APPENDIX A
PROBLEM AREAS DESCRIPTION

PROBLEM AREAS DESCRIPTION

Problem No. 1

Location and Description

Problem No. 1 is located in a large pothole area located both north and south of 62nd St. E. between 187th St. and 189th St. The pothole fills during large volume storm events causing 62nd St. and 187th Ave. (a private road) to be covered with water to the point of inaccessibility. Most years the pothole fills enough that standing water is visible in the low areas, but the water does not typically cover the roadway. Occasionally the water does rise to the point of covering 62nd St., blocking access to the house at the end of 62nd St. In 1992 62nd St. was raised on rock fill and a 36" storm pipe was installed as part of a resurfacing project. The storms of December 1996 and January 1997 caused the water to rise 4.5 feet above the new roadway elevation. Vehicle access was eliminated for several months until the water level dropped to the roadway elevation.

Although a pump could be installed in Pothole 1 to pump runoff out of the basin and into Lake Tapps, it will not solve all of the flooding problems. The pump will serve to evacuate the water much quicker than just relying on infiltration and evaporation, which is the only way currently for water to exit the basin. However, it will not keep the road from being covered for a short time period during very large storm events. Other efforts must be made within the basin to store or divert runoff before it gets to the pothole. Development within the basin should be required to release runoff more slowly than pre-development rates to prevent exacerbating the problem. Particular attention should be given to the very large volume storm events because small volume high intensity events do not fill the pothole. This effort should be basin wide and not be limited to the City limits. Therefore, a policy of cooperative plan review should be implemented by the City of Bonney Lake and Pierce County. This is especially important since several of the mitigation opportunities and over half of the basin area lie within the County rather than in the City.

The Pothole 1 basin geology was reviewed based on an available soils report for the Lakeridge Junior High School site. A series of test pits and test borings were made in 1979 for the soils report prepared by Grover C. Way, P.E. on the storm drainage system at Lakeridge Junior High School. The soils consisted of a surface mantle of coarse-grained granular outwash soils, underlain by Vashon Glacial Till. The surface layer is a mixture of sands, gravel and cobbles in a loose condition. This layer is very permeable and ranges from a couple of feet to 20 feet thick. Below the outwash layer is a layer of Vashon Glacial Till. This material is a well-graded mixture of soils ranging from silts to boulders in size. Having been glaciated, it is normally very dense, and is commonly cemented. The permeability of the till is very low compared to that of the outwash layer. The till depth went beyond the depth of exploration; it is commonly over 30 ft thick.

Possible Solutions

- Raise 62nd St. where it crosses the pothole (approx. 200' long). This solution only solves one problem, access to the house at the end of 62nd St.. The private access road inundation problem will not be solved and the house that almost flooded could be affected in a larger (higher runoff volume) event. As development increases in the basin, the roadway would

probably need to be raised again. This solution cost is too high for the limited benefit it produces.

- Pump over the hill and into an improved drainage system along 64th St. and into Lake Tapps. This solution will benefit all area in the basin at risk of being flooded. The pump station would not be able to completely eliminate flooding in the pothole, but it would be a reliable mechanism for evacuating impounded water relatively quickly.
- Construct an access driveway to the isolated house at the end of 62nd St. through an easement from 189th Ct. This would be a temporary fix to the problem at best. It does not address the full problem in the basin.
- Build additional storage elsewhere in the basin. This solution should be evaluated in more detail. Storage in the basin is a necessary part of any solution option. At a minimum, storage ponds with infiltration should be used to attenuate the flow to the pothole and to utilize the natural storage within the outwash soils. The geology of this basin is such that the infiltrated water will penetrate about 10 feet before it hits the low permeability till and moves horizontally towards the pothole at the low point of the basin. To build enough storage volume throughout the basin to eliminate the flooding would be prohibitively expensive, but storage could be used in conjunction with other options.
- Divert some of the runoff out of the basin. This option was looked at closely because it would be cost effective if flows could be directed out of the basin by gravity before entering the pothole. From preliminary review in this plan, no locations were found where a significant volume of water could easily be diverted from the pothole.

A riser inlet on the pipe on the west side of Myers Rd. could be installed, creating stormwater storage. The depression formed where the ravine intersects the road fill is a logical place to store water. During site investigation, there did not appear to be any structures that were in danger of flooding if the inlet was raised a few feet. A survey of the site should be completed to verify that no structures would be affected.

A storage pond site exists adjacent to the ditch line that discharges flows from the county development in the northwest corner of the basin (subarea 1) to Pothole 1. Additional storage could be provided with a dedicated detention pond that would attenuate the peak flows and would improve water quality by encouraging sedimentation and infiltration.

Pothole 1 basin solutions need to provide longer term storage because the current detention facilities store water for shorter duration storms, which serves to reduce the peak flow but does very little to reduce the volume of flow to the pothole. In order to significantly reduce the volume within the time it takes the pump station to evacuate runoff, storage facilities should be designed to store water for a longer period (1 week or beyond).

The most significant management practice that can be implemented in the PH 1 drainage basin is to retain pervious area vegetative cover. As the area of impervious surface increases, the runoff volume will increase. The peak flows can be adequately controlled by storage with slow release, but the total runoff volume will be increased. Pothole flooding problems are usually volume problems. Attenuating the flow from large storm events does little for pothole flooding problems because the water will eventually flow to the low point in the basin. Retaining native soils with mature forest cover is the best way to reduce runoff volume. Replanting of disturbed areas also helps reduce volumes, but to a much lesser degree. The City of Bonney Lake should consider requiring a

minimum set aside of forested land on development sites within a pothole drainage area. This should be structured consistent with requirements of a revised sensitive areas ordinance.

Problem No. 2

Location and Description

Problem No. 2 is located in a pothole at the northeast corner of Locust Dr. and 82nd St. This pothole is a portion of a larger pothole that has been segmented by the Locust Dr. roadway fill and extends east of Locust Dr. just north of 82nd. During large storm events the pothole fills, flooding 82nd St. Infiltration is relatively slow, with the pothole draining in a month to a few months, according to City staff. In the past the City pumped flood water up 82nd and into the sanitary sewer system (no longer permitted). In January of 1997 with pumps running around the clock for a week the water was kept just at the elevation of 82nd St. Sand bags kept the water from affecting a house on the south side of 82nd St.

Possible Solutions

- Install a small (1-2cfs) pump station to pump water up 82nd St. to the east, then down an access road to the north on the east side of the school. Here the water could be discharged to flow overland into the Bonney Lake overflow channel or be stored in a storage pond adjacent to Bonney Lake Elementary. This option would require hydrologic/hydraulic analysis of the receiving basin to determine the possible effects of this diversion.
- Create additional storage elsewhere in the basin. This pothole drains in about a month, so it may be possible to utilize added storage elsewhere in the basin. An analysis of the subsurface geology in selected areas would be necessary to determine the feasibility of infiltration. The basin is small (only 54 acres), so a comparatively small amount of added storage with infiltration would help flooding at the pothole. Storage could also be created by benching out the pothole, creating extra storage within the pothole itself. This benched out area could possibly be used for environmental mitigation. A detailed survey of the area should be conducted to establish an accurate stage-storage curve for Pothole 4, and the relative elevations of adjacent roads, driveways and houses within the pothole area.
- Increase the depth of the pothole by raising 82nd St. by 1' to 1.5'. This option would reduce the frequency of roadway inundation by increasing storage capacity.

Problem No. 3

Location and Description

Problem No. 3 is located on 81st St. at 182nd Ave. 81st St. is a small cul-de-sac on the west side of 182nd Ave. that has no drainage system. Stormwater runoff sheet flows to the low point in the cul-de-sac, then down a driveway to a house on the north side of 81st St. Some water also flows onto this property from 182nd St.

Possible Solutions

- Improve the cul-de-sac drainage by installing curbs or berms to keep the water within the road ROW. At the low point install a catch basin on both sides of 81st St. Install a drainage system to the south that connects with the drainage system on 182nd Ave. A survey is needed to confirm that the grade is sufficient to connect the cul-de-sac drainage to the 182nd drainage system.
- This alternative is similar to the above solution, but would install a drainage system to the pothole area to the north. Hydraulic analysis is needed to determine whether thepothole can accommodate this runoff diversion without causing affecting structures in that area.

Problem No. 4

Location and Description

Problem No. 4 is located on 96th St. at 204th Ave., in the Cedar View development. Nuisance ponding occurs on two properties. From field and topographic mapping review, it appears that this area is a naturally low-lying. Runoff flows a few hundred feet to the south and under Highway 410 to a wetland area just south of the Highway. Two houses and highway 410 are in the flow path, causing obstruction of runoff. This area stays wet for several months of the year because of the very low drainage gradient to the south.

Possible Solution

- Provide improved drainage through the properties to the south by obtaining drainage easements and improving conveyance facilities. Install a catch basin and pipe on the south side of 96th St. to collect/convey the water to 97th St. to the south. Improve the ditch or install a pipe along 204th St. to convey that flow to the existing culvert across Highway 410. Hydrologic and hydraulic analyses would be need to determine facilities sizes and elevations, and to verify that the existing culvert under Highway 410 is adequate.

This area has always been a local low area that collects water. The City of Bonney Lake has not caused these problems. This drainage problem should be addressed by the residents who are affected.

Problem No. 5

Location and Description

Problem No. 5 is located between 91st St. and 92nd St., in the Cedar View development. Nuisance ponding occurs on private property threatening to flood houses. No structures have been impacted in past events.

Possible Solution

According to City staff, this problem has been remedied. A pipe had become clogged with sediment, reducing its hydraulic capacity and causing the ponding. There have been no problems reported at

this location since the City crew cleaned the pipe. More frequent drainage system maintenance may be needed to maintain the current function.

Problem No. 6

Location and Description

Problem No. 6 is located at 18214 95th Loop. This property sits at the low point in the PH 10 drainage basin. Some ponding has probably always occurred at this location, even before any development in the area. Development has increased the impervious surface area within the basin causing increased runoff volumes and ponding problems to worsen. Even during large storm events there is only a small amount of standing water.

Possible Solutions

- Pump runoff to 184th drainage system
- Pump runoff to nearby Sky Island storage pond
- Construct infiltration gallery
- Construct storage pond on vacant lot
- Acquire undeveloped property

Ponding in this area could be alleviated by either pumping from low area or increasing infiltration. Because this problem is occurring on a private undeveloped lot , a solution for it is not included in the CIP (in accordance with City drainage policy).

Problem No. 7

Location and Description

Problem No. 7 is located on 109th St. just west of 193rd Ave. in Bonney Lake Manor. Ponding is reported to occur during most winters. Runoff impounds on 109th St. causing an impediment to traffic and nuisance ponding. The problem has been attributed to an undersized and/or malfunctioning infiltration system. A City maintenance crew attempted to solve the problem in 1996 by adding 6" ADS pipe and one catch basin to connect the infiltration system to the nearest catch basin on 193rd Ave. Apparently this has helped reduce the problem, but has not solved it.

The soils in this area are Everett Gravelly Sandy Loam, 6 to 15 percent and Indianola Loamy Sand, 6 to 15 percent. These soils were formed of sandy glacial outwash material on broad upland areas. The storm drainage design of Bonney Lake Manor shows a typical infiltration system designed to a 25-year event standard, which was the County standard at that time. As in many areas of Bonney Lake, the permeable top layer of soil is typically only 3 to 4 feet deep. The permeable outwash layer is typically underlain by glacial till. In depression areas, water collects on the underlying till layer causing a perched water table. In these areas it is important to consider the infiltration rate of water through the till layer which is much less than that of the outwash layer. In areas where outwash soils are underlain by till, the lateral movement of groundwater is typically much larger than the vertical movement at the till layer interface.

Based on review of available information, it is not clear whether the existing system in undersized, plugged, or whether infiltration is not feasible in this location. A geotechnical analysis of the subsurface topography is needed to confirm the appropriate design solution.

Possible Solutions

- Excavate and replace the existing infiltration system. Control future siltation effects through more frequent maintenance.
- Install a larger infiltration system, adding an additional infiltration trench of equal size to the east would approximately double the infiltration area.
- Install an overflow drainage system convey excess runoff to a low point just north of 109th St., or to a lower infiltration system to the southeast on 193rd St. Building a drainage system would be expensive and could move the problem rather than solving it. A hydrologic and hydraulic analysis would be needed to determine possible downstream effects of this alternative.

Problem No. 8

Location and Description

Problem 8 is located at the corner of 183rd Ave. and 77th St. A low spot on the southeast corner lot fills with water causing nuisance ponding. No flooding of the structure or roadway has occurred. The area of inundation is adjacent to 77th St. The road embankment of 77th St. obstructs water from flowing toward Bonney Lake and causes ponding to occur.

Pierce County soils maps indicate surficial soils in this area are Alderwood Gravelly Sandy Loam. These soils are moderately well drained in the first 25 to 60 inches, and are typically underlain by glacial till. The water table is typically perched above the low-permeability till layer, but tends to drain laterally flow towards low-lying pothole areas.

Possible Solutions

- Install an infiltration system along the south side of 77th St. adjacent to the ponding area.
- Install a culvert across 77th St. to convey runoff to Bonney Lake. The main issue with this solution is that it could impact private property on the north side of 77th St. without full extension of the improved drainage system to the lake.

Problem No. 9

Location and Description

Problem 9 lies within a pothole located at 8311 184th St. During high volume storm events the pothole fills potentially affecting a house located at the low area. During the flooding of January 1997, water was pumped across 184th St. and into another pothole. This pumping transferred water into the PH 4 drainage basin which also had flooding problems at the corner of Locust Dr. and 82nd St.

The flooding problem does not originate on public property and there is no flooding of public facilities. There has been inundation problems since the house was constructed, although none of the other occurrences were as severe as the 1997 event. After the 1997 event, the affected property owner constructed a system of pumps, tanks and infiltration trenches to reduce the flooding problem. Since that time, no problems have been reported.

Possible Solution

If problems are documented to persist, City should consider improvement of the ditch along 84th St. to 183rd Ave., installing a culvert under 84th St., and constructing a series of infiltration trenches along 183rd to the south.

Problem No. 10

Location and Description

Problem 10 is located at 20201 Church Lake Dr. on the west side of the road. An undersized culvert that extends to Lake Tapps restricts flow and backs up water onto private property. A ditch on the west side of Church Lake Dr. receives flow from two pipes as well as some surface runoff. Outflow from the ditch is currently through a 12-inch pipe that flows into a nearby catch basin. The 12-inch outfall pipe extends approximately 350 feet through Church Lake Park where it discharges into Lake Tapps.

Possible Solutions

- Install a parallel pipe through the park of adequate diameter to convey the necessary peak flow. A hydrologic/hydraulic analysis is needed to establish design flows and to confirm estimated pipe sizing needs. A larger catch basin will be needed to tie both outlet pipes to the existing drainage system.
- Remove the existing pipe and install a larger pipe that can convey the necessary peak flow. A larger catch basin may be needed to accommodate the larger pipe.
- Install either solution above, except that rather than installing pipe all the way to the lake, daylight the pipe in the park and construct an open channel conveyance section.

APPENDIX B
CITY OF BONNEY LAKE
STORMWATER POLICY

CITY OF BONNEY LAKE STORMWATER POLICY

Policy Objectives

The City of Bonney Lake does not attempt to control 100 percent of the stormwater that falls within the City Limits. We do the following:

1. Minimize the stormwater impacts from new development
2. Keep public roadways clear of stormwater for safety reasons
3. Maintain existing drain ways in public right-of -way and public easements
4. Provide supervision for private on-site improvements

Development

In August, 1996, the City adopted the Pierce County Stormwater Management Manual as the official document to be used for stormwater management. The Manual requires that all new developments provide stormwater control for their developed area. The goal of this provision is to minimize the amount of additional runoff resulting from development. This is accomplished by using various techniques such as infiltration, retention, detention or directional control into existing channels. Treatment of runoff water is also part of the requirements. Adoption of this manual was brought about by Department of Ecology requirements for improving the quality of waters draining into Puget Sound, and is enforced during the City's development review process.

Prior to adoption of the current manual, storm systems were designed for 25-year events. The new standards require design for 100-year events. All existing systems are grand-fathered into acceptance.

No system is designed to handle torrential downpours of extreme intensity. Standing water and temporary inundation of stormwater systems is expected.

The City is not responsible for all water that falls inside the City limits. Ponding that occurs on private property in natural low-lying areas is the property owner's to deal with.

No homes are allowed to be constructed within the 100-year flood plain as it is defined at the time of plan approval. This is a provision of the National Flood Insurance Program. This does not prohibit homes from being built in areas that may experience high water, such as inside a 500-year flood plain boundary. The City cannot prevent homes from being built in wet areas, unless defined as a 100-year flood plain or a protected wetland. Property owners have the right to develop their property for its intended use.

Roadways

For the safety of the traveling public, it is necessary that roadways be kept clear of standing water. For this reason, all roadways are designed with a slight crown to direct water from the traveling surface to the side of the roadway. At that point, it enters either aroadside ditch or storm drain catch basin.

Water contained in ditches and culverts travels toward the natural low point. Ditches and street and driveway culverts merely assist the runoff in reaching its natural destination. Public drainage facilities do not redirect water from its natural basin. To do so would require pumping.

In ditched areas, placing culverts and backfilling existing ditches is not allowed. Roadside ditches are necessary to receive and control roadway runoff. Any areas where ditches along the right-of-way have been tightlined may be removed by City crews at any time if necessary without compensation.

Do not make improvements along the right-of-way that force water to either remain on the paved surface or run down the edge of the pavement. The former results in standing water on the roadway, the latter creates a destructive condition called edge raveling. Any such improvement must provide adequate drainage channels.

Paved road approaches create a direct connection between the draining road surface and the resident's driveway. Depending on the location of the road approach, this connection can become an outlet for roadway runoff. Anyone paving their road approach must be aware of this possibility, and shall make provisions for this in the road approach pavement grading and design.

Stormwater Utility

The Stormwater Utility provides for maintenance of existing drain ways and culverts. City crews maintain various public drainage easements throughout the City. These are existing natural drainage ways that route water to its normal destination.

The City's Operations and Maintenance Department is continuously compiling a list of residential areas having stormwater problems. These areas may eventually become projects in a stormwater capital improvement plan. Residents may propose projects to be considered for the capital improvement plan.

In prioritizing the plan projects, each will be rated according to the following criteria:

1. How long the problem has existed
2. Recurrence frequency
3. Magnitude of affected area

As this program is publicly funded, those projects that provide the greatest good for the greatest number, most frequently, will rate very high.

Supervision

Do not remove sewer cleanout caps in order to provide additional stormwater drainage. This is a violation of Bonney Lake Municipal Code Section 13.12.270.

There are areas, both developed and undeveloped, where stormwater runoff flows across the property. It is the property owners responsibility to ensure that this water is allowed to continue flowing through its natural course, even after development.

Property owners cannot redirect surface runoff water onto a neighboring property without an agreement with the neighbor to do so. This type of issue is a civil matter between the two property owners.

APPENDIX C
CIP PROJECT
COST ESTIMATES

City of Bonney Lake
Stormwater Comprehensive Plan

Date: Revised 9/14/00
Project No.: 98-108
Client: Bonney Lake
Field Name: BL Costs.xls

Estimated Cost for CIP No. 1

Item Description	Unit	Quantity	Unit Price	Extended Amount
Pump Station				
Access Road	LS	1	$6,000	$6,000
Pumps (1000 gm/50 ft dynamic lift)	EA	2	$6,000	$12,000
Inlet Structure and Pump Housing	LS	1	$20,000	$20,000
Control Systems and Power	LS	1	$25,000	$25,000
Fencing	LS	1	$2,000	$2,000
Conveyance System				
10" HDPE Force Main	LF	800	$40	$32,000
15" Drainage Pipe	LF	200	$40	$8,000
Improve Ditch	LF	400	$15	$6,000
Catch Basins	EA	4	$1,000	$4,000
Road Crossing/Restoration	LS	2	$4,000	$8,000
Outfall	LS	1	$2,000	$2,000

Subtotal	$125,000
Mobilization (5.5%)	$6,875
Subtotal	$131,875
Allowance for Undefined (10%)	$13,188
Contingency (15%)	$19,781
Subtotal	$164,844
Engineering/Administrative (15%)	$24,727
State Sales Tax (8.6%)	$14,177
Easement	$10,000
Total	$213,747
(Rounded)	$215,000

City of Bonney Lake
Stormwater Comprehensive Plan

Date: Revised 9/14/00
Project No.: 98-108
Client: Bonney Lake
Field Name: BL Costs.xls

Preliminary Cost Estimate for CIP No. 2

Item Description	Unit	Quantity	Unit Price	Extended Amount
Road Work				
Raise 82nd St. E. by 1 foot	LF	100	$115	$11,500
Road Cuts	EA	1	$1,000	$1,000
Drainage System				
Catch Basin	EA	3	$1,000	$3,000
12" HDPE Drainage Pipe	LF	60	$50	$3,000
Bench Excavation				
Excavation	CY	8070	$4	$32,280
Revegitation	SY	10000	$3	$30,000

Subtotal	$80,780
Mobilization (5.5%)	$4,443
Subtotal	$85,223
Allowance for Undefined (10%)	$8,522
Contingency (15%)	$12,783
Subtotal	$106,529
Engineering/Administrative (15%)	$15,979
State Sales Tax (8.6%)	$9,161
Total	$131,669
(Rounded)	$132,000

City of Bonney Lake
Stormwater Comprehensive Plan

Date: Revised 9/14/00
Project No.: 98-108
Client: Bonney Lake
Field Name: BL Costs.xls

Preliminary Cost Estimate for CIP No. 3

Item Description	Unit	Quantity	Unit Price	Extended Amount
Conveyance System				
12" Drainage Pipe	LF	575	$48	$27,600
Catch Basin	EA	3	$1,000	$3,000
Roadway Improvements				
Shoulder Improvements	LF	100	$10	$1,000

Subtotal	$31,600
Mobilization (5.5%)	$1,738
Subtotal	$33,338
Allowance for Undefined (10%)	$3,334
Contingency (15%)	$5,001
Subtotal	$41,673
Engineering/Administrative (15%)	$6,251
State Sales Tax (8.6%)	$3,584
Total	$51,507
(Rounded)	$52,000

City of Bonney Lake
Stormwater Comprehensive Plan

Date: Revised 9/14/00
Project No.: 98-108
Client: Bonney Lake
Field Name: BL Costs.xls

Preliminary Cost Estimate for CIP No. 4

Item Description	Unit	Quantity	Unit Price	Extended Amount
Infiltration System				
Trench System	LF	100	$120	$12,000
Manhole	EA	1	$1,600	$1,600
Subtotal				$13,600
Mobilization (5.5%)				$748
Subtotal				$14,348
Allowance for Undefined (10%)				$1,435
Contingency (15%)				$2,152
Subtotal				$17,935
Engineering/Administrative (15%)				$2,690
State Sales Tax (8.6%)				$1,542
Total				$22,168
(Rounded)				$23,000

City of Bonney Lake
Stonmwater Comprehensive Plan

Date: Revised 9/14/00
Project No.: 98-108
Client: Bonney Lake
Field Name: BL Costs.xls

Preliminary Cost Estimate for CIP No.5

Item Description	Unit	Quantity	Unit Price	Extended Amount
Collection System				
Catch Basin	EA	1	$1,000	$1,000
Infiltration System				
Trench System	LF	50	$100	$5,000

Subtotal	$6,000
Mobilization (5.5%)	$330
Subtotal	$6,330
Allowance for Undefined (10%)	$633
Contingency (15%)	$950
Subtotal	$7,913
Engineering/Administrative (15%)	$1,187
State Sales Tax (8.6%)	$680
Total	$9,780
(Rounded)	$10,000

City of Bonney Lake
Stormwater Comprehensive Plan

Date: Revised 9/14/00
Project No.: 98-108
Client: Bonney Lake
Field Name: BL Costs.xls

Preliminary Cost Estimate for CIP No 6

Item Description	Unit	Quantity	Unit Price	Extended Amount
Conveyance System				
30" Pipe	LF	20	$80	$1,600
24" Culvert Pipe	LF	350	$60	$21,000
Catch Basin, Type 2, 60 inch Diam.	EA	1	$3,000	$3,000
Subtotal				$25,600
Mobilization (5.5%)				$1,408
Subtotal				$27,008
Allowance for Undefined (10%)				$2,701
Contingency (15%)				$4,051
Subtotal				$33,760
Engineering/Administrative (15%)				$5,064
State Sales Tax (8.6%)				$2,903
Total				$41,727
(Rounded)				$42,000

APPENDIX D
LAND USE TABULATION

Land Use Designation (a)
City of Bonney Lake

(a) Derived from Pierce County GIS

LAND USE DESIGNATIONS	COUNT #	AVE_AREA ft^2	SUM_AREA ft^2	AVE_AREA acre	SUM_AREA acre	Portion of Total Area %	%
AGRICULTURE.	1	438648	438648	10.07	10.07	0.28	
AM-PM TYPE OF CONVENIENCE STORE WITH GAS AS PRIMARY FU	1	55414	55414	1.27	1.27	0.04	
ARTERIAL STREETS.	4	22316	89264	0.51	2.05	0.06	
AUTOMOBILE PARKING.	1	2032	2032	0.05	0.05	0.00	
AUTOMOBILE REPAIR SERVICES.	1	9576	576	0.22	0.22	0.01	
BANKING SERVICES.	4	35161	140642	0.81	3.23	0.09	
BARBER SERVICES.	1	27242	27242	0.63	0.63	0.02	
BEAUTY SERVICES.	1	9245	9245	0.21	0.21	0.01	
CASHIERS BOOTH	1	27450	27450	0.63	0.63	0.02	
CHURCHES, SYNAGOGUES AND TEMPLES.	2	127372	254744	2.92	5.85	0.16	
COFFEE SHOP/CAFE	1	29993	29993	0.69	0.69	0.02	
COMMERCIAL LAND WITH RESIDENCE CALCULATED UNDER MISCELLANEOU	1	41604	41604	0.96	0.96	0.03	
COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOE	6	22223	133338	0.51	3.06	0.09	
COMMUNITY SHOPPING CENTER: REF. MANUAL	3	224639	673917	5.16	15.47	0.44	
CONVENIENT TO NEIGHBORHOOD SHOPPING CENTER: REF. MANUAL	1	720759	720759	16.55	16.55	0.47	
DANCING SCHOOLS.	1	29303	29303	0.67	0.67	0.02	
DENTAL SERVICES.	1	17922	17922	0.41	0.41	0.01	
DESIGNATED FOREST LAND, NEVER CHANGE THIS USE CODE.	6	1645274	9871645	37.77	226.62	6.39	6.39
DESIGNATE SUSE FOR DUPLEX (2 FAMILY UNITS).	15	16294	244409	0.37	5.61	0.16	
DESIGNATES USE FOR FOURPLEX (4 FAMILY UNITS).	2	22276	44553	0.51	1.02	0.03	
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	2446	21698	53069073	0.50	1218.30	34.36	34.36
DRAINFIELDS/CATCH BASINS, IN RESIDENTIAL DEVELOPMENTS.	6	26304	157825	0.60	3.62	0.10	
DRINKING PLACES (TAVERNS - ALCOHOLIC BEVERAGES).	1	13904	13904	0.32	0.32	0.01	
EDUCATIONAL SERVICES	2	1029732	2059464	23.64	47.28	1.33	1.33
ELECTRIC TRANSMISSION RIGHT-OF-WAY.**	1	75821	75821	1.74	1.74	0.05	
EXECUTIVE, LEGISLATIVE AND JUDICIAL FUNCTIONS.	2	110115	220230	2.53	5.06	0.14	
FAST FOOD RESTAURANTS/CARRY OUT.	4	29899	119594	0.69	2.75	0.08	
FIVE (5) OR MORE FAMILY UNITS (NON-SUBSIDIZED) APPRAISED BY	7	48826	341785	1.12	7.85	0.22	
GENERAL WAREHOUSING AND STORAGE.	2	62528	125056	1.44	2.87	0.08	
GOVERNMENTAL SERVICES	1	16018	16018	0.37	0.37	0.01	
GREENBELTS AND COMMON AREAS IN RESIDENTIAL AREAS.	1	4203	4203	0.10	0.10	0.00	
GROCERIES (WITH OR WITHOUT MEAT).	3	105642	316926	2.43	7.28	0.21	
HARDWARE.	1	16372	16372	0.38	0.38	0.01	
HIGHWAY AND STREET RIGHT-OF-WAY	7	7918	55423	0.18	1.27	0.04	
IDENTIFIES THOSE PARCELS OF LAND THAT ARE UNDEVELOPED. REF MA	9	440265	3962389	10.11	90.96	2.57	2.57
INSURANCE CARRIERS.	1	22659	22659	0.52	0.52	0.01	
LAKES (NATURAL OR MANMADE, MINIMUM SIZE - 1 ACRE	8	3012540	24100322	69.16	553.27	15.60	15.60
LAND THAT FORMERLY HAD DWELLING OR MOBILE HOME ON IT.	7	52037	364262	1.19	8.36	0.24	
LIBRARIES.	1	84027	84027	1.93	1.93	0.05	
LIQUOR.	1	25031	25031	0.57	0.57	0.02	
LOCAL ACCESS STREETS.	19	7185	136518	0.16	3.13	0.09	
MEDICAL CLINICS - OUT-PATIENT SERVICES.	4	13585	54340	0.31	1.25	0.04	
MINI-WAREHOUSE	1	38676	38676	0.89	0.89	0.03	
MISCELLANEOUS RETAIL AND OFFICE SPACE.	2	42539	85078	0.98	1.95	0.06	
MOBILE HOME(S) ELIMINATION OF TITLE	103	16373	1686368	0.38	38.71	1.09	1.09
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	415	16831	6984845	0.39	160.35	4.52	4.52
MOTOR VEHICLES (USED CARS ONLY).	1	29338	29338	0.67	0.67	0.02	
NURSERY SCHOOLS.	1	48521	48521	1.11	1.11	0.03	
OPEN OPEN SPACE - GENERAL	1	511000	511000	11.73	11.73	0.33	
OPEN SPACE LAND - FARM AND AGRICULTURE.	8	635513	5084107	14.59	116.72	3.29	3.29
OTHER AUTOMOBILE SERVICES (EXCEPT REPAIR AND WASH), NOT ELSE	1	25391	25391	0.58	0.58	0.02	
OTHER MEDICAL AND HEALTH SERVICES, NOT ELSEWHERE CODED.	1	12664	12664	0.29	0.29	0.01	
OTHER PARKS, NOT ELSEWHERE CODED.	1	126940	126940	2.91	2.91	0.08	
OTHER PROFESSIONAL SERVICES, NOT ELSEWHERE CODED.	1	24896	24896	0.57	0.57	0.02	
OTHER REPAIR SERVICES, NOT ELSEWHERE CODED.	1	27932	27932	0.64	0.64	0.02	
OTHER RETAIL TRADE, AUTOMOTIVE, MARINE CRAFT, AIRCRAFT AND A	1	418081	418081	9.60	9.60	0.27	
OTHER WATER AREAS, NOT ELSEWHERE CODED.	1	698871	698871	16.04	16.04	0.45	
PARKS	1	14423	14423	0.33	0.33	0.01	
PLAYGROUNDS.	2	439873	879746	10.10	20.20	0.57	
POLICE PROTECTION AND RELATED ACTIVITIES.	1	18082	18082	0.41	0.41	0.01	
POSTAL SERVICES.	1	28922	28922	0.66	0.66	0.02	
PRIMARY (ELEMENTARY) SCHOOLS, (GRADE 1 THRU 6).	2	246545	493090	5.66	11.32	0.32	
RAPID RAIL TRANSIT AND STREET RAILWAY RIGHT-OF-WAY. REF. MAN	1	20030	20030	0.46	0.46	0.01	
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	61	59039	3601402	1.36	82.68	2.33	2.33
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECOND	17	17932	304842	0.41	7.00	0.20	
RESTAURANT WITH BAR.	1	16137	16137	0.37	0.37	0.01	
TELEPHONE EXCHANGE STATIONS.	1	62038	62038	1.42	1.42	0.04	
TIRES, BATTERIES AND ACCESSORIES.	2	42855	85711	0.98	1.97	0.06	
UTILITIES.	5	1258948	6294742	28.90	144.51	4.08	4.08
VACANT COMMERCIAL LAND.	33	102869	3394662	2.36	77.93	2.20	2.20
VACANT LAND - CONSERVATION AREAS AND BUILDING RESTRICTIONS.	3	121295	363884	2.78	8.35	0.24	
VACANT LAND - RESIDENTIAL	373	47493	17714944	1.09	406.68	11.47	11.47
VACANT RESIDENTIAL LAND THAT MUST HAVE AN ECOLOGY BAN DEPREC	6	21435	128609	0.49	2.95	0.08	
VETERINARIAN SERVICES.	1	20078	20078	0.46	0.46	0.01	
WATER AREAS	1	387396	387396	8.89	8.89	0.25	
WATER STORAGE. REF. MANUAL	2	66711	133423	1.53	3.06	0.08	
WETLANDS (RECORDED)	6	35790	286323	0.82	6.57	0.19	
	80	77448	6195857	1.78	142.24	4.01	4.01
Totals					3545.69	100.00	93.25

Land Use Designation by Drainage Basin (a)
City of Bonney Lake

(a) Derived from Pierce County GIS

LAND USE DESIGNATIONS	COUNT #	AVE_AREA ft^2	SUM_AREA ft^2	AVE_AREA acre	SUM_AREA acre	Portion of Basin Area %	%
Lake Bonney Drainage Basin - BL							
CHURCHES, SYNAGOGUES AND TEMPLES.	1	124241	124241	2.85	2.85	2.25	
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	2	18583	37167	0.43	0.85	0.67	
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	132	25733	3404717	0.59	78.15	61.68	
LOCAL ACCESS STREETS.	2	9790	19580	0.22	0.45	0.35	
OTHER WATER AREAS, NOT ELSEWHERE CODED.	1	698871	698871	16.04	16.04	12.66	
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	77890	155780	1.79	3.58	2.82	
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	3	3352	10057	0.08	0.23	0.18	
VACANT LAND - RESIDENTIAL.	26	40169	1044905	0.92	23.99	18.93	
	1	24308	24308	0.56	0.56	0.44	
			5519648		126.71	100.00	
Lake Debra Jane Basin - DJ							
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	4	22881	90726	0.52	2.08	0.84	
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	308	23304	7131060	0.53	163.71	65.94	
ELECTRIC TRANSMISSION RIGHT-OF-WAY.**	1	75621	75621	1.74	1.74	0.70	
EXECUTIVE, LEGISLATIVE AND JUDICIAL FUNCTIONS.	1	18170	18170	0.42	0.42	0.17	
GENERAL WAREHOUSING AND STORAGE.	1	16180	16180	0.37	0.37	0.15	
LOCAL ACCESS STREETS.	2	8869	17738	0.20	0.41	0.16	
MOBILE HOME(S) ELIMINATION OF TITLE	8	4873 1	389848	1.12	8.95	3.60	
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	17	79934	1358883	1.84	31.20	12.57	
PLUMBING, HEATING AND AIR CONDITIONING SERVICES.	1	16311	16311	0.37	0.37	0.15	
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	22550	45099	0.52	1.04	0.42	
VACANT LAND - RESIDENTIAL.	34	26482	899703	0.61	20.65	8.32	
	10	754 70	754703	1.73	17.33	6.98	
			10814241		248.26	100.00	
Fennel Creek Basin 1- FC1							
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	254	19861	5042182	0.46	115.76	74.46	
EDUCATIONAL SERVICES	1	435656	435656	10.01	10.01	6.42	
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	1	11018	11018	0.25	0.25	0.16	
PRIMARY (ELEMENTARY) SCHOOLS. (GRADE 1 THRU 6).	1	108144	108144	2.48	2.48	1.59	
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	359682	719364	8.26	16.51	10.60	
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	1	2373	2373	0.05	0.05	0.03	
VACANT LAND - RESIDENTIAL.	20	18465	369301	0.42	8.48	5.44	
	3	29042	87127	0.67	2.00	1.28	
			6786474		155.77	100.00	
Fennel Creek Basin 2- FC2							
AGRICULTURE.	1	438648	438648	10.07	10.07	3.80	
COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	2	17527	35065	0.40	0.80	0.30	
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	373	17126	6388137	0.39	146.65	55.29	
DRAINFIELDS/CATCH BASINS. IN RESIDENTIAL DEVELOPMENTS.	3	14866	44594	0.34	1.02	0.39	
EXECUTIVE, LEGISLATIVE AND JUDICIAL FUNCTIONS.	1	202060	202060	4.64	4.64	1.75	
FIVE (5) OR MORE FAMILY UNITS (NON-SUBSIDIZED) APPRAISED BY COMMERCIAL SECTION.	2	64743	129486	1.49	2.97	1.12	
IDENTIFIES THOSE PARCELS OF LAND THAT ARE UNDEVELOPED.REF MANUAL	1	286884	286884	6.58	6.58	2.48	
MOBILE HOME PARK/COURT APPRAISED BY COMMERCIAL SECTION.	1	590742	590742	13.56	13.56	5.11	
MOBILE HOME(S) ELIMINATION OF TITLE	9	60936	548426	1.40	12.59	4.75	
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	20	19657	393134	0.45	9.03	3.40	
PARKS	1	14423	14423	0.33	0.33	0.12	
PLAYGROUNDS.	1	878730	878730	20.17	20.17	7.61	
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	1	17889	17889	0.41	0.41	0.15	
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	1	6567	6567	0.15	0.15	0.06	
TELEPHONE EXCHANGE STATIONS.	1	62038	62038	1.42	1.42	0.54	
VACANT COMMERCIAL LAND.	4	124808	499224	2.87	11.46	4.32	
VACANT LAND - RESIDENTIAL	19	23384	444301	0.54	10.20	3.85	
VACANT RESIDENTIAL LAND THAT MUST HAVE AN ECOLOGY BAN DEPRECIATION OF 25%.	1	11922	11922	0.27	0.27	0.10	
WETLANDS (RECORDED)	7	19610	137270	0.45	3.15	1.19	
	2	212351	424703	4.87	9.75	3.68	
			11554402		265.25	100.00	
Fennel Creek Basin 3- FC3							
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	49	27256	1335607	0.63	30.66	41.24	
DRAINFIELDS/CATCH BASINS. IN RESIDENTIAL DEVELOPMENTS.	1	36370	36370	0.83	0.83	1.12	
MOBILE HOME(S) ELIMINATION OF TITLE	1	234762	234762	5.39	5.39	7.25	
OPEN SPACE LAND - FARM AND AGRICULTURE.	1	881903	881903	20.25	20.25	27.23	
VACANT LAND - CONSERVATION AREAS AND BUILDING RESTRICTIONS.	1	280223	280223	6.43	6.43	8.65	
VACANT LAND - RESIDENTIAL.	3	156654	469962	3.60	10.79	14.51	

			3238728		74.35	100.00

Fennel Creek Basin 4- FC4

ARTERIAL STREETS.	1	18721	18721	0.43	0.43	0.27
BANKING SERVICES.	1	25253	25253	0.58	0.58	0.37
BEAUTY SERVICES.	1	9245	9245	0.21	0.21	0.13
COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	1	10873	10873	0.25	0.25	0.16
DENTAL SERVICES.	1	17922	17922	0.41	0.41	0.26
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	5	14156	70778	0.32	1.62	1.03
DESIGNATES USE FOR FOURPLEX (4 FAMILY UNITS).	1	15949	15949	0.37	0.37	0.23
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	94	37188	3495629	0.85	80.25	50.98
FIVE (5) OR MORE FAMILY UNITS (NON-SUBSIDIZED) APPRAISED BY COMMERCIAL SECTION.	3	25582	76747	0.59	1.76	1.12
IDENTIFIES THOSE PARCELS OF LAND THAT ARE UNDEVELOPED.REF MANUAL	1	1449826	1449826	33.28	33.28	21.14
LOCAL ACCESS STREETS.	2	5809	11617	0.13	0.27	0.17
MEDICAL CLINICS - OUT-PATIENT SERVICES.	2	9085	18170	0.21	0.42	0.26
MISCELLANEOUS RETAIL AND OFFICE SPACE.	1	73215	73215	1.68	1.68	1.07
MOBILE HOME(S) ELIMINATION OF TITLE	1	23608	23608	0.54	0.54	0.34
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	7	13838	96865	0.32	2.22	1.41
NURSERY SCHOOLS.	1	48521	48521	1.11	1.11	0.71
OTHER MEDICAL AND HEALTH SERVICES, NOT ELSEWHERE CODED.	1	12664	12664	0.29	0.29	0.18
OTHER SEWAGE DISPOSAL, NOT ELSEWHERE CODED.	1	22589	22589	0.52	0.52	0.33
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	1	14631	14631	0.34	0.34	0.21
RESTAURANT WITH BAR.	1	16137	16137	0.37	0.37	0.24
VACANT COMMERCIAL LAND.	4	34135	136621	0.78	3.14	1.99
VACANT LAND - RESIDENTIAL.	26	44127	1147296	1.01	26.34	16.73
VETERINARIAN SERVICES.	1	20078	20078	0.46	0.46	0.29
	1	26898	26898	0.61	0.61	0.39
			6859546		157.47	100.00

Highway 410 Basin 1 - HW1

AM-PM TYPE OF CONVENIENCE STORE WITH GAS AS PRIMARY FUNCTION	1	55414	55414	1.27	1.27	0.99
ARTERIAL STREETS.	1	9402	9402	0.22	0.22	0.17
BARBER SERVICES.	1	27242	27242	0.63	0.63	0.49
CASHIERS BOOTH	1	27450	27450	0.63	0.63	0.49
COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	3	29203	87610	0.67	2.01	1.57
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	162	19378	3138970	0.44	72.06	56.26
DRAINFIELDS/CATCH BASINS. IN RESIDENTIAL DEVELOPMENTS.	1	14677	14677	0.34	0.34	0.26
FAST FOOD RESTAURANTS/CARRY-OUT.	1	22484	22484	0.52	0.52	0.49
FIVE (5) OR MORE FAMILY UNITS (NON-SUBSIDIZED) APPRAISED BY COMMERCIAL SECTION.	3	37162	111487	0.85	2.56	2.00
GENERAL WAREHOUSING AND STORAGE.	1	22589	22589	0.75	0.75	0.58
GOVERNMENTAL SERVICES	1	16018	16018	0.37	0.37	0.29
INSURANCE CARRIERS.	1	22589	22589	0.52	0.52	0.41
LAND THAT FORMERLY HAD DWELLING OR MOBILE HOME ON IT.	2	33138	66275	0.76	1.52	1.19
LIQUOR.	1	25031	25031	0.57	0.57	0.45
LOCAL ACCESS STREETS.	2	10671	21342	0.24	0.49	0.38
MEDICAL CLINICS - OUT-PATIENT SERVICES.	2	18085	36171	0.42	0.83	0.65
MINI-WAREHOUSE	1	38676	38676	0.89	0.89	0.69
MISCELLANEOUS RETAIL AND OFFICE SPACE.	1	11883	11883	0.27	0.27	0.21
POLICE PROTECTION AND RELATED ACTIVITIES.	1	18062	18062	0.41	0.41	0.32
POSTAL SERVICES.	1	28922	28922	0.66	0.66	0.52
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	1	9824	9824	0.23	0.23	0.18
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	3	11548	34639	0.27	0.80	0.62
TIRES, BATTERIES AND ACCESSORIES.	1	31712	31712	0.73	0.73	0.57
VACANT COMMERCIAL LAND.	5	48963	244813	1.12	5.62	4.39
VACANT LAND - RESIDENTIAL.	34	32634	1109239	0.75	25.46	19.88
VETERINARIAN SERVICES.	1	20078	20078	0.46	0.46	0.36
WATER STORAGE. REF. MANUAL	1	22659	23088	0.53	0.53	0.41
	12	24514	294168	0.56	6.75	5.27
			5579670		128.10	100.00

Highway 410 Basin 2 - HW2

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	63	21158	1332960	0.49	30.60	40.32
FIVE (5) OR MORE FAMILY UNITS (NON- SUBSIDIZED) APPRAISED BY COMMERCIAL SECTION.	1	63154	63154	1.45	1.45	1.91
MEDICAL CLINICS - OUT-PATIENT SERVICES.	1	27234	27234	0.63	0.63	0.82
MINI-WAREHOUSE	1	20078	20078	0.89	0.89	1.17
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	1	1276	1276	0.03	0.03	0.04
VACANT COMMERCIAL LAND.	3	394732	1184196	9.06	27.19	35.82
VACANT LAND - RESIDENTIAL	11	53868	592352	1.24	13.60	17.92
	2	33608	66997	0.76	1.52	2.00
			3306044		75.90	100.00

Highway 410 Basin 3 - HW3

BARBER SERVICES.	1	27242	27242	0.63	0.63	4.72
CASHIERS BOOTH	1	27450	27450	0.63	0.63	4.75
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	5	19343	96717	0.44	2.22	16.75
DRINKING PLACES (TAVERNS - ALCOHOLIC BEVERAGES).	1	13904	13904	0.32	0.32	2.41
FAST FOOD RESTAURANTS/CARRY-OUT.	2	29317	58634	0.67	1.35	10.16
GROCERIES (WITH OR WITHOUT MEAT).	1	100266	100266	2.30	2.30	17.37
LIQUOR.	1	25031	25031	0.57	0.57	4.34
MISCELLANEOUS RETAIL AND OFFICE SPACE.	1	11883	11883	0.27	0.27	2.06
OTHER AUTOMOBILE SERVICES (EXCEPT REPAIR AND WASH), NOT ELSEWHERE CODED.	1	25391	25391	0.58	0.58	4.40
VACANT COMMERCIAL LAND.	4	35234	140935	0.81	3.24	24.41
VACANT LAND - RESIDENTIAL	2	24948	49893	0.57	1.15	8.64
			577327		13.25	100.00

Highway 410 Basin 4 - HW 4

AGRICULTURE.	1	160472	160472	3.88	3.88	1.42
AUTO PARTS	1	90299	90299	2.07	2.07	0.80
BANKING SERVICES.	2	29983	70173	0.81	1.61	0.62
COFFEE SHOP/CAFE.	1	29983	29983	0.69	0.69	0.27
COMMERCIAL LAND WITH RESIDENCE CALCULATED UNDER MISCELLANEOUS SECTION	1	180050	180050	4.13	4.13	1.60
COMMUNITY SHOPPING CENTER: REF. MANUAL	1	401468	401468	9.22	9.22	3.56
CONVENIENT TO NEIGHBORHOOD SHOPPING CENTER: REF. MANUAL	1	720789	720789	16.55	16.55	6.39
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	41	105042	4306718	2.41	98.87	38.18
EQUIPMENT RENTAL AND LEASING SERVICES.	1	157286	157286	3.61	3.61	1.39
FAST FOOD RESTAURANTS/CARRY-OUT.	1	34700	34700	0.80	0.80	0.31
FLOOR COVERINGS.	1	47153	47153	1.08	1.08	0.42
GROCERIES (WITH OR WITHOUT MEAT).	1	192014	192014	4.41	4.41	1.70
MINI-WAREHOUSE	2	113067	226135	2.60	5.19	2.00
MOBILE HOME PARK/COURT APPRAISED BY COMMERCIAL SECTION.	3	460090	1380270	10.58	31.69	12.24
MOBILE HOME(S) ELIMINATION OF TITLE	4	10742	42969	0.25	0.99	0.38
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	18	47858	766722	1.10	17.58	6.79
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	1	9810	9810	0.22	0.22	0.09
RESTAURANT WITH BAR.	1	80823	80823	1.86	1.86	0.72
VACANT COMMERCIAL LAND.	7	71016	497114	1.63	11.41	4.41
VACANT LAND - RESIDENTIAL	15	60050	905329	1.39	20.78	8.03
	6	163315	979878	3.75	22.49	8.69
			11278856		258.93	100.00

Kelly Lake Road Basin - KL

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	63	29611	1813509	0.68	37.04	30.24
LAND THAT FORMERLY HAD DWELLING OR MOBILE HOME ON IT.	2	20889	41778	0.48	0.96	0.78
MOBILE HOME(S) ELIMINATION OF TITLE	4	35543	142172	0.82	3.26	2.68
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	9	29983	269877	0.68	6.19	5.05
OPEN SPACE LAND - FARM AND AGRICULTURE.	3	485004	1455013	11.13	33.40	27.27
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	158480	316899	3.64	7.28	5.94
VACANT LAND - RESIDENTIAL.	12	69601	835211	1.60	19.17	15.65
VACANT RESIDENTIAL LAND THAT MUST HAVE AN ECOLOGY BAN DEPRECIATION OF 25%.	2	278633	557266	6.40	12.79	10.44
	3	34826	104478	0.80	2.40	1.96
			5335003		122.50	100.00

Lake Tapps Drainage - LT1

COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	1	14855	14855	0.34	0.34	0.04
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	1	11440	11440	0.26	0.26	0.03
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	768	15431	11727547	0.35	269.23	31.11
DRAINFIELDS/CATCH BASINS. IN RESIDENTIAL DEVELOPMENTS.	1	30588	30588	0.70	0.70	0.08
GREENBELTS AND COMMON AREAS IN RESIDENTIAL AREAS.	1	13163	13163	0.30	0.30	0.03
LAKES. (NATURAL OR MANMADE. MINIMUM SIZE - 1 ACRE.	6	1679396	10076379	38.55	231.32	26.73
LAND THAT FORMERLY HAD DWELLING OR MOBILE HOME ON IT.	2	10063	20126	0.23	0.46	0.05
LOCAL ACCESS STREETS.	2	996	1992	0.02	0.05	0.01
MOBILE HOME(S) ELIMINATION OF TITLE	49	14111	691453	0.32	15.87	1.83
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	141	13783	1943391	0.32	44.61	5.18
OPEN SPACE LAND - FARM AND AGRICULTURE.	2	816973	1633947	18.76	37.51	4.33
PARKS	1	14423	14423	0.33	0.33	0.04
PLAYGROUNDS.	1	1016	1016	0.02	0.02	0.00
PRIMARY (ELEMENTARY) SCHOOLS. (GRADE 1 THRU 6).	1	384948	384948	8.84	8.84	1.03
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	41	9069	371809	0.21	8.54	0.99
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	5	4946	24728	0.11	0.57	0.07
UTILITIES	6	1258948	6294742	28.90	144.51	16.70
VACANT COMMERCIAL LAND.	1	125067	125067	2.87	2.87	0.33
VACANT LAND - CONSERVATION AREAS AND BUILDING RESTRICTIONS.	1	1330	1330	0.03	0.03	0.00
VACANT LAND - RESIDENTIAL.	168	15938	2548098	0.36	58.45	6.75
VACANT RESIDENTIAL LAND THAT MUST HAVE AN ECOLOGY BAN DEPRECIATION OF 25%.	4	6093	24374	0.14	0.56	0.06
WATER AREAS	1	387330	387330	8.89	8.89	1.03
WETLANDS (RECORDED)	1	149053	149053	3.42	3.42	0.40
	27	44625	1204881	1.02	27.66	3.20
			37694752		865.35	100.00

Pothole 1 Basin - PH1

CHURCHES, SYNAGOGUES AND TEMPLES.	1	80700	80700	1.85	1.85	0.45
COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	1	88836	88836	2.04	2.04	0.49
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	15	23071	346064	0.53	7.94	1.92
DESIGNATES USE FOR FOURPLEX (4 FAMILY UNITS).	4	73347	293388	1.68	6.74	1.63
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	311	22359	6953547	0.51	159.63	38.57
FIVE (5) OR MORE FAMILY UNITS (NON-SUBSIDIZED) APPRAISED BY COMMERCIAL SECTION.	5	51730	258652	1.19	5.94	1.43
MOBILE HOME(S) ELIMINATION OF TITLE	8	21810	174482	0.50	4.01	0.97
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	5	61113	305567	1.40	7.01	1.69
OPEN SPACE TIMBER LAND	3	857107	2571321	19.68	59.03	14.26
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	12035	24070	0.28	0.55	0.13
SECONDARY SCHOOLS. (GRADES 7 THRU 12).	2	1271890	2543781	29.20	58.40	14.11
VACANT COMMERCIAL LAND.	1	32940	32940	0.76	0.76	0.18
VACANT LAND - RESIDENTIAL	40	54414	2176573	1.25	49.97	12.07
	19	114626	2177888	2.63	50.00	12.08
					413.86	100.00

Pothole 2 Basin - PH2

CHURCHES, SYNAGOGUES AND TEMPLES.	1	124241	124241	2.65	2.65	2.25
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	2	18593	37187	0.43	0.85	0.67
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	132	25782	3404717	0.59	78.16	61.66
LOCAL ACCESS STREETS.	2	9790	19580	0.22	0.45	0.35
OTHER WATER AREAS, NOT ELSEWHERE CODED.	1	698871	698871	16.04	16.04	12.66
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	77890	155780	1.78	3.58	2.82
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	3	3352	10057	0.08	0.22	0.18
VACANT LAND - RESIDENTIAL	26	40189	1044909	0.92	23.99	18.93
	1	24308	24308	0.56	0.56	0.44
			5519646		126.71	100.00

Pothole 3 Basin - PH3

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	27	24673	666160	0.57	15.29	70.25
LOCAL ACCESS STREETS.	1	13307	13307	0.31	0.31	1.40
VACANT LAND - RESIDENTIAL	5	53395	266975	1.23	6.13	28.15
	1	1878	1878	0.04	0.04	0.20
			948318		21.77	

Pothole 4 Basin - PH4

AUTOMOBILE PARKING.	1	2032	2032	0.05	0.05	0.08
CHURCHES, SYNAGOGUES AND TEMPLES.	1	130504	130504	3.00	3.00	5.21
DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	1	11904	11904	0.27	0.27	0.48
DESIGNATES USE FOR FOURPLEX (4 FAMILY UNITS).	2	22276	44553	0.51	1.02	1.78
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	96	20551	1972906	0.47	45.29	78.74
LOCAL ACCESS STREETS.	4	4004	16017	0.09	0.37	0.64
VACANT LAND - RESIDENTIAL	11	27149	298638	0.62	6.86	11.92
	3	9673	29020	0.22	0.67	1.16
			2505574		57.52	100.00

Pothole 5 Basin - PH5

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	13	19091	248189	0.44	5.70	92.14
RESIDENTIAL VACANT LAND THAT HAS A MAJOR FUNCTIONAL OR ECONOMIC PROBLEM	1	1442	1442	0.03	0.03	0.54
VACANT LAND - RESIDENTIAL	1	19723	19723	0.45	0.45	7.32
			269355		6.18	100.00

Pothole 7 Basin - PH7

COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	2	27780	55560	0.64	1.28	29.21
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	3	24386	73157	0.56	1.68	38.46
INSURANCE CARRIERS.	1	22859	22859	0.52	0.52	11.91
POLICE PROTECTION AND RELATED ACTIVITIES.	1	18062	18062	0.41	0.41	9.50
VACANT LAND - RESIDENTIAL	1	20760	20760	0.48	0.48	10.92
			190189		4.37	100.00

Pothole 8 Basin - PH8

COMMERICAL LAND WHICH DOES NOT HAVE A BUILDING VALUE BUT DOES HAVE A BUILDING.	1	32050	32050	0.74	0.74	4.47
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	28	13788	386017	0.32	8.86	53.78
FIVE (5) OR MORE FAMILY UNITS (NON-SUBSIDIZED) APPRAISED BY COMMERCIAL SECTION.	1	72399	72399	1.66	1.66	10.09
GENERAL WAREHOUSING AND STORAGE.	1	32559	32559	0.75	0.75	4.54
GROCERIES (WITH OR WITHOUT MEAT).	1	24645	24645	0.57	0.57	3.43
HARDWARE.	1	16372	16372	0.38	0.38	2.28
LIBRARIES.	1	84027	84027	1.93	1.93	11.71
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	1	25782	25782	0.61	0.61	3.78
POSTAL SERVICES.	1	28922	28922	0.66	0.66	4.03
VACANT LAND - RESIDENTIAL	1	13963	13963	0.32	0.32	1.95
			717735		16.48	100.00

Pothole 9 Basin - PH9

DANCING SCHOOLS.	1	29303	29303	0.67	0.67	14.44
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	4	31977	127907	0.73	2.94	63.03
LOCAL ACCESS STREETS.	2	6203	12406	0.14	0.28	6.11
VACANT LAND - RESIDENTIAL	1	33310	33310	0.76	0.76	16.41
			202926		4.66	100.00

Pothole 10 Basin - PH10

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	24	19828	475832	0.46	10.92	23.78
GREENBELTS AND COMMON AREAS IN RESIDENTIAL AREAS.	1	4203	4203	0.10	0.10	0.21
RAPID RAIL TRANSIT AND STREET RAILWAY RIGHT-OF-WAY. REF. MANUAL	1	20030	20030	0.46	0.46	1.00
VACANT COMMERCIAL LAND.	3	123353	370059	2.83	8.50	18.50
VACANT LAND - RESIDENTIAL	10	113071	1130712	2.60	25.96	56.51
			2000835		45.93	100.00

Pothole 11 Basin - PH11

DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	1	161374	161374	4.16	4.16	8.64
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	28	44964	1259950	1.03	28.92	60.02
MOBILE HOME(S) ELIMINATION OF TITLE	1	19950	19950	0.46	0.46	0.95
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	8	52436	419488	1.20	9.63	19.99
VACANT LAND - RESIDENTIAL	5	43618	218089	1.00	5.01	10.39
			2098460		48.17	100.00

Pothole 12 Basin - PH12

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	22	41672	916777	0.96	21.05	30.60
IDENTIFIES THOSE PARCELS OF LAND THAT ARE UNDEVELOPED.REF MANUAL	1	137497	137497	3.16	3.16	4.59
MOBILE HOME(S) ELIMINATION OF TITLE	10	11468	114684	0.26	2.63	3.83
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	48	10505	504245	0.24	11.58	16.83
VACANT COMMERCIAL LAND.	1	136743	136743	3.14	3.14	4.56
VACANT LAND - RESIDENTIAL	14	84401	1181612	1.94	27.13	39.44
	1	4595	4595	0.11	0.11	0.15
			2996132		68.78	100.00

Ponderosa Lake Basin - PI.

DESIGNATES USE FOR SINGLE FAMILY DWELLING.	146	34029	4968280	0.78	114.08	62.47
DRAINFIELDS/CATCH BASINS. IN RESIDENTIAL DEVELOPMENTS.	1	30629	30629	0.70	0.70	0.39
MOBILE HOME(S) ELIMINATION OF TITLE	9	8967	80700	0.21	1.85	1.01
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	96	9432	905518	0.22	20.79	11.39
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	4	10485	41699	0.24	0.96	0.52
VACANT LAND - RESIDENTIAL	16	10594	169497	0.24	3.89	2.13
	11	159675	1756424	3.67	40.32	22.09
			7952747		182.57	100.00

Summer Buckley Hyw. Basin - SB1

ARTERIAL STREETS.	1	7168	7168	0.16	0.16	0.21
DESIGNATES USE FOR SINGLE FAMILY DWELLING	36	18811	677187	0.43	15.55	19.60
IDENTIFIES THOSE PARCELS OF LAND THAT ARE UNDEVELOPED.REF MANUAL	2	486624	973248	11.17	22.34	28.16
LOCAL ACCESS STREETS.	1	6144	6144	0.14	0.14	0.18
MOBILE HOME(S) ELIMINATION OF TITLE	14	12025	168344	0.28	3.86	4.87
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	92	12793	1176917	0.29	27.02	34.06
OTHER PARKS, NOT ELSEWHERE CODED.	1	126940	126940	2.91	2.91	3.67
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	6	9967	59802	0.23	1.37	1.73
VACANT LAND - RESIDENTIAL	9	27880	250919	0.64	5.76	7.26
VACANT RESIDENTIAL LAND THAT MUST HAVE AN ECOLOGY BAN DEPRECIATION OF 25%.	1	9174	9174	0.21	0.21	0.27
			3455841		79.34	100.00

Summer Buckley Hyw. Basin - SB2

DESIGNATES USE FOR DUPLEX (2 FAMILY UNITS).	1	12574	12574	0.29	0.29	0.54
DESIGNATES USE FOR SINGLE FAMILY DWELLING.	19	17731	336889	0.41	7.73	14.51
LAND THAT FORMERLY HAD DWELLING OR MOBILE HOME ON IT.	1	11719	11719	0.27	0.27	0.50
MOBILE HOME(S) ELIMINATION OF TITLE	5	14888	74189	0.34	1.70	3.20
MOBILE HOME(S) IF IT IS ASSESSED AS PERSONAL PROPERTY.	24	17401	417880	0.40	9.59	17.99
REAL PROPERTY NOT USED FOR HUMAN HABITATION. REF. MANUAL	2	46881	93201	1.07	2.14	4.01
VACANT LAND - CONSERVATION AREAS AND BUILDING RESTRICTIONS.	1	82330	82330	1.89	1.89	3.55
VACANT LAND - RESIDENTIAL	15	85615	1284231	1.97	29.46	55.31
VACANT RESIDENTIAL LAND THAT MUST HAVE AN ECOLOGY BAN DEPRECIATION OF 25%.	1	8928	8928	0.20	0.20	0.38
			2321691		53.30	100.00

APPENDIX E
PIERCE COUNTY MANUAL MAINTENANCE CHECKLIST

ATTACHMENT "A"

MAINTENANCE PROGRAM
COVER SHEET FOR PIERCE COUNTY

Inspection Period: _____

Number of Sheets Attached: _____

Date Inspected: _____

Name of Inspector: _____

Inspector's Signature: _____

INSTRUCTIONS FOR USE OF MAINTENANCE CHECKLISTS

The following pages contain maintenance needs for most of the components that are part of your drainage system, as well as for some components that you may not have. Let the County know if there are any components that are missing from these pages. Ignore the requirements that do not apply to your system. You should plan to complete a checklist for all system components on the following schedule:

(1) Monthly from November through April.
(2) Once in late summer (preferable September)
(3) After any major storm (use 1-inch in 24 hours as a guideline), items marked "S" only.

Using photocopies of these pages, check off the problems you looked for each time you did an inspection. Add comments on problems found and actions taken. Keep these "checked" sheets in your files, as they will be used to write your annual report (due in May, for Pierce County Only). Some items do not need to be looked at every time an inspection is done. Use the suggested frequency at the left of each item as a guideline for your inspection.

ATTACHMENT "A"

MAINTENANCE PROGRAM

Maintenance Checklist for Closed Detention Systems (Pipes/Tanks)

Frequency	Drainage Systems Feature	✓	Problem	Conditions To Check For	Conditions That Shall Exist
M	Storage area (pipe tank)		Plugged air vents (small pipe that connects catch basin to storage pipe)	One-half of the end area of a vent is blocked at any point with debris and sediment. Plugged vent can cause storage area to collapse.	Vents free of debris and sediment.
M			Debris and sediment	Accumulated sediment depth exceeds 15% of diameter. Example: 72-inch storage tank would require cleaning when sediment reaches depth of 10 inches	All sediment and debris removed from storage area. Contact the County for guidance on sediment removal and disposal.
A			Joints between tank/pipe section	Any crack allowing material to leak into facility.	All joints between tank/pipe sections are sealed.
A			Tank/pipe bent out of shape	Any part of tank/pipe is noticeably bent out of shape.	Tank/pipe repaired or replaced to design. Contact a professional engineer for evaluation.
M,S	Manhole		Cover not in place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.
A			Locking mechanism not working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2-inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.
A			Cover difficult to remove	One maintenance person cannot remove lid after applying 80 pounds of lift. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
A			Ladder rungs unsafe	Maintenance person judges that ladder is unsafe due to missing rungs, misalignment, rust, or cracks. Ladder must be fixed or secured immediately.	Ladder meets design standards and allows maintenance persons safe access.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A = Annual (March or April preferred)
M = Monthly (see schedule)
S = After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Control Structure/Flow Restrictor
(Structure that controls rate at which water exits facility)

Frequency	Drainage Systems Feature	✓	Problem	Conditions To Check For	Conditions That Should Exist
M	Structure		Trash & debris (includes sediment)	Distance between debris buildup and bottom of orifice plate is less than 1-1/2 feet.	All trash and debris removed.
A			Structural damage	Structures are not securely attached to manhole wall and outlet pipe structure should support at least 1,000 pounds of up or down pressure.	Structure securely attached to wall and outlet pipe.
A				Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
A				Connections to outlet pipe are not watertight and show signs of rust.	Connections to outlet pipe are watertight; structure repaired or replaced and works as designed.
M				Any holes--other than designed holes--in the structure.	Structure has no holes other than designed holes.
M,S	Cleanout gate		Damaged or missing	Cleanout gate is not watertight or is missing.	Gate is watertight and works as designed.
A				Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
M,S				Chain leading to gate is missing or damaged.	Chain is in place and works as designed.
A				Gate is rusted over 50% of its surface area.	Gate is repaired or replaced to meet design standards.
M,S			Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.
M,S	Overflow pipe		Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.

If you are unsure whether a problem exists, please contact a Professional Engineer.
Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (See schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Catch Basins and Inlets

Frequency	Drainage System Feature	✓	Problem	Conditions To Check For	Conditions That Should Exist
M,S	General		Trash, debris, and sediment in or on basin	Trash or debris in front of the catch basin opening is blocking capacity by more than 10%	No trash or debris located immediately in front of catch basin opening. Grate is kept clean and allows water to enter.
M				Sediment or debris (in the basin) that exceeds 1/3 the depth from the bottom of basin to invert of the lowest pipe into or out of the basin.	No sediment or debris in the catch basin. Catch basin is dug out and clean.
M,S				Trash or debris in any inlet or pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.
M			Structural damage to frame and/or top slab	Corner of frame extends more than 3/4 inch past curb face into the street (if applicable).	Frame is even with curb.
M				Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch (intent is to make sure all material is running into the basin).	Top slab is free of holes and cracks.
M				Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab.	Frame is sitting flush on top slab.
A			Cracks in basin walls/bottom	Cracks wider than 1/2 inch and longer than 3 feet, any evidence of soil particles entering catch basin through cracks, or maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards. Contact a professional engineer for evaluation.
A				Cracks wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	No cracks more than 1/4 inch wide at the joint of inlet/outlet pipe. Contact a professional engineer for evaluation.
A			Settlement/ misalignment	Basin has settled more than 1 inch or has rotated more than 2 inches out of alignment.	Basin replaced or repaired to design standards. Contact a professional engineer for evaluation.
M,S			Fire hazard or other pollution	Presence of chemicals such as natural gas, oil, and gasoline. Obnoxious color, odor, or sludge noted.	No color, odor, or sludge. Basin is dug out and clean.
M,S			Outlet pipe is clogged with vegetation	Vegetation or roots growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation or root growth present

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Ponds

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
M,S	General		Trash & debris buildup in pond.	Dumping of yard wastes such as grass clippings and branches into basin. Unsightly accumulation of nondegradable materials such as glass, plastic, metal, foam, and coated paper.	Remove trash and debris and dispose as prescribed by the County.
M,S			Trash rack plugged or missing	Bar screen over outlet more than 25% covered by debris or missing.	Replace screen. Remove trash and debris and dispose as prescribed by the County.
M			Poisonous vegetation	Any poisonous vegetation which may constitute a hazard to the public. Examples of poisonous vegetation include: tansy ragwort, poison oak, stinging nettles, devilsclub.	Remove poisonous vegetation. Do not spray chemicals on vegetation without obtaining guidance from the Cooperative Extension Service and approval from the County.
M,S			Fire hazard or pollution	Presence of chemicals such as natural gas, oil, and gasoline, obnoxious color, odor, or sludge noted.	Find sources of pollution and eliminate them. Water is free from noticeable color, odor, or contamination.
M			Vegetation not growing or is overgrown	For grassy ponds, grass cover is sparse and weedy or is overgrown. For wetland ponds, plants are sparse or invasive species are present.	For grassy ponds, selectively thatch, aerate, and reseed ponds. Grass cutting unnecessary unless dictated by aesthetics. For wetland ponds, hand-plant nursery-grown wetland plants in bare areas. Contact the Cooperative Extension Service for direction on invasive species such as purple loosestrife and reed canary grass. Pond bottoms should have uniform dense coverage of desired plant species.
M			Rodent holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents destroyed and dam or berm repaired. Contact the Tacoma-Pierce County Health Department for guidance.
M			Insects	When insects such as wasps and hornets interfere with maintenance activities, or when mosquitoes become a nuisance.	Insects destroyed or removed from site. Contact Cooperative Extension Service for guidance.
A			Tree growth	Tree growth does not allow maintenance access or interferes with maintenance activity (e.g., slope mowing, silt removal, or equipment movements). If trees are not interfering with access, leave trees alone.	Trees do not hinder maintenance activities. Selectively cultivate trees such as alders for firewood.
M	Side slopes of pond		Erosion on berms or at entrance or exit	Check around inlets and outlets for signs of erosion. Check berms for signs of sliding or settling. Action is needed where eroded damage over 2 inches deep and where there is potential for continued erosion.	Find causes of erosion and eliminate them. Then slopes should be stabilized by using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.
M	Storage area		Sediment build-up in pond	Accumulated sediment that exceeds 10% of the designed pond depth. Buried or partially buried outlet structure probably indicates significant sediment deposits.	Sediment cleaned out to designed pond shape and depth; pond reseeded if necessary to control erosion.
A	Pond dikes		Settlements	Any part of dike which has settled 4 inches lower than the design elevation.	Dike should be built back to the design elevation.

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	Emergency overflow/ spillway		Rock missing	Only one layer of rock exists above native soil in area 5 square feet or larger, or any exposure of native soil.	Replace rocks to design standards.
One Time	Emergency overflow/ spillway		Overflow missing	Side of pond has no area with large rocks to handle emergency overflows.	Contact the County for guidance.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Infiltration Systems

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
M,S	General		Trash & debris buildup in pond	See Maintenance Checklist for Ponds.	See Maintenance Checklist for Ponds.
M			Poisonous vegetation	See Maintenance Checklist for Ponds.	See Maintenance Checklist for Ponds.
M,S			Fire hazard or pollution	See Maintenance Checklist for Ponds.	See Maintenance Checklist for Ponds.
M			Vegetation not growing or is overgrown	See Maintenance Checklist for Ponds.	See Maintenance Checklist for Ponds.
M			Rodent holes	See Maintenance Checklist for Ponds.	See Maintenance Checklist for Ponds.
M			Insects	See Maintenance Checklist for Ponds.	See Maintenance Checklist for Ponds.
A	Storage area		Sediment buildup in system	A soil texture test indicates facility is not working at its designed capabilities or was incorrectly designed.	Sediment is removed and/or facility is cleaned so that infiltration system works according to design. A sediment trapping area is installed to reduce sediment transport into infiltration area.
A			Storage area drains slowly (more than 48 hours) or overflows	A soil texture test indicates facility is not working at its designed capabilities or was incorrectly designed.	Additional volume is added through excavation to provide needed storage. Soil is aerated and rototilled to improve drainage. Contact the County for information on its requirements regarding excavation.
M			Sediment trapping area	Any sediment and debris filling area to 10% of depth from sump bottom to bottom of outlet pipe or obstructing flow into the connector pipe.	Clean out sump to design depth.
One Time			Sediment trapping area not present	Stormwater enters infiltration area directly without treatment.	Add a trapping area by constructing a sump for settling of solids. Segregate settling area from rest of facility. Contact the County for guidance.
M	Rock filters		Sediment and debris	By visual inspection little or no water flows through filter during heavy rain storms.	Replace gravel in rock filter.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Energy Dissipators

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	Rock pad		Missing or moved rock	Only one layer of rock exists above native soil in area 5 square feet or larger, or any exposure of native soil.	Replace rocks to design standard.
A	Rock-filled trench for discharge from pond		Missing or moved rock	Trench is not full of rock.	Add large rock (+ or - 30 lb. each) so that rock is visible above edge of trench.
M	Dispersion trench		Pipe plugged with sediment	Accumulated sediment that exceeds 20% of the design depth.	Pipe cleaned/flushed.
M			Perforations plugged	Over 1/2 of perforations in pipe are plugged with debris and sediment.	Clean or replace perforated pipe.
M,S			Not discharging water properly	Visual evidence of water discharging at concentrated points along trench (normal condition is a "sheet flow" of water along trench). Intent is to prevent erosion damage.	Trench must be redesigned or rebuilt to standard. Elevation of lip of trench should be the same (flat) at all points.
M,S			Water flows out top of "distributor" catch basin	Maintenance person observes water flowing out during any strom less than the design storm or it is causing or appears likely to cause damage.	Facility must be rebuilt or redesigned to standards. Pipe is probably plugged or damaged and needs replacement.
M,S			Receiving area over-saturated	Water in receiving area is causing or has potential of causing landslide.	Stabilize slope with grass or other vegetation, or rock if condition is severe. Contact a professional engineer for evaluation.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Fencing/Shrubbery Screen/Other Landscaping

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	General		Missing or broken parts/dead shrubbery	Any defect in the fence or screen that permits easy entry to a facility.	Fence is mended or shrubs replaced to form a solid barrier to entry.
M,S			Erosion	Erosion has resulted in an opening under a fence that allows entry by people or pets.	Replace soil under fence so that no opening exceeds 4 inches in height.
M			Unruly vegetation	Shrubbery is growing out of control or is infested with weeds.	Shrubbery is trimmed and weeded to provide appealing aesthetics. Do not use chemicals to control weeds.
A	Wire Fences		Damaged parts	Posts out of plumb more than 6 inches.	Posts plumb to within 1-1/2 inches of plumb.
A				Top rails bent more than 6 inches.	Top rail free of bends greater than 1 inch.
A				Any part of fence (including posts, top rails, and fabric) more than 1 foot out of design alignment.	Fence is aligned and meets design standards.
A				Missing or loose tension wire.	Tension wire in place and holding fabric.
A				Missing or loose barbed wire that is sagging more than 2-1/2 inches between posts.	Barbed wire in place with less than 3/4-inch sag between posts.
A				Extension arm missing, broken, or bent out of shape more than 1-1/2 inches.	Extension arm in place with no bends larger than 3/4 inch.
A			Deteriorated paint or protective coating	Part or parts that have a rusting or scaling condition that has affected structural adequacy.	Structurally adequate posts or parts with a uniform protective coating.
M			Openings in fabric	Openings in fabric are such that an 8-inch diameter ball could fit through.	No openings in fabric.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

ıance Checklist for Gates

quency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
	General		Damaged or missing components	Gate is broken, jammed, or missing.	Pond has a functioning gate to allow entry of people and maintenance equipment such as mowers and backhoe. If a lock is used, make sure the County field staff have a key.
				Broken or missing hinges such that gate cannot be easily opened and closed by a maintenance person.	Hinges intact and lubed. Gate is working freely.
				Gate is out of plumb more than 6 inches and more than 1 foot out of design alignment.	Gate is aligned and vertical.
				Missing stretcher bands, and ties.	Stretcher bar, bands, and ties in place.

are unsure whether a problem exists, please contact a Professional Engineer.

mments:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

aintenance Checklist for Grounds (Landscaping)

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	General		Weeds (nonpoisonous)	Weeds growing in more than 20% of the landscaped area (trees and shrubs only).	Weeds present in less than 5% of the landscaped area.
M			Insect hazard	Any presence of poison ivy or other poisonous vegetation or insect nests.	No poisonous vegetation or insect nests present in lanscaped area.
M,S			Trash or litter	See Ponds Checklist.	See Ponds Checklist.
M,S			Erosion of Ground Surface	Noticeable rills are seen in landscaped areas.	Causes of erosion are identified and steps taken to slow down/spread out the water. Eroded areas are filled, contoured, and seeded.
A	Trees and shrubs		Damage	Limbs or parts of trees or shrubs that are split or broken which affect more than 25% of the total foliage of the tree or shrub.	Trim trees/shrubs to restore shape. Replace trees/shrubs with severe damage.
M				Trees or shrubs that have been blown down or knocked over.	Replant tree, inspecting for injury to stem or roots. Replace if severely damaged.
A				Trees or shrubs which are not adequately supported or are leaning over, causing exposure of the roots.	Place stakes and rubber-coated ties around young trees/shrubs for support.

you are unsure whether a problem exists, please contact a Professional Engineer.

omments:

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A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

ATTACHMENT "A" (CONTINUED)

Maintenance Checklist for Access Roads/Easements

Frequency	Drainage System Feature	✓	Problem	Conditions to Check For	Conditions That Should Exist
One Time	General		No access road exists	If ponds or other drainage system features needing maintenance by mototized equipment are present, either an access road or access from public streets is required.	Determine whether an easement to drainage feature exists. If yes, obtain the County permits and construct gravel (or equal) access road. If not, report lack of easement to the Municipaolity.
M			Blocked Roadway	Debris which could damage vehicle tires (glass or metal).	Roadway free of debris which could damage tires.
A				Any obstructions which reduce clearance above road surface to less than 14 feet.	Roadway overhead clear to 14 feet high.
A				Any obstructions restricting the access to less than 15 feet width.	Obstruction removed to allow at least a 15-foot-wide access.
A,S	Road Surface		Settlement, potholes, mush spots, ruts	When any surface irregularity exceeds 6 inches in depth and 6 square feet in area. In general, any surface defect which hinders or prevents maintenance access.	Road surface uniformly smooth with no evidence of settlement, potholes, mush spots, or ruts. Occasionally application of additional gravel or pitrun rock will be needed.
M			Vegetation in road surface	Woody growth that could block vehicular access. Excessive weed cover.	Remove woody growth at early stage to prevent vehicular blockage. Cut back weeds if they begin to encroach on road surface.
M,S	Shoulders and ditches		Erosion damage	Erosion within 1 foot of the roadway more than 8 inches wide and 6 inches deep.	Shoulder free of erosion and matching the surrounding road.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

A=Annual (March or April preferred)
M=Monthly (see schedule)
S=After major storms (use 1-inch in 24 hours as a guideline)

APPENDIX F
HYDROLOGIC MODELING

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1*************************************                                    *************************************
*                                   *                                    *                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                    *  U.S. ARMY CORPS OF ENGINEERS     *
*          SEPTEMBER 1990           *                                    *  HYDROLOGIC ENGINEERING CENTER    *
*           VERSION 4.0             *                                    *        609 SECOND STREET          *
*                                   *                                    *     DAVIS, CALIFORNIA 95616       *
* RUN DATE  05/05/1998  TIME  17:56:25 *                                 *        (916) 756-1104             *
*                                   *                                    *                                   *
*************************************                                    *************************************

                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX        XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -ANSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                                    PAGE  1

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    1           ID        FILENAME: 1007_0.hc1; REVISED 04-28-1998
    2           ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for Pothole 1
    3           ID        HEC-1 MODEL--100yr, 7-Day STORM EVENT
    4           ID        Pumping Facility Rated at 0 cfs
                *DIAGRAM
    5           IT      60                    300
    6           IN      60
    7           IO       0       2       0

    8           KK    SUB5 RUNOFF FROM W. OF MYERS RD.
    9           KM   RUNOFF TO JR. HIGH THROUGH 24" UNDER MYERS RD. ROUTED TO WHIPPLE POND
   10           BA    .055
                *   100-YR 7-DAY PRECIPITATION IS 12-INCHES
   11           PB    12.0
   12           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
   13           PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .078
   14           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
   15           PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .198
   16           PC    .206    .214    .222    .230    .238    .248    .254    .266    .277    .289
   17           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
   18           PC    .508    .514    .521    .529    .536    .544    .551    .559    .566    .574
   19           PC    .581    .589    .596    .604    .611    .617    .623    .630    .638    .642
   20           PC    .648    .654    .661    .669    .673    .679    .695    .692    .698    .702
   21           PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
   22           PC    .753    .758    .762    .767    .771    .776    .781    .785    .790    .794
   23           PC    .799    .804    .808    .013    .817    .822    .827    .830    .033    .837
   24           PC    .840    .844    .847    .850    .854    .857    .861    .864    .867    .871
   25           PC    .874    .878    .881    .884    .888    .891    .895    .898    .901    .905
   26           PC    .908    .912    .915    .918    .922    .925    .929    .932    .935    .939
   27           PC    .942    .946    .949    .952    .956    .959    .963    .966    .969    .973
   28           PC    .976    .980    .983    .986    .990    .993    .997   1.000
   29           LS       0      75
   30           UD     .62

   31           KK    SUB8 DIRECT RUNOFF TO WHIPPLE POND
   32           KM   RUNOFF OVERLAND TO WHIPPLE POND
   33           BA    .073
   34           LS       0      66
   35           UD    1.53

   36           KK    SUB7 RUNOFF FROM AREA SOUTH OF JR HIGH
   37           KM   RUNOFF TO POND AT SE CORNER OF JR HIGH INFILT/OVERFLOW TO WHIPPLE POND
   38           BA    .022
   39           LS       0      78
   40           UD     .85

   41           KK   SE CORNER OF JR HIGH POND STORAGE AND RELEASE
   42           KM    POND INFILTRATES TO WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
   43           RS       1    ELEV     580
   44           SA       0    .057    .083    .115    .135
   45           SE     580     582     584     586     588
   46           SQ       0      .2       1       2      30
1                                          HEC-1 INPUT                                                    PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

   47           KK    SUB6 RUNOFF FROM JR. HIGH BUILDINGS AREA
   48           KM   RUNOFF TO JR HIGH POND THEN TO WHIPPLE POND VIA INFILTRATION
   49           BA    .027
   50           LS       0      84
   51           UD     .33
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 52          KK   JR. HIGH POND STORAGE AND RELEASE
 53          KM    JR. HIGH POND INFILTRATES NEAR WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
 54          RS       1    ELEV     589
 55          SA       0    .251    .506    .611    .777
 56          SE     589     590     592     593     594
 57          SQ       0      .2       1       2      30

 58          KK    COM1
 59          KM        COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 5 THRU 8
 60          HC       4

 61          KK   WHIPPLE POND STORAGE AND RELEASE
 62          KM    100% OF RELEASE FROM WHIPPLE POND IS SUBSURFACE VIA STORM EASEMENT
 63          RS       1    ELEV     576
 64          SA       0    .004    .329    .705    1.15    1.59    2.69     3.0
 65          SE     576     578     580     582     584     586     588     590
 66          SQ       0      .2       1       2       3       3       3      10

 67          KK    SUB3 RUNOFF FROM COUNTY DEVELOP. JUST N. WHIPPLES
 68          KM   RUNOFF TO RETENTION/INFILTRATION BASIN- SUBSURFACE TO CHANNEL
 69          SA    .019
 70          LS       0      79
 71          UD     .38

 72          KK   POND3 SUBAREA3 RETENTION/INFILTRATION POND
 73          KM    POND INFILTRATES AND JOINS WITH WHIPPLE POND SUBSURFACE FLOW
 74          RS       1    ELEV     600
 75          SA       0    .121    .134    .149    .164
 76          SE     600     601     602     603     604
 77          SQ       0      .2       1       2      20

 78          KK    COM2
 79          KM        COMBINE ROUTED FLOWS FROM FROM WHIPPLE POND AND POND 3
 80          HC       2

 81          KK    SUB1 RUNOFF FROM COUNTY DEVELOP. N. OF 64TH ST.
 82          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 83          BA    .040
 84          LS       0      83
 85          UD     .65

 86          KK    SUB2 RUNOFF FROM COUNTY DEVELOP. N. OF 187TH CUL-DE-SAC
 87          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 66          BA    .023
 89          LS       0      83
 90          UD     .60
1                                          HEC-1 INPUT                                          PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10

 91          KK    SUB4 RUNOFF FROM COUNTY DEVELOP. ALONG 184TH ST
 92          KM   RUNOFF OVERLAND TO MAIN CHANNEL TO POTHOLE 1
 93          BA    .017
 94          LS       0      79
 95          UD     .80

 96          KK    SUB9 RUNOFF FROM OTHER CONTRIBUTIONS TO POTHOLE 1
 97          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 96          BA    .250
 99          LS       0      79
100          UD    1.43

101          KK    COM3
102          KM        COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 1 THRU 9
103          HC       5

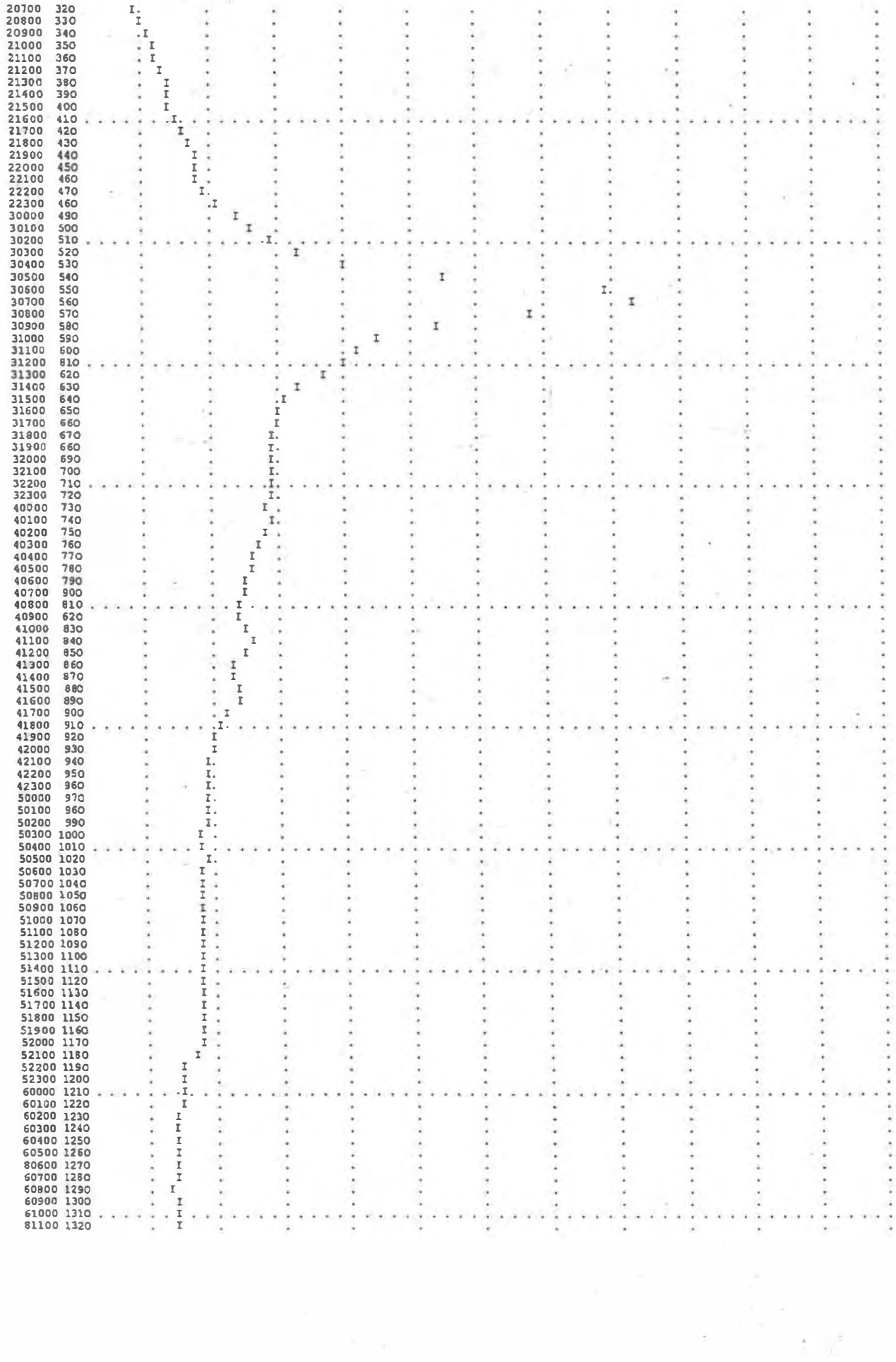
104          KK   PUMP1 LIFT STATION PUMP TO 64TH AVE
105          KM    PUMP1 IS 3-CFS PUMP W/ SET POINT AT ELEV. 545FT
106          RS       1    ELEV     536
107          SA       0       2     4.5     9.7    13.5    18.3    23.4
108          SE     536     540     545     550     555     560     565
109          SQ     .18     .18     .18     .18     .18     .18     .18
110          WP   545.0    0.01   540.0  LIFSTA
111          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   8        SUB5
            .
            .
  31        .        SUB8
            .          .
            .          .
  36        .          .       SUB7
            .          .         V
            .          .         V
  41        .          .      SE CO
            .          .         .
            .          .         .
  47        .          .         .       SUB6
            .          .         .          V
            .          .         .          V
  52        .          .         .      JR. H
            .          .         .          .
            .          .         .          .
  58      COM1.....................................
```

1	2300	24	0.	0.	1.5	539.3	*	8	0500	174	0.	0.	239.4	562.5
2	0000	25	0.	0.	1.9	539.5	*	8	0600	175	0.	0.	239.7	562.5
2	0100	24	0.	0.	2.3	539.8	*	8	0700	176	0.	0.	239.9	582.5
2	0200	27	0.	0.	2.8	540.1	*	8	0800	177	0.	0.	240.1	562.6
2	0300	28	0.	0.	3.3	540.3	*	8	0900	178	0.	0.	240.4	562.6
2	0400	29	0.	0.	3.9	540.6	*	8	1000	179	0.	0.	240.6	562.6
2	0500	30	0.	0.	4.6	540.9	*	8	1100	180	0.	0.	240.8	562.6
2	0600	31	0.	0.	5.3	541.2	*	8	1200	181	0.	0.	241.1	562.6
2	0700	32	0.	0.	6.0	541.4	*	8	1300	182	0.	0.	241.3	562.8
2	0800	33	0.	0.	6.8	541.7	*	8	1400	183	0.	0.	241.5	562.6
2	0900	34	0.	0.	7.6	542.0	*	8	1500	184	0.	0.	241.7	562.6
2	1000	35	0.	0.	8.5	542.3	*	8	1600	185	0.	0.	242.0	562.6
2	1100	36	0.	0.	9.4	542.6	*	8	1700	186	0.	0.	242.2	562.7
2	1200	37	0.	0.	10.5	542.9	*	8	1900	187	0.	0.	242.4	562.7
2	1300	38	0.	0.	11.5	543.3	*	8	1900	188	0.	0.	242.7	582.7
2	1400	39	0.	0.	12.6	543.6	*	8	2000	189	0.	0.	242.9	562.7
2	1500	40	0.	0.	13.8	543.9	*	8	2100	190	0.	0.	243.1	562.7
2	1600	41	0.	0.	15.0	544.2	*	8	2200	191	0.	0.	243.4	562.7
2	1700	42	0.	0.	16.2	544.5	*	8	2300	192	0.	0.	243.6	562.7
2	1800	43	0.	0.	17.6	544.8	*	9	0000	193	0.	0.	243.8	562.7
2	1900	44	0.	0.	19.0	545.1	*	9	0100	194	0.	0.	244.0	562.7
2	2000	45	0.	0.	20.4	545.4	*	9	0200	195	0.	0.	244.3	562.8
2	2100	46	0.	0.	21.9	545.7	*	9	0300	196	0.	0.	244.5	582.8
2	2200	47	0.	0.	23.4	546.0	*	9	0400	197	0.	0.	244.7	562.8
2	2300	48	0.	0.	25.0	546.3	*	9	0500	198	0.	0.	245.0	582.8
3	0000	49	0.	0.	26.8	546.6	*	9	0600	199	0.	0.	245.2	562.8
3	0100	50	0.	0.	28.8	546.9	*	9	0700	200	0.	0.	245.4	562.8
3	0200	51	0.	0.	31.1	547.3	*	9	0800	201	0.	0.	245.6	562.8
3	0300	52	0.	0.	33.6	547.6	*	9	0900	202	0.	0.	245.9	562.8
3	0400	53	0.	0.	36.6	548.1	*	9	1000	203	0.	0.	246.1	562.8
3	0500	54	0.	0.	40.5	548.6	*	9	1100	204	0.	0.	246.3	562.9
3	0600	55	0.	0.	46.0	549.2	*	9	1200	205	0.	0.	246.6	562.9
3	0700	56	0.	0.	52.6	549.9	*	9	1300	206	0.	0.	246.8	562.9
3	0800	57	0.	0.	58.9	550.6	*	9	1400	207	0.	0.	247.0	562.9
3	0900	58	0.	0.	63.9	551.1	*	9	1500	208	0.	0.	247.1	562.9
3	1000	59	0.	0.	68.0	551.5	*	9	1600	209	0.	0.	247.3	562.9
3	1100	60	0.	0.	71.6	551.8	*	9	1700	210	0.	0.	247.5	562.9
3	1200	61	0.	0.	74.9	552.1	*	9	1800	211	0.	0.	247.7	562.9
3	1300	62	0.	0.	78.1	552.4	*	9	1900	212	0.	0.	247.8	562.9
3	1400	63	0.	0.	80.9	552.6	*	9	2000	213	0.	0.	248.0	562.9
3	1500	64	0.	0.	83.5	552.8	*	9	2100	214	0.	0.	248.1	562.9
3	1600	65	0.	0.	86.0	553.0	*	9	2200	215	0.	0.	248.2	562.9
3	1700	66	0.	0.	88.4	553.2	*	9	2300	216	0.	0.	248.3	562.9
3	1800	67	0.	0.	90.8	553.4	*	10	0000	217	0.	0.	248.4	563.0
3	1900	68	0.	0.	93.2	553.6	*	10	0100	219	0.	0.	248.5	563.0
3	2000	69	0.	0.	95.5	553.8	*	10	0200	219	0.	0.	248.6	563.0
3	2100	70	0.	0.	97.9	554.0	*	10	0300	220	0.	0.	248.7	563.0
3	2200	71	0.	0.	100.2	554.2	*	10	0400	221	0.	0.	248.8	563.0
3	2300	72	0.	0.	102.6	554.4	*	10	0500	222	0.	0.	248.8	563.0
4	0000	73	0.	0.	104.9	554.5	*	10	0600	223	0.	0.	248.9	563.0
4	0100	74	0.	0.	107.2	554.7	*	10	0700	224	0.	0.	248.9	563.0
4	0200	75	0.	0.	109.5	554.9	*	10	0800	225	0.	0.	248.9	563.0
4	0300	76	0.	0.	111.7	555.1	*	10	0900	226	0.	0.	248.9	563.0
4	0400	77	0.	0.	113.8	555.2	*	10	1000	227	0.	0.	248.9	563.0
4	0500	78	0.	0.	116.0	555.4	*	10	1100	225	0.	0.	248.9	583.0
4	0600	79	0.	0.	118.0	555.5	*	10	1200	229	0.	0.	248.9	563.0
4	0700	80	0.	0.	120.1	555.7	*	10	1300	230	0.	0.	248.9	563.0
4	0800	81	0.	0.	122.0	555.8	*	10	1400	231	0.	0.	248.9	563.0
4	0900	82	0.	0.	124.0	555.9	*	10	1500	232	0.	0.	248.9	563.0
4	1000	83	0.	0.	126.0	556.1	*	10	1600	233	0.	0.	248.8	563.0
4	1100	84	0.	0.	128.0	556.2	*	10	1700	234	0.	0.	248.8	563.0
4	1200	85	0.	0.	130.1	556.4	*	10	1800	235	0.	0.	248.8	563.0
4	1300	86	0.	0.	132.0	556.5	*	10	1900	236	0.	0.	248.8	563.0
4	1400	87	0.	0.	133.9	556.6	*	10	2000	237	0.	0.	248.8	563.0
4	1500	88	0.	0.	135.8	556.7	*	10	2100	236	0.	0.	248.8	563.0
4	1600	89	0.	0.	137.7	556.9	*	10	2200	238	0.	0.	249.8	563.0
4	1700	90	0.	0.	139.6	557.0	*	10	2300	240	0.	0.	248.7	563.0
4	1800	91	0.	0.	141.4	557.1	*	11	0000	241	0.	0.	248.7	583.0
4	1900	92	0.	0.	143.0	557.2	*	11	0100	242	0.	0.	248.7	563.0
4	2000	83	0.	0.	144.6	557.3	*	11	0200	243	0.	0.	248.7	563.0
4	2100	94	0.	0.	146.2	557.4	*	11	0300	244	0.	0.	248.7	583.0
4	2200	95	0.	0.	147.8	557.5	*	11	0400	245	0.	0.	248.7	583.0
4	2300	96	0.	0.	149.3	557.6	*	11	0500	246	0.	0.	248.6	563.0
5	0000	97	0.	0.	150.8	557.7	*	11	0600	247	0.	0.	248.6	563.0
5	0100	98	0.	0.	152.3	557.8	*	11	0700	248	0.	0.	248.6	563.0
5	0200	99	0.	0.	153.9	557.9	*	11	0800	249	0.	0.	248.6	563.0
5	0300	100	0.	0.	155.3	558.0	*	11	0900	250	0.	0.	248.6	563.0
5	0400	101	0.	0.	156.8	558.1	*	11	1000	251	0.	0.	248.6	563.0
5	0500	102	0.	0.	158.3	558.2	*	11	1100	252	0.	0.	248.5	563.0
5	0600	103	0.	0.	159.8	558.3	*	11	1200	253	0.	0.	248.5	563.0
5	0700	104	0.	0.	161.3	558.3	*	11	1300	254	0.	0.	248.5	563.0
5	0800	105	0.	0.	162.7	558.4	*	11	1400	255	0.	0.	248.5	563.0
5	0900	106	0.	0.	164.2	558.5	*	11	1500	256	0.	0.	248.5	563.0
5	1000	107	0.	0.	165.6	558.6	*	11	1600	257	0.	0.	248.5	563.0
5	1100	108	0.	0.	167.1	558.7	*	11	1700	258	0.	0.	248.5	583.0
5	1200	109	0.	0.	168.6	558.8	*	11	1800	258	0.	0.	248.4	563.0
5	1300	110	0.	0.	170.0	556.9	*	11	1900	260	0.	0.	248.4	583.0
5	1400	111	0.	0.	171.4	558.9	*	11	2000	261	0.	0.	248.4	563.0
5	1500	112	0.	0.	172.9	559.0	*	11	2100	262	0.	0.	248.4	563.0
5	1600	113	0.	0.	174.3	559.1	*	11	2200	263	0.	0.	248.4	563.0
5	1700	114	0.	0.	175.8	559.2	*	11	2300	264	0.	0.	248.4	562.9
5	1800	115	0.	0.	177.2	559.3	*	12	0000	265	0.	0.	248.3	562.9
5	1900	116	0.	0.	178.6	559.4	*	12	0100	266	0.	0.	248.3	562.9
5	2000	117	0.	0.	180.1	559.4	*	12	0200	267	0.	0.	246.3	562.9
5	2100	118	0.	0.	181.5	559.5	*	12	0300	268	0.	0.	248.3	562.9
5	2200	119	0.	0.	182.8	559.6	*	12	0400	269	0.	0.	246.3	562.9
5	2300	120	0.	0.	184.0	559.7	*	12	0500	270	0.	0.	248.3	562.9
6	0000	121	0.	0.	185.2	559.7	*	12	0600	271	0.	0.	248.3	562.9
6	0100	122	0.	0.	188.4	559.8	*	12	0700	272	0.	0.	248.2	562.9
6	0200	129	0.	0.	187.6	559.9	*	12	0900	273	0.	0.	243.2	562.9
6	0300	124	0.	0.	188.7	559.9	*	12	0900	274	0.	0.	248.2	562.9



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1*************************************                                  *************************************
*                                   *                                  *                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                  *   U.S. ARMY CORPS OF ENGINEERS    *
*          SEPTEMBER 1990           *                                  *   HYDROLOGIC ENGINEERING CENTER   *
*           VERSION 4.0             *                                  *        609 SECOND STREET          *
*                                   *                                  *      DAVIS, CALIFORNIA 95616      *
* RUN DATE  05/05/1998  TIME  16:49:13 *                                *        (916) 756-1104             *
*                                   *                                  *                                   *
*************************************                                  *************************************

                                    X     X  XXXXXXX  XXXXX          X
                                    X     X  X       X    X         XX
                                    X     X  X       X              X
                                    XXXXXXX  XXXX    X       XXXXX  X
                                    X     X  X       X              X
                                    X     X  X       X    X         X
                                    X     X  XXXXXXX  XXXXX        XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KN.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                   HEC-1 INPUT                                                    PAGE  1

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID        FILENAME: 7_SIN7_0.hc1; REVISED 04-27-1998
  2           ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for Pothole 1
  3           ID        HEC-1 MODEL-7.SIN, 7-Day STORM EVENT
  4           ID        Pumping Facility Rated at 0 cfs

  6           IT     60                     300
  7           IN     60
  8           IO      0       2       0

  9           KK    SUB5 RUNOFF FROM W. OF MYERS RD.
 10           KM   RUNOFF TO JR. HIGH THROUGH 24" UNDER MYERS RD. ROUTED TO WHIPPLE POND
 11           BA    .055
              *   PRECIPITATION IS 7.9-INCHES
 12           PB     7.5
 13           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
 14           PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .076
 15           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
 16           PC    .137    .142    .149    .156    .163    .170    .177    .184    .191    .198
 17           PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
 18           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
 19           PC    .506    .514    .521    .529    .536    .544    .551    .559    .566    .574
 20           PC    .581    .589    .596    .604    .611    .617    .623    .630    .636    .642
 21           PC    .648    .654    .661    .669    .673    .679    .685    .692    .698    .702
 22           PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
 23           PC    .753    .758    .762    .767    .771    .776    .761    .785    .790    .794
 24           PC    .799    .804    .808    .813    .817    .822    .827    .830    .833    .837
 25           PC    .840    .844    .847    .650    .854    .857    .861    .864    .867    .871
 26           PC    .874    .878    .881    .884    .888    .891    .895    .898    .901    .905
 27           PC    .908    .912    .915    .918    .922    .835    .929    .932    .935    .939
 28           PC    .942    .946    .949    .952    .956    .959    .963    .966    .969    .973
 29           PC    .976    .980    .983    .986    .990    .993    .997   1.000
 30           LS      0      75
 31           UD     .62

 32           KK    SUB8 DIRECT RUNOFF TO WHIPPLE POND
 31           KM   RUNOFF OVERLAND TO WHIPPLE POND
 34           BA    .073
 35           LS      0      66
 36           UD    1.53

 37           KK    SUB7 RUNOFF FROM AREA SOUTH OF JR HIGH
 38           KM   RUNOFF TO POND AT SE CORNER OF JR HIGH INFILT/OVERFLOW TO WHIPPLE POND
 39           BA    .022
 40           LS      0      78
 41           UD     .85

 42           KK   SE CORNER OF JR HIGH POND STORAGE AND RELEASE
 43           KM    POND INFILTRATES TO WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
 44           RS      1    ELEV     580
 45           SA      0    .057    .083    .125    .135
 46           SE    580     582     584     586     588
 47           SQ      0      .3       1       2      30
1                                                   HEC-1 INPUT                                                    PAGE  2

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 48          KK    SUB6 RUNOFF FROM JR. HIGH BUILDINGS AREA
 49          KM   RUNOFF TO JR HIGH POND THEN TO WHIPPLE POND VIA INFILTRATION
 50          BA    .027
 51          LS      0      84
 52          UD     .33

 53          KK   JR. HIGH POND STORAGE AND RELEASE
 54          KM    JR. HIGH POND INFILTRATES NEAR WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
 55          RS      1    ELEV     589
 56          SA      0    .251    .506    .611    .777
 57          SE    589     590     592     591     594
 58          SQ      0      .2       1       2      30

 59          KK    COM1
 60          KM        COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 5 THRU 8
 61          HC      4

 62          KK   WHIPPLE POND STORAGE AND RELEASE
 63          KM    100% OF RELEASE FROM WHIPPLE POND IS SUBSURFACE VIA STORM EASEMENT
 64          RS      1    ELEV     576
 65          SA      0    .004    .329    .705    1.15    1.59    2.69     3.0
 66          SE    576     578     580     582     584     586     588     590
 67          SQ      0      .2       1       2       3       3       3      10

 68          KK    SUB3 RUNOFF FROM COUNTY DEVELOP. JUST N. WHIPPLES
 69          KM   RUNOFF TO RETENTION/INFILTRATION BASIN- SUBSURFACE TO CHANNEL
 70          BA    .019
 71          LS      0      79
 72          UD     .38

 73          KK   POND3 SUBAREA3 RETENTION/INFILTRATION POND
 74          KM    POND INFILTRATES AND JOINS WITH WHIPPLE POND SUBSURFACE FLOW
 75          RS      1    ELEV     600
 76          SA      0    .121    .134    .149    .164
 77          SE    600     601     602     603     604
 78          SQ      0      .2       1       2      20

 79          KK    COM2
 80          KM        COMBINE ROUTED FLOWS FROM FROM WHIPPLE POND AND POND 3
 81          HC      2

 82          KK    SUB1 RUNOFF FROM COUNTY DEVELOP. N. OF 64TH ST.
 83          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 84          BA    .040
 85          LS      0      83
 86          UD     .65

 87          KK    SUB2 RUNOFF FROM COUNTY DEVELOP. N. OF 187TH CUL-DE-SAC
 88          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 89          BA    .023
 90          LS      0      83
 91          UD     .60
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 92          KK    SUB4 RUNOFF FROM COUNTY DEVELOP. ALONG 184TH ST
 93          KM   RUNOFF OVERLAND TO MAIN CHANNEL TO POTHOLE 1
 94          BA    .017
 95          LS      0      79
 96          UD     .90

 97          KK    SUB9 RUNOFF FROM OTHER CONTRIBUTIONS TO POTHOLE 1
 98          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 99          BA    .250
100          LS      0      79
101          UD    1.43

102          KK    COM3
103          KM        COMBINE ROUTED FLOWS FROM SUB-BASINS 1 THRU 9
104          HC      5

105          KK   PUMP1 LIFT STATION PUMP TO 64TH AVE
106          KM    NO PUMP - MODELING CURRENT CONDITIONS
107          RS      1    ELEV     536
108          SA      0       2     4.5     9.7    13.5    18.3    23.4
109          SE    536     540     545     550     555     560     569
110          SQ    .18     .18     .18     .18     .18     .18     .18
111          WP  545.0     .01   544.0  LIFSTA
112          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (---->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<----) RETURN OF DIVERTED OR PUMPED FLOW

   9        SUB5
              .
              .
  32          .        SUB8
              .          .
```

```
 37          .           .        SUB7
             .           .           V
             .           .           V
 42          .           .       SE CO
             .           .           .
             .           .           .
 48          .           .           .        SUB6
             .           .           .           V
             .           .           .           V
 53          .           .           .       JR. H
             .           .           .           .
             .           .           .           .
 59       COM1.................................
             V
             V
 62      WHIPP
             .
             .
 68          .       SUB3
             .          V
             .          V
 73          .      POND3
             .          .
             .          .
 79       COM2............
             .
             .
 82          .       SUB1
             .          .
             .          .
 87          .           .        SUB2
             .           .           .
             .           .           .
 92          .           .           .        SUB4
             .           .           .           .
             .           .           .           .
 97          .           .           .           .        SUB9
             .           .           .           .           .
             .           .           .           .           .
102       COM3.............................................
             V
             V
111          .-------> LIFSTA
105      PUMP1
```

*** ***

```
            **************
            *            *
105 KK      *    PUMP1   *      LIFT STATION PUMP TO 64TH AVE
            *            *
            **************
                           NO PUMP - MODELING CURRENT CONDITIONS

              HYDROGRAPH ROUTING DATA

107 ES          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC     536.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

108 SA              AREA          .0       2.0       4.5       9.7      13.5      18.3      23.4

109 SE          ELEVATION     536.00    540.00    545.00    550.00    555.00    560.00    565.00

110 SQ          DISCHARGE         0.        0.        0.        0.        0.        0.        0.

111 WP          PUMPING DATA

                  PUMP ON   PUMPING   PUMP OFF
                ELEVATION     RATE   ELEVATION

                   545.0       0.       544.0

                    ISTAD     LIFSTA  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                                          ***

                                          COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      2.67     18.50     53.18    110.92    190.11    294.10
        ELEVATION     536.00    540.00    545.00    550.00    555.00    560.00    565.00
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HYDROGRAPH AT STATION PUMP1

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                                                                  *
      DA MON HRMN  ORD   PUMP Q  OUTFLOW  STORAGE   STAGE         *      DA MON HRMN  ORD   PUMP Q  OUTFLOW  STORAGE   STAGE
```

							*								
1	0000	1	0.	0.	.0	536.0	*	7	0600	151	0.	0.	111.5	555.0
1	0100	2	0.	0.	.0	536.0	*	7	0700	152	0.	0.	112.1	555.1
1	0200	3	0.	0.	.0	536.0	*	7	0800	153	0.	0.	112.8	555.1
1	0300	4	0.	0.	.0	536.0	*	7	0900	154	0.	0.	113.4	555.2
1	0400	5	0.	0.	.0	536.0	*	7	1000	155	0.	0.	114.1	555.2
1	0500	6	0.	0.	.0	536.0	*	7	1100	156	0.	0.	114.8	555.3
1	0600	7	0.	0.	.0	536.0	*	7	1200	157	0.	0.	115.4	555.3
1	0700	8	0.	0.	.0	536.0	*	7	1300	158	0.	0.	116.1	555.4
1	0800	9	0.	0.	.0	536.0	*	7	1400	159	0.	0.	116.8	555.4
1	0900	10	0.	0.	.0	536.0	*	7	1800	160	0.	0.	117.4	555.5
1	1000	11	0.	0.	.0	536.0	*	7	1600	161	0.	0.	118.1	555.5
1	1100	12	0.	0.	.0	536.0	*	7	1700	162	0.	0.	118.7	555.6
1	1200	13	0.	0.	.0	536.0	*	7	1800	163	0.	0.	119.4	555.6
1	1300	14	0.	0.	.0	536.0	*	7	1900	164	0.	0.	120.1	555.7
1	1400	15	0.	0.	.0	536.0	*	7	2000	165	0.	0.	120.7	555.7
1	1500	16	0.	0.	.0	536.0	*	7	2100	166	0.	0.	131.4	555.8
1	1600	17	0.	0.	.0	536.0	*	7	2200	167	0.	0.	122.1	555.8
1	1700	18	0.	0.	.0	536.0	*	7	2300	168	0.	0.	122.7	555.9
1	1800	19	0.	0.	.0	536.0	*	8	0000	169	0.	0.	123.3	555.9
1	1900	20	0.	0.	.0	536.0	*	8	0100	170	0.	0.	123.8	555.9
1	2000	21	0.	0.	.0	536.3	*	8	0200	171	0.	0.	124.1	555.9
1	2100	22	0.	0.	.0	536.7	*	8	0300	172	0.	0.	124.4	556.0
1	2200	23	0.	0.	.0	536.9	*	8	0400	173	0.	0.	124.6	556.0
1	2300	24	0.	0.	.1	537.2	*	8	0500	174	0.	0.	124.9	556.0
2	0000	25	0.	0.	.1	537.5	*	8	0600	175	0.	0.	125.1	556.0
2	0100	26	0.	0.	.2	537.7	*	8	0700	176	0.	0.	125.4	556.0
2	0200	27	0.	0.	.3	538.0	*	8	0600	177	0.	0.	125.6	556.0
2	0300	28	0.	0.	.5	538.2	*	8	0900	178	0.	0.	125.8	556.1
2	0400	29	0.	0.	.6	538.4	*	8	1000	179	0.	0.	136.0	556.1
2	0500	30	0.	0.	.8	538.7	*	8	1100	180	0.	0.	126.3	556.1
2	0600	31	0.	0.	1.0	538.9	*	8	1200	181	0.	0.	136.5	556.1
2	0700	32	0.	0.	1.2	539.1	*	8	1300	182	0.	0.	136.7	556.1
2	0800	33	0.	0.	1.5	539.3	*	8	1400	183	0.	0.	127.0	556.1
2	0900	34	0.	0.	1.7	539.5	*	8	1500	184	0.	0.	127.2	556.2
2	1000	35	0.	0.	2.0	539.7	*	8	1600	185	0.	0.	127.4	556.2
2	1100	36	0.	0.	2.4	539.9	*	8	1700	186	0.	0.	127.6	556.2
2	1200	37	0.	0.	2.8	540.1	*	8	1800	187	0.	0.	127.9	556.2
2	1300	38	0.	0.	3.2	540.3	*	8	1900	168	0.	0.	128.1	556.2
2	1400	39	0.	0.	3.7	540.5	*	8	2000	189	0.	0.	128.3	556.2
2	1500	40	0.	0.	4.2	540.7	*	8	2100	190	0.	0.	128.6	556.3
2	1600	41	0.	0.	4.7	540.9	*	8	2200	191	0.	0.	128.8	556.3
2	1700	42	0.	0.	5.2	541.1	*	8	2300	192	0.	0.	129.0	556.3
2	1800	43	0.	0.	5.8	541.4	*	9	0000	193	0.	0.	129.2	556.3
2	1900	44	0.	0.	6.5	541.6	*	9	0100	194	0.	0.	129.4	556.3
2	2000	45	0.	0.	7.1	541.9	*	9	0200	195	0.	0.	129.6	556.3
2	2100	46	0.	0.	7.8	542.1	*	9	0300	196	0.	0.	129.8	556.3
2	2200	47	0.	0.	8.5	542.3	*	9	0400	197	0.	0.	130.0	556.4
2	2300	48	0.	0.	9.3	542.6	*	9	0500	198	0.	0.	130.2	556.4
3	0000	49	0.	0.	10.2	542.9	*	9	0600	199	0.	0.	130.3	556.4
3	0100	50	0.	0.	11.2	543.2	*	9	0700	200	0.	0.	130.5	556.4
3	0200	51	0.	0.	12.3	543.5	*	9	0800	201	0.	0.	130.6	556.4
3	0300	52	0.	0.	15.6	543.8	*	9	0900	202	0.	0.	130.8	556.4
3	0400	53	0.	0.	15.2	544.2	*	9	1000	203	0.	0.	130.9	556.4
3	0500	54	0.	0.	17.3	544.7	*	9	1100	204	0.	0.	131.0	556.4
3	0600	55	0.	0.	20.2	545.4	*	9	1200	205	0.	0.	131.1	556.4
3	0700	56	0.	0.	23.8	546.1	*	9	1300	206	0.	0.	131.2	556.4
3	0800	57	0.	0.	27.1	546.6	*	9	1400	207	0.	0.	131.3	556.4
3	0900	58	0.	0.	29.7	547.1	*	9	1500	208	0.	0.	131.4	556.4
3	1000	59	0.	0.	31.7	547.4	*	9	1600	209	0.	0.	131.4	556.5
3	1100	60	0.	0.	33.4	547.6	*	9	1700	210	0.	0.	131.5	556.5
3	1200	61	0.	0.	35.0	547.8	*	9	1800	211	0.	0.	131.5	556.5
3	1300	62	0.	0.	36.5	548.0	*	9	1900	212	0.	0.	131.6	556.5
3	1400	63	0.	0.	37.8	548.2	*	9	2000	213	0.	0.	131.6	556.5
3	1500	64	0.	0.	39.0	548.4	*	9	2100	214	0.	0.	131.6	556.5
3	1600	65	0.	0.	40.1	548.5	*	9	2200	215	0.	0.	131.6	556.5
3	1700	66	0.	0.	41.2	548.6	*	9	2300	216	0.	0.	131.6	556.5
3	1600	67	0.	0.	42.2	548.8	*	10	0000	217	0.	0.	131.6	556.5
3	1900	68	0.	0.	43.3	548.9	*	10	0100	218	0.	0.	131.6	556.5
3	2000	65	0.	0.	44.4	549.0	*	10	0200	219	0.	0.	131.5	556.5
3	2100	70	0.	0.	45.5	549.2	*	10	0300	220	0.	0.	131.5	556.5
3	1200	71	0.	0.	46.5	549.3	*	10	0400	221	0.	0.	131.5	556.5
3	2300	72	0.	0.	47.6	549.4	*	10	0500	222	0.	0.	131.5	556.5
4	0000	73	0.	0.	48.7	549.5	*	10	0600	223	0.	0.	131.5	556.5
4	0100	74	0.	0.	48.8	549.6	*	10	0700	224	0.	0.	131.5	556.5
4	0200	75	0.	0.	50.9	549.8	*	10	0800	225	0.	0.	131.5	556.5
4	0300	76	0.	0.	52.0	549.9	*	10	0900	226	0.	0.	131.4	556.4
4	0400	77	0.	0.	53.0	550.0	*	10	1000	227	0.	0.	131.4	556.4
4	0500	78	0.	0.	54.0	550.1	*	10	1100	228	0.	0.	131.4	556.4
4	0600	79	0.	0.	55.0	560.2	*	10	1200	229	0.	0.	131.4	556.4
4	0700	80	0.	0.	55.5	550.3	*	10	1300	230	0.	0.	131.4	556.4
4	0800	81	0.	0.	56.9	550.4	*	10	1400	231	0.	0.	131.4	556.4
4	0900	82	0.	0.	57.5	550.5	*	10	1500	232	0.	0.	131.3	556.4
4	1000	83	0.	0.	58.9	550.6	*	10	1600	233	0.	0.	131.3	556.4
4	1100	84	0.	0.	59.9	550.7	*	10	1700	234	0.	0.	131.3	556.4
4	1200	85	0.	0.	61.0	550.8	*	10	1800	235	0.	0.	131.3	556.4
4	1300	56	0.	0.	62.0	550.9	*	10	1900	236	0.	0.	131.3	556.4
4	1400	87	0.	0.	63.0	551.0	*	10	2000	237	0.	0.	131.3	556.4
4	1500	86	0.	0.	64.0	551.1	*	10	2100	238	0.	0.	131.3	556.4
4	1600	89	0.	0.	65.0	551.2	*	10	2200	239	0.	0.	131.2	556.4
4	1700	90	0.	0.	66.0	551.3	*	10	2300	240	0.	0.	131.2	556.4
4	1800	91	0.	0.	67.0	551.4	*	11	0000	241	0.	0.	131.2	556.4
4	1900	92	0.	0.	67.9	551.4	*	11	0100	242	0.	0.	131.2	556.4
4	2000	93	0.	0.	68.7	551.5	*	11	0200	243	0.	0.	131.2	556.4

4	2100	94	0.	0.	69.6	551.6	*	11	0300	244	0.	0.	131.2	556.4
4	2200	95	0.	0.	70.4	551.7	*	11	0400	245	0.	0.	131.1	556.4
4	2300	96	0.	0.	71.3	551.8	*	11	0500	246	0.	0.	131.1	556.4
5	0000	97	0.	0.	72.1	551.8	*	11	0600	247	0.	0.	131.1	556.4
5	0100	98	0.	0.	73.0	551.9	*	11	0700	248	0.	0.	131.1	556.4
5	0200	99	0.	0.	73.8	552.0	*	11	0800	249	0.	0.	131.1	556.4
5	0300	100	0.	0.	74.6	552.1	*	11	0900	250	0.	0.	131.1	556.4
5	0400	101	0.	0.	75.5	552.1	*	11	1000	251	0.	0.	131.1	556.4
5	0500	102	0.	0.	76.3	552.2	*	11	1100	252	0.	0.	131.0	556.4
5	0600	103	0.	0.	77.1	552.3	*	11	1200	253	0.	0.	131.0	556.4
5	0700	104	0.	0.	78.0	552.4	*	11	1300	254	0.	0.	131.0	556.4
5	0800	105	0.	0.	78.8	552.4	*	11	1400	255	0.	0.	131.0	556.4
5	0900	106	0.	0.	79.8	552.5	*	11	1500	256	0.	0.	131.0	556.4
5	1000	107	0.	0.	80.5	552.6	*	11	1600	257	0.	0.	131.0	556.4
5	1100	108	0.	0.	81.3	552.6	*	11	1700	258	0.	0.	130.9	556.4
5	1200	109	0.	0.	82.1	552.7	*	11	1800	259	0.	0.	130.9	556.4
5	1300	110	0.	0.	82.9	552.8	*	11	1900	260	0.	0.	130.9	556.4
5	1400	111	0.	0.	83.8	552.9	*	11	2000	261	0.	0.	130.9	556.4
5	1500	112	0.	0.	84.6	552.9	*	11	2100	262	0.	0.	130.9	556.4
5	1600	113	0.	0.	85.4	553.0	*	11	2200	263	0.	0.	130.9	556.4
5	1700	114	0.	0.	86.3	553.1	*	11	2300	264	0.	0.	130.9	556.4
5	1800	115	0.	0.	87.1	553.1	*	12	0000	265	0.	0.	130.8	556.4
5	1900	116	0.	0.	87.9	553.2	*	12	0100	266	0.	0.	130.8	556.4
5	2000	117	0.	0.	88.7	553.3	*	12	0200	267	0.	0.	130.8	556.4
5	2100	118	0.	0.	89.6	553.3	*	12	0300	268	0.	0.	130.8	556.4
5	2200	119	0.	0.	90.3	553.4	*	12	0400	269	0.	0.	130.8	556.4
5	2300	120	0.	0.	91.0	553.5	*	12	0500	270	0.	0.	130.8	556.4
6	0000	121	0.	0.	91.7	553.5	*	12	0600	271	0.	0.	130.7	556.4
6	0100	122	0.	0.	92.4	553.6	*	12	0700	272	0.	0.	130.7	556.4
6	0200	123	0.	0.	92.0	553.6	*	12	0800	273	0.	0.	130.7	556.4
6	0300	124	0.	0.	93.7	553.7	*	12	0900	274	0.	0.	130.7	556.4
6	0400	125	0.	0.	94.3	553.7	*	12	1000	275	0.	0.	130.7	556.4
6	0500	126	0.	0.	95.0	553.8	*	12	1100	276	0.	0.	130.7	556.4
6	0600	127	0.	0.	95.7	553.8	*	12	1200	277	0.	0.	130.7	556.4
6	0700	128	0.	0.	96.3	553.9	*	12	1300	278	0.	0.	130.6	556.4
6	0800	129	0.	0.	97.0	553.9	*	12	1400	279	0.	0.	130.6	556.4
6	0900	130	0.	0.	97.6	554.0	*	12	1500	280	0.	0.	130.6	556.4
6	1000	131	0.	0.	98.3	554.0	*	12	1600	281	0.	0.	130.6	556.4
6	1100	132	0.	0.	99.9	554.1	*	12	1700	282	0.	0.	130.6	556.4
6	1200	133	0.	0.	99.6	554.1	*	12	1800	283	0.	0.	130.6	556.4
6	1300	134	0.	0.	100.3	554.2	*	12	1900	284	0.	0.	130.5	556.4
6	1400	135	0.	0.	100.9	554.2	*	12	2000	285	0.	0.	130.5	556.4
6	1500	136	0.	0.	101.6	554.3	*	12	2100	286	0.	0.	130.5	556.4
6	1600	137	0.	0.	102.2	554.3	*	12	2200	287	0.	0.	130.5	556.4
6	1700	138	0.	0.	102.9	554.4	*	12	2300	288	0.	0.	130.5	556.4
6	1800	139	0.	0.	103.5	554.4	*	13	0000	289	0.	0.	130.5	556.4
6	1900	140	0.	0.	104.2	554.5	*	12	0100	290	0.	0.	130.5	556.4
6	2000	141	0.	0.	104.9	554.5	*	13	0200	291	0.	0.	130.4	556.4
6	2100	142	0.	0.	105.5	554.6	*	13	0300	292	0.	0.	130.4	556.4
6	2200	143	0.	0.	106.2	554.6	*	13	0400	293	0.	0.	130.4	556.4
6	2100	144	0.	0.	106.8	554.7	*	13	0500	294	0.	0.	130.4	556.4
7	0000	145	0.	0.	107.5	554.7	*	13	0600	295	0.	0.	130.4	556.4
7	0100	146	0.	0.	108.2	554.8	*	13	0700	296	0.	0.	130.4	556.4
7	0200	147	0.	0.	108.8	554.8	*	13	0800	297	0.	0.	130.3	556.4
7	0300	148	0.	0.	109.5	554.9	*	13	0900	298	0.	0.	130.3	556.4
7	0400	149	0.	0.	110.1	554.9	*	12	1000	299	0.	0.	130.3	556.4
7	0500	150	0.	0.	110.8	555.0	*	13	1100	300	0.	0.	130.3	556.4
							*							

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PEAK OUTFLOW IS 0. AT TIME .00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+		(CFS)				
+ 0.	55.00		0.	0.	0.	0.
		(INCHES)	.000	.001	.002	.007
		(AC-FT)	0.	0.	0.	0.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+		(CFS)				
+ 0.	1.00		0.	0.	0.	0.
		(INCHES)	.003	.013	.038	.151
		(AC-FT)	0.	0.	1.	4.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	299.00-HR
+ 132.	214.00	132.	131.	131.	89.

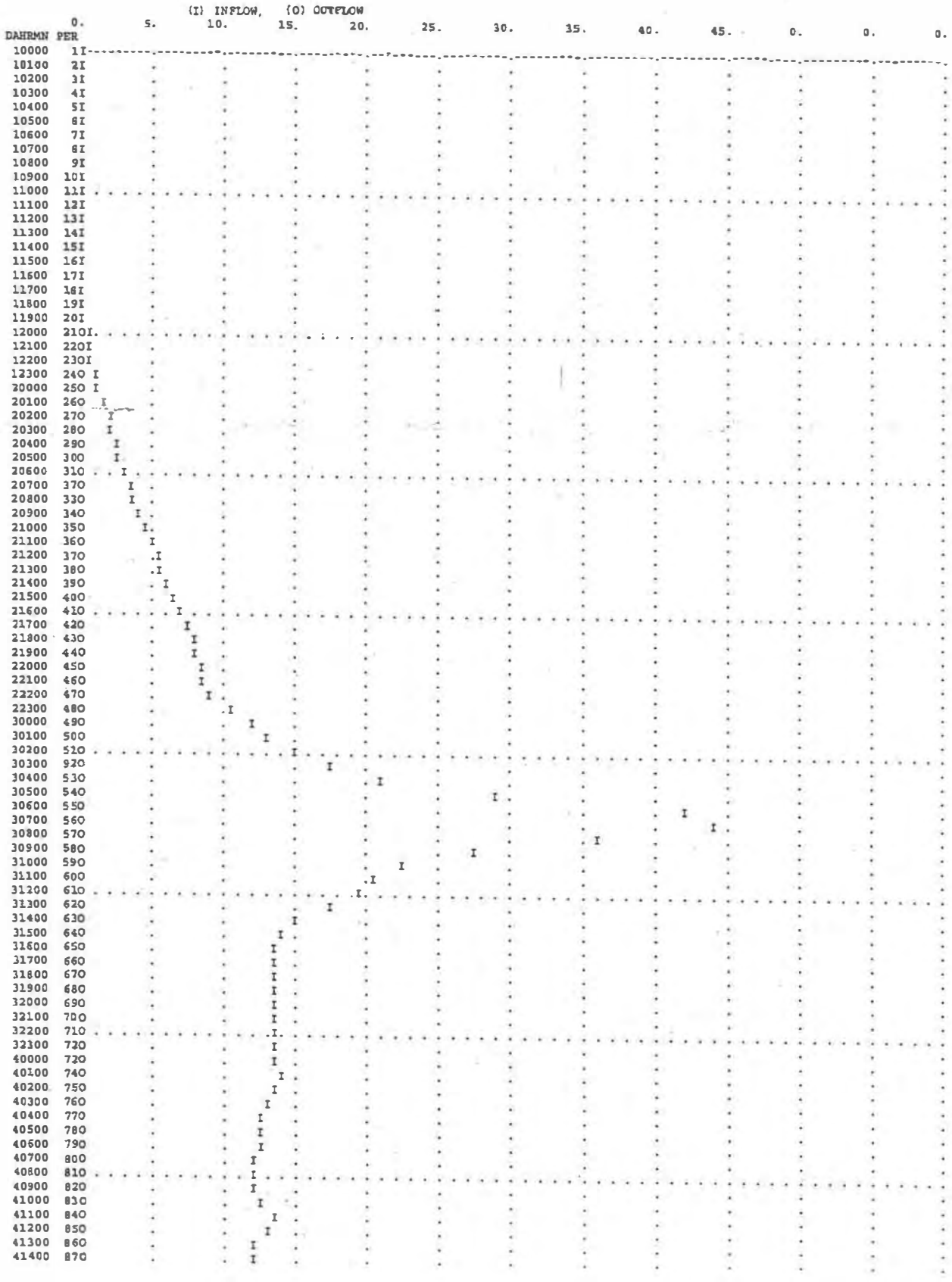
PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	299.00-HR
+ 556.46	214.00	556.46	556.45	556.43	551.68

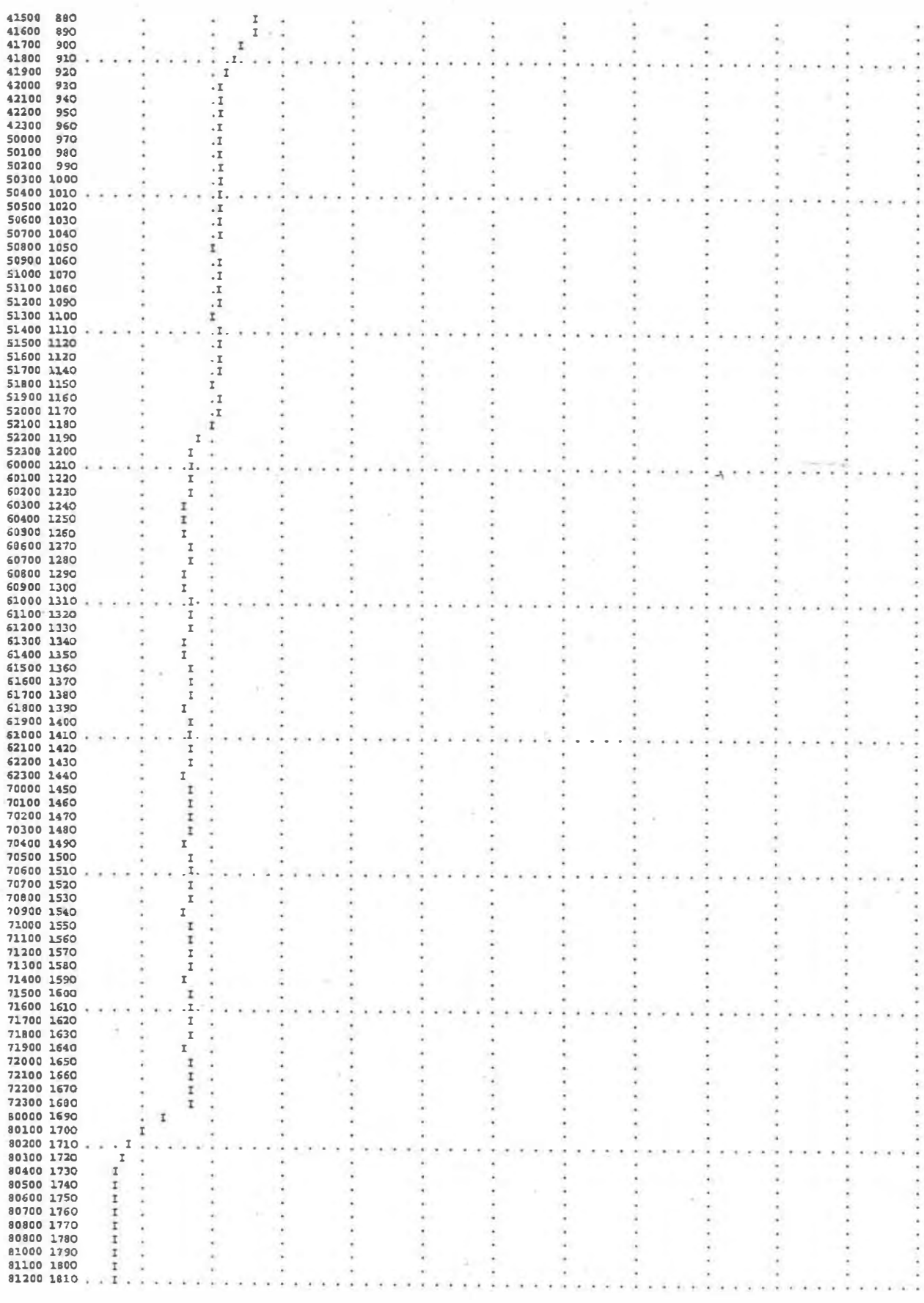
CUMULATIVE AREA = .53 SQ MI

1

STATION PUMP1

(I) INFLOW, (O) OUTFLOW

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41600 890
41700 900
41800 910
41900 920
42000 930
42100 940
42200 950
42300 960
50000 970
50100 980
50200 990
50300 1000
50400 1010
50500 1020
50600 1030
50700 1040
50800 1050
50900 1060
51000 1070
51100 1080
51200 1090
51300 1100
51400 1110
51500 1120
51600 1130
51700 1140
51800 1150
51900 1160
52000 1170
52100 1180
52200 1190
52300 1200
60000 1210
60100 1220
60200 1230
60300 1240
60400 1250
60500 1260
60600 1270
60700 1280
60800 1290
60900 1300
61000 1310
61100 1320
61200 1330
61300 1340
61400 1350
61500 1360
61600 1370
61700 1380
61800 1390
61900 1400
62000 1410
62100 1420
62200 1430
62300 1440
70000 1450
70100 1460
70200 1470
70300 1480
70400 1490
70500 1500
70600 1510
70700 1520
70800 1530
70900 1540
71000 1550
71100 1560
71200 1570
71300 1580
71400 1590
71500 1600
71600 1610
71700 1620
71800 1630
71900 1640
72000 1650
72100 1660
72200 1670
72300 1680
80000 1690
80100 1700
80200 1710
80300 1720
80400 1730
80500 1740
80600 1750
80700 1760
80800 1770
80900 1780
81000 1790
81100 1800
81200 1810

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 81300 1820     I
 81400 1830     I
 81500 1840     I
 81600 1850     I
 81700 1860     I
 81800 1870     I
 81900 1880     I
 82000 1890     I
 82100 1900     I
 82200 1910  . . I
 82300 1920     I
 90000 1930     I
 90100 1940    I
 90200 1950    I
 90300 1960    I
 90400 1970    I
 90500 1980   I
 90600 1990   I
 90700 2000   I
 90800 2010 . I
 90900 2020   I
 91000 2030  I
 91100 2040  I
 91200 2050  I
 91300 2060  I
 91400 2070 I
 91500 2080 I
 91600 2090 I
 91700 2100 I
 91800 2110I.
 91900 2120I
 92000 2130I
 92100 2140I
 92200 215I
 92300 216I
100000 217I
100100 218I
100200 219I
100300 220I
100400 221I
100500 222I
100600 223I
100700 224I
100800 225I
100900 226I
101000 227I
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101200 229I
101300 220I
101400 231I
101500 232I
101600 233I
101700 234I
101800 225I
101900 216I
102000 237I
102100 238I
102200 239I
102300 240I
110000 241I
110100 242I
110200 243I
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110400 245I
110500 246I
110600 247I
110700 248I
110800 249I
110900 250I
111000 251I
111100 252I
111200 253I
111300 254I
111400 255I
111500 256I
111600 257I
111700 258I
111800 259I
111900 260I
112000 261I
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112300 264I
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120300 268I
120400 269I
120500 270I
120600 271I
120700 272I
120800 273I
120900 274I
121000 275I
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121100 276I
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121300 278I
121400 279I
121500 280I
121600 281I
121700 282I
121800 283I
121900 284I
122000 285I
122100 286I
122200 287I
122300 288I
130000 289I
130100 290I
130200 291I
130300 292I
130400 292I
130500 294I
130600 255I
130700 296I
130800 297I
130900 298I
131000 299I
131100 300I
1
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SUB5	7.	54.00	4.	2.	2.	.05		
+	HYDROGRAPH AT	SUB8	5.	55.00	4.	2.	2.	.07		
+	HYDROGRAPH AT	SUB7	3.	54.00	2.	1.	1.	.02		
+	ROUTED TO	SE CO	2.	56.00	2.	1.	1.	.02		
+									585.98	56.00
+	HYDROGRAPH AT	SUB6	5.	54.00	3.	1.	1.	.03		
+	ROUTED TO	JR. H	2.	56.00	2.	1.	1.	.03		
+									592.81	56.00
+	4 COMBINED AT	COM1	14.	55.00	11.	7.	5.	.18		
+	ROUTED TO	WHIPP	4.	89.00	4.	4.	3.	.18		
+									589.23	89.00
+	HYDROGRAPH AT	SUB3	3.	54.00	2.	1.	1.	.02		
+	ROUTED TO	POND3	2.	55.00	2.	1.	1.	.02		
+									603.00	55.00
+	2 COMBINED AT	COM2	5.	55.00	5.	4.	4.	.20		
+	HYDROGRAPH AT	SUB1	6.	54.00	4.	2.	1.	.04		
+	HYDROGRAPH AT	SUB2	4.	54.00	2.	1.	1.	.02		
+	HYDROGRAPH AT	SUB4	2.	54.00	1.	1.	1.	.02		
+	HYDROGRAPH AT	SUB9	30.	55.00	21.	12.	8.	.25		
+	5 COMBINED AT	COM3	44.	55.00	33.	20.	14.	.93		
+	PUMP FLOW TO	LIFSTA	0.	55.00	0.	0.	0.	.83		
+	HYDROGRAPH AT	PUMP1	0.	1.00	0.	0.	0.	.53		
+									556.46	214.00

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1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          SEPTEMBER 1990           *
*           VERSION 4.0             *
*                                   *
* RUN DATE  05/05/1998  TIME  17:20:20 *
*                                   *
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*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*         (916) 756-1104            *
*                                   *
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X     X  XXXXXXX  XXXXX          X
X     X  X        X    X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X    X         X
X     X  XXXXXXX  XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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1                                    HEC-1 INPUT                                                    PAGE  1

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    1           ID        FILENAME: 7_5in7_4.hc1: REVISED 04-27-1998
    2           ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for Pothole 1
    3           ID        HEC-1 MODEL--7.5IN, 7-Day STORM EVENT
    4           ID        Pumping Facility Rated at 4.5 cfs
    5           ID        MODEL OF STORM OF DEC. '96 - JAN. '97 WITH PUMP STATION ADDED
                *DIAGRAM
    6           IT      60                    300
    7           IN      60
    8           IO       0       2       0

    9           KK    SUB5 RUNOFF FROM W. OF MYERS RD.
   10           KM   RUNOFF TO JR. HIGH THROUGH 24" UNDER MYERS RD. ROUTED TO WHIPPLE POND
   11           BA     .055
                *   PRECIPITATION IS 7.5-INCHES
   12           PB     7.5
   13           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
   14           PC    .037    .041    .046    .049    .054    .058    .062    .067    .071    .076
   15           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
   16           PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .198
   17           PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
   18           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
   19           PC    .506    .514    .521    .529    .536    .544    .551    .559    .566    .574
   20           PC    .581    .589    .596    .604    .611    .617    .623    .630    .836    .642
   21           PC    .648    .654    .661    .655    .673    .679    .685    .692    .698    .702
   22           PC    .707    .713    .716    .721    .725    .730    .735    .739    .744    .748
   23           PC    .753    .758    .762    .767    .771    .776    .781    .755    .790    .794
   24           PC    .799    .804    .808    .813    .817    .822    .827    .830    .633    .837
   25           PC    .840    .844    .847    .850    .854    .857    .861    .864    .867    .871
   26           PC    .874    .878    .881    .884    .888    .891    .895    .888    .901    .905
   27           PC    .908    .912    .915    .918    .922    .925    .929    .932    .935    .939
   28           PC    .942    .946    .949    .952    .956    .952    .963    .966    .969    .973
   29           PC    .976    .980    .983    .986    .990    .983    .997   1.000
   30           LS       0      76
   31           UD     .62

   32           KK    SUB8 DIRECT RUNOFF TO WHIPPLE POND
   33           KM   RUNOFF OVERLAND TO WHIPPLE POND
   34           BA    .073
   35           LS       0      66
   36           UD    1.53

   37           KK    SUB7 RUNOFF FROM AREA SOUTH OF JR HIGH
   38           KM   RUNOFF TO POND AT SE CORNER OF JR HIGH INFILT/OVERFLOW TO WHIPPLE POND
   39           BA    .022
   40           LS       0      78
   41           UD     .85

   42           KK   SE CORNER OF JR HIGH POND STORAGE AND RELEASE
   43           KM    POND INFILTRATES TO WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
   44           RS       1    ELEV     580
   45           SA       0    .057    .083    .115    .135
   46           SE     580     582     584     586     588
   47           SQ       0      .2       1       2      30
1                                    HEC-1 INPUT                                                    PAGE  2

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 48          KK   SUB6 RUNOFF FROM JR. HIGH BUILDINGS AREA
 49          KM  RUNOFF TO JR HIGH POND THEN TO WHIPPLE POND VIA INFILTRATION
 50          BA   .027
 51          LS     0      84
 52          UD    .33

 53          KK  JR. HIGH POND STORAGE AND RELEASE
 54          KM   JR. HIGH POND INFILTRATES NEAR WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
 55          RS     1    ELEV     589
 56          SA     0    .251    .506    .611    .777
 57          SE   589     590     592     593     594
 58          SQ     0      .2       1       2      30

 59          KK   COM1
 60          KM       COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 5 THRU 8
 61          HC     4

 62          KK  WHIPPLE POND STORAGE AND RELEASE
 63          KM   100% OF RELEASE FROM WHIPPLE POND IS SUBSURFACE VIA STORM EASEMENT
 64          RS     1    ELEV     576
 65          SA     0    .004    .229    .705    1.15    1.59    2.69     3.0
 66          SE   576     578     580     582     584     586     588     590
 67          SQ     0      .2       1       2       3       3       3      10

 68          KK   SUB3 RUNOFF FROM COUNTY DEVELOP. JUST N. WHIPPLES
 69          KM  RUNOFF TO RETENTION/INFILTRATION BASIN- SUBSURFACE TO CHANNEL
 70          BA   .019
 71          LS     0      79
 72          UD    .38

 73          KK  POND3 SUBAREA3 RETENTION/INFILTRATION POND
 74          KM   POND INFILTRATES AND JOINS WITH WHIPPLE POND SUBSURFACE FLOW
 75          RS     1    ELEV     600
 76          SA     0    .121    .134    .149    .164
 77          SE   600     601     602     603     604
 78          SQ     0      .2       1       2      20

 79          KK   COM2
 80          KM       COMBINE ROUTED FLOWS FROM FROM WHIPPLE POND AND POND 3
 81          HC     2

 82          KK   SUB1 RUNOFF FROM COUNTY DEVELOP. N. OF 64TH ST.
 83          KM  RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 84          BA   .040
 85          LS     0      83
 86          UD    .65

 87          KK   SUB2 RUNOFF FROM COUNTY DEVELOP. N. OF 187TH CUL-DE-SAC
 88          KM  RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 89          BA   .023
 90          LS     0      83
 91          UD    .60
1                                    HEC-1 INPUT                                    PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 92          KK   SUB4 RUNOFF FROM COUNTY DEVELOP. ALONG 184TH ST
 91          KM  RUNOFF OVERLAND TO MAIN CHANNEL TO POTHOLE 1
 94          BA   .017
 95          LS     0      79
 96          UD    .80

 97          KK   SUB9 RUNOFF FROM OTHER CONTRIBUTIONS TO POTHOLE 1
 98          KM  RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 99          BA   .250
100          LS     0      79
101          UD   1.43

102          KK   COM3
103          KM       COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 1 THRU 9
104          HC     9

105          KK  PUMP1 LIFT STATION PUMP TO 64TH AVE
106          KM   NO PUMP - MODELING CURRENT CONDITIONS
107          RS     1    ELEV     536
108          SA     0       2     4.5     9.7    13.5    18.3    23.4
109          SE   536     540     545     550     555     560     565
110          SQ   .18     .18     .18     .18     .18     .18     .18
111          WP 545.0    4.46   540.0  LIFSTA
112          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   9        SUB5
              .
              .
  32          .        SUB8
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                .          .
                .          .
 37             .          .        SUB7
                .          .           V
                .          .           V
 42             .          .       SE CO
                .          .           .
                .          .           .
 48             .          .           .        SUB6
                .          .           .           V
                .          .           .           V
 53             .          .           .       JR. H
                .          .           .           .
                .          .           .           .
 59          COM1.........................................
                V
                V
 62         WHIPP
                .
                .
 68             .       SUB3
                .          V
                .          V
 73             .      POND3
                .          .
                .          .
 79          COM2............
                .
                .
 82             .       SUB1
                .          .
                .          .
 87             .          .        SUB2
                .          .           .
                .          .           .
 92             .          .           .        SUB4
                .          .           .           .
                .          .           .           .
 97             .          .           .           .        SUB9
                .          .           .           .           .
                .          .           .           .           .
102          COM3.............................................
                V
                V
111             .-------> LIFSTA
105         PUMP1
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            **************
            *            *
105 KK      *    PUMP1   *      LIFT STATION PUMP TO 64TH AVE
            *            *
            **************
                          NO PUMP - MODELING CURRENT CONDITIONS

            HYDROGRAPH ROUTING DATA

107 RS        STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                   ITYP        ELEV  TYPE OF INITIAL CONDITION
                  RSVRIC     536.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

108 SA            AREA          .0       2.0       4.5       9.7      13.5      19.3      23.4

109 SE        ELEVATION     536.00    540.00    545.00    550.00    555.00    560.00    565.00

110 SQ        DISCHARGE         0.        0.        0.        0.        0.        0.        0.

111 WP        PUMPING DATA

                PUMP ON    PUMPING    PUMP OFF
               ELEVATION     RATE    ELEVATION

                545.0        4.       540.0

                 ISTAD      LIFSTA  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                                    ***

                                          COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      2.67     18.50     53.18    110.92    190.11    294.10
        ELEVATION     536.00    540.00    545.00    550.00    555.00    560.00    565.00
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HYDROGRAPH AT STATION PUMP1

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     DA MON HRMN  ORD   PUMP Q  OUTFLOW  STORAGE   STAGE        *       DA MON HRMN  ORD   PUMP Q  OUTFLOW  STORAGE   STAGE
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							*							
1	0000	1	0.	0.	.0	536.0	*	7	0600	151	4.	0.	76.5	552.2
1	0100	2	0.	0.	.0	536.0	*	7	0700	152	4.	0.	76.8	552.2
1	0200	3	0.	0.	.0	535.0	*	7	0800	153	4.	0.	77.1	552.3
1	0300	4	0.	0.	.0	536.0	*	7	0900	154	4.	0.	77.4	552.3
1	0400	5	0.	0.	.0	536.0	*	7	1000	155	4.	0.	77.7	552.3
1	0500	6	0.	0.	.0	536.0	*	7	1100	156	4.	0.	78.0	552.4
1	0600	7	0.	0.	.0	536.0	*	7	1200	157	4.	0.	78.3	552.4
1	0700	8	0.	0.	.0	536.0	*	7	1300	158	4.	0.	78.6	552.4
1	0800	9	0.	0.	.0	536.0	*	7	1400	159	4.	0.	78.9	552.4
1	0900	10	0.	0.	.0	536.0	*	7	1500	160	4.	0.	79.2	552.5
1	1000	13	0.	0.	.0	536.0	*	7	1600	161	4.	0.	79.5	552.5
1	1100	12	0.	0.	.0	536.0	*	7	1700	162	4.	0.	79.8	552.5
1	1200	13	0.	0.	.0	536.0	*	7	1800	163	4.	0.	80.1	552.5
1	1300	14	0.	0.	.0	536.0	*	7	1900	154	4.	0.	80.4	552.6
1	1400	15	0.	0.	.0	536.0	*	7	2000	165	4.	0.	80.7	552.6
1	1500	16	0.	0.	.0	536.0	*	7	2100	166	4.	0.	81.0	552.6
1	1600	17	0.	0.	.0	536.0	*	7	2200	167	4.	0.	81.3	552.6
1	1700	18	0.	0.	.0	536.0	*	7	2300	168	4.	0.	81.6	552.7
1	1800	15	0.	0.	.0	536.0	*	8	0000	169	4.	0.	81.8	552.7
1	1900	20	0.	0.	.0	536.0	*	8	0100	170	4.	0.	81.9	552.7
1	2000	21	0.	0.	.0	836.3	*	8	0200	171	4.	0.	81.9	552.7
1	2100	22	0.	0.	.0	536.7	*	8	0300	172	4.	0.	81.8	552.7
1	2200	23	0.	0.	.0	536.9	*	8	0400	173	4.	0.	81.7	552.7
1	2300	24	0.	0.	.1	537.2	*	8	0500	174	4.	0.	81.6	552.7
2	0000	25	0.	0.	.1	537.5	*	8	0600	175	4.	0.	81.5	552.7
2	0100	26	0.	0.	.2	537.7	*	8	0700	176	4.	0.	81.3	552.5
2	0200	27	0.	0.	.3	538.0	*	8	0800	177	4.	0.	81.2	552.6
2	0300	28	0.	0.	.5	538.2	*	8	0900	178	4.	0.	81.1	552.6
2	0400	29	0.	0.	.6	538.4	*	8	1000	179	4.	0.	80.9	552.6
2	0500	30	0.	0.	.8	538.7	*	8	1100	180	4.	0.	80.6	552.6
2	0600	31	0.	0.	1.0	538.9	*	8	1200	181	4.	0.	80.7	552.6
2	0700	33	0.	0.	1.2	539.1	*	8	1300	182	4.	0.	80.5	552.6
2	0800	33	0.	0.	1.5	539.3	*	8	1400	183	4.	0.	80.4	552.6
2	0900	34	0.	0.	1.7	539.5	*	8	1500	184	4.	0.	80.3	552.6
2	1000	35	0.	0.	2.0	539.7	*	8	1600	185	4.	0.	80.1	552.5
2	1180	36	0.	0.	2.4	539.9	*	8	1700	186	4.	0.	80.0	552.5
2	1200	37	0.	0.	2.8	540.1	*	8	1800	187	4.	0.	79.9	552.5
2	1300	38	0.	0.	3.2	540.3	*	8	1900	188	4.	0.	79.7	552.5
2	1400	39	0.	0.	3.7	540.5	*	8	2000	189	4.	0.	79.6	552.5
2	1500	40	0.	0.	4.2	540.7	*	8	2100	180	4.	0.	79.5	552.5
2	1600	41	0.	0.	4.7	540.9	*	8	2200	191	4.	0.	79.3	552.5
2	1700	42	0.	0.	5.2	541.1	*	8	2300	192	4.	0.	79.2	552.5
2	1800	43	0.	0.	5.8	541.4	*	9	0000	193	4.	0.	79.1	552.4
2	1900	44	0.	0.	6.5	541.5	*	9	0100	194	4.	0.	78.9	552.4
2	2000	45	0.	0.	7.1	541.9	*	9	0200	195	4.	0.	78.7	552.4
2	2100	46	0.	0.	7.8	542.1	*	9	0300	196	4.	0.	78.6	552.4
2	2200	47	0.	0.	8.5	542.3	*	9	0400	197	4.	0.	78.4	552.4
2	2300	48	0.	0.	9.3	542.6	*	9	0500	198	4.	0.	78.2	552.4
3	0000	49	0.	0.	10.2	542.9	*	9	0600	199	4.	0.	78.0	552.4
3	0100	50	0.	0.	11.2	543.2	*	9	0700	200	4.	0.	77.8	552.3
3	0200	51	0.	0.	12.3	543.5	*	9	0800	201	4.	0.	77.6	552.3
3	0300	52	0.	0.	13.6	543.8	*	9	0900	202	4.	0.	77.3	552.3
3	0480	53	0.	0.	15.2	544.2	*	9	1000	203	4.	0.	77.1	552.3
3	0500	54	0.	0.	17.3	544.7	*	9	1100	204	4.	0.	76.9	552.3
3	0600	55	0.	0.	20.2	545.4	*	9	1200	205	4.	0.	76.6	552.2
3	0700	56	4.	0.	23.5	546.0	*	9	1300	206	4.	0.	76.3	552.2
3	0600	57	4.	0.	26.4	546.5	*	9	1400	207	4.	0.	76.1	552.2
3	0900	58	4.	0.	28.6	546.9	*	9	1500	208	4.	0.	75.8	552.2
3	1000	59	4.	0.	30.3	547.2	*	9	1600	209	4.	0.	75.5	552.1
3	1100	60	4.	0.	31.6	547.4	*	9	1700	210	4.	0.	75.2	552.1
3	1200	61	4.	0.	32.8	547.5	*	9	1800	211	4.	0.	74.9	552.1
3	1300	62	4.	0.	33.9	547.7	*	8	1900	212	4.	0.	74.5	552.0
3	1400	63	4.	0.	34.9	547.8	*	9	2000	213	4.	0.	74.2	552.0
3	1500	64	4.	0.	35.7	547.9	*	9	2100	214	4.	0.	73.8	552.0
3	1600	65	4.	0.	36.4	548.0	*	9	2200	215	4.	0.	73.5	552.0
3	1700	66	4.	0.	37.2	548.1	*	9	2300	216	4.	0.	73.1	551.9
3	1800	67	4.	0.	37.9	548.2	*	10	0000	217	4.	0.	72.7	551.9
3	1900	68	4.	0.	38.6	548.3	*	10	0100	218	4.	0.	72.3	551.9
3	2000	69	4.	0.	39.3	548.4	*	10	0200	219	4.	0.	72.0	551.8
3	2100	70	4.	0.	40.0	548.5	*	10	0300	220	4.	0.	71.6	551.8
3	2200	71	4.	0.	40.7	548.6	*	10	0400	221	4.	0.	71.2	551.7
3	2300	72	4.	0.	41.5	548.7	*	10	0500	222	4.	0.	70.8	551.7
4	0000	71	4.	0.	42.2	548.8	*	10	0600	223	4.	0.	70.5	551.7
4	0100	74	4.	0.	42.9	548.9	*	10	0700	224	4.	0.	70.1	551.6
4	0200	75	4.	0.	43.6	548.9	*	10	0800	225	4.	0.	69.7	551.6
4	0300	76	4.	0.	44.3	549.0	*	10	0900	226	4.	0.	69.3	551.6
4	0400	77	4.	0.	45.0	549.1	*	10	1000	227	4.	0.	69.0	551.5
4	0500	78	4.	0.	45.6	549.2	*	10	1100	228	4.	0.	68.6	551.5
4	0600	79	4.	0.	46.2	549.2	*	10	1200	229	4.	0.	68.2	551.5
4	0700	80	4.	0.	46.8	549.3	*	10	1300	230	4.	0.	67.6	551.4
4	0800	81	4.	0.	47.4	549.4	*	10	1400	231	4.	0.	67.5	551.4
4	0980	82	4.	0.	48.0	549.5	*	10	1500	232	4.	0.	67.1	551.4
4	1000	83	4.	0.	48.7	549.5	*	10	1600	233	4.	0.	66.7	551.3
4	1100	84	4.	0.	49.3	549.6	*	10	1700	234	4.	0.	66.3	551.3
4	1200	85	4.	0.	90.0	549.7	*	10	1800	235	4.	0.	65.9	551.3
4	1300	86	4.	0.	50.7	549.7	*	10	1900	236	4.	0.	65.6	551.2
4	1400	87	4.	0.	51.3	549.8	*	10	2000	237	4.	0.	65.2	551.2
4	1500	88	4.	0.	51.9	549.9	*	10	2100	238	4.	0.	64.8	551.2
4	1600	89	4.	0.	52.6	549.9	*	10	2200	239	4.	0.	64.4	551.1
4	1700	90	4.	0.	53.2	550.0	*	10	2300	240	4.	0.	64.1	551.1
4	1800	91	4.	0.	53.8	550.1	*	11	0000	241	4.	0.	63.7	551.0
4	1900	92	4.	0.	54.3	550.1	*	11	0100	242	4.	0.	63.3	551.0
4	2000	93	4.	0.	54.9	550.2	*	11	0200	243	4.	0.	62.9	551.0

4	2100	94	4.	0.	55.4	550.2	*	12	0300	244	4.	0.	62.6	550.9
4	2200	95	4.	0.	55.8	550.3	*	12	0400	245	4.	0.	62.2	550.5
4	2300	96	4.	0.	56.3	550.3	*	12	0500	246	4.	0.	61.8	550.9
5	0000	97	4.	0.	56.8	550.4	*	12	0600	247	4.	0.	61.4	550.8
5	0100	98	4.	0.	57.3	550.4	*	12	0700	248	4.	0.	61.1	550.8
5	0200	99	4.	0.	57.7	550.5	*	12	0800	249	4.	0.	60.7	550.8
5	0300	100	4.	0.	58.2	550.5	*	12	0900	250	4.	0.	60.3	550.7
5	0400	101	4.	0.	58.7	550.6	*	12	1000	251	4.	0.	59.9	550.7
5	0500	102	4.	0.	59.1	550.6	*	11	1100	252	4.	0.	59.5	550.8
5	0600	103	4.	0.	59.6	550.6	*	12	1200	253	4.	0.	59.2	550.6
5	0700	104	4.	0.	60.1	550.7	*	12	1300	254	4.	0.	58.8	550.6
5	0800	105	4.	0.	80.6	550.7	*	12	1400	255	4.	0.	58.4	550.5
5	0900	106	4.	0.	61.0	550.8	*	12	1500	256	4.	0.	58.0	550.5
5	1000	107	4.	0.	61.5	550.8	*	12	1600	257	4.	0.	57.7	550.5
5	1100	108	4.	0.	62.0	550.9	*	12	1700	258	4.	0.	57.3	550.4
5	1200	109	4.	0.	82.4	550.9	*	12	1800	259	4.	0.	56.9	550.4
5	1300	110	4.	0.	62.9	551.0	*	12	1900	260	4.	0.	56.5	550.3
5	1400	111	4.	0.	63.3	551.0	*	12	2000	261	4.	0.	56.2	550.3
5	1500	112	4.	0.	63.8	551.1	*	12	2100	262	4.	0.	55.6	550.3
5	1600	113	4.	0.	54.3	551.1	*	12	2200	263	4.	0.	55.4	550.2
5	1700	114	4.	0.	64.7	551.1	*	12	2300	264	4.	0.	56.0	550.2
5	1800	115	4.	0.	65.2	551.2	*	12	0000	265	4.	0.	54.7	550.2
5	1900	116	4.	0.	65.7	551.2	*	12	0100	266	4.	0.	54.3	550.1
5	2000	117	4.	0.	66.1	551.3	*	12	0200	267	4.	0.	53.9	550.1
5	2100	118	4.	0.	66.6	551.3	*	12	0300	268	4.	0.	53.5	550.0
5	2200	119	4.	0.	67.0	551.4	*	12	0400	269	4.	0.	53.1	550.0
5	2300	120	4.	0.	67.3	551.4	*	12	0500	270	4.	0.	52.8	550.0
6	0000	121	4.	0.	67.6	551.4	*	12	0600	271	4.	0.	52.4	549.9
6	0100	122	4.	0.	67.9	551.4	*	12	0700	272	4.	0.	52.0	549.9
6	0200	123	4.	0.	68.3	551.5	*	12	0800	273	4.	0.	51.7	549.8
6	0300	124	4.	0.	68.5	551.5	*	12	0900	274	4.	0.	51.3	549.8
6	0400	125	4.	0.	68.8	551.5	*	12	1000	275	4.	0.	50.9	549.8
6	0500	126	4.	0.	69.1	551.6	*	12	1100	276	4.	0.	50.5	549.7
6	0600	127	4.	0.	69.4	551.6	*	12	1200	277	4.	0.	50.2	549.7
6	0700	128	4.	0.	89.7	551.6	*	12	1300	278	4.	0.	49.8	549.6
6	0800	129	4.	0.	70.0	551.6	*	12	1400	279	4.	0.	49.4	549.6
6	0900	130	4.	0.	70.3	551.7	*	12	1500	280	4.	0.	49.1	549.8
6	1000	131	4.	0.	70.6	551.7	*	12	1600	281	4.	0.	45.7	549.5
6	1100	132	4.	0.	70.9	551.7	*	12	1700	282	4.	0.	48.3	549.5
6	1200	133	4.	0.	71.2	551.7	*	12	1600	283	4.	0.	47.5	549.4
6	1300	134	4.	0.	71.5	551.8	*	12	1900	284	4.	0.	47.6	549.4
6	1400	135	4.	0.	71.8	551.8	*	12	2000	285	4.	0.	47.2	549.4
6	1500	136	4.	0.	72.1	551.8	*	12	2100	286	4.	0.	46.8	549.3
6	1600	137	4.	0.	72.4	551.9	*	12	2200	287	4.	0.	46.5	549.3
6	1700	138	4.	0.	72.7	551.9	*	12	2300	288	4.	0.	46.1	549.2
6	1800	139	4.	0.	72.9	551.9	*	13	0000	289	4.	8.	45.7	549.2
6	1900	140	4.	0.	73.2	551.9	*	13	0100	290	4.	0.	45.4	549.1
6	2000	141	4.	0.	73.5	552.0	*	13	0200	291	4.	0.	45.0	549.1
6	2100	142	4.	0.	73.8	552.0	*	13	0300	292	4.	0.	44.6	549.1
6	2200	143	4.	0.	74.1	552.0	*	13	0400	293	4.	0.	44.2	549.0
6	2300	144	4.	0.	74.4	552.0	*	13	0500	294	4.	0.	43.9	549.0
7	0000	145	4.	0.	74.7	552.1	*	13	0600	295	4.	0.	43.5	549.9
7	0100	146	4.	0.	75.0	552.1	*	13	0700	296	4.	0.	43.1	548.9
7	0200	147	4.	0.	75.3	952.1	*	13	0800	297	4.	0.	42.8	548.8
7	0300	149	4.	0.	75.6	552.1	*	13	0900	296	4.	0.	42.4	548.8
7	0400	149	4.	0.	75.9	552.2	*	13	1000	299	4.	0.	42.0	548.8
7	0500	150	4.	0.	76.2	552.2	*	13	1100	300	4.	0.	41.7	548.7
							*							

****

* PEAK OUTFLOW IS 0. AT TIME .00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
		(CFS)				
+ 4.	55.00		4.	4.	4.	4.
		(INCHES)	.079	.315	.946	3.213
		(AC-FT)	2.	9.	27.	90.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
		(CFS)				
+ 0.	1.00		0.	0.	0.	0.
		(INCHES)	.001	.013	.038	.151
		(AC-FT)	0.	0.	1.	4.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	299.00-HR
+ 82.	169.00	82.	61.	78.	52.

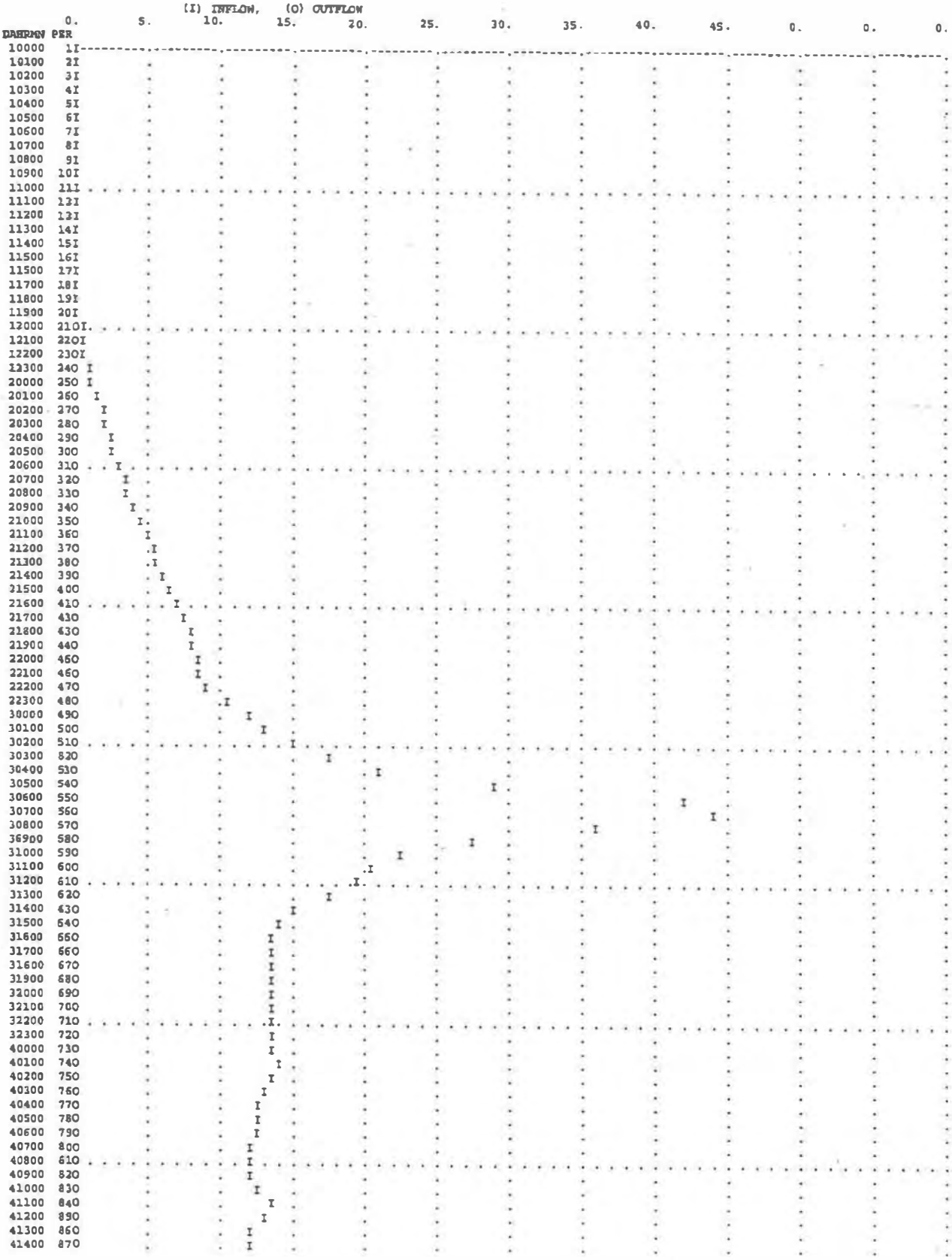
PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	299.00-HR
+ 552.70	169.00	552.68	552.62	552.39	548.70

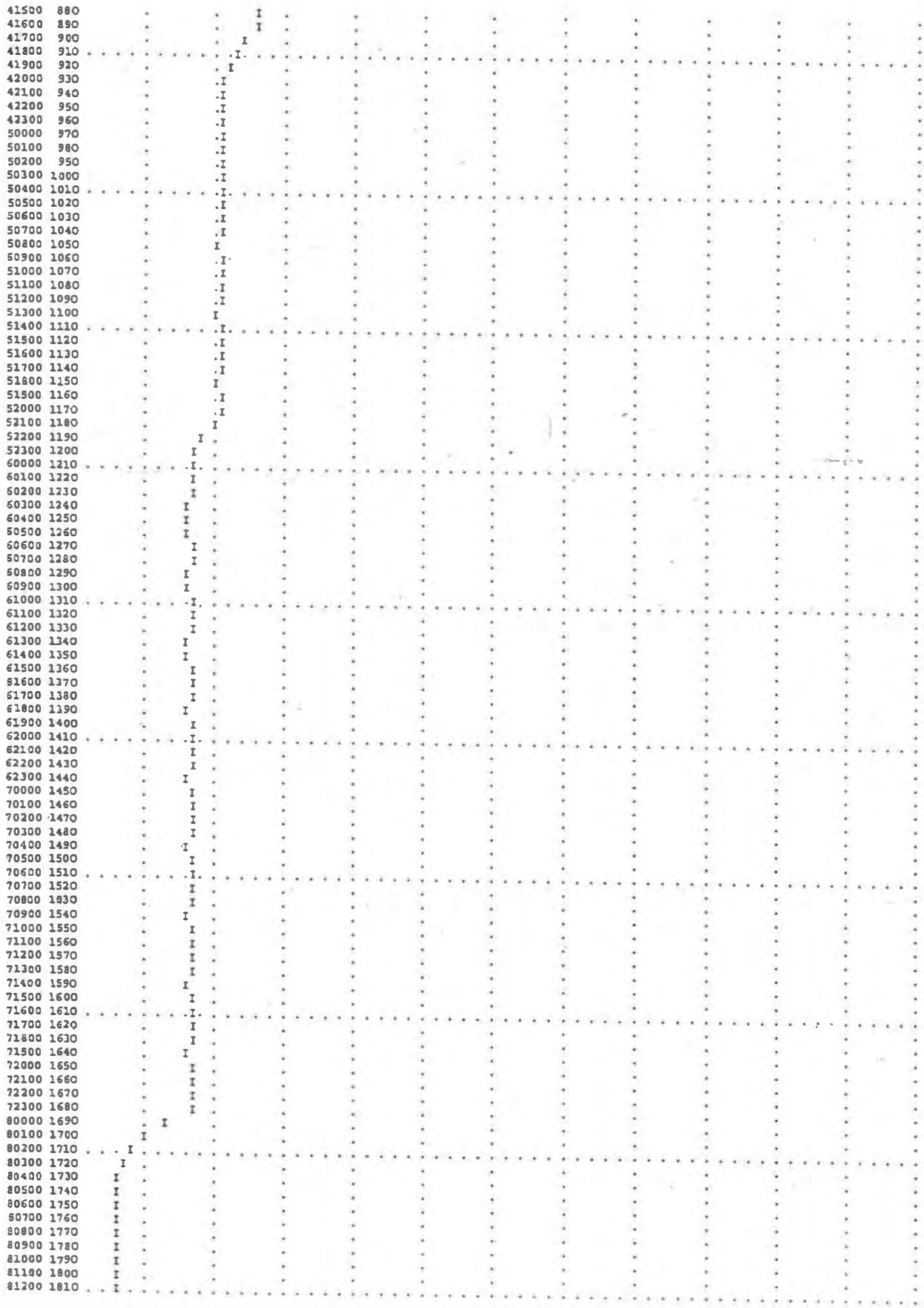
CUMULATIVE AREA = .53 SQ MI

1

STATION PUMP1

(I) INFLOW, (O) OUTFLOW

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41700 900
41800 910
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42000 930
42100 940
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42300 960
50000 970
50100 980
50200 950
50300 1000
50400 1010
50500 1020
50600 1030
50700 1040
50800 1050
50900 1060
51000 1070
51100 1080
51200 1090
51300 1100
51400 1110
51500 1120
51600 1130
51700 1140
51800 1150
51500 1160
52000 1170
52100 1180
52200 1190
52300 1200
60000 1210
60100 1220
60200 1230
60300 1240
60400 1250
50500 1260
60600 1270
50700 1280
60800 1290
60900 1300
61000 1310
61100 1320
61200 1330
61300 1340
61400 1350
61500 1360
81600 1370
61700 1380
61800 1390
61900 1400
62000 1410
62100 1420
62200 1430
62300 1440
70000 1450
70100 1460
70200 1470
70300 1480
70400 1490
70500 1500
70600 1510
70700 1520
70800 1830
70900 1540
71000 1550
71100 1560
71200 1570
71300 1580
71400 1590
71500 1600
71600 1610
71700 1620
71800 1630
71500 1640
72000 1650
72100 1660
72200 1670
72300 1680
80000 1690
80100 1700
80200 1710
80300 1720
80400 1730
80500 1740
80600 1750
80700 1760
80800 1770
80900 1780
81000 1790
81100 1800
81200 1810

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1***************************************                    ***************************************
 *                                     *                    *                                     *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1) *                    *   U.S. ARMY CORPS OF ENGINEERS      *
 *        SEPTEMBER 1990               *                    *   HYDROLOGIC ENGINEERING CENTER     *
 *          VERSION 4.0                *                    *       609 SECOND STREET             *
 *                                     *                    *     DAVIS, CALIFORNIA 95616         *
 * RUN DATE  05/13/1998  TIME  12:48:16 *                   *        (916) 756-1104               *
 *                                     *                    *                                     *
***************************************                    ***************************************


                    X     X  XXXXXXX   XXXXX          X
                    X     X  X        X     X        XX
                    X     X  X        X               X
                    XXXXXXX  XXXX     X       XXXXX   X
                    X     X  X        X               X
                    X     X  X        X     X         X
                    X     X  XXXXXXX   XXXXX         XXX


  THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

  THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
  THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
  NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
  DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
  KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                        HEC-1 INPUT                                             PAGE  1

    LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

      1         ID        FILENAME: 4_757_0.hc1; REVISED 05-12-1898
      2         ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for PROB. #5 - Po
      3         ID        HEC-1 MODEL--7.SIN, 7-DAY STORM EVENT
      4         ID        Pumping Facility Rated at 0 cfs
                *DIAGRAM
      5         IT      60                      300
      6         IN      60
      7         IO       0       2       0

      8         KK   POT-4 PROBLEM AREA NO. 5 (PRIORITY NO. 2)
      9         KM   ENTIRE BASIN MODELED AS ONE AREA (NO STORAGE CALCULATED EXCEPT AT POTHOLE)
     10         BA   .0843
                *   MODELED PRESCIPITATION IS 7.5-INCHES
     11         PB     7.5
     12         PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
     13         PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .076
     14         PC    .081    .086    .091    .086    .102    .107    .113    .119    .125    .131
     19         PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .198
     16         PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
     17         PC    .304    .220    .342    .375    .422    .445    .460    .472    .483    .495
     18         PC    .506    .514    .521    .529    .556    .544    .551    .589    .566    .574
     19         PC    .581    .589    .596    .604    .611    .617    .623    .630    .636    .642
     20         PC    .648    .654    .661    .669    .673    .679    .685    .692    .698    .702
     21         PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
     22         PC    .753    .758    .762    .767    .771    .776    .781    .785    .790    .794
     23         PC    .799    .804    .808    .813    .817    .822    .827    .830    .833    .837
     24         PC    .840    .844    .847    .850    .654    .857    .861    .864    .867    .871
     25         PC    .874    .878    .881    .884    .888    .891    .895    .898    .901    .905
     26         PC    .908    .912    .915    .918    .922    .925    .929    .932    .935    .939
     27         PC    .942    .946    .949    .952    .956    .959    .963    .966    .969    .973
     28         PC    .976    .980    .983    .986    .990    .993    .997   1.000
     29         LS       0      81
     30         UD     .84

     31         KK   PUMP1 POSSIBLE LIFT STATION OR PORTABLE PUMP
     32         KM    NO PUMP - MODELING 'AS IS CONDITIONS'
     33         RS       1    ELEV     603
     34         SA       0    1.73    3.92    4.00    5.67    9.41
     35         SE     603     605     610   610.5     611     615
     36         SQ       0     .05      .1      .1     .19     .19
     37         WP   604.0     .01   683.5  LIFSTA
     38         ZZ
1
            SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE    (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   8      POT-4
            V
            V
  37        .-------->  LIFSTA
  31      PUMP1
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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101400 231I
101500 232I
101600 233I
101700 234I
101800 235I
101900 236I
102000 237I
102100 238I
102200 239I
102300 240I
110000 241I
110100 242I
110200 243I
110300 244I
110400 245I
110500 246I
110600 247I
110700 248I
110800 249I
110900 250I
111000 251I
111100 252I
111200 253I
111300 254I
111400 255I
111500 256I
111600 257I
111700 258I
111800 259I
111900 260I
112000 261I
112100 262I
112200 263I
112300 264I
120000 265I
120100 266I
120200 267I
120300 268I
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120500 270I
120600 271I
120700 272I
120800 273I
120900 274I
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121400 279I
121500 280I
121600 281I
121700 282I
121800 283I
121900 284I
122000 285I
122100 286I
122200 287I
122300 288I
130000 289I
130100 290I
130200 291I
130300 292I
130400 293I
130500 294I
130600 295I
130700 296I
130800 297I
130900 298I
131000 299I
131100 300I---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
1
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	POT-4	21.	54.00	14.	8.	5.	.08		
+	PUMP FLOW TO	LIFSTA	0.	21.00	0.	0.	0.	.08		
+	HYDROGRAPH AT	PUMP1	0.	69.00	0.	0.	0.	.08		
+									613.97	170.00

*** NORMAL END OF HEC-1 ***

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61600 1370     I
61700 1380    I
61800 1390    I
61900 1400     I
62000 1410 . .I.
62100 1420     I
62200 1430    I
62300 1440    I
70000 1450     I
70100 1460    I
70200 1470     I
70300 1480    I
70400 1490    I
70500 1500     I
70600 1510 . .I.
70700 1520     I
70800 1530    I
70900 1540    I
71000 1550     I
71100 1560    I
71200 1570     I
71300 1580    I
71400 1590    I
71500 1600     I
71600 1610 . .I.
71700 1620     I
71800 1630    I
71900 1640    I
72000 1650     I
72100 1690    I
72200 1670     I
72300 1680    I
80000 1690 I
80100 1700I
80200 171I
80300 172I
80400 173I
80500 174I
80600 175I
80700 176I
80800 177I
80900 178I
81000 179I
81100 180I
81200 181I
81300 152I
81400 183I
81500 184I
81600 185I
81700 186I
81800 187I
81900 188I
82000 189I
82100 190I
82200 191I
82300 192I
90000 193I
90100 194I
90200 195I
90300 196I
90400 197I
90500 198I
90600 199I
90700 200I
90800 201I
90900 202I
91000 203I
91100 204I
91200 205I
91300 206I
91400 207I
91500 208I
91600 209I
91700 210I
91800 211I
91900 212I
92000 213I
92100 214I
92200 215I
92300 216I
100000 217I
100100 218I
100200 219I
100300 220I
100400 221I
100500 222I
100600 223I
100700 224I
100800 225I
100900 226I
101000 227I
101100 228I
101200 229I
101300 230I
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6	2200	143	0.	0.	35.8	613.5	*	13	0400	293	0.	0.	38.4	613.8
8	2300	144	0.	0.	35.9	613.5	*	13	0500	294	0.	0.	38.4	613.8
7	0000	145	0.	0.	36.1	613.5	*	13	0600	296	0.	0.	38.4	613.8
7	0100	146	0.	0.	36.3	613.5	*	13	0700	296	0.	0.	38.4	613.8
7	0200	147	0.	0.	36.4	613.5	*	13	0800	297	0.	0.	38.4	613.8
7	0300	148	0.	0.	36.6	613.6	*	13	0900	296	0.	0.	38.3	613.8
7	0400	149	0.	0.	36.7	613.6	*	13	1000	296	0.	0.	38.3	613.8
7	0500	150	0.	0.	36.9	613.6	*	13	1100	300	0.	0.	38.3	613.8
							*							

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PEAK OUTFLOW IS 0. AT TIME 69.00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	21.00		0.	0.	0.	0.
		(INCHES)	.001	.004	.013	.051
		(AC-FT)	0.	0.	0.	0.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	69.00		0.	0.	0.	0.
		(INCHES)	.017	.066	.199	.702
		(AC-FT)	0.	0.	1.	3.

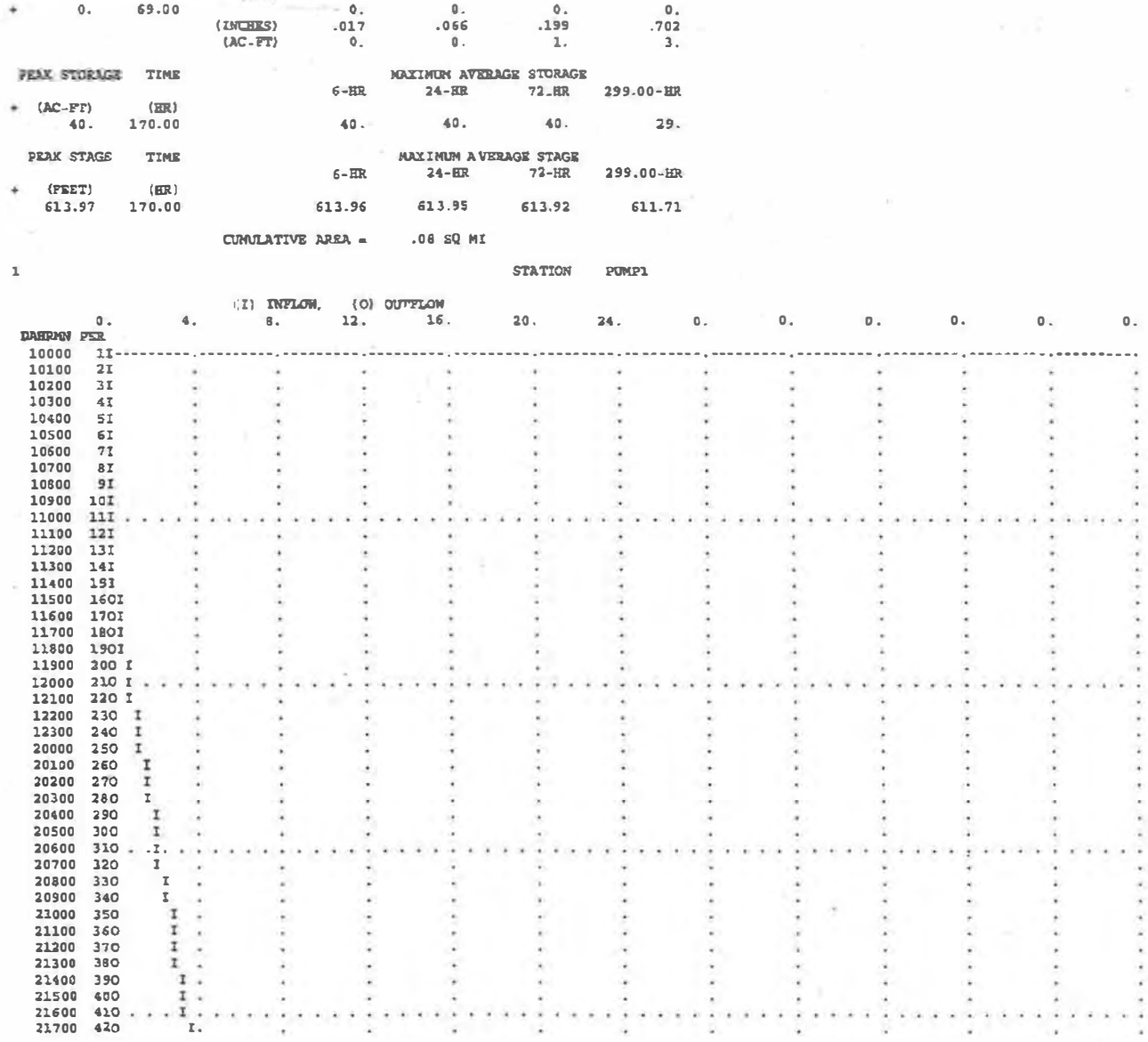
PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	299.00-HR
+ (AC-FT)	(HR)				
40.	170.00	40.	40.	40.	29.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	299.00-HR
+ (FEET)	(HR)				
613.97	170.00	613.96	613.95	613.92	611.71

CUMULATIVE AREA = .08 SQ MI

1 STATION PUMP1

(I) INFLOW, (O) OUTFLOW



3	0000	49	0.	0.	5.7	607.1	*	9	0600	199	0.	0.	39.6	613.9
3	0100	50	0.	0.	6.2	607.3	*	9	0700	200	0.	0.	39.6	613.9
3	0200	51	0.	0.	6.7	607.5	*	9	0800	201	0.	0.	39.6	613.9
3	0300	52	0.	0.	7.3	607.7	*	9	0900	202	0.	0.	39.6	613.9
3	0400	53	0.	0.	8.0	608.0	*	9	1000	203	0.	0.	39.6	613.9
3	0500	54	0.	0.	9.0	608.3	*	9	1100	204	0.	0.	39.6	613.9
3	0600	55	0.	0.	10.5	608.8	*	9	1200	205	0.	0.	39.5	613.9
3	0700	56	0.	0.	12.1	609.3	*	9	1300	206	0.	0.	39.5	613.9
3	0800	57	0.	0.	13.4	609.6	*	9	1400	207	0.	0.	39.5	613.9
3	0900	58	0.	0.	14.3	609.8	*	9	1500	208	0.	0.	39.5	613.9
3	1000	59	0.	0.	15.0	610.0	*	9	1600	209	0.	0.	39.5	613.9
3	1100	60	0.	0.	15.6	610.2	*	9	1700	210	0.	0.	39.5	613.9
3	1200	61	0.	0.	16.1	610.3	*	9	1800	211	0.	0.	39.5	613.9
3	1300	62	0.	0.	16.6	610.4	*	9	1900	212	0.	0.	39.5	613.9
3	1400	63	0.	0.	17.0	610.5	*	9	2000	213	0.	0.	39.4	613.9
3	1500	64	0.	0.	17.4	610.6	*	9	2100	214	0.	0.	39.4	613.9
3	1600	65	0.	0.	17.7	610.7	*	9	2200	215	0.	0.	39.4	613.9
3	1700	66	0.	0.	18.1	610.8	*	9	2300	216	0.	0.	39.4	613.9
3	1800	67	0.	0.	18.4	610.8	*	10	0000	217	0.	0.	39.4	613.9
3	1900	68	0.	0.	18.8	610.9	*	10	0100	218	0.	0.	39.4	613.9
3	2000	69	0.	0.	19.1	611.0	*	10	0200	219	0.	0.	39.4	613.9
3	2100	70	0.	0.	19.5	611.0	*	10	0300	220	0.	0.	39.4	613.9
3	2200	71	0.	0.	19.6	611.1	*	10	0400	221	0.	0.	39.3	613.9
3	2300	72	0.	0.	20.2	611.1	*	10	0500	222	0.	0.	39.3	613.9
4	0000	73	0.	0.	20.5	611.2	*	10	0600	223	0.	0.	39.3	613.9
4	0100	74	0.	0.	20.9	611.3	*	10	0700	224	0.	0.	39.3	613.9
4	0200	75	0.	0.	21.2	611.3	*	10	0800	225	0.	0.	39.3	613.9
4	0300	76	0.	0.	21.5	611.4	*	10	0900	226	0.	0.	39.3	613.9
4	0400	77	0.	0.	21.8	611.4	*	10	1000	227	0.	0.	39.3	613.9
4	0500	78	0.	0.	22.1	611.9	*	10	1100	228	0.	0.	39.3	613.9
4	0600	79	0.	0.	22.5	611.5	*	10	1200	229	0.	0.	39.2	613.9
4	0700	80	0.	0.	22.7	611.6	*	10	1300	230	0.	0.	39.2	613.9
4	0800	81	0.	0.	23.0	611.6	*	10	1400	231	0.	0.	39.2	613.9
4	0900	82	0.	0.	23.3	611.7	*	10	1500	232	0.	0.	39.2	613.9
4	1000	83	0.	0.	23.6	611.7	*	10	1600	233	0.	0.	39.2	613.9
4	1100	84	0.	0.	23.9	611.8	*	10	1700	234	0.	0.	39.2	613.9
4	1200	69	0.	0.	24.3	611.8	*	10	1800	235	0.	0.	39.2	613.9
4	1300	86	0.	0.	24.5	611.9	*	10	1900	236	0.	0.	39.1	613.9
4	1400	87	0.	0.	24.8	611.9	*	10	2000	237	0.	0.	39.1	613.9
4	1500	88	0.	0.	28.1	612.0	*	10	2100	238	0.	0.	39.1	613.9
4	1600	89	0.	0.	25.4	612.0	*	10	2200	239	0.	0.	39.1	613.9
4	1700	90	0.	0.	25.7	612.0	*	10	2300	240	0.	0.	39.1	613.9
4	1800	91	0.	0.	25.9	612.1	*	11	0000	241	0.	0.	39.1	613.9
4	1900	92	0.	0.	26.1	612.1	*	11	0100	242	0.	0.	39.1	613.9
4	2000	93	0.	0.	26.4	612.1	*	11	0200	243	0.	0.	39.1	613.9
4	2100	94	0.	0.	26.6	612.2	*	11	0300	244	0.	0.	39.0	613.9
4	2200	99	0.	0.	26.8	612.2	*	11	0400	245	0.	0.	39.0	613.9
4	2300	96	0.	0.	27.0	612.2	*	11	0500	246	0.	0.	39.0	613.9
5	0000	97	0.	0.	27.2	612.3	*	11	0600	247	0.	0.	39.0	613.9
5	0100	98	0.	0.	27.4	612.3	*	11	0700	248	0.	0.	39.0	613.8
5	0200	89	0.	0.	27.6	612.3	*	11	0800	249	0.	0.	39.0	613.8
5	0300	100	0.	0.	27.9	612.4	*	11	0900	250	0.	0.	39.0	613.8
5	0400	101	0.	0.	28.1	612.4	*	11	1000	251	0.	0.	39.0	613.8
5	0500	102	0.	0.	28.3	612.4	*	11	1100	252	0.	0.	38.9	613.8
5	0600	103	0.	0.	28.5	612.9	*	11	1200	253	0.	0.	38.9	613.8
5	0700	104	0.	0.	28.7	612.5	*	11	1300	254	0.	0.	36.9	613.8
5	0800	105	0.	0.	29.0	613.5	*	11	1400	255	0.	0.	38.9	813.8
5	0900	106	0.	0.	29.2	612.6	*	11	1500	256	0.	0.	38.9	613.8
5	1000	107	0.	0.	29.4	612.6	*	11	1600	257	0.	0.	36.9	613.8
5	1100	108	0.	0.	29.6	612.6	*	11	1700	258	0.	0.	38.9	613.8
5	1200	109	0.	0.	29.8	612.7	*	11	1800	259	0.	0.	36.9	613.8
5	1300	110	0.	0.	30.0	612.7	*	11	1900	260	0.	0.	38.8	613.8
5	1400	111	0.	0.	30.3	612.7	*	11	2000	261	0.	0.	38.6	613.8
5	1500	112	0.	0.	30.5	612.7	*	11	2100	262	0.	0.	38.8	613.8
5	1600	113	0.	0.	30.7	612.8	*	11	2200	263	0.	0.	38.8	613.8
5	1700	114	0.	0.	30.9	612.8	*	11	2300	264	0.	0.	38.8	613.8
5	1800	119	0.	0.	31.1	612.8	*	12	0000	265	0.	0.	38.8	613.8
5	1900	116	0.	0.	31.3	612.9	*	12	0100	268	0.	0.	38.6	613.8
5	2000	117	0.	0.	31.6	612.9	*	12	0200	267	0.	0.	38.7	613.8
5	2100	118	0.	0.	31.8	612.9	*	12	0300	268	0.	0.	38.7	613.8
5	2200	119	0.	0.	32.0	612.9	*	12	0400	269	0.	0.	39.7	613.8
5	2300	120	0.	0.	32.1	613.0	*	12	0500	270	0.	0.	38.7	613.8
6	0000	121	0.	0.	32.3	613.0	*	12	0600	271	0.	0.	38.7	613.8
6	0100	122	0.	0.	32.4	613.0	*	12	0700	272	0.	0.	38.7	613.0
6	0200	123	0.	0.	32.6	613.0	*	12	0800	273	0.	0.	38.7	613.8
6	0300	124	0.	0.	32.8	613.1	*	12	0900	274	0.	0.	38.7	613.8
6	0400	125	0.	0.	32.9	613.1	*	12	1000	275	0.	0.	38.6	613.8
6	0500	126	0.	0.	33.1	613.1	*	12	1100	276	0.	0.	38.6	613.8
6	0600	127	0.	0.	33.2	613.1	*	12	1200	277	0.	0.	38.6	613.8
6	0700	128	0.	0.	33.4	613.1	*	12	1300	278	0.	0.	38.6	813.8
6	0800	129	0.	0.	23.6	613.2	*	12	1400	279	0.	0.	36.6	613.8
6	0900	130	0.	0.	33.7	613.2	*	12	1500	280	0.	0.	38.6	613.8
6	1000	131	0.	0.	33.9	613.2	*	12	1600	261	0.	0.	38.6	613.8
6	1100	132	0.	0.	34.0	613.2	*	12	1700	282	0.	0.	38.6	613.8
6	1200	133	0.	0.	34.2	613.2	*	12	1800	283	0.	0.	38.5	613.8
6	1300	134	0.	0.	34.4	613.3	*	12	1900	284	0.	0.	38.5	613.8
6	1400	135	0.	0.	34.5	613.3	*	12	2000	285	0.	0.	30.5	613.8
6	1500	136	0.	0.	34.7	613.3	*	12	2100	286	0.	0.	38.5	613.8
6	1600	137	0.	0.	34.8	613.3	*	12	2200	287	0.	0.	38.5	613.8
6	1700	138	0.	0.	35.0	613.3	*	12	2300	288	0.	0.	38.8	613.8
6	1800	139	0.	0.	35.1	613.4	*	13	0000	289	0.	0.	38.5	613.8
6	1900	140	0.	0.	35.3	613.4	*	13	0100	290	0.	0.	38.4	613.8
6	2000	141	0.	0.	35.5	613.4	*	13	0200	291	0.	0.	39.4	613.8
6	2100	142	0.	0.	35.6	613.4	*	13	0300	292	0.	0.	38.4	613.8

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              **************
              *            *
31 KK         *   PUMP1    *      POSSIBLE LIFT STATION OR PORTABLE PUMP
              *            *
              **************
                          NO PUMP - MODELING 'AS IS CONDITIONS'

            HYDROGRAPH ROUTING DATA

33 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC     603.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

34 SA             AREA          .0       1.7       3.9       4.0       5.7       9.4

35 SE          ELEVATION     603.00    605.00    610.00    610.50    611.00    615.00

36 SQ          DISCHARGE        0.        0.        0.        0.        0.        0.

37 WP          PUMPING DATA

                 PUMP ON    PUMPING    PUMP OFF
               ELEVATION     RATE     ELEVATION

                 604.0        0.       603.5

                  ISTAD      LIPSTA  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                                    ***

                                          COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      1.15     14.91     16.89     19.30     49.14
        ELEVATION     603.00    605.00    610.00    610.50    611.00    615.00
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HYDROGRAPH AT STATION PUMP1

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DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.	.0	603.0	*	7		0600	151	0.	0.	37.1	613.6
1		0100	2	0.	0.	.0	603.0	*	7		0700	152	0.	0.	37.2	513.6
1		0200	3	0.	0.	.0	603.0	*	7		0800	153	0.	0.	37.4	613.7
1		0300	4	0.	0.	.0	603.0	*	7		0900	154	0.	0.	37.5	613.7
1		0400	5	0.	0.	.0	603.0	*	7		1000	155	0.	0.	37.7	613.7
1		0500	6	0.	0.	.0	603.0	*	7		1100	156	0.	0.	37.9	613.7
1		0600	7	0.	0.	.0	603.0	*	7		1200	157	0.	0.	36.0	613.7
1		0700	8	0.	0.	.0	603.0	*	7		1300	158	0.	0.	36.2	613.8
1		0800	9	0.	0.	.0	603.0	*	7		1400	159	0.	0.	36.4	613.8
1		0900	10	0.	0.	.0	603.0	*	7		1500	160	0.	0.	38.5	613.0
1		1000	11	0.	0.	.0	603.0	*	7		1600	161	0.	0.	38.7	613.8
1		1100	12	0.	0.	.0	603.0	*	7		1700	162	0.	0.	38.8	613.8
1		1200	13	0.	0.	.0	603.0	*	7		1800	163	0.	0.	39.0	613.8
1		1300	14	0.	0.	.0	603.1	*	7		1900	164	0.	0.	39.2	613.9
1		1400	15	0.	0.	.0	603.3	*	7		2000	165	0.	0.	39.3	613.9
1		1500	16	0.	0.	.0	603.4	*	7		2100	166	0.	0.	39.5	613.9
1		1600	17	0.	0.	.0	603.5	*	7		2200	167	0.	0.	39.6	613.9
1		1700	18	0.	0.	.0	803.7	*	7		2300	166	0.	0.	39.8	613.9
1		1800	19	0.	0.	.1	603.8	*	0		0000	169	0.	0.	39.9	614.0
1		1900	20	0.	0.	.1	603.9	*	0		0100	170	0.	0.	40.0	614.0
1		2000	21	0.	0.	.1	604.0	*	0		0200	171	0.	0.	40.0	614.0
1		2100	22	0.	0.	.2	604.1	*	0		0300	172	0.	0.	40.0	614.0
1		2100	23	0.	0.	.3	604.2	*	0		0400	173	0.	0.	39.9	614.0
1		2300	24	0.	0.	.3	604.3	*	0		0500	174	0.	0.	39.9	614.0
2		0000	25	0.	0.	.4	604.4	*	0		0600	175	0.	0.	39.9	814.0
2		0100	26	0.	0.	.5	604.5	*	8		0700	176	0.	0.	39.9	614.0
2		0200	27	0.	0.	.6	604.6	*	8		0600	177	0.	0.	39.9	614.0
2		0300	28	0.	0.	.7	604.7	*	8		0900	178	0.	0.	39.9	614.0
2		0400	29	0.	0.	.8	604.8	*	8		1000	179	0.	0.	39.9	614.0
2		0500	30	0.	0.	.9	604.9	*	8		1100	180	0.	0.	39.9	614.0
2		0600	31	0.	0.	1.1	605.0	*	8		1200	161	0.	0.	39.8	614.0
2		0700	32	0.	0.	1.2	605.1	*	8		1300	162	0.	0.	39.8	614.0
2		0800	33	0.	0.	1.4	605.1	*	8		1400	163	0.	0.	39.0	613.9
2		0900	34	0.	0.	1.6	605.2	*	8		1500	164	0.	0.	39.8	612.9
2		1000	35	0.	0.	1.8	605.4	*	8		1600	185	0.	0.	39.0	613.9
2		1100	36	0.	0.	2.0	605.5	*	8		1700	166	0.	0.	39.8	613.8
2		1200	37	0.	0.	2.2	605.6	*	8		1800	167	0.	0.	39.8	613.9
2		1300	36	0.	0.	2.5	605.7	*	8		1900	168	0.	0.	39.6	613.9
2		1400	39	0.	0.	2.7	605.8	*	8		2000	189	0.	0.	39.7	613.9
2		1500	40	0.	0.	2.9	605.9	*	8		2100	190	0.	0.	39.7	613.9
2		1600	41	0.	0.	3.2	606.1	*	8		2200	191	0.	0.	39.7	613.9
2		1700	42	0.	0.	3.5	606.2	*	8		2300	192	0.	0.	39.7	613.9
2		1800	43	0.	0.	3.7	606.3	*	9		0000	193	0.	0.	39.7	613.9
2		1900	44	0.	0.	4.0	606.4	*	9		0100	194	0.	0.	39.7	613.9
2		2000	45	0.	0.	4.3	606.6	*	9		0200	195	0.	0.	39.7	613.9
2		2100	46	0.	0.	4.6	606.7	*	9		0300	196	0.	0.	39.7	613.9
2		2200	47	0.	0.	4.9	606.8	*	0		0400	197	0.	0.	39.6	613.9
2		2100	48	0.	0.	5.3	607.0	*	9		0500	198	0.	0.	39.6	613.9

```
1*****************************************                    *****************************************
*                                         *                    *                                         *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                    *   U.S. ARMY CORPS OF ENGINEERS          *
*            SEPTEMBER 1990               *                    *   HYDROLOGIC ENGINEERING CENTER         *
*             VERSION 4.0                 *                    *         609 SECOND STREET               *
*                                         *                    *      DAVIS, CALIFORNIA 95616            *
*  RUN DATE  05/13/1998  TIME  12:43:15   *                    *          (916) 756-1104               *
*                                         *                    *                                         *
*****************************************                    *****************************************

                                   X     X  XXXXXX   XXXX            X
                                   X     X  X        X    X          XX
                                   X     X  X        X               X
                                   XXXXXX   XXXX     X        XXXXX  X
                                   X     X  X        X               X
                                   X     X  X        X    X          X
                                   X     X  XXXXXX   XXXX           XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURS.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                                    HEC-1 INPUT                                                    PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID        PILENAME: 4_127_0.hc1; REVISED 05-12-1998
        2           ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for PROB. #5 - Po
        3           ID        HEC-1 MODEL--12.IN1, 7-Day STORM EVENT
        4           ID        Pumping Facility Rated at 0 cfs
                    *DIAGRAM
        5           IT      60                    300
        6           IN      60
        7           IO       0       2       0

        8           KK   POT-4 PROBLEM AREA NO. 5 (PRIORITY NO. 2)
        9           KM   ENTIRE BASIN MODELED AS ONE AREA (NO STORAGE CALCULATED EXCEPT AT POTBOLE)
       10           BA   .0843
                    *   100 YR  PRECIPITATION IS 12.-INCHES
       11           PB     12.
       12           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
       13           PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .076
       14           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
       15           PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .198
       16           PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
       17           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
       18           PC    .506    .514    .521    .529    .536    .544    .551    .559    .566    .574
       19           PC    .581    .589    .596    .604    .611    .617    .623    .630    .636    .642
       20           PC    .648    .654    .661    .669    .673    .679    .685    .692    .698    .702
       21           PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
       22           PC    .753    .758    .762    .767    .771    .776    .781    .785    .790    .794
       23           PC    .799    .804    .808    .813    .817    .822    .827    .830    .833    .837
       24           PC    .840    .844    .847    .850    .854    .857    .861    .864    .867    .871
       25           PC    .874    .878    .881    .884    .888    .891    .895    .898    .901    .905
       26           PC    .908    .912    .915    .918    .922    .925    .929    .932    .935    .939
       27           PC    .942    .646    .949    .952    .956    .959    .963    .966    .969    .973
       28           PC    .976    .980    .983    .986    .990    .993    .997   1.000
       29           LS       0      81
       30           UD     .84

       31           KK   PUMP1 POSSIBLE LIFT STATION OR PORTABLE PUMP
       32           KM    NO PUMP - MODELING 'AS IS CONDITIONS'
       33           RS       1    ELEV     603
       34           SA       0    1.73    3.92    4.00    5.67    9.41
       35           SE     603     605     610   610.5     611     615
       36           SQ       0     .05      .1      .1     .15     .15
       37           WP   604.0     .01   603.5  LIPSTA
       38           ZZ

1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
  INPUT
   LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     8        POT-4
                 V
                 V
    37            .-------> LIPSTA
    31        PUMP1
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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*** NORMAL END OF HEC-1 ***

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121200 277I
121300 278I
121400 279I
121500 280I
121600 281I
121700 282I
121800 283I
131900 284I
122000 285I
132100 286I
122200 287I
122300 288I
130000 289I
130100 290I
130200 291I
130300 292I
130400 293I
130500 294I
130600 298I
130700 296I
130800 297I
130900 298I
131000 299I
131100 300I
1
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SUB5	14.	54.00	9.	5.	3.	.05		
+	HYDROGRAPH AT	SUB8	13.	55.00	9.	5.	3.	.07		
+	HYDROGRAPH AT	SUB7	5.	54.00	4.	2.	1.	.02		
+	ROUTED TO	SE CO	5.	54.00	3.	2.	1.	.02		
+									586.24	54.00
+	HYDROGRAPH AT	SUB6	8.	54.00	5.	3.	2.	.03		
+	ROUTED TO	JR. H	8.	54.00	5.	2.	2.	.03		
+									593.20	54.00
+	4 COMBINED AT	COM1	37.	54.00	25.	14.	9.	.18		
+	ROUTED TO	WHIPP	11.	61.00	11.	10.	8.	.18		
+									590.35	61.00
+	HYDROGRAPH AT	SUB3	5.	54.00	3.	2.	1.	.02		
+	ROUTED TO	POND3	5.	54.00	3.	2.	1.	.02		
+									603.18	54.00
+	2 COMBINED AT	COM2	13.	61.00	12.	11.	9.	.20		
+	HYDROGRAPH AT	SUB1	11.	54.00	7.	4.	2.	.04		
+	HYDROGRAPH AT	SUB2	7.	54.00	4.	2.	1.	.02		
+	HYDROGRAPH AT	SUB4	4.	54.00	3.	2.	1.	.02		
+	HYDROGRAPH AT	SUB9	56.	55.00	41.	22.	14.	.25		
+	5 COMBINED AT	COM3	63.	55.00	64.	40.	27.	.53		
+	PUMP FLOW TO	LIFSTA	4.	44.00	4.	4.	4.	.53		
+	HYDROGRAPH AT	PUMP1	0.	1.00	0.	0.	0.	.53		
+									560.11	171.00

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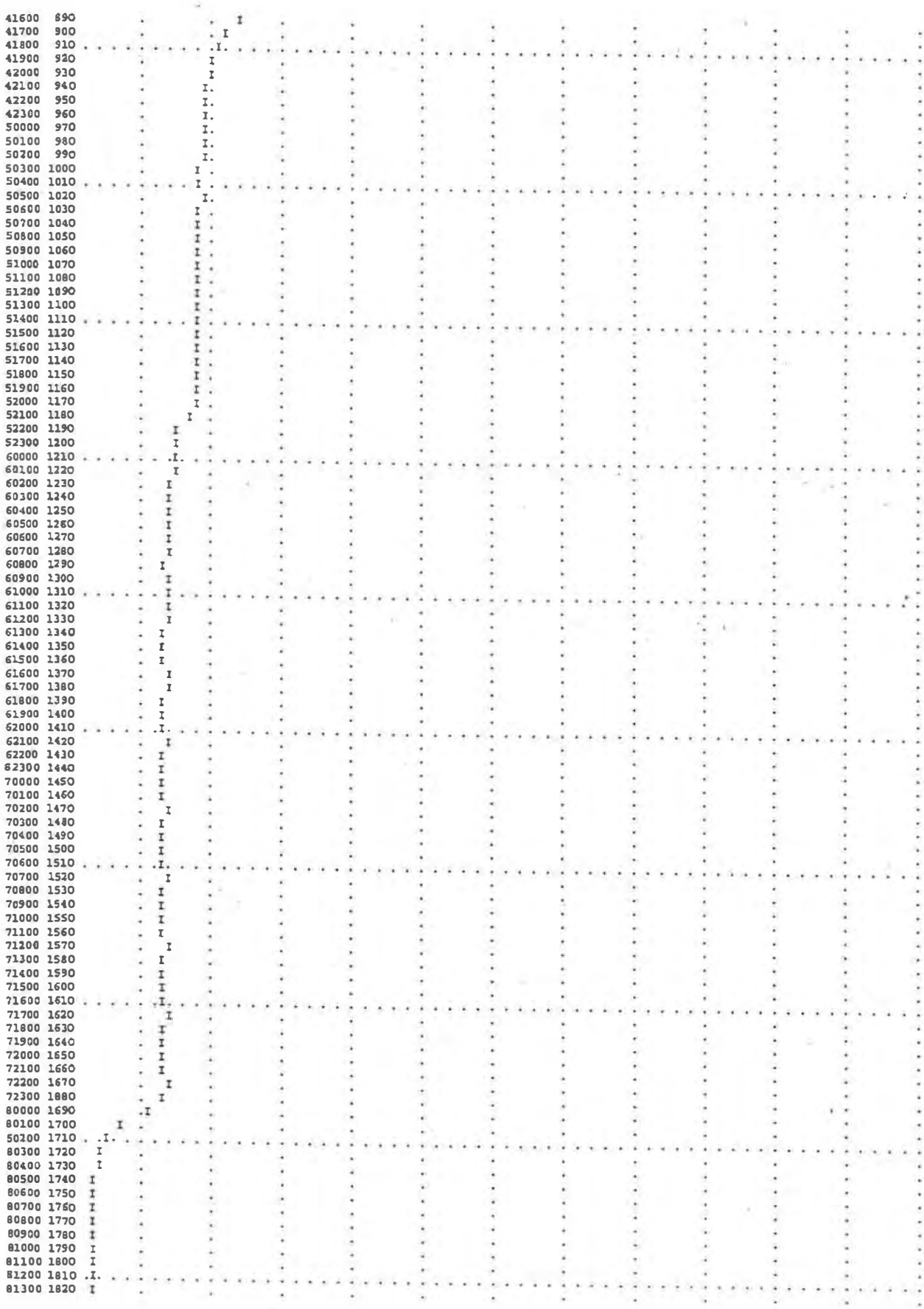
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80500 1740
80600 1750
80700 1760
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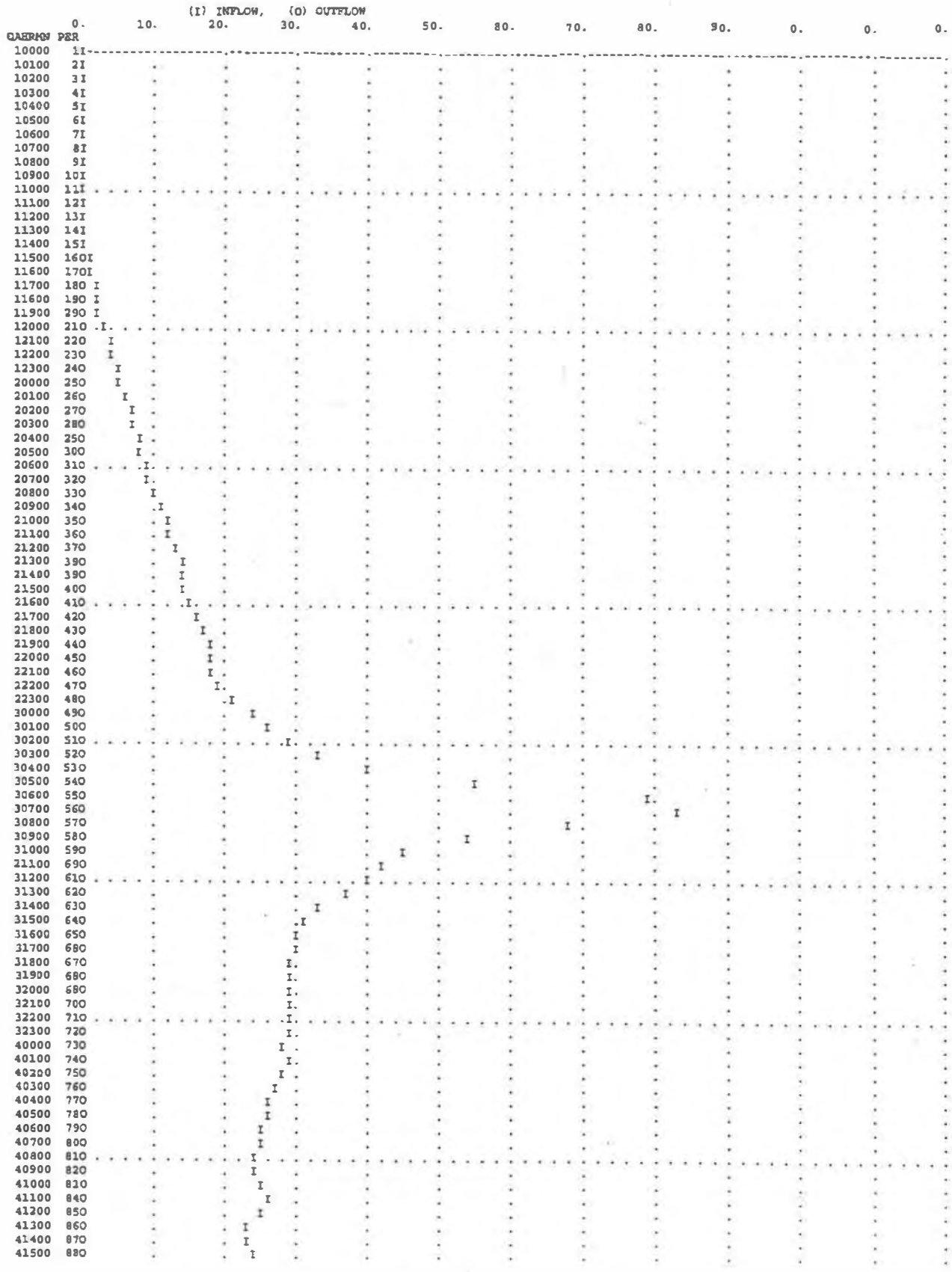
81300 1820

1

STATION PUMP1

(I) INFLOW, (O) OUTFLOW



4	2200	95	4.	0.	129.0	556.3	*	12	0400	245	4.	0.	175.4	569.2
4	2300	96	4.	0.	130.2	595.4	*	11	0500	246	4.	0.	175.0	559.2
5	0000	97	4.	0.	131.4	556.4	*	11	0600	247	4.	0.	174.6	559.1
5	0100	98	4.	0.	132.5	596.5	*	11	0700	248	4.	0.	174.2	559.1
5	0200	99	4.	0.	133.7	556.6	*	11	0800	249	4.	0.	173.9	555.1
5	0300	100	4.	0.	134.8	556.7	*	11	0900	250	4.	0.	173.5	559.1
5	0400	101	4.	0.	125.9	666.7	*	11	1000	251	4.	0.	173.1	559.0
5	0500	102	4.	0.	137.0	556.8	*	11	1100	252	4.	0.	172.7	559.0
5	0600	103	4.	0.	138.2	556.9	*	11	1200	253	4.	0.	172.4	559.0
5	0700	104	4.	0.	139.3	557.0	*	11	1300	254	4.	0.	172.0	559.0
5	0800	105	4.	0.	140.4	557.0	*	11	1400	255	4.	0.	171.8	559.0
5	0900	106	4.	0.	141.4	557.1	*	11	1500	256	4.	0.	171.2	558.9
5	1000	107	4.	0.	142.5	557.2	*	11	1600	257	4.	0.	170.0	558.9
5	1100	108	4.	0.	143.6	557.3	*	11	1700	258	4.	0.	170.5	558.9
5	1200	109	4.	0.	144.7	557.3	*	11	1800	259	4.	0.	170.1	558.9
5	1300	110	4.	0.	145.9	557.4	*	11	1900	260	4.	0.	169.7	558.8
5	1400	111	4.	0.	146.9	557.5	*	11	2000	261	4.	0.	159.3	558.8
5	1500	112	4.	0.	148.0	557.5	*	11	2100	262	4.	0.	169.0	559.9
5	1600	113	4.	0.	149.1	557.6	*	11	2200	263	4.	0.	188.6	558.8
5	1700	114	4.	0.	150.1	557.7	*	11	2300	264	4.	0.	168.2	559.8
5	1800	115	4.	0.	151.2	557.7	*	12	0000	265	4.	0.	167.8	558.7
5	1900	116	4.	0.	152.3	557.8	*	12	0100	266	4.	0.	167.4	558.7
5	2000	117	4.	0.	153.4	557.9	*	11	0200	267	4.	0.	167.1	558.7
5	2100	118	4.	0.	154.4	557.9	*	12	0300	268	4.	0.	166.7	558.7
5	2200	119	4.	0.	165.4	558.0	*	12	0400	269	4.	0.	166.3	558.6
6	2300	120	4.	0.	156.2	558.0	*	12	0500	270	4.	0.	165.9	558.6
6	0000	121	4.	0.	157.0	558.1	*	12	0600	271	4.	0.	165.6	558.6
6	0100	122	4.	0.	157.8	558.1	*	12	0700	272	4.	0.	165.2	558.6
6	0200	123	4.	0.	158.7	558.2	*	12	0800	273	4.	0.	164.8	558.6
6	0300	124	4.	0.	159.4	558.2	*	12	0900	274	4.	0.	164.4	558.5
6	0400	125	4.	0.	160.2	558.3	*	12	1000	275	4.	0.	164.0	558.6
6	0500	126	4.	0.	160.9	558.3	*	12	1100	276	4.	0.	163.7	558.5
6	0600	127	4.	0.	161.7	558.4	*	12	1200	277	4.	0.	163.3	558.5
6	0700	128	4.	0.	162.5	558.4	*	12	1300	278	4.	0.	162.9	559.4
6	0800	129	4.	0.	163.2	558.5	*	12	1400	279	4.	0.	162.5	558.4
6	0900	130	4.	0.	163.9	558.5	*	12	1500	280	4.	0.	162.2	558.4
6	1000	131	4.	0.	164.7	558.6	*	12	1600	281	4.	0.	151.8	558.4
6	1100	132	4.	0.	165.4	558.6	*	12	1700	282	4.	0.	161.4	558.4
6	1200	133	4.	0.	166.2	558.6	*	12	1800	283	4.	0.	161.0	658.3
6	1300	134	4.	0.	166.9	558.7	*	12	1500	284	4.	0.	160.6	558.3
6	1400	135	4.	0.	167.6	558.7	*	12	2000	285	4.	0.	160.3	558.3
6	1500	136	4.	0.	168.3	558.8	*	12	2100	286	4.	0.	159.9	595.3
6	1600	137	4.	0.	169.1	558.8	*	12	2200	287	4.	0.	159.5	558.2
6	1700	128	4.	0.	159.9	558.9	*	12	2300	288	4.	0.	159.1	558.2
6	1800	139	4.	0.	170.5	558.9	*	13	0000	289	4.	0.	158.8	558.2
6	1900	140	4.	0.	171.2	558.9	*	13	0100	290	4.	0.	158.4	558.2
6	2000	141	4.	0.	171.9	559.0	*	13	0200	291	4.	0.	158.0	558.2
6	2100	142	4.	0.	172.5	559.0	*	13	0300	292	4.	0.	157.6	658.1
6	2200	143	4.	0.	173.4	559.1	*	13	0400	293	4.	0.	157.2	658.1
6	2300	144	4.	0.	174.1	559.1	*	13	0500	294	4.	0.	156.9	558.1
7	0000	145	4.	0.	174.8	559.1	*	11	0600	295	4.	0.	156.5	558.1
7	0100	146	4.	0.	175.5	559.2	*	13	0700	298	4.	0.	156.1	558.0
7	0200	147	4.	0.	176.2	559.2	*	12	0800	297	4.	0.	155.7	558.0
7	0300	148	4.	0.	176.9	559.3	*	13	0900	298	4.	0.	155.4	958.0
7	0400	149	4.	0.	177.6	559.3	*	11	1000	299	4.	0.	155.0	558.0
7	0500	150	4.	0.	178.3	559.3	*	13	1100	300	4.	0.	154.6	557.9
							*							

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PEAK OUTFLOW IS 0. AT TIME .00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	259.00-HR
* 4.	44.00	(CFS)	4.	4.	4.	4.
		(INCHES)	.079	.315	.946	3.357
		(AC-FT)	2.	9.	27.	94.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
* 0.	1.00	(CFS)	0.	0.	0.	0.
		(INCHES)	.003	.012	.038	.153
		(AC-FT)	0.	0.	1.	4.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUN AVERAGE STORAGE 6-HR	24-HR	72-HR	299.00-HR
* 192.	171.00	192.	191.	188.	132.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	259.00-HR
* 560.11	171.00	560.10	560.06	559.88	554.98

CUMULATIVE AREA = .53 SQ MI

1	0000	1	0.	0.	.0	536.0	*	7	0600	151	4.	0.	179.0	559.4
1	0100	2	0.	0.	.0	536.0	*	7	0700	152	4.	0.	179.7	559.4
1	0200	3	0.	0.	.0	536.0	*	7	0800	153	4.	0.	180.4	559.5
1	0300	4	0.	0.	.0	536.0	*	7	0900	154	4.	0.	181.1	559.5
1	0400	5	0.	0.	.0	536.0	*	7	1000	155	4.	0.	181.8	559.5
1	0500	6	0.	0.	.0	536.0	*	7	1100	156	4.	0.	182.5	559.6
1	0600	7	0.	0.	.0	536.0	*	7	1200	157	4.	0.	183.2	559.6
1	0700	8	0.	0.	.0	536.0	*	7	1300	158	4.	0.	184.0	559.7
1	0800	9	0.	0.	.0	536.0	*	7	1400	159	4.	0.	184.6	559.7
1	0900	10	0.	0.	.0	536.0	*	7	1500	160	4.	0.	185.3	559.7
1	1000	11	0.	0.	.0	536.0	*	7	1600	161	4.	0.	186.0	559.8
1	1100	12	0.	0.	.0	536.0	*	7	1700	162	4.	0.	186.9	559.8
1	1200	13	0.	0.	.0	536.0	*	7	1800	163	4.	0.	187.5	559.9
1	1300	14	0.	0.	.0	536.0	*	7	1900	164	4.	0.	188.2	559.9
1	1400	15	0.	0.	.0	538.6	*	7	2000	165	4.	0.	188.9	559.9
1	1500	16	0.	0.	.0	537.0	*	7	2100	166	4.	0.	189.6	560.0
1	1600	17	0.	0.	.1	537.3	*	7	2200	167	4.	0.	190.3	560.0
1	1700	18	0.	0.	.2	537.6	*	7	2300	168	4.	0.	191.0	560.0
1	1800	19	0.	0.	.3	537.9	*	8	0000	169	4.	0.	191.6	560.1
1	1900	20	0.	0.	.5	538.2	*	8	0100	170	4.	0.	191.9	560.1
1	2000	21	0.	0.	.6	538.5	*	8	0200	171	4.	0.	192.1	560.1
1	2100	22	0.	0.	.9	538.8	*	8	0300	172	4.	0.	192.1	560.1
1	2200	23	0.	0.	1.2	539.0	*	8	0400	173	4.	0.	192.0	560.1
1	2300	24	0.	0.	1.5	539.3	*	8	0500	174	4.	0.	191.9	560.1
2	0000	25	0.	0.	1.9	539.5	*	8	0600	175	4.	0.	191.8	560.1
2	0100	26	0.	0.	2.3	539.8	*	8	0700	176	4.	0.	191.6	560.1
2	0200	27	0.	0.	2.8	540.1	*	8	0800	177	4.	0.	191.5	560.1
2	0300	28	0.	0.	3.3	540.3	*	8	0900	178	4.	0.	191.4	560.1
2	0400	29	0.	0.	3.9	540.6	*	8	1000	179	4.	0.	191.2	560.1
2	0500	30	0.	0.	4.6	540.9	*	8	1100	180	4.	0.	191.1	560.1
2	0600	31	0.	0.	5.3	541.2	*	8	1200	181	4.	0.	191.0	560.0
2	0700	32	0.	0.	6.0	541.4	*	8	1300	182	4.	0.	190.8	560.0
2	0800	33	0.	0.	6.8	541.7	*	8	1400	183	4.	0.	190.7	560.0
2	0900	34	0.	0.	7.6	542.0	*	8	1500	184	4.	0.	190.6	560.0
2	1000	35	0.	0.	8.5	542.3	*	8	1500	185	4.	0.	190.4	560.0
2	1100	36	0.	0.	9.4	542.6	*	8	1700	186	4.	0.	190.3	560.0
2	1200	37	0.	0.	10.5	542.9	*	8	1800	187	4.	0.	190.2	560.0
2	1300	38	0.	0.	11.5	543.3	*	8	1900	188	4.	0.	190.0	560.0
2	1400	39	0.	0.	12.6	543.8	*	8	2000	189	4.	0.	189.9	560.0
2	1500	40	0.	0.	13.8	543.8	*	8	2100	190	4.	0.	189.8	560.0
2	1600	41	0.	0.	15.0	544.2	*	8	2200	191	4.	0.	189.6	560.0
2	1700	42	0.	0.	16.2	544.5	*	8	2300	192	4.	0.	189.5	560.0
2	1800	43	0.	0.	17.6	544.8	*	9	0000	193	4.	0.	189.4	560.0
2	1900	44	0.	0.	19.0	545.1	*	9	0100	194	4.	0.	189.2	560.0
2	2000	45	4.	0.	20.0	545.3	*	9	0200	195	4.	0.	189.1	559.9
2	2100	46	4.	0.	21.1	545.8	*	9	0300	196	4.	0.	189.0	559.9
2	2200	47	4.	0.	22.3	545.8	*	9	0400	197	4.	0.	188.8	559.9
2	2300	48	4.	0.	23.5	546.0	*	9	0500	198	4.	0.	188.7	559.9
3	0000	49	4.	0.	25.0	546.3	*	9	0600	199	4.	0.	188.8	559.9
3	0100	50	4.	0.	26.6	546.6	*	9	0700	200	4.	0.	188.4	559.9
3	0200	51	4.	0.	28.5	546.9	*	9	0600	201	4.	0.	186.3	559.9
3	0300	52	4.	0.	30.7	547.2	*	9	0900	202	4.	0.	168.2	559.9
3	0400	53	4.	0.	33.3	547.8	*	9	1000	203	4.	0.	188.0	559.9
3	0500	54	4.	0.	36.0	548.1	*	9	1100	204	4.	0.	187.9	559.9
3	0600	55	4.	0.	41.9	548.7	*	9	1200	205	4.	0.	187.8	559.9
3	0700	56	4.	0.	48.2	549.5	*	9	1300	206	4.	0.	187.8	559.9
3	0800	57	4.	0.	54.1	550.1	*	9	1400	207	4.	0.	187.4	559.9
3	0900	58	4.	0.	58.7	550.8	*	9	1500	208	4.	0.	187.3	559.8
3	1000	59	4.	0.	62.4	550.9	*	9	1800	209	4.	0.	187.1	559.8
3	1100	60	4.	0.	65.6	551.2	*	9	1700	210	4.	0.	186.9	559.8
3	1200	61	4.	0.	55.6	551.5	*	9	1800	211	4.	0.	196.7	559.8
3	1300	62	4.	0.	71.4	551.8	*	9	1900	212	4.	0.	196.5	559.8
3	1400	63	4.	0.	73.9	552.0	*	9	2000	213	4.	0.	196.3	559.8
3	1500	64	4.	0.	76.1	552.2	*	9	2100	214	4.	0.	186.1	559.8
3	1600	68	4.	0.	78.2	552.4	*	9	2200	215	4.	0.	185.8	559.8
3	1700	66	4.	0.	80.3	552.6	*	9	2300	218	4.	0.	185.6	559.7
3	1800	67	4.	0.	82.3	552.7	*	10	0000	217	4.	0.	185.3	559.7
3	1900	88	4.	0.	84.3	552.9	*	10	0100	218	4.	0.	185.0	559.7
3	2000	69	4.	0.	86.3	553.1	*	10	0200	219	4.	0.	184.8	559.7
3	2100	70	4.	0.	88.3	553.2	*	10	0300	220	4.	0.	184.5	559.7
3	2200	71	4.	0.	90.3	553.4	*	10	0400	221	4.	0.	184.2	559.7
3	2300	72	4.	0.	92.2	553.8	*	10	0500	222	4.	0.	183.9	559.7
4	0000	73	4.	0.	94.2	553.7	*	10	0600	223	4.	0.	183.6	559.6
4	0100	74	4.	0.	98.1	553.9	*	10	0700	224	4.	0.	183.2	989.6
4	0200	75	4.	0.	98.1	554.0	*	10	0800	225	4.	0.	182.9	559.6
4	0300	76	4.	0.	100.0	554.2	*	10	0900	226	4.	0.	182.5	559.6
4	0400	77	4.	0.	101.7	554.3	*	10	1000	227	4.	0.	182.2	559.6
4	0500	78	4.	0.	103.4	554.4	*	10	1100	228	4.	0.	181.8	559.5
4	0600	29	4.	0.	105.1	554.8	*	10	1200	229	4.	0.	181.4	559.5
4	0700	80	4.	0.	106.8	554.7	*	10	1300	230	4.	0.	181.0	559.5
4	0800	81	4.	0.	108.4	554.8	*	10	1400	231	4.	0.	180.7	559.5
4	0900	82	4.	0.	110.0	554.9	*	10	1500	232	4.	0.	180.3	559.5
4	1000	83	4.	0.	111.6	555.1	*	10	1600	233	4.	0.	179.9	559.4
4	1100	84	4.	0.	113.3	555.2	*	10	1700	234	4.	0.	179.5	559.4
4	1200	85	4.	0.	115.0	555.3	*	10	1800	235	4.	0.	179.1	589.4
4	1300	86	4.	0.	116.6	555.4	*	10	1900	236	4.	0.	178.8	559.4
4	1400	87	4.	0.	118.1	555.5	*	10	2000	237	4.	0.	178.4	589.3
4	1500	88	4.	0.	119.8	555.6	*	10	2100	238	4.	0.	178.0	559.3
4	1600	89	4.	0.	121.2	555.7	*	10	2200	239	4.	0.	177.8	559.3
4	1700	90	4.	0.	122.7	555.8	*	10	2300	240	4.	0.	177.3	559.3
4	1800	91	4.	0.	124.1	555.9	*	11	0000	241	4.	0.	176.9	559.3
4	1900	92	4.	0.	125.4	556.0	*	11	0100	242	4.	0.	176.5	559.2
4	2000	93	4.	0.	126.7	556.1	*	11	0200	243	4.	0.	176.1	556.2
4	2100	94	4.	0.	127.9	556.2	*	11	0300	244	4.	0.	175.7	559.2

```
 36          .           .        SUB7
             .           .           V
             .           .           V
 41          .           .       $ E CO
             .           .           .
             .           .           .
 47          .           .           .        SUB6
             .           .           .           V
             .           .           .           V
 52          .           .           .       JR. H
             .           .           .           .
             .           .           .           .
 58       COM1.................................
             V
             V
 61      WHIPP
             .
             .
 67          .       SUB3
             .          V
             .          V
 72          .      POND3
             .          .
             .          .
 78       COM2............
             .
             .
 81          .       SUB1
             .          .
             .          .
 86          .           .        SUB2
             .           .           .
             .           .           .
 91          .           .           .        SUB4
             .           .           .           .
             .           .           .           .
 96          .           .           .           .        SUB9
             .           .           .           .           .
             .           .           .           .           .
101       COM3.............................................
             V
             V
110          .-------> LIFSTA
104      PUMP1
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
104 KK      *    PUMP1   *      LIFT STATION PUMP TO 64TH AVE
            *            *
            **************
                        PUMP1 IS 3-CFS PUMP W/ SET POINT AT ELEV. 545FT

            HYDROGRAPH ROUTING DATA

106 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       ELSV  TYPE OF INITIAL CONDITION
                    RSVRIC     536.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

107 BA              AREA          .0       2.0       4.5       9.7      13.5      18.3      23.4

108 SE          ELEVATION     536.00    540.00    545.00    550.00    555.00    560.00    565.00

109 SQ          DISCHARGE         0.        0.        0.        0.        0.        0.        0.

110 WP          PUMPING DATA

                  PUMP ON    PUMPING    PUMP OFF
                ELEVATION     RATE    ELEVATION

                   545.0       4.       540.0

                   ISTAD      LIFSTA  PUMP FLOW HYDROGRAPH IDENTIFICATION
                                                          ***

                                        COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      2.67     18.50     53.18    110.92    190.11    294.10
        ELEVATION     536.00    540.00    545.00    550.00    555.00    560.00    565.00
**********************************************************************************************************************

                                        HYDROGRAPH AT STATION    PUMP1

**********************************************************************************************************************
                                                          *
      DA MON HRMN  ORD   PUMP Q  OUTFLOW  STORAGE   STAGE  *      DA MON HRMN  ORD   PUMP Q  OUTFLOW  STORAGE   STAGE
                                                          *
```

```
 47          KK   SUB6 RUNOFF FROM JR. HIGH BUILDINGS AREA
 48          KM   RUNOFF TO JR HIGH POND THEN TO WHIPPLE POND VIA INFILTRATION
 49          BA   .027
 50          LS     0      84
 51          UD   .33

 52          KK   JR. HIGH POND STORAGE AND RELEASE
 53          KM   JR. HIGH POND INFILTRATES NEAR WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
 54          RS     1    ELEV     589
 55          SA     0    .251    .506    .611    .777
 56          SE   589     590     592     593     594
 57          SQ     0      .2       1       2      30

 58          KK   COM1
 59          KM       COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 5 THRU 8
 60          HC     4

 61          KK   WHIPPLE POND STORAGE AND RELEASE
 62          KM   100% OF RELEASE FROM WHIPPLE POND IS SUBSURFACE VIA STORM EASEMENT
 63          RS     1    ELEV     576
 64          SA     0    .004    .329    .705    1.15    1.59    2.69     3.0
 65          SE   576     578     580     582     584     586     588     590
 66          SQ     0      .2       1       2       3       3       3      10

 67          KK   SUB3 RUNOFF FROM COUNTY DEVELOP. JUST N. WHIPPLES
 68          KM   RUNOFF TO RETENT ON/INFILTRATION BASIN- SUBSURFACE TO CHANNEL
 69          BA   .019                I
 70          LS     0      79
 71          UD   .38

 72          KK   POND3 SUBAREA3        ION/INFILTRATION POND
 73          KM   POND INFILTRATES AND JOINS WITH WHIPPLE POND SUBSURFACE FLOW
 74          RS     1    ELEV   RETENT 600
 75          SA     0    .121    .134    .149    .164
 76          SE   600     601     602     603     604
 77          SQ     0      .2       1       2      20

 78          KK   COM2
 79          KM       COMBINE ROUTED FLOWS FROM FROM WHIPPLE POND AND POND 3
 80          HC     2

 81          KK   SUB1 RUNOFF FROM COUNTY DEVELOP. N. OF 64TH ST.
 82          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 83          BA   .040
 84          LS     0      83
 85          UD   .65

 86          KK   SUB2 RUNOFF FROM COUNTY DEVELOP. N. OF 187TH CUL-DE-SAC
 87          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 88          BA   .023
 89          LS     0      83
 90          UD   .60
1                                        HEC-1 INPUT                                                          PAGE  3
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 91          KK   SUB4 RUNOFF FROM COUNTY DEVELOP. ALONG 184TH ST
 92          KM   RUNOFF OVERLAND TO MAIN CHANNEL TO POTHOLE 1
 93          BA   .017
 94          LS     0      79
 95          UD   .80

 96          KK   SUB9 RUNOFF FROM OTHER CONTRIBUTIONS TO POTHOLE 1
 97          KM   RUNOFF DIRECTLY TO POTHOLE 1 VIA CHANNEL
 98          BA   .250
 99          LS     0      79
100          UD   1.43

101          KK   COM3
102          KM       COMBINE ROUTED FLOWS FROM FROM SUB-BASINS 1 THRU 9
103          HC     9

104          KK   PUMP1 LIFT STATION PUMP TO 64TH AVE
105          KM   PUMP1 IS 3-CFS PUMP W/ SET POINT AT ELEV. 545FT
106          RS     1    ELEV     536
107          SA     0       2     4.5     9.7    13.5    18.3    23.4
108          SE   536     540     543     550     555     560     565
109          SQ   .18     .18     .18     .18     .18     .18     .18
110          WP 545.0    4.46   540.0  LIPSTA
111          ZZ
1
        SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
 LINE    (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.     (.) CONNECTOR        (<- -) RETURN OF DIVERTED OR PUMPED FLOW

  8      SUB5
           .
           .
 31        .        SUB8
           .
```

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE (HEC-1)*
*          SEPTEMBER 1990           *
*           VERSION 4.0             *
*                                   *
* RUN DATE 05/05/1998  TIME 17:36:39 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*  HYDROLOGIC ENGINEERING CENTER    *
*        609 SECOND STREET          *
*     DAVIS, CALIFORNIA 95616       *
*        (916) 756-1104             *
*                                   *
*************************************
```

```
X     X XXXXXXX  XXXXX          X
X     X X       X     X        XX
X     X X       X              X
XXXXXXX XXXX    X       XXXXX  X
X     X X       X              X
X     X X       X     X        X
X     X XXXXXXX  XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID        FILENAME: 1007_4.hc1: REVISED 04-28-1998
  2           ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for Pothole 1
  3           ID        HEC-1 MODEL--100yr, 7-Day STORM EVENT
  4           ID        Pumping Facility Rated at 4.5 cfs
              *DIAGRAM
  5           IT      60                    300
  6           IN      60
  7           ID       0       2       0

  8           KK    SUB5 RUNOFF FROM N. OF MYERS RD.
  9           KM   RUNOFF TO JR. HIGH THROUGH 24" UNDER MYERS RD. ROUTED TO WHIPPLE POND
 10           BA    .055
              *   100-YR 7-DAY PRECIPITATION IS 12-INCHES
 11           PB   12.0
 12           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
 13           PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .076
 14           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
 15           PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .199
 16           PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
 17           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
 18           PC    .506    .514    .521    .529    .536    .544    .551    .959    .586    .574
 19           PC    .581    .589    .596    .604    .611    .617    .623    .630    .636    .642
 20           PC    .648    .654    .661    .569    .673    .679    .685    .692    .698    .702
 21           PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
 22           PC    .753    .758    .762    .767    .771    .776    .791    .785    .790    .794
 23           PC    .799    .804    .808    .813    .817    .822    .827    .830    .833    .837
 24           PC    .840    .844    .847    .850    .854    .857    .861    .864    .867    .871
 25           PC    .874    .878    .881    .884    .888    .891    .895    .590    .901    .905
 26           PC    .908    .912    .915    .918    .922    .925    .929    .932    .935    .939
 27           PC    .942    .946    .949    .952    .956    .959    .563    .966    .969    .973
 28           PC    .976    .980    .983    .986    .990    .993    .997   1.000
 29           LS       0      75
 30           UD     .82

 31           KK    SUB8 DIRECT RUNOFF TO WHIPPLE POND
 32           KM   RUNOFF OVERLAND TO WHIPPLE POND
 33           BA    .073
 34           LS       0      66
 35           UD    1.53

 36           KK    SUB7 RUNOFF FROM AREA SOUTH OF JR HIGH
 37           KM   RUNOFF TO POND AT SE CORNER OF JR HIGH INFILT/OVERFLOW TO WHIPPLE POND
 38           BA    .022
 39           LS       0      78
 40           UD     .55

 41           KK   SE CORNER OF JR HIGH POND STORAGE AND RELEASE
 42           KM    POND INFILTRATES TO WHIPPLE POND, OVERFLOWS TO WHIPPLE POND
 43           RS       1    ELEV     580
 44           SA       0    .057    .083    .115    .135
 45           SE     580     582     584     586     588
 46           SQ       0      .2       1       2      30
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1 HEC-1 INPUT PAGE 2

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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121100 276I        .         .         .         .         .         .         .         .         .         .         .         .
121200 277I        .         .         .         .         .         .         .         .         .         .         .         .
121300 278I        .         .         .         .         .         .         .         .         .         .         .         .
121400 279I        .         .         .         .         .         .         .         .         .         .         .         .
121500 280I        .         .         .         .         .         .         .         .         .         .         .         .
121600 281I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
121700 282I        .         .         .         .         .         .         .         .         .         .         .         .
121800 283I        .         .         .         .         .         .         .         .         .         .         .         .
121900 284I        .         .         .         .         .         .         .         .         .         .         .         .
122000 285I        .         .         .         .         .         .         .         .         .         .         .         .
122100 286I        .         .         .         .         .         .         .         .         .         .         .         .
122200 287I        .         .         .         .         .         .         .         .         .         .         .         .
122300 286I        .         .         .         .         .         .         .         .         .         .         .         .
130000 289I        .         .         .         .         .         .         .         .         .         .         .         .
130100 290I        .         .         .         .         .         .         .         .         .         .         .         .
130200 291I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
130300 292I        .         .         .         .         .         .         .         .         .         .         .         .
130400 293I        .         .         .         .         .         .         .         .         .         .         .         .
130500 294I        .         .         .         .         .         .         .         .         .         .         .         .
130600 295I        .         .         .         .         .         .         .         .         .         .         .         .
130700 296I        .         .         .         .         .         .         .         .         .         .         .         .
130800 2973        .         .         .         .         .         .         .         .         .         .         .         .
130900 298I        .         .         .         .         .         .         .         .         .         .         .         .
131000 299I        .         .         .         .         .         .         .         .         .         .         .         .
131100 300I---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
1
1
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	SUB5	7.	54.00	4.	2.	2.	.05		
+	HYDROGRAPH AT	SUB8	5.	55.00	4.	2.	2.	.07		
+	HYDROGRAPH AT	SUB7	3.	54.00	2.	1.	1.	.02		
+	ROUTED TO	SE CO	2.	56.00	2.	1.	1.	.02		
+									585.98	56.00
+	HYDROGRAPH AT	SUB6	5.	54.00	3.	1.	1.	.03		
+	ROUTED TO	JR. H	2.	56.00	2.	1.	1.	.03		
+									592.81	56.00
+	4 COMBINED AT	COM1	14.	55.00	11.	7.	5.	.15		
+	ROUTED TO	WHIPP	4.	89.00	4.	4.	3.	.18		
+									588.23	89.00
+	HYDROGRAPH AT	SUB3	3.	54.00	2.	1.	1.	.02		
+	ROUTED TO	POND3	2.	55.00	2.	1.	1.	.02		
+									603.00	55.00
+	2 COMBINED AT	COM2	5.	55.00	5.	4.	4.	.20		
+	HYDROGRAPH AT	SUB1	6.	54.00	4.	2.	1.	.04		
+	HYDROGRAPH AT	SUB2	4.	54.00	2.	1.	1.	.02		
+	HYDROGRAPH AT	SUB4	2.	54.00	1.	1.	1.	.02		
+	HYDROGRAPH AT	SUB9	30.	55.00	21.	12.	8.	.25		
+	5 COMBINED AT	COM3	44.	55.00	33.	20.	14.	.53		
+	PUMP FLOW TO	LIFSTA	4.	55.00	4.	4.	4.	.53		
+	HYDROGRAPH AT	PUMP1	0.	1.00	0.	0.	0.	.53		
+									552.70	169.00

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81300 1820     I
81400 1830     I
81500 1840     I
81600 1850     I
81700 1860     I
81800 1870     I
81900 1880     I
82000 1890     I
82100 1900     I
82200 1910     I
82300 1920     I
90000 1930     I
90100 1940    I
90200 1950    I
90300 1960    I
90400 1970    I
90500 1980   I
90600 1990   I
90700 2000   I
90800 2010   I
90900 2020   I
91000 2030  I
91100 2040  I
91200 2050  I
91300 2060  I
91400 2070 I
91500 2080 I
91600 2090 I
91700 2100 I
91800 2110I
91900 2120I
92000 2130I
92100 2140I
92200 215I
92300 216I
100000 217I
100100 218I
100200 219I
100300 220I
100400 221I
100500 222I
100600 223I
100700 224I
100800 225I
100900 226I
101000 227I
101100 228I
101200 229I
101300 230I
101400 231I
101500 232I
101600 233I
101700 234I
101800 235I
101900 236I
102000 237I
102100 238I
102200 239I
102300 240I
120000 241I
110100 242I
110200 243I
110300 244I
110400 245I
110500 246I
110600 247I
110700 248I
110800 249I
110900 250I
111000 251I
111100 252I
111200 253I
111300 254I
111400 255I
111500 256I
121800 257I
111700 258I
111800 259I
111900 260I
112000 261I
112100 262I
112200 263I
112300 264I
120000 265I
120100 266I
120200 267I
120300 268I
120400 269I
120500 270I
120600 271I
120700 272I
120800 273I
120900 274I
121000 275I
```

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              **************
              *            *
31 KK         *    PUMP1   *      POSSIBLE LIFT STATION OR PORTABLE PUMP
              *            *
              **************
                                NO PUMP - MODELING 'AS IS CONDITIONS'

            HYDROGRAPH ROUTING DATA

33 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       ELEV  TYPE OF INITIAL CONDITION
                   RSVRIC     603.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

34 SA              AREA          .0       1.7       3.9       4.0       5.7       9.4

35 SE          ELEVATION     603.00    605.00    610.00    610.50    611.00    615.00

36 SQ          DISCHARGE         0.        0.        0.        0.        0.        0.

37 WP          PUMPING DATA

                 PUMP ON    PUMPING    PUMP OFF
                ELEVATION     RATE    ELEVATION

                  604.0        0.       603.5

                  ISTAD      LIFSTA  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                                    ***

                                          COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      1.19     14.91     16.88     19.30     49.14
        ELEVATION     603.00    605.00    610.00    610.50    611.00    615.00
```

****

HYDROGRAPH AT STATION PUMP1

****

DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.	.0	603.0	*	7		0600	151	0.	0.	19.5	611.0
1		0100	2	0.	0.	.0	603.0	*	7		0700	152	0.	0.	19.6	611.1
1		0200	3	0.	0.	.0	603.0	*	7		0800	153	0.	0.	19.7	611.1
1		0300	4	0.	0.	.0	603.0	*	7		0900	154	0.	0.	19.8	611.1
1		0400	5	0.	0.	.0	603.0	*	7		1000	155	0.	0.	19.9	611.1
1		0500	6	0.	0.	.0	603.0	*	7		1100	156	0.	0.	20.0	611.1
1		0600	7	0.	0.	.0	603.0	*	7		1200	157	0.	0.	20.0	611.1
1		0700	8	0.	0.	.0	603.0	*	7		1300	158	0.	0.	20.1	611.1
1		0800	9	0.	0.	.0	603.0	*	7		1400	159	0.	0.	20.2	611.2
1		0900	10	0.	0.	.0	603.0	*	7		1500	160	0.	0.	20.3	611.2
1		1000	11	0.	0.	.0	603.0	*	7		1600	161	0.	0.	20.4	611.2
1		1100	12	0.	0.	.0	603.0	*	7		1700	162	0.	0.	20.5	611.2
1		1200	13	0.	0.	.0	603.0	*	7		1800	163	0.	0.	20.6	611.2
1		1300	14	0.	0.	.0	603.0	*	7		1900	164	0.	0.	20.7	611.2
1		1400	15	0.	0.	.0	603.0	*	7		2000	165	0.	0.	20.8	611.3
1		1500	16	0.	0.	.0	603.0	*	7		2100	166	0.	0.	20.9	611.3
1		1600	17	0.	0.	.0	603.0	*	7		2200	167	0.	0.	21.0	611.3
1		1700	18	0.	0.	.0	603.0	*	7		2300	168	0.	0.	21.1	611.3
1		1800	19	0.	0.	.0	603.0	*	8		0000	169	0.	0.	21.1	611.3
1		1900	20	0.	0.	.0	603.1	*	8		0100	170	0.	0.	21.1	611.3
1		2000	21	0.	0.	.0	603.2	*	8		0200	171	0.	0.	21.1	611.3
1		2100	22	0.	0.	.0	603.3	*	8		0300	172	0.	0.	21.1	611.3
1		2200	23	0.	0.	.0	603.4	*	8		0400	173	0.	0.	21.1	611.3
1		2300	24	0.	0.	.0	603.5	*	8		0500	174	0.	0.	21.1	611.3
2		0000	25	0.	0.	.0	603.6	*	8		0600	175	0.	0.	21.1	611.3
2		0100	26	0.	0.	.1	603.7	*	8		0700	176	0.	0.	21.1	611.3
2		0200	27	0.	0.	.1	603.8	*	8		0800	177	0.	0.	21.1	611.3
2		0300	28	0.	0.	.1	603.9	*	8		0900	178	0.	0.	21.1	611.3
2		0400	29	0.	0.	.1	604.0	*	8		1000	179	0.	0.	21.0	611.3
2		0500	30	0.	0.	.2	604.1	*	8		1100	180	0.	0.	21.0	611.3
2		0600	31	0.	0.	.2	604.1	*	8		1200	181	0.	0.	21.0	611.3
2		0700	32	0.	0.	.3	604.2	*	8		1300	182	0.	0.	21.0	611.3
2		0800	33	0.	0.	.3	604.3	*	8		1400	183	0.	0.	21.0	611.3
2		0900	34	0.	0.	.4	604.4	*	8		1500	184	0.	0.	21.0	611.3
2		1000	35	0.	0.	.4	604.4	*	8		1600	185	0.	0.	21.0	611.3
2		1100	36	0.	0.	.5	604.5	*	8		1700	186	0.	0.	20.9	611.3
2		1200	37	0.	0.	.6	604.6	*	8		1800	187	0.	0.	20.9	611.3
2		1300	38	0.	0.	.6	604.6	*	8		1900	188	0.	0.	20.9	611.3
2		1400	39	0.	0.	.7	604.7	*	8		2000	189	0.	0.	20.9	611.3
2		1500	40	0.	0.	.8	604.8	*	8		2100	190	0.	0.	20.9	611.3
2		1600	41	0.	0.	.9	604.9	*	8		2200	191	0.	0.	20.9	611.3
2		1700	42	0.	0.	1.0	604.9	*	8		2300	192	0.	0.	20.9	611.3
2		1800	43	0.	0.	1.2	605.0	*	9		0000	193	0.	0.	20.9	611.3
2		1900	44	0.	0.	1.3	605.1	*	9		0100	194	0.	0.	20.8	611.3
2		2000	45	0.	0.	1.4	605.2	*	9		0200	195	0.	0.	20.8	611.3
2		2100	46	0.	0.	1.6	605.2	*	9		0300	196	0.	0.	20.8	611.3
2		2200	47	0.	0.	1.7	605.3	*	9		0400	197	0.	0.	20.8	611.3
2		2300	48	0.	0.	1.9	605.4	*	9		0500	198	0.	0.	20.8	611.3

3	0000	49	0.	0.	2.1	605.5	*	9	0600	199	0.	0.	20.8	611.3
3	0100	50	0.	0.	2.3	605.6	*	9	0700	200	0.	0.	20.8	611.3
3	0200	51	0.	0.	2.6	605.8	*	9	0800	201	0.	0.	20.8	611.3
3	0300	52	0.	0.	2.9	605.9	*	9	0900	202	0.	0.	20.7	611.3
3	0400	53	0.	0.	3.3	606.1	*	9	1000	203	0.	0.	20.7	611.2
3	0500	54	0.	0.	3.8	606.3	*	9	1100	204	0.	0.	20.7	611.2
3	0600	55	0.	0.	4.6	606.7	*	9	1200	205	0.	0.	20.7	611.2
3	0700	56	0.	0.	5.5	607.0	*	9	1300	206	0.	0.	20.7	611.2
3	0800	57	0.	0.	6.2	607.3	*	9	1400	207	0.	0.	20.7	611.2
3	0900	58	0.	0.	6.6	607.5	*	9	1500	208	0.	0.	20.7	611.2
3	1000	59	0.	0.	7.0	607.6	*	9	1800	209	0.	0.	20.7	611.2
3	1100	60	0.	0.	7.3	607.7	*	9	1700	210	0.	0.	20.6	611.2
3	1200	61	0.	0.	7.6	607.8	*	9	1800	211	0.	0.	20.6	611.2
3	1300	62	0.	0.	7.9	607.9	*	9	1900	212	0.	0.	20.6	611.2
3	1400	63	0.	0.	8.1	608.0	*	9	2000	213	0.	0.	20.6	611.2
3	1500	64	0.	0.	8.3	608.1	*	9	2100	214	0.	0.	20.6	611.2
3	1600	65	0.	0.	8.8	608.2	*	9	2200	215	0.	0.	20.6	611.2
3	1700	66	0.	0.	8.7	608.2	*	9	2300	216	0.	0.	20.6	611.2
3	1800	67	0.	0.	0.9	608.3	*	10	0000	217	0.	0.	20.6	611.2
3	1900	68	0.	0.	9.1	606.4	*	10	0100	218	0.	0.	20.5	611.2
3	2000	69	0.	0.	9.3	608.4	*	10	0200	219	0.	0.	20.5	611.2
3	2100	70	0.	0.	9.5	608.5	*	10	0300	220	0.	0.	20.5	611.2
3	2200	71	0.	0.	9.7	608.5	*	10	0400	221	0.	0.	20.5	611.2
3	2300	72	0.	0.	10.0	808.6	*	10	0500	222	0.	0.	20.5	611.2
4	0000	73	0.	0.	10.2	608.7	*	10	0600	223	0.	0.	20.5	611.2
4	0100	74	0.	0.	10.4	608.7	*	10	0700	224	0.	0.	20.5	611.2
4	0200	75	0.	0.	10.6	608.8	*	10	0800	225	0.	0.	20.4	611.2
4	0300	76	0.	0.	10.8	608.9	*	10	0900	226	0.	0.	20.4	611.2
4	0400	77	0.	0.	10.9	608.9	*	10	1000	227	0.	0.	20.4	611.2
4	0500	78	0.	0.	11.1	609.0	*	10	1100	228	0.	0.	20.4	611.2
4	0600	79	0.	0.	11.3	608.0	*	10	1200	229	0.	0.	20.4	611.2
4	0700	80	0.	0.	11.5	609.1	*	10	1300	230	0.	0.	20.4	611.2
4	0800	81	0.	0.	11.6	609.1	*	10	1400	231	0.	0.	20.4	611.2
4	0900	52	0.	0.	11.8	609.2	*	10	1500	232	0.	0.	20.4	611.2
4	1000	83	0.	0.	12.0	609.2	*	10	1600	233	0.	0.	20.3	611.2
4	1100	84	0.	0.	12.1	609.3	*	10	1700	234	0.	0.	20.3	611.2
4	1200	85	0.	0.	12.3	809.3	*	10	1800	235	0.	0.	20.3	611.2
4	1300	86	0.	0.	12.5	609.4	*	10	1900	236	0.	0.	20.3	611.2
4	1400	87	0.	0.	12.6	609.4	*	10	2000	237	0.	0.	20.3	611.2
4	1500	68	0.	0.	12.8	609.4	*	10	2100	238	0.	0.	20.3	811.2
4	1600	55	0.	0.	13.0	609.5	*	10	2200	239	0.	0.	20.3	611.2
4	1700	90	0.	0.	13.1	609.5	*	10	2300	240	0.	0.	20.3	611.2
4	1800	91	0.	0.	13.3	609.6	*	11	0000	241	0.	0.	20.2	611.2
4	1900	92	0.	0.	13.4	608.6	*	11	0100	242	0.	0.	20.2	611.2
4	2000	93	0.	0.	13.5	609.6	*	11	0200	243	0.	0.	20.2	611.2
4	2100	94	0.	0.	13.7	609.7	*	11	0300	244	0.	0.	20.2	611.2
4	2200	95	0.	0.	13.8	609.7	*	11	0400	245	0.	0.	20.2	611.2
4	2300	96	0.	0.	13.9	609.7	*	11	0500	246	0.	0.	20.2	611.2
5	0000	97	0.	0.	14.1	609.8	*	11	0600	247	0.	0.	20.2	611.2
5	0100	98	0.	0.	14.2	609.8	*	11	0700	248	0.	0.	20.2	611.2
5	0200	99	0.	0.	14.3	609.8	*	11	0800	249	0.	0.	20.1	611.1
5	0300	100	0.	0.	14.4	609.9	*	11	0900	250	0.	0.	20.1	611.1
5	0400	101	0.	0.	14.6	609.9	*	11	1000	251	0.	0.	20.1	611.1
5	0500	102	0.	0.	14.7	609.9	*	11	1100	252	0.	0.	20.1	611.1
5	0600	103	0.	0.	14.8	610.0	*	11	1200	253	0.	0.	20.1	611.1
5	0700	104	0.	0.	15.0	610.0	*	11	1300	254	0.	0.	20.1	611.1
5	0800	105	0.	0.	15.1	610.0	*	11	1400	255	0.	0.	20.1	611.1
5	0900	106	0.	0.	15.2	610.1	*	11	1500	256	0.	0.	20.1	611.1
5	1000	107	0.	0.	15.3	610.1	*	11	1600	257	0.	0.	20.0	611.1
5	1100	108	0.	0.	15.5	610.1	*	11	1700	258	0.	0.	20.0	611.1
5	1200	109	0.	0.	15.6	610.2	*	11	1800	259	0.	0.	20.0	611.1
5	1300	110	0.	0.	15.7	610.2	*	11	1900	260	0.	0.	20.0	611.1
5	1400	111	0.	0.	15.9	610.2	*	11	2000	261	0.	0.	20.0	611.1
5	1500	112	0.	0.	16.0	610.3	*	11	2100	262	0.	0.	20.0	611.1
5	1600	113	0.	0.	16.1	610.3	*	11	2200	261	0.	0.	20.0	611.1
5	1700	114	0.	0.	16.2	610.3	*	11	2300	264	0.	0.	20.0	611.1
5	1800	115	0.	0.	16.4	610.4	*	12	0000	265	0.	0.	19.9	611.1
5	1900	116	0.	0.	16.5	610.4	*	12	0100	266	0.	0.	19.9	611.1
5	2000	117	0.	0.	16.6	610.4	*	12	0200	267	0.	0.	18.9	611.1
5	2100	118	0.	0.	16.7	610.5	*	12	0300	268	0.	0.	19.9	611.1
5	2200	119	0.	0.	16.8	610.5	*	12	0400	269	0.	0.	19.9	611.1
5	2300	120	0.	0.	16.9	610.5	*	12	0500	270	0.	0.	19.8	811.1
6	0000	121	0.	0.	17.0	610.5	*	12	0600	271	0.	0.	19.9	611.1
6	0100	122	0.	0.	17.0	610.5	*	12	0700	272	0.	0.	19.9	611.1
6	0200	123	0.	0.	17.1	610.6	*	12	0800	273	0.	0.	19.8	611.1
6	0300	124	0.	0.	17.2	610.6	*	12	0900	274	0.	0.	19.8	611.1
6	0400	125	0.	0.	17.3	610.6	*	12	1000	275	0.	0.	19.8	611.1
6	0500	126	0.	0.	17.4	610.6	*	12	1100	276	0.	0.	19.8	611.1
6	0600	127	0.	0.	17.4	610.6	*	12	1200	277	0.	0.	19.8	611.1
6	0700	128	0.	0.	17.5	610.7	*	12	1300	278	0.	0.	19.8	611.1
6	0800	129	0.	0.	17.6	610.7	*	12	1400	279	0.	0.	19.8	611.1
6	0900	130	0.	0.	17.7	610.7	*	12	1500	280	0.	0.	19.8	611.1
6	1000	131	0.	0.	17.8	610.7	*	12	1600	261	0.	0.	19.7	611.1
6	1100	132	0.	0.	17.9	610.7	*	12	1700	282	0.	0.	19.7	611.1
6	1200	133	0.	0.	17.9	610.7	*	12	1800	283	0.	0.	19.7	611.1
6	1300	134	0.	0.	18.0	610.8	*	12	1900	284	0.	0.	19.7	611.1
6	1400	135	0.	0.	18.1	610.8	*	12	2000	285	0.	0.	19.7	611.1
6	1500	136	0.	0.	18.2	610.8	*	12	2100	286	0.	0.	19.7	611.1
6	1600	137	0.	0.	18.3	610.8	*	12	2200	287	0.	0.	19.7	611.1
6	1700	138	0.	0.	18.4	610.8	*	12	2300	288	0.	0.	18.6	611.1
6	1800	139	0.	0.	18.4	610.8	*	12	0000	289	0.	0.	19.6	611.1
6	1900	140	0.	0.	18.5	610.9	*	12	0100	290	0.	0.	19.6	611.1
6	2000	141	0.	0.	18.6	610.9	*	12	0200	291	0.	0.	19.6	611.1
6	2100	142	0.	0.	18.7	610.9	*	12	0300	292	0.	0.	19.6	611.1

6	2200	143	0.	0.	18.8	610.9	*	13	0400	293	0.	0.	19.6	611.1
6	2300	144	0.	0.	18.9	610.9	*	13	0500	294	0.	0.	19.6	611.0
7	0000	145	0.	0.	19.0	610.9	*	13	0600	295	0.	0.	19.6	611.0
7	0100	146	0.	0.	19.1	611.0	*	13	0700	296	0.	0.	19.5	611.0
7	0200	147	0.	0.	19.1	611.0	*	13	0600	297	0.	0.	19.5	611.0
7	0300	148	0.	0.	19.2	611.0	*	13	0900	298	0.	0.	19.5	611.0
7	0400	149	0.	0.	19.3	611.0	*	13	1000	299	0.	0.	19.5	611.0
7	0500	150	0.	0.	19.4	611.0	*	13	1100	300	0.	0.	19.5	611.0
							*							

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PEAK OUTFLOW IS 0. AT TIME 146.00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	30.00		0.	0.	0.	0.
		(INCHES)	.001	.004	.013	.050
		(AC-FT)	0.	0.	0.	0.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	148.00		0.	0.	0.	0.
		(INCHES)	.017	.066	.199	.617
		(AC-FT)	0.	0.	1.	3.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	299.00-HR
+ (AC-FT)	(HR)				
21.	169.00	21.	21.	21.	15.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	299.00-HR
+ (FEET)	(HR)				
611.32	169.00	611.31	611.30	611.25	609.43

CUMULATIVE AREA = .06 SQ MI

1 STATION PUMP1

(I) INFLOW, (O) OUTFLOW

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          0.        2.        4.        6.        8.       10.       12.        0.        0.        0.        0.        0.        0.
DAHRMN PHR
 10000   1I---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
 10100   2I         .         .         .         .         .         .         .         .         .         .         .         .
 10200   3I         .         .         .         .         .         .         .         .         .         .         .         .
 10300   4I         .         .         .         .         .         .         .         .         .         .         .         .
 10400   5I         .         .         .         .         .         .         .         .         .         .         .         .
 10500   6I         .         .         .         .         .         .         .         .         .         .         .         .
 10600   7I         .         .         .         .         .         .         .         .         .         .         .         .
 10700   8I         .         .         .         .         .         .         .         .         .         .         .         .
 10800   9I         .         .         .         .         .         .         .         .         .         .         .         .
 10900  10I         .         .         .         .         .         .         .         .         .         .         .         .
 11000  11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 11100  12I         .         .         .         .         .         .         .         .         .         .         .         .
 11200  13I         .         .         .         .         .         .         .         .         .         .         .         .
 11300  14I         .         .         .         .         .         .         .         .         .         .         .         .
 11400  15I         .         .         .         .         .         .         .         .         .         .         .         .
 11500  16I         .         .         .         .         .         .         .         .         .         .         .         .
 11600  17I         .         .         .         .         .         .         .         .         .         .         .         .
 11700  18I         .         .         .         .         .         .         .         .         .         .         .         .
 11800  19I         .         .         .         .         .         .         .         .         .         .         .         .
 11900  20I         .         .         .         .         .         .         .         .         .         .         .         .
 12000  21OI. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 12100  22OI        .         .         .         .         .         .         .         .         .         .         .         .
 12200  23OI        .         .         .         .         .         .         .         .         .         .         .         .
 12300  24OI        .         .         .         .         .         .         .         .         .         .         .         .
 20000  25O I       .         .         .         .         .         .         .         .         .         .         .         .
 20100  26O I       .         .         .         .         .         .         .         .         .         .         .         .
 20200  27O I       .         .         .         .         .         .         .         .         .         .         .         .
 20300  28O  I      .         .         .         .         .         .         .         .         .         .         .         .
 20400  29O  I      .         .         .         .         .         .         .         .         .         .         .         .
 20500  30O   I     .         .         .         .         .         .         .         .         .         .         .         .
 20600  31O . I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 20700  32O   I     .         .         .         .         .         .         .         .         .         .         .         .
 20800  33O   I     .         .         .         .         .         .         .         .         .         .         .         .
 20900  34O    I    .         .         .         .         .         .         .         .         .         .         .         .
 21000  35O     I   .         .         .         .         .         .         .         .         .         .         .         .
 21100  36O     I   .         .         .         .         .         .         .         .         .         .         .         .
 21200  37O     I   .         .         .         .         .         .         .         .         .         .         .         .
 21300  39O     I   .         .         .         .         .         .         .         .         .         .         .         .
 21400  39O      I  .         .         .         .         .         .         .         .         .         .         .         .
 21500  40O      I  .         .         .         .         .         .         .         .         .         .         .         .
 21600  41O . . . I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 21700  42O       I .         .         .         .         .         .         .         .         .         .         .         .
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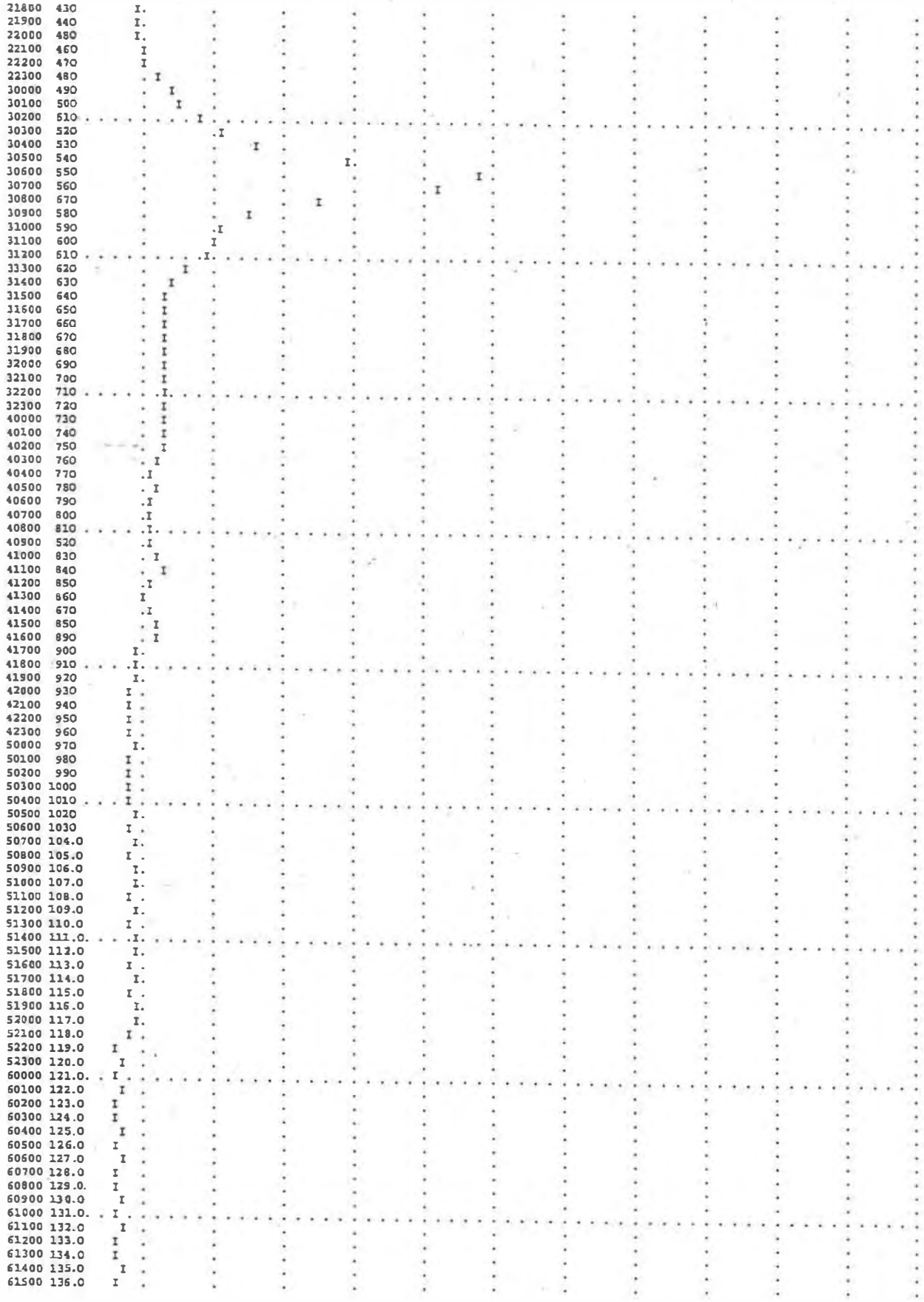

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61600 137.0     I
61700 138.0    I
61800 139.0    I
61900 140.0     I
62000 141.0.   I
62100 142.0     I
62200 143.0    I
62300 144.0    I
70000 145.0     I
70100 146.0    I
70200 147.0     I
70300 148.0    I
70400 149.0    I
70500 150.0     I
70600 151.0.   I
70700 152.0     I
70800 153.0    I
70900 154.0    I
71000 155.0     I
71100 156.0    I
71200 157.0     I
71300 158.0     I
71400 159.0    I
71500 160.0     I
71600 161.0.   I
71700 162.0     I
71800 163.0     I
71900 164.0    I
72000 165.0     I
72100 166.0    I
72200 167.0     I
72300 168.0     I
80000 169.0 I
80100 170.I
80200 171IO.
80300 172IO
80400 173IO
80500 174IO
80600 176IO
80700 176IO
80800 177IO
80900 178IO
81000 179IO
81100 160IO
81200 181IO.
81300 182IO
81400 183IO
81500 184IO
81600 185IO
81700 186IO
81800 187IO
81900 188IO
82000 189IO
82100 190IO
82200 191IO.
82300 192IO
90000 193IO
90100 194IO
90200 195IO
90300 196IO
90400 197IO
90500 198IO
90600 199IO
90700 200IO
90800 201IO.
90900 202IO
91000 203IO
91100 204IO
91200 205IO
91300 206IO
91400 207IO
91500 208IO
91600 209IO
91700 210IO
91800 211IO.
91900 212IO
92000 213IO
92100 214IO
92200 215IO
92300 216IO
100000 217IO
100100 218IO
100200 219IO
100300 220IO
100400 221IO.
100500 122IO
100600 223IO
100700 224IO
100800 225IO
100900 226IO
101000 227IO
101100 228IO
101200 229IO
101300 230IO
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101400 231IO.
101500 232IO
101600 233IO
101700 234IO
101800 235IO
101900 236IO
102000 237IO
102100 238IO
102200 239IO
102300 240IO
110000 241IO.
110100 242IO
110200 243IO
110300 244IO
110400 245IO
110500 246IO
110600 247IO
110700 246IO
110800 249IO
110900 250IO
111000 251IO.
111100 252IO
111200 253IO
111300 254IO
111400 255IO
111500 256IO
111600 257IO
111700 258IO
111800 259IO
111900 260IO
112000 261IO.
112100 262IO
112200 263IO
112300 264IO
120000 265IO
120100 266IO
120200 267IO
120300 268IO
120400 269IO
120500 270IO
120600 271IO.
120700 272IO
120800 273IO
120900 274IO
121000 275IO
121100 276IO
121200 277IO
121300 278IO
121400 279IO
121600 280IO
121600 281IO.
121700 282IO
121800 283IO
121900 284IO
122000 285IO
122100 286IO
122200 287IO
122300 288IO
130000 289IO
130100 290IO
130200 291IO.
130300 292IO
130400 293IO
130500 294IO
130600 295IO
130700 296IO
130800 297IO
130900 298IO
131000 299IO
131100 300IO----------
1
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	PUT-4	32.	54.00	6.	4.	3.	.08		
+	PUMP FLOW TO	LIFSTA	0.	30.00	0.	0.	0.	.08		
+	HYDROGRAPH AT	PUMP1	0.	148.00	0.	0.	0.	.08		
+									611.32	169.00

*** NORMAL END OF HEC-1 ***

```
1*************************************                    *************************************
*                                   *                    *                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                    *   U.S. ARMY CORPS OF ENGINEERS    *
*          SEPTEMBER 1990           *                    *   HYDROLOGIC ENGINEERING CENTER   *
*           VERSION 4.0             *                    *         609 SECOND STREET         *
*                                   *                    *      DAVIS, CALIFORNIA 95616      *
* RUN DATE  05/13/1998  TIME  12:56:54 *                  *         (916) 756-1104            *
*                                   *                    *                                   *
*************************************                    *************************************
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```
X     X  XXXXXXX   XXXXX          X
X     X  X        X    X         XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X    X         X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KN.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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1                                                HEC-1 INPUT                                                    PAGE  1

      LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

        1           ID        FILENAME: 4_127_1.hc1; REVISED 05-12-1998
        2           ID        Bonney Lake Comprehensive Plan - Analysis of Hydrology for PROB. #5 - Po
        3           ID        HEC-1 MODEL--12.IN. 7-Day STORM EVENT
        4           ID        Pumping Facility Rated at 1 cfs
                    *DIAGRAM
        5           IT      60                    200
        6           IN      60
        7           IO       0       2       0

        8           KK   POT-4 PROBLEM AREA NO. 5 (PRIORITY NO. 2)
        9           KM   ENTIRE BASIN MODELED AS ONE AREA (NO STORAGE CALCULATED EXCEPT AT POTHOLE)
       10           BA   .0843
                    *   100 YR  PRECIPITATION IS 12.-INCHES
       11           PB     12.
       12           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
       13           PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .076
       14           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
       15           PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .198
       16           PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
       17           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
       18           PC    .506    .514    .521    .529    .536    .544    .551    .559    .566    .574
       19           PC    .581    .589    .596    .604    .611    .617    .623    .630    .636    .642
       20           PC    .648    .654    .661    .669    .673    .679    .685    .692    .698    .702
       21           PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
       22           PC    .753    .758    .762    .767    .771    .776    .781    .785    .790    .794
       23           PC    .799    .804    .808    .813    .817    .822    .827    .830    .833    .837
       24           PC    .840    .844    .847    .850    .854    .857    .861    .864    .867    .871
       25           PC    .874    .878    .881    .884    .888    .891    .895    .898    .901    .905
       26           PC    .908    .912    .915    .918    .922    .925    .929    .832    .935    .939
       27           PC    .942    .946    .949    .952    .956    .959    .963    .966    .969    .973
       28           PC    .976    .980    .983    .986    .990    .993    .997   1.000
       29           LS       0      81
       30           UD     .84

       31           KK   PUMP1 POSSIBLE LIFT STATION OR PORTABLE PUMP
       32           KM    PUMP - MODELING 1 CFS PUMP STATION
       33           RS       1    ELEV     603
       34           SA       0    1.73    3.92    4.00    5.67    9.41
       35           SE     603     605     610   610.5     611     615
       36           SQ       0     .05      .1      .1     .15     .15
       37           WP   605.0    1.00   604.0  LIFSTA
       38           ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE       (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     8        POT-4
                 V
                 V
    37           .-------> LIFSTA
    31        PUMP1
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              **************
              *            *
31 KK         *   PUMP1    *      POSSIBLE LIFT STATION OR PORTABLE PUMP
              *            *
              **************

                        PUMP - MODELING 1 CFS PUMP STATION

          HYDROGRAPH ROUTING DATA

33 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       ELEV  TYPE OF INITIAL CONDITION
                   RSVRIC     603.00  INITIAL CONDITION
                        X        .00  WORKING R AND D COEFFICIENT

34 SA              AREA          .0       1.7       3.9       4.0       5.7       9.4

35 SE          ELEVATION     603.00    605.00    610.00    610.50    611.00    615.00

36 SQ          DISCHARGE         0.        0.        0.        0.        0.        0.

37 WP          PUMPING DATA

                 PUMP ON    PUMPING    PUMP OFF
               ELEVATION     RATE     ELEVATION

                 605.0        1.        604.0

                 ISTAD      LIFSTA  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                                   ***

                                        COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      1.15     14.91     16.89     19.30     49.14
        ELEVATION     603.00    605.00    610.00    610.50    611.00    615.00
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HYDROGRAPH AT STATION PUMP1

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DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.	.0	603.0	7		0600	151	1.	0.	27.5	612.3
1		0100	2	0.	0.	.0	603.0	7		0700	152	1.	0.	27.6	612.3
1		0200	3	0.	0.	.0	603.0	7		0800	153	1.	0.	27.7	612.3
1		0300	4	0.	0.	.0	603.0	7		0900	154	1.	0.	27.8	612.4
1		0400	5	0.	0.	.0	603.0	7		1000	155	1.	0.	27.8	612.4
1		0500	6	0.	0.	.0	603.0	7		1100	156	1.	0.	27.9	612.4
1		0600	7	0.	0.	.0	603.0	7		1200	157	1.	0.	28.0	612.4
1		0700	8	0.	0.	.0	603.0	7		1300	158	1.	0.	28.1	612.4
1		0800	9	0.	0.	.0	603.0	7		1400	159	1.	0.	28.2	612.4
1		0900	10	0.	0.	.0	603.0	7		1500	160	1.	0.	28.2	612.4
1		1000	11	0.	0.	.0	603.0	7		1600	161	1.	0.	28.3	612.4
1		1100	12	0.	0.	.0	603.0	7		1700	162	1.	0.	28.4	612.4
1		1200	13	0.	0.	.0	603.0	7		1800	163	1.	0.	28.5	612.5
1		1300	14	0.	0.	.0	603.1	7		1900	164	1.	0.	28.6	612.5
1		1400	15	0.	0.	.0	603.3	7		2000	165	1.	0.	28.6	612.5
1		1500	16	0.	0.	.0	603.4	7		2100	166	1.	0.	28.7	612.5
1		1600	17	0.	0.	.0	603.5	7		2200	167	1.	0.	28.8	612.5
1		1700	18	0.	0.	.0	603.7	7		2300	168	1.	0.	28.9	612.5
1		1800	19	0.	0.	.1	603.8	8		0000	169	1.	0.	28.9	612.5
1		1900	20	0.	0.	.1	603.9	8		0100	170	1.	0.	28.9	612.5
1		2000	21	0.	0.	.1	604.0	8		0200	171	1.	0.	28.8	612.5
1		2100	22	0.	0.	.2	604.1	8		0300	172	1.	0.	28.7	612.5
1		2200	23	0.	0.	.3	604.2	8		0400	173	1.	0.	28.6	612.5
1		2300	24	0.	0.	.3	604.3	8		0500	174	1.	0.	28.5	612.5
2		0000	25	0.	0.	.4	604.4	8		0600	175	1.	0.	28.5	612.5
2		0100	26	0.	0.	.5	604.5	8		0700	176	1.	0.	28.4	612.4
2		0200.	27	0.	0.	.6	604.6	8		0800	177	1.	0.	28.3	612.4
2		0300	28	0.	0.	.7	604.7	8		0900	178	1.	0.	28.2	612.4
2		0400	29	0.	0.	.8	604.8	8		1000	179	1.	0.	28.1	612.4
2		0500	30	0.	0.	.9	604.9	8		1100	180	1.	0.	28.0	612.4
2		0600	31	0.	0.	1.1	605.0	8		1200	181	1.	0.	27.9	612.4
2		0700	32	0.	0.	1.3	605.1	8		1300	182	1.	0.	27.8	612.4
2		0800	33	1.	0.	1.3	605.1	8		1400	183	1.	0.	27.7	612.3
2		0900	34	1.	0.	1.4	605.2	8		1500	184	1.	0.	27.6	612.3
2		1000	15	1.	0.	1.6	605.2	8		1600	185	1.	0.	27.5	612.3
2		1100	36	1.	0.	1.7	605.3	8		1700	186	1.	0.	27.4	612.3
2		1200	37	1.	0.	1.8	605.4	8		1800	187	1.	0.	27.4	612.3
2		1300	38	1.	0.	2.0	605.5	8		1900	188	1.	0.	27.3	612.3
2		1400	39	1.	0.	2.1	605.5	8		2000	189	1.	0.	27.2	612.3
2		1500	40	1.	0.	2.3	605.6	8		2100	190	1.	0.	27.1	612.3
2		1600	41	1.	0.	2.5	605.7	8		2200	191	1.	0.	27.0	612.2
2		1700	42	1.	0.	2.7	605.8	8		2300	192	1.	0.	26.9	612.2
2		1800	43	1.	0.	2.9	605.9	9		0000	193	1.	0.	26.8	612.2
2		1900	44	1.	0.	3.1	606.0	9		0100	194	1.	0.	26.7	612.2
2		2000	45	1.	0.	3.3	606.1	9		0200	195	1.	0.	26.6	612.2
2		2100	46	1.	0.	3.5	606.2	9		0300	196	1.	0.	26.5	612.2
2		2200	47	1.	0.	3.8	606.3	9		0400	197	1.	0.	26.4	612.2

2	2300	48	1.	0.	4.0	606.4	*	9	0500	198	1.	0.	28.3	612.1
3	0000	49	1.	0.	4.4	808.8	*	9	0600	199	1.	0.	26.2	612.1
3	0100	50	1.	0.	4.9	606.8	*	9	0700	200	1.	0.	26.2	612.1
3	0200	51	1.	0.	5.2	606.9	*	9	0800	201	1.	0.	28.1	612.1
3	0300	52	1.	0.	5.7	607.1	*	9	0900	202	1.	0.	26.0	812.1
3	0400	53	1.	0.	6.4	607.4	*	9	1000	203	1.	0.	25.9	812.1
3	0500	54	1.	0.	7.3	807.7	*	9	1100	204	1.	0.	25.8	612.1
3	0600	55	1.	0.	8.7	808.2	*	9	1200	205	1.	0.	25.7	612.0
3	0700	56	1.	0.	10.2	608.7	*	9	1300	206	1.	0.	25.6	612.0
3	0800	57	1.	0.	11.4	809.1	*	9	1400	207	1.	0.	25.5	812.0
3	0900	58	1.	0.	12.2	609.3	*	9	1500	208	1.	0.	25.4	612.0
3	1000	59	1.	0.	12.8	609.4	*	9	1600	209	1.	0.	25.3	612.0
3	1100	80	1.	0.	13.3	609.6	*	9	1700	210	1.	0.	25.2	612.0
3	1200	61	1.	0.	13.8	609.7	*	9	1800	211	1.	0.	25.1	612.0
3	1300	62	1.	0.	14.2	609.8	*	9	1900	212	1.	0.	25.1	811.9
3	1400	63	1.	0.	14.6	609.9	*	9	2000	213	1.	0.	25.0	611.9
3	1500	64	1.	0.	14.8	610.0	*	9	2100	214	1.	0.	24.9	611.9
3	1600	65	1.	0.	15.1	610.1	*	9	2200	215	1.	0.	24.8	811.9
3	1700	66	1.	0.	15.4	610.1	*	9	2300	216	1.	0.	24.7	611.9
3	1800	67	1.	0.	15.7	610.2	*	10	0000	217	1.	0.	24.6	611.9
3	1900	68	1.	0.	16.0	610.3	*	10	0100	218	1.	0.	24.5	611.9
3	2000	69	1.	0.	16.2	610.3	*	10	0200	219	1.	0.	24.4	611.8
3	2100	70	1.	0.	16.5	610.4	*	10	0300	220	1.	0.	24.3	611.8
3	2200	71	1.	0.	16.7	610.5	*	10	0400	221	1.	0.	24.2	611.8
3	2300	72	1.	0.	17.0	610.5	*	10	0500	222	1.	0.	24.1	611.8
4	0000	73	1.	0.	17.3	610.6	*	10	0600	223	1.	0.	24.0	611.8
4	0100	74	1.	0.	17.5	610.7	*	10	0700	224	1.	0.	24.0	611.8
4	0200	75	1.	0.	17.8	810.7	*	10	0800	225	1.	0.	23.9	611.8
4	0300	76	1.	0.	18.0	610.8	*	10	0900	226	1.	0.	23.8	611.7
4	0400	77	1.	0.	18.2	610.8	*	10	1000	227	1.	0.	23.7	611.7
4	0500	78	1.	0.	18.4	610.8	*	10	1100	228	1.	0.	23.8	611.7
4	0600	79	1.	0.	18.6	610.9	*	10	1200	229	1.	0.	23.5	811.7
4	0700	80	1.	0.	18.9	610.9	*	10	1300	230	1.	0.	23.4	611.7
4	0800	81	1.	0.	19.1	611.0	*	10	1400	231	1.	0.	23.3	811.7
4	0900	82	1.	0.	19.3	611.0	*	10	1500	232	1.	0.	23.2	611.7
4	1000	83	1.	0.	19.5	611.0	*	10	1600	233	1.	0.	23.1	611.6
4	1100	84	1.	0.	19.7	611.1	*	10	1700	234	1.	0.	23.0	811.8
4	1200	85	1.	0.	20.0	611.1	*	10	1800	235	1.	0.	22.9	611.6
4	1300	86	1.	0.	20.1	811.1	*	10	1900	236	1.	0.	22.9	611.6
4	1400	87	1.	0.	20.3	811.2	*	10	2000	237	1.	0.	22.8	611.6
4	1500	88	1.	0.	20.5	611.2	*	10	2100	238	1.	0.	22.7	811.6
4	1600	89	1.	0.	20.8	811.3	*	10	2200	239	1.	0.	22.6	611.8
4	1700	90	1.	0.	21.0	611.3	*	10	2300	240	1.	0.	22.5	611.5
4	1800	91	1.	0.	21.1	611.3	*	11	0000	241	1.	8.	22.4	611.5
4	1900	82	1.	0.	21.3	611.3	*	11	0100	242	1.	0.	22.3	811.5
4	2000	93	1.	0.	21.4	611.4	*	11	0200	243	1.	0.	22.2	611.5
4	2100	94	1.	0.	21.6	611.4	*	11	0300	244	1.	0.	22.1	611.5
4	2200	95	1.	0.	21.7	611.4	*	11	0400	245	1.	0.	22.0	611.5
4	2300	96	1.	0.	21.8	611.4	*	11	0500	246	1.	0.	21.9	611.5
5	0000	97	1.	0.	22.0	611.5	*	11	0600	247	1.	0.	21.8	611.4
5	0100	98	1.	0.	22.1	811.5	*	11	0700	248	1.	0.	21.8	611.4
5	0200	99	1.	0.	22.2	611.5	*	11	0800	249	1.	0.	21.7	811.4
5	0300	100	1.	0.	22.4	611.5	*	11	0900	250	1.	0.	22.5	611.4
5	0400	101	1.	0.	22.5	611.5	*	11	1000	251	1.	0.	21.5	611.4
5	0500	102	1.	0.	22.6	611.6	*	11	1100	252	1.	0.	21.4	811.4
5	0600	103	1.	0.	22.8	811.8	*	11	1200	253	1.	0.	21.3	611.3
5	0700	104	1.	0.	22.9	611.6	*	11	1300	254	1.	0.	21.2	811.3
5	0800	105	1.	0.	21.1	611.6	*	11	1400	255	1.	0.	21.1	611.3
5	0900	106	1.	0.	23.2	611.7	*	11	1500	256	1.	0.	21.0	611.3
5	1000	107	1.	0.	23.3	611.7	*	11	1600	257	1.	0.	20.9	611.3
5	1100	108	1.	0.	21.5	611.7	*	11	1700	258	1.	0.	20.8	611.3
5	1200	109	1.	0.	23.6	611.7	*	11	1800	259	1.	0.	20.7	611.3
5	1300	110	1.	0.	23.8	611.7	*	11	1900	260	1.	0.	20.7	611.2
5	1400	111	1.	0.	23.9	611.8	*	11	2000	261	1.	0.	20.6	611.2
5	1500	112	1.	0.	24.0	611.8	*	11	2100	262	1.	0.	20.5	611.2
5	1600	113	1.	0.	24.2	611.8	*	11	2200	263	1.	0.	20.4	612.2
5	1700	114	1.	0.	24.3	611.8	*	11	2300	264	1.	0.	20.3	611.2
5	1800	115	1.	0.	24.4	611.9	*	12	0000	265	1.	0.	20.2	811.2
5	1900	116	1.	0.	24.6	611.9	*	12	0100	266	1.	0.	20.1	611.1
5	2000	117	1.	0.	24.7	611.9	*	12	0200	267	1.	0.	20.0	611.1
5	2100	118	1.	0.	24.9	811.9	*	12	0300	268	1.	0.	19.9	611.1
5	2200	119	1.	0.	25.0	611.9	*	12	0400	269	1.	0.	19.8	811.1
5	2300	120	1.	0.	25.0	611.9	*	12	0500	270	1.	0.	19.7	611.1
6	0000	121	1.	0.	25.1	612.0	*	12	0600	271	1.	0.	19.6	611.1
6	0100	132	1.	0.	25.2	612.0	*	12	0700	272	1.	0.	19.6	811.0
6	0200	123	1.	0.	25.3	812.0	*	12	0800	273	1.	0.	19.5	611.0
6	0300	124	1.	0.	25.4	612.0	*	12	0900	274	1.	0.	19.4	811.0
6	0400	125	1.	0.	25.4	612.0	*	12	1000	275	1.	0.	19.3	611.0
6	0500	128	1.	0.	25.5	612.0	*	12	1100	278	1.	0.	19.2	811.0
6	0600	127	1.	0.	25.6	612.0	*	12	1200	277	1.	0.	19.1	811.0
6	0700	128	1.	0.	25.7	612.0	*	12	1300	278	1.	0.	19.0	610.9
6	0800	129	1.	0.	25.8	612.1	*	12	1400	279	1.	0.	18.9	610.9
6	0900	130	1.	0.	25.8	612.1	*	12	1500	280	1.	0.	18.8	610.9
6	1000	131	1.	0.	25.9	812.1	*	12	1600	281	1.	0.	18.7	610.9
6	1100	132	1.	0.	28.0	612.1	*	12	1700	282	1.	0.	18.7	610.9
6	1200	133	1.	0.	26.1	812.1	*	12	1800	283	1.	0.	18.6	610.9
6	1300	134	1.	0.	28.1	812.1	*	12	1900	284	1.	0.	18.5	610.9
6	1400	135	1.	0.	26.2	612.1	*	12	2000	285	1.	0.	18.4	810.8
6	1500	136	1.	0.	26.3	612.1	*	12	2100	286	1.	0.	18.3	610.8
6	1600	137	1.	0.	26.4	612.2	*	12	2200	287	1.	0.	18.2	610.8
6	1700	138	1.	0.	26.5	612.2	*	12	2300	288	1.	0.	18.2	610.8
6	1800	139	1.	0.	26.5	612.2	*	13	0000	289	1.	0.	18.1	610.8
6	1900	140	1.	0.	26.6	812.2	*	13	0100	290	1.	0.	18.0	610.8
6	2000	141	1.	0.	28.7	612.2	*	13	0200	291	1.	0.	17.9	610.7

6	2100	143	1.	0.	26.8	612.2	*	13	0300	293	1.	0.	17.8	610.7
6	2200	143	1.	0.	26.9	612.2	*	13	0400	293	1.	0.	17.7	610.7
6	2300	144	1.	0.	26.9	612.2	*	13	0500	294	1.	0.	17.7	610.7
7	0000	145	1.	0.	27.0	612.2	*	13	0600	295	1.	0.	17.6	610.7
7	0100	146	1.	0.	27.1	612.3	*	13	0700	295	1.	0.	17.5	610.6
7	0200	147	1.	0.	27.2	612.3	*	13	0800	297	1.	0.	17.4	610.6
7	0300	148	1.	0.	27.3	612.3	*	13	0900	298	1.	0.	17.4	610.6
7	0400	149	1.	0.	27.3	612.3	*	13	1000	299	1.	0.	17.3	610.6
7	0500	150	1.	0.	27.4	612.3	*	13	1100	300	1.	0.	17.3	610.6
							*							

****

PEAK OUTFLOW IS 0. AT TIME 82.00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1.	32.00		1.	1.	1.	1.
		(INCHES)	.110	.441	1.323	4.917
		(AC-FT)	0.	2.	6.	22.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	81.00		0.	0.	0.	0.
		(INCHES)	.017	.066	.199	.681
		(AC-FT)	0.	0.	1.	3.

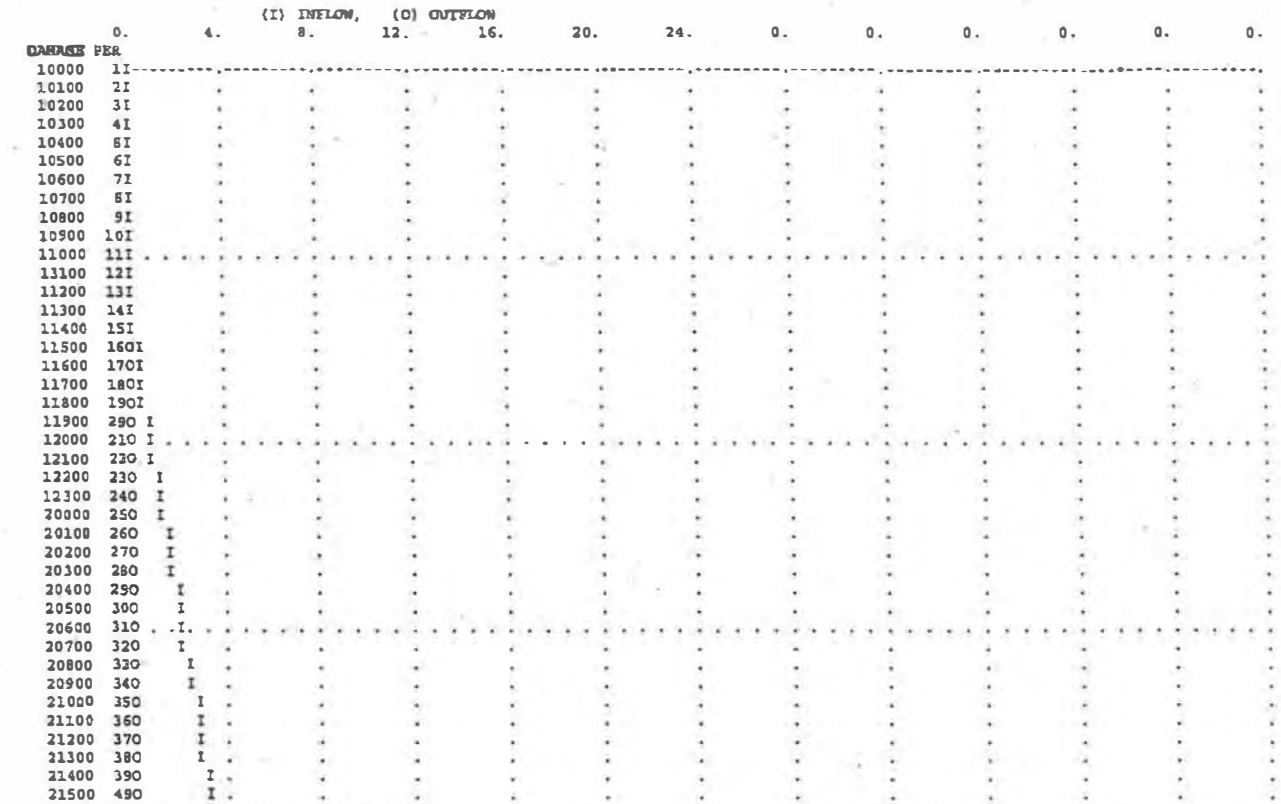
PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	299.00-HR
+ (AC-FT)	(HR)				
29.	168.00	29.	28.	27.	19.

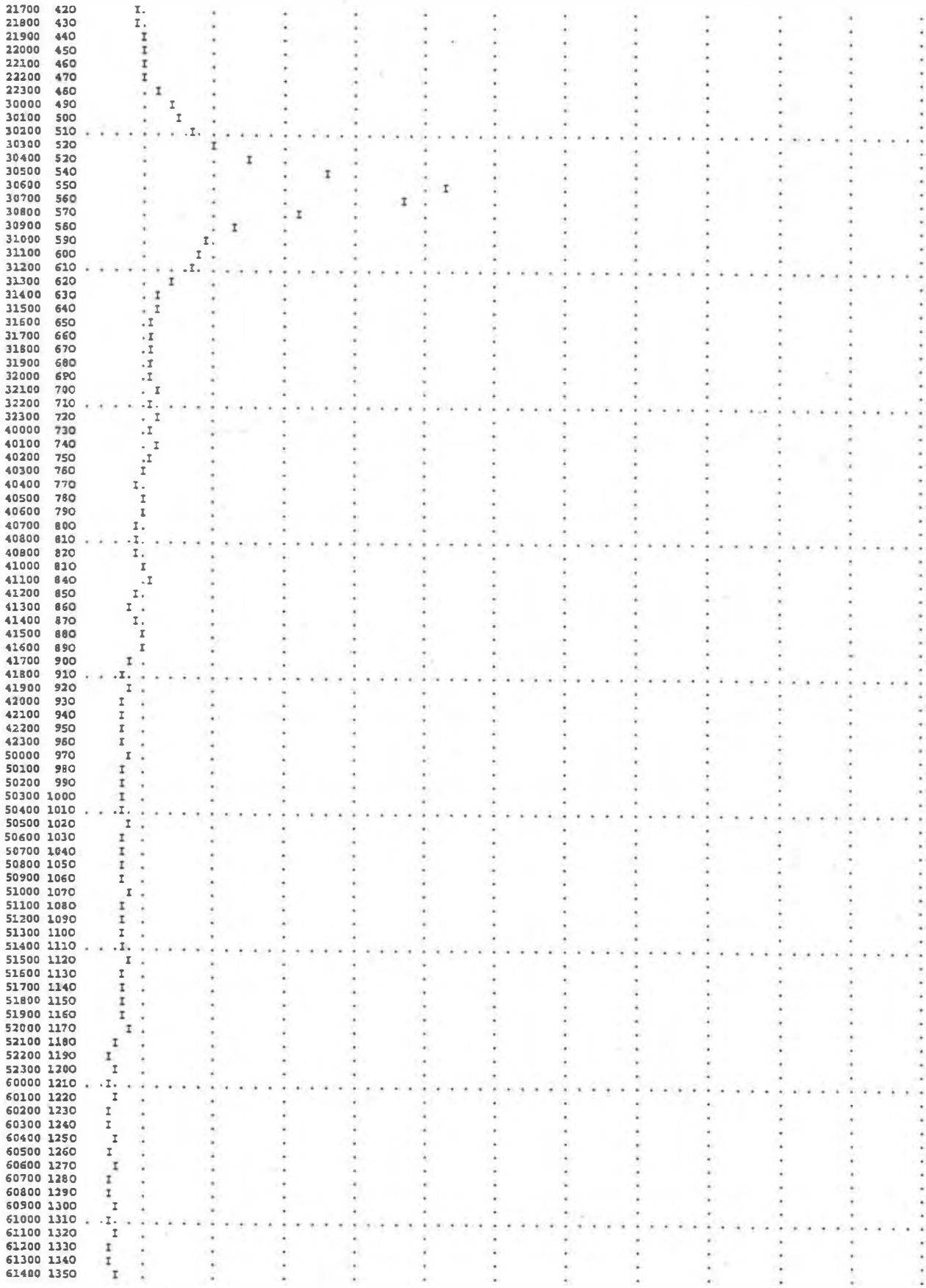
PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	299.00-HR
+ (FEET)	(HR)				
612.53	168.00	612.51	612.46	612.31	610.32

CUMULATIVE AREA = .08 SQ MI

1 STATION PUMP1

(I) INFLOW, (O) OUTFLOW





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61500 1360    I
61600 1370     I
61700 1380    I
61800 1390    I
61900 1400     I
62000 1410 . .I.
62100 1420     I
62200 1430    I
62300 1440    I
70000 1450     I
70100 1460    I
70200 1470     I
70300 1480    I
70400 1490    I
70500 1500     I
70600 1510 . .I.
70700 1520     I
70800 1930    I
70900 1540    I
71000 1550     I
71100 1560    I
71200 1570     I
71300 1580    I
71400 1590    I
71500 1600     I
71600 1610 . .I.
71700 1620     I
71800 1630    I
71900 1640    I
72000 1690     I
72100 1660    I
72200 1670     I
72300 1680    I
80000 1690 I
80100 1700I
80200 171I
80300 172I
80400 173I
80500 174I
80600 175I
80700 176I
80800 177I
80900 178I
81000 179I
81100 180I
81200 181I
81300 182I
81400 183I
81500 184I
81600 185I
81700 186I
81800 187I
81900 188I
82000 189I
82100 190I
82200 191I
82300 192I
90000 192I
90100 194I
90200 195I
90300 196I
90400 197I
90500 196I
90600 199I
90700 200I
90800 201I
90900 202I
91000 203I
91100 204I
91200 205I
91300 206I
91400 207I
91500 206I
91600 209I
91700 210I
91800 211I
91900 212I
92000 213I
92100 214I
92200 215I
92300 216I
100000 217I
100100 218I
100200 219I
100300 220I
100400 221I
100500 222I
100600 223I
100700 224I
100800 225I
100900 226I
101000 227I
101100 228I
101200 229I
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101300 230I
101400 231I
101500 232I
101600 233I
101700 234I
101800 235I
101900 236I
102000 237I
102100 238I
102200 239I
102300 240I
110000 241I
110100 242I
110200 243I
110300 244I
110400 245I
110500 246I
110600 247I
110700 248I
110800 249I
110900 250I
111000 251I
111100 252I
111200 253I
111300 254I
111400 255I
111500 256I
111600 287I
111700 258I
111800 259I
111900 260I
112000 261I
112100 262I
112200 261I
112300 264I
120000 265I
120100 266I
120200 267I
120300 268I
120400 269I
120500 270I
120600 271I
120700 272I
120800 273I
120900 274I
121000 275I
121100 276I
121200 277I
121300 278I
121400 279I
121500 280I
121600 281I
121700 282I
121800 283I
121900 284I
122000 285I
122100 266I
122200 267I
122300 268I
130000 289I
130100 290I
130200 291I
130300 292I
130400 293I
130500 294I
130600 295I
130700 296I
130800 297I
130900 298I
131000 289I
131100 300I
1
1
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	POT-4	21.	54.00	14.	8.	5.	.08		
+	PUMP FLOW TO	LIFSTA	1.	32.00	1.	1.	1.	.00		
+	HYDROGRAPH AT	PUMP1	0.	81.00	0.	0.	0.	.08		
+									612.53	168.00

*** NORMAL END OF HEC-1 ***

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*  RUN DATE  05/13/1998  TIME  12:24:31 *
*                                       *
*****************************************
```

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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*          (916) 756-1104               *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KN.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID        FILENAME: 4_757_1.hc1; REVISED 05-12-1998
  2           ID        Booney Lake Comprehensive Plan - Analysis of Hydrology for PROB. #5 - Po
  3           ID        HEC-1 MODEL--7.5IN, 7-Day STORM EVENT
  4           ID        Pumping Facility Rated at 1 cfs
              *DIAGRAM
  5           IT      60                      300
  6           IN      60
  7           IO       0       2       0

  8           KK   POT-4 PROBLEM AREA NO. 5 (PRIORITY NO. 2)
  9           KM   ENTIRE BASIN MODELED AS ONE AREA (NO STORAGE CALCULATED EXCEPT AT POTHOLE)
 10           BA   .0843
              *   MODELED PRECIPITATION IS 7.5-INCHES
 11           PB     7.5
 12           PC    .003    .007    .010    .014    .017    .020    .024    .027    .031    .034
 13           PC    .037    .041    .045    .049    .054    .058    .062    .067    .071    .076
 14           PC    .081    .086    .091    .096    .102    .107    .113    .119    .125    .131
 15           PC    .137    .143    .149    .156    .163    .170    .177    .184    .191    .198
 16           PC    .206    .214    .222    .230    .238    .246    .254    .266    .277    .289
 17           PC    .304    .320    .342    .375    .422    .445    .460    .472    .483    .495
 18           PC    .506    .514    .521    .529    .536    .544    .551    .559    .566    .574
 19           PC    .581    .589    .596    .604    .611    .617    .613    .630    .636    .642
 20           PC    .648    .654    .661    .669    .673    .679    .685    .692    .698    .702
 21           PC    .707    .712    .716    .721    .725    .730    .735    .739    .744    .748
 22           PC    .753    .758    .762    .767    .771    .776    .781    .785    .790    .794
 23           PC    .799    .804    .808    .813    .817    .822    .827    .830    .833    .837
 24           PC    .840    .844    .847    .850    .854    .857    .861    .864    .867    .871
 25           PC    .874    .878    .881    .884    .888    .891    .895    .898    .901    .905
 26           PC    .908    .912    .915    .918    .922    .925    .929    .932    .935    .939
 27           PC    .942    .946    .949    .952    .956    .959    .963    .966    .969    .973
 28           PC    .976    .980    .983    .986    .990    .993    .997   1.000
 29           LS       0      81
 30           UD     .84

 31           KK   PUMP1 POSSIBLE LIFT STATION OR PORTABLE PUMP
 32           KM    PUMP - MODELING 1 CFS PUMP
 33           RS       1    ELEV     603
 34           SA       0    1.73    3.92    4.00    5.67
 35           SE     603     605.    610    610.5     611
 36           SQ       0     .05      .1       .1     .15
 37           WP   607.0    1.00   605.0  LIPSTA
 38           ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

     8       POT-4
                V
                V
    37           .-------> LIPSTA
    31       PUMP1
```

*** ***

2	2300	48	0.	0.	1.9	505.4	*	9	0500	198	1.	0.	10.2	608.7
3	0000	49	0.	0.	2.1	605.5	*	9	0600	199	1.	0.	10.1	608.7
3	0100	50	0.	0.	2.3	605.8	*	9	0700	200	1.	0.	10.0	608.6
3	0200	51	0.	0.	2.6	505.8	*	9	0800	201	1.	0.	9.9	608.6
3	0300	52	0.	0.	2.9	605.9	*	9	0900	202	1.	0.	9.8	608.6
3	0400	53	0.	0.	3.3	606.1	*	9	1000	203	1.	8.	9.7	608.5
3	0500	54	0.	0.	3.8	605.3	*	9	1100	204	1.	0.	9.7	608.5
3	0600	55	0.	0.	4.6	606.7	*	9	1200	205	1.	0.	9.6	608.5
3	0700	56	0.	0.	5.5	607.0	*	9	1300	206	1.	0.	9.5	608.5
3	0800	57	1.	0.	6.1	607.3	*	9	1400	207	1.	0.	9.4	608.4
3	0900	58	1.	0.	6.5	607.4	*	9	1500	208	1.	0.	5.3	608.4
3	1000	59	1.	0.	6.8	607.5	*	9	1600	209	1.	0.	9.2	808.4
3	1100	60	1.	0.	7.0	607.6	*	9	1700	210	1.	0.	9.1	608.4
3	1200	61	1.	0.	7.2	607.7	*	9	1800	211	1.	0.	9.1	608.3
3	1300	62	1.	0.	7.4	607.8	*	9	1900	212	1.	0.	9.0	608.3
3	1400	63	1.	0.	7.6	607.8	*	9	2000	223	1.	0.	8.9	608.3
3	1500	84	1.	0.	7.7	607.9	*	9	2100	214	1.	0.	8.8	608.2
3	1600	65	1.	0.	7.8	607.9	*	9	2200	215	1.	0.	8.7	608.2
3	1700	86	1.	0.	8.0	608.0	*	9	2300	216	1.	0.	8.6	608.2
3	1800	67	1.	0.	8.1	608.0	*	10	0000	217	1.	0.	8.5	608.2
3	1900	68	1.	0.	8.2	608.0	*	10	0100	218	1.	0.	8.9	608.1
3	2000	89	1.	0.	8.3	608.1	*	10	0200	219	1.	0.	8.4	608.1
3	2100	70	1.	0.	8.5	608.1	*	10	0300	220	1.	0.	8.3	608.1
3	2200	71	1.	0.	8.0	608.2	*	10	0400	221	1.	0.	8.2	608.0
3	2300	72	1.	0.	8.7	608.2	*	10	0500	222	1.	0.	8.1	608.0
4	0000	73	1.	0.	8.8	608.2	*	10	0600	223	1.	0.	8.0	608.0
4	0100	74	1.	0.	8.5	608.3	*	10	0700	224	1.	0.	7.9	608.0
4	0200	75	1.	0.	9.1	608.3	*	10	0800	225	1.	0.	7.9	607.9
4	0300	76	1.	0.	9.2	608.4	*	10	0900	226	1.	0.	7.8	607.9
4	0400	77	1.	0.	9.3	608.4	*	10	1000	227	1.	0.	7.7	607.9
4	0500	78	1.	0.	5.4	608.4	*	10	1100	228	1.	0.	7.6	607.8
4	0600	79	1.	0.	9.5	608.5	*	10	1200	229	1.	0.	7.5	607.8
4	0700	80	1.	0.	9.6	608.5	*	10	1300	230	1.	0.	7.4	607.8
4	0800	81	1.	0.	9.6	608.5	*	10	1400	232	1.	0.	7.3	607.7
4	0900	82	1.	0.	9.7	606.5	*	10	1500	232	1.	0.	7.3	607.7
4	1000	63	1.	0.	9.8	608.6	*	10	1600	233	1.	0.	7.2	607.7
4	1100	84	1.	0.	5.5	608.6	*	10	1700	234	1.	0.	7.1	607.7
4	1200	85	1.	0.	10.0	608.6	*	10	1800	235	1.	0.	7.0	607.6
4	1300	86	1.	0.	10.1	608.7	*	10	1900	236	1.	0.	6.9	607.6
4	1400	87	1.	0.	10.2	608.7	*	10	2000	237	1.	0.	6.8	607.6
4	1500	88	1.	0.	10.3	608.7	*	10	2100	238	1.	0.	6.7	607.5
4	1600	89	1.	0.	10.4	608.7	*	10	2200	239	1.	0.	6.7	607.5
4	1700	90	1.	0.	10.5	608.8	*	10	2300	240	1.	0.	6.6	607.5
4	1800	91	1.	0.	10.5	608.8	*	11	0000	241	1.	0.	6.5	607.4
4	1900	92	1.	0.	10.6	608.8	*	11	0100	242	1.	0.	6.4	607.4
4	2000	52	1.	0.	10.6	608.8	*	11	0200	243	1.	0.	6.3	607.4
4	2100	94	1.	0.	10.7	608.8	*	11	0300	244	1.	0.	6.2	607.3
4	2200	95	1.	0.	10.7	608.8	*	11	0400	245	1.	0.	6.1	607.3
4	2300	96	1.	0.	10.8	608.9	*	11	0500	246	1.	0.	6.1	607.3
5	0000	97	1.	0.	10.8	608.9	*	11	0600	247	1.	0.	6.0	607.2
5	0100	98	1.	0.	10.9	608.9	*	11	0700	248	1.	0.	5.9	607.2
5	0200	99	1.	0.	10.9	608.9	*	11	0800	249	1.	0.	5.8	607.2
5	0300	100	1.	0.	11.0	608.9	*	11	0900	250	1.	0.	5.7	607.1
5	0400	101	1.	0.	11.0	608.9	*	11	1000	251	1.	0.	5.6	607.1
5	0500	102	1.	0.	11.1	608.9	*	11	1100	252	1.	0.	5.6	607.1
5	0600	103	1.	0.	11.1	609.0	*	11	1200	253	1.	0.	5.5	607.0
5	0700	104	1.	0.	11.2	609.0	*	11	1300	254	1.	0.	5.4	607.0
5	0800	105	1.	0.	11.2	609.0	*	11	1400	255	1.	0.	5.3	607.0
5	0900	106	1.	0.	11.3	609.0	*	11	1500	256	1.	0.	5.2	606.9
5	1000	107	1.	0.	11.3	609.0	*	11	1600	257	1.	0.	5.1	606.9
5	1100	108	1.	0.	11.4	609.0	*	11	1700	256	1.	0.	5.0	606.9
5	1200	109	1.	0.	11.4	609.0	*	11	1800	259	1.	0.	5.0	606.8
5	1300	110	1.	0.	11.5	609.1	*	11	1900	260	1.	0.	4.5	606.8
5	1400	111	1.	0.	11.5	609.1	*	11	2000	261	1.	0.	4.8	606.8
5	1500	112	1.	0.	11.6	609.1	*	11	2100	262	1.	0.	4.7	606.7
5	1600	113	1.	0.	11.6	609.1	*	11	2200	283	1.	0.	4.6	606.7
5	1700	114	1.	0.	11.7	609.1	*	11	2300	264	1.	0.	4.5	606.7
5	1800	115	1.	0.	11.7	609.1	*	12	0000	265	1.	0.	4.5	606.6
5	1900	116	1.	0.	11.8	609.1	*	12	0100	266	1.	0.	4.4	606.6
5	2000	117	1.	0.	13.8	609.2	*	12	0200	267	1.	0.	4.3	606.6
5	2100	118	1.	0.	11.9	609.2	*	12	0300	266	1.	0.	4.2	606.5
5	2200	119	1.	0.	11.8	609.2	*	12	0400	269	1.	0.	4.1	606.5
5	2300	120	1.	0.	11.9	609.2	*	12	0500	270	1.	0.	4.0	606.4
6	0000	121	1.	0.	11.9	609.2	*	12	0600	271	1.	0.	4.0	606.4
6	0100	122	1.	0.	11.9	609.2	*	12	0700	272	1.	0.	3.9	606.4
6	0200	123	1.	0.	12.9	609.2	*	12	0800	273	1.	0.	3.8	606.3
6	0300	124	1.	0.	12.0	609.2	*	12	0900	274	1.	0.	3.7	606.3
6	0400	125	1.	0.	12.0	609.2	*	12	1000	275	1.	0.	3.6	606.3
6	0500	126	1.	0.	12.0	609.2	*	12	1100	276	1.	0.	3.5	606.2
6	0600	127	1.	0.	12.0	609.2	*	12	1200	277	1.	0.	3.5	606.2
6	0700	128	1.	0.	12.0	609.2	*	12	1300	278	1.	0.	3.4	606.1
6	0800	129	1.	0.	12.0	609.2	*	12	1400	279	1.	0.	3.3	606.1
6	0900	130	1.	0.	12.0	609.2	*	12	1500	280	1.	0.	3.2	606.1
6	1000	131	1.	0.	12.1	609.2	*	12	1600	281	1.	0.	3.1	606.0
6	1100	132	1.	0.	12.1	609.2	*	12	1700	282	1.	0.	3.0	606.0
6	1200	133	1.	0.	12.1	609.2	*	12	1800	283	0.	0.	3.0	606.0
6	1300	134	1.	0.	12.1	609.2	*	12	1900	284	0.	0.	3.0	606.0
6	1400	135	1.	0.	12.1	609.3	*	12	2000	285	0.	0.	3.0	606.0
6	1500	136	1.	0.	12.1	609.3	*	12	2100	286	0.	0.	3.0	606.0
6	1600	137	1.	0.	12.2	609.3	*	12	2200	287	0.	0.	3.0	606.0
6	1700	138	1.	0.	12.2	609.3	*	12	2300	288	0.	0.	3.0	606.0
6	1800	139	1.	0.	12.2	609.3	*	13	0000	289	0.	0.	3.0	606.0
6	1900	140	1.	0.	12.2	509.3	*	13	0100	290	0.	0.	3.0	606.0
6	2000	141	1.	0.	12.2	609.3	*	13	0200	291	0.	0.	3.0	606.0

6	2100	142	1.	0.	12.2	609.3	*	13	0300	292	0.	0.	3.0	606.0
6	2200	143	1.	0.	12.2	609.3	*	13	0400	293	0.	0.	3.0	606.0
6	2300	144	1.	0.	12.3	609.3	*	13	0500	294	0.	0.	3.0	606.0
7	0000	145	1.	0.	12.3	609.3	*	13	0600	295	0.	0.	3.0	606.0
7	0100	146	1.	0.	12.3	609.3	*	13	0700	296	0.	0.	3.0	606.0
7	0200	147	1.	0.	12.3	609.3	*	13	0800	297	0.	0.	3.0	606.0
7	0300	148	1.	0.	12.3	609.3	*	13	0900	298	0.	0.	3.0	605.9
7	0400	149	1.	0.	12.3	609.3	*	13	1000	299	0.	0.	3.0	605.9
7	0500	150	1.	0.	12.4	609.3	*	13	3100	300	0.	0.	2.9	605.9

****

PEAK OUTFLOW IS 0. AT TIME 167.00 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1.	56.00		1.	1.	1.	1.
		(INCHES)	.110	.441	1.323	4.154
		(AC-FT)	0.	2.	6.	19.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	299.00-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	147.00		0.	0.	0.	0.
		(INCHES)	.010	.041	.123	.393
		(AC-FT)	0.	0.	1.	2.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	299.00-HR
+ (AC-FT)	(HR)				
13.	167.00	13.	13.	12.	7.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	299.00-HR
+ (FEET)	(HR)				
609.40	167.00	609.39	609.36	609.26	607.44

CUMULATIVE AREA = .08 SQ MI

1 STATION PUMP1

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                         (I) INFLOW,   (O) OUTFLOW
              0.        2.        4.        6.        8.       10.       12.        0.        0.        0.        0.        0.        0.
DAHRMN PER
 10000   1I---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
 10100   2I         .         .         .         .         .         .         .         .         .         .         .         .
 10200   3I         .         .         .         .         .         .         .         .         .         .         .         .
 10300   4I         .         .         .         .         .         .         .         .         .         .         .         .
 10400   5I         .         .         .         .         .         .         .         .         .         .         .         .
 10500   6I         .         .         .         .         .         .         .         .         .         .         .         .
 10600   7I         .         .         .         .         .         .         .         .         .         .         .         .
 10700   8I         .         .         .         .         .         .         .         .         .         .         .         .
 10800   9I         .         .         .         .         .         .         .         .         .         .         .         .
 10900  10I         .         .         .         .         .         .         .         .         .         .         .         .
 11000  11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 11100  12I         .         .         .         .         .         .         .         .         .         .         .         .
 11200  13I         .         .         .         .         .         .         .         .         .         .         .         .
 11300  14I         .         .         .         .         .         .         .         .         .         .         .         .
 11400  15I         .         .         .         .         .         .         .         .         .         .         .         .
 11500  16I         .         .         .         .         .         .         .         .         .         .         .         .
 11600  17I         .         .         .         .         .         .         .         .         .         .         .         .
 11700  18I         .         .         .         .         .         .         .         .         .         .         .         .
 11800  19I         .         .         .         .         .         .         .         .         .         .         .         .
 11900  20I         .         .         .         .         .         .         .         .         .         .         .         .
 12000  210I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 12100  220I        .         .         .         .         .         .         .         .         .         .         .         .
 12200  230I        .         .         .         .         .         .         .         .         .         .         .         .
 12300  240I        .         .         .         .         .         .         .         .         .         .         .         .
 20000  250 I       .         .         .         .         .         .         .         .         .         .         .         .
 20100  280 I       .         .         .         .         .         .         .         .         .         .         .         .
 20200  270 I       .         .         .         .         .         .         .         .         .         .         .         .
 20300  280  I      .         .         .         .         .         .         .         .         .         .         .         .
 20400  290  I      .         .         .         .         .         .         .         .         .         .         .         .
 20500  300   I     .         .         .         .         .         .         .         .         .         .         .         .
 20600  310 . I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 20700  320   I     .         .         .         .         .         .         .         .         .         .         .         .
 20800  330   I     .         .         .         .         .         .         .         .         .         .         .         .
 20900  340    I    .         .         .         .         .         .         .         .         .         .         .         .
 21000  350     I   .         .         .         .         .         .         .         .         .         .         .         .
 21100  360     I   .         .         .         .         .         .         .         .         .         .         .         .
 21200  370     I   .         .         .         .         .         .         .         .         .         .         .         .
 21300  380     I   .         .         .         .         .         .         .         .         .         .         .         .
 21400  390      I  .         .         .         .         .         .         .         .         .         .         .         .
 21500  400      I  .         .         .         .         .         .         .         .         .         .         .         .
 21600  410 . . . I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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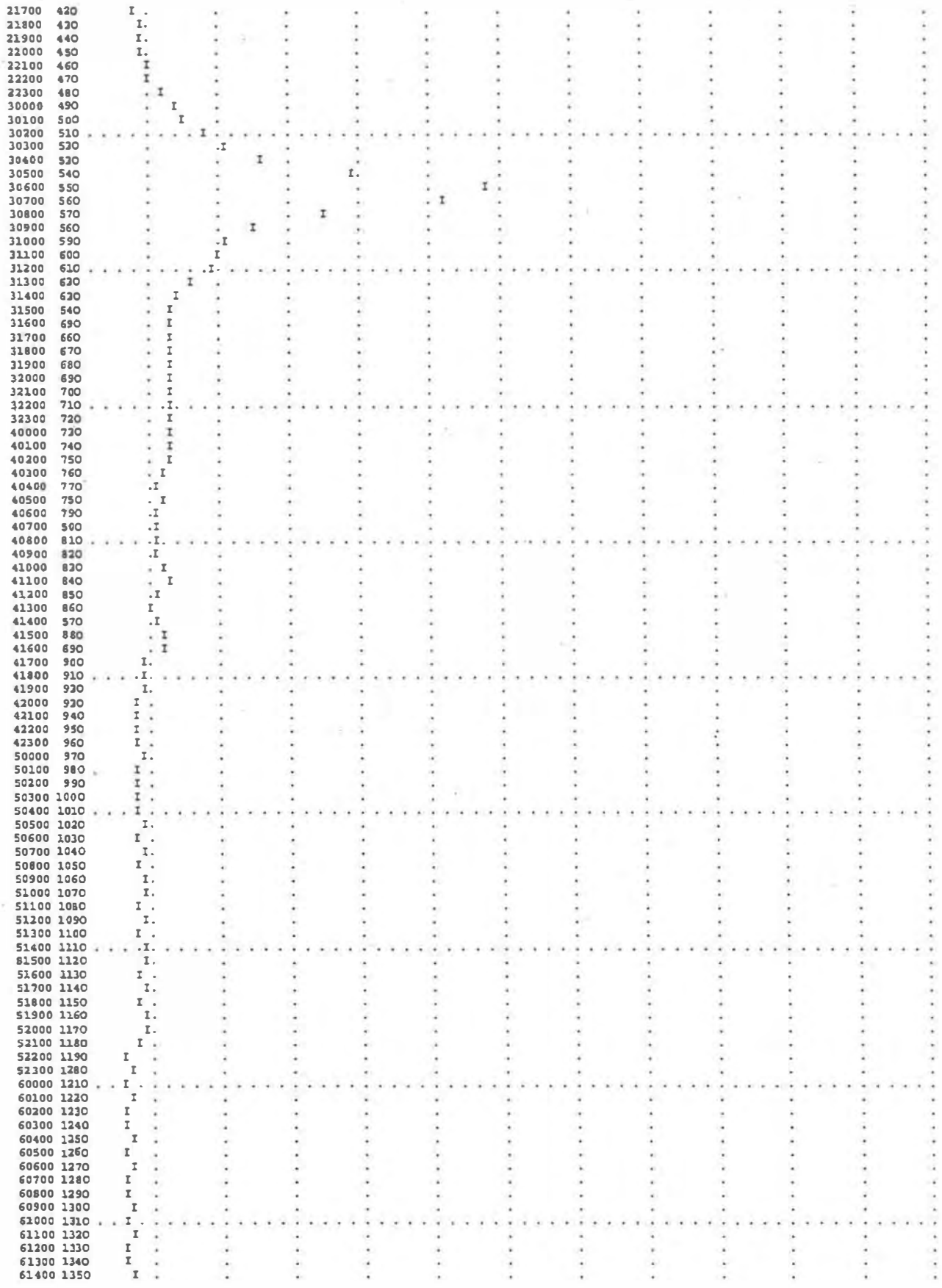

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130500 294I
130600 295I
130700 296I
130800 297I
130900 298I
131000 298I
131100 300I
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	POT-4	12.	54.00	8.	4.	3.	.08		
+	PUMP FLOW TO	LIFSTA	1.	56.00	1.	I.	1.	.08		
+	HYDROGRAPH AT	PUMP1	0.	147.00	0.	0.	0.	.08		
+									609.40	167.00

*** NORMAL END OF HEC-1 ***

ORDINANCE NO. 906

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, PIERCE COUNTY, WASHINGTON, ADOPTING THE CITY OF BONNEY LAKE COMPREHENSIVE STORMWATER PLAN DATED SEPTEMBER 2000.

WHEREAS, the City of Bonney Lake initiated a water quality program to meet the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater regulations for Tier II communities; and

WHEREAS, The City of Bonney Lake has hired Montgomery Water Group who have now completed the Comprehensive Plan and all revisions; and

WHEREAS, A public Hearing was held on November 13, 2001; and

WHEREAS, The Bonney Lake City Council deliberated on and approved the comprehensive Plan.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. The City of Bonney Lake Council does hereby formally adopt the 2000 City of Bonney Lake Comprehensive Stormwater Plan, Exhibit "A" attached and incorporated herein by reference and does intend to implement the policies and directives of the plan.

Section 2. Effective Date of Ordinance. This Ordinance shall take effect and be in force five (5) days from and after its passage, approval and publication, as required by law.

PASSED by the City Council and approved by the Mayor this 11th day of December , 2001.

Robert L. Young
Mayor

ATTEST:

Gayle Butcher
City Clerk, CMC

APPROVED AS TO FORM:

James Dionne
City Attorney

Passed: 12/11/09
Valid:
Published: 12/17/09
Effective Date: 12/27/09