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Geospatial Engineering

1. This change replaces incorrect figures in appendix B.
2. Page numbering on the table of contents did not change.

Remove Old Pages

Page B-13 through B-22

Insert New Pages

Page B-13 through B-22

3. A bar (|) marks new or changed material.
4. File this transmittal sheet in front of the publication for reference purposes.

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FIELD OF FIRE

B-16. A field-of-fire product shows the area that can be effectively covered from a specific position based on LOS and weapon capabilities. (See figure B-12.) This product is used to locate defensible terrain, identify potential engagement areas, and position fighting systems to allow mutually supporting fires. It can also reveal where maneuvering forces are more vulnerable to ambush.

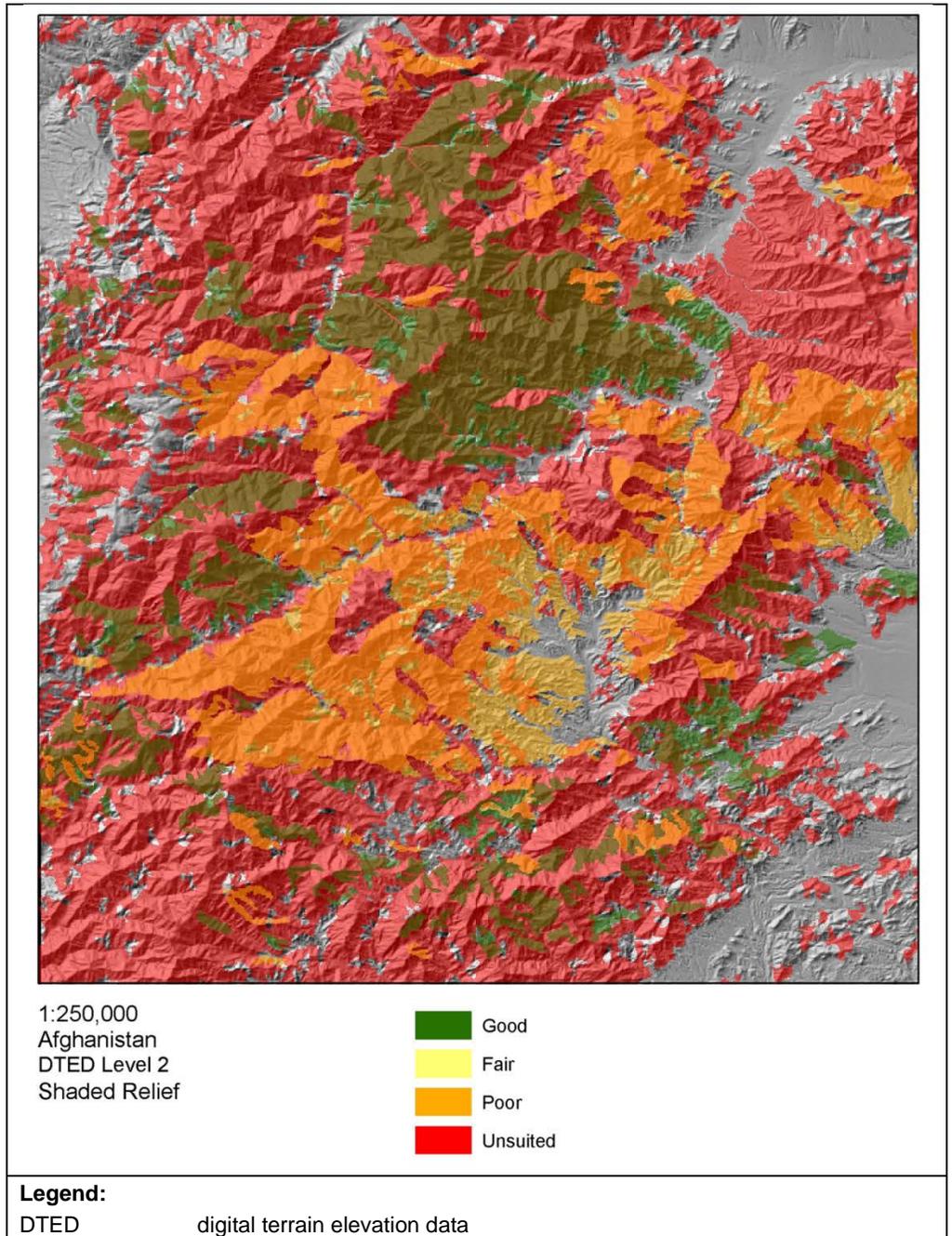


Figure B-12. Example of a product showing fields of fire

ARTILLERY SLOPE TINT

B-17. The artillery slope tint product depicts areas of interest for artillery assets where slope is the primary limiting factor. (See figure B-13.) Areas with a slope from 0 to 7 percent are considered suitable for artillery firing positions, while a slope of 8 to 12 percent is considered marginal. This product helps template threat artillery assets by narrowing down the likely areas for firing positions based on slope restrictions.

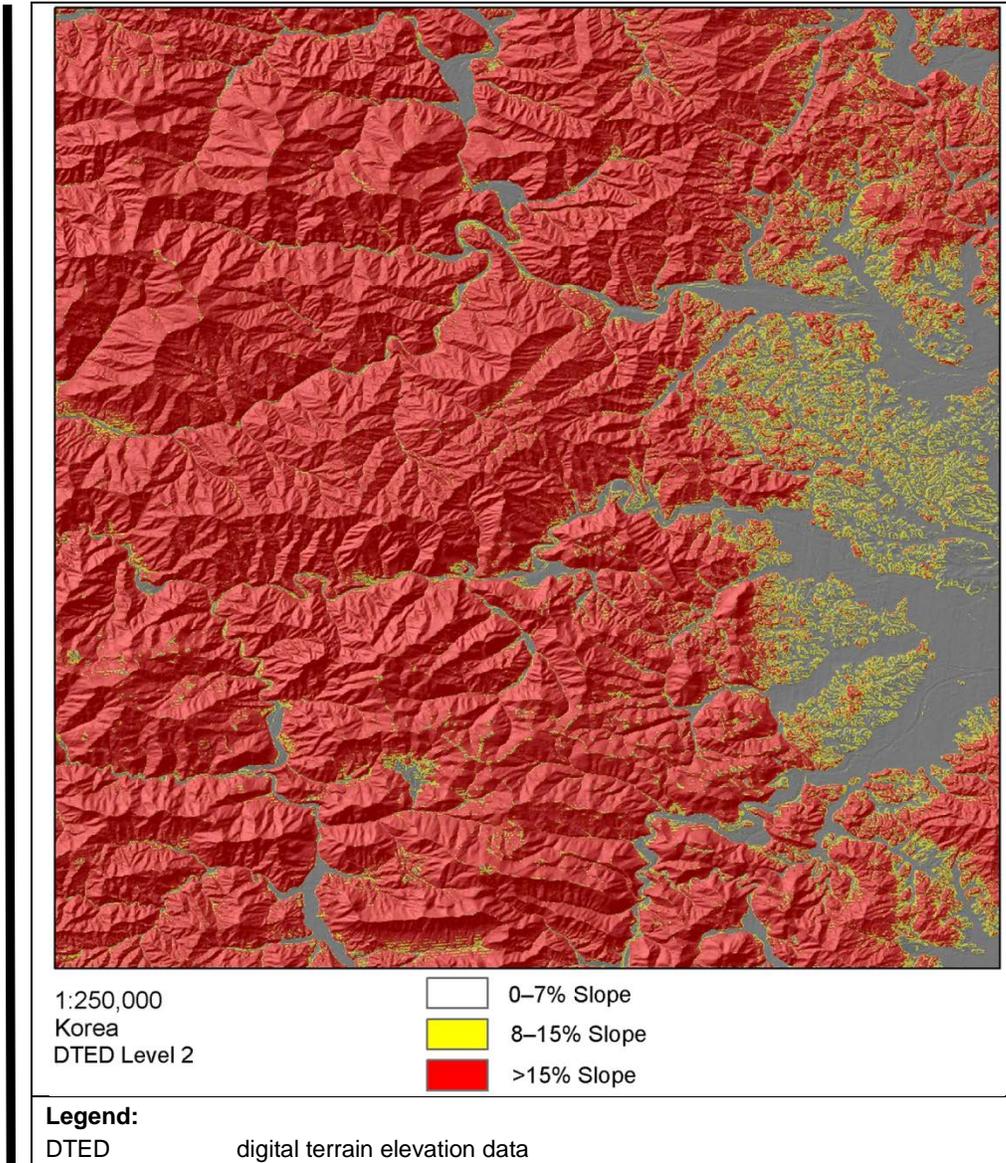


Figure B-13. Example of a product showing artillery slope tint

AERIAL CONCEALMENT

B-18. The aerial concealment overlay shows the most suitable areas to conceal a force from overhead detection, based on the analysis of woods, underbrush, tall grass, and cultivated vegetation. (See figure B-14.) This product is predicated on canopy closure information within the vegetation layer. This overlay is particularly useful in templating areas where threat forces may be operating. It can also help friendly forces identify concealed movement routes and staging areas.

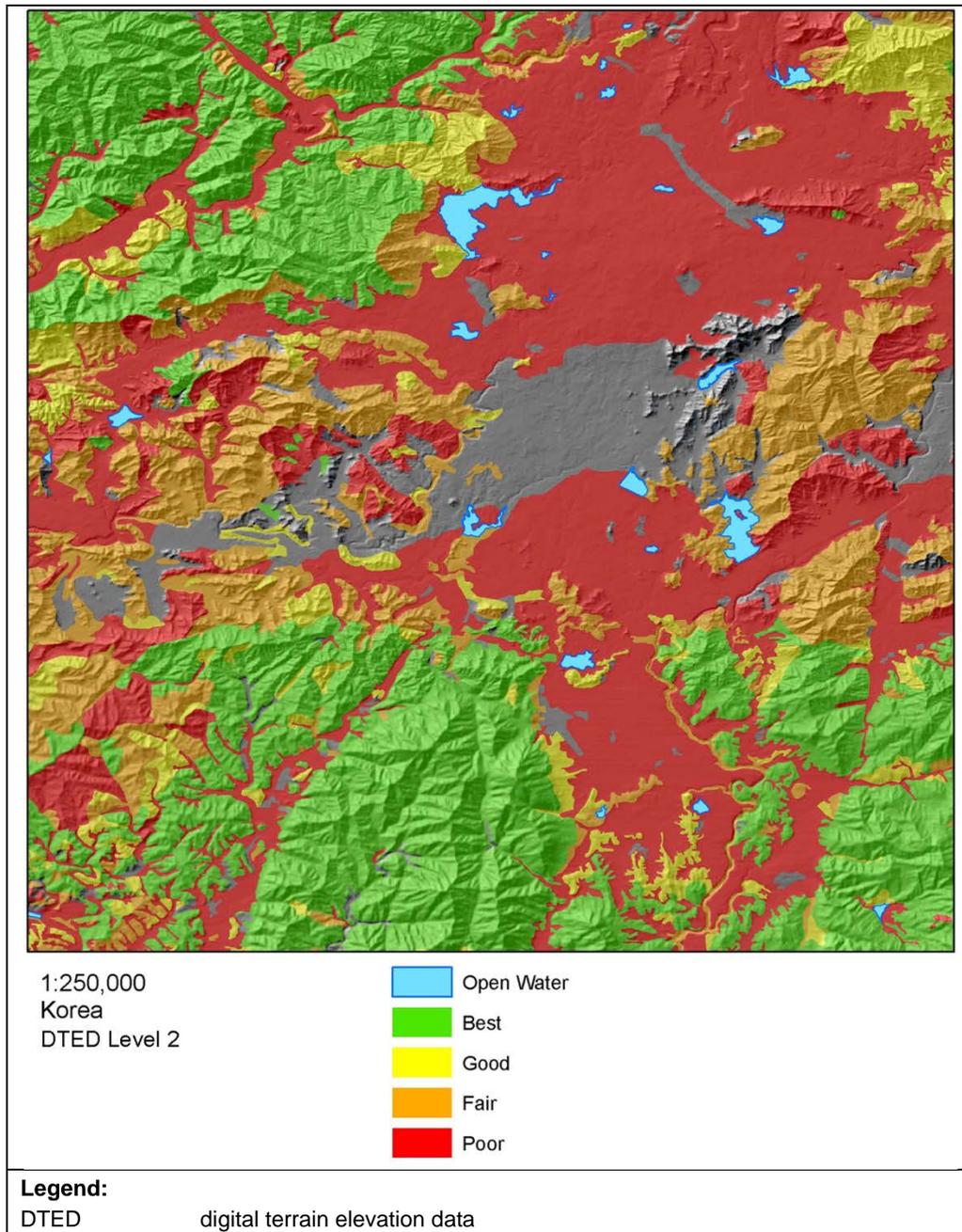


Figure B-14. Example of a product showing aerial concealment

SURFACE MATERIAL

B-19. The surface material overlay shows a contrast based on the predominant type of soil that constitutes the surface area. (See figure B-15.) This information is useful in determining the trafficability of an area, assessing the ease of excavating fighting positions, and planning construction projects that are better suited on certain types of soil.

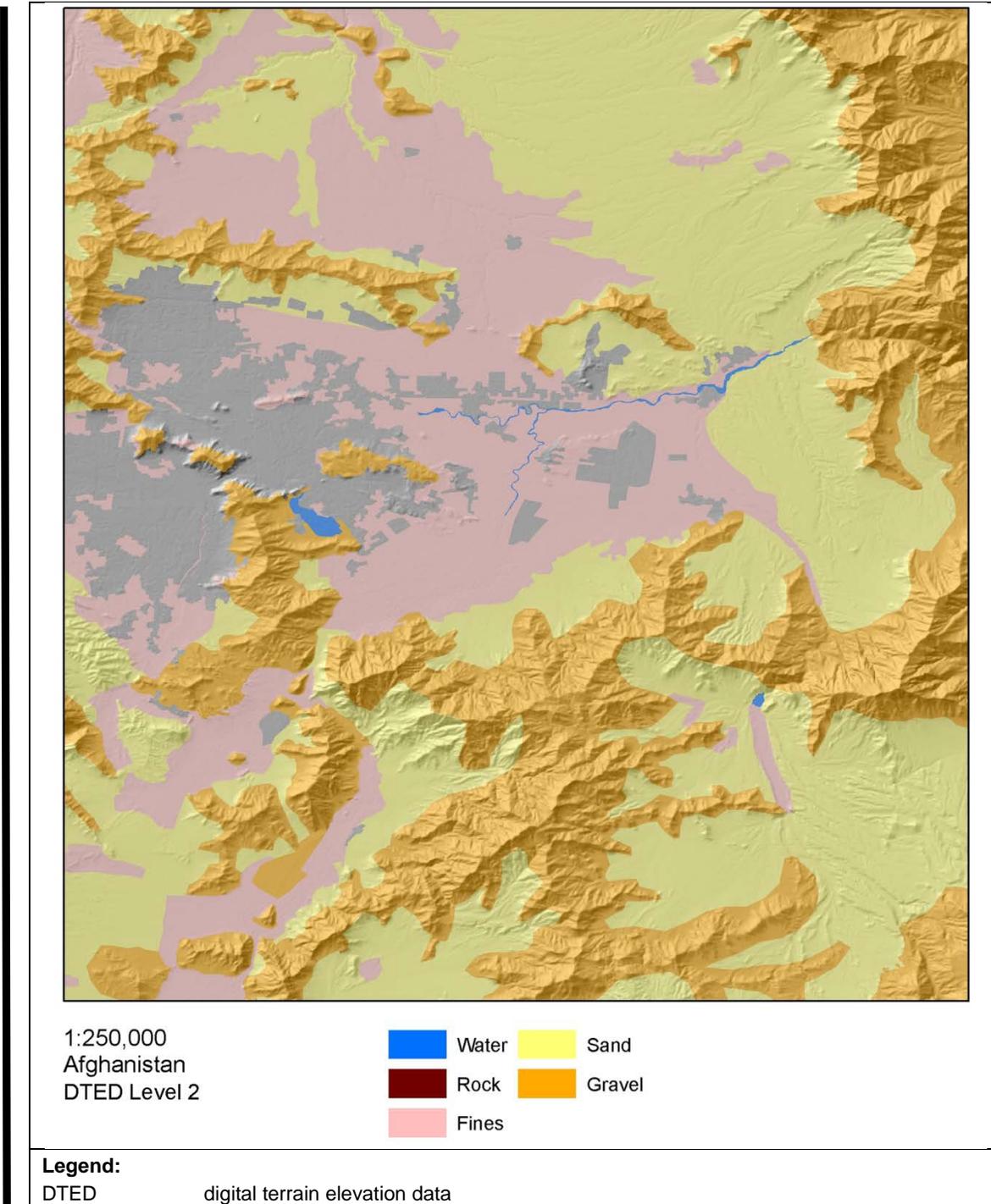


Figure B-15. Example of a surface material overlay

CONSTRUCTION RESOURCES

B-20. The construction resources product shows the natural resources of an area. (See figure B-16.) This product can help engineers plan major construction projects (roads, base camps) that are benefitted by having close access to certain types of construction materials that can be made readily available through quarrying.

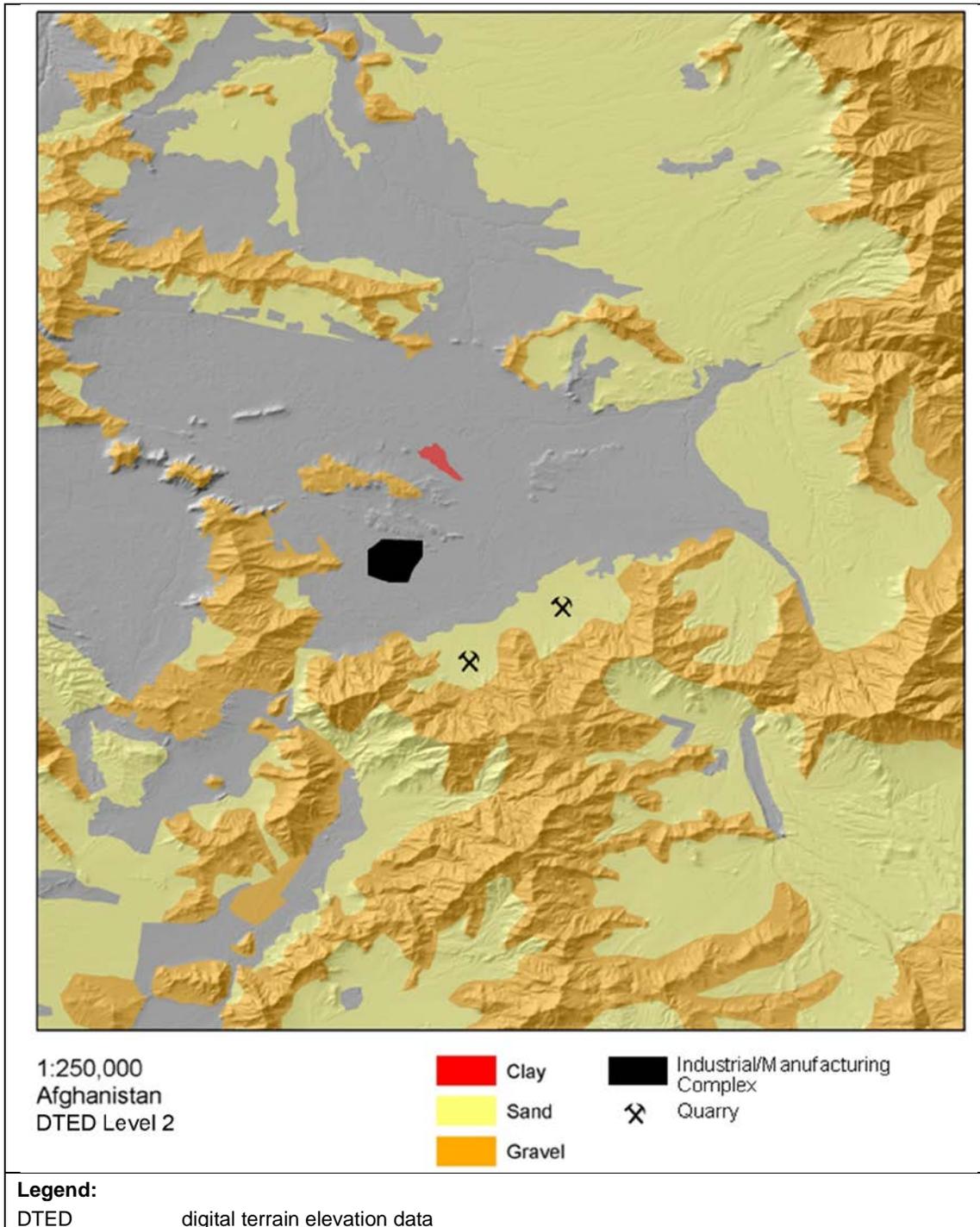


Figure B-16. Example of a product showing construction resources

SHADED RELIEF

B-21. A shaded-relief image depicts relief of an area by mimicking shadows of the sun to highlight variations in elevation and slope. (See figure B-17.) This product can be depicted in grayscale or a single/multicolor ramp or used as the foundation for other products to enhance appearance.

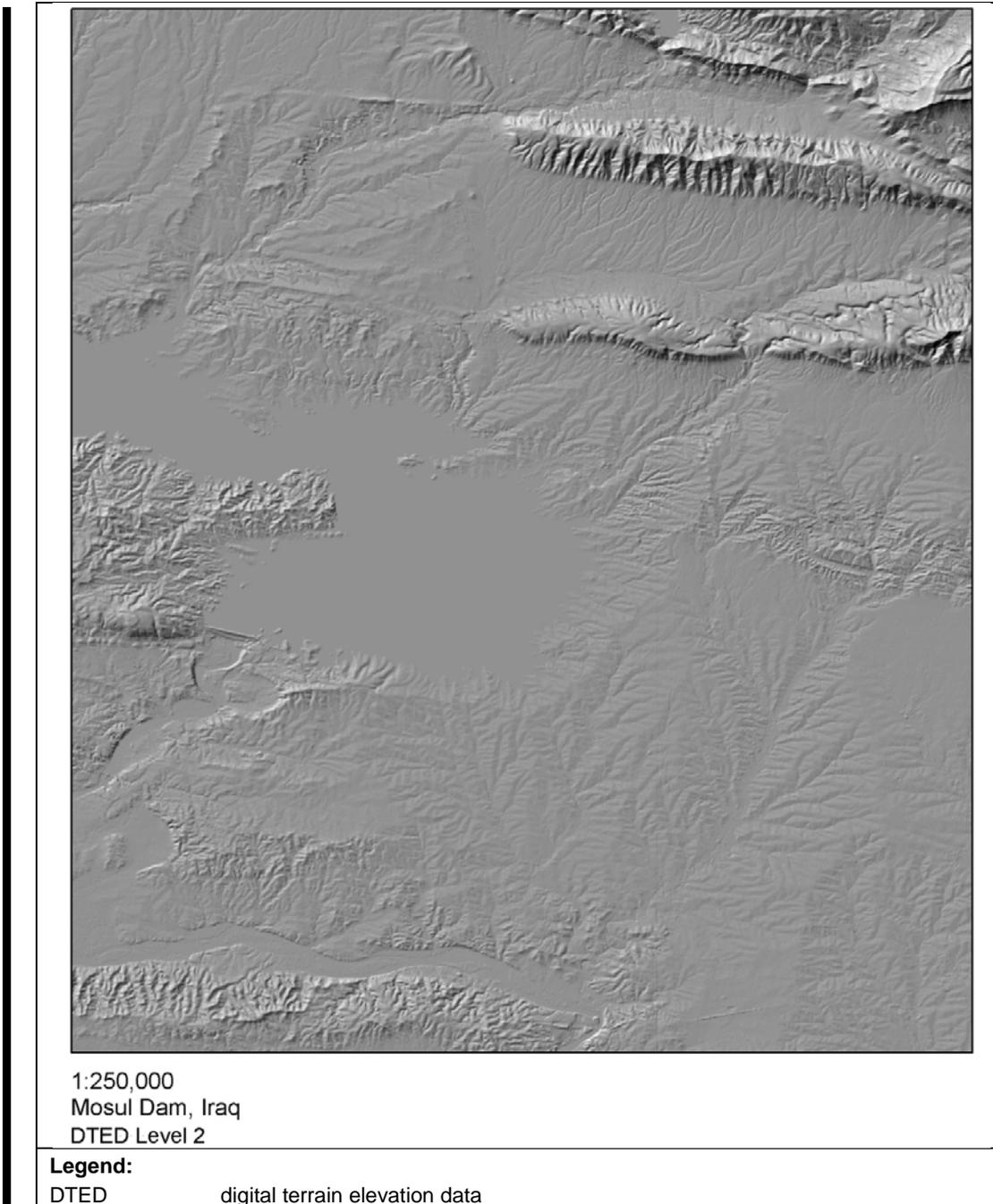


Figure B-17. Example of a shaded-relief image

VIEWSHED ANALYSIS

B-22. A viewshed analysis, often misconed *LOS profiles*, shows an area of observation that is possible from a 360° prospective based on elevation. (See figure B-18.) Viewshed or LOS analysis is used in templating threat positions, positioning friendly capabilities (such as LOS-based communications and observation platforms), and developing engagement areas. The accuracy of this analysis is directly proportional to the level of resolution of existing elevation data. This is not to be confused with another form of LOS analysis that is direct observation, which is the visibility from one single point to another single point.

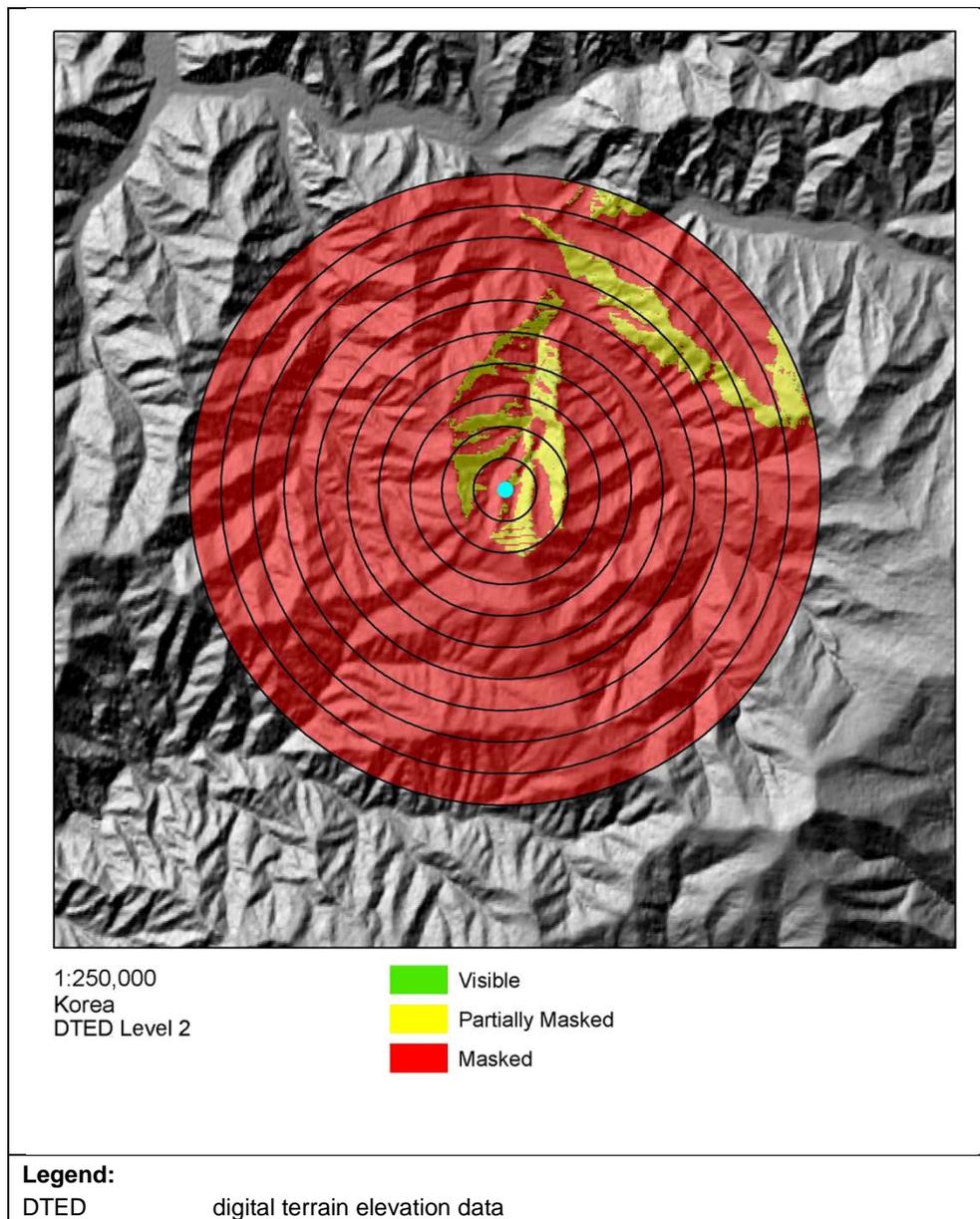


Figure B-18. Example of a Viewshed analysis

PERSPECTIVE VIEW

B-23. The perspective view product is a three-dimensional depiction of an area from an observer point of view that is produced by combining imagery layers with elevation data. (See figure B-19.) The display can include roads, rivers, operational graphics, text to enhance the terrain visualization, and anything typically displayed on a two-dimensional map.



Figure B-19. Example of a perspective view

FLY-THROUGH

B-24. The fly-through product is a computer-generated view of an area along a specified flight line at a specified altitude and angle that is viewed from inside the aircraft. (See figure B-20.) The display can include roads, rivers, operational graphics, and text to enhance the terrain visualization.



Figure B-20. Example of a fly-through

URBAN TACTICAL PLANNER

B-25. The Urban Tactical Planner is a data set that can be viewed as two- or three-dimensional. (See figure B-21, page B-22.) It consists of imagery, maps, elevation data, and urban vector overlays. It displays key aspects of the urban area in thematic layers that are overlaid on high-resolution imagery or maps. The Urban Tactical Planner provides an overview of the urban terrain in the form of maps, imagery, elevation data, perspective views, handheld photography, video clips, and building information. The Urban Tactical Planner is produced by the Army geospatial center, but geospatial engineer teams have the capability of incorporating new data and imagery into the Urban Tactical Planner, and it can be exported to CD for use by nongeospatial engineers.

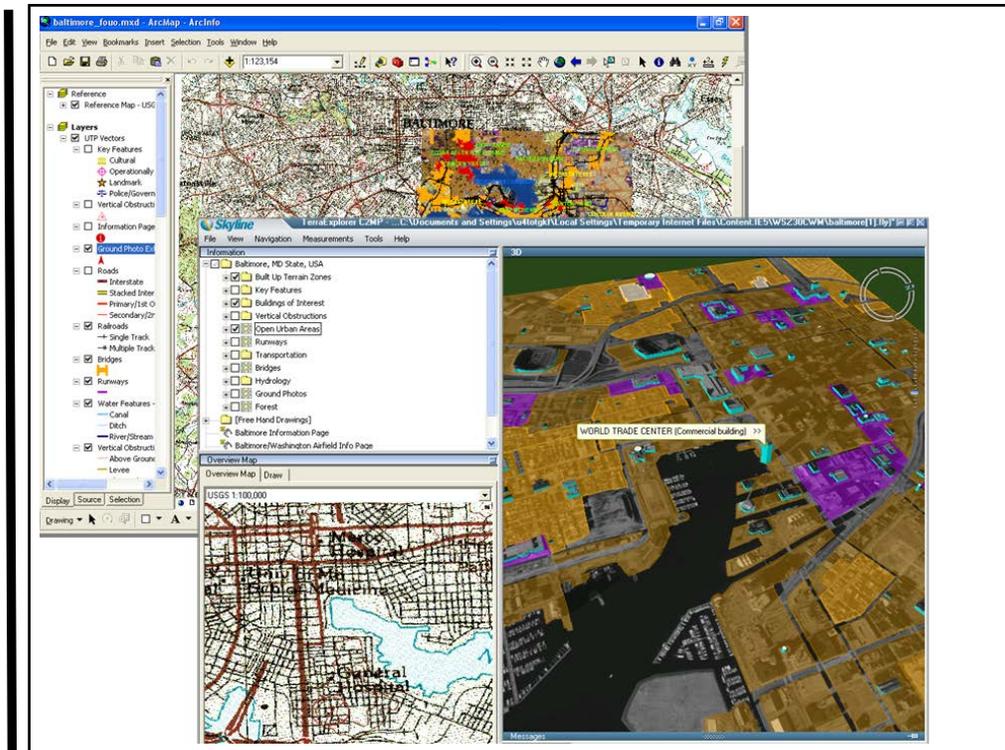


Figure B-21. Example of an Urban Tactical Planner product

BUCKEYE

B-26. The BuckEye capability uses aerial geospatial sensors to collect unclassified, geospatially accurate color imagery and high-resolution elevation data to support the ground warfighter. Light detection and ranging sensors provide 1-meter postspacing elevation data, and mapping cameras provide 5- to 10-centimeter resolution color imagery. Color imagery collected from the mapping camera undergoes radiometric balancing and is orthorectified using BuckEye elevation data to build contiguous image maps across areas of interest. (See figure B-22.)

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