

Figure F1. Regional map of New Zealand and vicinity with major depositional features and prominent pathways for offshore sediment transport. Red box = study area for Expeditions 372 and 375 offshore Poverty Bay region of North Island. ODP = Ocean Drilling Program.

Figure F2. A. Uninterpreted seismic reflection profile crossing Sites U1519 (trench slope), U1518 (frontal accretionary prism), U1520 (trench floor), and U1526 (Tūranganui Knoll), simplified from Saffer et al. (2019). VE = vertical exaggeration. B. Detailed bathymetric map showing position of Site U1519 in Tuaheni Basin and Site U1517 in Tuaheni Landslide Complex. C. Enlargement of interpreted seismic reflection profile crossing Site U1519 (simplified from Barnes et al., 2019). Blue and yellow lines = interpreted unconformities. Slope-plastered contourite drift and buried channel designations are from Bailey et al. (2021b). mbsl = meters below sea level.

Figure F3. Stratigraphic column for trench-slope deposits, Site U1519 (modified from Barnes et al., 2019). See Figure F2C for seismic reflection interpretation. TD = total depth.

Figure F4. Representative X-ray diffractogram from scan of oriented clay-sized specimen, Hole U1519C. Diagnostic peaks for computation of weight percent are identified for smectite (001), illite (001), undifferentiated chlorite (002) + kaolinite (001), and quartz (100). Subsidiary peaks for individual clay minerals

and quartz are also shown. The saddle:peak intensity ratio for smectite (001) was used to determine percent expandability (Rettke, 1981). $^{\circ}2\theta$ position of illite (002)/smectite (003) peak was used to determine %illite in I/S mixed-layer clay (Moore and Reynolds, 1989a).

Figure F5. Simplified stratigraphic column for Units I and II at Site U1519 (modified from Barnes et al., 2019) with normalized relative abundance values of minerals in clay-sized fraction. Weight percent values were computed using regression equations (Table T1). XRD results are tabulated in Table T3.

Figure F6. Ternary diagram showing mean weight percent values for smectite, illite, and undifferentiated (chlorite + kaolinite), Site U1519 (Units I and II). Overall average for Site U1517 is shown for comparative purposes (Underwood and Dugan, 2021). Lines through symbols = standard deviations for each mineral.

Figure F7. Simplified stratigraphic column for Units I and II at Site U1519 (modified from Barnes et al., 2019) with expandability values for smectite + I/S mixed-layer clay (following saddle:peak method of Rettke, 1981), %illite in I/S mixed layer clay (following peak-position method of Moore and Reynolds, 1989a), and illite crystallinity (Kübler) index. XRD results are tabulated in Table T2. Boundaries between zones of diagenesis, anchimetamorphism, and epimetamorphism (from Warr and Ferreiro Mählmann, 2015) are meant only to provide a qualitative reference frame for geologic conditions in generic detrital source areas.