

Our Reference: NA231578
 Your Reference:

Level 8,
 55 Market Street,
 Sydney NSW 2000

13 Nov 2025

PO Box Q577
 Queen Victoria Building NSW 1230

Greater Sydney Parklands
 10 Darcy Street
 PARRAMATTA NSW 2150

T 02 9438 5098

Attention: Callantha Brigham

Dear Callantha,

**Re: SSD-73761707 Glendenning Road Data Centre – 2 Glendenning Road, Glendenning NSW
 Response to Stormwater Matters Raised by Greater Sydney Parklands**

Further to the Greater Sydney Parklands (GSP) Advice letter dated 30 June 2025 relating to the Environmental Impact Statement (EIS) submitted for the above State Significant Development Application (SSDA), this technical memorandum has been prepared by ACOR Consultants Pty Ltd (ACOR) to respond to stormwater matters within the GSP advice letter.

The stormwater matters that have been raised within the GSP advice letter are the following:

Stormwater drainage

While the site is in a location that is exempt from stormwater detention under Council’s controls, further information is requested on the existing and future quantity and quality of overland flow to avoid impacts on Western Sydney Parklands.

ACOR Response:

(A) Stormwater Quality

Stormwater quality improvement for the proposed development will be improved by provision of a treatment train integrated into the stormwater system to satisfy Blacktown City Council Water Sensitive Urban Design (WSUD) objectives.

Blacktown City Council’s WSUD Developer Handbook requires stormwater quality control on-lot, which must comply with the target water quality pollutant removal rates which is summarised in the table below.

POLLUTANT	REDUCTION OBJECTIVE
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	65%
Total Nitrogen (TN)	45%
Gross Pollutants (GP)	90%

Additionally, Council's *WSUD Developer Handbook Section 3.4* requires industrial sites to provide a rainwater reuse system to supply a minimum 80% of the non-potable reuse demand for the site.

The stormwater treatment train for the development has been divided into two different treatment train sub-catchments, outlined as follows:

- WSUD Treatment Train 1: DC01, DC02 and DC03 roof, roads, hardstands and landscape areas draining to Eastern Creek including existing and re-vegetated areas which bypass the stormwater quality treatment train at low-lying areas of the site.
- WSUD Treatment Train 2: main entry driveway draining to Glendenning Road due to site level constraints. WSUD treatment train 2 includes driveway and landscape areas which bypass the stormwater quality treatment train at low-lying areas along the Glendenning Road frontage.

Each treatment train is to consist of:

- WSUD Treatment Train 1
 - 3 x 100 kL effective capacity rainwater tanks (1x 100kL per building)
 - Each rainwater tank will have an additional 10% capacity to account for anaerobic zones and a tank air gap.
 - 70 x OceanGuards by Ocean Protect, located in grated stormwater pits
 - 140 x 690 ZPG StormFilters by Ocean Protect
- WSUD Treatment Train 2
 - 5 x OceanGuards by Ocean Protect

A MUSIC model has been developed to demonstrate that the Blacktown City Council pollutant reduction targets have been satisfied. Results of the MUSIC model are shown in the table below.

	SOURCE LOAD	RESIDUAL LOAD	% ACHIEVED REDUCTION	% REQUIRED REDUCTION
TSS (kg/yr)	7,850	1,080	86.3%	85%
TP (kg/yr)	15.3	5.35	65.0%	65%
TN (kg/yr)	108	57.8	46.5%	45%
Gross Pollutants (kg/yr)	1,210	5.79	99.5%	90%

We note that the existing site condition does not currently include any stormwater treatment measures, and thus the proposed development represents a net improvement in stormwater quality that will be discharging into the downstream receiving drainage channel which drains into Eastern Creek east of the site.

Further details regarding the WSUD strategy are detailed in the ACOR Civil and Stormwater SSSA Design Report (ref: GRDC86-XX-XX-RP-C-0001) included in the SSSA submission.

(B) Stormwater Quantity and Overland Flow

The proposed stormwater outlets for the site can be summarised as:

- i. North-East Stormwater Outlet – discharging piped flows into the Northern Drainage Channel which transform into overland flows through the existing drainage channel that extends into GSP land and into Eastern Creek; and
- ii. South-East Stormwater Outlet – Overland flow cutoff swale within the Endeavour Energy easement which connects to the existing overland flow path through GSP land and into Eastern Creek.

(i) North-East Stormwater Outlet

The trunk drainage channel along the northern site boundary has been confirmed with Blacktown City Council as the legal point of discharge for the site stormwater system.

The north east stormwater outlet will discharge via a headwall and scour protection to the northern drainage channel. The position of this outlet is to minimise impact to existing trees whilst keeping the outlet and scour protection within the subject site lot boundaries.

The scour protection length and rock sizing for the north-east stormwater outlet has been designed to reduce outflow velocity to less than 1.0 m/s in accordance with Blacktown Council requirements. This will protect the downstream environment from scouring and erosion.

In regard to overland flows generated from the proposed development and north-eastern headwall discharge, the Eastern Creek Catchment Development Scenario Hydraulic Assessment (Blacktown City Council, 2016) report was reviewed for the site location to determine the flood affectation and characteristics near the site.

Flood mapping undertaken for existing conditions as part of the Eastern Creek Catchment Development Scenario Hydraulic Assessment (Blacktown City Council, 2016) show that the 1% AEP and 0.2% AEP flood events do not directly impact the site. In these events, flood water is contained within the drainage channel to the north of the lot and in Eastern Creek (external to the lot) to the east.

The Eastern Creek Catchment Development Scenario Hydraulic Assessment indicates that there is sufficient capacity of the existing drainage channel to the north of the site to convey the 1% AEP and 0.2% AEP flows from the upstream catchment including the proposed development.

Whilst there will be an increase in peak flow rate from the site due to an increase in impervious area by the development, the Eastern Creek Catchment Development Scenario Hydraulic Assessment indicates that there is sufficient capacity to contain flows, particularly as the flood modelling undertaken does not include provision for on-site detention (OSD) for the site as part of the flood model.

The 1% AEP and 0.2% AEP flood maps from the Eastern Creek Catchment Development Scenario Hydraulic Assessment are shown below:

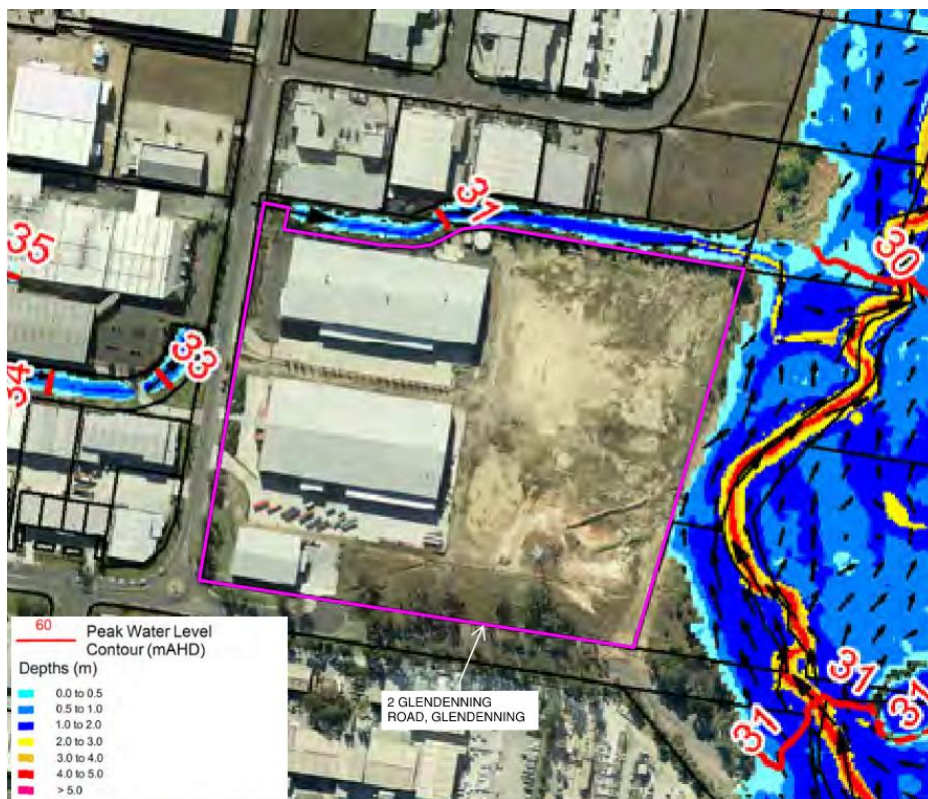


Figure 1 Existing conditions 1% AEP flood levels and depths (extracted from Blacktown City Council, 2016)

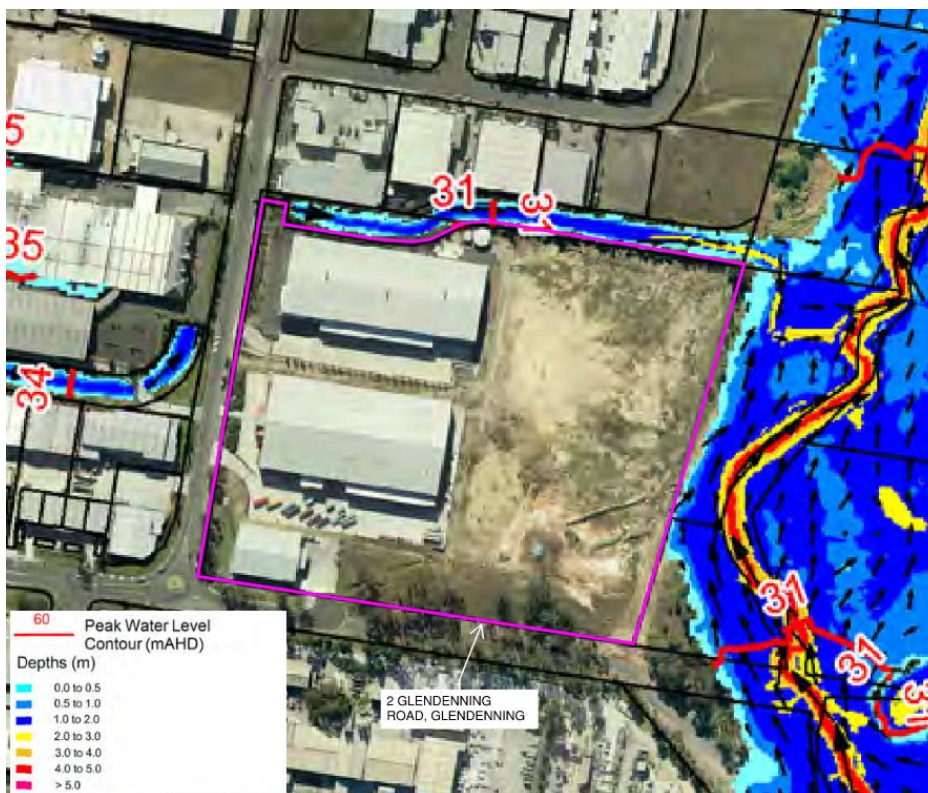


Figure 2 Existing conditions 0.2% AEP flood levels and depths (extracted from Blacktown City Council, 2016)

Impacts to the GSP land directly to the east due to any increase in site flows will be negligible as it represents a small fraction of total flows from the upstream catchment.

Thus we consider that the position of the north-east stormwater outlet and the overland flows generated through the existing drainage channel to have negligible impact to the existing overland flow paths through GSP land.

A detailed flood impact assessment of this flood report is contained within the ACOR SSDA Flood Impact Assessment Report (ref: GRDC86-XX-XX-RP-C-0002).

(b) South-East Stormwater Outlet

The south-eastern drainage outlet is conveying overland flows from the southern upstream undeveloped land and Woodstock Avenue along the Endeavour Energy easement. The swale drain has been provided with scour protection to reduce flow velocity to acceptable levels (<1.0 m/s) to avoid scouring of existing pervious surfaces and the maintenance trail used by Endeavour Energy.

We note that this scour protection was discussed with Endeavour Energy as part of consultation to demonstrate negligible impact to their access route and infrastructure. This assessment would also apply to GSP land, as the proposed scour protection and swale outlet would spread flows to discharge to the existing overland flow path which promotes sheet flow to the Eastern Creek riparian corridor.

Correspondence with Endeavour Energy regarding the endorsement of this swale drain is included as Appendix A to this letter.

Thus based on the above assessment and consultation undertaken to date, we consider that appropriate methods have been undertaken to manage overland flow velocity to prevent erosion of the downstream environment, and maintaining existing flow paths within Endeavour Energy easements and GSP land.

Should further clarification of the above responses be required, we would be pleased to discuss with GSP at a subsequent date.

Yours faithfully,

ACOR CONSULTANTS PTY LTD



Matthew Buttarelli
Project Director & Principal Civil Engineer

Encl. Appendix A – Endeavour Energy Endorsement of Swale Drain

Appendix A – Endeavour Energy Endorsement of Swale Drain

From: Jeff Smith <Jeffrey.Smith@endeavourenergy.com.au>
Sent: Wednesday, 7 August 2024 10:31 AM
To: Noor, Mufrat <mufrat@amazon.com>
Cc: Kek Tang <Kek.Tang@endeavourenergy.com.au>; Nuner, Kevin <kvnuner@amazon.com.au>; DSouza, Priya <dsopriya@amazon.com>
Subject: RE: [EXTERNAL] 2 Glendenning Road, Glendenning

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Dear Mufrat,

Thank you for your email.

RE: LOT 2 DP1137162 HN 2 GLENDENNING ROAD, GLENDENNING.

Endeavour Energy has now assessed the attached plans for works within it's Transmission Easement, at the abovementioned address.

As of such, Endeavour Energy has No Objections to the proposal but subject to the following conditions:

- That the excess water runoff through the scour protection must be controlled, as not to cause future erosion of the adjoining access track.
- That full access is available for Endeavour Energy Vehicles (which can weigh up to 30tonnes) through the easement adjacent to the swale and scour protection area.
- No encroachment into the Transmission Easement will be permitted within 10metres of the closest steel structure and 5metres of the closest pole.
- That the driveway from Glendenning Road into the easement will allow Endeavour Energy's Vehicles, including Cranes, EWP's etc. to travel through without any hindrance.

For any ground level changes within Endeavour Energy's Transmission Easements, a detailed report from a Level 3 Accredited Service Provider (ASP) must be obtained.

This report must confirm that all the work performed within the easement and in close proximity of our infrastructure complies to Endeavour Energy's Standards.

The ASP may require a Centre-Line-Profile to determine if the ground level changes are acceptable within the easement.

If you require any further information, please do not hesitate to contact me.

Regards

Jeffrey Smith | Easement Management Officer – Property Services.

Easements@endeavourenergy.com.au

PO Box 811 Seven Hills NSW 1730

endeavourenergy.com.au



Teams: 0408665193



Endeavour
Energy

POWER
together



Endeavour Energy respectfully acknowledges the Traditional Custodians on whose lands we live, work, and operate and their Elders past, present and emerging.

From: Noor, Mufrat <mufrat@amazon.com>

Sent: Friday, August 2, 2024, 4:18 PM

To: Jeff Smith <Jeffrey.Smith@endeavourenergy.com.au>

Cc: Kek Tang <Kek.Tang@endeavourenergy.com.au>; Nuner, Kevin <kvnuner@amazon.com.au>; DSouza, Priya <dsopriya@amazon.com>

Subject: RE: 2 Glendenning Road, Glendenning

Hello Jeff,

Thank you for your response.

The proposed grass swale through the Endeavour easement has been sized to convey the 1% AEP flows which have been estimated to be 0.93m³/s based on the upstream catchment size. For the 1% AEP, the grassed swale has a flow depth of 375mm and a velocity of 1.3m/s prior to the scour protection.

We have relocated the swale scour protections further to the west, so that the scour protection tail out is upstream to the existing 1V:6H vegetated batter.

The scour protection has been sized to spread the flows from the swale and reduce the velocities prior to travelling over the 1V:6H batter. The scour protection has been sized based on the *Catchments and Creeks* Publications, which we consider to be best practice.

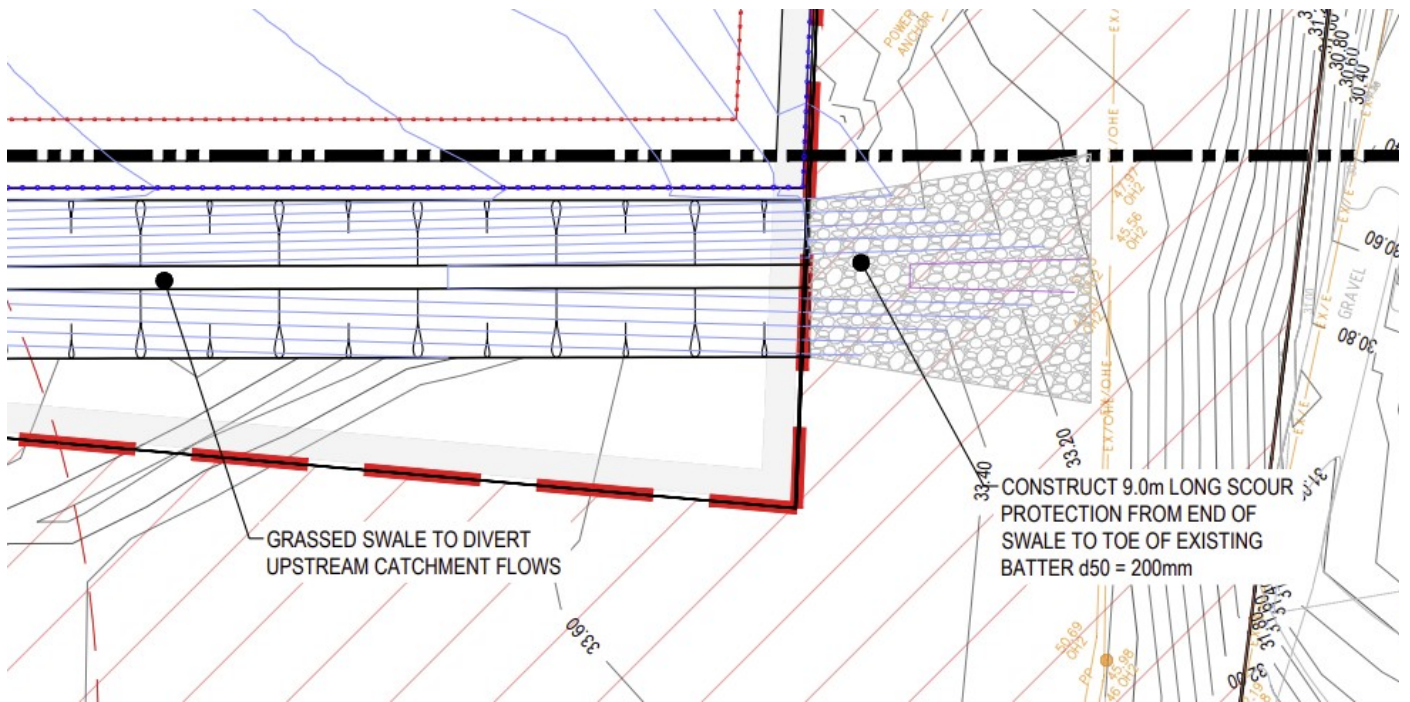
The maximum outlet velocity at the end of the scour protection is **1.0m/s** for a partially vegetated batter of approx. 15% slope (ref: *Grass Linings – Drainage Control Techniques* by Catchments & Creeks)

- Recommended mean rock size (d50) for scour protection is 200mm
- Minimum length of scour protection required is 3.0m for a maximum depth 375mm swale (refer to Table 4 below)
- Actual scour protection length provided = 9.0m

Table 4 – Minimum length (L) of rock pad relative to cell height (H) for culvert outlet protection^[1,2]

Outflow velocity (m/s)	Culvert height or pipe diameter (mm)						
	300	375	450	525	600	750	900
0.50	3	3	3	3	3	3	3
1.00	3	3	3	3	3	3	3
1.50	3	3	3	3	3	3	3
2.00	3	3	3	3	3	3	3
2.50	3	3	3	3	3	3	3
3.00	3	3	3	3	3	3	3
3.50	3	3	3	3	3	4	4
3.75	3	3	3	3	4	4	4
4.00	3	3	3	4	4	4	4
4.25	3	3	4	4	4	4	4
4.50	3	4	4	4	4	4	4
4.75	3	4	4	4	4	4	5
5.00	4	4	4	4	4	4	5
5.25	4	4	4	4	4	5	5
5.50	4	4	4	6	6	6	6
5.75	4	4	6	6	6	6	6
6.00	4	6	6	6	6	6	6

The scour protection to be provided is shown in the image below and will reduce the flow velocities sufficiently to ensure that erosion downstream is not an issue. An updated civil works sketch can be resubmitted as required to reflect the below change in outlet structure.



In addition, the image below shows the 1% AEP flood extents from Council's flood mapping information. The existing easement access track is flooded during the 1% AEP storm events.



Site area flood results

Existing conditions
 1% AEP water level (m AHD)
 (0.1% AEP extents similar)

Have a great weekend and please let me know should you have any queries.

Regards,



Mufrat Noor
 DC Civil Engineer (APAC)
 Amazon Web Services
 e: mufrat@amazon.com
 m: +61 478 035 255

From: Jeff Smith <Jeffrey.Smith@endeavourenergy.com.au>
Sent: Monday, 22 July 2024 3:41 PM
To: Noor, Mufrat <mufrat@amazon.com>
Cc: Kek Tang <Kek.Tang@endeavourenergy.com.au>
Subject: RE: [EXTERNAL] 2 Glendenning Road, Glendenning [Filed 24 Jul 2024 12:09]

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Dear Mufrat,

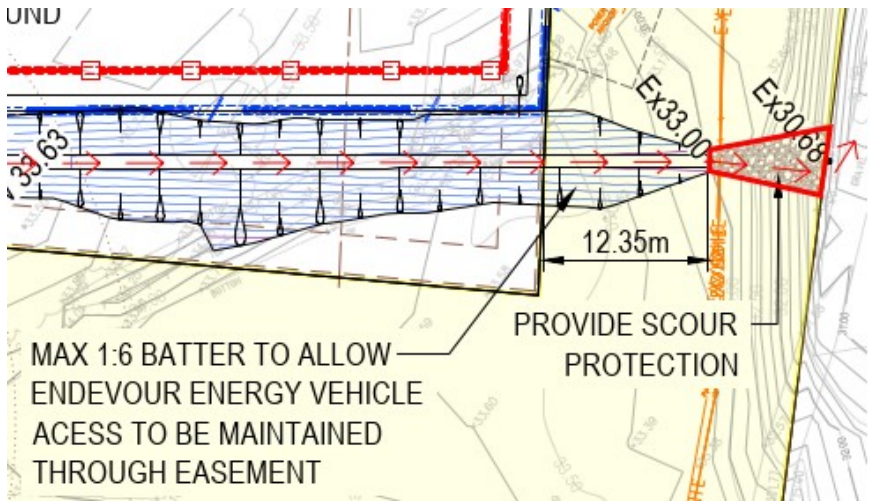
Thank you for your email.

RE: LOT 2 DP1137162 HN 2 GLENDENNING ROAD, GLENDENNING.

Endeavour Energy has identified that we have an easement access track located on the adjoining property as indicated below.

How will the excess water runoff through the scour protection be controlled, as not to cause future erosion of the track.

This track is used by multiple utility and emergency service organisations.





Regards

Jeffrey Smith | Easement Management Officer – Property Services.

Easements@endeavourenergy.com.au

PO Box 811 Seven Hills NSW 1730

endeavourenergy.com.au



Teams: 0408665193



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Endeavour Energy respectfully acknowledges the Traditional Custodians on whose lands we live, work, and operate and their Elders past, present and emerging.

From: Noor, Mufrat <mufrat@amazon.com>

Sent: Friday, 12 July 2024 4:33 PM

To: easements@endeavourenergy.com.au

Cc: Nuner, Kevin <kvnuner@amazon.com.au>; Shayegan, Paul <mrpauls@amazon.com>; DSouza, Priya <dsopriya@amazon.com>; Matthew Buttarelli <MButtarelli@acor.com.au>

Subject: 2 Glendenning Road, Glendenning

Hello,

Hope this email finds you well. We are undertaking a project at 2 Glendenning Road and are seeking feedback on some minor works being completed as part of the project detailed below.

SHEET 1

- We are proposing a cut off drain that extends from west and continues east towards Eastern Creek. The cut off drain is initially a small v-drain (Section C) to be constructed within the existing pavement and subsequently transitions to a channel (Section D) where the concrete portion of the easement finishes. This channel continues along the north of the existing pylons where a new retaining wall is proposed (height subject to detailed design).
- We note that the existing clear height to the overhead transmission lines will not be impacted and a 10m offset radius from each stanchion of the eastern pylon has been maintained

SHEET 2

- The driveway from Glendenning Road into the easement area has an existing width of 9.00m which is being reduced to 7.35m
- A swept path has been undertaken using a 10.5m vehicle as presented in the sketch

Input required from Endeavour Energy

- We are seeking feedback from Endeavour Energy on the above works within the easement to 1/ create and v-drain within the pavement which transitions to an open channel and 2/ reduce the width of the existing driveway.

Please let me know if you have any questions or require any further information.

Many thanks,



Mufrat Noor
DC Civil Engineer (APAC)
Amazon Web Services
e: mufrat@amazon.com
m: +61 478 035 255

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