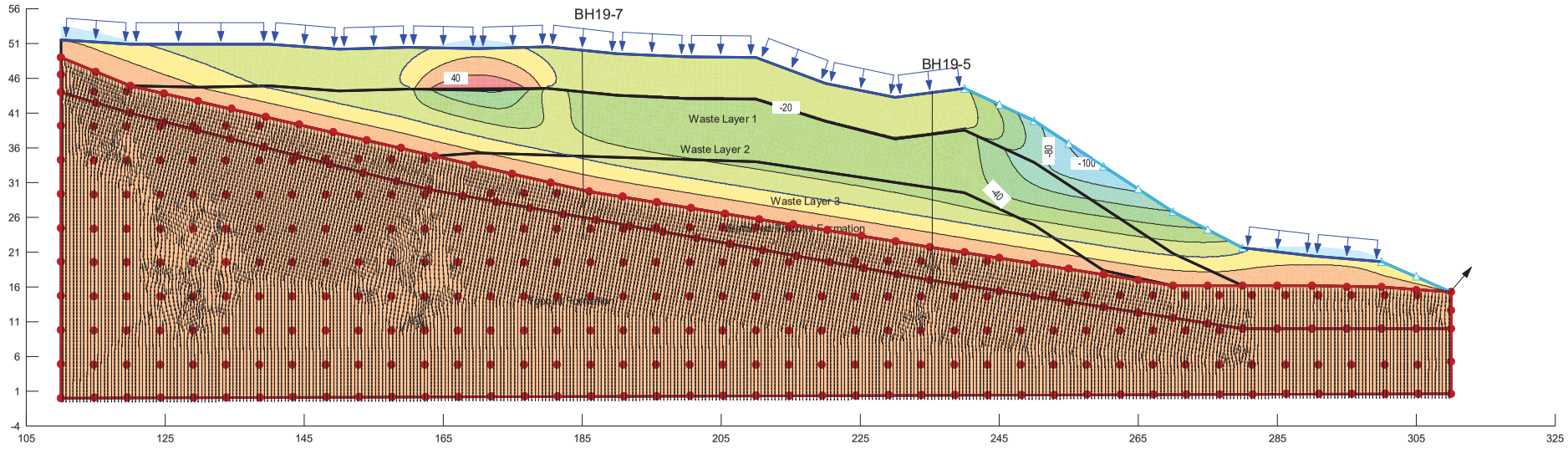
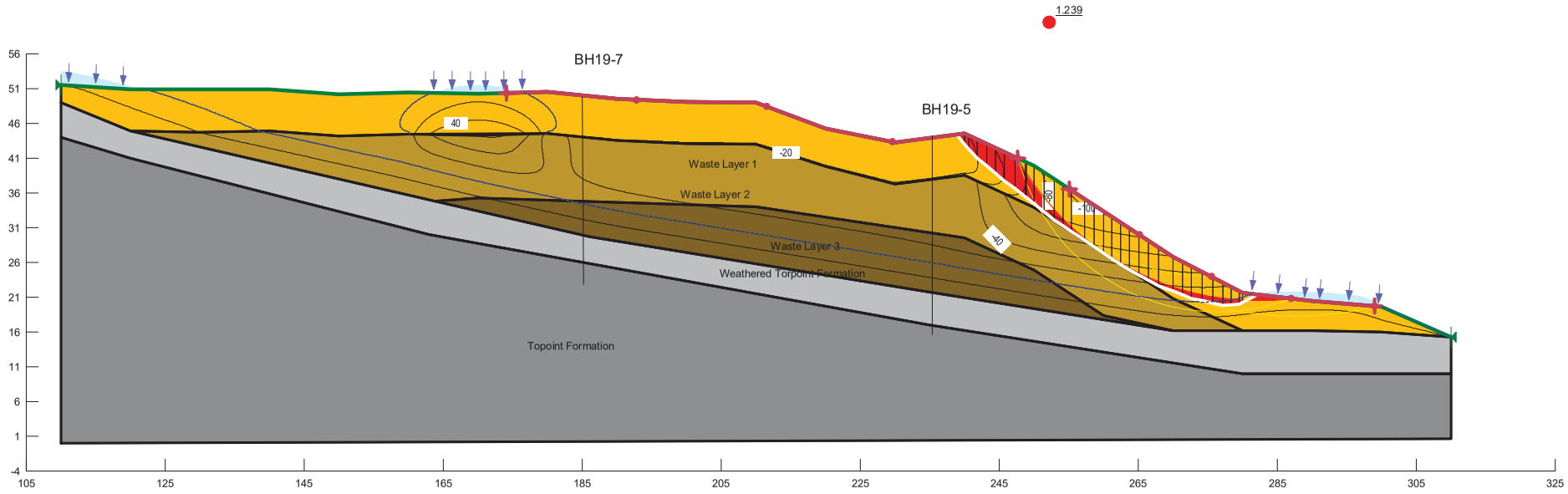
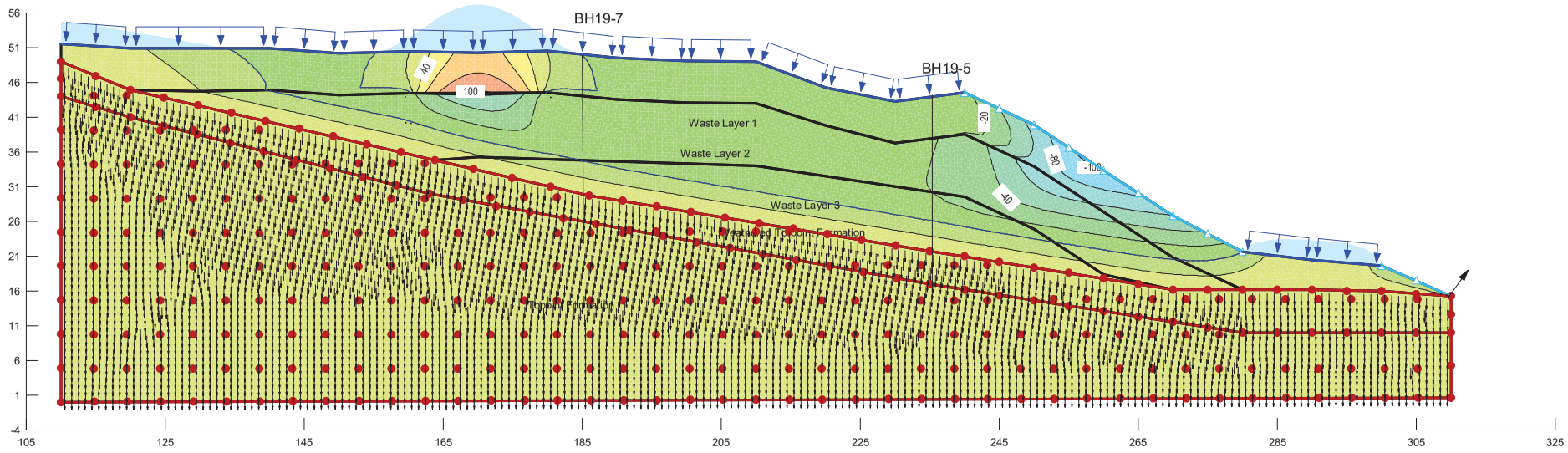
Cross Section C Run 1. Infiltration 10%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation



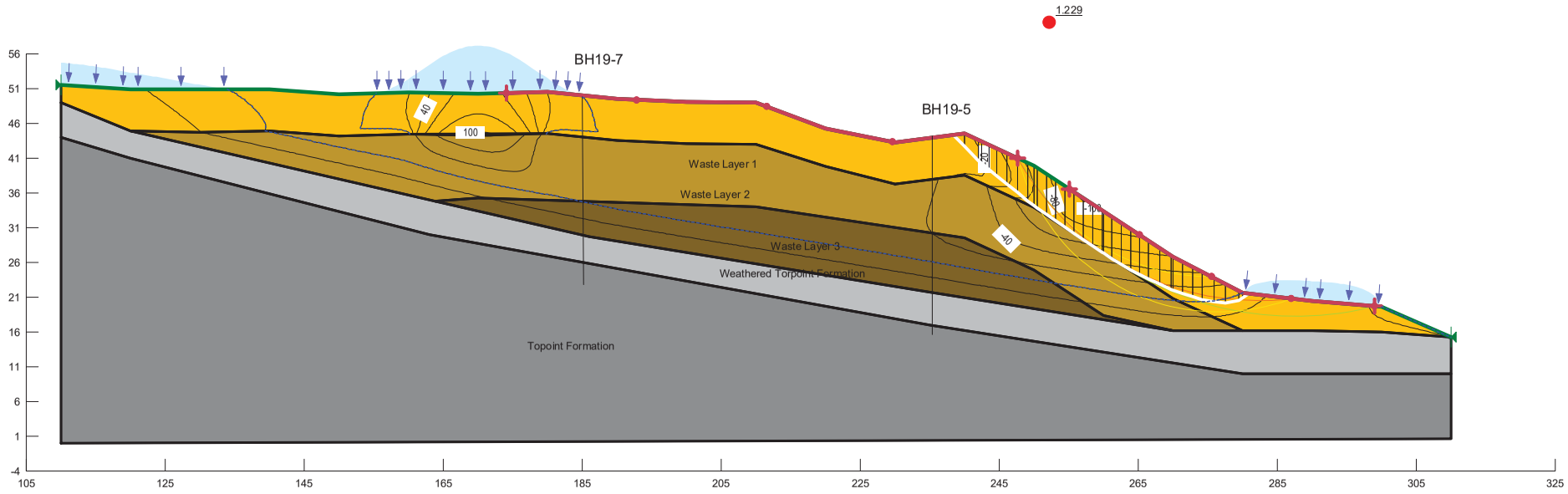
Cross Section C Run 1. Infiltration 10%.
Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %



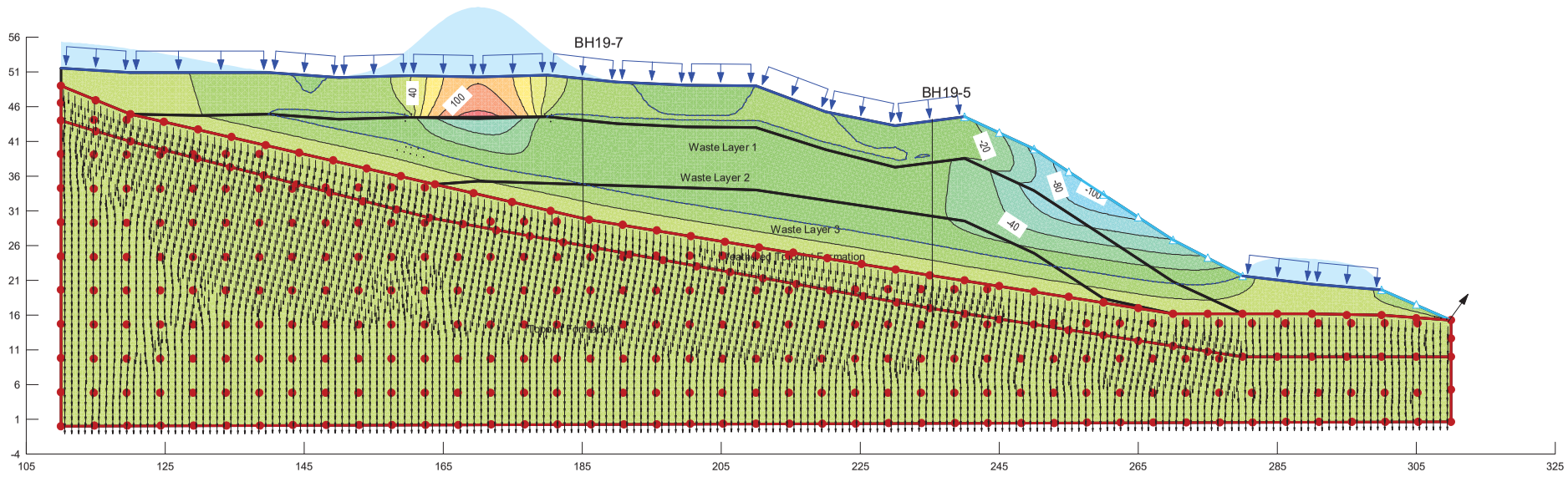
Cross Section C Run 1A. Infiltration 20%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation



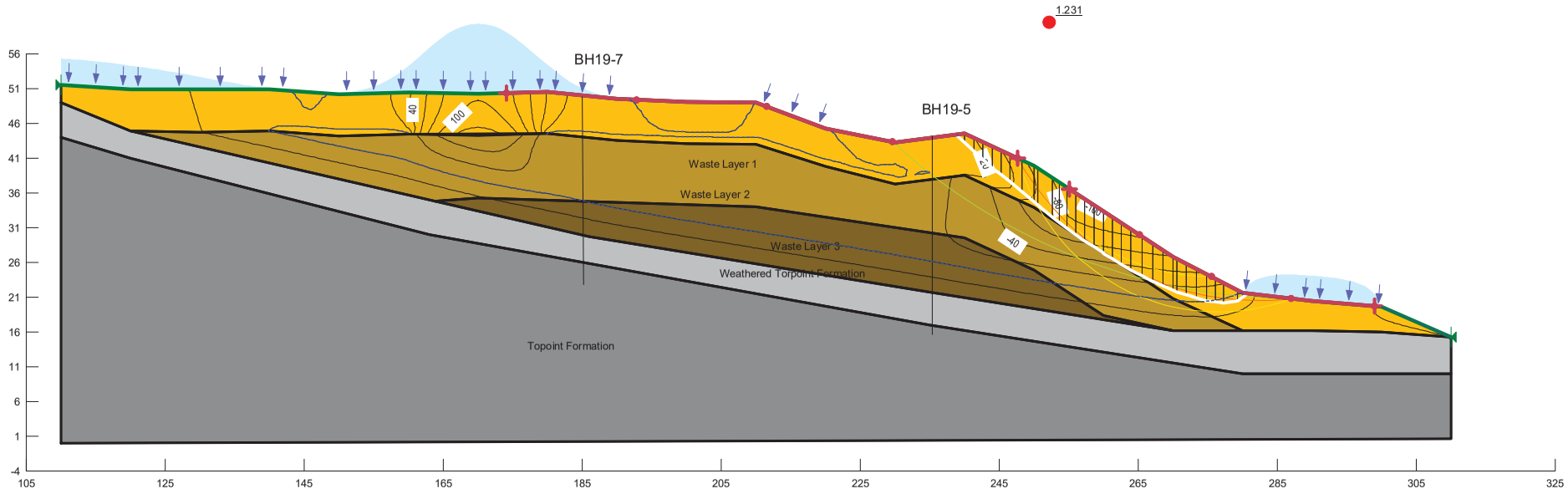
Cross Section C Run 1A. Infiltration 20%.
Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %



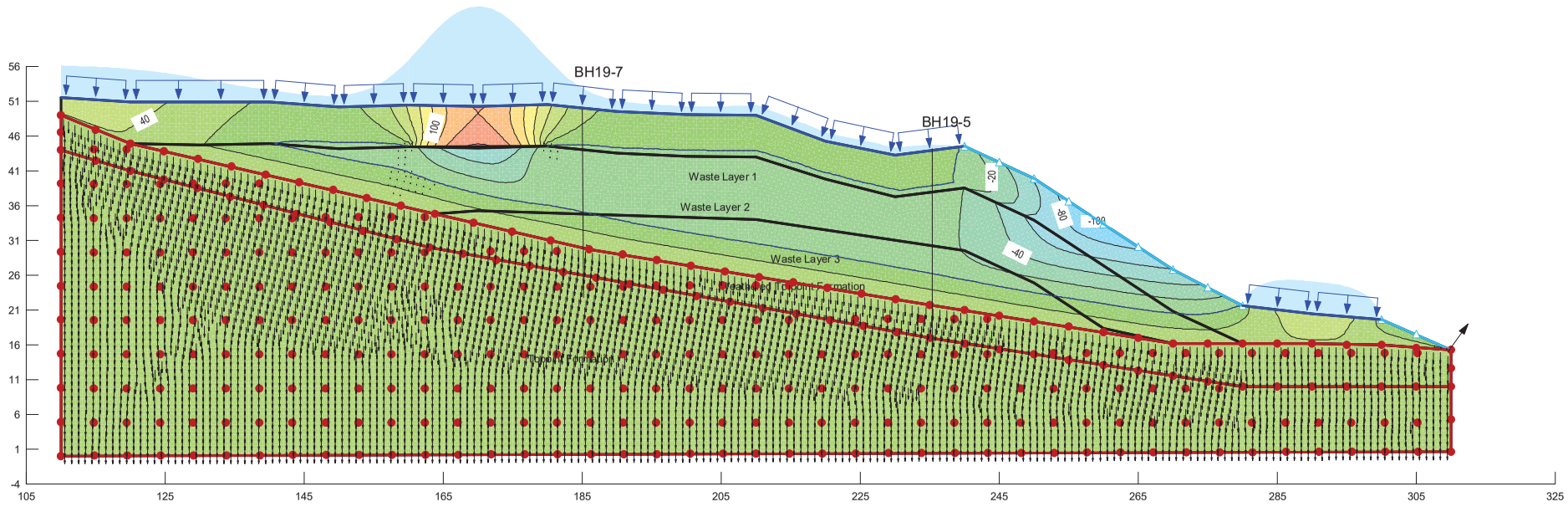
Cross Section C Run 1B. Infiltration 25%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation



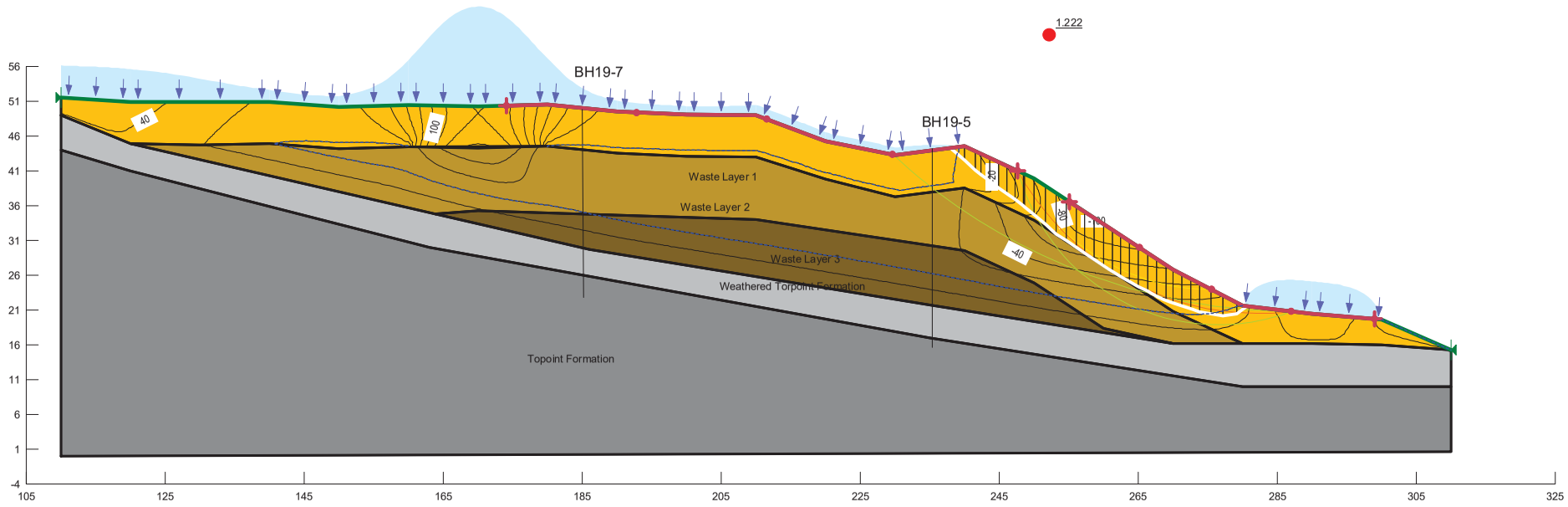
Cross Section C Run 1B. Infiltration 25%.
Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %



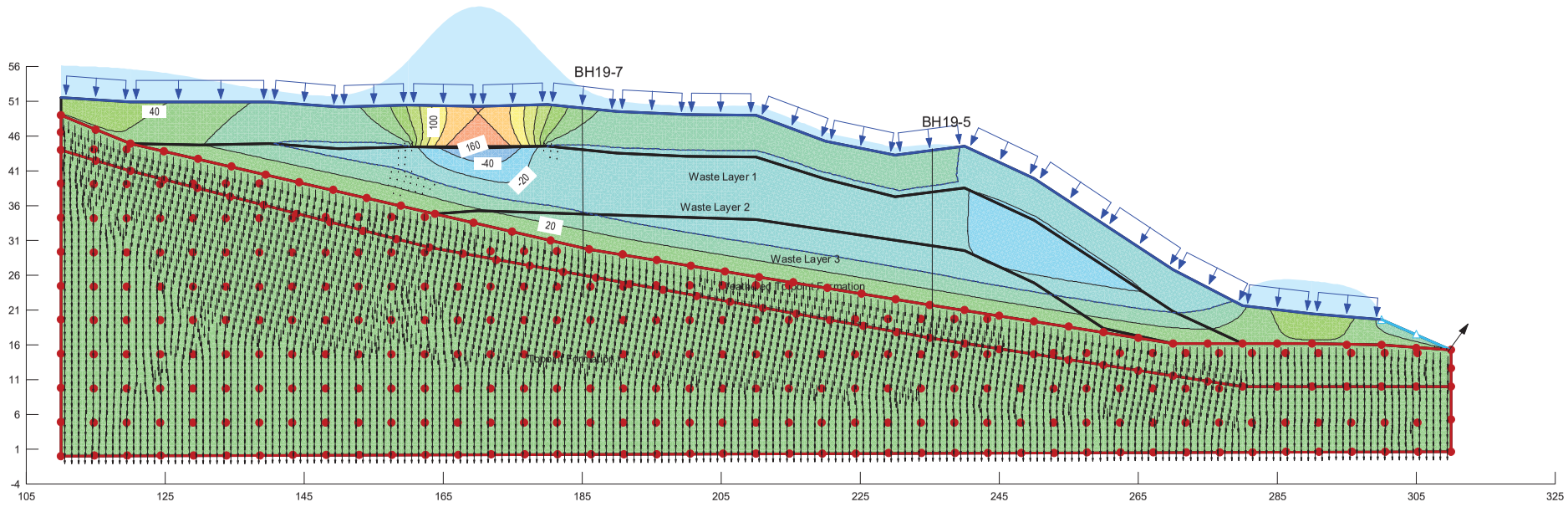
Cross Section C Run 1C. Rainfall 1500mm/y. Infiltration 25%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation



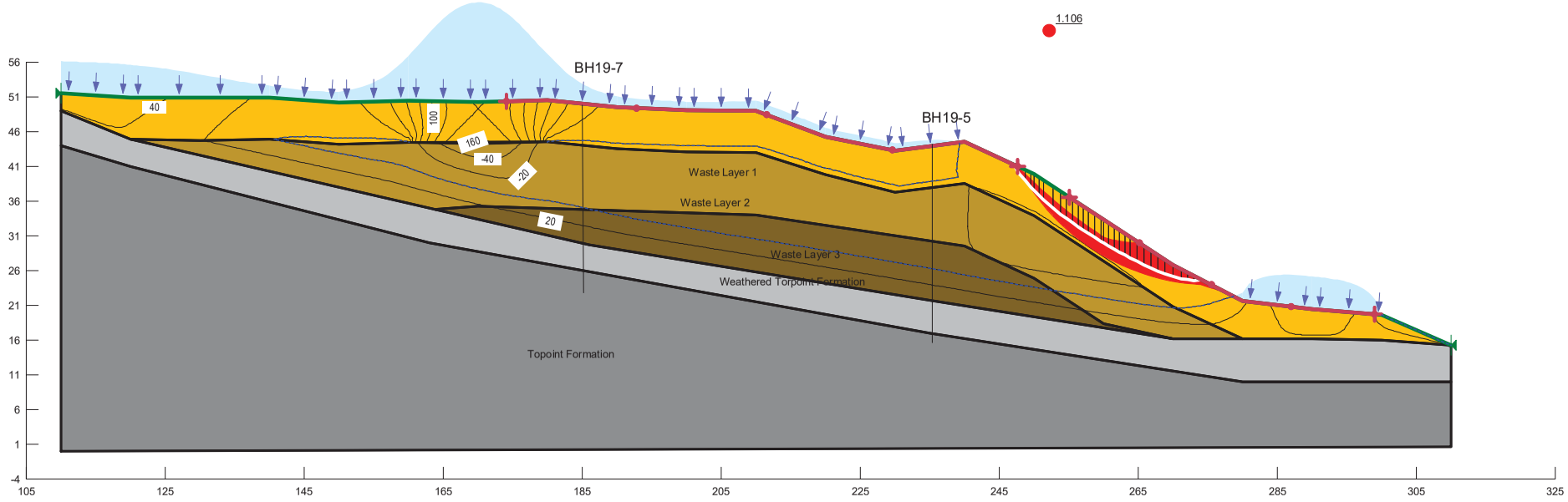
Cross Section C Run 1C. Rainfall 1500mm/y. Infiltration 25%.
Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %



Cross Section C Run 1D. Rainfall 1500mm/y. Infiltration 25%. 5% slope infiltration.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation



Cross Section C Run 1D. Rainfall 1500mm/y. Infiltration 25%. 5% slope infiltration.
Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %
Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 37 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 37 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %



Appendix B – Slope W Proposed Slope

Cross Section Proposed C Run 1. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 10%.

Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

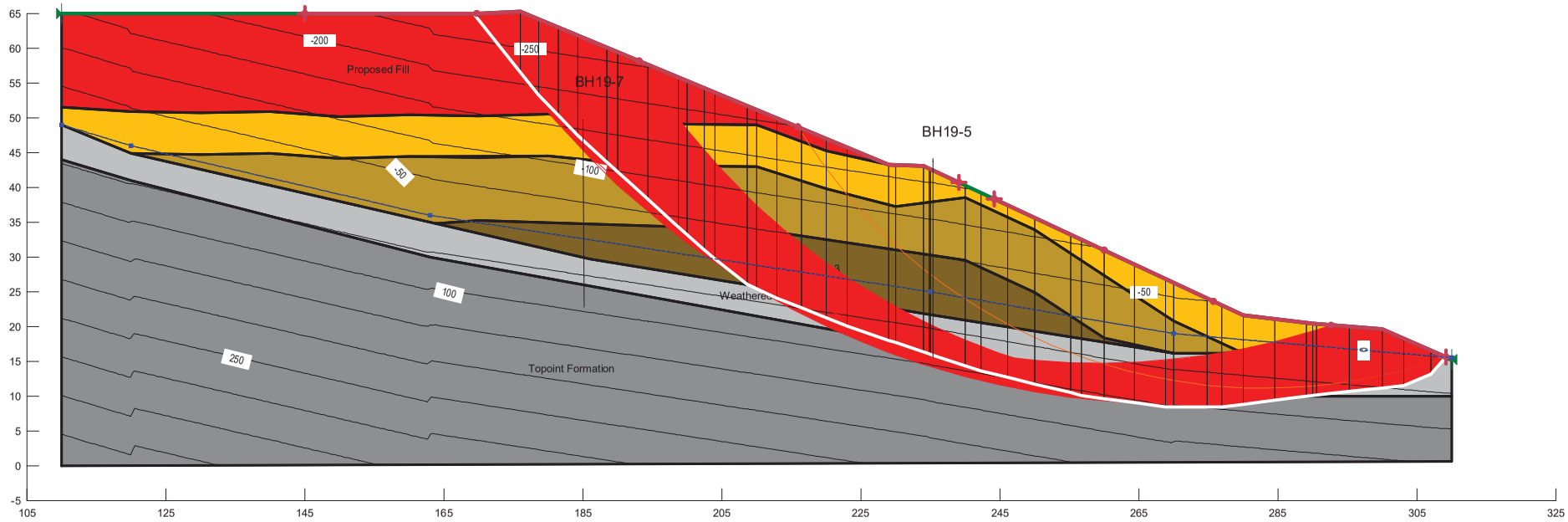
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

Name: Proposed Fill Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 26 ° Vol. WC. Function: Proposed Fill Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1



Cross Section Proposed C Run 1. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 10%.

Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

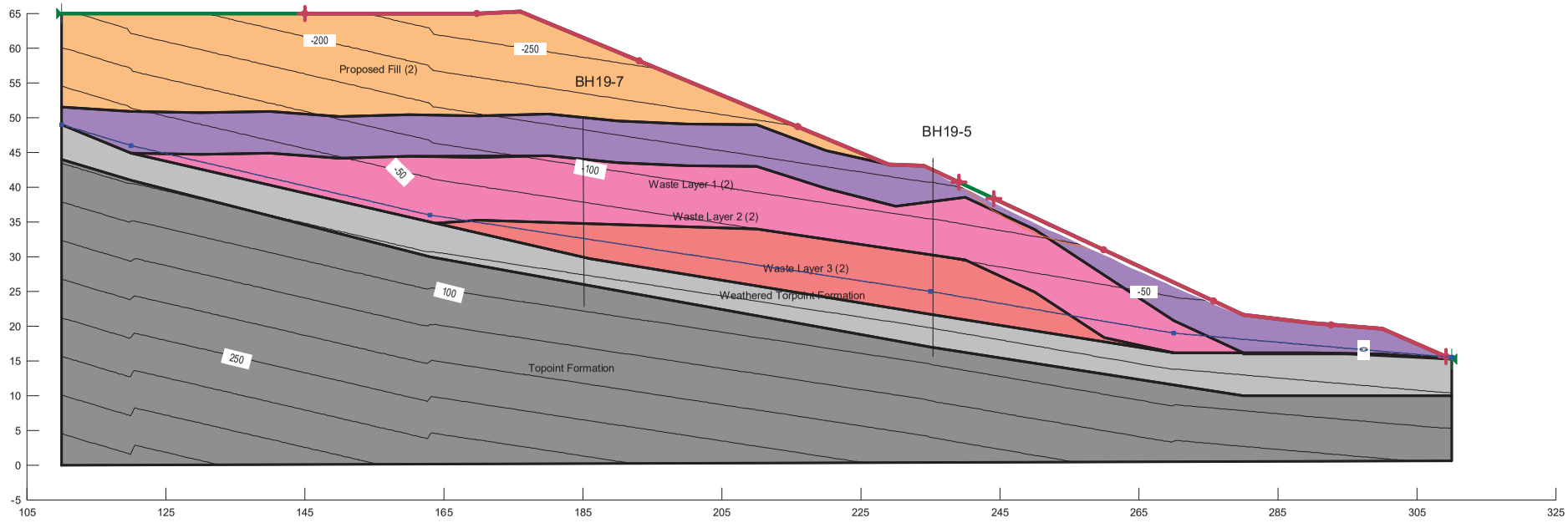
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

Name: Waste Layer 1 (2) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Phi-B: 0 ° Piezometric Line: 1

Name: Waste Layer 2 (2) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Phi-B: 0 ° Piezometric Line: 1

Name: Waste Layer 3 (2) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Phi-B: 0 ° Piezometric Line: 1

Name: Proposed Fill (2) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 26 ° Phi-B: 0 ° Piezometric Line: 1



Cross Section Proposed C Run 1. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 10%.

Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

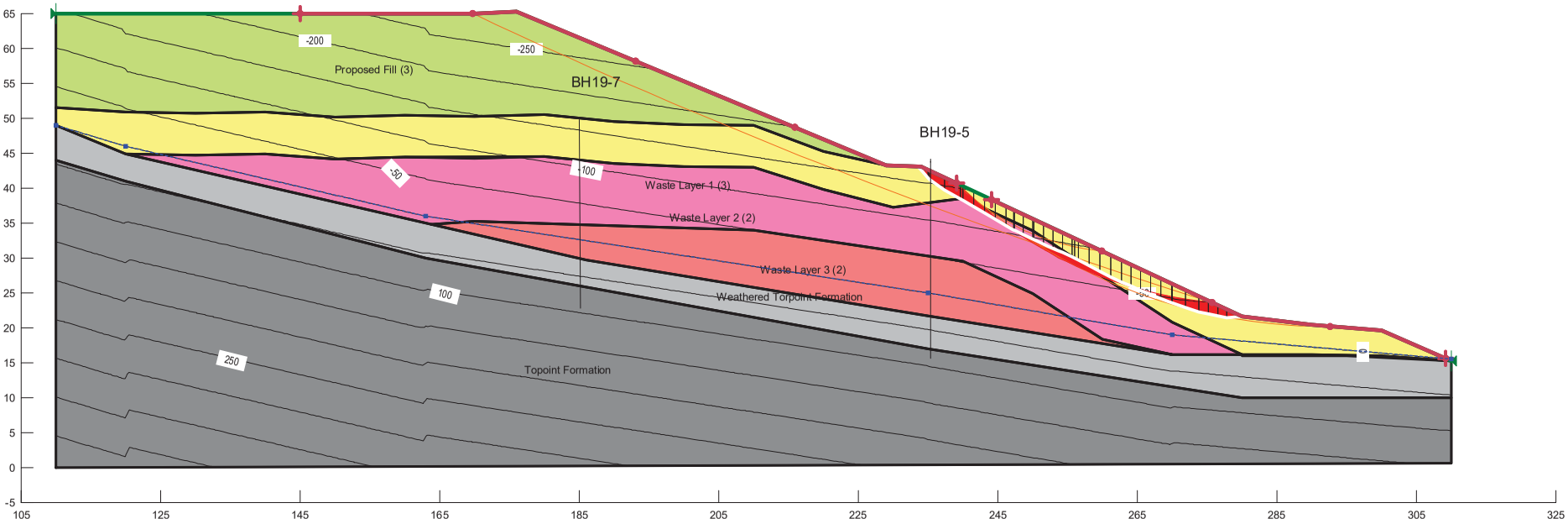
Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 % Piezometric Line: 1

Name: Waste Layer 2 (2) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Phi-B: 0 ° Piezometric Line: 1

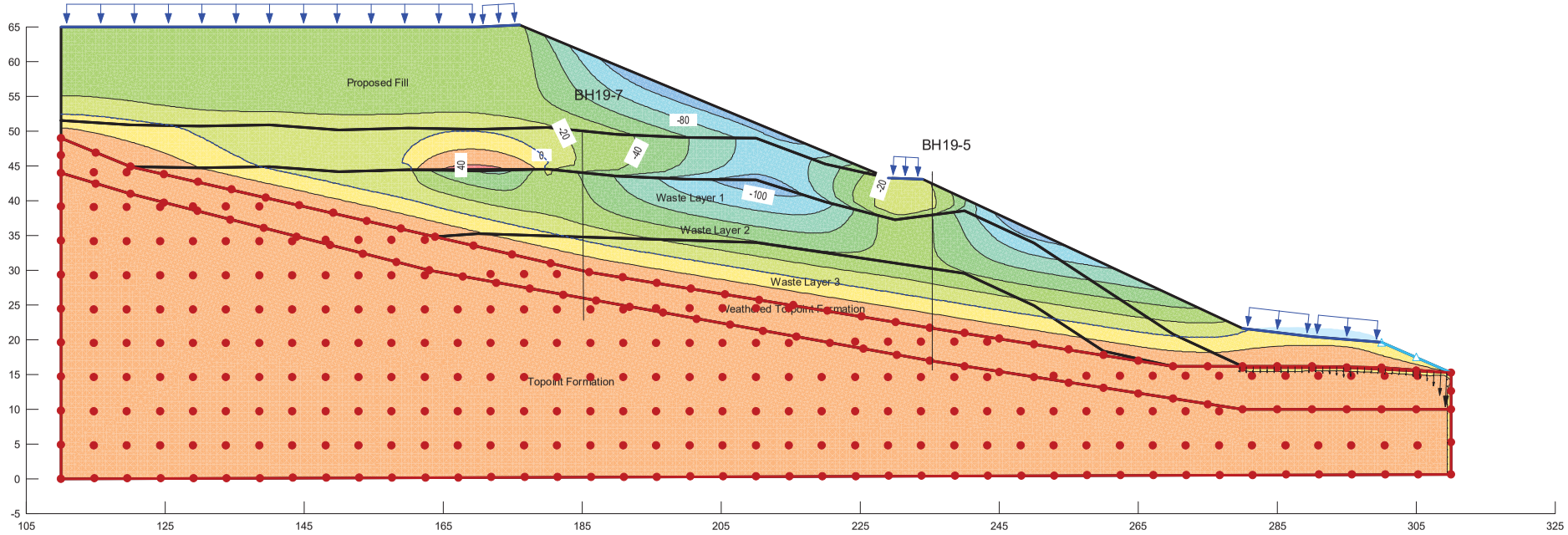
Name: Waste Layer 3 (2) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Phi-B: 0 ° Piezometric Line: 1

Name: Waste Layer 1 (3) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 2 kPa Phi': 28 ° Phi-B: 0 ° Piezometric Line: 1

Name: Proposed Fill (3) Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 2 kPa Phi': 26 ° Phi-B: 0 ° Piezometric Line: 1



Cross Section Proposed C Run 1. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 10%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Proposed Fill Model: Saturated / Unsaturated K-Function: Proposed Fill Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Proposed Fill



Cross Section Proposed C Run 1. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 10%.

Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %

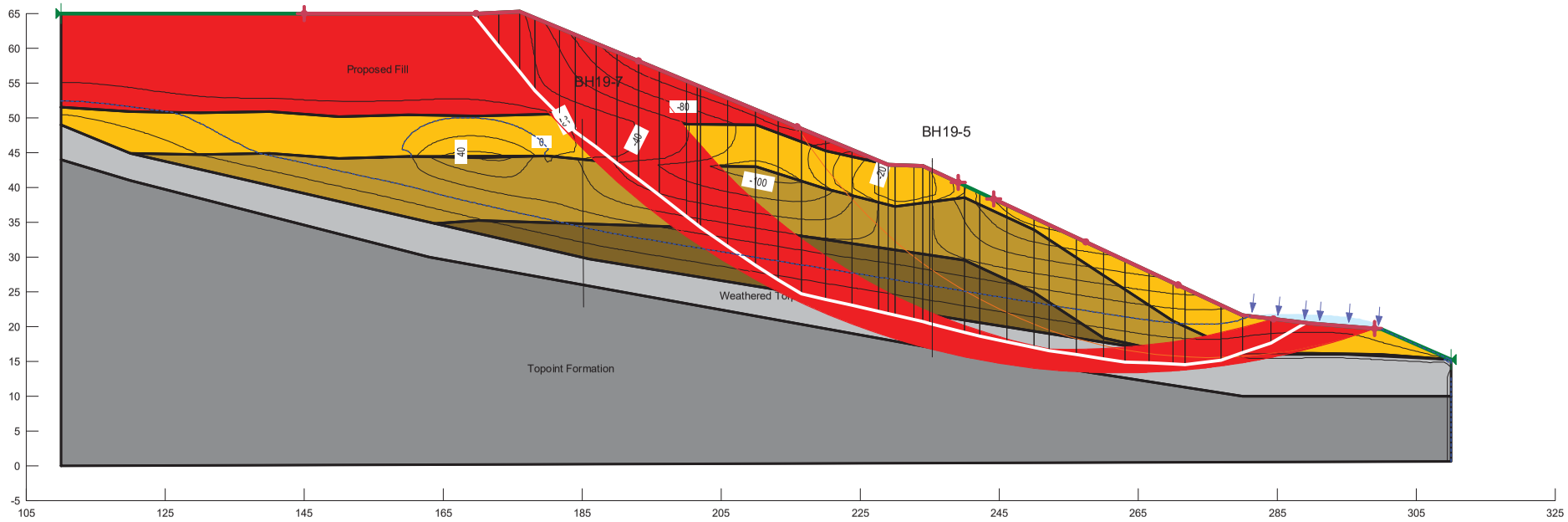
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %

Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %

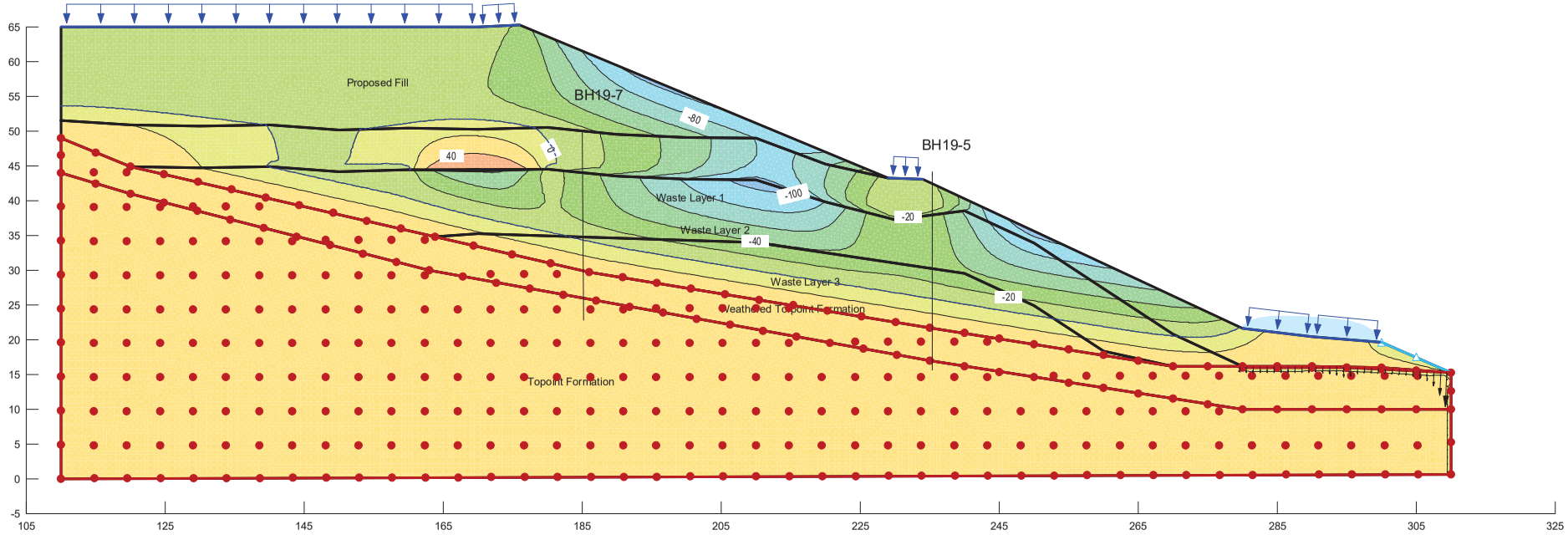
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %

Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %

Name: Proposed Fill Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 26 ° Vol. WC. Function: Proposed Fill Residual Water Content (% of Sat WC): 10 %



Cross Section Proposed C Run 1A. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 20%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Proposed Fill Model: Saturated / Unsaturated K-Function: Proposed Fill Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Proposed Fill



Cross Section Proposed C Run 1A. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 20%.

Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %

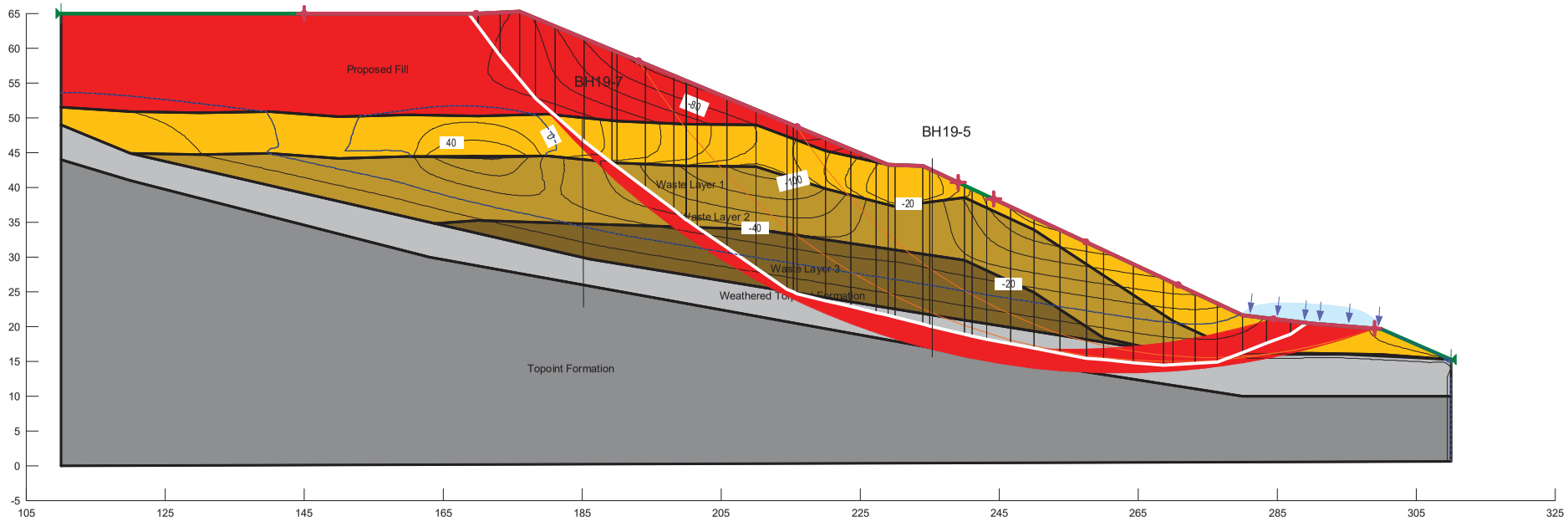
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %

Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %

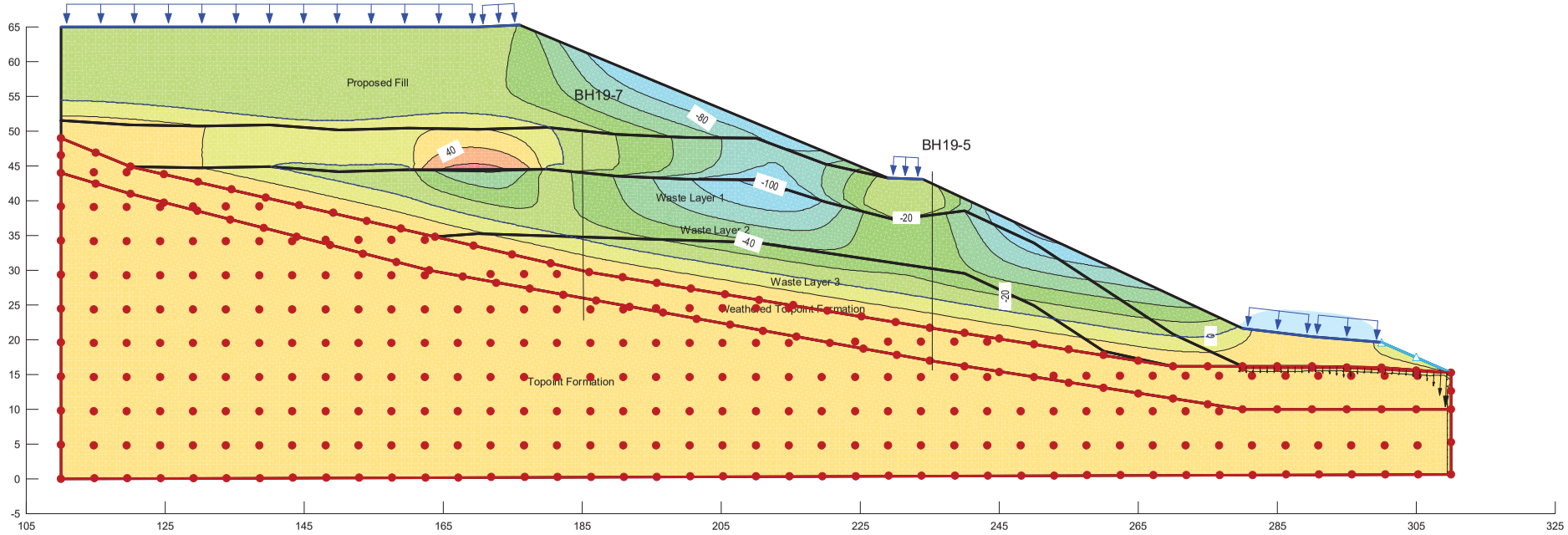
Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %

Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %

Name: Proposed Fill Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 26 ° Vol. WC. Function: Proposed Fill Residual Water Content (% of Sat WC): 10 %



Cross Section Proposed C Run 1B. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 25%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
Name: Waste Layer 2 Model: Saturated / Unsaturated K-Function: Waste Layer 2 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 2
Name: Waste Layer 3 Model: Saturated / Unsaturated K-Function: Waste Layer 3 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 3
Name: Topoint Formation Model: Saturated / Unsaturated K-Function: Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Weathered Torpoint Formation Model: Saturated / Unsaturated K-Function: Weathered Torpoint Formation Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Torpoint Formation
Name: Proposed Fill Model: Saturated / Unsaturated K-Function: Proposed Fill Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Proposed Fill



Cross Section Proposed C Run 1B. Upper slope 22degrees, 5m berm, lower slope 25 degrees. Infilt. 25%.

Name: Waste Layer 1 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 28 ° Vol. WC. Function: Waste Layer 1 Residual Water Content (% of Sat WC): 10 %

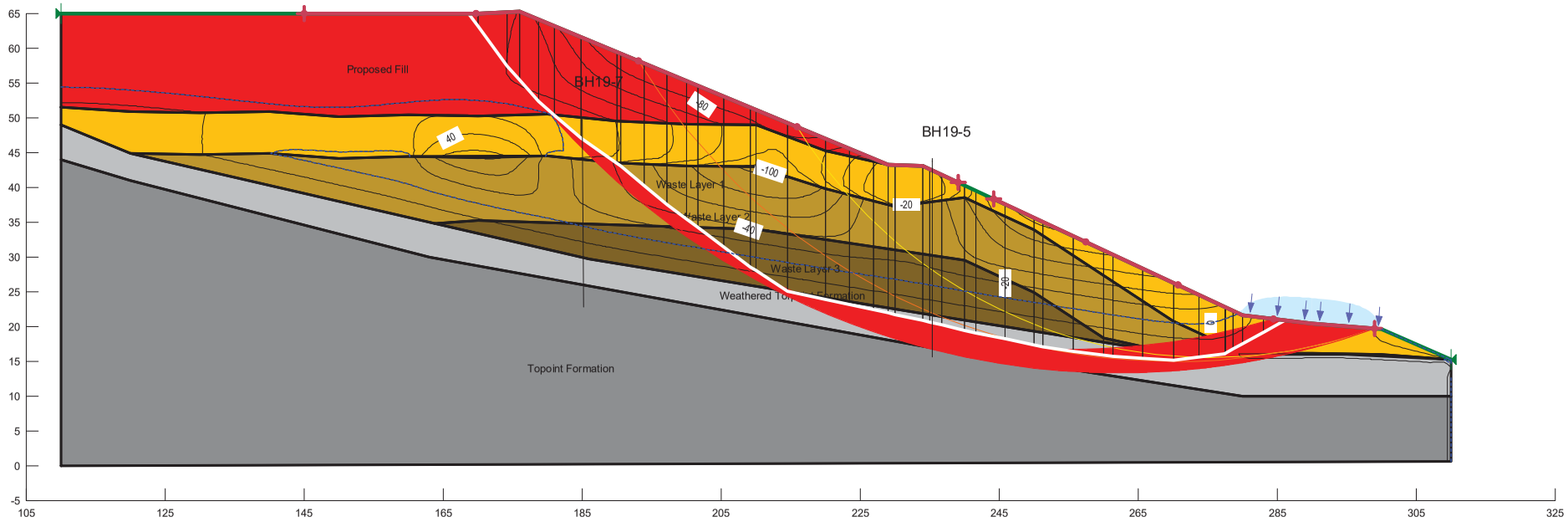
Name: Waste Layer 2 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 32 ° Vol. WC. Function: Waste Layer 2 Residual Water Content (% of Sat WC): 10 %

Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %

Name: Topoint Formation Model: Mohr-Coulomb Unit Weight: 23 kN/m³ Cohesion': 5 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %

Name: Weathered Torpoint Formation Model: Mohr-Coulomb Unit Weight: 22 kN/m³ Cohesion': 0 kPa Phi': 27 ° Vol. WC. Function: Torpoint Formation Residual Water Content (% of Sat WC): 10 %

Name: Proposed Fill Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 26 ° Vol. WC. Function: Proposed Fill Residual Water Content (% of Sat WC): 10 %



Cross Section Proposed C Run 1C. Upper slope 22degrees, 5m bench, lower slope 25 degrees. Rainfall 1500mm Infilt. 25%.
Name: Waste Layer 1 Model: Saturated / Unsaturated K-Function: Waste Layer 1 Ky'/Kx' Ratio: 1 Rotation: 0 ° Vol. WC. Function: Waste Layer 1
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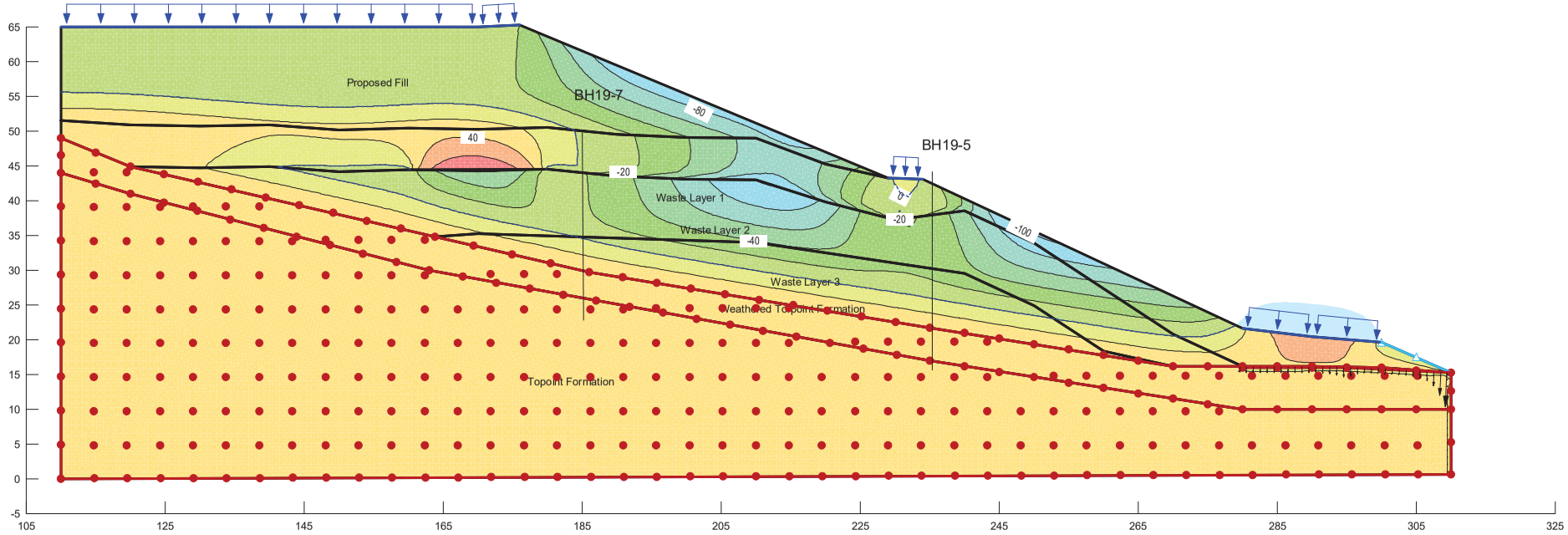

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Name: Waste Layer 3 Model: Mohr-Coulomb Unit Weight: 21 kN/m³ Cohesion': 0 kPa Phi': 34 ° Vol. WC. Function: Waste Layer 3 Residual Water Content (% of Sat WC): 10 %

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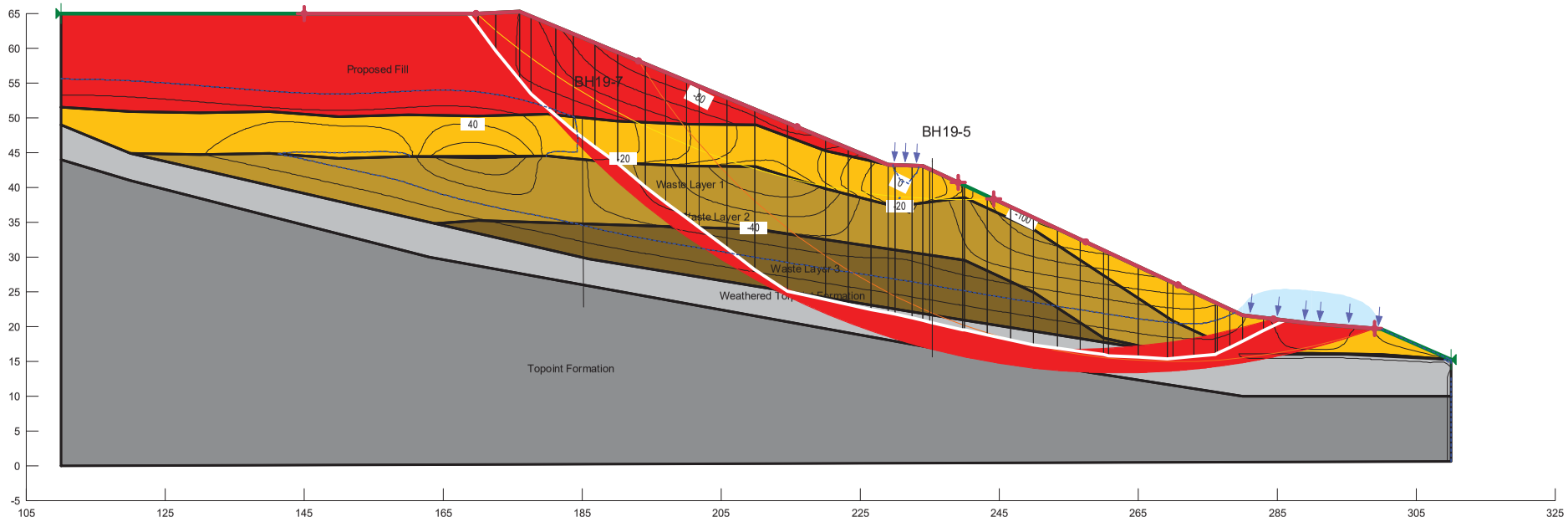

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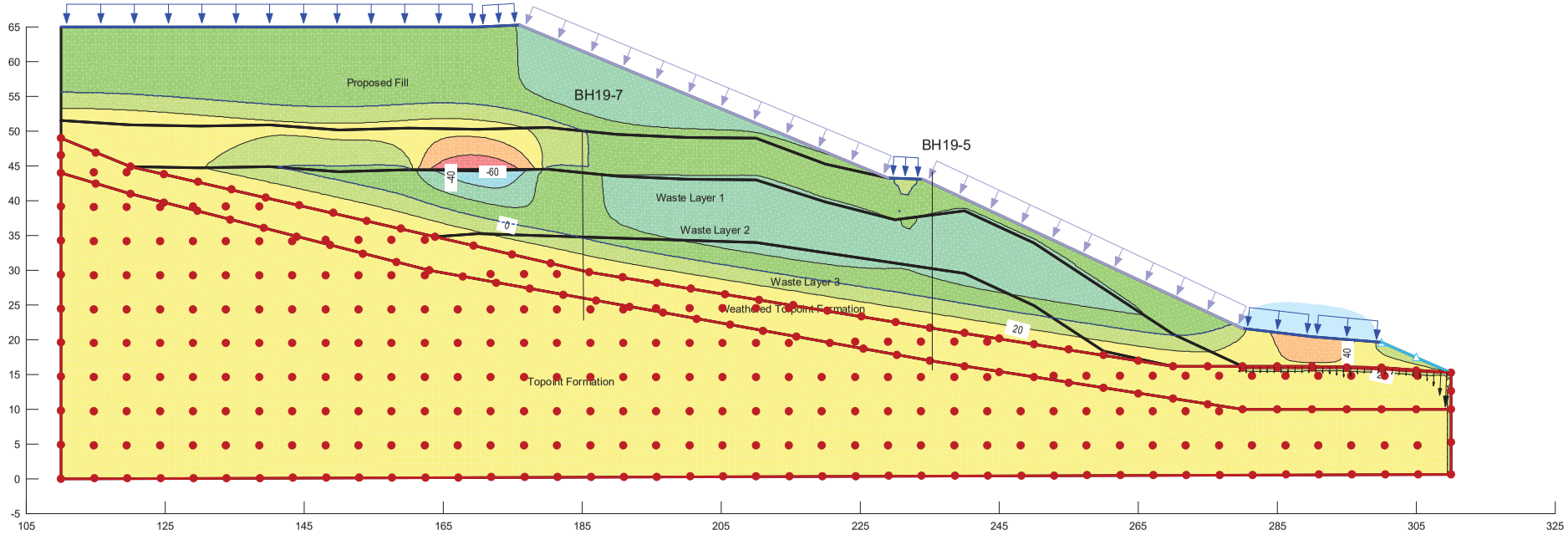

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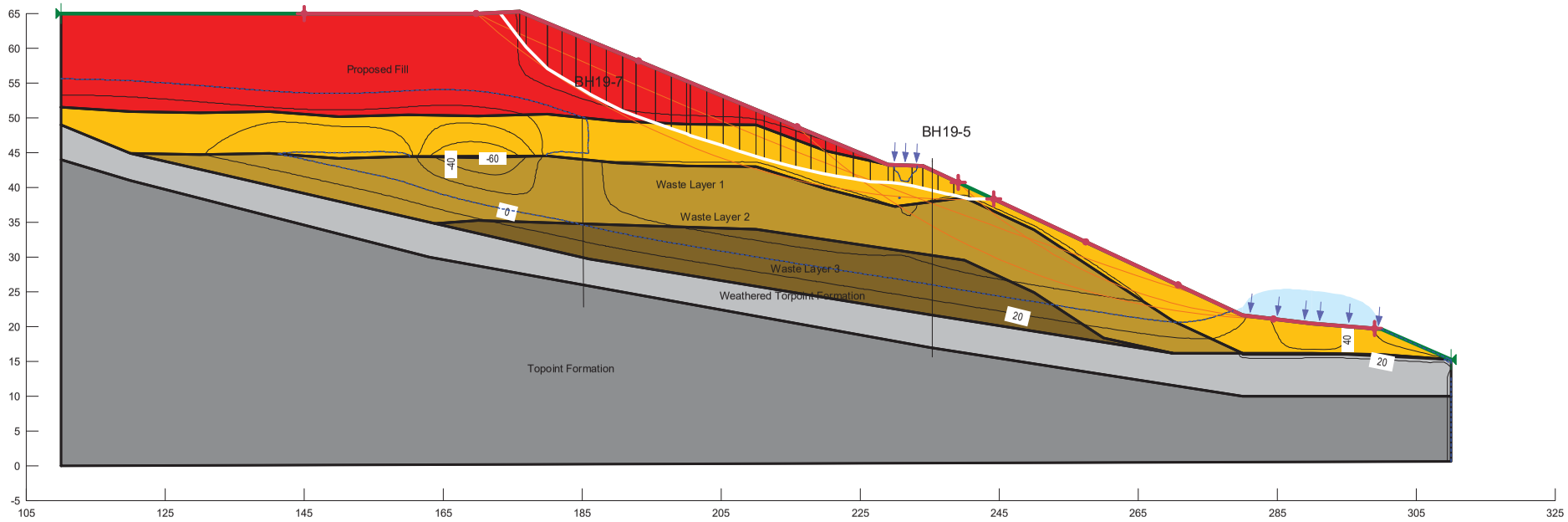

Appendix J Closure and Aftercare Plan

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Environmental Permit Variation Application

Eales Farm Landfill, Eales Farm, Saltash

Closure & Aftercare Plan

Report: GCE00692/CAP(v3)

June 2020

GCE00692/ CAP

Report prepared for:	Tamar Valley Projects Ltd Harscombe House 1 Darklake View Estover, Plymouth PL6 7TL
Report Number:	GCE00692/CAP
Version:	3
Issue Date:	June 2020
Report Prepared by:	Rose Ashmore MSci, FGS

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Report Reviewed by: David Jackson BSc., CEng., MICE., FGS

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This report is prepared on the instruction of, and for the benefit only of the party to whom it is addressed. The report has been prepared with all reasonable skill, care and due diligence. Geo Consulting Engineering Ltd owes no duty of care in relation to this report to any third party. Geo Consulting Engineering Ltd disclaims any responsibility to the client or others in respect of any matters outside of the agreed scope of works.

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background

This Closure & Aftercare Plan has been prepared as part of the Environmental Permit Variation Application for the Eales Farm Landfill (EFL) at Eales Farm, Carkeel, Cornwall. The report outlines how the site will be managed and monitored when the site has ceased accepting inert waste for disposal.

Regular monitoring of EFL is proposed to assess an absence risk to the surrounding environment. Factors to be considered include landfill gas generation, potential leachate, slope stability and the surface water and groundwater quality.

Data collected prior to the landfill operation and throughout the landfill's life will be used to assess the local background conditions for factors such as ground gas, surface water quality and groundwater quality.

As outlined within the EPR: Inert Waste Guidance, the Site Closure & Aftercare Plan will be reviewed throughout the life of the landfill.

2.0 RESTORATION PLAN

2.1 Land use

In accordance with the original planning permission Eales Farm Landfill will be restored back to agricultural land following its closure. The site will be restored in stages; as each phase of filling reaches its finished level and surface has been profiled it will be capped with clean imported/recovered topsoil before being seeded.

Following the completion of the final phases the site facilities will be removed and the surface water management plan will be installed.

See Environmental Setting and Site Plan (GCE00692/2020/ESSD) for details regarding site operational phases.

2.2 Surface Water Management Plan

The final site profile will direct a majority of surface run-off into the perimeter ditch along the northern boundary. Another ditch will be located to the east in order to catch surface run off from the southern slope. Both ditches will flow into the unnamed stream just east of site.

In addition, two ditches will be constructed along the crest of the steep slope on the eastern margin of the fill platform. The ditches will be lined to ensure a permeability no greater than 1 x 10^{-9}m/s. The ditches will divert surface run-off away from the slopes and direct water into the perimeter ditches.

The pond in the north-west corner of site will remain and continue to collect water from the stream to the north and ditch to the west along with flows from a new culvert that will be constructed to supersede the existing culvert that follows the former valley floor. In addition, the drainage ditch constructed adjacent the main site track will remain to carry

surface water from the south-west to the pond. Any overflow from the pond will be directed into an open ditch running along the northern boundary of site.

During the quarterly monitoring visits, the drainage ditches will be checked to ensure they remain free from blockages.

See Figure GCE00292-A-7 in the attached ESSD report.

3.0 LANDFILL GAS INFRASTRUCTURE AND MONITORING

3.1 Infrastructure

In April 2016 John Grimes Partnership (JGP) installed eleven in-waste monitoring wells across Eales Farm Landfill. Four of the boreholes were also installed with perimeter wells (BH1B, BH2B, BH7B & BH11B). The ground gas and groundwater within these fifteen wells are currently monitored on a quarterly basis as part of the closure plan for EFL (ref: 12933/R6).

In August 2016 GCEL installed another three monitoring wells in the western area of EFL. In February 2020 GCEL installed a further seven wells in the eastern area of the site.

EFL currently has a total of twenty-six monitoring wells in use across site.

During the operation of the site it is planned to raise the four JGP in-waste wells (BH9, BH10, BH11, and BH12) and the four newly installed GCEL wells (BH19-4, BH19-6, BH19-7a and BH19-8a) located within the proposed variation deposition area. In the unlikely case that a well is lost or damaged during the operational period of the site a replacement well will be installed.

Nine additional in-waste monitoring wells will be installed within the proposed variation deposition area to monitor the ground gas concentrations and groundwater/leachate within the newly deposited waste mass.

See Figures GCE00692-A-Fig 12 for borehole locations in attached ESSD report.

3.2 Post Closure Monitoring Plan

During the aftercare phase of EFL, a suitably qualified person will undertake quarterly monitoring of the ground gas concentrations within the perimeter and in-waste monitoring wells.

The proposed gas monitoring schedule is summarised in the Table 1.

Table 1: Aftercare Ground Gas Monitoring Schedule

Install	Response Zones	Trigger Limits	Parameters
BH1-A	Perimeter (Torpoint Formation)	Methane: 2% Carbon Dioxide: 6% Flow: > 1l/hr	Date Atmospheric pressure Weather Methane (%) Carbon dioxide (%) Carbon monoxide (ppm) Hydrogen sulphide (ppm) Flow rate (l/hr) Groundwater level (m)
BH1-B			
BH2-B			
BH7-B			
BH11- B			
BH18 (proposed)			
BH2-A	Historic Waste (Eales Farm Landfill)	Methane: 3% Carbon Dioxide: 10% Flow: >1l/hr	
BH3			
BH4			
BH5			
BH6			
BH7-A			
BH9			
BH10			
BH11- A			
BH12			
BH13			
BH15			
BH16			
P1A (proposed)	New Waste (Tamar View Landfill)		
P1B (proposed)			
P2A (proposed)			
P2B (proposed)			
P3A (proposed)			
P3B (proposed)			
P4A (proposed)			
P4B (proposed)			
P5A (proposed)			

One in every four gas monitoring visits will be carried when atmospheric pressure is low and falling (ideally below 1,000mb).

In the event that the trigger levels are exceeded the monitoring frequency will be increased to monthly until such time as the level falls back below trigger level. If more than two consecutive readings exceed the trigger level the Environment Agency will be informed.

4.0 WATER QUALITY

4.1 Groundwater Quality

Following the closure of EFL a suitably qualified person will undertake quarterly groundwater monitoring visits. Based on current data, groundwater is predominantly only encountered within the underlying natural stratum of the Torpoint Formation. Therefore, groundwater samples shall be collected from the seven perimeter wells:

- BH1B (Up-gradient)
- BH2B (Up-gradient)
- BH7B (Up-gradient)
- BHB19-1 (Up-gradient)
- BHB19-3 (Up-gradient)
- BH11B (Down-gradient)
- BHB19-2 (Down-gradient)

Should groundwater be encountered on a regular basis (more than two consecutive monitoring visits) within in-waste monitoring wells groundwater quality testing shall be carried out on samples collected from the monitoring well(s).

EFL In-waste Wells:

- BH2A, BH3, BH4, BH5, BH6, BH7, BH9, BH10, BH11A, BH12, BH13, BH15, BH16

TVL In-waste Wells:

- P1A, P1B, P2A, P2B, P3A, P3B, P4A, P4B, P5A

Locations shown figure GCE00692-A-Fig 12 in attached ESSD report.

The parameters and trigger limits are summarised in the Table 2.

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Table 2: Aftercare Groundwater and Surface Water Monitoring Schedule

Receptor	TVL Locations	Off-Site Locations	Monitoring Frequency	Parameters	Trigger Limits
Surface Water	WSL1 WSL2 WSL3	WSL4 WSL5 WSL6 WSL7	Quarterly Monitoring	pH,	6.5 – 8.5
				Electrical Conductivity,	4000µS/cm
				Suspended Solids At 105C,	
				Alkalinity (Total),	
				Chloride,	250mg/l
				Ammoniacal Nitrogen,	1.0mg/l
				Nitrite,	
				Nitrate,	
				Sulphate,	
				Calcium,	
				Potassium,	
				Magnesium,	
				Sodium,	
				Hardness,	
				Arsenic (Dissolved),	
Groundwater	BH11B BHb19-2	BH1B BH2B BH7B		Boron (Dissolved),	
				Cadmium (Dissolved),	
				Chromium (Dissolved),	
				Copper (Dissolved),	
				Iron (Dissolved),	1000µg/l
				Mercury (Dissolved),	1µg/l
				Manganese (Dissolved),	
				Nickel (Dissolved),	
				Lead (Dissolved),	
				Selenium (Dissolved),	
				Zinc (Dissolved),	
				Chromium (Hexavalent),	
				Total Organic Carbon,	
				Total TPH >C6-C40,	50µg/l
				Total Of 16 PAH's	

Should any of the sample locations exceed any of the trigger limits the following procedure will be followed:

- Advise site management
- Instigate repeat sampling and analysis
- If trigger still exceeded advise Environment Agency
- Review data against historic monitoring
- Review site management/operations and implement appropriate actions to minimise likelihood of recurrence.
- Review Conceptual Model and Hydrogeological Risk Assessment
- Consult Environment Agency about need for corrective action.

4.2 Surface Water Quality

The surface water monitoring locations have been selected to include:

- WSL1: Run-off collected from the top plateau of TVL
- WSL2: Outflow of containment pond 1
- WSL3: Outflow of containment pond 2
- WSL4: Run-off collected from western plateau of EFL
- WSL5: Outflow of culvert
- WSL6: Inflow of culvert (surface run-off from Tamar View Industrial Estate)
- WSL7: Unnamed stream flowing into pond from the north

Locations shown GCE00692-A-Fig 12.

The locations mentioned above are planned to be monitored on a quarterly basis. The samples will be tested for the parameters and set compliance limits summarised in Table 2.

Should any of the sample locations exceed any of the compliance limits the following procedure will be followed:

- Advise site management
- Instigate repeat sampling and analysis. If exceedance is detected in WSL4 additional testing of the culvert inlet and outlet will be carried out.
- If trigger still exceeded advise Environment Agency
- Review data against historic monitoring
- Review site management/operations and implement appropriate actions to minimise likelihood of recurrence.
- Review Conceptual Model and Hydrogeological Risk Assessment
- Consult Environment Agency about need for corrective action.

5.0 SLOPE STABILITY

5.1 Stability Risk Assessment

A slope stability risk assessment has been carried out to include the proposed slope and the existing slope just east of site, see attached report GCE00692/2020/SSA.

5.2 Slope Monitoring

A topographic survey will be carried out on an annual basis. The surveys will be used to assess if any movement is occurring across efl.

The Table 3 summarises the monitoring and contingency plan and outlines actions to be taken should instability be detected on the site.

Table 3: Aftercare Slope Stability Monitoring Schedule

Risk	Monitoring	Non-Compliance Limit	Mitigation
Waste material instability in slope due to surface instability	Quarterly visual inspection of slopes and annual topographic survey of site	Significant visual change. Systematic movement of material across slope face	1. Inform EA 2. Increase monitoring frequency 3. Determine cause of movement *Consider remedial options as appropriate*: 1. improve vegetation 2. Control erosion 3. Improve slope restraint physically 4. Improve slope drainage control 5. prevent further animal activity at base of slopes with appropriate protection measures.
Waste material instability in slope due to deep seated instability	Quarterly visual inspection of slopes and groundwater levels. Annual topographic survey of site	Visual change. Systematic movement of material across slope face Exceedance in groundwater control levels	1. Inform EA 2. Increase monitoring frequency depending on scale of instability 3. Monitor culvert for signs of failure 3. Over-pump culvert 5. Determine cause of movement *Consider options as appropriate*: 1. Improve slope restraint physically 2. Re-profile slope 3. Improve slope drainage 4. permanently re-route culvert

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Appendix K WAMITAB Certificates

WAMITAB

WASTE MANAGEMENT INDUSTRY TRAINING AND ADVISORY BOARD

CERTIFICATE No: 0315

CERTIFICATE OF TECHNICAL COMPETENCE

This Certificate confirms that

MR GLYNN LEPPITT

has demonstrated the standard of technical competence required for the management of a facility of the type set out below

Facility Type:

MANAGING LANDFILL OPERATIONS

SPECIAL OR CLINICAL WASTE (LEVEL 4) - LS4

WAMITAB INCORPORATED 1989

Authorising Signatures:

Director General L W Strong

Director

Date of issue: 1 April, 1998

Continuing Competence Certificate

This certificate confirms that

Glyn Leppitt

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 15/11/2019

LC	Landfill - Closed
LNH	Landfill - Non Hazardous Waste
LH	Landfill - Hazardous Waste

Expiry Date:
15/11/2021

Verification date: 09/11/2019

Authorised:

WAMITAB Chief Executive Officer

Learner ID: 103216

Certificate No.: 5153938

Date of Issue: 15/11/2019

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00136395