Blade

Tower

Pell Frischmann
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Email: pfedinburgh@pellfrischmann.com
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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A96 / A920 West Junction

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		29

Scale: 1:500_1 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK25

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

One traffic bollard, fence, vegetation and one road sign to be removed.
Third party land required.

Blade tip to oversail two bollards. One road sign to be removed.

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A96 / A920 West Junction

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		29

Scale: 1:500_1 @ A3

File No. 210202 Craig Watch Tracking.dwg

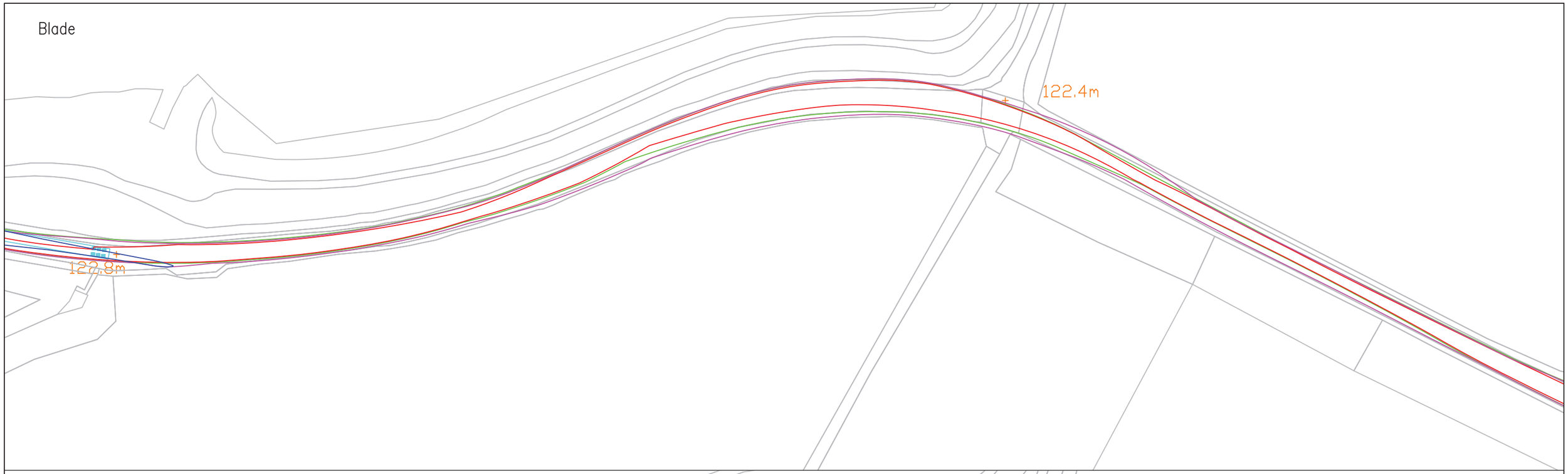
Drawing Status: Draft

Drawing No. SK25A

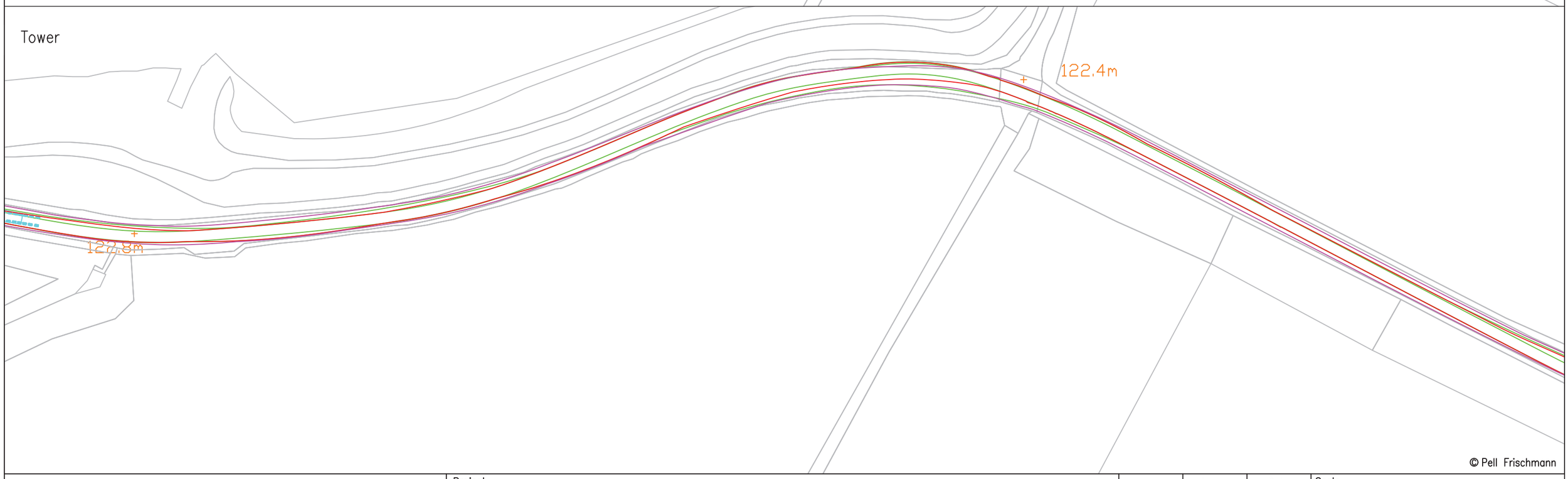
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Series of Bends

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		30

Scale: 1:1000 @ A3

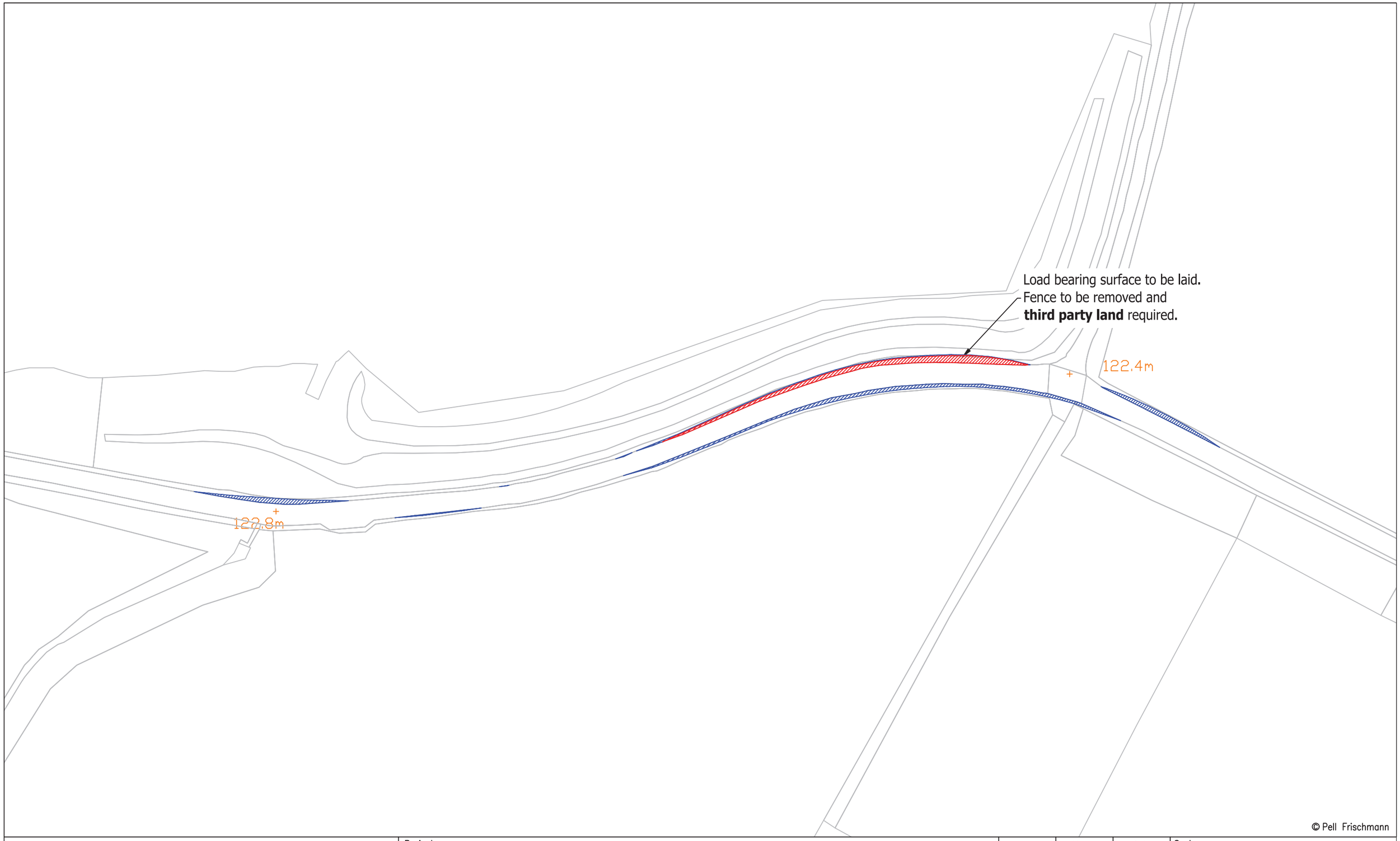
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK26

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Series of Bends

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		30

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK26A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Craighead

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		32

Scale: 1:1000 @ A3

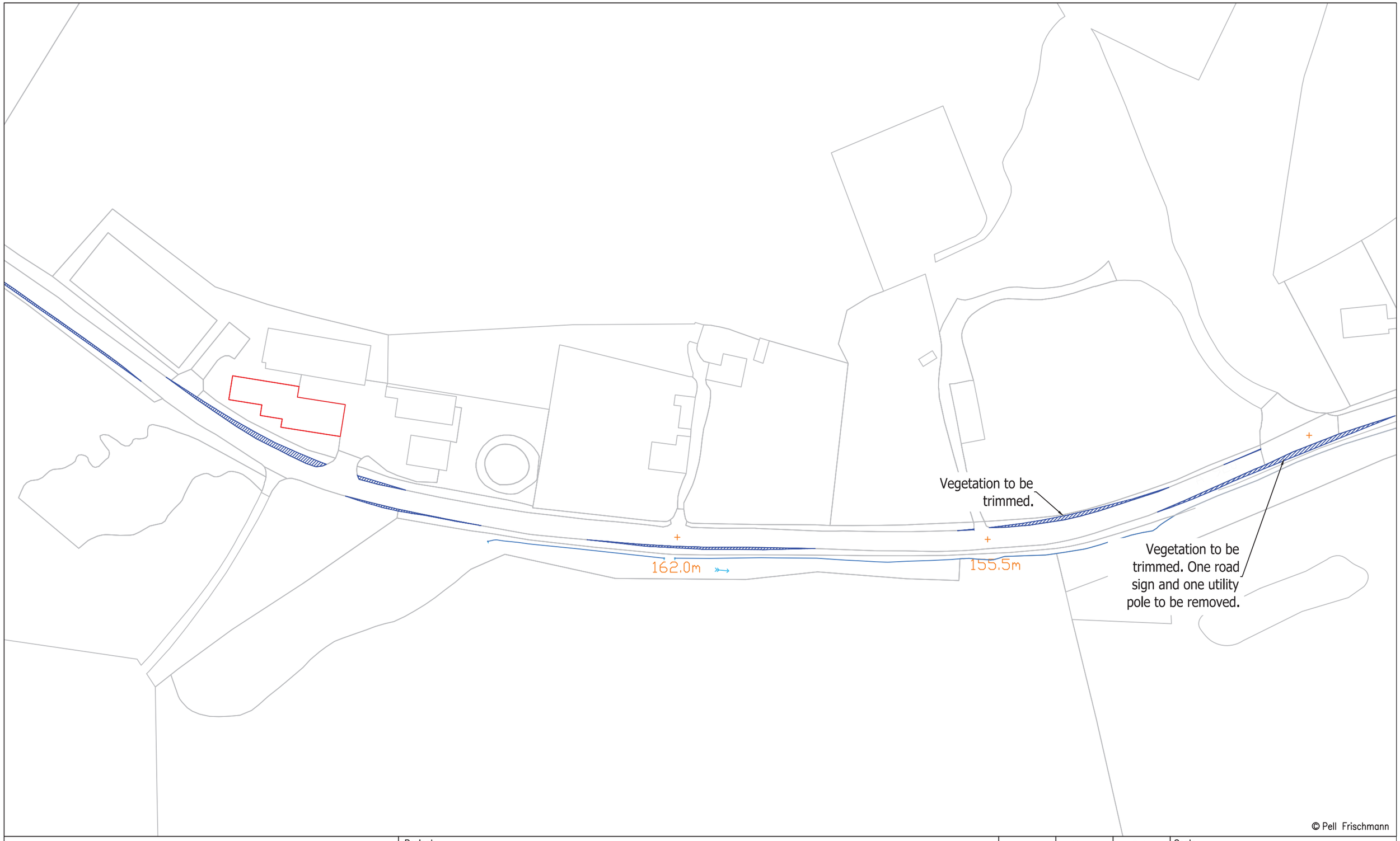
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK27

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Craighead

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		32

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

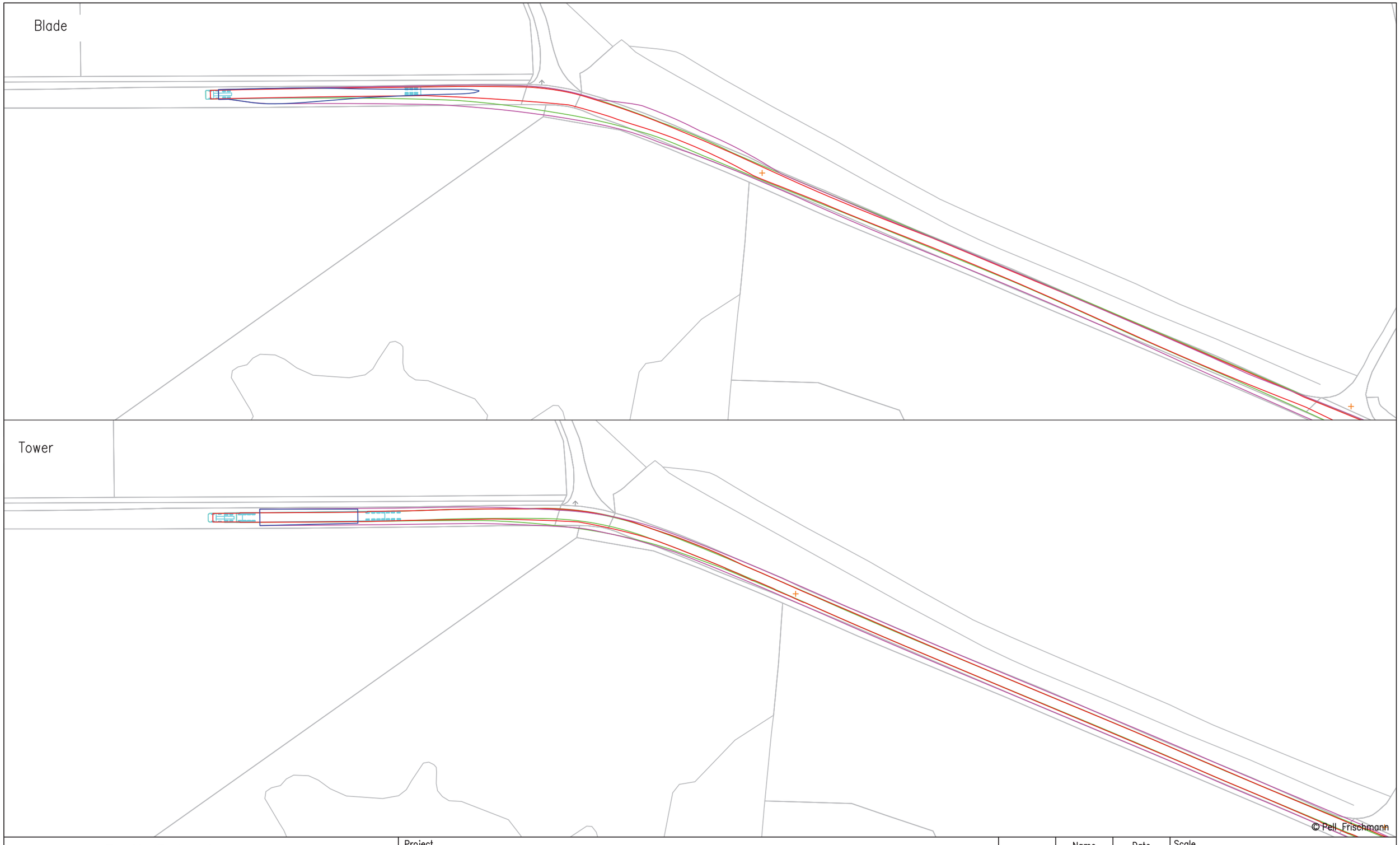
Drawing No.: SK27A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Cairnford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		33

Scale: 1:1000 @ A3

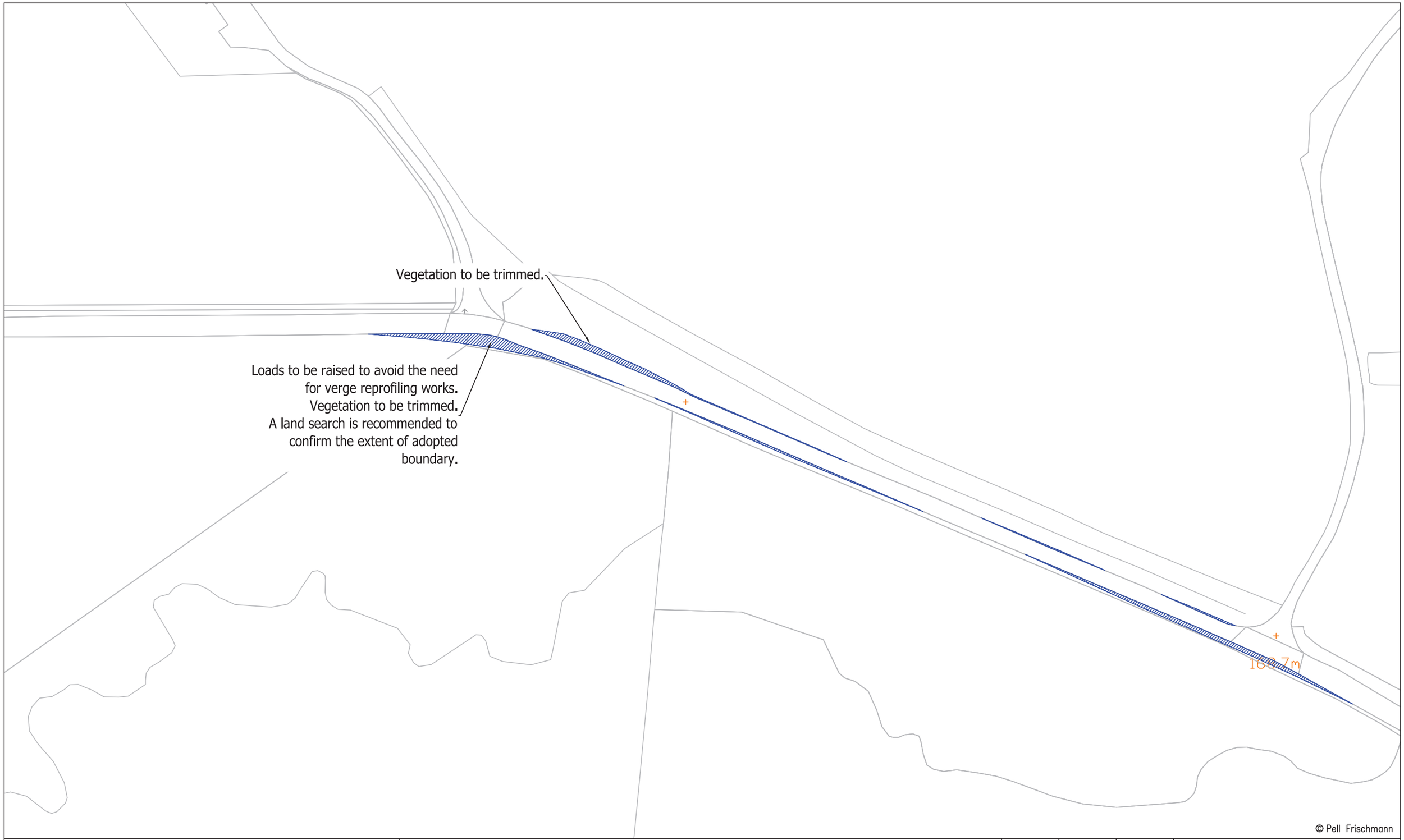
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK28

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Cairnford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		33

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK28A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Greystonefolds

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		35,36

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK30

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Greystonefolds

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		35,36

Scale: 1:1000 @ A3

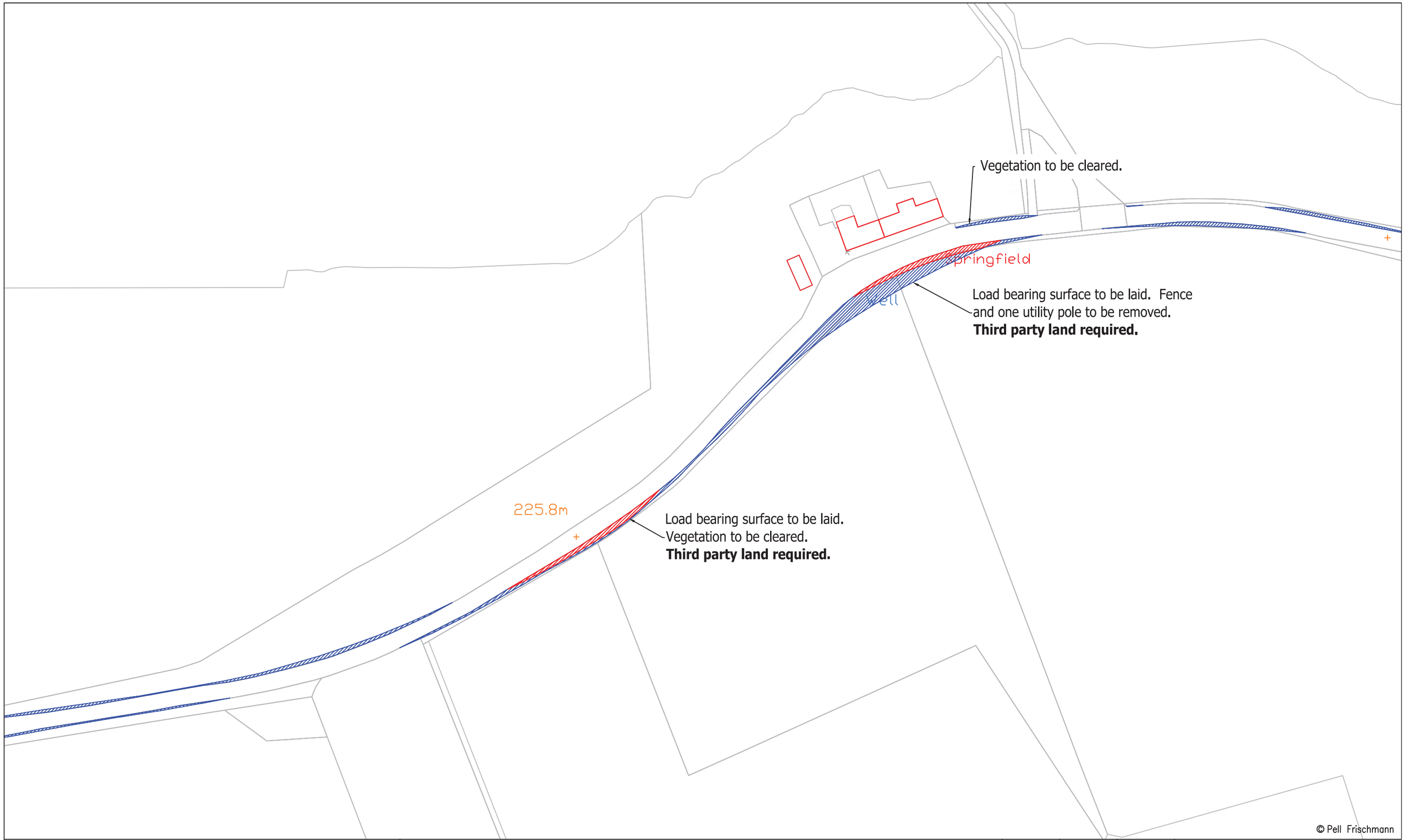
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK30A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Greystonefolds

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		35,36

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

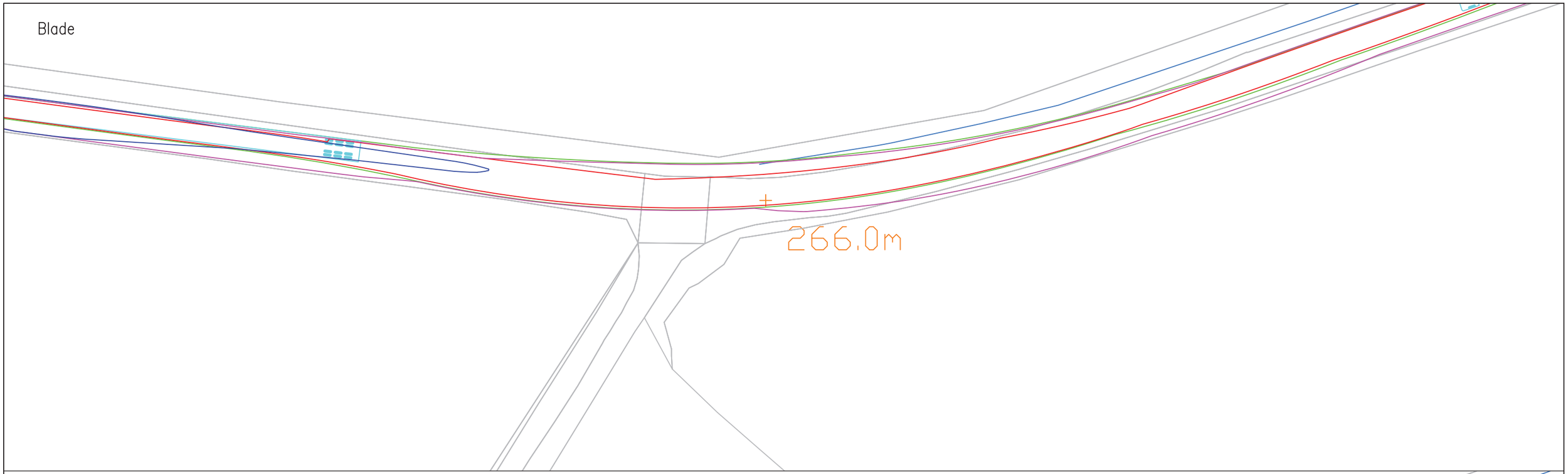
Drawing Status: Draft

Drawing No. SK30B

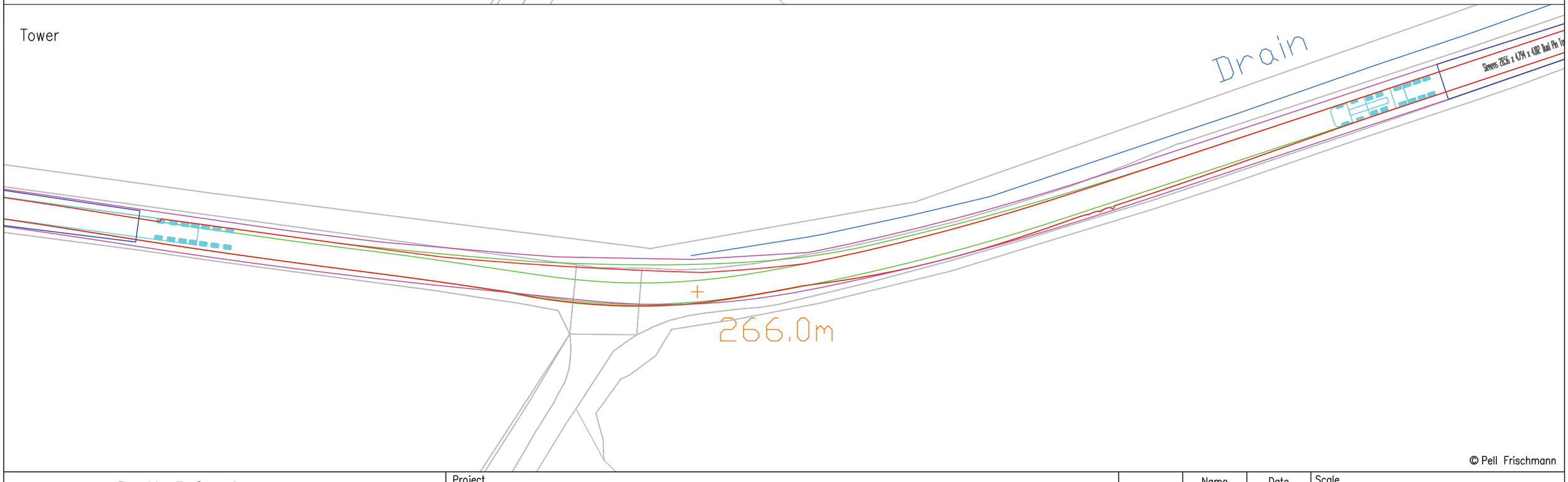
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Easter Bodylair

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		37

Scale: 1:500_1 @ A3

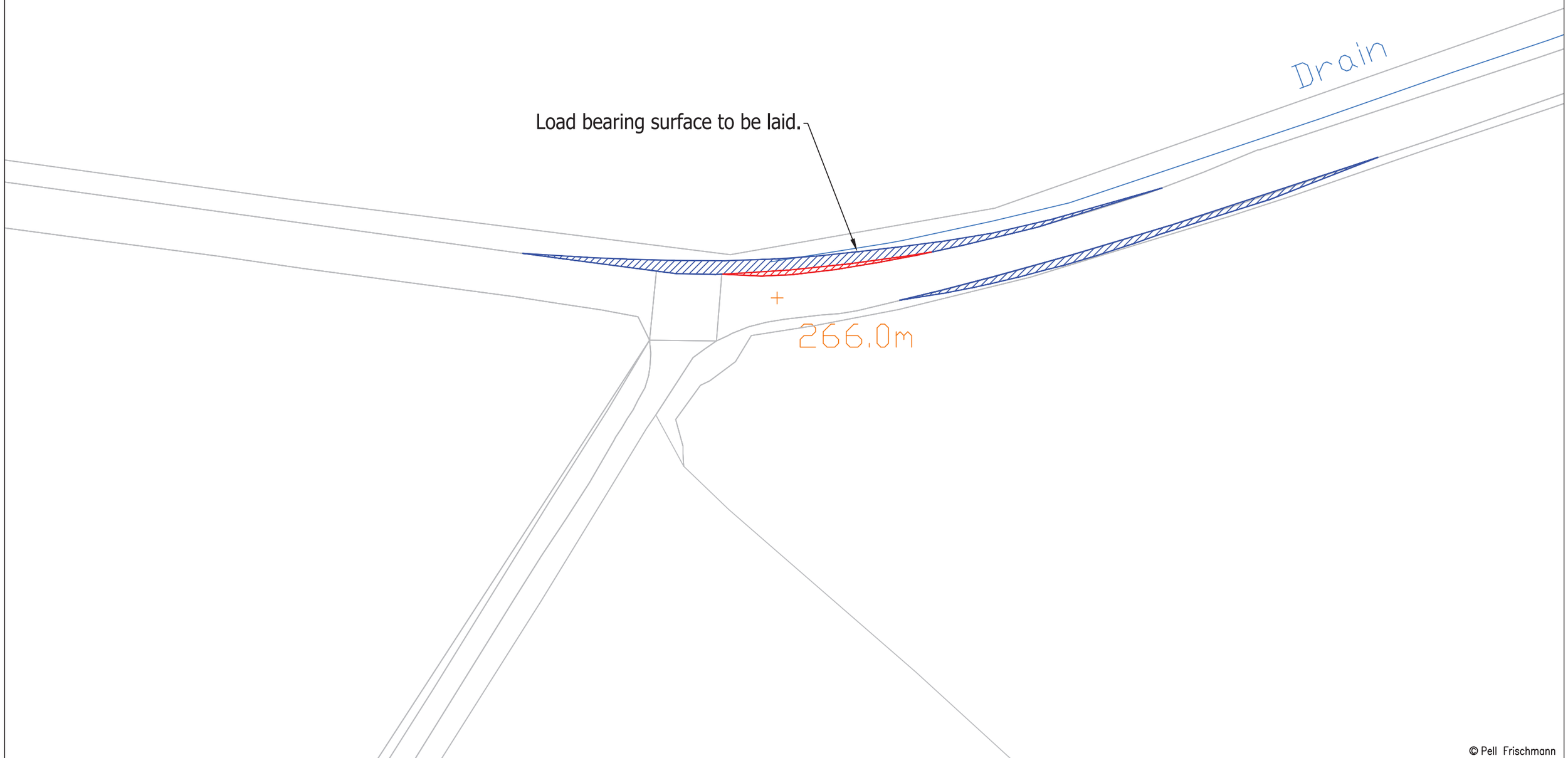
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK31

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Over-run; Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Easter Bodylair

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		37

Scale: 1:500_1 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK31A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Bakebare

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		42,43

Scale: 1:1000 @ A3

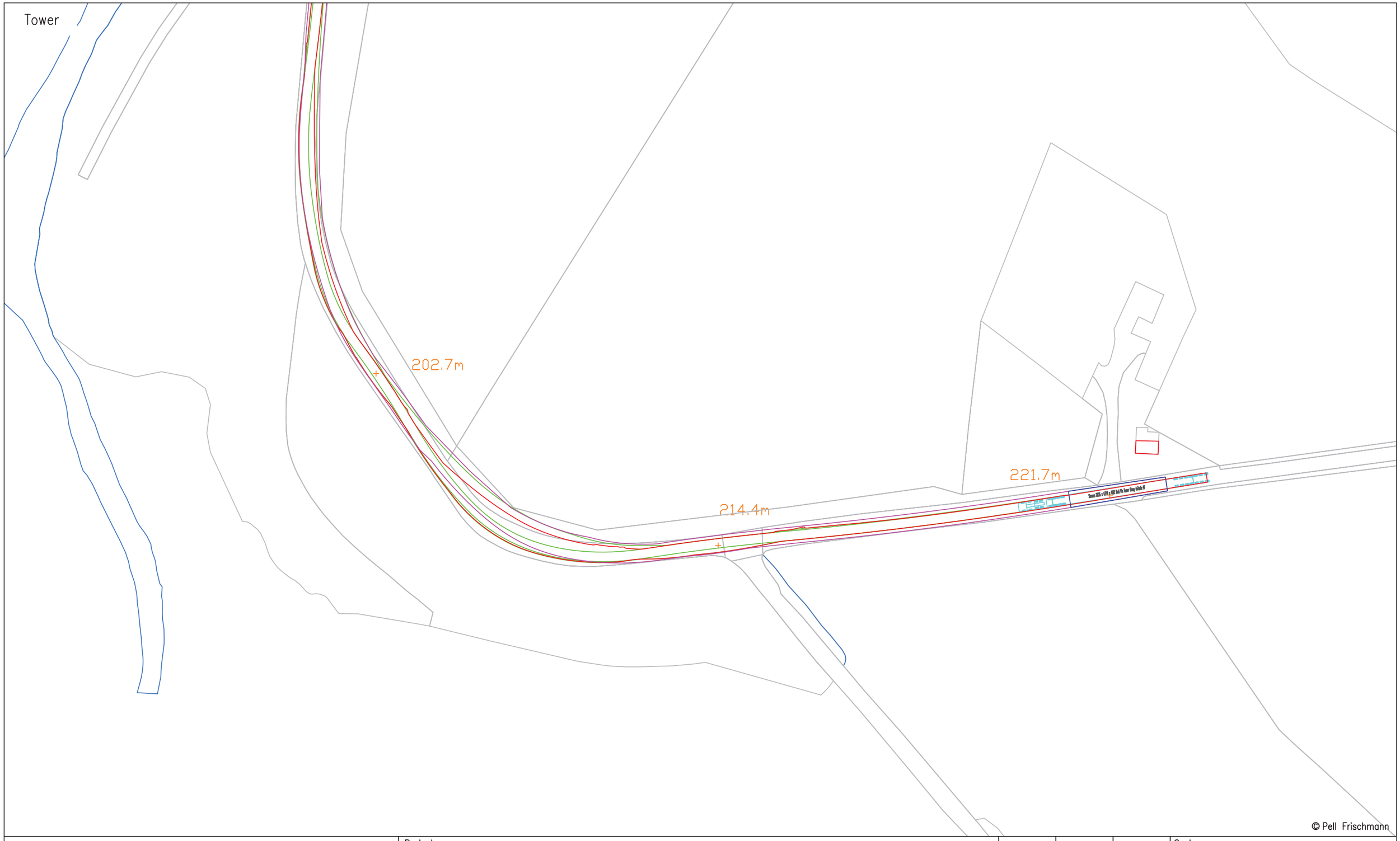
File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK32

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Bakebare

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		42,43

Scale: 1:1000 @ A3

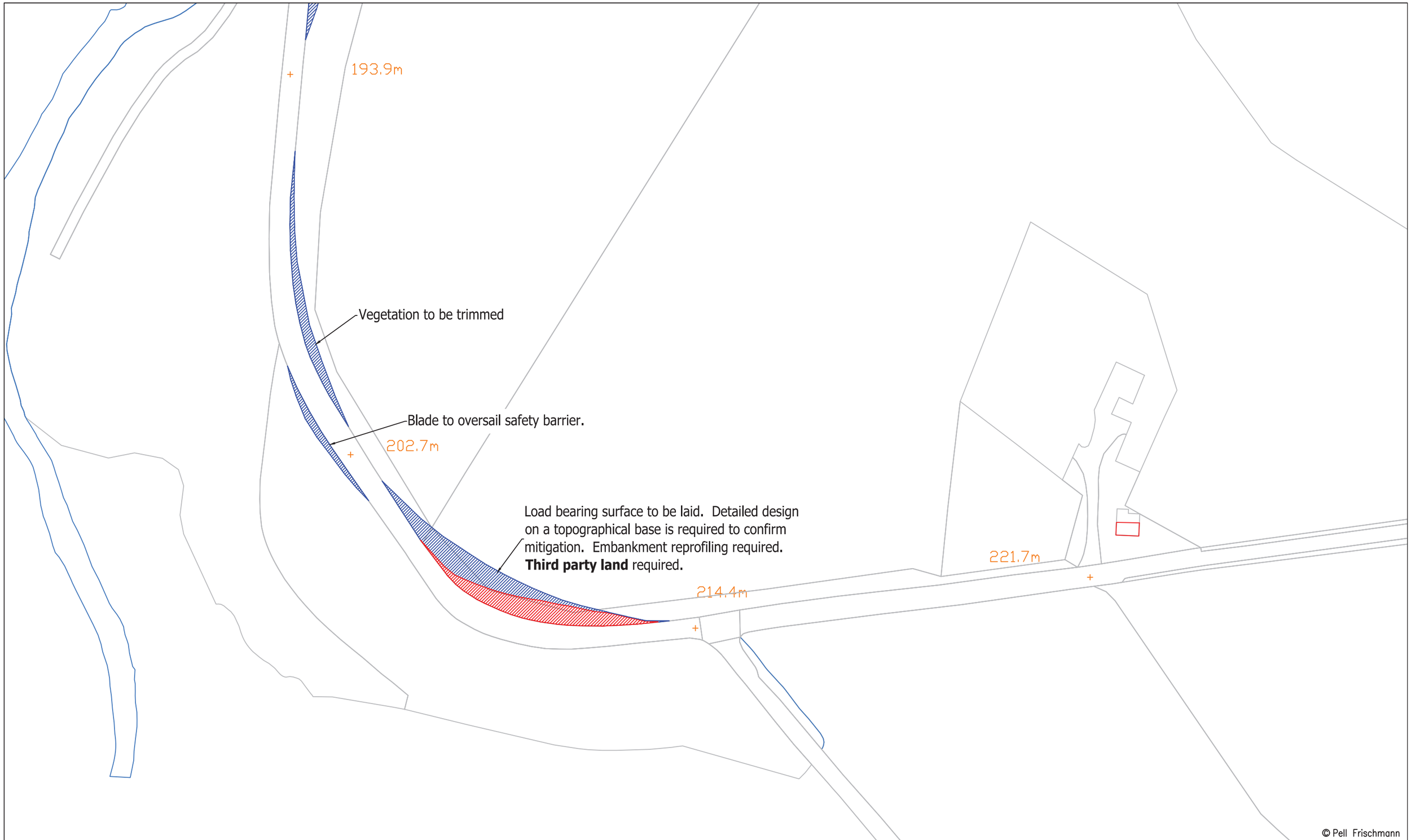
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK32A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Bakebare

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		42,43

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK32B

Notes:
1. All mitigation is subject to confirmation through a test run.
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Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Coldhome

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		44

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK33

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Coldhome

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		44

Scale: 1:1000 @ A3

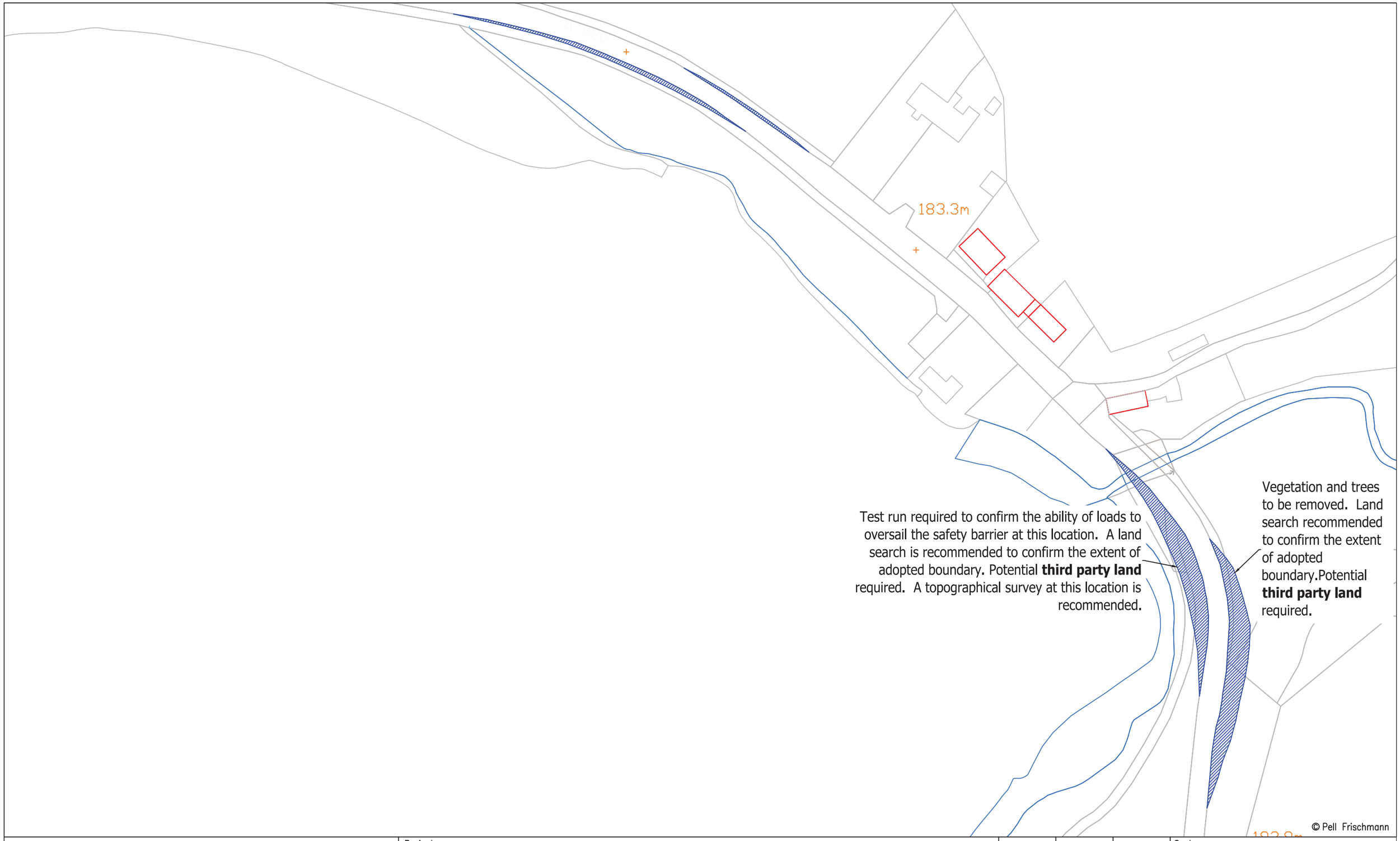
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK33A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Coldhome

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		44

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

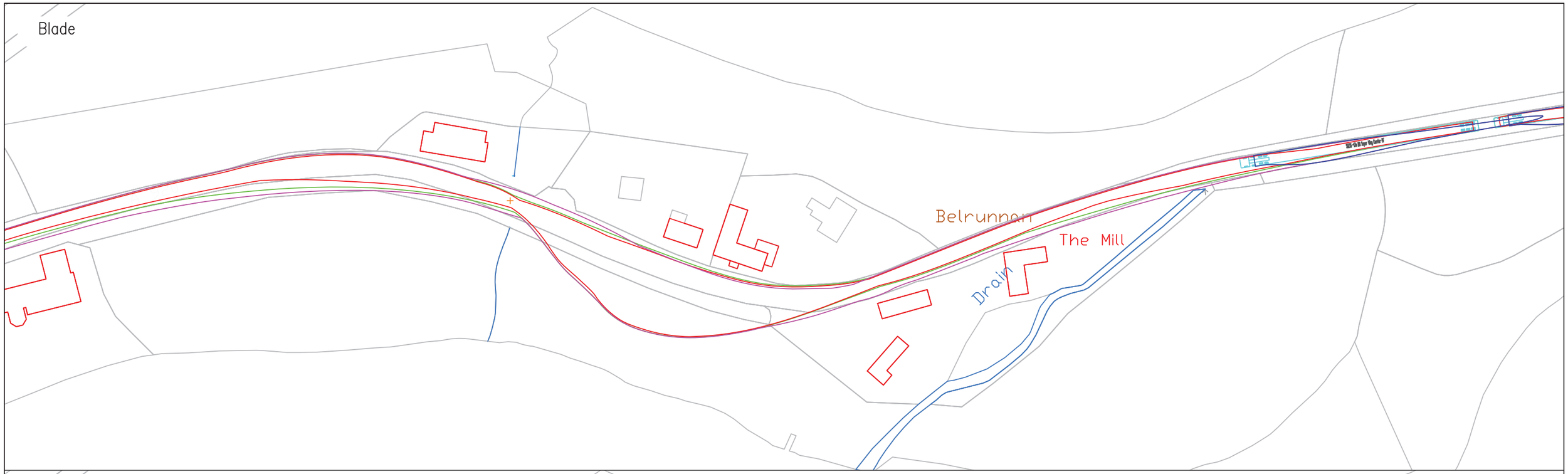
Drawing Status: Draft

Drawing No.: SK33B

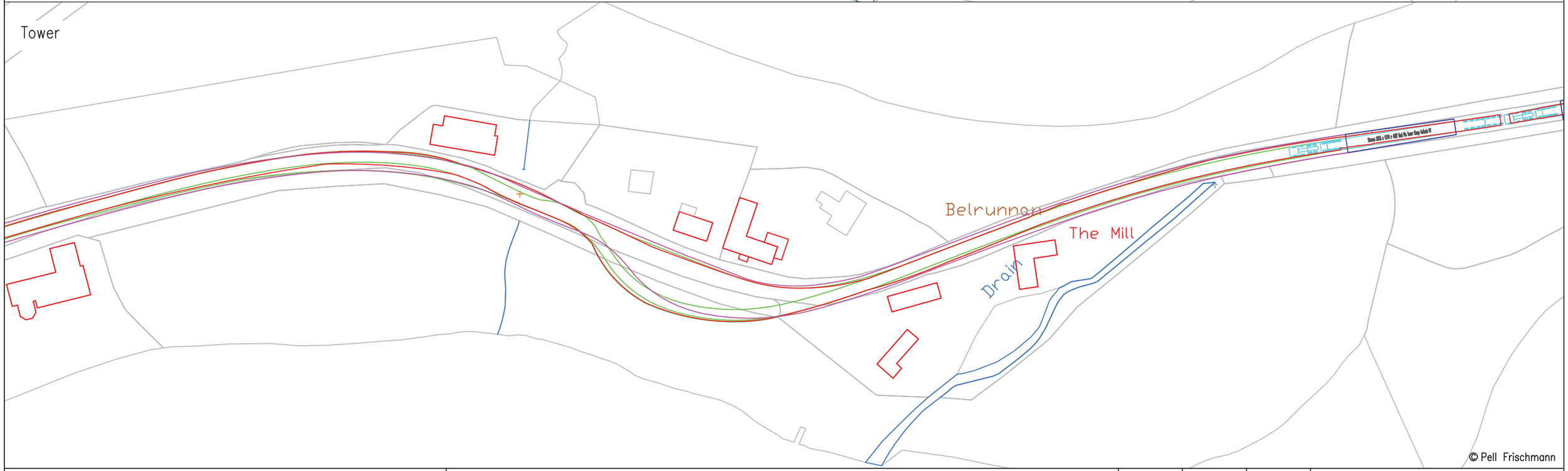
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over–run | Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Milltown of Auchindoun

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		45,46

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK34

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Milltown of Auchindoun

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		45,46

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

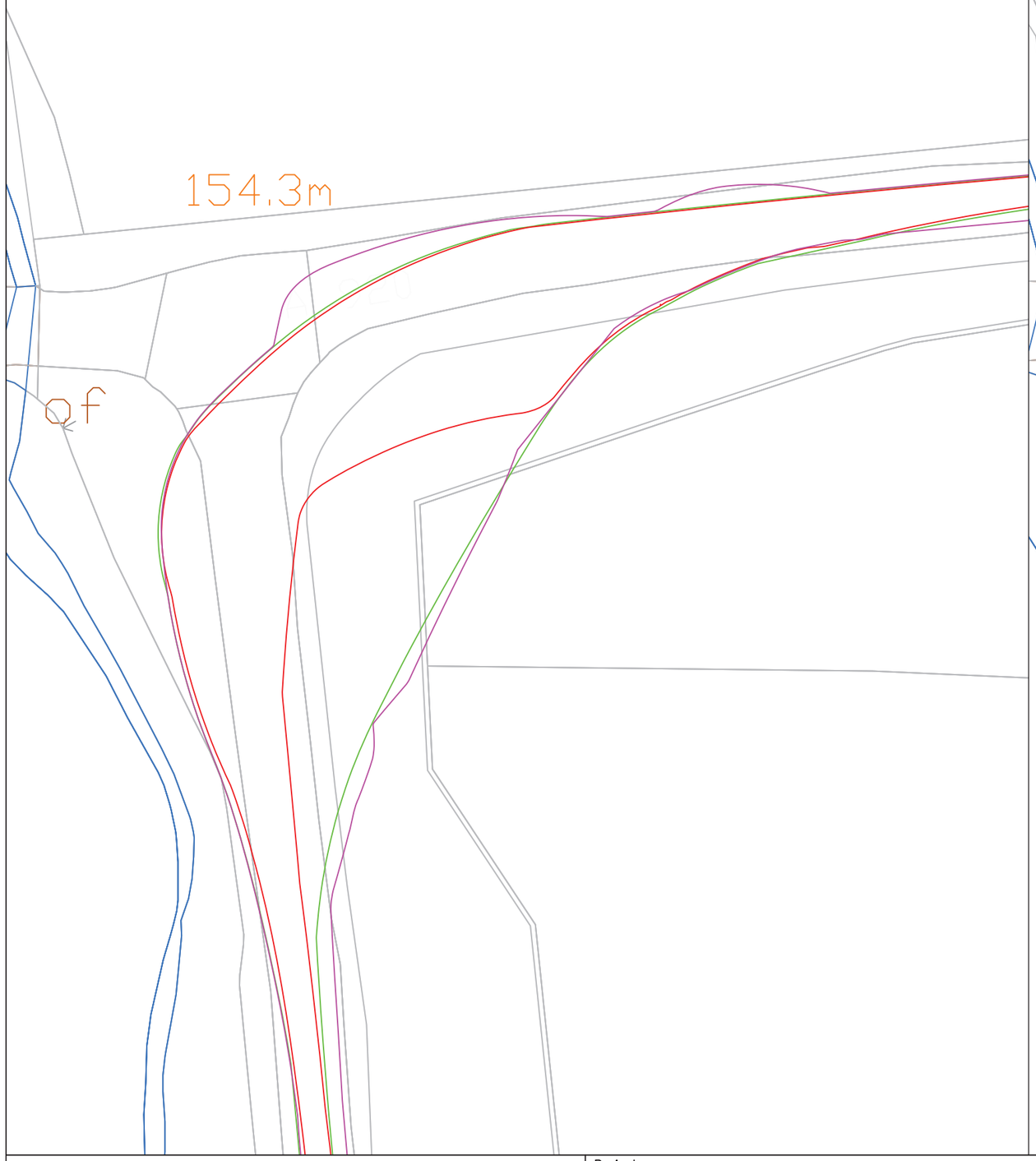
Drawing Status: Draft

Drawing No.: SK34A

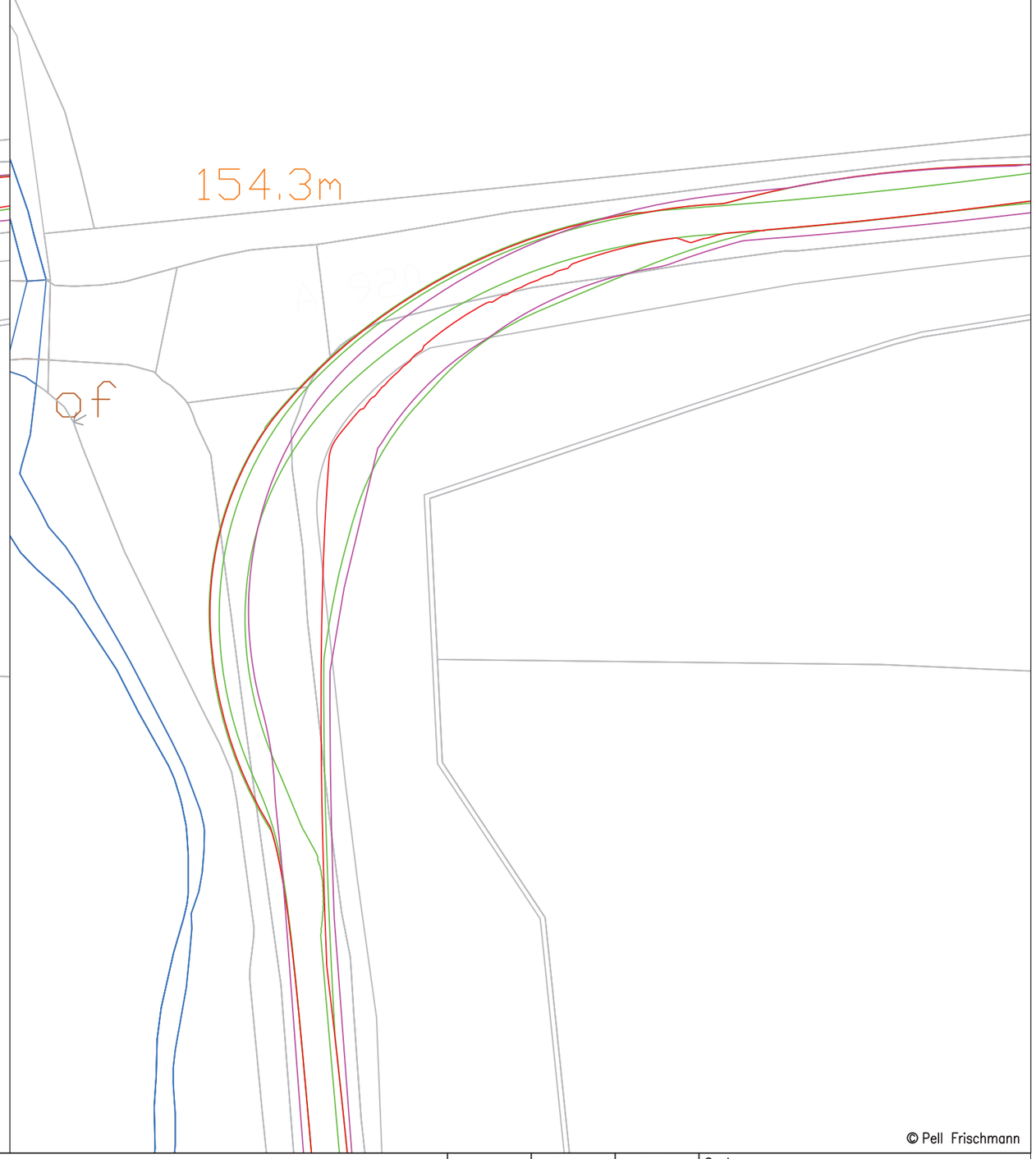
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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Client: Statkraft

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Over-run; Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Bridge of Burnend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		49

Scale: 1:500_1 @ A3

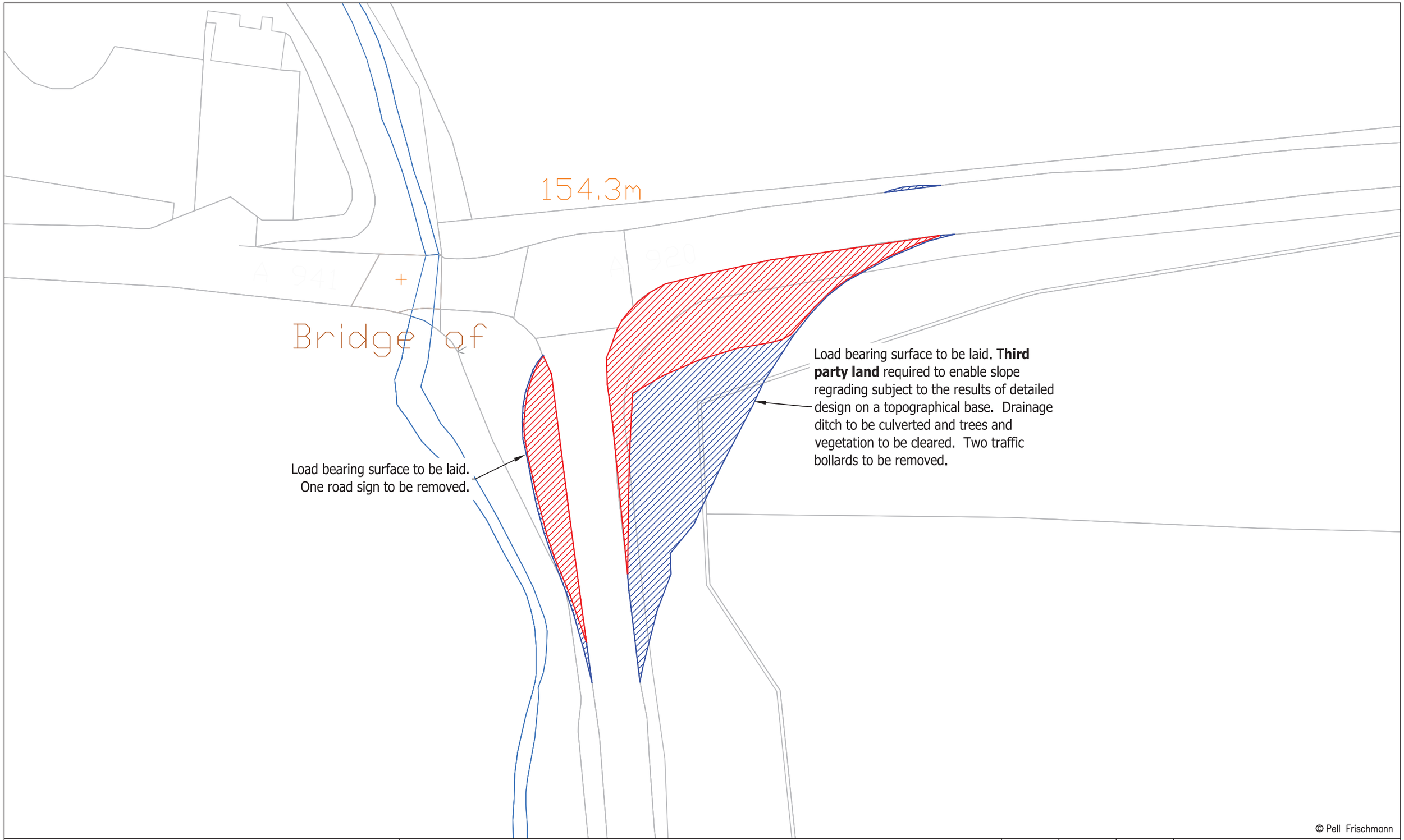
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK35

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A920 Bridge of Burnend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		49

Scale: 1:500_1 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK35A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower

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www.pellfrischmann.com

Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 South of Bridge of Burnend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		50

Scale: 1:500_1 @ A3

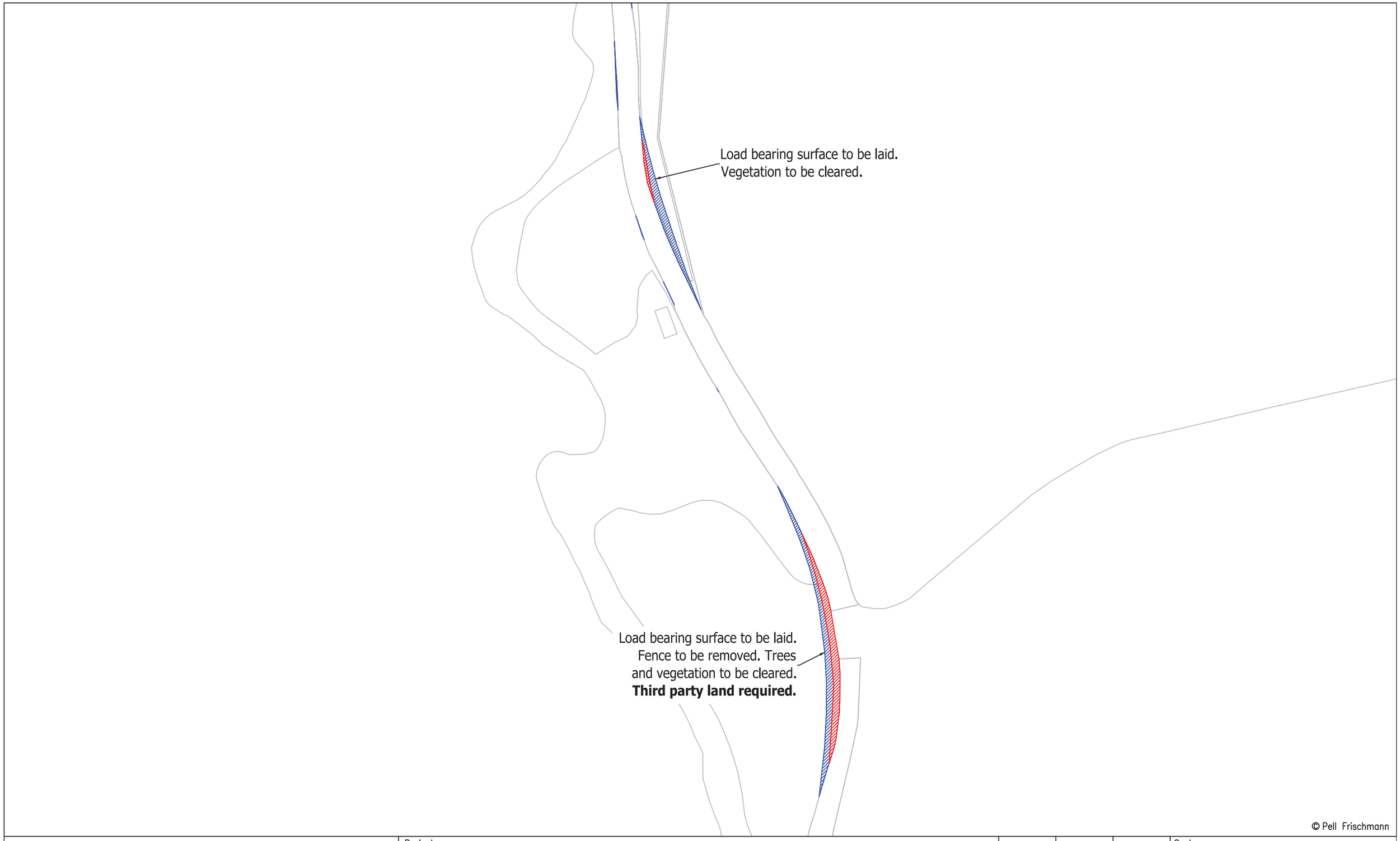
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK36

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 South of Bridge of Burnend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		50

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

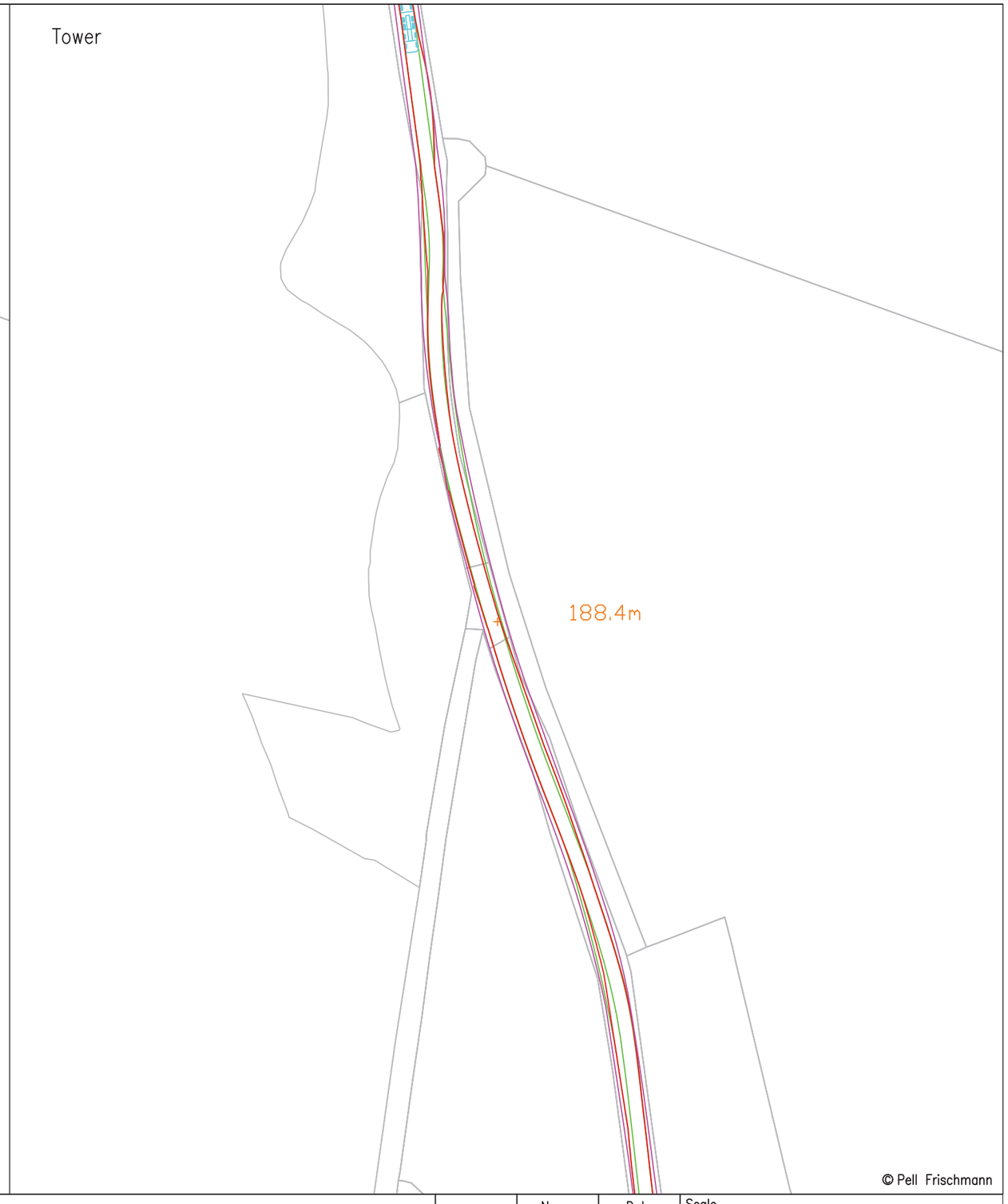
Drawing No. SK36A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower



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www.pellfrischmann.com

Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Tomnoan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		51

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK37

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Tomnoan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		51

Scale: Custom @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK37A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 South of Tomnoan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		52,53

Scale: 1:1000 @ A3

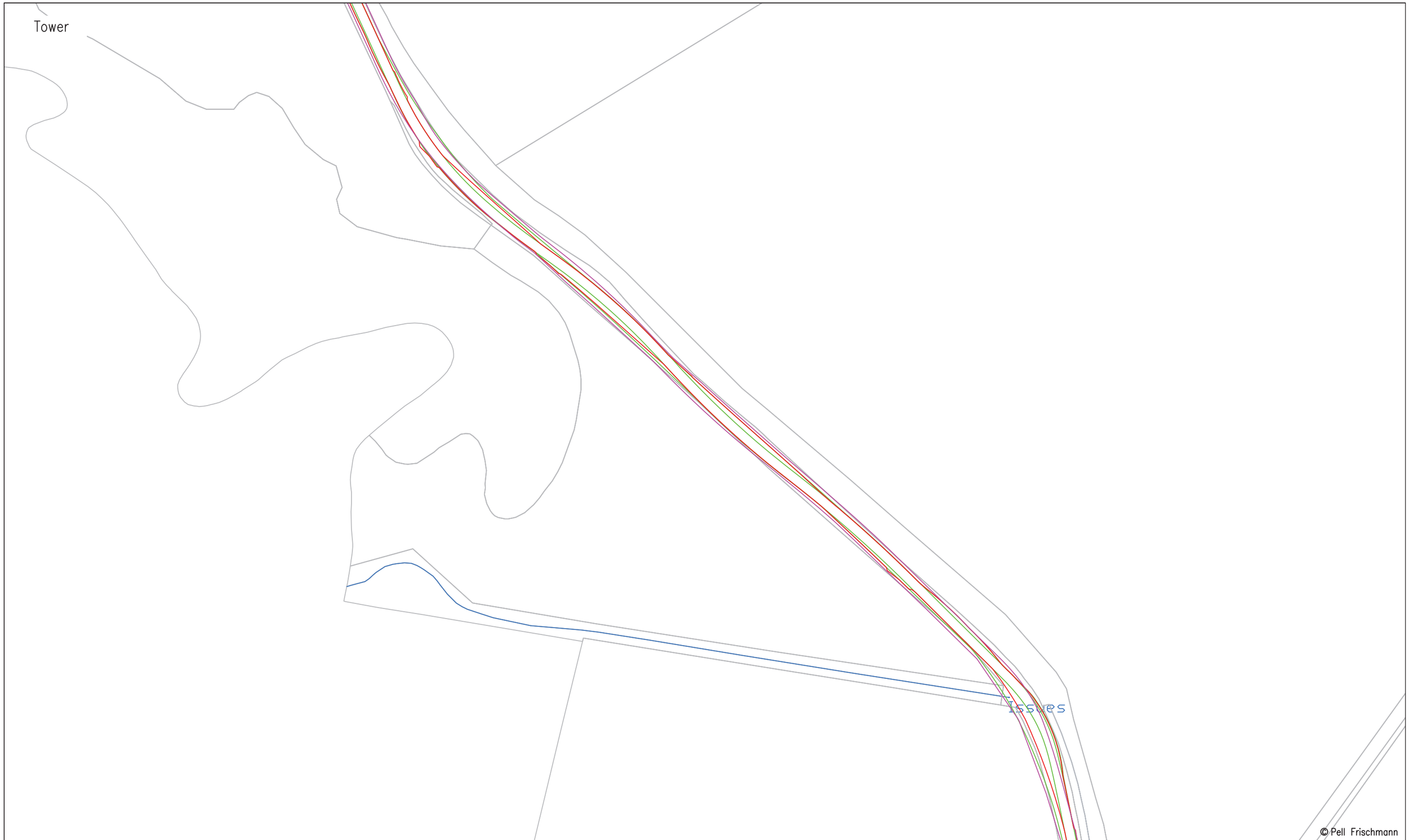
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK38

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Email: pfedinburgh@pellfrischmann.com
www.pellfrischmann.com

Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 South of Tomnoan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		52,53

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK38A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Vegetation to be trimmed.

It is recommended that a land search is completed to confirm the extent of adopted boundary at this location. Potential **third party land** required.

ISSUES

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 South of Tomnoan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		52,53

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK38B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower

Pell Frischmann
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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Gallow Hill

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		54

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK39

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Gallow Hill

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		54

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

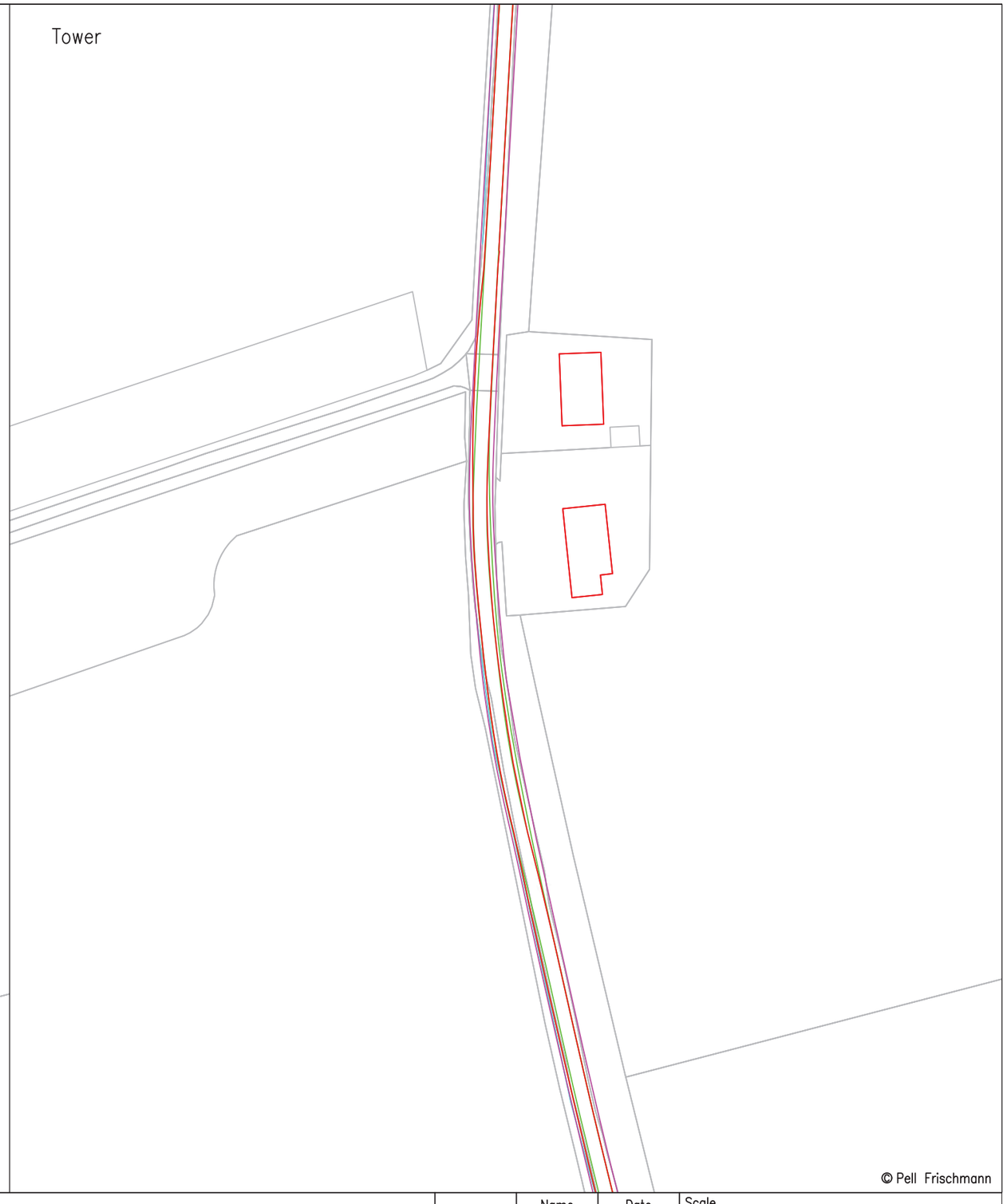
Drawing No.: SK39A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

Tower



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Client: Statkraft

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Over-run; Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 North of Laggan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		56

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK40

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

The OS mapping does not accurately represent the road network as noted on site. An indicative road edge has been provided for illustration only and should be confirmed during the test run or through a topographical survey.

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 North of Laggan

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		56

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

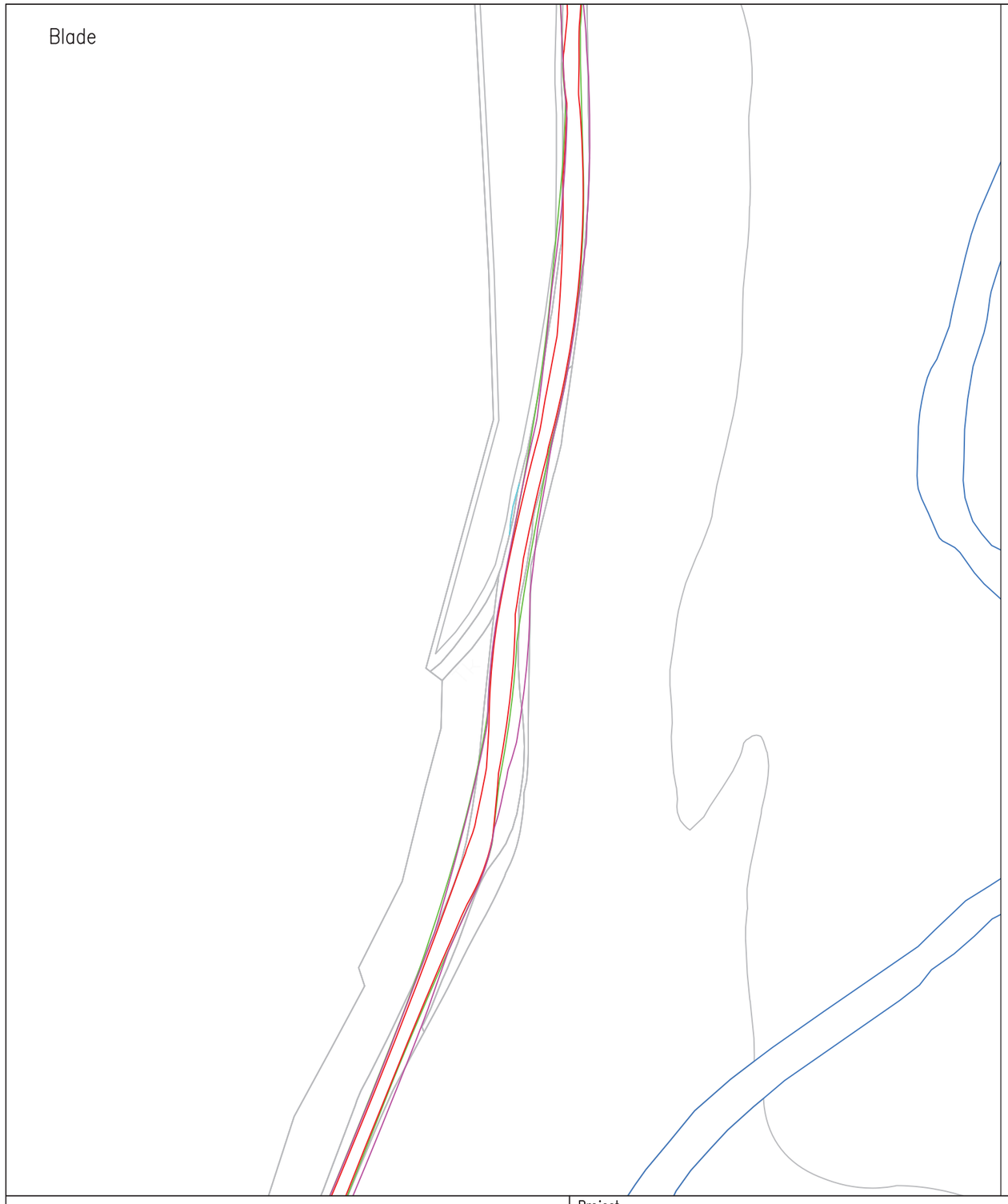
Drawing Status: Draft

Drawing No.: SK40A

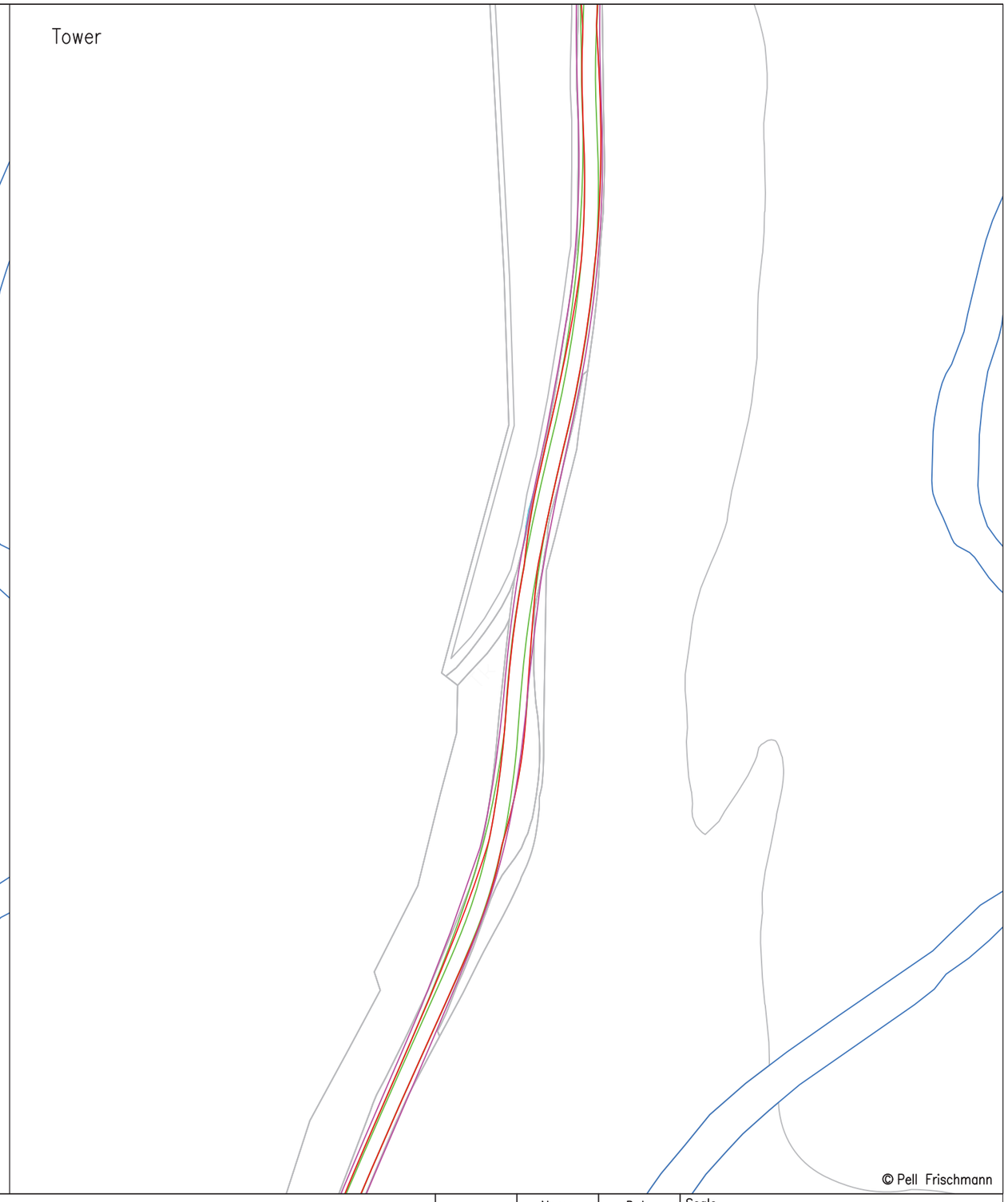
Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade



Tower



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Blackfolds

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		57

Scale: 1:1000 @ A3

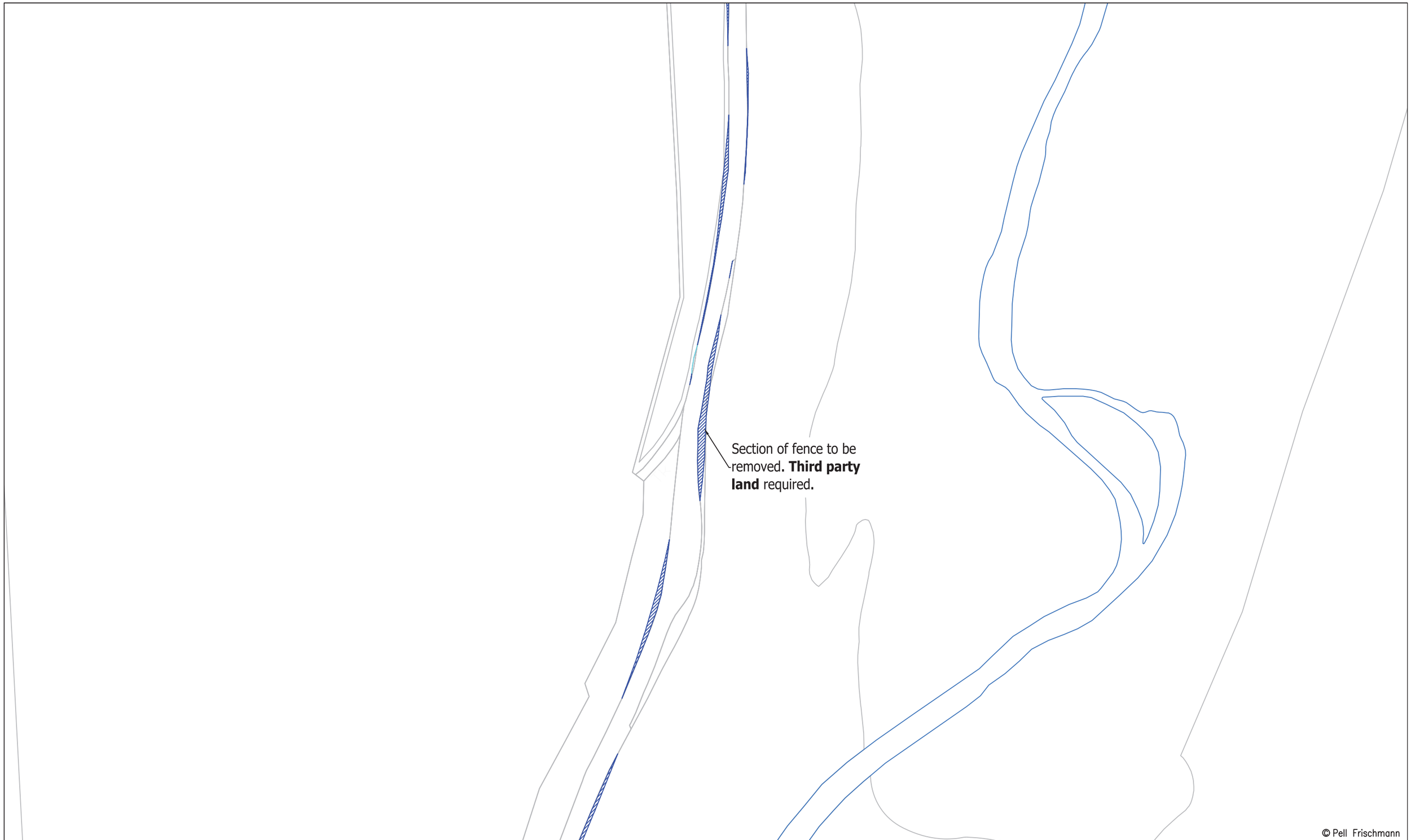
File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK41

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Blackfolds

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		57

Scale: 1:1000 @ A3

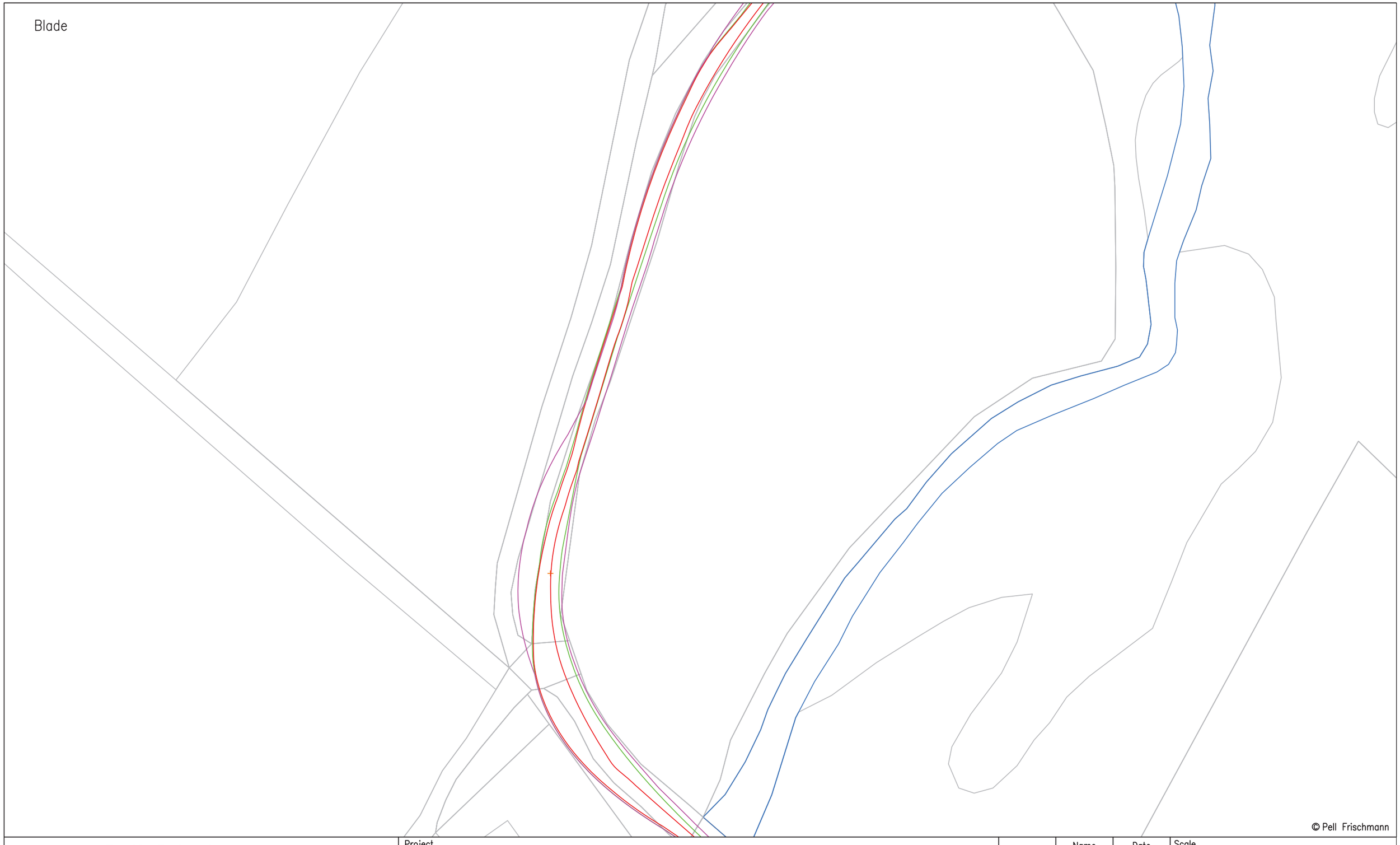
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK41A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Bridgehaugh

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		58

Scale: 1:1000 @ A3

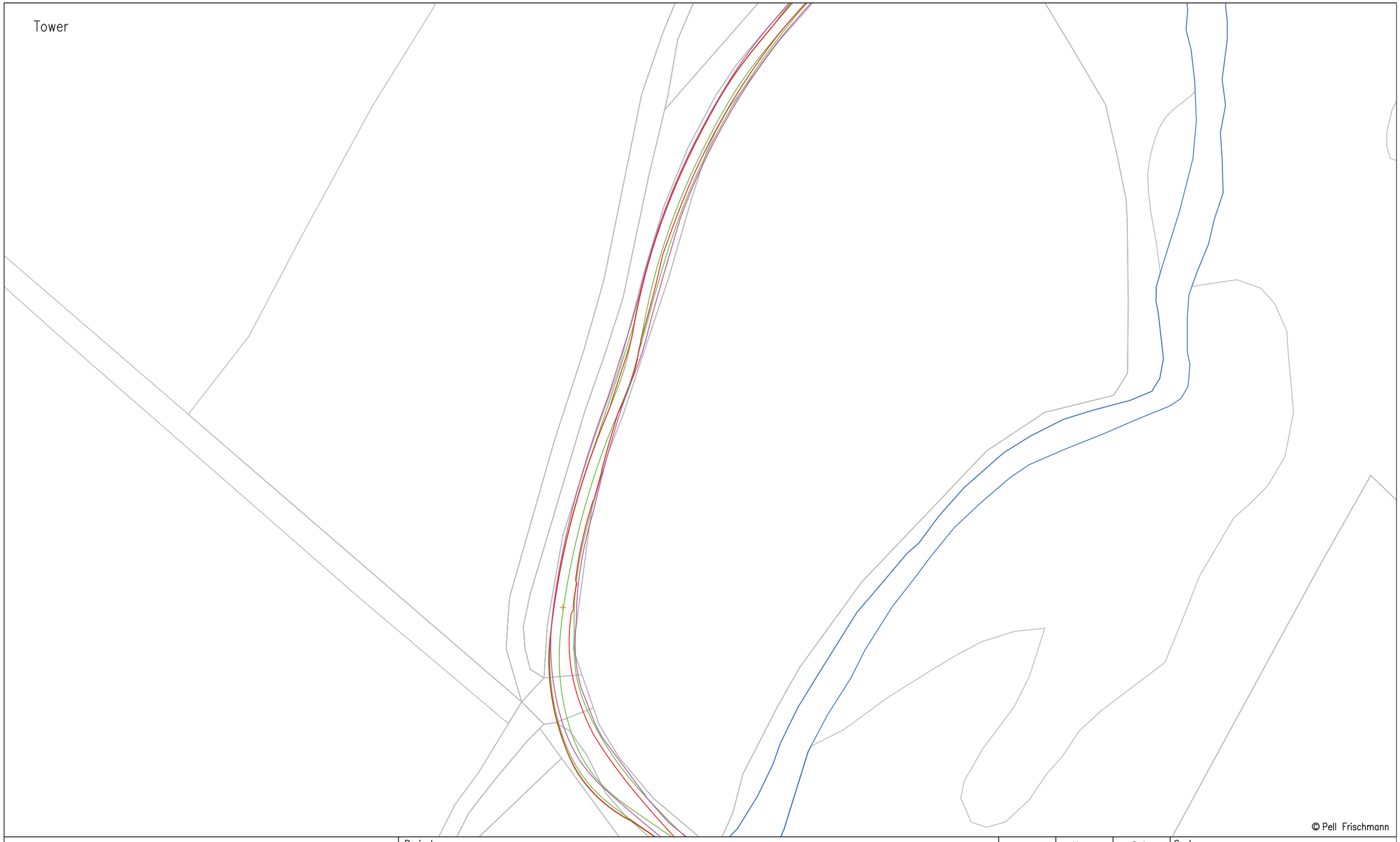
File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK42

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Bridgehaugh

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		58

Scale: 1:1000 @ A3

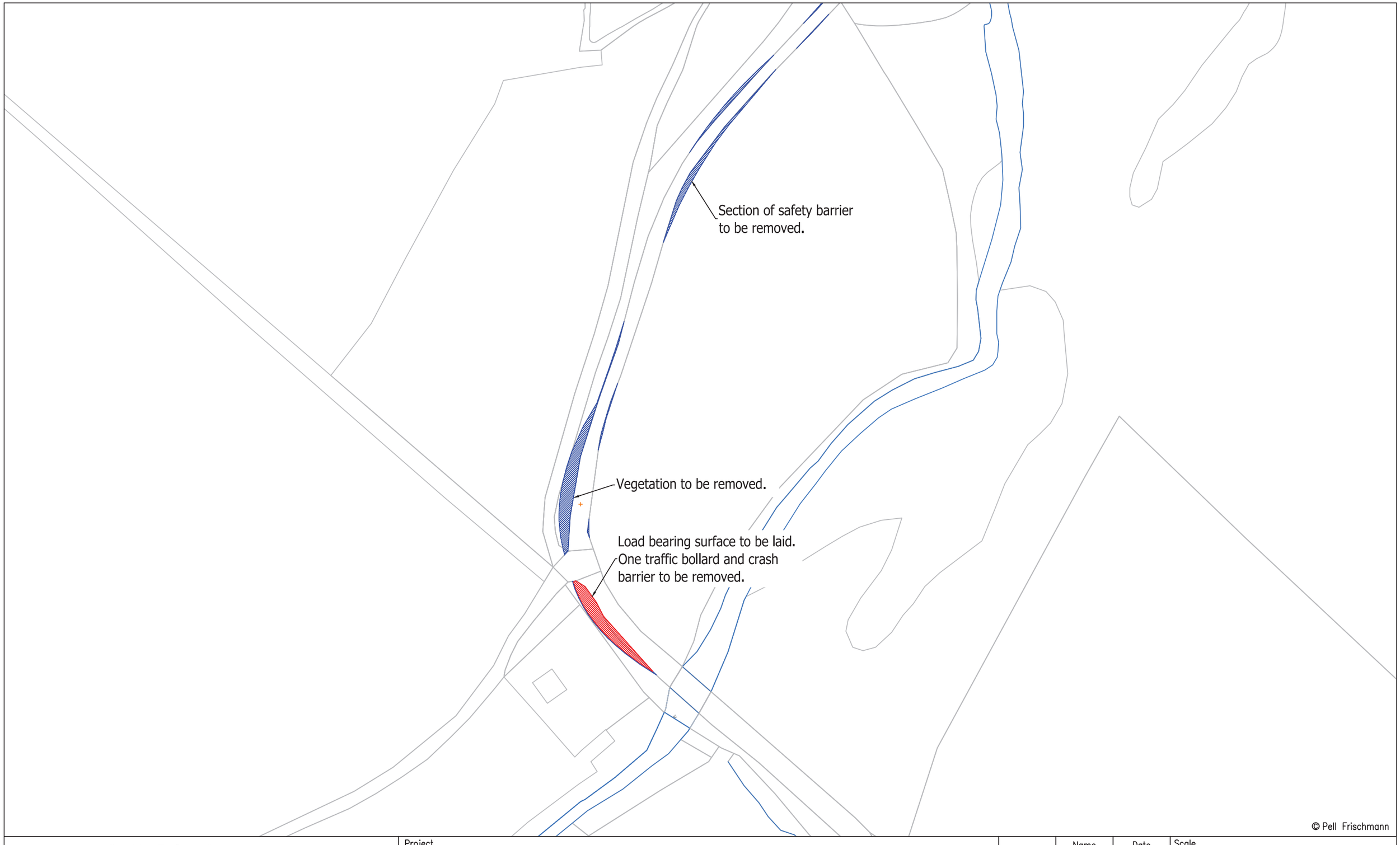
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK42A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Bridgehaugh

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		58

Scale: 1:1500 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK42B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Glacks of Balloch

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		60,61

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK43

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Glacks of Balloch

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		60,61

Scale: 1:1000 @ A3

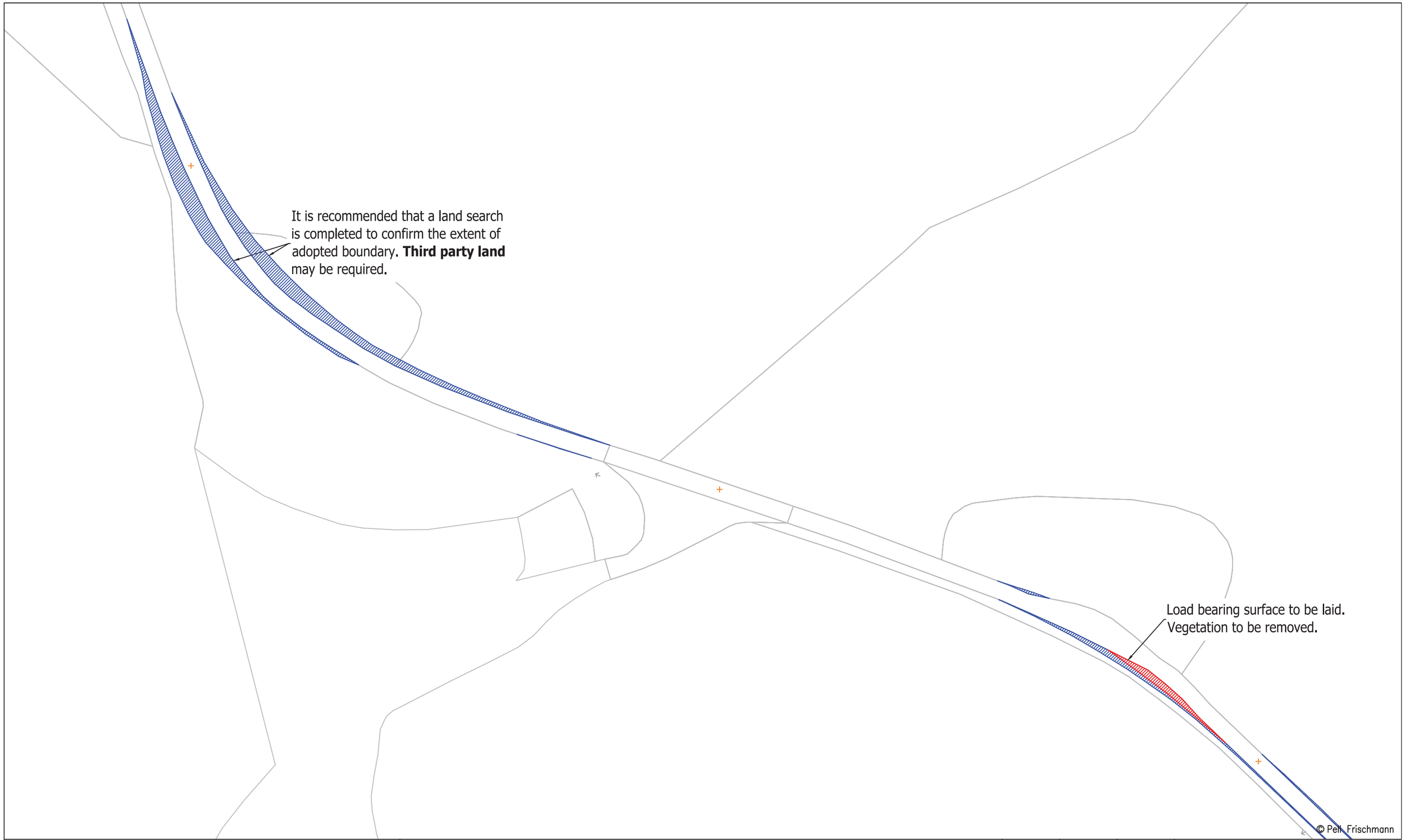
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK43A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Glacks of Balloch

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		60,61

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK43B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Ballochford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		63

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK44

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Tower

354.1m

350.7m

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Ballochford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		63

Scale: 1:1000 @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK44A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

354.1m

350.7m

Load bearing surface to be laid. Potential **Third party land** required.

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Ballochford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		63

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK44B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Ballochford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		64

Scale: 1:500_1 @ A3

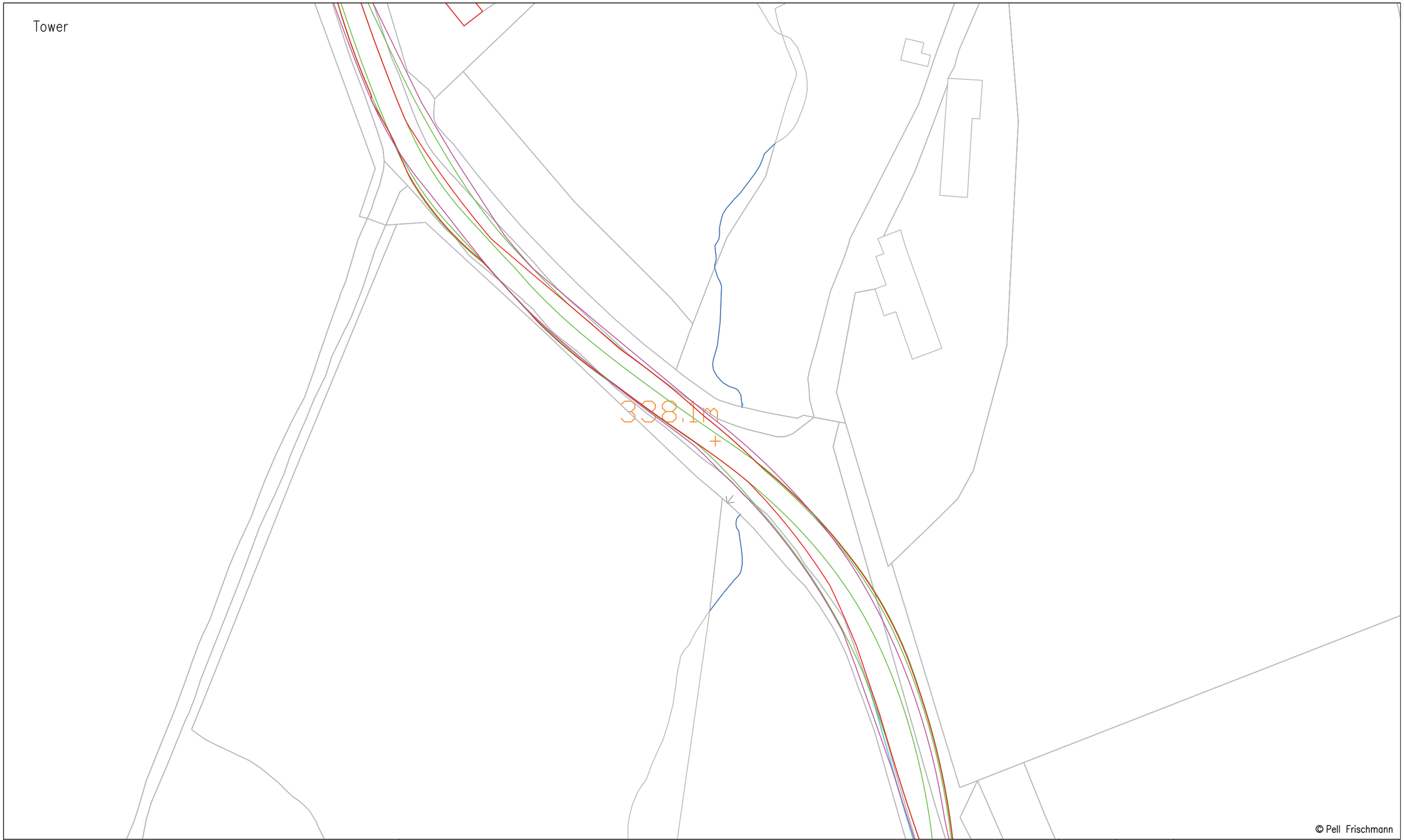
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK45

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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www.pellfrischmann.com

Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Ballochford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		64

Scale: Custom @ A3

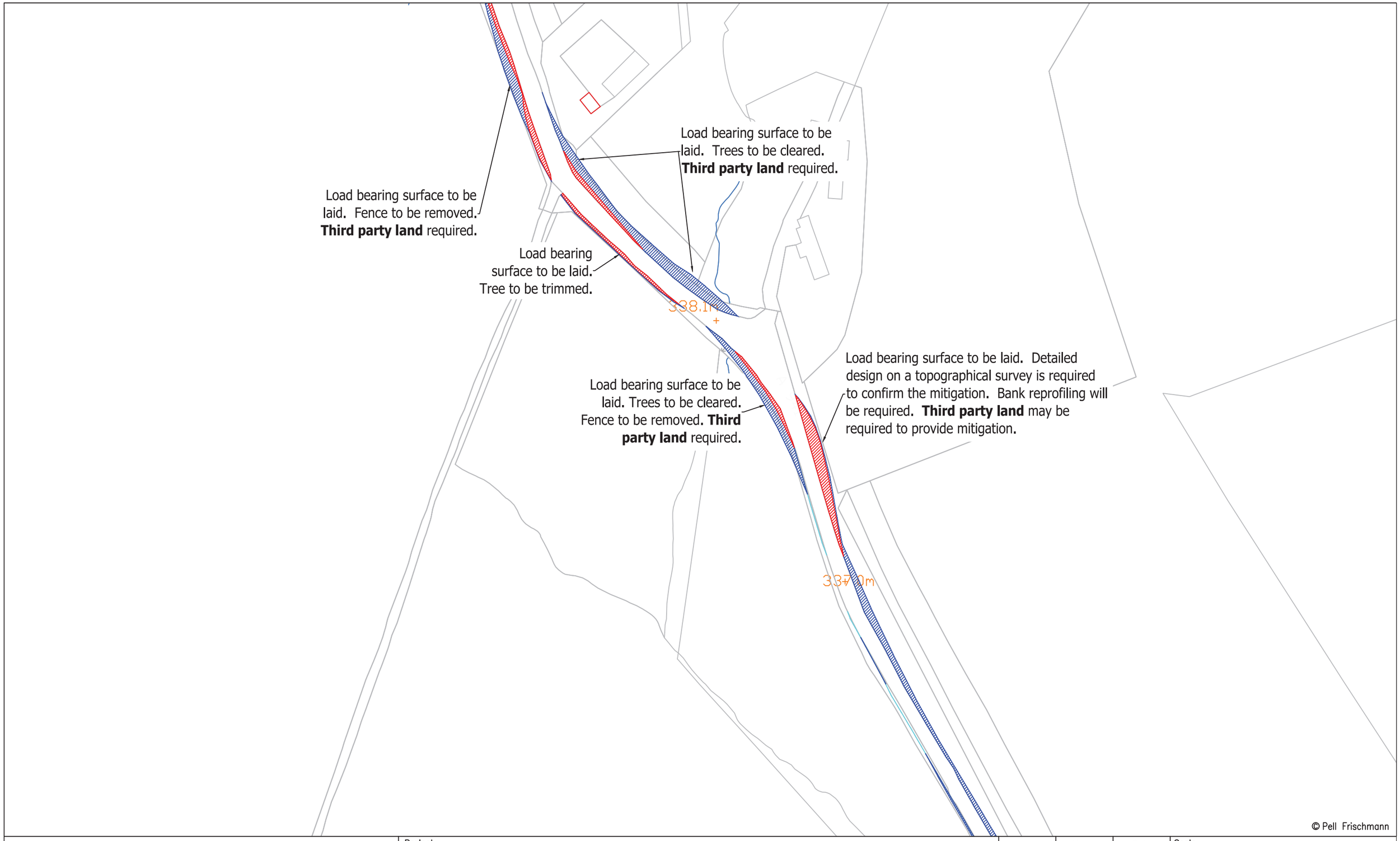
File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK45A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Ballochford

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		64

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK45B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Bridge of Rinturk

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		65

Scale: 1:1500 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK46

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Bridge of Rinturk

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		65

Scale: 1:1500 @ A3

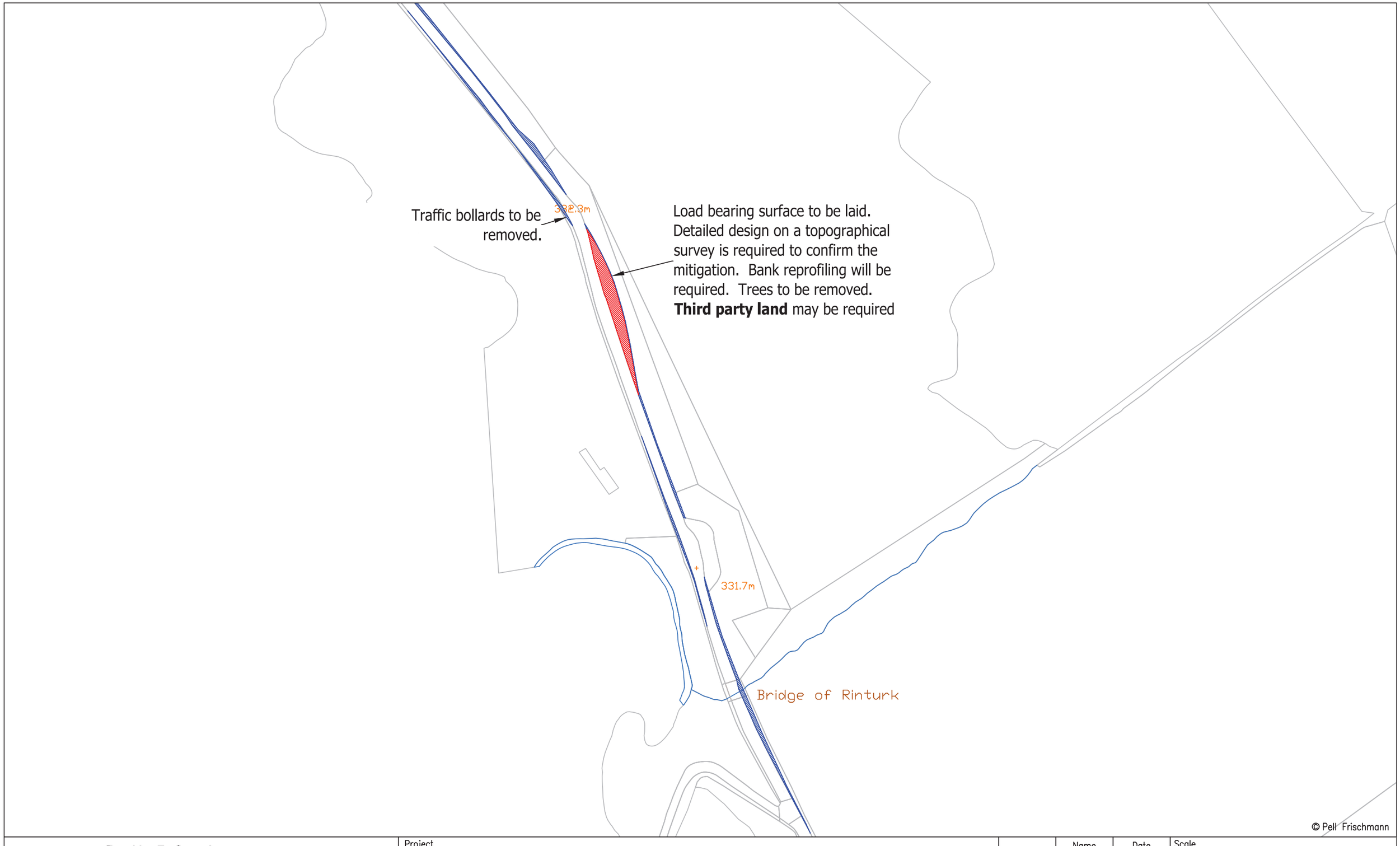
File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No. SK46A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Bridge of Rinturk

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		65

Scale: 1:1500 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK46B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Rhinturk

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		66, 67

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK47

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Rhinturk

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		66, 67

Scale: 1:1000 @ A3

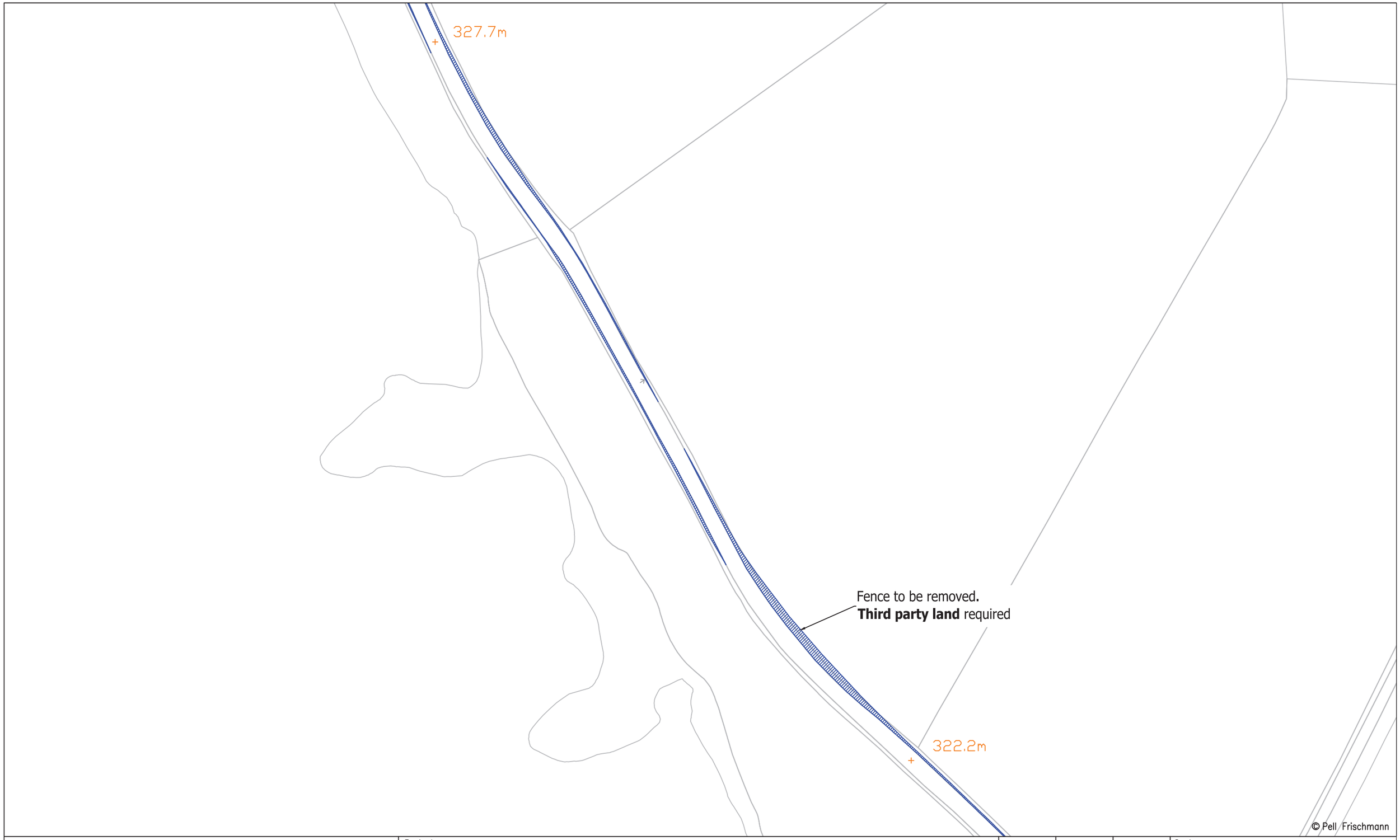
File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK47A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1



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Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 Rhinturk

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		66, 67

Scale: 1:1000 @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK47B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Blade

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 North of Bridgend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		69

Scale: Custom @ A3

File No. 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK48

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Tower

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Client: Statkraft

Key: Wheel SPA | Body SPA | Load SPA | Indicative | Over-run | Over-sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 North of Bridgend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		69

Scale: Custom @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK48A

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Load bearing surface to be laid. Detailed design on a topographical survey is required to confirm the mitigation. Verge to be reprofiled. Stone wall and fence to be removed. **Third party land** be required

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Client: Statkraft

Key: Wheel SPA; Body SPA; Load SPA; Indicative; Over–run; Over–sail

Project: Craig Watch Wind Farm

Drawing Title: SGRE 155 Blade and Tower

SPA Location: A941 North of Bridgend

	Name	Date
Drawn	JS	03/03/2021
Designed	JS	03/03/2021
Checked	GB	03/03/2021
Point of Interest		69

Scale: Custom @ A3

File No.: 210202 Craig Watch Tracking.dwg

Drawing Status: Draft

Drawing No.: SK48B

Notes:
1. All mitigation is subject to confirmation through a test run.
2. This is not a construction drawing and is intended for illustration purposes only.

Revision: 1

Appendix C
Weight Review Correspondence

From: Ann Porter <[redacted]> **On Behalf Of** Abnormal Loads
Sent: 05 March 2021 11:34
To: Jordan Stirrat
Cc: Claire Robertson
Subject: RE: Craig Watch Wind Farm ESDAL

Good Morning,

I have looked at the proposed route and checked structures on it. Aberdeenshire Council have 5 structures on the A920 that fall under its responsibility:

Cairnford (Grid ref: NJ 487 406)
Bogforth (Grid ref: NJ 467 408)
Cairnborrow (Grid ref: NJ 461 408)
Parkhall (Grid ref: NJ 453 406)
Barefold (Grid ref: NJ 433 405)

None of them are flagging up as concerns with the information you have provided. We can't give a definitive answer until axle configurations for the vehicle are provided.

As this is early stages of your assessment, I have not passed the details on to the relevant roads department for them to check. The roads department will be informed once the haulier has been selected and any special order applied for has been provided to us.

Should you require any further information, please do not hesitate to get in touch.

Kind Regards

Ann Porter

Technical Assistant
Aberdeenshire Council
Structures Section
Infrastructure Services
Woodhill House
Westburn Road
Aberdeen
AB16 5GB

www.aberdeenshire.gov.uk

From: Gordon Buchan
Sent: 28 April 2022 11:00
To: Paul.Winn[redacted]
Cc: Jordan Stirrat [redacted]
Subject: RE: Craig Watch Wind Farm ESDAL

Dear Paul

Access from Inverness and Invergordon is not possible due to the size of the loads passing through Keith. Access from Peterhead is not possible due to the size of the vessels required to transport the components and numerous constraints on the route from the harbour.

Aberdeen Harbour does not have any storage areas required to store the equipment when unloading from the ships, nor has it previously allowed wind farm deliveries of this size into the port.

Dundee is the only feasible port for use for deliveries of this size. The harbour and access roads was upgraded to accommodate turbine deliveries and the trunk road was modified to enable access.

The project is in pre-planning determination at present and a final decision on the port will be made once the turbine model has been confirmed, post consent.

Kind regards

Gordon

Gordon Buchan
Divisional Director

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From: Paul.Winn[redacted]
Sent: 03 March 2021 10:37
To: Jordan Stirrat
Subject: RE: Craig Watch Wind Farm ESDAL

Hi

We would prefer Inverness to be used as the port of entry if possible because this is the closest suitable port. Invergordon, Peterhead and Aberdeen are also closer to this wind farm than Dundee.

Regards,
Paul
Paul Winn
Network Administrator
Administration Team
Roads Directorate
T: 0141 272 7339
transport.gov.scot

From: OSD Wind Farm Abnormal Loads [redacted]
Sent: 10 March 2021 08:53
To: Jordan Stirrat
Subject: RE: Craig Watch Wind Farm ESDAL [OFFICIAL]

OFFICIAL
Good Morning,

In response to your email enquiry dated 03rd March 2021, I can provide the following information on behalf of Police Scotland.

When a haulier has been selected for a particular project and they have been furnished with precise dimensions of the load to be transported by road, thereafter as part of the planning process a detailed route survey is produced by the haulier identifying all potential issues often referred to as “pinch points” along the entire proposed route. The route is then examined and commented upon by Transport Scotland /Transerv and the relevant Local Council amongst other partners.

Police Scotland consider the proposed route primarily from a road safety perspective .If due to the abnormal dimensions it is apparent other road users will be required to be directed to stop along the route by police in order to safely facilitate the movement or encroachment into an opposing undivided carriageway will occur, then police officers will be deployed to warn other road users of the presence of the abnormal load. The timings of the movements are dependent on many factors dependant on the route and Transport Scotland may place restrictions on travel during peak times to ensure journey time reliability along their trunk road network.

In general terms the movement of Abnormal Indivisible Loads (A.I.L) along most if not all routes in more rural areas, from my experience has an impact on the infrastructure of the general area and local community although Police Scotland are not best placed to comment in detail on this subject. Examples of this from previous projects could include, delays to freight traffic travelling to or from ferry ports, delays experienced by bus services including tourist bus tours operated in the area (Invergordon Port being a cruise ship port), delays to teachers and or pupils attending for scheduled school start times and delays to staff and the public attending hospital or medical appointments.

Regards

Frankie Anderson
Business Support Administrator
Vehicle Recovery & Abnormal Loads
Police Scotland
Fife Divisional HQ
Detroit Road
Glenrothes
Fife
KY6 2RJ

Tel: 01592 418421 (not monitored 24/7 if no response call 101 or send email)

Email: OSDAbnormalLoadsScotland@scotland.pnn.police.uk

From: SC Abnormal Loads [redacted]
Sent: 05 March 2021 09:36
To: Jordan Stirrat
Subject: RE: Craig Watch Wind Farm ESDAL

Good morning,

No Scottish Canals structures affected.

Thanks,
Brian.

From: rsgbrb [redacted]
Sent: 03 March 2021 14:36
To: Jordan Stirrat
Subject: RE: Craig Watch Wind Farm ESDAL

Dear Jordan,

Thank you for your enquiry.
I have assessed the route on behalf of Highways England Historical Railways Estate, and can confirm that no structures belonging to that Authority will be affected.

Regards
Tania

Tania Howell
Abnormal Loads Officer (on behalf of **Highways England Historical Railways Estate**)
Jacobs
DDI: [redacted]

If your mail concerns abnormal load movements, please reply to [redacted]

From: Abnormal Loads [redacted]
Sent: 04 March 2021 14:22
To: Jordan Stirrat
Subject: RE: Craig Watch Wind Farm ESDAL

Afternoon

As per our previous e-mail:

Thank you for making these early stage enquiries. I have complied a list of the affected structures with some outline details for your information.
12T axle loads should be OK on the majority of these bridges, although some further analysis will likely be required for the specific axle arrangements once these are established.
It is noted that the proposed route utilises the

- A920, a relatively narrow 2-way road, with a winding route and some steep gradients and tight bends.
- A941, a very narrow 2-way road, with large sections which are single-track. There are many steep gradients and tight bends.

None of the structures to be crossed on this route are hump-backed. The various affected Moray Council bridges are listed below:

A920 from Aberdeenshire Boundary to A941 junction

A920/170 Boghead Bridge	1.9m span pipe	15.0m wide structure	6.3m wide carriageway
A920/180 Fiddich Bridge	16.9m span beam and slab	11.8m wide structure	7.4m wide carriageway
A920/190 Keithmore Bridge	2.5m span Armco	16.2m wide structure	6.8m wide carriageway

A941 from A920 junction to Garbet Hill / Rinturk (these structures were also crossed by the Dorenell Wind Farm abnormal loads some years ago)

A941/150 Bridgehaugh Bridge	11.6m span beam and slab	11.6m wide structure	6.7m wide carriageway
A941/140 Balloch Bridge	2.4m span masonry arch	10.7m wide structure	4.7m wide carriageway
A941/130 Ballochford Culvert	2.4m span masonry arch	13.1m wide structure	5.6m wide carriageway

A941 from Garbet Hill / Rinturk to Bridgend (not clear if the route ends before these structures or not)

A941/110 Ardluie Bridge	3.5m span masonry arch	8.9m wide structure	5.6m wide carriageway (8.5m between the parapets)
A941/100 Bridgend Bridge	6.4m span masonry arch	4.88m wide structure	3.94m wide carriageway (3.9m between the parapets)

Regards

Kay Rizza| Technical Support Officer| Environmental and Commercial Services

kay.rizza@moray.gov.uk | website | facebook | twitter | News page
[redacted]
Currently Working From Home

Technical Appendix 11: Noise and Vibration

TA 11.1: Construction Noise Report

TA 11.2: Operational Noise Report

TA 11.3: Battery Energy Storage System Noise Report

TA 11.1: Construction Noise Report

Technical Appendix 11.1

Construction Noise Report

Craig Watch Wind Farm

Craig Watch Wind Farm Limited

14138-010
10 May 2022

COMMERCIAL IN CONFIDENCE

Quality Assurance

TNEI Services Ltd and TNEI Africa (PTY) Ltd operate an Integrated Management System and is registered with The British Assessment Bureau as being compliant with ISO 9001(Quality), ISO 14001 (Environmental) and ISO 45001 (Health and Safety).

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Document Control

Revision	Status	Prepared by	Checked by	Approved by	Date
D0	DRAFT	AD	JS	JS	01/04/2022
R0	FINAL ISSUE	AD	JS	JS	10/05/2022

TNEI Services Ltd
Company Registration Number: 03891836 **VAT Registration Number: 239 0146 20**

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Manchester	Newcastle upon Tyne	Glasgow
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TNEI Ireland Ltd
Registered Address: 104 Lower Baggot Street, Dublin 2, DO2 Y940
Company Registration Number: 662195 **VAT Registration Number: 3662952IH**

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Company Number: 2016/088929/07

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Niagara Rd & Tyger Falls Blvd
Bellville, Cape Town
South Africa, 7530

Executive Summary

TNEI Services Limited (TNEI) was commissioned by Craig Watch Wind Farm Limited ('the Applicant') to undertake predictions of noise levels associated with the construction of the proposed Craig Watch Wind Farm (the Proposed Development). The noise predictions were used to assess the potential impact of noise attributable to the construction of the Proposed Development on the occupiers of nearby noise sensitive receptors.

The noise impact assessment was undertaken using guidance contained in BS 5228: Part 1 2009+A1:2014 *'Noise and vibration control on construction and open sites- Noise'* and the calculation methodology in ISO9613: 1996 *'Acoustics - Attenuation of sound during propagation outdoors' -Part 2: General Method of Calculation*', together with noise data for appropriate construction plant.

Twelve residential receptors neighbouring the Proposed Development were identified as the nearest properties located to the proposed construction activities on the Site. Predictions have been made assuming that all items of plant are operating continually throughout the assessment period to provide a worst-case scenario. In addition, the noise model assumes that noise sources would be located within the most likely activity areas closest to the receptors, whereas in reality plant would move around the site and only a proportion of the plant may be operating at any one time. As such, the predictions are inherently likely to over-predict the actual sound levels that are likely to be experienced.

The results show that the predicted noise levels would be below the most stringent of the noise threshold levels detailed in BS 5228. Accordingly, the assessment concludes that there would be no significant construction noise impacts.

Contents

TABLES

ANNEXES

1 Introduction

1.1 Brief

1.1.1 TNEI was commissioned by Craig Watch Wind Farm Limited to undertake a construction noise assessment for the proposed Craig Watch Wind Farm (hereinafter referred to as the Proposed Development). The following steps summarise the noise assessment process:

- Establish typical ambient noise levels at sensitive receptors located closest to the anticipated construction activities and derive appropriate noise threshold levels in accordance with BS5228-1:2009 +A1:2014[(1)];
- Undertake predictions of activity noise from different construction phases that would be incident at the nearest sensitive receptors;
- Compare the predicted noise levels with the derived threshold values; and,
- Identify any requirements for mitigation measures, if needed.

1.2 Nomenclature

1.2.1 The following terms and definitions are used throughout this report;

- **Emission** refers to the sound level emitted from a sound source, expressed as either a sound power level or a sound pressure level;
- **Immission** refers to the sound pressure level received at a specific location from a noise source(s);
- **SWL** indicates the sound power level in decibels (dB);
- **SPL** indicates the sound pressure level in decibels (dB);
- **NSR** (Noise Sensitive Receptor) are identified receptors that are sensitive to noise;
- **NML** (Noise Monitoring Location) refers to any location where baseline or specific noise levels have been measured; and
- **CNAL** (Construction Noise Assessment Location) refers to any location where the noise immission levels are calculated and assessed.

1.2.2 Unless otherwise stated, all noise levels refer to free field levels i.e. noise levels without influence from any nearby reflective surfaces.

1.3 Site Description

1.3.1 The Proposed Development is located approximately 8 km south east of Dufftown, Moray. The approximate OS Grid Reference for the centre of the site is NJ 37509 34022 and the proposed layout is shown on Figure A.1.1 in Annex 1.

1.3.2 The Proposed Development Area would be accessed through an improved entrance off the A941. Construction noise impacts from vehicles improving and using this access track will be considered, with all activity being modelled within the Site.

1.3.3 Construction of the Proposed Development would require felling, the laying of tracks across the site, establishing two construction compounds, the opening up of a borrow pit, excavation of turbine foundations, concrete batching, construction of turbine bases,

installation of turbines, and the installation of a substation and other infrastructure. EIAR Chapter 2: The Proposed Development can be referred to for a detailed description of the Proposed Development and the construction requirements.

1.3.4 Construction is anticipated to last for 18 months. An indicative construction timetable is shown as Table 1.1. Activities denoted with blue cells have been included in the noise assessment. Periods denoted with grey cells have not been considered within the assessment as they are not expected to generate high levels of noise.

Table 1.1: Indicative Construction Timetable

Task	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Investigation / Forestry felling																		
Site establishment / Plant deliveries																		
Borrow pit, access tracks and turbine hardstandings																		
Turbine foundations																		
Substation construction																		
Cabling																		
Erection of Turbines																		
Site reinstatement and restoration																		

1.3.5 TNEI has undertaken noise propagation modelling for months 1, 4, 7, 8, 10, 11 and 13, on the assumption that activities undertaken during these periods would generate the highest noise levels. An additional night-time scenario has also been considered to model any potential noise from the operation of generators and other types of plant typically left on over-night.

2 Noise Planning Policy and Guidance

2.1 Overview of Noise Planning Policy and Guidance

2.1.1 In assessing the potential noise impacts from the construction of the Proposed Development, the following guidance and policy documents have been considered:

- The Environmental Noise (Scotland) Regulations [2];
- Planning and Advice Note (PAN) 1/2011 *'Planning and Noise'* [3];
- Technical Advice Note (TAN) *'Assessment of Noise'* [4]; and
- BS5228:2009+A1:2014 *'Code of practice for noise and vibration control on construction and open sites. Noise*'.

2.1.2 The overarching legislation in relation to terrestrial environmental noise is *'The Environmental Noise (Scotland) Regulations'* (Scottish Statutory Instruments, 2006). The regulations aim to limit peoples noise exposure, and to develop action plans to prevent or reduce noise exposure, and to preserve existing quiet areas. The regulations do not prescribe noise limits.

2.2 National Planning Policy

2.2.1 At a national level the relevant policy documents are Planning Advice Note (PAN) 1/2011 – *'Planning and Noise,'* and the associated Technical Advice Note (TAN) – *'Assessment of Noise'*.

2.2.2 PAN 1/2011 provides little guidance in respect of construction noise, other than recommending that the use of planning conditions is not the preferred method for controlling temporary construction noise. Specifically, the document states:

"32. While planning conditions can be used to limit noise from temporary construction sites, it is most effectively controlled through the Control of Pollution Act 1974 (COPA74) and the Pollution and Prevention Control Act 1999 for relevant installations. Notice can be served in advance of works and site conditions set to control activities."

2.2.3 BS5228:1997 *'Noise and vibration control on construction and open sites. Code of practice for basic information and procedures for noise and vibration control'* parts 1 to 5 (BSI, 1997) is the approved Code of Practice under COPA74[5], however, it is the 2009 version of the Standard which should be used for Environmental Impact Assessments (EIA) and planning applications. In this regards the TAN states:

"However, under Environmental Impact Assessments and for planning purposes i.e. not in regard to the Control of Pollution Act 1974, the 2009 version of BS 5228 is applicable. The 2009 version of the standard consists of Parts 1 and 2 for noise and vibration respectively."

2.3 Relevant Guidance

2.3.1 The BS5228:2009 standard provides useful guidance on practical noise control. Part 1, provides recommendations for basic methods of noise control including sections on community relations, training, occupational noise effects, neighbourhood nuisance and

project supervision. The annexes provide information on noise sources, noise calculation procedures, mitigation measures and their effectiveness.

2.3.2 Part 1 also contains sound power level data for a variety of construction plant. This data was obtained from field measurements of actual plant operating on construction and open sites in the United Kingdom and is therefore appropriate to use as source level data for construction noise predictions.

2.3.3 The 2009 version of BS5228 was subject to an additional update in 2014. Accordingly, the construction noise assessment in this chapter has been undertaken in accordance with BS5228 1:2009+A1:2014 *'Code of practice for noise and vibration control on construction and open sites. Noise'*, (BSI, 2009), hereinafter referred to as BS5228.

3 Potential Impacts

3.1 Construction Noise Sources

3.1.1 Noise levels from construction activities would vary continually over time as activities and plant start and stop and move around the site. In order to assess the potential impacts of construction noise a worst-case scenario is considered where all construction plant and activities are assumed to be working continually and in locations closest to the nearest NSRs.

3.2 Construction Phases

3.2.1 Although an indicative timetable has been provided, a specific construction schedule has not been determined at this stage. Chapter 2: The Proposed Development of this EIAR does, however, provide descriptions of some of the likely construction activities that would be undertaken and the type of plant that would be used.

3.2.2 It is also noted that construction activities are likely to be limited to between 07:00 and 19:00 on weekdays and 07:00 – 13:00 on Saturdays. No working would be undertaken on Sundays or Public Holidays without prior agreement with the relevant Local Authorities (LAs).

3.2.3 To consider the variation in noise levels that would occur throughout the construction period a series of construction scenarios have been modelled. The scenarios are based on the combination of construction tasks detailed in the indicative timetable (see Table 1.1), Chapter 2: The Proposed Development and TNEI's knowledge and experience of other similar sites and construction schedules.

3.2.4 Each scenario has been assessed against a set of threshold levels in order to determine the likely temporary noise impacts.

3.2.5 The assessment does not consider the noise impacts associated with decommissioning, as the plant and activities used for that phase are assumed to be similar in nature (and noise output) to those already considered in the modelled construction scenarios. Accordingly, if noise levels during the construction phases are acceptable, they should also be acceptable during decommissioning.

4 Methodology

4.1 Methodology for the Prediction of Noise

4.1.1 In order to predict the noise immission levels attributable to the construction of the Proposed Development, noise propagation models are produced using the propriety noise modelling software CadnaA. Within the software, complex models can be used to simulate the propagation of noise according to a range of international calculation standards.

4.1.2 For each CNAL, the $L_{Aeq(t)}$ levels have been predicted in accordance with ISO9613-2:1996 *'Acoustics - Attenuation of sound during propagation outdoors: General method of calculation'*.[6]

4.1.3 The ISO 9613 propagation model was chosen in preference to the calculation method presented in BS5228, primarily because of some of the significant distances from source to receptor evident on this site. Specifically, BS5228 notes in F 2.2.2.2, that at distances over 300 m noise predictions using the BS5228 methodology should be treated with caution, especially where a soft ground correction factor has been applied because of the increasing importance of meteorological effects; whereas ISO 9613-2 provides equations that have been validated up to 1,000 m.

4.1.4 The ISO 9613 model can take account of the following factors that influence sound propagation outdoors:

- geometric divergence;
- air absorption;
- reflecting obstacles;
- screening;
- vegetation; and
- ground reflections.

4.1.5 The model uses the octave band sound power output of the proposed plant as its acoustic input data, and calculates on an octave band basis, attenuation due to geometric spreading, atmospheric absorption and ground effects.

4.1.6 For the purposes of this assessment, all noise level predictions have been undertaken using a receiver height of 1.5 m above local ground level. Soft ground (G=1) attenuation has been assumed at all locations except for water bodies, construction compounds, turbine bases and similar areas of hardstanding, which have been modelled with a ground attenuation of G=0 (hard ground). Air absorption based on a temperature of 10°C and 70 % relative humidity has been assumed.

4.2 Limitations of the Noise Model

4.2.1 The noise propagation models are intended to give a good approximation of the specific noise level and the contribution of each individual source. However, it is expected that actual levels are unlikely to be matched exactly with modelled values and the following limitations in the model should be considered:

- In accordance with ISO 9613-2, all assessment locations are modelled as downwind of all noise sources and propagation calculations are based on a moderate ground-based temperature inversion, such as commonly occurs at night;
- The predicted barrier attenuation provided by local topography, embankments, walls, buildings and other structures in the intervening ground between source and receiver can only be approximated and not all barrier attenuation will have been accounted for;
- Unless specifically stated, the models assume all noise sources are operating continuously and simultaneously, estimating a worst-case source noise level; and
- All mobile plant assumed to be working on tracks (excavators, dozers, rollers etc) have been modelled as moving point sources along their anticipated movement paths and the sound power level of the source is effectively averaged out across the length of the entire line. This will give an approximation of the overall noise levels from mobile plant at receptor locations; however, in reality noise levels would fluctuate as construction plant and activities move around in their activity areas.

4.3 Assessing Construction Noise Effects

4.3.1 Annex E, part E.3.2 of BS5228 provides example criteria for assessing the significance of construction noise effects and acceptable limits for construction noise.

4.3.2 Table E.1 of BS5228 (represented here as Table 4.1) contains an example of the significance criteria that can be used to assess construction activities.

Table 4.1: Example of Threshold of Potential Significant Effect at Dwellings ($dB_{(A)}$)

Assessment Category and Threshold Value Period	Threshold Value $L_{Aeq,T}$ dB		
	Category $A_{(A)}$	Category $B_{(B)}$	Category $C_{(C)}$
Night-Time (23:00 – 07:00)	45	50	55
Evenings and Weekends	55	60	65
Daytime (07:00 – 19:00) and Saturdays (07:00 to 13:00)	65	70	75

(A) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are less than these values;

(B) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values;

(C) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values;

4.3.3 The values can be considered thresholds for the construction noise levels (quantified using the L_{Aeq} noise metric). The values in each category are to be used where the existing noise

level at each location, rounded to the nearest 5 dB, is below the level given for a particular time of day. BS5228 provides the following advice regarding the threshold levels:

"Note: 1 A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.

Note 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise.

Note 3: Applied to residential receptors only."

4.3.4 Therefore, the assessment of construction noise reflects a specific noise threshold for the locality (set relative to the existing ambient noise levels) for a particular period of the day, rather than an absolute noise level.

4.3.5 It should be noted that exceedance of the limit does not in itself indicate a significant effect, rather, the standard states *"If the site noise level exceeds the appropriate category value, then a potential significant effect is indicated. The assessor then needs to consider other project-specific factors, such as the number of receptors affected and the duration and character of the impact, to determine if there is a significant effect".*

4.4 Study Area

4.4.1 NSRs are properties, people or fauna which are sensitive to noise and, therefore, may require protection from nearby noise sources. The Study Area for the noise assessment has been defined through the identification of the closest NSRs to the Proposed Development. Of the NSRs identified a representative sample of CNALs have been chosen to represent the closest receptor or group of receptors.

4.4.2 The CNALs were chosen on the assumption that if noise levels are within acceptable levels at the closest receptors then it is reasonable to assume they would also be acceptable at more distant locations.

4.4.3 Table 4.2 details the CNALs considered within the assessment and they are also shown on Figure A1.1 included in Annex A.

Table 4.2: Construction Noise Assessment Locations

CNAL Name	Coordinates	
	Eastings	Northings
CNAL01 – Backside	341064	836153
CNAL02 – Mill of Lynebain	341194	835296
CNAL03 – Belcherrie	340033	834094
CNAL04 – Greenloan	339849	833907

CNAL Name	Coordinates	
	Eastings	Northings
CNAL05 – Succoth	339606	833351
CNAL06 – Easterton	339516	833044
CNAL07 – Ardleuie	337448	832304
CNAL08 – Rhinturk	336639	832954
CNAL09 – Ballochford	335986	833709
CNAL10 – Building SE of Greens of Glenburg	340416	837360
CNAL11 – Building NW of Chapel Hill	340620	837170
CNAL12 – Chapel Hill	340770	836922

4.5 Baseline Noise Levels

4.5.1 Baseline noise level monitoring was undertaken as part of the operational noise assessment undertaken for Craig Watch Wind Farm.

4.5.2 At all locations the ambient sound levels were below the Category A Threshold Values, as detailed in Table 4.1: Example of Threshold of Potential Significant Effect at Dwellings (dB(A)).

4.6 Construction Noise Level Thresholds

4.6.1 Having due regard to the existing ambient noise levels at NSRs around the Proposed Development, the BS5228 Category A Threshold Values have been considered for the construction noise assessment.

4.6.2 Accordingly, the assessment is made against the following noise level limits for all NALs;

- Daytime weekdays 07:00 – 19:00: 65 dB $L_{Aeq\ (12\ hours)}$
- Saturday 07:00 – 13:00: 65 dB $L_{Aeq\ (6\ hours)}$
- No construction activities are anticipated outwith these times.

5 Noise Impact Assessment

5.1 Modelling of Individual Sound Sources

5.1.1 Noise immission levels would vary throughout the construction period as construction activities, plant and locations vary. For much of the working day the noise associated with construction activities would be less than predicted, as the assessment assumes all equipment is continually operating at full power and in locations closest to the NSRs, whereas in practice, equipment load and precise location may vary throughout the day. This approach has been adopted to represent a worst-case assessment.

5.1.2 At this stage a detailed plant list is not available, therefore, a generic plant list based upon experience of similar projects has been used. All modelled noise sources and associated sound power level (SWL) and sound pressure level (SPL) data is included in Annex B: Noise Model Data.

5.1.3 For felling activities broadband noise level data for a harvester, a forwarder and a skidder has been taken from *Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment* (7) (Forestry Commission). No octave band data is available therefore modelling has been undertaken using the 500 Hz octave band data, as recommended in ISO 9613. Noise levels for the Harvester and Forwarder are actually given at the operator position inside a Q Cab. In order to estimate external levels 10 dB has been added to the quoted levels and the sound power level for each item of plant has been calculated within CadnaA assuming the quoted sound pressure levels (SPLs) have been measured at a distance of 1 m.

5.1.4 For all other construction activities source noise level data is taken from Annex C of BS 5228, which provides octave band SPL levels for a wide variety of construction plant and activities suitable for the estimation of noise immission levels.

5.1.5 Construction noise sources for any given activity will generally comprise a mix of both moving and static sources. Mobile sources include mobile construction plant and Heavy Goods Vehicles (HGVs), while static construction plant could include generators, lighting rigs and pumps. Static equipment is usually located at a fixed location for an extended period of time.

5.1.6 For both mobile and static plant, activity noise levels would be transient in nature due to changes in location, on/off periods, and fluctuations of load on any individual machine.

5.1.7 All static items of plant and activities have been modelled as single point sources. All mobile plant (excavators, dozers, dumpers etc.) have been modelled as either a moving point source (line source) along their anticipated movement paths or as a stationary point source located at the closest point of its anticipated work area to any given CNAL.

5.2 Modelling of Construction Activities.

5.2.1 The assessment considers a number of construction scenarios based on the key construction activities detailed in Chapter 2: The Proposed Development and the indicative timetable (Table 1.1 of this report).

5.2.2 Noise propagation modelling has been undertaken considering the key activities that are likely to occur throughout the construction period. Details of the items of plant assumed to be operating in each modelled scenario, as well as noise data for each modelled noise source, are included in Annex B: Noise Model Data.

5.2.3 The modelled scenarios represent the following construction activities;

- Scenario 01: Forestry activities, including felling of trees and forwarding for transportation off site. Instances of felling activity have been modelled along the most Northern and Eastern sections of the indicative felling boundary. This is to ensure all associated felling plant is operating as close to the CNALs as possible, to give a realistic worst case scenario.
- Scenario 02: Felling activities are still active and are assumed to be occurring in the worst-case locations, as per scenario 1. Track installation has now begun, with the initial upgrade works beginning on the entrance track up to the southern construction compound. Both construction compounds under construction.
- Scenario 03: Felling activities and track installation are still active. Work on the access track has been expanded to encompass more of the site. The construction compounds are assumed to be active. Work has now begun within the borrow pit and construction of the met mast foundations and the hardstandings for turbines 1, 2, 3 and 5 are underway.
- Scenario 04: Felling activities and track installation are still active. The construction compounds and borrow pit are active. The batching plant, which is situated within the borrow pit boundary, is operational. Work has now begun on the hardstandings for turbines 4, 6, 7 and 8. Construction of the foundations for turbines 1, 2, 3 and 5 are underway. Construction of the substation has now begun.
- Scenario 05: Track installation is still active. The construction compounds, batching plant and borrow pit are active. Work has now begun on the hardstandings for turbines 9, 10 and 11. Construction of the foundations for turbines 4, 6, 7 and 8 are underway. Construction of the substation is on-going.
- Scenario 06: The construction compounds are active. Erection of turbines 1 , 2, 3 and 5 and the met-mast is underway. Construction of the substation is on-going and foundations for turbines 9, 10 and 11 are being constructed.
- Scenario 07: The construction compounds are active and turbines 9, 10 and 11 are being erected.
- Night-time: Diesel generators for the cabin and lighting at both construction compounds are operational. An additional generator for lighting and a water pump are operational at the batching plant.

5.3 Calculated Noise Immission Levels

5.3.1 Table 5.1 presents the calculated noise immission levels at each CNAL for all modelled scenarios.

Table 5.1: Predicted Construction Noise Immission Levels, dB $L_{Aeq(t)}$

CNAL	Scenario							
	1	2	3	4	5	6	7	Night
CNAL01 Backside	37	36	48	46	49	28	33	33
CNAL02 Mill of Lynebain	27	28	38	37	37	24	28	28
CNAL03 Belcherrie	37	37	41	41	38	32	33	33
CNAL04 Greenloan	38	38	41	40	36	32	32	32
CNAL05 Succoth	34	34	38	37	33	32	30	30
CNAL06 Easterton	34	34	38	37	33	31	29	29
CNAL07 Ardleuie	27	33	34	33	31	32	25	25
CNAL08 Rhinturk	27	52	35	39	38	38	25	25
CNAL09 Ballochford	15	20	22	22	18	19	18	18
CNAL10 Building SE of Greens of Glenbeg	35	35	47	48	47	28	35	35
CNAL11 Building NW of Chapel Hill	36	36	47	48	48	29	35	35
CNAL12 Chapel Hill	36	36	44	44	44	28	33	33

5.3.2 For all CNALs the predicted noise levels for all scenarios are well below the weekday and Saturday daytime threshold value of 65 dBA.

5.3.3 It is noted that although construction activities are not anticipated during weekend or evening hours the predicted levels are also below the evening and weekend threshold level of 55 dBA.

6 Summary

6.1.1 The noise impact assessment has considered the existing noise environment at local residential receptors to determine appropriate noise threshold levels for construction activities.

6.1.2 Noise propagation modelling has been undertaken in accordance with ISO 9613-2:1996 and the anticipated noise immission levels presented for scenarios likely to occur throughout the construction period of the Proposed Development. The modelled scenarios consider the 'noisiest' activities that are likely to occur during the construction period and the modelling assumes that the construction activities are occurring at locations within the development site that are closest to the NSRs.

6.1.3 The predicted levels are below the Category A Threshold Levels as detailed within BS 5228:2009. Accordingly, construction noise impacts are below the indicator for a potential significant effect.

6.1.4 No regular construction activities are currently proposed outwith of the BS 5228 defined daytime periods, however, it is noted that the predicted noise levels are also below the BS 5228 threshold levels for evenings, weekends and night-time.

6.1.5 The assessment concludes that construction noise levels would remain below the indicator for a potential significant effect.

7 References

1. British Standards Institute. *Code of practice for noise and vibration control on construction and open sites. Noise.* UK : BSI, 2014. BS 5228-1:2009+A1:2014.

2. Scottish Statutory Instruments. *2006 No. 465 Environmental Protection. The Environmental Noise (Scotland) Regulations.* Scotland : The Crown, 2006.

3. The Scottish Government. *PAN 1/2011 Planning and Noise.* Scotland : The Crown, 2011.

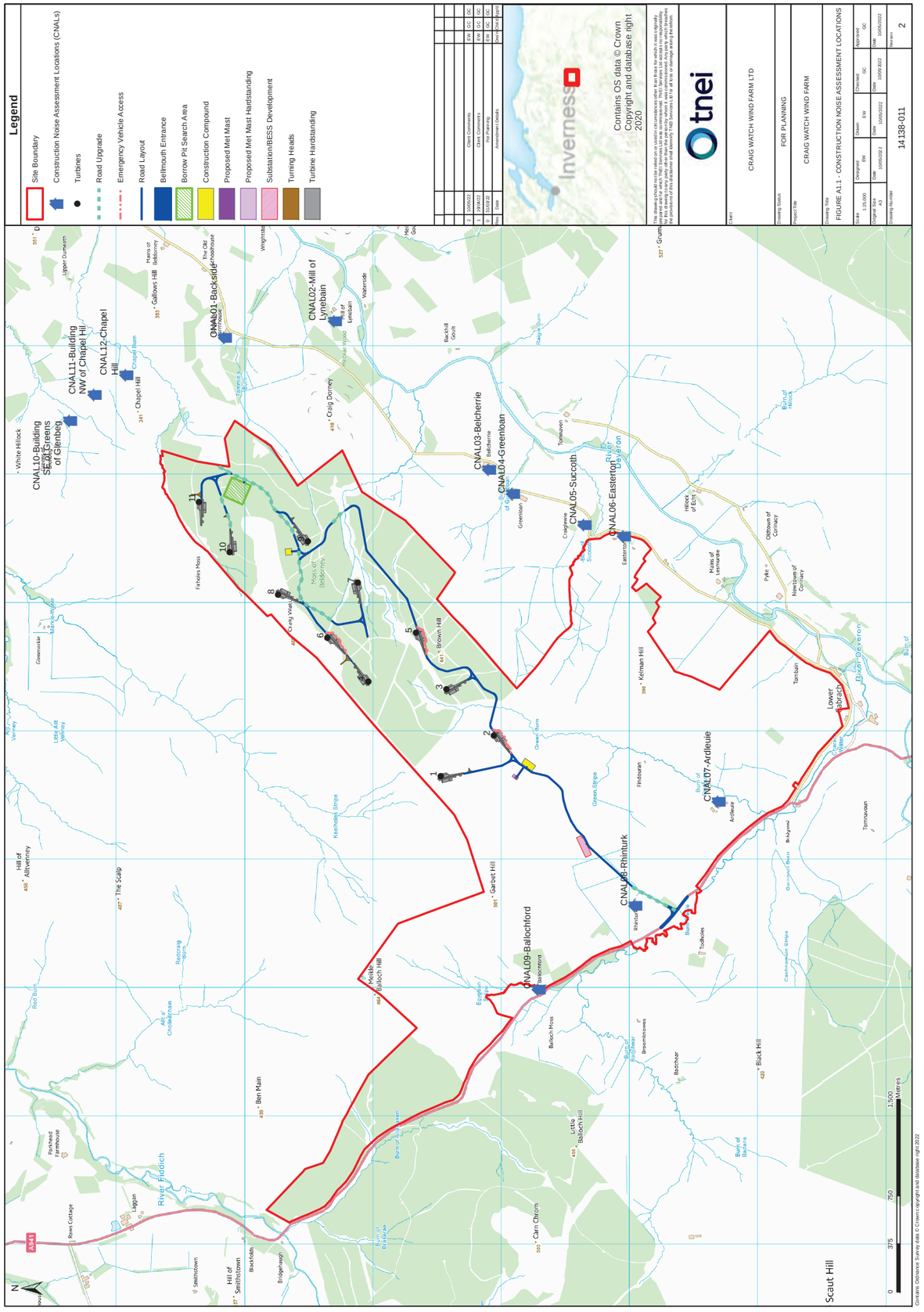
4. The Scottish Government. *Technical Advice Note (TAN).*

5. HM Government. *Control of Pollution Act 1974 Chapter 40.* London : Her Majesty's Staionery Office, 1974.

6. (ISO), International Organisation for Standardisation. *Acoustics – Attenuation of Sound During Propagation Outdoors: Part 2 – General Method of Calculation.* Geneva : ISO, 1996. ISO 9613-2:1996.

7. Forestry Commision. *Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment.* Edinburgh : The Crown, 2003.

Annex A – Figure



Annex B – Noise Model Data

Noise Source	Assumed working location	Data Source	Percentage time on	Number of
Scenario 01	**Month 1**			
Harvester	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Forwarder	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Skidder	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Scenario 02	**Month 4**			
Harvester	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Forwarder	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Skidder	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Generator for cabins	Construction compounds	BS 5228 C4.84	100	2
Generator for lighting	Construction compounds	BS 5228 C4.86	100	2
Wheeled Excavator	Southern construction	BS 5228 C4.10	100	2

	compound, track between site entrance and southern construction compound			
Crane	Southern construction compound, track between site entrance and southern construction compound	BS 5228 C4.45	100	1
Dumper	Southern construction compound, track between site entrance and southern construction compound	BS 5228 C4.3	100	2
Dozer	Southern construction compound, track between site entrance and southern construction compound	BS 5228 C2.12	100	2
Tracked Excavator	Southern construction compound and along track between site entrance and southern construction compound	BS 5228 C2.14	100	2
Scenario 03	**Month 7**			
Harvester	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Forwarder	Spread evenly around felling area, and along the red line boundary to be as close as possible	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
	to the nearest receptors			
Skidder	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Generator for cabins	Construction compounds	BS 5228 C4.84	100	2
Generator for lighting	Construction compounds	BS 5228 C4.86	100	2
Wheeled Excavator	Construction compounds	BS 5228 C4.10	100	2
Dumper	Access track construction, met mast foundations, turbine hardstandings (T1, T2, T3, T5)	BS 5228 C4.3	100	11
Dozer	Access track construction, met mast foundations, turbine hardstandings (T1, T2, T3, T5)	BS 5228 C2.31	100	11
Tracked Excavator	Access track construction, met mast foundations, turbine hardstandings (T1, T2, T3, T5)	BS 5228 C2.14	100	11
Rigid dump truck	Borrow pit	BS 5228 C9.17	100	1
Excavator mounted rock breaker	Borrow pit	BS 5228 C9.12	100	2
Drilling rig	Borrow pit	BS 5228 C9.3	100	1
Rock crusher	Borrow pit	BS 5228 C9.15	100	1
Lorry	Moving up and down site entrance to construction compound	BS 5228 C6.21	100	2
Scenario 4	**Month 8**			
Harvester	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors.	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Forwarder	Spread evenly around felling area,	https://www.forestresearch.gov.uk/doc	100	6

	and along the red line boundary to be as close as possible to the nearest receptors.	uments/4798/fctn7.pdf		
Skidder	Spread evenly around felling area, and along the red line boundary to be as close as possible to the nearest receptors	https://www.forestresearch.gov.uk/documents/4798/fctn7.pdf	100	6
Generator for cabins	Construction compounds	BS 5228 C4.84	100	2
Generator for lighting	Construction compounds, batching plant	BS 5228 C4.86	100	3
Wheeled Excavator	Construction compounds, substation	BS 5228 C4.10	100	3
Dumper	Access track construction, turbine hardstandings (T4, T6, T7, T8), substation	BS 5228 C4.3	100	9
Dozer	Access track construction, turbine hardstandings (T4, T6, T7, T8)	BS 5228 C2.31	100	8
Tracked Excavator	Access track construction, turbine hardstandings (T4, T6, T7, T8)	BS 5228 C2.14	100	8
Rigid dump truck	Borrow pit	BS 5228 C9.17	100	1
Excavator mounted rock breaker	Borrow pit	BS 5228 C9.12	100	2
Drilling rig	Borrow pit	BS 5228 C9.3	100	1
Rock crusher	Borrow pit	BS 5228 C9.15	100	1
Lorry	Substation	BS 5228 C6.21	100	1
Water pump	Batching plant	BS 5228 C4.88	100	1
Cement truck	Batching plant	BS 5228 C4.20	100	1
Concrete mixer truck + truck mounted concrete pump + boom arm	Turbine foundations (T1, T2, T3, T5)	BS 5228 C4. 32	100	1
Crane	Substation	BS 5228 C4.45	100	1
Scenario 5	**Month 10**			
Generator for cabins	Construction compounds	BS 5228 C4.84	100	2
Generator for lighting	Construction compounds, batching plant	BS 5228 C4.86	100	3
Wheeled Excavator	Construction compounds, substation	BS 5228 C4.10	100	3
Dumper	Access track construction, turbine hardstandings (T9, T10, T11), substation	BS 5228 C4.3	100	7
Dozer	Access track construction, turbine hardstandings (T9, T10, T11)	BS 5228 C2.31	100	6
Tracked Excavator	Access track construction, turbine hardstandings (T9, T10, T11)	BS 5228 C2.14	100	6
Rigid dump truck	Borrow pit	BS 5228 C9.17	100	1
Excavator mounted rock breaker	Borrow pit	BS 5228 C9.12	100	2
Drilling rig	Borrow pit	BS 5228 C9.3	100	1
Rock crusher	Borrow pit	BS 5228 C9.15	100	1
Lorry	Substation	BS 5228 C6.21	100	1
Water pump	Batching plant	BS 5228 C4.88	100	1
Cement truck	Batching plant	BS 5228 C4.20	100	1
Concrete mixer truck + truck mounted concrete pump + boom arm	Turbine foundations (T4, T6, T7, T8)	BS 5228 C4. 32	100	4
Crane	Substation	BS 5228 C4.45	100	1
Scenario 6	**Month 11**			
Generator for cabins	Construction compounds	BS 5228 C4.84	100	2
Generator for lighting	Construction compounds	BS 5228 C4.86	100	2
Wheeled Excavator	Construction compounds, substation	BS 5228 C4.10	100	3
Dumper	Substation	BS 5228 C4.3	100	1
Lorry	Substation	BS 5228 C6.21	100	1
Concrete mixer truck + truck mounted concrete pump + boom arm	Turbine foundations (T9, T10, T11)	BS 5228 C4. 32	100	3
Crane	Turbines (T1, T2, T3, T5), met mast, substation	BS 5228 C4.45	100	10

Noise Source Library – Sound Power Levels

Name	BS5228 Reference	31.5	63	125	250	500	1k	2k	4k	8k	A	lin	Source
Harvester	-					103					103	106	Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment
Forwarder	-					101					101	104	Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment
Skidder	-					108					108	111	Noise Hazards in Forestry Operations and Selection of Personal Protective Equipment
Tracked Excavator	C2. 14	28	113	106	105	105	101	99	96	91	107	115	BS 5228-1:2009+A1:2014
Dump Truck (empty)	C2. 31	28	114	107	107	107	107	112	97	88	115	118	BS 5228-1:2009+A1:2014
Dumper	C4. 3	28	112	109	102	101	100	96	89	81	104	115	BS 5228-1:2009+A1:2014
Wheeled Excavator	C4. 10	28	92	88	91	92	90	85	79	73	94	98	BS 5228-1:2009+A1:2014
Concrete mixer truck	C4. 20	28	111	102	94	97	98	106	88	83	108	113	BS 5228-1:2009+A1:2014

Noise Source Library – Sound Power Levels

Name	BS5228 Reference	31.5	63	125	250	500	1k	2k	4k	8k	A	lin	Source
Concrete mixer truck + truck mounted concrete pump + boom arm	C4. 32	28	101	101	105	104	100	98	93	90	106	110	BS 5228-1:2009+A1:2014
Mobile telescopic crane	C4. 45	28	118	109	106	102	105	104	97	89	109	119	BS 5228-1:2009+A1:2014
Diesel generator	C4. 84	28	103	100	104	98	97	93	84	75	102	108	BS 5228-1:2009+A1:2014
Diesel generator	C4. 86	28	106	99	94	90	87	83	84	77	94	107	BS 5228-1:2009+A1:2014
Water pump (diesel)	C4. 88	28	98	93	94	92	92	91	84	74	97	102	BS 5228-1:2009+A1:2014
Vibratory roller	C5. 20	28	118	110	101	100	98	93	87	82	103	119	BS 5228-1:2009+A1:2014
Road lorry (full)	C6. 21	28	124	110	102	101	105	100	99	92	109	124	BS 5228-1:2009+A1:2014
Tracked mobile drilling rig	C9. 3	28	105	111	110	112	113	113	112	107	119	120	BS 5228-1:2009+A1:2014
Excavator mounted rock breaker	C9. 12	28	119	117	113	117	115	115	112	108	121	125	BS 5228-1:2009+A1:2014
Tracked semi-mobile crusher	C9. 15	28	119	119	116	115	113	111	106	96	118	124	BS 5228-1:2009+A1:2014

Noise Source Library – Sound Power Levels

Name	BS5228 Reference	31.5	63	125	250	500	1k	2k	4k	8k	A	lin	Source
Rigid dump truck	C9. 17	28	114	117	116	116	114	111	104	98	119	123	BS 5228-1:2009+A1:2014
Lorry	C11. 14	28	121	107	104	102	101	100	97	94	107	121	BS 5228-1:2009+A1:2014
Dozer	C2.12		113	102	104	101	100	106	90	84	109	115	BS 5228-1:2009+A1:2014