

Proposed Glenard Wind Farm Development, Co. Donegal Planning Permission Application Drawings



Schedule of Drawings

Drawing No.	Drawing Title	Scale
190114 - 01	Location Context Map	1: 50,000
190114 - 02	Site Location Map	1: 40,000
190114 - 02a	Site Location Map A	1: 5,000
190114 - 020	Site Location Map D	1: 5,000
190114 - 02d	Site Location Map D	1: 5.000
190114 – 02e	Site Location Map E	1: 5,000
190114 – 02f	Site Location Map F	1: 5,000
190114 – 02g	Site Location Map G	1: 5,000
190114 - 03	Site Layout Key Plan (1:5,000)	1: 20,000
190114 - 04	Site Layout Plan Sheet 1 of 5	1: 5,000
190114 - 05	Site Layout Plan Sheet 2 of 5	1: 5,000
190114 - 06	Site Layout Plan Sheet 3 of 5	1: 5,000
190114 - 07	Site Layout Plan Sheet 4 of 5	1: 5,000
190114 - 08	Site Layout Plan Sheet 5 of 5	1: 5,000
190114 - 09	Site Layout Key Plan (1:2,500)	1: 2,500
190114 - 10	Site Layout Plan Sheet 1 of 14	1: 2,500
190114 - 11	Site Layout Plan Sheet 2 of 14	1: 2,500
190114 - 12	Site Layout Plan Sheet 4 of 14	1: 2,500
190114 - 13 190114 - 14	Site Layout Plan Sheet 5 of 14	1: 2,500
190114 - 15	Site Layout Plan Sheet 6 of 14	1: 2,500
190114 - 16	Site Layout Plan Sheet 7 of 14	1: 2,500
190114 - 17	Site Layout Plan Sheet 8 of 14	1: 2,500
190114 - 18	Site Layout Plan Sheet 9 of 14	1: 2,500
190114 - 19	Site Layout Plan Sheet 10 of 14	1: 2,500
190114 - 20	Site Layout Plan Sheet 11 of 14	1: 2,500
190114 - 21	Site Layout Plan Sheet 12 of 14	1: 2,500
190114 - 22	Site Layout Plan Sheet 13 of 14	1: 2,500
190114 - 23	Site Layout Plan Sheet 14 of 14	1: 2,500
190114 - 24	Turbine 1 Layout	1:500
190114 - 25	Turbine 2 Layout	1:500
190114 - 26	Turbine 3 Layout	1:500
190114 - 27	Turbine 5 Levent	1:500
190114 - 28	Turbine 6 Layout	1:500
190114 - 29 190114 - 30	Turbine 7 Layout	1:500
190114 - 31	Turbine 8 Layout	1:500
190114 - 32	Turbine 9 Layout	1:500
190114 - 33	Turbine 10 Layout	1:500
190114 - 34	Turbine 11 Layout	1:500
190114 - 35	Turbine 12 Layout	1:500
190114 - 36	Turbine 13 Layout	1:500
190114 - 37	Turbine 14 Layout	1:500
190114 - 38	Turbine 15 Layout	1:500
190114 - 39	Temporary Construction Compound 1	1:500
190114 - 40	Temporary Construction Compound 2	1:500
190114 - 41	Borrow Pit Layout and Sections	As shown
190114 - 42	Peat Repository Layout and Sections	As shown
190114 - 43	Met Mast Layout Plan and Elevations	1:500
190114 - 44 190114 - 45	Wind Turbine Flevations and Plan – 107m hub and 66m blade	1:500
190114 - 46	Wind Turbine Elevations and Plan – 96m hub and 70m blade	1:500
190114 - 47	Wind Turbine Elevations and Plan – 96m hub and 66m blade	1:500
190114 - 48	Visitor Car Park Layout	1:500
190114 - 49	Wooden Bench Detail	1:10
190114 - 50	Site and Staff Facilities Detail	1:100
190114 - 51	Amenity Signage Detail	1:20
190114 - 52	Wheelwash Details	1:50
190114 - 53	Pre-cast Concrete Clearspan Watercourse Crossings	1:100
190114 - 54	Steel Barrier Detail	1:25
190114 - 55	Upgrade of Existing Excavated Access Roads	1:50
190114 - 56	Upgrade of Existing Floated Access Roads	1:50
190114 - 57	New Excavate and Keplace Access Road	1:50
190114 - 58	New Floating Access Koad	1:50
190114 - 39 100114 - 60	Proposed Junction Arrangement 1	1:100
190114 - 61	Proposed Junction Arrangement 9	1.1,000
190114 - 62	Proposed Junction Arrangement 3	1:1.500
05701-DR-200	Substation Lavout Plan	1:500
05701-DR-201	Substation Elevations	As Shown

Drawing No.	Drawing Title	Scale
05701-DR-203	Control Building Plan & Elevations	As Shown
05701-DR-204	IPP Building - Plan & Elevations & Section	As Shown
05701-DR-205	Gate & Fencing Details	As Shown
05701-DR-206	Lightning Monopole Foundation Details-18m Masts	As Shown
05701-DR-237	Drainage Details	As Shown
05701-DR-220	Typical Ducting through Roadways	As Shown
05701-DR-221	Typical Ducting through Forestry Road - Section and Elevation	As Shown
05701-DR-226	Typical Ducting through Off Road Sections - Section	As Shown
05701-DR-222	Typical Section Through Ducting in Flat Formation	As Shown
05701-DR-235	110kV Joint Bay Arrangement and Details	As Shown
05701-DR-236	110kV Joint Bay Section Details	As Shown
05701-DR-223	Comms Chamber Detail	As Shown
05701-DR-224	Transition Chamber	As Shown
05701-DR-225	Link Box Chamber Details	As Shown
05701-DR-231	Bridge 1 – Proposed HDD Crossing	As Shown
05701-DR-232	Bridge 2 – Proposed HDD Crossing	As Shown
05701-DR-233	Bridge 3 – Proposed HDD Crossing	As Shown
21691-MWP-SBR-S01-DR-	Tullydush Bridge: Existing Bridge Plan, Elevations and Sections	As Shown
CB-5002		
21691-MWP-SBR-S01-DR-	Tullydush Bridge: Proposed Bridge Plan Layout, Downstream Elevation with Grid Lines &	As Shown
CB-5004	Section A-A	
05701-DR-241	Tullydush Bridge Deck Replacement Environmental Controls	As Shown
05701-DR-234	Bridge 5 – Proposed HDD Crossing	As Shown
05701-DR-244	Bridge 6 – Proposed HDD Crossing	As Shown
05701-DR-230	110kV Trench Ditch/Drain Crossing Detail	As Shown
05701-DR-228	Trench Sections Crossing Existing Culverts/Services	As Shown
05701-DR-229	Trench Sections for Crossing Watermain/Wastewater	As Shown
P1485-0-0222-A1-D101	Proposed Drainage Design – D101	1:2,000
P1485-0-0222-A1-D102	Proposed Drainage Design – D102	1:2,000
P1485-0-0222-A1-D103	Proposed Drainage Design – D103	1:2,000
P1485-0-0222-A1-D104	Proposed Drainage Design – D104	1:2,000
P1485-0-0222-A1-D105	Proposed Drainage Design – D105	1:2,000
P1485-0-0222-A1-D106-	Proposed Drainage Design – D106	1:2,000
00A		
P1485-0-0222-A1-D107	Proposed Drainage Design – D107	1:2,000
P1485-0-0222-A1-D108	Proposed Drainage Design – D108	1:2,000
P1485-0-0222-A1-D501	Drainage Details 1	As shown
P1485-0-0222-A1-D502	Drainage Details 2	As shown
P1485-0-0222-A1-D503	Drainage Details 3	As shown
P1485-0-0222-A1-D504	Drainage Details 4	As shown





















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8. Final levels may vary depending on local ground conditions.

_	Planning Application Boundary	
L	Existing Road to be Upgraded	
	Proposed New Road	
I	Proposed Passing Bay	eland
I	Existing Road no Upgrade Proposed	nt of Ir
	Peat Placement Alongside Access Road	ernme
1	Internal Electrical Cabling Trench	/Gove
-	Proposed Underground Grid Connection Cabling Route	Ireland
1	Cut	urvey
	Fill	nce S
]	Works Area	Ordna
	Assembly Areas	822©
	Crane Pad Hardstanding Area	R0021
	Turbine Foundation	No. A
)	Proposed Max. Turbine Sweep Area	d Licence
	Borrow Pit	Irelan
	Peat & Spoil Repository	Survey
I	Amenity Walkway	Jance
	Area not part of Application	Ordr

Site Layout Key Plan (1:5,000)

Glenard Wind Farm, Co. Donegal		
WING BY:	CHECKED BY: Foin McCarthy	

Joseph O Bhen		
PROJECT No.:	DRAWING No.:	
190114	190114 - 03	
scale: 1:20,000 @ A1	DATE: 03.02.2022	
OS SHEET No.: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109, 0127, 0128, 0129, 0130, 0148, 0149, 0150, 0151		









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8. Final levels may vary depending on local ground conditions.

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Planning Application Boundary	
Existing Road to be Upgraded	
Proposed New Road	
Proposed Passing Bay	eland
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Assembly Areas	Ordna
Crane Pad Hardstanding Area	822©
Turbine Foundation	R0021
Proposed Max. Turbine Sweep Area	e No. A
Proposed Underground Grid Connection Cabling Route	nd Licence
Area not part of Application	Irelar
N	ce Survey

-ROJECT IIILE.	
Glenard Wind Fa	arm, Co. Donegal
DRAWING BY: Joseph O Brien	CHECKED BY: Eoin McCarthy
PROJECT No.: 190114	DRAWING No.: 190114 - 07
SCALE: 1:5,000 @ A1	DATE: 03.02.2022
DS SHEET No -	





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8. Final levels may vary depending on local ground conditions.

Drawing Legend

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Planning Application Boundary	
Existing Road to be Upgraded	
Proposed New Road	
Proposed Passing Bay	eland
Existing Road no Upgrade Proposed	nt of Ir
Peat Placement Alongside Access Road	ernmei
Internal Electrical Cabling Trench	d/Gove
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Crane Pad Hardstanding Area	822©
Turbine Foundation	AR0021
Proposed Max. Turbine Sweep Area	nce No. /
Borrow Pit	id Lice
Peat & Spoil Repository	Irelan
Amenity Walkway N	survey
Area not part of Application	ance S
	Ordn

Site Layout Key Plan (1:2,500)

FROJECT IIILE.	
Glenard Wind F	arm, Co. Donegal
DRAWING BY: Joseph O Brien	CHECKED BY: Eoin McCarthy
PROJECT No.: 190114	DRAWING No.: 190114 - 09
SCALE: 1:20.000 @ A1	DATE: 03.02.2022

OS SHEET No.: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109, 0127, 0128, 0129, 0130, 0148, 0149, 0150, 0151

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8. Final levels may vary depending on local ground conditions.

Drawing Legend

-	Planning Application Boundary	
	Existing Road to be Upgraded	
	Proposed New Road	
l	Proposed Passing Bay	eland
	Existing Road no Upgrade Proposed	nt of Ir
	Internal Electrical Cabling Trench	ernme
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	River/Stream 50m Buffer	r Irelan
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	Works Area	© Ordn
	Assembly Areas	21822@
	Crane Pad Hardstanding Area	AR002
	Turbine Foundation	e No.
)	Proposed Max. Turbine Sweep Area	I Licenc
	Proposed Underground Grid Connection Cabling Route	y Ireland
	Area not part of Application N	Surve
		ance

Bite Layout Plan Sheet 9 of 14

Glenard Wind Farm, Co. Donegal	
DRAWING BY: Joseph O Brien	CHECKED BY: Eoin McCarthy
PROJECT No.: 190114	DRAWING No.: 190114 - 18
SCALE: 1:2,500 @ A1	DATE: 03.02.2022
OS SHEET No.: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109, 0127, 0128, 0129, 0130, 0148, 0149, 0150, 01	

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MKO Planning and Environmental Consultants Tuam Road, Galway

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Ireland, H91 VW84 +353 (0) 91 735611 email: info@www.mkoireland.ie Website: www.mkoireland.ie



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8. Final levels may vary depending on local ground conditions.

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	Planning Application Boundary	
	Proposed New Road	
	Internal Electrical Cabling Trench	
	River/Stream	eland
	River/Stream 50m Buffer	nt of Ir
	Cut	ernme
	Fill	d/Gove
	Works Area	Irelan
	Assembly Areas	urvey
	Crane Pad Hardstanding Area	ance S
	Turbine Foundation	Ordna
	Proposed Max. Turbine Sweep Area)021822©
	Area not part of Application	o. AR(
		and Licence N

Bite Layout Plan Sheet 10 of 14

Glenard Wind Farm, Co. Donegal	
Joseph O Brien	CHECKED BY: Eoin McCarthy
ROJECT No.: 190114	DRAWING No.: 190114 - 19

03.02.2022 1:2,500 @ A1 OS SHEET No.: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109, 0127, 0128, 0129, 0130, 0148, 0149, 0150, 0151

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 Planning Application Boundary	
 River/Stream	
 River/Stream 50m Buffer	
 Proposed Underground Grid Connection Cabling Route	eland
Area not part of Application	nd/Government of Ir
	ъ

DRAWING BY:	CHECKED BY:
Joseph O Brien	Eoin McCarthy
PROJECT No.:	DRAWING No.:
190114	190114 - 21
SCALE: 1:2,500 @ A1	DATE: 03.02.2022
OS SHEET No.: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109,	0127, 0128, 0129, 0130, 0148, 0149, 0150, 0151









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	Drawing Legend
	Proposed New Road
	Proposed Passing Bay
	Amenity Walkway
	Internal Electrical Cabling Trench
	Works Area
1 Mar 1997	Crane Part Hardstanding Area
	Turbine Foundation
43m	
	Proposed Max. Turbine Sweep Area
	O Grahai
1	. AR0021822©
	reland Licence Nc
	DRAWING TITLE Turbine 2 Layout
	PROJECT TITLE: Glenard Wind Farm, Co. Donegal
	DRAWING BY: Joseph O Brien Eoin McCarthy
	PROJECT No.: 190114 DRAWING No.: 190114 - 25
	Stall: 1:500 @ A3 Date: OS SHEET No.: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109
	0127, 0128, 0129, 0130, 0148, 0149, 0150, 0151
	MKO Planing and Environmental Consultants Tuan Road, Galway Ireland, MP1 WB4 +353 (0) 91 735611 email: info@www.mkoireland.ie Wabsite uww.mkoireland.ie
	website: www.mkoireland.ie



T3 ITM 644684, 932840 Level - 180m O.D.	 Project Design Drawing Notes 1. Drawings issued are for planning application purposes only. 2. Drawings not to be used for construction/contract conditions. 3. Copyright, all rights reserved. No part herewith may be copied or reproduced partially or wholly in any form whatsoever without the prior notice of the copyright owner McCarthy Keville O'Sullivan Lid. 4. Do not scale off this drawing. 5. All contractors, whether main or sub-contractors, must visit the site and are responsible for taking and checking any and all dimensions and levels that relate to the works. 6. The use of or relance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing. 8. Final levels may vary depending on local ground conditions.
	Drawing Legend
	Existing Road to be Upgraded Proposed New Road Amenity Walkway Internal Electrical Cabling Trench
	Works Area o transmission of the second seco
	Proposed Max. Turbine Sweep Area
	/ Ireland Licence No. AR
	Turbine 3 Layout
194m	Drawmod BY: CHECKED BY: Eoin McCarthy PROJECT No: 190114 190114 - 26 SCALE: 1:500 @ A3 DATE: 03.02.2022 OS.SHEET No: 0085, 0086, 0087, 0088, 0106, 0107, 0108, 0109, 0127, 0128, 0128, 0130, 0145, 0145, 0151 DATE:
	MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VW84 +333 (09) 1735611 email: info@www.mkoireland.ie Website: www.mkoireland.ie






46m	 Project Design Drawing Notes 1. Drawings issued are for planning application purposes only. 2. Drawings not to be used for construction/contract conditions. 3. Copyright. all rights reserved. No part herewith may be copied or reproduced patiality or wholly in any form whatsoever without the prior notice of the copyright owner McCarthy Kevile O'Sullivan Ltd. 4. Do not scale off this drawing. Figured metric dimensions only should be taken off this drawing. 5. All contractors, whether main or sub-contractors, must visit the site and are responsible for taking and checking any and all dimensions and levels that relate to the works. 6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing. 7. Layout plans shows proposed Maximum Turbine rotor diameter as per turbine drawing. 8. Final levels may vary depending on local ground conditions.
	Drawing Legend Existing Road to be Upgraded
	Proposed New Road Internal Electrical Cabling Trench Works Area Korks Area Crane Pad Hardstanding Area Crane Pad Hardstanding Area Furbine Foundation Proposed Max. Turbine Sweep Area
	- X Survey Ireland Llcence No. AR00218220
	PROJECT TITLE: Glenard Wind Farm, Co. Donegal
	DRAWING TW: CHECKED BY: CHECKED BY: Eoin McCarthy PROJECT No: 190114 DRAWING No: 190114 - 28 SCALE 1:500 @ A3 DATE: 03.02.2022 OG SHEET No: 0085,0086,0087,0088,0106,0107,0108,0109,0151 0151
	Planning and Environmental Consultants Tuan Road, Gaway Ireland, H91 VW84 +353 (0) 91 735611 email: info@www.mkoireland.ie Website: www.mkoireland.ie







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7. Layout plans shows proposed Maximum Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.

Drawing Legend



L	Proposed New Road
	Internal Electrical Cabling Trench
	Works Area
	Assembly Areas
	Crane Pad Hardstanding Area
	Turbine Foundation
)	Proposed Max. Turbine Sweep Area

Existing Road to be Upgraded



Turbine 8 Layout

PROJECT TITLE:		
Glenard Wind Farm, Co. Donegal		
DRAWING BY: Joseph O Brien	CHECKED BY: Eoin McCarthy	
PROJECT No.: 190114	DRAWING No.: 190114 - 31	
scale: 1:500 @ A3	DATE: 03.02.2022	
OS SHEET No.: 0085, 0086, 0087, 0088, 0127, 0128, 0129, 0130,	0106, 0107, 0108, 0109, 0148, 0149, 0150, 0151	
^	MKO Planning and	



262m











200m

















Construction Notes Borrow pit (1) It is proposed to construct the borrow pit so that the base of the borrow pit is below the level of the adjacent section of access road. Depending on the type and condition of rock present in the borrow pit it may be possible to excavate the rock from the borrow pit whilst leaving in place upstands/segments of intact rock which will help to retain the placed peat & spoil. The upstands/segments of intact rock will essentially act as engineered rock buttresses within the borrow pit.

(2) Slopes within the excavated rock formed around the perimeter of the borrow pit should be formed at stable inclinations to suit local in-situ rock conditions.

(3) Infilling of the peat & spoil should commence at the back edge of the borrow pit and progress towards the borrow pit entrance/rock buttress. Excavation and infilling of the borrow pit will need to be sequenced and programmed. Leaving in place upstands/segments of intact rock which will help to retain the placed peat & spoil and will allow the borrow pit to be developed and infilled in cells.

(4) The contractor excavating the rock will be required to develop the borrow pit in a way which will allow the excavated peat & spoil to be reinstated safely.

(5) A rock buttress is required at the downslope edge of the borrow pit to safely retain the infilled peat and spoil. The height of the rock buttresses constructed should be greater than the height of the infilled peat & spoil to prevent any surface peat & spoil run-off. A buttress up to 7m (approx.) in height is likely to be required.

(6) The rock buttress will be founded on competent strata. The founding stratum for the rock buttress should be inspected and approved by a competent person.

(7) In order to prevent water retention occurring behind the buttresses, the buttresses should be constructed of coarse boulder fill with a high permeability.

(8) Where possible, the surface of the placed peat & spoil should be shaped to allow efficient run-off of surface water from the placed arising's.

(9) Control of groundwater within the borrow pit may be required and measures will be determined as part of the ground investigation programme.

(10) All the above-mentioned general guidelines and requirements should be confirmed by the designer prior to construction.

(11) Further guidelines on the construction of the borrow pit is included within Section 7.4 of the Peat & Spoil Management Plan



Borrow Pit Layout & Section

Glenard Wind Farm, Co. Donegal POR ^{Y:} IH 190114 190114 - 41 As Shown @ A3 03.02.2022 OS SHEET No.: 0086, 0087, 0088, 0107, 0108, 0109, 0128, 0129, 0130, 0149, 0150, 0151

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Construction Notes Borrow pit (1) It is proposed to construct the borrow pit so that the base of the borrow pit is below the level of the adjacent section of access road. Depending on the type and condition of rock present in the borrow pit it may be possible to excavate the rock from the borrow pit whilst leaving in place upstands/segments of intact rock which will help to retain the placed peat & spoil. The upstands/segments of intact rock will essentially act as engineered rock buttresses within the borrow pit.

(2) Slopes within the excavated rock formed around the perimeter of the borrow pit should be formed at stable inclinations to suit local in-situ rock conditions.

(3) Infilling of the peat & spoil should commence at the back edge of the borrow pit and progress towards the borrow pit entrance/rock buttress. Excavation and infilling of the borrow pit will need to be sequenced and programmed. Leaving in place upstands/segments of intact rock which will help to retain the placed peat & spoil and will allow the borrow pit to be developed and infilled in cells.

(4) The contractor excavating the rock will be required to develop the borrow pit in a way which will allow the excavated peat & spoil to be reinstated safely.

(5) A rock buttress is required at the downslope edge of the borrow pit to safely retain the infilled peat and spoil. The height of the rock buttresses constructed should be greater than the height of the infilled peat & spoil to prevent any surface peat & spoil run-off. A buttress up to 7m (approx.) in height is likely to be required.

(6) The rock buttress will be founded on competent strata. The founding stratum for the rock buttress should be inspected and approved by a competent person.

(7) In order to prevent water retention occurring behind the buttresses, the buttresses should be constructed of coarse boulder fill with a high permeability.

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(9) Control of groundwater within the borrow pit may be required and measures will be determined as part of the ground investigation programme.

(10) All the above-mentioned general guidelines and requirements should be confirmed by the designer prior to construction.

(11) Further guidelines on the construction of the borrow pit is included within Section 7.4 of the Peat & Spoil Management Plan



1:500

Peat & Spoil Repository Layout & Section

Glenard Wind Farm, Co. Donegal CHECKED BY: POR

PROJECT No.: 190114	DRAWING No.: 190114 - 42	
As Shown @ A3	DATE: 03.02.2022	
NS SHEET NO.: 0086, 0087, 0088, 0107, 0108, 0109, 0128, 0129, 0130, 0149, 0150, 0151		





Drawing Notes

Met mast on site will be free standing met mast depending on site conditions.

Met Mast -Free Standing Mast Glenard Wind Farm, Co. Donegal Joseph O Brien Eoin McCarthy 190114 ^{№.:} 190114 - 43 DATE 03.02.2022 1:500 @ A3 мко

MKO Planning and Environmental Consultants Um Road. Galway Ireland, H91 VW84 +353 (0) 91 735611 emäi: info@www.mkoireland.ie Website: www.mkoireland.ie

Note: Turbine maximum Tip heights of 162 - 173m will be achieved with hub heights in the range of 107m (max) to 96m (Min) configured with turbine blade lengths of maxim 70m to minimum 66m as appropriate.







um grou e to be **Drawing Notes**1. Proposed wind turbines to have a maximur to blade tip height of up to 173m. 2. Exact make and model of the turbine to be a competitive tender process. . . .

pur

- - an Installed wind turbine not to exceed maximu envelope set out above in any blade length hub-height configuration.
- idation diar Turbine foul Ground leve 5. 4.
- ameter may vary. Its the top of turbir C







Drav 1.	Proposed wind turbines to have a maximum ground
N.	Exact make and model of the turbine to be dictated by a competitive tender process.
с. С	Installed wind turbine not to exceed maximum size envelope set out above in any blade length and hub-height configuration.
4.	Turbine foundation diameter may vary.
5.	Ground level represents the top of turbine foundation.



d 70m blade urbine is & Plan	ırm, Co. Donegal	CHECKED BY: Eoin McCarthy DRAWING No.: 190114 - 46	DATE: 03.02.2022	MKO Tuam Road, Galway Ireland, H91 VW84 +353 (0) 91 735611 email: info@www.mkoireland.ie Website: www.mkoireland.ie
DRAWING TITLE: 96m hub and Wind T Elevatior	PROJECT TITLE: Glenard Wind Fa	DRAWING BY: Joseph O Brien PROJECT No: 190114	scale: 1:500 @ A1	<ô> ≥ ∑



Drav	ving Notes
<u></u>	Proposed wind turbines to have a maximum ground to blade tip height of up to 166m.
5.	Exact make and model of the turbine to be dictated by a competitive tender process.
ю.	Installed wind turbine not to exceed maximum size envelope set out above in any blade length and

- 5.



DRAWING TITLE: 96m hub and Wind Ti Elevation	l 66m blade urbine s & Plan
PROJECT TITLE: Glenard Wind Fa	rm, Co. Donegal
DRAWING BY: Joseph O Brien	снескер _в ү: Eoin McCarthy
PROJECT No.: 190114	DRAWING No.: 190114 - 47
scale: 1:500 @A1	DATE: 03.02.2022
	MKO Tuam Road, Galway Ireland, H91 VW84
	Website: www.mkoireland.ie



Drawing Notes 1. Proposed wind turbines to have a maximum ground to blade tip height of up to 162m. 2. Exact make and model of the turbine to be dictated by a competitive tender process. 3. Installed wind turbine not to exceed maximum size envelope set out above in any blade length and Installed wind turbine not to exceed maximu envelope set out above in any blade length hub-height configuration.

- ter may vary. he top of turbir idation diar Turbine foul Ground leve 5.4
- ts th







Bench Side Elevation

Bench Front Elevation

Proposed Bench Detail OJECT TITLE: Glenard Wind Farm, Co. Donegal Joseph O Brien Eoin McCarthy PRO.IF 190114 190114 - 49 1:10 @ A3 03.02.2022 мко Planning and Environmental

~ MKO> V

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Elevation A



Rainwater gutter & down pipe





Elevation C



Section 1-1









Signage Type A - Entry Point Signage

Signage Type B - Waypoint Map Signage

Note For illustrative purposes only exact details to be confirmed



Signage Type C - Way Point Direction Signage

Amenity Signage Detail		
PROJECT TITLE: Glenard Wind Farm, Co. Donegal		
Joseph O Brien	CHECKED BY: Eoin McCarthy	
PROJECT No.: 190114	DRAWING No.: 190114 - 51	
SCALE: 1 :20 @ A3	DATE: 03.02.2022	
мко̂	MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VW84 +353 (0) 91 735611 email: Info@www.mkoireland.ie Website: www.mkoireland.ie	



Section A-A



Note Wheel washes will be appropriately located at all entrances used during construction of the wind farm



Wheel Wash Detail

Glenard Wind Farm, Co. Donegal

ROJECT TITLE:

DRAWING BY:	CHECKED BY:
Joseph O Brien	Eoin McCarthy
PROJECT No.:	DRAWING No.:
190114	190114 - 52
SCALE: 1:50 @ A3	DATE: 03.02.2022
1:50 @ A3	03.02.2022

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Pre-Cast Concrete Clearspan Watercousre Crossing





Deriver of the product of the product

MKO

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Environmental Consultants Tuam Road, Galway Ireland, H91 VW84 +353 (0) 91 735611 email: info@www.mkoireland.ie Website: www.mkoireland.ie





Elevation









Upgrade of Existing Excavated Access Roads

DRAWING TITLE

 PROJECT TITLE
 Glenard Wind Farm, Co. Donegal

 DRAWING BY
 CHECKED BY:

 PROJECT No:
 190114

 DRAWING No:
 190114 - 55

 SCALE:
 03.02.2022

 OS SHEET No:
 03.02.2022





Upgrade of Existing Floated Access Roads

WING TITL

Glenard Wind Farm, Co. Donegal		
DRAWING BY: POR	CHECKED BY:	
PROJECT No.: 190114	DRAWING No.: 190114 - 56	
scale: 1:50 @ A3	DATE: 03.02.2022	
OS SHEET No :		

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New Excavate and Replace Access Road		
PROJECT TITLE:		
Glenard Wind Farm Co. Donegal		
Cionara Vina Farm, Co. Bonogar		
	CHECKED BY:	
PROJECT No.: 190114	DRAWING No.: 190114 - 57	
scale: 1:50 @ A3	DATE: 03.02.2022	
DS SHEET No.:		

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WING TITLE



Indicative cable duct trench (only located on one side of roadway across majority of the site). Cable trench can be located on either side of the road surface but where possible it should be located on the upstream side of the road surface.



New Floating Access Road

Glenard Wind Farm, Co. Donegal

PROJECT TITLE:

Notes:

Interceptor ditch —

Placed excavated spoil

In-Situ Peat

Spoil material will spread to a depth not exceeding 1m in height.
 See section 7.4 of the Peat & Spoil Management Plan.
 Indicative locations are given for drainage measures such as drainage ditches.



-

5.0m width

Solid/Competant Strata

Floated access road

2 to 3m (approx.)

Selected granular fill —

2 to 3m (approx.)

DRAWING TITLE:	
Peat and Spoil Pla Infrastructu	acement Alongside re Elements
PROJECT TITLE:	
Glenard Wind F	arm, Co. Donegal
DRAWING BY: POR	CHECKED BY:
PROJECT No.: 190114	DRAWING No.: 190114 - 59
SCALE: 1:100@ A3	DATE: 03.02.2022
OS SHEET No.:	
	Cork Dublin Carlow



Proposed Junction Arrangement 1		
ROJECT TITLE:		
Glenard Wind Farm, Co. Donegal		
RAWING BY: Joseph O Brien	CHECKED BY: Eoin McCarthy	
ROJECT No.:	DRAWING No.:	

occepti o Brien	
ROJECT No.:	DRAWING No.:
190114	190114 - 60
1:1,500 @ A3	03.02.2022

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Proposed Junction Arrangement 2		
JECT TITLE:		
Glenard Wind Farm Co. Donegal		

DRAWING BY:	CHECKED BY:
Joseph O Brien	Eoin McCarthy
PROJECT No.:	DRAWING No.:
190114	190114 - 61
SCALE: 1:1,000 @ A3	DATE: 03.02.2022





Proposed Junction Arrangement 3

Glenard Wind Farm, Co. Donegal

DRAWING B	IY:	CHECKED BY
	Joseph O Brien	Eoin McCarthy
PROJECT N	0.:	DRAWING No.:
· ·	190114	190114 - 62
SCALE:		DATE:
	1:1,500 @ A3	03.02.2022

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Section A-A Elevation SCALE 1:200





Section B-B Elevation SCALE 1:200



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Basepoint Business Centre Stroudley Road, Basingstoke Hampshire, RG24 8UP, UK Tel: 00 44 1256406664

PROJECT

Glenard Wind Farm 110kV Grid Connection

CLIENT

FuturEnergy

CONSULTANTS

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NOTES

1. Layout and Arrangements of Substation Building and Electrical Equipment is shown indicatively and for illustration purposes only.

- Dimensions shown are as per current EirGrid Specific at the time of submission. Dimensions may vary at tir construction to reflect any revisions to EirGrid Specifications.
- . Final Specifications of Buildings and Electri to be as per Eirgrid and ESB Specifications
- The Elevation of the Compound will be depict Topography such that Cut/Fill Earthworks ass the construction of the Compound are balance

LEGEND: -

	Description
SA	Surge Arrester.
DL/DE	Line / Earth Disconnect.
DT	ESB Disconnect
VT	Voltage Transformer.
CT	Current Transformer.
CB	Circuit Breaker.
PI	Post Insulator.
LM	Lighting Mast.
LS	Lamp Standard
CSE	Cable Sealing End

ISSUE/REVISION

P03	18.01.22	Issued for Planning
P02	18.11.21	Issued for Planning
P01	26.05.21	Issued for Planning
P0	30.10.20	Draft for Planning
I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

Substation Elevations

SHEET NUMBER





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PROJECT

Glenard Wind Farm 110kV Grid Connection

CLIENT

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CONSULTANTS

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NOTES:

See General Notes

LEGEND: -

UGC Grid Connection Route shown thus	
Required Infrastructure	
Future Infrastructure (Space Only - Not be constructed as part of the planning applica	ing ation)
Existing Levels shown thus	
Proposed Levels shown thus	
Permanent Paved Access Roads shown thus	
Proposed Foul Sewer shown thus	
Proposed Clean Storm Water shown thus	
Proposed Dirty Storm Water shown thus	
Water supply from Harvesting Tank shown thus	
Lamp Standard	\odot
ISSUE/REVISION	

-		
-		
P03	18.01.22	Issued for Planning
P02	18.11.21	Issued for Planning
P01	26.05.21	Issued for Planning
P0	26.11.20	Issued for Information
I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

Substation Layout Plan

SHEET NUMBER



ISO A1 594mm x 84

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PROJECT

Glenard Wind Farm 110kV Substation

CLIENT

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NOTES:

 Layout and Arrangements of Substation Building and Electrical Equipment is shown indicatively and for illustration purposes only.

- Dimensions shown are as per current EirGrid Specifications at the time of submission. Dimensions may vary at time of construction to reflect any revisions to EirGrid Specifications.
- Final Specifications of Buildings and Electrical Equipment is to be as per Eirgrid and ESB Specifications.
- The Elevation of the Compound will be depicted by localizer Topography such that Cut/Fill Earthworks associated with the construction of the Compound are balanced.
 LEGEND: -

Levels shown thus	
Concrete Footpath shown thus	
Foul Sewer shown thus	
Clean Storm Water shown thus	
Dirty Storm Water shown thus	
Water supply from Harvesting Tank shown thus	

ISSUE/REVISION

P04	18.01.22	Issued for Planning
P02	18.11.21	Issued for Planning
P01	26.05.21	Issued for Planning
P00	30.10.20	Draft for Planning
I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

IPP Building - Plan & Elevations & Section

SHEET NUMBER



______279.10m

SO A1

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Palisade Fencing Details - Elevation SCALE 1:40

Palisade Fencing Details - Section SCALE 1:40



ISO A3 297mm x 420mm

Typical Gate Elevation

SCALE 1:40



ISSUE/REVISION

P03	28.01.22	Issued for Planning
P02	18.01.22	Issued for Planning
P01	26.05.21	Issued for Planning
P00	30.10.20	Issue for Approval
I/R	DATE	DESCRIPTION

PROJECT Glenard Windfarm

FuturEnergy

CLIENT

110kV Grid Connection

SHEET TITLE Gate and Fence Details

DRAWING STATUS For Planning PROJECT NUMBER 05-701

SHEET NUMBER

05701-DR-205-P03

LEGEND/NOTES: -

- This drawing is to be read in conjuction with relevant drawings, specifications and reports
- Dimensions are in millimetres, unless noted otherwise
- Drawings are not to be scaled use figured dimensions only

GENERAL NOTES:

- 1. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL ENGINEERS AND ARCHITECTS DRAWINGS
- 2. ALL CONCRETE TO BE IN ACCORDANCE WITH I.S. EN 206-1:2002 WITH THE MIX DESIGNS SHOWN IN TABLE 1
- 3. CONCRETE FINISHES TO BE IN ACCORDANCE WITH TABLE 6.1 OF THE ESBI SPECIFICATION CS17-SO1-005.
- 4. ALL REINFORCEMENT SHALL BE IN ACCORDANCE WITH BS4449 AND SCHEDULED IN ACCORDANCE WITH BS.8666. 300MM LAPS FOR A142 MESH 600MM MIN LAPS FOR A393 MESH.
- 5. REFER ALWAYS TO RELEVANT EARTH GRID DRAWING PRIOR TO EXCAVATIONS & CONCRETE POURS
- 6. GEOMETRICAL TOLERANCES TO BE IN ACCORDANCE WITH TABLE 6.2 OF ESBI SPECIFICATION CS17-S01-005

FOUNDATION NOTES:

7. GROUND TO HAVE A MINIMUM BEARING CAPACITY OF 100 kN/M².

8. FORMATION LEVEL AND FOUNDATIONS TO BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO ANY CONCRETE BEING POURED.

9. ALL FOUNDATIONS ARE TO BE BLINDED IMMEDIATELY AFTER EXCAVATION WITH 50MM OF C16/20 CONCRETE BLINDING.

10. REFER ALWAYS TO THE RELEVANT EARTH WORK DRAWINGS PRIOR TO EXCAVATIONS & CONCRETE POURS.





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ISO A3 297mm x 420mm







1917: 2002

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BACKDROP DETAIL" ABOVE.

DISTANCE BETWEEN TOP OF -

150 mm THICK ABOVE HIGHEST

Typical Precast Ring Manhole Scale : 1:25

PIPE SLOPE OF BENCHING TO

PIPE AND UNDERSIDE OF PC

CHAMBER 50 mm

BENCHING TO BE

FORM INVERT USING

BE 1 IN 6

CHANNEL PIPE

Typical Road Gully Detail Scale : 1:25



Typical Channel Drain Scale : 1:25

"ACO S200" CHANNEL DRAIN OR SIMILAR - APPROVED. WITH SLOTTED DUCTILE IRON GRATING TO I.S.EN 124 CLASS D400. GRATING TO BE 3 mm BELOW ROAD SURFACE.

> -C30/37 IN-SITU CONCRETE BED & HAUNCH TO ACO DRAIN.



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PROJECT

Glenard Wind Farm 110kV Grid Connection

CLIENT



NOTES: -

- This drawing is to be read in conjuction with relevant drawings, specifications and reports
- Dimensions are in millimetres, unless noted otherwise
- Drawings are not to be scaled use figured dimensions only

LEGEND: -

ISSUE/REVISION

P01	18.01.22	Issued for Planning
P00	26.05.21	Issued for Planning
I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

Drainage Details

SHEET NUMBER





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BACKDROP DETAIL" ABOVE.

DISTANCE BETWEEN TOP OF -

150 mm THICK ABOVE HIGHEST

Typical Precast Ring Manhole Scale : 1:25

PIPE SLOPE OF BENCHING TO

PIPE AND UNDERSIDE OF PC

CHAMBER 50 mm

BENCHING TO BE

FORM INVERT USING

BE 1 IN 6

CHANNEL PIPE

Typical Road Gully Detail Scale : 1:25



Typical Channel Drain Scale : 1:25

"ACO S200" CHANNEL DRAIN OR SIMILAR - APPROVED. WITH SLOTTED DUCTILE IRON GRATING TO I.S.EN 124 CLASS D400. GRATING TO BE 3 mm BELOW ROAD SURFACE.

> -C30/37 IN-SITU CONCRETE BED & HAUNCH TO ACO DRAIN.



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PROJECT

Glenard Wind Farm 110kV Grid Connection

CLIENT



NOTES: -

- This drawing is to be read in conjuction with relevant drawings, specifications and reports
- Dimensions are in millimetres, unless noted otherwise
- Drawings are not to be scaled use figured dimensions only

LEGEND: -

ISSUE/REVISION

P01	18.01.22	Issued for Planning
P00	26.05.21	Issued for Planning
I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

Drainage Details

SHEET NUMBER

Permanent Reinstatement

Reinstatement details based on Guidelines for Managing Openings in Public Roads - SD4



Section Through Permanent Reinstatement of Longitudinal Opening in Roadway

SCALE 1:10

Temporary Reinstatement





Reinstatement details based on Guidelines for Managing Openings in Public Roads - SD5



Section Through Permanent Reinstatement of Longitudinal Opening in Dressed Rural Unbound Roadway

SCALE 1:10

ACCORDANCE WITH LOCAL AREA ENGINEERS **REQUIREMENTS AND GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS**

1. Refer to Guidelines for managing Openings in Public Roads (Purple Book - April 2017), Chapter 6

All bound edges shall be saw cut to expose the full vertical thickness of each layer prior to

3. Where a temporary surface has been used, material shall be planed out to the depth specified in this drawing. The new permanent surface shall be machined laid and mechanically compacted with

4. Where the trimmed edge of excavation is within 400mm* of a joint / edge, ironwork or other reinstatement, this trimmed edge shall be extended to include same and the area of reinstatement

5. Any damaged area adjacent to the opening and resulting from the excavation operation shall be

6. Clause 808 or Cement Bound Granular Material surface to be sprayed per clause 920 prior to

Joint sealer shall be a hot 50 pen bitumen binder or cold thixtropic bitumen 50 -70 pen to be applied to all vertical cuts in accordance with B.S.594987 prior to application of bituminous materials.

8. For roads without asphalt concrete surface (e.g. may be Cl.804 with double surface dressing), the road authority may as its discretion permit the temporary reinstatement surface of asphalt concrete to be regulated in lieu of excavation and reinstatement; and subsequently surface dressed.

10. Where required by the Road authority the trench may be reinstated with a Cement Bound Granular

ALL REINSTATEMENT WORKS ARE TO BE IN ACCORDANCE WITH LOCAL AREA ENGINEERS **REQUIREMENTS AND GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS**

1. Refer to 'Guidelines for managing Openings in Public Roads (Purple Book - April 2017)', Chapter 6 'Specifications' for guidance on Duct type / colour and Marker Tape type / colour.

3. Clause 808 surface to be sprayed per clause 920 prior to application of Asphalt Concrete Layer.

5. Licence holder must maintain temporary reinstatement to a safe and acceptable standard.

6. Any damaged area adjacent to the opening and resulting from the excavation operation shall

7. Temporary Road Surface warning signs must be used in accordance with the Traffic Signs

8. Refer to detail Permanent Reinstatement of Road for advice on permanent reinstatement - all permanent reinstatement shall be carried out when adequate settlement has occurred as



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PROJECT

Glenard Windfarm 110kV Grid Connection

CLIENT

FuturEnergy

CONSULTANTS

NOTES: -

•	This drawing is to be read in conjunction with relevant
	drawings, specifications and reports
•	Dimensions are in millimeters, unless noted otherwise

Drawings are not to be scaled use figured dimensions only Geogrid may be implemented along the cable trench route where deemed necessary by the contractor or as required by Donegal County Council

LEGEND: -

ISSUE/REVISION

	00.04.00	
P03	28.01.22	Issued for Planning
P02	18.01.22	Issued for Planning
P01	26.05.21	Issued for Planning
P00	06.11.20	Issued for Information
I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

Ducting Through Roadways

SHEET NUMBER



A = 125mm: Outer Diameter HDPE ESB Approved Duct, SDR=17.6 B= 160mm : Outer Diameter HDPE ESB Approved Duct, SDR= 21 C = 63mm: ECC Earth Continuity Conductor

Section Through Forestry Road

ALL REINSTATEMENT WORKS ARE TO BE IN

ACCORDANCE WITH LANDOWNERS REQUIREMENTS

SHEET NUMBER

05701-DR-221

SCALE 1:10

Note:

- This drawing is to be read in conjunction with • relevant drawings, specifications and reports
- Dimensions are in millimeters, unless noted otherwise
- Drawings are not to be scaled use figured ٠ dimensions only



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CLIENT

PF	KO1	EC	L	

Glenard Wind Farm 110 kV Grid Connection

PROJECT NUMBER 05-701

SHEET TITLE

Ducting through Forestry Road

DRAWING STATUS For Planning Cl.804 compacted in layers finished with screenings

Yellow Marker Warning Tape 500mm Wide ESBN Approved Material Only

Backfill with selected backfill material compacted, (Max grain size 75mm) in layers of 150mm to avoid residual consolidation and to improve thermal properties

1 x Red Cable Marker Strip 400mm Wide x 2.5mm ESBN Approved Material Only

12mm Diameter Pull Ropes

1 x Red Cable Marker Strip 400mm Wide x 2.5mm ESBN Approved Material Only

Ducts laid in CBGM B (CL 822), Full tests required. Compacted to Cl. 813.10 of TII specification for roadworks (15n/mm² after 7 days)

12mm Diameter Pull Ropes

ISSUE/REVISION		
P03	28.01.22	Issued for Planning
P02	18.01.22	Issued for Planning
P01	26.05.21	Issued for Planning
P00	06.11.20	Issued for Information
I/R	DATE	DESCRIPTION



A = 125mm: Outer Diameter HDPE ESB Approved Duct, SDR=17.6 B= 160mm : Outer Diameter HDPE ESB Approved Duct, SDR= 21 C = 63mm: ECC Earth Continuity Conductor

Section Through Off Road Sections

SCALE 1:10



ISSU	ISSUE/REVISION		
P03	28.01.22	Issued for Planning	
P02	18.01.22	Issued for Planning	
P01	26.05.21	Issued for Planning	
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B= 160mm : Outer Diameter HDPE ESB Approved Duct, SDR=21

ALL REINSTATEMENT WORKS ARE TO BE IN

ACCORDANCE WITH LOCAL AREA ENGINEERS

LANDOWNERS REQUIREMENTS AND GUIDELINES FOR

MANAGING OPENINGS IN PUBLIC ROADS

SHEET NUMBER

05701-DR-222

C = 63mm: ECC Earth Continuity Conductor

Section Through Ducting in Flat Formation

SCALE 1:10

Note:

- This drawing is to be read in conjunction with • relevant drawings, specifications and reports
- Dimensions are in millimeters, unless noted otherwise
- Drawings are not to be scaled use figured . dimensions only



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PROJECT **Glenard Wind Farm**

110 kV Grid Connection

PROJECT NUMBER 05-701

SHEET TITLE

Section Through Ducting in Flat Formation DRAWING STATUS For Planning

C25/30 concrete to be in accordance with specification for road works 1000. 20mm max size of aggregate, with minimum duct spacing of 75mm. Min. cover to steel - 50mm.

4 X 400mm ESBN yellow warning tape across full width of trench

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SECTION A-A



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PROJECT

Glenard Wind Farm 110kV Grid Connection

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CONSULTANTS

NOTES: -

See General Notes

LEGEND: -

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P0	06.11.20	Issued for Information
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I/R	DATE	DESCRIPTION

PROJECT NUMBER

05-701

SHEET TITLE

110kV Joint Bay General Arrangement and Details

SHEET NUMBER

05701-DR-235

AFTER PLACING THE DUCTS VOID IS TO BE PACKED WITH - CONCRETE C16/20 ×----4 PER UNIT

CONTAINING A NON-SHRINK ADDITIVE BY EIRGRID 10 T HALFEN DEHA SPHERICAL LIFTING ANCHORS. REF: 6000-10.0-0170

30mmØ OPENING IN SLAB



	Х	Y	Z	W
110kV	560	400	400	760
220kV	375	675	675	375



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PROJECT

Glenard Wind Farm 110kV Grid Connection

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NOTES: -

See General Notes

LEGEND: -

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28.01.22	Issued for Planning
18.01.22	Issued for Planning
26.05.21	Issued for Planning
DATE	DESCRIPTION
	28.01.22 18.01.22 26.05.21 DATE

PROJECT NUMBER

05-701

SHEET TITLE

110kV Joint Bay Section details

SHEET NUMBER

NOTES:

- 1. This drawing is to be read in conjunction with relevant drawings, specifications and reports.
- 2. Dimensions are in millimetres, unless noted otherwise.
- 3. Drawings are not to be scaled use figured dimensions only.
- Reinstatement to comply with requirements of the relevant 4. local Authority/Asset owner
- 5. Entrance & Exit ducts to be in line
- All material and workmanship to be in accordance with the 6. NRA./TII specification for Roadworks, May 2005 and subsequent revisions
- 7. Reinforced concrete to be a minimum grade C32/40, Sulphate resisting cement to be used where aggressive soil conditions apply, refer to table 6.1 of B.S. 8110.
- Carraigeway covers and frames to be to B.S. 124. 8.
- 9. All covers to have ESB logo incorporated in them to the approval of Eirgrid
- 10. Step irons to be hot dipped glvanised to B.S. 729 and positioned as shown on any chamber deeper than 700mm on the end remote from any side entry duct.
- 11. Concrete precast chamber and cover should be tested through a 5 point 40 tonnes vertical static loading test by an independent test company, if required, further details will be provided by Eirgrid.
- 12. Final position of C2 chambers shall be agreed with Eirgrid.
- 13. In a forest environment backfill with lean mix outside the cover frame.
- 14. This drawing is subject to Eirgrid design approval.



C2 Chamber Detail - Section A

SCALE 1:20



Isometric : C2 Chamber Arrangement

05701-DR-223



PROJECT SHEET TITLE **Glenard Wind Farm Communications Chamber Details** 110kV Grid Connection PROJECT NUMBER SHEET NUMBER DRAWING STATUS

Head Office

SCALE 1:20

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05-701

For Planning

C2 Chamber Detail - Section B **SCALE 1:20**

294

3/4" BSP FITTING

CAST INTO CONCRETE

294

325

RECESS TO BE 1-2mm

MORE THAT FRAME OF COVER

GRADE C30/37 CONCRETE

TO BE USED AROUND LID



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P02	18.01.22	Issued for Planning	
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ALL CHAMFERS: 25x25mm	ESBN APPROVED - YELLOW WARNING TAPE _RED CABLE MARKER STRIPS

ISSU	ISSUE/REVISION		
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P01	26.05.21	Issued for Planning	
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- 3. Drawings are not to be scaled use figured dimensions only. 4. All material and workmanship to be in accordance with the NRA./TII specification for Roadworks, May 2005 and

 - Sulphate resisting cement to be used where aggressive soil

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P01	26.05.21	Issued for Planning
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ISO A3 297mm x 420mm



tions are shown in meters unless otherwise stated ural bridge surveys have been carried out and the proposals are detail design are in compliance with ESBN specification requirements for rmation, bridge crossings, etc. ch and reception pit locations to be determined following site on loor Level (FFL) to local DATUM
o No. 2
Windfarm
ad Level - 91.63m FFL ▽
ISSUE/REVISION
P02 18 01 22 Issued for Planning
P01 26.05.21 Issued for Planning
PUU 06.11.20 Issued for Information



NOTE	<u>:S:</u>
•	All dimensions are shown in meters unless otherwise stated
•	No structural bridge surveys have been carried
	out and the proposals are subject to detail design
•	Drawings are in compliance with ESBN
	specification requirements for shallow formation,
	bridge crossings, etc.
•	HDD launch and reception pit locations to be

Finished Floor Level (FFL) to local DATUM

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79.900 SOFFIT

EAST

79.753

78.650

78.940

CROSS SECTION SCALE : 1:25

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- 6. LANDS SUBJECT TO PLANNING APPLICATION OUTLINED IN RED.

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REV	DATE	DESCRIPTION	ΒY	APP

MEENYANLY AND TULLYDUSH BRIDGE REPLACEMENTS

TULLYDUSH BRIDGE: EXISTING BRIDGE PLAN, ELEVATIONS AND SECTION

PROJECT:

ITI E

TLI GROUP



Malachy Walsh and Partners Engineering and Environmental Consultants Cork | Tralee | London | Limerick

Park Hous Mahon Te Bessboro Blackrock Ls. EN 150 9001	se Tel chnology Park fax. Road E-mai	: +353 (0)21 4536400 : +353 (0)21 453645 I : drawing@mwp.ie
B.C.	CHECKED: C.H.	APPROVED: P.O'D
DATE: 19/01/21	SCALE @ A1: AS SHOWN	

DRAWING STATUS: S2 PROJECT NUMBER: 21691 DRAWING NUMBER: 21691-MWP-SBR-S01-DR-CB-5002



SCALE : 1:25

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- 2. ALL LEVELS ARE IN METRES RELATED TO ORDNANCE DATUM MALIN HEAD. 3. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
- 4. DRAWINGS ARE NOT TO BE SCALED.
- 5. ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS NOTED OTHERWISE.
- 6. LANDS SUBJECT TO PLANNING APPLICATION OUTLINED IN RED.
- . INDICATIVE LINE OF UNDERGROUND POWER CABLE.

8. INDICATIVE LINE OF UNDERGROUND COMMUNICATION CABLE.

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 P02
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 P01
 22 / 01 / 21
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 DESCRIPTION REV DATE

MEENYANLY AND TULLYDUSH BRIDGE REPLACEMENTS

TULLYDUSH BRIDGE: PROPOSED BRIDGE PLAN LAYOUT, DOWNSTREAM

ELEVATION WITH GRID LINES & SECTION A-A

Malachy Walsh and Partners

Engineering and Environmental Consultants

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P.O'D.

E-mail : drawing@mwp.ie

DRAWING STATUS: S2

TLI GROUP

CONSULTING ENGINEERS:

I.S. EN ISO 9001 Mahon Blackro Cork.

B.C.

DATE: 19/01/21

Cork

Park House

Blackrock

21691

Bessboro Road

Mahon Technology Park

HECKED

C.H.

SCALE @ A1: AS SHOWN

NUMBER: 21691-MWP-SBR-S01-DR-CB-5004 P01

ROJECT

RAW

PROJECT NUMBER:







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PROJECT

Glenard Wind Farm 110kV Grid Connection Tullydush Bridge

CLIENT

Road

Road

FuturEnergy

CONSULTANTS

мко

NOTES: -

LEGEND: -

Sand Bags shown thus Pump River Network shown thus Section of bridge to be dismantled in phases



ISSUE/REVISION

01.02.22	Issued for Planning
18.01.22	Issued for Planning
23.08.21	Issued for Approval
DATE	DESCRIPTION
	01.02.22 18.01.22 23.08.21 DATE

PROJECT NUMBER

05-701

SHEET TITLE

Tullydush Bridge Deck Replacement Environmental Controls

SHEET NUMBER







Scale : 1:25





Double Trench Ditch/ Drain Crossing Elevation

SCALE 1:75



A = 125mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=17.6 B = 160mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=21

Concrete Bed & Surround Method Under Ditch/ Drain

LEGEND: -

NOTES: -

• See notes in drawing window

ISSUE/REVISION

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PROJECT NUMBER

05-701

SHEET TITLE

110kV Trench Ditch/Drain **Crossing Detail**

SHEET NUMBER



11. All Products and materials to be utilised during construction to comply with Eirgrid functional specification for road works and all relevant Irish (European) and British standards 12. 300mm minimum vertical and horizontal clearances to be observed between cable ducts and third party services (e.g. gas pipes, water mains, culverts etc.) In the case of high risk 3rd party services, greater clearances mat be required. Designer to consult Eirgrid and 3rd party service owners for

13. Steel plates must cover ducts. No overlap is required however standard dimensions may result in an overlap. Spacing of 10mm to be maintained between steel plates to prevent the transfer of stray current.

14. Templates are to be used at 5m intervals during duct installation in CBGM. Pre-made 75mm wide concrete spacers to be used during duct installation in wet concrete 15. If existing service marker tape is not present, the ESBN yellow marker tape should be installed at maximum 300mm below finished surface level

16. Where duct for Earth Continuity Conductor (ECC) is required for single point bonded sections, attach the 63mm ECC duct to the B1 duct and update the trench width accordingly.

FINISHED GROUND / ROAD LEVEL

EXISTING CULVERT/SERVICE.

STEEL MESH, RED MARKER STRIPS 6x200mm LINKED TO 6x200mm GALVANIZED STEEL PLATES (1M EITHER SIDE OF SERVICE)

A = 125mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=17.6

STEEL MESH, RED MARKER STRIPS 6x200mm LINKED TO 6x200mm GALVANIZED STEEL PLATES (1M EITHER SIDE OF SERVICE) - RAPID HARDENING WET CONCRETE GRADE C25/30 - EXISTING GROUND

EXISTING CULVERT / SERVICE



A = 125mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=17.6 B = 160mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=21

> YELLOW MARKER WARNING TAPE A393 STEEL REINFORCEMNET MESH 6mm GALVANISED STEEL PLATE EXISTING 3RD PARTY MARKER TAPE



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PROJECT

Glenard Wind Farm 110kV Grid Connection

CLIENT

FuturEnergy

CONSULTANTS



NOTES: -

See General Notes

LEGEND: -

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PROJECT NUMBER

05-701

SHEET TITLE

Trench Sections for Crossing Existing Culverts/Services

SHEET NUMBER



12. As per WIS 4-08-02 & IGN 4-08-01 granular material shall be 14mm to 5mm graded aggregate or 10mm

13. All Products and materials to be utilised during construction to comply with Eirgrid functional specification for road works and all relevant Irish (European) and British standards 14. 300mm minimum vertical and horizontal clearances to be observed between cable ducts and third party services (e.g. gas pipes, water mains, culverts etc.) In the case of high risk

3rd party services, greater clearances mat be required. Designer to consult Eirgrid and 3rd party service owners for

standard dimensions may result in an overlap. Spacing of 10mm to be maintained between steel plates to prevent the

installation in CBGM. Pre-made 75mm wide concrete spacers to be used during duct installation in wet concrete 17. If existing service marker tape is not present, the ESBN yellow marker tape should be installed at maximum 300mm

18. Where duct for Earth Continuity Conductor (ECC) is required for single point bonded sections, attach the 63mm ECC duct to the

FINISHED GROUND / ROAD LEVEL

STEEL MESH, RED MARKER STRIPS 6x200mm LINKED TO 6x200mm GALVANIZED STEEL PLATES (1M EITHER SIDE OF SERVICE)

A = 125mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=17.6 B = 160mm OUTER DIAMETER HDPE ESB APPROVED DUCT, SDR=21

6x200mm GALVANIZED STEEL PLATES (1M EITHER SIDE OF SERVICE)

CROWN LEVEL OF WATERMAIN \bigtriangledown

WATERMAIN	Y (mm)	Z* (mm)
=300	235	885 MIN
•300	435	1085 MIN

* ALL EXISTING SERVICES WITH COVER LESS



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PROJECT

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CLIENT

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NOTES: -

See General Notes

LEGEND: -

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PROJECT NUMBER

05-701

SHEET TITLE

Trench Sections for Crossing Watermain/Wastewater

SHEET NUMBER

- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION
- SUITABLE DRAINAGE CONTROL MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE
- RECEIVING WATERCOURSES. SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

Discharges

- 4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
- NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFFR ZONE. PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED
- IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN
- DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
- VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.

EXCAVATIONS WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USE TO reduce the amount of surface water entering the excavation. This WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

EXPOSED GROUND & STOCKPILES

10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED. 12. CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.

REFUELING

- 13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED
- REFUELING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS

CONCRETE

REQUIRED.

15. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR. 16. CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED

APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

CONTAIN - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

DRAINAGE NOTES:

ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).

SPARE STRAW BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTBUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO. SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF

STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.

4. SUITABLE PREVENTION MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM

SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS. 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES

WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE

PROPOSED FROM ACCESS TRACK SWALES / DITCHES. BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.

TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAINMENT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.

10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON CATCHMENT AREA SERVED. SAMPLE POND SIZES SHOWN ON DRAWING D501. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPOIL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE

REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED. 12. SILT FENCES TO BE PROVIDE ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN <15M OF EDGE OF ANY DITCH / EPHEMERAL CHANNELS.

13. SLOPES OF THE SWALES / DITCHES TO BE PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER (PEAT 'SOD' OR 'SCRAW') FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.

14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20- 40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, 40MM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE. 16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY

INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME during the construction phase. Where check dams become clogged WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT. 17. Spacing and frequency of check dams will be dependent upon

LONGITUDINAL GRADIENT OF SWALE 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED

ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.







		Drawing Legend :	
	N		
		STREAM FLOW DIRECTION	
		EXISTING CULVERT	
		>I50M LENGHT DRAINAGE PATHWAY DIVERSION	
		MAPPED FORESTRY DRAINS	
		UPSTREAM INTERCEPTOR DRAIN* SWALES/DOWNSTREAM COLLECTOR DRAIN	
		DOUBLE SILT FENCES*	RKS)
		SETTLEMENT POND - LEVEL SPREADER SETTLEMENT POND - VEGETATION FILTER	
		- LEVEL SPREADER	ROAL
		CHECK DAM 'TYPE B'/SILT TRAP	
		FORESTRY DRAIN CHECK DAM* PROPOSED CULVERTS/BRIDGES	F AC
		INTERCEPTOR DITCH CULVERT	
_ /		Collector Ditch Culvert	DVAN
TIGATION	/ DRAINAGE COINTROLS AVAILABLE	O OVERLAND FLOW DISCHARGE	
F	OR USE ACROSS THE SITE	SP SETTLEMENT POND	ETED
έντ Τύρε	DESCRIPTION OF SUDS DRAINAGE CONTROL	VS SEMI-NATURAL VEGETATION SWALE / FILTER BED /SECONDARY SP	OMPL .
	I) APPLICATION OF 50M BUFFER ZONES TO NATURAL	SP-A3 SETTLEMENT POND NUMBER	*)
	WATERCOURSES WHERE POSSIBLE 2) APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS	GROUND SLOPE DIRECTION	
ANCE	WHERE POSSIBLE 3) USING SMALL WORKING AREAS	PLANNING APPLICATION	
	4) WORKING IN APPROPRIATE WEATHER, AND SUSPENDING	EXISTING GROUND SURFACE MAJOR CONTOUR (IOM INTERVAL)	
	WET WEATHER	EXISTING GROUND SURFACE INTERMEDIATE CONTOUR (5 M INTERVAL)	
	I) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES	EXISTING GROUND SURFACE MINOR CONTOUR (I M INTERVAL)	
	VEE-DRAINS, DIVERSION DRAINS, FLUMES AND CULVERT	TURBINE AND SWEPT AREA	
	2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS:		
ONTROLS:	A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL	NEW PROPOSED ACCESS DOAD	
	C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE	EXISTING ROADS TO BE	
	SYSTEMS 3) USING SMALL WORKING AREAS	EXISTING PUBLIC ROAD	
	4) SURROUNDING STOCKPILES WITH SILT FENCING		
	07 WEATHERING OFF / SEALING PEAT STOCKPILES		
	I) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS		
	2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS	PEAT REPOSITORY	
	B) OYSTER BAGS FILLED WITH GRAVEL	MET MAST	
	D) STRAW BALES	SIDE CASTING	
ONTROLS:	E) FLOW LIMITERS F) WEIRS OR BAFFLES		
	G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS.		
	3) SILT FENCES, FILTER FABRICS	KEY PLAN	
	5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING		D101A
	5) ATTENUATION LAGOONS		
	6) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS	D104	
	I) TEMPORARY SUMPS 2) ATTENUATION PONDS	DIVENTO	
PEATMENT	3) TEMPORARY STORAGE LAGOONS		
ROLS:	5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS		
	SILTBUSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS.	D108	
	6) SILT DEWATERING BAGS		
	2) BUFFERED OUTFALLS		
JUNTROLS:	4) SILT DEWATERING BAGS		
	5) FLOW LIMITERS AND WEIRS	I. DRAWINGS ISSUED ARE FOR PLANNING APPLI	CATION PURPOSES
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		MAY BE COPIED OR REPRODUCED PARTIALLY OF	WHOLLY IN ANY
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- . SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
- 2. SUITABLE DRAINAGE CONTROL MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE
- RECEIVING WATERCOURSES. 3. SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

DISCHARGES

- 4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
- NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED
- IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
- 7. PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
- VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.

EXCAVATIONS 9. WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USE TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

EXPOSED GROUND & STOCKPILES

10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT

ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

 Use of track side swales with check dams, and/or filtration check dams will reduce silt in runoff water as required.
 Check dams to be inspected and cleaned regularly.

REFUELING

- I3. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED
- REFUELING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES. 14. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS

.....

REQUIRED.

- CONCRETE 15. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
- 16. CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

 \underline{STOP} - work in the immediate area should be stopped and the source of the pollution identified.

<u>CONTAIN</u> - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

<u>NOTIFY</u> - The relevant authorities (Site Manager / Fisheries / NPWS / Local Authority etc.) should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

DRAINAGE NOTES:

I. ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).

2. SPARE STRAW BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTBUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO. 3. SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL

CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.

4. SUITABLE PREVENTION MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM

SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS. 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE

DIRECTLY INTO EXISTING WATERCOURSES. 7. WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE

PROPOSED FROM ACCESS TRACK SWALES / DITCHES. 8. BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN I : 1.5 TO I : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL

BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES. 9. TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAINMENT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.

IO. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON CATCHMENT AREA SERVED. SAMPLE POND SIZES SHOWN ON DRAWING D501.
II. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPOIL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE

REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED. 12. SILT FENCES TO BE PROVIDE ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN <15M OF EDGE OF ANY DITCH / EPHEMERAL CHANNELS.

13. SLOPES OF THE SWALES / DITCHES TO BE PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER (PEAT 'SOD' OR 'SCRAW') FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.

14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
15. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20- 40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, 40MM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED

WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT. 17. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON

LONGITUDINAL GRADIENT OF SWALE. 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.

					Drawing	Legend :		
			N	167 m		RIVERS/STREAMS RIVERS/STREAMS STREAM FLOW D EXISTING CULVE	S 5 50m buffer Direction RT	DRAINAGE
						MAPPED DRAINA >150m LENGHT DRAINAGE PATH MAPPED FOREST	GE PATHWAYS WAY DIVERSION RY DRAINS	EXISTING
					$ \rightarrow$	UPSTREAM INTER SWALES/DOWNST DIRECTION OF FL SILT FENCES*	CEPTOR DRAIN* REAM COLLECTOR DRAIN OW	
						DOUBLE SILT FEI SETTLEMENT PON SETTLEMENT PON - LEVEL SPREADE	NCES* ID - LEVEL SPREADER ID - VEGETATION FILTER ER ALIGUET TOADE*	AINAGE OAD WORKS)
						CHECK DAM 'TYP CHECK DAM 'TYP FORESTRY DRAIN PROPOSED CULVE	E B'/SILT TRAP CHECK DAM* RTS/BRIDGES	DF ACCESS F
					4 Þ	INTERCEPTOR DIT COLLECTOR DITC WATERCOURSE DI	TCH CULVERT H CULVERT RAIN PROTECTION BERM DISCHARGE	WF CONSTI A ADVANCE G
					TW SP VS	TREATED WATEF SETTLEMENT POI SEMI-NATURAL \ SWALE / FILTER	R DISCHARGE ND /EGETATION BED /SECONDARY SP	PROPOSED OMPLETED IN
					SP-A3 ອ ➡>	SETTLEMENT PON Pumping Sump ground slope d		(* c
					30	PLANNING APPLI EXISTING GROUN MAJOR CONTOUR EXISTING GROUN INTERMEDIATE C EXISTING GROUN MINOR CONTOUR	ICATION D SURFACE (10M INTERVAL) D SURFACE ONTOUR (5 M INTERVAL) D SURFACE (1 M INTERVAL)	
TIGATION F	/ DRAINAGE OR USE ACRO	COINTROLS AVA	AILABLE	/		TURBINE AND SV TURBINE FOUNDA	NEPT AREA	
ent Type		ON OF SUDS DRAIN METHODS	AGE CONTROL			NEW PROPOSED EXISTING ROADS UPGRADED	ACCESS ROAD	
DANCE	WATERCOURSES V 2) APPLICATION O WHERE POSSIBLE	NHERE POSSIBLE DF 10M BUFFER ZONES	S TO MAIN DRAIN	s		EXISTING PUBLIC WALKWAY CABLE TRENCH SUBSTATION	ROAD	
ROLS	3) USING SMALL 4) WORKING IN A CERTAIN WORK AU WET WEATHER	WORKING AREAS PPROPRIATE WEATHEF CTIVITIES IN ADVANCE	R, AND SUSPENDII E OF FORECASTEL	NG D		CONSTRUCTION C	COMPOUND	
	I) USE OF UPSTRE DOWNSTREAM COL VEE-DRAINS, DIVE PIPES	EAM INTERCEPTOR DRA LECTOR DRAINS / OVI ERSION DRAINS, FLUME	AINS AND ERSIZED SWALES, S AND CULVERT	,		MET MAST SIDE CASTING		
CONTROLS:	A) SAND BAG B) OYSTER BA C) FILTER FA D) AND OTHE	S AGS FILLED WITH GRA BRICS R SIMILAR/FQUIVALEN	VEL	TE	KEY P	FILL AREA		D101B
	SYSTEMS 3) USING SMALL 4) SURROUNDING 5) WEATHERING (WORKING AREAS STOCKPILES WITH SIL DFF / SEALING PEAT	T FENCING STOCKPILES				D101C	D101A
	 INTERCEPTOR D SWALES/COLLECT EROSION AND A) SAND BAG 	DRAINS, VEE-DRAINS, (OR DRAINS VELOCITY CONTROL MI S	OVERSIZED EASURES SUCH A	S:				
	B) OYSTER BA C) FILTER FA D) STRAW BA E) FLOW LIMI	AGS FILLED WITH GRA BRICS LES TERS	VEL		~		D106	
ONTROES.	G) AND/OR O APPROPRIATE SYS 3) SILT FENCES,	THER SIMILAR/EQUIVA STEMS. FILTER FABRICS	LENT OR					
	 5) COLLECTION SE SYSTEMS 5) ATTENUATION 6) SEDIMENT TRA 	LUMAIS UMPS, TEMPORARY SUI LAGOONS	MPS, PUMPING		DRAWING NO I. DRAWINGS ONLY.	ISSUED ARE	FOR PLANNING APP	PLICATION PURPOSES
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REATMENT ROLS:	 SEDIMENT TRA SEDIMENT TRA PROPRIETARY SILTBUSTER, AND APPROPRIATE SYS SILT DEWATER 	APS, STILLING / SETT SETTLEMENT SYSTEM: /OR OTHER SIMILAR/E STEMS. RING BAGS	LEMENT PONDS S SUCH AS EQUIVALENT OR		3. Do not s DIMENSIONS 4. ALL DIME	SCALE OFF TH ONLY SHOULD NSIONS ARE	HIS DRAWING. FIGU BE TAKEN OFF TH IN METRES.	RED METRIC IIS DRAWING.
CONTROLS:	 LEVELSPREADE BUFFERED OUT VEGETATION F SILT DEWATEF ELOW LIMITER 	RS IFALLS FILTERS RING BAGS S AND WEIPS			O ©	ordnance Survey Ordnance Sur	/ Ireland Licence No. E vey Ireland/Governmer	N 0044722 nt of Ireland
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					Date: 03/02	/2022	Checked By:	MG

- I. SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND
- EROSION. 2. Suitable drainage control measures will be in place at all times to prevent conveyance of significant volumes of silt to off site
- RECEIVING WATERCOURSES. 3. SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

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- DISCHARGES 4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
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EXPOSED GROUND & STOCKPILES

APPROPRIATELY ON SITE.

10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

 Use of track side swales with check dams, and/or filtration check dams will reduce silt in runoff water as required.
 Check dams to be inspected and cleaned regularly.

REFUELING

- 13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
- I4. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

CONCRETE

 CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING

STEPS WOULD BE ADHERED TO:

 \underline{STOP} - work in the immediate area should be stopped and the source of the pollution identified.

<u>CONTAIN</u> - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

<u>NOTIFY</u> - The relevant authorities (Site Manager / Fisheries / NPWS / Local Authority etc.) should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

DRAINAGE NOTES:

- I. ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
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STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.

4. SUITABLE PREVENTION MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM

SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS. 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.

7. WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE

PROPOSED FROM ACCESS TRACK SWALES / DITCHES. 8. BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN I : I.5 TO I : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.

9. TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAINMENT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.

 10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON CATCHMENT AREA SERVED. SAMPLE POND SIZES SHOWN ON DRAWING D501.
 11. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPOIL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE

REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED. 12. SILT FENCES TO BE PROVIDE ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN <15M OF EDGE OF ANY DITCH / EPHEMERAL CHANNELS.

13. SLOPES OF THE SWALES / DITCHES TO BE PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER (PEAT 'SOD' OR 'SCRAW') FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.

14. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
15. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20- 40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, 40MM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
16. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME

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LONGITUDINAL GRADIENT OF SWALE. 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENCINEER SETTIEMENT BONDS TO BE CONSTRUCTED IN A

ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND. 19. OIL FUEL WILL BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.

20. SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.

- . SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION
- SUITABLE DRAINAGE CONTROL MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
- SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

DISCHARGES

- 4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
- NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED
- IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE. 7. PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN
- DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS. 3. VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES
- UNLESS ABSOLUTELY NECESSARY.
- EXCAVATIONS
 WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USE TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

EXPOSED GROUND & STOCKPILES

10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

 Use of track side swales with check dams, and/or filtration check dams will reduce silt in runoff water as required.
 Check dams to be inspected and cleaned regularly.

REFUELING

- III. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND
- AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES. 14. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

CONCRETE

 I5. CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 I6. CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED

APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

 \underline{STOP} - work in the immediate area should be stopped and the source of the pollution identified.

 $\frac{CONTAIN}{SUITABLE}$ - the source of the pollution should be bunded using a suitable method. Natural watercourses should be temporarily diverted around the source of pollution.

<u>NOTIFY</u> - The relevant authorities (Site Manager / Fisheries / NPWS / Local Authority etc.) should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

DRAINAGE NOTES:

- I. ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
- SPARE STRAW BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTBUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
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REPLACED SUBSEQUENT TO THE REMOVAL OF SILT. 17. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.

18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.

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- RECEIVING WATERCOURSES. SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

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- UNLESS ABSOLUTELY NECESSARY.

EXCAVATIONS 9. WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USE TO reduce the amount of surface water entering the excavation. This WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

EXPOSED GROUND & STOCKPILES

10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

. Use of track side swales with check dams, and/or filtration check DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED. 12. CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.

- Refueling
- 13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
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IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

CONTAIN - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

DRAINAGE NOTES:

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		RIVERS/STREAMS
	SP-I TW	RIVERS/STREAMS 50M BUFFER
		EXISTING CULVERT
243	m	>I50M LENGHT
	244-m	UPSTREAM INTERCEPTOR DRAIN* SWALES/DOWNSTREAM COLLECTOR DRAIN
	245 m	DIRECTION OF FLOW SILT FENCES*
		DOUBLE SILT FENCES*
$\langle \rangle \rangle$		SETTLEMENT POND - VEGETATION FILTER
$^{/}$		CHECK DAM 'TYPE A'/SILT TRAP*
$\langle \langle \chi \rangle$		CHECK DAM THE BIJILITIAP FORESTRY DRAIN CHECK DAM*
		PROPOSED CULVERTS/BRIDGES
$\langle \rangle$		Collector Ditch Culvert
X		0 Overland Flow Discharge
		TW TREATED WATER DISCHARGE
		VS SEMI-NATURAL VEGETATION Swale / Filter Bed /secondary sp
		SP-A3 SETTLEMENT POND NUMBER
	SP-M4	GROUND SLOPE DIRECTION
SP-1	15 IW	PLANNING APPLICATION
TW		MAJOR CONTOUR (IOM INTERVAL)
		INTERMEDIATE CONTOUR (5 M INTERVAL) EXISTING GROUND SURFACE
1×1		MINOR CONTOUR (I M INTERVAL)
°~~~		TURBINE FOUNDATION
		CRANE PLATFORM
$\langle /$		NEW PROPOSED ACCESS ROAD EXISTING ROADS TO BE
[/		UPGRADED WALKWAY
		SUBSTATION
	//////////////////////////////////////	
		BORROW PIT
		MET MAST
		CUT AREA
p		FILL AREA
L. 4//		KEY PLAN
		D101C
	+ / + / / / / / / / / / /	
174		
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		5104
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ND 2	/ / / / / / / / / / / / / /	DRAWING NOTES
		I. DRAWINGS ISSUED ARE FOR PLANNING APPLICATION PURPOSES
		2. Copyright, all rights reserved. No part here with
		MAY BE COPIED OR REPRODUCED PARTIALLY OR WHOLLY IN ANY FORM WHATSOEVER WITHOUT THE PRIOR NOTICE OF THE
		COPYRIGHT OWNER HYDRO-ENVIRONMENTAL SERVICES.
		DIMENSIONS ONLY SHOULD BE TAKEN OFF THIS DRAWING.
F IIGATION	/ DRAINAGE COINTROLS AVAILABLE OR USE ACROSS THE SITE	4. ALL DIMENSIONS ARE IN METRES.
	DESCRIPTION OF SUDS DRAINAGE CONTROL	Ordnance Survey Ireland Licence No. EN 0044722
	METHODS	© Ordnance Survey Ireland/Government of Ireland
	WATERCOURSES WHERE POSSIBLE	
	WHERE POSSIBLE	
RULS	4) WORKING IN APPROPRIATE WEATHER, AND SUSPENDING	
	WET WEATHER	
	I) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES,	Date Description Chkd Signed
	VEE-DRAINS, DIVERSION DRAINS, FLUMES AND CULVERT PIPES	Revisions
	2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS	
ONTROLS:	B) OYSTER BAGS FILLED WITH GRAVELC) FILTER FABRICS	
	D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE	
	3) USING SMALL WORKING AREAS	22 ower Main St tel: +353 (0) 58-44122
	4) SURROUNDING STOCKPILES WITH SILT FENCING	Dungarvan tel: +353 (0) 58-44244
	4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES	Co. Waterford email: info@hydroenvironmental.ie
	4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS	Iroland webs which have been a start of the
	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: a) SAND BAGS 	Ireland web: www.hydroenvironmental.ie
	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTED FADDICS 	Client:
	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES FLOW HWYTER 	Client: FUTURENERGY GLENARD DAC
CONTROLS:	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES A) WIE (SE FAMILY OF THE SECOND AND STRAW BALES 	Client: FUTURENERGY GLENARD DAC
CONTROLS:	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR 	Ireland web: www.hydroenvironmental.ie Client: FUTURENERGY GLENARD DAC Job: Image: State Sta
CONTROLS:	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMATS 	Ireland web: www.hydroenvironmental.ie Client: FUTURENERGY GLENARD DAC Job: GLENARD WF, Co. DONEGAL
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CONTROLS:	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMATS 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 5) ATTENUATION LAGOONS 6) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 1) TEMPORARY SUMPS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE LAGOONS 4) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTBUSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS.	Ireland web: www.hydroenvironmental.ie Client: FUTURENERGY GLENARD DAC Job: GLENARD WF, Co. DONEGAL Title: PROPOSED DRAINAGE DESIGN Figure No: DI06
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CONTROLS:	 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES 1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMATS 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 5) ATTENUATION LAGOONS 6) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 1) TEMPORARY SUMPS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE LAGOONS 4) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILT BUSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 6) SILT DEWATERING BAGS 1) LEVELSPREADERS 2) BUFFERED OUTFALLS 	Ireland web: www.hydroenvironmental.ie Client: FUTURENERGY GLENARD DAC Job: GLENARD WF, Co. DONEGAL Title: PROPOSED DRAINAGE DESIGN Figure No: DI06 Drawing No: P1485-0-0222-A1-D106-00A Sheet Size: A1 Project No.: P1485-0
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- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
- 2. SUITABLE DRAINAGE CONTROL MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE
- RECEIVING WATERCOURSES. 3. SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

Discharges

- 4. WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP AT A MINIMUM OF 20M FROM NEAREST WATERCOURSE UNLESS OTHERWISE STATED.
- NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED
- IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE. 7. PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN
- DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS. 3. VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES
- UNLESS ABSOLUTELY NECESSARY.
- EXCAVATIONS
 WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USE TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

EXPOSED GROUND & STOCKPILES

10. THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

 Use of track side swales with check dams, and/or filtration check dams will reduce silt in runoff water as required.
 Check dams to be inspected and cleaned regularly.

REFUELING

- 13. REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
- 14. SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

CONCRETE

 CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED

APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

<u>CONTAIN</u> - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

<u>NOTIFY</u> - The relevant authorities (Site Manager / Fisheries / NPWS / Local Authority etc.) should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

DRAINAGE NOTES:

I. ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).

 SPARE STRAW BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTBUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
 SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL

STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.

4. SUITABLE PREVENTION MEASURES WILL BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
5. INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM

SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS. 6. DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.

7. WHERE POSSIBLE, A BUFFER ZONE OF >20M TO ANY EXISTING WATERCOURSE WILL BE REQUIRED WHERE OVER LAND DISCHARGES ARE

PROPOSED FROM ACCESS TRACK SWALES / DITCHES. 8. BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN I : I.5 TO I : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.

9. TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAINMENT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.

 10. SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON CATCHMENT AREA SERVED. SAMPLE POND SIZES SHOWN ON DRAWING D501.
 11. STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPOIL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE

REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED. 12. SILT FENCES TO BE PROVIDE ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN <15M OF EDGE OF ANY DITCH / EPHEMERAL CHANNELS.

13. SLOPES OF THE SWALES / DITCHES TO BE PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER (PEAT 'SOD' OR 'SCRAW') FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.

I4. AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
I5. CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20- 40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, 40MM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
I6. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME

DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT. 17. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON

LONGITUDINAL GRADIENT OF SWALE. 18. LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.

	METHODS
Avoidance Controls	 APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE APPLICATION OF 10M BUFFER ZONES TO MAIN DRAINS WHERE POSSIBLE USING SMALL WORKING AREAS WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER
Source Controls:	 I) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE-DRAINS, DIVERSION DRAINS, FLUMES AND CULVERT PIPES 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) SURROUNDING STOCKPILES WITH SILT FENCING 5) WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS:	 INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OYSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAFFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SILT FENCES, FILTER FABRICS 4) IN STREAM SEDIMATS 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 5) ATTENUATION LAGOONS 6) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
Water Treatment Controls:	 TEMPORARY SUMPS ATTENUATION PONDS TEMPORARY STORAGE LAGOONS SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTBUSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. SILT DEWATERING BAGS
	I) LEVELSPREADERS 2) BUFFERED OUTFALLS 3) VECETATION ENTERS








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03/02/22 Planning	MG	MG				
Date Description	Chkd	Signed				
Revisions						
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22 Lower Main St tel:	+353 (0) 58-44122					
Dungarvan tel: Co. Waterford emo	+353 (0) 58-44244 ail: info@hydroenvironmental.ie					
	r: www.hydroenvironmenrance]				
Client: FUTURENER	Client:					
Job: Glenard WF, Co. Donegal						
Title: DRAINAGE DETAILS I						
Figure No: D50I						
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Figure No: Drawing No: P1485-0-022 Sheet Size: A1 Scale: as shown (A1)	D501 2-A1-D501-00A Project No.: P1485-0 Drawn By: MG/GD					











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CLEAN WATER

SPREADER LIP

STABLE

STABLE

OVERFLOW AREA

SETTLEMENT POND

03/02/22 Planning			MG	MG		
	Description		Chka	signed		
Revisions						
22 Lower Main St tel: +353 (0) 58-44122 Dungarvan tel: +353 (0) 58-44244 Co. Waterford info@hydroenvironmental.ie Ireland web: www.hydroenvironmental.ie						
Client: FUTURENERGY GLENARD DAC						
Job: Glenard WF, Co. Donegal						
Title: Drainage Details 4						
Figure No	0:	D504				
Drawing No: P1485-0-0222-A1-D504-00A						
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Scale: as	shown (A1)	Drawn By: MG/GD				
Date: 03/	02/2022	Checked By: M.G.				