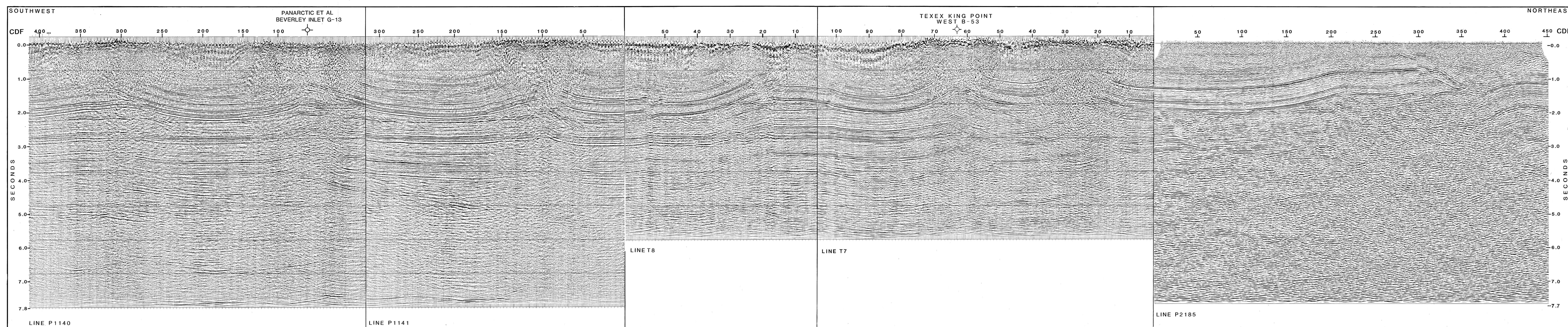
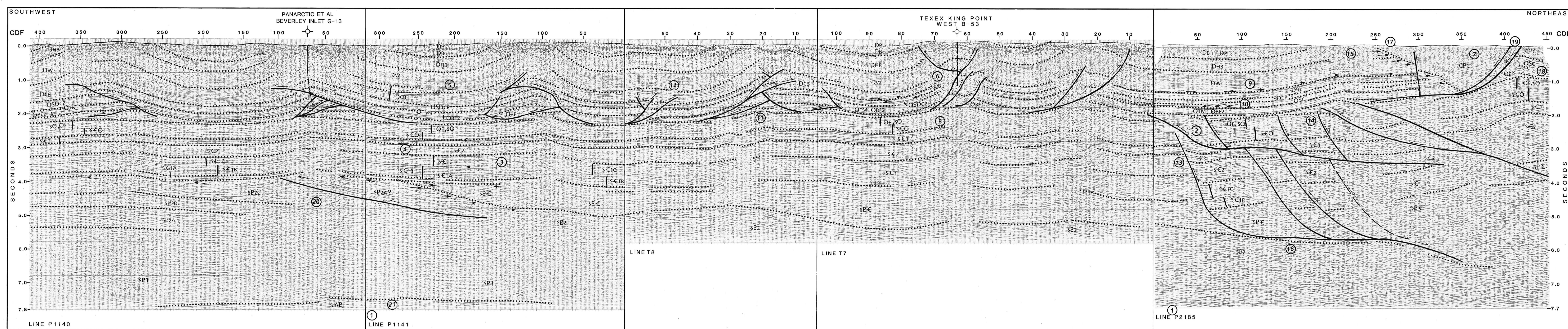


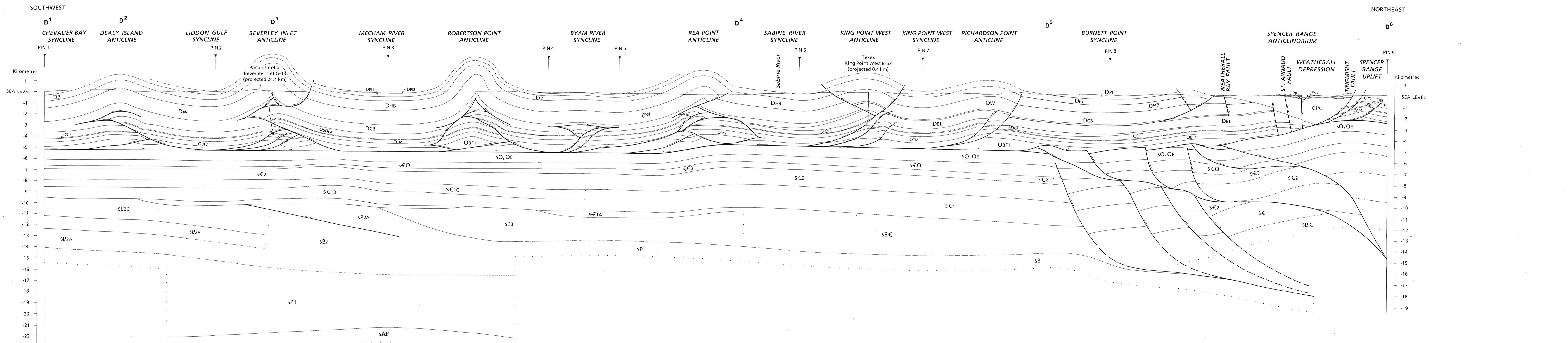
SEISMIC REFLECTION DATA



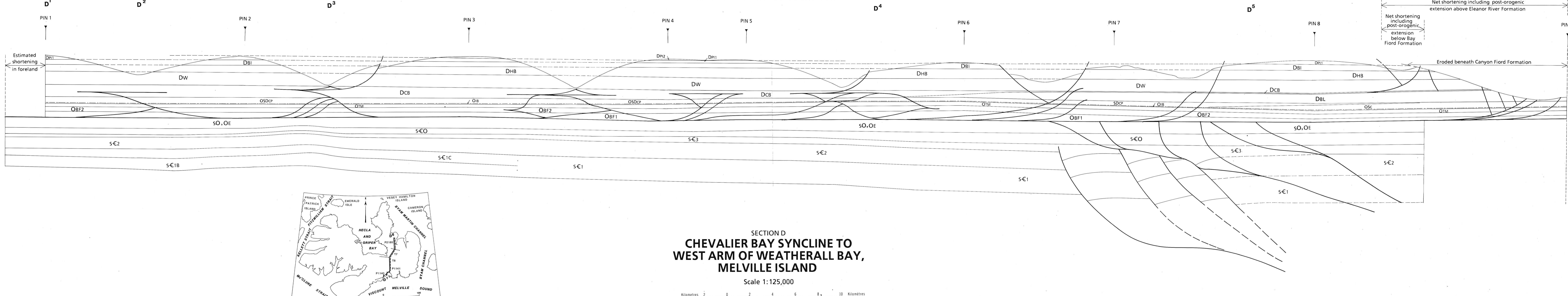
INTERPRETED SEISMIC DATA



DEFORMED STATE CROSS-SECTION



RESTORED STATE CROSS-SECTION



SECTION D  
CHEVALIER BAY SYNCLINE TO  
WEST ARM OF WEATHERALL BAY,  
MELVILLE ISLAND  
Scale 1:125,000

NOTES TO ACCOMPANY SECTION D  
(Seismic lines P1140, P1141, T8, T7 and P2185)

- All seismic lines along the section intersect at each of the physical splice points.
- Residual diffractions attributed to under migration (low migration velocities) occur within and below the Bay Ford Formation (D1) near CDF 50, P2185.
- Seismic Stratigraphic Features**
  - Overlapping reflections can be identified at the base of unit D11 beneath CDF 190 on line P1141. This is critical evidence to indicate the presence of a sequence boundary at this level.
  - Overlapping reflections can be identified at the base of unit D12 beneath CDF 270 on line P1141. This is critical evidence to indicate the presence of a sequence boundary at this level.
  - A good example of a topset reflector that becomes a sigmoidal reflector toward the south occurs in the Cape De Bray (D13) interval near CDF 220, line P1141. There are many good examples of apparent topset truncation of oblique tangential clinoforms all along this line of section.
  - The southern shelf slope break of the Blue Ford (D14) is believed to be located near CDF 67, line T7. The slope faces reflections of the Blue Ford are traceable from CDF 69 to about CDF 100.
  - Internal reflections in the Canyon Ford (D15) interval beneath CDF 250 to 400, line 2185, have a divergent character with deeper reflections having steeper dips. These trial anticlines are interpreted to be generated by block rotation of sub-Canyon Ford units on a south-dipping listric extensional fault active during Canyon Ford deposition.
- Strong discontinuous internal reflections become increasingly prominent in unit D14 north of CDF 70, line T7.
- Overlapping reflections above the Blue Ford (D14) (CDF 50 to 280, line P2185) testify to a sequence boundary at this level.
- Downlapping internal reflectors (CDF 50 to 100, P2185) mark a base of slope at the southern limit of D14.
- Structural Features**
  - Up to 200 ms of residual velocity pull-up exists beneath the top of the Eleanor River (D1) interval below CDF 20, line T8. However, there is also up to 300 ms of uplift of these units everywhere north of CDF 20. This uplift extends down at least to the S4C1 level.
  - Dramatic thickness variation in the Cape De Bray (D13) interval is apparent between CDF 40 and 60, line T8. This testifies to the importance of apparent ductile flow in the deformation mechanism of the Cape De Bray.
  - Dip separation on the fault beneath CDF 50, line 2185, increases downward within unit D1. This is considered evidence of growth faulting during deposition of this unit.
  - Up dip limit of the three extensional faults between CDF 50 and 150, line P2185, occurs in the lower Bay Ford (D1) interval. Thickness variation in D11 associated with the fault termination could be caused by either syndepositional growth of the fault or (more likely) by post-depositional, syn-tectonic flow of evaporites.
  - Surface faults of uncertain attitude between CDF 200 and 250 presumably decrease their displacement downwards and do not appear to offset the top of the Blue Ford (D14).
  - The north-dipping reflection assemblage at and below 5300 ms on line P2185 represents the lower depth limit for the detachment surface that is linked to extensional faults and associated rotated blocks in the D14 to D10 interval.
  - An excellent example of the sub-Carboniferous angular unconformity occurs beneath the half-graben between CDF 250 to 350, line 2185. The unconformity is also offset by at least one rotationally imaged anticlastic fault.
  - Weak reflections converging downward and to the north near 300 ms beneath CDF 425, line 2185, are interpreted to be generated by the limb of a poorly imaged fold above the sub-Bay Ford detachment.
  - Listric growth faults with up to 1050 ms of displacement occur beneath CDF 417 and 429, line P2185. These faults apparently flatten southward into the sub-Bay Ford detachment.
- Depth Conversion**

D1: 2.7 km/s  
D1: 3.6 km/s  
D1: 4.0 - 4.2 km/s  
D1: 3.9 km/s  
D1: 4.6 km/s (south) - 5.5 km/s (north)  
D1: 6.0 - 6.2 km/s (south) - 5.9 km/s (north)  
D1: 6.4 km/s  
D1: 5.3 km/s  
D1: 5.7 km/s  
D1: 6.2 km/s
- Method of Cross-section Construction and Restoration**

Bed length measurement and balancing of the contacts above D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100 between pairs of adjacent pin lines.  
Bed length measurement and balancing of the contacts above D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100 between pairs of adjacent pin lines.  
Bed length measurement of the contact above D11.  
Area measurement and restoration of D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100 between pairs of adjacent pin lines. This method assumes that horizontal shortening of units D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100 is the same as that expressed by bed lengths of contacts above D11/D12.
- Results**

Section length: 122.1 km  
Post-orogenic extension: 2.8 km  
Pre-extension section length: 122.1 - 2.8 = 119.3 km  
Bed length of D11 (this section): 135.1 km  
Shortening of D11 (this section): 135.1 - 119.3 = 15.8 km (11.7%)  
Estimated shortening in foreland: 3.5 km  
Total apparent shortening of D11 from foreland: 15.8 + 3.5 = 19.3 km (14.1%)  
Bed length of D12 (this section): 125.8 km  
Shortening of D12 (this section): 125.8 - 119.3 = 6.5 km (5.2%)  
Estimated shortening in foreland: nil  
Total shortening of D12 from foreland: 6.5 km  
Deformed state bed length of D13: 127.8 km  
Includes 1.7 km of pre-CF erosion north of pin line B  
Apparent shortening of D13 (this section): 127.8 - 119.3 = 8.5 km (6.7%)  
Estimated apparent shortening in foreland: 1.3 km  
Total apparent shortening of D13 from foreland: 8.5 + 1.3 = 9.8 km (7.6%)  
Range of assumed tectonic thickening of D14 (approximate): 2 - 9%  
Foreland shortening is carried over to this section along the axial trace of Chevalier Bay Syncline from pin line 2 on section G.

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