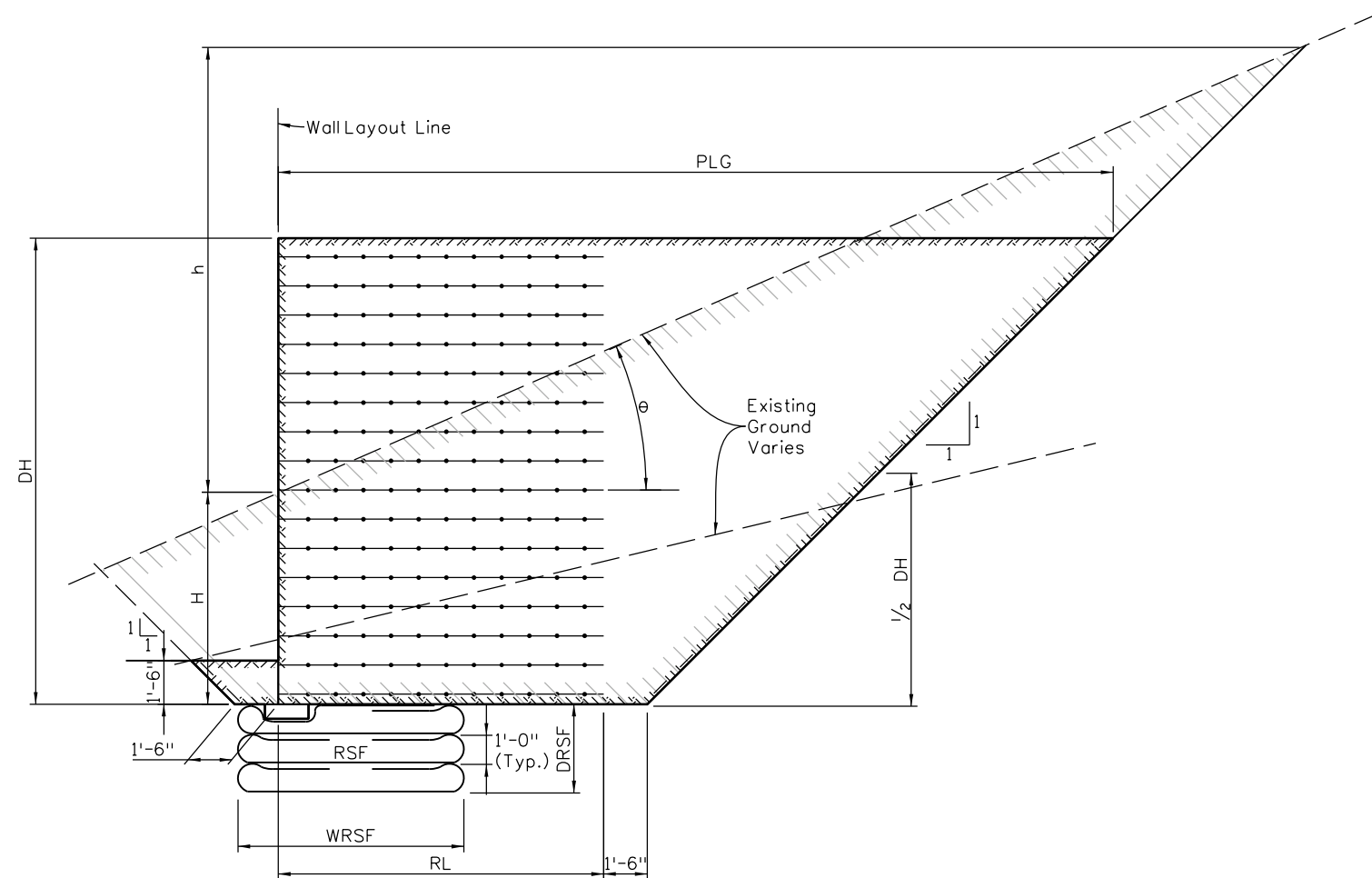


**B-504-Q7
(Wall Quantities)**

NOTES:

1. Template with minimum 1'-6" toe cover is based on wall at its layout line, and may be used for taking sections perpendicular to roadway center line with offsets.
2. Quantity of structure excavation (EM₁) may be calculated either by formulae with average H and θ at wall layout line or by actual area from graphic model.
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 (RFS) is an option for bridging over weak foundation material.
5. The width (WRSF) and depth (DRSF) shall be addressed in both the project plans and geotechnical report.



θ = Average Angle of Existing Ground Line

SECTION VIEW

CONDITION: $H \geq 1.5 + 3 \tan(\theta)$

$$EM_1 = [(H + h/2) \left(\frac{h}{\tan(\theta)} - 0.5(H + h) \right) + (H/2 + 1.5)(H) - 0.5(H + 1.5) \left(\frac{\tan(\theta)}{1 + \tan(\theta)} \right)] / 27$$

$$BM_1 = [(DH)(RL + 1.5) + 0.5(DH)^2 + 3.375] / 27$$

$$MRS = [(DH)(RL)] / 27$$

$$PLG = [RL + 1.5 + DH]$$

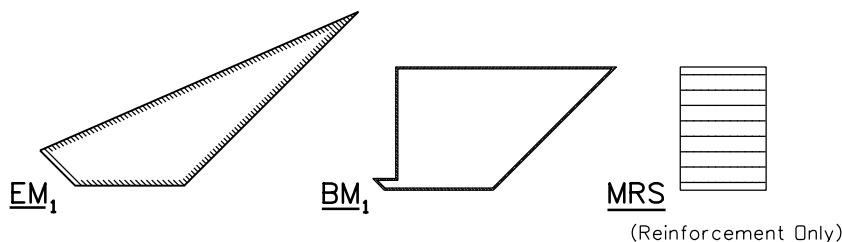
$$h = (H + RL + 1.5) \left(\frac{\tan(\theta)}{1 + \tan(\theta)} \right)$$

$$RSF = [(WRSF)(DRSF)] / 27$$

Example:

Inputs - DH=16'; RL=0.7x DH=11.2'; H=8'; θ=30°

Outputs - h=28.28'; EM₁=16.8(c.y./ft.); BM₁= 12.39(c.y./ft.); MRS= 6.64(c.y./ft.); PLG=28.7(ft./ft.)



(Reinforcement Only)

Revision Dates	(Preliminary Stage Only)
03/16	

Design	INITIAL	DATE	Checked By
	DESIGNED BY	DATE	
Detail	INITIAL	DATE	Checked By
	DETAILED BY	DATE	
Quantities	INITIAL	DATE	Checked By
	QUANTITIES BY	DATE	

Print Date: \$DATE\$
File Name: Sheet_B-504-Q7.dgn
Horiz. Scale: As Noted Vert. Scale: As Noted
Staff Bridge Branch-Unit OXXX Unit Leader Initials

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

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Staff Bridge Branch **Initials**

As Constructed
No Revisions:
Revised:
Void:

PAY ITEMS FOR CORE WALL WITH 1:1 SOIL EXCAVATION			
Designer:	XXXXXXX	Structure Numbers	Wall-X-XX-XX
Detailer:	XXXXXXX	Structure Numbers	Wall-X-XX-XX
Sheet Subset:	Wall	Subset Sheets:	WXX of XXX

Project No./Code
Project Number
Code
Sheet Number