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September 21, 2018
File: 175527006

Attention: Thomas J. Powell, PE
District Design Engineer
Ohio Department of Transportation, District 4
Planning & Engineering Administration
2088 S. Arlington Road
Akron, Oh 43306

Dear Mr. Powell,

Reference: Addendum to Report of Geohazard Exploration – SUM-271-8.87 – PID: 103930 - FINAL Summit County, Ohio

The following addendum includes the updated slope stability analyses based on the additional survey provided by ODOT-District 4. It should be noted that the back calculated effective phi angle for the existing embankment fill material decreased from 22.9 degrees to 20.7 degrees. The change in the phi angle was a result of the additional survey data that was not provided at the initial exploration stage of this project. We appreciate the opportunity to provide you with these services, and please do not hesitate to contact us with any questions or comments.

Regards,

STANTEC CONSULTING SERVICES INC.

A handwritten signature in blue ink that reads "Elliot Magoto".

Elliot Magoto, PE
Geotechnical Engineer
Phone: (614) 545-3397
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A handwritten signature in blue ink that reads "Rich P. Williams".

Rich Williams, PhD, PE
Principal
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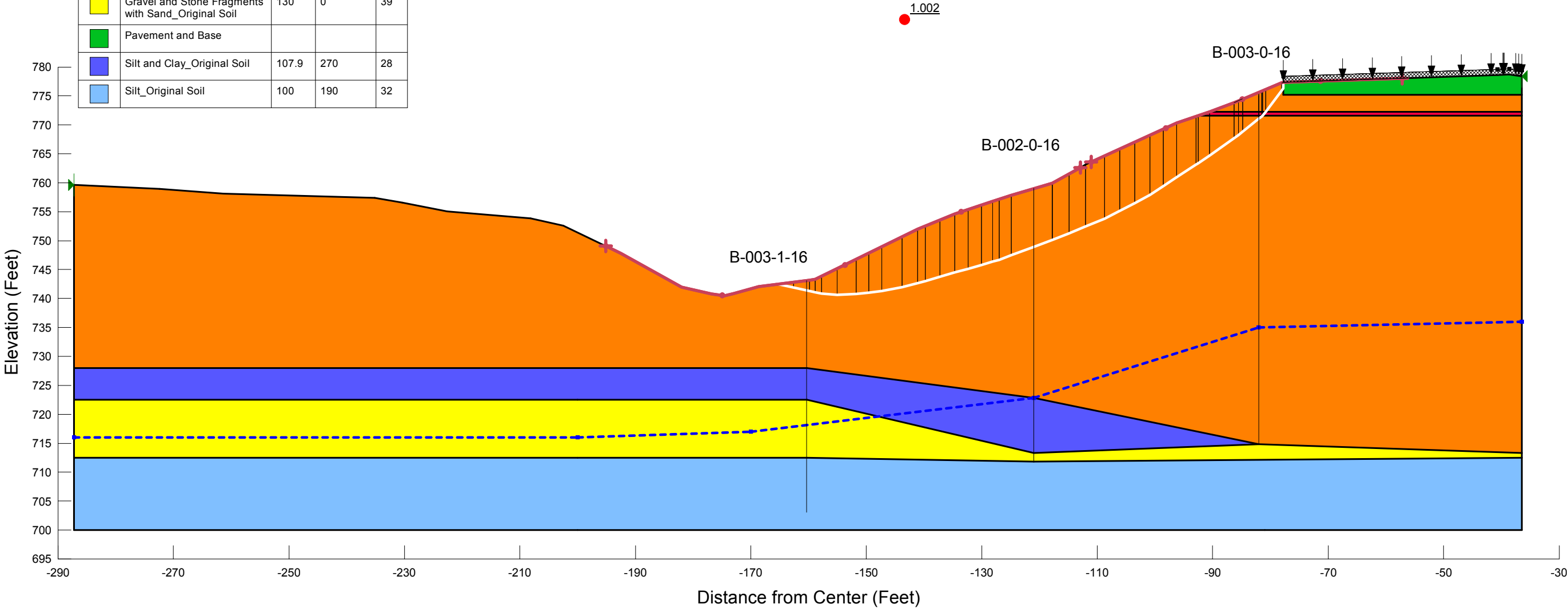


SUM 271 Landslide Investigation

FS=1.0 - 10 ft Slip Surface

Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
Orange	Embankment Fill (A-6a, A-6b)	116.6	0	20.7
Red	Gravel and Stone Fragments with Sand, Silt, and Clay	105	0	33
Yellow	Gravel and Stone Fragments with Sand_Original Soil	130	0	39
Green	Pavement and Base			
Blue	Silt and Clay_Original Soil	107.9	270	28
Light Blue	Silt_Original Soil	100	190	32

Note: The results of the analysis shown here are based on available subsurface information, laboratory test results and approximate soil properties. The drawing depicts approximate subsurface conditions based on historical drawings or specific borings at the time of drilling. No warranties can be made regarding the continuity of subsurface conditions.



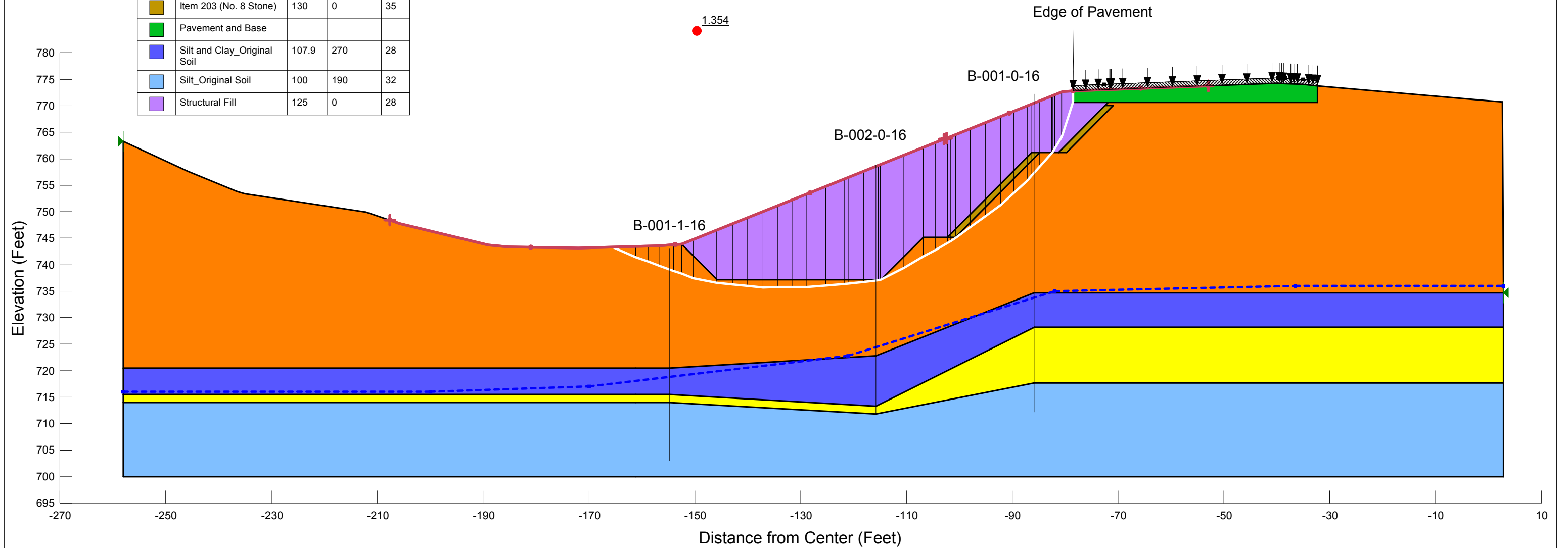
SUM 271 Landslide Investigation

Station 465+00 - Benching Plan



Color	Name	Unit Weight (pcf)	Cohesion (psf)	Phi (°)
Orange	Embankment Fill (A-6a, A-6b)	116.6	0	20.7
Yellow	Gravel and Stone Fragments with Sand_Original Soil	130	0	39
Brown	Item 203 (No. 8 Stone)	130	0	35
Green	Pavement and Base			
Blue	Silt and Clay_Original Soil	107.9	270	28
Light Blue	Silt_Original Soil	100	190	32
Purple	Structural Fill	125	0 </td <td>28</td>	28

Note: The results of the analysis shown here are based on available subsurface information, laboratory test results and approximate soil properties. The drawing depicts approximate subsurface conditions based on historical drawings or specific borings at the time of drilling. No warranties can be made regarding the continuity of subsurface conditions.



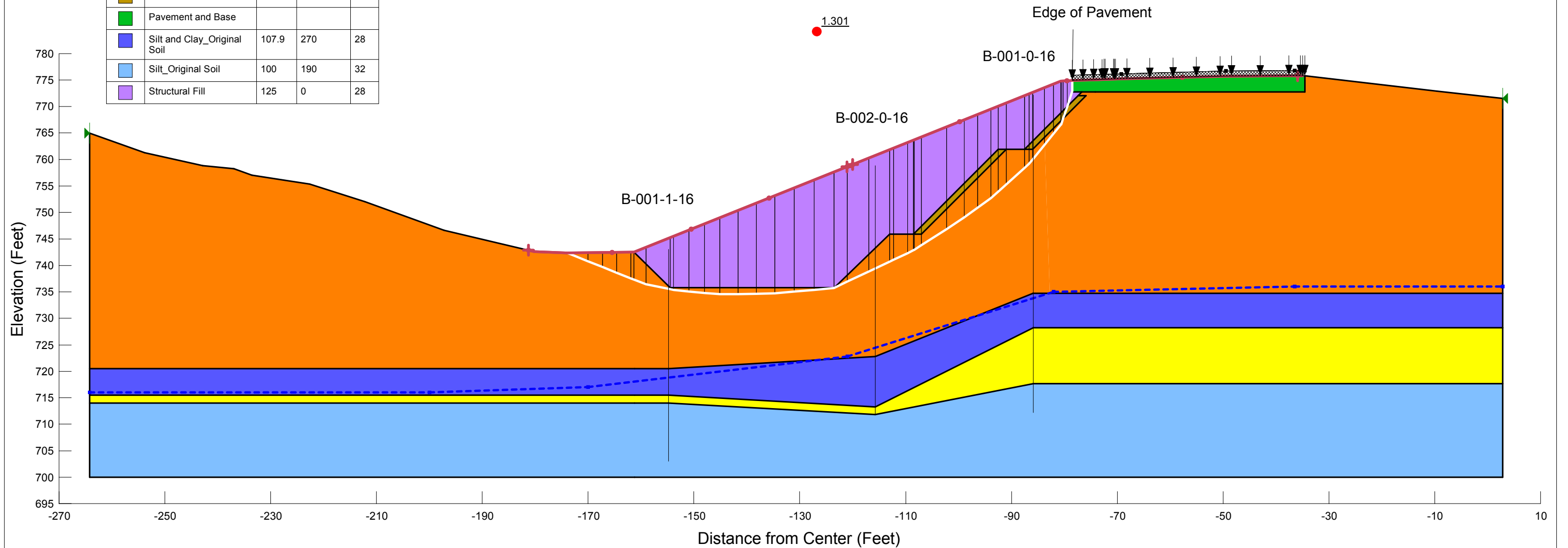
SUM 271 Landslide Investigation

Station 465+68.85 - Benching Plan



Note: The results of the analysis shown here are based on available subsurface information, laboratory test results and approximate soil properties. The drawing depicts approximate subsurface conditions based on historical drawings or specific borings at the time of drilling. No warranties can be made regarding the continuity of subsurface conditions.

Color	Name	Unit Weight (pcf)	Cohesion* (psf)	Phi* (°)
Orange	Embankment Fill (A-6a, A-6b)	116.6	0	20.7
Yellow	Gravel and Stone Fragments with Sand_Original Soil	130	0	39
Brown	Item 203 (No. 8 Stone)	130	0	35
Green	Pavement and Base			
Blue	Silt and Clay_Original Soil	107.9	270	28
Light Blue	Silt_Original Soil	100	190	32
Purple	Structural Fill	125	0 </td <td>28</td>	28



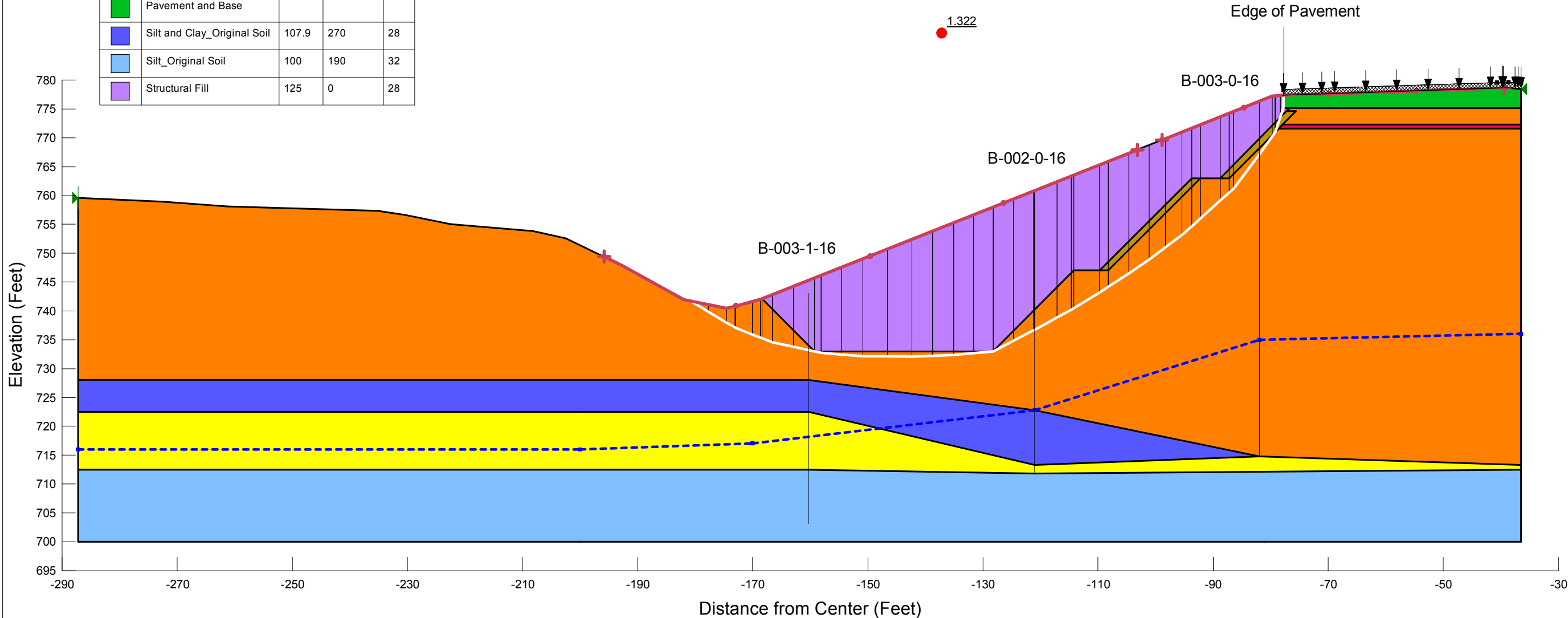
SUM 271 Landslide Investigation

Station 466+80 - Benching Plan



Color	Name	Unit Weight (pcf)	Cohesion' (psf)	Phi' (°)
Orange	Embankment Fill (A-6a, A-6b)	116.6	0	20.7
Red	Gravel and Stone Fragments with Sand, Silt, and Clay	105	0	33
Yellow	Gravel and Stone Fragments with Sand_Original Soil	130	0	39
Brown	Item 203 (No. 8 Stone)	130	0	35
Green	Pavement and Base			
Blue	Silt and Clay_Original Soil	107.9	270	28
Light Blue	Silt_Original Soil	100	190	32
Purple	Structural Fill	125	0	28

Note: The results of the analysis shown here are based on available subsurface information, laboratory test results and approximate soil properties. The drawing depicts approximate subsurface conditions based on historical drawings or specific borings at the time of drilling. No warranties can be made regarding the continuity of subsurface conditions.



SUM 271 Landslide Investigation

Station 468+00 - Benching Plan



Color	Name	Unit Weight (pcf)	Cohesion* (psf)	Phi* (°)
Orange	Embankment Fill (A-6a, A-6b)	116.6	0	20.7
Red	Gravel and Stone Fragments with Sand, Silt, and Clay	105	0	33
Yellow	Gravel and Stone Fragments with Sand_Original Soil	130	0	39
Brown	Item 203 (No. 8 Stone)	130	0	35
Green	Pavement and Base			
Dark Blue	Silt and Clay_Original Soil	107.9	270	28
Light Blue	Silt_Original Soil	100	190	32
Purple	Structural Fill	125	0	28

Note: The results of the analysis shown here are based on available subsurface information, laboratory test results and approximate soil properties. The drawing depicts approximate subsurface conditions based on historical drawings or specific borings at the time of drilling. No warranties can be made regarding the continuity of subsurface conditions.

