endesa ireland

Great Island Generating Station

Ms. Eimear O'Keeffe
Office of Environmental Enforcement
Environmental Protection Agency,
EPA Headquarters
PO Box 3000
Johnstown Castle Estate,
County Wexford

Date: 28/02/2012

Our Ref: 2012-ENDGI-07 – Technical Amendment

Dear Ms. O' Keeffe,

In accordance with Section 96 of the EPA Act 1992-2007, Endesa Ireland wishes to apply to the EPA for a Technical Amendment to IPPC license P0606-03.

1. SW 13 Surface Water Monitoring Point

The surface water monitoring point SW13 will be the discharge point for the process water from the proposed Combined Cycle Gas Turbine (herein referred to as CCGT) power plant. This discharge point will be located adjacent to the homogenization pit and will discharge into the Cooling Water channel rather than directly into the receiving environment (Ref Fig 1). The process water will subsequently be mixed with the Cooling Water and discharged into the receiving environment via the Cooling Water discharge point (SW 2 as per our IPPCL P0606-03).

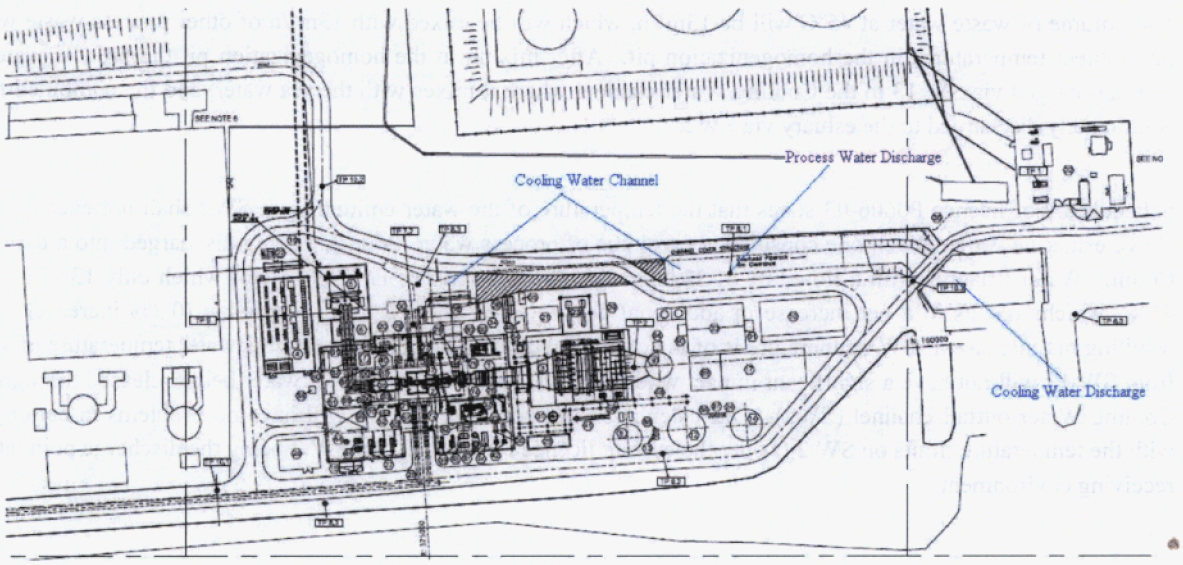
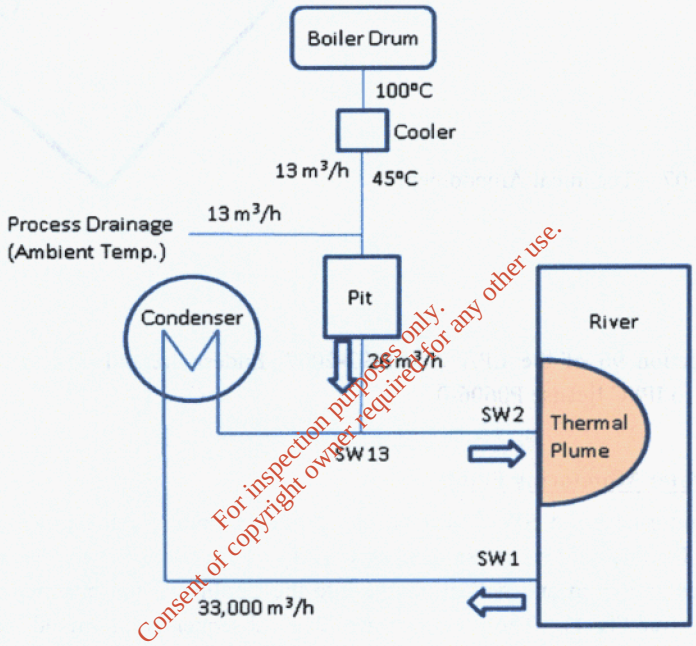


FIGURE 1: SW13 Discharge Point

In terms of the detailed design of the CCGT, having signed the contract for the engineering, procurement and construction in November 2011, we are now in a position to finalize design parameters and in particular those related to our IPPCL conditions. Under Schedule B.2: Emissions to Water of IPPC Licence P0606-03, the maximum temperature limit of the process water discharged from SW 13 is 25°C. In the application for the existing IPPC Licence Review (to accommodate the new CCGT plant), the temperature of the process water at SW 13 was not specified. There was however, a"hydrodynamic modelling report" submitted demonstrating the effect of the Cooling Water Discharge (SW 2) on the estuary as this will be the discharge point to the receiving environment.As a result of our detailed design we are now in a position to confirm that the actual temperature of the process water to be emitted from the CCGT boiler will be 45°C, when it initially enters the homogenization pit (see – Figure 2).



FIFURE 2: SW13 Flow Diagram

The volume of waste water at 45°C will be 13m³/h, which will be mixed with 13m³/h of other process waste water (at ambient temperature) in the homogenization pit. After mixing in the homogenization pit the process water is then discharged via SW 13 to the Cooling Water channel where it mixes with the sea water, and the combined flow is ultimately discharged to the estuary via SW2.

ScheduleB.2 of licence P0606-03 states that the temperature of the water emitted from SW2 shall not exceed 12°C above estuarine water. When one considers the volume of process water (26m³/hr) being discharged into a dynamic Cooling Water Channel with a flow rate of 33,000m³/hr, the dilution rate is 1269 to 1 of which only 13m³/hr is at 45°C, which results in a net increase in additional heat rejected at SW2 being negligible (0.3% increase). The resulting net increase in CW temperature is of the order of 0.02°C. Therefore the process water temperature of 45°C from SW 13 will not have a significant impact when combined with the volume of water being released through the Cooling Water outfall channel (SW2). Our calculations demonstrate that we will have no problems in complying with the temperature limits on SW 2 (as per the current licence for the CCGT), SW 2 being the discharge point at the receiving environment.

Under the same schedule of the licence the maximum volume to be emitted from SW13 – Process Waste Water is stated as 158m^3. A number of drains listed in IPPC Licence P0606-03 are to cease discharging on commencement of operation of the new CCGT, namely SW5, SW6, SW7, SW8. The water from these drains shall on commencement of the CCGT flow into the SW13 channel. The volume to be emitted from SW13 on commencement of operation of the CCGT stated in the licence does not account for the extra volume of flow from these drains. Endesa Ireland estimates that the maximum flow from this emission point would be 1000m^3 in any one day. Please see Appendix A for emission point reference.

Endesa Ireland are applying for a technical amendment to remove the temperature limit on SW13 (based on the temperature being recorded at SW 2 before entering the receiving environment) and increasing the maximum volume to 1000m^3.

2. EIRGRID – GIS Installation

Eirgrid were granted planning permission on the 10th June 2011 to develop an electrical transmission structure (hereafter referred to as GIS - Gas Insulated Switchgear), adjacent to the eastern side of the existing Great Island ESB 220KV Switching Station. The proposed GIS site is defined in red in Appendix B.

The new GIS shall be an indoor installation with a smaller footprint (779m^2) than the existing 220Kv Air Insulated Switch gear (24,200m^2) that it is replacing. The new GIS Substation building shall be over 14m in height, and will house the new gas insulated switchgear, comprising of gas insulated circuit breakers, disconnectors and other high voltage equipment. Within the building there will be auxiliary service equipment such as control and telecoms equipment, low voltage switchgear, an emergency diesel generator, batteries and welfare facilities.

There are no existing facilities on the proposed GIS site. A new surface water system will convey flows through hydrocarbon interceptor and silt trap before being discharged to the existing drainage system. The existing drainage system flows to the Suir/Barrow/Nore estuary via the existing hydrocarbon interceptor. The wastewater from the site will discharge to the existing septic tank and percolation area located approximately 70 meters to the south-west of the proposed new substation. A new foul water sewer will be required to connect the substation building to the existing collection system.

Endesa Ireland has in place a lease agreement with Eirgrid in relation to lands where the indoor 220Kv GIS shall be constructed. It is therefore necessary to modify the IPPC license site boundary to exclude the area where this station shall be constructed.

Endesa Ireland are applying for a technical amendment to exclude the area leased to Eirgrid from their licence P0606-03.

3. BORD GAIS – AGI Installation

Bord Gais Networks have applied to An Bord Pleanala on the 11th November to construct a Gas Pipeline from Baunlusk (approximately 6km south of Kilkenny City) to Great Island which includes two above ground installations, one of which will be at the Great Island site. Endesa Ireland has signed a 99-Year Lease agreement with Bord Gais Networks (BGN) for the site in which the AGI (Above Ground Installation) is to be constructed (See Appendix C)

The gas will be supplied to the site from the BGN ring main at a minimum guaranteed pressure of 19 barg and 15°C. The maximum operating pressure of the BGN gas pipeline is 70 barg. The gas will be filtered, pre-heated, metered and pressure reduced at the AGI prior to supply to the gas turbine. The AGI asset will be owned by Bord Gáis

Networks and operated and maintained by Gaslink, an independent system operator with responsibility for operating and maintaining gas transportation

Endesa Ireland is applying for a technical amendment to exclude the area leased to Bord Gais Networks from their licence P0606-03.

4. BH3- Ground Water Monitoring Point

Under Schedule: C.5 Ambient Monitoring of Licence P0606-03, Endesa Ireland are obliged to carry out groundwater monitoring on a number of bores on an annual basis. One of the bores listed, namely BH3 (Appendix D) is located in the area of the proposed new CCGT station. Once construction commences in March 2012, it is likely that this bore will be lost, as the bore is located on the site for the new chemical skid for the CCGT.

Annually, BH3 is sampled and analyzed for Aluminum, Arsenic, Mineral Oil, PAHS, pH and TPH. The results of sampling and analysis from 2004 have demonstrated that the groundwater below the site remains within EPA interim Guideline Values for Aluminum and PAHs. Mineral Oil remains below <0.01mg/l. Arsenic concentrations jumped in 2009 to 120µg/l, but have dropped back to <1 µg/l in the last three sampling rounds. Arsenic has been identified as occurring at naturally elevated concentrations in the southeastern region of the country. TPH concentrations prior to 2010 were below 10 µg/l. A slight increase in concentration of TPH was noted (57 µg/l) but has since been noted as decreasing. The results of sampling and analysis for this bore were included in the "Ground Water Monitoring" report submitted to the Agency in December 2010.

Endesa Ireland is applying for a technical amendment to exclude this bore from the monitoring requirements on commencement of construction of the CCGT.

5. Approved Changes to Schedule C5. Ambient Monitoring

Under Schedule: C.5 Ambient Monitoring of Licence P0606-03, Endesa Ireland are obliged to carry out groundwater monitoring on a number of bores on an annual and biennial basis. In December 2010, Endesa Ireland submitted a synopsis report of groundwater monitoring results attained at Great Island between 2004 and 2010 to the Agency. The report proposed a number of changes to the ground water monitoring programme at Great Island, which were as follows;

- Action 1: The groundwater monitoring programme to be restructured to include Ammonia in MW 106, MW200, MW202 and bores BH2, BH3, BH5, BH7, BH10 to determine the groundwater quality in that area of the site. Sampling shall be carried out in accordance with the current frequency of annually for BH2, BH3, and MW200 and biennially for BH5, BH7, and BH10. MW106 and MW202 shall be sampled biennially & annually with respect to the boreholes they are replacing.
- Action 2: The groundwater monitoring programme to be restructured to include analysis of Coliforms in bores BH2, BH3, MW101, MW102, MW103, MW107, MW200 and MW202 annually.
- Action 3: Vanadium analysis to be undertaken in all groundwater bore samples annually. A review of the data attained to be conducted to ascertain the bores which require further sampling, if any.
- Action 5: MW102 and MW103 to be included in the groundwater monitoring program and similar approach to sampling of MW101 and MW107 to be adopted.
- Action 6: MW202 to replace MW203, which is blocked.
- Action 7: MW106 to replace MW201, which is blocked.

These changes were accepted by the Agency in their letter dated 10th January 2011, Ref; P0606-02/ap04djm.docx, and Endesa Ireland have been implementing them since January 2011. Endesa Ireland is requesting these changes to be included in the Technical Amendment.

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Great Island Generating Station
Campile, New Ross, Co. Wexford

Endesa Ireland are applying for a technical amendment to Schedule C5. Ambient Monitoring to address these agreed changes.

Endesa would appreciate your consideration of this proposal for a Technical Amendment to the license (P0606-03) for the above mentioned items.

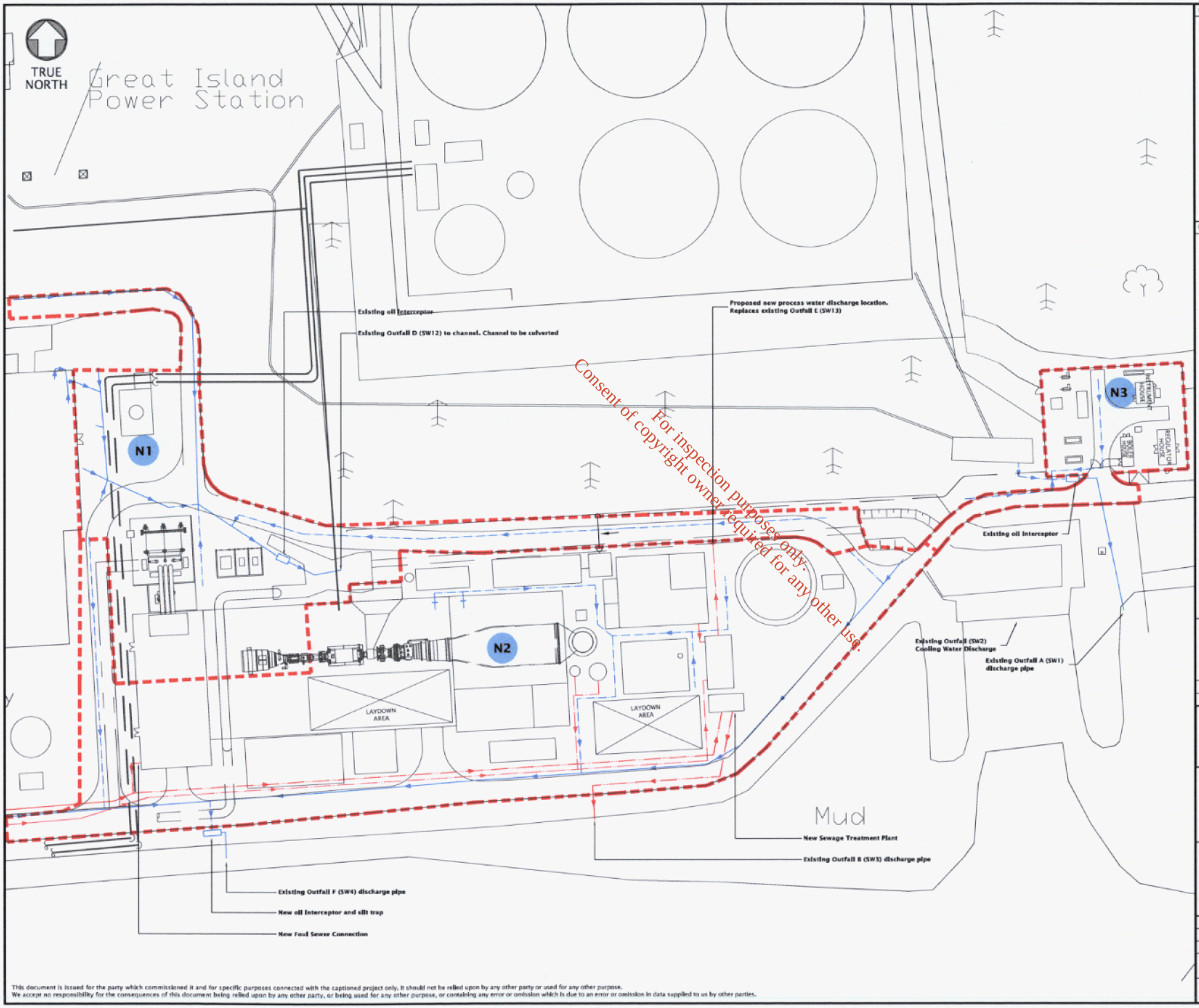
Endesa Ireland would also like to advise the Agency that construction works for the CCGT are due to commence in March 2012. It is intended that the project will be completed by Quarter 1 2014. During this period of time, there maybe some intermittent disruption to surface drainage routes whilst the new channels are been installed. All of these changes will be considered as part of the construction site drainage system in the Construction Environment Management Plan.

Should you require any further details, please do not hesitate to contact me at (+353) 0 86 0228844 and/or email melissa.morrissey@endesaireland.ie .

Yours sincerely,

Melissa Morrissey
Environmental, Health & Safety Coordinator
Endesa Ireland – Great Island Generating Station

APPENDIX A



Notes

1. ORDNANCE SURVEY IRELAND LICENCE NO. EN0034509 © ORDNANCE SURVEY IRELAND/GOVERNMENT OF IRELAND
2. ALL CO-ORDINATES SHOWN RELATE TO IRISH NATIONAL GRID CO-ORDINATES.
3. ALL SITE LEVELS REFER TO MEAN SEA LEVEL VERTICAL DATUM AT POOLBEG.
4. GENERAL SITE LEVEL IS +7.00M O.D.
5. THE DRAINAGE LAYOUT SHOWN IS SUBJECT TO CONFIRMATION OF INVERT LEVELS AND CAPACITIES OF THE EXISTING COLLECTION AND OUTFALL PIPES.
6. WHERE POSSIBLE, EXISTING COLLECTION SEWERS AND OUTFALLS WILL BE RE-UTILISED BY ADOPTING THEM INTO THE COLLECTION SYSTEM FOR THE PROPOSED NEW PLANT.
7. FOR CLARITY, ONLY EXISTING SEWERS WHICH ARE PROPOSED TO BE ADOPTED OR ALTERED ARE SHOWN. EXISTING COLLECTION SYSTEMS WHICH WILL NOT BE ALTERED HAVE BEEN OMITTED.
8. TEMPORARY DIVERSION SEWERS MAY BE REQUIRED IN ORDER TO MAINTAIN EXISTING PROCESS AND WASTE FLOWS DURING THE CONSTRUCTION AND PERIOD FOR THE PROPOSED PLANT.

Legend:

Drainage Key.

- Existing Surface Water Drainage
- Proposed Surface Water Drainage
- Existing Foul Drainage
- Proposed Foul Drainage Diversion
- Area Boundary
- Surface Water Drainage Catchment Reference (N)
- Direction of Flow
- Existing Process Water Drainage
- Proposed Process Water Drainage Diversion

Existing Outfall Grid Coordinates

	N	E
SW1	114583.2	269060.1
SW2	114580.0	269030.0
SW3	114524.3	268910.6
SW4	114513.6	268806.6
SW12	114594.7	268839.0
SW13	114602.0	268944.0

0 25m 50m

Scale 1:500

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	07/05/10	SK	Issued for IPPCL	MB	DMc

Mott MacDonald

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Client: endesa ireland

Endesa Ireland Ltd. 5th Floor, 3 Grand Canal Plaza, Grand Canal Street Upper, Dublin 4, Ireland
Tel +353 (1) 552 8300 Fax +353 (1) 552 8301

Title

Combined Cycle Gas Turbine
Great Island, Co. Wexford

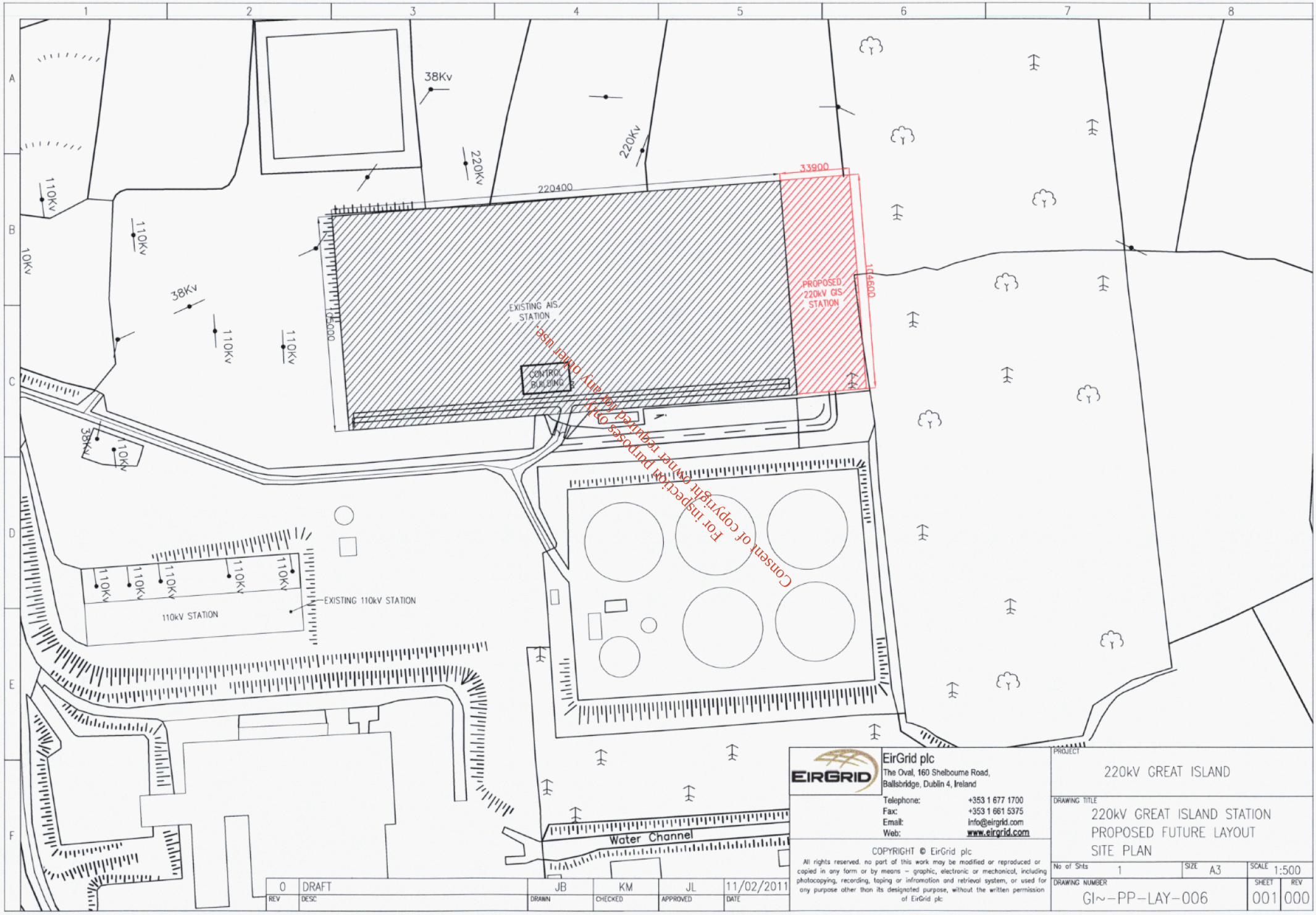
Site Drainage Plan

Designed	D. Murphy		Eng.Chk.	M. Bouchouat	
Drawn	S.Kennedy		Coordination	K. McGarvey	
Dwg.Chk.	K. McGarvey		Approved	D. McRandal	

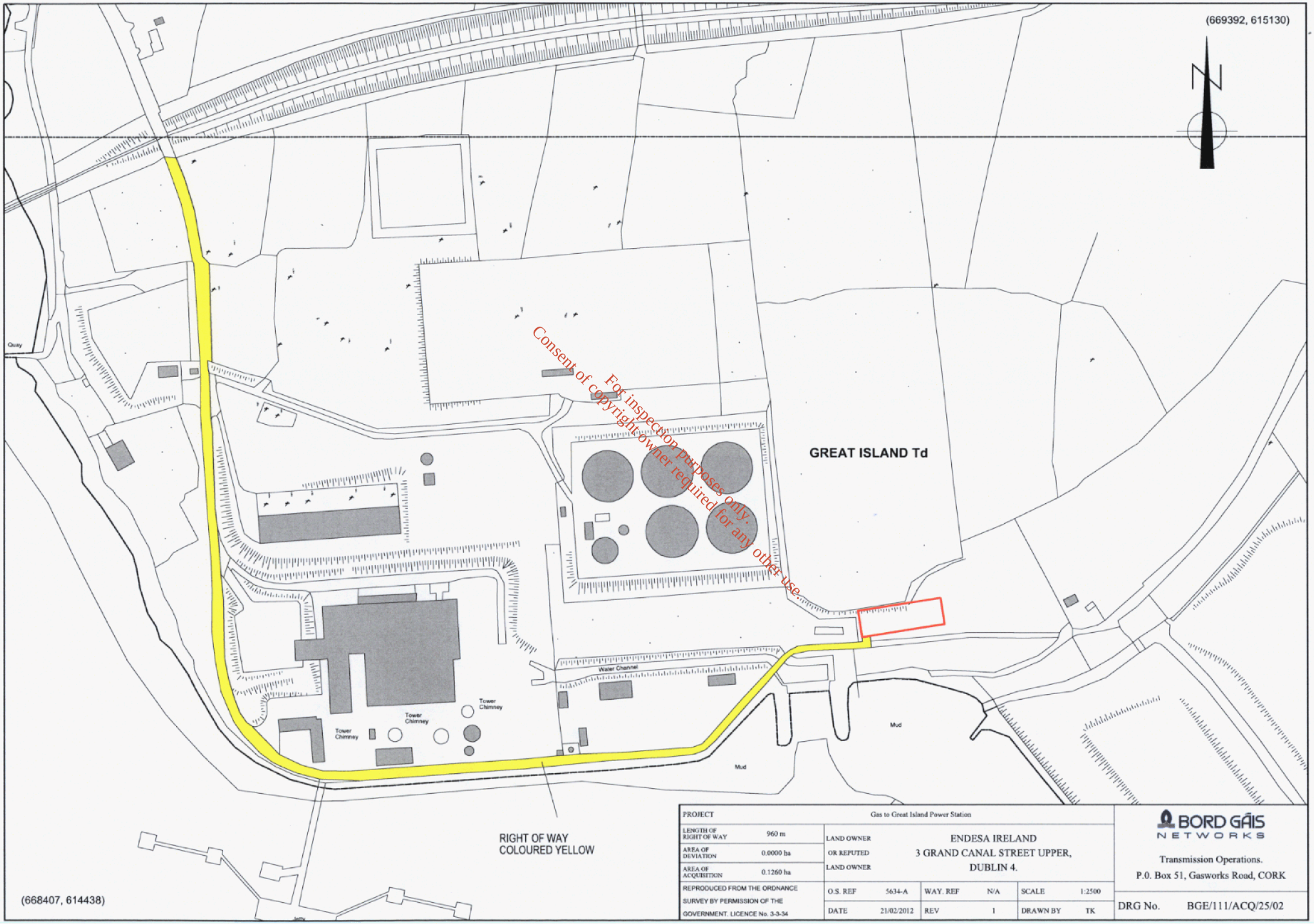
Scale 1:500 | Project 257554 | CAD file Figure E.2.1 | Status APR

Drawing No Figure E.2.1 | Rev P1

APPENDIX B



APPENDIX C



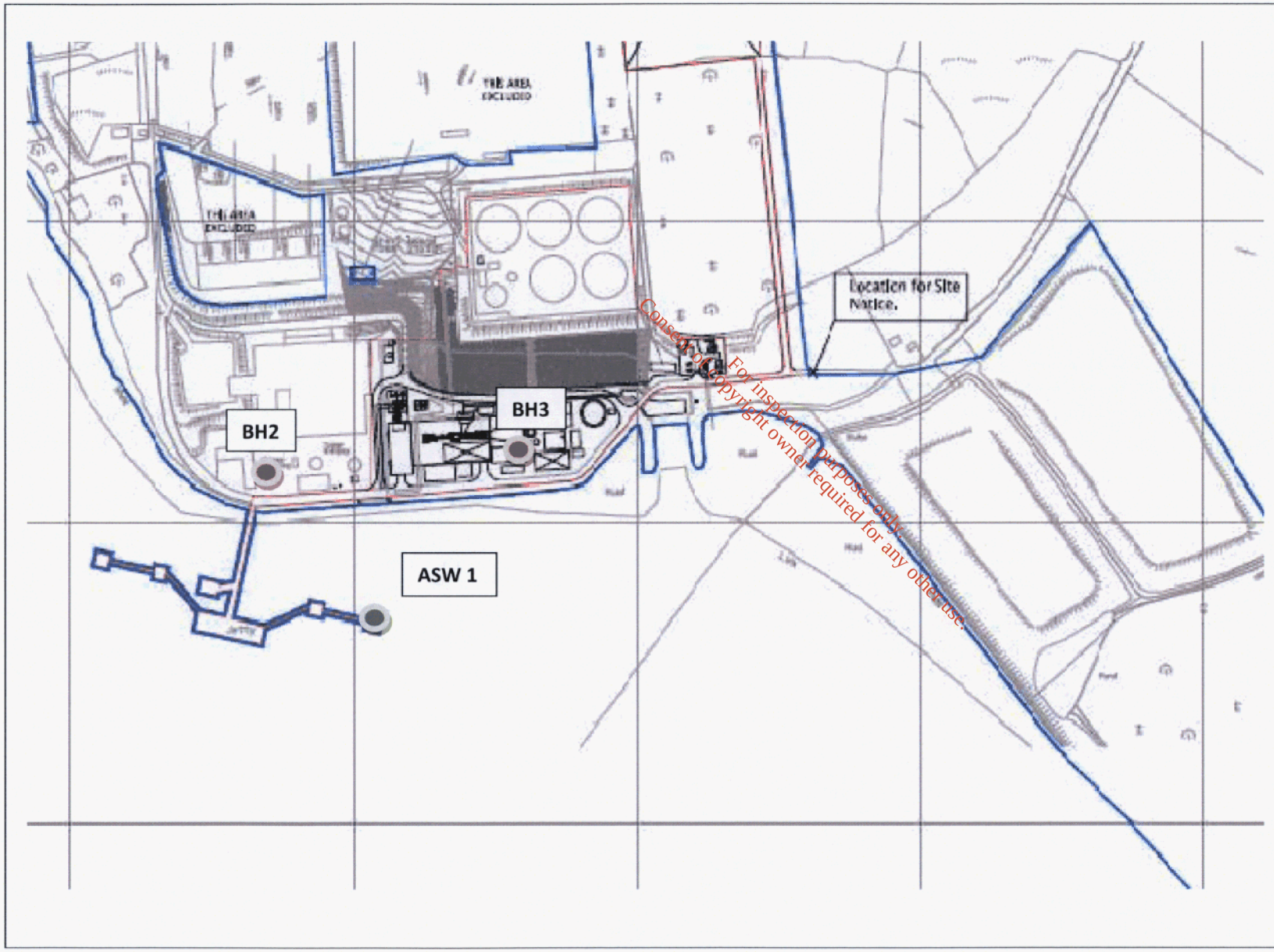
PROJECT	Gas to Great Island Power Station				
LENGTH OF RIGHT OF WAY	960 m	LAND OWNER OR REPUTED LAND OWNER	ENDESA IRELAND 3 GRAND CANAL STREET UPPER, DUBLIN 4.		
AREA OF DEVIATION	0.0000 ha				
AREA OF ACQUISITION	0.1260 ha				
REPRODUCED FROM THE ORDNANCE SURVEY BY PERMISSION OF THE GOVERNMENT. LICENCE No. 3-3-34		O.S. REF 5634-A	WAY. REF N/A	SCALE 1:2500	
		DATE 21/02/2012	REV 1	DRAWN BY TK	

BORD GÁIS NETWORKS
Transmission Operations.
P.O. Box 51, Gasworks Road, CORK

DRG No. BGE/111/ACQ/25/02

Not Archived - Alternative : [Projects]111 Baunlusk to Great Island

APPENDIX D



Title:

BH3 Ground water Monitoring Bore

Site Boundary
Property Boundary

Monitoring Point

0 125m 250m
1:2500

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