

HydroGlen

Supporting Environmental
Information Report

Appendix C: Landscape & Visual Appraisal
Baseline Figures



Glensaugh, Hydroglen

Landscape and Visual Appraisal - Baseline Graphics

November 2023



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For ITP Energised on behalf of James Hutton Institute

Contents

Figure 01.	Viewpoint Location Plan
Figure 02a.	NatureScot Landscape Character Types (25km Study Area)
Figure 02b.	NatureScot Landscape Character Types (Legend, 25km Study Area)
Figure 02c.	NatureScot Landscape Character Types (10km Study Area)
Figure 03a.	Landscape Designations and Recreational Routes (25km Study Area)
Figure 03b.	Landscape Designations and Recreational Routes (10km Study Area)
Figure 04a.	Bareground Zone of Theoretical Visibility (Proposed Wind Turbine, 25km Study Area)
Figure 04b.	Bareground Zone of Theoretical Visibility (Proposed Wind Turbine, 10km Study Area)
Figure 04c.	Cumulative Bareground Zone of Theoretical Visibility (Solar & Hydrogen Developments)
Figure 05a.	Modified Zone of Theoretical Visibility (Proposed Wind Turbine, 10km Study Area)
Figure 05b.	Cumulative Modified Zone of Theoretical Visibility (Solar & Hydrogen Developments)
Figure 06.	Landscape Character Types (10km Study Area) with Modified ZTV
Figure 07.	Landscape Designations and Recreational Routes (10km Study Area) with Modified ZTV
Figure 08a.	Cumulative Sites Location Plan
Figure 08b.	Cumulative Sites List
Figure 09.	Cumulative Bareground Zone of Theoretical Visibility – (Operational Turbine Developments)
Figure 10.	Cumulative Bareground Zone of Theoretical Visibility – (Consented Turbine Developments)
Figure 11.	Cumulative Bareground Zone of Theoretical Visibility – (Mid Hill Turbines)

Front cover photograph created based on Viewpoint 01.

Methodology Statement

Study Area

The Study Area has been defined as 25km from the proposed wind turbine with 5km intervals displayed, in line with NatureScot guidance and as agreed with the Local Authority.

Zone of Theoretical Visibility Mapping

Computer modelling has been utilised to illustrate the effects of the Proposed Development through the production of Zone of Theoretical Visibility (ZTV) mapping. ZTV maps indicate those areas of land from which the Proposed Development might appear as part of a view. As such, they provide a means of identifying potential receptors (landscape and visual) in order for an assessment to be undertaken.

The ZTVs utilised to inform the assessment have been generated in 'WindFarm R5' software produced by ReSoft. In the software, the ZTV has been banded in colour to demonstrate where the Proposed Development may theoretically be seen from any point in the study area. The ZTV calculations utilised OS Terrain 50 dataset at 50m grid intervals with the more defined and detailed OS Terrain 5 DTM utilised to cover a 20km x 20km area centred on the Proposed Development. There are limitations in this theoretical modelling however, and these should be borne in mind when viewing and using the ZTV Figures.

Firstly, the majority of the ZTVs shown illustrate the 'bareground' situation and do not consider the screening effect of vegetation, buildings or other localised features that may prevent or reduce visibility. Figures 05a & 05b show a modified ZTV which considers vegetation and buildings as shown on OS OpenMap Local mapping, to illustrate the screening qualities of these elements. Further assumptions must be made in relation to the preparation of such ZTVs, however, such as estimators of tree or building height. In this case existing woodland was modelled at an estimated 10m height, whilst all existing buildings were modelled at an estimated 8.5m height. Existing woodland in the vicinity of the Proposed Development may be taller than 10m, however this estimate was used to ensure the worst-case scenario was demonstrated, due to the absence of Lidar data.

Secondly, there may still be small scale topography discrepancies that could alter the actual visibility of the proposed development, either by screening theoretical visibility or revealing parts that are not theoretically visible. Finally, the ZTV map does not consider the likely orientation of a viewer, the direction and speed of travel; or the angle of view. There is also no allowance for reduced visibility associated with distance, weather or lighting conditions.

All ZTVs assume an observer eye level of 2m above ground, with Earth's curvature and atmospheric refraction included in the calculation, in accordance with NatureScot (formally SNH) guidance.

Landscape Character Types

All figures relating to Landscape Character Types have utilised NatureScot's publicly available dataset, as this is considered to be the most up-to-date character assessment (published in 2019).

Landscape Designations

All figures relating to Landscape Designations have utilised a range of publicly available datasets. Some datasets were edited based on OS mapping and Local Plans to improve their accuracy or to update them to recent changes (Core Paths, National Cycle Network, Scotland's Great Trails and Local Landscape Areas). Data Sources included:

NatureScot:

- Wild Land Areas

Historic Environment Scotland Datasets:

- Scheduled Monuments
- Gardens and Designed Landscapes
- Conservation Areas

Improvement Service:

- Core Paths – Scotland
- Local Landscape Areas – Scotland

Sustrans:

- National Cycle Network





Cumulative Research

Cumulative research was carried out up to 14th September 2023, utilising local authority planning portals. Each turbine was plotted as accurately as possible; operational sites were plotted using high resolution aerial imagery where visible, whilst all other sites were plotted using co-ordinates within the planning documents in the majority of cases.

Sites shown on the figures and included in the assessment are all known wind turbine developments within 5km of the Proposed Development and all known wind turbine developments above 70m to tip within 25km of the Proposed Development.









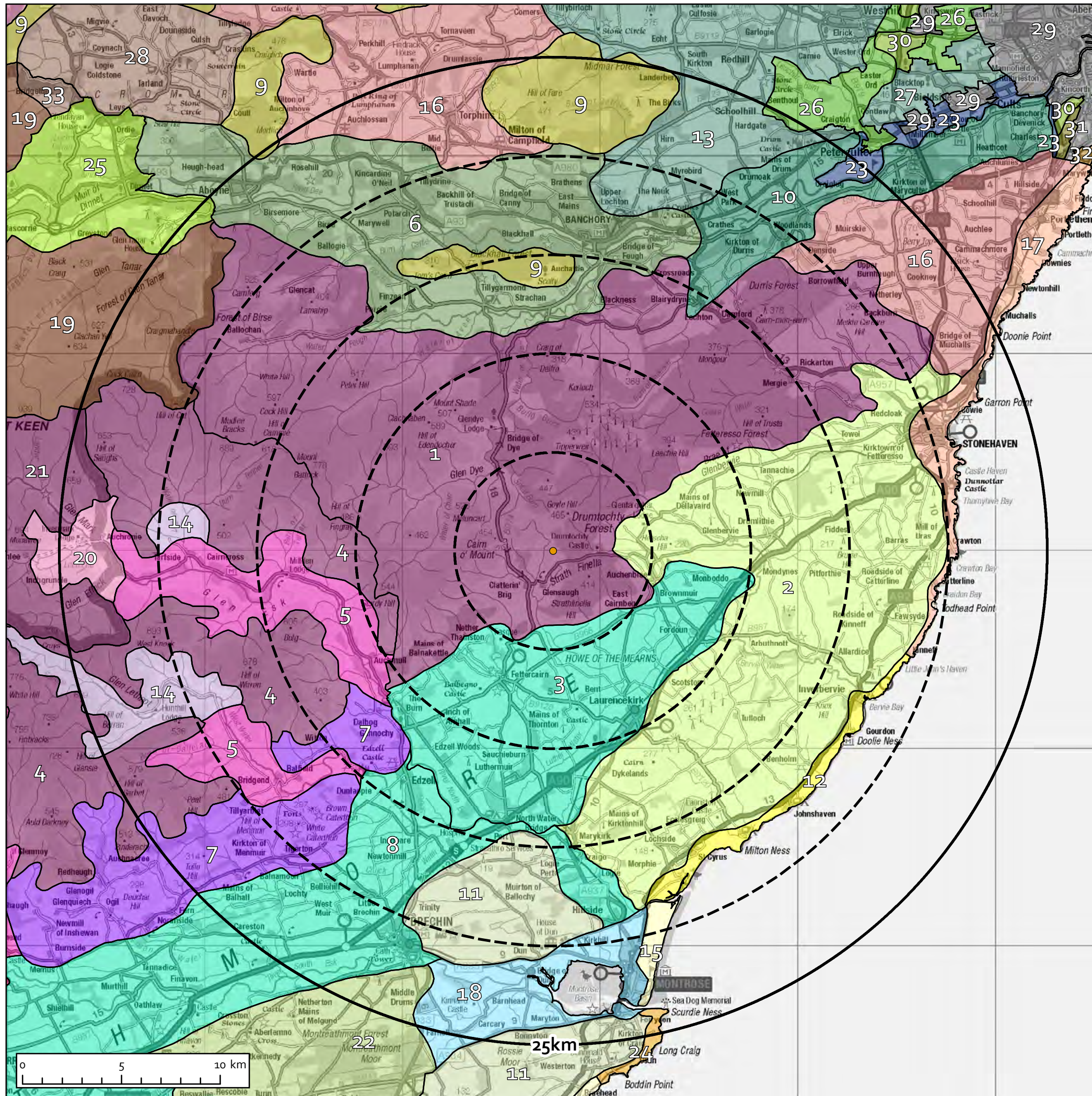
Legend

-  Proposed turbine location
-  25km study area
-  5km buffers
-  Viewpoint location




Viewpoint Information

1. Loch Saugh
(Grid ref. 367513, 778502)
2. Junction of Old Military Road and C-Class road
(Grid ref. 366508, 778216)
3. Cairn o' Mount
(Grid ref. 365039, 780484)
4. Glen Road, north-west of Auchenblae
(Grid ref. 372475, 779273)
5. Fettercairn
(Grid ref. 365147, 773756)
6. Minor road east of Auchenblae
(Grid ref. 373684, 778852)
7. B974 south of Fettercairn
(Grid ref. 365873, 771821)
8. Clachnaben
(Grid ref. 361535, 786472)

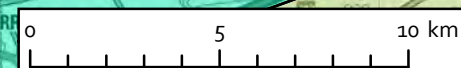
Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Viewpoint Location Plan	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No: 01	Status: Planning
Drawn by: R Moore	Checked by: S Hyde
	
<p>  north </p> <p>  Dolphin House, 4 Hunter Square, Edinburgh, EH1 1QW  0131 357 3657  brindleyassociates.co.uk  Brindley Associates Ltd </p>	



Legend

-  Proposed turbine location
-  25km study area
-  5km buffers




Note: See Figure 02b for Landscape Character Type legend



Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: NatureScot Landscape Character Types (25km Study Area)	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No: 02a	Status: Planning
Drawn by: CRlgby	Checked by: S Hyde



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Landscape Character Types (LCTs) NatureScot 2019

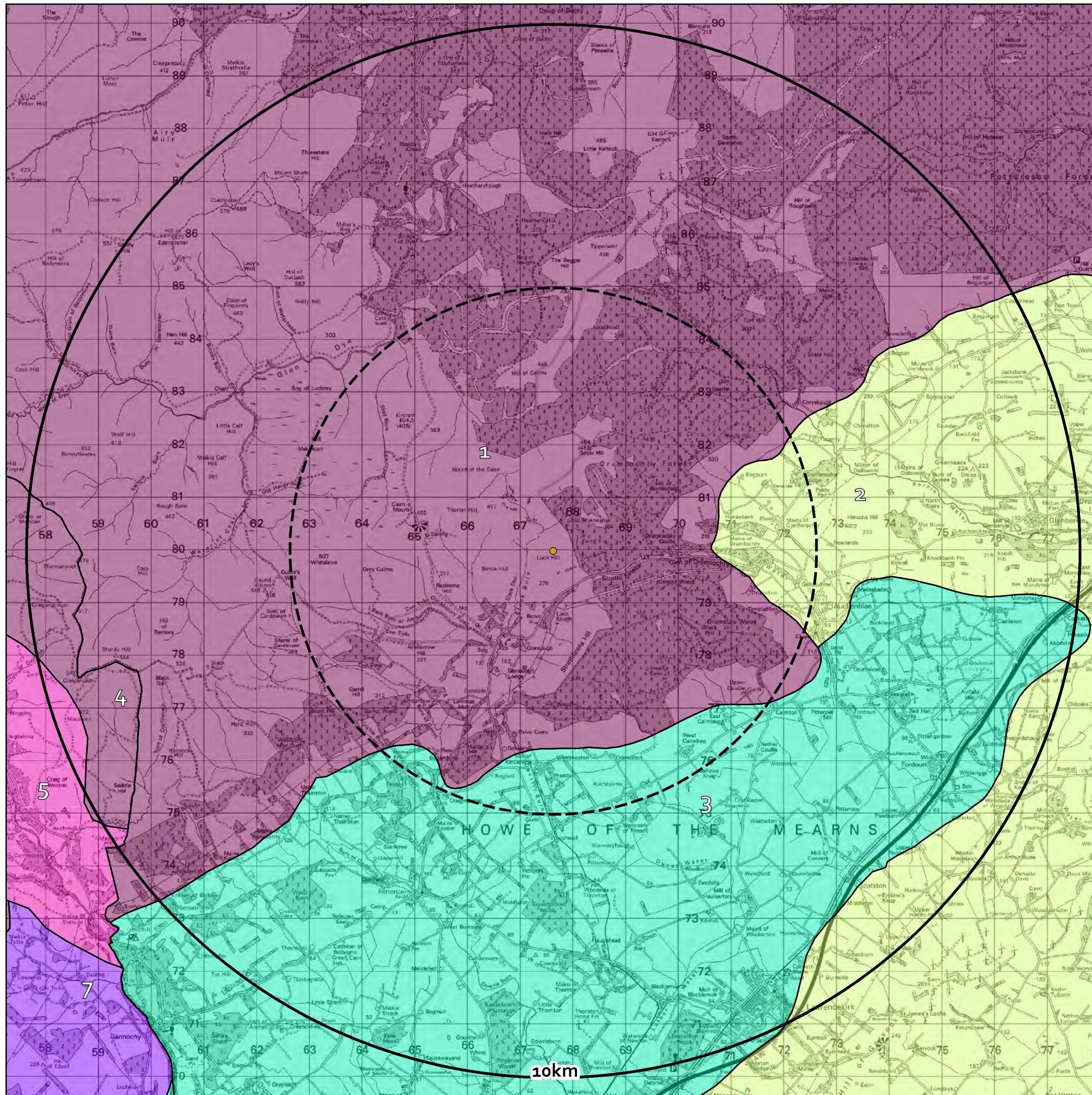
- 1 LCT 29: Summits and Plateaux - Aberdeenshire
- 2 LCT 24: Coastal Farmed Ridges and Hills - Aberdeenshire
- 3 LCT 22: Broad Valley Lowlands - Aberdeenshire
- 4 LCT 376: Summits and Plateaux - Tayside
- 5 LCT 371: Mid Upland Glens
- 6 LCT 33: Broad Wooded Valley with Estates
- 7 LCT 379: Foothills - Tayside
- 8 LCT 384: Broad Valley Lowlands - Tayside
- 9 LCT 28: Outlying Hills & Ridges
- 10 LCT 31: Broad Wooded and Farmed Valley
- 11 LCT 387: Dipslope Farmland
- 12 LCT 13: Raised Beach Coast - Aberdeenshire
- 13 LCT 26: Wooded Estates - Aberdeenshire
- 14 LCT 370: Upper Upland Glens
- 15 LCT 388: Beaches, Dunes and Links - Tayside
- 16 LCT 27: Farmed Moorland Edge - Aberdeenshire
- 17 LCT 11: Fragmented Rocky Coast
- 18 LCT 390: Lowland Basins
- 19 LCT 123: Smooth Rounded Hills - Cairngorms
- 20 LCT 126: Upland Glen - Cairngorms
- 21 LCT 124: Summits and Plateaux - Cairngorms
- 22 LCT 386: Low Moorland Hills
- 23 LCT 4: River Valley - Aberdeen
- 24 LCT 389: Cliffs and Rocky Coast - Tayside
- 25 LCT 129: Broad Glen with Estates
- 26 LCT 6: Undulating Open Farmland

Outwith study area:




- 27 LCT 9: Wooded Estates - Aberdeen
- 28 LCT 23: Farmed Basin - Aberdeenshire
- 29 LCT 0: Urban
- 30 LCT 5: Low Hills - Aberdeen
- 31 LCT 8: Urban and Farmland
- 32 LCT 3: Coastal Farmed Plain
- 33 LCT 130: Farmed Basin - Cairngorms

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: NatureScot Landscape Character Types (Legend, 25km Study Area)	
Scale:	Date: 24 / 11 / 2023
Figure No: 02b	Status: Planning
Drawn by: C Rigby	Checked by: S Hyde











Legend




-  Proposed turbine location
-  10km study area
-  5km buffer

Landscape Character Types (LCTs) NatureScot 2019

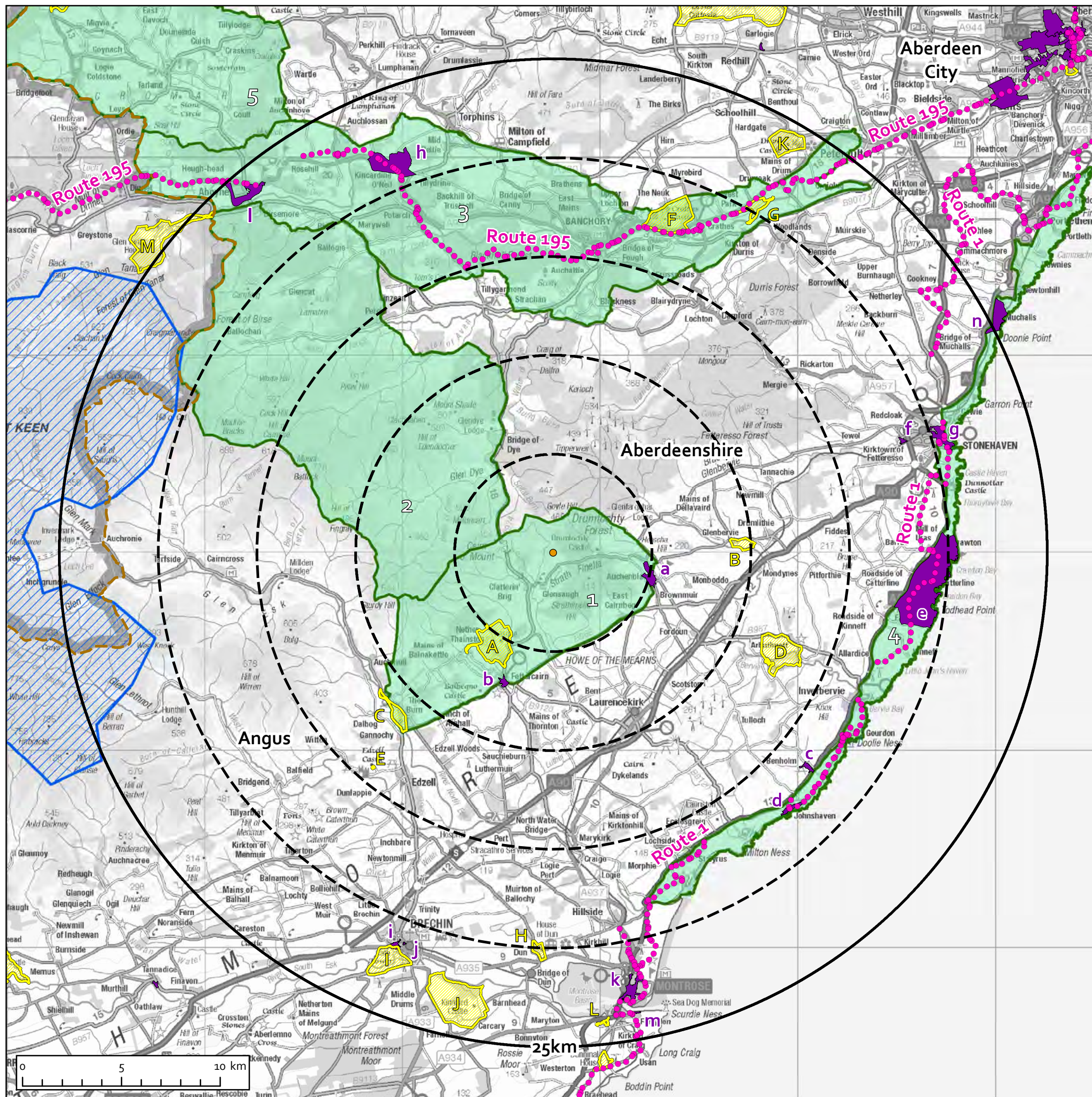
-  LCT 29: Summits and Plateaux - Aberdeenshire
-  LCT 24: Coastal Farmed Ridges and Hills - Aberdeenshire
-  LCT 22: Broad Valley Lowlands - Aberdeenshire
-  LCT 376: Summits and Plateaux - Tayside
-  LCT 371: Mid Upland Glens
-  LCT 379: Foothills - Tayside (outwith 10km study area)

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: NatureScot Landscape Character Types (10km Study Area)	
Scale: 1:75,000 @ A3	Date: 24 / 11 / 2023
Figure No: 02c	Status: Planning
Drawn by: C Rlgby	Checked by: S Hyde








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Legend


-  Proposed turbine location
-  25km study area
-  5km buffers
-  Council boundaries
-  Cairngorms National Park boundary

Landscape Designations


-  Aberdeenshire Local Landscape Areas:
 1. Braes of the Mearns
 2. Clachnaben and Forest of Birse
 3. Dee Valley
 4. South East Aberdeenshire Coast
 5. Howe of Cromar (outwith study area)

-  Wild land
- Lochnagar - Mount Keen

Cultural Heritage Designations


-  Gardens and designed landscapes (within 25km):

A. Fasque House	H. House of Dun
B. Glenbervie House	I. Brechin Castle
C. The Burn	J. Kinnaird Castle
D. Arbutnott House	K. Drum Castle
E. Edzell Castle	L. Craig House
F. Crathes Castle	M. Glen Tanar
G. Park House	

-  Conservation Areas (within 25km):

a. Auchenblae	i. Brechin town centre
b. Fettercairn	j. Brechin St
c. Benholm	k. Ninian's Square
d. Johnshaven	l. Montrose
e. Catterline	m. Aboyne
f. Kirkton of Fetteresso	n. Ferryden
g. Stonehaven	
h. Kincardine O'neil	

Designated Routes

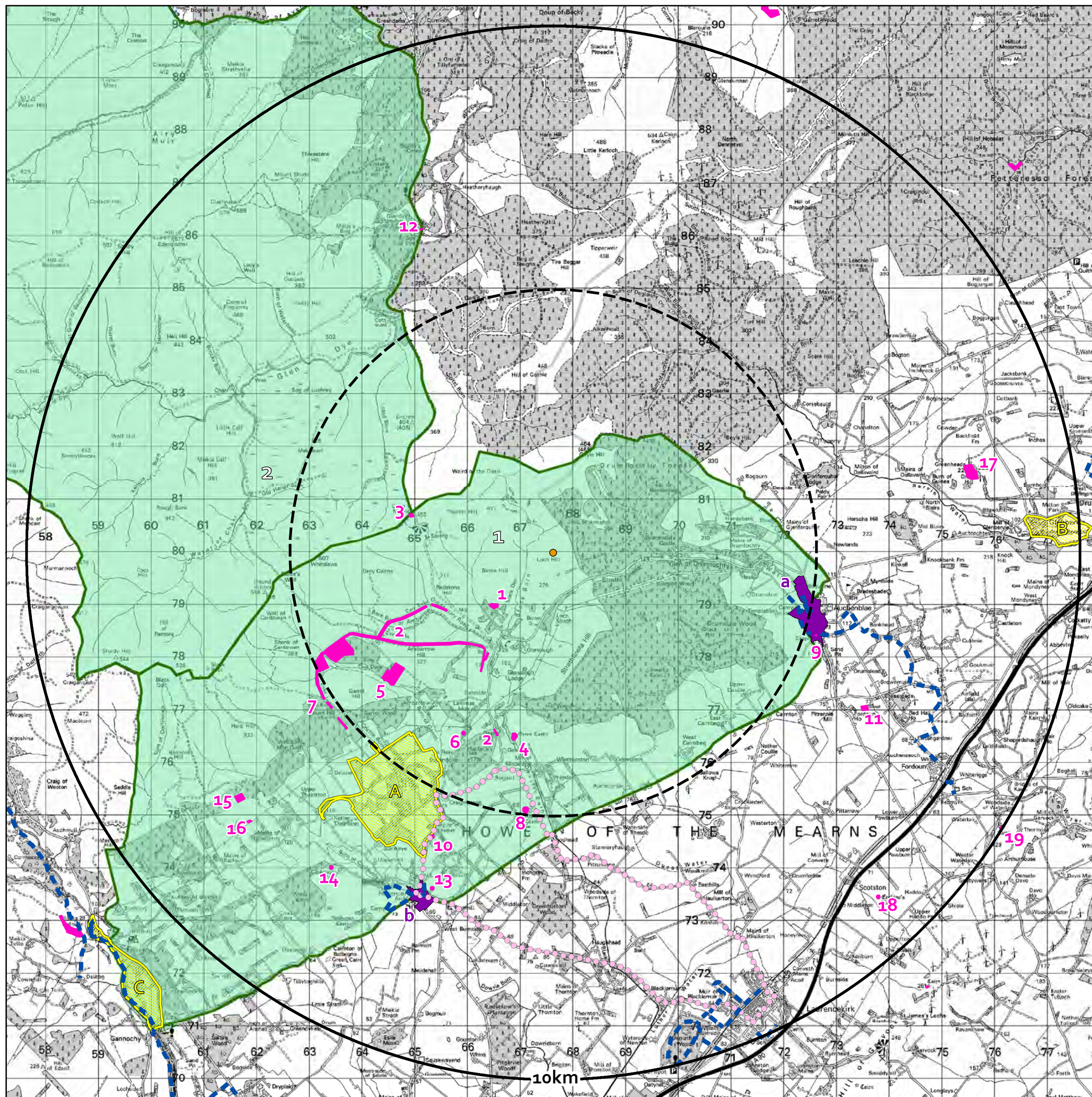
-  National cycle network

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Landscape Designations and Recreational Routes (25km Study Area)	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No. 03a	Status: Planning
Drawn by: C Rigby	Checked by: S Hyde







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Legend

-  Proposed turbine location
-  10km study area
-  5km buffer
-  Council boundaries



Landscape Designations

-  Aberdeenshire Local Landscape Areas:
 1. Braes of the Mearns
 2. Clachnaben and Forest of Birse

Cultural Heritage Designations




-  Gardens and designed landscapes:
 - A. Fasque House
 - B. Glenbervie House
 - C. The Burn
-  Conservation Areas:
 - a. Auchenblae
 - b. Fettercairn
-  Scheduled monuments (within 10km):
 1. Glensough, farmstead and field system 900m NW of
 2. Kincardine Deer Dyke and settlements N of Burn of Garrol
 3. Cairn o' Mount, cairns
 4. Green Castle, earthwork
 5. Arnbarrow, farmstead and field system 900m NW of
 6. The Ring, enclosed cairn 750m SE of Arnbarrow
 7. Kincardine Deer Dyke and settlement S of East Burn of Cardowan
 8. Kincardine Castle
 9. St. Palladius' Chapel
 10. Fettercairn House, burial mound 650m NNW of
 11. Fordoun, homestead moat
 12. Bridge of Dye, pill boxes 60m & 35m W of
 13. Fettercairn House, burial mound 450m SW of
 14. Fountain Hillock, burial mound 250m W of Cauldcots
 15. Hill of Strathnoson, farmstead & field system
 16. East Mains of Balfour, farmstead 550m NNE of
 17. Droop Hill, cairns 1250m SW of Inches
 18. Erskine's Knap, burial mound 600m SE of Scotston
 19. Cairn of Arthurhouse, 260m W of Thornylea

Designated Routes

-  Core path
-  Laurencekirk - Fettercairn circular recreational cycling route

Project: Hydroglen, Glensough	Client: ITP Energised
Drawing Title: Landscape Designations and Recreational Routes (10km Study Area)	
Scale: 1:75,000 @ A3	Date: 24 / 11 / 2023
Figure No. 03b	Status: Planning
Drawn by: C Rigby	Checked by: S Hyde







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Legend

-  Proposed turbine location
-  25km study area
-  5km buffers
-  Viewpoint locations
-  Proposed turbine tip theoretically visible (02.40% of 25km study area)
-  Proposed turbine hub theoretically visible (10.26% of 25km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals within 10km study area) and Terrain 50 dataset at 50m grid intervals (outwith 10km study area).
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:250,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

ZTV Run Data

Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Single wind turbine
 Counting method: 1 for each point visible
 Visible points: Tip height (76m) & Hub height (50m)
 % of 25km study area with theoretical visibility: 12.66%

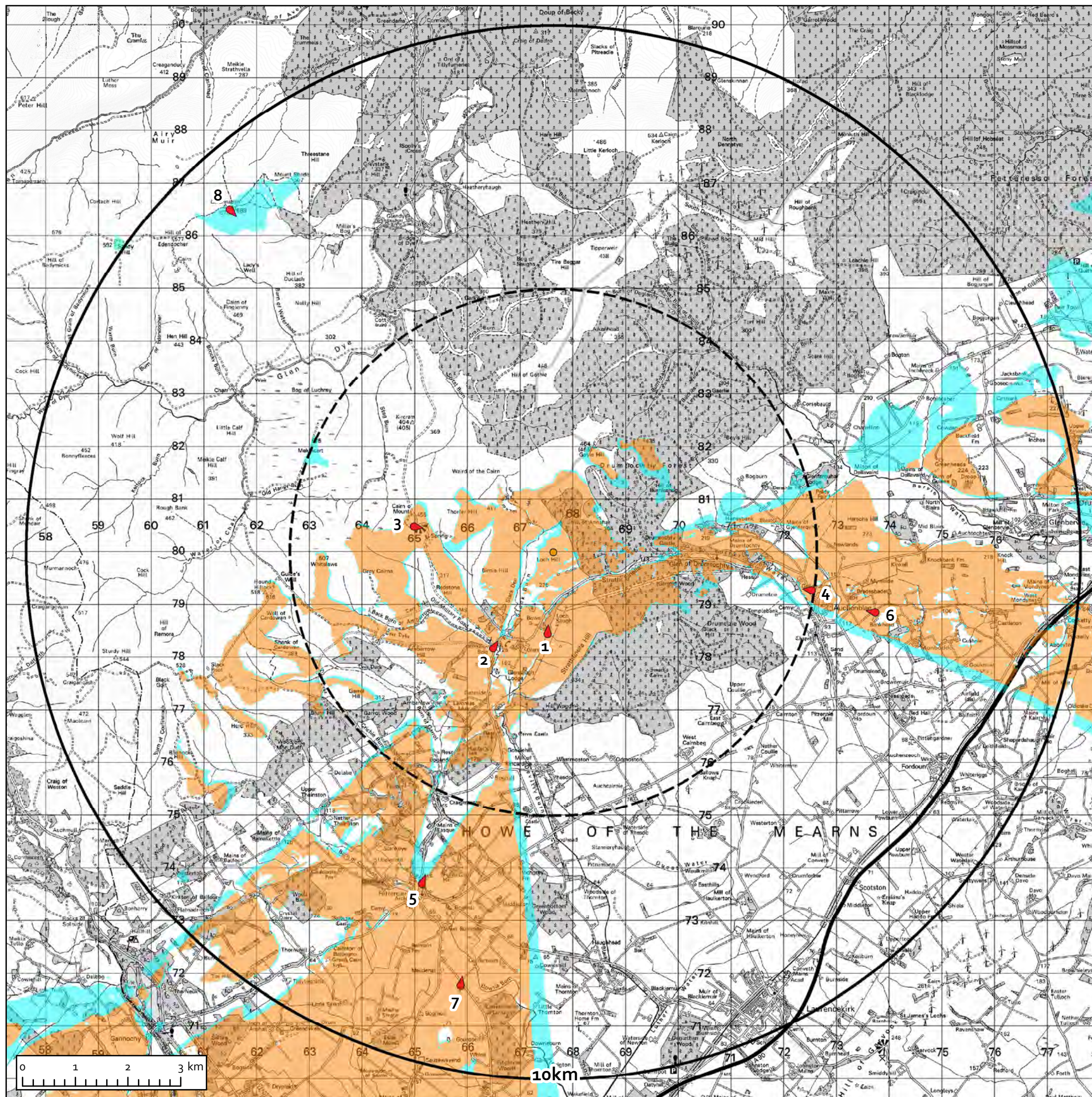
Proposed Viewpoint Information

1. Loch Saugh (Grid ref. 367513, 778502)
2. Junction of Old Military Road and C-Class road (Grid ref. 366508, 778216)
3. Cairn o' Mount (Grid ref. 365039, 780484)
4. Glen Road, north-west of Auchenblae (Grid ref. 372475, 779273)
5. Fettercairn (Grid ref. 365147, 773756)
6. Minor road east of Auchenblae (Grid ref. 373684, 778852)
7. B974 south of Fettercairn (Grid ref. 365873, 771821)
8. Clachnaben (Grid ref. 361535, 786472)







Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Bareground Zone of Theoretical Visibility (Proposed Wind Turbine, 25km Study Area)	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No. 04a	Status: Planning
Drawn by: CRlgby	Checked by: S Hyde



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Legend

-  Proposed turbine location
-  10km study area
-  5km buffer
-  Viewpoint locations
-  Proposed turbine tip theoretically visible (03.58% of 10km study area)
-  Proposed turbine hub theoretically visible (17.01% of 10km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:50,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

ZTV Run Data

Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Single wind turbine
 Counting method: 1 for each point visible
 Visible points: Tip height (76m) & Hub height (50m)
% of 10km study area with theoretical visibility: 20.59%

Proposed Viewpoint Information

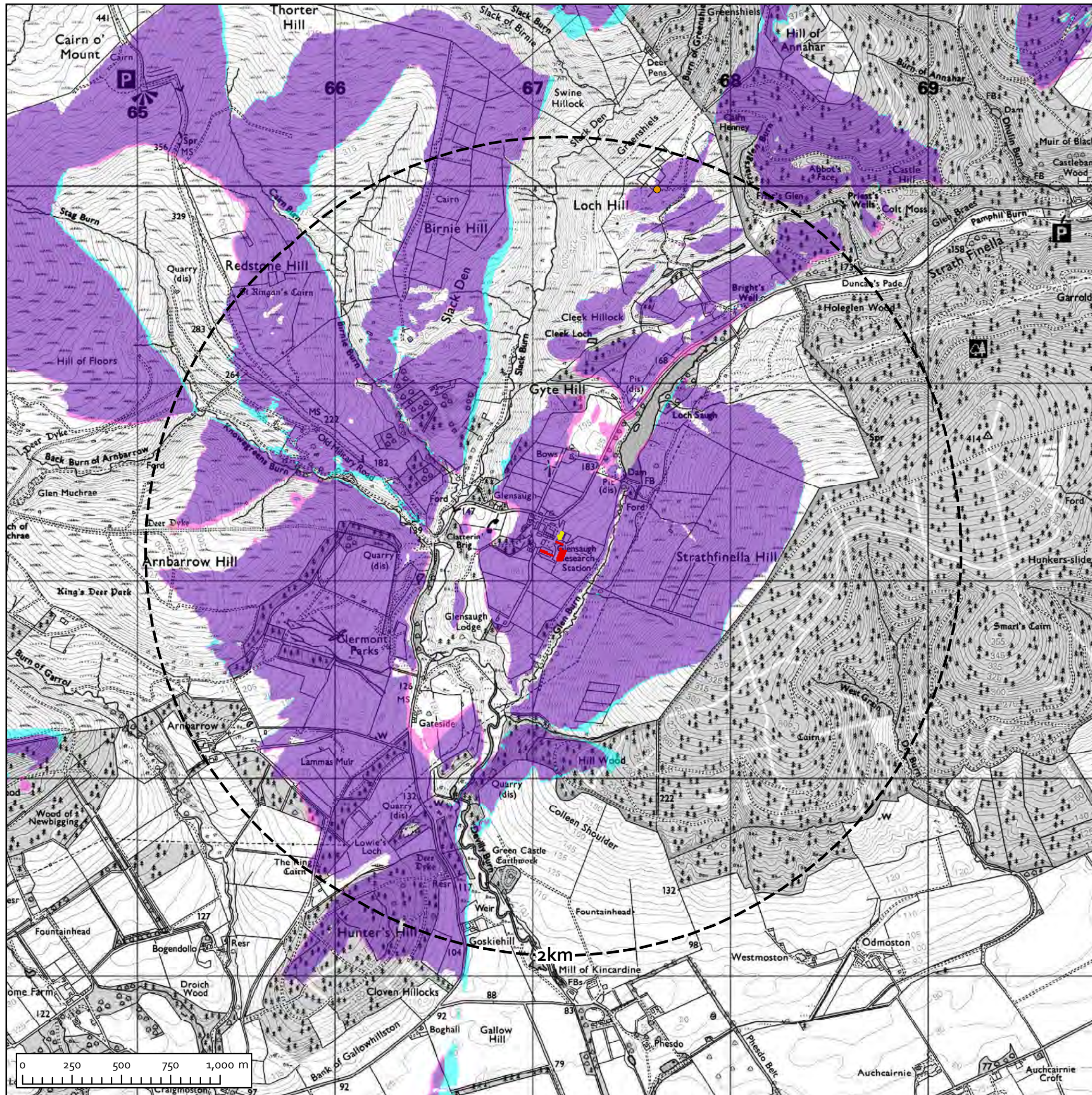
1. Loch Saugh (Grid ref. 367513, 778502)
2. Junction of Old Military Road and C-Class road (Grid ref. 366508, 778216)
3. Cairn o' Mount (Grid ref. 365039, 780484)
4. Glen Road, north-west of Auchenblae (Grid ref. 372475, 779273)
5. Fettercairn (Grid ref. 365147, 773756)
6. Minor road east of Auchenblae (Grid ref. 373684, 778852)
7. B974, south of Fettercairn (Grid ref. 365873, 771821)
8. Clachnaben (Grid ref. 361535, 786472)

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Bareground Zone of Theoretical Visibility (Proposed Wind Turbine, 10km Study Area)	
Scale: 1:75,000 @ A3	Date: 24 / 11 / 2023
Figure No. 04b	Status: Planning
Drawn by: CRlgby	Checked by: S Hyde










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Legend

-  Proposed turbine location
-  Proposed solar panel development
-  Proposed hydrogen development
-  2km buffer (offset from solar & hydrogen developments)
-  Proposed solar development only theoretically visible (01.04% of 2km study area)
-  Proposed hydrogen vents only theoretically visible (01.26% of 2km study area)
-  Both solar and hydrogen developments theoretically visible (42.51% of 2km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:25,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

ZTV Run Data

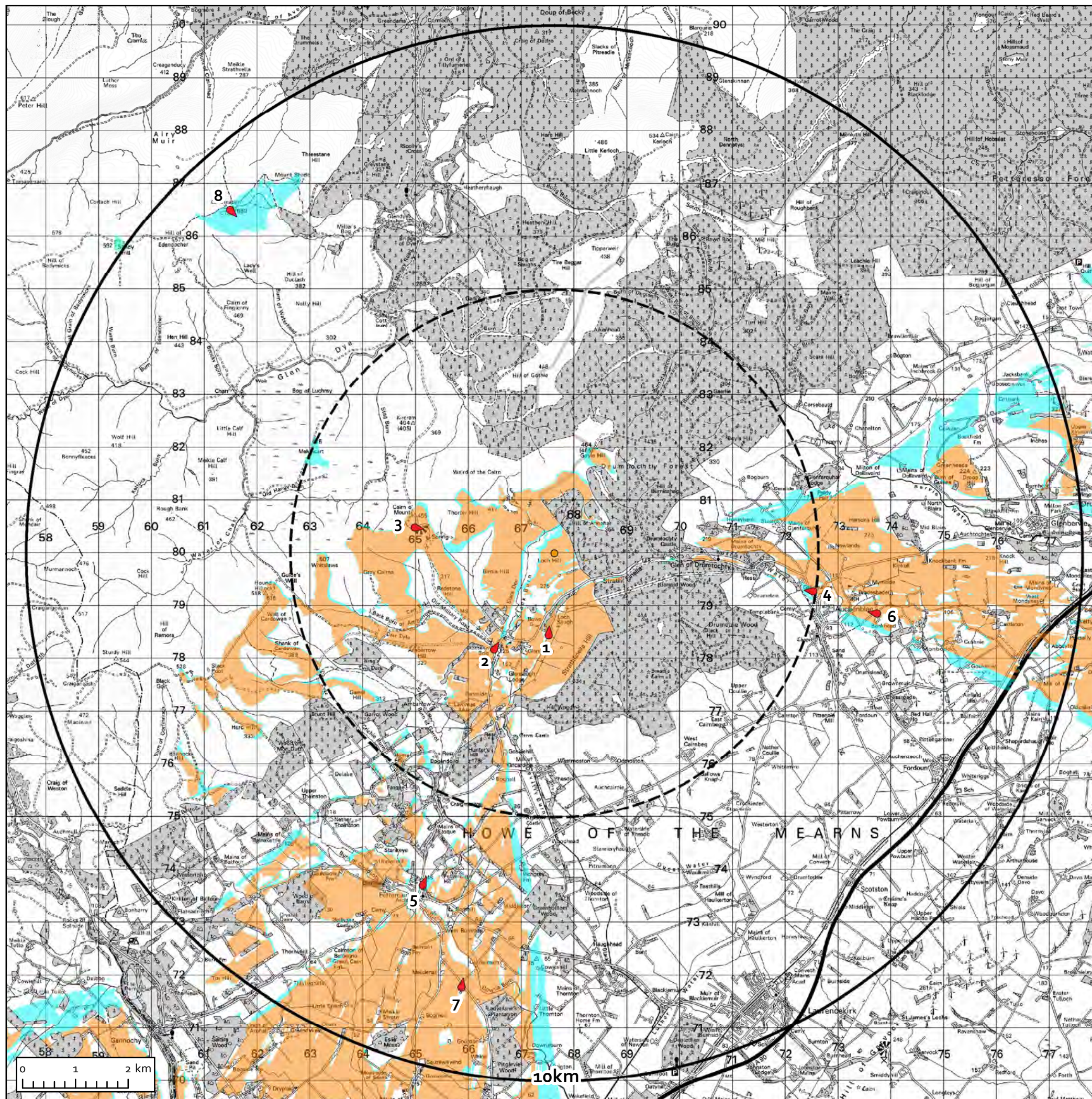
Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Cumulative
 Counting method: 1 for each development visible
 Visible points: Solar (3m - 8.5m)
 Hydrogen vents (10m & 17m)
% of 2km study area with theoretical visibility: 44.81%

Project: Hydrogen, Glensaug	Client: ITP Energised
Drawing Title: Cumulative Background Zone of Theoretical Visibility (Solar & Hydrogen Developments)	
Scale: 1:20,000 @ A3	Date: 24 / 11 / 2023
Figure No. 04C	Status: Planning
Drawn by: R Moore	Checked by: S Hyde









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Legend

-  Proposed turbine location
-  10km study area
-  5km buffer
-  Proposed viewpoint location
-  Proposed turbine tip theoretically visible (2.63% of 10km study area)
-  Proposed turbine hub theoretically visible (11.24% of 10km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis takes into account intervening screening by woodland (nominal 10m height) and buildings (nominal 8.5m height) as shown on OS OpenMap Local.
4. Reproduced from 1:50,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

ZTV Run Data

Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Single wind turbine
 Counting method: 1 for each point visible
 Visible points: Tip height (76m) & Hub height (50m)
% of 10km study area with theoretical visibility: 13.87%

Proposed Viewpoint Information

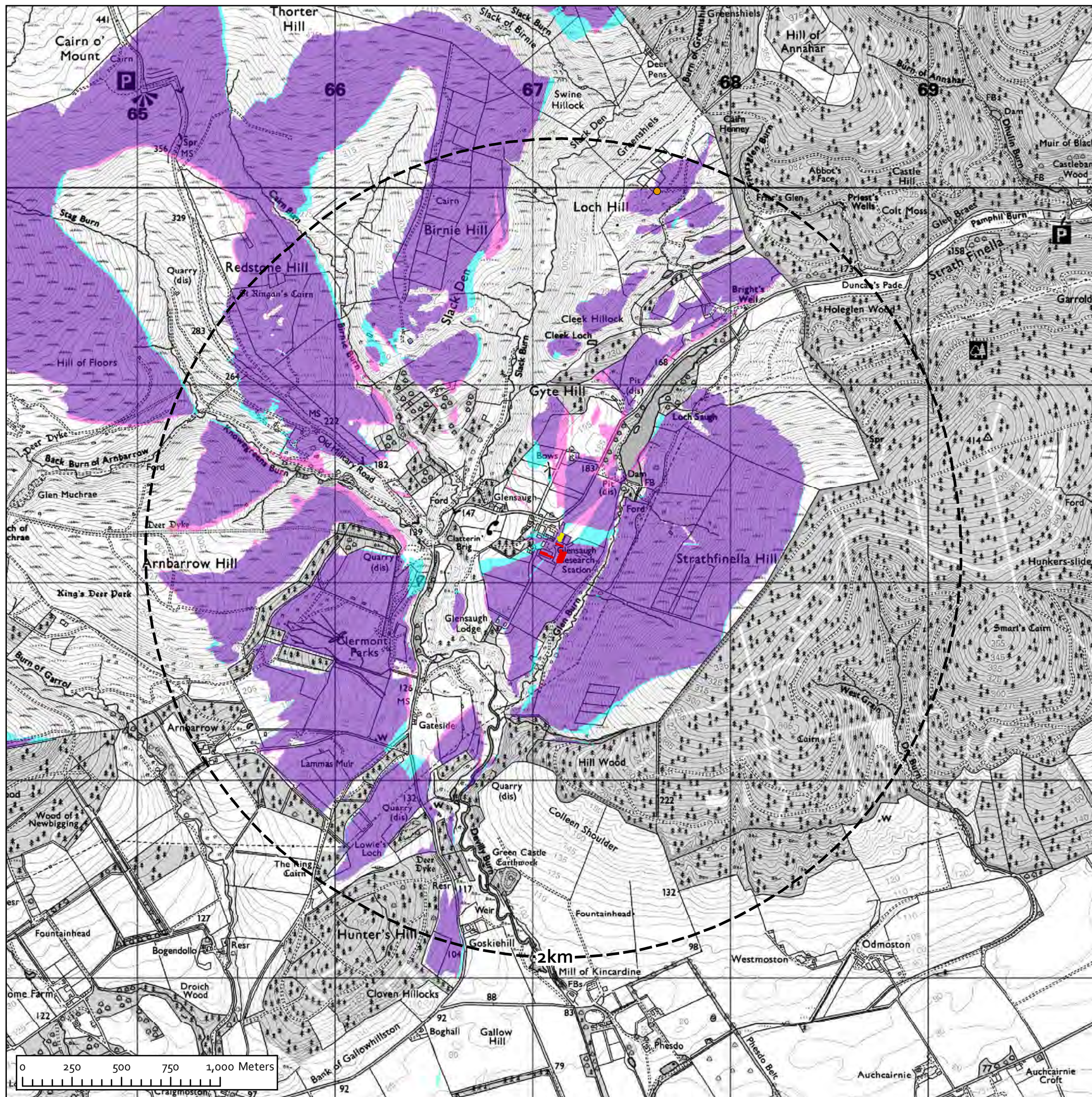
1. Loch Saugh (Grid ref. 367513, 778502)
2. Junction of Old Military Road and C-Class road (Grid ref. 366508, 778216)
3. Cairn o' Mount (Grid ref. 365039, 780484)
4. Glen Road, north-west of Auchenblae (Grid ref. 372475, 779273)
5. Fettercairn (Grid ref. 365147, 773756)
6. Minor road east of Auchenblae (Grid ref. 373684, 778852)
7. B974, south of Fettercairn (Grid ref. 365873, 771821)
8. Clachnaben (Grid ref. 361535, 786472)

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Modified Zone of Theoretical Visibility (Proposed Wind Turbine, 10km Study Area)	
Scale: 1:75,000 @ A3	Date: 24 / 11 / 2023
Figure No. 05a	Status: Planning
Drawn by: C Rigby	Checked by: S Hyde








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Legend

-  Proposed turbine location
-  Proposed solar panel development
-  Proposed hydrogen development
-  2km buffer (offset from solar & hydrogen developments)
-  Proposed solar development only theoretically visible (01.17% of 2km study area)
-  Proposed hydrogen vents only theoretically visible (01.74% of 2km study area)
-  Both solar and hydrogen developments theoretically visible (30.82% of 2km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals.
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:25,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.

ZTV Run Data

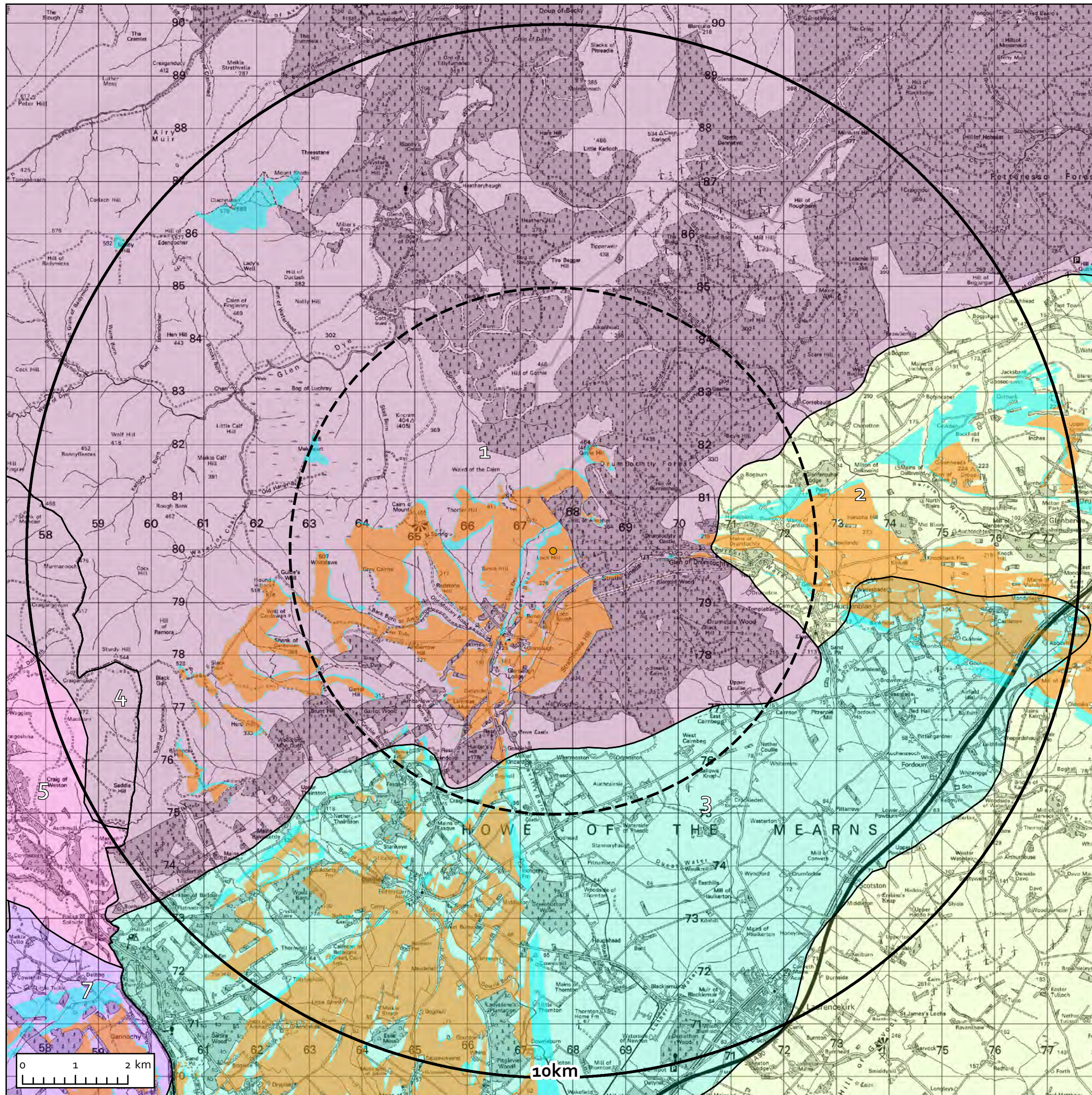
Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Cumulative
 Counting method: 1 for each development visible
 Visible points: Solar (3m - 8.5m)
 Hydrogen vents (10m & 17m)
% of 2km study area with theoretical visibility: 33.73%

Project: Hydrogen, Glensaug	Client: ITP Energised
Drawing Title: Cumulative Modified Zone of Theoretical Visibility (Solar & Hydrogen Developments)	
Scale: 1:20,000 @ A3	Date: 24 / 11 / 2023
Figure No. 05b	Status: Planning
Drawn by: R Moore	Checked by: S Hyde








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




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Legend

-  Proposed turbine location
-  10km study area
-  5km buffer
-  Proposed turbine tip theoretically visible (02.63% of 10km study area)
-  Proposed turbine hub theoretically visible (11.24% of 10km study area)




Landscape Character Types (LCTs) NatureScot 2019

-  LCT 29: Summits and Plateaux - Aberdeenshire
-  LCT 24: Coastal Farmed Ridges and Hills - Aberdeenshire
-  LCT 22: Broad Valley Lowlands - Aberdeenshire
-  LCT 376: Summits and Plateaux - Tayside
-  LCT 371: Mid Upland Glens
-  LCT 379: Foothills - Tayside (outwith 10km study area)

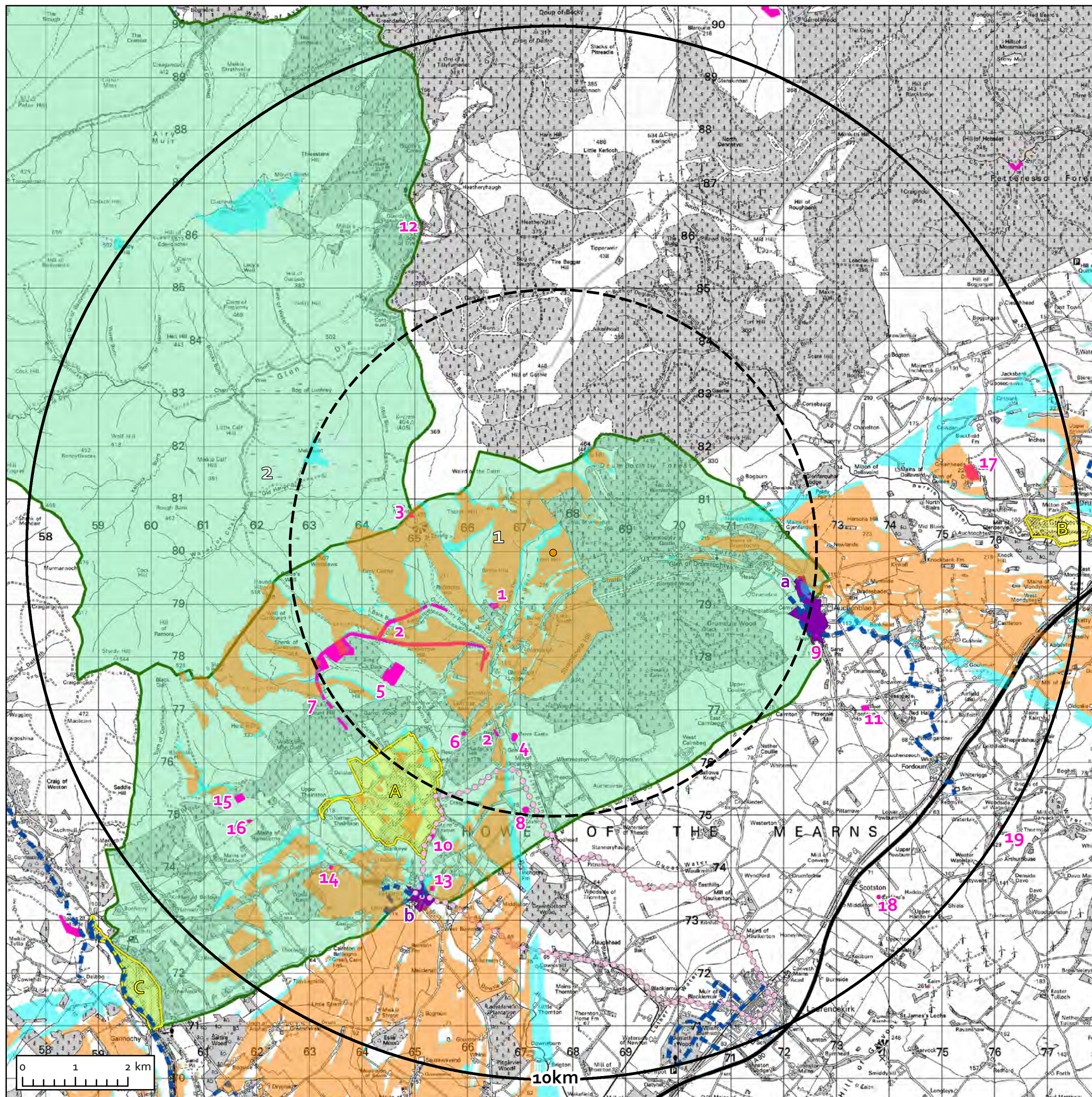
Note: For ZTV run data please refer to Figure 05a.

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: NatureScot Landscape Character Types (10km Study Area) with Modified ZTV	
Scale: 1:75,000 @ A3	Date: 24 / 11 / 2023
Figure No: o6	Status: Planning
Drawn by: C Rlgby	Checked by: S Hyde







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Legend

-  Proposed turbine location
-  10km study area
-  5km buffer
-  Council boundaries



Landscape Designations

-  Aberdeenshire Local Landscape Areas:
 1. Braes of the Mearns
 2. Clachnaben and Forest of Birse

Cultural Heritage Designations



-  Gardens and designed landscapes:
 - A. Fasque House
 - B. Glenbervie House
 - C. The Burn
-  Conservation Areas:
 - a. Auchenblae
 - b. Fettercairn
-  Scheduled monuments (within 10km):
 1. Glensough, farmstead and field system 900m NW of
 2. Kincardine Deer Dyke and settlements N of Burn of Garrol
 3. Cairn o' Mount, cairns
 4. Green Castle, earthwork
 5. Arnbarrow, farmstead and field system 900m NW of
 6. The Ring, enclosed cairn 750m SE of Arnbarrow
 7. Kincardine Deer Dyke and settlement S of East Burn of Cardowan
 8. Kincardine Castle
 9. St. Palladius' Chapel
 10. Fettercairn House, burial mound 650m NNW of
 11. Fordoun, homestead moat
 12. Bridge of Dye, pill boxes 60m & 35m W of
 13. Fettercairn House, burial mound 450m SW of
 14. Fountain Hillock, burial mound 250m W of Cauldcots
 15. Hill of Strathnoson, farmstead & field system
 16. East Mains of Balfour, farmstead 550m NNE of
 17. Droop Hill, cairns 1250m SW of Inches
 18. Erskine's Knap, burial mound 600m SE of Scotston
 19. Cairn of Arthurhouse, 260m W of Thornylea

Designated Routes

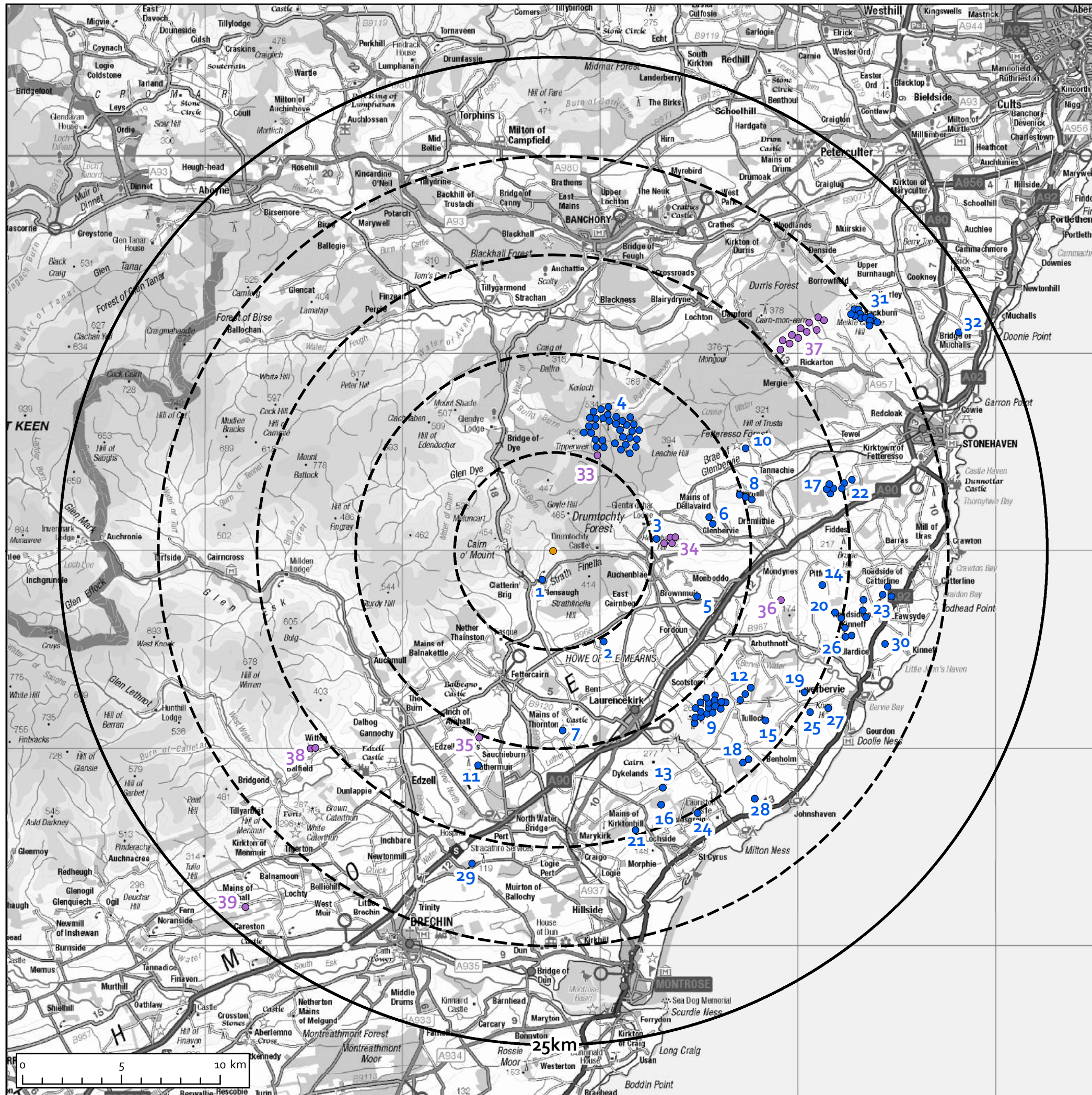
-  Core path
-  Laurencekirk - Fettercairn circular recreational cycling route

Project: Hydroglen, Glensough	Client: ITP Energised
Drawing Title: Landscape Designations and Recreational Routes (10km Study Area) with Modified ZTV	
Scale: 1:75,000 @ A3	Date: 24 / 11 / 2023
Figure No. 07	Status: Planning
Drawn by: C Rigby	Checked by: S Hyde



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Legend

- Proposed turbine location
- 25km study area
- 5km buffers
- Operational turbines
- Consented turbines

Cumulative Sites

Operational

- | | |
|-----------------------------------|--------------------------|
| 1. Glensaugh | 25. Craig Garbil |
| 2. West Cairnbeg | 26. Millplough Farmhouse |
| 3. Herscha Hill | 27. Dendoldrum Farm |
| 4. Mid Hill (including extension) | 28. Mains of Bridgeton |
| 5. Fordoun Sawmill | 29. Hill of Stracathro |
| 6. Droop Hill | 30. Wardhead |
| 7. Brighton Farm | 31. Meikle Carewe |
| 8. Jacksbank | 32. Cantlayhills |
| 9. Tullo (including extensions) | |
| 10. East Town Farm | Consented |
| 11. Steelstrath | 33. Mid Hill Extension |
| 12. Brownieleys | 34. Herscha Hill |
| 13. Brandshill North | 35. Moss Side of Esslie |
| 14. Upper Pitforthie | 36. Wairds of Alpity |
| 15. Nether Tulloch | 37. Craigneil |
| 16. Criggie Farmhouse | 38. Witton Farm |
| 17. Clochnahill | 39. Dunswood |
| 18. Paul Matthew Hill | |
| 19. Peattie | |
| 20. Cluseburn | |
| 21. Pitbeadle | |
| 22. Hillhead of Auquhirie | |
| 23. St John's Hill | |
| 24. Mains of Woodstone Farm | |

Notes

- Cumulative research was gathered up to 14th September 2023.
- Cumulative site information was sourced from local authority planning portals.
- Sites shown are all known wind turbine developments within 5km and all known wind turbine developments above 70m to tip within 25km.

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Cumulative Sites Location Plan	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No: o8a	Status: Planning
Drawn by: S Hyde	Checked by: R Wilkie



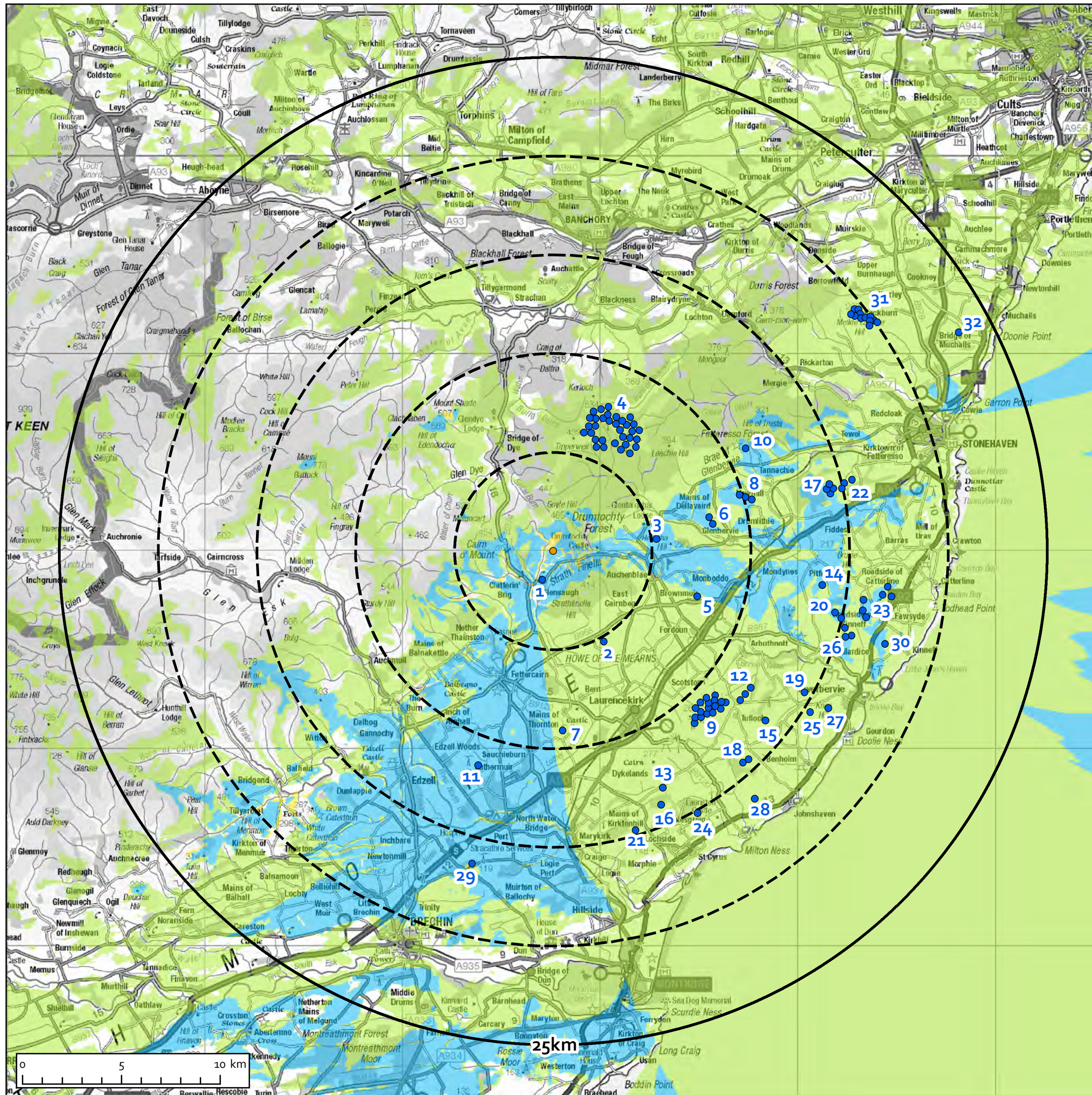
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Legend








Code	Development Name	No. of Turbines	Tip Height (m)	Hub Height (m)	Rotor Diameter (m)	Distance (km)
Operational						
1	Glensaugh	1	32.5	25	15	1.5
2	West Cairnbeg	1	77	50	54	5.2
3	Herscha Hill	1	80	49	62	5.3
4	Mid Hill (including extension)	33	28 at 125 5 at 110	28 at 78.5 5 at 63.5	93	5.7
5	Fordoun Sawmill	1	77	55	44	7.6
6	Droop Hill	2	100	64.5	71	8.1
7	Brigton Farm	1	81	55	52	9.1
8	Jacksbank	3	100	60	80	9.9
9	Tullo (including extensions)	17	100	60	80	10.7
10	East Town Farm	1	79	55	48	11.1
11	Steelstrath	1	84	55	58	11.5
12	Brownieleys	3	100	60	80	12.1
13	Brandshill North	1	79.6	55.6	48	13.2
14	Upper Pitforthie	1	79	55	48	13.7
15	Nether Tulloch	1	79.6	55.6	48	13.8
16	Criggie Farmhouse	1	79.6	55.6	48	14.0
17	Clochnahill	4	81	50	62	14.2
18	Paul Matthew Hill	2	99.5	64	71	14.4
19	Peattie	1	79.6	55.6	48	14.6
20	Cluseburn	1	78	49	58	14.6
21	Pitbeadie	1	76	50	52	14.7
22	Hillhead of Auquhirie	3	92.5	57	71	15
23	St John's Hill	9	80	47	66	15
24	Mains of Woodstone Farm	1	79.6	55.6	48	15.2
25	Craig Garbil	1	79.6	55.6	48	15.4
26	Millplough Farmhouse	1	78	50	56	15.4
27	Dendoldrum Farm	1	79.6	55.6	48	16.1
28	Mains of Bridgeton	1	77	50	54	16.2
29	Hill of Stracathro	1	79	55	48	16.4
30	Wardhead	1	77	55	44	17.5
31	Meikle Carewe	12	70	44	52	19.3
32	Cantlayhills	1	86.5	60	53	23.3
Consented						
33	Mid Hill Extension	1	125	78.5	93	5.3
34	Herscha Hill	4	2 at 79.6 2 at 79	2 at 55.6 2 at 55	48	5.6
35	Moss Side of Esslie	1	80	56	48	10.2
36	Wairds of Alpity	1	79	55	48	11.8
37	Craigneil	11	135	78.5	113	15.4
38	Witton Farm	2	74	50	48	15.6
39	Dunswood	1	77	50	54	23.8

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Cumulative Sites List	
Scale:	Date: 24 / 11 / 2023
Figure No: o8b	Status: Planning
Drawn by: R Moore	Checked by: S Hyde





Legend

-  Proposed turbine location
-  25km study area
-  5km buffers
-  Operational turbines
-  Proposed turbine only theoretically visible (00.18% of 25km study area)
-  Cumulative sites only theoretically visible (58.78% of 25km study area)
-  Both proposed turbine and cumulative sites theoretically visible (12.73% of 25km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals within 10km study area) and Terrain 50 dataset at 50m grid intervals (outwith 10km study area).
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:250,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.
7. Refer to figure 08b for cumulative site information.

ZTV Run Data

Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Cumulative
 Counting method: 1 for each windfarm visible
 Visible points: Blade tip
 % of 25km study area with theoretical visibility: 71.68%

Cumulative Sites

The cumulative calculation considers the proposed development in comparison to:
 - All operational developments








Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Cumulative Background Zone of Theoretical Visibility (Operational Turbine Developments)	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No. 09	Status: Planning
Drawn by: R Moore	Checked by: S Hyde



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Legend

-  Proposed turbine location
-  25km study area
-  5km buffers
-  Consented turbines
-  Proposed turbine only theoretically visible (00.73% of 25km study area)
-  Cumulative sites only theoretically visible (32.91% of 25km study area)
-  Both proposed turbine and cumulative sites theoretically visible (12.18% of 25km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals within 10km study area) and Terrain 50 dataset at 50m grid intervals (outwith 10km study area).
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:250,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.
7. Refer to figure 08b for cumulative site information.

ZTV Run Data

Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Cumulative
 Counting method: 1 for each windfarm visible
 Visible points: Blade tip
% of 25km study area with theoretical visibility: 45.81%

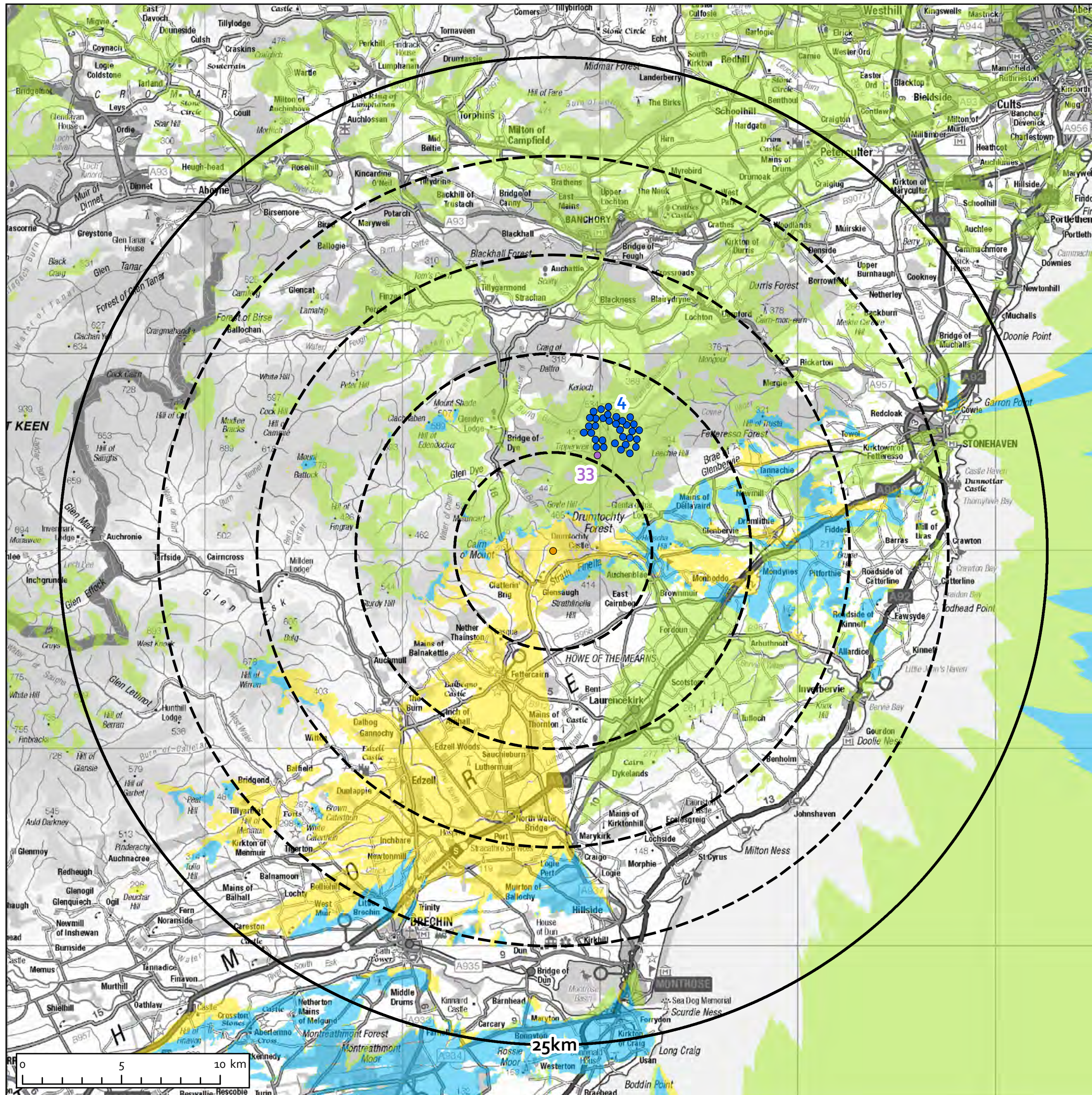
Cumulative Sites

The cumulative calculation considers the proposed development in comparison to:
 - All consented developments









Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Cumulative Bareground Zone of Theoretical Visibility (Consented Turbine Developments)	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No. 10	Status: Planning
Drawn by: R Moore	Checked by: S Hyde



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Legend

-  Proposed turbine location
-  25km study area
-  5km buffers
-  Operational turbines
-  Consented turbines
-  Proposed turbine only theoretically visible (08.82% of 25km study area)
-  Cumulative sites only theoretically visible (26.92% of 25km study area)
-  Both proposed turbine and cumulative sites theoretically visible (04.09% of 25km study area)

Notes

1. Predicted visibility is defined from an observer eye level of 2m above ground.
2. Created using Ordnance Survey Terrain 5 dataset at 5m grid intervals within 10km study area) and Terrain 50 dataset at 50m grid intervals (outwith 10km study area).
3. The analysis does not take into account intervening screening by vegetation or buildings.
4. Reproduced from 1:250,000 scale mapping by permission of Ordnance Survey.
5. Earth's curvature and light refraction has been included in the calculation.
6. The software used to create this ZTV does not use mathematically approximate methods.
7. Refer to figure 08b for cumulative site information.

ZTV Run Data

Site centre: 367630, 779983
 Resolution: 5m
 Calculation: Cumulative
 Counting method: 1 for each windfarm visible
 Visible points: Blade tip
% of 25km study area with theoretical visibility: 39.83%

Cumulative Sites

The cumulative calculation considers the proposed development in comparison to:
 - All Mid Hill turbines (operational & consented)

Project: Hydroglen, Glensaugh	Client: ITP Energised
Drawing Title: Cumulative Background Zone of Theoretical Visibility (Mid Hill Turbines)	
Scale: 1:200,000 @ A3	Date: 24 / 11 / 2023
Figure No. 11	Status: Planning
Drawn by: R Moore	Checked by: S Hyde



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