Duke Barrett Building Option
DPR 18-00011
City of Perris, Riverside County, California

Preliminary Drainage Study

Prepared for:
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Revision Date(s): February, 2019

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Senior Engineer

TABLE OF CONTENTS

SECTION 1 - SUMMARY

PURPOSE

The purpose of this report is to document the hydrologic and hydraulic analyses performed in support of the Duke Barrett project located in the City of Perris, County of Riverside, California. The project site is located at the southeastern corner of Perry Street and Barrett Avenue. The project is bounded by Perry Street to the north, Barrett Avenue to the west, a residential and vacant lot to the south, and residential lot to the east. The project proposes to build a commercial/industrial facility on approximately 7.2 acres. This report will summarize the hydrologic and hydraulic analyses that were conducted in order to determine the necessary drainage improvements required to provide flood protection and safely convey the runoff for the proposed site.

The scope of this report will include the following:

- Determine the peak 100-year and 10-year flow rates for the developed condition using the Riverside County Flood Control and Water Conservation District (RCFC&WCD) Rational Method.
- Determine the required storm drain facilities, alignment, and sizes required to flood protect the project site.
- Determine the necessary basin volume and outlet structure required for water quality treatment and to mitigate for increases in runoff.
- Preparation of a preliminary report summarizing the hydrology and hydraulic results.

DESCRIPTION OF WATERSHED

As previously described, the project is proposing a commercial/industrial facility (approximately 312,758 square feet) on approximately 7.2 acres of vacant land. Existing elevations across the site vary from 1461 at the northwesterly corner to 1459 at the southeasterly corner (NAVD88 datum). The site currently slopes down at approximately 0.3% grade to the southeast. Presently, the runoff sheet flows in a southeasterly direction and drains to the existing Line E swale located approximately 600 feet south of the site's southerly property line along Ramona Expressway. Flow ultimately reaches and discharges into the Perris Valley Storm Drain (PVSD) which drains into the San Jacinto River before finally reaching Canyon Lake and Lake Elsinore.

The project is located within the Perris Valley Commerce Center (PVCC) specific plan and is also within the Perris Valley Master Drainage Plan (PVMDP) watershed area. The existing Line E storm drain channel is part of the PVCC MDP. Ultimately, in the future, Line E will be extended to connect to the existing RCB at Ramona Expressway and Indian Ave. However, until Line E is completely built up to Perris Blvd., the project will be required to mitigate for increases in runoff.

PROPOSED CONDITIONS

The project site is not impacted by off-site flows as there are existing streets and vacant lots around the perimeter of the project that convey any offsite flow away from the site. Onsite flows generated by the proposed project will surface flow through the site utilizing curb and gutter. There will also be a subsurface storm drain (Line A) to convey onsite flows into a proposed bioretention basin located in the southeasterly corner. The basin will have a 3.5-ft media section (2.5-ft of engineered media and 1-ft of gravel). The onsite flows will be treated for water quality treatment and then conveyed into Line B, which will discharge the flows into an existing MDP storm drain facility, Lateral E-11, located in Perris Boulevard. See Appendix C.

METHODOLOGY

HYDROLOGY

Hydrologic calculations were performed in accordance with the RCFC&WCD Hydrology Manual, dated April 1978. The Rational Method was utilized in determining peak flow rates.

The hydrological parameters, including rainfall values and soil types were derived from the RCFC&WCD Hydrology Manual. The isohyetal maps and soil map have been included in Section 2.

Rational Method calculations were performed using a computer program developed by CivilDesign Corporation and Joseph E. Bonadiman and Associates Inc. The computer program is commonly referred to as CivilD which incorporates the hydrological parameters outlined in the RCFC&WCD Hydrology Manual.

The Rational Method was used to determine the peak flow rates to size and design the drainage facilities need to convey onsite flows through the site to the proposed basin. The flow rates were computed by generating a hydrologic "link-node" model in which the overall area is divided into separate drainage sub-areas, each tributary to a concentration point (node) determined by the proposed layout and grading.

The Unit Hydrograph Method was used to determine the peak flow rates and volumes associated with the 100-year storm events for the site. Calculations were performed for both the existing condition and developed condition to be used in the analysis of the proposed basin. See Section 2 for additional information and results regarding the hydrologic analyses performed for this project.

HYDRAULICS

Water quality calculations were performed using spreadsheets that were created by RCFC&WCD. Final calculations and additional details can be found in the Final-WQMP.

Basin routing calculations were performed using the CivilD computer program. The CivilD program utilizes the Modified-Puls methodology to routes unit hydrographs through a basin using the stage-storage and stage-discharge curves determined from the proposed basin design. See Section 3 for additional discussion and results.

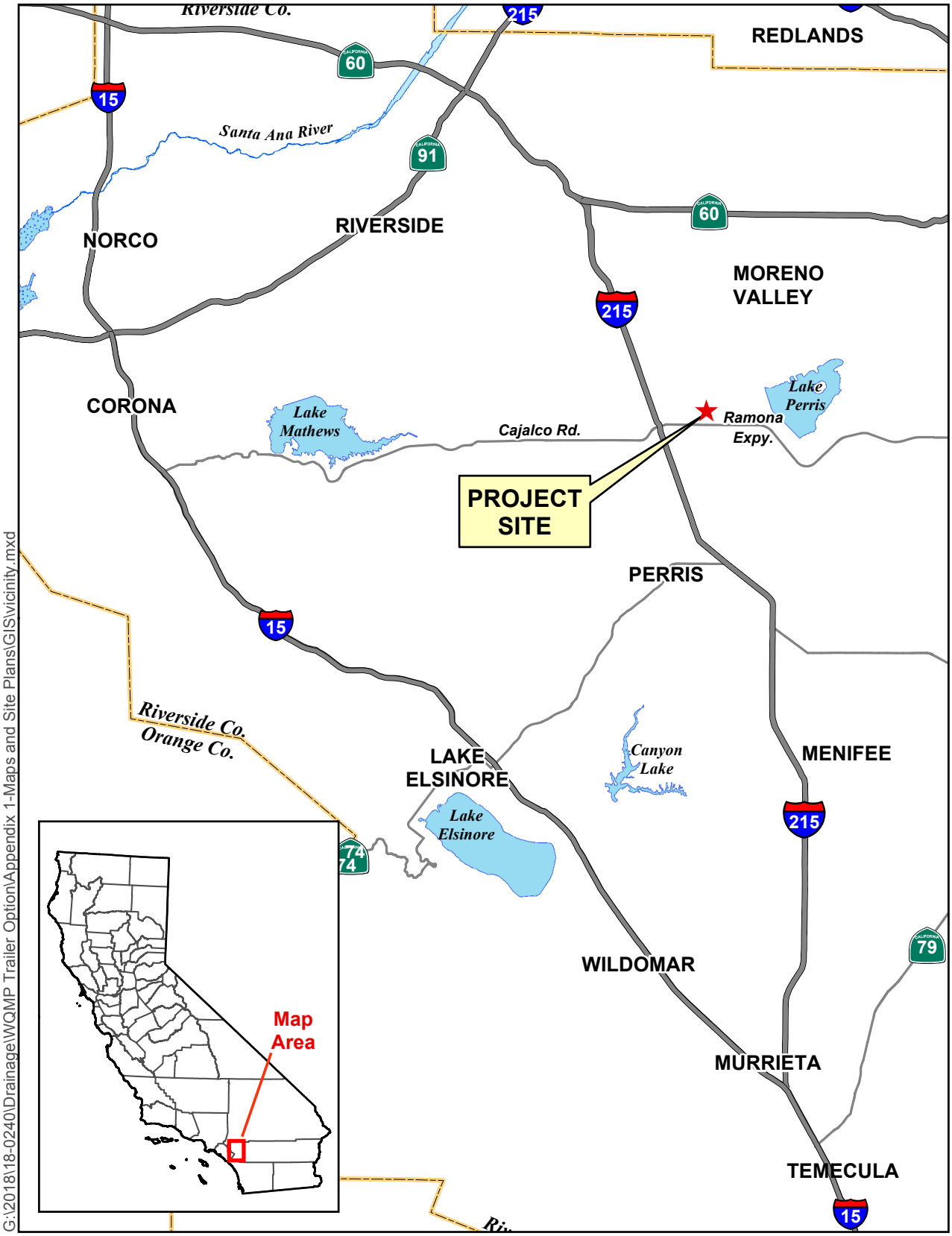
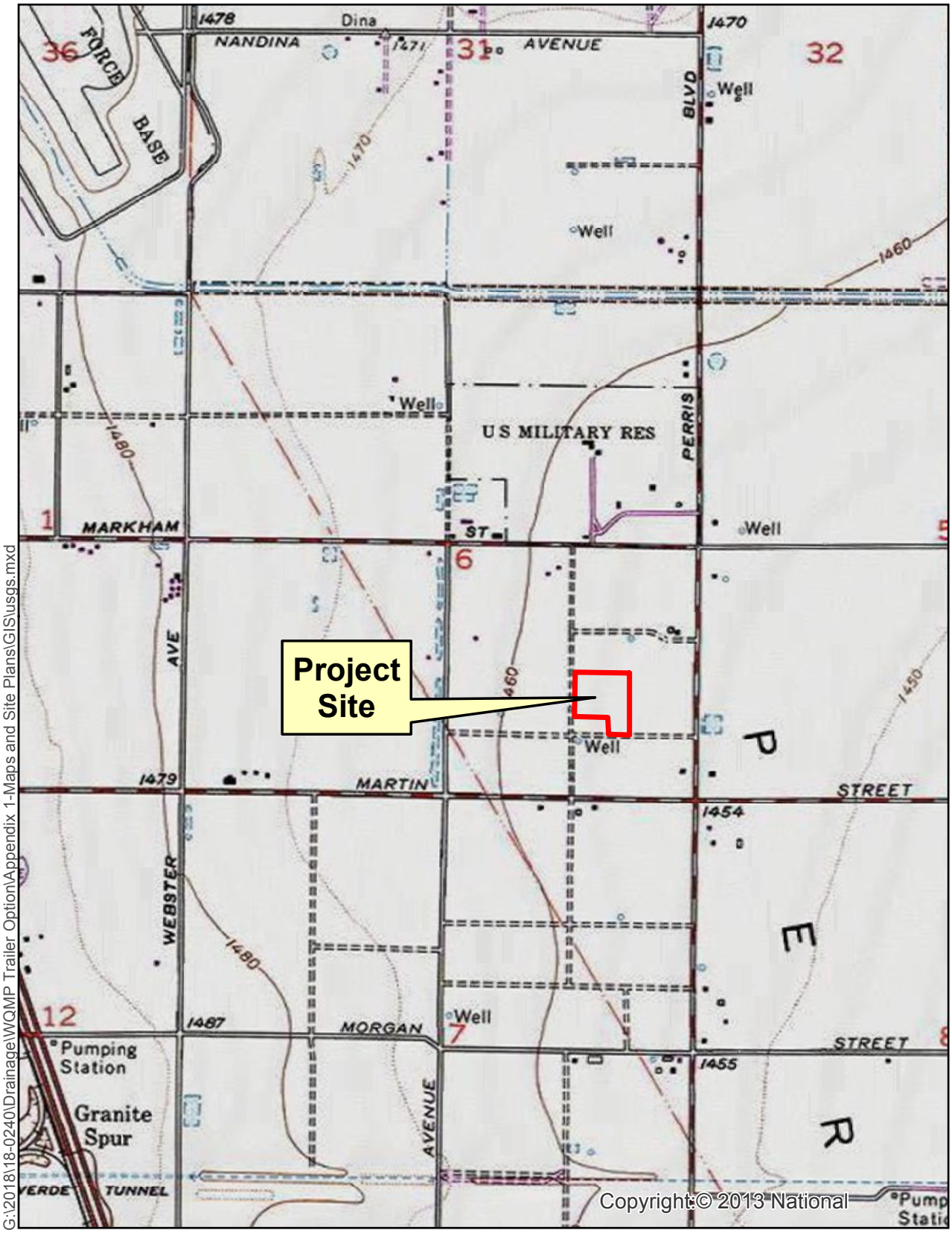


Figure 1. Vicinity Map

0 2.5 5 Miles



Sources: ESRI / USGS 7.5min Quad
DRGs: PERRIS

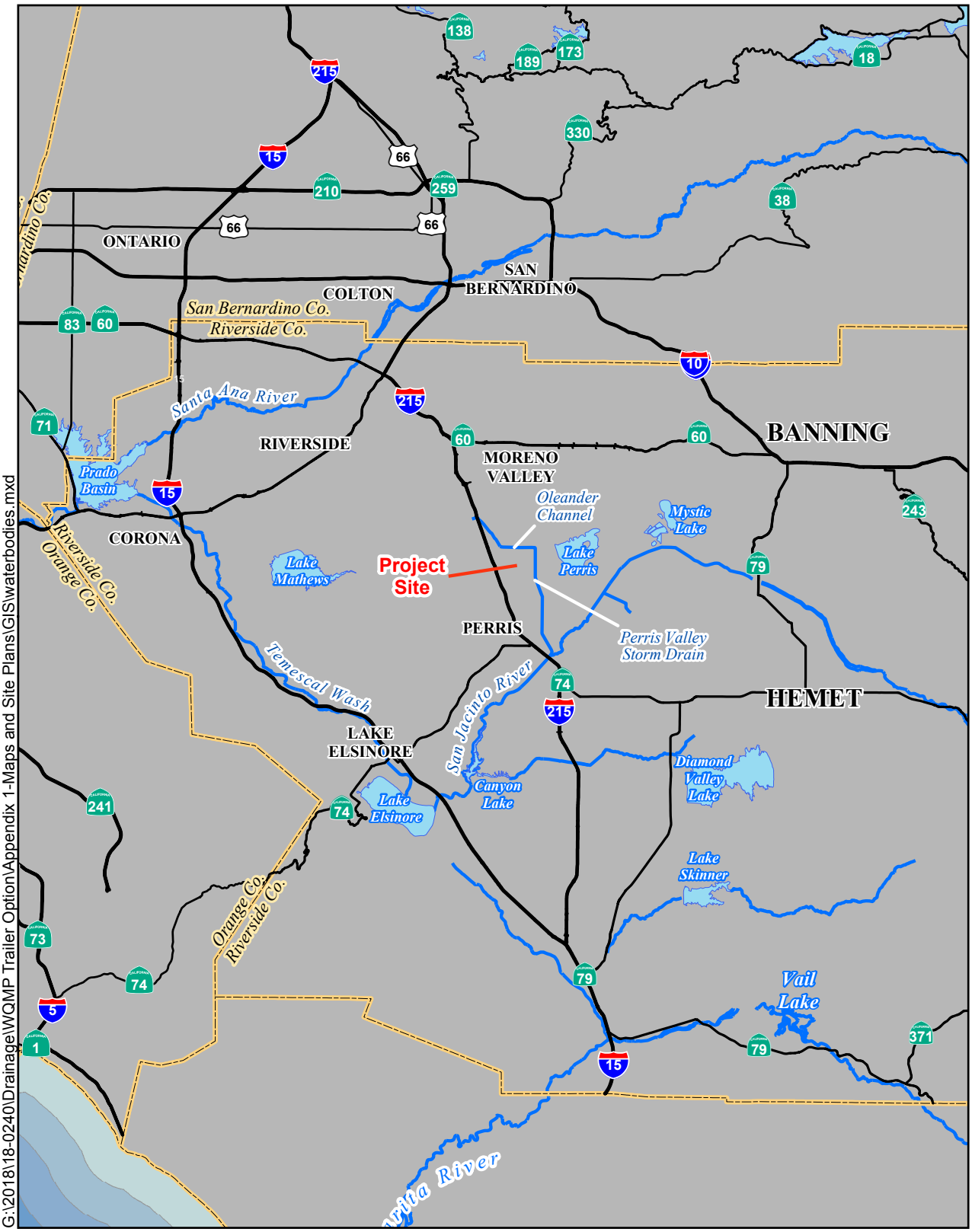
Figure 2. USGS Topography Map

0 1,000 2,000 Feet

Sources: County of Riverside GIS, 2013; Eagle Aerial, April 2012.

Figure 3. Aerial Photograph

0 400 800 Feet



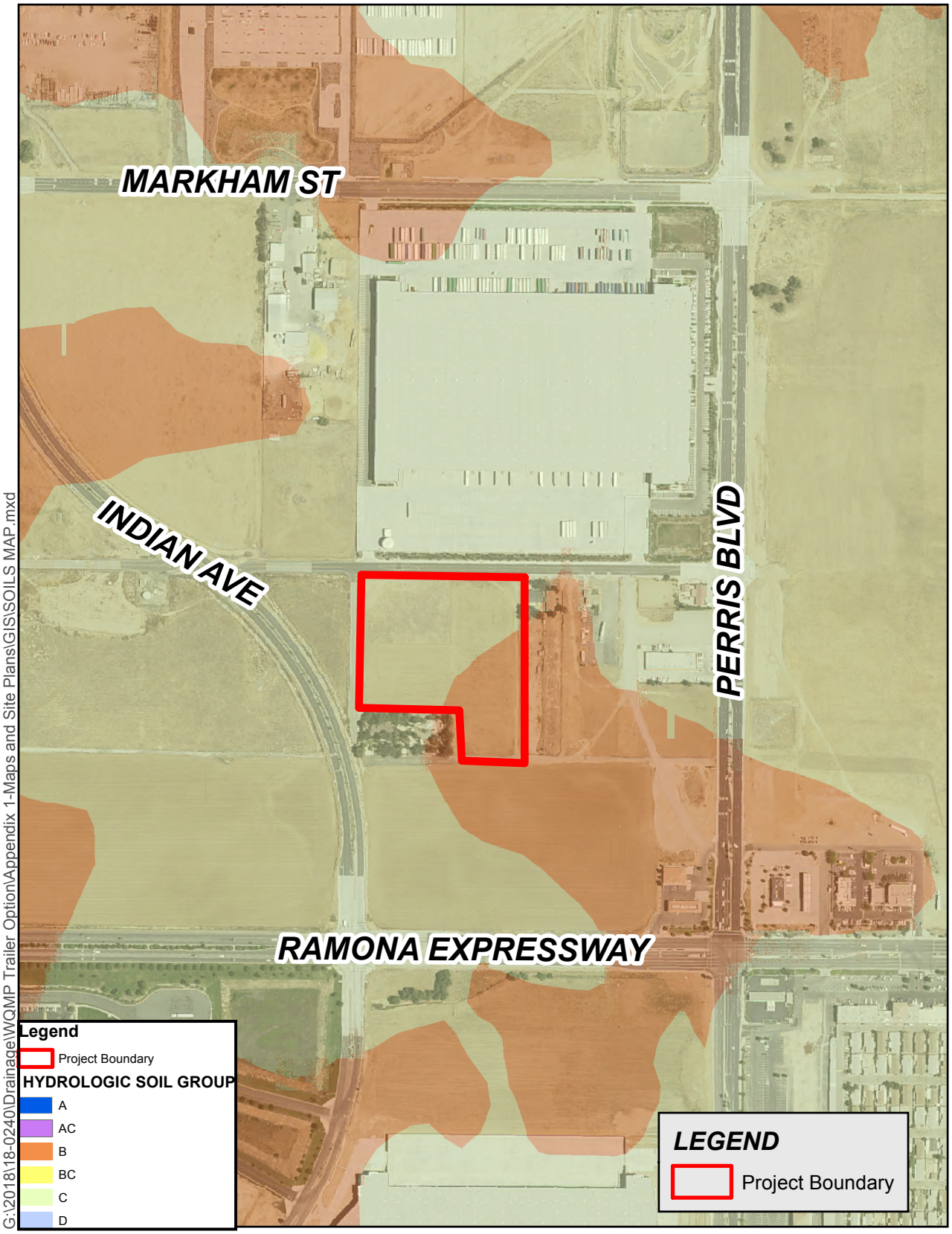
G:\2018\18-0240\Drainage\WQMP Trailer Option\Appendix 1-Maps and Site Plans\GIS\waterbodies.mxd

Sources: USGS 30 Meter DEM;
USGS Digital Line Graph

Figure 4. Receiving Waterbodies

0 2 4 6
Miles

Flowpath



Eagle Aerial, April 2010;
Riverside County GIS, 2012
RCFC&WCD Hydology Manual Plate C-1.30

N
W E
S

0 500 1,000
Feet

Figure 5. Soils Map

SECTION 2 - HYDROLOGY ANALYSIS

HYDROLOGY PARAMETERS

The RCFC&WCD Hydrology Manual was used to determine several of the hydrological parameters. The following rainfall depths were utilized in the hydrology analyses, which were obtained from the isohyetal maps provided in the RCFC&WCD Hydrology Manual:

Table 1 – Precipitation Values

	Duration
Storm Event	1-Hour (inches)
2-Year	0.5
100-Year	1.3

The value for slope of intensity was determined to be 0.5. The isohyetal maps have been included in Appendix A.

Based on the Plate C-1.30 (Perris) in the RCFC&WCD Hydrology Manual, the project site is classified as soil type B & C. The soils map is included in Appendix A.

The cover type was determined based on the existing land cover and proposed land use of the site. Hydrological computations for the existing condition were done using 'Undeveloped – Poor Cover'. The residential\commercial landscaping cover type was used to represent the developed condition. Table 2 below summarizes the runoff index values and the recommended values for percentage of impervious cover for each category:

Table 2 – Cover Type

Cover Type	Soil Group A	Soil Group B	Soil Group C	Soil Group D	Percentage of Impervious Cover
Undeveloped Poor Cover	67	78	86	89	0%
Commercial Landscaping	32	56	69	75	90%

ONSITE RATIONAL METHOD HYDROLOGY

The rational method was used to determine peak flow rates in order to adequately size the proposed curb cuts used to convey onsite flows to the proposed basins. The project site was modeled as one watershed broken down into three subareas, each modeled as a commercial land use. Area A1 is approximately 2.9 acres and sheet flows to an inlet in the northeasterly project site which discharges into a pipe that conveys runoff to basin A. Area A2 is approximately 3.9 acres and sheet flows to a gutter on the southerly project site which discharges into basin A via a curb cut and u-channel. Area A3 is approximately 0.5 acres and

contains basin A. It was determined that a two foot wide u-channel is capable of conveying flows to the basin.

A peak 100 year flow rate of 16.1 cfs is generated by the site, including the basin area.

The following table summarizes the rational method results at key points:

Table 3 – Rational Method Results

Point of Interest	10-Year Peak Flow Rate (cfs)	100-Year Peak Flow Rate (cfs)
Node 102 – Area A1 flow tributary to Basin A via Line A	4.4	6.3
Node 202- Area A2 flow tributary to Basin A	5.9	8.6
Add subarea A3 – Tributary to Basin A	0.8	1.2
Peak Flow Rate to Basin	11.1	16.1

The rational method output files and hydrology map have been included in Appendix A.

ONSITE UNIT HYDROGRAPH METHOD HYDROLOGY

The unit hydrograph method was used to determine the 2-year 24-hour and 100-year 24-hour peak flow rates and volumes. Unit hydrographs were performed for both the existing condition and developed condition. The existing condition is used to establish a baseline for comparative purposes. The developed condition is used to analyze the proposed basin. However, the since there was no need to mitigate for increased runoff; the entire 100-year peak rate will be bypassed in a grate structure. The following table summarizes the results of the unit hydrograph analysis:

Table 4 – Unit Hydrograph Results

	Existing Condition		Proposed Condition	
Storm Event	Volume (Ac-ft)	Peak Flow (cfs)	Volume (Ac-ft)	Peak Flow (cfs)
2-Year, 24-Hour	0.132	0.54	0.898	1.48
100-Year, 24-Hour	1.086	3.23	2.288	4.01

The unit hydrograph output files and hydrology map have been included in Appendix A.

SECTION 3 - HYDRAULIC ANALYSIS

ONSITE STORM DRAIN FACILITIES

The project proposes minimal subsurface storm drain and will utilize curb and gutter, curb cuts, and u-channels to convey onsite flows to the proposed detention basin. Altogether, the project proposes two subsurface storm drain systems to convey flows. One storm drain (Line A) will run along the east project site and convey northerly site flows to the bioretention basin. The other storm drain (Line B) will convey flows from the bioretention basin to Lateral E-11. The runoff will discharge into Line B via Outlet Structure A.

A brief summary of each system has been provided and the results of the hydraulic analyses are included at the end of the section. The peak flow rates determined during the 100-year rational method on-site hydrology analysis were utilized to evaluate the proposed storm drain facilities.

Outlet Structure A

The outlet structure was sized using the peak 100-year flow rate of 16.1 cfs. A weir calculation was utilized to size the Basin-A outlet. A grated inlet with 2 grates is proposed to handle the 100-year overflow. Based on a peak flow rate of 16.1 cfs, a total of 0.5-feet of head is required to bypass the 100-year flow rate resulting in a water surface elevation of 1459.0 feet. The calculation has been included in Appendix B.

Line A (Onsite)

The north portion of the project site will surface flow to one low points in the north side of the project site and be collected by Line-A. Line-A, an 18-inch diameter HDPE storm drain to convey the 100-year peak flow rate of 6.9 cfs to Basin-A. A normal depth calculation was used to determine the appropriate size for Line-A. A hydraulic model for Line-A will be provided during final engineering to further access the storm drain design.

Line B (Onsite/Offsite)

Line-B, a 24-inch diameter HDPE storm drain proposes to convey the 100-year peak flow rate from Basin A to Lateral E-11. A normal depth calculation was used to determine the appropriate size for Line-B. A hydraulic model for Line-B will be provided during final engineering to further access the storm drain design.

Line B will connect to Lateral E-11 at an invert elevation of 1446.2± (NGVD29) + 2.6 = 1448.8± (NAVD88) per approved Lateral E-11 construction drawings completed by Thienes Engineering. The point of connection will enter 7-inches above the existing invert elevation at 1449.4±. Line B will run back to the bioretention basin at a 0.5% slope ending with an invert elevation of 1453.7±. Line B will be contained within a 30-foot road and utility easement.

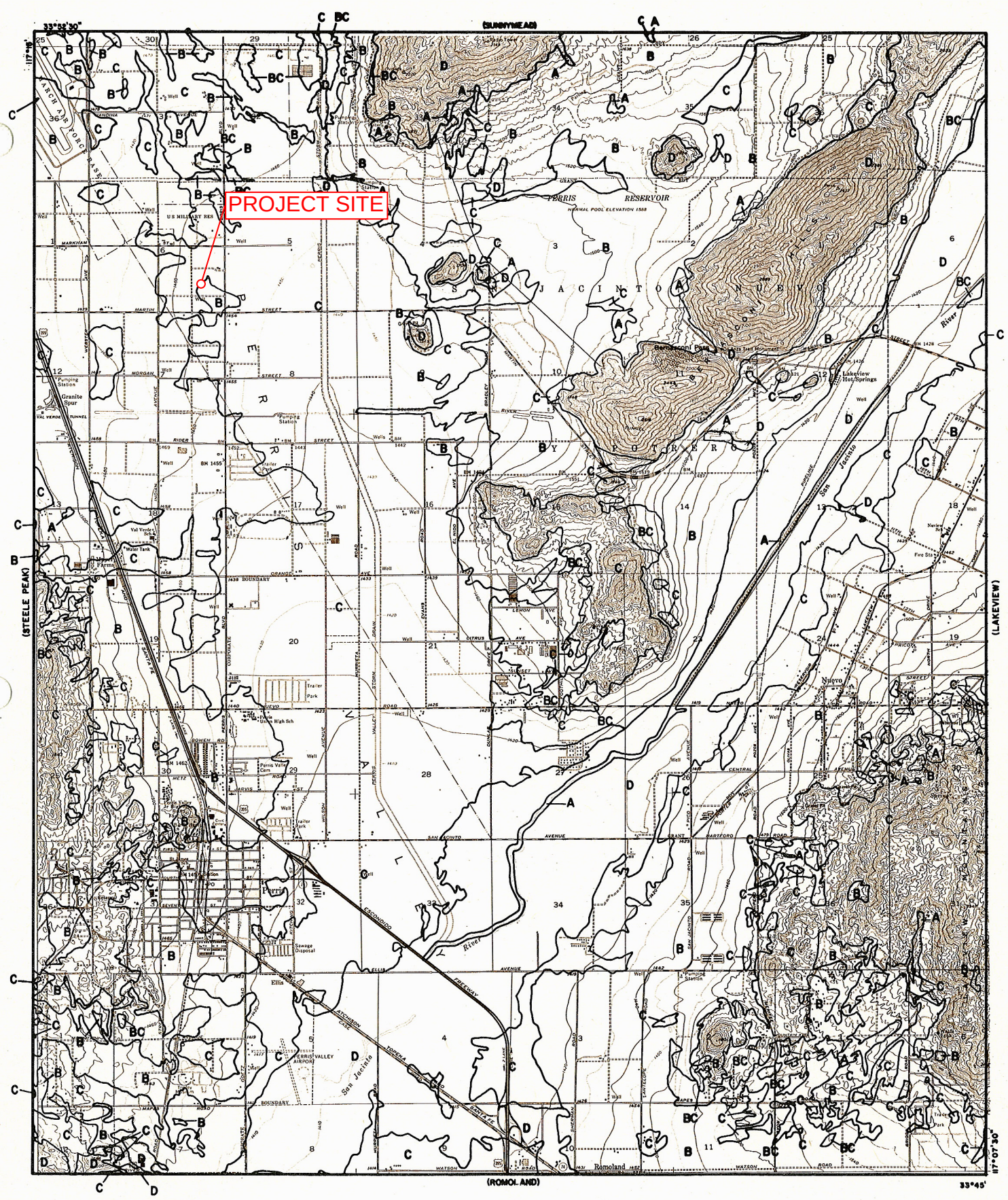
SECTION 4 - CONCLUSION

Based on the analyses and results of this report, the following conclusions were derived from the hydrology and hydraulic results:

- The proposed drainage improvements will adequately convey flows to the basin and provide flood protection for the 100-year storm event.
- The proposed bioretention basin will provide adequate water quality treatment.
- The proposed project will not impact flooding condition to upstream or downstream properties.
- The proposed outlet structure mitigates the erosion potential of existing downstream storm drain facilities.

APPENDIX A – HYDROLOGY

HYDROLOGIC SOILS GROUP MAP (PLATE C-1.30)



LEGEND

—— SOILS GROUP BOUNDARY

A SOILS GROUP DESIGNATION

RCFC&WCD

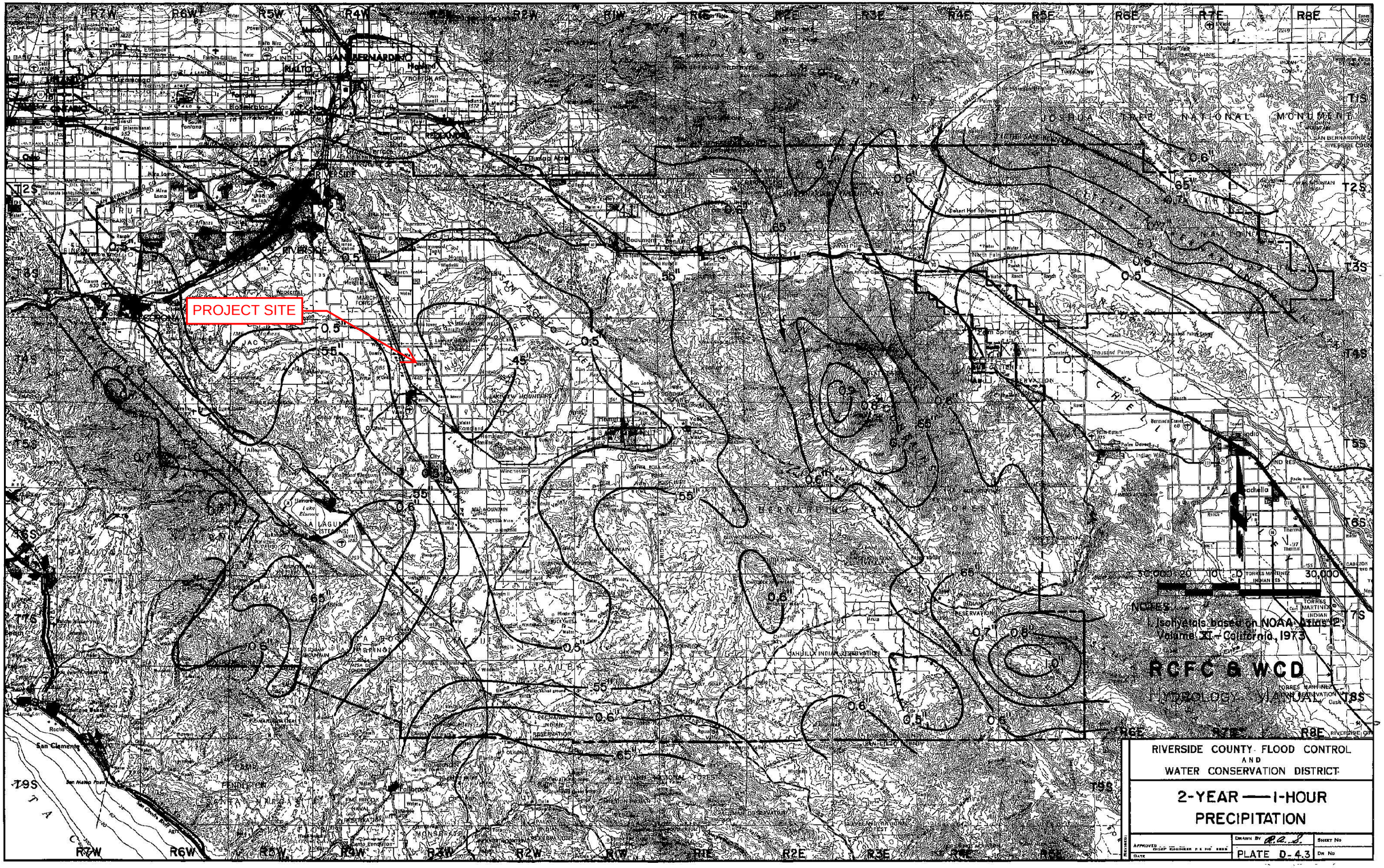
HYDROLOGY MANUAL

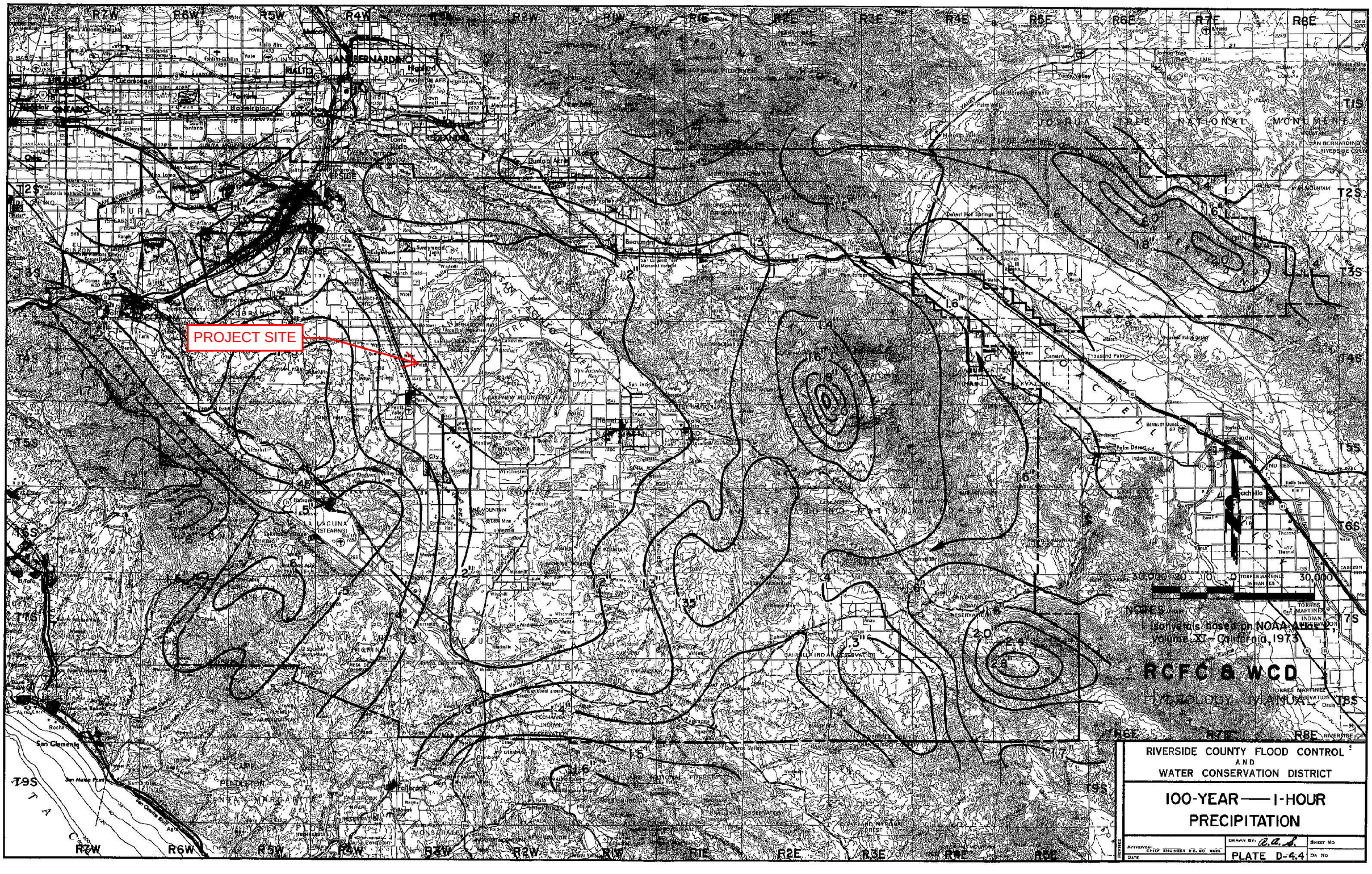
0 FEET 5000

HYDROLOGIC SOILS GROUP MAP FOR PERRIS

PLATE C-1.30

ISOHYETAL MAPS


PROJECT SITE
NOTES
1. Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
2-YEAR — 1-HOUR PRECIPITATION
DRAWN BY R.A.S.
PLATE D-4.3
SHEET NO
DR NO



30,000 0 30,000 60,000

Isohyetals based on NOAA Atlas 2, Volume XI - California, 1973

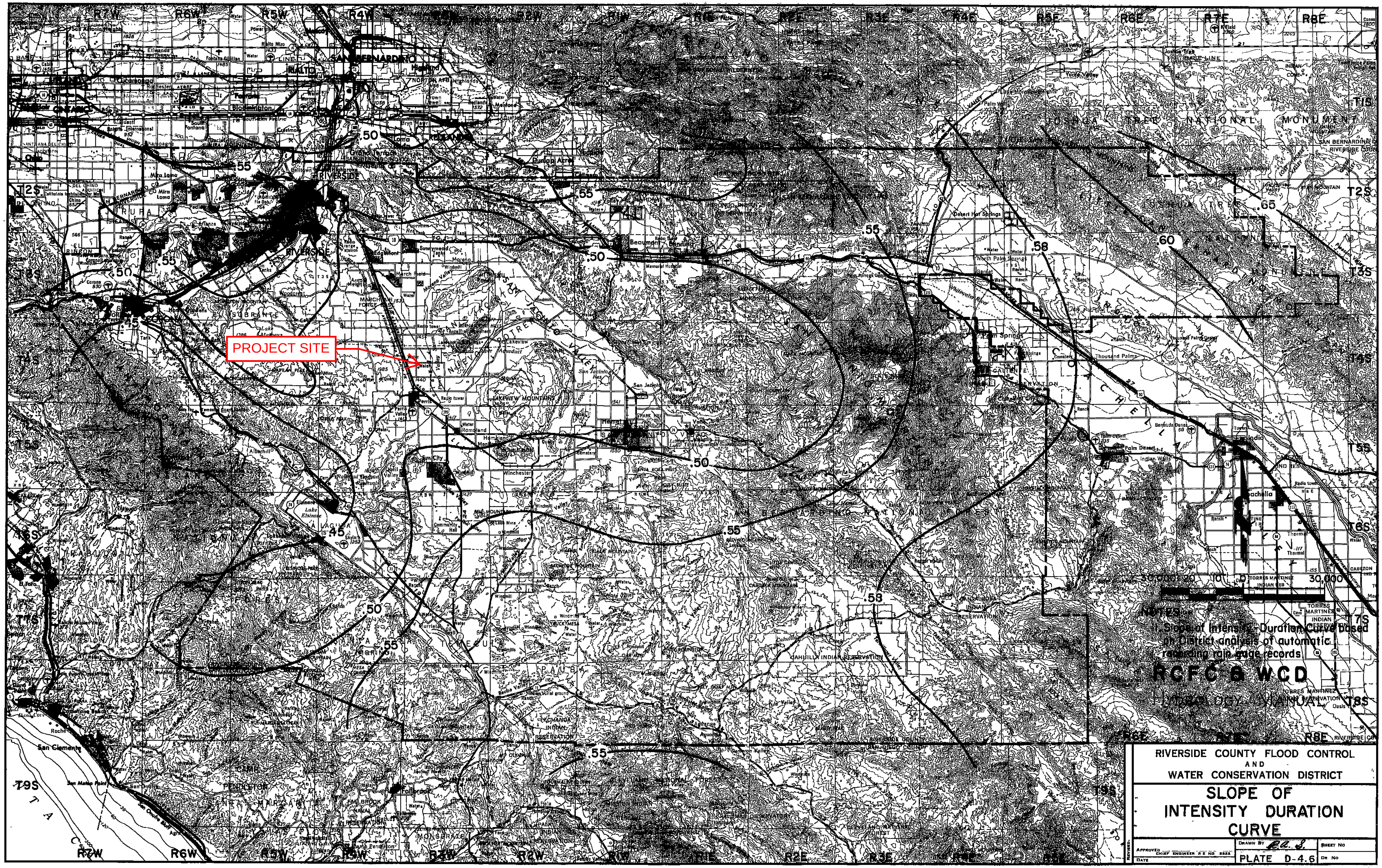
RCFC & WCD

HYDROLOGY MANUAL

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

100-YEAR — 1-HOUR PRECIPITATION

APPROVED: CHIEF ENGINEER R.E. NO. 6822	DRAWN BY: A.A.S.	SHEET NO
DATE	PLATE D-4.4	DR NO
REVISED		


PROJECT SITE
RIVERSIDE
SAN BERNARDINO
JOSHUA TREE NATIONAL MONUMENT
San Clemente
.45
.50
.55
.58
.60
.65
NOTES:
1. Slope of Intensity-Duration Curve based on District analysis of automatic recording rain gage records.
RCFC & WCD
HYDROLOGY MANUAL
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
SLOPE OF INTENSITY DURATION CURVE
PLATE D-4.6

10-YEAR ONSITE HYDROLOGY (RATIONAL METHOD)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
Rational Hydrology Study Date: 10/12/18 File:PROP10.out

18-0240 Duke Barrett Building Option
ONSITE RATIONAL METHOD HYDROLOGY
10 YEAR STORM EVENT
FN: PROP10.OUT TSW

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 4010

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 10.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Perris Valley] area used.
10 year storm 10 minute intensity = 1.880(In/Hr)
10 year storm 60 minute intensity = 0.780(In/Hr)
100 year storm 10 minute intensity = 2.690(In/Hr)
100 year storm 60 minute intensity = 1.120(In/Hr)

Storm event year = 10.0
Calculated rainfall intensity data:
1 hour intensity = 0.780(In/Hr)
Slope of intensity duration curve = 0.4900

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Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 592.000(Ft.)
Top (of initial area) elevation = 1465.400(Ft.)
Bottom (of initial area) elevation = 1460.700(Ft.)
Difference in elevation = 4.700(Ft.)
Slope = 0.00794 s(percent)= 0.79
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.141 min.
Rainfall intensity = 1.864(In/Hr) for a 10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.878
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.010
Decimal fraction soil group C = 0.990
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 68.87
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 4.746(CFS)
Total initial stream area = 2.900(Ac.)
Pervious area fraction = 0.100

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Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1457.000(Ft.)
Downstream point/station elevation = 1454.500(Ft.)
Pipe length = 565.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 4.746(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 4.746(CFS)
Normal flow depth in pipe = 10.34(In.)

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Flow top width inside pipe =   17.80(In.)
Critical Depth =   10.05(In.)
Pipe flow velocity =      4.52(Ft/s)
Travel time through pipe =    2.08 min.
Time of concentration (TC) =    12.22 min.


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Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.900(Ac.)
Runoff from this stream =      4.746(CFS)
Time of concentration =   12.22 min.
Rainfall intensity =     1.701(In/Hr)


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Process from Point/Station      101.000 to Point/Station      202.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   638.000(Ft.)
Top (of initial area) elevation =  1465.400(Ft.)
Bottom (of initial area) elevation =  1459.000(Ft.)
Difference in elevation =     6.400(Ft.)
Slope =    0.01003  s(percent)=       1.00
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.972 min.
Rainfall intensity =      1.879(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.874
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  63.15
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      6.403(CFS)
Total initial stream area =        3.900(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
______________________________________________________________________________
Upstream point elevation =  1459.000(Ft.)
Downstream point elevation =  1454.500(Ft.)
Channel length thru subarea  =    22.000(Ft.)
Channel base width      =    4.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =      6.403(CFS)
Depth of flow =   0.084(Ft.), Average velocity =   6.102(Ft/s)
Channel flow top width =   20.874(Ft.)
Flow Velocity =    6.10(Ft/s)
Travel time  =    0.06 min.
Time of concentration =   10.03 min.

Sub-Channel No. 1 Critical depth =      0.172(Ft.)
  '     '       '     Critical flow top width =     38.375(Ft.)
  '     '       '     Critical flow velocity=    1.758(Ft/s)
  '     '       '     Critical flow area =      3.642(Sq.Ft)



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.900(Ac.)
Runoff from this stream =      6.403(CFS)
Time of concentration =   10.03 min.
Rainfall intensity =     1.874(In/Hr)
Summary of stream data:
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```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        4.746     12.22                 1.701
2        6.403     10.03                 1.874
Largest stream flow has longer or shorter time of concentration
Qp =      6.403 + sum of
          Qa          Tb/Ta
           4.746 *    0.821 =      3.895
Qp =     10.298

Total of 2 streams to confluence:
Flow rates before confluence point:
       4.746       6.403
Area of streams before confluence:
        2.900        3.900
Results of confluence:
Total flow rate =     10.298(CFS)
Time of concentration =    10.032 min.
Effective stream area after confluence =      6.800(Ac.)


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Process from Point/Station      103.000 to Point/Station      103.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.868
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =    10.03 min.
Rainfall intensity =      1.874(In/Hr) for a    10.0 year storm
Subarea runoff =      0.813(CFS) for      0.500(Ac.)
Total runoff =     11.111(CFS)  Total area =       7.300(Ac.)
End of computations, total study area =            7.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  64.9
```

100-YEAR ONSITE HYDROLOGY (RATIONAL METHOD)

Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2004 Version 7.0
Rational Hydrology Study Date: 10/12/18 File:PROP100.out

18-0240 Duke Barrett Building Option
ONSITE RATIONAL METHOD HYDROLOGY
100 YEAR STORM EVENT
FN: PROP100.OUT TSW

********* Hydrology Study Control Information **********

English (in-lb) Units used in input data file

Program License Serial Number 4010

Rational Method Hydrology Program based on
Riverside County Flood Control & Water Conservation District
1978 hydrology manual

Storm event (year) = 100.00 Antecedent Moisture Condition = 2

Standard intensity-duration curves data (Plate D-4.1)
For the [Perris Valley] area used.
10 year storm 10 minute intensity = 1.880(In/Hr)
10 year storm 60 minute intensity = 0.780(In/Hr)
100 year storm 10 minute intensity = 2.690(In/Hr)
100 year storm 60 minute intensity = 1.120(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity = 1.120(In/Hr)
Slope of intensity duration curve = 0.4900

++

Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

Initial area flow distance = 592.000(Ft.)
Top (of initial area) elevation = 1465.400(Ft.)
Bottom (of initial area) elevation = 1460.700(Ft.)
Difference in elevation = 4.700(Ft.)
Slope = 0.00794 s(percent)= 0.79
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.141 min.
Rainfall intensity = 2.676(In/Hr) for a 100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.883
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.010
Decimal fraction soil group C = 0.990
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2) = 68.87
Pervious area fraction = 0.100; Impervious fraction = 0.900
Initial subarea runoff = 6.857(CFS)
Total initial stream area = 2.900(Ac.)
Pervious area fraction = 0.100

++

Process from Point/Station 102.000 to Point/Station 103.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****

Upstream point/station elevation = 1457.000(Ft.)
Downstream point/station elevation = 1454.500(Ft.)
Pipe length = 565.00(Ft.) Manning's N = 0.012
No. of pipes = 1 Required pipe flow = 6.857(CFS)
Nearest computed pipe diameter = 18.00(In.)
Calculated individual pipe flow = 6.857(CFS)
Normal flow depth in pipe = 13.43(In.)

```
Flow top width inside pipe =   15.67(In.)
Critical Depth =   12.16(In.)
Pipe flow velocity =      4.85(Ft/s)
Travel time through pipe =    1.94 min.
Time of concentration (TC) =    12.08 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      2.900(Ac.)
Runoff from this stream =      6.857(CFS)
Time of concentration =   12.08 min.
Rainfall intensity =     2.456(In/Hr)


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Process from Point/Station      101.000 to Point/Station      202.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________________
Initial area flow distance =   638.000(Ft.)
Top (of initial area) elevation =  1465.400(Ft.)
Bottom (of initial area) elevation =  1459.000(Ft.)
Difference in elevation =     6.400(Ft.)
Slope =    0.01003  s(percent)=       1.00
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    9.972 min.
Rainfall intensity =      2.698(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.880
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.450
Decimal fraction soil group C = 0.550
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  63.15
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      9.260(CFS)
Total initial stream area =        3.900(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
______________________________________________________________________________
Upstream point elevation =  1459.000(Ft.)
Downstream point elevation =  1454.500(Ft.)
Channel length thru subarea  =    22.000(Ft.)
Channel base width      =    4.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Manning's 'N'    = 0.015
Maximum depth of channel  =    2.000(Ft.)
Flow(q) thru subarea =      9.260(CFS)
Depth of flow =   0.099(Ft.), Average velocity =   6.707(Ft/s)
Channel flow top width =   23.838(Ft.)
Flow Velocity =    6.71(Ft/s)
Travel time  =    0.05 min.
Time of concentration =   10.03 min.

Sub-Channel No. 1 Critical depth =      0.203(Ft.)
  '     '       '     Critical flow top width =     44.625(Ft.)
  '     '       '     Critical flow velocity=    1.875(Ft/s)
  '     '       '     Critical flow area =      4.938(Sq.Ft)



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.900(Ac.)
Runoff from this stream =      9.260(CFS)
Time of concentration =   10.03 min.
Rainfall intensity =     2.691(In/Hr)
Summary of stream data:
```

```
Stream   Flow rate      TC            Rainfall Intensity
 No.       (CFS)       (min)                (In/Hr)


1        6.857     12.08                 2.456
2        9.260     10.03                 2.691
Largest stream flow has longer or shorter time of concentration
Qp =      9.260 + sum of
           Qa          Tb/Ta
            6.857 *    0.830 =      5.690
Qp =     14.950

Total of 2 streams to confluence:
Flow rates before confluence point:
       6.857       9.260
Area of streams before confluence:
        2.900        3.900
Results of confluence:
Total flow rate =     14.950(CFS)
Time of concentration =    10.027 min.
Effective stream area after confluence =      6.800(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      103.000 to Point/Station      103.000
**** SUBAREA FLOW ADDITION ****
________________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.875
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 1.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
RI index for soil(AMC 2)  =  56.00
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =    10.03 min.
Rainfall intensity =      2.691(In/Hr) for a   100.0 year storm
Subarea runoff =      1.177(CFS) for      0.500(Ac.)
Total runoff =     16.127(CFS)  Total area =       7.300(Ac.)
End of computations, total study area =            7.30 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged RI index number =  64.9
```

EXISTING CONDITION 2-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Study date 10/12/18 File: EXIST242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

18-0240 Duke Barrett Building Option
ONSITE UNIT HYDROGRAPH ANALYSIS
EXISITNG CONDITION, 2-YEAR 24-HOUR
FN: EXIST242.OUT- TSW

Drainage Area = 7.30(Ac.) = 0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 7.30(Ac.) = 0.011 Sq. Mi.
Length along longest watercourse = 815.00(Ft.)
Length along longest watercourse measured to centroid = 435.00(Ft.)
Length along longest watercourse = 0.154 Mi.
Length along longest watercourse measured to centroid = 0.082 Mi.
Difference in elevation = 3.00(Ft.)
Slope along watercourse = 19.4356 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	1.80	13.14

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	4.50	32.85

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 1.800(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.800(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
7.300	84.00	0.000

Total Area Entered = 7.30(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
					Sum (F) =	0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.821	21.281	1.566
2	0.167	213.642	48.763	3.587
3	0.250	320.462	14.692	1.081
4	0.333	427.283	6.707	0.493
5	0.417	534.104	3.729	0.274
6	0.500	640.925	2.367	0.174
7	0.583	747.745	1.403	0.103
8	0.667	854.566	1.058	0.078
			Sum = 100.000 Sum=	7.357

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.014	(0.352)	0.013	0.001
2	0.17	0.07	0.014	(0.350)	0.013	0.001
3	0.25	0.07	0.014	(0.349)	0.013	0.001
4	0.33	0.10	0.022	(0.348)	0.019	0.002
5	0.42	0.10	0.022	(0.346)	0.019	0.002
6	0.50	0.10	0.022	(0.345)	0.019	0.002
7	0.58	0.10	0.022	(0.344)	0.019	0.002
8	0.67	0.10	0.022	(0.342)	0.019	0.002
9	0.75	0.10	0.022	(0.341)	0.019	0.002
10	0.83	0.13	0.029	(0.340)	0.026	0.003
11	0.92	0.13	0.029	(0.338)	0.026	0.003
12	1.00	0.13	0.029	(0.337)	0.026	0.003
13	1.08	0.10	0.022	(0.336)	0.019	0.002
14	1.17	0.10	0.022	(0.334)	0.019	0.002
15	1.25	0.10	0.022	(0.333)	0.019	0.002
16	1.33	0.10	0.022	(0.332)	0.019	0.002
17	1.42	0.10	0.022	(0.330)	0.019	0.002
18	1.50	0.10	0.022	(0.329)	0.019	0.002
19	1.58	0.10	0.022	(0.328)	0.019	0.002
20	1.67	0.10	0.022	(0.326)	0.019	0.002
21	1.75	0.10	0.022	(0.325)	0.019	0.002
22	1.83	0.13	0.029	(0.324)	0.026	0.003
23	1.92	0.13	0.029	(0.322)	0.026	0.003
24	2.00	0.13	0.029	(0.321)	0.026	0.003
25	2.08	0.13	0.029	(0.320)	0.026	0.003
26	2.17	0.13	0.029	(0.318)	0.026	0.003
27	2.25	0.13	0.029	(0.317)	0.026	0.003
28	2.33	0.13	0.029	(0.316)	0.026	0.003
29	2.42	0.13	0.029	(0.315)	0.026	0.003
30	2.50	0.13	0.029	(0.313)	0.026	0.003
31	2.58	0.17	0.036	(0.312)	0.032	0.004
32	2.67	0.17	0.036	(0.311)	0.032	0.004
33	2.75	0.17	0.036	(0.310)	0.032	0.004
34	2.83	0.17	0.036	(0.308)	0.032	0.004
35	2.92	0.17	0.036	(0.307)	0.032	0.004
36	3.00	0.17	0.036	(0.306)	0.032	0.004
37	3.08	0.17	0.036	(0.304)	0.032	0.004
38	3.17	0.17	0.036	(0.303)	0.032	0.004
39	3.25	0.17	0.036	(0.302)	0.032	0.004
40	3.33	0.17	0.036	(0.301)	0.032	0.004
41	3.42	0.17	0.036	(0.299)	0.032	0.004
42	3.50	0.17	0.036	(0.298)	0.032	0.004
43	3.58	0.17	0.036	(0.297)	0.032	0.004
44	3.67	0.17	0.036	(0.296)	0.032	0.004
45	3.75	0.17	0.036	(0.294)	0.032	0.004
46	3.83	0.20	0.043	(0.293)	0.039	0.004
47	3.92	0.20	0.043	(0.292)	0.039	0.004
48	4.00	0.20	0.043	(0.291)	0.039	0.004
49	4.08	0.20	0.043	(0.289)	0.039	0.004
50	4.17	0.20	0.043	(0.288)	0.039	0.004

51	4.25	0.20	0.043	(0.287)	0.039	0.004
52	4.33	0.23	0.050	(0.286)	0.045	0.005
53	4.42	0.23	0.050	(0.285)	0.045	0.005
54	4.50	0.23	0.050	(0.283)	0.045	0.005
55	4.58	0.23	0.050	(0.282)	0.045	0.005
56	4.67	0.23	0.050	(0.281)	0.045	0.005
57	4.75	0.23	0.050	(0.280)	0.045	0.005
58	4.83	0.27	0.058	(0.278)	0.052	0.006
59	4.92	0.27	0.058	(0.277)	0.052	0.006
60	5.00	0.27	0.058	(0.276)	0.052	0.006
61	5.08	0.20	0.043	(0.275)	0.039	0.004
62	5.17	0.20	0.043	(0.274)	0.039	0.004
63	5.25	0.20	0.043	(0.272)	0.039	0.004
64	5.33	0.23	0.050	(0.271)	0.045	0.005
65	5.42	0.23	0.050	(0.270)	0.045	0.005
66	5.50	0.23	0.050	(0.269)	0.045	0.005
67	5.58	0.27	0.058	(0.268)	0.052	0.006
68	5.67	0.27	0.058	(0.267)	0.052	0.006
69	5.75	0.27	0.058	(0.265)	0.052	0.006
70	5.83	0.27	0.058	(0.264)	0.052	0.006
71	5.92	0.27	0.058	(0.263)	0.052	0.006
72	6.00	0.27	0.058	(0.262)	0.052	0.006
73	6.08	0.30	0.065	(0.261)	0.058	0.006
74	6.17	0.30	0.065	(0.260)	0.058	0.006
75	6.25	0.30	0.065	(0.258)	0.058	0.006
76	6.33	0.30	0.065	(0.257)	0.058	0.006
77	6.42	0.30	0.065	(0.256)	0.058	0.006
78	6.50	0.30	0.065	(0.255)	0.058	0.006
79	6.58	0.33	0.072	(0.254)	0.065	0.007
80	6.67	0.33	0.072	(0.253)	0.065	0.007
81	6.75	0.33	0.072	(0.252)	0.065	0.007
82	6.83	0.33	0.072	(0.250)	0.065	0.007
83	6.92	0.33	0.072	(0.249)	0.065	0.007
84	7.00	0.33	0.072	(0.248)	0.065	0.007
85	7.08	0.33	0.072	(0.247)	0.065	0.007
86	7.17	0.33	0.072	(0.246)	0.065	0.007
87	7.25	0.33	0.072	(0.245)	0.065	0.007
88	7.33	0.37	0.079	(0.244)	0.071	0.008
89	7.42	0.37	0.079	(0.243)	0.071	0.008
90	7.50	0.37	0.079	(0.241)	0.071	0.008
91	7.58	0.40	0.086	(0.240)	0.078	0.009
92	7.67	0.40	0.086	(0.239)	0.078	0.009
93	7.75	0.40	0.086	(0.238)	0.078	0.009
94	7.83	0.43	0.094	(0.237)	0.084	0.009
95	7.92	0.43	0.094	(0.236)	0.084	0.009
96	8.00	0.43	0.094	(0.235)	0.084	0.009
97	8.08	0.50	0.108	(0.234)	0.097	0.011
98	8.17	0.50	0.108	(0.233)	0.097	0.011
99	8.25	0.50	0.108	(0.232)	0.097	0.011
100	8.33	0.50	0.108	(0.230)	0.097	0.011
101	8.42	0.50	0.108	(0.229)	0.097	0.011
102	8.50	0.50	0.108	(0.228)	0.097	0.011
103	8.58	0.53	0.115	(0.227)	0.104	0.012
104	8.67	0.53	0.115	(0.226)	0.104	0.012
105	8.75	0.53	0.115	(0.225)	0.104	0.012
106	8.83	0.57	0.122	(0.224)	0.110	0.012
107	8.92	0.57	0.122	(0.223)	0.110	0.012
108	9.00	0.57	0.122	(0.222)	0.110	0.012
109	9.08	0.63	0.137	(0.221)	0.123	0.014
110	9.17	0.63	0.137	(0.220)	0.123	0.014
111	9.25	0.63	0.137	(0.219)	0.123	0.014
112	9.33	0.67	0.144	(0.218)	0.130	0.014
113	9.42	0.67	0.144	(0.217)	0.130	0.014
114	9.50	0.67	0.144	(0.216)	0.130	0.014
115	9.58	0.70	0.151	(0.215)	0.136	0.015
116	9.67	0.70	0.151	(0.214)	0.136	0.015
117	9.75	0.70	0.151	(0.213)	0.136	0.015
118	9.83	0.73	0.158	(0.212)	0.143	0.016
119	9.92	0.73	0.158	(0.211)	0.143	0.016
120	10.00	0.73	0.158	(0.210)	0.143	0.016
121	10.08	0.50	0.108	(0.208)	0.097	0.011
122	10.17	0.50	0.108	(0.207)	0.097	0.011
123	10.25	0.50	0.108	(0.206)	0.097	0.011
124	10.33	0.50	0.108	(0.205)	0.097	0.011
125	10.42	0.50	0.108	(0.204)	0.097	0.011
126	10.50	0.50	0.108	(0.203)	0.097	0.011
127	10.58	0.67	0.144	(0.202)	0.130	0.014
128	10.67	0.67	0.144	(0.201)	0.130	0.014
129	10.75	0.67	0.144	(0.201)	0.130	0.014

130	10.83	0.67	0.144	(0.200)	0.130	0.014
131	10.92	0.67	0.144	(0.199)	0.130	0.014
132	11.00	0.67	0.144	(0.198)	0.130	0.014
133	11.08	0.63	0.137	(0.197)	0.123	0.014
134	11.17	0.63	0.137	(0.196)	0.123	0.014
135	11.25	0.63	0.137	(0.195)	0.123	0.014
136	11.33	0.63	0.137	(0.194)	0.123	0.014
137	11.42	0.63	0.137	(0.193)	0.123	0.014
138	11.50	0.63	0.137	(0.192)	0.123	0.014
139	11.58	0.57	0.122	(0.191)	0.110	0.012
140	11.67	0.57	0.122	(0.190)	0.110	0.012
141	11.75	0.57	0.122	(0.189)	0.110	0.012
142	11.83	0.60	0.130	(0.188)	0.117	0.013
143	11.92	0.60	0.130	(0.187)	0.117	0.013
144	12.00	0.60	0.130	(0.186)	0.117	0.013
145	12.08	0.83	0.180	(0.185)	0.162	0.018
146	12.17	0.83	0.180	(0.184)	0.162	0.018
147	12.25	0.83	0.180	(0.183)	0.162	0.018
148	12.33	0.87	0.187	(0.182)	0.168	0.019
149	12.42	0.87	0.187	(0.182)	0.168	0.019
150	12.50	0.87	0.187	(0.181)	0.168	0.019
151	12.58	0.93	0.202	0.180	(0.181)	0.022
152	12.67	0.93	0.202	0.179	(0.181)	0.023
153	12.75	0.93	0.202	0.178	(0.181)	0.024
154	12.83	0.97	0.209	0.177	(0.188)	0.032
155	12.92	0.97	0.209	0.176	(0.188)	0.033
156	13.00	0.97	0.209	0.175	(0.188)	0.034
157	13.08	1.13	0.245	0.174	(0.220)	0.070
158	13.17	1.13	0.245	0.173	(0.220)	0.071
159	13.25	1.13	0.245	0.173	(0.220)	0.072
160	13.33	1.13	0.245	0.172	(0.220)	0.073
161	13.42	1.13	0.245	0.171	(0.220)	0.074
162	13.50	1.13	0.245	0.170	(0.220)	0.075
163	13.58	0.77	0.166	(0.169)	0.149	0.017
164	13.67	0.77	0.166	(0.168)	0.149	0.017
165	13.75	0.77	0.166	(0.167)	0.149	0.017
166	13.83	0.77	0.166	(0.166)	0.149	0.017
167	13.92	0.77	0.166	(0.166)	0.149	0.017
168	14.00	0.77	0.166	(0.165)	0.149	0.017
169	14.08	0.90	0.194	0.164	(0.175)	0.030
170	14.17	0.90	0.194	0.163	(0.175)	0.031
171	14.25	0.90	0.194	0.162	(0.175)	0.032
172	14.33	0.87	0.187	0.161	(0.168)	0.026
173	14.42	0.87	0.187	0.161	(0.168)	0.027
174	14.50	0.87	0.187	0.160	(0.168)	0.027
175	14.58	0.87	0.187	0.159	(0.168)	0.028
176	14.67	0.87	0.187	0.158	(0.168)	0.029
177	14.75	0.87	0.187	0.157	(0.168)	0.030
178	14.83	0.83	0.180	0.157	(0.162)	0.023
179	14.92	0.83	0.180	0.156	(0.162)	0.024
180	15.00	0.83	0.180	0.155	(0.162)	0.025
181	15.08	0.80	0.173	0.154	(0.156)	0.019
182	15.17	0.80	0.173	0.153	(0.156)	0.019
183	15.25	0.80	0.173	0.153	(0.156)	0.020
184	15.33	0.77	0.166	(0.152)	0.149	0.017
185	15.42	0.77	0.166	(0.151)	0.149	0.017
186	15.50	0.77	0.166	(0.150)	0.149	0.017
187	15.58	0.63	0.137	(0.149)	0.123	0.014
188	15.67	0.63	0.137	(0.149)	0.123	0.014
189	15.75	0.63	0.137	(0.148)	0.123	0.014
190	15.83	0.63	0.137	(0.147)	0.123	0.014
191	15.92	0.63	0.137	(0.146)	0.123	0.014
192	16.00	0.63	0.137	(0.146)	0.123	0.014
193	16.08	0.13	0.029	(0.145)	0.026	0.003
194	16.17	0.13	0.029	(0.144)	0.026	0.003
195	16.25	0.13	0.029	(0.143)	0.026	0.003
196	16.33	0.13	0.029	(0.143)	0.026	0.003
197	16.42	0.13	0.029	(0.142)	0.026	0.003
198	16.50	0.13	0.029	(0.141)	0.026	0.003
199	16.58	0.10	0.022	(0.141)	0.019	0.002
200	16.67	0.10	0.022	(0.140)	0.019	0.002
201	16.75	0.10	0.022	(0.139)	0.019	0.002
202	16.83	0.10	0.022	(0.138)	0.019	0.002
203	16.92	0.10	0.022	(0.138)	0.019	0.002
204	17.00	0.10	0.022	(0.137)	0.019	0.002
205	17.08	0.17	0.036	(0.136)	0.032	0.004
206	17.17	0.17	0.036	(0.136)	0.032	0.004
207	17.25	0.17	0.036	(0.135)	0.032	0.004
208	17.33	0.17	0.036	(0.134)	0.032	0.004

209	17.42	0.17	0.036	(0.134)	0.032	0.004
210	17.50	0.17	0.036	(0.133)	0.032	0.004
211	17.58	0.17	0.036	(0.132)	0.032	0.004
212	17.67	0.17	0.036	(0.132)	0.032	0.004
213	17.75	0.17	0.036	(0.131)	0.032	0.004
214	17.83	0.13	0.029	(0.130)	0.026	0.003
215	17.92	0.13	0.029	(0.130)	0.026	0.003
216	18.00	0.13	0.029	(0.129)	0.026	0.003
217	18.08	0.13	0.029	(0.128)	0.026	0.003
218	18.17	0.13	0.029	(0.128)	0.026	0.003
219	18.25	0.13	0.029	(0.127)	0.026	0.003
220	18.33	0.13	0.029	(0.127)	0.026	0.003
221	18.42	0.13	0.029	(0.126)	0.026	0.003
222	18.50	0.13	0.029	(0.125)	0.026	0.003
223	18.58	0.10	0.022	(0.125)	0.019	0.002
224	18.67	0.10	0.022	(0.124)	0.019	0.002
225	18.75	0.10	0.022	(0.124)	0.019	0.002
226	18.83	0.07	0.014	(0.123)	0.013	0.001
227	18.92	0.07	0.014	(0.122)	0.013	0.001
228	19.00	0.07	0.014	(0.122)	0.013	0.001
229	19.08	0.10	0.022	(0.121)	0.019	0.002
230	19.17	0.10	0.022	(0.121)	0.019	0.002
231	19.25	0.10	0.022	(0.120)	0.019	0.002
232	19.33	0.13	0.029	(0.119)	0.026	0.003
233	19.42	0.13	0.029	(0.119)	0.026	0.003
234	19.50	0.13	0.029	(0.118)	0.026	0.003
235	19.58	0.10	0.022	(0.118)	0.019	0.002
236	19.67	0.10	0.022	(0.117)	0.019	0.002
237	19.75	0.10	0.022	(0.117)	0.019	0.002
238	19.83	0.07	0.014	(0.116)	0.013	0.001
239	19.92	0.07	0.014	(0.116)	0.013	0.001
240	20.00	0.07	0.014	(0.115)	0.013	0.001
241	20.08	0.10	0.022	(0.115)	0.019	0.002
242	20.17	0.10	0.022	(0.114)	0.019	0.002
243	20.25	0.10	0.022	(0.114)	0.019	0.002
244	20.33	0.10	0.022	(0.113)	0.019	0.002
245	20.42	0.10	0.022	(0.113)	0.019	0.002
246	20.50	0.10	0.022	(0.112)	0.019	0.002
247	20.58	0.10	0.022	(0.112)	0.019	0.002
248	20.67	0.10	0.022	(0.111)	0.019	0.002
249	20.75	0.10	0.022	(0.111)	0.019	0.002
250	20.83	0.07	0.014	(0.110)	0.013	0.001
251	20.92	0.07	0.014	(0.110)	0.013	0.001
252	21.00	0.07	0.014	(0.110)	0.013	0.001
253	21.08	0.10	0.022	(0.109)	0.019	0.002
254	21.17	0.10	0.022	(0.109)	0.019	0.002
255	21.25	0.10	0.022	(0.108)	0.019	0.002
256	21.33	0.07	0.014	(0.108)	0.013	0.001
257	21.42	0.07	0.014	(0.107)	0.013	0.001
258	21.50	0.07	0.014	(0.107)	0.013	0.001
259	21.58	0.10	0.022	(0.107)	0.019	0.002
260	21.67	0.10	0.022	(0.106)	0.019	0.002
261	21.75	0.10	0.022	(0.106)	0.019	0.002
262	21.83	0.07	0.014	(0.105)	0.013	0.001
263	21.92	0.07	0.014	(0.105)	0.013	0.001
264	22.00	0.07	0.014	(0.105)	0.013	0.001
265	22.08	0.10	0.022	(0.104)	0.019	0.002
266	22.17	0.10	0.022	(0.104)	0.019	0.002
267	22.25	0.10	0.022	(0.104)	0.019	0.002
268	22.33	0.07	0.014	(0.103)	0.013	0.001
269	22.42	0.07	0.014	(0.103)	0.013	0.001
270	22.50	0.07	0.014	(0.103)	0.013	0.001
271	22.58	0.07	0.014	(0.102)	0.013	0.001
272	22.67	0.07	0.014	(0.102)	0.013	0.001
273	22.75	0.07	0.014	(0.102)	0.013	0.001
274	22.83	0.07	0.014	(0.102)	0.013	0.001
275	22.92	0.07	0.014	(0.101)	0.013	0.001
276	23.00	0.07	0.014	(0.101)	0.013	0.001
277	23.08	0.07	0.014	(0.101)	0.013	0.001
278	23.17	0.07	0.014	(0.101)	0.013	0.001
279	23.25	0.07	0.014	(0.100)	0.013	0.001
280	23.33	0.07	0.014	(0.100)	0.013	0.001
281	23.42	0.07	0.014	(0.100)	0.013	0.001
282	23.50	0.07	0.014	(0.100)	0.013	0.001
283	23.58	0.07	0.014	(0.100)	0.013	0.001
284	23.67	0.07	0.014	(0.100)	0.013	0.001
285	23.75	0.07	0.014	(0.099)	0.013	0.001
286	23.83	0.07	0.014	(0.099)	0.013	0.001
287	23.92	0.07	0.014	(0.099)	0.013	0.001

EXIST242

288 24.00 0.07 0.014 (0.099) 0.013 0.001
(Loss Rate Not Used)
Sum = 100.0 Sum = 2.6
Flood volume = Effective rainfall 0.22(In)
times area 7.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.58(In)
Total soil loss = 0.963(Ac.Ft)
Total rainfall = 1.80(In)
Flood volume = 5758.4 Cubic Feet
Total soil loss = 41939.1 Cubic Feet

Peak flow rate of this hydrograph = 0.535(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0001	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0003	0.01	Q				
0+30	0.0004	0.01	Q				
0+35	0.0005	0.02	Q				
0+40	0.0006	0.02	Q				
0+45	0.0007	0.02	Q				
0+50	0.0008	0.02	Q				
0+55	0.0010	0.02	Q				
1+ 0	0.0011	0.02	Q				
1+ 5	0.0012	0.02	Q				
1+10	0.0014	0.02	Q				
1+15	0.0015	0.02	Q				
1+20	0.0016	0.02	Q				
1+25	0.0017	0.02	Q				
1+30	0.0018	0.02	Q				
1+35	0.0019	0.02	Q				
1+40	0.0020	0.02	Q				
1+45	0.0021	0.02	Q				
1+50	0.0023	0.02	Q				
1+55	0.0024	0.02	Q				
2+ 0	0.0025	0.02	Q				
2+ 5	0.0027	0.02	Q				
2+10	0.0028	0.02	Q				
2+15	0.0030	0.02	Q				
2+20	0.0031	0.02	Q				
2+25	0.0033	0.02	Q				
2+30	0.0034	0.02	QV				
2+35	0.0036	0.02	QV				
2+40	0.0037	0.02	QV				
2+45	0.0039	0.03	QV				
2+50	0.0041	0.03	QV				
2+55	0.0043	0.03	QV				
3+ 0	0.0045	0.03	QV				
3+ 5	0.0046	0.03	QV				
3+10	0.0048	0.03	QV				
3+15	0.0050	0.03	QV				
3+20	0.0052	0.03	QV				
3+25	0.0054	0.03	QV				
3+30	0.0055	0.03	QV				
3+35	0.0057	0.03	QV				
3+40	0.0059	0.03	QV				
3+45	0.0061	0.03	QV				
3+50	0.0063	0.03	QV				
3+55	0.0065	0.03	QV				
4+ 0	0.0067	0.03	Q V				
4+ 5	0.0069	0.03	Q V				
4+10	0.0071	0.03	Q V				
4+15	0.0074	0.03	Q V				
4+20	0.0076	0.03	Q V				
4+25	0.0078	0.04	Q V				
4+30	0.0081	0.04	Q V				
4+35	0.0083	0.04	Q V				
4+40	0.0086	0.04	Q V				
4+45	0.0088	0.04	Q V				

4+50	0.0091	0.04	Q V	|	|	|	|
4+55	0.0094	0.04	Q V	|	|	|	|
5+ 0	0.0097	0.04	Q V	|	|	|	|
5+ 5	0.0099	0.04	Q V	|	|	|	|
5+10	0.0102	0.03	Q V	|	|	|	|
5+15	0.0104	0.03	Q V	|	|	|	|
5+20	0.0106	0.03	Q V	|	|	|	|
5+25	0.0109	0.04	Q V	|	|	|	|
5+30	0.0111	0.04	Q V	|	|	|	|
5+35	0.0114	0.04	Q V	|	|	|	|
5+40	0.0117	0.04	Q V	|	|	|	|
5+45	0.0120	0.04	Q V	|	|	|	|
5+50	0.0123	0.04	Q V	|	|	|	|
5+55	0.0125	0.04	Q V	|	|	|	|
6+ 0	0.0128	0.04	Q V	|	|	|	|
6+ 5	0.0131	0.04	Q V	|	|	|	|
6+10	0.0135	0.05	Q V	|	|	|	|
6+15	0.0138	0.05	Q V	|	|	|	|
6+20	0.0141	0.05	Q V	|	|	|	|
6+25	0.0144	0.05	Q V	|	|	|	|
6+30	0.0148	0.05	Q V	|	|	|	|
6+35	0.0151	0.05	Q V	|	|	|	|
6+40	0.0154	0.05	Q V	|	|	|	|
6+45	0.0158	0.05	Q V	|	|	|	|
6+50	0.0162	0.05	Q V	|	|	|	|
6+55	0.0165	0.05	Q V	|	|	|	|
7+ 0	0.0169	0.05	Q V	|	|	|	|
7+ 5	0.0173	0.05	Q V	|	|	|	|
7+10	0.0176	0.05	Q V	|	|	|	|
7+15	0.0180	0.05	Q V	|	|	|	|
7+20	0.0184	0.05	Q V	|	|	|	|
7+25	0.0188	0.06	Q V	|	|	|	|
7+30	0.0192	0.06	Q V	|	|	|	|
7+35	0.0196	0.06	Q V	|	|	|	|
7+40	0.0200	0.06	Q V	|	|	|	|
7+45	0.0204	0.06	Q V	|	|	|	|
7+50	0.0209	0.06	Q V	|	|	|	|
7+55	0.0213	0.07	Q V	|	|	|	|
8+ 0	0.0218	0.07	Q V	|	|	|	|
8+ 5	0.0223	0.07	Q V	|	|	|	|
8+10	0.0228	0.08	Q V	|	|	|	|
8+15	0.0233	0.08	Q V	|	|	|	|
8+20	0.0239	0.08	Q V	|	|	|	|
8+25	0.0244	0.08	Q V	|	|	|	|
8+30	0.0250	0.08	Q V	|	|	|	|
8+35	0.0255	0.08	Q V	|	|	|	|
8+40	0.0261	0.08	Q V	|	|	|	|
8+45	0.0267	0.08	Q V	|	|	|	|
8+50	0.0273	0.09	Q V	|	|	|	|
8+55	0.0279	0.09	Q V	|	|	|	|
9+ 0	0.0285	0.09	Q V	|	|	|	|
9+ 5	0.0291	0.09	Q V	|	|	|	|
9+10	0.0298	0.10	Q V	|	|	|	|
9+15	0.0305	0.10	Q V	|	|	|	|
9+20	0.0312	0.10	Q V	|	|	|	|
9+25	0.0319	0.10	Q V	|	|	|	|
9+30	0.0326	0.10	Q V	|	|	|	|
9+35	0.0333	0.11	Q V	|	|	|	|
9+40	0.0341	0.11	Q V	|	|	|	|
9+45	0.0348	0.11	Q V	|	|	|	|
9+50	0.0356	0.11	Q V	|	|	|	|
9+55	0.0364	0.11	Q V	|	|	|	|
10+ 0	0.0372	0.12	Q V	|	|	|	|
10+ 5	0.0379	0.11	Q V	|	|	|	|
10+10	0.0386	0.09	Q V	|	|	|	|
10+15	0.0392	0.09	Q V	|	|	|	|
10+20	0.0397	0.08	Q V	|	|	|	|
10+25	0.0403	0.08	Q V	|	|	|	|
10+30	0.0408	0.08	Q V	|	|	|	|
10+35	0.0414	0.09	Q V	|	|	|	|
10+40	0.0421	0.10	Q V	|	|	|	|
10+45	0.0428	0.10	Q V	|	|	|	|
10+50	0.0435	0.10	Q V	|	|	|	|
10+55	0.0442	0.10	Q V	|	|	|	|
11+ 0	0.0450	0.11	Q V	|	|	|	|
11+ 5	0.0457	0.10	Q V	|	|	|	|
11+10	0.0464	0.10	Q V	|	|	|	|
11+15	0.0471	0.10	Q V	|	|	|	|
11+20	0.0478	0.10	Q V	|	|	|	|

11+25	0.0485	0.10	Q	V
11+30	0.0492	0.10	Q	V
11+35	0.0499	0.10	Q	V
11+40	0.0505	0.09	Q	V
11+45	0.0511	0.09	Q	V
11+50	0.0518	0.09	Q	V
11+55	0.0524	0.09	Q	V
12+ 0	0.0531	0.09	Q	V
12+ 5	0.0538	0.10	Q	V
12+10	0.0546	0.12	Q	V
12+15	0.0555	0.13	Q	V
12+20	0.0564	0.13	Q	V
12+25	0.0573	0.13	Q	V
12+30	0.0582	0.14	Q	V
12+35	0.0592	0.14	Q	V
12+40	0.0603	0.16	Q	V
12+45	0.0614	0.16	Q	V
12+50	0.0627	0.18	Q	V
12+55	0.0641	0.21	Q	V
13+ 0	0.0657	0.23	Q	V
13+ 5	0.0678	0.30	|Q	V
13+10	0.0708	0.43	|Q	V
13+15	0.0741	0.48	|Q	V
13+20	0.0776	0.51	| Q	V
13+25	0.0812	0.52	| Q	V
13+30	0.0848	0.54	| Q	V
13+35	0.0880	0.45	|Q	V
13+40	0.0897	0.25	Q	V
13+45	0.0910	0.19	Q	V
13+50	0.0920	0.16	Q	V
13+55	0.0930	0.14	Q	V
14+ 0	0.0939	0.13	Q	V
14+ 5	0.0950	0.15	Q	V
14+10	0.0963	0.19	Q	V
14+15	0.0978	0.21	Q	V
14+20	0.0993	0.21	Q	V
14+25	0.1006	0.20	Q	V
14+30	0.1020	0.20	Q	V
14+35	0.1034	0.20	Q	V
14+40	0.1048	0.21	Q	V
14+45	0.1063	0.21	Q	V
14+50	0.1077	0.21	Q	V
14+55	0.1090	0.19	Q	V
15+ 0	0.1103	0.18	Q	V
15+ 5	0.1115	0.18	Q	V
15+10	0.1125	0.15	Q	V
15+15	0.1135	0.15	Q	V
15+20	0.1145	0.14	Q	V
15+25	0.1154	0.13	Q	V
15+30	0.1163	0.13	Q	V
15+35	0.1171	0.12	Q	V
15+40	0.1179	0.11	Q	V
15+45	0.1186	0.10	Q	V
15+50	0.1193	0.10	Q	V
15+55	0.1200	0.10	Q	V
16+ 0	0.1207	0.10	Q	V
16+ 5	0.1213	0.08	Q	V
16+10	0.1216	0.05	Q	V
16+15	0.1218	0.03	Q	V
16+20	0.1220	0.03	Q	V
16+25	0.1222	0.03	Q	V
16+30	0.1223	0.02	Q	V
16+35	0.1225	0.02	Q	V
16+40	0.1226	0.02	Q	V
16+45	0.1227	0.02	Q	V
16+50	0.1228	0.02	Q	V
16+55	0.1230	0.02	Q	V
17+ 0	0.1231	0.02	Q	V
17+ 5	0.1232	0.02	Q	V
17+10	0.1233	0.02	Q	V
17+15	0.1235	0.02	Q	V
17+20	0.1237	0.03	Q	V
17+25	0.1239	0.03	Q	V
17+30	0.1241	0.03	Q	V
17+35	0.1242	0.03	Q	V
17+40	0.1244	0.03	Q	V
17+45	0.1246	0.03	Q	V
17+50	0.1248	0.03	Q	V
17+55	0.1249	0.02	Q	V

18+ 0	0.1251	0.02	Q				V
18+ 5	0.1252	0.02	Q				V
18+10	0.1254	0.02	Q				V
18+15	0.1255	0.02	Q				V
18+20	0.1257	0.02	Q				V
18+25	0.1258	0.02	Q				V
18+30	0.1260	0.02	Q				V
18+35	0.1261	0.02	Q				V
18+40	0.1262	0.02	Q				V
18+45	0.1263	0.02	Q				V
18+50	0.1264	0.02	Q				V
18+55	0.1265	0.01	Q				V
19+ 0	0.1266	0.01	Q				V
19+ 5	0.1267	0.01	Q				V
19+10	0.1268	0.01	Q				V
19+15	0.1269	0.02	Q				V
19+20	0.1270	0.02	Q				V
19+25	0.1271	0.02	Q				V
19+30	0.1273	0.02	Q				V
19+35	0.1274	0.02	Q				V
19+40	0.1275	0.02	Q				V
19+45	0.1277	0.02	Q				V
19+50	0.1278	0.02	Q				V
19+55	0.1278	0.01	Q				V
20+ 0	0.1279	0.01	Q				V
20+ 5	0.1280	0.01	Q				V
20+10	0.1281	0.01	Q				V
20+15	0.1282	0.02	Q				V
20+20	0.1283	0.02	Q				V
20+25	0.1284	0.02	Q				V
20+30	0.1285	0.02	Q				V
20+35	0.1286	0.02	Q				V
20+40	0.1288	0.02	Q				V
20+45	0.1289	0.02	Q				V
20+50	0.1290	0.01	Q				V
20+55	0.1291	0.01	Q				V
21+ 0	0.1291	0.01	Q				V
21+ 5	0.1292	0.01	Q				V
21+10	0.1293	0.01	Q				V
21+15	0.1294	0.02	Q				V
21+20	0.1295	0.01	Q				V
21+25	0.1296	0.01	Q				V
21+30	0.1297	0.01	Q				V
21+35	0.1298	0.01	Q				V
21+40	0.1299	0.01	Q				V
21+45	0.1300	0.02	Q				V
21+50	0.1301	0.01	Q				V
21+55	0.1301	0.01	Q				V
22+ 0	0.1302	0.01	Q				V
22+ 5	0.1303	0.01	Q				V
22+10	0.1304	0.01	Q				V
22+15	0.1305	0.02	Q				V
22+20	0.1306	0.01	Q				V
22+25	0.1307	0.01	Q				V
22+30	0.1308	0.01	Q				V
22+35	0.1308	0.01	Q				V
22+40	0.1309	0.01	Q				V
22+45	0.1310	0.01	Q				V
22+50	0.1311	0.01	Q				V
22+55	0.1311	0.01	Q				V
23+ 0	0.1312	0.01	Q				V
23+ 5	0.1313	0.01	Q				V
23+10	0.1314	0.01	Q				V
23+15	0.1314	0.01	Q				V
23+20	0.1315	0.01	Q				V
23+25	0.1316	0.01	Q				V
23+30	0.1317	0.01	Q				V
23+35	0.1317	0.01	Q				V
23+40	0.1318	0.01	Q				V
23+45	0.1319	0.01	Q				V
23+50	0.1319	0.01	Q				V
23+55	0.1320	0.01	Q				V
24+ 0	0.1321	0.01	Q				V
24+ 5	0.1321	0.01	Q				V
24+10	0.1322	0.00	Q				V
24+15	0.1322	0.00	Q				V
24+20	0.1322	0.00	Q				V
24+25	0.1322	0.00	Q				V
24+30	0.1322	0.00	Q				V

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                                                    EXIST242
   24+35       0.1322      0.00  Q         |          |         |         V
-------------------------------------------------------------------------------
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EXISTING CONDITION 100-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Study date 10/12/18 File: EXIST24100.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

18-0240 Duke Barrett Building Option
ONSITE UNIT HYDROGRAPH ANALYSIS
EXISITNG CONDITION, 100-YEAR 24-HOUR
FN: EXIST24100.OUT- TSW

Drainage Area = 7.30(Ac.) = 0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 7.30(Ac.) = 0.011 Sq. Mi.
Length along longest watercourse = 815.00(Ft.)
Length along longest watercourse measured to centroid = 435.00(Ft.)
Length along longest watercourse = 0.154 Mi.
Length along longest watercourse measured to centroid = 0.082 Mi.
Difference in elevation = 3.00(Ft.)
Slope along watercourse = 19.4356 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.078 Hr.
Lag time = 4.68 Min.
25% of lag time = 1.17 Min.
40% of lag time = 1.87 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	1.80	13.14

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	4.50	32.85

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
7.300	84.00	0.000

Total Area Entered = 7.30(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
84.0	84.0	0.198	0.000	0.198	1.000	0.198
					Sum (F) =	0.198

Area averaged mean soil loss (F) (In/Hr) = 0.198
Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.900

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	106.821	21.281	1.566
2	0.167	213.642	48.763	3.587
3	0.250	320.462	14.692	1.081
4	0.333	427.283	6.707	0.493
5	0.417	534.104	3.729	0.274
6	0.500	640.925	2.367	0.174
7	0.583	747.745	1.403	0.103
8	0.667	854.566	1.058	0.078
		Sum =	100.000 Sum=	7.357

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.036	(0.352)	0.032	0.004
2	0.17	0.07	0.036	(0.350)	0.032	0.004
3	0.25	0.07	0.036	(0.349)	0.032	0.004
4	0.33	0.10	0.054	(0.348)	0.049	0.005
5	0.42	0.10	0.054	(0.346)	0.049	0.005
6	0.50	0.10	0.054	(0.345)	0.049	0.005
7	0.58	0.10	0.054	(0.344)	0.049	0.005
8	0.67	0.10	0.054	(0.342)	0.049	0.005
9	0.75	0.10	0.054	(0.341)	0.049	0.005
10	0.83	0.13	0.072	(0.340)	0.065	0.007
11	0.92	0.13	0.072	(0.338)	0.065	0.007
12	1.00	0.13	0.072	(0.337)	0.065	0.007
13	1.08	0.10	0.054	(0.336)	0.049	0.005
14	1.17	0.10	0.054	(0.334)	0.049	0.005
15	1.25	0.10	0.054	(0.333)	0.049	0.005
16	1.33	0.10	0.054	(0.332)	0.049	0.005
17	1.42	0.10	0.054	(0.330)	0.049	0.005
18	1.50	0.10	0.054	(0.329)	0.049	0.005
19	1.58	0.10	0.054	(0.328)	0.049	0.005
20	1.67	0.10	0.054	(0.326)	0.049	0.005
21	1.75	0.10	0.054	(0.325)	0.049	0.005
22	1.83	0.13	0.072	(0.324)	0.065	0.007
23	1.92	0.13	0.072	(0.322)	0.065	0.007
24	2.00	0.13	0.072	(0.321)	0.065	0.007
25	2.08	0.13	0.072	(0.320)	0.065	0.007
26	2.17	0.13	0.072	(0.318)	0.065	0.007
27	2.25	0.13	0.072	(0.317)	0.065	0.007
28	2.33	0.13	0.072	(0.316)	0.065	0.007
29	2.42	0.13	0.072	(0.315)	0.065	0.007
30	2.50	0.13	0.072	(0.313)	0.065	0.007
31	2.58	0.17	0.090	(0.312)	0.081	0.009
32	2.67	0.17	0.090	(0.311)	0.081	0.009
33	2.75	0.17	0.090	(0.310)	0.081	0.009
34	2.83	0.17	0.090	(0.308)	0.081	0.009
35	2.92	0.17	0.090	(0.307)	0.081	0.009
36	3.00	0.17	0.090	(0.306)	0.081	0.009
37	3.08	0.17	0.090	(0.304)	0.081	0.009
38	3.17	0.17	0.090	(0.303)	0.081	0.009
39	3.25	0.17	0.090	(0.302)	0.081	0.009
40	3.33	0.17	0.090	(0.301)	0.081	0.009
41	3.42	0.17	0.090	(0.299)	0.081	0.009
42	3.50	0.17	0.090	(0.298)	0.081	0.009
43	3.58	0.17	0.090	(0.297)	0.081	0.009
44	3.67	0.17	0.090	(0.296)	0.081	0.009
45	3.75	0.17	0.090	(0.294)	0.081	0.009
46	3.83	0.20	0.108	(0.293)	0.097	0.011
47	3.92	0.20	0.108	(0.292)	0.097	0.011
48	4.00	0.20	0.108	(0.291)	0.097	0.011
49	4.08	0.20	0.108	(0.289)	0.097	0.011
50	4.17	0.20	0.108	(0.288)	0.097	0.011

51	4.25	0.20	0.108	(0.287)	0.097	0.011
52	4.33	0.23	0.126	(0.286)	0.113	0.013
53	4.42	0.23	0.126	(0.285)	0.113	0.013
54	4.50	0.23	0.126	(0.283)	0.113	0.013
55	4.58	0.23	0.126	(0.282)	0.113	0.013
56	4.67	0.23	0.126	(0.281)	0.113	0.013
57	4.75	0.23	0.126	(0.280)	0.113	0.013
58	4.83	0.27	0.144	(0.278)	0.130	0.014
59	4.92	0.27	0.144	(0.277)	0.130	0.014
60	5.00	0.27	0.144	(0.276)	0.130	0.014
61	5.08	0.20	0.108	(0.275)	0.097	0.011
62	5.17	0.20	0.108	(0.274)	0.097	0.011
63	5.25	0.20	0.108	(0.272)	0.097	0.011
64	5.33	0.23	0.126	(0.271)	0.113	0.013
65	5.42	0.23	0.126	(0.270)	0.113	0.013
66	5.50	0.23	0.126	(0.269)	0.113	0.013
67	5.58	0.27	0.144	(0.268)	0.130	0.014
68	5.67	0.27	0.144	(0.267)	0.130	0.014
69	5.75	0.27	0.144	(0.265)	0.130	0.014
70	5.83	0.27	0.144	(0.264)	0.130	0.014
71	5.92	0.27	0.144	(0.263)	0.130	0.014
72	6.00	0.27	0.144	(0.262)	0.130	0.014
73	6.08	0.30	0.162	(0.261)	0.146	0.016
74	6.17	0.30	0.162	(0.260)	0.146	0.016
75	6.25	0.30	0.162	(0.258)	0.146	0.016
76	6.33	0.30	0.162	(0.257)	0.146	0.016
77	6.42	0.30	0.162	(0.256)	0.146	0.016
78	6.50	0.30	0.162	(0.255)	0.146	0.016
79	6.58	0.33	0.180	(0.254)	0.162	0.018
80	6.67	0.33	0.180	(0.253)	0.162	0.018
81	6.75	0.33	0.180	(0.252)	0.162	0.018
82	6.83	0.33	0.180	(0.250)	0.162	0.018
83	6.92	0.33	0.180	(0.249)	0.162	0.018
84	7.00	0.33	0.180	(0.248)	0.162	0.018
85	7.08	0.33	0.180	(0.247)	0.162	0.018
86	7.17	0.33	0.180	(0.246)	0.162	0.018
87	7.25	0.33	0.180	(0.245)	0.162	0.018
88	7.33	0.37	0.198	(0.244)	0.178	0.020
89	7.42	0.37	0.198	(0.243)	0.178	0.020
90	7.50	0.37	0.198	(0.241)	0.178	0.020
91	7.58	0.40	0.216	(0.240)	0.194	0.022
92	7.67	0.40	0.216	(0.239)	0.194	0.022
93	7.75	0.40	0.216	(0.238)	0.194	0.022
94	7.83	0.43	0.234	(0.237)	0.211	0.023
95	7.92	0.43	0.234	(0.236)	0.211	0.023
96	8.00	0.43	0.234	(0.235)	0.211	0.023
97	8.08	0.50	0.270	0.234	(0.243)	0.036
98	8.17	0.50	0.270	0.233	(0.243)	0.037
99	8.25	0.50	0.270	0.232	(0.243)	0.038
100	8.33	0.50	0.270	0.230	(0.243)	0.040
101	8.42	0.50	0.270	0.229	(0.243)	0.041
102	8.50	0.50	0.270	0.228	(0.243)	0.042
103	8.58	0.53	0.288	0.227	(0.259)	0.061
104	8.67	0.53	0.288	0.226	(0.259)	0.062
105	8.75	0.53	0.288	0.225	(0.259)	0.063
106	8.83	0.57	0.306	0.224	(0.275)	0.082
107	8.92	0.57	0.306	0.223	(0.275)	0.083
108	9.00	0.57	0.306	0.222	(0.275)	0.084
109	9.08	0.63	0.342	0.221	(0.308)	0.121
110	9.17	0.63	0.342	0.220	(0.308)	0.122
111	9.25	0.63	0.342	0.219	(0.308)	0.123
112	9.33	0.67	0.360	0.218	(0.324)	0.142
113	9.42	0.67	0.360	0.217	(0.324)	0.143
114	9.50	0.67	0.360	0.216	(0.324)	0.144
115	9.58	0.70	0.378	0.215	(0.340)	0.163
116	9.67	0.70	0.378	0.214	(0.340)	0.164
117	9.75	0.70	0.378	0.213	(0.340)	0.165
118	9.83	0.73	0.396	0.212	(0.356)	0.184
119	9.92	0.73	0.396	0.211	(0.356)	0.185
120	10.00	0.73	0.396	0.210	(0.356)	0.186
121	10.08	0.50	0.270	0.208	(0.243)	0.061
122	10.17	0.50	0.270	0.207	(0.243)	0.063
123	10.25	0.50	0.270	0.206	(0.243)	0.064
124	10.33	0.50	0.270	0.205	(0.243)	0.065
125	10.42	0.50	0.270	0.204	(0.243)	0.066
126	10.50	0.50	0.270	0.203	(0.243)	0.067
127	10.58	0.67	0.360	0.202	(0.324)	0.158
128	10.67	0.67	0.360	0.201	(0.324)	0.158
129	10.75	0.67	0.360	0.201	(0.324)	0.159

130	10.83	0.67	0.360	0.200	(0.324)	0.160
131	10.92	0.67	0.360	0.199	(0.324)	0.161
132	11.00	0.67	0.360	0.198	(0.324)	0.162
133	11.08	0.63	0.342	0.197	(0.308)	0.145
134	11.17	0.63	0.342	0.196	(0.308)	0.146
135	11.25	0.63	0.342	0.195	(0.308)	0.147
136	11.33	0.63	0.342	0.194	(0.308)	0.148
137	11.42	0.63	0.342	0.193	(0.308)	0.149
138	11.50	0.63	0.342	0.192	(0.308)	0.150
139	11.58	0.57	0.306	0.191	(0.275)	0.115
140	11.67	0.57	0.306	0.190	(0.275)	0.116
141	11.75	0.57	0.306	0.189	(0.275)	0.117
142	11.83	0.60	0.324	0.188	(0.292)	0.136
143	11.92	0.60	0.324	0.187	(0.292)	0.137
144	12.00	0.60	0.324	0.186	(0.292)	0.138
145	12.08	0.83	0.450	0.185	(0.405)	0.265
146	12.17	0.83	0.450	0.184	(0.405)	0.266
147	12.25	0.83	0.450	0.183	(0.405)	0.267
148	12.33	0.87	0.468	0.182	(0.421)	0.286
149	12.42	0.87	0.468	0.182	(0.421)	0.286
150	12.50	0.87	0.468	0.181	(0.421)	0.287
151	12.58	0.93	0.504	0.180	(0.454)	0.324
152	12.67	0.93	0.504	0.179	(0.454)	0.325
153	12.75	0.93	0.504	0.178	(0.454)	0.326
154	12.83	0.97	0.522	0.177	(0.470)	0.345
155	12.92	0.97	0.522	0.176	(0.470)	0.346
156	13.00	0.97	0.522	0.175	(0.470)	0.347
157	13.08	1.13	0.612	0.174	(0.551)	0.438
158	13.17	1.13	0.612	0.173	(0.551)	0.439
159	13.25	1.13	0.612	0.173	(0.551)	0.439
160	13.33	1.13	0.612	0.172	(0.551)	0.440
161	13.42	1.13	0.612	0.171	(0.551)	0.441
162	13.50	1.13	0.612	0.170	(0.551)	0.442
163	13.58	0.77	0.414	0.169	(0.373)	0.245
164	13.67	0.77	0.414	0.168	(0.373)	0.246
165	13.75	0.77	0.414	0.167	(0.373)	0.247
166	13.83	0.77	0.414	0.166	(0.373)	0.247
167	13.92	0.77	0.414	0.166	(0.373)	0.248
168	14.00	0.77	0.414	0.165	(0.373)	0.249
169	14.08	0.90	0.486	0.164	(0.437)	0.322
170	14.17	0.90	0.486	0.163	(0.437)	0.323
171	14.25	0.90	0.486	0.162	(0.437)	0.324
172	14.33	0.87	0.468	0.161	(0.421)	0.307
173	14.42	0.87	0.468	0.161	(0.421)	0.307
174	14.50	0.87	0.468	0.160	(0.421)	0.308
175	14.58	0.87	0.468	0.159	(0.421)	0.309
176	14.67	0.87	0.468	0.158	(0.421)	0.310
177	14.75	0.87	0.468	0.157	(0.421)	0.311
178	14.83	0.83	0.450	0.157	(0.405)	0.293
179	14.92	0.83	0.450	0.156	(0.405)	0.294
180	15.00	0.83	0.450	0.155	(0.405)	0.295
181	15.08	0.80	0.432	0.154	(0.389)	0.278
182	15.17	0.80	0.432	0.153	(0.389)	0.279
183	15.25	0.80	0.432	0.153	(0.389)	0.279
184	15.33	0.77	0.414	0.152	(0.373)	0.262
185	15.42	0.77	0.414	0.151	(0.373)	0.263
186	15.50	0.77	0.414	0.150	(0.373)	0.264
187	15.58	0.63	0.342	0.149	(0.308)	0.193
188	15.67	0.63	0.342	0.149	(0.308)	0.193
189	15.75	0.63	0.342	0.148	(0.308)	0.194
190	15.83	0.63	0.342	0.147	(0.308)	0.195
191	15.92	0.63	0.342	0.146	(0.308)	0.196
192	16.00	0.63	0.342	0.146	(0.308)	0.196
193	16.08	0.13	0.072	(0.145)	0.065	0.007
194	16.17	0.13	0.072	(0.144)	0.065	0.007
195	16.25	0.13	0.072	(0.143)	0.065	0.007
196	16.33	0.13	0.072	(0.143)	0.065	0.007
197	16.42	0.13	0.072	(0.142)	0.065	0.007
198	16.50	0.13	0.072	(0.141)	0.065	0.007
199	16.58	0.10	0.054	(0.141)	0.049	0.005
200	16.67	0.10	0.054	(0.140)	0.049	0.005
201	16.75	0.10	0.054	(0.139)	0.049	0.005
202	16.83	0.10	0.054	(0.138)	0.049	0.005
203	16.92	0.10	0.054	(0.138)	0.049	0.005
204	17.00	0.10	0.054	(0.137)	0.049	0.005
205	17.08	0.17	0.090	(0.136)	0.081	0.009
206	17.17	0.17	0.090	(0.136)	0.081	0.009
207	17.25	0.17	0.090	(0.135)	0.081	0.009
208	17.33	0.17	0.090	(0.134)	0.081	0.009

209	17.42	0.17	0.090	(0.134)	0.081	0.009
210	17.50	0.17	0.090	(0.133)	0.081	0.009
211	17.58	0.17	0.090	(0.132)	0.081	0.009
212	17.67	0.17	0.090	(0.132)	0.081	0.009
213	17.75	0.17	0.090	(0.131)	0.081	0.009
214	17.83	0.13	0.072	(0.130)	0.065	0.007
215	17.92	0.13	0.072	(0.130)	0.065	0.007
216	18.00	0.13	0.072	(0.129)	0.065	0.007
217	18.08	0.13	0.072	(0.128)	0.065	0.007
218	18.17	0.13	0.072	(0.128)	0.065	0.007
219	18.25	0.13	0.072	(0.127)	0.065	0.007
220	18.33	0.13	0.072	(0.127)	0.065	0.007
221	18.42	0.13	0.072	(0.126)	0.065	0.007
222	18.50	0.13	0.072	(0.125)	0.065	0.007
223	18.58	0.10	0.054	(0.125)	0.049	0.005
224	18.67	0.10	0.054	(0.124)	0.049	0.005
225	18.75	0.10	0.054	(0.124)	0.049	0.005
226	18.83	0.07	0.036	(0.123)	0.032	0.004
227	18.92	0.07	0.036	(0.122)	0.032	0.004
228	19.00	0.07	0.036	(0.122)	0.032	0.004
229	19.08	0.10	0.054	(0.121)	0.049	0.005
230	19.17	0.10	0.054	(0.121)	0.049	0.005
231	19.25	0.10	0.054	(0.120)	0.049	0.005
232	19.33	0.13	0.072	(0.119)	0.065	0.007
233	19.42	0.13	0.072	(0.119)	0.065	0.007
234	19.50	0.13	0.072	(0.118)	0.065	0.007
235	19.58	0.10	0.054	(0.118)	0.049	0.005
236	19.67	0.10	0.054	(0.117)	0.049	0.005
237	19.75	0.10	0.054	(0.117)	0.049	0.005
238	19.83	0.07	0.036	(0.116)	0.032	0.004
239	19.92	0.07	0.036	(0.116)	0.032	0.004
240	20.00	0.07	0.036	(0.115)	0.032	0.004
241	20.08	0.10	0.054	(0.115)	0.049	0.005
242	20.17	0.10	0.054	(0.114)	0.049	0.005
243	20.25	0.10	0.054	(0.114)	0.049	0.005
244	20.33	0.10	0.054	(0.113)	0.049	0.005
245	20.42	0.10	0.054	(0.113)	0.049	0.005
246	20.50	0.10	0.054	(0.112)	0.049	0.005
247	20.58	0.10	0.054	(0.112)	0.049	0.005
248	20.67	0.10	0.054	(0.111)	0.049	0.005
249	20.75	0.10	0.054	(0.111)	0.049	0.005
250	20.83	0.07	0.036	(0.110)	0.032	0.004
251	20.92	0.07	0.036	(0.110)	0.032	0.004
252	21.00	0.07	0.036	(0.110)	0.032	0.004
253	21.08	0.10	0.054	(0.109)	0.049	0.005
254	21.17	0.10	0.054	(0.109)	0.049	0.005
255	21.25	0.10	0.054	(0.108)	0.049	0.005
256	21.33	0.07	0.036	(0.108)	0.032	0.004
257	21.42	0.07	0.036	(0.107)	0.032	0.004
258	21.50	0.07	0.036	(0.107)	0.032	0.004
259	21.58	0.10	0.054	(0.107)	0.049	0.005
260	21.67	0.10	0.054	(0.106)	0.049	0.005
261	21.75	0.10	0.054	(0.106)	0.049	0.005
262	21.83	0.07	0.036	(0.105)	0.032	0.004
263	21.92	0.07	0.036	(0.105)	0.032	0.004
264	22.00	0.07	0.036	(0.105)	0.032	0.004
265	22.08	0.10	0.054	(0.104)	0.049	0.005
266	22.17	0.10	0.054	(0.104)	0.049	0.005
267	22.25	0.10	0.054	(0.104)	0.049	0.005
268	22.33	0.07	0.036	(0.103)	0.032	0.004
269	22.42	0.07	0.036	(0.103)	0.032	0.004
270	22.50	0.07	0.036	(0.103)	0.032	0.004
271	22.58	0.07	0.036	(0.102)	0.032	0.004
272	22.67	0.07	0.036	(0.102)	0.032	0.004
273	22.75	0.07	0.036	(0.102)	0.032	0.004
274	22.83	0.07	0.036	(0.102)	0.032	0.004
275	22.92	0.07	0.036	(0.101)	0.032	0.004
276	23.00	0.07	0.036	(0.101)	0.032	0.004
277	23.08	0.07	0.036	(0.101)	0.032	0.004
278	23.17	0.07	0.036	(0.101)	0.032	0.004
279	23.25	0.07	0.036	(0.100)	0.032	0.004
280	23.33	0.07	0.036	(0.100)	0.032	0.004
281	23.42	0.07	0.036	(0.100)	0.032	0.004
282	23.50	0.07	0.036	(0.100)	0.032	0.004
283	23.58	0.07	0.036	(0.100)	0.032	0.004
284	23.67	0.07	0.036	(0.100)	0.032	0.004
285	23.75	0.07	0.036	(0.099)	0.032	0.004
286	23.83	0.07	0.036	(0.099)	0.032	0.004
287	23.92	0.07	0.036	(0.099)	0.032	0.004

288 24.00   0.07   0.036   (0.099)   0.032   0.004
(Loss Rate Not Used)
Sum =   100.0   Sum =   21.4
Flood volume = Effective rainfall   1.78(In)
times area   7.3(Ac.)/[(In)/(Ft.)] =   1.1(Ac.Ft)
Total soil loss =   2.72(In)
Total soil loss =   1.652(Ac.Ft)
Total rainfall =   4.50(In)
Flood volume =   47290.4 Cubic Feet
Total soil loss =   71953.4 Cubic Feet

Peak flow rate of this hydrograph =   3.229(CFS)

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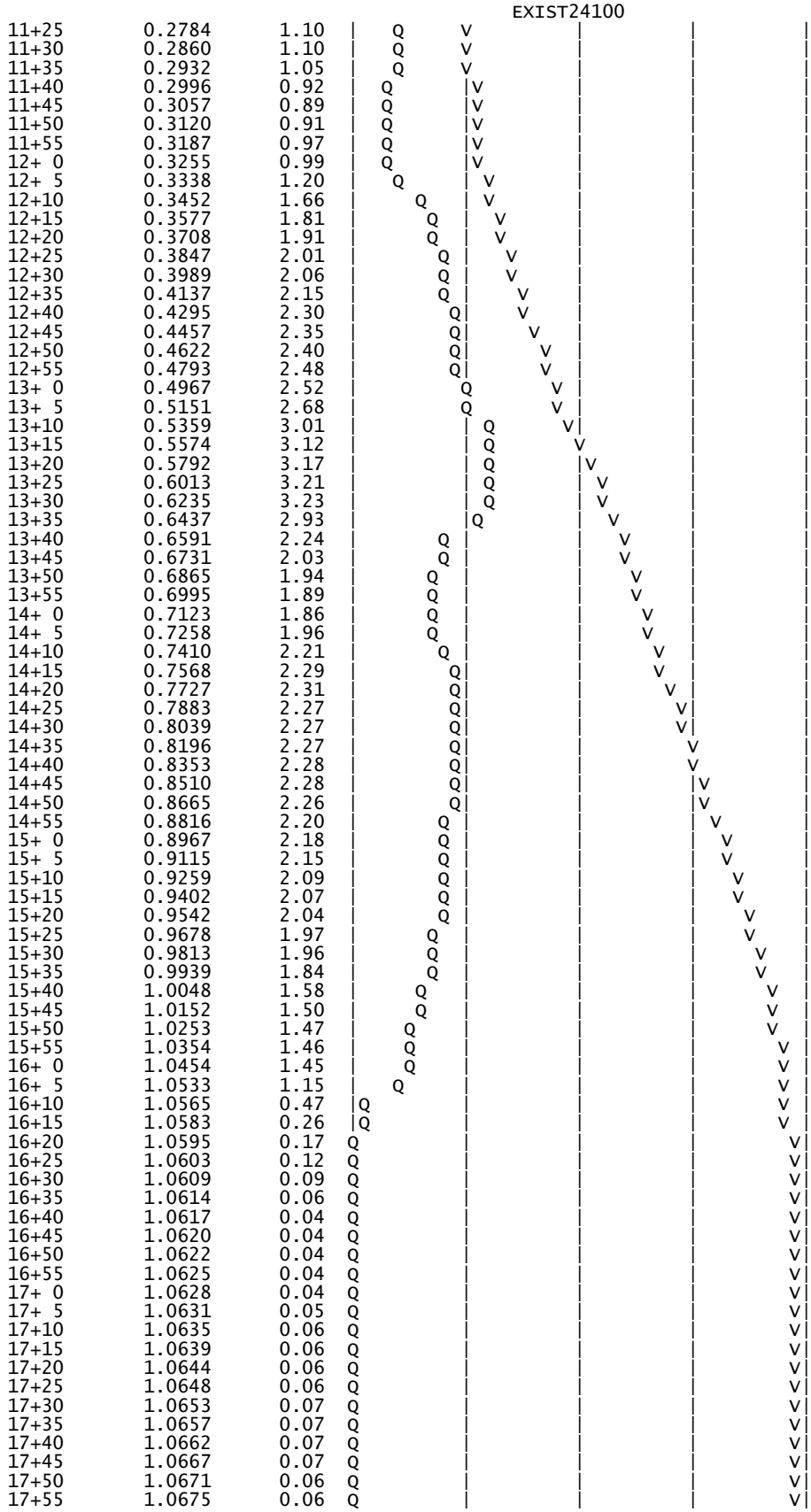
24 - H O U R   S T O R M
R u n o f f   H y d r o g r a p h

Hydrograph in   5   Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q				
0+10	0.0002	0.02	Q				
0+15	0.0003	0.02	Q				
0+20	0.0005	0.03	Q				
0+25	0.0007	0.03	Q				
0+30	0.0010	0.04	Q				
0+35	0.0013	0.04	Q				
0+40	0.0015	0.04	Q				
0+45	0.0018	0.04	Q				
0+50	0.0021	0.04	Q				
0+55	0.0024	0.05	Q				
1+ 0	0.0028	0.05	Q				
1+ 5	0.0031	0.05	Q				
1+10	0.0034	0.04	Q				
1+15	0.0037	0.04	Q				
1+20	0.0040	0.04	Q				
1+25	0.0043	0.04	Q				
1+30	0.0045	0.04	Q				
1+35	0.0048	0.04	Q				
1+40	0.0051	0.04	Q				
1+45	0.0054	0.04	Q				
1+50	0.0057	0.04	Q				
1+55	0.0060	0.05	Q				
2+ 0	0.0063	0.05	Q				
2+ 5	0.0067	0.05	Q				
2+10	0.0071	0.05	Q				
2+15	0.0074	0.05	Q				
2+20	0.0078	0.05	Q				
2+25	0.0082	0.05	Q				
2+30	0.0085	0.05	Q				
2+35	0.0089	0.06	Q				
2+40	0.0093	0.06	Q				
2+45	0.0098	0.06	Q				
2+50	0.0102	0.07	Q				
2+55	0.0107	0.07	Q				
3+ 0	0.0111	0.07	Q				
3+ 5	0.0116	0.07	Q				
3+10	0.0120	0.07	Q				
3+15	0.0125	0.07	Q				
3+20	0.0130	0.07	Q				
3+25	0.0134	0.07	Q				
3+30	0.0139	0.07	Q				
3+35	0.0143	0.07	Q				
3+40	0.0148	0.07	Q				
3+45	0.0152	0.07	Q				
3+50	0.0157	0.07	Q				
3+55	0.0162	0.08	Q				
4+ 0	0.0168	0.08	Q				
4+ 5	0.0173	0.08	Q				
4+10	0.0178	0.08	Q				
4+15	0.0184	0.08	Q				
4+20	0.0190	0.08	Q				
4+25	0.0196	0.09	Q				
4+30	0.0202	0.09	Q				
4+35	0.0208	0.09	Q				
4+40	0.0215	0.09	Q				
4+45	0.0221	0.09	Q				

4+50	0.0228	0.10	Q				
4+55	0.0235	0.10	Q				
5+ 0	0.0242	0.10	Q				
5+ 5	0.0249	0.10	Q				
5+10	0.0255	0.09	Q				
5+15	0.0260	0.08	Q				
5+20	0.0266	0.08	Q				
5+25	0.0272	0.09	QV				
5+30	0.0279	0.09	QV				
5+35	0.0285	0.09	QV				
5+40	0.0292	0.10	QV				
5+45	0.0299	0.10	QV				
5+50	0.0306	0.10	QV				
5+55	0.0314	0.11	QV				
6+ 0	0.0321	0.11	QV				
6+ 5	0.0328	0.11	QV				
6+10	0.0336	0.12	QV				
6+15	0.0344	0.12	QV				
6+20	0.0353	0.12	QV				
6+25	0.0361	0.12	QV				
6+30	0.0369	0.12	QV				
6+35	0.0377	0.12	QV				
6+40	0.0386	0.13	QV				
6+45	0.0395	0.13	QV				
6+50	0.0404	0.13	QV				
6+55	0.0413	0.13	QV				
7+ 0	0.0422	0.13	QV				
7+ 5	0.0432	0.13	QV				
7+10	0.0441	0.13	QV				
7+15	0.0450	0.13	QV				
7+20	0.0459	0.14	QV				
7+25	0.0469	0.14	QV				
7+30	0.0479	0.14	QV				
7+35	0.0489	0.15	QV				
7+40	0.0500	0.15	QV				
7+45	0.0510	0.16	QV				
7+50	0.0521	0.16	QV				
7+55	0.0533	0.17	QV				
8+ 0	0.0545	0.17	Q V				
8+ 5	0.0558	0.19	Q V				
8+10	0.0574	0.24	Q V				
8+15	0.0592	0.26	QV				
8+20	0.0611	0.27	QV				
8+25	0.0631	0.28	QV				
8+30	0.0651	0.29	QV				
8+35	0.0674	0.33	QV				
8+40	0.0701	0.40	QV				
8+45	0.0731	0.43	QV				
8+50	0.0764	0.48	QV				
8+55	0.0802	0.55	Q				
9+ 0	0.0842	0.58	QV				
9+ 5	0.0888	0.66	QV				
9+10	0.0943	0.80	Q				
9+15	0.1002	0.85	Q				
9+20	0.1064	0.91	Q				
9+25	0.1133	0.99	QV				
9+30	0.1203	1.02	Q				
9+35	0.1277	1.07	Q				
9+40	0.1357	1.15	Q				
9+45	0.1438	1.18	QV				
9+50	0.1523	1.23	QV				
9+55	0.1613	1.31	Q				
10+ 0	0.1705	1.34	QV				
10+ 5	0.1785	1.16	Q V				
10+10	0.1835	0.72	Q V				
10+15	0.1876	0.60	Q V				
10+20	0.1913	0.54	Q V				
10+25	0.1948	0.52	Q V				
10+30	0.1983	0.50	Q V				
10+35	0.2027	0.64	Q V				
10+40	0.2093	0.96	Q V				
10+45	0.2166	1.06	Q V				
10+50	0.2243	1.11	Q V				
10+55	0.2322	1.15	Q V				
11+ 0	0.2402	1.17	Q V				
11+ 5	0.2482	1.16	Q V				
11+10	0.2558	1.11	Q V				
11+15	0.2634	1.09	Q V				
11+20	0.2709	1.09	Q V				



11+25	0.2784	1.10	
11+30	0.2860	1.10	
11+35	0.2932	1.05	
11+40	0.2996	0.92	
11+45	0.3057	0.89	
11+50	0.3120	0.91	
11+55	0.3187	0.97	
12+ 0	0.3255	0.99	
12+ 5	0.3338	1.20	
12+10	0.3452	1.66	
12+15	0.3577	1.81	
12+20	0.3708	1.91	
12+25	0.3847	2.01	
12+30	0.3989	2.06	
12+35	0.4137	2.15	
12+40	0.4295	2.30	
12+45	0.4457	2.35	
12+50	0.4622	2.40	
12+55	0.4793	2.48	
13+ 0	0.4967	2.52	
13+ 5	0.5151	2.68	
13+10	0.5359	3.01	
13+15	0.5574	3.12	
13+20	0.5792	3.17	
13+25	0.6013	3.21	
13+30	0.6235	3.23	
13+35	0.6437	2.93	
13+40	0.6591	2.24	
13+45	0.6731	2.03	
13+50	0.6865	1.94	
13+55	0.6995	1.89	
14+ 0	0.7123	1.86	
14+ 5	0.7258	1.96	
14+10	0.7410	2.21	
14+15	0.7568	2.29	
14+20	0.7727	2.31	
14+25	0.7883	2.27	
14+30	0.8039	2.27	
14+35	0.8196	2.27	
14+40	0.8353	2.28	
14+45	0.8510	2.28	
14+50	0.8665	2.26	
14+55	0.8816	2.20	
15+ 0	0.8967	2.18	
15+ 5	0.9115	2.15	
15+10	0.9259	2.09	
15+15	0.9402	2.07	
15+20	0.9542	2.04	
15+25	0.9678	1.97	
15+30	0.9813	1.96	
15+35	0.9939	1.84	
15+40	1.0048	1.58	
15+45	1.0152	1.50	
15+50	1.0253	1.47	
15+55	1.0354	1.46	
16+ 0	1.0454	1.45	
16+ 5	1.0533	1.15	
16+10	1.0565	0.47	
16+15	1.0583	0.26	
16+20	1.0595	0.17	
16+25	1.0603	0.12	
16+30	1.0609	0.09	
16+35	1.0614	0.06	
16+40	1.0617	0.04	
16+45	1.0620	0.04	
16+50	1.0622	0.04	
16+55	1.0625	0.04	
17+ 0	1.0628	0.04	
17+ 5	1.0631	0.05	
17+10	1.0635	0.06	
17+15	1.0639	0.06	
17+20	1.0644	0.06	
17+25	1.0648	0.06	
17+30	1.0653	0.07	
17+35	1.0657	0.07	
17+40	1.0662	0.07	
17+45	1.0667	0.07	
17+50	1.0671	0.06	
17+55	1.0675	0.06	

18+ 0	1.0679	0.06	Q	|	|	|	V|
18+ 5	1.0682	0.05	Q	|	|	|	V|
18+10	1.0686	0.05	Q	|	|	|	V|
18+15	1.0690	0.05	Q	|	|	|	V|
18+20	1.0693	0.05	Q	|	|	|	V|
18+25	1.0697	0.05	Q	|	|	|	V|
18+30	1.0701	0.05	Q	|	|	|	V|
18+35	1.0704	0.05	Q	|	|	|	V|
18+40	1.0707	0.04	Q	|	|	|	V|
18+45	1.0710	0.04	Q	|	|	|	V|
18+50	1.0713	0.04	Q	|	|	|	V|
18+55	1.0715	0.03	Q	|	|	|	V|
19+ 0	1.0717	0.03	Q	|	|	|	V|
19+ 5	1.0719	0.03	Q	|	|	|	V|
19+10	1.0721	0.04	Q	|	|	|	V|
19+15	1.0724	0.04	Q	|	|	|	V|
19+20	1.0727	0.04	Q	|	|	|	V|
19+25	1.0730	0.05	Q	|	|	|	V|
19+30	1.0734	0.05	Q	|	|	|	V|
19+35	1.0737	0.05	Q	|	|	|	V|
19+40	1.0740	0.04	Q	|	|	|	V|
19+45	1.0743	0.04	Q	|	|	|	V|
19+50	1.0745	0.04	Q	|	|	|	V|
19+55	1.0748	0.03	Q	|	|	|	V|
20+ 0	1.0750	0.03	Q	|	|	|	V|
20+ 5	1.0752	0.03	Q	|	|	|	V|
20+10	1.0754	0.04	Q	|	|	|	V|
20+15	1.0757	0.04	Q	|	|	|	V|
20+20	1.0760	0.04	Q	|	|	|	V|
20+25	1.0762	0.04	Q	|	|	|	V|
20+30	1.0765	0.04	Q	|	|	|	V|
20+35	1.0768	0.04	Q	|	|	|	V|
20+40	1.0770	0.04	Q	|	|	|	V|
20+45	1.0773	0.04	Q	|	|	|	V|
20+50	1.0776	0.04	Q	|	|	|	V|
20+55	1.0778	0.03	Q	|	|	|	V|
21+ 0	1.0780	0.03	Q	|	|	|	V|
21+ 5	1.0782	0.03	Q	|	|	|	V|
21+10	1.0784	0.04	Q	|	|	|	V|
21+15	1.0787	0.04	Q	|	|	|	V|
21+20	1.0789	0.04	Q	|	|	|	V|
21+25	1.0791	0.03	Q	|	|	|	V|
21+30	1.0793	0.03	Q	|	|	|	V|
21+35	1.0796	0.03	Q	|	|	|	V|
21+40	1.0798	0.04	Q	|	|	|	V|
21+45	1.0801	0.04	Q	|	|	|	V|
21+50	1.0803	0.04	Q	|	|	|	V|
21+55	1.0805	0.03	Q	|	|	|	V|
22+ 0	1.0807	0.03	Q	|	|	|	V|
22+ 5	1.0809	0.03	Q	|	|	|	V|
22+10	1.0812	0.04	Q	|	|	|	V|
22+15	1.0814	0.04	Q	|	|	|	V|
22+20	1.0817	0.04	Q	|	|	|	V|
22+25	1.0819	0.03	Q	|	|	|	V|
22+30	1.0821	0.03	Q	|	|	|	V|
22+35	1.0823	0.03	Q	|	|	|	V|
22+40	1.0825	0.03	Q	|	|	|	V|
22+45	1.0826	0.03	Q	|	|	|	V|
22+50	1.0828	0.03	Q	|	|	|	V|
22+55	1.0830	0.03	Q	|	|	|	V|
23+ 0	1.0832	0.03	Q	|	|	|	V|
23+ 5	1.0834	0.03	Q	|	|	|	V|
23+10	1.0836	0.03	Q	|	|	|	V|
23+15	1.0837	0.03	Q	|	|	|	V|
23+20	1.0839	0.03	Q	|	|	|	V|
23+25	1.0841	0.03	Q	|	|	|	V|
23+30	1.0843	0.03	Q	|	|	|	V|
23+35	1.0845	0.03	Q	|	|	|	V|
23+40	1.0847	0.03	Q	|	|	|	V|
23+45	1.0848	0.03	Q	|	|	|	V|
23+50	1.0850	0.03	Q	|	|	|	V|
23+55	1.0852	0.03	Q	|	|	|	V|
24+ 0	1.0854	0.03	Q	|	|	|	V|
24+ 5	1.0855	0.02	Q	|	|	|	V|
24+10	1.0856	0.01	Q	|	|	|	V|
24+15	1.0856	0.00	Q	|	|	|	V|
24+20	1.0856	0.00	Q	|	|	|	V|
24+25	1.0856	0.00	Q	|	|	|	V|
24+30	1.0856	0.00	Q	|	|	|	V|

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                                                    EXIST24100
   24+35       1.0856      0.00  Q         |          |         |        V|
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PROPOSED CONDITION 2-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Study date 10/12/18 File: PROP242.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

18-0240 Duke Barrett Building Option
ONSITE UNIT HYDROGRAPH ANALYSIS
PROPOSED CONDITION, 2-YEAR 24-HOUR
FN: PROP242.OUT- TSW

Drainage Area = 7.30(Ac.) = 0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 7.30(Ac.) = 0.011 Sq. Mi.
Length along longest watercourse = 1157.00(Ft.)
Length along longest watercourse measured to centroid = 284.00(Ft.)
Length along longest watercourse = 0.219 Mi.
Length along longest watercourse measured to centroid = 0.054 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 50.1988 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.032 Hr.
Lag time = 1.90 Min.
25% of lag time = 0.47 Min.
40% of lag time = 0.76 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	1.80	13.14

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	4.50	32.85

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 1.800(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.800(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
7.300	65.00	0.900

Total Area Entered = 7.30(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
65.0	45.0	0.621	0.900	0.118	1.000	0.118
					Sum (F) =	0.118

Area averaged mean soil loss (F) (In/Hr) = 0.118
Minimum soil loss rate ((In/Hr)) = 0.059

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	263.343	52.578	3.868
2	0.167	526.686	39.241	2.887
3	0.250	790.030	6.604	0.486
4	0.333	1053.373	1.577	0.116
			Sum = 100.000 Sum=	7.357

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.014	(0.209)	0.003	0.012
2	0.17	0.07	0.014	(0.208)	0.003	0.012
3	0.25	0.07	0.014	(0.208)	0.003	0.012
4	0.33	0.10	0.022	(0.207)	0.004	0.018
5	0.42	0.10	0.022	(0.206)	0.004	0.018
6	0.50	0.10	0.022	(0.205)	0.004	0.018
7	0.58	0.10	0.022	(0.204)	0.004	0.018
8	0.67	0.10	0.022	(0.204)	0.004	0.018
9	0.75	0.10	0.022	(0.203)	0.004	0.018
10	0.83	0.13	0.029	(0.202)	0.005	0.024
11	0.92	0.13	0.029	(0.201)	0.005	0.024
12	1.00	0.13	0.029	(0.200)	0.005	0.024
13	1.08	0.10	0.022	(0.200)	0.004	0.018
14	1.17	0.10	0.022	(0.199)	0.004	0.018
15	1.25	0.10	0.022	(0.198)	0.004	0.018
16	1.33	0.10	0.022	(0.197)	0.004	0.018
17	1.42	0.10	0.022	(0.196)	0.004	0.018
18	1.50	0.10	0.022	(0.196)	0.004	0.018
19	1.58	0.10	0.022	(0.195)	0.004	0.018
20	1.67	0.10	0.022	(0.194)	0.004	0.018
21	1.75	0.10	0.022	(0.193)	0.004	0.018
22	1.83	0.13	0.029	(0.193)	0.005	0.024
23	1.92	0.13	0.029	(0.192)	0.005	0.024
24	2.00	0.13	0.029	(0.191)	0.005	0.024
25	2.08	0.13	0.029	(0.190)	0.005	0.024
26	2.17	0.13	0.029	(0.189)	0.005	0.024
27	2.25	0.13	0.029	(0.189)	0.005	0.024
28	2.33	0.13	0.029	(0.188)	0.005	0.024
29	2.42	0.13	0.029	(0.187)	0.005	0.024
30	2.50	0.13	0.029	(0.186)	0.005	0.024
31	2.58	0.17	0.036	(0.186)	0.006	0.030
32	2.67	0.17	0.036	(0.185)	0.006	0.030
33	2.75	0.17	0.036	(0.184)	0.006	0.030
34	2.83	0.17	0.036	(0.183)	0.006	0.030
35	2.92	0.17	0.036	(0.183)	0.006	0.030
36	3.00	0.17	0.036	(0.182)	0.006	0.030
37	3.08	0.17	0.036	(0.181)	0.006	0.030
38	3.17	0.17	0.036	(0.180)	0.006	0.030
39	3.25	0.17	0.036	(0.180)	0.006	0.030
40	3.33	0.17	0.036	(0.179)	0.006	0.030
41	3.42	0.17	0.036	(0.178)	0.006	0.030
42	3.50	0.17	0.036	(0.177)	0.006	0.030
43	3.58	0.17	0.036	(0.177)	0.006	0.030
44	3.67	0.17	0.036	(0.176)	0.006	0.030
45	3.75	0.17	0.036	(0.175)	0.006	0.030
46	3.83	0.20	0.043	(0.174)	0.008	0.035
47	3.92	0.20	0.043	(0.174)	0.008	0.035
48	4.00	0.20	0.043	(0.173)	0.008	0.035
49	4.08	0.20	0.043	(0.172)	0.008	0.035
50	4.17	0.20	0.043	(0.171)	0.008	0.035
51	4.25	0.20	0.043	(0.171)	0.008	0.035
52	4.33	0.23	0.050	(0.170)	0.009	0.041
53	4.42	0.23	0.050	(0.169)	0.009	0.041
54	4.50	0.23	0.050	(0.168)	0.009	0.041

55	4.58	0.23	0.050	(0.168)	0.009	0.041
56	4.67	0.23	0.050	(0.167)	0.009	0.041
57	4.75	0.23	0.050	(0.166)	0.009	0.041
58	4.83	0.27	0.058	(0.166)	0.010	0.047
59	4.92	0.27	0.058	(0.165)	0.010	0.047
60	5.00	0.27	0.058	(0.164)	0.010	0.047
61	5.08	0.20	0.043	(0.163)	0.008	0.035
62	5.17	0.20	0.043	(0.163)	0.008	0.035
63	5.25	0.20	0.043	(0.162)	0.008	0.035
64	5.33	0.23	0.050	(0.161)	0.009	0.041
65	5.42	0.23	0.050	(0.161)	0.009	0.041
66	5.50	0.23	0.050	(0.160)	0.009	0.041
67	5.58	0.27	0.058	(0.159)	0.010	0.047
68	5.67	0.27	0.058	(0.159)	0.010	0.047
69	5.75	0.27	0.058	(0.158)	0.010	0.047
70	5.83	0.27	0.058	(0.157)	0.010	0.047
71	5.92	0.27	0.058	(0.156)	0.010	0.047
72	6.00	0.27	0.058	(0.156)	0.010	0.047
73	6.08	0.30	0.065	(0.155)	0.012	0.053
74	6.17	0.30	0.065	(0.154)	0.012	0.053
75	6.25	0.30	0.065	(0.154)	0.012	0.053
76	6.33	0.30	0.065	(0.153)	0.012	0.053
77	6.42	0.30	0.065	(0.152)	0.012	0.053
78	6.50	0.30	0.065	(0.152)	0.012	0.053
79	6.58	0.33	0.072	(0.151)	0.013	0.059
80	6.67	0.33	0.072	(0.150)	0.013	0.059
81	6.75	0.33	0.072	(0.150)	0.013	0.059
82	6.83	0.33	0.072	(0.149)	0.013	0.059
83	6.92	0.33	0.072	(0.148)	0.013	0.059
84	7.00	0.33	0.072	(0.148)	0.013	0.059
85	7.08	0.33	0.072	(0.147)	0.013	0.059
86	7.17	0.33	0.072	(0.146)	0.013	0.059
87	7.25	0.33	0.072	(0.146)	0.013	0.059
88	7.33	0.37	0.079	(0.145)	0.014	0.065
89	7.42	0.37	0.079	(0.144)	0.014	0.065
90	7.50	0.37	0.079	(0.144)	0.014	0.065
91	7.58	0.40	0.086	(0.143)	0.016	0.071
92	7.67	0.40	0.086	(0.142)	0.016	0.071
93	7.75	0.40	0.086	(0.142)	0.016	0.071
94	7.83	0.43	0.094	(0.141)	0.017	0.077
95	7.92	0.43	0.094	(0.140)	0.017	0.077
96	8.00	0.43	0.094	(0.140)	0.017	0.077
97	8.08	0.50	0.108	(0.139)	0.019	0.089
98	8.17	0.50	0.108	(0.138)	0.019	0.089
99	8.25	0.50	0.108	(0.138)	0.019	0.089
100	8.33	0.50	0.108	(0.137)	0.019	0.089
101	8.42	0.50	0.108	(0.136)	0.019	0.089
102	8.50	0.50	0.108	(0.136)	0.019	0.089
103	8.58	0.53	0.115	(0.135)	0.021	0.094
104	8.67	0.53	0.115	(0.135)	0.021	0.094
105	8.75	0.53	0.115	(0.134)	0.021	0.094
106	8.83	0.57	0.122	(0.133)	0.022	0.100
107	8.92	0.57	0.122	(0.133)	0.022	0.100
108	9.00	0.57	0.122	(0.132)	0.022	0.100
109	9.08	0.63	0.137	(0.131)	0.025	0.112
110	9.17	0.63	0.137	(0.131)	0.025	0.112
111	9.25	0.63	0.137	(0.130)	0.025	0.112
112	9.33	0.67	0.144	(0.129)	0.026	0.118
113	9.42	0.67	0.144	(0.129)	0.026	0.118
114	9.50	0.67	0.144	(0.128)	0.026	0.118
115	9.58	0.70	0.151	(0.128)	0.027	0.124
116	9.67	0.70	0.151	(0.127)	0.027	0.124
117	9.75	0.70	0.151	(0.126)	0.027	0.124
118	9.83	0.73	0.158	(0.126)	0.029	0.130
119	9.92	0.73	0.158	(0.125)	0.029	0.130
120	10.00	0.73	0.158	(0.125)	0.029	0.130
121	10.08	0.50	0.108	(0.124)	0.019	0.089
122	10.17	0.50	0.108	(0.123)	0.019	0.089
123	10.25	0.50	0.108	(0.123)	0.019	0.089
124	10.33	0.50	0.108	(0.122)	0.019	0.089
125	10.42	0.50	0.108	(0.122)	0.019	0.089
126	10.50	0.50	0.108	(0.121)	0.019	0.089
127	10.58	0.67	0.144	(0.120)	0.026	0.118
128	10.67	0.67	0.144	(0.120)	0.026	0.118
129	10.75	0.67	0.144	(0.119)	0.026	0.118
130	10.83	0.67	0.144	(0.119)	0.026	0.118
131	10.92	0.67	0.144	(0.118)	0.026	0.118
132	11.00	0.67	0.144	(0.117)	0.026	0.118
133	11.08	0.63	0.137	(0.117)	0.025	0.112

134	11.17	0.63	0.137	(0.116)	0.025	0.112
135	11.25	0.63	0.137	(0.116)	0.025	0.112
136	11.33	0.63	0.137	(0.115)	0.025	0.112
137	11.42	0.63	0.137	(0.115)	0.025	0.112
138	11.50	0.63	0.137	(0.114)	0.025	0.112
139	11.58	0.57	0.122	(0.113)	0.022	0.100
140	11.67	0.57	0.122	(0.113)	0.022	0.100
141	11.75	0.57	0.122	(0.112)	0.022	0.100
142	11.83	0.60	0.130	(0.112)	0.023	0.106
143	11.92	0.60	0.130	(0.111)	0.023	0.106
144	12.00	0.60	0.130	(0.111)	0.023	0.106
145	12.08	0.83	0.180	(0.110)	0.032	0.148
146	12.17	0.83	0.180	(0.110)	0.032	0.148
147	12.25	0.83	0.180	(0.109)	0.032	0.148
148	12.33	0.87	0.187	(0.108)	0.034	0.154
149	12.42	0.87	0.187	(0.108)	0.034	0.154
150	12.50	0.87	0.187	(0.107)	0.034	0.154
151	12.58	0.93	0.202	(0.107)	0.036	0.165
152	12.67	0.93	0.202	(0.106)	0.036	0.165
153	12.75	0.93	0.202	(0.106)	0.036	0.165
154	12.83	0.97	0.209	(0.105)	0.038	0.171
155	12.92	0.97	0.209	(0.105)	0.038	0.171
156	13.00	0.97	0.209	(0.104)	0.038	0.171
157	13.08	1.13	0.245	(0.104)	0.044	0.201
158	13.17	1.13	0.245	(0.103)	0.044	0.201
159	13.25	1.13	0.245	(0.103)	0.044	0.201
160	13.33	1.13	0.245	(0.102)	0.044	0.201
161	13.42	1.13	0.245	(0.102)	0.044	0.201
162	13.50	1.13	0.245	(0.101)	0.044	0.201
163	13.58	0.77	0.166	(0.101)	0.030	0.136
164	13.67	0.77	0.166	(0.100)	0.030	0.136
165	13.75	0.77	0.166	(0.100)	0.030	0.136
166	13.83	0.77	0.166	(0.099)	0.030	0.136
167	13.92	0.77	0.166	(0.099)	0.030	0.136
168	14.00	0.77	0.166	(0.098)	0.030	0.136
169	14.08	0.90	0.194	(0.098)	0.035	0.159
170	14.17	0.90	0.194	(0.097)	0.035	0.159
171	14.25	0.90	0.194	(0.097)	0.035	0.159
172	14.33	0.87	0.187	(0.096)	0.034	0.154
173	14.42	0.87	0.187	(0.096)	0.034	0.154
174	14.50	0.87	0.187	(0.095)	0.034	0.154
175	14.58	0.87	0.187	(0.095)	0.034	0.154
176	14.67	0.87	0.187	(0.094)	0.034	0.154
177	14.75	0.87	0.187	(0.094)	0.034	0.154
178	14.83	0.83	0.180	(0.093)	0.032	0.148
179	14.92	0.83	0.180	(0.093)	0.032	0.148
180	15.00	0.83	0.180	(0.092)	0.032	0.148
181	15.08	0.80	0.173	(0.092)	0.031	0.142
182	15.17	0.80	0.173	(0.091)	0.031	0.142
183	15.25	0.80	0.173	(0.091)	0.031	0.142
184	15.33	0.77	0.166	(0.090)	0.030	0.136
185	15.42	0.77	0.166	(0.090)	0.030	0.136
186	15.50	0.77	0.166	(0.089)	0.030	0.136
187	15.58	0.63	0.137	(0.089)	0.025	0.112
188	15.67	0.63	0.137	(0.088)	0.025	0.112
189	15.75	0.63	0.137	(0.088)	0.025	0.112
190	15.83	0.63	0.137	(0.088)	0.025	0.112
191	15.92	0.63	0.137	(0.087)	0.025	0.112
192	16.00	0.63	0.137	(0.087)	0.025	0.112
193	16.08	0.13	0.029	(0.086)	0.005	0.024
194	16.17	0.13	0.029	(0.086)	0.005	0.024
195	16.25	0.13	0.029	(0.085)	0.005	0.024
196	16.33	0.13	0.029	(0.085)	0.005	0.024
197	16.42	0.13	0.029	(0.084)	0.005	0.024
198	16.50	0.13	0.029	(0.084)	0.005	0.024
199	16.58	0.10	0.022	(0.084)	0.004	0.018
200	16.67	0.10	0.022	(0.083)	0.004	0.018
201	16.75	0.10	0.022	(0.083)	0.004	0.018
202	16.83	0.10	0.022	(0.082)	0.004	0.018
203	16.92	0.10	0.022	(0.082)	0.004	0.018
204	17.00	0.10	0.022	(0.082)	0.004	0.018
205	17.08	0.17	0.036	(0.081)	0.006	0.030
206	17.17	0.17	0.036	(0.081)	0.006	0.030
207	17.25	0.17	0.036	(0.080)	0.006	0.030
208	17.33	0.17	0.036	(0.080)	0.006	0.030
209	17.42	0.17	0.036	(0.079)	0.006	0.030
210	17.50	0.17	0.036	(0.079)	0.006	0.030
211	17.58	0.17	0.036	(0.079)	0.006	0.030
212	17.67	0.17	0.036	(0.078)	0.006	0.030

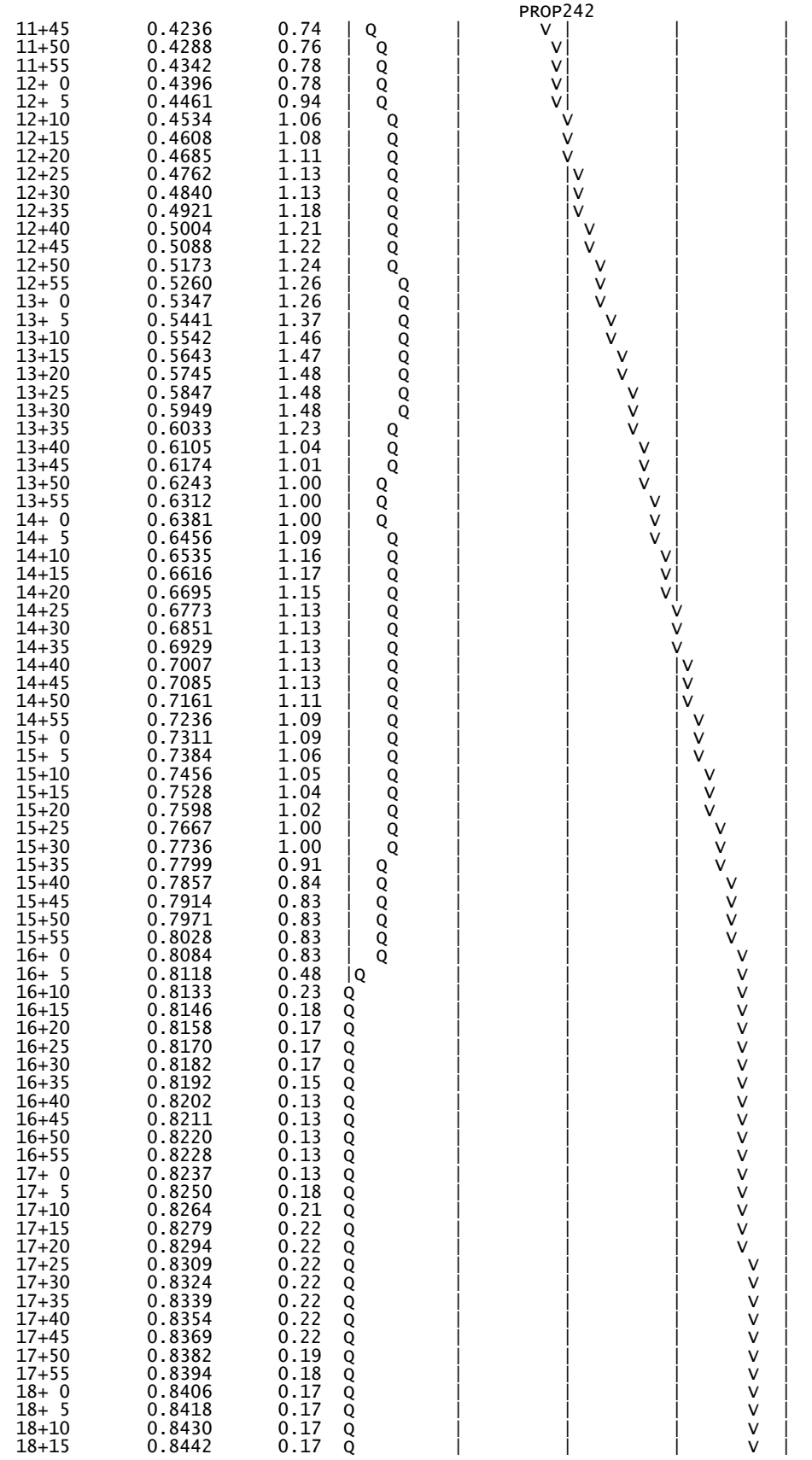
213	17.75	0.17	0.036	(0.078)	0.006	0.030
214	17.83	0.13	0.029	(0.078)	0.005	0.024
215	17.92	0.13	0.029	(0.077)	0.005	0.024
216	18.00	0.13	0.029	(0.077)	0.005	0.024
217	18.08	0.13	0.029	(0.076)	0.005	0.024
218	18.17	0.13	0.029	(0.076)	0.005	0.024
219	18.25	0.13	0.029	(0.076)	0.005	0.024
220	18.33	0.13	0.029	(0.075)	0.005	0.024
221	18.42	0.13	0.029	(0.075)	0.005	0.024
222	18.50	0.13	0.029	(0.075)	0.005	0.024
223	18.58	0.10	0.022	(0.074)	0.004	0.018
224	18.67	0.10	0.022	(0.074)	0.004	0.018
225	18.75	0.10	0.022	(0.073)	0.004	0.018
226	18.83	0.07	0.014	(0.073)	0.003	0.012
227	18.92	0.07	0.014	(0.073)	0.003	0.012
228	19.00	0.07	0.014	(0.072)	0.003	0.012
229	19.08	0.10	0.022	(0.072)	0.004	0.018
230	19.17	0.10	0.022	(0.072)	0.004	0.018
231	19.25	0.10	0.022	(0.071)	0.004	0.018
232	19.33	0.13	0.029	(0.071)	0.005	0.024
233	19.42	0.13	0.029	(0.071)	0.005	0.024
234	19.50	0.13	0.029	(0.070)	0.005	0.024
235	19.58	0.10	0.022	(0.070)	0.004	0.018
236	19.67	0.10	0.022	(0.070)	0.004	0.018
237	19.75	0.10	0.022	(0.069)	0.004	0.018
238	19.83	0.07	0.014	(0.069)	0.003	0.012
239	19.92	0.07	0.014	(0.069)	0.003	0.012
240	20.00	0.07	0.014	(0.069)	0.003	0.012
241	20.08	0.10	0.022	(0.068)	0.004	0.018
242	20.17	0.10	0.022	(0.068)	0.004	0.018
243	20.25	0.10	0.022	(0.068)	0.004	0.018
244	20.33	0.10	0.022	(0.067)	0.004	0.018
245	20.42	0.10	0.022	(0.067)	0.004	0.018
246	20.50	0.10	0.022	(0.067)	0.004	0.018
247	20.58	0.10	0.022	(0.066)	0.004	0.018
248	20.67	0.10	0.022	(0.066)	0.004	0.018
249	20.75	0.10	0.022	(0.066)	0.004	0.018
250	20.83	0.07	0.014	(0.066)	0.003	0.012
251	20.92	0.07	0.014	(0.065)	0.003	0.012
252	21.00	0.07	0.014	(0.065)	0.003	0.012
253	21.08	0.10	0.022	(0.065)	0.004	0.018
254	21.17	0.10	0.022	(0.065)	0.004	0.018
255	21.25	0.10	0.022	(0.064)	0.004	0.018
256	21.33	0.07	0.014	(0.064)	0.003	0.012
257	21.42	0.07	0.014	(0.064)	0.003	0.012
258	21.50	0.07	0.014	(0.064)	0.003	0.012
259	21.58	0.10	0.022	(0.063)	0.004	0.018
260	21.67	0.10	0.022	(0.063)	0.004	0.018
261	21.75	0.10	0.022	(0.063)	0.004	0.018
262	21.83	0.07	0.014	(0.063)	0.003	0.012
263	21.92	0.07	0.014	(0.063)	0.003	0.012
264	22.00	0.07	0.014	(0.062)	0.003	0.012
265	22.08	0.10	0.022	(0.062)	0.004	0.018
266	22.17	0.10	0.022	(0.062)	0.004	0.018
267	22.25	0.10	0.022	(0.062)	0.004	0.018
268	22.33	0.07	0.014	(0.062)	0.003	0.012
269	22.42	0.07	0.014	(0.061)	0.003	0.012
270	22.50	0.07	0.014	(0.061)	0.003	0.012
271	22.58	0.07	0.014	(0.061)	0.003	0.012
272	22.67	0.07	0.014	(0.061)	0.003	0.012
273	22.75	0.07	0.014	(0.061)	0.003	0.012
274	22.83	0.07	0.014	(0.060)	0.003	0.012
275	22.92	0.07	0.014	(0.060)	0.003	0.012
276	23.00	0.07	0.014	(0.060)	0.003	0.012
277	23.08	0.07	0.014	(0.060)	0.003	0.012
278	23.17	0.07	0.014	(0.060)	0.003	0.012
279	23.25	0.07	0.014	(0.060)	0.003	0.012
280	23.33	0.07	0.014	(0.060)	0.003	0.012
281	23.42	0.07	0.014	(0.060)	0.003	0.012
282	23.50	0.07	0.014	(0.059)	0.003	0.012
283	23.58	0.07	0.014	(0.059)	0.003	0.012
284	23.67	0.07	0.014	(0.059)	0.003	0.012
285	23.75	0.07	0.014	(0.059)	0.003	0.012
286	23.83	0.07	0.014	(0.059)	0.003	0.012
287	23.92	0.07	0.014	(0.059)	0.003	0.012
288	24.00	0.07	0.014	(0.059)	0.003	0.012
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	17.7

Flood volume = Effective rainfall 1.48(In)

```
 times area       7.3(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
Total soil loss =      0.32(In)
Total soil loss =     0.197(Ac.Ft)
Total rainfall =      1.80(In)
Flood volume =       39112.0 Cubic Feet
Total soil loss =        8585.6 Cubic Feet
---------------------------------------------------------------------
 Peak flow rate of this hydrograph =      1.478(CFS)
---------------------------------------------------------------------
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                R u n o f f      H y d r o g r a p h
---------------------------------------------------------------------
             Hydrograph in   5   Minute intervals ((CFS))

---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
---------------------------------------------------------------------
  0+ 5       0.0003      0.05  Q          |         |         |         |
  0+10       0.0009      0.08  Q          |         |         |         |
  0+15       0.0015      0.09  Q          |         |         |         |
  0+20       0.0022      0.11  Q          |         |         |         |
  0+25       0.0031      0.13  Q          |         |         |         |
  0+30       0.0040      0.13  Q          |         |         |         |
  0+35       0.0049      0.13  Q          |         |         |         |
  0+40       0.0058      0.13  Q          |         |         |         |
  0+45       0.0067      0.13  Q          |         |         |         |
  0+50       0.0077      0.15  Q          |         |         |         |
  0+55       0.0089      0.17  Q          |         |         |         |
  1+ 0       0.0101      0.17  Q          |         |         |         |
  1+ 5       0.0111      0.15  Q          |         |         |         |
  1+10       0.0121      0.13  Q          |         |         |         |
  1+15       0.0130      0.13  Q          |         |         |         |
  1+20       0.0139      0.13  Q          |         |         |         |
  1+25       0.0148      0.13  Q          |         |         |         |
  1+30       0.0156      0.13  Q          |         |         |         |
  1+35       0.0165      0.13  Q          |         |         |         |
  1+40       0.0174      0.13  Q          |         |         |         |
  1+45       0.0183      0.13  Q          |         |         |         |
  1+50       0.0194      0.15  Q          |         |         |         |
  1+55       0.0206      0.17  Q          |         |         |         |
  2+ 0       0.0218      0.17  Q          |         |         |         |
  2+ 5       0.0230      0.17  QV         |         |         |         |
  2+10       0.0242      0.17  QV         |         |         |         |
  2+15       0.0254      0.17  QV         |         |         |         |
  2+20       0.0266      0.17  QV         |         |         |         |
  2+25       0.0277      0.17  QV         |         |         |         |
  2+30       0.0289      0.17  QV         |         |         |         |
  2+35       0.0303      0.20  QV         |         |         |         |
  2+40       0.0318      0.21  QV         |         |         |         |
  2+45       0.0333      0.22  QV         |         |         |         |
  2+50       0.0348      0.22  QV         |         |         |         |
  2+55       0.0363      0.22  QV         |         |         |         |
  3+ 0       0.0378      0.22  QV         |         |         |         |
  3+ 5       0.0392      0.22  QV         |         |         |         |
  3+10       0.0407      0.22  QV         |         |         |         |
  3+15       0.0422      0.22  QV         |         |         |         |
  3+20       0.0437      0.22  QV         |         |         |         |
  3+25       0.0452      0.22  Q V        |         |         |         |
  3+30       0.0467      0.22  Q V        |         |         |         |
  3+35       0.0482      0.22  Q V        |         |         |         |
  3+40       0.0497      0.22  Q V        |         |         |         |
  3+45       0.0512      0.22  Q V        |         |         |         |
  3+50       0.0529      0.24  Q V        |         |         |         |
  3+55       0.0546      0.26  |QV        |         |         |         |
  4+ 0       0.0564      0.26  |QV        |         |         |         |
  4+ 5       0.0582      0.26  |QV        |         |         |         |
  4+10       0.0600      0.26  |QV        |         |         |         |
  4+15       0.0618      0.26  |QV        |         |         |         |
  4+20       0.0638      0.28  |QV        |         |         |         |
  4+25       0.0658      0.30  |QV        |         |         |         |
  4+30       0.0679      0.30  |Q V       |         |         |         |
  4+35       0.0700      0.30  |Q V       |         |         |         |
  4+40       0.0721      0.30  |Q V       |         |         |         |
  4+45       0.0742      0.30  |Q V       |         |         |         |
  4+50       0.0765      0.33  |Q V       |         |         |         |
  4+55       0.0788      0.34  |Q V       |         |         |         |
  5+ 0       0.0812      0.35  |Q V       |         |         |         |
  5+ 5       0.0833      0.30  |Q V       |         |         |         |
```

5+10	0.0852	0.27	Q V				
5+15	0.0870	0.26	Q V				
5+20	0.0889	0.28	Q V				
5+25	0.0910	0.30	Q V				
5+30	0.0931	0.30	Q V				
5+35	0.0953	0.33	Q V				
5+40	0.0977	0.34	Q V				
5+45	0.1001	0.35	Q V				
5+50	0.1025	0.35	Q V				
5+55	0.1049	0.35	Q V				
6+ 0	0.1073	0.35	Q V				
6+ 5	0.1098	0.37	Q V				
6+10	0.1125	0.39	Q V				
6+15	0.1152	0.39	Q V				
6+20	0.1179	0.39	Q V				
6+25	0.1206	0.39	Q V				
6+30	0.1233	0.39	Q V				
6+35	0.1261	0.41	Q V				
6+40	0.1291	0.43	Q V				
6+45	0.1321	0.43	Q V				
6+50	0.1351	0.43	Q V				
6+55	0.1381	0.43	Q V				
7+ 0	0.1411	0.43	Q V				
7+ 5	0.1440	0.43	Q V				
7+10	0.1470	0.43	Q V				
7+15	0.1500	0.43	Q V				
7+20	0.1532	0.46	Q V				
7+25	0.1564	0.47	Q V				
7+30	0.1597	0.48	Q V				
7+35	0.1632	0.50	Q V				
7+40	0.1668	0.52	Q V				
7+45	0.1703	0.52	Q V				
7+50	0.1741	0.54	Q V				
7+55	0.1780	0.56	Q V				
8+ 0	0.1818	0.56	Q V				
8+ 5	0.1860	0.61	Q V				
8+10	0.1905	0.64	Q V				
8+15	0.1950	0.65	Q V				
8+20	0.1995	0.65	Q V				
8+25	0.2039	0.65	Q V				
8+30	0.2084	0.65	Q V				
8+35	0.2131	0.67	Q V				
8+40	0.2178	0.69	Q V				
8+45	0.2226	0.69	Q V				
8+50	0.2276	0.72	Q V				
8+55	0.2326	0.74	Q V				
9+ 0	0.2377	0.74	Q V				
9+ 5	0.2431	0.78	Q V				
9+10	0.2488	0.82	Q V				
9+15	0.2544	0.82	Q V				
9+20	0.2603	0.85	Q V				
9+25	0.2662	0.87	Q V				
9+30	0.2722	0.87	Q V				
9+35	0.2784	0.89	Q V				
9+40	0.2846	0.91	Q V				
9+45	0.2909	0.91	Q V				
9+50	0.2974	0.94	Q V				
9+55	0.3039	0.95	Q V				
10+ 0	0.3105	0.96	Q V				
10+ 5	0.3160	0.80	Q V				
10+10	0.3206	0.68	Q V				
10+15	0.3252	0.66	Q V				
10+20	0.3297	0.65	Q V				
10+25	0.3341	0.65	Q V				
10+30	0.3386	0.65	Q V				
10+35	0.3439	0.77	Q V				
10+40	0.3498	0.85	Q V				
10+45	0.3557	0.87	Q V				
10+50	0.3617	0.87	Q V				
10+55	0.3677	0.87	Q V				
11+ 0	0.3737	0.87	Q V				
11+ 5	0.3795	0.85	Q V				
11+10	0.3852	0.83	Q V				
11+15	0.3909	0.83	Q V				
11+20	0.3966	0.83	Q V				
11+25	0.4023	0.83	Q V				
11+30	0.4080	0.83	Q V				
11+35	0.4134	0.78	Q V				
11+40	0.4185	0.75	Q V				



11+45	0.4236	0.74	Q
11+50	0.4288	0.76	Q
11+55	0.4342	0.78	Q
12+ 0	0.4396	0.78	Q
12+ 5	0.4461	0.94	Q
12+10	0.4534	1.06	Q
12+15	0.4608	1.08	Q
12+20	0.4685	1.11	Q
12+25	0.4762	1.13	Q
12+30	0.4840	1.13	Q
12+35	0.4921	1.18	Q
12+40	0.5004	1.21	Q
12+45	0.5088	1.22	Q
12+50	0.5173	1.24	Q
12+55	0.5260	1.26	Q
13+ 0	0.5347	1.26	Q
13+ 5	0.5441	1.37	Q
13+10	0.5542	1.46	Q
13+15	0.5643	1.47	Q
13+20	0.5745	1.48	Q
13+25	0.5847	1.48	Q
13+30	0.5949	1.48	Q
13+35	0.6033	1.23	Q
13+40	0.6105	1.04	Q
13+45	0.6174	1.01	Q
13+50	0.6243	1.00	Q
13+55	0.6312	1.00	Q
14+ 0	0.6381	1.00	Q
14+ 5	0.6456	1.09	Q
14+10	0.6535	1.16	Q
14+15	0.6616	1.17	Q
14+20	0.6695	1.15	Q
14+25	0.6773	1.13	Q
14+30	0.6851	1.13	Q
14+35	0.6929	1.13	Q
14+40	0.7007	1.13	Q
14+45	0.7085	1.13	Q
14+50	0.7161	1.11	Q
14+55	0.7236	1.09	Q
15+ 0	0.7311	1.09	Q
15+ 5	0.7384	1.06	Q
15+10	0.7456	1.05	Q
15+15	0.7528	1.04	Q
15+20	0.7598	1.02	Q
15+25	0.7667	1.00	Q
15+30	0.7736	1.00	Q
15+35	0.7799	0.91	Q
15+40	0.7857	0.84	Q
15+45	0.7914	0.83	Q
15+50	0.7971	0.83	Q
15+55	0.8028	0.83	Q
16+ 0	0.8084	0.83	Q
16+ 5	0.8118	0.48	Q
16+10	0.8133	0.23	Q
16+15	0.8146	0.18	Q
16+20	0.8158	0.17	Q
16+25	0.8170	0.17	Q
16+30	0.8182	0.17	Q
16+35	0.8192	0.15	Q
16+40	0.8202	0.13	Q
16+45	0.8211	0.13	Q
16+50	0.8220	0.13	Q
16+55	0.8228	0.13	Q
17+ 0	0.8237	0.13	Q
17+ 5	0.8250	0.18	Q
17+10	0.8264	0.21	Q
17+15	0.8279	0.22	Q
17+20	0.8294	0.22	Q
17+25	0.8309	0.22	Q
17+30	0.8324	0.22	Q
17+35	0.8339	0.22	Q
17+40	0.8354	0.22	Q
17+45	0.8369	0.22	Q
17+50	0.8382	0.19	Q
17+55	0.8394	0.18	Q
18+ 0	0.8406	0.17	Q
18+ 5	0.8418	0.17	Q
18+10	0.8430	0.17	Q
18+15	0.8442	0.17	Q

18+20	0.8454	0.17	Q				V
18+25	0.8466	0.17	Q				V
18+30	0.8478	0.17	Q				V
18+35	0.8489	0.15	Q				V
18+40	0.8498	0.13	Q				V
18+45	0.8507	0.13	Q				V
18+50	0.8514	0.11	Q				V
18+55	0.8520	0.09	Q				V
19+ 0	0.8527	0.09	Q				V
19+ 5	0.8534	0.11	Q				V
19+10	0.8543	0.13	Q				V
19+15	0.8552	0.13	Q				V
19+20	0.8562	0.15	Q				V
19+25	0.8574	0.17	Q				V
19+30	0.8586	0.17	Q				V
19+35	0.8596	0.15	Q				V
19+40	0.8606	0.13	Q				V
19+45	0.8615	0.13	Q				V
19+50	0.8622	0.11	Q				V
19+55	0.8628	0.09	Q				V
20+ 0	0.8634	0.09	Q				V
20+ 5	0.8642	0.11	Q				V
20+10	0.8651	0.13	Q				V
20+15	0.8659	0.13	Q				V
20+20	0.8668	0.13	Q				V
20+25	0.8677	0.13	Q				V
20+30	0.8686	0.13	Q				V
20+35	0.8695	0.13	Q				V
20+40	0.8704	0.13	Q				V
20+45	0.8713	0.13	Q				V
20+50	0.8721	0.11	Q				V
20+55	0.8727	0.09	Q				V
21+ 0	0.8733	0.09	Q				V
21+ 5	0.8741	0.11	Q				V
21+10	0.8749	0.13	Q				V
21+15	0.8758	0.13	Q				V
21+20	0.8766	0.11	Q				V
21+25	0.8772	0.09	Q				V
21+30	0.8778	0.09	Q				V
21+35	0.8785	0.11	Q				V
21+40	0.8794	0.13	Q				V
21+45	0.8803	0.13	Q				V
21+50	0.8811	0.11	Q				V
21+55	0.8817	0.09	Q				V
22+ 0	0.8823	0.09	Q				V
22+ 5	0.8830	0.11	Q				V
22+10	0.8839	0.13	Q				V
22+15	0.8848	0.13	Q				V
22+20	0.8855	0.11	Q				V
22+25	0.8862	0.09	Q				V
22+30	0.8868	0.09	Q				V
22+35	0.8874	0.09	Q				V
22+40	0.8880	0.09	Q				V
22+45	0.8886	0.09	Q				V
22+50	0.8892	0.09	Q				V
22+55	0.8898	0.09	Q				V
23+ 0	0.8904	0.09	Q				V
23+ 5	0.8910	0.09	Q				V
23+10	0.8916	0.09	Q				V
23+15	0.8922	0.09	Q				V
23+20	0.8928	0.09	Q				V
23+25	0.8934	0.09	Q				V
23+30	0.8940	0.09	Q				V
23+35	0.8946	0.09	Q				V
23+40	0.8952	0.09	Q				V
23+45	0.8957	0.09	Q				V
23+50	0.8963	0.09	Q				V
23+55	0.8969	0.09	Q				V
24+ 0	0.8975	0.09	Q				V
24+ 5	0.8978	0.04	Q				V
24+10	0.8979	0.01	Q				V
24+15	0.8979	0.00	Q				V

PROPOSED CONDITION 100-YEAR, 24-HOUR UNIT HYDROGRAPH

U n i t H y d r o g r a p h A n a l y s i s

Study date 10/12/18 File: PROP2410O.out

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Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

Program License Serial Number 4010

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

18-0240 Duke Barrett Building Option
ONSITE UNIT HYDROGRAPH ANALYSIS
PROPOSED CONDITION, 100-YEAR 24-HOUR
FN: PROP2410O.OUT- TSW

Drainage Area = 7.30(Ac.) = 0.011 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment = 7.30(Ac.) = 0.011 Sq. Mi.
Length along longest watercourse = 1157.00(Ft.)
Length along longest watercourse measured to centroid = 284.00(Ft.)
Length along longest watercourse = 0.219 Mi.
Length along longest watercourse measured to centroid = 0.054 Mi.
Difference in elevation = 11.00(Ft.)
Slope along watercourse = 50.1988 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.032 Hr.
Lag time = 1.90 Min.
25% of lag time = 0.47 Min.
40% of lag time = 0.76 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	1.80	13.14

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
7.30	4.50	32.85

STORM EVENT (YEAR) = 100.00
Area Averaged 2-Year Rainfall = 1.800(In)
Area Averaged 100-Year Rainfall = 4.500(In)

Point rain (area averaged) = 4.500(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.500(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
7.300	65.00	0.900

Total Area Entered = 7.30(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
65.0	65.0	0.416	0.900	0.079	1.000	0.079
					Sum (F) =	0.079

Area averaged mean soil loss (F) (In/Hr) = 0.079
Minimum soil loss rate ((In/Hr)) = 0.040

(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.180

U n i t H y d r o g r a p h
VALLEY S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	263.343	52.578	3.868
2	0.167	526.686	39.241	2.887
3	0.250	790.030	6.604	0.486
4	0.333	1053.373	1.577	0.116
			Sum = 100.000 Sum=	7.357

The following loss rate calculations reflect use of the minimum calculated loss rate subtracted from the Storm Rain to produce the maximum Effective Rain value

Unit	Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.036	(0.140)	0.006	0.030
2	0.17	0.07	0.036	(0.140)	0.006	0.030
3	0.25	0.07	0.036	(0.139)	0.006	0.030
4	0.33	0.10	0.054	(0.138)	0.010	0.044
5	0.42	0.10	0.054	(0.138)	0.010	0.044
6	0.50	0.10	0.054	(0.137)	0.010	0.044
7	0.58	0.10	0.054	(0.137)	0.010	0.044
8	0.67	0.10	0.054	(0.136)	0.010	0.044
9	0.75	0.10	0.054	(0.136)	0.010	0.044
10	0.83	0.13	0.072	(0.135)	0.013	0.059
11	0.92	0.13	0.072	(0.135)	0.013	0.059
12	1.00	0.13	0.072	(0.134)	0.013	0.059
13	1.08	0.10	0.054	(0.134)	0.010	0.044
14	1.17	0.10	0.054	(0.133)	0.010	0.044
15	1.25	0.10	0.054	(0.133)	0.010	0.044
16	1.33	0.10	0.054	(0.132)	0.010	0.044
17	1.42	0.10	0.054	(0.132)	0.010	0.044
18	1.50	0.10	0.054	(0.131)	0.010	0.044
19	1.58	0.10	0.054	(0.131)	0.010	0.044
20	1.67	0.10	0.054	(0.130)	0.010	0.044
21	1.75	0.10	0.054	(0.129)	0.010	0.044
22	1.83	0.13	0.072	(0.129)	0.013	0.059
23	1.92	0.13	0.072	(0.128)	0.013	0.059
24	2.00	0.13	0.072	(0.128)	0.013	0.059
25	2.08	0.13	0.072	(0.127)	0.013	0.059
26	2.17	0.13	0.072	(0.127)	0.013	0.059
27	2.25	0.13	0.072	(0.126)	0.013	0.059
28	2.33	0.13	0.072	(0.126)	0.013	0.059
29	2.42	0.13	0.072	(0.125)	0.013	0.059
30	2.50	0.13	0.072	(0.125)	0.013	0.059
31	2.58	0.17	0.090	(0.124)	0.016	0.074
32	2.67	0.17	0.090	(0.124)	0.016	0.074
33	2.75	0.17	0.090	(0.123)	0.016	0.074
34	2.83	0.17	0.090	(0.123)	0.016	0.074
35	2.92	0.17	0.090	(0.122)	0.016	0.074
36	3.00	0.17	0.090	(0.122)	0.016	0.074
37	3.08	0.17	0.090	(0.121)	0.016	0.074
38	3.17	0.17	0.090	(0.121)	0.016	0.074
39	3.25	0.17	0.090	(0.120)	0.016	0.074
40	3.33	0.17	0.090	(0.120)	0.016	0.074
41	3.42	0.17	0.090	(0.119)	0.016	0.074
42	3.50	0.17	0.090	(0.119)	0.016	0.074
43	3.58	0.17	0.090	(0.118)	0.016	0.074
44	3.67	0.17	0.090	(0.118)	0.016	0.074
45	3.75	0.17	0.090	(0.117)	0.016	0.074
46	3.83	0.20	0.108	(0.117)	0.019	0.089
47	3.92	0.20	0.108	(0.116)	0.019	0.089
48	4.00	0.20	0.108	(0.116)	0.019	0.089
49	4.08	0.20	0.108	(0.115)	0.019	0.089
50	4.17	0.20	0.108	(0.115)	0.019	0.089
51	4.25	0.20	0.108	(0.114)	0.019	0.089
52	4.33	0.23	0.126	(0.114)	0.023	0.103
53	4.42	0.23	0.126	(0.113)	0.023	0.103
54	4.50	0.23	0.126	(0.113)	0.023	0.103

55	4.58	0.23	0.126	(0.112)	0.023	0.103
56	4.67	0.23	0.126	(0.112)	0.023	0.103
57	4.75	0.23	0.126	(0.111)	0.023	0.103
58	4.83	0.27	0.144	(0.111)	0.026	0.118
59	4.92	0.27	0.144	(0.110)	0.026	0.118
60	5.00	0.27	0.144	(0.110)	0.026	0.118
61	5.08	0.20	0.108	(0.110)	0.019	0.089
62	5.17	0.20	0.108	(0.109)	0.019	0.089
63	5.25	0.20	0.108	(0.109)	0.019	0.089
64	5.33	0.23	0.126	(0.108)	0.023	0.103
65	5.42	0.23	0.126	(0.108)	0.023	0.103
66	5.50	0.23	0.126	(0.107)	0.023	0.103
67	5.58	0.27	0.144	(0.107)	0.026	0.118
68	5.67	0.27	0.144	(0.106)	0.026	0.118
69	5.75	0.27	0.144	(0.106)	0.026	0.118
70	5.83	0.27	0.144	(0.105)	0.026	0.118
71	5.92	0.27	0.144	(0.105)	0.026	0.118
72	6.00	0.27	0.144	(0.104)	0.026	0.118
73	6.08	0.30	0.162	(0.104)	0.029	0.133
74	6.17	0.30	0.162	(0.103)	0.029	0.133
75	6.25	0.30	0.162	(0.103)	0.029	0.133
76	6.33	0.30	0.162	(0.102)	0.029	0.133
77	6.42	0.30	0.162	(0.102)	0.029	0.133
78	6.50	0.30	0.162	(0.102)	0.029	0.133
79	6.58	0.33	0.180	(0.101)	0.032	0.148
80	6.67	0.33	0.180	(0.101)	0.032	0.148
81	6.75	0.33	0.180	(0.100)	0.032	0.148
82	6.83	0.33	0.180	(0.100)	0.032	0.148
83	6.92	0.33	0.180	(0.099)	0.032	0.148
84	7.00	0.33	0.180	(0.099)	0.032	0.148
85	7.08	0.33	0.180	(0.098)	0.032	0.148
86	7.17	0.33	0.180	(0.098)	0.032	0.148
87	7.25	0.33	0.180	(0.098)	0.032	0.148
88	7.33	0.37	0.198	(0.097)	0.036	0.162
89	7.42	0.37	0.198	(0.097)	0.036	0.162
90	7.50	0.37	0.198	(0.096)	0.036	0.162
91	7.58	0.40	0.216	(0.096)	0.039	0.177
92	7.67	0.40	0.216	(0.095)	0.039	0.177
93	7.75	0.40	0.216	(0.095)	0.039	0.177
94	7.83	0.43	0.234	(0.094)	0.042	0.192
95	7.92	0.43	0.234	(0.094)	0.042	0.192
96	8.00	0.43	0.234	(0.094)	0.042	0.192
97	8.08	0.50	0.270	(0.093)	0.049	0.221
98	8.17	0.50	0.270	(0.093)	0.049	0.221
99	8.25	0.50	0.270	(0.092)	0.049	0.221
100	8.33	0.50	0.270	(0.092)	0.049	0.221
101	8.42	0.50	0.270	(0.091)	0.049	0.221
102	8.50	0.50	0.270	(0.091)	0.049	0.221
103	8.58	0.53	0.288	(0.091)	0.052	0.236
104	8.67	0.53	0.288	(0.090)	0.052	0.236
105	8.75	0.53	0.288	(0.090)	0.052	0.236
106	8.83	0.57	0.306	(0.089)	0.055	0.251
107	8.92	0.57	0.306	(0.089)	0.055	0.251
108	9.00	0.57	0.306	(0.088)	0.055	0.251
109	9.08	0.63	0.342	(0.088)	0.062	0.280
110	9.17	0.63	0.342	(0.088)	0.062	0.280
111	9.25	0.63	0.342	(0.087)	0.062	0.280
112	9.33	0.67	0.360	(0.087)	0.065	0.295
113	9.42	0.67	0.360	(0.086)	0.065	0.295
114	9.50	0.67	0.360	(0.086)	0.065	0.295
115	9.58	0.70	0.378	(0.086)	0.068	0.310
116	9.67	0.70	0.378	(0.085)	0.068	0.310
117	9.75	0.70	0.378	(0.085)	0.068	0.310
118	9.83	0.73	0.396	(0.084)	0.071	0.325
119	9.92	0.73	0.396	(0.084)	0.071	0.325
120	10.00	0.73	0.396	(0.083)	0.071	0.325
121	10.08	0.50	0.270	(0.083)	0.049	0.221
122	10.17	0.50	0.270	(0.083)	0.049	0.221
123	10.25	0.50	0.270	(0.082)	0.049	0.221
124	10.33	0.50	0.270	(0.082)	0.049	0.221
125	10.42	0.50	0.270	(0.081)	0.049	0.221
126	10.50	0.50	0.270	(0.081)	0.049	0.221
127	10.58	0.67	0.360	(0.081)	0.065	0.295
128	10.67	0.67	0.360	(0.080)	0.065	0.295
129	10.75	0.67	0.360	(0.080)	0.065	0.295
130	10.83	0.67	0.360	(0.079)	0.065	0.295
131	10.92	0.67	0.360	(0.079)	0.065	0.295
132	11.00	0.67	0.360	(0.079)	0.065	0.295
133	11.08	0.63	0.342	(0.078)	0.062	0.280

134	11.17	0.63	0.342	(0.078)	0.062	0.280
135	11.25	0.63	0.342	(0.078)	0.062	0.280
136	11.33	0.63	0.342	(0.077)	0.062	0.280
137	11.42	0.63	0.342	(0.077)	0.062	0.280
138	11.50	0.63	0.342	(0.076)	0.062	0.280
139	11.58	0.57	0.306	(0.076)	0.055	0.251
140	11.67	0.57	0.306	(0.076)	0.055	0.251
141	11.75	0.57	0.306	(0.075)	0.055	0.251
142	11.83	0.60	0.324	(0.075)	0.058	0.266
143	11.92	0.60	0.324	(0.075)	0.058	0.266
144	12.00	0.60	0.324	(0.074)	0.058	0.266
145	12.08	0.83	0.450	0.074	(0.081)	0.376
146	12.17	0.83	0.450	0.073	(0.081)	0.377
147	12.25	0.83	0.450	0.073	(0.081)	0.377
148	12.33	0.87	0.468	0.073	(0.084)	0.395
149	12.42	0.87	0.468	0.072	(0.084)	0.396
150	12.50	0.87	0.468	0.072	(0.084)	0.396
151	12.58	0.93	0.504	0.072	(0.091)	0.432
152	12.67	0.93	0.504	0.071	(0.091)	0.433
153	12.75	0.93	0.504	0.071	(0.091)	0.433
154	12.83	0.97	0.522	0.071	(0.094)	0.451
155	12.92	0.97	0.522	0.070	(0.094)	0.452
156	13.00	0.97	0.522	0.070	(0.094)	0.452
157	13.08	1.13	0.612	0.069	(0.110)	0.543
158	13.17	1.13	0.612	0.069	(0.110)	0.543
159	13.25	1.13	0.612	0.069	(0.110)	0.543
160	13.33	1.13	0.612	0.068	(0.110)	0.544
161	13.42	1.13	0.612	0.068	(0.110)	0.544
162	13.50	1.13	0.612	0.068	(0.110)	0.544
163	13.58	0.77	0.414	0.067	(0.075)	0.347
164	13.67	0.77	0.414	0.067	(0.075)	0.347
165	13.75	0.77	0.414	0.067	(0.075)	0.347
166	13.83	0.77	0.414	0.066	(0.075)	0.348
167	13.92	0.77	0.414	0.066	(0.075)	0.348
168	14.00	0.77	0.414	0.066	(0.075)	0.348
169	14.08	0.90	0.486	0.065	(0.087)	0.421
170	14.17	0.90	0.486	0.065	(0.087)	0.421
171	14.25	0.90	0.486	0.065	(0.087)	0.421
172	14.33	0.87	0.468	0.064	(0.084)	0.404
173	14.42	0.87	0.468	0.064	(0.084)	0.404
174	14.50	0.87	0.468	0.064	(0.084)	0.404
175	14.58	0.87	0.468	0.063	(0.084)	0.405
176	14.67	0.87	0.468	0.063	(0.084)	0.405
177	14.75	0.87	0.468	0.063	(0.084)	0.405
178	14.83	0.83	0.450	0.062	(0.081)	0.388
179	14.92	0.83	0.450	0.062	(0.081)	0.388
180	15.00	0.83	0.450	0.062	(0.081)	0.388
181	15.08	0.80	0.432	0.061	(0.078)	0.371
182	15.17	0.80	0.432	0.061	(0.078)	0.371
183	15.25	0.80	0.432	0.061	(0.078)	0.371
184	15.33	0.77	0.414	0.060	(0.075)	0.354
185	15.42	0.77	0.414	0.060	(0.075)	0.354
186	15.50	0.77	0.414	0.060	(0.075)	0.354
187	15.58	0.63	0.342	0.060	(0.062)	0.282
188	15.67	0.63	0.342	0.059	(0.062)	0.283
189	15.75	0.63	0.342	0.059	(0.062)	0.283
190	15.83	0.63	0.342	0.059	(0.062)	0.283
191	15.92	0.63	0.342	0.058	(0.062)	0.284
192	16.00	0.63	0.342	0.058	(0.062)	0.284
193	16.08	0.13	0.072	(0.058)	0.013	0.059
194	16.17	0.13	0.072	(0.057)	0.013	0.059
195	16.25	0.13	0.072	(0.057)	0.013	0.059
196	16.33	0.13	0.072	(0.057)	0.013	0.059
197	16.42	0.13	0.072	(0.057)	0.013	0.059
198	16.50	0.13	0.072	(0.056)	0.013	0.059
199	16.58	0.10	0.054	(0.056)	0.010	0.044
200	16.67	0.10	0.054	(0.056)	0.010	0.044
201	16.75	0.10	0.054	(0.055)	0.010	0.044
202	16.83	0.10	0.054	(0.055)	0.010	0.044
203	16.92	0.10	0.054	(0.055)	0.010	0.044
204	17.00	0.10	0.054	(0.055)	0.010	0.044
205	17.08	0.17	0.090	(0.054)	0.016	0.074
206	17.17	0.17	0.090	(0.054)	0.016	0.074
207	17.25	0.17	0.090	(0.054)	0.016	0.074
208	17.33	0.17	0.090	(0.054)	0.016	0.074
209	17.42	0.17	0.090	(0.053)	0.016	0.074
210	17.50	0.17	0.090	(0.053)	0.016	0.074
211	17.58	0.17	0.090	(0.053)	0.016	0.074
212	17.67	0.17	0.090	(0.052)	0.016	0.074

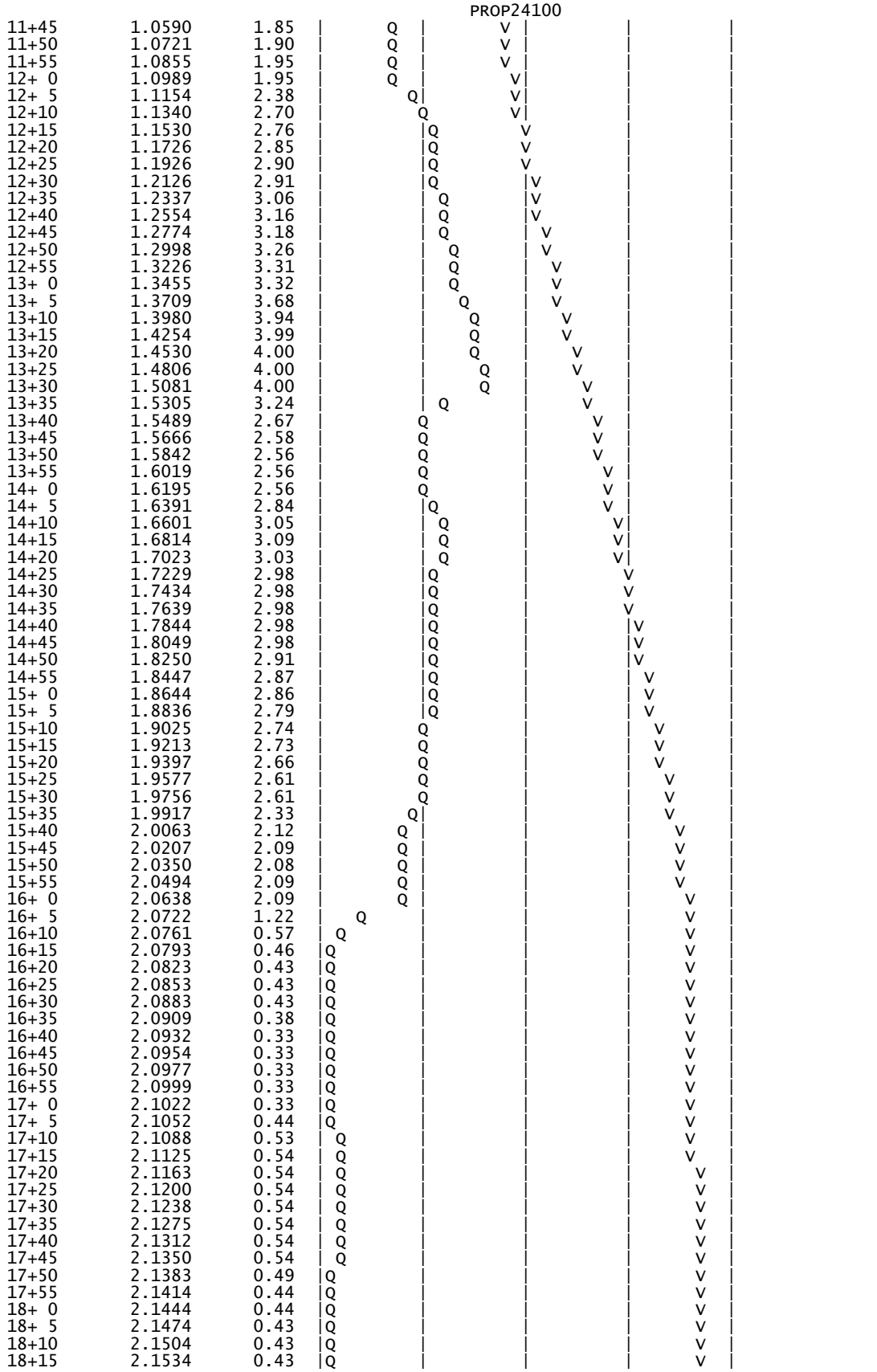
213	17.75	0.17	0.090	(0.052)	0.016	0.074
214	17.83	0.13	0.072	(0.052)	0.013	0.059
215	17.92	0.13	0.072	(0.052)	0.013	0.059
216	18.00	0.13	0.072	(0.051)	0.013	0.059
217	18.08	0.13	0.072	(0.051)	0.013	0.059
218	18.17	0.13	0.072	(0.051)	0.013	0.059
219	18.25	0.13	0.072	(0.051)	0.013	0.059
220	18.33	0.13	0.072	(0.050)	0.013	0.059
221	18.42	0.13	0.072	(0.050)	0.013	0.059
222	18.50	0.13	0.072	(0.050)	0.013	0.059
223	18.58	0.10	0.054	(0.050)	0.010	0.044
224	18.67	0.10	0.054	(0.049)	0.010	0.044
225	18.75	0.10	0.054	(0.049)	0.010	0.044
226	18.83	0.07	0.036	(0.049)	0.006	0.030
227	18.92	0.07	0.036	(0.049)	0.006	0.030
228	19.00	0.07	0.036	(0.049)	0.006	0.030
229	19.08	0.10	0.054	(0.048)	0.010	0.044
230	19.17	0.10	0.054	(0.048)	0.010	0.044
231	19.25	0.10	0.054	(0.048)	0.010	0.044
232	19.33	0.13	0.072	(0.048)	0.013	0.059
233	19.42	0.13	0.072	(0.047)	0.013	0.059
234	19.50	0.13	0.072	(0.047)	0.013	0.059
235	19.58	0.10	0.054	(0.047)	0.010	0.044
236	19.67	0.10	0.054	(0.047)	0.010	0.044
237	19.75	0.10	0.054	(0.047)	0.010	0.044
238	19.83	0.07	0.036	(0.046)	0.006	0.030
239	19.92	0.07	0.036	(0.046)	0.006	0.030
240	20.00	0.07	0.036	(0.046)	0.006	0.030
241	20.08	0.10	0.054	(0.046)	0.010	0.044
242	20.17	0.10	0.054	(0.045)	0.010	0.044
243	20.25	0.10	0.054	(0.045)	0.010	0.044
244	20.33	0.10	0.054	(0.045)	0.010	0.044
245	20.42	0.10	0.054	(0.045)	0.010	0.044
246	20.50	0.10	0.054	(0.045)	0.010	0.044
247	20.58	0.10	0.054	(0.045)	0.010	0.044
248	20.67	0.10	0.054	(0.044)	0.010	0.044
249	20.75	0.10	0.054	(0.044)	0.010	0.044
250	20.83	0.07	0.036	(0.044)	0.006	0.030
251	20.92	0.07	0.036	(0.044)	0.006	0.030
252	21.00	0.07	0.036	(0.044)	0.006	0.030
253	21.08	0.10	0.054	(0.043)	0.010	0.044
254	21.17	0.10	0.054	(0.043)	0.010	0.044
255	21.25	0.10	0.054	(0.043)	0.010	0.044
256	21.33	0.07	0.036	(0.043)	0.006	0.030
257	21.42	0.07	0.036	(0.043)	0.006	0.030
258	21.50	0.07	0.036	(0.043)	0.006	0.030
259	21.58	0.10	0.054	(0.042)	0.010	0.044
260	21.67	0.10	0.054	(0.042)	0.010	0.044
261	21.75	0.10	0.054	(0.042)	0.010	0.044
262	21.83	0.07	0.036	(0.042)	0.006	0.030
263	21.92	0.07	0.036	(0.042)	0.006	0.030
264	22.00	0.07	0.036	(0.042)	0.006	0.030
265	22.08	0.10	0.054	(0.042)	0.010	0.044
266	22.17	0.10	0.054	(0.041)	0.010	0.044
267	22.25	0.10	0.054	(0.041)	0.010	0.044
268	22.33	0.07	0.036	(0.041)	0.006	0.030
269	22.42	0.07	0.036	(0.041)	0.006	0.030
270	22.50	0.07	0.036	(0.041)	0.006	0.030
271	22.58	0.07	0.036	(0.041)	0.006	0.030
272	22.67	0.07	0.036	(0.041)	0.006	0.030
273	22.75	0.07	0.036	(0.041)	0.006	0.030
274	22.83	0.07	0.036	(0.041)	0.006	0.030
275	22.92	0.07	0.036	(0.040)	0.006	0.030
276	23.00	0.07	0.036	(0.040)	0.006	0.030
277	23.08	0.07	0.036	(0.040)	0.006	0.030
278	23.17	0.07	0.036	(0.040)	0.006	0.030
279	23.25	0.07	0.036	(0.040)	0.006	0.030
280	23.33	0.07	0.036	(0.040)	0.006	0.030
281	23.42	0.07	0.036	(0.040)	0.006	0.030
282	23.50	0.07	0.036	(0.040)	0.006	0.030
283	23.58	0.07	0.036	(0.040)	0.006	0.030
284	23.67	0.07	0.036	(0.040)	0.006	0.030
285	23.75	0.07	0.036	(0.040)	0.006	0.030
286	23.83	0.07	0.036	(0.040)	0.006	0.030
287	23.92	0.07	0.036	(0.040)	0.006	0.030
288	24.00	0.07	0.036	(0.040)	0.006	0.030
		(Loss Rate Not Used)				
Sum =		100.0			Sum =	45.1

Flood volume = Effective rainfall 3.76(In)

```
 times area       7.3(Ac.)/[(In)/(Ft.)] =       2.3(Ac.Ft)
Total soil loss =      0.74(In)
Total soil loss =     0.450(Ac.Ft)
Total rainfall =      4.50(In)
Flood volume =       99644.5 Cubic Feet
Total soil loss =       19599.3 Cubic Feet
---------------------------------------------------------------------
 Peak flow rate of this hydrograph =      4.005(CFS)
---------------------------------------------------------------------
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                    24 - H O U R    S T O R M
                R u n o f f      H y d r o g r a p h
---------------------------------------------------------------------
             Hydrograph in   5   Minute intervals ((CFS))

---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0        2.5       5.0       7.5      10.0
---------------------------------------------------------------------
  0+ 5       0.0008      0.11  Q          |         |         |         |
  0+10       0.0022      0.20  Q          |         |         |         |
  0+15       0.0036      0.21  Q          |         |         |         |
  0+20       0.0055      0.27  VQ         |         |         |         |
  0+25       0.0077      0.32  VQ         |         |         |         |
  0+30       0.0099      0.32  VQ         |         |         |         |
  0+35       0.0122      0.33  VQ         |         |         |         |
  0+40       0.0144      0.33  VQ         |         |         |         |
  0+45       0.0167      0.33  VQ         |         |         |         |
  0+50       0.0193      0.38  VQ         |         |         |         |
  0+55       0.0222      0.43  VQ         |         |         |         |
  1+ 0       0.0252      0.43  VQ         |         |         |         |
  1+ 5       0.0278      0.38  VQ         |         |         |         |
  1+10       0.0301      0.33  VQ         |         |         |         |
  1+15       0.0324      0.33  VQ         |         |         |         |
  1+20       0.0346      0.33  VQ         |         |         |         |
  1+25       0.0369      0.33  VQ         |         |         |         |
  1+30       0.0391      0.33  VQ         |         |         |         |
  1+35       0.0414      0.33  VQ         |         |         |         |
  1+40       0.0436      0.33  VQ         |         |         |         |
  1+45       0.0459      0.33  VQ         |         |         |         |
  1+50       0.0485      0.38  VQ         |         |         |         |
  1+55       0.0514      0.43  VQ         |         |         |         |
  2+ 0       0.0544      0.43  VQ         |         |         |         |
  2+ 5       0.0574      0.43  |Q         |         |         |         |
  2+10       0.0604      0.43  |Q         |         |         |         |
  2+15       0.0634      0.43  |Q         |         |         |         |
  2+20       0.0664      0.43  |Q         |         |         |         |
  2+25       0.0694      0.43  |Q         |         |         |         |
  2+30       0.0724      0.43  |Q         |         |         |         |
  2+35       0.0758      0.49  |Q         |         |         |         |
  2+40       0.0794      0.53  |VQ        |         |         |         |
  2+45       0.0832      0.54  |VQ        |         |         |         |
  2+50       0.0869      0.54  |VQ        |         |         |         |
  2+55       0.0906      0.54  |VQ        |         |         |         |
  3+ 0       0.0944      0.54  |VQ        |         |         |         |
  3+ 5       0.0981      0.54  |VQ        |         |         |         |
  3+10       0.1019      0.54  |VQ        |         |         |         |
  3+15       0.1056      0.54  |VQ        |         |         |         |
  3+20       0.1093      0.54  |VQ        |         |         |         |
  3+25       0.1131      0.54  |VQ        |         |         |         |
  3+30       0.1168      0.54  | Q        |         |         |         |
  3+35       0.1206      0.54  | Q        |         |         |         |
  3+40       0.1243      0.54  | Q        |         |         |         |
  3+45       0.1281      0.54  | Q        |         |         |         |
  3+50       0.1322      0.60  | Q        |         |         |         |
  3+55       0.1366      0.64  | Q        |         |         |         |
  4+ 0       0.1411      0.65  | Q        |         |         |         |
  4+ 5       0.1456      0.65  | Q        |         |         |         |
  4+10       0.1501      0.65  | Q        |         |         |         |
  4+15       0.1546      0.65  | Q        |         |         |         |
  4+20       0.1594      0.71  | Q        |         |         |         |
  4+25       0.1646      0.75  | VQ       |         |         |         |
  4+30       0.1698      0.76  | VQ       |         |         |         |
  4+35       0.1751      0.76  |  Q       |         |         |         |
  4+40       0.1803      0.76  |  Q       |         |         |         |
  4+45       0.1856      0.76  |  Q       |         |         |         |
  4+50       0.1912      0.82  |  Q       |         |         |         |
  4+55       0.1971      0.86  |  Q       |         |         |         |
  5+ 0       0.2031      0.87  |  Q       |         |         |         |
  5+ 5       0.2083      0.75  |  Q       |         |         |         |
```

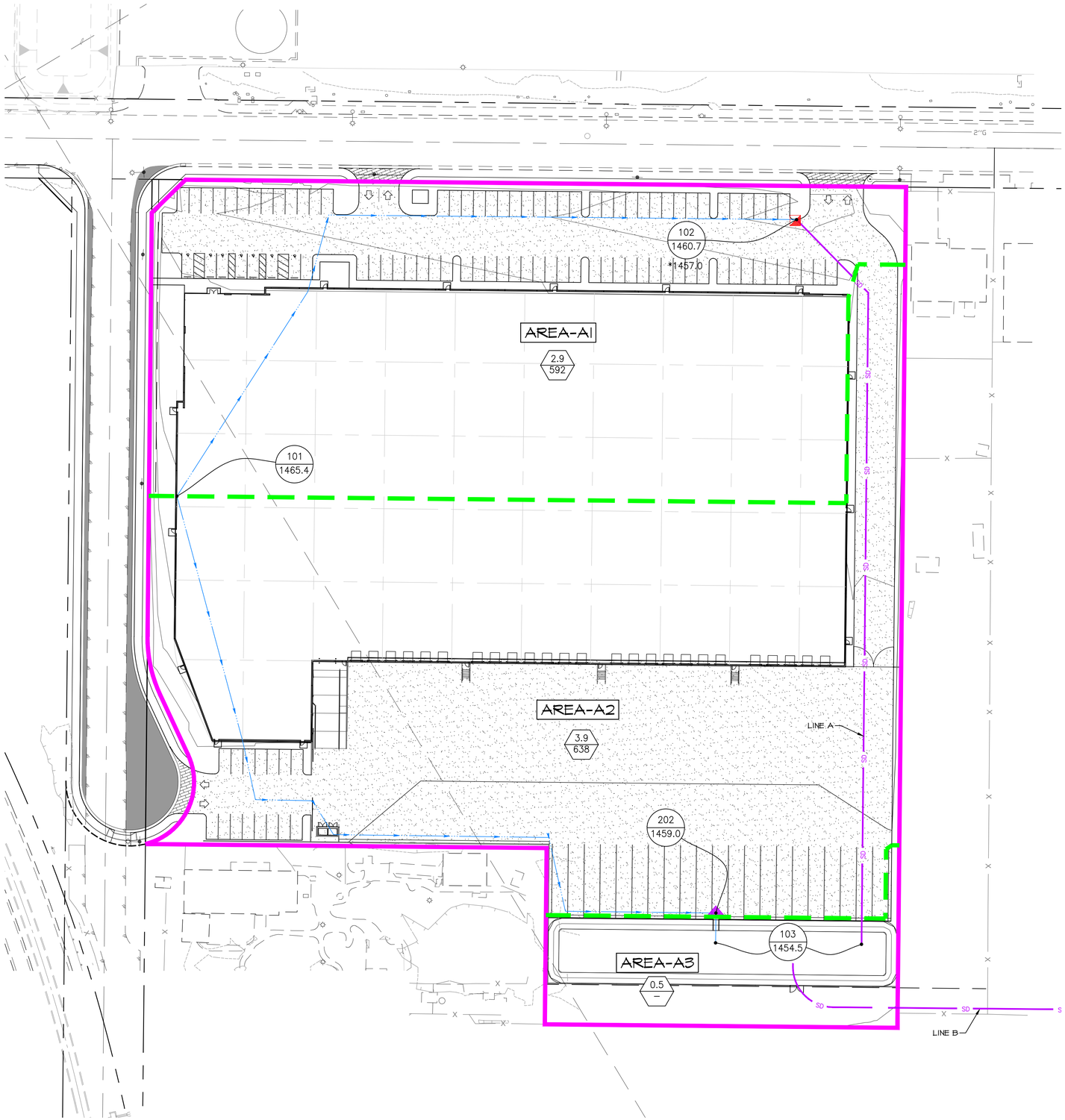
5+10	0.2129	0.67	QV				
5+15	0.2174	0.66	QV				
5+20	0.2223	0.71	QV				
5+25	0.2275	0.75	Q				
5+30	0.2327	0.76	QV				
5+35	0.2383	0.82	QV				
5+40	0.2443	0.86	QV				
5+45	0.2502	0.87	QV				
5+50	0.2562	0.87	QV				
5+55	0.2622	0.87	QV				
6+ 0	0.2682	0.87	QV				
6+ 5	0.2746	0.93	QV				
6+10	0.2812	0.97	QV				
6+15	0.2880	0.98	Q V				
6+20	0.2947	0.98	Q V				
6+25	0.3014	0.98	Q V				
6+30	0.3082	0.98	Q V				
6+35	0.3153	1.03	QV				
6+40	0.3227	1.08	QV				
6+45	0.3302	1.08	QV				
6+50	0.3377	1.09	QV				
6+55	0.3451	1.09	Q V				
7+ 0	0.3526	1.09	Q V				
7+ 5	0.3601	1.09	Q V				
7+10	0.3676	1.09	Q V				
7+15	0.3751	1.09	Q V				
7+20	0.3830	1.14	Q V				
7+25	0.3911	1.19	Q V				
7+30	0.3993	1.19	Q V				
7+35	0.4080	1.25	Q V				
7+40	0.4169	1.29	Q V				
7+45	0.4259	1.30	Q V				
7+50	0.4352	1.36	Q V				
7+55	0.4449	1.40	Q V				
8+ 0	0.4546	1.41	Q V				
8+ 5	0.4651	1.53	Q V				
8+10	0.4762	1.61	Q V				
8+15	0.4874	1.63	Q V				
8+20	0.4986	1.63	Q V				
8+25	0.5099	1.63	Q V				
8+30	0.5211	1.63	Q V				
8+35	0.5327	1.69	Q V				
8+40	0.5446	1.73	Q V				
8+45	0.5566	1.74	Q V				
8+50	0.5689	1.80	Q V				
8+55	0.5816	1.84	Q V				
9+ 0	0.5943	1.85	Q V				
9+ 5	0.6078	1.96	Q V				
9+10	0.6219	2.05	Q V				
9+15	0.6361	2.06	Q V				
9+20	0.6507	2.12	Q V				
9+25	0.6656	2.16	Q V				
9+30	0.6806	2.17	Q V				
9+35	0.6959	2.23	Q V				
9+40	0.7116	2.27	Q V				
9+45	0.7273	2.28	Q V				
9+50	0.7434	2.34	Q V				
9+55	0.7598	2.38	Q V				
10+ 0	0.7762	2.39	Q V				
10+ 5	0.7899	1.99	Q V				
10+10	0.8016	1.69	Q V				
10+15	0.8129	1.64	Q V				
10+20	0.8241	1.63	Q V				
10+25	0.8354	1.63	Q V				
10+30	0.8466	1.63	Q V				
10+35	0.8598	1.92	Q V				
10+40	0.8744	2.13	Q V				
10+45	0.8893	2.16	Q V				
10+50	0.9043	2.17	Q V				
10+55	0.9193	2.17	Q V				
11+ 0	0.9342	2.17	Q V				
11+ 5	0.9488	2.12	Q V				
11+10	0.9631	2.07	Q V				
11+15	0.9773	2.07	Q V				
11+20	0.9915	2.06	Q V				
11+25	1.0057	2.06	Q V				
11+30	1.0200	2.06	Q V				
11+35	1.0334	1.95	Q V				
11+40	1.0462	1.86	Q V				



11+45	1.0590	1.85	Q V
11+50	1.0721	1.90	Q V
11+55	1.0855	1.95	Q V
12+ 0	1.0989	1.95	Q V
12+ 5	1.1154	2.38	Q V
12+10	1.1340	2.70	Q V
12+15	1.1530	2.76	Q V
12+20	1.1726	2.85	Q V
12+25	1.1926	2.90	Q V
12+30	1.2126	2.91	Q V
12+35	1.2337	3.06	Q V
12+40	1.2554	3.16	Q V
12+45	1.2774	3.18	Q V
12+50	1.2998	3.26	Q V
12+55	1.3226	3.31	Q V
13+ 0	1.3455	3.32	Q V
13+ 5	1.3709	3.68	Q V
13+10	1.3980	3.94	Q V
13+15	1.4254	3.99	Q V
13+20	1.4530	4.00	Q V
13+25	1.4806	4.00	Q V
13+30	1.5081	4.00	Q V
13+35	1.5305	3.24	Q V
13+40	1.5489	2.67	Q V
13+45	1.5666	2.58	Q V
13+50	1.5842	2.56	Q V
13+55	1.6019	2.56	Q V
14+ 0	1.6195	2.56	Q V
14+ 5	1.6391	2.84	Q V
14+10	1.6601	3.05	Q V
14+15	1.6814	3.09	Q V
14+20	1.7023	3.03	Q V
14+25	1.7229	2.98	Q V
14+30	1.7434	2.98	Q V
14+35	1.7639	2.98	Q V
14+40	1.7844	2.98	Q V
14+45	1.8049	2.98	Q V
14+50	1.8250	2.91	Q V
14+55	1.8447	2.87	Q V
15+ 0	1.8644	2.86	Q V
15+ 5	1.8836	2.79	Q V
15+10	1.9025	2.74	Q V
15+15	1.9213	2.73	Q V
15+20	1.9397	2.66	Q V
15+25	1.9577	2.61	Q V
15+30	1.9756	2.61	Q V
15+35	1.9917	2.33	Q V
15+40	2.0063	2.12	Q V
15+45	2.0207	2.09	Q V
15+50	2.0350	2.08	Q V
15+55	2.0494	2.09	Q V
16+ 0	2.0638	2.09	Q V
16+ 5	2.0722	1.22	Q V
16+10	2.0761	0.57	Q V
16+15	2.0793	0.46	Q V
16+20	2.0823	0.43	Q V
16+25	2.0853	0.43	Q V
16+30	2.0883	0.43	Q V
16+35	2.0909	0.38	Q V
16+40	2.0932	0.33	Q V
16+45	2.0954	0.33	Q V
16+50	2.0977	0.33	Q V
16+55	2.0999	0.33	Q V
17+ 0	2.1022	0.33	Q V
17+ 5	2.1052	0.44	Q V
17+10	2.1088	0.53	Q V
17+15	2.1125	0.54	Q V
17+20	2.1163	0.54	Q V
17+25	2.1200	0.54	Q V
17+30	2.1238	0.54	Q V
17+35	2.1275	0.54	Q V
17+40	2.1312	0.54	Q V
17+45	2.1350	0.54	Q V
17+50	2.1383	0.49	Q V
17+55	2.1414	0.44	Q V
18+ 0	2.1444	0.44	Q V
18+ 5	2.1474	0.43	Q V
18+10	2.1504	0.43	Q V
18+15	2.1534	0.43	Q V

```
   18+20       2.1564      0.43  |Q        |          |          |       V  |
   18+25       2.1594      0.43  |Q        |          |          |       V  |
   18+30       2.1624      0.43  |Q        |          |          |       V  |
   18+35       2.1650      0.38  |Q        |          |          |       V  |
   18+40       2.1673      0.33  |Q        |          |          |       V  |
   18+45       2.1695      0.33  |Q        |          |          |       V  |
   18+50       2.1714      0.27  |Q        |          |          |       V  |
   18+55       2.1729      0.23  Q         |          |          |       V  |
   19+ 0       2.1744      0.22  Q         |          |          |        V |
   19+ 5       2.1763      0.27  |Q        |          |          |        V |
   19+10       2.1785      0.32  |Q        |          |          |        V |
   19+15       2.1807      0.32  |Q        |          |          |        V |
   19+20       2.1834      0.38  |Q        |          |          |        V |
   19+25       2.1863      0.43  |Q        |          |          |        V |
   19+30       2.1893      0.43  |Q        |          |          |        V |
   19+35       2.1919      0.38  |Q        |          |          |        V |
   19+40       2.1942      0.33  |Q        |          |          |        V |
   19+45       2.1965      0.33  |Q        |          |          |        V |
   19+50       2.1983      0.27  |Q        |          |          |        V |
   19+55       2.1999      0.23  Q         |          |          |        V |
   20+ 0       2.2014      0.22  Q         |          |          |        V |
   20+ 5       2.2033      0.27  |Q        |          |          |        V |
   20+10       2.2054      0.32  |Q        |          |          |        V |
   20+15       2.2077      0.32  |Q        |          |          |        V |
   20+20       2.2099      0.33  |Q        |          |          |        V |
   20+25       2.2122      0.33  |Q        |          |          |        V |
   20+30       2.2144      0.33  |Q        |          |          |        V |
   20+35       2.2167      0.33  |Q        |          |          |        V |
   20+40       2.2189      0.33  |Q        |          |          |        V |
   20+45       2.2211      0.33  |Q        |          |          |        V |
   20+50       2.2230      0.27  |Q        |          |          |        V |
   20+55       2.2246      0.23  Q         |          |          |        V |
   21+ 0       2.2261      0.22  Q         |          |          |        V |
   21+ 5       2.2280      0.27  |Q        |          |          |        V |
   21+10       2.2301      0.32  |Q        |          |          |        V |
   21+15       2.2324      0.32  |Q        |          |          |         V|
   21+20       2.2342      0.27  |Q        |          |          |         V|
   21+25       2.2358      0.23  Q         |          |          |         V|
   21+30       2.2373      0.22  Q         |          |          |         V|
   21+35       2.2392      0.27  |Q        |          |          |         V|
   21+40       2.2414      0.32  |Q        |          |          |         V|
   21+45       2.2436      0.32  |Q        |          |          |         V|
   21+50       2.2454      0.27  |Q        |          |          |         V|
   21+55       2.2470      0.23  Q         |          |          |         V|
   22+ 0       2.2485      0.22  Q         |          |          |         V|
   22+ 5       2.2504      0.27  |Q        |          |          |         V|
   22+10       2.2526      0.32  |Q        |          |          |         V|
   22+15       2.2548      0.32  |Q        |          |          |         V|
   22+20       2.2567      0.27  |Q        |          |          |         V|
   22+25       2.2582      0.23  Q         |          |          |         V|
   22+30       2.2597      0.22  Q         |          |          |         V|
   22+35       2.2612      0.22  Q         |          |          |         V|
   22+40       2.2627      0.22  Q         |          |          |         V|
   22+45       2.2642      0.22  Q         |          |          |         V|
   22+50       2.2657      0.22  Q         |          |          |         V|
   22+55       2.2672      0.22  Q         |          |          |         V|
   23+ 0       2.2687      0.22  Q         |          |          |         V|
   23+ 5       2.2702      0.22  Q         |          |          |         V|
   23+10       2.2717      0.22  Q         |          |          |         V|
   23+15       2.2732      0.22  Q         |          |          |         V|
   23+20       2.2747      0.22  Q         |          |          |         V|
   23+25       2.2762      0.22  Q         |          |          |         V|
   23+30       2.2777      0.22  Q         |          |          |         V|
   23+35       2.2792      0.22  Q         |          |          |         V|
   23+40       2.2807      0.22  Q         |          |          |         V|
   23+45       2.2822      0.22  Q         |          |          |         V|
   23+50       2.2837      0.22  Q         |          |          |         V|
   23+55       2.2852      0.22  Q         |          |          |         V|
   24+ 0       2.2867      0.22  Q         |          |          |         V|
   24+ 5       2.2874      0.10  Q         |          |          |         V|
   24+10       2.2875      0.02  Q         |          |          |         V|
   24+15       2.2875      0.00  Q         |          |          |          V
---------------------------------------------------------------------------
```

HYDROLOGY MAPS



LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW DIRECTION
- 101 / 14xx — NODE DESIGNATION / NODE ELEVATION
- *14XX — *INVERT ELEVATION
- 5.0 / 1000' — WATERSHED AREA (ACRES) / LONGEST WATER PATH (FT)

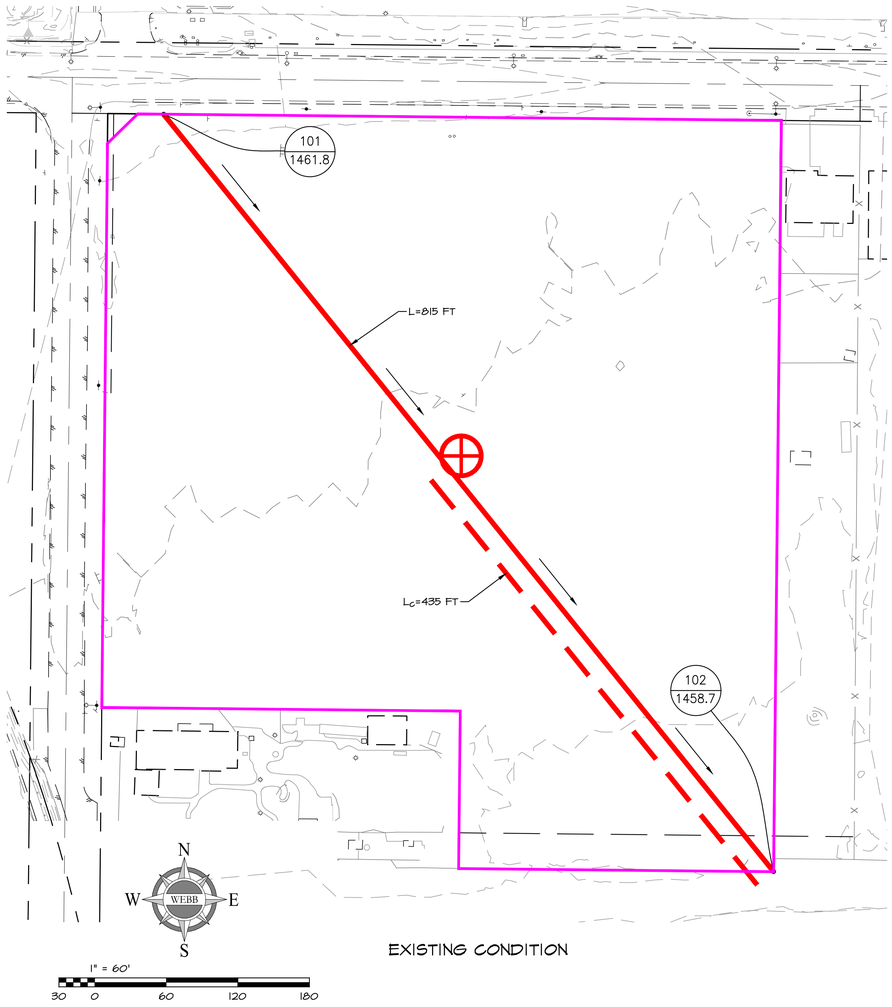
N
W WEBB E
S

1" = 40'
20 0 40 80 120

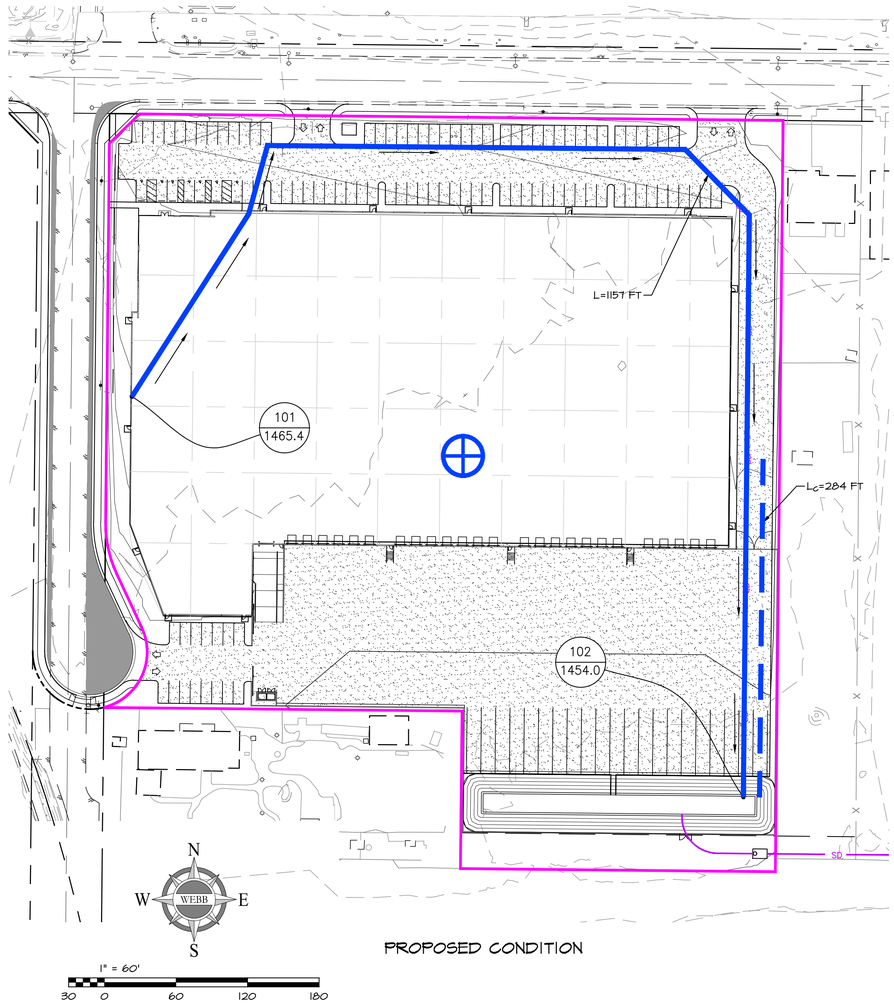
CITY OF PERRIS

RATIONAL METHOD HYDROLOGY MAP
DUKE BARRETT BUILDING OPTION
DPR NO. 18-00011

SCALE:	1"=40'	ALBERT A. WEBB ASSOCIATES	W.O. 18-0240
DATE:	8/8/19	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	SHEET 1
DESIGNED:	TSW		OF 1 SHEETS
CHECKED:			DWG. NO.
PLN CK REF:			
F.B.			



EXISTING CONDITION



PROPOSED CONDITION

LEGEND

- DRAINAGE MANAGEMENT BOUNDARY
- FLOW DIRECTION
- L=14XX' / L_c=1000' — LONGEST FLOW PATH / CENTROIDAL LENGTH
- 101 / 14xx — NODE DESIGNATION / NODE ELEVATION
- *14XX — *INVERT ELEVATION
- 5.0 / 1000 — WATERSHED AREA (ACRES) / LONGEST WATER PATH (FT)
- CENTROID

CITY OF PERRIS

UNIT HYDROGRAPH HYDROLOGY MAP
DUKE BARRETT BUILDING OPTION
DPR NO. 18-00011

SCALE: 1"=60'	ALBERT A. WEBB ASSOCIATES	W.O. 18-0240
DATE: 2/25/19	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	SHEET |
DESIGNED: TSW		OF 1 SHEETS
CHECKED:		
PLN CK REF:		DWG. NO.
F.B.		

C:\2018\18-0240\DRAINAGE\HYDROLOGY BUILDING OPTION\DWG FOLDER\18-0240_BLDG-PHYD-UH.DWG 2/25/2019 4:00:54 PM

APPENDIX B – HYDRAULICS

OUTLET STRUCTURE A

Weir Inlet
Ponding Depth Calculation

ALBERT A WEBB ASSOCIATES
ENGINEERING CONSULTANTS

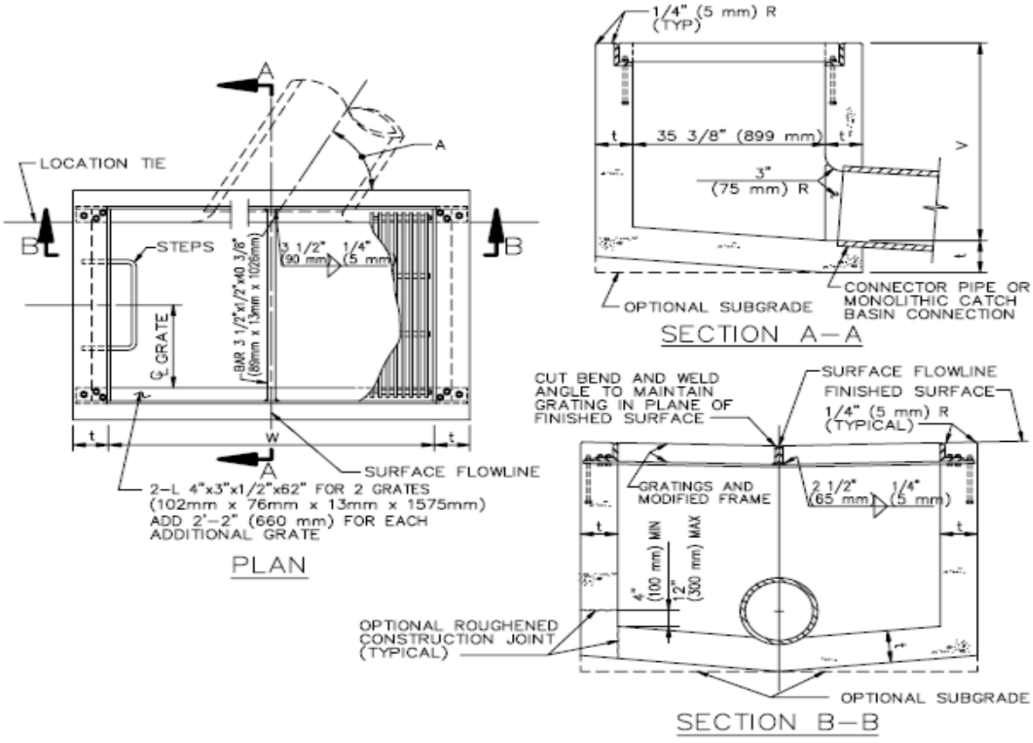
Designer:	TSW
Date:	2/25/2019
Project:	Duke Barrett
Location:	Outlet Structure for WQ Basin A

OUTLET STRUCTURE PONDING DEPTH SPPWC 305-3

DISCHARGE (cfs)		16.1	
NUMBER OF GRATES		2	
LENGTH (ft)		14.479	
WEIR COEFFICIENT	C	3	
WEIR LENGTH	L	14.479	ft^2
HEAD	h	0.52	ft
Flow	Q	16.10	cfs

$$Q = C L (h)^{3/2}$$

Top of Weir Elevation: 1458.5
Water Surface Elevation: 1459.02



LINE A HYDRAULICS

Hydraulic Analysis Report

Project Data

Project Title: Duke Barrett Building Option

Designer:

Project Date: Thursday, August 8, 2019

Project Units: U.S. Customary Units

Notes:

Channel Analysis: LINE A

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0040 ft/ft

Manning's n: 0.0120

Flow: 6.9000 cfs

Result Parameters

Depth: 1.1772 ft

Area of Flow: 1.4879 ft^2

Wetted Perimeter: 3.2653 ft

Hydraulic Radius: 0.4557 ft

Average Velocity: 4.6375 ft/s

Top Width: 1.2328 ft

Froude Number: 0.7439

Critical Depth: 1.0166 ft

Critical Velocity: 5.4122 ft/s

Critical Slope: 0.0057 ft/ft

Critical Top Width: 1.40 ft

Calculated Max Shear Stress: 0.2938 lb/ft^2

Calculated Avg Shear Stress: 0.1137 lb/ft^2

LINE B HYDRAULICS

Hydraulic Analysis Report

Project Data

Project Title: Duke Barrett Building Option

Designer:

Project Date: Thursday, August 8, 2019

Project Units: U.S. Customary Units

Notes:

Channel Analysis: LINE B

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 2.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 16.1000 cfs

Result Parameters

Depth: 1.5247 ft

Area of Flow: 2.5699 ft^2

Wetted Perimeter: 4.2464 ft

Hydraulic Radius: 0.6052 ft

Average Velocity: 6.2649 ft/s

Top Width: 1.7025 ft

Froude Number: 0.8986

Critical Depth: 1.4463 ft

Critical Velocity: 6.6179 ft/s

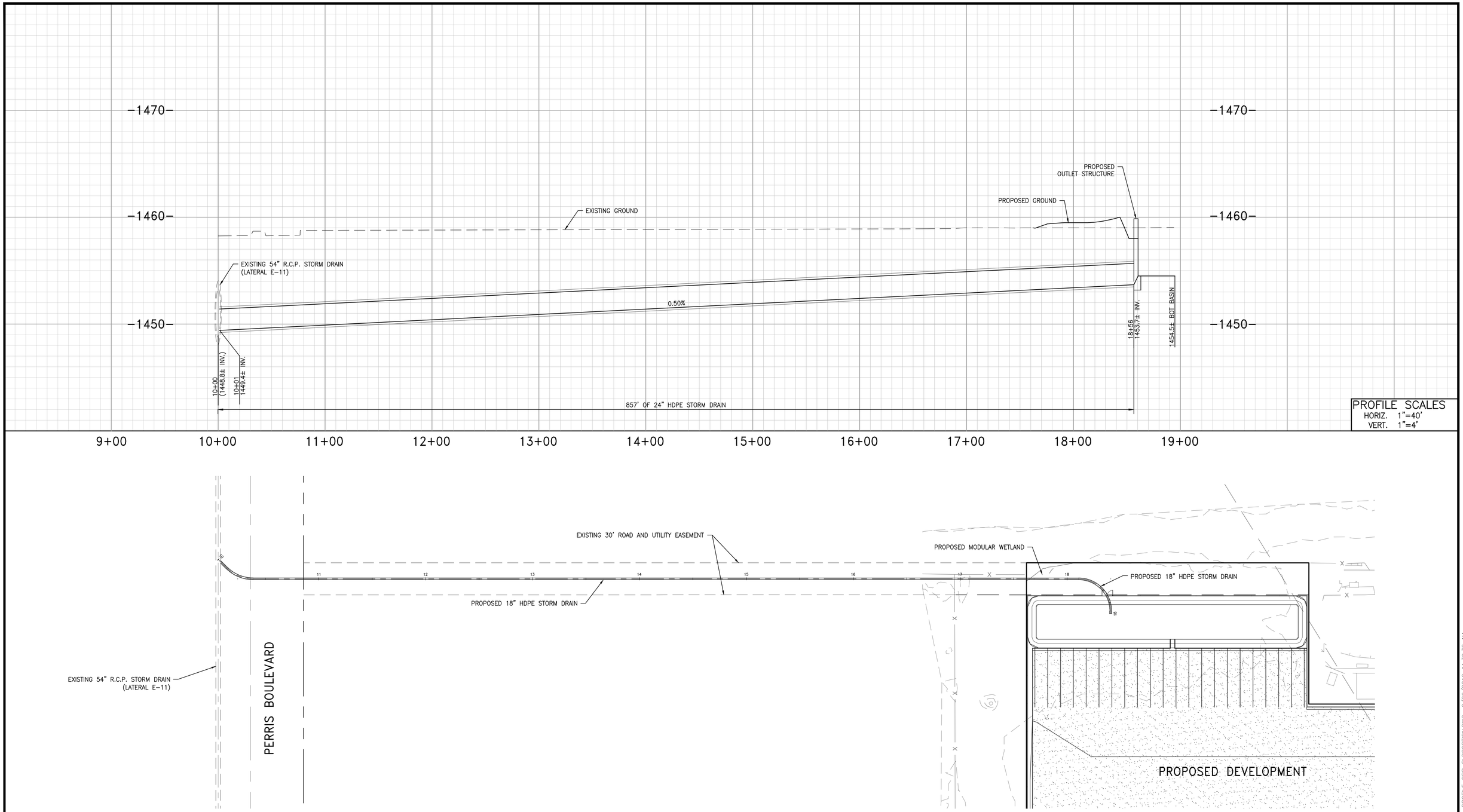
Critical Slope: 0.0057 ft/ft

Critical Top Width: 1.79 ft

Calculated Max Shear Stress: 0.4757 lb/ft^2

Calculated Avg Shear Stress: 0.1888 lb/ft^2

LINE B PROFILE



PROFILE SCALES
HORIZ. 1"=40'
VERT. 1"=4'

S
E WEBB W
N

1" = 40'
40 0 40 80 120

LINE B PROFILE

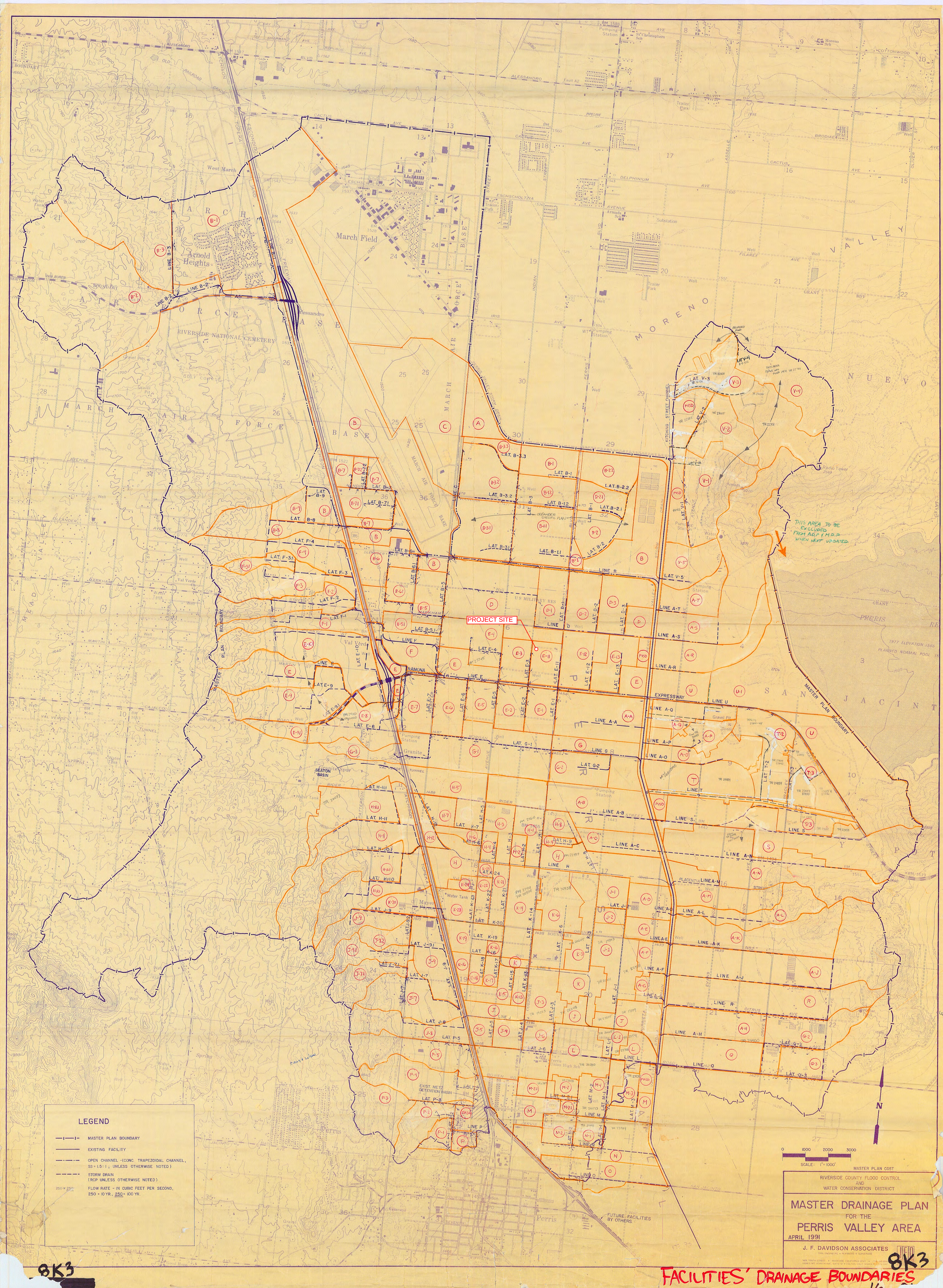
DUKE PERRY & BARRETT BUILDING OPTION

SCALE:	ALBERT A. WEBB ASSOCIATES	W.O. 18-0240
DATE:	ENGINEERING CONSULTANTS 3788 McCRAY STREET RIVERSIDE CA. 92506 PH. (951) 686-1070 FAX (951) 788-1256	SHEET 1 OF 1 SHEETS
DESIGNED:		
CHECKED:		
PLN CK REF:		DWG. NO.
F.B.		

C:\2018\18-0240\DRAWINGS\EXHIBITS\LINEB_PROFILE_DPR_BLDGOPTION.DWG 2/26/2019 11:39:32 AM

APPENDIX C – REFERENCES

PERRIS VALLEY MDP TRIBUTARY AREAS


PROJECT SITE
LEGEND
MASTER PLAN BOUNDARY
EXISTING FACILITY
OPEN CHANNEL -(CONC. TRAPEZOIDAL CHANNEL, SS = 1.5 : 1 ; UNLESS OTHERWISE NOTED)
STORM DRAIN (RCP UNLESS OTHERWISE NOTED)
250 or 250 FLOW RATE - IN CUBIC FEET PER SECOND, 250 = 10 YR., 250 = 100 YR.
SCALE: 1"= 1000'
MASTER PLAN COST
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
MASTER DRAINAGE PLAN FOR THE PERRIS VALLEY AREA
APRIL 1991
J. F. DAVIDSON ASSOCIATES
CIVIL ENGINEERS • PLANNERS • SURVEYORS
THIS AREA TO BE EXCLUDED FROM A.D.P. & M.D.P. WHEN NEXT UPDATED.
FUTURE FACILITIES BY OTHERS.
MARCH AIR FORCE BASE
RIVERSIDE NATIONAL CEMETERY
March Field
Arnold Heights
West March
Val Verde
Perris
PERRIS VALLEY
MORENO
NUEVO
SAN JACINTO
PERRIS
MASTER PLAN BOUNDARY
LINE B-1
LINE B-2
LINE B-3
LINE C
LINE D
LINE E
LINE F
LINE G
LINE H
LINE J
LINE K
LINE L
LINE M
LINE N
LINE O
LINE P
LINE R
LINE S
LINE U
LINE A-A
LINE A-B
LINE A-C
LINE A-D
LINE A-E
LINE A-F
LINE A-G
LINE A-H
LINE A-J
LINE A-K
LINE A-L
LINE A-M
LINE A-N
LINE A-O
LINE A-P
LINE A-Q
LINE A-R
LINE A-S
LINE A-T
LAT. B-1
LAT. B-2
LAT. B-2.1
LAT. B-2.2
LAT. B-3
LAT. B-3.1
LAT. B-3.2
LAT. B-3.3
LAT. B-5
LAT. B-5.1
LAT. B-6
LAT. B-6.1
LAT. B-7
LAT. B-7.1
LAT. B-7.2
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LAT. B-10
LAT. B-11
LAT. B-12
LAT. E-1
LAT. E-2
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LAT. J-9
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LAT. K-21
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LAT. K-23
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LAT. L-1
LAT. M-1
LAT. M-2
LAT. M-2.1
LAT. M-3
LAT. N-1
LAT. N-2
LAT. P-1
LAT. P-2
LAT. P-3
LAT. P-4
LAT. P-5
LAT. Q-1
LAT. Q-2
LAT. Q-3
LAT. T-1
LAT. T-2
LAT. V-1
LAT. V-1A
LAT. V-2
LAT. V-3
LAT. V-4
LAT. V-5
EXIST. METZ DETENTION BASIN
SEATON BASIN
RAMONA EXPRESSWAY
ALESSANDRO BLVD
CACTUS AVE
ESCHSCHOLTZIA AVENUE
DELPHINIUM AVE
IRIS AVE
FILAREE AVE
CITRUS AVE
GRANT
BRODIAEA
COTTONWOOD
VAN BUREN BOULEVARD
MARKHAM STREET
MARTIN STREET
ALESSANDRO
PERRIS
SAN JACINTO
FUTURE FACILITIES' DRAINAGE BOUNDARIES
8K3
1/2

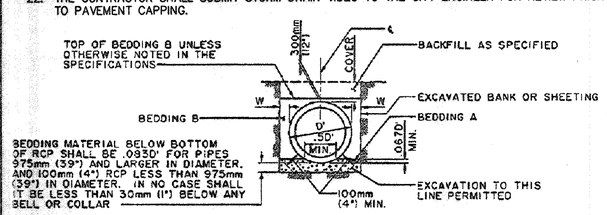
LATERAL E-11 CONSTRUCTION DRAWINGS

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

GENERAL NOTES

1. THE CONTRACTOR SHALL CONSTRUCT THE FLOOD CONTROL IMPROVEMENTS SHOWN ON THE DRAWINGS IN CONFORMANCE WITH THE REQUIREMENTS OF THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT'S M.O.U. STANDARD SPECIFICATIONS DATED SEPTEMBER 1984, AND DESIGN MANUAL STANDARD DRAWINGS DATED JULY 2002.
2. IF AN ENCROACHMENT PERMIT IS REQUIRED FROM RIVERSIDE COUNTY FLOOD CONTROL. CONTACT ED LOTZ AT 951/955-1266. AFTER THE PERMIT IS ISSUED THE DISTRICT MUST BE NOTIFIED ONE WEEK PRIOR TO CONSTRUCTION.
3. CONSTRUCTION INSPECTION WILL BE PERFORMED BY RIVERSIDE COUNTY FLOOD CONTROL. CONTACT HENRY OLIVO AT 951/955-1288. THE DISTRICT MUST BE NOTIFIED TWENTY DAYS (20) PRIOR TO CONSTRUCTION.
4. ALL STATIONING REFERS TO CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
5. STATIONING FOR LATERALS AND CONNECTOR PIPE REFER TO THE CENTERLINE INTERSECTION STATIONS.
6. FORTY-EIGHT HOURS BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT 1-800-227-2600.
7. ALL ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF BASED ON U.S.C. & G.S DATUM.
8. ALL CROSS SECTIONS ARE TAKEN LOOKING DOWNSTREAM.
9. ELEVATIONS OF UTILITIES ARE APPROXIMATE UNLESS OTHERWISE NOTED.
10. OPENINGS RESULTING FROM THE CUTTING OR PARTIAL REMOVAL OF EXISTING CULVERTS, PIPES OR SIMILAR STRUCTURES TO BE ABANDONED SHALL BE SEALED WITH 6" OF CLASS "B" CONCRETE.
11. PIPE CONNECTED TO THE MAINLINE PIPE SHALL CONFORM TO JUNCTION STRUCTURE NO. 4 (JS 229) UNLESS OTHERWISE NOTED.
12. PIPE BEDDING SHALL CONFORM TO RCFC&WCD STD. DWG. NO. M815 EXCEPT FOR COVER <2 FEET. FOR COVER <2 FEET, CONCRETE SLURRY (2000 PSI - 2 SACK) SHALL BE USED. THE ENTIRE TRENCH SHALL BE SLURRY EXTENDING 4 INCHES MINIMUM AND 12 INCHES MAXIMUM ABOVE THE TOP OF PIPE.
13. BH-1 INDICATES SOIL BORING LOCATIONS BASED ON THE SOILS REPORT DATED _____. LOCATIONS SHOWN ARE APPROXIMATE.

    "V" IS THE DEPTH OF CATCH BASINS MEASURED FROM THE TOP OF CURB TO INVERT OF CONNECTOR PIPE.
15. CATCH BASINS SHALL BE LOCATED SO THAT LOCAL DEPRESSION SHALL BEGIN AT EXISTING CURB RETURN JOINT, UNLESS SPECIFIED.
16. ALL CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS AND OTHER EXISTING IMPROVEMENTS TO BE RECONSTRUCTED IN KIND AND AT THE SAME ELEVATION AND LOCATION AS THE EXISTING IMPROVEMENTS UNLESS OTHERWISE NOTED.
17. STANDARD DRAWINGS CALLED FOR ON THE PLAN AND PROFILE SHALL CONFORM TO DISTRICT STANDARD DRAWINGS UNLESS NOTED OTHERWISE.
18. THE CONTRACTOR IS REQUIRED TO CALL ALL UTILITY AGENCIES REGARDING TEMPORARY SHORING AND SUPPORT REQUIREMENTS FOR THE VARIOUS UTILITY LINES SHOWN ON THESE PLANS.
19. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DRAINAGE CONTROL SHOULD BE PROVIDED TO PREVENT PONDING WATER AND DAMAGE TO ADJACENT PROPERTIES.
20. APPROVAL OF THESE PLANS BY THE RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT DOES NOT RELIEVE THE DEVELOPER'S ENGINEER OF RESPONSIBILITY FOR THE ENGINEERING DESIGN. IF FIELD CHANGES ARE REQUIRED, IT WILL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER TO MAKE THE NECESSARY CORRECTIONS.
21. THE CONTRACTOR OR DEVELOPER SHALL SECURE ALL REQUIRED ENCROACHMENT AND/OR STATE AND FEDERAL REGULATORY PERMITS PRIOR TO THE COMMENCEMENT OF ANY WORK.
22. THE CONTRACTOR SHALL SUBMIT STORM DRAIN VIDEO TO THE CITY ENGINEER FOR REVIEW PRIOR TO PAVEMENT CAPPING.



CASE 3
REINFORCED CONCRETE PIPE

NOTES:

CASE 3 BEDDING & BACKFILL AROUND RCP (LOAD FACTOR 1.8)

(a) W AT SPRING LINE SHALL NOT BE LESS THAN THE FOLLOWING: 150mm (6") FOR RCP 1500mm (60") OR LESS IN DIAMETER. 250mm (10") FOR RCP 1575mm (63") TO 2700mm (108") INCLUSIVE IN DIAMETER, AND 300mm (12") FOR PIPE LARGER THAN 2700mm (108") IN DIAMETER. THESE DIMENSIONS MAY INCLUDE THE THICKNESS OF ANY SHEETING.
(b) WHERE COVER IS 3m (10'-0") OR LESS, W MEASURED AT THE TOP OF THE RCP MAY BE ANY DIMENSION GREATER THAN THE ABOVE SPECIFIED MINIMUM, UNLESS OTHERWISE SPECIFIED ON THE PROJECT DRAWINGS.
(c) WHERE COVER IS GREATER THAN 3m (10'-0"), W MEASURED AT TOP OF PIPE SHALL NOT BE GREATER THAN 250mm (10") FOR RCP 2700mm (108") IN DIAMETER OR LESS, OR 300mm (12") FOR RCP OVER 2700mm (108") IN DIAMETER UNLESS THE CONTRACTOR AT HIS OWN EXPENSE PROVIDES CASE 1 BEDDING OR STRONGER RCP. THESE DIMENSIONS INCLUDE THE THICKNESS OF ANY SHEETING.
(d) SCREED BEDDING A TO FIT CURVATURE AND GRADE OF RCP. TYPE OF SCREED AND THE METHOD OF USE TO BE APPROVED BY THE ENGINEER.

TYPICAL TRENCH PIPE BEDDING (72)
N.T.S.

Don't Dig...Until You Call U.S.A. Toll Free
1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BASIS OF BEARINGS:

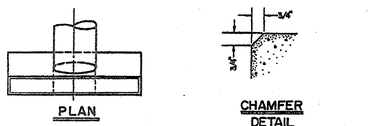
THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE OF PERRIS BOULEVARD BEING N 00°34'42" E AS PER PARCEL MAP NO. 13910 P.M.B. 72 / 78-79, IN THE CITY OF PERRIS, RECORDS OF COUNTY OF RIVERSIDE, STATE OF CALIFORNIA.

ABBREVIATIONS:

A.B.	AGGREGATE BASE	L.S.	LANDSCAPING
A.C.	ASPHALT CONCRETE	L.P.	LOW POINT
ARCH.	ARCHITECTURAL	M.H.	MANHOLE
B.C.R.	BEGIN OF CURB RETURN	N.G.	NATURAL GRADE
B.W.	BACK OF WALK	P.V.C.	POLYVINYLCHLORIDE
B.O.P.	BOTTOM OF PIPE	P.P.	POWER POLE
B.O.W.	BOTTOM OF WALL	℄	PROPERTY LINE
BLDG	BUILDING	PKWY DRAIN	PARKWAY DRAIN
C.L.F.	CHAIN LINK FENCE	R/W	RIGHT OF WAY
C.I.P.	CAST IRON PIPE	R	RATE OF GRADE
C.B.	CATCH BASIN	R.D.	ROOF DRAIN
℄	CENTERLINE	R.C.B.	REINFORCED CONCRETE BOX
C.F.	CURB FACE	R.C.P.	REINFORCED CONCRETE PIPE
C.M.B.	CRUSHED MISC. BASE	ST.LT.	STREET LIGHT
C.L.F.	CHAIN LINK FENCE	S =	SLOPE
CONC.	CONCRETE	S.D.	STORM DRAIN
C.D.F.	CONTROL DENSITY FILL	S.F.	SQUARE FEET
E.C.R.	END OF CURB RETURN	S.W.	STEM WALL
(0.00)	EXISTING ELEVATION	T.C.	TOP OF CURB
E.P.	EDGE OF PAVEMENT	T.S.	TOP OF CONCRETE SLAB
EXIST.	EXISTING	T.O.P.	TOP OF PIPE
F.H.	FIRE HYDRANT	T.F.	TOP OF FOOTING
F.G.	FINISH GRADE	T.W.	TOP OF WALL
F.S.	FINISH SURFACE	T.R.	TOP OF RAIL
F.F.	FINISH FLOOR	T.G.	TOP OF GRATE
F.L.	FLOW LINE	TOP	TOP OF SLOPE
G.B.	GRADE BREAK	TOE	TOE OF SLOPE
H.C.	HANDICAP	T.B.	TOP OF BERM
H	HEIGHT OF RETAINING	TRANS PAD	TRANSFORMER PAD
H.P.	HIGH POINT		
INV.	INVERT		

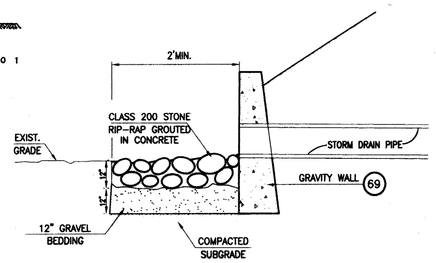
LEGEND

- EXIST. FIRE HYDRANT
- EXIST. WATER METER
- EXIST. WATER VALVE
- EXIST. GAS VALVE
- GUY WIRE/DEADMAN
- EXIST. POWER POLE
- EXIST. TRAFFIC SIGNAL
- EXIST. CROSSWALK SIGNAL
- STREET LIGHTING BOX
- EXIST. STREET LIGHT
- EXIST. STORMDRAIN MANHOLE
- EXIST. SEWER MANHOLE
- EXIST. VAULT
- EXIST. SIGN
- TREE
- EXIST. TRAFFIC SIGNAL BOX
- EXIST. GAS METER
- EXIST. MAIL BOX
- EXIST. TELEPHONE MANHOLE
- EXIST. GRADE ELEVATION
- DAYLIGHT LINE
- EXIST. CABLE TV CONDUIT
- EXIST. EDGE OF A.C. PAVEMENT
- EXIST. CURB AND GUTTER
- EXIST. SANITARY SEWER
- EXIST. STORM DRAIN
- EXIST. GAS LINE
- EXIST. TELEPHONE CONDUIT
- EXIST. WATER LINE
- EXIST. CONTOUR
- NEW PIPE LINE
- PROPERTY LINE
- NEW FIRE HYDRANT
- NEW WATER METER
- NEW BACKFLOW PREVENTER
- NEW WATER VALVE
- NEW THRUST BLOCK
- NEW SEWER MANHOLE
- NEW SEWER CLEAN OUT
- NEW CATCH BASIN
- (3) CONSTRUCTION NOTES BUBBLE

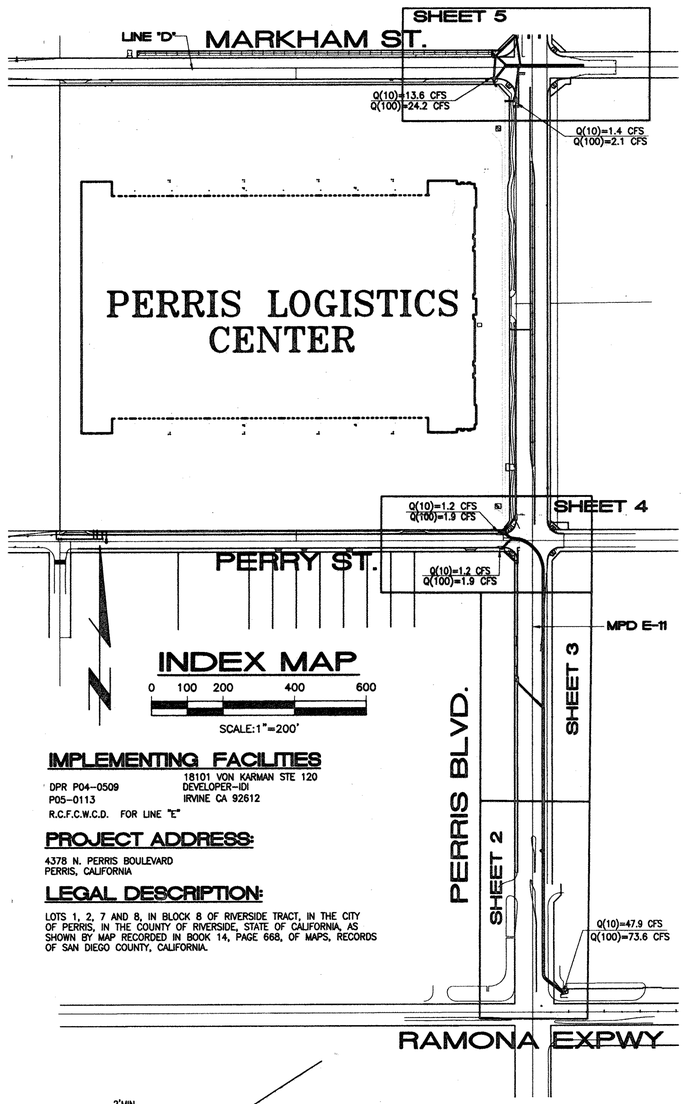


NOTES:
1. ALL CONCRETE SHALL BE CLASS B CONCRETE.
2. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
3. DESIGN FEATURES SHALL CONTROL THE INSTALLATION OF THIS HEADWALL.

GRAVITY HEADWALL DETAIL (69)
N.T.S.



GROUTED RIP-RAP DETAIL (74)
NTS



IMPLEMENTING FACILITIES

DPR P04-0509
P05-0113
R.C.F.C.W.C.D. FOR LINE "E"

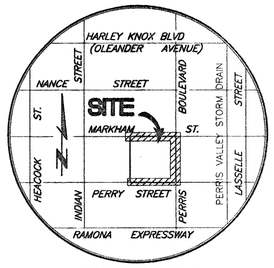
18101 VON KARMAN STE 120
DEVELOPER-IDI
IRVINE CA 92612

PROJECT ADDRESS:

4378 N. PERRIS BOULEVARD
PERRIS, CALIFORNIA

LEGAL DESCRIPTION:

LOTS 1, 2, 7 AND 8, IN BLOCK 8 OF RIVERSIDE TRACT, IN THE CITY OF PERRIS, IN THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS SHOWN BY MAP RECORDED IN BOOK 14, PAGE 668, OF MAPS, RECORDS OF SAN DIEGO COUNTY, CALIFORNIA.



VICINITY MAP
N.T.S.
SECTION 6, TOWNSHIP 4S, RANGE 3W

STORM DRAIN CONSTRUCTION NOTES

(50) REMOVE EXISTING TRANSITION AND JUNCTION STRUCTURE
(51) CONSTRUCT CATCH BASIN NO. 1 PER R.C.F.C. & W.C.D. STD. DRAWING CB100, W=7.00'.
(52) CONSTRUCT LOCAL DEPRESSION PER R.C.T.D. STD. DRAWING 311, CASE PER PLAN.
(53) CONSTRUCT CONCRETE COLLAR PER R.C.F.C. & W.C.D. STD DWG. M803.
(54) CONSTRUCT MANHOLE NO.1 PER R.C.F.C. & W.C.D. STD. DWG. MH251.
(55) CONSTRUCT MANHOLE NO.2 PER R.C.F.C. & W.C.D. STD. DWG. MH252.
(56) CONSTRUCT MANHOLE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. MH254.
(57) INSTALL 48" R.C.P. 1350D.
(58) INSTALL 18" R.C.P. CLASS IV.
(59) INSTALL 24" R.C.P. CLASS IV.
(60) INSTALL 30" R.C.P. 2000D.
(61) INSTALL 42" R.C.P. 1350D.
(62) INSTALL 54" R.C.P. 1350D.
(63) CONSTRUCT SPECIAL CONNECTION TO CATCH BASIN PER R.C.F.C. & W.C.D. STD. DWG. CB109.
(64) INSTALL 3 X 10" DUCTILE IRON PIPE.
(65) CONSTRUCT TRANSITION STRUCTURE NO.3 PER R.C.F.C. & W.C.D. STD. DWG. TS303.
(67) CONSTRUCT FALSE BOTTOM IN CATCH BASIN PER DETAIL ON SHT. NO. 5.
(68) CONSTRUCT CONCRETE BULKHEAD AT END OF PIPE PER R.C.F.C. & W.C.D. STD. DWG. M816.
(69) CONSTRUCT HEADWALL PER DETAIL ON SHT. NO. 1.
(70) RELOCATED WATER MAIN PER E.M.W.D. PLANS, PIPE SIZE PER PLAN.
(71) FIELD VERIFY INVERT ELEV. OF EXISTING 2" GAS LINE, RELOCATE IF REQUIRED.
(72) SAWCUT, REMOVE AND REPLACE EXISTING A.C. PAVEMENT WITH 4"MIN. A.C. OVER 12"MIN. A.B. (PER STREET PLANS) CASE 3 PIPE BEDDING PER L.A. COUNTY DPW STD. 3080-2 AND TRENCH BACKFILL CASE 2 PER RIVERSIDE COUNTY ROAD STD. 818.
(73) REMOVE AND REPLACE EXISTING CONCRETE GUTTER AND SIDEWALK.
(74) CONSTRUCT RIPRAP PER DETAIL ON SHT. NO. 1.
(75) INSTALL 18" HDPE PIPE.
(76) CONSTRUCT JUNCTION STRUCTURE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. JS229.
(77) REMOVE EXIST. 24" RCP AND CONSTRUCT CONCRETE SEAL PER SPPWC STD. 306-2.
(78) CONSTRUCT TRANSITION STRUCTURE PER R.C.F.C. & W.C.D. STD. DWG. CH329
(79) CONSTRUCT 24" CMP
(80) CONSTRUCT JUNCTION STRUCTURE No.6 PER R.C.F.C. & W.C.D. STD. DWG. JS 231
(81) INSTALL 12" R.C.P. CLASS IV.
(82) INSTALL 12" HDPE PIPE.
(83) INSTALL 36" R.C.P. 1350D.
(84) FILL PIPE OR CATCH BASIN WITH CLEAN SAND
(85) CONSTRUCT MANHOLE NO. 2 PER R.C.F.C. & W.C.D. STD. DWG. MH252, MODIFIED PER DETAIL ON SHT. NO. 4.
(86) REMOVE AND RE-PLANT EXISTING PALM TREE
(87) RELOCATE EXISTING TELEPHONE CONDUIT/BOX PER TELEPHONE COMPANY

BENCH MARK

COUNTY OF RIVERSIDE BENCHMARK NO. "M-31"
COUNTY OF RIVERSIDE BENCHMARK - 3 1/4" ALUMINUM DISK IN BIKED M-31, LOCATED FLUSH AT THE SOUTH WEST CORNER OF BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE CROSSING OF PERRIS BLVD. AND RIV. CO. F. 30D/ CONTROL CHANNEL (PERRIS LATERAL "A"), 43FT. WEST OF CENTERLINE OF PERRIS BLVD. AND 4.5 FT. EAST OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)
ELEVATION = 1474.674' (NGVD '29 / 1996 ADJ.)

REF.	DESCRIPTION	ENGINEER APPR.	ENGINEER DATE	RCFC/ APPR.	RCFC/ DATE
1	REVISED CONNECTION AT THE CHANNEL, REVISED SLOPE, SUPERSEDED APPROVED S.D. PLANS DATED 8/19/11				

DESIGNED BY: B.W.
DRAWN BY: B.W./E.T.
DATE DRAWN: 03-17-2011

APPROVED BY:
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173
HAIDOOK AGHAIAN RCE NO. 43293 Date: 10/18/11
REGISTERED PROFESSIONAL ENGINEER HAIDOOK L AGHAIAN R.C.E. NO. 43293 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA

CITY OF PERRIS
APPROVED BY:
CITY ENGINEER DATE: 10-19-11
RECOMMENDED DATE:

CITY OF PERRIS
MDP E-11
TITLE SHEET

CITY OF PERRIS
FILE NO. P8-821
PROJECT NO. 0-0-0000
DRAWING NO. W-XYZ
SHEET NO. 1 OF 6

Last Update: 10/18/11
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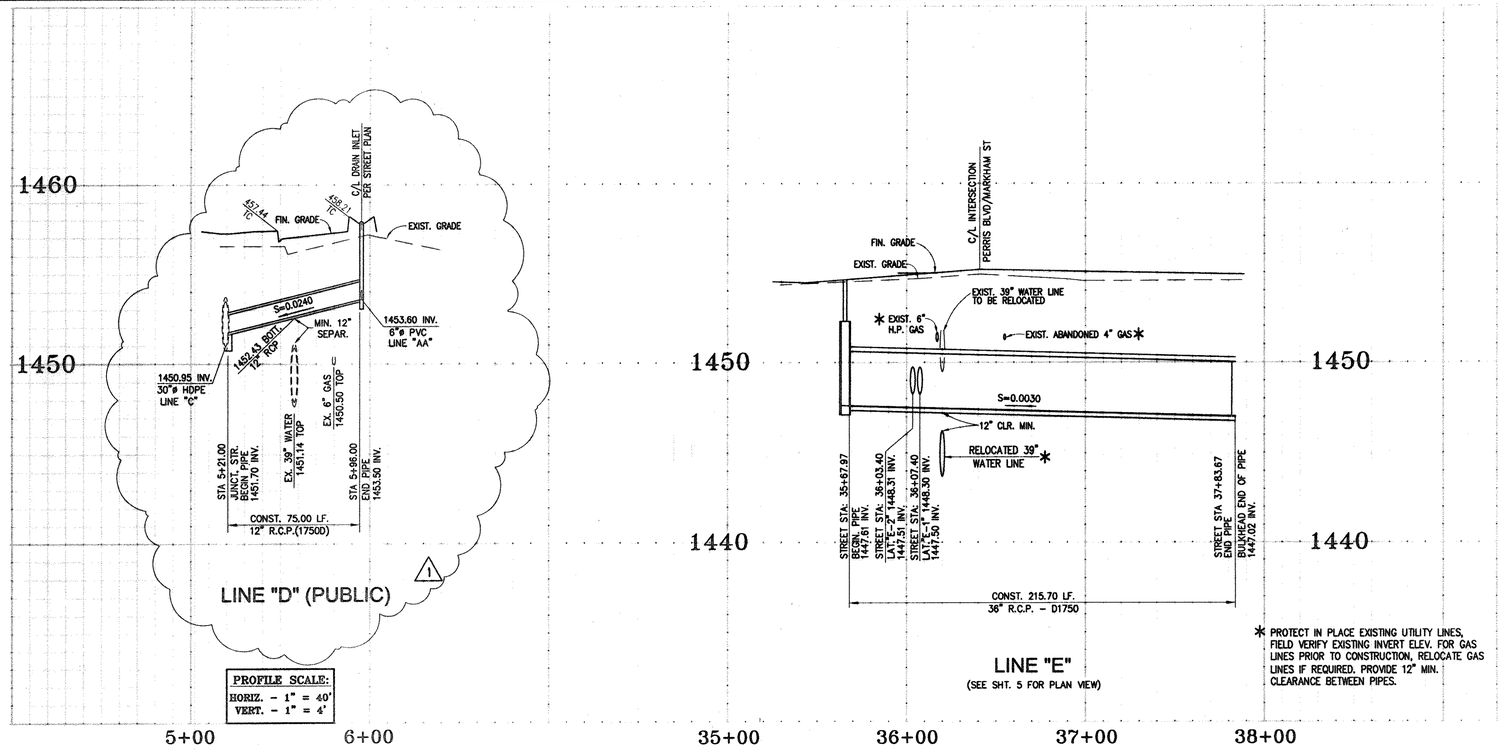

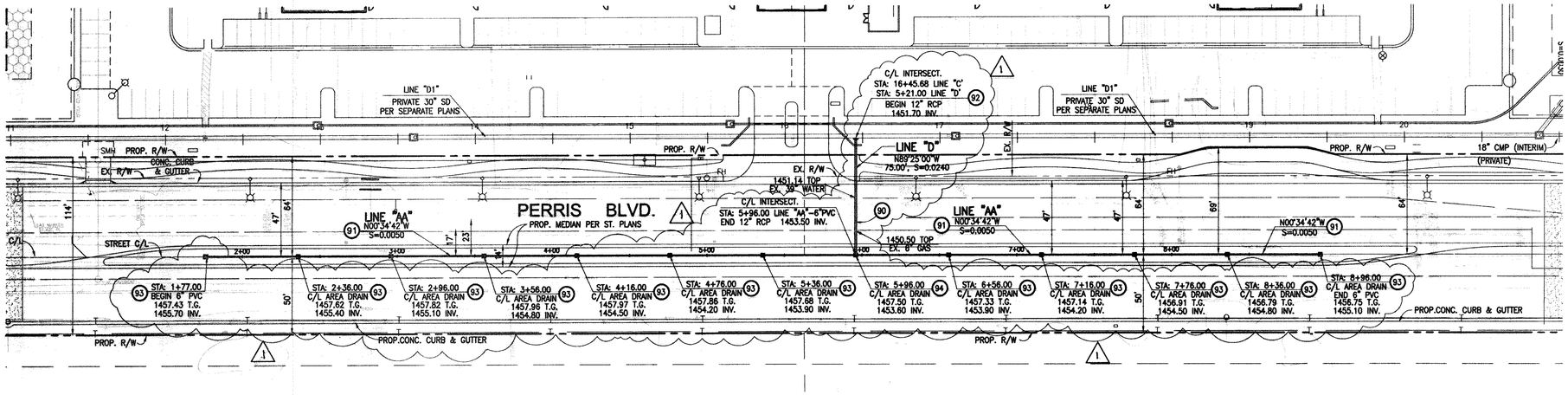

STORM DRAIN CONSTRUCTION NOTES

(72) SAWCUT, REMOVE AND REPLACE EXISTING A.C. PAVEMENT WITH 4"MIN. A.C. OVER 12"MIN. A.B. (PER STREET PLANS) CASE 3 PIPE BEDDING PER L.A. COUNTY DPW STD. 3080-2 AND TRENCH BACKFILL CASE 2 PER RIVERSIDE COUNTY ROAD STD. 818.

(91) INSTALL 6" PVC (SCH.40)

(92) CONSTRUCT JUNCTION STRUCTURE No.4 PER R.C.F.C. & W.C.D. STD. DWG. JS 229 CASE-1

(93) INSTALL 9"X9" CATCH BASIN PER NDS PART NO. 932 WITH 9"X9" ATRIUM GRATE PART NO. 991

(94) INSTALL 18"X18" VARIABLE DEPTH CATCH BASIN PER BROOKS PRODUCTS DWG. NO. 1818 WITH 1818 PARKWAY STEEL GRATE

0 20 40 80 120

SCALE:1"=40'

Don't Dig...Until You Call U.S.A. Toll Free 1-800-227-2600 for the location of buried utility lines. Don't disrupt vital services.

TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK

COUNTY OF RIVERSIDE BENCHMARK NO. "M-31"

COUNTY OF RIVERSIDE BENCHMARK - 3 1/4" ALUMINUM DISK MARKED M-31, LOCATED FLUSH AT THE SOUTH WEST CORNER OF BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE CROSSING OF PERRIS BLVD. AND RM. CO. FLOOD CONTROL CHANNEL (PERRIS LATERAL "A"). 43FT. WEST OF CENTERLINE OF PERRIS BLVD. AND 4.5 FT. EAST OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)

ELEVATION = 1474.674' (NGVD '29 / 1996 ADJ.)

REF.	DESCRIPTION	APPR.	DATE	APPR.	DATE
1	REVISED CONNECTION AT THE CHANNEL, REVISED SLOPE, SUPERSEDED APPROVED S.D. PLANS DATED 8/19/11 MOVED 12" RCP LATERAL.				

REVISIONS | ENGINEER | RCFC/

DESIGNED BY: B.W.
DRAWN BY: B.W./E.T.
DATE DRAWN: 03-17-2011

APPROVED BY:
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173
HAIDOOK AGHAIAN RCE NO. 43293 Date: 10/18/11

REGISTERED PROFESSIONAL ENGINEER HAIDOOK I. AGHAIAN R.C.E. NO. 43293 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA

CITY OF PERRIS APPROVED BY:
CITY ENGINEER DATE: 10-19-11
RECOMMENDED DATE:

CITY OF PERRIS
STORM DRAIN IMPROVEMENT PLANS
PERRIS LOGISTIC CENTER DPR-05-0192
LINE "AA"
STA. 1+00.00 TO STA. 8+96.00

CITY OF PERRIS
FILE NO. P8-821
PROJECT NO. 0-0-0000
DRAWING NO. W-XYZ
SHEET NO. 6 OF 6

Last Update: 10/18/11
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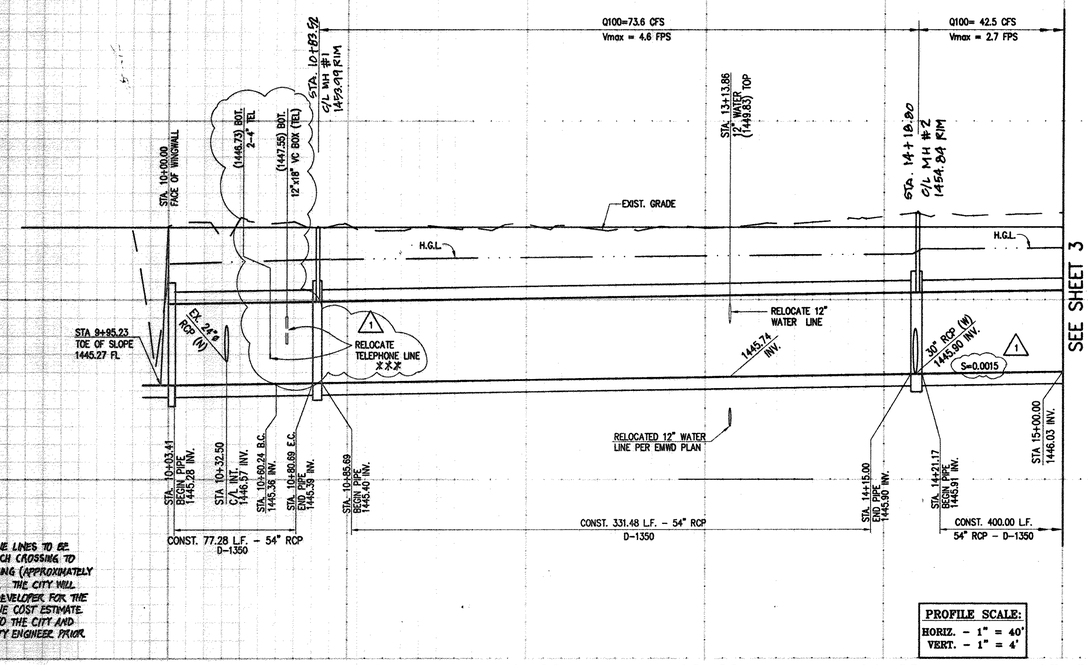
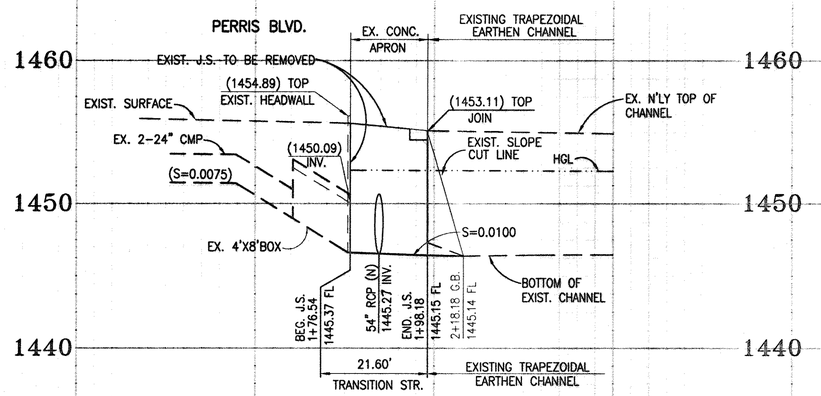


XXX CONFLICTING TELEPHONE LINES TO BE LOWERED FROM 54-INCH CROSSING TO FUTURE LINE E CROSSING (APPROXIMATELY 100 FEET SOUTHERLY). THE CITY WILL REIMBURSE VERIZON/DEVELOPER FOR THE ADDITIONAL WORK. THE COST ESTIMATE SHALL BE PROVIDED TO THE CITY AND APPROVED BY THE CITY ENGINEER PRIOR TO START OF WORK.

PROFILE SCALE:
HORIZ. - 1" = 40'
VERT. - 1" = 4'

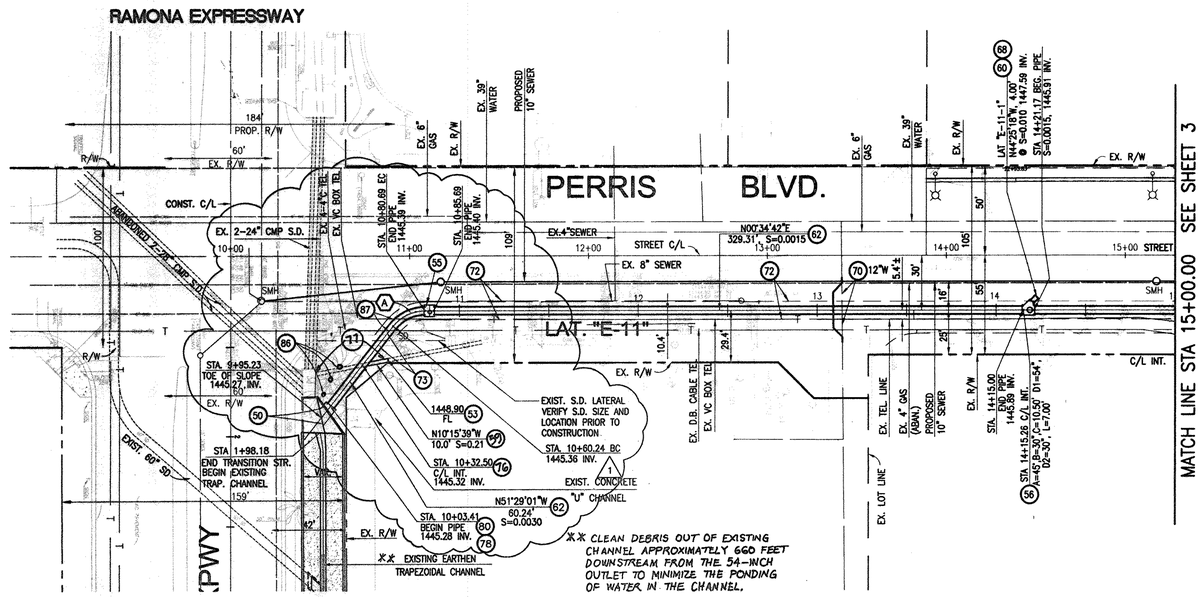
* PROTECT IN PLACE EXISTING UTILITY LINES, FIELD VERIFY EXISTING INVERT ELEV. FOR GAS LINES PRIOR TO CONSTRUCTION, RELOCATE GAS LINES IF REQUIRED. PROVIDE 12" MIN. CLEARANCE BETWEEN PIPES.



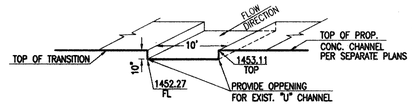
TRANSITION STRUCTURE PROFILE

PROFILE SCALE:
HORIZ. - 1" = 20'
VERT. - 1" = 5'

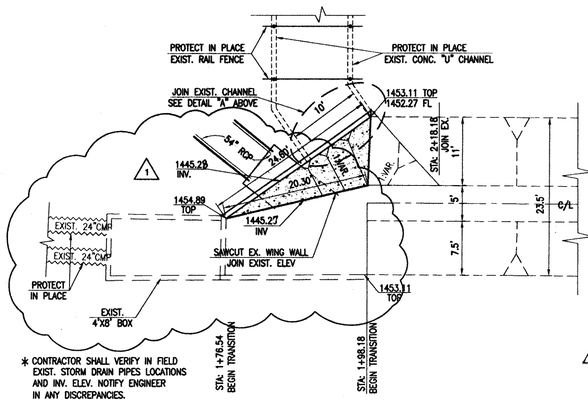
NOTE:
CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING OR PARALLELING THE CHANNEL UNLESS OTHERWISE NOTED.



XX CLEAN DEBRIS OUT OF EXISTING CHANNEL APPROXIMATELY 660 FEET DOWNSTREAM FROM THE 54-INCH OUTLET TO MINIMIZE THE PONDING OF WATER IN THE CHANNEL.



DETAIL "A"
EXIST. "U" CHANNEL SECTION
SCALE 1"=10'



* CONTRACTOR SHALL VERIFY IN FIELD EXIST. STORM DRAIN PIPES LOCATIONS AND INV. ELEV. NOTIFY ENGINEER IN ANY DISCREPANCIES.

STA. 1+76.54 BEGIN TRANSITION

STA. 1+98.18 BEGIN TRANSITION

JUNCTION STRUCTURE DETAIL
SCALE 1"=10'

STORM DRAIN CONSTRUCTION NOTES

(50) REMOVE EXISTING TRANSITION AND JUNCTION STRUCTURE
(51) CONSTRUCT CATCH BASIN NO. 1 PER R.C.F.C. & W.C.D. STD. DRAWING CB100, W=7.00'.
(52) CONSTRUCT LOCAL DEPRESSION PER R.C.T.D. STD. DRAWING 311, CASE PER PLAN.
(53) CONSTRUCT CONCRETE COLLAR PER R.C.F.C. & W.C.D. STD DWG. M803.
(54) CONSTRUCT MANHOLE NO.1 PER R.C.F.C. & W.C.D. STD. DWG. MH251.
(55) CONSTRUCT MANHOLE NO.2 PER R.C.F.C. & W.C.D. STD. DWG. MH252.
(56) CONSTRUCT MANHOLE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. MH254.
(57) INSTALL 48" R.C.P. 1350D.
(58) INSTALL 18" R.C.P. CLASS IV.
(59) INSTALL 24" R.C.P. CLASS IV.
(60) INSTALL 30" R.C.P. 2000D.
(61) INSTALL 42" R.C.P. 1350D.
(62) INSTALL 54" R.C.P. 1350D.
(63) CONSTRUCT SPECIAL CONNECTION TO CATCH BASIN PER R.C.F.C. & W.C.D. STD. DWG. CB109.
(64) INSTALL 3 X 10" DUCTILE IRON PIPE.
(65) CONSTRUCT TRANSITION STRUCTURE NO.3 PER R.C.F.C. & W.C.D. STD. DWG. TS303.
(67) CONSTRUCT FALSE BOTTOM IN CATCH BASIN PER DETAIL ON SHT. NO. 5.
(68) CONSTRUCT CONCRETE BULKHEAD AT END OF PIPE PER R.C.F.C. & W.C.D. STD. DWG. M816.
(69) CONSTRUCT HEADWALL PER DETAIL ON SHT. NO. 1.
(70) RELOCATED WATER MAIN PER E.M.W.D. PLANS, PIPE SIZE PER PLAN.
(71) FIELD VERIFY INVERT ELEV. OF EXISTING 2" GAS LINE, RELOCATE IF REQUIRED.
(72) SAWCUT, REMOVE AND REPLACE EXISTING A.C. PAVEMENT WITH 4"MIN. A.C. OVER 12"MIN. A.B. (PER STREET PLANS) CASE 3 PIPE BEDDING PER L.A. COUNTY DPW STD. 3080-2 AND TRENCH BACKFILL CASE 2 PER RIVERSIDE COUNTY ROAD STD. 818.
(73) REMOVE AND REPLACE EXISTING CONCRETE GUTTER AND SIDEWALK.
(74) CONSTRUCT RIPRAP PER DETAIL ON SHT. NO. 1.
(75) INSTALL 18" HDPE PIPE.
(76) CONSTRUCT JUNCTION STRUCTURE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. JS229.
(77) REMOVE EXIST. 24" RCP AND CONSTRUCT CONCRETE SEAL PER SPPWC STD. 381-2.
(78) CONSTRUCT TRANSITION STRUCTURE PER R.C.F.C. & W.C.D. STD. DWG. CH329
(79) CONSTRUCT 24" CMP
(80) CONSTRUCT JUNCTION STRUCTURE No.6 PER R.C.F.C. & W.C.D. STD. DWG. JS 231
(81) INSTALL 12" R.C.P. CLASS IV.
(82) INSTALL 12" HDPE PIPE.
(83) INSTALL 36" R.C.P. 1350D.
(84) FILL PIPE OR CATCH BASIN WITH CLEAN SAND
(85) CONSTRUCT MANHOLE NO. 2 PER R.C.F.C. & W.C.D. STD. DWG. MH252, MODIFIED PER DETAIL ON SHT. NO. 4.
(86) REMOVE AND RE-PLANT EXISTING PALM TREE
(87) RELOCATE EXISTING TELEPHONE CONDUIT/BOX PER TELEPHONE COMPANY

CURVE DATA				
	Δ	R	T	L
A	52°03'43"	22.50'	10.99	20.44

NOTE:
CONTRACTOR TO PROVIDE FULLTIME ACCESS TO ALL INTERSECTIONS AND DRIVEWAYS AND SUBMIT TRAFFIC CONTROL PLANS.

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

Don't Dig...Until You Call U.S.A. Toll Free
1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
COUNTY OF RIVERSIDE BENCHMARK NO. "M-31"
COUNTY OF RIVERSIDE BENCHMARK - 3 1/4" ALUMINUM DISK MARKED "M-31", LOCATED FLUSH AT THE SOUTH WEST CORNER OF BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE CROSSING OF PERRIS BLVD. AND RIV. CO. FLOOD CONTROL CHANNEL (PERRIS LATERAL 'E-1'), 43'FT. WEST OF CENTERLINE OF PERRIS BLVD. AND 4.5 FT. EAST OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)
ELEVATION = 1474.674' (NGVD '29 / 1996 ADJ.)

REF.	DESCRIPTION	ENGINEER APPR.	ENGINEER DATE	RCFC/ APPR.	RCFC/ DATE
1	REVISED CONNECTION AT THE CHANNEL, REVISED SLOPE, SUPERSEDED APPROVED S.D. PLANS DATED 8/19/11				

DESIGNED BY: B.W.
DRAWN BY: B.W./E.T.
DATE DRAWN: 03-17-2011

APPROVED BY:
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH:(714)521-4811 FAX(714)521-4173
HAIDOOK AGHAIAN RCE NO. 43293 Date: 10/18/11

REGISTERED PROFESSIONAL ENGINEER HAIDOOK T. AGHAIAN R.C.E. NO. 43293 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA

CITY OF PERRIS
APPROVED BY:
CITY ENGINEER DATE: 10-19-11
RECOMMENDED DATE:

CITY OF PERRIS
FILE NO. P8-821

CITY OF PERRIS
STORM DRAIN IMPROVEMENT PLANS
PERRIS LOGISTIC CENTER DPR-05-0192
LATERAL MDP E-11
STA. 10+00.00 TO STA. 15+00.00

PROJECT NO. 0-0-0000
DRAWING NO. W-XYZ
SHEET NO. 2 OF 6

P-494

Last Update: 10/18/11
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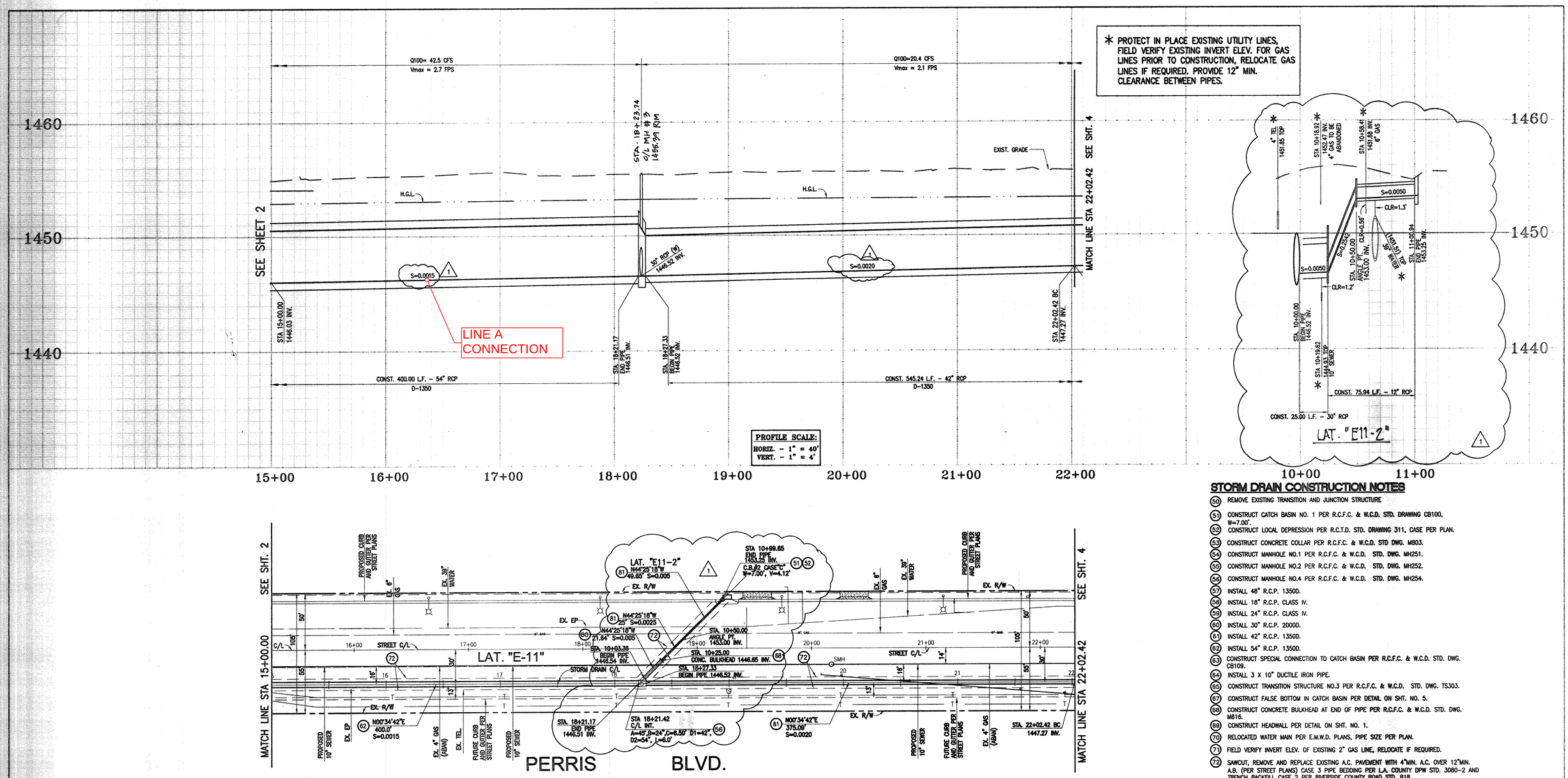

PROFILE SCALE:
HORIZ. - 1" = 40'
VERT. - 1" = 4'

* PROTECT IN PLACE EXISTING UTILITY LINES, FIELD VERIFY EXISTING INVERT ELEV. FOR GAS LINES PRIOR TO CONSTRUCTION, RELOCATE GAS LINES IF REQUIRED. PROVIDE 12" MIN. CLEARANCE BETWEEN PIPES.

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

STORM DRAIN CONSTRUCTION NOTES

(50) REMOVE EXISTING TRANSITION AND JUNCTION STRUCTURE
(51) CONSTRUCT CATCH BASIN NO. 1 PER R.C.F.C. & W.C.D. STD. DRAWING CB100, W=7.00'.
(52) CONSTRUCT LOCAL DEPRESSION PER R.C.T.D. STD. DRAWING 311, CASE PER PLAN.
(53) CONSTRUCT CONCRETE COLLAR PER R.C.F.C. & W.C.D. STD DWG. M803.
(54) CONSTRUCT MANHOLE NO.1 PER R.C.F.C. & W.C.D. STD. DWG. MH251.
(55) CONSTRUCT MANHOLE NO.2 PER R.C.F.C. & W.C.D. STD. DWG. MH252.
(56) CONSTRUCT MANHOLE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. MH254.
(57) INSTALL 48" R.C.P. 1350D.
(58) INSTALL 18" R.C.P. CLASS IV.
(59) INSTALL 24" R.C.P. CLASS IV.
(60) INSTALL 30" R.C.P. 2000D.
(61) INSTALL 42" R.C.P. 1350D.
(62) INSTALL 54" R.C.P. 1350D.
(63) CONSTRUCT SPECIAL CONNECTION TO CATCH BASIN PER R.C.F.C. & W.C.D. STD. DWG. CB109.
(64) INSTALL 3 X 10" DUCTILE IRON PIPE.
(65) CONSTRUCT TRANSITION STRUCTURE NO.3 PER R.C.F.C. & W.C.D. STD. DWG. TS303.
(67) CONSTRUCT FALSE BOTTOM IN CATCH BASIN PER DETAIL ON SHT. NO. 5.
(68) CONSTRUCT CONCRETE BULKHEAD AT END OF PIPE PER R.C.F.C. & W.C.D. STD. DWG. M816.
(69) CONSTRUCT HEADWALL PER DETAIL ON SHT. NO. 1.
(70) RELOCATED WATER MAIN PER E.M.W.D. PLANS, PIPE SIZE PER PLAN.
(71) FIELD VERIFY INVERT ELEV. OF EXISTING 2" GAS LINE, RELOCATE IF REQUIRED.
(72) SAWCUT, REMOVE AND REPLACE EXISTING A.C. PAVEMENT WITH 4"MIN. A.C. OVER 12"MIN. A.B. (PER STREET PLANS) CASE 3 PIPE BEDDING PER LA. COUNTY DPW STD. 3080-2 AND TRENCH BACKFILL CASE 2 PER RIVERSIDE COUNTY ROAD STD. 818.
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(75) INSTALL 18" HDPE PIPE.
(76) CONSTRUCT JUNCTION STRUCTURE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. JS229.
(77) REMOVE EXIST. 24" RCP AND CONSTRUCT CONCRETE SEAL PER RPPWC STD. 301-2.
(78) CONSTRUCT TRANSITION STRUCTURE PER R.C.F.C. & W.C.D. STD. DWG. CH329
(79) CONSTRUCT 24" CMP
(80) CONSTRUCT JUNCTION STRUCTURE No.6 PER R.C.F.C. & W.C.D. STD. DWG. JS 231
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(83) INSTALL 36" R.C.P. 1350D.
(84) FILL PIPE OR CATCH BASIN WITH CLEAN SAND
(85) CONSTRUCT MANHOLE NO. 2 PER R.C.F.C. & W.C.D. STD. DWG. MH252, MODIFIED PER DETAIL ON SHT. NO. 4.
(86) REMOVE AND RE-PLANT EXISTING PALM TREE
(87) RELOCATE EXISTING TELEPHONE CONDUIT/BOX PER TELEPHONE COMPANY

BENCH MARK
COUNTY OF RIVERSIDE BENCHMARK NO. "M-31"
COUNTY OF RIVERSIDE BENCHMARK - 3 1/4" ALUMINUM DISK MARKED M-31, LOCATED FLUSH AT THE SOUTH WEST CORNER OF BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE CROSSING OF PERRIS BLVD. AND RIV. CO. FLOOD CONTROL CHANNEL (PERRIS LATERAL "A"), 43FT. WEST OF CENTERLINE OF PERRIS BLVD AND 4.5 FT. EAST OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)
ELEVATION = 1474.674' (NGVD '29 / 1996 ADJ.)

REF.	DESCRIPTION	APPR.	DATE	APPR.	DATE
1	REVISED CONNECTION AT THE CHANNEL, REVISED SLOPE, SUPERSEDED APPROVED S.D. PLANS DATED 8/19/11				

REVISIONS | ENGINEER | RCFC/

DESIGNED BY: B.W.
DRAWN BY: B.W./E.T.
DATE DRAWN: 03-17-2011

APPROVED BY:
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173
HAIDOOK AGHAIAN Date: 10/18/11
RCE NO. 43293
REGISTERED PROFESSIONAL ENGINEER HAIDOOK L. AGHAIAN R.C.E. NO. 43293 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA

CITY OF PERRIS
APPROVED BY:
CITY ENGINEER DATE: 10-19-11
RECOMMENDED DATE:

CITY OF PERRIS
STORM DRAIN IMPROVEMENT PLANS
PERRIS LOGISTIC CENTER DPR-05-0192
LATERAL MDP E-11
STA. 15+00.00 TO STA. 22+02.42

CITY OF PERRIS
FILE NO. P8-821
PROJECT NO. 0-0-0000
DRAWING NO. W-XYZ
SHEET NO. 3 OF 6

P-941

Last Update: 10/18/11
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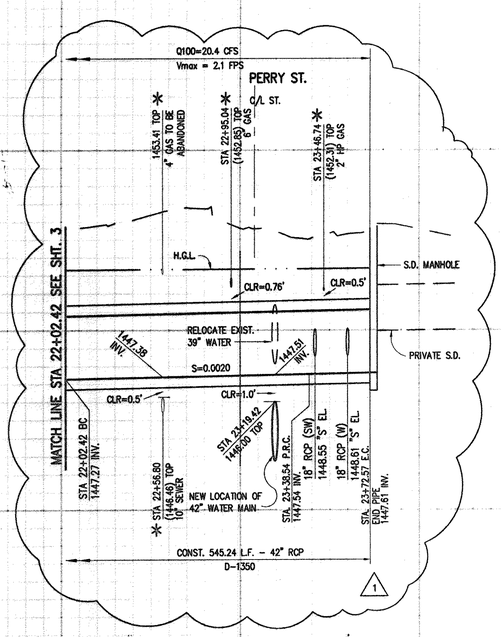
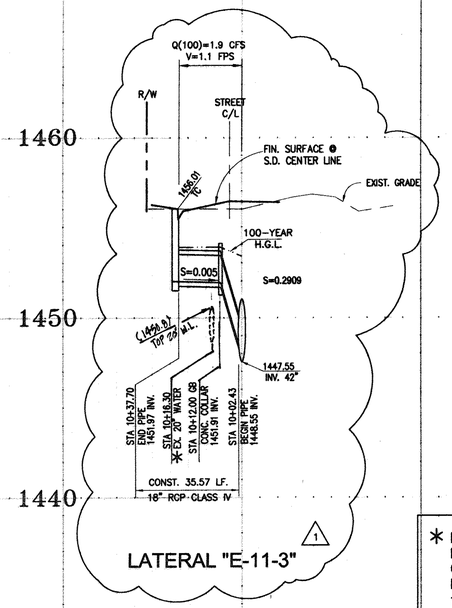
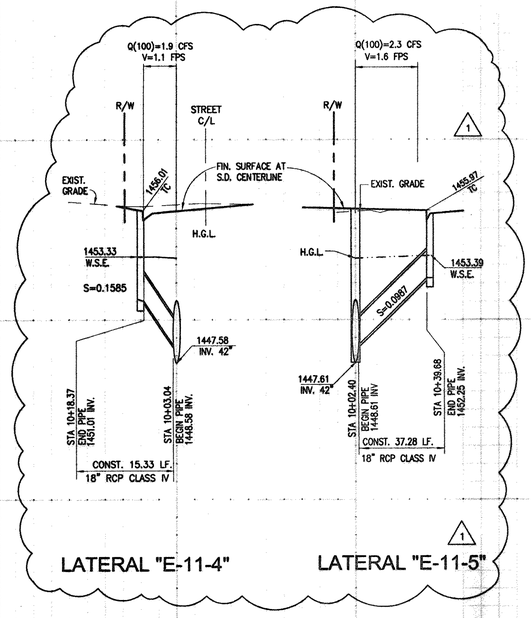




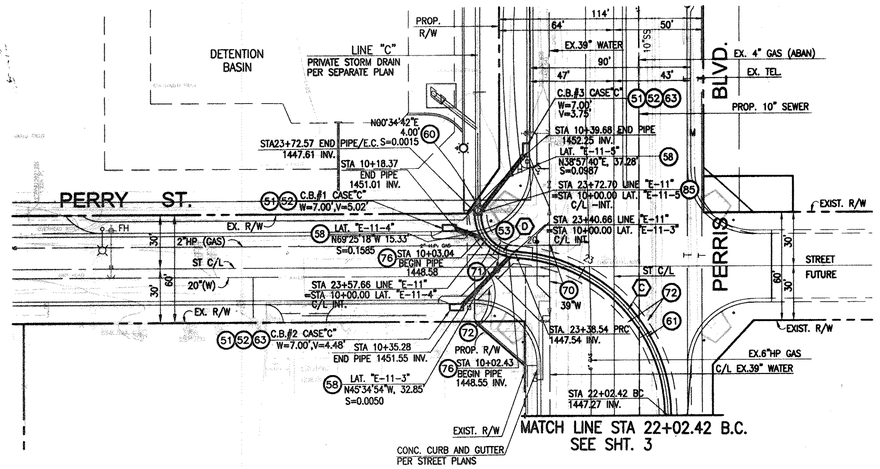


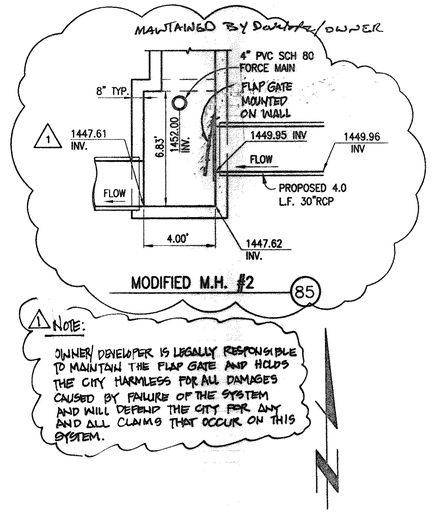
1460 / 1450 / 1440

* PROTECT IN PLACE EXISTING UTILITY LINES, FIELD VERIFY EXISTING INVERT ELEV. FOR GAS LINES PRIOR TO CONSTRUCTION, RELOCATE GAS LINES IF REQUIRED. PROVIDE 12" MIN. CLEARANCE BETWEEN PIPES.

PROFILE SCALE:
HORIZ. - 1" = 40'
VERT. - 1" = 4'

CURVE DATA				
○	Δ	R	T	L
C	86°39'22"	90.00'	84.90'	136.12'
D	86°39'22"	22.50'	21.22'	34.03'





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

STORM DRAIN CONSTRUCTION NOTES

50 REMOVE EXISTING TRANSITION AND JUNCTION STRUCTURE
51 CONSTRUCT CATCH BASIN NO. 1 PER R.C.F.C. & W.C.D. STD. DRAWING CB100, W=7.00'.
52 CONSTRUCT LOCAL DEPRESSION PER R.C.T.D. STD. DRAWING 311, CASE PER PLAN.
53 CONSTRUCT CONCRETE COLLAR PER R.C.F.C. & W.C.D. STD DWG. M803.
54 CONSTRUCT MANHOLE NO.1 PER R.C.F.C. & W.C.D. STD. DWG. MH251.
55 CONSTRUCT MANHOLE NO.2 PER R.C.F.C. & W.C.D. STD. DWG. MH252.
56 CONSTRUCT MANHOLE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. MH254.
57 INSTALL 48" R.C.P. 1350D.
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70 RELOCATED WATER MAIN PER E.M.W.D. PLANS, PIPE SIZE PER PLAN.
71 FIELD VERIFY INVERT ELEV. OF EXISTING 2" GAS LINE, RELOCATE IF REQUIRED.
72 SAWCUT, REMOVE AND REPLACE EXISTING A.C. PAVEMENT WITH 4"MIN. A.C. OVER 12"MIN. A.B. (PER STREET PLANS) CASE 3 PIPE BEDDING PER L.A. COUNTY DPW STD. 3080-2 AND TRENCH BACKFILL CASE 2 PER RIVERSIDE COUNTY ROAD STD. 818.
73 REMOVE AND REPLACE EXISTING CONCRETE GUTTER AND SIDEWALK.
74 CONSTRUCT RIPRAP PER DETAIL ON SHT. NO. 1.
75 INSTALL 18" HDPE PIPE.
76 CONSTRUCT JUNCTION STRUCTURE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. JS229.
1 77 REMOVE EXIST. 24" RCP AND CONSTRUCT CONCRETE SEAL PER SIPING STD. 381-2
78 CONSTRUCT TRANSITION STRUCTURE PER R.C.F.C. & W.C.D. STD. DWG. CH329
79 CONSTRUCT 24" CMP
80 CONSTRUCT JUNCTION STRUCTURE No.6 PER R.C.F.C. & W.C.D. STD. DWG. JS 231
81 INSTALL 12" R.C.P. CLASS IV.
82 INSTALL 12" HDPE PIPE.
83 INSTALL 36" R.C.P. 1350D.
84 FILL PIPE OR CATCH BASIN WITH CLEAN SAND
85 CONSTRUCT MANHOLE NO. 2 PER R.C.F.C. & W.C.D. STD. DWG. MH252, MODIFIED PER DETAIL ON SHT. NO. 4.
1 86 REMOVE AND RE-PLANT EXISTING PALM TREE
1 87 RELOCATE EXISTING TELEPHONE CONDUIT/BOX PER TELEPHONE COMPANY

Don't Dig...Until You Call U.S.A. Toll Free
1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
COUNTY OF RIVERSIDE BENCHMARK NO. "M-31"
COUNTY OF RIVERSIDE BENCHMARK - 3 1/4" ALUMINUM DISK MARKED "M-31", LOCATED FLUSH AT THE SOUTH WEST CORNER OF BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE CROSSING OF PERRIS BLVD. AND RIV. CO. FLOOD CONTROL CHANNEL (PERRIS LATERAL "A"), 43FT. WEST OF CENTERLINE OF PERRIS BLVD. AND 4.5 FT. EAST OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)
ELEVATION = 1474.674' (NGVD '29 / 1996 ADJ.)

REF.	REVISIONS	ENGINEER APPR.	ENGINEER DATE	RCFC/ APPR.	RCFC/ DATE
1	REVISED CONNECTION AT THE CHANNEL, REVISED SLOPE, SUPERSEDED APPROVED S.D. PLANS DATED 8/19/11				

DESCRIPTION

DESIGNED BY: B.W.
DRAWN BY: B.W./E.T.
DATE DRAWN: 03-17-2011

APPROVED BY:
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173
HAIDOOK AGHAIAN RCE NO. 43293 Date: 10/19/11

REGISTERED PROFESSIONAL ENGINEER HAIDOOK I. AGHAIAN R.C.E. NO. 43293 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA

CITY OF PERRIS APPROVED BY:
CITY ENGINEER DATE: 10-19-11
RECOMMENDED DATE:

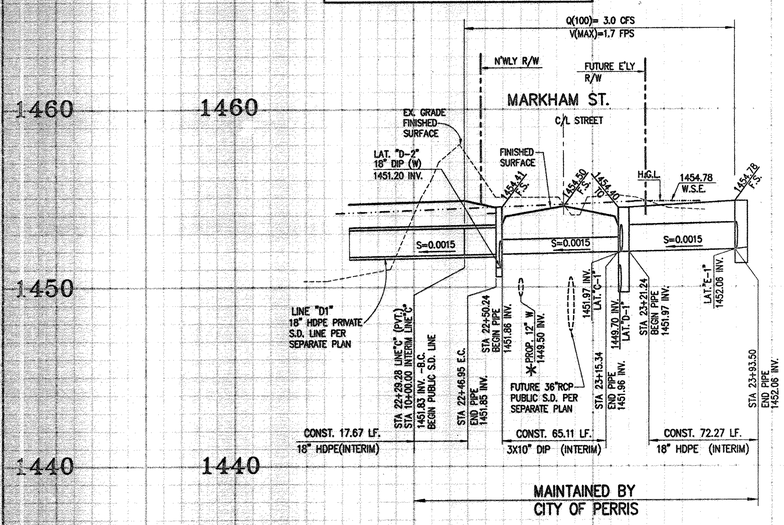
CITY OF PERRIS
STORM DRAIN IMPROVEMENT PLANS
PERRIS LOGISTIC CENTER DPR-05-0192
LATERAL MDP E-11
STA. 22+02.42 TO STA. 23+72.57

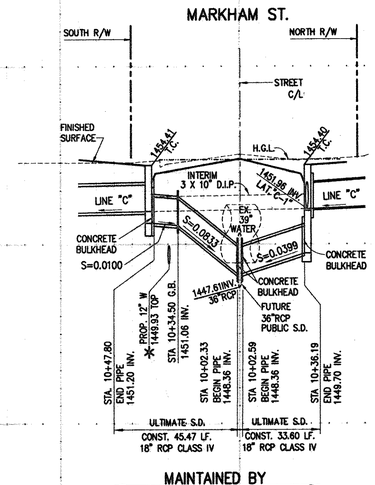
CITY OF PERRIS FILE NO. P8-821
PROJECT NO. 0-0-0000
DRAWING NO. W-XYZ
SHEET NO. 4 OF 6

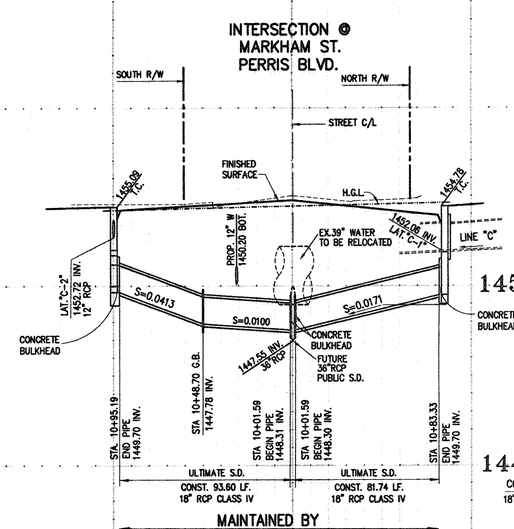
P-1911

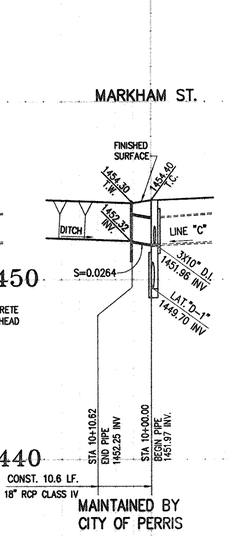
Last Update: 10/18/11
L:\2430\2430e\2430C-SD-04.dwg

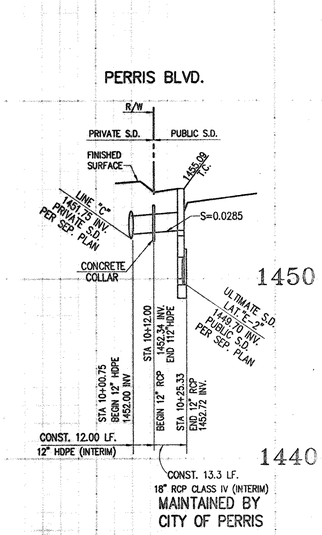
NOTE: CONTRACTOR SHALL PROTECT IN PLACE ALL UTILITIES CROSSING AND PARALLELING THE STORM DRAIN UNLESS OTHERWISE NOTED.





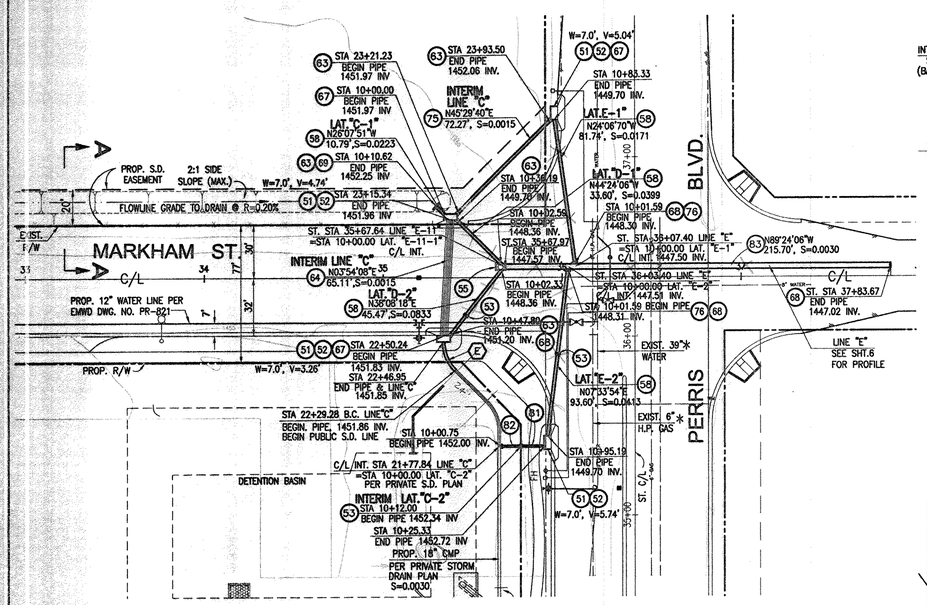


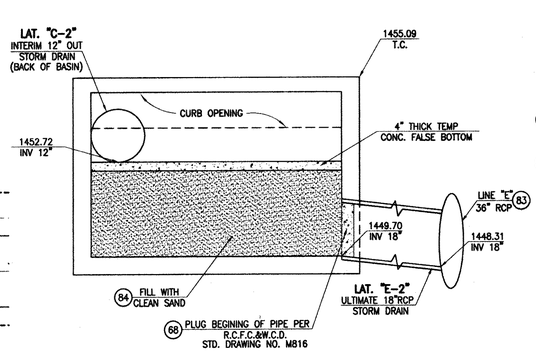




* PROTECT IN PLACE EXISTING UTILITY LINES, FIELD VERIFY EXISTING INVERT ELEVATIONS FOR WATER AND GAS LINES PRIOR TO CONSTRUCTION, RELOCATE GAS LINES IF REQUIRED. PROVIDE 12" MIN. CLEARANCE BETWEEN PIPES.

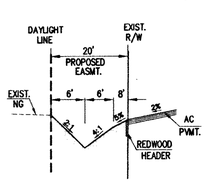
PROFILE SCALE:
HORIZ. - 1" = 40'
VERT. - 1" = 4'





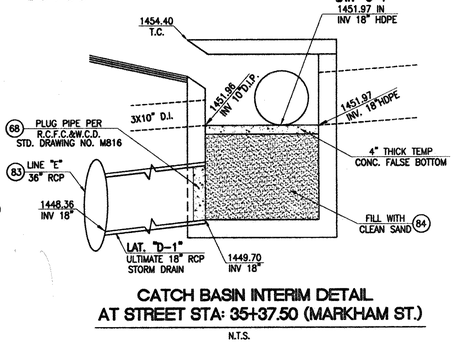
CATCH BASIN INTERIM DETAIL AT STREET STA: 35+40.99 (PERRIS BLVD.)

N.T.S.



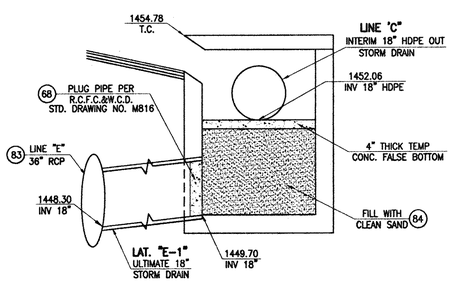
SECTION A-A

N.T.S.



CATCH BASIN INTERIM DETAIL AT STREET STA: 35+37.50 (MARKHAM ST.)

N.T.S.



CATCH BASIN INTERIM DETAIL AT STREET STA: 37+24.98 (PERRIS BLVD.)

N.T.S.

STORM DRAIN CONSTRUCTION NOTES

50. REMOVE EXISTING TRANSITION AND JUNCTION STRUCTURE
51. CONSTRUCT CATCH BASIN NO. 1 PER R.C.F.C. & W.C.D. STD. DRAWING CB100, W=7.00'.
52. CONSTRUCT LOCAL DEPRESSION PER R.C.T.D. STD. DRAWING 311, CASE PER PLAN.
53. CONSTRUCT CONCRETE COLLAR PER R.C.F.C. & W.C.D. STD DWG. M803.
54. CONSTRUCT MANHOLE NO.1 PER R.C.F.C. & W.C.D. STD. DWG. MH251.
55. CONSTRUCT MANHOLE NO.2 PER R.C.F.C. & W.C.D. STD. DWG. MH252.
56. CONSTRUCT MANHOLE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. MH254.
57. INSTALL 48" R.C.P. 1350D.
58. INSTALL 18" R.C.P. CLASS IV.
59. INSTALL 24" R.C.P. CLASS IV.
60. INSTALL 30" R.C.P. 2000D.
61. INSTALL 42" R.C.P. 1350D.
62. INSTALL 54" R.C.P. 1350D.
63. CONSTRUCT SPECIAL CONNECTION TO CATCH BASIN PER R.C.F.C. & W.C.D. STD. DWG. CB109.
64. INSTALL 3 X 10" DUCTILE IRON PIPE.
65. CONSTRUCT TRANSITION STRUCTURE NO.3 PER R.C.F.C. & W.C.D. STD. DWG. TS303.
67. CONSTRUCT FALSE BOTTOM IN CATCH BASIN PER DETAIL ON SHT. NO. 5.
68. CONSTRUCT CONCRETE BULKHEAD AT END OF PIPE PER R.C.F.C. & W.C.D. STD. DWG. M816.
69. CONSTRUCT HEADWALL PER DETAIL ON SHT. NO. 1.
70. RELOCATED WATER MAIN PER E.M.W.D. PLANS, PIPE SIZE PER PLAN.
71. FIELD VERIFY INVERT ELEV. OF EXISTING 2" GAS LINE, RELOCATE IF REQUIRED.
72. SAWCUT, REMOVE AND REPLACE EXISTING A.C. PAVEMENT WITH 4"MIN. A.C. OVER 12"MIN. A.B. (PER STREET PLANS) CASE 3 PIPE BEDDING PER L.A. COUNTY DPW STD. 3080-2 AND TRENCH BACKFILL CASE 2 PER RIVERSIDE COUNTY ROAD STD. 818.
73. REMOVE AND REPLACE EXISTING CONCRETE GUTTER AND SIDEWALK.
74. CONSTRUCT RIPRAP PER DETAIL ON SHT. NO. 1.
75. INSTALL 18" HDPE PIPE.
76. CONSTRUCT JUNCTION STRUCTURE NO.4 PER R.C.F.C. & W.C.D. STD. DWG. JS229.
1 77. REMOVE EXIST. 24" RCP AND CONSTRUCT CONCRETE SEAL PER SPPWC STD. 301-2.
78. CONSTRUCT TRANSITION STRUCTURE PER R.C.F.C. & W.C.D. STD. DWG. CH329
79. CONSTRUCT 24" CMP
80. CONSTRUCT JUNCTION STRUCTURE No.6 PER R.C.F.C. & W.C.D. STD. DWG. JS 231
81. INSTALL 12" R.C.P. CLASS IV.
82. INSTALL 12" HDPE PIPE.
83. INSTALL 36" R.C.P. 1350D.
84. FILL PIPE OR CATCH BASIN WITH CLEAN SAND
85. CONSTRUCT MANHOLE NO. 2 PER R.C.F.C. & W.C.D. STD. DWG. MH252, MODIFIED PER DETAIL ON SHT. NO. 4.
1 86. REMOVE AND RE-PLANT EXISTING PALM TREE
1 87. RELOCATE EXISTING TELEPHONE CONDUIT/BOX PER TELEPHONE COMPANY

CURVE DATA				
	Δ	R	T	L
A	45°00'00"	22.50'	9.32'	17.67'

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

Don't Dig...Until You Call U.S.A. Toll Free
1-800-227-2600
for the location of buried utility lines.
Don't disrupt vital services.
TWO WORKING DAYS BEFORE YOU DIG

BENCH MARK
COUNTY OF RIVERSIDE BENCHMARK NO. "M-31"
COUNTY OF RIVERSIDE BENCHMARK - 3 1/4" ALUMINUM DISK MK/VED "M-31", LOCATED FLUSH AT THE SOUTH WEST CORNER OF BRIDGE ON TOP OF SIDEWALK NEAR FACE OF CURB LOCATED AT THE CROSSING OF PERRIS BLVD. AND RW. CO. FLO 30 CONTROL CHANNEL (PERRIS LATERAL "A") 43FT. WEST OF CENTERLINE OF PERRIS BLVD. AND 4.5 FT. EAST OF CONCRETE BRIDGE BARRIER. (EDGE OF BRIDGE)
ELEVATION = 1474.674' (NGVD '29 / 1996 ADJ.)

REF.	DESCRIPTION	APPR.	DATE	APPR.	DATE
1	REVISED CONNECTION AT THE CHANNEL, REVISED SLOPE, SUPERSEDED APPROVED S.D. PLANS DATED 8/19/11				

ENGINEER | RCFC/

DESIGNED BY: B.W.
DRAWN BY: B.W./E.T.
DATE DRAWN: 03-17-2011

APPROVED BY:
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14348 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173
HAIDOOK AGHAIAN Date: 10/18/11
RCE NO. 43293
REGISTERED PROFESSIONAL ENGINEER HAIDOOK I. AGHAIAN R.C.E. NO. 43293 Exp. 3-31-12 CIVIL STATE OF CALIFORNIA

CITY OF PERRIS
APPROVED BY:
CITY ENGINEER DATE: 10-19-11
RECOMMENDED DATE:

CITY OF PERRIS
STORM DRAIN IMPROVEMENT PLANS
PERRIS LOGISTIC CENTER
DPR-05-0192
PERRY STREET-LATERAL PROFILES
MARKHAM STREET

CITY OF PERRIS
FILE NO. P8-821
PROJECT NO. 0-0-0000
DRAWING NO. W-XYZ
SHEET NO. 5 of 6

Last Update: 10/18/11
L:\2430\2430e\2430C-SD-05.dwg

ROAD AND UTILITY EASEMENT REPORT

Order: 2 Comment:

Description: Riverside,CA Assessor Map 302.6 Page: 1 of 1

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCEL MAY NOT COMPLY WITH LOCAL LOT-SPLIT OR BUILDING SITE ORDINANCES

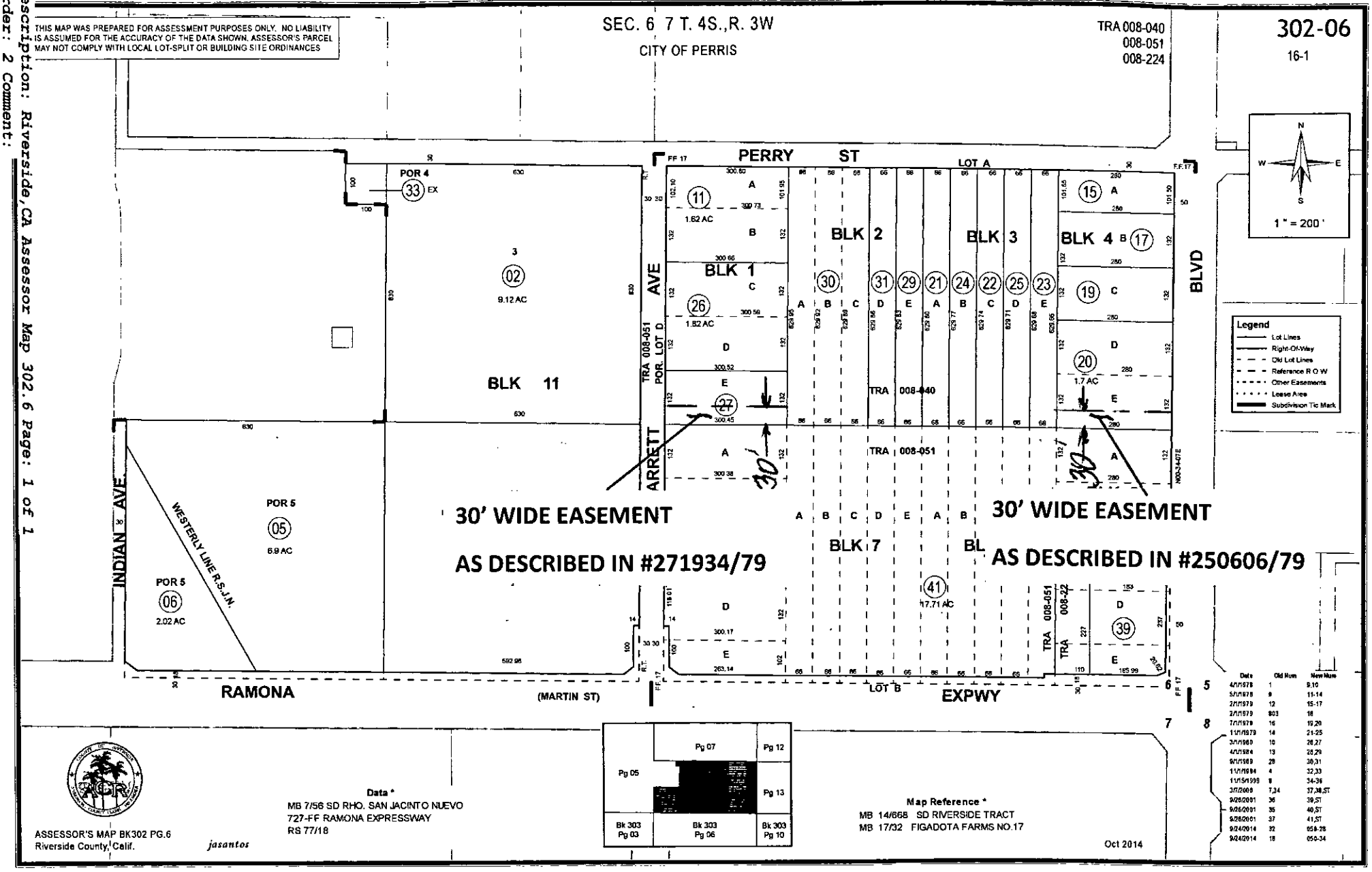
SEC. 6 7 T. 4S.,R. 3W

CITY OF PERRIS

TRA 008-040
008-051
008-224

302-06

16-1



ASSESSOR'S MAP BK302 PG.6
Riverside County, Calif.

jasantos

Data *
MB 7/56 SD RHO. SAN JACINTO NUEVO
727-FF RAMONA EXPRESSWAY
RS 77/18

Map Reference *
MB 14/668 SD RIVERSIDE TRACT
MB 17/32 FIGADOTA FARMS NO.17

Oct 2014

Date	Old Num	New Num
4/1/1978	1	9,10
5/1/1978	9	11-14
2/1/1979	12	15-17
2/1/1979	803	18
7/1/1979	16	19,20
11/1/1979	14	21-25
3/1/1980	10	26,27
4/1/1984	13	28,29
9/1/1989	28	30,31
11/1/1994	4	32,33
11/15/1995	8	34-36
3/7/2000	7,34	37,38,ST
9/26/2001	36	39,ST
9/26/2001	35	40,ST
9/26/2001	37	41,ST
9/24/2014	32	050-28
9/24/2014	18	050-34

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL THIS DEED AND, UNLESS OTHERWISE SHOWN BELOW, MAIL TAX STATEMENTS TO

271934

NAME Mr. E. H. Hansen
ADDRESS 18954 Perris Boulevard,
CITY & STATE Perris,
ZIP California 92370

Title Order No. Escrow No.

RECORDED FOR RECORD AT 9:00 O'CLOCK A.M. DEC 26 1979 Book 1779, Page 271934

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT DEED

The undersigned declares that the documentary transfer tax is $ - - 0 - - and is
☐ computed on the full value of the interest or property conveyed, or is
☐ computed on the full value less the value of liens or encumbrances remaining thereon at the time of sale. The land, tenements or realty is located in
☒ unincorporated area ☐ city of ..... and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
Richard L. V. Fabbri and Theresa Fabbri, husband and wife,

hereby GRANT(S) to Kathryn A. Miller, an unmarried woman, Michael N. Berry, a single man, Ales Vysin, a single man, Loren J. Crawford, a married man, and Richard D. Whiting and Catherine E. Whiting, husband and wife,

the following described ~~EXCEPTING~~ easement in the county of Riverside, state of California:

A non-exclusive easement for roads for ingress, egress, and for public utilities and purposes incidental thereto over, under and across the South thirty feet of Lot E in Block 1 of Figadota Farms No. 17 as shown by Map on file in Book 17, Page 32 of Maps, Riverside County Records.

Said easement to be for the benefit of and appurtenant to Lots A,B,C,D, in Block 1, Lots A,B,C,D and E in Block 2, Lots A,B,C,D and E in Block 3 and Lot E in Block 4.

Before This Insurance Company has recorded this instrument by an agent as an accommodation only, it has not examined it for regularity and sufficiency or as to its effect upon the title to any real property that may be described herein.

Dated November 8, 1979

Richard L. V. Fabbri

Theresa Fabbri

STATE OF CALIFORNIA
COUNTY OF Los Angeles } ss.

On November 26 1979 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Richard L. V. Fabbri and Theresa Fabbri

known to me to be the person s whose name s are subscribed to the within instrument and acknowledged that they executed the same.

Signature of Notary

FOR NOTARY SEAL OR STAMP

OFFICIAL SEAL
CAROLE A. DE AVILA
NOTARY PUBLIC - CALIFORNIA
PRINCIPAL OFFICE IN
LOS ANGELES COUNTY
MY COMMISSION EXPIRES DEC. 8, 1981

Assessor's Parcel No.

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name Street Address City & State

CAL-1 (Rev. 3-79)

END RECORDED DOCUMENT DONALD D. SULLIVAN, COUNTY RECORDER

250606

RECORDING REQUESTED BY

AND WHEN RECORDED MAIL THIS DEED AND, UNLESS OTHERWISE SHOWN BELOW, MAIL TAX STATEMENTS TO:

Name Mr. E. H. Hansen
Address 18954 Perris Boulevard.
City & State Perris,
Zip California 92370

Title Order No. Escrow No.

250606 NOV 27 1979

SPACE ABOVE THIS LINE FOR RECORDER'S USE.

31

GRANT DEED

The undersigned declares that the documentary transfer tax is $ - - 0 - - and is

☐ computed on the full value of the interest or property conveyed, or is

☐ computed on the full value less the value of liens or encumbrances remaining thereon at the time of sale. The land, tenements or realty is located in

☒ unincorporated area ☐ city of .... and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

Kathryn A. Miller, an unmarried woman,

hereby GRANT(S) to Richard L.V. Fabbri and Theresa Fabbri, husband and wife, Michael N. Berry, a single man, Ales Vysin, a single man, Loren J. Crawford, a married man, and Richard D. Whiting and Catherine E. Whiting, husband and wife,

the following described ~~real property~~ easement in the county of Riverside, state of California:

A none-exclusive easement for roads for ingress and egress, and for public utilities and purposes incidental thereto, over, under and across the South thirty feet of Lot E in Block 4 of Figadota Farms No. 17, as shown by Map on file in Book 17, Page 32, of Maps, Riverside County Records.

Said easement to be for the benefit of and appurtenant to Lots A,B,C,D and E in Block 1, Lots A,B,C,D and E in Block 2, Lots A,B,C,D and E in Block 3 and Lot E in Block 4.

Below This Insurance Company has recorded this instrument by request as an accommodation only and has not examined it for regularity and sufficiency or as to its effect upon the title to any real property that may be described herein.

A-5521

Dated November 9, 1979

Kathryn A. Miller
Kathryn A. Miller

STATE OF CALIFORNIA
COUNTY OF Riverside } SS.

On November 26, 1979 before me, the undersigned, a Notary Public in and for said County and State, personally appeared Kathryn A. Miller

, known to me to be the person whose name is subscribed to the within instrument and acknowledged that she executed the same.

Mary Ellen Centhon
Signature of Notary

FOR NOTARY SEAL OR STAMP

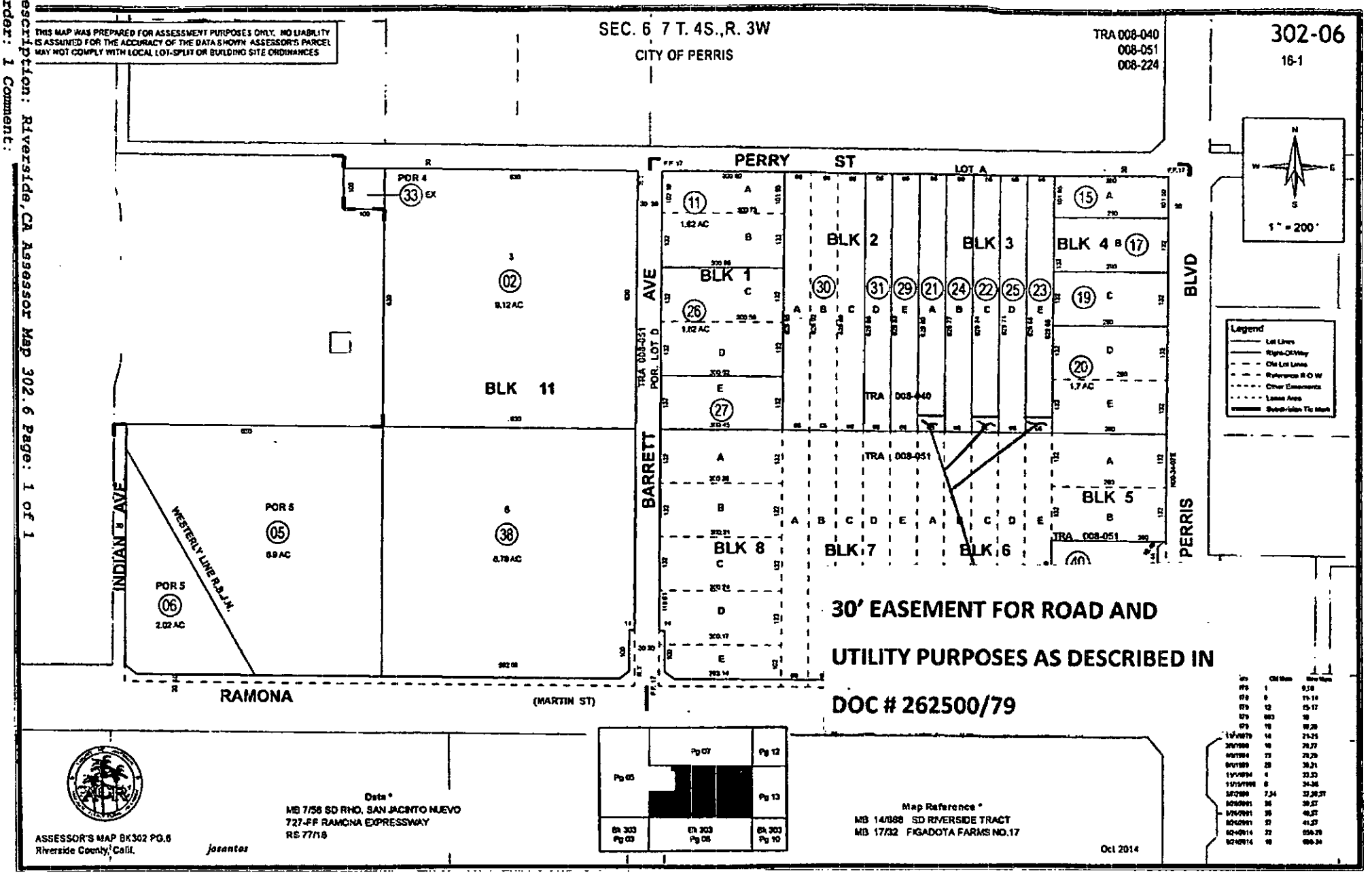
Assessor's Parcel No. ....

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name Street Address City & State

CAL-1 (Rev. 3-78)

END RECORDED DOCUMENT DONALD D. SULLIVAN, COUNTY RECORDER



RECORDING REQUESTED BY

AND WHEN RECORDED MAIL THIS DEED AND, UNLESS OTHERWISE SHOWN BELOW, MAIL TAX STATEMENTS TO:

NAME Mr. & M. Hansen
ADDRESS 18994 Perris Boulevard,
CITY & STATE Perris, California
92370

Title Order No. Escrow No.

262500

RECEIVED FOR RECORD AT 9:00 O'CLOCK A.M. As Request of SAFECO TITLE INSURANCE CO.
DEC 11 1979
Book 1979, Page
Recorded in Official Records of Riverside County, California
Donald D. Sullivan — Recorder
FEES $

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT DEED

- - - 0 - - -

The undersigned declares that the documentary transfer tax is $ and is
( ) computed on the full value of the property conveyed, or is
( ) computed on the full value less the value of liens or encumbrances remaining thereon at the time of sale. The land, tenements or realty is located in
(X) unincorporated area ( ) City of and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

Loren J. Crawford, a married man,

hereby GRANT(S) to Richard L. V. Fabbri and Theresa Fabbri, husband and wife, Michael N. Berry, a single man, Ales Vysin, a single man, Richard D. Whiting and Catherine E. Whiting, husband and wife, and Kathryn A. Miller, an unmarried woman, as tenants in common

the following described property in the unincorporated area of Riverside County of State of California:

A non-exclusive easement for roads for ingress, egress, and for public utilities and purposes incidental thereto over, under and across the South thirty feet of Lots A,C and E in Block 3 of Pigadota Farms No. 17, as shown by Map on file in Book 17, Page 35, of Maps, Riverside County Records.

Said easement to be for the benefit of and appurtenant to Lots A,B,C, D and E in Block 1, Lots A,B,C,D and E in Block 2, Lots B and D in Block 3 and Lot A in Block 4.

Dated November 5, 1979

Loren J. Crawford
Loren J. Crawford

State of California
County of Los Angeles

On this day personally appeared before me Loren J. Crawford

to me known to be the individual described in and who executed the within and foregoing instrument, and acknowledged that he signed the same as his free and voluntary act and deed, for the uses and purposes therein mentioned.

GIVEN under my hand and official seal this day of

Notary Public in and for the State of California, residing at

FOR NOTARY SEAL OR STAMP

My commission expires

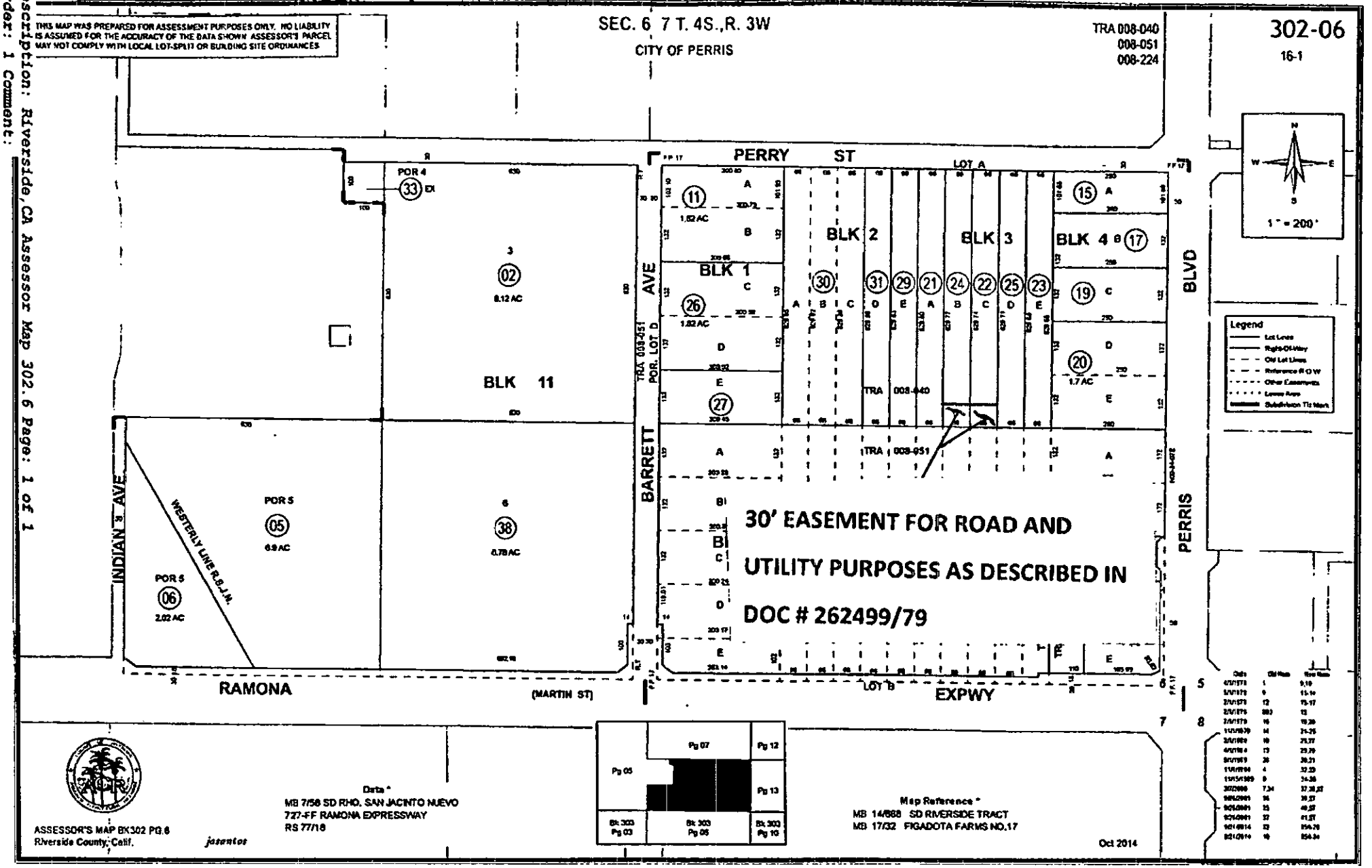
Assessor's Parcel No.

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name Street Address City & State

CAL-1 (Rev 3 79)

END RECORDED DOCUMENT DONALD D. SULLIVAN, COUNTY RECORDER



RECORDING REQUESTED BY

AND WHEN RECORDED MAIL THIS DEED AND, UNLESS OTHERWISE SHOWN BELOW, MAIL TAX STATEMENTS TO:

NAME: Mr. E. H. Hansen
STREET ADDRESS: 18954 Perris Boulevard,
CITY & STATE: Perris, California 92370

Title Order No. Escrow No.

RECEIVED FOR RECORD AT 9:00 O'CLOCK A.M. At Request of EXPEDITED TITLE INSURANCE CO. Book 1979, Page 262499 DEC 11 1979 Recorded in Official Records of Riverside County, California Donald D. Sullivan Recorder FEES $

SPACE ABOVE THIS LINE FOR RECORDER'S USE

GRANT DEED

The undersigned declares that the documentary transfer tax is $ - - 0 - - and is
computed on the full value of the interest or property conveyed, or
computed on the full value less the value of liens or encumbrances remaining thereon at the time of sale. The land, tenements or realty is located in
unincorporated area City of and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,

Richard D. Whiting and Catherine E. Whiting, husband and wife,

hereby GRANT(S) to Richard L. V. Fabbri and Theresa Fabbri, husband and wife, Michael N. Berry, a single man, Aies Vysin, a single man, Loren J. Crawford, a married man, and Kathryn A. Miller, an unmarried woman,

the following described ~~property~~ easement in the County of Riverside, State of California:

A non-exclusive easement for roads for ingress and egress, and for public utilities and purposes incidental thereto over, under and across the South thirty feet of Lots B and D in Block 3 of Figadota Farms No. 17, as shown by Map on file in Book 17, Page 42, of Maps, Riverside County Records.

Said easement to be for the benefit of and appurtenant to Lots A,B,C,D and E in Block 1, Lots A,B,C,D and E in Block 2 and Lots A, C and E in Block 3 and Lot E in Block 4.

Dated November 7, 1979

Richard D. Whiting

Catherine E. Whiting

STATE OF CALIFORNIA
COUNTY OF Riverside
On November 7, 1979 before me, the undersigned, a Notary Public in and for said State, personally appeared Richard D. Whiting and Catherine E. Whiting
known to me to be the person s whose name s are subscribed to the within instrument and acknowledged that they executed the same.
WITNESS my hand and official seal.
Notary Public in and for said State

FOR NOTARY SEAL OR STAMP

Assessor's Parcel No.

MAIL TAX STATEMENTS TO PARTY SHOWN ON FOLLOWING LINE; IF NO PARTY SO SHOWN, MAIL AS DIRECTED ABOVE

Name Street Address City & State

CAL 1 (Rev 3 79)

END RECORDED DOCUMENT DONALD D. SULLIVAN, COUNTY RECORDER