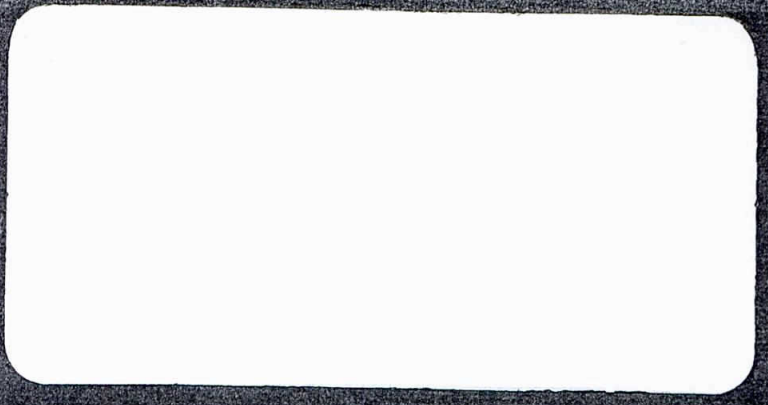
S-1



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Consulting Engineers

WK GROUP

RENO DRAINAGE STUDY

ANALYSIS OF THE
2ND STREET (AT THE RAILROAD CROSSING)
DRAINAGE DEFICIENCY AREA

Area 10 of 21

August 1985

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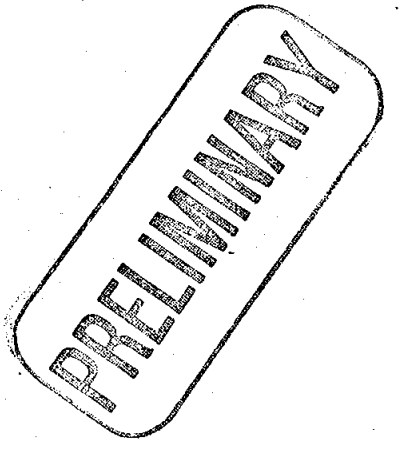


A. INTRODUCTION

The 2nd Street drainage deficiency area located at the railroad overpass is a small drainage basin of approximately 17 acres in the heart of the western Reno manufacturing area. The site in question is just east of the West 2nd Street intersection with West 4th Street where the Southern Pacific Railroad overpass crosses 2nd Street. The drainage basin includes a narrow strip of land between the railroad and West 4th Street that drains to the low point on 2nd Street. (Refer to Figure 1.)

B. FIELD ANALYSIS

The drainage basin is in the older part of the City with significant existing development. The Present Land Use Map indicates the area to be 50% commercial and 50% residential. The Future Land Use Map shows the area to be 100% distribution and warehousing. This change would cause a 13% increase in storm runoff assuming maximum development.

There is a major storm drain system just west of the drainage boundary. An 18-inch to 24-inch storm drain runs south on Stoker Avenue tying to a 36-inch storm drain on West 4th Street flowing east. It turns south, just west of the intersection of West 2nd Street, crossing Dickerson Drive and discharges into the Truckee River.

East of the West 2nd Street intersection, flows on West 4th Street flow east in an 18-inch storm drain that is part of the Nevada State Department of Transportation's system.

The area south of West 4th Street and east of the West 2nd Street intersection flows south and east onto 2nd Street to a low point at the railroad overpass. Storm flows also flow from approximately 1,000 feet east on 2nd Street to this low point.

There is a Nevada State Department of Transportation stormwater pump station located at this low point. Although the pump station is shown on a set of their plans, there is no specific information available other than that there are two 4-inch pumps located inside the station. Neither the maintenance department or the engineering department know the pump capacities or even when the pump station was constructed (perhaps in the early 1960's.) The pumps are Kimbell Kroch manufactured by Victor Equipment Company. We have not been able to track down the company or any additional information about the pumps.

C. ESTIMATED STORM RUNOFF

Estimated storm runoff is calculated for both the 5-year and the 100-year storm at the main node on West 2nd Street. This node is shown on Figure 1, the project boundary map. Table 1 summarizes the known data, giving location, description of the node, and estimated storm runoff at the node. The capacity of the existing pump station on West 2nd Street is unknown.

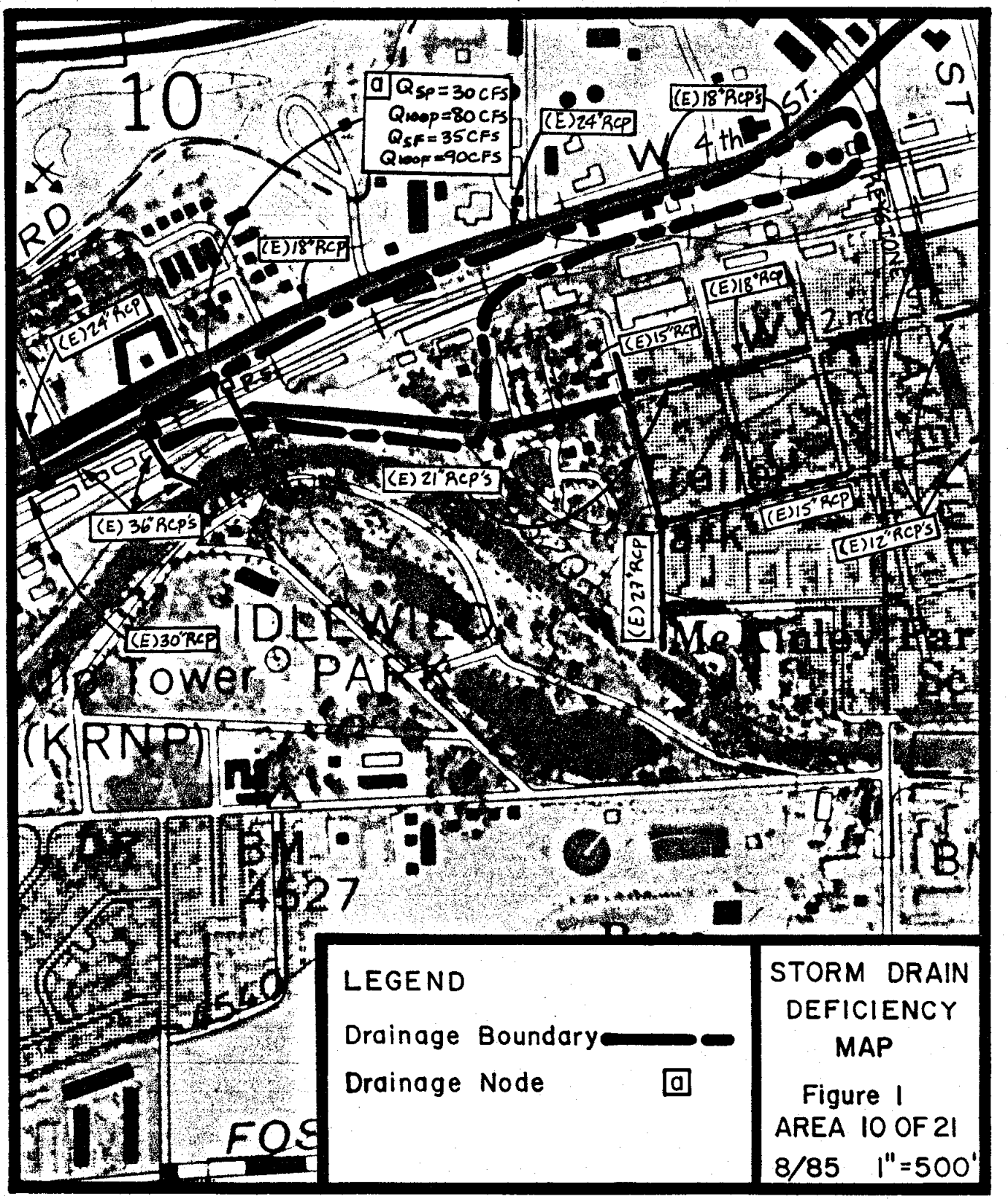
It should be noted that the storm runoffs are based on both winter (wet) and summer (dry) storm events which give essentially identical results (refer to the wet and dry isopleth map in the Reno Drainage Study Preliminary Report: Deficiency Areas Within the City Limits, December 1984.)

D. CONCLUSIONS

Apparently occasional flooding occurs at this low point on West 2nd Street indicating that the capacity of the existing pump station is inadequate. Some sort of field tests may be possible to estimate the pump station capacity. If the pumps are close to 20 years old, it may be advisable to replace them with new pumps of sufficient capacity. It may also be possible to install a gravity storm drain from the low point to the river.

TABLE 1. 2nd Street - Existing Storm Drainage Facilities

Node and Location	Existing Storm Drainage System	Existing Capacity (cfs)	Estimated Flows Present Land Use		Estimated Flows Future Land Use	
			Q_5 (cfs)	Q_{100} (cfs)	Q_5 (cfs)	Q_{100} (cfs)
a - West 2nd St. @ R.R. overpass	Storm drain pump station	Unknown	30	80	35	90


10
a
Q_{SP} = 30 CFS
Q_{100P} = 80 CFS
Q_{SF} = 35 CFS
Q_{100F} = 90 CFS
(E) 24" RCP
(E) 18" RCP's
4th ST.
RD
(E) 18" RCP
(E) 24" RCP
(E) 18" RCP
(E) 15" RCP
(E) 21" RCP's
(E) 36" RCP's
(E) 15" RCP
(E) 12" RCP's
(E) 27" RCP
(E) 30" RCP
Tower
PARK
(KRNP)
BM
4527
FOS
LEGEND
Drainage Boundary
Drainage Node
a
STORM DRAIN DEFICIENCY MAP
Figure 1
AREA 10 OF 21
8/85 1"=500'