



Pre - Existing Artificial Drainage Channel



Pre - Existing Artificial Drainage Channel With Excavated Peat at Side of Channel



Pre - Existing Artificial Drainage Channel



Natural Drainage Channel



Ephemeral Channel in Dry State (Sampling Location SW8)



Natural Drainage Channel With Evidence of Erosion



Sampling Location SW7



Natural Drainage Channel Which Flows Into the Owenwee River



Natural Drainage Channel



Natural Drainage Channel With Evidence of Erosion



Natural Drainage Channel



Natural Drainage Channels With Evidence of Erosion



Natural Drainage Channel



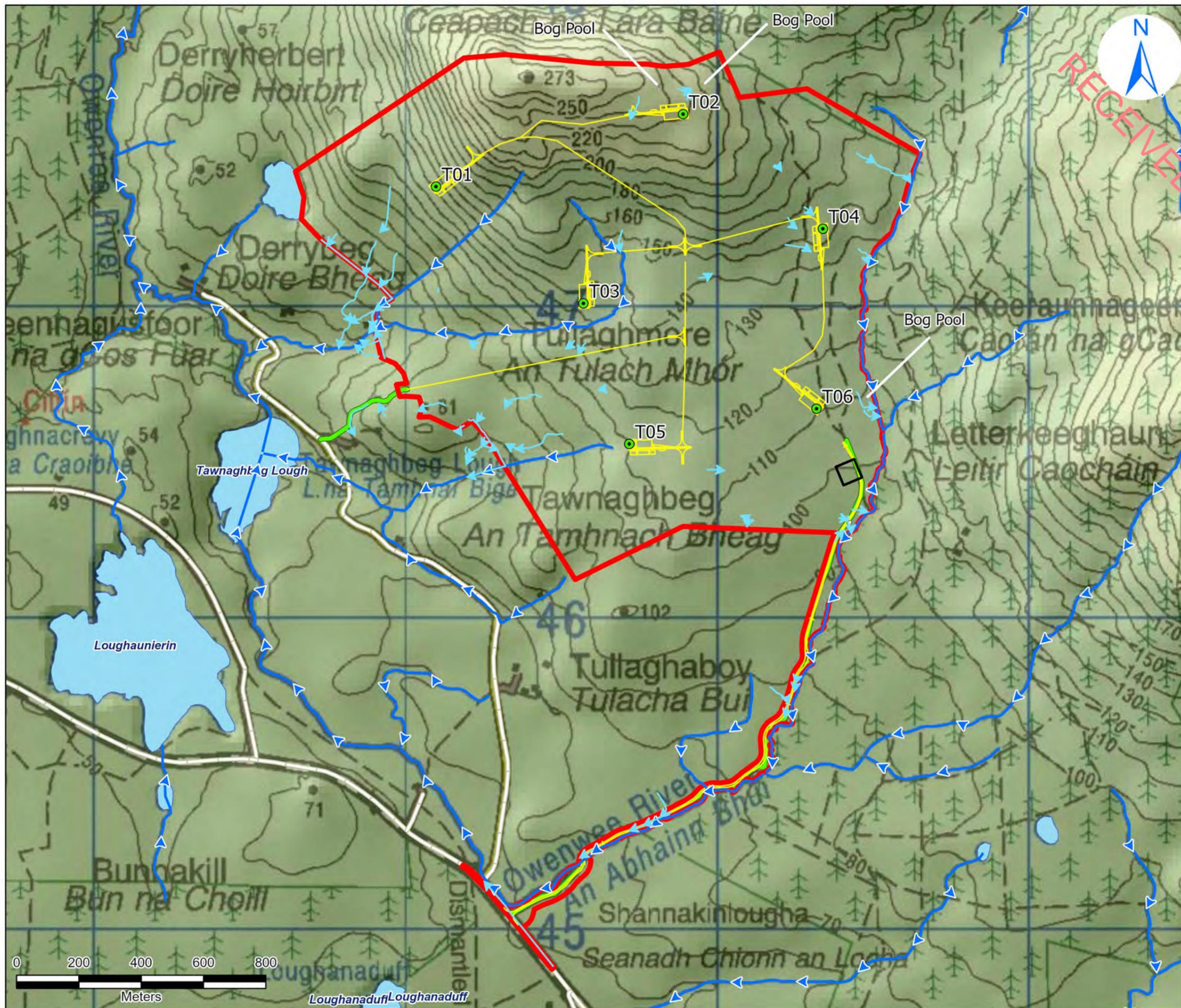
Pre - Existing Artificial Drainage Channel North of the N59 Road



Pre - Existing Vehicle Tracks Acting as Preferential Flow Paths During a Heavy Rainfall Event



Owenwee River at a Pre-Existing Crossing During Storm Flow Conditions



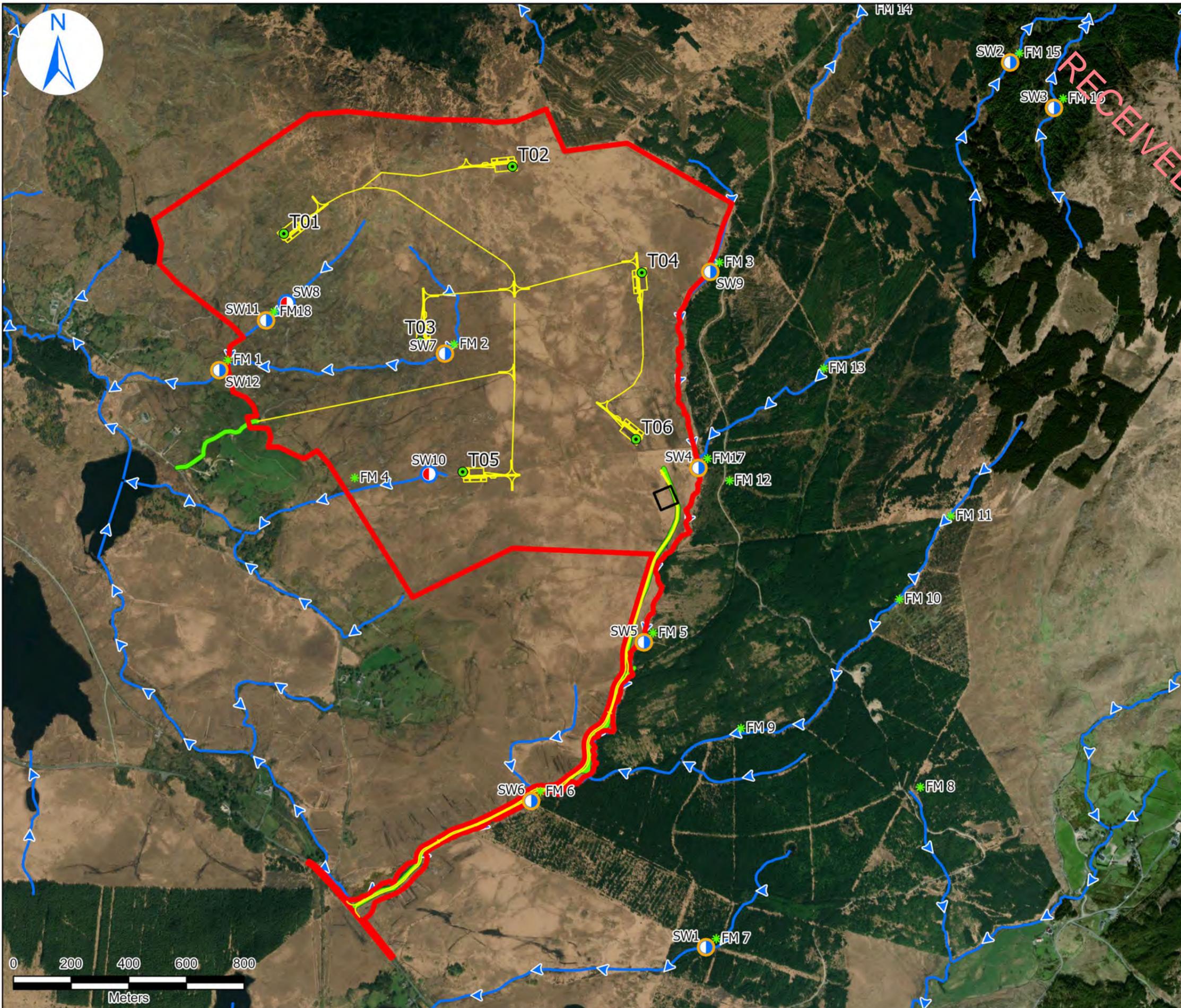
Legend

- Drains
- Small Bog Pool
- Rivers and Streams
- Lakes
- V150 Turbine Locations
- EIAR Boundary
- Design Layout
- Substation
- Access Track
- Road Centrelines
- NI**
- NI
- Internal County Boundaries

Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Mapped Surface Water Bodies and Drainage Network	
Spatial Reference Name: IREN95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.3	Scale: 1:12,000
Date: 11/1/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



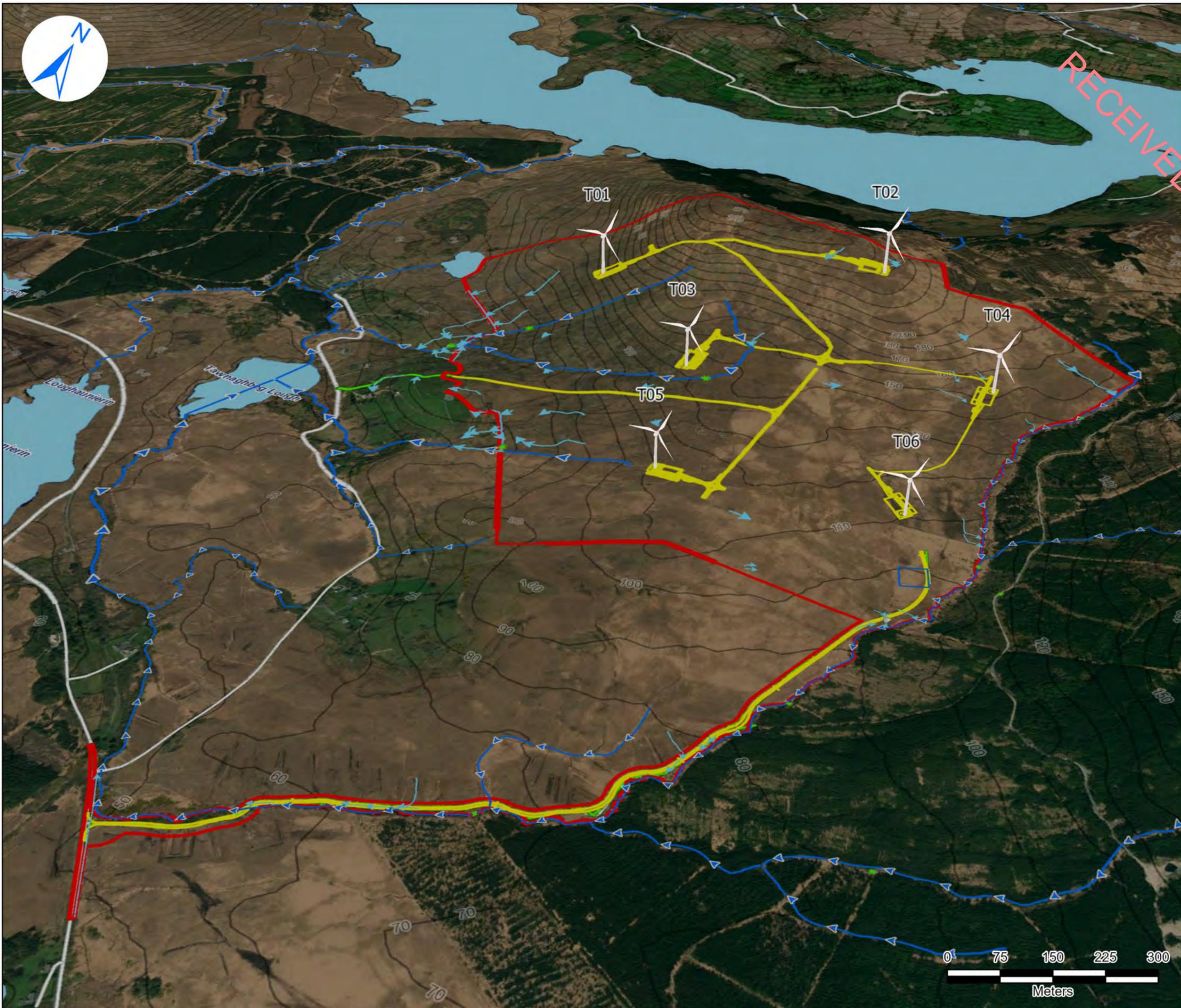
Legend

- Local Rivers and Streams
- * Field Monitoring Points
- Lab Analysis Monitoring Locations
- Ephemeral Stream (Often Dry)
- V150 Turbine Locations
- Substation
- Design Layout
- EIA/EA Boundary
- Access Track

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Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Water Quality Monitoring Locations	
Spatial Reference Name: IREN95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.4	Scale: 1:13,000
Date: 11/01/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



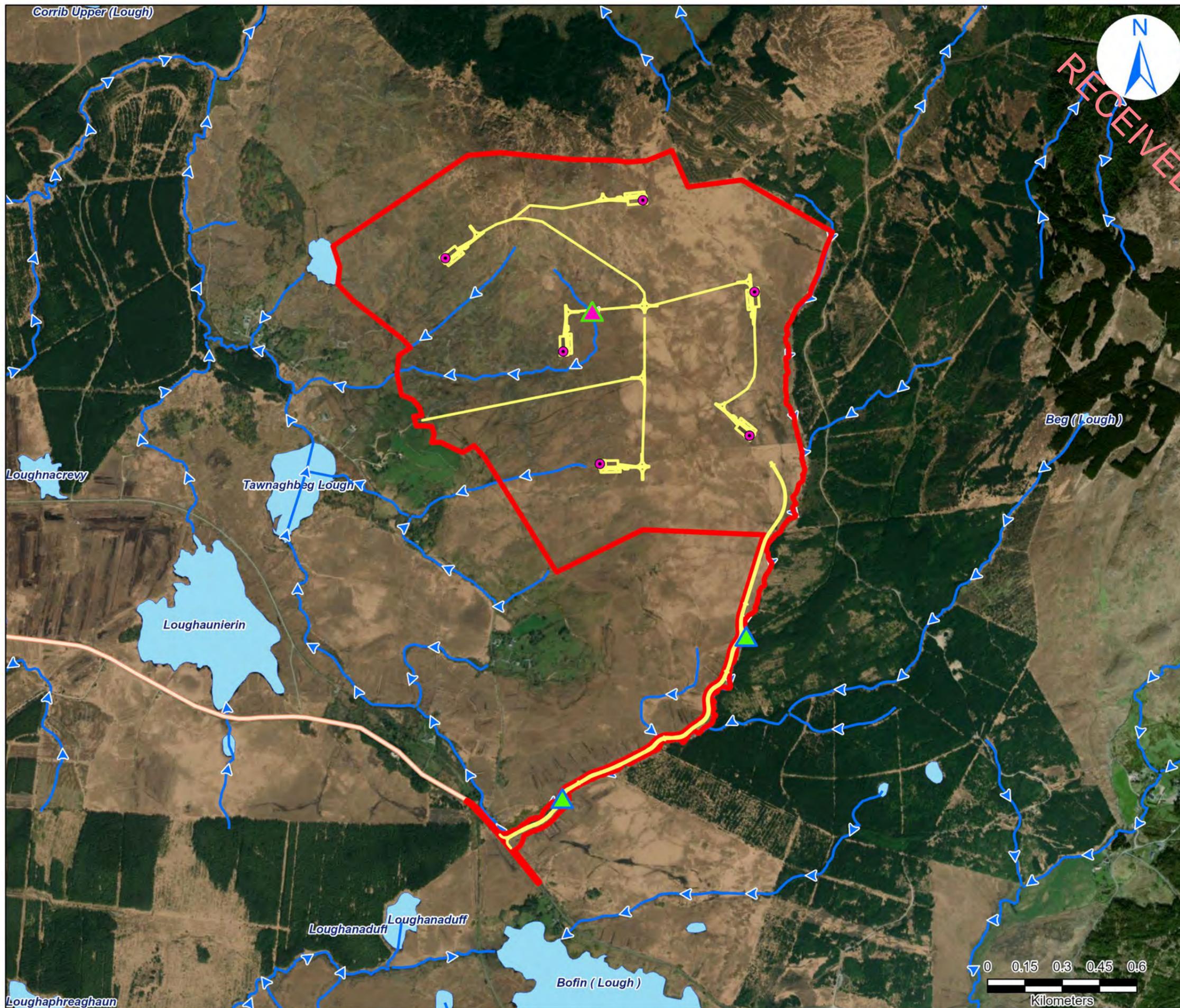
Legend

- V150 Turbine Locations
- Rivers and Streams
- Drains
- Small Bog Pool
- Design Layout
- EIAR Boundary
- Access Track
- Substation
- Road Centrelines
- Lakes
- EPA Contours
- Field Monitoring Points

Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: 3D Hydrological Model of the Proposed Tullaghmore Windfarm Site.	
Spatial Reference Name: IRENET95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.6	Rotation: 30 Degrees
Date: 11/1/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



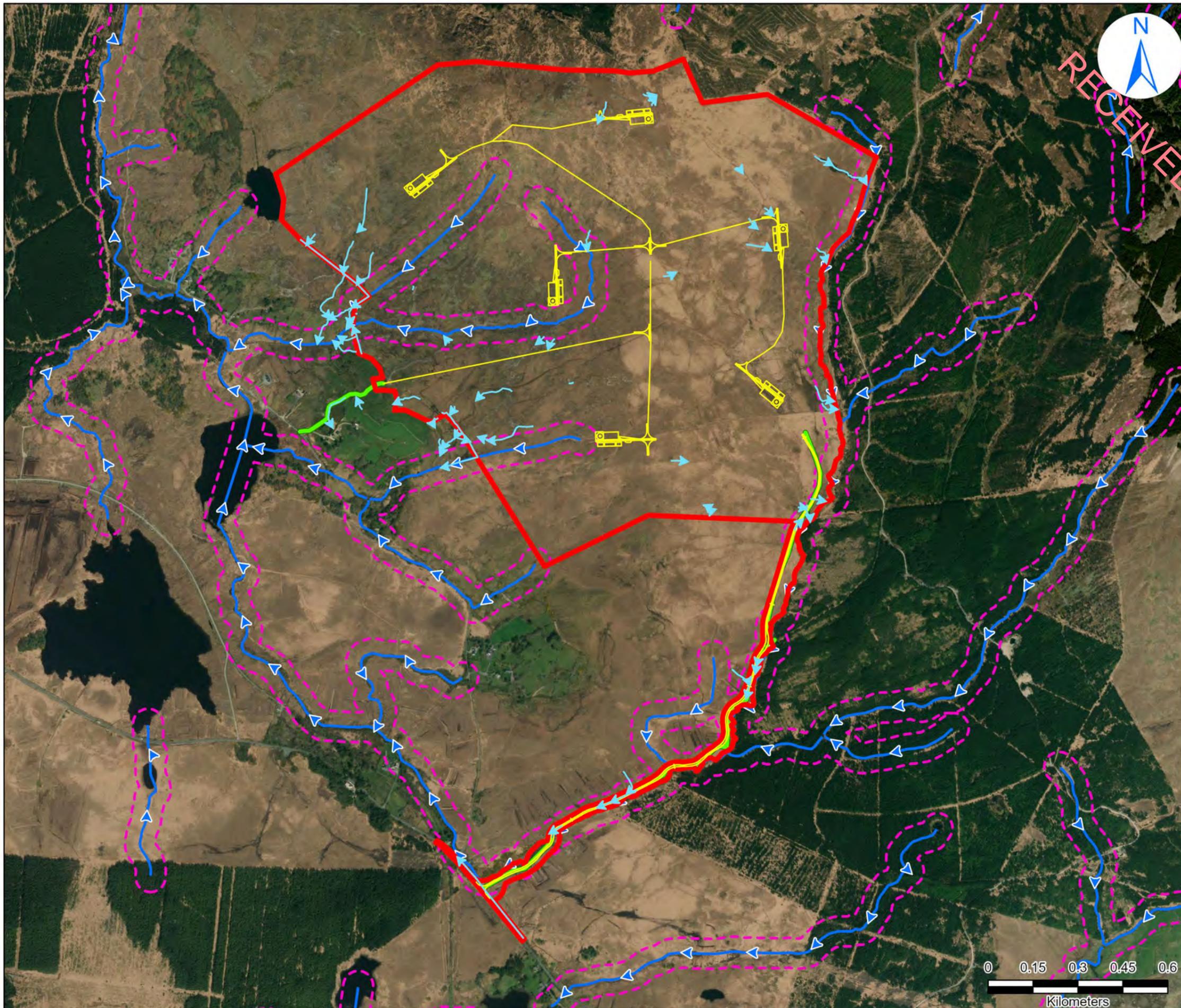
Legend

- Proposed Crossings
- Existing Crossings
- V150 Turbine Locations
- Access Road and Design Layout
- EIAR Boundary
- Grid Connection Route
- Rivers and Streams
- Lakes

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Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Proposed and Pre-Existing Crossing Points	
Spatial Reference Name: IRENET95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.7	Scale: 1:15,000
Date: 12/1/2021	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



Legend

- Drains
- Design Layout
- EIA Boundary
- Rivers and Streams
- Access Track
- River 50m Buffer

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Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Water Courses With 50 metre Buffer Zone	
Spatial Reference Name: IRENET95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.8	Scale: 1:12,500
Date: 12/1/2021	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



Legend

- V150 Turbine Locations
- EIAR Boundary
- Grid Connection Route
- WFD Catchments

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Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Water Framework Directive (WFD) Catchment Areas	
Spatial Reference Name: IRENET95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.9	Scale: 1:50,000
Date: 12/1/2021	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



Legend

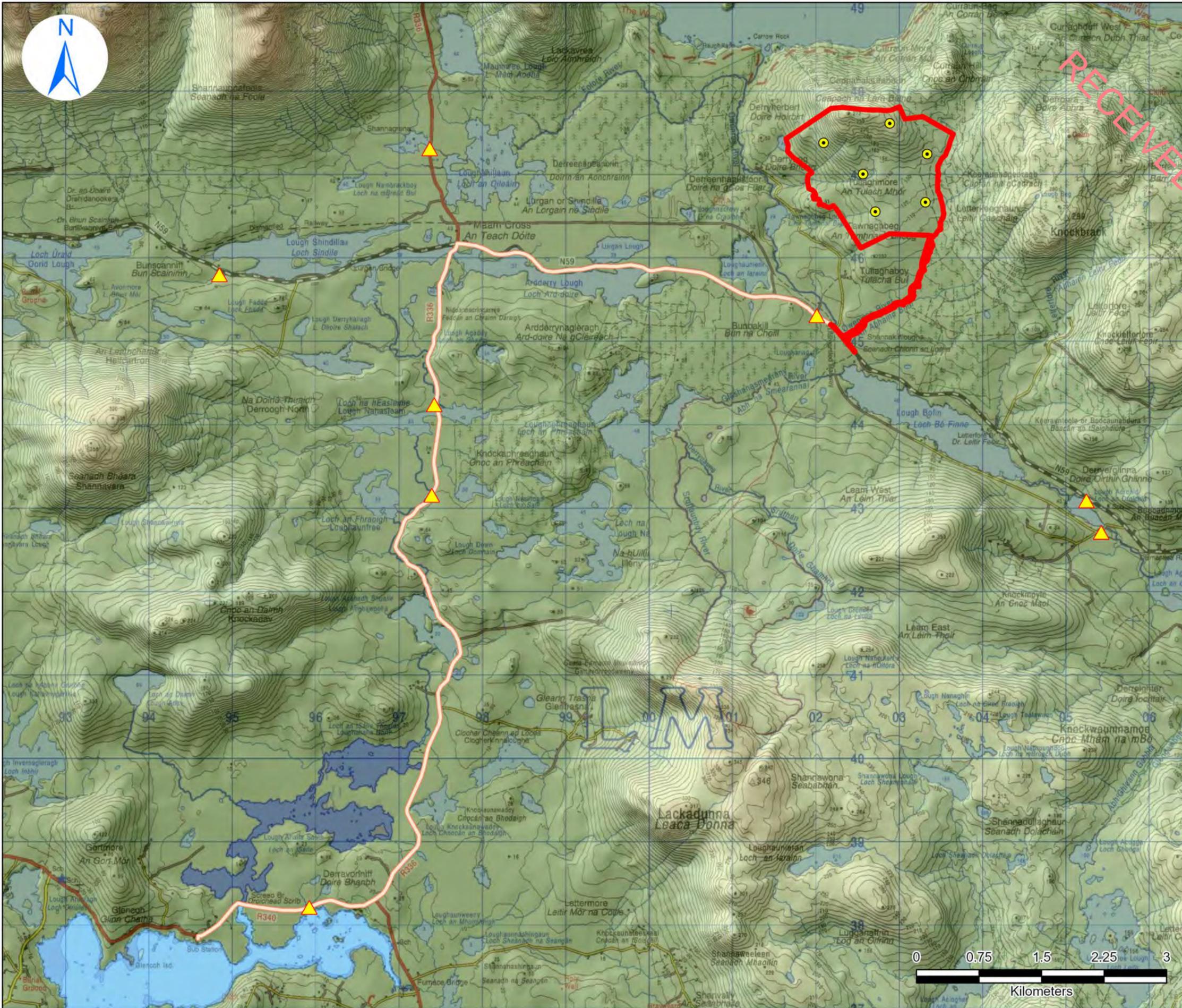
- V150 Turbine Locations
- EIAR Boundary
- Grid Connection Route
- WFD Subcatchments

RECEIVED: 26/01/2023

Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Water Framework Directive (WFD) Subcatchment Areas	
Spatial Reference Name: IREN95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.10	Scale: 1:59,407
Date: 12/1/2021	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



Legend

- ▲ Recurring Flood Event Location
- ▭ EIAR Boundary
- Grid Connection Route
- V150 Turbine Locations

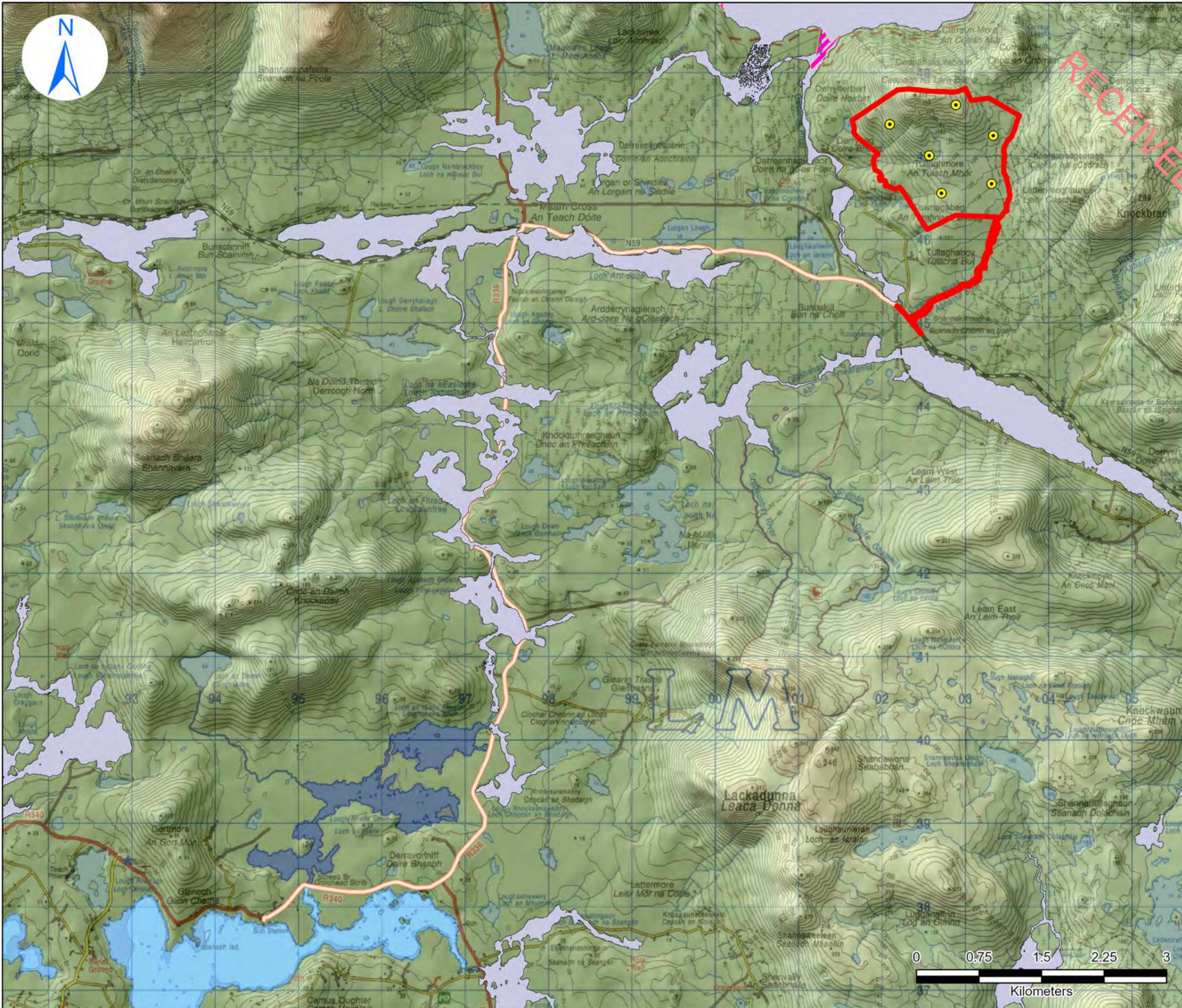
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Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Past Flood Event Locations Relative to the Proposed Site and Grid Connection Route.	
Spatial Reference Name: IREN95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.11	Scale: 1:45,000
Date: 11/1/2021	Prepared By: DP
Revision Number: N/A	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	

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Legend

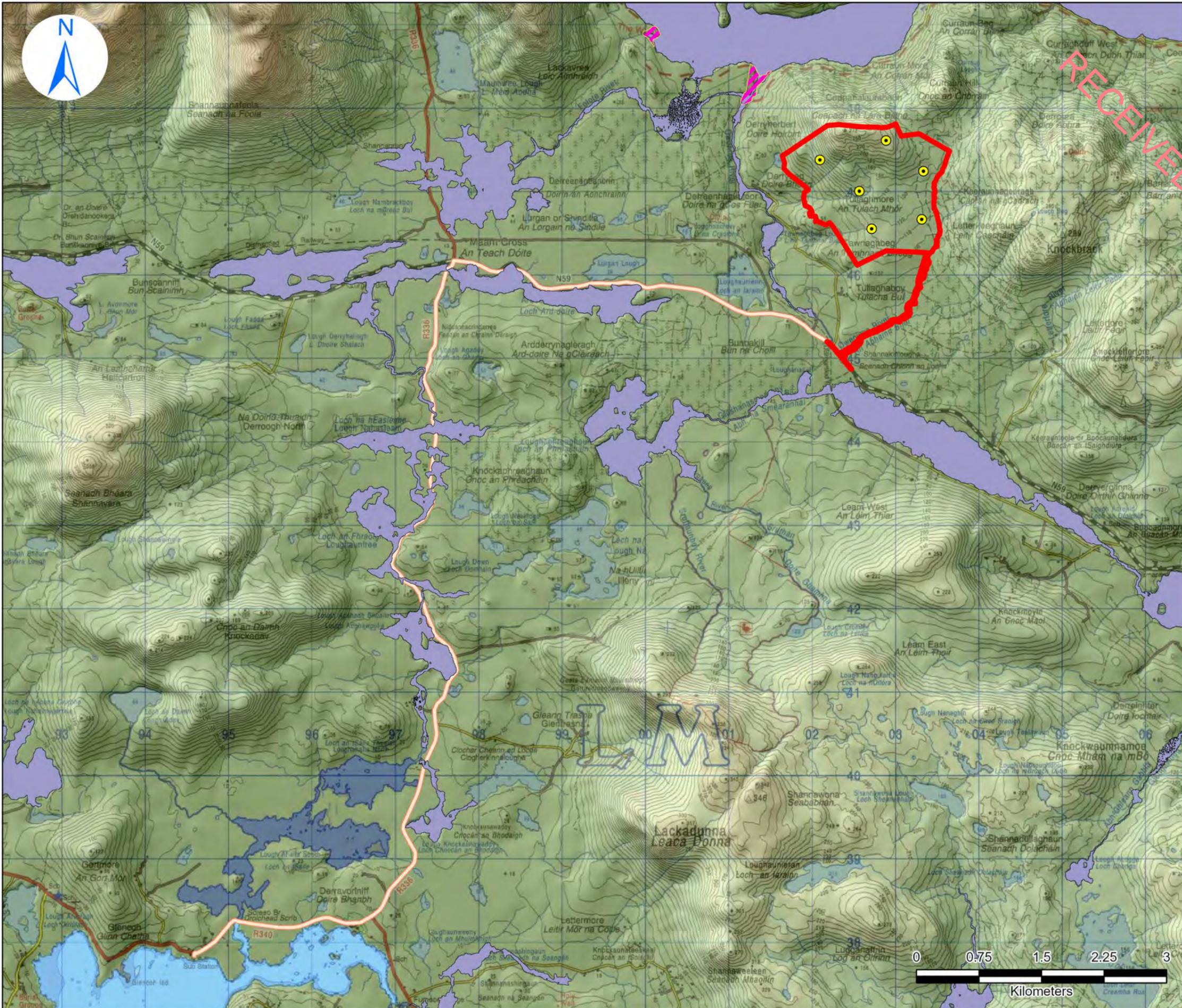
- National Indicative Fluvial Mapping - High End Future Scenario
- OPW Benefited Lands
- Grid Connection Route
- EIA Boundary
- V150 Turbine Locations

RECEIVED
26/01/2023



Client: EMPower	
Project: Tullaghmore Windfarm	
Map Title: National Indicative Fluvial Mapping - High End Future Scenario	
Spatial Reference Name: IREN95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.12	Scale: 1:45,000
Date: 11/1/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	





Legend

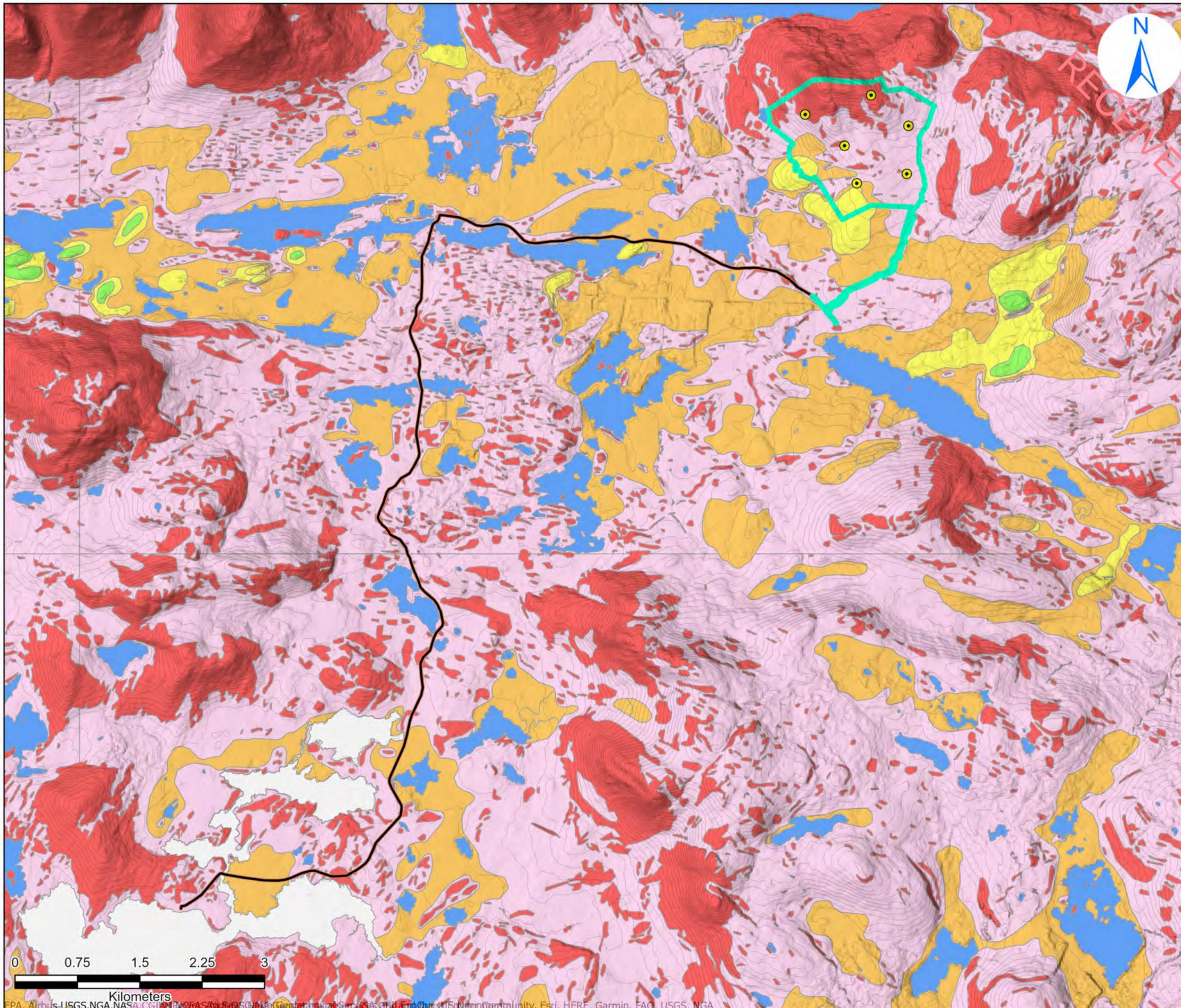
- National Indicative Fluvial Mapping - Medium Probability - Current Scenario
- OPW Benefited Lands
- Grid Connection Route
- EIA Boundary
- V150 Turbine Locations

Extent Map



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: Present Day Medium Probability Fluvial Flood Extent With an Annual Exceedance Probability of 1%.	
Spatial Reference Name: IREN95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.13	Scale: 1:45,000
Date: 11/1/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	

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Legend

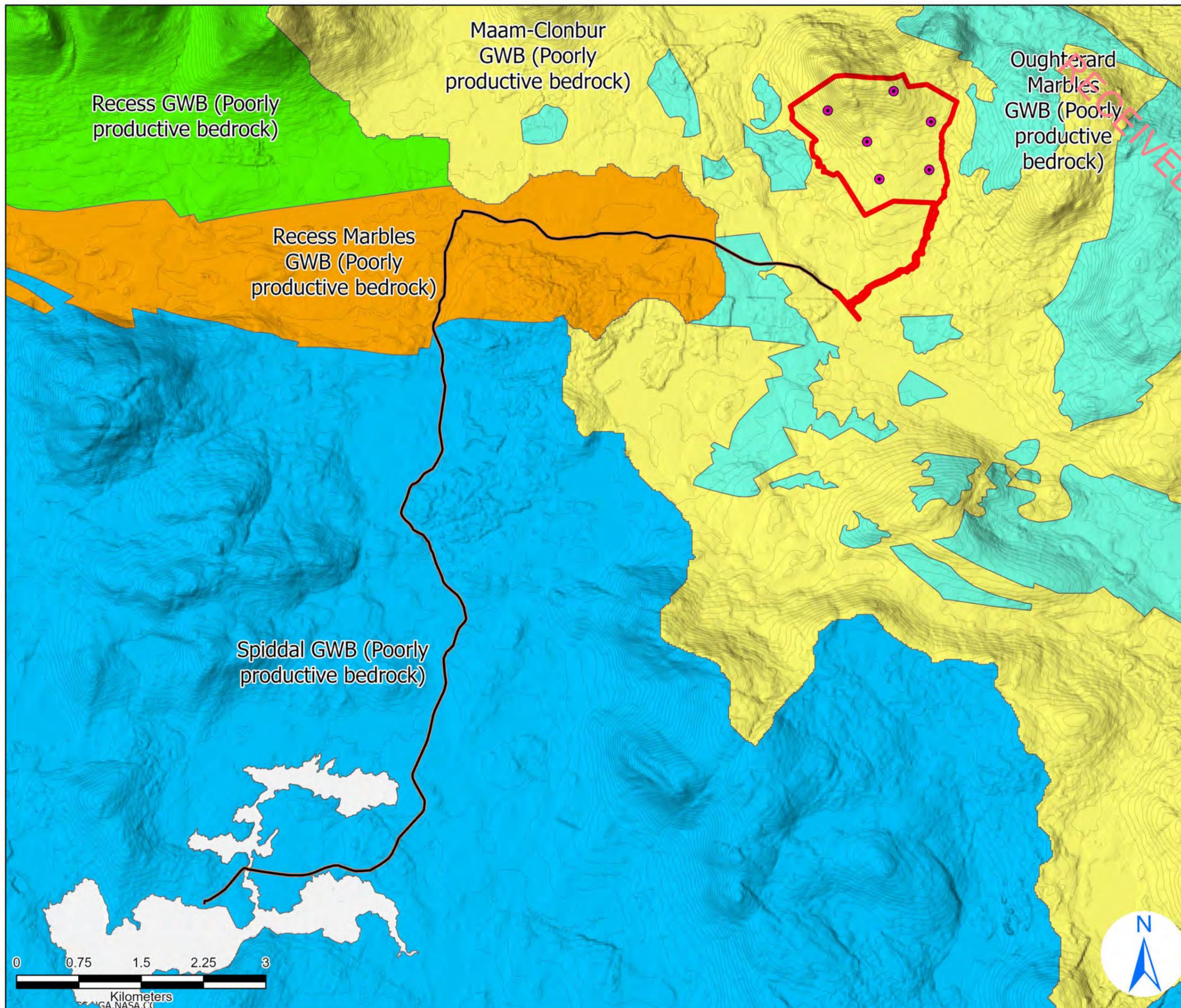
- V150 Turbine Locations
- EIAR Boundary
- Grid Connection Route

Groundwater Vulnerability

- Extremely Vulnerable
- Highly Vulnerable
- Moderate Vulnerability
- Low Vulnerability
- Water
- Rock at or near surface



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: GSI Groundwater Vulnerability Mapping of the Site and Grid Connection Route	
Spatial Reference Name: IRENET95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.14	Scale: 1:45,000
Date: 17/1/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



Legend

- V150 Turbine Locations
- EIAR Boundary
- Grid Connection Route

WFD Groundwater Bodies

- Maam-Clonbur
- Oughterard Marbles
- Recess
- Recess Marbles
- Spiddal



Client: Jennings O'Donovan & Partners	
Project: Tullaghmore Windfarm	
Map Title: WFD Groundwater Bodies (GWB) Underlying the Proposed Site and Grid Connection Route	
Spatial Reference Name: IRENET95 Irish Transverse Mercator	Page Size: A3
Figure No. 9.15	Scale: 1:45,000
Date: 17/1/2022	Prepared By: DP
Revision Number: 1	Checked By: AG
Tel: +353 (91) 897 583	
Email: info@ecoquest.ie	
Web: www.ecoquest.ie	



RECEIVED 23/09/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
x
x
Galway

Report No. : 424666
Date of Receipt : 31/08/2020
Start Date of Analysis : 31/08/2020
Date of Report : 17/09/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1075791	SW 1 31/08/2020	BOD	I, R	1	mg/l
		Suspended Solids	I, R	<2	mg/l
		Total Nitrogen as N	I, R	0.765	mg/l
		Total Phosphorus as P	I, R	0.05	mg/l
		Chloride	I, R	22.9	mg/l
		Nitrate as NO3	I, R	<0.44	mg/l
		Nitrite as NO2	I, R	<0.017	mg/l
		Orthophosphate as PO4-P	I, R	0.148	mg/l
		Ammonia as N	I, R	0.028	mg/l



Approved by:

Laura Finnegan
Environmental
Scientist

See below for test specifications and accreditation status.
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est. is an estimated count.
CLS will test food, water and swabs samples within 24 hours of receipt.
Where samples have been taken by the Client, results apply to the samples as received.



RECEIVED: 26/07/2023

In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

**Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1075791	SW 1 31/08/2020	Good condition	31/08/2020

RECEIVED 31/09/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
 Ecoquest

 Galway

Report No. : 424667
 Date of Receipt : 31/08/2020
 Start Date of Analysis : 31/08/2020
 Date of Report : 11/09/2020
 Order Number :
 Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1075792	SW-2 31/08/2020	BOD	I, R	<1	mg/l
		Suspended Solids	I, R	<2	mg/l
		Total Nitrogen as N	I, R	0.560	mg/l
		Total Phosphorus as P	I, R	<0.05	mg/l
		Chloride	I, R	15.4	mg/l
		Nitrate as NO3	I, R	<0.44	mg/l
		Nitrite as NO2	I, R	<0.017	mg/l
		Orthophosphate as PO4-P	I, R	0.031	mg/l
		Ammonia as N	I, R	<0.005	mg/l



Approved by:

Luiza Singh

Luiza Singh
 Operations Supervisor

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1075792	SW 2 31/08/2020	Good condition	31/08/2020



RECEIVED 30/09/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
x
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Galway

Report No. : 424668
Date of Receipt : 31/08/2020
Start Date of Analysis : 31/08/2020
Date of Report : 17/09/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1075793	SW-3 31/08/2020	BOD	I, R	<1	mg/l
		Suspended Solids	I, R	<2	mg/l
		Total Nitrogen as N	I, R	<0.5	mg/l
		Total Phosphorus as P	I, R	<0.05	mg/l
		Chloride	I, R	15	mg/l
		Nitrate as NO3	I, R	<0.44	mg/l
		Nitrite as NO2	I, R	<0.017	mg/l
		Orthophosphate as PO4-P	I, R	0.055	mg/l
		Ammonia as N	I, R	<0.005	mg/l



Approved by:

Laura Finnegan
Environmental
Scientist

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1075793	SW 3 31/08/2020	Good condition	31/08/2020



RECEIVED 17/09/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
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x
Galway

Report No. : 424669
Date of Receipt : 31/08/2020
Start Date of Analysis : 31/08/2020
Date of Report : 17/09/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1075794	SW 4 31/08/2020	BOD	I, R	<1	mg/l
		Suspended Solids	I, R	<2	mg/l
		Total Nitrogen as N	I, R	<0.5	mg/l
		Total Phosphorus as P	I, R	<0.05	mg/l
		Chloride	I, R	18.6	mg/l
		Nitrate as NO3	I, R	<0.44	mg/l
		Nitrite as NO2	I, R	<0.017	mg/l
		Orthophosphate as PO4-P	I, R	0.101	mg/l
		Ammonia as N	I, R	<0.005	mg/l



Approved by:

Laura Finnegan
Environmental
Scientist

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1075794	SW 4 31/08/2020	Good condition	31/08/2020



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest

Galway

Report No. : 424670
Date of Receipt : 31/08/2020
Start Date of Analysis : 31/08/2020
Date of Report : 11/09/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1075795	SW 5 31/08/2020	BOD	I, R	<1	mg/l
		Suspended Solids	I, R	<2	mg/l
		Total Nitrogen as N	I, R	<0.5	mg/l
		Total Phosphorus as P	I, R	<0.05	mg/l
		Chloride	I, R	15.6	mg/l
		Nitrate as NO3	I, R	<0.44	mg/l
		Nitrite as NO2	I, R	<0.017	mg/l
		Orthophosphate as PO4-P	I, R	0.029	mg/l
		Ammonia as N	I, R	0.01	mg/l



Approved by:

Luiza Singh

Luiza Singh
Operations Supervisor

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1075795	SW 5 31/08/2020	Good condition	31/08/2020



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest

Galway

Report No. : 424671
Date of Receipt : 31/08/2020
Start Date of Analysis : 31/08/2020
Date of Report : 11/09/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1075796	SW 6 31/08/2020	BOD	I, R	<1	mg/l
		Suspended Solids	I, R	<2	mg/l
		Total Nitrogen as N	I, R	<0.5	mg/l
		Total Phosphorus as P	I, R	<0.05	mg/l
		Chloride	I, R	16.8	mg/l
		Nitrate as NO3	I, R	<0.44	mg/l
		Nitrite as NO2	I, R	<0.017	mg/l
		Orthophosphate as PO4-P	I, R	<0.01	mg/l
		Ammonia as N	I, R	0.005	mg/l



Approved by:

Luiza Singh

Luiza Singh
Operations Supervisor

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1075796	SW 6 31/08/2020	Good condition	31/08/2020



RECEIVED 20/10/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 428273
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089573	SW1 13.10.2020 @1.10pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	5	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	23.2	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.034	mg/l



Approved by:

Laura Finnegan
Environmental
Scientist

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

**Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089573	SW1 13.10.2020 @1.10pm	Good condition	13/10/2020



RECEIVED 20/10/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 428274
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089575	SW2 13.10.2020 @3.45pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	16.8	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.005	mg/l



Approved by:

Laura Finnegan
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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089575	SW2 13.10.2020 @3.45pm	Good condition	13/10/2020



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 428276
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089578	SW3 13.10.2020 @3.26pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	15.3	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.005	mg/l



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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089578	SW3 13.10.2020 @3.26pm	Good condition	13/10/2020



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 428277
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089579	SW4 13.10.2020 @2.26pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	17.3	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.007	mg/l



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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089579	SW4 13.10.2020 @2.26pm	Good condition	13/10/2020



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Client : David Parkinson
Ecoquest
Sheeaunroe
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Galway

Report No. : 428278
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089581	SW5 13.10.2020 @2.05pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	14.9	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.015	mg/l



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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089581	SW5 13.10.2020 @2.05pm	Good condition	13/10/2020



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Client : David Parkinson
Ecoquest
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H91 FW3C
Galway

Report No. : 428279
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089582	SW6 13.10.2020 @11.56am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	0.06	mg/l
		Chloride	I,R	15	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.014	mg/l



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Scientist

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089582	SW6 13.10.2020 @11.56am	Good condition	13/10/2020



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 428280
Date of Receipt : 13/10/2020
Start Date of Analysis : 14/10/2020
Date of Report : 29/10/2020
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1089583	SW7 13.10.2020 @10.00am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	13	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	0.05	mg/l
		Chloride	I,R	12.9	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.011	mg/l



Approved by:

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Environmental
Scientist

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 24 @ 150 mg/l	Yes	No	Yes
Suspended Solids	CLS 13	+/- 43 @ 500 mg/l	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 9.47 @ 100mg/l	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 0.05 @ 1.0mg/l	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 0.02 @ 0.2mg/l NO2	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 0.04 @ 0.3 mg/l PO4	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1089583	SW7 13.10.2020 @10.00am	Good condition	13/10/2020



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441745
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151007	SW1 04.03.2021 @9.38am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	20	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.033	mg/l



Approved by:

James Feighan
Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151007	SW1 04.03.2021 @9.38am	Good condition	04/03/2021



RECEIVED 20/01/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441746
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151008	SW2 04.03.2021 @10.52am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	15	mg/l
		Nitrate as NO3	I,R	0.482	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.005	mg/l



Approved by:

James Feighan
Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151008	SW2 04.03.2021 @10.52am	Good condition	04/03/2021



RECEIVED 20/01/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441747
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151009	SW3 04.03.2021 @10.38am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	14	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	<0.005	mg/l



Approved by:

James Feighan
Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

**Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151009	SW3 04.03.2021 @10.38am	Good condition	04/03/2021



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441748
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151010	SW4 04.03.2021 @12.08pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	15.6	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.006	mg/l



Approved by:

James Feighan
Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151010	SW4 04.03.2021 @12.08pm	Good condition	04/03/2021



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441749
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151011	SW5 04.03.2021 @13.05pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	15.6	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.01	mg/l



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Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151011	SW5 04.03.2021 @13.05pm	Good condition	04/03/2021



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441750
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151012	SW6 04.03.2021 @13.23pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	15.6	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.012	mg/l



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James Feighan
Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151012	SW6 04.03.2021 @13.23pm	Good condition	04/03/2021



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441751
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151013	SW7 04.03.2021 @14.58pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	3	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	12.6	mg/l
		Nitrate as NO3	I,R	0.446	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.009	mg/l



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Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151013	SW7 04.03.2021 @14.58pm	Good condition	04/03/2021



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CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 441752
Date of Receipt : 04/03/2021
Start Date of Analysis : 04/03/2021
Date of Report : 15/03/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1151014	SW9 04.03.2021 @11.32am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	5	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	14.2	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	0.031	mg/l



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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1151014	SW9 04.03.2021 @11.32am	Good condition	04/03/2021



RECEIVED 20/10/2023

CERTIFICATE OF ANALYSIS

Client : David Parkinson
Ecoquest
Sheeaunroe
H91 FW3C
Galway

Report No. : 465766
Date of Receipt : 05/10/2021
Start Date of Analysis : 05/10/2021
Date of Report : 15/10/2021
Order Number :
Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1362646	SW 5 05/10/2021 @9: 22am	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	12.2	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	<0.005	mg/l
		1362648	SW 4 05/10/2021 @10: 13am	BOD	I,R
Suspended Solids	I,R			<2	mg/l
Total Nitrogen as N	I,R			<0.5	mg/l
Total Phosphorus as P	I,R			<0.05	mg/l
Chloride	I,R			12.4	mg/l
Nitrate as NO3	I,R			<0.44	mg/l
Nitrite as NO2	I,R			<0.017	mg/l
Orthophosphate as PO4-P	I,R			<0.01	mg/l
Ammonia as N	I,R			<0.005	mg/l
1362650	SW 9 05/10/2021 @10: 58am			BOD	I,R
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	12.4	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	<0.005	mg/l
		1362655	SW 7 05/10/2021 @12: 18pm	BOD	I,R
Suspended Solids	I,R			<2	mg/l
Total Nitrogen as N	I,R			<0.5	mg/l
Total Phosphorus as P	I,R			<0.05	mg/l
Chloride	I,R			10.9	mg/l
Nitrate as NO3	I,R			<0.44	mg/l
Nitrite as NO2	I,R			<0.017	mg/l
Orthophosphate as PO4-P	I,R			<0.01	mg/l
Ammonia as N	I,R			<0.005	mg/l
1362657	SW 11 05/10/2021 @13: 12pm			BOD	I,R
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	11	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	<0.005	mg/l
		1362659	SW 12 05/10/2021 @13: 35pm	BOD	I,R
Suspended Solids	I,R			<2	mg/l
Total Nitrogen as N	I,R			<0.5	mg/l



		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	1.9	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	<0.005	mg/l
1362660	SW 6 05/10/2021 @15:48pm	BOD	I,R	<1	mg/l
		Suspended Solids	I,R	<2	mg/l
		Total Nitrogen as N	I,R	<0.5	mg/l
		Total Phosphorus as P	I,R	<0.05	mg/l
		Chloride	I,R	13.9	mg/l
		Nitrate as NO3	I,R	<0.44	mg/l
		Nitrite as NO2	I,R	<0.017	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Ammonia as N	I,R	<0.005	mg/l



Approved by:

James Feighan
Scientific Project
Manager

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In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Suspended Solids	CLS 13	+/- 6.44 %	Yes	No	Yes
Total Nitrogen as N	CLS 152	+/- 8.72 %	Yes	No	Yes
Total Phosphorus as P	CLS 151	+/- 10.53 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Nitrite as NO2	Konelab CLS 37	+/- 7.55 % as N	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Ammonia as N	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes

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**Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

For environmental samples of lakes and rivers sampled by CLS, accreditation is not being claimed on this report.

Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1362646	SW 5 05/10/2021 @9:22am	Good condition	05/10/2021
1362648	SW 4 05/10/2021 @10:13am	Good condition	05/10/2021
1362650	SW 9 05/10/2021 @10:58am	Good condition	05/10/2021
1362655	SW 7 05/10/2021 @12:18pm	Good condition	05/10/2021
1362657	SW 11 05/10/2021 @13:12pm	Good condition	05/10/2021
1362659	SW 12 05/10/2021 @13:35pm	Good condition	05/10/2021
1362660	SW 6 05/10/2021 @15:48pm	Good condition	05/10/2021