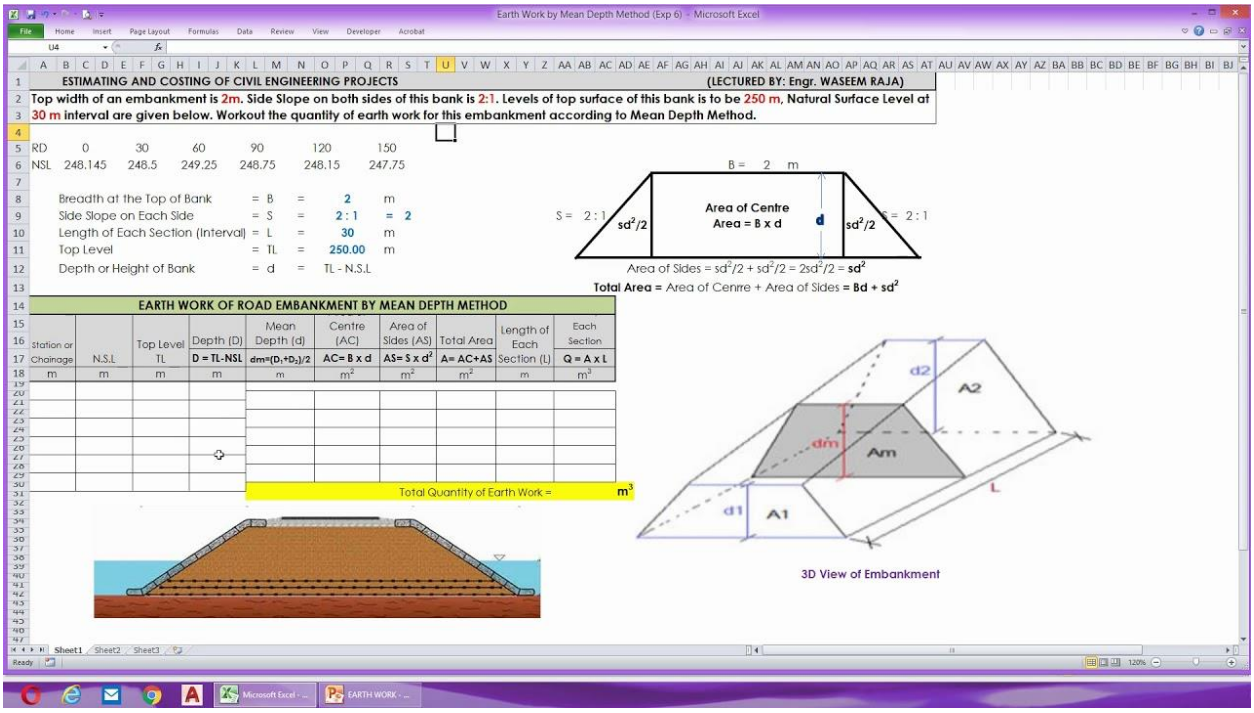
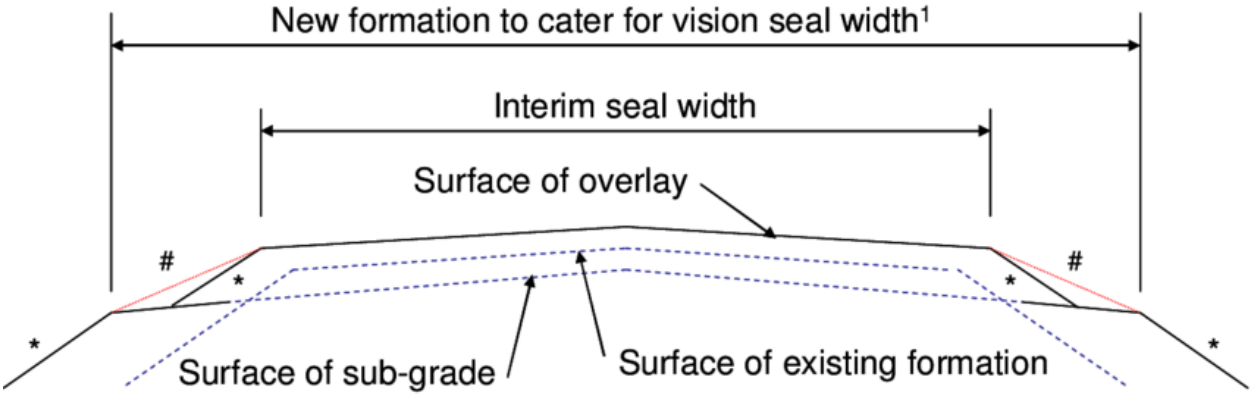
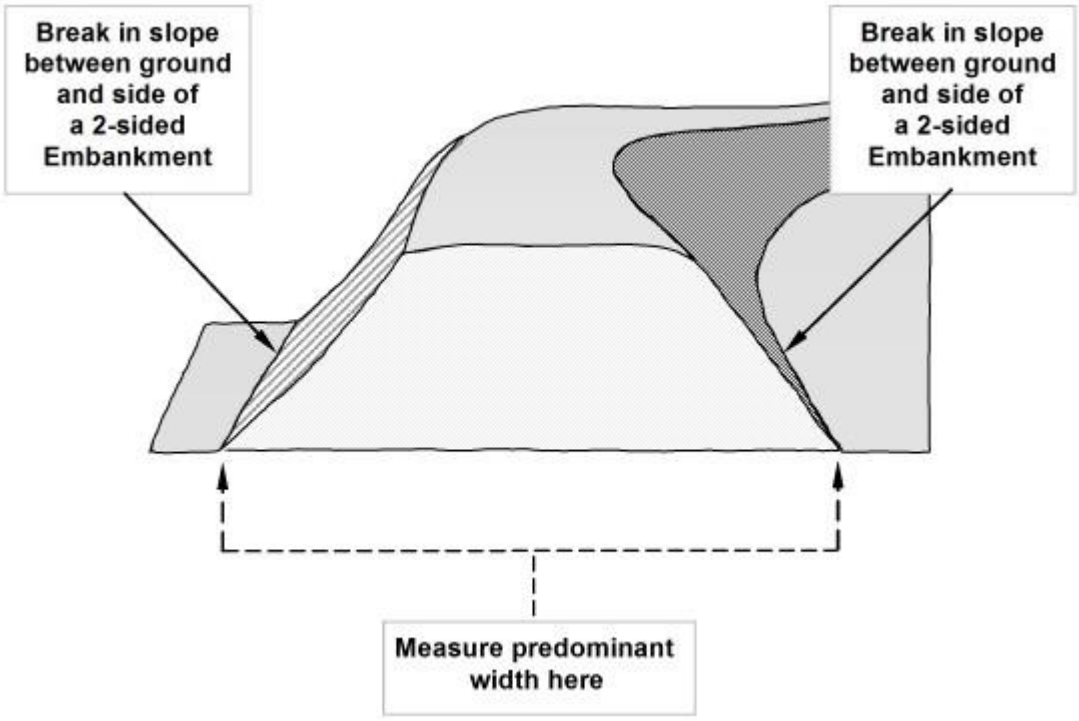
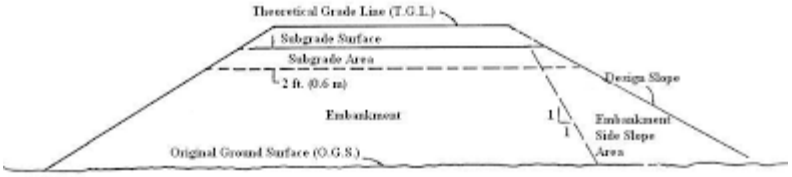

Earth Work by Mean Depth Method (Exp 6) - Microsoft Excel
ESTIMATING AND COSTING OF CIVIL ENGINEERING PROJECTS
(LECTURED BY: Engr. WASEEM RAJA)
Top width of an embankment is 2m. Side Slope on both sides of this bank is 2:1. Levels of top surface of this bank is to be 250 m, Natural Surface Level at 30 m interval are given below. Workout the quantity of earth work for this embankment according to Mean Depth Method.
RD 0 30 60 90 120 150
NSL 248.145 248.5 249.25 248.75 248.15 247.75
Breadth at the Top of Bank = B = 2 m
Side Slope on Each Side = S = 2 : 1 = 2
Length of Each Section (Interval) = L = 30 m
Top Level = TL = 250.00 m
Depth or Height of Bank = d = TL - N.S.L
B = 2 m
S = 2 : 1
Area of Centre
Area = B x d
d
sd²/2
sd²/2
S = 2 : 1
Area of Sides = sd²/2 + sd²/2 = 2sd²/2 = sd²
Total Area = Area of Centre + Area of Sides = Bd + sd²
EARTH WORK OF ROAD EMBANKMENT BY MEAN DEPTH METHOD
Station or Chainage
N.S.L
Top Level TL
Depth (D) D = TL-NSL
Mean Depth (d) dm=(D1+D2)/2
Centre (AC) AC= B x d
Area of Sides (AS) AS= S x d²
Total Area A= AC+AS
Length of Each Section (L)
Each Section Q = A x L
m
m²
m³
Total Quantity of Earth Work = m³
d2
A2
dm
Am
d1
A1
L
3D View of Embankment


New formation to cater for vision seal width[1]
Interim seal width
Surface of overlay
#
#
*
*
*
*
Surface of sub-grade
Surface of existing formation


Break in slope between ground and side of a 2-sided Embankment
Break in slope between ground and side of a 2-sided Embankment
Measure predominant width here


Theoretical Grade Line (T.G.L.)
Subgrade Surface
Subgrade Area
2 ft. (0.6 m)
Embankment
Original Ground Surface (O.G.S.)
Design Slope
1
1
Embankment Side Slope Area