



# **Department of Public Works Special Districts** Water and Sanitation Division

Brendon Biggs, M.S., P.E. Director

> **Trevor Leja Deputy Director**

**Steve Samaras Division Manager** 

March 26, 2021

Ms. Sophie Steeno Steeno Design Studio, Inc. 11774 Hesperia Road, Ste. B1 Hesperia, CA 92345

SUBJECT: WATER SERVICE FEASIBILITY STUDY

APN: 0357-421-15/SARA KASSAB, BLUE MIST, LLC

**ESCONDIDO AND RANCHERO GAS STATION CONVENIENCE STORE** 

**COUNTY SERVICE AREA 70, ZONE J (DISTRICT)** 

Dear Ms. Steeno:

The District Engineer has completed the water feasibility study for Assessor Parcel Number 0357-421-15. The purpose of the study was to determine the equivalent dwelling unit (EDU) assignment, costs/fees, and water service alternatives. The study indicates the District can serve the above referenced project.

The study is valid for one-year from the date of issue. All fees are subject to change.

Should you decide to move forward with the project or have questions, please contact this office.

Sincerely,

Cynthia Martin

**Development Services** 

ynthia Martin

cc: Ms. Angie Allen

Enclosure: Water Feasibility Study



**TO:** Special Districts – Water and Sanitation Division

(San Bernardino County – Public Works Department)

**FROM:** Trent Brudin, PE

Erik Howard, PE, PLS

Engineering Resources of Southern California, Inc.

**DATE:** March 24, 2021

SUBJECT: WATER SERVICE FEASIBILITY STUDY (W/O NO. 16834-205)

APN: 0357-421-15 (COUNTY SERVICE AREA 70-ZONE J) BLUE MIST, LLC GAS STATION/C-STORE PROJECT

To Whom it May Concern,

In accordance with the Special Districts (SD) authorization, *Engineering Resources of Southern California*, *Inc. (ERSC)* has completed a Water Service Feasibility Study (WFS) for Subject project.

The project applicant is proposing Phase 1 of a commercial development on 2.3± Acres of undeveloped / vacant land (nominal site dimensions of 295 'x 340') on the southeast corner of the Escondido Avenue and Ranchero Road intersection. Said site location is within the Oak Hills Community Plan, an unincorporated area in San Bernardino County, California (APN 0357-421-15), which lies within the County Service Area 70-Zone J (CSA 70J) service boundary.

Proposed improvements described / shown in the developer's submittal include a fueling area with overhead canopy, a combined convenience store/quick service restaurant building, and other site improvements such as paving, striping, ADA access, curb and gutter, landscaping, stormwater BMPs, etc.



#### 1. Flow Requirements, Analysis & Recommendations

Fire flow requirements issued by the San Bernardino County Fire Protection District (FPD) require subject development to demonstrate a, available water system flow rate of 1,500 gpm for a two (2) hour duration, and with a residual pressure of 20 psi. Said requirements were set forth in the FPD's conditions of approval letter dated May 13, 2020 (as updated December 15, 2020) for its project number PMIS-2020-00006 (see appendix).

This flow rate accounts for an allowed flow reduction due to the requirement that the building be equipped with fire sprinklers (per the same letter) and translates to a potential consumed volume of 180,000 gal (0.18 MG). ERSC's study is limited analyzing whether the public water system is adequate for delivering flow to the property. Method and design of on-site distribution (and to the individual structures) is beyond the scope of this study.

Water and Sanitation (WAS) operations staff previously performed a field fire flow test (01/21/2021, see appendix) at the closest hydrant to the proposed site (east side of Escondido Avenue, approx. 120 ft south of Ranchero Road). This location however differs from that shown on SD's Water Atlas Sheet ZJ-O9 which actually shows it off of Ranchero Road, so appears to have been relocated due to traffic signal improvements at the intersection. Said flow test yielded the following results:

**Table 1 - "Pumps Off"** 

Static System Pressure	74 psi
Field Flow Rate	1,211 gpm
Residual Pressure	65 psi
Projected Flow Rate *	3,183 gpm
(@ 20psi residual pressure)	

<sup>\*</sup> Theoretical value (per AWWA Manual M17) and does not necessarily represent the water system's ability to provide that flow.

ERSC performed a modeled fire flow demand analysis using H2ONET water system modeling software at the same location the field test was performed. Two (2) scenarios were run using different model parameters. Scenarios included the existing condition with pumps



off <u>excluding</u> "parasitic" demands and pumps off <u>including</u> "parasitic" demands. Parasitic demands are herein defined as competing system demands associated with customer meters, that may occur simultaneously with a fire demand event. As shown in Tables 1 and 2 (see appendix), initial model results yielded a flow of 4,062 gpm (excluding parasitic demands), and 3,636 gpm (including parasitic demands).

Total model demand parameters are based on the required fire flow in addition to the system's max day demand (MDD). In accordance with SD's standards, MDD was calculated as 2.25 times the average day demand (ADD). ADD in turn was calculated by taking the volume of water from the month showing the highest demand (volume delivered to customers) and dividing it by the number of days in that month. The MDD was then distributed over all system nodes, and the fire flow demand was placed at the project site.

The field and model test results both yield flows beyond FPD's minimum requirements. Based on same, major water system improvements are not needed to supply sufficient fire flow to the project boundary, but public hydrants and on-site fire system improvements will be required. Since the system was able to meet minimum performance during the "pumps off" scenario, a "pumps on" scenario was not performed.

#### 2. Water Supply Source and Storage Requirements

CSA 70J is currently served by four distinct pressure zones. Subject project lies within Pressure Zone 2 (Zone 2 @ 3,849' HGL), which is served by two (2) dedicated reservoir sites. Site 2-A, near El Centro Road and Caliente Road, has three (3) reservoirs with a total storage volume of 2.2 MG, and Site 2-B, near Whitehaven Street and Mesa Linda Street, has one (1) reservoir with an additional storage volume of 0.428 MG; about 2.63 MG total. Assuming 20% of Zone 2's capacity (0.526 MG) is reserved for community domestic use, about 2.1 MG is available for fire protection which is sufficient for the stipulated fire event. In addition, redundant storage is available to serve Zone 2 via the higher-pressure zones (Zones 3 & 4) through multiple pressure reducing valve stations, and from the lower pressure zone (Zone 1) through multiple booster stations and wells. Therefore, the existing system has adequate storage to serve the minimum fire flow requirements.

With regard to source water production, the State Water Resources Control Board (Division of Drinking Water) posts monthly water monitoring data for CSA 70J, provided by Special



Districts. Potable water production numbers for the year 2019 are between 21 MG at the lowest month and 63 MG at the highest month. Production data is not complete for the year 2020 at this time, but is trending in the same pattern as 2019. As mentioned above, the minimum fire flow imposed by SBCFD requires a volume of 180,000 gal (0.18 MG). In comparing the system's production capabilities and minimum fire flow requirements, the data suggests that, if needed, the existing system has adequate capacity to replenish the system with the minimum required fire flow volume.

#### 3. Water Connection and Other Fees

County's policy for CSA 70J requires a connection fee of \$9,848.50 per equivalent dwelling unit (EDU). Fixture units (as provided by the developer) amount to 24.5, which converts directly to 1.225 EDUs but gets adjusted to 2 EDUs (includes one EDU for every 20 FUs, or portion thereof). This results in a total connection fee of \$19,697.

County's policy also requires that the developer pay all other fees and charges, related to both water and sewer (if applicable), prior to allowing the project to advance.

Any questions or comments should be forwarded or conveyed to Project Management (<a href="mailto:devservices@sdd.sbcounty.gov">devservices@sdd.sbcounty.gov</a>) at San Bernardino County - Special Districts

# **Appendix**

#### Table 1

Test Report Print Title

1	ID	Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Available Flow at Hydrant (gpm)	Available Flow Pressure (psi)
1	Z2-311.5	0.00	73.95	3,856.46	1,500.00	65.16	4,061.84	20.00

Date: Monday, February 22, 2021, Time: 12:24:48, Page 1

#### Table 2

Test Report Print Title

ID		Static Demand (gpm)	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Available Flow at Hydrant (gpm)	Available Flow Pressure (psi)	
1	Z2-311.5	0.00	70.74	3,849.06	1,500.00	59.90	3,636.00	20.00	

Date: Monday, February 22, 2021, Time: 12:24:26, Page 1



#### SAN BERNARDINO COUNTY FIRE PROTECTION DISTRICT

385 N. Arrowhead Ave. 1st Floor San Bernardino Ca. 92475

Date: 05-13-2020 | REVISED: 12-15-2020

Project: PMIS-2020-00006

Location: Oak Hills

Project Type: Conditions to Approved Action

APN: 0357-421-15

Proposal: CONDITION COMPLIANCE FOR:

Revision to Approved Action to construct a gasoline service station in two phases comprised of a 3,701 sf fuel canopy with 8 gasoline pumps and a 5,500 square foot (sf) convenience store [Phase 1], and 2,700 sf restaurant [Phase 2] on 2.3 acres in Oak Hills. The proposed action will alter the project originally authorized under P200800270, approved October 7, 2010.

Planner: Magda Gonzalez

#### Dear Applicant:

With respect to the conditions of approval regarding the above referenced project, the San Bernardino County Fire Department requires the following fire protection measures to be provided in accordance with applicable local ordinances, codes and/or recognized fire protection standards.

The *Fire Conditions Attachment* of this document sets forth the *Fire Conditions* and *Standards* which are applicable to this project.

Fire Conditions: ALL FIRE CONDITIONS FOR THIS PROJECT ARE ATTACHED.

#### **GENERAL REQUIREMENTS/ON-GOING CONDITIONS:**

#### 1. Jurisdiction

The above referenced project is under the jurisdiction of the San Bernardino County Fire Department herein "Fire Department". Prior to any construction occurring on any parcel, the applicant shall contact the Fire Department for verification of current fire protection requirements. All new construction shall comply with the current California Fire Code requirements and all applicable status, codes, ordinances and standards of the Fire Department.

#### 2. Permit Expiration

Construction permits, including Fire Condition Letters, shall automatically expire and become invalid unless the work authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. Suspension or abandonment shall mean that no inspection by the Department has occurred with 180 days of any previous inspection. After a construction permit or Fire Condition Letter, becomes invalid and before such previously approved work recommences, a new permit shall be first obtained and the fee to recommence work shall be one-half the fee for the new permit for such work, provided no changes have been made or will be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded one year. A request to extend the Fire Condition Letter or Permit may be made in writing PRIOR TO the expiration date justifying the reason that the Fire Condition Letter should be extended.

#### 3. Additional Requirements

In addition to the Fire requirements stated herein, other onsite and offsite improvements may be required which cannot be determined from tentative plans at this time and would have to be reviewed after more complete improvement plans and profiles have been submitted to this office.

#### 4. Inspection by the Fire Department

Permission to occupy or use the building (certificate of Occupancy or shell release) will not be granted until the Fire Department inspects, approves and signs off on the Building and Safety job card for "fire final".

#### 5. Fire Fee

The required fire fees shall be paid to the San Bernardino County Fire Department/Community Safety Division (760) 995-8190

#### CONDITIONS THAT MUST BE MET PRIOR TO ISSUANCE OF BUILDING PERMITS

#### 6. Fire Flow Test

Your submittal did not include a flow test report to establish whether the public water supply is capable of meeting your project fire flow demand. You will be required to produce a current flow test report from your water purveyor demonstrating that the fire flow demand is satisfied. This requirement shall be completed prior to combination inspection by Building and Safety. 1500 GPM at 20 PSI for 2hrs

The 1500 GPM is the minimum amount for commercial projects, and includes the 50% reduction allowed for sprinklers.

#### 7. Access

The development shall have a minimum of two points of vehicular access. These are for fire/emergency equipment access and for evacuation routes.

a. Single Story Road Access Width. All buildings shall have access provided by approved roads, alleys and private drives with a minimum twenty-six (26) foot unobstructed width and vertically to fourteen (14) feet six (6) inches in height. Other recognized standards may be more restrictive by requiring wider access provisions.

b. Multi-Story Road Access Width. Buildings three (3) stories in height or more shall have a minimum access of thirty (30) feet unobstructed width and vertically to fourteen (14) feet six (6) inches in height.

#### 8. Water System

Prior to any land disturbance, the water systems shall be designed to meet the required fire flow for this development and shall be approved by the Fire Department. The required fire flow shall be determined by using California Fire Code.

The Fire Flow for this project shall be: 1500 GPM for a 2hour duration at 20 psi. residual operating pressure. Fire Flow is based on a 5500 sq.ft. Type II B structure.

#### 9. Commercial Addressing

Commercial and industrial developments of 100,000 sq. ft or less shall have the street address installed on the building with numbers that are a minimum six (6) inches in height and with a three quarter (3/4) inch stroke. The street address shall be visible from the street. During the hours of darkness, the numbers shall be electrically illuminated (internal or external). Where the building is two hundred (200) feet or more from the roadway, additional non-illuminated contrasting six (6) inch numbers shall be displayed at the property access entrances.

#### 10. Fire Sprinkler-NFPA #13

An automatic fire sprinkler system complying with NFPA Pamphlet #13 and the Fire Department standards is required. The applicant shall hire a Fire Department approved fire sprinkler contractor. The fire sprinkler contractor shall submit plans to the with hydraulic calculation and manufacturers specification sheets to the Fire Department for approval and approval. The contractor shall submit plans showing type of storage and use with the applicable protection system. The required fees shall be paid at the time of plan submittal. For any buildings over 5,000 Sqft, or exceeds 100 people in Occupancy

#### 11.Fire Alarm

A manual, automatic or manual and automatic fire alarm system complying with the California Fire Code, NFPA and all applicable codes is required. The applicant shall hire a Fire Department approved fire

alarm contractor. The fire alarm contractor shall detailed plans to the Fire Department for review and approval. The required fees shall be paid at the time of plan submittal.

#### 12. Tank Permit

Any tank exceeding 60 gallons must be permitted

#### 13. Hood and Duct protection

For any system using Grease Laden Vapor

#### THE FOLLOWING PRIOR TO OCCUPANCY:

#### 12 Fire Lanes

The applicant shall submit a fire lane plan to the Fire Department for review and approval. Fire lane curbs shall be painted red. The "No Parking, Fire Lane" signs shall be installed on public/private roads in accordance with the approved plan.

Sincerely,

Jeff Stinson, Fire Prevention Specialist

San Bernardino County Fire Department

South Desert Division Community Safety Division

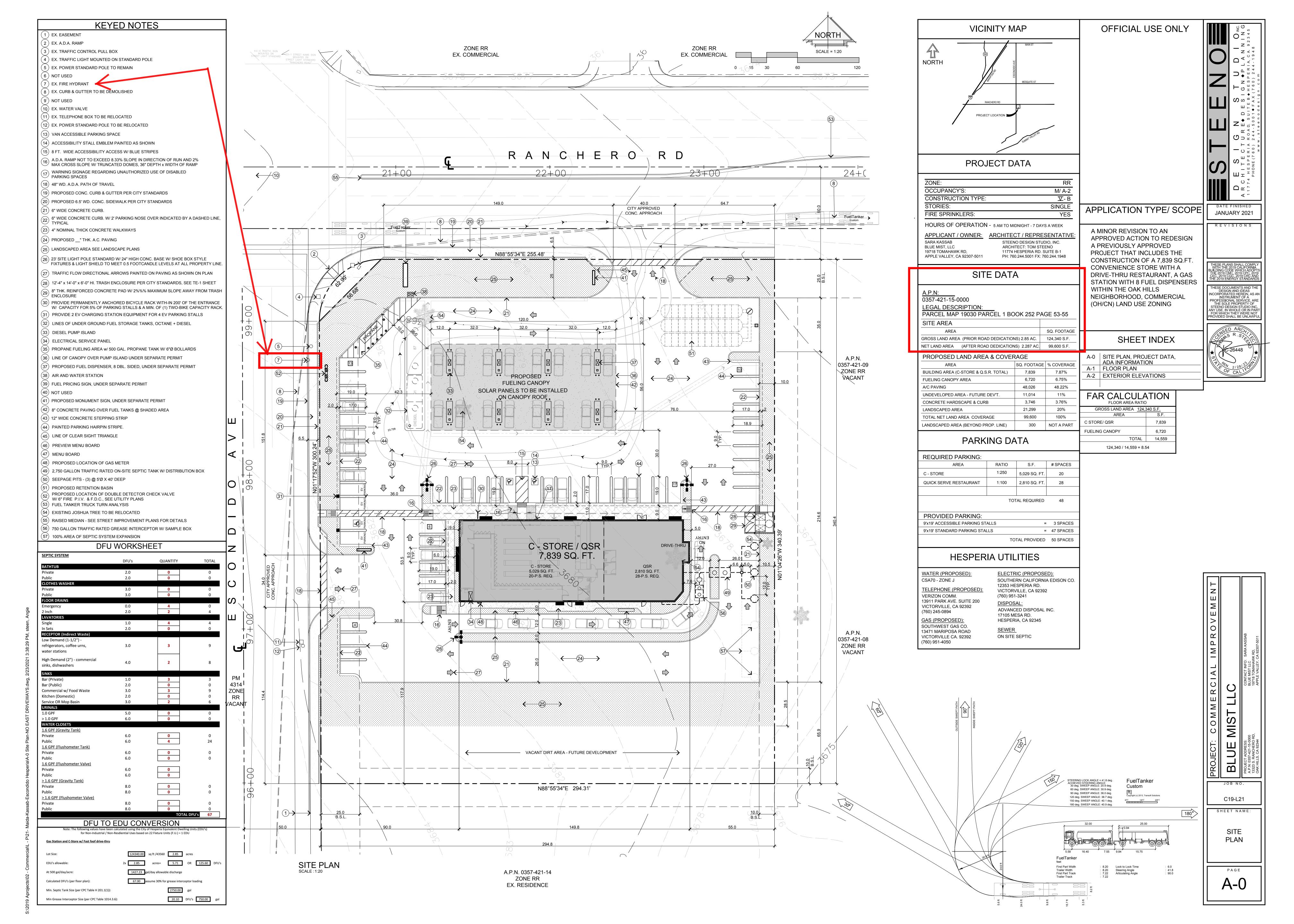


Department of Public Works Special Districts Water and Sanitation Division 15900 Smoke Tree Street Hesperia, CA 92345

Office: (760) 554-9885

Fire Flow Test Application									
PLEASE COMPLETE THIS ENTIRE SECTION:									
Applicant: STEENO	DESIGN STUDIO INC					CSA:	70J		
Mailing Address:	11774 HESPERIA RD #B		City:	HESPERIA		Zip Code:	92345		
Hydrant Location:	CORNER OF RANCHER ESCONDIDO AV	/E		Cross Street:	ESCONDIDO	<u> </u>			
Property Owner(s):	PROPERTY LLC		Property Address:	13323 RANCHER	RO RD				
	760-244-5001		D. St. Concept age on the		Size of Pare	cel:	acres		
	: 0357-421-15	į.	Total So	Ft (evict & new):					
Intended Use of Pro	☑ Single F					Cother Cother	age		
		Maria la ani	•		D-1- D-14				
Received by: .  Fick Up	EC Receipt N	Number: _	U	474-0004		1/12/2021			
V.•3	✓ Mail			Si	Date Sent:		-		
Maranes saudici tran as to	gations by the Division ma ne applicant. Prooperty will					uired. An Itemized			
**This form on its owr	n is not a guarantee of so ued within the last 12 m	ervice and	l must be a	ccompanied by a	valid Water ar	nd Sanitation Avai	lability		
(For Field Use Only)			T RESI						
Fire Hydrant 1	(Flow) Dist	tance fror	m Project:	1	AT PIQ		<u>s</u>		
Hydrant#		Hydrant	t Location	SE CRNR OF	ESCONDID	O,RANCHERO	-		
Туре	MUE 5 1/4	No	ozzle Size	2.5	Start Time	10:10 AM	-		
Static PSI	70	Flo	w in GPM	11211	_ End Time	10:15 AM	_		
Pitot PSI	52	Nozzle (	C Factor	0.9	_				
Fire Hydrant 2	(Witness Pressure)								
Hydrant#		Hydran	t Location	APPROX 20	00-300'S OF	HYDRANT 1			
Туре	MUE 5 1/4	No	ozzle Size	2.5	_				
Static PSI	74	Res	sidual PSI	I65	=				
Flow calculated at 20 PSI Residual 3183 GPM									
Comments:	PUMPS "OFF"								
Tested by:	RP/MJ			_ Date:	1/19/20	21			
Reviewed by:				_ Date:	1-21-2	./			
	District Engineer or Design	nee			3				

Return to Special Districts/Development Svcs. at: 15900 Smoke Tree St, Hesperia, CA 92345 Fire Flow Test Fee: \$225.00 + 10hcf of water at the highest tier for the district.



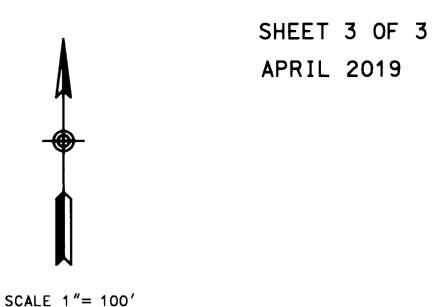
# PARCEL MAP NO. 19030

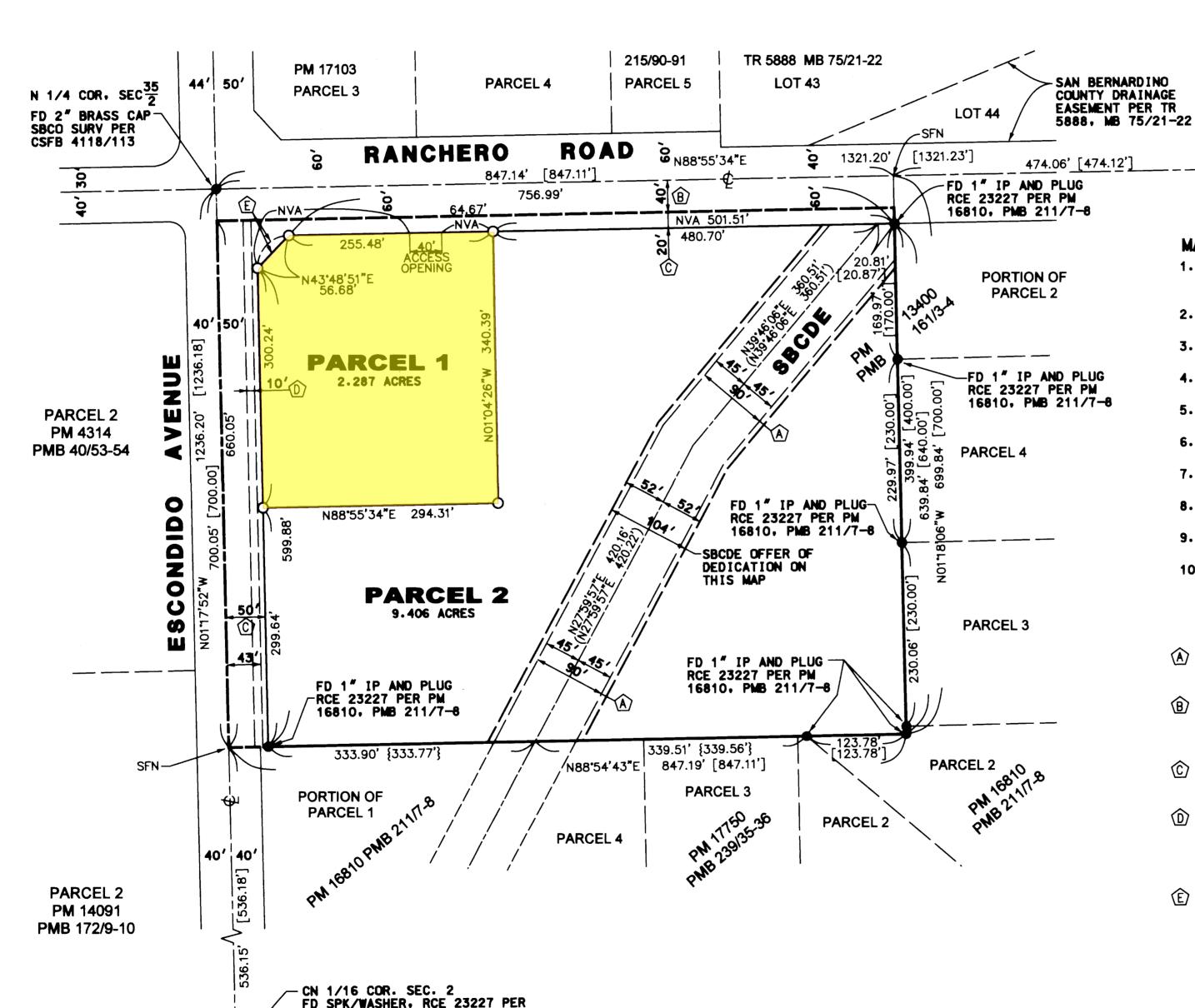
BEING A SUBDIVISION OF PARCEL 1 OF PARCEL MAP NO. 13400, PARCEL MAP BOOK 161, PAGES 3 AND 4 INCLUSIVE, IN THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 5 WEST, SBM, RECORDS OF SAN BERNARDINO COUNTY, STATE OF CALIFORNIA

GOODMAN AND ASSOCIATES

PM 16810, PMB 211/7-8

DOUGLAS L. GOODMAN R.C.E. 28500





## MAP NOTES:

1. BASIS OF BEARINGS IS THE CENTERLINE OF RANCHERO ROAD AS N88°55'34"E PER PARCEL MAP 16810, P.M.B. 211, PAGES 7-8

E 1/16 COR. SEC. 35/2 FD 1" IP , NO TAG

ACCEPTED AS CENTERLINE

MONUMENT PER PM

13400, PMB 161/3-4

- 2. INDICATES FOUND MONUMENT AS NOTED
- 3. O INDICATES SET MONUMENT (1" I.P. WITH PLASTIC CAP) TAGGED RCE 28500
- 4. ( ) INDICATES RECORD DATA PER PM 13400, PMB 161/3-4
- 5. [ ] INDICATES RECORD DATA PER PM 16810, PMB 211/7-8
- . { } INDICATES RECORD DATA PER PM 17750, PMB 239/35-36
- 7. CSFB INDICATES COUNTY SURVEYOR'S FIELD BOOK
- 8. S.B.C.D.E. INDICATES SAN BERNARDING COUNTY DRAINAGE EASEMENT
- 9. NVA INDICATES NON-VEHICULAR ACCESS
- 10. SNF INDICATES SEARCEDAND NOT FOUND

# MAP NOTES:

- A 90 FOOT WIDE DRAINAGE EASEMENT TO THE COUNTY OF SAN BERNARDING PER PARCEL MAP 13400, PARCEL MAP BOOK 161/3-4
- B A 40 FOOT WIDE GRANT IN FEE SIMPLE TO THE COUNTY OF SAN BERNARDINO PER DEED RECORDED JULY 7, 1959 IN BOOK 4864, PAGE 222, OFFICIAL RECORDS
- © OFFER OF DEDICATION TO THE COUNTY OF SAN BERNARDINO PER PARCEL MAP 13400, PARCEL MAP BOOK 161/3-4
- A 10 FOOT EASEMENT FOR AERIAL AND UNDERGROUND ELECTRIC AND COMMUNICATION LINES AS GRANTED TO SOUTHERN CALIFORNIA EDISON COMPANY PER DEED RECORDED JANUARY 20, 1966 IN BOOK 6555, PAGE 765, OFFICIAL RECORDS
- © GRANT OF EASEMENT TO THE COUNTY OF SAN BERNARDINO PER DEED RECORDED 8, 2012, AS DOCUMENT NO. 2012-0052043, OFFICIAL RECORDS

### COMPOSITE DEVELOPMENT PLAN NOTE

A COMPOSITE DEVELOPMENT PLAN (C.D.P.) AFFECTING THIS MAP IS ON FILE IN THE SAN BERNARDING COUNTY OFFICE OF BUILDING AND SAFETY.