

Subject: Strada Peer Review Exhibits - Model Calibration Deficiencies in Melancthon Old Survey Email 1 of 2.

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Date: 2024-09-11, 10:27 a.m.

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Natalie,

We enclose exhibits related to the Strada modellers and hydrogeologist's incorrect assumption of 'Tavistock' Tills in the Melancthon Township Old Survey. The Matrix shows that this issue was identified from the earliest 2023 Peer Reviews. The presence of coarse textured versus fine textured glacial tills on the Strada site was recently confirmed by Strada's Geotechnical consultants. Genivar's (2011) early Mega Quarry work also reported coarse textured tills.

Strada modellers do not seem to have the agricultural experience to understand what all farmers in Melancthon and beyond (and the NDACT community) know about Old and New Survey external surface and internal soil drainage.

The Modelers Reports and the Peer Review Matrix is cluttered with this issue related to earlier Strada hydrogeologist's incorrect interpretation of 'drillers clay' water well terminology conflated to Tavistock Till.

Fig H.11

This Figure prepared for NDACT in 2010 shows the Specialty Crop and Agricultural Infrastructure in Melancthon and adjacent areas.

Fig H.16

This Mega Quarry Figure shows a Honeywood Soil Pit with well drained 86 cm of stone free loess (silt loam) over coarse textured glacial till. There are many angular stone fragments of likely Guelph Formation origin (similar to the Strada Pits) indicative of shallow bedrock influence. There is no lacustrine influence here.

This soil pit is located just up the 4th Line from the Strada Pit on Lot 19 Con 3 OS (Faucett / Butcher / Downey / Bonnefield Farms).

The Honeywood soils have very high moisture holding capacity and

very high capillarity for supporting productive rain fed crops typically potato / wheat / corn rotation. These conditions offset the more rapid internal drainage of the underlying stony sandy silt tills overlying bedrock epikarst.

These Honeywood soils typically produce the equivalent of 2,500 10 lb bags of potatoes per acre on a three year rotation.

This surface loess soil mantle, also on the undisturbed sand and gravels of the Prince Pit, also supported good rain fed potato and wheat crops in the 2023 and 2024 seasons. Is there really any difference in recharge in the undisturbed Prince Pit fields versus the fields to the north?

The modelers need to increase their Layer 1 hydraulic conductivities in the Melancthon Old survey, perhaps to weathered bedrock values.

Fig H.12

These Figures show the Strada's modellers Melancthon Old and New Survey undifferentiated Hydraulic Conductivity and Net Groundwater Recharge based on the modellers ill advised preference for legacy Surficial Geology evidence.

The Modellers need to revise their Groundwater Model to reflect the higher recharge in the Old Survey consistent with the recharge and surface runoff differences in the Pine River and Grand River upland catchments.

Resolution of the above issues will allow clearance of a number of Matrix items.

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Yours truly,

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Fig H.11 orthophoto-8-April-09_Dsize CropWindow NVCA45k.pdf	2.6 MB
Fig H.12 Fig 3.11 and Fig 3.49_AppendixD.pdf	3.0 MB
Fig H.16 1330 Pit#2 Soil_Photo.pdf	6.3 MB