Craigton & Spittalhill Wind Farm

FORCE 9 ENERGY

Hydrological Overview

Infrastructure

- Turbine Location
- Access Track
- Existing Track
- Site Boundary

Amenities

- Private Water Supply

Hydrology

- Catchment of Backside Burn
- Catchment of Endrick Water

Designations

- SSSI Designated Sites

0 1.5 3 km

Figure 8.1

Map Scale @ A3:1:50,000

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Figure 8.1 Map created 11/01/2013

Craigton & Spittalhill Wind Farm

FORCE 9 ENERGY

Hydrology

Infrastructure

- Turbine Location
- MetMast
- Access Track
- Existing Track
- Site Boundary
- Crane Hardstanding
- Control Building
- Construction Compound
- Borrow Pit Search Area

Designations

- SSSI designated sites

Hydrology

- Water Bodies
- Watercourses Shown on OS 10K (Improved Accuracy)
- Additional Watercourses (Not shown on OS 10K)

Amenities

- Private Water Supply

Figure 8.2

Map Scale @ A3:1:15,000

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Figure 8.2 Map created 11/01/2013

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FORCE 9 ENERGY

Bedrock Geology

Infrastructure

- Turbine Location
- Access Track
- Existing Track
- Site Boundary
- Borrow Pit Search Area

Geology Type

- Clyde Sandstone Formation- Sandstone
- Midland Valley Carboniferous To Early Permian Alkaline Basic Sill Suite-Mafite
- Clyde Plateau Subsuite [Of SSDPV]- Basalt and Microgabbro
- Midland Valley Carboniferous to Early Permian Alkaline Basic Dyke Suite-Mafite
- Dungoil Linear Vent-System- Trachyandesite
- Clyde Plateau Volcanic Formation Microporphyritic Basalt
- Clyde Plateau Volcanic Formation- Mugearite
- Clyde Plateau Volcanic Formation- Plagioclase-Macrophyric Basaltic- Rock
- Clyde Plateau Volcanic Formation-Plagioclase-Microphyric Basaltic- Rock
- Clyde Plateau Volcanic Formation-Sandstone, Conglomerate and [Subordinate] Argillaceous Rocks
- Clyde Plateau Volcanic Formation- Trachybasalt
- Clyde Plateau Volcanic Formation- Tuff and Agglomerate

Geological Features

- Normal Fault

Figure 8.3

Map Scale @ A3:1:15,000

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0 0.5 1 km

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Figure 8.3 Map created 14/01/2013

Craigton & Spittalhill Wind Farm

FORCE 9 ENERGY

Superficial Geology

Infrastructure

- Turbine Location
- Access Track
- Existing Track
- Site Boundary
- Borrow Pit Search Area

Geology Type

- Alluvial Fan Deposits
- Alluvium
- Bedrock at or Near Surface
- Glaciofluvial Ice Contact Deposits
- Hummocky (Moundy) Glacial Deposits
- Peat
- Superficial Theme Not Mapped
- Till, Devensian

Geological Features

- Normal Fault

Figure 8.4

Map Scale @ A3:1:15,000

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0 0.5 1 km

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Figure 8.4 Map created 14/01/2013

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FORCE 9 ENERGY

Elevation

Infrastructure

- Turbine Location
- MetMast
- Access Track
- Existing Track
- Site Boundary
- Crane Hardstanding
- Control Building
- Construction Compound
- Borrow Pit Search Area

Elevation (m)

High : 500

Low : 100

Analysis

- Cross Sections

Figure 8.5

Map Scale @ A3:1:15,000

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Figure 8.5 Map created 11/01/2013

Craigton & Spittalhill Wind Farm

FORCE 9 ENERGY

Peat Depth

Infrastructure

- Turbine Location
- MetMast
- Access Track
- Existing Track
- Site Boundary
- Crane Hardstanding
- Control Building
- Construction Compound
- Borrow Pit Search Area

Analysis

Peat Depths Combined

- 0 m to < 0.5 m
- 0.5 m to < 1.0 m
- 1.0 m to < 1.5 m
- 1.5 m to < 2.5 m
- 2.5 m +

Peat Grid

- 0 m to < 0.5 m
- 0.5 m to < 1.0 m
- 1.0 m to < 1.5 m
- 1.5 m to < 2.5 m
- 2.5 m +

Figure 8.6

Map Scale @ A3:1:15,000

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0 0.5 1 km

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Figure 8.6 Map created 11/01/2013

Craigton & Spittalhill Wind Farm

FORCE 9 ENERGY

Soil and Water Constraints

Infrastructure

- Turbine Location
- MetMast
- Access Track
- Existing Track
- Site Boundary
- Crane Hardstanding
- Control Building
- Construction Compound
- Borrow Pit Search Area

Slope (Degree)

- 8< to10
- 10< to 13
- 13< to 17
- 17< to 21
- 21< to 25
- 25< to 29
- 29< to 32
- 32< to 37
- 37< to 40
- 40< to 50

Hydrology

- Water Bodies

Watercourses and Water Bodies 50m Buffer

- Shown on OS 10K (Improved Accuracy)

Additional Watercourses 20m Buffer

- (Not shown on OS 10K)

Peat Constraints

- Peat Depth of 1.5 or Greater
- FoS <1
- FoS 1<1.4

Figure 8.7

Map Scale @ A3:1:15,000

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Figure 8.7 Map created 11/01/2013

Crossing Type:	W13
NGR:	NS 664 888
Route:	Access Track between turbines 2 and 3
Watercourse:	Unnamed Tributary of The Backside Burn
Description:	This is a medium- scale stream approximately 2m in width and 0.6m in channel depth. The banks are boulder clay/peat, undercut with vegetation. The bed comprises of boulders and gravel with some vegetation present within the channel. Upstream, bank gradient and height increases with several waterfalls, the largest approximately 3m in height, present. High levels of erosion evident with several areas of banks undercut by the stream channel. Downstream the channel meanders with an increased sinuosity and contains small areas of braiding. Erosion processes decrease, bank material comprising of both peat and glacial deposits. At the crossing point the valley width narrows to approximately 6m and depth decreasing to 1.4m in comparison with 2m approximately 100m upstream.
CAR Category:	Medium
Catchment Area:	1.12 km^2
Flows (m^3/s):	Q_{annual}=0.0501; Q_{25y}=3.3 ; Q_{100y}=4.6, Q_{200y}=5.3 (design: 200 year flow)
Ecology:	No migratory fish, Mammals: Possible. Predominantly heavily vegetated banks.
Crossing Type:	Wide span bridge with no in-channel supports or large open base arch
Photos:	Looking Upstream Looking Downstream Looking Across Stream

0 0.125 0.25 km

Craigton & Spittalhill Wind Farm

FORCE 9 ENERGY

Stream Crossings (CAR)

Infrastructure

- Turbine Location
- MetMast
- Access Track
- Existing Track
- Site Boundary
- Crane Hardstanding
- Control Building
- Construction Compound
- Borrow Pit Search Area

Stream Crossings

- CAR Crossing

Hydrology

- Watercourses Shown on OS 10K (Improved Accuracy)
- Additional Watercourses (Not shown on OS 10K)

Figure 8.8

Map Scale @ A3:1:4,000

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Figure 8.8 Map created 11/01/2013

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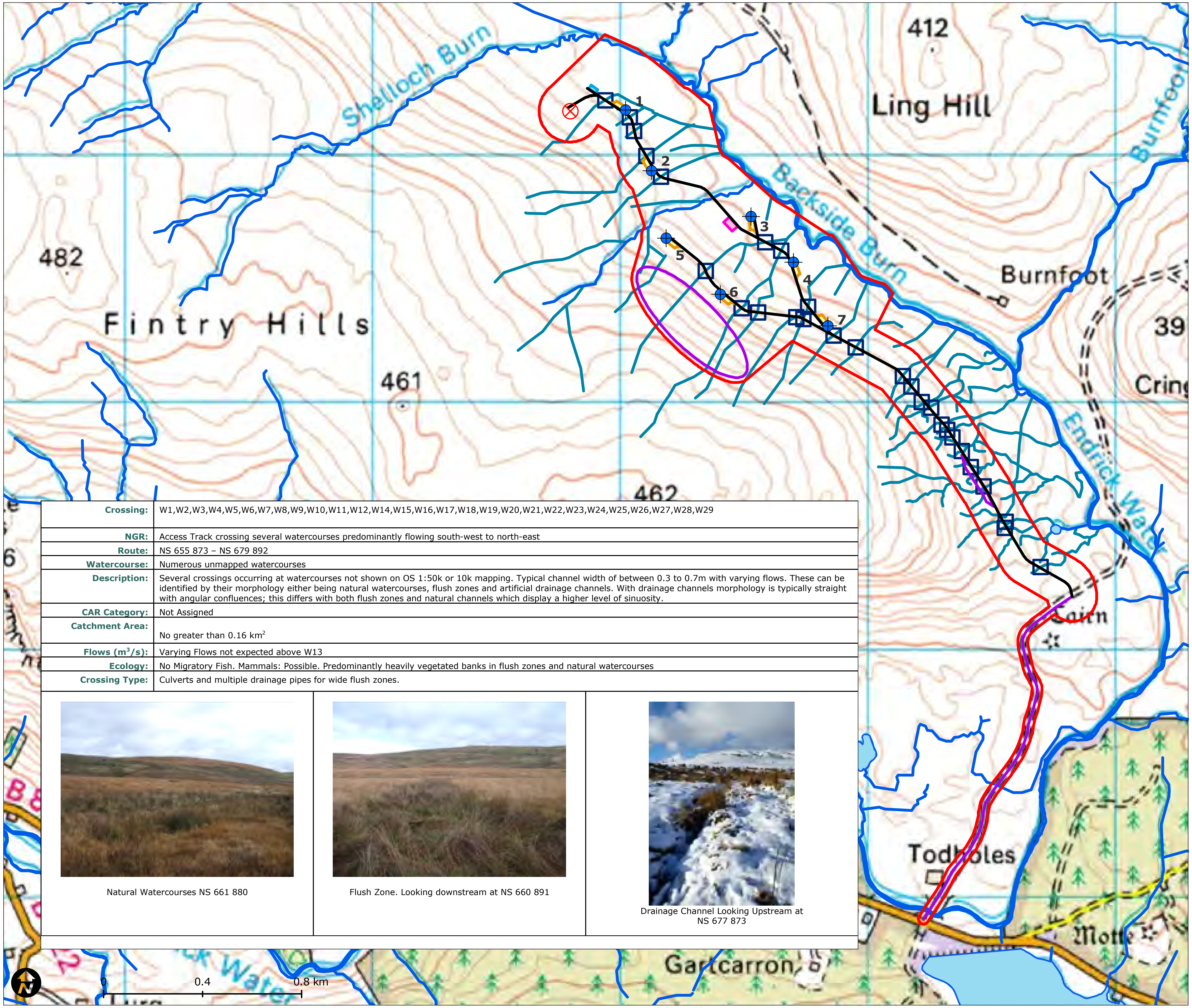
FORCE 9 ENERGY

Small Watercourse Crossing (Non CAR)

Infrastructure
- Turbine Location
- MetMast
- Access Track
- Existing Track
- Site Boundary
- Crane Hardstanding
- Control Building
- Construction Compound
- Borrow Pit Search Area

Stream Crossings
- Non CAR

Hydrology
- Additional Watercourses (Not shown on OS 10K)
- Water Bodies
- Watercourses (Shown on OS 10K)



Crossing:	W1,W2,W3,W4,W5,W6,W7,W8,W9,W10,W11,W12,W14,W15,W16,W17,W18,W19,W20,W21,W22,W23,W24,W25,W26,W27,W28,W29
NGR:	Access Track crossing several watercourses predominantly flowing south-west to north-east
Route:	NS 655 873 – NS 679 892
Watercourse:	Numerous unmapped watercourses
Description:	Several crossings occurring at watercourses not shown on OS 1:50k or 10k mapping. Typical channel width of between 0.3 to 0.7m with varying flows. These can be identified by their morphology either being natural watercourses, flush zones and artificial drainage channels. With drainage channels morphology is typically straight with angular confluences; this differs with both flush zones and natural channels which display a higher level of sinuosity.
CAR Category:	Not Assigned
Catchment Area:	No greater than 0.16 km^2
Flows (m^3/s):	Varying Flows not expected above W13
Ecology:	No Migratory Fish. Mammals: Possible. Predominantly heavily vegetated banks in flush zones and natural watercourses
Crossing Type:	Culverts and multiple drainage pipes for wide flush zones.

Natural Watercourses NS 661 880

Flush Zone. Looking downstream at NS 660 891

Drainage Channel Looking Upstream at NS 677 873

Figure 8.9

Map Scale @ A3:1:15,000

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Figure 8.9 Map created 11/01/2012