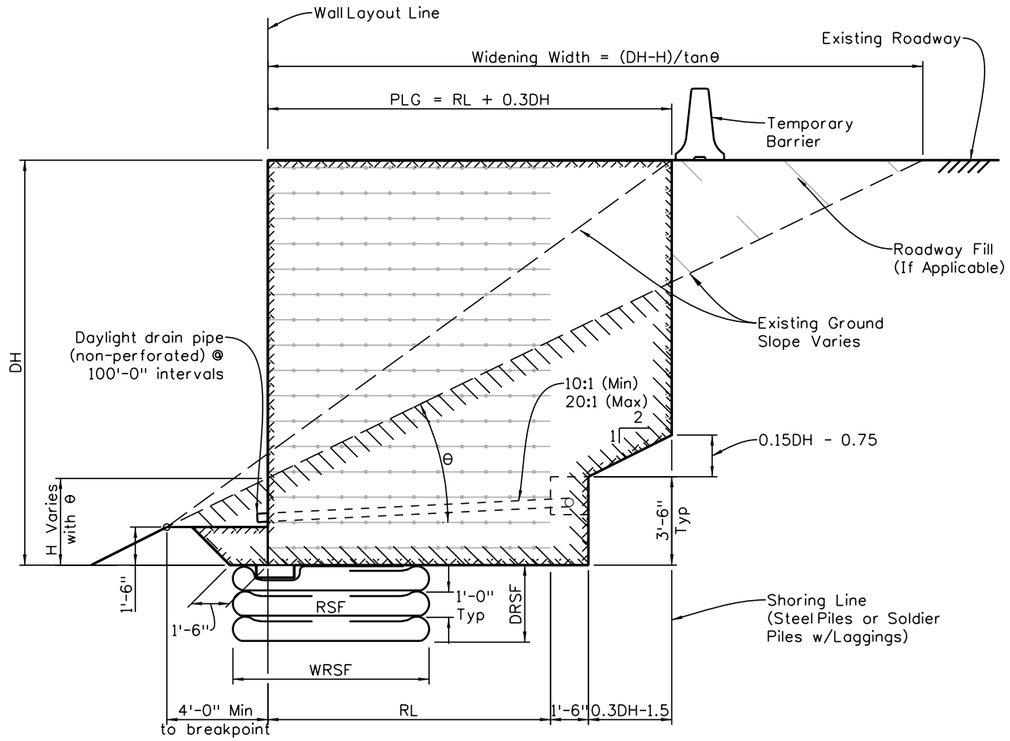
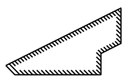
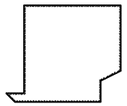


θ = Average Angle of Existing Ground Line
Note: Widening width may vary

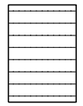
SECTION VIEW



EM_2



BM_2



MRS
(Soil Excluded)

NOTES:

1. Template with minimum 1'-6" toe cover is based on wall at layout line, and may be used for taking sections perpendicular to roadway center line with offsets.
2. Quantity of structure excavation (EM_2) may be calculated either by formulae with average H and θ at wall layout line or by actual area from graphic model using volume from surfaces or end area methods.
3. Earth removal outside the boundaries as defined shall be managed under roadway quantities and paid as unclassified excavation.
4. Use of reinforced soil foundation (RSF) is an option for bridging over weak foundation material.
5. The width (WRSF) and depth (DRSF) if applicable shall be addressed in both the project plans and geotechnical report.
6. Footer excavation is not paid separately but is included in the cost of the work

ABBREVIATIONS USED:

BM_2	= Quantities of Structure Backfill (Class 1) with Shoring (CY/LF)
DH	= Design Height (or Avg height for quantity calculations) (Ft)
EM_2	= Quantity of Structure Excavation with Shoring (CY/LF)
H	= Height of Excavation at Wall Layout Line (Ft)
MRS	= Quantity of Mechanical Reinforcement for Prescribed Soil Zone (CY/LF)
PLG	= Pay Length for Geomembrane (Ft)
RL	= Reinforcement Length (Ft)

Note to Designer:
This sheet is required as a part of the plan set when used for quantity calculations.

Note to Designer:
Given end of wall to end of wall stations, with wall segment lengths defined, a spreadsheet maybe required for summing up wall related calculations.

Condition: $H \geq 1.5 + 4 \tan(\theta)$

$EM_2 = [(3.375 + 4.5\tan\theta) + (RL+0.3DH)(DH)-((0.3DH-1.5)(3.5)+0.5(0.3DH-1.5)(0.15DH-0.75))-(0.5(DH-H)^2/\tan\theta-(0.5(DH-H)/\tan\theta-(RL+0.3DH))^2\tan\theta)]/27$
$BM_2 = [(DH)(RL + 0.3DH) + 3.375 - (6.25 + 0.15DH)(0.15DH - 0.75)] / 27$
$MRS = [(DH)(RL)] / 27$
$PLG = RL + 0.3DH$
$H = 1.5 + 4\tan\theta$
$RSF = [(WRSF)(DRSF)]/27$

Example:
Inputs- DH=16'; RL=0.7xDH=11.2'; θ=26.56°
Outputs- H=3.5'; EM2=3.9(CY/Ft); BM2= 9.1(CY/Ft); MRS= 6.64(CY/Ft); PLG=16(Ft/Ft)

Revision Dates: 09-16 | 10-24

INITIALS: By | Checked By
DESIGN | DATE | DETAIL | DATE | QUANTITY | DATE

All seals for this set of drawings are applied to the cover page(s)

Print Date: $DATE$
File Name: Sheet_B-504-Q2.dgn
Horiz. Scale: Vert. Scale: As Noted
Unit Information Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
2829 West Howard Place, 3rd Floor
Denver, CO 80204
Phone: 303-512-4079
FAX: 303-757-9197
Staff Bridge Branch Initials

As Constructed
No Revisions:
Revised:
Void:

PAY ITEMS FOR SHORED SOIL MASS WALL

Designer: XXXXXXXX
Detailer: XXXXXXXX
Sheet Subset: WALL
Structure Numbers: XXXXXXXXXXXXX, XXXXXXXXXXXXX
Subset Sheets: WXX of XXX

Project No./Code

Sheet Number

$PLOT_INFO$