

Alternative LTC Route Proposal  
(submitted by Robin Beard)

Please find attached my submission of an alternative route for the Lower Thames Crossing.

Most of this submission consists of annotated maps, which go into detail on the various differences between my own design, and that of the officially proposed route submitted by National Highways themselves. I hope that my annotations will be easy enough to understand – but for the purposes of clarity, the maps are as follows:

Map 01 – an outline of National Highways' proposal, and some of its shortcomings;

Map 02 – an outline of my own route, and some of its advantages;

Map 03 – comparison between how the two routes connect the LTC to the A13 eastbound;

Map 04 – comparison between how the two routes connect the A13 westbound to the LTC;

Map 05 – comparison between how the two routes connect the LTC to the A1089 southbound;

Map 06 – comparison between how the two routes connect the A1089 northbound to the LTC;

Map 07 – comparison showing how many other roads need to be re-aligned to build each route;

Map 08 – detail on a potentially dangerous road, contained within National Highways' design;

Map 09 – detail of the Orsett Fen, showing how the two routes deal with the risk of flooding;

Map 10 – detail of the proposed junction at Tilbury, & advocating for the Tilbury Link Road

Map 11 – an alternative version of my route, just in case my original proposal causes weaving;

Map 12 – an improved version of my route, providing free-flowing access to and from the east;

Map 13 – the ultimate version of my route, providing free-flowing access for both east and west.

In addition to these maps, there is one other point that I would like to make: that although National Highways considered a great many route options for the LTC, **at no point did they ever consider the route that I am suggesting!** Submission 7.2, the Planning Statement, outlines in detail how National Highways sought to whittle down the various routes, in order to find the one that would meet the scheme's objectives the best... but they somehow managed to overlook my route entirely, which is tragic, because it seems to me to be the obvious best choice!

Some of the routes that they considered did overlap with mine in places (for example route C5, as shown in Plate 5.4 of the Planning Statement, as well as route C18, from Plate 5.9 of the Planning Statement, and of course Route 4, as put forward during the 2016 Public Consultation). However, none of these routes were the same as mine... and they were all ultimately disqualified because of flaws that they had elsewhere along their routes, the parts that overlapped with my suggested route were always beyond reproach!

National Highways then made sure to re-evaluate all of their routes at various stages throughout the

development process, to make sure that the route they were using was still the best one available... but section 5.14.4 of submission 4.1, the Statement of Reasons, clearly shows that when they did this, they only ever considered "all the options previously presented"... which of course **did not include my route**, since it was never on the table! And so they just kept re-examining the same lacklustre routes, over and over, and concluded each time that the one they had chosen was still the best route there was... when in fact there was a better route right under their noses the whole time, and they just never noticed!

I think this represents a major oversight on the part of National Highways, and it casts doubt over the entire route selection process... but what makes it even worse is that I suggested my route to them in 2018, at the Public Consultation that year, and I was told that it was too late for them to make such a major change to the design... they seemed somewhat interested in my suggestion, but they simply did not have the authority to change the route at that point.

In essence, because my route was not considered early on, it was effectively 'locked out' of the whole process, and could not be considered at a later date, even if it turned out to be the superior choice! And so, because of an oversight a decade ago, the design for the Lower Thames Crossing was doomed from the start... but don't take my word for it, look at my maps and judge for yourself!

Map 01 - Route chosen by National Highways

The Mardyke →

Manorway Roundabout →

Orsett Cock Roundabout →

Over here in orange is the official route for the LTC, as selected by National Highways.

Approaching from the west, it turns south as it crosses the Mardyke, which means it goes straight across the middle of the Orsett Fen, an area of low-lying land prone to flooding. (For a close-up of this section, see Map 09.)

The road then continues south, passing just to the west of Orsett, where it crosses paths with both the A13 and A1089. This is where National Highways would like to build their new junction; but constrained as it is by the existing road network, any junction built at this location will also require a multitude of mile-long link roads, stretching through the fields to the south of Orsett and beyond, all the way to the Orsett Cock roundabout.

Building the junction here would also mean re-aligning several slip roads & local roads, as well as demolishing 12 houses (3 of those being Grade II listed buildings), & leaving numerous other homes uncomfortably close to the road - some literally in the shadow of the junction. The nearby Travellers' camp, & at least a dozen electricity pylons, would need to be demolished and rebuilt, too...





**Map 02 - My proposal for an alternative route**

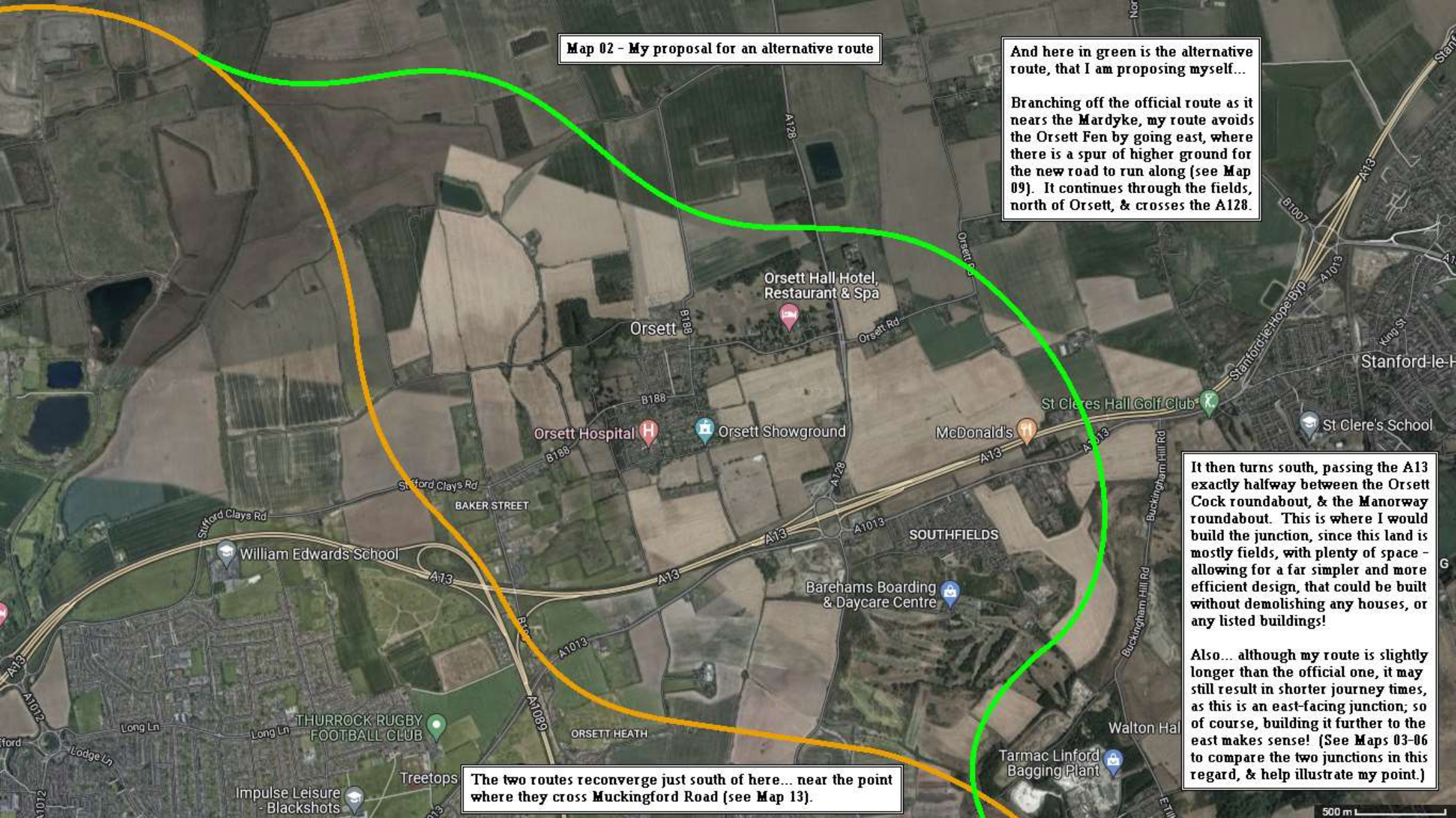
And here in green is the alternative route, that I am proposing myself...

Branching off the official route as it nears the **Mardyke**, my route avoids the Orsett Fen by going east, where there is a spur of higher ground for the new road to run along (see **Map 09**). It continues through the fields, north of Orsett, & crosses the A128.

It then turns south, passing the A13 exactly halfway between the Orsett Cock roundabout, & the Manorway roundabout. This is where I would build the junction, since this land is mostly fields, with plenty of space - allowing for a far simpler and more efficient design, that could be built without demolishing any houses, or any listed buildings!

Also... although my route is slightly longer than the official one, it may still result in shorter journey times, as this is an east-facing junction; so of course, building it further to the east makes sense! (See **Maps 03-06** to compare the two junctions in this regard, & help illustrate my point.)

The two routes reconverge just south of here... near the point where they cross **Muckingford Road** (see **Map 13**).





Map 03 - LTC connections to A13 Eastbound

Seen here in yellow are the link roads joining the LTC, both north & southbound, to the A13 eastbound, as officially proposed by National Highways. Taken together, they represent at least 2 miles of tarmac - and since this location is so far to the west, all of the vehicles hoping to turn east would have to travel for miles out of their way in order to do so...

In particular, any traffic approaching from the new tunnel which hopes to use this junction to turn east, must first drive west, beyond Orsett, before using this slip road to loop around and double-back on itself, a detour of 3.5 miles!

Lying to the north of the junction, these houses would end up being in its shadow; the sun never rises very high in the winter, and even when it did crest the embankment, it would be eclipsed every time a vehicle drove past. & this strobe effect would last for weeks...

My own route would connect to the A13 in all the same ways as the junction submitted by National Highways, but with a radically smaller footprint; as shown here in yellow, vehicles from the LTC both north & south could access the A13 eastbound with ease.

& as this location is further to the east, it is also much more convenient for the drivers who wish to use it, reducing journey times, emissions, noise, etc etc.

Incidentally, the existing slip road over here, that connects the A1089 northbound to the A13 eastbound, has a similar looping design... but it also has a 30 mph speed limit, since lorries going any faster might tip over! So, will the looping slip road proposed by National Highways suffer from the same flaw?!

When I asked them, at one of the Public Consultations, I was assured that their loop is indeed safe - and I hope it is, as I have used exactly the same loop in my own design! But, as my route is out in the fields, there is plenty of room to give my slip roads a wider radius, if that would make them safer... whereas the official route, constrained as it is by the existing road network, does not have that luxury.



Map 04 - A13 Westbound connections to LTC

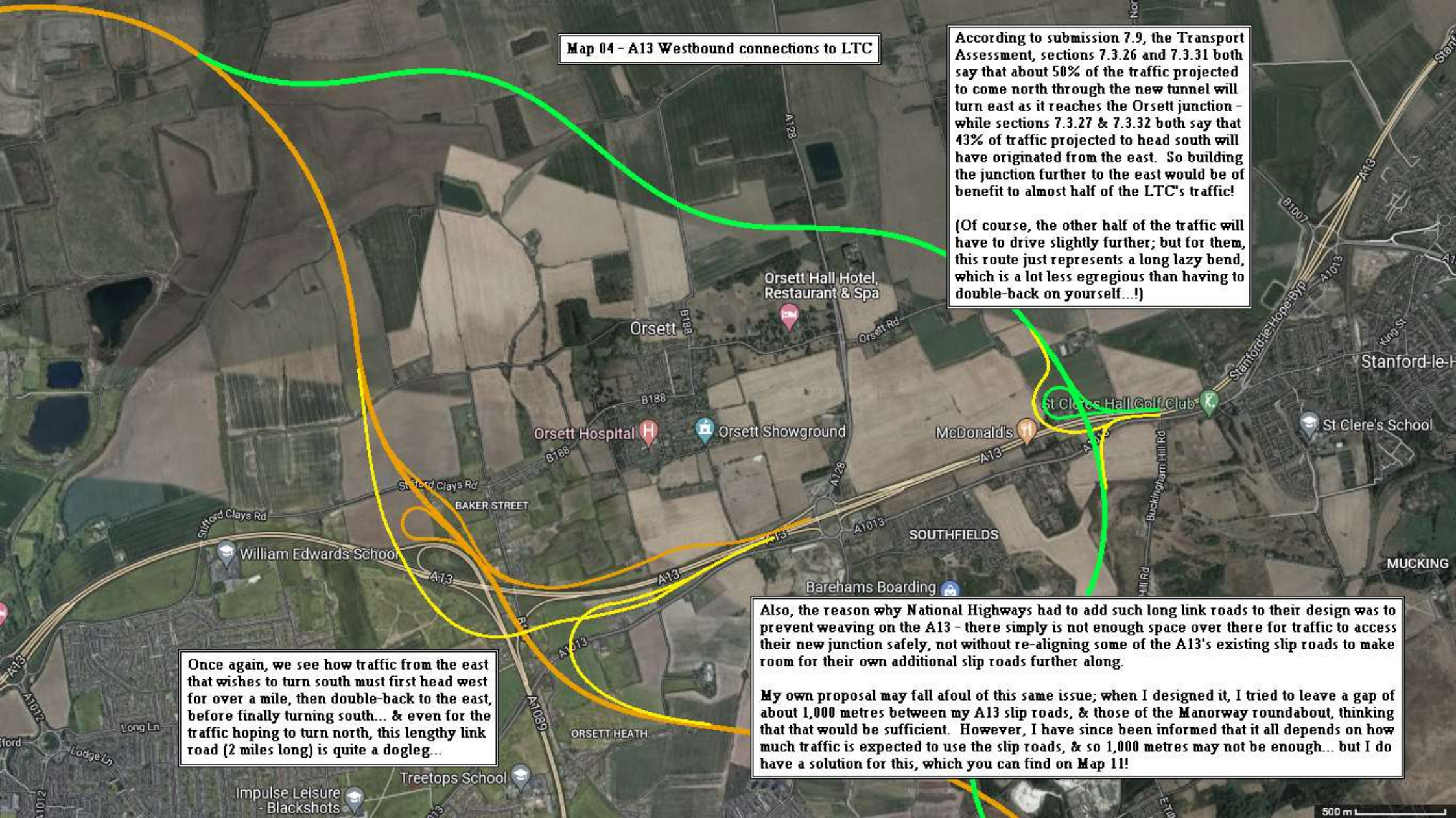
According to submission 7.9, the Transport Assessment, sections 7.3.26 and 7.3.31 both say that about 50% of the traffic projected to come north through the new tunnel will turn east as it reaches the Orsett junction - while sections 7.3.27 & 7.3.32 both say that 43% of traffic projected to head south will have originated from the east. So building the junction further to the east would be of benefit to almost half of the LTC's traffic!

(Of course, the other half of the traffic will have to drive slightly further, but for them, this route just represents a long lazy bend, which is a lot less egregious than having to double-back on yourself...!)

Once again, we see how traffic from the east that wishes to turn south must first head west for over a mile, then double-back to the east, before finally turning south... & even for the traffic hoping to turn north, this lengthy link road (2 miles long) is quite a dogleg...

Also, the reason why National Highways had to add such long link roads to their design was to prevent weaving on the A13 - there simply is not enough space over there for traffic to access their new junction safely, not without re-aligning some of the A13's existing slip roads to make room for their own additional slip roads further along.

My own proposal may fall afoul of this same issue; when I designed it, I tried to leave a gap of about 1,000 metres between my A13 slip roads, & those of the Manorway roundabout, thinking that that would be sufficient. However, I have since been informed that it all depends on how much traffic is expected to use the slip roads, & so 1,000 metres may not be enough... but I do have a solution for this, which you can find on Map 11!





Map 05 - LTC connections to A1089 Southbound

My own route provides access from the LTC (in both directions) via this satellite junction, here - the traffic joins the A128 going south, ending up at the Orsett Cock roundabout. In this way, it is no different to the official design... although my design joins the roundabout one exit later, so it wouldn't cause quite as much congestion. (Also, my design does not sever the A13's existing slip road, either - so that traffic can keep away from the Orsett Cock roundabout, as well.)

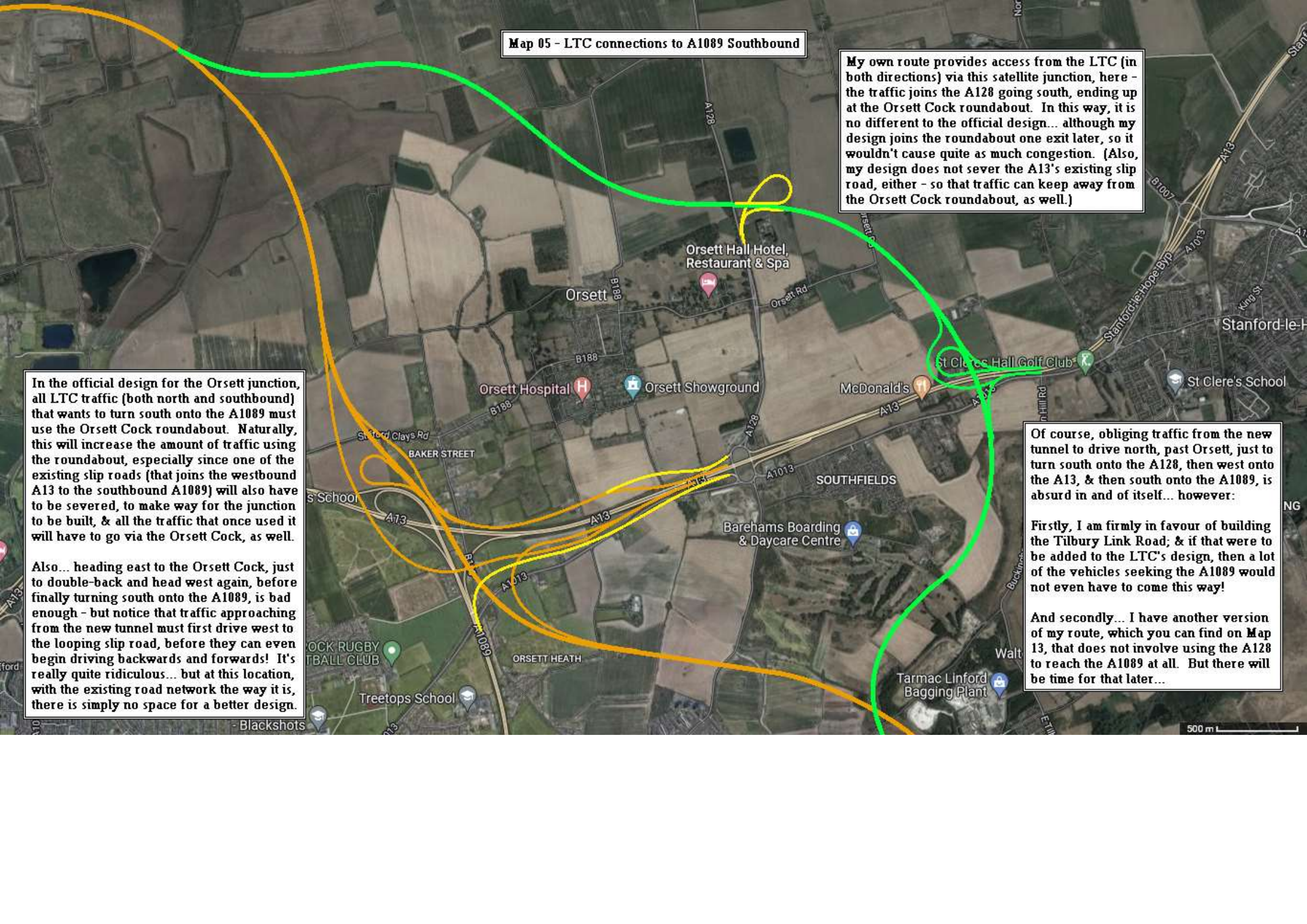
In the official design for the Orsett junction, all LTC traffic (both north and southbound) that wants to turn south onto the A1089 must use the Orsett Cock roundabout. Naturally, this will increase the amount of traffic using the roundabout, especially since one of the existing slip roads (that joins the westbound A13 to the southbound A1089) will also have to be severed, to make way for the junction to be built, & all the traffic that once used it will have to go via the Orsett Cock, as well.

Also... heading east to the Orsett Cock, just to double-back and head west again, before finally turning south onto the A1089, is bad enough - but notice that traffic approaching from the new tunnel must first drive west to the looping slip road, before they can even begin driving backwards and forwards! It's really quite ridiculous... but at this location, with the existing road network the way it is, there is simply no space for a better design.

Of course, obliging traffic from the new tunnel to drive north, past Orsett, just to turn south onto the A128, then west onto the A13, & then south onto the A1089, is absurd in and of itself... however:

Firstly, I am firmly in favour of building the Tilbury Link Road; & if that were to be added to the LTC's design, then a lot of the vehicles seeking the A1089 would not even have to come this way!

And secondly... I have another version of my route, which you can find on Map 13, that does not involve using the A128 to reach the A1089 at all. But there will be time for that later...





Map 06 - A1089 Northbound connections to LTC

These are the only connections that are undeniably better than my own design...

A1089 traffic that wants to head north on the LTC can do so with ease, as there is direct access via this link road here; and it could scarcely be a straighter route!

The connection linking the A1089 to the LTC southbound is not quite so direct... once again, vehicles must drive north to Orsett before doubling back, & heading south. But at least access IS provided!

However... because this is the only way for local traffic to reach the LTC, it will inevitably lead to more traffic using the A1089, & thus more vehicles funnelling through the tiny junction halfway along the A1089 (see Map 13)...

My proposal would provide access for northbound traffic from the A1089 to reach the LTC via this satellite junction on the A128... but to reach it, vehicles would need to first join the A13 & drive to the Orsett Cock roundabout, then turn left onto the A128, before turning left again onto the LTC. It's a longer route than National Highways' design, & it means more traffic using the Orsett Cock roundabout as well... but at least this slip road is nice and short!

And local traffic could use the Orsett Cock roundabout to reach the LTC northbound, as well... & since northbound local traffic uses the A128 anyway, it should not lead to an increase in congestion, as nothing would really change.

And as for a connection linking the A1089 to the LTC southbound, my design has no provision for it!

However, this is not an oversight - on the contrary, I think that this just strengthens the case for the Tilbury Link Road, down near the new tunnel itself. (And for more details on this topic, see Map 10.)

In submission 7.17, 'Interrelationship with other Nationally Significant Infrastructure Projects', section 6.5.5 says that, thanks to the improved access provided by the new A13 junction, a Tilbury Link Road was no longer deemed necessary. But, my route does not provide such access, at least not to the southbound LTC... so, perhaps that Tilbury Link Road is necessary, after all!



Map 07 - Existing roads requiring re-alignment

And here you see all of the existing roads that will need to be re-aligned to make way for the Orsett junction; the two slip roads on the A13 shown in yellow, and all of the other, local roads being shown in blue.

This map really highlights the sheer scale of this proposed junction, and yet it still does not even show all of the embankments required to carry these roads over each other; by my count, there are at least 20 separate bridges included in this design, and a handful of box-jacked tunnels too.

The end result is a complicated and expensive tangle of link roads, with the existing road network imposing compromises at every turn...

Incidentally, I have concerns about this section of road, just here... see Map 08.

My route does pass through two holes of this golf course, & I assume both services on the A13 would have to be demolished, too... also, it would be necessary to relocate at least one electricity pylon, as well as re-aligning these three local roads. But that's it! And because my route avoids major residential areas, only about a dozen houses should even be within 200 metres of the new road, with none within 50 metres of it... and of course, none need to be demolished either. My route also threads its way through this gap in the trees, in order to not uproot any... seriously, I really did try to find the best possible route!





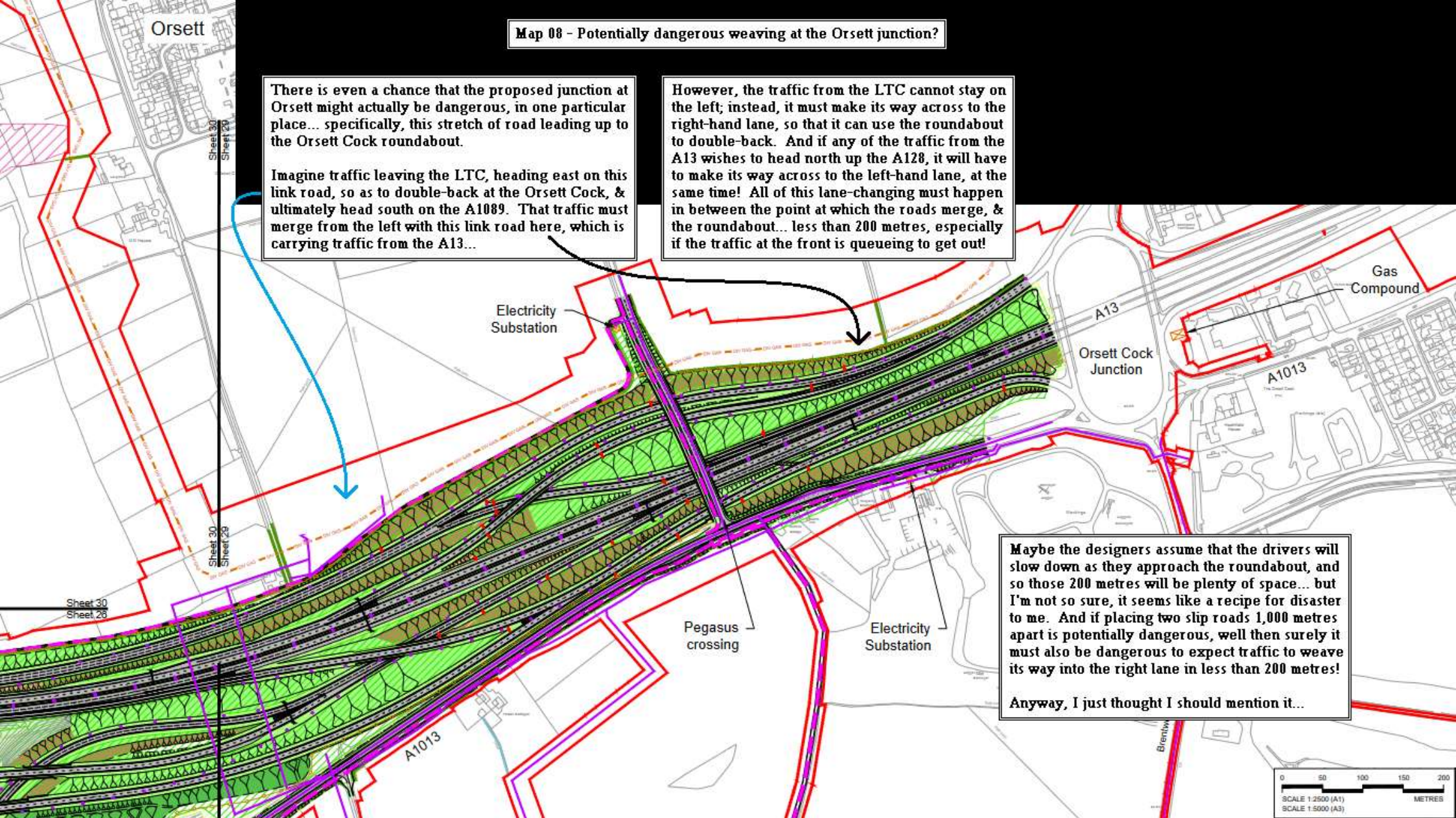
Orsett

**Map 08 - Potentially dangerous weaving at the Orsett junction?**

There is even a chance that the proposed junction at Orsett might actually be dangerous, in one particular place... specifically, this stretch of road leading up to the Orsett Cock roundabout.

Imagine traffic leaving the LTC, heading east on this link road, so as to double-back at the Orsett Cock, & ultimately head south on the A1089. That traffic must merge from the left with this link road here, which is carrying traffic from the A13...

However, the traffic from the LTC cannot stay on the left; instead, it must make its way across to the right-hand lane, so that it can use the roundabout to double-back. And if any of the traffic from the A13 wishes to head north up the A128, it will have to make its way across to the left-hand lane, at the same time! All of this lane-changing must happen in between the point at which the roads merge, & the roundabout... less than 200 metres, especially if the traffic at the front is queueing to get out!



Maybe the designers assume that the drivers will slow down as they approach the roundabout, and so those 200 metres will be plenty of space... but I'm not so sure, it seems like a recipe for disaster to me. And if placing two slip roads 1,000 metres apart is potentially dangerous, well then surely it must also be dangerous to expect traffic to weave its way into the right lane in less than 200 metres!

Anyway, I just thought I should mention it...





Map 09 - The Orsett Fen



Here is a map taken from Appendix 14.6, Part 9 Annex F, of the 6.3 Environmental Statement, that shows the results of the Flood Risk Assessment for the Mardyke & Orsett Fen area, as carried out by National Highways themselves. (Specifically, this is map 38 of 38, from right near the start of the document).

The green and yellow patches indicate the land that is at risk of flooding; and where the LTC crosses this region, the designers have seen fit to elevate the road above ground level, to ensure that it will remain high & dry at all times. But as you can see, in order to accomplish this, their design requires the construction of 3 embankments, and 2 viaducts, each of which is hundreds of metres long... with the total length of the elevated section being more than a mile.

And all of this is only necessary because the route that National Highways have selected takes the LTC straight across the very middle of the Orsett Fen... it is difficult to imagine a more flood-prone route! But with the LTC approaching from the south like this, National Highways had no choice but to come this way... & so time and money must be wasted on lengthy embankments and viaducts, just to defend against the forces of nature.

And over here we see the field through which I would run the new road, with its conspicuous tongue of dry ground protruding deep into the flood risk area, almost as far as to the banks of the Mardyke itself!

If the LTC approached from the east as shown here, it would effectively cross the Mardyke's flood plain at its narrowest point, thus slashing the required length of the elevated section by at least 50%... it could save millions of pounds, & may even shave months off the construction time as well. The environmental impact would also be reduced...

(Full disclosure - the flood risk area extends off the map to the east here, where my route crosses it a second time; but it tapers to such a narrow point that it shouldn't even require a viaduct, a single bridge should suffice.)

Scenario / Flood Estimation Point	STGS
Return period (years)	1000
Climate change uplift applied (%)	48
Year	2130



**Legend**

2D model extent	Proposed LTC alignment	Maximum flood velocity (m/s)
Order Limits	Earthworks	0 - 0.25
	NMU Routes	0.25 - 0.5
		0.5 - 1.0
		1.0 - 2
		> 2.0

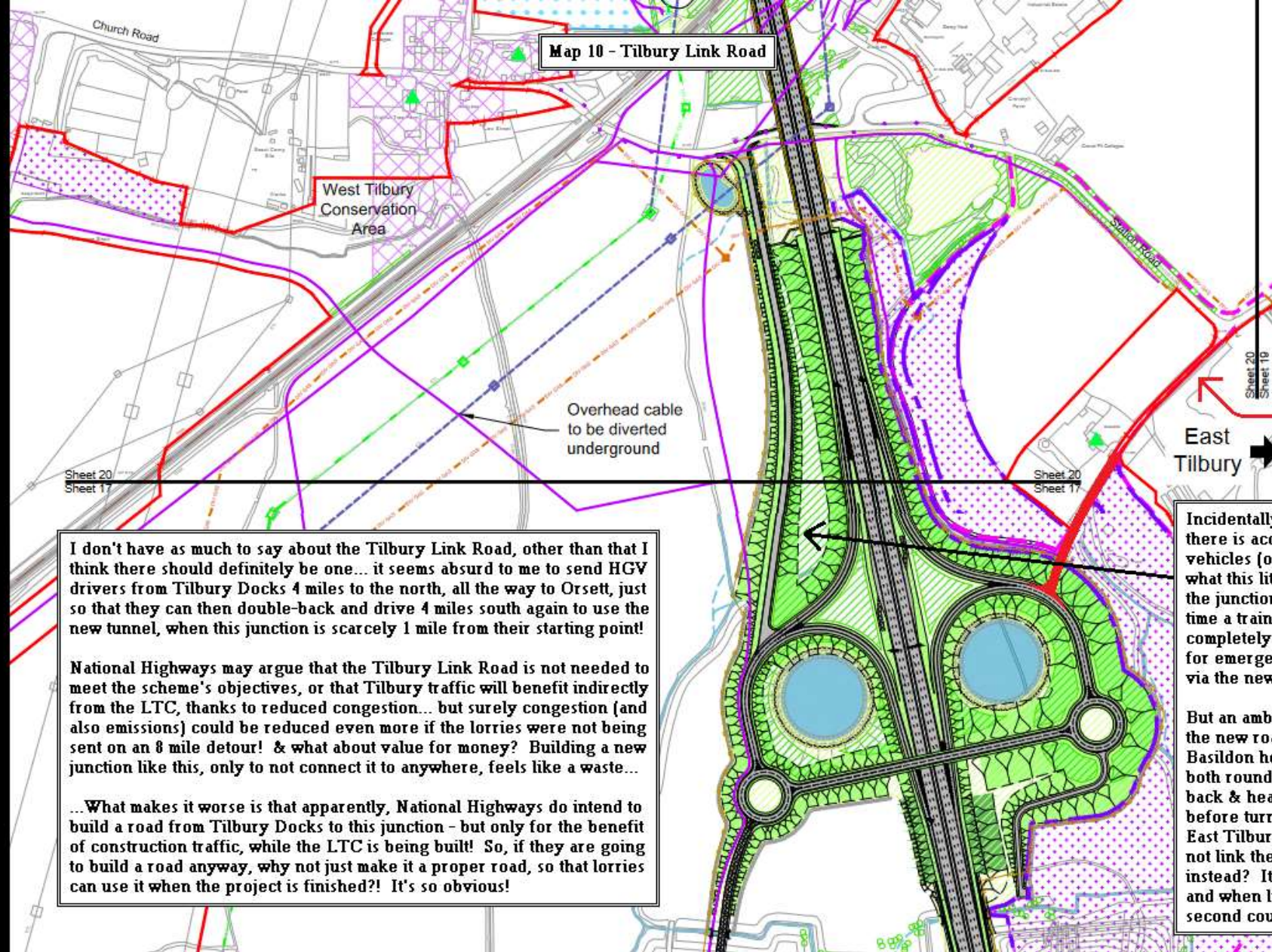


LOWER THAMES CROSSING

DCO Application	Original Size	Revision
TR010030/APP16.3	A3	P01
Project: FRA - Mardyke Modelling Results		
Maximum flood velocity		
Post-development (without mitigation)		
Sheet 38 of 38		
Drawing ID: HES40039-CJV-EFR-SZP_QNZZZZZZZ-DR-LF-00603		



Map 10 - Tilbury Link Road



I don't have as much to say about the Tilbury Link Road, other than that I think there should definitely be one... it seems absurd to me to send HGV drivers from Tilbury Docks 4 miles to the north, all the way to Orsett, just so that they can then double-back and drive 4 miles south again to use the new tunnel, when this junction is scarcely 1 mile from their starting point!

National Highways may argue that the Tilbury Link Road is not needed to meet the scheme's objectives, or that Tilbury traffic will benefit indirectly from the LTC, thanks to reduced congestion... but surely congestion (and also emissions) could be reduced even more if the lorries were not being sent on an 8 mile detour! & what about value for money? Building a new junction like this, only to not connect it to anywhere, feels like a waste...

...What makes it worse is that apparently, National Highways do intend to build a road from Tilbury Docks to this junction - but only for the benefit of construction traffic, while the LTC is being built! So, if they are going to build a road anyway, why not just make it a proper road, so that lorries can use it when the project is finished?! It's so obvious!

Incidentally, I am happy to see that there is access here for emergency vehicles (or at least, I assume that's what this little road is for, as it links the junction to Station Road). Each time a train goes by, East Tilbury is completely cut off, so having a way for emergency vehicles to reach it via the new road might save lives...

But an ambulance approaching on the new road, heading south from Basildon hospital, has to go round both roundabouts, & then double-back & head north to Station Road, before turning right to go towards East Tilbury... that's bad! So, why not link the junction to **THIS** road, instead? It's a more direct route... and when lives are at stake, every second counts.



Map 11 - My alternative route, adapted to prevent weaving...

And in case my proposed junction would cause dangerous levels of weaving on the A13, here is my solution - just don't connect it to the A13 yet!

Because my route wends its way through the fields, there is enough room to simply move the entire junction off the A13, and build a couple of link roads to connect it directly to the Manorway roundabout, instead. This, of course, may instantly disqualify it as a serious proposal... but hear me out!

For a start, all of the traffic approaching this junction from the north must be coming from the M25's Junction 29; & if that traffic turned east onto the A13, it would end up heading north-east, towards Basildon & Southend. But, any traffic at Junction 29 that wished to go to those towns would never come this way at all; they would just turn east at Junction 29, and drive along the A127, it is a much more direct route. So it therefore follows that almost ALL of the southbound traffic that turns east at this new junction will be doing so just to reach the Manorway roundabout... and so having the junction connect right to that roundabout will not inconvenience those drivers in the slightest!

As for traffic approaching from the new tunnel, or traffic driving south-west on the A13 hoping to use the new tunnel... well, yes, those drivers would be sorely inconvenienced by having to stop at the Manorway roundabout. But for their sake, we could just add another couple of link roads to this design, which continue on beyond the Manorway roundabout, and join the A13 a bit further on (see Map 12)...

There is a 100 metre gap in the houses here, that I have threaded these link roads through, so as not to demolish anything...

But the best thing about this design is that it would not only grant access to and from the east - it would also allow traffic from the WEST to access the LTC, as well! Such traffic could approach on the eastbound A13, exit onto the slip road leading towards the Manorway roundabout, and then immediately turn left again onto this link road... potentially without even stopping at the roundabout, since they could be given their own little left-turn lane, for free-flowing access!

In submission 7.1, Need for the Project, section 5.2.6 says the LTC shall 'provide an alternative [route] in the event of major accidents or closures at other River Thames crossings'. And section 5.2.8 mentions 'shorter and less complex diversion routes'... but with no access to & from the west, their proposed junction at Orsett would never be able to act as a replacement route for all traffic, only for some of it. However, as shown above, my own junction literally could do that, if required...!





**Map 12 - My alternative route, with free-flowing connections**

There is still one part of this junction where the slip roads are only 1,000 metres apart; this section of the new road itself, between the slip roads marked here in pink. Again, the dangers of weaving traffic might mean that this has to be changed...

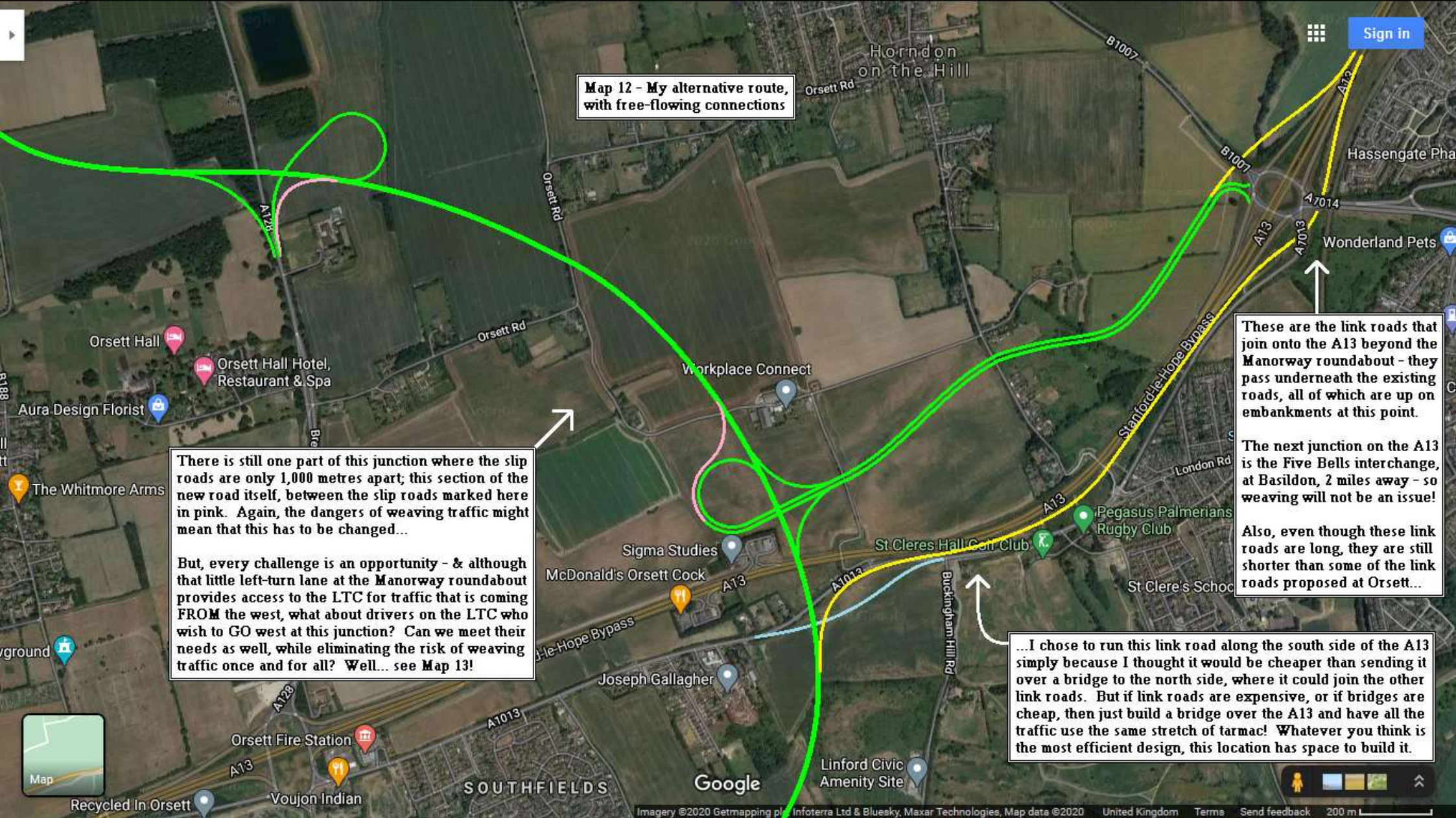
But, every challenge is an opportunity - & although that little left-turn lane at the Manorway roundabout provides access to the LTC for traffic that is coming FROM the west, what about drivers on the LTC who wish to GO west at this junction? Can we meet their needs as well, while eliminating the risk of weaving traffic once and for all? Well... see Map 13!

These are the link roads that join onto the A13 beyond the Manorway roundabout - they pass underneath the existing roads, all of which are up on embankments at this point.

The next junction on the A13 is the Five Bells interchange, at Basildon, 2 miles away - so weaving will not be an issue!

Also, even though these link roads are long, they are still shorter than some of the link roads proposed at Orsett...

...I chose to run this link road along the south side of the A13 simply because I thought it would be cheaper than sending it over a bridge to the north side, where it could join the other link roads. But if link roads are expensive, or if bridges are cheap, then just build a bridge over the A13 and have all the traffic use the same stretch of tarmac! Whatever you think is the most efficient design, this location has space to build it.





**Map 13 - My alternative route, adapted to prevent weaving, with access to and from both east & west**

The proposed junction at Orsett is not designed for use by traffic approaching from the west - & National Highways expect any such traffic to go east all the way to Stanford, double-back via the Manorway roundabout (which has traffic lights!), and head west all the way to Orsett again, just to use the LTC. That's a detour of over 7 miles!

In fact, it's so far that drivers may be tempted to take a 'short' cut, by heading down the A1089 & turning left at this tiny junction here. They can then use the T-junction(!) on Marshfoot Road to turn left again, & then make one final left at the roundabout to get back on the A1089, accessing the LTC that way. It's still a 6 mile detour... but that's a mile less than going to Stanford, and this way there are no traffic lights!

Of course, all the local traffic must use this tiny junction to reach the LTC as well, as the A1089 is the only road near here that has access to the proposed junction at Orsett... and if traffic from the west started coming this way too, Marshfoot Road T-junction may get very busy indeed!

My own proposal would still require traffic from the west to drive east to Stanford, so it's still a 5 mile detour. But, upon reaching the Manorway roundabout, they will at least not have to stop at the traffic lights, due to the little left-turn lane... & they won't have to double-back all the way to Orsett, either. Nor will they be incentivized to go onto the local roads, as the A13 is the fastest way to reach my route...

As seen here, it is apparent that even this 'long link road' version of my alternative route is far simpler (and so should be far cheaper to build) than the official proposal at Orsett; and despite being a slightly longer route, it involves laying less tarmac, & will result in shorter travel times, with the associated reduction in pollution, etc...

My design should be both safer and less prone to flooding, it would not oblige drivers using it to have to keep doubling back all the time, and it would also connect to both the east AND the west as well! And all of this could be achieved without demolishing a single house, or a single listed building...

Shown here in yellow is a new link road, that entirely replaces my proposed slip road from the LTC northbound to the A128 southbound. This new link road instead connects the LTC northbound directly to the A13 westbound, & so shortens the distance traffic must travel in order to reach the A1089... but in doing so, it also grants access to the west for all vehicles coming from the south, via the new tunnel!

Not only would this design eliminate weaving completely, it also transforms this route into a true alternative to the Dartford crossing - the traffic from both sides of the river could now come this way and turn both east and west, as desired. If this project hopes to ever reduce congestion, this is the way to do it...

I admit that it's not all good news; adding link roads to my design makes it more expensive, and this particular link road runs close to the Southfields housing estate... also, the existing slip road which connects the A13 westbound to the Orsett Cock roundabout would have to be re-aligned, as shown here in blue.

And this link road no longer provides access to the Orsett Cock roundabout, either... well, you could add another road between it & the re-aligned slip road, but that might just result in the same kind of weaving that I flagged as potentially dangerous on Map 08, so that may not be a good idea.

But there IS space at this location to add this link road, if necessary; in fact, there is even space for yet another link road alongside it, to join the eastbound A13 to the southbound LTC! I decided against it... but it's possible!