Kentucky SR-9

Licking Pike Widening & Slope Stabilization

Presented By:
George C. Webb, P.E.
H.C. Nutting Company
Special Thanks

Henry Mathis - KTC / HCN
Rick Slack - Goettle
Darrin Beckett - KTC
Jess Schroeder - HCN
Reasons for Reconstructing SR-9

* Expansion of Industrial Development.
* Improved Access to River and Newport, Ky.
* Existing SR-9 in Poor Condition
Looking North up the Deep Stage Licking Valley
Deep Drainage Gallery
Grade of Shoulder

Compacted Soil

Groundline

Geotextile Fabric (Type IV)

Free Draining Material

10' Min. Into Bedrock

Interconnect Shasftes with a 2' x 2' high tunnel. All shaftes shall be connected.

STRAIGHT SHAFT TYPE VERTICAL DRAINAGE GALLERY
Deep Drainage Gallery

- Vertical 3’ Ø Wells on 6’ C-C
- Embedment 10’ into Shale
- Horizontal Drains on 18’ C-C
- 441 Vertical Wells
- 147 Horizontal Drains
Interim Solution:

Vertical RR Rail Retaining Wall at Seven Landslide Areas

$724,000
RAILROAD RAIL SPACING

STATION 93+00 TO 97+00

Edge of Pavement

2'-0"

(TYP.)

Cribbing

9" Diameter Drilled Hole

Recycled Railroad Rails
Classified as 130 lbs./Yd or Larger

Rails Shall be Oriented with Flanges Perpendicular to Landslide Movement
TYPICAL CROSS-SECTION

STATION 93+00 TO 97+00

Face of Rail

Edge of Pavement

8'-0"

Cribbing

Granular Backfill

Rock Line

Hole Drilled for Rail

RAILROAD RAIL:
(Top of Rail May be
Cut Off at, or Slightly
Below Ground Surface,
Except in Cribbing
Situation)
KTC Awards Design/Build Contract For Structural Solution
General Excavation Was First Made
Soldier Piles Were Drilled, Set and Concreted in Place
Downhole Hammer Used to Install Anchors
Tieback Installation
Typical Anchor Stressing Detail
OFFSET DIMENSION TO OUTSIDE FACE

CAST-IN-PLACE (C.I.P.) REINFORCED CONCRETE FACING

LEAN CONCRETE FILL - TOP/HOLE TO BOTTOM/FACING

30° (Typ. U.H.R.)

ROCK ANCHOR

STEEL SODDER PILE

FACE MOUNTED LAGGING, 3' NOMINAL MIXED HARDWOODS; CCA TREATED TO REFUSAL.

GEOTEXTILE WALL DRAINAGE MATERIAL - MIN. 36" WIDE, TOP/DRAIN WITHIN 2' OF TOP/WALL, BOTTOM/DRAIN 1' BELOW WEEP HOLE INVERT.

INVERT/WEEP HOLE

FINISH GRADE

BOTTOM OF RDZ

TOP OF COMPETENT ROCK

STRUCTURAL CONCRETE FILL TO BOTTOM/FACING (CLASS 'B', f'c = 3,000)

STRUCTURAL SHAPE TO BE WITHIN 1/2" OF BOTTOM/SOCKET

BOTTOM FACING ABOVE B/RDZ
Setting the Facing Wall Forms
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SKETCH OF A TYPICAL LANDSLIDE ON THE KOPE FORMATION - MODIFIED FROM FLEMING (2)
Geotextile Drainage Material

Geotextile Drainage Material