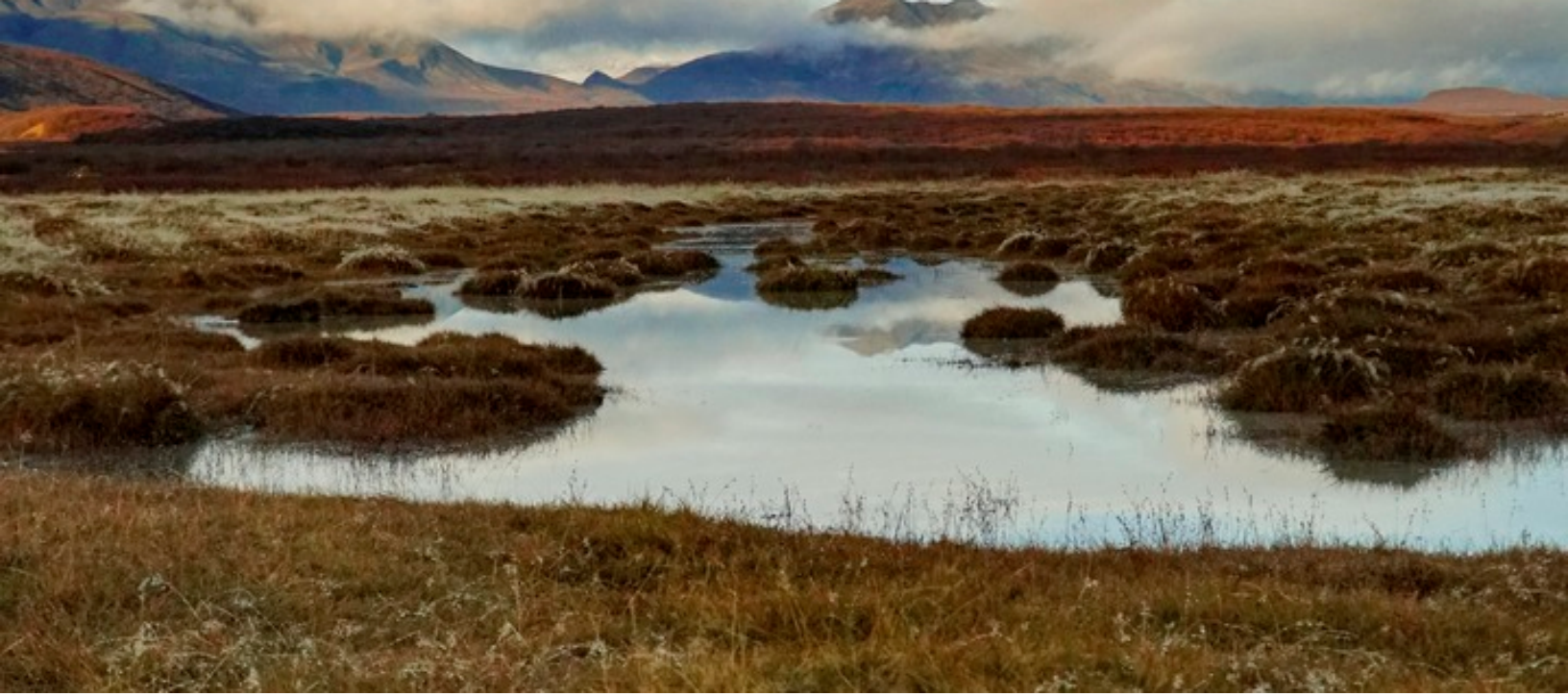


OAKBROOK PLAZA

PRELIMINARY HYDROLOGY STUDY

Prepared for:
Buchanan Street Partners

Fuscoe Engineering, Inc.
15535 Sand Canyon, Suite 100
Irvine, California 92618
fuscoe.com

Victor Pham, P.E.

Date Prepared: February 2025

Project Number: 01363-005-02

PRELIMINARY HYDROLOGY REPORT

Oakbrook Plaza

Laguna Hills, California

PREPARED BY:
Fuscoe Engineering
15535 Sand Canyon Ave, Suite 100
Irvine, CA 92618
(949) 474-1960

Project Number:

1363-005-02

Project Manager:

Victor Pham, P.E.

Date Prepared:

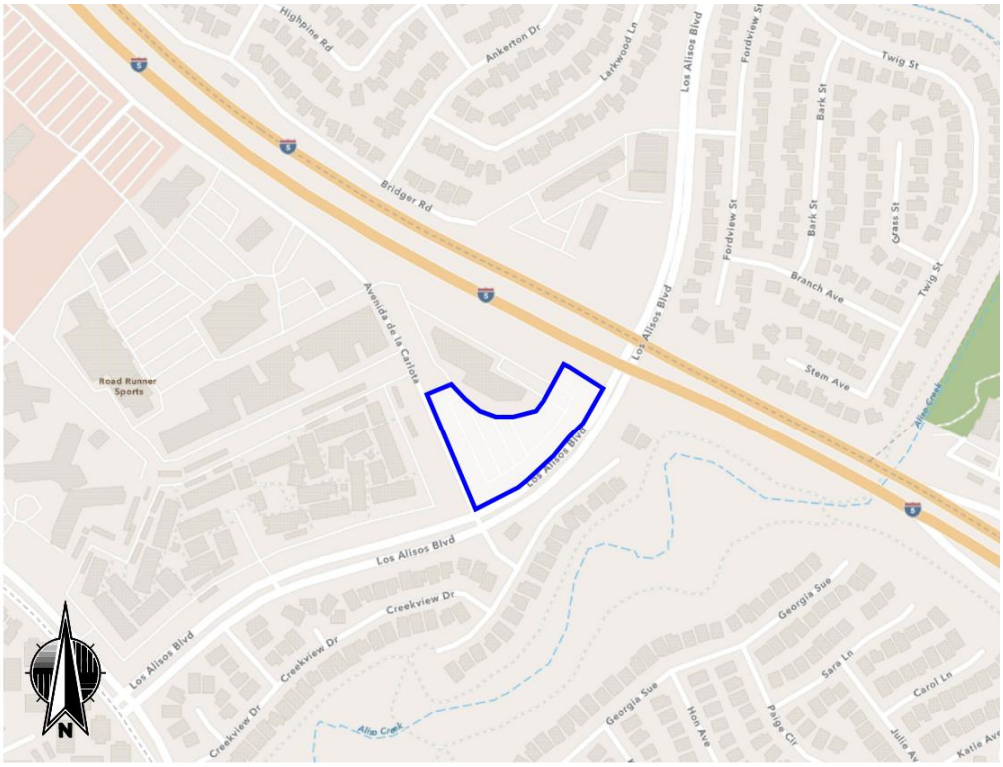
February 2025

Table of Contents

1.0 INTRODUCTION

1.1 Geographic Setting

The existing site is located at 24422 Avenida De La Carlota in the City of Laguna Hills within County of Orange and is part of an existing office plaza that consists of an office building and a surface parking lot. The property is approximately 3 acres, and is bounded by Los Alisos Blvd to the southeast, Freeway 5 to the northeast, and Avenida De La Carlota to the west. A Vicinity Map is included as Figure 1, below. Additionally, there was an ALTA that was prepared in 2024 by NV5 which is included in Appendix 1 of this report for reference.



VICINITY MAP
NOT TO SCALE

FIGURE 1

1.2 Project Description

Buchanan Street Partners is proposing to demolish the existing southerly parking lot, and construct a mixed-use apartment building with a total of 250 residential units. A conceptual site plan is included as Appendix 2 of this report.

1.3 Purpose of this Report

The purpose of this report is to provide hydrologic calculations and maps for existing and proposed conditions for the proposed project.

1.4 References

- Orange County Hydrology Manual (October 1986)
- Orange County Local Drainage Manual
- Advance Engineering Software (AES)
- FEMA
- Google Earth
- City of Laguna Hills

2.0 EXISTING DRAINAGE

2.1 Existing Topography

As discussed in Section 1.1 and Figure 1, the site is bound by 5 Freeway to the northeast, Los Alisos Blvd to the southeast, and Avenida De La Carlota to the west. Los Alisos Blvd crosses over the 5 Freeway and ramps down to Avenida De La Carlota. Due to the elevation variation among the adjacent streets, the site has a highpoint at elevation 393 at the easterly corner which slopes down rapidly to the parking lot to elevation 380 and the parking lot is sloped at 1%-5% towards Avenida De La Carlota to the low point at elevation 371. See ALTA in Appendix 1 of this report.

2.2 Existing Drainage Pattern

The existing site drains westerly towards Avenida De La Carota via a ribbon gutter, which appears to be connected to the back of the existing public 24' catch basin on Avenida De La Carlota. This existing catch basin connects to a 24" RCP that runs south along Avenida De Lar Carlota and across Los Alisos Blvd and eventually discharges to Aliso

Creek Channel which is approximately 800' to the east. The storm drain as-built plan is included in Appendix 3 of this report.

2.2 Existing Storm Drain Facilities

There is an existing City of Laguna Hills-owned-and-maintained storm drain in Avenida De La Carlota which collects and conveys public street drainage as well as the runoffs from the project site. See Appendix 3 for the existing storm drain as-built plans.

2.3 FEMA

The project is included on Community Panel Map Number 06059C0427J, dated 12/3/2009. The project is located within the unshaded area of Zone X (Area of Minimal Flood Hazard). Since the project is outside of the 100-year flood zone, a CLOMR/LOMR will not be required. A copy of the FEMA Map (FIRMETTE) is included in Appendix 4. Per FEMA map, Unshaded Zone X is identified as area of minimal flood hazard.

3.0 PROPOSED DRAINAGE

The proposed storm drain facilities will include a detention system to mitigate the hydromodification requirements. This system will be configured with a low-flow outlet at the bottom, along with a higher weir outlet for high flows. There will be a series of catch basins in the main drive aisle outside of the building which will be treated for water quality prior to being connected to the detention system. The detention system will drain to connect to the back of the existing catch basin discussed previously.

4.0 HYDROLOGY

4.1 Storm Frequency

In conformance with the Orange County Hydrology Manual, storm frequencies of 25- and 100-year were evaluated.

4.2 Methodology

Also in accordance with Orange County Hydrology Manual, Rational Method calculations were performed, utilizing Advance Engineering Software (A.E.S.) to compile the hydrologic data and determine the peak discharges. Hydrologic Classification of soil types on the site was used to determine that the entire site is within soil type "C". See Appendix 5 for the Web Soil Survey report. See the existing and proposed hydrology maps and output files in Appendix 6 and Appendix 7.

5.0 RESULTS AND CONCLUSIONS

The peak flow runoffs calculated for the existing and proposed conditions are summarized below.

	Existing Q (cfs)	Proposed Q (cfs)
25 Year Storm	11.3	10.8
100 Year Storm	14.5	13.8
Acres	3.11	3.11

The results indicate that the proposed development will have decreased discharges to the downstream facilities. A discussion and analysis related hydromodification are included in the Preliminary Water Quality Management Plan (WQMP) prepared by Fuscoe Engineering.

5.0 APPENDICES

Appendix 1 ALTA

Appendix 2 Conceptual Site Plan

Appendix 3 Storm Drain As-Built Plans

Appendix 4 FEMA Map

Appendix 5 Web Soil Survey Report

Appendix 6 Existing Condition Hydrology

Appendix 7 Proposed Condition Hydrology

APPENDIX 1

ALTA

ITEMS CORRESPONDING TO SCHEDULE B-II

10. A waiver of any claims for damages by reason of the location, construction, landscaping or maintenance of a contiguous freeway, highway, roadway or transit facility as contained in the document recorded December 30, 1959 as Book 5035, Page 383 of Official Records.
THIS ITEM REFERS TO THE SURVEYED PROPERTY BUT CONTAINS NO PLOTTABLE SURVEY ITEMS.

(11) 11. Abutter's rights of ingress and egress to or from the freeway, except certain reservations, such rights have been relinquished in the document recorded February 15, 1968 as Book 8519, Page 571 of Official Records.
THIS ITEM LIMITS ACCESS TO AN ABUTTING RIGHT OF WAY AS SHOWN HEREON.

(12) 12. An easement for utility and incidental purposes in the document recorded February 15, 1968 as Book 8519, Page 571 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(13) 13. An easement shown or dedicated on the map of Parcel Map recorded December 24, 1974 and on file in Book 65, Page 44, of Parcel Maps.

For: Future streets, Avenida De La Carlota and Los Alisos Boulevard and incidental purposes.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(14) 14. An easement for pipelines and incidental purposes in the document recorded February 5, 1976 as Book 11641, Page 26 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(15) 15. An easement for street, highway and incidental purposes in the document recorded December 18, 1978 as Book 12967, Page 1116 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(16) 16. An easement for bicycle trail and incidental purposes in the document recorded December 18, 1978 as Book 12967, Page 1124 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(17) 17. An easement for water pipeline and incidental purposes in the document recorded October 8, 1980 as Book 13780, Page 1965 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(18) 18. An easement for water pipelines and incidental purposes in the document recorded March 18, 1983 as Instrument No. 83-115892 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(19) 19. An easement for underground lines, conduits and incidental purposes in the document recorded November 8, 1983 as Instrument No. 83-515828 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON; HOWEVER, THE DEPICTION IS NOT ANNOTATED AND THE EASEMENT IS SUBJECT TO THE LOCATION OF UNDERGROUND UTILITIES, WHICH WERE NOT LOCATED, THEREFORE THE INTENDED LOCATION MAY BE DIFFERENT FROM WHAT IS SHOWN HEREON. WIDTH VARIES

(20) 20. An easement for permanent access and incidental purposes in the document recorded February 25, 1994 as Instrument No. 94-0139269 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON.

(21) 21. Abutter's rights of ingress and egress to or from San Diego Freeway have been relinquished in the document recorded December 18, 2020 as Instrument No. 2020000751241 of Official Records.
THIS ITEM LIMITS ACCESS TO AN ABUTTING RIGHT OF WAY AS SHOWN HEREON.

(22) 22. An easement for maintenance access and incidental purposes, recorded December 18, 2020 as Instrument No. 2020000751242 of Official Records.

In Favor of: State of California, Department of Transportation
Affects: as described therein
THIS ITEM IS PLOTTED AND SHOWN HEREON. WIDTH VARIES

(23) 23. An easement for water pipelines, incidental appurtenances, connections and structures, maintenance access and incidental purposes, recorded December 18, 2020 as Instrument No. 2020000751243 of Official Records.

In Favor of: Santa Margarita District
Affects: as described therein
THIS ITEM IS PLOTTED AND SHOWN HEREON. WIDTH VARIES

(24) 24. An easement for utilities for conveying electric energy to be used for light, heat, power, telephone and/or other purposes and incidental purposes, recorded December 18, 2020 as Instrument No. 2020000751244 of Official Records.

In Favor of: Southern California Edison Company
Affects: as described therein
THIS ITEM IS PLOTTED AND SHOWN HEREON. WIDTH VARIES

(25) 25. The terms and provisions contained in the document entitled "Memorandum of Possession and Use Agreement" recorded January 15, 2021 as 2021000030461 of Official Records.
THIS ITEM IS PLOTTED AND SHOWN HEREON. WIDTH VARIES

(26) 26. An easement for construct, use, maintain, operate, alter, add to, repair, replace, reconstruct, Inspect and remove at any time and from time to time underground electrical supply systems and communication systems, consisting of wires, underground conduits, cables, vaults, manholes, handholes, and including above-ground enclosures, markers and concrete pads and other appurtenant fixtures and equipment and incidental purposes, recorded October 6, 2021 as Instrument No. 2021000615205 of Official Records.

In Favor of: Southern California Edison Company, a corporation, its successors and assigns
Affects: as described therein
THIS ITEM IS PLOTTED AND SHOWN HEREON. WIDTH VARIES

ZONING INFORMATION

THE SURVEYOR WAS NOT PROVIDED WITH ZONING INFORMATION BY THE CLIENT PURSUANT TO TABLE A ITEM 6a & 6b.

VICINITY MAP - NOT TO SCALE

MISCELLANEOUS NOTES

SURVEY PERFORMED BY:
BOCK & CLARK CORPORATION, AN NV5 COMPANY
2525 NATOMAS PARK DRIVE STE 350
SACRAMENTO, CA 95833
PHONE: 800-787-8397, EMAIL: maywehelpyou@bockandclark.com

MN1 THIS SURVEY WAS MADE IN ACCORDANCE WITH CA LAW AND MINIMUM STANDARDS, AND IS NOT INTENDED FOR CONSTRUCTION OR DESIGN PURPOSES.

MN2 SOME FEATURES SHOWN ON THIS PLAT MAY BE SHOWN OUT OF SCALE FOR CLARITY. ALL DIMENSIONS SHOWN ARE IN FEET AND DECIMALS THEREOF.

MN3 BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF AVENIDA DE LA CARLOTA, ORANGE COUNTY, CALIFORNIA, AS SHOWN ON THE PARCEL MAP FILED IN BK 65 PGS 44-45 HAVING A BEARING OF N22°24'07"W.

MN4 AT THE TIME OF SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION, BUILDING ADDITIONS.

MN5 AT THE TIME OF SURVEY, NO INFORMATION REGARDING CHANGES IN STREET RIGHT OF WAY LINES WAS MADE AVAILABLE TO THE SURVEYOR FROM THE CONTROLLING JURISDICTION, NOR WAS THERE OBSERVABLE EVIDENCE OF STREET OR SIDEWALK REPAIRS.

MN6 AT THE TIME OF SURVEY, THERE WAS NO OBSERVABLE EVIDENCE OF SITE USE AS A BURIAL GROUND OR CEMETERY, NOR ANY SUBSTANTIAL AREAS OF REFUSE.

MN7 SURVEYOR IS NOT LIABLE FOR UTILITIES OBSTRUCTED OR COVERED FROM VIEW. THE LOCATION OF UTILITIES SHOWN HEREON IS FROM OBSERVED SURFACE AND ABOVE GROUND APPURTENANCES IN ORDER TO DEPICT UNDERGROUND UTILITIES, IF POSSIBLE. UTILITY PLANS OR GROUND MARKINGS WERE NOT PROVIDED IN ACCORDANCE WITH TABLE A 11a.

MN8 ONLY SURFACE AND ABOVE GROUND STRUCTURES WERE LOCATED. NO UNDERGROUND IMPROVEMENTS, SUCH AS FOUNDATION FOOTINGS, WERE LOCATED.

MN9 THE SURVEYED PROPERTY CONTAINS AN AREA OF 8.426 ACRES (367,026 SQUARE FEET), MORE OR LESS.

MN10 THERE ARE NO GAPS, GORES, OVERLAPS OR HIATUS INHERENT TO THE SURVEYED PROPERTY BASED ON THE FIELD SURVEY PERFORMED AND THE TITLE COMMITMENTS PROVIDED.

MN11 THERE ARE 483 STRIPED REGULAR PARKING SPACES AND 12 STRIPED HANDICAPPED PARKING SPACES FOR A TOTAL OF 495 STRIPED PARKING SPACES ON THE SURVEYED PROPERTY.

MN12 THE SUBJECT PROPERTY HAS DIRECT ACCESS TO AND FROM AVENIDA DE LA CARLOTA, BEING A 80 FOOT WIDE DEDICATED AND ACCEPTED PUBLIC RIGHT OF WAY, AS SHOWN HEREON.

MN13 AN ADDRESS OF 24422 AVENIDA DE LA CARLOTA WAS POSTED ON THE SURVEYED PROPERTY.

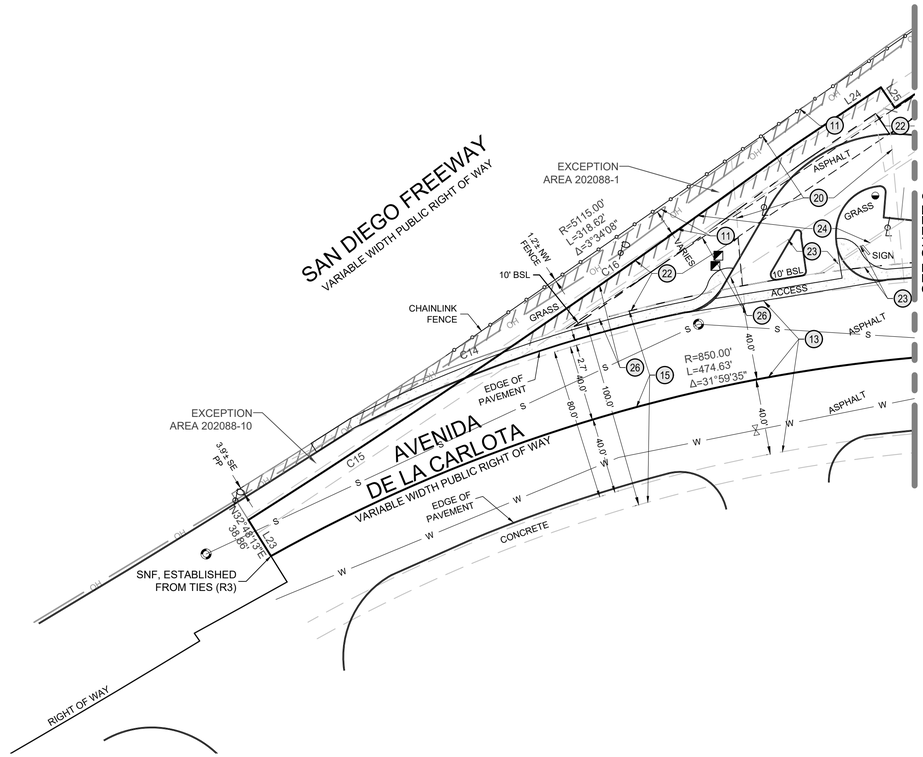
MN14 ADJOINING OWNERSHIP INFORMATION SHOWN HEREON WAS OBTAINED FROM AVAILABLE PUBLIC RECORDS.

MN15 FENCE OWNERSHIP, IF ANY, WAS NOT DETERMINED UNDER THE SCOPE OF THIS SURVEY.

MN16 BUILDING SQUARE FOOTAGE WAS CALCULATED FROM THE OBSERVED APPARENT FOOTPRINT OF EACH BUILDING AT GROUND LEVEL.

MN17 THE OFFSITE EASEMENTS OR SERVITUDES BENEFITING THE SURVEYED PROPERTY THAT WERE DISCLOSED IN THE RECORD DOCUMENTS PROVIDED TO THE SURVEYOR OR WERE OBSERVED IN THE PROCESS OF CONDUCTING THE SURVEY ARE SHOWN HEREON, ONLY OBSERVABLE ABOVE GROUND IMPROVEMENTS WERE LOCATED WITHIN SAID EASEMENTS.

MN18



REFERNCE DOCUMENTS

R1 PARCEL MAP BK 65 PGS 44-45
R2 OCS ALIGNMENT NOTE A/6-8/5724-5728
R3 OCS ALIGNMENT NOTE A/6-8/6081-6087
R4 PARCEL MAP BK 187 PGS 42-44

LEGEND OF SYMBOLS & ABBREVIATIONS

POWER POLE		SIGNAL LIGHT		GAS METER	
LIGHT POLE		SIGNAL LIGHT POLE		HANDICAPPED PARKING	
ELECTRIC MANHOLE		SIGN (AS NOTED)		CONCRETE	
ELECTRIC VAULT		WATER VALVE		NO PARKING	
TRANSFORMER		FIRE HYDRANT	SNF	SEARCHED, NOT FOUND	
TELEPHONE MANHOLE		BACKFLOW PREVENTER	N/F	NOW OR FORMERLY	
TELEPHONE PEDESTAL		WATER METER	BSL	BUILDING SETBACK LINE	
UTILITY CLOSET		FIRE DEPT CONNECTION		MONUMENT FOUND AS NOTED	
STORM DRAIN MANHOLE		BOLLARD			
STORM DRAIN INLET		CLEAN OUT			
				NO ACCESS/LIMITED ACCESS	
		OH		OVERHEAD LINES	
		W		WATER LINE	
		S		SEWER LINE	

FLOOD NOTE

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE X OF THE FLOOD INSURANCE RATE MAP, NUMBER 06059C0427J, WHICH BEARS AN EFFECTIVE DATE OF DECEMBER 3, 2009 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA AS SHOWN ON THE FEMA WEBSITE (HTTP://MSC.FEMA.GOV), BY FIRMETTE CREATED ON AUGUST 22, 2022. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE.

PROJECT REVISION RECORD

DATE	DESCRIPTION	DATE	DESCRIPTION
08/22/2023	EMAILED FOR NV5 REVIEW	-	-
__/__/2023	REVISED PER NV5 COMMENTS	-	-
-	-	-	-

SIGNIFICANT OBSERVATIONS

NO OBSERVATIONS APPARENT.

LEGAL

THIS SURVEY WAS PREPARED FOR THE PURPOSE OF THIS REAL ESTATE TRANSACTION ONLY AND NO FURTHER PARTIES OTHER THAN THOSE CERTIFIED ABOVE SHALL RELY ON IT FOR ANY OTHER PURPOSE OR TRANSACTION

RECORD DESCRIPTION

The Land referred to herein below is situated in the City of Laguna Hills, County of Orange, State of California, and is described as follows:

PARCEL 2, AS SHOWN ON A MAP FILED IN BOOK 65, PAGES 44 AND 45 OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, CALIFORNIA.

EXCEPT THOSE PORTIONS DESCRIBED AS PARCELS 202088-1, 202088-2 AND 202088-10 IN GRANT DEED TO THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, RECORDED DECEMBER 18, 2020 AS INSTRUMENT NO. 2020000751241 OF OFFICIAL RECORDS.

ALSO EXCEPTING ALL RIGHT TO OIL, GAS AND OTHER HYDROCARBON AND MINERAL SUBSTANCES LYING UNDER OR THAT MAY BE PRODUCED FROM SAID LAND, WITHOUT, HOWEVER THE RIGHT TO ENTER UPON ANY PORTION OF THE SURFACE AND 500 FEET BELOW THE SURFACE THEREOF, AS RESERVED IN DEEDS FROM GLEN E. MATHIS AND WIFE, AND FIRST WESTERN BANK AND TRUST COMPANY, A CALIFORNIA CORPORATION, RECORDED JULY 28, 1972 IN BOOK 10248 PAGE 164, 167 AND 170 OF OFFICIAL RECORDS.

For conveyancing purposes only: APN 620-492-04

THE LANDS SURVEYED, SHOWN AND DESCRIBED HEREON ARE THE SAME LANDS AS DESCRIBED IN THE TITLE COMMITMENT PROVIDED BY FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NO. NCS-1187930-LA2, DATED JULY 27, 2023.

ALTA/NSPS LAND TITLE SURVEY

for

Oakbrook Plaza Project

NV5 Project No. 202303055-001

24422 Avenida De La Carlota, Laguna Hills, CA 92653

BASED UPON TITLE COMMITMENT NO. NCS-1187930-LA2
OF FIRST AMERICAN TITLE INSURANCE COMPANY
BEARING AN EFFECTIVE DATE OF JULY 27, 2023

Surveyor's Certification

To: BSP Oakbrook, LLC, a Delaware limited liability company; First American Title Insurance Company and Bock & Clark Corporation, an NV5 Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 11(a), 13, 14, 16, 17, 18 and 19 of Table A thereof. The fieldwork was completed on AUGUST 17, 2023.

09/05/2024

JAYNE E. LEAVITT
REGISTRATION NO. PLS 8898
IN THE STATE OF CALIFORNIA
DATE OF PLAT OR MAP: AUGUST 22, 2023
DATE OF LAST REVISION: AUGUST 22, 2023
NETWORK PROJECT NO. 202303055-001 AAC

THIS SURVEY IS CERTIFIED TO DATE OF FIELD SURVEY, NOT DATE OF SIGNATURE.
NOT VALID UNLESS SIGNED, DATED AND STAMPED WITH SURVEYOR'S SEAL

Bock & Clark Corporation
an NV5 Company

NV5

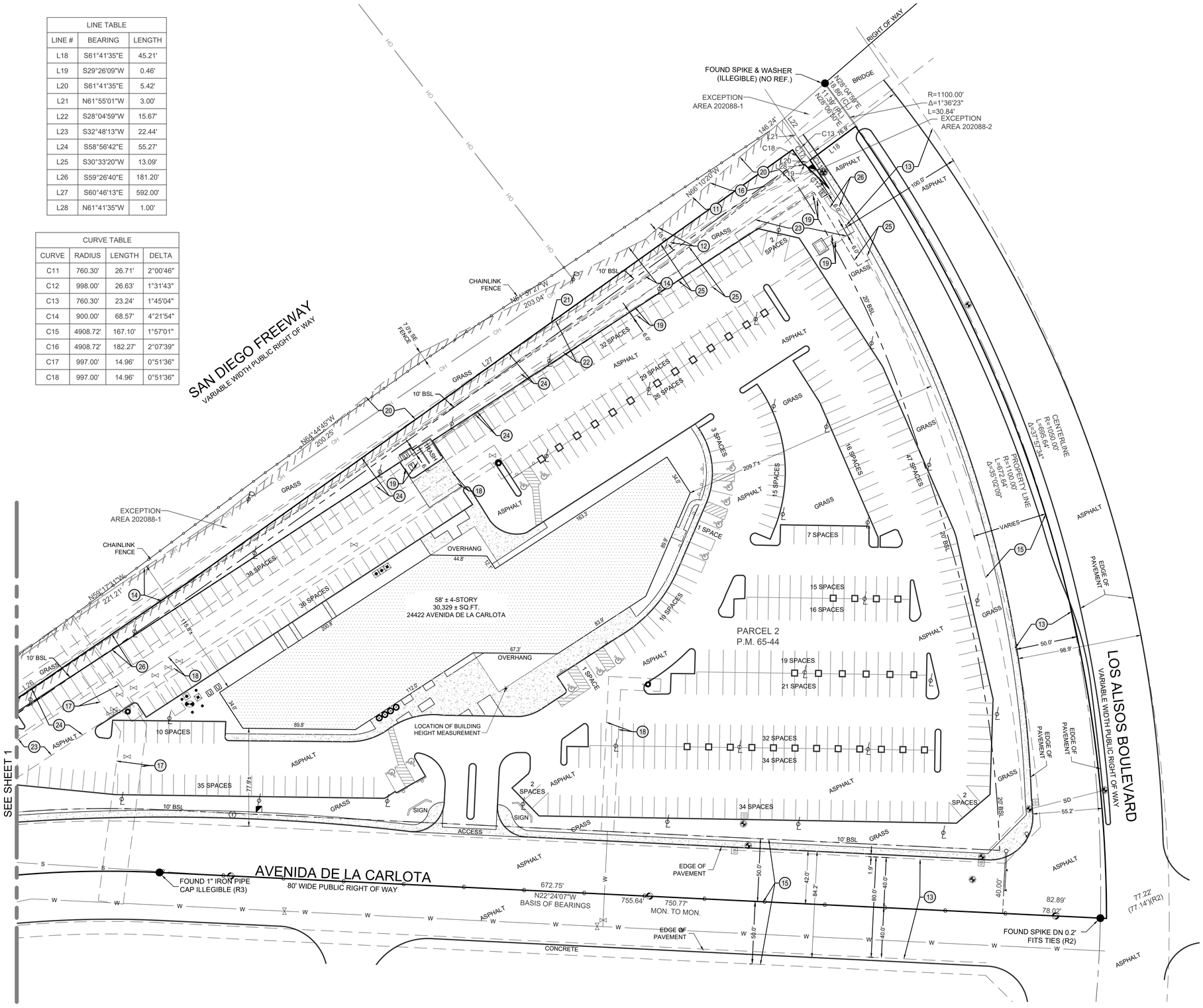
Transaction Services **1-800-SURVEYS (787-8397)**
3550 W. Market Street, Suite 200, Akron, Ohio 44333
www.BockandClark.com **maywehelpyou@bockandclark.com** **www.NV5.com**

SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

CALIFORNIA BRANCH PROJECT NO. 5202304587

LINE TABLE		
LINE #	BEARING	LENGTH
L18	S61°41'35"E	45.21'
L19	S29°26'09"W	0.46'
L20	S61°41'35"E	5.42'
L21	N61°55'01"W	3.00'
L22	S28°04'59"W	15.67'
L23	S32°48'13"W	22.44'
L24	S58°56'42"E	55.27'
L25	S30°33'20"W	13.09'
L26	S59°26'40"E	181.20'
L27	S60°46'13"E	592.00'
L28	N61°41'35"W	1.00'

CURVE TABLE			
CURVE	RADIUS	LENGTH	DELTA
C11	760.30'	26.71'	2°00'46"
C12	998.00'	26.63'	1°31'43"
C13	760.30'	23.24'	1°45'04"
C14	900.00'	68.57'	4°21'54"
C15	4908.72'	167.10'	1°57'01"
C16	4908.72'	182.27'	2°07'39"
C17	997.00'	14.96'	0°51'36"
C18	997.00'	14.96'	0°51'36"



LEGEND OF SYMBOLS & ABBREVIATIONS

- POWER POLE
- LIGHT POLE
- ELECTRIC MANHOLE
- ELECTRIC VAULT
- TRANSFORMER
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- UTILITY CLOSET
- STORM DRAIN MANHOLE
- STORM DRAIN INLET
- SIGNAL LIGHT
- SIGNAL LIGHT POLE
- SIGN (AS NOTED)
- WATER VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTER
- WATER METER
- FIRE DEPT CONNECTION
- BOLLARD
- CLEAN OUT
- GAS METER
- HANDICAPPED PARKING
- CONCRETE
- NO PARKING
- SNF SEARCHED, NOT FOUND
- N/F NOW OR FORMERLY
- BSL BUILDING SETBACK LINE
- MONUMENT FOUND AS NOTED
- NO ACCESS/LIMITED ACCESS
- OH OVERHEAD LINES
- W WATER LINE
- S SEWER LINE

REFERNCE DOCUMENTS

R1 PARCEL MAP BK 65 PGS 44-45
R2 OCS ALIGNMENT NOTE A/6-8/5724-5728
R3 OCS ALIGNMENT NOTE A/6-8/6081-6087
R4 PARCEL MAP BK 187 PGS 42-44

SCALE : 1" = 40'

0' 20' 40' 80'

SHEET 2 OF 2

NV5

ALTA/NSPS LAND TITLE SURVEY

PREPARED FOR

Oakbrook Plaza Project

DATE OF FIELD SURVEY: AUGUST 17, 2023
NETWORK PROJECT NUMBER. 202303055-001 AAC

1-(800)-SURVEYS (787-8397)

TRANSACTION SERVICES

www.bockandclark.com maywehelpyou@bockandclark.com www.NV5.com

SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

APPENDIX 2

Conceptual Site Plan

Residential Multi-Family Building

1.7.25

UNITS PER LEVEL SUMMARY

LEVEL	STUDIO		1BR								2BR									TOTAL
	S1	S2	A1	A1A	A1B	A2	A2A	A3	A4	A5	B1	B1A	B1B	B1C	B2	B2A	B3	B4	B5	
4	6	1	9	1	1	7	1	5	10	0	4	1	1	0	7	2	3	3	1	63
3	6	1	9	1	1	7	1	5	10	2	4	1	1	1	7	2	3	3	1	66
2	6	1	7	1	1	7	1	5	9	2	4	1	1	1	7	2	3	3	1	63
1	5	1	7	1	1	10	1	7	8	2	4	0	1	1	2	2	3	1	1	58
	23	4	32	4	4	31	4	22	37	6	16	3	4	3	23	8	12	10	4	**250**
Totals	27		140								83									
	9.2%	1.6%	12.8%	1.6%	1.6%	12.4%	1.6%	8.8%	14.8%	2.4%	6.4%	1.2%	1.6%	1.2%	9.2%	3.2%	4.8%	4.0%	1.6%	**100%**
	10.8%		56.0%								33.2%									

LEGEND

- INDICATES RESIDENTIAL
- INDICATES RESIDENTIAL LEASING / AMENITY
- INDICATES STRUCTURED PARKING (3 LEVELS+ SUB-T)
- USPS DESIGNATED PATH OF TRAVEL

HIGHWAY I-5

EXISTING OFFICE BLDG

218 SURFACE STALLS
(INLCUDING 13 ADA STALLS
+ 7 EV ADA STALLS)

SETBACK LINE

PARKING STRUCTURE ENTRY

PARKING STRUCTURE ENTRY

184 STALLS + 2 SURFACE STALLS
(GARAGE: 3 LEASING/MAIL + 1 USPS + 65 OFFICE +117 RESIDENTIAL)
(SURFACE: 2 LEASING)

LEASING
1946 SQ. FT.
OPEN TO ABOVE

MAIL/PARCEL PACKAGE
747 SQ. FT.

METER ROOM 549 SQ. FT.

BIKE STORAGE 384 SQ. FT.

EXHAUST SHAFT

TRASH TERMINATION ROOM 2

TRASH TERMINATION ROOM 1

METER ROOM 633 SQ. FT.

METER ROOM 930 SQ. FT.

PET SPA 336 SQ. FT.

TYP. SHEAR WALL

SHAFT

GATE

16 OFFICE STALLS

TANDEM STALLS

20 OFFICE STALLS

25 OFFICE STALLS

LOS ALISOS BOULEVARD

PROPERTY LINE
(CENTERLINE OF STREET)

DOG PARK

PER ALTA THIS EASEMENT IS FOR FUTURE STREETS / HIGHWAYS - RECORDED 1978

PER ALTA THIS EASEMENT IS FOR FUTURE STREETS - RECORDED 1974

AVENIDA DE LA CARLOTA

PROPERTY LINE
(CENTERLINE OF STREET)

24422 AVENIDA DE LA CARLOTA

LAGUNA HILLS, CA
BUCHANAN STREET PARTNERS

NORTH

1"=30'-0" 0 15' 30' 60' 90'

RESIDENTIAL BUILDING
Site Plan - Parking Level

Architecture. Design. Relationships.

A1.0

Scale
Job No. 2022-834
Date 12-17-2024

APPENDIX 3

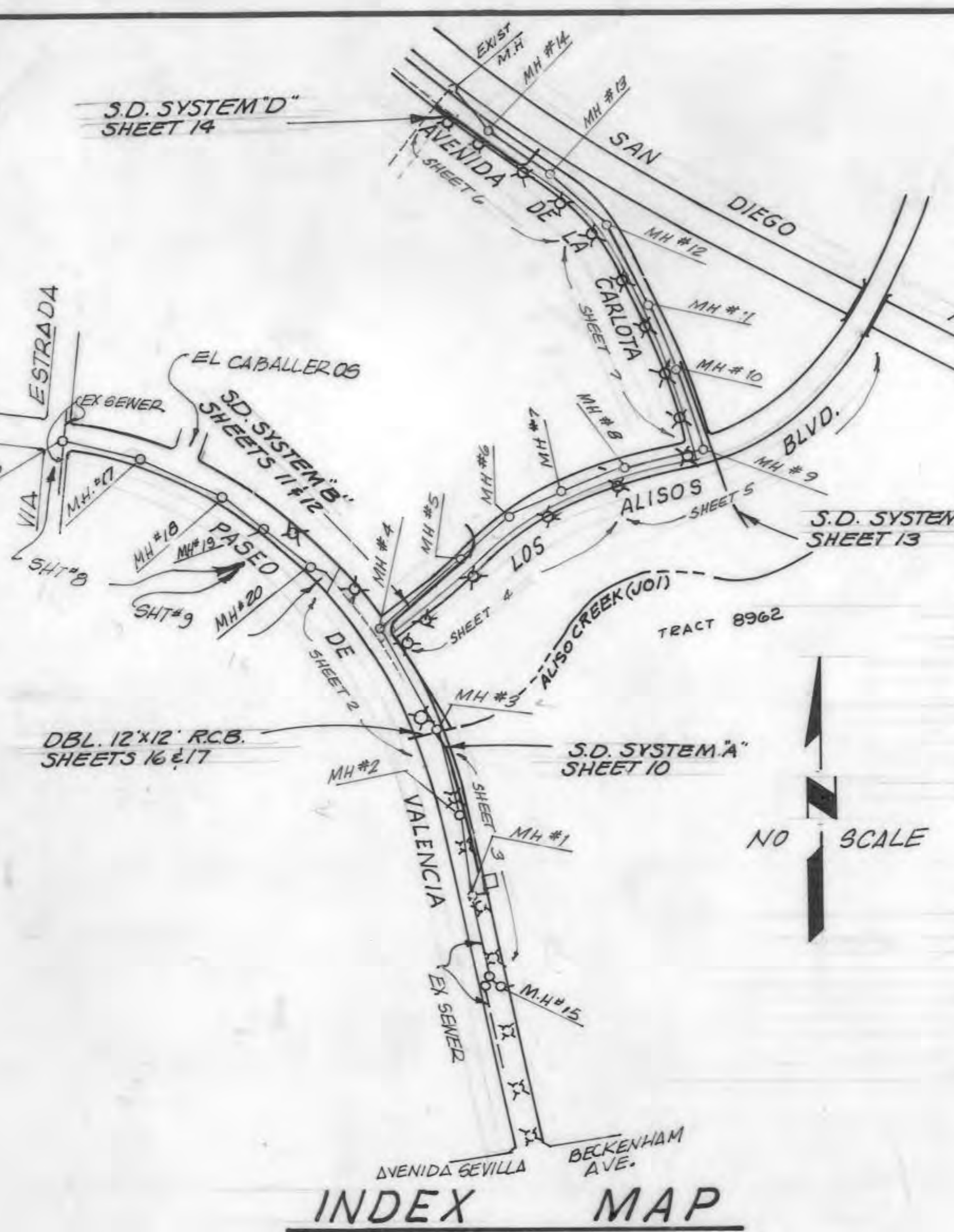
Storm Drain As-Built Plans

IMPROVEMENT PLANS

for

PASEO DE VALENCIA FROM STA 40+14 TO BECKENHAM AVE
LOS ALISOS BLVD FROM PASEO DE VALENCIA TO 250 FT. E'LY OF AVENIDA DE LA CARLOTA
AVENIDA DE LA CARLOTA FROM STA 1+00.00 TO LOS ALISOS BLVD

ORANGE COUNTY, CALIF.



INDEX MAP

STREET NAME SIGN		
LOCATION	STREET NAME	STREET NAME
SEE	SHEETS 18, 19 & 20	

UTILITIES

SOUTHERN CALIF GAS CO.	538-0211
SOUTHERN CALIF EDISON CO.	835-3833
ROSSMOOR WATER CO.	837-7050
ROSSMOOR SANITATION INC.	837-3900

QUANTITY ESTIMATE

ITEM	QTY.	ITEM	QTY.
A.C. / A.B. (PASEO DE VALENCIA)	96,084 SF	~~TEMPORARY PLUG & BLOW-OFF~~	~~1 EA.~~
A.C. / A.B. (LOS ALISOS BLVD.)	151,202 SF	~~REMOVE TEMP. PLUG. & BLOW-OFF~~	~~1 EA.~~
A.C. / A.B. (AVE. DE LA CARLOTA)	125,181 SF.	SEWER	
8" TYPE A-2 CURB & GUTTER	7,131 L.F.	8" V.C.P.	3907 LF.
4" THICK CONC. SIDEWALK	64,856 S.F.	10" V.C.P.	599 L.F.
8" B-1 CURB	3,223 L.F.	10" STEEL PIPE (EPOXY LINED)	40 L.F.
TRANSITION TYPE A-2 CURB TO D	22 L.F.	BREAK INTO EXIST. M.H.	3 EA.
REMOVE EXIST. PAVEMENT	20,100 S.F.	4' ⌀ STD. MANHOLE (10' OR LESS)	11 EA.
REMOVE EXIST. CURB & GUTTER	648 L.F.	45 ⌀ MANHOLE (11'±)	2 EA.
STREET NAME SIGNS	2 EA.	12" V.C.P.	1,063 L.F.
BARRICADE	102 L.F.	8" A.C.P. FORCE MAIN (EPOXY LINED)	80 L.F.
REMOVE BARRICADE	40 LF.	ENCASEMENT (8" V.C.P.)	20 L.F.
LOCAL DEPRESSION	7 EA.	JACK STEEL CASING	46 L.F.
REMOVE MARKERS	15 EA.	60" ⌀ MANHOLE	9 EA
6" TYPE "D" CURB & GUTTER	303 L.F.		
8" AC BERM	437 L.F.	GRADING QUANTITIES: CUT	104,445 CY
RELOCATE BY OTHERS:		(INCLUDED WITH OVERALL MASS GRADING QUANTITIES) FILL	81,866 CY
STREET LIGHTS	30 EA.	CONC. INTERCEPTOR DRAIN	
POWER POLE	1 EA.		
~~12" A.C.P. WATER~~	~~1436 L.F.~~		
~~16" A.C.P.~~	~~825 L.F.~~		
~~12" VALVE~~	~~2 EA.~~		
~~16" VALVE~~	~~1 EA.~~		
~~HOT TAP (8"x12") INCLUDING SLEEVE & VALVE~~	~~1 EA~~		

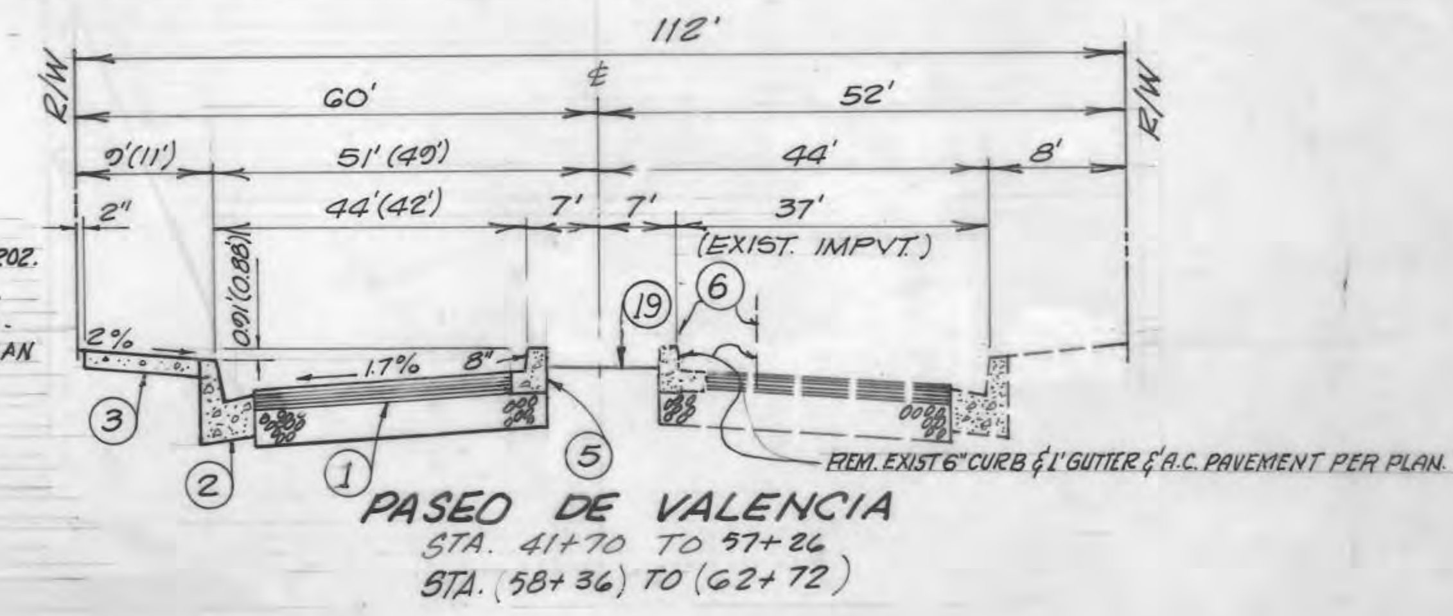
LOCATION MAP

GENERAL NOTES

1. ALL WORK TO CONFORM TO THE STANDARD SPECIFICATIONS OF THE STATE OF CALIF., DEPT. OF PUBLIC WORKS, DIVISION OF HIGHWAYS, THE ORANGE COUNTY ROAD DEPT. STANDARD ROAD AND STREET PLANS, AND THE CURRENT ORANGE COUNTY MANUAL OF WARNING SIGNS, LIGHTS, AND DEVICES FOR USE IN WORK UPON HIGHWAYS, EACH OF THE MOST RECENT DATE ADOPTED BY THE BOARD OF SUPERVISORS.
2. PRIOR TO CONST. ON PROJECTS OTHER THAN TRACTS, DIVISIONS OF LAND, AND MINUTE ORDER PROJECTS, CONTRACTOR SHALL OBTAIN A PERMIT FROM THE ORANGE COUNTY ROAD DEPT.
3. THE CONTRACTOR SHALL TELEPHONE THE ORANGE COUNTY ROAD DEPT. AT LEAST 24 HRS. PRIOR TO START'G CONST.
4. ALL UNDERGROUND UTILITIES SHALL BE INSTALLED PRIOR TO SURFACING OF STREETS. THE INSTALLATION OF ALL UNDERGROUND FACILITIES CROSSING EXIST'G ARTERIAL HIGHWAYS REQUIRES BORING OR JACKING, UNLESS OTHERWISE APPROVED BY THE ROAD COMMISSIONER.
5. IN ACCORDANCE WITH ORANGE COUNTY ORDINANCE 6-3-27 THRU 6-3-80 ANY EXIST. PAVEMENT DISTURBED BY THE CONSTRUCTION OF UNDERGROUND INSTALLATIONS SHALL BE COVERED BY A PERMIT ISSUED BY THE ORANGE COUNTY ROAD DEPARTMENT.
6. STRUCTURAL SECTION AND SUBGRADE COMPACTION REQUIREMENTS TO BE DETERMINED BY THE COUNTY OF ORANGE, ROAD DEPT.
7. IF DRIVEWAY DEPRESSIONS ARE MADE IN ANY CURB, DRIVEWAY APPROACHES ARE THEN CONSIDERED TO BE PART OF THE IMPROVEMENT PLAN AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH ORANGE COUNTY ROAD DEPARTMENT STANDARD PLAN № 208.
8. MONUMENTS ARE TO BE SET PER THE REQUIREMENTS OF THE OFFICE OF THE COUNTY SURVEYOR.
9. TREES SHALL NOT BE PLANTED IN ORANGE COUNTY RIGHT OF WAY UNLESS A PERMIT HAS BEEN OBTAINED FROM THE ORANGE COUNTY ROAD DEPARTMENT.
10. ADVERTISING SIGNS WILL NOT BE PERMITTED WITHIN STREET RIGHT OF WAY PER ORANGE COUNTY CODIFIED ORDINANCE 61.031.
11. WHEN JOINING EXIST. PAVEMENT INSPECTOR HAS OPTION TO SAWCUT OR FEATHER OVER.
12. ALL HIGHWAY SIGNS AND STREET NAME SIGNS SHOWN ON PLAN SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR PER ORANGE COUNTY ROAD DEPARTMENT STANDARD PLAN 401, 407, 408, 409.
14. ON ARTERIAL HIGHWAYS THE HINGE POINT FOR ALL EXCAVATION OR EMBANKMENT SHALL BE A MINIMUM OF TWO FEET OUTSIDE RIGHT-OF-WAY.
15. PRIOR TO INSTALLATION OF UTILITIES NOT SHOWN ON PLANS, CONTRACTOR SHALL OBTAIN A PERMIT FROM THE ORANGE COUNTY ROAD DEPARTMENT.
16. ALL CONC IN REINFORCED CONC. STRUCTURES SHALL BE 3000 POUNDS PER SQ. INCH @ 28 DAYS. PORTLAND CEMENT CONCRETE, CLASS 'A'.
17. ALL CONDUIT LENGTHS ARE HORIZONTAL PROJECTIONS UNLESS OTHERWISE SHOWN.
18. ALL STEEL THAT IS TO BE CONTINUOUS SHALL BE LAPPED A MIN. OF 30 BAR DIAMETERS.
19. ALL REINFORCED CONC. PIPE MUST BE BEDDED IN ACCORDANCE WITH PIPE BEDDING DETAIL SHOWN ON SHEET № 12.
20. FOR ORANGE COUNTY FLOOD CONTROL GENERAL NOTES PERTAINING TO CONSTRUCTION ON ALISO CREEK AT PASEO DE VALENCIA, SEE SHEET № 16.
21. PRIOR TO INSTALLATION OF UTILITIES NOT SHOWN ON PLANS, CONTRACTOR SHALL OBTAIN A PERMIT. FROM THE O.C.R.D.
22. SEE SHEETS 18-20 FOR SIGNING & STRIPING. (SEE STRIPING NOTE HEREON)

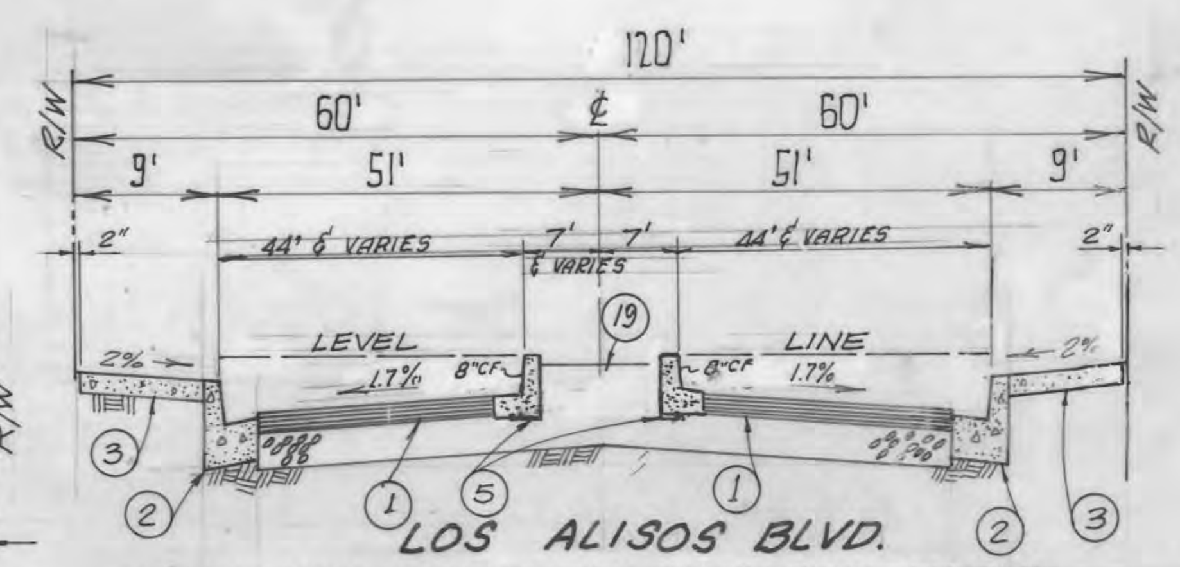
CONSTRUCTION NOTES

(1) CONST. A.C. OVER A.B. PER TYP SECTION ON SHT. NO. 1.
(2) CONST. 8" TYPE A-2 CURB & GUTTER PER O.C.E.M.A. STD. PLAN № 202.
(3) CONST. CONC. SIDEWALK (4" THK.) PER O.C.E.M.A. STD. PLAN № 205.
(5) CONST. 8" TYPE "A" CURB & 1' GUTTER PER O.C.E.M.A. STD PLAN № 201.
(6) REMOVE EXIST. A.C. PAVING (CROSS HATCHED AREA) & REPLACE PER PLAN
(7) REMOVE EXIST. TYPE "A" CURB & GUTTER.
(13) SAWCUT & JOIN EXIST. PVMT. - FEATHER OVER TO FORM SMOOTH JOIN TO SATISFACTION OF O.C.E.M.A. INSPECTOR.
(19) CONST. LANDSCAPE MEDIAN PER O.C.E.M.A. STD. PLAN № 114.

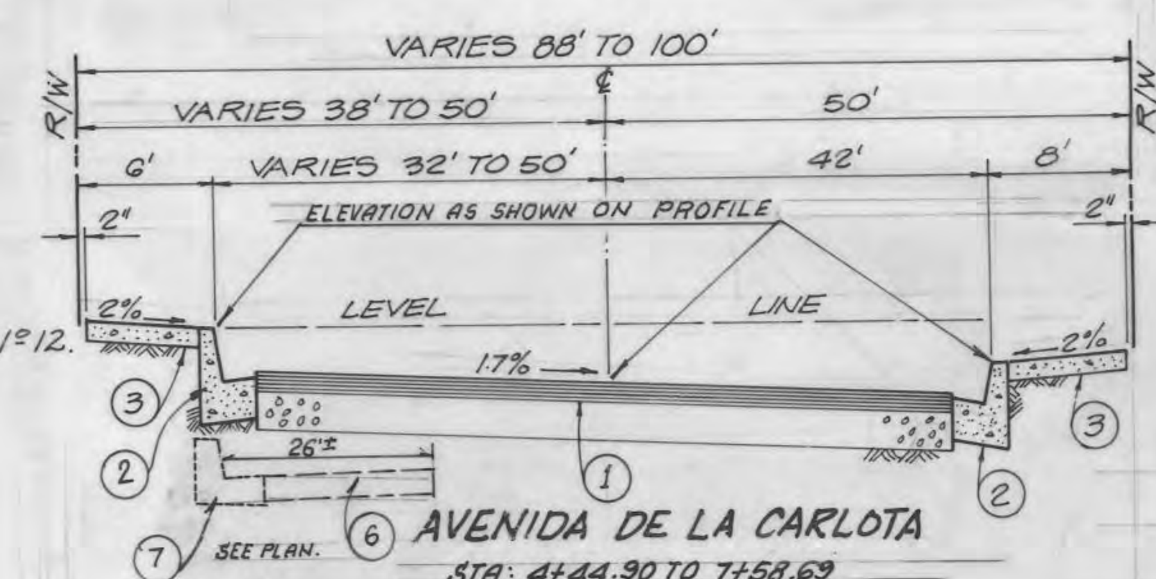


PASEO DE VALENCIA
STA. 41+70 TO 57+26
STA. (58+36) TO (62+72)

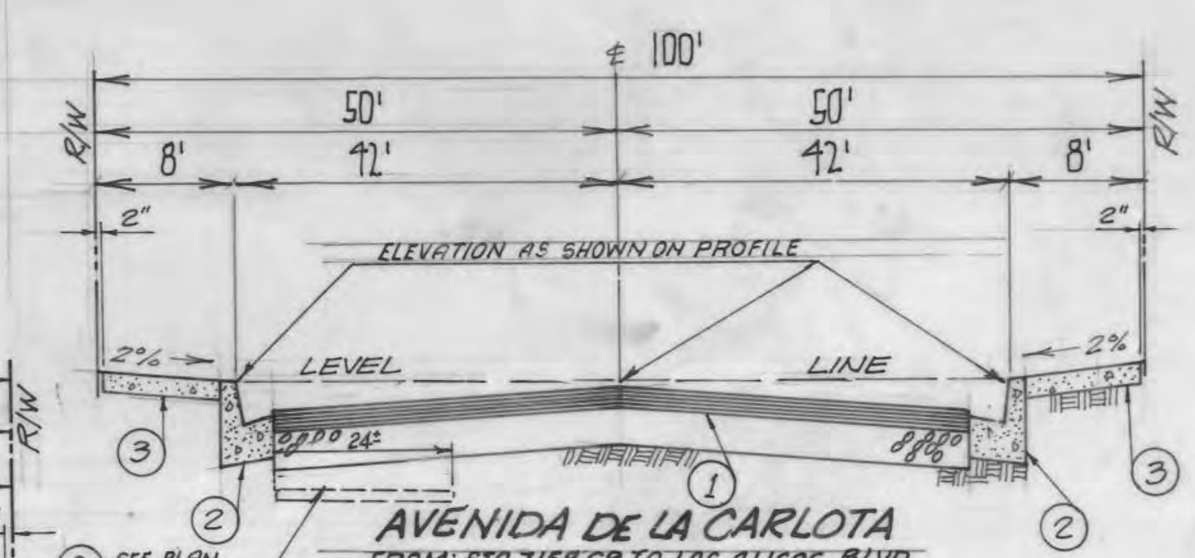
PREPARED FOR
MATHIS RANCH LAND CO.
P.O. BOX 2749
LAGUNA HILLS, CA. 92653
(714)-581-1061



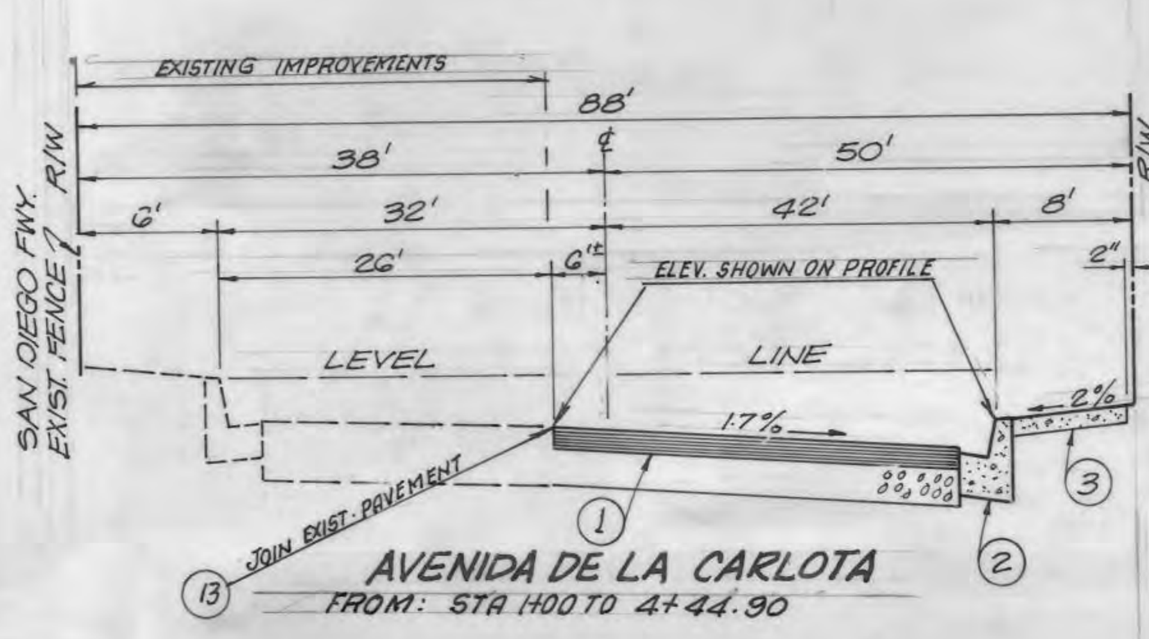
LOS ALISOS BLVD.
FROM: PASEO DE VALENCIA TO 250 FT. E'LY OF AVENIDA LA CARLOTA



AVENIDA DE LA CARLOTA
STA: 4+44.90 TO 7+58.69



AVENIDA DE LA CARLOTA
FROM: STA 7+58.69 TO LOS ALISOS BLVD



AVENIDA DE LA CARLOTA
FROM: STA 1+00 TO 4+44.90

STORM DRAIN QUANTITY ESTIMATE

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY
	36" R.C.P. ~ 1500 D (SPEC. COVER)	67 L.F.	(34)	CATCH BASIN TYPE II L=28'	1 EA.
	33" R.C.P. ~ 1250 D (SPEC. COVER)	383 L.F.	(30)	MANHOLE JCT. STR. TYPE I	13 EA.
	33" RCP ~ 1250 D	359 L.F.	(35)	REINF. CONC. COLLAR	9 EA.
	30" R.C.P. ~ 1750 D (SPEC. CVR.)	65 L.F.	(41)	CONC. PIPE SLOPE ANCHORS	3 EA.
	30" R.C.P. ~ 1250 D	346 L.F.	(31)	36" ⌀ DROP INLET	2 EA.
	27" R.C.P. ~ 1750 D (SPEC. CVR.)	78 L.F.	(31)	30" ⌀ DROP INLET	1 EA.
	27" R.C.P. ~ 1500 D	81 L.F.	(31)	24" ⌀ DROP INLET	2 EA.
	27" RCP ~ 1250 D (SPEC. COVER)	238 L.F.	(42)	BRICK & MORTAR SEAL	4 EA.
	27" RCP ~ 1250 D	416 L.F.	(36)	36" ⌀ CONNECTION TO DBL. BOX	1 EA.
	24" RCP ~ 1500 D	314 L.F.	(37)	30" ⌀ CONNECTION TO DBL. BOX	1 EA.
	24" RCP ~ 1250 D (SPEC. COVER)	33 LF.	(45)	REINF. CONC. TRANS STR. 24" ⌀ TO 6x2' R.C.B.	1 EA.
	24" R.C.P. ~ 1250 D	1327 L.F.	(50)	DBL. 12'x12' R.C.B.	61.5 L.F.
	21" R.C.P. ~ 1500 D	8 L.F.	(51)	REINF. CONC. TRANS STR.	1 EA.
	18" R.C.P. ~ 1250 D	238 L.F.	(52)	5' HIGH CHAIN LINK FENCE	77 L.F.
	36" C.S.P. 14 GA.	19 L.F.	(54)	4' HIGH CHAIN LINK FENCE	26 L.F.
	30" C.S.P. 14 GA.	17 L.F.	(53)	GROUTED RIP RAP	4420 C.F.
	24" C.S.P. 16 GA.	5 L.F.	(40)	REINF. CONC. BAFFLED OUTLET	1 EA.
	18" C.S.P. 16 GA.	19 L.F.	(38)	REMOVE EXISTING CONC. COLLAR	1 EA.
(32)	CATCH BASIN TYPE I	1 EA.	(38)	REMOVE EXISTING 24" C.S.P.	55 L.F.
(34)	CATCH BASIN TYPE II L=7'	1 EA.	(46)	REMOVE EXISTING 36" C.S.P.	65 L.F.
(34)	CATCH BASIN TYPE II L=10'	3 EA.	(55)	CONCRETE CRADLES (SYSTEM "D")	2 EA.
(34)	CATCH BASIN TYPE II L=14'	1 EA.			
(34)	CATCH BASIN TYPE II L=24'	1 EA.			

SEWER CONSTRUCTION NOTES

1. SEWER SYSTEM MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STANDARD PLANS AND SPEC'S OF ROSSMOOR SANITATION INC.
2. NOTIFY ROSSMOOR SANITATION INC. 48 HOURS PRIOR TO CONSTRUCTION. ~ PHONE 837-3900.
3. NOTIFY S.C. EDISON CO. 48 HOURS PRIOR TO EXCAVATION. ~ PHONE 835-3833.
4. NOTIFY SO. COUNTIES GAS CO. 48 HOURS PRIOR TO EXCAVATION ~ PHONE 494-6521.
5. IN AREAS OF POSSIBLE CONFLICT OF SEWER LINES AND OTHER UTILITIES, HAND EXCAVATE AND EXPOSE THE UTILITIES CAREFULLY.
6. SEWER PIPE BEDDING SHALL BE TYPE 'B' UNLESS OTHERWISE SPECIFIED.
7. 10" OR LARGER PIPES SHALL USE 60" ⌀ MANHOLES.

WATER CONSTRUCTION NOTES

1. WATER SYSTEM MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STANDARD PLANS AND SPEC'S. OF ROSSMOOR WATER COMPANY.
2. LOCATIONS FOR WATER METERS SHALL BE STAKED BY THE DEVELOPERS ENGINEER.
3. FIRE HYDRANTS SHALL BE PER ROSSMOOR WATER CO. STANDARD PLANS & SPEC'S.
4. NOTIFY ROSSMORE WATER CO. 48 HOURS PRIOR TO CONST. ~ PHONE 837-7050.
5. NOTIFY SO. CAL. EDISON CO. 48 HOURS PRIOR TO EXCAVATION-PHONE 835-3833.
6. NOTIFY S.C. GAS CO. 48 HOURS PRIOR TO EXCAVATION ~ PHONE 494-6521.
7. IN AREAS OF POSSIBLE CONFLICT OF WATER LINE AND OTHER UTILITIES, HAND EXCAVATE AND EXPOSE THE UTILITIES CAREFULLY.
8. EXACT LOCATION OF WATER LINES PER RECENT CONST. DWG BY R.W.C. № 34-263

BASIS OF BEARINGS:

N 11°34'40" W FOR THE CENTERLINE OF PASEO DE VALENCIA AS SHOWN ON RECORD OF SURVEY RECORDED IN BOOK 92, PAGES 45, 46 AND 47 OF RECORDS OF SURVEYS OF ORANGE COUNTY, CALIFORNIA.

VTN consolidated, inc.
ENGINEERS ARCHITECTS PLANNERS
2301 CAMPUS DRIVE, IRVINE, CALIFORNIA 92664 (714) 833-2450

#12530
Paseo De Valencia
Sheet 1 of 20
Red. 24:1
Cronaflex

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER & COUNTY HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. APPROVAL OF THIS PLAN BY THE COUNTY OF ORANGE DOES NOT CONSTITUTE A REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE LOCATION OR THE EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY PIPE OR STRUCTURE WITHIN THE LIMITS OF THIS PROJECT. THE CONTRACTOR IS REQUIRED TO TAKE ALL DUE PRECAUTIONARY MEANS TO PROTECT THE UTILITY LINES NOT OF RECORD OR NOT SHOWN ON THIS PLAN.

NOTE:
SHEETS 18, 19 & 20 APPROVED FOR SIGNING ONLY. STRIPING TO BE MODIFIED AND PROVIDED BY THE COUNTY OF ORANGE.

E.M.A PERMIT REQUIRED

REVISIONS

№	Date	Int.	Description	App'd	Date

UTILITIES / APPROVALS

UTILITIES	APPROVALS
SEWER IMPROVEMENTS	ROSSMOOR SANITATION, INC.
Larry O. Sturgeon 6-9-77	LARRY O. STURGEON VICE PRESIDENT
J. Wynne Davies R.C.E. 14471 DATE 6.9.77	J. WYNNE DAVIES

PREPARED UNDER THE SUPERVISION OF:
Stan Schupp — J.S. SCHUPP R.C.E. 14568 — 3-21-77 Date

Bench Mark: O.C.S. 3F-84-70
ALUMINUM CAP IN THE S.W. PART OF THE INTERSECTION OF EL TORO RD & BRIDGER RD.; 60.5' N.W. OF THE CTR. OF THE MEDIAN OF EL TORO RD., 93.5' S.W. OF THE ℄ OF BRIDGER RD., 37' S.W. OF TRAFFIC SIG. LT. POLE, 24.5' S.W. OF P.P. # 1756118E, SET IN TOP OF S.W. END OF A CONC. HOWL ABOUT 1.5' LOWER THAN EL TORO RD. 362.778

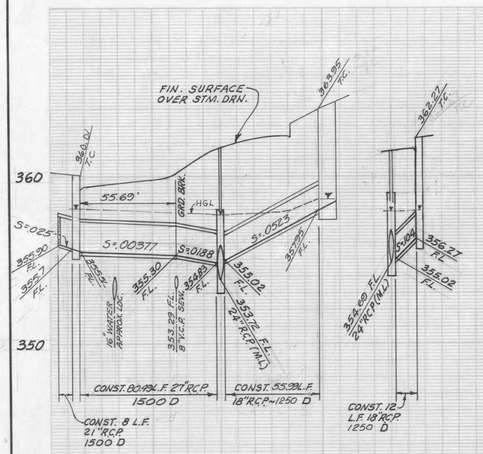
COUNTY OF ORANGE
E.M.A., DEVELOPMENT DIVISION
APPROVED
BY [signature] RCE 14718 — 6/14/77 Date

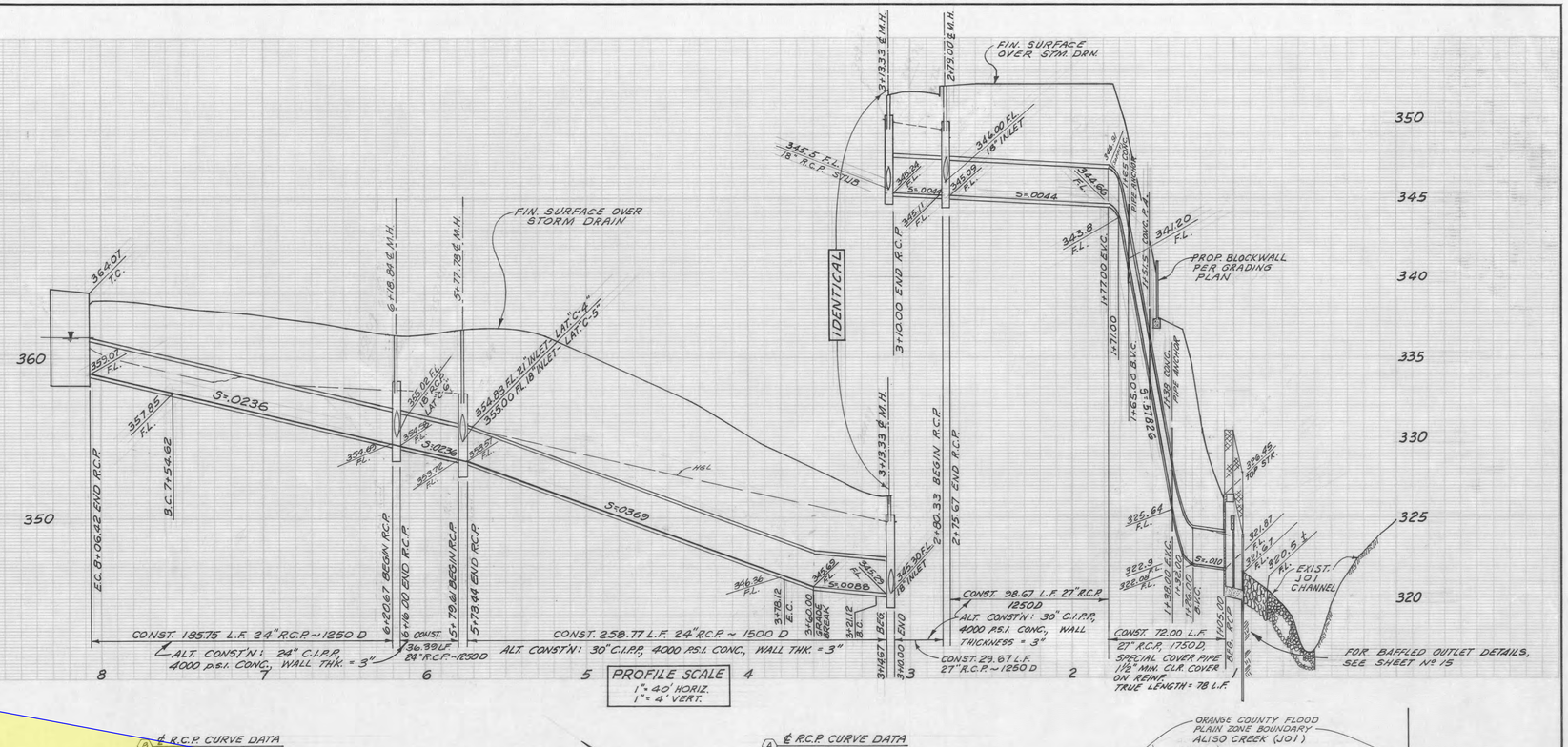
IMPROVEMENT PLANS
FOR:
PASEO DE VALENCIA, LOS ALISOS BLVD.
& AVENIDA DE LA CARLOTA

Sheet 1 of 20 Sheets

DR# 15 (12530)

2140-9





CONSTRUCTION NOTES

(34) — CONST. C.B. INLET TYPE II PER O.C.E.M.A. STD. PLAN Nº 302. "L" & "H" PER PLAN.

(32) — CONST. C.B. INLET TYPE I PER O.C.E.M.A. STD. PLAN NO. 301. "H" PER PLAN.

(30) — CONST. J.S. TYPE I PER O.C.E.M.A. STD. PLAN Nº 310. "L" PER PLAN.

(35) — CONST. 4 L.F. 18" R.C.P. STUB, 1250 D. END ELEV. = 345.40 .

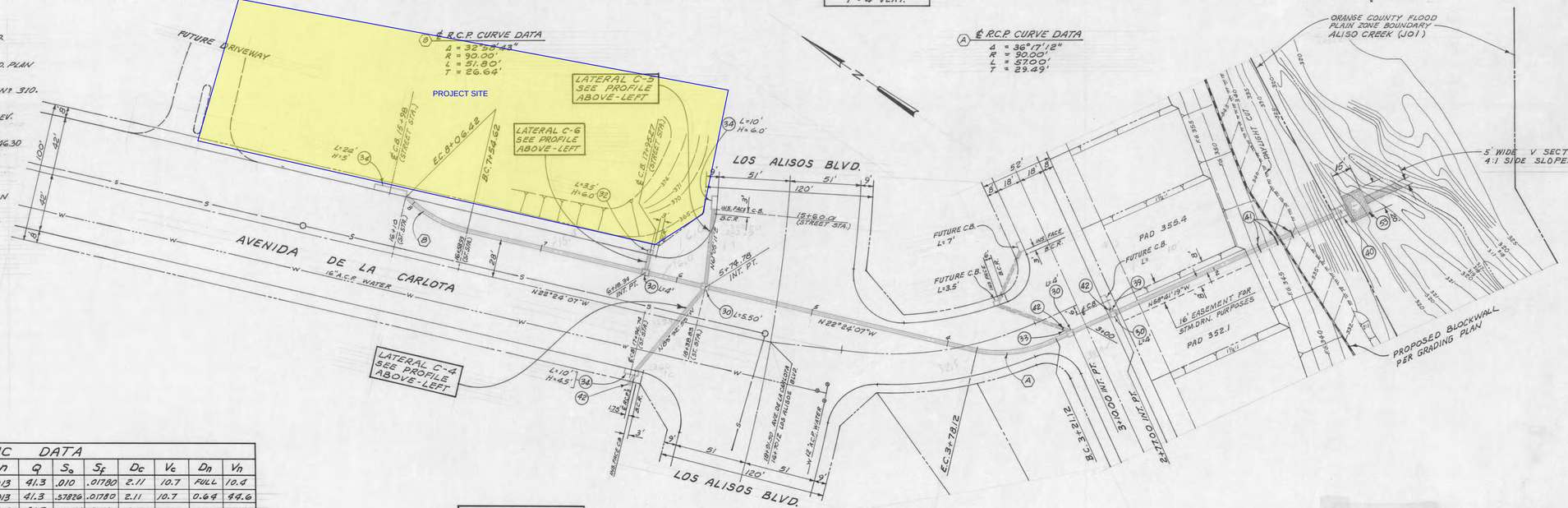
(39) — CONST. 2 L.F. 18" R.C.P. STUB, 1250 D. END ELEV. = 346.30

(42) — CONST. BRICK AND MORTAR SEAL.

(40) — CONST. BAFFLED OUTLET PER DETAILS ON SHEET NO. 15

(41) — CONST. CONC. PIPE SLOPE ANCHORS PER DETAILS ON SHEET NO. 12

(53) — CONST. GROUTED RIP RAP PER DETAILS ON SHEET Nº 15.



SYSTEM "C"

PLAN
SCALE: 1"=40'

HYDRAULIC DATA										
LINE	PIPE DIA.	STATION TO STATION	n	Q	S_o	S_f	Dc	Vc	Dn	Vn
"C"	27"	1+05.00 TO 1+26.00	.013	41.3	.010	.01780	2.11	10.7	FULL	10.4
"C"	27"	1+38.00 TO 1+77.00	.013	41.3	.57826	.01780	2.11	10.7	0.64	44.6
"C"	27"	1+77.00 TO 2+75.67	.013	41.3	.0044	.01780	2.11	10.7	FULL	10.4
"C"	27"	2+80.33 TO 3+10.00	.013	38.9	.0049	.01549	2.07	10.0	FULL	9.6
"C"	24"	3+19.67 TO 3+60.00	.013	32.5	.0088	.02065	1.89	10.6	FULL	10.4
"C"	24"	3+60.00 TO 5+73.44	.013	32.5	.0369	.02065	1.89	10.6	1.29	15.2
"C"	24"	5+79.61 TO 6+16.00	.013	16.0	.0236	.00950	1.44	6.6	0.96	10.7
"C"	24"	6+20.67 TO 8+06.42	.013	15.4	.0236	.00463	1.42	6.5	0.94	10.7

#12530
Paseo De Valencia
Sheet 13 of 20
Red. 24:1
Linen

STORM DRAIN

SHEET 13 OF 20

DR# 15 (12530) 2740-9

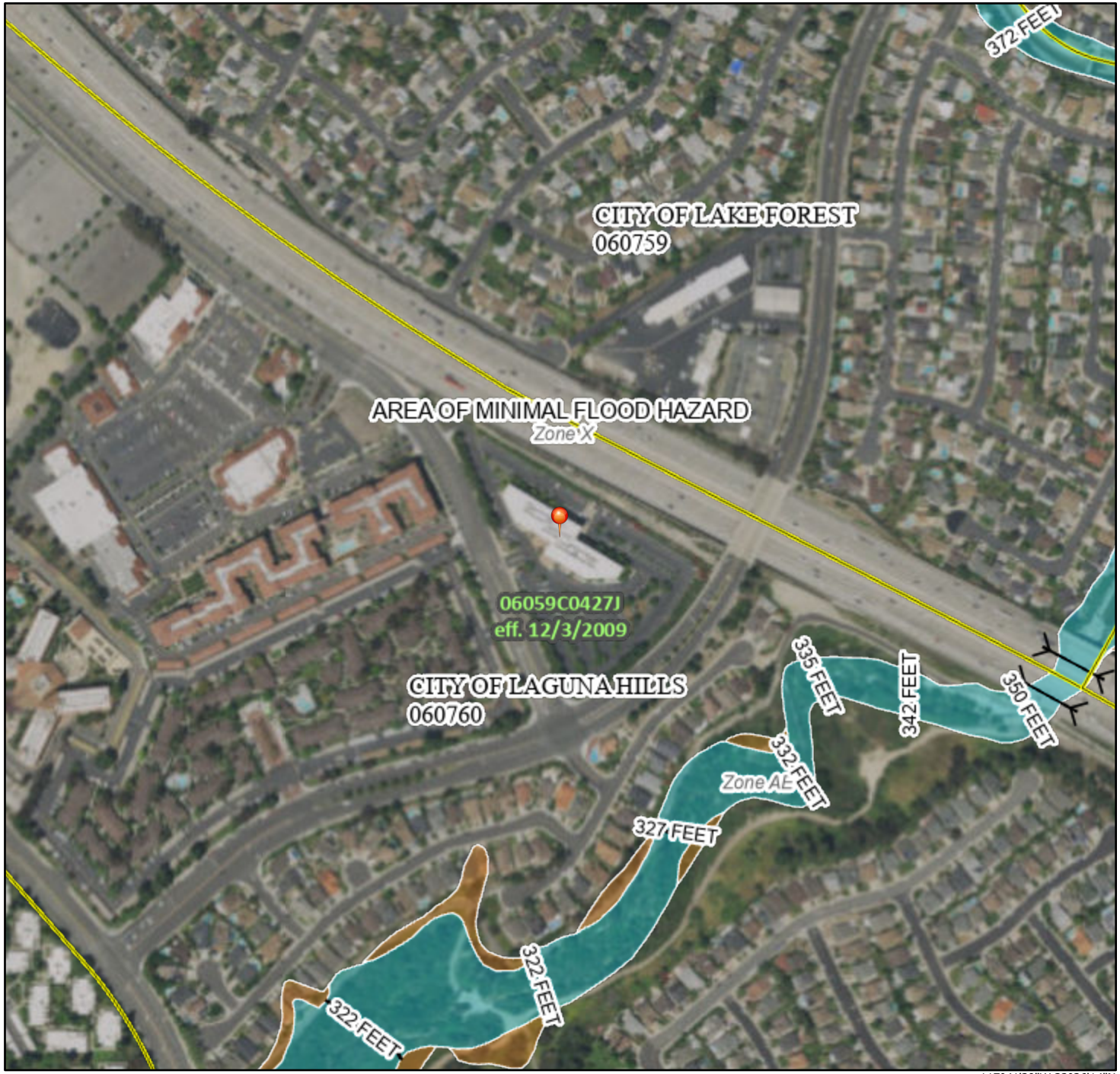
APPENDIX 4

FEMA Map

National Flood Hazard Layer FIRMette

FEMA

117°42'17"W 33°36'44"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

117°41'39"W 33°36'14"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/1/2023 at 7:51 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX 5

Web Soil Survey Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County and Part of Riverside County, California

Oakbrook Plaza

April 28, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

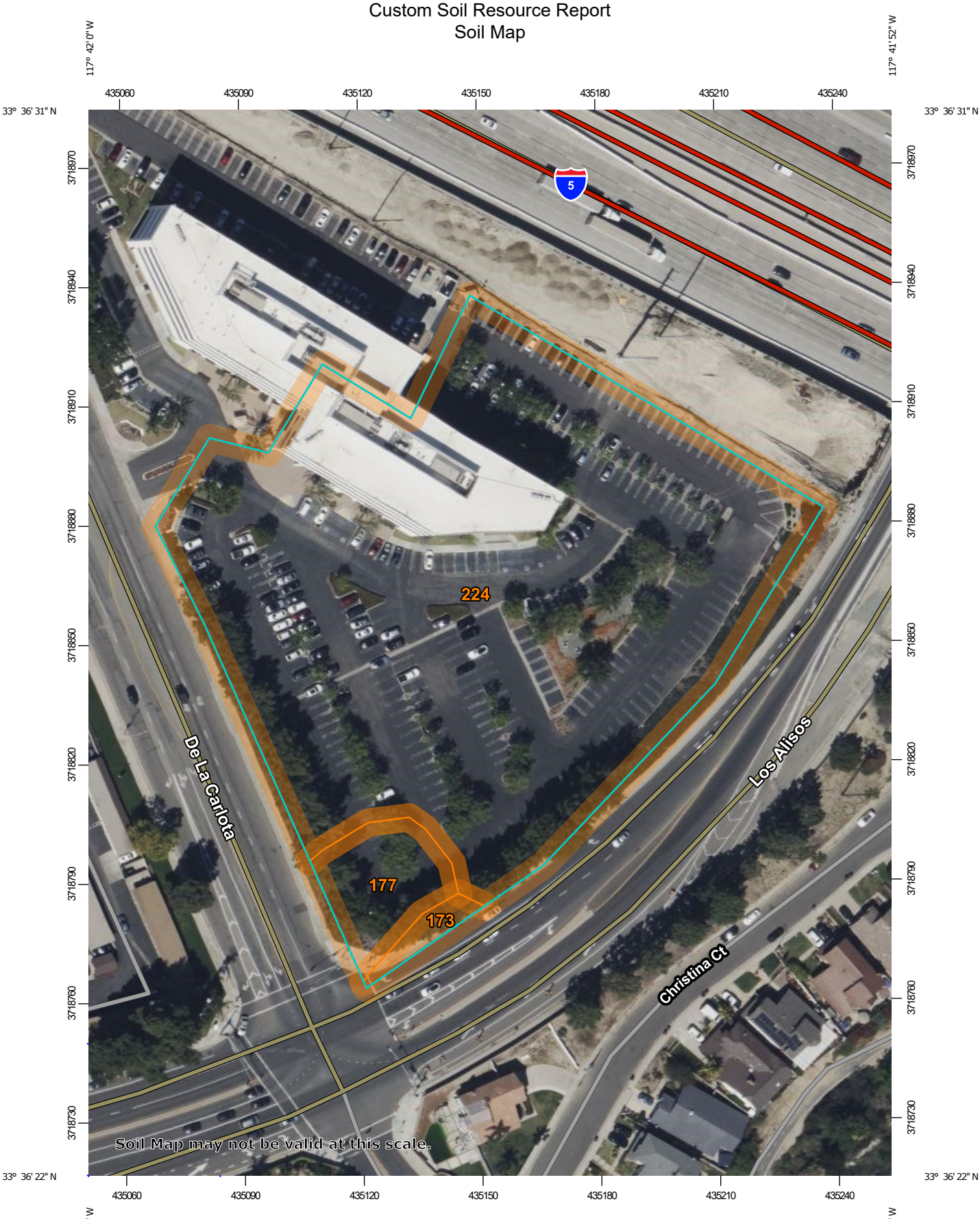
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,310 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County and Part of Riverside County, California
Survey Area Data: Version 16, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 14, 2022—Mar 17, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
173	Myford sandy loam, 2 to 9 percent slopes	0.0	1.2%
177	Myford sandy loam, 9 to 30 percent slopes, eroded	0.2	5.5%
224	Yorba cobbly sandy loam, 9 to 30 percent slopes	3.7	93.3%
Totals for Area of Interest		**3.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County and Part of Riverside County, California

173—Myford sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: hcnl
Elevation: 0 to 1,560 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 320 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Myford and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Typical profile

A1 - 0 to 1 inches: sandy loam
A2 - 1 to 4 inches: sandy loam
A3 - 4 to 12 inches: sandy loam
Bt1 - 12 to 18 inches: sandy clay
Bt2 - 18 to 28 inches: sandy clay loam
Btk1 - 28 to 35 inches: sandy clay loam
Btk2 - 35 to 41 inches: sandy clay loam
B't1 - 41 to 49 inches: sandy clay loam
B't2 - 49 to 61 inches: sandy clay loam
Bt3 - 61 to 71 inches: sandy clay loam
C - 71 to 79 inches: sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 8 to 20 inches to abrupt textural change
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Minor Components

Myford, thick surface

Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Capistrano

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R019XD029CA - LOAMY
Hydric soil rating: No

Yorba, gravelly sandy loam

Percent of map unit: 5 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Chesterton, loamy sand

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Water

Percent of map unit: 2 percent
Landform: Depressions

177—Myford sandy loam, 9 to 30 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcnq
Elevation: 0 to 2,100 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 290 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Myford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Myford

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 7 inches: sandy loam
Bt - 7 to 11 inches: sandy clay
Btk - 11 to 21 inches: sandy clay loam
B't - 21 to 64 inches: sandy clay loam
C - 64 to 79 inches: sandy loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: 4 to 10 inches to abrupt textural change
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Minor Components

Myford, sandy loam
Percent of map unit: 10 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Cieneba, sandy loam
Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R019XD060CA - SHALLOW LOAMY
Hydric soil rating: No

Yorba, cobbly sandy loam
Percent of map unit: 2 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

224—Yorba cobbly sandy loam, 9 to 30 percent slopes

Map Unit Setting
National map unit symbol: hcq7
Elevation: 100 to 2,500 feet
Mean annual precipitation: 12 to 20 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Yorba and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yorba

Setting

Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and gravelly alluvium derived from mixed

Typical profile

H1 - 0 to 11 inches: cobbly sandy loam
H2 - 11 to 40 inches: very gravelly sandy clay loam
H3 - 40 to 63 inches: very gravelly sandy loam

Properties and qualities

Slope: 9 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R019XD061CA - CLAYPAN
Hydric soil rating: No

Minor Components

Gabino, gravelly clay loam

Percent of map unit: 5 percent
Hydric soil rating: No

Modjeska, sandy loam

Percent of map unit: 5 percent
Hydric soil rating: No

Myford, sandy loam

Percent of map unit: 3 percent
Hydric soil rating: No

Soper, cobbly loam

Percent of map unit: 2 percent
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX 6

Existing Condition Hydrology

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
        (c) Copyright 1983-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* Oakbrook Plaza                                                      *
* Existing Condition                                                  *
* 25-year storm event                                                 *
 **********************************************************************

  FILE NAME: EXOAK25.DAT
  TIME/DATE OF STUDY: 15:21 02/18/2025
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   321.00
  ELEVATION DATA: UPSTREAM(FEET) =    393.00  DOWNSTREAM(FEET) =    373.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.328
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.653
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
```

A1

```
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               C        0.60      0.25      0.100    69    5.33
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100                    A1
  SUBAREA RUNOFF(CFS) =      2.50
  TOTAL AREA(ACRES) =      0.60   PEAK FLOW RATE(CFS) =      2.50

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  91
----------------------------------------------------------------------------
  >>>>>COMPUTE "V" GUTTER FLOW TRAVEL TIME THRU SUBAREA<<<<<       A2
============================================================================
  UPSTREAM NODE ELEVATION(FEET) =    373.00
  DOWNSTREAM NODE ELEVATION(FEET) =    371.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   223.00
  "V" GUTTER WIDTH(FEET) =   5.00   GUTTER HIKE(FEET) =  0.050
  PAVEMENT LIP(FEET) =  0.010   MANNING'S N = .0150
  PAVEMENT CROSSFALL(DECIMAL NOTATION) = 0.02000
  MAXIMUM DEPTH(FEET) = 100.00
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.048
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL               C        2.51      0.25      0.100    69
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      6.96
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.50
  AVERAGE FLOW DEPTH(FEET) =   0.24   FLOOD WIDTH(FEET) =   23.38
  "V" GUTTER FLOW TRAVEL TIME(MIN.) =   1.49   Tc(MIN.) =    6.81
  SUBAREA AREA(ACRES) =    2.51       SUBAREA RUNOFF(CFS) =    9.09
  EFFECTIVE AREA(ACRES) =    3.11     AREA-AVERAGED Fm(INCH/HR) =   0.03
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
  TOTAL AREA(ACRES) =        3.1         PEAK FLOW RATE(CFS) =      11.26

  END OF SUBAREA "V" GUTTER HYDRAULICS:
  DEPTH(FEET) =  0.29   FLOOD WIDTH(FEET) =   28.26
  FLOW VELOCITY(FEET/SEC.) =   2.79   DEPTH*VELOCITY(FT*FT/SEC) =   0.82
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     544.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        3.1  TC(MIN.) =      6.81
  EFFECTIVE AREA(ACRES) =      3.11  AREA-AVERAGED Fm(INCH/HR)=  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)   =      11.26
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
        (c) Copyright 1983-2016 Advanced Engineering Software (aes)
            Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:



 ************************ DESCRIPTION OF STUDY ************************
* Oakbrook Plaza                                                      *
* Existing Condition                                                  *
* 100-year storm event                                                *
 **********************************************************************

  FILE NAME: EXOAK100.DAT
  TIME/DATE OF STUDY: 15:31 02/18/2025
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   321.00
  ELEVATION DATA: UPSTREAM(FEET) =    393.00  DOWNSTREAM(FEET) =    373.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.328
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.966
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
```

A1

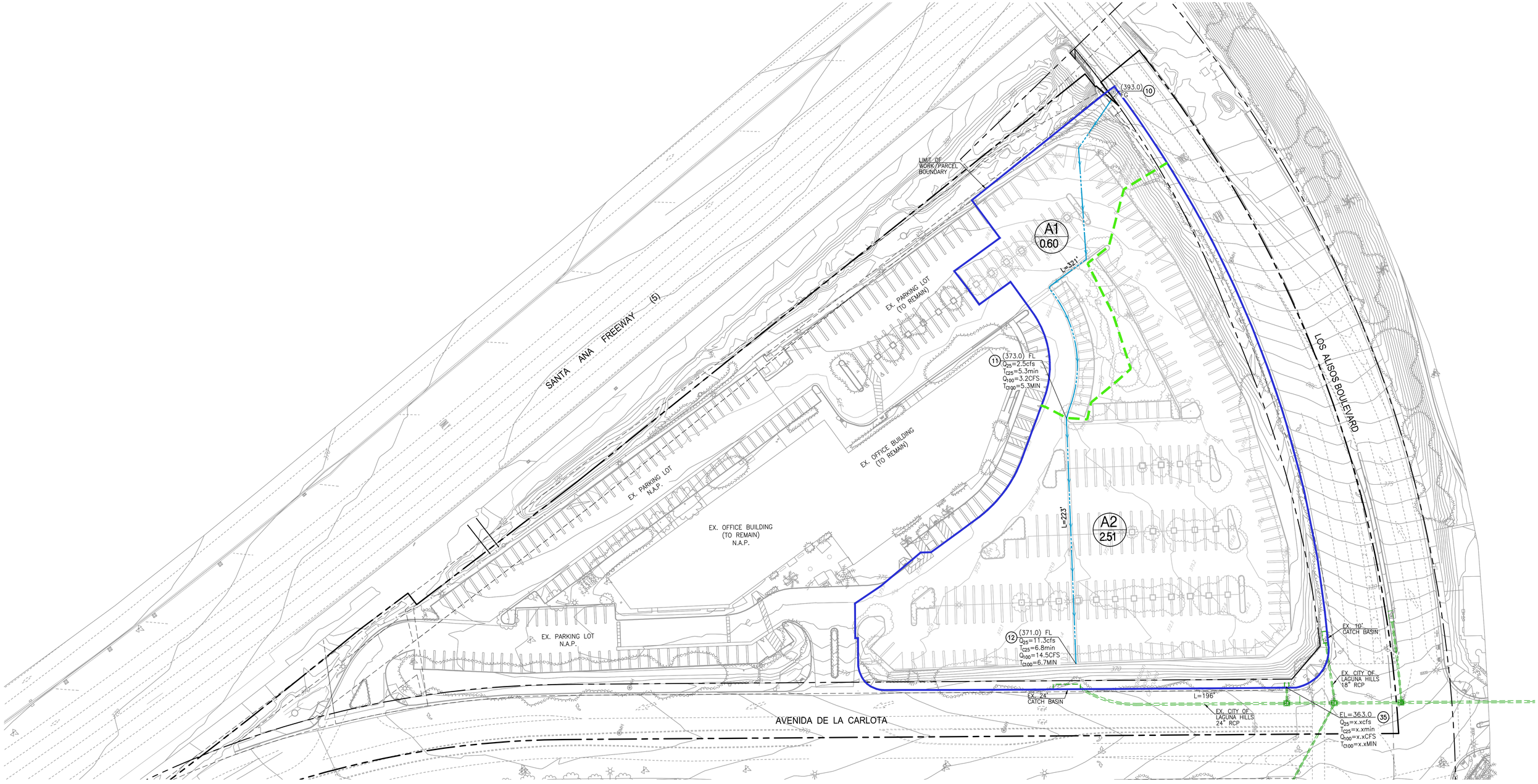
```
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               C        0.60      0.25      0.100    86    5.33
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      3.21
  TOTAL AREA(ACRES) =      0.60   PEAK FLOW RATE(CFS) =      3.21

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  91
----------------------------------------------------------------------------
  >>>>>COMPUTE "V" GUTTER FLOW TRAVEL TIME THRU SUBAREA<<<<<
============================================================================
  UPSTREAM NODE ELEVATION(FEET) =    373.00
  DOWNSTREAM NODE ELEVATION(FEET) =    371.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   223.00
  "V" GUTTER WIDTH(FEET) =   5.00   GUTTER HIKE(FEET) =  0.050
  PAVEMENT LIP(FEET) =  0.010   MANNING'S N = .0150
  PAVEMENT CROSSFALL(DECIMAL NOTATION) = 0.02000
  MAXIMUM DEPTH(FEET) = 100.00
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.219
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL               C        2.51      0.25      0.100    86
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      8.97
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.65
  AVERAGE FLOW DEPTH(FEET) =   0.27   FLOOD WIDTH(FEET) =   25.82
  "V" GUTTER FLOW TRAVEL TIME(MIN.) =   1.40   Tc(MIN.) =    6.73
  SUBAREA AREA(ACRES) =    2.51       SUBAREA RUNOFF(CFS) =   11.73
  EFFECTIVE AREA(ACRES) =    3.11     AREA-AVERAGED Fm(INCH/HR) =   0.03
  AREA-AVERAGED Fp(INCH/HR) =   0.25  AREA-AVERAGED Ap =   0.10
  TOTAL AREA(ACRES) =        3.1         PEAK FLOW RATE(CFS) =      14.54

  END OF SUBAREA "V" GUTTER HYDRAULICS:
  DEPTH(FEET) =  0.32   FLOOD WIDTH(FEET) =   31.31
  FLOW VELOCITY(FEET/SEC.) =   2.94   DEPTH*VELOCITY(FT*FT/SEC) =   0.95
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     544.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        3.1  TC(MIN.) =      6.73
  EFFECTIVE AREA(ACRES) =      3.11  AREA-AVERAGED Fm(INCH/HR)=  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)   =      14.54
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

A1

A2



LEGEND

- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY
- FLOW PATH
- EXISTING STORM DRAIN

XX / X.X — DRAINAGE AREA DESIGNATION / ACRES

XX — HYDROLOGIC NODE

PROJECT SOIL TYPE – TYPE "C"

OAKBROOK PLAZA
EXISTING HYDROLOGY MAP
LAGUNA HILLS, CA
FEBRUARY 2025

40' 0' 20' 40'
SCALE: 1" = 40'

FUSCOE ENGINEERING
FULL SERVICE THINKING
15535 Sand Canyon Ave
Suite 100
Irvine California 92618
949.474.1960
fuscoe.com

APPENDIX 7

Proposed Condition Hydrology

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* Oakbrook Plaza                                                      *
* Proposed Condition Hydrology                                        *
* 25-year storm event                                                 *
 **********************************************************************

  FILE NAME: OAK25.DAT
  TIME/DATE OF STUDY: 14:51 02/18/2025
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   228.00
  ELEVATION DATA: UPSTREAM(FEET) =    388.00  DOWNSTREAM(FEET) =    373.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.824
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
```

A1

```
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               C        0.28      0.25      0.100    69    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.21
  TOTAL AREA(ACRES) =      0.28   PEAK FLOW RATE(CFS) =      1.21

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   368.70  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.04
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.21
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    5.12
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     256.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   228.00
  ELEVATION DATA: UPSTREAM(FEET) =    375.00  DOWNSTREAM(FEET) =    373.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.105
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.954
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               C        0.49      0.25      0.100    69    7.10
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.73
  TOTAL AREA(ACRES) =      0.49   PEAK FLOW RATE(CFS) =      1.73

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   370.90  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.60
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.73
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =    7.18
  LONGEST FLOWPATH FROM NODE     13.00 TO NODE     15.00 =     268.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

A1

A2

A3

A3

```
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   265.00
  ELEVATION DATA: UPSTREAM(FEET) =    375.00  DOWNSTREAM(FEET) =    373.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.870
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.731
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C        0.98      0.25     0.100    69    7.87
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      3.27
  TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      3.27

********************************************************************************
  FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   370.90  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.84
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.27
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    7.94
  LONGEST FLOWPATH FROM NODE     16.00 TO NODE     18.00 =     306.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     20.00 IS CODE =  21
--------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    375.00  DOWNSTREAM(FEET) =    373.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.869
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.487
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C        0.73      0.25     0.100    69    8.87
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      2.27
  TOTAL AREA(ACRES) =      0.73   PEAK FLOW RATE(CFS) =      2.27

********************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   370.80  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    84.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.4 INCHES
```

A4

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.74
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.27
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =    9.08
  LONGEST FLOWPATH FROM NODE     19.00 TO NODE     21.00 =     414.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<                B1
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    393.00  DOWNSTREAM(FEET) =    373.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.981
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.993
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       C        0.43      0.25     0.500    69    6.98
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      1.50
  TOTAL AREA(ACRES) =      0.43   PEAK FLOW RATE(CFS) =      1.50

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   371.70  DOWNSTREAM(FEET) =   361.30
  FLOW LENGTH(FEET) =   244.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.19
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.50
  PIPE TRAVEL TIME(MIN.) =   0.57    Tc(MIN.) =    7.55
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =     574.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     33.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<                B2
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   173.00
  ELEVATION DATA: UPSTREAM(FEET) =    373.00  DOWNSTREAM(FEET) =    365.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.651
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.501
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       C        0.08      0.25     0.500    69    5.65
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
```

```
  SUBAREA RUNOFF(CFS) =      0.32
  TOTAL AREA(ACRES) =      0.08   PEAK FLOW RATE(CFS) =      0.32

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     35.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   196.00
  ELEVATION DATA: UPSTREAM(FEET) =    373.00  DOWNSTREAM(FEET) =    363.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.825
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.424
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       C        0.12      0.25     0.500    69    5.83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      0.46
  TOTAL AREA(ACRES) =      0.12   PEAK FLOW RATE(CFS) =      0.46
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.1  TC(MIN.) =      5.83
  EFFECTIVE AREA(ACRES) =      0.12  AREA-AVERAGED Fm(INCH/HR)=  0.12
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.500
  PEAK FLOW RATE(CFS)   =       0.46
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

B3

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2016 Advanced Engineering Software (aes)
             Ver. 23.0  Release Date: 07/01/2016  License ID 1355

                          Analysis prepared by:




 ************************ DESCRIPTION OF STUDY ************************
* Oakbrook Plaza                                                      *
* Proposed Condition Hydrology                                        *
* 100-year storm event                                                *
 **********************************************************************

  FILE NAME: OAK100.DAT
  TIME/DATE OF STUDY: 15:02 02/18/2025
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==========================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   228.00
  ELEVATION DATA: UPSTREAM(FEET) =    388.00  DOWNSTREAM(FEET) =    373.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.187
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
```

A1

```
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               C        0.28      0.25      0.100    86    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100                    A1
  SUBAREA RUNOFF(CFS) =      1.55
  TOTAL AREA(ACRES) =      0.28   PEAK FLOW RATE(CFS) =      1.55

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   368.70  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    28.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   7.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.18
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.55
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    5.11
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     256.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<                      A2
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   228.00
  ELEVATION DATA: UPSTREAM(FEET) =    375.00  DOWNSTREAM(FEET) =    373.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.105
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.059
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
     LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               C        0.49      0.25      0.100    86    7.10
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      2.22
  TOTAL AREA(ACRES) =      0.49   PEAK FLOW RATE(CFS) =      2.22

****************************************************************************
  FLOW PROCESS FROM NODE     14.00 TO NODE     15.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   370.90  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.16
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.22
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    7.18
  LONGEST FLOWPATH FROM NODE     13.00 TO NODE     15.00 =     268.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     16.00 TO NODE     17.00 IS CODE =  21     A3
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
```

A3

```
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   265.00
  ELEVATION DATA: UPSTREAM(FEET) =    375.00  DOWNSTREAM(FEET) =    373.40

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.870
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.771
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C        0.98      0.25     0.100    86    7.87
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      4.19
  TOTAL AREA(ACRES) =      0.98   PEAK FLOW RATE(CFS) =      4.19

********************************************************************************
  FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   370.90  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.64
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.19
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =    7.93
  LONGEST FLOWPATH FROM NODE     16.00 TO NODE     18.00 =     306.00 FEET.

********************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     20.00 IS CODE =  21
--------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
  ELEVATION DATA: UPSTREAM(FEET) =    375.00  DOWNSTREAM(FEET) =    373.30

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.869
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.455
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C        0.73      0.25     0.100    86    8.87
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      2.91
  TOTAL AREA(ACRES) =      0.73   PEAK FLOW RATE(CFS) =      2.91

********************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  31
--------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   370.80  DOWNSTREAM(FEET) =   368.40
  FLOW LENGTH(FEET) =    84.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.1 INCHES
```

A4

```
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.32
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       2.91
 PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =    9.06
 LONGEST FLOWPATH FROM NODE     19.00 TO NODE     21.00 =     414.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   330.00
 ELEVATION DATA: UPSTREAM(FEET) =    393.00  DOWNSTREAM(FEET) =    373.70

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.981
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.110
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       C        0.43      0.25     0.500    86    6.98
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
 SUBAREA RUNOFF(CFS) =      1.93
 TOTAL AREA(ACRES) =      0.43   PEAK FLOW RATE(CFS) =      1.93

****************************************************************************
 FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   371.70  DOWNSTREAM(FEET) =   361.30
 FLOW LENGTH(FEET) =   244.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.67
 ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.93
 PIPE TRAVEL TIME(MIN.) =   0.53    Tc(MIN.) =    7.51
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =     574.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   173.00
 ELEVATION DATA: UPSTREAM(FEET) =    373.00  DOWNSTREAM(FEET) =    365.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.651
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.768
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 RESIDENTIAL
 "5-7 DWELLINGS/ACRE"       C        0.08      0.25     0.500    86    5.65
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
```

B1

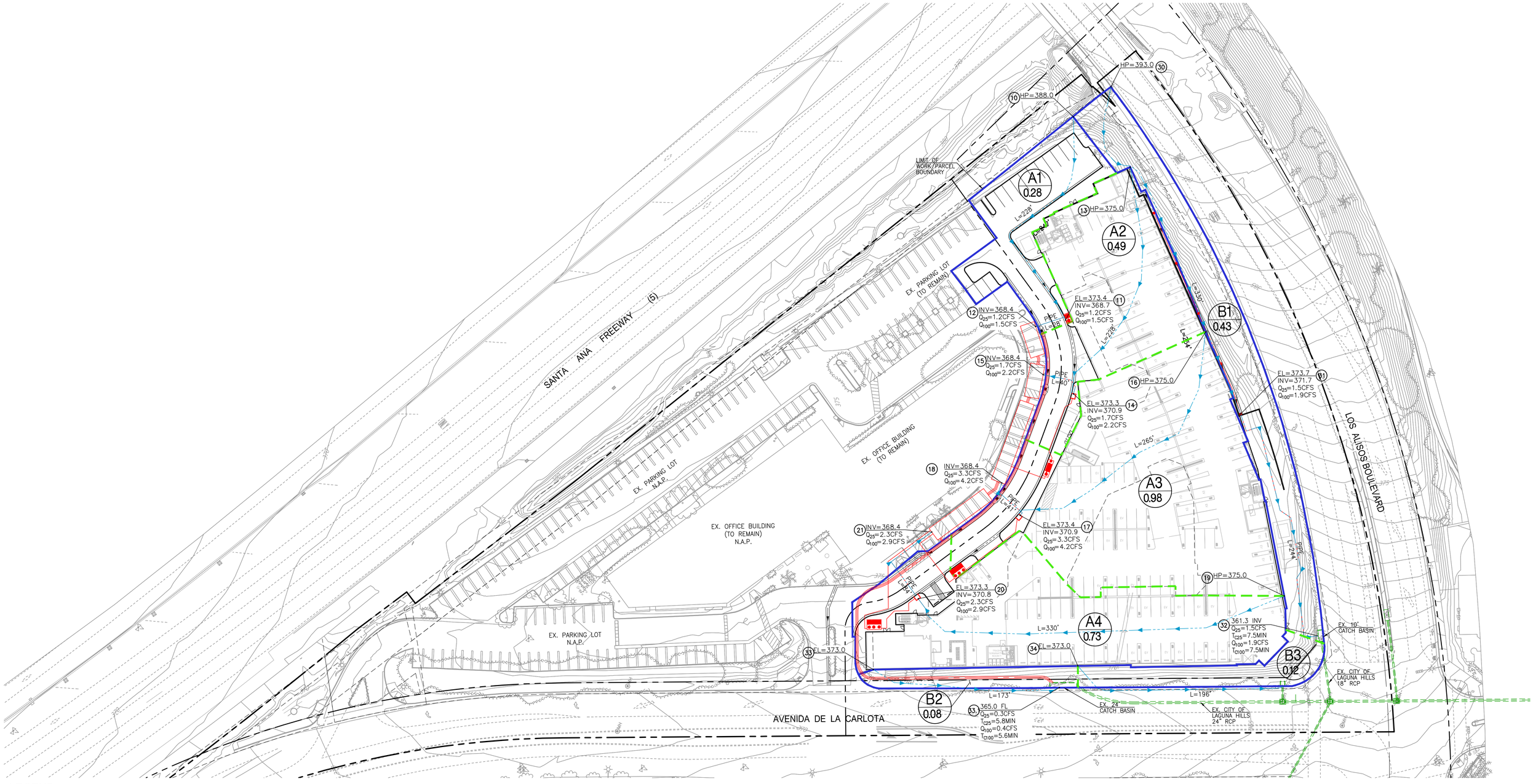
B2

```
  SUBAREA RUNOFF(CFS) =      0.41
  TOTAL AREA(ACRES) =      0.08   PEAK FLOW RATE(CFS) =      0.41

****************************************************************************
  FLOW PROCESS FROM NODE     34.00 TO NODE     35.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   196.00
  ELEVATION DATA: UPSTREAM(FEET) =    373.00  DOWNSTREAM(FEET) =    363.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.825
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.669
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "5-7 DWELLINGS/ACRE"       C        0.12      0.25     0.500    86    5.83
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      0.60
  TOTAL AREA(ACRES) =      0.12   PEAK FLOW RATE(CFS) =      0.60
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        0.1  TC(MIN.) =      5.83
  EFFECTIVE AREA(ACRES) =      0.12  AREA-AVERAGED Fm(INCH/HR)=  0.12
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.500
  PEAK FLOW RATE(CFS)   =       0.60
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

B3



LEGEND

- MAJOR DRAINAGE BOUNDARY
- MINOR DRAINAGE BOUNDARY
- FLOW PATH
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- XX / XX — DRAINAGE AREA DESIGNATION / ACRES
- (XX) HYDROLOGIC NODE

PROJECT SOIL TYPE – TYPE "C"

OAKBROOK PLAZA
PROPOSED HYDROLOGY MAP
LAGUNA HILLS, CA
FEBRUARY 2025

40' 0' 20' 40'
SCALE: 1" = 40'

FUSCOE ENGINEERING
FULL CIRCLE THINKING
15535 Sand Canyon Ave Suite 100 Irvine California 92618
949.474.1960
fuscoe.com