PRELIMINARY HYDROLOGY CALCULATIONS

FOR

PENTAIR
10951 LOS ANGELES AVENUE
MOORPARK, CALIFORNIA

PREPARED FOR

AMIR DEVELOPMENT CO.
ATTN: STEVEN JUHNKE
8730 WILSHIRE BLVD, SUITE 300
BEVERLY HILLS, CA 90211
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JANUARY 10, 2022
REVISED: MARCH 10, 2022
REVISED: MAY 24, 2022

JOB NO. 3885

PREPARED BY

THIENES ENGINEERING
14349 FIRESTONE BLVD.
LA MIRADA, CA 90638
PHONE (714) 521-4811
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PRELIMINARY HYDROLOGY CALCULATIONS

FOR

PENTAIR
10951 LOS ANGELES AVENUE

PREPARED BY RICKY HWA
UNDER THE SUPERVISION OF

05/24/2022

REINHARD STENZEL DATE:
R.C.E. 56155
EXP. 12/31/22

INTRODUCTION

A: PROJECT LOCATION

The project site is located at 10951 Los Angeles Avenue, west of Tierra Rejada Road, east of Grimes Canyon Road in the City of Moorpark, California. Please see next page for vicinity map.

B: STUDY PURPOSE

The purpose of this study is to determine the existing and proposed condition 100-year peak flow rates from the project site, which drains to Gabbert Canyon Channel along the site's southerly boundary.

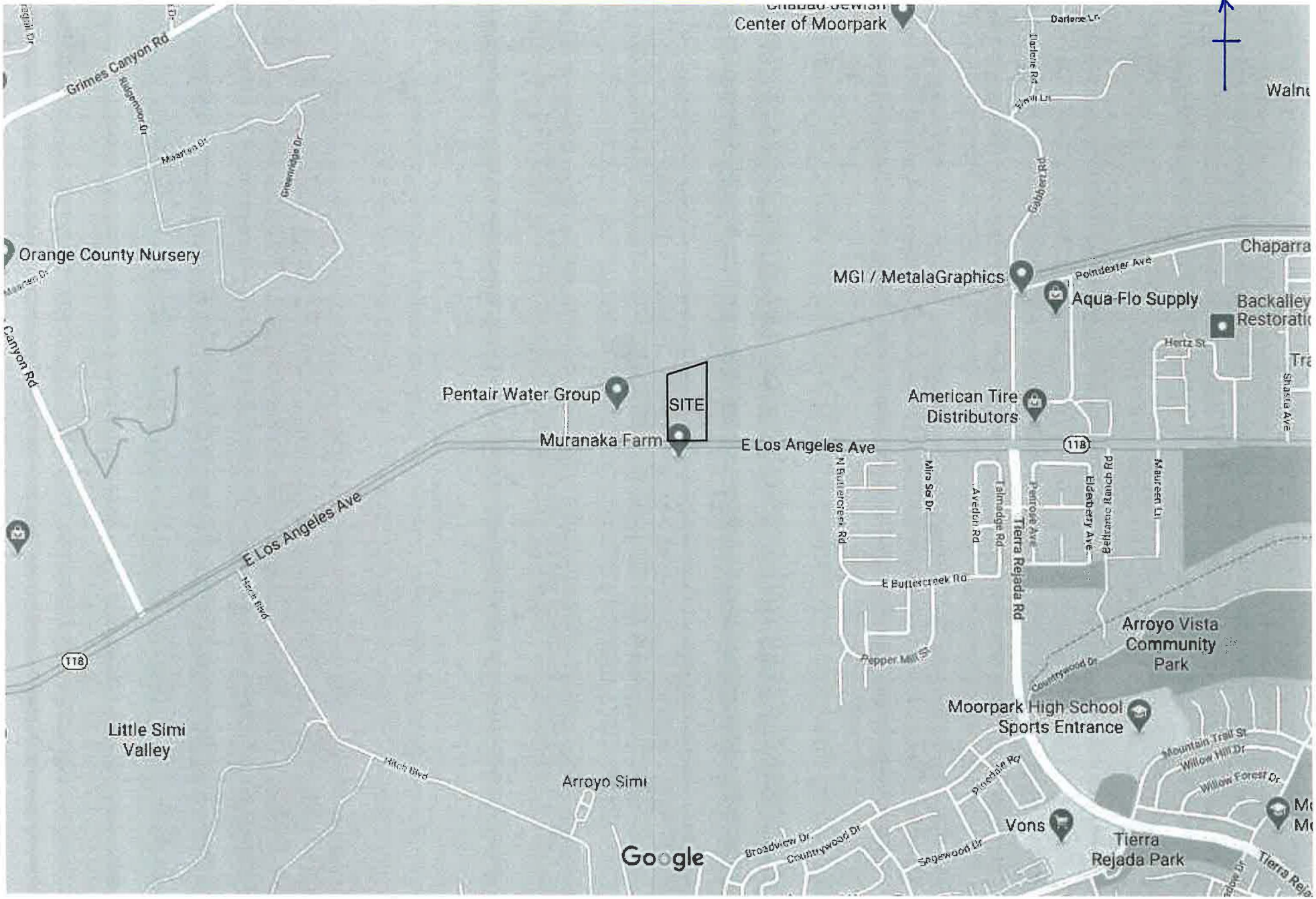
C: PROJECT STAFF:

Thienes Engineering staff involved in this study include:

Reinhard Stenzel
Ricky Hwa

Google Maps

VICINITY MAP



DISCUSSION

The project site encompasses approximately 5.65 acres. Proposed improvements consist of one commercial type building of 90,566 square feet. There will be a truck yard west of the building, vehicle parking on the north, east, and south sides, and landscape areas scattered throughout the site. The portion of the existing Gabbert Canyon Channel under the site's proposed entry driveway will be replaced with a reinforced concrete box culvert, while the remainder of the channel will remain unchanged.

Master Plan of Drainage

Per City of Moorpark Master Plan of Drainage, by Hawks & Associates dated April 1995, the project site is located between Node 518BC and Node 519B, tributary to the Gabbert Canyon Channel. Per as-built plans, the existing channel is deficient with a total capacity of 1,070 cfs at the project site frontage. This is in comparison to tributary flow rates of 3,245 cfs at Node 518 BC and 3,250 cfs at Node 519B per modified rational method hydrology data for the City's Master Plan of Drainage. The Gabbert & Walnut Canyon Channels Flood Control Deficiency Study, by PACE dated July 2005, indicated tributary flow rates of 2,944 cfs at Node 114AB upstream of the site and 2,945 cfs at Node 115A downstream of the site. Since the existing channel is deficient, proposed condition discharge from the site is restricted to 90 percent of existing condition runoff, per email from Ventura County Watershed Protection District.

Per Flood Insurance Rate Map Number 06111C0818E dated January 20, 2010, a majority of the project is located in "Zone X", or "areas determined to be outside the 0.2 percent annual chance floodplain". The south end of the site, adjacent to Gabbert Canyon Channel, is located in "Zone X Shaded", or areas of 0.2 percent annual chance flood; areas of 1 percent annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1 percent annual chance flood". The channel's flood elevation indicated on FIRM is interpolated to be 447.50 at the project site's westerly end frontage and 449.50 at the easterly end frontage. This is approximately equal to the top of channel elevation per as-built plan, or 447.20 at Station 41+98 (west end of site) and 449.30 at Station 45+47 (east end of site), adjusted up 2.5 feet to match 1988 datum.

Please see Appendix "A" for referenced County rainfall maps, as-built channel plan, drainage restriction email, and the City's Master Plan of Drainage.

Existing Condition

Under existing condition, the project site is an undeveloped dirt lot. It generally surface flows south-westerly to Gabbert Canyon Channel. The existing condition 100-year peak flow rate for the project site (Subarea 20A on existing condition hydrology map, 5.65

acres) is approximately 6.0 cfs. This results in an allowable proposed condition site discharge rate of 5.4 cfs, or 90 percent of 6.0 cfs.

An open dirt area immediately to the north of the project site (Subarea 21B, 0.40 acre) surface drains southerly to the site. The 100-year peak flow rate from this northerly offsite area is approximately 0.7 cfs.

A portion of the easterly neighboring dirt lot (Subarea 22C, 2.60 acres) surface drains south-westerly to the site. The 100-year peak flow rate from this easterly offsite area is approximately 2.9 cfs.

Finally, the existing northerly hillside slopes, north of the railroad tracks (Subareas 23D-25D, 26.30 acres), surface drain southerly and cross under the railroad via a 36-inch pipe, then discharge onto the project site. The 100-year peak flow rate from the northerly hillside area is approximately 19.3 cfs.

See Appendix "B" for existing condition hydrology calculations and Appendix "D" for existing condition hydrology map.

Proposed Condition

The proposed building, westerly truck yard and northerly parking lot (Subareas 1A-5A, 3.90 acres) drain to catch basins in the truck yard. Runoffs are then conveyed southerly via a proposed onsite storm drain that will connect to the existing Gabbert Canyon Channel. The proposed condition 100-year peak flow rate for these onsite areas is approximately 12.6 cfs.

The easterly and southerly parking lots (Subareas 6B-9B, 1.15 acres) drain southerly to a catch basin in the southerly parking lot. Runoffs from these parking lots are then conveyed westerly via a proposed lateral to the same proposed onsite storm drain system, then southerly to Gabbert Canyon Channel. The 100-year peak flow rate for these parking lots is approximately 2.6 cfs.

The south-westerly drive aisle, immediately north of the site's entry driveway (Subarea 10C, 0.25 acre) drain to a catch basin in the drive aisle. Runoffs from the drive aisle are then conveyed southerly via the same proposed onsite storm drain system to Gabbert Canyon Channel. The 100-year peak flow rate for the south-westerly drive aisle is approximately 0.8 cfs.

The site's southerly frontage landscape area (Subarea 11D, 0.30 acre) will surface drain southerly to Gabbert Canyon Channel under proposed condition. The 100-year peak flow rate for the frontage landscape area is approximately 0.6 cfs.

The total proposed condition 100-year peak flow rate from the project site tributary to Gabbert Canyon Channel is approximately 16.6 cfs over 5.60 acres. See detention section

below for proposed 100-year detention in truck yard, which will restrict overall site discharge to Gabbert Canyon Channel to less than 5.4 cfs, or 90 percent of existing condition site runoff.

The site's southerly entry driveway fronting Los Angeles Avenue (Subarea 12E, 0.05 acre) will surface drain southerly to Los Angeles Avenue under proposed condition.

Tributary offsite flows previously mentioned in the Existing Condition section will be conveyed via proposed storm drains through the project site to Gabbert Canyon Channel under proposed condition, utilizing the same proposed channel connection as the aforementioned onsite flows. Northerly offsite flows from Subarea 21B (Q100=0.7 cfs) and Subareas 23D-25D (Q100=19.3 cfs) will be intercepted by a proposed large grate inlet adjacent to the site's northerly property line (south of existing railroad right-of-way), then conveyed southerly via a proposed 30" storm drain traversing through the site to the proposed connection to Gabbert Canyon Channel. Easterly offsite flows from Subarea 20C (Q100=2.9 cfs) will be intercepted by a proposed C.M.P. riser adjacent to the site's easterly property line, then conveyed southerly via a proposed 18" storm drain traversing through the site to the same proposed connection to Gabbert Canyon Channel.

See Appendix "B" for proposed condition hydrology calculations and Appendix "D" for proposed condition hydrology map. Please note that the minimum tributary area input allowed by Ventura County's Modified Rational Method Hydrology Program (VCRat v2.6) is 5.00 acres. For a tributary area less than 5 acres, calculations were performed at 5 acres, then Q100 was prorated down to the smaller tributary area. Also, the shortest time of concentration input allowed by VCRat is 6 minutes, and the longest Tc allowed is 30 minutes. For a tributary area with a Tc less than 6 minutes or more than 30 minutes, the Tc was increased to 6 minutes or reduced to 30 minutes as necessary.

Detention

Per Ventura County Watershed Protection District requirements, proposed condition discharge from the project site to Gabbert Canyon Channel is limited to 90 percent of existing condition site runoff (6.0 cfs x 0.90 = 5.4 cfs).

Proposed condition runoffs tributary to the westerly truck yard (Subareas 1A-5A, 3.90 acres, Q100=12.6 cfs) will be temporarily detained above the truck yard surface at a depth of 1.14 feet, with a volume of 15,970 cubic feet, with 1.2 cfs discharging via the proposed onsite storm drain to Gabbert Canyon Channel. Proposed condition runoffs from the remainder of the project site – 2.6 cfs from Subareas 6B-9B, 0.8 cfs from Subarea 10C, 0.6 cfs from Subarea 11D – will be allowed to discharge undetained. With truck yard detention, the proposed condition 100-year discharge from the project site to Gabbert Canyon Channel will be approximately 5.2 cfs, less than the allowable 5.4 cfs.

With adequate storage volume provided in the truck yard, proposed site improvements will not negatively impact any downstream drainage facilities. The proposed onsite storm

drain system will be appropriately sized during the site's final design phase to restrict proposed condition discharge to the rate described above.

Please note that the proposed Stormtech SC-740 underground chambers within the truck yard are only for B.M.P. treatment purposes, not for 100-year storm detention. Stormtech chambers will be completely filled with the required B.M.P. treatment volume prior to the higher storm's arrival. Proposed storm detention will occur above ground, above the truck yard surface.

See Appendix "C" for detention calculations.

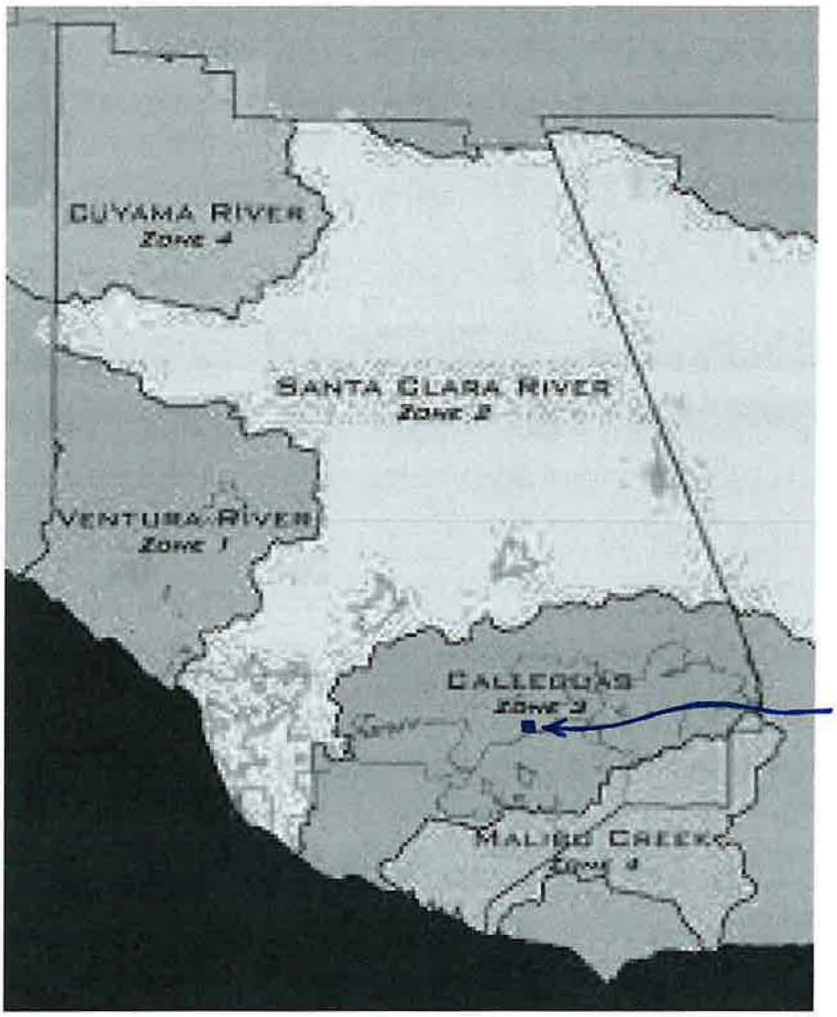
Methodology

Hydrology and detention calculations are computed using the Ventura County Watershed Protection District's Modified Rational Method Hydrology program (VCRat v2.6). Times of concentration are computed with the District's TC program (version 2.6.2009.7). The project site is in flood zone 3, rainfall zone J', with soil type 6 per the Ventura County Hydrology Manual. See Appendix "A" for pertinent reference materials.

APPENDIX	DESCRIPTION
A	REFERENCE MATERIALS
B	HYDROLOGY CALCULATIONS
C	DETENTION ANALYSIS
D	HYDROLOGY MAP

APPENDIX A

REFERENCE MATERIALS



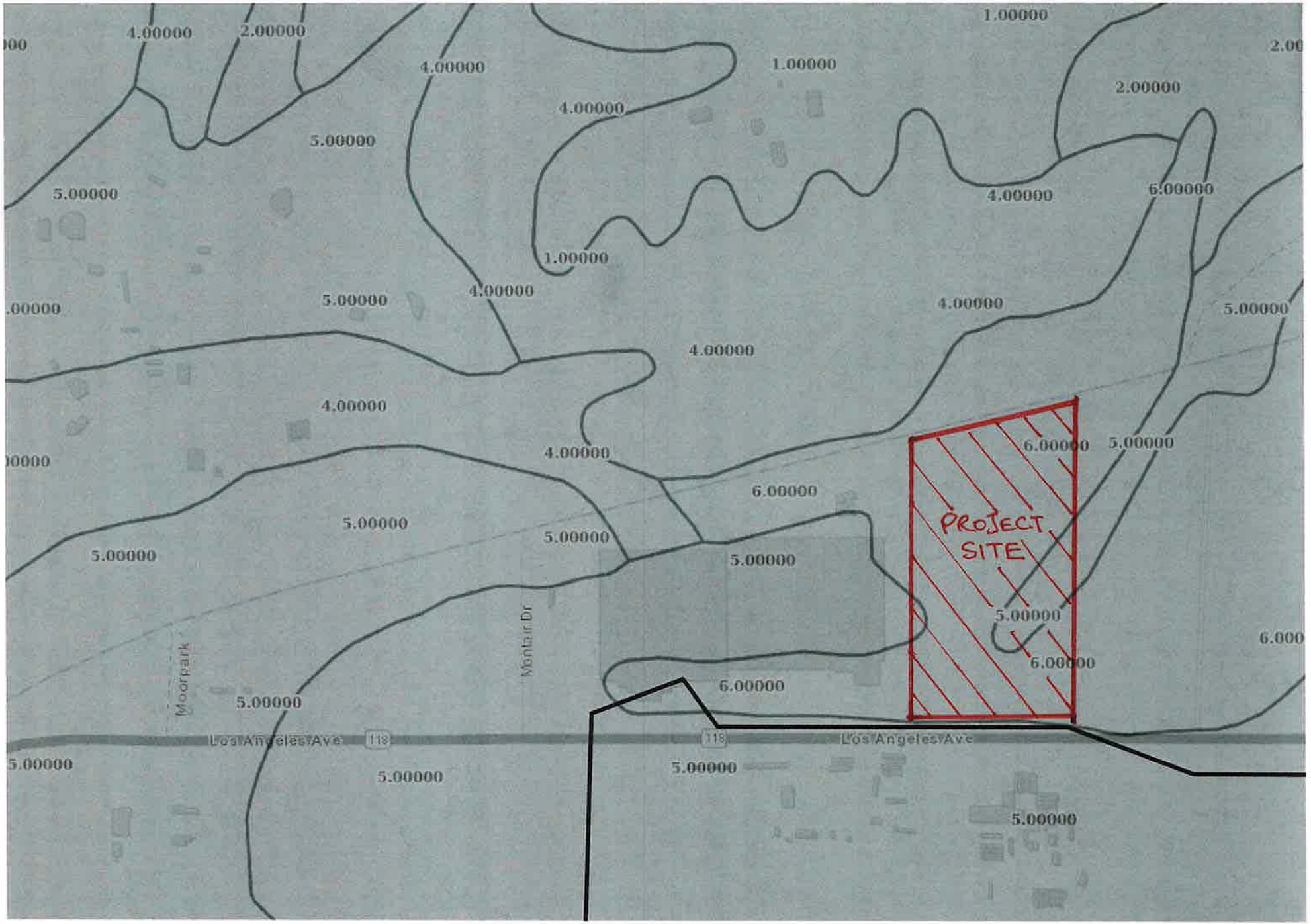
FLOOD ZONE MAP

EXHIBIT 1A. LEGACY DESIGN STORM RAINFALL CONTOURS- 100-YR STORM

RAINFALL ZONE J'

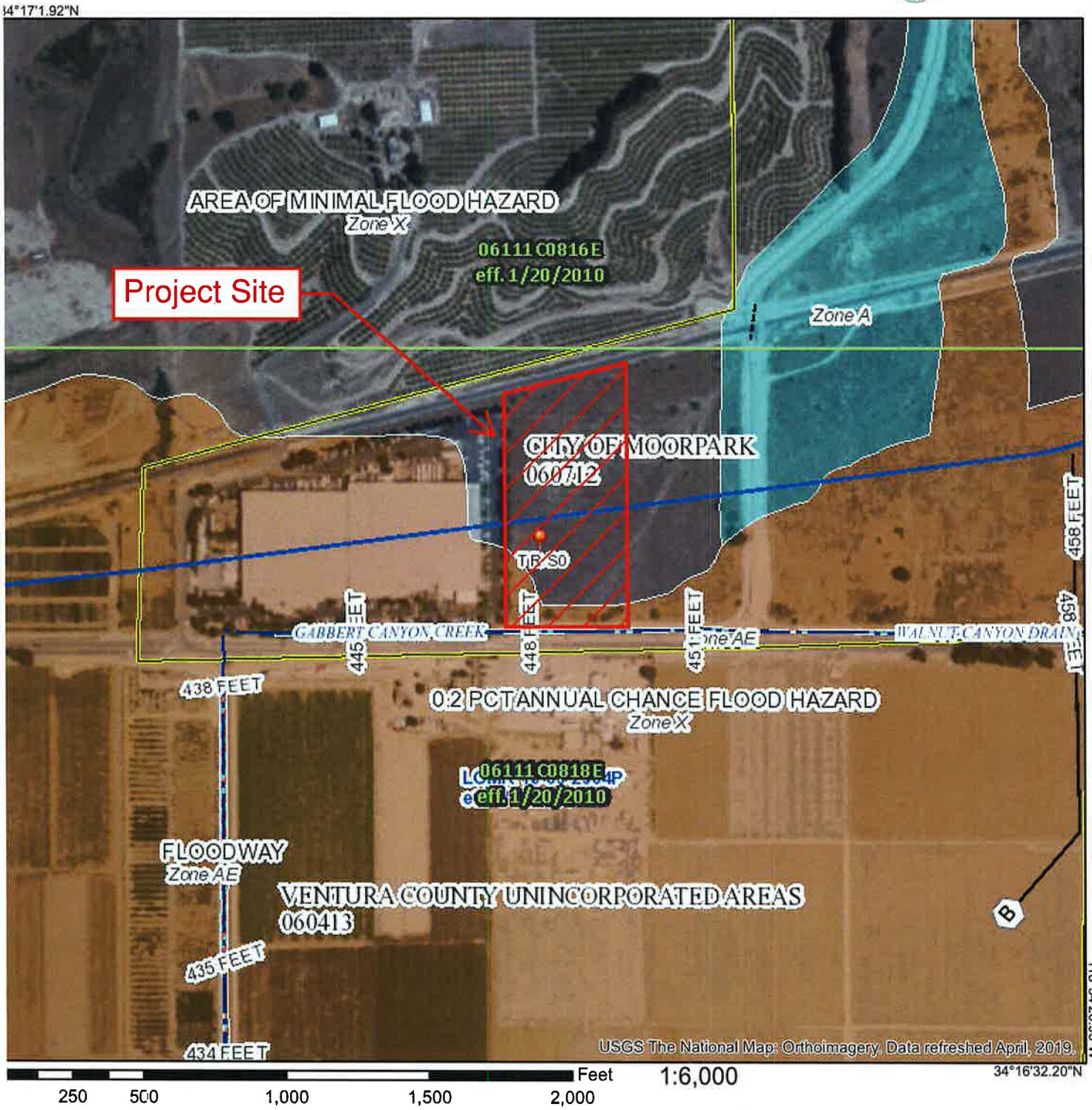
RAINFALL ZONE MAP

SOIL TYPE MAP



National Flood Hazard Layer FIRMette

FEMA



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, Ar of 1% annual chance flood with avera depth less than one foot or with draina areas of less than one square mile *Zon*
- 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*

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

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

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chanc / Water Surface Elevation
- Coastal Transect
- 513 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 approxima point selected by the user and does not repre 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 5/4/2020 at 6:44:11 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.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1994 or later.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to confirm to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~ 513 ~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

(A)———(A)	Cross section line
(23)- - - - -(23)	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
76000mN	1000-meter Universal Transverse Mercator grid values, zone 11
600000 FT	5000-foot grid ticks: California State Plane coordinate system, zone V (FIPSZONE 0405), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
January 20, 2010

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP — NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0818E

FIRM
FLOOD INSURANCE RATE MAP

VENTURA COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 818 OF 1275
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MOORPARK, CITY OF	060712	0818	E
VENTURA COUNTY	060413	0818	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06111C0818E

EFFECTIVE DATE
JANUARY 20, 2010

Federal Emergency Management Agency

INDEX OF DRAWINGS

SHEET NO.	TITLE
1	PROJECT LOCATION MAP
2	PLAN, PROFILE & SECTIONS – STA. 0+00 TO STA. 8+00
3	PLAN, PROFILE & SECTIONS – STA. 8+00 TO STA. 18+00
4	PLAN, PROFILE & SECTION – STA. 18+00 TO STA. 28+00
5	PLAN, PROFILE & SECTIONS – STA. 28+00 TO STA. 36+00
6	PLAN, PROFILE & SECTIONS – STA. 36+00 TO STA. 46+00
7	PLAN, PROFILE & SECTIONS – STA. 46+00 TO STA. 50+00
8	PLAN, PROFILE & SECTIONS – STA. 50+00 TO END OF PROJECT
9	TRANSITIONS 1 & 2 – STA. 2+89.42 & STA. 32+61.06
10	TRANSITIONS 4 & 5. – STA. 50+20 & STA. 56+11.21
11	JUNCTION STRUCTURE – STA. 46+66.61
12	INLET STRUCTURE TO WALNUT CHANNEL & CHANNEL SECTIONS
13	CHANNEL SECTIONS ADJACENT TO BOX CULVERT – TRANSITION NO. 3
14	STILLING BASIN – STA. 2+35 – STRUCTURAL DETAILS.
15	STILLING BASIN – STEEL DETAILS
16	PIPE INLET STRUCTURES – LAYOUT & LOCATIONS
17	ACCESS ROAD BRIDGES – STRUCTURAL DETAILS
18	DETOUR & RESURFACING DETAILS – HIGHWAY 118
19	DOUBLE BOX CULVERT AT HIWAY CROSSING

FOR GENERAL NOTES AND STRUCTURAL NOTES SEE SHEET NO. 16.

LEGEND

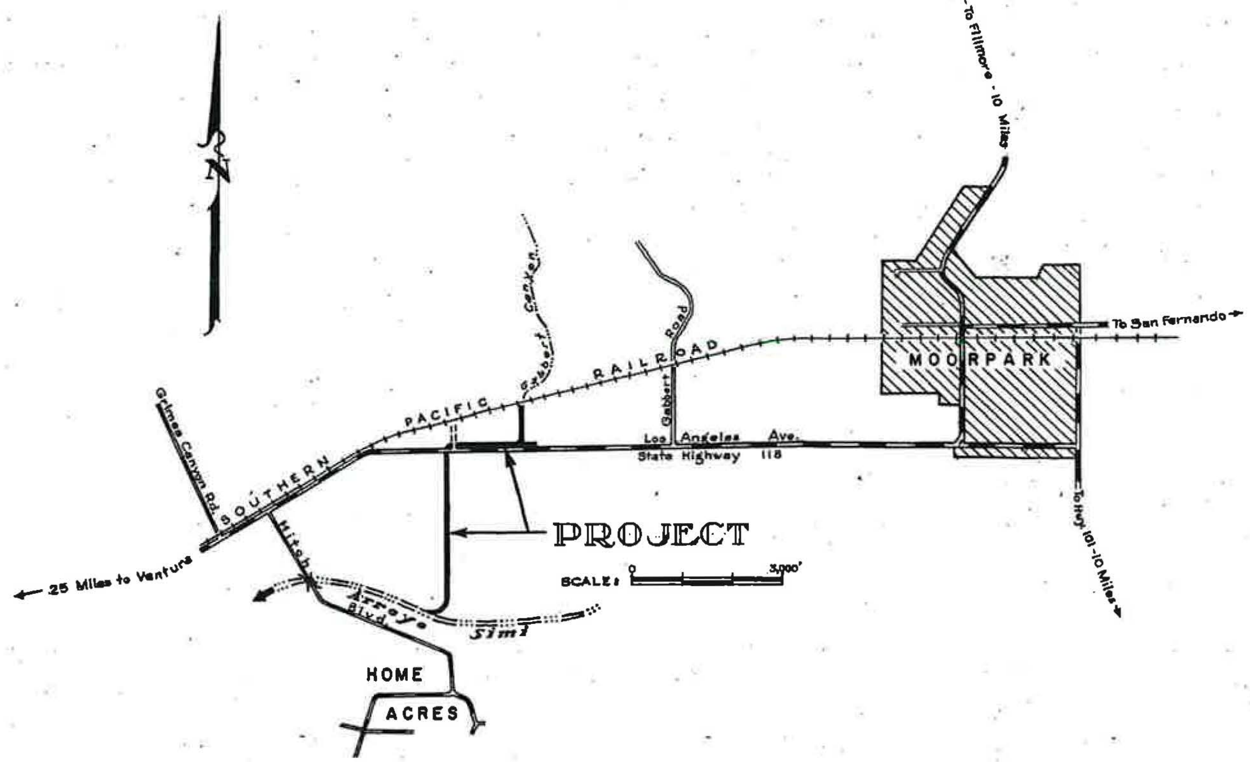
P/L = PROPERTY LINE
R/W = PROPERTY LINE OF CHANNEL OR HIWAY RIGHT-OF-WAY
S.P. OR S.P.R.R. = SOUTHERN PACIFIC RAILROAD OR SOUTHERN PACIFIC COMPANY
P.P. = POWER POLE
H.P. = HIGH PRESSURE
M = METER
C.F. = CURB FACE
F.S. = FINISHED SURFACED
U.B. = UNTREATED BASE
P.M.S. = PLANT MIXED SURFACING
T.C. = TOP OF CURB
T.P. = TELEPHONE POLE
CL. = CLEAR DISTANCE

HYDRAULIC ELEMENTS

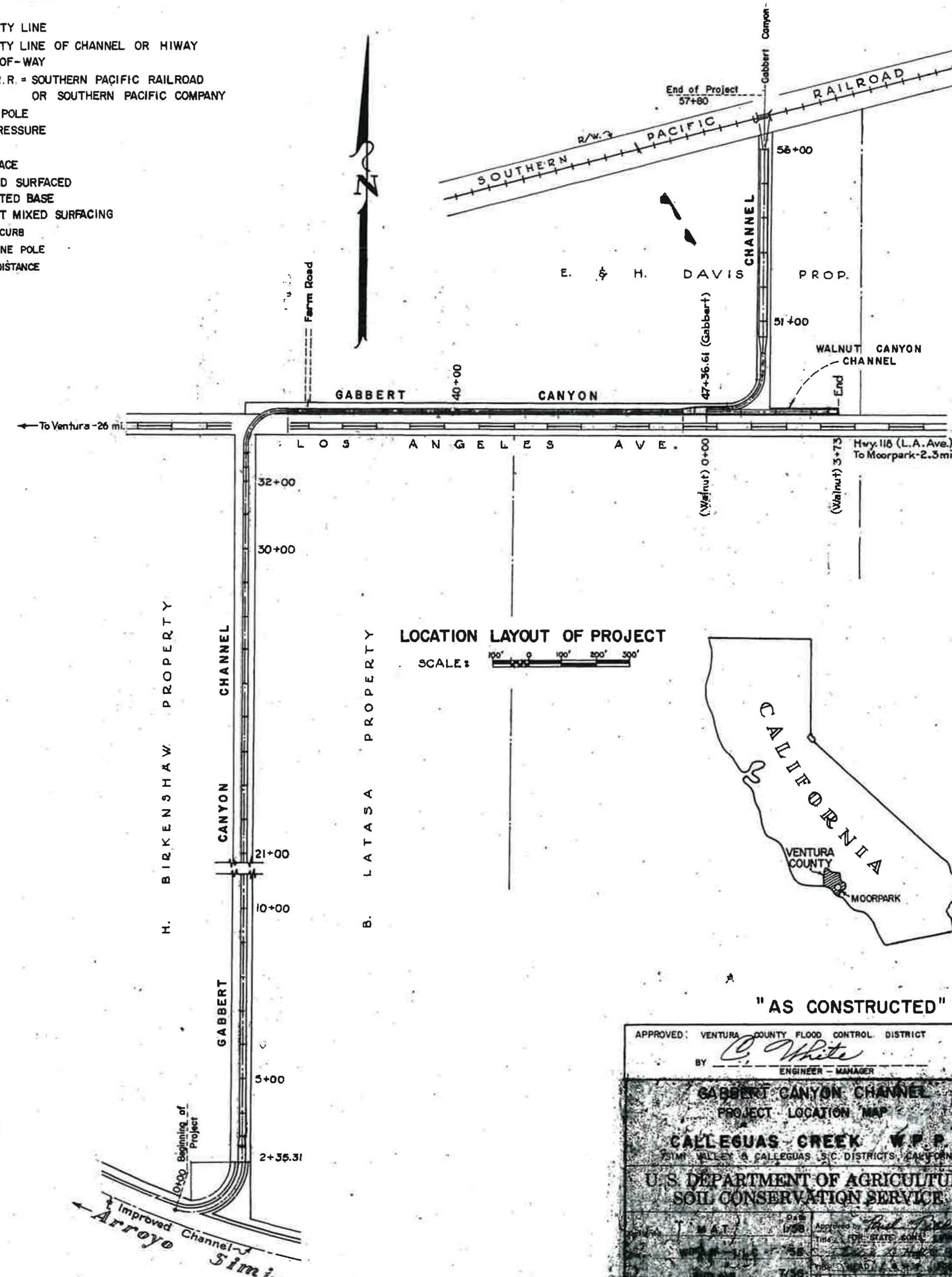
STATION	d_c ft.	d_n ft.	b.w. ft.	S.S.	n	S ft./ft.	V_n ft./sec.	Q c.f.s.
GABBERT CANYON SECTION								
0+00 TO 2+35	4.30	5.10	16	2:1	0.030	0.005	8.01	1070
3+14 TO 32+61	5.66	5.18	14	VERT.	0.014	0.0045	14.76	1070
35+17 TO 46+66	5.66	4.67	14	VERT.	0.014	0.006	16.37	1070
47+77 TO 50+20	6.00	4.15	8	VERT.	0.014	0.014	20.18	670
50+70 TO 56+11	4.50	2.73	8	1 1/2:1	0.015	0.0185	20.29	670
WALNUT CANYON SECTION								
0+40 TO 3+43	4.22	3.75	12	VERT.	0.014	0.005	13.11	590

PROJECT SITE FROM 41+98 TO 45+47

NOTE: THESE ELEMENTS ARE CALCULATED AS FOR UNIFORM FLOW AT SLOPES INDICATED. FOR CALCULATED ACTUAL WATER SURFACE SEE PROFILES ON SHEETS NO. 2 THROUGH 8.



LOCATION MAP



"AS CONSTRUCTED"

APPROVED: VENTURA COUNTY FLOOD CONTROL DISTRICT

BY C. White
ENGINEER – MANAGER

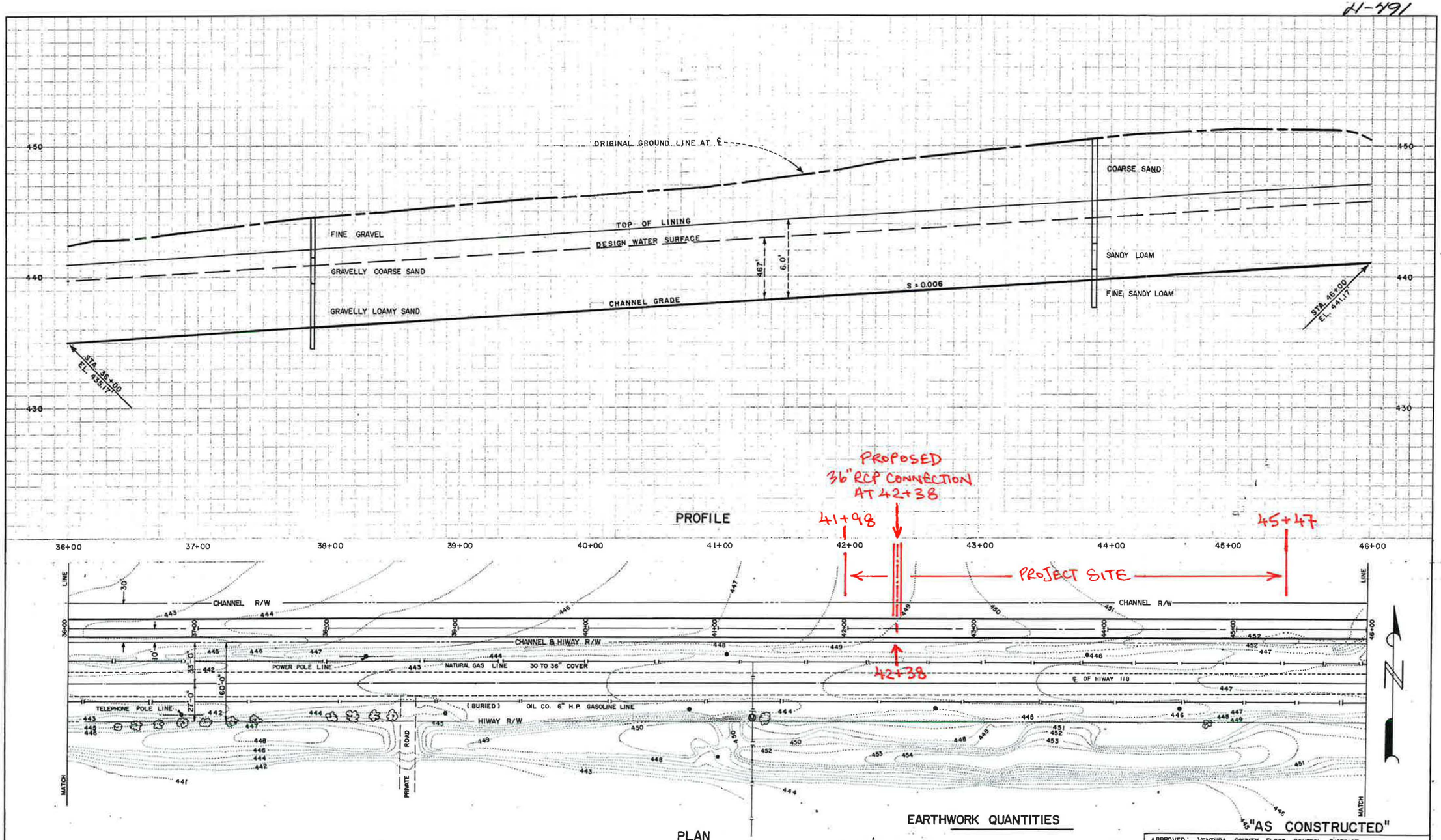
GABBERT CANYON CHANNEL
PROJECT LOCATION MAP

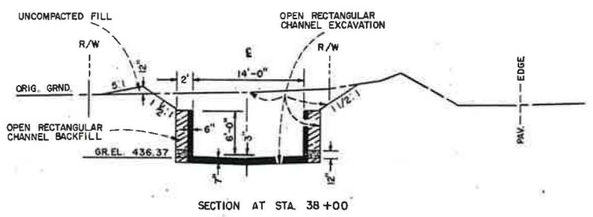
CALLEGUAS CREEK W.P.P.
SIMI VALLEY & CALLEGUAS S.C. DISTRICTS, CALIFORNIA

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

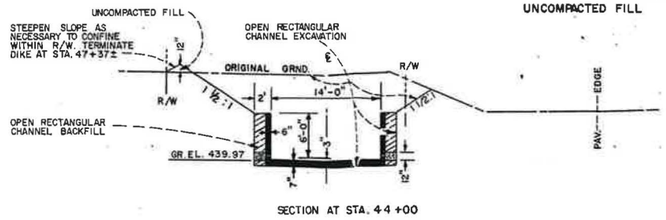
Designed	M.A.T.	Date 1/58	Approved by Paul [illegible]
	[illegible]	'58	Title FOR STATE CONS. [illegible]
	[illegible]	7/56	Title HEAD [illegible]
Checked	[illegible]	1/58	Sheet 1 Drawing No. [illegible]

41-491





SECTION AT STA. 38+00



SECTION AT STA. 44+00

EARTHWORK QUANTITIES

OPEN RECTANGULAR CHANNEL EXCAVATION	7,342 CU. YDS.
OPEN RECTANGULAR CHANNEL BACKFILL	593 CU. YDS.
UNCOMPACTED FILL	113 CU. YDS.

"AS CONSTRUCTED"

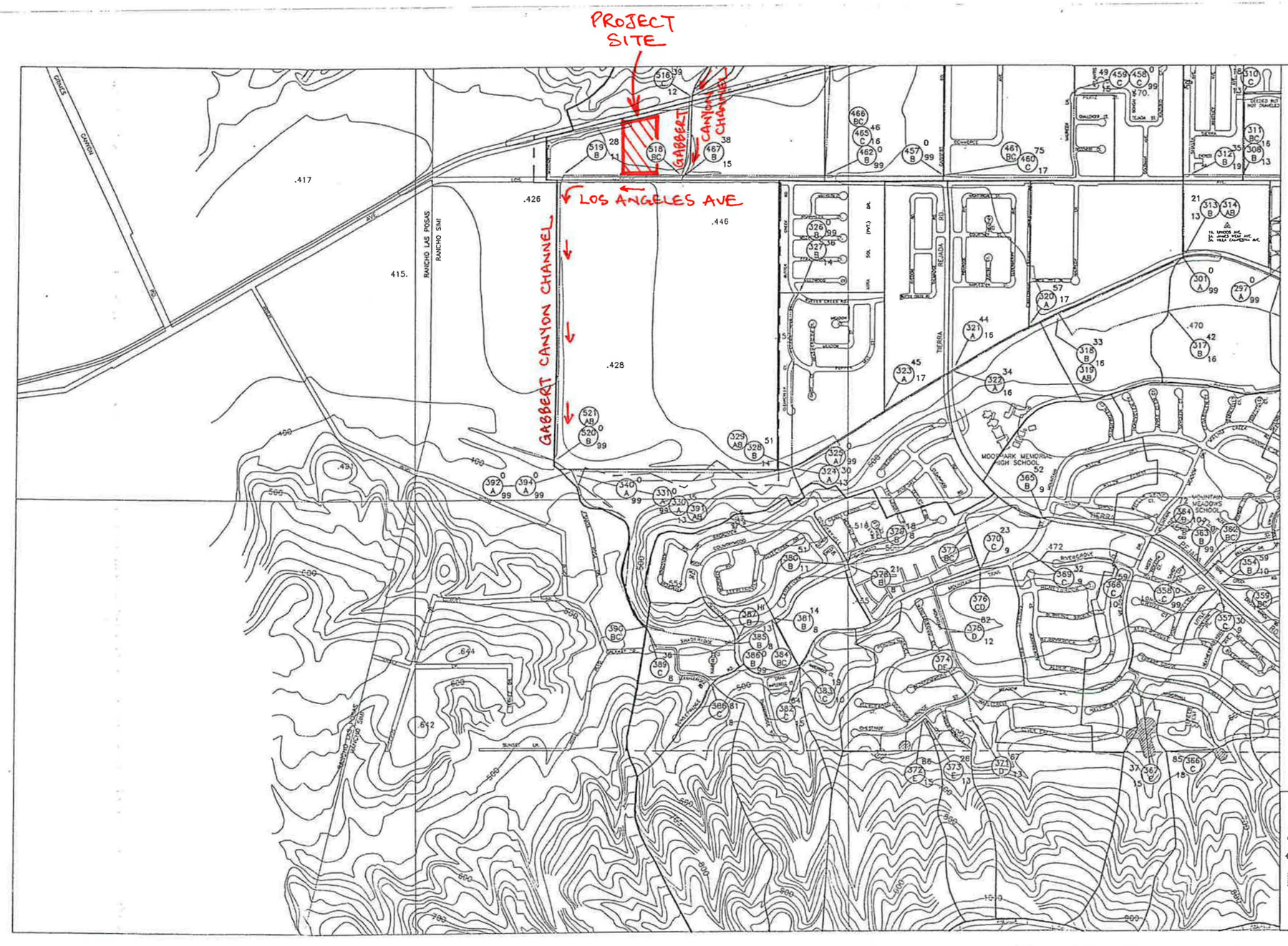
APPROVED: VENTURA COUNTY FLOOD CONTROL DISTRICT

BY C. White
ENGINEER - MANAGER

GABBERT CANYON CHANNEL
PLAN, PROFILE & SECTIONS
STA. 36+00 TO STA. 46+00
CALLEGUAS CREEK W.P.P.
SIMI VALLEY & CALLEGUAS S.C. DISTRICTS, CALIFORNIA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

		Date	
Designed	MAT	3/58	Approved by Paul Vickers
Drawn	LLC	4/58	Title for STATE CONSERVATION ENGINEER
Traced	LLC	6/58	Title HEAD, E&W.P. UNIT
Checked	CFB MM	1/59	Sheet No. 6 Drawing No. 7-E-15514



HYDROLOGY MAP
CITY OF MOORPARK
MASTER PLAN OF DRAINAGE

HAWKS & ASSOCIATES, VENTURA

APRIL 1995 PLATE H-4

VENTURA COUNTY FLOOD CONTROL DISTRICT
MODIFIED RATIONAL METHOD HYDROLOGY

CITY OF MOORPARK 95MPD Q50 HAWKS/MR 3/29/95 mpkfinal.i50 STORM DAY 4

LOCATION	SUBAREA AREA	SUBAREA Q	TOTAL AREA	TOTAL Q	CONV TYPE	CONV LNGTH	CONV SLOPE	CONV SIZE	CONV Z	CONTROL Q	SOIL NAME	TC	RAIN ZONE	PCT IMPV
7414 500C	86.	184.	86.	184.	2	1950.	0.02600	0.00	0.00	0.	20	15	K50	0.05
7414 501C	88.	181.	174.	335.	0	0.	0.00000	0.00	0.00	0.	20	16	K50	0.05
7414 502D	0.	0.	0.	199.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 503D	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 504D	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 505D	80.	154.	80.	154.	3	1000.	0.03200	0.00	0.00	0.	30	16	K50	0.05
7414 506D	62.	83.	142.	225.	4	1400.	0.02300	4.00	0.00	0.	60	16	K50	0.05
7414 507D	52.	72.	194.	286.	4	2000.	0.02400	4.50	0.00	0.	60	15	K50	0.05
7414 508D	51.	74.	245.	341.	0	0.	0.00000	0.00	0.00	0.	60	14	K50	0.05
7414 509CD	245.	341.	419.	671.	1	2000.	0.02100	0.00	0.00	0.	10	0	K50	0.00
7414 510C	44.	86.	463.	662.	0	0.	0.00000	0.00	0.00	0.	40	14	K50	0.05
7414 511C	65.	158.	528.	769.	1	1950.	0.02870	0.00	0.00	0.	10	14	K50	0.05
7414 512C	86.	148.	614.	760.	1	1600.	0.02130	0.00	0.00	0.	50	15	K50	0.05
7414 513C	71.	152.	685.	750.	2	1250.	0.02400	0.00	0.00	0.	20	15	K50	0.05
7414 514C	26.	31.	711.	747.	1	2100.	0.01800	0.00	0.00	0.	70	10	K50	0.00
7414 515C	34.	85.	745.	728.	0	0.	0.00000	0.00	0.00	0.	20	11	K50	0.00
7414 516C	39.	101.	784.	740.	0	0.	0.00000	0.00	0.00	0.	10	12	K50	0.00
7414 517C	60.	42.	844.	740.	5	900.	0.01850	9.00	0.00	0.	70	16	K50	0.00
7414 518BC	844.	739.	2678.	3245.	5	1450.	0.00500	18.00	0.00	0.	10	0	K50	0.00
7414 519B	28.	75.	2706.	3250.	5	3300.	0.00900	17.00	0.00	0.	40	11	K50	0.70
7414 520B	0.	0.	2706.	3217.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 521AB	2706.	3217.	9253.	9927.	0	0.	0.00000	0.00	0.00	0.	10	0	K50	0.00
7414 522B	0.	0.	0.	3217.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 523B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 524B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 525B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 526B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 527B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 528B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 529B	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 530B	38.	77.	38.	77.	3	750.	0.02670	0.00	0.00	0.	40	13	K50	0.03
7414 531B	70.	155.	108.	219.	4	1700.	0.02350	4.00	0.00	0.	20	14	K50	0.02
7414 532B	34.	70.	142.	276.	4	1200.	0.03330	4.00	0.00	0.	50	11	K50	0.02
7414 533B	71.	158.	213.	415.	4	1050.	0.02380	5.00	0.00	0.	20	14	K50	0.02
7414 534B	62.	132.	275.	530.	4	1400.	0.02360	5.50	0.00	0.	20	15	K50	0.01
7414 535B	35.	88.	310.	594.	0	0.	0.00000	0.00	0.00	0.	20	11	K50	0.03
7414 536C	0.	0.	0.	739.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 537C	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 538C	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 539C	0.	0.	0.	0.	0	0.	0.00000	0.00	0.00	0.	10	99	K50	0.00
7414 540C	41.	99.	41.	99.	3	1200.	0.04170	0.00	0.00	0.	20	12	K50	0.05
7414 541C	30.	76.	71.	160.	0	0.	0.00000	0.00	0.00	0.	20	11	K50	0.05
7414 542D	40.	96.	40.	96.	0	0.	0.00000	0.00	0.00	0.	20	12	K50	0.05
7414 543E	29.	79.	29.	79.	0	0.	0.00000	0.00	0.00	0.	10	11	K50	0.05

PROJECT SITE BETWEEN NODES 518BC AND 519B

Technical Addendum

Gabbert & Walnut Canyon Channels Flood Control Deficiency Study - Addendum

July 2005

Revised:
August 2005

Prepared for:

Triliad Development Company
270 Conejo Ridge, Suite 200
Thousand Oaks, CA 91361

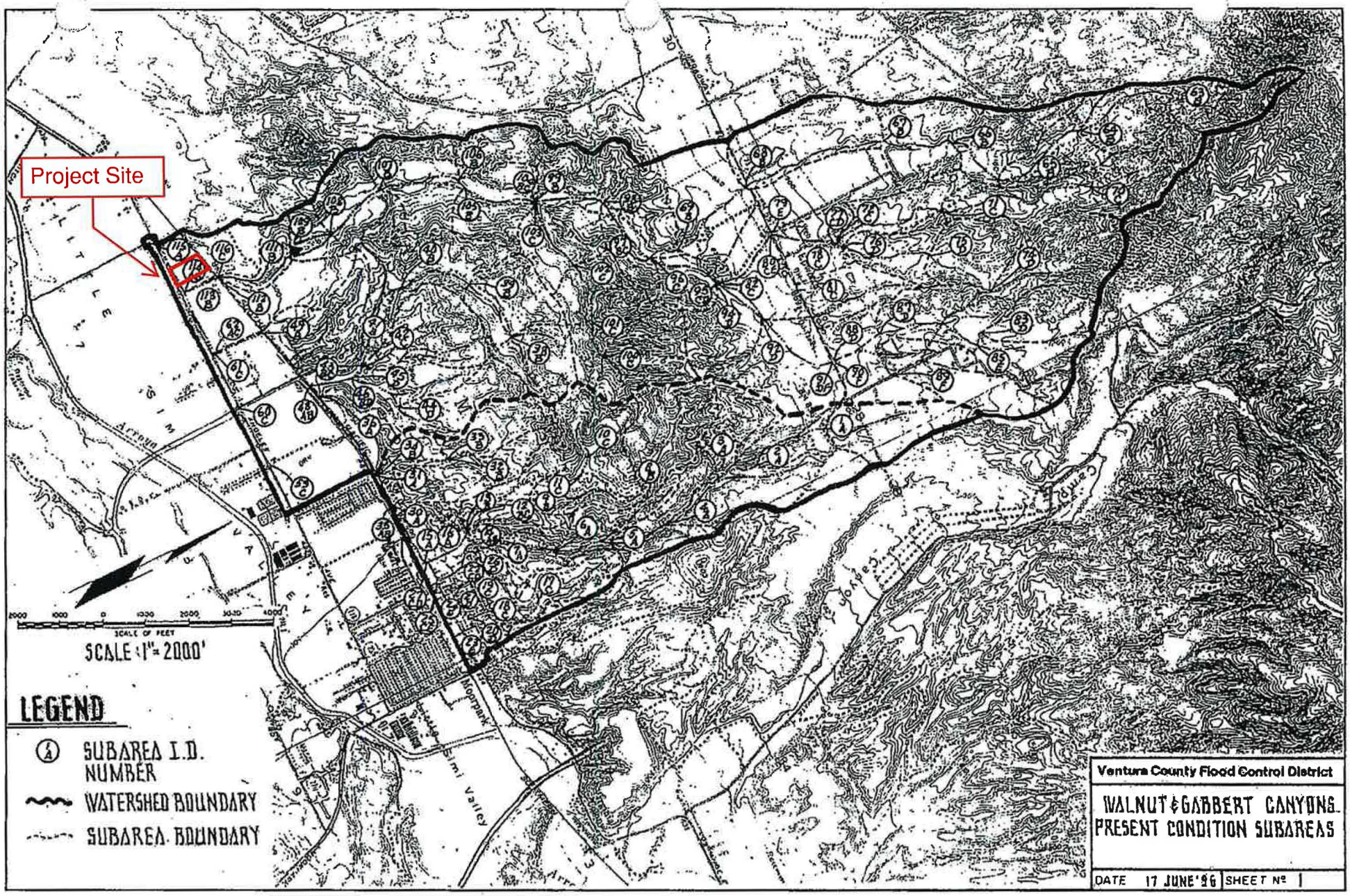
Prepared by:

Pacific Advanced Civil Engineering, Inc. (PACE)
17520 Newhope Street, Suite 200
Fountain Valley, CA 92708

Contact:

Bruce M. Phillips, RCE 38635
Jonis C. Smith, RCE 58654

PACE JN #7753E



Regional Watershed Exhibit

Gabbert and Walnut Canyon Channels

Application of the Ventura County Modified Rational watershed model for the current landuse (baseline watershed) conditions was evaluated for both the 50-year and 100-year return periods. The hydrograph peak discharges associated with critical concentration points along the channel system are indicated in *Table No. 4 - Summary of Existing Watershed Hydrology - Clearwater Design Flowrates*. The detailed input and output for the watershed models are contained in the *Technical Appendix*. All discharges generated from the VCFCD baseline watershed model reflect clearwater values. Runoff conveying debris and sediment has an increased total volume which tends to increase or "bulk" the apparent clearwater flowrate. However, it is assumed that the potential for debris production will be reduced through future development and debris collection facilities and no "bulking factor" was applied to the discharges.

PROJECT SITE BETWEEN NODES 114AB AND 115A

Table No. 4. 3- Summary of Existing Watershed Hydrology
Clearwater Design Flowrates

Channel	Watershed Model Node	Drainage Area (acres)	Design Clearwater Flow		Channel Reach Description
			Q_{50}	Q_{100}	
Gabbert	109B	2,433	1,732 cfs	**2,185 cfs**	Gabbert Debris Basin spillway
Gabbert	114AB	4,365	2,275 cfs	**2,944 cfs**	Downstream of Walnut Canyon confluence
Gabbert	115A	4,388	2,276 cfs	**2,945 cfs**	Los Angeles Avenue Culvert crossing
Gabbert	118AC	4,425	2,279 cfs	**2,947 cfs**	Outlet to the Arroyo Simi
Walnut	6A	382	283 cfs	**382 cfs**	Existing improved channel headworks next to Walnut Canyon Road
Walnut	7A	433	292 cfs	**431 cfs**	Upstream Casey Road culvert
Walnut	14AB	709	469 cfs	**696 cfs**	Confluence at Casey Road culvert with small offsite canyon area
Walnut	28AC	846	603 cfs	**889 cfs**	Downstream of confluence at High Street Drain with Moorpark Drain No. 1
Walnut	35AB	1,044	797 cfs	**1,149 cfs**	Downstream of confluence at Poindexter culvert crossing
Walnut	48AB	1,553	1,123 cfs	**1,619 cfs**	Downstream of confluence at Gabbert Canyon Road
Walnut	49A	1,623	1,176 cfs	**1,688 cfs**	Southern Pacific Railroad culvert crossing
Walnut	62AC	1,794	1,258 cfs	**1,810 cfs**	Downstream of confluence with 54" dia. Los Angeles Avenue city storm drain

Angie Maldonado

From: Bandurraga, Mark <Mark.Bandurraga@ventura.org>
Sent: Tuesday, May 5, 2020 3:28 PM
To: Angie Maldonado
Cc: Marotto, Ron; PWA HydroData; Sheppard, Tony
Subject: Request for Gabbert Channel Hydrology
Attachments: GabbertProjectMap.jpg; Gabbert-WalnutCynChnls-FloodCtrlDeficStudy-2005.pdf

Angie:
I don't know if you know the history behind all of the studies in the area. You can confirm this with the City, but I believe they have an old MDP that probably is not current for this area.
In 1997 RBF did a Regional Study of the Walnut Gabbert channel and selected some alternatives to fix the deficiencies in the channel.
We have a hydrology study from 2003 that provides hydrology but it is not suitable for design because it has not been updated to reflect current conditions.
In 2005 the 1997 study author had moved to PACE and updated the study based on projects that had been constructed since 1997 and some that were proposed at that time. It selected different alternatives to fix the deficiencies.
Recently a developer did an extensive drainage study for the Hitch Ranch development upstream. We reviewed this study as part of our process but I will have to check to see if it is public info that we can give to you. You could also request it through the City if you are in contact with them.
I am attaching the 2005 study because it gives you some excellent background on the area and the suggested alternatives.
When we do CEQA reviews on Walnut Gabbert projects, one of the conditions we apply to projects is that the proposed condition runoff can only be 90% of the undeveloped condition runoff per the 2005 report that was adopted by the City.

Let me know if need additional info or clarification on any of this.

Our normal data request email is hydrodata@ventura.org if you want to use it in the future.

Mark Bandurraga
Engineer IV (Design Hydrology)
Watershed Protection District

PUBLIC WORKS VENTURA COUNTY
800 S. Victoria Ave. / #1600
Ventura, CA 93009
P: 805.654. 2015

****
NEW on District Webpages:
2017 Hydrology Manual and VCRat2.64 Program
Tc Calculator Using Excel
VCRat Calcs for 1 Subarea + Routing Using Excel
****

APPENDIX B

HYDROLOGY CALCULATIONS

EXISTING CONDITION

VENTURA COUNTY WATERSHED PROTECTION DISTRICT
TIME OF CONCENTRATION
TC Program Version: 2.6.2009.7
Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

S U M M A R Y O F C O M P U T A T I O N S

Watershed Name: Existing 100-Year

Name	Zone	Storm	Soil	Area (acres)	TC (min)
SubArea 20A	J'	100	6.00	5.7 / 6	17.254 / 17
SubArea 21B	J'	100	6.00	0.4 / 0	6.559 / 7
SubArea 22C	J'	100	6.00	2.6 / 3	16.243 / 16
SubArea 23D	J'	100	6.00	26.3 / 26	TC ERROR

♠

Watershed Name: Existing 100-Year

Sub-Area Name: SubArea 20A
Tc: 17.254 Minutes
DATA FOR SUB AREA 1

SUB AREA TIME OF CONCENTRATION: 17.254 min. = 17 min.

SUB AREA INPUT DATA

Sub Area Name: SubArea 20A
Total Area (ac): 5.65
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Undeveloped
Soil Type: 6.00
Percent Impervious: 0
SUB AREA OUTPUT

Intensity (in/hr): 2.224
C Total: 0.475
Sum Q Segments (cfs): 5.97
Q Total (cfs): 5.97
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 1,035.25
Time of Concentration (min): 17.254

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 20A
FLOW PATH TRAVEL TIME (min): 17.2542
Flow Type: Overland
Length (ft): 840
Top Elevation (ft): 457.5
Bottom Elevation (ft): 444.5
Contributing Area (acres): 5.65
Percent of Sub-Area (%): 100.0
Overland Type: Valley
Development Type: Undeveloped
Map Slope: 0.0155
Effective Slope: 0.0155
Q for Flow Path (cfs): 5.97
Avg Velocity (ft/s): 0.81
Passed Scour Check: YES
Scour Velocity (ft/sec): 0.87

♠

Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

Sub-Area Name: SubArea 21B
Tc: 6.559 Minutes

DATA FOR SUB AREA 2

SUB AREA TIME OF CONCENTRATION: 6.559 min. = 7 min.

SUB AREA INPUT DATA

Sub Area Name: SubArea 21B
Total Area (ac): 0.4
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Undeveloped
Soil Type: 6.00
Percent Impervious: 0
SUB AREA OUTPUT

Intensity (in/hr): 3.189
C Total: 0.539
Sum Q Segments (cfs): 0.69
Q Total (cfs): 0.69
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 393.52
Time of Concentration (min): 6.559

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 21B
FLOW PATH TRAVEL TIME (min): 6.5586
Flow Type: Overland
Length (ft): 350
Top Elevation (ft): 467.9
Bottom Elevation (ft): 452.2
Contributing Area (acres): 0.4
Percent of Sub-Area (%): 100.0
Overland Type: Valley
Development Type: Undeveloped
Map Slope: 0.0449
Effective Slope: 0.0449
Q for Flow Path (cfs): 0.69
Avg Velocity (ft/s): 0.89
Passed Scour Check: YES
Scour Velocity (ft/sec): 2.93
♠
Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

Sub-Area Name: SubArea 22C
Tc: 16.243 Minutes
DATA FOR SUB AREA 3

SUB AREA TIME OF CONCENTRATION: 16.243 min. = 16 min.

SUB AREA INPUT DATA

Sub Area Name: SubArea 22C
Total Area (ac): 2.6
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Undeveloped
Soil Type: 6.00
Percent Impervious: 0
SUB AREA OUTPUT

Intensity (in/hr): 2.288
C Total: 0.480
Sum Q Segments (cfs): 2.86
Q Total (cfs): 2.86
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 974.58
Time of Concentration (min): 16.243

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 22C
FLOW PATH TRAVEL TIME (min): 16.2429
Flow Type: Overland
Length (ft): 800
Top Elevation (ft): 470.2
Bottom Elevation (ft): 454
Contributing Area (acres): 2.6
Percent of Sub-Area (%): 100.0
Overland Type: Valley
Development Type: Undeveloped
Map Slope: 0.0203
Effective Slope: 0.0203
Q for Flow Path (cfs): 2.86
Avg Velocity (ft/s): 0.82
Passed Scour Check: YES
Scour Velocity (ft/sec): 2.62
♠
Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

Sub-Area Name: SubArea 23D
Tc: 34.854 Minutes
DATA FOR SUB AREA 4

SUB AREA TIME OF CONCENTRATION: 34.854 min. = 35 min.

SUB AREA INPUT DATA

Sub Area Name: SubArea 23D
Total Area (ac): 26.3
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Undeveloped
Soil Type: 6.00
Percent Impervious: 0
SUB AREA OUTPUT

Intensity (in/hr): 1.610
C Total: 0.401
Sum Q Segments (cfs): 16.97
Q Total (cfs): 16.97
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 2,091.24
Time of Concentration (min): 34.854

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 23D
FLOW PATH TRAVEL TIME (min): 15.9026
Flow Type: Overland
Length (ft): 940
Top Elevation (ft): 605
Bottom Elevation (ft): 540
Contributing Area (acres): 6.35
Percent of Sub-Area (%): 24.1
Overland Type: Mountain
Development Type: Undeveloped
Map Slope: 0.0691
Effective Slope: 0.0691
Q for Flow Path (cfs): 4.10
Avg Velocity (ft/s): 0.99
Passed Scour Check: YES
Scour Velocity (ft/sec): 2.37

DATA FOR FLOW PATH 2

Flow Path Name: FlowPath 24D
FLOW PATH TRAVEL TIME (min): 8.0647
Flow Type: Overland
Length (ft): 615
Top Elevation (ft): 540

Bottom Elevation (ft): 464
Contributing Area (acres): 11.1
Percent of Sub-Area (%): 42.2
Overland Type: Mountain
Development Type: Undeveloped
Map Slope: 0.1236
Effective Slope: 0.1141
Q for Flow Path (cfs): 7.16
Avg Velocity (ft/s): 1.27
Passed Scour Check: YES
Scour Velocity (ft/sec): 3.67

DATA FOR FLOW PATH 3

Flow Path Name: FlowPath 25D
FLOW PATH TRAVEL TIME (min): 10.8867
Flow Type: Overland
Length (ft): 530
Top Elevation (ft): 464
Bottom Elevation (ft): 455.8
Contributing Area (acres): 8.85
Percent of Sub-Area (%): 33.7
Overland Type: Valley
Development Type: Undeveloped
Map Slope: 0.0155
Effective Slope: 0.0155
Q for Flow Path (cfs): 5.71
Avg Velocity (ft/s): 0.81
Passed Scour Check: YES
Scour Velocity (ft/sec): 2.72

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 3885 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREA 20A - PROJECT SITE AREA 5.65 AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 3885 Project: PentAir, Moorpark

Page: 2

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N CHNL VALUES	VEL (FT/S)	DEPTH (FT)
1A : SUBAREA 20A																	
1A	060	J'100	17	0	6	6	6	6	1155	-------	----	-------	---	----	-----	-----	--
2A : SUBAREA 20A																	
2A : Clearing Hydrograph Bank: A																	
2A	060	J'100	17	0	6	6	6	6	1155	-------	----	-------	---	----	-----	-----	--

FROM TC CALCULATOR

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 3885 Project: PentAir, Moorpark

Page: 3

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2A

DESCRIPTION: SUBAREA 20A
2A : Clearing Hydrograph Bank: A
TOTAL AREA TO HYDROGRAPH: 6 acres
HYDROGRAPH PEAK: 6 cfs
TIME OF PEAK: 1155 minutes
HYDROGRAPH VOLUME: 0.18 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.00	200	0.00	300	0.00	400	0.00
500	0.00	600	0.00	700	0.00	800	0.00	900	0.00
1000	0.00	1050	0.00	1100	0.00	1110	0.00	1120	0.01
1130	0.01	1131	0.01	1132	0.01	1133	0.01	1134	0.01
1135	0.01	1136	0.10	1137	0.34	1138	0.62	1139	0.96
1140	1.15	1141	1.41	1142	1.68	1143	1.92	1144	2.19
1145	2.49	1146	2.77	1147	3.06	1148	3.25	1149	3.11
1150	2.98	1151	3.56	1152	5.52	1153	6.08	1154	6.27
1155	6.35	1156	6.31	1157	6.27	1158	6.20	1159	6.01
1160	5.89	1161	5.72	1162	5.48	1163	5.19	1164	4.92
1165	4.64	1166	4.65	1167	4.65	1168	3.95	1169	1.46
1170	0.10	1171	0.01	1172	0.01	1173	0.00	1174	0.00
1175	0.00	1176	0.00	1177	0.00	1178	0.00	1179	0.00
1180	0.00	1181	0.00	1182	0.00	1183	0.00	1184	0.00
1185	0.00	1186	0.00	1187	0.00	1188	0.00	1189	0.00
1190	0.00	1191	0.00	1192	0.00	1193	0.00	1194	0.00
1195	0.00	1196	0.00	1197	0.00	1198	0.00	1199	0.00
1200	0.00	1201	0.00	1202	0.00	1203	0.00	1204	0.00
1205	0.00	1206	0.00	1207	0.00	1208	0.00	1209	0.00
1210	0.00	1211	0.00	1212	0.00	1213	0.00	1214	0.00
1215	0.00	1216	0.00	1217	0.00	1218	0.00	1219	0.00
1220	0.00	1221	0.00	1222	0.00	1223	0.00	1224	0.00
1225	0.00	1226	0.00	1227	0.00	1228	0.00	1229	0.00
1230	0.00	1231	0.00	1232	0.00	1233	0.00	1234	0.00
1235	0.00	1236	0.00	1237	0.00	1238	0.00	1239	0.00
1240	0.00	1241	0.00	1242	0.00	1243	0.00	1244	0.00
1245	0.00	1246	0.00	1247	0.00	1248	0.00	1249	0.00
1250	0.00	1251	0.00	1252	0.00	1253	0.00	1254	0.00
1255	0.00	1256	0.00	1257	0.00	1258	0.00	1259	0.00
1260	0.00	1261	0.00	1262	0.00	1263	0.00	1264	0.00
1265	0.00	1266	0.00	1267	0.00	1268	0.00	1269	0.00
1270	0.00	1271	0.00	1272	0.00	1273	0.00	1274	0.00
1275	0.00	1276	0.00	1277	0.00	1278	0.00	1279	0.00
1280	0.00	1281	0.00	1282	0.00	1283	0.00	1284	0.00
1285	0.00	1286	0.00	1287	0.00	1288	0.00	1289	0.00
1290	0.00	1291	0.00	1292	0.00	1293	0.00	1294	0.00
1295	0.00	1296	0.00	1297	0.00	1298	0.00	1299	0.00
1300	0.00	1310	0.00	1320	0.00	1330	0.00	1340	0.00
1350	0.00	1360	0.00	1370	0.00	1380	0.00	1390	0.00
1400	0.00	1420	0.00	1440	0.00	1460	0.00	1500	0.00

← PEAK Q_{100} AT 1155 min:
6.35 CFS / 6.00 AC.

PRORATED FOR 5.65 AC.:
$= 6.35 \text{ CFS} \times \frac{5.65 \text{ AC}}{6.00 \text{ AC}}$
$= 6.0 \text{ CFS}$

ALLOWABLE DISCHARGE FROM PROJECT SITE:
$6.0 \text{ CFS} \times 0.90$
$= 5.4 \text{ CFS}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 3885 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005  3885  001A Header place holder
005  3885  002A Header place holder
999
999
006  3885  001A 060000000617A97                          G1
006  3885  002A 060000000617A97                        1 A2
999
```

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREA 21B - OFFSITE TRIBUTARY AREA 0.40AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES CHNL	VEL (FT/S)	DEPTH (FT)
1B : SUBAREA 21B																	
1B	060	J'100	(7)	0	(5)	9	5	9	1157	-------	----	-------	---	----	-----	-----	--
2B : SUBAREA 21B																	
2B : Clearing Hydrograph Bank: B																	
2B	060	J'100	7	0	5	9	5	9	1157	-------	----	-------	---	----	-----	-----	--

FROM TC CALCULATOR

5 AC MINIMUM AREA INPUT ALLOWED BY VCRAT CALCULATOR, TO BE PRORATED FOR 0.40 AC

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2B

DESCRIPTION: SUBAREA 21B
2B : Clearing Hydrograph Bank: B
TOTAL AREA TO HYDROGRAPH: 5 acres
HYDROGRAPH PEAK: 9 cfs
TIME OF PEAK: 1157 minutes
HYDROGRAPH VOLUME: 0.15 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.00	200	0.00	300	0.00	400	0.00
500	0.00	600	0.00	700	0.00	800	0.00	900	0.00
1000	0.00	1050	0.00	1100	0.00	1110	0.00	1120	0.00
1130	0.00	1131	0.00	1132	0.00	1133	0.30	1134	0.91
1135	1.22	1136	1.53	1137	1.82	1138	1.78	1139	1.78
1140	1.82	1141	1.98	1142	2.13	1143	2.27	1144	2.45
1145	2.85	1146	3.19	1147	3.56	1148	3.79	1149	3.36
1150	2.94	1151	3.93	1152	7.60	1153	8.44	1154	8.44
1155	8.20	1156	8.41	1157	8.63	1158	7.39	1159	3.14
1160	1.86	1161	1.04	1162	0.40	1163	0.00	1164	0.00
1165	0.00	1166	0.00	1167	0.00	1168	0.00	1169	0.00
1170	0.00	1171	0.00	1172	0.00	1173	0.00	1174	0.00
1175	0.00	1176	0.00	1177	0.00	1178	0.00	1179	0.00
1180	0.00	1181	0.00	1182	0.00	1183	0.00	1184	0.00
1185	0.00	1186	0.00	1187	0.00	1188	0.00	1189	0.00
1190	0.00	1191	0.00	1192	0.00	1193	0.00	1194	0.00
1195	0.00	1196	0.00	1197	0.00	1198	0.00	1199	0.00
1200	0.00	1201	0.00	1202	0.00	1203	0.00	1204	0.00
1205	0.00	1206	0.00	1207	0.00	1208	0.00	1209	0.00
1210	0.00	1211	0.00	1212	0.00	1213	0.00	1214	0.00
1215	0.00	1216	0.00	1217	0.00	1218	0.00	1219	0.00
1220	0.00	1221	0.00	1222	0.00	1223	0.00	1224	0.00
1225	0.00	1226	0.00	1227	0.00	1228	0.00	1229	0.00
1230	0.00	1231	0.00	1232	0.00	1233	0.00	1234	0.00
1235	0.00	1236	0.00	1237	0.00	1238	0.00	1239	0.00
1240	0.00	1241	0.00	1242	0.00	1243	0.00	1244	0.00
1245	0.00	1246	0.00	1247	0.00	1248	0.00	1249	0.00
1250	0.00	1251	0.00	1252	0.00	1253	0.00	1254	0.00
1255	0.00	1256	0.00	1257	0.00	1258	0.00	1259	0.00
1260	0.00	1261	0.00	1262	0.00	1263	0.00	1264	0.00
1265	0.00	1266	0.00	1267	0.00	1268	0.00	1269	0.00
1270	0.00	1271	0.00	1272	0.00	1273	0.00	1274	0.00
1275	0.00	1276	0.00	1277	0.00	1278	0.00	1279	0.00
1280	0.00	1281	0.00	1282	0.00	1283	0.00	1284	0.00
1285	0.00	1286	0.00	1287	0.00	1288	0.00	1289	0.00
1290	0.00	1291	0.00	1292	0.00	1293	0.00	1294	0.00
1295	0.00	1296	0.00	1297	0.00	1298	0.00	1299	0.00
1300	0.00	1310	0.00	1320	0.00	1330	0.00	1340	0.00
1350	0.00	1360	0.00	1370	0.00	1380	0.00	1390	0.00
1400	0.00	1420	0.00	1440	0.00	1460	0.00	1500	0.00

← PEAK Q_{100} AT 1157 MIN: 8.63 CFS / 5.00 AC

PRORATED FOR 0.40 AC:
$= 8.63 \text{ CFS} \times \frac{0.40 \text{ AC}}{5.00 \text{ AC}}$
$= 0.7 \text{ CFS}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005     1  001B Header place holder
005     1  002B Header place holder
999
999
006     1  001B 060000000507A97                          G1
006     1  002B 060000000507A97                        1 B2
999
```

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREA 22C – OFFSITE TRIBUTARY AREA 2.60 AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	SUBAREA DATA AND RESULTS AREA (AC)	FLOW (CFS)	ACCUMULATED DATA AREA (AC)	FLOW (CFS)	TIME (MIN)	ROUTING AFTER ACCUMULATION CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N CHNL VALUES	VEL (FT/S)	DEPTH (FT)
1C : SUBAREA 22C																	
1C 060	J'100	16	0	5	6	5	6	1155	-------	----	-------	---	----	-----	-----	--	--
2C : SUBAREA 22C																	
2C : Clearing Hydrograph Bank: C																	
2C 060	J'100	16	0	5	6	5	6	1155	-------	----	-------	---	----	-----	-----	--	--

FROM TC CALCULATOR

5 AC MINIMUM AREA INPUT ALLOWED BY VCRAT CALCULATOR, TO BE PRORATED FOR 2.60 AC

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2C

DESCRIPTION: SUBAREA 22C
2C : Clearing Hydrograph Bank: C

TOTAL AREA TO HYDROGRAPH:	5	acres
HYDROGRAPH PEAK:	6	cfs
TIME OF PEAK:	1155	minutes
HYDROGRAPH VOLUME:	0.15	acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.00	200	0.00	300	0.00	400	0.00
500	0.00	600	0.00	700	0.00	800	0.00	900	0.00
1000	0.00	1050	0.00	1100	0.00	1110	0.00	1120	0.00
1130	0.00	1131	0.00	1132	0.00	1133	0.00	1134	0.00
1135	0.00	1136	0.10	1137	0.40	1138	0.65	1139	0.90
1140	1.03	1141	1.27	1142	1.50	1143	1.71	1144	1.92
1145	2.18	1146	2.43	1147	2.60	1148	2.76	1149	2.65
1150	2.52	1151	3.03	1152	4.77	1153	5.27	1154	5.44
1155	5.51	1156	5.47	1157	5.37	1158	5.31	1159	5.14
1160	5.02	1161	4.78	1162	4.58	1163	4.32	1164	4.08
1165	4.12	1166	4.13	1167	3.49	1168	1.51	1169	0.00
1170	0.00	1171	0.00	1172	0.00	1173	0.00	1174	0.00
1175	0.00	1176	0.00	1177	0.00	1178	0.00	1179	0.00
1180	0.00	1181	0.00	1182	0.00	1183	0.00	1184	0.00
1185	0.00	1186	0.00	1187	0.00	1188	0.00	1189	0.00
1190	0.00	1191	0.00	1192	0.00	1193	0.00	1194	0.00
1195	0.00	1196	0.00	1197	0.00	1198	0.00	1199	0.00
1200	0.00	1201	0.00	1202	0.00	1203	0.00	1204	0.00
1205	0.00	1206	0.00	1207	0.00	1208	0.00	1209	0.00
1210	0.00	1211	0.00	1212	0.00	1213	0.00	1214	0.00
1215	0.00	1216	0.00	1217	0.00	1218	0.00	1219	0.00
1220	0.00	1221	0.00	1222	0.00	1223	0.00	1224	0.00
1225	0.00	1226	0.00	1227	0.00	1228	0.00	1229	0.00
1230	0.00	1231	0.00	1232	0.00	1233	0.00	1234	0.00
1235	0.00	1236	0.00	1237	0.00	1238	0.00	1239	0.00
1240	0.00	1241	0.00	1242	0.00	1243	0.00	1244	0.00
1245	0.00	1246	0.00	1247	0.00	1248	0.00	1249	0.00
1250	0.00	1251	0.00	1252	0.00	1253	0.00	1254	0.00
1255	0.00	1256	0.00	1257	0.00	1258	0.00	1259	0.00
1260	0.00	1261	0.00	1262	0.00	1263	0.00	1264	0.00
1265	0.00	1266	0.00	1267	0.00	1268	0.00	1269	0.00
1270	0.00	1271	0.00	1272	0.00	1273	0.00	1274	0.00
1275	0.00	1276	0.00	1277	0.00	1278	0.00	1279	0.00
1280	0.00	1281	0.00	1282	0.00	1283	0.00	1284	0.00
1285	0.00	1286	0.00	1287	0.00	1288	0.00	1289	0.00
1290	0.00	1291	0.00	1292	0.00	1293	0.00	1294	0.00
1295	0.00	1296	0.00	1297	0.00	1298	0.00	1299	0.00
1300	0.00	1310	0.00	1320	0.00	1330	0.00	1340	0.00
1350	0.00	1360	0.00	1370	0.00	1380	0.00	1390	0.00
1400	0.00	1420	0.00	1440	0.00	1460	0.00	1500	0.00

← PEAK Q_{100} AT 1155 MIN: 5.51 CFS / 5.00 AC

PRORATED FOR 2.60 AC:
$= 5.51 \text{ CFS} \times \frac{2.60 \text{ AC}}{5.00 \text{ AC}}$
$= 2.9 \text{ CFS}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005     1  001C Header place holder
005     1  002C Header place holder
999
999
006     1  001C 060000000516A97                              G1
006     1  002C 060000000516A97                            1 C2
999
```

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: SUBAREAS 30D-32D

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREAS 23D-25D OFFSITE TRIBUTARY AREA 26.30 AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: SUBAREAS 30D-32D

Page: 2

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N CHNL VALUES	VEL (FT/S)	DEPTH (FT)
1D : SUBAREAS 23D-25D																	
1D	060	J'100	30	0	26	19	26	19	1160	-------	----	-------	---	----	-----	-----	--
2D : SUBAREAS 23D-25D																	
2D : Clearing Hydrograph Bank: D																	
2D	060	J'100	30	0	26	19	26	19	1160	-------	----	-------	---	----	-----	-----	--

35 MIN PER TC CALCULATOR — USE 30 MIN. MAXIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: SUBAREAS 30D-32D

Page: 3

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2D

DESCRIPTION: SUBAREAS 23D-25D
2D : Clearing Hydrograph Bank: D
TOTAL AREA TO HYDROGRAPH: 26 acres
HYDROGRAPH PEAK: 19 cfs
TIME OF PEAK: 1160 minutes
HYDROGRAPH VOLUME: 0.79 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.00	200	0.00	300	0.00	400	0.00
500	0.00	600	0.01	700	0.01	800	0.01	900	0.01
1000	0.01	1050	0.01	1100	0.02	1110	0.02	1120	0.02
1130	0.02	1131	0.02	1132	0.02	1133	0.02	1134	0.02
1135	0.02	1136	0.03	1137	0.03	1138	0.06	1139	0.95
1140	1.84	1141	3.01	1142	4.19	1143	4.86	1144	5.46
1145	6.44	1146	7.35	1147	8.26	1148	9.17	1149	8.92
1150	8.66	1151	10.68	1152	15.81	1153	17.43	1154	18.11
1155	18.52	1156	18.66	1157	18.80	1158	19.04	1159	19.01
1160	19.11	1161	18.90	1162	18.76	1163	18.52	1164	18.32
1165	18.08	1166	17.77	1167	17.43	1168	17.15	1169	16.53
1170	16.57	1171	16.05	1172	15.50	1173	14.95	1174	14.41
1175	13.58	1176	12.75	1177	11.89	1178	11.07	1179	10.96
1180	10.93	1181	8.71	1182	0.02	1183	0.02	1184	0.02
1185	0.02	1186	0.02	1187	0.02	1188	0.02	1189	0.02
1190	0.02	1191	0.02	1192	0.02	1193	0.01	1194	0.01
1195	0.01	1196	0.01	1197	0.01	1198	0.01	1199	0.01
1200	0.01	1201	0.01	1202	0.01	1203	0.01	1204	0.01
1205	0.01	1206	0.01	1207	0.01	1208	0.01	1209	0.01
1210	0.01	1211	0.01	1212	0.01	1213	0.01	1214	0.01
1215	0.01	1216	0.01	1217	0.01	1218	0.01	1219	0.01
1220	0.01	1221	0.01	1222	0.01	1223	0.01	1224	0.01
1225	0.01	1226	0.01	1227	0.01	1228	0.01	1229	0.01
1230	0.01	1231	0.01	1232	0.01	1233	0.01	1234	0.01
1235	0.01	1236	0.01	1237	0.01	1238	0.01	1239	0.01
1240	0.01	1241	0.01	1242	0.01	1243	0.01	1244	0.01
1245	0.01	1246	0.01	1247	0.01	1248	0.01	1249	0.01
1250	0.01	1251	0.01	1252	0.01	1253	0.01	1254	0.01
1255	0.01	1256	0.01	1257	0.01	1258	0.01	1259	0.01
1260	0.01	1261	0.01	1262	0.01	1263	0.01	1264	0.01
1265	0.01	1266	0.01	1267	0.01	1268	0.01	1269	0.01
1270	0.01	1271	0.01	1272	0.01	1273	0.01	1274	0.01
1275	0.01	1276	0.01	1277	0.01	1278	0.01	1279	0.01
1280	0.01	1281	0.01	1282	0.01	1283	0.01	1284	0.01
1285	0.01	1286	0.01	1287	0.01	1288	0.01	1289	0.01
1290	0.01	1291	0.01	1292	0.01	1293	0.01	1294	0.01
1295	0.01	1296	0.01	1297	0.01	1298	0.01	1299	0.01
1300	0.01	1310	0.01	1320	0.01	1330	0.00	1340	0.00
1350	0.00	1360	0.00	1370	0.00	1380	0.00	1390	0.00
1400	0.00	1420	0.00	1440	0.00	1460	0.00	1500	0.00

← PEAK Q100 AT 1160 MIN = 19.11 CFS / 26.00 AC

PRORATED FOR 26.30 AC:

$= 19.11 \text{ CFS} \times \frac{26.30 \text{ AC}}{26.00 \text{ AC}}$

$= 19.3 \text{ CFS}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: SUBAREAS 30D-32D

Page: 4

VCRat Model Input

Model Lines

```
005     1  001D Header place holder
005     1  002D Header place holder
999
999
006     1  001D 060000002630A97                              G1
006     1  002D 060000002630A97                            1 D2
999
```

PROPOSED CONDITION

VENTURA COUNTY WATERSHED PROTECTION DISTRICT
TIME OF CONCENTRATION
TC Program Version: 2.6.2009.7
Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

S U M M A R Y O F C O M P U T A T I O N S

Watershed Name: Proposed 100-Year

Name	Zone	Storm	Soil	Area (acres)	TC (min)
SubArea 1A	J'	100	6.00	3.9 / 4	5.243 / 5
SubArea 6B	J'	100	6.00	1.2 / 1	12.833 / 13
SubArea 10C	J'	100	6.00	0.3 / 0	TC ERROR
SubArea 11D	J'	100	6.00	0.3 / 0	TC ERROR

♠

Watershed Name: Proposed 100-Year

Sub-Area Name: SubArea 1A
Tc: 5.243 Minutes
DATA FOR SUB AREA 1

SUB AREA TIME OF CONCENTRATION: 5.243 min. = 5 min. ← USE 6 MIN. MINIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR.

SUB AREA INPUT DATA

Sub Area Name: SubArea 1A
Total Area (ac): 3.9
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Commercial
Soil Type: 6.00
Percent Impervious: 90
SUB AREA OUTPUT

Intensity (in/hr): 4.056
C Total: 0.913
Sum Q Segments (cfs): 14.44
Q Total (cfs): 14.44
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 314.56
Time of Concentration (min): 5.243

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 1A
FLOW PATH TRAVEL TIME (min): 3.3333
Flow Type: Overland
Length (ft): 200
Top Elevation (ft): 454.56
Bottom Elevation (ft): 452
Contributing Area (acres): 0.4
Percent of Sub-Area (%): 10.3
Overland Type: Valley
Development Type: Commercial
Map Slope: 0.0128
Effective Slope: 0.0128
Q for Flow Path (cfs): 1.48
Avg Velocity (ft/s): 1.00
Passed Scour Check: N/A

DATA FOR FLOW PATH 2

Flow Path Name: FlowPath 2A
FLOW PATH TRAVEL TIME (min): 1.2074

Flow Type: Street
Length (ft): 250
Top Elevation (ft): 452
Bottom Elevation (ft): 449.36
Contributing Area (acres): 1.35
Percent of Sub-Area (%): 34.6
Street Width (ft): 40
Curb Height (in): 6
Map Slope: 0.0106
Q for Flow Path (cfs): 5.00
Q Top (cfs): 1.48
Q Bottom (cfs): 6.48
Velocity Top (ft/s): 1.91
Velocity Bottom (ft/s): 2.69
Avg Velocity (ft/s): 2.30
Wave Velocity (ft/s): 3.45

DATA FOR FLOW PATH 3

Flow Path Name: FlowPath 3A
FLOW PATH TRAVEL TIME (min): 0.2601
Flow Type: Pipe
Length (ft): 83
Top Elevation (ft): 445.86
Bottom Elevation (ft): 445.44
Contributing Area (acres): 0.45
Percent of Sub-Area (%): 11.5
Initial Pipe Diameter (in): 24
Calculated Pipe Diameter (in): 21
Used Pipe Diameter (in): 24
Manning's N: 0.012
Map Slope: 0.0051
Q for Flow Path (cfs): 1.67
Q Top (cfs): 6.48
Q Bottom (cfs): 8.15
Avg Velocity (ft/s): 4.08
Wave Velocity (ft/s): 5.32

DATA FOR FLOW PATH 4

Flow Path Name: FlowPath 4A
FLOW PATH TRAVEL TIME (min): 0.2599
Flow Type: Pipe
Length (ft): 83
Top Elevation (ft): 445.36
Bottom Elevation (ft): 444.94
Contributing Area (acres): 0.65
Percent of Sub-Area (%): 16.7
Initial Pipe Diameter (in): 24
Calculated Pipe Diameter (in): 21
Used Pipe Diameter (in): 24
Manning's N: 0.012
Map Slope: 0.0051
Q for Flow Path (cfs): 2.41
Q Top (cfs): 8.15
Q Bottom (cfs): 10.55
Avg Velocity (ft/s): 4.27
Wave Velocity (ft/s): 5.32

DATA FOR FLOW PATH 5

Flow Path Name: FlowPath 5A
FLOW PATH TRAVEL TIME (min): 0.1820
Flow Type: Pipe
Length (ft): 83
Top Elevation (ft): 444.86
Bottom Elevation (ft): 444.44
Contributing Area (acres): 1.05
Percent of Sub-Area (%): 26.9
Initial Pipe Diameter (in): 24
Calculated Pipe Diameter (in): 24

Used Pipe Diameter (in): 24
Manning's N: 0.012
Map Slope: 0.0051
Q for Flow Path (cfs): 3.89
Q Top (cfs): 10.55
Q Bottom (cfs): 14.44
Avg Velocity (ft/s): 6.03
Wave Velocity (ft/s): 7.60

Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

Sub-Area Name: SubArea 6B
Tc: 12.833 Minutes
DATA FOR SUB AREA 2

SUB AREA TIME OF CONCENTRATION: 12.833 min. = 13 min.

SUB AREA INPUT DATA

Sub Area Name: SubArea 6B
Total Area (ac): 1.15
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Commercial
Soil Type: 6.00
Percent Impervious: 90
SUB AREA OUTPUT

Intensity (in/hr): 2.492
C Total: 0.905
Sum Q Segments (cfs): 2.59
Q Total (cfs): 2.59
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 770.00
Time of Concentration (min): 12.833

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 6B
FLOW PATH TRAVEL TIME (min): 3.1667
Flow Type: Overland
Length (ft): 190
Top Elevation (ft): 455.15
Bottom Elevation (ft): 453.3
Contributing Area (acres): 0.2
Percent of Sub-Area (%): 17.4
Overland Type: Valley
Development Type: Commercial
Map Slope: 0.0097
Effective Slope: 0.0097
Q for Flow Path (cfs): 0.45
Avg Velocity (ft/s): 1.00
Passed Scour Check: N/A

DATA FOR FLOW PATH 2

Flow Path Name: FlowPath 7B
FLOW PATH TRAVEL TIME (min): 3.3333
Flow Type: Overland
Length (ft): 200
Top Elevation (ft): 453.3
Bottom Elevation (ft): 452.28
Contributing Area (acres): 0.3
Percent of Sub-Area (%): 26.1
Overland Type: Valley
Development Type: Commercial
Map Slope: 0.0051

Effective Slope: 0.0051
Q for Flow Path (cfs): 0.68
Avg Velocity (ft/s): 1.00
Passed Scour Check: N/A

DATA FOR FLOW PATH 3

Flow Path Name: FlowPath 8B
FLOW PATH TRAVEL TIME (min): 3.0833
Flow Type: Overland
Length (ft): 185
Top Elevation (ft): 452.28
Bottom Elevation (ft): 451.2
Contributing Area (acres): 0.25
Percent of Sub-Area (%): 21.7
Overland Type: Valley
Development Type: Commercial
Map Slope: 0.0058
Effective Slope: 0.0058
Q for Flow Path (cfs): 0.56
Avg Velocity (ft/s): 1.00
Passed Scour Check: N/A

DATA FOR FLOW PATH 4

Flow Path Name: FlowPath 9B
FLOW PATH TRAVEL TIME (min): 3.2500
Flow Type: Overland
Length (ft): 195
Top Elevation (ft): 451.2
Bottom Elevation (ft): 447.73
Contributing Area (acres): 0.4
Percent of Sub-Area (%): 34.8
Overland Type: Valley
Development Type: Commercial
Map Slope: 0.0178
Effective Slope: 0.0178
Q for Flow Path (cfs): 0.90
Avg Velocity (ft/s): 1.00
Passed Scour Check: N/A

Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

Sub-Area Name: SubArea 10C
Tc: 1.667 Minutes
DATA FOR SUB AREA 3

SUB AREA TIME OF CONCENTRATION: 1.667 min. = 2 min. ** TC ERROR ** ← USE 6 min. MINIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR

SUB AREA INPUT DATA

Sub Area Name: SubArea 10C
Total Area (ac): 0.25
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Commercial
Soil Type: 6.00
Percent Impervious: 90
SUB AREA OUTPUT

Intensity (in/hr): 6.600
C Total: 0.919
Sum Q Segments (cfs): 1.52
Q Total (cfs): 1.52
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 100.00
Time of Concentration (min): 1.667

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 10C
FLOW PATH TRAVEL TIME (min): 1.6667
Flow Type: Overland
Length (ft): 100
Top Elevation (ft): 450.44
Bottom Elevation (ft): 446.52
Contributing Area (acres): 0.25
Percent of Sub-Area (%): 100.0
Overland Type: Valley
Development Type: Commercial
Map Slope: 0.0392
Effective Slope: 0.0392
Q for Flow Path (cfs): 1.52
Avg Velocity (ft/s): 1.00
Passed Scour Check: N/A

Project: PentAir, Moorpark
Date: 12:00:00 AM
Engineer: Ricky Hwa
Consultant: Thienes Engineering

Sub-Area Name: SubArea 11D
Tc: 0.843 Minutes
DATA FOR SUB AREA 4

SUB AREA TIME OF CONCENTRATION: 0.843 min. = 1 min. ** TC ERROR ** ← USE 6 min. MINIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR

SUB AREA INPUT DATA

Sub Area Name: SubArea 11D
Total Area (ac): 0.3
Flood Zone: 3
Rainfall Zone: J'
Storm Frequency (years): 100
Development Type: Undeveloped
Soil Type: 6.00
Percent Impervious: 0
SUB AREA OUTPUT

Intensity (in/hr): 9.540
C Total: NaN
Sum Q Segments (cfs): NaN
Q Total (cfs): NaN
Sum Percent Area (%): 100.0
Sum of Flow Path Travel Times (sec): 50.56
Time of Concentration (min): 0.843

DATA FOR FLOW PATH 1

Flow Path Name: FlowPath 11D
FLOW PATH TRAVEL TIME (min): 0.8426
Flow Type: Overland
Length (ft): 50
Top Elevation (ft): 448.5
Bottom Elevation (ft): 445
Contributing Area (acres): 0.3
Percent of Sub-Area (%): 100.0
Overland Type: Mountain
Development Type: Undeveloped
Map Slope: 0.0700
Effective Slope: 0.0700
Q for Flow Path (cfs): NaN
Avg Velocity (ft/s): 0.99
Passed Scour Check: YES
Scour Velocity (ft/sec): 1.60

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREAS 1A-5A 3.90AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 2

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES VEL (FT/S)	DEPTH (FT)	CHNL SIDES
1A : SUBAREAS 1A-5A																	
1A	060	J'100	6	90	5	16	5	16	1156	-------	----	-------	---	----	-----	-----	--
2A : SUBAREAS 1A-5A																	
2A : Clearing Hydrograph Bank: A																	
2A	060	J'100	6	90	5	16	5	16	1156	-------	----	-------	---	----	-----	-----	--

5 MIN. PER TC CALCULATOR. USE 6 MIN. MINIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR.

5 AC. MINIMUM AREA INPUT ALLOWED BY VCRAT CALCULATOR, TO BE PRORATED FOR 3.90 AC.

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 3

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2A

DESCRIPTION: SUBAREAS 1A-5A
2A : Clearing Hydrograph Bank: A

TOTAL AREA TO HYDROGRAPH: 5 acres
HYDROGRAPH PEAK: 16 cfs
TIME OF PEAK: 1156 minutes
HYDROGRAPH VOLUME: 2.24 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.51	200	0.51	300	0.54	400	0.59
500	0.69	600	0.77	700	0.88	800	1.12	900	1.36
1000	1.67	1050	2.00	1100	2.49	1110	3.18	1120	3.85
1130	3.33	1131	3.63	1132	3.93	1133	4.25	1134	4.60
1135	4.94	1136	5.27	1137	5.27	1138	5.22	1139	5.27
1140	5.27	1141	5.50	1142	5.73	1143	5.96	1144	6.29
1145	6.88	1146	7.44	1147	7.81	1148	8.17	1149	7.48
1150	6.75	1151	8.04	1152	13.90	1153	15.15	1154	15.15
1155	15.84	1156	16.17	1157	14.13	1158	7.71	1159	5.50
1160	4.70	1161	4.14	1162	4.09	1163	3.85	1164	3.59
1165	3.63	1166	3.42	1167	3.25	1168	3.04	1169	2.61
1170	2.91	1171	2.78	1172	2.69	1173	2.65	1174	2.61
1175	2.91	1176	2.39	1177	2.35	1178	2.39	1179	2.31
1180	2.27	1181	2.18	1182	2.05	1183	1.97	1184	1.84
1185	1.80	1186	1.71	1187	1.67	1188	1.71	1189	1.75
1190	1.75	1191	1.84	1192	1.88	1193	1.92	1194	1.97
1195	1.97	1196	1.97	1197	1.97	1198	1.97	1199	1.97
1200	1.97	1201	2.01	1202	2.10	1203	2.14	1204	2.18
1205	2.27	1206	2.31	1207	2.31	1208	2.31	1209	2.31
1210	2.31	1211	2.18	1212	2.05	1213	1.92	1214	1.80
1215	1.67	1216	1.54	1217	1.54	1218	1.54	1219	1.54
1220	1.54	1221	1.54	1222	1.54	1223	1.54	1224	1.54
1225	1.54	1226	1.54	1227	1.54	1228	1.54	1229	1.54
1230	1.54	1231	1.54	1232	1.54	1233	1.54	1234	1.54
1235	1.54	1236	1.54	1237	1.54	1238	1.54	1239	1.54
1240	1.54	1241	1.50	1242	1.45	1243	1.41	1244	1.37
1245	1.33	1246	1.28	1247	1.28	1248	1.28	1249	1.28
1250	1.28	1251	1.28	1252	1.28	1253	1.28	1254	1.28
1255	1.28	1256	1.28	1257	1.28	1258	1.28	1259	1.28
1260	1.28	1261	1.28	1262	1.28	1263	1.28	1264	1.28
1265	1.28	1266	1.28	1267	1.28	1268	1.28	1269	1.28
1270	1.28	1271	1.24	1272	1.20	1273	1.15	1274	1.11
1275	1.07	1276	1.03	1277	1.03	1278	1.03	1279	1.03
1280	1.03	1281	1.03	1282	1.03	1283	1.03	1284	1.03
1285	1.03	1286	1.03	1287	1.03	1288	1.03	1289	1.03
1290	1.03	1291	1.03	1292	1.03	1293	1.03	1294	1.03
1295	1.03	1296	1.03	1297	1.03	1298	1.03	1299	1.03
1300	1.03	1310	0.77	1320	0.77	1330	0.51	1340	0.51
1350	0.77	1360	0.51	1370	0.51	1380	0.51	1390	0.51
1400	0.26	1420	0.13	1440	0.10	1460	0.01	1500	0.01

← PEAK Q100 AT 1156 min:
16.17 cfs / 5.00 AC

PRORATED FOR 3.90 AC:
$= 16.17 \text{ cfs} \times \frac{3.90 \text{ AC}}{5.00 \text{ AC}}$
$= 12.6 \text{ cfs}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005     1  001A Header place holder
005     1  002A Header place holder
999
999
006     1  001A 060090000506A97                          G1
006     1  002A 060090000506A97                        1 A2
999
```

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREAS 6B-9B 1.15AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Model Results

NODE ID	SOIL N VALUES	RAIN TYPE	TC ZONE (MIN)	% IMP	AREA (AC)	FLOW (CFS)	ACCUMULATED DATA AREA (AC)	ACCUMULATED DATA FLOW (CFS)	ACCUMULATED DATA TIME (MIN)	ROUTING AFTER ACCUMULATION CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	CHNL SIDES	VEL (FT/S)	DEPTH (FT)
1B : SUBAREAS 6B-9B																	
1B 060	J'100	13	90	5	11	5	11	1155	-------	----	-------	---	----	-----	-----	--	--
2B : SUBAREAS 6B-9B																	
2B : Clearing Hydrograph Bank: B																	
2B 060	J'100	13	90	5	11	5	11	1155	-------	----	-------	---	----	-----	-----	--	--

PER TC CALCULATOR

5AC MINIMUM AREA INPUT ALLOWED BY VCRAT CALCULATOR, TO BE PRORATED FOR 1.15AC

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2B

DESCRIPTION: SUBAREAS 6B-9B
2B : Clearing Hydrograph Bank: B

TOTAL AREA TO HYDROGRAPH: 5 acres
HYDROGRAPH PEAK: 11 cfs
TIME OF PEAK: 1154 minutes
HYDROGRAPH VOLUME: 2.25 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.51	200	0.51	300	0.54	400	0.59
500	0.69	600	0.77	700	0.88	800	1.12	900	1.36
1000	1.67	1050	2.00	1100	2.49	1110	3.02	1120	3.69
1130	3.45	1131	3.55	1132	3.65	1133	3.73	1134	3.87
1135	4.02	1136	4.19	1137	4.37	1138	4.50	1139	4.66
1140	4.81	1141	5.07	1142	5.34	1143	5.59	1144	5.72
1145	6.00	1146	6.28	1147	6.55	1148	6.83	1149	6.62
1150	6.40	1151	7.30	1152	10.25	1153	11.10	1154	11.27
1155	11.27	1156	11.10	1157	10.91	1158	10.64	1159	10.21
1160	9.85	1161	9.44	1162	9.57	1163	9.61	1164	8.61
1165	5.51	1166	4.43	1167	3.89	1168	3.61	1169	3.32
1170	3.39	1171	3.20	1172	3.14	1173	3.00	1174	2.92
1175	2.78	1176	2.72	1177	2.62	1178	2.57	1179	2.49
1180	2.47	1181	2.39	1182	2.47	1183	2.19	1184	2.13
1185	2.07	1186	2.03	1187	1.95	1188	1.91	1189	1.89
1190	1.85	1191	1.82	1192	1.84	1193	1.80	1194	1.82
1195	1.85	1196	1.85	1197	1.87	1198	1.91	1199	1.91
1200	1.95	1201	1.99	1202	2.01	1203	2.05	1204	2.07
1205	2.09	1206	2.13	1207	2.15	1208	2.17	1209	2.21
1210	2.23	1211	2.19	1212	2.17	1213	2.13	1214	2.07
1215	2.01	1216	1.95	1217	1.89	1218	1.84	1219	1.78
1220	1.72	1221	1.66	1222	1.60	1223	1.54	1224	1.54
1225	1.54	1226	1.54	1227	1.54	1228	1.54	1229	1.54
1230	1.54	1231	1.54	1232	1.54	1233	1.54	1234	1.54
1235	1.54	1236	1.54	1237	1.54	1238	1.54	1239	1.54
1240	1.54	1241	1.52	1242	1.50	1243	1.48	1244	1.46
1245	1.44	1246	1.42	1247	1.40	1248	1.38	1249	1.36
1250	1.34	1251	1.32	1252	1.30	1253	1.28	1254	1.28
1255	1.28	1256	1.28	1257	1.28	1258	1.28	1259	1.28
1260	1.28	1261	1.28	1262	1.28	1263	1.28	1264	1.28
1265	1.28	1266	1.28	1267	1.28	1268	1.28	1269	1.28
1270	1.28	1271	1.26	1272	1.24	1273	1.22	1274	1.20
1275	1.18	1276	1.16	1277	1.14	1278	1.12	1279	1.11
1280	1.09	1281	1.07	1282	1.05	1283	1.03	1284	1.03
1285	1.03	1286	1.03	1287	1.03	1288	1.03	1289	1.03
1290	1.03	1291	1.03	1292	1.03	1293	1.03	1294	1.03
1295	1.03	1296	1.03	1297	1.03	1298	1.03	1299	1.03
1300	1.03	1310	0.83	1320	0.77	1330	0.57	1340	0.51
1350	0.71	1360	0.57	1370	0.51	1380	0.51	1390	0.51
1400	0.32	1420	0.13	1440	0.10	1460	0.01	1500	0.01

← PEAK Q100 AT 1154 MIN: 11.27 CFS / 5.00 AC.

PRORATED FOR 1.15 AC:
$= 11.27 \text{ CFS} \times \frac{1.15 \text{ AC.}}{5.00 \text{ AC.}}$
$= 2.6 \text{ CFS}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005     1  001B Header place holder
005     1  002B Header place holder
999
999
006     1  001B 060090000513A97                          G1
006     1  002B 060090000513A97                        1 B2
999
```

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB # 3885 PENTAIR, MOORPARK
SUBAREAS 10C 0.25AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Model Results

NODE ID	SOIL TYPE	RAIN ZONE	TC (MIN)	% IMP	SUBAREA AREA (AC)	SUBAREA FLOW (CFS)	ACCUMULATED AREA (AC)	ACCUMULATED FLOW (CFS)	ACCUMULATED TIME (MIN)	ROUTING AFTER ACCUMULATION CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z)	N VALUES VEL (FT/S)	DEPTH (FT)	CHNL SIDES
1C : SUBAREA 10C																	
1C 060	J'100	6	90	5	16	5	16	1156	-------	----	-------	---	----	-----	-----	--	--
2C : SUBAREA 10C																	
2C : Clearing Hydrograph Bank: C																	
2C 060	J'100	6	90	5	16	5	16	1156	-------	----	-------	---	----	-----	-----	--	--

2 MIN. PER TC CALCULATOR. USE 6 MIN. MINIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR

5 AC. MINIMUM AREA INPUT ALLOWED BY VCRAT CALCULATOR, TO BE PRORATED FOR 0.25AC

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2C

DESCRIPTION: SUBAREA 10C
2C : Clearing Hydrograph Bank: C

TOTAL AREA TO HYDROGRAPH: 5 acres
HYDROGRAPH PEAK: 16 cfs
TIME OF PEAK: 1156 minutes
HYDROGRAPH VOLUME: 2.24 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.51	200	0.51	300	0.54	400	0.59
500	0.69	600	0.77	700	0.88	800	1.12	900	1.36
1000	1.67	1050	2.00	1100	2.49	1110	3.18	1120	3.85
1130	3.33	1131	3.63	1132	3.93	1133	4.25	1134	4.60
1135	4.94	1136	5.27	1137	5.27	1138	5.22	1139	5.27
1140	5.27	1141	5.50	1142	5.73	1143	5.96	1144	6.29
1145	6.88	1146	7.44	1147	7.81	1148	8.17	1149	7.48
1150	6.75	1151	8.04	1152	13.90	1153	15.15	1154	15.15
1155	15.84	1156	16.17	1157	14.13	1158	7.71	1159	5.50
1160	4.70	1161	4.14	1162	4.09	1163	3.85	1164	3.59
1165	3.63	1166	3.42	1167	3.25	1168	3.04	1169	2.61
1170	2.91	1171	2.78	1172	2.69	1173	2.65	1174	2.61
1175	2.91	1176	2.39	1177	2.35	1178	2.39	1179	2.31
1180	2.27	1181	2.18	1182	2.05	1183	1.97	1184	1.84
1185	1.80	1186	1.71	1187	1.67	1188	1.71	1189	1.75
1190	1.75	1191	1.84	1192	1.88	1193	1.92	1194	1.97
1195	1.97	1196	1.97	1197	1.97	1198	1.97	1199	1.97
1200	1.97	1201	2.01	1202	2.10	1203	2.14	1204	2.18
1205	2.27	1206	2.31	1207	2.31	1208	2.31	1209	2.31
1210	2.31	1211	2.18	1212	2.05	1213	1.92	1214	1.80
1215	1.67	1216	1.54	1217	1.54	1218	1.54	1219	1.54
1220	1.54	1221	1.54	1222	1.54	1223	1.54	1224	1.54
1225	1.54	1226	1.54	1227	1.54	1228	1.54	1229	1.54
1230	1.54	1231	1.54	1232	1.54	1233	1.54	1234	1.54
1235	1.54	1236	1.54	1237	1.54	1238	1.54	1239	1.54
1240	1.54	1241	1.50	1242	1.45	1243	1.41	1244	1.37
1245	1.33	1246	1.28	1247	1.28	1248	1.28	1249	1.28
1250	1.28	1251	1.28	1252	1.28	1253	1.28	1254	1.28
1255	1.28	1256	1.28	1257	1.28	1258	1.28	1259	1.28
1260	1.28	1261	1.28	1262	1.28	1263	1.28	1264	1.28
1265	1.28	1266	1.28	1267	1.28	1268	1.28	1269	1.28
1270	1.28	1271	1.24	1272	1.20	1273	1.15	1274	1.11
1275	1.07	1276	1.03	1277	1.03	1278	1.03	1279	1.03
1280	1.03	1281	1.03	1282	1.03	1283	1.03	1284	1.03
1285	1.03	1286	1.03	1287	1.03	1288	1.03	1289	1.03
1290	1.03	1291	1.03	1292	1.03	1293	1.03	1294	1.03
1295	1.03	1296	1.03	1297	1.03	1298	1.03	1299	1.03
1300	1.03	1310	0.77	1320	0.77	1330	0.51	1340	0.51
1350	0.77	1360	0.51	1370	0.51	1380	0.51	1390	0.51
1400	0.26	1420	0.13	1440	0.10	1460	0.01	1500	0.01

← PEAK Q100 AT 1156 min: 16.17 cfs / 5.00 AC

PRORATED FOR 0.25 AC:
$= 16.17 \text{ cfs} \times \frac{0.25 \text{ AC}}{5.00 \text{ AC}}$
$= 0.8 \text{ cfs}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005     1  001C Header place holder
005     1  002C Header place holder
999
999
006     1  001C 060090000506A97                          G1
006     1  002C 060090000506A97                        1 C2
999
```

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK
SUBAREA 11D 0.30AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Model Results

NODE ID	SOIL N VALUES	RAIN ZONE	TC VEL (MIN)	% IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z) CHNL SIDES	(FT/S) (FT)
1D : SUBAREA 11D															
1D	060	J'100	6	0	5	10	5	10	1156	-------	----	-------	---	----	----- ----- -- --
2D : SUBAREA 11D															
2D : Clearing Hydrograph Bank: D															
2D	060	J'100	6	0	5	10	5	10	1156	-------	----	-------	---	----	----- ----- -- --

1 MIN. PER TC CALCULATOR. USE 6 MIN. MINIMUM TC INPUT ALLOWED BY VCRAT CALCULATOR.

5AC MINIMUM AREA INPUT ALLOWED BY VCRAT CALCULATOR, TO BE PRORATED FOR 0.30 AC.

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2D

DESCRIPTION: SUBAREA 11D
2D : Clearing Hydrograph Bank: D

TOTAL AREA TO HYDROGRAPH: 5 acres
HYDROGRAPH PEAK: 10 cfs
TIME OF PEAK: 1156 minutes
HYDROGRAPH VOLUME: 0.15 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.00	200	0.00	300	0.00	400	0.00
500	0.00	600	0.00	700	0.00	800	0.00	900	0.00
1000	0.00	1050	0.00	1100	0.00	1110	0.00	1120	0.00
1130	0.00	1131	0.00	1132	0.00	1133	0.62	1134	1.11
1135	1.47	1136	1.81	1137	1.81	1138	1.76	1139	1.81
1140	1.81	1141	2.00	1142	2.17	1143	2.34	1144	2.58
1145	3.01	1146	3.41	1147	3.68	1148	3.94	1149	3.44
1150	2.92	1151	3.84	1152	8.17	1153	9.14	1154	9.14
1155	9.68	1156	9.93	1157	8.35	1158	3.61	1159	2.00
1160	1.22	1161	0.40	1162	0.29	1163	0.00	1164	0.00
1165	0.00	1166	0.00	1167	0.00	1168	0.00	1169	0.00
1170	0.00	1171	0.00	1172	0.00	1173	0.00	1174	0.00
1175	0.00	1176	0.00	1177	0.00	1178	0.00	1179	0.00
1180	0.00	1181	0.00	1182	0.00	1183	0.00	1184	0.00
1185	0.00	1186	0.00	1187	0.00	1188	0.00	1189	0.00
1190	0.00	1191	0.00	1192	0.00	1193	0.00	1194	0.00
1195	0.00	1196	0.00	1197	0.00	1198	0.00	1199	0.00
1200	0.00	1201	0.00	1202	0.00	1203	0.00	1204	0.00
1205	0.00	1206	0.00	1207	0.00	1208	0.00	1209	0.00
1210	0.00	1211	0.00	1212	0.00	1213	0.00	1214	0.00
1215	0.00	1216	0.00	1217	0.00	1218	0.00	1219	0.00
1220	0.00	1221	0.00	1222	0.00	1223	0.00	1224	0.00
1225	0.00	1226	0.00	1227	0.00	1228	0.00	1229	0.00
1230	0.00	1231	0.00	1232	0.00	1233	0.00	1234	0.00
1235	0.00	1236	0.00	1237	0.00	1238	0.00	1239	0.00
1240	0.00	1241	0.00	1242	0.00	1243	0.00	1244	0.00
1245	0.00	1246	0.00	1247	0.00	1248	0.00	1249	0.00
1250	0.00	1251	0.00	1252	0.00	1253	0.00	1254	0.00
1255	0.00	1256	0.00	1257	0.00	1258	0.00	1259	0.00
1260	0.00	1261	0.00	1262	0.00	1263	0.00	1264	0.00
1265	0.00	1266	0.00	1267	0.00	1268	0.00	1269	0.00
1270	0.00	1271	0.00	1272	0.00	1273	0.00	1274	0.00
1275	0.00	1276	0.00	1277	0.00	1278	0.00	1279	0.00
1280	0.00	1281	0.00	1282	0.00	1283	0.00	1284	0.00
1285	0.00	1286	0.00	1287	0.00	1288	0.00	1289	0.00
1290	0.00	1291	0.00	1292	0.00	1293	0.00	1294	0.00
1295	0.00	1296	0.00	1297	0.00	1298	0.00	1299	0.00
1300	0.00	1310	0.00	1320	0.00	1330	0.00	1340	0.00
1350	0.00	1360	0.00	1370	0.00	1380	0.00	1390	0.00
1400	0.00	1420	0.00	1440	0.00	1460	0.00	1500	0.00

← PEAK Q100 AT 1156 min: 9.93 cfs / 5.00 AC

PRORATED FOR 0.30 AC:

$= 9.93 \text{ cfs} \times \frac{0.30 \text{ AC.}}{5.00 \text{ AC}}$

$= 0.6 \text{ cfs}$

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Page: 4

VCRat Model Input

Model Lines

```
005     1  001D Header place holder
005     1  002D Header place holder
999
999
006     1  001D 060000000506A97                          G1
006     1  002D 060000000506A97                        1 D2
999
```

APPENDIX C

DETENTION ANALYSIS

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Modified Rational Model Results Report

Job: 1 Project: PentAir, Moorpark

Project Description

JOB #3885 PENTAIR, MOORPARK.
SUBAREAS 1A-5A 3.90AC

VCRat version: 2.6.2009.7
VCRain version: 200703
DOS EXE version: PC 2.2-200809

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Model Results

NODE ID	SOIL N VALUES	RAIN TYPE	TC VEL ZONE	% DEPTH IMP	AREA (AC)	FLOW (CFS)	AREA (AC)	FLOW (CFS)	TIME (MIN)	CHANNEL TYPE	LENGTH (FT)	SLOPE (FT/FT)	SIZE (FT)	H:V (Z) CHNL SIDES	(FT/S)	(FT)
1A : SUBAREAS 1A-5A																
1A	060	J'100	6	90	5	16	5	16	1156	-------	----	-------	---	----	-----	-----
2A : SUBAREAS 1A-5A																
2A : Clearing Hydrograph Bank: A																
2A	060	J'100	6	90	5	16	5	16	1156	-------	----	-------	---	----	-----	-----

Issue/Warning Messages

TYPE	ERR NO	PROCEDURE	LOCATION	MESSAGE

NO ISSUES OR WARNINGS DETECTED

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

Hydrograph Printouts

HYDROGRAPH PRINTOUT AT: 2A

DESCRIPTION: SUBAREAS 1A-5A
2A : Clearing Hydrograph Bank: A

TOTAL AREA TO HYDROGRAPH: 5 acres
HYDROGRAPH PEAK: 16 cfs
TIME OF PEAK: 1156 minutes
HYDROGRAPH VOLUME: 2.24 acre-ft

TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)	TIME (min)	FLOW (cfs)
0	0.00	100	0.51	200	0.51	300	0.54	400	0.59
500	0.69	600	0.77	700	0.88	800	1.12	900	1.36
1000	1.67	1050	2.00	1100	2.49	1110	3.18	1120	3.85
1130	3.33	1131	3.63	1132	3.93	1133	4.25	1134	4.60
1135	4.94	1136	5.27	1137	5.27	1138	5.22	1139	5.27
1140	5.27	1141	5.50	1142	5.73	1143	5.96	1144	6.29
1145	6.88	1146	7.44	1147	7.81	1148	8.17	1149	7.48
1150	6.75	1151	8.04	1152	13.90	1153	15.15	1154	15.15
1155	15.84	1156	16.17	1157	14.13	1158	7.71	1159	5.50
1160	4.70	1161	4.14	1162	4.09	1163	3.85	1164	3.59
1165	3.63	1166	3.42	1167	3.25	1168	3.04	1169	2.61
1170	2.91	1171	2.78	1172	2.69	1173	2.65	1174	2.61
1175	2.91	1176	2.39	1177	2.35	1178	2.39	1179	2.31
1180	2.27	1181	2.18	1182	2.05	1183	1.97	1184	1.84
1185	1.80	1186	1.71	1187	1.67	1188	1.71	1189	1.75
1190	1.75	1191	1.84	1192	1.88	1193	1.92	1194	1.97
1195	1.97	1196	1.97	1197	1.97	1198	1.97	1199	1.97
1200	1.97	1201	2.01	1202	2.10	1203	2.14	1204	2.18
1205	2.27	1206	2.31	1207	2.31	1208	2.31	1209	2.31
1210	2.31	1211	2.18	1212	2.05	1213	1.92	1214	1.80
1215	1.67	1216	1.54	1217	1.54	1218	1.54	1219	1.54
1220	1.54	1221	1.54	1222	1.54	1223	1.54	1224	1.54
1225	1.54	1226	1.54	1227	1.54	1228	1.54	1229	1.54
1230	1.54	1231	1.54	1232	1.54	1233	1.54	1234	1.54
1235	1.54	1236	1.54	1237	1.54	1238	1.54	1239	1.54
1240	1.54	1241	1.50	1242	1.45	1243	1.41	1244	1.37
1245	1.33	1246	1.28	1247	1.28	1248	1.28	1249	1.28
1250	1.28	1251	1.28	1252	1.28	1253	1.28	1254	1.28
1255	1.28	1256	1.28	1257	1.28	1258	1.28	1259	1.28
1260	1.28	1261	1.28	1262	1.28	1263	1.28	1264	1.28
1265	1.28	1266	1.28	1267	1.28	1268	1.28	1269	1.28
1270	1.28	1271	1.24	1272	1.20	1273	1.15	1274	1.11
1275	1.07	1276	1.03	1277	1.03	1278	1.03	1279	1.03
1280	1.03	1281	1.03	1282	1.03	1283	1.03	1284	1.03
1285	1.03	1286	1.03	1287	1.03	1288	1.03	1289	1.03
1290	1.03	1291	1.03	1292	1.03	1293	1.03	1294	1.03
1295	1.03	1296	1.03	1297	1.03	1298	1.03	1299	1.03
1300	1.03	1310	0.77	1320	0.77	1330	0.51	1340	0.51
1350	0.77	1360	0.51	1370	0.51	1380	0.51	1390	0.51
1400	0.26	1420	0.13	1440	0.10	1460	0.01	1500	0.01

Ventura County Watershed Protection District
Modified Rational Method Hydrology Program (VCRat v2.6)

Job: 1 Project: PentAir, Moorpark

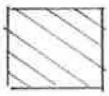
Page: 4

VCRat Model Input

Model Lines

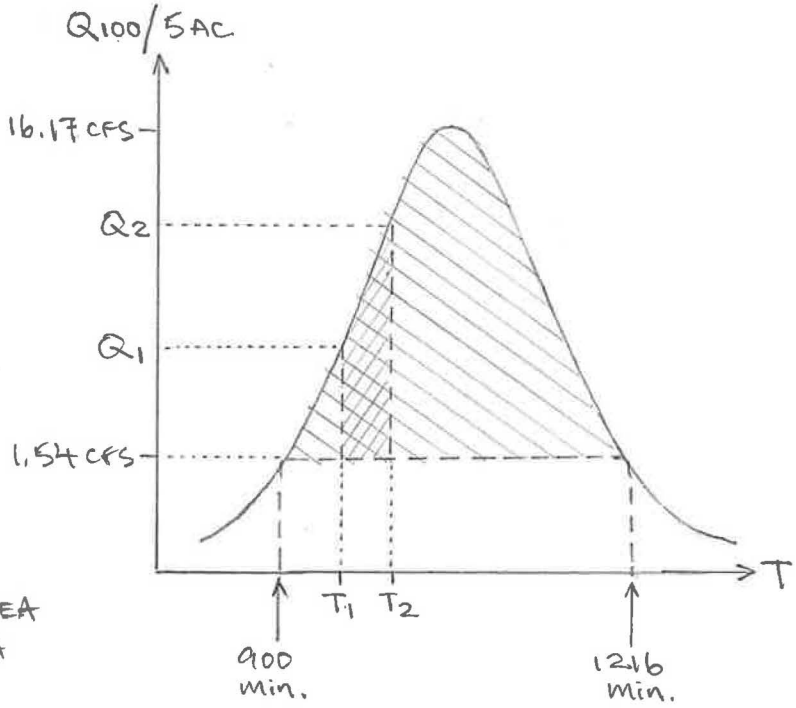
```
005     1  001A Header place holder
005     1  002A Header place holder
999
999
006     1  001A 060090000506A97                          G1
006     1  002A 060090000506A97                        1 A2
999
```

SUBAREAS 1A-5A DETENTION VOLUME CALCULATIONS



TOTAL REQUIRED DETENTION VOLUME FOR SUBAREAS 1A-5A

VOLUME BETWEEN TIMES T_1 AND T_2



16.17 CFS = PEAK Q_{100} RUNOFF FOR SUBAREAS 1A-5A

$$1.2\ \text{CFS} \times \frac{5.00\ \text{AC}}{3.90\ \text{AC}} = 1.54\ \text{CFS}$$

- 5.00 AC: TRIBUTARY AREA FOR HYDROGRAPH
- 3.90 AC: ACTUAL TRIBUTARY AREA FOR SUBAREAS 1A-5A
- 1.2 CFS: INTENDED Q_{100} DISCHARGE FROM SUBAREAS 1A-5A

VOLUME BETWEEN TIMES T_1 AND T_2

$$= (T_2 - T_1) \times \left[(Q_1 - 1.54\ \text{CFS}) + (Q_2 - 1.54\ \text{CFS}) \right] / 2$$

e.g. VOLUME BETWEEN 1000 MIN. AND 1050 MIN.

$$= (1050 - 1000)\ \text{MIN} \times \frac{60\ \text{SEC}}{\text{MIN}} \times \left[(1.67 - 1.54)\frac{\text{FT}^3}{\text{SEC}} + (2.00 - 1.54)\frac{\text{FT}^3}{\text{SEC}} \right] / 2$$

$$= 885\ \text{FT}^3$$

SEE NEXT PAGE FOR TOTAL REQUIRED DETENTION VOLUME

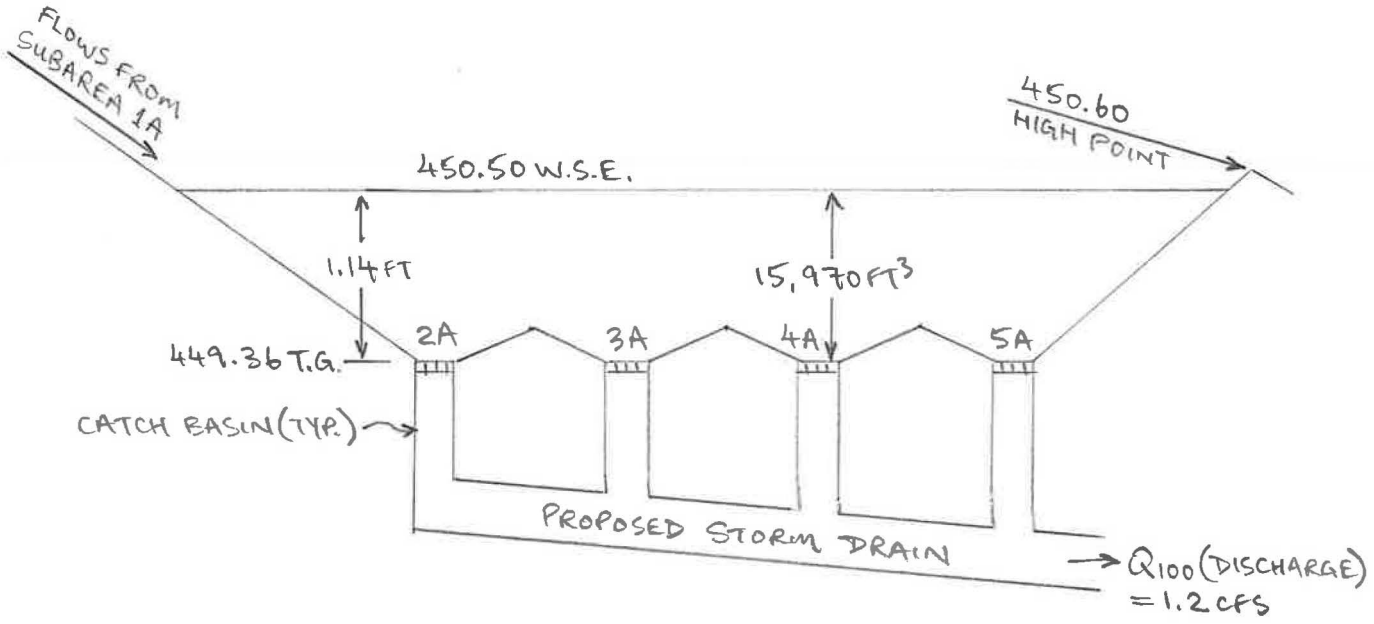
SUBAREAS 1A-5A DETENTION VOLUME CALCULATIONS

Q100-Discharge = 1.20 CFS per 3.9 acres
= 1.54 CFS per 5 acres
Total Volume = 20475 FT^3 per 5 acres = 15970 FT^3 per 3.9 acres

Time(Min)	Q(CFS)	V(FT^3)	Total V(FT^3)
900	1.54	0	0
1000	1.67	390	390
1050	2.00	885	1275
1100	2.49	2115	3390
1110	3.18	777	4167
1120	3.85	1185	5352
1130	3.33	1230	6582
1131	3.63	116	6698
1132	3.93	134	6833
1133	4.25	153	6986
1134	4.60	173	7159
1135	4.94	194	7353
1136	5.27	214	7567
1137	5.27	224	7790
1138	5.22	222	8013
1139	5.27	222	8235
1140	5.27	224	8459
1141	5.50	231	8690
1142	5.73	245	8934
1143	5.96	258	9192
1144	6.29	275	9467
1145	6.88	303	9770
1146	7.44	337	10107
1147	7.81	365	10472
1148	8.17	387	10859
1149	7.48	377	11237
1150	6.75	335	11571
1151	8.04	351	11922
1152	13.90	566	12488
1153	15.15	779	13267
1154	15.15	817	14084
1155	15.84	837	14921
1156	16.17	868	15789
1157	14.13	817	16606
1158	7.71	563	17168
1159	5.50	304	17472
1160	4.70	214	17686
1161	4.14	173	17859
1162	4.09	155	18013
1163	3.85	146	18159
1164	3.59	131	18290
1165	3.63	124	18414
1166	3.42	119	18533
1167	3.25	108	18641
1168	3.04	96	18737
1169	2.61	77	18814
1170	2.91	73	18887
1171	2.78	78	18966
1172	2.69	72	19037
1173	2.65	68	19105
1174	2.61	65	19171
1175	2.91	73	19244
1176	2.39	67	19310
1177	2.35	50	19360
1178	2.39	50	19410
1179	2.31	49	19459
1180	2.27	45	19504
1181	2.18	41	19545
1182	2.05	35	19579
1183	1.97	28	19607
1184	1.84	22	19629
1185	1.80	17	19646
1186	1.71	13	19659
1187	1.67	9	19668
1188	1.71	9	19677
1189	1.75	11	19688
1190	1.75	13	19701
1191	1.84	15	19716
1192	1.88	19	19736
1193	1.92	22	19757
1194	1.97	24	19781
1200	1.97	155	19936
1201	2.01	27	19963
1202	2.10	31	19994
1203	2.14	35	20029
1204	2.18	37	20066
1205	2.27	41	20107
1206	2.31	45	20152
1210	2.31	185	20337
1211	2.18	42	20379
1212	2.05	35	20414
1213	1.92	27	20441
1214	1.80	19	20460
1215	1.67	12	20471
1216	1.54	4	20475

JOB #3885 PENTAIR, MOORPARK
TRUCK YARD VOLUME, SUBAREAS 1A-5A

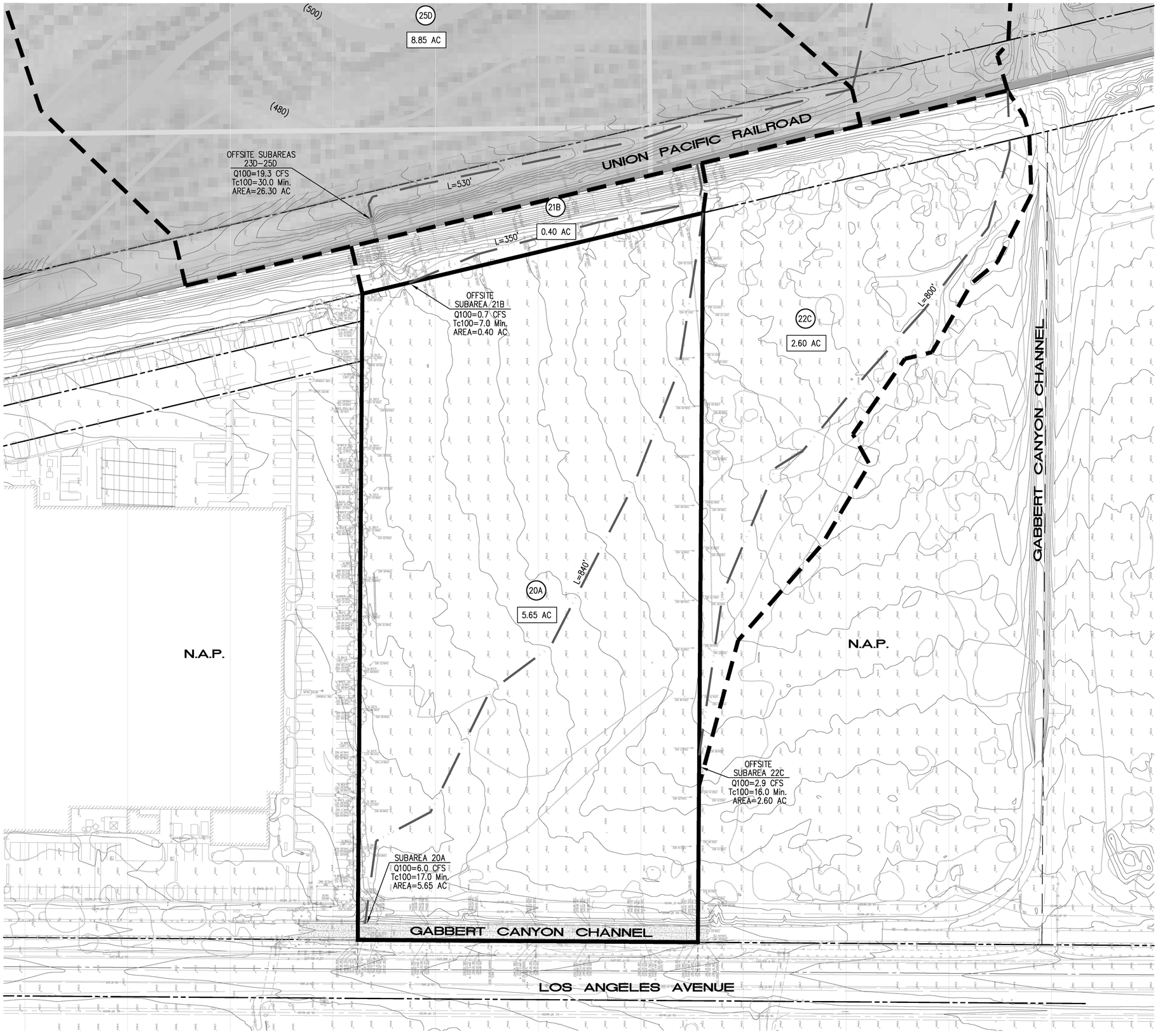
Elevation	Depth (feet)	Area (s.f.)	Volume (c.f.)	Σ Volume (c.f.)	Σ Volume (ac-ft)	
449.36	0.00	0				
			563	563	0.01	
449.60	0.24	4690				
			1659	2222	0.05	
449.80	0.44	11900				
			2821	5043	0.12	
450.00	0.64	16310				
			3753	8796	0.20	
450.20	0.84	21220				
			4711	13507	0.31	15,970 FT³
450.40	1.04	25890				≈ 450.50 W.S.E.
			5636	19143	0.44	1.14 FT DEPTH
450.60	1.24	30470				

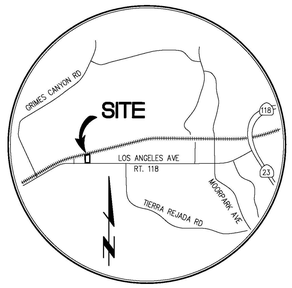


APPENDIX D

HYDROLOGY MAP

SEE SHEET 2





VICINITY MAP
N.T.S.

LEGEND

- PROJECT BOUNDARY
- SUBAREA BOUNDARY
- FLOW PATH
- 1.00 AC. — SUBAREA AREA
- 1A — SUBAREA NUMBER

0 20 40 80 120

SCALE: 1"=40'

Last Update: 5/24/22
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CITY OF MOORPARK
PUBLIC WORKS DEPARTMENT

EXISTING CONDITION HYDROLOGY MAP

PENTAIR

LOS ANGELES AVENUE MOORPARK, CA

3885/1 OF 2 SHEETS

PREPARED FOR:
AMIR DEVELOPMENT CO.
ATTN: STEVEN JUHNKE
8730 WILSHIRE BLVD, SUITE 300
BEVERLY HILLS, CA 90211
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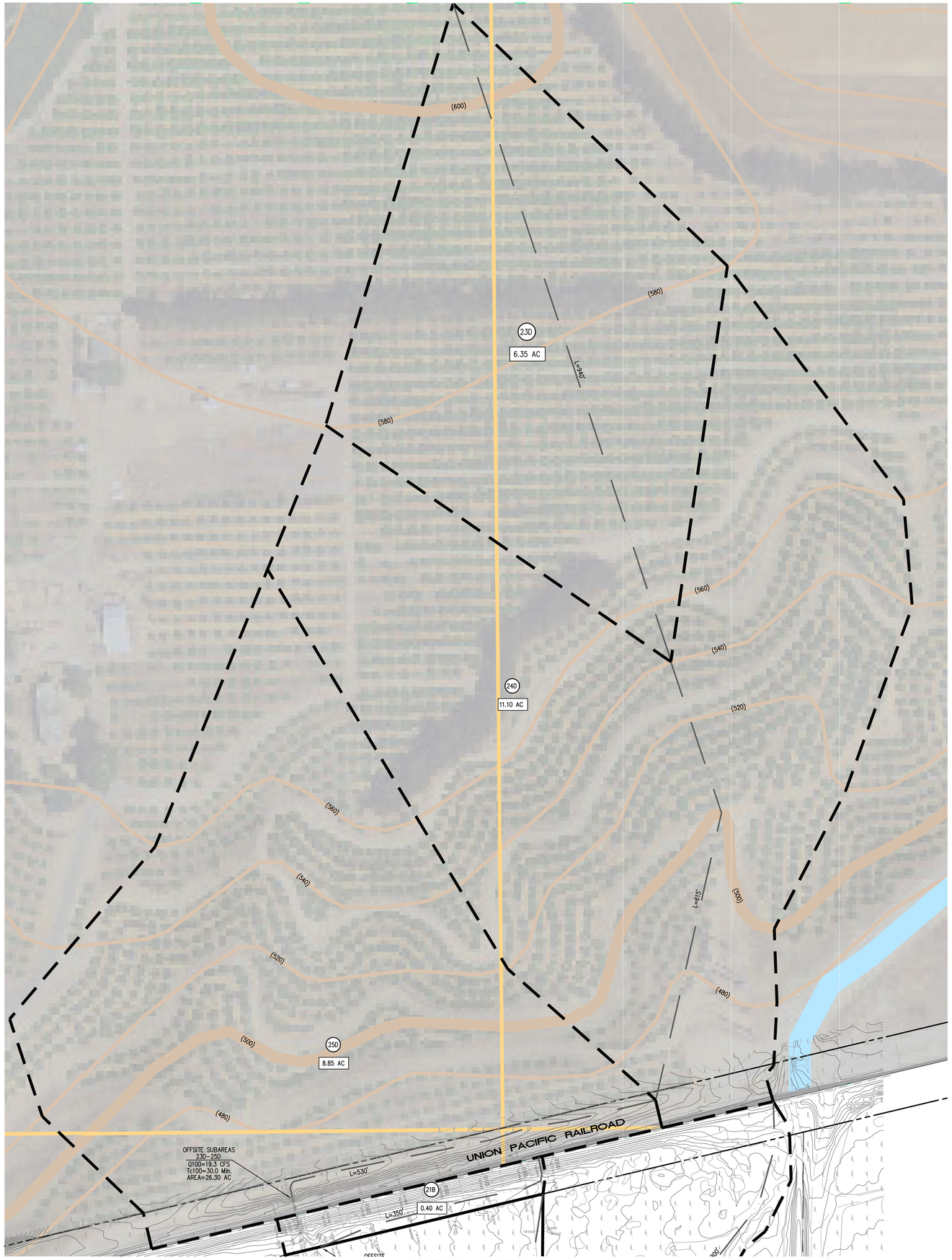
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH:(714)521-4811 FAX:(714)521-4173

Designed by _____ Date _____
Checked by _____ Date _____
Designed by _____ Date _____
Checked by _____ Date _____

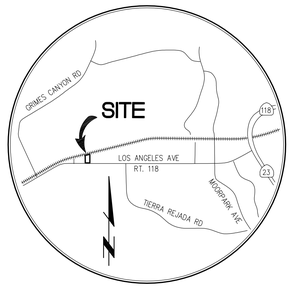
Approved by _____ Date _____

Public Works Director R.C.E. XXXXX

Sheet 1 of 2 Sheets



SEE SHEET 1

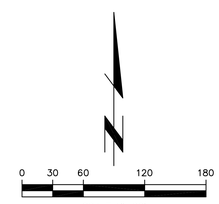


VICINITY MAP

N.T.S.

LEGEND

- PROJECT BOUNDARY
- SUBAREA BOUNDARY
- FLOW PATH
- 1.00 AC. — SUBAREA AREA
- 1A — SUBAREA NUMBER



SCALE: 1"=60'

Last Update:5/24/22
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CITY OF MOORPARK
PUBLIC WORKS DEPARTMENT

EXISTING CONDITION HYDROLOGY MAP

PENTAIR

LOS ANGELES AVENUE
MOORPARK, CA

3885/2 OF 2 SHEETS

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Checked by _____ Date _____
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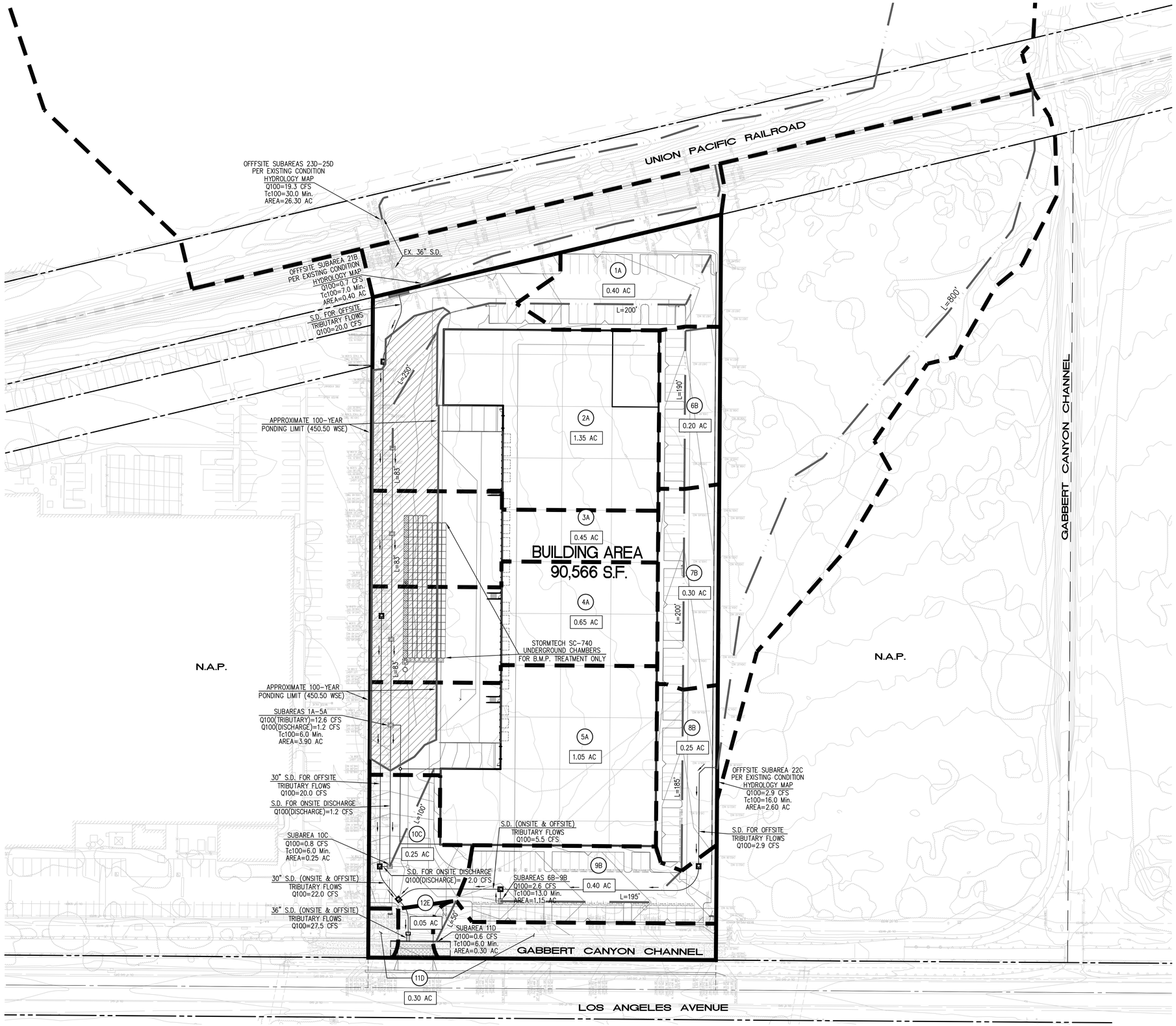
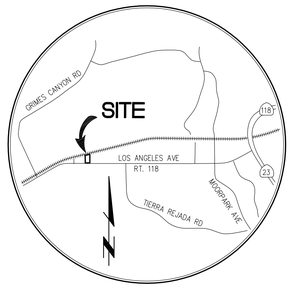
Checked by _____ Date _____

Approved by _____ Date _____
Public Works Director _____ R.C.E. XXXXX

Sheet 2 of 2 Sheets

SEE EXISTING CONDITION HYDROLOGY MAP FOR TRIBUTARY OFFSITE AREAS





VICINITY MAP
N.T.S.

LEGEND

- PROJECT BOUNDARY
- SUBAREA BOUNDARY
- FLOW PATH
- 1.00 AC. — SUBAREA AREA
- 1A — SUBAREA NUMBER
- APPROXIMATE 100-YEAR PONDING LIMIT

0 20 40 80 120
SCALE: 1"=40'

Last Update:5/24/22
O:\3800-3899\3885\3885HYD.dwg

CITY OF MOORPARK
PUBLIC WORKS DEPARTMENT

PROPOSED CONDITION HYDROLOGY MAP

PENTAIR

LOS ANGELES AVENUE MOORPARK, CA

3885/1 OF 1 SHEET

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Designed by _____ Date _____
Checked by _____ Date _____
Approved by _____ Date _____
Designed by _____ Date _____
Checked by _____ Date _____
Public Works Director _____ R.C.E. XXXXX

Sheet 1 of 1 Sheets