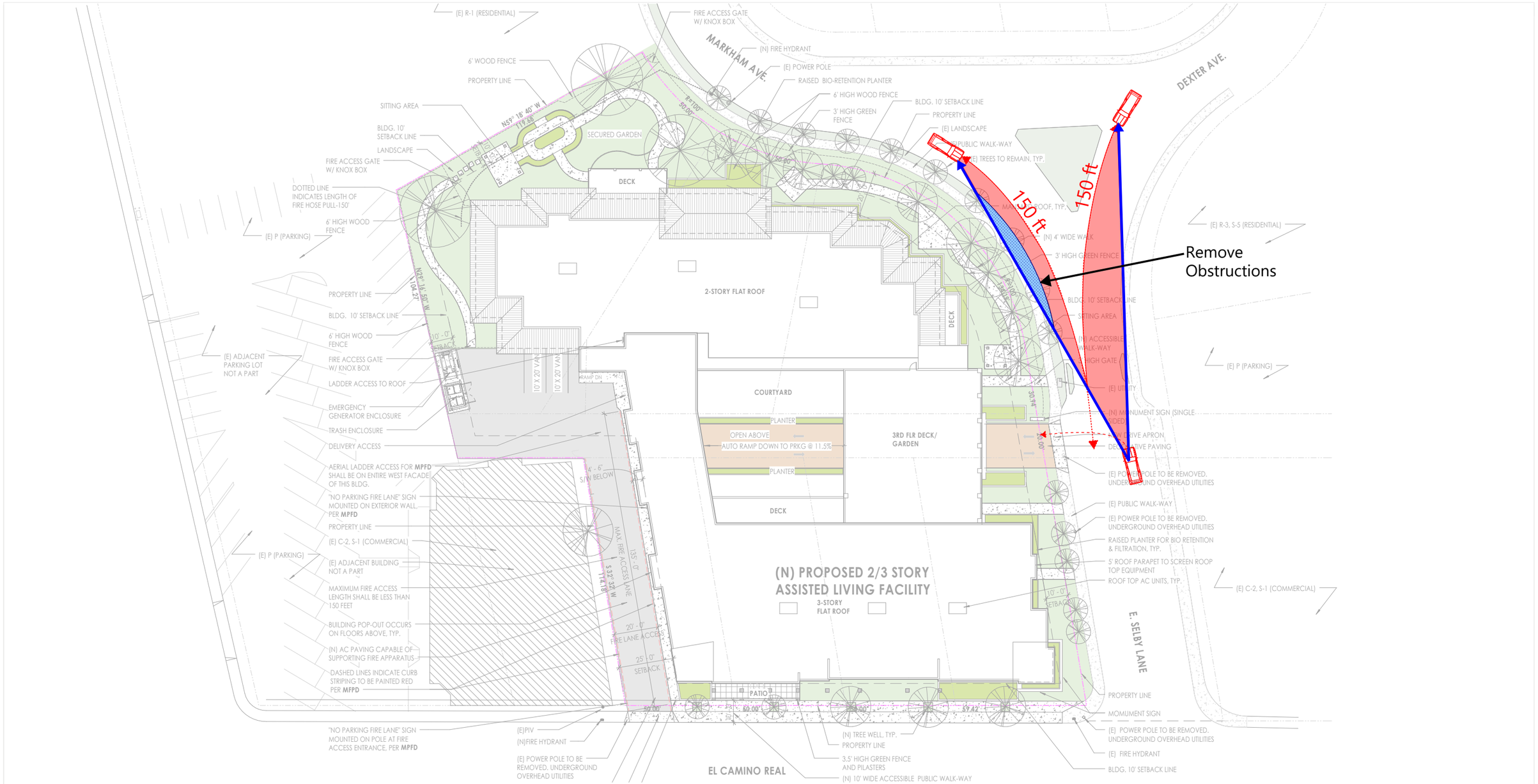


Figure 2c

Sight Distance Assessment for Left Turns into the Selby Lane Driveway