

**P/16/0557/DP/K**

**STUBBINGTON**

NATIONAL GRID IFA2 LTD

AGENT: NATIONAL GRID PLC

DETAILS PURSUANT TO PLANNING CONDITION 48 (ALTERNATING AND DIRECT CURRENT CABLES AND COMPASS DEVIATION AT AIRFIELD TAXIWAY CROSSINGS) OF PLANNING PERMISSION P/16/0557/OA.

NATIONAL GRID IFA2 LTD ROOM 25/26 FAREHAM INNOVATION CENTRE MERLIN HOUSE, METEOR WAY PO13 9FU

***Report By***

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***Introduction***

When considering the Hybrid Planning application for the IFA2 project the Planning Committee requested that the details submitted to satisfy the requirements of condition 48 were to be reported back to the Planning Committee for a determination as to their acceptability. This application is that proposal.

***Description of Proposal***

For this proposal the Planning Committee is being asked to consider the detail submitted pursuant to condition 48. The condition in full is as follows:

No development in relation to the installation of cables on Daedalus Airfield shall take place until details of the way in which the cables will be arranged below ground along with the depth at which the cables will be laid has been submitted to and approved by the local planning authority in writing to achieve the following:

- a) Alternating Current magnetic fields directly above the cables not more than 10 microTesla when measured at ground level at each taxi-way crossing of the cables;
- b) Direct Current magnetic fields directly above the cables not more than 10 microTesla when measured 1.5 metres above ground level at each taxiway crossing of the cables;
- c) Compass deviation not more than 1 degree when 12 metres or more away from the Direct Current cables, measured at 1.5m above ground level at each taxi-way crossing of the cables

The installation of the cables on Daedalus Airfield shall be undertaken in accordance with the approved details.

REASON: To ensure that Alternating and Direct Current cables at the site will not materially impact upon aviation use and safety at the site.

***Policies***

The following policies and guidance apply to this application:

**Approved Fareham Borough Core Strategy**

CS12 - Daedalus Airfield Strategic Development Allocation

***Relevant Planning History***

The following planning history is relevant:

**P/16/0557/OA**

**Hybrid Planning application for an electrical interconnector with an**

**approximate capacity of 1000 megawatts (MW) extending from Tourbe, Normandy (France) to Chilling, Hampshire.**

**Outline planning permission is sought at Daedalus for:**

- 1. The erection of converter station buildings (to a maximum height of 22 metres) with associated, vehicular accesses and roads, security fencing, landscaping and temporary construction compounds;**
- 2. Creation of public open space and associated facilities, grassland planting and tree planting.**

**Full Planning permission is sought at Hill Head and Stubbington for:**

- 3. Installation of cables between Mean Low Water Springs and the converter station in the north eastern corner of Daedalus Airfield.**

**Full Planning Permission is sought at Chilling for:**

- 4. The Installation of cables between the Mean Low Water Springs and the existing cable sealing end compound at Chilling Lane**

APPROVE

10/04/2017

### ***Representations***

Eight comments have been received in response to the proposal. However seven do not comment on matters that are material to the consideration of the details pursuant to condition 48 and are matters that have been previously addressed through the Hybrid Planning application and the subsequent Reserved Matter Approvals or are not material planning considerations.

The one representation making comments material to the consideration of the application was received from the Hill Head Residents Association. The letter objects to the proposal for the following reasons:

- Given the unique nature of the development it is astonishing how little interest the Civil Aviation Authority is taking in the possible consequences for aircraft safety.
- Attention is drawn to an Air Accident Investigation which details the effects on aircraft's magnetic compasses of buried, or nearby, cast iron bollards, railway lines and piles at London City Airport. National Grid suggest that the magnetic fields at London City Airport were vastly greater than at Solent Airport but they are not much different.
- We suggest that the CAA should be taking a far closer interest in IFA2 at Solent Airport
- As far as we can tell from the practical tests organised by National Grid, the screening will meet the 10 microTesla magnetic field strength planning constraints for AC and DC cables where they cross the taxiways and that the 1° deviation at 12 metres from the cable will also be achieved.
- However with no screening the maximum compass deviation would be 13°. Screening will only cover the small area where the cables cross the taxiways and the rest of the 320,000V DC and 400,000V AC cables crossing the airfield will be unscreened.
- If the AC screening failed who would know and what would be done and in what timescale?

- Is the CAA content with a maximum 13° unscreened compass variation?
- If the CAA want to apply conditions should they not do so now rather than once the cables are live?
- It would be dangerous for FBC to conclude that National Grid has fulfilled Condition 48 simply because the practical tests went well.
- In our view the condition is not satisfied.

### ***Consultations***

Airport Manager - Response Awaited

Gosport Borough Council: No comment

### ***Planning Considerations - Key Issues***

During the consideration of the hybrid planning application concern was expressed by residents and airport tenants that the cables running through the airport and in close proximity to the taxiways and main runway would have an adverse effect on onboard aircraft equipment as aircraft prepare for departure from the airport.

The cable run is parallel to the main runway in the grass strip between the runway and the western taxiway. This taxiway links to the runway in four locations such that the cable run crosses the taxiway four times.

The applicant has, since the grant of the hybrid planning permission, undertaken three distinct pieces of work which culminate in the submission for this application.

- First, above ground measurements were performed on a number of existing National Grid cables around the country. This verifies the basic concept that calculations do reproduce the fields that are actually present for underground cables.
- Second, measurements were performed on samples of the proposed IFA2 cable arrangements laid out and energised at ground level at the Prysmian test facility in Bishopstoke, Eastleigh. This verifies that the calculations work for the actual cable arrangement in question, but does not test at the actual burial depth.
- Third, measurements were performed on samples of the proposed IFA2 cables buried at the approximate final depth on Solent Airport. This verifies the calculations for as close to the actual final layout as possible. The tests at Solent Airport also involved taxiing various aircraft over the energised cables to demonstrate that the maximum fields the cables could produce do not interfere with aircraft systems and give confidence that the planning condition is indeed set at an appropriate level.

**A) ALTERNATING CURRENT MAGNETIC FIELDS DIRECTLY ABOVE THE CABLES NOT MORE THAN 10 MICROTESLA WHEN MEASURED AT GROUND LEVEL AT EACH TAXI-WAY CROSSING OF THE CABLES**

The HVAC cables would be laid in two trenches. The proposed cable laying method for the AC cables is that each trench comprises three cables, installed in 200mm plastic ducts in a trefoil arrangement. The spacing of the cables is therefore determined by the diameter of the ducts. Screening is provided by four bundles of cables connected to form loops. The proposed depth of burial is to be 1.35 m to the top of the duct. This equates to the same as the Solent Airport test.

For the AC cables, the maximum AC magnetic field at the depths proposed from the field test at Solent Airport was 7.8 microTesla.

As was the case with the Hybrid Planning Application the Local Planning Authority has commissioned TUV-SUD to review and comment on the applicants submission. On review of the detail for criterion a) of the condition, the TUV-SUD advice is that the applicant's submission is acceptable.

**B) DIRECT CURRENT MAGNETIC FIELDS DIRECTLY ABOVE THE CABLES NOT MORE THAN 10 MICROTESLA WHEN MEASURED 1.5 METRES ABOVE GROUND LEVEL AT EACH TAXIWAY CROSSING OF THE CABLES;**

The HVDC cables are laid in one trench. The DC trench comprises two cables, installed in 200 mm plastic ducts in a horizontal arrangement. The spacing of the cables is therefore determined by the diameter of the ducts. Screening is provided by a 500 mm diameter low-carbon steel tube. The proposed depth of burial is 1.2 m to the top of the steel tube. This equates to the same depth as the Solent Airport test.

For the DC cables during the Solent Airport test the total field was 2.4 microTesla. This is less than the planning constraint of 10 microTesla.

The TUV-SUD advice is that the applicant's submission is acceptable for criterion b) of the condition.

**C) COMPASS DEVIATION NOT MORE THAN 1 DEGREE WHEN 12 METRES OR MORE AWAY FROM THE DIRECT CURRENT CABLES, MEASURED AT 1.5M ABOVE GROUND LEVEL AT EACH TAXI-WAY CROSSING OF THE CABLES:**

It was set out within the Hybrid Planning application that aircraft 12 metres away from the direct current cables will experience very limited compass deviation errors. At this distance a degree of deviation was predicted to be one degree and this is the figure within the condition.

For the compass deviation, it is demonstrated through the applicant's submission that even with no screening to the cables, the compass deviation falls below 1° at 9.7 m from the cables, which is less than the planning condition requirement of 12 m. For the screened cabling (described earlier for the HVDC cables), as demonstrated in the Prysmian and Solent Airport tests, the compass deviation falls below 1° at 6.4 m, thus meeting the planning condition by a larger margin.

The TUV-SUD advice is that the applicant's submission is acceptable for part c) of the condition.

The third party comments make reference to the application documents that set out that unscreened the compass deviation could be as high as thirteen degrees. The data presented in graphical form in the submission indicates that this unscreened compass deviation of thirteen degrees occurs within 2-3m of the cable. The condition, the subject of this application, requires a deviation not more than 1 degree when 12 metres or more away from the Direct Current cables, measured at 1.5m above ground level. The condition sets no minimum deviation at distances less than 12m from the cables. In any event the deviation is less than the required 1 degree at 12m from the cables whether it is screened or unscreened such that the requirements of the condition would be met anyway.

**OTHER MATTERS:**

The Committee was advised when considering the Hybrid application that Aerodrome safeguarding responsibility rests with the aerodrome licence holder/operator according to the CAA Guidance on Planning Consultation requirements. Accordingly, the CAA advice is

that any Local Planning Authority enquiry concerning a development of this nature that might have aerodrome safeguarding implications should be forwarded directly to the relevant aerodrome licence holder/operator. Members will note the comments of the airport manager are awaited and will be provided in the written update to the Committee.

Concern is raised through the representations as to what would happen if the screening failed after the installation of the cables. Condition 49 of the Hybrid Planning Permission requires further testing of the cables following their installation and subsequent energization with results confirming the levels approved under condition 48 within one month of the interconnector first being used.

In the event that the something should happen to the cables or the screening after this completion test pursuant to condition 49 then this would likely be identified and resolved through the land deal arrangements and actioned accordingly.

There are no impacts that have been identified which indicate that the IFA2 project is incompatible with the airport in so far as there would be "adverse effects" on the airport operations as required by policy CS12.

## CONCLUSIONS:

It is noted that the proposal sets out how the applicant intends to ensure that the laying of the cables through the airport can be undertaken in compliance with the requirements of the planning condition. Furthermore the application documents go a step further and indicate that the applicant will seek to attempt to further reduce the electromagnetic fields from the cables and the extent of compass deviation such that the installed proposal will possibly better the outcomes within this submission which all sit within the requirements of the condition.

In light of the fact that the requirements of the condition have been met and the specialist advice to the Local Planning Authority endorses the applicant's submission the proposal is considered to be acceptable for approval.

## ***Recommendation***

APPROVAL OF DETAILS pursuant to condition 48 of hybrid planning permission P/16/0557/OA as submitted within application P/16/0557/DP/K.

1) The development is to be carried out in accordance with the finally amended and approved plans and documents as follows:

- Document Titled Technical Note: Tests to verify ability to comply with planning conditions on Electric and Magnetic Fields for IFA2 cables at Solent Airport, reference IFA2-IJV-CAB-TTR-0003, dated March 20178, prepared by National Grid.
- Document Titled Technical Note: Tests of Aircraft in Electric and magnetic fields from IFA2 cables at Solent Airport, reference IFA2-IJV-CAB-TTR-0004, dated March 2018, prepared by National Grid.
- Document Titled Technical Note: Electric and Magnetic Field analysis for final cable design of IFA2 cables at Solent Airport, reference IFA2-IJV-CAB-TTR-0005, prepared by National Grid.

## ***Background Papers***

See relevant planning history section above