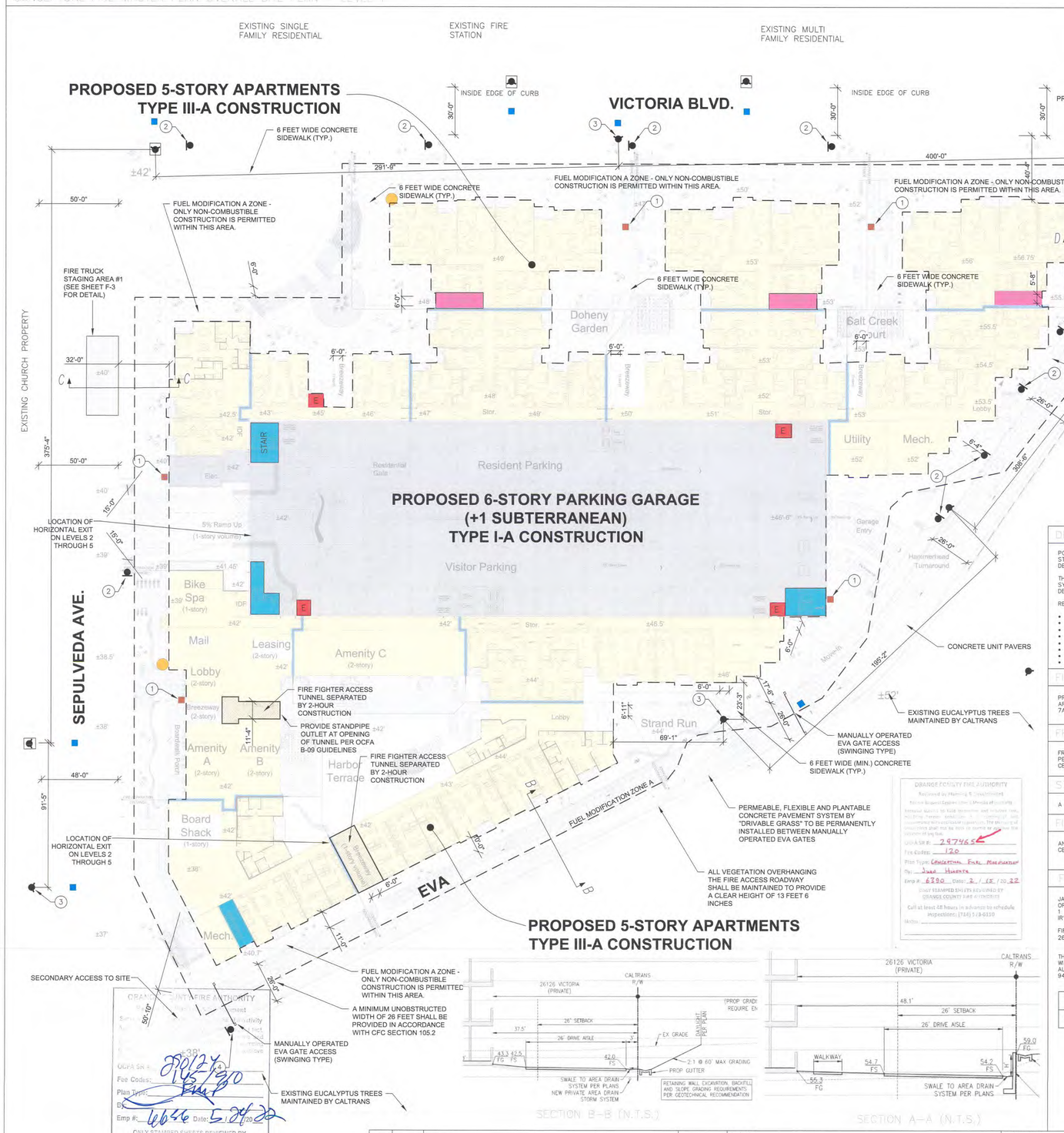
26126 VICTORIA BLVD. APARTMENTS (TRACK #735)

LEGEND

- NEW "FIRE LANE–NO PARKING" SIGNS MEETING OCFA ATTACHMENT 12
- EXISTING FIRE HYDRANT WITH BLUE MARKER
- EXISTING PAINTED RED CURB NOT PART OF THIS SUBMITTAL
- PROPOSED FIRE HYDRANT WITH BLUE REFLECTIVE FIRE HYDRANT MARKER. MARKER SHALL BE PLACED 6" FROM CENTERLINE OF STREET
- INDICATES APPROXIMATE LOCATION OF SUB-KEYED KNOX BOX WITH 3 SETS OF ENTRY DOOR/GATE KEYS OR KNOX KEY SWITCH. SEE PLAN FOR DESIGNATION.
- AREA SEPARATION WALLS SEE ARCHITECTURAL PLAN FOR FURTHER DETAIL
- 1" MIN. BUILDING ADDRESSING SEE ARCHITECTUAL PLAN FOR FINAL DESIGN AND LOCATIONS.
- STAIR — STAIRS PROVIDING ROOF ACCESS PROVIDED WITH WET STANDPIPE
- STAIRS – DO NOT EXTEND TO ROOF. PROVIDED WITH WET STANDPIPE. ROOF HATCHES PROVIDED, SEE SHEET F2
- CURNEY COMPLIANT ELEVATORS
- LEVEL 1 BUILDING FOOTPRINT TYPE I–A CONSTRUCTION
- LEVEL 1 BUILDING FOOTPRINT TYPE III–A CONSTRUCTION
- FIREFIGHTING TUNNEL CONSTRUCTED PER OCFA B–09 GUIDELINES
- FUEL MODIFICATION ZONE A. 20–FOOT SETBACK ZONE. ZONE A WILL BE A PRIVATELY MAINTAINED LANDSCAPE AREA. REFER TO THE APPROVED CONCEPTUAL FUEL MODIFICATION PLAN FOR FURTHER DETAIL.
- (1) INSTALL KEYED KNOX BOX PER OCFA B–09 GUIDELINES.
- (2) INSTALL "FIRE LANE–NO PARKING" SIGNS MEETING OCFA ATTACHMENT 12
- (3) INSTALL FIRE HYDRANT AND BLUE FIRE HYDRANT MARKER. MARKER SHALL BE PLACED 6" FROM CENTERLINE OF STREET.
- (4) INSTALL FIRE LANE ENTRANCE SIGN PER OCFA ATTACHMENT 10.
- (5) INSTALL FRANGIBLE PADLOCK, KNOX PADLOCK OR WEATHER–RESISTANT KNOX KEY BOX PER OCFA GUIDELINES.

CONCEPTUAL FIRE MASTER PLAN OVERALL SITE PLAN – LEVEL 1

SCALE: 1"=30'



FOR REFERENCE ONLY

PREMISES IDENTIFICATION & ADDRESSING

PREMISES IDENTIFICATION CBC 501.2, CFC 505.1

THREE POSSIBLE CONFIGURATIONS OF BUILDINGS OR UNITS WITHIN A BUILDING MAY EXIST AND ARE IDENTIFIED AS FOLLOWS: FREESTANDING BUILDINGS, MULTI–UNIT BUILDINGS, OR MULTI BUILDING CLUSTERS. COMMON TO ALL CONFIGURATIONS ARE THE REQUIREMENTS LISTED IN SECTIONS A THROUGH E BELOW. PROJECTS MAY ALSO BE SUBJECT TO SPECIFIC ADDRESS AND WAYFINDING SIGNAGE REQUIREMENTS CONTAINED IN THE LOCAL JURISDICTION'S MUNICIPAL ORDINANCE OF SECURITY CODE, WHICH MAY BE MORE RESTRICTIVE THAN THE REQUIREMENTS LISTED IN THIS GUIDELINE. FOR PROJECTS LOCATED IN THE CITY OF IRVINE, PLEASE SEE IRVINE UNIFORM SECURITY CODE, SECTIONS 5–9–516.B & C AND SECTION 5–9–517L. FOR PROJECTS LOCATED IN SRA LAND, PLEASE SEE GUIDELINE B–09A FOR ADDITIONAL ADDRESSING REQUIREMENTS.

A. APPROVED NUMBERS OR ADDRESSES SHALL BE PLACED ON THE FRONT ELEVATION OF ALL NEW OR EXISTING BUILDINGS IN SUCH A POSITION THAT IS PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD ON WHICH THE PROPERTY IS ADDRESSED. ADDRESSES SHALL NOT BE LOCATED WHERE THEY HAVE THE POTENTIAL OF BEING OBSTRUCTED BY SIGNS, AWNINGS, VEGETATION, OR OTHER BUILDING/SITE ELEMENTS. AN ADDRESS MONUMENT AT THE VEHICLE ENTRANCE OR OTHER LOCATION CLEARLY VISIBLE AND LEGIBLE FROM THE PUBLIC ROAD MAY BE PROVIDED IN LIEU OF AN ADDRESS ON THE STRUCTURE WHERE ONLY A SINGLE BUILDING WITH A SINGLE STREET ADDRESS IS PRESENT AND NO OTHER STRUCTURES ARE ACCESSIBLE FROM THE FIRE LANE SERVING THAT STRUCTURE.

B. THE NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND.

C. THE NUMBERS SHALL BE A MINIMUM OF 4 INCHES OR MORE IN HEIGHT FOR SINGLE FAMILY RESIDENTIAL STRUCTURES/DUPLEXES, OR INDIVIDUAL UNIT NUMBERS IN MULTIFAMILY RESIDENTIAL STRUCTURES AND 6 INCHES OR MORE FOR COMMERCIAL STRUCTURES OR THE PRIMARY BUILDING ADDRESS OR ADDRESS RANGE POSTED ON MULTI–FAMILY RESIDENTIAL STRUCTURES. THE 6–INCH NUMBERS SHALL HAVE A ONE INCH STROKE AND THE 4–INCH NUMBERS SHALL HAVE A ¾–INCH STROKE, OR AS REQUIRED BY LOCAL ORDINANCE, WHICHEVER IS MORE RESTRICTIVE. BUILDING SETBACKS, ELEVATION, AND LANDSCAPING CAN AFFECT THESE MINIMUM SIZE REQUIREMENTS.

D. ADDRESS NUMBERS MAY BE REQUIRED TO BE INTERNALLY OR EXTERNALLY ILLUMINATED BY THE LOCAL JURISDICTION'S SECURITY CODE. WHILE NOT REQUIRED BY THE OCFA, ILLUMINATION OF ADDRESSES IS RECOMMENDED TO FACILITATE RAPID LOCATION OF A SITE OR BUILDING.

E. WHERE IT IS UNCLEAR AS TO WHICH STREET A BUILDING IS ADDRESSED TO (E.G., A BUILDING IS ACCESSED ONLY FROM A STREET OTHER THAN THE ONE IT IS ADDRESSED TO; MULTIPLE MAIN ENTRANCES TO THE SITE, OR BUILDING ITSELF, FRONT DIFFERENT STREETS), THE NAME OF THE STREET SHALL ALSO BE IDENTIFIED AS PART OF THE POSTED ADDRESS.

F. MULTI–UNIT BUILDINGS – SUITE/APARTMENT NUMBERS SHALL BE PLACED ON OR ADJACENT TO THE PRIMARY ENTRANCE FOR EACH SUITE/APARTMENT AND ANY OTHER DOOR PROVIDING ACCESS TO FIRE DEPARTMENT PERSONNEL DURING AN EMERGENCY. MULTIPLE RESIDENTIAL AND COMMERCIAL UNITS HAVING ENTRANCE DOORS NOT VISIBLE FROM THE STREET OR ROAD SHALL, IN ADDITION, HAVE APPROVED NUMBERS GROUPED FOR ALL UNITS WITHIN EACH STRUCTURE AND POSITIONED TO BE PLAINLY VISIBLE FROM THE STREET OR ROAD.

G. MULTI–BUILDING CLUSTERS – APPROVED NUMBERS OR ADDRESSES SHALL BE PLACED ON THE FRONT ELEVATION(S) OF ALL BUILDINGS THAT FORM THE CLUSTER. IF ALL BUILDING ADDRESSES ARE NOT CLEARLY VISIBLE OR LEGIBLE FROM THE PUBLIC ROAD SERVING THE STRUCTURES, AN ADDRESS MONUMENT SHALL ALSO BE PROVIDED AT THE ENTRY POINT(S) TO THE SITE INDICATING THE RANGE OF ADDRESSES ACCESSIBLE FROM THAT ENTRANCE.

FIRE ACCESS ROADWAY IDENTIFICATION

FIRE ACCESS ROADWAY IDENTIFICATION, CFC 503.3

FIRE LANE IDENTIFICATION WILL BE REQUIRED WHEN IT IS NECESSARY TO RESTRICT PARKING OF VEHICLES IN ORDER TO MAINTAIN THE REQUIRED WIDTH OF FIRE ACCESS ROADWAYS FOR EMERGENCY VEHICLE USE. UNLAWFUL USE OF FIRE LANES WILL BE ENFORCED BY THE LOCAL LAW ENFORCEMENT AGENCY IN ACCORDANCE WITH THE CALIFORNIA VEHICLE CODE (CVC).

SIGN AND CURB MARKING OPTIONS – AREAS DESIGNATED AS A FIRE LANE REQUIRE AN ACCEPTABLE METHOD OF MARKING THAT SHALL BE APPROVED PRIOR TO INSTALLATION.

THE FOLLOWING METHOD WILL BE USED AS A MEANS OF IDENTIFYING DESIGNATED FIRE LANES FOR PUBLIC AND PRIVATE STREETS WITHIN THIS PROJECT:

"FIRE LANE–NO PARKING" SIGNS MEETING THE SPECIFICATIONS IN ATTACHMENT 12 SHALL BE POSTED IMMEDIATELY ADJACENT TO EACH DESIGNATED FIRE LANE AND AT INTERVALS NOT TO EXCEED 50 FEET, UNLESS OTHERWISE APPROVED BY THE FIRE CODE OFFICIAL. IN ADDITION, WHERE THE NUMBER OF ENTRANCES INTO THE AREA SHALL BE POSTED WITH APPROVED FIRE LANE ENTRANCE SIGNS.

NOTE: ACCEPTABLE SIGNAGE AND/OR MARKING REQUIREMENTS FOR STREETS IN EACH JURISDICTION MUST BE VERIFIED WITH THE APPROPRIATE CITY OR COUNTY PUBLIC WORKS, COMMUNITY DEVELOPMENT, OR TRAFFIC ENGINEERING DEPARTMENT PRIOR TO SUBMITTAL TO THE OCFA. WHERE PARKING IS OTHERWISE RESTRICTED BY CITY/COUNTY PLANNING OR TRAFFIC STANDARDS, AND NO PARKING ZONES ARE CLEARLY IDENTIFIED WITH SIGNS OR CURB MARKINGS IN ACCORDANCE WITH THOSE STANDARDS, ADDITIONAL "FIRE LANE–NO PARKING" SIGNS ARE NOT REQUIRED, WHEN APPROVED BY THE FIRE CODE OFFICIAL.

OCFA FIRE MASTER PLAN NOTES (JAN. 1, 2020)

INSPECTION REQUIREMENTS:

1. OCFA SITE INSPECTIONS ARE REQUIRED FOR THIS PROJECT. PLEASE SCHEDULE ALL FIELD INSPECTIONS AT LEAST 48 HOURS IN ADVANCE. INSPECTIONS CANCELED AFTER 1 P.M. ON THE DAY BEFORE THE SCHEDULED DATE WILL BE SUBJECT TO A RE–INSPECTION FEE. CALL OCFA INSPECTION SCHEDULING AT (714) 573–6150.
2. A LUMBER DROP INSPECTION SHALL BE PERFORMED PRIOR TO BRINGING COMBUSTIBLE MATERIALS (OR COMBUSTIBLE FIXTURES AND FINISHES FOR STRUCTURES OF NON–COMBUSTIBLE CONSTRUCTION), ALL–WEATHER ACCESS ROADS CAPABLE OF SUPPORTING 94,000 LBS.; TOPPED WITH ASPHALT, CONCRETE, OR EQUIVALENT SHALL BE IN PLACE AND HYDRANTS OPERATIONAL AT TIME OF LUMBER DROP INSPECTION.
3. FOR PROJECTS WITH FUEL MODIFICATION, A VEGETATION CLEARANCE INSPECTION IS REQUIRED PRIOR TO A LUMBER DROP INSPECTION. USE THE FUEL MODIFICATION PLAN SERVICE REQUEST NUMBER TO SCHEDULE THE VEGETATION CLEARANCE INSPECTION.
4. PHASED INSTALLATION OF FIRE ACCESS ROADS REQUIRES ADDITIONAL INSPECTIONS NOT COVERED BY THE FEES PAID AT PLAN SUBMITTAL. CONTACT INSPECTION SCHEDULING TO ARRANGE FOR ADDITIONAL INSPECTIONS THAT MAY BE NEEDED AND ANY FEES THAT MAY BE DUE.
5. AN ORIGINAL APPROVED, SIGNED, WET–STAMPED OCFA FIRE MASTER PLAN SHALL BE AVAILABLE ON–SITE AT TIME OF INSPECTION.
6. ACCESS ROADS AND HYDRANTS SHALL BE MAINTAINED AND REMAIN CLEAR OF OBSTRUCTIONS AT ALL TIMES DURING AND AFTER CONSTRUCTION. AREAS WHERE PARKING IS NOT PERMITTED SHALL BE CLEARLY IDENTIFIED AT ALL TIMES. OBSTRUCTION OF FIRE LANES AND HYDRANTS MAY RESULT IN CANCELLATION OR SUSPENSION OF INSPECTIONS.
7. TEMPORARY FUEL TANKS OF 60 OR MORE GALLONS SHALL BE REVIEWED, INSPECTED, AND PERMITTED BY THE OCFA PRIOR TO USE.
8. THE PROJECT ADDRESS SHALL BE CLEARLY POSTED AND VISIBLE FROM THE PUBLIC ROAD DURING CONSTRUCTION.
9. ALL GATES IN CONSTRUCTION FENCING SHALL BE EQUIPPED WITH EITHER A KNOX OR BREAKAWAY PADLOCK.
10. BUILDINGS OF FOUR OR MORE STORIES SHALL BE PROVIDED WITH STAIRS AND A STANDPIPE BEFORE REACHING 40 FEET IN HEIGHT.

GENERAL REQUIREMENTS:

1. FIRE LANE WIDTHS SHALL BE MEASURED FROM TOP FACE OF THE CURB TO TOP FACE OF THE CURB FOR FIRE LANES WITH STANDARD CURBS AND GUTTERS AND FROM FLOW–LINE TO FLOW–LINE FOR FIRE LANES WITH MODIFIED CURB DESIGNS (RAISED PLANTERS, ETC.). THE DEVELOPER IS RESPONSIBLE TO VERIFY THAT ALL APPROVED PUBLIC WORKS OR GRADING DEPARTMENT STREET IMPROVEMENT PLANS OR PRECISE GRADING PLANS CONFORM TO THE MINIMUM STREET WIDTH MEASUREMENTS PER THE APPROVED OCFA FIRE MASTER PLAN AND STANDARDS IDENTIFIED IN OCFA GUIDELINE B–09 FOR ALL PORTIONS OF THE FIRE ACCESS ROADS.
2. PERMANENT, TEMPORARY, AND PHASED EMERGENCY ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT AN IMPOSED LOAD OF 94,000 LBS. AND SURFACED TO PROVIDE ALL–WEATHER DRIVING CAPABILITIES.
3. FIRE LANE SIGNS AND RED CURBS SHALL MEET THE SPECIFICATIONS SHOWN IN OCFA GUIDELINE B–09 AND SHALL BE INSTALLED AS DESCRIBED THEREIN. ADDITIONAL FIRE LANE MARKINGS MAY BE REQUIRED AT THE TIME OF INSPECTION DEPENDING ON FIELD CONDITIONS.
4. ALL FIRE HYDRANTS SHALL HAVE A "BLUE REFLECTIVE PAVEMENT MARKER" INDICATING THEIR LOCATION PER THE OCFA STANDARD. ON PRIVATE PROPERTY MARKERS ARE TO BE MAINTAINED IN GOOD CONDITION BY THE PROPERTY OWNER.
5. ADDRESS NUMBERS SHALL BE LOCATED AND BE OF A COLOR AND SIZE SO AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE ROADWAY FROM WHICH THE BUILDING IS ADDRESSED IN ACCORDANCE WITH OCFA GUIDELINE B–09. WAYFINDING SIGNS, WHEN REQUIRED BY THE LOCAL AHJ, SHALL COMPLY WITH THE STANDARDS OF THAT AGENCY. WHEN WAYFINDING SIGNS ARE ALSO REQUIRED BY THE OCFA, THEY MAY BE DESIGNED TO LOCAL AHJ REQUIREMENTS PROVIDED THAT SUCH STANDARDS FACILITATE LOCATION OF STRUCTURES, SUITES, AND DWELLING UNITS BY EMERGENCY PERSONNEL.
6. ACCESS GATES SHALL BE APPROVED PRIOR TO INSTALLATION AND SHALL BE IN COMPLIANCE WITH CHAPTER 5 OF THE CFC AND OCFA GUIDELINES.
7. APPROVED ACCESS WALKWAYS SHALL BE PROVIDED TO ALL REQUIRED OPENINGS AND ALL RESCUE WINDOWS.
8. VEGETATION SHALL BE SELECTED AND MAINTAINED IN SUCH A MANNER AS TO ALLOW IMMEDIATE ACCESS TO ALL HYDRANTS, VALVES, FIRE DEPARTMENT CONNECTIONS, PULL STATIONS, EXTINGUISHERS, SPRINKLER RISERS, ALARM CONTROL PANELS, RESCUE WINDOWS, AND OTHER DEVICES OR AREAS USED FOR FIREFIGHTING PURPOSES. VEGETATION OR BUILDING FEATURES SHALL NOT OBSTRUCT ADDRESS NUMBERS OR INHIBIT THE FUNCTIONING OF ALARM BELLS, HORNS, OR STROBES.
9. DUMPSTERS AND TRASH CONTAINERS LARGER THAN 1.5 CUBIC YARDS SHALL NOT BE STORED IN BUILDINGS OR PLACED WITHIN 5 FEET OF COMBUSTIBLE WALLS, OPENINGS OR COMBUSTIBLE ROOF EAVE LINES UNLESS PROTECTED BY AN APPROVED SPRINKLER SYSTEM.
10. ANY FUTURE MODIFICATION TO THE APPROVED FIRE MASTER PLAN OR APPROVED SITE PLAN, INCLUDING BUT NOT LIMITED TO ROAD WIDTH, GRADE, SPEED HUMPS, TURNING RADII, GATES OR OTHER OBSTRUCTIONS, SHALL REQUIRE REVIEW, INSPECTION, AND APPROVAL BY THE OCFA.
11. APPROVAL OF THIS PLAN SHALL NOT BE CONSTRUED AS APPROVAL OF ANY INFORMATION OR PROJECT CONDITIONS OTHER THAN THOSE ITEMS AND REQUIREMENTS IDENTIFIED IN OCFA GUIDELINE B–09 AND RELATED PORTIONS OF THE 2016 CFC AND CBC. THIS PROJECT MAY BE SUBJECT TO ADDITIONAL REQUIREMENTS NOT STATED HEREIN UPON EXAMINATION OF ACTUAL SITE AND PROJECT CONDITIONS OR DISCLOSURE OF ADDITIONAL INFORMATION.

PROJECT SPECIFIC REQUIREMENTS:

1. AN UNDERGROUND PIPING PLAN IS REQUIRED FOR THE INSTALLATION OF AN AUTOMATIC FIRE SPRINKLER SYSTEM OR FOR A PRIVATE FIRE HYDRANT SYSTEM. A SEPARATE PLAN SUBMITTAL IS REQUIRED.
2. AN ARCHITECTURAL PLAN IS REQUIRED TO BE SUBMITTED TO THE OCFA FOR REVIEW AND APPROVAL FOR PROJECTS CONTAINING A, S, E, F, H, I, L, AND R–4 OCCUPANCIES. A PLAN MAY ALSO BE REQUIRED FOR R–1 AND R–2 OCCUPANCIES OVER TWO STORIES OR THOSE UTILIZING SPRINKLERS OR FIRE WALLS TO INCREASE THE MAXIMUM BUILDING SIZE ALLOWED–SEE OCFA INFO BULLETIN 02–13.
3. AN AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES AND LOCAL ORDINANCES, AMENDMENTS, AND GUIDELINES. SPRINKLER SYSTEMS, OTHER THAN THOSE LISTED IN CFC 903.4, SHALL BE MONITORED BY AN APPROVED CENTRAL STATION. SEPARATE PLAN SUBMITTALS FOR THE SPRINKLER AND MONITORING SYSTEMS ARE REQUIRED.
4. A FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES AND LOCAL ORDINANCES, AMENDMENTS, AND GUIDELINES. A SEPARATE PLAN SUBMITTAL IS REQUIRED.
5. STRUCTURES MEETING THE CRITERIA IN CFC 510.1 SHALL BE PROVIDED WITH AN EMERGENCY RESPONDER RADIO SYSTEM. REFER TO CFC CFC 510.2 THROUGH 510.6.3 AND OAS/BOA GUIDELINES PUBLISHED BY OC SHERIFF'S COMMUNICATION AND TECHNOLOGY DIVISION FOR TECHNICAL AND SUBMITTAL INFORMATION.

DEFERRED SUBMITTALS

PORTIONS OF THE PROJECT THAT ARE DEFERRED SHALL BE SUBJECT TO THE CODES, STANDARDS, AND OTHER APPLICABLE REQUIREMENTS IN FORCE ON THE DATE THAT THE DEFERRED PLAN IS SUBMITTED TO OCFA.

THIS BUILDING SHALL BE EQUIPPED WITH AN EMERGENCY RESPONDER DIGITAL RADIO SYSTEM. EVIDENCE OF COMPLIANCE SHALL BE PROVIDED TO THE OCFA OR BUILDING DEPARTMENT, AS APPLICABLE, PRIOR TO OCCUPANCY. CFC 510.

REQUIRED SUBMITTALS TO OCFA:

- UNDERGROUND SYSTEM
- SPRINKLER SYSTEM
- ARCHITECTURAL PLANS (R–2 OCCUPANCIES)
- HOOD AND DUCT EXTINGUISHING SYSTEM
- MONITORING AND/OR ALARM SYSTEM
- EMERGENCY RESPONDER RADIO SYSTEM
- TWO–WAY COMMUNICATION SYSTEM
- CLASS I STANDPIPE

FIRE HAZARD SEVERITY ZONE

PROJECT IS LOCATED IN A FIRE HAZARD SEVERITY ZONE/WILDLAND URBAN INTERFACE AREA AND IS SUBJECT TO THE SPECIAL CONSTRUCTION REQUIREMENTS OF CBC CHAPTER 7A OR CRC R327, AS APPLICABLE.

FRONTAGE USED FOR ALLOWABLE AREA INCREASES

FRONTAGE USED FOR ALLOWABLE AREA INCREASES PER CBC 506.3 SHALL BE PERMANENTLY MAINTAINED AND ACCESSIBLE FROM THE STREET OR FIRE LANE. CBC 506.3.1.

STANDPIPE SYSTEM

A CLASS I STANDPIPE SYSTEM WILL BE PROVIDED IN THE BUILDING PER CBC 905.

FIRE ALARM SYSTEM

AN ALARM NOTIFICATION AND/OR DETECTION SYSTEM IS REQUIRED IN ACCORDANCE WITH CBC SECTION 907.2.9.1.

FIRE ACCESS ROADWAY CONSTRUCTION LETTER

JANUARY 10, 2022
ORANGE COUNTY FIRE AUTHORITY
1 FIRE AUTHORITY ROAD
IRVINE, CA 92502–0125

FIRE ACCESS ROADWAY CONSTRUCTION
26126 VICTORIA BOULEVARD, DANA POINT (APN: 668–361–01)

THE PURPOSE OF THIS LETTER IS TO NOTIFY YOU THAT THE FIRE ACCESS ROADWAYS WITHIN THIS PROJECT SHALL BE DESIGNED, CONSTRUCTED, AND MAINTAINED TO PROVIDE ALL–WEATHER DRIVING CAPABILITIES AND SUPPORT THE IMPOSED LOAD OF A 94,000–POUND FIRE APPARATUS WITH WEIGHT DISTRIBUTED AS FOLLOWS:

FRONT AXLE	DUAL REAR AXLES	TILLER	DISTANCE BETWEEN FRONT AND REAR AXLE GROUPS
32,000 LBS	42,000 LBS	20,000 LBS	16 FEET

SPECIFICATIONS FOR FIRE LANE NO PARKING SIGNS

CONDITIONS OF APPROVAL

THE PLANNING DEPARTMENT PERMIT REVIEW PROCESS IS REQUIRED BUT HAS NOT BEEN COMPLETED AT THIS TIME.

COMBUSTIBLE CONSTRUCTION LETTER

JANUARY 10, 2022

ORANGE COUNTY FIRE AUTHORITY
1 FIRE AUTHORITY ROAD
IRVINE, CA 92502–0125

PARKING ENFORCEMENT PLAN
26126 VICTORIA BOULEVARD, DANA POINT (APN: 668–361–01)

THE PURPOSE OF THIS LETTER IS TO NOTIFY YOU THAT THIS PROJECT SHALL INSTALL ALL REQUIRED PAVED FIRE ACCESS ROADS THAT MEET O.C.F.A. GUIDELINES PER THE APPROVED PLANS AND SHALL MEET ALL FIRE FLOW REQUIREMENTS, PRIOR TO ANY COMBUSTIBLE CONSTRUCTION MATERIALS BEING DELIVERED FOR CONSTRUCTION.

FIRE FLOW INFORMATION & HYDRANT SPACING

APPLICANTS MUST PROVIDE DOCUMENTATION THAT HYDRANTS ARE PROVIDED IN THE QUANTITY AND SPACING DESCRIBED IN CALIFORNIA FIRE CODE (CFC) APPENDIX C. THEY MUST ALSO SHOW THAT THEY ARE CAPABLE OF DELIVERING THE AMOUNT OF WATER REQUIRED BY CFC APPENDIX B. THE QUANTITY AND SPACING OF HYDRANTS IS GOVERNED BY THE FIRE FLOW REQUIRED FOR THE STRUCTURE(S) SERVED. THE REQUIRED FIRE FLOW IS DEPENDENT UPON THE SIZE OF THE STRUCTURE, TYPE OF CONSTRUCTION, AND WHETHER THE BUILDING IS EQUIPPED WITH FIRE SPRINKLERS.

A FIRE FLOW OF 3,000 GPM (WITH 50% REDUCTION) FOR 4 HOURS FOR THE LARGEST BUILDING OF 469,074 SF WITH TYPE III–A CONSTRUCTION WILL BE PROVIDED BY THE PROPOSED WATER SYSTEM. HYDRANTS WILL BE SPACED WITH AN AVERAGE SPACING OF 400 FEET BETWEEN HYDRANTS. MINIMUM OF (3) HYDRANTS SHALL BE PROVIDED PER OCFA GUIDELINE B–09.

PARKING ENFORCEMENT LETTER

JANUARY 10, 2022

ORANGE COUNTY FIRE AUTHORITY
1 FIRE AUTHORITY ROAD
IRVINE, CA 92502–0125

RE: PARKING ENFORCEMENT PLAN: SR273839
4TH + MAIN APARTMENTS – SANTA ANA, CA 92701
PARCEL 1: 114 EAST 5TH ST. (APN: 398–328–01)
PARCEL 2: 117 EAST 5TH ST. (APN: 398–321–05)
PARCEL 2: 117 EAST 5TH ST. (APN: 398–321–06)
THE FIRE LANE PARKING ENFORCEMENT PLAN FOR THE ABOVE REFERENCED IS STATED AS FOLLOWS:

ALL FIRE LANE WITHIN THE SITE SHALL BE MAINTAINED AND IN NO EVENT SHALL PARKING BE PERMITTED ALONG ANY PORTION OF A STREET OR DRIVE THAT REQUIRED FIRE LANES OR ANY AREA DESIGNATED AS A FIRE LANE FOR TURN–AROUND OR DRIVE THROUGH PURPOSES.

THE PROJECT DEVELOPER SHALL ADOPT REASONABLE RULES AND REGULATIONS REGARDING THE PARKING OF VEHICLES ALONG THE STREETS, ROADS, OR DRIVES WITHIN THE PROJECT THAT ARE NOT IN CONFLICT WITH APPLICABLE LAW.

IN FURTHERANCE THEREOF, THE PROJECT DEVELOPER, THROUGH ITS OFFICERS, COMMITTEES AND AGENTS WILL ESTABLISH THE "PARKING" AND "NO PARKING" AREAS WITHIN THE PROPERTY IN ACCORDANCE WITH SECTION 22658.2 OF THE CALIFORNIA VEHICLE CODE AND ORANGE COUNTY FIRE AUTHORITY GUIDELINES. THE LAW SHALL BE ENFORCED THROUGH SUCH RULES AND REGULATIONS BY ALL LAWFUL MEANS, INCLUDING WRITTEN WARNINGS, CITING, LEVYING FINES AND TOWING VEHICLES IN VIOLATION.

THE PROJECT DEVELOPER WILL CONTRACT WITH A CERTIFIED PATROL AND TOWING COMPANY TO REMOVE VEHICLES THAT VIOLATE NO PARKING RESTRICTIONS. FIRST TIME VIOLATORS WILL RECEIVE A WRITTEN WARNING AND WITH SUBSEQUENT VIOLATIONS, THE VEHICLE SHALL BE SUBJECT TO TOWING. THE VEHICLE OWNER SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED IN REMEDYING SUCH VIOLATION, INCLUDING WITHOUT LIMITATION TOWING COST, CITATION AND LEGAL FEES.

APPLICABLE CODES

2019 CALIFORNIA BUILDING CODE (CBC)
2019 CALIFORNIA FIRE CODE (CFC)
OCFA GUIDELINES B–09

SCOPE OF WORK

THE 26126 VICTORIA BOULEVARD PROJECT WILL BE A NEW 5–STORY RESIDENTIAL DEVELOPMENT IN DANA POINT, CALIFORNIA. THE PROJECT WILL CONSIST OF A 7–STORY PARKING GARAGE (GROUP S–2) + ONE SUBTERRANEAN OF TYPE I–A CONSTRUCTION WITH A ROOFTOP TERRACE ON LEVEL 7 CONTAINING AN OUTDOOR POOL AND AMENITY SPACES (GROUP A–3). 5–STORIES OF RESIDENTIAL APARTMENTS (GROUP R–2) WILL ALSO BE PROVIDED CONSTRUCTED OF TYPE III–A CONSTRUCTION. AMENITY SPACES WILL ALSO BE PROVIDED ON LEVEL 1.

A TOTAL OF 356 RESIDENTIAL UNITS WILL BE PROVIDED WITHIN THE PROJECT.

THE HIGHEST OCCUPIED RESIDENTIAL FLOOR IS 41'–0" ON LEVEL 5. THE HIGHEST OCCUPIED FLOOR WITHIN THE PARKING STRUCTURE IS 67'–2" ON LEVEL 7.

BUILDING INFORMATION AND DATA

BUILDING OCCUPANCY TYPES	HEIGHT	CONST. TYPE	FIRE SPRINKLERS	SQUARE FOOTAGE
RESIDENTIAL (LEVELS 1–5)	41'–0" HIGHEST OCCUPIED FLOOR LEVEL ABOVE GRADE. 85'–0" MAX BUILDING HEIGHT ABOVE GRADE	III–A	NFPA 13	469,074 SF
NON–COMBUSTIBLE PARKING GARAGE, RETAIL AND RESIDENTIAL (LEVELS 1–2 & ONE SUBTERRANEAN LEVEL)	67'–1" HIGHEST OCCUPIED FLOOR LEVEL ABOVE GRADE	I–A	NFPA 13	132,117 SF 3 LARGEST SUCCESSIVE FLOORS

NO.	DATE	REVISIONS	APPROVED

CLIENT: Toll Brothers APARTMENT LIVING

ARCHITECT: ktgy — Architecture + Planning, 888.456.5849, ktgy.com

PREPARED BY: younghusband consulting, inc. building compliance solutions, 318 ave i | #466, redondo beach | ca, +1 310 844 0825, younghusband-consulting.com

DRAWN BY: ST
DESIGNED BY: ST
CHECKED BY: JH

FIRE MASTER PLAN
26126 VICTORIA BOULEVARD
(APN: 668–361–01)
(TRACK #735)
DANA POINT, CA 92624

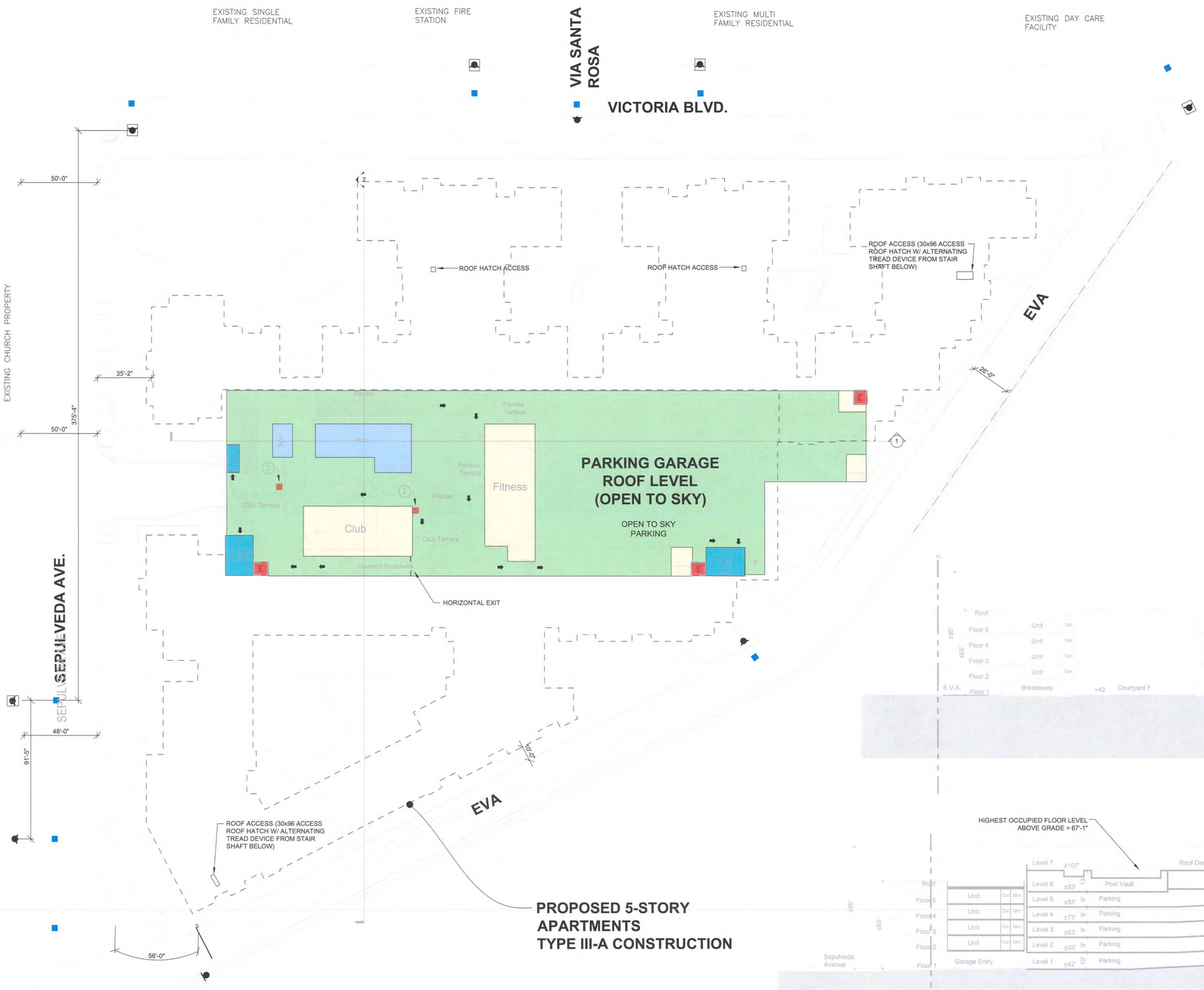
DATE: 05/09/2022
SHEET F1 OF 3

26126 VICTORIA BLVD. APARTMENTS (APN#668-361-01)

LEGEND

- NEW "FIRE LANE-NO PARKING" SIGNS MEETING OCFA ATTACHMENT 12
- EXISTING FIRE HYDRANT WITH BLUE MARKER
- EXISTING PAINTED RED CURB NOT PART OF THIS SUBMITTAL
- PROPOSED FIRE HYDRANT WITH BLUE REFLECTIVE FIRE HYDRANT MARKER. MARKER SHALL BE PLACED 6" FROM CENTERLINE OF STREET
- AREA SEPARATION WALLS SEE ARCHITECTURAL PLAN
- INDICATES APPROXIMATE LOCATION OF SUB-KEYED KNOX BOX WITH 3 SETS OF ENTRY DOOR/GATE KEYS OR KNOX KEY SWITCH. SEE PLAN FOR DESIGNATION.
- GARAGE ROOF LEVEL – ENCLOSED
- GARAGE ROOF LEVEL – OPEN TO SKY
- STAIRS PROVIDING ROOF ACCESS PROVIDED WITH WET STANDPIPE
- GURNEY COMPLIANT ELEVATORS
- STAIRS – DO NOT EXTEND TO ROOF. PROVIDED WITH WET STANDPIPE. ROOF HATCHES PROVIDED, SEE SHEET F2
- (1) INSTALL KNOX BOX SUB-KEYED KEY SWITCH PER OCFA B-09 GUIDELINES.
- (2) INSTALL SUB-KEYED KNOX BOX PER OCFA B-09 GUIDELINES.
- (3) INSTALL RED CURB PER DETAILS HEREON AND OCFA B-09 GUIDELINES.
- (4) INSTALL PUBLIC FIRE HYDRANT AND BLUE FIRE HYDRANT MARKER. MARKER SHALL BE PLACED 6" FROM CENTERLINE OF STREET.

CONCEPTUAL FIRE MASTER PLAN OVERALL SITE PLAN – GARAGE ROOF LEVEL — SCALE: 1"=30'



OCFA WATER AVAILABILITY FORM

SECTION A: To be completed by customer

Project Name: Victoria Apartments — OCFA SR #: 290124 (ON PLAN SUBMITTAL)

Project Address: 26126 Victoria — City: Dana Point

Applicant Phone #: (949) 474-1960 — Fax #: ( )

Area of largest building 789,417 ft²; Construction type? (check one): [ ] IA [ ] IB [ ] IIA [ ] IIB [X] IIIA [ ] IIIB [ ] IV [ ] VA [ ] VB

Is this building sprinklered throughout? (check one) [ ] N [X]

SECTION B: To be completed by local water department/district

Customer to provide results to OCFA

Water Department/District: South Coast Water District

Test location (indicate address or cross-streets & provide reference map): SE Corner of Victoria and Sepulveda Int.

Hydrant number(s) (if applicable): 21-224

Elevation of test hydrant: Approximately 61 feet above sea level

Date of Test[1]: October 5, 2021 — Time of test[1]: 7:30 [X] am [ ] pm

[1] Test to be performed as close as possible to the time that the lowest flows and pressures are expected (e.g., M-F, 6:00 – 9:00 am and 5:00 - 9:00 pm)

FLOW TEST RESULTS

TEST INFORMATION IS VALID FOR 6 MONTHS FROM DATE TEST IS PERFORMED

Static pressure:	130 psi	**Residual pressure:**	108 psi
Observed flow:	N/A gpm	**Flow calc'd at 20 psi:**	4,300 gpm

[X] Check the box if the test information above was obtained in a manner other than an actual flow test (i.e. by computer modeling).

Based on fluctuations known to exist at the site of the test, provide estimated values for the following:

Maximum static pressure	130 psi	**Minimum static pressure**	130 psi
Minimum residual pressure	108 psi	**Minimum residual flow**	4,300 gpm

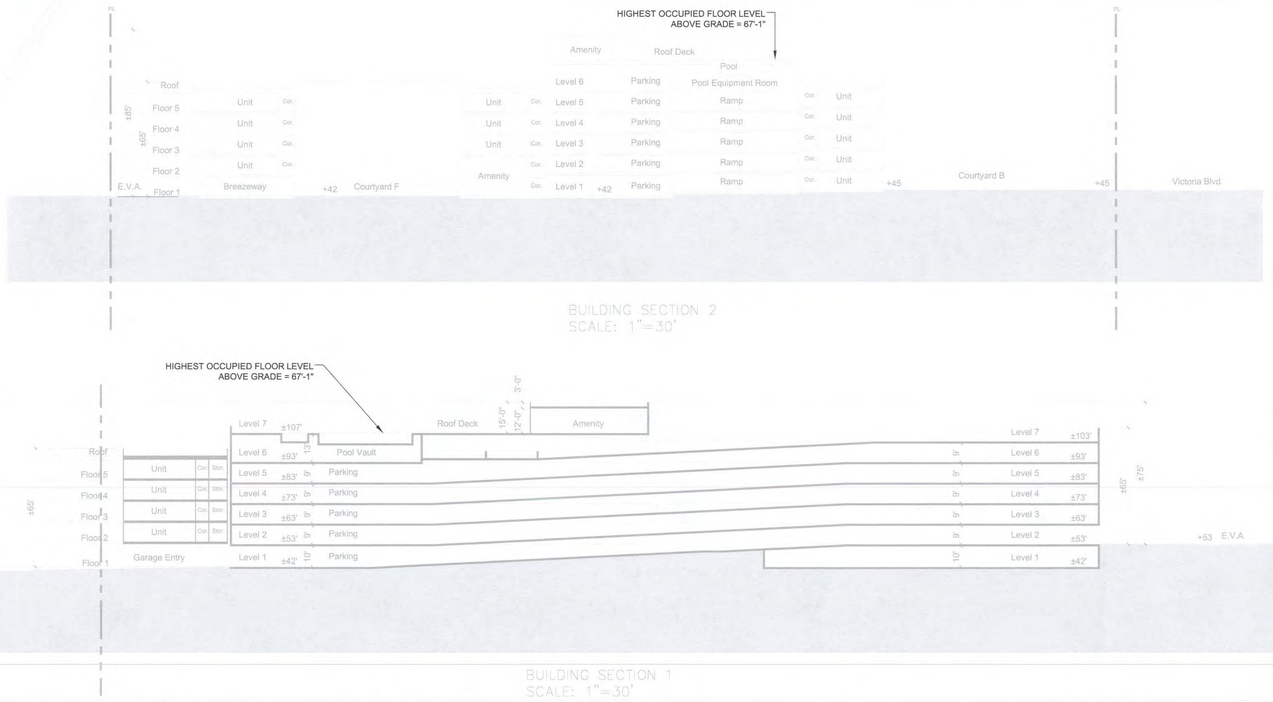
I have witnessed and/or reviewed this water flow information and by personal knowledge and/or on-site observation certify that the above information is correct.

Name: Taryn Kjolsing — Company/Agency: South Coast Water District

Signature: Taryn Kjolsing — Title: Engineering Manager

Date: October 5, 2021

Revised 1/7/16 ese



FOR REFERENCE ONLY

NO.	DATE	REVISIONS	APPROVED

CLIENT: Toll Brothers APARTMENT LIVING

ARCHITECT: ktgy — Architecture + Planning, 888.456.5849, ktgy.com

PREPARED BY: younghusband consulting, inc. building compliance solutions, 318 ave I | #466, redondo beach | ca, +1 310 844 0825, younghusband-consulting.com

DRAWN BY:	ST
DESIGNED BY:	ST
CHECKED BY:	JH

FIRE MASTER PLAN
26126 VICTORIA BOULEVARD
(APN: 668-361-01)
(TRACK #735)
DANA POINT, CA 92624

DATE: 05/09/2022

SHEET F2 OF 3

ORANGE COUNTY FIRE AUTHORITY

ALTERNATE MATERIALS, DESIGN & METHODS REQUEST

AM&M

SECTIONS A, B & C TO BE COMPLETED BY OWNER OR AUTHORIZED REPRESENTATIVE

A. APPLICANT INFORMATION		B. PROJECT INFORMATION	
OWNER'S NAME	Toll Bros., Inc.	PROJECT NAME	Victoria Boulevard
APPLICANT'S NAME	John Hyde	PROJECT ADDRESS	26126 Victoria Boulevard, Dana Point, CA 92624
APPLICANT'S PHONE NUMBER	949-573-7300	OCCUPANCY CLASSIFICATION	Apt: R-2; A-3, B; Garage: S-2
		CONSTRUCTION TYPE	Apt: Type III-A; Garage: I-A
APPLICANT'S EMAIL	jhyde@tollbrothers.com	NUMBER OF STORIES	Apt: 5; Garage: 6
		TOTAL FLOOR AREA	Apt: 449,454; Garage: 305,196

C. PROJECT REQUIREMENTS & PROPOSALS – Attach supporting documents, if any

CODE REQUIREMENT (identify code section):
B-09 Guideline CFC 503.2.3

CODE DEFICIENCY (provide brief description):
Pavers are not accepted and have to be approved with an AM&M to be certified acceptable as an all-weather surface and be capable of supporting 98,000 pounds.

ALTERNATIVE PROPOSAL (provide brief description):
3 types of paving are proposed: concrete unit pavers, asphalt concrete paving, and concrete pavement system with new precut artificial turf by Soil Retention

JUSTIFICATION (explain how the alternative is equal to or exceeds code requirements):
The recommended paving section thickness have been designed for fire truck loading with a total weight of 94,000 pounds and maximum axle loading of 32,000 pounds. The paving section thickness have also been designed by a registered Civil Engineer using standard engineering methodologies and are intended to meet the H-20 loading criteria. The design recommendations are provided in the letter prepared by Geocon West, Inc., dated April 29, 2022.

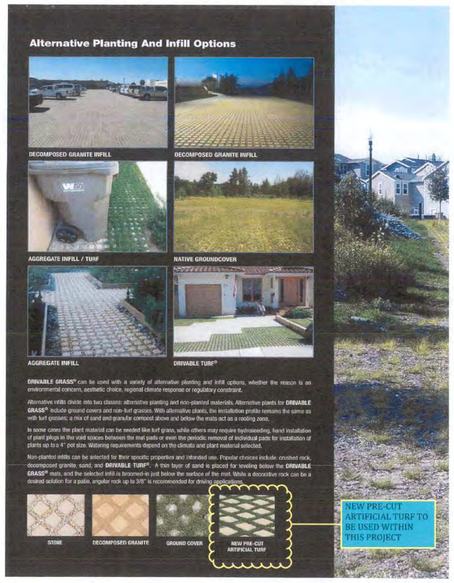
The above project does not fully conform to the 2019 California Fire Code. Pursuant to 2019 CFC Chapter 1, Section 104.9, I am requesting approval of an alternative material and/or method of construction to achieve the intent of the provisions of the code and provide at least an equivalent level of protection to that prescribed therein. I understand that approval of this request applies only to this project and shall not be construed as establishing a precedent for other projects. If approved, a copy of this AM&M request form shall be provided on all subsequent plan submittals of this project to the OCFA or Building Department.

SIGNATURE	TITLE & COMPANY	DATE
John Hyde	Director of Development & Construction, Toll Brothers Apartment Living	4/29/22

THIS SECTION TO BE COMPLETED BY OCFA

OCFA		OTHER AHJ CONCURRENCE: ☐ REQUIRED ☒ NOT REQUIRED	
SR # 290124	ASSOCIATED PR CODE: 910	☐ APPROVED	☐ NOT APPROVED
☒ APPROVED	☐ NOT APPROVED	COMMENTS:	
COMMENTS:		EVALUATED BY: ☐ BUILDING OFFICIAL ☐ OTHER: ____ TITLE	
FIRE SAFETY ENGINEER SIGNATURE	DATE 5/3/22	NAME / SIGNATURE	DATE

REV 3/23/2021



GEOCON WEST, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. A9942-88-01
April 29, 2022

Mr. John Hyde
Toll Brothers Apartment Living
23422 Mill Creek Drive, Suite 105
Laguna Hills, California 92653

Subject: ADDITIONAL PAVEMENT RECOMMENDATIONS
PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
26126 VICTORIA BOULEVARD
DANA POINT, CALIFORNIA

References: *Due-Diligence Geotechnical Investigation, Proposed Multi-Family Residential Development, 26126 Victoria Boulevard, Dana Point, California*, by Geocon West, Inc., Project No. A9942-88-01, March 15, 2019;

Response to Soils Report Review Letter, Victoria Boulevard Apartments, 26126 Victoria Blvd., Dana Point, California, by Geocon, Inc., Project No. A9942-88-01, May 28, 2020.

Dear Mr. Hyde:

In accordance with your request, we have prepared this letter to provide additional pavement recommendations for the subject project. Where differing, the recommendations herein supersede the previous recommendations in the above referenced reports.

The truck loading considered for the paving designs is patterned after our understanding that the fire department vehicle is on the order of 94,000 pounds. The paving sections provided herein are intended to meet the H-20 loading criteria which has a maximum axle loading of 32,000 pounds.

Based on a review of the fire master plan prepared by Younghusband Consulting, Inc., dated February 21, 2022, and email conversations with you, it is our understanding that three types of driving surfaces will be constructed for the proposed fire access lanes throughout the site: concrete unit pavers, asphalt concrete paving, and concrete pavement system with precut artificial turf by Soil Retention. It is our understanding that concrete unit pavers are planned for driveway access road off of Victoria Boulevard and asphalt concrete paving is planned for the driveway entrance off of Sepulveda Avenue, as well as between the concrete unit pavers and concrete pavement system within the fire lane along south property line. The concrete pavement system is planned between the EVA swing access gates located along the south property line.

Based on project plans shared with us, the concrete unit pavers will be 3⅛ inches in thickness. The specifications for the concrete pavement system with precut artificial turf by Soil Retention indicate that the units will be approximately 1½ inches in thickness, and underlain by a 2-inch bedding layer, in-turn underlain by compacted base materials and subgrade.

The recommendations provided herein are based on an assumed soil R-Value of 10, and assumed Traffic Indices of 5.5, and 7.0 for driveways, and heavy truck traffic areas, respectively. If pavement sections for Traffic Indices other than those listed above are required, Geocon should be contacted to provide additional recommendations. The referenced *Geotechnical Investigation* indicates that the subgrade soils at the site have a "medium" expansion potential (expansion index of 50).

FLEXIBLE PAVEMENT DESIGN RECOMMENDATIONS

We calculated the flexible pavement sections in general conformance with the *Caltrans Method of Flexible Pavement Design* (Highway Design Manual, Section 608.4) and an assumed R-Value of 10.

TABLE 1
RECOMMENDED FLEXIBLE PAVEMENT SECTIONS

Location	Traffic Index	Assumed Subgrade R-Value	Min. Asphalt Concrete Thickness * (inches)	Min. Aggregate Base Thickness (inches)
Driveways for automobiles and light-duty vehicles	5.5	10	3.0	11.0
Driveways for heavy truck traffic	7.0	10	4.0	14.5

Prior to placing base materials, the upper 12 inches of the subgrade should be scarified, moisture conditioned to at least 2 percent above moisture content, and compacted to a dry density of at least 92 percent of the laboratory maximum dry density as determined by ASTM D 1557. Similarly, the base material should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at near to slightly above optimum moisture content. Asphalt concrete should be compacted to a density of at least 95 percent of the laboratory Hveem density in accordance with ASTM D 2726.

Base materials should conform to Section 26-1.028 of the *Standard Specifications for The State of California Department of Transportation (Caltrans)* with a ¾-inch maximum size aggregate. The asphalt concrete should conform to Section 203-6 of the *Standard Specifications for Public Works Construction (Greenbook)*.

Prior to placing base materials, the subgrade should be scarified to a depth of approximately 12 inches, moisture conditioned to at least 2 percent above optimum moisture content, and compacted to a dry density of at least 92 percent of the laboratory maximum dry density as determined by ASTM D 1557. Similarly, the base materials should be compacted to a dry density of at least 95 percent of the laboratory maximum dry density at or slightly above optimum moisture content.

Although the pavers are not intended for stormwater infiltration, due to the expansive nature of the onsite soils, consideration should be given to installing a subdrain for the paver sections. The subdrain could be placed at the bottom of the base section below the pavers and the soil subgrade should be graded to allow water to flow to a subdrain. The subdrain should run the distance of the paver area to reduce the potential for water to build up within the paving section. The drain should be connected to an approved drainage device. The drain should consist of a 3-inch diameter perforated Schedule 40, PVC pipe and placed at the bottom of the base materials.

The pavers should be installed and maintained in accordance with the manufacturer's recommendations. Future property owners should be made aware and responsible for the maintenance program. In addition, pavers tend to shift vertically and horizontally during the life of the pavement and should be expected. The pavers normally require a concrete border to prevent lateral movement from traffic. The concrete border surrounding the pavers should be embedded at least 6 inches from finish grade surface to reduce the potential for water migration to the adjacent landscape areas and pavement areas. The pavers should be placed tightly adjacent to each other and the spacing between the paver units should be filled with appropriate filler. A polymer sand (Poly-Sand) can be used on the non-storm water quality paver area to help prevent water infiltration.

The performance of pavement is highly dependent on providing positive surface drainage away from the edge of the pavement. Ponding of water on or adjacent to the pavement will likely result in pavement distress and subgrade failure. Drainage from landscaped areas should be directed to controlled drainage structures. Landscape areas adjacent to the edge of asphalt pavements are not recommended due to the potential for surface or irrigation water to infiltrate the underlying permeable aggregate base and cause distress. Where such a condition cannot be avoided, consideration should be given to incorporating measures that will significantly reduce the potential for subsurface water migration into the aggregate base. If planter islands are planned, the perimeter curb should extend at least 6 inches below the level of the base materials.

PLAN REVIEW

Grading and foundation plans should be reviewed by the Geotechnical Engineer (a representative of Geocon), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

Should you have any questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

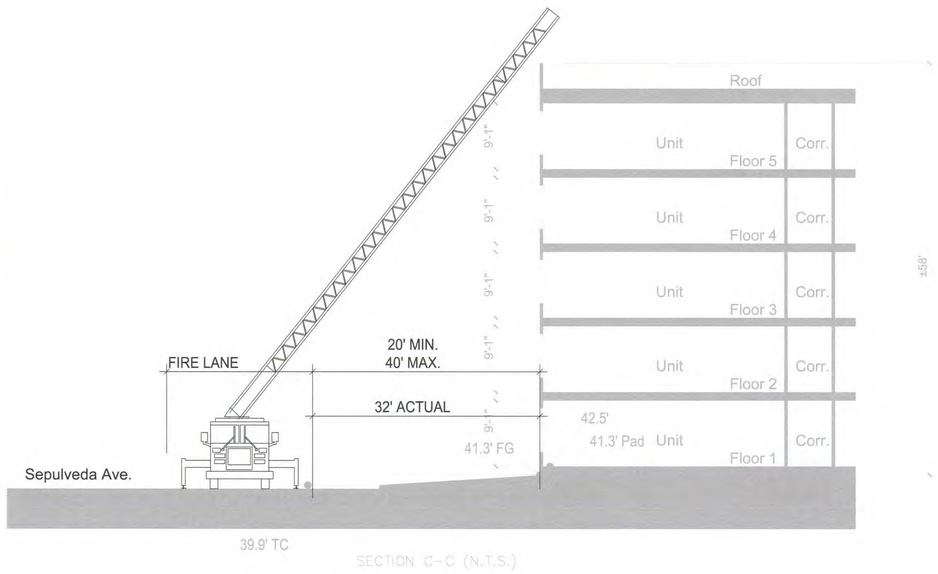
Very truly yours,

GEOCON WEST, INC.

John Stapleton
Staff Engineer

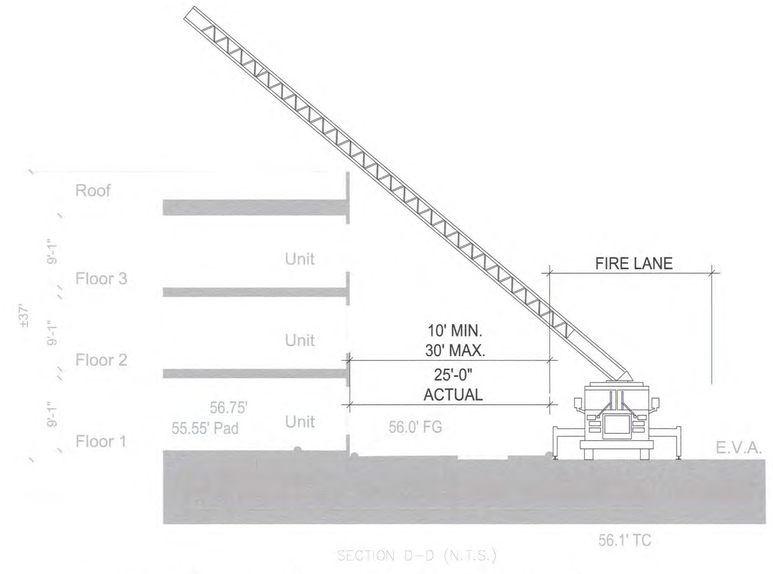
Jelisa Thomas Adams
GE 3092

(Email) Addressee



SECTION C-C (N.T.S.)

Fire Apparatus Staging Area #1
(Refer to Sheet F1 for staging area location)



SECTION D-D (N.T.S.)

Fire Apparatus Staging Area #2
(Refer to Sheet F1 for staging area location)

FOR REFERENCE ONLY

NO.	DATE	REVISIONS	APPROVED

CLIENT: Toll Brothers APARTMENT LIVING

ARCHITECT: ktgy — Architecture + Planning, 888.456.5849, ktgy.com

PREPARED BY: younghusband consulting, inc. building compliance solutions, 318 ave I | #466, redondo beach | ca, +1 310 844 0825, younghusband-consulting.com

DRAWN BY:	ST	
DESIGNED BY:	ST	
CHECKED BY:	JH	

FIRE MASTER PLAN
26126 VICTORIA BOULEVARD
(APN: 668-361-01)
(TRACK #735)
DANA POINT, CA 92624

DATE: 05/09/2022
SHEET F3 OF 3

Victoria Boulevard Apartments Hydraulic Analysis

Technical Memorandum

Prepared for:

South Coast Water District
31592 West Street
Laguna Beach, CA 92651
Contact: Taryn Kreising, PE

Prepared by:

DUDEK
27372 Calle Arroyo
San Juan Capistrano, California 92675
Contact: Elizabeth Calixo, PE

July 2022

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Dudek 760.942.5147 27372 Calle Arroyo San Juan Capistrano, California 92570

Table of Contents

SECTIONS

TABLES

FIGURES

APPENDICES

1 Introduction

The following section provides a summary of the project background, objectives, and organization of this hydraulic analysis.

1.1 Project Background

The Victoria Boulevard Apartments project (Project) is a proposed high-density residential development to be built on a 5.5-acre site located at 26126 Victoria Blvd in Dana Point. The site is currently owned by the Capistrano Unified School District (CUSD) and used to store and service school buses.

Figure 1-1 shows the Project location and existing potable water system as modeled in South Coast Water District's (SCWD, District) hydraulic model. The Project's potable water (domestic, fire, and irrigation services) would be served by an existing 10-inch pipeline in Victoria Blvd. Existing 4-inch and 6-inch potable water pipelines in Sepulveda Ave at the southwest side of the Project site would also be available for fire service.

Figure 1-2 shows the Project location and existing sewer system as modeled in SCWD's hydraulic model. The Project's sewer service is located at the west side the Project site. The Project's sewage would flow into an existing 8-inch pipeline in Sepulveda Ave. An existing 6-inch sewer within the Project boundary is proposed to be removed.

Table 1-1 presents the previous land use and the updated land use for the proposed Project. This new land use designation will determine the updated water and sewer loadings for the Project.

Figure 1-1: Project Location and Existing Potable Water System

Figure 1-2: Project Location and Existing Sewer System

Table 1-1: Comparison of Previous and Updated Land Use for the Victoria Blvd Apartments Project

Proposed Land Use[1]	Previous Values		Updated Values	
	Units	Gross Area (acre)	Units	Gross Area (acre)
Rec/Public Use Facilities/Park	-	5.5	-	-
Multi-Family Residential	-	-	365	5.5
Total	0	5.5	365	5.5

(1) Source: Table 4-1.3 of 2017 SCWD Infrastructure Master Plan Update (Appendix A).

1.2 Project Objectives

SCWD has retained Dudek to perform a hydraulic modeling analysis of the impact of the Project on SCWD's existing water and sewer systems. Dudek is also tasked with providing improvement recommendations for the SCWD water and sewer systems. The goals of this analysis include:

1. Confirming required pipeline diameters for system improvements and recommending any facility relocations required to accommodate the entire Project water demands and sewage loads under various conditions outline in further sections, and
2. Determining estimated project costs for all recommended system improvements and/or system facility relocations deemed necessary.

1.3 Organization of Technical Memorandum (TM)

The TM is organized sequentially as follows:

- ***Section 2 – Potable Water System Analysis:*** Summarizes the evaluation and results of the water system analysis.
- ***Section 3 – Sewer Collection System Analysis:*** Summarizes the evaluation and results of the sewer collection system analysis.
- ***Section 4 – Conclusions & Recommendations:*** Provides conclusions and recommendations for improvements required to accommodate the proposed Project.

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VICTORIA BLVD APARTMENTS
DANA POINT, CA # 2019-0151

CONCEPTUAL DESIGN
SEPTEMBER 26, 2022

WATER AND SEWER MASTER PLAN
FOR REFERENCE ONLY

WS-1

2 Potable Water System Analysis

2.1 Potable Water System Hydraulic Model Update

The District's existing water system hydraulic model was utilized for this analysis. No additional facilities beyond what was already included in the model (piping, pumps, etc.) were needed to be added to the District's water model to serve the Victoria Boulevard Apartments project.

Per the "Conceptual Utility" drawing provided by SCWD (Appendix B), the Project's potable water services (domestic, fire, and irrigation) would be served from the existing 10-inch potable water line in Victoria Blvd.

2.2 Demand Calculations

The potable water system demands in SCWD's potable water model were updated to account for the net increased demand based on the difference between the previous and proposed land use types, as shown in **Table 2-1**. The potable water demand factors used were per the 2017 SCWD Infrastructure Master Plan (IMP) Update (excerpts included in Appendix A).

Table 2-1: Increased Net Water Demand Projections

Land Use	Demand Use Factor[1]	Units	No.	Est. ADD (gpm)	Est. MDD[2] (gpm)
Rec/Public Use Facilities/Park (Previous)	1,200	gpd/acre	5.5 acre	4.6	9.2
Multi-Family Residential (Proposed)	300	gpd/DU[3]	365 DU[3]	76.0	152.0
Net Potable Water Demand Applied to Model				71.4	142.8

(1) Table A.13 of 2017 SCWD Infrastructure Master Plan Update (Appendix A)
(2) MDD/ADD peaking factor (PF) is 2.0 per Section 3.4.2 of 2017 SCWD Infrastructure Master Plan Update (Appendix A)
(3) DU is a dwelling unit

The analysis assumes a Project fire flow (FF) demand requirement of 3,000 gpm for 4 hours per the development's approved Orange County Fire Authority Fire Master Plan, included in Appendix C.

2.3 Water Capacity Assessment Criteria

For each scenario, Dudek's assessment was based on the water design criteria listed in Table 4-6 of the SCWD IMP Update (excerpts included in Appendix A). Each scenario was run under a 24-hour extended period simulation. After each scenario run, Dudek used graphical map display settings of the active model output to observe and analyze the following criteria:

- Minimum Residual Zone Pressure:
  - Peak Hour Demands ≥ 50 psi
  - Maximum Day plus Fire Flow ≥ 20 psi
- Maximum Pipeline Velocity:
  - Peak Hour Demands ≤ 5 feet per second (fps)
  - Maximum Day plus Fire Flow ≤ 12 fps

Any deficiencies in the potable water system identified following a scenario run were recorded.

2.4 Modeling Analysis & Results

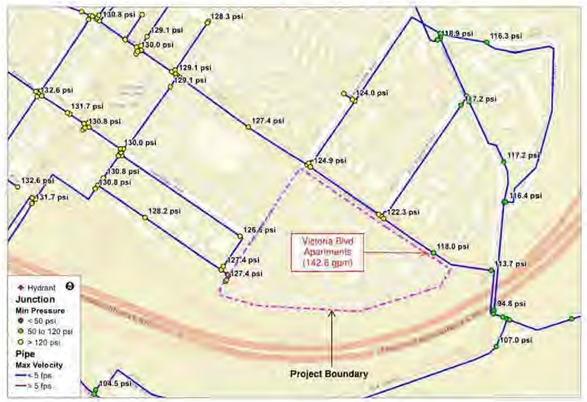
The following section describes the results of the various potable water scenarios analyzed.

2.4.1 Existing (2020) Maximum Day Demand

For Existing (2020) Maximum Day Demand (MDD) scenario, a 142.8 gpm net MDD was loaded on the hydraulic model's existing "2019_MDD" scenario using the 345 pressure zone (PZ) diurnal pattern "PATN345." A 24-hour extended period simulation (EPS) was run to simulate maximum day and peak hour conditions. Model results indicate pressures are anticipated to drop below 50 psi and maximum pipeline velocities are anticipated above 5 fps within the 345 PZ. Note that pressures under 50 psi and pipes with velocities above 5 fps in the 345 PZ occur at the same locations with or without the additional 142.8 gpm MDD of the Victoria Blvd Apartments and there are no pressures below 118.0 psi nor velocities above 2.1 fps in the project vicinity. Under existing (2020) peak hour conditions with Victoria Blvd Apartments MDD, minimum pressure in the entire 345 PZ is anticipated to be 8.0 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 6.8 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja. These results are shown graphically in **Figures 2-1**.

Under existing (2020) peak hour conditions without the additional Victoria Blvd Apartments MDD, minimum pressure in the entire 345 PZ is anticipated to be 8.3 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 6.1 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja.

Figure 2-1: Existing (2020) MDD with Victoria Blvd Apartments MDD Analysis Results - Minimum Pressures and Maximum Velocities



2.4.2 Existing (2020) Maximum Day Demand Plus Fire Flow

For Existing (2020) MDD plus Fire Flow (FF) scenario, two model runs were conducted:

1) *Run 1:* 142.8 gpm net MDD with the 345 pressure zone (PZ) diurnal pattern "PATN345" and a 3,000 gpm, 4
2)
3) -hour FF was loaded on the existing 10-inch potable water pipe in Victoria Blvd on the north side of the Project site in the hydraulic model's existing "2019_MDD" scenario, and
4) *Run 2:* 142.8 gpm net MDD with the 345 PZ diurnal pattern "PATN345" with the 3,000 gpm, 4-hour FF assumed served by two hydrants. Accounting for the difference in waterline sizing serving the nearby hydrants, two thirds of the FF requirement, or 2,000 gpm, was loaded on the existing 10-inch potable water pipe in Victoria Blvd on the north side of the Project site, while the remaining, 1,000 gpm, was loaded on the existing 6-inch potable water pipe in Sepulveda Ave, in the hydraulic model's existing "2019_MDD" scenario.

A 24-hour extended period simulation (EPS) was run to simulate MDD plus FF conditions.

Existing MDD Plus FF – Run 1

Under Run 1 conditions, model results indicate pressures are anticipated to drop below 20 psi and maximum pipeline velocities are anticipated above 12 fps within the 345 PZ. Note that there are no pressures below 53.9 psi in the project vicinity. There is one 55-ft length of 10-inch diameter pipeline on the south side of Pacific Coast Highway with a velocity of 12.3 fps. These results are shown graphically in **Figure 2-2**. Under existing (2020) MDD conditions with Victoria Blvd Apartments MDD plus FF, minimum pressure in the entire 345 PZ is anticipated to be 4.3 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 13.2 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja. This result indicates there is an existing deficiency in the 345 PZ to accommodate fire flow conditions and the deficiency is not the result of the additional Project demand.

Figure 2-2: Run 1 - Existing (2020) MDD with Victoria Blvd Apartments MDD plus FF Results Analysis – Minimum Pressures and Maximum Velocities

Existing MDD Plus FF – Run 2

Under Run 2 conditions, model results indicate pressures are anticipated to drop below 20 psi and maximum pipeline velocities are anticipated above 12 fps within the 345 PZ. Note that there are no pressures below 48.9 psi in the project vicinity. There is one 55-ft length of 10-inch diameter pipeline on the south side of Pacific Coast Highway with a velocity of 12.2 fps. These results are shown graphically in **Figure 2-3**. Under existing (2020) MDD conditions with Victoria Blvd Apartments MDD plus FF, minimum pressure in the entire 345 PZ is anticipated to be 4.3 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 12.2 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja.

As with Run 1, in order to evaluate whether the low pressures and high velocities were an existing zone deficiency, another FF scenario was run in a nearby commercial area within the 345 PZ. Loading a 3-hour, 3,000 gpm FF (Commercial fire flow requirement from Table 4-6 of the 2017 SCWD IMP Update) onto the adjacent Capo Beach Church (model junction ID AIM-WF-3148 on existing 10-inch pipe in Victoria Blvd) with no MDD or FF for the Project produced a minimum pressure in the 345 PZ of 4.7 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661) and a maximum velocity in the 345 PZ of 12.7 fps in the 8-inch existing pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja.

Figure 2-3: Run 2 - Existing (2020) MDD with Victoria Blvd Apartments MDD plus FF Results Analysis – Minimum Pressures and Maximum Velocities

2.4.3 Future (2040) Maximum Day Demand

For Future (2040) MDD scenario, the 142.8 gpm net MDD was loaded on the hydraulic model's existing "2040_MDD" scenario using the 345 PZ diurnal pattern "PATN345." A 24-hour EPS was run to simulate future anticipated maximum day and peak hour conditions. Model results indicate pressures are anticipated to drop below 50 psi and maximum pipeline velocities are anticipated above 5 fps within the 345 PZ. Note there are no pressures below 111.9 psi nor velocities above 2.4 fps in the project vicinity. These results are shown graphically in **Figure 2-4**. Under future (2040) peak hour conditions with Victoria Blvd Apartments MDD, minimum pressure in the entire 345 PZ is anticipated to be 7.3 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 6.3 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja.

Under future (2040) peak hour conditions without Victoria Blvd Apartments MDD, minimum pressure in the entire 345 PZ is anticipated to be 7.6 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 7.5 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja.

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WS-2

Figure 2-4: Future (2040) MDD with Victoria Blvd Apartments MDD Results Analysis– Minimum Pressures and Maximum Velocities

2.4.4 Future (2040) Maximum Day Demand Plus Fire Flow

For Future (2040) MDD plus FF scenario, two model runs were conducted:

1) *Run 1:* 142.8 gpm net MDD with the 345 PZ diurnal pattern "PATN345" and a 3,000 gpm, 3-hour FF was loaded on the existing 10-inch potable water pipe in Victoria Blvd on the north side of the Project site in the hydraulic model's future "2040_MDD" scenario, and

2) *Run 2:* 142.8 gpm net MDD with the 345 PZ diurnal pattern "PATN345" and 2,000 gpm, 3-hour FF was loaded on the existing 10-inch potable water pipe in Victoria Blvd on the north side of the Project site, while a 1,000 gpm, 3-hour FF was loaded on the existing 8-inch potable water pipe in Sepulveda Ave, in the hydraulic model's future "2040_MDD" scenario.

24-hour EPS was run to simulate MDD plus FF conditions.

Future MDD Plus FF – Run 1

Under Run 1 conditions, model results indicate pressures are anticipated to drop below 20 psi and maximum pipeline velocities are anticipated above 12 fps within the 345 PZ. Note that there are no pressures below 45.0 psi in the project vicinity. There is one 55-ft length of 10-inch diameter pipeline on the south side of Pacific Coast Highway with a velocity of 12.5 fps. These results are shown graphically in **Figure 2-5**. Under future (2040) MDD plus FF conditions, minimum pressure in the entire 345 PZ is anticipated to be 3.3 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661), while maximum velocity is anticipated to be 14.4 fps in the existing 8-inch pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247at Camino de Estrella just southwest of Calle Naranja.

In order to evaluate whether the low pressures and high velocities were an existing zone deficiency, another FF scenario was run in a nearby commercial area within the 345 PZ. Loading a 3-hour, 3,000 gpm FF (commercial fire flow requirement from Table 4-6 of the 2017 SCWD IMP Update) onto the adjacent Capo Beach Church (model junction ID AIM-WF-3148 on existing 10-inch pipe in Victoria Blvd) with no MDD or FF for the Project produces a minimum pressure in the 345 PZ of 3.8 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661) and a maximum velocity in the 345 PZ of 13.8 fps in the 8-inch existing pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247) at Camino de Estrella just southwest of Calle Naranja.

Figure 2-5: Run 1 - Future (2040) MDD with Victoria Blvd Apartments MDD plus FF Results Analysis– Minimum Pressures and Maximum Velocities

Future MDD Plus FF – Run 2

Under Run 2 conditions, model results indicate pressures are anticipated to drop below 20 psi and maximum pipeline velocities are anticipated above 12 fps within the 345 PZ. Note that pressures there are no pressures below 39.9 psi in the project vicinity. There is one 55-ft length of 10-inch diameter pipeline on the south side of Pacific Coast Highway with a velocity of 12.4 fps. Under future (2040) MDD plus FF conditions, minimum pressure in the entire 345 PZ is anticipated to be 3.4 psi at the north end of Calle Juanita, while maximum velocity is anticipated to be 14.4 fps in the 8-inch existing pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247at Camino de Estrella just just southwest of Calle Naranja. These results are shown graphically in **Figure 2-6**.

As with Run 1, in order to evaluate whether the low pressures and high velocities were an existing zone deficiency, another FF scenario was run in a nearby commercial area within the 345 PZ. Loading a 3-hour, 3,000 gpm FF (commercial fire flow requirement from Table 4-6 of the 2017 SCWD IMP Update) onto the adjacent Capo Beach Church (model junction ID AIM-WF-3148 on existing 10-inch pipe in Victoria Blvd) with no MDD or FF for the Project produced a minimum pressure in the 345 PZ of 3.8 psi at the north end of Calle Juanita (model junction ID AIM-WSV-3661) and a maximum velocity in the 345 PZ of 13.8 fps in the 8-inch existing pipe (model pipe IDs AIM-WPM-8246 and AIM-WPM-8247at Camino de Estrella just southwest of Calle Naranja.

2.5 Potable Water System Analysis Summary

Modeling results indicate that the Victoria Blvd Apartments project will result in approximately 55-LF of existing 10-inch diameter pipeline that will exceed the District's maximum velocity requirement of 12 fps. It is recommended this stretch of pipe be upsized to 12-inch diameter to accommodate the additional peak flows.

Figure 2-6: Run 2 - Future (2040) MDD with Victoria Blvd Apartments MDD plus FF Results Analysis – Minimum Pressures and Maximum Velocities

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3 Sewer Collection System Analysis

3.1 Sewer Collection System Hydraulic Model Update

The District's current sewer system hydraulic model was utilized for this analysis. It was confirmed that the future (2040) scenario in the model did account for the full project Doheny Village loadings presented in the Doheny Village Analysis Memorandum dated August 18, 2016 (revised June 8, 2017) by AECOM. As-builts provided by SCWD (included in Appendix D) corrected a discrepancy found in the model in pipeline diameters just upstream of Lift Station #12. The model showed that the existing sewer was 8-inch pipe but as-builts indicated the pipeline is 21-inch. This correction was made to the model prior to analysis.

In the existing sewer model, the existing 8-inch pipes in the alley south of the intersection of Domingo Ave and Doheny Park Rd indicated an offset pipe profile where sewage flow would have to fill a manhole before it could flow downstream as shown in **Figures 3-1** and **3-2**. After confirmation with CCTV videos, the inverts for two existing 8-inch model pipes (model pipe IDs 103 and 105) were lowered to allow flow from the alley to flow unobstructed to the 8-inch pipe in Las Vegas street as shown in **Figure 3-3.**

Figure 3-1: Sewer Model Pipe Areal at Alley South of Domingo Ave and Doheny Park Rd

Figure 3-2: Existing Sewer Model Pipe Profile at Alley South of Domingo Ave and Doheny Park Rd

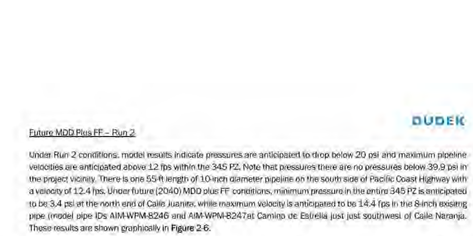
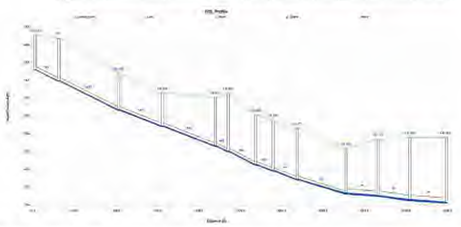


Figure 3-3: Updated Sewer Model Pipe Profile at Alley South of Domingo Ave and Doheny Park Rd



Per the "Conceptual Utility" drawing provided by SCWD (Appendix B), the Project's sewage will flow to the existing 8-inch sewer in Sepulveda Ave.

3.2 Load Calculations

The proposed change in land use at the Project site will increase the sewer loading to the District's collection system. The previous land use loading was compared to the proposed land use loading and the net average dry weather flow (ADWF) and peak flow sewer loads were calculated. The net sewer loading added to the model is presented in **Table 3-1**.

Table 3-1: Increased Net Sewer Loading Projections

Land Use	Est. Potable Water ADD (gpm)(1)	Est. Potable Water MDD (gpm)(1)	Return-to-Sewer Ratio(2)	Est. ADWF (gpm)	Est. Peak Flow (gpm) (3)
Rec/Public Use Facilities/Park (Previous)	4.6	9.2	65%	3.0	12.5
Multi-Family Residential (Proposed)	76.0	152.0	100%	76.0	221.7
			Net Sewer Load Applied to Model	73.0	209.2

(1) *Potable Water values from Table 2-1 above.*
(2) *Table 5-5 of 2017 SCWD Infrastructure Master Plan Update (Appendix A).*
(3) *Per Section 5.3 of 2017 SCWD Infrastructure Master Plan Update (Appendix A), Peak Flow is $Q_{Peak} = 2.4 * Q_{Dry}^{-0.099}$ (where Q_{Dry} is in cfs units).*

Since there are three (3) points of connection (POCs) to the exting 8-inch sewer in Sepulveda Ave, the 209.2 gpm peak flow was split equally between the three (3) POCs, loading 69.73 gpm peak flow on each POC as show in **Figure 3-4**.

Figure 3-4: Victoria Blvd Apartments Sewer POC

3.3 Sewer Capacity Assessment Criteria

For each scenario, Dudek's assessment was based on the sewer criteria listed in Table 5-3 of the SCWD IMP Update (excerpts included in Appendix A). The depth of sewage flow to pipe diameter ratio (d/D) is the main criteria used to evaluate the Project's impacts on existing sewer pipelines. Each scenario was run under a 48-hour extended period simulation. After each scenario run, Dudek used graphical map display settings of the active model output to observe and analyze the following criteria:

- Maximum d/D:
  - New Pipelines with diameters less than 15-inch: Max d/D = 0.5
  - New Pipelines with diameters greater than or equal to 15-inch: Max d/D = 0.62
  - Existing Pipelines: Max d/D = 0.75
- Minimum Pipeline Velocity:
  - Peak Flow ≥ 2 feet per second (fps)
- Pump Station Minimum Number of Pumps and Capacity
  - 2 pumps minimum
  - Duty pumps capable of handling ultimate wet weather capacity
- Pump Station Emergency Storage capacity
  - 6 hours of average flow

Any deficiencies in the sewer collection system identified following a scenario run were recorded.

3.4 Modeling Analysis Results

The following section describes the results of the various sewer scenarios analyzed.

3.4.1 Existing (2020) Peak Flow

For the Existing (2020) Peak Flow scenario, 209.2 gpm net sewer flow was loaded on the updated hydraulic model's existing "CALIBRATION_MAY" scenario using the residential diurnal pattern "PATN1." A 48-hour EPS was run to simulate peak hour conditions. Model results indicate maximum d/D downstream of the Project site is 0.70 at the existing 8-inch pipe in Las Vegas from Doheny Park Rd to Domingo Ave, which is below the District's 0.75 d/D limit for existing pipes. No pipelines exceeded the District's d/D criteria. These results are shown graphically in **Figure 3-5**.

Figure 3-5: Existing (2020) Peak Flow Results

3.4.2 Future (2040) Peak Flow

For the Future (2040) Peak Flow scenario, 209.2 gpm net sewer flow was loaded on the updated hydraulic model's existing "CIP_SS_5.2MGD" scenario, as directed by the District, using the residential diurnal pattern "PATN1." A 48-hour EPS was run to simulate peak hour conditions. Model results indicate maximum d/D downstream of the Project site is 0.70 at the existing 8-inch pipe in Las Vegas from Doheny Park Rd to Domingo Ave, which is below the District's 0.75 d/D limit for existing pipes. No pipelines exceeded the District's d/D criteria. These results are shown graphically in **Figure 3-6**.

Figure 3-6: Future (2040) Peak Flow Results

3.4.3 Lift Station 12 Capacity Analysis

As reported in the 2017 SCWD IMP, the pump station is undersized based on the District's design criteria. This still remains and the additional flows from the Victoria Blvd Apartments project will just exacerbate this condition. The net increase of loading from the Victoria Blvd Apartments project of 73 gpm average and 209.2 gpm peak, accounts for 9.8 percent of the total anticipated 2040 loading from the sewershed tributary to Lift Station 12. (Previous future lift station peak flow of 1,934 gpm, increased by 209.2 gpm from Victoria Blvd Apartments project, for a new projected future Lift Station peak flow of 2,143.2 gpm.)

4 Conclusions & Recommendations

After a review of the information supplied by SCWD and the Project developer, Dudek concluded:

- The Victoria Blvd Apartments will not cause any new minimum pressure or maximum velocity violations in the potable water system under existing (2020) or future (2040) peak hour demand or maximum day demand plus fire flow, other than a short (55-ft) section of 10-inch diameter pipe that slightly exceeded the 12 fps maximum velocity requirement. All minimum pressure or maximum velocity violations in the 345 pressure zone, the pressure zone that Victoria Blvd Apartments will be built in, are existing violations. The total estimated budget-level project cost for the upsizing of the 55-ft of waterline to 12-inch diameter is $47,000. Refer to Appendix E for a detailed cost estimate.
- The Victoria Blvd Apartments will not cause any new maximum depth of sewage flow to pipe diameter ratio (d/D) violations in the sewer collection system downstream of the Project under existing (2020) or future (2040) peak flow. Therefore, no sewer collection system upgrades are required to serve the Victoria Blvd Apartments.
- The Victoria Blvd Apartments project drains into Lift Station 12, which is under capacity and requires additional pumping, piping and emergency storage capacity to comply with the District's lift station hydraulic criteria. Based on the project's increased net load to the lift station, the project share of the required LS 12 upgrades is 9.8% of the total $500,000 project cost (2017$ from Table 7-3 of the 2017 SCWD IMP). Accounting for inflation based on the ENR CCI for Los Angeles (October 2021 value of 12704.2 and 12-month average 2017 value of 11745.6), results in an estimated project cost share for the Victoria Blvd Apartments project of $53,000.

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Appendix A

SCWD Infrastructure Master Plan Update Excerpts (2017)

Table 4-6 Water System Design Criteria[1]

Component	Criteria	Remarks / Issues
Fire Flow Requirement (flow (gpm) @ duration (hours)):		
Single-Family Residential	1,500 gpm @ 2 hours (minimum/allowed)	
Multi-Family Residential	2,000 gpm @ 2 hours (minimum/allowed)	
Commercial/Business	3,000 gpm @ 3 hours (minimum/allowed)	
Industrial	4,000 gpm @ 4 hours (minimum/allowed)	
Institutions (Schools and Hospitals)	4,000 gpm @ 4 hours (minimum/allowed)	
	Additional 500 gpm in designated wildland hazard areas	
Water Supply Capacity		
Reliable Water Production	Provide capacity equal to Maximum Day Demand plus ability to replenish fire volume in 24 hour period	
Pumping Facility Capacity		
Pump Capacity	Provide capacity equal to Maximum Day plus Fire Flow or Peak Hour Demand, whichever is greater, with largest pump out of service	
Backup Power	To ensure pumping capacity equal to Maximum Day Demand plus Fire Flow	
Water Storage and System Peaking Capacity		
Operational Flow	24% of Maximum Day Demand	
Fire Flow	4,500 gpm @ 4 hours = 1,080 MG	
Emergency Flow	50% of Average Day Demand	
Total Water Storage and System Peaking Capacity	Operational Flow + Fire Flow + Emergency Flow	
Water Transmission Pipeline Sizing		
All Demand Conditions:		
Minimum Pressure (psi)	50	
Maximum Pressure (psi)	120	
Maximum Velocity (fps)	5	
Hazen Williams "C" Factor	120	
Water Distribution Pipeline Sizing		
Average Day Demand Conditions:		
Minimum Pressure (psi)	65	
Maximum Pressure (psi)	120	
Maximum Velocity (fps)	5	
Maximum Day w/ Fire Flow Demand Conditions:		
Minimum Pressure (psi) w/o Residential	20	With largest pump out of service
Maximum Velocity (fps)	12	
Peak Hour Demand Conditions		
Minimum Pressure (psi)	50	With largest pump out of service
Maximum Velocity (fps)	5	
Minimum Pipeline Sizes		
Low Density Residential	8 inches in diameter or larger	
Commercial	12 inches in diameter or larger	
Industrial	12 inches in diameter or larger	

Table 4-13 presents the recommended unit demands by land use to be used for estimating future demand in the hydraulic model.

Table 4-13 Unit Demand Factors

Land Use	Unit Demand	
	Water	Recycled Water
Single-Family Residential	450 gpd/DU	0% @ 3.0 AFY/ac
Medium-Density Residential	400 gpd/DU	0% @ 3.0 AFY/ac
Multi-Family Residential	300 gpd/DU	0% @ 3.0 AFY/ac
Rec/Public Use Facilities/Park	1,200 gpd/ac	10% @ 3.0 AFY/ac
Hotel/Motel	95 gpd/room	0% @ 3.0 AFY/ac
Commercial/Office	2,500 gpd/ac	15% @ 3.0 AFY/ac
School	2,500 gpd/ac	50% @ 3.0 AFY/ac
Landscaping/Irrigation	2,500 gpd/ac	100% @ 3.0 AFY/ac
Hospital	6,200 gpd/ac	10% @ 3.0 AFY/ac
Restaurant	2,500 gpd/ac	10% @ 3.0 AFY/ac

4.3.2 Demand Peaking Factors

Water demand peaking factors are multiplication factors used to calculate water use expected during different demand periods. The most commonly used high demand periods for water supply and system evaluations include maximum day and peak hour. The demands during these periods are generally used to evaluate and size water distribution pipelines and storage facilities and to define water supply needs.

The ADD is the yearly total water demand divided by the number of days in a year, and as noted in previous sections, is approximately 5.9 MGD. The ADD is used as the baseline for projecting MDD and PHD and typically for estimating operating costs and expected revenues. The MDD is the maximum quantity of water used on any day of the year and is used to size pump station and storage reservoir facilities. The PHD typically occurs during the maximum day and is met through a combination of system supply, typically from pump station and storage facilities.

The MDD peaking factors for the District were calculated by dividing the MDDs submitted by the District to the California Division of Drinking Water from 2008 to 2014 by the ADD for each year. The MDD peaking factors were found to range from 1.1 to 1.5. It is recommended that a conservative MDD factor of 2.0 be used for the distribution system model simulations and sizing of facilities.

SCADA data were requested from the District covering the first week of August when the PHD is likely to occur based on historical records. A water balance was performed to determine the PHD by summing the flows consumed by all of the pressure zones for 6:00 AM to 7:00 AM on August 8, 2014.

Water tank elevation changes from 6:00 AM to 7:00 AM were calculated because it is generally the highest demand period of the day, as people get ready for work. Then using the diameters of the tanks, the volume of fill or drop was calculated for each tank. Flow rates for the pump stations were then added to determine the amount of water consumed by the District's customers during the peak hour for 2014. The PHD for 2014 was calculated as 7,902 gpm, resulting in a PHD factor of 1.94. For a distribution system with a large transient population, a larger peak hour factor was expected. However, the low peak hour factor could be attributed to a majority of the transient population being always present and therefore their demands are

Table 5-3 Hydraulic Sewer Design Criteria

Item	Criteria
Gravity Main Criteria	
Minimum Pipe Diameter	8 inches
Minimum Velocity	2 fps at peak flow
Manning's Roughness Coefficient	0.013
Maximum Peak d/D Ratio for Existing Sewers	0.75
Maximum Peak d/D Ratio for New Sewers	
D =15 inches	0.50
D= 15 inches	0.62
Minimum Pipe Cover (Surface to Top of Pipe)	4.5 feet
Force Main Criteria	
Minimum Pipe Diameter	8 inches
Minimum Velocity	2 fps
Maximum Velocity	8 fps
Pump Station Criteria	
Minimum Number of Pumps	2
Minimum Pump Capacity	Duty pumps capable of handling ultimate wet weather capacity
Standby Capacity	100% of largest pump capacity
Emergency Power	Required
Emergency Storage Capacity	6 hours of average flow

Table 5-4 Minimum Pipe Slopes for New Sewer Pipelines

Pipe Size (inches)	Minimum Slope (ft/ft)
8	0.0040
10	0.0028
12	0.0022
15	0.0016
18	0.0012
21	0.0010

- Obtained meter records at all connections and estimated average daily flow rates
- Geocoded the customers by matching the customer addresses to Google Earth parcels
- Assigned conversion factors to billing records based on land use type as described in Section 3 for sewer flow from potable and recycled water meter records.

Initial return-to-sewer rates based on land use were established during preparation of the 2008 Master Plan. Correction factors based on individual lift stations were evaluated during the model calibration stage. Using dry-weather flow data, the correction factors from individual lift stations used are summarized in Table 5-5.

Table 5-5 Sewer Unit Generation Rates

Land Use	Return-to-Sewer Rate
Single-Family Residential	63%
Multi-Family Residential	55%
Commercial	50%
Other	65%

5.3 Flow Peaking Factors

Sanitary sewers shall be sized on the basis of meeting projected peak flows. Peak flows (Q_{peak}) can be estimated based on average dry weather wastewater flows (Q_{base}) using peaking factor equations. In the 2008 MP, the District adopted a typical peaking factor equation. For steady-state simulation, the following Peaking Factor equation was used.

$Q_{peak} = kQ_{base}^{\ p}$

Where: Peaking Factor k: 2.4
Peaking Factor p: 0.89
Q: cubic feet per second

A regression Federov Peaking Factor Equation was developed during preparation of the 2008 MP based on the flow monitoring data obtained during the study. It was recommended by the District that the typical peaking equation shown above (District's current peaking curve) be used for steady-state analysis.

The District's current peaking curve has been independently validated during the preparation of this master plan update. Continuous flow data was extracted from the District's SCADA system for Lift Stations #2, #6 and #12. The flows and peaking factors were analyzed. Figure 5-12 depicts the peaking factor equations and the independent validation data. It is determined that the District's current peaking factor curve is still valid and will be used for this master plan update.

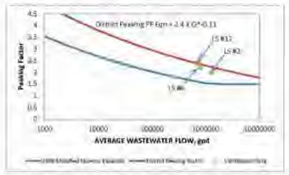


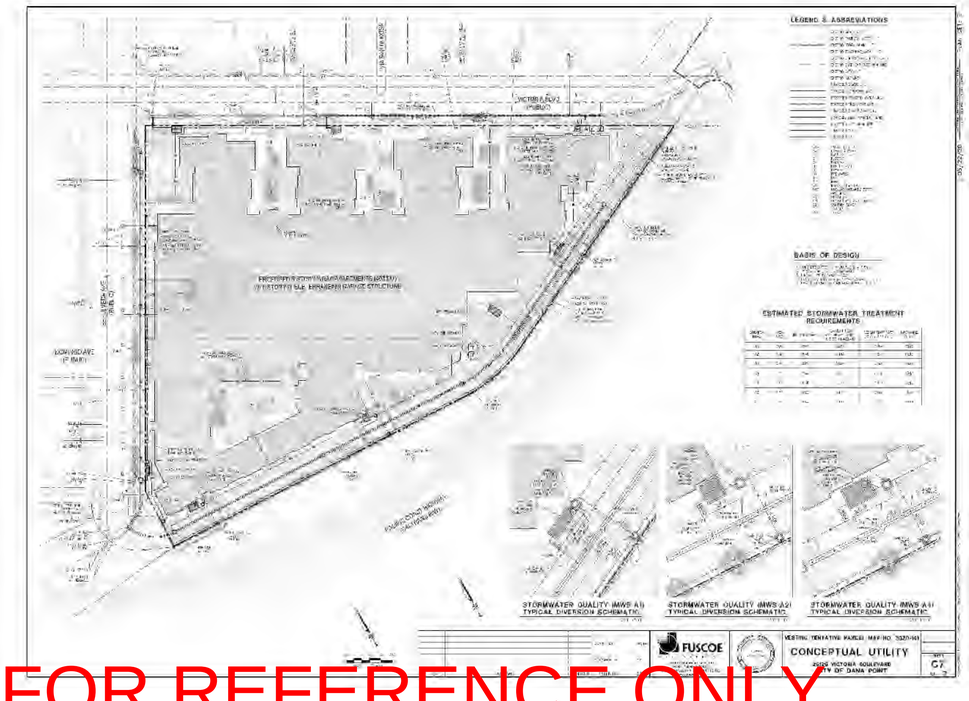
Figure 5-12 Sewer System Peaking Factors

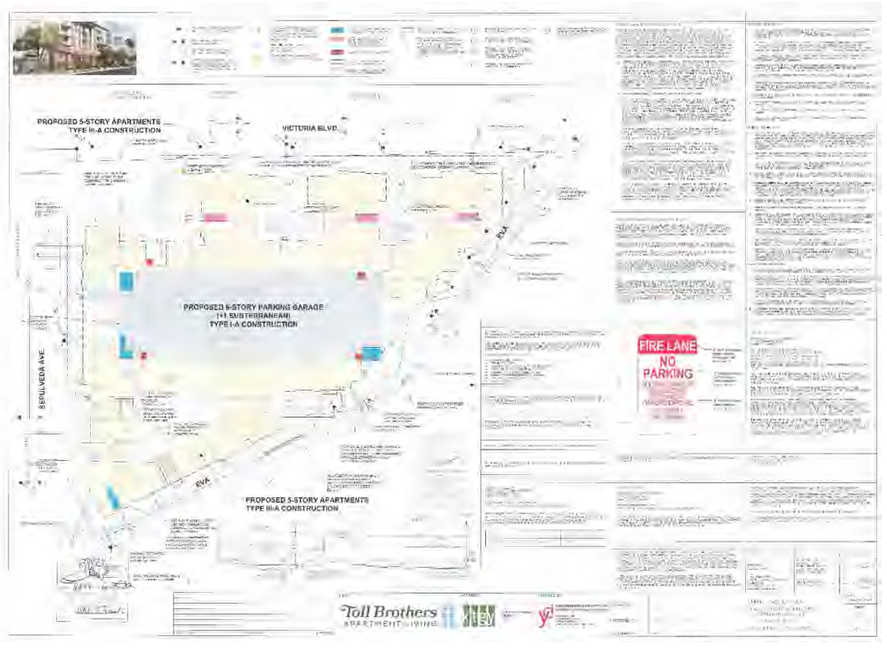
Appendix B

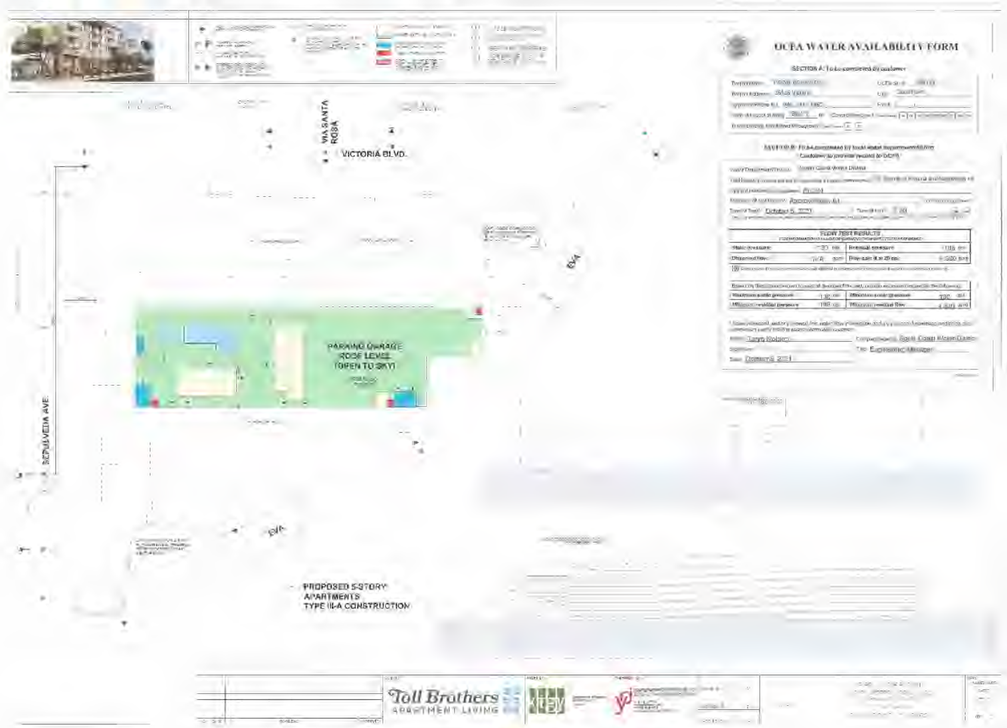
Conceptual Utility Drawing

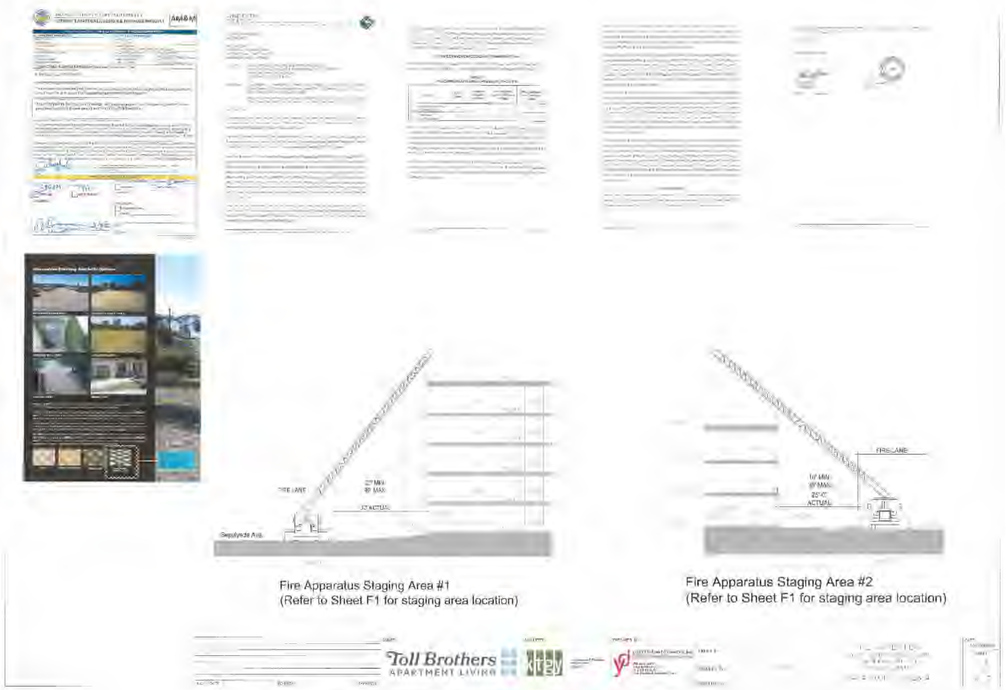
Appendix C

Approved Fire Master Plan





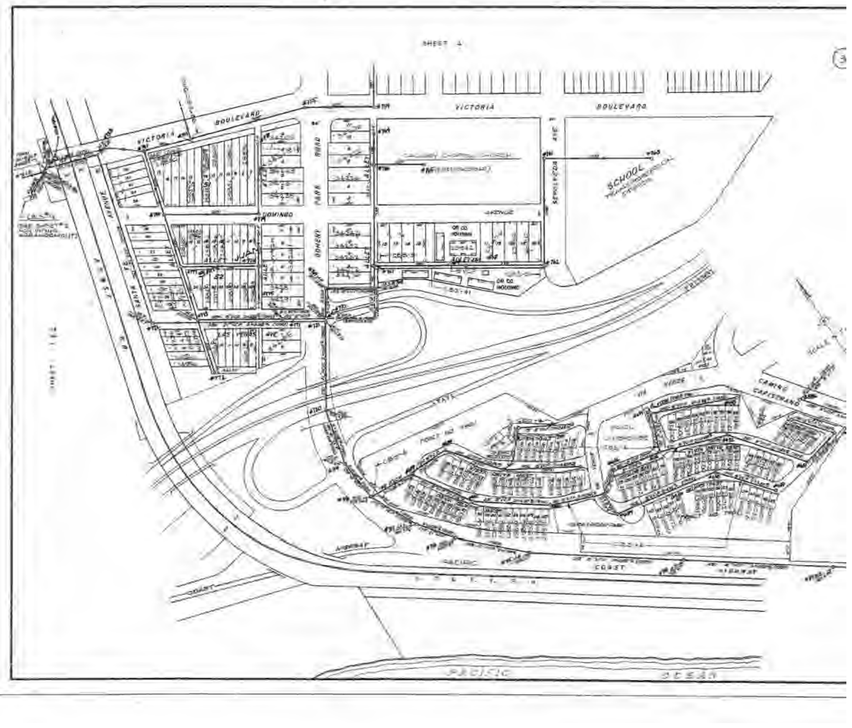




Toll Brothers APARTMENT LIVING

Appendix D

SCWD Sewer As-built



FOR REFERENCE ONLY

Appendix E

Detailed Cost Estimate

ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COST

Project:	Victoria Blvd Apartments	Job No.:	13499.02
Client:	SCWD	Estimator:	EC
Location:	Via Canon south of PCH, Dana Point	Job Status:	10%
Date:	10/26/2021	Cost Index:	12704.2 - ENR CCI in Los Angeles, Oct 2021

Bid Item No.	Description	Unit	Quantity	Unit Price	Amount
1	Upsize pipeline to 12-inch for fire flow service	LF	55	$600	$33,000
				SUBTOTAL	$33,000
				Contingency (20%)	$7,000
				TOTAL CONSTRUCTION	$40,000
				Engineering (10%)	$4,000
				Construction Management (5%)	$2,000
				Administrative (2%)	$1,000
				TOTAL PROJECT COST	$47,000

Notes:
1. All costs in 2021 dollars.

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