PRELIMINARY DRAINAGE REPORT

FOR

Riverside Hauling Yard
City of Jurupa Valley

Prepared for:

BURRTEC WASTE INDUSTRIES, INC.
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  - Proposed Condition: 10- and 100-year storms
- **B**: Inflow Hydrographs calculations:
  - Proposed Condition: Hydrographs 25-, and 100yr 1-, 3-, 6-, 24-hr storms
- **C**: WQ/Detention Basin calculations:
  - Detention Basin: Hydrographs 100yr 1-, 3-, 6-, 24-hr storms
- **D**: Reference: As-built drawings, soil report, Contech underground pipes.

INTRODUCTION

This drainage study has been prepared in support of the drainage system design for the Riverside Hauling Yard development.

The Riverside Hauling Yard project is located along Wilson Street and at the intersection between Wilson Street and Agua Mansa Road in the City of Jurupa, County of Riverside. It is located within Section 2 of Township 2 South, Range 5 West, Riverside County and being Assessor Parcels 175-180-012 and 175-180-016.

The proposed approximately 9.8-acre Riverside Hauling Yard project. The proposed project includes the following buildings:

- Office – 10,275 sf
- Maintenance Building – 19,137 sf
- AC paved area – 300,250 sf
- PCC paved area – 10,053 sf
- Landscape area – 46,960 sf

In compliance with Riverside Counties' MS4 permit, certain post development water quality features will be designed into the project for water quality treatment of daily nuisance flows and first flush storm flows after the project is constructed and yard are in operational. The project will implement LID practices.

SETTING

The Riverside Hauling Yard project is located along Wilson Street and at the intersection between Wilson Street and Agua Mansa Road in the City of Jurupa, County of Riverside. It is located within Section 2 of Township 2 South, Range 5 West, Riverside County.

See Figure 1a - Vicinity Map.

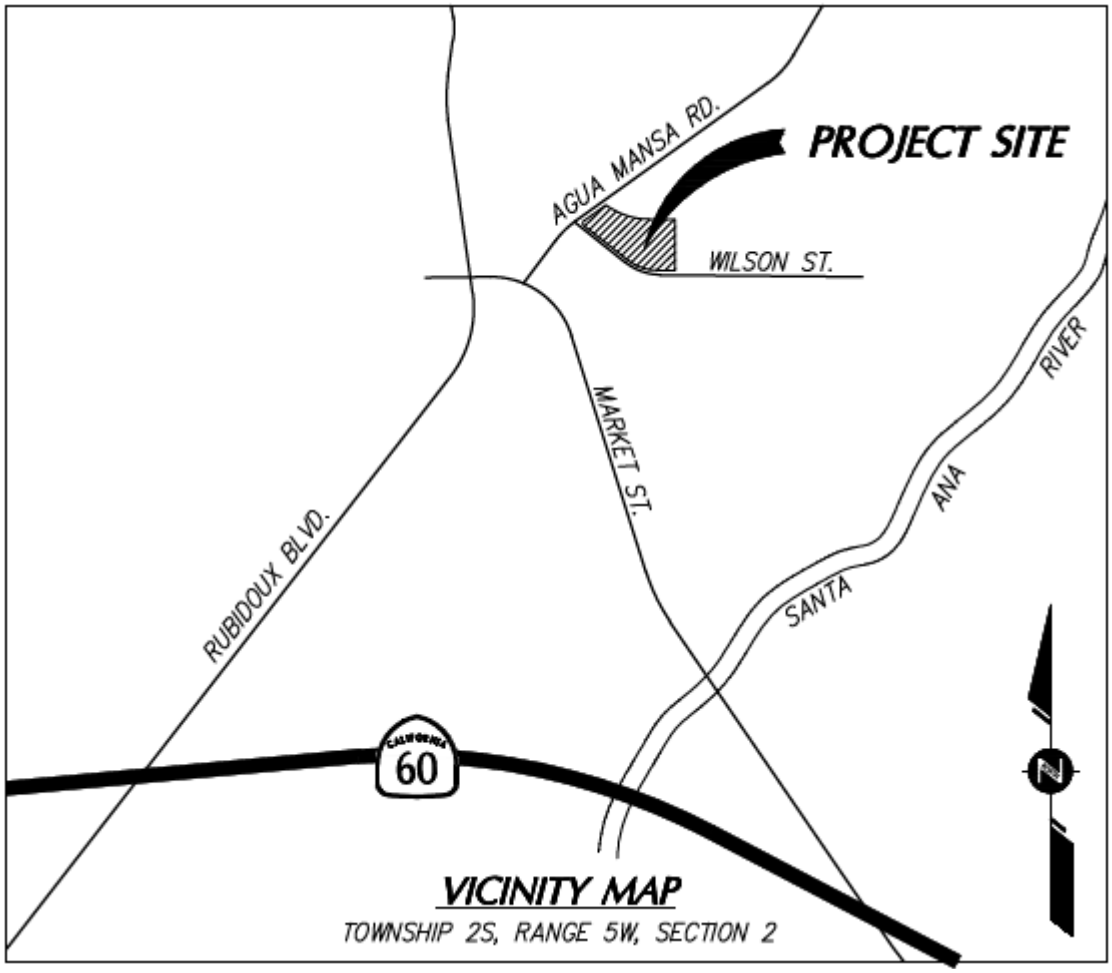


Figure 1a: Vicinity Map

CURRENT CONDITIONS

The current, approximate 9.8 acres site, is a vacant and unpaved site with the natural drainage flowing North. The natural drainage course starts along site's frontage at Wilson Street and flows north where it collects into the existing soft bottom basins. There are two (2) soft bottom basins located along the north side of the site. Basin one, smaller of the two, is located on the north-west side and basin two is located at the north-center side of the site. During a rain event, the collected storm flows gets stored in the basins and then infiltrates into the surrounding ground. In the event that the storm volume exceeds available basin storage volume, the water will overtop the basins and continue flowing north to the adjacent dirt ditch that is located between the site's fence and existing railroad tracks. At this point the drainage will collect and pond a couple of feet in depth before leaving the site via existing culvert located at the north west side of the site adject to Agua Mansa Road.
There is an existing catch basin and storm drain pipes, 18-inch and 24-inch, in Wilson Street. The existing 24-inch storm drain enters the site and is terminated about 50-feet into the site. It

appears that the 24-inch storm drain was build for the purpose of providing drainage outlet of future development.

Figure 1b: Aerial Picture Existing Condition

PROPOSED CONDITIONS

The proposed site improvements will consist of erecting an employee office building and a cover maintenance building that will house a mechanic office, several maintenance and repair bays, paint booth and wash bay. Additionally, the site will also have a outside paved truck storage parking, a Natural Gas truck fueling station, and paved employee parking. The total square footage of proposed impervious improvements is approximately 7.8 acres.
The proposed drainage pattern will maintain the original drainage pattern and drain north where it then will be picked up by multiple catch basins which are designed to intersect and capture the 100-yr flow. Once the flow gets captured by the site's catch basins it will then be routed, via pipe, to a hydrodynamic separator unit, followed by underground storage where it will infiltrate into the surrounding soil. The underground storage, per site owner's request, has been sized to capture and store a 25-yr 24-hr storm event.

In the event that the storm flow volume would exceed the underground storage capacity, the excess flow will spill into the proposed 24-inch storm drain and convey the flow to an existing 24-inch storm drain pipe that is located at the south-east side of the site.

In the unlikely scenario that the rain storm event would exceed the site's proposed drainage system or if the system will unable to perform as designed due to unforeseen failure, the storm water will pond along the north side of the site followed by overtopping the proposed curb and gutter and continuing to spill north into the existing earth ditch. From this point on the flow will follow existing drainage course as described in previous section.

The development of Riverside Hauling Yard includes office and maintenance buildings, along with on-site parking and a Water Quality basin and the construction of a storm drain system that will:

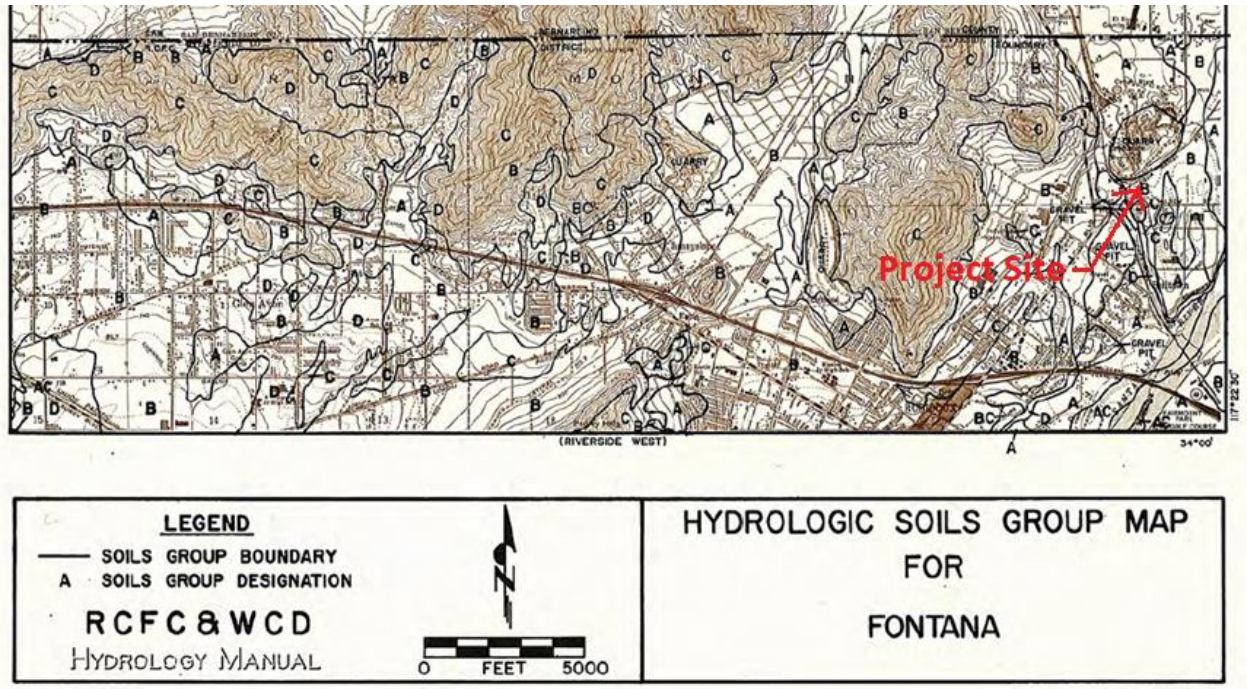
- Safely intercept offsite flows and convey through the site without co-mingling these flows with untreated onsite developed flows.
- Generally maintain the drainage patterns and discharge locations.
- In complying with Santa Ana Region NPDES-MS4 Permit requirements, safely intercept Design Capture Volume and convey onsite developed storm flows to onsite Water Quality Treatment Control Basins.
- Provide emergency by-pass for 100-year storm event without damage the BMPs.
- Control outlet velocities such that downstream erosion potential is minimized and outlet flows are released in a safe manner.

Hydrology

Proposed Condition:

Drainage Area A will be divided into several drainage sub-areas:

As shown on **Figure 2** there are five (5) drainage subareas in the proposed condition in this study, Drainage Subareas A-1 through A-5. All originating from the same tributary drainage areas; there is no off-site in this study; drainage patterns will generally remain as in the existing condition.



Hydrologic Soil Group of the project site: majority Soil Type B

HYDROLOGY - RATIONAL METHOD

The hydrology calculations for determining the on-site and off-site flows have been conducted using the Rational Method as incorporated into the CivilCADD Rational Method Hydrology software. The rational method relates rainfall intensity, the ratio of runoff to rainfall, and the drainage area size to the peak storm runoff and is expressed by the equation: Q = CIA. Where Q = runoff (in cubic feet per second), C = runoff coefficient relating the ratio of runoff to rainfall, I = rainfall intensity (in inches per hour), A = drainage area (in acres). The soil type used in the analysis is a majority Type B.

Figure 2 is the proposed condition hydrology, summarize the results of the hydrologic analysis, including drainage areas, subareas, node numbers, elevations and cumulative Q_{10} and Q_{100} values at points of concentration or discharge.

The design discharge in the various sub-drainage areas considered in this study are listed in the table below:

Summary Hydrology Drainage Area A, Proposed Condition – Rational Method 10-year storm (see Attachment A for calculation):

Drainage Area	Area in Acre	Q_{10} sub-area in cfs	Q_{10} confluence in cfs
A-1	1.05	1.83	
A-2	1.12	1.94	3.78
A-3	3.03	4.99	8.76
A-4	2.49	5.00	
A-5	0.72	1.39	14.27
			14.27

Summary Hydrology Drainage Area A, Proposed Condition – Rational Method 100-year storm (see Attachment A for calculation):

Drainage Area	Area in Acre	Q_{100} sub-area in cfs	Q_{100} confluence in cfs	Total Area In Acre
A-1	1.05	2.67		1.05
A-2	1.12	2.84	5.51	2.17
A-3	3.03	7.31	12.81	5.20
A-4	2.49	7.28		
A-5	0.72	2.03	9.31	3.21
			20.84	**8.41**

HYDRAULIC
Storm Drain System Calculations

Open Channel, Pipe and Inlet program Flow Master V8i by Bentley Inc., Reference 7 was used to determine the street capacity, ditch capacity and inlet sizing.

Main line system: the following assumptions and criteria were used to design the main line system:

1. n = 0.013 for reinforced concrete pipe, n = 0.014 for reinforced concrete box, and n = 0.015 for concrete V-ditch.
2. The minor losses considered in this study are as follows: friction loss, junction loss, transition loss, and manhole loss. In order to minimize junction structure losses, all junctions are inleting the main line at an angle of approximately 45 degrees.

WSPG hydraulic calculations will be used in the design for the principal off site and onsite storm drains to determine the hydraulic gradient elevation for proposed conduit sizes (in final design).

For proposed Storm Drain Pipe system in this stage, the size will be estimated by using peak discharges for 100-year storm event and using normal depth pipe flow capacity (Manning Formula, software program Flow Master V8i by Bentley Inc., Reference 7).

See below Rating Tables for PVC and RCP:

Rating Table for Circular Pipe - Table PVC

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.011	
Channel Slope	0.00600	ft/ft
Normal Depth	1.00	ft
Diameter	1.00	ft
Discharge	3.26	ft³/s

Diameter (ft)	Normal Depth (ft)	Discharge (ft³/s)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
1.00	1.00	3.26	4.15	0.79	3.14	0.00
1.50	1.50	9.62	5.44	1.77	4.71	0.00
2.00	2.00	20.71	6.59	3.14	6.28	0.00
2.50	2.50	37.55	7.65	4.91	7.85	0.00
3.00	3.00	61.05	8.64	7.07	9.42	0.00
3.50	3.50	92.10	9.57	9.62	11.00	0.00
4.00	4.00	131.49	10.46	12.57	12.57	0.00

Rating Table for Circular Pipe - Table RCP

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00600	ft/ft
Normal Depth	1.00	ft
Diameter	1.00	ft
Discharge	2.76	ft^3/s

Diameter (ft)	Normal Depth (ft)	Discharge (ft^3/s)	Velocity (ft/s)	Flow Area (ft^2)	Wetted Perimeter (ft)	Top Width (ft)
1.00	1.00	2.76	3.51	0.79	3.14	0.00
1.50	1.50	8.14	4.60	1.77	4.71	0.00
2.00	2.00	17.52	5.58	3.14	6.28	0.00
2.50	2.50	31.77	6.47	4.91	7.85	0.00
3.00	3.00	51.66	7.31	7.07	9.42	0.00
3.50	3.50	77.93	8.10	9.62	11.00	0.00
4.00	4.00	111.26	8.85	12.57	12.57	0.00

The Mainline Storm drain sizing: for proposed Storm Drain Pipe system in this stage, the size will be estimated by using peak discharges for 100-year storm event and using normal depth pipe flow capacity

Drainage Area	Area in Acre	Q_{100} sub-area in cfs	Q_{100} conf. in cfs	Estimate storm drain pipe slope (%)	Mainline Storm Drain Pipe Size in (inches)	Mainline Storm Drain
A-1	1.05	2.67				
A-2	1.12	2.84	5.51	0.01	18” RCP	Line “A”
A-3	3.03	7.31	12.81	0.01	18” RCP	Line “A”
A-4	2.49	7.28		0.01	18” RCP	Line “A”
A-5	0.72	2.03	9.31	0.01	18” RCP	Line “A”
			20.84	0.01	24” RCP	Line “A”

UNIT HYDROGRAPH

The unit hydrograph analysis was conducted using the CivilDesign Corporation Unit Hydrograph software and the Riverside County Hydrology Manual. In this study analysis, the goal was to estimate the quantity of storm water to be detained onsite to mitigate the increase in storm water peak discharge and volume resulting from this development. The 2-year 24-hour storm Inflow Hydrographs in the existing and proposed conditions were computed for HCOC mitigation.
The ultimate condition-project hydrographs will be used as inflow hydrograph in detention basin routing with restricted basin outlet structure works. Also additional frequencies 2-, 5-, 10- and 100-year 1-, 3-, 6-, and 24-hour storm are added for sensitive analysis.

Summary of Precipitation – Intensity Pattern BASED on NOAA Atlas 14:

Storm Event	1-hour	3-hour	6-hour	24-hour
2-year	0.472	0.831	1.15	2.07
100-year	1.14	1.89	2.61	4.87

Satellite
Labels
200m
600ft
a) Select location
Move crosshair or double click
b) Click on station icon
Show stations on map
Location information:
Name: Jurupa Valley, California, USA*
Latitude: 34.0205°
Longitude: -117.3835°
Elevation: 898.37 ft **
* Source: ESRI Maps
** Source: USGS

POINT PRECIPITATION FREQUENCY (PF) ESTIMATES

WITH 90% CONFIDENCE INTERVALS AND SUPPLEMENTARY INFORMATION
NOAA Atlas 14, Volume 6, Version 2

PF tabular | PF graphical | Supplementary information | Print page

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.096 (0.080-0.117)	0.124 (0.104-0.151)	0.162 (0.134-0.196)	0.192 (0.158-0.236)	0.234 (0.186-0.297)	0.267 (0.208-0.346)	0.300 (0.228-0.400)	0.336 (0.247-0.460)	0.384 (0.271-0.549)	0.422 (0.288-0.626)
10-min	0.138 (0.115-0.167)	0.178 (0.149-0.216)	0.232 (0.192-0.282)	0.275 (0.227-0.338)	0.336 (0.267-0.426)	0.382 (0.298-0.496)	0.431 (0.327-0.573)	0.481 (0.354-0.659)	0.550 (0.389-0.787)	0.605 (0.412-0.897)
15-min	0.167 (0.139-0.203)	0.216 (0.180-0.262)	0.280 (0.233-0.341)	0.333 (0.274-0.409)	0.406 (0.323-0.515)	0.463 (0.360-0.600)	0.521 (0.395-0.693)	0.582 (0.429-0.797)	0.666 (0.470-0.952)	0.732 (0.499-1.09)
30-min	0.250 (0.209-0.303)	0.323 (0.269-0.392)	0.419 (0.348-0.510)	0.499 (0.411-0.612)	0.608 (0.484-0.772)	0.693 (0.539-0.899)	0.780 (0.592-1.04)	0.871 (0.642-1.19)	0.997 (0.704-1.43)	1.10 (0.747-1.63)
60-min	0.366 (0.305-0.443)	0.472 (0.393-0.573)	0.613 (0.509-0.746)	0.729 (0.600-0.894)	0.888 (0.707-1.13)	1.01 (0.788-1.31)	1.14 (0.865-1.52)	1.27 (0.939-1.75)	1.46 (1.03-2.09)	1.60 (1.09-2.38)
2-hr	0.533 (0.444-0.645)	0.678 (0.565-0.822)	0.869 (0.721-1.06)	1.02 (0.844-1.26)	1.24 (0.983-1.57)	1.40 (1.09-1.82)	1.57 (1.19-2.09)	1.74 (1.28-2.38)	1.98 (1.39-2.83)	2.16 (1.47-3.20)
3-hr	0.655 (0.546-0.793)	0.831 (0.692-1.01)	1.06 (0.880-1.29)	1.25 (1.03-1.53)	1.50 (1.19-1.90)	1.69 (1.32-2.20)	1.89 (1.44-2.52)	2.09 (1.54-2.87)	2.37 (1.67-3.39)	2.59 (1.76-3.84)
6-hr	0.908 (0.757-1.10)	1.15 (0.960-1.40)	1.47 (1.22-1.79)	1.73 (1.42-2.12)	2.07 (1.65-2.63)	2.34 (1.82-3.03)	2.61 (1.98-3.47)	2.88 (2.12-3.95)	3.25 (2.30-4.65)	3.54 (2.41-5.25)
12-hr	1.20 (1.00-1.46)	1.54 (1.28-1.87)	1.97 (1.64-2.40)	2.32 (1.91-2.85)	2.79 (2.22-3.55)	3.15 (2.45-4.09)	3.52 (2.67-4.68)	3.89 (2.87-5.33)	4.39 (3.10-6.28)	4.78 (3.26-7.08)
24-hr	1.59 (1.41-1.84)	2.07 (1.83-2.38)	2.68 (2.36-3.10)	3.17 (2.78-3.70)	3.84 (3.25-4.63)	4.35 (3.61-5.36)	4.87 (3.94-6.13)	5.40 (4.25-6.99)	6.11 (4.62-8.24)	6.66 (4.87-9.29)
2-day	1.93 (1.70-2.22)	2.55 (2.25-2.94)	3.36 (2.96-3.89)	4.02 (3.52-4.69)	4.92 (4.16-5.92)	5.60 (4.65-6.89)	6.30 (5.10-7.93)	7.01 (5.53-9.08)	7.98 (6.04-10.8)	8.73 (6.39-12.2)
3-day	2.06 (1.83-2.38)	2.77 (2.45-3.20)	3.70 (3.27-4.29)	4.46 (3.90-5.21)	5.49 (4.65-6.62)	6.29 (5.22-7.74)	7.10 (5.75-8.94)	7.93 (6.25-10.3)	9.07 (6.86-12.2)	9.95 (7.28-13.9)

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent(2)
Natural or Agriculture	0 - 10	0
Single Family Residential: (3)		
40,000 S. F. (1 Acre) Lots	10 - 25	20
20,000 S. F. (½ Acre) Lots	30 - 45	40
7,200 - 10,000 S. F. Lots	45 - 55	50
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 -100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area should always be made, and a review of aerial photos, where available may assist in estimating the percentage of impervious cover in developed areas.

3. For typical horse ranch subdivisions increase impervious area 5 percent over the values recommended in the table above.

RCFC & WCD
HYDROLOGY MANUAL

IMPERVIOUS COVER FOR DEVELOPED AREAS

PLATE D-5.6

Riverside Hauling Yard					
Manning "n" Value Worksheet					
Drainage Area A (Proposed) - 8.41 Ac					
[1]	[2]	[3]	[4]	[5]	[7]
Subarea	**Area in (Ac)**	**Land Use (Plate D-5.6)**	**"n" Value**	**Decimal portion of Area [2] / SUM[2]**	**Average "n" Value [4] * [5]**
		Natural	0.03	0.00	0.000
		Res 1 Ac	0.015	0.00	0.000
		Res 1/2 Ac	0.015	0.00	0.000
		Res 1/4 Ac	0.015	0.00	0.000
		Res < 1/4 Ac	0.015	0.00	0.000
		Apartment	0.015	0.00	0.000
		Mobil Home	0.015	0.00	0.000
		Streets	0.015	0.00	0.000
	8.41	Commercial	0.015	1.00	0.015
Sum =	**8.41**			1.00	**0.015**

Riverside Hauling Yard							
Runoff Index (RI) Worksheet							
Drainage Area B (proposed) - 8.41 Ac							
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Subarea	**Area in (Ac)**	**Soil Group**	**Cover Type**	**RI Number (Plate E6-1)**	**Land Use**	**Decimal portion of Area [2] / SUM[2]**	**Average RI Value [5] * [7]**
Commercial	8.41	B	Landscape	56	Commercial	1.00	56.0
		C	Landscape	69	Commercial	0.00	0.0
		D	Landscape	75	Commercial	0.00	0.0
Sum =	***8.41***					1.00	**56.0**

Riverside Hauling Yard						
Soil Low Loss Rate Worksheet						
Drainage Area A (proposed) - 8.41 Ac						
[1]	[2]	[3]	[4]	[5]	[6]	[7]
Subarea	**Area in (Ac)**	**Land Use (Plate D-5.6)**	**% Impervious (Plate D-5.6)**	**Soil Low Loss Rate 0.9-(0.8)* [4]**	**Decimal portion of Area [2] / SUM[2]**	**Average Low Loss Rate [5] * [6]**
		Basin	0	0.90	0.00	0.00
		Res 1 Ac	20	0.74	0.00	0.00
		Res 1/2 Ac	40	0.58	0.00	0.00
		Res 1/4 Ac	50	0.50	0.00	0.00
		Res < 1/4 Ac	65	0.38	0.00	0.00
		Apartment	80	0.26	0.00	0.00
		Mobil Home	75	0.30	0.00	0.00
		Streets	90	0.18	0.00	0.00
	5.2	Commercial	90	0.18	0.62	0.11
	3.21	Commercial (parking)	95	0.14	0.38	0.05
Sum =	8.41				1.00	**0.16**

Summary of Hydrographs:
Drainage Area A – Proposed Condition (8.41 Ac)

Storm Frequency	Proposed Q_{25} (cfs)	Runoff Volume V_{25} (Acft)
25-year 1-hour	19.533	0.5761
25-year 3-hour	10.999	0.9257
25-year 6-hour	10.095	1.2627
25-year 24-hour	3.829	2.2855

Storm Frequency	Proposed Q_{100} (cfs)	Runoff Volume V_{100} (Acft)
100-year 1-hour	25.149	0.7619
100-year 3-hour	14.211	1.2168
100-year 6-hour	13.077	1.6424
100-year 24-hour	5.232	2.9806

Santa Ana Watershed - BMP Design Volume, V_{BMP}
(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

(Note this worksheet shall only be used in conjunction with BMP designs from the LID BMP Design Handbook)

Company Name: K&A Engineering, Inc. — Date: 6/1/2021
Designed by: JY — Case No:
Company Project Number/Name: Burrtec Waste Industries

BMP Identification

BMP NAME / ID: BMP-A, Drainage Area = 8.41 Ac

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E — D_{85}= 0.66 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

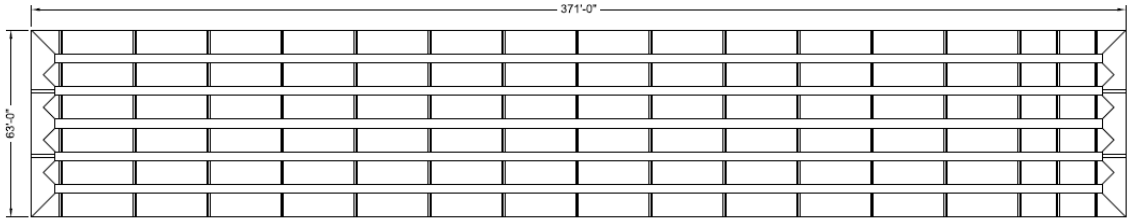
DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Storm Depth (in)	Design Capture Volume, V_{BMP} (cubic feet)	Proposed Volume on Plans (cubic feet)
A-1 (1.05 Ac)	45738	Mixed Surface Types	0.9	0.73	33401.6			
A-2 (1.12 Ac)	48787	Mixed Surface Types	0.9	0.73	35628.3			
A-3 (3.03 Ac)	131987	Mixed Surface Types	0.9	0.73	96387.7			
A-4 (0.72 Ac)	31363	Mixed Surface Types	0.95	0.81	25309.2			
A-5 (2.49 Ac)	108464	Mixed Surface Types	0.95	0.81	87528			
	366339	Total			278254.8	0.66	15304	15304

The underground pipes storage is size for 25-year 24-hour storm runoff volume >>> DCV.

WQ/Detention Basin Infiltration Outflow:

The infiltration rates are presented in the following table, after the water levels had stabilized.

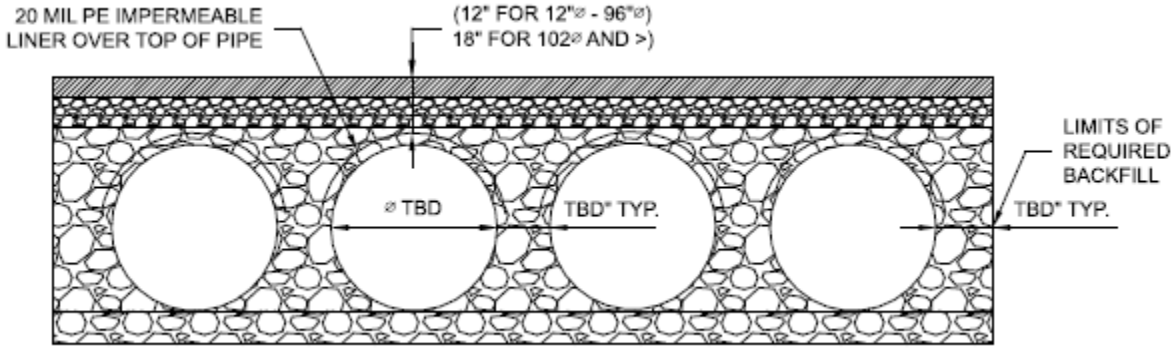
Exploration No.	Infiltration Rate (inches per hour)	Depth of Test (feet)
Boring I-1	8.0	5
Boring I-2	10.6	5



DYO7381 Burrtec - Riverside
Underground Storage and Infiltration
Corona, CA
DETENTION SYSTEM

Based on the information provided above, the basin bottom area is 24,245 sqft.
The infiltration rate average is (8 + 10.6)/2 = 9.3 in/hr
Use Safety Factor of 3 ➔ use the infiltration rate = 3.1 in/hr

The Basin Infiltration Outflow = 24,245 x (3.1/12) x 1/60/60 = 1.74 cfs



See above 6 rows 96” diameter with 36” spacing, 12” gravel around.

STORAGE SUMMARY

- STORAGE VOLUME REQUIRED = 113,300 cf.
- PIPE STORAGE VOLUME = 113,399 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 113,399 cf.

Estimate the storage rating curve:

Riverside Hauling Yard							
City of Jurupa Valley							
Proposed WQ Infiltration/Detention Basin Area A							
				Headwater Stage 1	Infiltration Outflow	E. Spillway with	Total Outflow
Elev	Depth	Vol	Vol	Depth		24" SD Outlet	**Q total**
(ft)	(ft)	(sq-ft)	(ac-ft)	(ft)	1.74 cfs	@ 888	(cfs)
878	0.0	0.0	0.000	0.0	0	0	**0.00**
879	1.0	9698.0	0.223	1.0	1.74	0	**1.74**
880	2.0	13808.0	0.317	2.0	1.74	0	**1.74**
881	3.0	34020.0	0.781	3.0	1.74	0	**1.74**
882	4.0	45360.0	1.041	4.0	1.74	0	**1.74**
883	5.0	56700.0	1.302	5.0	1.74	0	**1.74**
884	6.0	68379.0	1.570	6.0	1.74	0	**1.74**
885	7.0	79379.0	1.822	7.0	1.74	0	**1.74**
886	8.0	90093.0	2.068	8.0	1.74	0	**1.74**
887	9.0	103701.0	2.381	9.0	1.74	0	**1.74**
888	10.0	113399.0	2.603	10.0	1.74	0	**1.74**
889	11.0	113450.0	2.604	10.0	1.74	20	**21.74**

Summary WQ Infiltration/Detention Basin A Routing result:
Drainage Area A – proposed (8.41 Ac)

Storm Frequency	**Proposed** Q_{100} (cfs)	**Det. Basin Outlet** Q_{100} (cfs)	**Det. Basin depth** (ft)
100-year 1-hour	25.149	1.74	2.72
100-year 3-hour	14.211	1.74	3.40
100-year 6-hour	13.077	1.74	3.85
100-year 24-hour	5.232	1.74	**4.42**

Basin Outlet Q100 maximum = 1.74 cfs, infiltration basin outlet
No outflow to emergency SD outlet.

See Attachment C for complete calculations.

CONCLUSIONS

The development of Riverside Hauling Yard will provide for the proposed facility for Burrtec Waste Industries and the construction of a storm drain system that will:

- Safely intercept offsite flows and convey through the site without co-mingling these flows with untreated onsite developed flows.

- Generally maintain the drainage patterns and discharge locations.

- In complying with Santa Ana Region NPDES-MS4 Permit requirements, safely intercept Design Capture Volume and convey onsite developed storm flows to onsite Water Quality Treatment Control Infiltration Basin.

- Provide emergency by-pass for 100-year storm event without damage the BMPs.

- Control outlet velocities such that downstream erosion potential is minimized and outlet flows are released in a safe manner.

The proposed backbone storm drain systems are designed for the ultimate / proposed condition to convey the 100-year storm event. All necessary drainage easements will be provided as required. A final report will be prepared to accurately document the sizing of proposed storm drain, infiltration basin, catch basins/inlets, and will include storm drain water surface profile calculations to make sure that the system is capable of conveying the 100-year storm event. The storm drain system design will include water quality BMPs, the various water quality BMPs will provide mitigation as currently proposed and as processed through the County's review and approval process. Potential project impacts related to drainage runoff and water quality will be mitigated in accordance with Riverside County's MS4 Permit requirements.

REFERENCES

1. County of Riverside Hydrology Manual, 1978, as incorporated in the Civildesign Rational Method Hydrology Software.

2. CivilCADD/Design Engineering Software, version 7.1.

3. Riverside Hauling Yard Grading Plan by K&A.

4. County of Riverside Topographic Maps

5. WSPG, Los Angeles County Public Works Water Surface Profile software - Storm Drain Analysis Plus by CivilSoft.

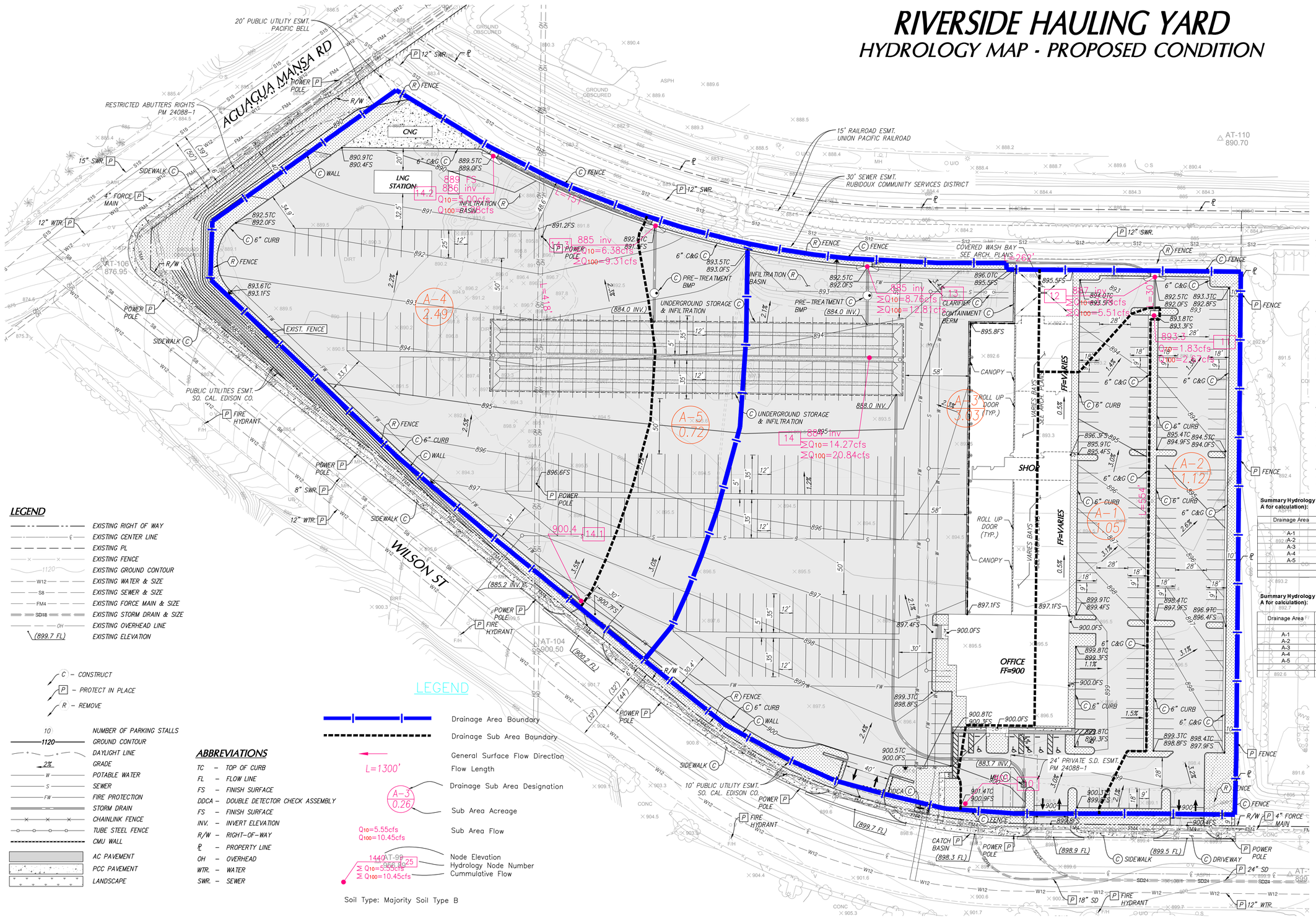
6. Hydraulic Calculations software by Bentley, Flow Master V8i

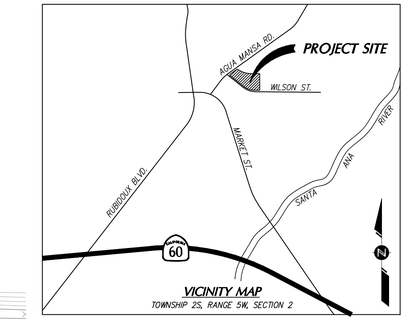
FIGURES

FIGURE 2
Hydrology Map
Proposed Condition

RIVERSIDE HAULING YARD

HYDROLOGY MAP - PROPOSED CONDITION





PROJECT INFORMATION:

APPLICANT: BURRTEC WASTE INDUSTRIES INC.
LOCATION: WILSON ST. JURUPA VALLEY CA
APN: 175-180-012 & 175-180-016
ZONING: M-H

SITE SUMMARY:

OFFICE: 10,275 S.F.
MAINTENANCE BUILDING: 19,137 S.F.
AC PAVED AREA: 300,250 S.F.
PCC PAVED AREA: 10,053 S.F.
LANDSCAPE AREA: 46,960 S.F.
TOTAL DISTURBED AREA: 386,675 S.F. (8.88 AC)

TOTAL SITE AREA: 427,611 S.F. (9.82 AC)

PARKING SUMMARY:

STANDARD PARKING: 180
ADA PARKING: 7
TRASH TRUCK PARKING: 163
MAINTENANCE VAN PARKING: 18
MAINTENANCE TRUCK PARKING: 7

PUBLIC IMPROVEMENTS:

DRIVEWAY: 4
SIDEWALK: 8,825 S.F.

Summary Hydrology Drainage Area A, Proposed Condition – Rational Method 10-year storm (see Attachment A for calculation):

Drainage Area	Area in Acre	Q_{10} sub-area in cfs	Q_{10} confluence in cfs
A-1	1.05	1.83	
A-2	1.12	1.94	3.78
A-3	3.03	4.99	8.76
A-4	2.49	5.00	
A-5	0.72	1.39	14.27
			14.27

Summary Hydrology Drainage Area A, Proposed Condition – Rational Method 100-year storm (see Attachment A for calculation):

Drainage Area	Area in Acre	Q_{100} sub-area in cfs	Q_{100} confluence in cfs	Total Area In Acre
A-1	1.05	2.67		1.05
A-2	1.12	2.84	5.51	2.17
A-3	3.03	7.31	12.81	5.20
A-4	2.49	7.28		
A-5	0.72	2.03	9.31	3.21
			20.84	**8.41**

LEGEND

- EXISTING RIGHT OF WAY
- EXISTING CENTER LINE
- EXISTING PL
- EXISTING FENCE
- EXISTING GROUND CONTOUR
- EXISTING WATER & SIZE
- EXISTING SEWER & SIZE
- EXISTING FORCE MAIN & SIZE
- EXISTING STORM DRAIN & SIZE
- EXISTING OVERHEAD LINE
- EXISTING ELEVATION

C – CONSTRUCT
P – PROTECT IN PLACE
R – REMOVE

- NUMBER OF PARKING STALLS
- GROUND CONTOUR
- DAYLIGHT LINE
- GRADE
- POTABLE WATER
- SEWER
- FIRE PROTECTION
- STORM DRAIN
- CHAINLINK FENCE
- TUBE STEEL FENCE
- CMU WALL
- AC PAVEMENT
- PCC PAVEMENT
- LANDSCAPE

ABBREVIATIONS

TC – TOP OF CURB
FL – FLOW LINE
FS – FINISH SURFACE
DDCA – DOUBLE DETECTOR CHECK ASSEMBLY
FS – FINISH SURFACE
INV. – INVERT ELEVATION
R/W – RIGHT-OF-WAY
℄ – PROPERTY LINE
OH – OVERHEAD
WTR. – WATER
SWR. – SEWER

LEGEND

- Drainage Area Boundary
- Drainage Sub Area Boundary
- General Surface Flow Direction
- L=1300' Flow Length
- A-3 0.26 Drainage Sub Area Designation
- Sub Area Acreage
- Q10=5.55cfs Q100=10.45cfs Sub Area Flow
- 1440 AT-99 956.80 0.25 ΣQ10=5.55cfs ΣQ100=10.45cfs Node Elevation / Hydrology Node Number / Cummulative Flow

Soil Type: Majority Soil Type B

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.
Underground Service Alert
Call: TOLL FREE
1-800
422-4133
TWO WORKING DAYS BEFORE YOU DIG

...\...\Image-Photo\Image-JV CITY LOGO.JPG

8930 LIMONITE AVE
JURUPA VALLEY, CA 92509
TEL: (951) 332-6464
EMAIL: ENGINEERING@JURUPAVALLEY.ORG

IMPORTANT NOTE:
THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER. AFTER THE TWO (2) YEAR PERIOD HAS LAPSED, THE ENGINEER OF RECORD MAY BE REQUIRED TO SUBMIT AND PROCESS FOR CITY ENGINEER APPROVAL, UPDATED PLANS THAT COMPLY WITH THE MOST CURRENT CITY STANDARDS, PRACTICES, AND POLICIES.

MARK	DATE	INITIAL	DESCRIPTION	REC.	APPR	DATE
		E.O.R.	REVISION			

BENCHMARK:
SEE SHEET 1

BASIS OF BEARING:
SEE SHEET 1

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER
KEITH G. OSBORN
No. 36996
CIVIL
STATE OF CALIFORNIA

K&A Engineering, Inc.
ENGINEERING
LAND PLANNING
SURVEYING
357 N. SHERIDAN STREET
SUITE 117
CORONA, CALIFORNIA 92880
TEL. (951) 279-1800
FAX (951) 279-4380

PLANS PREPARED UNDER THE SUPERVISION OF:

KEITH G. OSBORN
R.C.E. #36996 (EXP. / /)
DATE

CITY OF JURUPA VALLEY

BURRTEC WASTE INDUSTRIES INC.
RIVERSIDE HAULING YARD
HYDROLOGY MAP - PROPOSED CONDITIONS

FOR:
W.O
CITY I. D. NO.

ACCT. NO.
FIGURE 2
SHEET 1 OF

Drawing: C:\K&A projects\180 917 Burtec\917 - PRELIM - Hydro.dwg Layout: 24x36 L Saved: 6/3/2021 1:33 PM Plotted: 6/3/2021 1:37 PM By: JV

ATTACHMENTS

ATTACHMENT A

Rational Methods – Hydrology

10- and 100-year storm

Rational Methods

```
               Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
       Rational Hydrology Study        Date: 05/27/21  File:burrtec10.out
----------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Hydrology Proposed Condition
10-year storm


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

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

----------------------------------------------------------------------


Program License Serial Number 4029

----------------------------------------------------------------------
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 [ Riverside ] area used.
10 year storm 10 minute intensity =  1.880(In/Hr)
10 year storm 60 minute intensity =  0.700(In/Hr)
100 year storm 10 minute intensity =  2.680(In/Hr)
100 year storm 60 minute intensity =  1.000(In/Hr)

Storm event year =  10.0
Calculated rainfall intensity data:
1 hour intensity =  0.700(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   554.000(Ft.)
Top (of initial area) elevation =   901.000(Ft.)
Bottom (of initial area) elevation =   893.300(Ft.)
Difference in elevation =     7.700(Ft.)
Slope =    0.01390  s(percent)=       1.39
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.829 min.
Rainfall intensity =      2.008(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.869
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
Initial subarea runoff =      1.833(CFS)
Total initial stream area =        1.050(Ac.)
Pervious area fraction = 0.100
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   887.500(Ft.)
Downstream point/station elevation =   887.000(Ft.)
Pipe length  =    30.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     1.833(CFS)
Nearest computed pipe diameter  =      9.00(In.)
Calculated individual pipe flow  =     1.833(CFS)
Normal flow depth in pipe =    6.42(In.)
Flow top width inside pipe =    8.14(In.)
Critical Depth =    7.43(In.)
Pipe flow velocity =      5.43(Ft/s)
Travel time through pipe =    0.09 min.
Time of concentration (TC) =     8.92 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.869
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 =     8.92 min.
Rainfall intensity =      1.997(In/Hr) for a    10.0 year storm
Subarea runoff =      1.944(CFS) for      1.120(Ac.)
Total runoff =      3.776(CFS)        Total area =       2.170(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   887.000(Ft.)
Downstream point/station elevation =   885.000(Ft.)
Pipe length  =   262.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.776(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     3.776(CFS)
Normal flow depth in pipe =    8.98(In.)
Flow top width inside pipe =   14.71(In.)
Critical Depth =    9.43(In.)
Pipe flow velocity =      4.93(Ft/s)
Travel time through pipe =    0.89 min.
Time of concentration (TC) =     9.81 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** 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 =     9.81 min.
Rainfall intensity =      1.896(In/Hr) for a    10.0 year storm
Subarea runoff =      4.985(CFS) for      3.030(Ac.)
```

```
Total runoff =      8.761(CFS)        Total area =       5.200(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   885.000(Ft.)
Downstream point/station elevation =   884.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     8.761(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     8.761(CFS)
Normal flow depth in pipe =   12.56(In.)
Flow top width inside pipe =   16.53(In.)
Critical Depth =   13.74(In.)
Pipe flow velocity =      6.65(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =    10.06 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.200(Ac.)
Runoff from this stream =      8.761(CFS)
Time of concentration =   10.06 min.
Rainfall intensity =     1.869(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.100 to Point/Station       14.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   418.000(Ft.)
Top (of initial area) elevation =   900.400(Ft.)
Bottom (of initial area) elevation =   889.000(Ft.)
Difference in elevation =    11.400(Ft.)
Slope =    0.02727  s(percent)=       2.73
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.894 min.
Rainfall intensity =      2.301(In/Hr) for a    10.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.872
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
Initial subarea runoff =      4.995(CFS)
Total initial stream area =        2.490(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.200 to Point/Station       14.300
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   886.000(Ft.)
Downstream point/station elevation =   885.000(Ft.)
Pipe length  =   151.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     4.995(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     4.995(CFS)
Normal flow depth in pipe =   11.67(In.)
Flow top width inside pipe =   12.47(In.)
Critical Depth =   10.88(In.)
Pipe flow velocity =      4.87(Ft/s)
```

```
Travel time through pipe =    0.52 min.
Time of concentration (TC) =     7.41 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.200 to Point/Station       14.300
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.871
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 =     7.41 min.
Rainfall intensity =      2.211(In/Hr) for a    10.0 year storm
Subarea runoff =      1.387(CFS) for      0.720(Ac.)
Total runoff =      6.382(CFS)        Total area =       3.210(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.300 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   885.000(Ft.)
Downstream point/station elevation =   884.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     6.382(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     6.382(CFS)
Normal flow depth in pipe =   12.14(In.)
Flow top width inside pipe =   11.78(In.)
Critical Depth =   12.22(In.)
Pipe flow velocity =      6.00(Ft/s)
Travel time through pipe =    0.28 min.
Time of concentration (TC) =     7.69 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.300 to Point/Station       14.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.210(Ac.)
Runoff from this stream =      6.382(CFS)
Time of concentration =    7.69 min.
Rainfall intensity =     2.167(In/Hr)
Summary of stream data:

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


1        8.761     10.06                 1.869
2        6.382      7.69                 2.167
Largest stream flow has longer time of concentration
Qp =      8.761 + sum of
         Qb         Ia/Ib
          6.382 *    0.863 =      5.505
Qp =     14.267

Total of 2 streams to confluence:
Flow rates before confluence point:
       8.761       6.382
Area of streams before confluence:
        5.200        3.210
Results of confluence:
Total flow rate =     14.267(CFS)
Time of concentration =    10.058 min.
```

```
Effective stream area after confluence =      8.410(Ac.)
End of computations, total study area =            8.41 (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 =  56.0
```

```
               Riverside County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c) 1989 - 2005 Version 7.1
       Rational Hydrology Study        Date: 05/27/21  File:burrtec100.out
------------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Hydrology Proposed Condition
100-year storm


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

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

------------------------------------------------------------------------


Program License Serial Number 4029

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

Storm event (year) =  100.00 Antecedent Moisture Condition = 3

Standard intensity-duration curves data (Plate D-4.1)
For the [ Riverside ] area used.
10 year storm 10 minute intensity =  1.880(In/Hr)
10 year storm 60 minute intensity =  0.700(In/Hr)
100 year storm 10 minute intensity =  2.680(In/Hr)
100 year storm 60 minute intensity =  1.000(In/Hr)

Storm event year = 100.0
Calculated rainfall intensity data:
1 hour intensity =  1.000(In/Hr)
Slope of intensity duration curve = 0.5500




++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   554.000(Ft.)
Top (of initial area) elevation =   901.000(Ft.)
Bottom (of initial area) elevation =   893.300(Ft.)
Difference in elevation =     7.700(Ft.)
Slope =    0.01390  s(percent)=       1.39
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    8.829 min.
Rainfall intensity =      2.869(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.888
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 3)  =  74.80
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      2.674(CFS)
Total initial stream area =        1.050(Ac.)
Pervious area fraction = 0.100
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   887.500(Ft.)
Downstream point/station elevation =   887.000(Ft.)
Pipe length  =    30.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     2.674(CFS)
Nearest computed pipe diameter  =     12.00(In.)
Calculated individual pipe flow  =     2.674(CFS)
Normal flow depth in pipe =    6.57(In.)
Flow top width inside pipe =   11.94(In.)
Critical Depth =    8.41(In.)
Pipe flow velocity =      6.08(Ft/s)
Travel time through pipe =    0.08 min.
Time of concentration (TC) =     8.91 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       11.000 to Point/Station       12.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.888
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 3)  =  74.80
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     8.91 min.
Rainfall intensity =      2.854(In/Hr) for a   100.0 year storm
Subarea runoff =      2.838(CFS) for      1.120(Ac.)
Total runoff =      5.513(CFS)        Total area =       2.170(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   887.000(Ft.)
Downstream point/station elevation =   885.000(Ft.)
Pipe length  =   262.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.513(CFS)
Nearest computed pipe diameter  =     15.00(In.)
Calculated individual pipe flow  =     5.513(CFS)
Normal flow depth in pipe =   12.00(In.)
Flow top width inside pipe =   12.00(In.)
Critical Depth =   11.41(In.)
Pipe flow velocity =      5.24(Ft/s)
Travel time through pipe =    0.83 min.
Time of concentration (TC) =     9.74 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       12.000 to Point/Station       13.000
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.887
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 3)  =  74.80
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     9.74 min.
Rainfall intensity =      2.717(In/Hr) for a   100.0 year storm
Subarea runoff =      7.305(CFS) for      3.030(Ac.)
Total runoff =     12.818(CFS)        Total area =       5.200(Ac.)
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   885.000(Ft.)
Downstream point/station elevation =   884.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    12.818(CFS)
Nearest computed pipe diameter  =     21.00(In.)
Calculated individual pipe flow  =    12.818(CFS)
Normal flow depth in pipe =   14.32(In.)
Flow top width inside pipe =   19.56(In.)
Critical Depth =   16.00(In.)
Pipe flow velocity =      7.33(Ft/s)
Travel time through pipe =    0.23 min.
Time of concentration (TC) =     9.97 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       13.000 to Point/Station       14.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________
Along Main Stream number: 1 in normal stream number 1
Stream flow area =      5.200(Ac.)
Runoff from this stream =     12.818(CFS)
Time of concentration =    9.97 min.
Rainfall intensity =     2.683(In/Hr)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.100 to Point/Station       14.200
**** INITIAL AREA EVALUATION ****
______________________________________________________________________
Initial area flow distance =   418.000(Ft.)
Top (of initial area) elevation =   900.400(Ft.)
Bottom (of initial area) elevation =   889.000(Ft.)
Difference in elevation =    11.400(Ft.)
Slope =    0.02727  s(percent)=       2.73
TC = k(0.300)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration =    6.894 min.
Rainfall intensity =      3.287(In/Hr) for a   100.0 year storm
COMMERCIAL subarea type
Runoff Coefficient = 0.889
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 3)  =  74.80
Pervious area fraction =  0.100; Impervious fraction =  0.900
Initial subarea runoff =      7.278(CFS)
Total initial stream area =        2.490(Ac.)
Pervious area fraction = 0.100


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.200 to Point/Station       14.300
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   886.000(Ft.)
Downstream point/station elevation =   885.000(Ft.)
Pipe length  =   151.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     7.278(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     7.278(CFS)
Normal flow depth in pipe =   12.77(In.)
Flow top width inside pipe =   16.34(In.)
Critical Depth =   12.53(In.)
Pipe flow velocity =      5.43(Ft/s)
Travel time through pipe =    0.46 min.
Time of concentration (TC) =     7.36 min.
```

```
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.200 to Point/Station       14.300
**** SUBAREA FLOW ADDITION ****
______________________________________________________________________
COMMERCIAL subarea type
Runoff Coefficient = 0.889
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 3)  =  74.80
Pervious area fraction =  0.100; Impervious fraction =  0.900
Time of concentration =     7.36 min.
Rainfall intensity =      3.172(In/Hr) for a   100.0 year storm
Subarea runoff =      2.030(CFS) for      0.720(Ac.)
Total runoff =      9.308(CFS)        Total area =       3.210(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.300 to Point/Station       14.000
**** PIPEFLOW TRAVEL TIME (Program estimated size) ****
______________________________________________________________________
Upstream point/station elevation =   885.000(Ft.)
Downstream point/station elevation =   884.000(Ft.)
Pipe length  =   100.00(Ft.)   Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.308(CFS)
Nearest computed pipe diameter  =     18.00(In.)
Calculated individual pipe flow  =     9.308(CFS)
Normal flow depth in pipe =   13.17(In.)
Flow top width inside pipe =   15.95(In.)
Critical Depth =   14.16(In.)
Pipe flow velocity =      6.71(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =     7.61 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       14.300 to Point/Station       14.000
**** CONFLUENCE OF MINOR STREAMS ****
______________________________________________________________________
Along Main Stream number: 1 in normal stream number 2
Stream flow area =      3.210(Ac.)
Runoff from this stream =      9.308(CFS)
Time of concentration =    7.61 min.
Rainfall intensity =     3.114(In/Hr)
Summary of stream data:

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


1       12.818      9.97                 2.683
2        9.308      7.61                 3.114
Largest stream flow has longer time of concentration
Qp =     12.818 + sum of
          Qb         Ia/Ib
           9.308 *    0.862 =      8.019
Qp =     20.837

Total of 2 streams to confluence:
Flow rates before confluence point:
      12.818       9.308
Area of streams before confluence:
        5.200        3.210
Results of confluence:
Total flow rate =     20.837(CFS)
Time of concentration =     9.972 min.
Effective stream area after confluence =      8.410(Ac.)
End of computations, total study area =            8.41 (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 =  56.0
```

ATTACHMENT B

Inflow Hydrographs

25- and 100-year 1-, 3-, 6-, 24-hour storm

Unit Hydrographs

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

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                Study date  06/01/21 File: bur25hyd125.out


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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
25-year 1-hour storm

-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           0.47                  3.97

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           1.14                  9.59

STORM EVENT (YEAR) =   25.00
Area Averaged 2-Year Rainfall =    0.472(In)
Area Averaged 100-Year Rainfall =    1.140(In)

Point rain (area averaged) =    0.903(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    0.903(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
```

```
        5.200          56.00        0.900
        3.210          56.00        0.950
     Total Area Entered =      8.41(Ac.)


    RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
    AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
    56.0  56.0      0.511     0.900        0.097       0.618      0.060
    56.0  56.0      0.511     0.950        0.074       0.382      0.028
                                                     Sum (F) =   0.088
    Area averaged mean soil loss (F) (In/Hr) =  0.088
    Minimum soil loss rate ((In/Hr)) =  0.044
    (for 24 hour storm duration)
    Soil low loss rate (decimal) =   0.160
    ---------------------------------------------------------------------
    Slope of intensity-duration curve for a 1 hour storm =0.5500
    ----------------------------------------------------------------------

                  U n i t  H y d r o g r a p h
                         VALLEY S-Curve
    ---------------------------------------------------------------------
                  Unit Hydrograph Data
    ---------------------------------------------------------------------
    Unit time period   Time % of lag   Distribution   Unit Hydrograph
        (hrs)                           Graph %            (CFS)
    ---------------------------------------------------------------------
        1   0.083        241.378         49.747              4.216
        2   0.167        482.756         40.594              3.441
        3   0.250        724.135          7.306              0.619
        4   0.333        965.513          2.354              0.199
                                   Sum = 100.000   Sum=       8.476
-----------------------------------------------------------------------


 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   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max   |   Low        (In/Hr)
   1   0.08     3.30      0.358       (  0.088)       0.057        0.300
   2   0.17     4.20      0.455       (  0.088)       0.073        0.382
   3   0.25     4.40      0.477       (  0.088)       0.076        0.401
   4   0.33     4.80      0.520       (  0.088)       0.083        0.437
   5   0.42     5.20      0.564          0.088    (  0.090)        0.475
   6   0.50     6.20      0.672          0.088    (  0.108)        0.584
   7   0.58     6.80      0.737          0.088    (  0.118)        0.649
   8   0.67     8.80      0.954          0.088    (  0.153)        0.866
   9   0.75    13.90      1.507          0.088    (  0.241)        1.418
  10   0.83    31.40      3.403          0.088    (  0.545)        3.315
  11   0.92     7.20      0.780          0.088    (  0.125)        0.692
  12   1.00     3.80      0.412       (  0.088)       0.066        0.346
                (Loss Rate Not Used)
     Sum =     100.0                                   Sum =     9.9
       Flood volume = Effective rainfall      0.82(In)
        times area       8.4(Ac.)/[(In)/(Ft.)] =       0.6(Ac.Ft)
       Total soil loss =      0.08(In)
       Total soil loss =     0.057(Ac.Ft)
       Total rainfall =      0.90(In)
       Flood volume =       25097.1 Cubic Feet
       Total soil loss =        2476.5 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =     19.533(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           1 - 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        5.0      10.0      15.0      20.0
```

```
  ---------------------------------------------------------------------
    0+ 5       0.0087      1.27  V Q       |         |         |         |
    0+10       0.0270      2.65  |V   Q    |         |         |         |
    0+15       0.0489      3.19  |  V  Q   |         |         |         |
    0+20       0.0732      3.52  |    V Q  |         |         |         |
    0+25       0.0996      3.83  |     VQ  |         |         |         |
    0+30       0.1302      4.45  |       QV|         |         |         |
    0+35       0.1656      5.13  |         QV        |         |         |
    0+40       0.2092      6.34  |         | Q V     |         |         |
    0+45       0.2745      9.48  |         |       QV|         |         |
    0+50       0.4090     19.53  |         |         |       V |         Q|
    0+55       0.5150     15.38  |         |         |         Q    V    |
    1+ 0       0.5575      6.18  |         | Q       |         |       V |
    1+ 5       0.5732      2.28  |   Q     |         |         |        V|
    1+10       0.5757      0.35  Q         |         |         |        V|
    1+15       0.5761      0.07  Q         |         |         |        V|
---------------------------------------------------------------------
```

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

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                Study date  06/01/21 File: bur25hyd325.out

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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
25-year 3-hour storm


-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           0.83                  6.99

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           1.89                 15.89

STORM EVENT (YEAR) =   25.00
Area Averaged 2-Year Rainfall =    0.831(In)
Area Averaged 100-Year Rainfall =    1.890(In)

Point rain (area averaged) =    1.515(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.515(In)

Sub-Area Data:
```

Area(Ac.)	Runoff Index	Impervious %
5.200	56.00	0.900
3.210	56.00	0.950

Total Area Entered = 8.41(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	56.0	0.511	0.900	0.097	0.618	0.060
56.0	56.0	0.511	0.950	0.074	0.382	0.028
					Sum (F) =	0.088

Area averaged mean soil loss (F) (In/Hr) = 0.088
Minimum soil loss rate ((In/Hr)) = 0.044
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.160

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	241.378	49.747	4.216
2	0.167	482.756	40.594	3.441
3	0.250	724.135	7.306	0.619
4	0.333	965.513	2.354	0.199
			Sum = 100.000	Sum= 8.476

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	1.30	0.236	(0.088)	0.038	0.198
2	0.17	1.30	0.236	(0.088)	0.038	0.198
3	0.25	1.10	0.200	(0.088)	0.032	0.168
4	0.33	1.50	0.273	(0.088)	0.044	0.229
5	0.42	1.50	0.273	(0.088)	0.044	0.229
6	0.50	1.80	0.327	(0.088)	0.052	0.275
7	0.58	1.50	0.273	(0.088)	0.044	0.229
8	0.67	1.80	0.327	(0.088)	0.052	0.275
9	0.75	1.80	0.327	(0.088)	0.052	0.275
10	0.83	1.50	0.273	(0.088)	0.044	0.229
11	0.92	1.60	0.291	(0.088)	0.047	0.244
12	1.00	1.80	0.327	(0.088)	0.052	0.275
13	1.08	2.20	0.400	(0.088)	0.064	0.336
14	1.17	2.20	0.400	(0.088)	0.064	0.336
15	1.25	2.20	0.400	(0.088)	0.064	0.336
16	1.33	2.00	0.364	(0.088)	0.058	0.305
17	1.42	2.60	0.473	(0.088)	0.076	0.397
18	1.50	2.70	0.491	(0.088)	0.079	0.412
19	1.58	2.40	0.436	(0.088)	0.070	0.366
20	1.67	2.70	0.491	(0.088)	0.079	0.412
21	1.75	3.30	0.600	0.088	(0.096)	0.512
22	1.83	3.10	0.563	0.088	(0.090)	0.475
23	1.92	2.90	0.527	(0.088)	0.084	0.443
24	2.00	3.00	0.545	(0.088)	0.087	0.458
25	2.08	3.10	0.563	0.088	(0.090)	0.475
26	2.17	4.20	0.763	0.088	(0.122)	0.675
27	2.25	5.00	0.909	0.088	(0.145)	0.821
28	2.33	3.50	0.636	0.088	(0.102)	0.548
29	2.42	6.80	1.236	0.088	(0.198)	1.148
30	2.50	7.30	1.327	0.088	(0.212)	1.239
31	2.58	8.20	1.490	0.088	(0.238)	1.402
32	2.67	5.90	1.072	0.088	(0.172)	0.984
33	2.75	2.00	0.364	(0.088)	0.058	0.305

```
 34   2.83     1.80      0.327       (  0.088)       0.052        0.275
 35   2.92     1.80      0.327       (  0.088)       0.052        0.275
 36   3.00     0.60      0.109       (  0.088)       0.017        0.092
               (Loss Rate Not Used)
    Sum =     100.0                                   Sum =    15.9
      Flood volume = Effective rainfall      1.32(In)
       times area       8.4(Ac.)/[(In)/(Ft.)] =       0.9(Ac.Ft)
      Total soil loss =      0.19(In)
      Total soil loss =     0.136(Ac.Ft)
      Total rainfall =      1.51(In)
      Flood volume =       40324.8 Cubic Feet
      Total soil loss =        5915.5 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     10.999(CFS)
      ---------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          3 - 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        5.0      10.0      15.0      20.0
 ---------------------------------------------------------------------------
   0+ 5       0.0058      0.84  VQ        |         |         |         |
   0+10       0.0162      1.52  V  Q      |         |         |         |
   0+15       0.0267      1.51  |V Q      |         |         |         |
   0+20       0.0384      1.71  |V Q      |         |         |         |
   0+25       0.0515      1.90  | VQ      |         |         |         |
   0+30       0.0661      2.12  | V Q     |         |         |         |
   0+35       0.0806      2.10  |  VQ     |         |         |         |
   0+40       0.0955      2.16  |   Q     |         |         |         |
   0+45       0.1113      2.30  |   Q     |         |         |         |
   0+50       0.1260      2.13  |   QV    |         |         |         |
   0+55       0.1401      2.04  |   Q V   |         |         |         |
   1+ 0       0.1552      2.20  |   Q V   |         |         |         |
   1+ 5       0.1728      2.56  |    Q V  |         |         |         |
   1+10       0.1921      2.79  |    Q  V |         |         |         |
   1+15       0.2116      2.84  |    Q   V|         |         |         |
   1+20       0.2303      2.72  |    Q   V|         |         |         |
   1+25       0.2510      3.00  |     Q   V         |         |         |
   1+30       0.2741      3.36  |     Q   |V        |         |         |
   1+35       0.2967      3.27  |     Q   | V       |         |         |
   1+40       0.3196      3.34  |     Q   |  V      |         |         |
   1+45       0.3464      3.89  |      Q  |   V     |         |         |
   1+50       0.3746      4.09  |       Q |     V   |         |         |
   1+55       0.4015      3.90  |      Q  |      V  |         |         |
   2+ 0       0.4280      3.85  |      Q  |       V |         |         |
   2+ 5       0.4552      3.95  |      Q  |        V|         |         |
   2+10       0.4887      4.86  |        Q|         |V        |         |
   2+15       0.5312      6.17  |         | Q       | V       |         |
   2+20       0.5701      5.65  |         |Q        |   V     |         |
   2+25       0.6208      7.37  |         |   Q     |     V   |         |
   2+30       0.6875      9.68  |         |        Q|        V|         |
   2+35       0.7633     11.00  |         |         |Q        | V       |
   2+40       0.8320      9.97  |         |        Q|         |    V    |
   2+45       0.8718      5.79  |         |Q        |         |      V  |
   2+50       0.8932      3.10  |     Q   |         |         |       V |
   2+55       0.9103      2.49  |   Q     |         |         |        V|
   3+ 0       0.9211      1.56  |  Q      |         |         |        V|
   3+ 5       0.9248      0.54  |Q        |         |         |        V|
   3+10       0.9256      0.11  Q         |         |         |        V|
   3+15       0.9257      0.02  Q         |         |         |        V|
---------------------------------------------------------------------------
```

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

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                Study date  06/01/21 File: bur25hyd625.out


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
----------------------------------------------------------------------

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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
25-year 6-hour storm

-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           1.15                  9.67

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           2.61                 21.95

STORM EVENT (YEAR) =   25.00
Area Averaged 2-Year Rainfall =    1.150(In)
Area Averaged 100-Year Rainfall =    2.610(In)

Point rain (area averaged) =    2.093(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.093(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
```

```
     5.200          56.00         0.900
     3.210          56.00         0.950
 Total Area Entered =      8.41(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.900        0.097       0.618      0.060
56.0  56.0      0.511     0.950        0.074       0.382      0.028
                                                 Sum (F) =   0.088
Area averaged mean soil loss (F) (In/Hr) =  0.088
Minimum soil loss rate ((In/Hr)) =  0.044
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.160
----------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      VALLEY S-Curve
----------------------------------------------------------------------
               Unit Hydrograph Data
----------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %            (CFS)
----------------------------------------------------------------------
    1   0.083        241.378         49.747              4.216
    2   0.167        482.756         40.594              3.441
    3   0.250        724.135          7.306              0.619
    4   0.333        965.513          2.354              0.199
                                Sum = 100.000   Sum=       8.476
----------------------------------------------------------------------
```

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	0.50	0.126	(0.088)	0.020	0.105
2	0.17	0.60	0.151	(0.088)	0.024	0.127
3	0.25	0.60	0.151	(0.088)	0.024	0.127
4	0.33	0.60	0.151	(0.088)	0.024	0.127
5	0.42	0.60	0.151	(0.088)	0.024	0.127
6	0.50	0.70	0.176	(0.088)	0.028	0.148
7	0.58	0.70	0.176	(0.088)	0.028	0.148
8	0.67	0.70	0.176	(0.088)	0.028	0.148
9	0.75	0.70	0.176	(0.088)	0.028	0.148
10	0.83	0.70	0.176	(0.088)	0.028	0.148
11	0.92	0.70	0.176	(0.088)	0.028	0.148
12	1.00	0.80	0.201	(0.088)	0.032	0.169
13	1.08	0.80	0.201	(0.088)	0.032	0.169
14	1.17	0.80	0.201	(0.088)	0.032	0.169
15	1.25	0.80	0.201	(0.088)	0.032	0.169
16	1.33	0.80	0.201	(0.088)	0.032	0.169
17	1.42	0.80	0.201	(0.088)	0.032	0.169
18	1.50	0.80	0.201	(0.088)	0.032	0.169
19	1.58	0.80	0.201	(0.088)	0.032	0.169
20	1.67	0.80	0.201	(0.088)	0.032	0.169
21	1.75	0.80	0.201	(0.088)	0.032	0.169
22	1.83	0.80	0.201	(0.088)	0.032	0.169
23	1.92	0.80	0.201	(0.088)	0.032	0.169
24	2.00	0.90	0.226	(0.088)	0.036	0.190
25	2.08	0.80	0.201	(0.088)	0.032	0.169
26	2.17	0.90	0.226	(0.088)	0.036	0.190
27	2.25	0.90	0.226	(0.088)	0.036	0.190
28	2.33	0.90	0.226	(0.088)	0.036	0.190
29	2.42	0.90	0.226	(0.088)	0.036	0.190
30	2.50	0.90	0.226	(0.088)	0.036	0.190
31	2.58	0.90	0.226	(0.088)	0.036	0.190
32	2.67	0.90	0.226	(0.088)	0.036	0.190
33	2.75	1.00	0.251	(0.088)	0.040	0.211
34	2.83	1.00	0.251	(0.088)	0.040	0.211

```
35   2.92     1.00      0.251       (  0.088)       0.040        0.211
36   3.00     1.00      0.251       (  0.088)       0.040        0.211
37   3.08     1.00      0.251       (  0.088)       0.040        0.211
38   3.17     1.10      0.276       (  0.088)       0.044        0.232
39   3.25     1.10      0.276       (  0.088)       0.044        0.232
40   3.33     1.10      0.276       (  0.088)       0.044        0.232
41   3.42     1.20      0.301       (  0.088)       0.048        0.253
42   3.50     1.30      0.326       (  0.088)       0.052        0.274
43   3.58     1.40      0.352       (  0.088)       0.056        0.295
44   3.67     1.40      0.352       (  0.088)       0.056        0.295
45   3.75     1.50      0.377       (  0.088)       0.060        0.316
46   3.83     1.50      0.377       (  0.088)       0.060        0.316
47   3.92     1.60      0.402       (  0.088)       0.064        0.337
48   4.00     1.60      0.402       (  0.088)       0.064        0.337
49   4.08     1.70      0.427       (  0.088)       0.068        0.359
50   4.17     1.80      0.452       (  0.088)       0.072        0.380
51   4.25     1.90      0.477       (  0.088)       0.076        0.401
52   4.33     2.00      0.502       (  0.088)       0.080        0.422
53   4.42     2.10      0.527       (  0.088)       0.084        0.443
54   4.50     2.10      0.527       (  0.088)       0.084        0.443
55   4.58     2.20      0.552          0.088    (  0.088)        0.464
56   4.67     2.30      0.578          0.088    (  0.092)        0.489
57   4.75     2.40      0.603          0.088    (  0.096)        0.514
58   4.83     2.40      0.603          0.088    (  0.096)        0.514
59   4.92     2.50      0.628          0.088    (  0.100)        0.539
60   5.00     2.60      0.653          0.088    (  0.104)        0.565
61   5.08     3.10      0.778          0.088    (  0.125)        0.690
62   5.17     3.60      0.904          0.088    (  0.145)        0.816
63   5.25     3.90      0.979          0.088    (  0.157)        0.891
64   5.33     4.20      1.055          0.088    (  0.169)        0.966
65   5.42     4.70      1.180          0.088    (  0.189)        1.092
66   5.50     5.60      1.406          0.088    (  0.225)        1.318
67   5.58     1.90      0.477       (  0.088)       0.076        0.401
68   5.67     0.90      0.226       (  0.088)       0.036        0.190
69   5.75     0.60      0.151       (  0.088)       0.024        0.127
70   5.83     0.50      0.126       (  0.088)       0.020        0.105
71   5.92     0.30      0.075       (  0.088)       0.012        0.063
72   6.00     0.20      0.050       (  0.088)       0.008        0.042
              (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    21.6
      Flood volume = Effective rainfall      1.80(In)
       times area       8.4(Ac.)/[(In)/(Ft.)] =       1.3(Ac.Ft)
      Total soil loss =      0.29(In)
      Total soil loss =     0.204(Ac.Ft)
      Total rainfall =      2.09(In)
      Flood volume =       55003.6 Cubic Feet
      Total soil loss =        8878.8 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     10.095(CFS)
      ---------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - 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        5.0      10.0      15.0      20.0
-------------------------------------------------------------------------
  0+ 5       0.0031      0.44  Q         |         |         |         |
  0+10       0.0092      0.90  VQ        |         |         |         |
  0+15       0.0164      1.03  V Q       |         |         |         |
  0+20       0.0237      1.07  V Q       |         |         |         |
  0+25       0.0311      1.07  V Q       |         |         |         |
  0+30       0.0391      1.16  |VQ       |         |         |         |
  0+35       0.0476      1.23  |VQ       |         |         |         |
  0+40       0.0562      1.25  |VQ       |         |         |         |
  0+45       0.0648      1.25  | Q       |         |         |         |
  0+50       0.0735      1.25  | Q       |         |         |         |
  0+55       0.0821      1.25  | Q       |         |         |         |
  1+ 0       0.0913      1.34  | Q       |         |         |         |
```

```
    1+ 5       0.1011      1.41  | QV      |         |         |         |
    1+10       0.1109      1.43  | QV      |         |         |         |
    1+15       0.1207      1.43  | QV      |         |         |         |
    1+20       0.1306      1.43  | Q V     |         |         |         |
    1+25       0.1405      1.43  | Q V     |         |         |         |
    1+30       0.1503      1.43  | Q V     |         |         |         |
    1+35       0.1602      1.43  | Q  V    |         |         |         |
    1+40       0.1700      1.43  | Q  V    |         |         |         |
    1+45       0.1799      1.43  | Q  V    |         |         |         |
    1+50       0.1897      1.43  | Q   V   |         |         |         |
    1+55       0.1996      1.43  | Q   V   |         |         |         |
    2+ 0       0.2101      1.52  |  Q  V   |         |         |         |
    2+ 5       0.2204      1.50  |  Q  V   |         |         |         |
    2+10       0.2310      1.53  |  Q   V  |         |         |         |
    2+15       0.2420      1.60  |  Q   V  |         |         |         |
    2+20       0.2530      1.61  |  Q    V |         |         |         |
    2+25       0.2641      1.61  |  Q    V |         |         |         |
    2+30       0.2752      1.61  |  Q    V |         |         |         |
    2+35       0.2863      1.61  |  Q     V|         |         |         |
    2+40       0.2974      1.61  |  Q     V|         |         |         |
    2+45       0.3091      1.70  |  Q     V|         |         |         |
    2+50       0.3213      1.77  |  Q      V         |         |         |
    2+55       0.3336      1.78  |  Q      V         |         |         |
    3+ 0       0.3459      1.79  |  Q      V         |         |         |
    3+ 5       0.3582      1.79  |  Q      |V        |         |         |
    3+10       0.3711      1.88  |  Q      |V        |         |         |
    3+15       0.3846      1.95  |  Q      | V       |         |         |
    3+20       0.3981      1.96  |  Q      | V       |         |         |
    3+25       0.4123      2.06  |   Q     |  V      |         |         |
    3+30       0.4275      2.22  |   Q     |  V      |         |         |
    3+35       0.4440      2.39  |   Q     |   V     |         |         |
    3+40       0.4611      2.48  |   Q     |   V     |         |         |
    3+45       0.4789      2.59  |    Q    |    V    |         |         |
    3+50       0.4973      2.67  |    Q    |    V    |         |         |
    3+55       0.5164      2.77  |    Q    |     V   |         |         |
    4+ 0       0.5359      2.84  |    Q    |     V   |         |         |
    4+ 5       0.5562      2.95  |    Q    |      V  |         |         |
    4+10       0.5777      3.11  |     Q   |       V |         |         |
    4+15       0.6003      3.29  |     Q   |        V|         |         |
    4+20       0.6242      3.47  |     Q   |        V|         |         |
    4+25       0.6493      3.64  |      Q  |         V         |         |
    4+30       0.6750      3.73  |      Q  |         |V        |         |
    4+35       0.7015      3.84  |      Q  |         | V       |         |
    4+40       0.7292      4.02  |       Q |         |  V      |         |
    4+45       0.7583      4.23  |       Q |         |   V     |         |
    4+50       0.7882      4.34  |       Q |         |   V     |         |
    4+55       0.8189      4.46  |       Q |         |    V    |         |
    5+ 0       0.8510      4.66  |        Q|         |     V   |         |
    5+ 5       0.8875      5.29  |         Q         |       V |         |
    5+10       0.9307      6.27  |         | Q       |        V|         |
    5+15       0.9796      7.11  |         |   Q     |         |V        |
    5+20       1.0333      7.79  |         |    Q    |         | V       |
    5+25       1.0928      8.65  |         |      Q  |         |   V     |
    5+30       1.1623     10.10  |         |         Q         |     V   |
    5+35       1.2112      7.10  |         |   Q     |         |       V |
    5+40       1.2334      3.21  |     Q   |         |         |        V|
    5+45       1.2451      1.70  |  Q      |         |         |        V|
    5+50       1.2525      1.08  | Q       |         |         |        V|
    5+55       1.2576      0.75  |Q        |         |         |        V|
    6+ 0       1.2610      0.49  Q         |         |         |        V|
    6+ 5       1.2624      0.21  Q         |         |         |        V|
    6+10       1.2627      0.04  Q         |         |         |        V|
    6+15       1.2627      0.01  Q         |         |         |         V
---------------------------------------------------------------------------
```

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

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                Study date  06/01/21 File: bur25hyd2425.out

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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
25-year 24-hour storm

-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 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]
        8.41           2.07                 17.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           4.87                 40.96

STORM EVENT (YEAR) =   25.00
Area Averaged 2-Year Rainfall =    2.070(In)
Area Averaged 100-Year Rainfall =    4.870(In)

Point rain (area averaged) =    3.878(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    3.878(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
```

```
     5.200          56.00         0.900
     3.210          56.00         0.950
 Total Area Entered =      8.41(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
56.0  56.0      0.511     0.900        0.097       0.618      0.060
56.0  56.0      0.511     0.950        0.074       0.382      0.028
                                                  Sum (F) =   0.088
Area averaged mean soil loss (F) (In/Hr) =  0.088
Minimum soil loss rate ((In/Hr)) =  0.044
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.160
---------------------------------------------------------------------

               U n i t  H y d r o g r a p h
                      VALLEY S-Curve
---------------------------------------------------------------------
               Unit Hydrograph Data
---------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
    (hrs)                           Graph %            (CFS)
---------------------------------------------------------------------
    1   0.083        241.378         49.747              4.216
    2   0.167        482.756         40.594              3.441
    3   0.250        724.135          7.306              0.619
    4   0.333        965.513          2.354              0.199
                                Sum = 100.000   Sum=       8.476
---------------------------------------------------------------------
```

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	0.031	(0.156)	0.005	0.026
2	0.17	0.07	0.031	(0.156)	0.005	0.026
3	0.25	0.07	0.031	(0.155)	0.005	0.026
4	0.33	0.10	0.047	(0.155)	0.007	0.039
5	0.42	0.10	0.047	(0.154)	0.007	0.039
6	0.50	0.10	0.047	(0.153)	0.007	0.039
7	0.58	0.10	0.047	(0.153)	0.007	0.039
8	0.67	0.10	0.047	(0.152)	0.007	0.039
9	0.75	0.10	0.047	(0.152)	0.007	0.039
10	0.83	0.13	0.062	(0.151)	0.010	0.052
11	0.92	0.13	0.062	(0.150)	0.010	0.052
12	1.00	0.13	0.062	(0.150)	0.010	0.052
13	1.08	0.10	0.047	(0.149)	0.007	0.039
14	1.17	0.10	0.047	(0.149)	0.007	0.039
15	1.25	0.10	0.047	(0.148)	0.007	0.039
16	1.33	0.10	0.047	(0.148)	0.007	0.039
17	1.42	0.10	0.047	(0.147)	0.007	0.039
18	1.50	0.10	0.047	(0.146)	0.007	0.039
19	1.58	0.10	0.047	(0.146)	0.007	0.039
20	1.67	0.10	0.047	(0.145)	0.007	0.039
21	1.75	0.10	0.047	(0.145)	0.007	0.039
22	1.83	0.13	0.062	(0.144)	0.010	0.052
23	1.92	0.13	0.062	(0.143)	0.010	0.052
24	2.00	0.13	0.062	(0.143)	0.010	0.052
25	2.08	0.13	0.062	(0.142)	0.010	0.052
26	2.17	0.13	0.062	(0.142)	0.010	0.052
27	2.25	0.13	0.062	(0.141)	0.010	0.052
28	2.33	0.13	0.062	(0.141)	0.010	0.052
29	2.42	0.13	0.062	(0.140)	0.010	0.052
30	2.50	0.13	0.062	(0.139)	0.010	0.052
31	2.58	0.17	0.078	(0.139)	0.012	0.065
32	2.67	0.17	0.078	(0.138)	0.012	0.065
33	2.75	0.17	0.078	(0.138)	0.012	0.065
34	2.83	0.17	0.078	(0.137)	0.012	0.065

35	2.92	0.17	0.078	(0.137)	0.012	0.065
36	3.00	0.17	0.078	(0.136)	0.012	0.065
37	3.08	0.17	0.078	(0.135)	0.012	0.065
38	3.17	0.17	0.078	(0.135)	0.012	0.065
39	3.25	0.17	0.078	(0.134)	0.012	0.065
40	3.33	0.17	0.078	(0.134)	0.012	0.065
41	3.42	0.17	0.078	(0.133)	0.012	0.065
42	3.50	0.17	0.078	(0.133)	0.012	0.065
43	3.58	0.17	0.078	(0.132)	0.012	0.065
44	3.67	0.17	0.078	(0.132)	0.012	0.065
45	3.75	0.17	0.078	(0.131)	0.012	0.065
46	3.83	0.20	0.093	(0.130)	0.015	0.078
47	3.92	0.20	0.093	(0.130)	0.015	0.078
48	4.00	0.20	0.093	(0.129)	0.015	0.078
49	4.08	0.20	0.093	(0.129)	0.015	0.078
50	4.17	0.20	0.093	(0.128)	0.015	0.078
51	4.25	0.20	0.093	(0.128)	0.015	0.078
52	4.33	0.23	0.109	(0.127)	0.017	0.091
53	4.42	0.23	0.109	(0.127)	0.017	0.091
54	4.50	0.23	0.109	(0.126)	0.017	0.091
55	4.58	0.23	0.109	(0.126)	0.017	0.091
56	4.67	0.23	0.109	(0.125)	0.017	0.091
57	4.75	0.23	0.109	(0.124)	0.017	0.091
58	4.83	0.27	0.124	(0.124)	0.020	0.104
59	4.92	0.27	0.124	(0.123)	0.020	0.104
60	5.00	0.27	0.124	(0.123)	0.020	0.104
61	5.08	0.20	0.093	(0.122)	0.015	0.078
62	5.17	0.20	0.093	(0.122)	0.015	0.078
63	5.25	0.20	0.093	(0.121)	0.015	0.078
64	5.33	0.23	0.109	(0.121)	0.017	0.091
65	5.42	0.23	0.109	(0.120)	0.017	0.091
66	5.50	0.23	0.109	(0.120)	0.017	0.091
67	5.58	0.27	0.124	(0.119)	0.020	0.104
68	5.67	0.27	0.124	(0.119)	0.020	0.104
69	5.75	0.27	0.124	(0.118)	0.020	0.104
70	5.83	0.27	0.124	(0.118)	0.020	0.104
71	5.92	0.27	0.124	(0.117)	0.020	0.104
72	6.00	0.27	0.124	(0.117)	0.020	0.104
73	6.08	0.30	0.140	(0.116)	0.022	0.117
74	6.17	0.30	0.140	(0.115)	0.022	0.117
75	6.25	0.30	0.140	(0.115)	0.022	0.117
76	6.33	0.30	0.140	(0.114)	0.022	0.117
77	6.42	0.30	0.140	(0.114)	0.022	0.117
78	6.50	0.30	0.140	(0.113)	0.022	0.117
79	6.58	0.33	0.155	(0.113)	0.025	0.130
80	6.67	0.33	0.155	(0.112)	0.025	0.130
81	6.75	0.33	0.155	(0.112)	0.025	0.130
82	6.83	0.33	0.155	(0.111)	0.025	0.130
83	6.92	0.33	0.155	(0.111)	0.025	0.130
84	7.00	0.33	0.155	(0.110)	0.025	0.130
85	7.08	0.33	0.155	(0.110)	0.025	0.130
86	7.17	0.33	0.155	(0.109)	0.025	0.130
87	7.25	0.33	0.155	(0.109)	0.025	0.130
88	7.33	0.37	0.171	(0.108)	0.027	0.143
89	7.42	0.37	0.171	(0.108)	0.027	0.143
90	7.50	0.37	0.171	(0.107)	0.027	0.143
91	7.58	0.40	0.186	(0.107)	0.030	0.156
92	7.67	0.40	0.186	(0.106)	0.030	0.156
93	7.75	0.40	0.186	(0.106)	0.030	0.156
94	7.83	0.43	0.202	(0.105)	0.032	0.169
95	7.92	0.43	0.202	(0.105)	0.032	0.169
96	8.00	0.43	0.202	(0.104)	0.032	0.169
97	8.08	0.50	0.233	(0.104)	0.037	0.195
98	8.17	0.50	0.233	(0.104)	0.037	0.195
99	8.25	0.50	0.233	(0.103)	0.037	0.195
100	8.33	0.50	0.233	(0.103)	0.037	0.195
101	8.42	0.50	0.233	(0.102)	0.037	0.195
102	8.50	0.50	0.233	(0.102)	0.037	0.195
103	8.58	0.53	0.248	(0.101)	0.040	0.208
104	8.67	0.53	0.248	(0.101)	0.040	0.208
105	8.75	0.53	0.248	(0.100)	0.040	0.208

106	8.83	0.57	0.264	(0.100)	0.042	0.221
107	8.92	0.57	0.264	(0.099)	0.042	0.221
108	9.00	0.57	0.264	(0.099)	0.042	0.221
109	9.08	0.63	0.295	(0.098)	0.047	0.248
110	9.17	0.63	0.295	(0.098)	0.047	0.248
111	9.25	0.63	0.295	(0.097)	0.047	0.248
112	9.33	0.67	0.310	(0.097)	0.050	0.261
113	9.42	0.67	0.310	(0.096)	0.050	0.261
114	9.50	0.67	0.310	(0.096)	0.050	0.261
115	9.58	0.70	0.326	(0.095)	0.052	0.274
116	9.67	0.70	0.326	(0.095)	0.052	0.274
117	9.75	0.70	0.326	(0.095)	0.052	0.274
118	9.83	0.73	0.341	(0.094)	0.055	0.287
119	9.92	0.73	0.341	(0.094)	0.055	0.287
120	10.00	0.73	0.341	(0.093)	0.055	0.287
121	10.08	0.50	0.233	(0.093)	0.037	0.195
122	10.17	0.50	0.233	(0.092)	0.037	0.195
123	10.25	0.50	0.233	(0.092)	0.037	0.195
124	10.33	0.50	0.233	(0.091)	0.037	0.195
125	10.42	0.50	0.233	(0.091)	0.037	0.195
126	10.50	0.50	0.233	(0.091)	0.037	0.195
127	10.58	0.67	0.310	(0.090)	0.050	0.261
128	10.67	0.67	0.310	(0.090)	0.050	0.261
129	10.75	0.67	0.310	(0.089)	0.050	0.261
130	10.83	0.67	0.310	(0.089)	0.050	0.261
131	10.92	0.67	0.310	(0.088)	0.050	0.261
132	11.00	0.67	0.310	(0.088)	0.050	0.261
133	11.08	0.63	0.295	(0.087)	0.047	0.248
134	11.17	0.63	0.295	(0.087)	0.047	0.248
135	11.25	0.63	0.295	(0.087)	0.047	0.248
136	11.33	0.63	0.295	(0.086)	0.047	0.248
137	11.42	0.63	0.295	(0.086)	0.047	0.248
138	11.50	0.63	0.295	(0.085)	0.047	0.248
139	11.58	0.57	0.264	(0.085)	0.042	0.221
140	11.67	0.57	0.264	(0.084)	0.042	0.221
141	11.75	0.57	0.264	(0.084)	0.042	0.221
142	11.83	0.60	0.279	(0.084)	0.045	0.235
143	11.92	0.60	0.279	(0.083)	0.045	0.235
144	12.00	0.60	0.279	(0.083)	0.045	0.235
145	12.08	0.83	0.388	(0.082)	0.062	0.326
146	12.17	0.83	0.388	(0.082)	0.062	0.326
147	12.25	0.83	0.388	(0.082)	0.062	0.326
148	12.33	0.87	0.403	(0.081)	0.065	0.339
149	12.42	0.87	0.403	(0.081)	0.065	0.339
150	12.50	0.87	0.403	(0.080)	0.065	0.339
151	12.58	0.93	0.434	(0.080)	0.069	0.365
152	12.67	0.93	0.434	(0.080)	0.069	0.365
153	12.75	0.93	0.434	(0.079)	0.069	0.365
154	12.83	0.97	0.450	(0.079)	0.072	0.378
155	12.92	0.97	0.450	(0.078)	0.072	0.378
156	13.00	0.97	0.450	(0.078)	0.072	0.378
157	13.08	1.13	0.527	0.078	(0.084)	0.450
158	13.17	1.13	0.527	0.077	(0.084)	0.450
159	13.25	1.13	0.527	0.077	(0.084)	0.451
160	13.33	1.13	0.527	0.076	(0.084)	0.451
161	13.42	1.13	0.527	0.076	(0.084)	0.451
162	13.50	1.13	0.527	0.076	(0.084)	0.452
163	13.58	0.77	0.357	(0.075)	0.057	0.300
164	13.67	0.77	0.357	(0.075)	0.057	0.300
165	13.75	0.77	0.357	(0.074)	0.057	0.300
166	13.83	0.77	0.357	(0.074)	0.057	0.300
167	13.92	0.77	0.357	(0.074)	0.057	0.300
168	14.00	0.77	0.357	(0.073)	0.057	0.300
169	14.08	0.90	0.419	(0.073)	0.067	0.352
170	14.17	0.90	0.419	(0.073)	0.067	0.352
171	14.25	0.90	0.419	(0.072)	0.067	0.352
172	14.33	0.87	0.403	(0.072)	0.065	0.339
173	14.42	0.87	0.403	(0.071)	0.065	0.339
174	14.50	0.87	0.403	(0.071)	0.065	0.339
175	14.58	0.87	0.403	(0.071)	0.065	0.339
176	14.67	0.87	0.403	(0.070)	0.065	0.339

177	14.75	0.87	0.403	(0.070)	0.065	0.339
178	14.83	0.83	0.388	(0.070)	0.062	0.326
179	14.92	0.83	0.388	(0.069)	0.062	0.326
180	15.00	0.83	0.388	(0.069)	0.062	0.326
181	15.08	0.80	0.372	(0.069)	0.060	0.313
182	15.17	0.80	0.372	(0.068)	0.060	0.313
183	15.25	0.80	0.372	(0.068)	0.060	0.313
184	15.33	0.77	0.357	(0.068)	0.057	0.300
185	15.42	0.77	0.357	(0.067)	0.057	0.300
186	15.50	0.77	0.357	(0.067)	0.057	0.300
187	15.58	0.63	0.295	(0.067)	0.047	0.248
188	15.67	0.63	0.295	(0.066)	0.047	0.248
189	15.75	0.63	0.295	(0.066)	0.047	0.248
190	15.83	0.63	0.295	(0.065)	0.047	0.248
191	15.92	0.63	0.295	(0.065)	0.047	0.248
192	16.00	0.63	0.295	(0.065)	0.047	0.248
193	16.08	0.13	0.062	(0.064)	0.010	0.052
194	16.17	0.13	0.062	(0.064)	0.010	0.052
195	16.25	0.13	0.062	(0.064)	0.010	0.052
196	16.33	0.13	0.062	(0.064)	0.010	0.052
197	16.42	0.13	0.062	(0.063)	0.010	0.052
198	16.50	0.13	0.062	(0.063)	0.010	0.052
199	16.58	0.10	0.047	(0.063)	0.007	0.039
200	16.67	0.10	0.047	(0.062)	0.007	0.039
201	16.75	0.10	0.047	(0.062)	0.007	0.039
202	16.83	0.10	0.047	(0.062)	0.007	0.039
203	16.92	0.10	0.047	(0.061)	0.007	0.039
204	17.00	0.10	0.047	(0.061)	0.007	0.039
205	17.08	0.17	0.078	(0.061)	0.012	0.065
206	17.17	0.17	0.078	(0.060)	0.012	0.065
207	17.25	0.17	0.078	(0.060)	0.012	0.065
208	17.33	0.17	0.078	(0.060)	0.012	0.065
209	17.42	0.17	0.078	(0.059)	0.012	0.065
210	17.50	0.17	0.078	(0.059)	0.012	0.065
211	17.58	0.17	0.078	(0.059)	0.012	0.065
212	17.67	0.17	0.078	(0.059)	0.012	0.065
213	17.75	0.17	0.078	(0.058)	0.012	0.065
214	17.83	0.13	0.062	(0.058)	0.010	0.052
215	17.92	0.13	0.062	(0.058)	0.010	0.052
216	18.00	0.13	0.062	(0.057)	0.010	0.052
217	18.08	0.13	0.062	(0.057)	0.010	0.052
218	18.17	0.13	0.062	(0.057)	0.010	0.052
219	18.25	0.13	0.062	(0.057)	0.010	0.052
220	18.33	0.13	0.062	(0.056)	0.010	0.052
221	18.42	0.13	0.062	(0.056)	0.010	0.052
222	18.50	0.13	0.062	(0.056)	0.010	0.052
223	18.58	0.10	0.047	(0.055)	0.007	0.039
224	18.67	0.10	0.047	(0.055)	0.007	0.039
225	18.75	0.10	0.047	(0.055)	0.007	0.039
226	18.83	0.07	0.031	(0.055)	0.005	0.026
227	18.92	0.07	0.031	(0.054)	0.005	0.026
228	19.00	0.07	0.031	(0.054)	0.005	0.026
229	19.08	0.10	0.047	(0.054)	0.007	0.039
230	19.17	0.10	0.047	(0.054)	0.007	0.039
231	19.25	0.10	0.047	(0.053)	0.007	0.039
232	19.33	0.13	0.062	(0.053)	0.010	0.052
233	19.42	0.13	0.062	(0.053)	0.010	0.052
234	19.50	0.13	0.062	(0.053)	0.010	0.052
235	19.58	0.10	0.047	(0.052)	0.007	0.039
236	19.67	0.10	0.047	(0.052)	0.007	0.039
237	19.75	0.10	0.047	(0.052)	0.007	0.039
238	19.83	0.07	0.031	(0.052)	0.005	0.026
239	19.92	0.07	0.031	(0.051)	0.005	0.026
240	20.00	0.07	0.031	(0.051)	0.005	0.026
241	20.08	0.10	0.047	(0.051)	0.007	0.039
242	20.17	0.10	0.047	(0.051)	0.007	0.039
243	20.25	0.10	0.047	(0.051)	0.007	0.039
244	20.33	0.10	0.047	(0.050)	0.007	0.039
245	20.42	0.10	0.047	(0.050)	0.007	0.039
246	20.50	0.10	0.047	(0.050)	0.007	0.039
247	20.58	0.10	0.047	(0.050)	0.007	0.039

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248  20.67     0.10      0.047       (  0.050)       0.007        0.039
249  20.75     0.10      0.047       (  0.049)       0.007        0.039
250  20.83     0.07      0.031       (  0.049)       0.005        0.026
251  20.92     0.07      0.031       (  0.049)       0.005        0.026
252  21.00     0.07      0.031       (  0.049)       0.005        0.026
253  21.08     0.10      0.047       (  0.049)       0.007        0.039
254  21.17     0.10      0.047       (  0.048)       0.007        0.039
255  21.25     0.10      0.047       (  0.048)       0.007        0.039
256  21.33     0.07      0.031       (  0.048)       0.005        0.026
257  21.42     0.07      0.031       (  0.048)       0.005        0.026
258  21.50     0.07      0.031       (  0.048)       0.005        0.026
259  21.58     0.10      0.047       (  0.047)       0.007        0.039
260  21.67     0.10      0.047       (  0.047)       0.007        0.039
261  21.75     0.10      0.047       (  0.047)       0.007        0.039
262  21.83     0.07      0.031       (  0.047)       0.005        0.026
263  21.92     0.07      0.031       (  0.047)       0.005        0.026
264  22.00     0.07      0.031       (  0.047)       0.005        0.026
265  22.08     0.10      0.047       (  0.046)       0.007        0.039
266  22.17     0.10      0.047       (  0.046)       0.007        0.039
267  22.25     0.10      0.047       (  0.046)       0.007        0.039
268  22.33     0.07      0.031       (  0.046)       0.005        0.026
269  22.42     0.07      0.031       (  0.046)       0.005        0.026
270  22.50     0.07      0.031       (  0.046)       0.005        0.026
271  22.58     0.07      0.031       (  0.046)       0.005        0.026
272  22.67     0.07      0.031       (  0.045)       0.005        0.026
273  22.75     0.07      0.031       (  0.045)       0.005        0.026
274  22.83     0.07      0.031       (  0.045)       0.005        0.026
275  22.92     0.07      0.031       (  0.045)       0.005        0.026
276  23.00     0.07      0.031       (  0.045)       0.005        0.026
277  23.08     0.07      0.031       (  0.045)       0.005        0.026
278  23.17     0.07      0.031       (  0.045)       0.005        0.026
279  23.25     0.07      0.031       (  0.045)       0.005        0.026
280  23.33     0.07      0.031       (  0.045)       0.005        0.026
281  23.42     0.07      0.031       (  0.045)       0.005        0.026
282  23.50     0.07      0.031       (  0.044)       0.005        0.026
283  23.58     0.07      0.031       (  0.044)       0.005        0.026
284  23.67     0.07      0.031       (  0.044)       0.005        0.026
285  23.75     0.07      0.031       (  0.044)       0.005        0.026
286  23.83     0.07      0.031       (  0.044)       0.005        0.026
287  23.92     0.07      0.031       (  0.044)       0.005        0.026
288  24.00     0.07      0.031       (  0.044)       0.005        0.026
               (Loss Rate Not Used)
    Sum =     100.0                                   Sum =    39.1
      Flood volume = Effective rainfall      3.26(In)
       times area       8.4(Ac.)/[(In)/(Ft.)] =       2.3(Ac.Ft)
      Total soil loss =      0.62(In)
      Total soil loss =     0.432(Ac.Ft)
      Total rainfall =      3.88(In)
      Flood volume =       99558.0 Cubic Feet
      Total soil loss =       18821.8 Cubic Feet
      --------------------------------------------------------------------
       Peak flow rate of this hydrograph =      3.829(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       0.0021      0.20  Q         |         |         |         |
   0+15       0.0036      0.22  Q         |         |         |         |
   0+20       0.0055      0.28  VQ        |         |         |         |
   0+25       0.0077      0.32  VQ        |         |         |         |
   0+30       0.0100      0.33  VQ        |         |         |         |
   0+35       0.0123      0.33  VQ        |         |         |         |
   0+40       0.0146      0.33  VQ        |         |         |         |
   0+45       0.0168      0.33  VQ        |         |         |         |
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0+50       0.0195      0.39  VQ        |         |         |         |
0+55       0.0225      0.43  VQ        |         |         |         |
1+ 0       0.0255      0.44  VQ        |         |         |         |
1+ 5       0.0282      0.39  VQ        |         |         |         |
1+10       0.0305      0.34  VQ        |         |         |         |
1+15       0.0328      0.33  VQ        |         |         |         |
1+20       0.0351      0.33  VQ        |         |         |         |
1+25       0.0374      0.33  VQ        |         |         |         |
1+30       0.0397      0.33  VQ        |         |         |         |
1+35       0.0420      0.33  VQ        |         |         |         |
1+40       0.0442      0.33  VQ        |         |         |         |
1+45       0.0465      0.33  VQ        |         |         |         |
1+50       0.0492      0.39  VQ        |         |         |         |
1+55       0.0521      0.43  VQ        |         |         |         |
2+ 0       0.0552      0.44  VQ        |         |         |         |
2+ 5       0.0582      0.44  |Q        |         |         |         |
2+10       0.0613      0.44  |Q        |         |         |         |
2+15       0.0643      0.44  |Q        |         |         |         |
2+20       0.0673      0.44  |Q        |         |         |         |
2+25       0.0704      0.44  |Q        |         |         |         |
2+30       0.0734      0.44  |Q        |         |         |         |
2+35       0.0769      0.50  |Q        |         |         |         |
2+40       0.0806      0.54  |VQ       |         |         |         |
2+45       0.0844      0.55  |VQ       |         |         |         |
2+50       0.0882      0.55  |VQ       |         |         |         |
2+55       0.0920      0.55  |VQ       |         |         |         |
3+ 0       0.0958      0.55  |VQ       |         |         |         |
3+ 5       0.0996      0.55  |VQ       |         |         |         |
3+10       0.1034      0.55  |VQ       |         |         |         |
3+15       0.1072      0.55  |VQ       |         |         |         |
3+20       0.1110      0.55  |VQ       |         |         |         |
3+25       0.1148      0.55  | Q       |         |         |         |
3+30       0.1186      0.55  | Q       |         |         |         |
3+35       0.1224      0.55  | Q       |         |         |         |
3+40       0.1262      0.55  | Q       |         |         |         |
3+45       0.1300      0.55  | Q       |         |         |         |
3+50       0.1342      0.61  | Q       |         |         |         |
3+55       0.1387      0.65  | Q       |         |         |         |
4+ 0       0.1433      0.66  | Q       |         |         |         |
4+ 5       0.1478      0.66  | Q       |         |         |         |
4+10       0.1524      0.66  | Q       |         |         |         |
4+15       0.1570      0.66  | Q       |         |         |         |
4+20       0.1619      0.72  | Q       |         |         |         |
4+25       0.1672      0.76  | VQ      |         |         |         |
4+30       0.1725      0.77  |  Q      |         |         |         |
4+35       0.1778      0.77  |  Q      |         |         |         |
4+40       0.1831      0.77  |  Q      |         |         |         |
4+45       0.1884      0.77  |  Q      |         |         |         |
4+50       0.1941      0.83  |  Q      |         |         |         |
4+55       0.2002      0.87  |  Q      |         |         |         |
5+ 0       0.2062      0.88  |  Q      |         |         |         |
5+ 5       0.2116      0.77  |  Q      |         |         |         |
5+10       0.2163      0.68  | QV      |         |         |         |
5+15       0.2209      0.67  | QV      |         |         |         |
5+20       0.2258      0.72  | QV      |         |         |         |
5+25       0.2311      0.76  |  QV     |         |         |         |
5+30       0.2364      0.77  |  QV     |         |         |         |
5+35       0.2421      0.83  |  QV     |         |         |         |
5+40       0.2481      0.87  |  QV     |         |         |         |
5+45       0.2542      0.88  |  QV     |         |         |         |
5+50       0.2603      0.88  |  QV     |         |         |         |
5+55       0.2663      0.88  |  QV     |         |         |         |
6+ 0       0.2724      0.88  |  QV     |         |         |         |
6+ 5       0.2789      0.94  |  QV     |         |         |         |
6+10       0.2857      0.98  |  QV     |         |         |         |
6+15       0.2925      0.99  |  Q V    |         |         |         |
6+20       0.2993      0.99  |  Q V    |         |         |         |
6+25       0.3062      0.99  |  Q V    |         |         |         |
6+30       0.3130      0.99  |  Q V    |         |         |         |
6+35       0.3203      1.05  |   QV    |         |         |         |
6+40       0.3278      1.09  |   QV    |         |         |         |
```

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 6+45       0.3354      1.10  |   QV    |         |         |         |
 6+50       0.3430      1.10  |   Q V   |         |         |         |
 6+55       0.3506      1.10  |   Q V   |         |         |         |
 7+ 0       0.3582      1.10  |   Q V   |         |         |         |
 7+ 5       0.3658      1.10  |   Q V   |         |         |         |
 7+10       0.3734      1.10  |   Q V   |         |         |         |
 7+15       0.3811      1.10  |   Q V   |         |         |         |
 7+20       0.3890      1.16  |   Q V   |         |         |         |
 7+25       0.3973      1.20  |   Q V   |         |         |         |
 7+30       0.4057      1.21  |   Q  V  |         |         |         |
 7+35       0.4144      1.27  |    Q V  |         |         |         |
 7+40       0.4235      1.32  |    Q V  |         |         |         |
 7+45       0.4326      1.32  |    Q V  |         |         |         |
 7+50       0.4421      1.38  |    Q V  |         |         |         |
 7+55       0.4519      1.43  |    Q V  |         |         |         |
 8+ 0       0.4618      1.43  |    Q  V |         |         |         |
 8+ 5       0.4725      1.55  |     Q V |         |         |         |
 8+10       0.4837      1.64  |     Q V |         |         |         |
 8+15       0.4951      1.65  |     Q V |         |         |         |
 8+20       0.5065      1.66  |     Q V |         |         |         |
 8+25       0.5179      1.66  |     Q  V|         |         |         |
 8+30       0.5294      1.66  |     Q  V|         |         |         |
 8+35       0.5411      1.71  |     Q  V|         |         |         |
 8+40       0.5532      1.76  |      Q V|         |         |         |
 8+45       0.5654      1.77  |      Q V|         |         |         |
 8+50       0.5780      1.82  |      Q  V         |         |         |
 8+55       0.5908      1.87  |      Q  V         |         |         |
 9+ 0       0.6037      1.88  |      Q  V         |         |         |
 9+ 5       0.6174      1.99  |      Q  V         |         |         |
 9+10       0.6317      2.08  |       Q |V        |         |         |
 9+15       0.6462      2.09  |       Q |V        |         |         |
 9+20       0.6610      2.15  |       Q |V        |         |         |
 9+25       0.6761      2.20  |       Q |V        |         |         |
 9+30       0.6913      2.21  |       Q | V       |         |         |
 9+35       0.7069      2.26  |        Q| V       |         |         |
 9+40       0.7228      2.31  |        Q| V       |         |         |
 9+45       0.7388      2.32  |        Q| V       |         |         |
 9+50       0.7552      2.38  |        Q|  V      |         |         |
 9+55       0.7718      2.42  |        Q|  V      |         |         |
10+ 0       0.7886      2.43  |        Q|  V      |         |         |
10+ 5       0.8026      2.05  |       Q |   V     |         |         |
10+10       0.8146      1.73  |     Q   |   V     |         |         |
10+15       0.8261      1.68  |     Q   |   V     |         |         |
10+20       0.8375      1.66  |     Q   |   V     |         |         |
10+25       0.8489      1.66  |     Q   |   V     |         |         |
10+30       0.8604      1.66  |     Q   |    V    |         |         |
10+35       0.8737      1.93  |      Q  |    V    |         |         |
10+40       0.8885      2.16  |       Q |    V    |         |         |
10+45       0.9036      2.20  |       Q |    V    |         |         |
10+50       0.9189      2.21  |       Q |     V   |         |         |
10+55       0.9341      2.21  |       Q |     V   |         |         |
11+ 0       0.9493      2.21  |       Q |     V   |         |         |
11+ 5       0.9641      2.15  |       Q |     V   |         |         |
11+10       0.9787      2.11  |       Q |      V  |         |         |
11+15       0.9931      2.10  |       Q |      V  |         |         |
11+20       1.0076      2.10  |       Q |      V  |         |         |
11+25       1.0221      2.10  |       Q |      V  |         |         |
11+30       1.0365      2.10  |       Q |       V |         |         |
11+35       1.0502      1.99  |      Q  |       V |         |         |
11+40       1.0633      1.90  |      Q  |       V |         |         |
11+45       1.0763      1.88  |      Q  |       V |         |         |
11+50       1.0896      1.93  |      Q  |        V|         |         |
11+55       1.1032      1.98  |      Q  |        V|         |         |
12+ 0       1.1169      1.99  |      Q  |        V|         |         |
12+ 5       1.1332      2.37  |        Q|        V|         |         |
12+10       1.1518      2.69  |         Q         V         |         |
12+15       1.1706      2.74  |         Q         V         |         |
12+20       1.1901      2.82  |         |Q        V         |         |
12+25       1.2098      2.86  |         |Q        |V        |         |
12+30       1.2295      2.87  |         |Q        |V        |         |
12+35       1.2501      2.98  |         |Q        |V        |         |
```

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12+40       1.2712      3.07  |          | Q        | V        |          |
12+45       1.2925      3.09  |          | Q        | V        |          |
12+50       1.3142      3.15  |          | Q        | V        |          |
12+55       1.3362      3.19  |          | Q        |  V       |          |
13+ 0       1.3582      3.20  |          | Q        |  V       |          |
13+ 5       1.3824      3.51  |          |   Q      |   V      |          |
13+10       1.4083      3.76  |          |    Q     |   V      |          |
13+15       1.4345      3.80  |          |    Q     |    V     |          |
13+20       1.4608      3.82  |          |    Q     |    V     |          |
13+25       1.4871      3.83  |          |    Q     |     V    |          |
13+30       1.5135      3.83  |          |    Q     |     V    |          |
13+35       1.5355      3.19  |          | Q        |     V    |          |
13+40       1.5538      2.67  |          Q          |      V   |          |
13+45       1.5715      2.57  |          Q          |      V   |          |
13+50       1.5890      2.54  |          Q          |      V   |          |
13+55       1.6065      2.54  |          Q          |       V  |          |
14+ 0       1.6240      2.54  |          Q          |       V  |          |
14+ 5       1.6431      2.76  |          |Q         |       V  |          |
14+10       1.6633      2.94  |          |Q         |        V|          |
14+15       1.6838      2.97  |          |Q         |        V|          |
14+20       1.7039      2.93  |          |Q         |        V|          |
14+25       1.7238      2.88  |          |Q         |         V          |
14+30       1.7436      2.88  |          |Q         |         V          |
14+35       1.7634      2.87  |          |Q         |         V          |
14+40       1.7832      2.87  |          |Q         |         |V         |
14+45       1.8030      2.87  |          |Q         |         |V         |
14+50       1.8224      2.82  |          |Q         |         |V         |
14+55       1.8415      2.77  |          |Q         |         | V        |
15+ 0       1.8605      2.76  |          |Q         |         | V        |
15+ 5       1.8791      2.71  |          Q          |         | V        |
15+10       1.8975      2.66  |          Q          |         |  V       |
15+15       1.9158      2.65  |          Q          |         |  V       |
15+20       1.9336      2.60  |          Q          |         |  V       |
15+25       1.9512      2.55  |          Q          |         |   V      |
15+30       1.9687      2.54  |          Q          |         |   V      |
15+35       1.9847      2.32  |         Q|          |         |   V      |
15+40       1.9995      2.14  |        Q |          |         |   V      |
15+45       2.0140      2.11  |        Q |          |         |    V     |
15+50       2.0285      2.10  |        Q |          |         |    V     |
15+55       2.0429      2.10  |        Q |          |         |    V     |
16+ 0       2.0574      2.10  |        Q |          |         |     V    |
16+ 5       2.0662      1.27  |    Q     |          |         |     V    |
16+10       2.0703      0.60  | Q        |          |         |     V    |
16+15       2.0736      0.48  |Q         |          |         |     V    |
16+20       2.0767      0.44  |Q         |          |         |     V    |
16+25       2.0797      0.44  |Q         |          |         |     V    |
16+30       2.0828      0.44  |Q         |          |         |     V    |
16+35       2.0854      0.39  |Q         |          |         |     V    |
16+40       2.0878      0.34  |Q         |          |         |     V    |
16+45       2.0901      0.33  |Q         |          |         |     V    |
16+50       2.0924      0.33  |Q         |          |         |     V    |
16+55       2.0946      0.33  |Q         |          |         |     V    |
17+ 0       2.0969      0.33  |Q         |          |         |     V    |
17+ 5       2.1000      0.44  |Q         |          |         |     V    |
17+10       2.1036      0.53  | Q        |          |         |     V    |
17+15       2.1074      0.55  | Q        |          |         |     V    |
17+20       2.1112      0.55  | Q        |          |         |     V    |
17+25       2.1150      0.55  | Q        |          |         |      V   |
17+30       2.1188      0.55  | Q        |          |         |      V   |
17+35       2.1226      0.55  | Q        |          |         |      V   |
17+40       2.1264      0.55  | Q        |          |         |      V   |
17+45       2.1302      0.55  | Q        |          |         |      V   |
17+50       2.1336      0.50  |Q         |          |         |      V   |
17+55       2.1368      0.45  |Q         |          |         |      V   |
18+ 0       2.1398      0.44  |Q         |          |         |      V   |
18+ 5       2.1429      0.44  |Q         |          |         |      V   |
18+10       2.1459      0.44  |Q         |          |         |      V   |
18+15       2.1490      0.44  |Q         |          |         |      V   |
18+20       2.1520      0.44  |Q         |          |         |      V   |
18+25       2.1550      0.44  |Q         |          |         |      V   |
18+30       2.1581      0.44  |Q         |          |         |      V   |
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   18+35       2.1608      0.39  |Q         |         |         |      V  |
   18+40       2.1631      0.34  |Q         |         |         |      V  |
   18+45       2.1654      0.33  |Q         |         |         |      V  |
   18+50       2.1673      0.28  |Q         |         |         |      V  |
   18+55       2.1689      0.23  Q          |         |         |      V  |
   19+ 0       2.1704      0.22  Q          |         |         |      V  |
   19+ 5       2.1723      0.28  |Q         |         |         |       V |
   19+10       2.1746      0.32  |Q         |         |         |       V |
   19+15       2.1768      0.33  |Q         |         |         |       V |
   19+20       2.1795      0.39  |Q         |         |         |       V |
   19+25       2.1825      0.43  |Q         |         |         |       V |
   19+30       2.1855      0.44  |Q         |         |         |       V |
   19+35       2.1881      0.39  |Q         |         |         |       V |
   19+40       2.1905      0.34  |Q         |         |         |       V |
   19+45       2.1928      0.33  |Q         |         |         |       V |
   19+50       2.1947      0.28  |Q         |         |         |       V |
   19+55       2.1963      0.23  Q          |         |         |       V |
   20+ 0       2.1978      0.22  Q          |         |         |       V |
   20+ 5       2.1997      0.28  |Q         |         |         |       V |
   20+10       2.2020      0.32  |Q         |         |         |       V |
   20+15       2.2042      0.33  |Q         |         |         |       V |
   20+20       2.2065      0.33  |Q         |         |         |       V |
   20+25       2.2088      0.33  |Q         |         |         |       V |
   20+30       2.2111      0.33  |Q         |         |         |       V |
   20+35       2.2133      0.33  |Q         |         |         |       V |
   20+40       2.2156      0.33  |Q         |         |         |       V |
   20+45       2.2179      0.33  |Q         |         |         |       V |
   20+50       2.2198      0.28  |Q         |         |         |       V |
   20+55       2.2214      0.23  Q          |         |         |       V |
   21+ 0       2.2230      0.22  Q          |         |         |       V |
   21+ 5       2.2249      0.28  |Q         |         |         |       V |
   21+10       2.2271      0.32  |Q         |         |         |       V |
   21+15       2.2293      0.33  |Q         |         |         |        V|
   21+20       2.2312      0.28  |Q         |         |         |        V|
   21+25       2.2328      0.23  Q          |         |         |        V|
   21+30       2.2344      0.22  Q          |         |         |        V|
   21+35       2.2363      0.28  |Q         |         |         |        V|
   21+40       2.2385      0.32  |Q         |         |         |        V|
   21+45       2.2407      0.33  |Q         |         |         |        V|
   21+50       2.2426      0.28  |Q         |         |         |        V|
   21+55       2.2442      0.23  Q          |         |         |        V|
   22+ 0       2.2458      0.22  Q          |         |         |        V|
   22+ 5       2.2477      0.28  |Q         |         |         |        V|
   22+10       2.2499      0.32  |Q         |         |         |        V|
   22+15       2.2522      0.33  |Q         |         |         |        V|
   22+20       2.2541      0.28  |Q         |         |         |        V|
   22+25       2.2557      0.23  Q          |         |         |        V|
   22+30       2.2572      0.22  Q          |         |         |        V|
   22+35       2.2587      0.22  Q          |         |         |        V|
   22+40       2.2602      0.22  Q          |         |         |        V|
   22+45       2.2618      0.22  Q          |         |         |        V|
   22+50       2.2633      0.22  Q          |         |         |        V|
   22+55       2.2648      0.22  Q          |         |         |        V|
   23+ 0       2.2663      0.22  Q          |         |         |        V|
   23+ 5       2.2678      0.22  Q          |         |         |        V|
   23+10       2.2694      0.22  Q          |         |         |        V|
   23+15       2.2709      0.22  Q          |         |         |        V|
   23+20       2.2724      0.22  Q          |         |         |        V|
   23+25       2.2739      0.22  Q          |         |         |        V|
   23+30       2.2755      0.22  Q          |         |         |        V|
   23+35       2.2770      0.22  Q          |         |         |        V|
   23+40       2.2785      0.22  Q          |         |         |        V|
   23+45       2.2800      0.22  Q          |         |         |        V|
   23+50       2.2815      0.22  Q          |         |         |        V|
   23+55       2.2831      0.22  Q          |         |         |        V|
   24+ 0       2.2846      0.22  Q          |         |         |        V|
   24+ 5       2.2854      0.11  Q          |         |         |        V|
   24+10       2.2855      0.02  Q          |         |         |        V|
   24+15       2.2855      0.01  Q          |         |         |         V
--------------------------------------------------------------------------
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       U n i t   H y d r o g r a p h   A n a l y s i s

       Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2008, Version 8.1
              Study date  06/01/21 File: burhyd1100.out


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----------------------------------------------------------------------

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


Program License Serial Number 4029

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

 English Units used in output format



-------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
100-year 1-hour storm

------------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 Min.
Unit time =     5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           0.47                  3.97

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           1.14                  9.59

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.472(In)
Area Averaged 100-Year Rainfall =    1.140(In)

Point rain (area averaged) =    1.140(In)
Areal adjustment factor =   99.99 %
Adjusted average point rain =    1.140(In)

Sub-Area Data:
Area(Ac.)         Runoff Index   Impervious %
     5.200           56.00         0.900
```

```
            3.210           56.00         0.950
        Total Area Entered =      8.41(Ac.)


       RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
       AMC2 AMC-3     (In/Hr)    (Dec.%)     (In/Hr)      (Dec.)    (In/Hr)
       56.0  74.8      0.305     0.900        0.058       0.618      0.036
       56.0  74.8      0.305     0.950        0.044       0.382      0.017
                                                        Sum (F) =   0.053
       Area averaged mean soil loss (F) (In/Hr) =  0.053
       Minimum soil loss rate ((In/Hr)) =  0.026
       (for 24 hour storm duration)
       Soil low loss rate (decimal) =   0.160
       ---------------------------------------------------------------------
       Slope of intensity-duration curve for a 1 hour storm =0.5500
       ----------------------------------------------------------------------

                     U n i t  H y d r o g r a p h
                            VALLEY S-Curve
       ---------------------------------------------------------------------
                     Unit Hydrograph Data
       ---------------------------------------------------------------------
       Unit time period   Time % of lag   Distribution   Unit Hydrograph
           (hrs)                           Graph %            (CFS)
       ---------------------------------------------------------------------
           1   0.083        241.378         49.747              4.216
           2   0.167        482.756         40.594              3.441
           3   0.250        724.135          7.306              0.619
           4   0.333        965.513          2.354              0.199
                                     Sum = 100.000   Sum=       8.476
-----------------------------------------------------------------------


 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   Pattern   Storm Rain     Loss rate(In./Hr)     Effective
       (Hr.)  Percent   (In/Hr)         Max   |   Low        (In/Hr)
   1   0.08     3.30      0.451          0.053    (  0.072)        0.399
   2   0.17     4.20      0.575          0.053    (  0.092)        0.522
   3   0.25     4.40      0.602          0.053    (  0.096)        0.549
   4   0.33     4.80      0.657          0.053    (  0.105)        0.604
   5   0.42     5.20      0.711          0.053    (  0.114)        0.659
   6   0.50     6.20      0.848          0.053    (  0.136)        0.795
   7   0.58     6.80      0.930          0.053    (  0.149)        0.877
   8   0.67     8.80      1.204          0.053    (  0.193)        1.151
   9   0.75    13.90      1.901          0.053    (  0.304)        1.849
  10   0.83    31.40      4.295          0.053    (  0.687)        4.242
  11   0.92     7.20      0.985          0.053    (  0.158)        0.932
  12   1.00     3.80      0.520          0.053    (  0.083)        0.467
                (Loss Rate Not Used)
     Sum =     100.0                                   Sum =    13.0
       Flood volume = Effective rainfall      1.09(In)
        times area       8.4(Ac.)/[(In)/(Ft.)] =       0.8(Ac.Ft)
       Total soil loss =      0.05(In)
       Total soil loss =     0.037(Ac.Ft)
       Total rainfall =      1.14(In)
       Flood volume =       33188.5 Cubic Feet
       Total soil loss =        1611.1 Cubic Feet
       ---------------------------------------------------------------------
        Peak flow rate of this hydrograph =     25.149(CFS)
       ---------------------------------------------------------------------
       +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           1 - 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        7.5      15.0      22.5      30.0
  ----------------------------------------------------------------------
```

```
    0+ 5       0.0116      1.68  V Q       |         |         |         |
    0+10       0.0362      3.57  |V  Q     |         |         |         |
    0+15       0.0662      4.36  |  V Q    |         |         |         |
    0+20       0.0995      4.84  |    VQ   |         |         |         |
    0+25       0.1361      5.30  |      Q  |         |         |         |
    0+30       0.1781      6.11  |       QV|         |         |         |
    0+35       0.2261      6.97  |        Q|V        |         |         |
    0+40       0.2846      8.50  |         |Q  V     |         |         |
    0+45       0.3705     12.46  |         |     Q  V|         |         |
    0+50       0.5437     25.15  |         |         |       V |  Q      |
    0+55       0.6808     19.91  |         |         |     Q   |    V    |
    1+ 0       0.7371      8.18  |         Q         |         |       V |
    1+ 5       0.7580      3.03  |   Q     |         |         |        V|
    1+10       0.7613      0.48  Q         |         |         |        V|
    1+15       0.7619      0.09  Q         |         |         |        V|
---------------------------------------------------------------------
```

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

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                Study date  06/01/21 File: burhyd3100.out

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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
100-year 3-hour storm


-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 Min.
Unit time =     5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           0.83                  6.99

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           1.89                 15.89

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    0.831(In)
Area Averaged 100-Year Rainfall =    1.890(In)

Point rain (area averaged) =    1.890(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    1.890(In)

Sub-Area Data:
```

Area(Ac.)	Runoff Index	Impervious %
5.200	56.00	0.900
3.210	56.00	0.950

Total Area Entered = 8.41(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	0.618	0.036
56.0	74.8	0.305	0.950	0.044	0.382	0.017
					Sum (F) =	0.053

Area averaged mean soil loss (F) (In/Hr) = 0.053
Minimum soil loss rate ((In/Hr)) = 0.026
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.160

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	241.378	49.747	4.216
2	0.167	482.756	40.594	3.441
3	0.250	724.135	7.306	0.619
4	0.333	965.513	2.354	0.199
			Sum = 100.000	Sum= 8.476

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	1.30	0.295	(0.053)	0.047	0.248
2	0.17	1.30	0.295	(0.053)	0.047	0.248
3	0.25	1.10	0.249	(0.053)	0.040	0.210
4	0.33	1.50	0.340	0.053	(0.054)	0.287
5	0.42	1.50	0.340	0.053	(0.054)	0.287
6	0.50	1.80	0.408	0.053	(0.065)	0.355
7	0.58	1.50	0.340	0.053	(0.054)	0.287
8	0.67	1.80	0.408	0.053	(0.065)	0.355
9	0.75	1.80	0.408	0.053	(0.065)	0.355
10	0.83	1.50	0.340	0.053	(0.054)	0.287
11	0.92	1.60	0.363	0.053	(0.058)	0.310
12	1.00	1.80	0.408	0.053	(0.065)	0.355
13	1.08	2.20	0.499	0.053	(0.080)	0.446
14	1.17	2.20	0.499	0.053	(0.080)	0.446
15	1.25	2.20	0.499	0.053	(0.080)	0.446
16	1.33	2.00	0.454	0.053	(0.073)	0.401
17	1.42	2.60	0.590	0.053	(0.094)	0.537
18	1.50	2.70	0.612	0.053	(0.098)	0.560
19	1.58	2.40	0.544	0.053	(0.087)	0.492
20	1.67	2.70	0.612	0.053	(0.098)	0.560
21	1.75	3.30	0.748	0.053	(0.120)	0.696
22	1.83	3.10	0.703	0.053	(0.112)	0.650
23	1.92	2.90	0.658	0.053	(0.105)	0.605
24	2.00	3.00	0.680	0.053	(0.109)	0.628
25	2.08	3.10	0.703	0.053	(0.112)	0.650
26	2.17	4.20	0.953	0.053	(0.152)	0.900
27	2.25	5.00	1.134	0.053	(0.181)	1.081
28	2.33	3.50	0.794	0.053	(0.127)	0.741
29	2.42	6.80	1.542	0.053	(0.247)	1.489
30	2.50	7.30	1.656	0.053	(0.265)	1.603
31	2.58	8.20	1.860	0.053	(0.298)	1.807
32	2.67	5.90	1.338	0.053	(0.214)	1.285
33	2.75	2.00	0.454	0.053	(0.073)	0.401

```
 34   2.83     1.80      0.408          0.053    (  0.065)        0.355
 35   2.92     1.80      0.408          0.053    (  0.065)        0.355
 36   3.00     0.60      0.136       (  0.053)       0.022        0.114
               (Loss Rate Not Used)
    Sum =     100.0                                   Sum =    20.8
       Flood volume = Effective rainfall      1.74(In)
        times area       8.4(Ac.)/[(In)/(Ft.)] =       1.2(Ac.Ft)
       Total soil loss =      0.15(In)
       Total soil loss =     0.108(Ac.Ft)
       Total rainfall =      1.89(In)
       Flood volume =       53003.2 Cubic Feet
       Total soil loss =        4693.2 Cubic Feet
       --------------------------------------------------------------------
        Peak flow rate of this hydrograph =     14.211(CFS)
       --------------------------------------------------------------------
       ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                           3 - 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        5.0      10.0      15.0      20.0
  ---------------------------------------------------------------------
    0+ 5       0.0072      1.04  V Q       |         |         |         |
    0+10       0.0203      1.90  V  Q      |         |         |         |
    0+15       0.0333      1.89  |V Q      |         |         |         |
    0+20       0.0480      2.14  |V  Q     |         |         |         |
    0+25       0.0644      2.38  | V Q     |         |         |         |
    0+30       0.0830      2.71  | V  Q    |         |         |         |
    0+35       0.1014      2.67  |  V Q    |         |         |         |
    0+40       0.1205      2.77  |  V Q    |         |         |         |
    0+45       0.1410      2.97  |   VQ    |         |         |         |
    0+50       0.1597      2.71  |    Q    |         |         |         |
    0+55       0.1775      2.59  |    Q    |         |         |         |
    1+ 0       0.1969      2.82  |    QV   |         |         |         |
    1+ 5       0.2200      3.36  |     QV  |         |         |         |
    1+10       0.2455      3.70  |      QV |         |         |         |
    1+15       0.2714      3.77  |      QV |         |         |         |
    1+20       0.2961      3.59  |      Q V|         |         |         |
    1+25       0.3238      4.01  |       Q V         |         |         |
    1+30       0.3551      4.55  |        Q|V        |         |         |
    1+35       0.3855      4.41  |       Q | V       |         |         |
    1+40       0.4165      4.51  |        Q|  V      |         |         |
    1+45       0.4528      5.28  |         Q   V     |         |         |
    1+50       0.4913      5.58  |         |Q    V   |         |         |
    1+55       0.5280      5.33  |         Q      V  |         |         |
    2+ 0       0.5643      5.27  |         Q       V |         |         |
    2+ 5       0.6016      5.41  |         Q        V|         |         |
    2+10       0.6466      6.54  |         |  Q      |V        |         |
    2+15       0.7030      8.19  |         |     Q   |  V      |         |
    2+20       0.7549      7.54  |         |    Q    |   V     |         |
    2+25       0.8216      9.68  |         |        Q|      V  |         |
    2+30       0.9081     12.56  |         |         |    Q   V|         |
    2+35       1.0060     14.21  |         |         |       Q |  V      |
    2+40       1.0951     12.93  |         |         |    Q    |    V    |
    2+45       1.1471      7.55  |         |    Q    |         |      V  |
    2+50       1.1749      4.04  |       Q |         |         |       V |
    2+55       1.1971      3.23  |     Q   |         |         |        V|
    3+ 0       1.2109      2.01  |   Q     |         |         |        V|
    3+ 5       1.2157      0.68  |Q        |         |         |        V|
    3+10       1.2166      0.14  Q         |         |         |        V|
    3+15       1.2168      0.02  Q         |         |         |         V
---------------------------------------------------------------------
```

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

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                Study date  06/01/21 File: burhyd6100.out

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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
100-year 6-hour storm


-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 Min.
Unit time =     5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow =     0.00(CFS)

2 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           1.15                  9.67

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           2.61                 21.95

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    1.150(In)
Area Averaged 100-Year Rainfall =    2.610(In)

Point rain (area averaged) =    2.610(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    2.610(In)

Sub-Area Data:
```

Area(Ac.)	Runoff Index	Impervious %
5.200	56.00	0.900
3.210	56.00	0.950

Total Area Entered = 8.41(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	0.618	0.036
56.0	74.8	0.305	0.950	0.044	0.382	0.017
					Sum (F) =	0.053

Area averaged mean soil loss (F) (In/Hr) = 0.053
Minimum soil loss rate ((In/Hr)) = 0.026
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.160

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	241.378	49.747	4.216
2	0.167	482.756	40.594	3.441
3	0.250	724.135	7.306	0.619
4	0.333	965.513	2.354	0.199
			Sum = 100.000	Sum= 8.476

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	0.50	0.157	(0.053)	0.025	0.132
2	0.17	0.60	0.188	(0.053)	0.030	0.158
3	0.25	0.60	0.188	(0.053)	0.030	0.158
4	0.33	0.60	0.188	(0.053)	0.030	0.158
5	0.42	0.60	0.188	(0.053)	0.030	0.158
6	0.50	0.70	0.219	(0.053)	0.035	0.184
7	0.58	0.70	0.219	(0.053)	0.035	0.184
8	0.67	0.70	0.219	(0.053)	0.035	0.184
9	0.75	0.70	0.219	(0.053)	0.035	0.184
10	0.83	0.70	0.219	(0.053)	0.035	0.184
11	0.92	0.70	0.219	(0.053)	0.035	0.184
12	1.00	0.80	0.251	(0.053)	0.040	0.210
13	1.08	0.80	0.251	(0.053)	0.040	0.210
14	1.17	0.80	0.251	(0.053)	0.040	0.210
15	1.25	0.80	0.251	(0.053)	0.040	0.210
16	1.33	0.80	0.251	(0.053)	0.040	0.210
17	1.42	0.80	0.251	(0.053)	0.040	0.210
18	1.50	0.80	0.251	(0.053)	0.040	0.210
19	1.58	0.80	0.251	(0.053)	0.040	0.210
20	1.67	0.80	0.251	(0.053)	0.040	0.210
21	1.75	0.80	0.251	(0.053)	0.040	0.210
22	1.83	0.80	0.251	(0.053)	0.040	0.210
23	1.92	0.80	0.251	(0.053)	0.040	0.210
24	2.00	0.90	0.282	(0.053)	0.045	0.237
25	2.08	0.80	0.251	(0.053)	0.040	0.210
26	2.17	0.90	0.282	(0.053)	0.045	0.237
27	2.25	0.90	0.282	(0.053)	0.045	0.237
28	2.33	0.90	0.282	(0.053)	0.045	0.237
29	2.42	0.90	0.282	(0.053)	0.045	0.237
30	2.50	0.90	0.282	(0.053)	0.045	0.237
31	2.58	0.90	0.282	(0.053)	0.045	0.237
32	2.67	0.90	0.282	(0.053)	0.045	0.237
33	2.75	1.00	0.313	(0.053)	0.050	0.263

```
34   2.83     1.00      0.313       (  0.053)       0.050        0.263
35   2.92     1.00      0.313       (  0.053)       0.050        0.263
36   3.00     1.00      0.313       (  0.053)       0.050        0.263
37   3.08     1.00      0.313       (  0.053)       0.050        0.263
38   3.17     1.10      0.345          0.053    (  0.055)        0.292
39   3.25     1.10      0.345          0.053    (  0.055)        0.292
40   3.33     1.10      0.345          0.053    (  0.055)        0.292
41   3.42     1.20      0.376          0.053    (  0.060)        0.323
42   3.50     1.30      0.407          0.053    (  0.065)        0.354
43   3.58     1.40      0.438          0.053    (  0.070)        0.386
44   3.67     1.40      0.438          0.053    (  0.070)        0.386
45   3.75     1.50      0.470          0.053    (  0.075)        0.417
46   3.83     1.50      0.470          0.053    (  0.075)        0.417
47   3.92     1.60      0.501          0.053    (  0.080)        0.448
48   4.00     1.60      0.501          0.053    (  0.080)        0.448
49   4.08     1.70      0.532          0.053    (  0.085)        0.480
50   4.17     1.80      0.564          0.053    (  0.090)        0.511
51   4.25     1.90      0.595          0.053    (  0.095)        0.542
52   4.33     2.00      0.626          0.053    (  0.100)        0.574
53   4.42     2.10      0.658          0.053    (  0.105)        0.605
54   4.50     2.10      0.658          0.053    (  0.105)        0.605
55   4.58     2.20      0.689          0.053    (  0.110)        0.636
56   4.67     2.30      0.720          0.053    (  0.115)        0.668
57   4.75     2.40      0.752          0.053    (  0.120)        0.699
58   4.83     2.40      0.752          0.053    (  0.120)        0.699
59   4.92     2.50      0.783          0.053    (  0.125)        0.730
60   5.00     2.60      0.814          0.053    (  0.130)        0.762
61   5.08     3.10      0.971          0.053    (  0.155)        0.918
62   5.17     3.60      1.127          0.053    (  0.180)        1.075
63   5.25     3.90      1.221          0.053    (  0.195)        1.169
64   5.33     4.20      1.315          0.053    (  0.210)        1.263
65   5.42     4.70      1.472          0.053    (  0.236)        1.419
66   5.50     5.60      1.754          0.053    (  0.281)        1.701
67   5.58     1.90      0.595          0.053    (  0.095)        0.542
68   5.67     0.90      0.282       (  0.053)       0.045        0.237
69   5.75     0.60      0.188       (  0.053)       0.030        0.158
70   5.83     0.50      0.157       (  0.053)       0.025        0.132
71   5.92     0.30      0.094       (  0.053)       0.015        0.079
72   6.00     0.20      0.063       (  0.053)       0.010        0.053
               (Loss Rate Not Used)
   Sum =     100.0                                    Sum =    28.1
      Flood volume = Effective rainfall      2.34(In)
       times area       8.4(Ac.)/[(In)/(Ft.)] =       1.6(Ac.Ft)
      Total soil loss =      0.27(In)
      Total soil loss =     0.187(Ac.Ft)
      Total rainfall =      2.61(In)
      Flood volume =       71543.9 Cubic Feet
      Total soil loss =        8132.7 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =     13.077(CFS)
      ---------------------------------------------------------------------
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                          6 - 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        5.0      10.0      15.0      20.0
---------------------------------------------------------------------
  0+ 5       0.0038      0.55  VQ        |         |         |         |
  0+10       0.0115      1.12  V Q       |         |         |         |
  0+15       0.0204      1.29  V Q       |         |         |         |
  0+20       0.0296      1.33  V Q       |         |         |         |
  0+25       0.0388      1.34  V Q       |         |         |         |
  0+30       0.0488      1.45  |VQ       |         |         |         |
  0+35       0.0594      1.54  |V Q      |         |         |         |
  0+40       0.0701      1.56  |V Q      |         |         |         |
  0+45       0.0809      1.56  |V Q      |         |         |         |
  0+50       0.0916      1.56  | VQ      |         |         |         |
  0+55       0.1024      1.56  | VQ      |         |         |         |
```

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   1+ 0       0.1139      1.67  | VQ      |         |         |         |
   1+ 5       0.1261      1.76  |  Q      |         |         |         |
   1+10       0.1383      1.78  |  Q      |         |         |         |
   1+15       0.1506      1.78  |  Q      |         |         |         |
   1+20       0.1629      1.78  |  Q      |         |         |         |
   1+25       0.1752      1.78  |  QV     |         |         |         |
   1+30       0.1875      1.78  |  QV     |         |         |         |
   1+35       0.1998      1.78  |  QV     |         |         |         |
   1+40       0.2121      1.78  |  Q V    |         |         |         |
   1+45       0.2244      1.78  |  Q V    |         |         |         |
   1+50       0.2366      1.78  |  Q V    |         |         |         |
   1+55       0.2489      1.78  |  Q  V   |         |         |         |
   2+ 0       0.2620      1.90  |  Q  V   |         |         |         |
   2+ 5       0.2749      1.88  |  Q  V   |         |         |         |
   2+10       0.2881      1.91  |  Q   V  |         |         |         |
   2+15       0.3018      1.99  |  Q   V  |         |         |         |
   2+20       0.3156      2.00  |   Q  V  |         |         |         |
   2+25       0.3294      2.01  |   Q   V |         |         |         |
   2+30       0.3432      2.01  |   Q   V |         |         |         |
   2+35       0.3571      2.01  |   Q   V |         |         |         |
   2+40       0.3709      2.01  |   Q    V|         |         |         |
   2+45       0.3855      2.12  |   Q    V|         |         |         |
   2+50       0.4007      2.21  |   Q    V|         |         |         |
   2+55       0.4160      2.23  |   Q     V         |         |         |
   3+ 0       0.4314      2.23  |   Q     V         |         |         |
   3+ 5       0.4468      2.23  |   Q     V         |         |         |
   3+10       0.4630      2.35  |   Q     |V        |         |         |
   3+15       0.4798      2.45  |   Q     |V        |         |         |
   3+20       0.4968      2.47  |   Q     | V       |         |         |
   3+25       0.5148      2.61  |    Q    | V       |         |         |
   3+30       0.5344      2.85  |    Q    |  V      |         |         |
   3+35       0.5558      3.11  |     Q   |  V      |         |         |
   3+40       0.5781      3.24  |     Q   |   V     |         |         |
   3+45       0.6015      3.40  |     Q   |   V     |         |         |
   3+50       0.6256      3.51  |      Q  |    V    |         |         |
   3+55       0.6509      3.66  |      Q  |    V    |         |         |
   4+ 0       0.6769      3.78  |      Q  |     V   |         |         |
   4+ 5       0.7039      3.93  |      Q  |      V  |         |         |
   4+10       0.7327      4.17  |       Q |      V  |         |         |
   4+15       0.7632      4.43  |       Q |       V |         |         |
   4+20       0.7956      4.70  |        Q|        V|         |         |
   4+25       0.8298      4.96  |        Q|         V         |         |
   4+30       0.8649      5.10  |         Q         |V        |         |
   4+35       0.9011      5.26  |         Q         |V        |         |
   4+40       0.9390      5.50  |         |Q        | V       |         |
   4+45       0.9786      5.76  |         |Q        |  V      |         |
   4+50       1.0192      5.89  |         |Q        |   V     |         |
   4+55       1.0609      6.05  |         | Q       |    V    |         |
   5+ 0       1.1043      6.30  |         | Q       |     V   |         |
   5+ 5       1.1531      7.09  |         |   Q     |       V |         |
   5+10       1.2103      8.31  |         |     Q   |        V|         |
   5+15       1.2747      9.35  |         |       Q |         |V        |
   5+20       1.3450     10.20  |         |         Q         | V       |
   5+25       1.4226     11.27  |         |         | Q       |   V     |
   5+30       1.5127     13.08  |         |         |     Q   |     V   |
   5+35       1.5765      9.27  |         |       Q |         |       V |
   5+40       1.6055      4.20  |       Q |         |         |        V|
   5+45       1.6203      2.16  |   Q     |         |         |        V|
   5+50       1.6297      1.35  | Q       |         |         |        V|
   5+55       1.6361      0.93  |Q        |         |         |        V|
   6+ 0       1.6403      0.61  |Q        |         |         |        V|
   6+ 5       1.6420      0.26  Q         |         |         |        V|
   6+10       1.6423      0.05  Q         |         |         |        V|
   6+15       1.6424      0.01  Q         |         |         |         V
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        U n i t   H y d r o g r a p h   A n a l y s i s

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                Study date  06/01/21 File: burhyd24100.out

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


Program License Serial Number 4029

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

 English Units used in output format



------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Inflow Hydrograph
100-year 24-hour storm


-----------------------------------------------------------------
Drainage Area =       8.41(Ac.)  =      0.013 Sq. Mi.
Drainage Area for Depth-Area Areal Adjustment =       8.41(Ac.)  =      0.013 Sq. Mi.
Length along longest watercourse =     978.00(Ft.)
Length along longest watercourse measured to centroid =     480.00(Ft.)
Length along longest watercourse =      0.185 Mi.
Length along longest watercourse measured to centroid =      0.091 Mi.
Difference in elevation =      12.00(Ft.)
Slope along watercourse =     64.7853 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time =    0.035 Hr.
Lag time =     2.07 Min.
25% of lag time =     0.52 Min.
40% of lag time =     0.83 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]
        8.41           2.07                 17.41

100 YEAR Area rainfall data:


Area(Ac.)[1]       Rainfall(In)[2]      Weighting[1*2]
        8.41           4.87                 40.96

STORM EVENT (YEAR) =  100.00
Area Averaged 2-Year Rainfall =    2.070(In)
Area Averaged 100-Year Rainfall =    4.870(In)

Point rain (area averaged) =    4.870(In)
Areal adjustment factor =  100.00 %
Adjusted average point rain =    4.870(In)

Sub-Area Data:
```

Area(Ac.)	Runoff Index	Impervious %
5.200	56.00	0.900
3.210	56.00	0.950

Total Area Entered = 8.41(Ac.)

RI AMC2	RI AMC-3	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
56.0	74.8	0.305	0.900	0.058	0.618	0.036
56.0	74.8	0.305	0.950	0.044	0.382	0.017
					Sum (F) =	0.053

Area averaged mean soil loss (F) (In/Hr) = 0.053
Minimum soil loss rate ((In/Hr)) = 0.026
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.160

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	241.378	49.747	4.216
2	0.167	482.756	40.594	3.441
3	0.250	724.135	7.306	0.619
4	0.333	965.513	2.354	0.199
			Sum = 100.000	Sum= 8.476

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	0.039	(0.094)	0.006	0.033
2	0.17	0.07	0.039	(0.093)	0.006	0.033
3	0.25	0.07	0.039	(0.093)	0.006	0.033
4	0.33	0.10	0.058	(0.092)	0.009	0.049
5	0.42	0.10	0.058	(0.092)	0.009	0.049
6	0.50	0.10	0.058	(0.092)	0.009	0.049
7	0.58	0.10	0.058	(0.091)	0.009	0.049
8	0.67	0.10	0.058	(0.091)	0.009	0.049
9	0.75	0.10	0.058	(0.091)	0.009	0.049
10	0.83	0.13	0.078	(0.090)	0.012	0.065
11	0.92	0.13	0.078	(0.090)	0.012	0.065
12	1.00	0.13	0.078	(0.090)	0.012	0.065
13	1.08	0.10	0.058	(0.089)	0.009	0.049
14	1.17	0.10	0.058	(0.089)	0.009	0.049
15	1.25	0.10	0.058	(0.089)	0.009	0.049
16	1.33	0.10	0.058	(0.088)	0.009	0.049
17	1.42	0.10	0.058	(0.088)	0.009	0.049
18	1.50	0.10	0.058	(0.087)	0.009	0.049
19	1.58	0.10	0.058	(0.087)	0.009	0.049
20	1.67	0.10	0.058	(0.087)	0.009	0.049
21	1.75	0.10	0.058	(0.086)	0.009	0.049
22	1.83	0.13	0.078	(0.086)	0.012	0.065
23	1.92	0.13	0.078	(0.086)	0.012	0.065
24	2.00	0.13	0.078	(0.085)	0.012	0.065
25	2.08	0.13	0.078	(0.085)	0.012	0.065
26	2.17	0.13	0.078	(0.085)	0.012	0.065
27	2.25	0.13	0.078	(0.084)	0.012	0.065
28	2.33	0.13	0.078	(0.084)	0.012	0.065
29	2.42	0.13	0.078	(0.084)	0.012	0.065
30	2.50	0.13	0.078	(0.083)	0.012	0.065
31	2.58	0.17	0.097	(0.083)	0.016	0.082
32	2.67	0.17	0.097	(0.083)	0.016	0.082
33	2.75	0.17	0.097	(0.082)	0.016	0.082

34	2.83	0.17	0.097	(0.082)	0.016	0.082
35	2.92	0.17	0.097	(0.082)	0.016	0.082
36	3.00	0.17	0.097	(0.081)	0.016	0.082
37	3.08	0.17	0.097	(0.081)	0.016	0.082
38	3.17	0.17	0.097	(0.081)	0.016	0.082
39	3.25	0.17	0.097	(0.080)	0.016	0.082
40	3.33	0.17	0.097	(0.080)	0.016	0.082
41	3.42	0.17	0.097	(0.080)	0.016	0.082
42	3.50	0.17	0.097	(0.079)	0.016	0.082
43	3.58	0.17	0.097	(0.079)	0.016	0.082
44	3.67	0.17	0.097	(0.079)	0.016	0.082
45	3.75	0.17	0.097	(0.078)	0.016	0.082
46	3.83	0.20	0.117	(0.078)	0.019	0.098
47	3.92	0.20	0.117	(0.078)	0.019	0.098
48	4.00	0.20	0.117	(0.077)	0.019	0.098
49	4.08	0.20	0.117	(0.077)	0.019	0.098
50	4.17	0.20	0.117	(0.077)	0.019	0.098
51	4.25	0.20	0.117	(0.076)	0.019	0.098
52	4.33	0.23	0.136	(0.076)	0.022	0.115
53	4.42	0.23	0.136	(0.076)	0.022	0.115
54	4.50	0.23	0.136	(0.075)	0.022	0.115
55	4.58	0.23	0.136	(0.075)	0.022	0.115
56	4.67	0.23	0.136	(0.075)	0.022	0.115
57	4.75	0.23	0.136	(0.074)	0.022	0.115
58	4.83	0.27	0.156	(0.074)	0.025	0.131
59	4.92	0.27	0.156	(0.074)	0.025	0.131
60	5.00	0.27	0.156	(0.073)	0.025	0.131
61	5.08	0.20	0.117	(0.073)	0.019	0.098
62	5.17	0.20	0.117	(0.073)	0.019	0.098
63	5.25	0.20	0.117	(0.072)	0.019	0.098
64	5.33	0.23	0.136	(0.072)	0.022	0.115
65	5.42	0.23	0.136	(0.072)	0.022	0.115
66	5.50	0.23	0.136	(0.072)	0.022	0.115
67	5.58	0.27	0.156	(0.071)	0.025	0.131
68	5.67	0.27	0.156	(0.071)	0.025	0.131
69	5.75	0.27	0.156	(0.071)	0.025	0.131
70	5.83	0.27	0.156	(0.070)	0.025	0.131
71	5.92	0.27	0.156	(0.070)	0.025	0.131
72	6.00	0.27	0.156	(0.070)	0.025	0.131
73	6.08	0.30	0.175	(0.069)	0.028	0.147
74	6.17	0.30	0.175	(0.069)	0.028	0.147
75	6.25	0.30	0.175	(0.069)	0.028	0.147
76	6.33	0.30	0.175	(0.068)	0.028	0.147
77	6.42	0.30	0.175	(0.068)	0.028	0.147
78	6.50	0.30	0.175	(0.068)	0.028	0.147
79	6.58	0.33	0.195	(0.068)	0.031	0.164
80	6.67	0.33	0.195	(0.067)	0.031	0.164
81	6.75	0.33	0.195	(0.067)	0.031	0.164
82	6.83	0.33	0.195	(0.067)	0.031	0.164
83	6.92	0.33	0.195	(0.066)	0.031	0.164
84	7.00	0.33	0.195	(0.066)	0.031	0.164
85	7.08	0.33	0.195	(0.066)	0.031	0.164
86	7.17	0.33	0.195	(0.065)	0.031	0.164
87	7.25	0.33	0.195	(0.065)	0.031	0.164
88	7.33	0.37	0.214	(0.065)	0.034	0.180
89	7.42	0.37	0.214	(0.065)	0.034	0.180
90	7.50	0.37	0.214	(0.064)	0.034	0.180
91	7.58	0.40	0.234	(0.064)	0.037	0.196
92	7.67	0.40	0.234	(0.064)	0.037	0.196
93	7.75	0.40	0.234	(0.063)	0.037	0.196
94	7.83	0.43	0.253	(0.063)	0.041	0.213
95	7.92	0.43	0.253	(0.063)	0.041	0.213
96	8.00	0.43	0.253	(0.062)	0.041	0.213
97	8.08	0.50	0.292	(0.062)	0.047	0.245
98	8.17	0.50	0.292	(0.062)	0.047	0.245
99	8.25	0.50	0.292	(0.062)	0.047	0.245
100	8.33	0.50	0.292	(0.061)	0.047	0.245
101	8.42	0.50	0.292	(0.061)	0.047	0.245
102	8.50	0.50	0.292	(0.061)	0.047	0.245
103	8.58	0.53	0.312	(0.060)	0.050	0.262
104	8.67	0.53	0.312	(0.060)	0.050	0.262

105	8.75	0.53	0.312	(0.060)	0.050	0.262
106	8.83	0.57	0.331	(0.060)	0.053	0.278
107	8.92	0.57	0.331	(0.059)	0.053	0.278
108	9.00	0.57	0.331	(0.059)	0.053	0.278
109	9.08	0.63	0.370	0.059	(0.059)	0.311
110	9.17	0.63	0.370	0.058	(0.059)	0.312
111	9.25	0.63	0.370	0.058	(0.059)	0.312
112	9.33	0.67	0.390	0.058	(0.062)	0.332
113	9.42	0.67	0.390	0.058	(0.062)	0.332
114	9.50	0.67	0.390	0.057	(0.062)	0.332
115	9.58	0.70	0.409	0.057	(0.065)	0.352
116	9.67	0.70	0.409	0.057	(0.065)	0.352
117	9.75	0.70	0.409	0.057	(0.065)	0.353
118	9.83	0.73	0.429	0.056	(0.069)	0.372
119	9.92	0.73	0.429	0.056	(0.069)	0.373
120	10.00	0.73	0.429	0.056	(0.069)	0.373
121	10.08	0.50	0.292	(0.055)	0.047	0.245
122	10.17	0.50	0.292	(0.055)	0.047	0.245
123	10.25	0.50	0.292	(0.055)	0.047	0.245
124	10.33	0.50	0.292	(0.055)	0.047	0.245
125	10.42	0.50	0.292	(0.054)	0.047	0.245
126	10.50	0.50	0.292	(0.054)	0.047	0.245
127	10.58	0.67	0.390	0.054	(0.062)	0.336
128	10.67	0.67	0.390	0.054	(0.062)	0.336
129	10.75	0.67	0.390	0.053	(0.062)	0.336
130	10.83	0.67	0.390	0.053	(0.062)	0.337
131	10.92	0.67	0.390	0.053	(0.062)	0.337
132	11.00	0.67	0.390	0.053	(0.062)	0.337
133	11.08	0.63	0.370	0.052	(0.059)	0.318
134	11.17	0.63	0.370	0.052	(0.059)	0.318
135	11.25	0.63	0.370	0.052	(0.059)	0.318
136	11.33	0.63	0.370	0.052	(0.059)	0.319
137	11.42	0.63	0.370	0.051	(0.059)	0.319
138	11.50	0.63	0.370	0.051	(0.059)	0.319
139	11.58	0.57	0.331	0.051	(0.053)	0.280
140	11.67	0.57	0.331	0.051	(0.053)	0.281
141	11.75	0.57	0.331	0.050	(0.053)	0.281
142	11.83	0.60	0.351	0.050	(0.056)	0.301
143	11.92	0.60	0.351	0.050	(0.056)	0.301
144	12.00	0.60	0.351	0.050	(0.056)	0.301
145	12.08	0.83	0.487	0.049	(0.078)	0.438
146	12.17	0.83	0.487	0.049	(0.078)	0.438
147	12.25	0.83	0.487	0.049	(0.078)	0.438
148	12.33	0.87	0.506	0.049	(0.081)	0.458
149	12.42	0.87	0.506	0.048	(0.081)	0.458
150	12.50	0.87	0.506	0.048	(0.081)	0.458
151	12.58	0.93	0.545	0.048	(0.087)	0.498
152	12.67	0.93	0.545	0.048	(0.087)	0.498
153	12.75	0.93	0.545	0.047	(0.087)	0.498
154	12.83	0.97	0.565	0.047	(0.090)	0.518
155	12.92	0.97	0.565	0.047	(0.090)	0.518
156	13.00	0.97	0.565	0.047	(0.090)	0.518
157	13.08	1.13	0.662	0.046	(0.106)	0.616
158	13.17	1.13	0.662	0.046	(0.106)	0.616
159	13.25	1.13	0.662	0.046	(0.106)	0.616
160	13.33	1.13	0.662	0.046	(0.106)	0.617
161	13.42	1.13	0.662	0.045	(0.106)	0.617
162	13.50	1.13	0.662	0.045	(0.106)	0.617
163	13.58	0.77	0.448	0.045	(0.072)	0.403
164	13.67	0.77	0.448	0.045	(0.072)	0.403
165	13.75	0.77	0.448	0.045	(0.072)	0.404
166	13.83	0.77	0.448	0.044	(0.072)	0.404
167	13.92	0.77	0.448	0.044	(0.072)	0.404
168	14.00	0.77	0.448	0.044	(0.072)	0.404
169	14.08	0.90	0.526	0.044	(0.084)	0.482
170	14.17	0.90	0.526	0.043	(0.084)	0.483
171	14.25	0.90	0.526	0.043	(0.084)	0.483
172	14.33	0.87	0.506	0.043	(0.081)	0.464
173	14.42	0.87	0.506	0.043	(0.081)	0.464
174	14.50	0.87	0.506	0.043	(0.081)	0.464
175	14.58	0.87	0.506	0.042	(0.081)	0.464

176	14.67	0.87	0.506	0.042	(0.081)	0.464
177	14.75	0.87	0.506	0.042	(0.081)	0.465
178	14.83	0.83	0.487	0.042	(0.078)	0.445
179	14.92	0.83	0.487	0.041	(0.078)	0.446
180	15.00	0.83	0.487	0.041	(0.078)	0.446
181	15.08	0.80	0.468	0.041	(0.075)	0.427
182	15.17	0.80	0.468	0.041	(0.075)	0.427
183	15.25	0.80	0.468	0.041	(0.075)	0.427
184	15.33	0.77	0.448	0.040	(0.072)	0.408
185	15.42	0.77	0.448	0.040	(0.072)	0.408
186	15.50	0.77	0.448	0.040	(0.072)	0.408
187	15.58	0.63	0.370	0.040	(0.059)	0.330
188	15.67	0.63	0.370	0.040	(0.059)	0.331
189	15.75	0.63	0.370	0.039	(0.059)	0.331
190	15.83	0.63	0.370	0.039	(0.059)	0.331
191	15.92	0.63	0.370	0.039	(0.059)	0.331
192	16.00	0.63	0.370	0.039	(0.059)	0.331
193	16.08	0.13	0.078	(0.039)	0.012	0.065
194	16.17	0.13	0.078	(0.038)	0.012	0.065
195	16.25	0.13	0.078	(0.038)	0.012	0.065
196	16.33	0.13	0.078	(0.038)	0.012	0.065
197	16.42	0.13	0.078	(0.038)	0.012	0.065
198	16.50	0.13	0.078	(0.038)	0.012	0.065
199	16.58	0.10	0.058	(0.037)	0.009	0.049
200	16.67	0.10	0.058	(0.037)	0.009	0.049
201	16.75	0.10	0.058	(0.037)	0.009	0.049
202	16.83	0.10	0.058	(0.037)	0.009	0.049
203	16.92	0.10	0.058	(0.037)	0.009	0.049
204	17.00	0.10	0.058	(0.036)	0.009	0.049
205	17.08	0.17	0.097	(0.036)	0.016	0.082
206	17.17	0.17	0.097	(0.036)	0.016	0.082
207	17.25	0.17	0.097	(0.036)	0.016	0.082
208	17.33	0.17	0.097	(0.036)	0.016	0.082
209	17.42	0.17	0.097	(0.036)	0.016	0.082
210	17.50	0.17	0.097	(0.035)	0.016	0.082
211	17.58	0.17	0.097	(0.035)	0.016	0.082
212	17.67	0.17	0.097	(0.035)	0.016	0.082
213	17.75	0.17	0.097	(0.035)	0.016	0.082
214	17.83	0.13	0.078	(0.035)	0.012	0.065
215	17.92	0.13	0.078	(0.034)	0.012	0.065
216	18.00	0.13	0.078	(0.034)	0.012	0.065
217	18.08	0.13	0.078	(0.034)	0.012	0.065
218	18.17	0.13	0.078	(0.034)	0.012	0.065
219	18.25	0.13	0.078	(0.034)	0.012	0.065
220	18.33	0.13	0.078	(0.034)	0.012	0.065
221	18.42	0.13	0.078	(0.033)	0.012	0.065
222	18.50	0.13	0.078	(0.033)	0.012	0.065
223	18.58	0.10	0.058	(0.033)	0.009	0.049
224	18.67	0.10	0.058	(0.033)	0.009	0.049
225	18.75	0.10	0.058	(0.033)	0.009	0.049
226	18.83	0.07	0.039	(0.033)	0.006	0.033
227	18.92	0.07	0.039	(0.033)	0.006	0.033
228	19.00	0.07	0.039	(0.032)	0.006	0.033
229	19.08	0.10	0.058	(0.032)	0.009	0.049
230	19.17	0.10	0.058	(0.032)	0.009	0.049
231	19.25	0.10	0.058	(0.032)	0.009	0.049
232	19.33	0.13	0.078	(0.032)	0.012	0.065
233	19.42	0.13	0.078	(0.032)	0.012	0.065
234	19.50	0.13	0.078	(0.031)	0.012	0.065
235	19.58	0.10	0.058	(0.031)	0.009	0.049
236	19.67	0.10	0.058	(0.031)	0.009	0.049
237	19.75	0.10	0.058	(0.031)	0.009	0.049
238	19.83	0.07	0.039	(0.031)	0.006	0.033
239	19.92	0.07	0.039	(0.031)	0.006	0.033
240	20.00	0.07	0.039	(0.031)	0.006	0.033
241	20.08	0.10	0.058	(0.031)	0.009	0.049
242	20.17	0.10	0.058	(0.030)	0.009	0.049
243	20.25	0.10	0.058	(0.030)	0.009	0.049
244	20.33	0.10	0.058	(0.030)	0.009	0.049
245	20.42	0.10	0.058	(0.030)	0.009	0.049
246	20.50	0.10	0.058	(0.030)	0.009	0.049

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247  20.58     0.10      0.058       (  0.030)       0.009        0.049
248  20.67     0.10      0.058       (  0.030)       0.009        0.049
249  20.75     0.10      0.058       (  0.029)       0.009        0.049
250  20.83     0.07      0.039       (  0.029)       0.006        0.033
251  20.92     0.07      0.039       (  0.029)       0.006        0.033
252  21.00     0.07      0.039       (  0.029)       0.006        0.033
253  21.08     0.10      0.058       (  0.029)       0.009        0.049
254  21.17     0.10      0.058       (  0.029)       0.009        0.049
255  21.25     0.10      0.058       (  0.029)       0.009        0.049
256  21.33     0.07      0.039       (  0.029)       0.006        0.033
257  21.42     0.07      0.039       (  0.029)       0.006        0.033
258  21.50     0.07      0.039       (  0.028)       0.006        0.033
259  21.58     0.10      0.058       (  0.028)       0.009        0.049
260  21.67     0.10      0.058       (  0.028)       0.009        0.049
261  21.75     0.10      0.058       (  0.028)       0.009        0.049
262  21.83     0.07      0.039       (  0.028)       0.006        0.033
263  21.92     0.07      0.039       (  0.028)       0.006        0.033
264  22.00     0.07      0.039       (  0.028)       0.006        0.033
265  22.08     0.10      0.058       (  0.028)       0.009        0.049
266  22.17     0.10      0.058       (  0.028)       0.009        0.049
267  22.25     0.10      0.058       (  0.028)       0.009        0.049
268  22.33     0.07      0.039       (  0.028)       0.006        0.033
269  22.42     0.07      0.039       (  0.027)       0.006        0.033
270  22.50     0.07      0.039       (  0.027)       0.006        0.033
271  22.58     0.07      0.039       (  0.027)       0.006        0.033
272  22.67     0.07      0.039       (  0.027)       0.006        0.033
273  22.75     0.07      0.039       (  0.027)       0.006        0.033
274  22.83     0.07      0.039       (  0.027)       0.006        0.033
275  22.92     0.07      0.039       (  0.027)       0.006        0.033
276  23.00     0.07      0.039       (  0.027)       0.006        0.033
277  23.08     0.07      0.039       (  0.027)       0.006        0.033
278  23.17     0.07      0.039       (  0.027)       0.006        0.033
279  23.25     0.07      0.039       (  0.027)       0.006        0.033
280  23.33     0.07      0.039       (  0.027)       0.006        0.033
281  23.42     0.07      0.039       (  0.027)       0.006        0.033
282  23.50     0.07      0.039       (  0.027)       0.006        0.033
283  23.58     0.07      0.039       (  0.027)       0.006        0.033
284  23.67     0.07      0.039       (  0.026)       0.006        0.033
285  23.75     0.07      0.039       (  0.026)       0.006        0.033
286  23.83     0.07      0.039       (  0.026)       0.006        0.033
287  23.92     0.07      0.039       (  0.026)       0.006        0.033
288  24.00     0.07      0.039       (  0.026)       0.006        0.033
                (Loss Rate Not Used)
    Sum =     100.0                                    Sum =    51.0
      Flood volume = Effective rainfall      4.25(In)
       times area       8.4(Ac.)/[(In)/(Ft.)] =       3.0(Ac.Ft)
      Total soil loss =      0.62(In)
      Total soil loss =     0.432(Ac.Ft)
      Total rainfall =      4.87(In)
      Flood volume =      129833.8 Cubic Feet
      Total soil loss =       18836.6 Cubic Feet
      ---------------------------------------------------------------------
       Peak flow rate of this hydrograph =      5.232(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       0.0010      0.14  Q         |         |         |         |
   0+10       0.0027      0.25  VQ        |         |         |         |
   0+15       0.0045      0.27  VQ        |         |         |         |
   0+20       0.0069      0.35  VQ        |         |         |         |
   0+25       0.0097      0.40  VQ        |         |         |         |
   0+30       0.0125      0.41  VQ        |         |         |         |
   0+35       0.0154      0.42  VQ        |         |         |         |
   0+40       0.0183      0.42  VQ        |         |         |         |
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0+45       0.0212      0.42  VQ        |         |         |         |
0+50       0.0245      0.49  VQ        |         |         |         |
0+55       0.0282      0.54  V Q       |         |         |         |
1+ 0       0.0320      0.55  V Q       |         |         |         |
1+ 5       0.0354      0.49  VQ        |         |         |         |
1+10       0.0383      0.43  VQ        |         |         |         |
1+15       0.0412      0.42  VQ        |         |         |         |
1+20       0.0441      0.42  VQ        |         |         |         |
1+25       0.0470      0.42  VQ        |         |         |         |
1+30       0.0498      0.42  VQ        |         |         |         |
1+35       0.0527      0.42  VQ        |         |         |         |
1+40       0.0556      0.42  VQ        |         |         |         |
1+45       0.0584      0.42  VQ        |         |         |         |
1+50       0.0618      0.49  VQ        |         |         |         |
1+55       0.0655      0.54  V Q       |         |         |         |
2+ 0       0.0693      0.55  V Q       |         |         |         |
2+ 5       0.0731      0.56  V Q       |         |         |         |
2+10       0.0769      0.56  |VQ       |         |         |         |
2+15       0.0808      0.56  |VQ       |         |         |         |
2+20       0.0846      0.56  |VQ       |         |         |         |
2+25       0.0884      0.56  |VQ       |         |         |         |
2+30       0.0922      0.56  |VQ       |         |         |         |
2+35       0.0965      0.62  |VQ       |         |         |         |
2+40       0.1012      0.68  |VQ       |         |         |         |
2+45       0.1060      0.69  |VQ       |         |         |         |
2+50       0.1107      0.69  |VQ       |         |         |         |
2+55       0.1155      0.69  |VQ       |         |         |         |
3+ 0       0.1203      0.69  |VQ       |         |         |         |
3+ 5       0.1251      0.69  |VQ       |         |         |         |
3+10       0.1299      0.69  |VQ       |         |         |         |
3+15       0.1346      0.69  |VQ       |         |         |         |
3+20       0.1394      0.69  |VQ       |         |         |         |
3+25       0.1442      0.69  |VQ       |         |         |         |
3+30       0.1490      0.69  |VQ       |         |         |         |
3+35       0.1537      0.69  | Q       |         |         |         |
3+40       0.1585      0.69  | Q       |         |         |         |
3+45       0.1633      0.69  | Q       |         |         |         |
3+50       0.1686      0.76  | VQ      |         |         |         |
3+55       0.1742      0.82  | VQ      |         |         |         |
4+ 0       0.1799      0.83  | VQ      |         |         |         |
4+ 5       0.1856      0.83  | VQ      |         |         |         |
4+10       0.1914      0.83  | VQ      |         |         |         |
4+15       0.1971      0.83  | VQ      |         |         |         |
4+20       0.2033      0.90  | VQ      |         |         |         |
4+25       0.2099      0.96  | VQ      |         |         |         |
4+30       0.2166      0.97  | VQ      |         |         |         |
4+35       0.2233      0.97  | VQ      |         |         |         |
4+40       0.2300      0.97  |  Q      |         |         |         |
4+45       0.2367      0.97  |  Q      |         |         |         |
4+50       0.2438      1.04  |  VQ     |         |         |         |
4+55       0.2514      1.10  |  VQ     |         |         |         |
5+ 0       0.2590      1.11  |  VQ     |         |         |         |
5+ 5       0.2657      0.97  |  Q      |         |         |         |
5+10       0.2716      0.86  |  Q      |         |         |         |
5+15       0.2774      0.84  |  Q      |         |         |         |
5+20       0.2836      0.90  |  Q      |         |         |         |
5+25       0.2902      0.96  |  Q      |         |         |         |
5+30       0.2969      0.97  |  Q      |         |         |         |
5+35       0.3040      1.04  |   Q     |         |         |         |
5+40       0.3116      1.10  |   Q     |         |         |         |
5+45       0.3192      1.11  |   Q     |         |         |         |
5+50       0.3268      1.11  |   Q     |         |         |         |
5+55       0.3345      1.11  |   Q     |         |         |         |
6+ 0       0.3421      1.11  |   Q     |         |         |         |
6+ 5       0.3503      1.18  |   Q     |         |         |         |
6+10       0.3588      1.24  |   Q     |         |         |         |
6+15       0.3673      1.25  |   Q     |         |         |         |
6+20       0.3759      1.25  |   QV    |         |         |         |
6+25       0.3845      1.25  |   QV    |         |         |         |
6+30       0.3931      1.25  |   QV    |         |         |         |
6+35       0.4022      1.32  |    Q    |         |         |         |
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 6+40       0.4117      1.37  |    Q    |         |         |         |
 6+45       0.4212      1.38  |    Q    |         |         |         |
 6+50       0.4308      1.39  |    Q    |         |         |         |
 6+55       0.4403      1.39  |    Q    |         |         |         |
 7+ 0       0.4499      1.39  |    QV   |         |         |         |
 7+ 5       0.4594      1.39  |    QV   |         |         |         |
 7+10       0.4690      1.39  |    QV   |         |         |         |
 7+15       0.4786      1.39  |    QV   |         |         |         |
 7+20       0.4886      1.46  |    QV   |         |         |         |
 7+25       0.4990      1.51  |     Q   |         |         |         |
 7+30       0.5095      1.52  |     Q   |         |         |         |
 7+35       0.5205      1.60  |     Q   |         |         |         |
 7+40       0.5319      1.65  |     QV  |         |         |         |
 7+45       0.5433      1.66  |     QV  |         |         |         |
 7+50       0.5553      1.73  |     QV  |         |         |         |
 7+55       0.5676      1.79  |      Q  |         |         |         |
 8+ 0       0.5800      1.80  |      Q  |         |         |         |
 8+ 5       0.5934      1.94  |      Q  |         |         |         |
 8+10       0.6075      2.05  |       Q |         |         |         |
 8+15       0.6218      2.07  |       Q |         |         |         |
 8+20       0.6361      2.08  |       Q |         |         |         |
 8+25       0.6505      2.08  |       Q |         |         |         |
 8+30       0.6648      2.08  |       Q |         |         |         |
 8+35       0.6796      2.15  |       QV|         |         |         |
 8+40       0.6948      2.21  |       QV|         |         |         |
 8+45       0.7101      2.22  |       QV|         |         |         |
 8+50       0.7258      2.29  |        Q|         |         |         |
 8+55       0.7420      2.35  |        Q|         |         |         |
 9+ 0       0.7582      2.36  |        QV         |         |         |
 9+ 5       0.7754      2.50  |        QV         |         |         |
 9+10       0.7934      2.61  |         Q         |         |         |
 9+15       0.8116      2.64  |         Q         |         |         |
 9+20       0.8304      2.73  |         QV        |         |         |
 9+25       0.8497      2.80  |         |Q        |         |         |
 9+30       0.8690      2.81  |         |Q        |         |         |
 9+35       0.8890      2.90  |         |Q        |         |         |
 9+40       0.9094      2.97  |         |QV       |         |         |
 9+45       0.9300      2.98  |         |QV       |         |         |
 9+50       0.9512      3.07  |         | Q       |         |         |
 9+55       0.9728      3.14  |         | QV      |         |         |
10+ 0       0.9945      3.16  |         | QV      |         |         |
10+ 5       1.0126      2.62  |         Q  V      |         |         |
10+10       1.0277      2.19  |       Q |  V      |         |         |
10+15       1.0422      2.11  |       Q |  V      |         |         |
10+20       1.0565      2.08  |       Q |   V     |         |         |
10+25       1.0708      2.08  |       Q |   V     |         |         |
10+30       1.0852      2.08  |       Q |   V     |         |         |
10+35       1.1021      2.46  |        Q|   V     |         |         |
10+40       1.1212      2.77  |         |Q   V    |         |         |
10+45       1.1407      2.83  |         |Q   V    |         |         |
10+50       1.1604      2.85  |         |Q   V    |         |         |
10+55       1.1800      2.85  |         |Q   V    |         |         |
11+ 0       1.1997      2.86  |         |Q    V   |         |         |
11+ 5       1.2188      2.78  |         |Q    V   |         |         |
11+10       1.2375      2.71  |         Q     V   |         |         |
11+15       1.2561      2.70  |         Q     V   |         |         |
11+20       1.2747      2.70  |         Q      V  |         |         |
11+25       1.2933      2.70  |         Q      V  |         |         |
11+30       1.3120      2.70  |         Q      V  |         |         |
11+35       1.3295      2.54  |         Q      V  |         |         |
11+40       1.3461      2.41  |        Q|       V |         |         |
11+45       1.3625      2.39  |        Q|       V |         |         |
11+50       1.3795      2.46  |        Q|       V |         |         |
11+55       1.3970      2.53  |         Q       V |         |         |
12+ 0       1.4145      2.55  |         Q       V |         |         |
12+ 5       1.4361      3.13  |         | Q      V|         |         |
12+10       1.4609      3.60  |         |   Q    V|         |         |
12+15       1.4863      3.69  |         |   Q    V|         |         |
12+20       1.5124      3.80  |         |    Q    V         |         |
12+25       1.5391      3.87  |         |    Q    V         |         |
12+30       1.5658      3.88  |         |    Q    |V        |         |
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12+35       1.5937      4.05  |          |     Q   |V        |          |
12+40       1.6226      4.19  |          |     Q   |V        |          |
12+45       1.6516      4.22  |          |     Q   | V       |          |
12+50       1.6813      4.31  |          |      Q  | V       |          |
12+55       1.7114      4.38  |          |      Q  | V       |          |
13+ 0       1.7416      4.39  |          |      Q  |  V      |          |
13+ 5       1.7747      4.81  |          |        Q|  V      |          |
13+10       1.8102      5.14  |          |         Q   V     |          |
13+15       1.8460      5.21  |          |         Q   V     |          |
13+20       1.8820      5.23  |          |         Q    V    |          |
13+25       1.9180      5.23  |          |         Q    V    |          |
13+30       1.9541      5.23  |          |         Q     V   |          |
13+35       1.9839      4.33  |          |      Q  |     V   |          |
13+40       2.0086      3.59  |          |   Q     |     V   |          |
13+45       2.0325      3.46  |          |  Q      |      V  |          |
13+50       2.0561      3.42  |          |  Q      |      V  |          |
13+55       2.0797      3.42  |          |  Q      |      V  |          |
14+ 0       2.1033      3.43  |          |  Q      |       V |          |
14+ 5       2.1291      3.76  |          |    Q    |       V |          |
14+10       2.1569      4.03  |          |     Q   |       V |          |
14+15       2.1849      4.08  |          |     Q   |        V|          |
14+20       2.2126      4.01  |          |     Q   |        V|          |
14+25       2.2398      3.95  |          |    Q    |         V          |
14+30       2.2669      3.94  |          |    Q    |         V          |
14+35       2.2940      3.94  |          |    Q    |         V          |
14+40       2.3211      3.94  |          |    Q    |         |V         |
14+45       2.3482      3.94  |          |    Q    |         |V         |
14+50       2.3748      3.86  |          |    Q    |         |V         |
14+55       2.4009      3.79  |          |    Q    |         | V        |
15+ 0       2.4270      3.78  |          |    Q    |         | V        |
15+ 5       2.4524      3.70  |          |   Q     |         | V        |
15+10       2.4775      3.63  |          |   Q     |         |  V       |
15+15       2.5024      3.62  |          |   Q     |         |  V       |
15+20       2.5268      3.54  |          |   Q     |         |  V       |
15+25       2.5507      3.47  |          |  Q      |         |   V      |
15+30       2.5746      3.46  |          |  Q      |         |   V      |
15+35       2.5961      3.13  |          | Q       |         |   V      |
15+40       2.6159      2.87  |          |Q        |         |    V     |
15+45       2.6353      2.82  |          |Q        |         |    V     |
15+50       2.6546      2.81  |          |Q        |         |    V     |
15+55       2.6740      2.81  |          |Q        |         |    V     |
16+ 0       2.6933      2.81  |          |Q        |         |     V    |
16+ 5       2.7049      1.69  |     Q    |         |         |     V    |
16+10       2.7102      0.77  |  Q       |         |         |     V    |
16+15       2.7144      0.61  | Q        |         |         |     V    |
16+20       2.7183      0.56  | Q        |         |         |     V    |
16+25       2.7221      0.56  | Q        |         |         |     V    |
16+30       2.7259      0.56  | Q        |         |         |     V    |
16+35       2.7293      0.49  |Q         |         |         |     V    |
16+40       2.7322      0.43  |Q         |         |         |     V    |
16+45       2.7351      0.42  |Q         |         |         |     V    |
16+50       2.7380      0.42  |Q         |         |         |     V    |
16+55       2.7408      0.42  |Q         |         |         |     V    |
17+ 0       2.7437      0.42  |Q         |         |         |     V    |
17+ 5       2.7475      0.55  | Q        |         |         |     V    |
17+10       2.7521      0.67  | Q        |         |         |     V    |
17+15       2.7568      0.69  | Q        |         |         |     V    |
17+20       2.7616      0.69  | Q        |         |         |      V   |
17+25       2.7664      0.69  | Q        |         |         |      V   |
17+30       2.7712      0.69  | Q        |         |         |      V   |
17+35       2.7760      0.69  | Q        |         |         |      V   |
17+40       2.7807      0.69  | Q        |         |         |      V   |
17+45       2.7855      0.69  | Q        |         |         |      V   |
17+50       2.7898      0.62  | Q        |         |         |      V   |
17+55       2.7937      0.57  | Q        |         |         |      V   |
18+ 0       2.7976      0.56  | Q        |         |         |      V   |
18+ 5       2.8014      0.56  | Q        |         |         |      V   |
18+10       2.8052      0.56  | Q        |         |         |      V   |
18+15       2.8090      0.56  | Q        |         |         |      V   |
18+20       2.8129      0.56  | Q        |         |         |      V   |
18+25       2.8167      0.56  | Q        |         |         |      V   |
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   18+30       2.8205      0.56  | Q        |         |         |      V  |
   18+35       2.8239      0.49  |Q         |         |         |      V  |
   18+40       2.8268      0.43  |Q         |         |         |      V  |
   18+45       2.8297      0.42  |Q         |         |         |      V  |
   18+50       2.8321      0.35  |Q         |         |         |       V |
   18+55       2.8341      0.29  |Q         |         |         |       V |
   19+ 0       2.8360      0.28  |Q         |         |         |       V |
   19+ 5       2.8384      0.35  |Q         |         |         |       V |
   19+10       2.8412      0.40  |Q         |         |         |       V |
   19+15       2.8440      0.41  |Q         |         |         |       V |
   19+20       2.8474      0.49  |Q         |         |         |       V |
   19+25       2.8511      0.54  | Q        |         |         |       V |
   19+30       2.8549      0.55  | Q        |         |         |       V |
   19+35       2.8583      0.49  |Q         |         |         |       V |
   19+40       2.8612      0.43  |Q         |         |         |       V |
   19+45       2.8641      0.42  |Q         |         |         |       V |
   19+50       2.8665      0.35  |Q         |         |         |       V |
   19+55       2.8685      0.29  |Q         |         |         |       V |
   20+ 0       2.8704      0.28  |Q         |         |         |       V |
   20+ 5       2.8728      0.35  |Q         |         |         |       V |
   20+10       2.8756      0.40  |Q         |         |         |       V |
   20+15       2.8784      0.41  |Q         |         |         |       V |
   20+20       2.8813      0.42  |Q         |         |         |       V |
   20+25       2.8842      0.42  |Q         |         |         |       V |
   20+30       2.8870      0.42  |Q         |         |         |       V |
   20+35       2.8899      0.42  |Q         |         |         |       V |
   20+40       2.8928      0.42  |Q         |         |         |       V |
   20+45       2.8956      0.42  |Q         |         |         |       V |
   20+50       2.8980      0.35  |Q         |         |         |       V |
   20+55       2.9000      0.29  |Q         |         |         |       V |
   21+ 0       2.9020      0.28  |Q         |         |         |       V |
   21+ 5       2.9044      0.35  |Q         |         |         |       V |
   21+10       2.9071      0.40  |Q         |         |         |        V|
   21+15       2.9100      0.41  |Q         |         |         |        V|
   21+20       2.9124      0.35  |Q         |         |         |        V|
   21+25       2.9144      0.29  |Q         |         |         |        V|
   21+30       2.9163      0.28  |Q         |         |         |        V|
   21+35       2.9187      0.35  |Q         |         |         |        V|
   21+40       2.9215      0.40  |Q         |         |         |        V|
   21+45       2.9243      0.41  |Q         |         |         |        V|
   21+50       2.9267      0.35  |Q         |         |         |        V|
   21+55       2.9287      0.29  |Q         |         |         |        V|
   22+ 0       2.9306      0.28  |Q         |         |         |        V|
   22+ 5       2.9330      0.35  |Q         |         |         |        V|
   22+10       2.9358      0.40  |Q         |         |         |        V|
   22+15       2.9387      0.41  |Q         |         |         |        V|
   22+20       2.9410      0.35  |Q         |         |         |        V|
   22+25       2.9430      0.29  |Q         |         |         |        V|
   22+30       2.9450      0.28  |Q         |         |         |        V|
   22+35       2.9469      0.28  |Q         |         |         |        V|
   22+40       2.9488      0.28  |Q         |         |         |        V|
   22+45       2.9507      0.28  |Q         |         |         |        V|
   22+50       2.9526      0.28  |Q         |         |         |        V|
   22+55       2.9545      0.28  |Q         |         |         |        V|
   23+ 0       2.9564      0.28  |Q         |         |         |        V|
   23+ 5       2.9584      0.28  |Q         |         |         |        V|
   23+10       2.9603      0.28  |Q         |         |         |        V|
   23+15       2.9622      0.28  |Q         |         |         |        V|
   23+20       2.9641      0.28  |Q         |         |         |        V|
   23+25       2.9660      0.28  |Q         |         |         |        V|
   23+30       2.9679      0.28  |Q         |         |         |        V|
   23+35       2.9698      0.28  |Q         |         |         |        V|
   23+40       2.9717      0.28  |Q         |         |         |        V|
   23+45       2.9736      0.28  |Q         |         |         |        V|
   23+50       2.9756      0.28  |Q         |         |         |        V|
   23+55       2.9775      0.28  |Q         |         |         |        V|
   24+ 0       2.9794      0.28  |Q         |         |         |        V|
   24+ 5       2.9803      0.14  Q          |         |         |        V|
   24+10       2.9805      0.03  Q          |         |         |        V|
   24+15       2.9806      0.01  Q          |         |         |         V
---------------------------------------------------------------------------
```

ATTACHMENT C
Detention Basin Routing
100-yr 1-, 3-, 6-, 24-hr storm

Detention Basin Routing Calculations

```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
            Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                        Study date: 06/03/21

---------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Detention Basin Routing
100-year 1-hour storm

---------------------------------------------------------------------


Program License Serial Number 4029

---------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

               From study/file name: burhyd1100.rte
****************************HYDROGRAPH DATA****************************
               Number of intervals =    15
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =       25.149 (CFS)
               Total volume =       0.762 (Ac.Ft)
        Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** RETARDING BASIN ROUTING ****
______________________________________________________________________

User entry of depth-outflow-storage data
---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 15
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   1.000      0.223      1.740      0.217        0.229
   2.000      0.317      1.740      0.311        0.323
   3.000      0.781      1.740      0.775        0.787
   4.000      1.041      1.740      1.035        1.047
   5.000      1.302      1.740      1.296        1.308
   6.000      1.570      1.740      1.564        1.576
   7.000      1.822      1.740      1.816        1.828
   8.000      2.068      1.740      2.062        2.074
   9.000      2.381      1.740      2.375        2.387
  10.000      2.603      1.740      2.597        2.609
  11.000      2.604     21.740      2.529        2.679
---------------------------------------------------------------------
```

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 6.3 12.57 18.86 25.15	Depth (Ft.)
0.083	1.68	0.04	0.006	O I	0.03
0.167	3.57	0.18	0.023	O I	0.10
0.250	4.36	0.38	0.048	O I	0.22
0.333	4.84	0.60	0.077	O I	0.34
0.417	5.30	0.83	0.107	O I	0.48
0.500	6.11	1.09	0.139	O I	0.62
0.583	6.97	1.37	0.176	O I	0.79
0.667	8.50	1.71	0.219	O I	0.98
0.750	12.46	1.74	0.279	O I	1.59
0.833	25.15	1.74	0.396	O I	2.17
0.917	19.91	1.74	0.540	O I	2.48
1.000	8.18	1.74	0.624	O I	2.66
1.083	3.03	1.74	0.651	OI	2.72
1.167	0.48	1.74	0.651	I O	2.72
1.250	0.09	1.74	0.641	I O	2.70
1.333	0.00	1.74	0.629	I O	2.67
1.417	0.00	1.74	0.617	I O	2.65
1.500	0.00	1.74	0.605	I O	2.62
1.583	0.00	1.74	0.593	I O	2.60
1.667	0.00	1.74	0.581	I O	2.57
1.750	0.00	1.74	0.569	I O	2.54
1.833	0.00	1.74	0.557	I O	2.52
1.917	0.00	1.74	0.545	I O	2.49
2.000	0.00	1.74	0.533	I O	2.47
2.083	0.00	1.74	0.522	I O	2.44
2.167	0.00	1.74	0.510	I O	2.41
2.250	0.00	1.74	0.498	I O	2.39
2.333	0.00	1.74	0.486	I O	2.36
2.417	0.00	1.74	0.474	I O	2.34
2.500	0.00	1.74	0.462	I O	2.31
2.583	0.00	1.74	0.450	I O	2.29
2.667	0.00	1.74	0.438	I O	2.26
2.750	0.00	1.74	0.426	I O	2.23
2.833	0.00	1.74	0.414	I O	2.21
2.917	0.00	1.74	0.402	I O	2.18
3.000	0.00	1.74	0.390	I O	2.16
3.083	0.00	1.74	0.378	I O	2.13
3.167	0.00	1.74	0.366	I O	2.10
3.250	0.00	1.74	0.354	I O	2.08
3.333	0.00	1.74	0.342	I O	2.05
3.417	0.00	1.74	0.330	I O	2.03
3.500	0.00	1.74	0.318	I O	2.00
3.583	0.00	1.74	0.306	I O	1.88
3.667	0.00	1.74	0.294	I O	1.75
3.750	0.00	1.74	0.282	I O	1.63
3.833	0.00	1.74	0.270	I O	1.50
3.917	0.00	1.74	0.258	I O	1.37
4.000	0.00	1.74	0.246	I O	1.24
4.083	0.00	1.74	0.234	I O	1.12
4.167	0.00	1.73	0.222	I O	1.00
4.250	0.00	1.64	0.210	I O	0.94
4.333	0.00	1.56	0.199	IO	0.89
4.417	0.00	1.47	0.189	IO	0.85
4.500	0.00	1.40	0.179	IO	0.80
4.583	0.00	1.32	0.170	IO	0.76
4.667	0.00	1.25	0.161	IO	0.72
4.750	0.00	1.19	0.152	IO	0.68
4.833	0.00	1.13	0.144	IO	0.65
4.917	0.00	1.07	0.137	IO	0.61
5.000	0.00	1.01	0.130	IO	0.58
5.083	0.00	0.96	0.123	IO	0.55
5.167	0.00	0.91	0.116	IO	0.52
5.250	0.00	0.86	0.110	IO	0.49
5.333	0.00	0.82	0.105	IO	0.47

5.417	0.00	0.77	0.099	O	|	|	|	|	0.44
5.500	0.00	0.73	0.094	O	|	|	|	|	0.42
5.583	0.00	0.69	0.089	O	|	|	|	|	0.40
5.667	0.00	0.66	0.084	O	|	|	|	|	0.38
5.750	0.00	0.62	0.080	O	|	|	|	|	0.36
5.833	0.00	0.59	0.076	O	|	|	|	|	0.34
5.917	0.00	0.56	0.072	O	|	|	|	|	0.32
6.000	0.00	0.53	0.068	O	|	|	|	|	0.31
6.083	0.00	0.50	0.064	O	|	|	|	|	0.29
6.167	0.00	0.48	0.061	O	|	|	|	|	0.27
6.250	0.00	0.45	0.058	O	|	|	|	|	0.26
6.333	0.00	0.43	0.055	O	|	|	|	|	0.25
6.417	0.00	0.41	0.052	O	|	|	|	|	0.23
6.500	0.00	0.38	0.049	O	|	|	|	|	0.22
6.583	0.00	0.36	0.047	O	|	|	|	|	0.21
6.667	0.00	0.35	0.044	O	|	|	|	|	0.20
6.750	0.00	0.33	0.042	O	|	|	|	|	0.19
6.833	0.00	0.31	0.040	O	|	|	|	|	0.18
6.917	0.00	0.29	0.038	O	|	|	|	|	0.17
7.000	0.00	0.28	0.036	O	|	|	|	|	0.16
7.083	0.00	0.26	0.034	O	|	|	|	|	0.15
7.167	0.00	0.25	0.032	O	|	|	|	|	0.14
7.250	0.00	0.24	0.030	O	|	|	|	|	0.14
7.333	0.00	0.22	0.029	O	|	|	|	|	0.13
7.417	0.00	0.21	0.027	O	|	|	|	|	0.12
7.500	0.00	0.20	0.026	O	|	|	|	|	0.12
7.583	0.00	0.19	0.024	O	|	|	|	|	0.11
7.667	0.00	0.18	0.023	O	|	|	|	|	0.10
7.750	0.00	0.17	0.022	O	|	|	|	|	0.10
7.833	0.00	0.16	0.021	O	|	|	|	|	0.09
7.917	0.00	0.15	0.020	O	|	|	|	|	0.09
8.000	0.00	0.15	0.019	O	|	|	|	|	0.08
8.083	0.00	0.14	0.018	O	|	|	|	|	0.08
8.167	0.00	0.13	0.017	O	|	|	|	|	0.08
8.250	0.00	0.12	0.016	O	|	|	|	|	0.07
8.333	0.00	0.12	0.015	O	|	|	|	|	0.07
8.417	0.00	0.11	0.014	O	|	|	|	|	0.06
8.500	0.00	0.11	0.014	O	|	|	|	|	0.06
8.583	0.00	0.10	0.013	O	|	|	|	|	0.06
8.667	0.00	0.10	0.012	O	|	|	|	|	0.05
8.750	0.00	0.09	0.012	O	|	|	|	|	0.05
8.833	0.00	0.09	0.011	O	|	|	|	|	0.05
8.917	0.00	0.08	0.010	O	|	|	|	|	0.05
9.000	0.00	0.08	0.010	O	|	|	|	|	0.04
9.083	0.00	0.07	0.009	O	|	|	|	|	0.04
9.167	0.00	0.07	0.009	O	|	|	|	|	0.04
9.250	0.00	0.07	0.008	O	|	|	|	|	0.04
9.333	0.00	0.06	0.008	O	|	|	|	|	0.04
9.417	0.00	0.06	0.008	O	|	|	|	|	0.03
9.500	0.00	0.06	0.007	O	|	|	|	|	0.03
9.583	0.00	0.05	0.007	O	|	|	|	|	0.03
9.667	0.00	0.05	0.006	O	|	|	|	|	0.03
9.750	0.00	0.05	0.006	O	|	|	|	|	0.03
9.833	0.00	0.04	0.006	O	|	|	|	|	0.03
9.917	0.00	0.04	0.005	O	|	|	|	|	0.02
10.000	0.00	0.04	0.005	O	|	|	|	|	0.02
10.083	0.00	0.04	0.005	O	|	|	|	|	0.02
10.167	0.00	0.04	0.005	O	|	|	|	|	0.02
10.250	0.00	0.03	0.004	O	|	|	|	|	0.02
10.333	0.00	0.03	0.004	O	|	|	|	|	0.02
10.417	0.00	0.03	0.004	O	|	|	|	|	0.02
10.500	0.00	0.03	0.004	O	|	|	|	|	0.02
10.583	0.00	0.03	0.004	O	|	|	|	|	0.02
10.667	0.00	0.03	0.003	O	|	|	|	|	0.02
10.750	0.00	0.02	0.003	O	|	|	|	|	0.01
10.833	0.00	0.02	0.003	O	|	|	|	|	0.01
10.917	0.00	0.02	0.003	O	|	|	|	|	0.01
11.000	0.00	0.02	0.003	O	|	|	|	|	0.01
11.083	0.00	0.02	0.003	O	|	|	|	|	0.01
11.167	0.00	0.02	0.002	O	|	|	|	|	0.01
11.250	0.00	0.02	0.002	O	|	|	|	|	0.01

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11.333    0.00    0.02      0.002  O       |       |       |       |     0.01
11.417    0.00    0.02      0.002  O       |       |       |       |     0.01
11.500    0.00    0.02      0.002  O       |       |       |       |     0.01
11.583    0.00    0.01      0.002  O       |       |       |       |     0.01
11.667    0.00    0.01      0.002  O       |       |       |       |     0.01
11.750    0.00    0.01      0.002  O       |       |       |       |     0.01
11.833    0.00    0.01      0.002  O       |       |       |       |     0.01
11.917    0.00    0.01      0.001  O       |       |       |       |     0.01
12.000    0.00    0.01      0.001  O       |       |       |       |     0.01
12.083    0.00    0.01      0.001  O       |       |       |       |     0.01
12.167    0.00    0.01      0.001  O       |       |       |       |     0.01
12.250    0.00    0.01      0.001  O       |       |       |       |     0.01
12.333    0.00    0.01      0.001  O       |       |       |       |     0.01
12.417    0.00    0.01      0.001  O       |       |       |       |     0.00
12.500    0.00    0.01      0.001  O       |       |       |       |     0.00
12.583    0.00    0.01      0.001  O       |       |       |       |     0.00
12.667    0.00    0.01      0.001  O       |       |       |       |     0.00
12.750    0.00    0.01      0.001  O       |       |       |       |     0.00
12.833    0.00    0.01      0.001  O       |       |       |       |     0.00
12.917    0.00    0.01      0.001  O       |       |       |       |     0.00
13.000    0.00    0.01      0.001  O       |       |       |       |     0.00
13.083    0.00    0.01      0.001  O       |       |       |       |     0.00
13.167    0.00    0.01      0.001  O       |       |       |       |     0.00
13.250    0.00    0.00      0.001  O       |       |       |       |     0.00
13.333    0.00    0.00      0.001  O       |       |       |       |     0.00
13.417    0.00    0.00      0.001  O       |       |       |       |     0.00
13.500    0.00    0.00      0.001  O       |       |       |       |     0.00
13.583    0.00    0.00      0.001  O       |       |       |       |     0.00
13.667    0.00    0.00      0.000  O       |       |       |       |     0.00
13.750    0.00    0.00      0.000  O       |       |       |       |     0.00
13.833    0.00    0.00      0.000  O       |       |       |       |     0.00
13.917    0.00    0.00      0.000  O       |       |       |       |     0.00
14.000    0.00    0.00      0.000  O       |       |       |       |     0.00
14.083    0.00    0.00      0.000  O       |       |       |       |     0.00
14.167    0.00    0.00      0.000  O       |       |       |       |     0.00
14.250    0.00    0.00      0.000  O       |       |       |       |     0.00
14.333    0.00    0.00      0.000  O       |       |       |       |     0.00
14.417    0.00    0.00      0.000  O       |       |       |       |     0.00
14.500    0.00    0.00      0.000  O       |       |       |       |     0.00
14.583    0.00    0.00      0.000  O       |       |       |       |     0.00
14.667    0.00    0.00      0.000  O       |       |       |       |     0.00
14.750    0.00    0.00      0.000  O       |       |       |       |     0.00
14.833    0.00    0.00      0.000  O       |       |       |       |     0.00
14.917    0.00    0.00      0.000  O       |       |       |       |     0.00

****************************HYDROGRAPH DATA****************************
               Number of intervals =   179
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        1.740 (CFS)
               Total volume =       0.762 (Ac.Ft)
       Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

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                    FLOOD HYDROGRAPH ROUTING PROGRAM
             Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                         Study date: 06/03/21

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Riverside Hauling Yard
County of Jurupa Valley
Detention Basin Routing
100-year 3-hour storm

--------------------------------------------------------------------


Program License Serial Number 4029

--------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

               From study/file name: burhyd3100.rte
****************************HYDROGRAPH DATA****************************
               Number of intervals =    39
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =       14.211 (CFS)
               Total volume =       1.217 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** RETARDING BASIN ROUTING ****
______________________________________________________________________

User entry of depth-outflow-storage data
--------------------------------------------------------------------
Total number of inflow hydrograph intervals = 39
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
--------------------------------------------------------------------
--------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
--------------------------------------------------------------------
--------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
--------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   1.000      0.223      1.740      0.217        0.229
   2.000      0.317      1.740      0.311        0.323
   3.000      0.781      1.740      0.775        0.787
   4.000      1.041      1.740      1.035        1.047
   5.000      1.302      1.740      1.296        1.308
   6.000      1.570      1.740      1.564        1.576
   7.000      1.822      1.740      1.816        1.828
   8.000      2.068      1.740      2.062        2.074
   9.000      2.381      1.740      2.375        2.387
  10.000      2.603      1.740      2.597        2.609
  11.000      2.604     21.740      2.529        2.679
--------------------------------------------------------------------
               Hydrograph Detention Basin Routing
--------------------------------------------------------------------
```

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 3.6 7.11 10.66 14.21	Depth (Ft.)
0.083	1.04	0.03	0.004	O I	0.02
0.167	1.90	0.10	0.013	O I	0.06
0.250	1.89	0.20	0.025	O I	0.11
0.333	2.14	0.29	0.037	O I	0.17
0.417	2.38	0.39	0.051	O I	0.23
0.500	2.71	0.51	0.065	|O I	0.29
0.583	2.67	0.62	0.080	|O I	0.36
0.667	2.77	0.73	0.094	|O I	0.42
0.750	2.97	0.84	0.108	|O I	0.48
0.833	2.71	0.95	0.121	| O I	0.54
0.917	2.59	1.04	0.133	| O I	0.60
1.000	2.82	1.12	0.144	| O I	0.65
1.083	3.36	1.23	0.157	| O I	0.70
1.167	3.70	1.35	0.173	| O I	0.77
1.250	3.77	1.47	0.189	| O I	0.85
1.333	3.59	1.59	0.203	| O I	0.91
1.417	4.01	1.70	0.218	| O |I	0.98
1.500	4.55	1.74	0.236	| O | I	1.14
1.583	4.41	1.74	0.255	| O |I	1.34
1.667	4.51	1.74	0.273	| O | I	1.54
1.750	5.28	1.74	0.295	| O | I	1.77
1.833	5.58	1.74	0.321	| O | I	2.01
1.917	5.33	1.74	0.346	| O | I	2.06
2.000	5.27	1.74	0.371	| O | I	2.12
2.083	5.41	1.74	0.396	| O | I	2.17
2.167	6.54	1.74	0.425	| O | I	2.23
2.250	8.19	1.74	0.463	| O | I	2.32
2.333	7.54	1.74	0.506	| O | I	2.41
2.417	9.68	1.74	0.553	| O | I	2.51
2.500	12.56	1.74	0.618	| O | I	2.65
2.583	14.21	1.74	0.698	| O | I	2.82
2.667	12.93	1.74	0.779	| O | I	3.00
2.750	7.55	1.74	0.838	| O |I	3.22
2.833	4.04	1.74	0.866	| O |I	3.33
2.917	3.23	1.74	0.879	| O I|	3.38
3.000	2.01	1.74	0.885	| OI	3.40
3.083	0.68	1.74	0.882	|I O	3.39
3.167	0.14	1.74	0.873	I O	3.35
3.250	0.02	1.74	0.862	I O	3.31
3.333	0.00	1.74	0.850	I O	3.26
3.417	0.00	1.74	0.838	I O	3.22
3.500	0.00	1.74	0.826	I O	3.17
3.583	0.00	1.74	0.814	I O	3.13
3.667	0.00	1.74	0.802	I O	3.08
3.750	0.00	1.74	0.790	I O	3.03
3.833	0.00	1.74	0.778	I O	2.99
3.917	0.00	1.74	0.766	I O	2.97
4.000	0.00	1.74	0.754	I O	2.94
4.083	0.00	1.74	0.742	I O	2.92
4.167	0.00	1.74	0.730	I O	2.89
4.250	0.00	1.74	0.718	I O	2.86
4.333	0.00	1.74	0.706	I O	2.84
4.417	0.00	1.74	0.694	I O	2.81
4.500	0.00	1.74	0.682	I O	2.79
4.583	0.00	1.74	0.670	I O	2.76
4.667	0.00	1.74	0.658	I O	2.73
4.750	0.00	1.74	0.646	I O	2.71
4.833	0.00	1.74	0.634	I O	2.68
4.917	0.00	1.74	0.622	I O	2.66
5.000	0.00	1.74	0.610	I O	2.63
5.083	0.00	1.74	0.598	I O	2.61
5.167	0.00	1.74	0.586	I O	2.58
5.250	0.00	1.74	0.574	I O	2.55
5.333	0.00	1.74	0.562	I O	2.53
5.417	0.00	1.74	0.550	I O	2.50
5.500	0.00	1.74	0.538	I O	2.48

5.583	0.00	1.74	0.526	I	O	|	|	|	| 2.45
5.667	0.00	1.74	0.514	I	O	|	|	|	| 2.42
5.750	0.00	1.74	0.502	I	O	|	|	|	| 2.40
5.833	0.00	1.74	0.490	I	O	|	|	|	| 2.37
5.917	0.00	1.74	0.478	I	O	|	|	|	| 2.35
6.000	0.00	1.74	0.466	I	O	|	|	|	| 2.32
6.083	0.00	1.74	0.454	I	O	|	|	|	| 2.30
6.167	0.00	1.74	0.442	I	O	|	|	|	| 2.27
6.250	0.00	1.74	0.430	I	O	|	|	|	| 2.24
6.333	0.00	1.74	0.418	I	O	|	|	|	| 2.22
6.417	0.00	1.74	0.406	I	O	|	|	|	| 2.19
6.500	0.00	1.74	0.394	I	O	|	|	|	| 2.17
6.583	0.00	1.74	0.382	I	O	|	|	|	| 2.14
6.667	0.00	1.74	0.370	I	O	|	|	|	| 2.11
6.750	0.00	1.74	0.358	I	O	|	|	|	| 2.09
6.833	0.00	1.74	0.346	I	O	|	|	|	| 2.06
6.917	0.00	1.74	0.334	I	O	|	|	|	| 2.04
7.000	0.00	1.74	0.322	I	O	|	|	|	| 2.01
7.083	0.00	1.74	0.310	I	O	|	|	|	| 1.93
7.167	0.00	1.74	0.298	I	O	|	|	|	| 1.80
7.250	0.00	1.74	0.286	I	O	|	|	|	| 1.67
7.333	0.00	1.74	0.274	I	O	|	|	|	| 1.55
7.417	0.00	1.74	0.262	I	O	|	|	|	| 1.42
7.500	0.00	1.74	0.250	I	O	|	|	|	| 1.29
7.583	0.00	1.74	0.238	I	O	|	|	|	| 1.16
7.667	0.00	1.74	0.226	I	O	|	|	|	| 1.04
7.750	0.00	1.68	0.215	I	O	|	|	|	| 0.96
7.833	0.00	1.59	0.203	I	O	|	|	|	| 0.91
7.917	0.00	1.50	0.193	I	O	|	|	|	| 0.86
8.000	0.00	1.43	0.183	I	O	|	|	|	| 0.82
8.083	0.00	1.35	0.173	I	O	|	|	|	| 0.78
8.167	0.00	1.28	0.164	I	O	|	|	|	| 0.74
8.250	0.00	1.21	0.156	I	O	|	|	|	| 0.70
8.333	0.00	1.15	0.147	I	O	|	|	|	| 0.66
8.417	0.00	1.09	0.140	I	O	|	|	|	| 0.63
8.500	0.00	1.03	0.132	I	O	|	|	|	| 0.59
8.583	0.00	0.98	0.125	I	O	|	|	|	| 0.56
8.667	0.00	0.93	0.119	I	O	|	|	|	| 0.53
8.750	0.00	0.88	0.113	I	O	|	|	|	| 0.51
8.833	0.00	0.83	0.107	I	O	|	|	|	| 0.48
8.917	0.00	0.79	0.101	I	O	|	|	|	| 0.45
9.000	0.00	0.75	0.096	I	O	|	|	|	| 0.43
9.083	0.00	0.71	0.091	I	O	|	|	|	| 0.41
9.167	0.00	0.67	0.086	I	O	|	|	|	| 0.39
9.250	0.00	0.64	0.082	I	O	|	|	|	| 0.37
9.333	0.00	0.60	0.077	I	O	|	|	|	| 0.35
9.417	0.00	0.57	0.073	I	O	|	|	|	| 0.33
9.500	0.00	0.54	0.069	I	O	|	|	|	| 0.31
9.583	0.00	0.51	0.066	I	O	|	|	|	| 0.30
9.667	0.00	0.49	0.062	I	O	|	|	|	| 0.28
9.750	0.00	0.46	0.059	I	O	|	|	|	| 0.27
9.833	0.00	0.44	0.056	O		|	|	|	| 0.25
9.917	0.00	0.41	0.053	O		|	|	|	| 0.24
10.000	0.00	0.39	0.050	O		|	|	|	| 0.23
10.083	0.00	0.37	0.048	O		|	|	|	| 0.21
10.167	0.00	0.35	0.045	O		|	|	|	| 0.20
10.250	0.00	0.33	0.043	O		|	|	|	| 0.19
10.333	0.00	0.32	0.041	O		|	|	|	| 0.18
10.417	0.00	0.30	0.038	O		|	|	|	| 0.17
10.500	0.00	0.28	0.036	O		|	|	|	| 0.16
10.583	0.00	0.27	0.035	O		|	|	|	| 0.15
10.667	0.00	0.26	0.033	O		|	|	|	| 0.15
10.750	0.00	0.24	0.031	O		|	|	|	| 0.14
10.833	0.00	0.23	0.029	O		|	|	|	| 0.13
10.917	0.00	0.22	0.028	O		|	|	|	| 0.12
11.000	0.00	0.21	0.026	O		|	|	|	| 0.12
11.083	0.00	0.20	0.025	O		|	|	|	| 0.11
11.167	0.00	0.18	0.024	O		|	|	|	| 0.11
11.250	0.00	0.18	0.022	O		|	|	|	| 0.10
11.333	0.00	0.17	0.021	O		|	|	|	| 0.10
11.417	0.00	0.16	0.020	O		|	|	|	| 0.09

11.500	0.00	0.15	0.019	O	|	|	|	|	0.09
11.583	0.00	0.14	0.018	O	|	|	|	|	0.08
11.667	0.00	0.13	0.017	O	|	|	|	|	0.08
11.750	0.00	0.13	0.016	O	|	|	|	|	0.07
11.833	0.00	0.12	0.015	O	|	|	|	|	0.07
11.917	0.00	0.11	0.015	O	|	|	|	|	0.07
12.000	0.00	0.11	0.014	O	|	|	|	|	0.06
12.083	0.00	0.10	0.013	O	|	|	|	|	0.06
12.167	0.00	0.10	0.012	O	|	|	|	|	0.06
12.250	0.00	0.09	0.012	O	|	|	|	|	0.05
12.333	0.00	0.09	0.011	O	|	|	|	|	0.05
12.417	0.00	0.08	0.011	O	|	|	|	|	0.05
12.500	0.00	0.08	0.010	O	|	|	|	|	0.04
12.583	0.00	0.07	0.010	O	|	|	|	|	0.04
12.667	0.00	0.07	0.009	O	|	|	|	|	0.04
12.750	0.00	0.07	0.009	O	|	|	|	|	0.04
12.833	0.00	0.06	0.008	O	|	|	|	|	0.04
12.917	0.00	0.06	0.008	O	|	|	|	|	0.03
13.000	0.00	0.06	0.007	O	|	|	|	|	0.03
13.083	0.00	0.05	0.007	O	|	|	|	|	0.03
13.167	0.00	0.05	0.007	O	|	|	|	|	0.03
13.250	0.00	0.05	0.006	O	|	|	|	|	0.03
13.333	0.00	0.05	0.006	O	|	|	|	|	0.03
13.417	0.00	0.04	0.006	O	|	|	|	|	0.02
13.500	0.00	0.04	0.005	O	|	|	|	|	0.02
13.583	0.00	0.04	0.005	O	|	|	|	|	0.02
13.667	0.00	0.04	0.005	O	|	|	|	|	0.02
13.750	0.00	0.03	0.004	O	|	|	|	|	0.02
13.833	0.00	0.03	0.004	O	|	|	|	|	0.02
13.917	0.00	0.03	0.004	O	|	|	|	|	0.02
14.000	0.00	0.03	0.004	O	|	|	|	|	0.02
14.083	0.00	0.03	0.004	O	|	|	|	|	0.02
14.167	0.00	0.03	0.003	O	|	|	|	|	0.02
14.250	0.00	0.03	0.003	O	|	|	|	|	0.01
14.333	0.00	0.02	0.003	O	|	|	|	|	0.01
14.417	0.00	0.02	0.003	O	|	|	|	|	0.01
14.500	0.00	0.02	0.003	O	|	|	|	|	0.01
14.583	0.00	0.02	0.003	O	|	|	|	|	0.01
14.667	0.00	0.02	0.002	O	|	|	|	|	0.01
14.750	0.00	0.02	0.002	O	|	|	|	|	0.01
14.833	0.00	0.02	0.002	O	|	|	|	|	0.01
14.917	0.00	0.02	0.002	O	|	|	|	|	0.01
15.000	0.00	0.02	0.002	O	|	|	|	|	0.01
15.083	0.00	0.01	0.002	O	|	|	|	|	0.01
15.167	0.00	0.01	0.002	O	|	|	|	|	0.01
15.250	0.00	0.01	0.002	O	|	|	|	|	0.01
15.333	0.00	0.01	0.002	O	|	|	|	|	0.01
15.417	0.00	0.01	0.002	O	|	|	|	|	0.01
15.500	0.00	0.01	0.001	O	|	|	|	|	0.01
15.583	0.00	0.01	0.001	O	|	|	|	|	0.01
15.667	0.00	0.01	0.001	O	|	|	|	|	0.01
15.750	0.00	0.01	0.001	O	|	|	|	|	0.01
15.833	0.00	0.01	0.001	O	|	|	|	|	0.01
15.917	0.00	0.01	0.001	O	|	|	|	|	0.00
16.000	0.00	0.01	0.001	O	|	|	|	|	0.00
16.083	0.00	0.01	0.001	O	|	|	|	|	0.00
16.167	0.00	0.01	0.001	O	|	|	|	|	0.00
16.250	0.00	0.01	0.001	O	|	|	|	|	0.00
16.333	0.00	0.01	0.001	O	|	|	|	|	0.00
16.417	0.00	0.01	0.001	O	|	|	|	|	0.00
16.500	0.00	0.01	0.001	O	|	|	|	|	0.00
16.583	0.00	0.01	0.001	O	|	|	|	|	0.00
16.667	0.00	0.01	0.001	O	|	|	|	|	0.00
16.750	0.00	0.01	0.001	O	|	|	|	|	0.00
16.833	0.00	0.00	0.001	O	|	|	|	|	0.00
16.917	0.00	0.00	0.001	O	|	|	|	|	0.00
17.000	0.00	0.00	0.001	O	|	|	|	|	0.00
17.083	0.00	0.00	0.001	O	|	|	|	|	0.00
17.167	0.00	0.00	0.000	O	|	|	|	|	0.00
17.250	0.00	0.00	0.000	O	|	|	|	|	0.00
17.333	0.00	0.00	0.000	O	|	|	|	|	0.00

```
17.417    0.00    0.00      0.000  O       |       |       |       |     0.00
17.500    0.00    0.00      0.000  O       |       |       |       |     0.00
17.583    0.00    0.00      0.000  O       |       |       |       |     0.00
17.667    0.00    0.00      0.000  O       |       |       |       |     0.00
17.750    0.00    0.00      0.000  O       |       |       |       |     0.00
17.833    0.00    0.00      0.000  O       |       |       |       |     0.00
17.917    0.00    0.00      0.000  O       |       |       |       |     0.00
18.000    0.00    0.00      0.000  O       |       |       |       |     0.00
18.083    0.00    0.00      0.000  O       |       |       |       |     0.00
18.167    0.00    0.00      0.000  O       |       |       |       |     0.00
18.250    0.00    0.00      0.000  O       |       |       |       |     0.00
18.333    0.00    0.00      0.000  O       |       |       |       |     0.00
18.417    0.00    0.00      0.000  O       |       |       |       |     0.00

       ****************************HYDROGRAPH DATA****************************
                      Number of intervals =   221
                      Time interval =    5.0 (Min.)
                      Maximum/Peak flow rate =        1.740 (CFS)
                      Total volume =       1.217 (Ac.Ft)
              Status of hydrographs being held in storage
                         Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
              Peak (CFS)      0.000     0.000     0.000     0.000     0.000
              Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
       ************************************************************************

       ----------------------------------------------------------------------
```

```
                    FLOOD HYDROGRAPH ROUTING PROGRAM
             Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                         Study date: 06/03/21

---------------------------------------------------------------------

Riverside Hauling Yard
County of Jurupa Valley
Detention Basin Routing
100-year 6-hour storm

--------------------------------------------------------------------


Program License Serial Number 4029

--------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

               From study/file name: burhyd6100.rte
****************************HYDROGRAPH DATA****************************
               Number of intervals =    75
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =       13.077 (CFS)
               Total volume =       1.642 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** RETARDING BASIN ROUTING ****
______________________________________________________________________

User entry of depth-outflow-storage data
--------------------------------------------------------------------
Total number of inflow hydrograph intervals = 75
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
--------------------------------------------------------------------
--------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
--------------------------------------------------------------------
--------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
--------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   1.000      0.223      1.740      0.217        0.229
   2.000      0.317      1.740      0.311        0.323
   3.000      0.781      1.740      0.775        0.787
   4.000      1.041      1.740      1.035        1.047
   5.000      1.302      1.740      1.296        1.308
   6.000      1.570      1.740      1.564        1.576
   7.000      1.822      1.740      1.816        1.828
   8.000      2.068      1.740      2.062        2.074
   9.000      2.381      1.740      2.375        2.387
  10.000      2.603      1.740      2.597        2.609
  11.000      2.604     21.740      2.529        2.679
--------------------------------------------------------------------
               Hydrograph Detention Basin Routing
--------------------------------------------------------------------
```

```
      Graph values: 'I'= unit inflow; 'O'=outflow at time shown
      ---------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                          Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       3.3    6.54    9.81   13.08 (Ft.)
 0.083    0.55    0.01      0.002  OI      |       |       |       |     0.01
 0.167    1.12    0.06      0.007  O I     |       |       |       |     0.03
 0.250    1.29    0.12      0.015  O  I    |       |       |       |     0.07
 0.333    1.33    0.18      0.023  O  I    |       |       |       |     0.10
 0.417    1.34    0.24      0.031  O  I    |       |       |       |     0.14
 0.500    1.45    0.30      0.039  O  I    |       |       |       |     0.17
 0.583    1.54    0.36      0.047  O  I    |       |       |       |     0.21
 0.667    1.56    0.43      0.055  |O I    |       |       |       |     0.24
 0.750    1.56    0.48      0.062  |O I    |       |       |       |     0.28
 0.833    1.56    0.54      0.069  |O I    |       |       |       |     0.31
 0.917    1.56    0.59      0.076  |O I    |       |       |       |     0.34
 1.000    1.67    0.65      0.083  |O  I   |       |       |       |     0.37
 1.083    1.76    0.70      0.090  |O  I   |       |       |       |     0.40
 1.167    1.78    0.76      0.097  |O  I   |       |       |       |     0.44
 1.250    1.78    0.81      0.104  |O  I   |       |       |       |     0.47
 1.333    1.78    0.86      0.111  | O I   |       |       |       |     0.50
 1.417    1.78    0.91      0.117  | O I   |       |       |       |     0.52
 1.500    1.78    0.96      0.123  | O I   |       |       |       |     0.55
 1.583    1.78    1.00      0.128  | O I   |       |       |       |     0.58
 1.667    1.78    1.04      0.134  | O I   |       |       |       |     0.60
 1.750    1.78    1.08      0.139  | O I   |       |       |       |     0.62
 1.833    1.78    1.12      0.143  | O I   |       |       |       |     0.64
 1.917    1.78    1.15      0.148  | O I   |       |       |       |     0.66
 2.000    1.90    1.19      0.152  | O I   |       |       |       |     0.68
 2.083    1.88    1.23      0.157  | O I   |       |       |       |     0.70
 2.167    1.91    1.26      0.162  |  OI   |       |       |       |     0.72
 2.250    1.99    1.30      0.166  |  OI   |       |       |       |     0.75
 2.333    2.00    1.33      0.171  |  OI   |       |       |       |     0.77
 2.417    2.01    1.37      0.175  |  OI   |       |       |       |     0.79
 2.500    2.01    1.40      0.180  |  OI   |       |       |       |     0.81
 2.583    2.01    1.43      0.184  |  OI   |       |       |       |     0.82
 2.667    2.01    1.46      0.188  |  OI   |       |       |       |     0.84
 2.750    2.12    1.49      0.192  |  O I  |       |       |       |     0.86
 2.833    2.21    1.53      0.196  |  O I  |       |       |       |     0.88
 2.917    2.23    1.57      0.201  |  O I  |       |       |       |     0.90
 3.000    2.23    1.60      0.205  |  O I  |       |       |       |     0.92
 3.083    2.23    1.63      0.209  |  O I  |       |       |       |     0.94
 3.167    2.35    1.67      0.214  |   OI  |       |       |       |     0.96
 3.250    2.45    1.71      0.219  |   OI  |       |       |       |     0.98
 3.333    2.47    1.74      0.224  |   O I |       |       |       |     1.01
 3.417    2.61    1.74      0.229  |   O I |       |       |       |     1.07
 3.500    2.85    1.74      0.236  |   O I |       |       |       |     1.14
 3.583    3.11    1.74      0.245  |   O  I|       |       |       |     1.23
 3.667    3.24    1.74      0.254  |   O  I|       |       |       |     1.33
 3.750    3.40    1.74      0.265  |   O   I       |       |       |     1.45
 3.833    3.51    1.74      0.277  |   O   I       |       |       |     1.58
 3.917    3.66    1.74      0.290  |   O   I       |       |       |     1.71
 4.000    3.78    1.74      0.303  |   O   |I      |       |       |     1.86
 4.083    3.93    1.74      0.318  |   O   |I      |       |       |     2.00
 4.167    4.17    1.74      0.334  |   O   | I     |       |       |     2.04
 4.250    4.43    1.74      0.352  |   O   | I     |       |       |     2.07
 4.333    4.70    1.74      0.371  |   O   |  I    |       |       |     2.12
 4.417    4.96    1.74      0.392  |   O   |   I   |       |       |     2.16
 4.500    5.10    1.74      0.415  |   O   |   I   |       |       |     2.21
 4.583    5.26    1.74      0.439  |   O   |   I   |       |       |     2.26
 4.667    5.50    1.74      0.464  |   O   |    I  |       |       |     2.32
 4.750    5.76    1.74      0.490  |   O   |     I |       |       |     2.37
 4.833    5.89    1.74      0.519  |   O   |     I |       |       |     2.43
 4.917    6.05    1.74      0.548  |   O   |     I |       |       |     2.50
 5.000    6.30    1.74      0.578  |   O   |      I|       |       |     2.56
 5.083    7.09    1.74      0.612  |   O   |       |I      |       |     2.64
 5.167    8.31    1.74      0.654  |   O   |       |   I   |       |     2.73
 5.250    9.35    1.74      0.702  |   O   |       |     I |       |     2.83
 5.333   10.20    1.74      0.758  |   O   |       |       I       |     2.95
 5.417   11.27    1.74      0.820  |   O   |       |       |  I    |     3.15
 5.500   13.08    1.74      0.891  |   O   |       |       |       I     3.42
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 5.583    9.27    1.74      0.956  |   O   |       |     I |       |     3.67
 5.667    4.20    1.74      0.991  |   O   | I     |       |       |     3.81
 5.750    2.16    1.74      1.001  |   OI  |       |       |       |     3.85
 5.833    1.35    1.74      1.001  |  IO   |       |       |       |     3.85
 5.917    0.93    1.74      0.997  | I O   |       |       |       |     3.83
 6.000    0.61    1.74      0.990  |I  O   |       |       |       |     3.80
 6.083    0.26    1.74      0.981  I   O   |       |       |       |     3.77
 6.167    0.05    1.74      0.970  I   O   |       |       |       |     3.73
 6.250    0.01    1.74      0.958  I   O   |       |       |       |     3.68
 6.333    0.00    1.74      0.946  I   O   |       |       |       |     3.64
 6.417    0.00    1.74      0.934  I   O   |       |       |       |     3.59
 6.500    0.00    1.74      0.922  I   O   |       |       |       |     3.54
 6.583    0.00    1.74      0.910  I   O   |       |       |       |     3.50
 6.667    0.00    1.74      0.899  I   O   |       |       |       |     3.45
 6.750    0.00    1.74      0.887  I   O   |       |       |       |     3.41
 6.833    0.00    1.74      0.875  I   O   |       |       |       |     3.36
 6.917    0.00    1.74      0.863  I   O   |       |       |       |     3.31
 7.000    0.00    1.74      0.851  I   O   |       |       |       |     3.27
 7.083    0.00    1.74      0.839  I   O   |       |       |       |     3.22
 7.167    0.00    1.74      0.827  I   O   |       |       |       |     3.18
 7.250    0.00    1.74      0.815  I   O   |       |       |       |     3.13
 7.333    0.00    1.74      0.803  I   O   |       |       |       |     3.08
 7.417    0.00    1.74      0.791  I   O   |       |       |       |     3.04
 7.500    0.00    1.74      0.779  I   O   |       |       |       |     2.99
 7.583    0.00    1.74      0.767  I   O   |       |       |       |     2.97
 7.667    0.00    1.74      0.755  I   O   |       |       |       |     2.94
 7.750    0.00    1.74      0.743  I   O   |       |       |       |     2.92
 7.833    0.00    1.74      0.731  I   O   |       |       |       |     2.89
 7.917    0.00    1.74      0.719  I   O   |       |       |       |     2.87
 8.000    0.00    1.74      0.707  I   O   |       |       |       |     2.84
 8.083    0.00    1.74      0.695  I   O   |       |       |       |     2.81
 8.167    0.00    1.74      0.683  I   O   |       |       |       |     2.79
 8.250    0.00    1.74      0.671  I   O   |       |       |       |     2.76
 8.333    0.00    1.74      0.659  I   O   |       |       |       |     2.74
 8.417    0.00    1.74      0.647  I   O   |       |       |       |     2.71
 8.500    0.00    1.74      0.635  I   O   |       |       |       |     2.69
 8.583    0.00    1.74      0.623  I   O   |       |       |       |     2.66
 8.667    0.00    1.74      0.611  I   O   |       |       |       |     2.63
 8.750    0.00    1.74      0.599  I   O   |       |       |       |     2.61
 8.833    0.00    1.74      0.587  I   O   |       |       |       |     2.58
 8.917    0.00    1.74      0.575  I   O   |       |       |       |     2.56
 9.000    0.00    1.74      0.563  I   O   |       |       |       |     2.53
 9.083    0.00    1.74      0.551  I   O   |       |       |       |     2.50
 9.167    0.00    1.74      0.539  I   O   |       |       |       |     2.48
 9.250    0.00    1.74      0.527  I   O   |       |       |       |     2.45
 9.333    0.00    1.74      0.515  I   O   |       |       |       |     2.43
 9.417    0.00    1.74      0.503  I   O   |       |       |       |     2.40
 9.500    0.00    1.74      0.491  I   O   |       |       |       |     2.38
 9.583    0.00    1.74      0.479  I   O   |       |       |       |     2.35
 9.667    0.00    1.74      0.467  I   O   |       |       |       |     2.32
 9.750    0.00    1.74      0.455  I   O   |       |       |       |     2.30
 9.833    0.00    1.74      0.443  I   O   |       |       |       |     2.27
 9.917    0.00    1.74      0.431  I   O   |       |       |       |     2.25
10.000    0.00    1.74      0.419  I   O   |       |       |       |     2.22
10.083    0.00    1.74      0.407  I   O   |       |       |       |     2.19
10.167    0.00    1.74      0.395  I   O   |       |       |       |     2.17
10.250    0.00    1.74      0.383  I   O   |       |       |       |     2.14
10.333    0.00    1.74      0.371  I   O   |       |       |       |     2.12
10.417    0.00    1.74      0.359  I   O   |       |       |       |     2.09
10.500    0.00    1.74      0.347  I   O   |       |       |       |     2.07
10.583    0.00    1.74      0.335  I   O   |       |       |       |     2.04
10.667    0.00    1.74      0.323  I   O   |       |       |       |     2.01
10.750    0.00    1.74      0.311  I   O   |       |       |       |     1.94
10.833    0.00    1.74      0.299  I   O   |       |       |       |     1.81
10.917    0.00    1.74      0.287  I   O   |       |       |       |     1.68
11.000    0.00    1.74      0.275  I   O   |       |       |       |     1.56
11.083    0.00    1.74      0.263  I   O   |       |       |       |     1.43
11.167    0.00    1.74      0.251  I   O   |       |       |       |     1.30
11.250    0.00    1.74      0.239  I   O   |       |       |       |     1.17
11.333    0.00    1.74      0.227  I   O   |       |       |       |     1.05
11.417    0.00    1.68      0.216  I   O   |       |       |       |     0.97
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11.500	0.00	1.59	0.204	I O	|	|	|	|	0.92
11.583	0.00	1.51	0.194	I O	|	|	|	|	0.87
11.667	0.00	1.43	0.184	I O	|	|	|	|	0.82
11.750	0.00	1.36	0.174	I O	|	|	|	|	0.78
11.833	0.00	1.29	0.165	I O	|	|	|	|	0.74
11.917	0.00	1.22	0.156	I O	|	|	|	|	0.70
12.000	0.00	1.16	0.148	I O	|	|	|	|	0.66
12.083	0.00	1.09	0.140	I O	|	|	|	|	0.63
12.167	0.00	1.04	0.133	I O	|	|	|	|	0.60
12.250	0.00	0.98	0.126	I O	|	|	|	|	0.56
12.333	0.00	0.93	0.119	I O	|	|	|	|	0.54
12.417	0.00	0.88	0.113	I O	|	|	|	|	0.51
12.500	0.00	0.84	0.107	I O	|	|	|	|	0.48
12.583	0.00	0.79	0.102	IO	|	|	|	|	0.46
12.667	0.00	0.75	0.096	IO	|	|	|	|	0.43
12.750	0.00	0.71	0.091	IO	|	|	|	|	0.41
12.833	0.00	0.67	0.086	IO	|	|	|	|	0.39
12.917	0.00	0.64	0.082	IO	|	|	|	|	0.37
13.000	0.00	0.61	0.078	IO	|	|	|	|	0.35
13.083	0.00	0.57	0.074	IO	|	|	|	|	0.33
13.167	0.00	0.54	0.070	IO	|	|	|	|	0.31
13.250	0.00	0.52	0.066	IO	|	|	|	|	0.30
13.333	0.00	0.49	0.063	IO	|	|	|	|	0.28
13.417	0.00	0.46	0.059	IO	|	|	|	|	0.27
13.500	0.00	0.44	0.056	IO	|	|	|	|	0.25
13.583	0.00	0.42	0.053	IO	|	|	|	|	0.24
13.667	0.00	0.39	0.051	O	|	|	|	|	0.23
13.750	0.00	0.37	0.048	O	|	|	|	|	0.21
13.833	0.00	0.35	0.045	O	|	|	|	|	0.20
13.917	0.00	0.34	0.043	O	|	|	|	|	0.19
14.000	0.00	0.32	0.041	O	|	|	|	|	0.18
14.083	0.00	0.30	0.039	O	|	|	|	|	0.17
14.167	0.00	0.29	0.037	O	|	|	|	|	0.16
14.250	0.00	0.27	0.035	O	|	|	|	|	0.16
14.333	0.00	0.26	0.033	O	|	|	|	|	0.15
14.417	0.00	0.24	0.031	O	|	|	|	|	0.14
14.500	0.00	0.23	0.030	O	|	|	|	|	0.13
14.583	0.00	0.22	0.028	O	|	|	|	|	0.13
14.667	0.00	0.21	0.027	O	|	|	|	|	0.12
14.750	0.00	0.20	0.025	O	|	|	|	|	0.11
14.833	0.00	0.19	0.024	O	|	|	|	|	0.11
14.917	0.00	0.18	0.023	O	|	|	|	|	0.10
15.000	0.00	0.17	0.021	O	|	|	|	|	0.10
15.083	0.00	0.16	0.020	O	|	|	|	|	0.09
15.167	0.00	0.15	0.019	O	|	|	|	|	0.09
15.250	0.00	0.14	0.018	O	|	|	|	|	0.08
15.333	0.00	0.13	0.017	O	|	|	|	|	0.08
15.417	0.00	0.13	0.016	O	|	|	|	|	0.07
15.500	0.00	0.12	0.015	O	|	|	|	|	0.07
15.583	0.00	0.11	0.015	O	|	|	|	|	0.07
15.667	0.00	0.11	0.014	O	|	|	|	|	0.06
15.750	0.00	0.10	0.013	O	|	|	|	|	0.06
15.833	0.00	0.10	0.012	O	|	|	|	|	0.06
15.917	0.00	0.09	0.012	O	|	|	|	|	0.05
16.000	0.00	0.09	0.011	O	|	|	|	|	0.05
16.083	0.00	0.08	0.011	O	|	|	|	|	0.05
16.167	0.00	0.08	0.010	O	|	|	|	|	0.05
16.250	0.00	0.07	0.010	O	|	|	|	|	0.04
16.333	0.00	0.07	0.009	O	|	|	|	|	0.04
16.417	0.00	0.07	0.009	O	|	|	|	|	0.04
16.500	0.00	0.06	0.008	O	|	|	|	|	0.04
16.583	0.00	0.06	0.008	O	|	|	|	|	0.03
16.667	0.00	0.06	0.007	O	|	|	|	|	0.03
16.750	0.00	0.05	0.007	O	|	|	|	|	0.03
16.833	0.00	0.05	0.007	O	|	|	|	|	0.03
16.917	0.00	0.05	0.006	O	|	|	|	|	0.03
17.000	0.00	0.05	0.006	O	|	|	|	|	0.03
17.083	0.00	0.04	0.006	O	|	|	|	|	0.03
17.167	0.00	0.04	0.005	O	|	|	|	|	0.02
17.250	0.00	0.04	0.005	O	|	|	|	|	0.02
17.333	0.00	0.04	0.005	O	|	|	|	|	0.02

17.417	0.00	0.04	0.004	O	|	|	|	|	0.02
17.500	0.00	0.03	0.004	O	|	|	|	|	0.02
17.583	0.00	0.03	0.004	O	|	|	|	|	0.02
17.667	0.00	0.03	0.004	O	|	|	|	|	0.02
17.750	0.00	0.03	0.004	O	|	|	|	|	0.02
17.833	0.00	0.03	0.003	O	|	|	|	|	0.02
17.917	0.00	0.03	0.003	O	|	|	|	|	0.01
18.000	0.00	0.02	0.003	O	|	|	|	|	0.01
18.083	0.00	0.02	0.003	O	|	|	|	|	0.01
18.167	0.00	0.02	0.003	O	|	|	|	|	0.01
18.250	0.00	0.02	0.003	O	|	|	|	|	0.01
18.333	0.00	0.02	0.002	O	|	|	|	|	0.01
18.417	0.00	0.02	0.002	O	|	|	|	|	0.01
18.500	0.00	0.02	0.002	O	|	|	|	|	0.01
18.583	0.00	0.02	0.002	O	|	|	|	|	0.01
18.667	0.00	0.02	0.002	O	|	|	|	|	0.01
18.750	0.00	0.01	0.002	O	|	|	|	|	0.01
18.833	0.00	0.01	0.002	O	|	|	|	|	0.01
18.917	0.00	0.01	0.002	O	|	|	|	|	0.01
19.000	0.00	0.01	0.002	O	|	|	|	|	0.01
19.083	0.00	0.01	0.002	O	|	|	|	|	0.01
19.167	0.00	0.01	0.001	O	|	|	|	|	0.01
19.250	0.00	0.01	0.001	O	|	|	|	|	0.01
19.333	0.00	0.01	0.001	O	|	|	|	|	0.01
19.417	0.00	0.01	0.001	O	|	|	|	|	0.01
19.500	0.00	0.01	0.001	O	|	|	|	|	0.01
19.583	0.00	0.01	0.001	O	|	|	|	|	0.00
19.667	0.00	0.01	0.001	O	|	|	|	|	0.00
19.750	0.00	0.01	0.001	O	|	|	|	|	0.00
19.833	0.00	0.01	0.001	O	|	|	|	|	0.00
19.917	0.00	0.01	0.001	O	|	|	|	|	0.00
20.000	0.00	0.01	0.001	O	|	|	|	|	0.00
20.083	0.00	0.01	0.001	O	|	|	|	|	0.00
20.167	0.00	0.01	0.001	O	|	|	|	|	0.00
20.250	0.00	0.01	0.001	O	|	|	|	|	0.00
20.333	0.00	0.01	0.001	O	|	|	|	|	0.00
20.417	0.00	0.01	0.001	O	|	|	|	|	0.00
20.500	0.00	0.00	0.001	O	|	|	|	|	0.00
20.583	0.00	0.00	0.001	O	|	|	|	|	0.00
20.667	0.00	0.00	0.001	O	|	|	|	|	0.00
20.750	0.00	0.00	0.001	O	|	|	|	|	0.00
20.833	0.00	0.00	0.000	O	|	|	|	|	0.00
20.917	0.00	0.00	0.000	O	|	|	|	|	0.00
21.000	0.00	0.00	0.000	O	|	|	|	|	0.00
21.083	0.00	0.00	0.000	O	|	|	|	|	0.00
21.167	0.00	0.00	0.000	O	|	|	|	|	0.00
21.250	0.00	0.00	0.000	O	|	|	|	|	0.00
21.333	0.00	0.00	0.000	O	|	|	|	|	0.00
21.417	0.00	0.00	0.000	O	|	|	|	|	0.00
21.500	0.00	0.00	0.000	O	|	|	|	|	0.00
21.583	0.00	0.00	0.000	O	|	|	|	|	0.00
21.667	0.00	0.00	0.000	O	|	|	|	|	0.00
21.750	0.00	0.00	0.000	O	|	|	|	|	0.00
21.833	0.00	0.00	0.000	O	|	|	|	|	0.00
21.917	0.00	0.00	0.000	O	|	|	|	|	0.00
22.000	0.00	0.00	0.000	O	|	|	|	|	0.00
22.083	0.00	0.00	0.000	O	|	|	|	|	0.00

```
****************************HYDROGRAPH DATA****************************
               Number of intervals =   265
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        1.740 (CFS)
               Total volume =       1.642 (Ac.Ft)
       Status of hydrographs being held in storage
                 Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
***********************************************************************

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                    FLOOD HYDROGRAPH ROUTING PROGRAM
            Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
                        Study date: 06/03/21

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Riverside Hauling Yard
County of Jurupa Valley
Detention Basin Routing
100-year 24-hour storm

---------------------------------------------------------------------


Program License Serial Number 4029

---------------------------------------------------------------------
******************** HYDROGRAPH INFORMATION **********************

               From study/file name: burhyd24100.rte
****************************HYDROGRAPH DATA****************************
               Number of intervals =   291
               Time interval =    5.0 (Min.)
               Maximum/Peak flow rate =        5.232 (CFS)
               Total volume =       2.981 (Ac.Ft)
       Status of hydrographs being held in storage
                  Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
       Peak (CFS)      0.000     0.000     0.000     0.000     0.000
       Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
**********************************************************************



++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station       10.000 to Point/Station       11.000
**** RETARDING BASIN ROUTING ****
______________________________________________________________________

User entry of depth-outflow-storage data
---------------------------------------------------------------------
Total number of inflow hydrograph intervals = 291
Hydrograph time unit =  5.000 (Min.)
Initial depth in storage basin =   0.00(Ft.)
---------------------------------------------------------------------
---------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
---------------------------------------------------------------------
---------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
---------------------------------------------------------------------
   0.000      0.000      0.000      0.000        0.000
   1.000      0.223      1.740      0.217        0.229
   2.000      0.317      1.740      0.311        0.323
   3.000      0.781      1.740      0.775        0.787
   4.000      1.041      1.740      1.035        1.047
   5.000      1.302      1.740      1.296        1.308
   6.000      1.570      1.740      1.564        1.576
   7.000      1.822      1.740      1.816        1.828
   8.000      2.068      1.740      2.062        2.074
   9.000      2.381      1.740      2.375        2.387
  10.000      2.603      1.740      2.597        2.609
```

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  11.000      2.604     21.740      2.529        2.679
-----------------------------------------------------------------------
                 Hydrograph Detention Basin Routing
-----------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-----------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                      Depth
(Hours)  (CFS)   (CFS)     (Ac.Ft) .0       1.3    2.62    3.92    5.23 (Ft.)
 0.083    0.14    0.00      0.000  O       |       |       |       |     0.00
 0.167    0.25    0.01      0.002  OI      |       |       |       |     0.01
 0.250    0.27    0.03      0.003  OI      |       |       |       |     0.02
 0.333    0.35    0.04      0.005  O I     |       |       |       |     0.02
 0.417    0.40    0.06      0.008  O I     |       |       |       |     0.03
 0.500    0.41    0.08      0.010  O I     |       |       |       |     0.04
 0.583    0.42    0.09      0.012  O I     |       |       |       |     0.05
 0.667    0.42    0.11      0.014  O I     |       |       |       |     0.06
 0.750    0.42    0.13      0.016  O I     |       |       |       |     0.07
 0.833    0.49    0.14      0.019  O I     |       |       |       |     0.08
 0.917    0.54    0.16      0.021  |O I    |       |       |       |     0.09
 1.000    0.55    0.18      0.024  |O I    |       |       |       |     0.11
 1.083    0.49    0.20      0.026  |OI     |       |       |       |     0.12
 1.167    0.43    0.21      0.028  |OI     |       |       |       |     0.12
 1.250    0.42    0.23      0.029  |OI     |       |       |       |     0.13
 1.333    0.42    0.24      0.030  |OI     |       |       |       |     0.14
 1.417    0.42    0.25      0.031  |OI     |       |       |       |     0.14
 1.500    0.42    0.25      0.033  |OI     |       |       |       |     0.15
 1.583    0.42    0.26      0.034  |OI     |       |       |       |     0.15
 1.667    0.42    0.27      0.035  |OI     |       |       |       |     0.16
 1.750    0.42    0.28      0.036  |OI     |       |       |       |     0.16
 1.833    0.49    0.29      0.037  |OI     |       |       |       |     0.17
 1.917    0.54    0.30      0.038  |O I    |       |       |       |     0.17
 2.000    0.55    0.31      0.040  |O I    |       |       |       |     0.18
 2.083    0.56    0.32      0.042  |O I    |       |       |       |     0.19
 2.167    0.56    0.34      0.043  | OI    |       |       |       |     0.19
 2.250    0.56    0.35      0.045  | OI    |       |       |       |     0.20
 2.333    0.56    0.36      0.046  | OI    |       |       |       |     0.21
 2.417    0.56    0.37      0.047  | OI    |       |       |       |     0.21
 2.500    0.56    0.38      0.049  | OI    |       |       |       |     0.22
 2.583    0.62    0.39      0.050  | OI    |       |       |       |     0.22
 2.667    0.68    0.40      0.052  | O I   |       |       |       |     0.23
 2.750    0.69    0.42      0.054  | O I   |       |       |       |     0.24
 2.833    0.69    0.43      0.055  | O I   |       |       |       |     0.25
 2.917    0.69    0.45      0.057  | O I   |       |       |       |     0.26
 3.000    0.69    0.46      0.059  | O I   |       |       |       |     0.26
 3.083    0.69    0.47      0.060  | O I   |       |       |       |     0.27
 3.167    0.69    0.48      0.062  | O I   |       |       |       |     0.28
 3.250    0.69    0.49      0.063  |  OI   |       |       |       |     0.28
 3.333    0.69    0.50      0.065  |  OI   |       |       |       |     0.29
 3.417    0.69    0.51      0.066  |  OI   |       |       |       |     0.30
 3.500    0.69    0.52      0.067  |  OI   |       |       |       |     0.30
 3.583    0.69    0.53      0.068  |  OI   |       |       |       |     0.31
 3.667    0.69    0.54      0.069  |  OI   |       |       |       |     0.31
 3.750    0.69    0.55      0.070  |  OI   |       |       |       |     0.32
 3.833    0.76    0.56      0.072  |  OI   |       |       |       |     0.32
 3.917    0.82    0.57      0.073  |  O I  |       |       |       |     0.33
 4.000    0.83    0.58      0.075  |  O I  |       |       |       |     0.34
 4.083    0.83    0.60      0.077  |  O I  |       |       |       |     0.34
 4.167    0.83    0.61      0.078  |  O I  |       |       |       |     0.35
 4.250    0.83    0.62      0.080  |  O I  |       |       |       |     0.36
 4.333    0.90    0.63      0.081  |  O I  |       |       |       |     0.36
 4.417    0.96    0.65      0.083  |  O I  |       |       |       |     0.37
 4.500    0.97    0.67      0.085  |   OI  |       |       |       |     0.38
 4.583    0.97    0.68      0.087  |   OI  |       |       |       |     0.39
 4.667    0.97    0.70      0.089  |   OI  |       |       |       |     0.40
 4.750    0.97    0.71      0.091  |   OI  |       |       |       |     0.41
 4.833    1.04    0.73      0.093  |   O I |       |       |       |     0.42
 4.917    1.10    0.74      0.095  |   O I |       |       |       |     0.43
 5.000    1.11    0.76      0.098  |   O I |       |       |       |     0.44
 5.083    0.97    0.78      0.100  |   OI  |       |       |       |     0.45
 5.167    0.86    0.78      0.101  |   OI  |       |       |       |     0.45
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 5.250    0.84    0.79      0.101  |   OI  |       |       |       |     0.45
 5.333    0.90    0.79      0.102  |   OI  |       |       |       |     0.46
 5.417    0.96    0.80      0.102  |   OI  |       |       |       |     0.46
 5.500    0.97    0.81      0.104  |   OI  |       |       |       |     0.46
 5.583    1.04    0.82      0.105  |    OI |       |       |       |     0.47
 5.667    1.10    0.83      0.107  |    OI |       |       |       |     0.48
 5.750    1.11    0.85      0.108  |    OI |       |       |       |     0.49
 5.833    1.11    0.86      0.110  |    OI |       |       |       |     0.49
 5.917    1.11    0.87      0.112  |    OI |       |       |       |     0.50
 6.000    1.11    0.89      0.113  |    OI |       |       |       |     0.51
 6.083    1.18    0.90      0.115  |    O I|       |       |       |     0.52
 6.167    1.24    0.91      0.117  |    O I|       |       |       |     0.53
 6.250    1.25    0.93      0.119  |    O I|       |       |       |     0.54
 6.333    1.25    0.95      0.122  |    O I|       |       |       |     0.55
 6.417    1.25    0.96      0.124  |    O I|       |       |       |     0.55
 6.500    1.25    0.98      0.125  |    O I|       |       |       |     0.56
 6.583    1.32    0.99      0.128  |     O I       |       |       |     0.57
 6.667    1.37    1.01      0.130  |     O I       |       |       |     0.58
 6.750    1.38    1.03      0.132  |     O I       |       |       |     0.59
 6.833    1.39    1.05      0.135  |     O I       |       |       |     0.60
 6.917    1.39    1.07      0.137  |     O I       |       |       |     0.61
 7.000    1.39    1.09      0.139  |     O I       |       |       |     0.62
 7.083    1.39    1.10      0.141  |     O I       |       |       |     0.63
 7.167    1.39    1.12      0.143  |     O I       |       |       |     0.64
 7.250    1.39    1.13      0.145  |     O I       |       |       |     0.65
 7.333    1.46    1.15      0.147  |      OI       |       |       |     0.66
 7.417    1.51    1.16      0.149  |      O|I      |       |       |     0.67
 7.500    1.52    1.18      0.151  |      O|I      |       |       |     0.68
 7.583    1.60    1.20      0.154  |      O|I      |       |       |     0.69
 7.667    1.65    1.22      0.157  |      O| I     |       |       |     0.70
 7.750    1.66    1.25      0.160  |      O| I     |       |       |     0.72
 7.833    1.73    1.27      0.163  |      O| I     |       |       |     0.73
 7.917    1.79    1.30      0.166  |      O| I     |       |       |     0.74
 8.000    1.80    1.32      0.169  |       O  I    |       |       |     0.76
 8.083    1.94    1.35      0.173  |       O  I    |       |       |     0.78
 8.167    2.05    1.38      0.177  |       O   I   |       |       |     0.80
 8.250    2.07    1.42      0.182  |       O   I   |       |       |     0.82
 8.333    2.08    1.45      0.186  |       O   I   |       |       |     0.84
 8.417    2.08    1.49      0.191  |       |O  I   |       |       |     0.85
 8.500    2.08    1.52      0.195  |       |O  I   |       |       |     0.87
 8.583    2.15    1.55      0.199  |       |O   I  |       |       |     0.89
 8.667    2.21    1.58      0.203  |       |O   I  |       |       |     0.91
 8.750    2.22    1.62      0.207  |       |O   I  |       |       |     0.93
 8.833    2.29    1.65      0.211  |       | O   I |       |       |     0.95
 8.917    2.35    1.68      0.216  |       | O   I |       |       |     0.97
 9.000    2.36    1.72      0.220  |       | O   I |       |       |     0.99
 9.083    2.50    1.74      0.225  |       | O    I|       |       |     1.02
 9.167    2.61    1.74      0.231  |       | O    I|       |       |     1.08
 9.250    2.64    1.74      0.237  |       | O     I       |       |     1.15
 9.333    2.73    1.74      0.243  |       | O     I       |       |     1.22
 9.417    2.80    1.74      0.250  |       | O     |I      |       |     1.29
 9.500    2.81    1.74      0.258  |       | O     |I      |       |     1.37
 9.583    2.90    1.74      0.265  |       | O     |I      |       |     1.45
 9.667    2.97    1.74      0.274  |       | O     | I     |       |     1.54
 9.750    2.98    1.74      0.282  |       | O     | I     |       |     1.63
 9.833    3.07    1.74      0.291  |       | O     | I     |       |     1.72
 9.917    3.14    1.74      0.300  |       | O     |  I    |       |     1.82
10.000    3.16    1.74      0.310  |       | O     |  I    |       |     1.93
10.083    2.62    1.74      0.318  |       | O     I       |       |     2.00
10.167    2.19    1.74      0.323  |       | O  I  |       |       |     2.01
10.250    2.11    1.74      0.325  |       | O I   |       |       |     2.02
10.333    2.08    1.74      0.328  |       | O I   |       |       |     2.02
10.417    2.08    1.74      0.330  |       | O I   |       |       |     2.03
10.500    2.08    1.74      0.333  |       | O I   |       |       |     2.03
10.583    2.46    1.74      0.336  |       | O    I|       |       |     2.04
10.667    2.77    1.74      0.342  |       | O     I       |       |     2.05
10.750    2.83    1.74      0.350  |       | O     |I      |       |     2.07
10.833    2.85    1.74      0.357  |       | O     |I      |       |     2.09
10.917    2.85    1.74      0.365  |       | O     |I      |       |     2.10
11.000    2.86    1.74      0.373  |       | O     |I      |       |     2.12
11.083    2.78    1.74      0.380  |       | O     I       |       |     2.14
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11.167    2.71    1.74      0.387  |        | O     I       |        |     2.15
11.250    2.70    1.74      0.394  |        | O     I       |        |     2.16
11.333    2.70    1.74      0.400  |        | O     I       |        |     2.18
11.417    2.70    1.74      0.407  |        | O     I       |        |     2.19
11.500    2.70    1.74      0.413  |        | O     I       |        |     2.21
11.583    2.54    1.74      0.419  |        | O    I|       |        |     2.22
11.667    2.41    1.74      0.425  |        | O   I |       |        |     2.23
11.750    2.39    1.74      0.429  |        | O   I |       |        |     2.24
11.833    2.46    1.74      0.434  |        | O    I|       |        |     2.25
11.917    2.53    1.74      0.439  |        | O    I|       |        |     2.26
12.000    2.55    1.74      0.445  |        | O    I|       |        |     2.27
12.083    3.13    1.74      0.452  |        | O     |  I    |        |     2.29
12.167    3.60    1.74      0.463  |        | O     |     I |        |     2.32
12.250    3.69    1.74      0.476  |        | O     |     I |        |     2.34
12.333    3.80    1.74      0.490  |        | O     |      I|        |     2.37
12.417    3.87    1.74      0.505  |        | O     |      I|        |     2.40
12.500    3.88    1.74      0.519  |        | O     |      I|        |     2.44
12.583    4.05    1.74      0.535  |        | O     |       I        |     2.47
12.667    4.19    1.74      0.551  |        | O     |       |I       |     2.50
12.750    4.22    1.74      0.568  |        | O     |       |I       |     2.54
12.833    4.31    1.74      0.585  |        | O     |       | I      |     2.58
12.917    4.38    1.74      0.603  |        | O     |       | I      |     2.62
13.000    4.39    1.74      0.622  |        | O     |       | I      |     2.66
13.083    4.81    1.74      0.641  |        | O     |       |    I   |     2.70
13.167    5.14    1.74      0.664  |        | O     |       |      I|     2.75
13.250    5.21    1.74      0.687  |        | O     |       |      I|     2.80
13.333    5.23    1.74      0.711  |        | O     |       |      I|     2.85
13.417    5.23    1.74      0.735  |        | O     |       |      I|     2.90
13.500    5.23    1.74      0.759  |        | O     |       |        I     2.95
13.583    4.33    1.74      0.780  |        | O     |       | I      |     3.00
13.667    3.59    1.74      0.795  |        | O     |    I  |        |     3.06
13.750    3.46    1.74      0.808  |        | O     |    I  |        |     3.10
13.833    3.42    1.74      0.819  |        | O     |   I   |        |     3.15
13.917    3.42    1.74      0.831  |        | O     |   I   |        |     3.19
14.000    3.43    1.74      0.843  |        | O     |   I   |        |     3.24
14.083    3.76    1.74      0.855  |        | O     |     I |        |     3.29
14.167    4.03    1.74      0.870  |        | O     |       I        |     3.34
14.250    4.08    1.74      0.886  |        | O     |       I        |     3.40
14.333    4.01    1.74      0.902  |        | O     |       I        |     3.47
14.417    3.95    1.74      0.917  |        | O     |       I        |     3.52
14.500    3.94    1.74      0.933  |        | O     |       I        |     3.58
14.583    3.94    1.74      0.948  |        | O     |       I        |     3.64
14.667    3.94    1.74      0.963  |        | O     |       I        |     3.70
14.750    3.94    1.74      0.978  |        | O     |       I        |     3.76
14.833    3.86    1.74      0.993  |        | O     |      I|        |     3.82
14.917    3.79    1.74      1.007  |        | O     |      I|        |     3.87
15.000    3.78    1.74      1.021  |        | O     |      I|        |     3.92
15.083    3.70    1.74      1.035  |        | O     |     I |        |     3.98
15.167    3.63    1.74      1.048  |        | O     |     I |        |     4.03
15.250    3.62    1.74      1.061  |        | O     |     I |        |     4.08
15.333    3.54    1.74      1.074  |        | O     |    I  |        |     4.13
15.417    3.47    1.74      1.086  |        | O     |    I  |        |     4.17
15.500    3.46    1.74      1.098  |        | O     |    I  |        |     4.22
15.583    3.13    1.74      1.109  |        | O     |  I    |        |     4.26
15.667    2.87    1.74      1.118  |        | O     |I      |        |     4.29
15.750    2.82    1.74      1.125  |        | O     |I      |        |     4.32
15.833    2.81    1.74      1.133  |        | O     |I      |        |     4.35
15.917    2.81    1.74      1.140  |        | O     |I      |        |     4.38
16.000    2.81    1.74      1.147  |        | O     |I      |        |     4.41
16.083    1.69    1.74      1.151  |        | O     |       |        |     4.42
16.167    0.77    1.74      1.147  |   I    | O     |       |        |     4.41
16.250    0.61    1.74      1.140  |  I     | O     |       |        |     4.38
16.333    0.56    1.74      1.132  |  I     | O     |       |        |     4.35
16.417    0.56    1.74      1.124  |  I     | O     |       |        |     4.32
16.500    0.56    1.74      1.116  |  I     | O     |       |        |     4.29
16.583    0.49    1.74      1.107  | I      | O     |       |        |     4.25
16.667    0.43    1.74      1.098  | I      | O     |       |        |     4.22
16.750    0.42    1.74      1.089  | I      | O     |       |        |     4.19
16.833    0.42    1.74      1.080  | I      | O     |       |        |     4.15
16.917    0.42    1.74      1.071  | I      | O     |       |        |     4.12
17.000    0.42    1.74      1.062  | I      | O     |       |        |     4.08
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17.083    0.55    1.74      1.053  |  I    | O     |       |       |     4.05
17.167    0.67    1.74      1.046  |   I   | O     |       |       |     4.02
17.250    0.69    1.74      1.038  |   I   | O     |       |       |     3.99
17.333    0.69    1.74      1.031  |   I   | O     |       |       |     3.96
17.417    0.69    1.74      1.024  |   I   | O     |       |       |     3.93
17.500    0.69    1.74      1.017  |   I   | O     |       |       |     3.91
17.583    0.69    1.74      1.010  |   I   | O     |       |       |     3.88
17.667    0.69    1.74      1.002  |   I   | O     |       |       |     3.85
17.750    0.69    1.74      0.995  |   I   | O     |       |       |     3.82
17.833    0.62    1.74      0.988  |  I    | O     |       |       |     3.79
17.917    0.57    1.74      0.980  |  I    | O     |       |       |     3.76
18.000    0.56    1.74      0.972  |  I    | O     |       |       |     3.73
18.083    0.56    1.74      0.964  |  I    | O     |       |       |     3.70
18.167    0.56    1.74      0.955  |  I    | O     |       |       |     3.67
18.250    0.56    1.74      0.947  |  I    | O     |       |       |     3.64
18.333    0.56    1.74      0.939  |  I    | O     |       |       |     3.61
18.417    0.56    1.74      0.931  |  I    | O     |       |       |     3.58
18.500    0.56    1.74      0.923  |  I    | O     |       |       |     3.55
18.583    0.49    1.74      0.914  | I     | O     |       |       |     3.51
18.667    0.43    1.74      0.906  | I     | O     |       |       |     3.48
18.750    0.42    1.74      0.896  | I     | O     |       |       |     3.44
18.833    0.35    1.74      0.887  | I     | O     |       |       |     3.41
18.917    0.29    1.74      0.877  |I      | O     |       |       |     3.37
19.000    0.28    1.74      0.867  |I      | O     |       |       |     3.33
19.083    0.35    1.74      0.857  | I     | O     |       |       |     3.29
19.167    0.40    1.74      0.848  | I     | O     |       |       |     3.26
19.250    0.41    1.74      0.839  | I     | O     |       |       |     3.22
19.333    0.49    1.74      0.830  | I     | O     |       |       |     3.19
19.417    0.54    1.74      0.822  |  I    | O     |       |       |     3.16
19.500    0.55    1.74      0.813  |  I    | O     |       |       |     3.12
19.583    0.49    1.74      0.805  | I     | O     |       |       |     3.09
19.667    0.43    1.74      0.796  | I     | O     |       |       |     3.06
19.750    0.42    1.74      0.787  | I     | O     |       |       |     3.02
19.833    0.35    1.74      0.778  | I     | O     |       |       |     2.99
19.917    0.29    1.74      0.768  |I      | O     |       |       |     2.97
20.000    0.28    1.74      0.758  |I      | O     |       |       |     2.95
20.083    0.35    1.74      0.748  | I     | O     |       |       |     2.93
20.167    0.40    1.74      0.739  | I     | O     |       |       |     2.91
20.250    0.41    1.74      0.730  | I     | O     |       |       |     2.89
20.333    0.42    1.74      0.720  | I     | O     |       |       |     2.87
20.417    0.42    1.74      0.711  | I     | O     |       |       |     2.85
20.500    0.42    1.74      0.702  | I     | O     |       |       |     2.83
20.583    0.42    1.74      0.693  | I     | O     |       |       |     2.81
20.667    0.42    1.74      0.684  | I     | O     |       |       |     2.79
20.750    0.42    1.74      0.675  | I     | O     |       |       |     2.77
20.833    0.35    1.74      0.665  | I     | O     |       |       |     2.75
20.917    0.29    1.74      0.656  |I      | O     |       |       |     2.73
21.000    0.28    1.74      0.646  |I      | O     |       |       |     2.71
21.083    0.35    1.74      0.636  | I     | O     |       |       |     2.69
21.167    0.40    1.74      0.626  | I     | O     |       |       |     2.67
21.250    0.41    1.74      0.617  | I     | O     |       |       |     2.65
21.333    0.35    1.74      0.608  | I     | O     |       |       |     2.63
21.417    0.29    1.74      0.598  |I      | O     |       |       |     2.61
21.500    0.28    1.74      0.588  |I      | O     |       |       |     2.58
21.583    0.35    1.74      0.578  | I     | O     |       |       |     2.56
21.667    0.40    1.74      0.569  | I     | O     |       |       |     2.54
21.750    0.41    1.74      0.560  | I     | O     |       |       |     2.52
21.833    0.35    1.74      0.550  | I     | O     |       |       |     2.50
21.917    0.29    1.74      0.541  |I      | O     |       |       |     2.48
22.000    0.28    1.74      0.531  |I      | O     |       |       |     2.46
22.083    0.35    1.74      0.521  | I     | O     |       |       |     2.44
22.167    0.40    1.74      0.511  | I     | O     |       |       |     2.42
22.250    0.41    1.74      0.502  | I     | O     |       |       |     2.40
22.333    0.35    1.74      0.493  | I     | O     |       |       |     2.38
22.417    0.29    1.74      0.483  |I      | O     |       |       |     2.36
22.500    0.28    1.74      0.473  |I      | O     |       |       |     2.34
22.583    0.28    1.74      0.463  |I      | O     |       |       |     2.31
22.667    0.28    1.74      0.453  |I      | O     |       |       |     2.29
22.750    0.28    1.74      0.443  |I      | O     |       |       |     2.27
22.833    0.28    1.74      0.433  |I      | O     |       |       |     2.25
22.917    0.28    1.74      0.423  |I      | O     |       |       |     2.23
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23.000    0.28    1.74      0.413  |I       | O     |       |       |     2.21
23.083    0.28    1.74      0.402  |I       | O     |       |       |     2.18
23.167    0.28    1.74      0.392  |I       | O     |       |       |     2.16
23.250    0.28    1.74      0.382  |I       | O     |       |       |     2.14
23.333    0.28    1.74      0.372  |I       | O     |       |       |     2.12
23.417    0.28    1.74      0.362  |I       | O     |       |       |     2.10
23.500    0.28    1.74      0.352  |I       | O     |       |       |     2.08
23.583    0.28    1.74      0.342  |I       | O     |       |       |     2.05
23.667    0.28    1.74      0.332  |I       | O     |       |       |     2.03
23.750    0.28    1.74      0.322  |I       | O     |       |       |     2.01
23.833    0.28    1.74      0.312  |I       | O     |       |       |     1.94
23.917    0.28    1.74      0.302  |I       | O     |       |       |     1.84
24.000    0.28    1.74      0.292  |I       | O     |       |       |     1.73
24.083    0.14    1.74      0.281  I        | O     |       |       |     1.62
24.167    0.03    1.74      0.270  I        | O     |       |       |     1.50
24.250    0.01    1.74      0.258  I        | O     |       |       |     1.37
24.333    0.00    1.74      0.246  I        | O     |       |       |     1.24
24.417    0.00    1.74      0.234  I        | O     |       |       |     1.12
24.500    0.00    1.73      0.222  I        | O     |       |       |     1.00
24.583    0.00    1.64      0.210  I        | O     |       |       |     0.94
24.667    0.00    1.56      0.199  I        |O      |       |       |     0.89
24.750    0.00    1.47      0.189  I        |O      |       |       |     0.85
24.833    0.00    1.40      0.179  I        O       |       |       |     0.80
24.917    0.00    1.32      0.170  I        O       |       |       |     0.76
25.000    0.00    1.25      0.161  I       O|       |       |       |     0.72
25.083    0.00    1.19      0.152  I       O|       |       |       |     0.68
25.167    0.00    1.13      0.144  I      O |       |       |       |     0.65
25.250    0.00    1.07      0.137  I      O |       |       |       |     0.61
25.333    0.00    1.01      0.130  I      O |       |       |       |     0.58
25.417    0.00    0.96      0.123  I     O  |       |       |       |     0.55
25.500    0.00    0.91      0.116  I     O  |       |       |       |     0.52
25.583    0.00    0.86      0.110  I     O  |       |       |       |     0.49
25.667    0.00    0.82      0.105  I    O   |       |       |       |     0.47
25.750    0.00    0.77      0.099  I    O   |       |       |       |     0.44
25.833    0.00    0.73      0.094  I    O   |       |       |       |     0.42
25.917    0.00    0.69      0.089  I    O   |       |       |       |     0.40
26.000    0.00    0.66      0.084  I    O   |       |       |       |     0.38
26.083    0.00    0.62      0.080  I   O    |       |       |       |     0.36
26.167    0.00    0.59      0.076  I   O    |       |       |       |     0.34
26.250    0.00    0.56      0.072  I   O    |       |       |       |     0.32
26.333    0.00    0.53      0.068  I   O    |       |       |       |     0.31
26.417    0.00    0.50      0.064  I   O    |       |       |       |     0.29
26.500    0.00    0.48      0.061  I O      |       |       |       |     0.27
26.583    0.00    0.45      0.058  I O      |       |       |       |     0.26
26.667    0.00    0.43      0.055  I O      |       |       |       |     0.25
26.750    0.00    0.41      0.052  I O      |       |       |       |     0.23
26.833    0.00    0.38      0.049  I O      |       |       |       |     0.22
26.917    0.00    0.36      0.047  I O      |       |       |       |     0.21
27.000    0.00    0.35      0.044  I O      |       |       |       |     0.20
27.083    0.00    0.33      0.042  I O      |       |       |       |     0.19
27.167    0.00    0.31      0.040  IO       |       |       |       |     0.18
27.250    0.00    0.29      0.038  IO       |       |       |       |     0.17
27.333    0.00    0.28      0.036  IO       |       |       |       |     0.16
27.417    0.00    0.26      0.034  IO       |       |       |       |     0.15
27.500    0.00    0.25      0.032  IO       |       |       |       |     0.14
27.583    0.00    0.24      0.030  IO       |       |       |       |     0.14
27.667    0.00    0.22      0.029  IO       |       |       |       |     0.13
27.750    0.00    0.21      0.027  IO       |       |       |       |     0.12
27.833    0.00    0.20      0.026  IO       |       |       |       |     0.12
27.917    0.00    0.19      0.024  IO       |       |       |       |     0.11
28.000    0.00    0.18      0.023  IO       |       |       |       |     0.10
28.083    0.00    0.17      0.022  IO       |       |       |       |     0.10
28.167    0.00    0.16      0.021  O        |       |       |       |     0.09
28.250    0.00    0.15      0.020  O        |       |       |       |     0.09
28.333    0.00    0.15      0.019  O        |       |       |       |     0.08
28.417    0.00    0.14      0.018  O        |       |       |       |     0.08
28.500    0.00    0.13      0.017  O        |       |       |       |     0.08
28.583    0.00    0.12      0.016  O        |       |       |       |     0.07
28.667    0.00    0.12      0.015  O        |       |       |       |     0.07
28.750    0.00    0.11      0.014  O        |       |       |       |     0.06
28.833    0.00    0.11      0.014  O        |       |       |       |     0.06
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28.917	0.00	0.10	0.013	O	|	|	|	|	0.06
29.000	0.00	0.10	0.012	O	|	|	|	|	0.05
29.083	0.00	0.09	0.012	O	|	|	|	|	0.05
29.167	0.00	0.09	0.011	O	|	|	|	|	0.05
29.250	0.00	0.08	0.010	O	|	|	|	|	0.05
29.333	0.00	0.08	0.010	O	|	|	|	|	0.04
29.417	0.00	0.07	0.009	O	|	|	|	|	0.04
29.500	0.00	0.07	0.009	O	|	|	|	|	0.04
29.583	0.00	0.07	0.008	O	|	|	|	|	0.04
29.667	0.00	0.06	0.008	O	|	|	|	|	0.04
29.750	0.00	0.06	0.008	O	|	|	|	|	0.03
29.833	0.00	0.06	0.007	O	|	|	|	|	0.03
29.917	0.00	0.05	0.007	O	|	|	|	|	0.03
30.000	0.00	0.05	0.006	O	|	|	|	|	0.03
30.083	0.00	0.05	0.006	O	|	|	|	|	0.03
30.167	0.00	0.04	0.006	O	|	|	|	|	0.03
30.250	0.00	0.04	0.005	O	|	|	|	|	0.02
30.333	0.00	0.04	0.005	O	|	|	|	|	0.02
30.417	0.00	0.04	0.005	O	|	|	|	|	0.02
30.500	0.00	0.04	0.005	O	|	|	|	|	0.02
30.583	0.00	0.03	0.004	O	|	|	|	|	0.02
30.667	0.00	0.03	0.004	O	|	|	|	|	0.02
30.750	0.00	0.03	0.004	O	|	|	|	|	0.02
30.833	0.00	0.03	0.004	O	|	|	|	|	0.02
30.917	0.00	0.03	0.004	O	|	|	|	|	0.02
31.000	0.00	0.03	0.003	O	|	|	|	|	0.02
31.083	0.00	0.02	0.003	O	|	|	|	|	0.01
31.167	0.00	0.02	0.003	O	|	|	|	|	0.01
31.250	0.00	0.02	0.003	O	|	|	|	|	0.01
31.333	0.00	0.02	0.003	O	|	|	|	|	0.01
31.417	0.00	0.02	0.003	O	|	|	|	|	0.01
31.500	0.00	0.02	0.002	O	|	|	|	|	0.01
31.583	0.00	0.02	0.002	O	|	|	|	|	0.01
31.667	0.00	0.02	0.002	O	|	|	|	|	0.01
31.750	0.00	0.02	0.002	O	|	|	|	|	0.01
31.833	0.00	0.02	0.002	O	|	|	|	|	0.01
31.917	0.00	0.01	0.002	O	|	|	|	|	0.01
32.000	0.00	0.01	0.002	O	|	|	|	|	0.01
32.083	0.00	0.01	0.002	O	|	|	|	|	0.01
32.167	0.00	0.01	0.002	O	|	|	|	|	0.01
32.250	0.00	0.01	0.001	O	|	|	|	|	0.01
32.333	0.00	0.01	0.001	O	|	|	|	|	0.01
32.417	0.00	0.01	0.001	O	|	|	|	|	0.01
32.500	0.00	0.01	0.001	O	|	|	|	|	0.01
32.583	0.00	0.01	0.001	O	|	|	|	|	0.01
32.667	0.00	0.01	0.001	O	|	|	|	|	0.01
32.750	0.00	0.01	0.001	O	|	|	|	|	0.00
32.833	0.00	0.01	0.001	O	|	|	|	|	0.00
32.917	0.00	0.01	0.001	O	|	|	|	|	0.00
33.000	0.00	0.01	0.001	O	|	|	|	|	0.00
33.083	0.00	0.01	0.001	O	|	|	|	|	0.00
33.167	0.00	0.01	0.001	O	|	|	|	|	0.00
33.250	0.00	0.01	0.001	O	|	|	|	|	0.00
33.333	0.00	0.01	0.001	O	|	|	|	|	0.00
33.417	0.00	0.01	0.001	O	|	|	|	|	0.00
33.500	0.00	0.01	0.001	O	|	|	|	|	0.00
33.583	0.00	0.00	0.001	O	|	|	|	|	0.00
33.667	0.00	0.00	0.001	O	|	|	|	|	0.00
33.750	0.00	0.00	0.001	O	|	|	|	|	0.00
33.833	0.00	0.00	0.001	O	|	|	|	|	0.00
33.917	0.00	0.00	0.001	O	|	|	|	|	0.00
34.000	0.00	0.00	0.000	O	|	|	|	|	0.00
34.083	0.00	0.00	0.000	O	|	|	|	|	0.00
34.167	0.00	0.00	0.000	O	|	|	|	|	0.00
34.250	0.00	0.00	0.000	O	|	|	|	|	0.00
34.333	0.00	0.00	0.000	O	|	|	|	|	0.00
34.417	0.00	0.00	0.000	O	|	|	|	|	0.00
34.500	0.00	0.00	0.000	O	|	|	|	|	0.00
34.583	0.00	0.00	0.000	O	|	|	|	|	0.00
34.667	0.00	0.00	0.000	O	|	|	|	|	0.00
34.750	0.00	0.00	0.000	O	|	|	|	|	0.00

```
34.833    0.00    0.00      0.000  O       |       |       |       |     0.00
34.917    0.00    0.00      0.000  O       |       |       |       |     0.00
35.000    0.00    0.00      0.000  O       |       |       |       |     0.00
35.083    0.00    0.00      0.000  O       |       |       |       |     0.00
35.167    0.00    0.00      0.000  O       |       |       |       |     0.00
35.250    0.00    0.00      0.000  O       |       |       |       |     0.00

       ****************************HYDROGRAPH DATA***************************
                      Number of intervals =   423
                      Time interval =    5.0 (Min.)
                      Maximum/Peak flow rate =        1.740 (CFS)
                      Total volume =       2.980 (Ac.Ft)
              Status of hydrographs being held in storage
                         Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
              Peak (CFS)      0.000     0.000     0.000     0.000     0.000
              Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
       ************************************************************************

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ATTACHMENT D
As-builts Drawing (Reference)

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

STORM DRAIN IMPROVEMENT PLANS FOR PARCEL MAP 24088 AND PARCEL MAP 12104 (SAN BERNARDINO COUNTY)

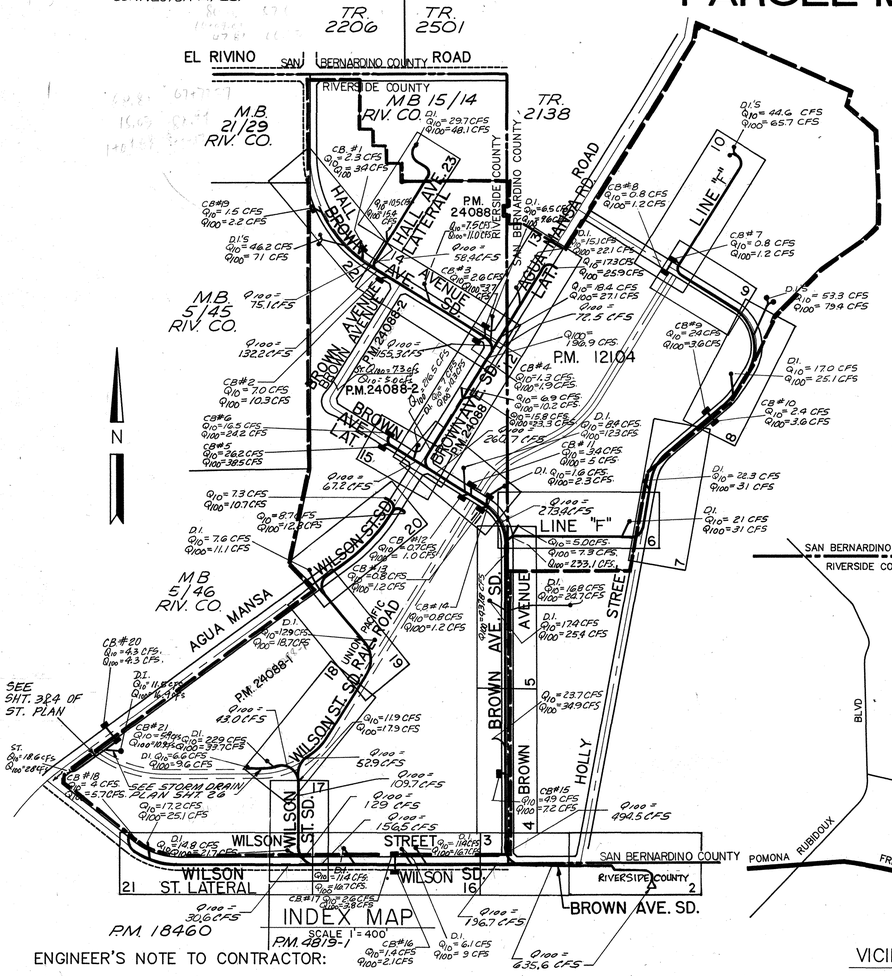
SPECIAL NOTES

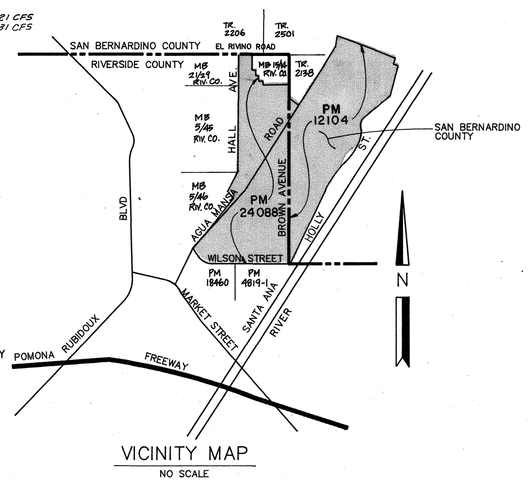
THE FOLLOWING ITEMS ARE TO BE INSPECTED AND MAINTAINED BY RIVERSIDE CO. FLOOD CONTROL AND WATER CONSERVATION DISTRICT:

78" RCP FROM STA. 4+90.00 TO 11+42.05 AS SHOWN ON SHT. 2
84" RCP FROM STA. 11+52.05 TO 15+32.05 AS SHOWN ON SHT. 2&3
78" RCP FROM STA. 15+48.85 TO 21+57.57 AS SHOWN ON SHT. 3&4
75" RCP FROM STA. 21+65.12 TO 36+36.47 AS SHOWN ON SHT. 4&5
66" RCP FROM STA. 10+15.76 TO 15+69.15 AS SHOWN ON SHT. 3&6
66" RCP FROM STA. 36+54.27 TO 44+80.57 AS SHOWN ON SHT. 5&11
60" RCP FROM STA. 15+79.16 TO 23+37.55 AS SHOWN ON SHT. 6&11
54" RCP FROM STA. 44+92.37 TO 53+68.84 AS SHOWN ON SHT. 11&12
54" RCP FROM STA. 23+45.55 TO 30+37.11 AS SHOWN ON SHT. 17&18
54" RCP FROM STA. 53+80.16 TO 63+57.61 AS SHOWN ON SHT. 14
48" RCP FROM STA. 10+09.01 TO 12+40.56 AS SHOWN ON SHT. 15
48" RCP FROM STA. 30+47.81 TO 38+06.63 AS SHOWN ON SHT. 18&19
42" RCP FROM STA. 63+68.81 TO 66+67.31 AS SHOWN ON SHT. 14&22
42" RCP FROM STA. 38+15.03 TO 43+88.99 AS SHOWN ON SHT. 19
39" RCP FROM STA. 1+09.68 TO 9+94.17 AS SHOWN ON SHT. 23

ALL MANHOLES AND OTHER STRUCTURES REQUIRED TO COMPLETE THE CONSTRUCTION OF THE ABOVE MENTIONED MAINLINE PIPE, EXCLUDING ALL CATCH BASINS AND CONNECTOR PIPES.

SPECIAL NOTE
The concrete cover on the inside of all reinforced concrete pipe must be increased to provide a minimum of 1-1/2" over the reinforcing when the design velocities exceed 20 feet per second. The concrete design strength in these reaches shall be f_c = 4,000 psi for velocities exceeding 20 feet per second.





VICINITY MAP
NO SCALE

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 MAY 1971.
2. AN ENCROACHMENT PERMIT IS REQUIRED FROM RIVERSIDE COUNTY FLOOD CONTROL. CONTACT HOWARD DICKERSON AT (714) 275-1277. 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 LEONARD DUNN AT (714) 275-1288. THE DISTRICT MUST BE NOTIFIED ONE WEEK PRIOR TO CONSTRUCTION.
4. ALL STATIONING REFERS TO THE CENTERLINE OF CONSTRUCTION UNLESS OTHERWISE NOTED.
5. STATIONING FOR LATERALS AND CONNECTOR PIPE REFER TO THE CENTERLINE-CENTERLINE INTERSECTION STATION.
6. FORTY-EIGHT HOURS BEFORE EXCAVATION, CALL UNDERGROUND SERVICE ALERT 1-800-422-4133.
7. ALL ELEVATIONS SHOWN ARE IN FEET AND DECIMALS THEREOF BASED ON U.S.C. & G.S. DATUM.

GENERAL NOTES CONTINUED

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 INCHES OF CLASS "B" CONCRETE.
11. PIPE CONNECTED TO THE MAINLINE PIPE SHALL CONFORM TO JUNCTION STRUCTURE NO. 4 (JS 229) UNLESS OTHERWISE NOTED.
12. BEDDING PIPE WITH LESS THAN TWO FEET OF COVER SHALL CONFORM TO LOS ANGELES COUNTY FLOOD CONTROL DISTRICT STANDARD DRAWINGS 2-D213.3 AND 2-D177 FOR CONCRETE BACKFILL IN TRENCHES. ALL OTHER PIPE SHALL CONFORM TO RCFC&WCD STD. DWG. M815.
13. BH-1 INDICATES SOIL BORING LOCATIONS BASED ON THE SOILS REPORT DATED SEPT. 16, 1988 BY GEO-ETKA, INC. LOCATIONS SHOWN ARE APPROXIMATE.
14. "V" IS THE DEPTH OF INLET 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 OTHERWISE 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. HYDRAULIC GRADE LINES SHOWN IN PROFILES ARE FOR 100 YEAR FREQUENCY FLOWS, UNLESS OTHERWISE NOTED.
18. THE CONTRACTOR SHALL COMPLY WITH THE STATE AND LOCAL SAFETY CODES DURING THE PROGRESS OF WORK.
19. THE DEVELOPER SHALL MAINTAIN ADJACENT STREETS IN A NEAT, SAFE, CLEAN AND SANITARY CONDITION AT ALL TIMES AND TO THE SATISFACTION OF THE COUNTY'S OR DISTRICT'S INSPECTOR. THE ADJACENT STREETS SHALL BE KEPT CLEAN OF DEBRIS, WITH DUST AND OTHER NUISANCE BEING CONTROLLED AT ALL TIMES. THE DEVELOPER SHALL BE RESPONSIBLE FOR ANY CLEAN-UP ON ADJACENT STREETS AFFECTED BY HIS CONSTRUCTION. METHOD OF STREET CLEANING SHALL BE BY DRY SWEEPING OF ALL PAVED AREAS.
20. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBLITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER, R.C.F.C.D., COUNTY ROAD DEPARTMENT, AND THE DEVELOPER'S ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIBILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNERS, OR THE DEVELOPER'S ENGINEER.
21. ADJUST ALL STORM DRAIN AND SEWER MANHOLES, AND WATER VALVES TO GRADE.
22. ALL PIPE LENGTHS ARE HORIZONTAL PROJECTIONS (NOT TRUE LENGTHS OF PIPE) AND ARE THE BASIS OF THE ESTIMATES OF QUANTITIES. THE CONTRACTOR SHALL DETERMINE THE TRUE QUANTITY OF PIPE REQUIRED FOR THIS PROJECT PRIOR TO PLACING ORDER.
23. ALL ELEVATIONS SHOWN ARE TO THE INVERT OF PIPE, EXCEPT WHERE OTHERWISE NOTED.
24. THE CONCRETE COVER ON THE INSIDE OF ALL REINFORCED CONCRETE PIPE MUST BE INCREASED TO PROVIDE A MINIMUM OF 1-1/2" COVER OVER THE REINFORCING WHEN THE DESIGN VELOCITIES EXCEED 20 FEET PER SECOND. THE CONCRETE DESIGN STRENGTH IN THESE REACHES SHALL BE f_c=4,000 PSI FOR VELOCITIES EXCEEDING 20 FPS.

INDEX

	SHEET NO.
TITLE SHEET	1
MAIN LINE PLAN AND PROFILE SHEETS	2 TO 23
CONNECTOR PIPE PROFILES	24 TO 28
MISCELLANEOUS DETAILS	29, 30

R.C.F.C.D. STANDARD DRAWINGS (P.M. 24088)

		QUANTITY	UNIT
CB 100	CATCH BASIN NO. 1	15	EA.
CB 103	MANHOLE FRAME AND COVER FOR CATCH BASINS		
CB 105	DETAIL OF CATCH BASIN OPENING		
CB 108	INLET TYPE X	19	EA.
JS 227	JUNCTION STRUCTURE NO. 2		EA.
JS 229	JUNCTION STRUCTURE NO. 4	4	EA.
MH 251	MANHOLE NO. 1	4	EA.
MH 252	MANHOLE NO. 2	16	EA.
MH 254	MANHOLE NO. 4	18	EA.
MH 255	MANHOLE FRAME AND COVER, NON-ROCKING		
MH 257	MANHOLE SHAFT FOR CAST PIPE		
MH 259	STANDARD DROP STEP		
TS 303	TRANSITION STRUCTURE NO. 3	6	EA.
M 803	CONCRETE COLLARS FOR PIPES 12 INCHES THROUGH 66 INCHES	1	
M 815	BEDDING AND PAY LINES		
M 816	CONCRETE BULKHEAD	14	EA.

L.A.C.F.C.D. STANDARD DRAWINGS (P.M. 12104)

2-D102	MANHOLE NO. 1	1	EA.
2-D107	CONCRETE RINGS, REDUCER AND PIPE FOR MANHOLE SHAFT		
2-D112	JUNCTION STRUCTURE NO. 2	2	EA.
2-D113	MANHOLE NO. 4	2	EA.
2-D156	MANHOLE FRAME AND COVER FOR CATCH BASINS		
2-D160	CATCH BASIN NO. 1	4	EA.
2-D177	PIPE BEDDING IN TRENCHES		
2-D184	MANHOLE NO. 2	8	EA.
2-D193	JUNCTION STRUCTURE NO. 4	1	EA.
2-D393	CONCRETE COLLAR FOR PIPES 12 INCHES THROUGH 66 INCHES		
2-D430	MANHOLE SHAFT SAFETY LEDGE	3	EA.
CONSTRUCT 84-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		365.33	L.F.
CONSTRUCT 78-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		1256.12	L.F.
CONSTRUCT 75-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		1449.43	L.F.
CONSTRUCT 72-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		750.87	L.F.
CONSTRUCT 69-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		641.08	L.F.
CONSTRUCT 66-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		1364.61	L.F.
CONSTRUCT 60-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		721.24	L.F.
CONSTRUCT 54-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		2642.85	L.F.
CONSTRUCT 51-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		841.39	L.F.
CONSTRUCT 42-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		1086.30	L.F.
CONSTRUCT 39-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		2315.84	L.F.
CONSTRUCT 48-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.		1002	L.F.

APPROVED BY: Kenneth Phillips
DATE: 4/11/91
RIVERSIDE COUNTY, CALIF. FOR ROAD COMMISSIONER

ENGINEER'S NOTE TO CONTRACTOR:

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES, PIPES, AND/OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF THOSE TO BE USED OF ANY UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR DAMAGE TO MANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

CONTRACTOR SHALL NOTIFY THE COUNTY OR DISTRICT IN WRITING A MINIMUM OF TWO WEEKS BEFORE BEGINNING CONSTRUCTION, AND SHALL NOT BEGIN CONSTRUCTION BEFORE OBTAINING AUTHORIZATION TO PROCEED.

REGISTERED PROFESSIONAL ENGINEER ANTHONY K. TAM No. 31787 CIVIL STATE OF CALIFORNIA
Anthony K. Tam
Exp: 12/31/92

PLANS PREPARED UNDER THE SUPERVISION OF:
WILLDAN ASSOCIATES
290 S. ANAHEIM BLVD.
ANAHEIM, CALIF. 92805
(213) 924-1631 (714) 774-5740
REGISTRATION EXP. DATE 12-31-92
Anthony K. Tam 8/8/90
R.C.E. 31787

BENCH MARK: M.L. 1-64
AT THE SOUTHWEST CORNER OF EL RIVENO ROAD AND HALL AVENUE 42.0 FEET SOUTH OF EL RIVENO ROAD 27.0 FEET WEST OF HALL AVENUE 3.0 FEET NORTH OF TELEPHONE POLE # 752594-H 1.0 FOOT EAST OF A MARKER POST, A BRASS DISC IN THE TOP OF A CONCRETE POST AND MARKED M.L. -64
ELEV. 946.687 DATE 5-71

REVISIONS:

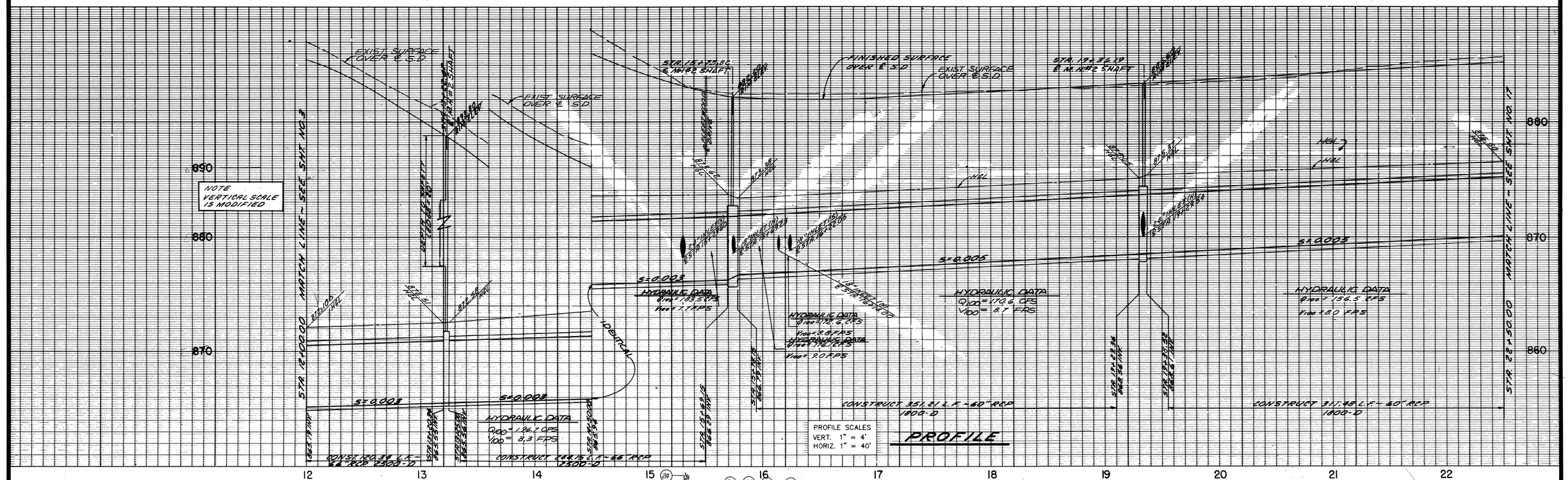
REF.	DESCRIPTION	APPR.	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
RECOMMENDED FOR APPROVAL BY: PLANNING ENGINEER — DATE: 11/20/90
APPROVED BY: CHIEF ENGINEER — DATE: 2-11-91

AGUA MANSA
BROWN AVENUE STORM DRAIN
WILSON STREET STORM DRAIN
AND LATERALS
TITLE SHEET
P.M. 24088; P.M. 12104 - (SAN BERNARDINO COUNTY)

PROJECT NO. 1-0-335
DRAWING NO. 1-514
SHEET NO. 1 OF 30

WILESHTR-SIDESD



CONSTRUCTION NOTES

(6) CONSTRUCT 66-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.

(7) CONSTRUCT 60-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.

(15) CONSTRUCT 24-INCH RCP STORM DRAIN, D-LOAD PER PROFILE

(16) CONSTRUCT 18-INCH RCP STORM DRAIN, CLASS IV

(20) CONSTRUCT MANHOLE NO. 2 PER RCFCD STD. DWG. NO. M.H. 252.

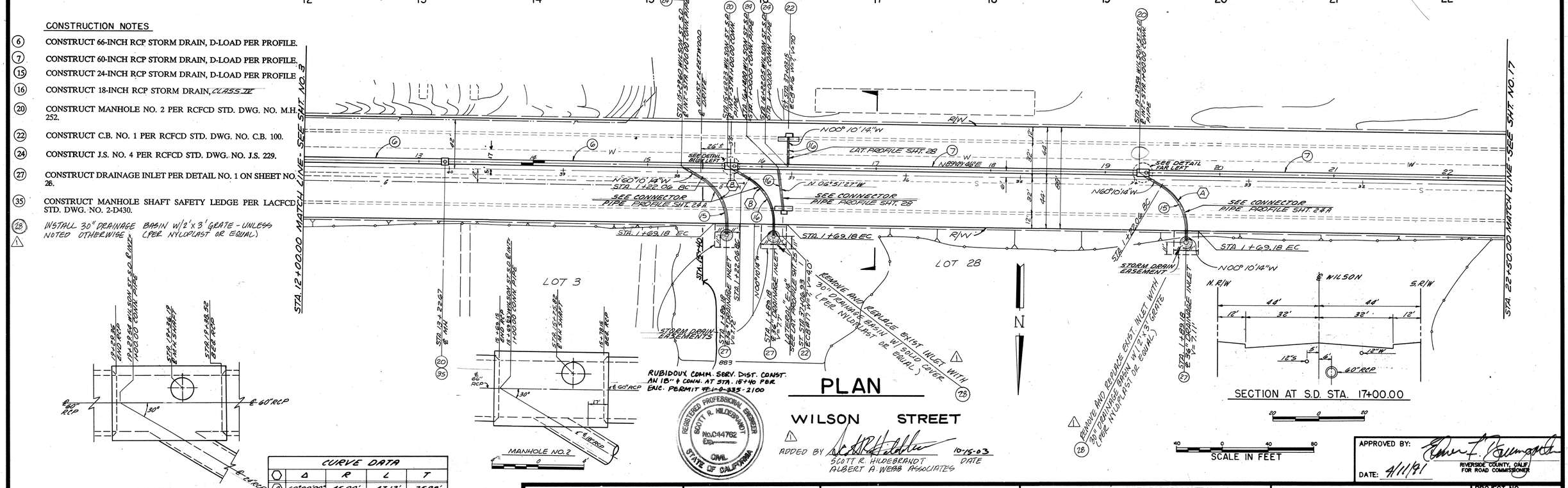
(22) CONSTRUCT C.B. NO. 1 PER RCFCD STD. DWG. NO. C.B. 100.

(24) CONSTRUCT J.S. NO. 4 PER RCFCD STD. DWG. NO. J.S. 229.

(27) CONSTRUCT DRAINAGE INLET PER DETAIL NO. 1 ON SHEET NO. 26.

(35) CONSTRUCT MANHOLE SHAFT SAFETY LEDGE PER LACFCD STD. DWG. NO. 2-D430.

(28) INSTALL 30" DRAINAGE BASIN W/2'x3' GRATE - UNLESS NOTED OTHERWISE (PER NYLOPLAST OR EQUAL)



CURVE DATA				
	Δ	R	L	T
(A)	60°00'00"	45.00'	47.12'	25.98'
(B)	60°00'00"	45.00'	47.12'	25.98'
(C)	60°00'00"	45.00'	47.12'	25.98'

APPROVED BY: DATE: 4/11/91 RIVERSIDE COUNTY, CALIF. FOR ROAD COMMISSIONER

REGISTERED PROFESSIONAL ENGINEER SCOTT R. HILDEBRANDT No. C44762 Exp. CIVIL STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER ANTHONY K. NUSS No. 37787 CIVIL STATE OF CALIFORNIA

PLANS PREPARED UNDER THE SUPERVISION OF:
WILLDAN ASSOCIATES
290 S. ANAHEIM BLVD.
ANAHEIM, CALIF. 92805
(213) 924-1631 (714) 774-5740
REGISTRATION EXP. DATE 12-31-92
8/8/90 R.C.E. 37787

BENCH MARK: M.L. 1-64
AT THE SOUTHWEST CORNER OF EL RIVINO ROAD AND HALL AVENUE 42.0 FEET SOUTH OF EL RIVINO ROAD 27.0 FEET WEST OF HALL AVENUE 3.0 FEET NORTH OF TELEPHONE POLE # 752594-H 1.0 FOOT EAST OF A MARKER POST, A BRASS DISK IN THE TOP OF A CONCRETE POST AND MARKED M.L. 1-64. ELEV. 946.687 DATE 5-71

REVISIONS:

REF.	DESCRIPTION	APPR.	APPR.	DATE
1	MODIFIED INLETS PP# 18637	SRH	SAG	10/30/03

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

RECOMMENDED FOR APPROVAL BY: PLANNING ENGINEER DATE: 1/22/92

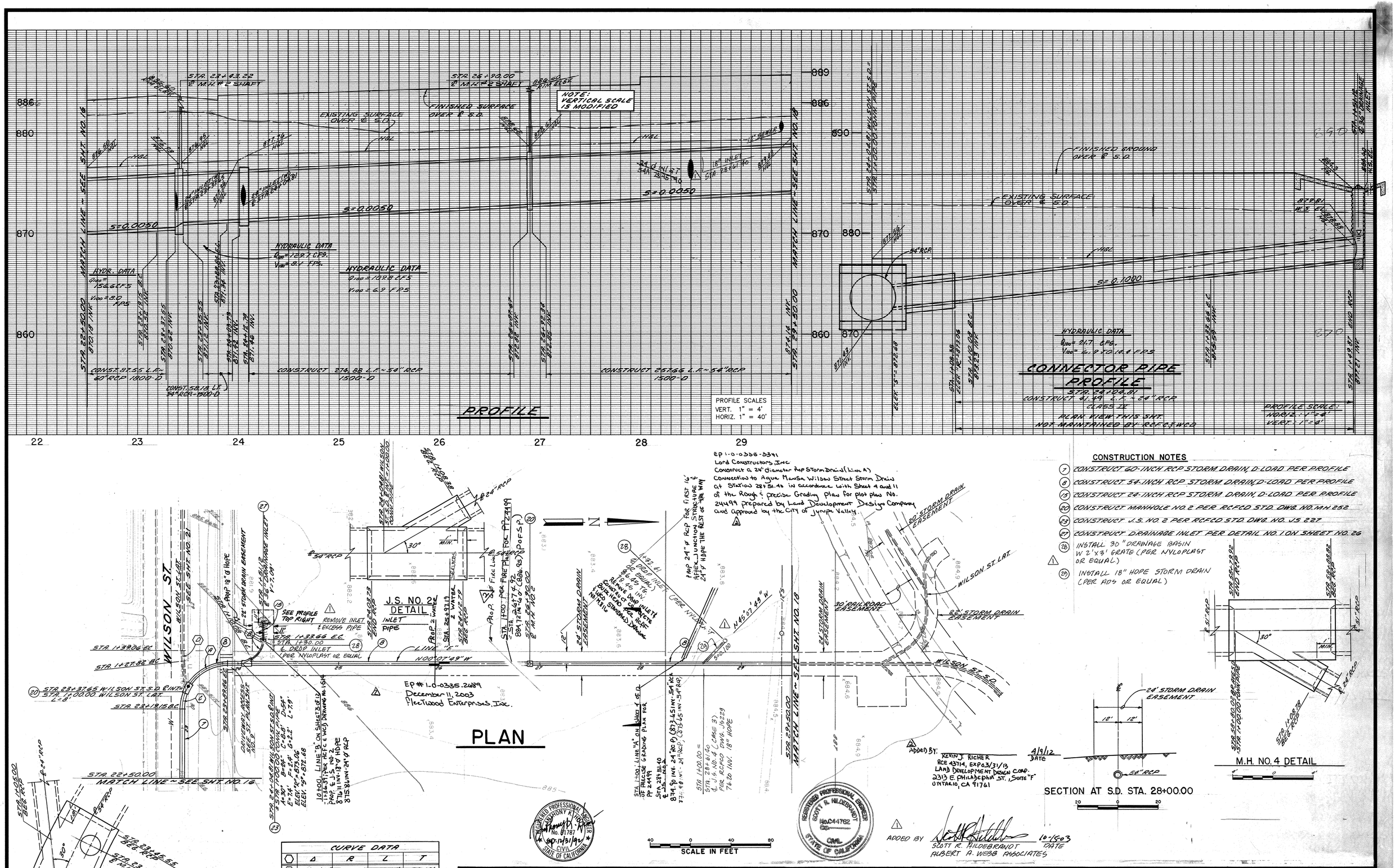
APPROVED BY: CHIEF ENGINEER DATE: 2-1-92

AGUA MANSA WILSON ST. STORM DRAIN

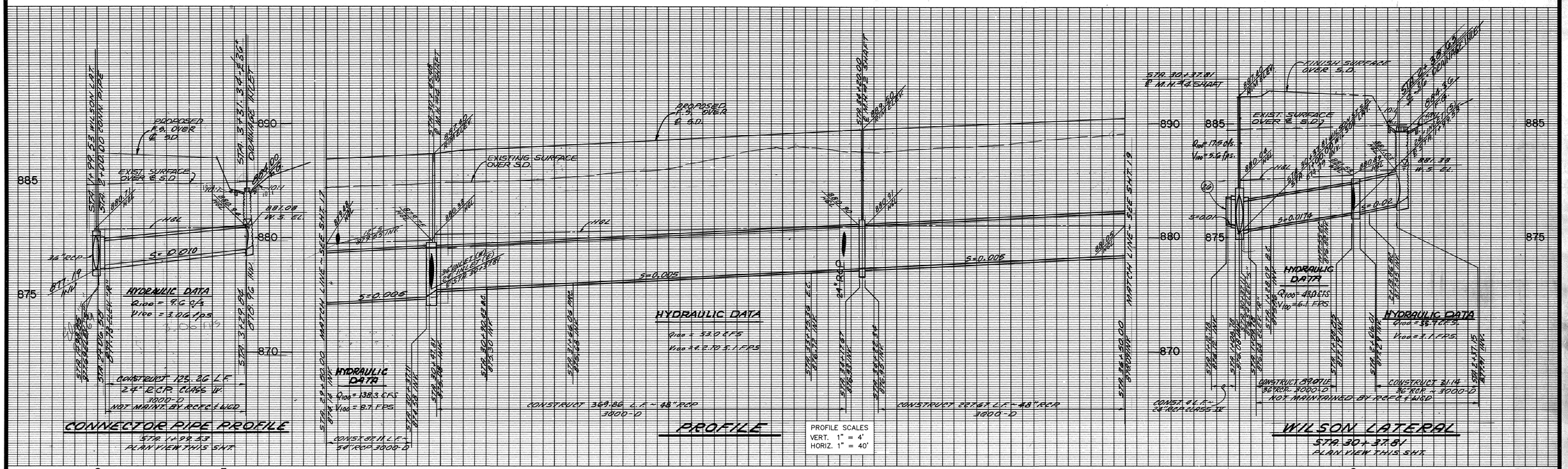
STA. 12+00.00 TO STA. 22+50.00
PM 24088

PROJECT NO. 1-0-335
DRAWING NO. 1-514
SHEET NO. 16 OF 30

MADISON\SO-HALL3



PREPARED BY	BENCH MARK	REVISIONS	RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT	AGUA MANSA WILSON ST. STORM DRAIN	PROJECT NO.
WILLDAN ASSOCIATES 290 S. ANAHEIM BLVD. ANAHEIM, CALIF. 92805 (213) 924-1631 (714) 774-5740 REGISTRATION EXP. DATE 12-31-92 Anthony K. Hu 8/8/90 R.C.E. 31787	BENCH MARK: M.L. I-64 AT THE SOUTHWEST CORNER OF EL RIVINO RD. AND HALL AVE. 42.0 FEET SOUTH OF EL RIVINO RD. 27.0 FEET WEST OF HALL AVE. 3.0 FEET NORTH OF TELEPHONE POLE #752594-H I.O. FOOT EAST OF A MARKER POST, A BRASS DISK IN THE TOP OF A CONC. POST AND MARKED M.L. I-64. ELEV. 946.687 DATE 5-71	REF. DESCRIPTION APPR. APPR. DATE 1 MODIFIED INLETS PER # 18637 SRH AAW 10/15/03	RECOMMENDED FOR APPROVAL BY: PLANNING ENGINEER DATE: 1/23/92 APPROVED BY: CHIEF ENGINEER DATE: 2-1-92	STA. 22+50.00 TO STA. 29+50.00 PM 24088	I-0-335 DRAWING NO. I-514 SHEET NO. 17 OF 30



CURVE DATA				
	Δ	R	L	T
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(2)	48°08'56"	90.00'	75.63'	40.21'
(3)	62°58'18"	45.00'	49.46'	27.56'
(4)	63°07'58"	22.50'	24.79'	13.82'
(5)	81°43'47"	45.00'	64.19'	38.93'

APPROVED BY: Dean F. Kawamoto
DATE: 9/11/91
RIVERSIDE COUNTY, CALIF. FOR ROAD COMMISSIONER

PLANS PREPARED UNDER THE SUPERVISION OF
WILLDAN ASSOCIATES
290 S. ANAHEIM BLVD.
ANAHEIM, CALIF. 92805
(213) 924-1631 (714) 774-5740
REGISTRATION EXP. DATE 12-31-92
Anthony K. Ahn 8/8/92
R.C.E. 31787

REGISTERED PROFESSIONAL ENGINEER ANTHONY K. AHN No. 31787 CIVIL STATE OF CALIFORNIA

BENCH MARK: M.L. 1-64
AT THE SOUTHWEST CORNER OF EL RIVENO ROAD AND HALL AVENUE 42.0 FEET SOUTH OF EL RIVENO ROAD 27.0 FEET WEST OF HALL AVENUE 3.0 FEET NORTH OF TELEPHONE POLE #752594 H I.O FOOT EAST OF A MARKER POST, A BRASS DISC IN THE TOP OF A CONCRETE POST & MARKED M.L. 64
ELEV. 946.687 DATE 5-71

REVISIONS:

REF.	DESCRIPTION	APPR.	APPR.	DATE

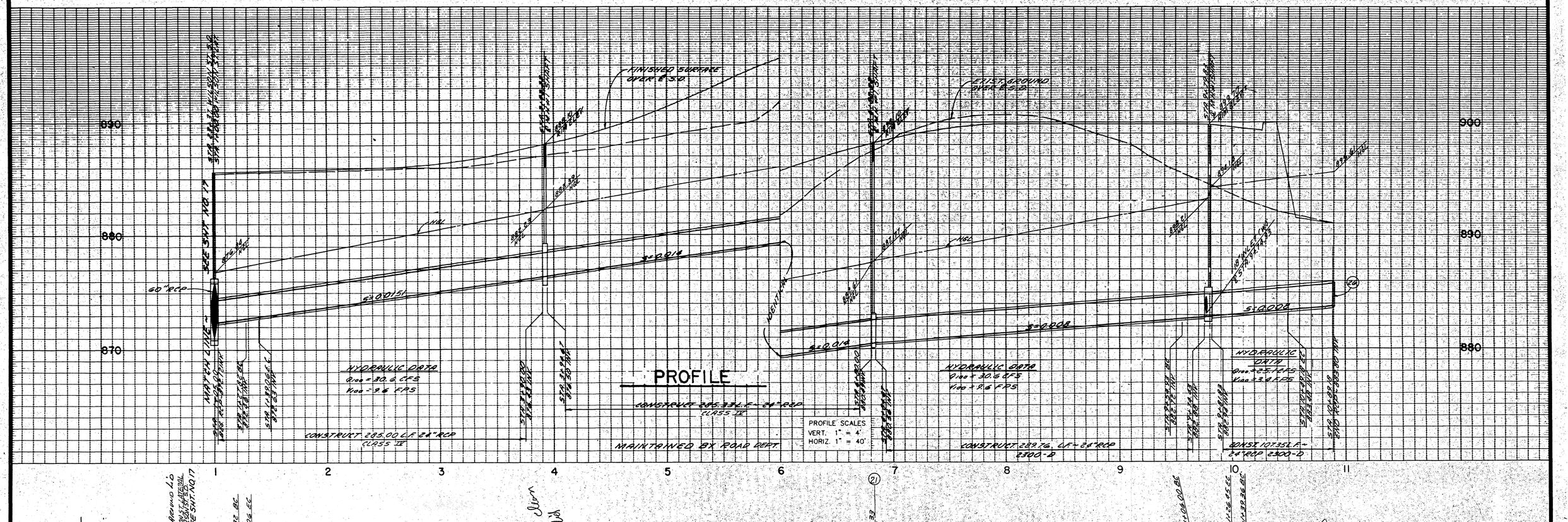
RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

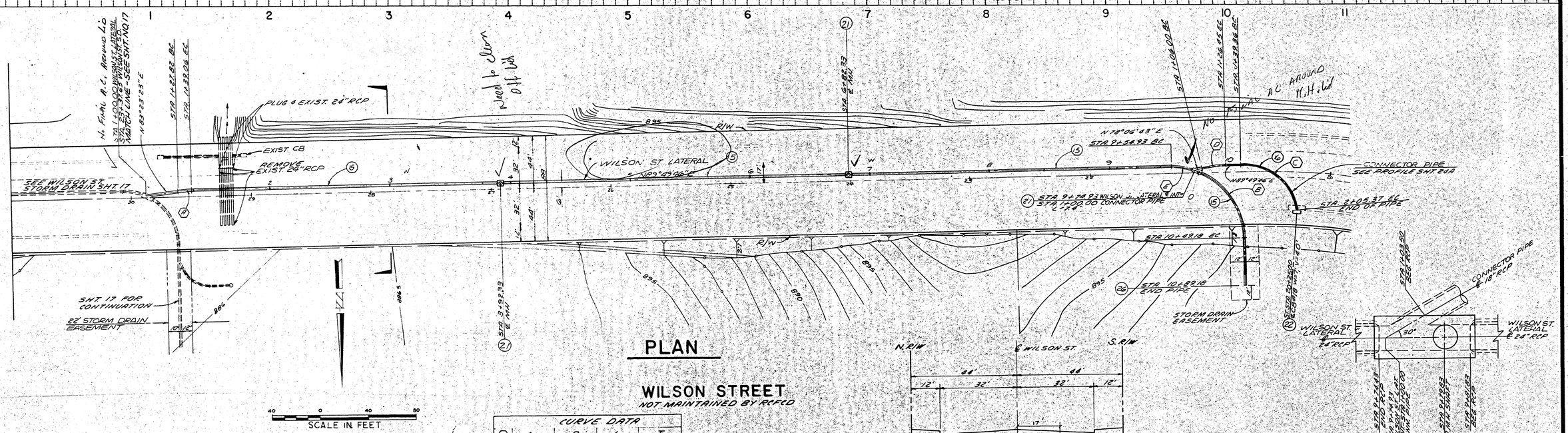
RECOMMENDED FOR APPROVAL BY: Paul A. Hewitt
PLANNING ENGINEER
DATE: 1/23/92

APPROVED BY: Kenneth L. Edwards
CHIEF ENGINEER
DATE: 2-1-92

AGUA MANSA
WILSON ST. STORM DRAIN & WILSON LATERAL
STA. 29+50.00 TO STA. 36+50.00
P.M. 24088

PROJECT NO. 1-0-335
DRAWING NO. 1-514
SHEET NO. 18 OF 30





CURVE DATA

	Δ	R	L	T
(A)	6°26'23"	100.00'	11.24'	5.63'
(B)	70°58'05"	60.00'	74.25'	42.72'
(C)	88°00'35"	43.00'	66.01'	40.55'
(D)	11°43'03"	100.00'	20.45'	10.26'
(E)	19°05'55"	60.00'	20.00'	10.09'

CONSTRUCTION NOTS

(15) CONSTRUCT 24-INCH RCP STORM DRAIN, D-LOAD PER PROFILE.

(16) CONSTRUCT 18-INCH RCP STORM DRAIN, CLASS IV

(21) CONSTRUCT MANHOLE NO. 1 PER RCFCD STD. DWG. NO. MANHOLE 251.

(22) CONSTRUCT C.B. NO. 1 PER RCFCD STD. DWG. NO. C.B. 100.

(26) CONSTRUCT CONCRETE BULKHEAD PER RCFCD STD. DWG. NO. M816.

PLANS PREPARED UNDER THE SUPERVISION OF
WILLDAN ASSOCIATES
2390 E. ANAHEIM BLVD.
ANAHEIM, CALIF. 92806
(213) 924-1631 (714) 974-5140
REGISTRATION EXP. DATE 12-31-92
Anthony K. Stein 8/8/90
R.C.E. 31787

BENCH MARK: M.L. 1-64
AT THE SOUTHWEST CORNER OF EL RIVINO ROAD AND HALL AVENUE 42.0 FEET SOUTH OF EL RIVINO ROAD 27.0 FEET WEST OF HALL AVENUE 3.0 FEET NORTH OF TELEPHONE POLE # 752594-H 1.0 FOOT EAST OF A MARKER POST, A BRASS DISK IN THE TOP OF A CONCRETE POST AND MARKED M.L. 1-64.
ELEV. 946.667 DATE 5-71

REVISIONS:

REF.	DESCRIPTION	APPR.	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

RECOMMENDED FOR APPROVAL BY: PLANNING ENGINEER DATE:

APPROVED BY: CHIEF ENGINEER DATE:

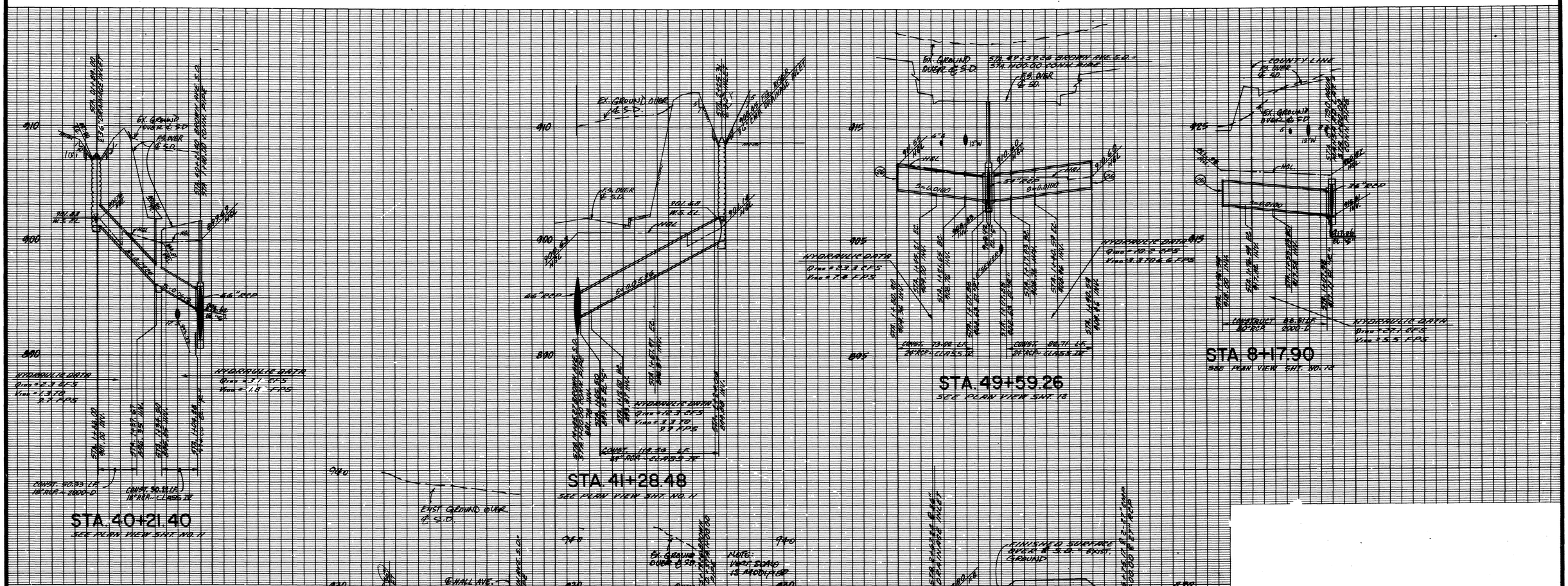
AGUA MANSA
WILSON ST. LATERAL

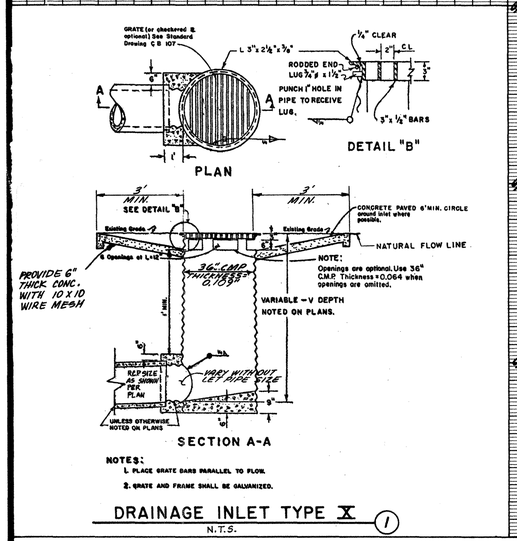
STA. 1+00.00 TO STA. 10+89.18
P.M. 24088

PROJECT NO. 1-0-335
DRAWING NO. 1-514
SHEET NO. 21 OF 30

APPROVED BY: Elin L. Rauenzahn
DATE: 4/14/91
RIVERSIDE COUNTY, CALIF. FOR ROAD COMMISSIONER

MADISON\50-HALLS





NOTES:

1. PLACE GRATE BARS PARALLEL TO FLOW.
2. GRATE AND FRAME SHALL BE GALVANIZED.

DRAINAGE INLET TYPE X (1)

N.T.S.

APPROVED BY: Edwin F. Kalmanovitch
DATE: 9/11/91
RIVERSIDE COUNTY, CALIF. FOR ROAD COMMISSIONER

PLANS PREPARED UNDER THE SUPERVISION OF:
WILLDAN ASSOCIATES
290 S. ANAHEIM BLVD.
ANAHEIM, CALIF. 92805
(213) 924-1631 (714) 774-5740
REGISTRATION EXP. DATE 12-31-92
Anthony K. Shi 8/8/90
R.C.E. 31871

Exp. 12/31/90 CIVIL STATE OF CALIFORNIA

BENCH MARK: M.L. 1-64
AT THE SOUTHWEST CORNER OF EL RIVINO ROAD AND HALL AVENUE 42.0 FEET SOUTH OF EL RIVINO ROAD 27.0 FEET WEST OF HALL AVENUE 3.0 FEET NORTH OF TELEPHONE POLE # 752594-H 1.0 FOOT EAST OF A MARKER POST, A BRASS DISK IN THE TOP OF A CONCRETE POST AND MARKED M.L. 1-64.
ELEV. 948.687 DATE 5-71

REVISIONS:				
REF.	DESCRIPTION	APPR.	APPR.	DATE

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

RECOMMENDED FOR APPROVAL BY: PLANNING ENGINEER DATE:

APPROVED BY: CHIEF ENGINEER DATE:

AGUA MANSA
CONNECTOR PIPE PROFILES

PARCEL MAP 24088

PROJECT NO. 1-0-335
DRAWING NO. 1-514
SHEET NO. 26 OF 30

BASESHT\SD-RSIDE

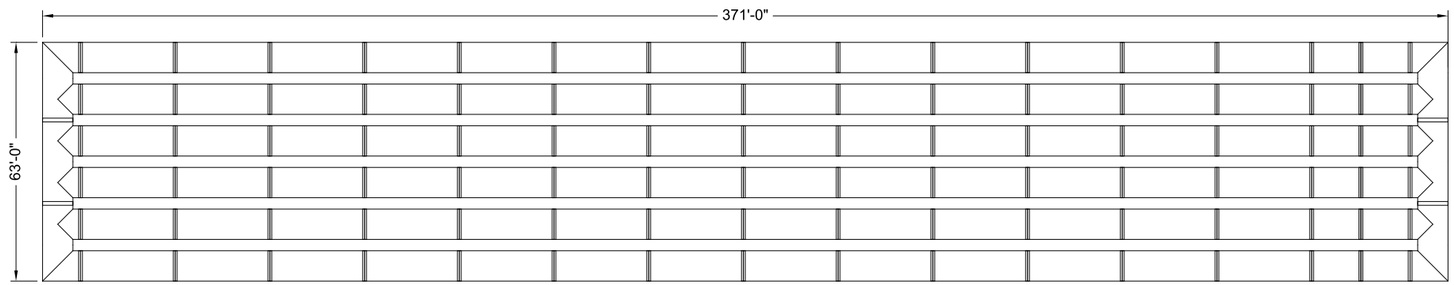
PROJECT SUMMARY

CALCULATION DETAILS
- LOADING = HS20 & HS25
- APPROX. LINEAR FOOTAGE = 2,256 lf.

STORAGE SUMMARY
- STORAGE VOLUME REQUIRED = 113,300 cf.
- PIPE STORAGE VOLUME = 113,399 cf.
- BACKFILL STORAGE VOLUME = 0 cf.
- TOTAL STORAGE PROVIDED = 113,399 cf.

PIPE DETAILS
- DIAMETER = 96 IN.
- CORRUGATION = 5x1
- GAGE = 16
- COATING = ALT2
- WALL TYPE = Perforated
- BARRELL SPACING = 36 IN.

BACKFILL DETAILS
- WIDTH AT ENDS = 12 IN.
- ABOVE PIPE = 0 IN.
- WIDTH AT SIDES = 12 IN.
- BELOW PIPE = 0 IN.



NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE. ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE $2\frac{2}{3}$" x $\frac{1}{2}$" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- BAND TYPE TO BE DETERMINED UPON FINAL DESIGN.
- THE PROJECT SUMMARY IS REFLECTIVE OF THE DYODS DESIGN, QUANTITIES ARE APPROX. AND SHOULD BE VERIFIED UPON FINAL DESIGN AND APPROVAL. FOR EXAMPLE, TOTAL EXCAVATION DOES NOT CONSIDER ALL VARIABLES SUCH AS SHORING AND ONLY ACCOUNTS FOR MATERIAL WITHIN THE ESTIMATED EXCAVATION FOOTPRINT.
- THESE DRAWINGS ARE FOR CONCEPTUAL PURPOSES AND DO NOT REFLECT ANY LOCAL PREFERENCES OR REGULATIONS. PLEASE CONTACT YOUR LOCAL CONTECH REP FOR MODIFICATIONS.

ASSEMBLY
SCALE: 1" = 40'

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DATE	REVISION DESCRIPTION	BY

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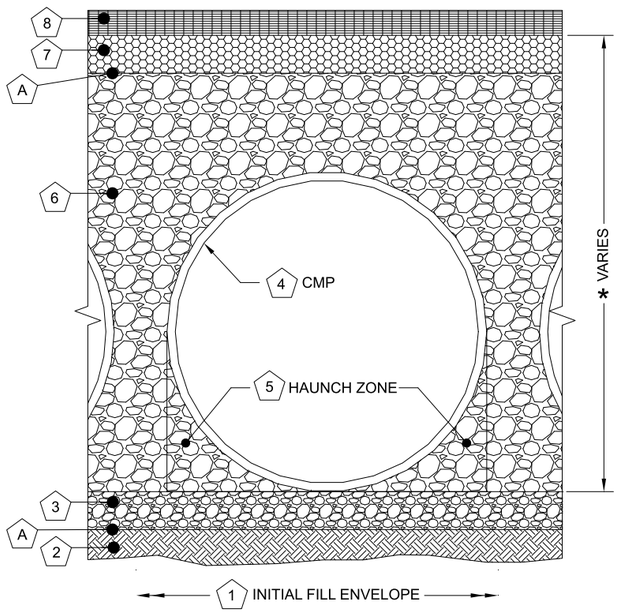
ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CONTECH®
CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7381 Burrtec - Riverside
Underground Storage and Infiltration
Corona, CA
DETENTION SYSTEM

PROJECT No.: 4606	SEQ. No.: 7381	DATE: 4/28/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D1		



	Infiltration Systems - CMP Infiltration & CMP Perforated Drainage Pipe			
	Material Location	Description	Material Designation	Designation
8	Rigid or Flexible Pavement (if applicable)			
7	Road Base (if applicable			
A	Geotextile Layer	Non-Woven Geotextile	CONTECH C-40 or C-45	Engineer Decision for consideration to prevent soil migration into varying soil types. Wrap the trench only.
6	Backfill	Infiltration pipe systems have a pipe perforation sized of 3/8" diameter. An open graded, free draining stone, with a particle size of ½" – 2 ½" diameter is recommended.	AASHTO M 145-A-1 or AASHTO M 43 - 3, 4	Material shall be worked into the pipe haunches by means of shovel-slicing, rodding, air-tamper, vibratory rod, or other effective methods. Compaction of all placed fill material is necessary and shall be considered adequate when no further yielding of the material is observed under the compactor, or under foot, and the Project Engineer or his representative is satisfied with the level of compaction"
3	Bedding Stone	Well graded granular bedding material w/maximum particle size of 3"	AASHTO M43 - 3,357,4,467, 5, 56, 57	For soil aggregates larger than 3/8" a dedicated bedding layer is not required for CMP. Pipe may be placed on the trench bottom comprised of native suitable well graded & granular material. For Arch pipes it is recommended to be shaped to a relatively flat bottom or fine-grade the foundation to a slight v-shape. Soil aggregates less than 3/8" and unsuitable material should be over-excavated and re-placed with a 4"-6" layer of well graded & granular stone per the material designation.
A	Geotextile Layer	None	None	Contech does not recommend geotextiles be placed under the invert of Infilitration systems due to the propensity for geotextiles to clog over time.
*	Note: The listed AASHTO designations are for gradation only. The stone must also be angular and clean.			

1 MINIMUM WIDTH DEPENDS ON SITE CONDITIONS AND ENGINEERING JUDGEMENT.

FOUNDATION/BEDDING PREPARATION

2 PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER.

5 HAUNCH ZONE MATERIAL SHALL BE PLACED AND UNIFORMLY COMPACTED WITHOUT SOFT SPOTS.

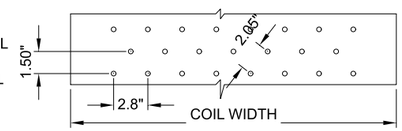
BACKFILL

MATERIAL SHALL BE PLACED IN 8"-10" MAXIMUM LIFTS. INADEQUATE COMPACTION CAN LEAD TO EXCESSIVE DEFLECTIONS WITHIN THE SYSTEM AND SETTLEMENT OF THE SOILS OVER THE SYSTEM. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF ANY PIPE IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.

EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTORT, DAMAGE, OR DISPLACE THE PIPE. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT. MAINTAIN BALANCED LOADING ON ALL PIPES IN THE SYSTEM DURING ALL SUCH OPERATIONS.

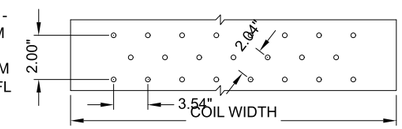
OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO TYPICAL BACKFILL DETAIL FOR MATERIAL REQUIRED.

2 2/3" x 1/2" CORRUGATION - STEEL AND ALUMINUM CMP EDGE SPACING EQUAL ON BOTH SIDES



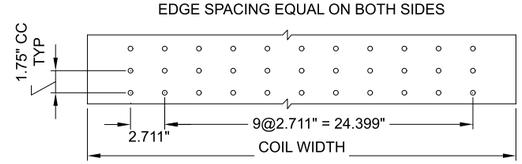
OPEN AREA = 3.76 SQ IN/SQ FT

3" x 1" CORRUGATION - STEEL AND ALUMINUM CMP (COIL PROVIDED FROM CONTECH LANTANA, FL PLANT)



OPEN AREA = 4.16 SQ IN/SQ FT

5" x 1" CORRUGATION - STEEL ONLY
EDGE SPACING EQUAL ON BOTH SIDES



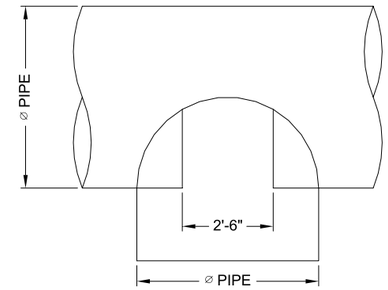
OPEN AREA = 3.33 SQ IN/SQ FT

NOTES:

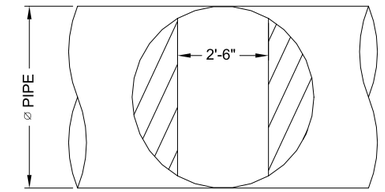
1. PERFORATIONS MEET AASHTO AND ASTM SPECIFICATIONS.
2. PERFORATION OPEN AREA PER SQUARE FOOT OF PIPE IS BASED ON THE NOMINAL DIAMETER AND LENGTH OF PIPE.
3. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
4. ALL HOLES ⌀3/8".

TYPICAL PERFORATION DETAIL

SCALE: N.T.S.



PLAN

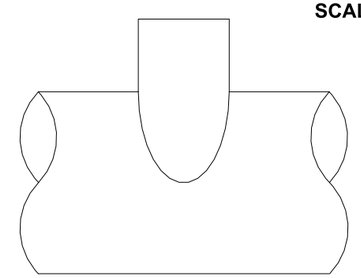


FRONT

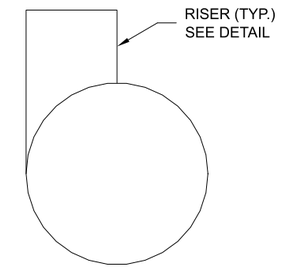
TYPICAL MANWAY DETAIL

SCALE: N.T.S.

NOTE:
MANWAY DETAIL APPLICABLE FOR CMP SYSTEMS WITH DIAMETERS 48" AND LARGER. MANWAYS MAY BE REQUIRED ON SMALLER SYSTEMS DEPENDING ON ACTUAL SITE SPECIFIC CONDITIONS.



ELEVATION

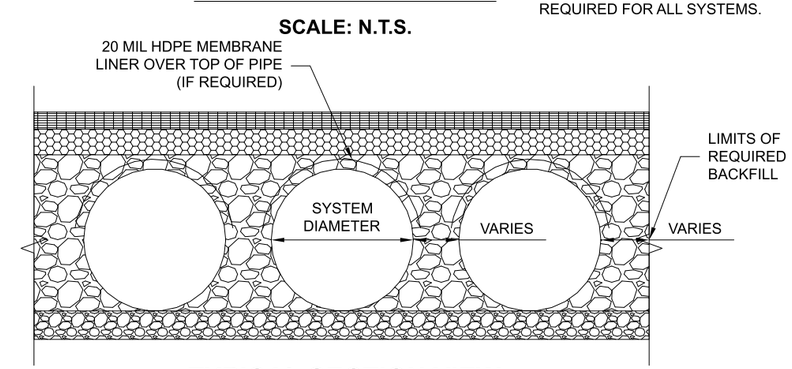


END

NOTE:
LADDERS ARE OPTIONAL AND ARE NOT REQUIRED FOR ALL SYSTEMS.

TYPICAL RISER DETAIL

SCALE: N.T.S.



TYPICAL SECTION VIEW

LINER OVER ROWS
SCALE: N.T.S.

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, AN HDPE MEMBRANE LINER IS RECOMMENDED WITH THE SYSTEM. THE IMPERMEABLE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.

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CONTECH® CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7381 Burrtec - Riverside
Underground Storage and Infiltration
Corona, CA
DETENTION SYSTEM

PROJECT No.: 4606	SEQ. No.: 7381	DATE: 4/28/2021
DESIGNED: DYO		DRAWN: DYO
CHECKED: DYO		APPROVED: DYO
SHEET NO.: D2		

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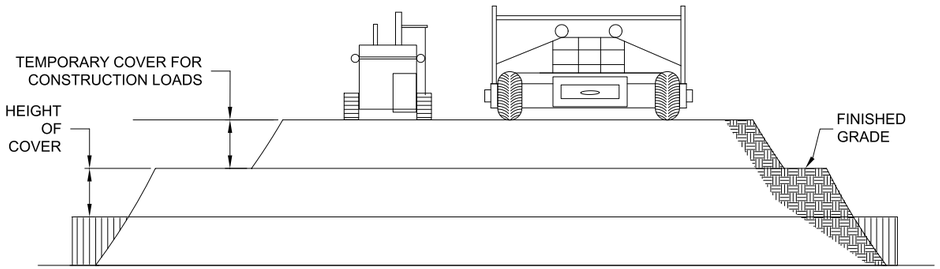

CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM

SCALE: N.T.S.

SPECIFICATION FOR DESIGNED DETENTION SYSTEM:

SCOPE
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE DESIGNED DETENTION SYSTEM DETAILED IN THE PROJECT PLANS.

MATERIAL
THE MATERIAL SHALL CONFORM TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-274 OR ASTM A-92.

THE GALVANIZED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-218 OR ASTM A-929.

THE POLYMER COATED STEEL COILS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-246 OR ASTM A-742.

THE ALUMINUM COILS SHALL CONFORM TO THE APPLICABLE OF AASHTO M-197 OR ASTM B-744.

CONSTRUCTION LOADS
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURER'S OR NCSPA GUIDELINES.

PIPE
THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE TO THE APPLICABLE REQUIREMENTS LISTED BELOW:

ALUMINIZED TYPE 2: AASHTO M-36 OR ASTM A-760

GALVANIZED: AASHTO M-36 OR ASTM A-760

POLYMER COATED: AASHTO M-245 OR ASTM A-762

ALUMINUM: AASHTO M-196 OR ASTM B-745

HANDLING AND ASSEMBLY
SHALL BE IN ACCORDANCE WITH NCSP'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL. SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR ALUMINUM PIPE.

INSTALLATION
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II DIVISION II OR ASTM A-798 (FOR ALUMINIZED TYPE 2, GALVANIZED OR POLYMER COATED STEEL) OR ASTM B-788 (FOR ALUMINUM PIPE) AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

NOTE:
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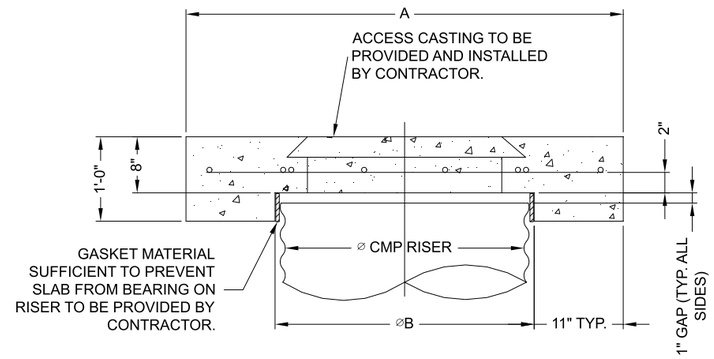
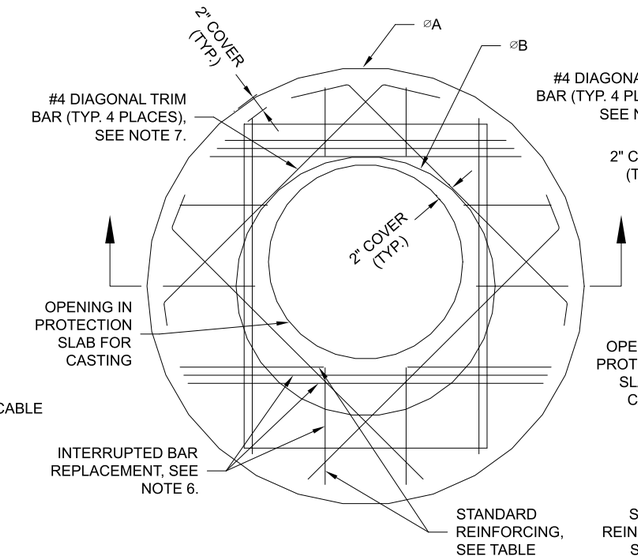


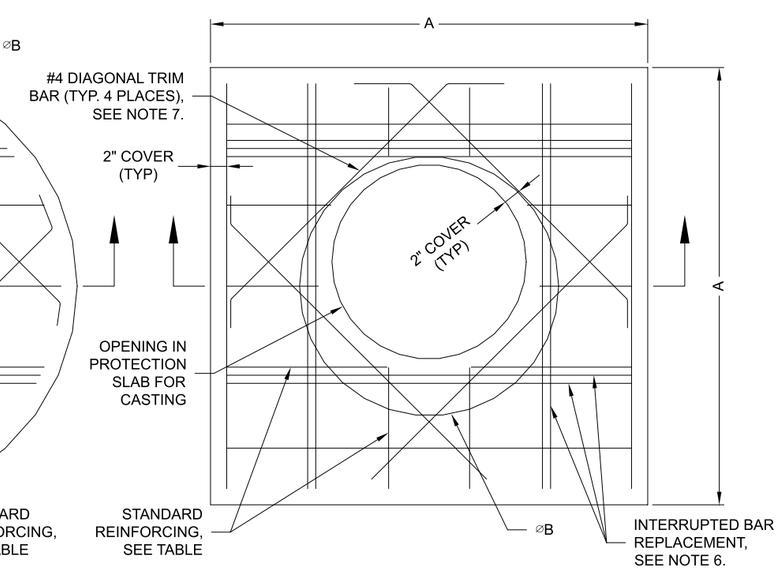
SECTION VIEW

REINFORCING TABLE				
⌀ CMP RISER	A	⌀ B	REINFORCING	**BEARING PRESSURE (PSF)
24"	⌀ 4' 4'X4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	⌀ 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	⌀ 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	⌀ 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	⌀ 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,100

** ASSUMED SOIL BEARING CAPACITY



ROUND OPTION PLAN VIEW



SQUARE OPTION PLAN VIEW

NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17th EDITION.
2. DESIGN LOAD HS25.
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 3,500 psi
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTION SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

MANHOLE CAP DETAIL

SCALE: N.T.S.

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CONTECH® CMP DETENTION SYSTEMS

CONTECH
DYODS
DRAWING

DYO7381 Burrtec - Riverside
Underground Storage and Infiltration
Corona, CA
DETENTION SYSTEM

PROJECT No.: 4606	SEQ. No.: 7381	DATE: 4/28/2021
DESIGNED: DYO	DRAWN: DYO	
CHECKED: DYO	APPROVED: DYO	
SHEET NO.: D3		

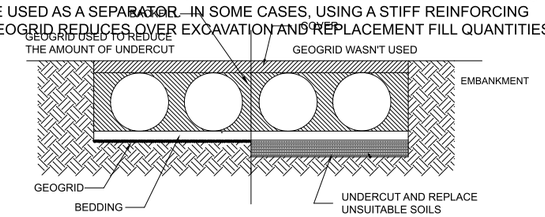
CMP DETENTION INSTALLATION GUIDE

PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THIS GUIDE, ARE APPROPRIATE FOR YOUR SITE.

FOUNDATION

CONSTRUCT A FOUNDATION THAT CAN SUPPORT THE DESIGN LOADING APPLIED BY THE PIPE AND ADJACENT BACKFILL WEIGHT AS WELL AS MAINTAIN ITS INTEGRITY DURING CONSTRUCTION.

IF SOFT OR UNSUITABLE SOILS ARE ENCOUNTERED, REMOVE THE POOR SOILS DOWN TO A SUITABLE DEPTH AND THEN BUILD UP TO THE APPROPRIATE ELEVATION WITH A COMPETENT BACKFILL MATERIAL. THE STRUCTURAL FILL MATERIAL GRADATION SHOULD NOT ALLOW THE MIGRATION OF FINES, WHICH CAN CAUSE SETTLEMENT OF THE DETENTION SYSTEM OR PAVEMENT ABOVE. IF THE STRUCTURAL FILL MATERIAL IS NOT COMPATIBLE WITH THE UNDERLYING SOILS AN ENGINEERING FABRIC SHOULD BE USED AS A SEPARATOR. IN SOME CASES, USING A STIFF REINFORCING GEOGRID REDUCES OVER EXCAVATION AND REPLACEMENT FILL QUANTITIES.

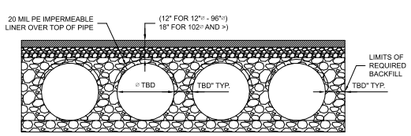


GRADE THE FOUNDATION SUBGRADE TO A UNIFORM OR SLIGHTLY SLOPING GRADE. IF THE SUBGRADE IS CLAY OR RELATIVELY NON-POROUS AND THE CONSTRUCTION SEQUENCE WILL LAST FOR AN EXTENDED PERIOD OF TIME, IT IS BEST TO SLOPE THE GRADE TO ONE END OF THE SYSTEM. THIS WILL ALLOW EXCESS WATER TO DRAIN QUICKLY, PREVENTING SATURATION OF THE SUBGRADE.

GEOMEMBRANE BARRIER

A SITE'S RESISTIVITY MAY CHANGE OVER TIME WHEN VARIOUS TYPES OF SALTING AGENTS ARE USED, SUCH AS ROAD SALTS FOR DEICING AGENTS. IF SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE, A GEOMEMBRANE BARRIER IS RECOMMENDED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM THE USE OF SUCH AGENTS INCLUDING PREMATURE CORROSION AND REDUCED ACTUAL SERVICE LIFE.

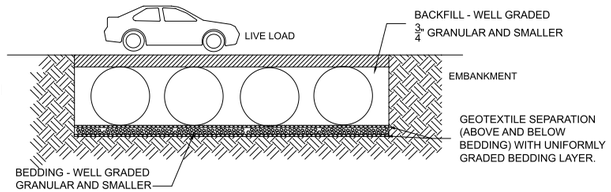
THE PROJECT'S ENGINEER OF RECORD IS TO EVALUATE WHETHER SALTING AGENTS WILL BE USED ON OR NEAR THE PROJECT SITE, AND USE HIS/HER BEST JUDGEMENT TO DETERMINE IF ANY ADDITIONAL PROTECTIVE MEASURES ARE REQUIRED. BELOW IS A TYPICAL DETAIL SHOWING THE PLACEMENT OF A GEOMEMBRANE BARRIER FOR PROJECTS WHERE SALTING AGENTS ARE USED ON OR NEAR THE PROJECT SITE.



IN-SITU TRENCH WALL

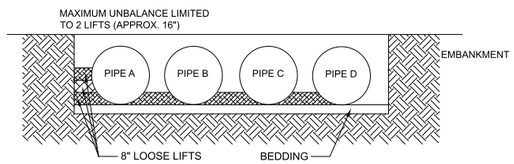
IF EXCAVATION IS REQUIRED, THE TRENCH WALL NEEDS TO BE CAPABLE OF SUPPORTING THE LOAD THAT THE PIPE SHEDS AS THE SYSTEM IS LOADED. IF SOILS ARE NOT CAPABLE OF SUPPORTING THESE LOADS, THE PIPE CAN DEFLECT. PERFORM A SIMPLE SOIL PRESSURE CHECK USING THE APPLIED LOADS TO DETERMINE THE LIMITS OF EXCAVATION BEYOND THE SPRING LINE OF THE OUTER MOST PIPES.

IN MOST CASES THE REQUIREMENTS FOR A SAFE WORK ENVIRONMENT AND PROPER BACKFILL PLACEMENT AND COMPACTION TAKE CARE OF THIS CONCERN.



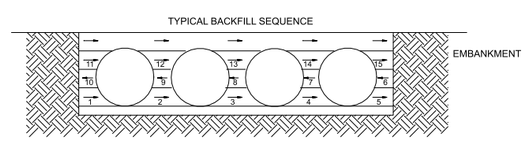
BACKFILL PLACEMENT

MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS.

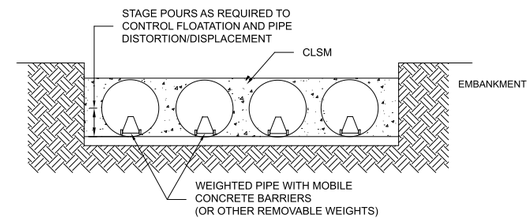


IF AASHTO T99 PROCEDURES ARE DETERMINED INFEASIBLE BY THE GEOTECHNICAL ENGINEER OF RECORD, COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE GEOTECHNICAL ENGINEER OF RECORD (OR REPRESENTATIVE THEREOF) IS SATISFIED WITH THE LEVEL OF COMPACTION.

FOR LARGE SYSTEMS, CONVEYOR SYSTEMS, BACKHOES WITH LONG REACHES OR DRAGLINES WITH STONE BUCKETS MAY BE USED TO PLACE BACKFILL. ONCE MINIMUM COVER FOR CONSTRUCTION LOADING ACROSS THE ENTIRE WIDTH OF THE SYSTEM IS REACHED, ADVANCE THE EQUIPMENT TO THE END OF THE RECENTLY PLACED FILL, AND BEGIN THE SEQUENCE AGAIN UNTIL THE SYSTEM IS COMPLETELY BACKFILLED. THIS TYPE OF CONSTRUCTION SEQUENCE PROVIDES ROOM FOR STOCKPILED BACKFILL DIRECTLY BEHIND THE BACKHOE, AS WELL AS THE MOVEMENT OF CONSTRUCTION TRAFFIC. MATERIAL STOCKPILES ON TOP OF THE BACKFILLED DETENTION SYSTEM SHOULD BE LIMITED TO 8- TO 10-FEET HIGH AND MUST PROVIDE BALANCED LOADING ACROSS ALL BARRELS. TO DETERMINE THE PROPER COVER OVER THE PIPES TO ALLOW THE MOVEMENT OF CONSTRUCTION EQUIPMENT SEE TABLE 1, OR CONTACT YOUR LOCAL CONTECH SALES ENGINEER.



WHEN FLOWABLE FILL IS USED, YOU MUST PREVENT PIPE FLOATATION. TYPICALLY, SMALL LIFTS ARE PLACED BETWEEN THE PIPES AND THEN ALLOWED TO SET-UP PRIOR TO THE PLACEMENT OF THE NEXT LIFT. THE ALLOWABLE THICKNESS OF THE CLSM LIFT IS A FUNCTION OF A PROPER BALANCE BETWEEN THE UPLIFT FORCE OF THE CLSM, THE OPPOSING WEIGHT OF THE PIPE, AND THE EFFECT OF OTHER RESTRAINING MEASURES. THE PIPE CAN CARRY LIMITED FLUID PRESSURE WITHOUT PIPE DISTORTION OR DISPLACEMENT, WHICH ALSO AFFECTS THE CLSM LIFT THICKNESS. YOUR LOCAL CONTECH SALES ENGINEER CAN HELP DETERMINE THE PROPER LIFT THICKNESS.

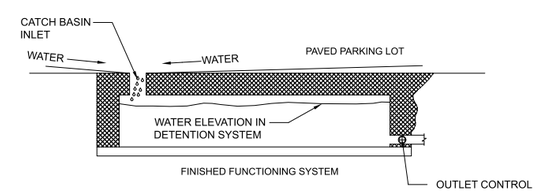


CONSTRUCTION LOADING

TYPICALLY, THE MINIMUM COVER SPECIFIED FOR A PROJECT ASSUMES H-20 LIVE LOAD. BECAUSE CONSTRUCTION LOADS OFTEN EXCEED DESIGN LIVE LOADS, INCREASED TEMPORARY MINIMUM COVER REQUIREMENTS ARE NECESSARY. SINCE CONSTRUCTION EQUIPMENT VARIES FROM JOB TO JOB, IT IS BEST TO ADDRESS EQUIPMENT SPECIFIC MINIMUM COVER REQUIREMENTS WITH YOUR LOCAL CONTECH SALES ENGINEER DURING YOUR PRE-CONSTRUCTION MEETING.

ADDITIONAL CONSIDERATIONS

BECAUSE MOST SYSTEMS ARE CONSTRUCTED BELOW-GRADE, RAINFALL CAN RAPIDLY FILL THE EXCAVATION; POTENTIALLY CAUSING FLOATATION AND MOVEMENT OF THE PREVIOUSLY PLACED PIPES. TO HELP MITIGATE POTENTIAL PROBLEMS, IT IS BEST TO START THE INSTALLATION AT THE DOWNSTREAM END WITH THE OUTLET ALREADY CONSTRUCTED TO ALLOW A ROUTE FOR THE WATER TO ESCAPE. TEMPORARY DIVERSION MEASURES MAY BE REQUIRED FOR HIGH FLOWS DUE TO THE RESTRICTED NATURE OF THE OUTLET PIPE.



CMP DETENTION SYSTEM INSPECTION AND MAINTENANCE

UNDERGROUND STORMWATER DETENTION AND INFILTRATION SYSTEMS MUST BE INSPECTED AND MAINTAINED AT REGULAR INTERVALS FOR PURPOSES OF PERFORMANCE AND LONGEVITY.

INSPECTION

INSPECTION IS THE KEY TO EFFECTIVE MAINTENANCE OF CMP DETENTION SYSTEMS AND IS EASILY PERFORMED. CONTECH RECOMMENDS ONGOING, ANNUAL INSPECTIONS. SITES WITH HIGH TRASH LOAD OR SMALL OUTLET CONTROL ORIFICES MAY NEED MORE FREQUENT INSPECTIONS. THE RATE AT WHICH THE SYSTEM COLLECTS POLLUTANTS WILL DEPEND MORE ON SITE SPECIFIC ACTIVITIES RATHER THAN THE SIZE OR CONFIGURATION OF THE SYSTEM.

INSPECTIONS SHOULD BE PERFORMED MORE OFTEN IN EQUIPMENT WASHDOWN AREAS, IN CLIMATES WHERE SANDING AND/OR SALTING OPERATIONS TAKE PLACE, AND IN OTHER VARIOUS INSTANCES IN WHICH ONE WOULD EXPECT HIGHER ACCUMULATIONS OF SEDIMENT OR ABRASIVE/ CORROSIVE CONDITIONS. A RECORD OF EACH INSPECTION IS TO BE MAINTAINED FOR THE LIFE OF THE SYSTEM

MAINTENANCE

CMP DETENTION SYSTEMS SHOULD BE CLEANED WHEN AN INSPECTION REVEALS ACCUMULATED SEDIMENT OR TRASH IS CLOGGING THE DISCHARGE ORIFICE.

ACCUMULATED SEDIMENT AND TRASH CAN TYPICALLY BE EVACUATED THROUGH THE MANHOLE OVER THE OUTLET ORIFICE. IF MAINTENANCE IS NOT PERFORMED AS RECOMMENDED, SEDIMENT AND TRASH MAY ACCUMULATE IN FRONT OF THE OUTLET ORIFICE. MANHOLE COVERS SHOULD BE SECURELY SEATED FOLLOWING CLEANING ACTIVITIES. CONTECH SUGGESTS THAT ALL SYSTEMS BE DESIGNED WITH AN ACCESS/INSPECTION MANHOLE SITUATED AT OR NEAR THE INLET AND THE OUTLET ORIFICE. SHOULD IT BE NECESSARY TO GET INSIDE THE SYSTEM TO PERFORM MAINTENANCE ACTIVITIES, ALL APPROPRIATE PRECAUTIONS REGARDING CONFINED SPACE ENTRY AND OSHA REGULATIONS SHOULD BE FOLLOWED.

ANNUAL INSPECTIONS ARE BEST PRACTICE FOR ALL UNDERGROUND SYSTEMS. DURING THIS INSPECTION, IF EVIDENCE OF SALTING/DE-ICING AGENTS IS OBSERVED WITHIN THE SYSTEM, IT IS BEST PRACTICE FOR THE SYSTEM TO BE RINSED, INCLUDING ABOVE THE SPRING LINE SOON AFTER THE SPRING THAW AS PART OF THE MAINTENANCE PROGRAM FOR THE SYSTEM.

MAINTAINING AN UNDERGROUND DETENTION OR INFILTRATION SYSTEM IS EASIEST WHEN THERE IS NO FLOW ENTERING THE SYSTEM. FOR THIS REASON, IT IS A GOOD IDEA TO SCHEDULE THE CLEANOUT DURING DRY WEATHER.

THE FOREGOING INSPECTION AND MAINTENANCE EFFORTS HELP ENSURE UNDERGROUND PIPE SYSTEMS USED FOR STORMWATER STORAGE CONTINUE TO FUNCTION AS INTENDED BY IDENTIFYING RECOMMENDED REGULAR INSPECTION AND MAINTENANCE PRACTICES. INSPECTION AND MAINTENANCE RELATED TO THE STRUCTURAL INTEGRITY OF THE PIPE OR THE SOUNDNESS OF PIPE JOINT CONNECTIONS IS BEYOND THE SCOPE OF THIS GUIDE.

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