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Hartford Basin Cross Section – Southington to Portland, CT

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THE HARTFORD BASIN

Introduction

The Hartford Basin is one of the more intensively studied of the Central Atlantic Marginal basins (CAM) formed during the breakup of the Pangean supercontinent (Fig. 1, left). The basin has received much attention due in part to the relatively high quality exposures of Late Triassic through Early Jurassic sedimentary and igneous rocks. On this trip we will visit what we feel are some of the most spectacular exposures in south-central Connecticut while touching on many topics related to the development of the basin.

The geology of the basin was first mentioned by the earliest European explorers; however modern scientific investigations of the basin began in earnest in the 19th century (McDonald, 1996). At this time Silliman, Hitchcock and Dana began to develop and test some of the fundamental theories of modern geology using the rocks of the basin (McDonald, 1996). Early mapping by Percival (Percival, 1842) and Davis (1898) defined the structural geometry of the basin and provided the foundation for much subsequent work. We refer interested readers to MacDonald (1996) for a more extensive review of this period as well as a valuable bibliography of all works from 1681-1996. Interest in the basin continued into the early 20th century with insightful papers by Barrell (1915), Longwell (1922), Russel (1922), Wheeler (1939).

The plate tectonic revolution and oil and gas industry interest lead to a resurgence in research in the basin in the late 20th century that continues to this day. The basin serves as a natural laboratory for understanding the Late Triassic Early Jurassic break up of Pangea (e.g. de Boer and Clifton [Clifford], 1988; Schlische, 1993) as well as fundamental processes of rift-related sedimentation (e.g. Olsen, 1986), magmatism (e.g. Philpotts, 1992), and structure (e.g. Wise, 1992). Many of the more recent results have been summarized in two sets of edited volumes on the CAM rift basins (LeTourneau and Olsen, 2003; Manspeizer, 1988).

In this guide we provide brief overviews of the stratigraphy, magmatism, structure, and timing of the Hartford basin. We focus primarily on topics that we believe remain unresolved or controversial and may thus be the topics of future research in the basin. The five stops and 2 additional sites described in the guide present an opportunity to investigate and discuss these topics in the field.

Stratigraphy

The sediments of the southern Hartford basin are subdivided into four formations separated from one another by basalt flows (Fig.1, right). The stratigraphically lowest formation is the New Haven which consists of red to buff conglomerate, sandstone, and mudstone that unconformably overlies the Paleozoic metamorphic basement (Olsen, 1997, and references therein) and locally reaches thicknesses of up to ~2000m. These rocks are interpreted to have been deposited primarily in a fluvial environment (Hubert et al., 1978) between ~218 and 202 Ma. The New Haven formation is overlain by the Talcott basalt flow (~75-m thick), Shuttle Meadow formation (~100-m), Holyoke Basalt flow (~200-m), East Berlin formation (~170-m), and the Hampden Basalt flow (~50-m). The sedimentary units in this sequence consist of interbedded lacustrine and fluvial sequences made up of gray to black mudstone, sandstone, and dolomite, and red mudstone and sandstone, respectively. This entire sequence was deposited between ~202 and ~196 years (or less, see discussion in section on magmatism below). Above the Hampden Basalt lies the Portland Formation (~2000-m preserved). The Portland Formation ranges in grain size from mudstone to coarse conglomerate with the largest clasts exceeding 1-m in length (LeTourneau, 1987). The sediments in the Portland Formation coarsen toward the eastern border fault and are interpreted as lacustrine, fluvial, and debris flow deposits.

Van Houten (1962) first noted a pronounced cyclicity in the sediments of the early Mesozoic Newark Supergroup which has been further described and quantified by Olsen and coworkers (see Olsen, 1997 and references therein and contribution A4 this volume). Where lacustrine beds are present this cyclicity is marked by a three stage sequence 1) lake transgression indicated by calcareous siltstones, 2) lake high stand indicated by thinly laminated calcareous claystone and siltstone with high organic content, and 3) lake regression to lowstand deposits indicated by abundant desiccation cracks (Olsen, 1986). In the Newark basin this cyclicity has periods of 5.9, 10.5, 25.2, 32, and 96 m corresponding to time periods of ~25 ky, ~44 ky, ~100 ky, ~133 ky and 400 ky (Olsen, 1986, 1997). These periodicities correspond closely with Milankovitch cycles of ~20 ky ~40 ky, ~100 ky, 413 ky and suggest that the cyclicity is strongly controlled by orbital parameters and associated climatic variation (Olsen, 1986, 1997).

The work of Olsen and coworkers has illustrated the strong climactic control on sedimentation, however, the tectonic record recorded in the sediments remains largely untapped. Clasts of the Portland Formation conglomerates record a footwall unroofing sequence including low-grade metamorphic rocks which no longer outcrop in the nearby eastern highlands. Sedimentary composition may also provide the key to answering other ongoing questions such as the original extent of the basalts (see discussion below). Furthermore, careful observations of sediment thickness may help to unravel the timing of various structures within the basin.

Magmatism

The intrusive and extrusive rocks of the basin and surrounding highlands appear to have formed in three distinct magmatic events ca. 200 Ma. Philpotts (1992) correlates the Talcott, Holyoke, and Hampden flows with the Higganum, Buttress, and Bridgeport dikes (from oldest to youngest). These correlations are based on the bulk chemistry and petrography of the flows and dikes. In addition the extensive intrusive
sills and laccoliths of West Rock, the Barndoor Hills, and the Sleeping Giant have all been correlated with the Talcott event. Based on the cyclicity of sedimentation mentioned above Philpotts (1992) suggests that ~138 ky and ~345 ky separate the Holyoke event from the Talcott and Hamden events, respectively. Paleomagnetic data, however suggest a longer time span between dikes and flows with the Buttress and Ware dikes possibly postdating the flows and intruding at ~175 Ma (de Boer, 1968; McEnroe and Brown, 2000). Although Philpotts’ dike-flow model fits the geochemical data well it is not consistent with all the available data for instance anisotropy of magnetic susceptibility data (de Boer et al., In Press; Lindsey, 1995) suggests the presence of multiple feeders. The southern Talcott was likely fed by the Fairhaven dike, but the northern Talcott appears to have been fed by a source from the western basin, most likely associated with the Barndoor Hills.

The extent of the lava flows has also been a topic of debate. McHone (1996) has suggested that the flows may have extended across much of eastern North America rather than being confined to the preserved basins. Huber, however, cites evidence from the Pomperaug basin suggesting that the flow histories are not correlative across the intervening highlands (Huber, 1997). Detailed investigations of the composition of intervening and overlying sediments may be able to help resolve this debate as well as further study of the Pomperaug Basin (See Contribution C3, this volume).

The extent of the sills along the western margin of the basin is also enigmatic. Geophysical evidence indicates that the West Rock – Barndoor sill complex is continuous in the subsurface. The sills thus form a ~60 km long belt of intrusions that intruded at <=1 km depth (bedding perpendicular distance to the Talcott flow on the Southington/Meriden Quadrangles). Individual sills of this extent at such shallow depth are considered unlikely based on our understanding of the mechanics of sill intrusion (Jackson and Pollard, 1988). The sills are thus likely composite intrusions.

**Structure**

The gross structure of the Hartford Basin is an asymmetric graben or half graben with a master west-dipping normal fault on the eastern border and a smaller (?) east-dipping fault on the western border (Fig. 2). The beds within the graben are generally tilted to the east with dips typically exceeding 5°, however in detail the dips form distinct domains, inconsistent with simple tilting in a half-graben (Wise, 1992). Bedding dips increase near the margins of the basin creating what have been interpreted as normal and reverse drag along the western and eastern margins, respectively (Wise, 1992). Geophysical studies indicate that the basin is not a typical half-graben deepening to the east, but is rather more of a bathtub shape with the deepest portions near the center of the basin (Wenk, 1984). How this top of basement geometry is achieved while honoring the observed surface geometry is at present a matter of interpretation. Proposed models include a series of abandoned normal faults creating “rider blocks” – slivers of basement that are now in the hanging wall of the master normal fault (see Schlische, 2003, Fig. 4.2 section D-D’) or an originally gently westward dipping basement surface below the New Haven Formation that was subsequently faulted during continued rifting (see Wise, 1992, fig. 2, section C-C’). Additional geophysical studies will be needed to differentiate between these models and better image the basin geometry.

![Figure 2. Sketch cross section across the Hartford Basin. See figure 1 A'A’ for location. Wavy fill pattern is Paleozoic basement. Bold black lines are basalts and intrusive diorites (at western end). Basin depths are derived from Wenck (1984). Note cumulative throw across intrabasinal faults is ~1.5 km.](image)

The Hartford Basin is part of the larger Connecticut Valley basin which also includes the Deerfield and Northfield basins. The Hartford Basin itself is divided into a series of downwarps separated by intervening
antiformal regions called the Middletown block and Gaillard and Saltonstall grabens (Wise, 1992). The synformal warps are associated with recesses or concavities in the fault surface along strike, while the anticlines are associated with salients or convex portions of the fault (Wheeler, 1939). These folds suggest significant slip variation along strike, a feature which should be recorded in the thickness of the sedimentary and volcanic units if these folds existed throughout the development of the basin. It remains to be determined whether the variation in slip represents a variation in total extensional strain or whether the strain is accommodated by other structures within the basin. The Basin is also cut by a large intrabasinal fault with ~700-m of throw near Hartford (Chang, 1968; Ellefsen et al., 1990).

In addition to the undulatory shape of the border faults the faults are also often stair-stepped with north-northeast striking segments connected by more northeast trending segments. It has been suggested that the more northerly trend is inherited from the pre-existing structure in the metamorphic rocks while the northeast trend is more consistent with the regional stress inferred from the Jurassic dike trends (Fig.1, right) (Clifton, 1987; de Boer and Clifton [Clifford], 1988). In some cases it can be seen that the northeast trending set cross-cuts the north-northeast set. The northeast set is most clearly developed in the vicinity of the Hanging Hills of Meriden. Although pre-existing structure appears to have played an important role in the development of the rift basin there have been few detailed studies of this process.

Perhaps one of the largest unresolved questions regarding basin structure is the total offset on the boundary faults and thus the maximum burial depth of the basinal sediments. Thermal maturity studies (Pratt et al., 1988) of organic-rich lacustrine sediments suggest that the Portland Formation did not reach peak thermal maturity (maximum temperature of <90°C) while the East Berlin and Shuttle Meadow Formations are at peak maturity (90-130°C depending on time of burial). These results suggest that erosion has at most removed 1.5 km of material from the top of the Portland formation (Pratt et al., 1988). Parnell et al. (1998) found fluid inclusion homogenization temperatures ranging from 85-96°C for syntectonic veins within the East Berlin Fm. From Turner’s Falls, MA in general agreement with the thermal maturity studies. In contrast Philpotts and Martello (1986) have suggested up to 10 km of throw along the eastern border fault based on reconstruction of the Fairhaven and Higganum dikes. Roden-Tice and Wintsch (2002) have also suggested higher maximum temperatures and thus deeper burial depths based on the resetting of zircon fission track ages. Zircon fission track ages are younger than 200 Ma for all but the youngest Portland Formation suggesting that most of the basin sediments have reached temperatures of >200-240°C. Roden Tice and Wintsch (2002) point out that the discrepancy between the temperatures suggested by fission track ages and thermal maturity results may be due to over-estimation of the zircon closure temperature or mechanisms that retard thermal maturity of organic matter in the lacustrine sediments. Additional thermochronology and further investigations of diagenesis and metamorphism within basinal rocks may help to resolve this debate.

Tectonic Phases and Timing

The classic model of CAM basin development is a rifting phase associated with normal faulting, sedimentation, and volcanism, followed by a drifting phase associated with contraction, often reactivating previously extensional structures (Withjack et al., 1995; Withjack et al., 1998). The history of the Hartford basin appears to generally fit this model however detailed study has revealed additional phases.

The earliest phases of basin formation are not well understood due to subsequent burial and overprinting. The basin may have begun as a sag basin (Hubert et al., 1992) in which sediment was derived from all margins. Coarse New Haven Formation sediments along the Western Border Fault and intrabasinal fault (Chang, 1968; Ellefsen et al., 1990) suggest that these structures were active during early development of the basin. During this time period sedimentation matched or exceeded subsidence so that sedimentation was dominated by fluvial environments. During the early Jurassic subsidence exceeded sedimentation and closed lake basins formed within the rift. This time period is coincident with magmatism. The early history of the Eastern Border Fault is unknown due to burial by younger sediments, however coarse clastic wedges associated with alluvial fans and debris flows suggests that he fault was active during the Early Jurassic to early Middle Jurassic deposition of the upper Portland Fm.
Subsequent to deposition of the Portland Fm. (early Middle Jurassic) basin sediments were tilted toward the east and cut by a series of northeast-trending normal faults. These structures deform all preserved units and cross-cut the pre-existing structural grain, so that their last activity is clearly post early Middle Jurassic, however the timing of their first movement is unknown. No evidence has been found for syn-depositional thickening of units within the basin. The absence of younger strata makes dating of the post early Middle Jurassic history difficult for the Hartford basin. Post rift sediment (largely unfauluted) was deposited in offshore basins (George’s Bank, Scotian Basins) during the late Early Jurassic to Middle Jurassic (Withjack et al., 1998). In the Hartford Basin two phases of post-rift deformation have been described, a north-south contractional phase (shifting) and a later northwest-southeast contraction (drifting) (de Boer, 1992). Evidence for these phases comes from abundant faults with strike-slip slickenlines. In central New England the shifting phase is found in Jurassic dikes, but is absent from Early Cretaceous dikes suggesting that North-South compression occurred during the Jurassic (Manning and Deboer, 1989). Deformation associated with both shifting and drifting phases is found within Early Cretaceous dikes. In the offshore Orpheus graben Withjack et al. (1998) found that post-rift deformation occurred before or during the early Cretaceous.

Roden-Tice and Wintsch (2002) recently questioned this entire chronology based on their fission track results. As mentioned above they found that Apatite and Zircon (except in the youngest Portland Fm) fission track ages were reset to Mesozoic ages both within the basin and in the footwalls of the border faults. Along the Eastern Border Fault footwall ages are younger than hanging wall ages. Roden-Tice and Wintsch (2002) used this evidence to argue that normal fault “displacement [was] younger than the youngest fission track ages of ≤ 100 Ma (Late Cretaceous). Thus, the age of the graben structure of the Hartford Basin is Cretaceous, and this structure cannot be cited as evidence that these basins are Early Mesozoic “rift” basins.”

The fission track data is clearly provocative and must be explained by any reasonable model of the basin. However the many lines of evidence cited above indicate that the basin was active during the early Mesozoic. We believe that multiple models for the fission track data must be explored and that the ideal model for basin development will honor all of the available data sets. Significant topography likely existed at the end of the rifting period and the fission track ages may record the differential unroofing of this landscape. A cross-section of the fission track data across the southern Hartford Basin (Fig. 3) shows that with the exception of 2 data points all data could be fit within error by a straight line suggesting slight post-rift differential unroofing. Additional fission track ages and use of other middle to low temperature thermochronology should help in the development of a better model for basin development.

**Figure 3.** Graph of apatite fission track ages across the southern Hartford Basin (41.44-41.68 deg. Latitude). Error bars are 2σ. Line is best least squares fit. WBF and EBF are Western and Eastern Border faults, respectively. Data from Roden-Tice and Wintsch (2002).
5.1 Profile of basalt flow to south, entablature to north, flow is offset by a late stage fault near this location. CT 66 becomes I-691.

8.2 New Haven formation. View to west of 2 prominent benches – the Talcott and Holyoke basalt flows.

9.6 Leached (reduced) beds within New Haven Formation. This phenomenon is associated with U and Cu mineralization.

12.9 Take Exit 3 to CT 10.

13.1 Right turn on CT 10 (north).

13.4 Straight at light (Do not follow CT 10).

13.5 Left onto CT 322.

14.5 Western border fault scarp straight ahead.

15.3 Right on Marion Ave.

16.0 Left on Mt. Vernon Rd (at large black arrow pointing right).

18.4 Left on Roaring Brook Rd.

18.6 Park at Culdesac.

STOP 1. Basal (Triassic) unconformity and western border fault. (60 minutes)

NOTE: This stop is on private property. Permission must be granted by owner before trespassing. Please respect private property rights so that this stop remains accessible to future groups.

This location is perhaps the most spectacular outcrop of the basal unconformity between the Paleozoic metamorphic basement and the Triassic New Haven Formation. The unconformity is preserved in this location due to the presence of two intersecting faults (Fig. 4, left) – the present-day border fault which strikes more northerly and a second normal fault in the footwall of the border fault which strikes more northeasterly. This geometry leads to an intermediate level of exposure where the unconformity is exposed at the present-day surface. The unconformity dips to the east-northeast and overlying beds strike NW and dip ~20° NE (Fig. 4, right). The New Haven Formation here is a coarse arkose with clasts of feldspar, quartzite, and schist. The maximum clast size exceeds 5 cm. The sediments show fining upward sequences and channel geometries indicative of deposition in a fluvial environment.
The metamorphic rocks below the unconformity are mapped as the Southington Mountain Formation of Fritts (1964). It is a medium to fine-grained silvery mica schist composed of quartz, muscovite, biotite, oligoclase, and garnet, with layers rich in staurolite and/or kyanite. The foliation at the unconformity location is steeply dipping toward the east (strike NNE dip ~80° SE), however immediately upstream the foliation is more flat lying suggesting map-scale folding with hinge lines trending north-northeast (Fig. 5). There is a prominent crenulation that is nearly orthogonal to the map scale folding trending SW and plunging ~30°. Other features of interest are the pegmatites (355±5 Ma.) and quartz veins that are largely foliation parallel, but cross-cut foliation just below the unconformity. One pegmatite in the stream bed shows possible duplication indicative of strike-slip (?) faulting. There is abundant evidence for hydrothermal activity along the Western Border Fault including sillicification of sediments and localized mineralization. The most significant of these sites are the copper deposits near Bristol, CT north of stop 1.

Figure 5. Equal area plot of foliation from Stop 1. Great circle is cylindrical best fit to data.

Downstream of the unconformity outcrop is a second prominent outcrop of the New Haven Formation. Weathering of the arkose has created an alcove here. The back of the alcove is a fault surface striking 227° SW and dipping 76° NW. This surface contains two sets of oblique-slip striations. The older set has a rake of 41° in a northeasterly direction. This set is overprinted by a set that has a rake of 28°SW. This fault is isolated so its relative timing cannot be determined; however it may be associated with the transition from rifting to drifting (shifting phase) associated with opening of the Atlantic.

STOP 2. Pillow basalts and basal contact of the Talcott Basalt. (20 minutes)

Recent construction of a “big-box” store here has revealed a beautiful exposure of the basal contact of the Talcott basalt (Fig. 6). The basalt overlies the upper New Haven Formation which has graded beds of ~10 cm thickness. The lower portion of the flow displays excellent pillow basalts. Sediments of the underlying New Haven fm. Have locally been fluidized and injected between the pillows creating beautiful soft-sediment deformation features.
**Optional Stop. West Peak of Hanging Hills.** An excellent location for a basin-wide overview.

28.7  Return to Target store entrance.
28.8  Left on CT 71.
29.0  Right on Kensington Ave.
29.5  Right on Lewis St. (To I-691). Continue under 691.
29.9  Left onto I-691 on ramp.
32.3  Left Exit 11 – I-91 north.
33.3  Talcott basalt.
38.0  Exit 21 – CT 372.
38.1  Right onto 372 west (Talcott basalt).
40.3  Hamden contact with East Berlin Fm.
40.4  Lacustrine highstand beds.
40.8  Left to US 5/CT 15, CT 9 south.
41.0  light at US 5/CT 15. Stay in center lane to go to CT 9.
41.1  Park on right side of CT 9 on ramp. Pull clear off pavement.

**STOP 3. Lacustrine cyclostratigraphy of the East Berlin Formation.** (45 minutes)

At this stop we will have the chance to look first hand at lacustrine sequences within the East Berlin Formation (Fig. 7). The major lake sequences at this stop are ~32-m apart in a bed-perpendicular direction. This separation is consistent with Olsen’s ~133 my period. Higher-frequency lake deposits are absent in this road cut, but on Rt. 372 just up the hill the closest spacing between lacustrine beds is only ~12m. Beds here dip ~15 degrees toward the southeast. Look for excellent exposures of mudcracks and ripples.

The black lacustrine beds here show evidence of deformation including cm-scale folding and slickensides. Folding at this location is consistent with down-dip motion while slickenlines on calcite veins indicate subsequent northeastward slip (Wilder, 1998). This phenomenon has been reported from other localities within the Hartford Basin (notably at Turner’s Falls, MA). Parnell et al. (1998) argue that movement occurred in the present down-dip direction and that the lacustrine beds thus acted as a décollement during burial, tilting, and hydrocarbon formation. On a warm day the rocks here even smell like oil.

41.1  Continue onto CT 9 south.
48.6  Exit 16 right to CT 66 toward Portland CT.
48.9  Arrigoni Bridge (completed in 1938). Stay in left lane.
49.7  Left on Silver St., immediately after Hess Station.
49.8  Overlook to main Portland quarry.
49.9  Park on grass near corner of Silver St. and Brownstone Ave.
Figure 7. Geologic Map of the eastern Hartford Basin near Middletown. Hampden basalt (Jha) is colored light gray. Paleozoic basement rocks are filled with wavy pattern. Other formations of interest – Holyoke basalt (Jho), East Berlin Formation (Jeb), Portland Formation (Jp). Contours of aeromagnetic data from Daniels and Snyder (2004). Bold dashed line is our interpretation of the likely continuation of the Hampden basalt near stop 5. Structural data from this study, Eaton and Rosenfeld (1972) and Lehmann (1955). Geology modified from Rogers (1985).

STOP 4. Portland Brownstone Quarries. (45 minutes)

The Portland Brownstone Quarries are a National Historic Landmark. At this location the Portland Formation is nearly flat-lying with widely spaced joints (Fig. 7). Many of the beds are greater than 1-m thick. These properties as well as the proximity to the Connecticut River made this an ideal site for brownstone quarrying. Quarrying began almost as soon as European settlers arrived and continued until the 1930’s (Guinness, 2003). Peak production of 850,000-1,000,000 cubic feet of building stone was reached in the 1890’s with stone shipped all over the east coast and even to San Francisco (Guinness, 2003). The oldest buildings on the Wesleyan University campus are built from Portland brownstone and funds from the Town quarry were used to help establish the school. Most recently a quarry has been re-established at the northeast corner of the quarry site. The present-day quarry specializes in restoration as well as new construction (http://www.brownstonequarry.com/).

STOP 5. Coarse conglomerates of the upper Portland Formation. (45 minutes)

The Eastern Border fault is located to the east of this location (Fig. 7) near the turn onto Old Maids Rd. (mi. 56.0). Footwall rocks are amphibolites of the Collins Hill (Rogers, 1985) or Hebron Fm. (Snyder, 1970). The foliation here dips steeply to the west (strike 185°, dip 80°).

Coarse conglomerates of the Portland formation directly overly lacustrine shales at this locality. The coarse deposits at this location are matrix-supported conglomerates with many clasts exceeding 50 cm in their maximum dimension. The boulders and cobbles have little to no preferred orientation and are concentrated near the tops of the beds. These characteristics are typical of debris flow deposits of the Portland Formation (LeTourneau, 1987). Deposition of these sediments directly onto lacustrine mudstones suggests deposition near the toe of an alluvial fan.

The beds at this location strike toward the southeast 107° and dip toward the southwest 40°. This unusual orientation is due to the location on the southern limb of the Rocky hill anticline that separates the Middletown block from the main Hartford Basin. The nose of the fold was omitted on the state geologic map (Rogers, 1985), however aeromagnetic data show a clear anomaly continuing across the river which we interpret as the likely continuation of the Hampden basalt (Fig. 7). Interestingly, the anomaly pattern suggests a significant right-lateral strike-slip component of displacement on the mapped northeast-striking fault.

Numerous small faults cut through the area. Some of these are nicely exposed cutting the conglomerate bedding surface while larger faults cut between outcrops leading to a repeat of the conglomerate/mudstone contact. Exposed faults strike south-southeast and northeast with both westerly and easterly dips (Wilder, 1998). At least one fault plane has striations that have a rake of ~60° to the south-southeast indicating oblique (normal/right-lateral) slip.


57.2 Turn around and return to Old Maids Rd.
58.0 Right on Old Maids Rd.
58.4 Right on CT 17 (south).
61.1 Continue straight on CT 17 at 4-way stop with CT 17A.
62.0 Proceed straight at 4-way stop.
62.3 Portland Fm. Conglomerate dipping steeply toward Eastern Border Fault.
63.1 Right on CT 66 at light. Footwall metamorphic rocks are exposed on right immediately before the light.
63.6 Steeply dipping red beds behind hardware store.
65.1 left to Middletown.
RESOR AND DE BOER

65.5 Arrigoni Bridge. Stay right.
66.0 Right onto Spring St.
66.2 Left onto High St.
66.6 Straight at light with CT 66.
67.0 Right on Church St.
67.4 Right on Vine St.
67.6 Turn into Wesleyan parking lot.

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