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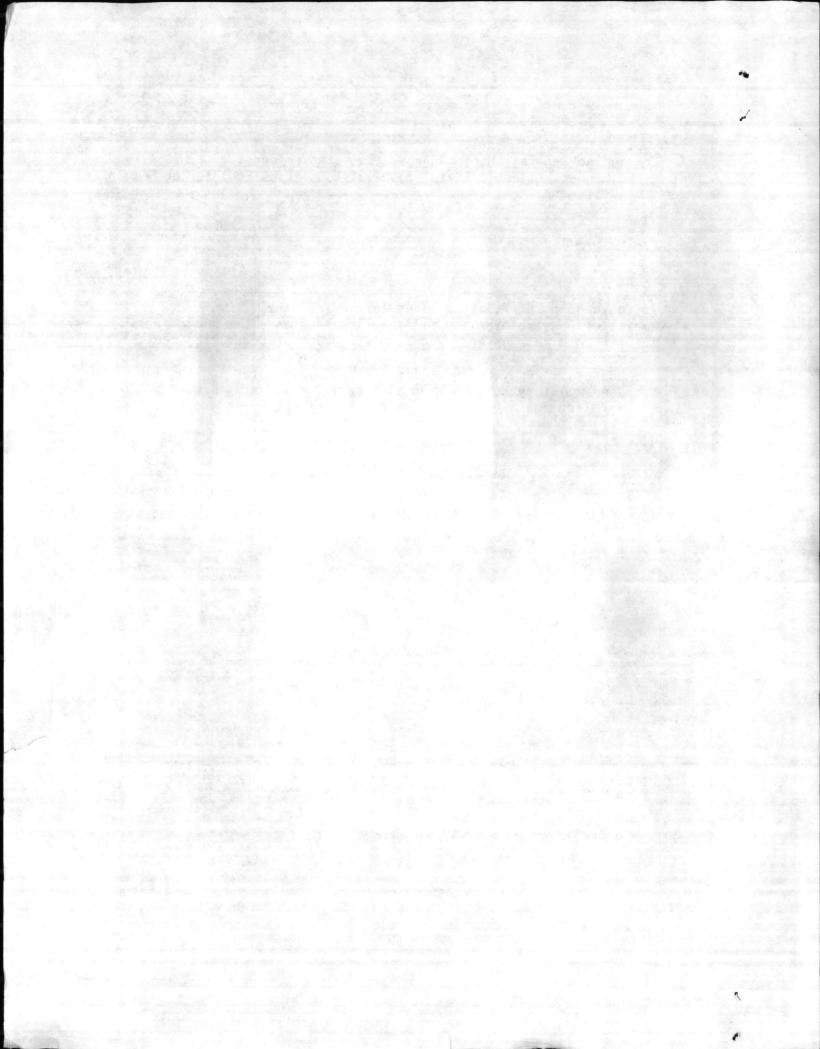
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-	Commanding General, Marine Corps Base, Camp Lejeune, N. C. 28542-5001 2 TO Commander, Atlantic Division, Naval Facilities Engineering Command,				
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TER	7. TYPE OF SERVICES REQUESTED	8. DESIRED COMPLETION DATE			
RE	An Engineering Study is required to identify the impact of Construction and Military Training on				
-1	the stream discharge and natural environment of Cogdell's Creek.				
FOR	I. General: Provide an engineering study to determine the impact of proposed military construction and ongoing military training on the stream discharge and natural environment of Cogdell's Creek.				
	II. Scope of Work: (See attached sheets)				
	III. Funds are available upon request. 10 FOR INFORMATION CONSULT (Name and phone) R. E. ALEXANDER 11. OFFICIAL REPRESENTATIVE (Signature) B. W. ELSTON	12 PATE MAY 1935			
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EVALUATION OF PEAK STORM WATER RUNOFF IN COGDELS CREEK WATERSHED MARINE CORPS BASE CAMP LEJEUNE JACKSONVILLE, NORTH CAROLINA

May 1986

Prepared for:

DEPARTMENT OF THE NAVY
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511



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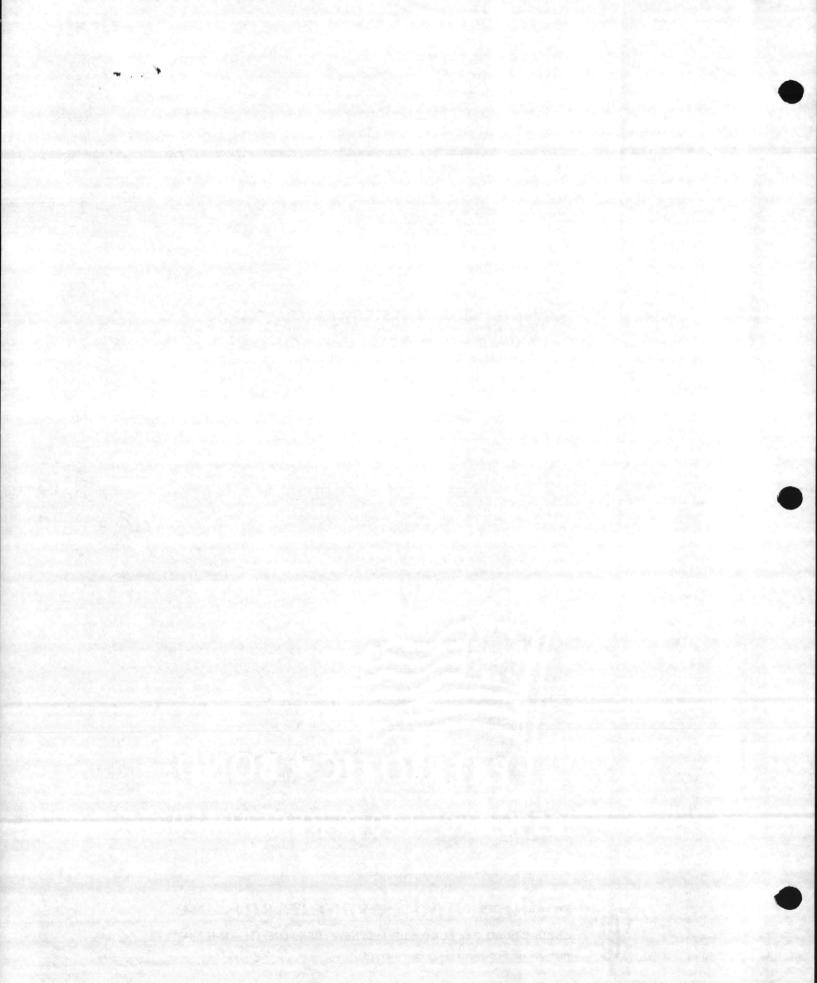


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INTRODUCTION

The purpose of this report is to address the potential effects on peak storm water runoff in the Cogdels Creek Watershed resulting from the development of military facilities on Marine Corps Base Camp Lejeune which are proposed for construction during the period 1986 through 1992. This report also recommends storm water management and erosion control measures to alleviate existing and potential impacts resulting from enhanced storm water runoff due to the development in the watershed.

The area under consideration is the portion of the Cogdels Creek Watershed located generally west and south of Snead's Ferry Road (Figure 1-1). Military facilities within the watershed include portions of the Hadnot Point Administrative and Industrial Area, the French Creek Force Troops Complex, and the 1800 Area. These areas encompass administrative, residential, industrial, and military training facilities.

The remainder of this section includes a brief history of Marine Corps Base Camp Lejeune (Section 1.1) and a description of the problem under study (Section 1.2). General information on the existing environment in the Cogdels Creek Watershed is presented in Section 2. Section 3 presents information on existing hydrologic conditions in the watershed; Section 4 is a discussion of the potential impacts of proposed development on watershed hydrology; and Section 5 presents recommendations to remediate existing problems and to manage projected changes in surface hydrology in the watershed resulting from proposed

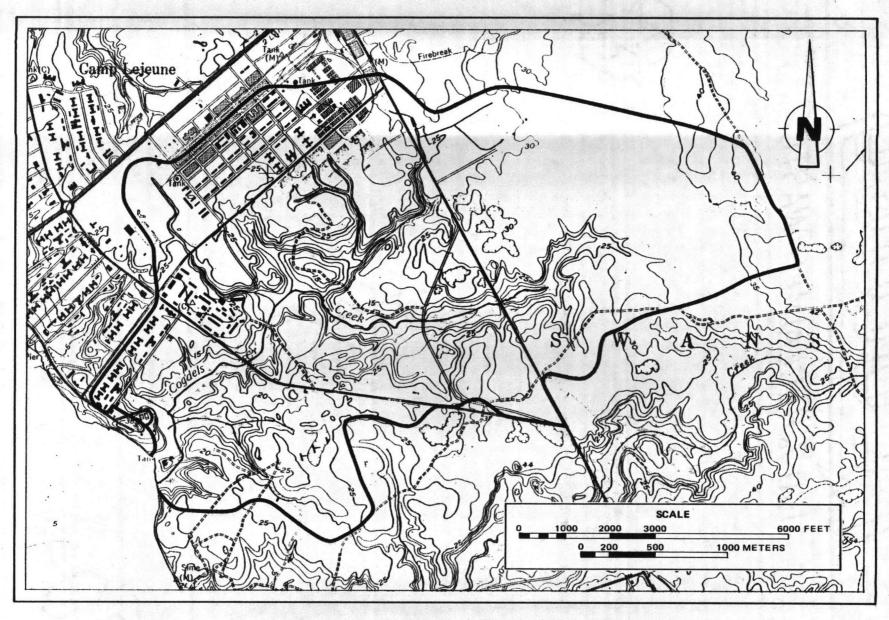


Figure 1—1 LOCATION OF COGDELS CREEK WATERSHED ON CAMP LEJEUNE, JACKSONVILLE, NORTH CAROLINA

development. A proposed schedule and estimated costs to implement the recommended measures are presented in Section 6.

1.1 STATION BACKGROUND

Marine Corps Base Camp Lejeune is located near Jacksonville in Onslow County on the southeastern coast of North Carolina. The base encompasses more than 170 square miles on both sides of the New River, and has over 11 miles of frontage on the Atlantic Ocean and a perimeter of 68 miles.

Camp Lejeune is known as "The World's Most Complete Amphibious Training Base." The base came into existence in the late 1930s when the Marine Corps realized that its existing bases in Washington, DC, and Quantico, Virginia, were inadequate for its growing size and training requirements. After careful study, a selection board recommended that a base be established in the New River area of North Carolina. Construction of the new camp, named in honor of the Corps' 13th commandant, Lieutenant General John A. Lejeune, began in April 1941. The companion Cherry Point Air Station, conceived at about the same time, placed air support agencies in close proximity to ground units based in Camp Lejeune. The region provides access to deep-water ports and suitable areas for amphibious training.

Also located in the same general area is the United States Marine Corps (USMC) Air Station, New River, located on the northwest side of Camp Lejeune and south of Jacksonville. The Air Station encompasses approximately 2,672 acres. Originally a part of Camp Lejeune, USMC Air Facility, Peterfield Point, was surveyed and set up as a separate command in 1951. It was used as a helicopter training base and as a touch-and-go training field for jet fighters during the Korean War. The base underwent a name change in 1968 and is now known as the Marine Corps Air Station, New River.

1.2 DESCRIPTION OF THE PROBLEM

Marine Corps Base Camp Lejeune provides facilities for approximately 40,000 military personnel and approximately 60,000 civilians, and there are several areas on the base which have been developed extensively to provide such facilities. The Cogdels Creek Watershed

is one area which has been developed in the past, and which is scheduled to be further developed in the future.

Permanent development or temporary disturbances must be carefully planned so that they do not result in significant adverse impacts to water quality, aquatic biota, or the riparian environments in general. The impacts which may result from development in the watershed include accelerated soil erosion and sedimentation; increased storm water runoff and subsequent flooding or streambed scour; and non-point source pollution from maintained lawns (fertilizers, pesticides) or paved surfaces (oil, grease, heavy metals).

For the most part, development in the watershed has occurred on upland areas around the perimeter of the watershed boundary, and not within the stream channel or floodplain itself. However, stream channels and floodplains have been affected by temporary disturbances such as tank and heavy equipment movements through stream channels and clearing vegetation along stream channels. In addition, there are several existing and/or potential problems in Cogdels Creek Watershed resulting from past development activities and ongoing military activities. These are discussed in Section 3.2, and primarily include impacts resulting from accelerated soil erosion in areas where vegetation has been disturbed and soils have been destabilized; gully erosion and channel scour in areas where enhanced surface runoff from developed upland areas has been diverted either through storm drains or open channels to natural stream channels without adequately protecting the discharge areas from the erosive forces of high energy flows; and obstruction of normal stream flows at locations of unimproved tank and heavy equipment crossings.

Remediation of existing problems and adequate planning for future development or military training activities will insure that adverse impacts such as accelerated soil erosion and sedimentation in water-courses and riparian wetlands, or adverse effects on watershed hydrology resulting in excess flows during peak runoff and/or reduction in base flow, do not occur. This report analyzes existing hydrologic conditions in Cogdels Creek Watershed to determine whether the existing channel is adequate to handle peak storm water runoff, and identifies existing critical erosion problems. This report also evaluates

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the potential effects on future peak runoff conditions which will result from development of proposed facilities, and recommends measures to alleviate existing and potential flooding and/or erosion problems.

2. EXISTING ENVIRONMENT

This section discusses the existing environmental conditions on Camp Lejeune in general, and in the Cogdels Creek Watershed in particular. Special emphasis is placed on those environmental features which influence the hydrologic regime of surface waters in the study area.

2.1 GEOLOGY AND TOPOGRAPHY

Camp Lejeune is in the lower Coastal Plain of eastern North Carolina. This land originated in a marine or coastal environment similar to that along the present Atlantic Coast. Changes in sea level due to glacial fluctuations and/or slight crustal movements have caused the alternating emergence and submergence of portions of this surface at irregular intervals. When submerged, the area collected deposits of continental and marine sediments. Each successive emergence resulted in shoreline modifications upon the newly emerged coastal area and the development of surface drainage on the previously emerged lands further inland.

In the vicinity of Camp Lejeune, the Coastal Plain is underlain by hundreds of feet of unconsolidated to weakly consolidated sediments ranging from Cretaceous to Miocene age. Generally, these formations are covered with 5 to 30 feet of Pleistocene sediments. The sediments are mostly clean sand and clayey sand, interlayered with deposits of clay and marine shells. Outcroppings of the Miocene Yorktown Formation occur on the banks of large streams. The Yorktown Formation

consists of clay, sand, and shell marl beds similar to the younger surficial deposits.

The topography of the base area is mostly upland plains which include parts of three topographic surfaces representing three periods of geologically recent land emergence. The Pamlico surface lies at elevations of 2 to 25 feet in a 2-mile strip near the coast and along New River and other streams. The inland boundary of the Pamlico surface is a gentle scarp (Suffolk) that can be traced on aerial topographic maps. The majority of the base is on the Talbot surface which lies at elevations of about 25 to 45 feet. The Wicomico surface may be represented by a few areas south of Jacksonville at elevations of 45 to 70 feet.

The topography of Camp Lejeune is largely the result of the dissection of about two-thirds of the original, nearly level coastal plains by the New and White Oak rivers, their tributaries, and drainageways to the Atlantic Ocean. Dissection of the landscape affects the formation of soils by influencing the depth of the water table and the geologic removal of soil material by slope retreat.

2.2 SOILS

The soils in Camp Lejeune formed in surficial sediment of the Wicomico, Talbot, and Pamlico marine terraces, in alluvium recently deposited on drainageways, and in accumulations of organic material on the broad, undissected interstream areas. Many of the differences in the soils of Camp Lejeune are attributed to differences in the parent material from which the soils were formed, and to topographic relief and drainage.

As discussed above, most of Camp Lejeune is nearly level with wide, undissected divides. These areas have minimal relief and water movement is slow. Consequently, the soils are somewhat poorly drained, poorly drained, or very poorly drained. The major soils of these areas are Torhunta, Murville, Woodington, Leon, Rains, and Stallings. A few small oval depressions have developed thick mantles of organic matter. The soil in these depressions is Croatan.

Soils found on side slopes near drainageways include the well-drained Baymeade and the moderately well-drained Marvyn soils.

The major soils along the main streams draining Camp Lejeune are Muckalee loam and Dorovan. In addition to the major streams, there are several short creeks that drain directly into the Intracoastal Waterway. These coastal creeks have wide estuarial floodplains. High tides back saltwater up into these streams. These floodplains are flooded with brackish water from 1 mile to 3 miles inland. The major soil along these streams is Bohicket.

The Cogdels Creek Watershed contains many of the above soil series (Figure 2-1). In general, upland soils are sandy and very well-drained, whereas soils found in bottomlands and depressions are loamy and less well-drained. Soils found immediately adjacent to Cogdels Creek and its tributaries are Muckalee loam. This nearly level, poorly drained soil generally occurs in narrow areas along floodplains. The soil is frequently flooded for brief periods, and water ponds in low areas for long periods during the winter.

Adjacent to and upslope from the Muckalee soils are Marvyn loamy fine sands. These well-drained soils generally occur on short side slopes (6 to 15%) near large drainageways. This soil is very susceptible to accelerated erosion if vegetative cover is not maintained.

Upland areas between the major drainages are occupied primarily by Baymeade fine sand. Baymeade fine sand, which is the predominant soil in the watershed, is a well-drained soil which occurs on moderately convex slopes (0 to 6%) near major drainageways. The seasonal high water table is 4 to 5 feet below the surface. If vegetative cover is disturbed, this soil is susceptible to accelerated erosion, although, because of the low slope and high permeability, it is not likely that erosion would be extensive.

Other soils occurring in the Cogdels Creek Watershed to a lesser extent include Onslow loamy fine sand, Kureb fine sand, Torhunta fine sandy loam, Murville fine sand, Croatan muck, Woodington loamy fine sand, and Newhan fine sand. These soils are described briefly below:

 Croatan muck is nearly level, very poorly drained soil found in oval depressions on broad interstream areas in uplands.
 The seasonal high water table is at or near the surface, although flooding is rare. Limitations of these soils are wetness, flooding, and low strength.

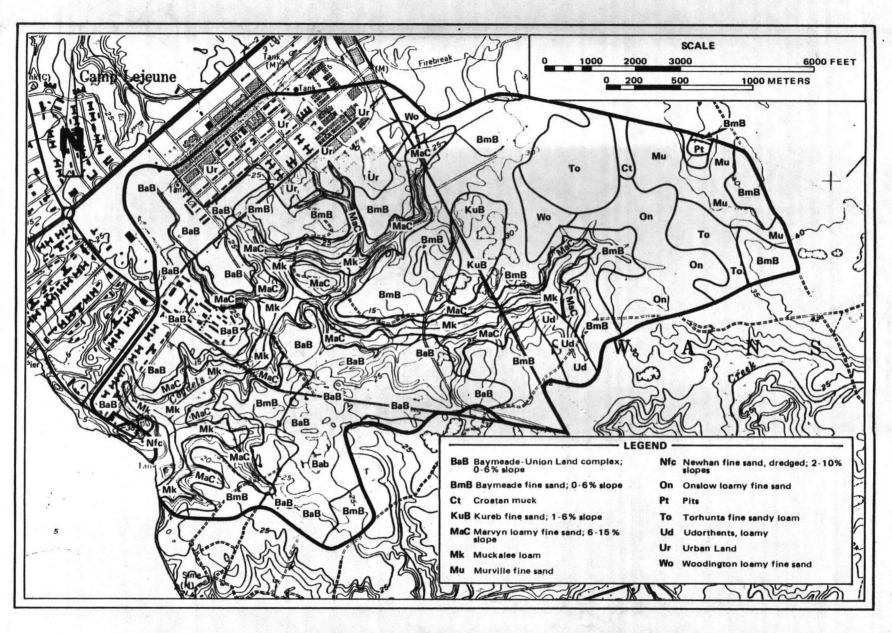


Figure 2-1 MAJOR SOIL TYPES IN THE COGDELS CREEK WATERSHED

- Kureb fine sand (1 to 6% slopes) is found near large drainageways and on undulating convex divides in upland areas. The soil is excessively well-drained and the seasonal high water table is below 6 feet. If unprotected by vegetative cover, this soil is very susceptible to erosion by wind and water, although because of droughtiness, vegetation can be difficult to establish.
- Murville fine sand is nearly level, very poorly drained soil found in depressions on upland interstream areas. Although infiltration is rapid, the seasonal high water table is at or near the surface, and water ponds on the surface during winter. Major limitations of this soil are wetness, seepage, and caving of ditch banks.
- Newhan fine sand, dredged, is excessively drained soil deposited on uplands by dredging operations along the Intracoastal Waterway. Infiltration is rapid and the water table is below 6 feet. These soils are subject to severe erosion by wind and water if vegetation is not maintained. However, like Kureb fine sand, vegetation may be difficult to establish because of droughtiness.
- Onslow loamy fine sand is nearly level, moderately well
 drained to somewhat poorly drained soil found near shallow
 drainageways on uplands. Infiltration is moderate, and the
 seasonal high water table ranges from 1.5 to 3 feet below the
 surface. Compaction of the soil makes it nearly impervious,
 and subsequent surface runoff and erosion can result.
- Torhunta fine sandy loam is nearly level, very poorly drained soil on broad interstream upland areas. This soil has moderately rapid permeability and high organic matter content. The seasonal high water table is at or near the surface, and water ponds on the surface during the winter. Limitations of Torhunta soils include wetness, caving of cut banks, and seepage.

 Woodington loamy fine sand is nearly level, poorly drained soil found on broad, smooth interstream uplands. Infiltration is moderate, and the seasonal high water table ranges from 0.5 to 1 foot below the surface. The soil is subject to compaction if developed, and wetness is the major limitation.

In addition to the soils listed above, a major portion of the watershed has soils which have been modified as a result of the development of military facilities. Soils on these areas are identified as Urban Land or Baymeade-Urban Land complex. Urban Land consists of areas where the original soil has been cut, filled, graded, or paved so that most soil properties have been altered to the extent that a soil series is not recognizable.

2.3 CLIMATE

The climate of Camp Lejeune is generally warm and humid. In the summer, Camp Lejeune is hot and humid, but the coast is frequently cooled by sea breezes. Winter is cool, with occasional brief cold spells. Rains occur throughout the year and are fairly heavy; snowfall is rare. Annual precipitation is adequate for all crops.

Table 2-1 presents data on temperature and precipitation for the Camp Lejeune area for the period 1951 to 1979. In winter, the average temperature is 45°F and the average daily minimum temperature is 32°F. The lowest temperature on record, which occurred at Camp Lejuene on February 1, 1965, is 2°F. In summer, the average temperature is 76°F and the average daily maximum temperature is 87°F. The highest recorded temperature, which occurred on June 28, 1954, is 103°F. The total annual precipitation is 56 inches. Of this, 60% usually falls in April through September.

The intensity and duration of rainfall events at Camp Lejeune is shown in Table 2-2. Information on rainfall intensity is necessary for predicting the potential volume of surface runoff which can be expected to occur with a certain return periodicity. For example, based on the data, it can be expected that once in 10 years a rainstorm will occur which will result in 3.25 inches of rain in a two-hour period. For the purposes of this report, the design storm of interest is the 10-year, 24-hour storm. For the area of North

Table 2-1
TEMPERATURE AND PRECIPITATION DATA FOR CAMP LEJEUNE*

Month						Pr	ecipitation	
	Temperature				2 Years in 10 Will Have:		Average	
	Average Daily Maximum (°F)	Average Daily Minimum (°F)	Average (°F)	Average (in)	Less than (in)	More than (in)	Number of Days with 0.10 Inch or More	Average snowfall (in)
January	56.3	31.0	43.7	4.10	2.36	5.64	8	1.2
February	58.3	32.2	45.3	4.01	2.38	5.46	7	.8
March	65.5	38.3	51.9	3.96	2.37	5.38	8	.5
April	74.7	46.0	60.4	3.11	1.66	4.36	5	.0
May	80.8	54.5	67.7	4.80	3.23	6.24	8	.0
June	85.5	61.7	73.6	6.00	3.18	8.47	8	.0
July	88.6	66.4	77.5	7.01	4.64	9.17	10	.0
August	87.9	65.7	76.8	6.87	4.03	9.39	9	.0
September	83.8	59.9	71.9	5.96	2.80	8.67	7	.0
October	75.2	48.9	62.1	3.34	1.30	5.04	5	.0
November	67.4	39.3	53.4	3.11	1.58	4.43	5	.0
December	59.1	32.8	46.0	3.69	1.91	5.23	6	.4
Yearly				RI.				
Average	73.6	48.1	60.9				. 111	
Extreme								
Total				55.96	47.23	64.30	86	2.9

^{*}Data were recorded in the period 1951 through 1979 at Maysville, North Carolina.

Table 2-2

RAINFALL INTENSITY AND FREQUENCY
FOR CAMP LEJEUNE AREA

(Precipitation in Inches for Time Intervals)

Frequency	5 Min.	10 Min.	15 Min.	30 Min.	60 Min.	120 Min.
2-year	.48	•80	1.00	1.35	1.75	1.90
5-year	.53	.95	1.20	1.75	2.25	2.50
10-year	.60	1.05	1.38	2.00	2.60	3.25
25-year	.72	1.15	1.55	2.30	3.10	4.00
50-year	.80	1.30	1.75	2.50	3.60	4.50
100-year	.85	1.42	1.92	2.80	4.10	5.25

Source: U.S. Department of Agriculture, Miscellaneous Publication No. 204.

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Carolina which encompasses Camp Lejeune, the 10-year storm can be expected to result in approximately 7 inches of rain over the 24-hour period. These storms are most likely to occur during late summer (United States Department of Commerce 1961).

2.4 VEGETATION

The existing vegetation on Camp Lejeune is typical of the coastal lowlands of North Carolina in general. Variations in soils is the main cause of variations in vegetation. In areas with loamy soils, the vegetation is dominated by dense stands of loblolly pine. Where the soils are sandy and have hardpan subsoils, the vegetation is sparse, consisting mostly of longleaf pine and scrub oaks.

Vegetation in undeveloped portions of the Cogdels Creek Watershed is primarily forested (Figure 2-2). The upland areas between stream channels are dominated by loblolly pine, either in fairly pure stands or more commonly in association with various species of hardwoods, including red oak, white oak, sweet gum, black gum, or maple. Other species of pine which are found only in the extreme upper portions of the watershed, adjacent to Lyman Road, include longleaf pine and pond pine.

Deciduous forests dominate the bottomlands along the stream channels and drainageways. These deciduous forest associations include maple, sweet gum, black gum, and red and white oak, among others. Hardwoods are also found on uplands in two areas of the Cogdels Creek Watershed. One large area is located north of Cogdels Creek and east of Snead's Ferry Road; the other is located north of the creek and south of Duncan and "O" streets. According to the Natural Resources Management Plan, these two areas were predominantly covered in pine in 1975, but have been managed to encourage hardwoods. The latest timber stand inventory (Black 1986) indicates these areas are now predominantly red and white oak. The characteristic species found in the major forest types are described below.

Loblolly pine represents the main forest type on upland areas of the watershed. Many loblolly stands on Camp Lejeune in general grow on sites which were once old farm homesteads. Persimmon, black cherry, red cedar, holly, dogwood, and scrub oak are the associated

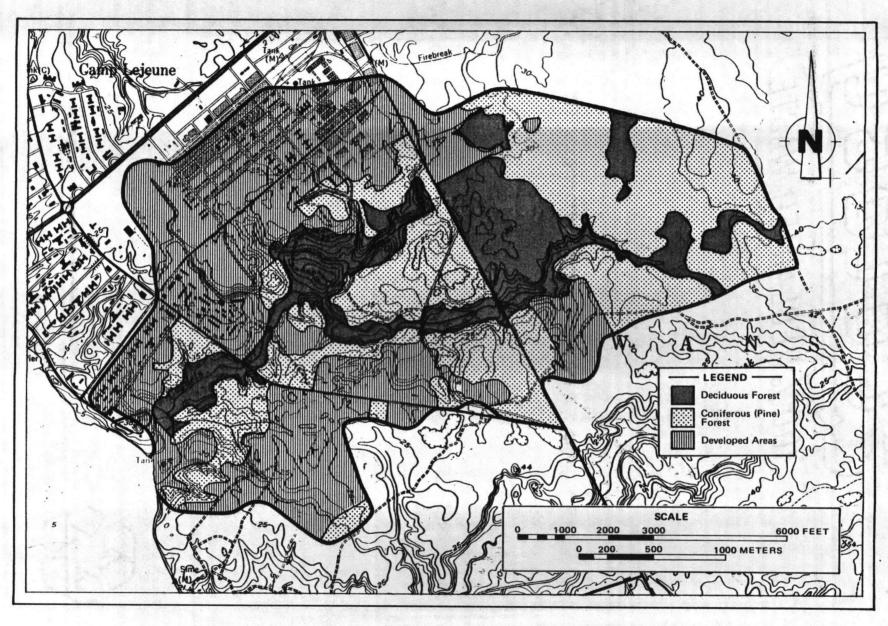


Figure 2-2 MAJOR VEGETATION IN THE COGDELS CREEK WATERSHED

species, while highbush huckleberry, chinquapin, gallberry, beautyberry, and wax myrtle make up the understory. Associated upland weeds and herbs are pokeweed, ragweed, smartweed, beggarweed, and partridge pea.

Loblolly pine-hardwood forests occur just below the pure stands of loblolly pine on higher upland sites but above the hardwood slopes. Sweet gum, black cherry, red cedar, holly, sweet bay, and dogwood are the associated species, while highbush huckleberry, gallberry, and wax myrtle comprise the understory. Associated upland weeds and herbs are panic grass, broomsedge, pokeweed, partridge pea, and beggarweed.

Oak-hickory occurs on slopes below the mixed stands of loblolly-hardwood and above bottomland hardwoods. Principal species are white oak and southern red oak. Black, post, chestnut, and scrub oak; yellow poplar; sweet gum; black gum; persimmon; black cherry; maple; and dogwood are the associated species, while blueberry, chinquapin, and beauty-berry make up the understory. Associated plants are ferns, teaberry, paspalums, and sedges.

Floodplains along streams, creeks, and swamps, downslope from mixed hardwoods, are dominated by sweet bay/swamp black gum and red maple. Swamp tupelo, ash, and elm are the associated species, while greenbrier, rattan-vine, grape, and rose make up the understory vegetation. Associated aquatic plants are wild millet, coontail, swamp smartweed, and arrowhead.

Pond pine forest types are composed of what is commonly known as "pocosins" or upland swamps. This group occurs on the poorly drained peat soils which are underlain by hardpan marine sands. Red maple, black gum, sweet bay, and red bay are the associated species, while greenbrier, cyrilla, fetter bush, and sheep laurel comprise the understory. Associated marsh and aquatic plants are moss, fern, pitcher plant, venus fly trap, and sundew.

2.5 LAND USE

Camp Lejeune, including the Marine Corps Air Station, New River, encompasses approximately 86,695 acres. Of this, 13,376 acres or 15% is improved or semi-improved grounds, and the remaining 73,319 acres are unimproved. Improved grounds include areas of troop and family

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housing buildings, hospital and medical buildings, administrative buildings, warehouses, community buildings, and all other buildings associated with the official functions of the base. Intensively maintained cantonment areas such as lawns, parade grounds, drill fields, recreational fields, and major road berms together with the less intensively maintained areas such as firing ranges, magazine areas, and utility rights-of-way are also included in improved areas.

Unimproved areas include forestland, which is the predominant land use on the base as a whole, occupying some 60,093 acres or 69% of the land area, as well as roadsides and stream channels (2,523 acres or 3%); impact areas (5,447 acres or 6%); coastal beaches (1,645 acres or 2%); tidal marshes (3,326 acres or 4%); and wildlife food plots (285 acres or less than 1%).

Land use in the Cogdels Creek Watershed is also predominantly forestland. Of the 2,200 acres in the watershed, forestland occupies approximately 70% of the area. The remaining land uses in the watershed include the intensively developed industrial, commercial, and residential areas of Hadnot Point, the French Creek Complex, and the 1800 Area, as well as semi-improved areas, including the landfill and the tank and heavy equipment training area. These areas occupy approximately 700 acres, or 30% of the watershed.

Much of the area along Cogdels Creek which is identified as forestland can also be classified as wetland. The distribution of wetland along the floodplain can generally be delineated by soil type, which reflects seasonal saturation. Wetlands within the Cogdels Creek watershed are shown on Figure 2-3.

Figure 2-4 shows the location of the designated 100-year-floodplain along Cogdels Creek. The floodplain boundaries reflect the extent to which tidal surge during the 100-year storm would inundate the stream valley.

Land use in Cogdels Creek Watershed was also characterized by categories which reflect the potential effects of land cover on surface runoff. Five land cover categories were delineated, including:

 Fully developed areas which include areas occupied by buildings, parking areas, and road surfaces;

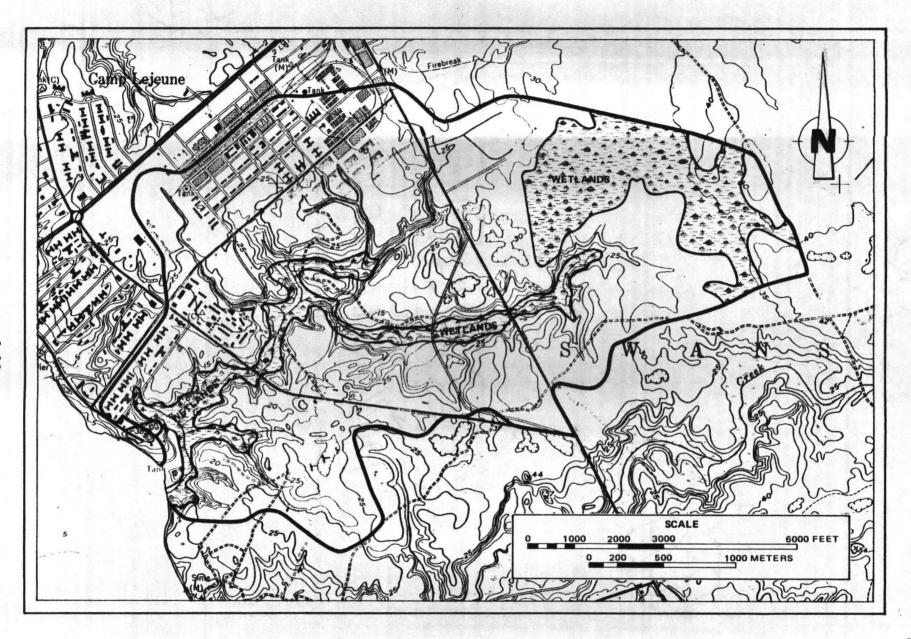


Figure 2-3 WETLANDS WITHIN THE COGDELS CREEK WATERSHED

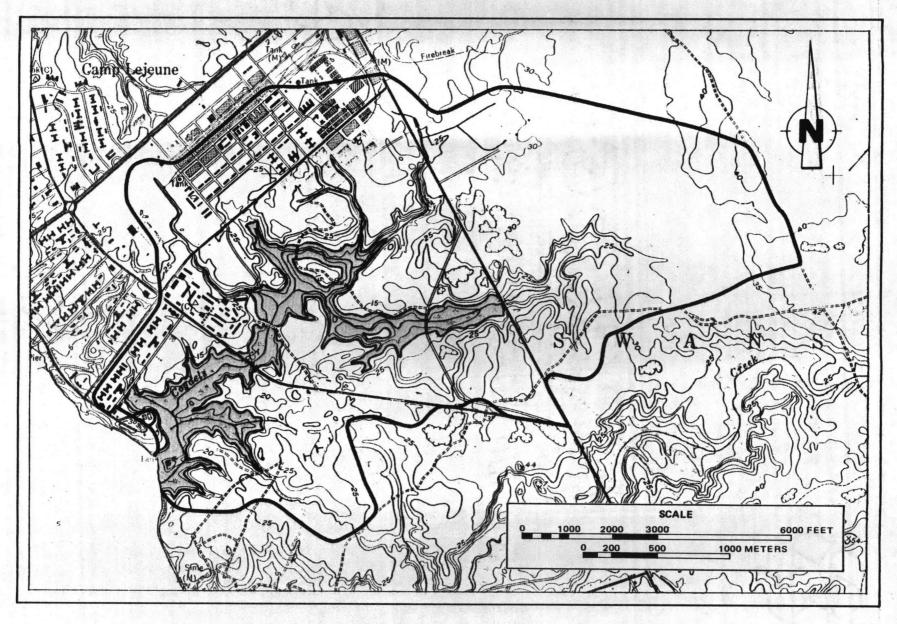


Figure 2-4 100-YEAR FLOODPLAINS WITHIN THE COGDELS CREEK WATERSHED

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- Partially developed areas in which buildings and other paved surfaces are interspersed with lawns, athletic fields, and other vegetated areas;
- Undeveloped areas which are occupied by undisturbed native forest vegetation;
- Semi-undeveloped areas which are occupied by forested vegetation which has been thinned or in which the understory has been removed or disturbed (park-like); and
- Disturbed areas in which vegetation has been removed exposing soils but which have not been developed.

Figure 2-5 shows the distribution of these land cover types in the Cogdels Creek Watershed; the extent of each is shown in Table 2-3.

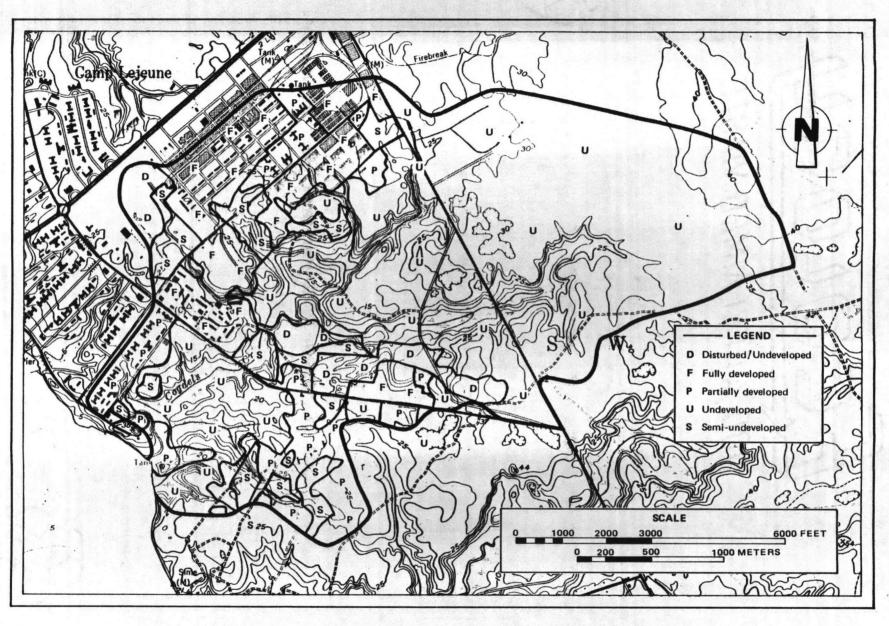


Figure 2-5 MAJOR LAND USES IN THE COGDELS CREEK WATERSHED

Table 2-3
DISTRIBUTION OF MAJOR LAND COVER TYPES
IN COGDELS CREEK WATERSHED

Land Cover	Area (acres)	Percent of Total Watershed	
Fully developed	358	16	
Partially developed	238	11	
Semi-undeveloped	67	3	
Undeveloped	1,464	66	
Disturbed	97	4	
Total	2,218	100	

Source: Ecology and Environment, Inc., 1986.

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EXISTING HYDROLOGY

This section discusses the existing hydrology of the Cogdels Creek Watershed under the present conditions of development and land cover, taking into account soils, vegetation, and in-place water control structures. This section also discusses areas on the base which are presently experiencing accelerated soil erosion.

3.1 WATERSHED HYDROLOGY

The Cogdels Creek Watershed encompasses approximately 3.98 square miles (Meikle 1986). Approximately 14% of this area is located north and west of Lyman Road. Drainage from the area northeast of Lyman Road has been interrupted and modified by the road, and for the purposes of this report, the watershed is considered to encompass 3.43 square miles, or 2,200 acres.

Figure 3-1 (map pocket inside back cover) shows the approximate boundaries of the watershed. The watershed is primarily drained by the main branch of Cogdels Creek and a major unnamed tributary to Cogdels Creek, as well as numerous minor tributaries. The main branch of Cogdels Creek is approximately 3.4 miles long. The main tributary, which is 1.5 miles long, joins the main branch approximately 1.4 miles from the mouth of Cogdels Creek.

There is no gauging station on Cogdels Creek, and thus there are no data on normal or peak stream flow volumes. A general indication of the range of stream flows which might be expected in Cogdels Creek can be determined from other watersheds in the general geographic area of Camp Lejeune which are gauged. Using data provided by the United

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States Geological Survey (USGS 1984), five watersheds ranging in size from less than 2 to over 5,000 square miles were identified within the coastal lowland areas of North Carolina (Table 3-1). Average annual flows in these five watersheds range from 0.9 to 2.7 cubic feet per second per square mile (cfsm), and average 1.6 cfsm. Based on these figures, the average annual stream flow in Cogdels Creek can be expected to be in the range of 3 to 10 cfs, with an average stream flow of 6 cfs.

Base flow is defined as that portion of stream flow which results from groundwater discharge. Without actual measurements of stream flow and precipitation, it is not possible to determine base flow in Cogdels Creek. However, again using the existing data from the five gauged watersheds, a rough approximation of base flow can be determined.

Although there are several methods of determining base flow from gauged watersheds, one method is to average the minimum monthly flow over the year under the assumption that these minimums will exclude stream flows resulting from surface runoff during storm events. This was done for the five gauged watersheds in the general vicinity of Camp Lejeune, and the average minimum monthly flow was found to range from 0.1 to 0.7 cfsm, with an average of 0.5 cfsm. Based on these figures, base flow in Cogdels Creek can be expected to range from 0.4 to 2.8 cfs, with 1.8 cfs as an average.

Crude stream flow measurements were made at two locations in Cogdels Creek on February 4, 1986. Stream flow through a 5-foot, 6-inch diameter oval corrugated steel culvert located near the Wastewater Treatment Plant was approximately 3.5 cfs. Stream flow immediately upstream from the main tank tract crossing ranged from 4 to 5 cfs. These stream flow measurements are in general agreement with the calculated base flow approximation, since rainfall had occurred a few days prior to the field inspection and it is likely that stream flows had not reached base flow levels. From the above averages and estimates, for the purposes of this report, base flow was assumed to be 3 cfs.

There are several structures along the main branch and the major tributary of Cogdels Creek which can affect the flow of water in the stream channel. These structures are primarily culverts and are located where the streams pass beneath roadways. Table 3-2 lists the

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Table 3-1

BASE FLOW FOR GAUGED STREAMS ALONG
COASTAL LOWLANDS OF NORTH CAROLINA

USGS Gauge No.	Stream Name/Location	Drainage (Square Miles)	Average Annual Flow Per Square Mile (cfsm)	Average Monthly Min. Flow (cfs)	Min. Flow Per Square Mile
2093229	Hewletts Creek/Wilmington	1.98	2.7	1.36	0.7
2105769	Cape Fear River/Kelly	5,255	1.6	3,133	0.6
210800	Northeast Cape Fear River/Chinquapin	599	1.4	316	0.5
2108548	Little Rockfish Creek/Wallace	7.8	1.4	1.04	0.1
2109500	Waccamaw River/Freeland	680	0.9	301	0.4
Average		19 10 10 10 10 10 10 10 10 10 10 10 10 10	1.6		0.5

Source: USGS 1984.

Table 3-2 MAJOR CULVERTS LOCATED WITHIN THE COGDELS CREEK WATERSHED

Structure Number*	Description**	Location .		
10	2 x 66" diameter CMP	Main Branch Cogdels Creek at Sneads Ferry Road		
20	1 x 48" diameter CMP	Main Branch Cogdels Creek at Tank Crossing		
30	1 x 30" diameter CP	Main Tributary Cogdels Creek at Sneads Ferry Road		
40	1 x 48" diameter CMP	Main Tributary Cogdels Creek at Tank Crossing		
50	2 x 48" diameter CP	Main Branch Cogdels Creek at Major Tank Crossing		
60	3 x 48" diameter CP	Main Branch Cogdels Creek at Main Service Road		
70	1 x 68" diameter CMP	Main Branch Cogdels Creek at Wastewater Treatment Plan		
80	1 x 66" diameter CMP	Main Branch Cogdels Creek at Wastewater Treatment Plan		

^{*}Refers to map identification number in Figure 3-1 (in map pocket inside back cover) and Structure Number in Appendix A. **CMP = Corrugated metal pipe CP = Concrete pipe

Source: Ecology and Environment, Inc., 1986.

major culverts which influence peak flow in the watershed. Also listed are their sizes and approximate locations along the main branch or main tributary. Their locations are shown on Figure 3-1. The numerous other minor culverts were not found to have a major influence on flood transport capacity in Cogdels Creek. However, several of these culverts were in poor repair and should receive some remedial maintenance. They are discussed in Section 3.2.

Within the Cogdels Creek watershed, 19 minor watersheds (sub-watersheds) were delineated to facilitate determination of peak runoff and stream flow. These subwatersheds are shown on Figure 3-1. They range in size from 0.01 acres to 0.84 acres.

The hydrology of the watershed is determined largely by land cover, soil types, and slope, which combine to determine the volume and rate of surface runoff resulting from precipitation events. Section 2 discusses these conditions on the base in general and in the watershed in particular. The following section interprets these conditions as they influence surface runoff.

3.1.1 Development of Curve Numbers

The general characteristics of the soils found in Cogdels Creek Watershed are discussed in Section 2.1. Table 3-3 lists these soils and the area of the watershed occupied by each. Also shown in Table 3-3 is the hydrologic soil group for each soil type. Hydrologic soil groups are used to estimate runoff from precipitation for soils not protected by vegetation. Soils are assigned to one of four groups which are related to the rate of water uptake when the soils are thoroughly wet and are receiving precipitation from long duration storms.

The four hydrologic soil groups are:

- Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well-drained to excessively drained sands or gravelly sands.
 These soils have a high rate of water transmission.
- Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or

Table 3-3
SUMMARY OF SOIL TYPE AND LAND COVER IN COGDELS CREEK WATERSHED

Soil Type	Area	% of Total	Hydrologic Soil Group	Description of Land Cover	Slope (%)
Ur - Urban	0.79 23	23	-,	Fully developed urban area	0-6
BaB - Baymeade- Urban Land					
Complex	0.45	13	A	50% Forestland 30% Urban 20% Disturbed but undeveloped	0-6
BmB - Baymeade	0.93	27	A	Forestland (upland)	0-6
MaL - Marvyn	0.41	12	В	Forestland (slopes along stream channels)	6-15
MK - Muckalee	0.21	6	D	Forestland (floodplains)	Nearly level
On - Onslow	0.21	6	В	Forestland near shallow drainageways	Nearly level
Wo - Woodington	0.07	2	D	Forestland in poorly drained uplands	Nearly level
Mu - Murville	0.14	4	D	Forestland in poorly drained uplands	Nearly level
Knb - Kureb	0.10	3	Α	Sparse forestland on uplands	1-6
Ct - Croatan	0.03	1	D	Forestland in poorly drained upland depressions	Nearly level
Pt - Pits	0.02	0.5	1	Gravel pits	Variable
Nfc - Newhan	0.03	1	A	Maintained vegetation and urban development	2–10
Ud - Landfill	0.03	1	\ - \	Sanitary landfill - disturbed	-

Source: Adapted from USDA SCS 1984.

deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

- Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water, or soils of moderately fine or fine texture. These soils have a slow rate of water transmission.
- Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

In the Cogdels Creek Watershed, approximately 40% of the area is occupied by soils in group A, 18% by soils in group B, and 13% by soils in group D. There are no soils in group C. Approximately 2% of the area is occupied by pits and the landfill, for which there is no hydrologic soil group. The remaining 27% of the watershed is occupied by Urban Land, which is defined as areas that are more than 85% covered by buildings, streets, parking lots, airports, railroad yards, and other urban uses. Because of extensive urbanization, the natural soil has been altered and the topography and original landscape have been changed. As a result, these areas are not assigned to a hydrologic soil group. It should be noted that the area identified as urban land includes the areas mapped by the Soil Conservation Service (SCS) as Urban Land (23%), as well as 30% of the areas mapped as Baymeade-Urban Land complex. According to the soil survey, within the Baymeade-Urban Land complex, 50% of the area is Baymeade soil, 20% comprises areas disturbed during urbanization but not fully developed (both of these areas are considered to belong to hydrologic group A), and 30% is Urban Land.

Another factor which influences the amount of surface runoff is land cover. Dense vegetation cover and deep layers of undecomposed organic matter intercept precipitation and reduce the amount of surface runoff, as well as the rate at which it runs off. On the other hand, developed areas with minimal vegetation cover or paved surfaces trap very little precipitation, most of which becomes surface runoff. Table 3-3 lists the predominant land cover for each of the major soil types in the watershed. As discussed in Section 2.4, approximately 70% of the area is dominated by undisturbed forest vegetation, and the remaining areas are either disturbed (4%) or developed (27%) to some degree.

The combination of soil hydrologic groups and land cover is used to determine a curve number (CN) which is used in the calculation of surface runoff.

As discussed in Section 2.5, five major land cover types were identified within the Cogdels Creek Watershed. These land cover types were selected based on their relevance to storm water runoff, and include: undeveloped forestland; semi-undeveloped forestland; partially developed (urbanized) areas; fully developed (urbanized) areas; and disturbed areas in which native vegetation has been removed but which have not been developed. The characteristics of these land cover types are described more fully in Section 2.5.

Curve numbers for the various combinations of land cover and soil hydrologic groups were selected using similar land cover categories for which curve numbers had been determined by the SCS in Technical Release No. 55 (TR 55; 1975). Table 3-4 is reproduced from TR 55, and the land use descriptions corresponding to the five land use types in Cogdels Creek Watershed are indicated. Using these curve numbers for each combination of land cover and soil group, a weighted curve number for each of the 19 subwatersheds was determined based on the percent of each subwatershed which was occupied by each land cover-soil group type. These curve numbers are shown in Table 3-5, and the calculations are presented in Appendix A. The higher numbers reflect a greater amount of direct runoff from a storm.

Also shown in Table 3-5 are the time of concentration (Tc) values for each subwatershed. The Tc consists of the travel time of water from the hydraulically most distant point in the watershed to the point of interest. The Tc is estimated by combining the water travel

Table 3-4

RUNOFF CURVE NUMBERS FOR SELECTED FORESTED, AGRICULTURAL, SUBURBAN, AND URBAN LAND USE REPRODUCED FROM TR No. 55 (USDA SCS 1975) AND CORRESPONDING LAND USE TYPES IN COGDELS CREEK WATERSHED

		Hydr	ologic	Soil	Group	
Land Us	Land Use Description					Cogdels Creek Land Use Type
	conservation treatment servation treatment	72 62	81 71	88 78	91 81	. D
	r condition d condition	68 39	79 61	86 74	89 80	=
Meadow: good condition		30	58	71	78	
Wood or Forestland: Thin si Good co	tand, poor cover, no mulch over**	45 25	66 55	77 70	83 77	S U
Good condition: grass	Golf Courses, Cemeteries, etc. cover on 75% or more of the area cover on 50% to 75% of the area	39 49	61 69	74 79	80 84	P P
Commercial and Business Area	as (85% impervious)	89	92	94	95	F/P
Industrial Districts (72% i	mpervious).	81	88	91	93	F
Residential:†						
Average Lot Size	Average % Impervioustt					
1/8 acre or less 1/4 acre 1/3 acre 1/2 acre	65 38 30 25	77 61 57 54	85 75 72 70	90 83 81 80	92 87 86 85	P P P
1 acre	20	51	68	79	84	Р
Paved Parking Lots, Roofs, I	Oriveways, etc***	98	98	98	98	F
Streets and Roads: Paved with curbs and s	Orm seware###	98	98	98	98	F
Gravel Dirt	COLIII OCHETO	76 72	85 82	89 87	91 89	F

^{*}For a more detailed description of agricultural land use curve numbers, refer to National Engineering Handbook, Section 4, Hydrology, Chapter 9, August 1972.

**Good cover is protected from grazing and litter and brush cover soil.

***In some warmer climates of the country, a curve number of 95 may be used.

Key:

D = Disturbed

S = Semi-undeveloped

U = Undeveloped

P = Partially developed

F = Fully developed

Source: Adapted from USDA SCS 1975.

[†]Curve numbers are computed assuming the runoff from the house and driveway is directed toward the street with a minimum of roof water directed to lawns where additional infiltration could occur-tThe remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.

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Table 3-5

HYDROLOGIC CHARACTERISTICS OF
SUBWATERSHEDS IN COGDELS CREEK WATERSHED

	Drainag	e Area	Weighted Curve	Time of
Subwatershed Number*	Square Mile	Acre	Number (CN)	Concentration (T _C) (Hours)
1	0.08	51	50	0.42
2	0.01	4	40	0.15
3	0.11	72	41	0.48
4	0.28	176	50	0.61
5	0.20	125	66	1.15
6, 8, 9	0.19	120	56	0.74
7	0.05	33	74	0.19
10	0.02	16	64	0.12
11	0.24	155	73	0.62
12	0.36	230	85	0.42
13	0.05	34	45	0.90
14	0.28	183	53	1.02
15	0.20	132	42	0.19
16	0.11	69	40**	1.67
17	0.06	36	40**	1.00
18	0.37	237	49	3.90
19	0.84	539	51	7.50

^{*}See Figure 3-1 (map pocket inside back cover) for location of subwatershed.

^{**}Calculated CN less than 40; minimum CN 40 used in calculations Source: Ecology and Environment, Inc., 1986.

100 % RESTAURED WASTE

time which usually occurs as overland flow, storm sewer, and/or channel flow. The travel times for overland flow and channel flow were estimated from information obtained from the topographic map of the watershed, and the travel time for sewer flow was estimated from design drawings. For channel flow, the estimates are based on slope and an assumed water depth of approximately 1 foot. For sewer flow, the estimates are based on slope and an assumed depth in the pipe of one-half full to full. These values of CN and Tc provide the data necessary to determine the existing peak runoff in Cogdels Creek as discussed in the following subsection.

3.1.2 Existing Storm Water Runoff and Flood Transport Capacity of Cogdels Creek

3.1.2.1 Methods

The existing hydrology of the Cogdels Creek Watershed was determined using the TR-20 Computer Program for Project Formulation Hydrology, dated May 1983. The program was developed by the SCS and is patterned after procedures described in Section 4 of the SCS National Engineering Handbook, usually referred to as NEH-4.

The TR-20 Program requires various input data to characterize the watershed and factors within the watershed which influence rate of runoff from storm events. These input data, some of which have been described in previous sections, include: curve numbers for each subwatershed, time of concentration, structure (culverts) characteristics, slope and length of various stream reaches, base flow, design rainfall data, characteristics of subwatersheds, etc. In addition, certain information is provided by the program, and requires only that the user select relevant information. This information includes synthetic rainfall distributions, dimensionless unit hydrographs, antecedent moisture condition, etc. The program is described more fully in USDA SCS (1983). The following paragraphs briefly describe the input data and assumptions used in developing the estimate of peak runoff under existing and proposed conditions in Cogdels Creek. A copy of the program printout showing input and output data is reproduced in Appendix B.

The limits of the Cogdels Creek Watershed and subwatersheds were defined by field inspection, existing storm drainage drawings, topographic maps, and aerial photographs. This information is shown on Figure 3-1. The subwatersheds were located to define hydrologic and structural effects, i.e., the entrance of tributaries and existing culverts. The watershed is divided into 19 subwatersheds. Three of these subwatersheds (6, 8, and 9) were combined so that 17 subwatersheds were used in the computer program.

The average design rainfall is 7 inches, representing the 24-hour 10-year frequency storm. The computer program contains six standard synthetic rainfall distributions. These distributions are listed in the printout (Appendix B) as Table No. 5, RAINFL 1 through 6. Rainfall Table 2, which contains the 24-hour type II standard distribution generally used east of the Cascade and Sierra Nevada Mountains, was selected for this study. The standard SCS dimensionless unit hydrograph also is contained in the program and was utilized for the analysis. The antecedent moisture condition (AMC), which is an index of the watershed wetness, is selected by the user. The average conditions of AMC-II is used in this program. The base flow was determined in the field by measuring the velocity of the stream and the cross sectional area at several locations. This was compared to calculations of approximate base flow from five gauged watersheds in the coastal area of North Carolina. Based on these methods, a base flow of 3 cfs was assumed for Cogdels Creek.

The hydrologic study recognizes six structures (10 through 60 in Table 3-2). Although there are other structures within the watershed, these were not judged to be major factors controlling flow, and thus were not modeled. To evaluate each structure, a table is provided as input relating discharge to water surface elevation. Complete data are not available for each of the structures, such as slope, culvert length, construction details, and site-specific topography. To arrive at flow, the slope is estimated based on field inspection and average conditions. Also, the headwater depth is taken into account whenever the possibility of inlet submergence occurs. However, there was not sufficient information to evaluate the probable submergence of the outlet, and this item was not considered. This limitation does not exert a major influence on the ultimate runoff calculations, but the

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effect of outlet submergence should be considered in the final design of water control structures.

The movement of the flood hydrograph through a valley reach is dependent upon such information as the length of the reach and a cross section of the valley including the stream channel. The cross section of the stream channel would have to be obtained by survey for input into the computer program. The computer program incorporates a power curve to describe the valley reach that can be used where valley cross sections are not available. The power curve requires as input the coefficients x and m from the equation Q = XAm, where Q = discharge and A = cross section end-area representative of the reach. The coefficients x and m were selected based on a trapezoidal channel cross section.

The relationships of subwatersheds, structures, reaches, and tributaries is shown on Figure 3-2 (map pocket inside back cover). This drawing contains the information upon which the input data is structured for the computer program, including the length of stream reaches, values of x and m for each reach as described above, subwatershed areas, CNs and Tcs for each subwatershed, and structure characteristics.

3.1.2.2 Results

The results of the peak runoff modeling in Cogdels Creek Water-shed under existing conditions are shown in Table 3-6. Information in this table was summarized from the computer output, which is contained in Appendix B. The table shows peak flow (in cfs) which is contributed by each subwatershed and stream reach, and incrementally adds the contributed runoff as the flood moves down the watershed. The flow at each of the six major structures is also calculated and, if the structure is inadequate to handle the peak flow, the elevation of the resulting reservoir is shown in parentheses.

Total volume of runoff for the entire watershed for the 10-year 24-hour storm is approximately 350 acre-feet. Peak flow at the mouth of Cogdels Creek is 406 cfs, although upstream of the Tank Crossing Area peak flows reach nearly 1,700 cfs.

As expected, runoff from the undeveloped portions of the watershed north and east of Sneads Ferry Road (subwatersheds 18 and 19) is

Table 3-6
PEAK RUNOFF IN COGDELS CREEK UNDER EXISTING CONDITIONS

		Ident i	fication				
Operation*	No.	Cross- Section Number	Structure Number	Peak Flow Existing 1985 (cfs)	Sub- Water- Shed	Drainage Area (square mile)	Description - Remarks
Runoff	1		10	97	19	0.84	Undeveloped area east of Sneads Ferry Road
Resvor	2		10	97(9.5)	19		Two 66" diameter CMP culvert at Sneads Ferry Road
Reach	3	010	-	99			Stream travel to cross section 010
Runoff	2	010	-	122	15	0.20	Incremental runoff
Addhyd	4	010	-	125	-	1.04	Combines hydrographs from subwatersheds 15 and 19
Resvor	2	-	20	93(9.2)		-	48" diameter CMP at Tank Crossing Road
Reach	3	020		93	- 4		Stream travel to cross section 020
Runoff	1	020	-	158	14	0.28	Incremental runoff
Addhyd	4	020		181		1.32	Combine hydrographs from subwatersheds (15, 19) and 14
Runoff	1	-	30	61	18	0.37	Undeveloped area east of Sneads Ferry Road
Resvor	2	_	30	48(25.9)			30" diameter culvert at Sneads Ferry Road
Reach	3	040		48			Stream travel to cross section 040
Runoff	1	040		10	17	0.06	Incremental runoff
Addhyd	4	040	12	50	_	0.43	Combine hydrographs from subwatersheds 18 and 17
Resvor	2	-	40	50(10.9)			48" diameter CMP culvert at Tank Crossing Road
Reach	3	050	-	50	4		Stream travel to cross section 050
Runoff	1	049		14	16	0.11	Incremental runoff

Identification

Operation*	No.	Cross- Section Number	Structure Number	Peak Flow Existing 1985 (cfs)	Sub- Water- Shed	Drainage Area (square mile)	Description - Remarks			
Addhyd	4	050	-	54	an: 	0.54	Combine hydrographs for subwatersheds (18, 17) and 16			
Runoff	1	050		1079	12	0.36	Tributary runoff (industrial area) severe erosion - brig			
Addhyd	4	050	-	1080	-	0.90	Combine hydrographs for subwatersheds (18, 17, 16) and 12			
Reach	3	060	4-	1080			Stream travel to cross section 060			
Runoff	1	060	4	17	13	0.05	Incremental runoff			
Addhyd	4	060	-	1086	-	0.95	Combine hydrographs for subwatersheds (18, 17, 16, 12) and 13			
Addhyd	4	070		1159	-	2.27	Combine hydrographs for subwatersheds (15, 19, 14) and (18, 17, 16, 12, 13)			
Reach	3	080		1159		1 2 1	Stream travel to cross Section 080			
Runoff	1	080		55	10	0.02	Incremental runoff			
Addhyd	4	080	1/2	1178	-	2,29	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13) and 10			
Runoff	1	090	-	435	11	0.24	Tributary runoff (industrial area)			
Addhyd	4	100	-	1568		2.53	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10) and 11			
Reach	3	110		1568		-	Stream travel to cross section 110			
Reach	3	120		1568			Stream travel to cross section 120			
Runoff	1	120	-	159	6,8,9	0.19	Tributary and incremental runoff			
Addhyd	4	120	_	1694		2.72	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11) and (6, 8, 9)			
Resvor	2	-	50	351(10.9)			Two 48" diameter CP culvert for tank crossing			
Reach	3	130		351			Stream travel to cross section 130			

	Identification		fication	tion			
Operation*	No.	Cross- Section Number	Structure Number	Peak Flow Existing 1985 (cfs)	Sub- Water- Shed	Drainage Area (square mile)	Description - Remarks
Runoff	1	130		160	7	0.05	Incremental runoff
Addhyd	4	130	-	362	-	2.77	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9) and 7
Resvor	2	-	60	272(6.7)		-	Three 48" diameter culvert at main service road
Reach	3	140		271			Stream travel to cross section 140
Runoff	1	140	_	191	5	0.20	Incremental runoff
Addhyd	4	140		288	-	2.97	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9, 7) and 5
Runoff	1	149		68	1	0.08	Tributary runoff
Addhyd	4	150	-	292	-	3.05	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9, 7, 5) and 1
Reach	3	150	-	292			Stream travel to cross section 150
Runoff	1	150		5	2	0.01	Incremental runoff
Addhyd	4	150	_	292	-	3.06	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9, 7, 5, 1) and 2
Runoff	1	180	_	185	4	0.28	Tributary runoff
Addhyd	4	180		402		3.34	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9, 7, 5, 1, 2) and 4
Reach	3	180	-	386	-	7 2-4	Stream travel to cross section 180
Runoff	1	180	_	35	3	0.11	Incremental runoff
Addhyd	4	180	-	406		3.45	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9, 7, 5, 1, 2, 4) and 3 (Complete watershed)
Vol.				350 AF			Total Vol., AF = Acre-ft.

^{*}See Appendix B for description of these terms.

Source: Ecology and Environment, Inc., 1986.

minimal, although together these two subwatersheds comprise 35% of the area of the watershed.

The most notable feature of the watershed study is the severe impact of the storm sewer discharges from the Hadnot Point Industrial Area. The computed peak discharge from this subwatershed (12) is 1,079 cfs. This peak exceeds the capacity of the 48-inch diameter storm sewer, and flooding within the area serviced by this storm sewer system would not be unexpected. The discharge velocity will be exceedingly high, creating downstream erosion problems. This was evident during the field inspection, as discussed in Section 3.2.

This peak flow passes downstream to the first obstruction, structure 50 at the main tank crossing. Structure 50 consists of two 48-inch diameter culverts with 6 feet or more of cover over the culverts. The culverts restrict the downstream discharge to approximately 351 cfs from the peak flow of 1,694 cfs entering the area. This effectively creates a damming effect, resulting in a reservoir or detention basin. The reservoir created stores the excess water to an elevation of 10.9 feet (approximately 8.5 feet above the streambed), and this reservoir floods practically the entire stream channel to Sneads Ferry Road, as shown on Figure 3-2.

The next structure downstream is structure 60 at the Main Service Road. This structure consists of three 48-inch diameter culverts. A slight damming effect also occurs at this location, restricting the incoming flow of 362 cfs to a downstream flow of 272 cfs. The reservoir created by this structure reaches an elevation of 6.7 feet, or 4.7 feet above the streambed.

Although peak flow in the Cogdels Creek Watershed reaches high levels as a result of runoff from the Industrial Area, flooding within the stream channel is not a major problem because there is adequate capacity to store floodwaters within the stream channel. The creek floodplain is fairly wide and the adjacent side slopes are high enough to provide an adequate storage reservoir, as shown on Figure 3-2. It is apparent, however, that storms in excess of the 10-year 24-hour storm could result in flooding along the watercourse.

3.2 CRITICALLY ERODING AREAS

There are several areas in the Cogdels Creek Watershed which are presently eroding, generally resulting in sedimentation and siltation,

and adversely affecting water quality. Soil erosion results from a number of factors including unstable soil conditions, steep slopes, poor vegetative cover, and inadequate water management facilities. This section briefly discusses the critically eroding areas within the Cogdels Creek Watershed. The locations of critically eroding areas are shown on Figure 3-1; the areas are keyed by number, which refers to the following discussion. Recommended measures to remediate these critical erosion problems are discussed in Section 5.

3.2.1 <u>1800 Area (Area 1)</u>

A tributary to Cogdels Creek traverses generally northwest to southeast north of the 1800 Area. The tributary receives surface runoff from the area generally bounded by Main Service Road, Duncan Street, and Gum Street. Severe erosion is occurring along this tributary in the area between Duncan Street (south) and Louis Road, and north of Buildings 1870, 1871, and 1872.

This area is a large open field with very sparse vegetation cover. From Louis Road downstream to Buildings 1870, 1871, and 1872, the tributary has been directed through a 30-inch culvert and the channel has been filled. At a point directly north of these buildings, the tributary emerges from the culvert. The channel immediately downstream from this culvert is eroding severely. In addition, surface runoff from the open field north of the tributary is resulting in severe gully erosion.

3.2.2 <u>Duncan Street (North) - Brig Area (Area 2)</u>

A tributary to Cogdels Creek receives surface and storm water discharge from the industrial areas near the intersections of Duncan and Ash streets, Duncan and Birch streets, and "O" and Dogwood streets. In addition, surface runoff from the brig exercise yard is diverted to this drainage. These discharges are resulting in severe channel and gully erosion. In particular, at the southeast end of Ash Street, a 48-inch storm drain discharges to the tributary. On the 1954 storm drainage maps, this drain is shown to discharge at a point immediately adjacent to Duncan Street. Since that time, however, the head of the tributary channel has been filled, and the storm drain

presently discharges at a point about 200 feet from Duncan Street. At this point, the channel is confined to a deep gully (20 to 30 feet deep), and discharges from the storm drainage system are eroding the channel and the gully headwall where the culvert discharges.

A short distance downstream, this tributary is joined by another drainage which receives storm water discharge from the southeastern ends of Birch and Dogwood streets. Both of these tributaries are high-energy channels with fairly steep gradients. Judging by the size of cement and other debris in the channels, it is apparent that flows in the channels are high at times. The valley walls along both channels are very steep and are eroding in places.

Immediately downstream from the junction of the two tributaries described above, a large gully has recently begun eroding into the tributary channel from the northeast side. This gully is the result of surface runoff from the brig's exercise yard. Apparently to alleviate poor drainage on the southwest side of the exercise yard, a small (1-foot by 1-foot) channel was excavated to direct surface water into the wooded area southwest of the yard. This channel intersects the natural tributary to Cogdels Creek approximately 200 feet into the woods. Flow in this channel initiated erosion of the natural valley wall, and presently a gully approximately 15 feet deep and 30 to 50 feet long extends away from the natural channel toward the yard. Soils along this gully are highly erodible, and the erosion is undermining trees which have subsequently fallen into the channel. This particular problem seems to be relatively recent, as it is not evident on the 1983 aerial photographs.

3.2.3 Tank Crossing (Area 3)

A third area which, although not a problem during the field inspection, will likely result in accelerated erosion and sedimentation, is the tank crossing area east of the 1800 Area. Immediately prior to the field inspection in February, vegetation along Cogdels Creek stream channel had been cleared and the channel widened and/or straightened along approximately 800 feet of stream immediately upstream from the improved tank crossing (i.e., bridge with culverts). The purpose of the channel modification activities was to restore the

normal flow of water in the channel. The channel had been restricted as a result of fill pushed into the channel at an unimproved tank crossing. Restriction of the channel caused the stream to back up, flooding a large area immediately upstream from the unimproved tank crossing. The stream channel modifications resulted in complete removal of the stream-side vegetation, exposing the bottomland soils to potential erosion during high flows. Although such erosion had not occurred at the time of the field investigation, it can be anticipated if vegetative cover is not restored before a major rainfall event.

3.2.4 Tank and Heavy Equipment Training Area (Area 4)

The tank and heavy equipment training area comprises a large area which is continually disturbed. There is almost no vegetative cover on the area, although the areas surrounding the site are well-vegetated. Although the training area appears to have the potential to result in serious erosion and sedimentation problems, such problems do not seem to occur. There are several reasons for this. The soils are primarily Baymeade, which has a very high infiltration capacity and low runoff. The entire area is relatively level and, due to the earth-moving activities most, drainage seems to be internal and runoff is trapped on the site until it percolates into the ground. In general, the only potential problems with this site are along the perimeter, where sediment could be deposited in adjacent undisturbed areas, and along the main access roads to and from the site. In particular the access roads which lead to Cogdels Creek could serve as conduits for surface runoff and sedimentation.

3.2.5 2nd Bulk Terminal Storage (Area 5)

There is a large parking/storage area south of the 2nd Bulk Terminal Storage Building (746 and 739), part of which is paved, but part of which is also sand. The sand is eroding southeast to H.M. Smith Boulevard, and washing into the street. Sand bags have been placed along H.M. Smith Boulevard to trap the sand, but these are not effective, and sand continues to travel past this barrier.

3.2.6 Miscellaneous Erosion Problems (Area 6)

In addition to the areas described above, there are several small areas where minor erosion problems are occurring. A foot path

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parallels the south side of Main Service Road between "O" Street and Gonzalez Boulevard (Area 6A). Just east of Cogdels Creek, the foot path traverses a small rise. Foot traffic on the path has killed the vegetation, there is minor rill erosion occurring along the path, and the eroded sediment is being deposited into the roadside drainage system which subsequently discharges to Cogdels Creek.

Along "O" Street, just north of Building 521, there is a drainage swale which is the head of a minor tributary to Cogdels Creek (Area 6B). This drainage swale is vegetated with grass and scattered large trees, and has a park-like appearance. The area appears to receive a lot of foot traffic, and the grass is sparse. There is some sheet erosion and minor rill erosion in this swale, which drains to a grated manhole, and discharges through a 24-inch pipe under "O" Street to a short tributary to Cogdels Creek.

There are several large (36 to 54 inch) storm drain outlets which discharge to the upper headwaters of tributaries to Cogdels Creek (Area 6C). These outlets collect storm drainage from the heavily developed industrial areas on the western side of the watershed. The channels at many of these outlets are eroding from the force of high flows discharging from these culverts.

An existing 30-inch culvert transports flows from the major tributary to Cogdels Creek beneath Sneads Ferry Road. No provisions were made to de-energize the flow at the outlet of this culvert, and the head wall is eroding severely (Area 6D).

An existing drainage channel located east of Building FC115 carries surface runoff from the Main Service Road north to the vegetated area adjacent to the Tank and Heavy Equipment Training Area. This channel is eroding severely, particularly immediately adjacent to the Main Service Road (Area 6E).

Immediately southwest of the Enlisted Mens Club (Building FC-330) a 24-inch culvert discharges to a minor tributary just upstream of Gonzalez Boulevard (Area 6F). The culvert head wall has eroded and the terminal section of culvert has subsided approximately one-half its diameter. In addition, runoff from the adjacent parking lot has resulted in some rill erosion on the slope immediately above the culvert.

4. FUTURE CONDITIONS

This section discusses the potential effects on peak storm water runoff which would result from the construction of all facilities proposed for development in Cogdels Creek watershed during FY86 through FY92 as outlined on the General Development Maps.

4.1 FUTURE LAND USE

Approximately 45 projects totaling approximately 63 acres are proposed for development in Cogdels Creek watershed during FY86 through FY92. These projects range in size from the French Creek Self-service Gas Station and Car Wash (P-840), which is approximately 2,100 square feet, to the Bachelor Enlisted Quarters (P-627), which is estimated to encompass approximately 341,300 square feet. These projects are listed in Table 4-1, grouped according to the fiscal year in which they are to be constructed, along with their size and the subwatershed in which they are located. The extent of development in any one fiscal year ranges from 171,156 square feet (or 3.9 acres) in FY91 to 775,160 square feet (or 17.8 acres) in FY92.

Development of these projects will alter the pattern and intensity of storm water runoff by increasing the area of the watershed which is impervious. To determine the effects of these projects on future peak runoff from the 10-year 24-hour storm, the weighted CNs for each subwatershed were recalculated for each fiscal year in which proposed project development was scheduled. The CN for each of these projects was assumed to be 98, which is indicative of a completely

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Table 4-1

SUMMARY OF MCON PROJECTS
SCHEDULED FOR COGDELS CREEK WATERSHED
DURING FY86 THROUGH FY92

Project	Description	Size of Project (sq ft)	Subwatershed in Which Project Is Located	% of Sub- Watershed Affected
FY86				
P-840	French Creek Self-Service Gas Station and Car Wash	2,100	3	0.07
P-631	Unaccompanied Enlisted Personnel Housing	179,062	5	3.29
P-806	Light Armored Vehicle Shop	76,902	5	1.41
P-565 P-527 P-505	Electrical Communication Maintenance Shop	29,775	5	0.55
P-517	Combat Vehicle Maintenance Shop	23,460	14	0.23
	Subtotal	311,299		
FY87				
P-627	Bachelor Enlisted Quarters	341,296*	1	15.43
P-257	Field Maintenance Complex (Incr. 1)	60,540	14/15	0.80
P-027	Combat Vehicle Maintenance Shop	16,120	4	0.21
P-259	French Creek Bowling Alley	18,325	4	0.24
P-701	Medical/Dental Clinic; French Creek	28,700	4	0.38
	Subtotal	464,981		
FY88				
P-626	Bachelor Enlisted Quarters	89,408*	5/1	1.76
P-803	Field Maintenance Complex (Incr. 2)	48,000	15	1.13
P-678	Combat Vehicle Maintenance Shop	76,210	11/12	1.06
P-256	Field Maintenance Shop	13,760	15	0.32
P-065	Gymnasium	21,000	4	0.29
	Subtotal	248,378		
FY89				
P-804	Field Maintenance Complex (Incr. 3)	210,300	14/15	3.50
P-853	Vehicle Ready Fuel Storage	125,664*	12	1.26

Project	Description	Size of Project (sq ft)	Subwatershed in Which Project Is Located	% of Sub- Watershed Affected
P-679	Electrical/Communication Field Maintenance Shop	19,912	15	0.47
P-564	Electrical/Communication Maintenance Shop	6,100	14	0.06
P-229	Electrical/Communication Maintenance Shop	44,524	6	0.94
P-837	Hand Ball/Racquet Ball Courts	6,000	3	0.19
	Subtotal	412,500		
FY90				
P-773	Hobby Shop Complex; Hadnot Point	40,104	6	0.85
P-794	Roof and Light Handball Courts	42,000*	6	0.88
P-805	Field Maintenance Complex (Incr. 4)	110,000	15/14	2.42
P-843	Road Improvements (Main Service Road)	66,080	5	1.21
P-266	Combat Vehicle Maintenance Shop	49,818	14	0.49
P-541	Electrical/Communication Maintenance Shop	3,300	15	0.08
P-542	Electrical/Communication Maintenance Shop	4,760	14	0.05
P-445	Combat Vehicle Maintenance Shop	23,621	5	0.43
EV04	Subtotal	339,683		
FY91 P-786	Cold Storage Plant	36,096	12	0.36
P-510	Storage/Out of Stores	85,438	6	1.80
P-227	Armory (Small Arms/Ammo	05,450	·	1.00
	Emergency Gear)	12,527	4	0.16
P-844	Combat Training Pad/Tank	12,735*	4	0.17
P-567	Storage/Out of Stores	24,360	5	0.45
FY92	Subtotal	171,156		
P-533	Storage/Out of Storage	43,560	6/5	0.89
P-511	Storage/Out of Storage/Armory	61,400	6/5	1.24
P-550	Storage/Out of Storage/Armory	38,800	15	0.91

Table 4-1 (Cont.)

Project	Description	Size of Project (sq ft)	Subwatershed in Which Project Is Located	% of Sub- Watershed Affected
P-551	Storage/Out of Storage/Armory	53,160	16	1.77
P-552	Storage/Out of Storage/ (Fleet/OPS)	104,000	14	1.02
P-553	Storage/Out of Storage/ (Fleet Stock, Med, Flammable)	104,000	15	2.44
P-121	Storage/Out of Storage	75,120	14/7	1.86
P-548	Storage/Out of Storage	43,560	14	0.43
P-512	Storage/Out of Storage (Fleet Mount Out)	104,000	16/15	3.20
P-513	Storage/Out of Storage (Fleet Stock)	104,000	15	2.44
P-859	Storage/Out of Storage	43,560	5	0.80
	Subtotal	775,160		
	Grand Total	2,723,157		

^{*}Area of Project Measured from General Development Maps.

Source: Alexander, unpublished information.

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impervious surface. The calculations involved in reanalyzing the weighted CNs for each subwatershed are contained in Appendix A.

Table 4-2 summarizes the changes in CN and Tc for each subwater-shed resulting from proposed project development. For the most part, the proposed development does not alter the CNs significantly, particularly for the larger subwatersheds since the area to be developed constitutes only a small portion of the subwatershed. For small watersheds, however, such as 1, 5, 6, 8, and 9, the weighted CNs do show marked increases. The Tc is not changed by the development because this represents the time required for water falling on the farthest point in the subwatershed to reach the stream, and unless the farthest point is to be developed, which did not occur, the Tc will not change substantially.

It should be noted that Tc actually increased in subwatershed 14. This is because of the proposed construction of a road parallel to Cogdels Creek through this watershed. This road will serve as a dike, and block the flow of surface runoff, diverting it to some as yet undetermined point where it would presumably be discharged to the creek via a culvert and reinforced channel. To account for this damming effect of the proposed roadway, the Tc was increased from 1.02 to 2.00 hours.

4.2 FUTURE STORM WATER RUNOFF

The TR-20 Program was run for each fiscal year from FY86 through FY92, incorporating the modifications to watershed hydrology each year resulting from the proposed development of each subwatershed as identified in Table 4-2. The input and program output for each fiscal year is presented in Appendix B; the major results are summarized in Table 4-3.

Total runoff volume increases from 350 acre-feet under existing conditions, to 399 acre-feet in FY90, but declines again to 362 acrefeet in FY92. Peak flow at the mouth of the stream increases from 406 cfs under existing conditions to 680 cfs in FY92. The largest increase occurs from FY85 to FY86 where the peak flow increases approximately 40% to 566 cfs. This increase in flow at the mouth of the stream is due primarily to a nearly three-fold increase in runoff

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Table 4-2

FISCAL YEAR SUMMARY OF CURVE NUMBERS (CN) AND TIME OF CONCENTRATION (Tc) FOR MAJOR SUBWATERSHEDS AS AFFECTED BY PROPOSED DEVELOPMENT

Subwatershed Number	CN/ Tc	Present FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
1	CN	50		65	65			14.6	-
	Te	0.42		0.42	0.42	-			-
2	CN	40							
	Tc	0.15							
3	CN	41	42			42	200	-	
	Tc	0.48	0.48			0.48	-		
4	CN	50		50	50			50	
	Tc	0.61		0.61	0.61			0.61	
5	CN	66	68		69		70	70	71
	Tc	1.15	0.19		0.19		0.19	0.19	0.19
6, 8, 9	CN	56				57	58	62	66
	Tc	0.74				0.74	0.74	0.74	0.74
7	CN	74							74
	Tc	0.19							0.19
10	CN	64						196 <u> </u>	
	Tc	0.12							
11	CN	73			78				
	Tc	0.62			0.62				
12	CN	85			85	85		85	
	Tc	0.42			0.42	0.42		0.42	
13	CN	45							
	Tc	0.90						6-14-	

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Table 4-2 (Cont.)

Subwatershed Number	CN/ Tc	Present FY 85	FY 86	FY 87	FY 88	FY 89	FY 90	FY 91	FY 92
14	CN Tc	53 1.02	54 1.02	54 2.00	=	54 2.00	54 2.00	Ξ	55 2.00
15 .	CN Tc	42 0,19	Ξ	42 0.19	43 0.19	44 0.19	44 0.19		48 0.19
16	CN Tc	40* 1.67	Ξ		Ξ	Ξ	Ξ	Ξ	40 1.67
17	CN Te	40* 1.00			=	Ξ	Ξ.	Ξ	
18	CN Tc	49 3.90	=	Ξ	Ξ		=	Ξ	. I
19	CN Tc	51 1.50	Ξ		-	Ξ	=	=	

Source: Ecology and Environment, Inc., 1986.

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Table 4-3
PEAK RUNOFF IN COGDELS CREEK UNDER EXISTING AND PROPOSED CONDITIONS

Operation* No		Identi	fication	Peak Discharge, ofs (Resvor Peak El.)											
	No.	Cross- Section Number	Structure Number	Peak Flow Existing 1985 (cfs)	FY86	FY87	FY88	FY89	FY90	FY91	FY92	Sub- Water- Shed	Drainage Area (square mile)	Description - Remarks	
Runoff	1		10	97	97	97	97	97	97	97	97	19	0.84	Undeveloped area east of Sneads Ferry Road	
Resvor	2		10	97(9.5)	96(9.5)	96(9.5)	96(9.5)	96(9.5)	96(9.5)	96(9.5)	96(9.5)	19		Two 66" diameter CMP culvert at Sneads Ferry Road	
Reach	3	010		99	99	99	99	99	99	99	99	-		Stream travel to cross section 010	
Runoff	2	010		122	122	122	136	151	151	151	211	15	0.20	Incremental runoff	
Addhyd	4	010		125	125	125	139	154	154	154	215		1.04	Combines hydrographs from subwatersheds 15 and 19	
Resvor	2		20	93(9.2)	93(9.2)	93(9.2)	93(9.2)	94(9.2)	94(9.2)	94(9.2)	95(9.3)			48" diameter CMP at Tank Crossing Road	
Reach	3	020		93	93	93	93	94	94	94	95			Stream travel to cross section 020	
Runoff	1	020		158	168	103	103	103	103	103	109	14	0.28	Incremental runoff	
Addhyd		020		181	191	127	129	132	132	132	150		1.32	Combine hydrographs from subwatersheds (15, 19) and 14	
Runoff	1		30	61	61	61	61	61	61	61	61	18	0.37	Undeveloped area east of Sneads Ferry Road	
Resvor	2	-	30	48(25.9)	48(25.9)	48(25.9)	48(25.9)	48(25.9)	48(25.9)	48(25.9)	48(25.9)			30" diemeter culvert at Sneads Ferry Road	
Reach	3	040		48	48	48	48	48	48	48	48		_	Stream travel to cross section 040	
Runoff	1	040		10	10	10	10	10	10	10	10	17	0.06	Incremental runoff	
Addhyd		040		50	50	50	50	50	50	50	50		0.43	Combine hydrographs from subwatersheds 18 and 17	
Resvor	2		40	50(10.9)	50(10.9)	50(10.9)	50(10.9)	50(10.9)	50(10.9)	50(10.9)	50(10.9)	To be		48" dismeter CMP culvert at Tank Crossing Road	
Reach	,	050		50	50	50	50	50	50	50	50			Stress travel to cross section 050	
Runoff		049		14	14	14	14	14	14	14	14	16	0.11	Incremental runoff	
Addhyd		050		54	54	54	54	54	54	54	54		0.54	Combine hydrographs for subwatersheds (18, 17) and 16	
Runoff	1	050		1079	1079	1079	1079	1079	1079	1079	1079	12	0.36	Tributary runoff (industrial area) severe erosion - be	
Addhyd	4	050		1080	1080	1080	1080	1080	1080	1080	1080	-	0.90	Combine hydrographs for subvatersheds (18, 17 16) and 12	
Reach	3	060		1080	1080	1080	1060	1080	1080	1080	1080			Stream travel to cross section 060	
Runoff	1	060		17	17	17	17	17	17	17	17	13	0.05	Incremental runoff	
Adhyd	4	060		1086	1086	1086	1086	1086	1006	1086	1086	-	0.95	Combine hydrographs for subwatersheds (18, 17, 16, 12, and 13	
Addhyd	4	070	-	1159	1165	1106	1107	1108	1108	1108	1116	-	2.27	Combine hydrographs for subwetersheds (15, 19, 14) and (18, 17, 16, 12, 13)	
Reach	3	080		1159	1165	1106	1107	1108	1108	1108	1116			Stream travel to cross Section 080	
Runoff	1	080		55	55	55	55	55	55	55	55	10	0.02	Incremental runoff	
Addhyd	4	080	-	1178	1185	1127	1128	1129	1129	1129	1137	-	2.29	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13) and 10	
Runoff	1	090		435	435	435	458	458	458	458	458	11	0.24	Tributery runoff (industrial area)	
Addhyd	4	100		1568	1575	1509	1535	1536	1536	1536	1547	••	2.53	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10) and 11	
Reach	3	110		1568	1575	1509	1535	1536	1536	1536	1547	-	-	Stream travel to cross section 110	
Reach	3	120		1568	1575	1509	1535	1536	1536	1536	1547			Stream travel to cross section 120	

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Table 4-3 (Cont.)

peration* No.	Ident i	ntification Peak Discharge, cfs (Resvor Peak El.)													
	n* No.	ne No.	Cross- Section Number	Structure Number	Peak Flow Existing 1985 (cfs)	FY86	FY87	FY88	FY89	FY90	FY91	FY92	Sub- Water- Shed	Drainage Area (aquare mile)	Description - Remarks
Runoff	1	120		159	159	159	159	168	176	210	245	6,8,9	0.19	Tributary and incremental runoff	
Addhyd	4	120	-	1694	1701	1632	1657	1667	1675	1707	1751	-	2.72	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11) and (6, 8, 9)	
Resvor	2		50	351(10.9)	353(11.0)	339(10.5)	344(10.7)	346(10.8)	347(10.8)	353(11.0)	365(11.3)			Two 48" diameter CP culvert for tank crossing	
Reach	3	130		351	353	339	344	346	347	353	365		••	Stream travel to cross section 130	
Runoff	1	130		160	160	160	160	160	160	160	160	7	0.05	Incremental runoff	
Addhyd	4	130	-	362	364	349	354	356	357	363	375		2.77	Combine hydrographs for subwatersheds (15, 19, 14, 18, 17, 16, 12, 13, 10, 11, 6, 8, 9) and 7	
Resvor	2		60	272(6.7)	274(6.7)	271(6.7)	277(6.7)	279(6.7)	281(6.7)	287(6.8)	300(6.9)			Three 48" dismeter culvert at main service road	
Reach	3	140		271	273	271	276	279	280	286	299			Stream travel to cross section 140	
Runoff	1	140		191	544	544	560	560	577	577	593	5	0.20	Incremental runoff	
Addhyd	4	140	-	288	549	549	566	566	582	583	599	-	2.97	Combine hydrographe for subwatersheds (15, 19, 14, 18, 1 16, 12, 13, 10, 11, 6, 8, 9, 7) and 5	
Runoff	1	149		68	68	142	142	142	142	142	142	1	0.08	Tributary runoff	
Addhyd	4	150	-	292	592	660	676	676	692	693	709	-	3.05	Combine hydrographs for subwatersheds (15, 19, 14, 18, 16, 12, 13, 10, 11, 6, 8, 9, 7, 5) and 1	
Reach	3	150	110.00	292	592	660	676	676	692	693	709		••	Streem travel to cross section 150	
Runoff	1	150		5	5	5	5	5	5	5	5	2	0.01	Incremental runoff	
Addhyd	•	150	-	292	597	665	681	681	697	697	714	-	3.06	Combine hydrographe for subwatersheds (15, 19, 14, 18, 1 16, 12, 13, 10, 11, 6, 8, 9, 7, 5, 1) and 2	
Runoff	1	180		185	40	40	40	40	40	40	40	4	0.28	Tributary runoff	
Addhyd		180		402 *	614	682	698	698	714	714	730		3.34	Combine hydrographs for subwatersheds (15, 19, 14, 18, 1 16, 12, 13, 10, 11, 6, 8, 9, 7, 5, 1, 2) and 4	
Reach	3	180		386	534	603	618	618	633	633	648			Stream travel to cross section 180	
Runoff	1	180		35	35	35	35	35	35	35	35	3	0.11	Incremental runoff	
Addhyd	•	180	-	406	566	635	650	650	665	665	680		3.45	Combine hydrographs for subwatersheds (15, 19, 14, 18, 1 16, 12, 13, 10, 11, 6, 8, 9, 7, 5, 1, 2, 4) and 3 (Complete watershed)	
Vol.				350 AF	335 AF	340 AF	345 AF	347 AF	399 AF	352 AF	362 AF			Total Vol., AF = Acre-ft.	

[&]quot;See Appendix B for description of these items.

Source: Ecology and Environment, Inc., 1986.

in subwatershed 5, resulting from development of P-631, P-806, and the P-565/527/505 complex.

Peak runoff at the mouth of the stream increases another 12% between FY86 and FY87 due to development of P-627 in subwatershed 1. This project increases runoff in this subwatershed from 68 cfs to 142 cfs--an increase of 52%.

Other subwatersheds which exhibit increased runoff resulting from proposed development include: subwatershed 15, which increases 73% from 122 cfs in FY87 to 211 cfs in FY92; and subwatersheds 6, 8, and 9, which increase 54% from 159 cfs in FY88 to 245 cfs in FY92. The other subwatersheds do not exhibit any increase or only increase slightly.

Peak runoff in watershed 14 reflects the construction of the proposed road parallel to Cogdels Creek. Peak runoff decreases 39% from 168 cfs in FY86 to 103 cfs in FY87 as a result of the damming effect of the roadway on surface runoff.

Runoff from the industrialized areas within subwatershed 12 do not change because additional development is limited, and runoff from this area is limited by the capacity of the storm sewers. However, incremental increases in runoff from subwatersheds 6, 8, and 9 result in even higher peak reaching structure 50, the twin 48-inch culverts at the Main Tank Crossing. These higher flows cause the reservoir which forms upstream of structure 50 to reach elevation 11.3 feet, or 0.4 feet higher than under existing conditions. However, the flood storage capacity of the upstream floodplain is adequate to store these peak flows without causing excessive flooding.

4.3 REQUIRED DRAINAGE FOR MCON P-257

MCON P-257 (Field Maintenance Complex) will not contribute substantially to peak runoff in the Cogdels Creek Watershed if the road which is proposed for construction along Cogdels Creek is constructed as planned by FY87 (see Figure 4-1). The road serves as a dike which can detain surface runoff and increase the time of concentration for the subwatersheds in which P-257 is located. This increase in Tc allows surface runoff to discharge to the creek in a controlled manner.

To convey flows from the vicinity of P-257, it is proposed that a medium stone fill riprap lined channel be constructed west of and

generally adjacent to this project as shown in Figure 4-1. The channel should be constructed at right angles to the proposed roadway and should be designed of adequate size to receive surface runoff from P-257. If necessary, a second channel also lined with medium stone fill riprap could be constructed along the northern boundary of P-257 and adjacent to the proposed roadway. This channel could receive flows from a portion of P-257 and convey them west to the channel shown in Figure 4-1. The final design of these channels will require more detailed information on the construction specifications of P-257 and is beyond the scope of this report.

A culvert should be installed to convey flows from the channels beneath the proposed roadway, and a stilling basin or other energy dissipating device should be provided on the downstream side. The culvert should be properly sized to result in a controlled discharge to Cogdels Creek, and, if necessary, the channel can be designed with an emergency spillway which could divert excess flows to a detention basin which could be constructed west of the channel and south of the road. The detention basin could be designed to receive and store excess flows from not only P-257, but also any other proposed development along Main Service Road.

On the north side of the proposed road, the rip rap lined channel should be continued to convey flows to Cogdels Creek. The channel should be sloped to gradually bring runoff to the elevation of the flood plain where it can be discharged onto a stone reinforced outwash area or to the creek itself.

4.4 IMPACT OF PROPOSED DEVELOPMENT ON FLOODPLAIN BOUNDARIES

As discussed in Section 3.1.2, under existing conditions, the structure at the Main Tank Crossing effectively serves as a dam since the twin 48-inch culverts cannot convey the peak flows of 1700 cfs. The resulting reservoir which is created behind this structure is calculated to have a maximum elevation during a 10-year 24-hour storm of 10.9 feet. At this elevation much of the watershed upstream upstream to and just above Sneads Ferry Road is innundated.

As peak flows increase as a result of development in the watershed, the calculated elevation of this reservoir also increases slightly to 11.3 feet; an increase of 0.4 feet. The configuration and

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size of the resulting reservoir would not appear substantially different from that shown on Figure 4-1 because of the scale and contour interval of the base map. Because the floodplain along Cogdels Creek is fairly wide and is bordered by fairly steep side slopes, the channel capacity is more than adequate to handle and store these flows. In fact, it is recommended (Section 5) that the Main Tank Crossing be redesigned as a dam and engineered with an emergency spillway to serve as a water control structure, protecting down stream areas from the extremely high flows generated in the industrial area.

5. RECOMMENDATIONS

This section provides recommendations to alleviate existing problems in Cogdels Creek Watershed as described in Section 3.2, and recommends general measures to provide adequate storm water management associated with future development. The locations of these recommendations are shown on Figure 4-1. The exact specifications for each structure would have to be determined during final design, and is beyond the scope of this report.

5.1 MCON P-257

MCON P-257 is discussed in Section 4.3 and will only be summarized here. To insure protection of the Cogdels Creek Watershed from high flows resulting from storm water runoff, as well as to trap sediment presently being generated by erosion in the area north of the Main Service Road, the road which is proposed for construction parallel to Cogdels Creek should be constructed. The road elevation should be at least 15 feet, and the roadside should be well vegetated. The road should be located on the flat uplands adjacent to the creek and not in or through the floodplain or adjacent side slopes. Floodplain vegetation and vegetation on the side slopes should not be disturbed during construction, or should be reestablished immediately following construction using SCS procedures for Critical Area Stabilization.

Peak flows from MCON P-257 should be conveyed in a medium stone fill riprap lined channel, and a controlled discharge should be conveyed beneath the road in a culvert with stilling basin. From the road to the creek, flows should be similarly conveyed in a reinforced

channel to prevent scour and bank erosion particularly along the existing side slopes of the floodplain. Once onto the floodplain, flows can be discharged onto an area which is well vegetated or reinforced with stone, or the riprap lined channel can continue to the creek as necessary.

Excess peak flows which cannot be safely conveyed under the roadway during the storm event can be diverted from the channel into a detention basin and allowed to infiltrate or be discharged in a controlled manner.

5.2 MAIN TANK CROSSING

The main tank crossing effectively serves as a dam restricting downstream flows during the 10-year storm. This structure actually was constructed with a water level control spillway, but the structure is no longer serviceable. This tank crossing should be redesigned to serve as a dam to retain peak storm flows safely in the upper watershed. The redesigned structure should incorporate an emergency spill-way.

5.3 DUNCAN STREET - BRIG AREA

As discussed in Section 3.2, there are critical problems in the tributary channel which receives storm water flows from the industrial area and the brig exercise yard. The major 48-inch storm drain outlet is eroding the channel and there is no reinforced head wall. This structure should be reconstructed and provided with an energy dissipating device such as a stilling basin. The channel immediately downstream should also be reinforced to prevent further stream bed scour and channel erosion. The other storm drain outlets to this system should be reconstructed in a similar manner.

Runoff from the brig exercise yard should either be diverted to the storm drain system along Duncan Street and discharged through the above structures, or the channel which presently conveys surface flows to the creek tributary should be repaired and constructed to adequately handle the apparently high flows which have caused considerable erosion of the creek channel. To repair the channel, the side slopes should be graded to no more than 3:1 slope, and the channel

reinforced with medium to large stone fill. A third alternative is to construct a new storm sewer in the approximate location of the surface channel, and allow the storm drain to discharge directly into a stilling basin at the intersection with the creek. Within the main tributary channel downstream, a gabion sediment dam should be placed across the stream valley, as shown in Figure 4-1 to trap sediments and prevent adverse effects on water quality further downstream.

5.4 1800 AREA

The severe channel and upland erosion in the 1800 area described in Section 3.2 should be remedied by installing a stilling basin at the culvert outlet, regrading the downstream channel and side slopes, and reinforcing the channel with large riprap. The upland areas north of the channel which are experiencing severe gully erosion also should be regraded. The entire upland area and channel side slopes should be revegetated following critical area stabilization procedures developed by the SCS. If surface runoff from the upland area requires a channel, a grassed waterway should be constructed to the existing stream channel, with a stone reinforced area at the intersection to dissipate flows and prevent future gully erosion.

5.5 PROPOSED P-631 COMPLEX

Construction of the proposed P-631 complex (Unaccompanied Enlisted Personnel Housing) along "O" Street will result in substantial increases in runoff and peak storm flows in lower Cogdels Creek. During the design of these facilities, the project should be provided with a detention basin to receive and store surface runoff, and discharge it to the creek in a controlled fashion. The detention basin should be designed to adequately handle anticipated runoff, and should be provided with a water control outlet structure. The basin should discharge to a riprap-lined channel which will traverse the steep vegetated side slopes of the floodplain and safely convey runoff to the stream without eroding channel side slopes. The riprap channel should discharge at the elevation of the floodplain, either into the creek channel itself or onto a well-vegetated or stone reinforced area.

5.6 2ND BULK TERMINAL STORAGE

The existing erosion and sedimentation from the large parking/ storage area at the above facility, as described in Section 3.2, can be remedied by constructing a grassed waterway parallel to H.M. Smith Boulevard, which would discharge to the existing tributary south of the fuel storage area. The terminal portion of the channel should be reinforced with riprap to prevent channel erosion, and the discharge to the tributary should be over an energy dissipator. Downstream a gabion sediment dam should be constructed as shown in Figure 4-1 to trap sediments washed from the parking/storage area.

5.7 MISCELLANEOUS RECOMMENDATIONS

- Energy dissipators such as stilling basins should be constructed at the storm drain outlets along Louis Road, "O"
 Street (north) and Duncan Street; in particular at the end of Cedar, Birch and Ash streets.
- The footpath along the south side of Main Service Road near Cogdels Creek should be paved and the slope regraded and revegetated following critical area stabilization recommendations.
- The runoff channel east of Building FC-115 should be regraded and reconstructed of medium stone fill riprap. The channel should be allowed to discharge to a well-vegetated or stone reinforced area northeast of FC-115 where it can be allowed to infiltrate.
- The culvert head wall and discharge point south of the Enlisted Mens Club (Building FC-330) should be reconstructed. The culvert should have a cement head wall and the discharge point and channel should be protected with medium stone fill riprap. In addition the area upslope from the culvert outfall should be graded and revegetated following critical area stabilization recommendations.

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• The parklike drainage swale along "0" Street northeast of Building 521 should be regraded and revegetated according to critical area stabilization procedures. If foot traffic through this area is to be permitted, paved foot paths should be provided to prevent disturbance to vegetation and resultant erosion.

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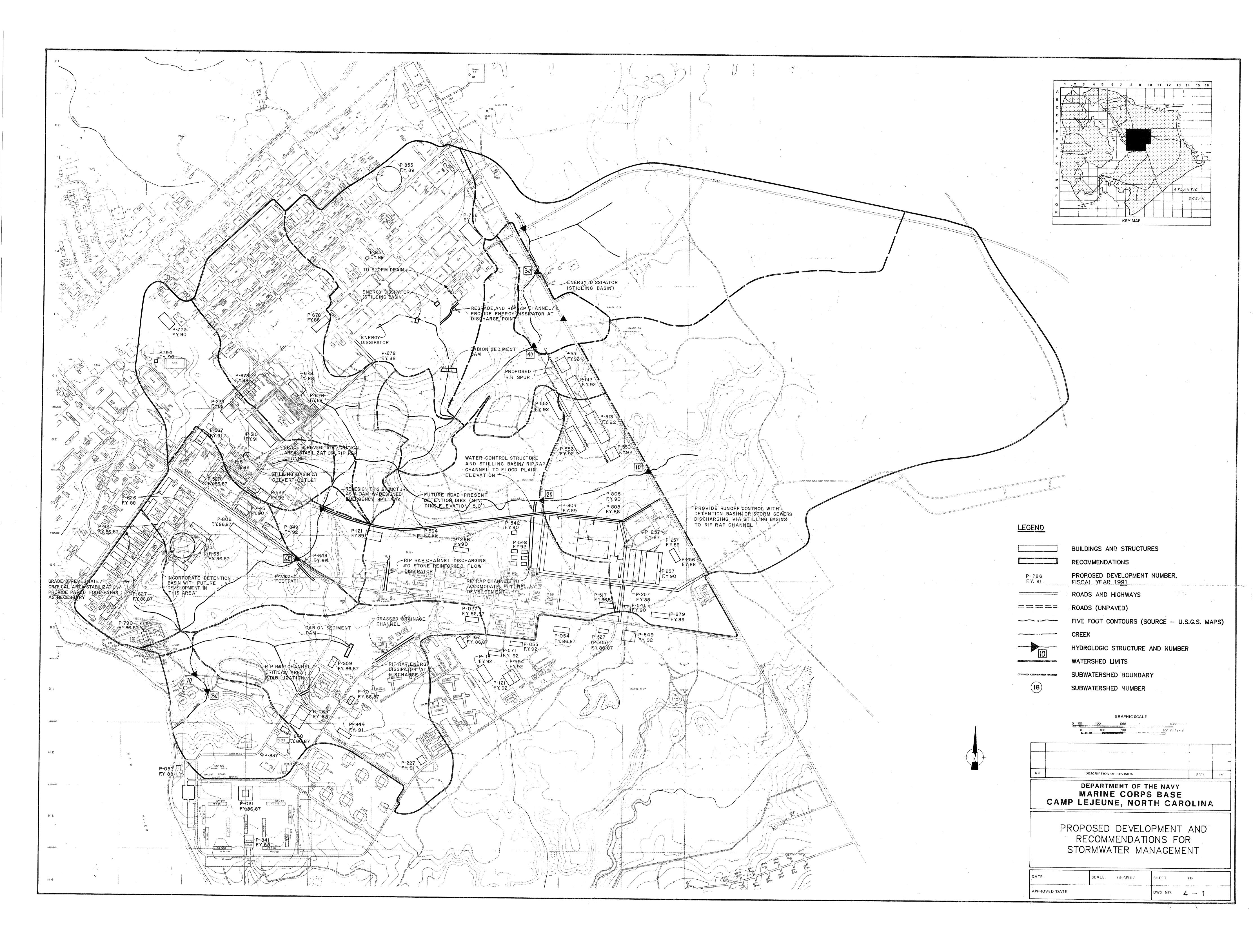
6. IMPLEMENTATION

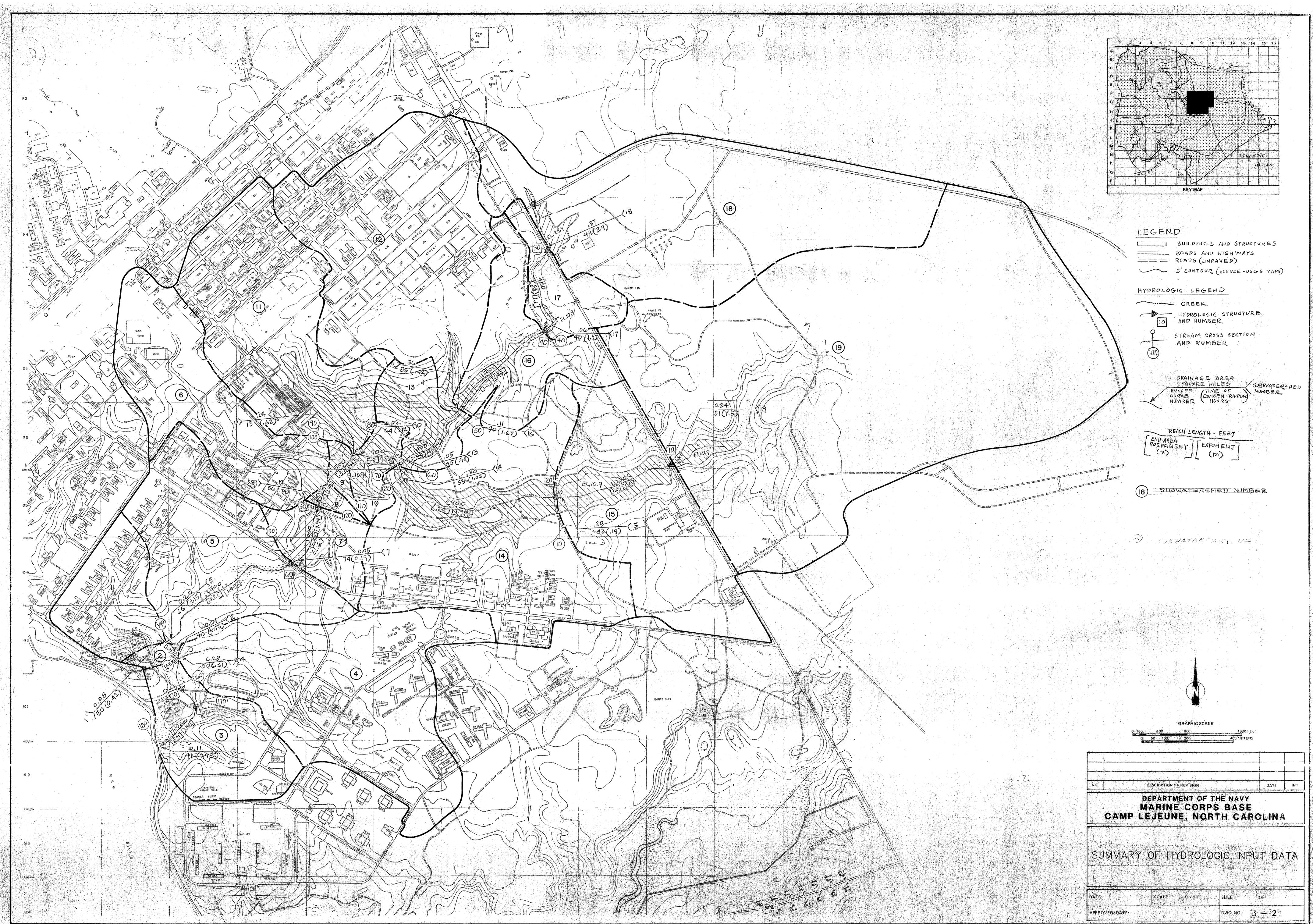
SCHEDULE AND COSTS TO BE PROVIDED AFTER
APPROVAL OF DRAFT REPORT

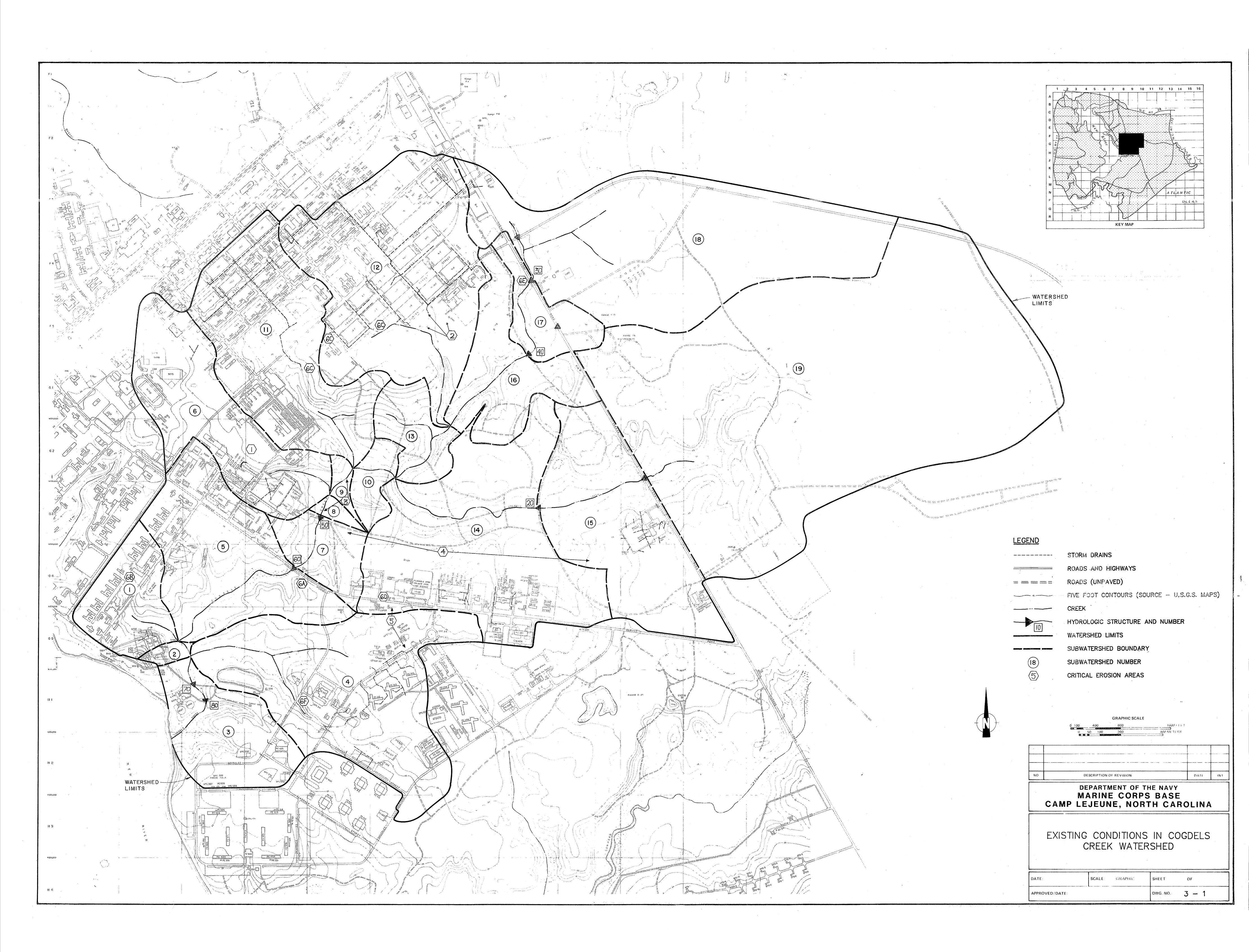
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7. BIBLIOGRAPHY

TO BE PROVIDED







Appendix A

DEVELOPMENT OF WEIGHTED CURVE NUMBERS FOR SUBWATERSHEDS UNDER EXISTING AND PROPOSED CONDITIONS

WEIGHTED CURVE NUMBERS
UNDER EXISTING CONDITIONS

	PROJECT <u>NV-5000</u> SUBJECT <u>Coadels</u> C US of Weighted CN's	reck Watershe	DATE 4/1 19 86
Calculation	15 of Weighted CN's	- Existing	PAGE OF
① S	SOIL TYPE A	BaB	
ARD -	2227/22112 = D.	1007	
U	5% MK , 10%	16 Mac , 85%	& BaB
AREA	- 5197/22112 = . 23	350	
P	5% MK, 10%		L B
AREA	- 14688/22112 =	요즘 사람이 이번째 하다면 되었다. 그는 그 이 이번에 있	
AREZ	%	CN	PLODICT
5	.1007	45	4.532
U	. 2350 × .05	27	0.965
	. 2350 × .10	55	1.293
	.2350 × .85	25	4.994
P	-6643 × -65	85	2.823
	.6643 × .10	70	4.650
	.6643 × .85	54	30,491
	WATERSHED WEIGH	uted CN = 4	9.688
(2) P	SOIL TYPE BAB	1REA 832/1568	= .5366
5		NFC 736/1568	= . 4694 × .1 = .0469
	90% 70% Nfc 30% BaB	4225	1
AREA	%	CN	PRODUCT
P	.5306	39	20.693
S	.0469 × ,10	8و	0.4596
	.4225 x .70 x .	90 49	18.632
	.4225 × .30		

	& environment,				UTCHINGS!
	PROJECT	VV-500)		DATE 4/1 1986
0111	SUBJECT 6	padels (reek Wa	tershed Stu	dy -
Calculat	ion of Weighted	- CNS -	EXISTIN	P. P.	AGE C OF T
3) U	214	40/31584	= 0.6	788	
	10% N	fc,10% A	MK, 60% B	B, 20% Mac	
P	10144	/31584	= .32/2		
	90% 2- 20	% MK, 1	0% Mac, 6	60% BmB, 10	% NFC
	10% 2 100				
AREA	. %		c N	peobuc	7
υ	.6788 × . /		25	1.65	97 .
	.6788 ×		77	5.	227
	.6788 v.		25	10	. 182
	.6788 *.		55		. 467
P	. 32/2× .		80		4.625
	.3212 4.9		61		1.763
	. 32/2 ×-1		39		1.127
	. 3212 ×		39		6.765
	3212 ×		81		2.602
				CN3 = 41.	455
(A) U	15% MK	70% Bab	15%	Mac 459	52/76576= 0.600
P	30624/765	76 = 0	.3999	20%	- 100% BaB
				30% - 10	0% BaB 50%-30%
AR	± 2 4	%		CN	Product
U		. 15 4,60	50/	77	6.931
		.70 x.6	00/	25	10.502
		.15 × .4	0001	55	4.951
P		.2×.3	ووو	98	7.838
		,3×.3	999	68	8.158
	10 917	.5 7.	3999×.2	70	2.799
CN	140ey 4 Dap 817	.5 × , 35	999×.8	54 cology and	environment 8.638

		PROJECT NV-50 SUBJECT Coadels of Weighted CN's	Ocek War	DATE Stud	4/1 19 86
Cal	culation	of Weighted CN's	- ExistiNG	PAGE	3 OF 9
3	F	12736/54496	= 0.2337		
	U	33888/54496	= 0.62/8	40% MK 30% BeB	30% Mac
	P	.9 x 7872/5445	% = 0.130	inih Bu	В
		.1 x 7872/544	96 = 0,01	45	
	AREA	% c.	~	produt	
	F	. 2337		22.90	3
	P	. 0145	98	1.42	1
		./30	57	7.4	10
	U	.6218 v. 40	-77	19.1	5/
		.6218 × .30	25	4.6	64
		.6218 × .30	55	10.	260
				CN5 = 65.80	[1] [다이돌리로 회사하고 다 [1] 생기를 잃었다면서 그런 게임하고 나타했다.]
6	U	1730.9/47488		10% Me (
	5	47488	= 0.0405	95% BeB 5% Mac	
	P	12096/47488	- 0.2547	100% BB	
	F	16160/47488	= 0.3403	5% Mac 9:	5% BaB
	AREA	%	e.~	7200	UCT
	U	,3645 x.10	55	2.	005
		. 3645 x.90	25	8.:	201
	S	.0405 x.95	45	1.7	3/
		.0405 4.05	66	0.	134
	P	-2547	39	.و	933
	F	,3403 x.05	> 98	33.	349
		.34°3 × .95			

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	O.					
	12	PROJECT NV-50	000	The second	_ DATE 4/	1986
	1 11: 12	SUBJECT Cogdels C	Creek Water	shed St	idy -	
Ca	Iculation of	PROJECT NV-50 SUBJECT Cogdels C Weighted CN:	- ExistiN	9	PAGE 4	of <u>9</u>
/	F	1312/14368 =	0.0913	S. Kuran A. F.		
apartina da Apartina	P	1440/14368 =	0.1002	50% BaB	50% M	e C
	U	9184/14368 =	0.6392	65% Bab 65% MK	30%/	Mec
	D	2432/14368 =	0.1693	85% BaB		5% Mel
	AREA	. %	eN		PRO	200
	<i>F</i>	0.0913	,98		8.5	947
	P	0.1002 x.5	89		4.4	159
		0.100Z x.5	92		4.	609
	U	0.6392 y.05	25		0.	799
		0.6392 × .65	77		31	.992
		0.6392 × .30	55		10	.547
	D	6.1693 × 0.8	5 72		10	. 361
		0-1693 4.10	91			41
		0.1693 v o		,		686
•				CN7 = .		
8	D	960/2240 =	.4286	100% BaB		
	U	1280/2240 =	0.5714	5% Mac	10% Ba B	85% MK
	AREA	%	CN		DUCT	
	D	.4286	72		30.859	
	U	.5714 x.05	55		1.571	
		.5714 × .10	25		1.429	
		.5714 x.85	77		37.398	
	COMBINE	6,8,9		CN8 = 7	1.257	
	6 ,170 M	12 55. 9.35				
	8 ,008	. 71 .568				in a dimension of
	9 .009 realched pap	CZ ,558 er 10.476	en=56		and environment	
		-,167		h-1		

	PROJECT NV-50	00	DATE 4/1	1986
Calculation	SUBJECT Coadels of Weighted CN	Creek Waters - Existing	hed Study -	of <u>9</u>
9 D	2560 = 0.	.0375 100	% BaB	
U	21/1/		1. B.B. 45% MK, 4	5% Mac
AREA	%	CM	PRODUCT	
D	0.0375	72	2,700	
U	. 3625 x .10	25	2.406	
	_9625 x.45	55	23.822	
	.96 25 × .45	77	33.35/	
	46E B -		. 279	
(10) U	68/6/7072 = 0.9		Mac 40% A	1K
D	256/7072 0.030		7. BaB	
AREX	%	c~	PROD	U
U	. 388× .6		31.8	305
	. 9638 × . 4	77	29.	685
D	.0362	68		162
		CN, = 6	3.952	

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	4/7	PROJECT NV-5000 SUBJECT Cogdels Cree Weighted CN's -	k Watershed S	Tudy - 19 86
Cal	culation of	Weighted CN's -	Existing	_ PAGE 6 OF 9
	F	43104/67488 = 0.63	87 60% la 40°	% &B
	и	14246/67488 = 0.211	1 25% Mec	, 75% BaB
	5	9498/67488 =0.140	7 100% P	
	P	640 /67488 = 0.009	5 10% W	
	AREA	%	دس	PRODUCT
	F	0.6387 ×.6	95	36.406
		0.6387×.4	89	22.738
	u	. 2111 × .25	55	2.903
1. 31		.2111 × .75	25	3.958
	5	1407	45	6.332
	P	.00.95 × .90	98	0.8364
		.0095 x.10	89	0.0846
		CN	= 73.258	
12	F	60 320/99968 = 0.6	6034	2075 Ur 2075-Ur
	P	16512/99968 = 0.	1652 10%	12 20% } 95% BaB
	U	13882/99968=0.	1389	
	5	3254/99968 = 0.0	0926 10	o'ls wo
A	REA	%	c~	PROCET
	F	.6034 × .60	98	35.479
		.6034 x .20	95	11.465
		.6034 x.20	93	11.223
	P	,1652 × .15	98	2.428
		.1652 4.10	80	1.322
		.1652 x 55	89	8.087
		.1652 x .2 x . 95	95	2.982
		.1652 x .2 x ,05	68	0.1/23
	recycled page	Λ_0	ecolo	gy and environment

ccology a chivi		and the second second second	free of the first on the season of the seaso
	PROJECT NV-5000		DATE 4/1 1986
Calculation	SUBJECT Cogdels Croof Weighted CN's	eek Waters	thed Study -
2 col de	%		PAGE 7 OF 9
(2) and here	.1389×.10	55	0.7640
	.1389 × .90	25	3.125
\$,0926 x .70	83	5.380
	.0926 4.30	80	2.222
			2.2.2
	CN,2 =	84.589	
(13) U	2- 15% MK, 45% B		- C
AREA	%	en	PRODUCT
Ü	.15	77	11.550
	.45	25	11.250
	.40	55	22.00
		= 44.80	
(14)	45/84/10/760 = 0.	444 10%	MK , 10% Mal, 80% Res
F	18496/101760= 0.1812	8 100%	BaB
D	29856/101760 = 0.293.	4 15% M	K, 60% BaB, 25% Mac
P	8224/101760 = 0.080	8 1001	6 BaB
1002	%	CN	Probet
	-494 × .10	77	3.419
CN14=53.367	.444 × .10	55	2.442
CN14=5	.444 x .80	. 25	8.880
F	-18/8 x-40	81	5, 8,90
_	.1818 × .60	68	7.417
D	. 2934 × . 15	89	3.917
	. 2934 4. 25	79	5.795
C	.2934 ×.60	68	11.971
P	.0808 A-10	45	3.636

		PROJECT NV-5000 SUBJECT Coddels Cree of Weighted CN's - 4032/42560 = .0947		DATE 4/1 1986
· C	alculation	of Weighted CN's	Existing	PAGE 8 OF 9
(5)		42560 = .0947	10% Me	90% Mac
	U	34532/42560 = 0.8/28	10% Mac, 5%	BMK, 35% KmB, 50% BEB
	F	3936/42560 = 0,0925	10070 B	uB .
	ALD	%	CN	moderat
	D	.0947 x.10	91	0.8618
		.6947 × .90	81	6.904
	U	. 8128 × .10	55	4.470
		.8128 x .05	77	3.129
		.8128 × .35	25	7.112
		, 8128 × 50	25	10.160
	F.	.0925	36	9.063
•			CN15 =	41.699
(16) P U	800/30112 = 0.02	266 20% 4	h 80% Bab
and the second	U	29312/30112 =0.	9734 30	70 Mac, 7070 BaB
	LREA	%		Produt
	P	.0266×.20 =	95	
		.0266 x.80	68	1.447
	U	.9734x .30	55	16.061
		.9734 × .70	25	17.035
				18. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19

 $CN_{16} = 35,048$

<u>Ca</u> (17)	Iculation	PROJECT NV-50 SUBJECT Coadels Of Weighted	Creek Watershi	DATE 4/1 19 86 ed Study - g PAGE 9 OF 9
00	AREA		cN	그리아 그렇게 되는 이 사람들은 아이들은 이 이번 사람들이 되었다면 그렇게 하지만 하는 것이 없었다.
	U	. 20		probat
	U		55	//.00
		.80	25 CN,7 = 31.00	20.00
(8)	U	역기는 그릇이 어떻게 많아가 뭐 하겠다. 이번째 그 없다		,2170 Ma , 270 Pt
	AREA	7.	cN	Prostet
	U	. 43	25	10.75
		. 22	70	15.40
		.12	55	6.60
		. 21	77	16.17
		.02	25	0.50
			CN18 = 45	
(19)	U	= .9397 40	7. BmB, 15% To,	25% on, 20% Mm
	D	· 그렇다는 - 1년 - "20 년 " "이는 등이 : : : : : : : : : : : : : : : : : :	7. BmB, 307. Om	에면 보고 있는 것이 모든 그는 아이에 없는 보이라고 한 것이 되었다. 이 아이는 사람들은 사람들이 되었다.
	AREA	%	CN	Product
	U	.9397×.40	25	9.397
		,9397-4,15	70	9.867
		,9397 x.25	55	12.921
		.9397 × .20	77	14.471
	D	.0663 x.60		
		.0603 4.30	72	4.342
		.0603 ×.10)	

WEIGHTED CURVE NUMBERS
UNDER PROPOSED CONDITIONS

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PROJECT NV-5000

SUBJECT Cogdels Creek Watershed Study -

Calculation of Weighted CN's - Proposed PAGE 1 OF 13
WATERSHED
         PRESENT (N = 49.688
        yr '36 → 0.
yr '87 → P627
        yr 188 - P626
        ALL REMAINING YRS -0
       FY '87 P627 COVERS 15.43% OF
              WHOLE - AREX 2 1070 15 U, 9070 15 P
            1 U WEIGHTED CN = 30.60
                            (77x.05) + (55x.1) + (25x.85)
                              3.85 + 5.5 + 21.25
                 CN = (85x,05)+ (70x.10)+(54x.85)
                            4.25 + 7 +45,9 = 57.15
               = 23.50 % of WATER-HED
                66.4370 OF WATURSHIED
      for o
                34129. 6 new Anew /519700 old onex = 6.57%
                 :. 6.57% × 98 = 6.44
                       93,43% × 30.60 = 28.59
                     new CNU = 35.03
      for P
                      307/66 new trea / 1468800 old men = 20.91
                   :. 20.91% × 98 = 20.49
                      79.09% × 57.15 = 57.94
                          CNp= 78.43
              CN_1 = (.235)(35.03) + (.6643)(78.43)
   for 37
                     CN_1 = 64.86
```

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SUBJECT Coadels Creek Watershed Study
Calculation of Weighted CN's - Proposed PAGE 2 OF 13

PO 33

PO 626

STO GODE TO 1P = 4470 5H CNp in 87 = 78.43 AREA New 4470/1468800 told one = 0.304% $CN_p = .3047. \times 98 = 0.2983$ 99.696% × 78.43 = 78.19 CNp= 78.49 CN, for 88 = (78.49)(.6643) + 8.23 + 4.532 CN, = 64.91 $CN_{1} = 64.91$ 2 REMAINS THE SAME WATERSHED Fy '86 P840 WATERSHED 3 Fy 89 P837 CNp= 52.56 Fy'86 P840 - 34 WEIGHTED CNu = 2.5 + 7.7 + 11.0 + 15 = 36.20

new arec 2100/21440x10= 0,0979%

.0979% × 98 = 0.0959

99.902 × 36.2 = 36.16

CNu = 36.26

 $CN_3 = (36.26)(.6788) + (52.56)(-3212)$

- 36 CN3=41.50

FY 89 P837 2 3P = 6000 2 ft 6000/10144 402 = 0.59E

0.5927. × 98 = 0.5797 } CNp = 52.829 99.408 × 52.56 = 52.2488

50 89 CN3 = (36.26)(6788) + (52.329)(3212) = 41.58

```
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SUBJECT Cogdels Creek Watershed Study-

Calculation of Weighted CN's - Proposed PAGE 3 OF 13

WATERSHED 4

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PROJECT NV-5000

PAGE 3 OF 13
        Fy '88 PO65 -- 4U
                 FY 91 P227 - 4P
                                         P844 < 1/4 P
        CN_u = 37.3 CN_p = 68.6

FY '87 - P027 = 16120ft<sup>2</sup> = 34445ft^2/= 0.750;

= 25.9 = 18325ft^2 = 45.95200
             CN_{u} = 0.750\% \times 98 = 0.7346

99.25\% \times 37.3 = 37.02
           CN_{4} = (68.6)(0.3999) + (37.76)(.6001)
= 50.09
FY'88 => P065 = 21000 pt^{2}/45.95200 = 0.457%
CN_{u} = 98 \times .457\% = 0.4479
99.543) \times 37.76 = 37.587
    '88 CN_4 = (38.035)(.6001) + (68.6)(33999) = 50.26

FY '91 P 227 = 12527 f = 15710.75/ = 0.513'.

P \frac{1}{4}P844 = 3183.75 f \frac{1}{2}
                  U- 3/4 P844 = 9551 25/4595200 = 0.2087.
              CN_p = .513\% \times 98 = .5027 \times 68.751

99.487\% \times 68.6 = 68.248
               CN_{u} = 0.208\% \times 98 = .2038 > 38.160

99.792\% \times 38.035 = 37.956
        1 91 CN_4 = (38.160)(.601) + (.3999)(68.751)

CN_4 = 50.39
```

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SUBJECT Cogdels Creek Watershed Study

Calculation of Weighted CN's - Proposed PAGE 4/1 1986
WATERSHED 5
                    P 63/ = 59.5P
      FY 86
                    P806 -
                              50
                    P527 - 5P
                     P 626 - 95%5P
       FY 38
        FY 90
                     P 843 707.5F, 38,5 54
                     P445 5F
        FY 91
                      P567 5F
                      P 859
         Fy 92
                      p 511.
                               30% SF
                       P533 207. 5F
                      CN_F = 22.903 CN_P = 61.1 CN_a = 54
                 P631 179062 11^2 \times .95 = 3247010.9 \frac{247010.9}{3388800}
                                  new = 7.289%
                               29775 ft2 38728.1
                     P 631
                                      new P = 4.9197%
               new U= 7.289% × 98 = 7.1432
                             54.8 × 92.711 = 50.806
                          4.9197/2×93 = 4,8213
                             61.1 × 95.08% = 58.094 >62.92
              new P =
  ^{\prime}86 CN_{5} = (22.903) + (62.92) (.145) + (57.95) (.6218)
                   CN_5 = 68.06
```

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SUBJECT Coadels Creek Watershed Study -

Calculation of Weighted CN's - Proposed

PAGE 5 OF 13

FY 33

P 626

89408 x 95= 84937.66+2/787200
                                                    new P = 10, 79%
                   new (Np= 10.79% × 98= 10.574
                                89.21% × 62.92 = 56.131 >66.705
          CN_5 = 22.903 + (66.705)(.145) + (57.95)(.6218)

88 CN_5 = 68-61
   Fy '90
                 F \left\{ \begin{array}{ccc} P843 & .7 \times 66080 \\ P445 & 23621 \text{ Hz} \end{array} \right\} \xrightarrow{69877} = 1.282
                  ^{1}90 ^{1}CN_{5} = 23.865 + .6218(58.18) + .145(66.705) ^{1}CN_{5} = 69.71
   FY 91 P567 24360/5449600 = 0.447%.

NEW CNF = .447% × 98 + 23,865 = 24.303
              91 new-CNs = 24.303 + (,6218) (58,18) +.145 (66.705)
                            CN_5 = 70.15
P859 \quad 43560 \text{ ft}^2
P511 \quad .3 \times 61400 \text{ ft}^2
P533 \quad .2 \times 43560 \text{ ft}^2
5449600
    Fy '92
                                                = 1.297 ?.
                      CN_F = 1.297. \times 98 + 24.303 = 25.574.
                  CN_5 = 25.574 + .6218 (5818) + .145 (66.705)

CN_5 = 71.42 A-18
           92
```

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Calculation of Weighted CN's - Troposed PAGE 6 OF 13

WATERSHED 6 FY'89 P 229 - 65
                  FY 90
                                        P 773 6P
                                                 6P
                                        P 794
                                                  107.6F
1907.65
                         FY 91
                                         P510 -
                         Fy 92
                                        P 533
                                                  36% GF
                                        P511 70% 6F
              CNu = 28.0
                                CNS = 46.05 (Np = 39 (NF = 98
             Fy '89 P.229 44524 ft 2 / 192300 = 23.153
                 CN_{S} = 23.153\% \times 98 = 22.69

76.847\% \times 46.05 = 35.388 >58.08
       '89 CN6 = (5808)(.0405) + 33.349 + 9.933 +(28.0)(.364)
                                CN6 = 55.84
                     P773 = 40104 ft^2 \Rightarrow 82104 ft^2/1203600 = 6.79

P794 = 42000 ft^2
               CN_p = 6.79\% \times 98 = 6.652 \times 43.00

93.21 \times 39 = 36.35
           90 \text{ CN}_{6}^{=} 33.349 + 10.206 + (58.08)(.0405) + (43.00)(.254)
CN_{6} = 56.91
     FY 91
                       P 510 85438 x . 9 = 76894.2 /1616000 = 4.76
                              85438 × -1 = 8543.8 /192300 = 4-44
                  CNF = 4.76% ×98 +33.349 = 38.01
                     CN_{5} = 4.44 \times 98 = 4.354

95.56 \times 58.08 = 55.50 59.86
                        CN6 = (59.86)(,0405) + 38.01 + (10.206)+(43.00)(.25
                                   CN<sub>6</sub> = 61.59 ecology and environment A-19
         recycled paper
```

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PROJECT NV-5000

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SUBJECT Cogdels Creek Watershed Study

Calculation of Weighted CNs - Proposed PAGE 7 OF 13

FY 92

P533 .8× 43560 ft 77828 ft = 4.82

P511 -7× 61400 ft 7 1616000 ft 2
```

```
CNF = 4.82% ×98 + 38.01 = 42.73
92 CNC = 42.73 + 10.206 + (43.00)(.2547)+69.86)
           CNG = 66.31
```

WATERSHED 7 FY 92 P121 257.70 P121 75120 H2 x.25 = 18780 / 243200 = 7.72% CN0= 74.35 $CN_0 = 7.72\% \times 98 = 7.57$ = 74.35 × 92.28% = 68.61 > 76.18 92 CN7 = (76.18)(.1693) + 8.947 +43.34 + 9.06 CN7 = 74,25

WATERSHEDS 8,9,10 R.T.S WATERSHED 11 FY 88 P 678 2- 80% 11 F $CN_F = 59.144$

P 678 76210/12 x.8 = 60968/4310400=1.4 CNF = 1.414% × 98 + 59.144 = 60.53 CN = 60.53 + 6.332 + .9210+ 6.861 88 CN11 = 74.64

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PROJECT - NV-5000
                                                           DATE 4/1 19 86
SUBJECT Cogdels Creek Watershed

Calculation of Weighted CN's - Proposed

WATERSHED 12 FY 88 P678

FY 89 P853
                                                         Study -
                                                          PAGE 8 OF 13
                                                          20% 124
                                                          12 5070 P
                                                          12: 10% F
                               Fy 91 P786
           CNp = 96.40 CNp = 90.38
             CN_{\omega} = 28 CN_{S} = 82.0
         FY 88
                             P678 76210 f12x. 2= 13242/388200=1.
                     -CN_{L} = 1.09870 \times 98 = 1.076
= 98.90270 × 28 = 27,693
            '88 CN,2 = (28.77).1389 + (96.46), 6034 + (90.38), 164
                               + 82.1- (0.0926) = 84.70
         FY'89 P853 125664 H2 x.5 = 62832
                P = \frac{62832}{1651200} = 3.81\% \quad F = \frac{62832}{6032000} = 1.00
(NP = 3.81\% \times 98 = 3.73 = 1.00
90.38 \times 96.19\% = 86.94
                CNF = 1.042 \times 98 = 1.021

98.958 \times 96.40 = 95.396
             CN_{12} = (90.67)_{1652} + (96.42)(.6034) + 28.77(.1389)
                                + 82. L (.0926) = 84.76_
   FY 91
                        P 786 5 36096 ft2 x.9 = 32486.4/9254003:
                                  F 36096 x .1 = 3609.6 /4310400=0.084
                      CN_{5} = 3.51\% \times 98 = 3.44' > 82.66'

82.1 \times 96.49\% = 79.22
                         CN_F = 0.084\% \times 98 = .0823

96.42 \times 99.916\% = 56.339
    91 CN12 = (82.66).0926 + (86.42) (.6034) + 28.77 (.1389)
                               + 90.67(,1652) ecology and engineer 8 A-21
```

	PROJECT NV-5000 SUBJECT Cogdels Co of Weighted CN's	1 / 1 /		DATE 4/1	1986
Caladatin	SUBJECT Coadels Co	cek Water	ershed.	Study -	-13
WATERSHED	13 PTE	- 11000	<u> </u>	PAGEOI	-22_
WATERSHED		19/	P 517 < 1	1-140	
CND = 73.9					
$CN_F = 73.2$	FY		P257 P804		D
CNu = 33.2				194	
CNp, 45-3,636	FV	' %		107. 14	D
			P266	140	
			P542	14F	
	FY	192	P552	140	
			P121	3/4 141	
		\ \	P548	14F	
FY '86	P517	2346	60 Hz x	25= 5865/25 = 17595/45/8	985600=,/
			2×.75	= 17595/4518	8400 = 0.38
	CND = .1967.x.				
	99.804	7. × 73.9	= 73,7	6 > 73.95	
	CN = . 383	1×98 =	.3812	\ 33	. 45
	,وو	611),× 33,	2 = 33	3.0717 33	
86	CN = (73.95)	,2934 + (3	3.45).4	44 + 3.63	6 +
	(73.2)(.181	2) = 5	3.49	÷
FY '87				05/12/2985	600=1.52
	1	- 0			
	73.95 x	98.4797	0. = 72.	83/14.	26
87	$(N_{14} = (74.32)$.2934 + ((33.45).	444 + 3.6	36 +
	73.2	2 f. 1818)) = 5:	3.60	

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SUBJECT Cogdels Creek Watershed Study-

Calculation of Weighted CN's - Proposed PAGE 10 OF 13 2.6

FY 89 D P804 210300ft2 x.375 = 78862.5/298560

U P564 6100 ft2 /4518400 = 0.1357.
                    CN_0 = 2.64\% \times 98 = 2.587 > 74.95
74.32 × 97.36% = 72.36
                     CNu = .135% × 98 = .1323 > 33.53
99.865 × 33.45 = 33.40
                      CN 14 = (33.53) .444 + (74.95) . 2934 + 3.636
                         (73.2).1818
= 53.82
                       Fy '90
                     CN_D = 2.04\% \times 98
= 1.999 \times 75.42
97.96\% \times 74.95 = 73.421
                      CN_F = .257\% \times .98 = .252
73.2 \times .99.743 = .73.012
73.2 \times .99.743 = .73.012
      वरे
                      CN14 = (75.42):2934 + 73.26(.1818)+
                         (33.53).444 + 3.636
                            = 53.97
    FY '92
                         P552 U 104000 ft2 /4518400 = 2.30%
                          P121 D 75120 /1= x.75 /2985600= 1.887%
                         P548 F 43560 ft / 1849600 = 2.3557c
          CNU =
                        2.30\% \times 98 = 2.254 > 35.013

97.7\% \times 33.53 = 32.759
                        1.867 % × 98 = 1.849 75.85
75.42 × 98.113% = 73.997 ccology and environment A-23
         CND =
          recycled paper
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Calculation of Weighted CN's - Proposed PAGE 11 OF 13

CN = 2.35576 × 98 = 2.308 73.84
                   73,26 × 97.645% = 71.535
            CN14 = (35.01). 444 + (75.85), 2934 + (73.84).1818
                        + 3.636 = 54.86
 WATERSHED 15
                                               $15 < 590 U
                             Fy 87
                                       P257_
                            FY 88
                                       P803
                                                 150
                                       P256
                                                 150
155 15 12 u
                             Fy89
                                       P804
                                       P679 150
                              Fy 90
                                      P541 150
                                      550
                                                 150
                             FY 92
                                       553
                                                 150
                                         512 1/4 150
                                         513 /50
      FY 87
                               60540 ft2 x.25 = 15135 ft2
                               D 15135 x , 95 =
                                                  14378.25/403200 = 3.57°
CN0 = 82
                                                   756.75/3459200=0.022
CNu = 30.6
                               u = 15/35 x .05 =
(N; = 98 2 9.063
                  CND =
                                3.57% × 98 = 3.499 >82.57 = 82 × 96.43% = 79.073
                    CNu =
                                 0.022% × 98 = 0.0216 730.61
30.6 × 99.978% = 30.593
                    CN15 =
                               (82.57).0947 + (30.61), 8128+9.063
                                          = 41.76
```

Calculation of Weighted CN's - Proposed PAGE 12 OF 13 P803 $48000 ft^{2}/3459200$ >= 1.79% P256 13760 ft²/3459200 >= 1.79% $CN_{\alpha} = 1.79\% \times 98 = 1.75$ 98.21% × 30.61 = 30.06 88 CN15= (31.81).8128 + (82.57)(.0947) + 9.063 $CN_{15} = 42.74$ P 804 210,300 x.5= 105150 112 Fy '89 D 105150 x 2 = 52575/403200 = 13.04 U = 105150x/2 = 52575/3459200 2.0967. P 679 19912 ft2 /3459200 CND = 13.047 × 98 = 12.78 7 84.58 82.57 × 86.96% = 71,80 31.81 × 97.9042=31,143 $CN_{u} = 2.09676 \times 98 = 2.054$ (89 CN15 = (33,197).8128 + (84.58).0947+ 9.063 = 44.06 FY 190 p541 u= 3300ft2/3459200 = 0.095% $CN_u = .095\% \times 98 = 0.0935 > 33.26$ 33.197 × 99.905%= 33.166 $(N_{15} = (33.26)(.8128) + (84.58),0947 + 9.063$ = 44.11 Fy '92 P550 = 38800 / 2/3459200 W-P553 = 104000 pt 2/345,9200 P512 = 4×104000 pt 2/345,9200 7.89% P513 = 104000ft / 3459200

Calculation of Weighted CN's - Proposed PAGE 13 OF 13 = 7.89% × 98 = 7.729 > 38.365 33.26 × 92.11 % = 30.636 CN15 = (38.365). 8128 + (84.58),0947 + 9.063 CN,5 = 48.26. Fy 192 P551 WATERSHED 16 164 P512 3 16 u CNp = 73.4 CN = 34.0 Fy'92 u-P 551 53160 H2/2931200 34.475% P 512 3 x 104000 /12/2931200 CN = 4.47590 x 98 = 4.385 > 36.86 34.0 × 95.525%= 32,479 $CN_{16} = (36.86).9734 + (73.4).0266$

= 37.84

Appendix B

COMPUTER PRINTOUT FROM TR-20 HYDROGEOLOGY ANALYSES FOR FY85 THROUGH FY92

FISCAL YEAR 85

**********	*******80-	-80 LIST OF IN	PUT DATA FOI	R TR-20 HYDROLOGY**********	*****
JOB TR-20		FULL	PRINT PASS=	001 SUMMARY	10
	COGDELL'S C			010 24 HR 10YR TYPE 2 STORM	20
	ALT 85			2 2 1112 2 970111	30
3 STRUCT	10				40
8		7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
8		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		8.2	22.0	6.38	90
8		8.6	52.0	7.07	100
8		9.0	62.0	7.75	110
8		9.5	96.0	8.61	120
8		10.0	126.0	9.47	130
8		11.0	198.0	11.18	140
8		12.0	280.0	12.89	150
8		13.00	360.0	14.79	160
8		14.00	440.0	16.68	170
8		15.00	500.0	18.58	180
8		15.1	600.00	18.60	190
9 ENDTBL					200
3 STRUCT	20				210
8		4.5	0.00	6.80	220
8		4.9	1.5	7.88	230
8		5.1	3.7	8.42	240
8 .		5.5	11.0	9.51	250
8		5.7	15.0	10.13	260
9		6.1	25.0	11.13	270
8		6.5	40.0	12.21	280
8		7.1	60.0	13.84	290
8		7.9	78.0	16.01	300
9		8.5	79.0	17.63	310
8		9.5	100.0	20.34	320
8		10.5	126.0	23.06	330
8		11.5	150.0	25.76	340
9 ENDTBL		11.6	300.0	26.04	350
3 STRUCT	30				360
8	30	21.0	A AA	0.40	370
8		21.0	0.00	0.10	380
8		21.4	0.6	0.61	390
8		21.6	1.5	0.86	400
8		21.8 22.2	2.5	1.12	410
8		22.6	5.2 8.2	1.62	420
8		23.0		2.13	430
8		23.5	11.0	2.64	440
8		24.0	27.0	3.27	450
		24.0	27.0	3.91	460

***************************************	*******	##80-80 LIST	OF INPUT DAT	A (CONTINUED) ***	***************************************
8		25.0	39.0	5.18	470
8		26.0	49.0	6.45	480
8		27.0	57.0	7.72	490
8		27.1	200.00	7.74	500
9 ENDTBL					510
3 STRUCT	40				520
8		9.0	0.0	0.38	530
8		9.4	2.2	0.47	540
8		9.6	5.0	0.52	550
8		10.0	14.0	0.62	560
8		10.2	21.0	0.67	570
8		10.6	36.0	0.77	580
8		11.0	55.0	0.86	590
8		11.6	82.0	1.01	600
8		12.4	120.0	1.21	610
8		13.0	121.0	1.35	620
8		14.0	122.0	1.60	630
8		15.0	126.0	1.84	
8		16.0	150.00	2.08	640 650
8		16.1	300.00		
9 ENDTBL		10.1	300.0	2.11	660
3 STRUCT	50				670
8 S S I NO D I	30	2.4	0.00	22.00	680
8		2.8	0.00 2.0	22.00	690
8		3.0		26.86	700
8			7.0	29.29	710
8		3.4	16.0	34.16	720
8		3.6	24.0	36.59	730
8		4.0	40.0	41.46	740
8		4.4	60.0	46.32	750
		5.0	90.0	53.62	760
8		5.8	120.0	63.35	770
8		6.4	121.0	70.65	780
8		7.4	210.0	82.81	790
8		8.4	250.00	94.98	800
8		10.4	334.0	119.31	810
8		12.4	400.0	143.63	820
8		12.5	800.0	143.70	830
9 ENDTBL					840
3 STRUCT	60				850
8		2.0	0.0	22.20	860
8		2.4	3.0	27.41	870
8		2.6	10.5	30.02	880
8		3.0	22.5	35.24	890
8		3.2	36.0	37.85	900
8		3.6	60.0	43.06	910
8		4.0	90.0	48.28	920

1	*	*****	**	*****	**	**	*8	0-80 LIST	OF INPUT DAT	A (CONTINUED)) * * * *	*****	
	8							4.6	135.0	56.11			930
	8							5.4	180.0	66.55			940
	8							6.0	181.0	74.38			950
	8							7.0	315.0	87.42			960
	8							8.0	375.0	100.47			970
	8							8.1	700.0	100.50			980
		ENDTBL						0.1	700.0	100.30			990
		RUNOFF		10			4	0.84	51.	7.50			
		RESVOR						7.0	31.	7.30	1		1000 1010
		REACH		010	7			1750.	1.2	1.10			
		RUNOFF			'			0.20	42.	0.19	1		1020
		ADDHYD			5	L	7		74.	0.17		i	1030
		SAVMOV			7	Q	6				1	1	1040
		RESVOR		20	-		_	4.5					1050
		REACH		020	7		110	2900.	A 20	1.04	1		1060
		RUNOFF			1				0.28	1.94	1		1070
		ADDHYD			5	ı	7	0.28	53.	1.02	1		1080
		SAVMOV			7	0					- 1	1	1090
		RUNOFF			1		1	Λ 77	40	7.00	- A		1100
				30	,			0.37	49.	3.90	1		1110
		RESVOR		30				21.0	4 00		1		1120
		REACH			7			1300.	0.88	1.10	1		1130
		RUNOFF			_	,		0.06	40.	1.00	1		1140
		ADDHYD				0	7				1		1150
		SAVMOV			7		6						1160
		RESVOR			6			9.0			1		1170
		REACH		050	7			1700.	1.6	1.45	1		1180
		RUNOFF						0.11	40.	1.67	1		1190
		ADDHYD				6	7				1		1200
		SAVMOV			7		5						1210
		RUNOFF						0.36	85.	0.42	1		1220
		ADDHYD					7				1		1230
		REACH		060	7			1400.	0.44	1.94	1		1240
		RUNOFF						0.05	45.	0.90	1		1250
		ADDHYD					7				1	1	1260
		SAVMOV			7		5						1270
		SAVMOV			1		6						1280
		ADDHYD			5	6	7				1	1	1290
		REACH			7		5	700.	0.30	1.94	1		1300
		RUNOFF					6	0.02	64.	0.12	1		1310
		ADDHYD			5	6					1		1320
		SAVMOV			7		5						1330
		RUNOFF						0.24	73.	0.62	1		1340
		ADDHYD			5	6	7				1		1350
		REACH			7		5	500.	0.30	1.94	1		1360
		SAVMOV			5		7						1370
	6	REACH	3	120	7		5	500.	0.30	1.94	1		1380

11	1111111	**	*****	**	**	\$8	0-80 LIST OF	INPUT DATA	(CONTINUED)	***	**	****	*****	******
6	RUNOFF	1	120			6	0.19	56.	0.74	1				1390
6	ADDHYD	4	120	5	6	7				1	1			1400
6	SAVMOV	5	50	7		6								1410
6	RESVOR	2	50	6		7	2.4			1	1	1		1420
6	REACH	3	130	7		5	1000.	0.30	1.94	1				1430
6	RUNOFF	1	130			6	0.05	74.	0.19	1				1440
6	ADDHYD	4	130	5	6	7				1				1450
6	SAVMOV	5	130	7		6								1460
6	RESVOR	2	60	6		7	2.0			1	1	1		1470
6	REACH	3	140	7		5	2500.	0.21	1.48	1				1480
6	RUNOFF	1	140			6	0.20	66.	1.15	1				1490
6	ADDHYD	4	140	5	6	7				1				1500
6	SAVMOV	5	150	7		5								1510
6	RUNOFF	1	149			6	0.08	50.	0.42	1				1520
6	ADDHYD	4	150	5	6	7								1530
6	REACH	3	150	7		5	300.	0.21	1.48	1				1540
6	RUNOFF	1	150			6	0.01	40.	0.15	1				1550
6	ADDHYD	4	150	5	6	7				1				1560
6	SAVMOV	5	180	7		5								1570
6	RUNOFF	1	180			6	0.28	50.	0.61	1				1580
6	ADDHYD	4	180	5	6	7				1				1590
6	REACH	3	180	7		5	1700.0	0.21	1.48	1				1600
6	RUNOFF	1	180			6	0.11	41.	0.48	1				1610
6	ADDHYD	4	180	5	6	7				1	1	1	1	1620
	ENDATA													1630
7	LIST													1640
7	BASFLO	5					3.0							1650
7	INCREM	6					0.1							1660
7	COMPUT	7	10	18	30		0.0	7.0	1.0	2	2	85	01	1670
	ENDCMP	1								Barrier.				1680
	ENDJOB													1690

TR20 XEQ 05-05-86 08:09	COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM	20	J0B 1	PASS	1
REV PC 09/83(.2)	ALT 85	30		PAGE	1

EXECUTIVE CONTROL OPERATION LIST

RECORD ID 1640

LISTING OF CURRENT DATA

ė		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	10			
8			7.00	.00	4.33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
8			8.20	22.00	6.38
8			8.50	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	360.00	14.79
8			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600.00	18.60
9	ENDTBL				
		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	20			
8			4.50	.00	6.80
8			4.90	1.50	7.88
8			5.10	3.70	8.42
8			5.50	11.00	9.51
8			5.70	15.00	10.13
8		9	6.10	25.00	11.13
8		frestatur en de en desarrag	6.50	40.00	12.21
8			7.10	60.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
8			11.50	150.00	25.76
8			11.60	300.00	26.04
9	ENDTBL				

PASS

PAGE

JOB 1

10YR TYPE 2 STORM

20

30

REV	PC 09/83(.2)	ALT	85		
	10 07700(127				
STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE	
		24.00			
		21.00	.00	.10	
		21.40	.60	.61	
		21.60	1.50	.86	
		21.80 22.20	2.50	1.12	
		22.20	5.20	1.62	
		23.00	8.20	2.13	
			11.00	2.64	
		23.50	20.00	3.27	
		24.00	27.00	3.91	
		25.00	39.00	5.18	
		26.00	49.00	6.45	
		27.00	57.00	7.72	
ENDTBL		27.10	200.00	7.74	
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE	
STRUCT	40				
		9.00	.00	.38	
		9.40	2.20	.47	
		9.60	5.00	.52	
		10.00	14.00	.62	1
		10.20	21.00	.67	
		10.60	36.00	.77	
		11.00	55.00	.86	
		11.60	82.00	1.01	
		12.40	120.00	1.21	
		13.00	121.00	1.35	
		14.00	122.00	1.60	
		15.00	126.00	1.84	
		16.00	150.00	2.08	
		16.10	300.00	2.11	
ENDTBL					
	STRUCT NO.	ELEVATION	DISCHARGE	CTOBACE	
STRUCT	51KUC1 NU.	CLEANITUM	DISCHARGE	STORAGE	
SINULI	JU				
		2.40	.00	22.00	
		2.80	2.00	26.86	
		3.00	7.00	29.29	
		3.40	16.00	34.16	
		3.60	24.00	36.59	
		4.00	40.00	41.46	
		4.40	60.00	46.32	

REV	PC 09/83(.2)	ALT	85					30		P	AGE	3
		5.80	130.00	17.76								
		6.40	120.00	63.35								
		7.40	121.00	70.65								
			210.00	82.81					•			
		8.40 10.40	250.00	94.98								
			334.00	119.31								
		12.40	400.00	143.63								
ENDTBL		12.50	800.00	143.70								
STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE								
JINOCI	av											
		2.00	.00	22.20								
		2.40	3.00	27.41								
		2.60	10.50	30.02								
		3.00	22.50	35.24								
		3.20	36.00	37.85								
		3.60	60.00	43.06								
		4.00	90.00	48.28								
		4.60	135.00	56.11								
		5.40	180.00	66.55								
		6.00	181.00	74.38								
		7.00	315.00	87.42								
		8.00	375.00	100.47								
		8.10	700.00	100.50								
ENDTBL												
	TIME	INCREMENT										
DIMHYD		.0200										
	.0000	.0300	.1000	.1900	.3100							
	.4700	.6600	.8200	.9300	.9900							
	1.0000	.9900	.9300	.8600	.7800							
	.6800	.5600	.4600	.3900								
	.2800	.2410	.2070		.3300							
	.1260	.1070	.0910	.1740	.1470							
	.0550	.0470		.0770	.0660							
	.0250		.0400	.0340	.0290							
		.0210	.0180	.0150	.0130							
	.0110	.0090	.0080	.0070	.0060							
	.0050	.0040	.0030	.0020	.0010	gMillsonghines ha	result a book open					
	.0000	.0000	.0000	.0000	.0000							

COMPUTED PEAK RATE FACTOR = 484.00

PASS

PAGE

JOB 1

20

30

REV PC 09/8		ALT 85				
TABLE NO. RAINFL 1	TIME	NCREMENT .5000				
	.0000	.0080	.0170	.0260	.0350	
	.0450	.0550	.0650	.0760	.0870	
	.0990	.1120	.1260	.1400	.1560	
	.1740	.1940	.2190	.2540	.3030	
	.5150	.5830	.6240	.6550	.6820	
	.7060	.7280	.7480	.7660	.7830	
	.7990	.8150	.8300	.8440	.8570	
	.8700	.8820	.8930	.9050	.9160	
	.9260	.9360	.9460	.9560	.9650	
	.9740	.9830	.9920	1.0000	1.0000	
ENDTBL	1777	17030	11720	1.0000	1.0000	
CITO I DE						
TABLE NO.	TIME I	NCREMENT				
RAINFL 2	TINE I	. 2500				
MINIT 2		.2300				
	.0000	.0020	MAEA	0000	0110	
	.0140	.0020	.0050	.0080	.0110	
	.0290			.0230	.0260	
		.0320	.0350	.0380	.0410	
	.0440	.0480	.0520	.0560	.0600	
	.0640	.0680	.0720	.0760	.0800	
	.0850	.0900	.0950	.1000	.1050	
	.1100	.1150	.1200	.1260	.1330	
	.1400	.1470	.1550	.1630	.1720	
	.1810	.1910	. 2030	.2180	.2360	
	.2570	.2830	.3870	.6630	.7070	
	.7350	.7580	.7760	.7910	.8040	
	.8150	.8250	.8340	.8420	.8490	
	.8560	.8630	.8690	.8750	.8810	
	.8870	.8930	.8980	.9030	.9080	
	.9130	.9180	.9220	.9260	.9300	
	.9340	.9380	.9420	.9460	.9500	
	.9530	.9560	.9590	.9620	.9650	
	.9680	.9710	.9740	.9770	.9800	
	.9830	.9860	.9890	.9920	.9950	
ENDTBL	.9980	1.0000	1.0000	1.0000	1.0000	
CHRIDE						
TABLE NO	TIME I	NCOCMENT			A	
TABLE NO.	IIME I	NCREMENT				
RAINFL 3		.5000				
	.0000	.0100	.0220	.0360	.0510	
	.0670	.0830	.0990	.1160	.1350	

PASS

PAGE

TR20 XEQ 05-05-	00 08:07	LUBUELI	. 5 LREEK WA	IEKOMED SIUDY	1 42 OTOCAN	R 10YR TYPE 2 STORM	20	JO
REV PC 09/	83(.2)	ALT 8	5				30	
8	.1560	.1790	.2040	.2330	.2680			
8	.3100	.4250	.4800	.5200	.5500			
8	.5770	.6010	.6230	.6440	.6640			
8	.6830	.7010	.7190	.7360	.7530			
8	.7690	.7850	.8000	.8150	.8300			
8	.8440	.8580	.8710	.8840	.8960			
8	.9080	.9200	.9320	.9440	.9560			
8	.9670	.9780	.9890	1.0000	1.0000			
9 ENDTBL								
TABLE NO.	TIME	INCREMENT						
5 RAINFL 4	TINE	.5000						
8	.0000	.0040	0000	A400	01/0			
8	.0200		.0080	.0120	.0160			
8	.0250	.0250	.0300	.0350	.0400			
8	.0700	.0500	.0550	.0600	.0650			
8	.0790	.0750	.0810	.0870	.0930			
8	.1320	.1050	.1110	.1180	.1250			
8	.1740	.1400	.1480	.1560	.1650			
8	.2360	.1840	.1950	.2070	.2200			
8	.5150		.2770	.3030	.4090			
8		.5490	.5830	.6050	.6240			
8	.6400	.6550	.6690	.6820	.6940			
8	.7050	.7160	.7270	.7380	.7480			
8	.7580	.7670	.7760	.7840	.7920			
8	.8000	.8080	.8160	.8230	.8300			
8	.8370	.8440	.8510	.8580	.8640			
	.8700	.8760	.8820	.8880	.8940			
8	.9000	.9060	.9110	.9160	.9210			
8 8	.9260	.9310	.9360	.9410	.9460			
	.9510	.9560	.9610	.9660	.9710			
8	.9760	.9800	.9840	.9880	.9920			
8 9 ENDTBL	.9960	1.0000	1.0000	1.0000	1.0000			
TABLE NO.	TIME I	NCREMENT						
5 RAINFL 5		.5000						
8	.0000	.0020	.0050	.0080	.0110	NEW TRANSPORTER AND ADDRESS OF		
8	.0140	.0170	.0200	.0230	.0260			
8	.0290	.0320	.0350	.0380	.0410			
8	.0440	.0470	.0510	.0550	.0590			
8	.0630	.0670	.0710	.0750	.0790			
8	.0840	.0890	.0940	.0990	.1040			
8	.1090	.1140	.1200	.1260	.1330			
8	.1400	.1470	.1540	.1620	.1710			
8	.1810	.1920	.2040	.2170	.2330			

DEII DO 12	(07/ 0)	Verification of						
REV PC 09	/83(.2)	ALT 85					30	P
				The state of the second	erenco como m	Service 1		
	.2520	.2770	.3180	.6380	.6980			
	.7290	.7520	.7700	.7850	.7980			
	.8090	.8190	.8290	.8380	.8460			
	.8540	.8610	.8680	.8740	.8800			
	.8860	.8920	.8970	.9020	.9070			
	.9120	.9170	.9210	.9250	.9290			
	.9330	.9370	.9410	.9450	.9490			
	.9530	.9570	.9600	.9630	.9660			
	.9690	.9720	.9750	.9780	.9810			
	.9840	.9870	.9900	.9930	.9960			
	.9980	1.0000	1.0000	1.0000	1.0000			
ENDTBL								
TABLE NO.	TIME !	INCREMENT						
RAINFL 6		.0200						
	.0000	.0080	.0162	.0246	.0333			
,	.0425	.0524	.0630	.0743	.0863			
	.0990	.1124	.1265	.1420	.1595			
	.1800	.2050	. 2550	.3450	.4370			
	.5300	.6030	. 6330	.6600	.6840			
	.7050	.7240	.7420	.7590	.7750			
	.7900	.8043	.8180	.8312	.8439			
	.8561	.8678	.8790	.8898	.9002			
	.9103	.9201	.9297	.9391	.9483			
	.9573	.9661	.9747	.9832	.9916			
	11414	11001	11171	11007	11/10			

TR20 XEQ 05-05-86 08:09	COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM	20	JOB 1	PASS	i
REV PC 09/83(.2)	ALT 85	30		PAGE	7

STANDARD CONTROL INSTRUCTIONS

6	RUNOFF	1				6	.8400	51.0000	7.50001	0	0	1	0	1	
un	RESVOR			6		7	7.0000		1	0	0	1	0	1	
6	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1	
6	RUNOFF	1	10			6	.2000	42.0000	.19001	0	0	1	0	1	
6	ADDHYD	4	10	5	6	7			1	1	0	1	0	1	
6	SAVMOV	5	10	7	-	6									
6	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1	
6	REACH	3	20	7		5	2900.0000	.2800	1.94001	0	0	1	0	1	
6	RUNOFF	1	20			6	.2800	53.0000	1.02001	0	0	1	0	1	
6	ADDHYD	4	20	5	6	7			1						
6	SAVMOV	5	20	7		1									
6	RUNOFF	1	30			6	.3700	49.0000	3,90001	0	0	1	0	1	
6	RESVOR	2	30	6		7	21.0000				755		0	000	
6	REACH	3	40	7		5	1300.0000	.8800	1.10001						
6	RUNOFF	1	40			6	.0600	40.0000	1.00001						
6	ADDHYD	4	40	5	6	7							0		
	SAVMOV		40	7		6						•		•	
6	RESVOR	2	40	6		7	9.0000		1	٥	٥	1	0	1	
1	REACH	3	50	7		5	1700.0000	1,6000	1.45001	7.5	-	-	-	-	
	RUNOFF		49			6	.1100	40.0000	1.67001			-		-	
	ADDHYD		50	5	6	_		10.0000					0		
	SAVMOV		50	7	_	5				٧	٧	7	٧		
-	RUNOFF	-	50			6	.3600	85.0000	.42001	۸	۸	•	۸	•	
	ADDHYD		50	5	6	_	.0000	05.000	1						
	REACH		60			5	1400.0000	.4400	1.94001					2	
-	RUNOFF	-	50			6	.0500	45.0000	.90001						
	ADDHYD		60	5	6		.0400	43.0000	1						
	SAVMOV		70	7	- 17	5			1	1	V	1	v	1	
	SAVMOV	_	70	1		6									
-		4	70	-	6	-			1		^		^		
	REACH	3	80	7	0	5	700,0000	7000							
3/6		1	80	,		6	.0200	.3000	1.94001						
		4	80	-	6	7	.0200	64.0000	.12001						
4	SAVMOV		100	7	0	5			1	Û	Û	1	0	1	
		1	90	1		6	2400	77 0000	/6004						
			100	-	6	1077	.2400	73.0000	.62001					100	
	REACH		edission of the	7	0	5	E00 0000	7000		350	952		0	iar.	
19			110			7	500.0000	.3000	1.94001	0	0	1	0	1	
	SAVMOV			5			FAA 1444								
	REACH			1		5	500.0000	.3000	1.94001	100		200	-	-	
	RUNOFF			_	,	6	.1900	56.0000	.74001						
	ADDHYD			0.70	6				1	1	0	1	0	1	
	SAVMOV		50			6									
	RESVOR		50			7	2.4000		The second second		100	7	0	-	
	REACH			7		5	1000.0000	.3000	1.94001						
0	RUNOFF	1	130			6	.0500	74.0000	.19001	0	0	1	0	1	

JOB 1 PASS 1

PAGE

20

30

	REV	P	C 09/8	31	. 2)	ALT 8	5						
E	ADDHYD	4	130	5	6	7			1	0	0	1	0	1
6	SAVMOV	5	130	7		6								
6	RESVOR	2	60	6		7	2.0000		1	1	1	1	0	1
6	REACH	3	140	7		5	2500.0000	.2100	1.48001	0	0	1	0	1
6	RUNOFF	1	140			6	.2000	66.0000	1.15001	0	0	1	0	1
600	ADDHYD			5	6	7			1	0	0	1	0	1
6	SAVMOV	5	150	7		5								
6	RUNOFF	1	149			6	.0800	50.0000	.42001	0	0	1	0	1
6	ADDHYD	4	150	5	6	7			1	0	0	1	0	1
100	REACH	_		7		5	300.0000	.2100	1.48001	0	0	1	0	1
33	RUNOFF					6	.0100	40.0000	.15001	0	0	1	0	1
	ADDHYD			5	6	7			1	0	0	1	0	1
	SAVMOV	-												
du T	RUNOFF		100				.2800	50.0000	.61001	0	0	1	0	1
	ADDHYD		77.1		6				1	0	0	1	0	1
10.0		-	180				1700.0000	.2100	1.48001	0	0	1	0	1
	RUNOFF	-				6	.1100	41.0000	.48001					
6	ADDHYD	4	180	5	6	7			· 1	1	0	1	0	1
	ENDATA													

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

END OF LISTING

TR20 XEQ 05-05-86 08:09

TR20 XEQ 05-05-86 08:09 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM JOB 1 PASS 1 REV PC 09/83(.2) ALT 85 PAGE EXECUTIVE CONTROL OPERATION BASFLO - RECORD ID 1650 NEW BASEFLOW = 3.00 CFS EXECUTIVE CONTROL OPERATION INCREM RECORD ID 1660 MAIN TIME INCREMENT = .10 HOURS EXECUTIVE CONTROL OPERATION COMPUT RECORD ID 1670 FROM STRUCTURE 10 TO XSECTION 180 STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO. = 2 ANT. MOIST. COND= 2 ALTERNATE NO. =85 STORM NO. = 1 MAIN TIME INCREMENT = .10 HOURS OPERATION RUNOFF STRUCTURE 10 **OUTPUT HYDROGRAPH= 6** AREA= .84 SQ MI INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 17.80 96.56 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS OPERATION RESVOR STRUCTURE 10 INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7 SURFACE ELEVATION= 7.00 PEAK DISCHARGE (CFS) PEAK TIME (HRS) PEAK ELEVATION (FEET) 18.14 96.09 9.50 RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS OPERATION REACH CROSS SECTION 10 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 1750.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10 MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS *** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS, 18.88 % OF PEAK.

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

RUNOFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

(NULL)

98.84

PEAK TIME (HRS)

18.47

B-16

AREA= .20 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

TR20 XEQ 05-05-86 08:09	COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM	20	JOB 1	PASS	1
REV PC 09/83(.2)	ALT 95	30		PAGE	10

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.08	121.81	(RUNOFF)
15.20	8.69	(RUNOFF)
16.46	7.85	(RUNOFF)
17.67	6.75	(RUNOFF)
19.66	5.63	(RUNOFF)
23.66	4.48	(RUNOFF)
		THUMBIT !

PEAK DISCHARGE (CFS)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 128.54 CFS-HRS, 10.62 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

OPERATION ADDHYD CROSS SECTION 10

PEAK TIME (HRS)

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

	12.	08		124.81			(NULL)					
	18.	48		104.33	5		(NULL)					
TIME (HRS)		FIRST HYDROGR	APH POINT =	= .00 HC)URS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	1.04 SQ.MI.	
11.00	DISCHE	3.00	3.00	3.00	3.00		3.00	3.00	3.00	3.92	32.22	
12.00	DISCHE	103.79	122.67	68.37	48.48		31.73	29.33	27.26	26.59	24.26	
13.00	DISCHE	23.05	22.09	20.81	20.53		19.34	18.92	18.32	18.54	18.63	
14.00	DISCHE	19.37	20.36	21.44	23.10		26.43	28.32	30.58	34.13	38.16	
15.00	DISCHG	42.29	46.34	50.23	53.88		58.95	61.10	63.08	64.97	66.81	
16.00	DISCHE	68.65	71.17	74.19	77.35	80.46	83.41	85.78	87.66	89.73	91.75	
17.00	DISCHE	93.63	95.35	96.91	98.34	99.64	100.81	101.85	102.75	103.42	103.37	
18.00	DISCHE	103.47	103.75	104.01	104.19	104.30	104.32	104.27	104.13	103.93	103.65	
19.00	DISCHE	103.31	102.89	102.39	101.82	101.18	100.46	99.66	98.79	97.73	95.99	
20.00	DISCHE	94.45	93.18	91.97	90.75	89.51	88.27	87.03	85.81	84.61	83.43	
21.00	DISCHE	82.27	81.14	80.03	78.94	77.87	76.82	75.80	74.79	73.81	72.84	
22.00	DISCHE	71.90	71.02	70.32	69.71	69.16	68.63	68.11	67.58	67.04	66.49	
23.00	DISCHG	65.93	65.36	64.77	64.17	63.56	62.94	62.32	61.69	60.95	59.41	
24.00	DISCHE	57.89	55.77	53.21	51.69	50.62	49.72	48.91	48.18	47.50	46.85	
25.00	DISCHG	46.24	45.66	45.10	44.55	44.02	43.50	42.98	42.48	41.98	41.49	
26.00	DISCHG	41.00	40.51	40.03	39.55	39.07	38.50	38.12	37.63	37.15	36.66	
27.00	DISCHG	36.16	35.66	35.15	34.64	34.13	33.61	33.09	32.57	32.04	31.51	
28.00	DISCHE	30.97	30.44	29.90	29.36	28.82	28.28	27.74	27.21	26.67	26.13	
29.00	DISCHE	25.68	25.30	24.94	24.59	24.24	23.89	23.52	23.14	22.75	22.35	

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 1006.91 CFS-HRS, 83.21 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 20

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 4.50

TR20 XEQ 05-05-86 08:09 COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT 95 30 PAGE 11 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.90 24.55 6.08 20.10 93.18 9.18 RUNOFF VOLUME ABOVE BASEFLOW = 1.45 WATERSHED INCHES, 970.12 CFS-HRS, 80.17 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION REACH CROSS SECTION 20 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28. M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS *** WARNING REACH 20 ATT-KIN COEFF. (C) GREATER THAN 0.567. CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.17 CFS, 25.69 % OF PEAK. PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 13.04 24.51 (NULL) 20.25 93.15 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.44 WATERSHED INCHES, 966.86 CFS-HRS, 79.90 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION RUNOFF CROSS SECTION 20 OUTPUT HYDROGRAPH= 6 AREA= .28 SQ MI INPUT RUNOFF CURVE= 53. TIME OF CONCENTRATION= 1.02 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0971 HOURS PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.61 158.20 (RUNOFF) 23.72 9.09 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 349.97 CFS-HRS, 28.92 ACRE-FEET: BASEFLOW = .00 CFS OPERATION ADDHYD CROSS SECTION 20 INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.62 181.14 (NULL) 20.06 104.53 (NULL) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS TIME (HRS) DRAINAGE AREA = 1.32 SQ.MI. 3.00 11.00 DISCHG 3.00 3.00 3.01 3.04 3.18 3.66 4.96 8.46 16.82 12.00 DISCHG 32.71 58.78 93.52 129.45 157.98 175.05 181.01 154.55 178.06 168.44 13.00 DISCHE 139.59 126.35 115.40 106.04 97.88 90.63 84.33 78.80 73.90 69.58 14.00 DISCHE 65.79 62.51 59.66 57.22 55.16 53.43 52.00 50.86 49.97 49.33

53.03 54.89 56.83

89.41

75.77

90.93

69.31 71.35 73.52

87.91

58.77 60.51

77.59 79.19

92,19 and 2,57 92.70

62.20

80.69

15.00

16.00

17.00

DISCHE

DISCHG

DISCHG

63.90

49.00 49.28 50.11 51.39

recycled paper 83.56 84.99 86.44

67.41

65.63

B-19

KEV	00 00/07/												
	PC 09/83(.2)		ALT 85						30			PAGE	12
18.00	DISCHE	92.72	92.66	92.54	92.37	92.18	92.40	93.37	94.52	95.68	96.81		
19.00	DISCHG	97.89	98.91	99.86	100.73	101.53	102.25	102.90	103.46	103.93			
20.00	DISCHG	104.50	104.52	104.37	104.07	103.68	103.22	102.72	102.19	101.65	. 101.11		
21.00	DISCHG	100.55	99.97	99.37	98.75	98.11	97.45	96.77	96.07	95.35	94.62		
22.00		93.88	93.13	92.36	91.60	90.84	90.09	89.35	88.62	88.17	88.01		
23.00	DISCHG	87.92	87.85	87.79	87.73	87.67	87.60	87.53	87.46	87.38			
24.00	DISCHG	87.08	86.61	85.17	83.27	81.07	78.71	76.31	73.97	71.75			
25.00	DISCHG	67.80	66.08	64.52	63.07	61.72	60.26	58.69	57.18	55.76	54.44		
26.00	DISCHG	53.20	52.04	50.95	49.93	48.95	48.03	47.15	46.32	45.51	44.74		
27.00	DISCHG	44.00	43.28	42.59	41.91	41.26	40.61	39.96	39.28	38.60	37.94		
28.00	DISCHE	37.29	36.66	36.04		34.82	34.22	33.63			31.88		
29.00	DISCHG	31.31	30.74	30.19	29.66	29.14	28.64	28.16	27.69	27.23	26.78		
RUNOFF	OLUME ABOVE	BASEFLOW =	1.55 WAT	ERSHED IN	CHES. 13	314.83 CFS-I	IRS. 108	.82 ACRE-FI	FFT: RAS	FFI NH =	3.00 CES		
											The Joseph W.		
PERATION	SAVMOV CRO												
	INPUT HYDRO	GRAPH= 7	OUTPUT	HYDROGRAP	H= 1								
PERATION	RUNOFF STE												
	OUTPUT HYDE												
						ME OF CONCE	NTRATION=	3.90 HOUR	RS				
	INTERNAL HY	DROGRAPH T	IME INCREM	ENT= .10	00 HOURS								
	PEAK TIME(H	RS)	PE	K DICCHOD	BE (CEB)	PE	V ELEUATI	OM/CCCT\					
	14.95		-	60.58		TEI	(RUNOFF						
	11070			40.20			KUNUFF						
RUNOFF \	OLUME ABOVE	BASEFLOW =	1.57 WAT	ERSHED IN	CHES, 3	75.61 CFS-H	IRS, 31	.04 ACRE-FE	EET; BAS	EFLOW =	.00 CFS		
						1.1							
		UCTURE 30											
PERATION	RESVOR STR												
PERATION			OUTPUT	HYDROGRAP	H= 7								
PERATION	INPUT HYDRO	GRAPH= 6		HYDROGRAP	H= 7								
PERATION		GRAPH= 6		HYDROGRAP	H= 7				diapite visus Paradija				
PERATION	INPUT HYDRO SURFACE ELE	GRAPH= 6 VATION=	21.00			PF	K FI FVATTI	ON(FFFT)	entre i en				
PERATION	INPUT HYDRO SURFACE ELE PEAK TIME(H	GRAPH= 6 VATION=	21.00	K DISCHAR	GE (CFS)	PEA	K ELEVATII						
PERATION	INPUT HYDRO SURFACE ELE	GRAPH= 6 VATION=	21.00		GE (CFS)	PEA	K ELEVATII 25.91						
	INPUT HYDRO SURFACE ELE PEAK TIME(H 16.21	GRAPH= 6 VATION= RS)	21.00 PEA	K DISCHAR 48.05	GE (CFS)		25.91	100	FT: BAS	FION =	00 CES		
	INPUT HYDRO SURFACE ELE PEAK TIME(H	GRAPH= 6 VATION= RS)	21.00 PEA	K DISCHAR 48.05	GE (CFS)		25.91	100	EET; BASI	EFLOW =	.00 CFS		
RUNOFF V	INPUT HYDRO SURFACE ELE PEAK TIME(H 16.21	GRAPH= 6 VATION= RS) BASEFLOW =	21.00 PEA 1.51 WAT	K DISCHAR 48.05	GE (CFS)		25.91	100	EET; BASI	EFLOW =	.00 CFS		
RUNOFF V	INPUT HYDRO SURFACE ELE PEAK TIME(H 16.21	GRAPH= 6 VATION= RS) BASEFLOW =	21.00 PEA 1.51 WAT	K DISCHAR 48.05 ERSHED IN	GE(CFS) CHES, 3		25.91	100	ET; BASI	EFLOW =	.00 CFS		

PEAK DISCHARGE (CFS)

47.70

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 358.97 CFS-HRS, 29.67 ACRE-FEET; BASEFLOW =

PEAK ELEVATION (FEET)

(NULL)

PEAK TIME (HRS)

16.55

TR20 XEQ 05-05-86 08:09 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM JOB 1 PASS 1 20 REV PC 09/83(.2) ALT 85 30 PAGE 13 OPERATION RUNOFF CROSS SECTION 40 **OUTPUT HYDROGRAPH= 6** AREA= .06 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.00 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.72 10.21 (RUNOFF) 23.76 1.21 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.69 ACRE-FEET; BASEFLOW = OPERATION ADDHYD CROSS SECTION 40 INPUT HYDROGRAPHS= 5,6 **OUTPUT HYDROGRAPH= 7** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.73 10.35 (NULL) 16.54 49.80 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET; BASEFLOW = OPERATION SAVMOV CROSS SECTION 40 INPUT HYDROGRAPH= 7 **OUTPUT HYDROGRAPH= 6** OPERATION RESVOR STRUCTURE 40 INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7 SURFACE ELEVATION= 9.00 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.90 9.83 9.81 16.60 49.78 10.89 RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES. 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS OPERATION REACH CROSS SECTION 50 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45 MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS *** WARNING REACH 50 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

(NULL)

(NULL)

9.78

49.77

13.02

16.72

OPERATION RUNOFF CROSS SECTION 49
OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 13.33
 13.76
 (RUNOFF)

 23.80
 2.20
 (RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 59.78 CFS-HRS, 4.94 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.16 22.91 (NULL)

16.65 53.98 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 449.14 CFS-HRS, 37.12 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50

OUTPUT HYDROGRAPH= 6

AREA= .36 SQ MI INPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.13
 1078.73
 (RUNOFF)

 19.65
 24.75
 (RUNOFF)

 23.65
 18.64
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, 100.83 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.13 1079.95 (NULL)
16.49 90.76 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS B-22

TR20 XEQ 05-05-86 08:09 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS REV PC 09/83(.2) ALT 85 30 PAGE 15 OPERATION REACH CROSS SECTION 60 INPUT HYDROGRAPH= 7 **OUTPUT HYDROGRAPH= 5** LENSTH = 1400.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .44, MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = *** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.13 1079.95 (NULL) 16.49 90.76 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 2.97 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = OPERATION RUNOFF CROSS SECTION 60 **OUTPUT HYDROGRAPH= 6** .05 SQ MI INPUT RUNDFF CURVE= 45. TIME OF CONCENTRATION= .90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.56 16.56 (RUNOFF) 23.72 1.26 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.88 CFS-HRS, 3.30 ACRE-FEET: BASEFLOW = OPERATION ADDHYD CROSS SECTION 60 INPUT HYDROGRAPHS= 5,6 **OUTPUT HYDROGRAPH= 7** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.14 1086.21 (NULL) 16.49 93.02 (NULL) TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .95 SQ.MI. 4.00 DISCHE .00 .00 .02 .00 1.04 .10 .26 . 49 .75 1.33 5.00 DISCHG 1.62 1.91 2.20 2.49 2.77 3.04 3.58 3.32 3.84 4.10 6.00 DISCHE 4.36 4.67 5.18 5.80 6.40 6.89 7.32 7.71 8.07 8.41 7.00 DISCHG 8.75 9.07 9.38 9.69 9.99 10.29 10.58 10.86 11.14 11.41 8.00 DISCHE 11.68 12.08 12.82 13.80 14.96 16.27 17.48 18.44 19.17 19.76 9.00 DISCHG 20.27 20.91 21.91 23.16 24.29 25.16 26.02 27.23 28.55 29.92 10.00 DISCHG 30.90 31.86 33.18 34.84 37.10 40.08 43.57 47.95 52.84 58.21 11.00 DISCHE 64.10 70.07 76.45 83.02 90.75 101.27 130.10 208.30 333.15 539.50 12.00 DISCHG 836.25 1068.68 1030.91 805.58 576.69 421.03 324.82 265.51 227.09 199.69 13.00 DISCHE 178.52 161.72 147.53 136.12 127.20 119.75 113.25 107.02 101.45 96.86 14.00 DISCHE 93.29 90.54 88.31 86.99 86.63 86.30 85.74 86.13 85.37 85.47 15.00 DISCHE 86.26 87.42 88.85 90.29 90.92 90.62 90.19 90.11 90.41 90.86 16.00 DISCHG 91.35 91.83 92.25 92.60 92.86 93.02 92.76 91.64 89.95 88.43 B-23

17.00

18.00

DISCHG

DISCHG

87.35

recycled paper

86.55

76.40

85.87

74.60

85.24

73.30

84.63

72.20

84.03

71.21

83.43

70.27

ecology and envir-

80.76

d ënvironmer 68.51

TR20 XEQ	05-05-86 0	3:09	COGDELL'S	CREEK WAT	ERSHED ST	UDY NV5010	24 HR 10YR	TYPE 2 ST	DRM 2	0	JOB 1	PASS	1
REV	PC 09/83(.2		ALT 85						3(0		PAGE	16
19.00	DISCHG	66.86	66.07	65.33	LA 10	/ 7 .00	17.70	10.10	/4.5/		50 DE		
20.00	DISCHG	57.76			64.68		63.30	62.62	61.96				
21.00	DISCHG			53.88	52.62		50.72	49.94	49.23	48.56			
		47.34	46.79	46.26	45.76		44.83	44.40	43.97		43.10		
22.00	DISCHG	42.70	42.29	41.89	41.51			40.46	40.14	39.84			
	DISCHG	39.27	39.01	38.75	38.51			37.85	37.65				
24.00	DISCHG	34.72	32.26	28.67	24.55			17.56	16.54	15.77			
25.00	DISCHG	14.59	14.12	13.71	13.34			12.45	12.20	11.96			
26.00	DISCHG	11.57	11.41	11.25		10.97		10.71	10.57		10.28		
27.00		10.13	9.97	9.81	9.64		9.29	9.11	8.93	8.74			
28.00	DISCHE	8.34	8.13	7.93	7.72		7.29				6.46		
29.00	DISCH6	6.26	6.06	5.87	5.68	5.49	5.32	5.14	4.99	4.87	4.74		
RUNOFF	VOLUME ABOVE	BASEFLOW	= 2.79 W	ATERSHED IN	NCHES,	1709.15 CFS-	HRS, 141	.24 ACRE-F	EET; BAS	SEFLOW =	.00 CFS		
OPERATION													
UPERATIUN	SAVMOV CF INPUT HYDR			HYDROGRAF	PH= 5								
OPERATION	SAVMOV CR	OSS SECTIO	IN 70										
	INPUT HYDR	OGRAPH= 1	OUTPUT	HYDROGRAF	H= 6								
OPERATION	ADDHYD CR INPUT HYDR			PUT HYDROS	DADU- 7								
	PEAK TIME	HRS)	PE	AK DISCHAF		PE	AK ELEVATI	ON (FEET)					
	12.15		1	1158.66			(NULL)						
	17.72			175.02			(NULL)						
	19.49			165.55	i		(NULL)						
TIME (HRS)										AREA =	2.27 SQ.MI.		
4.00	DISCHG	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33		
5.00	DISCHE	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10		
6.00	DISCHG	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41		
7.00	DISCHE	11.75	12.07	12.38	12.69	12.99	13.29	13.58	13.86	14.14	14.41		
8.00	DISCHG	14.68	15.08	15.82	16.80	17.96	19.27	20.48	21.44	22.17	22.76		
9.00	DISCHE	23.27	23.91	24.91	26.16	27.29	28.16	29.02	30.23	31.66	32.92		
10.00	DISCHE	33.90	34.86	36.18	37.84	40.10	43.08	46.57	50.95	55.84	61.21		
11.00	DISCHE	67.10	73.07	79.45	86.03	93.79	104.45	133.75	213.27	341.60	556.32		
12.00	DISCHG	868.96	1127.46	1124.43	935.03	734.67	596.08	505.83	443.57	395.53	354.25		
13.00	DISCHE	318.11	288.08	262.93	242.15	225.08	210.38	197.58	185.82	175.35	166.44		
14.00	DISCHE	159.07	153.05	147.97	144.21	141.78	139.73	138.13					
15.00	DISCHG	135.26	136.70	138.96	141.68	143.95	145.50		136.60	135.34	134.80		
16.00	DISCHG	155.25	157.46	159.66				147.02	148.88	150.91	153.06		
17.00	DISCHG	169.48			161.91	164.21	166.54	168.53	169.24	169.14	169.11		
18.00	DISCHG		170.11	170.86	171.68	172.55	173.45	174.36	175.01	174.68	173.45		
10.00		171.34	169.06	167.14	165.67	164.38	163.61	163.65	163.90	164.19	164.49		
10 00	DICCHO	114 7E	1/4 00	115 10									
19.00	DISCHG	164.75	164.98	165.19	165.41	165.52	165.55	165.52	165.42	165.13	164.14		
19.00	DISCHG DISCHG	164.75 162.26	164.98	165.19 158.25			165.55 153.94						

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PASS 1

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per.	DD 65/5=1										
KEV	PC 09/83(.2)		ALT 85						3	0	
21.00	DISCHG	147.89	146.76	145.63	144.51	143.39	142.28	141.16	140.03	138.89	137.
22.00		136.58		134.26							
23.00	DISCHE		126.86								
24.00			118.87					93.87			
25.00	DISCHE	82.39	80.20	78.23	76.41	74.74	72.98	71.14	69.38	67.73	
26.00	DISCHG	64.77	63.45	62.21	61.03	59.93	58.87		56.88		
27.00	DISCHG	54.13	53.25	52.40	51.56	50.73	49.91				
28.00	DISCHG	45.63	44.79	43.96	43.14	42.32	41.51	40.71			
29.00	DISCHG	37.57	36.81	36.06	35.34	34.64	33.96	33.31		32.10	
RUNOFF	VOLUME ABOVE	BASEFLOW	= 2.07 WA	TERSHED IN	CHES, 30	25.98 CFS-I	HRS, 250	.07 ACRE-F	EET; BA	SEFLOW =	3.00
RATIO	N REACH CR										
	INPUT HYDR										
	LENGTH =	700.00 F	EET II	NPUT = COE	FFICIENTS	RELATED TO	CROSS SEC	TIONAL ARE	A, X=	.30, M=	1.94
	MODIFIED A	TT-KIN ROU	TING COEFF	ICIENT = 1	.00 P	EAK TRAVEL	TIME =	.00 HOURS			
111	WARNING RE	ACH 80 AT	T-KIN COFF	E (C) CDEA	TED TUAN A	LLT CONC	nee penue	THE MAIN T	THE THEOE	WFWT +++	
			T WIN OUL!	F. IG/ ONEH	IER INMA V	.00/, CUND.	INCH NEDOC	THO UHIN I	THE THURE	TEN! ###	
									INE INUNE	TENI ###	
	PEAK TIME(12.15			AK DISCHAR	GE (CFS)	PE			INE INCRE	TEN! ###	
	PEAK TIME(12.15 17.72			AK DISCHAR 1158.66 175.02	GE (CFS)	PE	AK ELEVATI		THE THURE	TEN: ###	
	PEAK TIME(12.15			AK DISCHAR 1158.66 175.02	GE (CFS)	PE	AK ELEVATI		THE INCRE	NEN! ***	
RUNOFF	PEAK TIME(12.15 17.72	HRS)	PE	AK DISCHAR 1158.66 175.02 165.55	GE (CFS)	PE/	(NULL) (NULL) (NULL)	ON(FEET)			3.00
	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE	HRS) BASEFLOW:	PE:	AK DISCHAR 1158.66 175.02 165.55	GE (CFS)	PE/	(NULL) (NULL) (NULL)	ON(FEET)			3.00
	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= .	HRS) BASEFLOW: OSS SECTION ROGRAPH: OZ SQ MI	PE6 = 2.07 WA	AK DISCHARI 1158.66 175.02 165.55 TERSHED IN	GE(CFS) CHES, 30	PE/	AK ELEVATI (NULL) (NULL) (NULL)	ON(FEET) .07 ACRE-F	EET; BAS		3.00
	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= .	BASEFLOW : OSS SECTION ROGRAPH : O2 SQ MI YDROGRAPH :	PEO = 2.07 WAY N 80 6 INPUT RUNG TIME INCRES	AK DISCHARI 1158.66 175.02 165.55 TERSHED IN	GE (CFS) CHES, 30 64. TII 60 HOURS GE (CFS)	PE/ 25.98 CFS-1 ME OF CONCE	AK ELEVATI (NULL) (NULL) (NULL)	ON(FEET) .07 ACRE-F .12 HOU	EET; BAS		3.00
ERATIO I	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= . INTERNAL H PEAK TIME(BASEFLOW : OSS SECTION ROGRAPH : O2 SQ MI YDROGRAPH : HRS)	PE = 2.07 WA N 80 6 INPUT RUNC TIME INCRE!	AK DISCHAR 1158.66 175.02 165.55 TERSHED INI DFF CURVE= MENT= .016 AK DISCHARGE	GE (CFS) CHES, 30 64. TII 60 HOURS GE (CFS)	PE/ 25.98 CFS-1 ME OF CONCE	AK ELEVATION (NULL) (NULL) (NULL) HRS, 250 ENTRATION= (RUNOFF:	ON(FEET) .07 ACRE-F .12 HOU	EET; BAS		
RATION	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= . INTERNAL H PEAK TIME(11.98 VOLUME ABOVE	BASEFLOW: OSS SECTION ROGRAPH: O2 SQ MI YDROGRAPH: HRS) BASEFLOW:	PE: = 2.07 WAT N 80 6 INPUT RUNG TIME INCRE! PE: = 2.98 WAT	AK DISCHAR 1158.66 175.02 165.55 TERSHED INI DFF CURVE= MENT= .016 AK DISCHARGE	GE (CFS) CHES, 30 64. TII 60 HOURS GE (CFS)	PEA 25.98 CFS-H ME OF CONCE PEA	AK ELEVATION (NULL) (NULL) (NULL) HRS, 250 ENTRATION= (RUNOFF:	ON(FEET) .07 ACRE-F .12 HOU	EET; BAS	SEFLOW =	
ERATION	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= . INTERNAL H PEAK TIME(11.98	BASEFLOW: OSS SECTION ROGRAPH: O2 SQ MI YDROGRAPH: HRS) BASEFLOW: OSS SECTION	PE 2.07 WA N 80 INPUT RUNC TIME INCRE PE 2.98 WA N 80	AK DISCHARI 1158.66 175.02 165.55 TERSHED INI DEF CURVE= MENT= .010 S4.99 TERSHED INI	GE (CFS) CHES, 30 64. TI 60 HOURS GE (CFS) CHES,	PEA 25.98 CFS-H ME OF CONCE PEA	AK ELEVATION (NULL) (NULL) (NULL) HRS, 250 ENTRATION= (RUNOFF:	ON(FEET) .07 ACRE-F .12 HOU	EET; BAS	SEFLOW =	
RATION	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= . INTERNAL H PEAK TIME(11.98 VOLUME ABOVE N ADDHYD CRI INPUT HYDRI PEAK TIME()	BASEFLOW: OSS SECTION ROGRAPH: O2 SQ MI YDROGRAPH: HRS) BASEFLOW: OSS SECTION OGRAPHS: 5,	PE/ = 2.07 WAY N 80 6 INPUT RUNC TIME INCRE! PE/ = 2.98 WAT N 80 ,6 OUTF	AK DISCHARI 1158.66 175.02 165.55 TERSHED INI DEF CURVE= MENT= .010 S4.99 TERSHED INI	GE (CFS) CHES, 30 64. TII 60 HOURS GE (CFS) CHES, :	PE/ 25.98 CFS-I ME OF CONCE PE/ 38.49 CFS-I	AK ELEVATION (NULL) (NULL) (NULL) HRS, 250 ENTRATION= (RUNOFF:	ON(FEET) .07 ACRE-F	EET; BAS	SEFLOW =	.00
RATION	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= INTERNAL H PEAK TIME(11.98 VOLUME ABOVE N ADDHYD CRI INPUT HYDRO PEAK TIME(12.14	BASEFLOW: OSS SECTION ROGRAPH: O2 SQ MI YDROGRAPH: HRS) BASEFLOW: OSS SECTION OGRAPHS: 5,	PE/ = 2.07 WAY N 80 6 INPUT RUNC TIME INCRE! PE/ = 2.98 WAT N 80 ,6 OUTF	AK DISCHARI 1158.66 175.02 165.55 TERSHED INI DEF CURVE= MENT= .01 AK DISCHARI 54.99 TERSHED INI PUT HYDROSE AK DISCHARI 1178.53	GE (CFS) 64. TI 60 HOURS GE (CFS) CHES, RAPH= 7 GE (CFS)	PE/ 25.98 CFS-I ME OF CONCE PE/ 38.49 CFS-I	AK ELEVATION (NULL) (NULL) (NULL) ARS, 250 ENTRATION (RUNOFF: AK ELEVATION (RUNOFF: (NULL)	ON(FEET) .07 ACRE-F	EET; BAS	SEFLOW =	
RATION	PEAK TIME(12.15 17.72 19.49 VOLUME ABOVE N RUNOFF CR OUTPUT HYD AREA= . INTERNAL H PEAK TIME(11.98 VOLUME ABOVE N ADDHYD CRI INPUT HYDRI PEAK TIME()	BASEFLOW: OSS SECTION ROGRAPH: O2 SQ MI YDROGRAPH: HRS) BASEFLOW: OSS SECTION OGRAPHS: 5,	PE/ = 2.07 WAY N 80 6 INPUT RUNC TIME INCRE! PE/ = 2.98 WAT N 80 ,6 OUTF	AK DISCHARE 1158.66 175.02 165.55 TERSHED INI DEF CURVE= MENT= .016 AK DISCHARE 54.99 TERSHED INI PUT MYDROSE	GE (CFS) 64. TI 60 HOURS GE (CFS) CHES, RAPH= 7 GE (CFS)	PE/ 25.98 CFS-I ME OF CONCE PE/ 38.49 CFS-I	AK ELEVATION (NULL) (NULL) (NULL) ARS, 250 ENTRATION (RUNOFF) ARS, 3.	ON(FEET) .07 ACRE-F	EET; BAS	SEFLOW =	

TR20 XEQ 05-05-86 08:09 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2) ALT 85 30 PAGE 18

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 90

OUTPUT HYDROGRAPH= 6

AREA= .24 SQ MI INPUT RUNOFF CURVE= 73. TIME OF CONCENTRATION= .62 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.27	434.61	(RUNOFF)
19.66	14.73	(RUNOFF)
23.66	11.19	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.93 WATERSHED INCHES, 608.63 CFS-HRS, 50.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 100

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.17	1568.41	(NULL)
16.68	191.99	(NULL)
17.71	194.67	(NULL)
19.50	181.35	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.25 WATERSHED INCHES, 3673.10 CFS-HRS, 303.54 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** MARNING REACH 110 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET
12.17	1568.41	(NULL)
16.68	191.99	(NULL)
17.71	194.67	(NULL)
19.50	181.35	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.25 WATERSHED INCHES, 3673.10 CFS-HRS, 303.54 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

TR20 XEQ 05-05-86 08:09	COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM	20	JOB 1 PASS	1
REV PC 09/83(.2)	ALT 85	30	PAGE	19

*** WARNING REACH 120 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION(FEET)
12.17	1568.41	(NULL)
16.68	191.99	(NULL)
17.71	194.67	(NULL)
19.50	181.35	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.25 WATERSHED INCHES, 3673.10 CFS-HRS, 303.54 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 56. TIME OF CONCENTRATION= .74 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0987 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.38	159.29	(RUNOFF)
19.68	8.61	(RUNOFF)
23.67	6.65	(RUNOFF)

PEAK DISCHARGE (CFS)

1694.07

RUNOFF VOLUME ABOVE BASEFLOW = 2.22 WATERSHED INCHES, 271.72 CFS-HRS, 22.45 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

recycled paper

12.19

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

	16.	67			204.3	2		(NULL)					
	17.	71			205.2	8		(NULL)					
	19.	50			189.9	5		(NULL)					
TIME (HRS)		FIRST	HYDROGR	APH POINT	= .00 H	OURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	
4.00	DISCHE		3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33	
5.00	DISCHG		4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7,10	
6.00	DISCHE		7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41	
7.00	DISCHE		11.75	12.07	12.38	12.69	12.99	13.30	13.62	13.96	14.33	14.71	
8.00	DISCHG		15.11	15.65	16.55	17.73	19.11	20.68	22.18	23.45	24.48	25.36	
9.00	DISCHE		26.17	27.10	28.43	30.05		32.84	34.14	35.80	37.74	39.53	
10.00	DISCHE		41.03	42.53	44.41	46.70	49.75	53.63	58.32	64.09	70.62	77.95	
11.00	DISCHG		85.99	94.52	103.69	113.46	125.12	140.52	184.35	288.39	464.76	777.16	
12.00	DISCHG	1	225.66	1602.56	1691.52	1531.24	1289.14	1069.33	892.07	758.07	655.62	572.79	
13.00	DISCHG		505.98	451.24	406.61	370.12	340.17	315.27	293.67	274.49	257.50	242.87	
14.00	DISCHE		230.84	220.76	212.19	205.36	200.07	195.53	191.41	187.52	184.04	181.53	
15.00	DISCHG		180.37	180.56	181.94	183.98	185.44	186.16	195.68	187.52	188.66	190.12	
16.00	DISCHG		191.85	193.74	195.74	197.87	200.09	202.35	204.05	204.28	203.45	202.52	
17.00	DISCHE		202.00	201.87	202.07	202.53	203.16	203.89	204.70	205.28	204.81	203.14	
18.00	DISCHE		200.42	197.28	194.42	192.09	190.14	188.90	188.62	188.66	188.81	189.01	

ecology and environment

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			DOODELL D	CREEK WATE				11112 2 311	3RM 20		JOB 1
REV	PC 09/83(.	2) -	ALT 85						30		
19.00	DISCHG	189.22	189.41	189.60	100 01	100 03	100.05	100.00	100.07	100 AF	100.04
20.00	DISCHG	185.58	182.55	179.74	189.81 177.32	189.92 175.23	189.95	189.92	189.83	189.45	188.06
21.00	DISCHG	166.50	165.32	164.17	163.03		173.41	171.81	170.35	168.99	167.72
22.00	DISCHE	155.10	153.95	152.80	151.66	161.90 150.54	160.78	159.67	158.54	157.40	
23.00	DISCHG	145.80	145.48	145.17	144.87		149.45	148.38	147.35	146.60	146.15
24.00	DISCHG	139.27	134.85				144.31	144.04	143.77	143.31	141.85
25.00	DISCH6	83.46	80.94	127.84 78.74	119.41	111.23	104.26	98.51	93.72	89.73	86.36
26.00	DISCH6	64.79	63.46			74.98	73.14	71.24	69.45	67.77	66.22
27.00	DISCH6	54.13		62.21	61.03	59.93	58.87	57.86	56.88	55.94	
28.00	DISCHE	45.63	53.25	52.40	51.56	50.73	49.91	49.07	48.20	47.34	46.48
29.00	DISCHG	37.57	44.79 36.81	43.96	43.14	42.32	41.51	40.71	39.91	39.12	38.34
21100	DIOUNG	97.07	30.01	36.06	35.34	34.64	33.96	33.31	32.68	32.10	31.52
PERATION		STRUCTURE 50 DROGRAPH= 7		HYDROGRAP	H= 6						
	INPUT HY	OROGRAPH= 7 STRUCTURE 50 OROGRAPH= 6	OUTPUT	HYDROGRAP		A /					
	INPUT HY	OROGRAPH= 7	OUTPUT								
	INPUT HY	OROGRAPH= 7 STRUCTURE 50 OROGRAPH= 6 ELEVATION=	OUTPUT OUTPUT 2.40	HYDROGRAP AK DISCHAR	H= 7 GE(CFS)	PE	AK ELEVATI	ON(FEET)			
	INPUT HY	OROGRAPH= 7 STRUCTURE 50 OROGRAPH= 6 ELEVATION=	OUTPUT OUTPUT 2.40	HYDROGRAP	H= 7 GE(CFS)	PE	AK ELEVATI 10.92	ON (FEET)			
PERATION	INPUT HYI I RESVOR S INPUT HYI SURFACE I PEAK TIME 13.36	STRUCTURE 50 STRUCTURE 50 SROGRAPH= 6 ELEVATION= E(HRS)	OUTPUT 2.40 PE APH POINT	HYDROGRAP AK DISCHAR 351.28	H= 7 GE(CFS) URS	TIME INCREM	10.92 ENT = .10	HOURS	DRAINAGE		2.72 SQ.MI.
PERATION IME(HRS) 9.00	INPUT HY	STRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00	OUTPUT 2.40 PE APH POINT 3.00	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00	H= 7 GE(CFS) URS 3.43	TIME INCREM	10.92 ENT = .10 4.37		DRAINAGE 5.37	AREA = 5.90	2.72 SQ.MI. 6.45
PERATION IME(HRS) 9.00 9.00	INPUT HYI RESVOR S INPUT HYI SURFACE E PEAK TIME 13.36 F) DISCH6 ELEV	STRUCTURE 50 PROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84	OUTPUT 2.40 PE APH POINT 3.00 2.84	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84	H= 7 6E(CFS) URS 3.43 2.86	TIME INCREM 3.89 2.88	10.92 ENT = .10 4.37 2.89	HOURS			
IME(HRS) 9.00 9.00 10.00	INPUT HY	STRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84 7.02	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09	H= 7 GE (CFS) URS 3.43 2.86 8.66	TIME INCREM 3.89 2.88 9.26	10.92 ENT = .10 4.37	HOURS 4.86	5.37	5.90	6.45
PERATION IME (HRS) 9.00 9.00 10.00 10.00	INPUT HYD RESVOR S INPUT HYD SURFACE E PEAK TIME 13.36 F) DISCH6 ELEV DISCH6 ELEV	ETRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84 7.02 3.00	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05	H= 7 6E (CFS) URS 3.43 2.86 8.66 3.07	TIME INCREM 3.89 2.88	10.92 ENT = .10 4.37 2.89	HOURS 4.86 2.91	5.37 2.93	5.90 2.96	6.45 2.98
PERATION IME(HRS) 9.00 9.00 10.00 11.00	INPUT HY	ETRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84 7.02 3.00 14.20	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05 17.10	H= 7 GE (CFS) URS 3.43 2.86 8.66 3.07 19.55	TIME INCREM 3.89 2.88 9.26	10.92 ENT = .10 4.37 2.89 9.90	HOURS 4.86 2.91 10.60	5.37 2.93 11.37	5.90 2.96 12.21	6.45 2.98 13.16
PERATION IME (HRS) 9.00 9.00 10.00 11.00 11.00	INPUT HY	ETRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84 7.02 3.00	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05	H= 7 6E (CFS) URS 3.43 2.86 8.66 3.07	TIME INCREM 3.89 2.88 9.26 3.10	10.92 ENT = .10 4.37 2.89 9.90 3.13	HOURS 4.86 2.91 10.60 3.16	5.37 2.93 11.37 3.19	5.90 2.96 12.21 3.23	6.45 2.98 13.16 3.27
PERATION IME(HRS) 9.00 10.00 10.00 11.00 11.00 12.00	INPUT HY	ETRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84 7.02 3.00 14.20	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05 17.10	H= 7 GE (CFS) URS 3.43 2.86 8.66 3.07 19.55	TIME INCREM 3.89 2.88 9.26 3.10 22.23	10.92 ENT = .10 4.37 2.89 9.90 3.13 25.20	4.86 2.91 10.60 3.16 28.87	5.37 2.93 11.37 3.19 34.43	5.90 2.96 12.21 3.23 44.49	6.45 2.98 13.16 3.27 63.77
PERATION IME(HRS) 9.00 10.00 11.00 11.00	INPUT HY	STRUCTURE 50 STRUCTURE 50 ST	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43	H= 7 GE (CFS) URS 3.43 2.86 8.66 3.07 19.55 3.49	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56	10.92 ENT = .10 4.37 2.89 9.90 3.13 25.20 3.63	4.86 2.91 10.60 3.16 28.87 3.72	5.37 2.93 11.37 3.19 34.43 3.86 324.49	5.90 2.96 12.21 3.23 44.49 4.09	6.45 2.98 13.16 3.27 63.77 4.48 341.18
PERATION IME(HRS) 9.00 9.00 10.00 11.00 11.00 12.00	INPUT HY	STRUCTURE 50 DROGRAPH= 6 ELEVATION= E(HRS) ERST HYDROGR 3.00 2.84 7.02 3.00 14.20 3.32 93.83	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.32	HYDROGRAP AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 175.19	H= 7 GE (CFS) URS 3.43 2.86 8.66 3.07 19.55 3.49 232.60	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 264.86	10.92 ENT = .10 4.37 2.89 9.90 3.13 25.20 3.63 290.59	4.86 2.91 10.60 3.16 28.87 3.72 310.00 9.83	5.37 2.93 11.37 3.19 34.43 3.86 324.49 10.17	5.90 2.96 12.21 3.23 44.49 4.09 334.98 10.43	6.45 2.98 13.16 3.27 63.77 4.48 341.18 10.62
PERATION TIME(HRS) 9.00 9.00 10.00 11.00 11.00 12.00 12.00	INPUT HY	STRUCTURE 50 PROGRAPH= 6 ELEVATION= (HRS) (HRS) (RST HYDROGR 3.00 2.84 7.02 3.00 14.20 3.32 93.83 5.10	OUTPUT 2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.32 5.99	AK DISCHAR 351.28 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 175.19 7.01	H= 7 6E (CFS) URS 3.43 2.86 8.66 3.07 19.55 3.49 232.60 7.96	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 264.86 8.75	10.92 ENT = .10 4.37 2.89 9.90 3.13 25.20 3.63 290.59 9.37	4.86 2.91 10.60 3.16 28.87 3.72 310.00	5.37 2.93 11.37 3.19 34.43 3.86 324.49	5.90 2.96 12.21 3.23 44.49 4.09 334.98	6.45 2.98 13.16 3.27 63.77 4.48 341.18

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304.10

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256.74

243.68

230.95

220.90

9.69

9.00

8.56

8.24

7.92

336.60

10.48

300.64

272.83

255.20

242.40

229.84

219.84

7.90

9.61

8.94

8.52

8.21

333.70

10.39

297.33

270.69

253.71

241.08

228.77

218.73

7.87

9.53

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330.01

10.31

294.17

268.67

252.28

239.74

227.72

217.59

9.45

8.84

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8.14

7.84

326.29

10.22

291.12

266.77

250.91

238.39

226.71

216.43

9.38

8.80

8.42

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7.82

322.56

10.13

288.17

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237.06

225.73

215.26

7.79

9.31

8.76

8.39

8.08

318.81

10.04

285.33

263.27

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224.77

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311.35

279.97

259.95

246.10

233.28

222.88

211.69

9.86

9.11

8.64

8.30

7.98

7.72

PASS 1

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REV	PC 09/83(.2)		ALT 85						30		
20.00	ELEV	7.70	7.67	7.65	7.62	7.59	7.56	7.53	7.50	7.47	7.
21.00	DISCHG	210.50	208.47	205.90	203.42	201.02	198.69				
21.00	ELEV		7.38				7.27				
22.00	DISCHE	188.02	186.05	184.13	182.26		178.64				171.
22.00	ELEV		7.13					7.03			
3.00	DISCHE	170.42	168.96		166.25	164.99		162.63			
3.00	ELEV	6.96					6.88				
4.00	DISCHE	158.32	157.07	155.56	153.68	151.43	148.87				
4.00	ELEV	6.82	6.81	6.79	6.77		6.71		6.65		
5.00	DISCHG	134.01	130.96	127.96	125.01		120.97		120.85		
5.00	ELEV	6.55	6.51	6.48				6.35			
6.00	DISCHE	120.67	120.61	120.54	120.48	120.41	120.34				
6.00		6.20	6.17	6.13	6.09	6.05	6.00	5.96	5.92		
7.00	DISCHE	119.53	117.87	116.24	114.62	113.02	111.44				
7.00	ELEV	5.79	5.74	5.70	5.66	5.61	5.57	5.53	5.49	5.45	5.
8.00	DISCHE	103.82	102.35	100.89	99.45	98.02	96.61	95.21	93.83	92.46	91.
8.00	ELEV	5.37	5.33	5.29	5.25	5.21	5.18	5.14	5.10	5.07	5.
			47 45	0/ 07		00 00	01 21	70 /7	70 11	7/ 50	75.
9.00	DISCHE	89.70	87.95	86.23	84.54	82.88	81.26	17.01	78.11	76.58	100
.9.00 LUNDFF	ELEV VOLUME ABOVE	4.99 BASEFLOW	4.96 = 2.07 ₩A	4.92	4.89	4.86	4.83	4.79	4.76	4.73	4.
9.00 Unoff	ELEV VOLUME ABOVE	A.99 BASEFLOW DSS SECTION DGRAPH= 7 1000.00 F	4.96 = 2.07 WA N 130 OUTPUT EET I	4.92 TERSHED IN HYDROGRAP NPUT = COE	4.89 CHES, 36 H= 5 FFICIENTS	4.86 27.56 CFS- RELATED TO	4.83 HRS, 299 CROSS SEC	4.79 .78 ACRE-F	4.76 EET; BAS A, X= .	4.73 EFLOW =	4. 3.00 C
9.00 UNOFF RATION	ELEV VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH =	4.99 BASEFLOW DSS SECTION DSRAPH= 7 1000.00 F TT-KIN ROU	4.96 = 2.07 MA N 130 OUTPUT EET I TING COEFF	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0	4.86 27.56 CFS- RELATED TO EAK TRAVEL	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC	4.79 .78 ACRE-F TIDNAL ARE .00 HOURS	4.76 EET; BAS A, X= . IME INCREM	4.73 EFLOW = 30, M= :	4. 3.00 C
9.00 UNDFF RATION	VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA	4.99 BASEFLOW DSS SECTION DSRAPH= 7 1000.00 F TT-KIN ROU ACH 130 AT ACH 130 IN	4.96 = 2.07 WA N 130 OUTPUT EET I TING COEFF T-KIN COEF FLOW HYDRO	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE (CFS)	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT	4.79 .78 ACRE-F TIONAL ARE .00 HOURS ING MAIN T 72.0	4.76 EET; BAS A, X= . IME INCREM	4.73 EFLOW = 30, M= :	4. 3.00 C
UNOFF RATION	VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA PEAK TIME(H	4.99 BASEFLOW DSS SECTION DGRAPH= 7 1000.00 F IT-KIN ROU ACH 130 AT ACH 130 IN	4.96 = 2.07 WA N 130 OUTPUT EET I TING COEFF T-KIN COEF FLOW HYDRO	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU AK DISCHAR 351.28	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE (CFS)	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT AK ELEVATI (NULL)	4.79 .78 ACRE-F TIDNAL ARE .00 HOURS ING MAIN T 72.0 ON(FEET)	4.76 EET; BAS A, X= . IME INCREM 9 CFS, 20	4.73 EFLOW = 30, M= : ENT *** .70 % OF F	4. 3.00 C
9.00 UNOFF RATION	VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA	4.99 BASEFLOW DSS SECTION DGRAPH= 7 1000.00 F IT-KIN ROU ACH 130 AT ACH 130 IN	4.96 = 2.07 WA N 130 OUTPUT EET I TING COEFF T-KIN COEF FLOW HYDRO	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU AK DISCHAR 351.28	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE (CFS)	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT AK ELEVATI (NULL)	4.79 .78 ACRE-F TIDNAL ARE .00 HOURS ING MAIN T 72.0 ON(FEET)	4.76 EET; BAS A, X= . IME INCREM 9 CFS, 20	4.73 EFLOW = 30, M= : ENT *** .70 % OF F	4. 3.00 C
9.00 UNOFF RATION *** ***	VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA PEAK TIME(H 13.36 VOLUME ABOVE RUNOFF CRO OUTPUT HYDR	4.99 BASEFLOW DSS SECTION DSS SECTION DSS SECTION ACH 130 AT ACH 130 IN BASEFLOW DSS SECTION DSS SECTION DSS SECTION	4.96 = 2.07 WA N 130	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU AK DISCHAR 351.28 TERSHED IN	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE (CFS) CHES, 36	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B PE 27.56 CFS-	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT (NULL) HRS, 299	4.79 .78 ACRE-F TIONAL ARE .00 HOURS ING MAIN T 72.0 ON(FEET) .78 ACRE-F	4.76 EET; BAS A, X= . IME INCREM 9 CFS, 20 EET; BAS	4.73 EFLOW = 30, M= : ENT *** .70 % OF F	4. 3.00 C
UNOFF RATION *** UNOFF	VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA PEAK TIME(H 13.36 VOLUME ABOVE RUNOFF CRO OUTPUT HYDR	4.99 BASEFLOW DSS SECTION DSS SECTION TOOO.00 F TT-KIN ROU ACH 130 AT ACH 130 IN BASEFLOW DSS SECTION DSS SECTION DSS SECTION DSS SECTION DSS SECTION DSS SECTION	4.96 = 2.07 WA N 130	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU AK DISCHAR 351.28 TERSHED IN	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE(CFS) CHES, 36	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B PE 27.56 CFS-	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT (NULL) HRS, 299	4.79 .78 ACRE-F TIONAL ARE .00 HOURS ING MAIN T 72.0 ON(FEET) .78 ACRE-F	4.76 EET; BAS A, X= . IME INCREM 9 CFS, 20 EET; BAS	4.73 EFLOW = 30, M= : ENT *** .70 % OF F	4. 3.00 C
UNOFF RATION *** UNOFF	VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA PEAK TIME(H 13.36 VOLUME ABOVE RUNOFF CRO OUTPUT HYDR AREA = .0	4.99 BASEFLOW DSS SECTION DSS SECTION 1000.00 F TT-KIN ROU ACH 130 AT ACH 130 IN BASEFLOW DSS SECTION DSS SECTION COGRAPH COROGRAPH	4.96 = 2.07 WA N 130 OUTPUT EET I TING COEFF T-KIN COEF FLOW HYDRO PE = 2.07 WA N 130 6 INPUT RUN TIME INCRE	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU AK DISCHAR 351.28 TERSHED IN	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE(CFS) CHES, 36 74. TI 53 HOURS	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B PE 27.56 CFS-	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT AK ELEVATI (NULL) HRS, 299 ENTRATION=	4.79 .78 ACRE-F TIDNAL ARE .00 HOURS ING MAIN T 72.0 ON(FEET) .78 ACRE-F	4.76 EET; BAS A, X= . IME INCREM 9 CFS, 20 EET; BAS	4.73 EFLOW = 30, M= : ENT *** .70 % OF F	4. 3.00 C
RATION *** ***	ELEV VOLUME ABOVE REACH CRO INPUT HYDRO LENGTH = MODIFIED AT WARNING REA WARNING - REA PEAK TIME(H 13.36 VOLUME ABOVE RUNOFF CRO OUTPUT HYDR AREA = .0 INTERNAL HY	A.99 BASEFLOW DSS SECTION DSS SECTION DSS SECTION ACH 130 AT ACH 130 IN BASEFLOW DSS SECTION DSS SECTION COGRAPH COGRAPH ARS)	4.96 = 2.07 WA N 130 OUTPUT EET I TING COEFF T-KIN COEF FLOW HYDRO PE = 2.07 WA N 130 6 INPUT RUN TIME INCRE	4.92 TERSHED IN HYDROGRAP NPUT = COE ICIENT = 1 F. (C) GREA GRAPH VOLU AK DISCHAR 351.28 TERSHED IN DFF CURVE= MENT= .02	4.89 CHES, 36 H= 5 FFICIENTS .00 P TER THAN 0 ME TRUNCAT GE (CFS) CHES, 36 74. TI 53 HOURS GE (CFS)	4.86 27.56 CFS- RELATED TO EAK TRAVEL .667, CONS ED ABOVE B PE 27.56 CFS-	4.83 HRS, 299 CROSS SEC TIME = IDER REDUC ASEFLOW AT AK ELEVATI (NULL) HRS, 299	4.79 .78 ACRE-F TIDNAL ARE .00 HOURS ING MAIN T 72.0 ON(FEET) .78 ACRE-F	4.76 EET; BAS A, X= . IME INCREM 9 CFS, 20 EET; BAS	4.73 EFLOW = 30, M= : ENT *** .70 % OF F	4. 3.00 C

INPUT HYDROGRAPHS= 5,6

OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) 12.06 PEAK DISCHARGE (CFS) 256.05

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

PEAK ELEVATION (FEET)

(NULL)

13.28 362.33

RUNOFF VOLUME ABOVE BASEFLOW = 2.10 WATERSHED INCHES, 3758.35 CFS-HRS, 310.59 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

PEAK TIME (HRS)

		THE THING!		PUL DIADI	INITIOE ILL 31	I E	HV CTEAHII	DMILEEII			
	16.4	19		271.	. 55		6.68				
TIME (HRS)		FIRST HYDROGRAPH	POINT	= .00	HOURS	TIME INCREM	ENT = .10	HOURS	DRAINASE	AREA =	2.77 SQ.MI.
11.00	DISCHE	3.00	3.00	3.00			3.00	3.00	3.00	4.63	7.79
11.00	ELEV	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.44	2.53
12.00	DISCHG	12.25	16.80	21.13	29.28		49.28	59.43	72.12	84.87	97.35
12.00	ELEV	2.66	2.81	2.95	3.10		3.42	3.59	3.76	3.93	4.10
13.00	DISCHG	109.43 1	21.07	132.22	140.95		156.12	163.25	170.06	176.56	180.08
13.00	ELEV	4.26	4.41	4.56	4.71	4.84	4.98	5.10	5.22	5.34	5.45
14.00	DISCHE	180.26 1	80.44	180.61	180.78	180.95	189.65	201.12	211.32	220.36	228.36
14.00	ELEV	5.56	5.66	5.77	5.87	5.97	6.06	6.15	6.23	6.29	6.35
15.00	DISCHE	235.41 2	41.58	246.97	251.63	255.64	259.05	261.91	264.31	266.29	267.88
15.00	ELEV	6.41	6.45	6.49	6.53	6.56	6.58	6.60	6.62	6.64	6.65
16.00	DISCHE	269.14 2	70.09	270.78	271.23	271.48	271.55	271.45	271.20	270.80	270.30
16.00	ELEV	6.66	6.66	6.67	6.67	6.68	6.68	6.68	6.67	6.67	6.67
17.00	DISCHE	269.71 2	69.03	268.28	267.47	266.60	265.69	264.75	263.78	262.80	261.78
17.00	ELEV	6.66	6.66	6.65	6.65	6.64	6.63	6.62	6.62	6.61	6.60
18.00	DISCHG	260.72 2	59.64	258.54	257.42	256.29	255.14	253.97	252.79	251.61	250.42
18.00	ELEV	6.59	6.59	6.58	6.57	6.56	6.55	6.54	6.54	6.53	6.52
19.00	DISCHE	249.23 2	48.04	246.85	245.68	244.51	243.35	242.21	241.08	239.97	238.85
19.00	ELEV	6.51	6.50	6.49	6.48	6.47	6.47	6.46	6.45	6.44	6.43
20.00	DISCHE		36.58	235.45	234.33	233.20	232.07	230.94	229.80	228.67	227.52
20.00	ELEV		6.41	6.41	6.40	6.39	6.38	6.37	6.36	6.36	6.35
21.00	DISCHG		25.19	223.91	222.54	221.07	219.53	217.93	216.28	214.59	212.87
21.00	ELEV		6.33	6.32		6.30	6.29	6.28	6.26	6.25	6.24
22.00	DISCHE		09.35	207.56		203.97	202.17	200.37	198.58	196.80	195.03
22.00	ELEV	6.22	6.21	6.20		6.17	6.16	6.14	6.13	6.12	6.10
23.00	DISCHE		91.55	189.85		186.53	184.91	183.34	181.80	180.99	180.97
23.00	ELEV		6.08	6.07		6.04	6.03	6.02	6.01	5.99	5.98
24.00	DISCHE		30.93	180.90			180.81	180.78	180.74	180.70	180.65
24.00	ELEV	5.97	5.96	5.94		5.91	5.89	5.87	5.84	5.82	5.79
25.00	DISCHG	180.60 18	30.55	180.50	180.44	180.38	180.32	180.26	180.20	180.13	180.07

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PASS 1

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REU	PC 09/83(.2)		ALT 95						30	1	
	10 1/105(12)		HE! OJ)(
25.00	ELEV	5.76	5.73	5.70	5.67	5.63	5.59	5.56	5.52	5.48	5.4
26.00	DISCHG	180.01	178.19	176.17	174.23	172.34	170.52	168.77	167.07	165.43	163.8
26.00	ELEV	5.40	5.37	5.33	5.30	5.26	5.23	5.20	5.17	5.14	5.
27.00				159.24	157.71	156.17	154.63	153.10	151.56	150.02	148.
27.00		5.09				4.98		4.92	4.89	4.87	4.1
28.00	DISCHE	146.94	145.41	143.87	142.34	140.82	.139.30	137.78	136.26	134.67	132.
28.00	ELEV		4.79	4.76	4.73	4.70	4.68	4.65	4.62	4.60	4.
29.00	DISCHG	130.72	128.78	126.84	124.92	123.01	121.11	119.22	117.35	115.50	113.
29.00	ELEV	4.54	4.52	4.49	4.47	4.44	4.41	4.39	4.36	4.34	4,
UNOFF	VOLUME ABOVE	BASEFLOW	= 1.91 WA	TERSHED IN	CHES, 3	418.29 CFS-	HRS, 282	.49 ACRE-F	EET; BAS	SEFLOW =	3.00 C
RATIO	N REACH CRI			HABBOCDAD	u- =						
	INPUT HYDRO					OCLATER TO		TIONAL ADD		٠, ۳	
	LENGTH = MODIFIED AT	יוחם אוע דד	TIME COFFE	NPUI = LUE	FFILIENIS	KELATED TO	LKUSS SEL	TOWAL AKE	A, X= .	21, =	1.48

***	WHUMING - LE				ME TOILLE	TER ADDUC D	APPEL OU AT	140 1	/ DEE AL	24 4 05	
			LOW INDING	GRAPH VULU	ME TRUNCA	TED ABOVE B	ASEFLOW AT	110.6	6 CFS, 41	.21 % OF	PEAK.
									6 CFS, 41	.21 % OF	PEAK.
	PEAK TIME(PE	AK DISCHAR	GE (CFS)	PE	AK ELEVATI		6 CFS, 41	.21 % OF	PEAK.
			PE		GE (CFS)	PE			6 CFS, 41	.21 % OF	PEAK.
	PEAK TIME()	HRS)	PE	AK DISCHAR	GE (CFS)	PE	AK ELEVATI (NULL)	ON (FEET)			
	PEAK TIME(HRS)	PE	AK DISCHAR	GE (CFS)	PE	AK ELEVATI (NULL)	ON (FEET)			
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE	HRS) Baseflow	PE = 1.89 WA	AK DISCHAR	GE (CFS)	PE	AK ELEVATI (NULL)	ON (FEET)			
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO	HRS) BASEFLOW DSS SECTIO	PE = 1.89 WA N 140	AK DISCHAR	GE (CFS)	PE	AK ELEVATI (NULL)	ON (FEET)			
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE	HRS) BASEFLOW DSS SECTION ROGRAPH=	PE = 1.89 WA N 140 6	AK DISCHAR 271.09 TERSHED IN	GE(CFS)	PE 387.38 CFS-	AK ELEVATI (NULL) HRS, 279	ON(FEET) .93 ACRE-F	EET; BAS		
UNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2	HRS) BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI	PE = 1.87 WA N 140 L INPUT RUN	AK DISCHAR 271.09 TERSHED IN	GE(CFS) CHES, 3:	PE	AK ELEVATI (NULL) HRS, 279	ON(FEET) .93 ACRE-F	EET; BAS		
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE	HRS) BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI	PE = 1.87 WA N 140 L INPUT RUN	AK DISCHAR 271.09 TERSHED IN	GE(CFS) CHES, 3:	PE 387.38 CFS-	AK ELEVATI (NULL) HRS, 279	ON(FEET) .93 ACRE-F	EET; BAS		
UNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH	PE 1.87 WA N 140 LINPUT RUNITIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09	GE(CFS) CHES, 3. 66. T	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION=	ON(FEET) .93 ACRE-F 1.15 HOU	EET; BAS		
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME()	BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI YDROGRAPH HRS)	PE 1.89 WA N 140 INPUT RUNITIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS)	PE 387.38 CFS- IME OF CONC PE	AK ELEVATI (NULL) HRS, 279 ENTRATION=	ON(FEET) .93 ACRE-F 1.15 HOU ON(FEET)	EET; BAS		
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64	BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI YDROGRAPH HRS)	PE 1.89 WA N 140 INPUT RUNITIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS)	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF	ON(FEET) 1.15 HOU ON(FEET)	EET; BAS		
UNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY	BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI YDROGRAPH HRS)	PE 1.89 WA N 140 INPUT RUNITIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS)	PE 387.38 CFS- IME OF CONC PE	AK ELEVATI (NULL) HRS, 279 ENTRATION=	ON(FEET) 1.15 HOU ON(FEET)	EET; BAS		
UNOFF RATION	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS)	PE = 1.89 WA N 140 6 INPUT RUN TIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47	GE(CFS) CHES, 3: 66. T: 58 HOURS GE(CFS)	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF	ON(FEET) 1.15 HOU ON(FEET))	EET; BAS	SEFLOW =	3.00 C
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS)	PE = 1.89 WA N 140 6 INPUT RUN TIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47	GE(CFS) CHES, 3: 66. T: 58 HOURS GE(CFS)	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF	ON(FEET) 1.15 HOU ON(FEET))	EET; BAS	SEFLOW =	3.00 C
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS)	PE = 1.89 WA N 140 6 INPUT RUN TIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47	GE(CFS) CHES, 3: 66. T: 58 HOURS GE(CFS)	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF	ON(FEET) 1.15 HOU ON(FEET))	EET; BAS	SEFLOW =	3.00 CI
NUNOFF RATION	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69	BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI YDROGRAPH HRS) BASEFLOW	PE 1.89 WA N 140 6 INPUT RUNITIME INCRE PE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47	GE(CFS) CHES, 3: 66. T: 58 HOURS GE(CFS)	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF	ON(FEET) 1.15 HOU ON(FEET))	EET; BAS	SEFLOW =	3.00 C
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69 VOLUME ABOVE	BASEFLOW DSS SECTIO ROGRAPH= 20 SQ MI YDROGRAPH HRS) BASEFLOW DSS SECTIO	PE 1.89 WA N 140 6 INPUT RUNTIME INCRE	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS) CHES,	PE 387.38 CFS- IME OF CONC	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF	ON(FEET) 1.15 HOU ON(FEET))	EET; BAS	SEFLOW =	3.00 CI
NUNOFF RATION	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69 VOLUME ABOVE ADDHYD CRO INPUT HYDRO	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS) BASEFLOW DSS SECTION DGRAPHS= 5	PE = 1.89 WA N 140 6 INPUT RUNTIME INCRE = 3.20 WA N 140 OUT!	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .099 AK DISCHAR 190.96 8.47 TERSHED IN	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS) CHES, 4	PE 387.38 CFS- TME OF CONC PE 413.16 CFS-	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF (RUNOFF) HRS, 34	ON(FEET) 1.15 HOU ON(FEET)) 1.14 ACRE-F	EET; BAS	SEFLOW =	3.00 CI
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69 VOLUME ABOVE ADDHYD CRO INPUT HYDEO PEAK TIME()	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS) BASEFLOW DSS SECTION DGRAPHS= 5	PE = 1.89 WA N 140 6 INPUT RUNTIME INCRE = 3.20 WA N 140 OUT!	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47 TERSHED IN OPERATOR IN OPPORTOR IN OPP	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS) CHES, 4 RAPH= 7 GE (CFS)	PE 387.38 CFS- TME OF CONC PE 413.16 CFS-	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF (RUNOFF HRS, 34	ON(FEET) 1.15 HOU ON(FEET)) 1.14 ACRE-F	EET; BAS	SEFLOW =	3.00 CI
RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69 VOLUME ABOVE ADDHYD CRO INPUT HYDRO PEAK TIME() 12.81	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS) BASEFLOW DSS SECTION DGRAPHS= 5	PE = 1.89 WA N 140 6 INPUT RUNTIME INCRE = 3.20 WA N 140 OUT!	AK DISCHAR 271.09 TERSHED INI OFF CURVE= MENT= .093 AK DISCHAR 190.96 8.47 TERSHED INI PUT HYDROGI	GE (CFS) CHES, 3: 66. T: 58 HOURS GE (CFS) CHES, 4 GE (CFS)	PE 387.38 CFS- TME OF CONC PE 413.16 CFS-	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF HRS, 34	ON(FEET) 1.15 HOU ON(FEET)) 1.14 ACRE-F	EET; BAS	SEFLOW =	3.00 CI
RUNOFF ERATION RUNOFF	PEAK TIME() 16.79 VOLUME ABOVE RUNOFF CRO OUTPUT HYDE AREA= .2 INTERNAL HY PEAK TIME() 12.64 23.69 VOLUME ABOVE ADDHYD CRO INPUT HYDEO PEAK TIME()	BASEFLOW DSS SECTION ROGRAPH= 20 SQ MI YDROGRAPH HRS) BASEFLOW DSS SECTION DGRAPHS= 5	PE = 1.89 WA N 140 6 INPUT RUNTIME INCRE = 3.20 WA N 140 OUT!	AK DISCHAR 271.09 TERSHED IN OFF CURVE= MENT= .09 AK DISCHAR 190.96 8.47 TERSHED IN OPERATOR IN OPPORTOR IN OPP	GE (CFS) CHES, 3. 66. TI 58 HOURS GE (CFS) CHES, 4	PE 387.38 CFS- TME OF CONC PE 413.16 CFS-	AK ELEVATI (NULL) HRS, 279 ENTRATION= AK ELEVATI (RUNOFF (RUNOFF HRS, 34	ON(FEET) 1.15 HOU ON(FEET)) 1.14 ACRE-F	EET; BAS	SEFLOW =	3.00 CI

OPERATION SAVMOV CROSS SECTION 150

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

AREA= .08 SQ MI INPUT RUNOFF CURVE= 50. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.19
 67.90
 (RUNOFF)

 23.67
 2.40
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 86.04 CFS-HRS, 7.11 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION (FEET)

 12.74
 255.42
 (NULL)

 13.99
 230.18
 (NULL)

 16.64
 291.96
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.97 WATERSHED INCHES, 3886.58 CFS-HRS, 321.19 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

*** WARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 115.66 CFS, 40.03 % OF PEAK.

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.74
 255.42
 (NULL)

 13.99
 230.18
 (NULL)

 16.64
 291.96
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.97 WATERSHED INCHES, 3886.58 CFS-HRS, 321.19 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA= .01 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= .15 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 8 %.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

XSECTION 150

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REV	PC 09/83(. 2)	ALT 85						30			PAGE
IME (HRS)		IRST HYDROE	RAPH POINT =	.00 HOU	RS T	ME INCREME	NT = .10	HOURS	DRAINAGE	AREA =	.01 SQ.MI.	
11.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.05	
12.00	DISCHE	4.60		2.17	1.71	1.28	1.17		1.02	1.00	.87	
13.00	DISCHE	.84	.78	.73	.71	.66	.64	.60	.56	.55	.52	
14.00	DISCHE	.52	.50	.48	.47	.44	.43		.38	.38	.38	
15.00	DISCHE	.38		.39	.38	.35	.34			.34	.34	
16.00	DISCHE	.34	.34	. 35	.35	.35	.35			.30	.30	
17.00	DISCHE	.30	.30	.30	.30	.30	.30		.30	.30	.26	
18.00	DISCHS	.25	. 25	.25	.25	. 25	. 25		. 25	. 25	.25	
19.00	DISCH6	.25	. 25	. 25	.25	. 25	. 25		. 25	. 25	.21	
20.00	DISCHG	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	
21.00	DISCHE	.19	.20	.20	.20	.20		.20	.20	.20	.20	
22.00	DISCHE	.20		.20	.20	.20	.20		.20	.20	.20	
23.00 24.00	DISCH6 DISCH6	.20	.20	.20	.20	.20	.20	. 20	.20	.20	.15	
	ADDHYD	OVE BASEFLOW CROSS SECTI DROGRAPHS=		ERSHED INC		5.41 CFS-H	RS, .	45 ACRE-FE	ET; BASE	FLOW =	.00 CFS	
	ADDHYD INPUT HY PEAK TIM	CROSS SECTI DROGRAPHS=	ON 150 5,6 OUTP	UT HYDROGRA	APH= 7		< ELEVATIO		ET; BASE	FLOW =	.00 CFS	
	ADDHYD INPUT HY PEAK TIM 12.74	CROSS SECTI DROGRAPHS=	ON 150 5,6 OUTP	UT HYDROGRA K DISCHARGE 256.43	APH= 7		(ELEVATIO		ET; BASE	FLOW =	.00 CFS	
	ADDHYD INPUT HY PEAK TIM	CROSS SECTI DROGRAPHS= HE(HRS)	ON 150 5,6 OUTP	UT HYDROGRA	APH= 7		< ELEVATIO		ET; BASE	FLOW =	.00 CFS	
ERATION	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63	CROSS SECTI DROGRAPHS= (HRS)	ON 150 5,6 OUTP	UT HYDROGRA	APH= 7 E(CFS)	PEAI	(ELEVATIO (NULL) (NULL) (NULL)	N(FEET)				
ERATION	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 /OLUME ABO	CROSS SECTI DROGRAPHS= E(HRS) VE BASEFLOW CROSS SECTI	ON 150 5,6 OUTPI PEAI = 1.97 WATI	UT HYDROGRA 256.43 230.70 292.27 ERSHED INCH	APH= 7 E(CFS) HES, 389	PEAI	(ELEVATIO (NULL) (NULL) (NULL)	N(FEET)				
ERATION RUNOFF \	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 OLUME ABO SAVMOV INPUT HY	CROSS SECTI DROGRAPHS= E(HRS) VE BASEFLOW CROSS SECTI DROGRAPH= 7 CROSS SECTI	ON 150 5,6 OUTP PEAI = 1.97 WATI ON 180 ON 180	UT HYDROGRA 256.43 230.70 292.27 ERSHED INCH	APH= 7 E(CFS) HES, 389	PEAI	(ELEVATIO (NULL) (NULL) (NULL)	N(FEET)				
ERATION RUNOFF \	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 OLUME ABO SAVMOV INPUT HY RUNOFF OUTPUT H AREA=	CROSS SECTI PROGRAPHS CROSS SECTI	ON 150 5,6 OUTP PEAI = 1.97 WATI ON 180 ON 180	UT HYDROGRA K DISCHARGI 256.43 230.70 292.27 ERSHED INCH	APH= 7 E(CFS) HES, 389 = 5	PEAI	(ELEVATIO (NULL) (NULL) (NULL)	N(FEET) 63 ACRE-FE	ET; BASEF			
ERATION RUNOFF \	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 /OLUME ABO SAVMOV INPUT HY RUNOFF OUTPUT H AREA= INTERNAL	CROSS SECTI PROGRAPHS E(HRS) E(HRS) CROSS SECTI CROSS SECTI DROGRAPH= 7 CROSS SECTI YDROGRAPH= .28 SQ MI HYDROGRAPH E(HRS)	ON 150 5,6 OUTPO PEAN = 1.97 WATH ON 180 OUTPUT NOTE ON 180 6 INPUT RUNOF	UT HYDROGRA C DISCHARGE 256.43 230.70 292.27 ERSHED INCH HYDROGRAPH= FF CURVE= 5 ENT= .0813	APH= 7 E(CFS) HES, 389 = 5 50. TIM 3 HOURS	PEAI	(ELEVATIO (NULL) (NULL) (NULL) (NULL) RS, 321.	N(FEET) 63 ACRE-FE .61 HOUR	ET; BASEF			
ERATION RUNOFF \	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 /OLUME ABO SAVMOV INPUT HY RUNOFF OUTPUT H AREA= INTERNAL PEAK TIM 12.31	CROSS SECTI PROGRAPHS E(HRS) E(HRS) CROSS SECTI CROSS SECTI CROSS SECTI PROGRAPH= 7 CROSS SECTI PROGRAPH= .28 SQ MI HYDROGRAPH E(HRS)	ON 150 5,6 OUTPO PEAN = 1.97 WATH ON 180 OUTPUT NOTE ON 180 6 INPUT RUNOF	UT HYDROGRA C DISCHARGE 256.43 230.70 292.27 ERSHED INCH HYDROGRAPH= FF CURVE= S ENT= .0813 C DISCHARGE 185.48	APH= 7 E(CFS) HES, 389 = 5 50. TIM 3 HOURS	PEAI	(ELEVATIO (NULL) (NULL) (NULL) (NULL) (NULL) (NULL) (RS, 321.	N(FEET) .63 ACRE-FE .61 HOUR	ET; BASEF			
PERATION RUNOFF V	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 /OLUME ABO SAVMOV INPUT HY RUNOFF OUTPUT H AREA= INTERNAL	CROSS SECTI (DROGRAPHS= ME(HRS) EVE BASEFLOW CROSS SECTI (DROGRAPH= 7 CROSS SECTI (DROGRAPH= .28 SQ MI HYDROGRAPH E(HRS)	ON 150 5,6 OUTPO PEAN = 1.97 WATH ON 180 OUTPUT NOTE ON 180 6 INPUT RUNOF	UT HYDROGRA C DISCHARGE 256.43 230.70 292.27 ERSHED INCH HYDROGRAPH= FF CURVE= 5 ENT= .0813	APH= 7 E(CFS) HES, 389 = 5 50. TIM 3 HOURS	PEAI	(ELEVATIO (NULL) (NULL) (NULL) (NULL) RS, 321.	N(FEET) . 63 ACRE-FE	ET; BASEF			
ERATION RUNOFF \ ERATION	ADDHYD INPUT HY PEAK TIM 12.74 13.99 16.63 /OLUME ABO SAVMOV INPUT HY RUNOFF OUTPUT H AREA= INTERNAL	CROSS SECTI PROGRAPHS E(HRS) E(HRS) CROSS SECTI CROSS SECTI DROGRAPH= 7 CROSS SECTI YDROGRAPH= .28 SQ MI HYDROGRAPH E(HRS)	ON 150 5,6 OUTPO PEAN = 1.97 WATH ON 180 OUTPUT NOTE ON 180 6 INPUT RUNOF	UT HYDROGRA C DISCHARGE 256.43 230.70 292.27 ERSHED INCH HYDROGRAPH= FF CURVE= 5 ENT= .0813	APH= 7 E(CFS) HES, 389 = 5 50. TIM 3 HOURS	PEAI	(ELEVATIO (NULL) (NULL) (NULL) (NULL) RS, 321.	N(FEET) 63 ACRE-FE .61 HOUR	ET; BASEF			

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES,

301.04 CFS-HRS,

BASEFLOW =

.00 CFS

24.88 ACRE-FEET;

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM TR20 XEQ 05-05-86 08:09 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT 85 30 INPUT HYDROGRAPHS= 5.6 **OUTPUT HYDROGRAPH= 7** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.40 402.41 (NULL) 16.59 307.48 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.95 WATERSHED INCHES, 4193.03 CFS-HRS, 346.51 ACRE-FEET: BASEFLOW = 3.00 CFS OPERATION REACH CROSS SECTION 180 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48 MODIFIED ATT-KIN ROUTING COEFFICIENT = .55 PEAK TRAVEL TIME = .20 HOURS *** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 115.66 CFS, 28.96 % OF PEAK. PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.61 385.65 (NULL) 16.76 307.22 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 4171.69 CFS-HRS, 344.75 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION RUNOFF CROSS SECTION 180 OUTPUT HYDROGRAPH= 6 .11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 34.74 12.28 (RUNOFF) 23.69 2.34 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES, 65.08 CFS-HRS, 5.38 ACRE-FEET; BASEFLOW = .00 CFS OPERATION ADDHYD CROSS SECTION 180 INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.58 406.20 (NULL) 16.73 311.11 (NULL) TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 3.45 SQ.MI. 9.00 DISCHG 3.00 3.00 3.00 3.00 3.01 3.02 3.04 3.08 3.14 3.23 3.34 3.48 3.64 3.83 4.05 4.29 4.56 4.87 5.23 5.64 6.13 6.69 7.36 8.12 9.01 10.03 11.22 13.08 17.23 29.29 10.00 DISCHS 11.00 DISCHE 65.60 138.39 233.33 319.90 375.64 401.45 406.02 397.09 382.75 366.99 DISCHE

DISCHG 350.58 334.12 318.32 304.76 294.23 286.21 280.24 275.68 272.19 269.61

292.22 287.07 291.25 309.16 310.08 310.75

294.81

311.09

297.86

311.00 310.53

300.53

B-34

14.00 DISCHS 267.87 266.41 264.42 261.87 258.96 255.83 252.66 251.24 252.36 255.53

276.82

307.99

12.00

13.00

15.00

16.00

DISCHG 260.08 265.43 271.13 DISCHG 302.85 304.86 306.57

	C 09/83(.2	1	ALT 85						30			PAGE
7.00	DISCHE	309.80	308.91	307.95	306.96	305.97	304.97	303.97	302.96	301.94	300.84	
8.00	DISCHE	299.54	297.98	296.25	294.45	292.66	290.93	289.29	287.73	286.22	284.76	
9.00	DISCH6	283.36	282.00	280.68	279.40	278.14	276.90	275.69	274.49	273.30	272.05	
0.00	DISCHE	270.60	268.91	267.05	265.15	263.27	261.48	259.79	258.19	256.67	255.22	
1.00	DISCH6	253.82	252.49	251.19	249.93	248.66	247.37	246.03	244.63	243.18	241.67	
2.00	DISCHE	240.11	238.51	236.86	235.17	233.46	231.73	229.98	228.22	226.45	224.68	
3.00	DISCHE	222.91	221.14	219.38	217.63	215.90	214.18	212.49	210.83	209.18	207.48	
4.00	DISCHG	205.73	203.98	202.03	199.75	197.22	194.66	192.30	190.20	188.42	186.92	
5.00	DISCHE	185.67	184.64	183.79	183.09	182.54	182.09	181.73	181.43	181.17	180.96	
6.00	DISCHG	180.77	180.61	180.48	179.99	179.09	177.85	176.38	174.77	173.09	171.39	
7.00	DISCHE	169.68	168.01	166.36	164.75	163.17	161.60	160.04	158.49	156.95	155.40	
8.00	DISCHE	153.86	152.32	150.78	149.24	147.71	146.17	144.64	143.11	141.58	140.06	
9.00	DISCHE	138.52	136.89	135.16	133.37	131.52	129.64	127.75	125.85	123.96	122.07	

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID

1690

TR20 XEQ 05-05-86 08:09 REV PC 09/83(.2) COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 85

20 30 JOB 1 SUMMARY PAGE 28

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE		TANDARD CONTROL	DDATNACE	RAIN	ANTEC	MAIN	Р	RECIPITAT	ION			PEAK D	ISCHARGE		
ID		PERATION	DRAINAGE AREA (SQ MI)	TABLE #	COND	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNA'	ΙŁ	85 ST	ORM 1												
STRUCTURE		RUNOFF	.84	2	2	.10	.0	7.00	24.00	1.67		17.80	96.56	114.9	
STRUCTURE		RESVOR	.84	2	2	.10	.0	7.00	24.00	1.63	9.50	18.14	96.09	114.4	
XSECTION		REACH	.84	2	2	.10	.0	7.00	24.00	1.62		18.47	98.84	117.7	
XSECTION		RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.00		12.08	121.81	609.0	
XSECTION	10	ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.50		12.08	124.81	120.0	
STRUCTURE 2		RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.45	9.18	20.10	93.18	89.6	
XSECTION 2		REACH	1.04	2	2	.10	.0	7.00	24.00	1.44		20.25	93.15	89.6	
XSECTION 2		RUNOFF	. 28	2	2	.10	.0	7.00	24.00	1.94		12.61	158.20	565.0	
XSECTION 2		ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.55		12.62	181.14	137.2	
STRUCTURE 3	30	RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7	
STRUCTURE 3		RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9	
XSECTION 4		REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9	
XSECTION 4		RUNOFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2	
XSECTION 4		ADDHYD	. 43	2	2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8	
STRUCTURE 4	10	RESVOR	.43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8	
XSECTION 5	50	REACH	. 43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7	
XSECTION 4	19	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.84		13.33	13.76	125.1	
XSECTION 5	0	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29	mental and services	16.65	53.98	100.0	
	10	RUNOFF	.36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5	
XSECTION 5	0	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9	
	0	REACH	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9	
XSECTION &		RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2	
XSECTION 6		ADDHYD	.95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4	
XSECTION 7		ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.07		12.15	1158.66	510.4	
XSECTION 8	10	REACH	2.27	2	2	.10	.0	7.00	24.00	2.07		12.15	1158.66	510.4	
XSECTION 8		RUNOFF	.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.6	
XSECTION 8	0	ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.07		12.14	1178.53	514.6	
XSECTION 9	0	RUNOFF	. 24	2	2	.10	.0	7.00	24.00	3.93		12.27	434.61	1810.9	
XSECTION 10	0	ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.25		12.17	1568.41	619.9	
XSECTION 11	0	REACH	2.53	2	2	.10	.0	7.00	24.00	2.25		12.17	1568.41	619.9	
XSECTION 12	0	REACH	2.53	2	2	.10	.0	7.00	24.00	2.25		12.17	1568.41	619.9	
XSECTION 12	0	RUNOFF	.19	2	2	.10	.0	7.00	24.00	2.22		12.38	159.29	838.4	B-

TR20 XEQ 05-05-86 08:09 REV PC 09/83(.2)

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 85

20 30 JOB 1 SUMMARY PAGE 29

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION STRUCTUR		STANDARD CONTROL	DOVINACE	RAIN	ANTEC		P	RECIPITAT	TION	DUMOCE		PEAK D	ISCHARGE	
ID	NE	OPERATION	DRAINAGE AREA (SQ MI)	#	COND	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTER	RNATE	85 S	TORM 1											
XSECTION	N 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.25		12.19	1694.07	622.8
STRUCTUE	RE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.07	10.92	13.36	351.28	129.1
XSECTION	N 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.07		13.36	351.28	129.1
XSECTION	N 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION	N 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.10		13.28	362.33	130.8
STRUCTUR	RE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.91	6.68	16.49	271.55	98.0
XSECTION	140	REACH	2.77	2	2	.10	.0	7.00	24.00	1.89		16.79	271.09	97.9
XSECTION	N 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.20		12.64	190.96	954.8
XSECTION	N 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	1.98		16.70	287.70	96.9
XSECTION	N 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	1.67		12.19	67.90	848.7
XSECTION	N 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	1.97		16.64	291.96	95.7
XSECTION	N 150	REACH	3.05	2	2	.10	.0	7.00	24.00	1.97	1	16.64	291.96	95.7
XSECTION	N 150	RUNOFF	.01	2	2	.10	.0	7.00	24.00	.84	* **	12.05	4.99	499.3
XSECTION	N 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	1.97		16.63	292.27	95.5
XSECTION	N 180	RUNOFF	.28	2	2	.10	.0	7.00	24.00	1.67		12.31	185.48	662.4
XSECTION	N 180	ADDHYD	3.34	2	2	.10	.0	7.00	24.00	1.95		12.40	402.41	120.5
XSECTION	N 180	REACH	3.34	2	2	.10	.0	7.00	24.00	1.94		12.61	385.65	115.5
XSECTION	N 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION	N 180	ADDHYD	3.45	2	2	.10	.0	7.00	24.00	1.90		12.58	406.20	117.7

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 85

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SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS MARNINGS)

	HYDROGRAPH INFORMATI						N	ROUTING PARAMETERS PER										EAK	
						OUTF	LOW+		VOLUME	MAIN	ITER-	Q AND	A		PEAK	S/Q	ATT-	TRAVEL	. TIM
XSEC	REACH	INFL	.04	OUTF	LOW	INTER	V.AREA	BASE-	ABOVE	TIME	ATION	EQUAT	ION	LENGTH	RATIO	ƏPEAK	KIN	STOR-	KINE
ID	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR		COEFF	POWER	FACTOR	0/1	(K)	COEFF	AGE	MATI
	(FT)	(CFS)	(HR)	(CFS)	(HR)				(IN)									(HR)	
AL	TERNATE	85	STORM	1															
		99	18.1	99	18.5			3	1.63*	.10	_1	1.20	1.10	.021	.997	888	.34	.40	.2
20	2900	93	20.1	93	20.2		12.1		1.45#			.280			1 000	720	700	10	
				4007	100 M		12.6	ette formed e mende in						.000	1.000	320	.12:	.10	
40	1300	48	16.2	48	16.5				1.51	.10	1	.880	1.10	.027	.992	934	.32	.30	
	1700	50	16.6	50	16.7		16.5		1.41	.10	1	1.60	1.45	.002	1.000	252	.83?	.10	
۲۵		10/4	(2.4	10/4		54						.440							
ov	1400	1004	12.1	1004	12.1	1069		0	2.87	.10	0		1.94	.000	1.000	28	1.00?	.00	.1
В0	700	1127	12.1	1127	12.1			2	2.07	.10	0	.300	1.94		1.000		1.00?	.00	
						1156	12.1												
10	500	1559	12.2	1559	12.2			3	2.25	.10	0	.300	1.94	.000	1.000	14	1.00?	.00	.(

.300

+120	500	1559	12.2	1559	12.2			3	2.25	.10	0		1.94	.000	1.000	14 1.	.00?	.00	.00
+						1692	12.2												
												.300						Dra	ITT
+130	1000	351	13.4	351	13.4			3	2.07\$.10	0		1.94	.000	1.000	56 1.	00?	.00	.00
_ +						362	13.3												
												.210							
+140	2500	272	16.5	271	16.8			3	1.91#	.10			1.48	.004	.998	788 .	37	.30	.22
+						288	16.7												
												.210							
+150	300	292	16.6	292	16.6			3	1.97\$.10	0		1.48	.000	1.000	92 1.	00?	.00	.00
+						202	41.1												
						272	16.6												
. 484												.210							
+180	1700	402	12.4	386	12.6			3	1.95*	.10	i		1.48	.003	.958	47.1	55	.20	.13
+						406	12.6										1		

TR20 XEQ 05-05-86 08:09 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 85

20 30 IOB 1 SUMMARY

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS	
0+	STRUCTURE	60	2.77		
	ALTERNATE	85		271.55	
9	STRUCTURE	50	2.72	2	0
+			2172		
	ALTERNATE	95		351.28	
٥	STRUCTURE			331.20	
	DINOCIONE	70	. 75		
	ALTERNATE	05		49.78	
۸	STRUCTURE			47./0	
		20	.3/		
+	41 7550475				
	ALTERNATE			48.05	
	STRUCTURE :	20	1.04		
+					
	ALTERNATE			93.18	
	STRUCTURE	10	.84		
+					
	ALTERNATE	85		96.09	
0	XSECTION	10	1.04		
+					
	ALTERNATE			124.81	
0	XSECTION 2	20	1.32		
	ALTERNATE	85		181.14	
0	XSECTION 4	10	.43		
	ALTERNATE	85		49.80	
	XSECTION 4				
+					
	ALTERNATE	95		13.76	
	XSECTION S			10.70	
+	ADECITOR C	,,	.,,,		
	ALTERNATE	05		1070 05	
0	XSECTION &	07	OF	1079.95	
	ASECTION C	10	.95		
۲.	AL TERNATE			1007 04	
	ALTERNATE			1086.21	
V	XSECTION 7	0	2.27		
+				TO A CALL DE LA CALL	
	ALTERNATE			1158.66	
0	XSECTION 8	10	2.29		
+			an ellipse		

1178.53

ALTERNATE 85

TR20 XEQ 05-05-86 08:09 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM REV PC 09/83(.2) ALT 85

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBI				
0	XSECTION 90		.24					
*	ALTERNATE	05		434.61				
0	XSECTION 100		2.53	707.01				
+								
	ALTERNATE	85		1568.41				
0	XSECTION 110		2.53					
+								
	ALTERNATE	85		1568.41				
0	XSECTION 120		2.72					
	ALTERNATE			1694.07				
	XSECTION 130		2.77					
+	AL TERNATE							
۸	ALTERNATE			362.33				
v	XSECTION 140		2.91					
·	ALTERNATE	95		287.70				
0	XSECTION 149	4000	.08	207.70				
+								
	ALTERNATE	85		67.90				
0	XSECTION 150		3.06					
+								
	ALTERNATE	85		292.27				
0	XSECTION 180		3.45					
+								
	ALTERNATE	85		406.20				

FISCAL YEAR 86

JOB TR-20	COGNELL 7 C		RINT PASS=001	SUMMARY 24 HR 10YR TYPE 2 STORM	10
TITLE	ALT 86	CHEEK WHIENSHED	210DL MAZATO	24 HR TOTK TIPE 2 STURM	20
3 STRUCT	10				30 40
8		7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
8		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		9.2	22.0	6.38	90
8		8.6	52.0	7.07	100
8		9.0	62.0	7.75	110
8		9.5		8.61	120
8		10.0		9.47	130
8		11.0	198.0	11.18	140
8		12.0		12.89	150
8		13.00		14.79	160
8		14.00		16.68	170
8		15.00		18.58	180
8		15.1		18.60	190
9 ENDTBL					200
3 STRUCT	20				210
8		4.5	0.00	6.80	220
8		4.9		7.88	230
8		5.1		8.42	240
8		5.5		9.51	250
8		5.7		10.13	260
8		6.1		11.13	270
8		6.5		12.21	280
8		7.1		13.84	290
8		7.9	78.0	16.01	300
8		8.5	79.0	17.63	310
8		9.5	100.0	20.34	320
8		10.5	126.0	23.06	330
8		11.5	150.0	25.76	340
8		11.6	300.0	26.04	350
9 ENDTBL					360
3 STRUCT	30				370
8			0.00	0.10	380
8			0.6	0.61	390
8			1.5).86	400
8				1.12	410
8				1.62	420
8				2.13	430
8				2.64	440
8				3.27	450
8		24.0	27.0	5.91	460

				A (CONTINUED) *****	
8		25.0	39.0	5.18	470
8		26.0	49.0	6.45	480
8		27.0	57.0	7.72	490
8		27.1	200.00	7.74	500
9 ENDTBL					510
3 STRUCT	40				520
8		9.0	0.0	0.38	530
8		9.4	2.2	0.47	540
8		9.6	5.0	0.52	550
8		10.0	14.0	0.52	560
8		10.2	21.0	0.67	570
8		10.6	36.0	0.77	580
8		11.0	55.0	0.86	590
8		11.6	82.0	1.01	600
8		12.4	120.0	1.21	610
8		13.0	121.0	1.35	620
8		14.0	122.0	1.60	630
8		15.0	126.0	1.84	640
8		15.0	150.00	2.08	650
8		16.1	300.0	2.11	660
9 ENDTBL					670
3 STRUCT	50				680
8		2.4	0.00	22.00	690
8		2.8	2.0	26.86	700
8		3.0	7.0	29.29	710
8		3.4	16.0	34.16	720
8		3.6	24.0	36.59	730
8		4.0	40.0	41.46	740
8		4.4	60.0	46.32	750
8		5.0	90.0	53.62	760
8		5.8	120.0	63.35	770
8		6.4	121.0	70.65	780
8		7.4	210.0	82.81	790
8		8.4	250.00	94.98	800
8		10.4	334.0	119.31	810
8		12.4	400.0	143.63	820
9		12.5	800.0	143.70	830
9 ENDTBL					840
3 STRUCT	60				850
8		2.0	0.0	22.20	860
8		2.4	3.0	27.41	870
8		2.6	10.5	30.02	880
8		3.0	22.5	35.24	890
8		3.2	36.0	37.85	900
8		3.6	60.0	43.06	910
8		4.0	90.0	48.28	920

**	******	*	*****	**	::	18	0-80 LIST OF	INPUT DATA	(CONTINUED)	************	*******
8							4.6	135.0	56.11		930
8							5.4	180.0	66.55		940
8							6.0	181.0	74.38		950
8							7.0	315.0	87.42		960
8							8.0	375.0	100.47		970
8							8.1	700.0	100.50		980
9	ENDTBL										990
6	RUNOFF	1	10			6	0.84	51.	7.50	1	1000
	RESVOR					7	7.0			1	1010
	REACH		010	7			1750.	1.2	1.10	1	1020
6	RUNOFF	1	010				0.20	42.	0.19	1	1030
	ADDHYD			5	6	7				11	1040
	SAVMOV			7		6					1050
6	RESVOR	2	20	6		7	4.5			1	1060
6	REACH	3	020	7			2900.	0.28	1.94	1	1070
6	RUNOFF	1	020				0.28	53.	1.02	1	1080
	ADDHYD			5	6	7				11	1090
6	SAVMOV	5	020	7		1					1100
6	RUNOFF	1	30			6	0.37	49.	3.90	1	1110
6	RESVOR	2	30	6		7	21.0			1	1120
6	REACH	3	040	7		5	1300.	0.88	1.10	1	1130
6	RUNOFF	1	040			6	0.06	40.	1.00	1	1140
6	ADDHYD	4	040	5	6	7				1	1150
5	SAVMOV	5	040	7		6					1160
6	RESVOR	2	40	6		7	9.0			1 .	1170
6	REACH	3	050	7		5	1700.	1.6	1.45	1	1180
6	RUNOFF	1	049			6	0.11	40.	1.67	1	1190
	ADDHYD			5	6	7				1	1200
	SAVMOV			7		5					1210
	RUNOFF						0.36	85.	0.42	1	1220
	ADDHYD					7				1	1230
	REACH			7				0.44	1.94	1	1240
	RUNOFF						0.05	45.	0.90	1	1250
	ADDHYD				6					1 1	1260
	SAVMOV			7		5					1270
	SAVMOV			1		6					1280
	ADDHYD					7				1 1	1290
	REACH			7				0.30	1.94	1	1300
	RUNOFF			_			0.02	64.	0.12	1	1310
	ADDHYD			5	6					1 same	1320
	SAVMOV			7		5					1330
	RUNOFF				,		0.24	73.	0.62	1	1340
	ADDHYD			5			F44			1	1350
	REACH		110	7			500.	0.30	1.94	1	1360
	SAVMOV			5		7					1370
0	REACH	2	120	7		2	500.	0.30	1.94	1	1380

										D)***********	
6	RUNOFF	1	120			6	0.19	56.	0.74	1	139
6	ADDHYD	4	120	5	6	7				1 1	140
	SAVMOV		50	7		6					141
	RESVOR		50	6		7	2.4			111	142
6	REACH	3	130	7		5	1000.	0.30	1.94	1	143
	RUNOFF					6	0.05	74.	0.19	1	144
6	ADDHYD	4	130	5	6	7				1	145
6	SAVMOV	5	130	7		6					146
6	RESVOR	2	60	6		7	2.0			111	147
6	REACH	3	140	7		5	2500.	0.21	1.48	1	148
6	RUNOFF	1	140			6	0.20	66.	1.15	1	149
6	ADDHYD	4	140	5	6	7				1	150
6	SAVMOV	5	150	7		5					151
6	RUNDFF	1	149			6	0.08	50.	0.42	1	152
6	ADDHYD	4	150	5	6	7					153
6	REACH	3	150	7		5	300.	0.21	1.48	1	154
6	RUNOFF	1	150			6	0.01	40.	0.15	1	155
6	ADDHYD	4	150	5	6	7				1	156
6	SAVMOV	5	180	7		5					157
6	RUNOFF	1	180			6	0.28	50.	0.61	1	158
6	ADDHYD	4	180	5	6	7				1	159
6	REACH	3	180	7		5	1700.0	0.21	1.48	1	160
6	RUNOFF	1	180			6	0.11	41.	0.48	1	161
6	ADDHYD	4	180	5	6	7				11 1 1	162
	ENDATA										163
7	ALTER	3									169
6	RUNOFF	1	020			6	0.28	54.0	1.02		170
6	RUNOFF	1	140			6	0.20	68.0	0.19		171
6	RUNOFF	1	180			6	0.11	42.0	0.48		172
7	LIST										173
7	BASFLO	5					3.0				174
7	INCREM	6					0.1				175
7	COMPUT	7	10	18	30		0.0	7.0	1.0	2 2 86 01	176
	ENDCMP	1									177
	ENDJOB	2									169

RECORD ID

RECORD ID

42.0000

48.0000

.2000

.1100

1710

.1900

1720

.4800

TR20 XEQ 05-05-86 08:16	COGDELL'S CREEK WATERSHED STUDY NV5010 24	HR 10YR TYPE 2 STORM 20	JOB 1	PASS 1
REV PC 09/83(.2)	ALT 86	30		PAGE 1
OCHANGES TO STANDARD CONTROL L	IST FOLLOW			
EXECUTIVE CONTROL OPERATION A	LTER		RECORD ID	1690
STANDARD CONTROL OPERATION	RUNOFF CROSS SECTION 20		· RECORD ID	1700
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES = .21	800 54.0000	1.0200

DATA FIELD VALUES =

DATA FIELD VALUES =

OUTPUT OPTIONS IN EFFECT PEAK VOL

DUTPUT OPTIONS IN EFFECT PEAK VOL

STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 180

DUTPUT OPTIONS IN EFFECT PEAK VOL

OUTPUT HYDROGRAPH = 6

OUTPUT HYDROGRAPH = 6

STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 140

TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2) ALT 86 30 PAGE 2

EXECUTIVE CONTROL OPERATION LIST

RECORD ID 1730

LISTING OF CURRENT DATA

3	STRUCT	STRUCT NO. 10	ELEVATION	DISCHARGE	STORAGE
8			7.00	.00	4.33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
8			8.20	22.00	6.38
8			8.60	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	360.00	14.79
8			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600.00	18.60
9	ENDTBL				
		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	20			
8			4.50	.00	6.80
8			4.90	1.50	7,88
8			5.10	3.70	8.42
8			5.50	11.00	9.51
8			5.70	15.00	10.13
8			6.10	25.00	11.13
8			6.50	40.00	12.21
8			7.10	60.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
8			11.50	150.00	25.76
8			11.60	300.00	26.04
9	ENDTBL				

PAGE

JOB 1 PASS

3 STRUCT	STRUCT NO	. ELEVATION	DISCHARGE	STORAGE
8		24 00		
8		21.00	.00	.10
8		21.40	.60	.61
8		21.60	1.50	.86
8		21.80	2.50	1.12
8		22.20	5.20	1.62
8		22.60	8.20	2.13
8		23.00	11.00	2.64
8		23.50	20.00	3.27
		24.00	27.00	3.91
8		25.00	39.00	5.18
8		26.00	49.00	6.45
8		27.00	57.00	7.72
8 CARTE		27.10	200.00	7.74
9 ENDTBL				
3 STRUCT	STRUCT NO 40	. ELEVATION	DISCHARGE	STORAGE
8		9.00	00	70
8		9.40	.00	.38
8		9.60	2.20	.47
8			5.00	.52
8		10.00	14.00	.62
8		10.60	21.00	.67
8		11.00	36.00	.77
8		11.60	55.00 82.00	.86
8		12.40		1.01
8		13.00	120.00 121.00	
8		14.00	122.00	1.35
8		15.00	126.00	
8		16.00	150.00	1.84
8		16.10	300.00	2.11
9 ENDTBL		10.14	300.00	2.11
	OTRUCT NO			
3 STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
		2.40		00.44
8		2.40	.00	22.00
8		2.90	2.00	26.86
8		3.00	7.00	29.29
8		3.40	16.00	34.16
8		3.60	24.00	36.59
8		4.00	40.00	41.46
8		4.40	60.00	46.32
		5.00	90.00	53.62

ALT 86

TR20 XEQ 05-05-86 08:16

REV PC 09/83(.2)

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

PAGE

JOB 1 PASS 1

20

30

RE	V PC 09/83(.2)	ALT	86			
e desir San						
		5.80	120.00	63.35		
}		6.40	121.00	70.65		
3		7.40	210.00	82.81		
}		8.40	250.00	94.98		
3		10.40	334.00	119.31		
1		12.40	400.00	143.63		
age or de		12.50	800.00	143.70		
ENDTB						
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE		
STRUC	60					
		2.00	.00	22.20		
		2.40	3.00	27.41		
		2.60	10.50	30.02		
}		3.00	22.50	35.24		
ł		3.20	36.00	37.85		
1		3.60	60.00	43.06		
}		4.00	90.00	48.28		
		4.60	135.00	56.11		
· .		5.40	180.00	66.55		
1		6.00	181.00	74.38		
		7.00	315.00	87.42		
		8.00	375.00	100.47		
}		8.10	700.00	100.50		
ENDTB	•					
	TIM	E INCREMENT				
DIMHY)	.0200				
	.0000	.0300	.1000	.1900	.3100	
	.4700	.6600	.8200	.9300	.9900	
	1.0000	.9900	.9300	.8400	.7800	
	.6800	.5600	.4600	.3900	.3300	
	.2800	.2410	.2070	.1740	.1470	
	.1260	.1070	.0910	.0770	.0660	
100	.0550	.0470	.0400	.0340	.0290	
	.0250	.0210	.0180	.0150	.0130	
	.0110	.0090	.0080	.0070	.0060	
	.0050	.0040	.0030	.0020	.0010	
	.0000	.0000	.0000	.0000	.0000	
ENDTBL						

TR20 XEQ 05-05-86 08:16	COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM	20 JOB 1	PASS 1
REV PC 09/83(.2)	ALT 86	30	PAGE 5

TABLE NO. 5 RAINFL 1	TIME	INCREMENT .5000			
8	.0000	.0080	.0170	.0260	.0350
8	.0450	.0550	.0650	.0760	.0870
8	.0990	.1120	.1260	.1400	.1560
8	.1740	.1940	.2190	.2540	.3030
8	.5150	.5830	.6240	.6550	.6820
8	.7060	.7280	.7480	.7660	.7830
8	.7990	.8150	.8300	.8440	.8570
8	.8700	.8820	.8930	.9050	.9160
8	.9260	.9360	.9460	.9560	.9650
8	.9740	.9830	.9920	1.0000	1.0000
9 ENDTBL					
TABLE NO. 5 RAINFL 2	TIME	INCREMENT . 2500			
		.2000			
8	.0000	.0020	.0050	.0080	.0110
8	.0140	.0170	.0200	.0230	.0250
8	.0290	.0320	.0350	.0380	.0410
8	.0440	.0480	.0520	.0560	.0600
8	.0640	.0680	.0720	.0760	.0800
8	.0850	.0900	.0950	.1000	.1050
8	.1100	.1150	.1200	.1260	.1330
8	.1400	.1470	.1550	.1630	.1720
8	.1810	.1910	.2030	.2180	.2360
8	.2570	.2830	.3870	.6630	.7070
8	.7350	.7580	.7760	.7910	.8040
8	.8150	.8250	.8340	.8420	.8490
8	.8560	.8630	.8690	.8750	.8810
8	.8870	.8930	.8980	.9030	.9080
8	.9130	.9180	.9220	.9260	.9300
8	.9340	.9380	.9420	.9460	.9500
8	.9530	.9560	.9590	.9620	.9650
8	.9680	.9710	.9740	.9770	.9800
8	.9830	.9860	.9890	.9920	.9950
8	.9980	1.0000	1.0000	1.0000	1.0000
9 ENDTBL				110000	1.0000
TABLE NO.	TIME	INCREMENT			
5 RAINFL 3		.5000			
		1000			
8	.0000	.0100	.0220	.0360	.0510
8	.0470	.0830	.0990	.1160	.1350

PAGE

PASS 1

REV PC 09/8	33(.2)	ALT 8	5			30
	15/0	1700	2040	2774	0.00	
	.1560	.1790	.2040	.2330	.2680	
	.3100	.4250	.4800	.5200	.5500	and the second second second
	.5770	.6010	.6230	.6440	.6640	
	. 6830	.7010	.7190	.7360	.7530	
	.7690	.7850	.8000	.8150	.8300	
	.8440	.8580	.8710	.8840	.8960	
	.9080	.9200	.9320	.9440	.9560	•
	.9670	.9780	.9890	1.0000	1.0000	
ENDTBL						
TABLE NO.	TIME	INCREMENT				
RAINFL 4		.5000				
	0000	0040	0000	0.00	04/0	
	.0000	.0040	.0080	.0120	.0160	
	.0200	.0250	.0300	.0350	.0400	
	.0450	.0500	.0550	.0600	.0650	
	.0700	.0750	.0810	.0870	.0930	
	.0990	.1050	.1110	.1180	.1250	
	.1320	.1400	.1490	.1560	.1650	
	.1740	.1840	.1950	.2070	.2200	
	.2360	.2550	.2770	.3030	.4090	
	.5150	.5490	.5830	.6050	.6240	
	. 6400	.6550	.6690	.6820	.6940	
	.7050	.7160	.7270	.7380	.7480	
	.7580	.7670	.7760	.7840	.7920	
	.8000	.8080	.8160	.8230	.8300	
	.8370	.8440	.8510	.8580	.8640	
	.8700	.8760	.8820	.8880	.8940	
	.9000	.9060	.9110	.9160	.9210	
	.9260	.9310	.9360	.9410	.9460	
	.9510	.9560	.9610	.9660	.9710	
	.9760	.9800	.9840	.9880	.9920	
	.9960	1.0000	1.0000	1.0000	1.0000	
ENDTBL						
TABLE NO.	TIME	INCREMENT				
RAINFL 5		.5000				
	.0000	.0020	.0050	0000	0110	
	.0140	.0170	.0200	.0080	.0110	
	.0290	.0320			.0260	
	.0440	.0320	.0350	.0380	.0410	
			.0510	.0550	.0590	
	.0630	.0670	.0710	.0750	.0790	
	.0840	.0890	.0940	.0990	.1040	
	.1090	.1140	.1200	.1260	.1330	
	.1400	.1470	.1540	.1620	.1710	
	.1810	.1920	.2040	.2170	. 2330	

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TR20 XEQ 05-0	5-86 08:16	COGDEL	L'S CREEK WA	TERSHED STUD	Y NV5010 24 HF	R 10YR TYPE 2 STORY
REV PC 09	7/83(.2)	ALT 8	6			
8	2524	0770	7100			
8	.2520	.2770	.3180	.6380	.6980	
8	.7290	.7520	.7700	.7850	.7980	
	.8090	.8190	.8290	.8380	.8460	
8	.8540	.8610	.8680	.8740	.8800	
8	.8860	.8920	.8970	.9020	.9070	
8	.9120	.9170	.9210	.9250	.9290	
8	.9330	.9370	.9410	.9450	.9490	
8	.9530	.9570	.9600	.9630	.9660	
8	.9690	.9720	.9750	.9780	.9810	
8	.9840	.9870	.9900	.9930	.9960	
8	.9980	1.0000	1.0000	1.0000	1.0000	
9 ENDTBL						
TABLE NO.	TIME	INCREMENT				
5 RAINFL 6		.0200				
8	.0000	.0080	.0162	.0246	.0333	
8	.0425	.0524	.0630	.0743	.0863	
8	.0990	.1124	.1265	.1420	.1595	
8	.1800	.2050	.2550	.3450	.4370	
8	.5300	.6030	.6330	.6600	.6840	
8	.7050	.7240	.7420	.7590	.7750	
8	.7900	.8043	.8180	.8312	.8439	
8	.8561	.8678	.8790	.8878	.9002	
8	.9103	.9201	.9297	.9391	.9483	
8	.9573	.9661	.9747	.9832	.9916	
8	1.0000	1.0000	1.0000	1.0000	1.0000	
9 ENDTBL		******	1.0000	1.0000	1.0000	

0

STANDARD CONTROL INSTRUCTIONS

	6	RUNOFF	1	10			6	.8400	51.0000	7.50001	0	0	1	0	1
	6	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1
	5	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1
	6	RUNOFF	1	10			6	.2000	42.0000	.19001	0	0	1	0	1
	6	ADDHYD	4	10	5	6	7			1	1	0	1	0	1
	6	SAVMOV	5	10	7		6								
	6	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1
	6	REACH	3	20	7		5	2900.0000	.2800	1.94001	0	0	1	0	1
	6	RUNDFF	1	20			6	.2800	54.0000	1.02001	0	0	1	0	1
	4	ADDHYD	4	20	5	6	7							0	
	6	SAVMOV	5	20	7		1								
	6	RUNOFF	1	30			6	.3700	49.0000	3.90001	0	0	1	0	1
	5	RESVOR	2	30	6		7	21.0000			0				1
	6	REACH	3	40	7		5	1300.0000	.8800	1.10001					1
	6	RUNOFF	1	40			6	.0600	40.0000	1.00001				0	1
	6	ADDHYD	4	40	5	6	7							0	95.
	6	SAVMOV	5	40	7		6						ā	Non	
	6	RESVOR	2	40	6		7	9.0000		1	0	0	1	0	1
,	6	REACH	3	50	7		5	1700.0000	1.6000	1.45001					1
	6	RUNOFF	1	49			6	.1100	40.0000	1.67001					1
	6	ADDHYD	4	50	5	6	7							0	
	6	SAVMOV	5	50	7		5								
	6	RUNOFF	1	50			6	.3600	85.0000	.42001	0	0	1	0	1
	6	ADDHYD	4	50	5	6	7				0			1.5	- 52
	6	REACH	3	60	7		5	1400.0000	.4400	1.94001					
	6	RUNOFF	1	60			6	.0500	45.0000	.90001		163		0	-
	6	ADDHYD	4	60	5	6	7							0	-
	6	SAVMOV	5	70	7		5					ı		8	Ī
	6	SAVMOV	5	70	1		6								
		ADDHYD	4	70	5	6	7			1	1	0	1	0	1
		REACH	3	80	7		5	700.0000	.3000	1.94001		0	1	-	1
	6	RUNOFF	1	80			6	.0200	64.0000	.12001		-5	-	0	-
	6	ADDHYD	4	80	5	6	7			1	0			-	-
	6	SAVMOV	5	100	7		5				10.00		-		Ō
	6	RUNDFF	1	90			6	.2400	73.0000	. 62001	0	0	1	0	1
		ADDHYD	4	100	5	6		17/14			0	100		-	1
		REACH	3	110	7	ā	5	500.0000	.3000	1.94001			-	•	_
				120	5		7	200000				٧	•	•	•
	Ä	REACH	3	120	7		5	500.0000	.3000	1.94001	0	0	1	٥	1
		RUNOFF					6	.1900	56.0000	.74001					
		ADDHYD			5	6	5.0		001000					0	
		SAVMOV		50		-	6				•	٧	*	٧	4
		RESVOR		50			7	2.4000			1	1	1	0	1
		REACH			7		5	1000.0000	.3000	1.94001	-	-	_	-	-
)		RUNOFF					6	.0500	74.0000	.19001					
	-	witwi I					~	10000	7 11 0000	111111	v	v	1	v	4

4	ADDHYD	4	130	5	6	7			- 1	٥	٥	1	٥	1	
790	SAVMOV		0.00	7		6				٧	,		٧	,	
	RESVOR			,		7	2,0000			1	1	1	٥	1	
100	REACH			7		5	2500.0000	.2100	1.48001	200		-		-	
_	RUNDFF	-		•		6	.2000	68.0000	19001						
6	ADDHYD	4	140	5	6	_		001000		0					
6	SAVMOV	5	150	7	Ī	5				٠	•	•	Ť	•	
6	RUNDEF	1	149	i		6	.0800	50.0000	.42001	0	٥	1	٥	1	
6	ADDHYD	4	150	5	6			20.000	1			-	-	-	
6	REACH	3	150			1000	300.0000	.2100	1.48001						
6	RUNOFF	1	150			6	.0100	40.0000	.15001			1			
6	ADDHYD	4	150	5	6	7				0	25		- 6	55	
6	SAVMOV	5	180	7		5						•	i		
6	RUNOFF	1	180			6	.1100	42,0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7			1	1		-	775		
6	REACH	3	180	7		5	1700.0000	.2100	1,48001	0	0	1	0	1	
6	RUNOFF	1	180			6	.1100	41.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7						1	0	1	
	ENDATA														

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

END OF LISTING

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TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 - REV PC 09/83(.2) ALT 86 30 PAGE 10 EXECUTIVE CONTROL OPERATION BASFLO RECORD ID 1740 NEW BASEFLOW = 3.00 CFS EXECUTIVE CONTROL OPERATION INCREM RECORD ID 1750 MAIN TIME INCREMENT = .10 HOURS EXECUTIVE CONTROL OPERATION COMPUT RECORD ID 1760 FROM STRUCTURE 10 TO XSECTION 180 STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO. = 2 ANT. MOIST. COND= 2 ALTERNATE NO. =86 STORM NO. = 1 MAIN TIME INCREMENT = .10 HOURS OPERATION RUNOFF STRUCTURE 10 OUTPUT HYDROGRAPH= 6 AREA= .84 SQ MI INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS PEAK ELEVATION (FEET) PEAK TIME (HRS) PEAK DISCHARGE (CFS) 17.80 96.56 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS OPERATION RESVOR STRUCTURE 10 OUTPUT HYDROGRAPH= 7 INPUT HYDROGRAPH= 6 SURFACE ELEVATION= 7.00 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 18.14 96.09 9.50 RUNDFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS OPERATION REACH CROSS SECTION 10 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10 LENGTH = 1750.00 FEET MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS *** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS, 18.88 % OF PEAK.

PEAK ELEVATION (FEET)

(NULL)

PEAK DISCHARGE (CFS)

RUNOFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

98.84

PEAK TIME (HRS)

18.47

AREA= .20 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.08 121.81 (RUNOFF) 15.20 8.69 (RUNOFF) 16.46 7.85 (RUNOFF) 17.67 6.75 (RUNOFF) 19.66 5.63 (RUNOFF) 23.66 4.48 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 128.54 CFS-HRS, 10.62 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.08
 124.81
 (NULL)

 18.48
 104.33
 (NULL)

DRAINAGE AREA = 1.04 SQ.MI. TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS 11.00 DISCHE 3.00 3.00 3.00 3.92 32.22 3.00 3.00 3.00 3.00 3.00 12.00 DISCHE 103.79 122.67 68.37 48.48 36.93 31.73 29.33 27.26 26.59 24.26 13.00 DISCHG 23.05 22.09 20.81 20.53 19.65 19.34 18.92 18.32 18.54 18.63 14.00 DISCHG 19.37 20.36 21.44 23.10 24.57 26.43 28.32 30.58 34.13 38.16 15.00 DISCHE 42.29 46.34 50.23 53.88 56.65 58.95 61.10 63.08 64.97 66.81 16.00 DISCHG 48.45 71.17 74.19 77.35 91.75 80.46 83.41 85.78 87.66 89.73 17.00 DISCHG 93.63 95.35 96.91 98.34 99.64 100.81 101.85 103.37 102.75 103.42 DISCHE 18.00 103.47 103.75 104.01 104.19 104.30 104.32 104.27 104.13 103.93 103.65 19.00 DISCHG 103.31 102.89 102.39 101.82 101.18 100.46 99.66 98.79 97.73 95.99 20.00 DISCHG 94.45 93.18 91.97 90.75 89.51 88.27 87.03 85.81 84.61 83.43 21.00 DISCHG 82.27 81.14 80.03 78.94 77.87 76.82 75.80 72.84 74.79 73.81 22.00 DISCHG 71.90 71.02 70.32 69.71 69.16 48.43 68.11 67.58 57.04 66.49 23.00 DISCHG 65.93 65.36 64.77 64.17 63.56 62.94 62.32 61.69 60.95 59.41 24.00 DISCHG 57.89 55.77 53.21 51.69 50.62 49.72 48.91 48.18 47.50 46.85 25.00 DISCHG 46.24 45.66 45.10 44.55 44.02 43.50 42.98 42.48 41.98 41.49 26.00 DISCHE 41.00 40.51 40.03 39.55 39.07 38.60 38.12 37.63 37.15 36.66 27.00 DISCHG 36.16 35.66 35.15 34.64 34.13 33.61 33.09 32.57 32.04 31.51 28.00 DISCHE 30.97 30.44 29.90 29.36 28.82 28.28 27.74 27.21 26.67 26.13 29.00 DISCHS 25.68 25.30 24.94 24.59 24.24 23.52 23.14 23.89 22.75 22.35

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 1006.91 CFS-HRS, 83.21 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 20

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 4.50

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.90

24.55

6.08

20.10

93.18

9.18

RUNOFF VOLUME ABOVE BASEFLOW = 1.45 WATERSHED INCHES.

970.12 CFS-HRS. 80.17 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 20 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

*** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT

23.17 CFS, 25.69 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.04 20.25

24.51 93.15

(NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.44 WATERSHED INCHES, 966.86 CFS-HRS, 79.90 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 20

OUTPUT HYDROGRAPH= 6

AREA = .28 SQ MI INPUT RUNOFF CURVE = 54. TIME OF CONCENTRATION = 1.02 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0971 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.60 23.72

168.04 9.33

(RUNOFF) (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 366.66 CFS-HRS, 30.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 20

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) 12.61

PEAK DISCHARGE (CFS) 190.93

PEAK ELEVATION (FEET) (NULL)

20.06

104.86

(NULL)

TIME (HRS)		FIRST HYD	ROGRAPH POIN	T = .00	HOURS	TIME INCRE	MENT = .1	O HOURS	DRAINAGE	AREA =	1.32 SQ.MI.
11.00	DISCHE	3.	00 3.00	3.0	1 3.04	3.14	3.39	4.10	5.77	9.85	19.17
12.00	DISCHE	36.	40 64.15	100.6	9 138.20	167.76	185.17	190.87	187.22	176.62	161.62
13.00	DISCHE	145.	61 131.49	119.8	4 109.90	101.25	93.59	86.94	81.13	75.98	71.45
14.00	DISCHE	67.	48 64.04	61.0	7 58.52	56.35	54.54	53.05	51.84	50.88	50.19
15.00	DISCHE	49.	81 50.04	50.8	4 52.09	53.70	55.54	57.46	59.38	61.10	62.78
16.00	DISCHE	64.	47 66.18	67.9	6 69.85	71.88	74.04	76.29	78.11	79.70	81.18
17.00	DISCHG	82.	62 84.03	85.4	6 86.90	88.36	89.85	91.37	92.62	93.00	93.12

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	7										
18.00	DISCHE	93.13	93.07	92.94	92.76	92.54	05 77	07.74	04.07	04 A 7	07 1
19.00			99.25	100.20		92.56					
20.00	DISCHE	104.82	104.84	104.68	101.07	101.86	102.58	103.23			
1.00	DISCHE					103.97	103.50	102.99	102.46	101.92	
2.00				99.62		98.36 91.08			96.31 88.87		
3.00			88.09	88.03				89.59 87.77	88.87 87.70		88.
4.00	DISCHE			85.39	83.47	81.26					69.
5.00			66.13	64.55	63.10	61.74			74.08		
6.00	DISCHG	53.21	52.05		49.93	48.95	60.27 48.03	58.70	57.19		54.
7.00	DISCHE	44 00			41.91	41.26	40.61	47.15	46.32 39.28	45.51	44.
8.00	DISCHG	77 00			35.42			33.63		38.60 32.46	37.9 31.8
9.00	DISCHG	31.31	30.74	30.19	29.66	29.14	34.22 28.64	28.16			26.7
7.00	DISCHO	31.31	30.74	30.17	27.00	27.14	20.04	20.10	27.69	21.23	20.
UNOFF	VOLUME ABOVE	BASEFLOW :	1.57 WA	TERSHED IN	ICHES, 13	33.52 CFS-	HRS, 110	.20 ACRE-F	EET; BAS	EFLOW =	3.00 C
RATION	SAVMOV CR										
	INPUT HYDR	ROGRAPH= 7	OUTPUT	HYDROGRAF	H= 1						
RATION	AREA= .	ROGRAPH= 6	INPUT RUN			ME OF CONC	ENTRATION=	3.90 HOU	RS		
RATION	OUTPUT HYD AREA= .	ROGRAPH= 6	INPUT RUN			ME OF CONC	ENTRATION=	3.90 HOU	RS		
RATION	OUTPUT HYD AREA= .	OROGRAPH= 6 37 SQ MI HYDROGRAPH 1	INPUT RUN IME INCRE	MENT= .10 AK DISCHAR	00 HOURS				RS		
RATION	OUTPUT HYD AREA= . INTERNAL H	PROGRAPH= 6 37 SQ MI HYDROGRAPH 1 HRS)	INPUT RUN IME INCRE	MENT= .10	00 HOURS	PE		ON (FEET)	RS		
	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(PROGRAPH= 6 37 SQ MI HYDROGRAPH 1 (HRS)	INPUT RUN IME INCRE	MENT= .10 AK DISCHAR 60.58	6E (CFS)	PE	AK ELEVATI (RUNOFF	ON (FEET))		EFLQ₩ =	.00 CF
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95	PROGRAPH= 6 37 SQ MI HYDROGRAPH 1 (HRS)	INPUT RUN IME INCRE	MENT= .10 AK DISCHAR 60.58	6E (CFS)	PE	AK ELEVATI (RUNOFF	ON (FEET))		EFLO# =	.00 CF
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE	ROGRAPH = 6 37 SQ MI HYDROGRAPH 1 (HRS) : BASEFLOW =	INPUT RUN IME INCRE PE	MENT= .10 AK DISCHAR 60.58 TERSHED IN	GE (CFS) CHES, 3	PE	AK ELEVATI (RUNOFF	ON (FEET))		EFLOW =	.00 CR
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR	PROGRAPH= 6 37 SQ MI HYDROGRAPH 1 (HRS) E BASEFLOW = CRUCTURE 30 (OGRAPH= 6	INPUT RUN IME INCRE PE 1.57 #A	MENT= .10 AK DISCHAR 60.58 TERSHED IN	GE (CFS) CHES, 3	PE	AK ELEVATI (RUNOFF	ON (FEET))		EFLQ₩ =	.00 CF
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR	ROGRAPH = 6 37 SQ MI HYDROGRAPH 1 (HRS) : BASEFLOW =	INPUT RUN IME INCRE PE 1.57 #A	MENT= .10 AK DISCHAR 60.58 TERSHED IN	GE (CFS) CHES, 3	PE	AK ELEVATI (RUNOFF	ON (FEET))		EFLO# =	.00 CF
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL	PROGRAPH= 6 37 SQ MI HYDROGRAPH 1 HRS) BASEFLOW = RUCTURE 30 HOGRAPH= 6 EVATION=	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00	MENT= .10 AK DISCHAR 60.58 TERSHED IN HYDROGRAP	GE (CFS) CHES, 3 H= 7	PE:	AK ELEVATI (RUNOFF HRS, 31	ON(FEET)) .04 ACRE-F		EFLQ# =	.00 CF
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL	PROGRAPH= 6 37 SQ MI HYDROGRAPH 1 (HRS) E BASEFLOW = CRUCTURE 30 (OGRAPH= 6	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00	MENT= .10 AK DISCHAR 60.58 TERSHED IN HYDROGRAP	GE (CFS) H= 7 GE (CFS)	PE:	AK ELEVATI (RUNOFF HRS, 31	ON(FEET) .04 ACRE-F ON(FEET)		EFLOW =	.00 CF
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE I RESVOR ST INPUT HYDR SURFACE EL	ROGRAPH= 6 37 SQ MI HYDROGRAPH 1 HRS) BASEFLOW = RUCTURE 30 HOGRAPH= 6 EVATION= HRS)	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE	MENT= .10 AK DISCHAR 60.58 TERSHED IN HYDROGRAP AK DISCHAR 48.05	GE (CFS) CHES, 3 H= 7 GE (CFS)	PE: 75.61 CFS-I PE:	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91	ON(FEET) .04 ACRE-F .00 ON(FEET)	EET; BAS		
UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE I RESVOR ST INPUT HYDR SURFACE EL PEAK TIME(16.21	ROGRAPH= 6 37 SQ MI HYDROGRAPH 1 HRS) BASEFLOW = RUCTURE 30 HOGRAPH= 6 EVATION= HRS)	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE	MENT= .10 AK DISCHAR 60.58 TERSHED IN HYDROGRAP AK DISCHAR 48.05	GE (CFS) CHES, 3 H= 7 GE (CFS)	PE: 75.61 CFS-I PE:	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91	ON(FEET) .04 ACRE-F .00 ON(FEET)	EET; BAS		
UNOFF RATION UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL PEAK TIME(16.21 VOLUME ABOVE	PROGRAPH = 6 37 SQ MI HYDROGRAPH II HRS) BASEFLOW = RUCTURE 30 OGRAPH = 6 EVATION = HRS) BASEFLOW =	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE 1.51 WA	MENT= .10 AK DISCHAR 60.58 TERSHED IN HYDROGRAP AK DISCHAR 48.05	GE (CFS) GE (CFS) CHES, 3 CHES, 3	PE: 75.61 CFS-I PE:	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91	ON(FEET) .04 ACRE-F .00 ON(FEET)	EET; BAS		
UNOFF RATION UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL PEAK TIME(16.21 VOLUME ABOVE	PROGRAPH = 6 37 SQ MI HYDROGRAPH II HRS) BASEFLOW = RUCTURE 30 HRS) BASEFLOW = HRS) BASEFLOW = HRS)	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE 1.51 WA	MENT= .10 AK DISCHAR 60.58 TERSHED IN HYDROGRAP AK DISCHAR 48.05 TERSHED IN	OO HOURS GE(CFS) CHES, 3 H= 7 CHES, 3 H= 5	PE: 75.61 CFS-I PE: 60.28 CFS-I	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91 HRS, 29	ON(FEET) .04 ACRE-F ON(FEET) .77 ACRE-F	EET; BAS	EFLOW =	.00 CF
UNOFF RATION UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL PEAK TIME(16.21 VOLUME ABOVE I REACH CR INPUT HYDR LENGTH =	PROGRAPH = 6 37 SQ MI PYDROGRAPH I PHRS) BASEFLOW = PRUCTURE 30 PROGRAPH = 6 PRUCTURE 30 PROGRAPH = 6 PROGRAPH = 6 PROGRAPH = 6 PROGRAPH = 7 PROGRA	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE 1.51 WA 40 OUTPUT ET I	MENT= .10 AK DISCHAR	GE (CFS) CHES, 3 H= 7 CHES, 3 H= 5 FFICIENTS	PE: 75.61 CFS-1 PE: 60.28 CFS-1 RELATED TO	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91 HRS, 29	ON(FEET) .04 ACRE-F ON(FEET) .77 ACRE-F	EET; BAS EET; BAS	EFLOW =	.00 CF
UNOFF RATION	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL PEAK TIME(16.21 VOLUME ABOVE I REACH CR INPUT HYDR LENGTH =	PROGRAPH = 6 37 SQ MI HYDROGRAPH II HRS) BASEFLOW = RUCTURE 30 HRS) BASEFLOW = HRS) BASEFLOW = HRS)	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE 1.51 WA 40 OUTPUT ET I	MENT= .10 AK DISCHAR	GE (CFS) CHES, 3 H= 7 CHES, 3 H= 5 FFICIENTS	PE: 75.61 CFS-1 PE: 60.28 CFS-1 RELATED TO	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91 HRS, 29	ON(FEET) .04 ACRE-F ON(FEET) .77 ACRE-F	EET; BAS EET; BAS	EFLOW =	
UNOFF RATION UNOFF	OUTPUT HYD AREA= . INTERNAL H PEAK TIME(14.95 VOLUME ABOVE RESVOR ST INPUT HYDR SURFACE EL PEAK TIME(16.21 VOLUME ABOVE I REACH CR INPUT HYDR LENGTH =	RUCTURE 30 ROGRAPH= 6 RUCTURE 30 ROGRAPH= 6 RUCTURE 30 ROGRAPH= 6 RVATION= RHRS) BASEFLOW = ROSS SECTION ROGRAPH= 7 1300.00 FE RTT-KIN ROUT	INPUT RUN IME INCRE PE 1.57 WA OUTPUT 21.00 PE 1.51 WA 40 OUTPUT ET III	MENT= .10 AK DISCHAR	GE (CFS) CHES, 3 H= 7 GE (CFS) CHES, 3 H= 5 FFICIENTS	PE: 75.61 CFS-1 PE: 60.28 CFS-1 RELATED TO	AK ELEVATI (RUNOFF HRS, 31 AK ELEVATI 25.91 HRS, 29 CROSS SEC TIME =	ON(FEET) .04 ACRE-F ON(FEET) .77 ACRE-F TIONAL ARE .30 HOURS	EET; BAS EET; BAS	EFLOW =	.00 CF

29.67 ACRE-FEET;

358.97 CFS-HRS,

BASEFLOW =

.00 CFS

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES,

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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OPERATION RUNOFF CROSS SECTION 40

OUTPUT HYDROGRAPH= 6

.06 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.72

10.21

(RUNOFF)

23.76

1.21

(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.59 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.73 16.54

10.35 49.80 (NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET;

BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 40

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.90

9.83

9.81

16.60

49.78

10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.02 16.72

9.78

(NULL)

49.77

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.40 WATERSHED INCHES.

389.36 CFS-HRS, 32.18 ACRE-FEET; BASEFLOW =

.00 CFS

TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS

REV PC 09/83(.2) ALT 86 30 PAGE 15

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

.11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 13.33 13.76 (RUNOFF) 23.80 2.20 (RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 59.78 CFS-HRS. 4.94 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDITION SO

INPUT HYDROGRAPHS= 5.6 **OUTPUT HYDROGRAPH= 7**

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FFFT) 13.16 22.91

(NULL) 16.65 53.98 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES. 449.14 CFS-HRS. 37.12 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50 OUTPUT HYDROGRAPH= 6

> .36 SQ MI INPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.13 1078.73 (RUNOFF) 19.65 24.75 (RUNOFF)

23.65 18.64 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, .00 CFS 100.83 ACRE-FEET: BASEFLOW =

OPERATION ADDHYD CROSS SECTION 50

OUTPUT HYDROGRAPH= 7 INPUT HYDROGRAPHS= 5,6

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.13 1079.95 (NULL) 15.49 90.75 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES. 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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OPERATION REACH CROSS SECTION 60

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1400.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .44, M= 1.94.

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.13 1079.95 (NULL)
16.49 90.76 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 60

OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 45. TIME OF CONCENTRATION= .90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.56
 16.56
 (RUNOFF)

 23.72
 1.26
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.88 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 60

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.14 1086.21 (NULL)
16.49 93.02 (NULL)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .95 SQ.MI. DISCHG .00 .00 .00 .02 .10 .26 .49 .75 1.04 1.33 5.00 DISCHE 1.62 1.91 2.20 2.49 2.77 3.04 3.32 3.58 3.84 4.10 4.67 5.18 5.80 6.89 7.71 DISCHG 6.00 4.36 5.40 7.32 8.07 DISCHG 8.75 9.07 9.38 9.69 9.99 10.29 10.58 10.86 11.14 11.41 7.00 8.00 DISCHG 11.68 12.08 12.82 13.80 14.96 16.27 17.48 18.44 19.17 19.76 20.91 21.91 23.16 24.29 31.86 33.18 34.84 37.10 25.16 26.02 40.08 43.57 9.00 DISCHG 20.27 27.23 29.92 28.55 47.95 52.84 DISCHG 30.90 31.86 10.00 58.21 54.10 90.75 101.27 130.10 11.00 DISCHE 70.07 76.45 83.02 208.30 333.15 12.00 DISCHG 836.25 1068.68 1030.91 805.58 576.69 421.03 324.82 265.51 227.09 199.69 13.00 DISCHG 178.52 161.72 147.53 136.12 127.20 119.75 113.25 107.02 101.45 96.86 14.00 DISCHG 93.29 90.54 88.31 86.99 86.63 86.30 86.13 85.74 85.37 85.47 15.00 DISCHG 86.26 87.42 88.85 90.29 90.92 90.62 90.19 90.11 90.41 90.86 16.00 DISCHG 91.35 91.83 92.25 92.60 92.86 93.02 92.76 91.64 89.95 88.43 17.00 DISCHG 87.35 86.55 85.87 85.24 84.63 84.03 83.43 82.82 82.11 80.76 78.62 18.00 DISCHE 76.40 74.60 73.30 72.20 71.21 70.27 69.38 68.51 67.67

PASS 1

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DEU	DC 00/07/ 5		ALT DI								
KEY	PC 09/83(.2		ALT 86						30		
19.00	DISCHE	66.86	66.07	65.33	64.68	63.99	63.30	62.62	. 61.96	61.19	59.85
20.00	DISCHE	57.76	55.58	53.88	52.62	51.60	50.72	49.94	49.23	48.56	47.93
21.00	DISCHE	47.34	46.79	46.26	45.76	45.28	44.93	44.40	43.97	43.53	43.10
22.00	DISCHE	42.70	42.29	41.89	41.51	41.15	40.80	40.46	40.14	39.84	39.55
23.00	DISCHE	39.27	39.01	38.75	38.51	38.28	38.06	37.85	37.65	37.37	36.46
24.00	DISCHG	34.72	32.26	28.67	24.55	21.18	18.97	17.56	16.54	15.77	15.13
25.00	DISCHE	14.59	14.12	13.71	13.34	13.02	12.72	12.45	12.20	11.96	11.76
26.00	DISCHS	11.57	11.41	11.25	11.11	10.97	10.84	10.71	10.57	10.42	10.28
27.00	DISCHE	10.13	9.97	9.81	9.64	9.47	9.29	9.11	8.93	8.74	8.54
28.00	DISCHG	8.34	8.13	7.93	7.72	7.51	7.29	7.08	6.87	6.67	6.46
29.00	DISCHG	6.26	6.06	5.87	5.68	5.49	5.32	5.14	4.99	4.87	4.74
						3.47	0.02	3117	71.77	7.07	10/1
RUNOFF	VOLUME ABOVE	BASEFLOW	= 2.79 WA	TERSHED IN	CHES, 17	9.15 CFS-1	IRS, 141.	24 ACRE-FI	EET; BASE	EFLOW =	.00 CFS

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 6

OPERATION ADDHYD CROSS SECTION 70

PEAK TIME(HRS)

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)

		2000								MIT 11 1 :				
		12.	15			1164	.89		(NULL)					
		17.	72			175	. 45		(NULL)					
		19.	49			165	.88		(NULL)					
1	TIME (HRS)		FIRST	HYDROGRAPH	POINT	= .00	HOURS	TIME INCREME	NT = .10	HOURS	DRAINAGE	AREA =	2.27 SQ.MI.	
	4.00	DISCHE		3.00	3.00	3.00	0 3.02	3.10	3.26	3.49	3.75	4.04	4.33	
	5.00	DISCHE		4.62	4.91	5.20	0 5.49	5.77	6.04	6.32	6.58	6.84	7.10	
	6.00	DISCHE		7.36	7.67	8.19	8.90	9.40	9.89	10.32	10.71	11.07	11.41	
	7.00	DISCHE		11.75	12.07	12.3	12.69	12.99	13.29	13.58	13.86	14.14	14.41	
	8.00	DISCHE		14.68	15.08	15.83	2 16.80	17.96	19.27	20.48	21.44	22.17	22.76	
	9.00	DISCHE		23.27	23.91	24.9	1 26.16	27.29	28.16	29.02	30.23	31.66	32.92	
	10.00	DISCHE		33.90	34.86	36.19	37.84	40.10	43.08	46.57	50.95	55.84	61.21	
	11.00	DISCHE		67.10	73.07	79.4	86.06	93.89	104.67	134.20	214.07	343.00	558.67	
	12.00	DISCHG	1	872.65 11	32.82	1131.60	943.78	744.44	606.20	515.69	452.73	403.70	361.31	
	13.00	DISCHG		324.13 2	93.22	267.3	7 246.01	228.46	213.34	200.20	188.14	177.42	168.31	
	14.00	DISCHE		160.76	54.59	149.38	145.51	142.98	140.84	139.17	137.58	136.25	135.66	
	15.00	DISCHE		136.07 1	37.46	139.69	9 142.38	144.52	146.15	147.65	149.50	151.51	153.64	
	16.00	DISCHE		155.82 1	58.01	160.21	1 162.45	164.74	167.06	169.05	169.75	169.64	169.61	
	17.00	DISCHG		169.97 1	70.58	171.33	2 172.14	173.00	173.89	174.80	175.44	175.11	173.88	
	18.00	DISCHS		171.75 1	69.47	167.54	4 166.06	164.76	163.98	164.01	164.25	164.54	164.83	
	19.00	DISCHE		165.09 1	65.32	165.52	2 165.74	165.85	145.88	165.84	165.75	165.45	164.47	
	20.00	DISCHG		162.58 1	60.42	158.5	157.00	155.57	154.23	152.94	151.68	150.47	149.30	

PEAK ELEVATION (FEET)

PASS 1

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TR20 XEQ	05-05-86 (08:16	COGDELL'S	CREEK WATE	RSHED ST	UDY NV5010 2	24 HR 10YF	R TYPE 2 STO	IRM 20)	JOB 1
REV	PC 09/83(.2	2)	ALT 86						30)	
21.00	DISCHG		147.01	145.88	144.76	143.64	142.52	141.41	140.28	139.13	137.97
22.00	DISCHG	136.82	135.66		133.35	132.22	131.12	130.05	129.01	128.25	127.79
23.00	DISCHE	127.43	127.10		126.48		125.90		125.35	124.99	123.95
24.00	DISCH6	122.03				102.44					
25.00	DISCHG	82.45	80.25	78.26	76.44	74.76	72.99	71.15	69.39	67.74	66.20
26.00	DISCHS	64.78 54.13	63.45	62.21	61.04	59.93	58.87	57.86		55.94	
27.00	DISCHG	54.13	53.25	52.40	51.56	50.73	49.91	49.07	48.20	47.34	46.48
28.00	DISCH6	45.63	44.79	43.96	43.14	42.32		40.71			38.34
29.00	DISCHG	37.57	36.81	36.06	35.34	34.64	33.96	33.31	32.68	32.10	31.52
RUNOFF	VOLUME ABOV	E BASEFLOW =	2.08 WA	TERSHED IN	CHES,	042.67 CFS-	HRS, 25	1.45 ACRE-F	EET; BAS	EFLOW =	3.00 CFS
OPERATION		ROSS SECTION ROGRAPH= 7		HYDROGRAP	H= 5						
		700.00 FE				RELATED TO	CROSS SE	CTIONAL ARE	A. Y= .	30. H=	1.94
	MODIFIED	ATT-KIN ROUT	ING COEFF	ICIENT = 1	.00	PEAK TRAVEL	TIME =	.00 HOURS	n,	00, 11-	11/4
111	WARNING R	EACH 80 ATT	-KIN COEF	F.(C) GREA	TER THAN	0.667, CONS	IDER REDU	CING MAIN T	IME INCREM	ENT ###	
	PEAK TIME	(HRS)	PE	AK DISCHAR	GE (CFS)	PE	AK ELEVAT	ION (FEET)			
	12.15			1164.89			(NULL)				
	17.72			175.45			(NULL)				
	19.49			165.88			(NULL)				
RUNOFF	VOLUME ABOVI	E BASEFLOW =	2.08 WA	TERSHED IN	CHES, 3	042.67 CFS-I	HRS, 25	1.45 ACRE-FI	EET; BAS	EFLOW =	3.00 CFS
OPERATION		ROSS SECTION									
		DROGRAPH= 6 .02 SQ MI		OFF CURVE=	64. T	THE OF CONG	ENTRATION:	= 12-HOU	25		
	INTERNAL I	HYDROGRAPH T	IME INCRE	MENT= .018	50 HOURS	agg sell					
	PEAK TIME		PE	AK DISCHARE 54.99		PEA	AK ELEVAT	A THE RESIDENCE OF STREET			
DUNOCE						to represent the second					
RUNUFF	ANTOWE HROAF	E BASEFLO₩ =	2.98 WAT	IERSMED INC	CHES,	38.49 CFS-H	IRS,	3.18 ACRE-FE	ET; BASE	FLOW =	.00 CFS
OPERATION	ADDHYD CF	ROSS SECTION	80								
	INPUT HYDE	ROGRAPHS= 5,	6 OUTF	PUT HYDROGR	RAPH= 7						
	PEAK TIME	(HRS)	PEA	K DISCHARE	E (CFS)	PEA	K ELEVATI	ON (FEET)			
	12.14			1184.64			(NULL)				
	17.71			176.77			(NULL)				
	19.49			166.96			(NULL)				
RUNOFF 1	OLUME ABOVE	BASEFLOW =	2.08 WAT	ERSHED INC	HES, 3	081.15 CFS-H	IRS, 254	.63 ACRE-FE	ET; BASE	FLOW =	3.00 CFS

TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 90

OUTPUT HYDROGRAPH= 6

AREA= .24 SQ MI INPUT RUNOFF CURVE= 73. TIME OF CONCENTRATION= .62 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.27
 434.61
 (RUNOFF)

 19.66
 14.73
 (RUNOFF)

 23.66
 11.19
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.93 WATERSHED INCHES, 608.63 CFS-HRS, 50.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 100

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.17
 1575.11
 (NULL)

 16.68
 192.50
 (NULL)

 17.71
 195.10
 (NULL)

 19.50
 181.68
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 3689.79 CFS-HRS, 304.92 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** MARNING REACH 110 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.17	1575.11	(NULL)
16.68	192.50	(NULL)
17.71	195.10	(NULL)
19.50	181.58	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 3689.79 CFS-HRS, 304.92 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF. (C) SREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)	
12.17	1575.11	(NULL)	
16.68	192.50	(NULL)	
17.71	195.10	(NULL)	
19.50	181.68	(NULL)	

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 3689.79 CFS-HRS, 304.92 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 56. TIME OF CONCENTRATION= .74 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0987 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.38	159.29	(RUNOFF)
19.68	8.61	(RUNOFF)
23.67	6.65	(RUNOFF)

PEAK DISCHARGE (CFS)

1701.00

204 94

RUNOFF VOLUME ABOVE BASEFLOW = 2.22 WATERSHED INCHES, 271.72 CFS-HRS, 22.45 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

12.19

14.67

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

	10.	0/		204.8	4		(NULL)					
	17.	70		205.7	1		(NULL)					
	19.	50		190.2	8		(NULL)					
TIME (HRS)		FIRST HYDROGI	RAPH POINT	= .00 H	OURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	
4.00	DISCHE	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33	
5.00	DISCHE	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10	
6.00	DISCHG	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41	
7.00	DISCHG	11.75	12.07	12.38	12.69	12.99	13.30	13.62	13.96	14.33	14.71	
8.00	DISCHG	15.11	15.65	16.55	17.73	19.11	20.68	22.18	23.45	24.48	25.36	
9.00	DISCHE	26.17	27.10	28.43	30.05	31.57	32.84	34.14	35.80	37.74	39.53	
10.00	DISCHE	41.03	42.53	44.41	46.70	49.75	53.63	58.32	64.09	70.62	77.95	
11.00	DISCHE	85.99	94.52	103.70	113.50	125.22	140.74	184.79	289.19	466.16	779.51	
12.00	DISCHG	1229.34	1607.92	1698.69	1539.99	1298.92	1079.45	901.93	767.23	663.80	579.86	
13.00	DISCHG	512.00	456.38	411.05	373.98	343.54	318.23	296.28	276.82	259.58	244.73	
14.00	DISCHE	232.53	222.30	213.60	206.65	201.28	196.65	192.46	188.50	184.96	182.39	
15.00	DISCHE	181.17	181.32	182.67	184.68	186.11	186.81	187.31	188.14	189.26	190.70	
16.00	DISCHE	192.41	194.29	196.29	198.40	200.62	202.88	204.57	204.79	203.95	203.02	
17.00	DISCHE	202.48	202.34	202.54	202.99	203.61	204.33	205.14	205.71	205.23	203.56	
18.00	DISCHG	200.84	197.69	194.82	192.49	190.52	189.27	189.98	189.02	189.16	189.36	

PASS 1

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PF.	EV PC 09/83(.2	2)	ALT 86			,			3(
anak Awa	27 74 97740(12		HL! UU						31		
19.00	DISCH6	189.56	189.75	100 07	100 14	100 DE	100.20	100 DE	100.17	100.70	100.70
20.00				189.93	190.14	190.25	190.28	190.25	190.16	189.78	
21.00		185.91	182.87	180.05	177.62	175.52	173.70	172.09	170.62	169.25	
22.00		166.76	165.57	164.42	163.28	162.15	161.03	159.91	158.78	157.64	
23.00		155.34	154.19	153.04	151.90	150.78	149.69	148.62	147.59	146.84	
24.00		146.04	145.72	145.41	145.11	144.83	144.55	144.28	144.01	143.55	142.08
		139.50	135.08	128.06	119.61	111.41	104.43	98.65		89.82	86.43
25.00		83.51	80.99	78.77	76.79	75.00	73.16	71.26	69.46	67.78	66.22
26.00			63.46	62.21	61.04	59.93	58.87	57.86	56.88	55.94	
27.00		54.13	53.25	52.40	51.56	50.73	49.91	49.07	48.20	47.34	
28.00		45.63	44.79	43.96	43.14	42.32	41.51	40.71	39.91	39.12	
29.00) DISCHG	37.57	36.81	36.06	35.34	34.64	33.96	33.31	32.68	32.10	31.52
RUNOF	F VOLUME ABOV	E BASEFLOW	= 2.26 WA	TERSHED IN	NCHES, 39	761.51 CFS-	-HRS, 327	.38 ACRE-F	EET; BAS	SEFLOW =	3.00 CFS
PERATI	ON SAVMOV S										
	INPUT HYD	ROGRAPH= 7	OUTPUT	HYDROGRAF	PH= 6						
		*/ */									
PERATI	ON RESVOR S	TRUCTURE 50									
		INDEIDUE 30									
		ROGRAPH= 6	OUTPUT	HYDROGRAF	PH= 7						
	INPUT HYD			HYDROGRAF	PH= 7						
	INPUT HYD	ROGRAPH= 6		HYDROGRAF	PH= 7						
	INPUT HYD	ROGRAPH= 6 LEVATION=	2.40			PE	AK ELEVATI	ON (FEET)			
	INPUT HYD SURFACE E	ROGRAPH= 6 LEVATION=	2.40		RGE (CFS)	PE	EAK ELEVATI 10.98	ON (FEET)			
IME (HR	INPUT HYD SURFACE E PEAK TIME 13.37	ROGRAPH= 6 LEVATION= (HRS)	2.40 PE	SAK DISCHAR 353.22	RGE (CFS)		10.98		DPA I NAGE	APFA =	2 72 50 1
	INPUT HYD SURFACE E PEAK TIME 13.37 PS) FI	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA	2.40 PE	SAK DISCHAR 353.22 = .00 HO	RGE (CFS) ? JURS 1	IME INCREM	10.98 ENT = .10	HOURS			
9.00	INPUT HYD SURFACE E PEAK TIME 13.37 (S) FI DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00	2.40 PE APH POINT 3.00	353.22 = .00 HO	RGE (CFS) ? DURS 1 3.43	TIME INCREM	10.98 HENT = .10 4.37	HOURS 4.86	5.37	5.90	6.45
9.00 9.00	INPUT HYD SURFACE E PEAK TIME 13.37 (S) FI DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84	2.40 PE APH POINT 3.00 2.84	353.22 = .00 HO 3.00 2.84	RGE (CFS) ? HURS 1 3.43 2.86	TIME INCREM 3.89 2.88	10.98 HENT = .10 4.37 2.89	HOURS 4.86 2.91	5.37 2.93	5.90 2.96	6.45 2.98
9.00 9.00 10.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02	2.40 PE APH POINT 3.00 2.84 7.55	353.22 = .00 H0 3.00 2.84 8.09	RGE (CFS) 2 BURS 1 3.43 2.86 8.66	TIME INCREM 3.89 2.88 9.26	10.98 HENT = .10 4.37 2.89 9.90	HOURS 4.86 2.91 10.60	5.37 2.93 11.37	5.90 2.96 12.21	6.45 2.98 13.16
9.00 10.00 10.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00	2.40 PE APH POINT 3.00 2.84 7.55 3.02	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05	RGE (CFS) PURS 1 3.43 2.86 8.66 3.07	TIME INCREM 3.89 2.88 9.26 3.10	10.98 HENT = .10 4.37 2.89 9.90 3.13	HOURS 4.86 2.91 10.60 3.16	5.37 2.93 11.37 3.19	5.90 2.96 12.21 3.23	6.45 2.98 13.16 3.27
9.00 9.00 10.00 10.00 11.00	INPUT HYD SURFACE E PEAK TIME 13.37 IS) FI DISCHG ELEV DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10	HURS 1 3.43 2.86 8.66 3.07 19.56	TIME INCREM 3.89 2.88 9.26 3.10 22.23	10.98 HENT = .10 4.37 2.89 9.90 3.13 25.21	4.86 2.91 10.60 3.16 28.89	5.37 2.93 11.37 3.19 34.46	5.90 2.96 12.21 3.23 44.57	6.45 2.98 13.16 3.27 63.90
9.00 9.00 10.00 10.00 11.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32	2.40 PEAPH POINT 3.00 2.84 7.55 3.02 15.35 3.37	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43	RGE (CFS) PURS 1 3.43 2.86 8.66 3.07 19.56 3.49	3.89 2.88 9.26 3.10 22.23 3.56	10.98 HENT = .10 4.37 2.89 9.90 3.13 25.21 3.63	4.86 2.91 10.60 3.16 28.89 3.72	5.37 2.93 11.37 3.19 34.46 3.86	5.90 2.96 12.21 3.23 44.57 4.09	6.45 2.98 13.16 3.27 63.90 4.48
9.00 9.00 10.00 10.00 11.00 11.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22	RGE (CFS) 2 AURS 1 3.43 2.86 8.66 3.07 19.56 3.49 233.26	3.89 2.88 9.26 3.10 22.23 3.56 265.79	10.98 HENT = .10 4.37 2.89 9.90 3.13 25.21 3.63 291.77	4.86 2.91 10.60 3.16 28.89 3.72 311.43	5.37 2.93 11.37 3.19 34.46 3.86 326.15	5.90 2.96 12.21 3.23 44.57 4.09 336.45	6.45 2.98 13.16 3.27 63.90 4.48 342.78
9.00 9.00 10.00 10.00 11.00 12.00 12.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00	EAK DISCHAR 353.22 = .00 HD 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02	RGE (CFS) 2 BURS 1 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78	10.98 HENT = .10 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67
9.00 9.00 10.00 11.00 11.00 12.00 12.00 13.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32	EAK DISCHAR 353.22 = .00 HB 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17	REE (CFS) 2 SURS 1 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19	10.98 HENT = .10 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29
9.00 9.00 10.00 11.00 11.00 12.00 12.00 13.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89	= .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95	REE (CFS) 2 SURS 1 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77
9.00 9.00 10.00 11.00 11.00 12.00 12.00 13.00 14.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58	RGE (CFS) 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63
9.00 9.00 10.00 11.00 11.00 12.00 13.00 14.00 14.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54	RGE (CFS) 2 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91
9.00 9.00 10.00 11.00 11.00 12.00 12.00 13.00 14.00 14.00 15.00	INPUT HYD SURFACE E PEAK TIME 13.37 IS) FI DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.80	BURS 1 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45 299.45	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86
9.00 9.00 10.00 11.00 11.00 12.00 13.00 14.00 14.00 15.00 15.00	INPUT HYD SURFACE E PEAK TIME 13.37 IS) FI DISCHG ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92 9.83	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30 9.74	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.80 9.66	RGE (CFS) 2 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45 299.45 9.58	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24 9.50	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16 9.43	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17 9.36	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29 9.29	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52 9.22	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86 9.16
9.00 9.00 10.00 11.00 11.00 12.00 13.00 14.00 14.00 15.00 15.00 16.00	INPUT HYD SURFACE E PEAK TIME 13.37 IS) FI DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92 9.83 279.32	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30 9.74 276.90	EAK DISCHAR 353.22 = .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.90 9.66 274.60	RGE (CFS) 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.73 10.45 299.45 9.58 272.43	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24 9.50 270.38	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16 9.43 268.45	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17 9.36 266.63	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29 9.29 264.88	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52 9.22 263.18	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86 9.16 261.50
9.00 9.00 10.00 11.00 11.00 12.00 13.00 14.00 14.00 15.00 15.00 16.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92 9.83 279.32 9.10	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30 9.74 276.90 9.04	EAK DISCHAR 353.22 = .00 HD 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.80 9.66 274.60 8.99	RGE (CFS) 2 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45 299.45 9.58 272.43 8.93	3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24 9.50 270.38 8.89	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16 9.43 268.45 8.84	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17 9.36 266.63 8.80	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29 9.29 264.88 8.75	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52 9.22 263.18 8.71	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86 9.16 261.50 8.67
9.00 9.00 10.00 11.00 11.00 12.00 12.00 13.00 14.00 15.00 15.00 16.00 17.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92 9.83 279.32 9.10 259.85	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30 9.74 276.90 9.04 258.23	= .00 HB 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.80 9.66 274.60 8.99 256.66	RGE (CFS) 2 SURS 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45 299.45 9.58 272.43 8.93 255.15	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24 9.50 270.38 8.89 253.69	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16 9.43 268.45 8.84 252.29	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17 9.36 266.63 8.80 250.95	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29 9.29 264.88 8.75 249.69	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52 9.22 263.18 8.71 248.50	2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86 9.16 261.50 8.67 247.32
9.00 9.00 10.00 11.00 11.00 12.00 13.00 13.00 14.00 15.00 16.00 17.00 17.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92 9.83 279.32 9.10 259.85 8.63	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30 9.74 276.90 9.04 258.23 8.60	= .00 HB 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.80 9.66 274.60 8.99 256.66 8.56	RGE (CFS) 2 SURS 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45 299.45 9.58 272.43 8.93 255.15 8.52	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24 9.50 270.38 8.89 253.69 8.49	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16 9.43 268.45 8.84 252.29 8.45	4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17 9.36 266.63 8.80 250.95 8.42	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29 9.29 264.88 8.75 249.69 8.39	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52 9.22 263.18 8.71 248.50 8.36	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86 9.16 261.50 8.67 247.32 8.33
9.00 9.00 10.00 11.00 11.00 12.00 12.00 13.00 14.00 15.00 15.00 16.00 17.00	INPUT HYD SURFACE E PEAK TIME 13.37 S) FI DISCHG ELEV DISCHG	ROGRAPH= 6 LEVATION= (HRS) RST HYDROGRA 3.00 2.84 7.02 3.00 14.20 3.32 94.00 5.11 347.28 10.80 343.90 10.70 309.92 9.83 279.32 9.10 259.85 8.63 246.11	2.40 PE APH POINT 3.00 2.84 7.55 3.02 15.35 3.37 120.33 6.00 350.32 10.89 341.32 10.62 306.30 9.74 276.90 9.04 258.23 8.60 244.85	= .00 HO 3.00 2.84 8.09 3.05 17.10 3.43 176.22 7.02 352.17 10.95 338.58 10.54 302.80 9.66 274.60 8.99 256.66 8.56 243.55	REE (CFS) 2 SURS 3.43 2.86 8.66 3.07 19.56 3.49 233.26 7.98 353.06 10.98 335.73 10.45 299.45 9.58 272.43 8.93 255.15 8.52 242.22	TIME INCREM 3.89 2.88 9.26 3.10 22.23 3.56 265.79 8.78 353.19 10.98 332.49 10.36 296.24 9.50 270.38 8.89 253.69	10.98 4.37 2.89 9.90 3.13 25.21 3.63 291.77 9.39 352.69 10.97 328.73 10.27 293.16 9.43 268.45 8.84 252.29 8.45 239.49	HOURS 4.86 2.91 10.60 3.16 28.89 3.72 311.43 9.86 351.69 10.94 324.96 10.18 290.17 9.36 266.63 8.80 250.95 8.42 238.14	5.37 2.93 11.37 3.19 34.46 3.86 326.15 10.21 350.24 10.89 321.17 10.09 287.29 9.29 264.88 8.75 249.69 8.39 236.82	5.90 2.96 12.21 3.23 44.57 4.09 336.45 10.47 348.42 10.84 317.39 10.00 284.52 9.22 263.18 8.71 248.50	6.45 2.98 13.16 3.27 63.90 4.48 342.78 10.67 346.29 10.77 313.63 9.91 281.86 9.16 261.50 8.67 247.32

228.66

218.38

7.87

227.63

7.84

217.21

226.63

216.02

7.82

225.65

7.79

214.82

224.70

213.62

7.77

223.74

7.74

212.41

233.10

222.76

7.98

231.94

221.73

7.95

230.81

220.65

7.92

229.72

7.89

219.53

19.00

19.00

20.00

DISCHG

DISCHG

ELEV

PASS 1

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TR20 XEQ	05-05-86 08	:16	COGDELL'S	CREEK WATE	ERSHED STUD	Y NV5010	24 HR 10YR	TYPE 2 ST	ORM 20)	JOB 1
REV	PC 09/83(.2)		ALT 86						30)	
20.00	ELEV	7.72	7.69	7.67	7.64	7.61	7.58	7.55	7.52	7.49	7.46
21.00	DISCHG	211.21	210.00	207.36	204.80	202.33		197.62			
21.00	ELEV	7.43	7.40	7.37	7.34	7.31	7.29	7.26		7.21	7.19
22.00	DISCHG	189.01	187.00	185.04	183.12	181.26	179.44	177.66		174.24	
22.00		7.16	7.14	7.12	7.10	7.08	7.06	7.04	7.02		
23.00	DISCHG	171.07	169.59	168.18	166.83	165.55	164.32	163.15	162.04	160.97	159.90
23.00		6.96	6.95	6.93	6.91	6.90	6.89	6.87	6.86	6.85	6.84
24.00		158.78	157.52	155.99		151.84	149.26	146.46	143.51		
24.00	ELEV	6.82	6.81	6.79	6.77	6.75	6.72	6.69	6.65	6.62	6.58
25.00	DISCH6	134.32	131.27	128.25		122.39	120.97	120.92	120.86	120.80	120.74
25.00	ELEV	6.55			6.45		6.38	6.35	6.32	6.28	6.24
26.00	DISCHG	120.68	120.61	120.55	120.48	120.41		120.27	120.20		120.06
26.00		6.21	6.17						5.92		5.83
27.00		119.63	117.97	116.33	114.72	113.12			108.43		
27.00	ELEA	5.79		5.70	5.66		5.57	5.53	5.49	5.45	5.41
28.00		103.90	102.43	100.97	99.52	98.09	96.68	95.28	93.90	92.53	91.18
28.00		5.37		5.29	5.25	5.22	5.18	5.14	5.10	5.07	5.03
29.00			88.03	86.30	84.61						
29.00	ELEV	5.00	4.96	4.93	4.89	4.86	4.83	4.79	4.76	4.73	4.70
	REACH CRO INPUT HYDRO LENGTH =	GRAPH= 7 1000.00 F	OUTPUT FEET II	MPUT = COE	FFICIENTS I	RELATED TO	CROSS SEC	TIONAL ARE	A, X= .	30, M = 1	.94
0	MODIFIED AT	T-KIN ROL	UTING COEFF	ICIENT = 1	.00 PI	EAK TRAVEL	TIME =	.00 HOURS			
0 ###	WARNING REA	ACH 130 AT	TT-KIN COEFI NFLOW HYDROI	F.(C) GREA GRAPH VOLU	TER THAN O	.667, CONS ED ABOVE B	IDER REDUC ASEFLOW AT	ING MAIN T 72.1	IME INCREM 5 CFS, 20	ENT *** .60 % OF P	EAK.
	PEAK TIME(H	IRS)	PE			PE		ON (FEET)			
	13.37			353.22			(NULL)				
RUNOFF	VOLUME ABOVE	BASEFLO#	= 2.08 WAT	TERSHED IN	CHES, 364	14.05 CFS-	HRS, 301	.14 ACRE-F	EET; BASI	EFLOW =	3.00 CFS
OPERATION	RUNOFF CRO										
	AREA= .0 INTERNAL HY	5 SQ MI	INPUT RUNG			1E OF CONC	ENTRATION=	.19 HOU	RS		
	PEAK TIME(H	RS)	PEA	K DISCHAR	GE (CFS)	PE	AK ELEVATI	ON (FEET)			
	12.01			160.37			(RUNOFF				
	23.65			2.37			(RUNOFF)			
RUNOFF	VOLUME ABOVE	BASEFLOW	= 4.05 WAT	ERSHED IN	CHES, 13	50.79 CFS-	HRS, 10.	.81 ACRE-F	EET; BASE	EFLOW =	.00 CFS

TR20 XEQ 05-05-86 08:16

COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

REV PC 09/83(.2)

ALT 86

30

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INPUT HYDROGRAPHS = 5.6

OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.06

255.99

(NULL)

13.29

364.23

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.11 WATERSHED INCHES,

3774.84 CFS-HRS, 311.95 ACRE-FEET;

BASEFLOW =

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7

OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

INPUT HYDROGRAPH= 6

OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION=

2.00

PEAK TIME (HRS) 16.47

PEAK DISCHARGE (CFS) 273.66

PEAK ELEVATION (FEET)

6.69

TIME (HRS)		FIRST H	IYDROGRA	APH POINT	= .00	HOURS	TIME INCRE	EMENT = .10	HOURS	DRAINAGE	AREA =	2.77 SQ.MI.	
11.00	DISCHE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	4.63	7.80	
11.00	ELEV		2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.44	2.53	
12.00	DISCHE	1	2.26	16.81	21.15	29.36	39.55	49.41	59.61	72.40	85.21	97.75	
12.00	ELEV		2.66	2.81	2.95	3.10	3.26	3.42	3.59	3.77	3.94	4.10	
13.00	DISCHE	10	9.88	121.58	132.80	141.43	149.22	156.70	163.88	170.74	177.28	180.11	
13.00	ELEV		4.27	4.42	4.57	4.71	4.85	4.99	5.11	5.24	5.35	5.46	
14.00	DISCHE	18	10.29	180.47	180.64	180.82	180.98	192.46	203.90	214.07	223.08	231.04	
14.00	ELEV		5.57	5.68	5.79	5.89	5.99	6.09	6.17	6.25	6.31	6.37	
15.00	DISCHG	23	8.05	244.19	249.54	254.18	258.15	261.51	264.35	266.71	268.64	270.20	
15.00	ELEV		6.43	6.47	6.51	6.55	6.58	6.60	6.62	6.64	6.65	6.67	
16.00	DISCHE	27	1.42	272.34	272.99	273.41	273.62	273.65	273.52	273.23	272.80	272.26	
16.00	ELEV		6.67	6.68	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.68	
17.00	DISCHE	27	1.63	270.92	270.13	269.29	268.39	267.45	266.47	265.47	264.45	263.40	
17.00	ELEV		6.68	6.67	6.67	6.66	6.65	6.65	6.64	6.63	6.62	6.61	
18.00	DISCHE	28	2.31	261.19	260.06	258.91	257.75	256.57	255.38	254.17	252.96	251.74	
18.00	ELEV		6.61	6.60	6.59	6.58	6.57	6.56	6.56	6.55	6.54	6.53	
19.00	DISCHE	25	0.52	249.31	248.10	246.90	245.71	244.53	243.37	242.22	241.08	239.94	
19.00	ELEV		6.52	6.51	6.50	6.49	6.48	6.47	6.47	6.46	6.45	6.44	
20.00	DISCHE	23	8.79	237.64	236.49	235.34	234.20	233.05	231.90	230.75	229.60	228.44	
20.00	ELEV		6.43	6.42	6.41	6.41	6.40	6.39	6.38	6.37	6.36	6.35	
21.00	DISCHE	22	7.27	226.11	224.88	223.54	222.10	220.58	219.00	217.36	215.67	213.94	
21.00	ELEV		6.35	6.34	6.33	6.32	6.31	6.30	6.28	6.27	6.26	6.25	
22.00	DISCHE		2.19	210.41	208.61	206.80	204.99	203.17	201.35	199.55	197.75	195.96	
22.00	ELEV		6.23	6.22	6.21	6.19	6.18	6.17	6.15	6.14	6.12	6.11	
23.00	DISCHG	19	4.19	192.43	190.71	189.01	187.34	185.71	184.11	182.55	181.03	180.78	
23.00	ELEV		6.10	6.09	6.07	6.06	6.05	6.04	6.02	6.01	6.00	5.99	
24.00	DISCHG	18	0.96	180.94	180.91	180.89	180.86	180.82	180.79	180.75	180.71	180.67	
24.00	ELEV		5.98	5.96	5.95	5.93	5.91	5.89	5.87	5.85	5.83	5.80	
25.00	DISCHG	18	0.62	180.57	180.52	180.46	180.40	180.34	180.27	180.21	180.15	180.09	

PASS 1

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	PC 09/83(.2)	Δ	LT 86						30		
0.1									30	Partners.	
25.00	ELEV	5 77	5 7A	5 71	5.40	E (A	F (A	E 51	E E7	5 40	
26.00				176.68	174 71	172.81	170 00	140 20	147 40	145 07	164.3
26.00				5.34	5.31	5.27	5.24	5.21	5.18	5 15	5.
27.00	DISCHG			159.60				153.42	151 97	150 33	149
27.00	ELEV					4.98					
28.00				144.15	142.62	141.08	139.55	138.03	136.51	134.99	132.
28.00	ELEV			4.76							
29.00				127.12							
29.00		4.55	4.52	4.49		4.44					
UNOFF	VOLUME ABOVE	BASEFLOW =	1.92 WA	TERSHED INCH	IES, 34	34.39 CFS-I	HRS, 283	.82 ACRE-F	EET; BAS	EFLOW =	3.00 C
RATIO	N REACH CR	OSS SECTION	140								
				HYDROGRAPH=	: 5						
	LENGTH =					RELATED TO	CROSS SEC	TIONAL ARE	A. Y= .	21. M=	1.48
								TABITIL HILL	ng a .	-14 11-	4170
	MODIFIED A	TT-KIN ROUT!	ING COEFF	ICIENT = .3	7 P	EAK TRAVEL	TIME =	.30 HOURS			
111	MODIFIED A	TT-KIN ROUT!	ING COEFF	ICIENT = .3	7 P	EAK TRAVEL	TIME = ASEFLOW AT	.30 HOURS			
	MODIFIED A WARNING - REA PEAK TIME(I	TT-KIN ROUT! ACH 140 INFL HRS)	ING COEFF LOW HYDRO	ICIENT = .3 GRAPH VOLUME AK DISCHARGE	TRUNCATI	EAK TRAVEL ED ABOVE BA	ASEFLOW AT	110.8			
	MODIFIED A WARNING - REA PEAK TIME(I	TT-KIN ROUT! ACH 140 INFL HRS)	ING COEFF LOW HYDRO	ICIENT = .3 GRAPH VOLUME	TRUNCATI	EAK TRAVEL ED ABOVE BA	ASEFLOW AT	110.8			
111	MODIFIED A WARNING - REA PEAK TIME(I	TT-KIN ROUT: ACH 140 INFL HRS)	ING COEFF OW HYDRO	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19	TRUNCATI	EAK TRAVEL ED ABOVE BA	ASEFLOW AT AK ELEVATI (NULL)	110.8 ON(FEET)	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED A WARNING - REA PEAK TIME(I 16.77 VOLUME ABOVE	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW =	ING COEFF LOW HYDROI PEI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH	TRUNCATI	EAK TRAVEL ED ABOVE BA	ASEFLOW AT AK ELEVATI (NULL)	110.8 ON(FEET)	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED A WARNING - REA PEAK TIME(I 16.77 VOLUME ABOVE	TT-KIN ROUT: ACH 140 INFU HRS) BASEFLOW =	ING COEFF OW HYDRO	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH	TRUNCATI	EAK TRAVEL ED ABOVE BA	ASEFLOW AT AK ELEVATI (NULL)	110.8 ON(FEET)	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED A WARNING - REA PEAK TIME(I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE	TT-KIN ROUT: ACH 140 INFU HRS) BASEFLOW = OSS SECTION ROGRAPH= 6	ING COEFF OW HYDRO PE 1.90 WA	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH	TRUNCATI	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H	ASEFLOW AT AK ELEVATI (NULL) HRS, 281	110.8 DN(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED AF WARNING - REA PEAK TIME(I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA = .2	TT-KIN ROUT: ACH 140 INFU HRS) BASEFLOW = DSS SECTION ROGRAPH= 6 ZO SQ MI I	ING COEFF OW HYDROI PEI 1.90 WA	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH	7 PI TRUNCATI (CFS) (ES, 340	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H	ASEFLOW AT AK ELEVATI (NULL) HRS, 281	110.8 DN(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED AF WARNING - REA PEAK TIME(I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA = .2	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) ARS, 281 ENTRATION=	110.8 DN(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED AF WARNING - REA PEAK TIME(I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA = .2 INTERNAL HY	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) ARS, 281 ENTRATION=	110.8 DN(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.
###	MODIFIED A WARNING - REA PEAK TIME (I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA :: INTERNAL HY PEAK TIME (I 12.02 15.16	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) ARS, 281 ENTRATION=	110.8 OM(FEET) .26 ACRE-F .19 HOU	7 CFS, 40	.97 % OF	PEAK.
###	MODIFIED A WARNING - REA PEAK TIME (I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDR AREA= .2 INTERNAL HY 12.02 15.16 16.45	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE 543.51	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) HRS, 281 ENTRATION= (RUNOFF	110.8 DM(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.
###	MODIFIED A WARNING - REA PEAK TIME (I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA : 2 INTERNAL HY 12.02 15.16 16.45 17.66	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE 543.51 19.42	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) HRS, 281 ENTRATION= AK ELEVATI (RUNOFF (RUNOFF	110.8 ON(FEET) .26 ACRE-FI .19 HOU	7 CFS, 40	.97 % OF	PEAK.
###	MODIFIED A WARNING - REA PEAK TIME (I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDR AREA= .2 INTERNAL HY 12.02 15.16 16.45	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE 543.51 19.42 16.95	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	AK ELEVATI (NULL) HRS, 281 ENTRATION= (RUNOFF: (RUNOFF:	110.8 ON(FEET) .26 ACRE-FI .19 HOU	7 CFS, 40	.97 % OF	PEAK.
### UNOFF	MODIFIED A WARNING - REA PEAK TIME (I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA : 2 INTERNAL HY 12.02 15.16 16.45 17.66	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI	PEI 1.90 WA 140 INPUT RUNG ME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE 543.51 19.42 16.95 14.20	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) ARS, 281 ENTRATION= AK ELEVATI (RUNOFF: (RUNOFF: (RUNOFF: (RUNOFF:	110.8 DN(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.
### UNOFF RATIO	MODIFIED AF WARNING - REF PEAK TIME (I 16.77 VOLUME ABOVE N RUNOFF CRO OUTPUT HYDE AREA : 2 INTERNAL HY PEAK TIME (F 12.02 15.16 16.45 17.66 19.65	TT-KIN ROUT: ACH 140 INFL HRS) BASEFLOW = OSS SECTION ROGRAPH= 6 20 SQ MI I FOROGRAPH TI HRS)	ING COEFF LOW HYDRO PE 1.90 WA 140 INPUT RUNI IME INCREI	ICIENT = .3 GRAPH VOLUME AK DISCHARGE 273.19 TERSHED INCH OFF CURVE= 6 MENT= .0253 AK DISCHARGE 543.51 19.42 16.95 14.20 11.51 8.78	TRUNCATION (CFS)	EAK TRAVEL ED ABOVE BA PEA 03.42 CFS-H ME OF CONCE	ASEFLOW AT AK ELEVATI (NULL) ARS, 281 ENTRATION= AK ELEVATI (RUNOFF: (RUNOFF: (RUNOFF:	110.8 DN(FEET) .26 ACRE-F	7 CFS, 40	.97 % OF	PEAK.

RUNOFF VOLUME ABOVE BASEFLOW = 2.01 WATERSHED INCHES, 3844.76 CFS-HRS, 317.73 ACRE-FEET; BASEFLOW = 3.00 CFS

PEAK DISCHARGE (CFS)

549.11

289.38

PEAK TIME (HRS)

12.02

16.51

PEAK ELEVATION (FEET)

(NULL)

(NULL)

TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.19 67.90 (RUNOFF)
23.67 2.40 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 86.04 CFS-HRS, 7.11 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.03 592.40 (NULL)
14.30 209.30 (NULL)
16.51 293.74 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.00 WATERSHED INCHES, 3930.79 CFS-HRS, 324.84 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***
*** WARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 115.89 CFS. 20.01 % OF PEAK.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.03 592.40 (NULL)
14.30 209.30 (NULL)
16.51 293.74 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.00 WATERSHED INCHES, 3930.79 CFS-HRS, 324.84 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA = .01 SQ MI INPUT RUNOFF CURVE = 40. TIME OF CONCENTRATION = .15 HOURS INTERNAL HYDROGRAPH TIME INCREMENT = .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 8 %.

XSECTION 150

PEAK ELEVATION (FEET) PEAK DISCHARGE (CFS) PEAK TIME(HRS) 12.05 4.99 (RUNOFF) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS TIME (HRS) DRAINAGE AREA = .01 SQ.MI. 11.00 DISCHG .00 .00 .00 .00 .00 .00 .00 .00 .00 1.05 12.00 DISCHG 4.60 4.46 2.17 1.71 1.28 1.17 1.09 1.02 1.00 .87 .78 13.00 DISCHE .84 .73 .71 . 66 .64 .60 .56 .55 .52 .50 14.00 DISCHS .52 . 48 .47 .44 .43 .41 .38 .38 .38 15.00 DISCHE .38 .39 .39 .38 .35 .34 .34 .34 . 34 .34 16.00 DISCHE .34 .34 .35 .32 .35 .35 .35 .30 .30 .30 .30 .30 17.00 DISCHG .30 .30 .30 .30 .30 .30 .30 . 26 18.00 DISCHE . 25 . 25 . 25 . 25 . 25 . 25 . 25 . 25 . 25 . 25 19.00 DISCHG .25 . 25 . 25 . 25 . 25 . 25 . 25 . 25 . 25 .21 20.00 DISCHE .19 .19 .19 .19 .19 .19 .19 .19 .19 .19 21.00 DISCHE .19 .20 .20 . 20 .20 .20 .20 .20 .20 .20 .20 .20 22.00 DISCHE .20 .20 .20 .20 .20 .20 .20 .20 23.00 DISCHE .20 .20 .20 .20 .20 .20 .20 .20 .20 .15 24.00 DISCHG .00 .14 .08 .01

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 5.41 CFS-HRS, .45 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.03
 597.34
 (NULL)

 14.30
 209.77
 (NULL)

 16.51
 294.09
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.99 WATERSHED INCHES, 3936.21 CFS-HRS, 325.29 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0540 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.27
 39.64
 (RUNOFF)

 23.68
 2.45
 (RUNOFF)

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TR20 XEQ 05-05-86 08:16 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOR 1 PASS 1 REV PC 09/83(.2) ALT 86 RUNOFF VOLUME ABOVE BASEFLOW = .99 WATERSHED INCHES, 70.57 CFS-HRS, 5.83 ACRE-FEET; BASEFLOW = .00 CFS OPERATION ADDHYD CROSS SECTION 180 INPUT HYDROGRAPHS= 5,6 **OUTPUT HYDROGRAPH= 7** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.04 613.61 (NULL) 14.28 216.15 (NULL) 16.51 298.35 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.96 WATERSHED INCHES, 4006.78 CFS-HRS, 331.12 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION REACH CROSS SECTION 180 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA. X= .21. M= 1.48 MODIFIED ATT-KIN ROUTING COEFFICIENT = .61 PEAK TRAVEL TIME = .20 HOURS *** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 115.89 CFS, 19.46 % OF PEAK. PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.18 534.07 (MIH L) 16.55 297.92 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.95 WATERSHED INCHES, 3984.65 CFS-HRS, 329.29 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION RUNOFF CROSS SECTION 180 OUTPUT HYDROGRAPH= 6 AREA= .11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0840 HOURS PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.28 34.74 (RUNOFF) 23.69 2.34 (RUNOFF) RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES, 65.08 CFS-HRS, 5.38 ACRE-FEET; BASEFLOW = .00 CFS OPERATION ADDHYD CROSS SECTION 180 INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.19 565.85 (NULL) 14.40 221.36 (MHIL)

3.00

(NULL)

3.00 3.00

TIME INCREMENT = .10 HOURS

301.91

3.00

3.00

FIRST HYDROGRAPH POINT = .00 HOURS

3.00

3.00

DRAINAGE AREA = 3.28 SQ.MI.

3.04

3.15

16.65

DISCHG 3.00

IME (HRS)

8.00

NZV ACU	05-05-86 0	0:10	COGDELL'S	LACEK WAIL	באמאבט 101	NVOULU Z	4 HK 10YR	TYPE 2 SIL	IRM 20)	JOB 1	PASS
REV	PC 09/83(.2)	ALT 86						30			PAGE 2
9.00	DISCHE	3.31	3.49	7 71	7 00	4.05		. 77	F 07	- 45	F 00	
10.00	DISCHE	6.13	6.43	3.71	3.98	4.25	4.51	4.77	5.07	5.45	5.80	
11.00	DISCHG			6.82	7.29	7.78	8.54	9.32	10.32	11.65	12.87	
12.00	DISCHG	14.56	16.21	18.03	20.22	22.25	25.54	28.79	49.17	93.79	148.44	
13.00		307.01	502.59	564.02	452.13	347.88	268.19	217.61	189.10	173.40	167.79	
14.00	DISCH6 .	165.12	166.29	169.90	174.31	180.69	186.50	192.54	198.12	202.77	207.86	
	DISCHE	212.64	216.84	219.57	220.78	221.36	220.87	220.15	221.67	225.38	231.24	
15.00	DISCH6	238.42	246.16	253.91	261.31	268.02	273.14	277.49	281.54	285.29	288.68	
16.00	DISCHE	291.68	294.28	296.48	298.30	299.79	300.95	301.81	301.79	300.85	299.95	
17.00	DISCHS	299.22	298.62	298.06	297.50	296.89	296.23	295.52	294.74	293.91	292.84	
18.00	DISCHG	290.77	288.52	286.60	284.97	283.56	282.28	281.07	279.89	278.72	277.55	
19.00	DISCHG	276.37	275.19	274.01	272.82	271.64	270.45	269.28	268.10	266.93	265.57	
20.00	DISCHE	263.24	260.77	258.67	256.91	255.39	254.04	252.78	251.57	250.39	249.23	
21.00	DISCH6	248.08	246.93	245.78	244.63	243.47	242.27	241.00	239.67	238.26	236.79	
22.00	DISCHG	235.26	233.66	232.03	230.35	228.63	226.89	225.13	223.36	221.57	219.78	
3.00	DISCHG	217.99	216.20	214.42	212.65	210.90	209.16	207.45	205.76	204.10	202.26	
24.00	DISCHG	199.45	196.77	193.51	189.40	186.23	184.10	182.78	181.98	181.50	181.20	
25.00	DISCHG	181.01	180.88	180.79	180.71	180.64	180.58	180.53	180.47	180.41	180.35	
6.00	DISCHG	180.29	180.23	180.17	179.82	179.03	177.85	176.43	174.84	173.18	171.48	
27.00	DISCHG	169.78	168.11	166.47	164.86	163.27	161.71	160.14	158.59	157.04	155.49	
28.00	DISCHG	153.94	152.39	150.84	149.30	147.75	146.21	144.67	143.13	141.60	140.07	
9.00	DISCH6	138.54	136.91	135.18	133.37	131.51	129.62	127.72	125.81	123.91	122.01	
UNOFF	VOLUME ABOVE	BASEFLOW	= 1.91 WA	TERSHED IN	CHES. 40	49.73 CFS-	HRS. 334	.67 ACRE-E	FFT: RAS	FFLOW =	3.00 CFS	
										C. C	0100 010	
CUTIVE	CONTROL OPE	ERATION ENI	OCMP								RECORD ID	177
											NEDUKU ID	111
			CO	MPUTATIONS	COMPLETED	FOR PASS	1					
CUTIVE	CONTROL OPE	RATION EN	JOB								RECORD ID	169

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	5	CONTROL	DRAINAGE	RAIN TABLE	ANTEC		P	RECIPITAT	ION	RUNOFF	PEAK DISCHARGE				
ID	(PERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM	
ALTERNAT	TE	86 ST	ORM 1												
STRUCTURE 1	10	RUNOFF	.84	2	2	.10	۸	7 00	74.00			17.00	n/ e/		
STRUCTURE 1		RESVOR	.84	2	2	.10	.0	7.00	24.00	1.67	0.50	17.80	96.56	114.	
XSECTION 1		REACH	.84	2	2	.10	.0	7.00	24.00	1.63	9.50	18.14	95.09	114.4	
	10	RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.00		12.08	98.84 121.81	117.7	
	10	ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.50				609.	
ACCUITOR 1		עוווע	1.04			.10	.0	7.00	24.00	1.30		12.08	124.81	120.0	
STRUCTURE 2	20	RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.45	9.18	20.10	93.18	89.6	
XSECTION 2	20	REACH	1.04	2	2	.10	.0	7.00	24.00	1.44		20.25	93.15	89.6	
XSECTION 2	20	RUNOFF	.28	2	2	.10	0	7.00	24.00	2.03	· it	12.60	168.04	600.	
XSECTION 2	20	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.57		12.61	190.93	144.	
STRUCTURE 3	30	RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7	
STRUCTURE 3		RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9	
	10	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9	
	10	RUNDFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2	
	10	ADDHYD	.43	2	2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8	
STRUCTURE 4	10	RESVOR	. 43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8	
XSECTION 5	50	REACH	.43	2	2	.10	.0	7.00	24.00	1 40 .		17.70	10.77		
	19	RUNOFF	.11	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7	
	10	ADDHYD	.54	2	2	.10	.0	7.00		.84 1.29		13.33	13.76	125.1	
	10	RUNOFF	.36	2	2	.10	.0	7.00	24.00	5.25		16.65	53.98	100.0	
	10	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1078.73	2996.5	
MOLDITOR O		neamin	• 10		•	.10	••	7.00	24.00	2.0/		12.13	1079.95	1199.9	
XSECTION 6	0	REACH	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9	
XSECTION 6	0	RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2	
XSECTION 6	0	ADDHYD	.95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4	
XSECTION 7	0	ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.08		12.15	1164.89	513.2	
XSECTION 8	10	REACH	2.27	2	2	.10	.0	7.00	24.00	2.08		12.15	1164.89	513.2	
XSECTION 8		RUNOFF	.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.6	
XSECTION 8		ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.08		12.14	1184.64	517.3	
XSECTION 9		RUNOFF	.24	2	2	.10	.0	7.00	24.00	3.93		12.27	434.61	1810.9	
XSECTION 10		ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.26	777	12.17	1575.11	622.6	
XSECTION 11	0	REACH	2.53	2	2	.10	.0	7.00	24.00	2.26		12.17	1575.11	622.6	
XSECTION 12	۸	REACH	2.53	3	2	10	۸	7.00	74.00	2.24		10.47	1535 47		
XSECTION 12		RUNOFF	.19	2	2	.10	.0	7.00	24.00	2.26		12.17	1575.11	622.6	
ASCLITUM 12	V	NUNUFF	.17	2	2	.10	.0	7.00	24.00	2.22		12.38	159.29	838.4	

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD CONTROL	DRAINAGE	RAIN	ANTEC	MAIN TIME	F	RECIPITAT	TION	DUMOEE		PEAK D	ISCHARGE	
	OPERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	86 S1	ORM 1											
XSECTION 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.26		12.19	1701.00	625.4
STRUCTURE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.08	10.98	13.37	353.22	129.9
XSECTION 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.08		13.37	353.22	129.9
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.11		13.29	364.23	131.5
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.92	6.69	16.47	273.66	98.8
XSECTION 140	REACH	2.77	2	2	.10	.0	7.00	24.00	1.90		16.77	273.19	98.6
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	. 3.42		12.02	543.51	2717.6
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.01		12.02	549.11	184.9
XSECTION 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	1.67		12.19	67.90	848.7
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.00		12.03	592.40	194.2
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.00	10.00	12.03	592.40	194.2
XSECTION 150	RUNOFF	.01	2.	2	.10	.0	7.00	24.00	.84		12.05	4,99	499.3
XSECTION 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	1.99	<u></u>	12.03	597.34	195.2
XSECTION 180	RUNDFF	.11	2	2	.10	.0	7.00	24.00	.99		12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	1.96		12.04	613.61	193.6
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	1.95	را بر بست ۱۹۸	12.18	534.07	168.5
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	1.91	Y()	12.19	565.85	172.5

TR20 XEQ 05-05-86 08:16 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 86

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JOB 1 SUMMARY PAGE 31

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

				ŀ	HYDROGRA	APH INF	ORMATIO	IN					ROUTIN	6 PAR	AMETERS				P	EAK
			-				OUTF	LOW+		VOLUME		ITER-	Q AND	A		PEAK :	S/Q	· ATT-	TRAVE	L TIME
+ X5		REACH	INF	-OW	OUTF	LOW	INTER	V. AREA	BASE-	ABOVE	TIME	ATION	EQUAT	ION	LENGTH	RATIO	a PEAK	KIN	STOR-	KINE-
+																				
I	D	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR		COEFF	POWER	FACTOR	0/1	(K)	COEFF	AGE	MATIC
		(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K\$)	(Q‡)	(SEC)	(C)	(HR)	(HR)
	Al	TERNATE	86	STORM	i															
) 1	0	1750	99	18.1	99	18.5			3	1.63#	.10	i	1.20	1.10	.021	.997	888	.34	. 40	. 25
+							123						200							
+ 2	0	2900	93	20.1	93	20.2			3	1.45#	.10	1	. 280	1.94	.000	1.000	320	.72?	.10	.09
+							191	12.6												
+ 4	0	1300	48	16.2	48	16.5			0	1.51	.10	1	.880	1.10	.027	.992	934	.32	.30	.26
+							50	16.5												
+ 5	0	1700	50	16.6	50	16.7			0	1.41	.10	1	1.60	1.45	.002	1.000	252	.83?	.10	.07
+							54													
+ 5	0	1400	1064	12.1	1064	12.1			0	2.87	-10	0	.440	1.94	.000	1.000	7.9	1 002	00	00
+							1069											1100.		.00
							1007	12.1												
+ 8	0	700	1133	12.1	1133	12.1			3	2.08	.10	0			.000		22	1.00?	.00	.00
+							1161	12.1												
11	0	500	1567	12.2	1567	12.2			3	2.26	.10	0	.300		.000	1.000	14	1.00?	.00	.00
+																				
+12	0	500	1567	12.2	15A7	12.2			3	2.26	.10	0	.300	1.94	000	1.000	1.4	1.00?	00	.00
				recycled			1/20	40.0		2.20		٧		1.77		and en				.00 .79
+							1699	12.2					700		37				D-	,,

+130	1000	353	13.4	353	13.4			3	2.08\$.10	0	1.94	.000	1.000	56 1.0	00? .00	.00
+						364	13.3 .					1996				Dra	aft
+140	2500	274	16.5	273	16.8			3	1.92	.10	1	.210	.004	.998	786 .3	37 .30	
+						544	12.0				ing St.						
+150	300	582	12.0	582	12.0			3	2.001	.10	0	.210	.000	1.000	74 1.0	00? .00	.00
+180	1700	599	12.0	531	12.2	587	12.0	3	1.96\$.10	i	.210	.004	.887	414 .6	1 .20	.12
+						564	12.2										

TR20 XEQ 05-05-86 08:16 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT $\,\,$ 86

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JOB 1 SUMMARY

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

9	SECTION/ TRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS
	STRUCTURE 60		2.77	
0	ALTERNATE STRUCTURE 50			273.66
+-	ALTERNATE STRUCTURE 40	86		353.22
+_	ALTERNATE	86		49.78
0+_	STRUCTURE 30		.37	
0+	ALTERNATE STRUCTURE 20			48.05
	ALTERNATE STRUCTURE 10			93.18
	ALTERNATE XSECTION 10			96.09
+_	ALTERNATE	86		124.81
	XSECTION 20			190.93
0+_	XSECTION 40			177.74
0	ALTERNATE XSECTION 49		.11	49.80
	ALTERNATE XSECTION 50			13.76
	ALTERNATE XSECTION 60			1079.95
+_ 0	ALTERNATE XSECTION 70		2.27	1086.21
+_	ALTERNATE	86		1164.89
0 +_	XSECTION 80 ALTERNATE	86	2.29	1184.64
	THE PENTALL P			ALUTIUT

TR20 XEQ 05-05-86 08:16 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT $\,\,$ 86

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/		DRAINAGE	
	STRUCTURE		AREA	STORM NUMBERS
	ID		(SQ MI)	1
0	XSECTION 90		1 .24	
+			In the same in	
	ALTERNATE	86		434.61
0	XSECTION 100		2.53	
+				
	ALTERNATE	84		1575.11
0	XSECTION 110		2.53	
	ALTERNATE	86		1575.11
0	XSECTION 120		2.72	
+				
	ALTERNATE	86		1701.00
0	XSECTION 130		2.77	
	ALTERNATE	86		364.23
0	XSECTION 140		2.97	
+				
	ALTERNATE	86		549.11
0	XSECTION 149		.08	
+				
	ALTERNATE			67.90
0	XSECTION 150		3.06	
+				
	ALTERNATE	86		597.34
0	XSECTION 180		3.28	
÷				
	ALTERNATE	86		565.85

FISCAL YEAR 87

TITLE AL	T 87			5010 24 HR 10YR TYPE 2	2 STORM 20 30
3 STRUCT	10				40
8		7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
8		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		8.2	22.0	6.38	90
8		8.6	52.0	7.07	100
8		9.0	62.0	7.75	110
8		9.5	96.0	8.61	120
8		10.0	126.0	9.47	130
8		11.0	198.0	11.18	140
8		12.0	280.0	12.89	150
8		13.00	360.0	14.79	160
8		14.00	440.0	16.68	170
8		15.00	500.0	18.58	180
8		15.1	600.00	18.60	190
9 ENDTBL					200
3 STRUCT	20				210
8		4.5	0.00	6.80	220
8		4.9	1.5	7.88	230
8		5.1	3.7	8.42	240
8		5.5	11.0	9.51	250
8		5.7	15.0	10.13	260
8		6.1	25.0	11.13	270
8		6.5	40.0	12.21	280
8		7.1	60.0	13.94	290
8		7.9	78.0	16.01	300
8		8.5 9.5	79.0	17.63	310
8		10.5	100.0	20.34	320
8		11.5	126.0 150.0	23.06	330
8		11.5		25.76	340
9 ENDTBL		11.0	300.0	26.04	350
3 STRUCT	30				360
8	30	21.0	0.00	0.10	370
8		21.4	0.6	0.61	380 390
8		21.6	1.5	0.86	400
8		21.8	2.5	1.12	410
8		22.2	5.2	1.62	420
8		22.6	8.2	2.13	420
8		23.0	11.0	2.64	440
8		23.5	20.0	3.27	450
8		24.0	27.0	3.91	460

**	********		**an_en F12(OF THEOL DAY	A (CONTINUED) ****	****************
8			25.0	39.0	5.18	470
8			26.0	49.0	6.45	480
8			27.0	57.0	7.72	490
8			27.1	200.00	7.74	500
9						510
	STRUCT	40				520
8			9.0	0.0	0.38	530
8			9.4	2.2	0.47	540
8			9.6	5.0	0.52	550
8			10.0	14.0	0.62	560
8			10.2	21.0	0.67	570
8			10.6	36.0	0.77	580
8			11.0	55.0	0.86	590
8			11.6	82.0	1.01	600
8			12.4	120.0	1.21	610
8			13.0	121.0	1.35	620
8			14.0	122.0	1.60	630
8			15.0	126.0	1.84	640
8			16.0	150.00	2.08	650
8			16.1	300.0	2.11	660
9	ENDTBL					670
	STRUCT	50				680
8			2.4	0.00	22.00	690
8			2.8	2.0	26.86	700
8			3.0	7.0	29.29	710
8			3.4	16.0	34.16	720
8			3.6	24.0	36.59	730
8			4.0	40.0	41.46	740
8			4.4	60.0	46.32	750
8			5.0	90.0	53.62	760
8			5.8	120.0	63.35	770
8			6.4	121.0	70.65	780
8			7.4	210.0	82.81	790
8			8.4	250.00	94.98	800
8			10.4	334.0	119.31	810
8			12.4	400.0	143.63	820
8	Ligar et		12.5	800.0	143.70	830
	ENDTBL					940
	STRUCT	60				850
8			2.0	0.0	22.20	860
8			2.4	3.0	27.41	870
8			2.6	10.5	30.02	880
8			3.0	22.5	35.24	890
8			3.2	36.0	37.85	900
8			3.6	60.0	43.06	910
8			4.0	90.0	48.28	920

**	******	**	*****	**	**	\$8	0-80 LIST OF	INPUT DATA	(CONTINUED)	***********	*******
8							4.6	135.0	56.11		930
8							5.4	180.0	66.55		940
9							6.0	181.0	74.38		950
8							7.0	315.0	87.42		960
8							8.0	375.0	100.47		970
8							8.1	700.0	100.50		980
	ENDTBL										990
	RUNOFF		10			4	0.84	51.	7.50	1	1000
	RESVOR						7.0		7.00	1	1010
	REACH			7			1750.	1.2	1.10	i	1020
	RUNOFF						0.20	42.	0.19	1	1030
	ADDHYD			5	4	7			VII.	11	1040
	SAVMOV			7	ď	6					1050
	RESVOR					. 7	4.5			1	1060
	REACH			7			2900.	0.28	1.94	i i	1070
	RUNOFF						0.28	53.	1.02	i	1080
	ADDHYD			5	6			30,	1.02	11	1090
	SAVMOV			7	3	1					1100
	RUNOFF		30			_	0.37	49.	3.90	a prompti	1110
	RESVOR						21.0	7/1	3.70	1	1120
	REACH			7			1300.	0.88	1.10	1	
	RUNOFF			1			0.06	40.			1130
	ADDHYD			5	L	7		40.	1.00	1	1140
	SAVMOV			7	u	6					1150
	RESVOR					-	9.0				1160
	REACH		050	7			1700.	1.6	1.45	1	1170
	RUNOFF			'			0.11	40.	1.43	맞얼마다 전속 200 - 100	1180
	ADDHYD			5	L	7	V.11	40.	1.0/	1	1190
	SAVMOV			7	•	5				1	1200
	RUNOFF			•			0.36	85.	0.42		1210
	ADDHYD			5	_	7		03.	0.42	1	1220
	REACH			7			1400.	0.44	1.94		1230
	RUNOFF			'			0.05	45.	0.90	1	1240
	ADDHYD			5	6		V.VJ	73.	V. 7V	1 1	1250
	SAVMOV			7		5				11	1260 1270
	SAVMOV			1		6					1270
	ADDHYD				L	7					
	REACH						700.	0.30	1 04	11	1290
	RUNOFF						0.02		1.94	1	1300
	ADDHYD				6		0.02	64.	0.12	1	1310
	SAVMOV					5				1	1320
	RUNOFF			1				77	0.40		1330
	ADDHYD			_		7	0.24	73.	0.62	1	1340
	REACH		110					0.70	1.04	1	1350
	SAVMOV					7	500.	0.30	1.94	1	1360
	REACH		120	5				0.30	1.04		1370
0	MENUN	2	120	1		J	500.	0.30	1.94	1	1380

	**************************************					INPUT DATA	(CONTINUED)	JED) ****************						
)	6	RUNOFF	1	120		-	0.19	56.	0.74	1				1390
	6	ADDHYD	4	120	5	6	1			1	1			1400
	6	SAVMOV	5	50	7	-	,							1410
	6	RESVOR	2	50	6		7 2.4			1	1	1		1420
	6	REACH	3	130	7		1000.	0.30	1.94	1				1430
	6	RUNOFF	1	130		1	0.05	74.	0.19	1				1440
	6	ADDHYD	4	130	5	6 7				1				1450
	6	SAVMOV	5	130	7	1	1							1460
	6	RESVOR	2	60	6	7	2.0			1	1	1		1470
	6	REACH	3	140	7		2500.	0.21	1.48	1				1480
	6	RUNOFF	1	140		6	0.20	66.	1.15	1				1490
	6	ADDHYD	4	140	5	6 7				1				1500
	6	SAVMOV	5	150	7									1510
	6	RUNOFF	1	149		1	0.08-	50.	0.42	1				1520
	6	ADDHYD	4	150	5	6 7								1530
	6	REACH	3	150	7		300.	0.21	1.48	1				1540
	6	RUNOFF	1	150		+	0.01	40.	0.15	1				1550
	6	ADDHYD	4	150	5	6 7				1				1560
	6	SAVMOV	5	180	7									1570
	6	RUNOFF	1	180		E	0.28	50.	0.61	1				1580
	6	ADDHYD	4	180	5	6 7				1				1590
	6	REACH	3	180	7	5	1700.0	0.21	1.48	1				1600
	6	RUNOFF	1	180		6	0.11	41.	0.48	1				1610
	6	ADDHYD	4	180	5	6 7				1	1	1	1	1620
		ENDATA												1630
	7	ALTER	3											1640
D	6	RUNOFF	1	010		6	0.20	42.0	0.19					1650
	6	RUNOFF	1	020		6	0.28	54.0	2.00					1660
	6	RUNOFF	1	140		6	0.20	68.0	0.19					1670
		RUNOFF					0.08	45.0	0.42					1480
		RUNOFF					0.11	42.0	0.48					1690
		LIST												1700
	7	BASFLO	5				3.0							1710
		INCREM					0.1							1720
		COMPUT		10	18	0		7.0	1.0	2	2	87	01	1730
		ENDCMP	1										See	1740
		ENDJOB												1750

	Diait							
TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5	010 24 HR 10YR TYPE 2 STORM	20	JOB 1	PASS 1				
REV PC 09/83(.2) ALT 87	30			PAGE 1				
OCHANGES TO STANDARD CONTROL LIST FOLLOW	and the second of the second o							
EXECUTIVE CONTROL OPERATION ALTER								
EXECUTIVE CONTROL OPERATION HETER			RECORD ID	1640				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 10			RECORD ID	1650				
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	42.0000	.1900				
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM								
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 20			RECORD ID	1660				
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2800	54.0000	2.0000				
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM								
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 140			RECORD ID	1670				
DUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	48.0000	.1900				
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM								
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 149			RECORD ID	1680				
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.0800	45.0000	.4200				
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM								
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 180			RECORD ID	1690				
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.1100	42.0000	.4800				

DUTPUT OPTIONS IN EFFECT PEAK VOL SUM

TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

ALT 87

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EXECUTIVE CONTROL OPERATION LIST

RECORD ID

1700

LISTING OF CURRENT DATA

		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	10			
8			7.00	.00	4,33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
9			8.20	22.00	6.38
9			8.50	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8	g +		10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	360.00	14.79
8			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600.00	18.60
9	ENDTBL				
		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	20			
8			4.50	.00	6.80
8			4.90	1.50	7.88
8			5.10	3.70	8.42
8			5.50	11.00	9.51
8			5.70	15.00	10.13
8			6.10	25.00	11.13
8			6.50	40.00	12.21
8			7.10	40.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
8			11.50	150.00	25.76
8			11.60	300.00	26.04
9	ENDTBL				

TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

ALT 87

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3	STRUCT	STRUCT 30	NO.	ELEVATION	DISCHARGE	STORAGE
8				21.00	.00	.10
8				21.40	.60	.61
8				21.60	1.50	.86
8				21.80	2.50	1.12
8				22.20	5.20	1.62
8				22.60	8.20	2.13
8				23.00	11.00	2.64
8				23.50	20.00	3.27
8				24.00	27.00	3.91
8				25.00	39.00	5.18
9				26.00	49.00	6.45
8				27.00	57.00	7.72
8				27.10	200.00	7.74
9	ENDTBL					Control Species
		STRUCT	NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	40			0100mmoL	STOKADE
8				9.00	.00	.38
8				9.40	2.20	.47
8				9.60	5.00	.52
8				10.00	14.00	.62
8				10.20	21.00	.67
8				10.40	36.00	.77
8				11.00	55.00	
8				11.60	82.00	.86
8				12.40	120.00	1.01
8				13.00		1.21
8					121.00	1.35
0 0				14.00 15.00	122.00	1.60
0 03					126.00	1.84
8				16.00	150.00	2.08
	ENDTBL			16.10	300.00	2.11
3	STRUCT	STRUCT 50	NO.	ELEVATION	DISCHARGE	STORAGE
8				2.40	.00	22.00
8				2.80	2.00	26.86
8				3.00	7.00	29.29
8				3.40	16.00	34.16
8				3.60	24.00	36.59
8				4.00	40.00	41.46
8				4.40	60.00	46.32
8				5.00	90.00	53.62

4

TREO XED 04-28-86 13:12 COBDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS REV PC 09/831.2) ALT 87 30 PASE 8										Drat
8	TR20 X	EQ 04-28-86 13:1	12 COGDE	LL'S CREEK WA	TERSHED STUDY	NV5010 24 HR 1	OVR TYPE 2 STORM	20	JOB	1 PASS
8	R	EV PC 09/83(.2)	ALT	87			30			PASE
8										
S			5.80	120.00	63.35					
8			6.40	121.00	70.65					
8			7.40	210.00	82.81					
STRUCT NO. ELEVATION DISCHARGE STORAGE	8		8.40	250.00	94.98					
STRUCT NO. ELEVATION DISCHARGE STORAGE				334.00	119.31					
## STRUCT NO. ELEVATION DISCHARGE STORAGE STRUCT NO. ELEVATION DISCHARGE STORAGE	8		12.40	400.00	143.63					
STRUCT NO. ELEVATION DISCHARGE STORAGE	8		12.50	800.00		and the land of the				
3 STRUCT 60 8 2.00 .00 22.20 8 2.40 3.00 27.41 9 2.60 10.50 30.02 8 3.00 22.50 35.24 8 3.20 36.00 37.85 8 3.60 60.00 43.06 8 4.00 90.00 48.28 9 4.60 135.00 56.11 8 5.40 180.00 66.55 8 6.00 181.00 74.38 8 7.00 315.00 87.42 8 8.00 375.00 100.47 8 8.00 375.00 100.47 9 ENDTBL TIME INCREMENT 4 DIMHYD .0200 8 .0000 .0300 .1000 .1900 .3100 8 .4700 .6600 .8200 .7300 .9900 8 1.0000 .9900 .7300 .8600 .7800 8 6.800 .5600 .4600 .3900 .3300 8 6.800 .5600 .4400 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470	9 ENDT	BL								
3 STRUCT 60 8		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE					
8	3 STRU									
8	8		2.00	.00	22.20					
8	19 17 pt 19									
8										
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8										
TIME INCREMENT 4 DIMHYD .0200 8 .0000 .0300 .1000 .1900 .3100 8 .4700 .6600 .8200 .9300 .9900 8 1.0000 .9900 .9300 .8600 .7800 9 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470										
TIME INCREMENT 4 DIMHYD .0200 8 .0000 .0300 .1000 .1900 .3100 9 .4700 .6600 .8200 .9300 .9900 9 1.0000 .9900 .9300 .8600 .7800 9 .6800 .5600 .4600 .3900 .3300 9 .2800 .2410 .2070 .1740 .1470		DI .	0.10	700.00	100.30					
4 DIMHYD .0200 8 .0000 .0300 .1000 .1900 .3100 8 .4700 .6600 .8200 .9300 .9900 9 1.0000 .9900 .9300 .8600 .7800 9 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470	/ [14111	, ,								
4 DIMHYD .0200 8 .0000 .0300 .1000 .1900 .3100 8 .4700 .6600 .8200 .9300 .9900 9 1.0000 .9900 .9300 .8600 .7800 9 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470		TI	ME THODEMENT							
8 .0000 .0300 .1000 .1900 .3100 8 .4700 .5600 .8200 .9300 .9900 9 1.0000 .9900 .9300 .8600 .7800 8 .5800 .5600 .4500 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470	A DIMUN									
8 .4700 .5600 .8200 .9300 .9900 8 1.0000 .9900 .9300 .8600 .7800 9 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470	יוווע ד	10	.0200							
8 .4700 .5600 .8200 .9300 .9900 8 1.0000 .9700 .9300 .8600 .7800 8 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470	8	.0000	.0300	.1000	.1900	.3100				
8 1.0000 .9900 .9300 .8600 .7800 8 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470	8									
8 .6800 .5600 .4600 .3900 .3300 8 .2800 .2410 .2070 .1740 .1470										
8 .2800 .2410 .2070 .1740 .1470										
그는 그는 그는 그는 그는 그를 내려왔다면 이 없는 아이를 다 하게 하는 아이를 하는 것이 되었다. 그는										
8 .1260 .1070 .0910 .0770 .0660	8	.1260		.0910						

COMPUTED PEAK RATE FACTOR = 484.00

.0550

.0250

.0110

.0050

.0000

8

8

8

8

9 ENDTBL

.0470

.0210

.0090

.0040

.0000

.0400

.0180

.0080

.0030

.0000

.0340

.0150

.0070

.0020

.0000

.0290

.0130

.0060

.0010

.0000

TR20 XEQ 04-28-86 13:12

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

20

JOB 1 PASS

REV PC 09/83(.2)

ALT 97

30

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	TABLE NO.	TIME	INCREMENT			
	RAINFL 1		.5000			
	3	.0000	.0080	.0170	.0260	.0350
	}	.0450	.0550	.0650	.0760	.0870
8		.0990	.1120	.1260	.1400	. 1560
8		.1740	.1940	.2190	.2540	.3030
8		.5150	.5830	.6240	.6550	.6820
8	1	.7040	.7280	.7480	.7660	.7830
8		.7990	.8150	.8300	.8440	.8570
8		.8700	.8820	.8930	.9050	.9160
8		.9260	.9360	.9460	.9560	.9650
8		.9740	.9830	.9920	1.0000	1.0000
9	ENDTBL					
	TABLE NO	TIME	INSSENEUT			
	TABLE NO.	IIME	INCREMENT			
	RAINFL 2		.2500			
9		.0000	.0020	.0050	.0080	.0110
8		.0140	.0170	.0200	.0230	.0260
8		.0290	.0320	.0350	.0380	.0410
8		.0440	.0480	.0520	.0560	.0600
8		.0640	.0680	.0720	.0760	.0800
8		.0850	.0900	.0950	.1000	.1050
8		.1100	.1150	.1200	.1260	.1330
8		.1400	.1470	.1550	.1630	.1720
8		.1810	.1910	.2030	.2180	.2360
8		.2570	.2830	.3870	.6630	.7070
8		.7350	.7580	.7760	.7910	.8040
8		.8150	.8250	.8340	.8420	.8490
8		.8560	.8630	.8490	.8750	.8810
8		.8870	.8930	.8980	.9030	.9080
8		.9130	.9180	.9220	.9260	.9300
8		.9340	.9380	.9420	.9460	.9500
8		.9530	.9560	.9590	.9620	.9650
8		.9680	.9710	.9740	.9770	.9800
8		.9830	.9860	.9890	.9920	.9950
8		.9980	1.0000	1.0000	1.0000	1.0000
	ENDTBL		110000	110000	1.0000	1.0000
						a residence.
	TABLE NO.	TIME	INCREMENT			
5	RAINFL 3		.5000			
8		.0000	.0100	.0220	.0360	.0510
8		.0670	.0830	.0990	.1160	.1350

PASS

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JOB 1

REV PC 09/8	3(.2)	ALT 87					30	
	.1560	.1790	.2040	.2330	.2680			
	.3100	.4250	.4800	.5200	.5500			
	.5770	.6010	.6230	.6440	.5640	1000		
	.6830	.7010	.7190	.7360	.7530			
	.7690	.7850						
	.8440	.8580	.8000 .8710	.8150 .8840	.8300 .8960			
	.9080	.9200	.9320					
	.9670	.7200	.9890	.9440 1.0000	.9560 1.0000			
ENDTBL	.70/0	.7/00	. 7070	1.0000	1.0000			
CHOTOC								
TABLE NO.	TIME	INCREMENT						
RAINFL 4		.5000						
	.0000	.0040	.0080	.0120	.0160			
	.0200	.0250	.0300	.0350	.0400			
	.0450	.0500	.0550	.0600	.0450			
	.0700	.0750	.0810	.0870	.0930			
	.0990	.1050	.1110	.1180	.1250			
	.1320	.1400	.1480	.1560	.1650			
	.1740	.1840	.1950	.2070	.2200			
	.2360	.2550	.2770	.3030	.4090			
	.5150	.5490	.5830	.6050	.6240			
	.6400	.6550	.6690	.6820	.6940			
	.7050	.7160	.7270	.7380	.7480			
	.7580	.7670	.7760	.7840	.7920			
	.8000	.8080	.8160	.8230	.8300			
	.8370	.8440	.8510	.8580	.8640			
	.8700	.8760	.8820	.8880	.8940			
	.9000	.9060	.9110	.9160	.9210			
	.9260	.9310	.9360	.9410	.9460			
	.9510	.9560	.7610	.9660	.9710			
	.9760	.9800	.9840	.9880	.9920			
	.9960	1.0000	1.0000	1.0000	1.0000			
ENDTBL								
TABLE NO.	IIME	INCREMENT .5000						
THIMPL J		.3000						
	.0000	.0020	.0050	.0080	.0110			
	.0140	.0170	.0200	.0230	.0260			
	.0290	.0320	.0350	.0380	.0410			
	.0440	.0470	.0510	.0550	.0590			
	.0630	.0670	.0710	.0750	.0790			
	.0840	.0890	.0940	.0990	.1040			
100	.1090	.1140	.1200	.1260	.1330			
	.1400	.1470	.1540	.1620	.1710			
	.1810	.1920	.2040	.2170	.2330			

TR	20 XEQ 04-28-	86 13:12	COGDEL	L'S CREEK WA	TERSHED STUD	Y NV5010 24 H	IR 10YR TYP	E 2 STORM
	REV PC 09/	83(.2)	ALT 8	1				30
8		.2520	.2770	.3180	. 4380	.6980		
8		.7290	.7520	.7700	.7850	.7980		
8		.8090	.8190	.8290	.8380	.8460		
8		.8540	.8610	.8680	.8740	.8800		
8		.8960	.8920	.8970	.9020	.9070		
8		.9120	.9170	.9210	.9250	.9290		
8		.9330	.9370	.9410	.9450	.9490		
8		.9530	.9570	.9600	.9630	.9660		
8		.9690	.9720	.9750	.9780	.9810		
8		.9840	.9870	.9900	.9930	.9960		
8		.9980	1.0000	1.0000	1.0000	1.0000		
9	ENDTBL					41		
	TABLE NO.	TIME	INCREMENT					
5	RAINFL 6		.0200					
8		.0000	.0080	.0162	.0246	.0333		
8		.0425	.0524	.0630	.0743	.0863		
8		.0990	.1124	.1265	.1420	.1595		
9		.1800	.2050	.2550	.3450	. 4370		
8		.5300	.6030	.6330	.6600	.6840		
8		.7050	.7240	.7420	.7590	.7750		
8		.7900	.8043	.8180	.8312	.8439		
8		.8561	.8678	.8790	.8898	.9002		
8		.9103	.9201	.9297	.9391	.9483		
8		.9573	.9561	.9747	.9832	.9916		
8		1.0000	1.0000	1.0000	1.0000	1.0000		
9 1	ENDTBL							

TR20 XEQ 04-28-86 13:12

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

20

OB 1 PASS

REV PC 09/83(.2)

ALT 87

30

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0

STANDARD CONTROL INSTRUCTIONS

	6	RUNOFF	1	10			6	.8400	51.0000	7.50001	0	0	1	0	1	
	6	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1	
	6	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1	
	6	RUNOFF	1	10			6	.2000	42.0000	.19001	0	0	1	0	1	
	6	ADDHYD	4	10	5	6	7							0		
	6	SAVMOV	5	10	7		6									
	6	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1	
	6	REACH	3	20	7		5	2900.0000	.2800	1.94001	337	1100	-90	1000	1950	
	6	RUNDEF	1	20			6	.2800	54,0000	2.00001						
	6	ADDHYD	4	20	5	6	7							0		
	6	SAVMOV	5	20	7		1									
	5	RUNOFF	1	30			6	.3700	49.0000	3.90001	0	0	1	0	1	
	6	RESVOR	2	30	6		7	21.0000						0		
	5	REACH	3	40	7		5	1300.0000	.8800	1.10001	403	43	de Si	2.7534	98 7 (9)	
	5	RUNOFF	1	40			6	.0600	40.0000	1.00001			X 75		JH521	
	6	ADDHYD	4	40	5	6	7							0		
	6	SAVMOV	5	40	7	250	6						•			
		RESVOR		40	6		7	9,0000		. 1	0	0	1	0	1	
)		REACH	3	50	7		5	1700.0000	1.6000	1.45001			2171		270	
	6	RUNDEF	1	49			6	.1100	40.0000	1.67001					0.0752.03	
		ADDHYD	4	50	5	6	7							0		
	6	SAVMOV	5	50	7		5									
		RUNDEF	1	50			6	.3600	85.0000	.42001	0	0	1	0	1	
	6	ADDHYD	4	50	5	6	7							0		
	6	REACH	3	60	7		5	1400,0000	.4400	1.94001	- 1				30.136	
	6	RUNOFF	1	60			6	.0500	45,0000	.90001						
		ADDHYD	4	60	5	6	7							0		
		SAVMOV	5	70	7		5				Ī					
	6	SAVMOV	5	70	1		6									
			4	70	5	6				1	1	0	1	0	1	
	6	REACH	3	80	7		5	700.0000	.3000	1.94001		90	13.	ST.	200	
	6	RUNOFF	1	80			6	.0200	64.0000	.12001				1.7%		
		ADDHYD	4	80	5	6	7							0		
	6			100	7		5									
	6	RUNOFF	1	90			6	.2400	73.0000	.62001	0	0	1	0	1	
	6	ADDHYD	4	100	5	6		August 1995			150	0	-			
	6	REACH	3	110	7		5	500,0000	.3000	1.94001						
	6	SAVMOV	5	120	5		7									
	6	REACH	3	120	7		5	500.0000	.3000	1.94001	0	0	1	0	1	
		RUNOFF					6	.1900	56.0000	.74001						
		ADDHYD			5	6								0		
		SAVMOV		50	27	•	6				•	٧	•		•	
		RESVOR		50			7	2.4000		1	1	1	1	0	1	
				130	7		5	1000.0000	.3000	1.94001		-	-	1.5	-	
)		RUNOFF					6	.0500	74.0000	.19001						
	_		•				-	.4244		11/001	¥		*	4		

TR20 XEQ 04-28-86 13:12	COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM	20	JOB 1 PA	ISS 1

REV PC 09/83(.2) ALT 87 30 PAGE 9

6	ADDHYD	4	130	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	130	7		6									
6	RESVOR	2	60	6		7	2.0000		1	1	1	1	0	1	
6	REACH	3	140	7		5	2500.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	140			6	.2000	68.0000	.19001	0	0	1	0	1	
6	ADDHYD	4	140	5	6	7				0					
6	SAVMOV	5	150	7		5									
6	RUNOFF	1	149			6	.0800	65.0000	. 42001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7			1						
6	REACH	3	150	7		5	300.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	150			6	.0100	40.0000	.15001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	180	7		5									
4	RUNOFF	1	180			6	.1100	42,0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7			1	0	0	1	0	1	
6	REACH	3	180	7		5	1700.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	180			6	.1100	41.0000	. 48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7			1	1	0	1	0	1	
	ENDATA													1	

END OF LISTING

TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2) ALT 87 30 PAGE 10

EXECUTIVE CONTROL OPERATION BASFLO RECORD ID 1710

+ NEW BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION INCREM RECORD ID 1720

+ MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID 1730

+ FROM STRUCTURE 10

TO XSECTION 180

STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2

ALTERNATE NO.=87 STORM NO.= 1 MAIN TIME INCREMENT = .10 HOURS

ALTERNATE NO.=87 STORM NO.= 1 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF STRUCTURE 10
OUTPUT HYDROGRAPH= 6

APEA= PA SO MI INDUT BUNDES CURVE— 51 TIME OF CONCENTRATION— 7

AREA= .84 SQ MI INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
17.80 96.56 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 10

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 7.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
18.14 96.09 9.50

RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1750.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10

0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS

18.15 CFS, 18.88 % OF PEAK.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
18.47 98.84 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

B-97

TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS

REV PC 09/83(.2)

ALT 97

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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.08 121.81 (RUNOFF) 15.20 8.69 (RUNOFF) 16.46 7.85 (RUNGEE) 17.67 6.75 (RUNOFF) 19.66 5.63 (RUNOFF) 23.66 4.48 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES. 128.54 CFS-HRS. .00 CFS 10.62 ACRE-FEET: BASEFLOW =

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5.6 **OUTPUT HYDROGRAPH= 7**

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.08 124.81 (MIIIL) 18.48 104.33 (NULL) FIRST HYDROGRAPH POINT = .00 HOURS TIME (HRS) TIME INCREMENT = .10 HOURS DISCHE 3.00 3.00 3.00 3.00 3.00 3.00 DISCHE 103.79 122.67 68.37 48.48 36.93 31.73

DRAINAGE AREA = 1.04 SQ.MI. 11.00 3.00 3.00 3.92 32.22 12.00 29.33 27.26 26.59 24.26 13.00 DISCHG 23.05 22.09 20.81 20.53 19.65 19.34 18.92 18.32 18.54 18.63 14.00 DISCHE 19.37 20.36 21.44 23.10 24.57 26.43 28.32 30.58 34.13 38.16 15.00 DISCHS 42.29 46.34 50.23 53.88 56.65 58.95 61.10 63.08 64.97 66.81 77.35 16.00 DISCHE 48.45 71.17 74.19 80.46 83.41 85.78 87.66 89.73 91.75 17.00 DISCHE 93.63 95.35 96.91 98.34 99.64 100.81 101.85 102.75 103.42 103.37 18.00 DISCHE 103.47 103.75 104.01 104.19 104.30 104.32 104.27 104.13 103.93 103.65 19.00 DISCHE 103.31 102.89 102.39 101.82 101.18 100.46 99.66 98.79 97.73 95.99 20.00 DISCHE 94.45 89.51 93.18 91.97 90.75 88.27 87.03 85.81 84.61 83.43 21.00 DISCHE 82.27 91.14 80.03 78.94 77.87 76.82 75.80 74.79 73.81 72.84 22.00 DISCHE 71.90 71.02 70.32 69.71 69.16 68.63 68.11 67.58 67.04 66.49 23.00 DISCHE 65.93 65.36 54.77 64.17 63.56 62.94 62.32 61.69 60.95 59.41 24.00 DISCHE 57.89 50.62 55.77 53.21 51.69 49.72 48.91 48.18 47.50 46.85 25.00 DISCHS 46.24 45.66 45.10 44.55 44.02 43.50 42.98 42.48 41.98 41.49 26.00 DISCHG 41.00 40.51 40.03 39.55 39.07 38.60 37.63 37.15 38,12 36.66 27.00 DISCHE 36.16 35.66 35.15 34.64 34.13 33.61 33.09 32.57 32.04 31.51 28.00 DISCHG 30.97 30.44 29.90 29.36 28.82 28.28 27.74 27.21 26.67 26.13 29.00 DISCHE 25.68 25,30 24.94 24.59 24.24 23.89 23.52 23.14 22.75 22.35

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 1006.91 CFS-HRS, 83.21 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 20

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION=

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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
12.90 24.55 6.08
20.10 93.18 9.18

RUNOFF VOLUME ABOVE BASEFLOW = 1.45 WATERSHED INCHES, 970.12 CFS-HRS, 80:17 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENSTH = 2900.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28, M= 1.94

0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 20 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***
*** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.17 CFS, 25.69 % OF PEAK.

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 13.04
 24.51
 (NULL)

 20.25
 93.15
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.44 WATERSHED INCHES, 966.86 CFS-HRS, 79.90 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 20

OUTPUT HYDROGRAPH= 6

AREA - .28 SQ MI INPUT RUNOFF CURVE = 54. TIME OF CONCENTRATION = 2.00 HOURS INTERNAL HYDROGRAPH TIME INCREMENT = .1026 HOURS

PEAK DISCHARGE(CFS)

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
13.36 102.66 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 366.74 CFS-HRS, 30.31 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 20

PEAK TIME(HRS)

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

13.34 126.76 (NULL) 20.13 105.62 (NULL) TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.32 SQ.MI. 11.00 DISCHG 3.00 3.00 3.00 3.01 3.02 3.06 3.18 3.47 4.17 5.78 12.00 DISCHG 9.10 16.05 26.75 39.22 52.10 65.05 77.90 90.13 100.91 109.81 13.00 DISCHG 116.82 121.88 125.10 126.62 126.46 124.97 122.41 118.83 114.22 108.81 DISCHS 97.68 92.90 14.00 103.10 71.10 88.65 84.78 81.32 78.28 75.61 73.20 15.00 DISCHG 69.41 68.44 68.06 68.08 68.45 69.09 69.91 70.85 71.67 72.53 DISCHG 73.48 74.49 75.59 76.82 78.21 79.76 81.45 82.78 83.97 85.16 DISCHG 86.41 87.69 89.00 90.33 91.67 93.02 94.35 95.39 95.55 95.46 16.00 17.00 95.31 95.15 94.99 94.83 94.67 94.92 95.91 DISCHS 18.00 97.04 98.15 99.18

PEAK ELEVATION (FEET)

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19.00 DISCHE 100.14 101.02 101.81 102.53 103.18 104.69 105.06 103.75 104.26 105.35 105.54 20.00 DISCHE 105.62 105.60 105.48 105.27 104.98 104.61 104.15 103.63 103.05 102.42 101.74 21.00 DISCHE 101.03 100.29 99.53 98.74 97.95 97.14 96.33 95.51 22.00 DISCHE 94.69 93.87 93.04 92.22 91.41 90.62 89.84 89.08 88.59 88.40 DISCHS 23.00 88.29 88.20 88.12 88.04 87.95 87.88 87.80 87.72 87.63 87.54 24.00 DISCHS 87.43 84.56 77.84 76.07 87.14 86.01 82.97 81.30 79.58 74.29 72.52 60.23 58.50 . .56.88 70.77 25.00 DISCHG 69.04 67.36 65.73 63.95 62.06 26.00 DISCHE 55.38 53.98 52.68 51.47 50.33 49.26 48.24 47.29 46.38 45.51 27.00 DISCHG 44.68 43.89 43.12 42.39 40.98 40.28 39.56 38.85 38.16 41.67 28.00 DISCHE 37.49 36.83 35.55 36.19 34.93 34.32 33.71 33.12 32.52 31.94 29.00 29.69 29.17 28.67 28.18 27.71 DISCHE 31.36 30.79 30.23 27.24 26.79

RUNOFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 1333.60 CFS-HRS, 110.21 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 1

OPERATION RUNOFF STRUCTURE 30

OUTPUT HYDROGRAPH= 6

AREA= .37 SQ MI INPUT RUNOFF CURVE= 49. TIME OF CONCENTRATION= 3.90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME(HRS)
PEAK DISCHARGE(CFS)
PEAK ELEVATION(FEET)
14.95
(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 375.61 CFS-HRS, 31.04 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 21.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
16.21 49.05 25.91

RUNDFF VOLUME ABOVE BASEFLOW = 1.51 WATERSHED INCHES, 360.28 CFS-HRS, 29.77 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .88, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .32 PEAK TRAVEL TIME = .30 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
16.55 47.70 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 358.97 CFS-HRS, 29.67 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 40

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OUTPUT HYDROGRAPH= 6

.06 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.72

10.21

(RUNOFF)

23.76

1.21

(RUNOFF)

RUNDFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.69 ACRE-FEET; BASEFLOW =

.00 CFS

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS= 5.6

OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.73 16.54

10.35 49.80 (NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET; BASEFLOW =

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 40

INPUT HYDROGRAPH= 6

OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

12.90 15.50

9.83 49.78

9.81 10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.02

9.78

(NULL)

16.72

49.77

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.40 WATERSHED INCHES, 389.36 CFS-HRS, 32.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

AREA - .11 SQ MI INPUT RUNOFF CURVE = 40. TIME OF CONCENTRATION= 1.67 HOURS

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INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
13.33 13.76 (RUNOFF)

23.80 2.20 (RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 59.78 CFS-HRS, 4.94 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.16 22.91 (NULL) 16.65 53.98 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 449.14 CFS-HRS, 37.12 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50

OUTPUT HYDROGRAPH= 6

AREA = .36 SQ MI INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT = .0560 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.13 1078.73 (RUNOFF)
19.65 24.75 (RUNOFF)
23.65 18.64 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, 100.83 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.13 1079.95 (NULL) 16.49 90.76 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 60

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1400.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .44, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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*** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.13 16.49

1079.95 90.76

(NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW =

.00 CFS

OPERATION RUNOFF CROSS SECTION 60

OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 45. TIME OF CONCENTRATION= .90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 16.56

PEAK ELEVATION (FEET)

(NULL)

12.56 23.72

1.26

(RUNOFF) (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.88 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 60

PEAK TIME (HRS)

12.14

INPUT HYDROGRAPHS= 5,6

OUTPUT HYDROGRAPH= 7

1086.21

PEAK DISCHARGE (CFS)

				TAMA!			/HOLL!				
	16.	49		93.	02		(NULL)				
TIME(HRS)		FIRST HYDRO	GRAPH POINT	= .00	HOURS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	AREA =	.95 SQ.MI.
4.00	DISCHE	.00	.00	.00	.02	.10	.26	.49	.75	1.04	1.33
5.00	DISCHE	1.62	1.91	2.20	2.49	2.77	3.04	3.32	3.58	3.84	4.10
6.00	DISCHE	4.36	4.67	5.18	5.80	6.40	6.89	7.32	7.71	8.07	8.41
7.00	DISCHE	8.75	9.07	9.38	9.69	9.99	10.29	10.58	10.84	11.14	11.41
8.00	DISCHE	11.69	12.08	12.82	13.80	14.96	16.27	17.48	18.44	19.17	19.76
9.00	DISCHE	20.27	20.91	21.91	23.16	24.29	25.16	26.02	27.23	28.66	29.92
10.00	DISCHE	30.90	31.86	33.18	34.84	37.10	40.08	43.57	47.95	52.84	58.21
11.00	DISCHE	64.10	70.07	76.45	83.02	90.75	101.27	130.10	208.30	333.15	539.50
12.00	DISCHS	836.25	1068.68	1030.91	805.58	576.69	421.03	324.82	265.51	227.09	199.69
13.00	DISCHE	178.52	161.72	147.53	136.12	127.20	119.75	113.25	107.02	101.45	96.86
14.00	DISCHS	93.29	90.54	88.31	86.99	86.63	86.30	86.13	85.74	85.37	85.47
15.00	DISCHE	86.26	87.42	88.85	90.29	90.92	90.62	90.19	90.11	90.41	90.86
16.00	DISCHE	91.35	91.83	92.25	92.60	92.86	93.02	92.76	91.64	89.95	88.43
17.00	DISCHG	87.35	86.55	85.87	85.24	84.63	84.03	83.43	82.82	82.11	80.76
18.00	DISCHE	78.62	76.40	74.60	73.30	72.20	71.21	70.27	69.38	68.51	67.67
19.00	DISCHE	66.86	.66.07	65.33	64.68	63.99	63.30	62.62	61.96	61.19	59.85
20.00	DISCHE	57.76	55.58	53.88	52.62	51.60	50.72	49.94	49.23	48.56	47.93
21.00	DISCHE	47.34	46.79	46.26	45.76	45.28	44.83	44.40	43.97	43.53	43.10
22.00	DISCHE	42.70	42.29	41.89	41.51	41.15	40.80	40.46	40.14	39.84	39.55
23.00	DISCHG	39.27	39.01	38.75	38.51	38.28	38.04	37.85	37.45	37.37	34.44

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DISCHS 24.00 34.72 32.26 28.67 24.55 21.18 18.97 17.56 16.54 15.77 15.13 25.00 DISCHE 14.59 14.12 13.71 13.34 13.02 12.72 12.45 12.20 11.96 11.76 26.00 DISCHE 11.57 11.41 11.25 11.11 10.97 10.84 10.71 10.57 10.42 10.28 27.00 DISCHE 10.13 9.97 9.81 9.64 9.47 9.29 9.11 8.93 8.74 8.54 28.00 DISCHE 8.34 8.13 7.93 7.72 7.29 7.51 7.08 6.87 6.67 6.46 29.00 DISCHE 6.26 6.06 5.87 5.48 5.49 5.32 5.14 4.99 4.74 4.87

RUNOFF VOLUME ABOVE BASEFLOW = 2.79 WATERSHED INCHES, 1709.15 CFS-HRS, 141.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 6

OPERATION ADDHYD CROSS SECTION 70

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.14	1105.88	(NULL)
17.69	178.21	(NULL)
19.31	167.21	(NULL)

TIME (HRS)		FIRST HYDROSRA	APH POINT	= .00 H	OURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	2.27 SQ.MI.
4.00	DISCHE	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33
5.00	DISCHE	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10
6.00	DISCHS	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41
7.00	DISCHG	11.75	12.07	12.38	12.69	12.99	13.29	13.58	13.86	14.14	14.41
8.00	DISCHG	14.68	15.08	15.82	16.80	17.96	19.27	20.48	21.44	22.17	22.76
9.00	DISCHE	23.27	23.91	24.91	26.16	27.29	28.16	29.02	30.23	31.66	32.92
10.00	DISCHG	33.90	34.86	36.18	37.84	40.10	43.08	46.57	50.95	55.84	61.21
11.00	DISCHE	67.10	73.07	79.45	86.03	93.78	104.34	133.28	211.78	337.32	545.28
12.00	DISCHE	845.34	1084.73	1057.66	844.80	628.79	486.08	402.72	355.64	327.99	309.50
13.00	DISCHE	295.33	283.60	272.63	262.73	253.67	244.72	235.66	225.85	215.67	205.68
14.00	DISCHE	196.38	188.23	181.21	175.63	171.40	167.62	164.41	161.35	158.57	156.57
15.00	DISCHG	155.67	155.86	156.90	158.38	159.37	159.71	160.10	160.96	162.08	163.39
16.00	DISCHG	164.83	166.32	167.84	169.42	171.07	172.78	174.21	174.42	173.91	173.59
17.00	DISCHE	173.76	174.24	174.87	175.57	176.31	177.05	177.78	178.21	177.66	176.22
18.00	DISCHE	173.93	171.55	169.59	168.13	166.87	166.13	166.18	166.42	166.66	166.86
19.00	DISCHG	167.00	167.09	167.14	167.21	167.17	167.05	166.88	166.65	166.25	165.20
20.00	DISCHG	163.30	161.20	159.47	158.10	156.88	155.71	154.55	153.38	152.19	150.98
21.00	DISCHE	149.76	148.53	147.29	146.05	144.81	143.57	142.34	141.10	139.86	138.61
22.00	DISCHE	137.38	136.16	134.93	133.73	132.56	131.41	130.30	129.22	128.43	127.95
23.00	DISCHG	127.56	127.21	126.88	126.55	125.24	125.94	125.65	125.37	125.01	124.00
24.00	DISCHG	122.15	119.40	114.67	109.11	104.15	100.27	97.14	94.38	91.84	89.42
25.00	DISCHE	87.11	84.89	82.75	80.71	78.75	76.69	74.51	72.43	70.46	68.64

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TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT 87 60.10 26.00 DISCHE 66.95 65.39 63.94 62.58 61.30 58.95 57.85 56.80 52.03 27.00 DISCHE 54.81 53.86 52.93 51.14 47.59 50.27 49.39 48.49 46.70 45.83 44.97 28.00 DISCHG 44.11 43.27 42.44 41.61 40.79 39.99 39.19 38.40 29.00 DISCHE 37.62 36.85 36.10 35.37 34.66 33.98 33.32 32.70 32.11 31.53 RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 3042.75 CFS-HRS, 251.45 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION REACH CROSS SECTION 80 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS *** WARNING REACH 80 ATT-KIN COEFF.(C) GREATER THAN 0.667. CONSIDER REDUCING MAIN TIME INCREMENT *** PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.14 1105.88 (NULL) 17.69 178.21 (NULL) 19.31 167.21 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 3042.75 CFS-HRS, 251.45 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION RUNOFF CROSS SECTION 80 OUTPUT HYDROGRAPH= 6 .02 SQ MI INPUT RUNOFF CURVE= 64. TIME OF CONCENTRATION= .12 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0160 HOURS PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION (FEET) 11.98 54.99 (RUNOFF) RUNDFF VOLUME ABOVE BASEFLOW = 2.98 WATERSHED INCHES, 38.49 CFS-HRS, 3.18 ACRE-FEET; BASEFLOW = .00 CFS OPERATION ADDHYD CROSS SECTION 80 INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7 PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION (FEET) 12.13 1127.29 (NULL) 17.69 179.54 (NULL) 19.31 168.28 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 3081.23 CFS-HRS, 254.63 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION SAVMOV CROSS SECTION 100

OPERATION RUNOFF CROSS SECTION 90 OUTPUT HYDROGRAPH= 6

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

TIME OF CONCENTRATION= .62 HOURS .24 SQ MI INPUT RUNOFF CURVE= 73.

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INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.27	434.61	(RUNGFF)
19.56	14.73	(RUNOFF)
23.66	11.19	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.93 WATERSHED INCHES, 608.63 CFS-HRS, 50.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDRYD CROSS SECTION 100

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1509.45	(NULL)
16.64	197.41	(NULL)
17.69	197.88	(NULL)
19.31	183.01	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 3689.87 CFS-HRS, 304.93 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** HARNING REACH 110 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1509.45	(NULL)
16.64	197.41	(NULL)
17.69	197.88	(NULL)
19.31	183.01	(NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES. 3689.87 CFS-HRS. 304.93 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF. (C) SREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

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PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
1509.45	(NULL)
197.41	(NULL)
197.88	(NULL)
183.01	(NULL)
	1509.45 197.41 197.88

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 3689.87 CFS-HRS, 304.93 ACRE-FEET;

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 56. TIME OF CONCENTRATION= .74 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0987 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.38	159.29	(RUNOFF)
19.68	8.61	(RUNOFF)
23.67	6.65	(RUNOFF)

PEAK DISCHARGE (CFS)

1631.85

200.88

RUNOFF VOLUME ABOVE BASEFLOW = 2.22 WATERSHED INCHES. 271.72 CFS-HRS, 22.45 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

(NULL)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

12.18

15.38

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

					20010	10		HULL					
	16.	63			209.7	9		(NULL)					
	17.	48			208.5	i0		(NULL)					
	19.	31			191.6	1 -		(NULL)					
TIME (HRS)		FIRST H	YDROGR	APH POINT	= .00 H	IOURS	TIME INCREM	ENT = .1	O HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	
4.00	DISCHG		3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33	
5.00	DISCHE		4.52	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10	
6.00	DISCHG		7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41	
7.00	DISCHE	1	1.75	12.07	12.38	12.69	12.99	13.30	13.62	13.96	14.33	14.71	
8.00	DISCHG	1	5.11	15.65	16.55	17.73	19.11	20.68	22.18	23.45	24.48	25.36	
9.00	DISCHE	2	6.17	27.10	28.43	30.05	31.57	32.84	34.14	35.80	37.74	39.53	
10.00	DISCHE	4	1.03	42.53	44.41	46.70	49.75	53.63	58.32	64.09	70.62	77.95	
11.00	DISCHE	9	5.99	94.52	103.69	113.46	125.10	140.41	183.87	286.90	460.48	766.12	
12.00	DISCHE	120	2.04	1559.83	1624.75	1441.00	1183.26	959.33	788.96	670.15	588.09	528.05	
13.00	DISCHE	48	3.20	446.76	416.31	390.69	368.75	349.61	331.75	314.52	297.83	282.10	
14.00	DISCHE	26	8.15	255.94	245.43	236.78	229.69	223.42	217.69	212.27	207.28	203.30	
15.00	DISCHG	20	0.77	199.72	199.88	200.67	200.87	200.37	199.77	199.60	199.82	200.45	
16.00	DISCHE	20	1.43	202.60	203.92	205.37	206.95	208.60	209.73	209.46	208.22	207.00	
17.00	DISCHG	20	6.27	206.00	204.08	206.42	206.92	207.50	208.12	208.48	207.78	205.91	
18.00	DISCHG	20	3.02	199.77	196.87	194.55	192.63	191.42	191.15	191.18	191.28	191.38	
19.00	DISCHE	19	1.47	191.52	191.55	191.61	191.57	191.45	191.28	191.07	190.57	189.11	

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20.00	DISCHG	186.62	183.65	180.97	178.73	176.82	175.17	173.70	172.31	170.97	169.66
21.00	DISCHG	168.37	167.09	165.83	164.57	163.32	162.08	160.84	159.61	158.37	157.13
22.00	DISCHG	155.91	154.69	153.47	152.28	151.11	149.98	148.97	147.80	147.02	146.55
23.00	DISCHS	146.17	145.82	145.50	145.18	144.88	144.59	144.31	144.03	143.57	142.13
24.00	DISCHS	139.62	135.38	128.68	120.70	113.12	106.85	101.78	97.59	94.05	90.96
25.00	DISCHE	88.18	85.63	83.26	81.05	78.99	76.84	74.62	72.49	70.51	68.66
26.00	DISCHS	66.96	65.39	63.94	62.58	61.30	60.10	58.95	57.85	56.80	55.79
27.00	DISCHE	54.81	53.86	52.93	52.03	51.14	50.27	49.39	48.49	47.59	46.70
28.00	DISCHE	45.83	44.97	44.11	43.27	42.44	41.61	40.79	39.99	39.19	38.40
29.00	DISCHG	37.62	36.85	36.10	35.37	34.66	33.98	33.32	32.70	32.11	31.53

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 3961.59 CFS-HRS, 327.39 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV STRUCTURE 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 50

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.40

1		PEAK T		S)	PE	AK DISC 338	HARGE (CFS) .73	PEA	K ELEVATI 10.54	ON (FEET)			
Ţ	IME(HRS)		FIRST	HYDROGRAPH	POINT	= .00	HOURS	TIME INCREME	NT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.
	9.00	DISCHE		3.00	3.00	3.0			4.37	4.86	5.37	5.90	6.45
	9.00	ELEV		2.84	2.84	2.8	4 2.86	2.88	2.89	2.91	2.93	2.96	2.98
	10.00	DISCHG		7.02	7.55	8.0	9 8.66	9.26	9.90	10.60	11.37	12.21	13.16
	10.00	ELEV		3.00	3.02	3.0	5 3.07		3.13	3.16	3.19	3.23	3.27
	11.00	DISCHG		14.20	15.35	17.1	0 19.55	22.23	25.20	28.86	34.40	44.35	63.37
	11.00	ELEV		3.32	3.37	3.4	3 3.49	3.56	3.63	3.72	3.86	4.09	4.47
	12.00	DISCHE		93.11 1	20.25	168.3	9 227.57	256.97	279.89	296.60	309.78	317.79	324.55
	12.00	ELEV		5.08	5.95	6.9	3 7.84	8.57	9.11	9.51	9.80	10.01	10.17
	13.00	DISCHE		329.64 3	33.45	335.7	4 337.24	338.19	338.65	338.70	338.35	337.64	336.58
	13.00	ELEV		10.30	10.39	10.4	5 10.50	10.53	10.54	10.54	10.53	10.51	10.48
	14.00	DISCHE		335.22 3	33.49	331.1	6 328.62	325.94	323.14	320.26	317.30	314.27	311.21
	14.00	ELEV		10.44	10.39	10.3	3 10.27	10.21	10.14	10.07	10.00	9.93	9.86
	15.00	DISCHE		308.14 3	05.10	302.1	4 299.27	294.50	293.80	291.17	288.59	286.09	283.67
	15.00	ELEV		9.78	9.71	9.6	4 9.57	9.51	9.44	9.38	9.32	9.26	9.20
	16.00	DISCHE		281.35 2	79.12	276.9	8 274.95	273.01	271.18	269.43	267.75	256.09	264.45
	16.00	ELEV		9.15	9.09	9.0	4 8.99	8.95	8.90	8.86	8.82	8.78	8.74
	17.00	DISCHE		262.82 2	61.23	259.6	7 258.17	256.72	255.33	253.99	252.71	251.45	250.20
	17.00	ELEV		8.71	8.67	8.6	3 8.59	8.56	8.53	8.50	8.46	8.43	8.40
	18.00	DISCHE		248.96 2	47.69	246.3	6 245.01	243.63	242.25	240.88	239.55	238.25	237.00
	18.00	ELEV		8.37	8.34	8.3	8.28	8.24	8.21	8.17	8.14	8.11	8.07
	19.00	DISCHG	sep v	235.77 2	34.59	233.43	3 232.31	231.22	230.16	229.12	228.10	227.10	226.10
	19.00	ELEV		8.04	8.01	7.99	7.96	7.93	7.90	7.88	7.85	7.83	7.80
1	20.00	DISCHE		225.08 2	24.01	222.89	7 221.74	220.56	219.36	218.16	216.95	215.74	214.52
c	20.00	ELEV		7.78	7.75	7.72	2 7.69	7.66	7.63	7.60	7.57	7.54	7.51

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21.00	DISCHS	213.30	212.08	210.86	209.19	206.54	203.96	201.47	199.05	196.69	194.41
21.00	ELEV	7.48	7.45	7.42	7.39	7.36	7.33	7.30	7.28	7.25	7.22
22.00	DISCHG	192.18	190.02	187.91	185.85	183.85	181.89	179.98	178.13	176.32	174.59
22.00	ELEV	7.20	7.18	7.15	7.13	7.11	7.08	7.06	7.04	7.02	7.00
23.00	DISCHG	172.93	171.35	169.84	148.40	167.03	165.72	164.47	163.28	152.14	161.00
23.00	ELEV	6.98	6.97	6.95	6.93	6.92	6.90	6.89	6.88	6.86	6.85
24.00	DISCHG	159.82	158.51	154.96	155.06	152.82	150.31	147.61	144.79	141.92	. 139.02
24.00	ELEV	6.84	6.82	6.80	6.78	6.76	6.73	6.70	6.67	6.64	6.60
25.00	DISCHG	136.11	133.22	130.36	127.53	124.74	121.99	120.97	120.91	120.86	120.80
25.00	ELEV	6.57	6.54	6.51	6.47	6.44	6.41	6.38	6.35	6.31	6.28
26.00	DISCHE	120.74	120.68	120.61	120.55	120.48	120.42	120.35	120.28	120.21	120.13
26.00	ELEY	6.24	6.21	6.17	6.13	6.09	6.05	6.01	5.97	5.92	5.88
27.00	DISCHG	120.06	119.67	118.00	116.35	114.72	113.11	111.52	109.94	108.39	106.85
27.00	ELEV	5.84	5.79	5.75	5.70	5.66	5.62	5.57	5.53	5.49	5.45
28.00	DISCHG	105.32	103.81	102.32	100.85	99.39	97.94	96.52	95.10	93.71	92.33
28.00	ELEV	5.41	5.37	5.33	5.29	5.25	5.21	5.17	5.14	5.10	5.06
29.00	DISCHE	90.96	89,48	87.71	85.97	84.27	82.60	80.97	79.37	77.80	76.26
29.00	ELEV	5.03	4.99	4.95	4.92	4.89	4.85	4.82	4.79	4.76	4.73
						Land By the second					

RUNOFF VOLUME ABOVE BASEFLOW = 2.07 WATERSHED INCHES, 3641.08 CFS-HRS, 300.90 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1000.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 130 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***
*** WARNING - REACH 130 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 73.26 CFS, 21.82 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.56

338.73

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.07 WATERSHED INCHES, 3641.08 CFS-HRS, 300.90 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 130

OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 74. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.01	160.37	(RUNOFF)
23.65	2.37	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.05 WATERSHED INCHES. 130.79 CFS-HRS. 10.81 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 130

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

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PEAK TIME (HRS) 12.06

13.45

PEAK DISCHARGE (CFS) 256.61 348.57

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET) (NULL)

(NULL)

PEAK ELEVATION (FEET)

RUNOFF VOLUME ABOVE BASEFLOW = 2.11 WATERSHED INCHES. 3771.87 CFS-HRS, 311.71 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

PEAK TIME (HRS)

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

15.72 271.48 6.68 TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 2.77 SQ.MI. 11.00 DISCHG 3.00 3.00 3.00 3.00 3.00 4.63 3.00 3.00 3.00 7.79 11.00 ELEV 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.53 DISCHE 12.00 12.23 16.78 21.04 28.84 38.83 48.34 58.08 69.82 81.92 93.75 12.00 ELEV 2.66 2.81 2.95 3.09 3.25 3.41 3.57 3.89 3.73 4.05 13.00 DISCHG 105.24 116.35 127.04 136.72 144.13 151.29 158.18 164.81 171.16 177.25 13.00 ELEV 4.20 4.35 4.49 4.63 4.76 4.89 5.01 5.13 5.24 5.35 14.00 DISCHE 180.09 180.92 180.26 180.43 180.40 180.76 186.47 197.71 207.77 216.75 14.00 5.46 5.95 ELEV 5.56 5.66 5.76 5.85 6.04 6.12 6.20 6.27 15.00 DISCHG 224.76 231.86 238.14 243.67 248.50 252.69 256.30 259.41 262.06 254.29 15.00 ELEV 6.33 6.38 6.43 6.47 6.50 6.53 6.56 5.59 6.60 6.62 16.00 DISCHS 266.15 267.67 268.89 269.84 270.55 271.05 271.35 271.47 271.42 271.24 16.00 ELEV 6.64 6.65 6.66 6.67 6.66 5.67 6.67 5.58 6.67 5.67 DISCHE 17.00 270.93 270.52 270.01 269.42 268.76 268.04 267.26 265.58 266.44 264.67 17.00 ELEV 6.67 6.67 6.66 6.66 6.65 6.65 6.64 6.64 6.63 5.62 18.00 DISCHG 263.71 262.72 261.69 260.64 259.56 258.46 257.34 255.04 256.19 253.87 18.00 ELEV 6.62 6.61 6.60 6.59 6.59 6.58 6.57 6.56 6.55 6.54 252.70 19.00 DISCHE 248.01 251.52 250.35 249.18 246.86 245.71 244.57 243.44 242.30 6.52 19.00 FLEV 6.54 6.53 6.51 6.50 6.49 6.48 6.47 6.47 6.46 20.00 DISCHG 241.14 239.99 238.83 237.68 236.52 235.36 234.20 233.03 231.87 230.69 20.00 ELEV 6.45 6.44 6.43 6.42 6.41 6.41 6.40 6.39 6.38 6.37 21.00 DISCHE 229.52 228.34 227.15 225.95 224.67 223.27 221.79 220.23 218.50 216.91 21.00 ELEV 6.36 6.35 6.34 6.34 6.33 6.32 6.30 6.29 6.28 6.27 22.00 DISCHG 215.18 213.41 207.94 211.51 209.78 206.09 204.24 202.38 200.52 198.67 22.00 ELEV 6.26 6.19 6.24 6.23 6.21 6.20 6.17 6.16 6.15 6.13 23.00 DISCHE 194.83 195.01 193.21 189.70 191.44 187.99 186.32 184.68 183.08 181.50 23.00 ELEV 6.12 6.10 6.09 6.08 6.06 6.05 6.04 6.03 6.02 6.00 24.00 DISCHE 180.99 180.96 180.94 180.91 180.89 180.85 180.82 180.79 180.75 180.70 24.00 ELEV 5.99 5.98 5.96 5.95 5,93 5.91 5.89 5.87 5.85 5.82 25.00 DISCHE 180.66 180.61 180.56 180.50 180.45 180.39 180.32 180.26 180.20 180.14 25.00 5.79 ELEV 5.77 5.73 5.70 5.67 5.63 5.59 5.56 5.52 5.48

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26.00 DISCHS 180.07 180.01 178.27 176.25 174.30 172.42 170.60 168.84 167.13 165.49 26.00 ELEV 5.44 5.41 5.37 5.33 5.30 5.27 5.23 5.20 5.17 5.14 27.00 DISCHG 163.90 162.36 160.84 159.31 157.78 156.24 154.70 153.17 151.63 150.09 27.00 ELEV 5.11 5.09 5.06 5.03 5.00 4.98 4.95 4.92 4.90 4.87 148.55 4.84 4.90 4.87 147.01 145.47 143.93 142.40 140.87 139.34 137.82 136.30 134.71 28.00 DISCHE 4.84 28.00 ELEV 4.81 4.79 4.76 4.73 4.70 4.68 4.65 4.62 4.60 29.00 DISCHG 132.71 130.74 128.79 126.84 124.91 122.98 121.07 119.17 117.29 . 115.42 ELEV 4.54 4.39 4.36 4.34 29.00 4.57 4.52 4.49 4.47 4.44 4.41

RUNDFF VOLUME ABOVE BASEFLOW = 1.92 WATERSHED INCHES, 3427.89 CFS-HRS, 283.28 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 140

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 2500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .37 PEAK TRAVEL TIME = .30 HOURS

0 *** MARNING - REACH 140 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 112.42 CFS, 41.87 % OF PEAK.

PEAK TIME (HRS) 17.02 PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

271.05 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 3396.49 CFS-HRS, 280.69 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 140

OUTPUT HYDROGRAPH= 6

AREA= .20 SQ MI INPUT RUNOFF CURVE= 68. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION(FEET)
12.02	543.51	(RUNOFF)
15.16	19.42	(RUNOFF)
16.45	16.95	(RUNOFF)
17.66	14.20	(RUNOFF)
19.65	11.51	(RUNOFF)
23.65	8.78	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.42 WATERSHED INCHES. 441.34 CFS-HRS. 36.47 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 140

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.02 549.09 (NIILL) 17.02 285.17 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.00 WATERSHED INCHES, 3837.82 CFS-HRS, 317.16 ACRE-FEET: BASEFLOW = 3.00 CFS

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OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7

OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.15	142.32	(RUNOFF)
16.45	6.39	(RUNOFF)
17.67	5.39	(RUNOFF)
19.66	4.37	(RUNOFF)
23.66	3.34	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.10 WATERSHED INCHES, 160.17 CFS-HRS, 13.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6

OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.04	659.91	(NULL)
14.32	211.38	(NULL)
16.56	291.90	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 3997.99 CFS-HRS, 330.39 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***
*** WARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 117.49 CFS, 18.32 % OF PEAK.

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET
12.04	459.91	(NULL)
14.32	211.39	(NULL)
16.56	291.90	(NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 3997.99 CFS-HRS, 330.39 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA= .01 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= .15 HOURS

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INTERNAL HYDROGRAPH TIME INCREMENT= .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 8 %.

XSECTION 150

	PEAK TIME(HRS) 12.05		PEAK DISCHARGE(CFS) 4.99			PEAK	ELEVATI (RUNOFF	ON(FEET))				
TIME (HRS)		FIRST	HYDROGRAPH	POINT =	.00 HOURS		TIME INCREMENT	= .10	HOURS	DRAINAGE	AREA =	.01 SQ.MI.
11.00	DISCHE		.00	.00	.00	.00	.00	.00	.00	.00	.00	1.05
12.00	DISCHG		4.60	4.46	2.17	1.71	1.28	1.17	1.09	1.02	1.00	.87
13.00	DISCHG		.84	.78	.73	.71	. 66	. 64	. 50	.56	.55	.52
14.00	DISCHG		.52	.50	.48	. 47	. 44	. 43	.41	.38	.38	.38
15.00	DISCHE		.38	.39	.39	.38	.35	.34	.34	.34	.34	.34
16.00	DISCHS		.34	.34	.35	.35	.35	.35	.32	.30	.30	.30
17.00	DISCHE		. 30	.30	.30	.30	.30	.30	.30	.30	.30	.26
18.00	DISCHE		. 25	. 25	. 25	.25	. 25	.25	. 25	. 25	.25	.25
19.00	DISCHE		. 25	. 25	. 25	. 25	.25	. 25	.25	.25	.25	.21
20.00	DISCHE		.19	.19	.19	.19	.19	.19	.19	.19	.19	.19
21.00	DISCHE		.19	.20	.20	.20	.20	.20	.20	.20	.20	.20
22.00	DISCHE		.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
23.00	DISCHG		.20	.20	.20	.20	.20	.20	.20	.20	.20	.15
24.00	DISCHE		.14	.08	.01	.00						

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6

OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.04	664.89	(NULL)
14.32	211.85	(NULL)
16.56	292.24	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 4003.40 CFS-HRS, 330.84 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.27	39.44	(RUNOFF)
23.68	2.45	(RUNOFF)

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RUNOFF VOLUME ABOVE BASEFLOW = .99 WATERSHED INCHES. 70.57 CFS-HRS. 5.83 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.04 682.06 (NULL) 14.31 218.17 (NULL) 16.55 296.50 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.99 WATERSHED INCHES, 4073.98 CFS-HRS, 336.67 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .62 PEAK TRAVEL TIME = .20 HOURS

*** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 117.49 CFS. 17.86 % OF PEAK.

PEAK DISCHARGE (CFS) PEAK TIME (HRS) PEAK ELEVATION (FEET) 12.19 603.16 (NULL) 14.48 217.40 (NULL) 16.71 296.06 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.98 WATERSHED INCHES, 4051.95 CFS-HRS, 334.85 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 180

DUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.28 34.74 (RUNOFF) 23.69 2.34 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES, 65.08 CFS-HRS, 5.38 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.19 635.26 (NULL) 14.44 223.16 (NULL) 16.70 300.00 (NULL)

TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 3.28 SQ.MI.

TR20 XEQ 04-28-86 13:12 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT 87 PAGE 28 3.00 3.00 3.50 3.00 3.00 3.04 3.00 3.00 8.00 DISCHE 3.00 3.00 3.15 3.99 4.26 4.53 4.81 5.16 5.60 6.04 9.00 DISCHE 3.31 3.72 DISCHE 6.47 7.38 11.76 58.09 10.00 6.88 7.98 8.61 9.54 10.52 13.39 14.95 19.17 26.99 31.07 24.30 11.00 DISCHE 17.06 21.51 35.31 171.42 108.28 12.00 DISCHE 344.93 559.62 634.25 520.58 405.23 311.45 249.04 212.02 180.74 190.45 13.00 DISCHE 174.98 173.76 175.45 178.20 183.22 188.19 193.59 198.58 202.64 207.18 14.00 DISCHE 222.42 211.44 215.97 219.72 221.83 223.05 222.94 221.47 221.25 223.98 277.71 281.83 243.30 250.82 DISCHG 229.18 235.89 257.93 263.59 268.55 273.27 15.00 285.54 288.84 291.73 294.21 296.32 298.08 16.00 DISCH6 299.50 300.00 299.50 298.99 17.00 DISCHG 298.64 298.40 298.20 297.97 297.69 297.33 296.90 296.38 295.79 294.94 289.06 287.53 286.23 285.05 283.93 282.84 18.00 DISCHG 293.02 290.89 281.76 280.67 277.33 276.19 262.08 260.27 19.00 DISCHG 279.57 278.45 275.05 272.77 271.63 256.07 254.84 273.91 270.48 269.13 266.77 262.08 20.00 DISCHE 258.72 253.65 252.48 264.25 257.34 248.99 247.82 21.00 DISCHG 251.31 250.15 246.66 245.49 244.29 243.05 241.74 240.36 22.00 DISCHG 238.91 237.39 235.81 234.17 232.49 230.76 229.00 227.21 225.41 223.59 23.00 218.09 216.26 214.45 212.65 DISCHE 221.76 219.92 210.87 209.11 207.37 205.45 199.37 195.49 190.81 187.17 184.71 183.17 182.23 181.66 181.31 180.94 180.84 180.75 180.68 180.63 180.57 180.51 180.46 180.40 24.00 DISCHG 202.52 199.37 181.09 25.00 DISCHE 26.00 DISCHG 180.34 180.27 180.21 180.15 179.70 178.80 177.55 176.07 174.45 172.77 167.71 166.08 164.48 162.91 161.35 152.09 150.55 149.01 147.47 145.93 27.00 DISCHE 171.07 169.38 159.80 158.25 156.71 28.00 DISCHE 155.17 153.43 144.40 142.87 141.34 29.00 DISCHS 139.81 138.27 136.62 134.87 133.05 131.18 129.29 127.39 125.47 123.56 RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 4117.03 CFS-HRS, 340.23 ACRE-FEET; BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION ENDOMP

RECORD ID 1740

COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID 1750

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE		STANDARD CONTROL		DOATMACE	RAIN	ANTEC	MAIN TIME	P	RECIPITATION		DUNGER		PEAK DISCHARGE			
	ID	OPERATION		DRAINAGE AREA (SQ MI)	*	COND	INCREM (HR)	BESIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
	ALTERNAT	Ε	87 S1	ORM 1								15.				
	STRUCTURE 1	~	RUNOFF	.84	2	2	10	۸	7 00	74.00	1 17		17.00	0/ 5/		
	STRUCTURE 1		RESVOR	.84	2	2 2	.10	.0	7.00	24.00	1.67	D EA	17.80	96.56	114.9	
	XSECTION 1		REACH	.84	2	2			7.00	24.00	1.63	9.50	18.14	96.09	114.4	
		0	RUNOFF	.20	2	2	.10	.0	7.00 7.00	24.00	1.62		18.47 12.08	98.84	117.7	
			ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.50	,		121.81	609.0	
	VOCELION I	٧	מווועם	1.04	4	•	.10	.0	7.00	24.00	1.30		12.08	124.81	120.0	
	STRUCTURE 2	0	RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.45	9.18	20.10	93.18	89.6	
	XSECTION 2		REACH	1.04	2	2	.10	.0	7.00	24.00	1.44		20.25	93.15	89.6	
		0	RUNOFF	.28	2	2	.10	.0	7.00	24.00	2.03		13.36	102.66	366.6	
		0	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.57		13.34	126.76	96.0	
	STRUCTURE 3		RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7	
-																
	STRUCTURE 3	0	RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9	
	XSECTION 4	0	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9	
	XSECTION 4	0	RUNOFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2	
	XSECTION 4	0	ADDHYD	.43	2	2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8	
	STRUCTURE 4	0	RESVOR	.43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8	
	XSECTION 5	0	REACH	.43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7	
	XSECTION 4	9	RUNCFF	.11	2	2	.10	.0	7.00	24.00	.84		13.33	13.76	125.1	
	XSECTION 5	0	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29		16.65	53.98	100.0	
	XSECTION 5		RUNOFF	.36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5	
	XSECTION 5	0	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87	1.3b	12.13	1079.95	1199.9	
		6														
	XSECTION 6		REACH	.90	2	2	.10	0	7.00	24.00	2.87		12.13	1079.95	1199.9	
	XSECTION 6		RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2	
	XSECTION 6		ADDHYD	.95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4	
	XSECTION 7		ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.08		12.14	1105.88	487.2	
	XSECTION 8	0	REACH	2.27	2	2	.10	.0	7.00	24.00	2.08		12.14	1105.88	487.2	
	VOEDTION O		DIMAFE		_											
			RUNOFF	.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.6	
	XSECTION 8		ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.08		12.13	1127.29	492.3	
	XSECTION 9		RUNOFF	. 24	2	2	.10	.0	7.00	24.00	3.93		12.27	434.61	1810.9	
	XSECTION 10		ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.26		12.16	1509.45	596.6	
	XSECTION 11	V	REACH	2.53	2	2	.10	.0	7.00	24.00	2.26		12.16	1509.45	596.6	
	XSECTION 12	٥	REACH	2.53	2	2	10	^	7 00	24 00	2.2/		10.44	1500 45	ED/ /	
,	XSECTION 12		RUNOFF		2	2 2	.10	.0	7.00	24.00	2.26		12.16	1509.45	596.6	
	AGELIIUN 12	U	RUNUFF	.19	2	4	.10	.0	7.00	24.00	2.22		12.38	159.29	838.4	

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 87 30

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			DUMBEE	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	E 87 S1	FORM 1											
XSECTION 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.26		12.18	1631.85	599.9
STRUCTURE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.07	10.54	13.56	338.73	124.5
XSECTION 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.07		13.56	338.73	124.5
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.11		13.45	348.57	125.8
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.92	6.68	16.72	271.48	98.0
XSECTION 140	REACH	2.77	2	2	.10	.0	7.00	24.00	1.90		17.02	271.05	97.9
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.42		12.02	543.51	2717.6
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.00		12.02	549.09	184.9
XSECTION 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	3.10		12.15	142.32	1779.0
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.03		12.04	659.91	216.4
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.03		12.04	659.91	216.4
XSECTION 150	RUNOFF	.01	2	2	.10	.0	7.00	24.00	.84	11000	12.05	4.99	499.3
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.03	, 14 <u>2</u> 99.9	12.04	564.89	217.3
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.99		12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	1.99		12.04	682.06	215.2
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	1.98		12.19	603.16	190.3
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	1.94		12.19	635.26	193.7

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SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

36			- 1	IYDROGRA	PH INF	ORMATIO	N			ROUTING PARAMETERS PE								EAK	
†				9 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		OUTF	LOW+		VOLUME	MAIN	ITER-	Q AND	A		PEAK .	S/Q	. ATT-	TRAVE	L TIME
+ XSEC	REACH	INF	.OW	OUTF	LOW	INTER	V.AREA	BASE-	ABOVE	TIME	ATION	EQUAT	ION	LENGTH	RATID	OPEAK	KIN	STOR-	KINE-
ID	LENSTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR	#	COEFF	POWER	FACTOR	0/1	(K)	COEFF	AGE	MATI
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K\$)	(Q\$)	(SEC)	(C)	(HR)	(HR
	LTERNATE																		
+ + 10	1750				19.5			7	1.63\$			1.20			007	000	7.4	40	71
	1700		1011						1100+				1.10	.021	•""	000	.01	. 70	. 2
•						123						.280							
20	2900	93	20.1	93	20.2			3	1.45\$.10	1		1.94	.000	1.000	320	.72?	.10	.09
•						127	13.3					200							
40	1300	48	16.2	48	16.5			0	1.51	.10	1	.880	1.10	.027	.992	934	.32	.30	. 20
						50	16.5												
- 50	1700	50	16.6	50	16.7			0	1.41	.10	,	1.60	1.45	- 002	1.000	252	937	10	0.
						54											100.		
												.440							
60	1400	1064	12.1	1064	12.1			0	2.87	.10	0		1.94	.000	1.000	38	1.00?	.00	.00
						1069	12.1												
	0.40									4. 19		.300				v vij			
+ 80	700								2.08	.10					1.000	23	1.00?	.00	.00
١						1113	12.1					.300							
110	500	1493	12.2	1493	12.2			3	2.26	.10	0			.000	1.000	14	1.00?	.00	.00
						-	4												
+120	500	1493	12.2	1493	12.2			3	2.26	.10	0	.300		.000	1.000	14	1.00?	.00	.00
			recycle	ed paper		1625	12.2							ecolog	y and e	nvironm	ent	R_110	.
												.300						0-113	,

+130	1000	339 13	.6 339	13.6			3	2.07\$.10	0	1.94	.000	1.000	57	1.00?	.00	.00	
+					349	13.5										Dra	44	
+140	2500	271 16	.7 271	17.0			3	1.92*	.10		.210	004	.998	700				
	1000	271 10	.,	1710			100	1.74	.10		1.70	.004	.770	/00	.3/	.30	. 22	
+					544	12.0												
											.210							
+150	300	644 12	0 544	12.0			3	2.03#	.10	0		.000	1.000	71	1.00?	.00	.00	
					/ 40	(2.0												
					047	12.0					.210							
+180	1700	661 12.	.0 601	12.2			3	1.99#	.10	i	1.48	.005	.910	401	.62	. 20	.11	
4.4.																		

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 87 30

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JOB 1 SUMMARY PAGE 32

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

STRUCTURE	DRAINAGE AREA (SQ MI)	STORM NUMBERS
0 STRUCTURE 60	2.77	
ALTERNATE 0 STRUCTURE 50	2.72	271.48
ALTERNATE 0 STRUCTURE 40	87	338.73
ALTERNATE 0 STRUCTURE 30		49.78
ALTERNATE 0 STRUCTURE 20	87	48.05
+ALTERNATE 0 STRUCTURE 10	87	93.18
+ALTERNATE 0 XSECTION 10	87	96.09
+ALTERNATE 0 XSECTION 20	87	124.81
+ALTERNATE 0 XSECTION 40	87	126.76
ALTERNATE	87	49.80
0 XSECTION 49 ALTERNATE	87	13.76
0 XSECTION 50 + ALTERNATE	87	1079.95
0 XSECTION 60 +ALTERNATE		1086.21
0 XSECTION 70 +ALTERNATE		1105.88
0 XSECTION 80	2.29	
ALTERNATE	87	1127.29

TR20 XEQ 04-28-86 13:12 REV PC 09/83(.2)

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 87

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/		DRAINAGE	
	STRUCTURE		AREA	STORM NUMBERS
	ID		(SQ MI)	1
0	XSECTION 90)	.24	
+				
	ALTERNATE	87		434.61
0	XSECTION 100)	2.53	
	ALTERNATE	87		1509.45
	XSECTION 110		2.53	
+				
	ALTERNATE	87		1509.45
0	XSECTION 120		2.72	
÷				
	ALTERNATE	87		1631.85
0	XSECTION 130		2.77	
+				
	ALTERNATE	87		348.57
0	XSECTION 140		2.97	
+				
	ALTERNATE	87		549.09
0	XSECTION 149		.08	
+				
	ALTERNATE	87		142.32
0	XSECTION 150		3.06	La transfer de la company
+			Control of the Control	
	ALTERNATE	87		664.89
	XSECTION 180			
+				
	ALTERNATE	87		635.26

FISCAL YEAR 88

			RINT PASS=00 STUDY NV501	0 24 HR 10YR TYPE 2 STORM	10
TITLE ALT	88			30	
3 STRUCT	10				40
8		7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
8		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		8.2	22.0	6.38	90
8		8.6	52.0	7.07	100
8		9.0	62.0	7.75	110
8		9.5	96.0	9.61	120
8		10.0	126.0	9.47	130
8		11.0	198.0	11.18	140
8		12.0	280.0	12.89	150
8		13.00	360.0	14.79	160
8		14.00	440.0	16.68	170
8		15.00	500.0	18.58	180
8		15.1	600.00	18.60	190
9 ENDTBL					200
3 STRUCT	20				210
8		4.5	0.00	6.80	220
8		4.9	1.5	7.88	230
8		5.1	3.7	8.42	240
8		5.5	11.0	9.51	250
8		5.7	15.0	10.13	260
8		6.1	25.0	11.13	270
8		6.5	40.0	12.21	280
8		7.1	60.0	13.84	290
8		7.9	78.0	16.01	300
8		8.5	79.0	17.63	310
9		9.5	100.0	20.34	320
8		10.5	126.0	23.06	330
8		11.5	150.0	25.76	340
8		11.6	300.0	26.04	350
9 ENDTBL					360
3 STRUCT	30				370
8		21.0	0.00	0.10	380
8		21.4	0.6	0.61	390
8		21.6	1.5	0.86	400
8		21.8	2.5	1.12	410
8		22.2	5.2	1.62	420
8		22.6	8.2	2.13	430
8		23.0	11.0	2.64	440
8		23.5	20.0	3.27	450
9		24.0	27.0	3.91	460

*1	*********	******	**80-80 LIST	OF INPUT DATA	(CONTINUED)****************	*
8			25.0	39.0	5.18 47	70
8			26.0	49.0		30
8			27.0	57.0	7.72	
8			27.1	200.00	7.74 50	
9	ENDTBL				51	
3	STRUCT	40			52	
8			9.0	0.0	0.38 53	
8	Berling and State		9.4	2.2	0.47 54	
8			9.5	5.0	0.52 55	
8			10.0	14.0	0.62 56	0
8			10.2	21.0	0.67 57	0
8			10.6	36.0	0.77 58	10
8			11.0	55.0	0.86 59	0
8			11.6	82.0	1.01 60	0
8			12.4	120.0	1.21 61	0
8			13.0	121.0	1.35 62	0
8			14.0	122.0	1.60 63	0
8			15.0	126.0	1.84 64	0
8			16.0	150.00	2.08 65	0
8			16.1	300.0	2.11 66	0
	ENDTBL				67	0
3	STRUCT	50			68	0
8			2.4	0.00	22.00 69	0
8			2.8	2.0	26.86 70	0
8			3.0	7.0	29.29 71	0
8			3.4	16.0	34.16 72	0
9			3.6	24.0	36.59 73	0
8			4.0	40.0	41.46 74	0
8			4.4	60.0	46.32 75	0
8			5.0	90.0	53.62 76	0
9			5.8	120.0	63.35	0
8			6.4	121.0	70.65	0
8			7.4	210.0	82.81 79	0
8			8.4	250.00	94.98	0
8			10.4	334.0	119.31	0
8			12.4	400.0	143.63 82	0
8			12.5	800.0	143.70 83	0
	ENDTBL				84	0
	STRUCT	60			85	0
8			2.0	0.0	22.20 86	
8			2.4	3.0	27.41 87	0
8			2.6	10.5	30.02	
8			3.0	22.5	35.24 89	
8			3.2	36.0	37.85 90	
8			3.4	60.0	43.06 91	
8			4.0	90.0	48.28 92	0

**	******	::	*****	**	**	\$8	0-80 LIST OF	INPUT DATA	(CONTINUED) \$	*************	*****
8							4.6	135.0	56.11		930
8							5.4	180.0	66.55		940
8							6.0	191.0	74.38		950
8							7.0	315.0	87.42		960
8							8.0	375.0	100.47		970
8							8.1	700.0	100.50		980
	ENDTBL										990
	RUNOFF	1	10			6	0.84	51.	7.50	1	1000
	RESVOR					_	7.0			i	1010
	REACH	_	010	7			1750.	1.2	1.10	i	1020
	RUNOFF		1,63 (5 (6 (6 (6 (6 (6 (6 (6 (6 (6 (6 (6 (6 (6	'			0.20	42.	0.19	1	1030
	ADDHYD			5	4		V.2V	72.	V.17	11	1040
	SAVMOV			7		6					
	RESVOR					_	4.5			1	1050 1060
	REACH			7			2900.	0.28	1.94		
	RUNOFF			1						1	1070
	ADDHYD			_	,		0.28	53.	1.02	1	1080
					6					1 1	1090
	SAVMOV			7		1		40		4	1100
	RUNOFF		30	,			0.37	49.	3.90	1	1110
	RESVOR		30	_			21.0			1	1120
	REACH			7			1300.	0.88	1.10	1	1130
	RUNOFF						0.06	40.	1.00	1	1140
	ADDHYD			_	6					1	1150
S CE	SAYMOV	0.5		7		6					1160
	RESVOR		40	6		-	9.0			1	1170
	REACH			7		5	1700.	1.6	1.45	1	1180
6	RUNOFF	1	049				0.11	40.	1.67	1	1190
6	ADDHYD	4	050	5	6	7				1	1200
6	SAVMOV	5	050	7		5					1210
6	RUNOFF	1	050			5	0.36	85.	0.42	1	1220
6	ADDHYD	4	050	5	6	7				1	1230
	REACH		060	7		5	1400.	0.44	1.94	1	1240
6	RUNOFF	1	060			6	0.05	45.	0.90	1	1250
6	ADDHYD	4	060	5	6	7				1 1	1260
6	SAVMOV	5	070	7		5					1270
6	SAVMOV	5	070	1		6					1280
6	ADDHYD	4	070	5	6	7				1 1	1290
	REACH							0.30	1.94	1	1300
6	RUNOFF	1	080				0.02	64.	0.12	1	1310
6	ADDHYD	4	080	5	6				rgi ner neskringstave us	I was the second	1320
	SAVMOV			7		5					1330
	RUNOFF						0.24	73.	0.62	1	1340
	ADDHYD			5	6					i	1350
	REACH			7			500.	0.30	1.94	i	1360
	SAVMOV			5		7					1370
	REACH			7			500.	0.30	1.94	1	1380
-		,				2		****	****		1000

	**	*****	**	*****	**	**	18	0-80 LIST (OF INPUT DA	TA (CONTINUE	(D) ************	******
)	6	RUNOFF	1	120			6	0.19	56.	0.74	1	1390
	6	ADDHYD	4	120	5	6	7				11	1400
	6	SAVMOV	5	50	7		6					1410
	6	RESVOR	2	50	6		7	2.4			111	1420
	5	REACH	3	130	7		5	1000.	0.30	1.94	1	1430
	6	RUNOFF	1	130			6	0.05	74.	0.19	1	1440
	6	ADDHYD	4	130	5	4	7				1	1450
	6	SAVMOV	5	130	7		6					1460
	6	RESVOR	2	60	6		7	2.0			111	1470
	6	REACH	3	140	7		5	2500.	0.21	1.48	1	1480
	6	RUNOFF	1	140			6	0.20	66.	1.15	1	1490
	6	ADDHYD	4	140	5	6	7				1	1500
	6	SAVMOV	5	150	7		5					1510
	6	RUNOFF	1	149			6	0.08	50.	0.42	1	1520
	6	ADDHYD	4	150	5	6	7					1530
	6	REACH	3	150	7		5	300.	0.21	1.48	1	1540
	6	RUNOFF	1	150			6	0.01	40.	0.15	1	1550
	6	ADDHYD	4	150	5	6	7	1			1	1560
	6	SAVMOV	5	180	7		5					1570
	6	RUNOFF	1	180			5	0.28	50.	0.61	i	1580
	6	ADDHYD	4	180	5	6	7				1	1590
	6	REACH	3	180	7		5	1700.0	0.21	1.48	1	1600
	5	RUNOFF	1	180			5	0.11	41.	0.48	1	1610
	6	ADDHYD	4	180	5	6	7				11 1 1	1620
		ENDATA										1630
	7	ALTER	3									1640
1	6	RUNOFF	1	010			6	0.20	43.0	0.19		1650
	6	RUNOFF	1	020			6	0.28	54.0	2.00		1660
	6	RUNOFF	1	090			6	0.24	75.0	0.62		1665
	6	RUNOFF	1	140				0.20	69.0	0.19		1670
	5	RUNOFF	1	149			6	0.08	65.0	0.42		1680
	6	RUNOFF	1	180			6	0.11	42.0	0.48		1690
	7	LIST										1700
	7	BASFLO	5					3.0				1710
	7	INCREM	6					0.1				1720
	7	COMPUT	7	10	11	30		0.0	7.0	1.0	2 2 88 01	1730
		ENDCMP	1									1740
		ENDJOB	2									1750

TR20 XEQ 04-28-86 13:44 COGDELL'S CREEK WATERSHED STUDY NV5010	24 HR 10YR TYPE 2 STORM	20	J0B 1	PASS 1
REV PC 09/83(.2) ALT 88	30			PAGE 1
OCHANGES TO STANDARD CONTROL LIST FOLLOW				ATT JACKS NO.
EXECUTIVE CONTROL OPERATION ALTER			RECORD ID	1640
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 10			, RECORD ID	1650
DUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	43.0000	.1900
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 20			RECORD ID	1660
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2800	54.0000	2.0000
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 90			RECORD ID	1665
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2400	75.0000	.6200
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 140			RECORD ID	1670
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	69.0000	.1900
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 149			RECORD ID	1680
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.0800	45.0000	.4200
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 180			RECORD ID	1690
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.1100	42.0000	.4800
OUTPUT OPTIONS IN EFFECT PEAK VOI SUM				

1700

EXECUTIVE CONTROL OPERATION LIST

RECORD ID

LISTING OF CURRENT DATA

3	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
8			7.00	.00	4.33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
8			8.20	22.00	6.38
8			8.60	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	360.00	14.79
8			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600.00	18.60
9	ENDTBL				
		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	20			
8			4.50	.00	6.80
8			4.90	1.50	7.88
8			5.10	3.70	8.42
8			5.50	11.00	9.51
8			5.70	15.00	10.13
8			5.10	25.00	11.13
8			6.50	40.00	12.21
8			7.10	60.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
8			11.50	150.00	25.76
8			11.60	300.00	26.04
9	ENDTBL				

TR20 XEQ 04-28-86 13:44 COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

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3	STRUCT	STRUCT 30	NO.	ELEVATION	DISCHARGE	STORAGE
8				21.00	.00	.10
8				21.40	.60	.61
8				21.60	1.50	.86
8				21.80	2.50	1.12
8				22.20	5.20	1.62
8				22.60	8.20	2.13
8				23.00	11.00	2.64
8				23.50	20.00	₩ 3.27
8				24.00	27.00	3.91
8				25.00	39.00	5.18
8				26.00	49.00	6.45
8				27.00	57.00	7.72
9				27.10	200.00	7.74
9	ENDTBL					
		STRUCT	NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	40				
8				9.00	.00	.38
8				9.40	2.20	.47
8				9.60	5.00	.52
8				10.00	14.00	.62
8				10.20	21.00	.67
8				10.60	36.00	.77
9				11.00	55.00	.86
8				11.60	82.00	1.01
9				12.40	120.00	1.21
9				13.00	121.00	1.35
8				14.00	122.00	1.60
8				15.00	126.00	1.84
9				16.00	150.00	2.08
8				16.10	300.00	2.11
9	ENDTBL					
		STRUCT	NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	50				
8				2.40	.00	22.00
8				2.80	2.00	26.86
9				3.00	7.00	29.29
8				3.40	16.00	34.16
8				3.60	24.00	36.59
8				4.00	40.00	41.46
9				4.40	60.00	46.32
8				5.00	90.00	53.62

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JOB 1 PASS 1

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REV	PC 09/83(.2	2)	ALT	88			3
			5.80	120.00	63.35		
			6.40	121.00	70.65		
			7.40	210.00	82.81		
			8.40	250.00	94.98		
			10.40	334.00	119.31		
			12.40	400.00	143.63		
			12.50	800.00	143.70		
ENDTBL							
	STRUCT NO		ELEVATION	DISCHARGE	STORAGE		
STRUCT	60	•	ELEVALION	DISCHMOE	STURNOE		
			2.00	.00	22.20		
			2.40	3.00	27.41		
			2.60	10.50	30.02		
			3.00	22.50	35.24		
			3.20	36.00	37.85		
			3.40	60.00	43.06		
			4.00	90.00	48.28		
			4.60	135.00	56.11		
			5.40	180.00	66.55		
			6.00	181.00	74.38		
			7.00	315.00	87.42		
			8.00	375.00	100.47		
ENDTBL			8.10	700.00	100.50		
		TIME	INCREMENT				
DIMHYD			.0200				
	.0	000	.0300	.1000	.1900	.3100	
	.4	700	.6600	.8200	.9300	.9900	
	1.0		.9900	.9300	.8600	.7800	
		800	.5600	.4600	.3900	.3300	
		800	.2410	.2070	.1740	.1470	
		260	.1070	.0910	.0770	.0460	
		550	.0470	.0400	.0340	.0290	
		250	.0210	.0180	.0150	.0130	
		110	.0090	.0080	.0070	.0060	
		050	.0040	.0030	.0020	.0010	
		000	.0000	.0000	.0000	.0000	
ENDTBL						The state of	

TR20 XEQ 04-28-86 13:44 COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

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	TABLE NO. 5 RAINFL 1	TIME	INCREMENT			
	2 KHIMPL I		.5000			
	8	.0000	.0080	.0170	.0260	.0350
	9	.0450	.0550	.0450	.0760	.0870
	8	.0990	.1120	.1260	.1400	.1560
	8	.1740	.1940	.2190	.2540	.3030
	8	.5150	.5830	.6240	.6550	.6820
	8	.7060	.7280	.7480	.7560	.7830
	8	.7990	.8150	.8300	.8440	.8570
	8	.8700	.8820	.8930	.9050	.9160
	8	.9260	.9360	.9460	.9560	.9650
	8	.9740	.9830	.9920	1.0000	1.0000
	9 ENDTBL		17400	17724	1.0000	1.0000
	TABLE NO.	TIME	INCREMENT			
1	5 RAINFL 2		.2500			
-	3	.0000	.0020	.0050	.0080	.0110
1	3	.0140	.0170	.0200	.0230	.0260
-	3	.0290	.0320	.0350	.0380	.0410
-	3	.0440	.0480	.0520	.0560	.0500
	3	.0640	.0680	.0720	.0760	.0800
1	3	.0850	.0900	.0950	.1000	.1050
-	3	.1100	.1150	.1200	.1260	.1330
8	3	.1400	.1470	.1550	.1630	.1720
-	3	.1810	.1910	.2030	.2180	.2360
8	3	.2570	.2830	.3870	. 6630	.7070
-	3	.7350	.7580	.7760	.7910	.8040
8	3	.8150	.8250	.8340	.8420	.8490
8	}	.8560	.8630	.8690	.8750	.8810
8]	.8870	.8930	.8980	.9030	.9080
8	}	.9130	.9180	.9220	.9260	.9300
8	1	.9340	.9380	.9420	.9460	.9500
8		.9530	.9560	.9590	.9620	.9650
6]	.9680	.9710	.9740	.9770	.9800
8	}	.9830	.9860	.9890	.9920	.9950
8	}	.9980	1.0000	1.0000	1.0000	1.0000
9	ENDTBL			448		
	TABLE NO.	TIME	INCREMENT			
	RAINFL 3		.5000			
9		.0000	.0100	.0220	.0360	.0510
8	1	.0670	.0830	.0990	.1160	.1350

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1 PASS

REV PC 09/8	17 (2)	ALT 8	0			70	
KEY FC 07/8	331.21	HL: 0	8			30	
	.1560	.1790	.2040	.2330	.2680		
	.3100	.4250	.4800	.5200	.5500		
	.5770	.6010	.6230	.6440	.6640		
	.6830	.7010	.7190	.7360	.7530		
	.7690	.7850	.8000	.8150	.8300		
	.8440	.8580	.8710	.8840	.8960		
	.9080	.9200	.9320	.9440	.9560		
	.9670	.9780	.9890	1.0000	1.0000		
ENDTBL							
TABLE NO.	TIME	INCREMENT					
RAINFL 4		.5000					
	.0000	.0040	.0080	.0120	.0160		
	.0200	.0250	.0300	.0350	.0400		
	.0450	.0500	.0550	.0600	.0450		
	.0700	.0750	.0810	.0870	.0930		
	.0990	.1050	.1110	.1180	.1250		
	.1320	.1400	.1480	.1560	.1650		
	.1740	.1840	.1950	.2070	.2200		
	.2360	.2550	.2770	.3030	.4090		
	.5150	.5490	.5830	.6050	.6240		
	.6400	. 6550	.6690	.6820	. 6940		
	.7050	.7160	.7270	.7380	.7480		
	.7580	.7670	.7760	.7840	.7920		
	.8000	.8080	.8160	.8230	.8300		
	.8370	.8440	.8510	.8580	.8640		
	.8700	.8760	.8820	.8880	.8940		
	.9000	.9060	.9110	.9160	.9210		
	.9260	.9310	.9360	.9410	.9460		
	.9510	.9560	.9610	.9660	.9710		
	.9750	.9800	.9840	.9880	.9920		
	.9960	1.0000	1.0000	1.0000	1.0000		
NDTBL				******	110000		
TABLE NO.	TIME	INCREMENT					
AINFL 5		.5000					
	.0000	.0020	.0050	.0080	.0110		
	.0140	.0170	.0200	.0230	.0260		
	.0290	.0320	.0350	.0380	.0410		
	.0440	.0470	.0510	.0550	.0590		
	.0630	.0470	.0710	.0750	.0790		

.1040

.1330

.1710

.2330

.0890

.1140

.1470

.1920

.0940

.1200

.1540

.2040

.0990

.1260

.1620

.2170

.0840

.1090

.1400

.1810

8

PASS 1

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REV PC 09	7/83(.2)	ALT 88	3			20
	0500	0770	7400			
8	.2520	.2770	.3180	. 6380	.6980	
8	.7290	.7520	.7700	.7850	.7980	
8	.8090	.8190	.8290	.8380	.8460	
8	.8540	.8610	.8680	.8740	.8800	
8	.8860	.8920	.8970	.9020	.9070	
8	.9120	.9170	.9210	.9250	.9290	
9	.9330	.9370	.9410	.9450	.9490	
8	.9530	.9570	.9600	.9630	.9660	
3	.9690	.9720	.9750	.9780	.9810	
3	.9840	.9870	.9900	.9930	.9960	
3	.9980	1.0000	1.0000	1.0000	1.0000	
PENDTBL						
TABLE NO.	TIME	INCREMENT				
5 RAINFL 6		.0200				
1	.0000	.0080	.0162	.0246	.0333	
3	.0425	.0524	.0630	.0743	.0863	
3	.0990	.1124	.1265	.1420	. 1595	
3	.1800	.2050	.2550	.3450	.4370	
3	.5300	.6030	.6330	.6600	.6840	
3	.7050	.7240	.7420	.7590	.7750	
]	.7900	.8043	.8180	.8312	.8439	
}	.8561	.8678	.8790	.8898	.9002	
	.9103	.9201	.9297	.9391	.9483	
	.9573	.9661	.9747	.9832	.9916	
3	1.0000	1.0000	1.0000	1.0000	1.0000	
P ENDTBL		******	110000	*****	1.0000	

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STANDARD CONTROL INSTRUCTIONS

	6	RUNOFF	1	10			6	.8400	51.0000	7.50001	0	0	1	0	1
	6	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1
	6	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1
	6	RUNOFF	1	10			6	.2000	43.0000	.19001	0	0	1	0	1
	6	ADDHYD	4	10	5	6	7							0	
	6	SAVMOV	5	10	7		6								
	6	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1
	5	REACH	3	20	7		5	2900.0000	.2800	1.94001					
	6	RUNOFF	1	20			6	.2800	54.0000	2.00001					
	6	ADDHYD	4	20	5	6	7							0	439
	6	SAVMOV	5	20	7		1				١				
	6	RUNDEF	1	30			6	.3700	49.0000	3.90001	0	0	1	0	1
	4	RESVOR	2	30	6		7	21.0000						0	
	6	REACH	3	40	7		5	1300,0000	.8800	1.10001	25/201			0	
		RUNOFF	1	40			6	.0400	40,0000	1.00001			200		, STORES
		ADDHYD	4	40	5	6	7							0	
		SAVMOV	5	40	7		6				•		•	•	
		RESVOR	2	40	6		7	9,0000		. 1	0	0	1	0	1
h		REACH	3	50	7		5	1700,0000	1,6000	1.45001	993	770	36	0	Service S
	6	RUNOFF	1	49			6	.1100	40.0000	1.67001			353	100	4200
	6	ADDHYD	4	50	5	6	7							0	
		SAVMOV	5	50	7		5			•					
	6	RUNDFF	1	50			6	.3600	85.0000	.42001	0	0	1	0	1
	6	ADDHYD	4	50	5	6				1				0	
	6	REACH	3	60	7		5	1400.0000	. 4400	1.94001	0	0	1	0	1
	6	RUNDFF	1	60			6	.0500	45.0000	.90001			1	0	1
	6	ADDHYD	4	60	5	6	7							0	
	6	SAVMOV	5	70	7		5								
	6	SAVMOV	5	70	1		6								
	6	ADDHYD	4	70	5	6	7			1	1	0	1	0	1
	6	REACH	3	30	7		5	700.0000	.3000	1.94001	0	0	1	0	1
	6	RUNOFF	1	80			6	.0200	64.0000	.12001	0	0	1	0	1
	6	ADDHYD	4	80	5	6	7			1	0	0	1	0	1
	6	SAVMOV	5	100	7		5								
	6	RUNOFF	1	90			6	.2400	75.0000	.62001	0	0	1	0	1
	6	ADDHYD	4	100	5	6	7			1	0	0	1	0	1
	6	REACH	3	110	7		5	500.0000	.3000	1.94001	0	0	1	0	1
	6	SAVMOV	5	120	5		7								
	6	REACH	3	120	7		5	500.0000	.3000	1.94001	0	0	1	0	1
	6	RUNOFF	1	120			6	.1900	56.0000	.74001	0	0	1	0	1
	4	ADDHYD	Ą	120	5	6	7			1	1	0	1	0	1
	6	SAVMOV	5	50	7		6								
		RESVOR		50	6		7	2.4000		1	1	1	1	0	1
		REACH			7		5	1000.0000	.3000	1.94001					
j	6	RUNOFF	1	130			6	.0500	74.0000	.19001	0	0	1	0	1

TR20	XEQ	04	-28-8	6	13:4	4 COGDE	LL'S CREEK	WATERSHED STU	Y	NV5	010	24 HR	10YR	TYPE	2 STORM	20	JOB	PASS	
	REV	PC	09/8	31.	2)	ALT	98								20			PAGE	
, AB	BUND		170		, -														
	DHYD VMOV			7	6 7			1	0	0 1	0	1							
5 RE	SVOR	2	60	6	7	2.0000		1	1	1 1	0	1							
6 RE	ACH	3	140	7	5	2500.0000	.210	0 1.48001	0	0 1	0	1							
6 RU	NOFF	1	140		6	.2000	69.000	0 .19001	0	0 1	0	1							
6 AD	DHYD	4	140	5	6 7			경영 열양 병임 모양하게 가지 하였다.		0 1									
	VONV			7	5				onen, o										

.42001 0 0 1 0 1

1.48001 0 0 1 0 1

.15001 0 0 1 0 1

.48001 0 0 1 0 1

1.48001 0 0 1 0 1

.48001 0 0 1 0 1

100101

110101

100101

100101

END OF LISTING

6 RUNOFF 1 149

6 ADDHYD 4 150

6 REACH 3 150

6 RUNOFF 1 150

6 ADDHYD 4 150

6 SAVMOV 5 180

6 RUNOFF 1 180

6 ADDHYD 4 190

6 REACH 3 180

6 RUNOFF 1 180

6 ADDHYD 4 180

ENDATA

6

5 6 7

7 5

5 6 7

7 5

5 6 7

7 5

5 6 7

6

6

6

.0800

.0100

.1100

.1100

1700,0000

300.0000

45.0000

.2100

40.0000

42.0000

.2100

41.0000

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EXECUTIVE CONTROL OPERATION BASFLO

RECORD ID 1710

NEW BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION INCREM

RECORD ID 1720

MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID 1730

FROM STRUCTURE 10

TO XSECTION 180

STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO. = 2 ANT. MOIST. COND= 2

ALTERNATE NO. =88 STORM NO. = 1 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF STRUCTURE 10

OUTPUT HYDROGRAPH= 6

AREA = .84 SQ MI INPUT RUNOFF CURVE = 51. TIME OF CONCENTRATION = 7.50 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

17.80

96.56

(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 10

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 7.00

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

18.14

96.09

9.50

RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10 LENGTH = 1750.00 FEET

MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS

*** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS. 18.88 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

18.47 98.84 (NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.07	136.13	(RUNOFF)
15.20	9.17	(RUNOFF)
16.46	8.26	(RUNOFF)
17.67	7.09	(RUNOFF)
19.66	5.91	(RUNOFF)
23.66	4.68	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 138.90 CFS-HRS, 11.47 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE	(CFS) PEAK ELEVATION (FEET)	
12.07	139.13	(NULL)	
18.48	104.60	(NULL)	
FIRST HYDROGRA	PH POINT = .00 HOUR	RS TIME INCREMENT = .10 HOURS	

	TIME (HRS)		FIRST HYDROGRAPH	POINT	= .00 H	HOURS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	E AREA =	1.04 SQ.MI.
	11.00	DISCHE	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	5.07	42.12
	12.00	DISCHE	119.55	35.88	74.65	52.30	39.55	33.82	31.18	28.92	28.16	25.64
١	13.00	DISCHE	24.32	23.27	21.88	21.56	20.60	20.25	19.78	19.11	19.30	19.34
,	14.00	DISCHG	20.06	21.02	22.07	23.72	25.15	26.99	28.85	31.07	34.61	38.54
	15.00	DISCHG	42.77	46.81	50.71	54.35	57.09	59.37	61.51	63.49	65.38	67.22
	16.00	DISCHE	69.06	71.58	74.60	77.76	80.87	83.82	86.17	88.01	90.08	92.10
	17.00	DISCHS	93.97	95.69	97.25	98.68	99.98	101.15	102.19	103.09	103.75	103.67
	18.00	DISCHG	103.75	04.02	104.28	104.46	104.57	104.59	104.54	104.40	104.20	103.92
	19.00	DISCHG	103.58	03.16	102.66	102.09	101.45	100.73	99.93	99.06	97.99	96.22
	20.00	DISCHE	94.66	93.39	92.17	90.95	89.71	88.47	87.23	86.01	84.81	83.63
	21.00	DISCHE	82.47	81.34	80.23	79.14	78.07	77.02	76.00	74.99	74.01	73.04
	22.00	DISCHE	72.10	71.22	70.52	69.91	69.36	68.83	48.31	67.78	67.25	66.70
	23.00	DISCHE	66.13	65.56	64.97	64.37	63.76	63.14	62.52	61.89	61.15	59.57
	24.00	DISCHE	58.03	55.87	53.24	51.70	50.62	49.72	48.91	48.18	47.50	46.85
	25.00	DISCHS	46.24	45.66	45.10	44.55	44.02	43.50	42.98	42.48	41.98	41.49
	26.00	DISCHE	41.00	40.51	40.03	39.55	39.07	38.60	38.12	37.63	37.15	36.66
	27.00	DISCHG	36.16	35.66	35.15	34.64	34.13	33.61	33.09	32.57	32.04	31.51
	28.00	DISCHG	30.97	30.44	29.90	29.36	28.82	28.28	27.74	27.21	26.67	26.13
	29.00	DISCHS	25.68	25.30	24.94	24.59	24.24	23.89	23.52	23.14	22.75	22.35

RUNOFF VOLUME ABOVE BASEFLOW = 1.52 WATERSHED INCHES, 1017.17 CFS-HRS, 84.06 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 20

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 4.50

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PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.78 28.05 5.18 20.09 93.50 9.19

RUNOFF VOLUME ABOVE BASEFLOW = 1.46 WATERSHED INCHES, 980.28 CFS-HRS, 81.01 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 20

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28, M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 20 ATT-KIN COEFF.(C) GREATER THAN 0.667. CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.17 CFS, 25.50 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.93 28.00 (NULL) 20.24 93.48 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.46 WATERSHED INCHES. 977.05 CFS-HRS. 80.74 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 20

DUTPUT HYDROGRAPH= 6

AREA= .28 SQ MI INPUT RUNOFF CURVE= 54. TIME OF CONCENTRATION= 2.00 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1026 HOURS

PEAK TIME(HRS)

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.34

102.66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

129.34

(RUNOFF)

(MILL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 366.74 CFS-HRS, 30.31 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 20

13.32

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

20.12 105.96 (NULL) TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.32 SQ.MI. 11.00 DISCHG 3.00 3.00 3.00 3.01 3.02 3.06 3.18 3.47 4.17 5.78 81.63 93.93 104.66 113.44 12.00 DISCHS 9.24 16.82 28.18 41.92 55.27 68.54 13.00 DISCHG 120.26 125.10 128.07 129.31 128.89 127.14 124.34 120.63 115.93 110.44 14.00 DISCHG 104.66 99.17 94.33 90.01 86.08 82.57 79.48 76.76 74.30 72.15 15.00 DISCHG 70.61 69.69 69.26 69.22 69.52 70.10 70.86 71.65 72.43 73.25 16.00 DISCHG 74.17 75.15 76.22 77.43 78.80 80.34 81.97 83.19 84.35 85.54 17.00 DISCHG 86.78 88.06 89.37 90.69 92.04 93.38 94.71 95.52 95.60 95.50 18.00 DISCHS 95.35 95.19 95.02 94.86 94.70 95.26 96.33 97.48 98.58 99.61

TR20 XEQ 04-28-86 13:44 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT BR 30 PAGE 13 19.00 DISCHE 100.56 102.21 102.93 103.56 104.13 104.63 101.42 105.06 105.42 105.70 20.00 DISCHS 105.89 105.96 105.93 105.80 105.59 105.29 104.91 104.45 103.92 103.33 21.00 DISCHG 102.70 102.02 101.30 100.56 99.79 99.00 98.20 97.39 96.57 95.75 22.00 94.10 DISCHE 94.93 93.28 92.45 91.64 90.85 90.07 89.31 88.67 88.44 23.00 DISCHE 88.31 98.22 88.14 88.06 87.99 87.91 87.74 87.83 87.66 87.57 24.00 DISCHG 97.46 87.33 84.91 86.33 83.30 81.62 79.88 78.12 76.33 74.54 25.00 DISCHE 72.75 69.24 67.55 65.90 60.42 58.68 . .57.04 70.98 64.17 62.27 51.57 DISCHS 26.00 55.52 54.11 52.80 50.42 49.34 48.32 47.36 46.44 45.57 27.00 DISCHE 44.73 43.93 43.17 42.42 41.71 41.01 40.31 39.59 38.88 38.18 28.00 DISCHG 37.51 36.85 36.20 35.57 34.94 34.33 33.72 33.12 32.53 31.94 29.00 DISCHG 31.36 30.79 30.23 29.69 29.17 28.67 28.18 27.71 27.25 26.79 RUNOFF VOLUME ABOVE BASEFLOW = 1.58 WATERSHED INCHES, 1343.80 CFS-HRS, 111.05 ACRE-FEET: BASEFLOW = 3.00 CFS OPERATION SAVMOV CROSS SECTION 20 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 1 OPERATION RUNOFF STRUCTURE 30 **OUTPUT HYDROGRAPH= 6** AREA= .37 SQ MI INPUT RUNOFF CURVE= 49. TIME OF CONCENTRATION= 3.90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS PEAK DISCHARGE (CFS) PEAK TIME (HRS) PEAK ELEVATION (FEET) 14.95 (RUNOFF) 60.58 RUNOFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 375.61 CFS-HRS, 31.04 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 21.00

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) PEAK TIME (HRS)

16.21 48.05 25.91

RUNOFF VOLUME ABOVE BASEFLOW = 1.51 WATERSHED INCHES, 360.28 CFS-HRS, 29.77 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 40

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

LENGTH = 1300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .88, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .32 PEAK TRAVEL TIME = .30 HOURS

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) PEAK TIME (HRS) 16.55 47.70 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 358.97 CFS-HRS, 29.67 ACRE-FEET: BASEFLOW =

OPERATION RUNOFF CROSS SECTION 40

TR20 XEQ 04-28-86 13:44

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20

JOB 1 PASS

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CUTPUT HYDROGRAPH= 6

AREA= .06 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.72

10.21

(RUNOFF)

23.76

1.21

(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.69 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

12.73 16.54

49.80

10.35

(NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 40

INPUT HYDROGRAPH= 6

OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.90

9.83

9.81

16.60

49.78

10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.02 16.72

9.78

(NULL)

49.77

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.40 WATERSHED INCHES, 389.36 CFS-HRS, 32.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS

TR20 XEQ 04-28-86 13:44 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS

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INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 13.33 13.76 (RUNOFF) 23.80 2.20 (RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 59.78 CFS-HRS, 4.94 ACREFEET; BASEFLOW = .00 CFS

OPERATION ADDRYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 13.16 22.91 (NULL)

16.65 53.98 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 449.14 CFS-HRS, 37.12 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50

OUTPUT HYDROGRAPH= 6

.36 SQ MI INPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION= INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION (FEET) 12.13 1078.73 (RUNOFF) 19.65 24.75 (RUNOFF) 23.45 18.64 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES. 1220.14 CFS-HRS. 100.83 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.13 1079.95 (NULL)

16.49 90.75 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW =

OPERATION REACH CROSS SECTION 60

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .44, M= 1.94 LENGTH = 1400.00 FEET

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

TR20 XEQ 04-28-86 13:44 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

JOB 1 PASS

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*** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) 1079.95

PEAK ELEVATION (FEET)

12.13 16.49

(NULL)

90.75

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.97 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 60

DUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 45. TIME OF CONCENTRATION= .90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

PEAK ELEVATION (FEET)

(NULL)

12.56 23.72 16.56 1.26

(RUNOFF) (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.88 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 40

PEAK TIME (HRS)

12.14

INPUT HYDROGRAPHS= 5.6

OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)

1086.21

	16.	49		93.02	?		(NULL)				
TIME (HRS)		FIRST HYDROGI	RAPH POINT	= .00 HC	DURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	.95 SQ.MI.
4.00	DISCHG	.00	.00	.00	.02	.10	.26	. 49	.75	1.04	1.33
5.00	DISCHE	1.62	1.91	2.20	2.49		3.04	3.32	3.58	3.84	4.10
6.00	DISCHE	4.36	4.67	5.18	5.80	6.40	6.89	7.32	7.71	8.07	8.41
7.00	DISCHE	8.75	9.07	9.38	9.69	9.99	10.29	10.58	10.86	11.14	11.41
8.00	DISCHG	11.68	12.08	12.82	13.80	14.96	16.27	17.48	18.44	19.17	19.76
9.00	DISCHE	20.27	20.91	21.91	23.16	24.29	25.16	26.02	27.23	28.44	29.92
10.00	DISCHG	30.90	31.86	33.18	34.84	37.10	40.08	43.57	47.95	52.84	58.21
11.00	DISCHE	64.10	70.07	76.45	83.02	90.75	101.27	130.10	208.30	333.15	539.50
12.00	DISCHG	836.25	1048.48	1030.91	805.58	576.69	421.03	324.82	265.51	227.09	199.69
13.00	DISCHE	178.52	161.72	147.53	136.12		119.75	113.25	107.02	101.45	96.86
14.00	DISCHE	93.29	90.54	88.31	86.99	86.63	86.30	86.13	85.74	85.37	85.47
15.00	DISCHS	86.26	87.42	88.85	90.29	90.92	90.62	90.19	90.11	90.41	90.86
16.00	DISCHS	91.35	91.83	92.25	92.60	92.86	93.02	92.76	91.64	89.95	88.43
17.00	DISCHG	87.35	86.55	85.87	85.24	84.63	84.03	83.43	82.82	82.11	80.76
18.00	DISCHE	78.62	76.40	74.60	73.30	72.20	71.21	70.27	69.38	68.51	67.67
19.00	DISCHE	66.86	66.07	65.33	54.68		63.30	62.62	61.96	61.19	59.85
20.00	DISCHE	57.76	55.58	53.88	52.62	51.60	50.72	49.94	49.23	48.56	47.93
21.00	DISCHS	47.34	46.79	46.26	45.76	45.28	44.83	44.40	43.97	43.53	43.10
22.00	DISCHG	42.70	42.29	41.89	41.51	41.15	40.80	40.46	40.14	39.84	39.55
23.00	DISCHG	39.27	39.01	38.75	38.51		38.06	37.85	37.65	37.37	36.46

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24.00	DISCHS	34.72	32.26	28.67	24.55	21.18	18.97	17.56	16.54	15.77	15.13		
25.00	DISCHS	14.59	14.12	13.71	13.34	13.02	12.72	12.45	12.20	11.96	11.76		
26.00	DISCHG	11.57	11.41	11.25	11.11	10.97	10.84	10.71	10.57	10.42	10.28		
27.00	DISCHG	10.13	9.97	9.81	9.64	9.47	9.29	9.11	8.93	8.74	8.54		
28.00	DISCHS	8.34	8.13	7.93	7.72	7.51	7.29	7.08	6.87	6.67	6.46		
29.00	DISCHE	6.26	6.06	5.87	5.48	5.49	5.32	5.14	4.99	4.87	4.74		

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 6

OPERATION ADDHYD CROSS SECTION 70

PEAK TIME (HRS)

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)

		I FUN II	IIIE JIIII 21		CUN ATSPUL	moc (Gra)	1.5	WY CTEAHIT	UNIFEEII				
		12.1	14		1106.9	10		(NULL)					
		17.6	57		178.3	6		(NULL)					
		19.3	51		167.6	0		(NULL)					
Ţ	IME (HRS)		FIRST HYDROGE	RAPH POINT	= .00 H	IOURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	2.27 SQ.MI.	
	4.00	DISCHG	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33	
	5.00	DISCHE	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10	
	5.00	DISCHE	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41	
	7.00	DISCHE	11.75	12.07	12.38	12.69	12.99	13.29	13.58	13.86	14.14	14.41	
	8.00	DISCHE	14.68	15.08	15.82	16.80	17.96	19.27	20.48	21.44	22.17	22.76	
	9.00	DISCHE	23.27	23.91	24.91	26.16	27.29	28.15	29.02	30.23	31.66	32.92	
	10.00	DISCHE	33.90	34.86	36.18	37.84	40.10	43.08	46.57	50.95	55.84	61.21	
	11.00	DISCHE	67.10	73.07	79.45	86.03	93.78	104.34	133.28	211.78	337.32	545.28	
	12.00	DISCHE	845.49	1085.50	1059.08	847.51	631.96	489.56	406.44	359.44	331.74	313.13	
	13.00	DISCHE	298.78	286.82	275.60	265.43	256.10	246.89	237.59	227.64	217.38	207.30	
	14.00	DISCHS	197.94	189.71	182.63	177.00	172.71	168.87	165.61	162.49	159.67	157.62	
	15.00	DISCHE	156.97	157.10	158.11	159.51	160.44	160.71	161.04	161.78	162.93	164.10	
	16.00	DISCHE	165.52	166.98	168.47	170.03	171.67	173.36	174.74	174.83	174.30	173.97	
	17.00	DISCHG	174.13	174.61	175.24	175.94	176.67	177.41	178.14	178.33	177.71	176.26	
	18.00	DISCHG	173.97	171.58	169.63	168.16	166.91	156.47	166.60	166.86	167.09	167.28	
	19.00	DISCHE	167.42	167.49	167.54	167.60	167.56	167.43	147.25	157.02	166.61	165.55	
	20.00	DISCHS	163.65	161.54	159.81	158.42	157.19	156.02	154.85	153.67	152.48	151.27	
	21.00	DISCHE	150.04	148.80	147.56	146.32	145.07	143.83	142.60	141.35	140.11	138.96	
	22.00	DISCHE	137.63	136.39	135.17	133.97	132.79	131.64	130.53	129.45	128.51	127.98	
	23.00	DISCHE	127.59	127.23	126.90	126.58	126.27	125.97	125.48	125.40	125.03	124.02	
	24.00	DISCHE	122.18	119.59	115.00	109.46	104.49	100.59	97.44	94.66	92.10	89.67	
1	25.00	DISCHG	87.34	85.10	82.95	80.89	78.92	76.89	74.72	72.62	70.64	68.80	

PEAK ELEVATION (FEET)

REV	PC 09/83(.2)		ALT 88					30				PAG
26.00	DISCHE	67.09	65.52	64.05	62.68	61.40	60.18	59.03	57.92	56.86	55.84	
27.00	DISCHS	54.86	53.90	52.97	52.07	51.18	50.30	49.42	48.52	47.61	45.72	
28.00	DISCHE	45.85	44.98	44.13	43.28	42.45	41.62	40.80	40.00	39.20	38.41	
29.00	DISCHG	37.62	36.85	36.10	35.37	34.66	33.98	33.33	32.70	32.11	31.53	
RUNOFF	VOLUME ABOVE	BASEFLOW	= 2.08 WA	TERSHED IN	CHES. 305	52.95 CFS-I	HRS. 252.	.30 ACRE-FI	EET: BASI	EFLOW =	3.00 CFS	

LENGTH = 700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 80 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.14	1106.90	(NULL)
17.67	178.36	(NULL)
19.31	167.60	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 3052.95 CFS-HRS, 252.30 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 80

CUTPUT HYDROGRAPH= 6

AREA= .02 SQ MI INPUT RUNOFF CURVE= 64. TIME OF CONCENTRATION= .12 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0160 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 11.98 54.99 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.98 WATERSHED INCHES, 38.49 CFS-HRS, 3.18 ACRE-FEET; BASEFLOW =

OPERATION ADDHYD CROSS SECTION 80

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.13 1128.27 (NULL) 17.67 179.69 (NULL) 19.31 168.68 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.09 WATERSHED INCHES, 3091.43 CFS-HRS, 255.48 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 100

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 90

OUTPUT HYDROGRAPH= 6

AREA= .24 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .62 HOURS

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	458.49	(RUNOFF)
19.66	15.09	(RUNOFF)
23.66	11.44	(RUNOFF)

RUNDFF VOLUME ABOVE BASEFLOW = 4.14 WATERSHED INCHES, 641.76 CFS-HRS, 53.03 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 100

INPUT HYDROGRAPHS = 5,6 OUTPUT HYDROGRAPH = 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.16	1534.58	(NULL)
16.63	198.47	(NULL)
17.67	198.50	(NULL)
19.30	183.76	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3733.19 CFS-HRS, 308.51 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 110 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1534.58	(NULL)
16.63	198.47	(NULL)
17.67	198.50	(NULL)
19.30	183.76	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3733.19 CFS-HRS, 308.51 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

TR20 XEQ 04-28-86 13:44

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.16	1534.58	(NULL)
16.63	198.47	(NULL)
17.67	198.50	(NULL)
19.30	183.76	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3733.19 CFS-HRS, 308.51 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 56. TIME OF CONCENTRATION= .74 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0987 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.38
 159.29
 (RUNOFF)

 19.68
 8.61
 (RUNOFF)

 23.67
 6.65
 (RUNOFF)

PEAK DISCHARGE (CFS)

202.67

210.86

1657.29

RUNOFF VOLUME ABOVE BASEFLOW = 2.22 WATERSHED INCHES, 271.72 CFS-HRS, 22.45 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

(NULL)

(MIH I)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

12.18

15.37

16.62

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

		-		210.0			(MULL)					
	17.	56		209.1	3		(NULL)					
	19.	30		192.3	6		(NULL)					
TIME (HRS)		FIRST HYDROGI	RAPH POINT	= .00 H	OURS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	
4.00	DISCHE	3.00	3.00	3.00	3.02		3.26	3.49	3.75	4.04	4.33	
5.00	DISCHE	4.62	4.91	5.20	5.49		6.04	6.32	6.58	6.84	7.10	
5.00	DISCHG	7.36	7.67	8.18	8.80		9.89	10.32	10.71	11.07	11.42	
7.00	DISCHE	11.77	12.13	12.52	12.93		13.79	14.23	14.67	15.11	15.54	
8.00	DISCHG	15.98	16.55	17.48	18.71	20.15	21.78	23.35	24.68	25.76	26.68	
9.00	DISCHE	27.51	28.47	29.83	31.49		34.37	35.71	37.41	39.40	41.24	
10.00	DISCHE	42.79	44.33	46.25	48.59	51.71	55.68	60.49	66.40	73.12	80.64	
11.00	DISCHG	88.89	97.64	107.04	117.05		144.54	188.67	293.11	469.26	778.69	
12.00	DISCHE	1219.90	1582.97	1650.59	1466.92	1206.10	978.15	804.27	682.80	598.75	537.17	
13.00	DISCHG	491.13	453.70	422.41	394.08	373.52	353.85	335.53	317.99	301.05	285.11	
14.00	DISCHE	271.00	258.63	248.00	239.22	232.03	225.65	219.82	214.29	209.21	205.15	
15.00	DISCHG	202.73	201.70	201.81	202.51	202.63	202.05	201.36	201.05	201.19	201.77	
16.00	DISCHS	202.71	203.85	205.13	206.56	208.12	209.75	210.82	210.44	209.15	207.90	
17.00	DISCHE	207.15	205.86	206.93	207.26	207.75	208.33	208.94	209.07	208.30	206.40	
18.00	DISCHG	203.49	200.23	197.31	194.98	193.05	192.14	191.94	191.98	192.08	192.17	
19.00	DISCHG	192.24	192.28	192.30	192.36	192.31	192.19	192.01	191.78	191.28	189.81	

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20.00	DISCHG	187.31	184.31	181.61	179.34	177.42	175.76	174.27	172.87	171.52	170.20
21.00	DISCHE	168.91	167.63	166.36	165.09	163.84	162.59	161.36	160.12	158.87	157.63
22.00	DISCHE	156.40	155.18	153.96	152.77	151.60	150.46	149.35	148.28	147.35	146.83
23.00	DISCHG	146.44	146.10	145.77	145.46	145.16	144.87	144.58	144.31	143.84	142.40
24.00	DISCHG	139.89	135.78	129.19	121.20	113.57	107.25	102.14	97.90	94.33	91.22
25.00	DISCHG	88.42	85.85	83.47	81.24	79.16	77.05	74.83	72.69	70.68	68.82
26.00	DISCHG	67.11	65.52	64.05	62.68	61.40	60.18	59.03	57.92	56.86	55.84
27.00	DISCHG	54.86	53.90	52.97	52.07	51.18	50.30	49.42	48.52	47.61	46.72
28.00	DISCHS	45.85	44.98	44.13	43.28	42.45	41.62	40.80	40.00	39.20	38.41
29.00	DISCHE	37.62	36.85	36.10	35.37	34.66	33.98	33.33	32.70	32.11	31.53

RUNOFF VOLUME ABOVE BASEFLOW = 2.28 WATERSHED INCHES, 4004.91 CFS-HRS, 330.97 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION SAVMOV STRUCTURE 50

INPUT HYDROGRAPH= 7

DUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 50

INPUT HYDROGRAPH= 6

PEAK TIME (HRS)

13.56

17.00

18.00

18.00

19.00

19.00

20.00

20.00

ELEV

ELEV

ELEV

ELEV

DISCHS

DISCHG

DISCHE

OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)

343.65

SURFACE ELEVATION= 2.40

TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 2.72 SQ.MI. 9.00 DISCHS 3.00 3.00 3.28 3.75 4.23 5.24 4.72 5.76 6.31 6.89 9.00 ELEV 2.84 2.84 2.85 2.87 2.89 2.91 2.93 2.95 2.97 3.00 10.00 DISCHG 7.43 7.98 8.54 9.13 9.76 10.42 11.14 11.94 12.81 13.78 10.00 ELEV 3.02 3.07 3.04 3.09 3.12 3.15 3.18 3.26 3.22 3.30 DISCHE 11.00 14.86 16.09 18.40 20.91 23.65 26.68 30.43 36.07 46.64 65.94 11.00 ELEV 3.35 3.40 3.46 3.52 3.59 3.67 3.76 3.90 4.13 4.52 12.00 DISCHE 95.35 120.37 176.14 231.60 261.77 285.13 302.18 314.59 323.77 330.54 12.00 ELEV 5.14 6.02 7.02 7.94 8.68 9.24 9.64 9.94 10.16 10.32 13.00 DISCHG 335.42 338.46 340.67 342.19 343.13 343.59 343.61 342.49 343.24 341.40 13.00 ELEV 10.44 10.54 10.60 10.65 10.68 10.69 10.69 10.68 10.66 10.62 14.00 DISCHE 339.99 338.32 336.44 334.38 331.70 328.81 325.83 322.77 319.64 316.48 14.00 ELEV 10.58 10.53 10.47 10.41 10.35 10.28 10.21 10.13 9.98 10.06 15.00 DISCHG 313.31 310.19 307.14 304.18 301.32 298.54 295.82 293.15 290.57 288.06 15.00 ELEV 9.91 9.83 9.76 9.69 9.62 9.56 9.49 9.43 9.37 9.31 DISCHE 16.00 285.64 283.33 281.11 278.99 276.98 275.06 273.24 271.48 269.74 268.02 16.00 ELEV 9.25 9.19 9.14 9.09 9.04 9.00 8.95 8.91 8.87 8.83 17.00 DISCHG 266.32 264.65 263.03 261.45 259.94 258.48 257.07 255.72 254.40 253.07

8.67

8.34

8.01

7.74

247.51

234.39

223.49

PEAK ELEVATION (FEET)

10.69

8.64

8.30

7.98

7.71

246.07

233.26

222.28

8.60

244.64

232.16

221.05

8.27

7.95

7.68

8.57

8.23

7.93

7.65

243.23

231.09

219.82

8.54

8.20

241.86

230.04

7.90

218.58

7.61

8.79

8.44

8.10

7.82

251.72

237.96

226.92

8.75

8.41

8.07

7.80

250.32

236.74

225.82

8.71

8.37

8.04

7.77

248.92

235.55

224.67

8.50

8.16

7.88

7.58

240.52

229.01

217.34

8.47

8.13

7.85

7.55

239.22

227.98

216.09

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21.00	DISCHE	214.84	213.60	212.35	211.10	209.67	206.94	204.30	201.74	199.26	196.85
21.00	ELEV	7.52	7.49	7.46	7.43	7.40	7.37	7.34	7.31	7.28	7.25
22.00	DISCHG	194.51	192.24	190.03	187.88	185.78	183.74	181.75	179.82	177.94	176.13
22.00	ELEV	7.23	7.20	7.18	7.15	7.13	7.10	7.08	7.06	7.04	7.02
23.00	DISCHG	174.40	172.75	171.17	169.67	168.24	166.88	165.58	164.34	163.15	161.97
23.00	ELEV	7.00	6.98	6.96	6.95	6.93	6.92	6.90	6.89	6.87	6.86
24.00	DISCHE	160.75	159.40	157.82	155.91	153.65	151.11	148.38	145.54	142.64	. 139.71
24.00	ELEV	6.85	6.83	6.81	6.79	6.77	6.74	6.71	6.68	6.64	6.61
25.00	DISCHE	136.78	133.87	130.98	128.12	125.31	122.54	120.98	120.92	120.87	120.81
25.00	ELEV	6.58	6.54	6.51	6.48	6.45	6.42	6.39	6.35	6.32	6.29
26.00	DISCH6	120.75	120.69	120.63	120.56	120.49	120.43	120.36	120.29	120.22	120.14
26.00	ELEV	6.25	6.21	6.18	6.14	6.10	6.06	6.01	5.97	5.93	5.89
27.00	DISCH6	120.07	119.93	118.26	116.60	114.97	113.35	111.75	110.17	108.61	107.07
27.00	ELEV	5.84	5.80	5.75	5.71	5.67	5.62	5.58	5.54	5.50	5.46
28.00	DISCH6	105.54	104.02	102.53	101.05	99.58	98.14	96.70	95.29	93.89	92.50
28.00	ELEV	5.41	5.37	5.33	5.29	5.26	5.22	5.18	5.14	5.10	5.07
29.00	DISCH6	91.13	89.70	87.92	86.18	84.47	82.80	81.15	79.55	77.97	76.43
29.00	ELEV	5.03	4.99	4.96	4.92	4.89	4.86	4.82	4.79	4.76	4.73

RUNDFF VOLUME ABOVE BASEFLOW = 2.10 WATERSHED INCHES. 3683.56 CFS-HRS. 304.41 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1000.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 130 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** 0 *** MARNING - REACH 130 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 73.43 CFS, 21.56 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

13.56

343.65

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.10 WATERSHED INCHES, 3683.56 CFS-HRS, 304.41 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 130

OUTPUT HYDROGRAPH= 6

.05 SQ MI INPUT RUNOFF CURVE= 74. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.01 23.65

160.37 2.37 (RUNOFF) (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.05 WATERSHED INCHES, 130.79 CFS-HRS, 10.81 ACRE-FEET; BASEFLOW =

OPERATION ADDHYD CROSS SECTION 130

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

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PEAK TIME(HRS) 12.05 PEAK DISCHARGE(CFS) 264.17 353.46 PEAK ELEVATION (FEET)

(NULL)

13.44

RUNOFF VOLUME ABOVE BASEFLOW = 2.13 WATERSHED INCHES, 3814.35 CFS-HRS, 315.22 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

PEAK TIME(HRS) 15.65 PEAK DISCHARGE (CFS) 276.64 PEAK ELEVATION (FEET) 6.71

TIME (HRS)		FIRST HYDROGRA	PH POINT	= .00 HO	URS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	AREA =	2.77 SQ.MI.
11.00	DISCHE	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.04	5.05	8.27
11.00	ELEV	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.46	2.54
12.00	DISCHE	12.66	17.21	21.55	30.19	40.15	49.79	59.68	72.00	84.27	96.27
12.00	ELEV	2.67	2.82	2.97	3.11	3.27	3.43	3.59	3.76	3.92	4.08
13.00	DISCHE	107.92	119.16	129.95	138.99	146.49	153.74	160.72	167.42	173.86	180.00
13.00	ELEV	4.24	4.39	4.53	4.67	4.80	4.93	5.06	5.18	5.29	5.40
14.00	DISCHE	180.18	180.35	180.53	180.70	180.87	183.28	195.50	206.46	216.24	224.97
14.00	ELEV	5.51	5.61	5.72	5.82	5.92	6.02	6.11	6.19	6.26	6.33
15.00	DISCHG	232.73	239.60	245.66	250.98	255.61	259.61	263.05	265.98	268.46	270.53
15.00	ELEV	6.39	6.44	6.48	6.52	6.56	6.59	6.61	6.63	6.65	6.67
14.00	DISCHE	272.24	273.61	274.68	275.49	276.07	276.44	276.62	276.61	276.45	276.15
16.00	ELEV	6.68	6.69	6.70	6.71	6.71	6.71	6.71	6.71	6.71	6.71
17.00	DISCHE	275.73	275.21	274.59	273.90	273.14	272.32	271.45	270.53	269.59	268.59
17.00	ELEV	6.71	6.70	6.70	6.69	6.69	6.68	6.67	6.67	6.66	6.65
18.00	DISCHG	267.54	266.45	265.33	254.19	263.02	261.84	260.53	259.41	258.18	256.94
18.00	ELEY	6.65	6.64	6.63	6.62	6.61	6.60	6.59	6.59	6.58	6.57
19.00	DISCHE	255.70	254.46	253.22	251.98	250.76	249.54	248.33	247.14	245.96	244.77
19.00	ELEV	6.56	6.55	6.54	6.53	6.52	6.51	6.50	6.49	6.48	6.48
20.00	DISCHG	243.56	242.36	241.15	239.95	238.75	237.55	236.35	235.14	233.93	232.72
20.00	ELEV	6.47	6.46	6.45	6.44	6.43	6.42	6.41	6.40	6.40	6.39
21.00	DISCHE	231.51	230.29	229.07	227.85	226.61	225.31	223.90	222.39	220.80	219.14
21.00	ELEV	6.38	6.37	6.36	6.35	6.34	6.33	6.32	6.31	6.30	6.28
22.00	DISCHG	217.42	215.65	213.84	212.01	210.15	208.27	206.38	204.49	202.60	200.70
22.00	ELEV	6.27	6.26	6.25	6.23	6.22	6.20	6.19	6.18	6.16	6.15
23.00	DISCHE	198.82	196.96	195.11	193.29	191.50	189.74	188.02	186.33	184.68	183.05
23.00	ELEV	6.13	6.12	6.11	6.09	6.08	6.07	6.05	6.04	6.03	6.02
24.00	DISCHE	181.43	180.98	180.96	180.94	180.91	180.88	180.85	180.81	180.77	180.73
24.00	ELEV	6.00	5.99	5.98	5.96	5.95	5.93	5.91	5.89	5.86	5.84
25.00	DISCHS	180.68	180.64	180.59	180.53	180.48	180.42	180.35	180.29	180.23	180.17
25.00	ELEV	5.81	5.78	5.75	5.72	5.69	5.65	5.61	5.57	5.54	5.50

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26.00	DISCHE	180.10	180.04	179.28	177.22	175.24	173.32	171.47	169.68	167.95	166.28
26.00	ELEV	5.46	5.42	5.39	5.35	5.32	5.28	5.25	5.22	5.19	5.16
27.00	DISCHG	164.66	163.10	161.56	160.01	158.47	156.92	155.36	153.81	152.25	150.70
27.00	ELEV	5.13	5.10	5.07	5.04	5.02	4.99	4.96	4.93	4.91	4.88
28.00	DISCHE	149.15	147.59	146.04	144.49	142.95	141.40	139.86	138.33	136.80	135.27
28.00	ELEV	4.85	4.82	4.80	4.77	4.74	4.71	4.69	4.66	4.63	4.60
29.00	DISCHE	133.34	131.35	129.38	127.42	125.46	123.52	121.59	119.68	117.78	. 115.90
29.00	ELEV	4.58	4.55	4.53	4.50	4.47	4.45	4.42	4.40	4.37	4.35

RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 3449.50 CFS-HRS, 286.72 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 140

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 2500.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .37 PEAK TRAVEL TIME = .30 HOURS

*** WARNING - REACH 140 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 112.90 CFS, 41.26 % OF PEAK.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
16.94 276.19 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.92 WATERSHED INCHES, 3438.16 CFS-HRS, 284.13 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 140

OUTPUT HYDROGRAPH= 6

AREA= .20 SQ MI INPUT RUNOFF CURVE= 69. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.02	560.07	(RUNOFF)
15.16	19.75	(RUNOFF)
16.45	17.22	(RUNOFF)
17.66	14.43	(RUNDFF)
19.65	11.68	(RUNOFF)
23.65	8.90	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.52 WATERSHED INCHES, 454.78 CFS-HRS, 37.58 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 140

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.02
 565.95
 (NULL)

 16.90
 290.55
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 3892.94 CFS-HRS, 321.71 ACRE-FEET; BASEFLOW = 3.00 CFS

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OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

AREA= .08 SQ MI INPUT RUNOFF CURVE= 65. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.15	142.32	(RUNOFF)
16.45	6.39	(RUNOFF)
17.67	5.39	(RUNOFF)
19.66	4.37	(RUNOFF)
23.66	3.34	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.10 WATERSHED INCHES. 160.17 CFS-HRS. 13.24 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.03	(NULL)	
14.30	(NULL)	
16.54	297.91	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.06 WATERSHED INCHES, 4053.11 CFS-HRS, 334.95 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48 MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 117.99 CFS. 17.92 % OF PEAK.

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET			
12.03	676.34	(NULL)			
14.30	212.55	(NULL)			
16.54	297.91	(NULL)			

RUNOFF VOLUME ABOVE BASEFLOW = 2.06 WATERSHED INCHES, 4053.11 CFS-HRS, 334.95 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

.01 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= .15 HOURS TR20 XEQ 04-28-86 13:44

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

71 C

JOB 1 PASS

REV PC 09/83(.2)

ALT 88

30

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INTERNAL HYDROGRAPH TIME INCREMENT= .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY

XSECTION 150

	PEAK T 12.		S)	PE	AK D	4.99	(CFS)		PEAK	(RUNOFF	(DN(FEET)			•
TIME (HRS)		FIRST	HYDROGRAPH	POINT	=	OO HOURS	3	TIME	INCREMENT	= .10	HOURS	DRAINAGE	AREA =	.01 SQ.MI.
11.00	DISCHE		.00	.00		.00	.00		.00	.00	.00	.00	.00	1.05
12.00	DISCHE		4.60	4.46		2.17	1.71		1.28	1.17	1.09	1.02	1.00	.87
13.00	DISCHE		.84	.78		.73	.71		.66	.64	.60	.56	.55	.52
14.00	DISCHS		.52	.50		.48	.47		. 44	.43	.41	.38	.38	.38
15.00	DISCHE		.38	.39		.39	.38		.35	.34	.34	.34	.34	.34
16.00	DISCHE		.34	.34		.35	. 35		. 35	.35	.32	.30	.30	.30
17.00	DISCHE		.30	.30		.30	.30		.30	.30	.30	.30	.30	.26
18.00	DISCHS		. 25	.25		. 25	. 25		. 25	. 25	. 25	.25	. 25	. 25
19.00	DISCHE		. 25	. 25		. 25	. 25		.25	. 25	.25	. 25	. 25	.21
20.00	DISCHE		.19	.19		.19	.19		.19	.19	.19	.19	.19	.19
21.00	DISCHE		.19	.20		.20	.20		.20	.20	.20	.20	.20	.20
22.00	DISCHE		.20	.20		.20	.20		.20	.20	.20	.20	.20	.20
23.00	DISCHE		.20	.20		.20	.20		.20	.20	.20	.20	.20	.15
24.00	DISCHG		.14	.08		.01	.00							
RUNOFF V	OLUME A	BOVE B	ASEFLOW =	.84 WA	TERSI	ED INCHE	S.	5.4	1 CFS-HRS		. 45 ACRE-FI	FFT: RAS	FFI OM =	00 CES

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5.6

OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.03	681.31	(NULL)
14.30	213.02	(NULL)
16.54	298.25	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.06 WATERSHED INCHES, 4058.52 CFS-HRS, 335.40 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 180

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.27 39.64 (RUNOFF) 23.68 2.45 (RUNOFF)

	TR20	XED	04-29-86	13:44
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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

JOB 1 PASS 1

REV PC 09/83(.2)

ALT 88

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RUNOFF VOLUME ABOVE BASEFLOW = .99 WATERSHED INCHES, 70.57 CFS-HRS, 5.83 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.04 698.28 (NULL) 14.28 219.39 (NULL) 16.54 302.51 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.02 WATERSHED INCHES, 4129.10 CFS-HRS, 341.23 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48 LENGTH = 1700.00 FEET

0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .52 PEAK TRAVEL TIME = .20 HOURS

*** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 117.99 CFS, 17.48 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.18 618.41 (NULL) 14.43 218.85 (NULL) 16.69 302.05 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.01 WATERSHED INCHES, 4106.99 CFS-HRS, 339.40 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

.11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK DISCHARGE (CFS) PEAK TIME(HRS) PEAK ELEVATION (FEET) 12.28 34.74 (RUNOFF) 23.69 2.34 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES, 65.08 CFS-HRS, 5.38 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 **OUTPUT HYDROGRAPH= 7**

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.19 650.38 (NULL) 14,41 224.58 (NULL) 16.68 306.01 (NULL)

TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 3.28 SQ.MI.

REV	PC 09/83(.	2)	ALT 88					30				PAGE	28
8.00	DISCHE	3.00	3.00	3.00	3.00	3.00		3.06	3.19		3.56		
9.00	DISCHE	3.76	3.97	4.22	4.52	4.81	5.09	5.38	5.74	6.22			
10.00	DISCHG	7.12	7.54	8.06	8.69	9.35		11.38	12.69	14.43	16.07		
11.00	DISCHE	18.28	20.49	22.93		28.60		37.24	61.29	113.91	179.08		
12.00	DISCHE	357.82	576.31	648.94	529.22	410.16	314.64	251.59	214.45	192.94	183.46		
13.00	DISCHE	177.90	176.87	178.73	181.61	186.75	191.64	196.95	201.87	205.88	210.42		
14.00	DISCHG	214.69	219.25	222.38	223.85	224.57	224.09	223.33	222.74	224.49	229.08		
15.00	DISCHE	235.62	243.18	251.07	258.82	265.98	271.57	276.40	280.96	285.23	289.17		
16.00	DISCHE	292.71	295.83	298.54	300.85	302.79	304.40	305.66	306.00	305.33	304.68		
17.00	DISCH6	304.19	303.82	303.49	303.15	302.75	302.28	301.73	301.11	300.42	299.46		
18.00	DISCH6	297.42	295.18	293.25	291.63	290.23	288.96	287.75	286.57	285.40	284.23		
19.00	DISCHE	283.04	281.85	280.64	279.44	278.23	277.01	275.81	274.60	273.39	271.98		
20.00	DISCHS	269.54	266.95	264.72	262.86	261.26	259.83	258.51	257.24	256.00	254.78		
21.00	DISCHE	253.57	252.37	251.17	249.97	248.76	247.56	246.35	245.12	243.85	242.51		
22.00	DISCHE	241.10	239.62	238.07	236.45	234.78	233.06	231.30	229.50	227.68	225.84		
23.00	DISCHE	223.98	222.12	220.25	218.38	216.52	214.68	212.85	211.05	209.27	207.30		
24.00	DISCHE	204.30	201.08	196.88	191.77	187.81	185.13	183.44	182.41	181.78	181.40		
25.00	DISCHE	181.15	180.99	180.88	180.79	180.71	180.66	180.60	180.54	180.49			
26.00	DISCHE	180.37	180.30	180.24	180.18	179.96		178.16	175.78	175.21	173.55		
27.00	DISCH6	171.86	170.16	168.48	166.82	165.21		162.04	160.47	158.91	157.36		
28.00	DISCHE	155.80	154.24	152.69	151.13	149.58		146.48	144.93				
29.00	DISCHE	140.30	138.77	137.14	135.41	133.60	131.73	129.83	127.91	125.99	124.06		
RUNOFF	VOLUME ABO	VE BASEFLOW	= 1.97 WA	TERSHED IN	CHES. 41	72.07 CFS-	HRS. 344	.78 ACRE-F	EET: BAS	EFLOW =	3.00 CFS		
RUNOFF	VOLUME ABO	VE BASEFLOW	= 1.97 WA	TERSHED IN	CHES, 41	72.07 CFS-	HRS, 344	.78 ACRE-F	EET; BAS	EFLOW =	3.00 CFS		
ECUTIVE	CONTROL O	PERATION ENI	CMP								RECORD ID	17	7
			CO	MOLITATIONS	COMPLETED	EUD DVCC							

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID 1750

it 0

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

	SECTION/ STRUCTURE	•	STANDARD CONTROL	DDATNACE	RAIN	ANTEC		F	RECIPITAT	ION	DUNGEE		PEAK I	ISCHARGE	
	1D	(DPERATION	DRAINAGE AREA (SQ MI)	TABLE #	COND	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSN)
	AL TERMA														
	+ ALTERNA	IL	88 ST	ORM 1											
	STRUCTURE	10	RUNOFF	.84	2	2	.10	.0	7.00	24.00	1.67		17.80	96.56	114.9
	STRUCTURE	10	RESVOR	.84	2	2	.10	.0	7.00	24.00	1.63	9.50	18.14	96.09	114.4
	XSECTION	10	REACH	.84	2	2	.10	.0	7.00	24.00	1.62		18.47	98.84	117.7
	XSECTION	10	RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.08	·	12.07	136.13	680.6
	XSECTION	10	ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.52		12.07	139.13	133.8
	STRUCTURE :	20	RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.46	9.19	20.09	93.50	89.9
	XSECTION	20	REACH	1.04	2	2	.10	.0	7.00	24.00	1.46	<u></u>	20.24	93.48	89.9
	XSECTION	20	RUNOFF	.28	2	2	.10	.0	7.00	24.00	2.03		13.36	102.66	366.6
	XSECTION :	20	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.58		13.32	129.36	98.0
)	STRUCTURE :	30	RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7
	STRUCTURE 3	30	RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9
	XSECTION	40	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9
	XSECTION	10	RUNDFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2
		40	ADDHYD	.43	2	2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8
	STRUCTURE 4	10	RESVOR	.43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8
	XSECTION 5	50	REACH	.43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7
	XSECTION 4	19	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.84		13.33	13.76	125.1
		50	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29		16.65	53.98	100.0
		50	RUNOFF	.36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5
	XSECTION 5	50	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87	<u></u>	12.13	1079.95	1199.9
		0	REACH	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9
		0	RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2
		0	ADDHYD	.95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4
		70	ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.08		12.14	1106.90	487.6
	XSECTION 8	30	REACH	2.27	2	2	.10	.0	7.00	24.00	2.08		12.14	1106.90	487.6
		30	RUNOFF	.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.6
		10	ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.09		12.13	1128.27	492.7
		90	RUNOFF	.24	2	2	.10	.0	7.00	24.00	4.14		12.26	458.49	1910.4
	XSECTION 10		ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1534.58	606.5
	XSECTION 11	0	REACH	2.53	2	2	.10	.0	7.00	24.00	2.29	-	12.16	1534.58	606.6
Ì	XSECTION 12		REACH	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1534.58	606.6
•	XSECTION 12	0.	RUNOFF	.19	2	2	.10	.0	7.00	24.00	2.22		12.38	159.29	838.4

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD	BDATHACE	RAIN	ANTEC		P	RECIPITAT	ION			PEAK D	ISCHARGE	
ID	CONTROL OPERATION	DRAINAGE AREA (SQ MI)	TABLE	MOIST	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	E 88 ST	ORM 1											
XSECTION 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.28		12.18	1657.29	609.3
STRUCTURE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.10	10.69	13.56	343.65	126.3
XSECTION 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.10		13.56	343.65	126.3
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.13		13.44	353.46	127.6
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.94	6.71	16.65	276.64	99.9
XSECTION 140	REACH	2.77	2	2	.10	.0	7.00	24.00	1.92		16.94	276.19	99.7
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.52		12.02	560.07	2800.4
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.03		12.02	565.95	190.6
XSECTION 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	3.10	-	12.15	142.32	1779.0
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.06		12.03	676.34	221.8
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.06		12.03	676.34	221.8
XSECTION 150	RUNOFF	.01	2	2	.10	.0	7.00	24.00	.84		12.05	4.99	499.3
XSECTION 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	2.06		12.03	681.31	222.6
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.99		12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	2.02		12.04	698.28	220.3
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	2.01		12.18	618.41	195.1
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	1.97		12.19	650.38	198.3

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(1) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

			1	HYDROGRA	APH INF	ORMATIO	N					ROUTIN	6 PAR	AMETERS				P	EAK
+						OUTF	LOW+		VOLUME	MAIN	ITER-	Q AND	A	1	PEAK	S/Q	. ATT-	TRAVE	L TIME
XSEC	REACH	INF	-OW	OUTF	LOW	INTER	V.AREA	BASE-	ABOVE	TIME	ATION	EQUAT	ION	LENGTH	RATIO	PEAK	KIN	STOR-	KINE
+ ID	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR		COEFF	POWER	FACTOR	0/I	(K)	COEFF	AGE	MATI
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K\$)	(Q\$)	(SEC)	(C)	(HR)	(HR
A	LTERNATE	88	STORM	1						41					76				
- - 10	1750	99	18.1	 99	18.5			3	1.63\$.10	i	1.20	1.10	.021	.997	888	.34	.40	. 25
+ 20	2900	94	20.1	93	20.2	, 55	12.1		1.46#	.10	1	.280	1.94	.000	1.000	320	.72?	.10	.09
- 40	1300	48	16.2	48	16.5		13.3	0	1.51	.10		.880		.027	.992	934	.32	.30	.20
50	1700	50	16.6	50	16.7		16.5	0	1.41	.10	1	1.60	1.45	.002	1.000	252	.83?	.10	.07
60	1400	1064	12.1	1064	12.1		16.6	0	2.87	.10	0	.440	1.94	.000	1.000	38	1.00?	.00	.00
						1069	12.1					700							
80	700	1085	12.1	1085	12.1	1114	12.1	3	2.08	.10	0	.300	1.94	.000	1.000	23	1.00?	.00	.00
110	500	1518	12.2	1518	12.2			3	2.29	.10	0	.300	1.94	.000	1.000	14	1.00?	.00	.00
120	500	1518	12.2	1518	12.2			3	2.29	.10	0	.300	1.94	.000	1.000	14	1.00?		.00
			recyc	cled pap	er	1651	12.2					.300		ecol	ogy and	enviror		B-159)

+130	1000	344	13.6	344	13.6	(le., + +		3	2.10	.10	0	1.94	.000	1.000	57 1.00?	.00	.00 '
+						353	13.4										
+140	2500	277	16.6	276	16.9			3	1.94	.10	1	.210	.004	.998	783 .37	.30	.22
+						562	12.0										
												.210			A STATE OF THE STA		
+150	300	661	12.0	661	12.0			3	2.06\$.10	0	1.48	.000	1.000	71 1.00?	.00	.00
•						666	12.0					A Maria Lago					
+180	1700	678	12.0	616	12.2			3	2.02	.10	1	.210 1.48	.005	.908	398 .62	.20	.11

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 88 30

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE			STORM NUMBERS
	ID		(SQ MI)	1
0	STRUCTURE 60		2.77	
+	ALTERNATE			07/ //
۸	CTOUCTURE EA	88	2 72	276.64
4	STRUCTURE 50		2.12	
100	ALTERNATE			343.65
0	STRUCTURE 40	-	.43	010100
	ALTERNATE	88		49.78
0	STRUCTURE 30		.37	
+				
	ALTERNATE			48.05
0	STRUCTURE 20		1.04	
+				
_	ALTERNATE	88		93.50
0	STRUCTURE 10		.84	
+				
Ì	ALTERNATE	88		96.09
v	XSECTION 10		1.04	
Τ.	ALTERNATE	00		170 17
۸	XSECTION 20			139.13
	AGC0110H 20		1.02	
•	ALTERNATE	88		129.36
	XSECTION 40			
+				
	AI TERNATE	88		49.80
0	XSECTION 49		.11	
т.				
	ALTERNATE			13.76
0	XSECTION 50		.90	
+_				
	ALTERNATE	88		1079.95
0	XSECTION 60		.95	
+.	AL TERMATE			1001 01
۸	ALTERNATE XSECTION 70		0.07	1086.21
ū	ASELITUN /U		2.27	
	ALTERNATE	88		1106.90
0	XSECTION 80		2.29	1100.70
+			2127	
-	ALTERNATE	88		1128.27

TR20 XEQ 04-28-86 13:44 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 88 30

JOB 1 SUMMARY PAGE 33

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE		DRAINAGE	STORM NUMBERS
	ID		(SQ MI)	1
0	XSECTION 90		.24	
+				
	ALTERNATE	88		458.49
0	XSECTION 100	1	2.53	
	ALTERNATE	88		1534.58
0	XSECTION 110		2.53	
9	ALTERNATE	88		1534.58
0	XSECTION 120		2.72	
+				
33	ALTERNATE	88		1657.29
0	XSECTION 130			
+				
	ALTERNATE	88		353.46
0	XSECTION 140		2.97	
+				
	ALTERNATE	88	The state of the s	565.95
0	XSECTION 149		.08	
			and the same of the	
	ALTERNATE	88		142.32
0	XSECTION 150		3.06	
+				
	ALTERNATE	88		681.31
	XSECTION 180			TENT THE THE STATE OF THE S
+				
	ALTERNATE	88		650.38

FISCAL YEAR 89

B-163

	GDELL'S			SS=001 SUMMARY NV5010 24 HR 10YR TYPE 2	10 STORM 20 30
3 STRUCT	10				40
8		7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
8		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		8.2	22.0	6.38	90
8		8.6	52.0	7.07	100
8		9.0	62.0	7.75	110
8		9.5	96.0	8.61	120
8		10.0	126.0	9.47	130
8		11.0	198.0	11.18	140
8		12.0	280.0	12.89	150
8		13.00	360.0	14.79	160
8		14.00	440.0	16.68	170
8		15.00	500.0	18.58	180
8		15.1	600.00	18.60	190
9 ENDTBL					200
3 STRUCT	20				210
8		4.5	0.00	5.80	220
8		4.9	1.5	7.88	230
8		5.1	3.7	8.42	240
8		5.5	11.0	9.51	250
8		5.7	15.0	10.13	260
8		6.1	25.0	11.13	270
8		6.5	40.0	12.21	280
8		7.1	60.0	13.84	290
8		7.9	78.0	16.01	300
8		8.5	79.0	17.63	310
8		9.5	100.0	20.34	320
8		10.5	126.0	23.06	330
8		11.5	150.0	25.76	340
8		11.6	300.0	26.04	350
9 ENDTBL					360
3 STRUCT	30				370
8			0.00	0.10	380
8			0.6	0.61	390
8		21.6	1.5	0.86	400
8			2.5	1.12	410
9			5.2	1.62	420
8			8.2	2.13	430
8			11.0	2.64	440
8			20.0	3.27	450
8		24.0	27.0	3.91	460

****	*******	*******	##80-80 LIST	OF INPUT DAT	A (CONTINUED) *****	*************
9			25.0	39.0	5.18	470
8		and the state of	26.0	49.0	6.45	480
8			27.0	57.0	7.72	490
8			27.1	200.00	7.74	500
9 E	NDTBL					510
3 5	TRUCT	40				520
8			9.0	0.0	0.38	530
8			9.4	2.2	0.47	540
8			9.6	5.0	0.52	550
В			10.0	14.0	0.62	560
8			10.2	21.0	0.67	570
8			10.6	36.0	0.77	580
8			11.0	55.0	0.86	590
8			11.6	82.0	1.01	. 600
8			12.4	120.0	1.21	610
8			13.0	121.0	1.35	620
8			14.0	122.0	1.60	630
8			15.0	126.0	1.84	640
8			16.0	150.00	2.08	650
8			16.1	300.0	2.11	660
9 E	NDTBL					670
3 5	TRUCT	50				680
8			2.4	0.00	22.00	690
8			2.8	2.0	26.86	700
8			3.0	7.0	29.29	710
8			3.4	16.0	34.16	720
8			3.6	24.0	36.59	730
8			4.0	40.0	41.46	740
8			4.4	60.0	46.32	750
8			5.0	90.0	53.62	760
8			5.8	120.0	63.35	770
8			6.4	121.0	70.65	780
8			7.4	210.0	82.81	790
8			8.4	250.00	94.98	800
8			10.4	334.0	119.31	810
8			12.4	400.0	143.63	820
8			12.5	800.0	143.70	830
9 EN	IDTBL					840
3 S1	TRUCT	60				850
8			2.0	0.0	22.20	860
8			2.4	3.0	27.41	870
8			2.6	10.5	30.02	880
8			3.0	22.5	35.24	890
8			3.2	36.0	37.85	900
8			3.6	60.0	43.06	910
8			4.0	90.0	48.28	920

**	******	*	*****	**	::	18	0-80 LIST	OF INPUT	DATA	(CONTINUI	ED) ***	*****	************
8							4.6	135.0		56.11			930
9							5.4	180.0		66.55			940
03							6.0	181.0		74.38			950
9							7.0	315.0		87.42			960
8							8.0	375.0		100.47			970
8							8.1	700.0		100.50			980
9	ENDTBL												990
	RUNOFF		10			6	0.84	51.		7.50	1		1000
	RESVOR						7.0				1		1010
	REACH		010	7			1750.	1.2		1.10	i		1020
6	RUNOFF			Ų.			0.20	42.		0.19	1		1030
	ADDHYD			5	4	7				V.1.		1	1040
	SAVMOV			7	18319	6					•	•	1050
	RESVOR			100		_	4.5				1		1060
	REACH		020	7			2900.	0.28		1.94	1		1070
	RUNOFF			•			0.28	53.		1.02	i		1080
	ADDHYD			5	6			٠		1.02		1	1090
	SAVMOV			7		1						•	1100
	RUNOFF		30			_	0.37	49.		3.90			1110
	RESVOR			4			21.0	77.		3.70			
	REACH		040	7			1300.	0.88		1.10	1		1120
	RUNOFF			'			0.06	40.		1.00			1130
	ADDHYD			5	L		V.00	70.		1.00			1140
	SAVMOV			7		6					•		1150
	RESVOR					-	9.0						1160
	REACH		050	7			1700.	1.6		1.45	1		1170
	RUNOFF			'			0.11	40.			1		1180
	ADDHYD			5	L	7	V.11	40.		1.67	1		1190
	SAVMOV			7	9	5					1		1200
	RUNOFF			1			0.36	85.		A 45			1210
	ADDHYD			=		7	0.30	03.		0.42	1		1220
	REACH			7			1400.	0.44			1		1230
	RUNOFF			1			0.05			1.94	1		1240
	ADDHYD			-	L	7	0.03	45.		0.90	1		1250
	SAVMOV			7	0	5					1	1	1260
	SAVMOV			1		6							1270
	ADDHYD			180	,	7							1280
								A 7A			1	1	1290
	REACH						700.			1.94	1		1300
							0.02	64.		0.12	1		1310
	ADDHYD					7					1		1320
	SAVMOV			7		5	A 74	77		0.10			1330
	RUNOFF			-	,		0.24	73.		0.62	1		1340
	ADDHYD					7					1		1350
	REACH						500.	0.30		1.94	1		1360
	SAVMOV					7							1370
0	REACH	2	120	7		2	500.	0.30		1.94	1		1380

										ED) **************
	RUNOFF						0.19	56.	0.74	1
	ADDHYD			17	6	7				1 1
	SAVMOV	- 3	-			6				
	RESVOR					7	2.4			111
	REACH			7		5	1000.	0.30	1.94	1
6	RUNOFF	1	130			6	0.05	74.	0.19	1
6	ADDHYD	4	130	5	6	7				1
6	SAVMOV	5	130	7		6				
6	RESVOR	2	60	6		7	2.0			111
	REACH			7		5	2500.	0.21	1.48	1
6	RUNOFF	1	140			6	0.20	66.	1.15	1
6	ADDHYD	4	140	5	6	7				1
6	SAVMOV	5	150	7		5				
6	RUNOFF	1	149			6	0.08	50.	0.42	1
6	ADDHYD	4	150	5	6	7				
6	REACH	3	150	7		5	300.	0.21	1.48	1
6	RUNOFF	1	150			4	0.01	40.	0.15	1
6	ADDHYD	4	150	5	6	7				1
6	SAYMOV	5	180	7		5				
6	RUNOFF	1	180			6	0.28	50.	0.61	1
	ADDHYD			5	6	7				1
6	REACH	3	180	7		5	1700.0	0.21	1.48	1
6	RUNOFF	1	180			6	0.11	41.	0.48	1
6	ADDHYD	4	180	5	6	7				11 1 1
	ENDATA									
	ALTER									
5	RUNOFF	1	010			6	0.20	44.0	0.19	1
	RUNOFF					6	0.28	54.0	2.00	1
5	RUNOFF	1	090			6	0.24	75.0	0.62	1
5	RUNOFF	1	120			6	0.19	57.0	0.74	1
5	RUNOFF	1	140			6	0.20	69.0	0.19	1
5	RUNDFF	1	149			4	0.08	65.0	0.42	1
	RUNOFF	1	180			6	0.11	42.0	0.48	1
	LIST									
7	BASFLO	5					3.0			
7	INCREM	6					0.1			
7	COMPUT	7	10	18	10		0.0	7.0	1.0	2 2 89 01
	ENDCMP	1								
	ENDJOB	2								

TR20 XEQ 04-29-86 08:27 COGDELL'S CREEK WATERSHED STUDY NVSC	10 24 HR 10YR TYPE 2 STORM	20	JOB 1	PASS 1
REV PC 09/83(.2) ALT 89	30			PAGE 1
OCHANGES TO STANDARD CONTROL LIST FOLLOW				
EXECUTIVE CONTROL OPERATION ALTER			RECORD ID	1640
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 10	11		. RECORD ID	1650
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	44.0000	.1900
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 20			RECORD ID	1660
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2800	54.0000	2.0000
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 90			RECORD ID	1665
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2400	75.0000	.6200
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 120			RECORD ID	1668
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.1900	57.0000	.7400
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 140			RECORD ID	1670
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	69.0000	.1900
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 149			RECORD ID	1680
OUTPUT HYDROGRAPH = 5	DATA FIELD VALUES =	.0800	45.0000	.4200
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 180			RECORD ID	1690
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.1100	42.0000	.4800
			1217777	

OUTPUT OPTIONS IN EFFECT PEAK VOL SUM

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PASE

EXECUTIVE CONTROL OPERATION LIST

RECORD ID 1700

LISTING OF CURRENT DATA

3	STRUCT	STRUCT NO. 10	ELEVATION	DISCHARGE	STORAGE
8			7.00	.00	4.33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
8			8.20	22.00	6.38
8			8.60	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	360.00	14.79
8			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600.00	18.60
	ENDTBL				10100
		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	20			
8			4.50	.00	6.80
8			4.90	1.50	7.88
9			5.10	3.70	8.42
8			5.50	11.00	9.51
0			5.70	15.00	10.13
8			6.10	25.00	11.13
8			6.50	40.00	12.21
8			7.10	60.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
8			11.50	150.00	25.76
8			11.60	300.00	26.04
9	ENDTBL				

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	Section the section	New York Control		
3 STRUCT	STRUCT NO. 30	ELEVATION	DISCHARGE	STORAGE
8		21.00	.00	.10
8		21.40	.60	.61
8		21.60	1.50	.86
8		21.80	2.50	1.12
8		22.20	5.20	1.62
8		22.60	8.20	2.13
8		23.00	11.00	2.64
8		23.50	20.00	3.27
8		24.00	27.00	3.91
8		25.00	39.00	5.18
9		26.00	49.00	6.45
8		27.00	57.00	7.72
8		27.10	200.00	7.74
9 ENDTBL			200100	(1/1
3 STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
8		9.00	.00	.38
8		9.40	2.20	.47
8		9.60	5.00	.52
8		10.00	14.00	.62
8		10.20	21.00	.67
8		10.60	36.00	.77
8		11.00	55.00	.86
8		11.60	82.00	1.01
8		12.40	120.00	1.21
8		13.00	121.00	1.35
8		14.00	122.00	1.60
8		15.00	126.00	1.84
8		16.00	150.00	2.08
8		16.10	300.00	2.11
9 ENDTBL				
7 CIDUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3 STRUCT	50			
8		2.40	.00	22.00
8		2.80	2.00	26.86
8		3.00	7.00	29.29
8		3.40	16.00	34.16
8		3.60	24.00	36.59
8		4.00	40.00	41.46
8		4.40	60.00	46.32
8		5.00	90.00	53.62

JOB 1 PASS 1

PAGE

R	EV PC 09/83	(.2)	ALT	89				30	
			5.80	120.00	63.35				
			6.40	121.00	70.65				
			7.40	210.00	82.81				
			8.40	250.00	94.98				
			10.40	334.00	119.31				
		•	12.40	400.00	143.63				
			12.50	800.00	143.70				
ENDT)L								
	STRUCT	NO	ELEVATION	DISCHARGE	STORAGE				
STRUC		NU.	ELEAHIIDM	מומבחאתטב	STURAGE				
			2.00	20	00.00				
			2.00	.00	22.20				
			2.40	3.00	27.41				
			2.60	10.50	30.02				
			3.00	22.50	35.24				
			3.20	36.00	37.85				
			3.60	50.00	43.06				
			4.00	90.00	48.28				
			4.60	135.00	56.11				
			5.40	180.00	66.55				
			6.00	181.00	74.38				
			7.00	315.00	87.42		•		
			8.00	375.00	100.47				
CHRTT			8.10	700.00	100.50				
ENDTE	L								
		TIME	INCREMENT						
DIMHY	D		.0200						
		.0000	.0300	.1000	.1900	.3100			
		.4700	. 5600	.8200	.9300	.9900			
	1	.0000	.9900	.9300	.8600	.7800			
		.4800	.5600	.4600	.3900	.3300			
		.2800	.2410	.2070	.1740	.1470			
		.1250	.1070	.0910	.0770	.0660			
		.0550	.0470	.0400	.0340	.0290			
		.0250	.0210	.0180	.0150	.0130			
		.0110	.0090	.0080	.0070	.0060			
		.0050	.0040	.0030	.0020	.0010			
		.0000	.0000	.0000	.0000	.0000			
ENDTB	L								

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS

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	TABLE NO.	TIME	INCREMENT				
5	RAINFL 1	TINC	.5000				
8		.0000	.0080	.0170	.0260	.0350	
8		.0450	.0550	.0650	.0760	.0870	
8		.0990	.1120	.1260	.1400	.1560	
8		.1740	.1940	.2190	.2540	.3030	
8		.5150	.5830	.6240	.6550	.6820	
8		.7060	.7280	.7480	.7660	.7830	
8		.7990	.8150	.8300	.8440	.8570	
8		.8700	.8820	.8930	.9050	.9160	
8		.9260	.9360	.9460	.9560	.9450	
8		.9740	.9830	.9920	1.0000	1.0000	
9	ENDTBL						
	TABLE NO	TIME	THEOGRACHE				
=	TABLE NO.	IIME	INCREMENT				
3	HHINFL 2		.2500				
8		.0000	.0020	.0050	.0080	.0110	
8		.0140	.0170	.0200	.0230	.0260	
9		.0290	.0320	.0350	.0380	.0410	
8		.0440	.0480	.0520	.0560	.0400	
8		.0640	.0690	.0720	.0760	.0800	
8		.0850	.0900	.0950	.1000	.1050	
8		.1100	.1150	.1200	.1260	.1330	
8		.1400	.1470	.1550	.1630	.1720	
8		.1810	.1910	.2030	.2180	.2360	
8		.2570	.2830	.3870	.6630	.7070	
8		.7350	.7580	.7760	.7910	.8040	
8		.8150	.8250	.8340	.8420	.8490	
8		.8560	.8630	.8690	.8750	.8810	
8		.8870	.8930	.8990	.9030	.9080	
8		.9130	.9180	.9220	.9260	.9300	
8		.9340	.9380	.9420	.9460	.9500	
8		.9530	.9560	.9590	.9620	.9650	
8		.9480	.9710	.9740	.9770	.9800	
8		.9830	.9860	.9890	.9920	.9950	
8		.9980	1.0000	1.0000	1.0000	1.0000	
9	ENDTBL						
	TABLE NO.	TIME	INCREMENT				
5	RAINFL 3		.5000				
8		.0000	.0100	.0220	07/0	AF4A	
0 00		.0670	.0100	.0220	.0360	.0510	
4		1007V	.0030	. 0770	.1160	.1350	

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JOB 1 PASS

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BEU 65 45 1						
REV PC 09/1	33(.2)	ALT 8	9			30
8	.1560	.1790	.2040	.2330	.2680	
8	.3100	.4250	.4800	.5200	.5500	
8	.5770	.6010	.6230	.6440	.6640	
8	.6830	.7010	.7190	.7360	.7530	
8	.7690	.7850	.8000	.8150	.8300	
8	.8440	.8580	.8710	.8840	.8960	
8	.9080	.9200	.9320	.9440	.9560	
8	.9670	.9780	.9890	1.0000	1.0000	
9 ENDTBL				Cater III		
TABLE NO.	TIME	INCREMENT				
5 RAINFL 4		.5000				
8	.0000	.0040	.0080	.0120	.0160	
8	.0200	.0250	.0300	.0350	.0400	
3	.0450	.0500	.0550	.0600	.0650	
3	.0700	.0750	.0810	.0870	.0930	
3	.0990	.1050	.1110	.1180	.1250	
3	.1320	.1400	.1480	.1560	.1650	
3	.1740	.1840	.1950	.2070	.2200	
В	.2360	.2550	.2770	.3030	.4090	
3	.5150	.5490	.5830	.6050	.6240	
3	.6400	.6550	. 6690	.6820	.6940	
3	.7050	.7160	.7270	.7380	.7480	
3	.7580	.7670	.7760	.7840	.7920	
9	.8000	.8080	.8160	.8230	.8300	
3	.8370	.8440	.8510	.8580	.8640	
1	.8700	.8760	.8820	.8880	.8940	
3	.9000	.9060	.9110	.9160	.9210	
3	.9260	.9310	.9360	.9410	.9460	
	.9510	.9560	.9610	.9660	.9710	
3	.9760	.9800	.9840	.9880	.9920	
3	.9960	1.0000	1.0000	1.0000	1.0000	
ENDTBL		110000	1,000	1.0000	1.0000	
TABLE NO.	TIME	INCREMENT				
RAINFL 5		.5000				
	.0000	.0020	.0050	.0080	.0110	
1	.0140	.0170	.0200	.0230	.0260	
1	.0290	.0320	.0350	.0380	.0410	
1	.0440	.0470	.0510	.0550	.0590	
1	.0630	.0670	.0710	.0750	.0790	
	.0840	.0890	.0940	.0990	.1040	
	.1090	.1140	.1200	.1260	.1330	
	.1400	.1470	.1540	.1620	.1710	
	.1810	.1920	.2040	.2170	.2330	

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TR20 XEQ 04-29-	86 08:27	COGDEL	I'S CREEK MA	repeuen etiini	NV5010 24 HF	10VD TVDE 7
THE XEE OF E	00 00117	COUNCE	L O GULLE WA	ICHONED STOP	1 NVJVIV 24 NF	TOTA TIPE 2
REV PC 09/	83(.2)	ALT 8	9			
8	. 2520	.2770	.3180	. 6380	. 6980	
8	.7290	.7520	.7700	.7850	.7980	
8	.8090	.8190	.8290	.8380	.8460	
8	.8540	.8610	.8480	.8740	.8800	
8	.8860	.8920	.8970	.9020	.9070	
8	.9120	.9170	.9210	.9250	.9290	
8	.9330	.9370	.9410	.9450	.9490	
8	.9530	./9570	.9600	.9630	.9660	
8	.9590	.9720	.9750	.9780	.9810	
8	.9840	.9870	.9900	.9930	.9960	
8	.9980	1.0000	1.0000	1.0000	1.0000	
9 ENDTBL						
TABLE NO.	TIME	INCREMENT				
5 RAINFL 6		.0200				
8	.0000	.0080	.0162	.0246	.0333	
8	.0425	.0524	.0630	.0743	.0863	
9	.0990	.1124	.1265	.1420	.1595	
8	.1800	.2050	.2550	.3450	.4370	
8	.5300	.6030	.6330	.6600	.6840	
8	.7050	.7240	.7420	.7590	.7750	
8	.7900	.8043	.8180	.8312	.8439	
8	.8561	.8678	.8790	.8898	.9002	
8	.9103	.9201	.9297	.9391	.9483	
8	.9573	.9661	.9747	.9832	.9916	
8	1.0000	1.0000	1,0000	1.0000	1.0000	
9 ENDTBL					75-00 (-00-75-0	

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STANDARD CONTROL INSTRUCTIONS

	6	RUNOFF	1	10			6	.8400	51.0000	7.50001	0	0	1	0	1	
	6	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1	
	4	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1	
	6	RUNOFF	1	10			6	.2000	44.0000	.19001	0	0	1	0	1	
	5	ADDHYD	4	10	5	6	7			1	1	0	1	0	1	
	6	SAVMOV	5	10	7		6									
	6	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1	
	6	REACH	3	20	7		5	2900.0000	.2800	1.94001				200	3566	
	6	RUNOFF	1	20			6	.2800	54,0000	2.00001	0	0	1	0	1	
	6	ADDHYD	4	20	5	6	7							0		
	6	SAVMOV	5	20	7		1						i			
	6	RUNDEF	1	30			6	.3700	49.0000	3.90001	0	0	1	0	1	
	6	RESVOR	2	30	6		7	21.0000		1		0	10	(0.5)	87.0	
	6	REACH	3	40	7		5	1300,0000	.8800	1.10001			1	0.35		
	5	RUNOFF	1	40			6	.0600	40,0000	1.00001	-	-	_		100	
	á		4	40	5	6	7							0		
	_	SAVMOV	5	40	7	-	6				٧		•	4	•	
	_	RESVOR	2	40	6		7	9.0000		1	0	۸	1	0	1	
	_	REACH	3	50	7		5	1700.0000	1.6000	1.45001	-		1	0		
)	_	RUNOFF	1	49			6	.1100	40.0000	1.67001		0	1		•	
		ADDHYD	4	50	5	6	7	,,,,,	40.000	1.07001		0	_	100		
	7	SAVMOV	5	50	7		5				٧	٧	1	,	•	
	_	RUNDEF	1	50			6	.3600	85.0000	.42001	0	0	1	0	1	
	-	ADDHYD	4	50	5	6	7	10000	43.000	1	0	. 7	1	0		
	170	REACH	3	60	7		5	1400.0000	.4400	1.94001		0	1	0	2016	
	-	RUNOFF	1	60			6	.0500	45.0000	.90001			1	0		
	-	ADDHYD	4	60	5	6		.0000	44.000				-	0	100	
	10	SAVMOV	5	70	7	Ĭ	5				1	٧	•	•		
	6			70	1		6									
	-	ADDHYD	4	70	5	6	2.00				1	۸	1	0	1	
	-	REACH	3	80	7		5	700.0000	.3000	1.94001	90.70		-	0	100	
	_	RUNOFF	1	80	'		6	.0200	64.0000	.12001						
	6	ADDHYD	4	80	5	4	7	10200	04.0000		0	-	-	-	-	
	į.		5	100	7	٠	5			•	٧	٧	1	٧	1	
	7	RUNOFF	1	90	'		6	.2400	75.0000	.62001	۸	۸	•	0	•	
	4	ADDHYD	4	100	5	6	7	.2400	73.0000	. 82001	0	0	1	0	1	
	6		3	110	7	٠	5	500.0000	.3000	1.94001	0	0	1	0	1	
	_		-	120	5		7	300.000	.3000	1.74001	ū	v	1	V	1	
	-	REACH			7		5	500.0000	.3000	1.94001	۸	۸	•	۸	•	
		RUNOFF					4	.1900	57.0000	.74001						
		ADDHYD			5	6		.1700	27.0000							
		SAVMOV		50		0	6			1	1	V	1	0	1	
		RESVOR		50			7	2.4000			1	1	+	٨	•	
				130	7		5	1000.0000	.3000	1.94001			1	0	-	
		RUNOFF			1		6	.0500	74.0000	.19001						
)	u	MUNUFF	4	100			•	.0000	74.0000	.17001	V	V	1	Ų	1	

6	ADDHYD	4	130	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	130	7		6									
6	RESVOR	2	60	6		7	2.0000		1	1	1	1	0	1	
5	REACH	3	140	7		5	2500.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	140			6	.2000	69.0000	.19001	0	0	1	0	1	
6	ADDHYD	4	140	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	150	7		5									
6	RUNOFF	1	149			6	.0800	65.0000	.42001	0	0	1	0	1	
5	ADDHYD	4	150	5	6	7			1	0	0	1	0	1	
å	REACH	3	150	7		5	300.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	150			6	.0100	40.0000	.15001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	180	7		5									
6	RUNOFF	1	180			6	.1100	42.0000	.48001	0	0	1	0	1	
5	ADDHYD	4	180	5	6	7			1	0	0	1	0	1	
ó	REACH	3	180	7		5	1700.0000	.2100	1.48001	0	0	1	0	1	
5	RUNOFF	1	180			6	.1100	41.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7			1	1	0	1	0	1	
	ENDATA														

END OF LISTING

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EXECUTIVE CONTROL OPERATION BASFLO

RECORD ID

NEW BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION INCREM

RECORD ID 1720

MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID 1730

FROM STRUCTURE 10

TO XSECTION 180

STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO. = 2 ANT. MOIST. COND= 2

ALTERNATE NO. =89 STORM NO. = 1 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF STRUCTURE 10

DUTPUT HYDROGRAPH= 6

AREA= .84 SQ MI INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

(RUNOFF)

17.80 96.56

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 10

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 7.00

PEAK TIME (HRS) 18.14

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

96.09

9.50

RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1750.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10

PEAK TRAVEL TIME = .40 HOURS MODIFIED ATT-KIN ROUTING COEFFICIENT = .34

*** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS, 18.88 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

18.47

98.84

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 10 OUTPUT HYDROGRAPHEDES

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PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.07	150.75	(RUNOFF)
15.19	9.64	(RUNOFF)
16.46	8.67	(RUNOFF)
17.67	7.42	(RUNOFF)
19.66	6.17	(RUNOFF)
23.65	4.88	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.16 WATERSHED INCHES.

149.25 CFS-HRS.

12.33 ACRE-FEET: BASEFLOW =

.00 CFS

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5,6

OUTPUT HYDROSRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) 12.07 153.76 18.48 104.86

PEAK ELEVATION (FEET) (NULL)

(NULL)

TIME (HRS)		FIRST HYDROGR	APH POINT	= .00 HO	URS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	1.04 SQ.MI.
11.00	DISCHE	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	7.21	53.07
12.00	DISCHG	135.64	149.19	80.95	56.13	42.16	35.91	33.02	30.56	29.72	27.02
13.00	DISCHE	25.58	24.44	22.95	22.58	21.54	21.15	20.62	19.89	20.05	20.05
14.00	DISCHG	20.75	21.68	22.70	24.32	25.72	27.54	29.37	31.56	35.09	39.12
15.00	DISCHE	43.24	47.29	51.18	54.82	57.52	59.78	61.92	63.90	65.78	67.63
16.00	DISCHE	69.47	71.98	75.00	78.16	81.27	84.22	86.55	88.36	90.42	92.43
17.00	DISCHE	94.31	96.02	97.59	99.01	100.31	101.48	102.52	103.43	104.09	103.97
18.00	DISCHE	104.02	104.29	104.55	104.73	104.84	104.86	104.81	104.67	104.47	104.19
19.00	DISCHE	103.84	103.42	102.93	102.36	101.72	101.00	100.20	99.32	98.25	96.45
20.00	DISCHE	94.87	93.59	92.37	91.15	89.91	88.67	87.43	86.21	85.01	83.83
21.00	DISCHE	82.67	81.54	80.43	79.34	78.27	77.22	76.20	75.19	74.21	73.24
22.00	DISCHE	72.30	71.42	70.72	70.11	69.56	69.03	68.51	67.98	67.44	66.89
23.00	DISCHE	66.33	65.76	65.17	64.57	63.96	63.34	62.72	62.09	61.34	59.73
24.00	DISCHE	58.17	55.97	53.27	51.71	50.62	49.72	48.91	48.18	47.50	46.85
25.00	DISCHG	46.24	45.66	45.10	44.55	44.02	43.50	42.98	42.48	41.98	41.49
26.00	DISCHE	41.00	40.51	40.03	39.55	39.07	38.60	38.12	37.63	37.15	36.66
27.00	DISCHG	36.16	35.66	35.15	34.64	34.13	33.61	33.09	32.57	32.04	31.51
28.00	DISCHE	30.97	30.44	29.90	29.36	28.82	28.28	27.74	27.21	26.67	26.13
29.00	DISCHG	25.68	25.30	24.94	24.59	24.24	23.89	23.52	23.14	22.75	22.35

RUNOFF VOLUME ABOVE BASEFLOW = 1.53 WATERSHED INCHES, 1027.62 CFS-HRS, 84.92 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 20

INPUT HYDROSRAPH= 6 **OUTPUT HYDROGRAPH= 7**

SURFACE ELEVATION=

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PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.65 31.90 5.28 20.08 93.83 9.21

RUNOFF VOLUME ABOVE BASEFLOW = 1.48 WATERSHED INCHES, 990.65 CFS-HRS, 81.87 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 20 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.17 CFS, 25.51 % OF PEAK.

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) PEAK TIME (HRS) 12.82 31.79 (NULL) 20.23 93.80 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.47 WATERSHED INCHES. 987.44 CFS-HRS. 81.60 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 20

OUTPUT HYDROGRAPH= 6

AREA = .28 SQ MI INPUT RUNOFF CURVE = 54. TIME OF CONCENTRATION = 2.00 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1028 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.36

102.55

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

132.15

(RUNOFF)

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 366.74 CFS-HRS, 30.31 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 20

13.31

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

20,11 106.29 (NULL) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.32 SQ.MI. TIME (HRS) 11.00 DISCHG 3.00 3.00 3.00 3.01 3.02 3.06 3.18 3.47 4.17 5.78 12.00 DISCHG 9.45 17.69 29.98 44.84 59.25 72.98 86.02 98.12 108.61 117.14 13.00 DISCHS 123.73 128.34 131.09 132.14 131.53 129.60 126.63 122.67 117.70 111.97 14.00 DISCHG 106.02 100.46 95.56 91.20 87.22 83.67 80.54 77.77 75.29 73.28 15.00 DISCHG 71.78 70.81 70.32 70.22 70.47 70.99 71.70 72.40 73.11 73.90 16.00 DISCHG 74.80 75.76 76.81 78.00 79.36 80.88 82.38 83.57 84.72 85.90 17.00 DISCHG 87.14 88.42 89.73 91.05 92.39 93.73 95.06 95.63 95.66 95.54 18.00 DISCH6 95.38 95.22 95.06 94.90 94.74 95.60 96.75 97.91 99.01 100.03

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19.00	DISCHE	100.97	101.82	102.60	103.31	103.94	104.50	104.99	105.42	105.77	106.05
20.00	DISCHG	106.23	106.29	106.25	106.12	105.90	105.59	105.20	104.74	104.21	103.61
21.00	DISCHE	102.97	102.29	101.57	100.82	100.05	99.26	98.45	97.64	96.82	95.99
22.00	DISCHE	95.17	94.34	93.51	92.69	91.87	91.07	90.29	89.53	88.78	88.48
23.00	DISCHE	88.34	88.25	88.15	88.09	88.01	87.93	87.85	87.77	87.68	87.59
24.00	DISCHE	87.49	87.36	86.62	85.25	83.64	81.94	80.19	78.40	76.60	74.78
25.00	DISCHE	72.98	71.20	69.44	67.74	66.08	64.38	62.48	60.62	58.85	57.20
26.00	DISCHE	55.67	54.24	52.92	51.68	50.52	49.43	48.40	47.43	46.50	45.62
27.00	DISCHG	44.78	43.98	43.21	42.46	41.74	41.04	40.34	39.62	38.90	38.21
28.00	DISCHE	37.53	36.87	36.22	35.58	34.96	34.34	33.73	33.13	32.54	31.95
29.00	DISCHE	31.37	30.80	30.24	29.70	29.17	28.67	28.18	27.71	27.25	26.80

RUNOFF VOLUME ABOVE BASEFLOW = 1.59 WATERSHED INCHES, 1354.18 CFS-HRS, 111.91 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 1

OPERATION RUNOFF STRUCTURE 30

OUTPUT HYDROGRAPH= 6

AREA= .37 SQ MI INPUT RUNOFF CURVE= 49. TIME OF CONCENTRATION= 3.90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

14.95

60.58

(RUNOFF)

RUNDFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 375.61 CFS-HRS, 31.04 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 21.00

PEAK TIME (HRS)

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

16.21

48.05

25.91

RUNOFF VOLUME ABOVE BASEFLOW = 1.51 WATERSHED INCHES, 360.28 CFS-HRS, 29.77 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .88, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .32 PEAK TRAVEL TIME = .30 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

16.55

47.70

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 358.97 CFS-HRS, 29.67 ACRE-FEET; BASEFLOW =

OPERATION RUNOFF CROSS SECTION 40

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OUTPUT HYDROGRAPH= 6

AREA = .05 SQ MI INPUT RUNOFF CURVE = 40. TIME OF CONCENTRATION = 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

PEAK TIME(HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

12.72

10.21

(RUNOFF)

23.76

1.21

(RUNDFF)

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.69 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.73

10.35

(NULL)

16.54

49.80

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 40

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME(HRS)

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

12.90

9.83

9.81

16.60

49.78

10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

13.02 16.72

9.78 49.77

(NIII I) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.40 WATERSHED INCHES. 389.36 CFS-HRS. 32.18 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS

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INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.33

13.76 2.20

(RUNOFF) (RUNOFF)

23.80

FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES,

59.78 CFS-HRS, 4.94 ACRE-FEET: BASEFLOW =

.00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5.6

OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

13.16 16.55

22.91 53.98 (NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 449.14 CFS-HRS, 37.12 ACRE-FEET; BASEFLOW =

.00 CFS

.00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7

DUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50

DUTPUT HYDROGRAPH= 6

.36 SQ MI INPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION= .42 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.13

1078.73

(RUNOFF)

19.65 23.65 24.75 18.64

(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, 100.83 ACRE-FEET; BASEFLOW =

(RUNOFF)

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.13

1079.95

(NULL)

16.49

90.76

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW =

(NULL)

OPERATION REACH CROSS SECTION 60 INPUT HYDROGRAPH= 7

DUTPUT HYDROGRAPH= 5

LENGTH = 1400.00 FEET

INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA. X= .44. M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME =

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*** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.13

1079.95

(NULL)

16.49

90.75

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 60

OUTPUT HYDROGRAPH= 6

AREA = .05 SQ MI INPUT RUNOFF CURVE = 45. TIME OF CONCENTRATION = .90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE(CFS)

PEAK ELEVATION(FEET)

12.56

16.56

(RUNOFF)

23.72

1.26

(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.88 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 60

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

12.14

16.49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) 1086.21 93.02

PEAK ELEVATION (FEET)

(NULL) (NULL)

TIME(HRS)		FIRST HYDROGRA	APH POINT	= .00 H	OURS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	AREA =	.95 SQ.MI.
4.00	DISCHE	.00	.00	.00	.02	.10	.26	. 49	.75	1.04	1.33
5.00	DISCHE	1.62	1.91	2.20	2.49	2.77	3.04	3.32	3.58	3.84	4.10
6.00	DISCHE	4.36	4.67	5.18	5.80	6.40	6.89	7.32	7.71	8.07	8.41
7.00	DISCHE	8.75	9.07	9.38	9.69	9.99	10.29	10.58	10.86	11.14	11.41
8.00	DISCHS	11.68	12.08	12.82	13.80	14.96	16.27	17.49	18.44	19.17	19.76
9.00	DISCHE	20.27	20.91	21.91	23.16	24.29	25.16	26.02	27.23	28.66	29.92
10.00	DISCHE	30.90	31.86	33.18	34.84	37.10	40.08	43.57	47.95	52.84	58.21
11.00	DISCHG	64.10	70.07	76.45	83.02	90.75	101.27	130.10	208.30	333.15	539.50
12.00	DISCHE	836.25	1068.68	1030.91	805.58	576.69	421.03	324.82	265.51	227.09	199.69
13.00	DISCHG	178.52	161.72	147.53	136.12	127.20	119.75	113.25	107.02	101.45	96.86
14.00	DISCHE	93.29	90.54	88.31	86.99	86.63	86.30	86.13	85.74	85.37	85.47
15.00	DISCHE	86.25	87.42	88.95	90.29	90.92	90.62	90.19	90.11	90.41	90.86
16.00	DISCHE	91.35	91.83	92.25	92.60	92.86	93.02	92.76	91.64	89.95	88.43
17.00	DISCHS	87.35	86.55	85.87	85.24	84.63	84.03	83.43	82.82	82.11	80.76
18.00	DISCHG	78.62	76.40	74.60	73.30	72.20	71.21	70.27	69.38	68.51	67.67
19.00	DISCHG	66.86	66.07	65.33	64.68	63.99	63.30	62.62	61.96	51.19	59.85
20.00	DISCHE	57.76	55.58	53.88	52.62	51.60	50.72	49.94	49.23	48.56	47.93
21.00	DISCHE	47.34	46.79	46.25	45.76	45.28	44.83	44.40	43.97	43.53	43.10
22.00	DISCHS	42.70	42.29	41.89	41.51	41.15	40.80	40.46	40.14	39.84	39.55
23.00	DISCHG	39.27	39.01	38.75	38.51	38.28	38.06	37.85	37.65	37.37	36.46

.00 CFS

TR20 XEQ 04-29-86 08:27 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM JOB 1 PASS 1 REV PC 09/83(.2) ALT 89 30 PAGE 17 24.00 DISCHS 34.72 32.26 28.67 24.55 21.18 16.54 18.97 17.56 15.77 15.13 25.00 DISCHG 14.59 14.12 13.71 13.34 13.02 12.72 12.45 12.20 11.96 11.76 11.41 26.00 DISCHE 11.57 11.25 11.11 10.97 10.84 10.71 10.57 10.42 10.28 27.00 DISCHG 10.13 9.97 9.81 9.64 9.47 9.29 9.11 8.93 8.74 8.54 28.00 DISCHE 8.34 8.13 7.93 7.72 7.51 7.29 7.08 6.87 6.67 6.46 29.00 DISCHE 6.26 6.06 4.74 5.87 5.68 5.49 5.32 5.14 4.99 4.87 RUNOFF VOLUME ABOVE BASEFLOW = 2.79 WATERSHED INCHES, 1709.15 CFS-HRS, 141.24 ACRE-FEET; BASEFLOW =

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION SAVMOV CROSS SECTION 70

OUTPUT HYDROGRAPH= 6 INPUT HYDROGRAPH= 1

OPERATION ADDHYD CROSS SECTION 70

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.14	1108.12	(NULL)
17.64	178.57	(NULL)
19.30	167.99	(NULL)

TIME (HRS)		FIRST HYDROGR	APH POINT	= .00	HOURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	2.27 SQ.MI.
4.00	DISCHE	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33
5.00	DISCHE	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10
6.00	DISCHE	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41
7.00	DISCHE	11.75	12.07	12.38	12.69	12.99	13.29	13.58	13.86	14.14	14.41
8.00	DISCHS	14.68	15.08	15.82	16.80	17.96	19.27	20.48	21.44	22.17	22.76
9.00	DISCHE	23.27	23.91	24.91	26.16	27.29	28.15	29.02	30.23	31.66	32.92
10.00	DISCHE	33.90	34.86	36.18	37.84	40.10	43.08	46.57	50.95	55.84	61.21
11.00	DISCHE	67.10	73.07	79.45	86.03	93.78	104.34	133.28	211.78	337.32	545.28
12.00	DISCHE	845.70	1086.37	1060.89	850.42	635.93	494.01	410.84	363.63	335.70	316.84
13.00	DISCHE	302.25	290.06	278.62	268.25	258.73	249.35	239.88	229.68	219.15	208.83
14.00	DISCHE	199.31	191.00	183.87	178.18	173.85	169.97	166.66	163.51	160.66	158.75
15.00	DISCHG	158.04	158.23	159.17	160.51	161.38	161.60	161.89	162.51	163.52	164.76
16.00	DISCHS	166.15	167.59	169.06	170.60	172.22	173.90	175.15	175.21	174.67	174.33
17.00	DISCHE	174.49	174.97	175.59	176.29	177.03	177.77	178.49	178.45	177.77	176.30
18.00	DISCHG	174.00	171.61	169.66	168.20	166.94	165.81	167.02	167.29	167.52	167.70
19.00	DISCHE	167.83	167.90	167.93	167.99	167.93	167.80	167.61	167.37	156.96	165.90
20.00	DISCHS	163.99	161.88	160.13	158.74	157.50	156.32	155.15	153.96	152.76	151.55
21.00	DISCHG	150.31	149.07	147.93	146.58	145.33	144.09	142.85	141.60	140.35	139.10
22.00	DISCHG	137.86	136.63	135.40	134.20	133.02	131.87	130.75	129.67	128.62	128.03
23.00	DISCHE	127.61	127.25	126.92	126.60	126.29	125.99	125.70	125.42	125.06	124.05
24.00	DISCHG	122.21	119.62	115.28	109.80	104.83	100.91	97.75	94.95	92.36	89.91
25.00	DISCHG	87.57	85.32	83.15	81.08	79.10	77.11	74.93	72.81	70.82	68.96

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TR20 XEQ	04-29-86	08:27	COGDELL'S	CREEK WATE	RSHED STUDY	NV5010 2	4 HR 10YR	TYPE 2 STOR	H 20		JOB 1	PASS	1
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25.00	DISCHS	67.24	65.65	64.17	62.79	61.49	60.27	59.11	57.99	56.93	55.90		
27.00	DISCHE	54.91	53.95	53.02	52.10	51.21	50.33	49.45	48.54	47.64	46.75		
28.00	DISCHE	45.87	45.00	44.14	43.30	42.46	41.63	40.81	40.00	39.20	38.41		
29.00	DISCHE	37.63	36.86	36.10	35.37	34.67	33.99	33.33	32.70	32.12	31.53		
RUNOFF	VOLUME ABO	OVE BASEFLOW	= 2.09 WAT	ERSHED IN	CHES, 306	3.33 CFS-H	IRS, 253.	.15 ACRE-FEE	ET; BASE	FLOW =	3.00 CFS		
OPERATION	REACH	CROSS SECTIO	N 80										
	INPUT HY	/DROGRAPH= 7	OUTPUT	HYDROGRAPH	= 5								
	LENGTH :	700.00 F	EET IN	PUT = COEF	FICIENTS R	ELATED TO	CROSS SECT	IONAL AREA,	X= .3	0. M=	1.94		
0	MODIFIE	ATT-KIN ROU								., "			
444	HADNITAGE	DEAGU 50 AT	T				Edit Colon		in for its action	alle valle et			

*** WARNING REACH 80 ATT-KIN COEFF. (C) SREATER THAN 0.567, CONSIDER REDUCING MAIN TIME INCREMENT ***

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.14
 1108.12
 (NULL)

 17.64
 178.57
 (NULL)

 19.30
 167.99
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.09 WATERSHED INCHES, 3043.33 CFS-HRS, 253.15 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 80
OUTPUT HYDROGRAPH= 6

AREA= .02 SQ MI INPUT RUNOFF CURVE= 64. TIME OF CONCENTRATION= .12 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0160 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
11.98 54.99 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.98 WATERSHED INCHES, 38.49 CFS-HRS, 3.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 80

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.13
 1129.43
 (NULL)

 17.64
 179.89
 (NULL)

 19.30
 169.06
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.10 WATERSHED INCHES, 3101.82 CFS-HRS, 256.33 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 100

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 90
OUTPUT HYDROGRAPH= 6

AREA= .24 SQ MI INPUT RUNOFF CURVE= 75. TIME OF

TIME OF CONCENTRATION= .62 HOURS

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INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	458.49	(RUNOFF)
19.66	15.09	(RUNOFF)
23.66	11.44	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.14 WATERSHED INCHES, 641.76 CFS-HRS, 53.03 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 100

INPUT HYDROGRAPHS = 5,6 OUTPUT HYDROGRAPH = 7

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.86	(NULL)
17.64	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** HARNING REACH 110 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.86	(NULL)
17.64	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

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PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.86	(NULL)
17.64	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 57. TIME OF CONCENTRATION= .74 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0987 HOURS

PEAK TIME(HRS) 12.38	PEAK DISCHARGE(CFS) 167.75	PEAK ELEVATION (FEET) (RUNGFF)
19.68	8.82	(RUNOFF)
23.66	6.81	(RUNOFF)

PEAK DISCHARGE (CFS)

1666.75

204 04

RUNOFF VOLUME ABOVE BASEFLOW = 2.31 WATERSHED INCHES, 283.37 CFS-HRS, 23.42 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

12.18

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

	15.	36		204.0	4		(NULL)					
	16.	52		211.5	9		(NULL)					
	17.	63		209.6	1		(NULL)					
	19.	29		192.9	6		(NULL)			100		
TIME (HRS)		FIRST HYDROGRA	PH POINT	= .00 H	OURS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	
4.00	DISCHG	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33	
5.00	DISCHE	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10	
6.00	DISCHG	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.42	
7.00	DISCHE	11.77	12.13	12.52	12.93	13.36	13.79	14.23	14.67	15.11	15.54	
8.00	DISCHG	15.98	16.55	17.48	18.71	20.15	21.78	23.35	24.68	25.76	26.68	
9.00	DISCHE	27.51	28.47	29.83	31.49	33.06	34.37	35.71	37.41	39.40	41.24	
10.00	DISCHS	42.78	44.33	46.25	48.59	51.71	55.68	60.49	66.40	73.12	80.68	
11.00	DISCHE	98.99	97.85	107.40	117.59	129.65	145.43	189.80	294.64	471.47	782.03	
12.00	DISCHG	1225.03	1590.55	1660.52	1478.51	1218.41	989.95	814.79	691.91	606.66	544.13	
13.00	DISCHE	497.31	459.22	427.38	400.58	377.62	357.60	338.98	321.07	303.76	287.50	
14.00	DISCHG	273.16	250.65	249.91	241.04	233.77	227.32	221.41	215.82	210.69	206.74	
15.00	DISCHE	204.35	203.26	203.29	203.92	203.97	203.33	202.59	202.16	202.24	202.78	
16.00	DISCHG	203.68	204.79	206.06	207.46	209.00	210.62	211.56	211.14	209.83	208.57	
17.00	DISCHE	207.81	207.51	207.57	207.90	208.38	208.96	209.57	209.46	208.62	206.70	
18.00	DISCHG	203.79	200.52	197.60	195.26	193.31	192.70	192.58	192.63	192.72	192.81	
19.00	DISCHE	192.87	192.90	192.91	192.96	192.90	192.77	192.58	192.35	191.85	190.37	

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20.00	DISCHE	187.85	184.84	182.12	179.84	177.90	176.23	174.73	173.32	171.97	170.64
21.00	DISCHE	169.34	148.05	166.78	165.51	164.25	163.00	161.76	160.52	159.27	158.03
22.00	DISCHE	156.80	155.57	154.35	153.15	151.98	150.84	149.73	148.56	147.62	147.03
23.00	DISCHE	146.62	146.27	145.95	145.63	145.33	145.04	144.76	144.49	144.02	142.58
24.00	DISCHE	140.06	135.95	129.60	121.65	114.00	107.64	102.49	98.22	94.62	91.49
25.00	DISCHG	88.66	86.07	83.67	81.44	79.34	77.27	75.04	72.88	70.86	68.98
26.00	DISCHG	67.25	65.66	64.17	62.79	61.49	60.27	59.11	57.99	56.93	.55.90
27.00	DISCHE	54.91	53.95	53.02	52.10	51.21	50.33	49.45	48.54	47.64	46.75
28.00	DISCHE	45.87	45.00	44.14	43.30	42.46	41.63	40.81	40.00	39.20	38.41
29.00	DISCHG	37.63	36.86	36.10	35.37	34.67	33.99	33.33	32.70	32.12	31.53

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 4026.95 CFS-HRS, 332.79 ACRE-FEET; BASEFLOW = 3.00 CFS

PEAK ELEVATION (FEET)

OPERATION SAVMOV STRUCTURE 50

INPUT HYDROGRAPH= 7

OUTPUT HYDROGRAPH= 6

PEAK DISCHARGE (CFS)

OPERATION RESVOR STRUCTURE 50

PEAK TIME (HRS)

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.40

		13.5	56			345.	.99		10.76				
	TIME (HRS)		FIRST	HYDROGRAPH	POINT	= .00	HOURS	TIME INCREMENT	r = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.
	9.00	DISCHG		3.00	3.00	3.28	3.75	4.23	4.72	5.24	5.76	6.31	6.89
	9.00	ELEV		2.84	2.84	2.85	2.87	2.89	2.91	2.93	2.95	2.97	3.00
	10.00	DISCHE		7.43	7.98	8.54	9.13	9.75	10.42	11.14	11.94	12.81	13.78
	10.00	ELEV		3.02	3.04	3.07	3.09	3.12	3.15	3.18	3.22	3.26	3.30
	11.00	DISCHE		14.86	16.09	18.42	20.94	23.70	26.75	30.52	36.19	46.85	66.23
	11.00	ELEV		3.35	3.40	3.46	3.52	3.59	3.67	3.76	3.90	4.14	4.52
	12.00	DISCHE		95.67 1	20.39	177.78	232.58	263.11	286.77	304.08	316.72	326.08	333.09
	12.00	ELEV		5.15	6.03	7.04	7.96	8.71	9.28	9.69	9.99	10.21	10.38
	13.00	DISCHE		337.45 3	40.57	342.85	344.43	345.42	345.91	345.96	345.61	344.87	343.78
	13.00	ELEV		10.50	10.60	10.67	10.72	10.75	10.76	10.76	10.75	10.73	10.70
	14.00	DISCHE		342.37 3	40.70	338.80	336.73	334.53	31.75	328.73	325.63	322.47	319.27
	14.00	ELEV		10.65	10.60	10.55	10.48	10.42	10.35	10.27	10.20	10.13	10.05
	15.00	DISCHG		316.07 3	12.91	309.83	306.84	303.94	301.12	298.36	295.66	293.03	290.48
	15.00	ELEV		9.97	9.90	9.82	9.75	9.68	9.62	9.55	9.49	9.42	9.36
	16.00	DISCHG		288.03 2	85.67	283.42	281.26	279.20	277.25	275.39	273.59	271.81	270.05
	16.00	ELEV		9.31	9.25	9.20	9.14	9.10	9.05	9.00	8.96	8.92	8.88
	17.00	DISCHG		268.31 2	66.51	264.94	263.34	261.78	260.29	258.85	257.46	256.10	254.74
	17.00	ELEV		8.84	8.80	8.76	8.72	8.68	8.64	8.61	8.58	8.55	8.51
	18.00	DISCHG		253.35 2	51.91	250.42	248.95	247.49	246.03	244.60	243.20	241.85	240.53
	18.00	ELEV		8.48	8.45	8.41	8.37	8.34	8.30	8.26	8.23	8.20	8.16
	19.00	DISCHG		239.26 2	38.01	236.80	235.63	234.48	233.37	232.28	231.21	230.16	229.12
	19.00	ELEV		8.13	8.10	8.07	8.04	8.01	7.98	7.96	7.93	7.90	7.88
١	20.00	DISCHE		228.04 2	26.93	225.78	224.56	223.34	222.10	220.85	219.59	218.34	217.08
	20.00	ELEV		7.85	7.82	7.79	7.76	7.73	7.70	7.67	7.64	7.61	7.58

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TR20 XED	04-29-86 0	8:27	COGDELL'S	CREEK WATE	RSHED STU	Y NV5010 2	4 HR 10YR	TYPE 2 STO	RM 20		JOB 1
REV PC 09/83(.2)			ALT 89			30					
21.00	DISCHG	215.81				210.76		206.17			198.48
21.00	ELEV			7.48	7.45	7.42	7.39	7.36	7.33	7.30	7.27
22.00	DISCHG					187.08					
	ELEV			7.19	7.17	7.14	7.12	7.10	7.07	7.05	7.03
						169.06					
23.00				6.97	6.96	6.94	6.92	6.91	6.89	6.88	6.87
24.00	DISCHE			158.40		154.21					
	ELEV					6.77					
25.00	DISCHE	137.27				125.74					
25.00	ELEV	6.58	6.55			6.45					
26.00	DISCHG ELEV	120.75	120.70			120.50					
26.00	ELEV	6.25	6.22		6.14	6.10	6.06	6.02	5.98	5.94	5.89
27.00	DISCHE	120.08	120.01	118.47	116.81	115.17	113.55	111.75	110.37	108.80	107.25
27.00	ELEV	5.85		5.76	5.71	5.67	5.63	5.59	5.54	5.50	5.46
28.00		105.71		102.70	101.21	99.75	98.29	96.86	95.44	94.03	92.64
28.00	ELEV		5.38	5.34	5.30	5.67 99.75 5.26 84.63	5.22	5.18	5.15	5.11	5.07
29.00	DISCHE			88.10	84.35	84.63	92.95	81.31	79.70	78.12	76.57
29.00	ELEV	5.03	5.00	4.96	4.93	4.89	4.86	4.83	4.79	4.76	4.73
OPERATION	VOLUME ABOVE I REACH CF INPUT HYDR LENGTH = MODIFIED A	ROSS SECTIO ROSRAPH= 7 1000.00 F	N 130 Output Eet I	HYDROGRAP IPUT = COE	H= 5 FFICIENTS	RELATED TO	CROSS SEC	TIONAL ARE	λ. X= .;		
0 111	WARNING RE	EACH 130 AT	FLOW HYDROI	RAPH VOLU	ME TRUNCAT	ED ABOVE B	ASEFLOW AT	73.5	IME INCREMI	ENT ### .45 % OF P	EAK.
	PEAK TIME(HRS) 13.56			PEAK DISCHARGE(CFS) 345.99			PEAK_ELEVATION(FEET) (NULL)				
RUNOFF	VOLUME ABOVE								ET; BASE	EFLOW =	3.00 CFS
OPERATION	AREA= .	OSS SECTION ROGRAPH= 1 05 SQ MI LYDROGRAPH	6 INPUT RUNG			ME OF CONCE	ENTRATION=	.19 HOU	es		
	PEAK TIME(HRS)	PEA	K DISCHAR	BE (CFS)	PE	AK ELEVATI(ON (FEET)			
12.01			140.37			(RUNOFF)					
	23.65			2.37			(RUNOFF)				
RUNOFF	VOLUME ABOVE	BASEFLOW:	= 4.05 WAT	ERSHED IN	CHES, 13	30.79 CFS-	HRS, 10.	.81 ACRE-FE	ET; BASE	FLO₩ =	.00 CFS

OPERATION ADDHYD CROSS SECTION 130

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS 1

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PEAK TIME (HRS) 12.05

PEAK DISCHARGE (CFS) 264.38

PEAK ELEVATION (FEET)

(NULL)

13.46

355.81

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.15 WATERSHED INCHES, 3835.95 CFS-HRS, 317.00 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

PEAK TIME (HRS) 16.63

PEAK DISCHARGE (CFS) 279.24

PEAK ELEVATION (FEET) 6.73

1	TIME (HRS)		FIRST	HYDROGE	RAPH POINT	= .00 }	HOURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	2.77 SQ.MI.
	11.00	DISCHE		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.05	5.07	8.29
	11.00	ELEV		2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.46	2.54
	12.00	DISCHE		12.67	17.23	21.58	30.32	40.31	50.00	59.95	72.42	84.77	96.86
	12.00	ELEV		2.67	2.82	2.97	3.12	3.27	3.43	3.60	3.77	3.93	4.09
	13.00	DISCHE		108.58	119.98	130.74	139.64	147.20	154.50	161.53	168.29	174.78	180.03
	13.00	ELEV		4.25	4.40	4.54	4.68	4.82	4.95	5.07	5.19	5.31	5.42
	14.00	DISCHE		180.21	180.39	180.56	180.74	180.91	186.75	198.92	209.83	219.58	228.26
	14.00	ELEV		5.53	5.63	5.74	5.84	5.94	6.04	6.13	6.22	6.29	6.35
	15.00	DISCHE		235.98	242.81	248.83	254.11	258.70	262.66	266.05	268.95	271.39	273.42
	15.00	ELEV		6.41	6.46	6.51	6.55	6.58	6.61	6.63	6.66	6.67	6.69
	16.00	DISCHE		275.09	276.42	277.45	278.23	278.76	279.09	279.23	279.19	278.98	278.64
	16.00	ELEV		6.70	6.71	6.72	6.73	6.73	6.73	6.73	6.73	6.73	6.73
	17.00	DISCHG		279.18	277.62	276.97	275.24	275.44	274.58	273.67	272.72	271.73	270.70
	17.00	ELEV		6.73	6.72	6.72	6.71	6.70	6.70	6.69	6.69	6.68	5.67
	18.00	DISCHE		269.61	268.48	267.33	266.14	264.93	263.71	262.46	261.20	259.93	258.66
	18.00	ELEV		6.66	6.65	6.64	6.64	6.63	5.62	6.61	6.50	6.59	6.58
	19.00	DISCHE		257.38	256.11	254.84	253.57	252.32	251.07	249.84	249.62	247.41	246.19
	19.00	ELEV		6.57	6.56	6.55	6.54	6.53	6.52	6.51	6.50	6.50	6.49
	20.00	DISCHE		244.97	243.74	242.51	241.29	240.07	238.84	237.62	236.39	235.16	233.93
	20.00	ELEV		6.48	6.47	6.46	6.45	6.44	6.43	6.42	6.41	6.40	6.40
	21.00	DISCHE		232.70	231.46	230.22	228.98	227.74	226.47	225.12	223.66	222.11	220.47
	21.00	ELEV		6.39	6.38	6.37	6.36	6.35	6.34	6.33	6.32	6.31	6.29
	22.00	DISCHG		218.78	217.02	215.22	213.39	211.52	209.64	207.74	205.83	203.92	202.01
	22.00	ELEV		6.28	6.27	6.26	6.24	6.23	5.21	6.20	6.19	6.17	6.16
	23.00	DISCHS		200.10	198.21	196.34	194.50	192.68	190.89	189.13	187.41	185.73	184.07
	23.00	ELEV		6.14	6.13	6.11	6.10	6.09	6.07	6.06	6.05	6.04	6.02
	24.00	DISCHG		182.42	181.00	180.97	180.95	180.92	180.89	180.86	180.83	180.79	180.75
	24.00	ELEV		6.01	6.00	5.98	5.97	5.95	5.94	5.92	5.90	5.87	5.85
	25.00	DISCHE		180.70	180.66	190.60	180.55	180.49	180.44	180.37	180.31	180.25	180.19
	25.00	ELEV		5.82	5.79	5.76	5.73	5.70	5.66	5.62	5.59	5.55	5.51

PASS 1

PASE 24

	04-29-85 08										JOB
REV	PC 09/83(.2)		ALT 89					30			
26.00		180.12		179.94	177.86	175.85	173.92	172.04	170.23	148.48	166.
				5.40	5.36	5.33	5.29	5.26	5.23	5.20	5.
27.00	DISCHS	165.16						155.80			
27.00	ELEV							4.97			
	DISCHG		147.99	146.43	144.87	143.32	141.77	140.22	138.68	137.14	135.
28.00	ELEV	4.86	4.83	4.80	4.78	4.75	4.72	4.69	4.67	4.64	4.
29.00	DISCHG										
29.00	ELEV	4.58	4.56	4.53	4.50	4.48	4.45	4.43	4.40	4.38	4.
	VOLUME ABOVE			TERSHED IN	CHES, 34	90.43 CFS-	HRS, 288	.45 ACRE-F	EET; BAS	EFLON =	3.00 C
ERATION	REACH CRO INPUT HYDRO LENGTH =	955 SECTIO 96RAPH= 7 2500.00 F T-KIN ROU	N 140 OUTPUT EET I TING COEFF	HYDROGRAP NPUT = COE ICIENT =	H= 5 FFICIENTS .37 P	RELATED TO EAK TRAVEL	CROSS SEC	TIONAL ARE	A, X= .:	21, H =	1.48
ERATION	REACH CRO INPUT HYDRO LENGTH = MODIFIED AT	OSS SECTIO OSRAPH= 7 2500.00 F T-KIN ROU OCH 140 IN	N 140 OUTPUT EET I TING COEFF FLOW HYDRO	HYDROGRAP NPUT = CDE ICIENT = GRAPH VOLU	H= 5 FFICIENTS .37 P ME TRUNCAT GE(CFS)	RELATED TO EAK TRAVEL ED ABOVE B PE	CROSS SEC TIME = ASEFLOW AT	TIONAL ARE .30 HOURS 113.2	A, X= .:	21, H =	1.48

AREA = .20 SQ MI INPUT RUNOFF CURVE = 69. TIME OF CONCENTRATION = .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT = .0253 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	560.07	(RUNOFF)
15.16	19.75	(RUNOFF)
16.45	17.22	(RUNOFF)
17.66	14.43	(RUNOFF)
19.45	11.68	(RUNOFF)
23.65	8.90	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.52 WATERSHED INCHES, 454.78 CFS-HRS, 37.58 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 140

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.02	565.97	(NULL)
16.54	294.29	(NULL)
16.85	293.16	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.04 WATERSHED INCHES, 3913.84 CFS-HRS, 323.44 ACRE-FEET; BASEFLOW = 3.00 CFS

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

AREA= .08 SQ MI INPUT RUNOFF CURVE= 65. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.15	142.32	(RUNOFF)
16.45	6.39	(RUNOFF)
17.67	5.39	(RUNOFF)
19.66	4.37	(RUNOFF)
23.66	3.34	(RUNOFF)

RUMOFF VOLUME ABOVE BASEFLOW = 3.10 WATERSHED INCHES, 160.17 CFS-HRS, 13.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.03	676.36	(NULL)
14.30	212.74	(NULL)
16.54	300.66	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.07 WATERSHED INCHES, 4074.00 CFS-HRS, 336.68 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

*** WARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 118.34 CFS. 17.97 % OF PEAK.

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.03	676.36	(NULL)
14.30	212.74	(NULL)
16.54	300.66	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.07 WATERSHED INCHES, 4074.00 CFS-HRS, 336.68 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA= .01 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= .15 HOURS

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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INTERNAL HYDROGRAPH TIME INCREMENT= .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY

XSECTION 150

PEAK TIME (MDC) DEAK DICCUARCE (CCC) DEAK ELEMATION (CCCT)

	12.0)5	FEHR	4.99	LF5)	PEAK	(RUNOFF	UN (FEET)			
TIME (HRS)		FIRST HYDROGRAPH	POINT =	.00 HOURS		TIME INCREMENT	= .10	HOURS	DRAINAGE	AREA =	.01 SQ.MI.
11.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.05
12.00	DISCH6	4.60	4.46	2.17	1.71	1.28	1.17	1.09	1.02	1.00	.87
13.00	DISCHE	.84	.78	.73	.71	.66	.64	.60	.56	.55	.52
14.00	DISCHG	.52	.50	. 48	. 47	.44	.43	.41	.38	.38	.38
15.00	DISCHE	.38	.39	.39	.38	.35	.34	.34	. 34	.34	. 34
16.00	DISCHS	. 34	.34	.35	.35	.35	.35	.32	.30	.30	.30
17.00	DISCHG	.30	.30	.30	.30	.30	.30	.30	.30	.30	. 26
18.00	DISCHS	. 25	. 25	. 25	.25	.25	.25	.25	.25	. 25	. 25
19.00	DISCHG	. 25	. 25	. 25	. 25	.25	.25	. 25	. 25	. 25	.21
20.00	DISCHE	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19
21.00	DISCHE	.19	.20	.20	.20	.20	.20	.20	.20	.20	.20
22.00	DISCHE	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
23.00	DISCHE	.20	.20	.20	.20	.20	.20	.20	.20	.20	.15
24.00	DISCHE	.14	.08	.01	.00						

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
681.33	(NULL)
213.21	(NULL)
301.00	(NULL)
	681.33 213.21

RUNOFF VOLUME ABOVE BASEFLOW = 2.07 WATERSHED INCHES, 4079.42 CFS-HRS, 337.12 ACRE-FEET;

OPERATION SAVMOV CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT = . 0640 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	39.64	(RUNOFF)
23.68	2.45	(RUNOFF)

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

JOB 1 PASS

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RUNOFF VOLUME ABOVE BASEFLOW = .99 WATERSHED INCHES, 70.57 CFS-HRS. .00 CFS 5.83 ACRE-FEET: BASEFLOW =

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.04 698.30 (MHLL) 14.28 219.59 (NULL)

16.54 305.26 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES. 4149.99 CFS-HRS, 342.96 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 180

0

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .62 PEAK TRAVEL TIME = .20 HOURS

*** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 118.34 CFS. 17.53 % OF PEAK.

PEAK DISCHARGE (CFS) PEAK TIME (HRS) PEAK ELEVATION (FEET) 12.18 618.43 (MIH I)

16.69 304.81 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.02 WATERSHED INCHES, 4127.82 CFS-HRS, 341.12 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION (FEET) 12.28 34.74 (RUNOFF) 23.69 2.34 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES, 65.08 CFS-HRS, 5.38 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.19 650.40 (NULL) 14.40 224.82 (NULL) 16.48 308.77 (NULL)

FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS TIME (HRS) DRAINAGE AREA = 3.28 SQ.MI. 3.00 3.00 3.00 3.00 3.00 3.06 3.19 3.36 3.56

PASS

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TR20 XEQ 04-29-86 08:27 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 REV PC 09/83(,2) ALT 89 9.00 4.81 5.09 4.22 4.52 DISCHG 3.76 3.97 5.38 5.74 6.22 6.68 7.54 10.00 DISCHS 7.12 8.06 8.49 9.35 11.38 14.43 10.35 12.69 16.07 11.00 DISCHE 18.28 20.49 22.93 25.83 28.60 37.24 32.85 61.29 113.91 179.08 12.00 DISCHG 357.82 576.33 648.96 529.24 410.20 193.14 183.74 314.71 251.70 214.60 13.00 DISCHE 178.25 177.33 179.27 182.23 187.45 192.36 197.69 202.63 211.24 206.67 14.00 DISCHE 215.56 219.94 222.89 224.20 224.82 224.27 223.46 223.64 226.17 231.35 238.29 15.00 DISCHE 246.10 254.14 261.97 269.16 274.75 279.58 284.11 288.35 292.25 16.00 295.75 DISCHG 298.83 301.50 303.77 305.67 307.24 308.46 308.75 308.04 307.35 17.00 DISCHS 306.82 306.41 306.04 305.66 305.22 304.70 304.12 303.46 302.72 301.73 18.00 DISCHG 299.65 297.37 295.41 293.74 292.31 291.00 289.75 288.53 287.32 286.10 19,00 DISCHG 284.97 283.64 282.40 281.16 279.92 278.67 277.43 276.19 273.51 274.95 20.00 DISCHG 271.05 268.43 266.18 264.29 262.66 261.21 259.86 258.57 257.31 256.07 21.00 DISCHG 254.85 253.62 252,40 251.18 249.95 248.73 247.50 243.70 246.27 245.01

RUNOFF VOLUME ABOVE BASEFLOW = 1.99 WATERSHED INCHES, 4192.91 CFS-HRS, 346.50 ACRE-FEET; BASEFLOW = 3.00 CFS

180.20 180.12

234.40

215.92

185.50

180.68

179.58

164.09

148.41

236.11

217.79

188.37

180.74

165.70

149.98

135.78 133.98 132.12

EXECUTIVE CONTROL OPERATION ENDOMP

DISCHS

DISCHG

DISCHG

DISCHG

DISCHG

DISCHS

DISCHG

DISCHS

242.32 240.87

223.44

202.16

181.03

180.32

170.68

154.66

139.11

225.32

205.40

181.20

180.38

172.39

156.23

140.65

239.35

221.55

197.93

180.91

180.25

168.99

153.10

137.50

22.00

23.00

24.00

25.00

26.00

27.00

28.00

29.00

RECORD ID 1740

227.18

181.47

180.45

157.79

124.43

142.20

210.43 208.43

175.72 174.08

229.03

181.89

180.50

159.36

143.75

126.36

230.86

212.24

180.56

177.25

160.93

145.30

128.29

183.68 182.57

232.65

214.07

180.62

178.58

162.51

146.86

130.21

COMPUTATIONS COMPLETED FOR PASS

237.76

219.67

192.57

180.81

167.33

151.54

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID 1750

20

JOB 1 SUMMARY PAGE 29

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STANDARD STRUCTURE *CONTROL		DEATMACE	RAIN	ANTEC		F	RECIPITAT		DUNGEE		PEAK D	ISCHARGE		
ID		PERATION	DRAINAGE AREA (SQ MI)	TABLE #	MOIST	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNA	TE	89 ST	ORM 1											
STRUCTURE	10	RUNOFF	.84	2	2	.10	.0	7.00	24.00	1.67	_	17.80	96.56	114.9
STRUCTURE		RESVOR	.84	2	2	.10	.0	7.00	24.00	1.63	9.50	18.14	96.09	114.4
XSECTION		REACH	.84	2	2	.10	.0	7.00	24.00	1.62		18.47	98.84	117.7
	10	RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.16		12.07	150.75	753.8
	10	ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.53		12.07	153.76	147.8
STRUCTURE	20	RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.48	9.21	20.08	93.83	90.2
XSECTION	20	REACH	1.04	2	2	.10	.0	7.00	24.00	1.47		20.23	93.80	90.2
XSECTION	20	RUNOFF	.28	2	2	.10	.0	7.00	24.00	2.03		13.36	102.66	366.6
XSECTION	20	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.59		13.31	132.15	100.1
STRUCTURE	30.	RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7
STRUCTURE	30	RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9
XSECTION	40	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9
XSECTION	40	RUNOFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2
XSECTION	40	ADDHYD	.43	2	2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8
STRUCTURE	40	RESVOR	. 43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8
	50	REACH	.43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7
	49	RUNDFF	.11	2	2	.10	.0	7.00	24.00	.84		13.33	13.76	125.1
	50	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29	·	16.65	53.98	100.0
	50	RUNOFF	.36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5
XSECTION	50	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9
	60	REACH	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9
	60	RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2
	60	ADDHYD	.95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4
	70	ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.09		12.14	1108.12	488.2
XSECTION	80	REACH	2.27	2	2	.10	.0	7.00	24.00	2.09		12.14	1108.12	488.2
XSECTION			.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.5
XSECTION		ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.10		12.13	1129.43	493.2
XSECTION		RUNOFF	. 24	2	2	.10	.0	7.00	24.00	4.14		12.26	458.49	1910.4
XSECTION 1		ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1536.02	607.1
XSECTION 1	10	REACH	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1536.02	607.1
XSECTION 1		REACH	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1536.02	607.1
XSECTION 1	20	RUNOFF	.19	2	2	.10	.0	7.00	24.00	2.31		12.38	167.75	882.9

TR20 XEQ 04-29-85 08:27 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 89 30

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JOB 1 SUMMARY PAGE 30

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD CONTROL	DRAINAGE	RAIN	ANTEC	MAIN		RECIPITAT	TION	RUNOFF		PEAK D	ISCHARGE	
	OPERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM
ALTERNATE	. 89 ST	ORM 1											
XSECTION 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.29		12.18	1666.75	612.1
STRUCTURE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.11	10.76	13.56	345.99	127.
XSECTION 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.11		13.56	345.99	127.
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.
XSECTION 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.15		13.46	355.81	128.
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.95	6.73	16.63	279.24	100.1
XSECTION 140	REACH	2.77	2	2 -	.10	.0	7.00	24.00	1.93		16.92	278.79	100.
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.52		12.02	560.07	2800.
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.04		12.02	565.97	190.
XSECTION 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	3.10		12.15	142.32	1779.
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.07		12.03	676.36	221.5
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.07		12.03	676.36	221.8
XSECTION 150	RUNDFF	.01	2	2	.10	.0	7.00	24.00	.84		12.05	4.99	499.3
XSECTION 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	2.07		12.03	681.33	222.7
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.99	4	12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	2.03		12.04	698.30	220.3
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	2.02		12.18	618.43	195.1
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	1.98		12.19	550.40	198.3

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SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS MARNINGS)

+			H	IYDROGRA	PH INF	ORMATIO	N				ROUTING PARAMETERS					PE	PEAK		
		1-				OUTF	LOW+		VOLUME	MAIN	ITER-	Q AND	A		PEAK	S/Q	. ATT-	TRAVEL	. TIME
+ XSEC	REACH	INFL	.OW	OUTF	LOW	INTER	V.AREA	BASE-	ABOVE	TIME	ATION	EQUATI	ON	LENGTH	RATIO	apeak	KIN	STOR-	KINE-
+ ID	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR		COEFF P	OWER	FACTOR	0/1	(K)	COEFF	AGE	MATIC
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K\$)	(Q‡)	(SEC)	(C)	(HR)	(HR)
A	LTERNATE	89	STORM	1															
	1750				18.5			3	1.63#	.10	i	1.20	1.10	.021	.997	988	.34	. 40	.25
+						149						.280							
+ 20 +	2900	94	20.1	94		132		3	1.48#	.10	1		1.94	.000	1.000	319	.72?	.10	.09
+ 40	1300	48	16.2	48	16.5			0	1.51	.10	1	.880	1.10	.027	.992	934	.32	.30	.28
+ + 50	1700	50	16.6			50		0	1.41	-10	1	1.60	1.45	.002	1.000	252	872	10	07
٠						54	16.6												
- 60	1400	1064	12.1			1069		0	2.87	.10	0	.110	1.94	.000	1.000	38	1.00?	.00	.00
							12.1					.300							
+ 90	700	1084	12.1	1086	12.1	1115	12.1	2	2.09	.10	0		1.94	.000	1.000	23	1.00?	.00	.00
110	500	1520	12.2	1520	12.2			3	2.29	.10	0	.300	1.94	.000	1.000	14	1.00?	.00	.00
	Faa	4504	40.0	1500			-1-		1000		dagan mananah	.300		No.					
+120	500	1320	12.2	1520 cled pap	12.2 er	1661	12.2	3	2.29	.10	0	.300	1.94		1.000 logy and		1.00?		.00

+13	0 1000	346	13.6	346	13.6			3	2.11#	.10	0	1.94	.000	1.000	56 1.00?	.00	.00	
+						356	13.5									Dra	aft	
+14	0 2500	279	16.6	279	16.9			3	1.95#	.10	1	.210	.004	.998	780 .37	.30	.22	
+						562	12.0											
+15	0 300		12.4	444	12.0			•	2.074			.210			74 4 444			
417	0 300	001	12.0	661	12.0		TO DESCRIPT	3	2.07\$.10	0	1.48	.000	1.000	/1 1.00?	.00	.00	
٠,						556	12.0					.210						
+18	0 1700	678	12.0	616	12.2			3	2.03	.10	1	1.48	.005	.908	398 .62	. 20	.11	
+						LAG	12.2						16					

TR20 XED 04-29-86 08:27 REV PC 09/83(.2) COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS
	STRUCTURE 60		2.77	
+	AL TERMATE			270 04
۸	ALTERNATE SA			279.24
	STRUCTURE 50		2.12	
٠.	ALTERNATE	00		345.99
0	STRUCTURE 40			343.77
	31N0010NL 40		.70	
	ALTERNATE	89		49.78
0	STRUCTURE 30			11110
	ALTERNATE	89		48.05
0	STRUCTURE 20		1.04	
+				
	ALTERNATE			93.83
0	STRUCTURE 10		.84	
+				
	ALTERNATE			96.09
	XSECTION 10		1.04	
+				
	ALTERNATE			153.76
	XSECTION 20		1.32	
	ALTERNATE			170 46
۸	XSECTION 40	87	.43	132.15
			.43	
٠.	ALTERNATE	00		49.80
	XSECTION 49			47.80

	AI TERNATE	89		13.76
0	XSECTION 50		.90	
÷				
54	ALTERNATE	89		1079.95
0	XSECTION 60		.95	
+				
	ALTERNATE	89		1086.21
0	XSECTION 70		2.27	
+				
	ALTERNATE			1108.12
0	XSECTION 80		2.29	
+				
Ĩ	ALTERNATE	89		1129.43

SUMMARY

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TR20 XEQ 04-29-86 08:27 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 89 30

JOB 1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE		DRAINAGE AREA	STORM NUMBERS
	ID		(SQ MI)	1
0	XSECTION 90	-	.24	
+		157		
	ALTERNATE	89		458.49
0	XSECTION 100		2.53	
+				
	ALTERNATE	89		1536.02
0	XSECTION 110		2.53	
	ALTERNATE	89		1536.02
0	XSECTION 120		2.72	
+				
	ALTERNATE	89		1666.75
	XSECTION 130			
	ALTERNATE	89		355.81
	XSECTION 140			
+				
	ALTERNATE	89		565.97
	XSECTION 149			
+				
	ALTERNATE	89		142.32
	XSECTION 150			
+				
	ALTERNATE	89		681.33
	XSECTION 180			201100
+			0.10	
	ALTERNATE	99		650.40
	HE I EMMINIE	0,		000.70

FISCAL YEAR 90

		CREEK WATERS	HED STUDY NV	5010 24 HR 10YR TYPE	
ITLE AL 3 STRUCT	T 90				30
	10	7.00	0.00		40
3		7.00	0.00	4.33	50
3		7.4	2.5	5.01	60
}		7.6	5.0	5.36	70
}		7.8	10.0	5.70	86
3		8.2	22.0	6.38	9(
3		8.6	52.0	7.07	100
}		9.0	62.0	7.75	110
)		9.5	96.0	8.61	120
		10.0	126.0	9.47	130
}		11.0	198.0	11.18	140
100		12.0	280.0	12.89	150
		13.00	340.0	14.79	160
		14.00	440.0	16.68	170
		15.00	500.0	18.58	180
		15.1	600.00	18.60	190
ENDTBL					200
STRUCT	20				210
		4.5	0.00	6.80	220
		4.9	1.5	7.88	230
		5.1	3.7	8.42	240
		5.5	11.0	9.51	250
		5.7	15.0	10.13	260
		6.1	25.0	11.13	270
		6.5	40.0	12.21	280
		7.1	60.0	13.84	290
		7.9	78.0	16.01	300
		8.5	79.0	17.63	310
		9.5	100.0	20.34	320
		10.5	126.0	23.06	330
		11.5	150.0	25.76	340
		11.6	300.0	26.04	350
ENDTBL		Marie Marie Marie			360
STRUCT	30				370
		21.0	0.00	0.10	380
		21.4	0.6	0.61	390
		21.6	1.5	0.86	400
		21.8	2.5	1.12	410
		22.2	5.2	1.62	
		22.6			420
		23.0	8.2	2.13	430
			11.0	2.64	440
		23.5 24.0	20.0 27.0	3.27	450

*1	**********	*******	**80-80 LIST	OF INPUT DAT	A (CONTINUED) ****	**************
8			25.0	39.0	5.18	470
1	1		26.0	49.0	6.45	480
8			27.0	57.0	7.72	490
8			27.1	200.00	7.74	500
9	ENDTBL					510
3	STRUCT	40				520
8			9.0	0.0	0.38	530
8			9.4	2.2	0.47	540
8			9.6	5.0	0.52	550
8			10.0	14.0	0.62	560
8			10.2	21.0	0.67	570
8			10.6	36.0	0.77	580
8			11.0	55.0	0.86	590
8			11.6	82.0	1.01	600
9			12.4	120.0	1.21	610
8			13.0	121.0	1.35	620
9			14.0	122.0	1.60	630
8			15.0	126.0	1.84	640
8			16.0	150.00	2.08	650
9			16.1	300.0	2.11	660
9	ENDTBL					670
3	STRUCT	50			•	680
8			2.4	0.00	22.00	690
8			2.8	2.0	26.86	700
~ 8			3.0	7.0	29.29	710
8			3.4	16.0	34.16	720
8			3.6	24.0	36.59	730
8			4.0	40.0	41.46	740
8			4.4	60.0	46.32	750
8			5.0	90.0	53.62	760
9			5.8	120.0	63.35	770
8			6.4	121.0	70.65	780
9			7.4	210.0	82.81	790
8			8.4	250.00	94.98	800
8			10.4	334.0	119.31	810
8			12.4	400.0	143.63	820
8			12.5	800.0	143.70	830
	ENDTBL					840
	STRUCT	60				850
8			2.0	0.0	22.20	860
8			2.4	3.0	27.41	870
8			2.6	10.5	30.02	880
8			3.0	22.5	35.24	890
8			3.2	36.0	37.85	900
8			3.6	50.0	43.06	910
8			4.0	90.0	48.28	920

**	******	::	*****	**	**	‡ 8	0-80 LIST OF	INPUT DATA	(CONTINUED)	**************	******
8							4.6	135.0	56.11		930
8							5.4	180.0	66.55		940
8							6.0	181.0	74.38		950
8							7.0	315.0	87.42		960
8							8.0	375.0	100.47		970
8							8.1	700.0	100.50		980
9	ENDTBL										990
	RUNOFF		10			6	0.84	51.	7.50	1	1000
6	RESVOR	2					7.0			1	1010
	REACH			7			1750.	1.2	1.10	i	1020
	RUNOFF						0.20	42.	0.19	1	1030
	ADDHYD			5	6				The same of the	11	1040
	SAVMOV			7		6					1050
	RESVOR						4.5			1	1060
	REACH			7			2900.	0.28	1.94	i	1070
	RUNOFF						0.28	53.	1.02	i	1080
	ADDHYD			5	6	7				11	1090
	SAVMOV			7	Ō						1100
	RUNOFF			•		_	0.37	49.	3.90	1	1110
	RESVOR			6			21.0	***	0.70	1	1120
	REACH			7				0.88	1.10	1	1130
	RUNOFF							40.	1.00	i	1140
	ADDHYD			5	A					i	1150
	SAVMOV			7	-						1160
	RESVOR						9.0			1	1170
	REACH			7			1700.	1.6	1.45	i	1180
	RUNOFF						0.11	40.	1.67	1	1190
	ADDHYD			5	4				1.07	1	1200
	SAVMOV			7	•	5					1210
	RUNOFF						0.36	85.	0.42		1220
	ADDHYD			5	4	7			V1.12		1230
	REACH							0.44	1.94	i	1240
	RUNOFF							45.	0.90	1	1250
	ADDHYD			5	4	7		101	0.70	1 1	1260
	SAVMOV					5				•	1270
	SAVMOV			1		6					1280
	ADDHYD	W 65 /A		100	4	7				1 1	1290
	REACH							0.30	1.94	1 1	1300
	RUNOFF							64.	0.12	1	1310
	ADDHYD			5				partition of the con-	V112	1 1 marketik kinggasta aks	1320
	SAVMOV			7							1330
	RUNOFF			'				73.	0.62	1	1340
	ADDHYD			5		7			V102		1350
	REACH							0.30	1.94	1	1360
	SAVMOV						300.	V1.0V	11/7	•	
	REACH			7				0.30	1.94	,	1370
-	HERVII	,	120	1		3	uvv.	V. 4V	4.74	1	1380

6	RUNOFF	1	120			5 0.19	56.	0.74	1		13
	ADDHYD					7			11		140
	SAVMOV		50	7							14
	RESVOR		50			7 2.4			111		14:
	REACH		130	7		5 1000.	0.30	1.94	1		14
	RUNDFF					6 0.05	74.	0.19	1		14
	ADDHYD			5					1		14
6	SAVMOV	5	130	7	-						14
	RESVOR		60	6		7 2.0			111		14
6	REACH	3	140	7		5 2500.	0.21	1.48	1		14
	RUNOFF					6 0.20	66.	1.15	- 1		14
	ADDHYD			5					1		15
	SAVMOV			7	35/2	j					15
	RUNOFF					0.08	50.	0.42	1		15
	ADDHYD			5							15
	REACH		150	7		300.	0.21	1.48	1		15
	RUNOFF					0.01	40.	0.15	1		15
	ADDHYD			5					1		15
	SAVMOV			7		i					15
	RUNOFF				-	0.28	50.	0.61	1		15
	ADDHYD			5	6	1			1		15
	REACH		180	7		1700.0	0.21	1.48	1		16
	RUNOFF					0.11	41.	0.48	i		16
	ADDHYD			5					11 1	1	16
	ENDATA										16
7	ALTER	3									16
	RUNOFF	1	010		1	0.20	44.0	0.19	1		16
	RUNOFF				1	0.28	54.0	2.00	1		16
	RUNOFF					0.24	75.0	0.52	1		16
6	RUNOFF	1	120		1	0.19	58.0	0.74	i		16
6	RUNOFF	1	140			0.20	70.0	0.19	1		16
_	RUNDFF	_	10000			0.08	65.0	0.42	i		16
	RUNOFF	3	100000			0.11	42.0	0.48	1		16
	LIST										17
	BASFLO	5				3.0					17
7	INCREM	6				0.1					17
	COMPUT		10	18	0	0.0	7.0	1.0	2 2 90	01	17
	ENDCMP										17
	ENDJOB										17

TR20 XEQ 04-29-86 08:45	COGDELL'S CREEK WATERSHED STUDY NV	5010 24 HR 10YR TYPE 2 STORM	20	JOB 1	PASS 1
REV PC 09/83(.2)	ALT 90	30			PAGE 1
OCHANGES TO STANDARD CONTROL	LIST FOLLOW				
EXECUTIVE CONTROL OPERATION	ALTER			RECORD ID	1640
STANDARD CONTROL OPERATIO	ON RUNOFF CROSS SECTION 10			. BECORD ID	1650
OUTPUT HYDROSRAPH	l = 6	DATA FIELD VALUES =	.2000	44.0000	.1900
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 20			RECORD ID	1660
OUTPUT HYDROGRAPH	I = 6	DATA FIELD VALUES =	.2800	54.0000	2.0000
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 90			RECORD ID	1665
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.2400	75.0000	.6200
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 120			RECORD ID	1568
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.1900	58.0000	.7400
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 140			RECORD ID	1670
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.2000	70.0000	.1900
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION	N RUNOFF CROSS SECTION 149			RECORD ID	1680
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.0800	65.0000	. 4200
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION	N RUNOFF CROSS SECTION 180			RECORD ID	1690
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.1100	42.0000	. 4800
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				

TR20 XEQ 04-29-86 08:45 COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

ALT 90

30

PAGE 2

EXECUTIVE CONTROL OPERATION LIST

RECORD ID

1700

LISTING OF CURRENT DATA

3	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
0			7.00	.00	4.33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
2			8.20	22.00	6.38
9			8.40	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	340.00	14.79
8			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600.00	18.60
9	ENDTBL				
3	STRUCT	STRUCT NO. 20	ELEVATION	DISCHARGE	STORAGE
9			4.50	.00	6.80
8			4.90	1.50	7.88
9			5.10	3.70	8.42
8			5.50	11.00	9.51
8			5.70	15.00	10.13
8			6.10	25.00	11.13
8			6.50	40.00	12.21
8			7.10	60.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
8			11.50	150.00	25.76
8			11.60	300.00	25.04
9	ENDTBL				

PASS

PAGE

TR20 XEQ 04-29-86 08:45 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 REV PC 09/83(.2) ALT 90 STRUCT NO. ELEVATION DISCHARGE STORAGE 3 STRUCT 30 21.00 .00 .10 8 8 21.40 . 60 .61

8			21.60	1.50	.86
8			21.80	2.50	1.12
8			22.20	5.20	1.62
8			22.60	8.20	2.13
9			23.00	11.00	2.64
8			23.50	20.00	3.27
8			24.00	27.00	3.91
8			25.00	39.00	5.18
93			26.00	49.00	6.45
8			27.00	57.00	7.72
9			27.10	200.00	7.74
9	ENDTBL				
7	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	JINULI	40			
8			9.00	.00	.38
8			9.40	2.20	.47
8			9.60	5.00	.52
8			10.00	14.00	. 62
8			10.20	21.00	. 67
8			10.60	36.00	.77
8			11.00	55.00	.86
8			11.50	82.00	1.01
8			12.40	120.00	1.21
8			13.00	121.00	1.35
8			14.00	122.00	1.60
8			15.00	126.00	1.84
8			16.00	150.00	2.08
8			16.10	300.00	2.11
9	ENDTBL			La Villaga	
		STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3	STRUCT	50			
8			2.40	.00	22.00
8			2.80	2.00	26.86
8			3.00	7.00	29.29
8			3.40	16.00	34.16
8			3.60	24.00	36.59
8			4.00	40.00	41.46
8			4.40	60.00	46.32
8			5.00	90.00	53.62

1 PASS

PAGE

REV P	C 09/83(.2)	- ALT	90			30	
						The second of	
		E 00	120.00	LT TE			
		5.80	120.00	63.35	or to believe the		
		5.40	121.00	70.65			
		7.40	210.00	82.81			
		8.40	250.00	94.98			
		10.40	334.00	119.31			
		12.40	400.00	143.63			
		12.50	800.00	143.70			Maria.
ENDTBL							
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE			
STRUCT	50 and	ELLINITON	DIGGIMNOE	STUNNOE			
		2.00	.00	22.20			
		2.40	3.00	27.41			
		2.60	10.50	30.02			
		3.00	22.50	35.24			
		3.20	36.00	37.85			
		3.60	60.00	43.06			
		4.00	90.00	48.28			
		4.60	135.00	56.11			
		5.40	180.00	66.55			
		6.00	181.00	74.38			
		7.00	315.00	87.42			
		8.00	375.00	100.47			
CMETEL		8.10	700.00	100.50			
ENDTBL							
	TIME	INCREMENT					
DIMHYD		.0200					
	.0000	.0300	.1000	.1900	.3100		
	.4700	.6600	.8200	.9300	.9900		
	1.0000	.9900	.9300	.8600	.7800		
	.6800	.5600	.4600	.3900	.3300		
	.2800	.2410	.2070	.1740	.1470		
	.1260	.1070	.0910	.0770	.0660		
	.0550	.0470	.0400	.0340	.0290		
	.0250	.0210	.0180	.0150	.0130		
	.0110	.0090	.0080	.0070	.0060		
	.0050	.0040	.0030	.0020	.0010		
	.0000	.0000	.0000	.0000	.0000		

COMPUTED PEAK RATE FACTOR = 484.00

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PASS 1

PAGE

TR20 XEQ 04-29-86 08:45 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1

REV PC 09/83(.2) ALT 90 30

TABLE NO. TIME INCREMENT 5 RAINFL 1 .5000 8 .0000 .0080 .0170 .0260 .0350 8 .0450 .0550 .0650 .0760 .0870 8 .0990 .1260 .1120 .1400 .1560 8 .1740 .1940 .2190 .2540 .3030 8 .5150 .5830 . 6240 .6550 .6820 8 .7060 .7280 .7480 .7660 .7830 8 .7990 .8150 .8300 .8440 .8570 8 .8700 .8820 .8930 .9050 .9160 8 .9260 .9350 .9460 .9560 .9650 8 .9740 .9830 .9920 1.0000 1.0000 9 ENDTBL TABLE NO. TIME INCREMENT 5 RAINFL 2 .2500 8 .0000 .0020 .0050 .0080 .0110 9 .0140 .0170 .0200 .0230 .0260 8 .0290 .0320 .0350 .0380 .0410 8 .0440 .0480 .0520 .0560 .0600 8 .0480 .0640 .0720 .0760 .0800 8 .0850 .0900 .0950 .1000 .1050 8 .1100 .1150 .1200 .1260 .1330 8 .1470 .1400 .1550 .1630 .1720 8 .1810 .1910 .2030 .2180 .2360 8 .2570 .2830 .3870 .6630 .7070 9 .7350 .7580 .7760 .7910 .8040 9 .8150 .8250 .8340 .8420 .8490 8 .8560 .8630 .8690 .8750 .8810 8 .8870 .8930 .8980 .9030 .9080 8 .9130 .9180 .9220 .9260 .9300 8 .9340 .9380 .9420 .9460 .9500 0 .9530 .9560 .9590 .9620 .9650 8 .9680 .9710 .9740 .9770 .9800 8 .9830 .9860 .9890 .9920 .9950 8 .9980 1.0000 1.0000 1.0000 1.0000 9 ENDTEL

TABLE NO.

5 RAINFL 3

TIME INCREMENT

.0000

.0670

.5000

.0100

.0830

.0220

.0990

.0360

.1160

.0510

.1350

PAGE 6

JOB 1

20

DEIL DC AG	7/ 01	41 7 0	•			
REV PC 09/8	131.2)	ALT 9	V			30
}	.1560	.1790	.2040	.2330	.2680	
3	.3100	.4250	.4800	.5200	.5500	
	.5770	.6010	.6230	.6440	.6640	
	. 6830	.7010	.7190	.7360	.7530	
	.7690	.7850	.8000	.8150	.8300	
	.8440	.8580	.8710	.8840	.8960	
	.9080	.9200	.9320	.9440	.9560	
	.9670	.9780	.9890	1.0000	1.0000	
ENDTBL	1.070	11700	.,,,,,	110000	1.0000	
TABLE NO.	TIME	INCREMENT				
RAINFL 4		.5000				
	.0000	.0040	.0080	.0120	.0160	
	.0200	.0250	.0300	.0350	.0400	
	.0450	.0500	.0550	.0600	.0650	
	.0700	.0750	.0810	.0870	.0930	
	.0990	.1050	.1110	.1180	.1250	
	.1320	.1400	.1480	.1560	.1650	
	.1740	.1840	.1950	.2070	.2200	
	.2360	.2550	.2770	.3030	.4090	
	.5150	.5490	.5830	.6050	.6240	
	.6400	.6550	.6690	.6820	.6940	
	.7050	.7160	.7270	.7380	.7480	
	.7580	.7670	.7760	.7840	.7920	
	.8000	.8080	.8160	.8230	.8300	
	.8370	.8440	.8510	.8580	.8640	
	.8700	.8760	.8820	.8880	.8940	
	.9000	.9060	.9110	.9160	.9210	
	.9260	.9310	.9360	.9410	.9460	
	.9510	.9560	.9610	.9660	.9710	
	.9760	.9800	.9840	.9880	.9920	
	.9960	1.0000	1.0000	1.0000	1.0000	
ENDTBL	17700	1.0000	1.0000	1.0000	1.0000	
TABLE NO.	TIME	INCREMENT				
RAINFL 5		.5000				
	.0000	.0020	.0050	.0080	.0110	E Salaheri
	.0140	.0170	.0200	.0230	.0260	
	.0290	.0320	.0350	.0380	.0410	
	.0440	.0470	.0510	.0550	.0590	The second
	.0630	.0670	.0710	.0750	.0790	n Nasabasa (197
	.0840	.0890	.0940	.0990	.1040	
	.1090	.1140	.1200	.1260	.1330	
	.1400	.1470	.1540	.1620	.1710	
*	.1810	.1920	.2040	.2170	.2330	

TR20 XEQ 04-29-	86 08:45	COGDE	LL'S CREEK WA	TERSHED STUD	Y NV5010 24 H	R 10YR TYPE 2 STOR
REV PC 09/	83(.2)	ALT 9	70			30
8	.2520	.2770	.3180	.6380	.6980	
8	.7290	.7520	.7700	.7850	.7980	
8	.8090	.8190	.8290	.8380	.8460	
8	.8540	.8610	.8680	.8740	.8800	
8	.8860	.8920	.8970	.9020	.9070	
8	.9120	.9170	.9210	.9250	.9290	
8	.9330	.9370	.9410	.9450	.9490	
8	.9530	.9570	.9600	.9630	.9660	
8	.9590	.9720	.9750	.9780	.9810	
8	.9840	.9870	.9900	.9930	.9960	
8	.9980	1.0000	1.0000	1.0000	1.0000	
9 ENDTBL						
TABLE NO.	TIME	INCREMENT				
5 RAINFL 6		.0200				
8	.0000	.0080	.0162	.0246	.0333	
8	.0425	.0524	.0430	.0743	.0863	
8	.0990	.1124	.1265	.1420	.1595	
8	.1800	.2050	.2550	.3450	.4370	
8	.5300	.6030	.6330	.6600	.6840	
8	.7050	.7240	.7420	.7590	.7750	
9	.7900	.8043	.8180	.8312	.8439	
8	.8561	.8678	.8790	.8898	.9002	
8	.9103	.9201	.9297	.9391	.9483	
8	.9573	.9661	.9747	.9832	.9916	
9	1.0000	1.0000	1.0000	1.0000	1.0000	
9 ENDTBL						

TR20 XED 04-29-86 08:45 CDSDELL'S CREEK WA

COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS 1

REV PC 09/83(.2)

ALT 90

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STANDARD CONTROL INSTRUCTIONS

		RUNOFF		10			6	.9400	51.0000	7.50001					
	6	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1
	6	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1
	6	RUNDFF	1	10			6	.2000	44.0000	.19001	0	0	1	0	1
	6	ADDHYD	4	10	5	6	7			1	1	0	1	0	1
	6	SAVMOV	5	10	7		6								
	6	RESVOR	2	20	6		7	4.5000		i	0	0	1	0	1
	6	REACH	3	20	7		5	2900.0000	.2800	1.94001	0	0	1	0	1
	6	RUNOFF	1	20			6	.2800	54.0000	2.00001	0	0	1	0	1
	6	ADDHYD	4	20	5	6	7							0	
	6	SAVMOV	5	20	7		1								
	-	RUNOFF	1	30			6	.3700	49,0000	3,90001	0	0	1	0	1
		RESVOR	2	30	6		7	21.0000					100	0	-
		REACH	3	40	7		5	1300.0000	.8800	1.10001					
			1	40			6	.0600	40.0000	1.00001					
		ADDHYD		40	5	6	7	1,000	1010000					0	
		SAVMOV		40	7	•	6				٧	4	•	٧	•
		RESVOR	_	40	6		7	9,0000			۸	۸	1	0	1
		REACH	3	50	7		5	1700.0000	1.6000	1.45001	ÚP.S		151	U 0 10	0.7
)			1	49	1		6	.1100	40.0000	1.67001					
		ADDHYD	4	50	5	6		.1100	40.0000					0	
	-	SAVMOV	5	50	7	50	5				V	V		U	1
		RUNOFF	_	50	1		37	7/00	DE 0000	40004	•				
			1	-0.00	-	,	6	.3600	85.0000	.42001					
		ADDHYD	•	50	100		7	4400 0000						0	
		REACH	3	60	7		5	1400.0000	. 4400	1.94001					
		RUNOFF	1	50			5	.0500	45.0000	.90001					
		ADDHYD	4	60		6				1	1	0	1	0	1
		SAVMOV	5	70			0.0								
	_	SAVMOV	_	70	1		6								
		ADDHYD		70		6				하시 시간 기가 하시다. 사이지 하시죠	No.		3.70	0	100
		REACH	3	80	7		5	700.0000	.3000	1.94001					
		RUNOFF		80			6	.0200	64.0000	.12001					
			4	80		6				1	0	0	1	0	1
		SAVMOV	5	100	7		5								
		RUNOFF	1	90			6	.2400	75.0000	.62001	0	0	1	0	1
	_	ADDHYD	4	100	5	4					0	0	1	0	1
		REACH		110	7		5	500.0000	.3000	1.94001	0	0	1	0	1
	Ļ	SAVMOV	5	120	5		7								
	6	REACH	3	120	7		5	500.0000	.3000	1.94001	0	0	1	0	1
	6	RUNOFF	1	120			6	.1900	58.0000	.74001	0	0	1	0	1
	6	ADDHYD	4	120	5	6	7			1	1	0	1	0	1
	6	SAVMOV	5	50	7		6								
	6	RESVOR	2	50	6		7	2.4000		1	1	1	1	0	1
	6	REACH	3	130	7		5	1000.0000	.3000	1.94001					
		RUNOFF					6	.0500	74.0000	.19001					
-													-		171

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								through the contract of the co							
6	ADDHYD	4	130	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	130	7		6									
6	RESVOR	2	60	6		7	2.0000		1	1	1	1	0	1	
6	REACH	3	140	7		5	2500.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	140			6	.2000	70.0000	.19001	0	0	1	0	1	
6	ADDHYD	4	140	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	150	7		5									
6	RUNOFF	1	149			6	.0800	65.0000	.42001	0	0	1	0	1	
5	ADDHYD	4	150	5	6	7			1	0	0	1	0	1	
5	REACH	3	150	7		5	300.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	150			6	.0100	40.0000	.15001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7			1	0	0	1	0	1	
6	SAVMOV	5	180	7		5									
6	RUNOFF	1	180			6	.1100	42.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7			1	0	0	1	0	1	
6	REACH	3	180	7		5	1700.0000	.2100	1.48001	0	0	1	0	1	
5	RUNOFF	1	180			6	.1100	41.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7			1	1	0	1	0	1	
	ENDATA														

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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END OF LISTING

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EXECUTIVE CONTROL OPERATION BASFLO RECORD ID 1710

+ NEW BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION INCREM RECORD ID 1720

+ MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID 1730

+ FROM STRUCTURE 10

TO XSECTION 180
STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2

ALTERNATE NO.=90 STORM NO.= 1 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF STRUCTURE 10
OUTPUT HYDROGRAPH= 6

AREA= .84 SQ MI INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
17.80 96.56 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 10

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 7.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

18.14 96.09

RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS

9.50

OPERATION REACH CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1750.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS

*** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS, 18.88 % OF PEAK.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
18.47 98.94 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS 1

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PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
150.75	(RUNOFF)
9.64	(RUNOFF)
8.67	(RUNOFF)
7.42	(RUNOFF)
6.17	(RUNOFF)
4.88	(RUNOFF)
	150.75 9.64 8.67 7.42 6.17

RUNOFF VOLUME ABOVE BASEFLOW = 1.16 WATERSHED INCHES, 149.25 CFS-HRS, 12.33 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS)

					The Contract of the Contract o						
	12.0			153.78			(NULL)				
	18.4	18		104.88	•		(NULL)				
TIME (HRS)		FIRST HYDROGE	RAPH POINT	= .00 HC	JURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	1.04 SQ.MI.
11.00	DISCHE	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	7.21	53.07
12.00	DISCHE	135.64	149.19	80.95	56.13	42.16	35.91	33.02	30.56	29.72	27.02
13.00	DISCHE	25.58	24.44	22.95	22.58	21.54	21.15	20.62	19.89	20.05	20.05
14.00	DISCHE	20.75	21.68	22.70	24.32	25.72	27.54	29.37	31.56	35.09	39.12
15.00	DISCHE	43.24	47.29	51.18	54.82	57.52	59.78	61.92	63.90	65.78	67.63
16.00	DISCHE	69.47	71.98	75.00	78.16	81.27	84.22	86.55	88.35	90.42	92.43
17.00	DISCHE	94.31	96.02	97.59	99.01	100.31	101.48	102.52	103.43	104.09	103.97
18.00	DISCHE	104.02	104.29	104.55	104.73	104.84	104.85	104.81	104.67	104.47	104.19
19.00	DISCHS	103.84	103.42	102.93	102.36	101.72	101.00	100.20	99.32	98.25	96.45
20.00	DISCHE	94.87	93.59	92.37	91.15	89.91	88.67	87.43	86.21	85.01	83.83
21.00	DISCHE	82.67	81.54	80.43	79.34	78.27	77.22	76.20	75.19	74.21	73.24
22.00	DISCHE	72.30	71.42	70.72	70.11	69.56	69.03	68.51	67.98	67.44	66.89
23.00	DISCHE	66.33	65.76	65.17	64.57	63.96	63.34	62.72	62.09	61.34	59.73
24.00	DISCHE	58.17	55.97	53.27	51.71	50.62	49.72	48.91	48.18	47.50	46.85
25.00	DISCHG	46.24	45.66	45.10	44.55	44.02	43.50	42.98	42.48	41.98	41.49
26.00	DISCHE	41.00	40.51	40.03	39.55	39.07	38.40	38.12	37.63	37.15	36.66
27.00	DISCHE	36.16	35.66	35.15	34.64	34.13	33.61	33.09	32.57	32.04	31.51

RUNOFF VOLUME ABOVE BASEFLOW = 1.53 WATERSHED INCHES, 1027.62 CFS-HRS, 84.92 ACRE-FEET; BASEFLOW = 3.00 CFS

28.82

24.24

28.23

23,89

27.74

23.52

27.21

23.14

26.67

22.75

26.13

22.35

29.36

24.59

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

30.44

25.30

29.90

24.94

30.97

25.68

OPERATION RESVOR STRUCTURE 20

DISCHE

DISCHG

28.00

29.00

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 4.50

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PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.65 31.90 6.28 20.08 93.83 9.21

RUNOFF VOLUME ABOVE BASEFLOW = 1.48 WATERSHED INCHES, 990.65 CFS-HRS. 81.87 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28, M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS

*** MARNING REACH 20 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.17 CFS. 25.51 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.82 31.79 (MULL) 20.23 93.80 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.47 WATERSHED INCHES, 987.44 CFS-HRS, 81.60 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 20

OUTPUT HYDROGRAPH= 6

AREA= .28 SQ MI INPUT RUNOFF CURVE= 54. TIME OF CONCENTRATION= 2.00 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1026 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

13.36

102.66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

132.15

(RUNOFF)

(NIII L)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 366.74 CFS-HRS, 30.31 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 20

13.31

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

20.11 106.29 (NIIII) TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.32 SQ.MI. 11.00 DISCHG 3.00 3.00 3.00 3.01 3.02 3.06 3.18 3.47 4.17 5.78 DISCHG 44.84 12.00 9.45 17.69 29.98 59.25 72.98 98.12 86.02 108.61 117.14 13.00 DISCHS 123.73 128.34 131.09 132.14 131.53 129.60 126.63 122.67 117.70 111.97 14.00 DISCHG 106.02 100.46 95.56 91.20 87.22 83.67 80.54 77.77 75.29 73.28 15.00 DISCHG 71.78 70.81 70.32 70.22 70.47 70.99 71.70 72.40 73.11 73.90 16.00 DISCHG 74.80 75.75 76.81 78.00 79.36 80.88 82.38 83.57 84.72 85.90 17.00 DISCHG 87.14 88.42 89.73 91.05 92.39 93.73 95.06 95.63 95.66 95.54 18.00 DISCHG 95.38 95.22 95.06 94.90 94.74 95.60 96.75 97.91 99.01 100.03

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19.00 DISCHE 100.97 101.82 102.60 103.31 103.94 104.50 104.99 105.42 105.77 106.23 20.00 DISCHE 106.29 106.25 106.12 105.90 105.59 105.20 104.74 104.21 103.61 21.00 DISCHE 102.97 102.29 100.82 101.57 100.05 95.99 99.26 98.45 97.64 96.82 22.00 DISCHE 95.17 94.34 93.51 92.69 91.87 91.07 90.29 89.53 88.78 98.48 23.00 DISCHG 99.34 88.25 88.15 88.09 88.01 87.93 87.85 87.77 87.68 87.59 87.49 24.00 DISCHE 87.36 86.62 85.25 83.64 91.94 80.19 78.40 76.60 74.78 25.00 DISCHE 72.98 71.20 69.44 67.74 66.08 64.38 62.48 60.62 58.85 57.20 DISCHS 26.00 55.67 54.24 51.68 52.92 50.52 49.43 47.43 46.50 45.62 48.40 27.00 DISCHE 44.78 43.98 43.21 42.46 41.74 41.04 40.34 39.62 38.90 38.21 28.00 DISCHS 37.53 36.87 35.58 36.22 34.96 34.34 33.73 33.13 32.54 31.95 29.00 DISCHG 31.37 30.80 30.24 29.70 29.17 28.67 28.18 27.71 27.25 26.80

RUNOFF VOLUME ABOVE BASEFLOW = 1.59 WATERSHED INCHES, 1354.18 CFS-HRS, 111.91 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 1

OPERATION RUNOFF STRUCTURE 30

OUTPUT HYDROGRAPH= 6

.37 SQ MI INPUT RUNOFF CURVE= 49. TIME OF CONCENTRATION= 3.90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS) PEAK ELEVATION (FEET) PEAK DISCHARGE (CFS) 14.95

60.58 (RUNOFF)

RUNDFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 375.61 CFS-HRS, 31.04 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30

INPUT HYDROGRAPH= 6 **OUTPUT HYDROGRAPH= 7**

SURFACE ELEVATION= 21.00

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

16.21 48.05 25.91

RUNOFF VOLUME ABOVE BASEFLOW = 1.51 WATERSHED INCHES, 360.28 CFS-HRS, 29.77 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .88, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .32 PEAK TRAVEL TIME = .30 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

14.55 47.70 (NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 358.97 CFS-HRS, 29.67 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 40

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OUTPUT HYDROGRAPH= 6

AREA= .06 SQ MI INPUT RUNDFF CURVE= 40. TIME OF CONCENTRATION= 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.72 10.21 (RUNOFF)

23.76 1.21 (RUNDFF)

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.69 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.73 10.35 (NULL) 16.54 49.80 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 40

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.90 9.83 9.81 16.60 49.78 10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.02 9.78 (NULL) 16.72 49.77 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.40 WATERSHED INCHES, 389.36 CFS-HRS, 32.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS

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INTERNAL HYDROSRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
13.33 13.76 (RUNOFF)

23.80 2.20

(RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 59.78 CFS-HRS, 4.94 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.16 22.91 (NULL) 16.65 53.98 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 449.14 CFS-HRS, 37.12 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50

OUTPUT HYDROGRAPH= 6

AREA= .36 SQ MI INPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION= .42 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.13
 1078.73
 (RUNOFF)

 19.65
 24.75
 (RUNOFF)

 23.65
 18.64
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, 100.83 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.13 1079.95 (NULL) 16.49 90.76 (NULL)

SUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 60

0

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1400.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .44, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

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*** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.13 16.49

1079.95 90.75 (NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW =

.00 CFS

OPERATION RUNOFF CROSS SECTION 60

OUTPUT HYDROGRAPH= 6

AREA = .05 SQ MI INPUT RUNOFF CURVE = 45. TIME OF CONCENTRATION = .90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.56

16.56 23.72 1.26

(RUNOFF) (RUNDFF)

PEAK ELEVATION (FEET)

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES,

39.88 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW =

.00 CFS

OPERATION ADDHYD CROSS SECTION 60

12.14

INPUT HYDROGRAPHS= 5.6

PEAK TIME(HRS)

OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)

1086.21

	16.	49		93.02	!		(NULL)				
TIME (HRS)		FIRST HYDROGR	APH POINT	= .00 HC	JURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	.95 SQ.MI.
4.00	DISCHG	.00	.00	.00	.02		.26	.49	.75	1.04	1.33
5.00	DISCHS	1.62	1.91	2.20	2.49	2.77	3.04	3.32	3.58	3.84	4.10
6.00	DISCHE	4.36	4.67	5.18	5.80	6.40	6.89	7.32	7.71	8.07	8.41
7.00	DISCHE	8.75	9.07	9.38	9.69	9.99	10.29	10.58	10.86	11.14	11.41
8.00	DISCHE	11.68	12.08	12.82	13.80	14.96	16.27	17.48	18.44	19.17	19.76
9.00	DISCHE	20.27	20.91	21.91	23.16	24.29	25.16	26.02	27.23	28.65	29.92
10.00	DISCHG	30.90	31.86	33.18	34.84	37.10	40.08	43.57	47.95	52.84	58.21
11.00	DISCHE	64.10	70.07	76.45	83.02	90.75	101.27	130.10	208.30	333.15	539.50
12.00	DISCHS	836.25	1068.68	1030.91	805.58	576.69	421.03	324.82	265.51	227.09	199.69
13.00	DISCHG	178.52	161.72	147.53	135.12	127.20	119.75	113.25	107.02	101.45	96.86
14.00	DISCHG	93.29	90.54	88.31	86.99	86.63	86.30	86.13	85.74	85.37	85.47
15.00	DISCHE	86.26	87.42	88.85	90.29	90.92	90.62	90.19	90.11	90.41	90.86
16.00	DISCHE	91.35	91.83	92.25	92.60	92.86	93.02	92.76	91.64	89.95	88.43
17.00	DISCHE	87.35	86.55	85.87	85.24	84.63	84.03	83.43	82.82	82.11	80.76
18.00	DISCHE	78.62	76.40	74.60	73.30	72.20	71.21	70.27	69.38	68.51	67.67
19.00	DISCHE	55.95	66.07	65.33	64.68	63.99	63.30	62.62	61.96	61.19	59.85
20.00	DISCHG	57.76	55.58	53.88	52.62	51.60	50.72	49.94	49.23	48.56	47.93
21.00	DISCHE	47.34	46.79	46.25	45.76	45.28	44.83	44.40	43.97	43.53	43.10
22.00	DISCHS	42.70	42.29	41.89	41.51	41.15	40.80	40.46	40.14	39.84	39.55
23.00	DISCHG	39.27	39.01	38.75	38.51	38.28	38.06	37.85	37.65	37.37	36.46

PASS 1

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											1
TR20 XEQ	04-29-86	08:45	COGDELL'S	CREEK WAT	ERSHED STU	DY NV5010	24 HR 10YR	TYPE 2 ST	ORM 20)	JOB 1
REV	PC 09/83(.	2)	ALT 90					30)		
24.00	DISCHS					21.18		17.56			
25.00		14.59				13.02			12.20		
26.00	DISCHE			11.25					10.57		
27.00		10.13									
28.00		8.34							6.87		
29.00	DISCHG	5.26	6.05	5.87	5.68	5.49	5.32	5.14	4.99	4.87	4.74
RUNDFF	VOLUME ABOV	VE BASEFLOW	= 2.79 W	ATERSHED II	NCHES, 1	709.15 CFS-	-HRS, 141	1.24 ACRE-	EET; BAS	EFLOW =	.00 CFS
OPERATION	SAVMOV (CROSS SECTI	ON 70								
		DROGRAPH= 7		T HYDROGRAS	PH= 5						
JPERATION		CROSS SECTI									
	INPUT HYL	DROGRAPH= 1	OUTPU	T HYDROSRAF	PH= 6						
SDEEATION	ADDING A		7A								
UPERATION		CROSS SECTI DROGRAPHS=		TPUT HYDRO	SRAPH= 7						
		E(HRS)	P	EAK DISCHAF	RGE (CFS)	PE	AK ELEVATI	ON (FEET)			
	12.14			1108.12			(NULL)				
	17.64			178.57			(NULL)				
	19.30			167.99)		(NULL)				
		IRST HYDROG	RAPH POINT	= .00 HC	JURS 1						2.27 9Q.MI
4.00	DISCHE	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33
5.00	DISCHG	4.62 7.36	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10
6.00	DISCHE	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.41
7.00		11.75			12.69			13.58		14.14	
B.00				15.82			19.27		21.44		
7.00	DISCHG				26.16		28.16	29.02		31.65	
10.00	DISCHG	33.90	34.86		37.94	40.10	43.08	46.57	50.95	55.84	
11.00	DISCHG	67.10	73.07			93.78	104.34	133.28	211.78	337.32	545.28
12.00	DISCHE	845.70	1086.37	1060.89	850.42	635.93	494.01	410.84	363.63	335.70	316.84
13.00	DISCHG	302.25	290.06	278.62	268.25	258.73	249.35	239.88	229.68	219.15	208.83
14.00	DISCHS	199.31	191.00	183.87	178.18	173.85	169.97	166.66	163.51	160.66	158.75
15.00	DISCHE	158.04		159.17	160.51	161.38	161.60	161.89	162.51	163.52	164.76
15.00	DISCHE	166.15	167.59	169.06	170.60	172.22	173.90	175.15	175.21	174.67	174.33
17.00	DISCHG	174.49	174.97	175.59	176.29	177.03	177.77	178.49	178.45	177.77	176.30
18.00	DISCHG	174.00	171.61	169.66	168.20	156.94	166.81	167.02	167.29	167.52	167.70
19.00	DISCHG	167.83	167.90	167.93	157.99	167.93	147.80	157.51	167.37	155.95	
20.00	DISCHS	163.99	161.88	160.13	158.74	157.50	156.32	155.15	153.96	152.76	
21.00	DISCHE	150.31	149.07	147.83	146.58	145.33				140.35	
22.00	DISCHG			135.40		133.02	131.87	130.75	129.67	128.62	128.03
23.00	DISCHS	127.61	127.25	126.92							
24 00	niceue	100.01	440 (0	115 00	100.00	404 67	100 01				

104.83

79.10

100.91

77.11

122.21

87.57

119.62

85.32

115.28

83.15

109.80

81.08

24.00

25.00

DISCHS

DISCHG

92.36

70.82

29.91

68.96

94.95

72.81

97.75

74.93

PASS

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TR20 XEQ (04-29-86 08:	45 CC	J&DELL'S (REEK WATERS	HED STUDY	NV5010 2	4 HR 10YR	TYPE 2 STO	RM 20		JOB
REV F	PC 09/83(.2)	AL	_T 90					30			
26.00	DISCHS	67.24	65.65	64.17	62.79	61.49	60.27	59.11	57.99	56.93	55.90
27.00	DISCHG	54.91	53.95	53.02	52.10	51.21	50.33	49.45	48.54	47.64	46.75
28.00	DISCHG	45.87	45.00	44.14	43.30	42.46	41.63	40.81	40.00	39.20	38.41
29.00	DISCHG DISCHG DISCHG	37.63	36.86	36.10	35.37	34.67	33.99	33.33	32.70	32.12	31.5
RUNDFF V	OLUME ABOVE	BASEFLOW =	2.09 WAT	ERSHED INCH	ES, 3063	3.33 CFS-H	IRS, 253	.15 ACRE-F	ET; BAS	EFLO# =	3.00 CFS
PERATION	REACH CRO	SS SECTION	80								
	INPUT HYDRO	SRAPH= 7	OUTPUT								
	LENGTH =	700.00 FEE	T IN	PUT = COEFF	ICIENTS RE	LATED TO	CROSS SEC	TIONAL AREA	, X= .:	30, M=	1.94
	MODIFIED AT	T-KIN ROUTI	NG COEFFI	CIENT = 1.0	0 PE	AK TRAVEL	TIME =	.00 HOURS			
111	WARNING REA	CH 80 ATT-	KIN COEFF	.(C) GREATE	R THAN 0.8	67, CONSI	DER REDUC	ING MAIN TI	ME INCREM	ENT ###	
	PEAK TIME(H	RS)	PEA	K DISCHARGE	(CFS)	PEA	K ELEVATI	ON (FEET)			
	12.14			1108.12			(NIII 1)				
	17.54			178.57			(NULL)				
	19.30			167.99			(NULL)				
RUNOFF V	OLUME ABOVE	BASEFLOW =	2.09 WAT	ERSHED INCH	ES, 3063	.33 CFS-H	IRS, 253	.15 ACRE-FE	ET; BASI	EFLOW =	3.00 CFS
	RUNOFF CRO OUTPUT HYDR	OGRAPH= 6									
	AREA= .0: INTERNAL HY					OF CONCE	NTRATION=	.12 HOUR	S		
	PEAK TIME(H	RS)	PEA	K DISCHARGE	(CFS)	PEA	K ELEVATIO	N (FEET)			
	11.98			54.99			(RUNOFF)				
RUNOFF V	OLUME ABOVE I	BASEFLOW =	2.98 WAT	ERSHED INCHE	ES, 38	.49 CFS-H	RS, 3.	18 ACRE-FE	ET; BASE	FLOW =	.00 CFS
PERATION	ADDHYD CROS	SS SECTION	80								
	INPUT HYDROG			UT HYDROGRAF	PH= 7						
	PEAK TIME(H	RS)	PEA	C DISCHARGE	(CES)	PFΔ	K ELEVATIO	N (EFET)			
	12.13		//	1129.43		,	(NULL)				
	17.64			179.89			(NULL)				
	1/107										
	19.30			169.06			(NULL)				
RUNGEF VI		BASEFLOW =		169.06	S. 3101	.87 CFS-W	(NULL)	33 ACRE-EE	FT. BACE	:FI	3.00 CFS

OPERATION RUNOFF CROSS SECTION 90 OUTPUT HYDROGRAPH= 6

OPERATION SAVMOV CROSS SECTION 100

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

AREA= .24 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .62 HOURS

TR20 XEQ 04-29-86 08:45 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

ALT 90

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INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.26	458.49	(RUNGFF)
19.66	15.09	(RUNOFF)
23.66	11.44	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.14 WATERSHED INCHES, 641.76 CFS-HRS, 53.03 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 100

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.85	(NULL)
17.54	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 110 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.86	(NULL)
17.64	198.71	(NULL)
19.30	184.14	(NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

TR20 XEQ 04-29-86 08:45

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS 1

REV PC 09/83(.2)

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PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.86	(NULL)
17.64	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 5B. TIME OF CONCENTRATION= .74 HOURS INTERNAL HYDROGRAPH-TIME INCREMENT= .0987 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.37	176.25	(RUNGFF)
19.67	9.03	(RUNOFF)
23.66	6.96	(RUNOFF)

PEAK DISCHARGE (CFS)

1674.69

204.43

RUNDFF VOLUME ABOVE BASEFLOW = 2.41 WATERSHED INCHES, 295.13 CFS-HRS, 24.39 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

(NULL)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

12.18

15.36

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

	16.1 17.1 19.1	73		211.9 209.8 193.1	8		(NULL) (NULL) (NULL)					
TIME(HRS)		FIRST HYDROS	RAPH POINT	= .00 H	OURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	
4.00	DISCHG	3.00	3.00	3.00	3.02	3.10	3.26	3.49	3.75	4.04	4.33	
5.00	DISCHG	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10	
5.00	DISCHE	7.35	7.67	8.18	8.90	9.40	9.89	10.32	10.71	11.07	11.42	
7.00	DISCHS	11.77	12.13	12.52	12.93	13.36	13.79	14.23	14.67	15.11	15.54	
8.00	DISCHS	15.98	16.55	17.48	18.71	20.15	21.78	23.35	24.68	25.76	26.68	
9.00	DISCHE	27.51	28.47	29.83	31.49	33.06	34.37	35.71	37.41	39.40	41.24	
10.00	DISCHS	42.78	44.33	46.25	48.59	51.71	55.68	60.49	66.42	73.17	80.80	
11.00	DISCHG	89.23	98.24	107.95	118.29	130.50	146.43	191.02	296.23	473.75	785.42	
12.00	DISCHG	1230.01	1597.32	1668.70	1487.21	1226.75	997.31	820.89	696.82	610.62	547.37	
13.00	DISCHG	500.00	461.48	429.30	402.24	379.07	358.88	340.12	322.10	304.70	288.35	
14.00	DISCH6	273.94	261.38	250.58	241.67	234.36	227.88	221.95	216.33	211.17	207.20	
15.00	DISCHE	204.79	203.48	203.70	204.33	204.37	203.72	202.96	202.52	202.59	203.12	
16.00	DISCHE	204.02	205.13	206.39	207.79	209.33	210.94	211.88	211.45	210.15	208.87	
17.00	DISCHS	208.11	207.80	207.86	208.18	208.66	209.23	209.84	209.73	208.89	206.96	
18.00	DISCHE	204.05	200.77	197.84	195.49	193.54	192.93	192.80	192.85	192.94	193.02	
19.00	DISCHG	193.08	193.11	193.12	193.16	193.10	192.98	192.79	192.56	192.05	190.57	

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TR20 XEQ 04-29-86 08:45	COGDELL'S CREEK	ATERSHED STUDY	NV5010 24 HR 10YR	TYPE 2 STORM	20	JOB 1 F	PASS 1
360							

20.00 DISCHE 188.05 185.04 182.31 180.02 178.07 176.40 174.90 173.48 172.13 170.80 DISCHS 21.00 169.50 168.21 166.93 165.66 164.40 163.16 161.91 160.67 159.42 158.18 22.00 DISCHE 156.95 155.72 154.50 153.31 152.13 150.99 149.89 148.81 147.18 147.77 23.00 DISCHE 146.77 146.42 146.10 145.78 145.48 145.19 144.91 144.64 144.17 142.73 24.00 DISCHG 140.21 136.09 129.73 121.75 114.09 107.71 102.54 98.26 94.65 91.50 25.00 DISCHE 88.67 86.08 83.48 81.44 79.34 77.27 75.04 72.89 70.86 48.98 26.00 DISCHG 67.25 65.66 64.17 62.79 61.49 60.27 59.11 57.99 56.93 .55.90 27.00 DISCHG 54.91 53.95 53.02 50.33 49.45 47.64 52.10 51.21 48.54 46.75 28.00 DISCHE 45.87 45.00 44.14 43.30 42.46 41.63 40.81 40.00 39.20 38.41 29.00 DISCHE 37.63 36.86 36.10 35.37 34.67 33.99 33.33 32.70 31.53 32.12

RUNOFF VOLUME ABOVE BASEFLOW = 2.30 WATERSHED INCHES, 4038.70 CFS-HRS, 333.76 ACRE-FEET; BASEFLOW = 3.00 CFS

PEAK ELEVATION (FEET)

OPERATION SAVMOV STRUCTURE 50

REV PC 09/83(.2)

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

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OPERATION RESVOR STRUCTURE 50

PEAK TIME (HRS)

INPUT HYDROSRAPH= 6 OUTPUT HYDROSRAPH= 7

PEAK DISCHARGE (CFS)

SURFACE ELEVATION= 2.40

a , 1	13.5	56		347.44			10.81				
TIME(HRS)		FIRST HYDROGRAP	H POINT	= .00 HC	JURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.
9.00	DISCHG	3.00	3.00	3.28	3.75	4.23	4.72	5.24	5.76	6.31	6.89
9.00	ELEV	2.84	2.84	2.85	2.87	2.89	2.91	2.93	2.95	2.97	3.00
10.00	DISCHE	7.43	7.98	8.54	9.13	9.76	10.42	11.14	11.94	12.81	13.79
10.00	ELEV	3.02	3.04	3.07	3.09	3.12	3.15	3.18	3.22	3.26	3.30
11.00	DISCHE	14.87	16.11	18.44	20.99	23.75	26.83	30.64	36.34	47.09	66.56
11.00	ELEV	3.35	3.40	3.46	3.52	3.59	3.67	3.77	3.91	4.14	4.53
12.00	DISCHE	96.02	120.41	179.33	233.48	264.27	288.12	305.59	318.34	327.77	334.66
12.00	ELEV	5.16	6.05	7.06	7.99	8.74	9.31	9.72	10.03	10.25	10.42
13.00	DISCHG	338.85	342.00	344.30	345.88	346.87	347.36	347.41	347.05	346.30	345.20
13.00	ELEV	10.55	10.64	10.71	10.76	10.79	10.80	10.81	10.80	10.77	10.74
14.00	DISCHE	343.78	342.09	340.18	338.09	335.87	333.43	330.38	327.25	324.06	320.82
14.00	ELEV	10.70	10.65	10.59	10.52	10.46	10.39	10.31	10.24	10.16	10.09
15.00	DISCHE	317.59	314.40	311.29	308.27	305.35	302.50	299.71	296.98	294.32	291.75
15.00	ELEV	10.01	9.93	9.86	9.79	9.72	9.65	9.58	9.52	9.46	9.39
16.00	DISCHE	289.27	286.89	284.61	282.43	280.35	278.37	276.49	274.66	272.87	271.09
16.00	ELEV	9.34	9.28	9.22	9.17	9.12	9.08	9.03	8.99	8.94	8.90
17.00	DISCHE	269.33	267.60	265.92	264.29	262.72	261.20	259.75	258.34	256.96	255.59
17.00	ELEV	8.86	8.82	8.78	8.74	8.70	8.67	8.53	8.60	8.57	8.53
18.00	DISCHG	254.18	252.72	251.22	249.70	248.22	246.75	245.30	243.90	242.53	241.20
18.00	ELEV	8.50	8.46	8.43	8.39	8.36	8.32	8.28	8.25	8.21	8.18
19.00	DISCHG	239.91	238.65	237.43	236.25	235.09	233.97	232.86	231.79	230.73	229.67
19.00	ELEV	8.15	8.12	8.09	8.06	8.03	8.00	7.97	7.94	7.92	7.89
20.00	DISCHE	228.59	227.46	226.29	225.08	223.85	222.60	221.34	220.08	218.81	217.54
20.00	ELEV	7.86	7.84	7.81	7.78	7.75	7.71	7.68	7.65	7.62	7.59

TR20 XEQ 04-29-86 08:45

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS 1

REV PC 09/83(.2)

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21.00	DISCHE	216.27	215.00	213.73	212.46	211.19	209.82	207.04	204.36	201.75	199.23
21.00	ELEV	7.56	7.53	7.49	7.46	7.43	7.40	7.37	7.34	7.31	7.28
22.00	DISCHG	196.79	194.41	192.10	189.86	187.68	185.56	183.50	181.49	179.54	177.66
22.00	ELEV	7.25	7.22	7.20	7.17	7.15	7.13	7.10	7.08	7.06	7.04
23.00	DISCHG	175.86	174.14	172.50	170.95	169.46	168.04	166.69	165.41	164.17	162.96
23.00	ELEV	7.02	7.00	6.98	6.96	6.94	6.93	6.91	6.90	6.89	6.87
24.00	DISCHG	161.69	160.31	158.70	156.77	154.49	151.93	149.18	146.32	143.39	140.43
24.00	ELEV	6.86	6.84	6.82	6.80	6.78	6.75	6.72	6.68	6.65	6.62
25.00	DISCHE	137.48	134.54	131.62	128.74	125.90	123.11	120.99	120.93	120.88	120.82
25.00	ELEV	6.59	6.55	6.52	6.49	6.46	6.42	6.39	6.36	6.33	6.29
26.00	DISCHG	120.75	120.70	120.64	120.57	120.51	120.44	120.37	120.30	120.23	120.16
26.00	ELEV	6.26	6.22	6.18	6.14	6.10	6.06	6.02	5.98	5.94	5.89
27.00	DISCHE	120.08	120.01	118.53	116.87	115.23	113.61	112.00	110.42	108.85	107.30
27.00	ELEV	5.85	5.81	5.76	5.72	5.67	5.63	5.59	5.54	5.50	5.46
28.00	DISCHE	105.76	104.25	102.74	101.26	99.79	98.34	96.90	95.48	94.07	92.68
28.00	ELEV	5.42	5.38	5.34	5.30	5.26	5.22	5.18	5.15	5.11	5.07
29.00	DISCHG	91.31	89.93	88.15	86.40	84.68	83.00	81.35	79.74	78.16	76.61
29.00	ELEY	5.03	5.00	4.96	4.93	4.89	4.86	4.83	4.79	4.76	4.73
										A STATE OF THE STA	

RUNOFF VOLUME ABOVE BASEFLOW = 2.12 WATERSHED INCHES, 3716.78 CFS-HRS, 307.15 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1000.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 130 ATT-KIN COEFF.(C) SREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 130 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 73.51 CFS, 21.37 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

13.56

347.44

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.12 WATERSHED INCHES, 3716.78 CFS-HRS, 307.15 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 130

OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 74. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

PEAK TIME (HRS) 12.01 23.65

PEAK DISCHARGE (CFS) 160.37

PEAK ELEVATION (FEET) (RUNOFF)

2.37 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.05 WATERSHED INCHES, 130.79 CFS-HRS, 10.91 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 130

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

TR20 XEQ 04-29-86 08:45

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS

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PEAK TIME(HRS) 12.05 13.45 PEAK DISCHARGE(CFS) 264.61 357.27

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)
(NULL)

PEAK ELEVATION (FEET)

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.15 WATERSHED INCHES, 3847.57 CFS-HRS, 317.96 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

PEAK TIME (HRS)

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

16.61 280.68 6.74 TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 2.77 SQ.MI. 11.00 DISCHE 3.00 3.00 3.00 3.00 3.00 3.00 3.06 5.09 9.31 3.00 ELEV 11.00 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.46 2.54 12.00 DISCHE 12.70 17.26 21.62 30.46 40.47 50.20 60.24 72.78 85.19 97.34 12.00 ELEV 2.67 2.83 2.97 3.12 3.27 3.44 3.60 3.77 3.94 4.10 13.00 DISCHE 109.11 120.45 131.35 140.12 147.72 155.05 152.12 168.91 175.42 180.05 13.00 ELEV 4.25 4.41 4.55 4.69 4.83 4.96 5.08 5.20 5.32 5.43 DISCHS 180.23 14.00 180.41 180.59 180.75 180.93 188.98 201.12 711.98 221.68 230.32 14.00 FI FV 5.54 5.65 5.75 5.86 5.96 6.06 6.15 6.23 6.30 6.37 15.00 DISCHG 238.00 244.78 250.76 256.00 240.55 264.48 257.84 270.70 273.10 275.10 15.00 ELEV 6.43 6.48 6.52 6.59 6.56 6.62 6.65 5.67 6.69 6.70 15.00 DISCHE 276.73 278.03 279.03 279.77 280.27 280.57 280.68 280.61 280.37 280.00 16.00 ELEV 6.71 6.72 6.74 6.73 6.74 6.74 6.74 6.74 6.74 6.74 17.00 DISCHE 279.52 278.93 278.25 277.50 275.67 275.78 274.85 273.88 272.87 271.81 17.00 ELEY 6.74 6.73 6.73 6.72 6.71 6.71 6.70 6.69 6.69 6.68 DISCHE 270.70 18.00 269.55 268.37 267.16 265.93 264.68 263.41 260.85 259.55 262.13 18.00 ELEV 6.57 6.66 6.65 6.64 6.63 6.62 6.62 6.61 6.60 6.59 19.00 DISCH6 258.26 256.96 255.68 254.39 253.12 251.86 250.61 249.37 248.15 246.92 6.57 19.00 ELEV 6.58 6.56 6.55 6.54 6.53 6.52 6.51 6.50 6.49 20.00 DISCHE 245.68 244.44 243.20 241.96 240.73 239.49 238.25 237.02 235.77 234.53 20.00 ELEV 6.48 6.47 6.46 6.45 6.45 6.44 6.43 6.42 6.41 6.40 233.29 21.00 DISCHE 232.04 230.79 228.29 229.54 227.03 225.71 224.27 222.73 221.11 21.00 ELEV 6.39 6.38 6.37 6.36 6.35 6.34 6.33 6.32 6.31 6.30 22.00 DISCHE 219.42 217.67 215.87 214.04 212.17 210.28 208.37 206.46 204.53 202.61 6.29 22.00 ELEV 6.27 6.26 6.25 6.23 6.22 6.20 6.19 6.18 6.16 23.00 DISCHG 200.70 198.80 196.91 193.22 195.05 191.42 189.45 187.92 186.23 184.55 23.00 ELEV 6.15 6.13 6.12 6.10 6.09 6.08 6.06 6.05 6.04 6.03 24.00 DISCHG 182.89 181.22 180.98 180.96 180.93 180.90 180.87 180.83 180.80 180.75 24.00 6.00 ELEV 6.01 5.99 5.97 5.96 5.94 5.92 5.90 5.88 5.85 25.00 DISCHG 180.71 180.55 180.61 180.56 180.50 180.44 180.38 180.32 180.26 180.20 25.00 ELEV 5.83 5.80 5.77 5.74 5.70 5.67 5.63 5.59 5.55 5.52

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REV	PC 09/83(.2)		ALT 90					30			
26.00	DISCHE			180.01	178.16	176.14	174.19	172.31	170.49	168.73	167.
26.00	ELEV	5.48	5.44	5.40	5.37	5.33	5.30	5.26	5.23	5.20	5.
27.00	DISCHG	165.39	163.80	162.25	160.69	159.12	157.56	155.99	154.43	152.86	151.
	ELEV			5.08							
8.00	DISCHG	149.72	149.16	146.60	145.03	143.48	141.92	140.37	138.83	137.28	135.
8.00	ELEV	4.86	4.83	4.81	4.78	4.75	4.72	4.70	4.67	4.64	4.
9.00	DISCHE	133.96	131.95	129.96	127.98	126.01	124.05	122.11	120.18	118.27	116.
9.00	ELEV DISCHG ELEV	4.59	4.56	4.53	4.51	4.48	4.45	4.43	4.40	4.38	4.
UNOFF	VOLUME ABOVE	BASEFLOW	= 1.96 WA	TERSHED INC	CHES, 35	01.82 CFS-	HRS, 289	.39 ACRE-F	EET; BAS	EFLOH =	3.00 0
	N REACH CR										
	INPUT HYDR	OGRAPH= 7		HYDROGRAPH	= 5						
	LENGTH =	2500.00 F	EET I	NPUT = COEF	FICIENTS	RELATED TO	CROSS SEC	TIONAL AREA	A, X= .	21, M=	1.48
	LENGTH = MODIFIED A	TT-KIN ROU	TING COEFF	ICIENT = .	38 P	EAK TRAVEL	TIME =	.30 HOURS			
	LENGTH = MODIFIED A WARNING - RE	TT-KIN ROU	TING COEFF	ICIENT = .	38 P	EAK TRAVEL	TIME =	.30 HOURS			
111	MODIFIED A WARNING - RE	TT-KIN ROU ACH 140 INI	TING COEFF FLOW HYDRO PE	ICIENT = . GRAPH VOLUM AK DISCHARG	.38 P IE TRUNCAT SE(CFS)	EAK TRAVEL ED ABOVE B	TIME = ASEFLOW AT	.30 HOURS			
111	MODIFIED A WARNING - RE	TT-KIN ROU ACH 140 INI	TING COEFF FLOW HYDRO PE	ICIENT = . GRAPH VOLUM	.38 P IE TRUNCAT SE(CFS)	EAK TRAVEL ED ABOVE B	TIME = ASEFLOW AT AK ELEVATI	.30 HOURS			
111	MODIFIED A WARNING - RE	TT-KIN ROU' ACH 140 INI HRS)	TING COEFF FLO₩ HYDRO PE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23	38 P IE TRUNCAT SE(CFS)	PEAK TRAVEL PED ABOVE B	TIME = ASEFLOW AT AK ELEVATI (NULL)	.30 HOURS 113.3 ON(FEET)	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - RE PEAK TIME() 16.90	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW :	TING COEFF FLOW HYDRO PE = 1.94 WA	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23	38 P IE TRUNCAT SE(CFS)	PEAK TRAVEL PED ABOVE B	TIME = ASEFLOW AT AK ELEVATI (NULL)	.30 HOURS 113.3 ON(FEET)	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - RE PEAK TIME() 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW : DSS SECTION ROGRAPH= (TING COEFF FLOW HYDRO PE = 1.94 WA W 140	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC	38 P ME TRUNCAT ME(CFS) CHES, 34	PEAK TRAVEL PED ABOVE B PE	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286	.30 HOURS 113.3 ON(FEET) .80 ACRE-FF	7 CFS, 40	.83 % OF	PEAK.
111	MODIFIED A WARNING - RE PEAK TIME() 16.90 VOLUME ABOVE	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW : DSS SECTION ROGRAPH= (20 SQ MI	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE=	38 P E TRUNCAT SE(CFS) SHES, 34	PEAK TRAVEL PED ABOVE B PE	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286	.30 HOURS 113.3 ON(FEET) .80 ACRE-FF	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - RE PEAK TIME() 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= .: INTERNAL HY	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION=	.30 HOURS 113.3 ON(FEET) .90 ACRE-FI	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - RE PEAK TIME() 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= .: INTERNAL HY	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION=	.30 HOURS 113.3 ON(FEET) .90 ACRE-FI	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - RE PEAK TIME() 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= .:	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION=	.30 HOURS 113.3. ON(FEET) .80 ACRE-FF .19 HOUF ON(FEET)	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - REI PEAK TIME() 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= INTERNAL HY PEAK TIME() 12.02 15.16 16.45	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025 AK DISCHARG 576.56	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION= AK ELEVATI (RUNOFF	.30 HOURS 113.3: ON(FEET) .80 ACRE-FF	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	PEAK TIME () 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= INTERNAL HY PEAK TIME () 12.02 15.16	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025 AK DISCHARG 576.56 20.07	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION= AK ELEVATI (RUNOFF (RUNOFF	.30 HOURS 113.3: ON(FEET) .80 ACRE-FI .19 HOUF ON(FEET))	7 CFS, 40	.83 % OF	PEAK.
### UNOFF	MODIFIED A WARNING - REI PEAK TIME() 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= INTERNAL HY PEAK TIME() 12.02 15.16 16.45	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025 AK DISCHARG 576.56 20.07 17.49	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION= AK ELEVATI (RUNOFF (RUNOFF (RUNOFF	.30 HOURS 113.3: ON(FEET) .80 ACRE-FI .19 HOUR ON(FEET))	7 CFS, 40	.83 % OF	PEAK.
### JNOFF	MODIFIED A WARNING - REI PEAK TIME(I 16.90 VOLUME ABOVE RUNOFF CRI OUTPUT HYDI AREA= INTERNAL HY PEAK TIME(I 12.02 15.16 16.45 17.65	TT-KIN ROU' ACH 140 INI HRS) BASEFLOW: OSS SECTION ROGRAPH: (ZO SQ MI YDROGRAPH 1	TING COEFF FLOW HYDRO PE = 1.94 WA N 140 S INPUT RUN TIME INCRE	ICIENT = . GRAPH VOLUM AK DISCHARG 280.23 TERSHED INC OFF CURVE= MENT= .025 AK DISCHARG 576.56 20.07 17.49 14.64	38 P E TRUNCAT SE(CFS) SHES, 34 70. TI 3 HOURS	PEAK TRAVEL FED ABOVE B PE 70.43 CFS-I	TIME = ASEFLOW AT AK ELEVATI (NULL) HRS, 286 ENTRATION= (RUNOFF (RUNOFF (RUNOFF	.30 HOURS 113.3: ON(FEET) .80 ACRE-FF .19 HOUF ON(FEET))	7 CFS, 40	.83 % OF	PEAK.

RUNOFF VOLUME ABOVE BASEFLOW = 2.05 WATERSHED INCHES, 3938.73 CFS-HRS, 325.50 ACRE-FEET; BASEFLOW = 3.00 CFS

PEAK DISCHARGE (CFS)

582.45

296.10

PEAK TIME(HRS)

12.02

16.54

PEAK ELEVATION (FEET)

(NULL)

(NULL)

TR20 XEQ 04-29-86 08:45 COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7

OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

AREA= .08 SQ MI INPUT RUNOFF CURVE= 65. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.15	142.32	(RUNOFF)
16.45	6.39	(RUNOFF)
17.67	5.39	(RUNOFF)
19.66	4.37	(RUNOFF)
23.66	3.34	(RUNOFF)

RUNDFF VOLUME ABOVE BASEFLOW = 3.10 WATERSHED INCHES, 160.17 CFS-HRS, 13.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5,6 OUTPUT

OUTPUT HYDROSRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.03	692.42	(NULL)
14.29	213.29	(NULL)
16.54	302.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES. 4098.89 CFS-HRS. 338.73 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF.(C) BREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

*** WARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 118.47 CFS. 17.55 % OF PEAK.

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.03	692.42	(NULL)
14.29	213.29	(NULL)
15.54	302.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 4098.89 CFS-HRS, 338.73 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA= .01 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= .15 HOURS

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JOB 1 PASS 1

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INTERNAL HYDROGRAPH TIME INCREMENT= .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY

XSECTION 150

		12.	IME (HR 05		FER	4.	ARGE (CFS) 99	ri P	(RUNOF	TION (FEET) FF)			
T	IME (HRS)		FIRST	HYDROGRAPH	POINT =	.00	HOURS	TIME INCREM	IENT = .1	IO HOURS	DRAINAGE	AREA =	.01 SQ.MI.
	11.00	DISCHE		.00	.00	.00	.00	.00	.00	.00	.00	.00	1.05
	12.00	DISCHE		4.60	4.46	2.17	1.71	1.28	1.17	1.09	1.02	1.00	.87
	13.00	DISCHG		.84	.78	.73	.71	. 66	.64	.60	.56	. 55	.52
	14.00	DISCHE		.52	.50	. 48	.47	.44	. 43	.41	.38	.38	.38
	15.00	DISCHS		.38	.39	.39	.38		.34	.34	.34	.34	.34
	16.00	DISCHG		.34	.34	.35	.35		.35	.32	.30	.30	.30
	17.00	DISCHE		.30	.30	.30	.30		.30	.30	.30	.30	.26
	18.00	DISCHS		. 25	. 25	. 25	.25		. 25	.25	.25	.25	.25
	19.00	DISCHG		. 25	. 25	.25	.25		. 25	.25	. 25	. 25	.21
	20.00	DISCHG		.19	.19	.19	.19	.19	.19	.19	.19	.19	.19
	21.00	DISCHE		.19	.20	.20	.20		.20	.20	.20	.20	.20
	22.00	DISCHE		20	.20	.20	.20		.20	.20	.20	.20	.20
	23.00	DISCHE		.20	.20	.20	.20		.20	.20	.20	.20	.15
	24.00	DISCHE		.14	.08	.01	.00						

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.03 697.38 (NULL) 14.29 213.76 (NULL) 16.53 302.82 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 4104.31 CFS-HRS, 339.18 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROSRAPH= 6

AREA = .11 SQ MI INPUT RUNOFF CURVE = 42. TIME OF CONCENTRATION = .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION(FEET) 12.27 39.64 (RUNOFF) 23.68 2.45 (RUNOFF)

TR20 XEQ 04-29-86 08:45 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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RUNOFF VOLUME ABOVE BASEFLOW = .99 WATERSHED INCHES, 70.57 CFS-HRS, 5.83 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.04 714.15 (NULL)
14.27 220.16 (NULL)
16.53 307.08 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.04 WATERSHED INCHES, 4174.88 CFS-HRS, 345.01 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .63 PEAK TRAVEL TIME = .20 HOURS

*** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 118.47 CFS. 17.13 % OF PEAK.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.18 633.33 (NULL)
14.41 219.68 (NULL)
16.68 306.54 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 4152.71 CFS-HRS, 343.18 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA - .11 SD MI INPUT RUNOFF CURVE - 41. TIME OF CONCENTRATION - .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT - .0640 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.28
 34.74 * (RUNOFF)

 23.69
 2.34 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES, 65.08 CFS-HRS, 5.38 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.19
 665.17
 (NULL)

 14.40
 225.43
 (NULL)

 16.67
 310.60
 (NULL)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 3.28 SQ.MI.

TR20 XEQ	04-29-86	08:45	COGDELL'S	CREEK WATE	ERSHED STU	DY NV5010 2	24 HR 10YR	TYPE 2 STO	IRM 20)	JOB 1	PASS	1
REV	PC 09/831.	2)	ALT 90					30				PASE	28
8.00	DISCHE	3.00	3.00	3.00	3.01	3.07	3.21	3.40	3.61	3.83	4.04		
9.00	DISCHG	4.25	4.47	4.73	5.07	5.38	5.67	5.96	6.35	6.86	7.34		
10.00	DISCHE	7.79	8.22	8.76	9.43	10.11	11.17	12.27	13.65	15.49	17.21		
11.00	DISCHE	19.54	21.84	24.37	27.39	30.24	34.66	39.19	64.54	119.62	186.81		
12.00	DISCHG	370.65	592.75	663.22	537.42	414.66	317.25	253.43	216.05	194.50			
13.00	DISCHE	179.62	178.68	180.63	183.57	188.81	193.68	198.96	203.87	207.87	212.43		
14.00	DISCHG	216.74	220.96	223.75	224.92	225.43	224.80	223.94	224.60	227.62	233.18		
15.00	DISCH6	240.37	248.34	256.46	264.32	271.52	277.08	281.85	286.34	290.54	294.40		
16.00	DISCHE	297.86	300.90	303.52	305.76	307.62	309.14	310.32	310.57	309.81	309.07		
17.00	DISCHE	308.50	308.06	307.66	307.24	306.77	306.23	305.62	304.93	304.17	303.14		
18.00	DISCHS	301.02	298.70	296.71	295.02	293.56	292.22	290.96	289.71	288.48	287.24		
19.00	DISCHE	285.99	284.74	283.48	282.21	280.95	279.69	278.43	277.17	275.91	274.46		
20.00	DISCHE	271.95	269.30	267.03	265.12	263.49	262.02	260.66	259.36	258.09	256.83		
21.00	DISCHS	255.59	254.35	253.12	251.89	250.65	249.42	248.18	246.94	245.68	244.38		
22.00	DISCHG	243.02	241.58	240.07	238.49	236.85	235.14	233.39	231.60	229.77			
23.00	DISCHE	226.05	224.16	222.27	220.37	218.48	216.61	214.74	212.90	211.08	209.06		
24.00	DISCHE	206.00	202.73	198.46	192.99	188.66	185.69	183.80	182.64	181.94	181.50		
25.00	DISCHG	181.23	181.05	180.92	180.82	180.75	180.69	180.63	180.57	180.51			
26.00	DISCHS	180.39	180.33	180.27	180.21	180.15	179.66	178.72	177.44	175.93			
27.00	DISCHE	172.61	170.90	169.21	167.54	165.91	164.30	162.71	161.12	159.55			
28.00	DISCHE	156.41	154.84	153.27	151.70	150.13	148.57	147.01	145.45				
29.00	DISCHG	140.79	139.24	137.64	135.93	134.12	132.26	130.35	128.43	126.49	124.56		
RUNOFF	VOLUME ABO	VE BASEFLO₩	= 1.99 WA	TERSHED IN	ICHES, 42	17.80 CFS-	HRS, 348	.56 ACRE-F	EET; BAS	EFLOW =	3.00 CFS		
EXECUTIVE	CONTROL O	PERATION END	JUND								RECORD II		1740
	MAN NOT OF	CHAITON CHE									KELUKU II		.740
+			CO	MPUTATIONS	COMPLETED	FOR PASS	1						
EXECUTIVE	CONTROL OF	PERATION END)308								RECORD II) 1	750
							e de la companya de						

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JOB 1 SUMMARY PAGE 29

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

	SECTION/ STRUCTURE		TANDARD CONTROL	DDATNACE	RAIN	ANTEC		P	RECIPITAT		DUNOTE		PEAK D	ISCHARGE	
	ID		PERATION	DRAINAGE AREA (SQ MI)	TABLE #	MOIST	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
	ALTERNAT	E	90 ST	ORM 1								Atte			
	STRUCTURE 1		RUNOFF	.84	2	2	10	Λ	7.00	24.00	1 17		17.00	96.56	114-5
	STRUCTURE 1		RESVOR	.84	2 2	2 2	.10	.0	7.00	24.00	1.67	D EA	17.80		114.9
		0	REACH	.84	2	2		.0	7.00	24.00	1.63	9.50	19.14	96.09	114.4
		0	RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.62		18.47	98.84	117.7
		0	ADDHYD	1.04	2	2				24.00	1.16		12.07	150.75	753.8
	YOUR I	U	עזהעעה	1.04	2	4	.10	.0	7.00	24.00	1.53		12.07	153.76	147.8
	STRUCTURE 2	20	RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.48	9.21	20.08	93.83	90.2
	XSECTION 2	20	REACH	1.04	2	2	.10	.0	7.00	24.00	1.47		20.23	93.80	90.2
	XSECTION 2	20	RUNOFF	.28	2	2	.10	.0	7.00	24.00	2.03		13.36	102.56	366.6
	XSECTION 2	20	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.59		13.31	132.15	100.1
١	STRUCTURE 3	0	RUNOFF	.37	2	2	.10	.0	7.00	24:00	1.57		14.95	60.58	163.7
٠	STRUCTURE 3	0	RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9
		10	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9
		0	RUNOFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2
		0	ADDHYD	.43	2	2	.10	.0	7.00	24.00	1.41	<u></u> 43	16.54	49.80	115.8
	STRUCTURE 4		RESVOR	. 43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8
	VECETION E		DEACH	4.7	_				7.00				44.70		10
		0	REACH	.43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7
		9	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.84		13.33	13.76	125.1
		0	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29		16.65	53.98	100.0
		0	RUNOFF	. 36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5
	XSECTION 5	10	ADDHYD	.90	2	2.	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9
	XSECTION 6	0	REACH	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9
	XSECTION &	0	RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2
	XSECTION &	0	ADDHYD	. 95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4
	XSECTION 7	0	ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.09		12.14	1108.12	488.2
	XSECTION 8	0	REACH	2.27	2	2	.10	.0	7.00	24.00	2.09		12.14	1108.12	488.2
	XSECTION 9	10	RUNGEF	.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.6
	XSECTION 8		ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.10		12.13	1129.43	493.2
	XSECTION 9		RUNOFF	.24	2	2	.10	.0	7.00	24.00	4.14		12.26	458.49	1910.4
	XSECTION 10		ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16		
	XSECTION 11		REACH	2.53	2	2	.10		7.00					1536.02	607.1
	ASCUITUM II	V	ACHUR	4,40	2	4	.10	.0	7.00	24.00	2.29	- 34 (177) (* 4)	12.16	1536.02	607.1
١	XSECTION 12		REACH	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1536.02	607.1
	XSECTION 12	0	RUNOFF	.19	2	2	.10	.0	7.00	24.00	2.41		12.37	176.25	927.6

TR20 XEQ 04-29-86 08:45 REV PC 09/83(.2) COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 90 30

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JOB 1 SUMMARY PAGE 30

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD CONTROL	DRAINASE	RAIN	ANTEC	MAIN	P	RECIPITAT	TON	DUMOFF		PEAK D	ISCHARGE	
	OPERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	: 90 S1	TORM 1											
XSECTION 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.30		12.18	1674.69	615.7
STRUCTURE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.12	10.81	13.56	347.44	127.7
XSECTION 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.12		13.56	347.44	127.7
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.15		13.45	357.27	129.0
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.96	6.74	16.61	280.68	101.3
XSECTION 140	REACH	2.77	2	2	.10	.0	7.00	24.00	1.94		16.90	280.23	101.2
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.63		12.02	576.56	2882.8
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.05		12.02	582.45	196.1
XSECTION 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	3.10		12.15	142.32	1779.0
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.08		12.03	592.42	227.0
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.08		12.03	692.42	227.0
XSECTION 150	RUNDFF	.01	2	2	.10	.0	7.00	24.00	.84		12.05	4,99	499.3
XSECTION 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	2.08		12.03	697.38	227.9
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.99		12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	2.04		12.04	714.15	225.3
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	2.03		12.18	633.33	199.8
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	1.99		12.19	665.17	202.8

TR20 XEQ 04-29-86 08:45 REV PC 09/83(.2) COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 90 30

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JOB 1 SUMMARY PAGE 31

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

			H	IYDROGRA	PH INF	ORMATIO	H					ROUTIN	6 PAR	AMETERS				PI	EAK
						OUTF	LOW+		VOLUME	MAIN	ITER-	Q AND	A		PEAK	S/Q	ATT-	TRAVEL	. TIMI
(SEC	REACH	INFL	.OW	OUTF	LOW	INTER	V.AREA	BASE-	ABOVE	TIME	ATION	EQUAT	ION	LENGTH	RATIO	⊋ PEAK	KIN	STOR-	KINE
ID	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR	1	COEFF	POWER	FACTOR	0/1	(K)	COEFF	ASE	MATI
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K\$)	(Q\$)	(SEC)	(C)	(HR)	(HR
Α	LTERNATE	90	STORM	1															
10	1750	99	18.1	99	18.5			3	1.63*	.10		1.20		.021	.997	888	.34	.40	. 2
						149	12.1					200							
20	2900	94	20.1	94	20.2			3	1.48	.10	1	.280	1.94	.000	1.000	319	.72?	.10	٠.
						132	13.3												
40	1300	48	16.2	48	16.5			0	1.51	.10	1	.880	1.10	.027	.992	934	.32	.30	
		p				50	16.5												
50	1700	50	16.6	50	16.7			0	1.41	.10	1	1.50	1.45	.002	1.000	252	.83?	.10	
						54	16.6												
60	1400	1054	12.1	1064	12.1			0	2.87	.10	0	.440	1.94	.000	1.000	38	1.00?	.00	.(
						1069													
												.300							
80	700	1086	12.1	1086	12.1			3	2.09	.10	0		1.94	.000	1.000	23	1.00?	.00	.(
						1115	12.1		-			.300							
10	500	1520	12.2	1520	12.2		Service services	3	2.29	.10	0	.000	1.94	.000	1.000	14	1.00?	.00	0
						an u n de						700							
20	500	1520	12.2	1520	12.2			3	2.29	.10	0	.300	1.94	.000	1.000	14	1.00?	.00	.(
			recy	cled pap	er	1669	12.2					.300		eco	logy and	l enviro	nmei B	-239	

			and the second		And the second	-					-						
+130	1000	347	13.6	347	13.6			3	2.12#	.10	0	1.94	.000	1.000	56 1.00?	.00	.00
+						357	13.5									_	_41
												.210				Dra	all
+140	2500	281	16.6	280	16.9			3	1.96#	.10	1	1.48	.004	.998	779 .38	.30	
+						578	12.0										
												.210					
+150	300	678	12.0	678	12.0			3	2.08\$.10	0		.000	1.000	70 1.00?	.00	.00
+						683	12.0										
												.210					
+180	1700	695	12.0	530	12.2			3	2.04	.10	1	1.48	.005	.907	395 .63	. 20	.11

TR20 XEQ 04-29-86 08:45 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 90 30

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JOB 1 SUMMARY PAGE 32

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

(XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERSi
0+	STRUCTURE 60		2.77	•
	ALTERNATE	90		280.68
0	STRUCTURE 50		2.72	
	ALTERNATE	90		347.44
0	STRUCTURE 40		.43	
	ALTERNATE	90	Company of the same	49.78
0	STRUCTURE 30	,,	.37	1,1,0
•	ALTERNATE	90		48.05
0	STRUCTURE 20			.01.00
+	DIMODIUME 20			
	ALTERNATE	90		93.83
0	STRUCTURE 10			,0.00
+	31110010112 14		A STATE OF THE STA	
•	ALTERNATE	90	-	96.09
	XSECTION 10			70107
	ALTERNATE	90		153.76
0	XSECTION 20		1.32	120176
+				
	ALTERNATE	90		132.15
0	XSECTION 40			
+				
	ALTERNATE	90		49.80
0	XSECTION 49			
	ALTERNATE	90		13.76
	XSECTION 50			
	ALTERNATE	90		1079.95
	XSECTION 60			
+				
-	ALTERNATE	90		1086.21
0	XSECTION 70		2.27	
+				
-	ALTERNATE	90		1108.12
0	XSECTION 80		2,29	
+				
	ALTERNATE	90		1129.43

TR20 XEQ 04-29-86 08:45 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 90 30

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JOB 1 SUMMARY PAGE 33

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS
0	XSECTION 9			
	ALTERNATE	90		458.49
0	XSECTION 10	0	2.53	
	ALTERNATE			1536.02
	XSECTION 11		2.53	
	ALTERNATE	90		1536.02
0	XSECTION 12	0	2.72	
	ALTERNATE	- 1		1674.69
	XSECTION 13	0	2.77	
٨	ALTERNATE XSECTION 14			357.27
+				
	ALTERNATE XSECTION 14			582.45
+				
	ALTERNATE XSECTION 15		3.06	142.32
+				
0	ALTERNATE XSECTION 18			697.38
+	ALTERNATE			UE 17
	HLICKNAIL	70		665.17

FISCAL YEAR 91

B-243

JOB TR-20 TITLE 004 CDG			RINT PASS=00: STUDY NV5010	D 24 HR 10YR TYPE 2 STORM 30	10 20
3 STRUCT	10			30	40
8	10	7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
8		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		8.2	22.0	6.38	90
9		8.6	52.0	7.07	100
8		9.0	62.0	7.75	110
8		9.5	96.0	8.61	120
8		10.0	126.0	9.47	130
8		11.0	198.0	11.18	140
8		12.0	280.0	12.89	150
8		13.00	360.0	14.79	160
8		14.00	440.0	16.68	170
8		15.00	500.0	18.58	180
8		15.1	600.00	18.60	190
9 ENDTBL			200,00	18160	200
3 STRUCT	20				210
9	, T	4.5	0.00	6.80	220
8		4.9	1.5	7.88	230
8		5.1	3.7	8.42	240
8		5.5	11.0	9.51	250
8		5.7	15.0	10.13	260
8		6.1	25.0	11.13	270
8		6.5	40.0	12.21	280
8		7.1	60.0	13.84	290
8		7.9	78.0	16.01	300
8		8.5	79.0	17.63	310
8		9.5		20.34	320
8		10.5		23.06	330
8		11.5	150.0	25.76	340
8		11.6		26.04	350
9 ENDTBL					360
3 STRUCT	30				370
8		21.0	0.00	0.10	380
8		21.4	0.6	0.61	390
		21.6		0.86	400
8		21.8	2.5	1.12	410
8		22.2	5.2	1.62	420
8		22.6		2.13	430
8		23.0		2.64	440
8		23.5		3.27	450
8		24.0		3.91	460

***********	******	##80-80 LIST	OF INPUT DAT	A (CONTINUED) ***	*****************
8		25.0	39.0	5.18	470
3		26.0	49.0	6.45	480
8		27.0	57.0	7.72	490
8		27.1	200.00	7.74	500
9 ENDTBL					510
3 STRUCT	40				520
8		9.0	0.0	0.38	530
8		9.4	2.2	0.47	540
8		9.6	5.0	0.52	550
8		10.0	14.0	0.62	540
8		10.2	21.0	0.67	570
8		10.5	36.0	0.77	580
8		11.0	55.0	0.96	590
8		11.6	82.0	1.01	600
8		12.4	120.0	1.21	610
8		13.0	121.0	1.35	620
8		14.0	122.0	1.40	630
8		15.0	125.0	1.84	640
8		16.0	150.00	2.08	650
8		16.1	300.0	2.11	640
7 ENDTBL		10.1	300.0	2.11	670
3 STRUCT	50				680
8	30	2.4	0.00	22.00	690
8		2.8	2.0	26.86	700
8		3.0	7.0	29.29	710
8		3.4	16.0	34.16	720
8		3.5	24.0	36.59	730
8		4.0	40.0	41.46	740
8		4.4	60.0	46.32	740
8		5.0	90.0	53.62	740
8		5.8	120.0	63.35	770
8		6.4	121.0	70.65	
8		7.4	210.0	82.81	780 790
8		8.4	250.00	94.98	
9		10.4	334.0	119.31	800
8		12.4	400.0	143.63	810
8		12.5	800.0	143.63	820
9 ENDTBL		12.3	800.0	143.70	830
3 STRUCT	60				840
2 21KUC1	٥0	2.0	0.0	22.20	850
8		2.4	0.0 3.0	22.20 27.41	860
8		2.4			870
8		3.0	10.5	30.02	880
8			22.5	35.24	890
		3.2	36.0	37.85	900
8		3.6	60.0	43.06	910
8		4.0	90.0	48.28	920

**	******	**	*****	**	**	\$8	0-80 LIST OF	INPUT DATA	(CONTINUED)	****************	******
8							4.5	135.0	56.11		930
9							5.4	180.0	66.55		940
8							6.0	181.0	74.38		950
8							7.0	315.0	87.42		960
8							8.0	375.0	100.47		970
8							8.1	700.0	100.50		980
9	ENDTBL										990
6	RUNOFF	1	10			6	0.84	51.	7.50	1	1000
6	RESVOR	2	10	6		7	7.0			1	1010
6	REACH	3	010	7		5	1750.	1.2	1.10	1	1020
6	RUNOFF	1	010			6	0.20	42.	0.19	1	1030
6	ADDHYD	4	010	5	6	7				1.1	1040
6	SAVMOV	5	010	7		6					1050
	RESVOR		20	6		7	4.5			1	1060
	REACH		020	7			2900.	0.28	1.94	1	1070
	RUNOFF						0.28	53.	1.02	The second of the second	1080
	ADDHYD			5	6	7				1-1	1090
	SAVMOV			7	Ī	1					1100
	RUNOFF	. 7	30			6	0.37	49.	3.90	1	1110
	RESVOR		30	6			21.0				1120
	REACH		040	7			1300.	0.88	1.10	1	1130
	RUNOFF			i			0.06	40.	1.00	i	1140
	ADDHYD			5	4	7		101	1.00	i	1150
	SAVMOV			7	٠	6					1160
	RESVOR			6		-5	9.0			1	1170
	REACH		050	7			1700.	1.6	1.45	1	1180
-	RUNOFF	37		1			0.11	40.	1.67		
	ADDHYD			5	6	7	V.11	40.	1.0/	1	1190 1200
	SAVMOV			7	•	5				1	
				1		_	A 74	0E	Δ 42		1210
	RUNOFF			-	,		0.36	85.	0.42	1	1220
1777C)	ADDHYD				6		1400	A 11		1	1230
	REACH		060	1			1400.	0.44	1.94	1	1240
	RUNOFF			-			0.05	45.	0.90	1	1250
	ADDHYD				4	7				1 1	1260
	SAVMOV			7		5					1270
	SAVMOV			1		6					1280
	ADDHYD					7				11	1290
	REACH			7					1.94	1	1300
	RUNOFF						0.02	64.	0.12	1	1310
	ADDHYD				6					1	1320
	SAVMOV			7		5					1330
	RUNOFF						0.24	73.	0.62	1	1340
	ADDHYD					7				1	1350
	REACH			7		5	500.	0.30	1.94	1	1360
	SAVMOV			5		7					1370
6	REACH	3	120	7		5	500.	0.30	1.94	1	1380

1	1	******	**	*****	**	*	18	0-80 LIST OF	INPUT DATA	(CONTINUED)) ************	*****
)	6	RUNOFF	1	120			5	0.19	56.	0.74	1	1390
de la company	6	ADDHYD	4	120	5	4	7				1 1	1400
	4	SAVMOV	5	50	7		6					1410
	6	RESVOR	2	50	4		7	2.4			111	1420
	6	REACH	3	130	7		5	1000.	0.30	1.94	1	1430
	6	RUNDEF	1	130			6	0.05	74.	0.19	1	1440
	5	ADDHYD	4	130	5	6	7		100		1	1450
	6	SAVMOV	5	130	7		6					1460
	6	RESVOR	2	60	6		7	2.0			1 1 1	1470
	6	REACH	3	140	7		5	2500.	0.21	1.48	1	1480
	6	RUNOFF	1	140			4	0.20	55.	1.15	1	1490
	6	ADDHYD	4	140	5	6	7				1	1500
	6	SAVMOV	5	150	7		5					1510
	6	RUNOFF	1	149			6	0.08	50.	0.42	1	1520
	6	ADDHYD	4	150	5	4	7					1530
	5	REACH	3	150	7		5	300.	0.21	1.48	1	1540
	6	RUNOFF	1	150				0.01	40.	0.15	1	1550
	6	ADDHYD	4	150	5	6	7				1	1560
	6	SAVMOV	5	180	7		5					1570
	6	RUNOFF	1	180			6	0.28	50.	0.61	1	1580
	6	ADDHYD	4	180	5	6					1	1590
	6	REACH	3	180	7		5	1700.0	0.21	1.48	1	1600
	6	RUNOFF	1	180				0.11	41.	0.48	1	1610
	6	ADDHYD	4	180	5	6	7				11 1 1	1620
		ENDATA										1630
	7	ALTER	3									1640
1	6	RUNOFF	1	010			6	0.20	44.0	0.19	1	1650
	6	RUNOFF	1	020			6	0.28	54.0	2.00	1	1660
	6	RUNOFF	1	090			6	0.24	75.0	0.62	1	1665
	6	RUNOFF	1	120			6	0.19	62.0	0.74	1	1668
	6	RUNOFF	1	140			6	0.20	70.0	0.19	1	1670
	6	RUNOFF	1	149			6	0.08	65.0	0.42	1	1680
	6	RUNOFF	1	180			6	0.11	42.0	0.48	1	1690
	7	LIST										1700
	7	BASFLO	5					3.0				1710
	7	INCREM	6					0.1				1720
	7	COMPUT	7	10	18	0		0.0	7.0	1.0	2 2 91 01	1730
		ENDCMP	1									1740
		ENDJOB	2									1750

TR20 XEQ 04-29-86 08:55	COGDELL'S CREEK WATERSHED STUDY NV	5010 24 HR 10YR TYPE 2 STORM	20	JOB 1	PASS 1
REV PC 09/83(.2)	ALT 91	30			PAGE 1
OCHANGES TO STANDARD CONTROL	LIST FOLLOW				
EXECUTIVE CONTROL OPERATION	ALTER			RECORD ID	1640
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 10			RECORD ID	1650
OUTPUT HYDROGRAPH	l = 6	DATA FIELD VALUES =	.2000	44.0000	.1900
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 20			RECORD ID	1660
OUTPUT HYDROGRAPH	I = 6	DATA FIELD VALUES =	.2800	54.0000	2.0000
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 90			RECORD ID	1665
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.2400	75.0000	.6200
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 120			RECORD ID	1668
DUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.1900	62.0000	.7400
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 140			RECORD ID	1670
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.2000	70.0000	.1900
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATIO	N RUNOFF CROSS SECTION 149			RECORD ID	1680
DUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.0800	45.0000	.4200
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION	N RUNOFF CROSS SECTION 180			RECORD ID	1690
OUTPUT HYDROGRAPH	= 6	DATA FIELD VALUES =	.1100	42.0000	.4800
OUTPUT OPTIONS IN	EFFECT PEAK VOL SUM				

EXECUTIVE CONTROL OPERATION LIST

RECORD ID 1700

LISTING OF CURRENT DATA

3	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
8			7.00	.00	4.33
8			7.40	2.50	5.01
8			7.60	5.00	5.36
8			7.80	10.00	5.70
8			8.20	22.00	6.38
9			8.60	52.00	7.07
8			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	340.00	14.79
9			14.00	440.00	16.68
9			15.00	500.00	18.58
9			15.10	600.00	18.60
9	ENDTBL				
3	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
8			4.50	.00	6.80
8			4.90	1.50	7.88
9			5.10	3.70	8.42
9			5.50	11.00	9.51
8			5.70	15.00	10.13
8			6.10	25.00	11.13
8			6.50	40.00	12.21
9			7.10	60.00	13.84
8			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	126.00	23.06
9			11.50	150.00	25.76
9			11.60	300.00	26.04
9	ENDTBL				

TR20 XEQ 04-29-86 08:55 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

20

JOB 1 PASS

REV PC 09/83(.2)

ALT 91

30

PAGE 3

3 STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
A SECTION				
8		21.00	.00	.10
8		21.40	.60	.61
8		21.60	1.50	.86
8		21.80	2.50	1.12
9		22.20	5.20	1.62
8		22.60	8.20	2.13
8		23.00	11.00	2.64
8		23.50	20.00	3.27
9		24.00	27.00	3.91
8		25.00	39.00	5.18
8		26.00	49.00	6.45
8		27.00	57.00	7.72
8		27.10	200.00	7.74
9 ENDTBL				
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3 STRUCT	40			
8		9.00	.00	.38
9		9.40	2.20	.47
8		9.60	5.00	.52
8		10.00	14.00	.62
8		10.20	21.00	.67
8		10.40	36.00	.77
8		11.00	55.00	.86
8		11.60	82.00	1.01
8		12.40	120.00	1.21
8		13.00	121.00	1.35
8		14.00	122.00	1.60
8		15.00	126.00	1.84
8		16.00	150.00	2.08
8		16.10	300.00	2.11
9 ENDTBL		10.10	300.00	2.11
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
3 STRUCT	50	LLLYNIION	BISCHANGE	STOKAGE
		2.40		
8		2.40	.00	22.00
8		2.80	2.00	26.86
8		3.00	7.00	29.29
8		3.40	16.00	34.16
8		3.60	24.00	36.59
8		4.00	40.00	41.46
8		4.40	60.00	46.32
8		5.00	90.00	53.62

PASS

PAGE

TR20 XEQ	04-29-86 08:55	COGDE	LL'S CREEK WA	TERSHED STUDY	NV5010 24 HR 10	YR TYPE 2 STORM	20	J09 1
REV	PC 09/83(.2)	ALT	91			30		
8		5.80	120.00	63.35				
8		6.40	121.00	70.65				
8		7.40	210.00	82.81				
8		8.40	250.00	94.98				
8		10.40	334.00	119.31				
8		12.40	400.00	143.63				
8		12.50	800.00					
9 ENDTBL		12.30	500.00	143.70				
7 ENDIDL								
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE				
3 STRUCT	60	ELEVATION	שואהשבוע	STURAGE				
3 31NUL1	av							
8		2.00	.00	22.20				
9		2.40	3.00	27.41				
8								
		2.60	10.50	30.02				
8		3.00	22.50	35.24				
8		3.20	36.00	37.85				
8		3.60	40.00	43.06				
8		4.00	90.00	48.28				
8 -		4.60	135.00	56.11				
8		5.40	180.00	66.55				
8		6.00	181.00	74.38				
8		7.00	315.00	87.42				
8		8.00	375.00	100.47				
8		8.10	700.00	100.50				
9 ENDTBL								
	TIME	INCREMENT						
4 DIMHYD		.0200						
18 NO 1								
8	.0000	.0300	.1000	.1900	.3100			
8	.4700	.6600	.8200	.9300	.9900			
8	1.0000	.9900	.9300	.8600	.7800			
8	.6800	.5400	.4500	.3900	.3300			
8	.2800	.2410	.2070	.1740	.1470			
8	.1260	.1070	.0910	.0770	.0460			
8	.0550	.0470	.0400	.0340	.0290			
8	.0250	.0210	.0180	.0150	.0130			
8	.0110	.0090	.0080	.0070	.0060			
8	.0050	.0040	.0030	.0020	.0010			
8	.0000	.0000	.0000	.0000	.0000			
9 ENDTBL								

COMPUTED PEAK RATE FACTOR = 484.00

TR20 XEQ 04-29-86 08:55

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS

REV PC 09/83(.2)

ALT 91

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PAGE !

	TABLE NO.	TIME	INCREMENT			
	RAINFL 1		.5000			
9		.0000	.0080	.0170	.0260	.0350
9		.0450	.0550	.0650	.0760	.0870
8		.0990	.1120	.1260	.1400	.1560
8		.1740	.1940	.2190	.2540	.3030
9		.5150	.5830	.6240	.6550	.6820
8		.7060	.7280	.7480	.7660	.7830
9		.7990	.8150	.8300	.8440	.8570
8		.8700	.8820	.8930	.9050	.9160
8		.9260	.9360	.9460	.9560	.9650
8		.9740	.9830	.9920	1.0000	1.0000
	ENDTBL	177 TV	.7030	.7720	1.0000	1.0000
	TABLE NO.	TIME	INCREMENT			
5	RAINFL 2		. 2500			
		0000	0000	2050		
3		.0000	.0020	.0050	.0080	.0110
8 6		.0140	.0170	.0200	.0230	.0260
8		.0290	.0320	.0350	.0380	.0410
8		.0440	.0480	.0520	.0560	.0400
8		.0640	.0680	.0720	.0760	.0800
8		.0850	.0900	.0950	.1000	.1050
8		.1100	.1150	.1200	.1260	.1330
8		.1400	.1470	.1550	.1630	.1720
8		.1810	.1910	.2030	.2180	. 2360
8		.2570	.2830	.3870	.6630	.7070
8		.7350	.7580	.7760	.7910	.8040
8		.8150	.8250	.8340	.8420	.8490
8		.8560	.8630	.8690	.8750	.8810
8		.8870	.8930	.8980	.9030	.9080
8		.9130	.9180	.9220	.9260	.9300
8		.9340	.9380	.9420	.9460	.9500
8		.9530	.9560	.9590	.9620	.9650
8		.9680	.9710	.9740	.9770	.9800
8		.9830	.9860	.9890	.9920	.9950
8		.9980	1.0000	1.0000	1.0000	1.0000
9	ENDTBL					
	TABLE NO.	TIME	INCOCHCUT			
	RAINFL 3	iint	INCREMENT			
7	NATALE 2		.5000			
9		.0000	.0100	.0220	.0360	.0510
8		.0670	.0830	.0990	.1160	.1350
			되면 그렇지!!			

1 PASS 1

PAGE 6

REV PC 09/1	B3(.2)	ALT 9	1				0	
	.1560	.1790	.2040	.2330	.2680			
	.3100	.4250	.4800	.5200	.5500			
	.5770	.6010	.6230	.6440	.6640			
	.6830	.7010	.7190	.7360	.7530			
	.7690	.7850	.8000	.8150	.8300			
	.8440	.8580	.8710	.8840	.8960			
	.9080	.9200	.9320	.9440	.9560			
	.9670	.9780	.9890	1.0000	1.0000			
ENDTBL								
TABLE NO.	TIME	INCREMENT						
RAINFL 4		.5000			1201	11-11	7757	
	.0000	.0040	.0080	.0120	.0160			
	.0200	.0250	.0300	.0350	.0400			
	.0450	.0500	.0550	.0600	.0650			
	.0700	.0750	.0810	.0870	.0930			
	.0990	.1050	.1110	.1180	.1250			
	.1320	.1400	.1480	.1560	.1650			
	.1740	.1840	.1950	.2070	.2200			
	.2360	.2550	.2770	.3030	.4090			
	.5150	.5490	.5830	.6050	.6240			
	.6400	.6550	. 5590	.6820	.6940			
	.7050	.7160	.7270	.7380	.7480			
	.7580	.7670	.7760	.7840	.7920			
	.8000	.8080	.8160	.8230	.8300			
	.8370	.8440	.8510	.8580	.8640			
	.8700	.8760	.8820	.8880	.8940			
	.9000	.9060	.9110	.9160	.9210			
	.9260	.9310	.9360	.9410	.9460			
	.9510	.9560	.9610	.9660	.9710			
	.9760	.9800	.9840	.9880	.9920			
	.9960	1.0000	1.0000	1.0000	1.0000			
ENDTBL			******	110000				
TABLE NO.	TIME	INCREMENT						
RAINFL 5		.5000						
	.0000	.0020	.0050	.0080	.0110			
	.0140	.0170	.0200	.0230	.0260			
	.0290	.0320	.0350	.0380	.0410			
	.0440	.0470	.0510	.0550	.0590			
	.0630	.0670	.0710	.0750	.0790			
	.0840	.0890	.0940	.0990	.1040			
	.1090	.1140	.1200	.1260	.1330			
	.1400	.1470	.1540	.1620	.1710			
	.1810	.1920	.2040	.2170	.2330			

JOB 1 PASS 1

REV PC 09/	83(-2)	ALT 91				30
NEV 16 077	031.27	ALI 71				30
	.2520	.2770	.3180	. 6380	.6980	
	.7290	.7520	.7700	.7850	.7980	
	.8090	.8190	.8290	.8380	.8460	
	.8540	.8610	.8680	.8740	.8800	
	.8860	.8920	.8970	.9020	.9070	
	.9120	.9170	.9210	.9250	.9290	
	.9330	.9370	.9410	.9450	.9490	
	.9530	.9570	.9600	.9630	.9660	
	.9590	.9720	.9750	.9780	.9810	
	.9840	.9870	.9900	.9930	.9960	
	.9980	1.0000	1.0000	1.0000	1.0000	
ENDTBL						
TABLE NO.	TIME	INCREMENT				
RAINFL 6		.0200				
	.0000	.0080	.0162	.0246	.0333	
	.0425	.0524	.0430	.0743	.0863	
	.0990	.1124	.1265	.1420	.1595	
	.1900	.2050	.2550	.3450	.4370	
	.5300	.6030	.6330	.6400	.6840	
	.7050	.7240	.7420	.7590	.7750	
	.7900	.8043	.8180	.8312	.8439	
	.8561	.8578	.8790	.8898	.9002	
	.9103	.9201	.9297	.9391	.9483	
	.9573	.9661	.9747	.9832	.9916	
	1.0000	1.0000	1.0000	1.0000	1.0000	

٥

STANDARD CONTROL INSTRUCTIONS

5	RUNOFF	1	10			6	.8400	51.0000	7.50001	0	0	1	0	1
5	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1
6	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1
6	RUNOFF	1	10			6	.2000	44.0000	.19001	0	0	1	0	1
6	ADDHYD	4	10	5	6	7			1	1	0	1	0	1
6	SAVMOV	5	10	7		6								
6	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1
6	REACH	3	20	7		5	2900.0000	.2800	1.94001	0	0	1	0	1
6	RUNDEF	1	20			6	.2800	54.0000	2.00001	0	0	1	0	1
6	ADDHYD	4	20	5	6	7			1	1	0	1	0	1
6	SAVMOV	5	20	7		1								
6	RUNOFF	1	30			6	.3700	49.0000	3.90001	0	0	1	0	1
6	RESVOR	2	30	6		7	21.0000		1	0	0	1	0	1
6	REACH	3	40	7		5	1300.0000	.8800	1.10001	0	0	1	0	1
4	RUNOFF	1	40			6	.0600	40.0000	1.00001	0	0	1	0	1
6	ADDHYD	4	40	5	6	7			1	0	0	1	0	1
6	SAVMOV	5	40	7		6								
6	RESVOR	2	40	6		7	9.0000		1	0	0	1	0	1
4	REACH	3	50	7		5	1700.0000	1.6000	1.45001	0	0	1	0	1
6	RUNOFF	1	49			6	.1100	40.0000	1.67001					
6	ADDHYD	4	50	5	6	7							0	
6	SAVMOV	5	50	7		5								
6	RUNOFF	1	50			5	.3600	85.0000	.42001	0	0	1	0	1
5	ADDHYD	Ą	50	5	6	7			1	0	0	1	0	1
6	REACH	3	60	7		5	1400.0000	.4400	1.94001					1
5	RUNOFF	1	60			6	.0500	45.0000	.90001					
6	ADDHYD	4	60	5	6	7							0	
6	SAVMOV	5	70	7		5								
6	SAVMOV	5	70	1		6								
6	ADDHYD	4	70	5	6	7			1	1	0	1	0	1
6	REACH	3	80	7		5	700.0000	.3000	1.94001	0	0	1	0	1
5	RUNOFF	1	80			6	.0200	64.0000	.12001	0	0	1	0	1
6	ADDHYD	4	80	5	6	7			1	0	0	1	0	1
6	SAVMOV	5	100	7		5								
6	RUNDEF	1	90			6	.2400	75.0000	.62001	0	0	1	0	1
6	ADDHYD	4	100	5	6	7			1	0	0	1	0	1
6	REACH	3	110	7		5	500.0000	.3000	1.94001	0	0	1	0	1
5	SAVMOV	5	120	5		7								
6	REACH	3	120	7		5	500.0000	.3000	1.94001	0	0	1	0	1
6	RUNOFF	1	120			6	.1900	62.0000	.74001	0	0	1	0	1
5	ADDHYD	4	120	5	5	7			1					
	SAVMOV		50											
	RESVOR					7	2.4000		1	1	1	1	0	1
	REACH			7		5	1000.0000	.3000	1.94001	0	0	1	0	1
5	RUNOFF	1	130			6	.0500	74.0000	.19001					

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JOB 1

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													T.			
6	ADDHYD	4	130	5	6	7				1	0	0	1	0	1	
6	SAVMOV	5	130	7		6										
6	RESVOR	2	60	6		7		2.0000		1	1	1	1	0	1	
6	REACH	3	140	7		5		2500.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	140			6		.2000	70.0000	.19001	0	0	1	0	1	
6	ADDHYD	4	140	5	6	7	•			1	0	0	1	0	1	
6	SAVMOV	5	150	7		5										
6	RUNDFF	1	149			6		.0800	65.0000	. 42001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7				1	0	0	1	0	1	
6	REACH	3	150	7		5		300.0000	.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	150			6		.0100	40.0000	.15001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7				1	0	0	1	0	1	
6	SAVMOV	5	180	7		5										
6	RUNDFF	1	180			6		.1100	42.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	5	7				1	0	0	1	0	1	
6	REACH	3	180	7		5		1700.0000	.2100	1.48001	0	0	1	0	1	
4	RUNOFF	1	180			6		.1100	41.0000	.48001	0	0	1	0	1	
6	ADDHYD ENDATA	4	180	5	6	7				i	1	0	1	0	1	
	FILMHIN															

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

END OF LISTING

TR20 XEQ 04-29-86 08:55

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EXECUTIVE CONTROL OPERATION BASELO RECORD ID 1710

NEW BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION INCREM RECORD ID 1720

MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID 1730

FROM STRUCTURE 10

TO XSECTION 180 STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO. = 2 ANT. MOIST. COND= 2 STORM NO. = 1 MAIN TIME INCREMENT = .10 HOURS ALTERNATE NO. =91

OPERATION RUNOFF STRUCTURE 10 OUTPUT HYDROGRAPH= 6 AREA= .84 SQ MI INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT: . 1000 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 17.80 96.56 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 10

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7 SURFACE ELEVATION= 7.00

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 18.14 96.09 9.50

RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES. 884.09 CFS-HRS. 73.06 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1750.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS

*** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS, 18.88 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 18.47 98.84 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS, 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.07	150.75	(RUNOFF)
15.19	9.64	(RUNOFF)
16.46	8.67	(RUNOFF)
17.67	7.42	(RUNOFF)
19.56	6.17	(RUNOFF)
23.65	4.88	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.16 WATERSHED INCHES, 149.25 CFS-HRS, 12.33 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.07	153.76	(NULL)
18.48	104.86	(NULL)
FIRST HYDROGRA	PH POINT = .00 HOURS	TIME INCREMENT = .10 HOURS

1	IME (HRS)		FIRST HYDROGRA	PH POINT	= .00 HO	URS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	1.04 SQ.MI.
	11.00	DISCHE	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	7.21	53.07
	12.00	DISCHE	135.64	149.19	80.95	56.13	42.16	35.91	33.02	30.56	29.72	27.02
	13.00	DISCHG	25.58	24.44	22.95	22.58	21.54	21.15	20.62	19.89	20.05	20.05
	14.00	DISCHE	20.75	21.68	22.70	24.32	25.72	27.54	29.37	31.56	35.09	39.12
	15.00	DISCHG	43.24	47.29	51.18	54.82	57.52	59.78	61.92	63.90	65.78	67.63
	14.00	DISCHE	69.47	71.98	75.00	78.16	81.27	84.22	86.55	88.36	90.42	92.43
	17.00	DISCHE	94.31	96.02	97.59	99.01	100.31	101.48	102.52	103.43	104.09	103.97
	18.00	DISCHE	104.02	104.29	104.55	104.73	104.84	104.86	104.81	104.67	104.47	104.19
	19.00	DISCHE	103.84	103.42	102.93	102.36	101.72	101.00	100.20	99.32	98.25	96.45
	20.00	DISCHG	94.87	93.59	92.37	91.15	89.91	88.67	87.43	86.21	85.01	83.83
	21.00	DISCHG	82.67	81.54	80.43	79.34	78.27	77.22	76.20	75.19	74.21	73.24
	22.00	DISCHE	72.30	71.42	70.72	70.11	69.55	69.03	68.51	67.98	57.44	56.89
	23.00	DISCHE	66.33	65.76	65.17	64.57	63.96	63.34	62.72	62.09	61.34	59.73
	24.00	DISCHE	58.17	55.97	53.27	51.71	50.62	49.72	48.91	48.18	47.50	46.85
	25.00	DISCHG	46.24	45.66	45.10	44.55	44.02	43.50	42.98	42.48	41.98	41,49
	26.00	DISCHE	41.00	40.51	40.03	39.55	39.07	38.60	38.12	37.63	37.15	36.66
	27.00	DISCHS	36.16	35.66	35.15	34.64	34.13	33.61	33.09	32.57	32.04	31.51
	28.00	DISCHG	30.97	30.44	29.90	29.36	28.82	28.28	27.74	27.21	25.67	25.13
	29.00	DISCHE	25.68	25.30	24.94	24.59	24.24	23.89	23.52	23.14	22.75	22.35

RUNOFF VOLUME ABOVE BASEFLOW = 1.53 WATERSHED INCHES, 1027.62 CFS-HRS, 94.92 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 20

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 4.50

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PEAK TIME (HRS) 12.65

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

31.90 20.08 93.83

6.28 9.21

RUNOFF VOLUME ABOVE BASEFLOW = 1.48 WATERSHED INCHES, 990.65 CFS-HRS, 81.87 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .28, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 20 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.17 CFS, 25.51 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE(CFS)

PEAK ELEVATION (FEET)

12.82 20.23

31.79 93.80

(NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.47 WATERSHED INCHES, 987.44 CFS-HRS, 81.60 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 20

OUTPUT HYDROGRAPH= 6

AREA= .28 SQ MI INPUT RUNOFF CURVE= 54. TIME OF CONCENTRATION= 2.00 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1026 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

132.15

PEAK ELEVATION (FEET)

13.36

102.66

(RUNOFF)

(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 366.74 CFS-HRS, 30.31 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 20

13.31

PEAK TIME(HRS)

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

	20.	11		106.29			(NULL)	(NULL)					
TIME (HRS)		FIRST HYDROGRA	PH POINT	= .00 HC	IURS	TIME INCREME	NT = .10	HOURS	DRAINAGE	AREA =	1.32 SQ.MI.		
11.00	DISCHS	3.00	3.00	3.00	3.01	3.02	3.06	3.18	3.47	4.17	5.78		
12.00	DISCHE	9.45	17.69	29.98	44.84	59.25	72.98	86.02	98.12	108.61	117.14		
13.00	DISCHG	123.73	128.34	131.09	132.14	131.53	129.60	126.63	122.67	117.70	111.97		
14.00	DISCHG	106.02	100.46	95.56	91.20	87.22	83.67	80.54	77.77	75.29	73.28		
15.00	DISCHS	71.78	70.81	70.32	70.22	70.47	70.99	71.70	72.40	73.11	73.90		
16.00	DISCHG	74.80	75.76	76.81	78.00	79.36	80.88	82.38	83.57	84.72	85.90		
17.00	DISCHE	87.14	88.42	89.73	91.05	92.39	93.73	95.06	95.63	95.66	95.54		
18.00	DISCHE	95.38	95.22	95.06	94.90	94.74	95.60	96.75	97.91	99.01	100.03		

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

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19.00	DISCHE	100.97	101.82	102.60	103.31	103.94	104.50	104.99	105.42	105.77	106.05
20.00	DISCHE	106.23	106.29	106.25	106.12	105.90	105.59	105.20	104.74	104.21	103.61
21.00	DISCHE	102.97	102.29	101.57	100.82	100.05	99.26	98.45	97.64	96.82	95.99
22.00	DISCHG	95.17	94.34	93.51	92.69	91.87	91.07	90.29	89.53	88.78	88.48
23.00	DISCHE	88.34	88.25	88.16	88.09	88.01	87.93	87.85	87.77	87.68	87.59
24.00	DISCHE	87.49	87.36	86.62	85.25	83.64	81.94	80.19	78.40	76.60	74.78
25.00	DISCHG	72.98	71.20	69.44	67.74	66.08	54.38	52.48	50.62	58.85	57.20
26.00	DISCHS	55.67	54.24	52.92	51.68	50.52	49.43	48.40	47.43	46.50	45.62
27.00	DISCHE	44.78	43.98	43.21	42.46	41.74	41.04	40.34	39.62	38.90	38.21
28.00	DISCHG	37.53	36.87	36.22	35.58	34.96	34.34	33.73	33.13	32.54	31.95
29.00	DISCHG	31.37	30.80	30.24	29.70	29.17	28.67	28.18	27.71	27.25	26.80

RUNOFF VOLUME ABOVE BASEFLOW = 1.59 WATERSHED INCHES, 1354.18 CFS-HRS, 111.91 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 1

OPERATION RUNOFF STRUCTURE 30

OUTPUT HYDROGRAPH= 6

AREA= .37 SQ MI INPUT RUNOFF CURVE= 49. TIME OF CONCENTRATION= 3.90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME(HRS) 14.95

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

60.58

(RUNGEF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 375.61 CFS-HRS, 31.04 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 21.00

PEAK TIME (HRS)

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

16.21

48.05

25.91

RUNOFF VOLUME ABOVE BASEFLOW = 1.51 WATERSHED INCHES, 360.28 CFS-HRS, 29.77 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .88, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .32 PEAK TRAVEL TIME = .30 HOURS

PEAK TIME (HRS)

PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

16.55

47.70

(NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES, 358.97 CFS-HRS, 29.67 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 40

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OUTPUT HYDROGRAPH= 6

AREA = .06 SQ MI INPUT RUNOFF CURVE = 40. TIME OF CONCENTRATION = 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.72
 10.21
 (RUNOFF)

 23.76
 1.21
 (RUNOFF)

and the second s

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.73 10.35 (NULL) 16.54 49.80 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 391.54 CFS-HRS, 32.36 ACRE-FEET; BASEFLOW = .00 CFS

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 32.57 CFS-HRS, 2.69 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 40

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.90 9.83 9.81 16.60 49.78 10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF.(C) GREATER THAN 0.667. CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
13.02 9.78 (NULL)

16.72 49.77 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.40 WATERSHED INCHES, 389.36 CFS-HRS, 32.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS

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INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME (HRS) 13.33

PEAK DISCHARGE (CFS) 13.76

PEAK ELEVATION (FEET) (RUNGEF)

23.80

2.20

(RUNOFF)

FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES.

59.78 CFS-HRS.

4.94 ACRE-FEET; BASEFLOW =

.00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME (HRS) 13.16

16.65

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

22.91

53.98

(NULL) (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES,

449.14 CFS-HRS, 37.12 ACRE-FEET: BASEFLOW = .00 CFS

INPUT HYDROGRAPH= 7

OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50

OPERATION SAVMOV CROSS SECTION 50

OUTPUT HYDROSRAPH= 6

.36 SQ MI INPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION=

INTERNAL HYDROGRAPH TIME INCREMENT= .0540 HOURS

PEAK TIME (HRS) 12.13

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

19.65

1078.73 24.75 (RUNOFF)

23.65

18.64

(RUNOFF) (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, 100.83 ACRE-FEET;

BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS = 5.6 **CUTPUT HYDROGRAPH= 7**

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.13

1079.95

(NULL)

16.49

90.76

RUMOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES. 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW =

(NULL)

OPERATION REACH CROSS SECTION 60

INPUT HYDROGRAPH= 7 LENGTH = 1400.00 FEET

OUTPUT HYDROGRAPH= 5

INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA. X= .44. M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00

PEAK TRAVEL TIME = .00 HOURS

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*** WARNING REACH 40 ATT-KIN COEFF.(C) GREATER THAN 0.667. CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.13

1079.95

(NIII L)

16.49

90.75

(NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 60

OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 45. TIME OF CONCENTRATION= .90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.56 23.72

16.56 1.26

(RUNOFF) (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.98 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 60

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

12.14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 1086.21

(NULL) 16.49 93.02 (NULL)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .95 SQ.MI. DISCHS .00 .00 .00 .02 .10 .26 .49 .75 1.04 1.33 4.00 5.00 DISCHG 1.62 1.91 2.20 2.49 2.77 3.04 3.32 3.58 3.84 6.00 DISCHG 4.36 4.67 5.18 5.80 6.40 6.89 7.32 7.71 8.07 5.00 4.10 7.00 DISCHG 8.75 9.07 9.38 9.69 9.99 10.29 10.58 10.86 11.14 11.41 8.00 DISCHG 11.68 12.08 12.82 13.80 14.96 16.27 17.48 18.44 19.17 19.76 9.00 DISCHG 20.27 20.91 21.91 23.16 24.29 25.16 26.02 27.23 28.66 29.92 10.00 DISCHG 30.90 31.86 33.18 34.84 37.10 40.08 43.57 47.95 52.84 58.21 11.00 DISCHG 64.10 70.07 76.45 83.02 90.75 101.27 130.10 208.30 333.15 539.50 DISCHS 836.25 1068.68 1030.91 805.58 576.69 421.03 324.82 265.51 227.09 199.69 12.00 DISCHG 178.52 161.72 147.53 136.12 127.20 119.75 113.25 107.02 101.45 96.86 13.00 88.31 86.99 14.00 DISCHG 15.00 85.26 87.42 88.95 90.29 90.92 90.62 90.19 90.11 90.41 90.86 16.00 DISCHS 91.35 91.83 92.25 92.60 92.86 93.02 92.76 91.64 89.95 88.43 DISCHG 87.35 86.55 85.87 85.24 84.63 84.03 83.43 82.82 82.11 80.76 17.00 78.62 76.40 74.60 73.30 72.20 71.21 70.27 69.38 68.51 67.67 66.86 66.07 65.33 64.68 63.99 63.30 62.62 61.96 61.19 59.95 DISCHE 18.00 44.86 19.00 DISCHE 57.76 DISCHE 52.62 20.00 55.58 53.88 49,94 49,23 51.60 50.72 48.56 47.93 21.00 DISCHG 47.34 46.79 46.26 45.76 45.28 44.83 44.40 43.97 43.53 43.10 22.00 DISCHG 42.70 42.29 41.89 41.51 41.15 40.80 40.46 40.14 39.84 39.55 39.27 39.01 38.75 38.51 23.00 DISCHE 38.28 38.06 37.85 37.45 37.37

PASS

TR20 XEQ 04-29-86 08:55 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1

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PEAK ELEVATION (FEET)

24.00 DISCHG 34.72 32.26 28.67 24.55 21.18 18.97 17.56 16.54 15.77 15.13 25.00 12.20 DISCHS 14.59 14.12 13.71 13.34 13.02 12.72 12.45 11.96 11.76 25.00 DISCHG 11.57 11.41 11.25 11.11 10.97 10.84 10.71 10.57 10.42 10.28 27.00 9.97 DISCHE 10.13 9.81 9.64 9.47 9.29 9.11 8.93 8.74 8.54 28.00 8.34 DISCHE 8.13 7.93 7.29 7.72 7.51 7.08 6.87 6.67 29.00 DISCHG 6.26 6.06 4.87 5.87 5.68 5.49 5.32 5.14 4.99 4.74

RUNOFF VOLUME ABOVE BASEFLOW = 2.79 WATERSHED INCHES, 1709.15 CFS-HRS, 141.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 6

OPERATION ADDHYD CROSS SECTION 70

PEAK TIME (HRS)

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

12.14 1108.12 (NULL) 17.64 178.57 (NULL) 19.30 167.99 (NULL) FIRST HYDROGRAPH POINT = .00 HOURS TIME (HRS) DRAINAGE AREA = TIME INCREMENT = .10 HOURS 4.00 DISCHE 3.02 3.10 3.00 3.00 3.00 3.26 3.49 3.75 4.04 5.00 DISCHG 4.62 4.91 5.20 5.49 5.77 6.04 6.32 6.58 6.84 5.00 DISCHE 7.35 7.67 8.18 8.80 9.40 9.89 10.32 10.71 11.07

PEAK DISCHARGE (CFS)

2.27 SQ.MI.

4.33

PASS 1

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KEY	PC 09/83(.2)	Al	T 91					30			
26.00	DISCHS			64.17	62.79	61.49	60.27	59.11	57.99	56.93	55.9
27.00	DISCHG DISCHG	54.91	53.95	53.02 44.14 36.10	52.10	51.21	50.33	49.45	48.54	47.64	46.7
28.00	DISCH6	45.87	45.00	44.14	43.30	42.46	41.63	40.81	40.00	39.20	38.4
29.00	DISCHG	37.63	36.86	36.10	35.37	34.67	33.99	33.33	32.70	32.12	31.5
RUNOFF	VOLUME ABOVE	BASEFLOW =	2.09 WAT	FERSHED INCHE	S, 3063.	33 CFS-HRS	, 253.	15 ACRE-FE	ET; BASI	EFLOW =	3.00 CF
ERATION	REACH CRO	SS SECTION	80								
				HYDROGRAPH= !							
	LENGTH =	700.00 FEE	T IN	IPUT = COEFFI	CIENTS REL	ATED TO CR	OSS SECT	TIONAL AREA	, X= .:	30, M=	1.94
	MODIFIED AT	I-KIN ROUTI	NG COEFFI	CIENT = 1.00	PEAK	TRAVEL TI	ME =	.00 HOURS			
111	WARNING REA	CH BO ATT-	KIN COEFF	.(C) GREATER	THAN 0.46	7. CONSIDE	R REDUCT	NS MAIN TI	F INCREME	NT tit	
									IL INONLIN	-111 ++++	
		RS)	PEA	AK DISCHARGE (CFS)			N (FEET)			
	12.14			1108.12			(NULL)				
	17.64			178.57			(NULL)				
	19.30			167.99			(NULL)				
	VOLUME ABOVE			ERSHED INCHES	i, 3063.	33 CFS-HRS	, 253.	15 ACRE-FE	ET; BASE	EFLOW =	3.00 CF
J.	RUNOFF CROS OUTPUT HYDRO AREA= .00	OGRAPH= 6		FF CURVE= 64.	TIME	OC CONCENT	DATION-	12 UNIS			
				ENT= .0160 H		OF CONCENT	MAITON-	.12 1000			
	PEAK TIME(H	RS)	PEA	K DISCHARGE((FS)	PEAK I	FI FVATIO	N (FFFT)			
	11.98			54.99			(RUNOFF)				
RUNOFF	VOLUME ABOVE I	BASEFLOW =	2.98 WAT	ERSHED INCHES	38.	49 CFS-HRS	, 3.	18 ACRE-FEI	ET; BASE	FLOW =	.00 CF
ERATION	ADDHYD CROS	SS SECTION	80								
				UT HYDROGRAPH	l= 7						
	PEAK TIME(H	RS)	PFΔ	K DISCHARGE((FS)	DEOK I	ELEVATIO	N(EEET)			
	12.13			1129.43			(NULL)				
				179.89			(NULL)				
	17.64						(NULL)				
	17.64 19.30			169.06							
IINOEE !		IACEEI AM -	2 10 NAT		7101			77 ACDE_EE	T. DACE	cion –	7 00 55

OPERATION RUNOFF CROSS SECTION 90

OUTPUT HYDROGRAPH= 6

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

AREA= .24 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .62 HOURS

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INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
459.49	(RUNOFF)
15.09	(RUNOFF)
11.44	(RUNOFF)
	15.09

RUNOFF VOLUME ABOVE BASEFLOW = 4.14 WATERSHED INCHES, 641.76 CFS-HRS, 53.03 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 100

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARSE (CFS)	PEAK ELEVATION (FEET)
12.16	1536.02	(NULL)
16.63	198.85	(NULL)
17.64	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES. 3743.57 CFS-HRS. 309.37 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 110 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET
12.16	1536.02	(NULL)
16.63	198.86	(NULL)
17.54	198.71	(NULL)
19.30	184.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES. 3743.57 CFS-HRS. 309.37 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30. H= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF.(C) GREATER THAN 0.667. CONSIDER REDUCING MAIN TIME INCREMENT ***

TR20 XEQ 04-29-86 08:55 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.16
 1536.02
 (NULL)

 16.63
 198.96
 (NULL)

 17.64
 198.71
 (NULL)

 19.30
 184.14
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 3743.57 CFS-HRS, 309.37 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

OUTPUT HYDROGRAPH= 5

AREA - .19 SQ MI INPUT RUNOFF CURVE - 62. TIME OF CONCENTRATION - .74 HOURS INTERNAL HYDROGRAPH TIME INCREMENT - .0987 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.36
 210.53
 (RUNOFF)

 19.67
 9.82
 (RUNOFF)

 23.66
 7.53
 (RUNOFF)

PEAK DISCHARGE (CFS)

205.97

1706.92

RUNOFF VOLUME ABOVE BASEFLOW = 2.80 WATERSHED INCHES, 343.12 CFS-HRS, 28.36 ACRE-FEET; BASEFLOW = .00 CFS

PEAK ELEVATION (FEET)

(NULL)

(NULL)

OPERATION ADDHYD CROSS SECTION 120

PEAK TIME (HRS)

12.18

15.35

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

	16.6			213.1			(NULL)					
	19.3			210.9			(NULL)					
TIME (HRS)		FIRST HYDROS	RAPH POINT	= .00 H	OURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.	,
4.00	DISCHG	3.00	3.00	3.00	3.02	3.10	3.25	3.49	3.75	4.04	4.33	
5.00	DISCHG	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.84	7.10	
6.00	DISCHG	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.42	
7.00	DISCHE	11.77	12.13	12.52	12.93	13.36	13.79	14.23	14.67	15.11	15.54	
8.00	DISCHE	15.98	16.55	17.48	18.71	20.15	21.78	23.35	24.68	25.76	26.68	
9.00	DISCHS	27.51	28.47	29.83	31.49		34.37	35.71	37.41	39.40	41.24	
10.00	DISCHE	42.79	44.36	46.33	48.77	52.04	56.22	61.31	67.58	74.73	82.80	
11.00	DISCHG	91.67	101.12	111.25	121.99	134.59	151.00	196.40	303.10	483.36	799.54	
12.00	DISCHE	1250.49	1624.90	1701.78	1522.28		1025.78	845.25	716.35	626.33	560.22	
13.00	DISCHE	510.65	470.41	436.89	408.75	384.73	363.87	344.56	326.09	308.32	291.66	
14.00	DISCHS	276.98	254.18	253.18	244.10	236.65	230.05	224.01	218.29	213.04	208.98	
15.00	DISCHG	206.49	205.32	205.29	205.88	205.89	205.20	204.41	203.92	203.95	204.45	
16.00	DISCHE	205.33	205.42	207.66	209.05	210.59	212.19	213.12	212.68	211.35	210.04	
17.00	DISCHE	209.25	208.91	208.94	209.24		210.26	210.87	210.75	209.91	207.97	
18.00	DISCHG	205.04	201.73	198.77	196.39	194.42	193.78	193.64	193.68	193.75	193.83	
19.00	DISCHG	193.88	193.91	193.92	193.96	193.90	193.77	193.58	193.35	192.84	191.35	

1820 KEE 07 27 00 00:00	COUNTER S CHEEK	MULTIVOLIER STORT	MY3010 24 MM 101K	TIFE 4 DIUNI	20	JUB 1	1 6681

REV PC 09/83(.2) ALT 91 30 PAGE 21

20.00	DISCHE	188.82	185.78	183.02	180.70	178.73	177.03	175.52	174.10	172.73	171.40
21.00	DISCHS	170.09	168.80	167.52	166.25	164.99	163.74	162.50	161.26	160.01	158.76
22.00	DISCHE	157.53	156.30	155.08	153.89	152.71	151.57	150.46	149.39	148.35	147.76
23.00	DISCHE	147.35	147.00	146.67	146.36	146.06	145.77	145.48	145.21	144.74	143.29
24.00	DISCHG	140.75	136.60	130.20	122.16	114.41	107.96	102.73	98.39	94.74	91.57
25.00	DISCHE	88.72	86.12	83.70	81.46	79.35	77.28	75.05	72.89	70.86	68.98
25.00	DISCHS	67.25	65.66	64.17	62.79	51.49	60.27	59.11	57.99	56.93	55.90
27.00	DISCHG	54.91	53.95	53.02	52.10	51.21	50.33	49.45	48.54	47.64	46.75
28.00	DISCHE	45.87	45.00	44.14	43.30	42.46	41.63	40.81	40.00	39.20	38.41
29.00	DISCHE	37.63	36.86	36.10	35.37	34.67	33.99	33.33	32.70	32.12	31.53

RUNOFF VOLUME ABOVE BASEFLOW = 2.33 WATERSHED INCHES, 4086.70 CFS-HRS, 337.72 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV STRUCTURE 50

INPUT HYDROSRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 50

PEAK TIME (HRS)

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS)

SURFACE ELEVATION= 2.40

	13.5	55		353.	43		10.99				
TIME (HRS)	FIRST HYDROSI	RAPH POINT	= .00 1	HOURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.
9.00	DISCHE	3.00	3.00	3.28	3.75	4.23	4.72	5.24	5.76	6.31	6.89
9.00	ELEV	2.84	2.84	2.85	2.87	2.89	2.91	2.93	2.95	2.97	3.00
10.00	DISCHE	7.43	7.98	8.55	9.14	9.76	10.44	11.17	11.98	12.87	13.87
10.00	ELEV	3.02	3.04	3.07	3.09	3.12	3.15	3.19	3.22	3.26	3.31
11.00	DISCHG	14.98	16.38	18.79	21.42	24.29	27.46	31.38	37.23	48.45	68.27
11.00	ELEV	3.35	3.41	3.47	3.54	3.61	3.69	3.78	3.93	4.17	4.57
12.00	DISCHE	97.70	120.51	186.33	237.40	269.24	293.83	311.90	325.09	334.65	340.39
12.00	ELEV	5.21	6.11	7.13	8.09	8.86	9.44	9.87	10.19	10.42	10.59
13.00	DISCHG	344.72	347.95	350.30	351.90	352.90	353.37	353.39	352.99	352.20	351.04
13.00	ELEV	10.72	10.92	10.89	10.94	10.97	10.99	10.99	10.98	10.95	10.92
14.00	DISCHG	349.56	347.81	345.83	343.68	341.38	338.99	336.50	333.93	330.60	327.24
14.00	ELEV	10.87	10.82	10.76	10.69	10.62	10.55	10.48	10.40	10.32	10.24
15.00	DISCHG	323.88	320.56	317.32	314.17	311.13	308.16	305.25	302.41	299.64	296.95
15.00	ELEV	10.16	10.08	10.00	9.93	9.86	9.78	9.72	9.65	9.58	9.52
16.00	DISCHS	294.36	291.87	289.49	287.20	285.03	282.95	280.98	279.06	277.18	275.31
15.00	ELEV	9.46	9.40	9.34	9.29	9.23	9.18	9.14	9.09	9.05	9.00
17.00	DISCHG	273.46	271.65	269.88	268.17	266.52	264.93	263.40	261.92	260.47	259.02
17.00	ELEV	8.95	8.92	8.87	8.83	8.79	8.76	8.72	8.68	8.65	8.61
18.00	DISCHE	257.54	254.02	254.45	252.85	251.23	249.64	248.15	246.69	245.27	243.89
18.00	ELEY	8.58	8.54	8.51	8.47	8.43	8.39	8.35	8.32	8.28	8.25
19.00	DISCHE	242.55	241.24	239.97	238.74	237.54	236.37	235.22	234.10	233.01	231.91
19.00	ELEV	8.21	8,18	8.15	8.12	8.09	8.06	8.03	8.00	7.98	7.95
20.00	DISCHG	230.79	229.62	229.41	227.16	225.89	224.61	223.31	222.01	220.71	219.40
20.00	ELEV	7.92	7.89	7.86	7.83	7.80	7.77	7.73	7.70	7.67	7.64

PEAK ELEVATION (FEET)

PASE 22

TR20 XEQ	04-29-85	08:55	COGDELL'S	CREEK WATE	RSHED STU	DY NV5010 2	4 HR 10YR	TYPE 2 STO	RM 20		JOB 1	
REV	PC 09/83(.)	2)	ALT 91					30				
21.00	DISCHS	218.10	216.80	215.49	214.19	212.89	211.59	210.29	207.79	205.02	202.34	
21.00	ELEV	7.60	7.57	7.54	7.50	7.47	7.44	7.41	7.38	7.34	7.31	
22.00	DISCHS	199.75	197.23	194.79	192.43	190.13	187.90	185.73	183.63	181.59	179.62	
22.00	ELEV	7.28	7.26	7.23	7.20	7.18	7.15	7.13		7.08		
23.00	DISCHG	177.74	175.95	174.24	172.61	171.06	169.58			165.55		
23.00	ELEV	7.04	7.02	7.00	6.98	6.96	6.95	6.93		6.90		
24.00	DISCHE	162.98	161.55	159.90	157.92	155.59		150.19		144.30	. 141.30	
24.00	ELEV	6.97	6.86	6.84	6.81	6.79	6.76	6.7/3	6.70	5.66	6.63	
25.00	DISCHE		135.31	132.35	129.43	126.55	123.72	The state of the state of	120.95	120.89		
25.00	ELEV	6.59	6.56	6.53	6.49	6.46	6.43	6.40	6.37	6.33	6.30	
26.00	DISCHG	120.77	120.71	120.65		120.52				120.24		
26.00	ELEV	6.25	6.23	6.19	6.15	6.11			5.99			
27.00	DISCHG	120.09	120.02	118.77	117.10	115.46	113.83*	112.22	110.63	109.06	107.50	
27.00	ELEV	5.86	5.81	5.77	5.72	5.68	5.64	5.59	5.55	5.51	5.47	
28.00	DISCHS	105.96	104.44	102.93	101.44	99.97	98.51	97.07	95.64	94.23	92.84	
28.00	ELEV	5,43	5.39	5.34	5.31	5.27	5,23	5.19	5, 15	5.11	5.08	
29.00	DISCHG	91.46	90.10	88.34	86.58	84.86	83.17	81.52	79.90	78.31	76.76	
29.00	ELEV	5.04	5.00	4.97	4.93	4,90	4.86	4.83	4.80	4.77	4.74	
ирекатти 0	LENGTH =	ROSS SECTIO ROGRAPH= 7 1000.00 F ATT-KIN ROU	OUTPUT EET I	MPUT = COE	FFICIENTS	RELATED TO EAK TRAVEL	CROSS SECTIME =	TIONAL AREA	A, X= .:	30, M = 1	.94	
) ###	WARNING - R	EACH 130 AT EACH 130 IN	T-KIN COEFI Flow Hydroi	F.(C) GREA GRAPH VOLU	TER THAN O	.667, CONS ED ABOVE B	IDER REDUC	73.70	IME INCREM 5 CFS, 21	ENT *** .05 % OF F	PEAK.	
	PEAK TIME 13.55	(HRS)	PE/	AK DISCHAR 353.43		PE	AK ELEVATII (NULL)	ON(FEET)				
RUNOFF	VOLUME ABOV	E BASEFLOW	= 2.14 WA	TERSHED IN	CHES, 37	64.10 CFS-I	HRS, 311.	.06 ACRE-FE	ET; BASI	EFLOW =	3.00 CFS	
OPERATION	AREA=	ROSS SECTIO DROGRAPH= .05 SD MI HYDROGRAPH	6 INPUT RUNG			ME OF CONCI	ENTRATION=	.19 HOUF	RS.			
	PEAK TIME	(HRS)	PE	AK DISCHAR	GE (CFS)	PE	AK ELEVATIO	N (FEET)				
	12.01			160.37			(RUNOFF)					
	23.65			2.37			(RUNOFF)					
RUNOFF	VOLUME ABOV	E BASEFLOW	= 4.05 WAT	TERSHED IN	CHES, 1	30.79 CFS-H	HRS, 10.	.81 ACRE-FE	ET; BASI	EFLOW =	.00 CFS	

OPERATION ADDHYD CROSS SECTION 130

INPUT HYDROGRAPHS= 5,6

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JOB 1 PASS 1

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PEAK TIME(HRS) 12.05 13.45

PEAK DISCHARGE (CFS) 265.73 363.29

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FFFT) (NULL) (NULL)

PEAK ELEVATION (FEET)

RUNOFF VOLUME ABOVE BASEFLOW = 2.18 WATERSHED INCHES. 3894.89 CFS-HRS. 321.87 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 60

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

PEAK TIME (HRS)

16.54 286.61 5.79 TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 2.77 SQ.MI. 11.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.14 5.20 8.45 11.00 ELEV 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.40 2.46 2.55 12.00 DISCHE 12.84 17.42 21.85 41.25 74.43 31.18 51.15 61.65 87.08 99.43 2.68 12.00 FI FV 2.98 2.83 3.13 3.29 3.45 3.62 3.79 3.96 4.13 13.00 DISCHG 111.37 122.89 133.95 142.20 149.94 157.40 164.60 171.51 178.14 180.14 13.00 ELEV 4.28 4.44 4.59 4.73 4.87 5.00 5.13 5.25 5.37 5.48 DISCHE 14.00 180.32 180.51 180.69 180.87 184.81 197.97 209.85 220.52 230.07 238.55 14.00 ELEV 5.59 5.71 5.81 5.92 6.03 6.13 5.22 6.29 6.37 6.43 15.00 DISCHG 245.08 252.71 258.54 263.63 268.04 271.82 275.03 277.75 280.02 281.88 5.49 15.00 ELEV 6.54 5.58 6.62 6.65 6.68 6.70 6.72 6.74 6.75 DISCHE 14.00 283.38 284.55 285.42 286.03 285.41 286.59 286.58 286.38 286.03 285.55 16.00 ELEV 6.76 6.77 6.78 6.78 6.79 6.79 6.79 5.79 6.78 6.78 17.00 DISCHE 284.95 284.26 293.47 282.51 279.66 281.68 280.69 278.59 277.48 276.33 17.00 ELEV 6.78 6.77 5.76 6.76 6.75 6.74 5.74 6.73 6.72 6.71 18.00 DISCHG 275.13 273.89 272.63 271.33 270.01 268.67 267.31 265.94 264.57 263.19 18.00 ELEV 6.70 6.69 6.68 6.64 6.67 6.66 6.65 6.61 6.63 6.62 DISCHE 19.00 261.82 260.45 259.08 257.73 256.39 255.06 253.74 249.85 252.44 251.15 19.00 ELEV 6.60 6.59 6.58 6.57 6.55 6.56 6.54 6.53 6.52 6.51 20.00 DISCHE 249.56 247.26 245.97 244.68 243.39 242.10 240.81 239.53 238.24 236.95 20.00 ELEY 6.50 6.49 6.48 5.48 5.47 6.46 6.45 6.44 6.43 6.42 21.00 DISCHE 235.45 234.36 233.07 231.77 230.48 229.19 227.89 226.55 225.10 223.54 ELEV 21.00 6.41 6.40 6.39 6.38 6.37 6.35 6.36 6.34 6.33 6.32 22.00 DISCHE 221.90 220,19 218.41 215.58 208.94 214.71 212.81 210.88 205.99 205.03 22.00 ELEV 6.31 5.29 6.28 6.27 6.25 6.24 6.22 6.21 6.19 6.18 23.00 DISCHG 203.07 201.13 199,20 197.29 195.41 191.74 189.96 193.56 188.21 186.49 23.00 ELEV 6.16 6.15 6.14 6.12 6.11 6.09 6.08 6.07 6.05 5.04 DISCHG 24.00 184.77 183.05 181.29 180.98 180.95 180.93 180.90 180.86 180.92 180.78 6.03 24.00 ELEV 5.02 6.00 5.99 5.97 5.96 5.94 5.92 5.89 5.87 25.00 DISCHE 190.74 180.70 180.65 180.59 180.54 180.48 180.42 180.36 180.29 180.23

5.76 5.72

5.69

5.65

5.61

5.84

5.82

5.79

25.00

ELEV

5.58

5.54

PASS 1

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TR20 XEQ	04-29-86 08):55 (COGDELL'S	CREEK WATER	SHED STUI)Y NV5010 2	4 HR 10YR	TYPE 2 STO	IRM 20	,	JOB
REV	PC 09/83(.2)	f	NLT 91					30			
L.											
26.00		180.17			179.31	177.25		173.34			
25.00		5.50					5.32		5.25		
	DISCHE	166.29						156.75			
								4.99	시크님이 아름게 하실하였다.		
28.00		150.41 4.87						140.96			
		134.67				4.76					
		4.60									
27.00	ELEY	7.00	7.0/	4.34	4.31	4.47	4.40	4.44	4.41	4.38	4.30
RUNOFF	VOLUME ABOVE	BASEFLOW =	1.98 WA	TERSHED INC	HES, 35	148.28 CFS-	HRS, 293	.23 ACRE-F	EET; BAS	EFLOW =	3.00 CFS
	REACH CR INPUT HYDR LENGTH = MODIFIED A WARNING - RE	OGRAPH= 7 2500.00 FE TT-KIN ROUT	OUTPUT ET I ING COEFF	NPUT = CDEF ICIENT = .	FICIENTS 38 P	EAK TRAVEL	TIME =	.30 HOURS			
	PEAK TIME(
	16.83		7.5	286.13			(NULL)	UNIFEEI			
		OSS SECTION ROGRAPH= 6	140							EFLOW =	3.00 CFS
		20 SQ MI YDROGRAPH T				ME OF CONC	ENTRATION=	.19 HOU	RS		
	PEAK TIME(HRS)	PE	AK DISCHARG	E(CFS)	PE	AK ELEVATI	ON (FEET)			
	12.02			576.56							
	15.16			20.07			(RUNOFF				
	16.45			17.49			(RUNOFF)			
	17.65			14.64			(RUNOFF)			
	19.65			11.84			(RUNOFF)			
	23.65			9.02			(RUNOFF)			photos con
RUNOFF	VOLUME ABOVE	BASEFLOW =	3.63 WA	TERSHED INC	HES, 4	68.30 CFS-H	HRS, 38	.70 ACRE-F	EET; BAS	EFLOW =	.00 CFS
ERATION	ADDHYD CR INPUT HYDR	OSS SECTION OGRAPHS= 5,		PUT HYDROGR	APH= 7						
	PEAK TIME	HRS)	PE	AK DISCHARS	E(CFS)	PE	AK ELEVATI	ON (FEET)			
	12.02			582.56			(NULL)				
	1/ 57			700 47							

RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 3985.21 CFS-HRS, 329.34 ACRE-FEET; BASEFLOW = 3.00 CFS

TR20 XEQ 04-29-86 08:55 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

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OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= 6

.08 SQ MI INPUT RUNOFF CURVE= 45. TIME OF CONCENTRATION= .42 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.15	142.32	(RUNOFF)
16.45	6.39	(RUNOFF)
17.57	5.39	(RUNOFF)
19.66	4.37	(RUNDFF)
23.66	3.34	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.10 WATERSHED INCHES, 160.17 CFS-HRS, 13.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE (CFS) PEAK TIME (HRS) PEAK ELEVATION (FEET) 12.03 692.53 (NULL) 16.53 308.81 (NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.11 WATERSHED INCHES, 4145.37 CFS-HRS, 342.57 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA. X= .21. M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 150 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** HARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 119.01 CFS, 17.43 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.03 692.53 (MULL) 16.53 308.81 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.11 WATERSHED INCHES, 4145.37 CFS-HRS, 342.57 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA = .01 SQ MI INPUT RUNOFF CURVE = 40. TIME OF CONCENTRATION = .15 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0200 HOURS

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*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 8 %.

XSECTION 150

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) PEAK TIME (HRS) 12.05 4.99 (RUNOFF) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS TIME (HRS) DRAINAGE AREA = .01 SQ.MI. .00 .00 11.00 DISCHE .00 .00 .00 .00 .00 .00 .00 1.05 DISCHE 12.00 4.60 4.46 2.17 1.71 1.28 1.17 1.09 1.02 1.00 .87 .84 .78 13.00 DISCHG .73 .71 .66 .56 .55 .52 . 64 . 60 .47 .43 .41 .34 .34 14.00 DISCHG .52 .50 .38 .48 .44 .38 .38 15.00 DISCHG .38 .39 .39 .35 .38 .34 .34 .34 .30 .34 .34 .35 .35 .35 .30 16.00 DISCHS . 32 .30 .30 DISCHS .30 .30 .30 .30 17.00 .30 .30 .30 .30 .26 .25 . 25 . 25 . 25 18.00 . 25 DISCHG . 25 . 25 .25 .25 .19 . 25 .25 .25 . 25 . 25 19.00 DISCHG . 25 . 25 . 25 . 21 .19 .19 .19 .19 .19 .20 .20 .20 .20 .20 .19 .19 .19 .19 .19 .19 20.00 DISCHE .19 .20 .20 .20 .19 .20 21.00 DISCHE .20 .20 .20 .20 22.00 DISCHE .20 .20 .20 .20 .20 .20 .20 .20 .20 .20 23.00 DISCHS .20 .20 .20 .20 .15 24.00 DISCHG .14 .08 .01 .00 RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES, 5.41 CFS-HRS,

.45 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.03 697.49 (NULL) 14.28 214.31 (NULL) 16.52 309.15 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.10 WATERSHED INCHES, 4150.79 CFS-HRS, 343.02 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 180

INPUT HYDROGRAPH= 7 CUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 42. TIME OF CONCENTRATION= .48 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.27 39.64 (RUNOFF) 23.58 2.45 (RUNOFF)

20 TR20 XEQ 04-29-84 08:55 COGDELL'S CREEK HATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM JOB 1 PASS 1

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RUNOFF VOLUME ABOVE BASEFLOW = .99 WATERSHED INCHES. 70.57 CFS-HRS, 5.83 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS= 5.6 **OUTPUT HYDROGRAPH= 7**

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.04 714.27 (NULL) 14.26 220.74 (NULL) 14.52 313.42 (NHILL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.06 WATERSHED INCHES, 4221.36 CFS-HRS, 348.85 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENSTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .63 PEAK TRAVEL TIME = .20 HOURS

*** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 119.01 CFS. 17.20 % OF PEAK.

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.18 633.45 (NULL)

16.67 312.99 (NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.05 WATERSHED INCHES. 4199.10 CFS-HRS. 347.01 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 5

.11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.28 34.74 (RUNOFF) 23.69 2.34 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES. 65.08 CFS-HRS, 5.38 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

INPUT HYDROGRAPHS = 5.6 **OUTPUT HYDROGRAPH= 7**

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.19 665.28 (NULL) 16.55 316.97 (NULL)

FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS TIME (HRS) DRAINAGE AREA = 3.29 SQ.MI. 8.00 DISCHE 3.00 3.00 3.00 3.01 3.07 3.21 3.40 3.61 3.83 4.04 9.00 DISCHS 4.26 4.47 4.73 5.07 5.38 5.67 5.96 6.35 5.86 7.34

TR20 XEQ 04-29-86 08:55 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT 91 PAGE 28 30 7.79 8.22 8.76 9.43 10.11 11.17 12.27 13.65 15.49 17.21 10.00 DISCHG 24.37 27.39 663.34 537.56 21.84 19.54 11.00 DISCHE 30.24 34.66 39.19 64.54 119.62 186.83 12.00 DISCHG 370.70 592.84 317.59 414.83 253.93 216.72 195.42 186.31 181.07 180.39 182.56 185.72 13.00 DISCHS 191.15 196.04 201.32 206.26 210.31 214.95 239.50 219.35 223.02 225.22 225.94 226.14 14.00 DISCHG 225.30 225.18 227.86 232.67 247.51 272.29 15.00 DISCHG 255.96 264.33 284.99 298.11 301.83 279.49 289.67 294.04 314.34 315.73 16.00 DISCHE 305.15 308.04 310.53 312.62 316.78 316.89 316.00 . 315.13 DISCHG 314.44 313.87 313.36 312.82 312.24 311.59 310.86 310.07 17.00 309.20 308.07 305.85 303.43 289.89 288.55 18.00 DISCHE 301.34 299.55 298.00 296.58 295.22 293.89 292.56 291.23 19.00 283.18 DISCHE 287.21 285.86 284.52 281.84 280.51 279.18 277.66 275.09 272.37 20.00 270.04 268.07 DISCHG 266.37 264.85 263.43 262.07 260.75 259.44 21.00 DISCHG 258.15 256.86 255.58 254.30 253.02 251.74 250.46 249.17 247.89 246.60 22.00 DISCHE 235.87 234.09 232.26 230.40
 228.51
 226.60
 224.68
 222.76
 220.83
 218.91
 217.00
 215.12
 213.24
 211.18

 208.07
 204.75
 200.43
 194.91
 190.18
 186.76
 184.52
 183.12
 182.25
 181.71

 181.37
 181.14
 180.99
 180.88
 180.80
 180.73
 180.67
 180.61
 180.55
 180.49
 23.00 DISCHE DISCHS 24.00 25.00 DISCHG 180.43 180.37 180.30 180.24 180.18 179.96 179.27 178.16 176.76 175.19 26.00 DISCHG 173.53 171.82 170.12 168.44 166.78 27.00 165.15 163.53 161.93 160.33 158.74 DISCHE 157.15 155.56 153.97 152.39 150.80 149.22 147.64 146.07 144.49 142.92 28.00 DISCHE 29.00 DISCHE 141.36 139.79 138.22 136.53 134.74 132.88 130.96 129.02 127.07 125.12 RUNOFF VOLUME ABOVE BASEFLOW = 2.01 WATERSHED INCHES, 4264.19 CFS-HRS, 352.39 ACRE-FEET; BASEFLOW = 3.00 CFS EXECUTIVE CONTROL OPERATION ENDOMP RECORD ID 1740 COMPUTATIONS COMPLETED FOR PASS 1 EXECUTIVE CONTROL OPERATION ENDIOR RECORD ID 1750

TR20 XEQ 04-29-86 08:55 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 91 30

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JOB 1 SUMMARY PAGE 29

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE			STANDARD CONTROL			DRAINAGE	RAIN			F	RECIPITAT				PEAK D	ISCHARGE	
	ID		PERATION	AREA (SQ MI)	TABLE #	MOIST	TIME INCREM (HR)	BESIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)		
	ALTERNAT	ΙE	91 ST	ORM 1													
	STRUCTURE	0	RUNOFF	.84	2	2	.10	.0	7.00	24.00	1.57		17.80	96.56	114.9		
	STRUCTURE		RESVOR	.84	2	2	.10	.0	7.00	24.00	1.63	9.50	18.14	96.09	114.4		
	XSECTION 1	0	REACH	.84	2	2	.10	.0	7.00	24.00	1.62		18.47	98.84	117.7		
	XSECTION	0	RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.16		12.07	150.75	753.8		
	XSECTION	10	ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.53		12.07	153.76	147.8		
	STRUCTURE 2	20	RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.48	9.21	20.08	93.83	90.2		
	XSECTION 2	20	REACH	1.04	2	2	.10	.0	7.00	24.00	1.47		20.23	93.80	90.2		
	XSECTION 2	20	RUNOFF	.28	2	2	.10	.0	7.00	24.00	2.03		13.36	102.66	356.6		
	XSECTION 2	20	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.59		13.31	132.15	100.1		
	STRUCTURE 3	30	RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7		
	STRUCTURE 3	50	RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9		
	XSECTION 4	10	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9		
	XSECTION 4	10	RUNDFF	.05	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.2		
	XSECTION 4	10	ADDHYD	. 43	2	2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8		
	STRUCTURE 4	10	RESVOR	. 43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8		
	XSECTION 5	50	REACH	. 43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7		
	XSECTION 4	9	RUNDFF	.11	2	2	.10	.0	7.00	24.00	.94		13.33	13.76	125.1		
		10	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29		16.65	53.98	100.0		
		i0	RUNDFF	.36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5		
	XSECTION 5	0	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9		
		0	REACH	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9		
		0	RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2		
		0	ADDHYD	.95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4		
		10	ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.09		12.14	1108.12	488.2		
	XSECTION 8	10	REACH	2.27	2	2	.10	.0	7.00	24.00	2.09		12.14	1108.12	488.2		
	XSECTION S			.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.6		
	XSECTION 8		ADDHYD	2.29	2	2	. 10	.0	7.00	24.00	2.10		12.13	1129.43	493.2		
	XSECTION 9		RUNDFF	.24	2	2	.10	.0	7.00	24.00	4.14		12.26	458.49	1910.4		
	XSECTION 10		ADDHYD	2.53	2	2		.0	7.00	24.00	2.29		12.16	1536.02	607.1		
	XSECTION 11	0	REACH	2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1536.02	607.1		
	XSECTION 12			2.53	2	2	.10	.0	7.00	24.00	2.29		12.16	1536.02	607.1		
	XSECTION 12	0.	RUNOFF	.19	2	2	.10	.0	7.00	24.00	2.90		12.36	210.53	1108.1		

TR20 XEQ 04-29-85 08:55 REV PC 09/83(.2) COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 91 30

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JOB 1 SUMMARY PAGE 30

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD CONTROL	DRAINAGE	RAIN	ANTEC	MAIN	P	RECIPITAT	ION	RUNOFF		PEAK D	ISCHARGE	
ID	OPERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	AMOUNT	ELEVATION (FT)	TIME (HR)	. ,RATE (CFS)	RATE (CSM)
ALTERNATO	91 ST	ORM 1											
* XSECTION 120	ADDHYD	2.72	2	2	,10	.0	7.00	24.00	2.33		12.18	1706.92	627.5
STRUCTURE 50		2.72	2	2	.10	.0	7.00	24.00	2.14	10.99	13.55	353.43	129.9
XSECTION 130		2.72	2	2	.10 .	.0	7.00	24.00	2.14		13.55	353.43	129.9
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION 130	ADDHYD	2.77	2	2	.10	.0	7.00	24.00	2.18		13.45	363.29	131.2
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	1.98	6.79	16.54	286.61	103.5
XSECTION 140		2.77	2	2	.10	.0	7.00	24.00	1.97	<u></u>	16.83	286.13	103.3
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.43		12.02	576.56	2882.8
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.08		12.02	582.56	196.1
XSECTION 149	RUNOFF	.08	2 -	2	.10	.0	7.00	24.00	3.10		12.15	142.32	1779.0
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.11		12.03	692.53	227.1
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.11		12.03	692.53	227.1
XSECTION 150	RUNOFF	.01	2	2	.10	.0	7.00	24.00	.84		12.05	4.99	499.3
XSECTION 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	2.10	349 <u>-3-</u>	12.03	697.49	227.9
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.99		12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	2.06		12.04	714.27	225.3
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	2.05		12.18	633.45	199.8
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	2.01		12.19	665.28	202.8

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SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

_			١	HYDROGRA	APH INF	ORMATIO	N					ROUTIN	6 PAR	AMETERS				PE	EAK
						OUTF	LOW+		VOLUME	MAIN	ITER-	Q AND	A		PEAK	S/Q	ATT-	TRAVEL	. TIME
XSEC	REACH	INF	-DW	OUTF	LOW	INTER	V.AREA	BASE-	ABOVE	TIME	ATION	EQUAT	ION	LENGTH	RATIO	ЭРЕАК	KIN	STOR-	KINE-
+ 1D	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR		COEFF	POWER	FACTOR	0/I	(K)	COEFF	AGE	MATIC
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K‡)	(Q‡)	(SEC)	(C)	(HR)	(HR)
A	LTERNATE	91	STORM	1												· Y			
+ - + 10	1750	99	18.1	 99	18.5			3	1.63\$.10	1	1.20	1.10	.021	.997	888	.34	.40	. 25
+						149						.280							
+ 20	2900	94	20.1	94		132		3	1.48‡	.10	1		1.94	.000	1.000	319	.72?	.10	.09
+ 40	1300	48	16.2	48				0	1.51	.10	í	.880	1.10	.027	.992	934	.32	.30	. 26
+						50						1.60							
+ 50 +						54	16.6		1.41										
+ 60	1400	1064	12.1	1064	12.1			0	2.87	.10	0	.440	1.94	.000	1.000	38	1.00?	.00	.00
+						1069	12.1					700							
+ 80	700	1095	12.1	1086	12.1			3	2.09	.10	0				1.000	23	1.00?	.00	.00
+110	500	1520	12.2	1520	12.2	1115	12.1	3	2.29	.10	0	.300		.000	1.000	14	1.00?	.00	.00
÷												.300							
+120	500	1520	12.2	1520	12.2			. 3	2.29	.10	0		1.94	.000	1.000	14			
+			recyc	cled pap	ər	1702	12.2					700		ecol	ogy and	environ	ment B	-279	

+1	30	1000	353	13.6	353	13.6			3	2.14\$.10	0	1.94	.000	1.000	56 1.00?	.00	.00	
+							363	13.5									Dr	aft	
+1	40	2500	287	16.5	286	16.8			3	1.98\$.10	1	.210 1.48	.004	.998	774 .38	.30		
+							578	12.0											
+1	50	300	678	12.0	678	12.0			3	2.11#	.10	0	.210 1.48	.000	1.000	70 1.00?	.00	.00	
+							483	12.0											
+1	.80	1700	695	12.0	630	12.2			3	2.06\$.10	1	.210 1.48	.005	.907	395 .63	.20	.11	
100																			

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID			DRAINAGE AREA (SQ MI)	STORM NUMBERS
0 STRUCTURE				
ALTERNA	TF	91		286.61
O STRUCTURE	50		2.72	200.01
+	•••		21/2	
AI TERNA	TE	91		353.43
0 STRUCTURE	40		. 43	040740
+				
ALTERNA	TF	91		49.78
0 STRUCTURE				
+				
ALTERNA	TE	91		48.05
0 STRUCTURE				
+				
ALTERNA	TE	91		93.83
0 STRUCTURE	10		.84	
+				
ALTERNA	TE	91	A Managara	96.09
O XSECTION	10		1.04	
+				
ALTERNA	TE	91		153.76
0 XSECTION	20		1.32	
ALTERNA	TE	91		132.15
0 XSECTION	40		.43	
T				
ALTERNAT				49.80
O XSECTION	44		.11	
4				
ALTERNAT				13.76
0 XSECTION			.90	
+ALTERNAT		01		1079.95
O XSECTION	40	71	05	10/7.73
V AGECTION	30		.75	
ALTERNAT		91		1086.21
O XSECTION			2.27	1000.21
+			LIL	
ALTERNAT	F	91		1108.12
O XSECTION	_	237	2.29	1100.12
+	~~		-1	
ALTERNAT	E	91		1129.43
	-			AAAAA IV

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/		DRAINAGE	
	STRUCTURE		AREA	STORM NUMBERS
	ID		(SQ MI)	1
0	XSECTION 90		.24	
+				
	ALTERNATE	91		458.49
0	XSECTION 100		2.53	
+				
	ALTERNATE	91		1536.02
0	XSECTION 110			
+	ESECUTION 110		2.00	
1	ALTERNATE	01		1536.02
۸	XSECTION 120			1550.02
4	AGEGITAN 120		2.72	
Т.	ALTERNATE			1701 00
^				1706.92
	XSECTION 130		2.11	
+				
	ALTERNATE			363.29
0	XSECTION 140		2.97	
+				
	ALTERNATE	91		582.56
0	XSECTION 149		.08	
+				
	ALTERNATE	91		142.32
0	XSECTION 150		3.06	
+				
	ALTERNATE	91		697.49
	XSECTION 180			4//11/
+	AULUITUM 10V		0120	
	ALTERNATE	01		//E 20
	HLIENMHIE	71		665.28

FISCAL YEAR 92

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JOB TR-20 TITLE 007 TITLE	COGDELL'S			SS=001 SUMMARY NV5010 24 HR 10YR TYPE 2 STORM 30	10 20
3 STRUCT	10				40
8		7.00	0.00	4.33	50
8		7.4	2.5	5.01	60
9		7.6	5.0	5.36	70
8		7.8	10.0	5.70	80
8		8.2	22.0	6.38	
8		8.6	52.0	7.07	90
8		9.0			100
8			62.0	7.75	110
		9.5	96.0	8.61	120
8		10.0	126.0	9.47	130
8		11.0	198.0	11.18	140
8		12.0	280.0	12.89	150
8		13.00	360.0	14.79	160
8		14.00	440.0	16.68	170
8		15.00	500.0	19.58	180
8		15.1	500.00	18.60	190
9 ENDTBL					200
3 STRUCT	20				210
8		4.5	0.00	6.80	220
8		4.9	1.5	7.88	230
8		5.1	3.7	8.42	240
8		5.5	11.0	9.51	250
8 .		5.7	15.0	10.13	260
8		6.1	25.0	11.13	270
8		6.5	40.0	12.21	280
8		7.1	60.0	13.84	290
8		7.9	78.0	16.01	300
8		8.5	79.0	17.63	310
8		9.5	100.0	20.34	320
8		10.5	126.0	23.06	330
8		11.5	150.0	25.76	340
8		11.6	300.0	26.04	350
9 ENDTBL					360
3 STRUCT	30				370
8		21.0	0.00	0.10	380
8		21.4	0.6	0.61	390
8		21.6	1.5	0.86	400
8		21.8	2.5	1.12	410
8		22.2	5.2	1.62	
8		22.6	8.2		420
8		23.0		2.13	430
8			11.0	2.64	440
8		23.5	20.0	3.27	450
0		24.0	27.0	3.91	460

*********	********	\$80-80 LIST	OF INPUT DAT	A (CONTINUED) ****	
8		25.0	39.0	5.18	470
8		26.0	49.0	6.45	480
8		27.0	57.0	7,72	490
9		27.1	200.00	7.74	500
9 ENDTBL					510
3 STRUCT	40				520
8		9.0	0.0	0.38	530
9		9.4	2.2	0.47	540
8		9.6	5.0	0.52	550
8		10.0	14.0	0.62	560
8		10.2	21.0	0.67	570
8		10.6	36.0	0.77	580
8		11.0	55.0	0.86	590
8		11.6	82.0	1.01	600
8		12.4	120.0	1.21	610
8		13.0	121.0	1.35	620
8		14.0	122.0	1.60	630
8		15.0	126.0	1.84	640
9		16.0	150.00	2.08	650
9		16.1	300.0	2.11	660
9 ENDTBL		Carlos A			670
3 STRUCT	50				680
8		2.4	0.00	22.00	690
8		2.8	2.0	26.86	700
8		3.0	7.0	29.29	710
8		3.4	16.0	34.16	720
8		3.6	24.0	36.59	730
8		4.0	40.0	41.46	740
8		4.4	60.0	46.32	750
8		5.0	90.0	53.62	760
8		5.8	120.0	63.35	770
8		6.4	121.0	70.45	780
8		7.4	210.0	82.81	790
8		8.4	250.00	94.98	900
В		10.4	334.0	119.31	810
8		12.4	400.0	143.63	820
8		12.5	800.0	143.70	830
9 ENDTBL					840
3 STRUCT	60				850
8		2.0	0.0	22.20	860
8		2.4	3.0	27.41	870
8		2.5	10.5	30.02	088
8		3.0	22.5	35.24	890
8		3.2	34.0	37.85	900
8		3.6	60.0	43.06	910
8		4.0	90.0	48.28	920

*		*****	**	*****	* *	**	+0	0-00 F131 DF	INFUI	DHIH	CUMITNUE	(D) ********	***********
	8							4.6	135.0		56.11		930
	8							5.4	180.0		66.55		940
	8							-6.0	181.0		74.38		950
	8							7.0	315.0		87.42		960
	8							8.0	375.0		100.47		970
	8							8.1	700.0		100.50		980
		ENDTBL											990
		RUNOFF		10				0.84	51.		7.50	1	1000
		RESVOR	-	10	6			7.0				1	1010
	7	REACH	45	010	7			1750.	1.2		1.10	1	1020
		RUNOFF					6	0.20	42.		0.19	1	1030
		DYHDDA			5	-	7					1 1	1040
		SAVMOV			7		5						1050
		RESVOR	7	20			7	4.5				1	1060
	6 5	REACH	3	020	7		5	2900.	0.28		1.94	1	1070
		RUNOFF					6	0.28	53.		1.02	1	1080
	6 A	TADDHYD	4	020	5	6	7					1 1	1090
	7	SAVMOV	17		7		1						1100
		RUNOFF		30			6	0.37	49.		3.90	1	1110
	600	RESVOR	170		6			21.0				1	1120
		REACH		040	7			1300.	0.88		1.10	1	1130
- 1		RUNDFF					6	0.06	40.		1.00	1	1140
		ADDHYD			5	5	7					1	1150
		VOMVA	273		7		5						1160
	7	RESVOR	1	40	6		7	9.0				1	1170
		REACH		050	7		150	1700.	1.5		1.45	1	1180
-	6 F	RUNOFF	1	049			5	0.11	40.		1.67	1	1190
		DDHYD			5	6	7					1	1200
		PAVMOV			7		5						1210
		NUNOFF						0.36	85.		0.42	1	1220
1	5 A	ADDHYD			5	6	7					1	1230
100	7 Y Y S	EACH	45.	060	7			1400.	0.44		1.94	1	1240
		UNOFF						0.05	45.		0.90	1	1250
		DDHYD			-51	5	7					1 1	1260
		VOMVA			7		5						1270
- 1	5 5	VOMVA	5	070	1		6						1280
		DDHYD					7	The second secon				1.1	1290
		EACH			7			700.	0.30		1.94	1	1300
		UNOFF						0.02	64.		0.12	1	1310
		ОРНОО				6						1	1320
		VOMVA			7		5						1330
		UNOFF						0.24	73.		0.62	1	1340
		DDHYD			5		7					1	1350
		EACH			7			500.	0.30		1.94	y 4	1360
		VOMVA			5		7						1370
SI SING	R	EACH	3	120	7		5	500.	0.30		1.94	1	1380

**	******	**	*****	***	**	80-80 LIS1	OF INPUT DA	ATA (CONTINUE	(D) *********	********
6	RUNOFF	1	120			6 0.19	56.	0.74	1	1390
4	ADDHYD	4	120	5	6	7			1.1	1400
6	SAVMOV	5	50	7		5				1410
6	RESVOR	2	50	5		7 2.4			111	1420
6	REACH	3	130	7		5 1000.	0.30	1.94	1	1430
6	RUNOFF	1	130			6 0.05	74.	0.19	1	1440
6	ADDHYD	4	130	5	6	7			1	1450
4	SAVMOV	5	130	7		6				1460
6	RESVOR	2	60	6		7 2.0			111	1470
6	REACH	3	140	7		5 2500.	0.21	1.48	1	1480
6	RUNOFF	1	140			5 0.20	66.	1.15	1	1490
6	ADDHYD	4	140	5	6	7			1	1500
6	SAVMOV	5	150	7		i				1510
6	RUNOFF	1	149			80.0	50.	0.42	1	1520
6	ADDHYD	4	150	5	6	7				1530
6	REACH	3	150	7		5 300.	0.21	1.48	1	1540
6	RUNOFF	1	150		1	0.01	40.	0.15	i	1550
5	ADDHYD	4	150	5	6	7			1	1560
6	SAVMOV	5	180	7		5				1570
6	RUNOFF	1	180			0.28	50.	0.51	1	1580
6	ADDHYD	4	180	5	5	1			1	1590
6	REACH	3	180	7	;	1700.0	0.21	1.48	1	1400
6	RUNOFF	1	180		1	0.11	41.	0.48	1	1610
5	ADDHYD	4	180	5	6	1			11 1 1	1520
	ENDATA									1630
		3								1640
6	RUNOFF	1	010		1	0.20	48.0	0.19	1	1650
5	RUNOFF	1	020			0.28	55.0	2.00	1	1660
	RUNOFF					0.24	75.0	0.62	1	1665
6	RUNOFF	1	120		1	0.19	66.0	0.74	1	1668
-	RUNOFF	_	100000		6	0.20	71.0	0.19	i	1670
	RUNOFF				1	0.08	55.0	0.42	1	1480
	RUNOFF	1	180		6	0.11	42.0	0.48	1	1690
	LIST									1700
	BASFLO					3.0				1710
	INCREM					0.1				1720
7	COMPUT		10	18	0	0.0	7.0	1.0	2 2 92 01	1730
	ENDCMP									740
	ENDJOB	2								./50

JOB 1 PASS 1

REV PC 09/83(.2) ALT 92	30			PAGE 1
OCHANGES TO STANDARD CONTROL LIST FOLLOW				
EXECUTIVE CONTROL OPERATION ALTER			RECORD ID	1640
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 10			, RECORD ID	1650
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	48.0000	.1900
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 20			RECORD ID	1660
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2800	55.0000	2.0000
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 90			RECORD ID	1665
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2400	75.0000	.6200
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 120			RECORD ID	1668
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.1900	44.0000	.7400
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 140			RECORD ID	1670
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.2000	71.0000	.1900
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 149			RECORD ID	1680
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.0800	45.0000	.4200
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				
STANDARD CONTROL OPERATION RUNOFF CROSS SECTION 180			RECORD ID	1690
OUTPUT HYDROGRAPH = 6	DATA FIELD VALUES =	.1100	42.0000	.4800
OUTPUT OPTIONS IN EFFECT PEAK VOL SUM				

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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EXECUTIVE CONTROL OPERATION LIST

RECORD ID 1700

LISTING OF CURRENT DATA

3	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
8			7.00	.00	4,33
8			7.40	2.50	5.01
9			7.60	5.00	5.36
8			7.80	10.00	5.70
0			8.20	22.00	6.38
8			8.60	52.00	7.07
9			9.00	62.00	7.75
8			9.50	96.00	8.61
8			10.00	126.00	9.47
8			11.00	198.00	11.18
8			12.00	280.00	12.89
8			13.00	340.00	14.79
9			14.00	440.00	16.68
8			15.00	500.00	18.58
8			15.10	600,00	18.60
9	ENDTBL				
7	STRUCT	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE
2	ושטאונ	20			
8			4.50	.00	6.80
8			4.90	1.50	7.88
9			5.10	3.70	8.42
8			5.50	11.00	9.51
9			5.70	15.00	10.13
8			6.10	25.00	11.13
9			6.50	40.00	12.21
8			7.10	60.00	13.84
3			7.90	78.00	16.01
8			8.50	79.00	17.63
8			9.50	100.00	20.34
8			10.50	125.00	23.06
8			11.50	150.00	25.76
9			11.60	300.00	26.04
9	ENDTBL				

TR20 XEQ 04-29-86 09:08

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

20

JOB 1 PASS

REV PC 09/83(.2)

ALT 92

30

PAGE 3

3	STRUCT	STRUCT 1		ELEVATION	DISCHARGE	STORAGE
8				21.00	.00	.10
8				21.40	.60	.61
8				21.60	1.50	.86
8				21.80	2.50	1.12
8				22.20	5.20	1.62
9				22.60	8.20	2.13
8				23.00	11.00	2.64
8				23.50	20.00	3.27
8				24.00	27.00	3.91
8				25.00	39.00	5.18
8				26.00	49.00	6.45
8				27.00	57.00	7.72
8				27.10	200.00	7.74
9	ENDTBL					
3	STRUCT	STRUCT N	10.	ELEVATION	DISCHARGE	STORAGE
8				9.00	.00	.38
8				9.40	2.20	.47
8				9.60	5.00	.52
8				10.00	14.00	.62
8				10.20	21.00	.67
8				10.60	36.00	.77
8				11.00	55.00	.86
8				11.60	82.00	1.01
8				12.40	120.00	1.21
8				13.00	121.00	1.35
8				14.00	122,00	1.60
8				15.00	126.00	1.84
8				16.00	150.00	2.08
8				16.10	300,00	2.11
9	ENDTBL					
3	STRUCT	STRUCT N	0.	ELEVATION	DISCHARGE	STORAGE
9				2.40	.00	22.00
9				2.80	2.00	26.86
8				3.00	7.00	29.29
8				3.40	16.00	34.16
8				3.60	24.00	36.59
8				4.00	40.00	41.46
9				4.40	60.00	46.32
8				5.00	90.00	53.62

PASS

PAGE

1

KEV P						70	
	C 09/B3(.2)	ALT	72			30	
		5.80	120.00	63.35			
		6.40	121.00	70.65			
		7.40	210.00	82.81			
		8.40	250.00	94.98			
		10.40	334.00	119.31			
		12.40	400.00	143.63			
		12.50	800.00	143.70			
ENDTEL							
	STRUCT NO.	ELEVATION	DISCHARGE	STORAGE			
STRUCT	60						
		2.00	.00	22.20			
		2.40	3.00	27.41			
		2.60	10.50	30.02			
		3.00	22.50	35.24			
200		3.20	36.00	37.85			
		3.60	60.00	43.06			
		4.00	90.00	48.28			
		4.60	135.00	56.11			
		5.40	180.00	66.55			
		6.00	181.00	74.38			
		7.00	315.00	87.42			
E 0		8.00	375.00	100.47			
and the		8.10	700.00	100.50			
ENDTBL							
	TIME	INCREMENT					
DIMHYD		.0200					
	.0000	.0300	.1000	.1900	.3100		
	.4700	. 5600	.8200	.9300	.9900		
	1.0000	.9900	.9300	.8400	.7800		
	.6800	.5600	.4500	.3900	.3300		
	.2800	.2410	.2070	.1740	.1470		
	.1260	.1070	.0910	.0770	.0660		
	.0550	.0470	.0400	.0340	.0290		
	.0250	.0210	.0180	.0150	.0130		
	.0110	.0090	.0080	.0070	.0060		
	.0050	.0040	.0030	.0020	.0010		

COMPUTED PEAK RATE FACTOR = 484.00

9 ENDTBL

	TABLE NO.	TIME	INCREMENT			
5	RAINFL 1		.5000			
8		.0000	.0080	0170	07/0	0750
8	그렇게 하는 그런 이번에 가는 사람들이 되었다.	.0450	.0550	.0170	.0260	.0350
8		.0990	.1120	.0650	.0760	.0870
8		.1740		.1260	.1400	.1560
8			.1940	.2190	.2540	.3030
		.5150	.5830	.6240	.6550	. 5820
8		.7060	.7280	.7480	.7660	.7830
8		.7990	.8150	.8300	.8440	.8570
9		.8700	.8820	.8930	.9050	.9160
8		.9260	.9360	.9460	.9560	.9650
8	TURTO:	.9740	.9830	.9920	1.0000	1.0000
9	ENDTBL					
	TABLE NO.	TIME	INCREMENT			
5	RAINFL 2		.2500			
8		.0000	.0020	.0050	.0080	.0110
8		.0140	.0170	.0200	.0230	.0260
8		.0290	.0320	.0350	.0380	.0410
8		.0440	.0480	.0520	.0560	.0600
8		.0640	.0880	.0720	.0760	.0800
8		.0850	.0900	.0950	.1000	.1050
8		.1100	.1150	.1200	.1260	.1330
8		.1400	.1470	.1550	.1630	.1720
8		.1810	.1910	.2030	.2180	.2360
8		.2570	.2830	.3870	. 6630	.7070
8		.7350	.7580	.7760	.7910	.8040
8		.8150	.8250	.8340	.8420	.8490
8		.8560	.8630	.8690	.8750	.8810
8		.8870	.8930	.8980	.9030	.9080
8		.9130	.9180	.9220	.9260	.9300
8		.9340	.9380	.9420	.9460	.9500
8		.9530	.9560	.9590	.9620	.9650
8		.9480	.9710	.9740	.9770	.9800
9		.9830	.9860	.9890	.9920	.9950
8		.9980	1.0000	1.0000	1.0000	1.0000
9	ENDTBL					and Proposition
	TABLE NO.	TIME	INCOCHCUT			
5	RAINFL 3	ITHE	INCREMENT			
J	MAINEL 3		.5000			
8		.0000	.0100	.0220	.0360	.0510
9		.0670	.0830	.0990	.1160	.1350
0		100/0	. 0000	. 7770	.1100	.1330

PASS

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REV PC 09/	33(.2)	ALT 9	2			30	
	.1560	.1790	.2040	.2330	.2680		
	.3100	.4250	.4800	.5200	.5500		
	.5770	.6010	. 6230	.6440	. 5540		
	.6830	.7010	.7190	.7360	.7530		
	.7690	.7850	.8000	.8150	.8300		
	.9440	.8580	.8710	.8840	.8960		
	.9080	.9200	.9320	.9440	.9560		
	.9670	.9780	.9890	1.0000	1.0000		
ENDTBL							
TABLE NO.	TIME	INCREMENT					
RAINFL 4		.5000					
	0000	0040	0000	A45A	01/0		
	.0000	.0040	.0080	.0120	.0160		
			.0300	.0350	.0400		
	.0450	.0500	.0550	.0600	.0650		
	.0700	.0750	.0810	.0870	.0930		
	.0990	.1050	.1110	.1180	.1250		
	.1320	.1400	.1480	.1560	.1650		
	.1740	.1840	.1950	.2070	.2200		
	.2360	.2550	.2770	.3030	.4090		
		.5490	.5830	.6050	.6240		
	.6400 .7050	.6550	.6690	.6820	.6940		
	.7580	.7160 .7670	.7270 .7760	.7380 .7840	.7480 .7920		
	.8000	.8080	.8160	.8230	.8300		
	.8370	.8440	.8510	.8580	.8540	A Company	
	.8700	.8750	.8820	.8880	.8940		
	.9000	.9060	.9110	.9160	.9210		
	.9260	.9310	.9360	.9410	.9460		
	.9510	.9560	.7580	.7410	.9710		
	.9760	.9800	.9840	.9880	.9920		
	.9950	1.0000	1.0000	1.0000	1.0000		
NDTBL	17700	1.0000	1.0000	1.0000	1.0000		
TABLE NO	7795	THOSENEUT					
TABLE NO.	IIME	INCREMENT					
HINEL 3		.5000					
	.0000	.0020	.0050	.0080	.0110		
	.0140	.0170	.0200	.0230	.0260		
	.0290	.0320	.0350	.0380	.0410		
	.0440	.0470	.0510	.0550	.0590		
	.0630	.0670	.0710	.0750	.0790		
	.0840	.0890	.0940	.0990	.1040		
	.1090	.1140	.1200	.1260	. 1330		
	.1400	.1470	.1540	.1520	.1710		
	.1810	.1920	.2040	.2170	.2330		

PASS

TR20 XEQ 04-29-	-86 09:08	COGDELL	'S CREEK WAT	ERSHED STUDY	/ NV5010 24 HR	10YR TYPE 2 STO	IRM 20	JOB 1
REV PC 09/	(83(.2)	ALT 92	}			30		
8	.2520	.2770	.3180	. 4380	. 6980			
8	.7290	.7520	.7700	.7850	.7980			
8	.8090	.8190	.8290	.8380				
8	.8540	.8610			.8460			
8			.8680	.8740	.8800			
	.8860	.8920	.8970	.9020	.9070			
8	.9120	.9170	.9210	.9250	.9290			
8	.9330	.9370	.9410	.9450	.9490			
8	.9530	.9570	.9600	.9630	.9660			
8	.9690	.9720	.9750	.9780	.9810			
8	.9840	.9870	.9900	.9930	.9960			
8	.9980	1.0000	1.0000	1.0000	1.0000			
9 ENDTBL								
TABLE NO.	TIME	INCREMENT						
5 RAINFL 6		.0200						
8	.0000	.0080	.0162	.0246	.0333			
8	.0425	.0524	.0430	.0743	.0353			
8	.0990	.1124	.1265	.1420	.1595			
8	.1800	.2050	.2550	.3450	.4370			
8	.5300	.6030	.6330	.6600	.6840			
8	.7050	.7240	.7420	.7590	.7750			
8	.7900	.8043	.8180	.8312				
8	.8561				.8439			
8		.8678	.8790	.8898	.9002			
8	.9103	.9201	.9297	.9391	.9483			
	.9573	.9661	.9747	.9832	.9916	man A Bound		
8	1.0000	1.0000	1.0000	1.0000	1.0000			
9 ENDTBL								

TR20 XEQ 04-29-86 09:08 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1

REV PC 09/83(.2)

ALT 92

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STANDARD CONTROL INSTRUCTIONS

	6	RUNOFF	1	10			6	.8400	51.0000	7.50001	0	0	1	0	1	
	6	RESVOR	2	10	6		7	7.0000		1	0	0	1	0	1	
	6	REACH	3	10	7		5	1750.0000	1.2000	1.10001	0	0	1	0	1	
	5	RUNOFF	1	10			6	.2000	48.0000	.19001	0	0	1	0	1	
	6	ADDHYD	4	10	5	6	7			1	1	0	1	0	1	
	á	SAVMOV	5	10	7		6									
	5	RESVOR	2	20	6		7	4.5000		1	0	0	1	0	1	
	5	REACH	3	20	7		5	2900.0000	.2800	1.94001	0	0	1	0	1	
	6	RUNOFF	1	20			6	.2800	55.0000	2.00001	0	0	1	0	1	
	6	ADDHYD	4	20	5	6	7			1	1	0	1	0	1	
	5	SAVMOV	5	20	7		1									
	5	RUNDEF	1	30			6	.3700	49.0000	3.90001	0	0	1	0	1	
	6	RESVOR	2	30	6		7	21.0000		. 1	0	0	1	0	1	
	á	REACH	3	40	7		5	1300.0000	.8800	1.10001	0	0	1	0	1	
	á	RUNOFF	1	40			6	.0600	40.0000	1.00001	0	0	1	0	1	
	b	ADDHYD	4	40	5	6	7			1	0	0	1	0	1	
	6	SAVMOV	5	40	7		4									
	6	RESVOR	2	40	5		7	9.0000		1	0	0	1	0	1	
١	ś	REACH	3	50	7		53	1700.0000	1.4000	1.45001	0	0	1	0	1	
	5	RUNOFF	1	49			6	.1100	40.0000	1.67001	0	0	1	0	1	
	4	ADDHYD	4	50	5	6	7				0				1	
	6	SAVMOV	5	50	7		5									
	6	RUNDEF	1	50			6	.3500	85.0000	.42001	0	0	1	0	1	
	6	ADDHYD	4	50	5	6	7				0		0.71	-	1	
	5	REACH	3	60	7		5	1400.0000	.4400	1,94001			1	0	1	
	4	RUNOFF	1	40			6	.0500	45.0000	.90001	100	-04	1	0	1	
	6	ADDHYD	4	60	5	6	7			1	1	110	1	0	117-00	
	6	SAVMOV	5	70	7		5				Ū		i,			
	4	SAVMOV	5	70	1		6			Ships In the						
	5	ADDHYD	4	70	5	6	7			1	1	0	1	0	1	
	6	REACH	3	80	7		5	700.0000	.3000	1.74001		-	1	0	1	
	à	RUNOFF	1	80			6	.0200	64,0000	.12001			1	0	1	
	6	ADDHYD	4	80	5	5	7				0		-	0	7	
	6	SAVMOV	5	100	7		5									
	5	RUNOFF	1	90			6	.2400	75.0000	.62001	0	0	1	0	1	
	6	ADDHYD	4	100	5	6	7				0	100	9.7	0	1	
	4	REACH	3	110	7		5	500,0000	.3000	1.94001						
	5	SAVMOV	5	120	5		7				Ō		Ĭ.			
		REACH					5	500.0000	.3000	1.94001	0	0	1	0	1	
		RUNOFF					4		56.0000	.74001	3		-			
		ADDHYD			5	6	_							0		
		SAVMOV									•		•			
		RESVOR					7	2.4000		1	1	1	1	0	1	
		REACH					E.9	1000.0000	.3000	1.94001	_	-	_		-	
		RUNOFF					5	.0500	74.0000	.19001						
•	-						7	100000			٧	*	•	٧	•	

PASS 1

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JOB 1

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	REV PC 09/83(.2)			ALT	92											
6	ADDHYD	4	130	5	6	7				1	0	0	1	0	1	
4	SAVMOV	5	130	7		6					Ō		i		•	
5	RESVOR	2	60	6		7	2.0000			1	1	1	1	0	1	
6	REACH	3	140	7		5	2500.0000		.2100	1.48001	0	0	1	0	1	
6	RUNDFF	1	140			6	.2000		71.0000	.19001	0	0	1	0	1	
6	ADDHYD	4	140	5	6	7				1	0	0	1	0	1	
6	SAVMOV	5	150	7		5										
5	RUNOFF	1	149			6	.0800		65.0000	.42001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7				1	0	0	1	0	1	
5	REACH	3	150	7		5	300.0000		.2100	1.48001	0	0	1	0	1	
b	RUNOFF	1	150			6	.0100		40.0000	.15001	0	0	1	0	1	
6	ADDHYD	4	150	5	6	7				1	0	0	1	0	1	
6	SAVMOV	5	180	7		5										
Ġ	RUNOFF	1	180			6	.1100		42.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7				1	0	0	1	0	1	
6	REACH	3	180	7		5	1700.0000		.2100	1.48001	0	0	1	0	1	
6	RUNOFF	1	180			6	.1100		41.0000	.48001	0	0	1	0	1	
6	ADDHYD	4	180	5	6	7				1	1	0	1	0	1	
	ENDATA															

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

END OF LISTING

TR20 XEQ 04-29-86 09:08

TR20 XED 04-29-86 09:08 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM JOB 1 PASS 1

REV PC 09/83(.2) ALT 92 PAGE 10

EXECUTIVE CONTROL OPERATION BASFLO RECORD ID 1710

NEW BASEFLOW = 3.00 CFS

EXECUTIVE CONTROL OPERATION INCREM RECORD ID 1720

MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID 1730

FROM STRUCTURE 10

TO XSECTION 180 STARTING TIME = .00 RAIN DEPTH = 7.00 RAIN DURATION= 1.00 RAIN TABLE NO. = 2 ANT. MOIST. COND= 2

ALTERNATE NO. =92 STORM NO. = 1 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF STRUCTURE 10 DUTPUT HYDROGRAPH= 6

AREA= .84 SQ MI . INPUT RUNOFF CURVE= 51. TIME OF CONCENTRATION= 7.50 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

96.56 17.80 (RUNOFF)

RUNDFF VOLUME ABOVE BASEFLOW = 1.67 WATERSHED INCHES, 906.24 CFS-HRS, 74.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 10

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 7.00

PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)
96.09 9.50 PEAK TIME (HRS)

18.14

RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 884.09 CFS-HRS, 73.06 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 10

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.20, M= 1.10 LENGTH = 1750.00 FEET

MODIFIED ATT-KIN ROUTING COEFFICIENT = .34 PEAK TRAVEL TIME = .40 HOURS

** WARNING - REACH 10 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 18.15 CFS, 18.88 % OF PEAK.

PEAK DISCHARGE (CFS) PEAK TIME (HRS) PEAK ELEVATION (FEET) 18.47 98.84 (NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 878.37 CFS-HRS. 72.59 ACRE-FEET; BASEFLOW = 3.00 CFS

JOB 1 PASS 1

TR20 XEQ 04-29-86 09:08 COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20

REV PC 09/83(.2)

ALT 92

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DEAR ELEVATION (EEET)

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111	WARNING-MAIN	TIME	INCREMENT	MAY	BE	TOO	ARGE	

PEAK TIME (HPS)

COMPUTED PEAK (211.47) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 5 %.

XSECTION 10

PEAK DISCHARGE (CES)

	LEHV I	וחב נחה	01	TE	אות מוסנחאת	וביווום	FEI	HK ELEVHII	UNIFEE			
	12.	05			211.47			(RUNOFF)			
	15.	19			11.49			(RUNOFF)			
	16.	45			10.25			(RUNOFF)			
	17.	66			8.73			(RUNOFF)			
	19.	66			7.21			(RUNOFF)			
	23.	65			5.65			(RUNOFF)			
TIME (HRS)		FIRST	HYDROGR	APH POINT	= .00 HQ	URS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	.20 SQ.MI.
11.00	DISCHE		.00	.00	.00	.00		.00	.10	4.73	23.48	98.78
12.00	DISCHG		199.70	199.79	103.14	48.30	49.45	41.05	37.14	33.86	32.58	29.03
13.00	DISCHE		27.04	25.39	23.29	22.55		20.13	19.10	17.65	17.13	16.30
14.00	DISCHE		15.86	15.33	14.60	14.29	13.47	13.01	12.44	11.67	11.44	11.40
15.00	DISCHE		11.42	11.45	11.49	11.43		10.13	10.01	10.00	10.02	10.04
16.00	DISCHE		10.07	10.10	10.12	10.15	10.17	10.20	9.72	8.92	8.66	8.40
17.00	DISCHS		8.60	8.61	8.63	8.65	8.67	8.68	8.70	8.72	8.61	7.75
18.00	DISCHE		7.22	7.08	7.05	7.05	7.06	7.07	7.08	7.09	7.10	7.11
19.00	DISCHE		7.12	7.13	7.14	7.15	7.16	7.18	7.19	7.20	7.08	6.18
20.00	DISCHE		5.63	5.48	5.45	5.44	5.44	5.45	5.46	5.46	5.47	5.47
21.00	DISCHS		5.48	5.48	5.49	5.50	5.50	5.51	5.51	5.52	5.52	5.53
22.00	DISCHG		5.54	5.54	5.55	5.55	5.56	5.56	5.57	5.58	5.58	5.59
23.00	DISCHE		5.59	5.60	5.60	5.61	5.62	5.62	5.63	5.63	5.50	4.56
24.00	DISCHE		3.97	2.71	.95	.23		.01	.00			

RUNOFF VOLUME ABOVE BASEFLOW = 1.49 WATERSHED INCHES, 192.76 CFS-HRS, 15.93 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 10

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

PEAK TIME(HRS)

COMPUTED PEAK(214.47) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 5 %.

XSECTION 10

PEAK DISCHARGE(CFS)

12.05 18.48				21 4. 105.			(NULL)					
TIME(HRS)		FIRST	HYDRO	GRAPH POINT	= .00	HOURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	1.04 SQ.MI.
11.00	DISCHE		3.00	3.00	3.00	3.00	3.00	3.00	3.10	7.73	26.48	101.78
12.00	DISCHE		201.70	202.80	106.18	71.34	52.51	44.15	40.29	37.07	35.88	32.43
13.00	DISCHE		30.56	29.06	27.14	26.50	25.25	24.68	23.94	22.93	22.99	22.83
14.00	DISCHE		23.44	24.25	25.15	26.71	27.96	29.48	31.42	33.47	36.95	40.97
15.00	DISCHS		45.09	49.13	53.02	56.65	59.21	61.39	63.50	65.48	67.36	69.20
14.00	DISCHE		71.04	73.55	76.58	79.74	92.85	85.90	88.04	89.73	91.74	93.74
17.00	DISCHG		95.62	97.33	98.89	100.32	101.62	102.79	103.83	104.73	105.37	105.12

PEAK ELEVATION (FEET)

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TR20 XEQ 04-29-95 09:08 COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20 JOB 1 PASS 1 REV PC 09/83(.2) ALT 92 18.00 DISCH6 105.09 105.34 105.59 105.77 105.88 105.71 105.90 105.84 105.50 105.23 19.00 DISCH6 104.88 104.46 103.97 103.40 102.75 102.03 101.23 100.36 99.27 97.33 20.00 DISCHG 95.67 94.37 93.15 91.92 90.69 89.45 88.21 86.98 21.00 DISCHG 83.44 82.31 81.20 80.11 79.04 77.99 76.97 75.96 85.78 84.60 76.97 75.96 74.98 22.00 DISCHG 73.07 72.19 71.48 70.88 70.33 69.80 69.28 68.75 68.21 67.66 23.00 DISCHG 67.10 66.52 65.93 65.33 64.72 64.11 63.48 62.86 62.09 24.00 DISCHG 58.71 56.33 53.38 51.74 50.63 49.72 48.91 48.18 47.50 .46.85 25.00 DISCHS 46.24 45.66 45.10 44.55 44.02 43.50 42.98 42.48 41.98 41.49 26.00 DISCHG 41.00 40.51 40.03 39.55 39.07 38.60 38.12 37.63 37.15 36.66 27.00 DISCHG 36.16 35.66 35.15 34.64 34.13 33.61 33.09 32.57 32.04 31.51 28.00 DISCHG 30.97 30.44 29.90 29.36 28.82 28.28 27.74 27.21 26.67 26.13 29.00 DISCHG 25.68 25.30 24.94 24.59 24.24 23.89 23.52 23.14 22.75 22.35 RUNOFF VOLUME ABOVE BASEFLOW = 1.60 WATERSHED INCHES. 1071.12 CFS-HRS. 88.52 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION SAVMOV CROSS SECTION 10 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 OPERATION RESVOR STRUCTURE 20 INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7 SURFACE ELEVATION= 4.50 PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.45 48.97 6.77 95.07 20.05 9.27 RUNOFF VOLUME ABOVE BASEFLOW = 1.54 WATERSHED INCHES, 1034.01 CFS-HRS, 85.45 ACRE-FEET; BASEFLOW = 3.00 CFS OPERATION REACH CROSS SECTION 20 INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5 LENGTH = 2900.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .29, M= 1.94 MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .20 HOURS *** WARNING REACH 20 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT *** *** WARNING - REACH 20 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 23.18 CFS, 25.18 % OF PEAK. PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.63 48.51 (NULL) 20.19 95.04 (NULL) RUNOFF VOLUME ABOVE BASEFLOW = 1.54 WATERSHED INCHES, 1030.71 CFS-HRS, 85.18 ACRE-FEET; BASEFLOW = 3.00 CFS

AREA= .28 SQ MI INPUT RUNOFF CURVE= 55. TIME OF CONCENTRATION= 2.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1026 HOURS

OPERATION RUNOFF CROSS SECTION 20 OUTPUT HYDROGRAPH= 6

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PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 13.35 108.69 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.12 WATERSHED INCHES, 383.61 CFS-HRS, 31.70 ACRE-FEET; BASEFLOW =

OPERATION ADDHYD CROSS SECTION 20

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS)	PEAK	DISCHARGE (CFS)	PEAK	ELEVATION (FEET	1)
13.27		150.11		(NULL)	
20.08		107.90		(NULL)	
FIRST HYDROGRA	APH POINT =	.00 HOURS	TIME INCREMENT	r = .10 HOURS	

TIM	E (HRS)		FIRST HYDROGRA	PH POINT	= .00 HC	DURS	TIME INCREM	ENT = .10	HOURS	DRAINAGE	AREA =	1.32 SQ.MI.
1	11.00	DISCHG	3.00	3.00	3.01	3.03	3.06	3.13	3.29	3.67	4.50	5.54
1	2.00	DISCHE	12.21	23.37	42.89	64.00	80.57	94.77	107.72	119.54	129.62	137.67
1	3.00	DISCHG	143.70	147.67	149.73	150.02	148.57	145.69	141.74	136.80	130.86	124.17
1	4.00	DISCHG	117.25	110.78	105.06	99.98	95.40	91.32	87.76	84.64	81.86	79.46
1	5.00	DISCHE	77.58	76.27	75.46	75.08	75.06	75.35	75.65	76.07	76.61	77.25
1	5.00	DISCHG	78.02	78.87	79.82	80.91	82.19	83.58	84.62	85.67	86.77	87.93
1	7.00	DISCHG	89.14	90.40	91.68	92.99	94.31	95.64	96.41	96.47	96.34	96.18
1	9.00	DISCHG	96.00	95.83	95.66	95.50	96.44	97.62	98.82	99.96	101.02	102.00
1	9.00	DISCHG	102.90	103.72	104.46	105.13	105.73	106.27	106.73	107.12	107.45	107.71
7	20.00	DISCHE	107.86	107.90	107.83	107.66	107.41	107.07	106.66	106.16	105.60	104.99
2	21.00	DISCHE	104.32	103.61	102.87	102.10	101.31	100.50	99.68	98.85	98.01	97.18
2	22.00	DISCHS	96.34	95.50	94.66	93.82	93.00	92.19	91.41	90.64	89.88	89.15
2	23.00	DISCHG	88.75	88.59	88.49	88.41	88.33	88.25	88.18	88.10	88.02	87.93
- 2	24.00	DISCHG	87.83	87.70	87.53	86.67	85.14	83.39	81.56	79.69	77.81	75.92
2	25.00	DISCHG	74.04	72.18	70.34	68.59	55.87	65.21	63.37	61.46	59.42	57.90
2	26.00	DISCHG	56.29	54.81	53.42	52.14	50.93	49.80	48.74	47.73	46.78	45.87
2	27.00	DISCHG	45.01	44.18	43.39	42.62	41.89	41.17	40.47	39.73	39.01	38.30
2	28.00	DISCHS	37.61	36.94	36.28	35.64	35.01	34.38	33.77	33.17	32.57	31.98
. 2	9.00	DISCHG	31.39	30.82	30.25	29.71	29.19	28.68	28.19	27.72	27.26	26.80

RUNOFF VOLUME ABOVE BASEFLOW = 1.66 WATERSHED INCHES, 1414.31 CFS-HRS, 116.88 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 20

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 1

OPERATION RUNOFF STRUCTURE 30

OUTPUT HYDROSRAPH= 6

AREA= .37 SQ MI INPUT RUNOFF CURVE= 49. TIME OF CONCENTRATION= 3.90 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

PEAK TIME (HRS) 14.95

PEAK DISCHARGE(CFS) 60.58

PEAK ELEVATION (FEET) (RUNOFF)

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RUNOFF VOLUME ABOVE BASEFLOW = 1.57 WATERSHED INCHES, 375.61 CFS-HRS, 31.04 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 21.00

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 25.91

16.21 48.05

RUNOFF VOLUME ABOVE BASEFLOW = 1.51 WATERSHED INCHES, 360.28 CFS-HRS, 29.77 ACRE-FEET; BASEFLOW =

OPERATION REACH CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1300.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .88, M= 1.10

MODIFIED ATT-KIN ROUTING COEFFICIENT = .32 PEAK TRAVEL TIME = .30 HOURS

PEAK TIME (HRS) PEAK ELEVATION (FEET) PEAK DISCHARGE (CFS)

16.55 47.70 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.50 WATERSHED INCHES. 358.97 CFS-HRS. 29.67 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 40

OUTPUT HYDROGRAPH= 6

AREA= .06 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.00 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0952 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.72

10.21 (RUNOFF) 23.76 1.21 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES. 32.57 CFS-HRS. 2.69 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 40

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

12.73 10.35 (NULL) 49.80 16.54 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES. 391.54 CFS-HRS. 32.36 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 40

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

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INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 9.00

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

12.90 7.83 9.81 16.60 49.78 10.89

RUNOFF VOLUME ABOVE BASEFLOW = 1.41 WATERSHED INCHES, 389.94 CFS-HRS, 32.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= 1.60, M= 1.45

MODIFIED ATT-KIN ROUTING COEFFICIENT = .83 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 50 ATT-KIN COEFF.(C) GREATER THAN 0.667. CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 13.02 9,78 (NULL)

16.72 49.77 (NULL)

RUNDFF VOLUME ABOVE PAGEFLOW = 1.40 WATERSHED INCHES, 389.36 CFS-HRS, 32.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 49

OUTPUT HYDROGRAPH= 6

.11 SQ MI INPUT RUNOFF CURVE= 40. TIME OF CONCENTRATION= 1.67 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .1012 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 13.33 13.76 (RUNGEE) 23.80 2.20 (RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = .84 WATERSHED INCHES. 59.78 CFS-HRS, 4.94 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET)

22.91 13.16 (NULL) 16.65 53.98 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 449.14 CFS-HRS, 37.12 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION SAVMOV CROSS SECTION 50

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 50 **OUTPUT HYDROGRAPH= 6**

AREA= .346SPCHMI paperPUT RUNOFF CURVE= 85. TIME OF CONCENTRATION= .42 HOURS ecology and environment

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INTERNAL HYDROGRAPH TIME INCREMENT= .0540 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.13
 1078.73
 (RUNOFF)

 19.65
 24.75
 (RUNOFF)

 23.65
 18.64
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 5.25 WATERSHED INCHES, 1220.14 CFS-HRS, 100.83 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 50

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.13 1079.95 (NULL)
15.49 90.76 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 60

0

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1400.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .44, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 60 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.13
 1079.95
 (NULL)

 16.49
 90.76
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.87 WATERSHED INCHES, 1669.27 CFS-HRS, 137.95 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 60

OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 45. TIME OF CONCENTRATION= .90 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .1000 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.56
 16.56
 (RUNOFF)

 23.72
 1.26
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.24 WATERSHED INCHES, 39.88 CFS-HRS, 3.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 60

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

TR20 XEQ 04-29-86 09:08

COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

20

JOB 1 PASS

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	PEAK T 12. 16.		P	EAK DISCH 1086. 93.	[주]쥬에는 2022년 및 시네일	PEAK	ELEVATI (NULL) (NULL)	ON (FEET)			
TIME (HRS)		FIRST HYDROGRAP	H POINT	= .00	HOURS	TIME INCREMEN	T = .10	HOURS	DRAINAGE	AREA =	.95 SQ.MI.
4.00	DISCHG	.00	.00	.00	.02	.10	.26	.49	.75	1.04	1.33
5.00	DISCHE	1.62	1.91	2.20	2.49	2.77	3.04	3.32	3.58	3.84	4.10
6.00	DISCHG	4.36	4.67	5.18	5.80	6.40	5.89	7.32	7.71	8.07	8.41
7.00	DISCHE	8.75	9.07	9.38	9.69	9.99	10.29	10.58	10.86	11.14	11.41
8.00	DISCHE	11.68	12.08	12.82	13.80	14.96	16.27	17.48	18.44	19.17	19.76
9.00	DISCHE	20.27	20.91	21.91	23.16	24.29	25.16	26.02	27.23	28.66	29.92
10.00	DISCHE	30.90	31.86	33.18	34.84	37.10	40.08	43.57	47.95	52.84	58.21
11.00	DISCHG	54.10	70.07	76.45	83.02	90.75	101.27	130.10	208.30	333.15	539.50
12.00	DISCHE	836.25 1	83.840	1030.91	805.58	576.69	421.03	324.82	265.51	227.09	199.69
13.00	DISCHE	178.52	151.72	147.53	136.12	127.20	119.75	113.25	107.02	101.45	96.86
14.00	DISCHS	93.29	90.54	88.31	86.99	86.63	86.30	86.13	85.74	85.37	85.47
15.00	DISCHS	86.26	87.42	88.85	90.29	90.92	90.52	90.19	90.11	90.41	90.86
16.00	DISCHE	91.35	91.83	92.25	92.60	92.86	93.02	92.76	91.64	89.95	88.43
17.00	DISCHE	87.35	86.55	85.87	85.24	84.63	84.03	83.43	82.82	82.11	80.76
18.00	DISCHG	78.62	76.40	74.60	73.30	72.20	71.21	70.27	69.38	68.51	67.67
19.00	DISCHG	66.86	66.07	65.33	64.68	63.99	63.30	62.62	61.96	51.19	59.85
20.00	DISCHG	57.76	55.58	53.88	52.62	51.60	50.72	49.94	49.23	48.56	47.93
21.00	DISCHG	47.34	46.79	46.25	45.76	45.28	44.83	44.40	43.97	43.53	43.10
22.00	DISCHE	42.70	42.29	41.89		41.15	40.80	40.46	40.14	39.84	39.55
23.00	DISCHG	39.27	39.01	38.75	38.51	38.28	38.04	37.85	37.65	37.37	36.46
24.00	DISCHE	34.72	32.26	28.67	24.55	21.18	18.97	17.56	16.54	15.77	15.13
25.00	DISCHE	14.59	14.12	13.71	13.34	13.02	12.72	12.45	12.20	11.96	11.76
26.00	DISCHG		11.41	11.25		10.97	10.84	10.71	10.57	10.42	10.28
27.00	DISCHE	10.13	9.97	9.81	9.64	9.47	9.29	9.11	8.93	8.74	8.54
28.00	DISCHE	8.34	8.13	7.93		7.51	7.29	7.08	6.87	6.67	6.46
29.00	DISCHG	6.25	6.06	5.87	5.48	5.49	5.32	5.14	4.99	4.87	4.74

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 7 DUTPUT HYDROGRAPH= 5

OPERATION SAVMOV CROSS SECTION 70

INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 6

OPERATION ADDRYD | CROSS SECTION 70

INPUT HYDROGRAPHS= 5,4 OUTPUT HYDROGRAPH= 7

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PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) PEAK TIME(HRS) 12.14 1116.29 (NULL) 16.64 177.46 (NULL) 17.57 179.86 (NULL) 19.27 169.82 (NULL) TIME (HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 2.27 SQ.MI. 3.26 3.49 3.75 4.04 4.33 DISCHG 3.00 3.00 3.00 3.02 3.10 4.91 5.04 4.62 5.20 5.49 5.77 5.00 DISCHE 6.32 6.58 . 6.84 7.10 8.18 8.80 9.40 7.36 7.67 6.00 DISCHE 9.89 10.32 10.71 11.07 11.41 7:00 DISCHG 11.75 12.07 12.38 12.69 12.99 13.29 13.58 13.86 14.14 14.68 15.08 15.82 16.80 17.96 19.27 20.48 21.44 22.17 22.76 8.00 DISCHS
 9.00
 DISCHG
 23.27
 23.91
 24.91
 26.16
 27.29
 28.16
 29.02
 30.23
 31.66
 32.92

 10.00
 DISCHG
 33.90
 34.86
 36.18
 37.84
 40.10
 43.08
 46.57
 50.95
 55.84
 61.21

 11.00
 DISCHG
 67.10
 73.07
 79.46
 86.04
 93.81
 104.40
 133.39
 211.97
 337.64
 546.04
 DISCHG 848.46 1092.05 1073.80 869.58 657.26 515.80 432.54 385.05 356.71 337.37 DISCHG 322.22 309.40 297.26 286.13 275.78 265.44 254.99 243.81 232.31 221.03 12.00 13.00 14.00 DISCHG 210.55 201.32 193.36 186.97 182.02 177.62 173.89 170.38 167.23 164.94 15.00 DISCHG 163.84 163.69 164.31 165.37 165.98 165.96 165.84 166.19 167.01 168.11 16.00 DISCHG 169.37 170.69 172.07 173.51 175.05 176.60 177.39 177.31 176.72 176.35 DISCHS 176.49 176.95 177.55 178.23 178.95 179.67 179.84 179.28 178.45 176.94 17.00 18.00 DISCHG 174.62 172.23 170.26 168.80 168.64 168.83 169.09 169.34 169.53 169.67 19.00 DISCHG 169.76 169.79 169.79 169.81 169.73 169.56 169.35 169.08 168.65 167.56 20.00 DISCHG 165.62 163.48 161.71 160.28 159.01 157.80 156.60 155.39 154.16 152.92 21.00 DISCHG 151.66 150.40 149.13 147.86 146.59 145.33 144.07 142.81 141.55 140.28 22.00 DISCHS 139.03 137.79 136.55 135.34 134.15 132.99 131.87 130.78 129.72 128.69 23.00 DISCHS 128.02 127.60 127.25 126.92 126.62 126.32 126.03 125.76 125.40 124.39 119.96 116.20 111.22 119.96 116.20 111.22 106.32 102.36 99.12 96.24 93.57 91.05 86.30 84.07 81.93 79.89 77.93 75.82 73.65 71.58 69.65 24.00 DISCHS 122.55 DISCHS 88.63 25.00 67.86 66.21 64.68 26.00 DISCHS 63.25 61.91 60.64 59.44 58.30 57.20 56.15 27.00 DISCHG 55.13 54.15 53.20 52.27 51.36 50.46 49.58 48.66 47.74 46.84 28.00 DISCHG 45.95 45.07 44.21 43.35 42.51 41.68 40.85 40.04 39.23 38.44 29.00 DISCHG 37.65 36.88 36.12 35.39 34.68 34.00 33.34 32.71 32.13 31.54

RUNOFF VOLUME ABOVE BASEFLOW = 2.13 WATERSHED INCHES, 3123.47 CFS-HRS, 258.12 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 80

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94

MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH BO ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.14	1116.29	(NULL)
16.64	177.46	(NULL)
17.57	179.86	(NULL)
19.27	169.82	(NULL)

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RUNOFF VOLUME ABOVE BASEFLOW = 2.13 WATERSHED INCHES, 3123.47 CFS-HRS, 258.12 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 80

OUTPUT HYDROGRAPH= 6

AREA= .02 SQ MI INPUT RUNOFF CURVE= 64. TIME OF CONCENTRATION= .12 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0160 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 11.98 54.99 (RIINGEE)

RUNOFF VOLUME ABOVE BASEFLOW = 2.98 WATERSHED INCHES, 38.49 CFS-HRS, 3.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 80

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.14 1137.15 (MIH.L.) 16.63 178.94 (NULL) 17.57 181.19 (NULL) 19.27 170.89 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.14 WATERSHED INCHES, 3161.95 CFS-HRS, 261.30 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 100

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 90

OUTPUT HYDROGRAPH= 6

AREA= .24 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= INTERNAL HYDROGRAPH TIME INCREMENT= .0827 HOURS

PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 458.49 12.25 (RUNOFF) 19.66 15.09 (RUNOFF) 23.66 11.44 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.14 WATERSHED INCHES, 641.76 CFS-HRS, 53.03 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDRYD CROSS SECTION 100

INPUT HYDROGRAPHS = 5.6 **DUTPUT HYDROGRAPH= 7**

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PEAK TIME (HRS) PEAK DISCHARGE (CFS) PEAK ELEVATION (FEET) 12.17 1546.52 (NIII () 15.36 193.69 (NULL) 15.60 201.06 (NULL) 17.57 200.03 (NULL) 19.27 185.97 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.33 WATERSHED INCHES, 3803.71 CFS-HRS, 314.34 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 110

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 110 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	1546.52	(NULL)
15.36	193.69	(NULL)
16.60	201.06	(NULL)
17.57	200.03	(NULL)
19.27	185.97	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.33 WATERSHED INCHES, 3803.71 CFS-HRS, 314.34 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 120

INPUT HYDROGRAPH= 5 OUTPUT HYDROGRAPH= 7

OPERATION REACH CROSS SECTION 120

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 500.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 120 ATT-KIN COEFF. (C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.17	1546.52	(NULL)
15.36	193.69	(NULL)
16.60	201.06	(NULL)
17.57	200.03	(NULL)
19.27	185.97	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.33 WATERSHED INCHES, 3803.71 CFS-HRS, 314.34 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 120

GUTPUT HYDROGRAPH= 6

AREA= .19 SQ MI INPUT RUNOFF CURVE= 66. TIME OF CONCENTRATION= .74 HOURS

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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JOB 1 PASS 1

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INTERNAL HYDROGRAPH TIME INCREMENT= .0987 HOURS

PEAK TIME (HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	245.11	(RUNOFF)
19.66	10.55	(RUNOFF)
23.65	8.06	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.20 WATERSHED INCHES, 392.54 CFS-HRS, 32.44 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 120

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION (FEET)
12.18	1751.46	(NULL)
15.30	212.19	(NULL)
16.59	216.51	(NULL)
17.56	213.23	(NULL)
19.26	196.53	(NULL)

TIME(HRS)		FIRST HYDROGRA	PH POINT	= .00 H	OURS	TIME INCRE	MENT = .10	HOURS	DRAINAGE	AREA =	2.72 SQ.MI.
4.00	DISCHG	3.00	3.00	3.00	3.02	3,10	3.26	3.49	3.75	4.04	4.33
5.00	DISCHG	4.62	4.91	5.20	5.49	5.77	6.04	6.32	6.58	6.94	7.10
6.00	DISCHE	7.36	7.67	8.18	8.80	9.40	9.89	10.32	10.71	11.07	11.42
7.00	DISCHS	11.77	12.13	12.52	12.93	13.36	13.79	14.23	14.67	15.11	15.54
8.00	DISCHG	15.98	16.55	17.48	18.71	20.15	21.78	23.35	24.68	25.76	26.68
9.00	DISCHG	27.51	28.47	29.84	31.53	33.15	34.55	36.01	37.88	40.05	42.12
10.00	DISCHG	43.90	45.70	47.90	50.55	54.01	58.39	63.67	70.15	77.54	85.86
11.00	DISCHE	95.01	104.75	115.21	126.29	139.25	156.15	202.42	310.72	493.94	815.14
12.00	DISCHS	1274.46	1658.82	1748.24	1576.73	1315.08	1077.89	891.10	757.03	662.79	593.32
13.00	DISCHG	541.00	498.41	462.85	432.90	407.21	384.73	363.91	344.02	324.91	306.99
14.00	DISCHS	291.09	277.14	255.12	255.16	246.96	239.74	233.17	227.00	221.35	216.82
15.00	DISCHG	213.89	212.31	211.92	212.19	211.70	210.94	209.71	208.91	208.73	209.04
16.00	DISCHE	209.77	210.72	211.85	213.14	214.59	216.05	216.51	215.92	214.51	213.15
17.00	DISCHE	212.30	211.91	211.90	212.16	212.59	213.13	213.17	212.53	211.54	209.54
18.00	DISCHG	206.57	203.23	200.23	197.83	196.92	196.58	196.48	196.49	196.52	196.55
19.00	DISCHE	196.56	194.54	196.52	196.52	196.43	196.26	196.05	195.79	195.25	193.74
20.00	DISCHG	191.15	188.06	185.25	182.87	180.85	179.10	177.54	176.08	174.69	173.32
21.00	DISCHE	171.99	170.67	169.37	168.07	166.79	165.52	164.26	163.00	161.74	160.48
22.00	DISCHE	159.24	158.00	156.77	155.56	154.37	153.22	152.11	151.03	149.98	148.95
23.00	DISCHS	148.29	147.87	147.53	147.21	146.91	146.62	146.34	146.07	145.60	144.14
24.00	DISCHG	141.60	137.42	131.54	123.95	116.21	109.64	104.27	99.81	96.04	92.77
25.00	DISCHE	99.83	87.13	84.65	82.33	90.16	78.12	75.94	73.73	71.63	59.68
26.00	DISCHS	57.88	65.22	54.58	63.25	61.91	60.64	59.44	58.30	57.20	56.15
27.00	DISCHS	55.13	54.15	53.20	52.27	51.36	50.46	49.58	48.66	47.74	45.84
28.00	DISCHE	45.95	45.07	44.21	43.35	42.51	41.68	40.85	40.04	39.23	38.44
29.00	DISCHG	37.45	35.88	36.12	35.39	34.68	34.00	33.34	32.71	32.13	31.54

RUNOFF VOLUME ABOVE BASEFLOW = 2.39 WATERSHED INCHES, 4196.24 CFS-HRS, 346.78 ACRE-FEET; BASEFLOW = 3.00 CFS

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OPERATION SAVMOV STRUCTURE 50

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

OPERATION RESVOR STRUCTURE 50

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.40

	PEAK T	IME (HR	S)	PE	EAK DISCH	HARGE (CFS)	F	EAK ELEV	ATION (FEET)			
	13.	60			365.	.02		11.				
TIME (HRS)		FIRST	HYDROGRAP	H POINT	= .00	HOURS	TIME INCRE	MENT =	.10 HOURS	DRAINAGE	E AREA =	2.72 SQ.MI.
9.00	DISCHE		3.00	3.00	3.28			4.7		5.78	6.34	6.92
9.00	ELEV		2.84	2.84	2.85	2.87	2.89	2.9		2.95	2.97	3.00
10.00	DISCHG		7.48	9.04	8.63	9.25	9.90	10.5	0 11.37	12.21	13.14	14.18
10.00	ELEV		3.02	3.05	3.07	3.10	3.13	3.1	6 3.19	3.23	3.27	3.32
11.00	DISCHG		15.34	17.09	19.59	22.30	25.27	28.5		38.58	50.40	
11.00	ELEV		3.37	3.43	3.49	3.56	3.63	3.7	1 3.81	3.96	4.21	4.61
12.00	DISCHG		99.89	120.64	195.35	242.63	275.12	302.0	1 321.21	335.07	343.38	349.70
12.00	ELEV		5.26	6.19	7.24	8.22	9.02	9.6	4 10.10	10.43	10.68	10.88
13.00	DISCHE		354.52	358.18	360.90	362.83	364.10	364.8	0 365.02	364.77	364.10	363.03
13.00	ELEV			11.13	11.22	11.27	11.31	11.33	3 11.34	11.33	11.31	11.28
14.00	DISCHE		361.61	359.89	357.92	355.75	353.43	350.99	9 348.45	345.83	343.13	340.38
14.00	ELEV			11.18	11.12	11.06	10.99	10.9	1 10.84	10.76	10.68	10.59
15.00	DISCHS		337.60	334.84	331.62	328.25	324.98	321.79	9 318.65	315.58	312.57	309.66
15.00	ELEV		10.51	10.43	10.34	10.25	10.19	10.11	1 10.03	9.96	9.89	9.82
15.00	DISCHE			304.12	301.51	299.00	295.61	294.33	2 292.13	289.99	287.89	285.80
	ELEV			9.69	9.63		9.51	9.46	9.40	9.35	9.30	9.25
17.00	DISCHE			281.73	279.77		276.02	274.2	4 272.52	270.95	269.19	267.54
17.00	ELEV			9.16	9.11		9.02	8.98	8.94	8.90	8.86	8.82
18.00	DISCHG		265.87	264.15	262.40	260.61	258.84	257.09	9 255.38	253.73	252.12	250.55
18.00	ELEV			8.74	8.70		8.61	8.57	7 8.53	8.49	8.45	8.41
19.00	DISCHE			247.67	246.30		243.67	242.40	241.16	239.95	238.76	237.57
19.00	ELEV			8.34	8.31		8.24	8.21	8.18	8.15	8.12	8.09
20.00	DISCHE			235.11	233.81		231.12	229.75		226.99	225.61	224.22
20.00	ELEV			8.03	8.00		7.93	7.89		7.82	7.79	7.76
21.00	DISCHE			221.45	220.08		217.33	215.98		213.23	211.86	210.50
	ELEV			7.69	7.65			7.55		7.48	7.45	7.41
22.00	DISCHG			205.22	202.41		197.07	194.53		189.70	187.39	185.17
22.00	ELEV			7.35	7.31		7.25	7.23		7.17	7.15	7.12
23.00	DISCHE			180.97	179.02		175.39	173.71		170.59	169.14	167.71
23.00	ELEV		7.10	7.07	7.05		7.01	6.99		6.96	6.94	6.92
24.00	DISCHE			164.68	162.91		158.45	155.78	3 152.91	149.93	146.87	143.79
24.00	ELEV			6.89	6.87		6.82	6.79		6.73	6.69	6.66
25.00	DISCHE			137.64	134.61		128.65	125.74		120.98	120.93	120.87
25.00	ELEV			6.59	6.55		6.49			6.39	6.36	6.32
24.00	DISCH6			120.75	120.69		120.56	120.49		120.35	120.28	120.21
26.00	ELEV		6.29	6.25	6.21	6.17	6.13	6.09	6.05	6.01	5.97	5.93

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27.00	DISCHE	120.14	120.06	119.73	118.05	116.38	114.73	113.10	111.49	109.90	108.33
27.00	ELEV	5.88	5.84	5.79	5.75	5.70	5.66	5.62	5.57	5.53	5.49
28.00	DISCHE	106.77	105.23	103.70	102.19	100.70	99.23	97.77	96.33	94.90	93.49
28.00	ELEV	5.45	5.41	5.37	5.33	5.29	5.25	5.21	5.17	5.13	5.09
29.00	DISCHG	92.10	90.72	89.14	87.36	85.61	83.90	82.22	80.58	78.97	77.39
29.00	ELEV	5.06	5.02	4.98	4.95	4.91	4.88	4.84	4.81	4.78	4.75

RUNOFF VOLUME ABOVE BASEFLOW = 2.21 WATERSHED INCHES, 3871.54 CFS-HRS, 319.94 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1000.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .30, M= 1.94
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

*** WARNING REACH 130 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

9 *** WARNING - REACH 130 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 74.39 CFS, 20.55 % OF PEAK.

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
13.60 365.02 (NULL)

RUNDFF VOLUME ABOVE BASEFLOW = 2.21 WATERSHED INCHES, 3871.54 CFS-HRS, 319.94 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 130
OUTPUT HYDROGRAPH= 6

AREA= .05 SQ MI INPUT RUNOFF CURVE= 74. TIME OF CONCENTRATION= .19 HOURS INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.01
 160.37
 (RUNOFF)

 23.65
 2.37
 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 4.05 WATERSHED INCHES, 130.79 CFS-HRS, 10.81 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 130

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

 PEAK TIME(HRS)
 PEAK DISCHARGE(CFS)
 PEAK ELEVATION(FEET)

 12.04
 267.23
 (NULL)

 13.49
 374.66
 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.24 WATERSHED INCHES, 4002.33 CFS-HRS, 330.75 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 130

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

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OPERATION RESVOR STRUCTURE 60

INPUT HYDROGRAPH= 6 OUTPUT HYDROGRAPH= 7

SURFACE ELEVATION= 2.00

	PEAK T	IME(HRS) 46	PE	AK DISCHA		PI	EAK ELEVATI	ON (FEET)			
TIME (HRS)		FIRST HYDROSRA	PH POINT		IOURS	TIME INCRE	ENT = .10	HOURS	DRAINAGE	AREA =	2.77 SQ.MI.
11.00	DISCHE	3.00	3.00	3.00	3.00		3.00	3.00	3.34	5.43	9.72
11.00	ELEV	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.41	2.46	2.55
12.00	DISCHE	13.10	17.69	22.20	32.25	42.39		63.70	76.84	89.81	102.45
12.00	ELEY	2.69	2.84	2.99	3.14	3.31	3.48	3.65		4.00	4.17
13.00	DISCHE		126.52	137.18		153.45	161.19	168.66	175.84	180.08	180.28
13.00	ELEV	4.33	4.49	4.64	4.79	4.93	5.07	5.20	5.33	5.45	5.57
14.00	DISCHG	180.48	180.48	180.98	186.48	200.71	213.56	225.14		244.86	253.18
14.00	ELEV	5.69	5.81	5.93	6.04	6.15	6.24	6.33	6.41		6.54
15.00	DISCHG	260.61	267.20	273.01	278.08	282.45		289.32	291.96		
	ELEV	6.59	6.64	6.69	6.72	6.76	6.78	6.81		6.84	
16.00	DISCHE	297.27	298.31	299.05	299.52	299.76	200 70	200 41			
16.00	ELEV		6.88	6.88	6.88	6.89	6.89	6.89	6.88	6.88	6.87
17.00	DISCHG	297.31	296.44	295.48	294.43	293.32	292.15	290.94		288.39	
17.00	ELEV		6.86	6.85	6.85	6.84	6.83	6.82	6.81	6.80	6.79
19.00	DISCHG	285.67	284.24	282.78	281.30	279.80	278.27	276.73			
	ELEV		6.77	6.76	6.75	6.74	6.73	6.71	6.70	6.69	6.68
19.00	DISCHE	270.49	268.94	267.41	265.89	264.38	262.90	261.43	259.98	258.55	257.13
	ELEV	6.67	6.66	6.64	6.63	6.62	5.61	6.60	6.59	6.58	6.57
20.00	DISCHG	255.69	254.26	252.84			248.61	247.21	245.81	244.41	243.01
	ELEV	6.56			6.53	6.52	6.50	6.49	6.48	5.47	6.46
21.00	DISCHE		240.22	238.83	237.44		234.66	233.27	231.88	230.50	229.12
21.00	ELEV		6.44	6.43	6.42	6.41	6.40	6.39	6.38	6.37	6.36
22.00	DISCHE	227.69		224.54			219.16		215.29		211.29
	ELEV						6.28	6.27	6.25	6.24	6.23
23.00	DISCHE	209.27			203.19		199.21	197.26	195.34	193.46	191.59
23.00	ELEV	6.21		6.18	6.17		6.14	6.12	6.11	6.09	6.08
24.00	DISCHG	189.73		185.97			180.99	180.96	180.93	180.89	180.86
	ELEV	6.07						5.98	5.96	5.94	5.91
25.00	DISCHE					180.62		180.51	180.44	180.38	180.32
	ELEV	5.89			5.80			5.70	5.67	5.63	5.59
26.00	DISCHE					180.00	178.05	176.04	174.09	172.21	170.39
	ELEV			5.48	5.44			5.33	212.	5.26	
27.00	DISCHG				163.66		160.41		157.16		153.91
	ELEV	5.20				5.08			4.99	4.96	4.94
28.00	DISCHG	152.28	150.66	149.05	147.43	145.82	144.22	142.62	141.02	139.43	137.85
28.00	ELEV	4.91	4.88	4.85	4.82	4.79	4.76	4.74		4.68	4.65
29.00	DISCHE		134.61	132.53	130.48		126.41	124.40	122.41	120.43	118.47
29.00	ELEV	4.62	4,59	4.57	4.54	4.51	4.49	4.46	4.43	4.41	4.38

RUNOFF VOLUME ABOVE BASEFLOW = 2.04 WATERSHED INCHES, 3652.58 CFS-HRS, 301.85 ACRE-FEET; BASEFLOW = 3.00 CFS

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OPERATION REACH CROSS SECTION 140

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENSTH = 2500.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .38 PEAK TRAVEL TIME = .21 HOURS

*** WARNING - REACH 140 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 115.47 CFS. 38.91 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

16.75

299.29

(NULL)

PEAK ELEVATION (FEET)

RUNOFF VOLUME ABOVE BASEFLOW = 2.03 WATERSHED INCHES, 3621.25 CFS-HRS, 299.26 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 140

OUTPUT HYDROGRAPH= 5

AREA = .20 SQ MI INPUT RUNOFF CURVE = 71. TIME OF CONCENTRATION = .19 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0253 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE (CFS)	PEAK ELEVATION (FEET)
12.02	592.96	(RUNOFF)
15.16	20.38	(RUNOFF)
16.45	17.75	(RUNOFF)
17.65	14.85	(RUNOFF)
19.65	12.01	(RUNOFF)
23.55	9.13	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.73 WATERSHED INCHES, 481.90 CFS-HRS, 39.82 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 140

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS)

12.02 599.16 (NULL) 16.51 316.26 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.14 WATERSHED INCHES, 4103.15 CFS-HRS, 339.08 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION SAVMOV CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

OPERATION RUNOFF CROSS SECTION 149

OUTPUT HYDROGRAPH= &

AREA = .08 SQ MI INPUT RUNOFF CURVE = 65. TIME OF CONCENTRATION = .42 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0560 HOURS

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PEAK TIME (HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET) 12.15 142.32 (RUNOFF) 16.45 6.39 (RUNDEF) 17.67 5.39 (RUNOFF) 19.66 4.37 (RUNDEF) 23.55 3.34 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 3.10 WATERSHED INCHES, 160.17 CFS-HRS, 13.24 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 150

INPUT HYDROGRAPHS = 5.6 OUTPUT HYDROGRAPH = 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.03 708.73 (NULL)
16.51 322.65 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 4263.32 CFS-HRS, 352.32 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION REACH CROSS SECTION 150

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 300.00 FEET INPUT = CDEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48
MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .00 HOURS

WARNING REACH 150 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT

NARNING - REACH 150 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 120.64 CFS, 17.43 % OF PEAK.

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES. 4263.32 CFS-HRS. 352.32 ACRE-FEET: BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 150

OUTPUT HYDROGRAPH= 6

AREA = .01 SQ MI INPUT RUNOFF CURVE = 40. TIME OF CONCENTRATION = .15 HOURS INTERNAL HYDROGRAPH TIME INCREMENT = .0200 HOURS

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.

COMPUTED PEAK(4.99) AT EXCEEDS MAX. ADJACENT HYDROGRAPH COORDINATE BY 8 %.

XSECTION 150

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.05 4.99 (RUNOFF)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .01 SQ.MI.

11.00 DISCHG .00 .00 .00 .00 .00 .00 .00 .00 .00 1.05

12.00 DISCHG 4.60 4.46 2.17 1.71 1.28 1.17 1.09 1.02 1.00 .87

R20 XEQ	04-29-96 09	:08 00	ODE!!! 15 55			MIEAAA AA 115	TAVE					PASS
			IGNETT, 2 CK	EEK WATERSHE	D SIUDY	NV3010 Z4 HF	TAIN	TYPE 2 STORM	20		JOB 1	1 1100
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17 00												
13.00	DISCHS	. 94	.78	.73	.71	.66	. 64	.60	.56	.55	.52	
14.00	DISCHG	.52	.50	.48	. 47	. 44	.43	.41	.38	.38	.38	
15.00	DISCHE	.38	.39	.39	.38	.35	.34	.34	.34	.34	.34	
16.00	DISCHE	.34	.34	.35	.35	.35	.35	.32	.30	.30	.30	
17.00	DISCHG	.30	.30	.30	.30	.30	.30	.30	.30			
18.00	DISCHG	.25								.30	.26	
			. 25	.25	. 25	.25	. 25	. 25	.25	. 25	.25	
19.00	DISCHG	. 25	. 25	.25	. 25	. 25	. 25	. 25	.25	. 25	21	
20.00	DISCHE	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	
21.00	DISCHE	.19	.20	.20	.20	.20	.20	.20	.20	.20	. 20	
22.00	DISCHS	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	
23.00	DISCHG	.20	.20	.20	.20	.20	.20	.20	.20	.20	.15	
24.00	DISCHE	.14	.08	.01	.00							
RUNOFF	VOLUME ABOVE	BASEFLOW =	.84 WATE	RSHED INCHES	, 5	.41 CFS-HRS,		.45 ACRE-FEET;	BASEF	LOW =	.00 CFS	
ERATION		OSS SECTION OGRAPHS= 5,6		T HYDROGRAPH	= 7							
	DEAU TIME/U	ines	DEAK	B. COULEBE (D			_ A - 0 - A					
	PEAK TIME(H	(K2)	PEAK	DISCHARGE (C	15)			N(FEET)				
	12.03			713.69		(MIIII					
	16.51						NULL)					
RUNOFF		BASEFLOW =	2.16 WATER	322.99 RSHED INCHES	, 4269		NULL)	77 ACRE-FEET;	BASEFI	LOW =	3.00 CFS	
	VOLUME ABOVE	ISS SECTION :	180		, 4268		NULL)	77 ACRE-FEET;	BASEFI	LOW =	3.00 CFS	
ERATION	VOLUME ABOVE SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDR	SS SECTION : GRAPH= 7 SS SECTION : GGRAPH= 6	180 OUTPUT HY 180	RSHED INCHES, YDROGRAPH= 5		.73 CFS-HRS,	352.		BASEF	LOW =	3.00 CFS	
ERATION	VOLUME ABOVE SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDR AREA= .1	SS SECTION : SRAPH= 7 SS SECTION : OGRAPH= 6 1 SO MI IN	180 OUTPUT HY 180 NPUT RUNOFF	RSHED INCHES	TIME	.73 CFS-HRS,	352.		BASEF	LOW =	3.00 CFS	
ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDR AREA= .1 INTERNAL HY PEAK TIME(H	ISS SECTION : IGRAPH= 7 ISS SECTION : IGGRAPH= 6 1 SQ MI IN DROGRAPH TIN	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN	RSHED INCHES	TIME DURS	.73 CFS-HRS, OF CONCENTRA	NULL) 352. ATION=	.48 HOURS	BASEF	LOW =	3.00 CFS	
ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDR AREA= .1 INTERNAL HY PEAK TIME(H 12.27	ISS SECTION : IGRAPH= 7 ISS SECTION : IGGRAPH= 6 1 SQ MI IN DROGRAPH TIN	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN	RSHED INCHES F CURVE= 42. T= .0540 HO DISCHARGE (CF 39.64	TIME DURS	.73 CFS-HRS, OF CONCENTRA PEAK EI	NULL) 352. ATION= LEVATIO	.48 HOURS	BASEF	LOW =	3.00 CFS	
ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDR AREA= .1 INTERNAL HY PEAK TIME(H	ISS SECTION : IGRAPH= 7 ISS SECTION : IGGRAPH= 6 1 SQ MI IN DROGRAPH TIN	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN	RSHED INCHES	TIME DURS	.73 CFS-HRS, OF CONCENTRA PEAK EI	NULL) 352. ATION=	.48 HOURS	BASEF	LOW =	3.00 CFS	
ERATION ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDRO AREA = .1 INTERNAL HY PEAK TIME(H 12.27 23.68	SS SECTION : IGRAPH= 7 ISS SECTION : IGGRAPH= 6 1 SO MI IN IDROGRAPH TIN	180 OUTPUT HY 180 MPUT RUNOFF ME INCREMEN	CURVE= 42. TOURUSE 42. TOURUSE 42. TOURUSE 42. TOURUSE 42. TOURUSE 42.	TIME DURS	OF CONCENTRA PEAK EI (1)	ATION= LEVATIO RUNOFF)	.48 HOURS			3.00 CFS	
ERATION ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDRO AREA = .1 INTERNAL HY PEAK TIME(H 12.27 23.68	SS SECTION : SRAPH= 7 SS SECTION : OGRAPH= 6 1 SO MI IN DROGRAPH TIN	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN PEAK .99 WATER	CURVE= 42. TOURUSE 42. TOURUSE 42. TOURUSE 42. TOURUSE 42. TOURUSE 42.	TIME DURS	OF CONCENTRA PEAK EI (1)	ATION= LEVATIO RUNOFF)	.48 HOURS N(FEET)				
ERATION ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDR AREA= .1 INTERNAL HY PEAK TIME(H 12.27 23.68 VOLUME ABOVE	SS SECTION : SRAPH= 7 SS SECTION : OGRAPH= 6 1 SO MI IN DROGRAPH TIN	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN PEAK .99 WATER	CURVE= 42. TOURUSE 42. TOURUSE 42. TOURUSE 42. TOURUSE 42. TOURUSE 42.	TIME DURS FS)	OF CONCENTRA PEAK EI (1)	ATION= LEVATIO RUNOFF)	.48 HOURS N(FEET)				
ERATION ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDRO AREA= .1 INTERNAL HY PEAK TIME(H 12.27 23.68 VOLUME ABOVE ADDHYD CRO INPUT HYDRO PEAK TIME(H	SS SECTION : IGRAPH= 7 ISS SECTION : IGRAPH= 6 1 SO MI IN IDROGRAPH TIN RS) BASEFLOW = SS SECTION : IGRAPHS= 5,4	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN PEAK .99 WATER	CURVE 42. CURVE 42.	TIME DURS FS) 70	OF CONCENTRA PEAK EI (F) .57 CFS-HRS,	ATION= LEVATIO RUNOFF) S. EVATIO	.48 HOURS N(FEET)				
ERATION ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDRO AREA= .1 INTERNAL HY PEAK TIME(H 12.27 23.68 VOLUME ABOVE ADDHYD CRO INPUT HYDRO PEAK TIME(H 12.04	SS SECTION : IGRAPH= 7 ISS SECTION : IGRAPH= 6 1 SO MI IN IDROGRAPH TIN RS) BASEFLOW = SS SECTION : IGRAPHS= 5,4	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN PEAK .99 WATER	CURVE 42. CURVE 42.	TIME DURS FS) 70	OF CONCENTRA PEAK EI (F) .57 CFS-HRS,	ATION= EVATIO RUNOFF) RUNOFF) 5.	.48 HOURS N(FEET) 83 ACRE-FEET;				
ERATION ERATION	SAVMOV CRO INPUT HYDRO RUNOFF CRO OUTPUT HYDRO AREA= .1 INTERNAL HY PEAK TIME(H 12.27 23.68 VOLUME ABOVE ADDHYD CRO INPUT HYDRO PEAK TIME(H	SS SECTION : IGRAPH= 7 ISS SECTION : IGRAPH= 6 1 SO MI IN IDROGRAPH TIN RS) BASEFLOW = SS SECTION : IGRAPHS= 5,4	180 OUTPUT HY 180 NPUT RUNOFF ME INCREMEN PEAK .99 WATER	CURVE 42. CURVE 42.	TIME DURS FS) 70	OF CONCENTRA PEAK EI (F) S7 CFS-HRS,	ATION= LEVATIO RUNOFF) S. EVATIO	.48 HOURS N(FEET) 83 ACRE-FEET;				

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COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM 20

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OPERATION REACH CROSS SECTION 180

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

LENGTH = 1700.00 FEET INPUT = COEFFICIENTS RELATED TO CROSS SECTIONAL AREA, X= .21, M= 1.48

MODIFIED ATT-KIN ROUTING COEFFICIENT = .63 PEAK TRAVEL TIME = .20 HOURS

*** WARNING - REACH 180 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 120.64 CFS, 17.02 % OF PEAK.

PEAK TIME (HRS)

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

12.18 16.65

648.50

(NULL)

326.85 (NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.11 WATERSHED INCHES, 4316.76 CFS-HRS, 356.74 ACRE-FEET; BASEFLOW = 3.00 CFS

OPERATION RUNOFF CROSS SECTION 180

OUTPUT HYDROGRAPH= 6

AREA= .11 SQ MI INPUT RUNOFF CURVE= 41. TIME OF CONCENTRATION= .48 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0640 HOURS

PEAK TIME (HRS)

23.69

PEAK DISCHARGE (CFS)

PEAK ELEVATION (FEET)

PEAK ELEVATION (FEET)

(NULL)

12.28

34.74 2.34

(RUNOFF) (RUNDEF)

RUNOFF VOLUME ABOVE BASEFLOW = .92 WATERSHED INCHES.

65.08 CFS-HRS,

5.38 ACRE-FEET: BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 180

PEAK TIME (HRS)

12.18

22.00 DISCHG

INPUT HYDROGRAPHS= 5.6 OUTPUT HYDROGRAPH= 7

PEAK DISCHARGE(CFS)

680.21

							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
	16.	6 5		330.8	3		(NULL)					
TIME(HRS)		FIRST HYDROG	RAPH POINT	= .00 H	OURS	TIME INCREM	MENT = .10	HOURS	DRAINAGE	AREA =	3.28 SQ.MI.	
8.00	DISCHE	3.00	3.03	3.12	3.25	3.41	3.63	3.87	4.10	4.33	4.55	
9.00	DISCHE	4.77	4.99	5.27	5.63	5.97	6.27	6.57	6.98	7.52	9.03	
10.00	DISCHG	8.49	8.93	9.48	10.18	10.90	12.02	13.18	14.64	16.59	18.38	
11.00	DISCHG	20.83	23.23	25.85	28.98	31.91	36.51	41.18	67.85	125.42	194.68	
12.00	DISCHE	383.69	609.39	677.69	545.85	419.49	320.57	256.33	219.08	198.01	189.25	
13.00	DISCHE	184.32	183.94	186.41	189.83	195.38	200.28	205.62	210.64	214.92	219.63	
14.00	DISCHS	223.57	226.31	227.67	227.76	227.52	227.68	231.15	237.10	244.27	252.62	
15.00	DISCHE	261.54	270.50	279.15	287.24	294.49	299.98	304.63	308.95	312.96	316.61	
16.00	DISCHE	319.84	322.64	325.02	326.99	328.58	329.83	330.74	330.69	329.62	328.58	
17.00	DISCHE	327.72	326.98	326.30	325.59	324.83	323.99	323.09	322.11	321.06	319.74	
18.00	DISCHE	317.32	314.69	312.41	310.43	308.69	307.08	305.53	304.01	302.50	300.98	
19.00	DISCHE	299.46	297.94	296.40	294.87	293.35	291.83	290.32	288.83	287.33	285.65	
20.00	DISCHE	282.91	280.03	277.54	275.43	273.60	271.95	270.40	268.92	267.48	266.05	
21.00	DISCHE	264.64	263.24	261.85	260.46	259.08	257.69	256.31	254.93	253.55	252.17	

250.79 249.42 248.04 246.62 245.15 243.61 241.99 240.30 238.54 236.72

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												,	
23.00	DISCHG	234.85	232.94	230.99	229.02	227.03	225.04	223.04	221.05	219.07	216.88		
24.00	DISCHE	213.63	210.15	205.68	199.98	195.09	191.18	188.02	185.57	183.89	182.78		
25.00	DISCHE	182.07	181.61	181.31	181.10	180.96	180.86	180.78	180.71	180.64	180.58		
26.00	DISCHG	180.52	180.45	180.39	180.33	180.26	180.20	180.14	179.62	178.64	177.32		
27.00	DISCHE	175.79	174.14	172.44	170.72	169.02	167.35	165.68	164.04	162.40	160.76		
28.00	DISCHG	159.13	157.50	155.87	154.25	152.62	151.00	149.39	147.77	146.16	144.56		
29.00	DISCHG	142.95	141.35	139.77	138.17	136.45	134.62	132.71	130.76	128.78	126.80		
RUNOFF	VOLUME ABOVI	E BASEFLOW	= 2.07 WA	TERSHED IN	CHES, 43	81.85 CFS-	HRS, 362	.12 ACRE-F	EET; BAS	EFLOW =	3.00 CFS		
COUTING	CONTROL OP	ERATION END	CMP								RECORD I	n	174

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID 1750

COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 92 30

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE		CONTROL	DRAINAGE	RAIN	ANTEC		P	RECIPITAT	ION	RUNOFF		PEAK D	ISCHARGE	
ID		PERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	. RATE (CFS)	RATE (CSM)
ALTERNA	TE	92 ST	ORM 1											
+	-	72 31	unn 1											
STRUCTURE	10	RUNOFF	.84	2	2	.10	.0	7.00	24.00	1.67		17.80	96.56	114.
STRUCTURE		RESVOR	.84	2	2	.10	.0	7.00	24.00	1.43	9.50	18.14	96.09	114.
AND	10	REACH	.84	2	2	.10	.0	7.00	24.00	1.62		18.47	98.84	117.
XSECTION	10	RUNOFF	.20	2	2	.10	.0	7.00	24.00	1.49		12.05	211.47	1057.
XSECTION	10	ADDHYD	1.04	2	2	.10	.0	7.00	24.00	1.60		12.05	214.47	206.2
			tops In ST	44										
STRUCTURE		RESVOR	1.04	2	2	.10	.0	7.00	24.00	1.54	9.27	20.05	95.07	91.
	20	REACH	1.04	2	2	.10	.0	7.00	24.00	1.54		20.19	95.04	91.
	20	RUNOFF	.28	2	2	.10	.0	7.00	24.00	2.12		13.35	108.59	388.
	20	ADDHYD	1.32	2	2	.10	.0	7.00	24.00	1.66		13.27	150.11	113.7
STRUCTURE	30	RUNOFF	.37	2	2	.10	.0	7.00	24.00	1.57		14.95	60.58	163.7
STRUCTURE	30	RESVOR	.37	2	2	.10	.0	7.00	24.00	1.51	25.91	16.21	48.05	129.9
	40	REACH	.37	2	2	.10	.0	7.00	24.00	1.50		16.55	47.70	128.9
	40	RUNOFF	.06	2	2	.10	.0	7.00	24.00	.84		12.72	10.21	170.
	40	ADDHYD	.43		2	.10	.0	7.00	24.00	1.41		16.54	49.80	115.8
STRUCTURE	40	RESVOR	.43	2	2	.10	.0	7.00	24.00	1.41	10.89	16.60	49.78	115.8
	50	REACH	. 43	2	2	.10	.0	7.00	24.00	1.40		16.72	49.77	115.7
	49	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.84	A	13.33	13.76	125.1
	50	ADDHYD	.54	2	2	.10	.0	7.00	24.00	1.29		16.65	53.98	100.0
	50	RUNOFF	.36	2	2	.10	.0	7.00	24.00	5.25		12.13	1078.73	2996.5
XSECTION :	50	ADDHYD	.90	2	2	.10	.0	7.00	24.00	2.87		12.13	1079.95	1199.9
XSECTION	60	REACH	.90	2	2	.10	.0	7.00	24.00	2.87	en e	12.13	1079.95	1199.9
	60	RUNOFF	.05	2	2	.10	.0	7.00	24.00	1.24		12.56	16.56	331.2
	60	ADDHYD	. 95	2	2	.10	.0	7.00	24.00	2.79		12.14	1086.21	1143.4
	70	ADDHYD	2.27	2	2	.10	.0	7.00	24.00	2.13		12.14	1116.29	491.8
	80	REACH	2.27	2	2	.10	.0	7.00	24.00	2.13		12.14	1116.29	491.8
										Section 1			1110127	7/111
XSECTION (80	RUNOFF	.02	2	2	.10	.0	7.00	24.00	2.98		11.98	54.99	2749.8
XSECTION 8	30	ADDHYD	2.29	2	2	.10	.0	7.00	24.00	2.14		12.14	1137.16	496.6
XSECTION (90	RUNOFF	.24	2	2	.10	.0	7.00	24.00	4.14		12.25	458.49	1910.4
XSECTION 10	00	ADDHYD	2.53	2	2	.10	.0	7.00	24.00	2.33		12.17	1546.52	611.3
XSECTION 1	10	REACH	2.53	2	2	.10	.0	7.00	24.00	2.33	- 	12.17	1546.52	511.3
VEECTION 4	10	DEACH	0.57							100				
XSECTION 12		REACH	2.53	2	2	.10	.0	7.00	24.00	2.33		12.17	1546.52	611.3
XSECTION 13	20	KUNUFF	.19	2	2	.10	.0	7.00	24.00	3.20		12.35	245.11	1290.1

COSDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 92

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED

(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD CONTROL	DRAINAGE	RAIN	ANTEC	MAIN	P	RECIPITAT	TION	Sunace		PEAK I) ISCHARGE	
ID	OPERATION	AREA (SQ MI)	TABLE #	MOIST	TIME INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)	RUNOFF AMOUNT (IN)	ELEVATION (FT)	TIME (HR)	· ·RATE (CFS)	RATE (CSM)
ALTERNATE	92 ST	ORM 1											
XSECTION 120	ADDHYD	2.72	2	2	.10	.0	7.00	24.00	2.39		12.18	1751.46	643.9
STRUCTURE 50	RESVOR	2.72	2	2	.10	.0	7.00	24.00	2.21	11.34	13.60	365.02	134.2
XSECTION 130	REACH	2.72	2	2	.10	.0	7.00	24.00	2.21		13.60	365.02	134.2
XSECTION 130	RUNOFF	.05	2	2	.10	.0	7.00	24.00	4.05		12.01	160.37	3207.4
XSECTION 130	ADDHYD	2.77	2	2	10	.0	7.00	24.00	2.24		13.49	374.66	135.3
STRUCTURE 60	RESVOR	2.77	2	2	.10	.0	7.00	24.00	2.04	6.8 9	16.46	299.80	108.2
XSECTION 140	REACH	2.77	2	2	.10	.0	7.00	24.00	2.03		16.75	299.29	108.0
XSECTION 140	RUNOFF	.20	2	2	.10	.0	7.00	24.00	3.73		12.02	592.96	2964.8
XSECTION 140	ADDHYD	2.97	2	2	.10	.0	7.00	24.00	2.14		12.02	599.16	201.7
XSECTION 149	RUNOFF	.08	2	2	.10	.0	7.00	24.00	3.10		12.15	142.32	1779.0
XSECTION 150	ADDHYD	3.05	2	2	.10	.0	7.00	24.00	2.17		12.03	708.73	232.4
XSECTION 150	REACH	3.05	2	2	.10	.0	7.00	24.00	2.17		12.03	708.73	232.4
XSECTION 150	RUNOFF	.01	2	2	.10	.0	7.00	24.00	.94		12.05	4.99	499.3
XSECTION 150	ADDHYD	3.06	2	2	.10	.0	7.00	24.00	2.16		12.03	713.69	233.2
XSECTION 180	RUNDFF	.11	2	2	.10	.0	7.00	24.00	.99		12.27	39.64	360.4
XSECTION 180	ADDHYD	3.17	2	2	.10	.0	7.00	24.00	2.12		12.04	730.28	250.4
XSECTION 180	REACH	3.17	2	2	.10	.0	7.00	24.00	2.11		12.18	648.50	204.6
XSECTION 180	RUNOFF	.11	2	2	.10	.0	7.00	24.00	.92		12.28	34.74	315.8
XSECTION 180	ADDHYD	3.28	2	2	.10	.0	7.00	24.00	2.07		12.18	680.21	207.4

COGDELL'S CREEK MATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM

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SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS

(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

				IYDROGRA					IICO FHRH			ROUTING							FAK
+									VOLUME										
						GUIF	LUMT		VULUNE	HIN	IIER-	W AND	н		PEHK	2/ K	. HI !-	INAVE	LIIME
YGE	C REACH	TNE	UM	ОПТЕ	II OM	INTED	U ADEA	DACE_	ADOUE	TIME	ATION	ENHATTI	ΠN	I ENETU	DATIN	SPEAN	VIN	CTOD_	VINE.
	CMERCII	7:41 1	-04	0011	LUM	INIER	V.HREH	DH3E-	HDUVE	TIME	HITUN	EROHII	UN	LENDIN	THILD	WIEHK	KIN	-אטוכ	KINE-
	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR	#	COEFF P	OWER	FACTOR	0/1	(K)	COEFF	AGE	MATIC
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(K‡)	(Q‡)	(SEC)	(C)	(HR)	(HR)
	ALTERNATE		STORM	1															
	1750				18.5			3	1.63\$.10	1	1.20	1.10	.021	.997	888	.34	.40	.25
+						203	12.1												
+ 20	2900	95	20.0	95	20.2			3	1.54‡	.10	1	.280	1.94	.000	1.000	317	.72?	.20	.09
+						150	13.3					.880							
+ 40	1300	48	16.2	48	16.5			0	1.51	.10			1.10	.027	.992	934	.32	.30	.26
+						50	16.5												
+ 50	1700	50	16.6	50	16.7			0	1.41	.10	1	1.60	1.45	.002	1.000	252	.83?	.10	.07
+						54	16.5												
+ 60	1400	1064	12.1	1064	12.1			0	2.87	.10	0	.440	1.94	.000	1.000	38	1.00?	.00	.00
+						1069	12.1												
T 0V	700	1000	12.1	1002	12.1				2.17			.300			1 000				
	700	1072	12.1	1072					2.13	.10	V		1.74	.000	1.000	23	1.00?	.00	.00
+		10 August				1120						.300							
+110	500	1533	12.2	1533	12.2			3	2.33	.10	0	1	1.94	.000	1.000	14	1.00?	.00	.00
+						-						.300							
+120	500	1533	12.2	1533	12.2			3	2.33	.10	0	1	1.94	.000	1.000	14	1.00?	.00	.00
+						1748	12.2					.300				В	-320		
												.300							

+130	1000	365	13.6	365	13.6		1.1	3	2.21#	.10	0	1.94	.000	1.000	55 1.00?	.00	.00	
+						375	13.5									Dra	aft	
+140	2500	300	16.5	299	16.7			3	2.04#	.10	i	.210 1.48	.004	.998	763 .38	.20	.21	
+						595	12.0											
	700											.210						
+150	300	675	12.0	595	12.0			3	2.17*	.10	0	1.48	.000	1.000	70 1.00?	.00	.00	
+						700	12.0					.210						
+180	1700	712	12.0	645	12.2			3	2.12\$.10	1	1.48	.005	.906	392 .63	.20	.11	
+						678	12.2											

TR20 XEQ 04-29-86 09:08 REV PC 09/83(.2) COGDELL'S CREEK WATERSHED STUDY NV5010 24 HR 10YR TYPE 2 STORM ALT 92 30

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS
0	STRUCTURE &	50	2.77	
+	AL TERMATE			
۸	ALTERNATE			299.80
U	STRUCTURE 5	30	2.12	
+	ALTERNATE			7/5 40
^				365.02
	STRUCTURE 4			
Τ.	ALTERNATE			10.70
۸	CTOUCTUOE 3	72	.37	49.78
	STRUCTURE 3	ν	.3/	
Τ.	ALTERNATE	02		48.05
				40.00
·	STRUCTURE 2	·U	1.04	
	ALTERNATE	07		95.07
	STRUCTURE 1			73.07
+	311001010		.07	
	ALTERNATE	92		96.09
	XSECTION 1			70.07
	ALTERNATE	92		214.47
	XSECTION 2			
+				
	ALTERNATE	92		150.11
	XSECTION 4			
+				
	ALTERNATE	92		49.80
0	XSECTION 4	9	.11	
+				
	ALTERNATE			13.76
0	XSECTION 5	0	.90	
+	46,753			
	ALTERNATE			1079.95
0	XSECTION 6	0	.95	
+				
	ALTERNATE			1086.21
0	XSECTION 7	0	2.27	
+				
	ALTERNATE			1116.29
0	XSECTION 8	0	2.29	
+	AL TERNATE			
	ALTERNATE	42		1137.16

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

	XSECTION/		DRAINAGE	
-	STRUCTURE		AREA	STORM NUMBERS
	ID		(SQ MI)	1
0	XSECTION 90		.24	
+				
	ALTERNATE	92		458.49
0	XSECTION 100			
+				
1	ALTERNATE	92		1546.52
0	XSECTION 110			
-	ALTERMATE	92		1546.52
0	XSECTION 120			
÷				
-	ALTERNATE	92		1751.46
0	XSECTION 130		2.77	
+				
	ALTERNATE	92		374.66
0	XSECTION 140		2.97	
÷				
	ALTERNATE	92		599.16
0	XSECTION 149		.08	
	ALTERNATE	92	Sales Well	142.32
0	XSECTION 150		3.06	
÷				
	ALTERNATE	92		713.69
9	XSECTION 180		3.28	
+				
	ALTERNATE	92		680.21

