TRC 84

SLOPE STABILITY

Interim Report

Construction on Job #110066
Lehi - West Memphis Structures and Approaches
July 1986

- Conducted By -

Arkansas State Highway and Transportation Department

Materials and Research Division

Construction on Job #110066

Lehi - West Memphis Structures and Approaches

by

Greg Harding

Materials and Research Division

Arkansas State Highway and Transportation Department

July 1986

SLOPE STABILITY

Construction Report

Lehi - West Memphis Structures Alterations

Job #110066

On June 23, 1986 an on site visit was made of Job 110066, Lehi - West Memphis Structures Alterations (See Figure 1). This project is incorporating several methods of slope stabilization selected by the TRC-94 committee for monitoring and comparison (See Figure 2).

The Airport Road overpass of I-40 is in the process of being raised. The northbound lane of Airport Road is closed and has been raised with deck work underway. The embankments on the east side have been cut out to a 1:1 slope. Lime treatment of the embankment slope material began in mid-June. Scrapers are placing the treated material in 6 to 8 inch lifts and adequate density using a Sheep's foot roller is being obtained. Mixing of the lime into the soil is being done on site using lime pellets mixed in three passes (See Figure 3). This work should be completed in the next 30 days. Slopes on the west side (See Figure 4) will not be cut out until traffic is detoured to the northbound lane.

Bolling Road embankments have been cut out and upgraded borrow consisting of uniform clean sand from a pit approximately 5 miles away has been installed on all four sides (See Figure 5). The side slopes have been topped with 12 inches of high P.I. clay and 6 inches of native soil and the end slopes are ready for the installation of concrete rip-rap. Ponding has occurred at the toe of the southeast slope.

Ebony Road overpass has had three out of four embankments cut out (See Figure 6). The slopes in the northeast quadrant appear to be steeper than the 1:1 required. No significant erosion or failure have occurred on these exposed slopes. According to the Resident Engineer these slopes will not be replaced this year. Plans call for wire mesh on the south side placed at 2 foot vertical intervals. Fabric reinforcement will be used on the north side slopes, also at 2 foot intervals. An area of ponding was noted at the edge of the previous slope on the northwest side.

The I-40 overpass at the Lehi exit, Hwy 147, has also had the side slopes reconstructed with upgraded borrow on the north side. Traffic is using the eastbound lanes. The slopes on the south side will be replaced when the eastbound lanes are closed.

Further monitoring will be conducted as construction progresses.

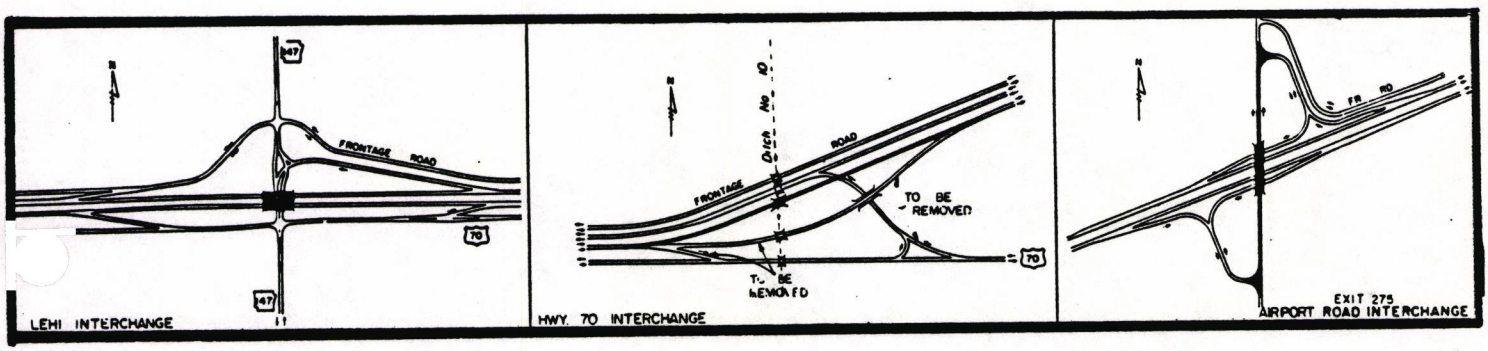
LOCATION MAP

LEHI – WEST MEMPHIS STRUCTURES ALTERATIONS

CRITTENDEN COUNTY

ROUTE 40 SECTION 52

JOB 110066



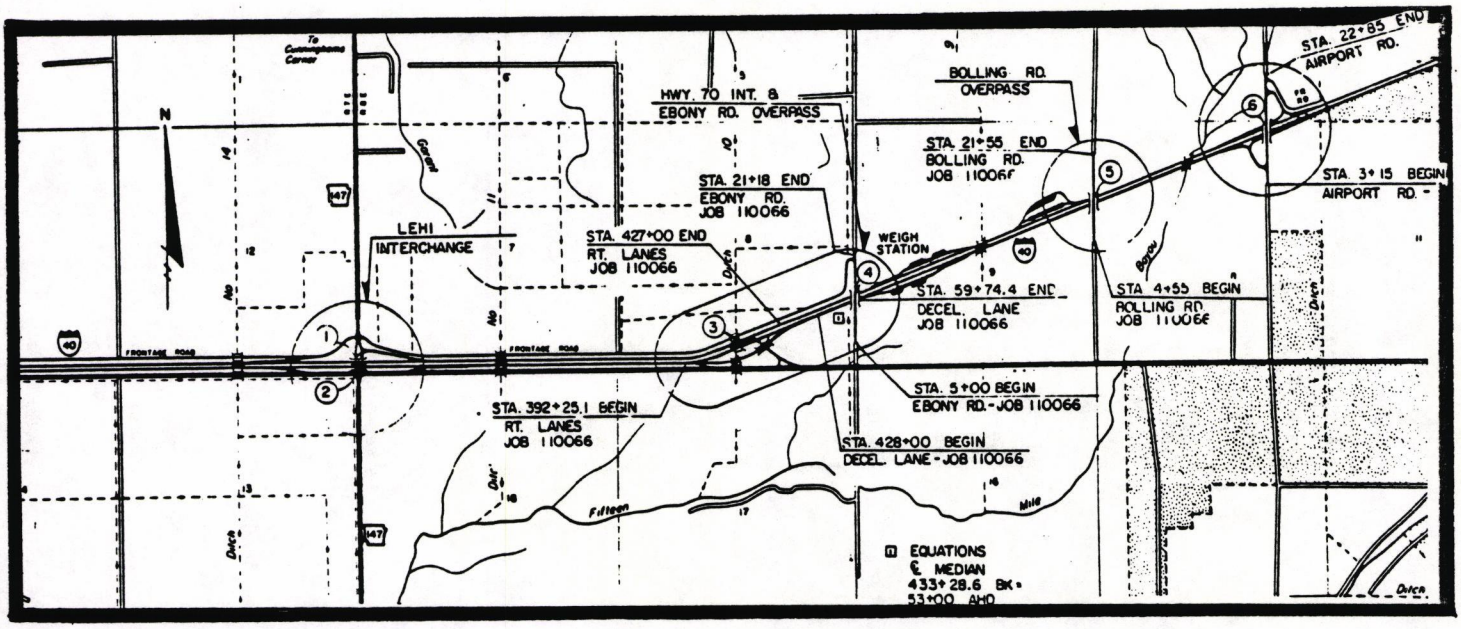
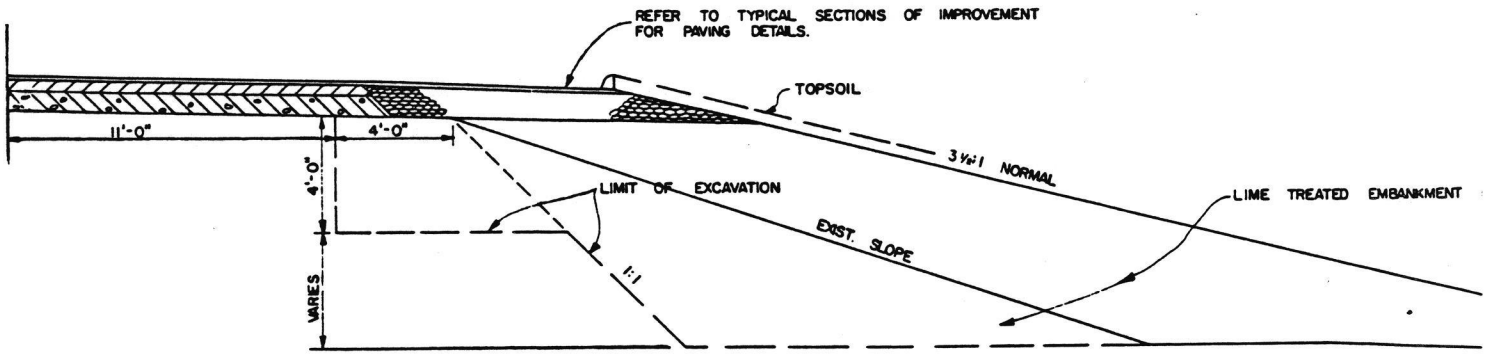
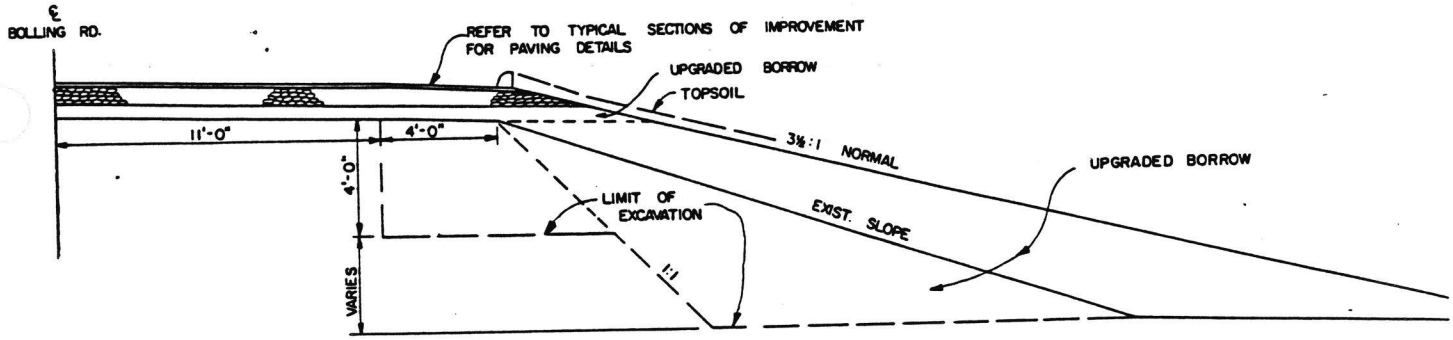


Figure 1

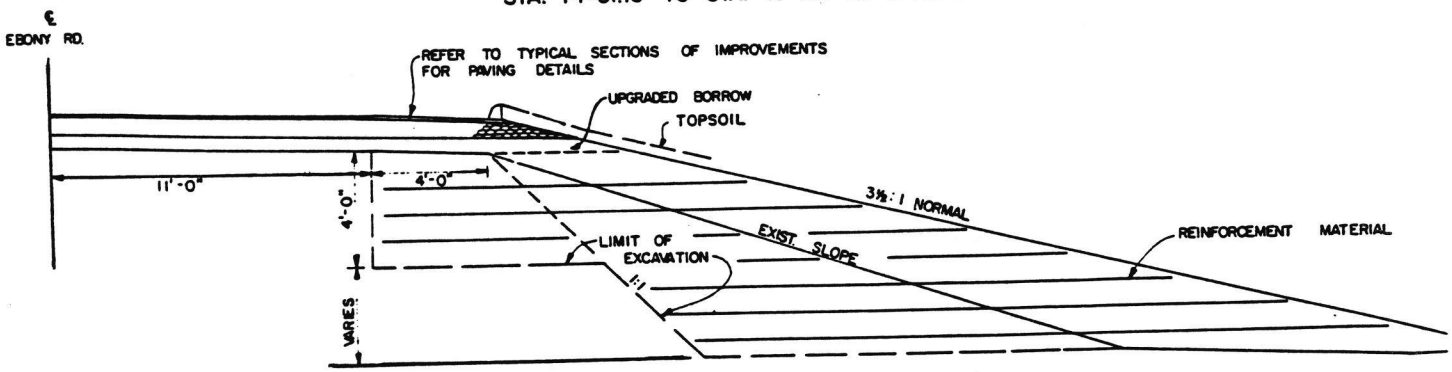
TYPICAL SECTIONS



SLOPE CORRECTION AIRPORT ROAD
STA. 6+50 TO STA. 11+08.84 LT. & RT. SIDE
STA. 14+91.16 TO STA. 20+00 LT. & RT. SIDE



SLOPE CORRECTION BOLLING ROAD
STA. 7+00 TO STA. 11+68.84 LT. SIDE
STA. 14+31.16 TO STA. 19+00 LT. & RT. SIDE



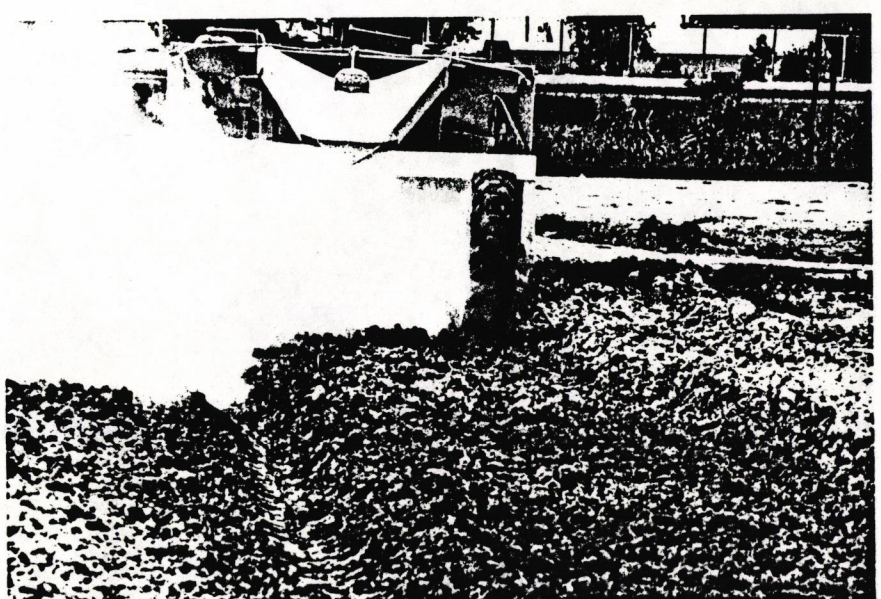
SLOPE CORRECTION EBONY ROAD
STA. 7+00 TO STA. 11+47.34 LT. & RT. SIDE
STA. 14+31.16 TO STA. 18+50 LT. & RT. SIDE

NOTE: FABRIC REINFORCEMENT (TYPE I) SHALL BE USED IN THE NORTH-WEST QUADRANT WITH A VERTICAL SPACING OF 2'-0" FABRIC REINFORCEMENT (TYPE II) SHALL BE USED ON THE NORTH-EAST QUADRANT WITH A VERTICAL SPACING OF 2'-0" WIRE REINFORCEMENT SHALL BE USED ON THE SOUTH END OF THE OVERPASS WITH A VERTICAL SPACING OF 2'-0"

Figure 2

Lime pellets maximum size, approximately 1" diameter.

Lime pellets after addition of water.

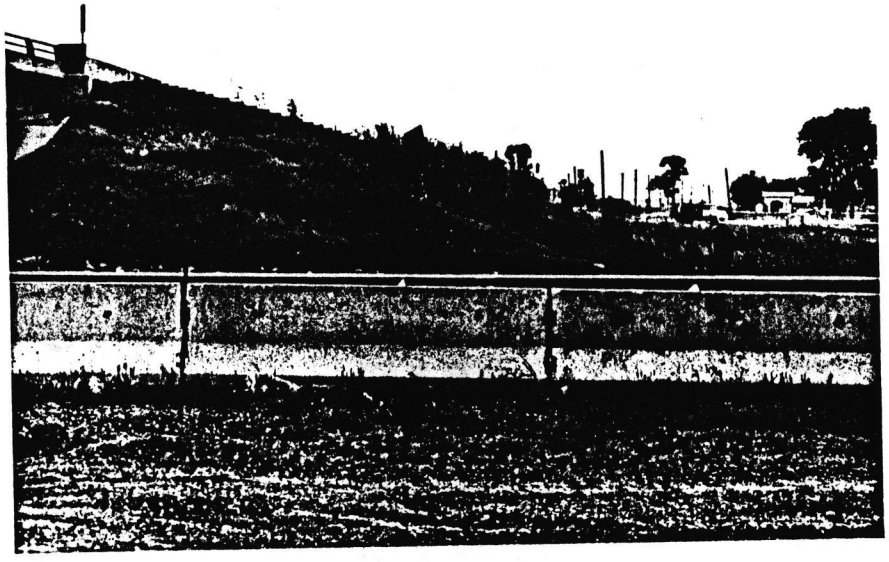


Lime being mixed into the subgrade. A total of three passes are made.

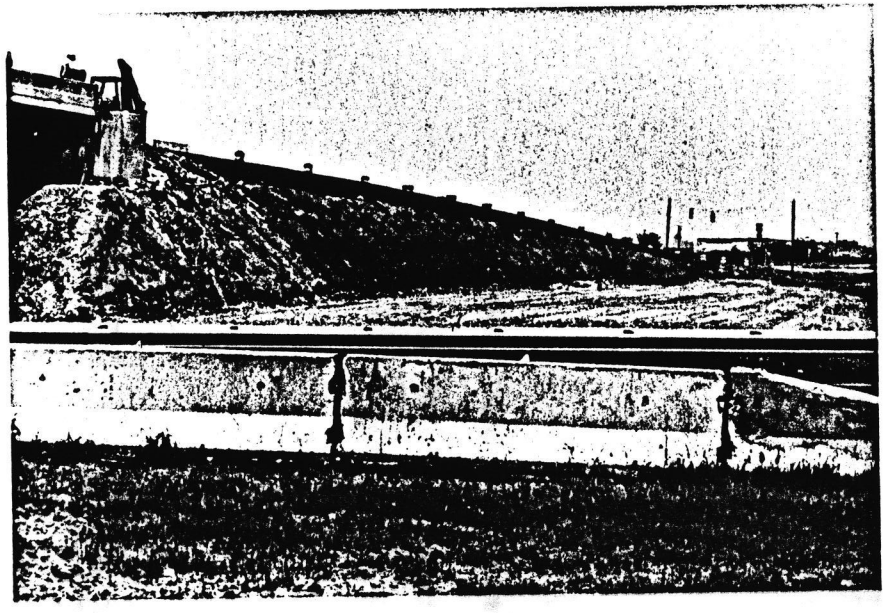
Mixing of lime into the subgrade.

Figure 3

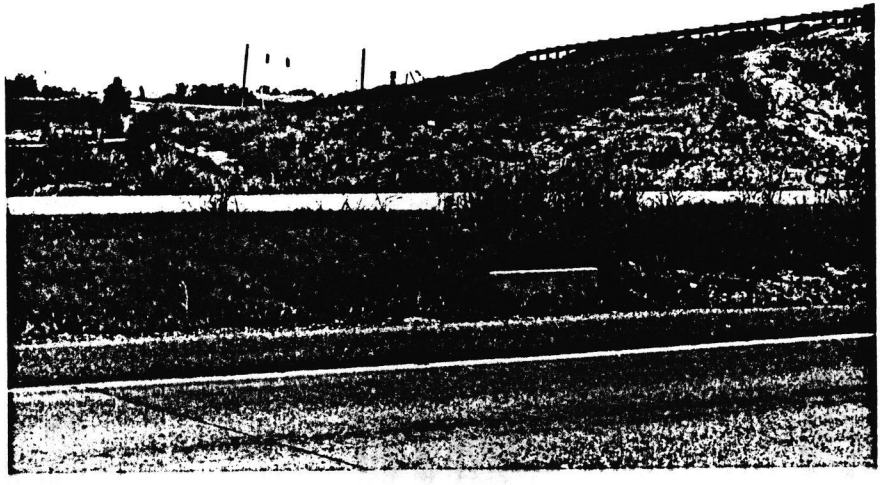
South approach southeast side, lime treated subgrade partially installed.



South approach southwest side, existing slope still in place. Lime treatment process underway in background.



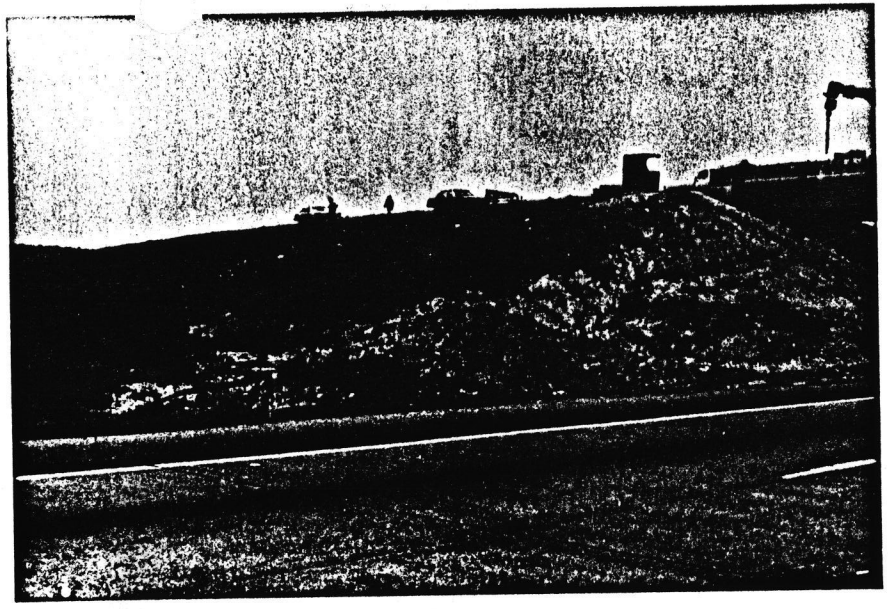
North approach northeast side,
lime treated subgrade partially installed



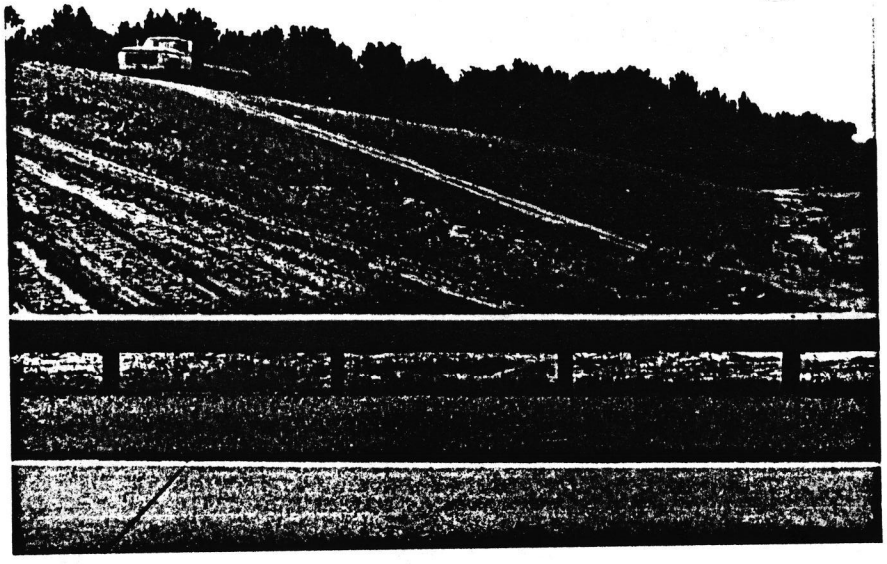
North approach northwest side,
existing slope still in place.

Figure 4

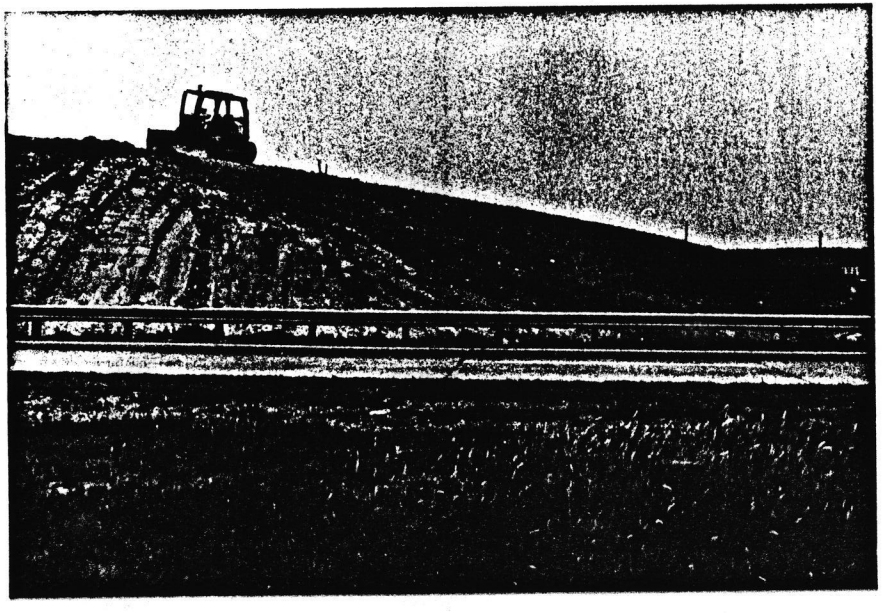
Bolling Road Overpass



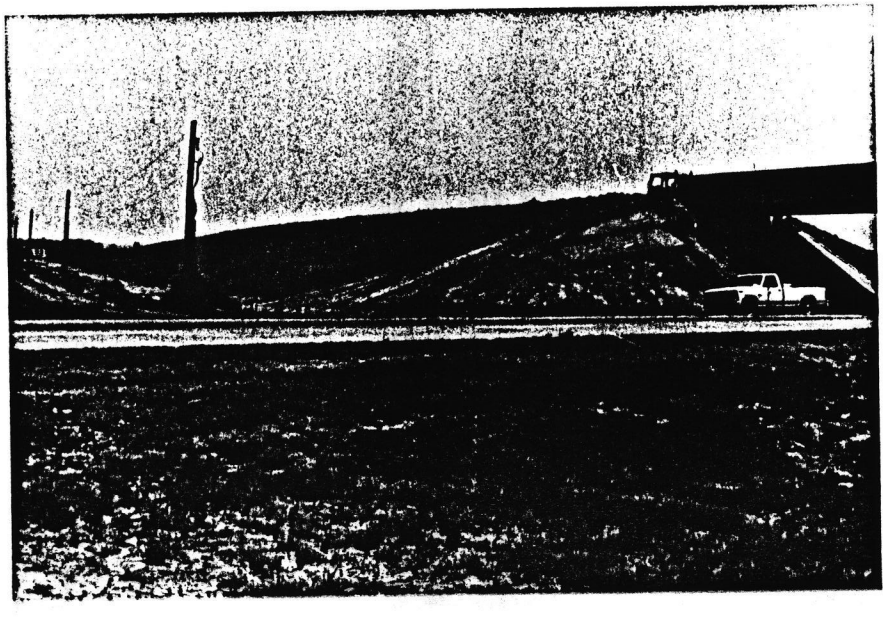
South approach southeast side,
embankment reconstructed with select material.



South approach southwest side,
embankment reconstructed with select material.



North approach northeast side,
final grading for top soil underway.



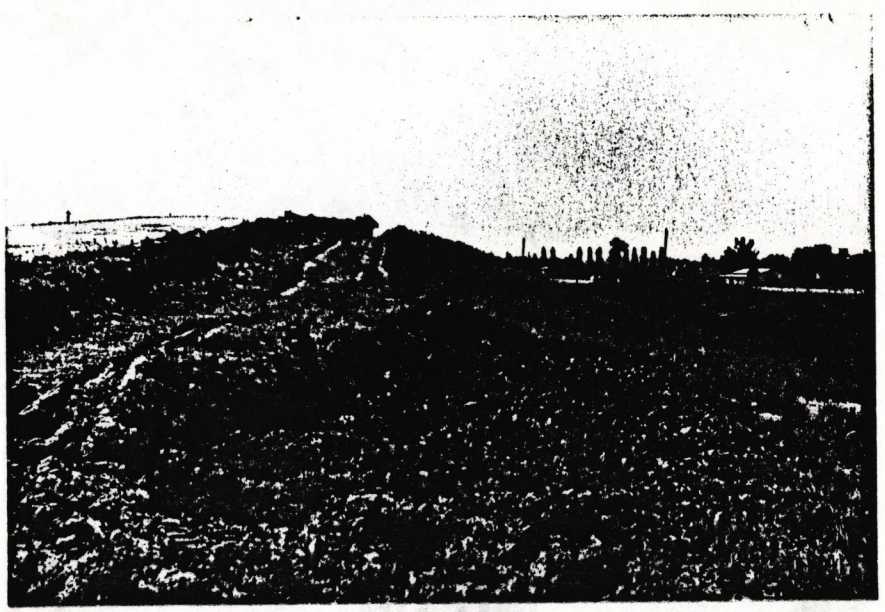
North approach northwest side,
final grading for top soil nearing completion.

Figure 5

South approach, southeast side existing side slopes removed ready for placement of wire mesh.

Southside, southwest side existing slope cut out, and back to 1:1

North side, northeast side existing slope cut out and back to a steep angle.



Northside, northwest side existing embankment partially removed. Evidence of ponding at corner of picture.

Figure 6