Blevins

E. F. Thomas, Director of Power Production, 1005 EB-C (2)

J. R. Parrish, Director of Engineering Design, 505 UB-K

November 5 1970

KINGSTON STEAM PLANT - ANNUAL ASH POND DIKE INSPECTION

Attached is a memorandum report from J. L. Glover to W. M. Calvert dated October 6, 1970, of the September 30 joint field inspection at Kingston which includes recommendations for corrective work. I concur in these recommendations.

J. R. Parrish

JLG:MCH
Attachment
CC: F. P. Lacy, 405 UB-K (3) - w/3 attachments
Power Manager's Files, 531 PRB-C

W. N. Calvert, Head Civil Engineer (Highway and Railroad), 101 FB-K

J. L. Glover, Civil Engineer (Highway and Railroad), 100 FB-K

October 6, 1970

KINGSTON STEAM PLANT - ANNUAL ASH POND DIKE INSPECTION

On September 30, 1970, L. B. Cook of DPP; L. B. Kennedy, Assistant Plant Superintendent; and J. P. H. Stivers and I of DED inspected the ash ponds at the Kingston Steam Plant and discussed the findings with A. O. Spencer, Plant Superintendent.

On the attached print of 10N400 the different areas are designated.

In general, the dikes are in good shape, and there appears to be no stability problem. The original dikes were constructed of earth. The dikes around the initial ash area were raised with ash. In the last year a great deal of work has been done on dike C and the road dike. These two dikes are being raised with earth and ash.

Since last year's inspection, fill around the northern spillway discharge pipe has been excavated from the spillway to near the middle of the dike, portions of the pipe replaced, the excavated portion backfilled with carefully compacted earth, and all the joints in the pipe grouted from the inside. This has eliminated seepage along the outside of the pipe. Both spillways have been raised two feet; and to maintain a 4-foot freeboard in the ash pond, dike C has been raised approximately two feet. Standard skimmers (picture 6) have been installed, and a concrete end wall (picture 5) has been constructed at the spillway outlet. There were no signs of any fly ash escaping through the spillway.

The outside slopes of the west dike and dike C (pictures 1 and 2) have been flattened and dressed up. Portions of the outside slope of dike C have been seeded and a good growth of vegetation established (picture 2). On some sections of the dike, vegetation has come up on its own (picture 4). The remainder of dike C is to be fertilized and seeded this fall.

On the outside slope of the east ash dike of the initial area, two experimental plots were established. Plot one was covered with approximately six inches of soil, fertilized, and seeded. This plot has an excellent growth of vegetation. No soil was placed on the second plot. This plot was limed, fertilized, and seeded. The second plot produced no vegetation.

W. N. Calvert
October 6, 1970

KINGSTON STEAM PLANT - ANNUAL ASH POND DIKE INSPECTION

A section of dike C that had been eroded by wave action from Watts Bar Lake has been riprapped (picture 3). This should eliminate the erosion at this section of dike.

Our recommendations for the Kingston ash ponds are as follows:

1. Continue grassing the earth slopes.

2. Keep logs and trash removed from the outside slope of dike C.

3. Raise dikes, with earth and ash, as required to maintain 4-foot freeboard in the pond, keeping the top of dike smooth and sloped to the inside. The top of the original dikes shall be left as a berm and the dikes raised with slopes of 2:1 on the inside and 3:1 on the outside with 16-foot top width. The maximum height of each lift shall not exceed 10 feet before providing a berm.

J. L. Glover

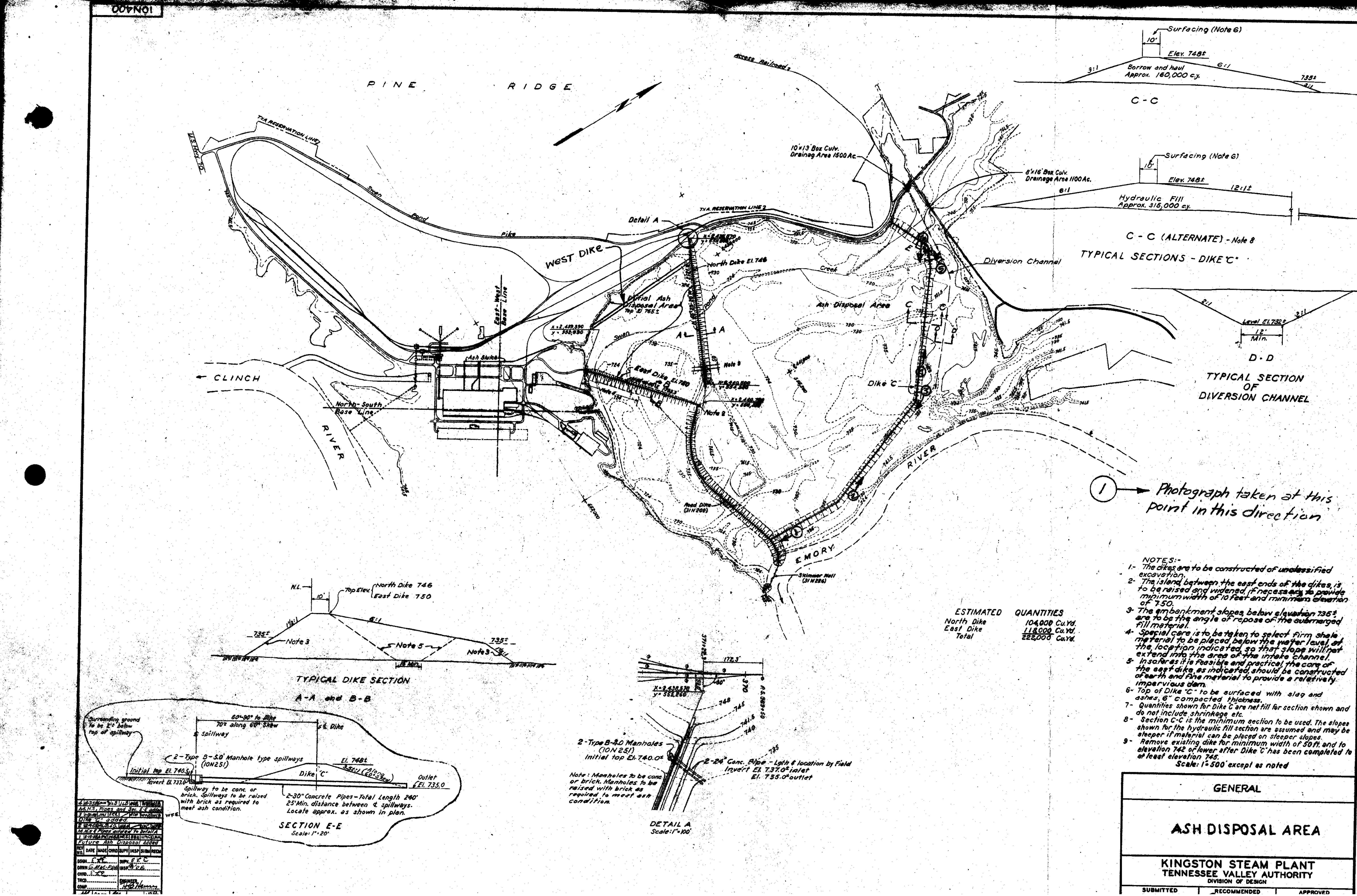
JLG:NCH
Attachments

Concur: W. N. Calvert

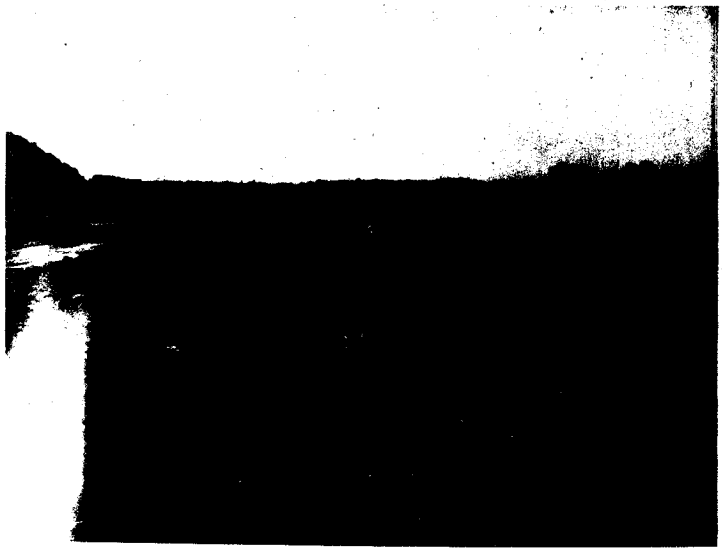
F. P. Lacy

WNC:NCH--10/7/70
CC (Attachments):
F. P. Lacy, 405 UB-K

FPL:EW--10/7/70
CC (Attachments):
J. R. Parrish, 505 UB-K

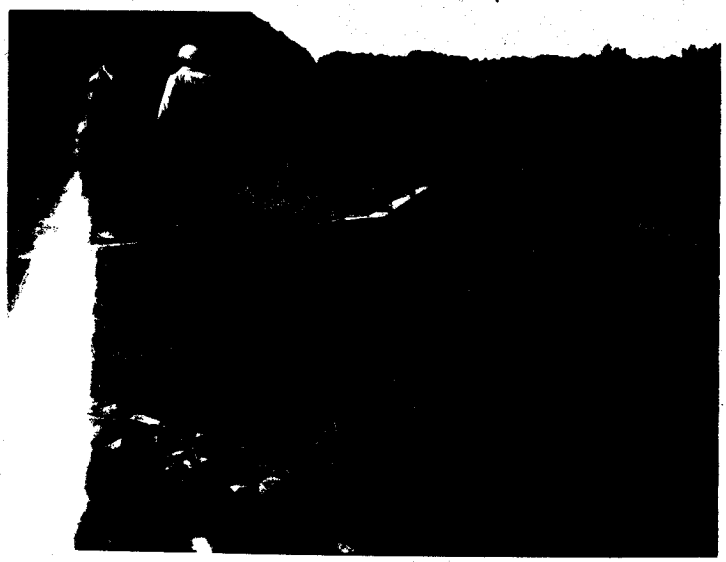

10N400
PINE RIDGE
Access Railroad
TVA RESERVATION LINE
U.S. Hwy 70
Swan Pond Pike
WEST DIKE
Detail A
TVA RESERVATION LINE 2
North Dike El. 746
Initial Ash Disposal Area Top El. 765±
East-West Base Line
Ash Sluice
North-South Base Line
← CLINCH
RIVER
East Dike El. 750
Note 8
Ash Disposal Area
Creek
Dike 'C'
Diversion Channel
10'x13' Box Culv. Drainag. Area 1500 Ac.
8'x16' Box Culv. Drainage Area 1100 Ac.
Road Dike (31N208)
Skimmer Wall (31N236)
EMORY
RIVER
Surfacing (Note 6)
Elev. 748±
Borrow and haul Approx. 160,000 c.y.
C - C
Surfacing (Note 6)
Elev. 748±
Hydraulic Fill Approx. 315,000 c.y.
C - C (ALTERNATE) - Note 8
TYPICAL SECTIONS - DIKE 'C'
Level El. 732±
12' Min.
D - D
TYPICAL SECTION OF DIVERSION CHANNEL
Photograph taken at this point in this direction
Top Elev. North Dike 746 East Dike 750
Note 3
Note 5
TYPICAL DIKE SECTION
A-A and B-B
Surrounding ground to be 2' below top of spillway
60'-90' to Dike
70' along 60° Skew
℄ Spillway
℄ Dike
2-Type B-5.0' Manhole type spillways (10N251)
Initial top El. 740.5±
Invert El. 733.0
Spillway to be conc. or brick. Spillways to be raised with brick as required to meet ash condition.
2-30" Concrete Pipes - Total Length 240'
25' Min. distance between ℄ spillways. Locate approx. as shown in plan.
Outlet El. 735.0
SECTION E-E
Scale: 1"=20'
2-Type B-4.0 Manholes (10N251)
Initial top El. 740.0±
Note: Manholes to be conc. or brick. Manholes to be raised with brick as required to meet ash condition.
2-24" Conc. Pipe - Lgth & location by Field
Invert El. 737.0± inlet
El. 735.0± outlet
DETAIL A
Scale: 1"=100'
ESTIMATED QUANTITIES
North Dike 104,000 Cu.Yd.
East Dike 118,000 Cu.Yd.
Total 222,000 Cu.Yd.
NOTES:-
1- The dikes are to be constructed of unclassified excavation.
2- The island between the east ends of the dikes, is to be raised and widened, if necessary, to provide minimum width of 10 feet and minimum elevation of 750.
3- The embankment slopes below elevation 735± are to be the angle of repose of the submerged fill material.
4- Special care is to be taken to select firm shale material to be placed below the water level at the location indicated, so that slope will not extend into the area of the intake channel.
5- In so far as it is feasible and practical the core of the east dike, as indicated, should be constructed of earth and fine material to provide a relatively impervious dam.
6- Top of Dike 'C' to be surfaced with slag and ashes, 6" compacted thickness.
7- Quantities shown for Dike C are net fill for section shown and do not include shrinkage etc.
8- Section C-C is the minimum section to be used. The slopes shown for the hydraulic fill section are assumed and may be steeper if material can be placed on steeper slopes.
9- Remove existing dike for minimum width of 50 ft. and to elevation 742 or lower after Dike 'C' has been completed to at least elevation 745.
Scale: 1"=500' except as noted
Future Ash Disposal Added
GENERAL
ASH DISPOSAL AREA
KINGSTON STEAM PLANT
TENNESSEE VALLEY AUTHORITY
DIVISION OF DESIGN
SUBMITTED
RECOMMENDED
APPROVED

KINGSTON STEAM PLANT
1970



④

Outside Dike "C"; vegetation has come up on its own.



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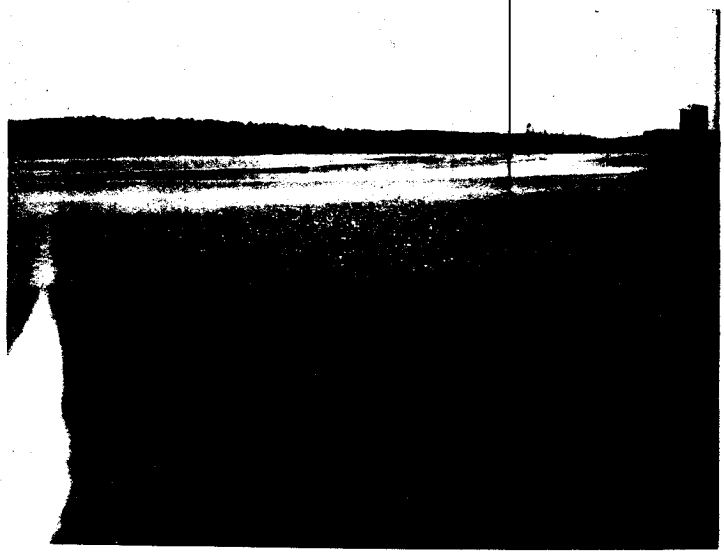
Concrete endwall at spillway outlets.



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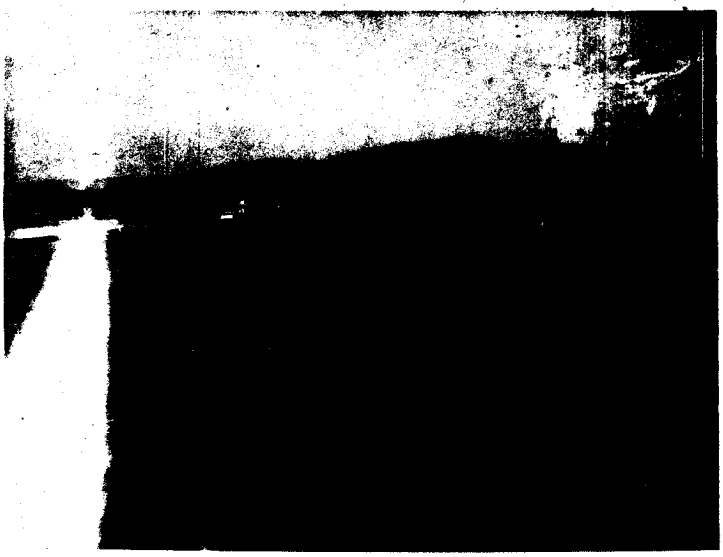
Standard skimmers that have been placed on spillways

KINGSTON STEAM PLANT
1970

(1)

Outside slope of raised Dike "C".



(2)

Outside of Dike "C" showing areas where seeding has and has not been attempted.

(3)

Area of Dike "C" riprapped to prevent erosion.