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HAMILTON COUNTY SURVEYOR

Elwood Wilson Drainage Basin Study

Revised December 16, 2002

Prepared for:

The Hamilton County Commissioners
and the Hamilton County Surveyor's Office

Prepared by:

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1.0 INTRODUCTION

The Hamilton County Drainage Board through the Hamilton County Surveyor's Office has initiated a study within the Elwood Wilson Drainage Basin northeast of Noblesville. This area is prime for development and drains through the City. The goals of the study are to:

- Determine an allowable stormwater release rate with the intention to minimize and/or avoid flooding in the City once development has occurred;
- Determine if a regional detention basin is feasible in the area;
- Determine if open channel facilities may be recommended and/or required to carry flows from a fully-developed basin;
- Determine if impacts on existing drainage facilities can be minimized over the course of the basin's development;
- Determine if water quality standards can be upgraded in the area;
- Provide a cost analysis for any proposed "new" infrastructure;
- Determine equitable cost-share to developers for use of any "new" infrastructure.

This document will examine three individual arms of the Elwood Wilson Watershed. The "Southern Basin" passes under S.R. 32 through a concrete culvert approximately 1400 feet east of S. R. 37. This point is the downstream terminus of the hydrology in this study. The two northern basin's termini will be their respective crossings of S.R. 37. The larger of these two basins passing under S.R. 37 is termed the "Northern Basin" and crosses S. R. 37 through the cattle crossing located approximately 1360 feet south of 186th Street. The smallest one, which crosses S. R. 37 approximately 460 feet north of 186th Street, will be the "Upper Basin" for purposes of this report. These three main drainage basins, including their sub-basins, are delineated as Exhibit 1 in the Appendix A.

2. BACKGROUND

The Elwood Wilson Watershed is a highly visible area along the S.R. 37 and S.R. 32 corridors and appears prime for development in the next decade or beyond. Currently, there is little in terms of flood potential coming from the basin. This is because the majority of the area is drained by underground field tiles with very little concentrated overland flows. Also, there is a substantial amount of "depressional storage" (depressional storage is those areas where natural detention occurs due to isolated low areas) in the farm fields. The result is a basin that, under existing conditions, poses no real flood threat to the Noblesville areas that receive the runoff from the three arms of Elwood Wilson being investigated in this report.

However, if this area would be developed, the depressional storage and small outlet structures (tiles) would likely be replaced with well-graded subdivisions, large storm sewer pipes and/or open channels to carry the flow from these new areas of impervious and pervious surface. Under

such a development scenario, it is possible that the existing standard pre-development/post-development detention practices may not be adequate for this basin. This could be of special concern in the drainage area (Northern Basin) that passes under S.R. 37 via the "cattle crossing" (a box culvert) structure between S.R. 32 and 186th Street (the larger of the two northern arms). Below S.R 37, this area passes through a myriad of different structures and ditch sizes on its way to its outlet point on the south side of the City. It can be assumed that the majority of these structures are undersized for a storm event with any significant rainfall. As the structures are located along a jail, a school, several apartment complexes and the major thoroughfares carrying traffic to these facilities, it may be prudent to place greater than normal restrictions on the developing upstream watershed to ensure safe passage in this vital East-side area of the City.

3.0 TECHNICAL EVALUATION

3.a Hydrology and Hydraulics Determination

This study is designed to simulate the pre- and post-hydrologic and hydraulic conditions of the three basins to determine a best-case scenario for drainage as the basins develop. The initial phase of this study's development included the gathering of all available resources relative to drainage. These data sources included Hamilton County's GIS data (2-foot contour mapping to locate regulated drain tiles, parcel boundaries, etc.) obtained through their web page and a CD provided by the County, rainfall data from the Indiana Department of Natural Resources (DNR) approved manual, soil maps, a topographic field survey of the drainage structures by DLZ and field reconnaissance.

Once all of the data was in place, the first items checked were the downstream restrictions at the termini of the study areas. These included hydraulic modeling of the S.R. 32 culvert in the Southern Basin, the S.R. 37 bridge "cattle crossing" culvert in the Northern Basin and the S.R. 37 culvert just north of 186th Street in the Upper Basin. The Northern Basin model included the CMP (corrugated metal pipe) immediately downstream of the "cattle crossing". These structures were modeled to determine the discharge that could safely pass the structures without significant backwater during specified flood events. The structures were modeled using the Army Corps of Engineers (COE) HEC-2 Water Surface Profile program (see Appendix C).

The input for the models included data from the DLZ topographic survey, the two-foot mapping provided electronically by Hamilton County from their GIS data. A range of discharges was placed in the model for all three locations referenced above. In all three cases, the structures were able to pass approximately 100 cfs prior to causing substantial backwater effects. This was especially critical at the S.R. 32 site, since there is little available freeboard prior to flooding of the road. The other two locations would create a substantial backwater for discharges above 100 cfs. The backwater would, however, be limited to the agricultural properties upstream and not affect the road itself. If flooding can be limited, regardless of whether the overtopping of a major road is involved, it should be considered. As an initial starting point, therefore, the study

within each basin assumed an allowable discharge of 100 cfs. This is consistent with the Hamilton County Drainage Ordinance (4-26-99-C Section 7b) provision, "In some watersheds the allowable discharge rate shall be based upon the most restrictive downstream structure or channel capacity, where the standard allowable release rate has been determined to cause flooding."

The hydrology for the three basins was created using the *WaterWorks* hydrologic model and input from the approved rainfall tables in the DNR "Rainfall Frequency for Indiana" manual. Each basin was further divided into sub-basins to more accurately model the runoff. The times of concentration, curves numbers and flow lengths were determined using a combination of the Hamilton County Soils book, Tr-55 methodology and dimensioning from the Hamilton County GIS data. The hydrographs created within the sub-basins were routed through their individual depressional storage areas. This routing was done to account for the "natural detention" which occurs in more than ½ of the sub basins within the overall watershed. These routed hydrographs generated from the sub-basins using the above data were then combined via routing (including lag time as the overall basin hydrograph moved downstream) to determine a pre-developed discharge within the three major basins (Southern, Northern, Upper).

3.b Detention Potential

One possible scenario proposed by the County Surveyor's Office for pre- to post-discharge reduction was to locate a "regional detention" basin on a County owned parcel within the Northern Basin. This parcel is located immediately upstream of the "cattle crossing" structure and appears to be approximately 21 acres in size. The detention on this parcel was examined as a regional detention basin, in lieu of detention requirements on the yet to-be-developed parcels. The developers would then reimburse the County for a relative portion of the regional detention basin construction, since this would then allow them to develop their entire property without detention areas.

To facilitate the analysis, a detention parcel was set up with several potential detention scenarios. In each scenario, a berm with an outlet orifice was established at the downstream property line to act as the detention structure. The existing S.R. 37 highway structure is, in fact, a restriction in and of itself, but INDOT would not allow the roadbed to act as the berm for detention at this location due to possible overtopping of the roadway or over-saturation of the roadway embankment. Once the berm was set, storage volumes were determined for the different scenarios. The four potential scenarios are as follows:

- The site "as-is" with backwater stored only to the upstream property line;
- The site as-is with storage to the 786 foot contour elevation (requiring a temporary flood easement from the upstream property owner);
- The site excavated to approximately 778 feet elevation and backwater stored only to the upstream property line; and

- The site excavated to approximately 778 feet elevation with storage to the 786 foot contour elevation (requiring a temporary flood easement from the upstream property owner).

As described previously, if this study indicates the existing 10-year discharge is high, relative to the maximum allowable flow of the S.R. 37 structure, this basin could benefit from a substantial over-detention due to the factors listed earlier (small existing structures and ditch sizes, and proximity to the jail, a school, and apartment complexes / major thoroughfares). This regional detention portion of the study, therefore, will address release rates smaller than the previously discussed 100 cfs structure limitation.

Originally, the Upper Basin was to be studied to determine if flow could be diverted along the east right-of-way of S.R. 37 and into the proposed regional detention basin. A quick check of the 2-foot contour mapping, however, shows that the Upper Basin outlet is below the detention basin location and this alternative routing was discarded.

4.0 DISCUSSION OF RESULTS

As stated in the Introduction and Background sections of this report, the determination of allowable discharge rates for development will be key in the Elwood Wilson Watershed. The proposed allowable release rates are addressed from north to south in the sub-sections below (data for this section is in Appendix B). The results of the analysis for the proposed regional detention basin are also discussed below.

4.a "Upper Basin" Release Rate

The "Upper Basin" is the approximately 125-acre area that passes under S.R. 37 just north of 186th Street. This area has the least depressional storage of the three main basins. The peak discharges created during the 10 and 100-year events were 45 and 88 cfs, respectively. It was previously determined that the S.R. 37 structure could handle up to 100 cfs before backwater concerns became an issue. Since the existing 100-year storm discharge is below 100 cfs, no "over-detention" of this basin would be required for development. The structure at S.R. 37 is, therefore, not restrictive and no additional protection is necessary.

When looking downstream of S.R. 37, however, it is apparent that this Upper Basin contributes to the discharge passing by the jail, school and apartments previously discussed in this report. Additional data was reviewed to determine if over-detention of any proposed development might be warranted to reduce discharges around those buildings and their streets. Immediately downstream of S.R. 37 (northwest of its intersection with 186th Street) is a very large, apparent aggregate pit, which is a detention/wetland area. This area was measured for volume and it was determined that the 100 year peak discharge storm did not create enough volume to overwhelm its banks. Although this pond/pit area appears to have a substantial gravel substrate, a low

permeability factor was used in the modeling to be conservative. Even with this low permeability factored in, the pond's outlet pipe that passes under 186th Street would not flow full during a 100-year 24-hour event due to the large detention volume available, so again no over-detention appears warranted. **Based on the merits of this basin only, nothing beyond the standard pre-10 to post-100 year detention requirements would be recommended (0.36 cfs per acre maximum release rate for developed 100-year conditions) for the Upper Basin.**

4.a.1. "Upper Basin" Minor Crossings

There are two pipe crossings of S.R. 37 that could contribute additional water to the 186th Street pit addressed in the previous text. However, further investigation shows different results than expected. The pipes are located about 180 feet and 990 feet south of 191st Street and pass flow from east to west. When the flow reaches the western side, it enters a roadside swale and subsequently passes into an enclosed wetland area. It appears that the 100-year, 24-hour storm under existing conditions would be confined to the wetland and eventually infiltrate into the ground. As an aside, immediately downstream of the south enclosed wall of this wetland is a detention pond for the White River Elementary School, which seemingly could also contribute flows to the pit area. However, the field investigation shows that this area is also a "ground water feeder" as it has no outlet works above ground. (Appearances of the storm runoff outletting only through French drains were confirmed by the school's maintenance staff.) Therefore, none of these areas (the two pipe crossings of S.R. 37 and the school's drainage) appear to contribute surface runoff south into the pit. So the only surface feed to the pit is from the Upper Basin crossing of S.R. 37 as discussed in the previous section, therefore, there is no additional burden on the 186th Street pipe crossing outletting from the pit.

The above information addresses the adequacy of the 186th Street pipe, but the question of the adequacy of the two minor crossing pipes remain. This report can only speculate what occurs (or will occur after development) at these two crossings. These two pipe crossings daylight into the western swale/enclosed wetland area in a submerged and/or sumped condition. The only "free" flow downstream characteristics are via infiltration into the wetland substrate. To determine whether flow qualities of these pipes would be adequate, a full soils investigation into the permeability of the wetland area would be required, which is beyond the extent of this report. If the ground were extremely permeable, the pipes would likely be adequate. Any less permeable condition would mean the pipes would simply act as equalizers until the water finally infiltrated the ground on the west side of S.R. 37. Without this additional soils information, the only recommendation to be made regarding this area is that the existing wetland area appears to have the volume to hold the 100-year frequency flood and therefore, **the standard pre-10 to post-100 year detention requirements would be recommended (0.36 cfs per acre maximum release rate for developed 100-year conditions).**

4.b "Northern Basin" Release Rate

The "Northern Basin" is the approximately 660-acre area that passes under S.R. 37 at the "cattle crossing" structure between 186th Street and S.R. 32. This area had the most depressional storage of the three main basins. The analysis of the routing through the depressional areas showed that indeed a sizeable reduction in the 10-year existing discharge (and by association, the allowable developed release rate) was created. Without this depressional storage in the existing-conditions basin, the existing 10-year discharge at S.R. 37 would have been in excess of 150 cfs. However, the discharge as developed through the sub-basin routing to the outlet point at S.R. 37 was determined to be 74 cfs. This discharge "works" at S.R. 37, as 74 cfs does not create any significant backwater flooding at the "cattle crossing". Also, when the basin is fully developed, an allowable overall release rate of 74 cfs should keep flooding downstream near the jail, school and apartments to a minimum. **The proposed allowable release rate from the "Northern Basin", therefore, becomes 74 cfs divided by 660 acres or about 0.11 cfs per acre maximum release rate for developed 100-year conditions).**

4.c "Southern Basin" Release Rate

The "Southern Basin" is the approximately 600- acre area that passes under S.R. 32 east of S.R. 37. This area contained depressional storage in about one-third (1/3) of its subbasins. Although there is not as much depressional storage in this basin as in the Northern, the analysis finds that there was still a significant reduction in the 10-year existing discharge (and by association, the allowable developed release rate) created. Similar to the case with the Northern Basin, without the depressional storage in the basin, the existing 10-year discharge at S.R. 37 would be in excess of 150 cfs. The discharge as developed through the existing sub-basin routing, however, to the outlet point at S.R. 32 was determined to be 127 cfs. This discharge is greater than the 100 cfs that the S.R. 32 structure could handle without negatively impacting the road. It should be noted that this structure is in need of replacement. Although a larger opening under the road would be warranted, there is no guarantee that the structure would be upsized. This is, therefore, significant as the channel and structures downstream of S.R. 32 are much more adequate to carry a discharge beyond 100 cfs. If the basin were to be developed after the S.R. 32 structure is replaced presumably with an upsized capacity of 127 cfs or greater, the allowable release rate could be raised to match the 127 cfs. **At this time, the proposed allowable release rate from the "Southern Basin" becomes 100 cfs divided by 600 acres or about 0.16 cfs per acre maximum release rate for developed 100-year conditions), given the S.R. 32 structure limitation.**

4.d Combined basins

An optional approach to discharge regulation would be to treat the entire area (all three main basins listed above) as a single drainage shed. This approach would somewhat simplify the regulatory process by establishing one discharge rate for the entire basin, even if the rate is more conservative. Under this option, it is recommended that 0.11 cfs per acre

maximum release rate for developed 100-year conditions) be used as the allowable release rate.

4.e Detention Results

Results of the study indicate a detention basin on the County parcel is feasible and meets the needs of a regional detention basin for the Northern Basin area. From the scenarios described in Section 3.b above, the as-is scenarios (no excavation required) only provided minimal benefit (reduction of the developed 100 year discharge of 404 cfs to about 225-250 cfs). To reach the discharge in the 10-year pre-developed scenario, major excavation on the site would be required. Therefore, a model was created with the parcel excavated completed to an elevation of about 778.5 feet (leaving enough fall for drainage to the outlet point) with a berm established just upstream of S. R. 37 that included potential outlet pipes ranging from 24 to 48 inches in diameter. The developed discharge of 404 cfs was then routed through this proposed detention area. From the results of the analysis, it was found that a 30-inch outlet pipe is the largest that would restrict the inflow at or below the 10-year pre-developed discharge of 74 cfs. With this pipe in place, the maximum elevation within the pond would reach about 782.8 feet. This elevation appears to be confined just within the upstream boundary of the County parcel. A flood easement from the upstream landowner (as described in Section 3.b) would likely not be required. A preliminary "ballpark" cost estimate for construction of such a detention area is in the range of $1.5 to $2 million dollars. It should be noted this estimate includes the cost of constructing an open channel within the County Regulated Drain Easement to carry the undetained developed discharge down to the regional detention area. The cost-share per acre to developers within the Northern Basin for this detention pond "bank" would be about $2,500 to $3,000 per acre of developed land. In this scenario, developers would not be required to put detention on their property, but would be required to purchase an equitable portion of the bank.

5.0 FUTURE REGULATIONS

The following is for informational purposes only. The Phase II Stormwater Regulations brought down from the Federal Environmental Protection Agency (EPA) will have a large impact on any future stormwater infrastructure in an area the size of Noblesville. The Indiana Department of Environmental Management (IDEM) is currently under a directive from the EPA to establish written standards by which most of the municipalities (including Hamilton County itself) will be regulated.

These Phase II Stormwater Regulations will likely be administered under Rule 13 of the current IDEM regulations. The abridged version of what will be required for the stormwater discharge control program is shown in the following minimum control measures:

- Public education and outreach on stormwater impacts,
- Public participation and involvement (i.e. have public representatives on stormwater management boards,

- Illicit discharge detection and elimination,
- Construction site and stormwater runoff control,
- Post-construction runoff control and
- Pollution prevention/good housekeeping for municipal operations.

Several of these items are already addressed in local ordinances, while others are being performed on an informal basis. It is recommended that the County and its municipalities take steps to preempt the rewriting of Rule 13 and address these issues now. As a general rule, having a program in place will put the County/Towns "light years" ahead of other Counties and Towns who will be forced into compliance with the program having little or no knowledge that the Regulations were pending.

For this specific project, water quality would include the reduction of total suspended solids (TSS) in the stormwater leaving the basin and passing through Noblesville. A regional detention basin as described above containing the storm water for any significant length of time would reduce TSS. This same basin would also act as a large filter strip, a simple practice that contributes to reducing pollutants (not just TSS, but also the nutrients/chemical agents that are associated with these solids).

Open channels that are included in any portion of the project could also include sediment traps for TSS reduction. This would, of course, require maintenance, but such maintenance procedures will be considered the norm as the Phase II regs come on-line. Optimal locations for such sediment traps would be immediately upstream a County Road for ease of access, and within the regulated drain right-of-way so the channel section could be broadened without additional easement purchase required.

6.0 SUMMARY/FINDINGS

Proposed 100-year allowable release rates were determined from an analysis of the three basins of the Elwood Wilson Drain. The analysis resulted in discharge rates for the basins as follows:

A.	Upper basin	0.36 cfs/acre (developed conditions)
	1. Minor crossings	0.36 cfs/acre (developed conditions)
B.	Northern basin	0.11 cfs/acre (developed conditions)
C.	Southern basin	0.16 cfs/acre (developed conditions)
D.	Combined basins	0.11 cfs/acre (developed conditions)

A regional detention basin is feasible and can be constructed on and within the confines of the County owned parcel. Its release rate was established at/or below the existing conditions 10-year discharge of 74 cfs. An open channel would be required in association with this basin to move the developed conditions storm water to the regional detention basin.

APPENDIX A

Elwood Wilson Watershed Delineation Map

APPENDIX B

Hydrologic Data

Upper Basin Summary

Basin I.D.	Basin Area (Acres)	Flowpath Length (Lft)	Time of Concentration (Minutes)	Depressional Storage Area (ft2)	Contour Elevation (ft)
UPPER	125.47	4232.0	77.64	N/A	N/A

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin UPPER L = 4232 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.005			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.346	+	=	0.346

Shallow concentrated flow			Segment ID	1	2		
7	Surface description (paved or unpaved)			Unpaved	Unpaved		
8	Flow Length, L		ft	995	2937		
9	Watercourse Slope, s		ft/ft	0.0085	0.0044		
10	Average velocity, V (figure 3-1)		ft/s	1.49	1.07024165		
11	T_t = L/3600V	Compute T_t	hr	0.186	+ 0.76	=	0.948

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	T_t = L/3600V	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	1.294

Elwood-Wilson

Upper Basin

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BASIN SUMMARY

BASIN ID: 100yr-2h NAME: 100-yr 2-hr storm event
SCS METHODOLOGY
TOTAL AREA.....: 125.47 Acres BASEFLOWS: 0.00 cfs

RAINFALL TYPE....:	HUFF2		PERV	IMP
PRECIPITATION....:	3.30 inches	AREA..:	125.47 Acres	0.00 Acres
TIME INTERVAL....:	1.00 min	CN....:	75.00	0.00
		TC....:	77.64 min	0.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 87.98 cfs VOL: 12.25 Ac-ft TIME: 102 min

BASIN ID: 10yr-2hr NAME: 10-yr 2-hr storm event
SCS METHODOLOGY
TOTAL AREA.....: 125.47 Acres BASEFLOWS: 0.00 cfs

RAINFALL TYPE....:	HUFF2		PERV	IMP
PRECIPITATION....:	2.37 inches	AREA..:	125.47 Acres	0.00 Acres
TIME INTERVAL....:	1.00 min	CN....:	75.00	0.00
		TC....:	77.64 min	0.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 44.90 cfs VOL: 6.10 Ac-ft TIME: 110 min

Elwood Wilson

Test for capacity at gravel pit north of
186th Street

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BASIN SUMMARY

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BASIN ID: 100-pit       NAME: 100-yr 2-hr storm event
SCS METHODOLOGY
TOTAL AREA.......: 150.00 Acres     BASEFLOWS:   0.00 cfs
RAINFALL TYPE....:     HUFF2                     PERV           IMP
PRECIPITATION....:   3.30 inches    AREA..:  150.00 Acres    0.00 Acres
TIME INTERVAL....:      1.00 min    CN....:   75.00          0.00
                                    TC....:   90.00 min     0.00 min
ABSTRACTION COEFF:   0.20
PEAK RATE:  99.20 cfs  VOL:  14.82 Ac-ft  TIME:    109 min

BASIN ID: 100pit24       NAME: 100-yr 2-hr storm event
SCS METHODOLOGY
TOTAL AREA.......: 150.00 Acres     BASEFLOWS:   0.00 cfs
RAINFALL TYPE....:    HUFF24                     PERV           IMP
PRECIPITATION....:   6.00 inches    AREA..:  150.00 Acres    0.00 Acres
TIME INTERVAL....:     10.00 min    CN....:   75.00          0.00
                                    TC....:   90.00 min     0.00 min
ABSTRACTION COEFF:   0.20
PEAK RATE:  41.34 cfs  VOL:  39.97 Ac-ft  TIME:    660 min
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Elwood Wilson

Test for capacity at gravel pit north of
186th Street

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 8
Peak runoff: 15.5405 cfs Total Vol: 18.79 ac-ft

□&k2S

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	0.7851	810	0.9343	1210	14.8285	1610	9.8544
20		420	0.7874	820	1.0602	1220	14.9704	1620	9.5546
30		430	0.7899	830	1.4974	1230	15.0856	1630	9.2639
40		440	0.7926	840	1.9301	1240	15.1782	1640	8.9824
50		450	0.7954	850	2.3611	1250	15.2530	1650	8.7228
60		460	0.7985	860	2.7873	1260	15.3143	1660	8.4708
70		470	0.8017	870	3.2083	1270	15.3654	1670	8.2260
80		480	0.8049	880	3.6255	1280	15.4089	1680	7.9935
90		490	0.8083	890	4.0458	1290	15.4465	1690	7.7748
100		500	0.8117	900	4.4604	1300	15.4793	1700	7.5621
110		510	0.8152	910	4.8728	1310	15.5072	1710	7.3552
120		520	0.8188	920	5.2874	1320	15.5286	1720	7.1584
130		530	0.8224	930	5.6926	1330	15.5405	1730	6.9732
140		540	0.8261	940	6.1049	1340	15.5397	1740	6.7928
150		550	0.8297	950	6.5066	1350	15.5241	1750	6.6171
160		560	0.8334	960	6.9131	1360	15.4931	1760	6.4459
170		570	0.8372	970	7.3099	1370	15.4476	1770	6.2876
180		580	0.8409	980	7.7115	1380	15.3901	1780	6.1339
190		590	0.8447	990	8.1006	1390	15.3241	1790	5.9839
200		600	0.8485	1000	8.4971	1400	15.2530	1800	5.8376
210		610	0.8523	1010	8.8803	1410	15.1799	1810	5.6948
220		620	0.8561	1020	9.2647	1420	15.1073	1820	5.5623
230	0.0004	630	0.8600	1030	9.6413	1430	15.0351	1830	5.4336
240	0.0021	640	0.8639	1040	10.0071	1440	14.9589	1840	5.3080
250	0.0071	650	0.8678	1050	10.3724	1450	14.8689	1850	5.1853
260	0.0191	660	0.8717	1060	10.7221	1460	14.7494	1860	5.0654

	270	0.0430	670	0.8757	1070	11.0612	1470	14.5854	1870
4.9492									
	280	0.0843	680	0.8796	1080	11.3938	1480	14.3695	1880
4.8409									
	290	0.1489	690	0.8836	1090	11.7119	1490	14.1032	1890
4.7349									
	300	0.2417	700	0.8874	1100	12.0180	1500	13.7939	1900
4.6312									
	310	0.3669	710	0.8912	1110	12.3212	1510	13.4492	1910
4.5298									
	320	0.5275	720	0.8950	1120	12.6146	1520	13.0803	1920
4.4306									
	330	0.7258	730	0.8987	1130	12.8999	1530	12.7048	1930
4.3336									
	340	0.7749	740	0.9024	1140	13.1800	1540	12.3227	1940
4.2417									
	350	0.7758	750	0.9059	1150	13.4567	1550	11.9404	1950
4.1536									
	360	0.7769	760	0.9094	1160	13.7258	1560	11.5699	1960
4.0674									
	370	0.7782	770	0.9127	1170	13.9851	1570	11.2034	1970
3.9829									
	380	0.7797	780	0.9158	1180	14.2307	1580	10.8467	1980
3.9002									
	390	0.7813	790	0.9188	1190	14.4574	1590	10.5068	1990
3.8192									
	400	0.7831	800	0.9243	1200	14.6576	1600	10.1742	2000
3.7399									

Elwood Wilson

Test for capacity at gravel pit north of
186th Street

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 8
Peak runoff: 15.5405 cfs Total Vol: 18.79 ac-ft

□&k2S

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
2010	3.6623	2210	2.4852	2410	1.7406	2610	1.2405	2810	0.9403
2020	3.5900	2220	2.4407	2420	1.7109	2620	1.2202	2820	0.9400
2030	3.5192	2230	2.3970	2430	1.6816	2630	1.2002	2830	0.9397
2040	3.4498	2240	2.3541	2440	1.6528	2640	1.1805	2840	0.9393
2050	3.3817	2250	2.3119	2450	1.6245	2650	1.1612	2850	0.9390
2060	3.3150	2260	2.2705	2460	1.5967	2660	1.1421	2860	0.9387
2070	3.2496	2270	2.2299	2470	1.5694	2670	1.1234	2870	0.9384
2080	3.1855	2280	2.1899	2480	1.5425	2680	1.1050	2880	0.9380
2090	3.1227	2290	2.1507	2490	1.5161	2690	1.0869	2890	0.9377
2100	3.0611	2300	2.1122	2500	1.4902	2700	1.0691	2900	0.9374
2110	3.0036	2310	2.0744	2510	1.4647	2710	1.0516	2910	0.9371
2120	2.9472	2320	2.0372	2520	1.4396	2720	1.0344	2920	0.9367
2130	2.8918	2330	2.0007	2530	1.4158	2730	1.0174	2930	0.9364
2140	2.8375	2340	1.9649	2540	1.3926	2740	1.0007	2940	0.9361
2150	2.7843	2350	1.9306	2550	1.3698	2750	0.9843	2950	0.9357
2160	2.7320	2360	1.8976	2560	1.3473	2760	0.9682	2960	0.9354
2170	2.6807	2370	1.8651	2570	1.3252	2770	0.9524	2970	0.9351
2180	2.6303	2380	1.8332	2580	1.3035	2780	0.9413	2980	0.9348
2190	2.5810	2390	1.8018	2590	1.2822	2790	0.9410	2990	0.9344
2200	2.5325	2400	1.7710	2600	1.2612	2800	0.9407	3000	0.9341
2210	2.4852	2410	1.7406	2610	1.2405	2810	0.9403		

□&k0S

Elwood Wilson

Test for capacity at gravel pit north of
186th Street

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 9
Peak runoff: 0.8779 cfs Total Vol: 0.30 ac-ft

□&k2S

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
1		41	0.2854	81	0.7894	121	0.8268	161	0.8589
2		42	0.3207	82	0.7902	122	0.8278	162	0.8595
3		43	0.3591	83	0.7910	123	0.8287	163	0.8600
4		44	0.4007	84	0.7918	124	0.8297	164	0.8606
5		45	0.4455	85	0.7926	125	0.8307	165	0.8611
6		46	0.4934	86	0.7934	126	0.8316	166	0.8616
7		47	0.5444	87	0.7943	127	0.8325	167	0.8621
8		48	0.5994	88	0.7951	128	0.8335	168	0.8626
9		49	0.6589	89	0.7960	129	0.8344	169	0.8631
10		50	0.7230	90	0.7969	130	0.8353	170	0.8636
11	0.0001	51	0.7743	91	0.7978	131	0.8362	171	0.8640
12	0.0002	52	0.7745	92	0.7987	132	0.8371	172	0.8645
13	0.0006	53	0.7748	93	0.7996	133	0.8380	173	0.8649
14	0.0011	54	0.7751	94	0.8005	134	0.8389	174	0.8654
15	0.0017	55	0.7753	95	0.8014	135	0.8398	175	0.8658
16	0.0026	56	0.7757	96	0.8024	136	0.8407	176	0.8662
17	0.0037	57	0.7760	97	0.8033	137	0.8415	177	0.8666
18	0.0050	58	0.7763	98	0.8042	138	0.8424	178	0.8670
19	0.0064	59	0.7767	99	0.8052	139	0.8432	179	0.8673
20	0.0080	60	0.7771	100	0.8061	140	0.8441	180	0.8677
21	0.0101	61	0.7775	101	0.8071	141	0.8449	181	0.8681
22	0.0130	62	0.7779	102	0.8081	142	0.8457	182	0.8684
23	0.0165	63	0.7784	103	0.8091	143	0.8465	183	0.8687
24	0.0208	64	0.7788	104	0.8100	144	0.8473	184	0.8691
25	0.0258	65	0.7793	105	0.8110	145	0.8481	185	0.8694
26	0.0316	66	0.7798	106	0.8120	146	0.8488	186	0.8697

	27	0.0381	67	0.7803	107	0.8130	147	0.8496	187
0.8700									
	28	0.0453	68	0.7808	108	0.8140	148	0.8503	188
0.8703									
	29	0.0532	69	0.7814	109	0.8150	149	0.8511	189
0.8706									
	30	0.0624	70	0.7820	110	0.8160	150	0.8518	190
0.8708									
	31	0.0733	71	0.7826	111	0.8170	151	0.8525	191
0.8711									
	32	0.0860	72	0.7832	112	0.8180	152	0.8532	192
0.8714									
	33	0.1005	73	0.7838	113	0.8189	153	0.8539	193
0.8716									
	34	0.1167	74	0.7844	114	0.8199	154	0.8545	194
0.8719									
	35	0.1346	75	0.7851	115	0.8209	155	0.8552	195
0.8721									
	36	0.1543	76	0.7858	116	0.8219	156	0.8558	196
0.8723									
	37	0.1758	77	0.7865	117	0.8229	157	0.8565	197
0.8726									
	38	0.1989	78	0.7872	118	0.8239	158	0.8571	198
0.8728									
	39	0.2246	79	0.7879	119	0.8249	159	0.8577	199
0.8730									
	40	0.2534	80	0.7887	120	0.8258	160	0.8583	200
0.8732									

Elwood Wilson

Test for capacity at gravel pit north of
186th Street

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 9
Peak runoff: 0.8779 cfs Total Vol: 0.30 ac-ft

□&k2S

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
201	0.8734	221	0.8761	241	0.8774	261	0.8778	281	0.8779
202	0.8736	222	0.8762	242	0.8774	262	0.8778	282	0.8779
203	0.8737	223	0.8763	243	0.8774	263	0.8778	283	0.8779
204	0.8739	224	0.8764	244	0.8775	264	0.8779	284	0.8778
205	0.8741	225	0.8765	245	0.8775	265	0.8779	285	0.8778
206	0.8743	226	0.8765	246	0.8775	266	0.8779	286	0.8778
207	0.8744	227	0.8766	247	0.8776	267	0.8779	287	0.8778
208	0.8746	228	0.8767	248	0.8776	268	0.8779	288	0.8778
209	0.8747	229	0.8768	249	0.8776	269	0.8779	289	0.8778
210	0.8749	230	0.8768	250	0.8777	270	0.8779	290	0.8778
211	0.8750	231	0.8769	251	0.8777	271	0.8779	291	0.8778
212	0.8751	232	0.8769	252	0.8777	272	0.8779	292	0.8778
213	0.8753	233	0.8770	253	0.8777	273	0.8779	293	0.8778
214	0.8754	234	0.8771	254	0.8777	274	0.8779	294	0.8778
215	0.8755	235	0.8771	255	0.8778	275	0.8779	295	0.8778
216	0.8756	236	0.8772	256	0.8778	276	0.8779	296	0.8778
217	0.8757	237	0.8772	257	0.8778	277	0.8779	297	0.8777
218	0.8758	238	0.8772	258	0.8778	278	0.8779	298	0.8777
219	0.8759	239	0.8773	259	0.8778	279	0.8779	299	0.8777
220	0.8760	240	0.8773	260	0.8778	280	0.8779	300	0.8777
221	0.8761	241	0.8774	261	0.8778	281	0.8779		

□&k0S

Elwood Wilson
Test for capacity at gravel pit north of
186th Street
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STORAGE STRUCTURE LIST

STORAGE LIST ID No. ex-swamp
Description: existing swamp west of SR 37

TRAPEZOIDAL BASIN ID No. gravlpit
Description: gravel pit at 186th and SR37
Length: 300.00 ft. Width: 500.00 ft.
Side Slope 1: 3 Side Slope 3: 3
Side Slope 2: 3 Side Slope 4: 3
Infiltration Rate: 270.00 min/inch

Elwood Wilson
Test for capacity at gravel pit north of
186th Street
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DISCHARGE STRUCTURE LIST

INLET CONTROL CULVERT ID No. 27in
Description: 27in outlet pipe from gravlpit
Diameter (ft): 2.25 Entrance type: 4
Length (ft) : 200.00 Invert Elev : 775.50
Slope (ft/ft): 0.0050 No. of Clvrts: 1
Mannings n : 0.0120 Max Ponding el:779.00
Stg-Dis Increment : 0.10

OVERFLOW WEIR ID No. ex-swamp
Description: existing swamp west of SR 37
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 776.50 ft. Weir Increm: 0.10

Elwood Wilson

Test for capacity at gravel pit north of
186th Street

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LEVEL POOL TABLE SUMMARY

□&k2S

<--------DESCRIPTION--------->	MATCH (cfs)	INFLOW (cfs)	-STO- --id-	-DIS- --id-	<-PEAK-> <-STAGE>	id	OUTFLOW (cfs)	STORAGE VOL (cf)
existing pit 24 hr	0.00	41.34	gravlpit	27in	777.52	8	15.54	29.1342 ac-ft
existing pit 2 hr	0.00	99.20	gravlpit	27in	773.97	9	0.88	14.5386 ac-ft

North Basin Summary

Basin I.D.	Basin Area (Acres)	Flowpath Length (Lft)	Time of Concentration (Minutes)	Depressional Storage Area (ft2)	Contour Elevation (ft)
EWN-1	68.21	2364.0	60.84	174240.00	810.0
EWN-2	9.70	576.0	12.84	14374.80	810.0
EWN-3a	80.88	1768.0	36.84	337590.00	804.0
EWN-3b	6.02	500.0	18.66	14374.80	802.0
EWN-4	25.45	755.0	15.12	139392.00	802.0
EWN-5	8.74	450.0	12.36	81457.20	802.0
EWN-6a	54.36	2000.0	31.14	46173.60	800.0
EWN-6b	30.57	894.0	21.66	175982.40	800.0
EWN-7	27.77	1728.0	37.80	5227.20 47916.00	794.0 796.0
EWN-8a	74.97	2106.0	39.30	98881.20	794.0
EWN-8b	34.30	1950.0	60.48	N/A	N/A
EWN-9	34.90	1900.0	32.88	109335.60	796.0
EWN-10	8.30	575.0	21.78	23958.00 69260.40	794.0 796.0
EWN-11	22.88	400.0	10.20	19166.40	792.0
EWN-12a	23.40	1331.0	26.64	39639.60	792.0
EWN-12b	50.77	1850.0	50.10	7405.20	790.0
EWN-13a	17.92	865.0	18.06	36590.40 83199.60	788.0 790.0
EWN-13b	33.31	700.0	22.14	35283.60 79714.80	784.0 786.0
EWN-14	30.11	1877.0	37.26	N/A	N/A
EWN-15	14.80	576.0	17.52	N/A	N/A

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-1 L = 2364 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1				
1	Surface description (table 3-1)			Cultivated <20% Residue				
2	Manning's roughness coeff., n (table 3-1)			0.06				
3	Flow Length, L (total <= 300 ft)		ft	300				
4	Two-yr 24-hr rainfall, P_2		in	2.9				
5	Land slope, s		ft/ft	0.02				
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.198	+		=	0.198
Shallow concentrated flow			Segment ID	1				
7	Surface description (paved or unpaved)			Unpaved				
8	Flow Length, L		ft	2064				
9	Watercourse Slope, s		ft/ft	0.0019				
10	Average velocity, V (figure 3-1)		ft/s	0.70				
11	$T_t = L/3600V$	Compute T_t	hr	0.815	+		=	0.815
Channel flow			Segment ID					
12	Cross sectional flow area, a		ft^2					
13	Wetted perimeter, P_w		ft					
14	Hydraulic radius, $r = a/P_w$		ft					
15	Cannel slope, s		ft/ft					
16	Manning's roughness coeff., n							
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s					
18	Flow Length, L		ft					
19	$T_t = L/3600V$	Compute T_t	hr		+		=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)						hr	1.014

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-2 L = 576 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.03			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.169	+	=	0.169

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	276			
9	Watercourse Slope, s		ft/ft	0.011			
10	Average velocity, V (figure 3-1)		ft/s	1.69			
11	$T_t = L/3600V$	Compute T_t	hr	0.045	+	=	0.045

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.214

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-3a L = 1768 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0067			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.307	+	=	0.307

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1468			
9	Watercourse Slope, s		ft/ft	0.0068			
10	Average velocity, V (figure 3-1)		ft/s	1.33			
11	$T_t = L/3600V$	Compute T_t	hr	0.306	+	=	0.306

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.614

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-3b L = 500 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.01			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.262	+	=	0.262

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	200			
9	Watercourse Slope, s		ft/ft	0.005			
10	Average velocity, V (figure 3-1)		ft/s	1.14			
11	$T_t = L/3600V$	Compute T_t	hr	0.049	+	=	0.049

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.311

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-4 L = 755 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.023			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.188	+	=	0.188

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	455			
9	Watercourse Slope, s		ft/ft	0.015			
10	Average velocity, V (figure 3-1)		ft/s	1.98			
11	$T_t = L/3600V$	Compute T_t	hr	0.064	+	=	0.064

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.252

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-5 L = 450 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.023			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.188	+	=	0.188

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	150			
9	Watercourse Slope, s		ft/ft	0.02			
10	Average velocity, V (figure 3-1)		ft/s	2.28			
11	$T_t = L/3600V$	Compute T_t	hr	0.018	+	=	0.018

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.206

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-6a L = 2000 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0367			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.156	+		= 0.156
Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1700			
9	Watercourse Slope, s		ft/ft	0.0065			
10	Average velocity, V (figure 3-1)		ft/s	1.30			
11	$T_t = L/3600V$	Compute T_t	hr	0.363	+		= 0.363
Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+		=
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.519

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-6b L = 894 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	594			
9	Watercourse Slope, s		ft/ft	0.0067			
10	Average velocity, V (figure 3-1)		ft/s	1.32			
11	$T_t = L/3600V$	Compute T_t	hr	0.125	+	=	0.125

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.361

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-8 L = 1728 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1				
1	Surface description (table 3-1)			Cultivated <20% Residue				
2	Manning's roughness coeff., n (table 3-1)			0.06				
3	Flow Length, L (total <= 300 ft)		ft	300				
4	Two-yr 24-hr rainfall, P_2		in	2.9				
5	Land slope, s		ft/ft	0.0067				
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.307	+		=	0.307
Shallow concentrated flow			Segment ID	1				
7	Surface description (paved or unpaved)			Unpaved				
8	Flow Length, L		ft	1428				
9	Watercourse Slope, s		ft/ft	0.0058				
10	Average velocity, V (figure 3-1)		ft/s	1.23				
11	$T_t = L/3600V$	Compute T_t	hr	0.323	+		=	0.323
Channel flow			Segment ID					
12	Cross sectional flow area, a		ft^2					
13	Wetted perimeter, P_w		ft					
14	Hydraulic radius, $r = a/P_w$		ft					
15	Cannel slope, s		ft/ft					
16	Manning's roughness coeff., n							
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s					
18	Flow Length, L		ft					
19	$T_t = L/3600V$	Compute T_t	hr		+		=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)						hr	0.630

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-8a L = 2106 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1806			
9	Watercourse Slope, s		ft/ft	0.0055			
10	Average velocity, V (figure 3-1)		ft/s	1.20			
11	$T_t = L/3600V$	Compute T_t	hr	0.419	+	=	0.419

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.655

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-8b L = 1950 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.023			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.188	+	=	0.188

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1650			
9	Watercourse Slope, s		ft/ft	0.0012			
10	Average velocity, V (figure 3-1)		ft/s	0.56			
11	$T_t = L/3600V$	Compute T_t	hr	0.820	+	=	0.820

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	1.008

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-9 L = 1900 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.02			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.198	+	=	0.198

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1600			
9	Watercourse Slope, s		ft/ft	0.0062			
10	Average velocity, V (figure 3-1)		ft/s	1.27			
11	$T_t = L/3600V$	Compute T_t	hr	0.350	+	=	0.350

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.548

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-10 L = 575 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.00667			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.308	+	=	0.308

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	275			
9	Watercourse Slope, s		ft/ft	0.0073			
10	Average velocity, V (figure 3-1)		ft/s	1.38			
11	$T_t = L/3600V$	Compute T_t	hr	0.055	+	=	0.055

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.363

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-11 L = 400 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0367			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.156	+	=	0.156

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	100			
9	Watercourse Slope, s		ft/ft	0.015			
10	Average velocity, V (figure 3-1)		ft/s	1.98			
11	$T_t = L/3600V$	Compute T_t	hr	0.014	+	=	0.014

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.170

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-12a L = 1331 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.023			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.188	+	=	0.188

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1031			
9	Watercourse Slope, s		ft/ft	0.0048			
10	Average velocity, V (figure 3-1)		ft/s	1.12			
11	$T_t = L/3600V$	Compute T_t	hr	0.256	+	=	0.256

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.444

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-12b L = 1850 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0033			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.408	+	=	0.408

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1550			
9	Watercourse Slope, s		ft/ft	0.0039			
10	Average velocity, V (figure 3-1)		ft/s	1.01			
11	T_t = L/3600V	Compute T_t	hr	0.427	+	=	0.427

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	T_t = L/3600V	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.835

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-13a L = 865 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0167			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.213	+	=	0.213

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	565			
9	Watercourse Slope, s		ft/ft	0.0124			
10	Average velocity, V (figure 3-1)		ft/s	1.80			
11	$T_t = L/3600V$	Compute T_t	hr	0.087	+	=	0.087

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.301

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-13b L = 700 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0067			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.307	+	=	0.307

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	400			
9	Watercourse Slope, s		ft/ft	0.0125			
10	Average velocity, V (figure 3-1)		ft/s	1.80			
11	$T_t = L/3600V$	Compute T_t	hr	0.062	+	=	0.062

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.369

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-14 L = 1877 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.01			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.262	+	=	0.262

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1577			
9	Watercourse Slope, s		ft/ft	0.00571			
10	Average velocity, V (figure 3-1)		ft/s	1.22			
11	$T_t = L/3600V$	Compute T_t	hr	0.359	+	=	0.359

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.621

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWN-15 L = 576 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	276			
9	Watercourse Slope, s		ft/ft	0.0072			
10	Average velocity, V (figure 3-1)		ft/s	1.37			
11	$T_t = L/3600V$	Compute T_t	hr	0.056	+	=	0.056

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.292

(210-VI-TR-55, Second Ed., June 1986)

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Elwood-Wilson

North Basin

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BASIN SUMMARY

BASIN ID: EWN-1-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 68.21 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 68.21 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 60.84 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 20.59 cfs VOL: 5.36 Ac-ft TIME: 200 min

BASIN ID: EWN-2-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 9.70 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 9.70 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 12.84 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 3.32 cfs VOL: 0.77 Ac-ft TIME: 160 min

BASIN ID: EWN-3a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 80.88 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 80.88 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 36.84 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 26.66 cfs VOL: 6.41 Ac-ft TIME: 180 min

BASIN ID: EWN-3b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 6.02 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 6.02 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 18.66 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 2.05 cfs VOL: 0.48 Ac-ft TIME: 170 min

BASIN ID: EWN-4-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 25.45 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 25.45 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 15.12 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 8.68 cfs VOL: 2.01 Ac-ft TIME: 170 min

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Elwood-Wilson

North Basin

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BASIN SUMMARY

BASIN ID: EWN-5-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 8.74 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 8.74 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 12.36 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 3.00 cfs VOL: 0.69 Ac-ft TIME: 160 min

BASIN ID: EWN-6a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 54.36 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 54.36 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 31.14 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 18.20 cfs VOL: 4.29 Ac-ft TIME: 180 min

BASIN ID: EWN-6b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 30.57 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 30.57 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 21.66 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 10.36 cfs VOL: 2.41 Ac-ft TIME: 170 min

BASIN ID: EWN-7-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 27.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 27.77 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 37.80 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 9.12 cfs VOL: 2.19 Ac-ft TIME: 180 min

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BASIN SUMMARY

BASIN ID: EWN-8a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 74.97 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 74.97 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 39.30 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 24.49 cfs VOL: 5.94 Ac-ft TIME: 180 min

BASIN ID: EWN-8b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 34.30 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 34.30 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 60.48 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 10.37 cfs VOL: 2.68 Ac-ft TIME: 200 min

BASIN ID: EWN-9-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 34.90 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 34.90 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 32.88 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 11.63 cfs VOL: 2.76 Ac-ft TIME: 180 min

BASIN ID: EWN-10-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 8.30 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 8.30 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 85.00 0.00
TC....: 21.78 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 4.69 cfs VOL: 1.13 Ac-ft TIME: 160 min

BASIN ID: EWN-11-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 22.88 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 22.88 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 10.20 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 7.95 cfs VOL: 1.81 Ac-ft TIME: 160 min

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North Basin

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BASIN SUMMARY

BASIN ID: EWN-12aB NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 23.40 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 23.40 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 26.64 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 7.89 cfs VOL: 1.85 Ac-ft TIME: 180 min

BASIN ID: EWN-12bB NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 50.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 50.77 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 50.10 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 16.08 cfs VOL: 3.98 Ac-ft TIME: 190 min

BASIN ID: EWN-13aB NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 17.92 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 17.92 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 18.06 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 6.11 cfs VOL: 1.42 Ac-ft TIME: 170 min

BASIN ID: EWN-13bB NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 33.31 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 33.31 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 22.14 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 11.27 cfs VOL: 2.64 Ac-ft TIME: 180 min

BASIN ID: EWN-14-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 30.11 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 30.11 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 37.26 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 9.91 cfs VOL: 2.37 Ac-ft TIME: 180 min

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North Basin

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BASIN SUMMARY

BASIN ID: EWN-15-B NAME: 10-6

SCS METHODOLOGY

TOTAL AREA.....:	14.80 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	HUFF6		PERV	IMP
PRECIPITATION....:	3.13 inches	AREA..:	14.80 Acres	0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	74.00	0.00
		TC....:	17.52 min	0.00 min

ABSTRACTION COEFF: 0.20

PEAK RATE: 5.04 cfs VOL: 1.17 Ac-ft TIME: 170 min

BASIN ID: Total100 NAME: 100-6

SCS METHODOLOGY

TOTAL AREA.....:	657.00 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	HUFF6		PERV	IMP
PRECIPITATION....:	4.25 inches	AREA..:	657.00 Acres	0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	79.00	0.00
		TC....:	90.00 min	0.00 min

ABSTRACTION COEFF: 0.20

PEAK RATE: 404.00 cfs VOL: 112.66 Ac-ft TIME: 200 min

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Elwood-Wilson

North Basin

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HYDROGRAPH SUMMARY

HYD NUM	PEAK RUNOFF RATE cfs	TIME OF PEAK min.	VOLUME OF HYDRO cf\AcFt	Contrib Area Acres
1	59.827	420	4350077 cf	657.00
2	59.827	420	4350077 cf	657.00
3	95.445	410	4676737 cf	657.00
4	95.445	410	4676737 cf	657.00
5	226.181	350	4907618 cf	657.00
6	65.138	280	953439 cf	612.45
7	67.631	300	1004358 cf	627.25
8	73.826	300	1107413 cf	657.36
14	5.522	230	50835 cf	23.40
15	15.951	190	167860 cf	50.77
18	13.647	390	125573 cf	77.91
19	2.918	380	35882 cf	86.90
20	2.917	410	35882 cf	112.35

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Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 1

Peak runoff: 59.8272 cfs Total Vol: 99.86 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	59.7533	810	49.4675	1210	27.2985	1610	19.2255
20		420	59.8272	820	49.1778	1220	27.0837	1620	19.0486
30		430	59.8071	830	48.8898	1230	26.8636	1630	18.8733
40		440	59.7142	840	48.6013	1240	26.6454	1640	18.6996
50		450	59.5678	850	48.3118	1250	26.4289	1650	18.5275
60	0.0001	460	59.3815	860	48.0240	1260	26.2142	1660	18.3570
70	0.0011	470	59.1637	870	47.7352	1270	26.0012	1670	18.1885
80	0.0054	480	58.9238	880	47.4458	1280	25.7856	1680	18.0215
90	0.0191	490	58.6686	890	47.1581	1290	25.5696	1690	17.8560
100	0.0536	500	58.3993	900	46.8693	1300	25.3554	1700	17.6921
110	0.1272	510	58.1217	910	46.5797	1310	25.1430	1710	17.5297
120	0.2623	520	57.8375	920	46.2920	1320	24.9323	1720	17.3687
130	0.5307	530	57.5491	930	46.0034	1330	24.7232	1730	17.2093
140	1.7762	540	57.2613	940	45.7137	1340	24.5101	1740	17.0513
150	3.6213	550	56.9718	950	45.4259	1350	24.2988	1750	16.8964
160	5.7595	560	56.6834	960	45.1377	1360	24.0894	1760	16.7431
170	7.5217	570	56.3949	970	44.8477	1370	23.8817	1770	16.5911
180	9.7622	580	56.1058	980	44.5596	1380	23.6759	1780	16.4406
190	12.5393	590	55.8181	990	43.5123	1390	23.4709	1790	16.2914
200	15.7871	600	55.5285	1000	39.7058	1400	23.2635	1800	16.1435
210	19.3053	610	55.2401	1010	36.2323	1410	23.0579	1810	15.9970
220	22.7729	620	54.9518	1020	33.0626	1420	22.8542	1820	15.8519
230	25.9595	630	54.6624	1030	31.2591	1430	22.6522	1830	15.7088
240	28.7642	640	54.3746	1040	31.0360	1440	22.4520	1840	15.5692
250	31.2110	650	54.0854	1050	30.8145	1450	22.2536	1850	15.4308
260	45.2549	660	53.7966	1060	30.5946	1460	22.0531	1860	15.2937
270	47.0014	670	53.5090	1070	30.3762	1470	21.8542	1870	15.1578
280	48.5804	680	53.2192	1080	30.1535	1480	21.6572	1880	15.0231
290	50.0241	690	52.9309	1090	29.9312	1490	21.4619	1890	14.8896

300	51.3573	700	52.6425	1100	29.7106	1500	21.2683	1900	14.7573
310	52.5943	710	52.3531	1110	29.4916	1510	21.0766	1910	14.6261
320	53.7443	720	52.0654	1120	29.2737	1520	20.8855	1920	14.4962
330	54.8105	730	51.7761	1130	29.0508	1530	20.6945	1930	14.3706
340	55.7946	740	51.4872	1140	28.8295	1540	20.5052	1940	14.2466
350	56.6927	750	51.2000	1150	28.6099	1550	20.3177	1950	14.1237
360	57.5013	760	50.9099	1160	28.3921	1560	20.1320	1960	14.0019
370	58.2083	770	50.6214	1170	28.1748	1570	19.9479	1970	13.8811
380	58.7964	780	50.3337	1180	27.9531	1580	19.7655	1980	13.7614
390	59.2501	790	50.0438	1190	27.7332	1590	19.5843	1990	13.6426
400	59.5661	800	49.7556	1200	27.5150	1600	19.4041	2000	13.5250

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Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 1

Peak runoff: 59.8272 cfs Total Vol: 99.86 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
2010	13.4083	2210	11.3721	2410	9.7530	2610	8.4593	2810	7.3998
2020	13.2926	2220	11.2816	2420	9.6827	2620	8.4015	2820	7.3519
2030	13.1806	2230	11.1918	2430	9.6130	2630	8.3441	2830	7.3043
2040	13.0710	2240	11.1027	2440	9.5437	2640	8.2871	2840	7.2570
2050	12.9624	2250	11.0144	2450	9.4749	2650	8.2305	2850	7.2100
2060	12.8547	2260	10.9270	2460	9.4067	2660	8.1742	2860	7.1633
2070	12.7478	2270	10.8442	2470	9.3389	2670	8.1184	2870	7.1169
2080	12.6419	2280	10.7619	2480	9.2716	2680	8.0629	2880	7.0708
2090	12.5368	2290	10.6803	2490	9.2048	2690	8.0078	2890	7.0251
2100	12.4326	2300	10.5993	2500	9.1384	2700	7.9531	2900	6.9796
2110	12.3293	2310	10.5189	2510	9.0726	2710	7.8987	2910	6.9344
2120	12.2268	2320	10.4391	2520	9.0072	2720	7.8453	2920	6.8918
2130	12.1252	2330	10.3599	2530	8.9423	2730	7.7945	2930	6.8495
2140	12.0262	2340	10.2814	2540	8.8779	2740	7.7440	2940	6.8075
2150	11.9305	2350	10.2034	2550	8.8146	2750	7.6939	2950	6.7657
2160	11.8356	2360	10.1260	2560	8.7544	2760	7.6440	2960	6.7242
2170	11.7414	2370	10.0492	2570	8.6945	2770	7.5946	2970	6.6830
2180	11.6480	2380	9.9730	2580	8.6351	2780	7.5454	2980	6.6420
2190	11.5553	2390	9.8973	2590	8.5761	2790	7.4965	2990	6.6012
2200	11.4633	2400	9.8238	2600	8.5175	2800	7.4480	3000	6.5607
2210	11.3721	2410	9.7530	2610	8.4593	2810	7.3998		

12/20/01 10:55:30 am Shareware Release

Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 2

Peak runoff: 59.8272 cfs Total Vol: 99.86 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	59.7533	810	49.4675	1210	27.2985	1610	19.2255
20		420	59.8272	820	49.1778	1220	27.0837	1620	19.0486
30		430	59.8071	830	48.8898	1230	26.8636	1630	18.8733
40		440	59.7142	840	48.6013	1240	26.6454	1640	18.6996
50		450	59.5678	850	48.3118	1250	26.4289	1650	18.5275
60	0.0001	460	59.3815	860	48.0240	1260	26.2142	1660	18.3570
70	0.0011	470	59.1637	870	47.7352	1270	26.0012	1670	18.1885
80	0.0054	480	58.9238	880	47.4458	1280	25.7856	1680	18.0215
90	0.0191	490	58.6686	890	47.1581	1290	25.5696	1690	17.8560
100	0.0536	500	58.3993	900	46.8693	1300	25.3554	1700	17.6921
110	0.1272	510	58.1217	910	46.5797	1310	25.1430	1710	17.5297
120	0.2623	520	57.8375	920	46.2920	1320	24.9323	1720	17.3687
130	0.5307	530	57.5491	930	46.0034	1330	24.7232	1730	17.2093
140	1.7762	540	57.2613	940	45.7137	1340	24.5101	1740	17.0513
150	3.6213	550	56.9718	950	45.4259	1350	24.2988	1750	16.8964
160	5.7595	560	56.6834	960	45.1377	1360	24.0894	1760	16.7431
170	7.5217	570	56.3949	970	44.8477	1370	23.8817	1770	16.5911
180	9.7622	580	56.1058	980	44.5596	1380	23.6759	1780	16.4406
190	12.5393	590	55.8181	990	43.5123	1390	23.4709	1790	16.2914
200	15.7871	600	55.5285	1000	39.7058	1400	23.2635	1800	16.1435
210	19.3053	610	55.2401	1010	36.2323	1410	23.0579	1810	15.9970
220	22.7729	620	54.9518	1020	33.0626	1420	22.8542	1820	15.8519
230	25.9595	630	54.6624	1030	31.2591	1430	22.6522	1830	15.7088
240	28.7642	640	54.3746	1040	31.0360	1440	22.4520	1840	15.5692
250	31.2110	650	54.0854	1050	30.8145	1450	22.2536	1850	15.4308
260	45.2549	660	53.7966	1060	30.5946	1460	22.0531	1860	15.2937
270	47.0014	670	53.5090	1070	30.3762	1470	21.8542	1870	15.1578
280	48.5804	680	53.2192	1080	30.1535	1480	21.6572	1880	15.0231

290	50.0241	690	52.9309	1090	29.9312	1490	21.4619	1890	14.8896
300	51.3573	700	52.6425	1100	29.7106	1500	21.2683	1900	14.7573
310	52.5943	710	52.3531	1110	29.4916	1510	21.0766	1910	14.6261
320	53.7443	720	52.0654	1120	29.2737	1520	20.8855	1920	14.4962
330	54.8105	730	51.7761	1130	29.0508	1530	20.6945	1930	14.3706
340	55.7946	740	51.4872	1140	28.8295	1540	20.5052	1940	14.2466
350	56.6927	750	51.2000	1150	28.6099	1550	20.3177	1950	14.1237
360	57.5013	760	50.9099	1160	28.3921	1560	20.1320	1960	14.0019
370	58.2083	770	50.6214	1170	28.1748	1570	19.9479	1970	13.8811
380	58.7964	780	50.3337	1180	27.9531	1580	19.7655	1980	13.7614
390	59.2501	790	50.0438	1190	27.7332	1590	19.5843	1990	13.6426
400	59.5661	800	49.7556	1200	27.5150	1600	19.4041	2000	13.5250

12/20/01 10:55:31 am Shareware Release

Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 2

Peak runoff: 59.8272 cfs Total Vol: 99.86 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
2010	13.4083	2210	11.3721	2410	9.7530	2610	8.4593	2810	7.3998
2020	13.2926	2220	11.2816	2420	9.6827	2620	8.4015	2820	7.3519
2030	13.1806	2230	11.1918	2430	9.6130	2630	8.3441	2830	7.3043
2040	13.0710	2240	11.1027	2440	9.5437	2640	8.2871	2840	7.2570
2050	12.9624	2250	11.0144	2450	9.4749	2650	8.2305	2850	7.2100
2060	12.8547	2260	10.9270	2460	9.4067	2660	8.1742	2860	7.1633
2070	12.7478	2270	10.8442	2470	9.3389	2670	8.1184	2870	7.1169
2080	12.6419	2280	10.7619	2480	9.2716	2680	8.0629	2880	7.0708
2090	12.5368	2290	10.6803	2490	9.2048	2690	8.0078	2890	7.0251
2100	12.4326	2300	10.5993	2500	9.1384	2700	7.9531	2900	6.9796
2110	12.3293	2310	10.5189	2510	9.0726	2710	7.8987	2910	6.9344
2120	12.2268	2320	10.4391	2520	9.0072	2720	7.8453	2920	6.8918
2130	12.1252	2330	10.3599	2530	8.9423	2730	7.7945	2930	6.8495
2140	12.0262	2340	10.2814	2540	8.8779	2740	7.7440	2940	6.8075
2150	11.9305	2350	10.2034	2550	8.8146	2750	7.6939	2950	6.7657
2160	11.8356	2360	10.1260	2560	8.7544	2760	7.6440	2960	6.7242
2170	11.7414	2370	10.0492	2570	8.6945	2770	7.5946	2970	6.6830
2180	11.6480	2380	9.9730	2580	8.6351	2780	7.5454	2980	6.6420
2190	11.5553	2390	9.8973	2590	8.5761	2790	7.4965	2990	6.6012
2200	11.4633	2400	9.8238	2600	8.5175	2800	7.4480	3000	6.5607
2210	11.3721	2410	9.7530	2610	8.4593	2810	7.3998		

12/20/01 10:55:31 am Shareware Release

Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 3

Peak runoff: 95.4450 cfs Total Vol: 107.36 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	95.4450	810	49.3322	1210	26.2148	1610	16.0045
20		420	95.1366	820	48.4447	1220	25.8547	1620	15.8245
30		430	94.5389	830	47.5870	1230	25.5101	1630	15.6466
40		440	93.7221	840	46.7449	1240	25.1713	1640	15.4706
50		450	92.7315	850	45.9178	1250	24.8370	1650	15.2980
60	0.0001	460	91.6228	860	45.1204	1260	24.5072	1660	15.1315
70	0.0010	470	90.4153	870	44.3376	1270	24.1817	1670	14.9667
80	0.0050	480	89.1480	880	43.5684	1280	23.8626	1680	14.8037
90	0.0177	490	87.8221	890	42.8257	1290	23.5562	1690	14.6425
100	0.0496	500	86.4691	900	42.0994	1300	23.2537	1700	14.4831
110	0.1177	510	85.0865	910	41.3854	1310	22.9551	1710	14.3253
120	0.2428	520	83.6902	920	40.6907	1320	22.6603	1720	14.1694
130	0.4445	530	82.2928	930	40.0179	1330	22.3693	1730	14.0151
140	1.9283	540	80.8954	940	39.3562	1340	22.0823	1740	13.8624
150	5.2512	550	79.5155	950	38.7054	1350	21.8081	1750	13.7138
160	8.8798	560	78.1368	960	38.0800	1360	21.5373	1760	13.5692
170	11.6851	570	76.7764	970	37.4674	1370	21.2699	1770	13.4260
180	15.0755	580	75.4234	980	36.8647	1380	21.0058	1780	13.2844
190	19.0749	590	74.0868	990	36.2726	1390	20.7450	1790	13.1442
200	23.6609	600	72.7620	1000	35.7059	1400	20.4874	1800	13.0055
210	28.7845	610	71.4536	1010	35.1481	1410	20.2357	1810	12.8683
220	34.3126	620	70.1598	1020	34.5990	1420	19.9927	1820	12.7326
230	40.0896	630	68.8836	1030	34.0589	1430	19.7526	1830	12.5982
240	45.8923	640	67.6233	1040	33.5430	1440	19.5154	1840	12.4653
250	51.5494	650	66.3828	1050	33.0349	1450	19.2810	1850	12.3338
260	56.9017	660	65.1590	1060	32.5345	1460	19.0495	1860	12.2061
270	61.8738	670	63.9567	1070	32.0416	1470	18.8207	1870	12.0812
280	66.4473	680	62.7722	1080	31.5672	1480	18.5950	1880	11.9577

290	70.6374	690	61.6097	1090	31.1041	1490	18.3789	1890	11.8354
300	74.4829	700	60.4672	1100	30.6477	1500	18.1654	1900	11.7143
310	77.9990	710	59.3458	1110	30.1981	1510	17.9543	1910	11.5945
320	81.2134	720	58.2465	1120	29.7567	1520	17.7457	1920	11.4759
330	84.1315	730	57.1686	1130	29.3342	1530	17.5395	1930	11.3586
340	86.7545	740	56.1114	1140	28.9177	1540	17.3358	1940	11.2424
350	89.0817	750	55.0789	1150	28.5071	1550	17.1343	1950	11.1274
360	91.0994	760	54.0655	1160	28.1023	1560	16.9356	1960	11.0136
370	92.7798	770	53.0757	1170	27.7058	1570	16.7451	1970	10.9010
380	94.0796	780	52.1083	1180	27.3253	1580	16.5568	1980	10.7905
390	94.9524	790	51.1585	1190	26.9500	1590	16.3706	1990	10.6835
400	95.4000	800	50.2360	1200	26.5798	1600	16.1865	2000	10.5775

12/20/01 10:55:31 am Shareware Release

Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 3

Peak runoff: 95.4450 cfs Total Vol: 107.36 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
2010	10.4725	2210	8.6028	2410	6.3097	2610	4.4051	2810	3.1133
2020	10.3687	2220	8.5199	2420	6.1956	2620	4.3276	2820	3.0600
2030	10.2658	2230	8.4379	2430	6.0835	2630	4.2514	2830	3.0076
2040	10.1639	2240	8.3566	2440	5.9734	2640	4.1766	2840	2.9561
2050	10.0631	2250	8.2762	2450	5.8653	2650	4.1044	2850	2.9060
2060	9.9633	2260	8.1965	2460	5.7592	2660	4.0341	2860	2.8576
2070	9.8644	2270	8.1176	2470	5.6550	2670	3.9650	2870	2.8099
2080	9.7666	2280	8.0394	2480	5.5527	2680	3.8971	2880	2.7631
2090	9.6697	2290	7.8918	2490	5.4522	2690	3.8304	2890	2.7170
2100	9.5738	2300	7.7449	2500	5.3551	2700	3.7648	2900	2.6717
2110	9.4788	2310	7.6007	2510	5.2609	2710	3.7003	2910	2.6271
2120	9.3855	2320	7.4592	2520	5.1683	2720	3.6370	2920	2.5833
2130	9.2951	2330	7.3204	2530	5.0773	2730	3.5747	2930	2.5403
2140	9.2056	2340	7.1841	2540	4.9880	2740	3.5135	2940	2.4979
2150	9.1170	2350	7.0504	2550	4.9002	2750	3.4533	2950	2.4563
2160	9.0292	2360	6.9191	2560	4.8140	2760	3.3942	2960	2.4153
2170	8.9422	2370	6.7903	2570	4.7293	2770	3.3360	2970	2.3750
2180	8.8561	2380	6.6650	2580	4.6461	2780	3.2789	2980	2.3354
2190	8.7709	2390	6.5444	2590	4.5643	2790	3.2228	2990	2.2965
2200	8.6864	2400	6.4260	2600	4.4840	2800	3.1676	3000	2.2582
2210	8.6028	2410	6.3097	2610	4.4051	2810	3.1133		

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Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 4

Peak runoff: 95.4450 cfs Total Vol: 107.36 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	95.4450	810	49.3322	1210	26.2148	1610	16.0045
20		420	95.1366	820	48.4447	1220	25.8547	1620	15.8245
30		430	94.5389	830	47.5870	1230	25.5101	1630	15.6466
40		440	93.7221	840	46.7449	1240	25.1713	1640	15.4706
50		450	92.7315	850	45.9178	1250	24.8370	1650	15.2980
60	0.0001	460	91.6228	860	45.1204	1260	24.5072	1660	15.1315
70	0.0010	470	90.4153	870	44.3376	1270	24.1817	1670	14.9667
80	0.0050	480	89.1480	880	43.5684	1280	23.8626	1680	14.8037
90	0.0177	490	87.8221	890	42.8257	1290	23.5562	1690	14.6425
100	0.0496	500	86.4691	900	42.0994	1300	23.2537	1700	14.4831
110	0.1177	510	85.0865	910	41.3854	1310	22.9551	1710	14.3253
120	0.2428	520	83.6902	920	40.6907	1320	22.6603	1720	14.1694
130	0.4445	530	82.2928	930	40.0179	1330	22.3693	1730	14.0151
140	1.9283	540	80.8954	940	39.3562	1340	22.0823	1740	13.8624
150	5.2512	550	79.5155	950	38.7054	1350	21.8081	1750	13.7138
160	8.8798	560	78.1368	960	38.0800	1360	21.5373	1760	13.5692
170	11.6851	570	76.7764	970	37.4674	1370	21.2699	1770	13.4260
180	15.0755	580	75.4234	980	36.8647	1380	21.0058	1780	13.2844
190	19.0749	590	74.0868	990	36.2726	1390	20.7450	1790	13.1442
200	23.6609	600	72.7620	1000	35.7059	1400	20.4874	1800	13.0055
210	28.7845	610	71.4536	1010	35.1481	1410	20.2357	1810	12.8683
220	34.3126	620	70.1598	1020	34.5990	1420	19.9927	1820	12.7326
230	40.0896	630	68.8836	1030	34.0589	1430	19.7526	1830	12.5982
240	45.8923	640	67.6233	1040	33.5430	1440	19.5154	1840	12.4653
250	51.5494	650	66.3828	1050	33.0349	1450	19.2810	1850	12.3338
260	56.9017	660	65.1590	1060	32.5345	1460	19.0495	1860	12.2061
270	61.8738	670	63.9567	1070	32.0416	1470	18.8207	1870	12.0812
280	66.4473	680	62.7722	1080	31.5672	1480	18.5950	1880	11.9577

290	70.6374	690	61.6097	1090	31.1041	1490	18.3789	1890	11.8354
300	74.4829	700	60.4672	1100	30.6477	1500	18.1654	1900	11.7143
310	77.9990	710	59.3458	1110	30.1981	1510	17.9543	1910	11.5945
320	81.2134	720	58.2465	1120	29.7567	1520	17.7457	1920	11.4759
330	84.1315	730	57.1686	1130	29.3342	1530	17.5395	1930	11.3586
340	86.7545	740	56.1114	1140	28.9177	1540	17.3358	1940	11.2424
350	89.0817	750	55.0789	1150	28.5071	1550	17.1343	1950	11.1274
360	91.0994	760	54.0655	1160	28.1023	1560	16.9356	1960	11.0136
370	92.7798	770	53.0757	1170	27.7058	1570	16.7451	1970	10.9010
380	94.0796	780	52.1083	1180	27.3253	1580	16.5568	1980	10.7905
390	94.9524	790	51.1585	1190	26.9500	1590	16.3706	1990	10.6835
400	95.4000	800	50.2360	1200	26.5798	1600	16.1865	2000	10.5775

12/20/01 10:55:31 am Shareware Release

Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 4

Peak runoff: 95.4450 cfs Total Vol: 107.36 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
2010	10.4725	2210	8.6028	2410	6.3097	2610	4.4051	2810	3.1133
2020	10.3687	2220	8.5199	2420	6.1956	2620	4.3276	2820	3.0600
2030	10.2658	2230	8.4379	2430	6.0835	2630	4.2514	2830	3.0076
2040	10.1639	2240	8.3566	2440	5.9734	2640	4.1766	2840	2.9561
2050	10.0631	2250	8.2762	2450	5.8653	2650	4.1044	2850	2.9060
2060	9.9633	2260	8.1965	2460	5.7592	2660	4.0341	2860	2.8576
2070	9.8644	2270	8.1176	2470	5.6550	2670	3.9650	2870	2.8099
2080	9.7666	2280	8.0394	2480	5.5527	2680	3.8971	2880	2.7631
2090	9.6697	2290	7.8918	2490	5.4522	2690	3.8304	2890	2.7170
2100	9.5738	2300	7.7449	2500	5.3551	2700	3.7648	2900	2.6717
2110	9.4788	2310	7.6007	2510	5.2609	2710	3.7003	2910	2.6271
2120	9.3855	2320	7.4592	2520	5.1683	2720	3.6370	2920	2.5833
2130	9.2951	2330	7.3204	2530	5.0773	2730	3.5747	2930	2.5403
2140	9.2056	2340	7.1841	2540	4.9880	2740	3.5135	2940	2.4979
2150	9.1170	2350	7.0504	2550	4.9002	2750	3.4533	2950	2.4563
2160	9.0292	2360	6.9191	2560	4.8140	2760	3.3942	2960	2.4153
2170	8.9422	2370	6.7903	2570	4.7293	2770	3.3360	2970	2.3750
2180	8.8561	2380	6.6650	2580	4.6461	2780	3.2789	2980	2.3354
2190	8.7709	2390	6.5444	2590	4.5643	2790	3.2228	2990	2.2965
2200	8.6864	2400	6.4260	2600	4.4840	2800	3.1676	3000	2.2582
2210	8.6028	2410	6.3097	2610	4.4051	2810	3.1133		

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Elwood-Wilson

North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 5

Peak runoff: 226.1810 cfs Total Vol: 112.66 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	218.6919	810	0.0301	1210	0.0002	1610	
20		420	215.7747	820	0.0264	1220	0.0001	1620	
30		430	212.4755	830	0.0232	1230	0.0001	1630	
40		440	208.8778	840	0.0203	1240	0.0001	1640	
50	0.0002	450	205.0524	850	0.0178	1250		1650	
60	0.0065	460	201.0552	860	0.0156	1260		1660	
70	0.0597	470	195.2316	870	0.0137	1270		1670	
80	0.2986	480	188.8428	880	0.0120	1280		1680	
90	3.2594	490	182.3432	890	0.0105	1290		1690	
100	12.9288	500	175.7564	900	0.0092	1300		1700	
110	31.9301	510	169.1019	910	0.0081	1310		1710	
120	43.4901	520	125.6940	920	0.0071	1320		1720	
130	64.2952	530	96.1427	930	0.0062	1330		1730	
140	88.0080	540	81.1574	940	0.0055	1340		1740	
150	102.0145	550	51.6965	950	0.0048	1350		1750	
160	159.6362	560	33.6855	960	0.0042	1360		1760	
170	170.1527	570	4.5091	970	0.0037	1370		1770	
180	176.2935	580	1.2925	980	0.0032	1380		1780	
190	183.2073	590	0.5392	990	0.0028	1390		1790	
200	190.4498	600	0.4729	1000	0.0025	1400		1800	
210	197.6174	610	0.4148	1010	0.0022	1410		1810	
220	202.9965	620	0.3638	1020	0.0019	1420		1820	
230	207.1160	630	0.3191	1030	0.0017	1430		1830	
240	210.7703	640	0.2799	1040	0.0015	1440		1840	
250	213.9171	650	0.2455	1050	0.0013	1450		1850	
260	216.5685	660	0.2153	1060	0.0011	1460		1860	
270	218.7722	670	0.1888	1070	0.0010	1470		1870	
280	220.5913	680	0.1656	1080	0.0009	1480		1880	

290	222.0943	690	0.1453	1090	0.0008	1490	1890
300	223.3351	700	0.1274	1100	0.0007	1500	1900
310	224.3485	710	0.1117	1110	0.0006	1510	1910
320	225.1472	720	0.0980	1120	0.0005	1520	1920
330	225.7270	730	0.0860	1130	0.0005	1530	1930
340	226.0769	740	0.0754	1140	0.0004	1540	1940
350	226.1810	750	0.0661	1150	0.0003	1550	1950
360	226.0032	760	0.0580	1160	0.0003	1560	1960
370	225.4871	770	0.0509	1170	0.0003	1570	1970
380	224.5481	780	0.0446	1180	0.0002	1580	1980
390	223.1128	790	0.0391	1190	0.0002	1590	1990
400	221.1547	800	0.0343	1200	0.0002	1600	2000

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North Basin

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 8

Peak runoff: 73.8260 cfs Total Vol: 25.42 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	57.9402	810	0.3848	1210	0.0070	1610	0.0002
20		420	54.0589	820	0.3422	1220	0.0064	1620	0.0002
30		430	49.1269	830	0.3049	1230	0.0058	1630	0.0002
40		440	43.7135	840	0.2720	1240	0.0053	1640	0.0001
50		450	38.6655	850	0.2430	1250	0.0048	1650	0.0001
60		460	33.9521	860	0.2174	1260	0.0044	1660	0.0001
70		470	29.3540	870	0.1947	1270	0.0040	1670	0.0001
80	0.0072	480	25.6068	880	0.1746	1280	0.0037	1680	
90	0.1103	490	22.9646	890	0.1568	1290	0.0034	1690	
100	0.7058	500	21.2216	900	0.1410	1300	0.0031	1700	
110	2.3403	510	20.0643	910	0.1269	1310	0.0028	1710	
120	4.8471	520	19.0008	920	0.1143	1320	0.0025	1720	
130	7.4260	530	17.7322	930	0.1030	1330	0.0023	1730	
140	9.6090	540	16.1859	940	0.0930	1340	0.0021	1740	
150	11.4347	550	14.4616	950	0.0840	1350	0.0019	1750	
160	13.0584	560	12.6960	960	0.0759	1360	0.0018	1760	
170	14.5711	570	10.9424	970	0.0687	1370	0.0016	1770	
180	16.7712	580	9.2624	980	0.0622	1380	0.0015	1780	
190	22.8272	590	7.8025	990	0.0563	1390	0.0013	1790	
200	26.8351	600	6.6543	1000	0.0510	1400	0.0012	1800	
210	28.4805	610	5.7516	1010	0.0463	1410	0.0011	1810	
220	32.8925	620	4.9873	1020	0.0420	1420	0.0010	1820	
230	38.4242	630	4.3143	1030	0.0381	1430	0.0009	1830	
240	42.6537	640	3.7236	1040	0.0346	1440	0.0009	1840	
250	46.0593	650	3.2117	1050	0.0314	1450	0.0008	1850	
260	51.5987	660	2.7726	1060	0.0286	1460	0.0007	1860	
270	59.4847	670	2.3977	1070	0.0260	1470	0.0006	1870	
280	68.3053	680	2.0775	1080	0.0236	1480	0.0006	1880	

290	73.4648	690	1.8038	1090	0.0215	1490	0.0005	1890
300	73.8260	700	1.5692	1100	0.0195	1500	0.0005	1900
310	71.4334	710	1.3679	1110	0.0178	1510	0.0004	1910
320	68.4956	720	1.1948	1120	0.0162	1520	0.0004	1920
330	66.1398	730	1.0456	1130	0.0147	1530	0.0004	1930
340	64.5683	740	0.9169	1140	0.0134	1540	0.0003	1940
350	64.0688	750	0.8055	1150	0.0122	1550	0.0003	1950
360	64.0967	760	0.7090	1160	0.0111	1560	0.0003	1960
370	62.9970	770	0.6252	1170	0.0102	1570	0.0003	1970
380	61.1788	780	0.5523	1180	0.0093	1580	0.0002	1980
390	60.7560	790	0.4888	1190	0.0084	1590	0.0002	1990
400	60.2872	800	0.4333	1200	0.0077	1600	0.0002	2000

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Elwood-Wilson
North Basin
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STORAGE STRUCTURE LIST

STORAGE LIST ID No. EWN10PND
Description: EWN-10 depressional storage

STORAGE LIST ID No. EWN11PND
Description: EWN-11 depressional storage

STORAGE LIST ID No. EWN12aPD
Description: EWN-12a depressional storage

STORAGE LIST ID No. EWN12bPD
Description: EWN-12b depressional storage

STORAGE LIST ID No. EWN13aPD
Description: EWN-13a depressional storage

STORAGE LIST ID No. EWN13bPD
Description: EWN-13b depressional storage

STORAGE LIST ID No. EWN1POND
Description: EWN-1 depressional storage

STORAGE LIST ID No. EWN2POND
Description: EWN-2 depressional storage

STORAGE LIST ID No. EWN3aPND
Description: EWN-3a depressional storage

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STORAGE STRUCTURE LIST

STORAGE LIST ID No. EWN3bPND
Description: EWN-3b depressional storage

STORAGE LIST ID No. EWN4POND
Description: EWN-4 depressional storage

STORAGE LIST ID No. EWN5POND
Description: EWN-5 depressional storage

STORAGE LIST ID No. EWN6aPND
Description: EWN-6a depressional storage

STORAGE LIST ID No. EWN6bPND
Description: EWN-6b depressional storage

STORAGE LIST ID No. EWN7POND
Description: EWN-7 depressional storage

STORAGE LIST ID No. EWN8aPND
Description: EWN-8a depressional storage

STORAGE LIST ID No. EWN9POND
Description: EWN-9 depressional storage

STORAGE LIST ID No. cnty_p1
Description: On-site det. to 782.5 contour

STORAGE LIST ID No. cnty_p2
Description: Detention to 786.0 contour

STORAGE LIST ID No. cnty_p3
Description: Dredge 777.5 retain to 782.5

STORAGE LIST ID No. cnty_p4
Description: Dredge 777.5 retain to 786.0

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North Basin

STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN1POND
Description: EWN-1 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
809.50	0.0000	0.0000	811.10	235224	5.4000	812.70	514008	11.800	814.30	792792	18.200
809.60	8712	0.2000	811.20	252648	5.8000	812.80	531432	12.200	814.40	810216	18.600
809.70	17424	0.4000	811.30	270072	6.2000	812.90	548856	12.600	814.50	827640	19.000
809.80	26136	0.6000	811.40	287496	6.6000	813.00	566280	13.000	814.60	845064	19.400
809.90	34848	0.8000	811.50	304920	7.0000	813.10	583704	13.400	814.70	862488	19.800
810.00	43560	1.0000	811.60	322344	7.4000	813.20	601128	13.800	814.80	879912	20.200
810.10	60984	1.4000	811.70	339768	7.8000	813.30	618552	14.200	814.90	897336	20.600
810.20	78408	1.8000	811.80	357192	8.2000	813.40	635976	14.600	815.00	914760	21.000
810.30	95832	2.2000	811.90	374616	8.6000	813.50	653400	15.000	815.10	932184	21.400
810.40	113256	2.6000	812.00	392040	9.0000	813.60	670824	15.400	815.20	949608	21.800
810.50	130680	3.0000	812.10	409464	9.4000	813.70	688248	15.800	815.30	967032	22.200
810.60	148104	3.4000	812.20	426888	9.8000	813.80	705672	16.200	815.40	984456	22.600
810.70	165528	3.8000	812.30	444312	10.200	813.90	723096	16.600	815.50	1001880	23.000
810.80	182952	4.2000	812.40	461736	10.600	814.00	740520	17.000	815.50	1001880	23.000
810.90	200376	4.6000	812.50	479160	11.000	814.10	757944	17.400			
811.00	217800	5.0000	812.60	496584	11.400	814.20	775368	17.800			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN2POND

Description: EWN-2 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
809.50	0.0000	0.0000	811.10	19406	0.4455	812.70	42406	0.9735	814.30	65405	1.5015
809.60	718.74	0.0165	811.20	20843	0.4785	812.80	43843	1.0065	814.40	66843	1.5345
809.70	1437	0.0330	811.30	22281	0.5115	812.90	45281	1.0395	814.50	68280	1.5675
809.80	2156	0.0495	811.40	23718	0.5445	813.00	46718	1.0725	814.60	69718	1.6005
809.90	2875	0.0660	811.50	25156	0.5775	813.10	48156	1.1055	814.70	71155	1.6335
810.00	3594	0.0825	811.60	26593	0.6105	813.20	49593	1.1385	814.80	72593	1.6665
810.10	5031	0.1155	811.70	28031	0.6435	813.30	51031	1.1715	814.90	74030	1.6995
810.20	6469	0.1485	811.80	29468	0.6765	813.40	52468	1.2045	815.00	75468	1.7325
810.30	7906	0.1815	811.90	30906	0.7095	813.50	53905	1.2375	815.10	76905	1.7655
810.40	9344	0.2145	812.00	32343	0.7425	813.60	55343	1.2705	815.20	78343	1.7985
810.50	10781	0.2475	812.10	33781	0.7755	813.70	56780	1.3035	815.30	79780	1.8315
810.60	12219	0.2805	812.20	35218	0.8085	813.80	58218	1.3365	815.40	81218	1.8645
810.70	13656	0.3135	812.30	36656	0.8415	813.90	59655	1.3695	815.50	82655	1.8975
810.80	15094	0.3465	812.40	38093	0.8745	814.00	61093	1.4025	815.50	82655	1.8975
810.90	16531	0.3795	812.50	39531	0.9075	814.10	62530	1.4355			
811.00	17968	0.4125	812.60	40968	0.9405	814.20	63968	1.4685			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN3aPND

Description: EWN-3a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
803.50	0.0000	0.0000	805.10	455746	10.462	806.70	995890	22.862	808.30	1536034	35.262
803.60	16879	0.3875	805.20	489505	11.237	806.80	1029649	23.637	808.40	1569793	36.037
803.70	33759	0.7750	805.30	523264	12.012	806.90	1063408	24.412	808.50	1603552	36.812
803.80	50638	1.1625	805.40	557023	12.787	807.00	1097167	25.187	808.60	1637311	37.587
803.90	67518	1.5500	805.50	590782	13.562	807.10	1130926	25.962	808.70	1671070	38.362
804.00	84397	1.9375	805.60	624541	14.337	807.20	1164685	26.737	808.80	1704829	39.137
804.10	118156	2.7125	805.70	658300	15.112	807.30	1198444	27.512	808.90	1738588	39.912
804.20	151915	3.4875	805.80	692059	15.887	807.40	1232203	28.287	809.00	1772347	40.687
804.30	185674	4.2625	805.90	725818	16.662	807.50	1265962	29.062	809.10	1806106	41.462
804.40	219433	5.0375	806.00	759577	17.437	807.60	1299721	29.837	809.20	1839865	42.237
804.50	253192	5.8125	806.10	793336	18.212	807.70	1333480	30.612	809.30	1873624	43.012
804.60	286951	6.5875	806.20	827095	18.987	807.80	1367239	31.387	809.40	1907383	43.787
804.70	320710	7.3625	806.30	860854	19.762	807.90	1400998	32.162	809.50	1941142	44.562
804.80	354469	8.1375	806.40	894613	20.537	808.00	1434757	32.937	809.50	1941142	44.563
804.90	388228	8.9125	806.50	928372	21.312	808.10	1468516	33.712			
805.00	421987	9.6875	806.60	962131	22.087	808.20	1502275	34.487			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN3bPND

Description: EWN-3b depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
801.50	0.0000	0.0000	803.10	19406	0.4455	804.70	42406	0.9735	806.30	65405	1.5015
801.60	718.74	0.0165	803.20	20843	0.4785	804.80	43843	1.0065	806.40	66843	1.5345
801.70	1437	0.0330	803.30	22281	0.5115	804.90	45281	1.0395	806.50	68280	1.5675
801.80	2156	0.0495	803.40	23718	0.5445	805.00	46718	1.0725	806.60	69718	1.6005
801.90	2875	0.0660	803.50	25156	0.5775	805.10	48156	1.1055	806.70	71155	1.6335
802.00	3594	0.0825	803.60	26593	0.6105	805.20	49593	1.1385	806.80	72593	1.6665
802.10	5031	0.1155	803.70	28031	0.6435	805.30	51031	1.1715	806.90	74030	1.6995
802.20	6469	0.1485	803.80	29468	0.6765	805.40	52468	1.2045	807.00	75468	1.7325
802.30	7906	0.1815	803.90	30906	0.7095	805.50	53905	1.2375	807.10	76905	1.7655
802.40	9344	0.2145	804.00	32343	0.7425	805.60	55343	1.2705	807.20	78343	1.7985
802.50	10781	0.2475	804.10	33781	0.7755	805.70	56780	1.3035	807.30	79780	1.8315
802.60	12219	0.2805	804.20	35218	0.8085	805.80	58218	1.3365	807.40	81218	1.8645
802.70	13656	0.3135	804.30	36656	0.8415	805.90	59655	1.3695	807.50	82655	1.8975
802.80	15094	0.3465	804.40	38093	0.8745	806.00	61093	1.4025	807.50	82655	1.8975
802.90	16531	0.3795	804.50	39531	0.9075	806.10	62530	1.4355			
803.00	17968	0.4125	804.60	40968	0.9405	806.20	63968	1.4685			

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN4POND
Description: EWN-4 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
801.50	0.0000	0.0000	801.80	20909	0.4800	802.10	48787	1.1200	802.40	90605	2.0800
801.60	6970	0.1600	801.90	27878	0.6400	802.20	62726	1.4400	802.50	104544	2.4000
801.70	13939	0.3200	802.00	34848	0.8000	802.30	76666	1.7600	802.50	104544	2.4000

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN5POND

Description: EWN-5 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
801.50	0.0000	0.0000	801.80	12219	0.2805	802.10	28510	0.6545	802.40	52947	1.2155
801.60	4073	0.0935	801.90	16291	0.3740	802.20	36656	0.8415	802.50	61093	1.4025
801.70	8146	0.1870	802.00	20364	0.4675	802.30	44801	1.0285	802.50	61093	1.4025

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN6aPND

Description: EWN-6a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
799.50	0.0000	0.0000	801.10	62334	1.4310	802.70	136212	3.1270	804.30	210090	4.8230
799.60	2309	0.0530	801.20	66952	1.5370	802.80	140829	3.2330	804.40	214707	4.9290
799.70	4617	0.1060	801.30	71569	1.6430	802.90	145447	3.3390	804.50	219325	5.0350
799.80	6926	0.1590	801.40	76186	1.7490	803.00	150064	3.4450	804.60	223942	5.1410
799.90	9235	0.2120	801.50	80804	1.8550	803.10	154682	3.5510	804.70	228559	5.2470
800.00	11543	0.2650	801.60	85421	1.9610	803.20	159299	3.6570	804.80	233177	5.3530
800.10	16161	0.3710	801.70	90039	2.0670	803.30	163916	3.7630	804.90	237794	5.4590
800.20	20778	0.4770	801.80	94656	2.1730	803.40	168534	3.8690	805.00	242411	5.5650
800.30	25395	0.5830	801.90	99273	2.2790	803.50	173151	3.9750	805.10	247029	5.6710
800.40	30013	0.6890	802.00	103891	2.3850	803.60	177768	4.0810	805.20	251646	5.7770
800.50	34630	0.7950	802.10	108508	2.4910	803.70	182386	4.1870	805.30	256263	5.8830
800.60	39248	0.9010	802.20	113125	2.5970	803.80	187003	4.2930	805.40	260881	5.9890
800.70	43865	1.0070	802.30	117743	2.7030	803.90	191620	4.3990	805.50	265498	6.0950
800.80	48482	1.1130	802.40	122360	2.8090	804.00	196238	4.5050	805.50	265498	6.0950
800.90	53100	1.2190	802.50	126977	2.9150	804.10	200855	4.6110			
801.00	57717	1.3250	802.60	131595	3.0210	804.20	205473	4.7170			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN6bPND
Description: EWN-6b depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
799.50	0.0000	0.0000	799.80	26397	0.6060	800.10	61594	1.4140	800.40	114389	2.6260
799.60	8799	0.2020	799.90	35196	0.8080	800.20	79192	1.8180	800.50	131987	3.0300
799.70	17598	0.4040	800.00	43996	1.0100	800.30	96790	2.2220	800.50	131987	3.0300

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN7POND

Description: EWN-7 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
793.50	0.0000	0.0000	795.60	43821	1.0060	797.70	135907	3.1200	799.80	236531	5.4300
793.60	261.36	0.0060	795.70	46479	1.0670	797.80	140699	3.2300	799.90	241322	5.5400
793.70	522.72	0.0120	795.80	49136	1.1280	797.90	145490	3.3400	800.00	246114	5.6500
793.80	784.08	0.0180	795.90	51793	1.1890	798.00	150282	3.4500	800.10	250906	5.7600
793.90	1045	0.0240	796.00	54450	1.2500	798.10	155074	3.5600	800.20	255697	5.8700
794.00	1307	0.0300	796.10	59242	1.3600	798.20	159865	3.6700	800.30	260489	5.9800
794.10	3964	0.0910	796.20	64033	1.4700	798.30	164657	3.7800	800.40	265280	6.0900
794.20	6621	0.1520	796.30	68825	1.5800	798.40	169448	3.8900	800.50	270072	6.2000
794.30	9278	0.2130	796.40	73616	1.6900	798.50	174240	4.0000	800.60	274864	6.3100
794.40	11935	0.2740	796.50	78408	1.8000	798.60	179032	4.1100	800.70	279655	6.4200
794.50	14593	0.3350	796.60	83200	1.9100	798.70	183823	4.2200	800.80	284447	6.5300
794.60	17250	0.3960	796.70	87991	2.0200	798.80	188615	4.3300	800.90	289238	6.6400
794.70	19907	0.4570	796.80	92783	2.1300	798.90	193406	4.4400	801.00	294030	6.7500
794.80	22564	0.5180	796.90	97574	2.2400	799.00	198198	4.5500	801.10	298822	6.8600
794.90	25221	0.5790	797.00	102366	2.3500	799.10	202990	4.6600	801.20	303613	6.9700
795.00	27878	0.6400	797.10	107158	2.4600	799.20	207781	4.7700	801.30	308405	7.0800
795.10	30536	0.7010	797.20	111949	2.5700	799.30	212573	4.8800	801.40	313196	7.1900
795.20	33193	0.7620	797.30	116741	2.6800	799.40	217364	4.9900	801.50	317988	7.3000
795.30	35850	0.8230	797.40	121532	2.7900	799.50	222156	5.1000	801.50	317988	7.3000
795.40	38507	0.8840	797.50	126324	2.9000	799.60	226948	5.2100			
795.50	41164	0.9450	797.60	131116	3.0100	799.70	231739	5.3200			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN8aPND

Description: EWN-8a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
793.50	0.0000	0.0000	795.10	133490	3.0645	796.70	291700	6.6965	798.30	449909	10.328
793.60	4944	0.1135	795.20	143378	3.2915	796.80	301588	6.9235	798.40	459798	10.555
793.70	9888	0.2270	795.30	153266	3.5185	796.90	311476	7.1505	798.50	469686	10.782
793.80	14832	0.3405	795.40	163154	3.7455	797.00	321364	7.3775	798.60	479574	11.009
793.90	19776	0.4540	795.50	173042	3.9725	797.10	331252	7.6045	798.70	489462	11.236
794.00	24720	0.5675	795.60	182930	4.1995	797.20	341140	7.8315	798.80	499350	11.463
794.10	34608	0.7945	795.70	192818	4.4265	797.30	351028	8.0585	798.90	509238	11.690
794.20	44497	1.0215	795.80	202706	4.6535	797.40	360916	8.2855	799.00	519126	11.917
794.30	54385	1.2485	795.90	212595	4.8805	797.50	370804	8.5125	799.10	529014	12.144
794.40	64273	1.4755	796.00	222483	5.1075	797.60	380693	8.7395	799.20	538903	12.371
794.50	74161	1.7025	796.10	232371	5.3345	797.70	390581	8.9665	799.30	548791	12.598
794.60	84049	1.9295	796.20	242259	5.5615	797.80	400469	9.1935	799.40	558679	12.825
794.70	93937	2.1565	796.30	252147	5.7885	797.90	410357	9.4205	799.50	568567	13.052
794.80	103825	2.3835	796.40	262035	6.0155	798.00	420245	9.6475	799.50	568567	13.053
794.90	113713	2.6105	796.50	271923	6.2425	798.10	430133	9.8745			
795.00	123601	2.8375	796.60	281811	6.4695	798.20	440021	10.101			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN9POND

Description: EWN-9 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
795.50	0.0000	0.0000	797.10	147603	3.3885	798.70	322540	7.4045	800.30	497477	11.420
795.60	5467	0.1255	797.20	158537	3.6395	798.80	333474	7.6555	800.40	508411	11.671
795.70	10934	0.2510	797.30	169470	3.8905	798.90	344407	7.9065	800.50	519344	11.922
795.80	16400	0.3765	797.40	180404	4.1415	799.00	355341	8.1575	800.60	530278	12.173
795.90	21867	0.5020	797.50	191337	4.3925	799.10	366274	8.4085	800.70	541211	12.424
796.00	27334	0.6275	797.60	202271	4.6435	799.20	377208	8.6595	800.80	552145	12.675
796.10	38267	0.8785	797.70	213204	4.8945	799.30	388141	8.9105	800.90	563078	12.926
796.20	49201	1.1295	797.80	224138	5.1455	799.40	399075	9.1615	801.00	574012	13.177
796.30	60135	1.3805	797.90	235072	5.3965	799.50	410008	9.4125	801.10	584945	13.428
796.40	71068	1.6315	798.00	246005	5.6475	799.60	420942	9.6635	801.20	595879	13.679
796.50	82002	1.8825	798.10	256939	5.8985	799.70	431876	9.9145	801.30	606813	13.930
796.60	92935	2.1335	798.20	267872	6.1495	799.80	442809	10.165	801.40	617746	14.181
796.70	103869	2.3845	798.30	278806	6.4005	799.90	453743	10.416	801.50	628680	14.432
796.80	114802	2.6355	798.40	289739	6.6515	800.00	464676	10.667	801.50	628680	14.433
796.90	125736	2.8865	798.50	300673	6.9025	800.10	475610	10.918			
797.00	136669	3.1375	798.60	311606	7.1535	800.20	486543	11.169			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN10PND

Description: EWN-10 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
793.50	0.0000	0.0000	794.30	19972	0.4585	795.10	57260	1.3145	795.90	94547	2.1705
793.60	1198	0.0275	794.40	24633	0.5655	795.20	61921	1.4215	796.00	99208	2.2775
793.70	2396	0.0550	794.50	29294	0.6725	795.30	66581	1.5285	796.10	106134	2.4365
793.80	3594	0.0825	794.60	33955	0.7795	795.40	71242	1.6355	796.20	113060	2.5955
793.90	4792	0.1100	794.70	38616	0.8865	795.50	75903	1.7425	796.30	119986	2.7545
794.00	5989	0.1375	794.80	43277	0.9935	795.60	80564	1.8495	796.40	126912	2.9135
794.10	10650	0.2445	794.90	47938	1.1005	795.70	85225	1.9565	796.50	133838	3.0725
794.20	15311	0.3515	795.00	52599	1.2075	795.80	89886	2.0635	796.50	133838	3.0725

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN11PND

Description: EWN-11 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
791.50	0.0000	0.0000	793.10	25875	0.5940	794.70	56541	1.2980	796.30	87207	2.0020
791.60	958.32	0.0220	793.20	27791	0.6380	794.80	58458	1.3420	796.40	89124	2.0460
791.70	1917	0.0440	793.30	29708	0.6820	794.90	60374	1.3860	796.50	91040	2.0900
791.80	2875	0.0660	793.40	31625	0.7260	795.00	62291	1.4300	796.60	92957	2.1340
791.90	3833	0.0880	793.50	33541	0.7700	795.10	64207	1.4740	796.70	94874	2.1780
792.00	4792	0.1100	793.60	35458	0.8140	795.20	66124	1.5180	796.80	96790	2.2220
792.10	6708	0.1540	793.70	37374	0.8580	795.30	68041	1.5620	796.90	98707	2.2660
792.20	8625	0.1980	793.80	39291	0.9020	795.40	69957	1.6060	797.00	100624	2.3100
792.30	10542	0.2420	793.90	41208	0.9460	795.50	71874	1.6500	797.10	102540	2.3540
792.40	12458	0.2860	794.00	43124	0.9900	795.60	73791	1.6940	797.20	104457	2.3980
792.50	14375	0.3300	794.10	45041	1.0340	795.70	75707	1.7380	797.30	106374	2.4420
792.60	16291	0.3740	794.20	46958	1.0780	795.80	77624	1.7820	797.40	108290	2.4860
792.70	18208	0.4180	794.30	48874	1.1220	795.90	79541	1.8260	797.50	110207	2.5300
792.80	20125	0.4620	794.40	50791	1.1660	796.00	81457	1.8700	797.50	110207	2.5300
792.90	22041	0.5060	794.50	52708	1.2100	796.10	83374	1.9140			
793.00	23958	0.5500	794.60	54624	1.2540	796.20	85290	1.9580			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN12aPD

Description: EWN-12a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
791.50	0.0000	0.0000	793.10	53513	1.2285	794.70	116937	2.6845	796.30	180360	4.1405
791.60	1982	0.0455	793.20	57477	1.3195	794.80	120901	2.7755	796.40	184324	4.2315
791.70	3964	0.0910	793.30	61441	1.4105	794.90	124865	2.8665	796.50	188288	4.3225
791.80	5946	0.1365	793.40	65405	1.5015	795.00	128829	2.9575	796.60	192252	4.4135
791.90	7928	0.1820	793.50	69369	1.5925	795.10	132793	3.0485	796.70	196216	4.5045
792.00	9910	0.2275	793.60	73333	1.6835	795.20	136757	3.1395	796.80	200180	4.5955
792.10	13874	0.3185	793.70	77297	1.7745	795.30	140721	3.2305	796.90	204144	4.6865
792.20	17838	0.4095	793.80	81261	1.8655	795.40	144685	3.3215	797.00	208108	4.7775
792.30	21802	0.5005	793.90	85225	1.9565	795.50	148648	3.4125	797.10	212072	4.8685
792.40	25766	0.5915	794.00	89189	2.0475	795.60	152612	3.5035	797.20	216036	4.9595
792.50	29730	0.6825	794.10	93153	2.1385	795.70	156576	3.5945	797.30	220000	5.0505
792.60	33694	0.7735	794.20	97117	2.2295	795.80	160540	3.6855	797.40	223964	5.1415
792.70	37658	0.8645	794.30	101081	2.3205	795.90	164504	3.7765	797.50	227928	5.2325
792.80	41622	0.9555	794.40	105045	2.4115	796.00	168468	3.8675	797.50	227928	5.2325
792.90	45586	1.0465	794.50	109009	2.5025	796.10	172432	3.9585			
793.00	49549	1.1375	794.60	112973	2.5935	796.20	176396	4.0495			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN12bPD

Description: EWN-12b depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
789.50	0.0000	0.0000	791.10	9997	0.2295	792.70	21845	0.5015	794.30	33694	0.7735
789.60	370.26	0.0085	791.20	10738	0.2465	792.80	22586	0.5185	794.40	34434	0.7905
789.70	740.52	0.0170	791.30	11478	0.2635	792.90	23326	0.5355	794.50	35175	0.8075
789.80	1111	0.0255	791.40	12219	0.2805	793.00	24067	0.5525	794.60	35915	0.8245
789.90	1481	0.0340	791.50	12959	0.2975	793.10	24807	0.5695	794.70	36656	0.8415
790.00	1851	0.0425	791.60	13700	0.3145	793.20	25548	0.5865	794.80	37396	0.8585
790.10	2592	0.0595	791.70	14440	0.3315	793.30	26288	0.6035	794.90	38137	0.8755
790.20	3332	0.0765	791.80	15181	0.3485	793.40	27029	0.6205	795.00	38877	0.8925
790.30	4073	0.0935	791.90	15921	0.3655	793.50	27769	0.6375	795.10	39618	0.9095
790.40	4813	0.1105	792.00	16662	0.3825	793.60	28510	0.6545	795.20	40358	0.9265
790.50	5554	0.1275	792.10	17402	0.3995	793.70	29251	0.6715	795.30	41099	0.9435
790.60	6294	0.1445	792.20	18143	0.4165	793.80	29991	0.6885	795.40	41839	0.9605
790.70	7035	0.1615	792.30	18883	0.4335	793.90	30732	0.7055	795.50	42580	0.9775
790.80	7775	0.1785	792.40	19624	0.4505	794.00	31472	0.7225	795.50	42580	0.9775
790.90	8516	0.1955	792.50	20364	0.4675	794.10	32213	0.7395			
791.00	9256	0.2125	792.60	21105	0.4845	794.20	32953	0.7565			

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN13aPD

Description: EWN-13a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
787.50	0.0000	0.0000	788.30	27116	0.6225	789.10	75032	1.7225	789.90	122948	2.8225
787.60	1830	0.0420	788.40	33106	0.7600	789.20	81022	1.8600	790.00	128938	2.9600
787.70	3659	0.0840	788.50	39095	0.8975	789.30	87011	1.9975	790.10	137258	3.1510
787.80	5489	0.1260	788.60	45085	1.0350	789.40	93001	2.1350	790.20	145578	3.3420
787.90	7318	0.1680	788.70	51074	1.1725	789.50	98990	2.2725	790.30	153897	3.5330
788.00	9148	0.2100	788.80	57064	1.3100	789.60	104980	2.4100	790.40	162217	3.7240
788.10	15137	0.3475	788.90	63053	1.4475	789.70	110969	2.5475	790.50	170537	3.9150
788.20	21127	0.4850	789.00	69043	1.5850	789.80	116959	2.6850	790.50	170537	3.9150

12/20/01 10:55:31 am Shareware Release

Elwood-Wilson

North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWN13bPD

Description: EWN-13b depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
783.50	0.0000	0.0000	784.30	26071	0.5985	785.10	72070	1.6545	785.90	118069	2.7105
783.60	1764	0.0405	784.40	31821	0.7305	785.20	77820	1.7865	786.00	123819	2.8425
783.70	3528	0.0810	784.50	37570	0.8625	785.30	83570	1.9185	786.10	131791	3.0255
783.80	5293	0.1215	784.60	43320	0.9945	785.40	89320	2.0505	786.20	139762	3.2085
783.90	7057	0.1620	784.70	49070	1.1265	785.50	95070	2.1825	786.30	147734	3.3915
784.00	8821	0.2025	784.80	54820	1.2585	785.60	100820	2.3145	786.40	155705	3.5745
784.10	14571	0.3345	784.90	60570	1.3905	785.70	106570	2.4465	786.50	163677	3.7575
784.20	20321	0.4665	785.00	66320	1.5225	785.80	112319	2.5785	786.50	163677	3.7575

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Elwood-Wilson

North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. cnty_p1
Description: On-site det. to 782.5 contour

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
777.50	0.0000	0.0000	781.30	61921	1.4215	785.10	389156	8.9338	788.90	898057	20.617
777.60	653.40	0.0150	781.40	65427	1.5020	785.20	399624	9.1741	789.00	916461	21.039
777.70	1307	0.0300	781.50	68934	1.5825	785.30	410092	9.4144	789.10	934866	21.462
777.80	1960	0.0450	781.60	72440	1.6630	785.40	420560	9.6547	789.20	953271	21.884
777.90	2614	0.0600	781.70	75947	1.7435	785.50	431028	9.8951	789.30	971675	22.307
778.00	3267	0.0750	781.80	79453	1.8240	785.60	441497	10.135	789.40	990080	22.729
778.10	3920	0.0900	781.90	82960	1.9045	785.70	451965	10.376	789.50	1008484	23.152
778.20	4574	0.1050	782.00	86467	1.9850	785.80	462433	10.616	789.60	1026889	23.574
778.30	5227	0.1200	782.10	92570	2.1251	785.90	472901	10.856	789.70	1045294	23.997
778.40	5881	0.1350	782.20	98673	2.2652	786.00	483369	11.097	789.80	1063698	24.419
778.50	6534	0.1500	782.30	104776	2.4053	786.10	493838	11.337	789.90	1082103	24.842
778.60	7187	0.1650	782.40	110879	2.5454	786.20	504306	11.577	790.00	1100507	25.264
778.70	7841	0.1800	782.50	116982	2.6855	786.30	514774	11.818	790.10	1118912	25.687
778.80	8494	0.1950	782.60	127451	2.9259	786.40	525242	12.058	790.20	1137317	26.109
778.90	9148	0.2100	782.70	137919	3.1662	786.50	535710	12.298	790.30	1155721	26.532
779.00	9801	0.2250	782.80	148387	3.4065	786.60	546179	12.539	790.40	1174126	26.954
779.10	10454	0.2400	782.90	158855	3.6468	786.70	556647	12.779	790.50	1192530	27.377
779.20	11108	0.2550	783.00	169323	3.8871	786.80	567115	13.019	790.60	1210935	27.799
779.30	11761	0.2700	783.10	179792	4.1274	786.90	577583	13.259	790.70	1229340	28.222
779.40	12415	0.2850	783.20	190260	4.3678	787.00	588051	13.500	790.80	1247744	28.644
779.50	13068	0.3000	783.30	200728	4.6081	787.10	598520	13.740	790.90	1266149	29.067
779.60	13721	0.3150	783.40	211196	4.8484	787.20	608988	13.980	791.00	1284553	29.489
779.70	14375	0.3300	783.50	221664	5.0887	787.30	619456	14.221	791.10	1302958	29.912
779.80	15028	0.3450	783.60	232133	5.3290	787.40	629924	14.461	791.20	1321363	30.334
779.90	15682	0.3600	783.70	242601	5.5694	787.50	640392	14.701	791.30	1339767	30.757
780.00	16335	0.3750	783.80	253069	5.8097	787.60	658797	15.124	791.40	1358172	31.179

780.10	19842	0.4555	783.90	263537	6.0500	787.70	677202	15.546	791.50	1376576	31.602
780.20	23348	0.5360	784.00	274005	6.2903	787.80	695606	15.969	791.60	1394981	32.024
780.30	26855	0.6165	784.10	284474	6.5306	787.90	714011	16.391	791.70	1413386	32.447
780.40	30361	0.6970	784.20	294942	6.7709	788.00	732415	16.814	791.80	1431790	32.869
780.50	33868	0.7775	784.30	305410	7.0113	788.10	750820	17.236	791.90	1450195	33.292
780.60	37374	0.8580	784.40	315878	7.2516	788.20	769225	17.659	792.00	1468599	33.714
780.70	40881	0.9385	784.50	326346	7.4919	788.30	787629	18.081	792.10	1487004	34.137
780.80	44388	1.0190	784.60	336815	7.7322	788.40	806034	18.504	792.20	1505409	34.559
780.90	47894	1.0995	784.70	347283	7.9725	788.50	824438	18.927	792.30	1523813	34.982
781.00	51401	1.1800	784.80	357751	8.2128	788.60	842843	19.349	792.40	1542218	35.404
781.10	54907	1.2605	784.90	368219	8.4532	788.70	861248	19.772	792.50	1560622	35.827
781.20	58414	1.3410	785.00	378687	8.6935	788.80	879652	20.194	792.50	1560622	35.827

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. cnty_p2
Description: Detention to 786.0 contour

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
777.50	0.0000	0.0000	781.10	54907	1.2605	784.70	457554	10.504	788.30	1721012	39.509
777.60	653.40	0.0150	781.20	58414	1.3410	784.80	483995	11.111	788.40	1761000	40.427
777.70	1307	0.0300	781.30	61921	1.4215	784.90	510436	11.718	788.50	1800988	41.345
777.80	1960	0.0450	781.40	65427	1.5020	785.00	536877	12.325	788.60	1840976	42.263
777.90	2614	0.0600	781.50	68934	1.5825	785.10	563318	12.932	788.70	1880964	43.181
778.00	3267	0.0750	781.60	72440	1.6630	785.20	589759	13.539	788.80	1920952	44.099
778.10	3920	0.0900	781.70	75947	1.7435	785.30	616200	14.146	788.90	1960941	45.017
778.20	4574	0.1050	781.80	79453	1.8240	785.40	642641	14.753	789.00	2000929	45.935
778.30	5227	0.1200	781.90	82960	1.9045	785.50	669082	15.360	789.10	2040917	46.853
778.40	5881	0.1350	782.00	86467	1.9850	785.60	695523	15.967	789.20	2080905	47.771
778.50	6534	0.1500	782.10	95767	2.1985	785.70	721963	16.574	789.30	2120893	48.689
778.60	7187	0.1650	782.20	105067	2.4120	785.80	748404	17.181	789.40	2160881	49.607
778.70	7841	0.1800	782.30	114367	2.6255	785.90	774845	17.788	789.50	2200869	50.525
778.80	8494	0.1950	782.40	123667	2.8390	786.00	801286	18.395	789.60	2240857	51.443
778.90	9148	0.2100	782.50	132967	3.0525	786.10	841274	19.313	789.70	2280845	52.361
779.00	9801	0.2250	782.60	142267	3.2660	786.20	881262	20.231	789.80	2320833	53.279
779.10	10454	0.2400	782.70	151567	3.4795	786.30	921250	21.149	789.90	2360821	54.197
779.20	11108	0.2550	782.80	160867	3.6930	786.40	961239	22.067	790.00	2400809	55.115
779.30	11761	0.2700	782.90	170167	3.9065	786.50	1001227	22.985	790.10	2440797	56.033
779.40	12415	0.2850	783.00	179467	4.1200	786.60	1041215	23.903	790.20	2480786	56.951
779.50	13068	0.3000	783.10	188767	4.3335	786.70	1081203	24.821	790.30	2520774	57.869
779.60	13721	0.3150	783.20	198067	4.5470	786.80	1121191	25.739	790.40	2560762	58.787
779.70	14375	0.3300	783.30	207367	4.7605	786.90	1161179	26.657	790.50	2600750	59.705
779.80	15028	0.3450	783.40	216667	4.9740	787.00	1201167	27.575	790.60	2640738	60.623
779.90	15682	0.3600	783.50	225967	5.1875	787.10	1241155	28.493	790.70	2680726	61.541

780.00	16335	0.3750	783.60	235268	5.4010	787.20	1281143	29.411	790.80	2720714	62.459
780.10	19842	0.4555	783.70	244568	5.6145	787.30	1321131	30.329	790.90	2760702	63.377
780.20	23348	0.5360	783.80	253868	5.8280	787.40	1361119	31.247	791.00	2800690	64.295
780.30	26855	0.6165	783.90	263168	6.0415	787.50	1401107	32.165	791.10	2840678	65.213
780.40	30361	0.6970	784.00	272468	6.2550	787.60	1441095	33.083	791.20	2880666	66.131
780.50	33868	0.7775	784.10	298909	6.8620	787.70	1481084	34.001	791.30	2920654	67.049
780.60	37374	0.8580	784.20	325350	7.4690	787.80	1521072	34.919	791.40	2960642	67.967
780.70	40881	0.9385	784.30	351791	8.0760	787.90	1561060	35.837	791.50	3000631	68.885
780.80	44388	1.0190	784.40	378231	8.6830	788.00	1601048	36.755	791.50	3000631	68.885
780.90	47894	1.0995	784.50	404672	9.2900	788.10	1641036	37.673			
781.00	51401	1.1800	784.60	431113	9.8970	788.20	1681024	38.591			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. cnty_p3

Description: Dredge 777.5 retain to 782.5

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
777.50	0.0000	0.0000	780.10	1787441	41.034	782.70	4000463	91.838	785.30	6213485	142.64
777.60	42558	0.9770	780.20	1872557	42.988	782.80	4085580	93.792	785.40	6298602	144.60
777.70	85116	1.9540	780.30	1957674	44.942	782.90	4170696	95.746	785.50	6383718	146.55
777.80	127674	2.9310	780.40	2042790	46.896	783.00	4255812	97.700	785.60	6468834	148.50
777.90	170232	3.9080	780.50	2127906	48.850	783.10	4340928	99.654	785.70	6553950	150.46
778.00	212791	4.8850	780.60	2213022	50.804	783.20	4426044	101.61	785.80	6639067	152.41
778.10	255349	5.8620	780.70	2298138	52.758	783.30	4511161	103.56	785.90	6724183	154.37
778.20	297907	6.8390	780.80	2383255	54.712	783.40	4596277	105.52	786.00	6809299	156.32
778.30	340465	7.8160	780.90	2468371	56.666	783.50	4681393	107.47	786.10	6894415	158.27
778.40	383023	8.7930	781.00	2553487	58.620	783.60	4766509	109.42	786.20	6979532	160.23
778.50	425581	9.7700	781.10	2638603	60.574	783.70	4851626	111.38	786.30	7064648	162.18
778.60	510697	11.724	781.20	2723720	62.528	783.80	4936742	113.33	786.40	7149764	164.14
778.70	595814	13.678	781.30	2808836	64.482	783.90	5021858	115.29	786.50	7234880	166.09
778.80	680930	15.632	781.40	2893952	66.436	784.00	5106974	117.24	786.60	7319997	168.04
778.90	766046	17.586	781.50	2979068	68.390	784.10	5192091	119.19	786.70	7405113	170.00
779.00	851162	19.540	781.60	3064185	70.344	784.20	5277207	121.15	786.80	7490229	171.95
779.10	936279	21.494	781.70	3149301	72.298	784.30	5362323	123.10	786.90	7575345	173.91
779.20	1021395	23.448	781.80	3234417	74.252	784.40	5447439	125.06	787.00	7660462	175.86
779.30	1106511	25.402	781.90	3319533	76.206	784.50	5532556	127.01	787.10	7745578	177.81
779.40	1191627	27.356	782.00	3404650	78.160	784.60	5617672	128.96	787.20	7830694	179.77
779.50	1276744	29.310	782.10	3489766	80.114	784.70	5702788	130.92	787.30	7915810	181.72
779.60	1361860	31.264	782.20	3574882	82.068	784.80	5787904	132.87	787.40	8000927	183.68
779.70	1446976	33.218	782.30	3659998	84.022	784.90	5873021	134.83	787.50	8086043	185.63
779.80	1532092	35.172	782.40	3745115	85.976	785.00	5958137	136.78	787.50	8086043	185.63
779.90	1617209	37.126	782.50	3830231	87.930	785.10	6043253	138.73			
780.00	1702325	39.080	782.60	3915347	89.884	785.20	6128369	140.69			

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North Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. cnty_p4

Description: Dredge 777.5 retain to 786.0

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
777.50	0.0000	0.0000	779.70	1446976	33.218	781.90	3319533	76.206	784.10	5217490	119.78
777.60	42558	0.9770	779.80	1532092	35.172	782.00	3404650	78.160	784.20	5318507	122.10
777.70	85116	1.9540	779.90	1617209	37.126	782.10	3489766	80.114	784.30	5419523	124.42
777.80	127674	2.9310	780.00	1702325	39.080	782.20	3574882	82.068	784.40	5520539	126.73
777.90	170232	3.9080	780.10	1787441	41.034	782.30	3659998	84.022	784.50	5621555	129.05
778.00	212791	4.8850	780.20	1872557	42.988	782.40	3745115	85.976	784.60	5722571	131.37
778.10	255349	5.8620	780.30	1957674	44.942	782.50	3830231	87.930	784.70	5823588	133.69
778.20	297907	6.8390	780.40	2042790	46.896	782.60	3915347	89.884	784.80	5924604	136.01
778.30	340465	7.8160	780.50	2127906	48.850	782.70	4000463	91.838	784.90	6025620	138.33
778.40	383023	8.7930	780.60	2213022	50.804	782.80	4085580	93.792	785.00	6126636	140.65
778.50	425581	9.7700	780.70	2298138	52.758	782.90	4170696	95.746	785.10	6227652	142.97
778.60	510697	11.724	780.80	2383255	54.712	783.00	4255812	97.700	785.20	6328669	145.29
778.70	595814	13.678	780.90	2468371	56.666	783.10	4340928	99.654	785.30	6429685	147.61
778.80	680930	15.632	781.00	2553487	58.620	783.20	4426044	101.61	785.40	6530701	149.92
778.90	766046	17.586	781.10	2638603	60.574	783.30	4511161	103.56	785.50	6631717	152.24
779.00	851162	19.540	781.20	2723720	62.528	783.40	4596277	105.52	785.60	6732733	154.56
779.10	936279	21.494	781.30	2808836	64.482	783.50	4681393	107.47	785.70	6833750	156.88
779.20	1021395	23.448	781.40	2893952	66.436	783.60	4768409	109.47	785.80	6934766	159.20
779.30	1106511	25.402	781.50	2979068	68.390	783.70	4855426	111.47	785.90	7035782	161.52
779.40	1191627	27.356	781.60	3064185	70.344	783.80	4942442	113.46	786.00	7136798	163.84
779.50	1276744	29.310	781.70	3149301	72.298	783.90	5029458	115.46	786.00	7136798	163.84
779.60	1361860	31.264	781.80	3234417	74.252	784.00	5116474	117.46			

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Elwood-Wilson

North Basin

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DISCHARGE STRUCTURE LIST

INLET CONTROL CULVERT ID No. 24in
Description: 24in outlet
Diameter (ft): 2.00 Entrance type: 4
Length (ft) : 50.00 Invert Elev : 777.50
Slope (ft/ft): 0.0050 No. of Clvrts: 1
Mannings n : 0.0120 Max Ponding el:786.00
Stg-Dis Increment : 0.10

INLET CONTROL CULVERT ID No. 30in
Description: 30in outlet
Diameter (ft): 2.50 Entrance type: 4
Length (ft) : 50.00 Invert Elev : 777.50
Slope (ft/ft): 0.0050 No. of Clvrts: 1
Mannings n : 0.0120 Max Ponding el:786.00
Stg-Dis Increment : 0.10

INLET CONTROL CULVERT ID No. 36in
Description: 36in outlet
Diameter (ft): 3.00 Entrance type: 4
Length (ft) : 50.00 Invert Elev : 777.50
Slope (ft/ft): 0.0050 No. of Clvrts: 1
Mannings n : 0.0120 Max Ponding el:786.00
Stg-Dis Increment : 0.10

INLET CONTROL CULVERT ID No. 48in
Description: 48in outlet
Diameter (ft): 4.00 Entrance type: 4
Length (ft) : 50.00 Invert Elev : 777.50
Slope (ft/ft): 0.0050 No. of Clvrts: 1
Mannings n : 0.0120 Max Ponding el:786.00
Stg-Dis Increment : 0.10

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Elwood-Wilson
North Basin
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DISCHARGE STRUCTURE LIST

OVERFLOW WEIR ID No. EWN1POND
Description: Basin EWN-1 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 810.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN2POND
Description: Basin EWN-2 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 810.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN3aPND
Description: EWN-3a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 804.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN3bPND
Description: EWN-3b pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 802.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN4POND
Description: EWN-4 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 802.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN5POND
Description: EWN-5 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 802.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN6aPND
Description: EWN-6a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 800.50 ft. Weir Increm: 0.10

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Elwood-Wilson
North Basin
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DISCHARGE STRUCTURE LIST

OVERFLOW WEIR ID No. EWN6bPND
Description: EWN-6b pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 800.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN7POND
Description: EWN-7 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 796.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN8aPND
Description: EWN-8a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 794.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN9POND
Description: EWN-9 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 796.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN10PND
Description: EWN-10 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 796.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN11PND
Description: EWN-11 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 792.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN12aPD
Description: EWN-12a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 792.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN12bPD
Description: EWN-12b pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 790.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN13aPD
Description: EWN-13a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 790.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWN13bPD
Description: EWN-13b pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 786.50 ft. Weir Increm: 0.10

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

INLET CONTROL CULVERT ID No. 30in

Description: 30in outlet

Diameter (ft): 2.50 Entrance type: 4

Length (ft) : 50.00 Invert Elev : 777.50

Slope (ft/ft): 0.0050 No. of Clvrts: 1

Mannings n : 0.0120 Max Ponding el:786.00

Stg-Dis Increment : 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
777.50	0.0000	779.70	18.348	781.90	52.768	784.10	67.721
777.60	0.1541	779.80	19.659	782.00	53.538	784.20	68.323
777.70	0.3083	779.90	20.962	782.10	54.297	784.30	68.920
777.80	0.4624	780.00	22.247	782.20	55.046	784.40	69.511
777.90	1.0533	780.10	23.506	782.30	55.785	784.50	70.098
778.00	1.6704	780.20	24.734	782.40	56.515	784.60	70.679
778.10	2.3159	780.30	25.928	782.50	57.235	784.70	71.256
778.20	2.9922	780.40	27.085	782.60	57.946	784.80	71.829
778.30	3.7018	780.50	28.206	782.70	58.648	784.90	72.397
778.40	4.4477	780.60	29.290	782.80	59.342	785.00	72.960
778.50	5.2327	780.70	30.340	782.90	60.028	785.10	73.519
778.60	6.0601	780.80	31.356	783.00	60.706	785.20	74.074
778.70	6.9331	780.90	44.334	783.10	61.377	785.30	74.625
778.80	7.8545	781.00	45.248	783.20	62.041	785.40	75.171
778.90	8.8272	781.10	46.144	783.30	62.697	785.50	75.714
779.00	9.8531	781.20	47.023	783.40	63.347	785.60	76.253
779.10	10.933	781.30	47.886	783.50	63.990	785.70	76.788
779.20	12.067	781.40	48.733	783.60	64.627	785.80	77.320
779.30	13.251	781.50	49.567	783.70	65.257	785.90	77.847
779.40	14.480	781.60	50.386	783.80	65.882	786.00	78.372
779.50	15.746	781.70	51.192	783.90	66.501		
779.60	17.039	781.80	51.986	784.00	67.113		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

INLET CONTROL CULVERT ID No. 48in
Description: 48in outlet
Diameter (ft): 4.00 Entrance type: 4
Length (ft) : 50.00 Invert Elev : 777.50
Slope (ft/ft): 0.0050 No. of Clvrts: 1
Mannings n : 0.0120 Max Ponding el:786.00
Stg-Dis Increment : 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
777.50	0.0000	779.70	27.781	781.90	82.041	784.10	169.74
777.60	0.1426	779.80	29.809	782.00	84.434	784.20	171.48
777.70	0.2853	779.90	31.906	782.10	86.780	784.30	173.21
777.80	0.4279	780.00	34.071	782.20	89.081	784.40	174.91
777.90	0.5705	780.10	36.305	782.30	91.335	784.50	176.60
778.00	1.7322	780.20	38.606	782.40	93.543	784.60	178.28
778.10	2.9249	780.30	40.971	782.50	95.707	784.70	179.94
778.20	4.1500	780.40	43.397	782.60	97.827	784.80	181.58
778.30	5.4092	780.50	45.880	782.70	99.904	784.90	183.21
778.40	6.7043	780.60	48.413	782.80	101.94	785.00	184.82
778.50	8.0371	780.70	50.988	782.90	103.94	785.10	186.42
778.60	9.4097	780.80	53.597	783.00	105.89	785.20	188.01
778.70	10.824	780.90	56.232	783.10	107.81	785.30	189.58
778.80	12.282	781.00	58.882	783.20	109.70	785.40	191.14
778.90	13.787	781.10	61.537	783.30	155.11	785.50	192.69
779.00	15.340	781.20	64.189	783.40	157.02	785.60	194.23
779.10	16.945	781.30	66.829	783.50	158.90	785.70	195.75
779.20	18.602	781.40	69.448	783.60	160.76	785.80	197.26
779.30	20.316	781.50	72.040	783.70	162.59	785.90	198.76
779.40	22.089	781.60	74.600	783.80	164.41	786.00	200.25
779.50	23.922	781.70	77.122	783.90	166.21		
779.60	25.819	781.80	79.603	784.00	167.98		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN1POND

Description: Basin EWN-1 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 810.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
810.50	0.0000	810.70	14.575	810.90	41.641	811.00	58.486
810.60	5.1269	810.80	26.911	811.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN2POND

Description: Basin EWN-2 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 810.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
810.50	0.0000	810.70	14.575	810.90	41.641	811.00	58.486
810.60	5.1269	810.80	26.911	811.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN3aPND

Description: EWN-3a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 804.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
804.50	0.0000	804.70	14.575	804.90	41.641	805.00	58.486
804.60	5.1269	804.80	26.911	805.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN3bPND

Description: EWN-3b pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 802.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
802.50	0.0000	802.70	14.575	802.90	41.641	803.00	58.486
802.60	5.1269	802.80	26.911	803.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN4POND

Description: EWN-4 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 802.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
802.50	0.0000	802.70	14.575	802.90	41.641	803.00	58.486
802.60	5.1269	802.80	26.911	803.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN5POND

Description: EWN-5 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 802.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
802.50	0.0000	802.70	14.575	802.90	41.641	803.00	58.486
802.60	5.1269	802.80	26.911	803.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN6aPND

Description: EWN-6a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 800.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
800.50	0.0000	800.70	14.575	800.90	41.641	801.00	58.486
800.60	5.1269	800.80	26.911	801.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN6bPND

Description: EWN-6b pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 800.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
800.50	0.0000	800.70	14.575	800.90	41.641	801.00	58.486
800.60	5.1269	800.80	26.911	801.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN7POND

Description: EWN-7 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 796.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
796.50	0.0000	796.70	14.575	796.90	41.641	797.00	58.486
796.60	5.1269	796.80	26.911	797.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN8aPND

Description: EWN-8a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 794.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
794.50	0.0000	794.70	14.575	794.90	41.641	795.00	58.486
794.60	5.1269	794.80	26.911	795.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN9POND

Description: EWN-9 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 796.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
796.50	0.0000	796.70	14.575	796.90	41.641	797.00	58.486
796.60	5.1269	796.80	26.911	797.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

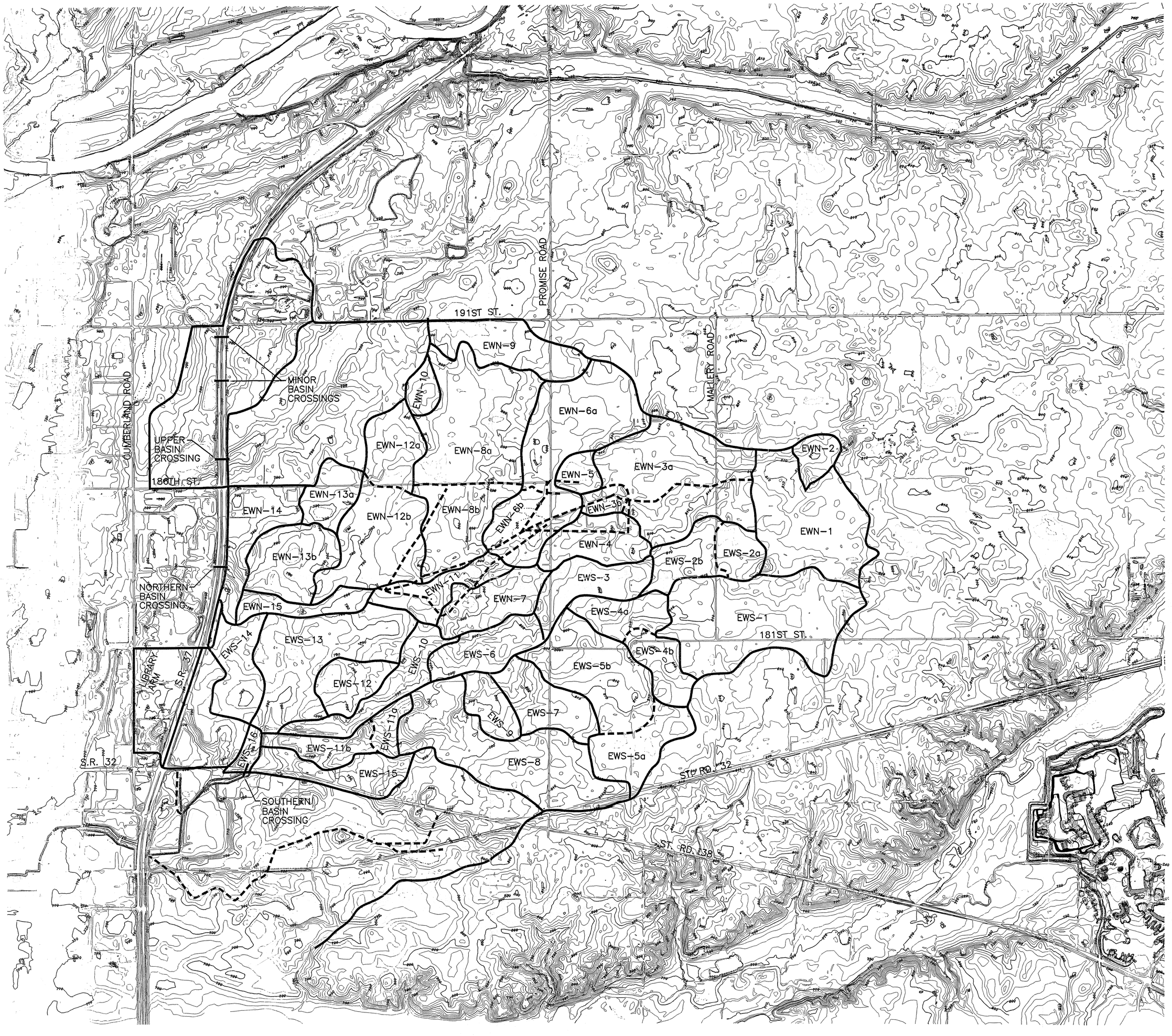
OVERFLOW WEIR ID No. EWN10PND

Description: EWN-10 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 796.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
796.50	0.0000	796.70	14.575	796.90	41.641	797.00	58.486
796.60	5.1269	796.80	26.911	797.00	58.486		



DLZ

ELWOOD-WILSON

APPROXIMATE SCALE: 1"=600'

EXHIBIT 1

12/20/01 10:55:33 am Shareware Release

Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN11PND
Description: EWN-11 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 792.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
792.50	0.0000	792.70	14.575	792.90	41.641	793.00	58.486
792.60	5.1269	792.80	26.911	793.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN12aPD

Description: EWN-12a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 792.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
792.50	0.0000	792.70	14.575	792.90	41.641	793.00	58.486
792.60	5.1269	792.80	26.911	793.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN12bPD

Description: EWN-12b pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 790.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
790.50	0.0000	790.70	14.575	790.90	41.641	791.00	58.486
790.60	5.1269	790.80	26.911	791.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN13aPD

Description: EWN-13a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 790.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
790.50	0.0000	790.70	14.575	790.90	41.641	791.00	58.486
790.60	5.1269	790.80	26.911	791.00	58.486		

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Elwood-Wilson

North Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWN13bPD
Description: EWN-13b pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 786.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
786.50	0.0000	786.70	14.575	786.90	41.641	787.00	58.486
786.60	5.1269	786.80	26.911	787.00	58.486		

Elwood-Wilson

North Basin - Sub-basin level pool routing

LEVEL POOL TABLE SUMMARY

<--------DESCRIPTION--------->	MATCH (cfs)	INFLOW (cfs)	-STO- -id-	-DIS- -id-	<-PEAK-> <-STAGE>	id	OUTFLOW (cfs)	STORAGE VOL (cf)
EWN1 bsn thru pond1	0.00	20.59	EWN1POND	EWN1POND	810.67	1	12.18	3.6988 ac-ft
EWN2 bsn thru pond2	0.00	3.32	EWN2POND	EWN2POND	810.56	2	2.97	11614.13 cf
EWN3a bsn thru pnd3a	0.00	26.66	EWN3aPND	EWN3aPND	804.56	3	2.86	6.2452 ac-ft
EWN3b bsn thru pnd3b	0.00	2.05	EWN3bPND	EWN3bPND	802.53	4	1.34	11157.04 cf
EWN4 bsn thru pond4	0.00	8.68	EWN4POND	EWN4POND	802.38	5	0.00	87696.13 cf
EWN5 bsn thru pond5	0.00	3.00	EWN5POND	EWN5POND	802.12	6	0.00	30153.25 cf
EWN6a bsn thru pnd6a	0.00	18.20	EWN6aPND	EWN6aPND	800.73	7	17.68	45028.07 cf
EWN6b bsn thru pnd6b	0.00	10.36	EWN6bPND	EWN6bPND	800.35	8	0.00	2.4148 ac-ft
EWN7 bsn thru pond7	0.00	9.12	EWN7POND	EWN7POND	796.58	9	4.20	82328.78 cf
EWN8a bsn thru pnd8a	0.00	24.49	EWN8aPND	EWN8aPND	794.73	10	18.38	96986.99 cf
EWN9 bsn thru pond9	0.00	11.63	EWN9POND	EWN9POND	796.61	11	5.67	93559.16 cf
EWN10 bsn thru pnd10	0.00	4.69	EWN10PND	EWN10PND	794.93	12	0.00	49195.05 cf
EWN11 bsn thru pnd11	0.00	7.95	EWN11PND	EWN11PND	792.63	13	7.86	16845.67 cf
EWN12a thru pond12a	0.00	7.89	EWN12aPD	EWN12aPD	792.60	14	5.52	33859.44 cf
EWN12b thru pond12b	0.00	16.08	EWN12bPD	EWN12bPD	790.71	15	15.95	7117.54 cf
EWN13a thru pond13a	0.00	6.11	EWN13aPD	EWN13aPD	788.88	16	0.00	61642.32 cf
EWN13b thru pond13b	0.00	11.27	EWN13bPD	EWN13bPD	785.85	17	0.00	2.6381 ac-ft

Elwood-Wilson

North Basin - Proposed County Parcel Detention Facility

LEVEL POOL TABLE SUMMARY

<--------DESCRIPTION--------->	MATCH (cfs)	INFLOW (cfs)	-STO- -id-	-DIS- -id-	<-PEAK-> <-STAGE>	id	OUTFLOW (cfs)	STORAGE VOL (cf)
county_parcel_3-30in outlet.....	73.83	404.00	cnty_p3	30in	782.87	1	59.83	95.1738 ac-ft
county_parcel_4-30in outlet.....	73.83	404.00	cnty_p4	30in	782.87	2	59.83	95.1738 ac-ft
county_parcel_3-48in outlet.....	73.83	404.00	cnty_p3	48in	782.49	3	95.45	87.6936 ac-ft
county_parcel_4-48in outlet.....	73.83	404.00	cnty_p4	48in	782.49	4	95.45	87.6936 ac-ft
county_parcel_2-48in outlet.....	73.83	404.00	cnty_p2	48in	787.86	5	226.18	35.4827 ac-ft

South Basin Summary

Basin I.D.	Basin Area (Acres)	Flowpath Length (Lft)	Time of Concentration (Minutes)	Depressional Storage Area (ft2)	Contour Elevation (ft)
EWS-1	91.42	3556.0	78.30	N/A	N/A
EWS-2a	15.43	775.0	17.88	47916.00	812.0
EWS-2b	18.02	1222.0	30.24	N/A	N/A
EWS-3	27.77	1222.0	22.20	N/A	N/A
EWS-4a	19.87	800.0	21.66	28749.60	810.0
EWS-4b	17.56	800.0	17.10	N/A	N/A
EWS-5a	25.64	1480.0	35.04	67082.40	806.0
EWS-5b	52.89	2460.0	45.42	N/A	N/A
EWS-6	24.49	1251.0	25.32	N/A	N/A
EWS-7	27.36	2016.0	29.70	N/A	N/A
EWS-8a	68.02	3775.0	62.58	81457.20	790.0
EWS-8b	11.30	915.0	34.38	N/A	N/A
EWS-9	12.45	1311.0	24.12	N/A	N/A
EWS-10	31.66	1013.0	18.18	N/A	N/A
EWS-11a	7.86	460.0	11.22	19166.40	792.0
EWS-11b	14.80	575.0	15.96	N/A	N/A
EWS-12	18.55	1251.0	22.68	35283.60	784.0
EWS-13	65.42	3318.0	54.06	N/A	N/A
EWS-14	25.53	1600.0	33.96	41817.60	780.0
EWS-15	26.54	2921.0	42.36	N/A	N/A
EWS-16	5.10	300.0	9.72	N/A	N/A

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-1 L = 3556 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0183			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.206	+	=	0.206

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	3256			
9	Watercourse Slope, s		ft/ft	0.0026			
10	Average velocity, V (figure 3-1)		ft/s	0.82			
11	$T_t = L/3600V$	Compute T_t	hr	1.099	+	=	1.099

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	1.305

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-2a L= 775 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0383			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.153	+	=	0.153

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	475			
9	Watercourse Slope, s		ft/ft	0.0032			
10	Average velocity, V (figure 3-1)		ft/s	0.91			
11	$T_t = L/3600V$	Compute T_t	hr	0.145	+	=	0.145

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.298

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-2b L= 1222 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.01			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.262	+	=	0.262

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	922			
9	Watercourse Slope, s		ft/ft	0.0043			
10	Average velocity, V (figure 3-1)		ft/s	1.06			
11	$T_t = L/3600V$	Compute T_t	hr	0.242	+	=	0.242

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.504

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-3 L = 1222 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID		1				
1	Surface description (table 3-1)				Cultivated <20% Residue				
2	Manning's roughness coeff., n (table 3-1)				0.06				
3	Flow Length, L (total <= 300 ft)			ft	300				
4	Two-yr 24-hr rainfall, P_2			in	2.9				
5	Land slope, s			ft/ft	0.0283				
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t		hr	0.173	+		=	0.173

Shallow concentrated flow			Segment ID		1				
7	Surface description (paved or unpaved)				Unpaved				
8	Flow Length, L			ft	922				
9	Watercourse Slope, s			ft/ft	0.0065				
10	Average velocity, V (figure 3-1)			ft/s	1.30				
11	$T_t = L/3600V$	Compute T_t		hr	0.197	+		=	0.197

Channel flow			Segment ID						
12	Cross sectional flow area, a			ft^2					
13	Wetted perimeter, P_w			ft					
14	Hydraulic radius, $r = a/P_w$			ft					
15	Cannel slope, s			ft/ft					
16	Manning's roughness coeff., n								
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V		ft/s					
18	Flow Length, L			ft					
19	$T_t = L/3600V$	Compute T_t		hr		+		=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)							hr	0.370

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-4a L = 800 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.0125			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.240	+	=	0.240

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	500			
9	Watercourse Slope, s		ft/ft	0.005			
10	Average velocity, V (figure 3-1)		ft/s	1.14			
11	$T_t = L/3600V$	Compute T_t	hr	0.122	+	=	0.122

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.361

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-4b L = 800 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.02			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.198	+	=	0.198

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	500			
9	Watercourse Slope, s		ft/ft	0.01			
10	Average velocity, V (figure 3-1)		ft/s	1.61			
11	$T_t = L/3600V$	Compute T_t	hr	0.086	+	=	0.086

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.285

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-5a L = 1480 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1180			
9	Watercourse Slope, s		ft/ft	0.0034			
10	Average velocity, V (figure 3-1)		ft/s	0.94			
11	$T_t = L/3600V$	Compute T_t	hr	0.348	+	=	0.348

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.584

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-5b L = 2460 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	2160			
9	Watercourse Slope, s		ft/ft	0.0051			
10	Average velocity, V (figure 3-1)		ft/s	1.15			
11	$T_t = L/3600V$	Compute T_t	hr	0.521	+	=	0.521

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.757

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-6 L = 1251 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.01			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.262	+	=	0.262

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	951			
9	Watercourse Slope, s		ft/ft	0.0105			
10	Average velocity, V (figure 3-1)		ft/s	1.65			
11	$T_t = L/3600V$	Compute T_t	hr	0.160	+	=	0.160

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.422

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-7 L = 2016 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.02			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.198	+	=	0.198

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1716			
9	Watercourse Slope, s		ft/ft	0.0099			
10	Average velocity, V (figure 3-1)		ft/s	1.61			
11	$T_t = L/3600V$	Compute T_t	hr	0.297	+	=	0.297

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.495

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-8a L = 3775 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	3475			
9	Watercourse Slope, s		ft/ft	0.0055			
10	Average velocity, V (figure 3-1)		ft/s	1.20			
11	T_t = L/3600V	Compute T_t	hr	0.807	+	=	0.807

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	T_t = L/3600V	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	1.043

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-8b L = 915 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1				
1	Surface description (table 3-1)			Cultivated <20% Residue				
2	Manning's roughness coeff., n (table 3-1)			0.06				
3	Flow Length, L (total <= 300 ft)		ft	300				
4	Two-yr 24-hr rainfall, P_2		in	2.9				
5	Land slope, s		ft/ft	0.0033				
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.408	+		=	0.408

Shallow concentrated flow			Segment ID	1				
7	Surface description (paved or unpaved)			Unpaved				
8	Flow Length, L		ft	615				
9	Watercourse Slope, s		ft/ft	0.0041				
10	Average velocity, V (figure 3-1)		ft/s	1.03				
11	$T_t = L/3600V$	Compute T_t	hr	0.165	+		=	0.165

Channel flow			Segment ID					
12	Cross sectional flow area, a		ft^2					
13	Wetted perimeter, P_w		ft					
14	Hydraulic radius, $r = a/P_w$		ft					
15	Cannel slope, s		ft/ft					
16	Manning's roughness coeff., n							
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s					
18	Flow Length, L		ft					
19	$T_t = L/3600V$	Compute T_t	hr		+		=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)						hr	0.573

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-9 L = 1311 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.012			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.243	+	=	0.243

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1011			
9	Watercourse Slope, s		ft/ft	0.012			
10	Average velocity, V (figure 3-1)		ft/s	1.77			
11	$T_t = L/3600V$	Compute T_t	hr	0.159	+	=	0.159

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.402

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-10 L = 1013 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.03			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.169	+	=	0.169

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	713			
9	Watercourse Slope, s		ft/ft	0.0084			
10	Average velocity, V (figure 3-1)		ft/s	1.48			
11	$T_t = L/3600V$	Compute T_t	hr	0.134	+	=	0.134

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.303

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-11a L = 460 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.033			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.162	+	=	0.162

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	160			
9	Watercourse Slope, s		ft/ft	0.0125			
10	Average velocity, V (figure 3-1)		ft/s	1.8			
11	$T_t = L/3600V$	Compute T_t	hr	0.025	+	=	0.025

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.187

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-11b L = 575 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.013			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.236	+	=	0.236

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	275			
9	Watercourse Slope, s		ft/ft	0.025			
10	Average velocity, V (figure 3-1)		ft/s	2.6			
11	$T_t = L/3600V$	Compute T_t	hr	0.030	+	=	0.030

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.266

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-12 L = 1251 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.02			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.198	+	=	0.198

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	951			
9	Watercourse Slope, s		ft/ft	0.0083			
10	Average velocity, V (figure 3-1)		ft/s	1.47			
11	$T_t = L/3600V$	Compute T_t	hr	0.180	+	=	0.180

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.378

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-13 L = 3318 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.023			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\, s^{0.4}$	Compute T_t	hr	0.188	+	=	0.188

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	3018			
9	Watercourse Slope, s		ft/ft	0.0053			
10	Average velocity, V (figure 3-1)		ft/s	1.17			
11	$T_t = L/3600V$	Compute T_t	hr	0.714	+	=	0.714

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\, r^{2/3}\, s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.901

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-14 L = 1600 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.01			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.262	+	=	0.262

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	1300			
9	Watercourse Slope, s		ft/ft	0.0054			
10	Average velocity, V (figure 3-1)		ft/s	1.19			
11	$T_t = L/3600V$	Compute T_t	hr	0.305	+	=	0.305

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.566

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-15 L = 2921 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.033			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.162	+	=	0.162

Shallow concentrated flow			Segment ID	1			
7	Surface description (paved or unpaved)			Unpaved			
8	Flow Length, L		ft	2621			
9	Watercourse Slope, s		ft/ft	0.0069			
10	Average velocity, V (figure 3-1)		ft/s	1.34			
11	$T_t = L/3600V$	Compute T_t	hr	0.543	+	=	0.543

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.706

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 3: Time of concentration (T_c) or travel time (T_t)

Project	Elwood - Wilson	By:	BAD	Date	12/11/01
Location	NE of SR 37 & SR 32 Intersection	Checked:		Date	

Circle One: Present Developed

Circle One: T_c T_t through subarea Basin EWS-16 L = 300 ft

NOTES: Space for as many as two segments per flow type can be used for each worksheet
Include a map, schematic, or description of flow segments

Sheet Flow (Applicable to Tc only)			Segment ID	1			
1	Surface description (table 3-1)			Cultivated <20% Residue			
2	Manning's roughness coeff., n (table 3-1)			0.06			
3	Flow Length, L (total <= 300 ft)		ft	300			
4	Two-yr 24-hr rainfall, P_2		in	2.9			
5	Land slope, s		ft/ft	0.033			
6	$T_t = 0.007(nL)^{0.8}/P_2^{0.5}\ s^{0.4}$	Compute T_t	hr	0.162	+	=	0.162

Shallow concentrated flow			Segment ID				
7	Surface description (paved or unpaved)						
8	Flow Length, L		ft				
9	Watercourse Slope, s		ft/ft				
10	Average velocity, V (figure 3-1)		ft/s				
11	$T_t = L/3600V$	Compute T_t	hr		+	=	

Channel flow			Segment ID				
12	Cross sectional flow area, a		ft^2				
13	Wetted perimeter, P_w		ft				
14	Hydraulic radius, $r = a/P_w$		ft				
15	Cannel slope, s		ft/ft				
16	Manning's roughness coeff., n						
17	$V=1.49\ r^{2/3}\ s^{1/2}/n$	Compute V	ft/s				
18	Flow Length, L		ft				
19	$T_t = L/3600V$	Compute T_t	hr		+	=	
20	Watershed or subarea T_c or T_t (add T_t I steps 6, 11, and 19)					hr	0.162

(210-VI-TR-55, Second Ed., June 1986)

12/20/01 12:39:7 am Shareware Release
Elwood-Wilson
South Basin

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BASIN SUMMARY

BASIN ID: EWS-1-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 91.42 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 91.42 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 78.30 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 25.87 cfs VOL: 7.15 Ac-ft TIME: 210 min

BASIN ID: EWS-2a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 15.43 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 15.43 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 17.88 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 5.26 cfs VOL: 1.22 Ac-ft TIME: 170 min

BASIN ID: EWS-2b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 18.02 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 18.02 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 30.24 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 6.04 cfs VOL: 1.42 Ac-ft TIME: 180 min

BASIN ID: EWS-3-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 27.77 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 27.77 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 22.20 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 9.40 cfs VOL: 2.19 Ac-ft TIME: 180 min

BASIN ID: EWS-4a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 19.88 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 19.88 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 21.66 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 6.73 cfs VOL: 1.57 Ac-ft TIME: 170 min

12/20/01 12:39:7 am Shareware Release

Elwood-Wilson

South Basin

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BASIN SUMMARY

BASIN ID: EWS-4b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 17.56 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 17.56 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 17.10 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 5.99 cfs VOL: 1.39 Ac-ft TIME: 170 min

BASIN ID: EWS-5a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 25.64 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 25.64 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 35.04 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 8.49 cfs VOL: 2.02 Ac-ft TIME: 180 min

BASIN ID: EWS-5b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 45.42 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 45.42 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 25.32 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 15.34 cfs VOL: 3.59 Ac-ft TIME: 180 min

BASIN ID: EWS-6-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 24.49 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 24.49 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 25.32 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 8.27 cfs VOL: 1.94 Ac-ft TIME: 180 min

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BASIN SUMMARY

BASIN ID: EWS-7-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 27.36 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 27.36 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 29.70 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 9.18 cfs VOL: 2.15 Ac-ft TIME: 180 min

BASIN ID: EWS-8a-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 68.02 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 68.02 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 62.58 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 20.46 cfs VOL: 5.31 Ac-ft TIME: 200 min

BASIN ID: EWS-8b-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 11.30 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 11.30 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 34.38 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 3.75 cfs VOL: 0.89 Ac-ft TIME: 180 min

BASIN ID: EWS-9-B NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.....: 12.45 Acres BASEFLOWS: 0.00 cfs
RAINFALL TYPE....: HUFF6 PERV IMP
PRECIPITATION....: 3.13 inches AREA..: 12.45 Acres 0.00 Acres
TIME INTERVAL....: 10.00 min CN....: 74.00 0.00
TC....: 24.12 min 0.00 min
ABSTRACTION COEFF: 0.20
PEAK RATE: 4.21 cfs VOL: 0.99 Ac-ft TIME: 180 min

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BASIN SUMMARY

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BASIN ID: EWS-10-B       NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.......:  31.66 Acres     BASEFLOWS:   0.00 cfs
RAINFALL TYPE....:     HUFF6                     PERV          IMP
PRECIPITATION....:   3.13 inches    AREA..:    31.66 Acres    0.00 Acres
TIME INTERVAL....:     10.00 min    CN....:    74.00          0.00
                                    TC....:    18.18 min     0.00 min
ABSTRACTION COEFF:   0.20
PEAK RATE:  10.78 cfs  VOL:   2.50 Ac-ft  TIME:    170 min

BASIN ID: EWS-11aB       NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.......:   7.86 Acres     BASEFLOWS:   0.00 cfs
RAINFALL TYPE....:     HUFF6                     PERV          IMP
PRECIPITATION....:   3.13 inches    AREA..:     7.86 Acres    0.00 Acres
TIME INTERVAL....:     10.00 min    CN....:    74.00          0.00
                                    TC....:    11.22 min     0.00 min
ABSTRACTION COEFF:   0.20
PEAK RATE:   2.72 cfs  VOL:   0.62 Ac-ft  TIME:    160 min

BASIN ID: EWS-11bB       NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.......:  14.80 Acres     BASEFLOWS:   0.00 cfs
RAINFALL TYPE....:     HUFF6                     PERV          IMP
PRECIPITATION....:   3.13 inches    AREA..:    14.80 Acres    0.00 Acres
TIME INTERVAL....:     10.00 min    CN....:    74.00          0.00
                                    TC....:    15.96 min     0.00 min
ABSTRACTION COEFF:   0.20
PEAK RATE:   5.05 cfs  VOL:   1.17 Ac-ft  TIME:    170 min

BASIN ID: EWS-12-B       NAME: 10-6
SCS METHODOLOGY
TOTAL AREA.......:  18.55 Acres     BASEFLOWS:   0.00 cfs
RAINFALL TYPE....:     HUFF6                     PERV          IMP
PRECIPITATION....:   3.13 inches    AREA..:    18.55 Acres    0.00 Acres
TIME INTERVAL....:     10.00 min    CN....:    74.00          0.00
                                    TC....:    22.68 min     0.00 min
ABSTRACTION COEFF:   0.20
PEAK RATE:   6.27 cfs  VOL:   1.47 Ac-ft  TIME:    180 min
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BASIN SUMMARY

BASIN ID: EWS-13-A NAME: 2-6
SCS METHODOLOGY

TOTAL AREA.....:	65.42 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	HUFF6		PERV	IMP
PRECIPITATION....:	2.17 inches	AREA..:	65.42 Acres	0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	74.00	0.00
		TC....:	54.06 min	0.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 8.47 cfs VOL: 2.22 Ac-ft TIME: 200 min

BASIN ID: EWS-14-B NAME: 10-6
SCS METHODOLOGY

TOTAL AREA.....:	25.53 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	HUFF6		PERV	IMP
PRECIPITATION....:	3.13 inches	AREA..:	25.53 Acres	0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	74.00	0.00
		TC....:	33.96 min	0.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 8.49 cfs VOL: 2.02 Ac-ft TIME: 180 min

BASIN ID: EWS-15-B NAME: 10-6
SCS METHODOLOGY

TOTAL AREA.....:	26.54 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	HUFF6		PERV	IMP
PRECIPITATION....:	3.13 inches	AREA..:	26.54 Acres	0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	74.00	0.00
		TC....:	42.36 min	0.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 8.56 cfs VOL: 2.09 Ac-ft TIME: 180 min

BASIN ID: EWS-16-B NAME: 10-6
SCS METHODOLOGY

TOTAL AREA.....:	5.10 Acres	BASEFLOWS:	0.00 cfs	
RAINFALL TYPE....:	HUFF6		PERV	IMP
PRECIPITATION....:	3.13 inches	AREA..:	5.10 Acres	0.00 Acres
TIME INTERVAL....:	10.00 min	CN....:	74.00	0.00
		TC....:	9.72 min	0.00 min

ABSTRACTION COEFF: 0.20
PEAK RATE: 1.78 cfs VOL: 0.40 Ac-ft TIME: 160 min

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HYDROGRAPH SUMMARY

HYD NUM	PEAK RUNOFF RATE cfs	TIME OF PEAK min.	VOLUME OF HYDRO cf\AcFt	Contrib Area Acres
1	21.070	220	261071 cf	83.97
2	26.706	220	317790 cf	109.50
3	121.161	330	1708158 cf	568.58
4	125.889	320	1799180 cf	595.12
6	4.062	240	37447 cf	18.55
7	6.240	230	56720 cf	25.53
8	126.749	320	1816782 cf	600.22
10	19.986	240	209135 cf	79.32
11	26.728	240	318166 cf	110.98
12	94.392	290	1326641 cf	436.42
13	5.047	170	63726 cf	22.66
14	99.195	320	1390367 cf	459.08
16	56.299	260	787256 cf	261.14
17	17.450	180	178275 cf	51.85
18	21.657	180	221220 cf	64.30
19	69.617	270	1008476 cf	325.44

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DETAIL HYDROGRAPH SUMMARY

HYDROGRAPH No. 8
Peak runoff: 126.7494 cfs Total Vol: 41.71 ac-ft

TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)	TIME (min)	DESIGN RUNOFF (cfs)
10		410	88.4110	810		1210		1610	
20		420	81.0891	820		1220		1620	
30		430	73.5198	830		1230		1630	
40		440	65.9725	840		1240		1640	
50		450	58.5884	850		1250		1650	
60		460	51.5160	860		1260		1660	
70		470	44.8446	870		1270		1670	
80	0.0063	480	38.5935	880		1280		1680	
90	0.1787	490	32.4094	890		1290		1690	
100	0.9924	500	26.3030	900		1300		1700	
110	2.5580	510	20.6447	910		1310		1710	
120	4.9849	520	15.6465	920		1320		1720	
130	8.3972	530	11.4538	930		1330		1730	
140	12.7832	540	8.1478	940		1340		1740	
150	18.3437	550	5.6776	950		1350		1750	
160	25.1225	560	3.9016	960		1360		1760	
170	32.8771	570	2.6542	970		1370		1770	
180	41.5297	580	1.7871	980		1380		1780	
190	49.8048	590	1.1840	990		1390		1790	
200	57.8100	600	0.7610	1000		1400		1800	
210	64.9835	610	0.4629	1010		1410		1810	
220	72.9824	620	0.2572	1020		1420		1820	
230	83.6164	630	0.1248	1030		1430		1830	
240	91.3088	640	0.0513	1040		1440		1840	
250	95.8687	650	0.0194	1050		1450		1850	
260	99.2133	660	0.0089	1060		1460		1860	
270	105.0989	670	0.0055	1070		1470		1870	
280	113.9482	680	0.0037	1080		1480		1880	

290	120.7914	690	0.0025	1090	1490	1890
300	124.0151	700	0.0017	1100	1500	1900
310	125.7451	710	0.0011	1110	1510	1910
320	126.7494	720	0.0008	1120	1520	1920
330	126.5497	730	0.0005	1130	1530	1930
340	124.8554	740	0.0004	1140	1540	1940
350	122.3395	750	0.0002	1150	1550	1950
360	118.6472	760	0.0002	1160	1560	1960
370	114.3594	770	0.0001	1170	1570	1970
380	109.0120	780		1180	1580	1980
390	102.6962	790		1190	1590	1990
400	95.7532	800		1200	1600	2000

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STORAGE STRUCTURE LIST

STORAGE LIST ID No. EWS2aPND
Description: EWS-2a depressional storage

STORAGE LIST ID No. EWS4aPND
Description: EWS-4a depressional storage

STORAGE LIST ID No. EWS5aPND
Description: EWS-5a depressional storage

STORAGE LIST ID No. EWS8aPND
Description: EWS-8a depressional storage

STORAGE LIST ID No. EWS11aPD
Description: EWS-11a depressional storage

STORAGE LIST ID No. EWS12PND
Description: EWS-12 depressional storage

STORAGE LIST ID No. EWS14PND
Description: EWS-14 depressional storage

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS2aPND

Description: EWS-2a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
811.50	0.0000	0.0000	813.10	64687	1.4850	814.70	141352	3.2450	816.30	218018	5.0050
811.60	2396	0.0550	813.20	69478	1.5950	814.80	146144	3.3550	816.40	222809	5.1150
811.70	4792	0.1100	813.30	74270	1.7050	814.90	150935	3.4650	816.50	227601	5.2250
811.80	7187	0.1650	813.40	79061	1.8150	815.00	155727	3.5750	816.60	232393	5.3350
811.90	9583	0.2200	813.50	83853	1.9250	815.10	160519	3.6850	816.70	237184	5.4450
812.00	11979	0.2750	813.60	88645	2.0350	815.20	165310	3.7950	816.80	241976	5.5550
812.10	16771	0.3850	813.70	93436	2.1450	815.30	170102	3.9050	816.90	246767	5.6650
812.20	21562	0.4950	813.80	98228	2.2550	815.40	174893	4.0150	817.00	251559	5.7750
812.30	26354	0.6050	813.90	103019	2.3650	815.50	179685	4.1250	817.10	256351	5.8850
812.40	31145	0.7150	814.00	107811	2.4750	815.60	184477	4.2350	817.20	261142	5.9950
812.50	35937	0.8250	814.10	112603	2.5850	815.70	189268	4.3450	817.30	265934	6.1050
812.60	40729	0.9350	814.20	117394	2.6950	815.80	194060	4.4550	817.40	270725	6.2150
812.70	45520	1.0450	814.30	122186	2.8050	815.90	198851	4.5650	817.50	275517	6.3250
812.80	50312	1.1550	814.40	126977	2.9150	816.00	203643	4.6750	817.50	275517	6.3250
812.90	55103	1.2650	814.50	131769	3.0250	816.10	208435	4.7850			
813.00	59895	1.3750	814.60	136561	3.1350	816.20	213226	4.8950			

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS4aPND

Description: EWS-4a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
809.50	0.0000	0.0000	811.10	38812	0.8910	812.70	84811	1.9470	814.30	130811	3.0030
809.60	1437	0.0330	811.20	41687	0.9570	812.80	87686	2.0130	814.40	133686	3.0690
809.70	2875	0.0660	811.30	44562	1.0230	812.90	90561	2.0790	814.50	136561	3.1350
809.80	4312	0.0990	811.40	47437	1.0890	813.00	93436	2.1450	814.60	139436	3.2010
809.90	5750	0.1320	811.50	50312	1.1550	813.10	96311	2.2110	814.70	142311	3.2670
810.00	7187	0.1650	811.60	53187	1.2210	813.20	99186	2.2770	814.80	145185	3.3330
810.10	10062	0.2310	811.70	56062	1.2870	813.30	102061	2.3430	814.90	148060	3.3990
810.20	12937	0.2970	811.80	58937	1.3530	813.40	104936	2.4090	815.00	150935	3.4650
810.30	15812	0.3630	811.90	61812	1.4190	813.50	107811	2.4750	815.10	153810	3.5310
810.40	18687	0.4290	812.00	64687	1.4850	813.60	110686	2.5410	815.20	156685	3.5970
810.50	21562	0.4950	812.10	67562	1.5510	813.70	113561	2.6070	815.30	159560	3.6630
810.60	24437	0.5610	812.20	70437	1.6170	813.80	116436	2.6730	815.40	162435	3.7290
810.70	27312	0.6270	812.30	73311	1.6830	813.90	119311	2.7390	815.50	165310	3.7950
810.80	30187	0.6930	812.40	76186	1.7490	814.00	122186	2.8050	815.50	165310	3.7950
810.90	33062	0.7590	812.50	79061	1.8150	814.10	125061	2.8710			
811.00	35937	0.8250	812.60	81936	1.8810	814.20	127936	2.9370			

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS5aPND

Description: EWS-5a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
805.50	0.0000	0.0000	807.10	90561	2.0790	808.70	197893	4.5430	810.30	305225	7.0070
805.60	3354	0.0770	807.20	97269	2.2330	808.80	204601	4.6970	810.40	311933	7.1610
805.70	6708	0.1540	807.30	103978	2.3870	808.90	211310	4.8510	810.50	318641	7.3150
805.80	10062	0.2310	807.40	110686	2.5410	809.00	218018	5.0050	810.60	325350	7.4690
805.90	13416	0.3080	807.50	117394	2.6950	809.10	224726	5.1590	810.70	332058	7.6230
806.00	16771	0.3850	807.60	124102	2.8490	809.20	231434	5.3130	810.80	338766	7.7770
806.10	23479	0.5390	807.70	130811	3.0030	809.30	238143	5.4670	810.90	345474	7.9310
806.20	30187	0.6930	807.80	137519	3.1570	809.40	244851	5.6210	811.00	352183	8.0850
806.30	36895	0.8470	807.90	144227	3.3110	809.50	251559	5.7750	811.10	358891	8.2390
806.40	43604	1.0010	808.00	150935	3.4650	809.60	258267	5.9290	811.20	365599	8.3930
806.50	50312	1.1550	808.10	157644	3.6190	809.70	264975	6.0830	811.30	372307	8.5470
806.60	57020	1.3090	808.20	164352	3.7730	809.80	271684	6.2370	811.40	379016	8.7010
806.70	63728	1.4630	808.30	171060	3.9270	809.90	278392	6.3910	811.50	385724	8.8550
806.80	70437	1.6170	808.40	177768	4.0810	810.00	285100	6.5450	811.50	385724	8.8550
806.90	77145	1.7710	808.50	184477	4.2350	810.10	291808	6.6990			
807.00	83853	1.9250	808.60	191185	4.3890	810.20	298517	6.8530			

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS8aPND

Description: EWS-8a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
789.50	0.0000	0.0000	791.10	109967	2.5245	792.70	240299	5.5165	794.30	370630	8.5085
789.60	4073	0.0935	791.20	118113	2.7115	792.80	248444	5.7035	794.40	378776	8.6955
789.70	8146	0.1870	791.30	126259	2.8985	792.90	256590	5.8905	794.50	386922	8.8825
789.80	12219	0.2805	791.40	134404	3.0855	793.00	264736	6.0775	794.60	395067	9.0695
789.90	16291	0.3740	791.50	142550	3.2725	793.10	272882	6.2645	794.70	403213	9.2565
790.00	20364	0.4675	791.60	150696	3.4595	793.20	281027	6.4515	794.80	411359	9.4435
790.10	28510	0.6545	791.70	158842	3.6465	793.30	289173	6.6385	794.90	419505	9.6305
790.20	36656	0.8415	791.80	166987	3.8335	793.40	297319	6.8255	795.00	427650	9.8175
790.30	44801	1.0285	791.90	175133	4.0205	793.50	305464	7.0125	795.10	435796	10.004
790.40	52947	1.2155	792.00	183279	4.2075	793.60	313610	7.1995	795.20	443942	10.191
790.50	61093	1.4025	792.10	191424	4.3945	793.70	321756	7.3865	795.30	452087	10.378
790.60	69239	1.5895	792.20	199570	4.5815	793.80	329902	7.5735	795.40	460233	10.565
790.70	77384	1.7765	792.30	207716	4.7685	793.90	338047	7.7605	795.50	468379	10.752
790.80	85530	1.9635	792.40	215862	4.9555	794.00	346193	7.9475	795.50	468379	10.752
790.90	93676	2.1505	792.50	224007	5.1425	794.10	354339	8.1345			
791.00	101821	2.3375	792.60	232153	5.3295	794.20	362485	8.3215			

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS11aPD

Description: EWS-11a depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
791.50	0.0000	0.0000	793.10	25875	0.5940	794.70	56541	1.2980	796.30	87207	2.0020
791.60	958.32	0.0220	793.20	27791	0.6380	794.80	58458	1.3420	796.40	89124	2.0460
791.70	1917	0.0440	793.30	29708	0.6820	794.90	60374	1.3860	796.50	91040	2.0900
791.80	2875	0.0660	793.40	31625	0.7260	795.00	62291	1.4300	796.60	92957	2.1340
791.90	3833	0.0880	793.50	33541	0.7700	795.10	64207	1.4740	796.70	94874	2.1780
792.00	4792	0.1100	793.60	35458	0.8140	795.20	66124	1.5180	796.80	96790	2.2220
792.10	6708	0.1540	793.70	37374	0.8580	795.30	68041	1.5620	796.90	98707	2.2660
792.20	8625	0.1980	793.80	39291	0.9020	795.40	69957	1.6060	797.00	100624	2.3100
792.30	10542	0.2420	793.90	41208	0.9460	795.50	71874	1.6500	797.10	102540	2.3540
792.40	12458	0.2860	794.00	43124	0.9900	795.60	73791	1.6940	797.20	104457	2.3980
792.50	14375	0.3300	794.10	45041	1.0340	795.70	75707	1.7380	797.30	106374	2.4420
792.60	16291	0.3740	794.20	46958	1.0780	795.80	77624	1.7820	797.40	108290	2.4860
792.70	18208	0.4180	794.30	48874	1.1220	795.90	79541	1.8260	797.50	110207	2.5300
792.80	20125	0.4620	794.40	50791	1.1660	796.00	81457	1.8700	797.50	110207	2.5300
792.90	22041	0.5060	794.50	52708	1.2100	796.10	83374	1.9140			
793.00	23958	0.5500	794.60	54624	1.2540	796.20	85290	1.9580			

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South Basin

STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS12PND
Description: EWS-12 depressional storage

STAGE (ft)	STORAGE cf	STORAGE Ac-Ft	STAGE (ft)	STORAGE cf	STORAGE Ac-Ft	STAGE (ft)	STORAGE cf	STORAGE Ac-Ft	STAGE (ft)	STORAGE cf	STORAGE Ac-Ft
783.50	0.0000	0.0000	785.10	47633	1.0935	786.70	104087	2.3895	788.30	160540	3.6855
783.60	1764	0.0405	785.20	51161	1.1745	786.80	107615	2.4705	788.40	164069	3.7665
783.70	3528	0.0810	785.30	54690	1.2555	786.90	111143	2.5515	788.50	167597	3.8475
783.80	5293	0.1215	785.40	58218	1.3365	787.00	114672	2.6325	788.60	171125	3.9285
783.90	7057	0.1620	785.50	61746	1.4175	787.10	118200	2.7135	788.70	174654	4.0095
784.00	8821	0.2025	785.60	65275	1.4985	787.20	121728	2.7945	788.80	178182	4.0905
784.10	12349	0.2835	785.70	68803	1.5795	787.30	125257	2.8755	788.90	181711	4.1715
784.20	15878	0.3645	785.80	72331	1.6605	787.40	128785	2.9565	789.00	185239	4.2525
784.30	19406	0.4455	785.90	75860	1.7415	787.50	132313	3.0375	789.10	188767	4.3335
784.40	22934	0.5265	786.00	79388	1.8225	787.60	135842	3.1185	789.20	192296	4.4145
784.50	26463	0.6075	786.10	82916	1.9035	787.70	139370	3.1995	789.30	195824	4.4955
784.60	29991	0.6885	786.20	86445	1.9845	787.80	142899	3.2805	789.40	199352	4.5765
784.70	33519	0.7695	786.30	89973	2.0655	787.90	146427	3.3615	789.50	202881	4.6575
784.80	37048	0.8505	786.40	93502	2.1465	788.00	149955	3.4425	789.50	202881	4.6575
784.90	40576	0.9315	786.50	97030	2.2275	788.10	153484	3.5235			
785.00	44104	1.0125	786.60	100558	2.3085	788.20	157012	3.6045			

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South Basin

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STAGE STORAGE TABLE

CUSTOM STORAGE ID No. EWS14PND
Description: EWS-14 depressional storage

STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-	STAGE (ft)	<----STORAGE----> ---cf---	--Ac-Ft-
779.50	0.0000	0.0000	781.10	56454	1.2960	782.70	123362	2.8320	784.30	190270	4.3680
779.60	2091	0.0480	781.20	60636	1.3920	782.80	127544	2.9280	784.40	194452	4.4640
779.70	4182	0.0960	781.30	64817	1.4880	782.90	131725	3.0240	784.50	198634	4.5600
779.80	6273	0.1440	781.40	68999	1.5840	783.00	135907	3.1200	784.60	202815	4.6560
779.90	8364	0.1920	781.50	73181	1.6800	783.10	140089	3.2160	784.70	206997	4.7520
780.00	10454	0.2400	781.60	77363	1.7760	783.20	144271	3.3120	784.80	211179	4.8480
780.10	14636	0.3360	781.70	81544	1.8720	783.30	148452	3.4080	784.90	215361	4.9440
780.20	18818	0.4320	781.80	85726	1.9680	783.40	152634	3.5040	785.00	219542	5.0400
780.30	23000	0.5280	781.90	89908	2.0640	783.50	156816	3.6000	785.10	223724	5.1360
780.40	27181	0.6240	782.00	94090	2.1600	783.60	160998	3.6960	785.20	227906	5.2320
780.50	31363	0.7200	782.10	98271	2.2560	783.70	165180	3.7920	785.30	232088	5.3280
780.60	35545	0.8160	782.20	102453	2.3520	783.80	169361	3.8880	785.40	236269	5.4240
780.70	39727	0.9120	782.30	106635	2.4480	783.90	173543	3.9840	785.50	240451	5.5200
780.80	43908	1.0080	782.40	110817	2.5440	784.00	177725	4.0800	785.50	240451	5.5200
780.90	48090	1.1040	782.50	114998	2.6400	784.10	181907	4.1760			
781.00	52272	1.2000	782.60	119180	2.7360	784.20	186088	4.2720			

==========

DISCHARGE STRUCTURE LIST

OVERFLOW WEIR ID No. EWS2aPND
Description: EWS-2a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 812.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWS4aPND
Description: EWS-4a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 810.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWS5aPND
Description: EWS-5a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 806.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWS8aPND
Description: EWS-8a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 790.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWS11aPD
Description: EWS-11a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 792.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWS12PND
Description: EWS-12 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 784.50 ft. Weir Increm: 0.10

OVERFLOW WEIR ID No. EWS14PND
Description: EWS-14 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 780.50 ft. Weir Increm: 0.10

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Elwood-Wilson

South Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS2aPND

Description: EWS-2a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 812.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
812.50	0.0000	812.70	14.575	812.90	41.641	813.00	58.486
812.60	5.1269	812.80	26.911	813.00	58.486		

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South Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS4aPND
Description: EWS-4a pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 810.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
810.50	0.0000	810.70	14.575	810.90	41.641	811.00	58.486
810.60	5.1269	810.80	26.911	811.00	58.486		

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South Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS5aPND

Description: EWS-5a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 806.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
806.50	0.0000	806.70	14.575	806.90	41.641	807.00	58.486
806.60	5.1269	806.80	26.911	807.00	58.486		

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South Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS8aPND

Description: EWS-8a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 790.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
790.50	0.0000	790.70	14.575	790.90	41.641	791.00	58.486
790.60	5.1269	790.80	26.911	791.00	58.486		

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South Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS11aPD

Description: EWS-11a pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 792.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
792.50	0.0000	792.70	14.575	792.90	41.641	793.00	58.486
792.60	5.1269	792.80	26.911	793.00	58.486		

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Elwood-Wilson
South Basin

STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS12PND
Description: EWS-12 pond overflow weir
Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.
El: 784.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
784.50	0.0000	784.70	14.575	784.90	41.641	785.00	58.486
784.60	5.1269	784.80	26.911	785.00	58.486		

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South Basin

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STAGE DISCHARGE TABLE

OVERFLOW WEIR ID No. EWS14PND

Description: EWS-14 pond overflow weir

Ratio (h:1v): 3.2100 Weir length: 50.0000 ft.

El: 780.50 ft. Weir Increm: 0.10

STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------	STAGE (ft)	<--DISCHARGE---> ---cfs-- -------
780.50	0.0000	780.70	14.575	780.90	41.641	781.00	58.486
780.60	5.1269	780.80	26.911	781.00	58.486		

Elwood-Wilson

South Basin - Sub-basin level pool routing

LEVEL POOL TABLE SUMMARY

<--------DESCRIPTION--------->	MATCH (cfs)	INFLOW (cfs)	-STO- -id-	-DIS- -id-	<-PEAK-> <-STAGE>	id	OUTFLOW (cfs)	STORAGE VOL (cf)
EWS2a bsn thru pnd2a	0.00	5.26	EWS2aPND	EWS2aPND	812.56	1	3.00	38738.37 cf
EWS4a bsn thru pnd4a	0.00	6.73	EWS4aPND	EWS4aPND	810.61	2	5.61	24583.41 cf
EWS5a bsn thru pnd5a	0.00	8.49	EWS5aPND	EWS5aPND	806.60	3	5.07	56950.49 cf
EWS8a bsn thru pnd8a	0.00	20.46	EWS8aPND	EWS8aPND	790.72	4	17.52	79326.12 cf
EWS11a thru pond11a	0.00	2.72	EWS11aPD	EWS11aPD	792.53	5	1.67	15000.64 cf
EWS12 bsn thru pnd12	0.00	6.27	EWS12PND	EWS12PND	784.58	6	4.06	29257.87 cf
EWS14 bsn thru pnd14	0.00	8.49	EWS14PND	EWS14PND	780.61	7	6.24	36037.80 cf

MOST DOMINANT SOIL TYPES

CrA: Crosby Silt Loam, 0-3% slopes

- Nearly level, deep, poorly drained soil is on slight rises on broad, undulating till plains.
- Brookston soils in depressions.
- Permeability is slow.
- Content of organic material in surface layer is moderate.
- Available water capacity is high
- Water table at depth of 1 to 3 feet in winter and early spring.
- Surface runoff is slow.
- Seasonal high water table, moderate shrink-swell potential, high potential frost action, and slow permeability.

Br: Brookston Silty Clay Loam

- Nearly level, deep, very poorly drained soil is in deep depressions, swales, and narrow drainage ways on till plains.
- Patton soils in lowest parts of depressions.
- Permeability is moderate.
- Water table is commonly at the surface or a depth of less than a foot in winter and early spring.
- Available water capacity is high.
- Organic material in surface layer is high.
- Surface runoff is ponded or very slow.
- Seasonal high water table, high potential frost action, moderate shrink-swell potential, moderate permeability.

MmB2: Miami Silt Loam, 2-6% slopes, eroded

- Gently sloping, deep, well drained soil is on rises on till plains and along drainage ways and streams.
- Permeability is moderate.
- Available water capacity is high.
- Surface runoff is medium.
- Moderate potential frost action, moderately slow permeability, moderate shrink-swell potential, and low strength.
- Erosion is a hazard.

MmA: Miami Silt Loam, 0-2% slopes

- Nearly level, deep, well drained soil is on slight rises on uplands.
- Permeability is moderate.
- Organic matter in surface layer is moderate.
- Available water capacity is high.
- Surface runoff in cultivated areas is slow.
- Moderate potential frost action, moderate permeability, moderate shrink-swell potential.

OTHER SOIL TYPES PRESENT

MoC3: Miami Clay Loam, 6-12% slopes, severely eroded

- Moderately sloping, deep, well drained soil is on knobs and breaks along streams.
- Permeability is moderate in subsoil and moderately slow in the substratum.
- Organic material in surface layer is low.
- Available water capacity is moderate.
- Surface runoff is medium
- Moderate potential frost action, moderate shrink-swell potential, and moderately slow permeability.
- Erosion is severe.

Or: Orthents

- Nearly level to steep, deep, well drained soil on uplands and terraces which have been changed by man.
- Located near highway interchanges, shopping centers, etc.
- Permeability is moderate to very slow.
- Available water capacity is moderate.
- Organic material in surface layer is low.
- Moderate to high potential frost action, moderate to very slow permeability.
- Erosion can be severe.

FnA: Fox Loam, 0-2% slopes

- Nearly level, deep, well drained soil on broad terraces and small knolls.
- Moderately deep over sand and gravelly sand.
- Permeability is moderate in subsoil and rapid in the underlying material.
- Available water capacity is moderate.
- Organic material in surface layer is moderate.
- Runoff is slow.
- Moderate potential frost action, moderate shrink-swell potential.

Pn: Patton Silty Clay Loam

- Nearly level, deep, poorly drained soil in broad depressions.
- Runoff is ponded.
- Permeability is moderate.
- Water table is commonly at the surface or at a depth of one foot in winter and spring.
- Available water capacity is high.
- Organic material in surface layer is high.
- Surface runoff is ponded or is very slow.
- Seasonal high water table, moderate shrink-swell potential, high potential frost action, moderate permeability

OcB2: Ockley Silt Loam, 2-6% slopes, eroded

- Gently sloping, deep, well drained soil on broad outwash terraces.
- Permeability is moderate.
- Organic material in surface layer is moderate.
- Available water capacity is moderate.
- Surface runoff in cultivated areas is medium
- Moderate potential frost action, moderate shrink-swell potential, moderate permeability in subsoil, rapid permeability in underlying material.

HO: Houghton Muck

- Nearly level, deep, poorly drained soil in depressions on uplands and outwash terraces
- Permeability is moderately rapid.
- Available water capacity is very high.
- Organic material in the surface layer is very high.
- Surface runoff is ponded or is very slow.
- High potential frost action, seasonal high water table, poor stability

Appendix C

HEC-2 Hydraulic Data

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES            *
 *                                          *
 *  Version   4.6.2;  May 1991              *
 *                                          *
 *  RUN DATE    19DEC01    TIME  17:07:51   *
 *******************************************
```

```
****************************************
 *  U.S. ARMY CORPS OF ENGINEERS        *
 *  HYDROLOGIC ENGINEERING CENTER       *
 *  609 SECOND STREET, SUITE D          *
 *  DAVIS, CALIFORNIA 95616-4687        *
 *          (916) 756-1104              *
****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

```
1
   19DEC01      17:07:51                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 19DEC01    17:07:51
 *************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 *************************************


T1      SR37 RC BOX just north of 186th Street.
        This structure transitions from a CMP to an RC Box under the road.
        Since the RC box is more restrictive, it was used in the model.
T2      with dischrges from "existing conditions"
T3      Elwood wilson Upper Branch

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                         .00400                                    780.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1



NC     0.10      0.10      0.06      0.1       0.3
QT        5        25        50       75        87       100

        CROSS-SECTION 1 OF SPECIAL CULVERT MODEL - DOWNSTREAM OF CULVERT
X1        1         5        60       65
GR    780.0         0      778.   0  30       772        60       772        65      774.       150

        USE NC RECORD TO SET EXPANSION AND CONTRACTION COEFFICIENTS FOR CULVERT

NC                                   0.3       0.5
        CROSS-SECTION 2 OF SPECIAL CULVERT MODEL - AT DOWNSTREAM CULVERT FACE
          LEFT AND RIGHT BANKS REDEFINED TO LIMIT FLOW TO WIDTH OF CULVERT
X1        2         6      10.1      15.1        50        50        50
GR      785         0       785        10    772.16      10.1    772.16      15.1      785.      15.2
GR      785        25

        SC RECORD DEFINES A 5 FT WIDE BY 3 FT TALL CONCRETE BOX

SC    1.012       0.5       3.0                  3         5       200       8.2    773.44    772.16

        CROSS-SECTION 3 AT UPSTREAM CULVERT FACE - FLOW LIMITED TO CULVERT WIDTH
X1        6                                    200       200       200                 1.28
X2                            2    776.44    785.0

BT       -4        10       785       785      10.1       785    776.44      15.1       785    776.44
BT               15.2       785       785

1
   19DEC01      17:07:51                                                                                    PAGE    2


X1        7         4       100       115        25        25        25
GR      790         0    776.80       100    776.80       115       790       200


1
   19DEC01      17:07:51                                                                                    PAGE    3

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.06    773.06       .00    780.00    773.08       .02       .00       .00    772.00
      25.0       1.7       8.6      14.7       2.8       5.3      23.9        .0        .0    772.00
       .00       .61      1.62       .61      .100      .060      .100      .000    772.00     54.70
   .003976        0.        0.        0.         0         0         9       .00     55.39    110.08


CCHV=     .300 CEHV=     .500
*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .41

     2.000      1.17    773.33       .00       .00    773.61       .28       .40       .13    772.16
      25.0        .0      25.0        .0        .0       5.9        .0        .0        .0    772.16
       .00       .02      4.27       .02      .100      .060      .100      .000    772.16     10.09
   .024080       50.       50.       50.         2         0         0       .00      5.02     15.11


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012       .50     3.00       .00      3.00      5.00    200.00      8         2       773.44    772.16

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    774.987  EGOC =    775.018  PCWSE=    773.330  ELTRD=    785.000

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
    774.99    775.02     1.40        0.       25.    3.622      15.0    785.00        0.


     6.000      1.37    774.81       .00       .00    775.02       .20      1.40       .00    773.44
      25.0        .0      25.0        .0        .0       6.9        .0        .1        .1    773.44
       .02       .02      3.62       .02      .100      .060      .100      .000    773.44     10.09
   .013919      200.      200.      200.         2         0         0       .00      5.02     15.11


1
   19DEC01      17:07:51                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 7.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     7.000       .42    777.22    777.22       .00    777.42       .20       .66       .00    776.80
      25.0        .9      23.3        .8        .7       6.4        .6        .1        .1    776.80
       .02      1.37      3.66      1.37      .100      .060      .100      .000    776.80     96.79
   .068326       25.       25.       25.        20        17         0       .00     20.95    117.73


1
   19DEC01      17:07:51                                                                                    PAGE    5

T1      Profile 2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                         .00300                                    780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                   -1

1
   19DEC01      17:07:51                                                                                    PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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```
*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.51    773.51       .00    780.00    773.53       .02       .00       .00    772.00
      50.0       3.8      13.5      32.7       5.7       7.6      48.6        .0        .0    772.00
       .00       .66      1.78       .67      .100      .060      .100      .000    772.00     52.44
   .002980        0.        0.        0.         0         0         8       .00     76.84    129.28


CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      1.46    773.62    773.62       .00    774.35       .73       .38       .36    772.16
      50.0        .0      50.0        .0        .0       7.3        .0        .0        .0    772.16
       .00       .03      6.86       .03      .100      .060      .100      .000    772.16     10.09
   .046465       50.       50.       50.         2         8         0       .00      5.02     15.11


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012      .50      3.00       .00      3.00      5.00     200.00     8         2        773.44    772.16

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    775.918  EGOC =    775.993  PCWSE=    773.617  ELTRD=    785.000


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.07

SPECIAL CULVERT

     EGIC      EGOC       H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    775.92    775.99     1.64        0.       50.     4.434      15.0    785.00        0.


     6.000      2.25    775.69       .00       .00    775.99       .31      1.64       .00    773.44
      50.0        .0      50.0        .0        .0      11.3        .0        .1        .1    773.44
       .01       .02      4.43       .02      .100      .060      .100      .000    773.44     10.08
   .010835      200.      200.      200.         2         0         0       .00      5.04     15.12


1
   19DEC01      17:07:51                                                                                    PAGE     7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 7.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     7.000       .66    777.46    777.46       .00    777.75       .29       .53       .01    776.80
      50.0       2.8      44.8       2.4       1.7       9.9       1.4        .1        .1    776.80
       .02      1.70      4.51      1.69      .100      .060      .100      .000    776.80     94.99
   .057568       25.       25.       25.        20        14         0       .00     24.28    119.26


1
   19DEC01      17:07:51                                                                                    PAGE     8

T1       Profile 3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                         .00300                                    780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1

1
   19DEC01      17:07:51                                                                                    PAGE     9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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```
*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.79    773.79       .00    780.00    773.81       .02       .00       .00    772.00
      75.0       5.9      17.8      51.2       8.0       8.9      67.9        .0        .0    772.00
       .00       .74      2.00       .75      .100      .060      .100      .000    772.00     51.06
   .002996        0.        0.        0.         0         0         8       .00     89.89    140.95


CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      1.91    774.07    774.07       .00    775.03       .96       .37       .47    772.16
      75.0        .0      75.0        .0        .0       9.5        .0        .1        .1    772.16
       .00       .03      7.87       .03      .100      .060      .100      .000    772.16     10.09
   .042776       50.       50.       50.        20         8         0       .00      5.03     15.11


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012       .50     3.00        .00     3.00      5.00     200.00     8         2        773.44    772.16

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    776.703  EGOC =    776.786  PCWSE=    774.065  ELTRD=    785.000


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.08
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    776.70    776.79     1.76        0.       75.     5.075      15.0    785.00        0.


     6.000      2.95    776.39       .00       .00    776.79       .40      1.76       .00    773.44
      75.0        .0      75.0        .0        .0      14.8        .0        .1        .1    773.44
       .01       .01      5.08       .01      .100      .060      .100      .000    773.44     10.08
   .009901      200.      200.      200.         2         0         0       .00      5.05     15.12


*SECNO 7.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     7.000       .85    777.65    777.65       .00    778.01       .36       .48       .01    776.80
      75.0       5.3      65.3       4.5       2.7      12.8       2.3        .1        .1    776.80
       .01      1.92      5.11      1.92      .100      .060      .100      .000    776.80     93.55
   .052737       25.       25.       25.        20        14         0       .00     26.93    120.48
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T1      Profile 4

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                         .00300                                    780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                   -1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 4

CCHV=      .100 CEHV=      .300
*SECNO 1.000
     1.000      1.90     773.90       .00     780.00     773.92       .02       .00       .00     772.00
      87.0       7.0       19.8      60.3        9.0        9.5      76.7        .0        .0     772.00
       .00       .78       2.08       .79       .100       .060      .100      .000    772.00      50.50
   .002998        0.         0.        0.          0          0         8       .00     95.22     145.72


CCHV=      .300 CEHV=      .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      2.11     774.27    774.27       .00     775.33      1.06       .37       .52     772.16
      87.0        .0      87.0        .0        .0       10.5        .0        .1        .1     772.16
       .00       .03      8.26       .03       .100       .060      .100      .000    772.16      10.08
   .041248       50.       50.       50.        20          8         0       .00      5.03      15.12


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .012       .50       3.00        .00       3.00       5.00      200.00      8          2        773.44     772.16

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =     777.049  EGOC =     777.134  PCWSE=     774.266  ELTRD=     785.000


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

1
   19DEC01      17:07:51                                                                                          PAGE   13


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


SPECIAL CULVERT

     EGIC       EGOC        H4       QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    777.05     777.13      1.81        0.        87.      5.356      15.0     785.00        0.


     6.000      3.25     776.69       .00       .00     777.13       .45      1.81       .00     773.44
      87.0        .0      87.0        .0        .0       16.2        .0        .1        .1     773.44
       .01       .01      5.36       .01       .100       .060      .100      .000    773.44      10.07
   .009719      200.      200.      200.         3          0         0       .00      5.05      15.13


*SECNO 7.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     7.000       .93     777.73    777.73       .00     778.12       .39       .47       .02     776.80
      87.0       6.6      74.8       5.6       3.3       14.0       2.8        .1        .1     776.80
       .01      2.01      5.35      2.00       .100       .060      .100      .000    776.80      92.94
   .051122       25.       25.       25.        20         14         0       .00     28.07     121.01


1
   19DEC01      17:07:51                                                                                          PAGE   14


T1      Profile 3

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 6                             .00300                                        780

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     5                     -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=     .100 CEHV=     .300
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED       .01 FEET

     1.000      2.01    774.01       .00    780.00    774.03       .02       .00       .00    772.00
     100.0       8.1      21.7      70.2      10.1      10.1      85.9        .0        .0    772.00
       .00       .80      2.16       .82      .100      .060      .100      .000    772.00     49.95
   .002987        0.        0.        0.         0         0         7       .00    100.05    150.00

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      2.31    774.47    774.47       .00    775.63      1.16       .37       .57    772.16
     100.0        .0     100.0        .0        .0      11.6        .0        .1        .1    772.16
       .00       .03      8.64       .03      .100      .060      .100      .000    772.16     10.08
   .039798       50.       50.       50.        20         8         0       .00      5.04     15.12


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012       .50      3.00       .00      3.00      5.00    200.00      8         2       773.44    772.16

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

SPECIAL CULVERT INLET CONTROL
EGIC =    777.636  EGOC =    777.493  PCWSE=    774.474  ELTRD=    785.000


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.25
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    777.64    777.49      2.00        0.      100.     5.310      15.0    785.00        0.


     6.000      3.76    777.20       .00       .00    777.64       .44      2.00       .00    773.44
     100.0        .0     100.0        .0        .1      18.8        .1        .1        .1    773.44
       .01       .01      5.31       .01      .100      .060      .100      .000    773.44     10.07
   .007843      200.      200.      200.         2         0         0       .00      5.06     15.13

*SECNO 7.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     7.000      1.01    777.81    777.81       .00    778.24       .42       .40       .00    776.80
     100.0       8.2      84.9       6.9       3.9      15.2       3.3        .1        .1    776.80
       .01      2.10      5.59      2.10      .100      .060      .100      .000    776.80     92.33
   .050095       25.       25.       25.        20        14         0       .00     29.19    121.52
```

THIS RUN EXECUTED 19DEC01 17:07:51

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Elwood wilson North Bran

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1.000	.00	.00	.00	772.00	25.00	773.06	.00	773.08	39.76	1.62	32.03	3.96
	1.000	.00	.00	.00	772.00	50.00	773.51	.00	773.53	29.80	1.78	61.89	9.16
	1.000	.00	.00	.00	772.00	75.00	773.79	.00	773.81	29.96	2.00	84.79	13.70
	1.000	.00	.00	.00	772.00	87.00	773.90	.00	773.92	29.98	2.08	95.17	15.89
	1.000	.00	.00	.00	772.00	100.00	774.01	.00	774.03	29.87	2.16	106.03	18.30
*	2.000	50.00	.00	.00	772.16	25.00	773.33	.00	773.61	240.80	4.27	5.87	1.61
*	2.000	50.00	.00	.00	772.16	50.00	773.62	773.62	774.35	464.65	6.86	7.30	2.32
*	2.000	50.00	.00	.00	772.16	75.00	774.07	774.07	775.03	427.76	7.87	9.55	3.63
*	2.000	50.00	.00	.00	772.16	87.00	774.27	774.27	775.33	412.48	8.26	10.56	4.28
*	2.000	50.00	.00	.00	772.16	100.00	774.47	774.47	775.63	397.98	8.64	11.61	5.01
	6.000	200.00	785.00	776.44	773.44	25.00	774.81	.00	775.02	139.19	3.62	6.92	2.12
*	6.000	200.00	785.00	776.44	773.44	50.00	775.69	.00	775.99	108.35	4.43	11.32	4.80
*	6.000	200.00	785.00	776.44	773.44	75.00	776.39	.00	776.79	99.01	5.08	14.84	7.54
*	6.000	200.00	785.00	776.44	773.44	87.00	776.69	.00	777.13	97.19	5.36	16.33	8.82
*	6.000	200.00	785.00	776.44	773.44	100.00	777.20	.00	777.64	78.43	5.31	18.94	11.29
*	7.000	25.00	.00	.00	776.80	25.00	777.22	777.22	777.42	683.26	3.66	7.63	.96
*	7.000	25.00	.00	.00	776.80	50.00	777.46	777.46	777.75	575.68	4.51	13.00	2.08
*	7.000	25.00	.00	.00	776.80	75.00	777.65	777.65	778.01	527.37	5.11	17.85	3.27
*	7.000	25.00	.00	.00	776.80	87.00	777.73	777.73	778.12	511.22	5.35	20.08	3.85
*	7.000	25.00	.00	.00	776.80	100.00	777.81	777.81	778.24	500.95	5.59	22.38	4.47

1
19DEC01 17:07:51 PAGE 18

Elwood wilson North Bran

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	25.00	773.06	.00	.00	-6.94	55.39	.00
	1.000	50.00	773.51	.45	.00	-6.49	76.84	.00
	1.000	75.00	773.79	.27	.00	-6.21	89.89	.00
	1.000	87.00	773.90	.11	.00	-6.10	95.22	.00
	1.000	100.00	774.01	.11	.00	-5.99	100.05	.00
*	2.000	25.00	773.33	.00	.27	.00	5.02	50.00
*	2.000	50.00	773.62	.29	.10	.00	5.02	50.00
*	2.000	75.00	774.07	.45	.28	.00	5.03	50.00
*	2.000	87.00	774.27	.20	.37	.00	5.03	50.00
*	2.000	100.00	774.47	.21	.46	.00	5.04	50.00
	6.000	25.00	774.81	.00	1.48	.00	5.02	200.00
*	6.000	50.00	775.69	.87	2.07	.00	5.04	200.00
*	6.000	75.00	776.39	.70	2.32	.00	5.05	200.00
*	6.000	87.00	776.69	.30	2.42	.00	5.05	200.00
*	6.000	100.00	777.20	.51	2.72	.00	5.06	200.00
*	7.000	25.00	777.22	.00	2.41	.00	20.95	25.00
*	7.000	50.00	777.46	.24	1.77	.00	24.28	25.00
*	7.000	75.00	777.65	.19	1.27	.00	26.93	25.00
*	7.000	87.00	777.73	.08	1.04	.00	28.07	25.00
*	7.000	100.00	777.81	.08	.61	.00	29.19	25.00

1
19DEC01 17:07:51 PAGE 19

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=      2.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

```
CAUTION SECNO=      2.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      6.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      6.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      6.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      6.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      7.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      7.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      7.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      7.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      7.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    10DEC01    TIME   19:44:05 *
 *******************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 10DEC01 19:44:05

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
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```
T1      RC BOX at S.R. 32
T2      with discharges from "existing conditions"
T3      Elwood Wilson South Branch

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                         .00380                                    780.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1


NC     0.06      0.06      0.04       0.1       0.3
QT        5        50        75       100       125       150

        CROSS-SECTION 1 OF SPECIAL CULVERT MODEL - DOWNSTREAM OF CULVERT
X1        1         6       115       122
GR    774.5         0      774.   0  100       767       115       767       122       774.       140
GR      775       200

        USE NC RECORD TO SET EXPANSION AND CONTRACTION COEFFICIENTS FOR CULVERT

NC                                   0.3       0.5
        CROSS-SECTION 2 OF SPECIAL CULVERT MODEL - AT DOWNSTREAM CULVERT FACE
          LEFT AND RIGHT BANKS REDEFINED TO LIMIT FLOW TO WIDTH OF CULVERT
X1        2         6        98     102.2        50        50        50
GR      776         0     775.5        98    767.45      98.1    767.45     102.1     775.5     102.2
GR      776       200

        SC RECORD DEFINES A 4 by 4 RC BOX

SC    1.012       0.5       3.0                 4.0         4        40       8.2    768.65    767.45

        CROSS-SECTION 3 AT UPSTREAM CULVERT FACE - FLOW LIMITED TO CULVERT WIDTH
X1        3         6      98.0     102.2        40        40        40
X2                            2    772.65     775.5
GR      776         0     775.5        98    768.65      98.1    768.65     102.1     775.5     102.2
GR      776       200

BT       -6         0       776       776        98     775.5     775.5      98.1     775.5    768.65
BT               102.1     775.5    768.65     102.2     775.5     775.5       200       776       776
```

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NC     0.06      0.06       .04

        CROSS-SECTION 4 - A FULL-FLOW SECTION UPSTREAM FROM THE APT. CULVERT
X1        4         6       100       127        25        25        25
GR    775.0         0     773.2       100     768.5       110     768.5       114     773.4       127
GR      775       200
```

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.75     768.75        .00     780.00     768.89        .14        .00        .00     767.00
      50.0       4.3       40.5        5.2        3.3       12.2        3.9         .0         .0     767.00
       .00      1.30       3.31       1.33       .060       .040       .060       .000     767.00     111.26
   .003784        0.         0.         0.          0          0         10        .00      15.23     126.49

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      1.69     769.14     769.14        .00     769.98        .84        .45        .35     775.50
      50.0        .0       50.0         .0         .0        6.8         .0        .0         .0     775.50
       .00       .00       7.37        .00       .000       .040       .000       .000     767.45      98.08
   .043922       50.        50.        50.         20          8          0        .00       4.04     102.12


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .012        .50       3.00        .00       4.00       4.00      40.00       8          2        768.65     767.45

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    771.470  EGOC =    771.613  PCWSE=    769.138  ELTRD=    775.500


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81

SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    771.47     771.61      1.63         0.        50.     4.716       16.0     775.50         0.


     3.000      2.62     771.27        .00        .00     771.61        .35       1.63        .00     775.50
      50.0        .0       50.0         .0         .0       10.6         .0         .0         .0     775.50
       .00       .00       4.72        .00       .000       .040       .000       .000     768.65      98.06
   .013437       40.        40.        40.          2          0          0        .00       4.08     102.14


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   10DEC01      19:44:05                                                                                          PAGE    4

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 4.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.84

     4.000      3.22     771.72        .00        .00     771.75        .03        .04        .10     773.20
      50.0        .0       50.0         .0         .0       37.7         .0         .0         .0     773.40
       .01       .00       1.33        .00       .000       .040       .000       .000     768.50     103.15
   .000575       25.        25.        25.          2          0          0        .00      19.39     122.54


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   10DEC01      19:44:05                                                                                          PAGE    5

T1      Profile 2

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                3                                .00380                                     780

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2                    -1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      2.17     769.17        .00     780.00     769.35        .18        .00        .00     767.00
      75.0       7.6       58.1       9.3        5.0       15.2        6.0         .0         .0     767.00
       .00      1.51       3.83      1.54       .060       .040       .060       .000     767.00     110.36
   .003797        0.         0.        0.          0          0         10        .00      17.22     127.57

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      2.21     769.66     769.66        .00     770.76       1.10        .46        .46     775.50
      75.0        .0       75.0        .0         .0        8.9         .0         .0         .0     775.50
       .00       .00       8.41       .00       .000       .040       .000       .000     767.45      98.07
   .047593       50.        50.       50.         20          5          0        .00       4.05     102.13


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .012        .50      3.00        .00       4.00       4.00       40.00      8          2         768.65     767.45

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    772.380  EGOC =    772.532  PCWSE=    769.663  ELTRD=    775.500


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.77
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV        VCH      ACULV      ELTRD     WEIRLN
    772.38     772.53      1.77         0.        75.      5.399       16.0     775.50         0.


     3.000       3.43     772.08        .00        .00     772.53        .45       1.77        .00     775.50
      75.0         .0       75.0         .0         .0       13.9         .0         .0         .0     775.50
       .00        .00       5.40        .00       .000       .040       .000       .000     768.65      98.05
   .015210        40.        40.        40.          3          0          0        .00       4.10     102.15

*SECNO 4.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.13

     4.000       4.16     772.66        .00        .00     772.69        .03        .03        .13     773.20
      75.0         .0       75.0         .0         .0       58.1         .0         .1         .0     773.40
       .01        .00       1.29        .00       .000       .040       .000       .000     768.50     101.14
   .000405        25.        25.        25.          2          0          0        .00      23.91     125.05
```



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T1       Profile 3

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 4                            .00380                                          780
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J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      3                  -1

1
   10DEC01      19:44:05                                                                                    PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      2.53    769.53       .00    780.00    769.75       .22       .00       .00    767.00
     100.0      11.4      74.7      13.9       6.8      17.7       8.2        .0        .0    767.00
       .00      1.66      4.23      1.69      .060      .040      .060      .000    767.00    109.59
   .003758        0.        0.        0.         0         0         9       .00     18.91    128.50

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      2.67    770.12    770.12       .00    771.46      1.34       .47       .56    775.50
     100.0        .0     100.0        .0        .0      10.8        .0        .0        .0    775.50
       .00       .00      9.29       .00      .000      .040      .000      .000    767.45     98.07
   .051682       50.       50.       50.        20         8         0       .00      4.07    102.13

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1          .012       .50     3.00       .00      4.00      4.00     40.00      8         2       768.65    767.45

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    773.195  EGOC =    773.353  PCWSE=    770.120  ELTRD=    775.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.76

1
   10DEC01      19:44:05                                                                                    PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    773.19    773.35      1.89        0.      100.     5.921      16.0    775.50        0.

     3.000      4.16    772.81       .00       .00    773.35       .54      1.89       .00    775.50
     100.0        .0     100.0        .0        .0      16.9        .0        .0        .0    775.50
       .00       .00      5.92       .00      .000      .040      .000      .000    768.65     98.04
   .016678       40.       40.       40.         3         0         0       .00      4.12    102.16

*SECNO 4.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.56

     4.000      5.01    773.51       .00       .00    773.53       .02       .02       .16    773.20
     100.0        .3      99.7        .0       2.6      79.9        .3        .1        .0    773.40
       .01       .12      1.25       .06      .060      .040      .060      .000    768.50     82.91
   .000292       25.       25.       25.         2         0         0       .00     49.00    131.91

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T1      Profile 4

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                         .00380                                    780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                  -1

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      2.83    769.83       .00    780.00    770.08       .25       .00       .00    767.00
     125.0      15.5      90.7      18.9       8.6      19.8      10.3        .0        .0    767.00
       .00      1.80      4.57      1.83      .060      .040      .060      .000    767.00    108.93
   .003781        0.        0.        0.         0         0         9       .00     20.35    129.28

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      3.10    770.55    770.55       .00    772.10      1.55       .47       .65    775.50
     125.0        .0     125.0        .0        .0      12.5        .0        .0        .0    775.50
       .00       .00      9.99       .00      .000      .040      .000      .000    767.45     98.06
   .054995       50.       50.       50.        20         8         0       .00      4.08    102.14


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1          .012       .50     3.00       .00      4.00      4.00     40.00      8         2       768.65    767.45

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 3.000

SPECIAL CULVERT INLET CONTROL
EGIC =    774.264  EGOC =    774.107  PCWSE=    770.549  ELTRD=    775.500


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV    ELTRD    WEIRLN
    774.26    774.11      2.17        0.      125.     6.090      16.0    775.50        0.


     3.000      5.04    773.69       .00       .00    774.26       .58      2.17       .00    775.50
     125.0        .0     125.0        .0        .0      20.5        .0        .0        .0    775.50
       .00       .00      6.09       .00      .000      .040      .000      .000    768.65     98.03
   .016257       40.       40.       40.         3         0         0       .00      4.15    102.17


*SECNO 4.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 10.51
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     4.000      5.93    774.43       .00       .00    774.44       .02       .01       .17    773.20
     125.0       9.1     111.2       4.7      41.9     104.7      24.1        .1        .1    773.40
       .01       .22      1.06       .19      .060      .040      .060      .000    768.50     31.74
   .000147       25.       25.       25.         2         0         0       .00    142.20    173.94
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1


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T1      Profile 3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                         .00380                                    780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      5                  -1
```

1


```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      3.11    770.11       .00    780.00    770.38       .28       .00       .00    767.00
     150.0      19.8     105.9      24.2      10.3      21.8      12.4        .0        .0    767.00
       .00      1.92      4.87      1.95      .060      .040      .060      .000    767.00    108.34
   .003790        0.        0.        0         0         0         9       .00     21.65    129.99

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      3.50    770.95    770.95       .00    772.69      1.74       .48       .73    775.50
     150.0        .0     150.0        .0        .0      14.2        .0        .0        .0    775.50
       .00       .00     10.59       .00      .000      .040      .000      .000    767.45     98.06
   .058096       50.       50.       50.        20         8         0       .00      4.09    102.14


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012       .50      3.00       .00      4.00      4.00     40.00      8         2        768.65    767.45

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 3.000

SPECIAL CULVERT INLET CONTROL
EGIC =    775.306  EGOC =    774.813  PCWSE=    770.952  ELTRD=    775.500


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99
```

1


```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    775.31    774.81      2.61        0.      150.     6.012      16.0    775.50        0.


     3.000      6.09    774.74       .00       .00    775.31       .56      2.61       .00    775.50
     150.0        .0     150.0        .0        .0      24.9        .0        .1        .0    775.50
       .00       .00      6.01       .00      .000      .040      .000      .000    768.65     98.01
   .014732       40.       40.       40.         2         0         0       .00      4.18    102.19
```

*SECNO 4.000
3280 CROSS SECTION 4.00 EXTENDED .47 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 16.58

4.000	6.97	775.47	.00	.00	775.48	.01	.00	.17	773.20
150.0	30.6	99.8	19.6	137.1	132.9	92.8	.2	.1	773.40
.02	.22	.75	.21	.060	.040	.060	.000	768.50	.00
.000054	25.	25.	25.	2	0	0	.00	200.00	200.00

THIS RUN EXECUTED 10DEC01 19:44:05

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Elwood Wilson South Bran

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1.000	.00	.00	.00	767.00	50.00	768.75	.00	768.89	37.84	3.31	19.42	8.13
	1.000	.00	.00	.00	767.00	75.00	769.17	.00	769.35	37.97	3.83	26.24	12.17
	1.000	.00	.00	.00	767.00	100.00	769.53	.00	769.75	37.58	4.23	32.74	16.31
	1.000	.00	.00	.00	767.00	125.00	769.83	.00	770.08	37.81	4.57	38.73	20.33
	1.000	.00	.00	.00	767.00	150.00	770.11	.00	770.38	37.90	4.87	44.51	24.36
*	2.000	50.00	.00	.00	767.45	50.00	769.14	769.14	769.98	439.22	7.37	6.79	2.39
*	2.000	50.00	.00	.00	767.45	75.00	769.66	769.66	770.76	475.93	8.41	8.91	3.44
*	2.000	50.00	.00	.00	767.45	100.00	770.12	770.12	771.46	516.82	9.29	10.77	4.40
*	2.000	50.00	.00	.00	767.45	125.00	770.55	770.55	772.10	549.95	9.99	12.52	5.33
*	2.000	50.00	.00	.00	767.45	150.00	770.95	770.95	772.69	580.96	10.59	14.16	6.22
*	3.000	40.00	775.50	772.65	768.65	50.00	771.27	.00	771.61	134.37	4.72	10.60	4.31
*	3.000	40.00	775.50	772.65	768.65	75.00	772.08	.00	772.53	152.10	5.40	13.89	6.08
*	3.000	40.00	775.50	772.65	768.65	100.00	772.81	.00	773.35	166.78	5.92	16.89	7.74
*	3.000	40.00	775.50	772.65	768.65	125.00	773.69	.00	774.26	162.57	6.09	20.52	9.80
*	3.000	40.00	775.50	772.65	768.65	150.00	774.74	.00	775.31	147.32	6.01	24.95	12.36
*	4.000	25.00	.00	.00	768.50	50.00	771.72	.00	771.75	5.75	1.33	37.66	20.86
*	4.000	25.00	.00	.00	768.50	75.00	772.66	.00	772.69	4.05	1.29	58.11	37.29
*	4.000	25.00	.00	.00	768.50	100.00	773.51	.00	773.53	2.92	1.25	82.75	58.56
*	4.000	25.00	.00	.00	768.50	125.00	774.43	.00	774.44	1.47	1.06	170.81	103.05
*	4.000	25.00	.00	.00	768.50	150.00	775.47	.00	775.48	.54	.75	362.73	204.95

Elwood Wilson South Bran

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	50.00	768.75	.00	.00	-11.25	15.23	.00
	1.000	75.00	769.17	.42	.00	-10.83	17.22	.00
	1.000	100.00	769.53	.36	.00	-10.47	18.91	.00
	1.000	125.00	769.83	.31	.00	-10.17	20.35	.00
	1.000	150.00	770.11	.28	.00	-9.89	21.65	.00
*	2.000	50.00	769.14	.00	.39	.00	4.04	50.00
*	2.000	75.00	769.66	.53	.50	.00	4.05	50.00
*	2.000	100.00	770.12	.46	.59	.00	4.07	50.00
*	2.000	125.00	770.55	.43	.72	.00	4.08	50.00
*	2.000	150.00	770.95	.40	.84	.00	4.09	50.00
*	3.000	50.00	771.27	.00	2.13	.00	4.08	40.00
*	3.000	75.00	772.08	.81	2.42	.00	4.10	40.00
*	3.000	100.00	772.81	.73	2.69	.00	4.12	40.00
*	3.000	125.00	773.69	.88	3.14	.00	4.15	40.00
*	3.000	150.00	774.74	1.06	3.79	.00	4.18	40.00
*	4.000	50.00	771.72	.00	.45	.00	19.39	25.00

*	4.000	75.00	772.66	.94	.58	.00	23.91	25.00
*	4.000	100.00	773.51	.84	.70	.00	49.00	25.00
*	4.000	125.00	774.43	.92	.74	.00	142.20	25.00
*	4.000	150.00	775.47	1.04	.73	.00	200.00	25.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      2.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      3.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

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1*******************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    10DEC01    TIME   18:54:46 *
 *******************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

1

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THIS RUN EXECUTED 10DEC01 18:54:46

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
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```
T1      CMP at Apt. Complex and RC BOX at Cattle Crossing
T2      with dischrges from "existing conditions"
T3      Elwood wilson North Branch

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                         .00300                                    780.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1


NC     0.06      0.06      0.04       0.1       0.3
QT        5        50        75       100       125       150

        CROSS-SECTION 1 OF SPECIAL CULVERT MODEL - DOWNSTREAM OF CULVERT
X1        1         6       100       110
GR    780.0         0      778.   0   50       776       100       776       110      778.       150
GR      780       200

        USE NC RECORD TO SET EXPANSION AND CONTRACTION COEFFICIENTS FOR CULVERT

NC                                    0.3       0.5
        CROSS-SECTION 2 OF SPECIAL CULVERT MODEL - AT DOWNSTREAM CULVERT FACE
          LEFT AND RIGHT BANKS REDEFINED TO LIMIT FLOW TO WIDTH OF CULVERT
X1        2         6      10.1      15.1        50        50        50
GR      790         0       790        10    776.08      10.1    776.08      15.1      790.      15.2
GR      790        25

        SC RECORD DEFINES A SINGLE 60-INCH cmp

SC    1.024       0.5       3.0                  5.0                 500       2.3    776.92    776.08

        CROSS-SECTION 3 AT UPSTREAM CULVERT FACE - FLOW LIMITED TO CULVERT WIDTH
X1        3         6      10.1      15.1       500       500       500
X2                            2    781.92     790.0
GR      790         0       790        10    776.92      10.1    776.92      15.1      790.      15.2
GR      790        25

BT       -4        10       790       790      10.1       790    781.92      15.1       790    781.92
BT               15.2       790       790
```

1

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```
NC      0.1       0.1       .04

        CROSS-SECTION 4 - A FULL-FLOW SECTION UPSTREAM FROM THE APT. CULVERT
X1        4         4        30        45        25        25        25
GR      790         0    776.95        30    776.95        45       790        75


X1        5         6      10.1      14.1        25        25        25
GR      790         0       790        10    777.00      10.1    777.00      14.1      790.      14.2
GR      790        25
```

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        SC RECORD DEFINES A 4 FT WIDE BY 5 FT TALL CONCRETE BOX

SC    1.012        0.5        3.0                    5.5          4        200        8.2      777.00      777.00

        CROSS-SECTION 3 AT UPSTREAM CULVERT FACE - FLOW LIMITED TO CULVERT WIDTH
X1        6                                          200        200        200
X2                                 2     782.50      790.0

BT       -4         10        790        790        10.1        790     782.50       14.1        790     782.50
BT                14.2        790        790

X1        7          4        100        115         25         25         25
GR      790          0     777.05        100     777.05        115        790        200

1
   10DEC01      18:54:46                                                                                    PAGE    3

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.12     777.12        .00     780.00     777.16        .04        .00        .00     776.00
      50.0      14.3       24.3       11.4       15.6       11.2       12.5         .0         .0     776.00
       .00       .91       2.17        .91       .060       .040       .060       .000     776.00      72.03
   .002948        0.         0.         0.          0          0          6        .00      60.34     132.37

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      1.45     777.53     777.53        .00     778.27        .74        .31        .35     776.08
      50.0        .0       50.0         .0         .0        7.3         .0         .0         .0     776.08
       .00       .04       6.88        .04       .060       .040       .060       .000     776.08      10.09
   .020840       50.        50.        50.         20         11          0        .00       5.02      15.11

SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .50       3.00        .00       5.00        .00     500.00      2          3         776.92     776.08

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =     779.844  EGOC =     780.486  PCWSE=     777.533  ELTRD=     790.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.19

1
   10DEC01      18:54:46                                                                                    PAGE    4

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV        VCH      ACULV      ELTRD     WEIRLN
    779.84     780.49      2.22         0.        50.      2.912       19.6     790.00         0.

     3.000      3.43     780.35        .00        .00     780.49        .13       2.22        .00     776.92
      50.0        .0       50.0         .0         .0       17.2         .0         .2         .1     776.92
       .05       .01       2.91        .01       .060       .040       .060       .000     776.92      10.07
   .001186      500.       500.       500.          2          0          0        .00       5.05      15.13

*SECNO 4.000
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.61

4.000	3.57	780.52	.00	.00	780.53	.01	.01	.04	776.95
50.0	2.9	44.2	2.9	14.6	53.5	14.6	.2	.1	776.95
.06	.20	.83	.20	.100	.040	.100	.000	776.95	21.80
.000091	25.	25.	25.	2	0	0	.00	31.41	53.20

*SECNO 5.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .22

5.000	3.43	780.43	.00	.00	780.63	.21	.01	.10	777.00
50.0	.0	50.0	.0	.0	13.7	.0	.2	.1	777.00
.06	.01	3.65	.01	.100	.040	.100	.000	777.00	10.07
.001867	25.	25.	25.	2	0	0	.00	4.05	14.13

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.012	.50	3.00	.00	5.50	4.00	200.00	8	2	777.00	777.00

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

1
10DEC01 18:54:46 PAGE 5

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL CULVERT OUTLET CONTROL
EGIC = 779.867 EGOC = 780.849 PCWSE= 780.426 ELTRD= 790.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
779.87	780.85	.22	0.	50.	3.406	22.0	790.00	0.

6.000	3.67	780.67	.00	.00	780.85	.18	.22	.00	777.00
50.0	.0	50.0	.0	.1	14.7	.1	.3	.1	777.00
.08	.01	3.41	.01	.100	.040	.100	.000	777.00	10.07
.001485	200.	200.	200.	2	0	0	.00	4.06	14.13

*SECNO 7.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.93

7.000	3.85	780.90	.00	.00	780.91	.00	.00	.05	777.05
50.0	8.5	34.3	7.2	57.3	57.8	48.7	.3	.2	777.05
.09	.15	.59	.15	.100	.040	.100	.000	777.05	70.26
.000042	25.	25.	25.	2	0	0	.00	70.02	140.28

1
10DEC01 18:54:46 PAGE 6

T1 Profile 2

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3			.00300				780	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2		-1							

1
10DEC01 18:54:46 PAGE 7

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 2

CCHV= .100 CEHV= .300
*SECNO 1.000

1.000	1.34	777.34	.00	780.00	777.39	.05	.00	.00	776.00
75.0	23.3	33.1	18.6	22.5	13.4	18.0	.0	.0	776.00
.00	1.04	2.47	1.04	.060	.040	.060	.000	776.00	66.49

```
   .002992        0.        0.        0.        0        0        6      .00    70.31   136.80

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      1.91    777.99    777.99       .00    778.95       .96       .31       .45    776.08
      75.0        .0      75.0        .0        .0       9.5        .0        .0        .0    776.08
       .00       .03      7.86       .03      .060      .040      .060      .000    776.08     10.09
   .018907       50.       50.       50.        20        11         0       .00      5.03     15.11


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .024       .50     3.00       .00      5.00       .00     500.00     2         3        776.92    776.08

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    780.700  EGOC =    781.520  PCWSE=    777.988  ELTRD=    790.000


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.06

1
   10DEC01      18:54:46                                                                                    PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    780.70    781.52      2.57        0.       75.     3.393      19.6    790.00        0.


     3.000      4.42    781.34       .00       .00    781.52       .18      2.57       .00    776.92
      75.0        .0      75.0        .0        .1      22.1        .1        .2        .1    776.92
       .04       .01      3.39       .01      .060      .040      .060      .000    776.92     10.07
   .001149      500.      500.      500.         2         0         0       .00      5.07     15.13

*SECNO 4.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.76

     4.000      4.61    781.56       .00       .00    781.57       .01       .01       .05    776.95
      75.0       5.4      64.2       5.4      24.5      69.2      24.5        .3        .1    776.95
       .05       .22       .93       .22      .100      .040      .100      .000    776.95     19.40
   .000081       25.       25.       25.         2         0         0       .00     36.21     55.60

*SECNO 5.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .21

     5.000      4.44    781.44       .00       .00    781.71       .28       .01       .13    777.00
      75.0        .0      75.0        .0        .1      17.7        .1        .3        .1    777.00
       .05       .01      4.23       .01      .100      .040      .100      .000    777.00     10.07
   .001776       25.       25.       25.         2         0         0       .00      4.07     14.13


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012       .50     3.00       .00      5.50      4.00     200.00     8         2        777.00    777.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000
1
   10DEC01      18:54:46                                                                                    PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
```

```
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


SPECIAL CULVERT OUTLET CONTROL
EGIC =     780.772  EGOC =     781.987  PCWSE=     781.436  ELTRD=     790.000

SPECIAL CULVERT

      EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    780.77     781.99       .27         0.        75.     3.951       22.0     790.00         0.


     6.000       4.75    781.75        .00        .00    781.99        .24        .27        .00     777.00
      75.0         .0      75.0         .0         .1      19.0         .1         .4         .1     777.00
       .07        .01      3.95        .01       .100      .040       .100       .000     777.00      10.06
   .001418       200.      200.       200.          2         0          0        .00       4.07      14.14


*SECNO 7.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.55

     7.000       5.01    782.06        .00        .00    782.06        .00        .00        .07     777.05
      75.0       15.2      47.0       12.9       96.8      75.1       82.3         .5         .2     777.05
       .08        .16       .63        .16       .100      .040       .100       .000     777.05      61.33
   .000033        25.       25.        25.          2         0          0        .00      86.54     147.87


1
   10DEC01      18:54:46                                                                                          PAGE   10


T1       Profile 3

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 4                            .00300                                          780

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      3                   -1

1
   10DEC01      18:54:46                                                                                          PAGE   11


     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 3

CCHV=      .100 CEHV=      .300
*SECNO 1.000
     1.000       1.53    777.53        .00     780.00    777.59        .06        .00        .00     776.00
     100.0       32.8      40.9       26.2       29.2      15.3       23.4         .0         .0     776.00
       .00       1.12      2.68       1.12       .060      .040       .060       .000     776.00      61.79
   .002950         0.        0.         0.          0         0          5        .00      78.78     140.57


CCHV=      .300 CEHV=      .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000       2.32    778.40     778.40        .00    779.55       1.16        .30        .55     776.08
     100.0         .0     100.0         .0         .0      11.6         .0         .0         .0     776.08
       .00        .03      8.63        .03       .060      .040       .060       .000     776.08      10.08
   .017625        50.       50.        50.         20        11          0        .00       5.03      15.12


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .50       3.00        .00       5.00        .00     500.00      2          3         776.92     776.08

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =     781.512  EGOC =     782.495  PCWSE=     778.396  ELTRD=     790.000
```

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.05

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
781.51	782.49	2.94	0.	100.	3.731	19.6	790.00	0.

3.000	5.36	782.28	.00	.00	782.49	.22	2.94	.00	776.92
100.0	.0	100.0	.0	.1	26.8	.1	.3	.1	776.92
.04	.06	3.73	.06	.060	.040	.060	.000	776.92	10.06
.001075	500.	500.	500.	2	0	0	.00	5.08	15.14

*SECNO 4.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.88

4.000	5.60	782.55	.00	.00	782.56	.01	.00	.06	776.95
100.0	8.5	83.1	8.5	36.0	84.0	36.0	.3	.1	776.95
.05	.24	.99	.24	.100	.040	.100	.000	776.95	17.13
.000071	25.	25.	25.	2	0	0	.00	40.74	57.87

*SECNO 5.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .21

5.000	5.39	782.39	.00	.00	782.73	.33	.00	.16	777.00
100.0	.0	100.0	.0	.1	21.6	.1	.4	.1	777.00
.05	.05	4.64	.05	.100	.040	.100	.000	777.00	10.06
.001646	25.	25.	25.	2	0	0	.00	4.08	14.14

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.012	.50	3.00	.00	5.50	4.00	200.00	8	2	777.00	777.00

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL CULVERT OUTLET CONTROL
EGIC = 781.582 EGOC = 782.764 PCWSE= 782.392 ELTRD= 790.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
781.58	782.76	.04	0.	100.	4.597	22.0	790.00	0.

6.000	5.44	782.44	.00	.00	782.76	.33	.04	.00	777.00
100.0	.0	100.0	.0	.1	21.8	.1	.5	.2	777.00
.06	.05	4.60	.05	.100	.040	.100	.000	777.00	10.06
.001601	200.	200.	200.	2	0	0	.00	4.08	14.14

*SECNO 7.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.09

7.000	5.81	782.86	.00	.00	782.86	.00	.00	.10	777.05
100.0	22.1	59.1	18.8	130.3	87.1	110.8	.6	.2	777.05
.08	.17	.68	.17	.100	.040	.100	.000	777.05	55.14
.000032	25.	25.	25.	2	0	0	.00	98.00	153.13

```
T1      Profile 4

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                         .00300                                    780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                  -1

1
   10DEC01      18:54:46                                                                                    PAGE   15

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=     .100 CEHV=     .300
*SECNO 1.000
     1.000      1.68    777.68       .00    780.00    777.75       .06       .00       .00    776.00
     125.0      42.6      48.3      34.1      35.4      16.8      28.3        .0        .0    776.00
       .00      1.21      2.87      1.21      .060      .040      .060      .000    776.00     57.95
   .002988        0.        0.        0.         0         0         5       .00     85.68    143.64

CCHV=     .300 CEHV=     .500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      2.68    778.76    778.76       .00    780.11      1.35       .30       .65    776.08
     125.0        .0     125.0        .0        .0      13.4        .0        .1        .1    776.08
       .00       .03      9.34       .03      .060      .040      .060      .000    776.08     10.08
   .016987       50.       50.       50.        20        14         0       .00      5.04     15.12


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1          .024       .50      3.00       .00      5.00       .00    500.00      2         3       776.92    776.08

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    782.310  EGOC =    784.230  PCWSE=    778.758  ELTRD=    790.000


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.10

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    782.31    784.23      4.12        0.      125.     3.511      19.6    790.00        0.


     3.000      7.12    784.04       .00       .00    784.23       .19      4.12       .00    776.92
     125.0        .0     125.0        .0        .2      35.6        .2        .3        .1    776.92
       .04       .06      3.51       .06      .060      .040      .060      .000    776.92     10.05
   .000652      500.      500.      500.         2         0         0       .00      5.11     15.15

*SECNO 4.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.98

     4.000      7.33    784.28       .00       .00    784.29       .01       .00       .05    776.95
     125.0      13.2      98.7      13.2      61.6     109.8      61.6        .4        .1    776.95
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      .05       .21       .90       .21      .100      .040      .100      .000    776.95     13.18
  .000041       25.       25.       25.         1         0         0       .00     48.65     61.82


*SECNO 5.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .20

    5.000      7.14    784.14       .00       .00    784.43       .30       .00       .14    777.00
    125.0        .0     125.0        .0        .2      28.5        .2        .5        .1    777.00
      .05       .04      4.38       .04      .100      .040      .100      .000    777.00     10.05
  .001011       25.       25.       25.         2         0         0       .00      4.11     14.15


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012       .50     3.00        .00     5.50      4.00    200.00      8         2       777.00    777.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000
1
   10DEC01      18:54:46                                                                                    PAGE   17

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT OUTLET CONTROL
EGIC =    782.329  EGOC =    785.234  PCWSE=    784.136  ELTRD=    790.000

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   782.33    785.23       .80        0.      125.     3.907      22.0    790.00        0.


    6.000      8.00    785.00       .00       .00    785.23       .24       .80       .00    777.00
    125.0        .0     125.0        .0        .2      32.0        .2        .6        .2    777.00
      .07       .04      3.91       .04      .100      .040      .100      .000    777.00     10.04
  .000691      200.      200.      200.         2         0         0       .00      4.12     14.16


*SECNO 7.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.84

    7.000      8.25    785.30       .00       .00    785.31       .00       .00       .07    777.05
    125.0      33.5      63.0      28.5     263.0     123.8     223.6        .8        .2    777.05
      .09       .13       .51       .13      .100      .040      .100      .000    777.05     36.26
  .000011       25.       25.       25.         2         0         0       .00    132.91    169.17


1
   10DEC01      18:54:46                                                                                    PAGE   18

T1      Profile 3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                          .00300                                   780

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     5                   -1

1
   10DEC01      18:54:46                                                                                    PAGE   19

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 5

CCHV=     .100 CEHV=     .300
*SECNO 1.000
    1.000      1.83    777.83       .00    780.00    777.89       .07       .00       .00    776.00
    150.0      52.8      55.1      42.2      41.7      18.3      33.3        .0        .0    776.00
      .00      1.27      3.02      1.27      .060      .040      .060      .000    776.00     54.35
  .002951        0.        0.        0.         0         0         4       .00     92.17    146.52


CCHV=     .300 CEHV=     .500
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*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      3.02    779.10    779.10       .00    780.63      1.53       .29       .73    776.08
     150.0        .0     150.0       .0        .0      15.1        .0        .1        .1    776.08
       .00       .03      9.92       .03      .060      .040      .060      .000    776.08     10.08
   .016313       50.       50.       50.        20        14         0       .00      5.04     15.12


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .024      .50      3.00       .00      5.00      .00      500.00     2         3        776.92    776.08

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    783.110  EGOC =    786.334  PCWSE=    779.104  ELTRD=    790.000


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.45

1
   10DEC01      18:54:46                                                                                    PAGE   20


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   783.11    786.33      5.70        0.      150.     3.242      19.6    790.00        0.


     3.000      9.25    786.17       .00       .00    786.33       .16      5.70       .00    776.92
     150.0        .0     150.0        .0        .3      46.3        .3        .4        .1    776.92
       .04       .05      3.24       .05      .060      .040      .060      .000    776.92     10.03
   .000392      500.      500.      500.         2         0         0       .00      5.14     15.17

*SECNO 4.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.16

     4.000      9.42    786.37       .00       .00    786.38       .01       .00       .05    776.95
     150.0      19.2     111.6      19.2     102.2     141.4     102.2        .5        .1    776.95
       .06       .19       .79       .19      .100      .040      .100      .000    776.95      8.32
   .000023       25.       25.       25.         0         0         0       .00     58.35     66.68

*SECNO 5.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .19

     5.000      9.25    786.25       .00       .00    786.51       .25       .00       .12    777.00
     150.0        .0     150.0        .0        .3      37.0        .3        .6        .2    777.00
       .06       .04      4.05       .04      .100      .040      .100      .000    777.00     10.03
   .000612       25.       25.       25.         2         0         0       .00      4.14     14.17


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .012      .50      3.00       .00      5.50      4.00      200.00     8         2        777.00    777.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  2 - WINGWALLS FLARED 90 OR 15 DEGREES

*SECNO 6.000
1
   10DEC01      18:54:46                                                                                    PAGE   21


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

SPECIAL CULVERT OUTLET CONTROL
EGIC = 783.029 EGOC = 787.834 PCWSE= 786.252 ELTRD= 790.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
783.03	787.83	1.33	0.	150.	3.523	22.0	790.00	0.

6.000	10.64	787.64	.00	.00	787.83	.19	1.33	.00	777.00
150.0	.0	150.0	.0	.4	42.6	.4	.8	.2	777.00
.07	.03	3.52	.03	.100	.040	.100	.000	777.00	10.02
.000384	200.	200.	200.	2	0	0	.00	4.16	14.18

*SECNO 7.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 8.86

7.000	10.84	787.89	.00	.00	787.89	.00	.00	.06	777.05
150.0	45.8	65.4	38.8	453.7	162.6	385.7	1.1	.2	777.05
.10	.10	.40	.10	.100	.040	.100	.000	777.05	16.29
.000005	25.	25.	25.	2	0	0	.00	169.87	186.15

THIS RUN EXECUTED 10DEC01 18:54:47

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Elwood wilson North Bran

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1.000	.00	.00	.00	776.00	50.00	777.12	.00	777.16	29.48	2.17	39.34	9.21
	1.000	.00	.00	.00	776.00	75.00	777.34	.00	777.39	29.92	2.47	53.82	13.71
	1.000	.00	.00	.00	776.00	100.00	777.53	.00	777.59	29.50	2.68	67.85	18.41
	1.000	.00	.00	.00	776.00	125.00	777.68	.00	777.75	29.88	2.87	80.46	22.87
	1.000	.00	.00	.00	776.00	150.00	777.83	.00	777.89	29.51	3.02	93.29	27.61
*	2.000	50.00	.00	.00	776.08	50.00	777.53	777.53	778.27	208.40	6.88	7.28	3.46
*	2.000	50.00	.00	.00	776.08	75.00	777.99	777.99	778.95	189.07	7.86	9.57	5.45
*	2.000	50.00	.00	.00	776.08	100.00	778.40	778.40	779.55	176.25	8.63	11.62	7.53
*	2.000	50.00	.00	.00	776.08	125.00	778.76	778.76	780.11	169.87	9.34	13.44	9.59
*	2.000	50.00	.00	.00	776.08	150.00	779.10	779.10	780.63	163.13	9.92	15.18	11.74
*	3.000	500.00	790.00	781.92	776.92	50.00	780.35	.00	780.49	11.86	2.91	17.26	14.52
*	3.000	500.00	790.00	781.92	776.92	75.00	781.34	.00	781.52	11.49	3.39	22.26	22.12
*	3.000	500.00	790.00	781.92	776.92	100.00	782.28	.00	782.49	10.75	3.73	27.02	30.49
*	3.000	500.00	790.00	781.92	776.92	125.00	784.04	.00	784.23	6.52	3.51	35.98	48.95
*	3.000	500.00	790.00	781.92	776.92	150.00	786.17	.00	786.33	3.92	3.24	46.91	75.74
*	4.000	25.00	.00	.00	776.95	50.00	780.52	.00	780.53	.91	.83	82.80	52.48
*	4.000	25.00	.00	.00	776.95	75.00	781.56	.00	781.57	.81	.93	118.12	83.22
*	4.000	25.00	.00	.00	776.95	100.00	782.55	.00	782.56	.71	.99	156.00	118.41
*	4.000	25.00	.00	.00	776.95	125.00	784.28	.00	784.29	.41	.90	232.89	194.73
*	4.000	25.00	.00	.00	776.95	150.00	786.37	.00	786.38	.23	.79	345.84	315.15
*	5.000	25.00	.00	.00	777.00	50.00	780.43	.00	780.63	18.67	3.65	13.79	11.57
*	5.000	25.00	.00	.00	777.00	75.00	781.44	.00	781.71	17.76	4.23	17.90	17.80
*	5.000	25.00	.00	.00	777.00	100.00	782.39	.00	782.73	16.46	4.64	21.79	24.64
*	5.000	25.00	.00	.00	777.00	125.00	784.14	.00	784.43	10.11	4.38	28.94	39.32
*	5.000	25.00	.00	.00	777.00	150.00	786.25	.00	786.51	6.12	4.05	37.67	60.61

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	6.000	200.00	790.00	782.50	777.00	50.00	780.67	.00	780.85	14.85	3.41	14.78	12.97
	6.000	200.00	790.00	782.50	777.00	75.00	781.75	.00	781.99	14.18	3.95	19.16	19.92
	6.000	200.00	790.00	782.50	777.00	100.00	782.44	.00	782.76	16.01	4.60	21.98	24.99
	6.000	200.00	790.00	782.50	777.00	125.00	785.00	.00	785.23	6.91	3.91	32.48	47.54
	6.000	200.00	790.00	782.50	777.00	150.00	787.64	.00	787.83	3.84	3.52	43.44	76.52
*	7.000	25.00	.00	.00	777.05	50.00	780.90	.00	780.91	.42	.59	163.71	76.94
*	7.000	25.00	.00	.00	777.05	75.00	782.06	.00	782.06	.33	.63	254.23	130.44

*	7.000	25.00	.00	.00	777.05	100.00	782.86	.00	782.86	.32	.68	328.23	177.10
*	7.000	25.00	.00	.00	777.05	125.00	785.30	.00	785.31	.11	.51	610.40	372.70
*	7.000	25.00	.00	.00	777.05	150.00	787.89	.00	787.89	.05	.40	1002.02	678.34

Elwood wilson North Bran

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	50.00	777.12	.00	.00	-2.88	60.34	.00
	1.000	75.00	777.34	.22	.00	-2.66	70.31	.00
	1.000	100.00	777.53	.19	.00	-2.47	78.78	.00
	1.000	125.00	777.68	.15	.00	-2.32	85.68	.00
	1.000	150.00	777.83	.14	.00	-2.17	92.17	.00
*	2.000	50.00	777.53	.00	.41	.00	5.02	50.00
*	2.000	75.00	777.99	.46	.65	.00	5.03	50.00
*	2.000	100.00	778.40	.41	.87	.00	5.03	50.00
*	2.000	125.00	778.76	.36	1.08	.00	5.04	50.00
*	2.000	150.00	779.10	.35	1.28	.00	5.04	50.00
*	3.000	50.00	780.35	.00	2.82	.00	5.05	500.00
*	3.000	75.00	781.34	.99	3.35	.00	5.07	500.00
*	3.000	100.00	782.28	.94	3.88	.00	5.08	500.00
*	3.000	125.00	784.04	1.76	5.28	.00	5.11	500.00
*	3.000	150.00	786.17	2.13	7.07	.00	5.14	500.00
*	4.000	50.00	780.52	.00	.16	.00	31.41	25.00
*	4.000	75.00	781.56	1.04	.22	.00	36.21	25.00
*	4.000	100.00	782.55	.98	.27	.00	40.74	25.00
*	4.000	125.00	784.28	1.73	.24	.00	48.65	25.00
*	4.000	150.00	786.37	2.10	.20	.00	58.35	25.00
*	5.000	50.00	780.43	.00	-.09	.00	4.05	25.00
*	5.000	75.00	781.44	1.01	-.13	.00	4.07	25.00
*	5.000	100.00	782.39	.96	-.16	.00	4.08	25.00
*	5.000	125.00	784.14	1.74	-.14	.00	4.11	25.00
*	5.000	150.00	786.25	2.12	-.12	.00	4.14	25.00
	6.000	50.00	780.67	.00	.24	.00	4.06	200.00
	6.000	75.00	781.75	1.08	.31	.00	4.07	200.00
	6.000	100.00	782.44	.69	.04	.00	4.08	200.00
	6.000	125.00	785.00	2.56	.86	.00	4.12	200.00
	6.000	150.00	787.64	2.64	1.39	.00	4.16	200.00
*	7.000	50.00	780.90	.00	.23	.00	70.02	25.00
*	7.000	75.00	782.06	1.16	.31	.00	86.54	25.00
*	7.000	100.00	782.86	.80	.42	.00	98.00	25.00
*	7.000	125.00	785.30	2.44	.31	.00	132.91	25.00
*	7.000	150.00	787.89	2.59	.25	.00	169.87	25.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      2.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      3.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      5.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=      5.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      5.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      5.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      5.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      7.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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