A large debris flow fan, comprised of deposits of the Mission diamicton, associated with
the failure of a landslide dam, is recognized in the residential development of the foothills
of the City of Santa Barbara, California. The Skofield landslide dam and associated slope
failures contributed to the genesis of the Mission diamicton. The Mission diamicton
represents multiple episodes of debris flow history and is approximately $8.7 \times 10^6 \text{ m}^3$ in
volume. Geophysical investigations identified the 8.7-meter average thickness of Mission
diamicton piedmont deposits and potential More Ranch – Mission Ridge fault locations.
The Skofield landslide failure occurred in bedrock of the Sespe Formation and mobilized
overlying fanglomerate. Radiocarbon dating of Mission diamicton deposits indicates the
deposits are younger than $1000 \pm 40 \text{ ka}$ in age. Quantitative geohazard evaluation and
spatial analysis of Rattlesnake Canyon were used to identify critical slope orientations for
present day slope instability, which allows for the recognition that slope failure, landslide
dam formation, and associated debris flows from landslide dam failure pose threats to the
City of Santa Barbara and perhaps the Santa Barbara coastal region.