

CASE FILE LIST

Case: HS2-011_AP1-015.

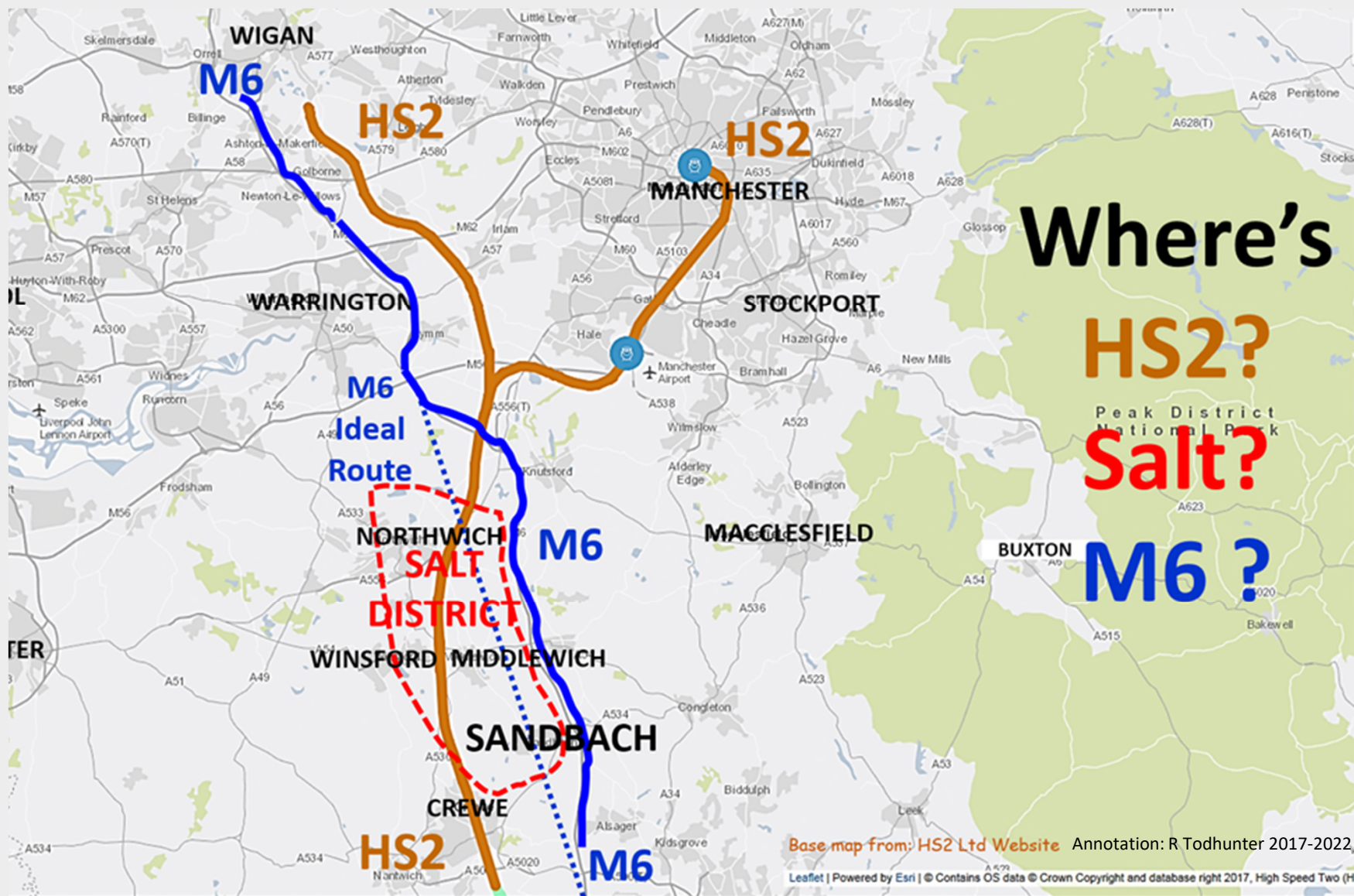
Title: HS2-011_AP1-015 Lach Dennis Parish Council - Petitioner.

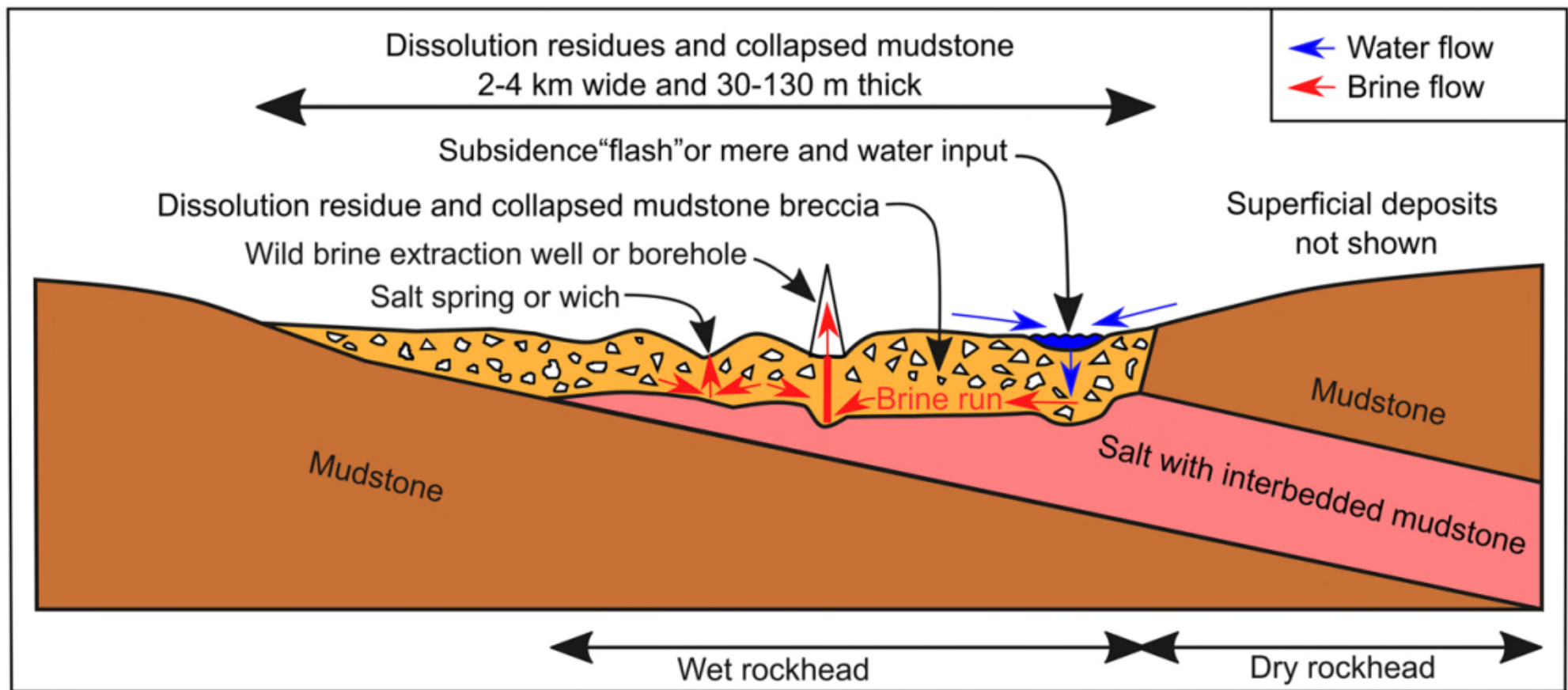
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No	Statement(s), depositions(s) and documents(s)	Statement Date	Page
1	Lach Dennis PC Presentation(A23)	12-04-23	2-18

LACH DENNIS AND LOSTOCK GREEN PARISH COUNCIL
PETITION NO: HS2-P2B-011
PRESENTATION TO SELECT COMMITTEE 17TH APRIL 2023

Cllr Simon Hayes
Dr Rosalind Todhunter





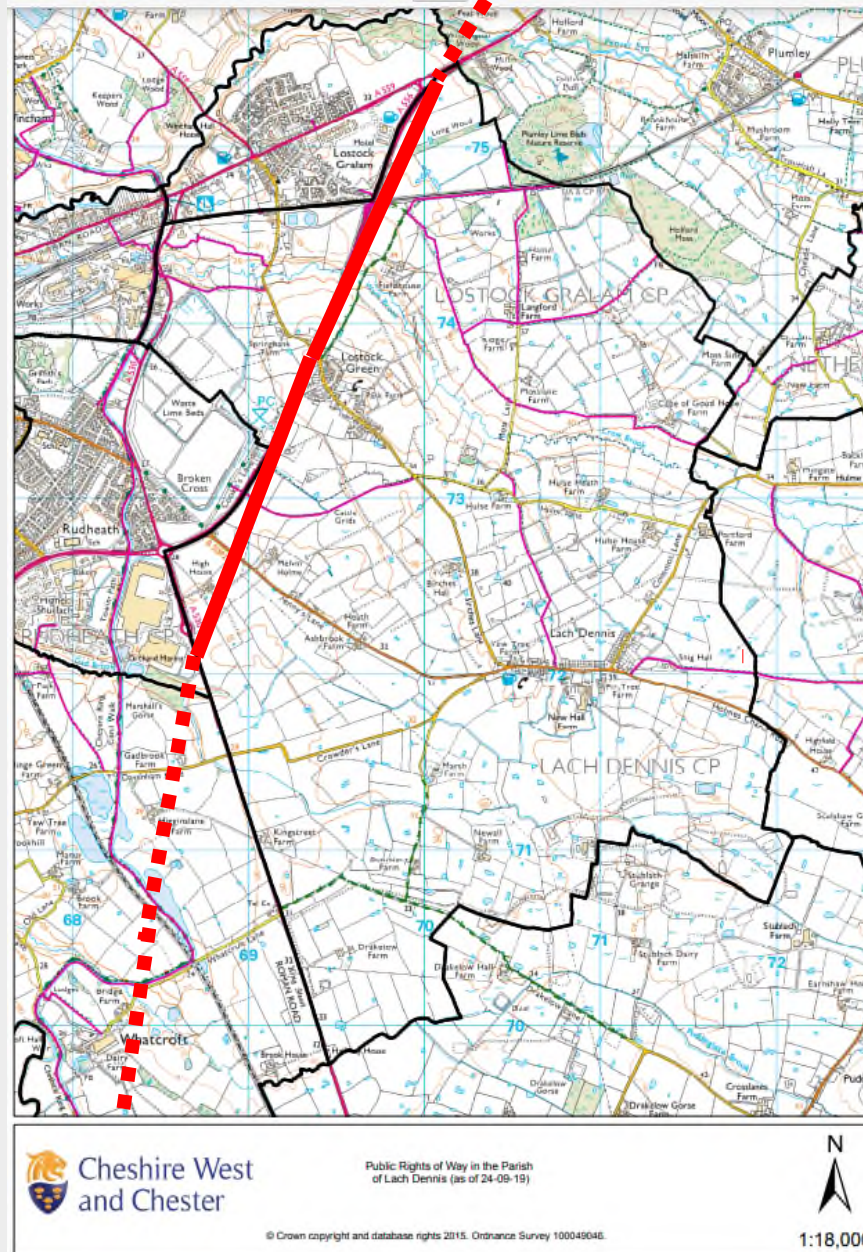
Serridge, Colin J; **Cooper, Anthony H.** 2022 Natural and anthropogenic halite karst subsidence in north Cheshire, UK; comparison of Rostherne Mere, Melchett Mere, Tatton Mere and their surroundings. *Quarterly Journal of Engineering Geology and hydrogeology*. <https://doi.org/10.1144/qjegh2022-081>

Fig. 3. Relationship between 'wet rockhead' and 'dry rockhead' BGS © UKRI (after Cooper 2020).

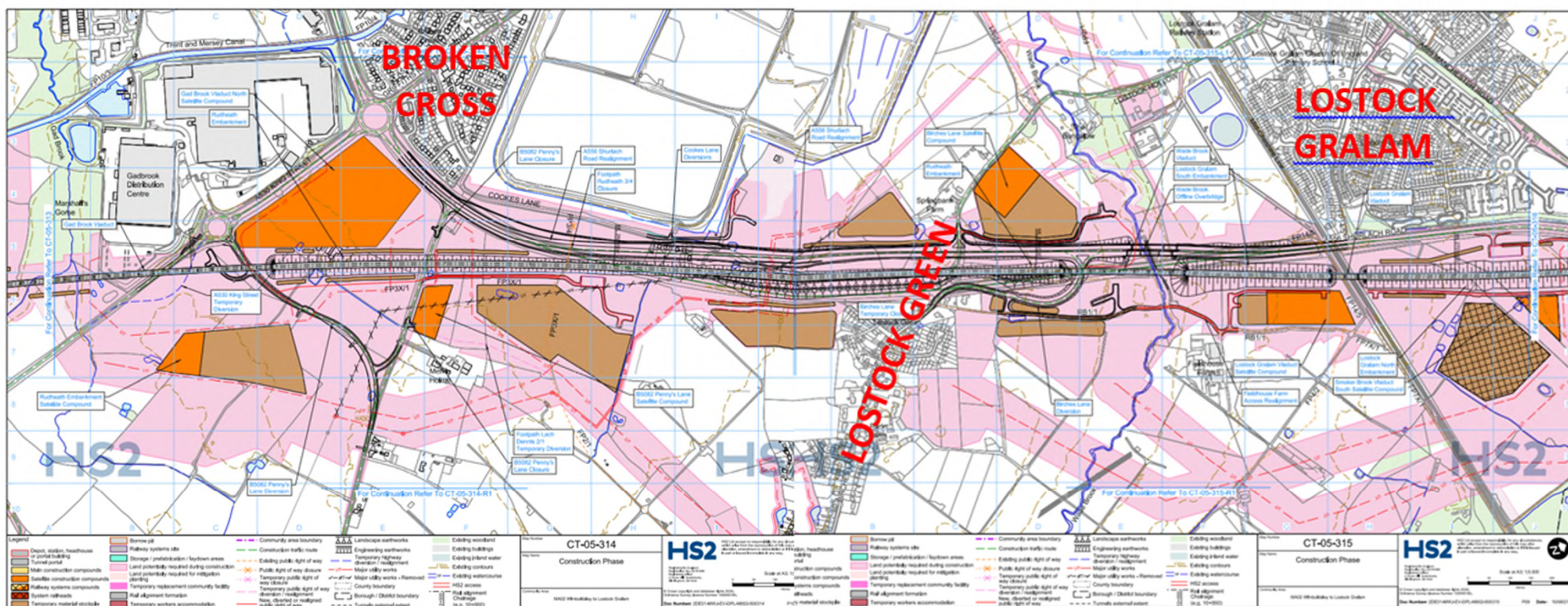
LACH DENNIS AND LOSTOCK GREEN PARISH COUNCIL

 HS2 2b within LDLGPC

 HS2 2b adjacent LDLGPC



Base plan CWAC PROW 24-09-19



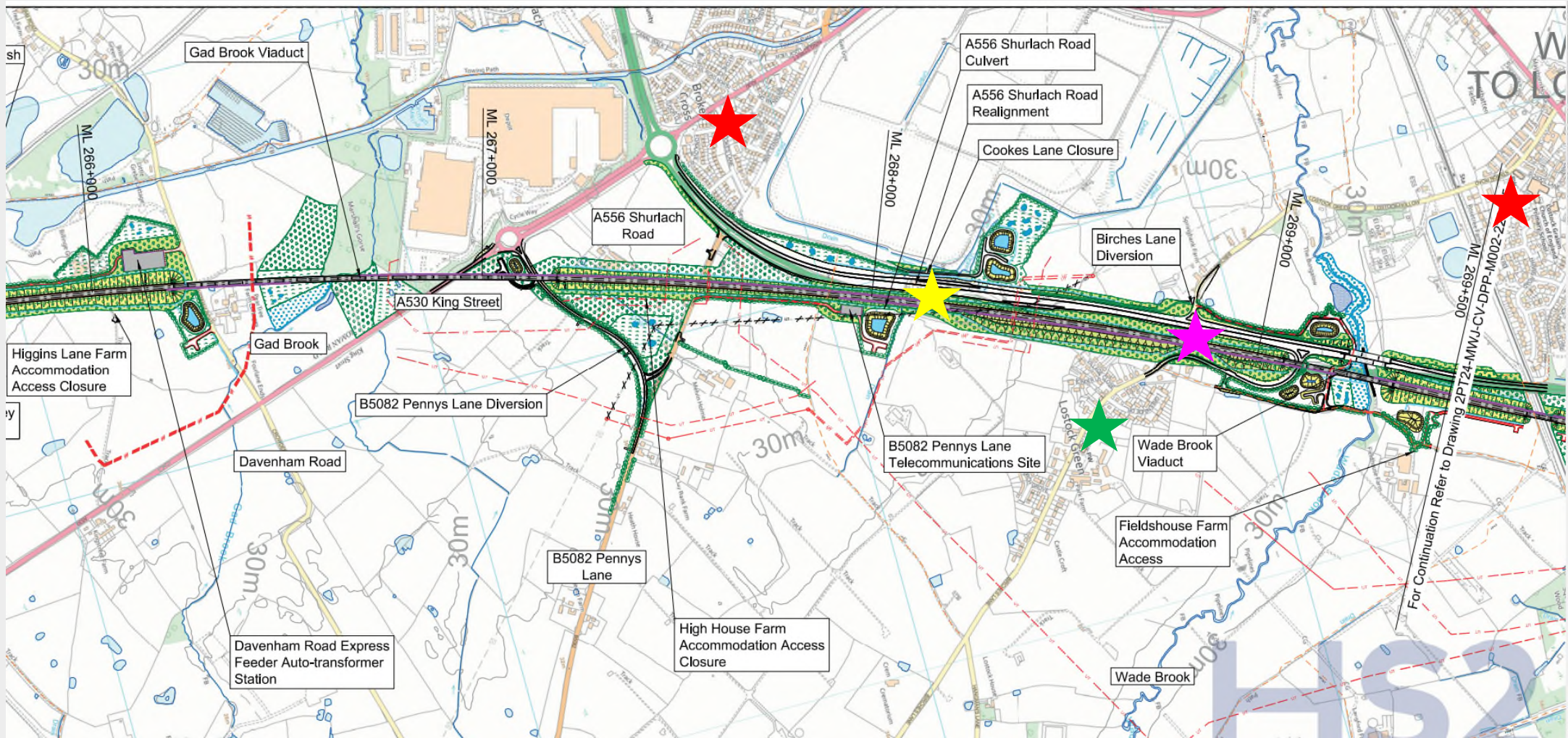
Vol 2 Community Area Map Book MA02 CT-05-314

Vol 2 Community Area Map Book MA02 CT-05-315

In the area between Gadbrook Park and Lostock Triangle A559 Manchester Road/ A556 Junction

- 7 to 9 civil engineering satellite construction compounds
- 7 large temporary material stock piles
- 13 smaller temporary material stock piles
- Broken Cross, Lostock Green and Lostock Gralam residential areas abutting and very close pink shaded land required during construction equivalent to a c.120 football pitches

RT 14/03/22



https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1050014/2D_E01-MWJ-CV-DPP-M002-220054_watermarked.pdf
 Annotations: R Todhunter April 2023

M2 Hough to Bamfurlong
Plan & Profile Sheet 4 of 6
Chainage 263+500 to 269+500
Drawing Number 2PT24-MWJ-CV-DPP-M002-220054
Date 27/08/2021



HS2
2013

NORTHWICH

HS2 Ltd's Appraisal of
Sustainability July 2013
'...concludes that the western leg
would not sterilise any
designated mineral reserves.'

HS2
2017

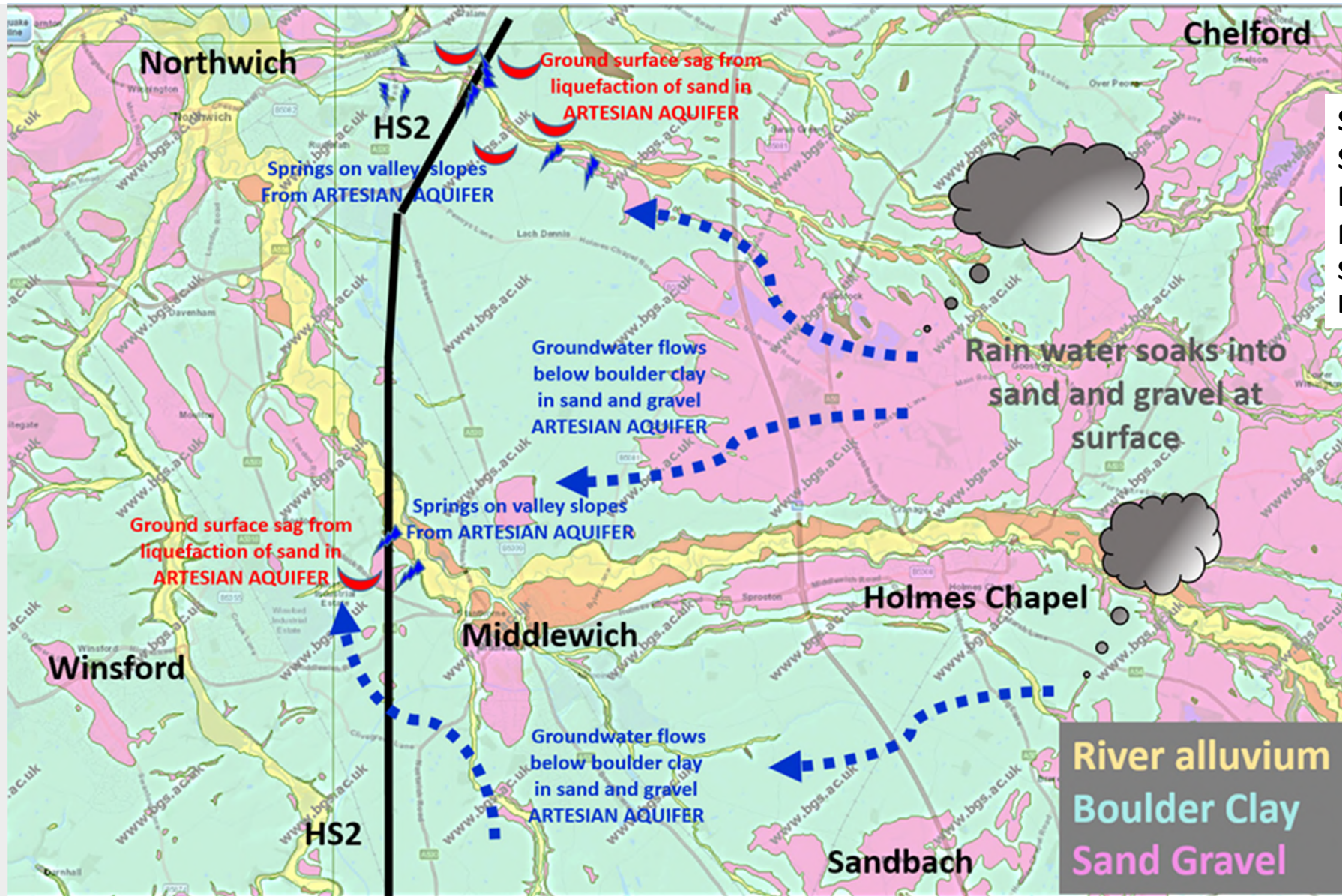
2017 HS2 route changed
'...to avoid brining and gas
storage infrastructure.'
Chris Grayling

WINSFORD

MIDDLEWICH

● H148 **Solution Mining**
★ **Gas Storage**
★ **Rock Salt Mining**

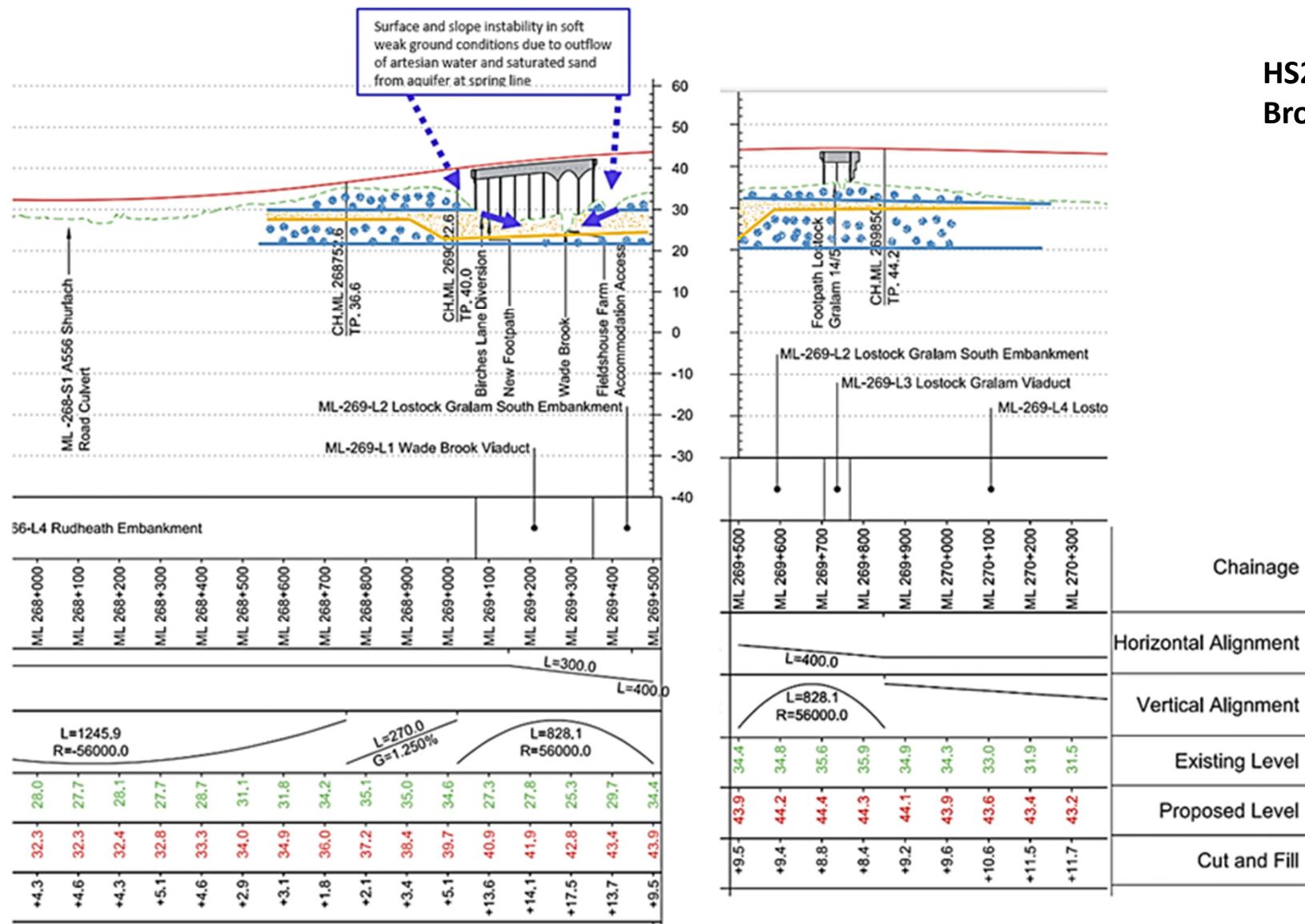
Lach Dennis and Lostock
Green Parish Council Area



Superficial (Drift)
Surface Geology and
Hydrogeological
Model for Ground
Subsidence, Slope
Instability

Base map: https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.7247474.1576123774.1656518458-622949324.1635698687 Annotations: R Todhunter 2019 – 2022

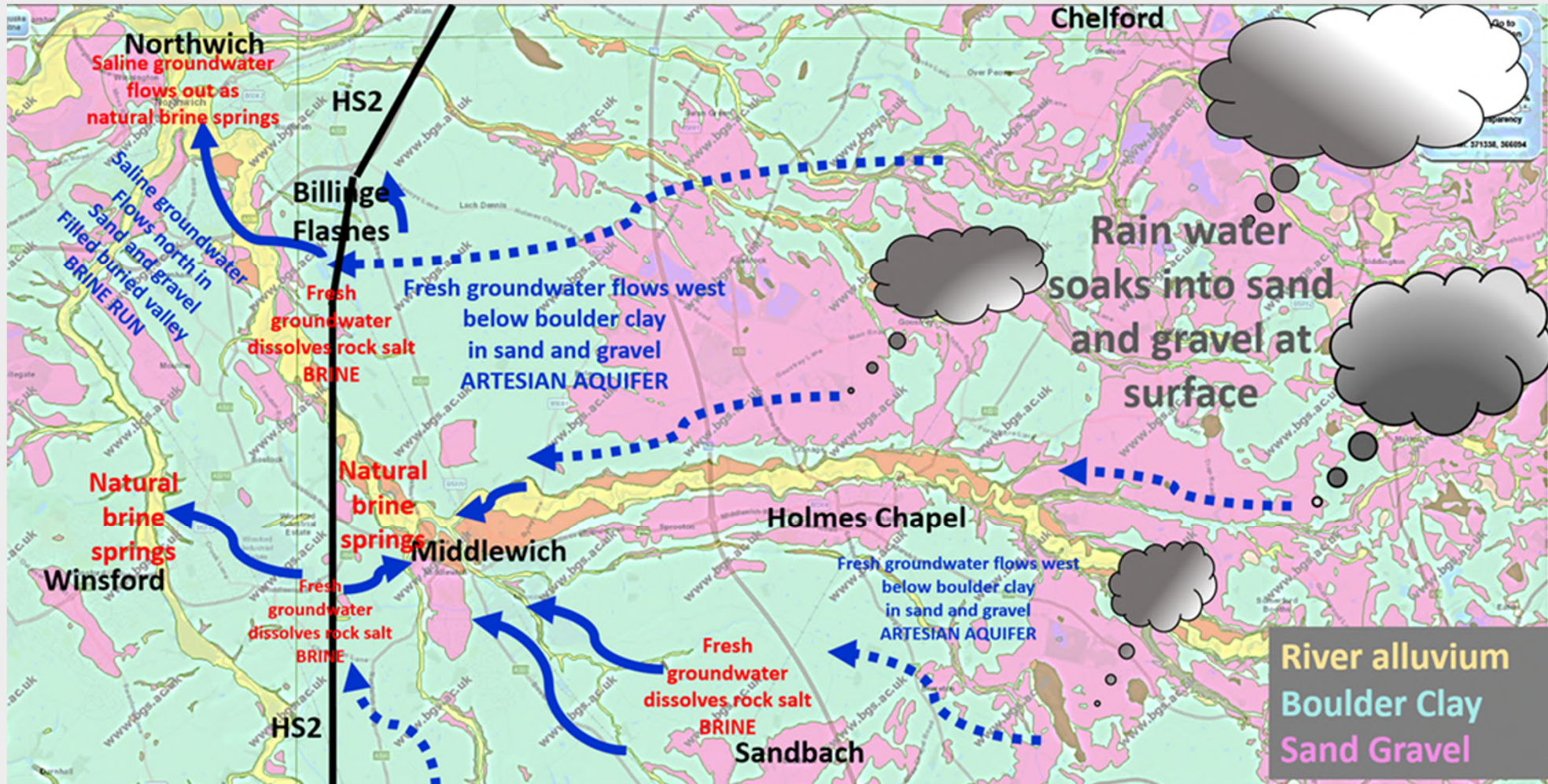
HS2 2b Wade Brook Viaduct



Base Image: HS2 Ltd cross-sections: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1050015/2DE01-MWJ-CV-DPP-M002-220055_watermarked.pdf,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1050014/2DE01-MWJ-CV-DPP-M002-220054_watermarked.pdf

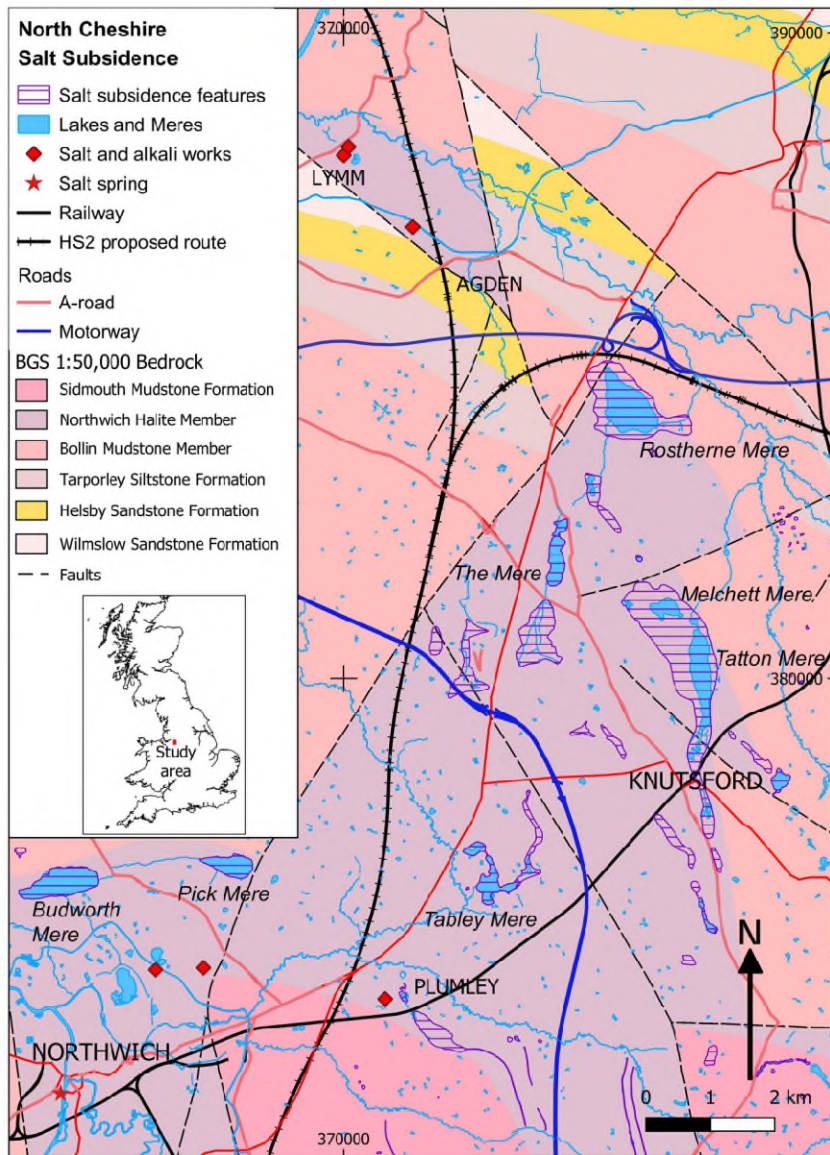
Annotations: R Todhunter 2022 from own field observations and British Geological Survey <https://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Superficial (Drift) Surface Geology and Hydrogeological Model Billinge Flashes to Northwich Brine Run



Base map: https://mapapps.bgs.ac.uk/geologyofbritain/home.html?&_ga=2.7247474.1576123774.1656518458-622949324.1635698687

Annotations: R Todhunter 2019 – 2022



Brine pumping and implications

.....**Tatton Park records**, plus maps, aerial photographs and LiDAR information, show how the **natural salt subsidence areas have enlarged over time**; features such as **Melchett Mere** that are **demonstrably of anthropogenic origin** as a result of brine pumping especially during the late 1920s to 1940s.

..... brine pumping took place to a large extent at Plumley, 7.3 km from Melchett Mere (Historic England 2018), and Northwich, 9–10 km to the SW, most probably fed by brine runs along the wet rockhead

.....brine runs develop over distances of at least 9 km (such as between Crewe and Middlewich; Cooper 2020) linking up via natural dissolution and subsidence features.

..... last wild brine extraction was near Northwich, some 9 km from Melchett Mere,ceased on the closure of New Cheshire Salt in 2006. It is unclear exactly where this factory was drawing the brine from.

The question remains as to whether and where brine runs cross the route of the proposed HS2 railway and if potentially unstable ground exists along the route in this area'

Serridge, Colin J; **Cooper, Anthony H.** 2022 Natural and anthropogenic halite karst subsidence in north Cheshire, UK; comparison of Rostherne Mere, Melchett Mere, Tatton Mere and their surroundings. *Quarterly Journal of Engineering Geology and hydrogeology*. <https://doi.org/10.1144/qjegh2022-081>

From: 'Salt in Cheshire' by Albert Calvert

1915

Brine pumping ceased about 2007

But ground subsidence still ongoing

So brine run still active

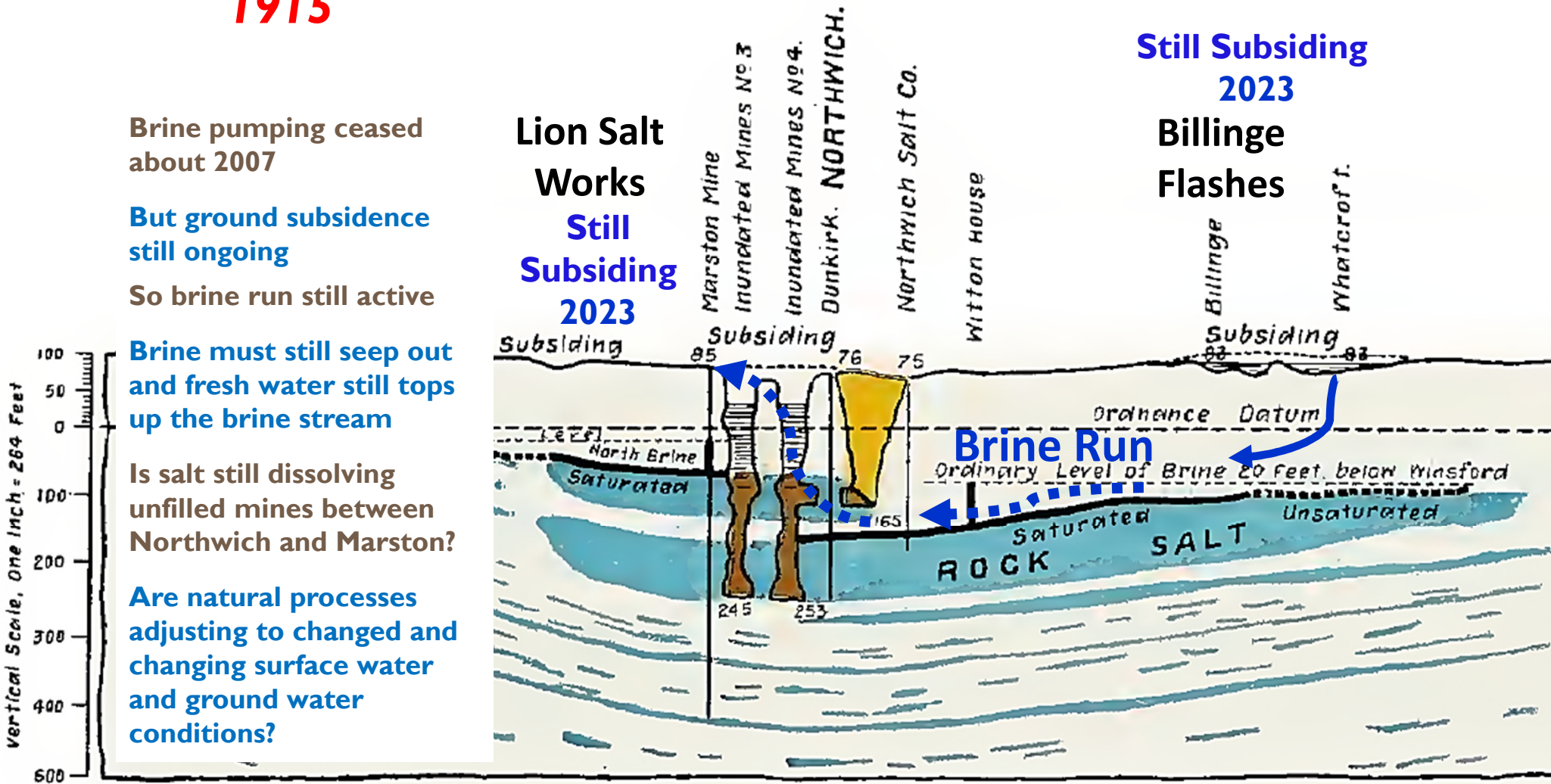
Brine must still seep out and fresh water still tops up the brine stream

Is salt still dissolving unfilled mines between Northwich and Marston?

Are natural processes adjusting to changed and changing surface water and ground water conditions?

Lion Salt Works
Still Subsiding
2023

Still Subsiding
2023
Billinge
Flashes



[https://openlibrary.org/books/OL24155819M/Salt in Cheshire](https://openlibrary.org/books/OL24155819M/Salt_in_Cheshire)

Annotations R Todhunter 2023



Keele Uni monitoring canal bank movement 20 + years
Cavity migrating towards the surface
Maximum at mine margins under the canal

Concerns re Safety and Ground Stability linking Northwich and Billinge Green / HS2 route

SALT MINING AND BRINING

19th century onwards

Uncontrolled bastard brining from collapsed flooded mines

Uncontrolled wild brine pumping

Increased development brine runs / streams

Increased ground collapse

Water levels Billinge Flashes dropped

'Great Subsidence' 1880

Salt mines collapsed Marston Northwich

Hydraulic connectivity ?

Billinge Flashes sink holes to Marston ?

New Cheshire Salt Works

Last Wild Brine Pumping stopped c 2007

Billinge Flashes still sinking

Is brine stream still running?

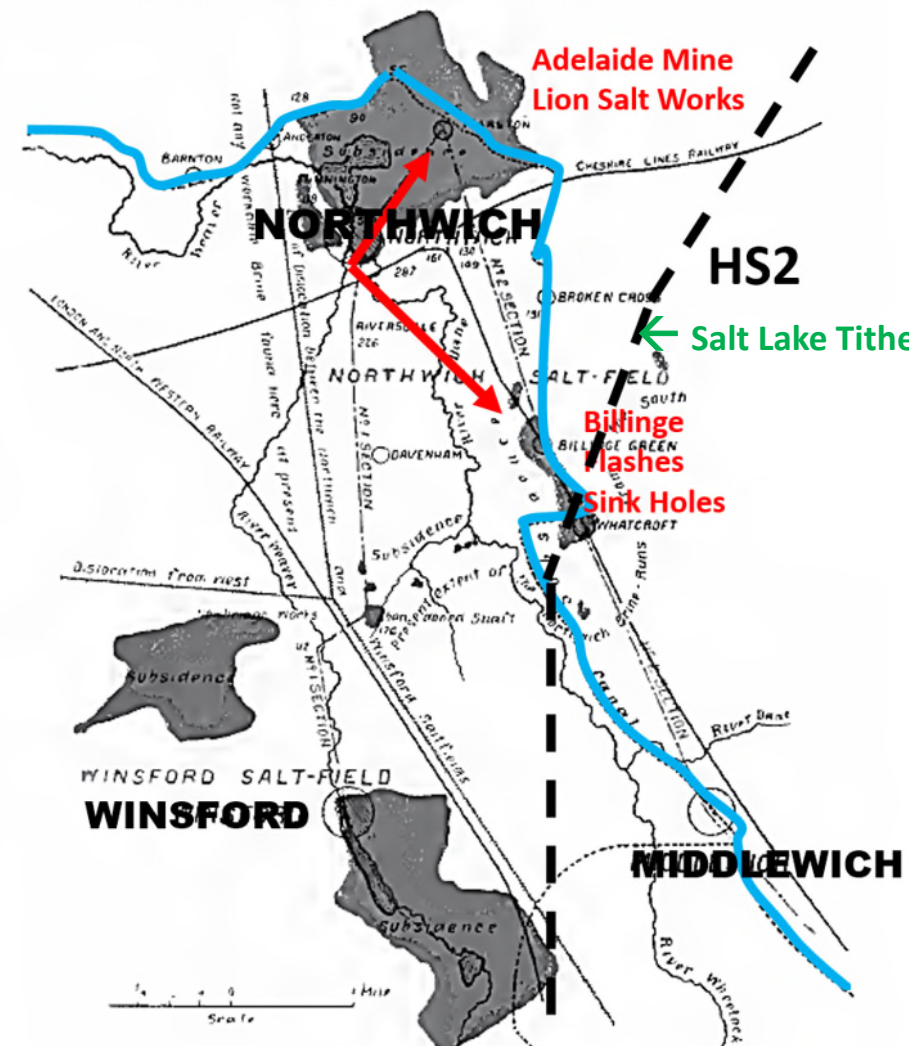
Map From: 'Salt in Cheshire' by Albert Calvert Published 1915

https://openlibrary.org/books/OL24155819M/Salt_in_Cheshire

Annotations R Todhunter 2019 -2022

KEY PLAN OF THE NORTHWICH AND WINSFORD SALT FIELDS.

Land with Subsidence



Salt Lake Tithe Map c. 1841

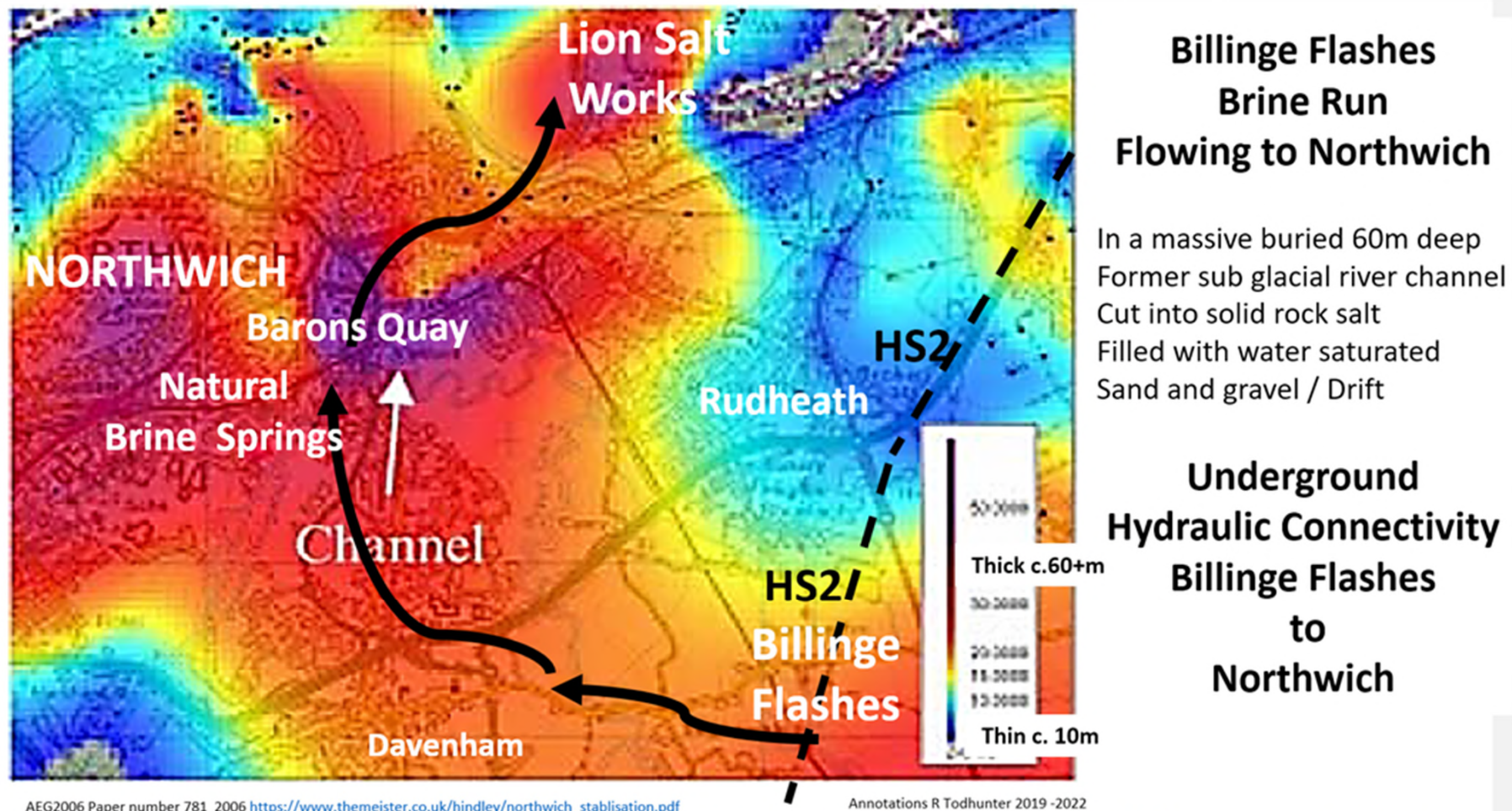


Figure 2. Drift thickness (courtesy British Geological Survey 2004)

Base Image: AEG2006 Paper number 781 2006 https://www.themeister.co.uk/hindley/northwich_stabilisation.pdf
 Annotations: R Todhunter 2019 -2022

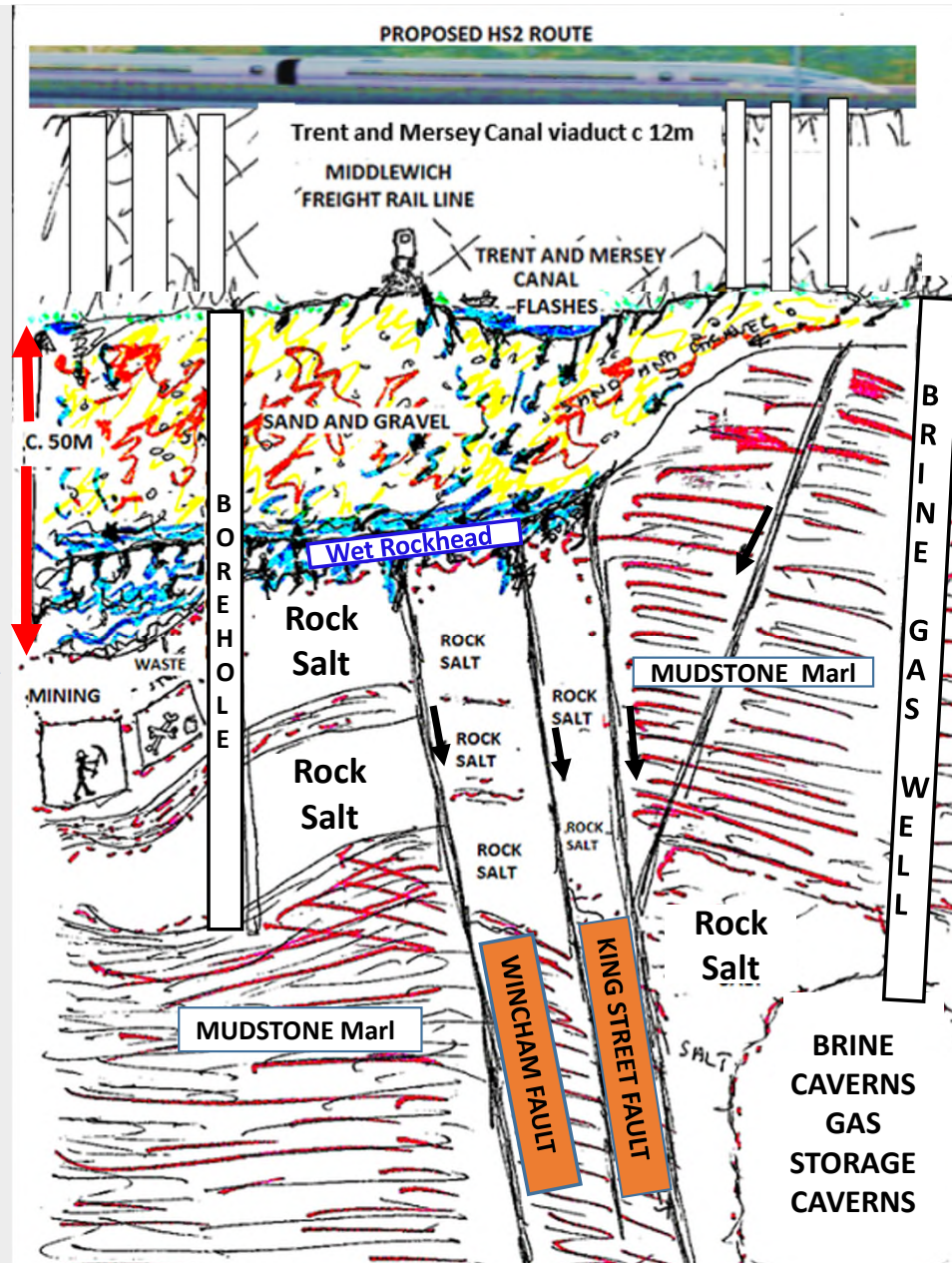
BILLINGE FLASHES

Regionally Important
Geodiversity Site

TUNNEL VALLEY
Brine Run

Geological Model

R Todhunter 2016 - 2023



Convergence
Many Features
Of Potential
'Very High'
Hazard

As per
Salt Solution Subsidence
Assessment
British Geological Survey