

Land South of Runwell Road, Runwell, Wickford

Appellant's response to Inspector's Pre-Inquiry Note, 23rd October 2024

1. **Does a DC capacity of 24.6MW equate to an AC capacity of 49.9MW? If not, please explain the discrepancy.**
 - a) The Appellant has a secured grid connection offer which enables them to export up to 49.9MWac to the grid. The grid connection date is 2027.
 - b) On the land available to the Appellant within the appeal site, the scale of the proposed development is capable of generating 24.6MWdc.
 - c) The proposed development would utilise approximately half of the grid connection export capacity which is the maximum possible on the extent of the land available.
 - d) By comparison, *Fobbing* proposed a solar farm with an export capacity of 49.9MW which is double that proposed by the appeal scheme on a site of 158 hectares (*Core Document 6.30*). While at *Honiley Road* a solar farm with a similar export capacity to the appeal scheme of 23.1MW was sited on a 56ha site which is broadly similar to the extent of land available at the appeal site (*Core Document 6.34*). Both *Fobbing* and *Honiley Road* utilised a tracker system similar to that proposed in the appeal scheme.
 - e) The grid connection offer secured by the Appellant also allows for the co-location of the proposed battery storage facility which has an import and export capacity of up to 57MW.
2. **Does the 24.6MW DC capacity represent the combined capacity of all of the solar panels (the Combined Panels Method)?**
 - a) The proposed development using the Combined Panels Method would have a capacity of 24.6MWdc.
 - b) When the Appellant originally submitted the planning application, 570w panels was used as a candidate to calculate the capacity of the scheme. The appeal scheme proposes 43,246 panels and using 570w panels, the capacity was calculated as:
$$43,246 \text{ panels} \times 570\text{w} = 24.6\text{MW}.$$
 - c) This calculation comprises of all the solar panels proposed.
 - d) However, since the planning application was originally submitted, the efficiency of panels has increased with no physical change in appearance. At the time of preparing this note, there are panels available on the market up to 800w. With the same site area the Appellant could achieve approximately 34.5MW using the latest technology. It would be the Appellant's intention to make the best use of the land, and the grid connection available at the time the scheme is constructed.

- 3. EN-3 states (2.10.53) that the maximum combined capacity of the inverters (measured in AC) should be used for determining the solar site capacity (the Combined Inverters Method). What is the capacity for this development using the Combined Inverters Method?**
- a) The proposed development using the Combined Inverters Method would have a capacity of 24.7MWac.
 - b) This is calculated on the basis of 13no. inverters at 1.9MWa each = 24.7MWac installed.
- 4. The Appellants say that they are using the best available technology. Does that mean that the development utilises the lowest amount of area to produce the stated MW of export capacity?**
- a) The landscape of the site, namely the flat and long (in the north-south direction) fields, means that using single axis trackers result in an efficient use of the land. Being located in the south-east England, the site also benefits from good levels of irradiance, and sun altitude/elevation angle throughout the year which results in an uplift in electricity generation over alternative mounting systems.
 - b) Single axis trackers are also more resilient to extreme weather events such as high winds and snow, as the control system is able to adjust tilt of the panels to minimise the effect of these events. This result in a more reliable energy source for the grid.
 - c) While tracker systems take up more room due to wider spacing between rows to allow for shading, the yield is greater. The increased efficiency of single axis tracker systems therefore means that more energy can be generated from the same land area compared to an alternative system.
 - d) Furthermore, the operational hours of the solar farm are increased because trackers are able to produce more electricity in the mornings and evenings when demand is highest.
 - e) Therefore, the land available to the Appellant is of a scale necessary to deliver the capacity of the proposed solar farm when taking into account site constraints (these constraints are elaborated further at Q6).
- 5. Or, alternatively, does the site area allow a greater capacity. If that is the case, please address the implications of the Judgement: *R (on the application of Galloway) v Durham CC, 2024 WL 00710498 (2024)*. (Please also ensure this judgement is placed in the document library).**
- a) Galloway was a case about overplanting, because of the concerns that the Council had consented a scheme which had a capacity of greater than 50MW [6]. That is not applicable here since neither the AC not DC capacity of the scheme exceeds 50MW. It was also a case that was determined before the NPS were designated, and which helpfully clarified both the meaning and understanding of “overplanting” as a concept. The NPS has, as set out above, clarified at §2.10.53 that the maximum combined capacity of the installed inverters should be used for the purposes of determining solar site capacity. On the question of whether too much land is being used for the capacity of the solar farm, as explained above, the size of the appeal site is of a scale required to deliver the proposed solar farm and is of a similar scale to that at *Honiley Road* in terms of both site size and capacity of the solar farm.
 - b) EN3 sets out at §2.10.17 that “Along with associated infrastructure, a solar farm requires between 2 to 4 acres for each MW of output. A typical 50MW solar farm will consist of around 100,000 to 150,000 panels and cover between 125 to 200 acres. However, this will vary significantly

depending on the site, with some being larger and some being smaller. This is also expected to change over time as the technology continues to evolve to become more efficient. Nevertheless, this scale of development will inevitably have impacts, particularly if sited in rural areas."

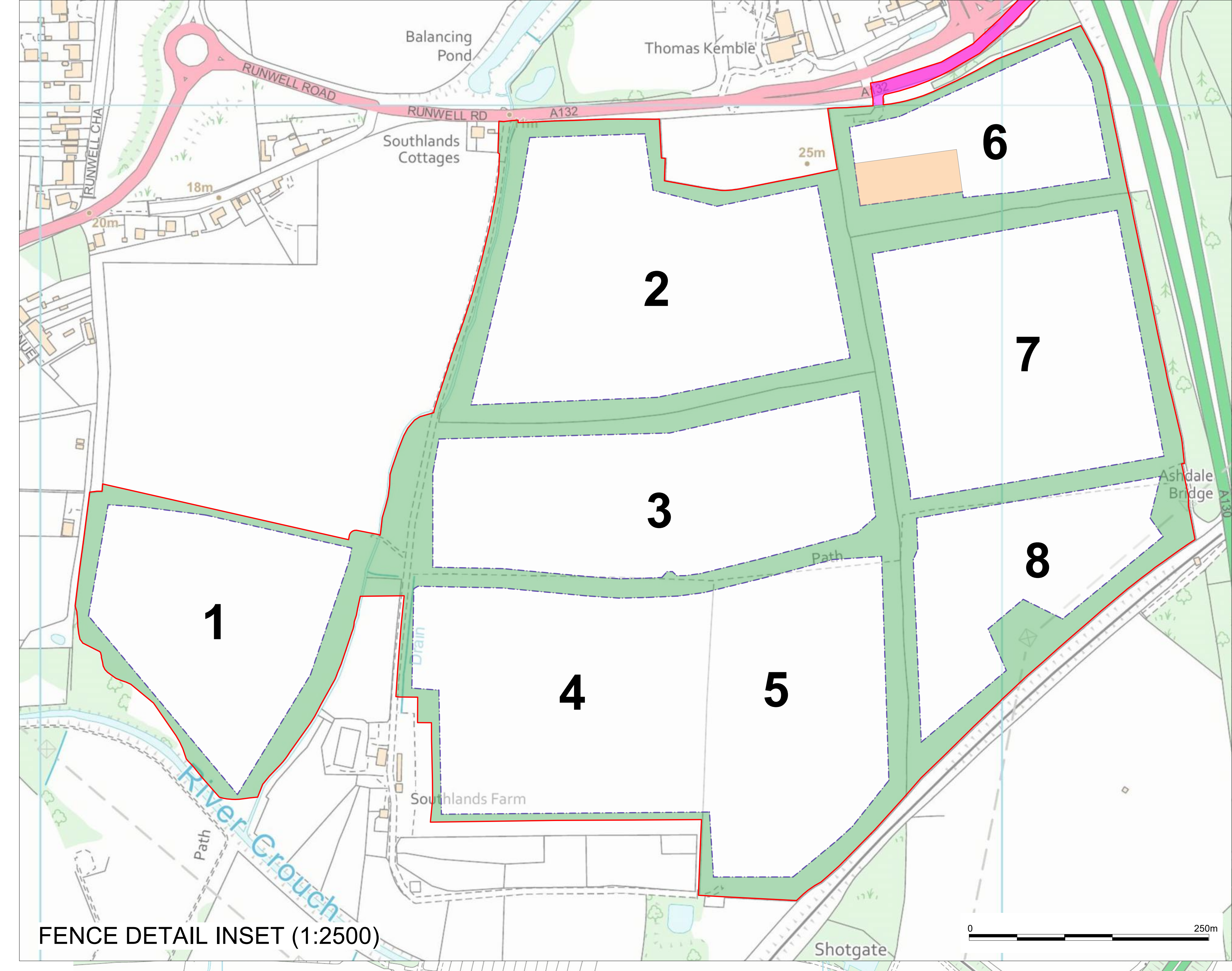
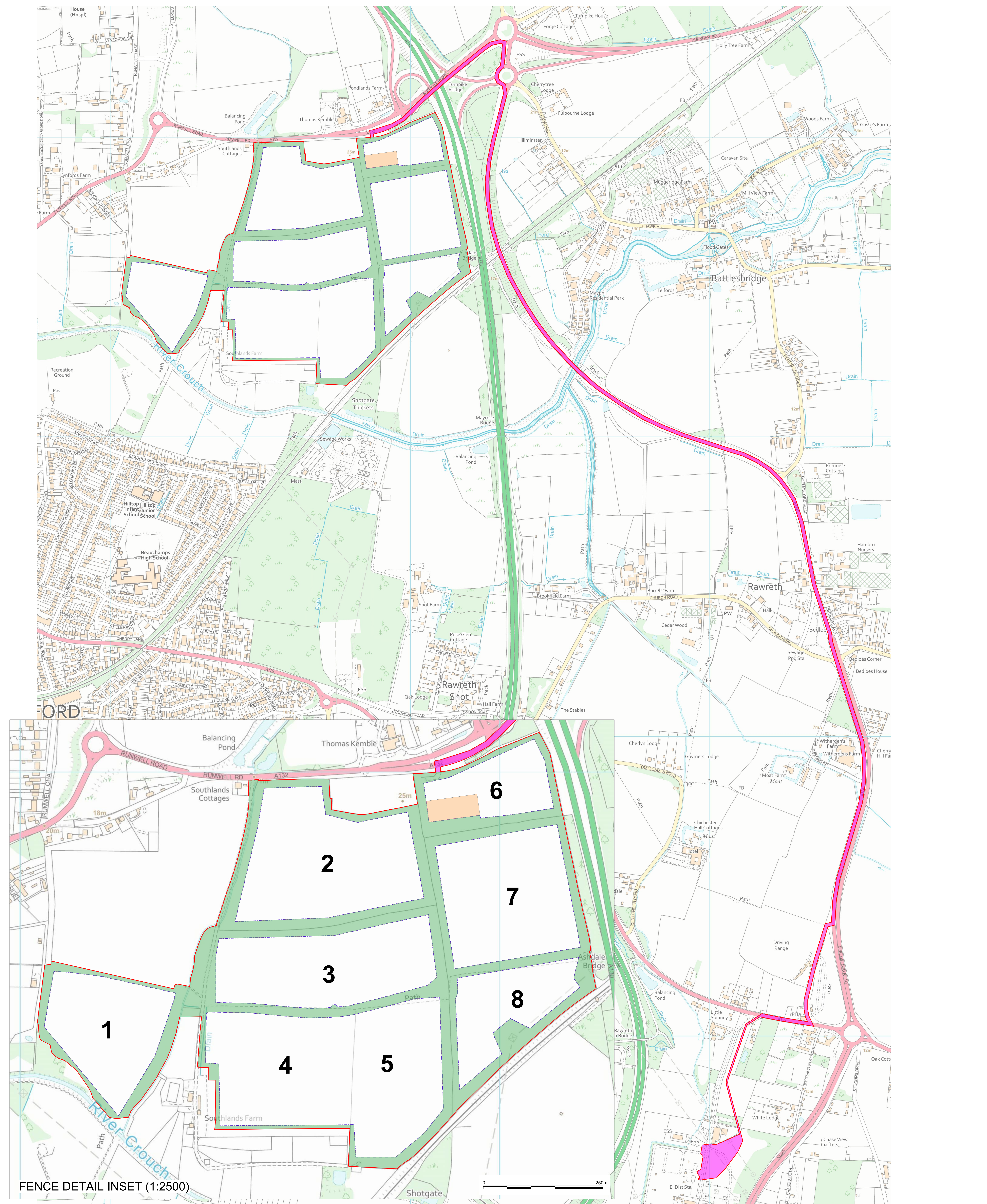
- c) The area actually covered by panels is 33.38ha – this excludes the area related to the battery storage element of the scheme. Accordingly, the scheme requires approximately 3.35 acres per MW of power generated, in line with EN-3¹.

6. Having regard to the site area figures, it would be helpful to the inquiry if the Appellants could produce a plan with annotated / tabulated breakdown of the site area in hectares. In particular, there appears to be a large difference between the 66 ha site area and the 37 ha 'within the fenceline'. It is difficult to see from the current information where the undeveloped 29 ha lies, so an explanation of this would be useful.

- a) The Appeal Site has a site area of 66.06ha and due to an error in measuring the 'built areas' within the 'fencelines', the figures provided to the LPA prior to the exchange of evidence were incorrect. The figures provided excluded development proposed within Field 2.
- b) The correct figures are provided below and shown annotated on the plans attached at Appendix 1.
- Red line site boundary = 66.06ha
 - Site area of development proposed within the fenceline of the 8 field parcels = 44.87ha
 - Site area of development accommodating solar panels = 33.38ha
 - Site area of development comprising the BESS facility = 0.48ha
 - Area outside of the fencelines within the appeal site, excluding the cable route = 14.12ha
 - Cable route from Runwell Road to the Rayleigh Substation = 7.07ha
- c) The area of land remaining within the appeal site outside the 'fenceline' of each field boundary therefore amounts to approximately 14ha. As shown on the Proposed Site Plan, the remaining land consists of offsets from field boundaries and pylons, existing vegetation, and the public right of way which traverses the site (*Core Document 1.6*). A treated water pipe also runs through the middle of the appeal site in an east-west direction through Fields 3 and 7, which has an easement. The route of the pipeline is shown on the drawing attached at Appendix 2. An appropriate allowance for the pipeline has been made in the proposed layout by excluding panels from this area.

¹ Appeal Scheme generates 24.6MW across 33.38ha (82.48 acres). This equates to approximately 3.35 acres per MW of power generated. For comparison EN-3 identifies a range of 125 acres to 200 acres for a 50MW scheme, which is between 2.5 and 4 acres per MW generated. The Appeal Scheme therefore would lie within the mid range.

APPENDIX 1 – SITE AREA PLANS



KEY

	Site Boundary (66.06ha)
	Security Fence (44.87ha)
	Area Outside Fence (14.12ha)
	Cable Route (7.07ha)
	Battery Storage/Substation (0.48ha)

Fence Areas:
1 - 4.96ha
2 - 7.91ha
3 - 6.61ha
4&5 - 12.15ha
6 - 2.92ha
7 - 6.83ha
8 - 3.49ha
Total - 44.87ha

Revisions:
First Issue- 24/10/2024 JS
01 - (25/10/2024 JS) Revised site areas and measurements
02 - (28/10/2024 JS) Page 2 added showing solar areas

N

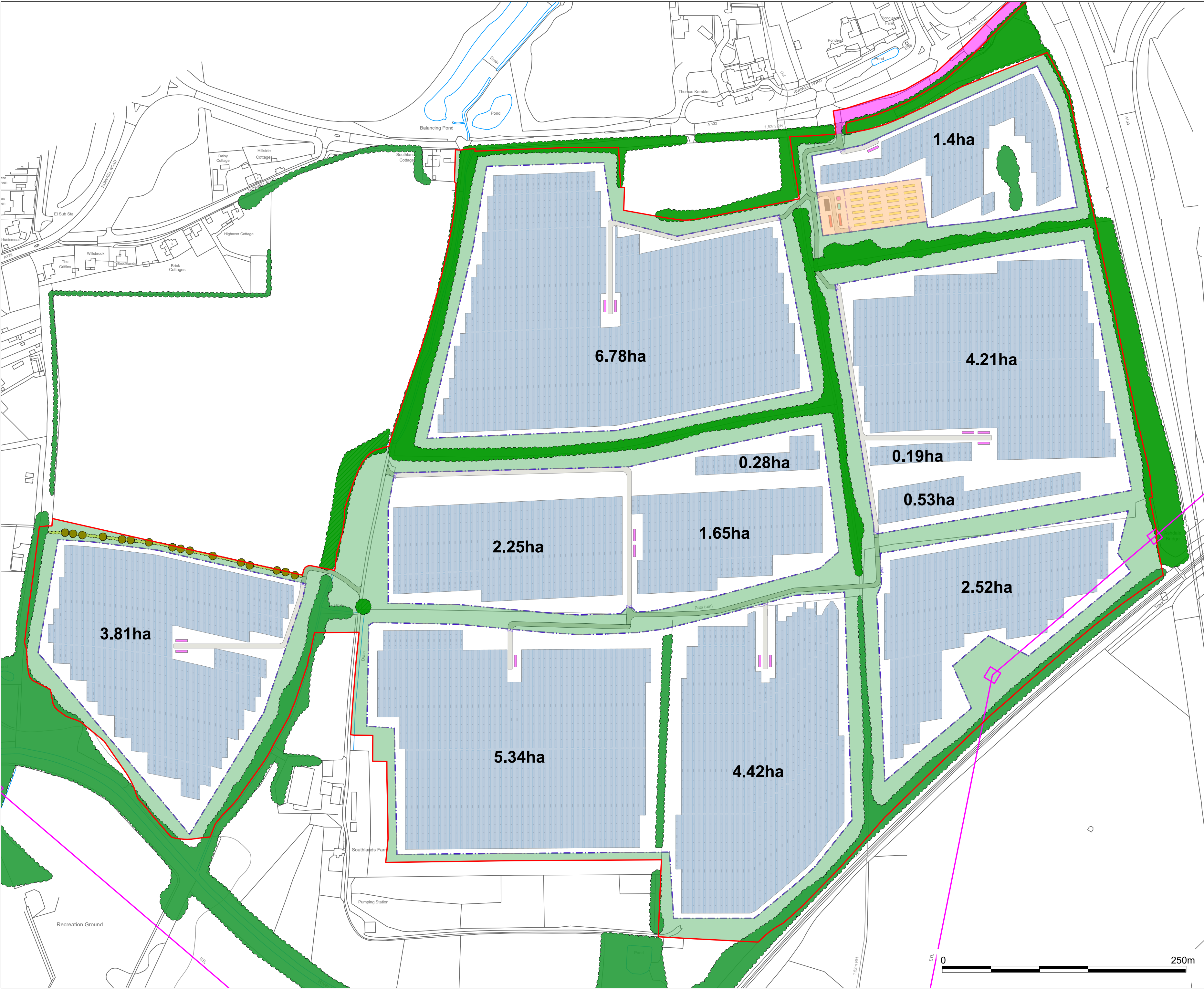
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ALL DIMENSIONS TO BE CHECKED ON SITE WORK TO FIGURED DIMENSIONS ONLY REPORT DISCREPANCIES TO THE GFP AT ONCE BEFORE PROCEEDING COPYRIGHT ACT APPLIES.

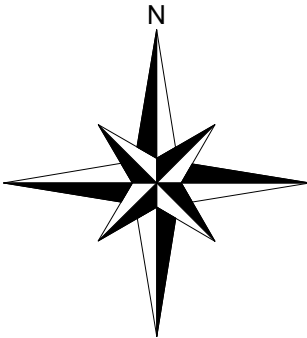
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Project Title: Southlands Solar Farm		
Drawing Title: Site Area Plan		
DRWG No: RC3-02-P23	Rev: 02	Sht no: 1/2
Drawn by : JS	Checked by: SC	
Scale: 1:4000 @ A0	Date: 28/10/2024	



- KEY**
- Site Boundary
 - Security Fence
 - Solar Area
 - Area Outside Fence
 - Battery Storage/Substation
 - Existing Vegetation
 - Proposed Hedgerow
 - Proposed Tree Planting
 - Existing Overhead Line



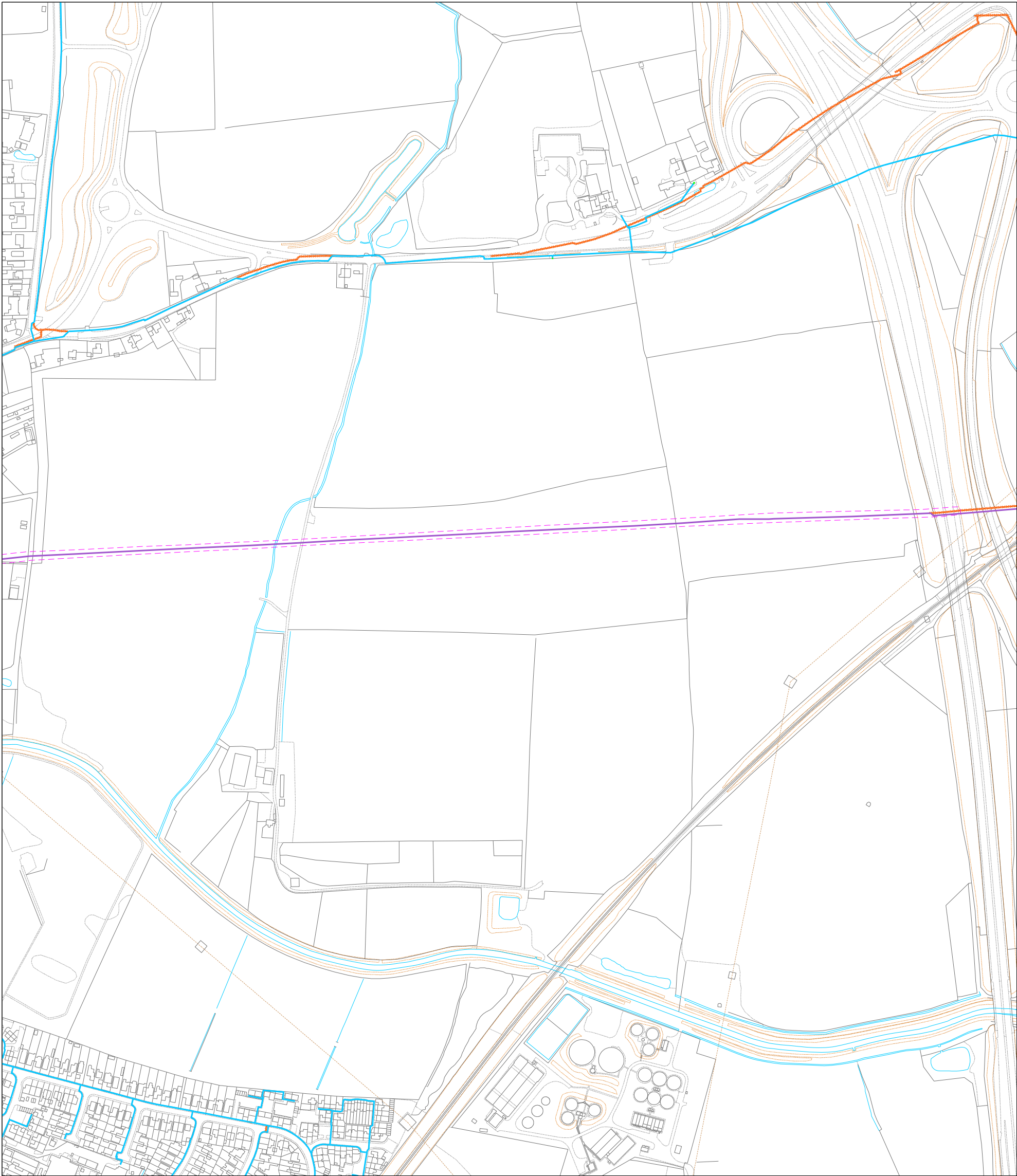
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Project Title: Southlands Solar Farm		
Drawing Title: Site Areas Plan		
DRWG No: RC3-02-P23	Rev: 02	Sht no: 2/2
Drawn by : JS	Checked by: SC	
Scale: 1:2500 @ A2	Date: 28/10/2024	

APPENDIX 2 – TREATED WATER PIPE PLAN



Valves/Regulators	Fittings/Symbols	Storage/Operations	Network Types	Specific Main Types	Area Types
P1 P2 P3 P4			Distribution Treated Raw Fire Supply	Abandoned Asbestos Abandoned Out of Commission Private Proposed	Water Quality District Metering Easement



User : FLETA
Title : G2706931-1
Centre Point : 576666,194565

Date : 16/12/2021
Map Sheet : TQ7694

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