

Excavated Exposed Face Instability

Following are examples of excavated wall faces that did not maintain integrity and stability.



Figure 1. Native sandy silt material that will not maintain a vertical stable cut.



Figure 2. Another example of wall face instability due to sandy material.

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Figure 3. Material that stands initially, may slough over time as the soil loses moisture. Thus, even apparently good soil material may slough.

Figures 4 through 9 depict a time lapse event that led to a wall failure. Work occurred on a Friday shift culminating in a wall collapse Monday morning.



Figure 4. Improper berm and native sandy material sloughing on Friday from behind the previously constructed 2 layer/rows of soil nails.

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Figure 5. As work progressed through the day and afternoon more material sloughs from behind the wall due to construction activity and loss of moisture.



Figure 6. Picture from inside and behind shotcrete to illustrate the amount of material loss. Note the exposed soil nail from the previously completed row above.

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Wall Instability Leading To Wall Failure

Figures 4 through 6 depicts what contributed to the wall failure that is depicted in Figures 7 through 9 that was observed the following Monday morning.



Figure 7. Wall collapsed due to progressive loss of material from behind the wall, noted in the previous pictures. Notice the deteriorated berm and loss of material



Figure 8. With the loss of the supporting soil behind the wall, the wall failed similar to a beam in bending. The top portion of the wall buckled outward and broke.

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Figure 9. Illustrating the magnitude of material loss due to wall face instability and potential safety hazard for the travelling public. The berm being placed is to stabilize the failed section to prevent further collapse.