AN IDEA ! – THE CONSTRUCTION OF AN EAST COAST BUND

EXECUTIVE SUMMARY

This paper proposes the construction of an East Coast bund or dam from the North Kent Coast, curving around East Anglia, at its nearest 10 – 15 miles off the Norfolk Coast, and passing into and up the Humber Estuary.

Its proposed construction of a series of tubes giving a honeycomb cross section would provide ultra high speed transport for personnel, vehicles and freight, with connections to England's major centres of population and industry. It would, additionally, provide a pathway for pipelines and cables of all types. The project would provide electricity from tidal action and be a platform for wind and solar power generation.

The area of sea encompassed would be populated by a series of islands providing new agricultural land and platforms for a new airport, spaceport and rubbish recycling factory. The opportunity is provided for the provision of new and enhanced port facilities and locations for fish farming, leisure and nature conservation.

The ultra high speed transport would mean that North/South communications would be reduced to fractions of an hour and enable people living in the North to work in the South or vice versa, thus helping to resolve, in part, our national housing problems. The economic boost to the North would be immense.

The whole project would reduce coastal erosion and flooding while providing a long term tidal defence for London.

The Needs To Be Addressed:-

1. Ultra High Speed Pod System connecting our main centres of population and production.
2. An effective North/South motorway system (electric driverless cars only) and separate driverless freight movement facility.
3. Tidal power generation.
4. Increase in areas of agricultural land.
5. Improved port facilities.
6. Protection from coastal erosion on the East coast.
7. North/South route for pipelines and cables.
8. Wind generation away from human habitation.
9. Solar energy.
10. A new airport for London and the North.
11. Efficient connection to the Channel Tunnel and the Continent.
12. A long term tidal barrier to protect London.
13. Fish farming facilities.
14. Leisure facilities.
15. Development of new areas for nature conservation.
16. Top soil capture.
17. Regeneration of the steel industry.
18. A suitable location for a space port.
19. Centralised rubbish disposal.
20. Enhanced tourism.
21. Housing.
22. Reduction in the need to expand other North/South transport systems.
23. Military.
24. The creation of the advocated Northern Powerhouse.

The solution to these problems will be resolved in many respects by the construction of an:-

EAST COAST BUND

We have shallow seas off our Eastern seaboard up to 150ft in depth which would enable the construction of a bund passing from the North Kent coast and travelling offshore in a long curve, at its nearest being approximately 10 – 15 miles off the East Anglian coast, passing into and terminating in the Humber Estuary. This bund would therefore enclose a large area of shallow sea, although, along its length of approximately 200 miles, it would dip down to enable the passage of ships at, say, 3 locations.

The bund itself would comprise a series of tubes creating a honeycomb effect in cross section. This would give strength, but would minimise the use of materials in construction. The purpose of the bund itself would not be to fight the sea so much as to calm the waters thereby enclosed. It would have a smooth profile in cross section, such that a very heavy sea could flow up the side and, as the occasion arose, over top it. However, in normal circumstances, a barrier to the sea would exist.

The bund could be manufactured off site in major shipyards around the world in sections of up to 400 metres long, filled with compressed air, and brought to site and laid in a shallow trench. Piles would then be used to fasten it to the seabed. The individual tubes created by the completed bund could then be fitted out for a variety of different uses which would be likely to change over the years as technology progresses. (Linear connections, however, are always of value).

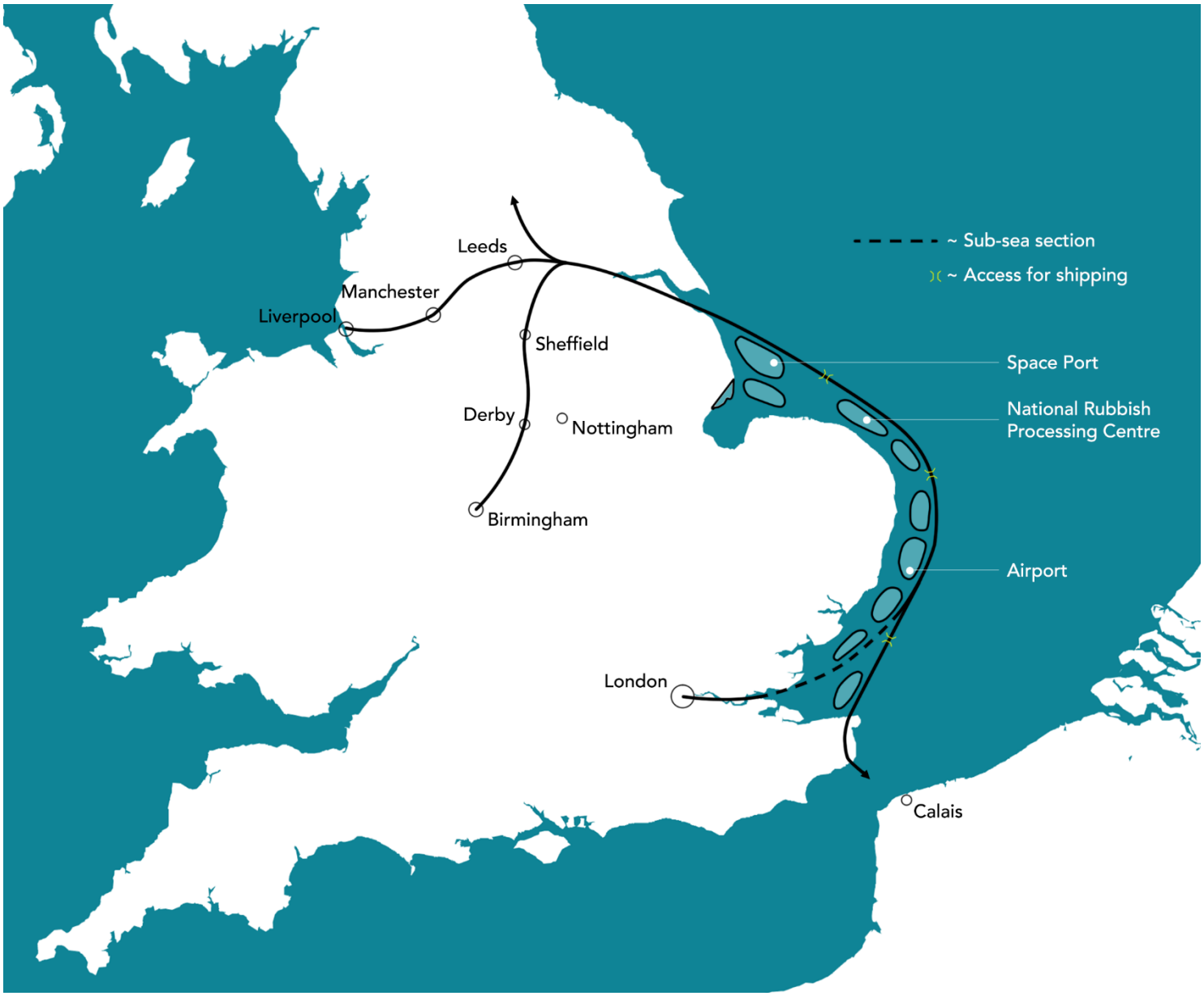

Figure 1 – Outline plan of the East Coast bund

1. Ultra High Speed Pod System

Some of the tubes would be fitted out to house ultra high speed pods which would travel at just under the speed of sound within a near vacuum, using linear motor technology. Where the tubes enter and leave the bund, they would follow railways and motorways as much as possible, supported by pylons placed possibly on the central reservation. Being enclosed in tubes, the pods would not create a noise problem.

This general approach is currently being proposed for a Hyperloop system connecting Los Angeles and San Francisco and within the UK, and is technologically feasible.

In this instance, in the approach to London, I would propose that a sub-sea branch follow the Thames Estuary into the city of London. To the South, a connection would be made to the Channel Tunnel. To the North, having passed up the Humber Estuary, it would pass via Leeds under a Pennines tunnel to the Manchester/Liverpool conurbation. To save on infrastructure, and given the extreme speed of communication, it may be worthwhile creating a southern branch via Sheffield, Nottingham and Derby down to Birmingham. In turn, a further branch could travel up the Vale of York to Teeside and Newcastle.

Transport using this proposed system would be exceedingly fast. Therefore, in order to save on costs, a rerouting point could be established to the North of Doncaster at the junction of all routes whereby return journeys to/from other destinations on the system could be rerouted as required. In this way, the majority of the business and manufacturing centres of the Country would be connected in a most efficient manner with the potential to connect to Europe too. Within this Country, and the near Continent, this form of travel would be more efficient than travel by air. An outline plan of the main proposal is shown in Figure 1 above and its cross-section in Figure 2.

2. North/South Motorway System

Some of the tubes would be put aside for motor vehicles but probably only electric and driverless. (The concept of a human being driving in a tunnel for 200 miles plus is not a happy one). There would be individual tubes for North and South and maintenance, with separate tubes set aside for freight. At their commencement and delivery points, these tubes would connect with existing motorways/dual carriageways.

With the Country's heavy commitment to conventional railways, and for local connection, tubes could initially be used for this sort of traffic but powered by electricity.

3. Tidal Power Generation

The creation of the bund, as previously described, would be an impediment to tidal flows and the gaps created at locations to allow the passage of shipping would not be sufficient to neutralise this effect. Currents would be created through the gaps and pressure placed on the bund. This pressure could be utilised to drive a series of generators along the bund's length to provide electric power. Additionally, generators placed at or near the seabed in the shipping gaps would provide electricity from the current created.

4. Increase in Areas of Agricultural Land

It has previously been described that the bund would be designed to allow some water to pass over it in extreme conditions. This, however, would not be a general flow of water. Both this occasional overtopping and the generating proposals allow water to pass from one side of the bund to the other where it would be received into a ditch, about 1 mile wide. On the far bank of this ditch, which would comprise relatively calm water, polders would be created, islands formed with waterways in between.

Viewed from the existing coastline, in order to retain the feeling of the seaside, and a continuing managed tidal regime, would be a strip of open sea several miles wide before the polder islands would

be encountered. In this way, using soil produced from waste and dredging waterways, vast areas of agricultural land could be created, although below existing sea level, like some of our existing fenland. Pumps to drain these polders would be powered by electricity created by the bund, wind and solar power.

5. Improved Port Facilities

The area encompassed by the new bund would have access for the largest sea going vessels at approximately 3 locations in its 200 mile length. Access to all existing port facilities could be continued. The area of water encompassed by the bund could be used for different purposes, especially polders for agricultural land. These would create a further calming effect which would give opportunities for safe anchorage and/or the potential for new very large port facilities with ready access to the transport facilities housed in the bund.

6. Protection from Coastal Erosion on the East Coast

Current discussion is suggesting that the Country cannot afford to protect the Eastern coastline with the potential to lose large areas of agricultural land. I would suggest that the Country cannot afford to do this and that, with our burgeoning population, more productive land is required. The calming effect of the proposed bund on the sea, together with the construction of polders and the enclosure of areas of sea for fish farming, new salt marshes, for wildfowl, and general nature conservation, and controlled areas for recreational purposes, etc., would mean that the damaging East coast tidal surge would have much of its force reduced and erosion would be dramatically reduced.

7. North/South Routes for Pipelines and Cables

A structure such as the proposed bund would give a valuable controllable route for new pipelines and cables carrying power, liquids, gases and information between the North and South of the Country. This will mean that new facilities of this nature can be put into effect quickly and cheaply with minimal impact on the Country's population.

8. Wind Generation

On the British mainland, wind generation has proved to be an eyesore and a disturbance and irritation to those living nearby. In creating new areas of land, as well as the proposed barrier, the potential for new turbine placement is provided. This would follow the policy of sea area turbine development already instigated.

9. Solar Energy

Although largely submerged, the bund would have a considerable area above mean sea level which could be used for solar power generation. This, and the other means of creating electricity afforded by the bund, could go some way to reduce the unfortunate effect on the countryside of existing fields of solar panels.

10. A New Airport for London and the North

The arguments about a new airport/runways for London and the South East have been going on for far too long and the locations too London centric. Building a new airport to the North East of London on new land created by polders, and adjacent to the ultra high speed pod system, but within the confines of the bund, would enable swift transport links from most large centres of population and industry and pull the Country together on a North/South axis.

11. Efficient Connection to the Channel Tunnel and the Continent

Brexit or no Brexit, it will always be important to have efficient connection to France and the main body of Europe for industry and tourism. This would be provided by the proposed bund and its incorporated transport systems.

12. Long Term Tidal Barrier to Protect London

The Thames Barrier is currently working well. However, with continually rising sea levels, a long term solution to the tidal defence of London needs to be considered. The proposed bund from the North Kent coast to the Humber Estuary, even with its access points for the passage of shipping, will, together with the proposed island polders, reduce the severity of tidal movement without the current requirements of an adjustable barrier.

13. Fish Farming Facilities

The enclosure of the body of water within the bund will allow for areas to be compartmentalised for various purposes. Very large scale fish farming and oyster beds could be accommodated.

14. Leisure Facilities

The proposed bund, in passing from the North Kent coast and curving around East Anglia to terminate in the Humber Estuary, would pass at its nearest to approximately 10 – 15 miles from the coast. The intention would be that the existing coast would remain unaffected for some miles out to sea to enable tourism and life to continue much as before. However, the calming of the sea would give greater opportunity for controlled leisure use of the coastal strip which would create an enhanced tourist/leisure attraction. The islands created could additionally be used as a basis for leisure facilities.

15. Development of New Areas for Nature Conservation

Any interruption in a natural flow of water is going to have some effect on existing eco systems. The bund, however, should have a minimal effect in acting as a reef, since contact with the main body of the sea will be maintained at the access points for shipping and via the passage of water from tidal generation operations. The scheme would, however, give a good opportunity to create new areas for nature conservation where access and the environment could be controlled.

16. Top Soil Capture

Modern farming and drainage practices have led to the increase of top soil erosion into rivers and out to sea. The proposed development requiring the creation of new islands, would create the need/opportunity to take deposited silt and transfer it onto the island areas giving good agricultural land in the long term.

17. Regeneration of the Steel Industry

The protection/regeneration of the steel industry is of considerable concern. This massive project will require large quantities of steel. It will not escape notice that the route of the bund passes the 'front door' of the existing facilities in Scunthorpe.

18. A Suitable Location for a Space Port

Whether using rocketry, or space planes, it will become a requirement for this Country to have its own entry point to Space. This ideally will be in a location with wide open, relatively unpopulated, regions but with good access to population and industry. A location along the route of the proposed bund on an adjacent island would seem ideal.

19. Centralised Rubbish Disposal

Via ultra high speed pods, standard rail, driverless vehicles, or by sea, the bund with its varying transport facilities and the potential to connect to most of the Country's major industrialised cities, would be the ideal location for a rubbish recycling factory. The existing requirement for all rubbish to be separated by each household with different policies being formulated by each Council is a nonsense. Little terraced cottages are faced with dragging various bins and boxes through their living accommodation and piling them separately on the pavement or in the road. There are always some who pay scant regard to the requirements to separate rubbish in any event. All rubbish should be

collected all over the Country on a mixed basis at least once a week and then transported by rail or other means to a specialist recycling factory where the constituent parts would be separated as part of an industrial process for reuse. A large element of the end product would be of the nature of soil and this could be utilised for spreading onto the 'new land' formed by the islands within the bunded area.

20. Enhanced Tourism

Like the Great Wall of China, any large structure such as the bund and its associated works would become a focus of interest on a national and international basis. A whole range of support services for tourists will be required and considerable benefit derived from the various income streams.

21. Housing

Demand for accommodation in London and the South East remains high and prices have reached stratospheric levels making it almost impossible for large elements of the younger generation to acquire a home. An ultra high speed pod system and/or driverless cars passing down through the length of the bund would enable people living in the North to work in London. The pressure on house prices could be reduced in the South/East and increased in the North where there is currently spare capacity.

22. Reduction in the Need to Further Expand North/South Transport Systems

The provision of a method of fast and efficient transport to the North would reduce the need for the expansion of existing North/South systems. The widening of roads and the provision of new bypasses is very costly and adversely affects many people, causing excessive delays in implementation. There are, therefore, considerable savings to be considered in undertaking this costly scheme.

23. Military

The Military will have an interest in this proposed development as a route of fast communication, storage, offence and defence.

24. The Creation of the Northern Powerhouse

A previous administration proposed a Northern Powerhouse and it is clear that, to gain better national unity within England, that the North of England requires an economic boost. The proposed bund would provide advanced communication and transport facilities from the Humber Estuary to the Kent coast and London. Relatively easy connection could then be made to the Channel Tunnel area and the ability to branch out to factories throughout the North of England is provided. Together with the advantages provided by other 'bolt on facilities' to this scheme detailed under other headings, the economic boost would be massive.

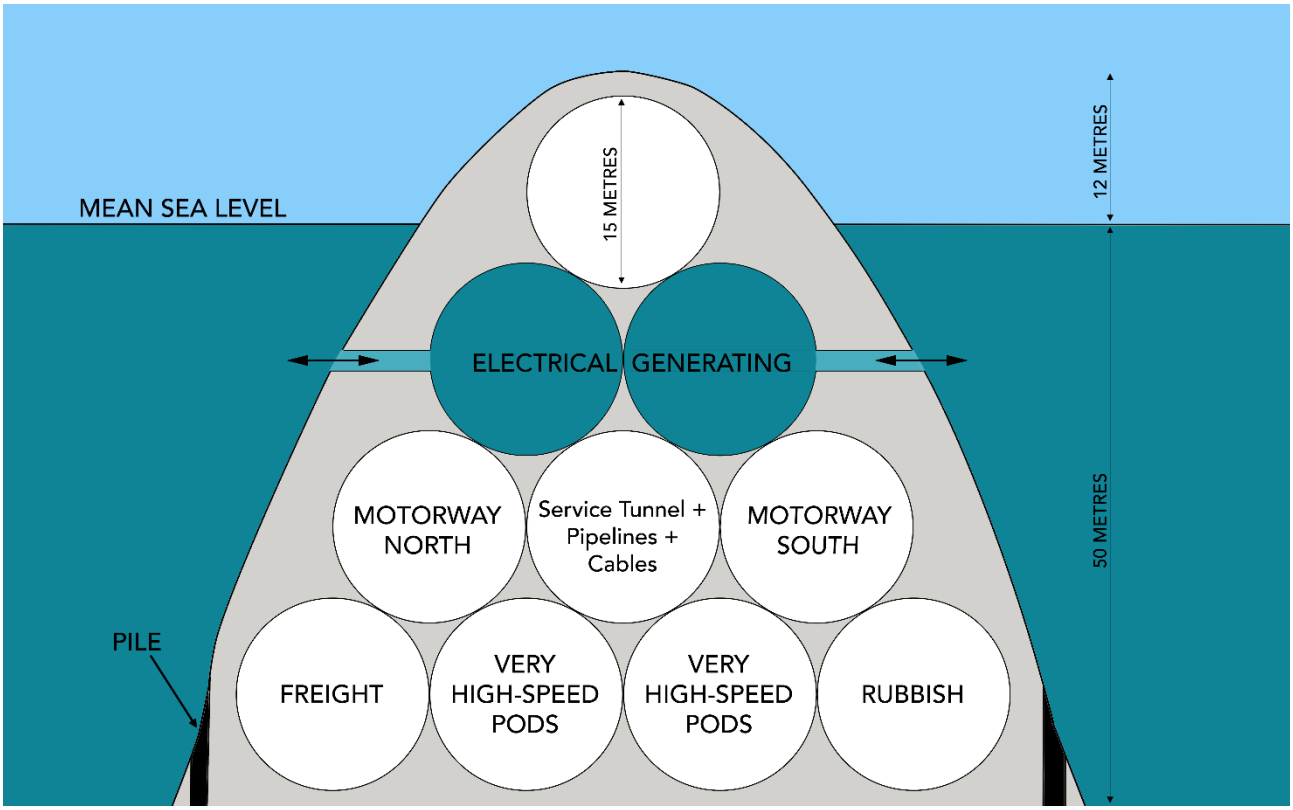

Figure 2 – Cross-section showing the potential structure of the bund

THE FUTURE

Looking to the future, we need to be adaptable to change. We are on the threshold of ultra high speed transport, the demise of petrol and diesel vehicles and the advent of electric driverless transport. With pods providing transport at 700mph and driverless cars passing through the bund at speeds of 250kph and freight at 150kph, this proposal would be a powerful contribution to galvanise the whole of England.

POLITICS

(a) As described, these proposals, unlike HS2, do not pass through rural southern England. They do, however, affect the North with on-land development, but giving considerable investment, business and social advantage where needed. Politically, this scheme may therefore be relatively uncontentious.
(b) It will be noted that no benefit is derived by Scotland. However, a spur to the North of England could be extended, either in the sea immediately adjoining the coast, or, more likely, following the route of the existing rail line to Edinburgh and Glasgow.
(c) Wales could be served with a route broadly following that of the M4 direct to Bristol and thence to Cardiff and Swansea.

In World War 2, we, in this Country, built Mulberry Harbours. This is a similar concept that can be built with modern equipment, but not under fire!!

NOTE

If the grand scheme is considered too ambitious and expensive, why not lay a few lines of pipes on the seabed along the route, but closer to the land, for pod transport at 700mph plus?

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29th May 2017

Visit: www.EastCoastBund.org