Gregory - Grace
AND ASSOCIATES INCORPORATED

PRINCIPALS
Wesley G. Grace, PE
James W. Dugan, ASLA
William O. Hagerman, PE

ASSOCIATES
G. Paul Bray, RLS
Charles M. Cooley, PE
Edward T. Davis, PE
James A. Ferguson, AICP
Jess L. Haley, PE
Edward Hargraves, PE
DeWayne Hawkins
Robert W. Martin, RLS, SET
C. Baxter McCord, AIA
Grey L. Neely, PE
Richard H. Price, PE
L. Dean Thomas, ASLA

September 30, 1982

Mr. Edmund O'Neil
Division of Water Resources
State of Tennessee
Suite 402A
Box 42
225 Madison Avenue
Jackson, Tennessee 38301

RE: Carrollwood Lake "D"
Shelby County, Tennessee
GGA Job #81101-00

Dear Mr. O'Neil:

The following information is provided per your request in a telephone conversation with Ed Hargraves last week.

Lake Level Control Pipe: This pipe will primarily be utilized between rainfalls/storms to return the lake level to the normal pool elevation (331.00). It will also keep the water from lapping continuously at the spillway outlet.

Dam Cross-Section: The dam cross-section is designed as such to insure the structural integrity of the dam as well as in consideration of maintenance along the banks. Please note that the lake's normal pool elevation is at natural ground elevation, therefore, minimizing excessive stress in a fill area. Please see attached sheet for the dam cross-section.

If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

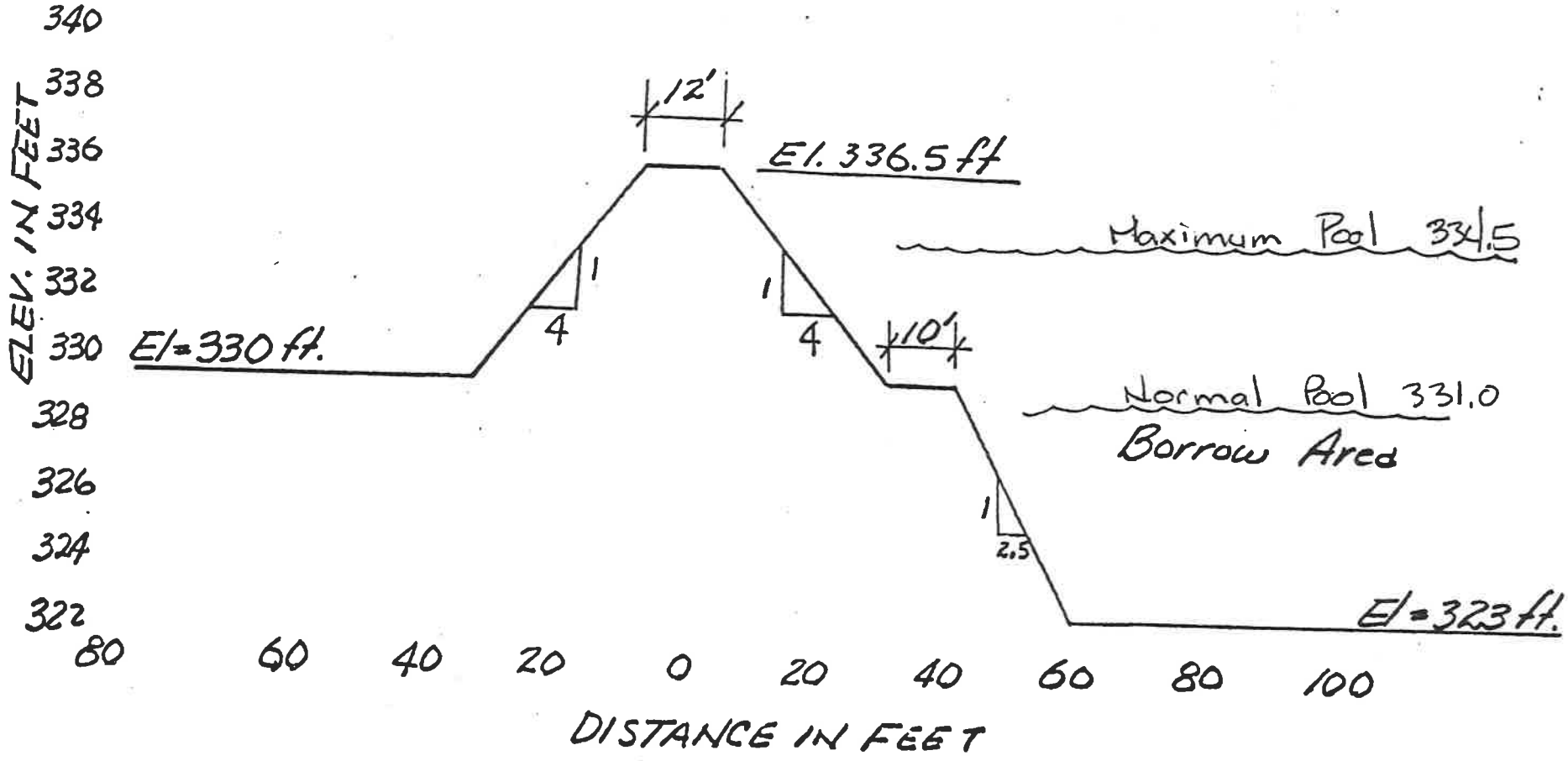
Blair Parker

Blair Parker, ASLA

BP/cd

cc: Paul Bray

FIGURE 2
PROPOSED DAM
FOR
CARROLLWOOD LAKE



DESIGN CRITERIA

CARROLLWOOD LAKES DAM

LAKE "D"

SHELBY COUNTY, TENNESSEE

Classified by Tennessee Department of Conservation by letter of November 25, 1981 a damage potential category of 2. This category corresponds with SCS structure Class B.

The drainage basin for the proposed dam is approximately 376 acres while the lake area is only approximately 7.1 acres. Because of the large ratio of drainage area to lake area it was decided to assume no storage available for storm retention. Therefore, the spillway will be sized to pass whatever amount of runoff enters the lake. With the limited area available for spillway construction because of the desire to develop as much land around the lake as possible for residential purposes, it was decided to combine the principal and emergency spillway into one concrete structure. With the above in mind, the following hydraulic calculations are offered. Reference for all design parameters is Earth Dams and Reservoirs by the Soil Conservation Service, Technical Release No. 60.

A. Runoff Calculations for sizing Principal Spillway

Design Parameters[5]: Return Period = 50 Years
Duration = 10 Days
Amount[3] = 13.3 Inches

Soils Group of Drainage Basin

Soils Group B	19%
Soils Group C	81%

Runoff Curve Number (RCN)

			RCN	
	%B	%C	B	C
Cultivated Land	0	45	81	88
Pasture	20	30	61	74
Wooded	0	5	55	70

$$\text{Weighted RCN} = \frac{(0)(81)+(45)(88)+(20)(61)+(30)(74)+(0)(55)+(5)(70)}{100}$$

RCN = 78