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Structural Geology and Cenozoic Deformation: Western Northern Range, Trinidad

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Abstract

The Northern Range, Trinidad underwent deformation due to oblique collision of Caribbean plate with northern South America, which was then followed by transform plate motion. Deformation began in the late Miocene when sedimentary protoliths were ductility deformed and metamorphosed to greenschist facies; this event and subsequent transform deformation drove exhumation of these rocks to the surface and created their high topography. This project provides constraints of the structural history of the western Northern Range where bedrock mapping and structural analyses are most complete. Initial geologic mapping of Northern Range, which continued from the 1950s,1960s, and 1990s, focused on attempting to establish and map a protolith stratigraphy. Our new approach has been to simply map the observed metamorphic rock types. We supplement our new map with abundant mesoscopic structural fabric measurements collected from roadcut, streambed, and quarry exposures. We synthesized the new map and all structural data into a GIS geodatabase. The data were used to construct cross-sections and stereonets along a continuous N-S transect across the entire western Northern Range. Our analyses highlight three major phases of deformation in the western Northern Range. D_1 (Early Miocene) produced a S_1 foliation that completely transposed the original stratigraphy and dips south at an azimuth between 150-220°. D_2 folded S_1 into asymmetric trains of south-verging m- to dm-scale mesoscopic folds. D_3 produced conjugate sets of NE-SW- and NW-SE-trending f_3 folds. The timing of D_2 is not well constrained. D_3 is probably associated with Pliocene extension related to the local development of pull-apart basins. Our cross-section highlights: 1) range front domains of upright NW-SE trending folds, and 2) the range-bounding Arima Fault zone, a ~100m wide zone of young, but inactive

(Plio-Pleistocene), ~E-W trending, sub-vertical (both N- and S-dipping), predominantly dip-slip, normal sense, faulting.

Keywords: Caribbean, Structural Geology, Trinidad, Seismicity, Tectonics

1. Introduction

The Northern Range in Trinidad is located on a transitioning subduction and strike slip plate boundary (Figure 1; Bilich et al., 2001). Regions with transitioning plate boundaries have complex deformational mechanisms and are not well understood (Arkle et al., 2021; Bilich et al., 2001). It has been hypothesized (Algar and Pindell, 1993; Arkle et al., 2021) that deformation and metamorphism of the Northern Range's sedimentary rocks began occurring in the mid-Miocene with a transpressional event. Arkle et al. (2021) also recognizes a transtensional event beginning at the late-Miocene, early-Pliocene, and suggests this led to east-side-up tilting of the Northern Range.

Previous structural and stratigraphic studies in the Northern Range have treated rock units as sedimentary rocks, instead of metamorphic rocks (Weber et al., 2001b). This interpretation has led to discrepancies when describing deformation mechanisms acting on the region, as well as a lack of understanding in geologic risk associated with deformational features. The goals of this research are to: (1) refine and update existing geologic maps of the western Northern Range, and (2) construct a detailed geologic cross section that traverses the western Northern Range from the north coast to range front (north to south). These new data are used to understand deformation mechanisms and history that have occurred in the Northern Range since sediment deposition. Interdisciplinary approaches were used to achieve these goals using GIS and cartography to analyze and prepare data for interpretations.

2. Background

2.1 Regional Tectonics

In the Jurassic, Trinidad was located on a passive plate margin that formed after North and South America rifted (Algar and Pindell, 1993; Weber et al., 2015, 2019). Rifting during the Jurassic likely set up the Northern Range for deformation during the Miocene and the formation of the right-step in the transform plate boundary by extending oceanic crust in the Caribbean Sea basin (Molnar and Sykes, 1969; Babb and Mann, 1999; VanDecar et al., 2003). Sediments are hypothesized to have been deposited on the passive continental shelf from the South American craton. This is based on the similar lithologies of the rock found in both South America and Trinidad, which are hypothesized to be deposited by the Orinoco River (Algar and Pindell, 1993; Weber et al., 2015). There are differing hypotheses on whether the Northern Range sediments were transported directly by the Orinoco River or if they were accreted onto Southern Trinidad by the Caribbean plate in the Miocene (Algar and Pindell, 1993). Today the Caribbean plate is moving dextrally at ~20 mm/yr approximately due east (Weber et al, 2001a). The plate boundary in Trinidad is currently mapped as the Central Range Fault (CRF) and takes on much of the dextral strain at ~12-15 mm/yr (Weber et al., 2001a, 2011, 2019).

There have been at least three stages of deformation in northern Trinidad (Algar and Pindell, 1993; Weber et al., 2001b; Arkle et al., 2021). Stages one and two (S1 and S2), which occurred during the Miocene transpressional deformation, were caused by oblique collision, and resulted in S1 folds and foliation and S2 late folds and foliation. Stage three (S3) occurred during extensional deformation in the Pliocene (~4 Ma), causing shear band formation and normal faulting (Weber et al., 2001b). Transpressional deformation as seen in S1 and S2 have a strike direction that strikes east-west and tend to dip south. However, there is a difference in dip

direction from north to south in the Northern Range, as the tectonic foliation begins to dip north across the Arima Fault. The faults that make up the S3 deformation have a relatively perpendicular strike to S1 and S2 where they strike to the north or south, and dip to the east and west. Extensional processes began occurring in the Pliocene when the plate boundary stepped southward, creating a pull-apart basin (Weber et al., 2019; Arkle et al., 2017a; Babb and Mann, 1999).

Along with brittle deformation, the rocks of the Northern Range have experienced different metamorphic temperatures as well as exhumation timing and rates (Weber et al., 2001b; Arkle et al., 2021). The northern and western Northern Range rocks had higher metamorphic temperatures than the central and eastern parts of the range. The western Northern Range has an approximate exhumation and cooling time around 15-12 Ma, the eastern Northern Range had non-reset zircon fission-track ages and young apatite Helium ages indicating little to no exhumation until the last ~4 Ma (Arkle et al., 2021). Metamorphosing temperatures decrease eastward and southward across the Northern Range with the northwestern and central portions reaching ~250-300 °C and the eastern and southern portions only reaching ~150-200 °C (Weber et al., 2001b). Greenschist facies metamorphism of the rocks has made stratigraphy more complex with formation boundaries being hard to distinguish and differing grade of the same unit making unit identification difficult (Algar and Pindell, 1993).

Researchers have proposed differing hypotheses to explain exhumation mechanisms. Cruz et al. (2007) hypothesized that uplift and exhumation were being driven by isostacy bringing up the deep roots in the mountain range. However, Arkle et al. (2021) have hypothesized that the STEP (Subduction-Transform-Edge Propagator) fault north of the Paria Peninsula has been exhuming Northern Range rocks as it propagates eastward. Lithospheric

tearing in Trinidad is required for dextral motion to occur, which allows the oceanic South American plate to subduct, and thus the lithospheric plate must tear (Govers and Wortel, 2005). The STEP fault and lithospheric tearing in the Paria Peninsula has been proposed by Clark et al. (2008) as well as by Russo and Speed (1992). Russo and Speed (1992) also hypothesized that the northern edges of South America and Trinidad were experiencing crustal thickening from the lithospheric tear causing slab detachment.

2.2 Seismicity

Along the subduction-transform transitioning plate boundary, more thrust and reverse fault movement is recorded than strike-slip motion (Bilich et al., 2001). The pattern that is seen is that oblique plate movement is often characterized as a traditional subduction zone with thrust faults and occasional normal faulting (Bilich et al., 2001). Seismic risk associated in regions with transitioning boundaries can become difficult to predict due to the possibility that the transform boundary is locked, producing large and dangerous earthquakes (Weber et al., 2011). It is also the case that more thrust and reverse faults in an area will increase seismic risk due to the possible magnitudes that can be produced on those fault types (Bilich et al., 2001; Zaliapin and Ben-Zion, 2016).

Trinidad is located directly on an active plate boundary. Complex deformation in and around Trinidad created thrust faults, some of which have now been reactivated as normal faults due to recent extension working on the region (Weber et al., 2019). As the Caribbean plate moves, faults such as the CRF are taking on strain causing them to creep (seismically or aseismically) as long as they are not locked (Weber et al., 2001a, 2011, 2019). Locked faults produce large and infrequent earthquakes, posing a higher seismic risk to people living in the region of the quake (Weber et al., 2011). Higher seismic risk is mainly due to the large,

infrequent earthquakes, but infrastructure is typically not built to withstand earthquakes of that magnitude. Due to not having a complete geologic map and structural study done in the Northern Range of Trinidad, knowing where faults are as well as what faults are active is difficult, increasing seismic risk in the range. Areas with high amounts of active faults also pose risk of having one earthquake trigger a swarm of earthquakes on neighboring faults, forming earthquake clusters (Zaliapin and Ben-Zion, 2016). The Caribbean-South American plate boundary is a cold boundary and has a subducting slab, so if earthquake clusters occur, they tend to be burst-like clusters with one main shock following many smaller foreshocks (Zaliapin and Ben-Zion, 2016).

Along with being in a very tectonically active zone, Trinidad faces another seismic risk with the presence of a slab tear located from the western Northern Range, through the Gulf of Paria, and into the Paria Peninsula (Arkle et al., 2017a; Meighan et al., 2013). Locations with slab tears experience earthquake clustering occurring between shallow and intermediate depths (Meighan et al., 2013). In Trinidad, earthquakes have been observed at depths from 51-108 km (Clark et al., 2008), and more recently up to ~180 km (USGS Data). While intermediate-depth earthquakes are typically less destructive, lithospheric tearing and intermediate-depth seismicity can also lead to subsidence in the region, which is seen as east-side-up tilting in Trinidad (Arkle et al., 2017a).

3. Methods

To understand how tectonic plates are moving in the region around Trinidad, and how plates moved in the past, there first needs to be an understanding of the geology of the Northern Range and the deformational structures that tectonism has formed. Data collected for this study include the deformational structures that can then be analyzed to understand past plate motion as well as how the Caribbean Plate collided with Trinidad in the Miocene. For accurate

representation of the structures, data was analyzed spatially to show how deformation changes along the N-S transect.

3.1 Data

The data used for this study come from fieldnotes taken in the early 1990s by John Weber, Bob Speed, and other researchers, and consist of any deformational features found at road outcrops (Figure 3). These features are labeled with their stage of deformation (S1, S2 or S3). For simplicity, this study only uses data points with characteristics of first stage deformational structures (S1). S1 features consist of tectonic foliation in the form of sheet dips in the metamorphic rocks. The S1 tectonic foliation are hypothesized to be parallel to the bedding planes that were present in past sedimentary rocks (Weber et al., 2001b). Information derived for the geodatabase came from structural data from John Weber's fieldnotes, stratigraphy published by Algar and Pindell (1993), and differing metamorphic temperatures discussed in Weber et al. (2001b). All these data were used to help determine the orientation, rock type, and grade of metamorphism across the Range. Data collected was only accessible along road cuts due to the dense vegetation in the Northern Range. This created difficulty of viewing structures on a large scale in the field. Data points were compiled into a spreadsheet from PDFs to create a working geodatabase to be used in a GIS (Table 1, Appendix). Once organized these data and were plotted in ArcGIS Pro to create four transects for a N-S cross section to be constructed.

3.2 GIS and Cartography

Data from the geodatabase were plotted in ArcGIS Pro which allowed for four stepped transect lines to be drawn to encompass all data points in the western Northern Range. When plotted with the transect lines, geology, and structural data it created a map overview of the cross section transects and allows for spatial distribution of data points to be understood. Transects are

stepped to follow the roads that traverse the mountains, where structures were accessible and able to be recorded. Cartographic principals were used to generate a detailed geologic map including hillshade to highlight topography in Trinidad (Figure 4). This map was then brought into Adobe Illustrator to add labels, a legend, and to adjust images to best show the data in an accurate way.

The transect lines created in ArcGIS Pro were then imported into qGIS along with the geology polygons and all S1 and fault features from the geodatabase to create topographic profiles along each line to be used in the cross section. To do this, a buffer was created along each line to select the needed data points that would be included on each section. A plug-in called “qprof” is a software that takes line data and a DEM to create a topographic profile line along the entirety of the transect. Qprof also allows for structure points, faults, and the geology polygons to be embedded into the topographic profile so orientation can be seen along with geology for each section of the cross section. Four profiles were made to correspond to each of the 4 original transect lines and were brought into illustrator and combined into one profile, oriented N-S along the range.

3.3 Stereonets

Stereonets of all the data used in the cross section were imported into Allmendinger’s stereonet software to show orientation of planar features along with variations in orientation to be seen for each transect. The stereonets were used correspondingly with the topographic profiles generated in qGIS to ensure that the data was interpreted in the most accurate way while the cross-section was being drawn. Stereonets also aided in the visualization of the structures in a 3D manner, allowing for variations of planes to be noted and to interpret the difference between faults and S1 foliation. Figure 5 shows each stereonet labeled with the corresponding transect. As

the cross section was made, this figure was used as reference between the collected data and interpretation. The importance of stereonets in this project was to showcase the raw data in a figure instead of a data table, but also to give light to how the Caribbean plate moved from 15 Ma to present based on the orientations of the data.

3.4 3D GIS and Cross sections

Cross sections were drawn across the each of the four transects located in the western part of the Northern Range and seen in figure 4. Cross section construction consisted of projecting planar data, in the form of tadpoles, down into a digitized geologic map from each attitude measurement. Because data was selected in a buffer around each transect line, there are data points that do not line up perfectly with the profile line. These data points were projected from their original elevation to preserve sheet dip orientation as well as to show how the geology was eroded above the profile line to give us the elevation there today. Adobe Illustrator was used to line up each of the four transects into one cross section line and allowed for linework to be cleaned up and color correction to aid in visualization of each feature. Figure 6 shows the entirety of the cross section with all data points.

The combination of stereonets along the transect and the cross section allow for the understanding of whether S1 deformation was coming from the north during oblique collision, or if tensional or lateral deformation was the dominant deformation mechanism in the Miocene. Deformation mechanisms may also shift across the range as the Caribbean plate shifted from oblique collision to dextral motion. Patterns of shifting deformation would be observed going from west to east following motion from the Caribbean plate and would be seen in map reconstructions of metamorphic temperatures and in deformation style.

4. Results

4.1 Geodatabase Results

The completed geodatabase was analyzed and patterns of sheet dip orientations going N-S as well as E-W could be drawn out. The results show that sheets in the Northern Range above the Arima Fault zone dipped toward the south. Once the Arima Fault was crossed (Figure 4: Hilltop Transect), the sheets start to dip northward. While the Arima Fault has a known location, these data show where the fault plane changed the dip direction of the rocks and aids in the revision of the Northern Range's geologic map by giving more updated information on unit boundaries. Adding rock type to the geodatabase also allowed revisions to the geologic map to present a more accurate image for what is known about the Northern Range geology.

Other notable patterns in the dataset involve fault planes and shear zones tending to dip E-W and have characteristics of normal or tensional movement along the planes. Most of the faults were along the North Coast Road or near the Arima Fault zone on the Hilltop Transect. With the Paria Pull-apart Basin causing east-side-up tilting in the Northern Range, it makes sense for the extensional deformation to be seen along the road where east-side-up deformation is occurring. The faults along the Hilltop transect are in such close proximity to the Arima Fault zone that it is likely that they were reactivated as normal faults when extensional deformation started occurring.

4.2 Geologic Map Results

The geology of the Northern Range was mapped previously before this project so there was a base layer to build on as it was created. The making of the geologic map (Figure 4) of the

Northern Range started in the geodatabase and understanding how rock type and structure orientation varied across Trinidad spatially. Some of these variations include where faults are located, orientation of sheet dips, and where each formation boundary is. The goal of having this map was to aid in visualization of the geology of Trinidad, but also to give the data needed to revise the map to produce a more accurate map to what is seen on the ground by moving geologic boundaries and adding in new unmapped fault planes to future maps.

Mapping new fault planes and fault zones is imperative for understanding the deformation mechanisms that have been acting on the Northern Range since collision with the Caribbean plate in the mid-Miocene. Knowing where faults are located also aids in the understanding of how deformation has shaped risk across the Northern Range. Many of the faults were located along the North Coast Road and in the southern most end of the Hilltop transect. This tells researchers that communities along those roads or transects should be made aware of fault movement and will also give way for new projects where faults are mapped in the field and movement along those faults can be determined.

The map gives a large-scale view of the structures present in the western Northern Range before details are further drawn out in the cross section. What can be seen is that all sheet dips from the northern most coast to the Arima Fault zone dip towards the south. When the Arima Fault is crossed, sheet dips in the metamorphic rock begin to dip north. While no interpretations can be derived from this large-scale view, it gives an overview of what should be expected when the cross section is drawn.

The data collected has changed the hypothesized location of the Arima Fault zone, as well as rock layers surrounding the fault zone. Understanding where sheet dips change dip

direction from south to north, helped with the placement of the Arima fault on the geologic map, providing the most accurate location of the fault zone.

4.3 Stereonets

The stereonets generated for the Northern Range consistently show south dipping sheet dips north of the Arima fault, and north dipping sheets south of the Arima Fault. Faults can be seen along the transect and are identified on the stereonets by their near perpendicular angle with the S1 data. Many of the faults are also characterized by their steep dips compared to the shallower dips of the metamorphic sheets. Faults tend to dip E-W opposed to the N-S dips of the S1 deformation. Faults dipping E-W along each transect show regions where extensional deformation has occurred. The Lady Chancellor Road transect is the only transect to have a reverse fault present where the fault plane dips N-S similar to the dips of S1.

Deformation features along the southern most transect of the cross section were separated by feature type for clarity. The Hilltop transect shows three different stages of deformation: microfolds north of the Arima fault zone (domain 1), faulted rocks (domain 2) and a homoclinal fold pattern (domain 3). Stereonets created for this transect are showing how the Arima Fault zone has shifted metamorphic sheet orientation, as this is the only transect with most of its sheet dips dipping to the north. The stereonets also show where the largest fault of the Arima Fault Zone is located, by showing where most of the fault data clusters. When compared to the data in the geodatabase, the Arima Fault is tentatively located along meter 143 of the Hilltop Transect. Fault kinematics were done by Dr. John Weber using Allmendinger's stereonet software to show fault planes, their principal strains, and their slip.

All stereonets (figure 5) have been cleaned up by removing outliers from the chart to focus on the spatial patterns that can be seen along the Northern Range. Outliers in the S1 dataset

were likely measurements of regional microfolds. These folds were excluded to better characterize the overall structure of the Northern Range.

4.4 3D GIS and Cross Sections

Maracas Bay Transect

The Maracas Bay transect is comprised of two stages of deformation, S1 and S3. The S1 deformational features are all tectonic foliation tending to strike on average ~70-250 degrees all dipping predominantly south or slightly southwest or southeast. The fault present was previously unmapped, and it can be distinguished from the S1 features due to its near perpendicular orientation compared to the foliation. The fault strikes NNW at about 340 degrees with a much steeper dip than the tectonic foliation.

Maraval Transect

The Maraval transect only shows one stage of deformation, the S1 tectonic foliation. The foliation in this transect are a continuation of the foliation seen north of this transect along the Maracas Bay transect. The orientation of the foliation are more varied along this transect striking approximately 150-220 degrees and dipping more southwest/southeast than directly south. The foliation dips are consistent within this transect as well as the Maracas Bay transect.

Lady Chancellor Road Transect

Lady Chancellor Road transect is along the foothills of the range, where lower topography and small basins filled with alluvium can begin to be seen. This transect shows two stages of deformation like the Maracas Bay transect, where S1 and S3 can be seen. There is more variation in the foliation along this transect, striking about 30-120 degrees and dipping southeast or directly south. There are three faults along this transect, though only two are seen along the cross section (Figure 6). Only two faults are seen along the transect because one fault plane dips

south and cuts other faults and foliation along the transect, so it was omitted for clarity. This is the only fault that dips south along the entire cross section. The two faults shown in figure 6 dip north and like the Maracas Bay transect, the faults strike approximately perpendicular to the S1 foliation.

Hilltop Transect

Hilltop transect is the most complex transect along the cross section, due to the transect showing all three stages of deformation: S1, S2, and S3. S1 deformational features are tectonic foliation but along this transect, a majority of the foliation dip north. There are some south dipping foliation, which are located south of the Arima Fault Zone. This transect is the only transect where S2 deformation was included on the cross section, because there was a focused patch of S2 deformation that could clearly be seen without cross cutting the S1 foliation (Figure 6, Hilltop Transect). The S2 deformation present along this transect are mesofolds that are perpendicular to the north dipping S1 deformation. The S2 deformation was excluded from the other transects of the cross section because they are near perpendicular to S1, therefore, they were excluded for clarity. The mesofolds strike NE or SW (Figure 5, HT 1), which differs from the S1 foliation which strikes near due east or west and the S3 deformation which strikes north This transect has an overwhelming amount of S3 deformation, due to the presence of the Arima Fault Zone, which is an ~100m wide fault zone bounding the Northern Range. Most of the fault planes were located along meter 143 of the 200-meter data transect, giving an approximate location for the Arima Fault.

5. Discussion

The cross section created shows how the plate collision and the later transtension during the Miocene, deformed and reshaped the geometry of the Northern Range. The first and most

ductile deformational stage of oblique collision created the stage one (S1) tectonic foliation, which shows the Northern Range as a large homocline. Three of the four transects show south dipping foliation, while Hilltop transect shows the southernmost limb of the homocline with the foliation dipping north. Hilltop transect also has the only stage 2 (S2) deformation (Figure 6, Hilltop Transect) shown on the cross section in the form of mesofolds, typically perpendicular or cross-cutting S1. Transtension is the most recent and brittle stage of deformation occurring as movement along the STEP fault propagates subduction to the east of Trinidad, and the Paria Pull-Apart basin continues to experience crustal extension. Stage three (S3) deformation is classified normal displacement shear bands and normal faulting, approximately striking N-S and dipping east or west. S3 features also include reverse faults reactivated as normal faults.

Cross section analysis helps us understand how the Caribbean plate interacted with Trinidad during the Miocene, and how the resulting deformation has influenced the current deformational processes on the Northern Range, and the island of Trinidad as a whole. Current deformational processes are different than the processes in the Miocene due to the eastward shift in movement from the Caribbean plate. With past deformation mapped and understood, current deformation from the STEP fault and the Paria pull-apart basin could be used to show and predict tectonic risk on the island.

5. Conclusions

The early Miocene saw the Northern Range shift from a passive margin where sediments were being deposited to an active plate boundary. In the early Miocene the Caribbean plate collided with the Northern Range coming from the north/northwest resulting in reverse faults bounding the range and S1 foliation oriented with East-west strikes and south dips. As the Caribbean plate began moving along a more due east vector, S2 foliation and F2 folds were

printed over the stage 1 deformation, oriented more perpendicular to S1. For clarity, the cross-section is not showing S2 foliation, except for along the Hilltop transect, where it could be clearly seen. In the Pliocene-present the Paria pull-apart basin has been deforming the Northern Range in a tensional way, reactivating reverse faults as normal faults, as well as forming new normal faults in the range.

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Figures

Figure 1:

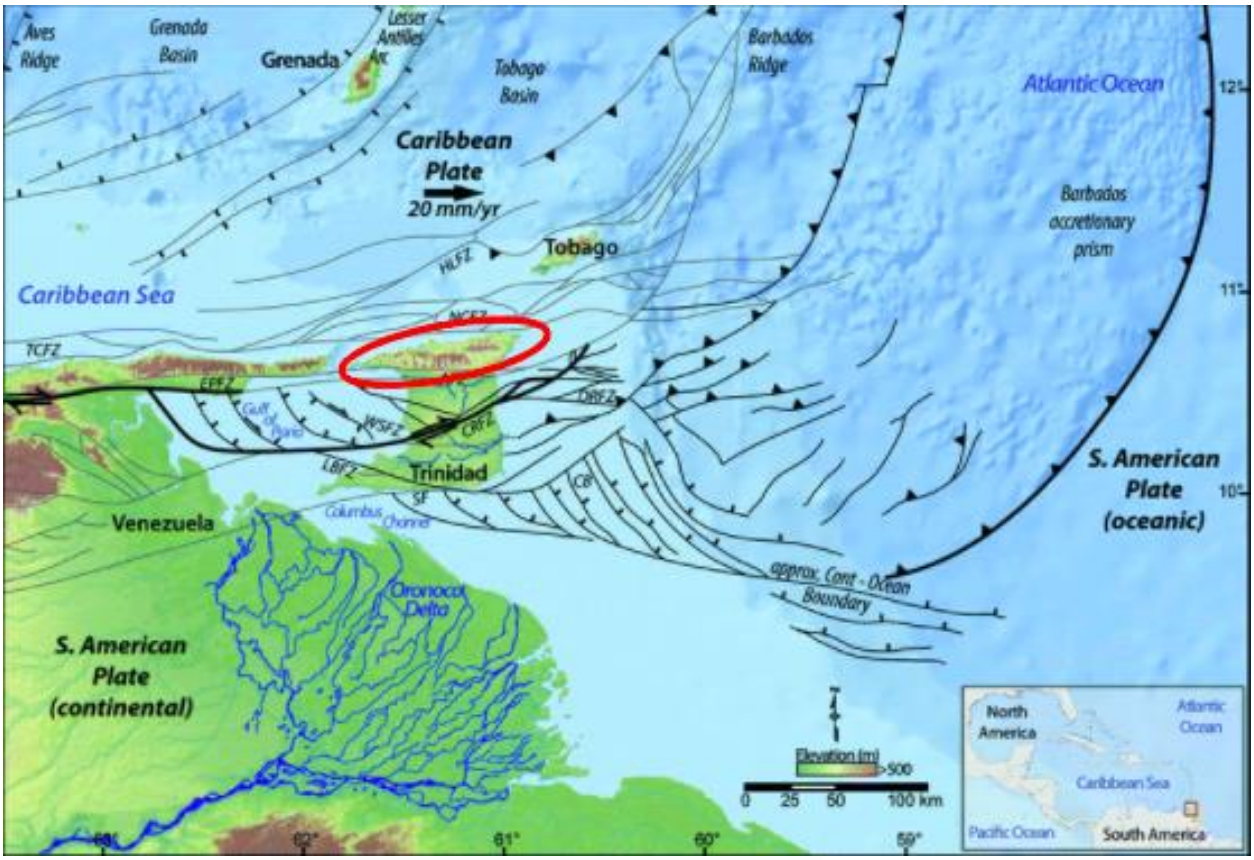


Figure 1: Modified from [Landscapes and Landforms of the Lesser Antilles] chapter by Arkle et al., 2017b. Showing location of Trinidad, Northern Range study site outlined in red, and known fault zones and current Caribbean-South American plate boundary.

Figure 2:

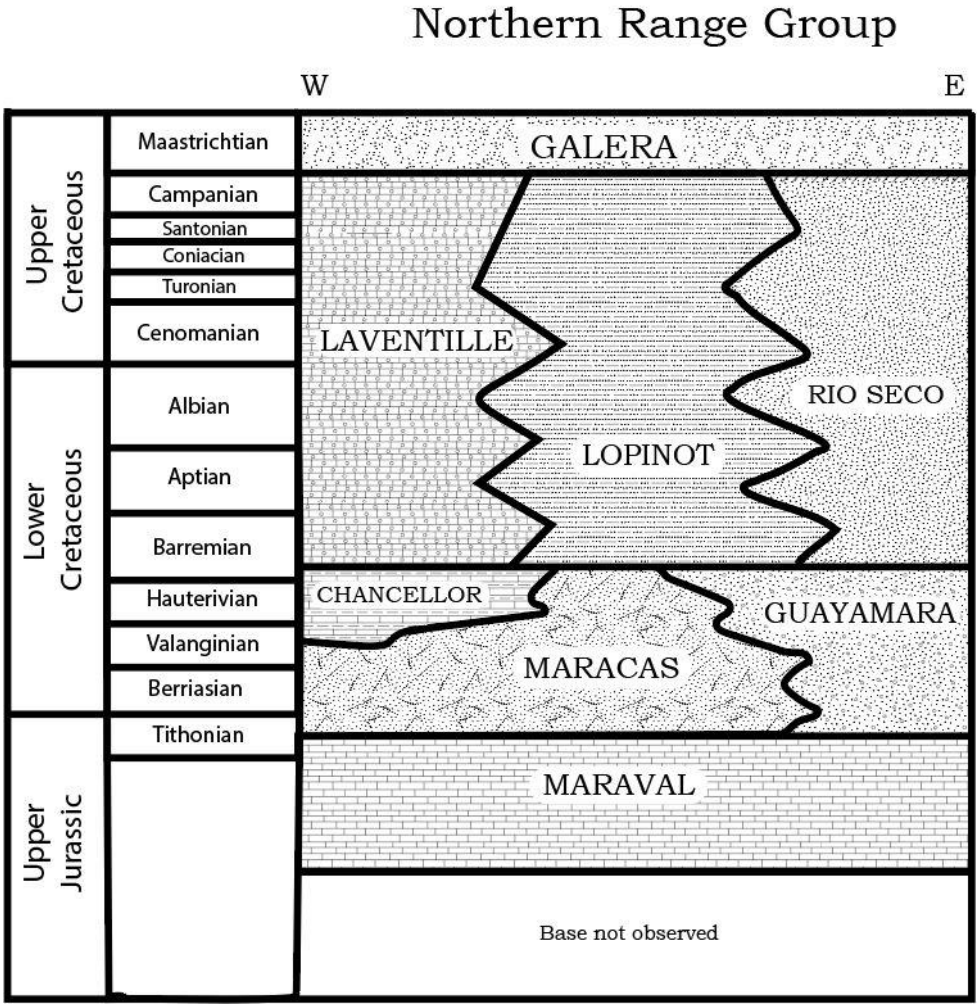


Figure 2: Modified stratigraphic column from Algar and Pindell (1993). Modifications included updating formations with USGS standard symbols and only focusing on the Northern Range group from the rest of the island. Differing metamorphic grade can also be seen from west to east across different units, though each unit is being mapped as sedimentary instead of metamorphic.

Figure 3:

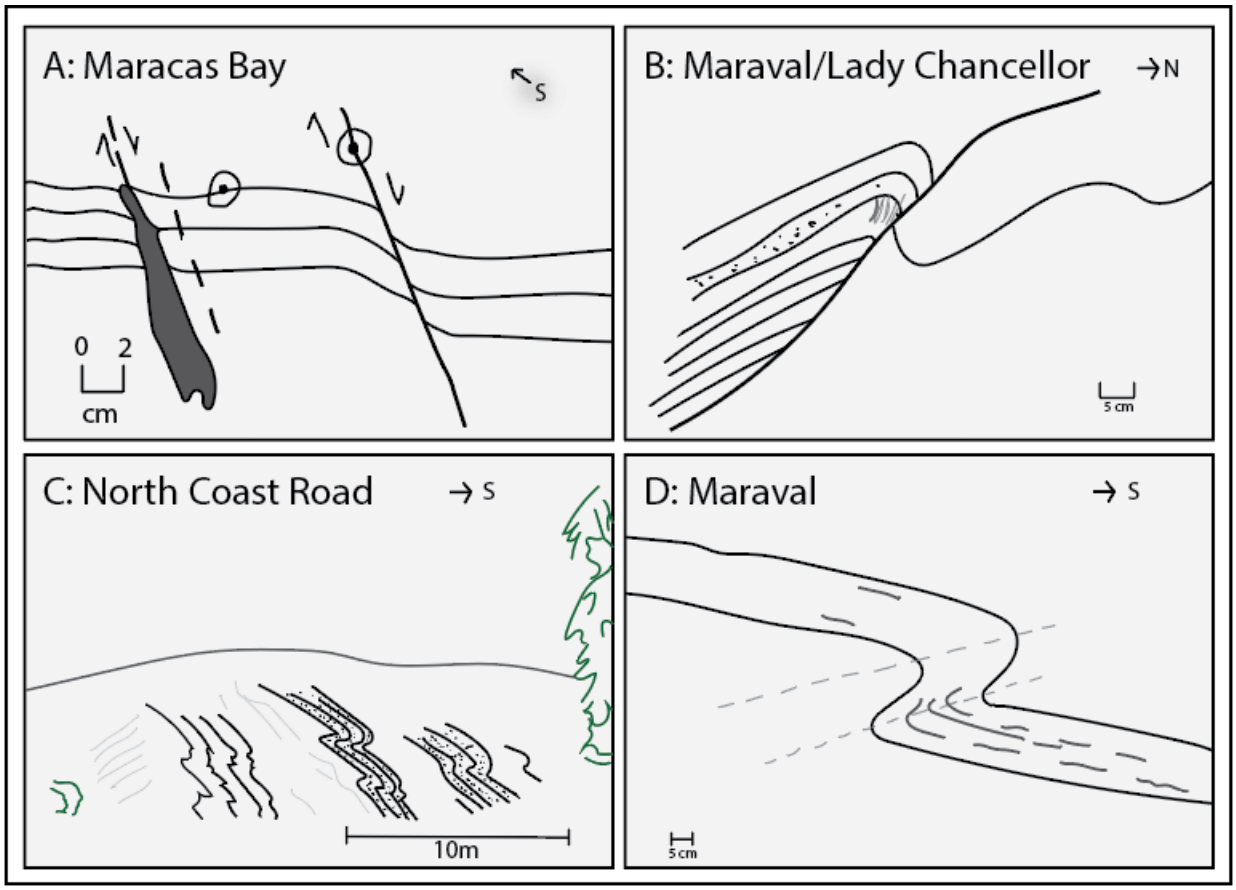
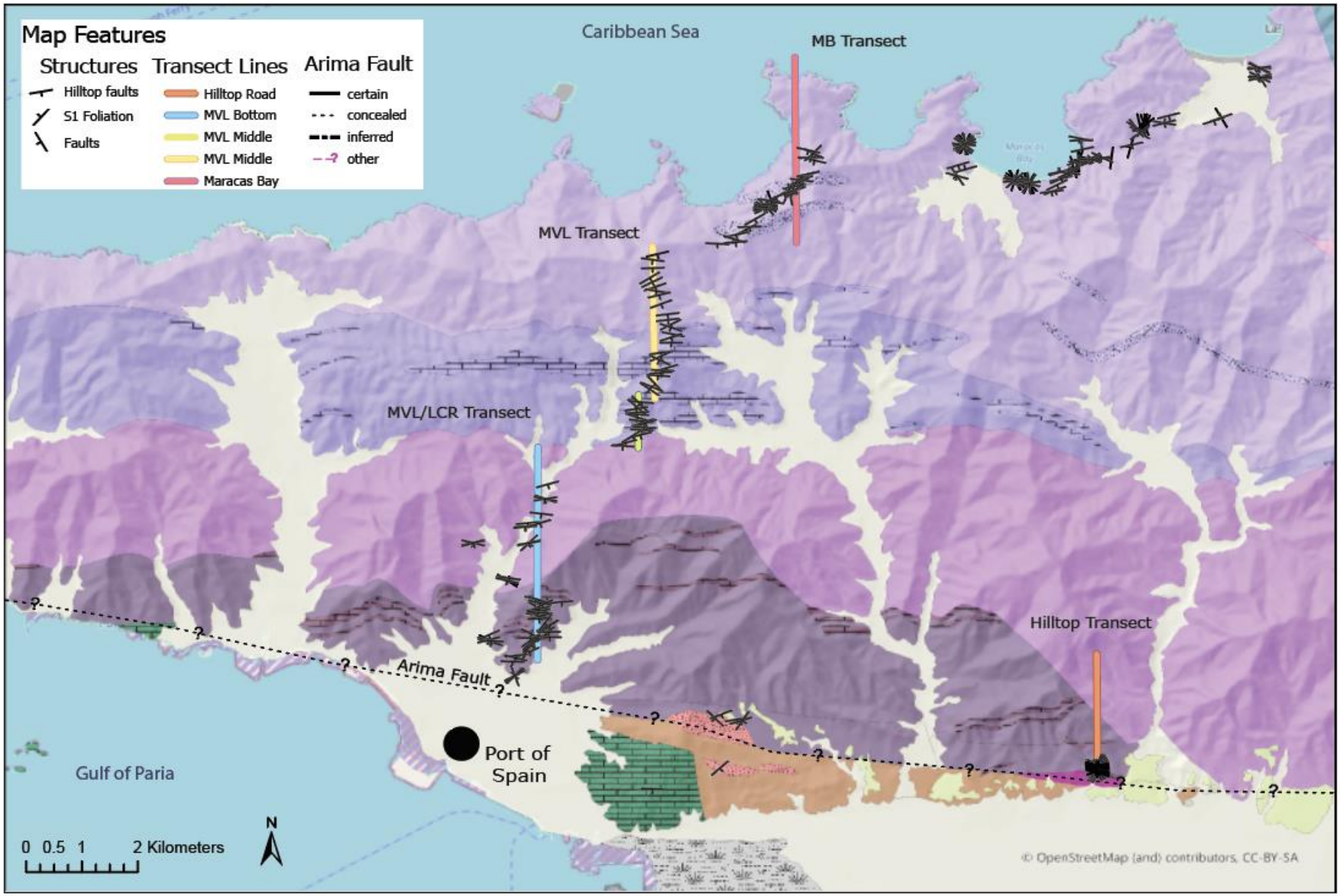


Figure 3: Examples of 4 road outcrops showing S1 features in differing rock types and along different scales. (A). Located in Maracas Bay and is showing how a fault cuts S1 foliation. There is also a quartz vein that intruded during recent (~4 Ma) extension in the Northern Range. (B). S1 foliation cut by a fault along the MVL/LCR transect, the fault type is unknown. The gray lines perpendicular to the axial planes of S1 are S2 foliation formed from two different stages of compressional deformation. (C). Along the North Coast Road, from a ~35m roadcut showing S1 foliation spaced laterally. Here the foliation in is a rock type of pelite and quartzite. (D). Along the MVL transect in a schistose layer of rock with boudinage quartz veins (gray lines). The quartz veins were deformed as the S1 foliation were forming. Dashed lines show axial planes of folded S1.

Figure 4:

Figure 4: Complete geologic map of the Western Northern range highlighting all data collected, transects used for cross sections, and previously known fault zones. Cartographic principles were used to create the map in both ArcGIS Pro and Adobe Illustrator.



Northern Range Geology

- Metaquartzite Layers
- Lopinot phyllite
- Maracas Schist
- Morvant metasandstone
- Reclaimed Land
- Matura beds
- Unnamed Quartz and Quartz-Mica Schist
- Chancellor Schist
- Metalimestone Layers
- Alluvium
- Unnamed Calcareous Phyllite, Phyllitic Slate and Metalimestone
- Metalimestone Layers
- Laventille Metalimestone
- Cedros 20'-100'
- Unnamed Phyllite, Phyllitic Schist and Metasandstone
- Maraval Carbonate Schist and Calcareous Mica Schist
- Swamp

Table 1:

Table 1: Example of database created for the Maraval Road Transect showing how data was organized for structural analysis and for the use of ArcGIS Pro. Full table is located in the appendix.

A	B	C	D	E	F	G	H	I	J	K	L
Transect	Sitenumber	Lat_(UTM)	Long_(UTM)	Strike	Dip	DipDirection	Trend	Plunge	StructType	Notes	RockType
Maraval Road	90-11	661713	1180951	107	31	South			S1	(S1 are sheet dips)	
Maraval Road	90-11	661713	1180951	276	26	South			AxialPlane		
Maraval Road	MVL-9	662026	1182157	99	28	South			S1		
Maraval Road	MVL-9	662026	1182157	99	37	South			S1		
Maraval Road	MVL-9	662026	1182157	276	35	South			AxialPlane		
Maraval Road	MVL-10	661994	1182112	103	37	South			S1		
Maraval Road	MVL-10	661994	1182112	291	86	South			RampFault		
Maraval Road	MVL-10	661994	1182112	303	60	South			RampFault		
Maraval Road	MVL-1	661662	1180993	103	30	South			S1		
Maraval Road	MVL-1	661662	1180993	75	16	South			S1		
Maraval Road	MVL-1	661662	1180993				250	2	S1Lineation		
Maraval Road	MVL-1	661662	1180993	55	23	Southeast			AxialPlane		
Maraval Road	MVL-2	661660	1181084	65	27	South			S1		
Maraval Road	MVL-2	661660	1181084				225	25	S1Lineation		

Figure 5:

The Maracas Bay (MB), Maraval Road (MVL) and Lady Chancellor Road (LCR) transects each have a stereonet that shows the S1 foliation data collected as well as any faults present along the transect. Hilltop Transect (HT) was separated into 3 domains to show each structure present along the transect in detail. Domain 1 includes folded rocks north of the Arima Fault zone with fold hinges and axial planes plotted. Domain 2 was calculated by Dr. John Weber to show the faulted rocks in the Fault zone and to show their kinematics. Plotted planes show the faults, arrows show slip vectors along each fault plane, and sigmas represent the principal strain. And lastly domain 3 is the north dipping limb of the homocline making up the Northern Range.

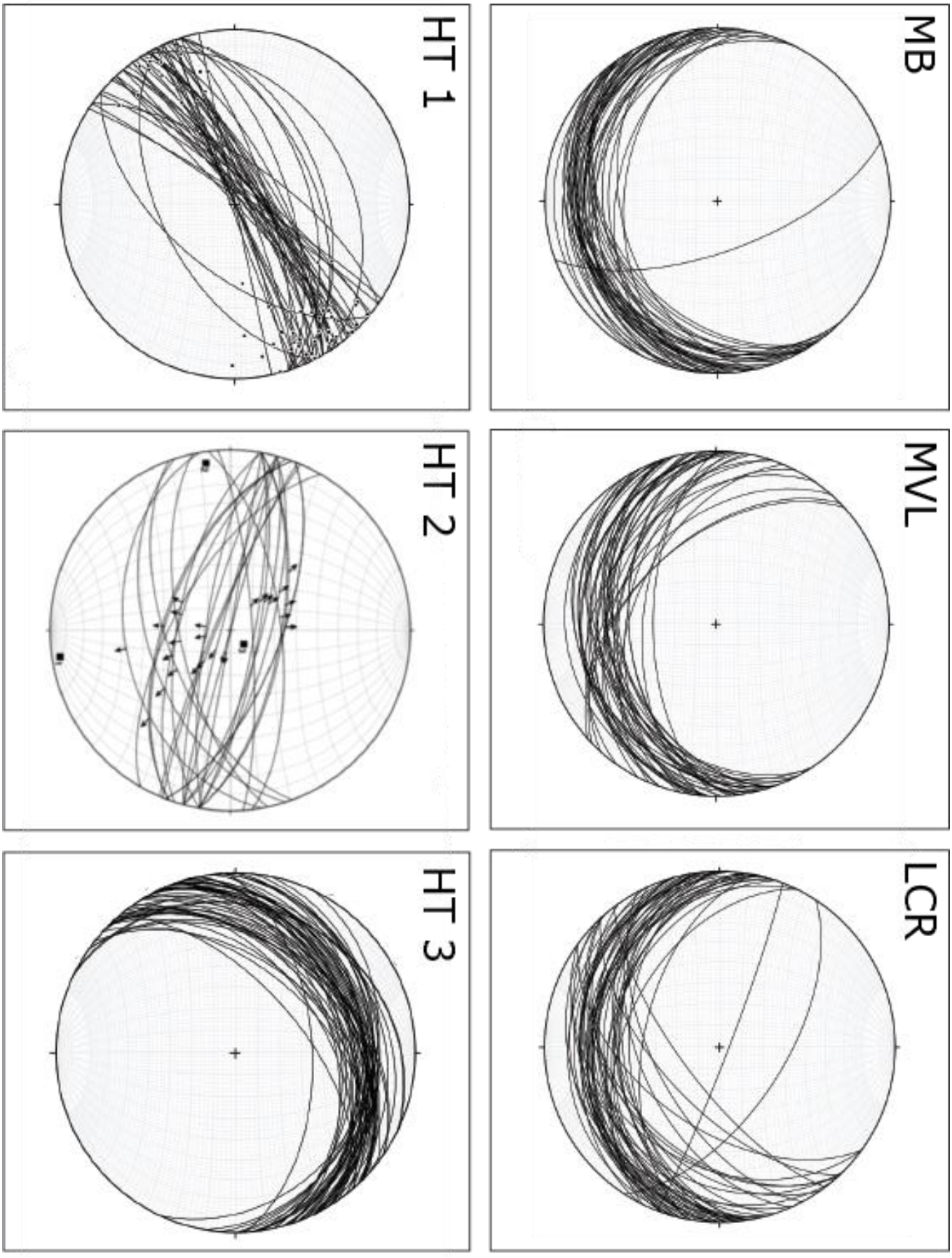
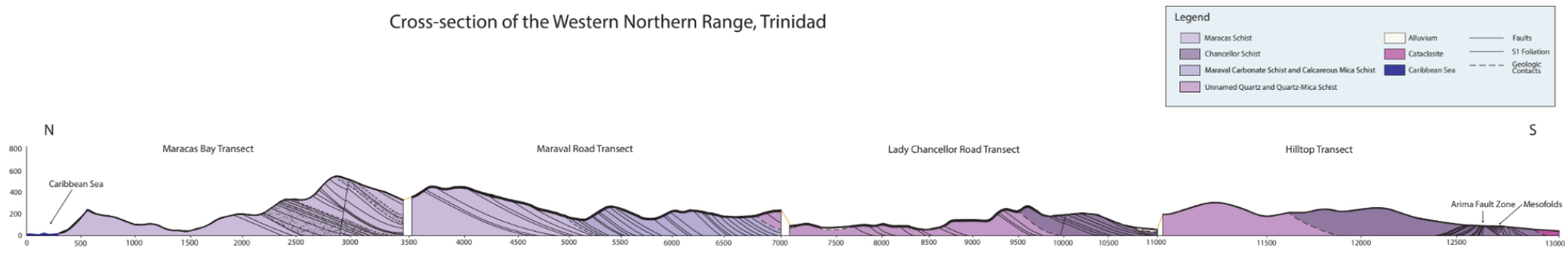

MB
MVL
LCR
HT 1
HT 2
HT 3

Figure 6:

Full cross section of the Western Northern Range in Trinidad. The cross section is split into four transects: Maracas Bay, Maraval Road, Lady Chancellor Road, and Hilltop. Each transect is separated by a small orange line to signify that the transects are not connected, but instead that in the breaks between the transects, we are interpreting that the geology and deformational mechanisms remained consistent between the transects. The cross section only shows S1 and S3 deformation, with the exception of Hilltop, which shows all three stages of deformation: S1, S2, and S3.


Cross-section of the Western Northern Range, Trinidad
Legend
Maracas Schist
Chancellor Schist
Maraval Carbonate Schist and Calcareous Mica Schist
Unnamed Quartz and Quartz-Mica Schist
Alluvium
Cataclasite
Caribbean Sea
Faults
S1 Foliation
Geologic Contacts
N
S
Maracas Bay Transect
Maraval Road Transect
Lady Chancellor Road Transect
Hilltop Transect
Caribbean Sea
Arima Fault Zone
Mesofolds
800
600
400
200
0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
7500
8000
8500
9000
9500
10000
10500
11000
11500
12000
12500
13000

Appendix

Transect	Sitenumber	Lat_WGS84	Long_WGS84	Strike	Strike_RHR	Dip	DipDirection	Trend	Plunge	StructType	Notes	RockType	RefenceName	ReferencePDF
Maraval Road	90-11	661713	1180951	107	107	30	South			S1_Foliation	S1 are sheet dips	Mica schist	John Weber	1993 Maraval Traverse
Maraval Road	90-11	661713	1180951	276	96	26	South			AxialPlane		Mica schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-9	662026	1182157	99	99	28	South			S1_Foliation		Quartz schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-9	662026	1182157	99	99	39	South			S1_Foliation		Quartz schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-9	662026	1182157	276	96	35	South			AxialPlane		Quartz schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-10	661994	1182112	103	103	37	South			S1_Foliation			John Weber	1993 Maraval Traverse
Maraval Road	MVL-10	661994	1182112	291	111	86	South			RampFault			John Weber	1993 Maraval Traverse
Maraval Road	MVL-10	661994	1182112	303	123	60	South			RampFault			John Weber	1993 Maraval Traverse
Maraval Road	MVL-1	661662	1180993	103	103	30	South			S1_Foliation		Quartz/mica schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-1	661662	1180993	75	75	16	South			S1_Foliation		Quartz/mica schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-1	661677	1180993	116	116	45	South			RampFault		Quartz/mica schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-1	661662	1180993					250	2	S1Lineation		Quartz/mica/CaCO3 schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-1	661662	1180993	55	55	23	Southeast			AxialPlane		Quartz/mica schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-2	661660	1181084	65	65	27	South			S1_Foliation		CaCO3 and pelite schist	John Weber	1993 Maraval Traverse
Maraval Road	MLV-2	661660	1181084					255	18	S1Lineation		CaCO3 and pelite schist	John Weber	1993 Maraval Traverse
Maraval Road	MLV-2	661660	1181084					245	4	S1Lineation		CaCO3 and pelite schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-2	661660	1181084					225	25	S1Lineation		Pelite	John Weber	1993 Maraval Traverse
Maraval Road	MVL-2	661660	1181084					46	14	S1Lineation		Pelite	John Weber	1993 Maraval Traverse
Maraval Road	Monique_house	662383	1182821	45	45	27	Southeast			S1_Foliation		Quartz/mica/CaCO3 schist	John Weber	1993 Maraval Traverse
Maraval Road	Monique_house	662383	1182821	76	76	22	South			S1_Foliation		Quartz/mica/CaCO3 schist	John Weber	1993 Maraval Traverse
Maraval Road	Monique_house	662383	1182821	121	121	19	South			AxialPlane		Quartz/mica/CaCO3 schist	John Weber	1993 Maraval Traverse
Maraval Road	Monique_house	662383	1182821	84	84	35	South			AxialPlane		Quartz/mica/CaCO3 schist	John Weber	1993 Maraval Traverse
Maraval Road	Monique_house	662383	1182821	64	64	25	South			AxialPlane		Quartz/mica/CaCO3 schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-3	662313	1183128	82	82	44	South			S1_Foliation	Maybe slate not schist	Pelite schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-3	662313	1183128	88	88	47	South			S1_Foliation		Pelite schist	John Weber	1993 Maraval Traverse
Maraval Road	MVL-4	662364	1183195	84	84	31	South			S1_Foliation			John Weber	1993 Maraval Traverse
Maraval Road	MVL-5	662580	1183195	72	72	42	South			S1_Foliation			John Weber	1993 Maraval Traverse

Maraval Road	MVL-6	662604	1183372	97	97	40	South			S1_Foliation		Schist	John Weber	1993 Maraval Traverse	
Maraval Road	MVL-7	662678	1183651	64	64	25	South			AxialPlane	F1	CaCO3/quartz bed	John Weber	1993 Maraval Traverse	
Maraval Road	MVL-7	662678	1183651	81	81	40	South			S1_Foliation		Schist	John Weber	1993 Maraval Traverse	
Maraval Road	MVL-7	662678	1183651	109	109	38	South			S1_Foliation		Schist	John Weber	1993 Maraval Traverse	
Maraval Road	MVL-7	662678	1183651	101	101	54	South			S1_Foliation		Schist	John Weber	1993 Maraval Traverse	
Maraval Road	MVL-8	662719	1183925	74	74	32	South			S1_Foliation			John Weber	1993 Maraval Traverse	
Maraval Road	Monique_house	662383	1182821	80	80	22	South			S1_Foliation		Quarzt schist	John Weber	1993 Maraval Traverse	
Maraval Road	Monique_house	661383	1182821					254	1	S1Lineation	iron staining	Quarzt schist	John Weber	1993 Maraval Traverse	
Maraval Road	Monique_house	661383	1182821	78	78	25	South			S1_Foliation		Quarzt schist	John Weber	1993 Maraval Traverse	
Maraval Road	Monique_house	661383	1182821	104	104	24	South			S1_Foliation		Quarzt schist	John Weber	1993 Maraval Traverse	
Maraval Road	Monique_house	661383	1182821	77	77	32	South			S1_Foliation	on bench	Pelite	John Weber	1993 Maraval Traverse	
Maraval Road	Monique_house	661383	1182821	74	74	20	South			S1_Foliation		Quarzt schist	John Weber	1993 Maraval Traverse	
Lady Chancellor Road	LC-S-1	662511	1181758	105	105	27	South			S1_Foliation	LC-D revisited	Quartz schist	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-2	662556	1181596	122	302	78	Northeast			S1_Foliation		Quartz schist	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-3	662595	1181441	106	286	13	North			S1_Foliation	locally folded	Quartz schist	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-4	662694	1181257	60	60	66	South			FoldLimb			John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-4	662704	1181257	62	62	59	South			S1_Foliation	North of LC-S-4, not on RCS map		John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-5	662678	1181103	50	50	18	South			S1_Foliation		CaCO3 schist	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-5	662678	1181103				South	66	2	S1Lineation		CaCO3 schist	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-5	662682	1181103	48	48	40	South			S1_Foliation		Quartz Schist	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-F	662374	1180727	72	72	63	South			FoldLimb			John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-F	662374	1180727	42	42	20	South			FoldLimb			John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-6	662378	1180768	66	66	52	South			S1_Foliation	Augen rich	Metagrit	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-G	662390	1180794	65	245	48	Northwest			AxialPlane	Large mesofold		John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-G	662390	1180794	40	40	10	Southeast			Foldlimb			John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-H	662401	1180833	64	244	72	Northwest			AxialPlane			John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-7	662429	1180900					55	7	S1Lineation		MetaSandstone	John Weber	1993 Weber Lady Chancellor Road	
Lady Chancellor Road	LC-S-7	662429	1180900	36	36	52	South			S1_Foliation		MetaSandstone	John Weber	1993 Weber Lady Chancellor Road	

Lady Chancellor Road	91-4	662128	1180321	340	340	40	East			S1_Foliation		MetaSandstone, Metaconglomerate, interlayered pelite	John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	91-4	662128	1180321	42	222	73	Northwest			S1_Foliation	True dip was calculated, 1		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	91-4	662128	1180321	62	242	86	North			S1_Foliation	2		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	91-4	662128	1180321	228	48	78	Southeast			S1_Foliation	3		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	91-4	662128	1180321	230	80	87	Southeast			S1_Foliation	4		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-A	662148	1180643	65	245	43	North			AxialPlane	Between 1 and 2		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-A	662148	1180643	54	234	37	Northeast			AxialPlane	Between 3 and 4		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-B	662154	1180698	83	83	32	South			S1_Foliation	Sheety		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	23	23	27	East			S1_Foliation	1 on XS		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	23	23	54	East			S1_Foliation	2 on XS		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	30	30	76	Southeast			AxialPlane	Upright fold of S1, verges west, 3 on XS		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	39	39	72	Southeast			AxialPlane	Upright fold of S1, curviplanar axial plane, 4 on XS		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	37	37	53	Southeast			AxialPlane	5 on XS, S1 // detachment, W-verging		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	43	43	65	Southeast			AxialPlane	Mesofold, 6 on XS		John Weber	1993 Weber Lady Chancellor Road
Lady Chancellor Road	LC-C	662342	1180794	39	39	90				AxialPlane	W-verging Mesofold, 9 on XS		John Weber	1993 Weber Lady Chancellor Road
Maracas Bay	A	670174	1190329	94	94	32	South			FoldLimb	Part of Syncline A	Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	B	670174	1190329	240	60	21	South			FoldLimb	Part of Syncline A	Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	A-B	670174	1190329	66	66	23	South			AxialPlane	Of Syncline A	Mud-sand Gradation, Pelites	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	B	670174	1190329	77	77	25	South			AxialPlane	Of Anticline B	Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	C	670174	1190329	275	95	41	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	F	670174	1190329					98	14	S1Lineation		Quartz Vein	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	E	670174	1190329	88	88	16	South			AxialPlane	Fold E	Quartzite	John Weber	1990-93 Weber Maracas Bay

Maracas Bay	E	670174	1190329	96	96	37	South			FoldLimb	Fold E	Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	E	670174	1190329	103	283	4	North			FoldLimb	Fold E	Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	D	670174	1190329	245	65	29	South			S1_Foliation			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	D	670174	1190329	142	142	64	West			NormalFault			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	D2	671091	1189658	36	36	37	Southeast			AxialPlane	Parabolic folds	Pelites, thin sand beds	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	A	671091	1189658	262	82	30	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	A	671091	1189658	150	150	72	West			NormalFault		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	B	671091	1189658	151	151	65	West			NormalFault		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	B	671091	1189658	115	115	43	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	D	671091	1189658	278	98	51	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	C	671091	1189658	153	153	82	West			Fault		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	C	671091	1189658	284	104	57	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	D	671091	1189658	130	130	76	Southwest			NormalFault		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	D	671091	1189658	102	102	50	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	F	670174	1190329	106	286	4	North			FoldLimb		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	F	670174	1190329	69	69	25	South			FoldLimb		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	F	670174	1190329	69	69	24	South			AxialPlane		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328	240	60	27	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328					99	17	S1Lineation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328	305	125	36	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328					90	19	S1Lineation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328	145	24	24	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328					94	18	S1Lineation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328	128	128	34	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	670173	1190328					82	17	S1Lineation	Intersect lineation	Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	A1	670188	1190339	245	65	28	South			S1_Foliation	Rakes 39 E		John Weber	1990-93 Weber Maracas Bay
Maracas Bay	B1	670188	1190339	82	82	11	South			S1_Foliation			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	C1	670188	1190339	175	355	1	East			S1_Foliation			John Weber	1990-93 Weber Maracas Bay

Maracas Bay	D	670188	1190339	61	61	40	South			S1_Foliation	Rakes 42 E		John Weber	1990-93 Weber Maracas Bay
Maracas Bay	E	670188	1190339	218	28	29	South			S1_Foliation			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	F	670188	1190339	204	24	85	East			AxialPlane		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	G	670188	1190339	192	192	62	West			AxialPlane		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Cave Wall	670196	1190341	205	205	37	West			UnknownFault	Between G and F	Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Sea Cave	670196	1190341	49	49	25	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Sea Cave	670196	1190341					105	20	S1Lineation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Sea Cave	670196	1190341	64	64	26	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Sea Cave	670196	1190341					104	22	S1Lineation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	N Sea Cave	670196	1190341	168	168	17	West			NormalFault		Pelite, Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	N Sea Cave	670196	1190341	148	148	30	West			NormalFault		Pelite, Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Photo 13	671411	1189604	78	78	51	South			AxialPlane			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops,	671341	1189594	106	106	32	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops,	671341	1189594	353	173	6	West			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	671341	1189594	83	83	50	South			AxialPlane		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Western Outcrops	671341	1189594	162	342	55	East			NormalFault		Quartz veins	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Tyrico Bay	671341	1189594	80	80	35	South			S1_Foliation			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Tyrico Bay	671341	1189594	207	207	60	West			NormalFault			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Tyrico Bay	671341	1189594	35	35	27	Southeast			S1_Foliation			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Tyrico Bay	671341	1189594	352	352	15	East			AxialPlane			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Tyrico Bay	671341	1189594	155	155	70	West			NormalFault			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Tyrico Bay	671341	1189594	315	135	60	Southwest			NormalFault			John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Eastern Outcrops	671087	1189656	80	80	47	South			S1_Foliation		Pelite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Eastern Outcrops	671087	1189656	197	197	41	West			NormalFault		Boudin with qtz vein	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Eastern Outcrops	671087	1189656	47	47	45	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Eastern Outcrops	671087	1189656					84	25	FoldLimb		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Eastern Outcrops	671087	1189656					83	25	FoldLimb		Quartzite	John Weber	1990-93 Weber Maracas Bay
Maracas Bay	Eastern Outcrops	671087	1189656					78	20	FoldLimb		Quartzite	John Weber	1990-93 Weber Maracas Bay

Maracas Bay	Tyrico Bay	671341	1189594	78	78	30	South			S1_Foliation		Quartzite	John Weber	1990-93 Weber Maracas Bay 2
Maracas Bay	Tyrico Bay	671341	1189594					91	15	S1Lineation		Quartzite	John Weber	1990-93 Weber Maracas Bay 2
Maracas Bay	Tyrico Bay	671341	1189594					92	14	S1Lineation		Quartzite	John Weber	1990-93 Weber Maracas Bay 2
North Coast Road	92-1	666614	1189118					97	0	S1Lineation		Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-1	666614	1189118	97	97	14	South			S1_Foliation		Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-1	666614	1189118	264	84	6	South			S1_Foliation		Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-1	666614	1189118	78	78	18	South			S1_Foliation		Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-1	666614	1189118	65	65	30	South			S1_Foliation		Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-1	666614	1189118	95	95	20	South			S1_Foliation		Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-1	666614	1189118	87	87	24	South			Scomposite	S1 and S2, need to plot stereonet	Pelite, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-2	667416	1190086	90	90	21	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-2	667416	1190086	86	86	20	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-3	667383	1189771	76	76	20	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-3	667383	1189771	77	77	25	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-3	667383	1189771					266	2	S1Lineation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-5	667270	1189657	67	67	28	South			S1_Foliation		Quartzite with minor dark pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-5	667270	1189657	97	97	27	South			S1_Foliation		Quartzite with minor dark pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-6	667222	1189612	55	55	35	Southeast			S1_Foliation		Mica Foliae in pure Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-6	667222	1189612	234	54	37	Southeast			S1_Foliation		Mica Foliae in pure Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-6	667222	1189612	60	60	32	Southeast			S1_Foliation		Mica Foliae in pure Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-7	667154	1189596	51	51	21	Southeast			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-7	667154	1189596	44	44	18	Southeast			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber

North Coast Road	92-8	667135	1189540	334	334	15	East			AxialPlane		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-8	667135	1189540	125	305	27	Northeast			AxialPlane		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-8	667135	1189540	160	340	14	East			AxialPlane		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-8	667135	1189540	257	77	23	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464	55	55	15	Southeast			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464					100	17	S1Lineation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464	70	70	18	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464	64	64	19	South			AxialPlane			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464	235	55	23	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464	235	55	20	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-9	667143	1189464	49	49	27	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-11	667063	1189389	350	350	15	East			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-12	667017	1189402	22	22	12	East			S1_Foliation		Mica Foliae in Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-13	666957	1189398	70	70	20	Southeast			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-14	666778	1189438	67	67	3	South			AxialPlane	heavily weathered	Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-15	666799	1189330	60	60	18	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17A	667502	1190031	104	104	24	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-18A	667473	1190166	45	45	21	Southeast			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-20	671808	1189463	69	69	23	Southeast			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	110	110	18	South			AxialPlane		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	95	95	45	South			Foldlimb		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	105	285	81	North			Foldlimb		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	138	318	28	Northeast			Foldlimb		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	95	95	45	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	105	285	81	North			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	138	318	28	Northeast			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157					98	5	S1Lineation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157					97	15	S1Lineation		Quartzite	John Weber	1992 North Coast Road Traverse Weber

North Coast Road	92-17	666626	1189157	116	116	24	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-17	666626	1189157	84	84	34	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-19	666687	1189211	80	80	24	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-16	666728	1189259	101	101	41	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-16	666728	1189259	340	160	66	West			NormalFault	Rake 53 in Fault plane		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-21	670073	1189940	73	73	43	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-23	670054	1189738	106	286	16	Northeast			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-23	670054	1189738	147	327	28	Northeast			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-24	670204	1189861	253	73	36	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-20a	671840	1189566	62	62	28	Southeast			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-B	671749	1189442	83	83	42	South			Scomposite	Put in Stereonet		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-C	671916	1189686					88	9	S1Lineation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-C	671916	1189686	76	76	44	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-C	671916	1189686	65	65	35	Southeast			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-E	671895	1189808	252	72	32	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-E	671895	1189808	112	112	10	South			AxialPlane		Quartzite and black slate	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-E	671895	1189808	112	112	17	South			Foldlimb		Quartzite and black slate	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-E	671895	1189808	30	30	30	South			Foldlimb		Quartzite and black slate	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-E	671895	1189808	260	80	48	South			S1_Foliation		Quartzite and dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-F	672230	1190015	70	70	34	South			S1_Foliation		cubic Pyrite in dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-F	672230	1190015	177	357	86	East			RampFault		Dark pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-F	672230	1190015	200	20	69	East			NormalFault		Dark pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-F	672230	1190015	184	4	80	East			NormalFault		Dark pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-G	672257	1190039	258	78	35	South			S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-H	672300	1190237	257	77	41	South			S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-H	672300	1190237	91	91	20	South			AxialPlane		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-I	672277	1190407	88	88	34	South			S1_Foliation		Quartzite-Pelite gradation	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-J	675481	1191598	117	117	30	Southwest			S1 Foliation			John Weber	1992 North Coast Road Traverse Weber

North Coast Road	92-J		675481	1191598	93	93	26 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-J		675481	1191598	73	73	74 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-J		675481	1191598	150	150	15 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-J		675481	1191598	87	87	32 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-J		675481	1191598	95	95	23 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-L		675465	1191774	92	92	20 South		S1_Foliation	Black Slate in Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-L		675465	1191774	121	121	19 South		S1_Foliation	Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-L		675465	1191774	83	83	20 South		S1_Foliation	Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-L		675465	1191774	115	115	17 South		S1_Foliation	Quartzite with joints	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-L		675465	1191774	322	322	10 Northeast		AxialPlane	Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-18A		667472	1190165	117	117	13 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-M		667386	1190222	103	103	17 South		S1_Foliation	Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-N		672138	1188904	165	165	29 West		NormalFault		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-O		672215	1188913	248	68	29 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-P		672050	1188794	278	98	29 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-P		672050	1188794	63	63	26 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-Q		672260	1190442	102	102	40 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	87	87	80 South		UnknownFault	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	102	282	79 North		UnknownFault	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	244	64	33 Southeast		S1_Foliation	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	75	75	52 South		UnknownFault	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	103	103	64 South		UnknownFault	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	90	90	32 South		S1_Foliation	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-S		672441	1190050	56	56	23 Southeast		S1_Foliation	Dark Pelites	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-T		672591	1190066	82	82	20 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-U		672654	1190084	116	116	24 South		S1_Foliation		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-W		672820	1190075	187	7	54 East		NormalFault		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-X		673162	1190277	195	15	25 East		NormalFault	Pelite	John Weber	1992 North Coast Road Traverse Weber

North Coast Road	92-X	673162	1190277	52	52	14 South		AxialPlane		Black Slate, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-X	673162	1190277	71	71	35 South		AxialPlane		Black Slate, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-X	673162	1190277	72	72	35 South		AxialPlane		Black Slate, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-X	673162	1190277	350	350	8 East		AxialPlane		Black Slate, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-X	673162	1190277	60	60	31 South		AxialPlane		Black Slate, Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-Y	673183	1190324	77	77	26 South		S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-AA	673328	1190552	52	52	31 Southeast		S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-AA	673328	1190552	123	123	25 Southeast		S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702				105	8 S1Lineation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	55	235	23 West		NormalFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	55	235	27 West		NormalFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	30	210	18 West		NormalFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	12	192	16 West		NormalFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	340	160	31 West		UnknownFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	11	191	32 West		UnknownFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	191	191	27 West		UnknownFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-BB	673411	1190702	180	180	27 West		UnknownFault		Dark Pelite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-CC	673324	1190710	348	348	44 East		NormalFault	Rake 82 South		John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-DD	673267	1190639	143	143	20 Southwest		S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-DD	673267	1190639	125	125	19 Southwest		S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-EE	673765	1190734	280	100	25 South		S1_Foliation		Quartzite to black Slate	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-EE	673765	1190734	75	75	42 South		S1_Foliation		Quartzite to black Slate	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-FF	673806	1190772	4	4	18 Northeast		AxialPlane		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-FF	673806	1190772	53	53	22 Southeast		Foldlimb		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-FF	673806	1190772	324	324	18 Northeast		Foldlimb		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-GG	673845	1190872	75	75	42 South		S1_Foliation			John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-JJ	674786	1190835	250	70	15 South		S1_Foliation		Quartzite	John Weber	1992 North Coast Road Traverse Weber
North Coast Road	92-JJ	674786	1190835	150	34 East			NormalFault		Quartzite	John Weber	1992 North Coast Road Traverse Weber

North Coast Road	92-LL	674655	1190780	71	23 South		S1_Foliation	Quartzite	John Weber	1992 North Coast Road Traverse Weber		
North Coast Road	92-LL	678655	1190780	107	24 South		S1_Foliation	Quartzite	John Weber	1992 North Coast Road Traverse Weber		
Lady Chancellor Road		662967	1181709	85	41 South		S1_Foliation	Carbonate Schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662561	1181746	109	28 Southwest		S1_Foliation	Carbonate, quartz, mica schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662579	1181694	102	26 Southwest		S1_Foliation	Carbonate, quartz, mica schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662622	1181654	63	25 Southeast		S1_Foliation	Carbonate, quartz schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 92-120		662549	1181582	80	29 South		S1_Foliation	Carbonate, quartz, mica schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662553	1181547	84	22 South		S1_Foliation	Quartz, mica schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662541	1181497	88	42 South		S1_Foliation	Carbonate, quartz, mica schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 92-121		662594	1181444	75	24 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662567	1181397	87	21 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 92-126		662661	1181301	36	34 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662742	1181252	55	37 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662737	1181144	90	34 South		S1_Foliation	Carbonate, mica schist	Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662756	1181050	92	25 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 92-127		662431	1181103	117	26 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 91-5		662412	1181030	90	21 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662416	1180986	53	72 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662430	1180951	47	38 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 92-128		662423	1180900	47	62 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 92-129		662143	1180655	104	15 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road		662087	1180586	92	18 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Lady Chancellor Road 90-11		661714	1180974	93	28 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse EE FF	Lady Chancellor Road	
Maraval Road	92-124	666425	1188917	59	23 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA		

Maraval Road		666341	1188777	88	88	37 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-123	666273	1188724	61	61	34 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-122	666095	1188631	77	77	43 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		666055	1188548	108	108	30 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-115	666088	1188490	85	85	29 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-114	665759	1188459	93	93	30 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-113	664683	1188264	76	76	22 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664598	1188158	98	98	27 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-112	664597	1188000	88	88	32 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664545	1187814	58	58	32 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-111	664592	1187736	63	63	21 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664644	1187645	70	70	23 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664669	1187568	100	100	47 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-110	664715	1187493	76	76	37 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664750	1187324	69	69	23 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road	92-6	664867	1187131	83	83	37 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664873	1187025	83	83	40 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse AA
Maraval Road		664922	1186935	62	62	33 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-108	664928	1186883	109	109	33 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664965	1186753	102	102	42 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664926	1186694	71	71	38 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664932	1186594	90	90	60 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664755	1186405	82	82	37 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664735	1186335	64	64	30 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-106	664724	1186269	117	117	41 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664847	1186117	73	73	36 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664777	1186075	92	92	23 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664747	1186028	85	85	48 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB

Maraval Road	92-105	664696	1185975	94	94	23 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-104	664647	1185812	138	138	50 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-103	664575	1185766	113	113	50 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664547	1185717	125	125	33 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-102	664562	1185642	177	177	47 West				Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-101	664408	1185474	95	95	28 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664371	1185440	136	136	50 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road		664312	1185385	132	132	43 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	92-100	664303	1185348	80	80	43 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse BB
Maraval Road	90-8	664316	1185277	86	86	48 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664324	1185245	94	94	22 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664338	1185183	109	109	38 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664388	1185118	98	98	43 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664425	1185090	71	71	41 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664470	1185082	72	72	42 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road	92-116	664452	1184996	95	95	55 Southwest		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664407	1184953	93	93	37 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road		664378	1184857	75	75	32 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse CC
Maraval Road	92-117	664231	1184835	56	56	22 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse DD
Maraval Road	92-118	664107	1184706	74	74	14 Southeast		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse DD
Maraval Road		664064	1184650	94	94	36 South		S1_Foliation		Bob Speed	Speed Maraval North Coast Traverse DD
Lady Young Road	91-17	665717	1179517	135	135	13 Southwest		S1_Foliation		Bob Speed	Speed Lady Young Traverse GG
Lady Young Road		665829	1179591	68	68	34 Southeast		S1_Foliation		Bob Speed	Speed Lady Young Traverse GG
Lady Young Road		666103	1179492	81	81	25 Southeast		S1_Foliation		Bob Speed	Speed Lady Young Traverse GG
Lady Young Road		666172	1179470	72	72	30 Southeast		S1_Foliation		Bob Speed	Speed Lady Young Traverse GG
Lady Young Road	91-4	666205	1179470	33	33	36 Southeast		S1_Foliation		Bob Speed	Speed Lady Young Traverse GG
Lady Young Road	91-22	665134	1178556	331	331	20 Northeast				Bob Speed	Speed Lady Young Traverse GG
Lady Young Road	91-7	666181	1177963	220	220	32 Northwest				Bob Speed	Speed Lady Young Traverse GG

Lady Young Road	91-21		666295	1178301	227	227	32 Northwest						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road	91-14		665799	1178573	48	48	60 Southeast			S1_Foliation			Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road	91-6		664889	1177493	26	26	14 East						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road			664849	1177534	318	318	10 Northeast						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road			664815	1177474	336	336	10 Northeast						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road	91-25		665516	1177926	346	346	32 Northeast						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road	91-27		664646	1178274	342	342	43 Northeast						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road			664749	1178303	352	352	63 Northeast						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road			664594	1178184	92	92	83 South			S1_Foliation			Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road			664513	1178216	283	283	27 Northeast						Bob Speed	Speed Lady Young Traverse GG	
Lady Young Road			664585	1178215	189	189	20 West						Bob Speed	Speed Lady Young Traverse GG	
Hilltop Road		14	672583	1178489	90	90	55 South			S1_Foliation					
Hilltop Road		10	672584	1178485	70	70	45 South			S1_Foliation					
Hilltop Road		9	672585	1178484	75	75	87 South			S1_Foliation					
Hilltop Road	8 to 9		672584	1178484	86	266	76 North			S1_Foliation					
Hilltop Road	5e		672585	1178480	50	50	72 South			S1_Foliation					
Hilltop Road	4 to 5c		672585	1178479	45	45	70 South			S1_Foliation					
Hilltop Road	1b		672585	1178476	55	55	53 South			S1_Foliation					
Hilltop Road	1c		672586	1178476	56	56	68 South			S1_Foliation					
Hilltop Road	1d		672584	1178476	79	79	82 South			S1_Foliation					
Hilltop Road		0	672585	1178475	252	72	84 South			S1_Foliation					
Hilltop Road	16-17a		672583	1178492	28	28	70 Southeast			S1_Foliation					
Hilltop Road	16-17b		672582	1178492	40	40	80 Southeast			S1_Foliation					
Hilltop Road	17-18e		672582	1178493	30	30	80 Southeast			S1_Foliation					
Hilltop Road	16f		672584	1178491	220	40	75 Southeast			S1_Foliation					
Hilltop Road	20-21a		672582	1178495	48	48	82 South			S1_Foliation					
Hilltop Road		12	672583	1178487				210	56 FoldHinge	cw					
Hilltop Road		12	672583	1178487	205	25	85 East		AxialPlane						

Hilltop Road	12	672585	1178487				195	74	FoldHinge	
Hilltop Road	12	672585	1178487	210	30	86 East			AxialPlane	
Hilltop Road	11	672584	1178486				60	70	FoldHinge	
Hilltop Road	11	672584	1178486	226	226	90			AxialPlane	
Hilltop Road	11	672583	1178486				185	64	FoldHinge	cw
Hilltop Road	11	672583	1178486	205	25	82 East			AxialPlane	
Hilltop Road	9	672583	1178484				57	37	FoldHinge	
Hilltop Road	9	672583	1178484	230	50	58 South			AxialPlane	
Hilltop Road	7i	672584	1178482				120	7	FoldHinge	
Hilltop Road	7i	672584	1178482	120	120	69 South			AxialPlane	
Hilltop Road	2b	672585	1178477				84	5	FoldHinge	ccw
Hilltop Road	2b	672585	1178477	90	90	75 South			AxialPlane	
Hilltop Road	2 to 3c	672585	1178478				74	8	FoldHinge	
Hilltop Road	2 to 3c	672585	1178478	77	257	77 North			AxialPlane	
Hilltop Road	0a	672586	1178475				106	11	FoldHinge	ccw
Hilltop Road	0a	672586	1178475	101	101	82 South			AxialPlane	
Hilltop Road	0-1e	672584	1178475				86	40	FoldHinge	
Hilltop Road	0-1e	672584	1178475	330		43 East			AxialPlane	
Hilltop Road	17c	672581	1178492				215	45	FoldHinge	cw
Hilltop Road	17c	672581	1178492	214	34	84 Southeast			AxialPlane	
Hilltop Road	17-18q	672583	1178493				215	12	FoldHinge	
Hilltop Road	17-18q	672583	1178493	105	105	85 West			AxialPlane	
Hilltop Road	16-17a	672582	1178491				55	16	FoldHinge	
Hilltop Road	16-17a	672582	1178491	232	232	78 North			AxialPlane	
Hilltop Road	16b	672583	1178491				232	47	FoldHinge	
Hilltop Road	16b	672583	1178491	231	231	86 North			AxialPlane	
Hilltop Road	26a	672581	1178501	44	44	41 Southeast			S1_Foliation	
Hilltop Road	35b	672580	1178510	70	250	65 North			S1_Foliation	

Hilltop Road	29	672581	1178504	240	240	54	North			S1_Foliation	
Hilltop Road	35c	672579	1178510	85	265	77	North			S1_Foliation	
Hilltop Road	35a	672580	1178511	60	60	37	South			S1_Foliation	
Hilltop Road	25	672581	1178500	80	80	56	South			S1_Foliation	
Hilltop Road	26b	672583	1178501					80	5	FoldHinge	
Hilltop Road	26b	672583	1178501	242	242	16	North			AxialPlane	
Hilltop Road	26c	672580	1178501					216	28	FoldHinge	
Hilltop Road	26c	672580	1178501	152	152	36	West			AxialPlane	
Hilltop Road	26d	672580	1178500					50	6	FoldHinge	cw
Hilltop Road	26d	672580	1178500	265	265	12	North			AxialPlane	
Hilltop Road	26e	672582	1178502					245	43	FoldHinge	
Hilltop Road	26e	672582	1178502	209	209	42	West			AxialPlane	
Hilltop Road	27f	672581	1178502					250	40	FoldHinge	
Hilltop Road	27f	672581	1178502	210	210	30	West			AxialPlane	
Hilltop Road	27g	672582	1178501					325	39	FoldHinge	
Hilltop Road	27g	672582	1178501	215	215	38	Northwest			AxialPlane	
Hilltop Road	26-27	672581	1178501					190	37	FoldHinge	
Hilltop Road	28h	672581	1178503					68	17	FoldHinge	cw
Hilltop Road	28i	672582	1178503					255	38	FoldHinge	
Hilltop Road	35a	672580	1178511					79	11	FoldHinge	
Hilltop Road	40-49q	672579	1178515	250	70	50	South			S1_Foliation	
Hilltop Road	40-49r	672579	1178516	123	123	54	South			S1_Foliation	
Hilltop Road	40-49u	672578	1178516	255	255	90				S1_Foliation	
Hilltop Road	40-49h	672580	1178516	87	87	85	Southwest			S1_Foliation	
Hilltop Road	40-49w	672579	1178517	225	45	70	Southeast			S1_Foliation	
Hilltop Road	40-49aa	672578	1178517	274	94	64	South			S1_Foliation	
Hilltop Road	40-49bb	672579	1178518	240	240	77	Northwest			S1_Foliation	
Hilltop Road	40-49t	672580	1178518	45	45	68	South			S1_Foliation	

Hilltop Road	40-49p	672578	1178518	262	82	40	South			S1_Foliation	
Hilltop Road	40-49	672579	1178519					264	10	FoldHinge	cw
Hilltop Road	40-49	672579	1178519	250	250	42	North			AxialPlane	
Hilltop Road	40-49	672578	1178519					295	60	FoldHinge	
Hilltop Road	40-49	672578	1178519	197	197	62	West			AxialPlane	
Hilltop Road	40-49	672578	1178520					245	55	FoldHinge	
Hilltop Road	40-49	672579	1178520	108	288	80	North			AxialPlane	
Hilltop Road	40-49	672579	1178520					281	39	FoldHinge	
Hilltop Road	40-49	672577	1178520	104	284	80	North			AxialPlane	
Hilltop Road	40-49	672577	1178520					85	50	FoldHinge	
Hilltop Road	40-49	672578	1178521	89	89	88	South			AxialPlane	
Hilltop Road	40-49	672578	1178521					255	10	FoldHinge	
Hilltop Road	40-49	672579	1178521	75	75	86	South			AxialPlane	
Hilltop Road	40-49	672579	1178521					250	5	SheathFoldhinge	
Hilltop Road	40-49	672578	1178522					46	13	SheathFoldhinge	
Hilltop Road	40-49	672578	1178522	62	242	40	North			SheathFoldhinge	
Hilltop Road	40-49	672577	1178521					247	15	SheathFoldhinge	
Hilltop Road	40-49	672577	1178521	63	243	54	North			SheathFoldAP	
Hilltop Road	40-49	672579	1178522					50	30	FoldHinge	cw
Hilltop Road	40-49	672579	1178522	50	50	90				AxialPlane	
Hilltop Road	40-49	672578	1178523					229	32	FoldHinge	cw
Hilltop Road	40-49	672578	1178523	220	220	90				AxialPlane	
Hilltop Road	40-49	672579	1178523					82	55	FoldHinge	
Hilltop Road	40-49	672579	1178523	100	100	90				AxialPlane	
Hilltop Road	40-49	672577	1178523					200	57	FoldHinge	
Hilltop Road	40-49	672577	1178523	210	30	85	East			AxialPlane	
Hilltop Road	40-49	672578	1178524					205	55	FoldHinge	
Hilltop Road	40-49	672578	1178524	205	205	90				AxialPlane	

Hilltop Road	40-49	672577	1178522				199	47	FoldHinge	
Hilltop Road	40-49	672580	1178523	221	41	75 East			AxialPlane	
Hilltop Road	40-49	672580	1178523				105	79	FoldHinge	
Hilltop Road	40-49	672577	1178522	221	41	84 South			AxialPlane	
Hilltop Road	40-49	672579	1178524				55	20	FoldHinge	
Hilltop Road	40-49	672579	1178524				220	10	FoldHinge	w
Hilltop Road	40-49	672580	1178524				50	12	FoldHinge	cren
Hilltop Road	40-49	672580	1178524				57	22	FoldHinge	cren
Hilltop Road	40-49	672576	1178523	92	92	15 South			AxialPlane	
Hilltop Road	40-49	672576	1178523	75	75	82 South			AxialPlane	
Hilltop Road	51	672577	1178526	75	75	80 South			S1_Foliation	
Hilltop Road	53	672577	1178527	272	272	30 North			S1_Foliation	
Hilltop Road	53	672577	1178528	65	245	84 North			S1_Foliation	
Hilltop Road	53	672579	1178528	45	45	80 South			S1_Foliation	
Hilltop Road	53	672576	1178527	60	240	50 Northwest			S1_Foliation	
Hilltop Road	56p	672577	1178531	230	230	40 North			S1_Foliation	
Hilltop Road	56s	672576	1178530	237	237	24 North			S1_Foliation	
Hilltop Road	56T	672579	1178531	43	43	90			S1_Foliation	
Hilltop Road	58b	672576	1178532	282	282	26 North			S1_Foliation	
Hilltop Road	58c	672577	1178532	78	258	57 North			S1_Foliation	
Hilltop Road	58e	672576	1178533	105	285	32 North			S1_Foliation	
Hilltop Road	58f	672578	1778533	80	260	62 North			S1_Foliation	
Hilltop Road	57g	672577	1178532	315	315	50 Northeast			S1_Foliation	
Hilltop Road	57i	672578	1178532	91	91	88 South			S1_Foliation	
Hilltop Road	57j	672575	1178531	155	335	28 Northeast			S1_Foliation	
Hilltop Road	57l	672575	1178532	95	95	68 South			S1_Foliation	
Hilltop Road	57M	672576	1178531	92	272	63 North			S1_Foliation	
Hilltop Road	57N	672574	1178532	76	256	66 North			S1_Foliation	

Hilltop Road	57O	672579	1178532	110	110	70 South		S1_Foliation	
Hilltop Road	51a	672576	1178525				256	4 Foldhinge	
Hilltop Road	51a	672576	1178525	100	100	8 South		AxialPlane	
Hilltop Road	53	672577	1178527				55	20 Foldhinge	fold V
Hilltop Road	Q/R	672577	1178529				220	10 Foldhinge	ccw
Hilltop Road	Q/R	672577	1178529	92	92	15 South		AxialPlane	
Hilltop Road	58b	672576	1178532				50	12 Foldhinge	cren
Hilltop Road	58d	672577	1178533	75	75	82 South		AxialPlane	cren
Hilltop Road	58e	672576	1178533				57	22 Foldhinge	cren
Hilltop Road	58f	672578	1778533				67	20 Foldhinge	β fold I
Hilltop Road	58f	672578	1778533	55	55	55 Southeast		AxialPlane	β + at
Hilltop Road	58g	672578	1178534				68	46 Foldhinge	cren
Hilltop Road	58i	672579	1178532				92	45 Foldhinge	cren
Hilltop Road	58j	672572	1178532				5	14 Foldhinge	cren
Hilltop Road	58k	672575	1778533				63	24 Foldhinge	cren
Hilltop Road	58k	672575	1778533	72	252	72 North		AxialPlane	cren
Hilltop Road	58k	672575	1778533				108	30 Foldhinge	Fold II
Hilltop Road	58k	672575	1778533	48	48	34 Southeast		AxialPlane	
Hilltop Road	u	672576	1178534	325	325	26 Northeast		S1_Foliation	
Hilltop Road	s	672576	1178535	98	278	24 North		S1_Foliation	
Hilltop Road	T	672576	1178536	163		20 Southeast		S1_Foliation	
Hilltop Road	R	672576	1178537	80	260	34 North		S1_Foliation	
Hilltop Road	Q	672575	1178538	75	255	40 North		S1_Foliation	
Hilltop Road	P	672575	1178541	85	265	40 North		S1_Foliation	
Hilltop Road	K	672575	1178542	257	257	42 North		S1_Foliation	
Hilltop Road	L	672576	1178542	245	245	40 North		S1_Foliation	
Hilltop Road	M	672574	1178541	91	271	48 North		S1_Foliation	
Hilltop Road	j	672574	1178542	275	275	44 North		S1_Foliation	S1

Hilltop Road	68c	672575	1178542	343	343	35	Northeast			S1_Foliation	press
Hilltop Road	68b	672575	1178543	270	270	52	North			S1_Foliation	S1
Hilltop Road	70e	672574	1178544	126	306	45	Northeast			S1_Foliation	S1
Hilltop Road	70h	672575	1178544	91	271	62	North			S1_Foliation	S1
Hilltop Road	70o	672574	1178545	290	290	45	North			S1_Foliation	S1
Hilltop Road	70p	672575	1178545	104	284	70	North			S1_Foliation	S1
Hilltop Road	70q	672573	1178545	103	283	55	North			S1_Foliation	S1
Hilltop Road	70r	672576	1178545	85	265	79	North			S1_Foliation	S1
Hilltop Road	70s	672573	1178543	80	260	76	North			S1_Foliation	S1
Hilltop Road	70t	672574	1178546	105	285	50	North			S1_Foliation	S1
Hilltop Road	70v	672573	1178544	95	275	70	North			S1_Foliation	S1
Hilltop Road	70w	672576	1178544	94	274	45	South			S1_Foliation	S1
Hilltop Road	70y	672578	1178545	130	310	70	Northeast			S1_Foliation	S1
Hilltop Road	72a	672573	1178546	282	282	62	North			S1_Foliation	
Hilltop Road	72c	672574	1178547	285	285	75	North			S1_Foliation	
Hilltop Road	72l	672575	1178547	110	290	55	North			S1_Foliation	
Hilltop Road	72m	672575	1178546	292	292	35	North			S1_Foliation	S1
Hilltop Road	74a	672574	1178549	298	298	56	North			S1_Foliation	
Hilltop Road	74b	672574	1178548	288	288	55	North			S1_Foliation	
Hilltop Road	73j	672574	1178547	89	269	62	North			S1_Foliation	
Hilltop Road	73h	672575	1178548	78	258	72	North			S1_Foliation	
Hilltop Road	75c	672573	1178549	102	282	50	North			S1_Foliation	
Hilltop Road	75e	672575	1178549	94	274	45	North			S1_Foliation	
Hilltop Road	75f	672574	1178550	130	310	45	North			S1_Foliation	
Hilltop Road	75g	672573	1178550	115	295	37	North			S1_Foliation	
Hilltop Road	75i	672575	1178550	100	280	57	North			S1_Foliation	
Hilltop Road	63V	672576	1178537					68	15	FoldHinge	cw
Hilltop Road	63V	672576	1178537	77	257	79	North			AxialPlane	

Hilltop Road	65O	672575	1178540					250	15	FoldHinge	
Hilltop Road	65N	672575	1178539					294	6	FoldHinge	cw
Hilltop Road	65N	672575	1178539	80	260	18	North			AxialPlane	
Hilltop Road	70d	672571	1178544					314	9	FoldHinge	
Hilltop Road	70f	672572	1178544					305	40	FoldHinge	
Hilltop Road	70g	672571	1178545					295	2	FoldHinge	
Hilltop Road	70g	672571	1178545	113	113	52	South			AxialPlane	
Hilltop Road	70u	672570	1178575					260	23	FoldHinge	
Hilltop Road	70u	672570	1178575	178	178	27	West			AxialPlane	
Hilltop Road	91c	672571	1178565	61	61	74	South			S1_Foliation	
Hilltop Road	M	672569	1178566	45	45	73	South			S1_Foliation	
Hilltop Road	M	672573	1178565	46	46	75	South			S1_Foliation	
Hilltop Road	f	672572	1178566	38	38	59	South			S1_Foliation	
Hilltop Road	g	672572	1178567	45	45	74	South			S1_Foliation	
Hilltop Road	h	672571	1178567	52	52	76	South			S1_Foliation	
Hilltop Road	i	672569	1178565	41	41	65	South			S1_Foliation	
Hilltop Road	j	672569	1178567	74	74	64	South			S1_Foliation	
Hilltop Road	k	672570	1178567	50	50	82	South			S1_Foliation	
Hilltop Road	91c	672571	1178565					260	11	FoldHinge	cren
Hilltop Road	91c	672571	1178565	63	243	55	North			AxialPlane	
Hilltop Road	91d	672570	1178565	70	250	88	North			AxialPlane	cren
Hilltop Road	91d	672570	1178565					86	25	FoldHinge	cren
Hilltop Road	91d	672570	1178565	252	72	65	South			AxialPlane	
Hilltop Road	91a	672571	1178566					242	35	FoldHinge	
Hilltop Road	91a	672571	1178566	240	60	75	South			AxialPlane	cren
Hilltop Road	91a	672571	1178566					250	37	FoldHinge	cren
Hilltop Road	91b	672570	1178566					54	20	FoldHinge	cren
Hilltop Road	91b	672570	1178566	40	40	58	South			AxialPlane	

Hilltop Road	90L	672572	1178564				85	52 FoldHinge		to x
Hilltop Road	90L	672572	1178564				72	38 FoldHinge		
Hilltop Road	90L	672572	1178564				64	32 FoldHinge		
Hilltop Road	90L	672572	1178564	240	60	77 South		AxialPlane		
Hilltop Road	90L	672572	1178564				70	23 FoldHinge		
Hilltop Road	90L	672572	1178564	238	58	72 South		AxialPlane		
Hilltop Road	90L	672572	1178564				59	29 FoldHinge		
Hilltop Road	106	672569	1178580	64	244	82 North		S1_Foliation		
Hilltop Road	105	672569	1178579	45	45	89 South		S1_Foliation		
Hilltop Road	104	672569	1178578	39	39	90		S1_Foliation		
Hilltop Road	103	672569	1178577	40	40	85 South		S1_Foliation		
Hilltop Road	101	672570	1178575	37	37	83 South		S1_Foliation		
Hilltop Road	101	672571	1178575	35	35	90		S1_Foliation		
Hilltop Road	100	672570	1178574	60	240	82 North		S1_Foliation		
Hilltop Road	99	672570	1178573	50	230	78 Northwest		S1_Foliation		
Hilltop Road	106-108	672570	1178580	238	238	80 North		S1_Foliation		
Hilltop Road	106-108	672568	1178581	51	51	90		S1_Foliation		
Hilltop Road	106-108	672569	1178582	69	69	87 South		S1_Foliation		
Hilltop Road	106-108	672570	1178582	61	301	76 North		S1_Foliation		
Hilltop Road	106-108	672571	1178581	242	242	90		S1_Foliation		
Hilltop Road	106-108	672567	1178581	82	262	80 North		S1_Foliation		
Hilltop Road	106-108	672568	1178580	262	262	82 North		S1_Foliation		
Hilltop Road	106-108	672571	1178580	89	269	79 North		S1_Foliation		
Hilltop Road	106-108	672572	1178581	91	271	86 North		S1_Foliation		
Hilltop Road	106-108	672573	1178582	95	275	75 North		S1_Foliation		
Hilltop Road	106-108	672573	1178582	75	255	80 North		S1_Foliation		
Hilltop Road	106-108	672573	1178583	262	262	77 North		S1_Foliation		
Hilltop Road	106-108	672572	1178583	266	266	90		S1_Foliation		

Hilltop Road	106-108	672571	1178583	250	250	85	North			S1_Foliation	
Hilltop Road	106-108	672567	1178582	72	252	87	North			S1_Foliation	
Hilltop Road	106-108	672566	1178581	77	257	84	North			S1_Foliation	
Hilltop Road	106-108	672566	1178580	85	265	83	North			S1_Foliation	
Hilltop Road	106-108	672567	1178579	271	271	90	North			S1_Foliation	
Hilltop Road	102	672570	1178576					228	18	FoldHinge	
Hilltop Road	98-108	672570	1178572					258	24	ClenAxes_FoldHinge	F1 axes
Hilltop Road	98-108	672569	1178572					69	12	ClenAxes_FoldHinge	
Hilltop Road	98-108	672571	1178572					75	18	ClenAxes_FoldHinge	
Hilltop Road	98-108	672572	1178573					91	8	ClenAxes_FoldHinge	
Hilltop Road	115d	672569	1178589	67	247	57	North			S1_Foliation	
Hilltop Road	115b	672568	1178589	243	243	69	North			S1_Foliation	
Hilltop Road	115b	672567	1178589	241	241	78	North			S1_Foliation	
Hilltop Road	115b	672570	1178589	250	250	48	North			S1_Foliation	
Hilltop Road	122n	672567	1178596	246	246	59	North			S1_Foliation	
Hilltop Road	126v	672566	1178600	82	262	65	North			S1_Foliation	
Hilltop Road	127x	672566	1178601	79	259	55	North			S1_Foliation	
Hilltop Road	116c	672568	1178590					220	14	FoldHinge	
Hilltop Road	116c	672568	1178590	219	219	82	Northwest			AxialPlane	cren
Hilltop Road	116c	672568	1178590					39	11	FoldHinge	
Hilltop Road	116c	672568	1178590	213	33	85	Southeast			AxialPlane	
Hilltop Road	116d	672567	1178590					40	11	FoldHinge	
Hilltop Road	116d	672567	1178590	215	35	87	South			AxialPlane	
Hilltop Road	116d	672567	1178590					51	22	FoldHinge	cren

Hilltop Road	115a	672566	1178589				49	12	FoldHinge	cren	
Hilltop Road	115a	672566	1178589	227	227	90			AxialPlane	cleav.	
Hilltop Road	115b	672568	1178589				66	11	FoldHinge		
Hilltop Road	115b	672568	1178589	243	243	80 North			AxialPlane		
Hilltop Road	115b	672568	1178589				240	17	F1Axis_FoldHinge		
Hilltop Road	115b	672568	1178589	243	243	69 North			F1Axis_AP		
Hilltop Road	115b	672568	1178589				60	10	FoldHinge	cren of	
Hilltop Road	115b	672568	1178589				31	36	FoldHinge	meas.	
Hilltop Road	115b	672568	1178589	250	250	48 North			AxialPlane		
Hilltop Road	119e	672567	1178593				63	1	FoldHinge	cw	
Hilltop Road	119e	672567	1178593	240	240	78 North			AxialPlane		
Hilltop Road	119e	672567	1178593				50	16	FoldHinge		
Hilltop Road	119e	672567	1178593	230	230	78 North			AxialPlane		
Hilltop Road	119e	672567	1178593				53	5	FoldHinge		
Hilltop Road	119e	672567	1178593	220	220	79 North			AxialPlane		
Hilltop Road	119f	672567	1178594				235	5	FoldHinge		
Hilltop Road	119f	672567	1178594	230	230	87 North			AxialPlane		
Hilltop Road	119f	672567	1178594				55	25	FoldHinge	cren	
Hilltop Road	119f	672567	1178594	237	237	78 North			AxialPlane		
Hilltop Road	119g	672569	1178593				242	10	FoldHinge		
Hilltop Road	119g	672569	1178593	245	245	90			AxialPlane		
Hilltop Road	119g	672569	1178593				250	10	FoldHinge		
Hilltop Road	119g	672569	1178593	247	247	80 North			AxialPlane		
Hilltop Road	119h	672566	1178593				56	4	FoldHinge	cw	
Hilltop Road	119h	672566	1178593	234	234	85 North			AxialPlane		
Hilltop Road	119i	672566	1178593				49	2	FoldHinge		
Hilltop Road	119i	672566	1178593	225	45	80 Southeast			AxialPlane		

Hilltop Road	119i	672566	1178593					239	6	FoldHinge	cw
Hilltop Road	119i	672566	1178593	237	237	83	North			AxialPlane	
Hilltop Road	119j	672568	1178593					57	14	FoldHinge	
Hilltop Road	119j	672568	1178593	232	52	80	South			AxialPlane	
Hilltop Road	119j	672568	1178593					40	2	FoldHinge	cw
Hilltop Road	119j	672568	1178593	215	215	70	Northwest			AxialPlane	
Hilltop Road	119j	672568	1178593					48	1	FoldHinge	w
Hilltop Road	119j	672568	1178593	230	230	80	North			AxialPlane	
Hilltop Road	122a	672566	1178596	226	226	85	Northwest			AxialPlane	cleav.
Hilltop Road	122a	672566	1178596	234	234	87	North			AxialPlane	cleav.
Hilltop Road	122k	672568	1178596					54	10	FoldHinge	
Hilltop Road	122k	672568	1178596	247	247	52	North			AxialPlane	
Hilltop Road	122k	672568	1178596					65	5	FoldHinge	
Hilltop Road	122k	672568	1178596	252	252	55	North			AxialPlane	
Hilltop Road	122l	672567	1178597					49	20	FoldHinge	cren
Hilltop Road	122l	672567	1178597	240	60	74	South			AxialPlane	
Hilltop Road	122m	672565	1178596					55	5	FoldHinge	
Hilltop Road	122m	672565	1178596	238	238	35	North			AxialPlane	
Hilltop Road	123o	672566	1178597					80	12	FoldHinge	
Hilltop Road	123o	672566	1178597	258	258	90				AxialPlane	
Hilltop Road	123p	672566	1178598					237	10	FoldHinge	
Hilltop Road	123p	672566	1178598	241	61	84	South			AxialPlane	
Hilltop Road	123q	672565	1178597					63	4	FoldHinge	
Hilltop Road	123q	672565	1178597	243	243	90				AxialPlane	
Hilltop Road	123r	672567	1178598					45	2	FoldHinge	
Hilltop Road	123r	672567	1178598	227	227	84	North			AxialPlane	
Hilltop Road	123s	672568	1178598					75	1	FoldHinge	
Hilltop Road	123s	672568	1178598	252	252	75	North			AxialPlane	

Hilltop Road	125u	672566	1178599				65	15 FoldHinge	
Hilltop Road	125u	672566	1178599	245	245	77 North		AxialPlane	
Hilltop Road	125u	672566	1178599				255	34 FoldHinge	
Hilltop Road	125u	672566	1178599	249	249	90		AxialPlane	
Hilltop Road	125u	672566	1178599				66	12 FoldHinge	
Hilltop Road	125u	672566	1178599	250	250	84 North		AxialPlane	
Hilltop Road	125u	672566	1178599				255	23 FoldHinge	
Hilltop Road	125u	672566	1178599	252	72	88 South		AxialPlane	
Hilltop Road	125u	672566	1178599				66	20 FoldHinge	
Hilltop Road	125u	672566	1178599	246	246	90		AxialPlane	
Hilltop Road	125w	672566	1178600				36	42 FoldHinge	cren
Hilltop Road	125w	672566	1178600	235	235	80 North		AxialPlane	
Hilltop Road	125x	672565	1178599				67	15 FoldHinge	cren
Hilltop Road	127A	672566	1178601	85	265	48 North		S1_Foliation	
Hilltop Road	127C	672567	1178601	245	245	64 North		S1_Foliation	
Hilltop Road	127D	672565	1178601	295	115	55 South		S1_Foliation	
Hilltop Road	130f	672565	1178604	80	240	85 North		S1_Foliation	
Hilltop Road	131K	672565	1178605	79	239	80 North		S1_Foliation	
Hilltop Road	132L	672564	1178605	245	245	50 North		S1_Foliation	
Hilltop Road	132M	672565	1178606	77	257	55 North		S1_Foliation	
Hilltop Road	134M'	672565	1178608	57	237	54 North		S1_Foliation	S1=S0
Hilltop Road	134O'	672566	1178608	35	35	90		S1_Foliation	S1
Hilltop Road	136Z	672564	1178610	48	48	90		S1_Foliation	S1
Hilltop Road	137U	672564	1178611	66	66	80 South		S1_Foliation	
Hilltop Road	137X	672565	1178611	74	254	80 North		S1_Foliation	
Hilltop Road	127B	672566	1178602				36	17 FoldHinge	crens
Hilltop Road	127B	672566	1178602	220	220	77 Northwest		AxialPlane	
Hilltop Road	131G*	672566	1178605				245	16 FoldHinge	related

Hilltop Road	131G*	672566	1178605	14	14	20	East			AxialPlane	
Hilltop Road	131H	672566	1178606					95	32	FoldHinge	cren
Hilltop Road	131H	672566	1178606	261	81	72	South			AxialPlane	
Hilltop Road	131H	672566	1178606	257	77	74	South			AxialPlane	
Hilltop Road	130d	672566	1178604					125	4	FoldHinge	
Hilltop Road	130d	672566	1178604	86	266	49	North			AxialPlane	
Hilltop Road	130e	672564	1178604					88	3	FoldHinge	
Hilltop Road	130e	672564	1178604	105	285	4	North			AxialPlane	
Hilltop Road	131h	672566	1178606					250	60	FoldHinge	cren
Hilltop Road	131h	672566	1178606	248	68	87	South			AxialPlane	
Hilltop Road	131i	672567	1178605					285	4	FoldHinge	
Hilltop Road	131i	672567	1178605	98	278	80	North			AxialPlane	
Hilltop Road	131j	672563	1178604					90	38	FoldHinge	cren
Hilltop Road	131j	672563	1178604	84	84	90				AxialPlane	
Hilltop Road	131j	672563	1178604					248	59	FoldHinge	cren
Hilltop Road	131j	672563	1178604	64	64	90				AxialPlane	
Hilltop Road	131j	672563	1178604					93	20	FoldHinge	cren
Hilltop Road	131j	672563	1178604	82	82	66	South			AxialPlane	
Hilltop Road	134N'	672564	1178608					83	37	FoldHinge	hinge?
Hilltop Road	134N'	672564	1178608	57	237	54	North			AxialPlane	S1/S0
Hilltop Road	134O	672566	1178608					58	22	FoldHinge	
Hilltop Road	134O	672566	1178608	80	260	30	North			AxialPlane	planar
Hilltop Road	134O	672566	1178608	186	186	45	West			AxialPlane	planar
Hilltop Road	135P	672564	1178609					58	0	FoldHinge	toward
Hilltop Road	135P	672564	1178609	237	57	50	South			AxialPlane	
Hilltop Road	135Q	672565	1178609					240	12	FoldHinge	
Hilltop Road	135Q	672565	1178609	253	73	64	South			AxialPlane	
Hilltop Road	136R	672564	1178610					46	0	FoldHinge	

Hilltop Road	136R	672564	1178610	78	78	5 South		AxialPlane		
Hilltop Road	136S	672565	1178610				235	14 FoldHinge		
Hilltop Road	136S	672565	1178610	100	100	17 South		AxialPlane		
Hilltop Road	136Z'	672563	1178610				249	4 FoldHinge		
Hilltop Road	136Z'	672563	1178610	207	207	14 West		AxialPlane		
Hilltop Road	137T	672564	1178611				57	30 FoldHinge		
Hilltop Road	137T	672564	1178611	160	340	24 East		AxialPlane		
Hilltop Road	137U	672565	1178611				75	14 FoldHinge		
Hilltop Road	137U	672565	1178611	11	11	15 East		AxialPlane		
Hilltop Road	137V	672566	1178611				270	5 FoldHinge		
Hilltop Road	137V	672566	1178611	80	260	27 North		AxialPlane		
Hilltop Road	137W	672563	1178611				61	22 FoldHinge		
Hilltop Road	137W	672563	1178611	275	275	32 North		AxialPlane		
Hilltop Road	137Z	672562	1178611				48	18 FoldHinge		cren
Hilltop Road	137X'	672562	1178610				83	12 FoldHinge		
Hilltop Road	137X'	672562	1178610	282	102	22 South		AxialPlane		
Hilltop Road	n/a	672564	1178615	62	62	84 South		S1_Foliation		on
Hilltop Road	143d'	672563	1178616	57	237	65 North		S1_Foliation		
Hilltop Road	143c	672563	1178617	77	257	67 North		S1_Foliation		
Hilltop Road	143f	672564	1178617	57	237	70 North		S1_Foliation		
Hilltop Road	139h	672564	1178613				220	26 Foldhinge		axis,
Hilltop Road	140a	672564	1178614				125	25 Foldhinge		old
Hilltop Road	140a	672564	1178614	250	70	43 South		AxialPlane		old
Hilltop Road	140a	672564	1178614				97	8 FoldHinge		old
Hilltop Road	140a	672564	1178614	295	295	56 Southwest		AxialPlane		old
Hilltop Road	140a	672564	1178614				273	0 FoldHinge		old
Hilltop Road	140-2	672565	1178615				249	2 FoldHinge		ld
Hilltop Road	140-2	672565	1178615	65	245	47 North		AxialPlane		ld

Hilltop Road	140-4	672566	1178613					259	5 FoldHinge	ld
Hilltop Road	140-4	672566	1178613	44	224	15 Southwest			AxialPlane	ld
Hilltop Road	140-4	672566	1178613					255	6 FoldHinge	ld
Hilltop Road	140-4	672566	1178613	207	207	12 West			AxialPlane	ld
Hilltop Road	140-4	672566	1178613					72	8 FoldHinge	ld
Hilltop Road	140-4	672566	1178613	241	241	76 North			AxialPlane	ld
Hilltop Road	140-3	672563	1178614	254	254	30 North			AxialPlane	ld
Hilltop Road	140-K	672565	1178614					245	4 FoldHinge	ld, cw
Hilltop Road	140-K	672565	1178614	90	90	39 South			AxialPlane	ld
Hilltop Road	140-K	672565	1178614					245	9 FoldHinge	ld
Hilltop Road	140-K	672565	1178614	82	82	37 South			AxialPlane	ld
Hilltop Road	140-K	672565	1178614					95	15 FoldHinge	ld
Hilltop Road	140-K	672565	1178614	66	66	25 South			AxialPlane	ld
Hilltop Road	144e'	672563	1178618					235	1 FoldHinge	ld
Hilltop Road	144e'	672563	1178618	235	235	43 North			AxialPlane	ld
Hilltop Road	144c'	672564	1178618	84	84	76 South			AxialPlane	clev.,
Hilltop Road	144g'	672563	1178617					80	4 FoldHinge	ld
Hilltop Road	144g'	672563	1178617	60	240	72 North			AxialPlane	ld
Hilltop Road	145L	672563	1178619					78	0 FoldHinge	ld
Hilltop Road	145L	672563	1178619	73	253	40 North			AxialPlane	ld
Hilltop Road	145N	672562	1178619					54	16 FoldHinge	mesofo
Hilltop Road	145N	672562	1178619	222	42	65 South			AxialPlane	ld
Hilltop Road	145N	672562	1178619					90	3 FoldHinge	ld
Hilltop Road	145N	672562	1178619	90	90	66 South			AxialPlane	ld
Hilltop Road	143-9	672564	1178617					250	3 FoldHinge	ld
Hilltop Road	143-9	672564	1178617	250	250	77 North			AxialPlane	Isoclin
Hilltop Road	144-10	672565	1178618					241	10 FoldHinge	ld
Hilltop Road	144-10	672565	1178618	114	114	18 Southwest			AxialPlane	ld

Hilltop Road	145-g	672564	1178619				250	20 FoldHinge	mesofo
Hilltop Road	145-g	672564	1178619	71	71	84 South		AxialPlane	ld
Hilltop Road	145-h	672564	1178619				351	38 FoldHinge	>D2
Hilltop Road	145-h	672564	1178619	8	188	85 West		AxialPlane	ld
Hilltop Road	145-i	672563	1178620				91	10 FoldHinge	ld
Hilltop Road	145-i	672563	1178620	90	90	76 South		AxialPlane	ld
Hilltop Road	145-f	672562	1178618				63	12 FoldHinge	ld
Hilltop Road	145-f	672562	1178618	52	232	4 North		AxialPlane	ld
Hilltop Road	144-h'	672561	1178618				247	7 FoldHinge	ld
Hilltop Road	144-h'	672561	1178618	65	245	80 North		AxialPlane	ld
Hilltop Road	144-h'	672561	1178618				60	1 FoldHinge	ld
Hilltop Road	144-h'	672561	1178618	241	241	67 North		AxialPlane	ld
Hilltop Road	149-152	672562	1178622	38	38	86 South		S1_Foliation	
Hilltop Road	149-152	672562	1178623	48	228	77 North		S1_Foliation	
Hilltop Road	149-152	672563	1178623	239	239	32 North		S1_Foliation	
Hilltop Road	149-152	672561	1178623	45	225	48 Northwest		S1_Foliation	
Hilltop Road	149-152	672562	1178624	45	225	40 Northwest		S1_Foliation	
Hilltop Road	149-152	672563	1178625	70	250	37 North		S1_Foliation	
Hilltop Road	149-152	672562	1178625	69	249	36 North		S1_Foliation	
Hilltop Road	149-152	672561	1178624				305	53 FoldHinge	
Hilltop Road	149-152	672563	1178624				315	35 FoldHinge	
Hilltop Road	149-152	672563	1178624	195	195	45 West		AxialPlane	
Hilltop Road	149-152	672561	1178625				41	14 FoldHinge	
Hilltop Road	149-152	672561	1178625	225	45	89 South		AxialPlane	
Hilltop Road	149-152	672564	1178625				75	64 FoldHinge	
Hilltop Road	149-152	672564	1178625	345	165	67 West		AxialPlane	
Hilltop Road	149-152	672564	1178623				232	27 FoldHinge	
Hilltop Road	149-152	672564	1178623	36	216	27 West		AxialPlane	

Hilltop Road	152M	672560	1178625	45	225	40 Northwest		S1_Foliation	S0
Hilltop Road	152d	672561	1178626	67	247	40 Northwest		S1_Foliation	S0
Hilltop Road	152e	672560	1178626	50	230	43 North		S1_Foliation	S0
Hilltop Road	152f	672564	1178626	222	222	52 West		S1_Foliation	S0
Hilltop Road	152g	672561	1178626	47	227	37 Northwest		S1_Foliation	S0
Hilltop Road	152h	672563	1178626	59	239	40 North		S1_Foliation	S0
Hilltop Road	152h	672562	1178626	58	238	46 North		S1_Foliation	S0
Hilltop Road	152i	672561	1178627	52	232	45 North		S1_Foliation	S0
Hilltop Road	152j	672562	1178627	235	235	50 North		S1_Foliation	S0
Hilltop Road	152k	672564	1178627	225	225	38 North		S1_Foliation	S0
Hilltop Road	159c	672561	1178632	78	258	40 North		S1_Foliation	S0
Hilltop Road	159l	672560	1178632	64	244	28 North		S1_Foliation	S0
Hilltop Road	159m	672561	1178633	72	252	45 North		S1_Foliation	S0
Hilltop Road	159i	672562	1178633	242	242	29 North		S1_Foliation	S0
Hilltop Road	161d	672561	1178634	78	258	42 North		S1_Foliation	S0
Hilltop Road	161e	672560	1178634	65	245	34 North		S1_Foliation	S0
Hilltop Road	161f	672560	1178635	38	218	48 North		S1_Foliation	S0
Hilltop Road	161a	672562	1178635	85	265	24 North		S1_Foliation	ol.fol.(s
Hilltop Road	161b	672561	1178635	45	225	35 North		S1_Foliation	ol.fol.(s
Hilltop Road	161c	672561	1178636	70	250	27 North		S1_Foliation	ol.fol.(s
Hilltop Road	161e'	672560	1178636	233	233	34 North		S1_Foliation	ol.fol.(s
Hilltop Road	164L	672560	1178638	35	215	38 Northwest		S1_Foliation	S0 (?)
Hilltop Road	164m	672561	1178638	35	215	36 Northwest		S1_Foliation	S0 (?)
Hilltop Road	163j	672560	1178637	73	253	34 North		S1_Foliation	S0 (?)
Hilltop Road	163k	672559	1178637	58	238	35 North		S1_Foliation	S0 (?)
Hilltop Road	166d	672560	1178640	48	228	34 Northwest		S1_Foliation	S1(?)
Hilltop Road	168e	672559	1178641	64	244	30 North		S1_Foliation	S0 (?)
Hilltop Road	168f	672559	1178642	83	263	36 North		S1 Foliation	S0 !

Hilltop Road	168g	672558	1178642	84	264	21 North	S1_Foliation	S0 (?)
Hilltop Road	170c	672559	1178643	65	245	32 North	S1_Foliation	S0 (?)
Hilltop Road	170d'	672561	1178643	65	245	31 North	S1_Foliation	S1
Hilltop Road	170i	672558	1178644	75	255	30 North	S1_Foliation	S1
Hilltop Road	170j	672559	1178644	226	226	40 Northwest	S1_Foliation	S1
Hilltop Road	170k	672560	1178644	87	267	55 North	S1_Foliation	S1
Hilltop Road	172m	672559	1178646	74	254	35 North	S1_Foliation	S1
Hilltop Road	171B	672559	1178645	85	265	22 North	S1_Foliation	Paved
Hilltop Road	179	672558	1178652	63	243	26 North	S1_Foliation	S1
Hilltop Road	180a	672558	1178653	68	248	25 North	S1_Foliation	S1
Hilltop Road	180c	672559	1178653	269	269	25 North	S1_Foliation	S0
Hilltop Road	180d	672557	1178653	82	262	29 North	S1_Foliation	S0
Hilltop Road	180e	672557	1178654	75	255	29 North	S1_Foliation	S1
Hilltop Road	180f	672556	1178653	207	207	20 West	S1_Foliation	S1
Hilltop Road	180g	672556	1178654	280	280	25 North	S1_Foliation	S1
Hilltop Road	180g'	672559	1178653	95	275	27 North	S1_Foliation	S0
Hilltop Road	180j	672559	1178654	295	295	25 North	S1_Foliation	S1
Hilltop Road	180f	672558	1178654	25	205	20 West	S1_Foliation	S0
Hilltop Road	189A	672556	1178662	270	270	30 North	S1_Foliation	S1≅
Hilltop Road	189i	672556	1178663	49	229	60 Northwest	S1_Foliation	S1
Hilltop Road	196L	672555	1178669	75	255	29 North	S1_Foliation	S0
Hilltop Road	202c	672554	1178675	240	240	20 North	S1_Foliation	S0~S1
Hilltop Road	202d	672554	1178676	222	222	20 Northwest	S1_Foliation	S1~