SITE SELECTION ASSESSMENT

SITE SELECTION PROCESS

The site selection process for the proposed substation was strongly influenced by a range of 'user requirements' for TransGrid. The substation was required to be located adjacent to the upgraded 330kv TransGrid transmission lines in the ACT, and accessible for extension of the ActewAGL 132kv subtransmission lines. It also needed to be located in a general area which met the overall system reliability requirements. This dictated the broad location of the substation to be in the Williamsdale locality, in either NSW or the ACT.

Further refinement of the site selection was undertaken by TransGrid considering a range of factors including:

- line connection design requirements
- flora and fauna
- extent of clearing
- site slope
- visibility from the Monaro Highway and adjacent properties
- access from the highway
- distance from Murrumbidgee River
- bushfire threat
- existing land use
- water course
- future expansion (including line connections).

A total of 9 sites were considered for initial assessment (see below) with three of these sites being subject to further analysis. Details of the alternative sites are shown in the diagram below and the consideration of alternatives is summarised in Table A1.

Site 'F' was initially identified as the preferred site by TransGrid but further detailed site investigations highlighted that there are special environmental features on this site.

Site 'H' was also investigated and, while the environmental impacts could be minimised for this site, the impacts on the existing lessee were significant.

The final preferred site, which is the subject of this PA is Site 'I'. This site is considered to meet the user requirements of TransGrid for the Canberra region electricity network, minimise local environmental impacts and minimise impacts on adjoining land uses.

Sites 'A' and 'B', located in NSW, were eliminated early in the site selection process due to poor site conditions for the substation and delivery requirements for the transformers.

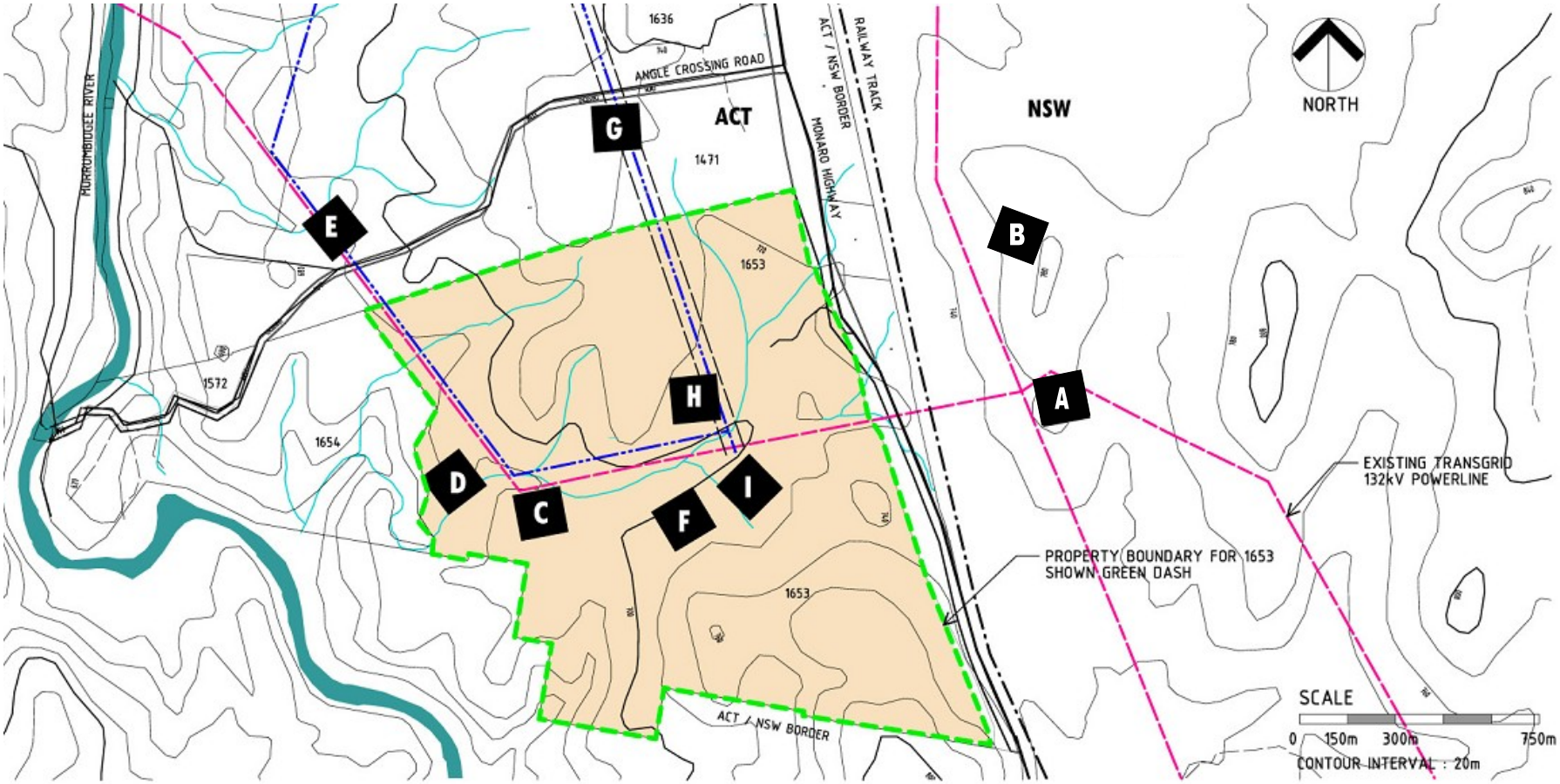
1636
ANGLE CROSSING ROAD
ACT
NSW
NORTH
MURRUMBIDGEE RIVER
RAILWAY TRACK
ACT / NSW BORDER
MONARO HIGHWAY
1471
1653
1572
1654
G
E
B
A
H
D
C
F
I
EXISTING TRANSGRID
132kV POWERLINE
PROPERTY BOUNDARY FOR 1653
SHOWN GREEN DASH
ACT / NSW BORDER
SCALE
0
150m
300m
750m
CONTOUR INTERVAL : 20m

Table A1 Substation Site Selection Assessment Summary

	ITEM	SITE A	SITE B	SITE C	SITE D	SITE E	SITE F	SITE G	SITE H	SITE I
1	Slope	3 Moderate to steep slope – not ideal.	4 Moderate slope – suitable.	2 Moderate to steep slope – not ideal.	1 Steep slope – unsuitable.	1 Steep slope – unsuitable.	5 Moderate slope - suitable	5 Moderate slope - suitable	3 Moderate to steep slope - would require significant benching	5 Moderate slope - suitable
2	Line connection	1 Multiple crossings of Monaro Highway required. ActewAGL connection into NSW complicated.	1 Not readily connected due to distance from terminal structure. ActewAGL connection into NSW complicated.	5 Readily connected	5 Readily connected	2 Not readily connected due to distance from terminal structure.	4 Line connection of 132kV good. 330kV connection may require new towers to avoid existing woodland.	1 Not readily connected due to distance from existing line – costly.	2 Site is to north of existing line and is difficult to connect 330kV lines requiring new towers to be constructed. ActewAGL lines may be difficult.	4 Line connection of 132kV good. 330kV connection may require new towers to avoid existing woodland.
3	Access (including transformer)	1 Direct access not possible. Access from Williamsdale road possible after 2.5km road upgrade, rail crossing and new 1.5km access road.	1 Access possible from Williamsdale road after 2.5km upgrade, rail crossing and new 1.5km substation access road.	3 Access possible from Monaro Highway, but long and steep in sections – not ideal	3 Access possible from Monaro Highway, but long and steep in sections – not ideal	1 Access from Angle Crossing Road difficult. Steep sections would require significant civil work.	4 Good access from Monaro Highway – 600m of road to be constructed.	5 Good access from Angle Crossing Road	3 Access difficult – requires either demolition of house or significant road construction over creeks.	5 Good access from Monaro Highway
4	Visibility	1 Highly visible from Monaro Highway– not possible to adequately mitigate. Line connections of both utilities highly visible.	3 Not visible from Monaro Highway. Visible from lightly populated areas. Line highly visible.	3 Partially visible from Murrumbidgee River	3 Partially visible from Murrumbidgee River	1 Highly visible from Murrumbidgee River & Angle Crossing Road.	5 Not visible from Monaro Highway or Murrumbidgee Corridor	1 Highly visible from Angle Crossing Road.	1 Highly visible from Nash property and Monaro Highway	5 Partially visible from Monaro Highway. Not visible from Murrumbidgee Corridor
5	Bush Fire	4 Moderate risk area, within 280m of Monaro Highway.	4 Moderate risk area. Scattered large trees.	1 High risk area - unsuitable	1 High risk area - unsuitable	3 Moderate to high risk due to steep slope.	3 High risk area – can be treated by bush fire management and creating buffer zone.	5 Low risk of bush fire.	5 Low risk of bush fire.	3 Moderate to high risk due to proximity to nearby woodland.
6	State of clearing	3 Predominantly regrowth with some mature trees – not ideal.	3 Scattered large trees – not ideal.	1 Partially wooded – not ideal	1 Partially wooded – not ideal	3 Partially cleared.	3 Partially cleared.	3 Partially cleared.	5 Cleared.	3 Partially cleared.

	ITEM	SITE A	SITE B	SITE C	SITE D	SITE E	SITE F	SITE G	SITE H	SITE I
7	Flora & fauna	4 Tableland Gum Woodland, with quite dense canopy in places - predominantly regrowth with some mature trees.	3 Box Gum Grassy Woodland EEC with mainly Yellow Box and Apple Box trees – in poor condition due to grazing	1 Partially in nature reserve – unsuitable.	1 Partially in nature reserve – unsuitable.	1 Partially in nature reserve – unsuitable.	3 Yellow box area, but in cleared area. Impacts on Box Gum Woodland herbs and forbs.	5 Rural landscape. No obvious impacts.	4 No impact from substation. Line configuration may require tree clearing.	3 Partial impact on yellow box area, but in cleared area. Lesser impacts on Box Gum herbs and forbs.
8	Existing land use	3 Grazing.	3 Grazing	1 Partially in nature reserve – unsuitable.	1 Partially in nature reserve – unsuitable.	1 Partially in nature reserve – unsuitable.	5 Low intensity grazing – preferred.	1 Intensive grazing	1 Intensive grazing	5 Low intensity grazing – preferred.
9	Water course	5 Clear of watercourse.	5 Clear of watercourse	3 Clear, but close to escarpment above Murrumbidgee	3 Clear , but close to escarpment above Murrumbidgee	3 Clear of watercourse, but close to escarpment above Murrumbidgee	5 Clear of watercourse	5 Clear of water course	3 Access road could impact water course if existing dwelling preserved (i).	5 Clear of water course
10	Future second 330kV Transmission Line Works(iii)	1 Future expansion difficult - significant benching. Nature reserve immediately to the east would restrict line route.	1 Future expansion possible - clearing of woodland. Nature reserve immediately to the east would restrict line route.	3 Future expansion possible would require significant benching and clearing.	3 Future expansion possible would require significant benching and clearing.	1 Future expansion possible would require significant benching and clearing on steep slope.	3 Future expansion possible, but would require clearing of native woodland or creation of separate bench.	3 Future expansion possible. May require some clearing of woodland.	3 Future expansion possible, but would require extensive benching, and many additional towers (ii).	3 Future expansion possible, but would require clearing of native woodland or creation of separate bench.
	Ranking	6th	5th	7th	8th	9th	2nd	3rd	4th	1st

Scoring is as follows: 5=good 3=adequate 1=poor

(i): For transformer delivery, two possible delivery routes exist:

(1) Direct from the Monaro Highway, through existing lessee dwelling

(2) Extensive civil works to build up access road on either side of main creek, may require partial filling of dam.

(ii): See also Items 2 & 3.

(iii): This is required under the Utilities Exemption 2006 (No 1) Disallowable Instrument DI2006-47 made under the ACT Utilities Act 2000, refer Table 1. By 2012 there must be capacity to supply 375MVA immediately following a special contingency event (Column 4). This can only be achieved with a second 330kV supply to Williamsdale.

Source: TransGrid 2006