BALDWIN & CRANSTON ASSOCIATES, INC.
ENGINEERS PLANNERS CONSULTANTS

July 21, 1972

Mr. Bryant McDaniel, President
Mountain Resort Company
300 Interstate North
Atlanta, Georgia

Dear Bryant:

Enclosed are copies of the text comprising Coleman Engineering Labortories' report on soils for Petit Cove Dam. I have omitted the detailed information from the appendices because I did not think it would add to your understanding of his findings and recommendations.

You will note that Coleman's concern was not so much for a lack of core material as it was for shell material. Apparently he feels that much of the material that Pinckney and Lothridge consider unsuitable can be used for the core.

In any event we have asked Coleman to send a soils technician to the site on Monday to collect samples and to make some additional borings. Mr. Coleman or Dr. Humphrey plan to be there on Tuesday to make a further examination. We will naturally give careful consideration to their findings and further recommendations.

Meanwhile, if we can be of further help please let us know.

Yours truly,

BALDWIN & CRANSTON ASSOCIATES, INC.

Bill Edens

William E. Edens, P.E.

WEE/ds

Enclosure

cc: Mr. Harold Singleton
Mr. Harry Lothridge
Mr. Jim Bruffey

1103 GREENE STREET • AUGUSTA, GEORGIA 30901 • PHONE AREA CODE 404 724-4619 or 722-1175

Dec 1971

As requested, additional soil exploration has been completed at the site of a proposed Petit Cove Dam near Jasper, Georgia. Five borings were made in the spillway area to locate solid rock for the spillway surface. Four borings were made along the route of the low level pipeline outlet to find firm material for bedding of the pipe. Four borings were made at the stations noted in the Boring Records in uninvestigated areas of the dan extension to determine the soil consistency and to locate sound rock. Two borings were made along Tate Road to determine the composition of subgrade soils in roadway areas. Seven borings were made in the North Borrow Area adjacent to the dam location and thirteen borings were made in the South Borrow Area to locate deposits of core material in close proximity to the construction site. Ten borings numbered R-28 to R-37 were made in uninvestigated areas of the reservoir to locate additional borrow areas containing satisfactory core materials. The locations of these borings are discribed on all Test Boring Records and shown on the Engineering Plans.

From the Test Boring Records it can be seen that solid rock was found at a considerable depth in the spillway area so that it will not be possible to excavate the channel down to the rock surface. Very stiff weathered granite was found at shallow depths along the route of the pipeline and should provide satisfactory bedding for the pipe. Stiff soil conditions were encountered at the locations drilled for the dam extension with solid rock at moderate depths so that adequate support for the structure can be obtained. No significant quantities of core material were found in the North or South Borrow Areas, however, large quantities were found in the borings which were located in the Reservoir area rather close to the dam site. Tests were made on selected samples

from the Reservoir area to determine the slope stability of core and shell materials and to determine the consolidation of the plastic core material. These tests are described and the data tabulated in following sections of this report.

DISCUSSION

Based upon these additional borings, large quantities of ML and CL type core materials are available in nearby areas of the reservoir. The consolidation test reaults show that settlement of this material will not be excessive when compacted to the specified density. Triaxial Shear tests on compacted samples of the proposed SM type shell materials show that the planned slopes will be stable when compacted to the specified density.

Close supervision during construction of this project will be necessary to assure that only ML and CL type soils are placed in the dam core and that only SM type soils are used in the shell. Since the borings in the reservoir area encountered some SM soils in areas near the ML and CL soils, it will be necessary to isolate the different areas by checking the gradation and Atterberg Limits since differences cannot be detected by visual examination of color and texture.

We will be pleased to answer any further questions or be of additional assistance on this project upon request.

Respectfully submitted.

COLEMAN ENGINEERING LABORATORIES, INC

Henry R. Coleman

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Registered Engineer

and density thus obtained. These samples were then subjected to capillary absorption for several days and then tested tri-axially. The results are tabulated elsewhere in this report. Permeability tests were also performed on remolded specimens and these results are also included. Results of these tests show that the soils, especially in the area of Bore No. R-7, are suitable if proper slopes and construction control are obtained. If a sufficient quantity of soil represented by Bore R-7 exists, slopes on the order of 3½:1 on the lake side and 2½:1 on the back side can be safely used. If soils represented by the other borings are used, flatter slopes will be necessary.

DISCUSSION

Based upon results of these preliminary borings, this project appears economically feasible with regard to foundation conditions, core material and shell material. Solid rock was encountered at moderate depths in the dam area. Borings in the reservoir area indicate sufficient quantities of core material at reasonable haul distances. Although the most desirable types of granular slope materials were not found, materials were located which can be used with proper design and construction procedures.

We will be pleased to offer further specific recommendations during preparation of engineering plans for this project.

Respectfully submitted,
COLEMAN ENGINEERING LABORATORIES, INC.

Henry R. Coleman
Registered Engineer