

SITE ACCESS MEMORANDUM

TO: Daniel Rosas, Associate Planner | City of Rialto

FROM: Perrie Ilercil | GANDDINI GROUP, INC.

DATE: May 11, 2022

SUBJECT: 2889 Locust Avenue Warehouse Project Site Access Memorandum

Project No. 19465

PROJECT DESCRIPTION

The 4.81-acre project site is located at 2889 Locust Avenue, within the Rialto Airport Specific Plan, in the City of Rialto, California. The project site is currently undeveloped and zoned for planned industrial development (I-PID). The proposed project involves construction of a new 99,124 square foot warehouse building. The proposed project also includes 3 parking stalls for trucks, and 69 standard parking stalls. Access to the Project Site would be provided by two access driveways on Locust Avenue. The project location map and proposed site plan are shown in Figures 1 and 2.

PROJECT TRIP FORECASTS

Project Trip Generation

Table 1 shows the proposed project trips generation based on trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021), and, City of Rialto *Traffic Impact Analysis Guidelines* (December 2013) for truck mix by axle breakdown. As also shown in Table 1, the proposed project is forecast to generate a total of approximately 169 daily vehicle trips, including 16 vehicle trips during the AM peak hour and 17 vehicle trips during the PM peak hour. In passenger car equivalent (PCE) trips, the project is forecast to generate approximately 283 daily PCE trips, including 20 PCE trips during the AM peak hour and 21 PCE trips during the PM peak hour.

Project Trip Distribution & Assignment

Figure 3 shows the forecast outbound and inbound directional distribution patterns for the project generated trips, respectively. The project trip distribution patterns were determined in consultation with City staff based on review of existing traffic data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project weekday average daily traffic volumes have been calculated and are shown on Figure 3. Project-generated weekday AM peak hour, and PM peak hour intersection turning movement volumes are also shown on Figure 3. All volumes are shown in PCE.

SITE ACCESS ANALYSIS

Sight Distance Evaluation

Approach Stopping Sight Distance

Sight distance requirements are based on the prevailing speed of the roadway, as well as, the vertical and horizontal alignment. Sight distance at the project driveways shall comply with standard City of Rialto, national or state (Caltrans) requirements. Sight distance is the length of roadway visible to the driver. Two types of sight distance are considered for this driveway: (1) stopping sight distance and (2) corner sight distance.

Stopping sight distance is the distance for a vehicle traveling at a given speed to stop before reaching a stationary object in its path. The stopping sight distance is measured from the driver's eye, which is located 3.5 feet above the pavement and right of the centerline of the travel lane to an object that is two feet above the pavement. The stopping sight distance for a driver approaching on the major roadway to see a vehicle exiting from the minor roadway at the prevailing speed is determined in accordance with Table 201.1 in the *Highway Design Manual* (Caltrans, 7th Edition, July 2020).

The speed limit along Locust Avenue is currently posted at 45 miles per hour; however, the 85-percentile measured speed is 55 miles per hour. Per the state standard, the minimum required line of sight for a vehicle on Locust Avenue approaching at 55 miles per hour to see a vehicle exiting from the project access is 500 feet.

Intersection Departure Sight Distance

Corner sight distance provides adequate time for the stopped vehicle on the minor road to either cross all lanes of through traffic, cross the near lanes for left turn, or turn right into the near lanes, without requiring major approach traffic to radically alter their speed. The area between the line of sight and the centerline of the nearest approaching lane is defined as the limited use area, (i.e. intersection departure sight triangle). Corner sight distance is measured from the driveway driver's eye to an object that is 4.25 feet above the pavement in the center of the approach lane (such as an on-coming vehicle). For corner stopping distance, the stopped vehicle driver's eye is located 3.5 feet above the pavement, 3 feet right of the centerline of the driveway, and 10 feet setback from the curb extension if there is a 5-foot minimum shoulder width. The driver's view point is typically setback 15 feet from the shoulder line. This allows sufficient space for the exiting driver on the minor road to wait without the front bumper intruding into the travel lane on the major road. Less intersection sight distance may be needed at roundabouts, signalized or all-way stop intersections; however, stopping sight distance is generally accepted as the minimum line of sight that should be provided. At signalized private road intersections, the minimum corner sight distance may be equal to the stopping sight distance (see *Highway Design Manual*, Index 405.1(2)(c)).

The minimum corner sight distance requirement is determined in accordance with American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (2018) ["the AASHTO Greenbook"]. The AASHTO Greenbook chapter nine information is summarized on Figure 405.1 and Table 405.1A in the Highway Design Manual. For unsignalized locations, the minimum corner sight distance is determined by the following equation:

Corner Sight Distance = 1.47 x Vm x Tg Vm = major roadway design speed; and Tg = time gap in seconds for the minor road vehicle to enter the major road



The time gap accounts for the standard car right-turn as well as additional time to cross multiple lanes for left turns and additional time for trucks which have a slower starting speed in comparison to automobiles. The applicable corner sight distance time gap for passenger cars is 6.5 seconds for right-turns 7.5 seconds for left-turns, and for combination trucks, the time gap is 10.5 seconds for right-turns and 11.5 seconds for left-turns.

Restricted Use Area Parking Restrictions

As shown on Figure 4, the calculated corner sight distance for cars exiting the north driveway is 526 feet for right-turns and 606 feet for left turns. Based the speed of 55 miles per hour on Locust Avenue, the restricted use area that is located within 8 feet off the curb is shown on the diagram to determine areas for "no parking" designation. For the north driveway, the restricted use area is within 8 feet of the curb from approximately 375 feet north of the north driveway to approximately 105 feet south of the south driveway.

As shown on Figure 5, the corner sight distance is 695 feet for right-turns and 761 feet for left turns for trucks exiting the south-driveway onto Locust Avenue. The above-mentioned parking restriction includes the south driveway restriction. For the south driveway, the restricted use area is within 8 feet of the curb from approximately 317 feet north of the north driveway to approximately 580 feet south of the south driveway.

A parking restriction via red curb markings or signage along the east side of Locust Avenue is recommended from approximately 375 feet north of the north driveway to approximately 580 feet south of the south driveway.

Restricted Use Area Landscape Restrictions

It is recommended that the landscape plan for the site should utilize the sight distance principals to avoid placing obstructions (such as dense trees or monument signs) within the limited use area on either side of the proposed project access driveways. Ultimately, the final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable City of Rialto, national and state sight distance standards. The on-site restricted use area is shown on the *Sight Line Exhibit* provided by CA Engineering (May 3, 2022) which is included in Attachment A.

Vehicle Turning Movements

Truck Turning Template

The south driveway is the truck access driveway for this site. Truck turning templates for both inbound and outbound truck turning movements at the project south driveway is provided on the *Truck Turning Plan* provided by CA Engineering (December 29, 2021) which is included in Attachment B.

Truck On-Site Turning Around

Additionally, the ability of the truck to turn around and access the rear dock position is shown on the *Site Plan* provided by RGA Office of Architectural Design (April 20, 2022) which is included in Attachment C.

Project Design Features

The following improvements will be constructed by the project to provide project site access:



1. Locust Avenue (NS) at Project North Driveway (EW)

- Install westbound stop control.
- Construct the westbound approach to provide one shared left/right turn lane.

2. Locust Avenue (NS) at Project South Driveway (EW)

- Install westbound stop control.
- Construct the westbound approach to provide one shared left/right turn lane.

A parking restriction via red curb markings or signage along the east side of Locust Avenue is recommended from approximately 375 feet north of the north driveway to approximately 580 feet south of the south driveway.

CONCEPT DESIGN

Project Adjacent Roadway Improvements

Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development.

Roadway Plan and Cross-Section

The site-adjacent roadway improvement is shown on the *Conceptual Grading and Utility Plan* provided by CA Engineering (April 28, 2022) which is included in Attachment D. The approximate 331 feet of project frontage on the east side of Locust Avenue will be widened by 20 feet to the full half width of 32 feet. The typical roadway cross-section for the roadway improvements adjacent to the project frontage is included on the *Conceptual Grading and Utility Plan* provided by CA Engineering (April 28, 2022) which is included in Attachment D.

Pavement Transition

The area immediately south of the project is currently unimproved to the roadway ultimate half-section. A 50-foot pavement approach transition is recommended widening from the unimproved section to the proposed improved section. The transition may not include roadside improvements such as curb or landscaping. This is consistent with other improved sections along this roadway.

Signing and Striping

Locust Avenue classified as a 4-lane undivided secondary roadway which is a designated truck route with no proposed bike lanes. The existing centerline striping on Locust Avenue will remain in place with the project frontage roadway improvements. The roadway at this time is not fully developed to permit a continuous second lane along the project frontage, so no additional roadway striping is anticipated for this project. No conceptual striping or striping plans are developed at this time as there are no off-site traffic control improvements.

General Notes

The project shall comply with the following conditions as part of the City of Rialto's standard development review process:



- All construction plans for roadway design, signing/striping, and traffic control improvements relating to the proposed project shall be submitted to City of Rialto Public Works Department for approval and constructed in accordance with applicable engineering standards.
- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met in accordance with applicable City of Rialto, national or state sight distance standards.
- A construction work site traffic control plan shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of any construction work. The plan shall identify any roadway closures, shoulder closures, detours or flagging operation as well as hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.



Table 1 Project Trip Generation

Land Use: Warehousing

Size: 99.124 TSF

TRIP GENERATION RATES PER TSF ¹								
	AM Peak Hour		ur	PM Peak Hour			Daily	
Vehicle Type	Source ²	In	Out	Rate	ln	Out	Rate	Rate
All Vehicles	ITE 150	77%	23%	0.170	28%	72%	0.180	1.710
Trucks Only	ITE 150/Rialto	52%	48%	0.020	52%	48%	0.030	0.684
Passenger Car (88.2% AM, 83.3% PM, 60.0% Daily)		0.116	0.035	0.151	0.042	0.108	0.150	1.026
Truck (11.8% AM, 16.7% PM, 40.0% Daily)		0.010	0.010	0.020	0.016	0.014	0.030	0.684
Truck Mix:	Rialto							
2-Axle Trucks (2.0%)		0.000	0.000	0.000	0.000	0.000	0.000	0.014
3-Axle Trucks (28.0%)		0.003	0.003	0.006	0.004	0.004	0.008	0.192
4+ Axle Trucks (70.0%)		0.007	0.007	0.014	0.011	0.010	0.021	0.479

VEHICLE TRIPS GENERATED							
	AM Peak Hour		PM Peak Hour				
Vehicle Type	ln	Out	Total	ln	Out	Total	Daily
Passenger Car	11	3	14	4	11	15	102
Trucks							
2-Axle Trucks	0	0	0	0	0	0	1
3-Axle Trucks	0	0	0	0	0	0	19
4+ Axle Trucks	1	1	2	1	1	2	47
Subtotal	1	1	2	1	1	2	67
Total Vehicle Trips Generated	12	4	16	5	12	17	169

PCE ³ TRIPS GENERATED								
		AM Peak Hour			PM Peak Hour			
Vehicle Type	PCE Factor ⁴	In	Out	Total	ln	Out	Total	Daily
Passenger Car	1.0	11	3	14	4	11	15	102
Trucks								
2-Axle Trucks	1.5	О	0	0	0	0	0	2
3-Axle Trucks	2.0	О	0	0	0	0	0	38
4+ Axle Trucks	3.0	3	3	6	3	3	6	141
Subtotal		3	3	6	3	3	6	181
Total PCE Trips Generated		14	6	20	7	14	21	283

Notes:

(1) TSF = Thousand Square Feet

(4) Source: San Bernardino County Congestion Management Program (2016), Appendix B.



19465

⁽²⁾ ITE = Institute of Transportation Engineers *Trip Generation Manual* (11th Edition, 2021); ### = ITE Land Use Code. Rialto = City of Rialto Traffic Impact Analysis Report Guidelines and Requirements (December 2013). Per City of Rialto guidelines, 40% daily truck was used. ITE truck rates for AM and PM peak hours.

⁽³⁾ PCE = Passenger Car Equivalent



Legend
Study Intersection

Figure 1
Project Location Map



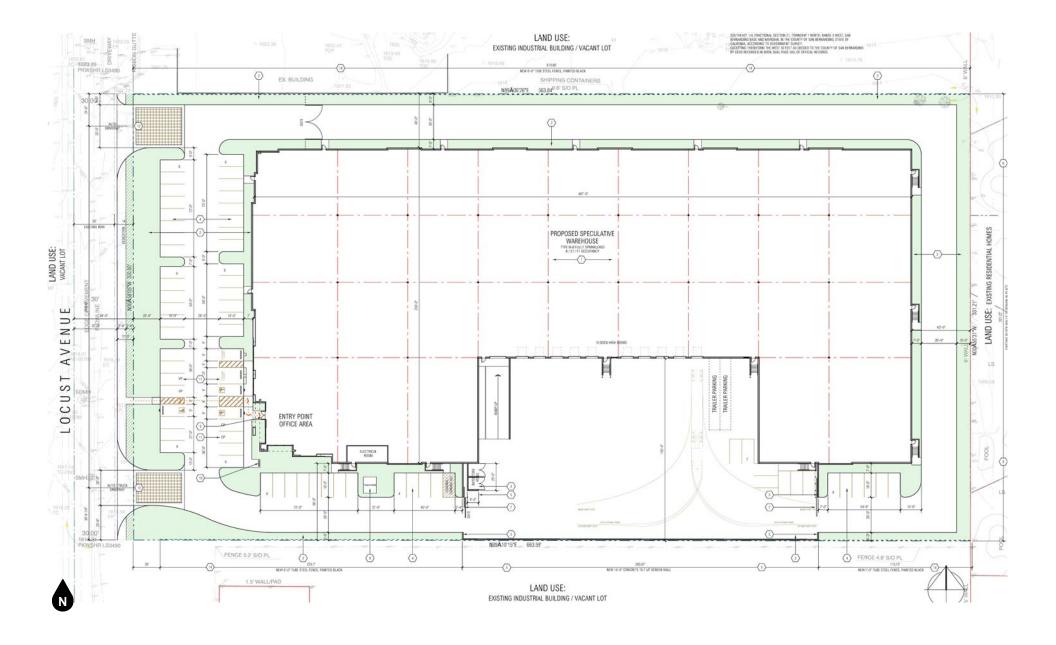
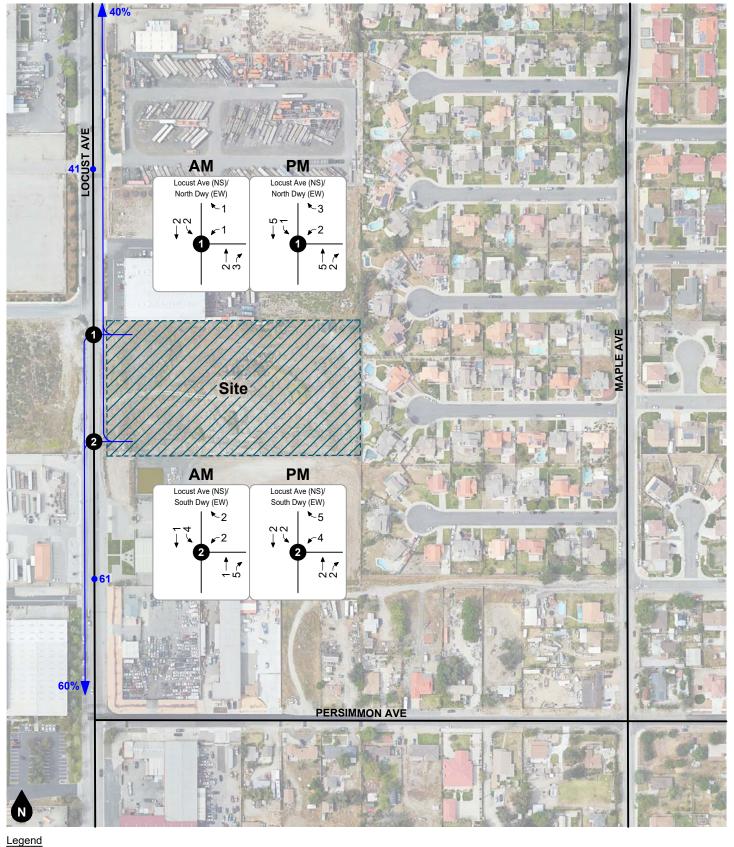


Figure 2 Site Plan







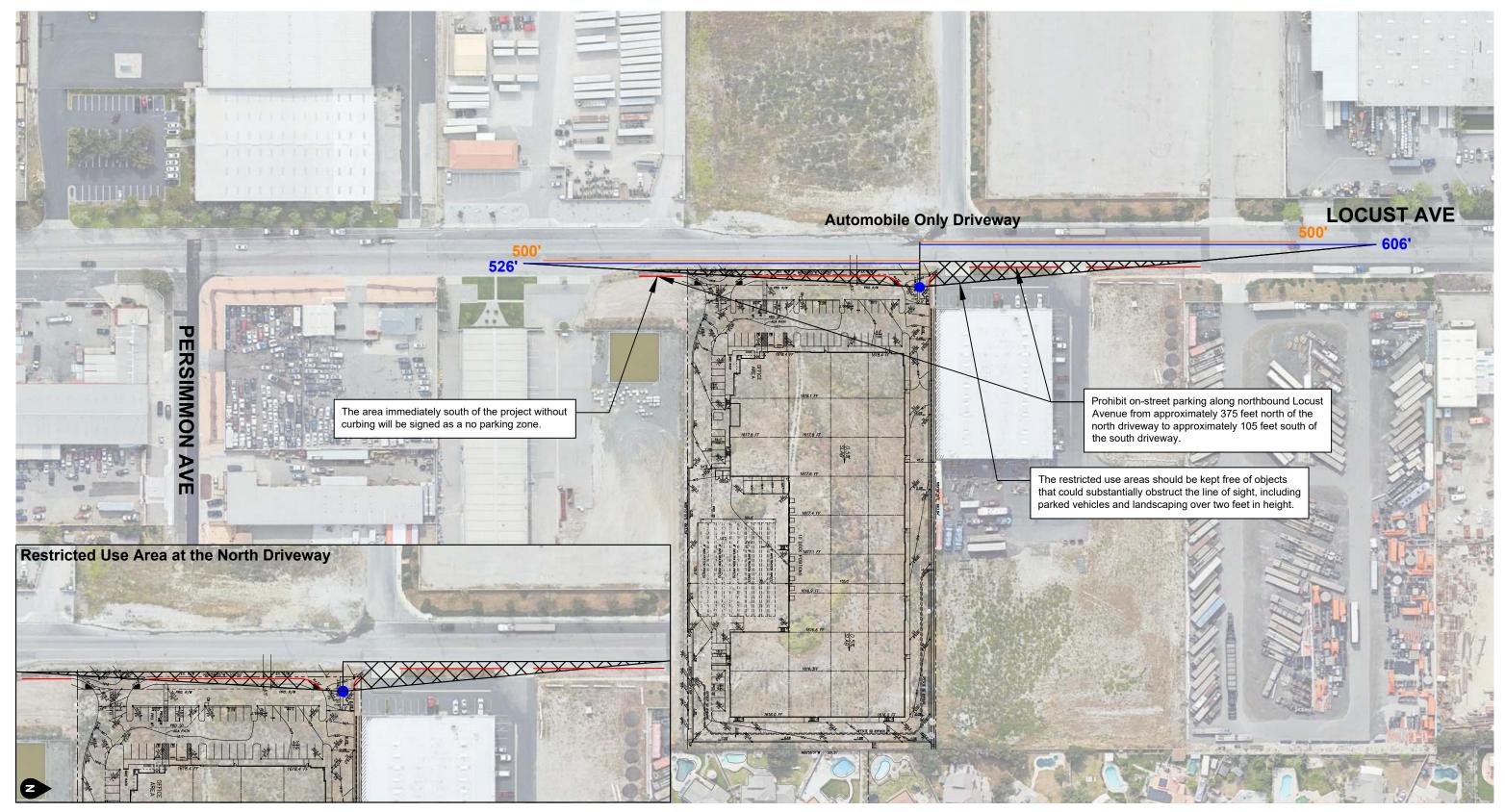


Study Intersection

10% Percent To/From Project
Vehicles Per Day

Figure 3 Project Trip Distribution and Traffic Volumes





Legend

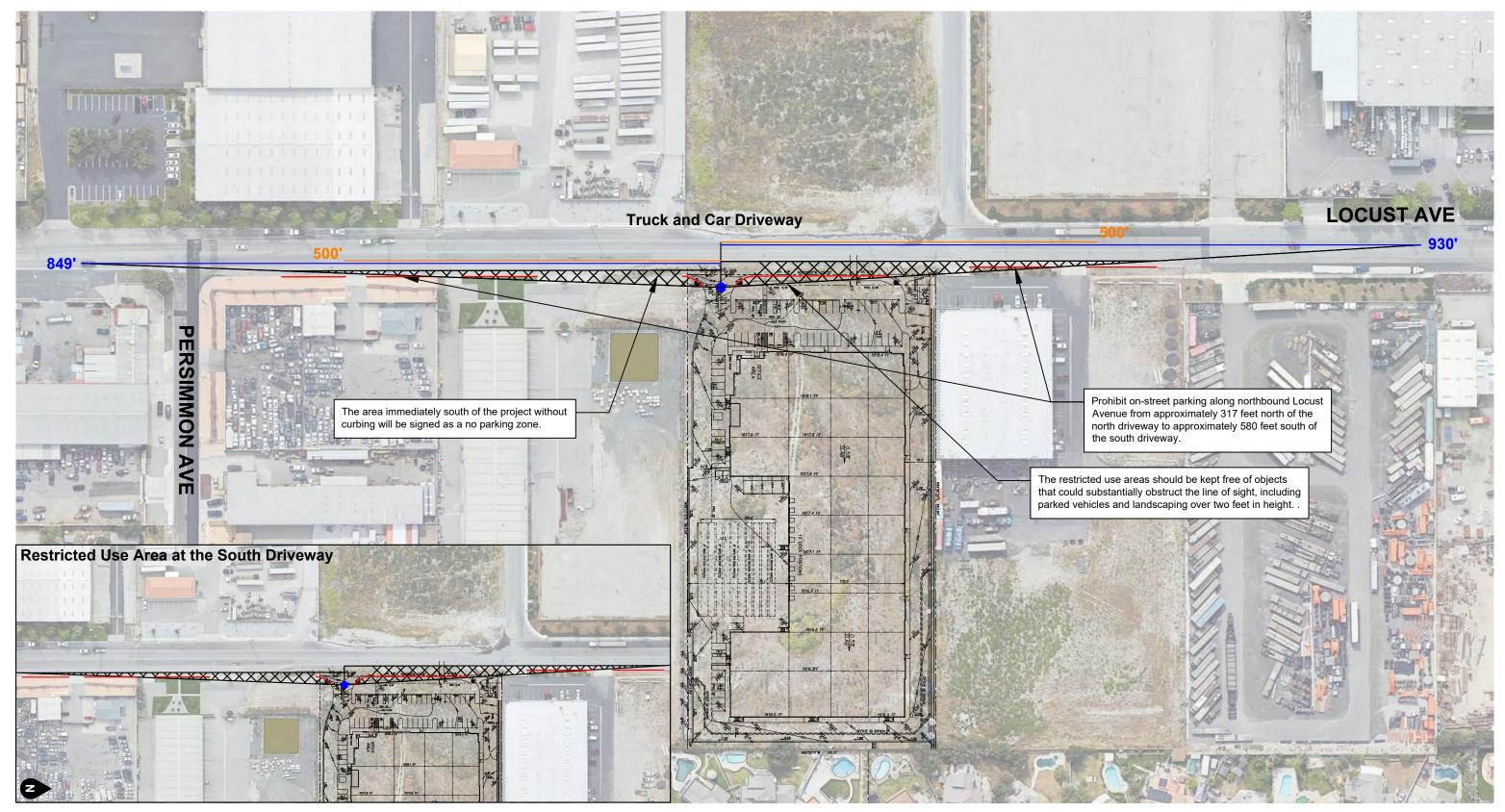
Intersection Sight Distance
Stopping Sight Distance
Restricted Use Area

Driver's Eye (10 foot setback from curbline extension and 3 feet right of centerline)

Major Road Design Speed (Vm = 55 MPH) Stopping Sight Distance = 500 Feet
Corner Sight Distance (CSD) = 1.47 x Vm xTg Time Gap For Cars (Tg = 6.5sec. Right Turn and 7.5sec. Left Turn) CSD Right = 526 Feet CSD Left = 606 Feet

Figure 4 **Sight Distance Analysis North Driveway**





Legend

Intersection Sight Distance
Stopping Sight Distance
Restricted Use Area

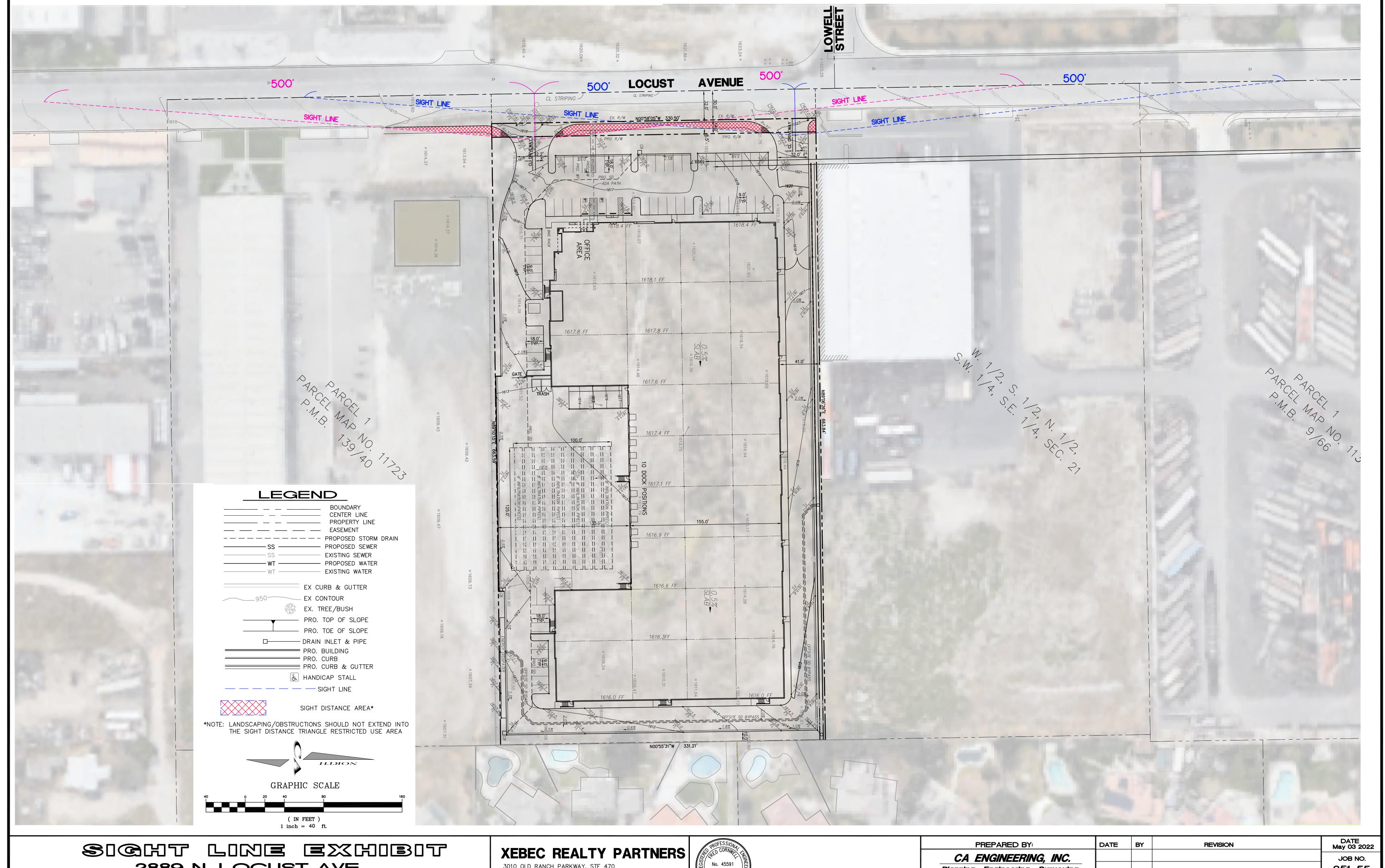
 Driver's Eye (10 foot setback from curbline extension and 3 feet right of centerline) Major Road Design Speed (Vm = 55 MPH)
Stopping Sight Distance = 500 Feet
Corner Sight Distance (CSD) = 1.47 x Vm xTg
Time Gap For Trucks (Tg = 10.5sec. Right Turn and 11.5sec. Left Turn)
CSD Right = 849 Feet
CSD Left = 930 Feet





Attachment A

Sight Line Exhibit, CA Engineering (May 3, 2022)



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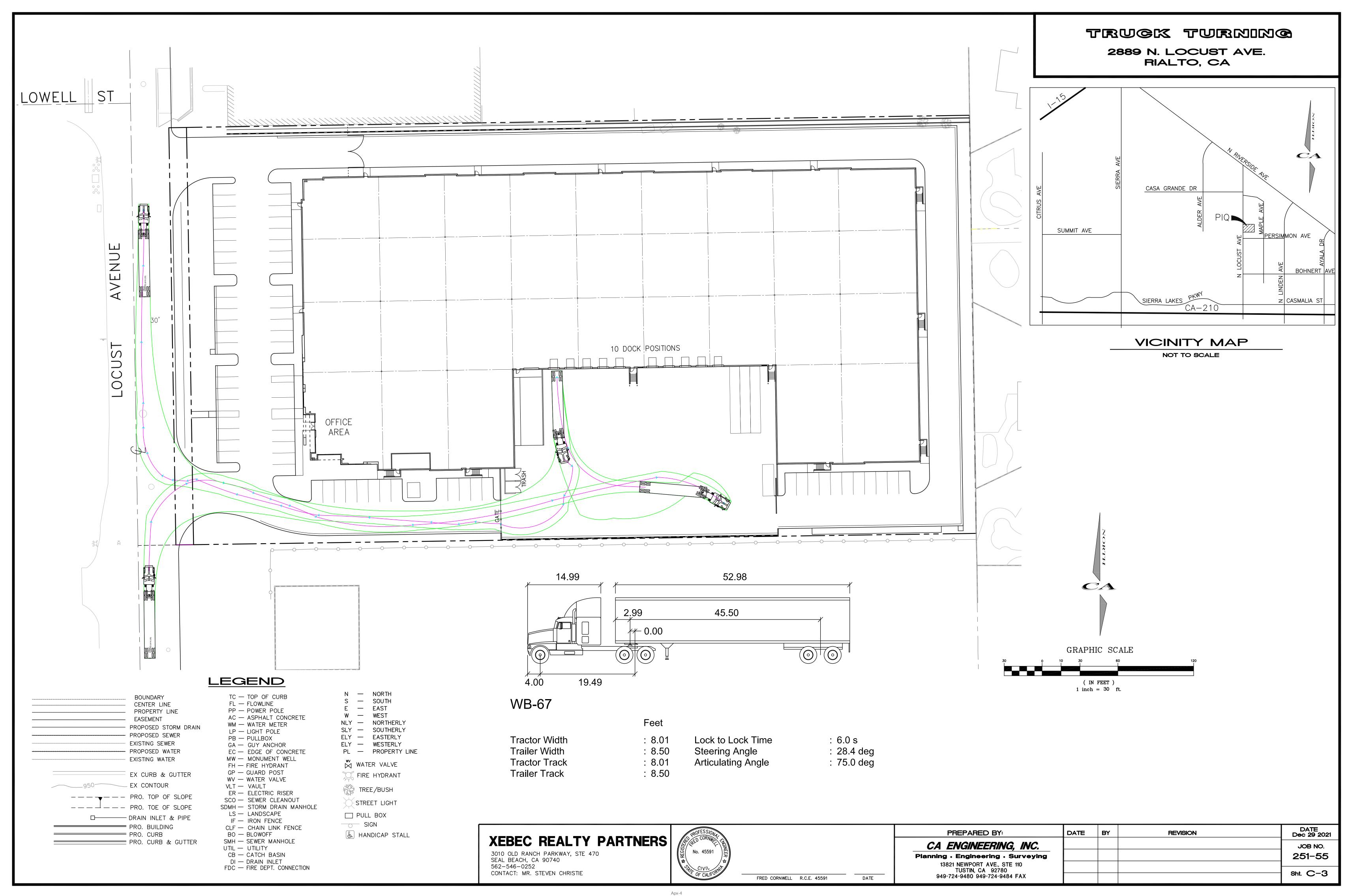
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Attachment B

Truck Turning Plan, CA Engineering (December 29, 2021)



Attachment C

Site Plan, RGA Office of Architectural Design (April 20, 2022)

