



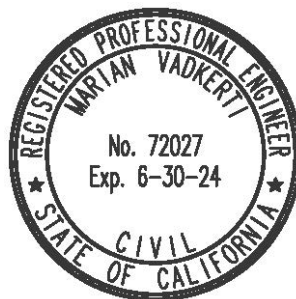
2552 WHITE ROAD, SUITE B • IRVINE, CA 92614  
949/660-0110 FAX: 660-0418  
CIVIL ENGINEERS - PLANNERS - LAND SURVEYORS

**PRELIMINARY**  
**DRAINAGE STUDY**  
**FOR**  
**TALBERT RESIDENTIAL**  
**8572 TALBERT AVENUE**  
**IN THE**  
**CITY OF FOUNTAIN VALLEY, CA**

**NOVEMBER 2022**

**PREPARED BY:**

**WALDEN & ASSOCIATES**  
**2552 WHITE ROAD, SUITE B**  
**IRVINE, CA 92614**



**JN: 2086-948-001**



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## SECTION 1

### DISCUSSION



## **PURPOSE:**

This drainage study is provided to demonstrate that the proposed site improvements at 8572 Talbert Avenue, Fountain Valley (APN 112-781-73 and 112-781-74) will not have an adverse impact to the existing drainage system and will provide the required storm protection according to the standards of the City of Fountain Valley. This Report abides by the most current City and OCFCD procedures.

## **PROJECT DESCRIPTION:**

The rectangular-shaped project site is currently developed with a single residential unit along with its associated hardscape and landscape features and is roughly bounded by Talbert Avenue to the north, an SCE easement to the east with residential tracts beyond, an existing residential tract to south and west.

The existing site is 1.41-acres; however, the site will be required to dedicate approximately 0.03 acres for public street improvements; therefore, the proposed site will be 1.38-acres and the improvements will consist of 15-single family residential units ranging from 1,850 to 2,240 square feet in size with associated hardscape and landscape features. Currently, there is one existing driveway (W= +/-115-feet) along Talbert Avenue. When the project is completed, there will be two driveways (W=25-feet) along Talbert Avenue. In addition, a water quality storm water features will be added (refer to the WQMP prepared under separate cover). The WQMP ("first flush") flow will be diverted into the water quality features and directed to two small pump stations before being released into Talbert Avenue. All other runoff will be allowed to surface flow onto Talbert Avenue. Since there is only an approximate 1.0 cfs increase, no mitigation will be implemented.

## **DESCRIPTION OF WATERSHED:**

The existing project site is relatively flat and sheet flows in a northeasterly direction, discharging directly onto Talbert Avenue.

The proposed development will maintain similar drainage patterns to the existing, except a private storm drain system including grated catch basins, will be introduced along with water quality features as stated above to capture the project's runoff. The runoff will then be released via a pump through curb drains along Talbert Avenue.

Should the drainage system clog for any reason, the storm flow will enter Talbert Avenue before inundating the residential buildings.

	Acreage	10-Year	25-Year	100-Year
Existing				
Subarea "A" Q's	1.41 ac	2.50 cfs	3.05 cfs	3.96 cfs
Proposed				
Subarea "A" Q's	0.36 ac	0.90 cfs	1.08 cfs	1.36 cfs
Subarea "B" Q's	0.31 ac	0.76 cfs	0.92 cfs	1.18 cfs
Subarea "C" Q's	0.35 ac	0.92 cfs	1.10 cfs	1.41 cfs
Subarea "D" Q's	0.36 ac	0.92 cfs	1.10 cfs	1.41 cfs
<b>Total</b>	<b>1.38 ac</b>	<b>3.50 cfs</b>	<b>4.20 cfs</b>	<b>5.36 cfs</b>
<b>Difference</b>	<b>-0.03</b>	<b>+1.00cfs</b>	<b>+1.15 cfs</b>	<b>+1.40 cfs</b>

The increase in Q is due to the change in impervious area related to the proposed development.

**METHODOLOGY:**

The criteria and methodology as outlined in the 1986 Orange County Hydrology Manual and the 1996 Manual Addendum was used for this study. The Rational Method for Hydrology Analysis utilized the CivilCADD / Civil Design Engineering software. The soil has been identified from the maps accompanying the Orange County Hydrology Manual as being of Hydrologic Soil Group D. The calculations were done for the 10, 25 and 100-year storm frequencies.

**FLOODING HAZARDS:**

Based on the most current Flood Insurance Rate Map Number 06059C02253J, dated December 3, 2009 prepared by the Federal Emergency Management Agency (FEMA), the site has been determined to lie within zone X (no shading) which is an area determined to be outside the 1% (100-year) and 0.2% (500-year) annual chance floodplain.

Per City and County requirements the finish floor elevation of the buildings will be 1.0' higher than the 100-year storm event along the northerly right-of-way along Talbert Avenue and therefore will be safe from the 100-year storm.

**SUMMARY:**

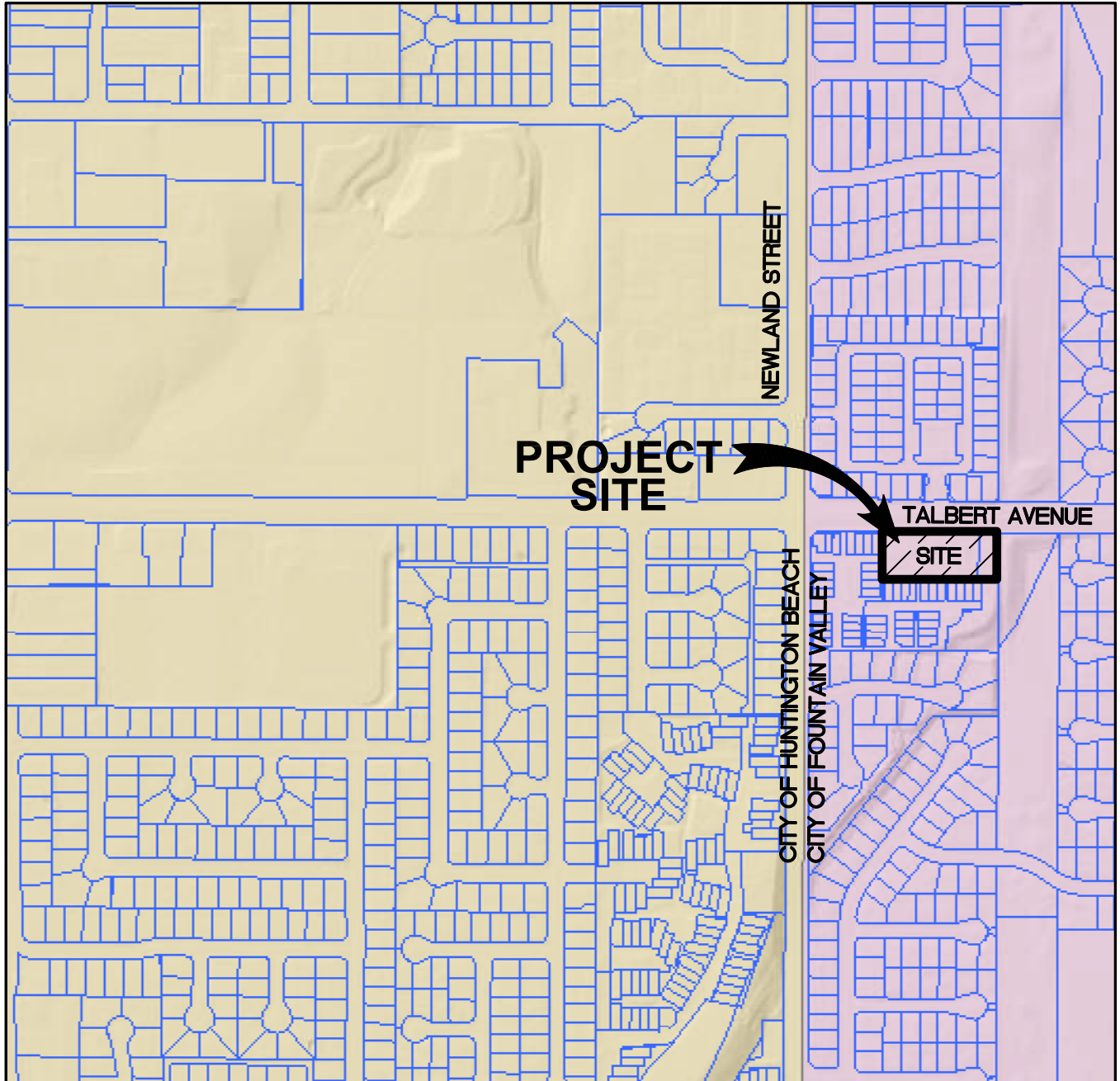
The finish floor elevation of the proposed buildings will be at least 1.0' higher than the finish surface at the driveways; therefore, all structures are protected from inundation should the storm drain system become inoperable and therefore are safe from the 100-year storm.

Plans for which this report was prepared will meet the standards of rainstorm protection as adopted by the City of Fountain Valley and will not have any adverse impact to the existing conditions.

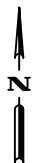


## **SECTION 2**

### **VICINITY MAP**



NOTE: PROJECT IS IN GRID C2 OF  
MAP 858 OF THE THOMAS GUIDE



NO SCALE



**ALDEN &  
ASSOCIATES**

CIVIL ENGINEERS - LAND SURVEYORS - PLANNERS  
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(949) 660-0110 FAX: 660-0418

## LOCATION MAP

### TALBERT RESIDENTIAL FOUNTAIN VALLEY, CA

W.O. No. 2086-948-001  
Engr. SK Chk'd. MV

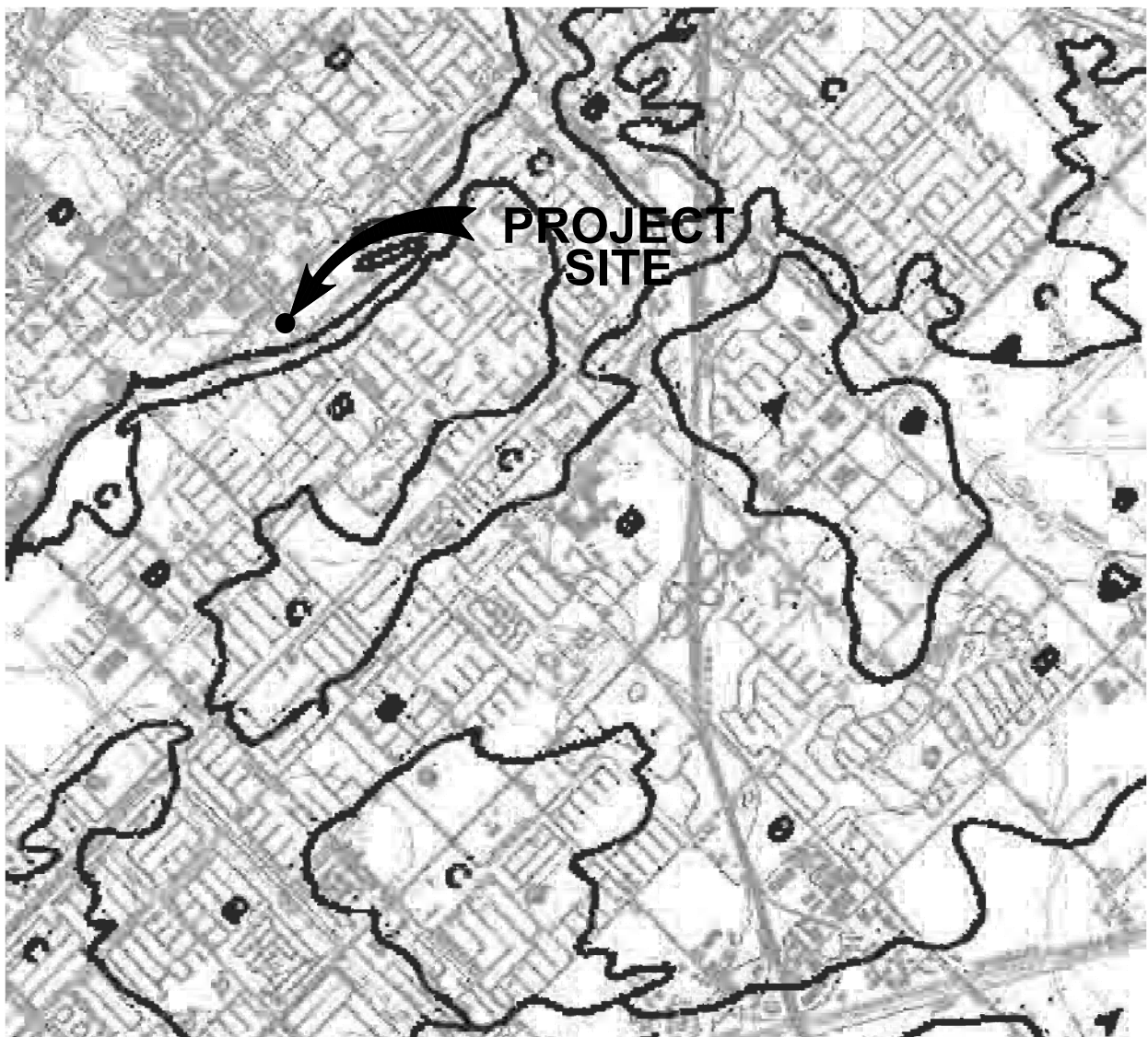
Date 6/2022  
Sheet 1 of 1



### **SECTION 3**

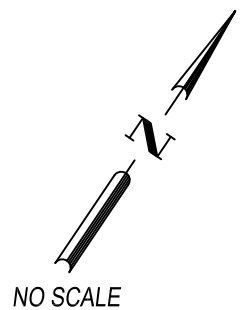
## **HYDROLOGIC CLASSIFICATION OF SOIL PER ORANGE COUNTY HYDROLOGY MANUAL**





HYDROLOGIC CLASSIFICATIONS OF SOILS  
ORANGE COUNTY, CALIFORNIA - PLATE A

NOTE: PROJECT IS IN GRID C2 OF  
MAP 858 OF THE THOMAS GUIDE



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(949) 660-0110 FAX: 660-0418

## HYDROLOGIC SOILS MAP

### TALBERT RESIDENTIAL FOUNTAIN VALLEY, CA

W.O. No. 2086-948-001  
Engr. SK Chk'd. MV

Date 6/2022  
Sheet 1 of 1



## **SECTION 4**

### **HYDROLOGY STUDY EXISTING**

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2012 Version 8.2  
Rational Hydrology Study, Date: 06/07/22 File Name: 2086E10.roc

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TALBERT RESIDENTIAL  
FOUNTAIN VALLEY, CALIFORNIA  
2086-948-001  
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Program License Serial Number 6293

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 1.000 to Point/Station 2.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA A-1

---

RESIDENTIAL(1 acre lot)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.160(In/Hr)  
Initial subarea data:  
Initial area flow distance = 300.000(Ft.)  
Top (of initial area) elevation = 47.500(Ft.)  
Bottom (of initial area) elevation = 46.400(Ft.)  
Difference in elevation = 1.100(Ft.)  
Slope = 0.00367 s(%)= 0.37  
TC =  $k(0.469)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 14.098 min.  
Rainfall intensity = 2.241(In/Hr) for a 10.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.836  
Subarea runoff = 1.967(CFS)  
Total initial stream area = 1.050(Ac.)

+++++  
Process from Point/Station            2.000 to Point/Station            3.000  
\*\*\*\* IRREGULAR CHANNEL FLOW TRAVEL TIME \*\*\*\* SUBAREA A-2

-----  
Estimated mean flow rate at midpoint of channel =        2.271(CFS)  
Depth of flow =    0.341(Ft.), Average velocity =    1.706(Ft/s)  
!!Warning: Water is above left or right bank elevations  
          \*\*\*\*\* Irregular Channel Data \*\*\*\*\*

-----  
Information entered for subchannel number 1 :  
Point number            'X' coordinate            'Y' coordinate  
          1                0.00                0.20  
          2                2.50                0.00  
          3                5.00                0.10  
Manning's 'N' friction factor =    0.035  
-----

Sub-Channel flow    =        2.271(CFS)  
'        '    flow top width =        5.000(Ft.)  
'        '    velocity=        1.706(Ft/s)  
'        '    area =        1.331(Sq.Ft)  
'        '    Froude number =        0.583

Upstream point elevation =        46.400(Ft.)  
Downstream point elevation =        45.200(Ft.)  
Flow length =    127.000(Ft.)  
Travel time    =    1.24 min.  
Time of concentration =    15.34 min.  
Depth of flow =    0.341(Ft.)  
Average velocity =    1.706(Ft/s)  
Total irregular channel flow =        2.271(CFS)  
Irregular channel normal depth above invert elev. =    0.341(Ft.)  
Average velocity of channel(s) =    1.706(Ft/s)  
!!Warning: Water is above left or right bank elevations  
  Adding area flow to channel  
RESIDENTIAL(1 acre lot)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.8000    Max loss rate(Fp)=        0.200(In/Hr)  
Max Catchment Loss (Fm) =        0.160(In/Hr)  
Rainfall intensity =        2.136(In/Hr) for a    10.0 year storm  
Effective runoff coefficient used for area,(total area with modified  
rational method)(Q=KCIA) is C = 0.833  
Subarea runoff =        0.540(CFS) for        0.360(Ac.)  
Total runoff =        2.507(CFS)    Total area =        1.41(Ac.)  
Area averaged Fm value =        0.160(In/Hr)  
Depth of flow =    0.358(Ft.), Average velocity =    1.775(Ft/s)  
!!Warning: Water is above left or right bank elevations  
End of computations, total study area =        1.41 (Ac.)  
The following figures may  
be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area

effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.800

Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2012 Version 8.2  
Rational Hydrology Study, Date: 06/07/22 File Name: 2086E25.roc

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TALBERT RESIDENTIAL  
FOUNTAIN VALLEY, CALIFORNIA  
2086-948-001  
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Program License Serial Number 6293

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 1.000 to Point/Station 2.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\*SUBAREA A-1

---

RESIDENTIAL(1 acre lot)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.160(In/Hr)  
Initial subarea data:  
Initial area flow distance = 300.000(Ft.)  
Top (of initial area) elevation = 47.500(Ft.)  
Bottom (of initial area) elevation = 46.400(Ft.)  
Difference in elevation = 1.100(Ft.)  
Slope = 0.00367 s(%)= 0.37  
TC =  $k(0.469)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 14.098 min.  
Rainfall intensity = 2.683(In/Hr) for a 25.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.846  
Subarea runoff = 2.384(CFS)  
Total initial stream area = 1.050(Ac.)

+++++  
Process from Point/Station            2.000 to Point/Station            3.000  
\*\*\*\* IRREGULAR CHANNEL FLOW TRAVEL TIME \*\*\*\* SUBAREA A-2

Estimated mean flow rate at midpoint of channel =        2.756(CFS)  
Depth of flow =    0.374(Ft.), Average velocity =    1.843(Ft/s)  
!!Warning: Water is above left or right bank elevations  
\*\*\*\*\* Irregular Channel Data \*\*\*\*\*

-----  
Information entered for subchannel number 1 :  
Point number            'X' coordinate            'Y' coordinate  
      1                0.00                0.20  
      2                2.50                0.00  
      3                5.00                0.10  
Manning's 'N' friction factor =    0.035  
-----

Sub-Channel flow    =        2.756(CFS)  
'        '        flow top width =        5.000(Ft.)  
'        '        velocity=        1.843(Ft/s)  
'        '        area =        1.495(Sq.Ft)  
'        '        Froude number =        0.594

Upstream point elevation =        46.400(Ft.)  
Downstream point elevation =        45.200(Ft.)  
Flow length =    127.000(Ft.)  
Travel time    =    1.15 min.  
Time of concentration =    15.25 min.  
Depth of flow =    0.374(Ft.)  
Average velocity =    1.843(Ft/s)  
Total irregular channel flow =        2.756(CFS)  
Irregular channel normal depth above invert elev. =    0.374(Ft.)  
Average velocity of channel(s) =    1.843(Ft/s)  
!!Warning: Water is above left or right bank elevations  
Adding area flow to channel  
RESIDENTIAL(1 acre lot)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.8000    Max loss rate(Fp)=        0.200(In/Hr)  
Max Catchment Loss (Fm) =        0.160(In/Hr)  
Rainfall intensity =        2.566(In/Hr) for a        25.0 year storm  
Effective runoff coefficient used for area,(total area with modified  
rational method)(Q=KCIA) is C = 0.844  
Subarea runoff =        0.670(CFS) for        0.360(Ac.)  
Total runoff =        3.054(CFS)        Total area =        1.41(Ac.)  
Area averaged Fm value =        0.160(In/Hr)  
Depth of flow =    0.393(Ft.), Average velocity =    1.920(Ft/s)  
!!Warning: Water is above left or right bank elevations  
End of computations, total study area =        1.41 (Ac.)  
The following figures may  
be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area

effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.800

Area averaged SCS curve number (AMC 2) = 75.0



Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2012 Version 8.2  
Rational Hydrology Study, Date: 06/07/22 File Name: 2086E100.roc

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FOUNTAIN VALLEY, CALIFORNIA  
2086-948-001  
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Program License Serial Number 6293

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 1.000 to Point/Station 2.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA A-1

---

RESIDENTIAL(1 acre lot)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.8000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.160(In/Hr)  
Initial subarea data:  
Initial area flow distance = 300.000(Ft.)  
Top (of initial area) elevation = 47.500(Ft.)  
Bottom (of initial area) elevation = 46.400(Ft.)  
Difference in elevation = 1.100(Ft.)  
Slope = 0.00367 s(%)= 0.37  
 $TC = k(0.469)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 14.098 min.  
Rainfall intensity = 3.416(In/Hr) for a 100.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.858  
Subarea runoff = 3.077(CFS)  
Total initial stream area = 1.050(Ac.)

+++++  
Process from Point/Station            2.000 to Point/Station            3.000  
\*\*\*\* IRREGULAR CHANNEL FLOW TRAVEL TIME \*\*\*\* SUBAREA A-2

-----  
Estimated mean flow rate at midpoint of channel =        3.562(CFS)  
Depth of flow =    0.424(Ft.), Average velocity =    2.042(Ft/s)  
!!Warning: Water is above left or right bank elevations  
          \*\*\*\*\* Irregular Channel Data \*\*\*\*\*

-----  
Information entered for subchannel number 1 :  
Point number            'X' coordinate            'Y' coordinate  
          1                0.00                0.20  
          2                2.50                0.00  
          3                5.00                0.10  
Manning's 'N' friction factor =    0.035  
-----

Sub-Channel flow    =        3.562(CFS)  
'        '    flow top width =        5.000(Ft.)  
'        '    velocity=        2.042(Ft/s)  
'        '    area =        1.744(Sq.Ft)  
'        '    Froude number =        0.609

Upstream point elevation =        46.400(Ft.)  
Downstream point elevation =        45.200(Ft.)  
Flow length =    127.000(Ft.)  
Travel time    =    1.04 min.  
Time of concentration =    15.13 min.  
Depth of flow =    0.424(Ft.)  
Average velocity =    2.042(Ft/s)  
Total irregular channel flow =        3.562(CFS)  
Irregular channel normal depth above invert elev. =    0.424(Ft.)  
Average velocity of channel(s) =    2.042(Ft/s)  
!!Warning: Water is above left or right bank elevations  
Adding area flow to channel  
RESIDENTIAL(1 acre lot)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.8000    Max loss rate(Fp)=        0.200(In/Hr)  
Max Catchment Loss (Fm) =        0.160(In/Hr)  
Rainfall intensity =        3.280(In/Hr) for a    100.0 year storm  
Effective runoff coefficient used for area,(total area with modified  
rational method)(Q=KCIA) is C = 0.856  
Subarea runoff =        0.882(CFS) for        0.360(Ac.)  
Total runoff =        3.959(CFS)        Total area =        1.41(Ac.)  
Area averaged Fm value =        0.160(In/Hr)  
Depth of flow =    0.447(Ft.), Average velocity =    2.131(Ft/s)  
!!Warning: Water is above left or right bank elevations  
End of computations, total study area =        1.41 (Ac.)  
The following figures may  
be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area

effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.800

Area averaged SCS curve number (AMC 2) = 75.0



## **SECTION 5**

### **HYDROLOGY STUDY PROPOSED**

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2012 Version 8.2  
Rational Hydrology Study, Date: 06/08/22 File Name: 2086ap10.roc

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TALBERT RESIDENTIAL  
FOUNTAIN VALLEY, CALIFORNIA  
2086-948-001  
-----

Program License Serial Number 6293

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 1.000 to Point/Station 2.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA A-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 222.000(Ft.)  
Top (of initial area) elevation = 47.800(Ft.)  
Bottom (of initial area) elevation = 46.200(Ft.)  
Difference in elevation = 1.600(Ft.)  
Slope = 0.00721 s(%)= 0.72  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 9.056 min.  
Rainfall intensity = 2.888(In/Hr) for a 10.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869  
Subarea runoff = 0.903(CFS)  
Total initial stream area = 0.360(Ac.)  
End of computations, total study area = 0.36 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2012 Version 8.2  
Rational Hydrology Study, Date: 06/08/22 File Name: 2086AP25.roc

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TALBERT RESIDENTIAL  
FOUNTAIN VALLEY, CALIFORNIA  
2086-948-001  
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Program License Serial Number 6293

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 1.000 to Point/Station 2.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA A-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 222.000(Ft.)  
Top (of initial area) elevation = 47.800(Ft.)  
Bottom (of initial area) elevation = 46.200(Ft.)  
Difference in elevation = 1.600(Ft.)  
Slope = 0.00721 s(%)= 0.72  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 9.056 min.  
Rainfall intensity = 3.446(In/Hr) for a 25.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.874  
Subarea runoff = 1.084(CFS)  
Total initial stream area = 0.360(Ac.)  
End of computations, total study area = 0.36 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0



Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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2086-948-001  
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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 1.000 to Point/Station 2.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA A-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 222.000(Ft.)  
Top (of initial area) elevation = 47.800(Ft.)  
Bottom (of initial area) elevation = 46.200(Ft.)  
Difference in elevation = 1.600(Ft.)  
Slope = 0.00721 s(%)= 0.72  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 9.056 min.  
Rainfall intensity = 4.402(In/Hr) for a 100.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880  
Subarea runoff = 1.394(CFS)  
Total initial stream area = 0.360(Ac.)  
End of computations, total study area = 0.36 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 3.000 to Point/Station 4.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\*SUBAREA B-1

---

SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio( $A_p$ ) = 0.5000 Max loss rate( $F_p$ )= 0.200(In/Hr)  
Max Catchment Loss ( $F_m$ ) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 235.000(Ft.)  
Top (of initial area) elevation = 47.800(Ft.)  
Bottom (of initial area) elevation = 46.200(Ft.)  
Difference in elevation = 1.600(Ft.)  
Slope = 0.00681 s(%)= 0.68  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 9.371 min.  
Rainfall intensity = 2.832(In/Hr) for a 10.0 year storm  
Effective runoff coefficient used for area ( $Q=KCIA$ ) is  $C = 0.868$   
Subarea runoff = 0.762(CFS)  
Total initial stream area = 0.310(Ac.)  
End of computations, total study area = 0.31 (Ac.)  
The following figures may  
be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area  
effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500

Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 3.000 to Point/Station 4.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA B-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 235.000(Ft.)  
Top (of initial area) elevation = 47.800(Ft.)  
Bottom (of initial area) elevation = 46.200(Ft.)  
Difference in elevation = 1.600(Ft.)  
Slope = 0.00681 s(%)= 0.68  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 9.371 min.  
Rainfall intensity = 3.380(In/Hr) for a 25.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.873  
Subarea runoff = 0.915(CFS)  
Total initial stream area = 0.310(Ac.)  
End of computations, total study area = 0.31 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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-----  
\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 3.000 to Point/Station 4.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA B-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 235.000(Ft.)  
Top (of initial area) elevation = 47.800(Ft.)  
Bottom (of initial area) elevation = 46.200(Ft.)  
Difference in elevation = 1.600(Ft.)  
Slope = 0.00681 s(%)= 0.68  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 9.371 min.  
Rainfall intensity = 4.317(In/Hr) for a 100.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.879  
Subarea runoff = 1.177(CFS)  
Total initial stream area = 0.310(Ac.)  
End of computations, total study area = 0.31 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0



Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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2086-948-001  
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Program License Serial Number 6293

-----  
\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 5.000 to Point/Station 6.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA C-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 226.000(Ft.)  
Top (of initial area) elevation = 46.300(Ft.)  
Bottom (of initial area) elevation = 43.900(Ft.)  
Difference in elevation = 2.400(Ft.)  
Slope = 0.01062 s(%)= 1.06  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 8.441 min.  
Rainfall intensity = 3.007(In/Hr) for a 10.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.870  
Subarea runoff = 0.916(CFS)  
Total initial stream area = 0.350(Ac.)  
End of computations, total study area = 0.35 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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-----  
\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 5.000 to Point/Station 6.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA C-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 226.000(Ft.)  
Top (of initial area) elevation = 46.300(Ft.)  
Bottom (of initial area) elevation = 43.900(Ft.)  
Difference in elevation = 2.400(Ft.)  
Slope = 0.01062 s(%)= 1.06  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 8.441 min.  
Rainfall intensity = 3.587(In/Hr) for a 25.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.875  
Subarea runoff = 1.098(CFS)  
Total initial stream area = 0.350(Ac.)  
End of computations, total study area = 0.35 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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Program License Serial Number 6293

-----  
\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 5.000 to Point/Station 6.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA C-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 226.000(Ft.)  
Top (of initial area) elevation = 46.300(Ft.)  
Bottom (of initial area) elevation = 43.900(Ft.)  
Difference in elevation = 2.400(Ft.)  
Slope = 0.01062 s(%)= 1.06  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 8.441 min.  
Rainfall intensity = 4.584(In/Hr) for a 100.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880  
Subarea runoff = 1.412(CFS)  
Total initial stream area = 0.350(Ac.)  
End of computations, total study area = 0.35 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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2086-948-001  
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\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
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Rational hydrology study storm event year is 10.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 7.000 to Point/Station 8.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\*SUBAREA D-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 242.000(Ft.)  
Top (of initial area) elevation = 46.300(Ft.)  
Bottom (of initial area) elevation = 43.970(Ft.)  
Difference in elevation = 2.330(Ft.)  
Slope = 0.00963 s(%)= 0.96  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 8.846 min.  
Rainfall intensity = 2.927(In/Hr) for a 10.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.869  
Subarea runoff = 0.916(CFS)  
Total initial stream area = 0.360(Ac.)  
End of computations, total study area = 0.36 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0



Orange County Rational Hydrology Program

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Program License Serial Number 6293

-----  
\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 25.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

+++++  
Process from Point/Station 7.000 to Point/Station 8.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA D-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 242.000(Ft.)  
Top (of initial area) elevation = 46.300(Ft.)  
Bottom (of initial area) elevation = 43.970(Ft.)  
Difference in elevation = 2.330(Ft.)  
Slope = 0.00963 s(%)= 0.96  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 8.846 min.  
Rainfall intensity = 3.492(In/Hr) for a 25.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.874  
Subarea runoff = 1.099(CFS)  
Total initial stream area = 0.360(Ac.)  
End of computations, total study area = 0.36 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0

Orange County Rational Hydrology Program

(Hydrology Manual Date(s) October 1986 & November 1996)

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FOUNTAIN VALLEY, CALIFORNIA  
2086-948-001  
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Program License Serial Number 6293

-----  
\*\*\*\*\* Hydrology Study Control Information \*\*\*\*\*  
-----

Rational hydrology study storm event year is 100.0

Decimal fraction of study above 2000 ft., 600M = 0.0000  
English Units Used for input data

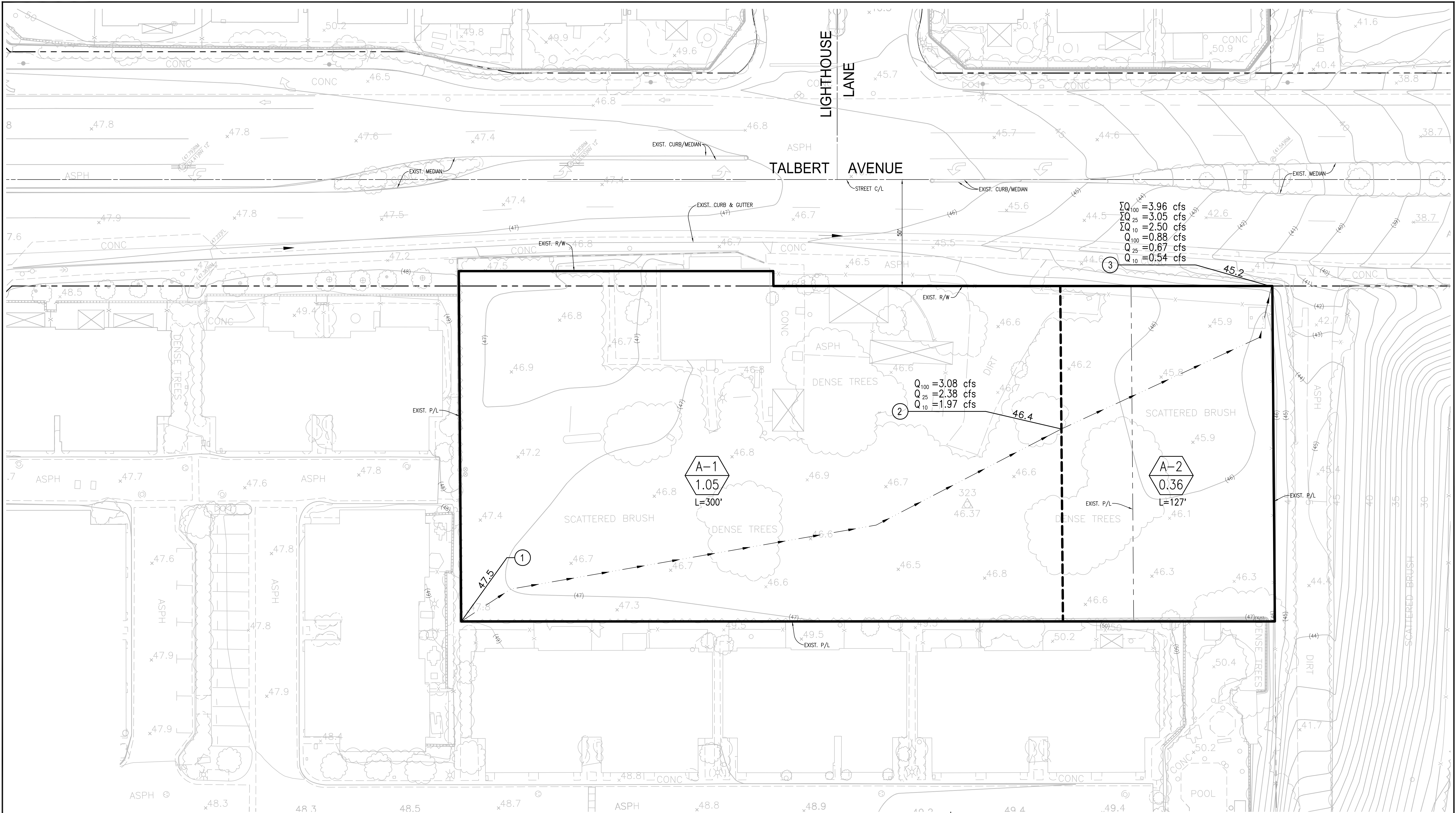
+++++  
Process from Point/Station 7.000 to Point/Station 8.000  
\*\*\*\* INITIAL AREA EVALUATION \*\*\*\* SUBAREA D-1

---

RESIDENTIAL(5 - 7 dwl/acre)  
Decimal fraction soil group A = 0.000  
Decimal fraction soil group B = 0.000  
Decimal fraction soil group C = 0.000  
Decimal fraction soil group D = 1.000  
SCS curve number for soil(AMC 2) = 75.00  
Pervious ratio(Ap) = 0.5000 Max loss rate(Fp)= 0.200(In/Hr)  
Max Catchment Loss (Fm) = 0.100(In/Hr)  
Initial subarea data:  
Initial area flow distance = 242.000(Ft.)  
Top (of initial area) elevation = 46.300(Ft.)  
Bottom (of initial area) elevation = 43.970(Ft.)  
Difference in elevation = 2.330(Ft.)  
Slope = 0.00963 s(%)= 0.96  
 $TC = k(0.389)*[(length^3)/(elevation\ change)]^{0.2}$   
Initial area time of concentration = 8.846 min.  
Rainfall intensity = 4.462(In/Hr) for a 100.0 year storm  
Effective runoff coefficient used for area (Q=KCIA) is C = 0.880  
Subarea runoff = 1.413(CFS)  
Total initial stream area = 0.360(Ac.)  
End of computations, total study area = 0.36 (Ac.)  
The following figures may

be used for a unit hydrograph study of the same area.  
Note: These figures do not consider reduced effective area effects caused by confluences in the rational equation.

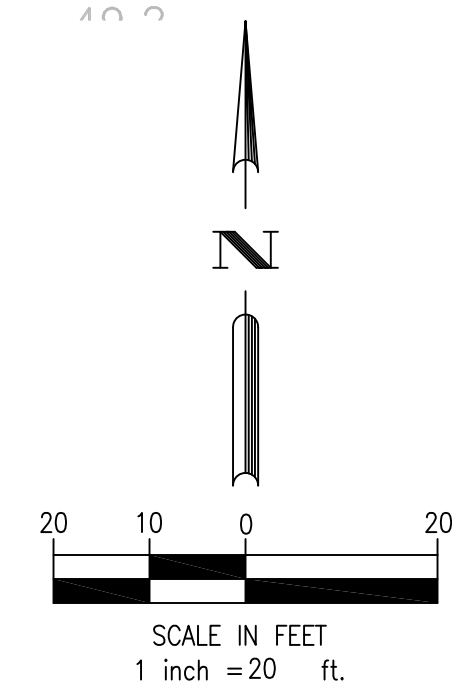
Area averaged pervious area fraction( $A_p$ ) = 0.500  
Area averaged SCS curve number (AMC 2) = 75.0



$\Sigma Q_{100} = 3.96$  cfs  
 $\Sigma Q_{25} = 3.05$  cfs  
 $\Sigma Q_{10} = 2.50$  cfs  
 $Q_{100} = 0.88$  cfs  
 $Q_{25} = 0.67$  cfs  
 $Q_{10} = 0.54$  cfs

$Q_{100} = 3.08$  cfs  
 $Q_{25} = 2.38$  cfs  
 $Q_{10} = 1.97$  cfs

- LEGEND:**
- INDICATES TRIBUTARY SUBAREA DESIGNATION
  - INDICATES TRIBUTARY SUBAREA ACREAGE
  - INDICATES FLOW DISTANCE THRU SUBAREA
  - INDICATES NODE NUMBER
  - INDICATES DRAINAGE AREA BOUNDARY
  - INDICATES DRAINAGE SUBAREA BOUNDARY
  - DENOTES 10-YEAR RUN-OFF FROM SUB-AREA
  - DENOTES 25-YEAR RUN-OFF FROM SUB-AREA
  - DENOTES 100-YEAR RUN-OFF FROM SUB-AREA
  - INDICATES MAIN FLOW PATH
  - INDICATES DIRECTION OF SHEET FLOW

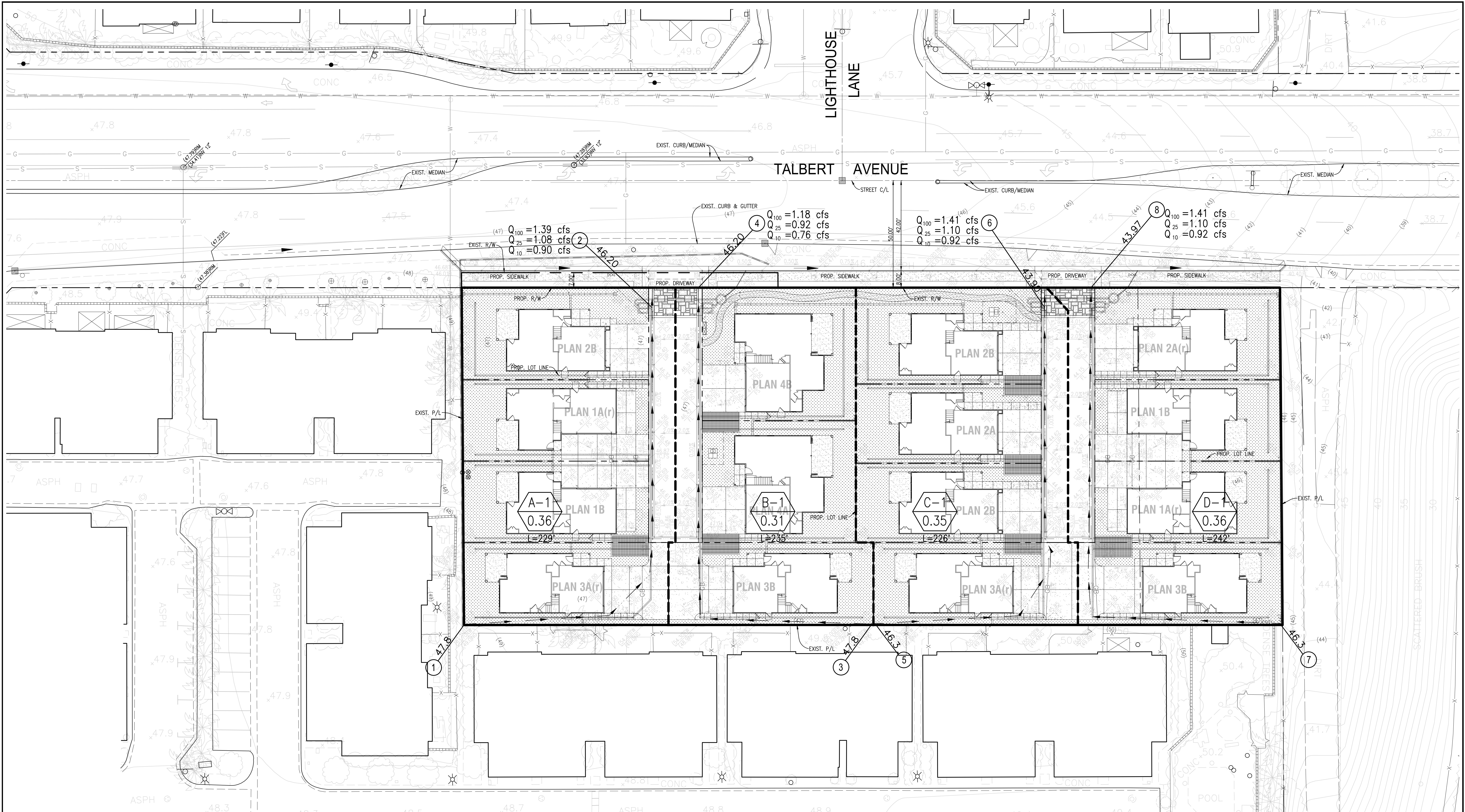


**WALDEN & ASSOCIATES**  
CIVIL ENGINEERS  
LAND SURVEYORS  
PLANNERS  
2552 WHITE ROAD, SUITE B, IRVINE, CA 92614  
(949) 660-0110 FAX: 660-0418

**EXISTING HYDROLOGY MAP**  
FOR  
**TALBERT RESIDENTIAL**  
**8572 TALBERT AVENUE**  
FOUNTAIN VALLEY, CALIFORNIA

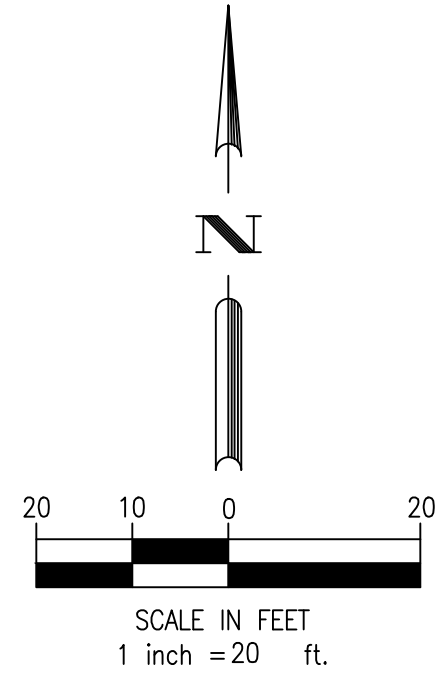
JOB NUMBER 2086-948-001
DATE: 6/6/2022
DRAWN: SK
CHECKED: MV
SHEET 1 OF 1





LEGEND:

- INDICATES TRIBUTARY SUBAREA DESIGNATION  
INDICATES TRIBUTARY SUBAREA ACREAGE  
INDICATES FLOW DISTANCE THRU SUBAREA
- INDICATES NODE NUMBER
- INDICATES DRAINAGE AREA BOUNDARY  
INDICATES DRAINAGE SUBAREA BOUNDARY
- $Q_{10} = 0.87\text{CFS}$  DENOTES 10-YEAR RUN-OFF FROM SUB-AREA  
 $Q_{25} = 1.20\text{CFS}$  DENOTES 25-YEAR RUN-OFF FROM SUB-AREA  
 $Q_{100} = 1.48\text{CFS}$  DENOTES 100-YEAR RUN-OFF FROM SUB-AREA
- INDICATES MAIN FLOW PATH  
 INDICATES DIRECTION OF SHEET FLOW



**W ALDEN & ASSOCIATES**  
CIVIL ENGINEERS  
LAND SURVEYORS  
PLANNERS  
2552 WHITE ROAD, SUITE B, IRVINE, CA 92614  
(949) 660-0110 FAX: 660-0418

**PROPOSED HYDROLOGY MAP**  
FOR  
**TALBERT RESIDENTIAL**  
**8572 TALBERT AVENUE**  
FOUNTAIN VALLEY, CALIFORNIA

JOB NUMBER	2086-948-001
DATE:	11/2022
DRAWN:	SK
CHECKED:	MV
SHEET	1
OF	1