


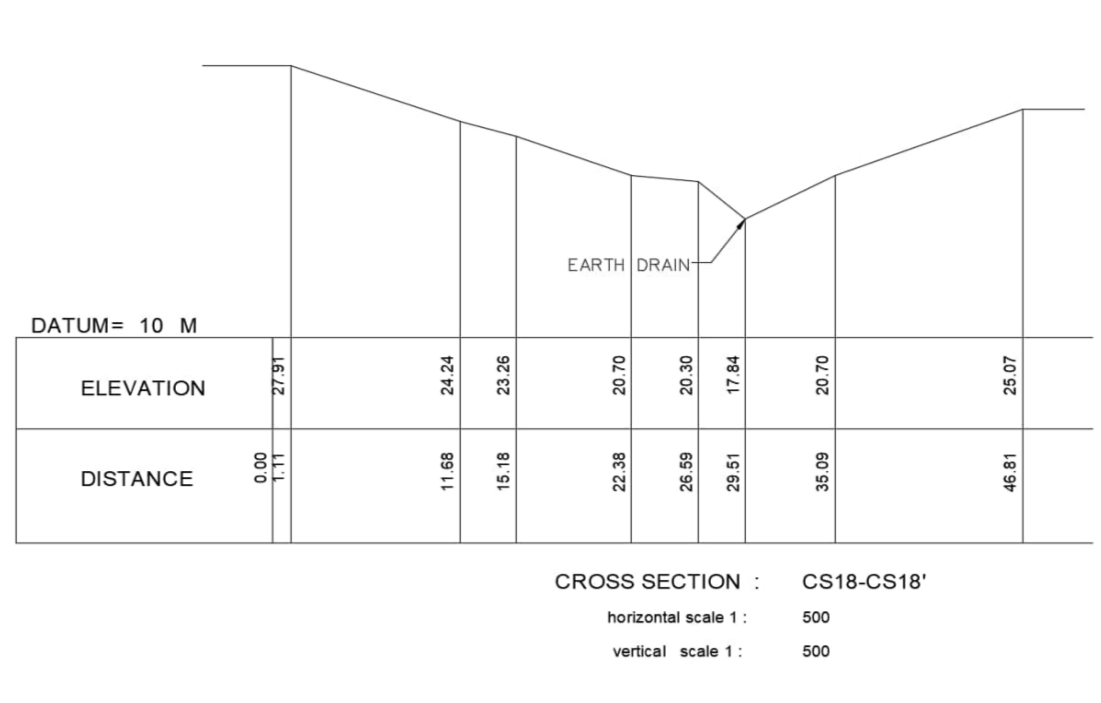



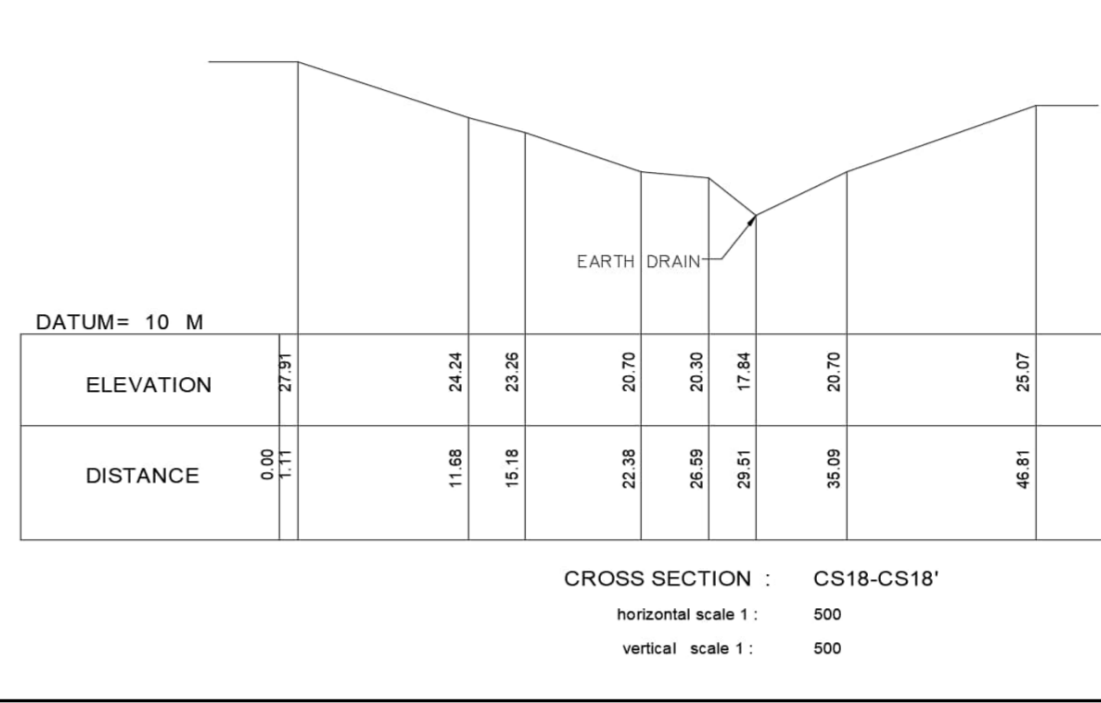



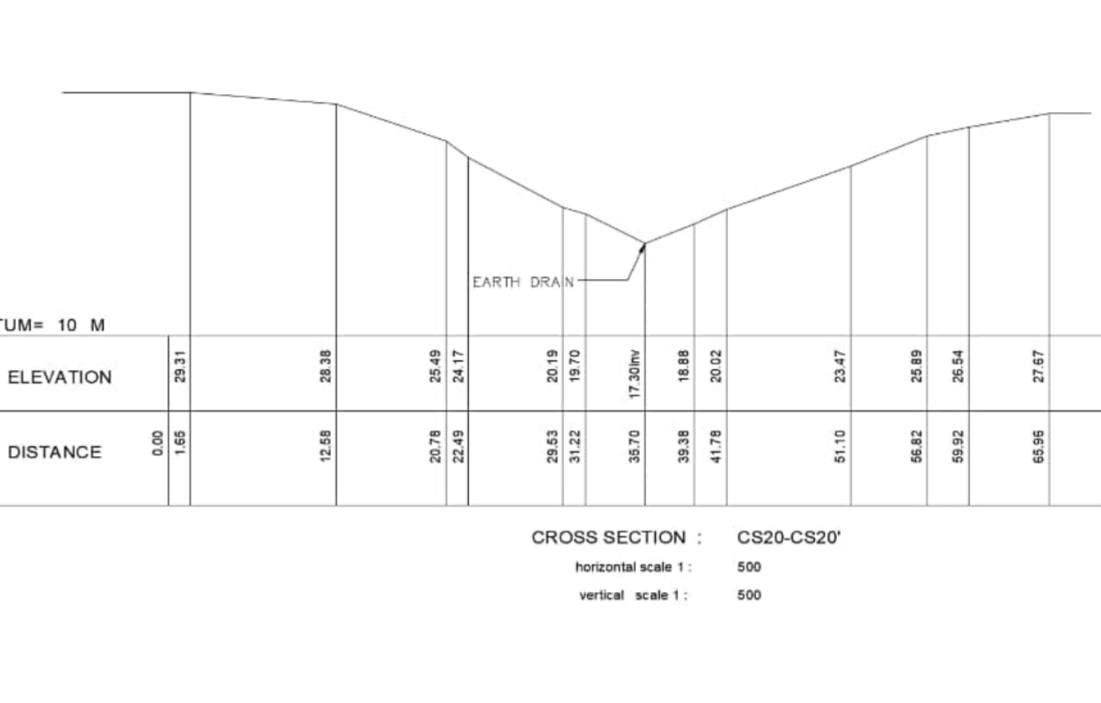



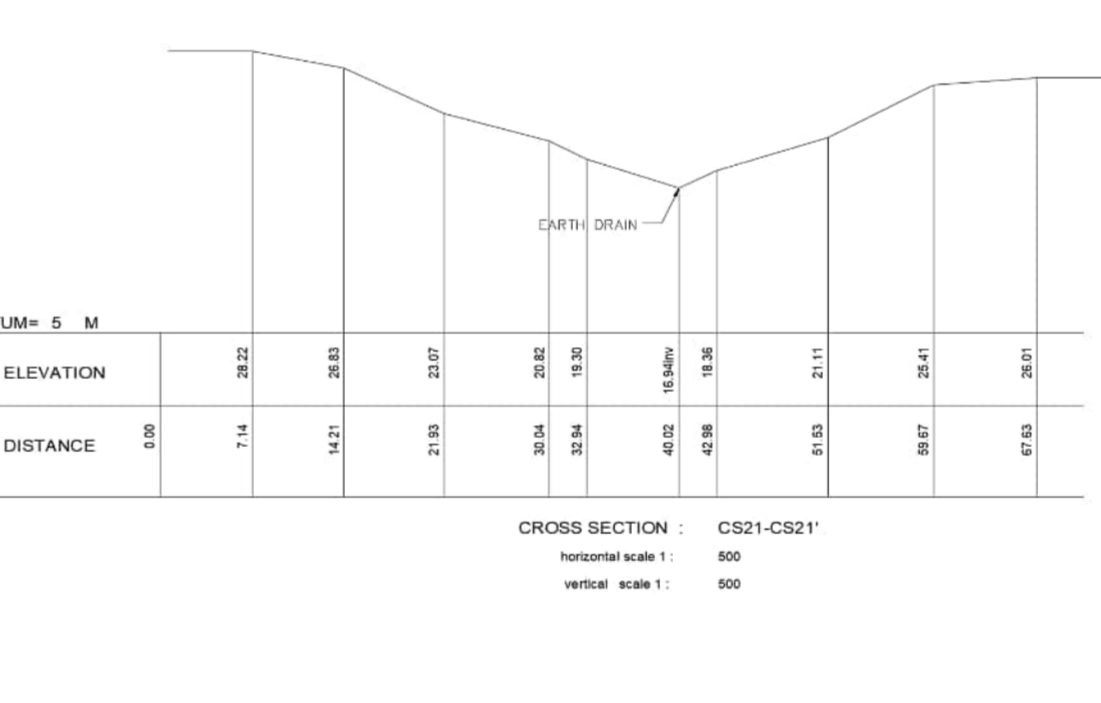



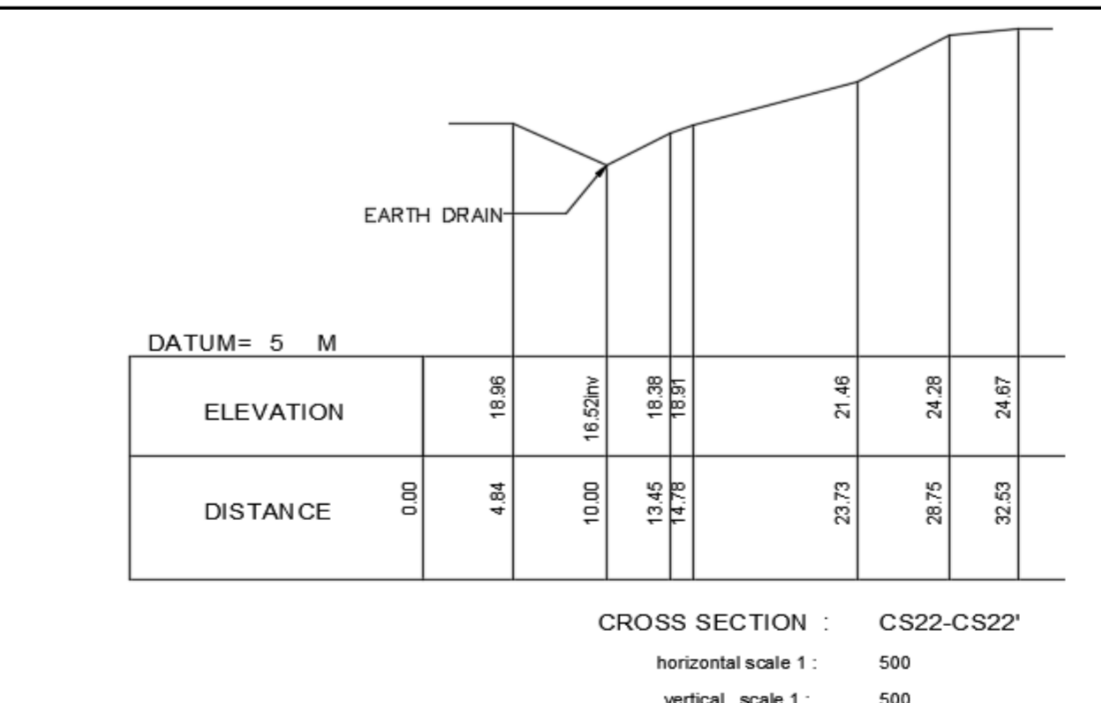



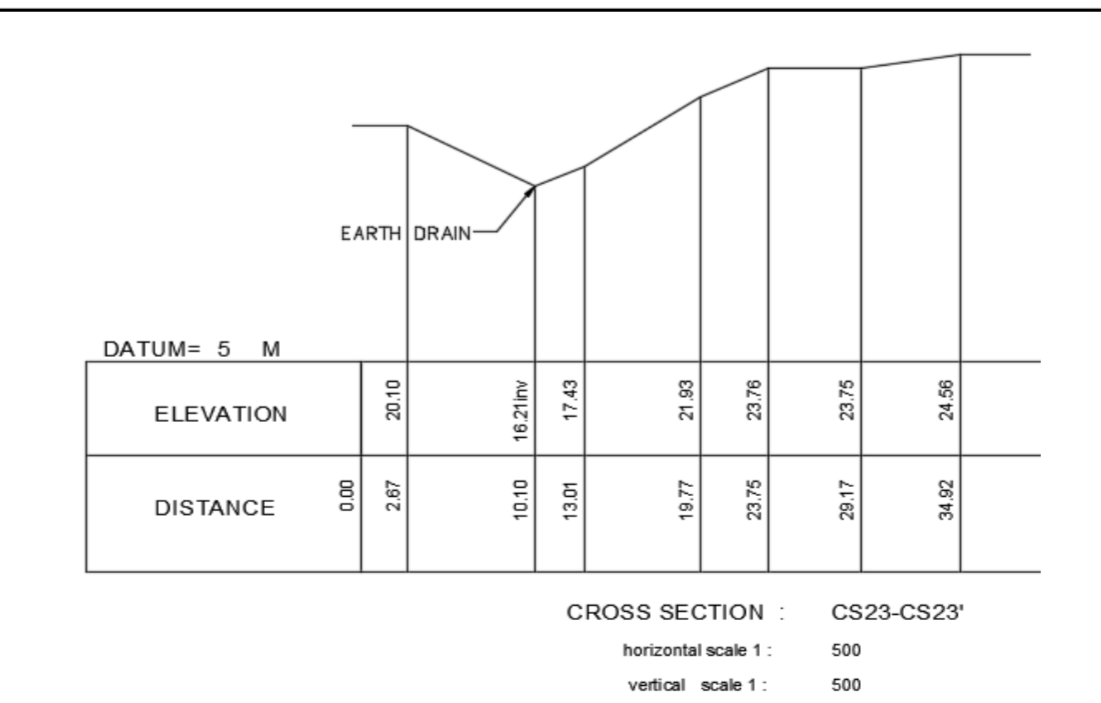


Detailed Records of Stream Mapping Turf EIA





Stream Mapping Point No.	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Photos of Cross-Section	Cross-section	Channel Wetted Width	Water Depth	Flow Velocity (Dry Weather)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
CW1	-	103.79089	1.34509			Cross-section was not mapped due to its dry condition at the upstream.	Not Applicable	Not Applicable	Not Applicable	Concrete fragments and rocks. Dry earth drain.	Caryota mitis, Fabaceae seedling, Syzygium grande, Caladium sp., Spathodea campanulata, Leea indica, Nephelium lappaceum	5-10%	34.7	No	The starting point of the watercourse within Site E.
CW2	CS12	103.79092	1.34492				0.2 - 0.5 m	5 - 6 cm	Nearly stagnant	Sandy bed, with dead leaves and broken concrete. Earth drain with mild slope, and covered with vegetation.	Acrostichum speciosum, Eleais guineensis, Syzygium grande, Cinnamomum iners, Smilax setosa, Hemigraphis repens, Alsophila laterosa, Ficus heteropleura	50-60%	84.3	Yes	Presence of oil sheen observed. Cloudy brown organic matter observed in the water.
CW3	CS13	103.79103	1.34478				0.4 - 1 m	8 - 20 cm	0.01 m/s	Unable to identify bed substrate type due to deep turbid waters. Likely muddy clay sediments, based on observed bank conditions. Asymmetrical earth banks with different steepness and width (i.e. steep earth bank with a shorter width on one side, and earth bank with a longer width and milder slope on the other bank). The bank with milder slope was waterlogged.	Acrostichum speciosum, Epipremnum aureum, Dillenia suffruticosa, Caryota mitis, Eleais guineensis, Erycibe tomentosa, Ficus fistulosa, Cinnamomum iners, Epipremnum aureum, Syzygium grande, Leea indica	5-10%	82.9	Yes	
CW4	CS14	103.79113	1.34467												

Stream Mapping Point No.	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Photos of Cross-Section	Cross-section	Channel Wetted Width	Water Depth	Flow Velocity (Dry Weather)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks	
CW7	CS18	103.79147	1.34415					1 - 2 m	10 - 15 cm	0.2 m/s	Sandy bed, with presence of dead leaves and broken concrete slab pieces. Dark grey clay earth banks with very steep/nearly-vertical slope that is covered with tree roots.	Piper betle, Ficus heteropleura, Syzygium grande, Alsophila latebrosa, Syngonium podophyllum, Eleais guineensis, Ficus fistulosa, Caryota mitis, cf. Asplenium nidus	20-25%	8.5	No	
CW8	CS18	103.79169	1.34396					1 - 1.5 m	15 - 20 cm	0.01 m/s	Sandy bed. Dark grey clay earth banks, with steep slopes and covered with dense vegetation.	Aporosa frutescens, Eleais guineensis, Alsophila latebrosa, cf. Fibraurea tinctoria, Ficus fistulosa	10-15%	14.5	Yes	
CW9	CS20	103.79176	1.34372					1.2 - 2 m	5 - 12 cm	0.01 m/s	Sandy bed, with broken concrete slab. Earth banks with steep slope, covered with dense vegetation.	Adiantum latifolium, Aglaionema confertum, Alsophila latebrosa, cf. Nephelium lappaceum, Alcasia macrorrhizos, Leea indica, cf. Amphineuron opulentum, Caryota mitis, Claoxylon indicum, Baccaurea motleyana, Claoxylon indicum, Ficus sp, Nephelium lappaceum, Stenochlaena palustris, Hevea brasiliensis, Eleais guineensis	5-10%	78.6	No	
CW10	CS21	103.79184	1.34359					1.25 - 1.9 m	9 - 22 cm	0.2 m/s	Sandy bed, with broken concrete slabs and dead leaves. Downstream photo shows a waterlogged area filled with dead leaves, before transiting to a concrete drain. Earth banks with mild slopes, covered with dense vegetation.	Leea indica, Eleais guineensis, Caladium sp., cf. Ficus heteropleura, Caryota mitis, Alsophila latebrosa, Adiantum latifolium	0-5%	65.3	Yes	
CW11	CS22	103.79191	1.34337					0.1 - 0.2 m	5 - 10 cm	0.4 m/s	Man-made concrete drain. Earth banks with mild slopes, covered with dense vegetation.	Eleais guineensis, Leea indica, Hevea brasiliensis, Caladium sp., Elaeocharis petiolatus, cf. Nephelium lappaceum	0%	63.6	No	Adjacent to an outlet located within the vegetation, which discharges a small flow which feeds into the drain.
CW12	CS23	103.79194	1.34329					0.3 - 0.35 m	15 - 20 cm	0.3 m/s	Man-made concrete drain with sand and dead leaves. Earth banks with mild slope, covered by dense vegetation.	Eleais guineensis, Leea indica	0-5%	61.1	No	Adjacent to a waterlogged area.





Detailed Records of Stream Mapping Turf EIA

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CW13	CS25	103.79196	1.34302			<p>EARTH DRAIN</p>  <table border="1"> <tr> <td colspan="2">DATUM= 5 M</td> </tr> <tr> <td>ELEVATION</td> <td>15.74 15.20m 15.31 15.62 15.15 15.16 14.25 14.37</td> </tr> <tr> <td>DISTANCE</td> <td>0.00 8.25 13.06 13.59 19.72 23.45 28.08 33.84</td> </tr> </table> <p>CROSS SECTION : CS25-CS25' horizontal scale 1 : 500 vertical scale 1 : 500</p>	DATUM= 5 M		ELEVATION	15.74 15.20m 15.31 15.62 15.15 15.16 14.25 14.37	DISTANCE	0.00 8.25 13.06 13.59 19.72 23.45 28.08 33.84	0.5 - 0.6 m	15 - 17 cm	0.08 m/s	Man-made concrete drain, filled with dead leaves. Earth banks with mild slope, covered with dense vegetation.	Epiperemum pinnatum, Hevea brasiliensis, Eleais guineensis, Adiantum latifolium, Colocasia esculenta	15-20%	70.8	No	
DATUM= 5 M																					
ELEVATION	15.74 15.20m 15.31 15.62 15.15 15.16 14.25 14.37																				
DISTANCE	0.00 8.25 13.06 13.59 19.72 23.45 28.08 33.84																				
CW14	CS26	103.79199	1.34278			<p>EARTH DRAIN</p>  <table border="1"> <tr> <td colspan="2">DATUM= 5 M</td> </tr> <tr> <td>ELEVATION</td> <td>14.71 14.85 15.47 18.43 21.24 24.37</td> </tr> <tr> <td>DISTANCE</td> <td>0.00 10.30 12.54 20.87 27.47 32.30</td> </tr> </table> <p>CROSS SECTION : CS26-CS26' horizontal scale 1 : 500 vertical scale 1 : 500</p>	DATUM= 5 M		ELEVATION	14.71 14.85 15.47 18.43 21.24 24.37	DISTANCE	0.00 10.30 12.54 20.87 27.47 32.30	1 - 1.5 m	5 - 10 cm	0.1 m/s	Naturalised concrete drain. Sandy bed with broken concrete. Earth banks with mild slope, covered with dense vegetation.	Leeea indica, Eleais guineensis, cf. Aglaonema communitatum, Piper betle	5-10%	96.9	Yes	
DATUM= 5 M																					
ELEVATION	14.71 14.85 15.47 18.43 21.24 24.37																				
DISTANCE	0.00 10.30 12.54 20.87 27.47 32.30																				
CW15	-	103.79198	1.34259			Cross-section was not mapped as downstream is not natural stream anymore.	1.3 - 1.45 m	19 - 40 cm	0.45 m/s	Sandy bed with rocks and broken concrete slabs. Littered with rubbish and dead leaves as well. Earth banks with steep slope, covered with dense vegetation.	Piper betle, Baphia nitida, Erycibe tomentosa, Syngonium podophyllum, Ficus fistulosa, Eleais guineensis, Arthropphyllum diversifolium	5-10%	23.1	Yes							





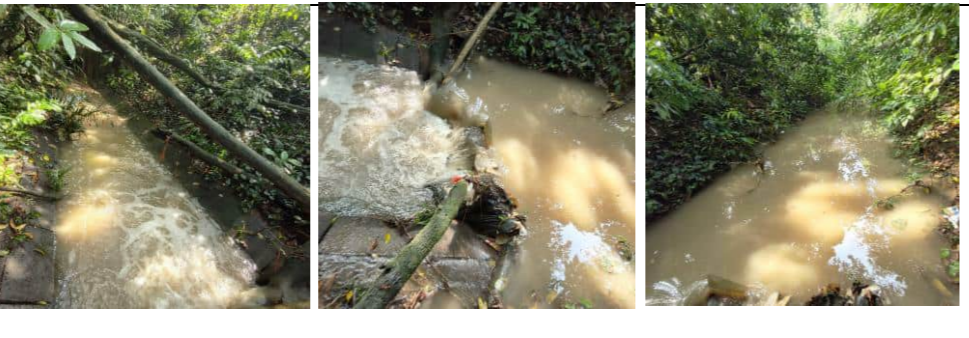
Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
BW1	CS1 (Drawing 1)	103°47'50.183"E	1°20'22.831"N		2.13 at discharge of concrete portion. Widens downstream.	112	0.063	Concrete bed and banks, towards mouth it is vegetated flooding area.	<i>Artocarpus heterophyllus</i> <i>Cinnamomum iners</i> <i>Acalypha siamensis</i> <i>Alocasia macrorrhizos</i> <i>Amblovenatum opulentum</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Christella dentata</i> <i>Claoxylon indicum</i> <i>Dieffenbachia seguine var. seguine</i> <i>Epipremnum aureum</i> <i>Ficus fistulosa</i> <i>Ficus punctata</i> <i>Leea indica</i> <i>Musa cultivar</i> <i>Nephelium lappaceum</i> <i>Pipturus argenteus</i> <i>Syngonium angustatum</i>	Unable to assess as unable to see bottom.	63.5	No	Fishes inside. Water is slightly murky.
BW2	CS2 (Drawing 1)	103°47'50.152"E	1°20'22.226"N		3.82	30 - 60	Almost stagnant	Clay banks with tall grass on left, vegetated clay banks on right. Clay bed. There are vegetation in stream as well.	<i>Aphanamixis polystachya</i> <i>Alocasia macrorrhizos</i> <i>Alocasia macrorrhizos</i> <i>Alocasia macrorrhizos</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Leea indica</i> <i>Miconia crenata</i> <i>Syzygium myrtifolium</i> <i>Ptychosperma macarthurii</i> <i>Spathodea campanulata</i> <i>Syzygium grande</i> <i>Syzygium polyanthum</i>	25	78.4	No	Orangey filaments inside
BW3	CS3 (Drawing 1)	103°47'50.368"E	1°20'21.797"N		3.50	36 - 56	0.025	Clay banks with tall grass on left, vegetated clay banks on right. Clay bed. There are vegetation in stream as well.	<i>Aphanamixis polystachya</i> <i>Bridelia tomentosa</i> <i>Cinnamomum iners</i> <i>Alocasia macrorrhizos</i> <i>Asystasia gangetica ssp. micrantha</i> <i>Caryota mitis</i> <i>Cenchrus purpureus</i> <i>Colocasia esculenta</i> <i>Isachne globosa</i> <i>Leea indica</i> <i>Miconia crenata</i> <i>Nephrolepis biserrata</i> <i>Stenochlaena palustris</i> <i>Spathodea campanulata</i>	100	48.1	No	Fishes inside. Water is slightly murky.
BW4	CS4 (Drawing 1)	103°47'50.424"E	1°20'21.089"N		Not able to see due to dense vegetation surrounding. Area is similar to a flooded grassland.	14	0.160	Vegetated (grass) clay bed and banks, area is covered in roots.	<i>Cenchrus purpureus</i> <i>Leea indica</i> <i>Mikania micrantha</i> <i>Nephrolepis biserrata</i> <i>Philodendron hederaceum</i>	0	0	No	No remarks.




Detailed Records of Stream Mapping Turf EIA

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BW5	CS5 (Drawing 1)	103°47'50.627"E	1°20'20.544"N		At least 5m wide; not able to see due to dense vegetation surrounding. Area is similar to a flooded grassland.	16	0.071	Clay like banks and bed with vegetation in the stream.	<i>Cinnamomum iners</i> <i>Alocasia macrorrhizos</i> <i>Asystasia gangetica ssp. micrantha</i> <i>Caryota mitis</i> <i>Causonis trifolia</i> <i>Cenchrus purpureus</i> <i>Epipremnum pinnatum</i> <i>Isachne globosa</i> <i>Leea indica</i> <i>Miconia crenata</i> <i>Mikania micrantha</i> <i>Nephrolepis biserrata</i> <i>Paederia foetida</i> <i>Spathodea campanulata</i> <i>Syzygium polyanthum</i>	100	50	No	Some film on surface of water.	
BW6	CS34 (Drawing 3)	103°47'50.81"E	1°20'20.13"N			0.55	10	0.07	Tall grass vegetated soil banks. Bed is covered in dense root network.	Roots	50	No	Clear waters.	
BW7	CS33 (Drawing 3)	103°47'50.85"E	1°20'19.45"N			1.65	17	0.02	Root banks. Bed is sandy with large rocks, and is covered in orange moss.	<i>Adiantum latifolium</i> <i>Aphanamixis polystachya</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Causonis trifolia</i> <i>Cinnamomum iners</i> <i>Ficus microcarpa</i> <i>Leea indica</i> <i>Nephelium lappaceum</i> <i>Ptychosperma macarthurii</i>		64.7	Low.	Orange flecks observed in water and covering bed. Water is otherwise clear.
BW8	CS32 (Drawing 3)	103°47'50.99"E	1°20'18.80"N			1.00	13	0.08	Concrete banks with sandy-gravelly bed.	<i>Adiantum latifolium</i> <i>Alocasia longiloba</i> <i>Alocasia macrorrhizos</i> <i>Asystasia gangetica ssp. micrantha</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Christella dentata</i> <i>Epipremnum aureum</i> <i>Ficus fistulosa</i> <i>Leea indica</i> <i>Momordica charantia</i> <i>Cenchrus purpureus</i> <i>Synedrella nodiflora</i> <i>Syzygium grande</i> <i>Syzygium polyanthum</i>	0-5	55.5	Low	Stringy orange filaments in water, likely caused by iron-utilising bacteria.












Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
BW9	CS31 (Drawing 3)	103°47'51.00"E	1°20'18.38"N		0.92	48	Stagnant	Concrete banks with vegetation on top. Concrete bed with small amount of sediment.	<i>Alocasia macrorrhizos</i> <i>Asystasia gangetica ssp. micrantha</i> <i>Callisia repens</i> <i>Leea indica</i> <i>Mikania micrantha</i> <i>Nephrolepis biserrata</i> <i>Cenchrus purpureus</i> <i>Spathodea campanulata</i>	5-10	31.3	No	Film observed on surface of water. Orange filaments observed growing in watercourse. Waters are murky.
BW10	CS30 (Drawing 3)	103°47'51.12"E	1°20'17.83"N		1.02	58	0.03	Concrete banks (R). Concrete banks covered in roots (L). Bed is concrete with a layer of sand.	<i>Alocasia macrorrhizos</i> <i>Aphanamixis polystachya</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Ficus microcarpa</i> <i>Leea indica</i> <i>Nephelium lappaceum</i> <i>Piper sarmentosum</i> <i>Syngonium angustatum</i>	0-5	70.5	Low	No remarks.
BW11	CS29 (Drawing 3)	103°47'51.13"E	1°20'17.04"N		1.80	37	0.09	Soil banks, sandy bed	<i>Alocasia macrorrhizos</i> <i>Andira inermis</i> <i>Bridelia tomentosa</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Claoxylon indicum</i> <i>Ficus punctata</i> <i>Leea indica</i> <i>Syzygium grande</i> <i>Thunbergia fragrans</i> <i>Miconia crenata</i>	20% on surface, unable to see through water.	46.4	Mild	Surface film that is orangey.
BW12	CS28 (Drawing 3)	103°47'51.24"E	1°20'16.29"N		1.65	80	0.03	Sand at bed on top of a concrete base. Concrete banks with vegetated clay soil above the concrete.	<i>Alocasia macrorrhizos</i> <i>Asystasia gangetica ssp. micrantha</i> <i>Callisia repens</i> <i>Ficus fistulosa</i> <i>Manihot esculenta</i> <i>Mikania micrantha</i> <i>Nephrolepis biserrata</i> <i>Cenchrus purpureus</i> <i>Thunbergia fragrans</i> <i>Miconia crenata</i>	Unable to see through water.	20	Mild	Orange filaments at bank. Slightly turbid waters.
BW13	CS27 (Drawing 3)	103°47'51.14"E	1°20'15.97"N		2.41	43	0.04	Concrete banks and bed.	<i>Adiantum latifolium</i> <i>Alsophila latebrasa</i> <i>Andira inermis</i> <i>Asplenium longissimum</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Piper sarmentosum</i> <i>Ptychosperma macarthurii</i> <i>Syzygium grande</i> <i>Syzygium polyanthum</i> <i>Miconia crenata</i> <i>Grypothrix triphylla</i>	Unable to see through water.	51.5	No	Slightly yellow water.






Detailed Records of Stream Mapping Turf EIA

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BW14	CS27 (Drawing 3)	103°47'51.44"E	1°20'15.56"N		1.47	49	Very low flow, almost stagnant.	Concrete banks and bed.	<i>Asplenium nidus var. nidus</i> <i>Baphia nitida</i> <i>Bridelia tomentosa</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Claoxylon indicum</i> <i>Dieffenbachia seguine var. seguine</i> <i>Epipremnum aureum</i> <i>Ficus heteropleura</i> <i>Leea indica</i> <i>Ptychosperma macarthurii</i>	Unable to see through water. On water surface, leaf litter is around 10%.	83.6	No	Slightly yellow water.
BW15	Nil, drain.	103°47'52.01"E	1°20'14.32"N		2.71	69	Almost stagnant. Very low flow.	Concrete banks and bed.	<i>Alocasia macrorrhizos</i> <i>Andira inermis</i> <i>Aphanamixis polystachya</i> <i>Baphia nitida</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Epipremnum aureum</i> <i>Leea indica</i> <i>Ptychosperma macarthurii</i> <i>Syngonium angustatum</i>	Unable to see through water. On water surface, leaf litter is around 30%.	61.1	No	Turbid waters. Leaf litter and foam on surface of water. Orange stains on the banks, indicating presence of iron-utilising bacteria.
BW16	Nil, drain.	103°47'52.51"E	1°20'13.60"N		2.41	62	Stagnant	Concrete banks and bed.	<i>Andira inermis</i> <i>Baphia nitida</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Dioscorea sansibarensis</i> <i>Epipremnum aureum</i> <i>Ptychosperma macarthurii</i> <i>Syzygium grande</i>	Unable to see through water. On water surface, leaf litter is around 20-25%.	18.4	No	Surface film observed, with bubbles on water surface.
BW17	CS26 (Drawing 3)	103°47'53.12"E	1°20'13.05"N		3.06	61	Almost stagnant.	Clay like soil banks and bed.	<i>Adiantum latifolium</i> <i>Alocasia macrorrhizos</i> <i>Caryota mitis</i> <i>Elaeis guineensis</i> <i>Stenochlaena palustris</i> <i>Callisia repens</i> <i>Alsophila latebrosa</i> <i>Andira inermis</i> <i>Cinnamomum iners</i> <i>Artocarpus heterophyllus</i> <i>Ficus fistulosa</i> <i>Syzygium grande</i> <i>Syzygium myrtifolium</i> <i>Leea indica</i>	Unable to see through water.	50	Medium	No remarks.
BW18	CS26 (Drawing 3)	103°47'53.32"E	1°20'12.16"N		2.74	14	0.017	Vegetated soil clay banks (R). Clay root banks (L). Sandy gravelly bed with small amount of leaf litter.	<i>Alsophila latebrosa</i> <i>Andira inermis</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Christella dentata</i> <i>Leea indica</i> <i>Lygodium microphyllum</i> <i>Macaranga griffithiana</i> <i>Miconia crenata</i> <i>Ptychosperma macarthurii</i> <i>Syzygium grande</i> <i>Syzygium polyanthum</i>	5-10	59.1	High (L) Medium (R)	Slightly turbid waters.

Detailed Records of Stream Mapping Turf EIA




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D12-A Tributary													
EW1	CS10 (Drawing 2)	103°47'47.52"E	1°20'8.84"N	 	5-5.5	130	Almost stagnant; very low flow.	Concrete banks, covered with soil and roots. Bed is sandy.	<i>Alocasia macrorrhizos</i> <i>Aphanamixis polystachya</i> <i>Cinnamomum iners</i> <i>Cheilocostus speciosus</i> <i>Coccinia grandis</i> <i>Isachne globosa</i> <i>Miconia crenata</i> <i>Nephelium lappaceum</i> <i>Nephrolepis biserrata</i> <i>Manihot esculenta</i> <i>Syzygium polyanthum</i>	Unable to see through water.	90	Yes	Turbid yellow water
EW2	CS9 (Drawing 2)	103°47'47.45"E	1°20'8.25"N	  	1.80	2	0.29	Sandy bed. Sandy banks on left, vegetated clay banks on right.	<i>Alocasia macrorrhizos</i> <i>Aphanamixis polystachya</i> <i>Centotheca lappacea</i> <i>cf. Lagerstroemia sp.</i> <i>Cinnamomum iners</i> <i>Alocasia longiloba</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Manihot esculenta</i> <i>Ficus fistulosa</i> <i>Leea indica</i> <i>Musa cultivar</i> <i>Piper sarmentosum</i> <i>Syngonium angustatum</i> <i>Syzygium grande</i> <i>Syzygium polyanthum</i> <i>Thunbergia laurifolia</i> <i>Ptychosperma macarthurii</i>	0-5	40	90° bank	Clear water.
EW3	CS8 (Drawing 2)	103°47'48.10"E	1°20'7.85"N	  	0.84 - 1.43	4.5 - 17	0.17	Vegetated clay banks on left, sandy vegetated banks on right. Sandy bed.	<i>Cinnamomum iners</i> <i>Nephelium lappaceum</i> <i>Ptychosperma macarthurii</i> <i>Mangifera indica</i> <i>Piper betle</i> <i>Thunbergia laurifolia</i> <i>Syngonium angustatum</i>	5-10	90	Mild (L) High (R)	Relatively clear water. Some leaf litter in bed.
EW4	CS7 (Drawing 2)	103°47'48.33"E	1°20'7.41"N	  	3.60	38	0.25	Sandy clay bed. Brick wall/stack on right banks, clay banks on left.	<i>Aphanamixis polystachya</i> <i>Nephelium lappaceum</i> <i>Piper sarmentosum</i> <i>Ptychosperma macarthurii</i> <i>Spathodea campanulata</i> <i>Caryota mitis</i> <i>Elaeis guineensis</i> <i>Ficus fistulosa</i> <i>Syngonium angustatum</i> <i>Syzygium polyanthum</i>	10	90	High (R) Mild (L)	Slightly turbid waters. Small drain with water flowing out at right bank.

Detailed Records of Stream Mapping Turf EIA






Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
EW5	CS6 (Drawing 2)	103°47'48.66"E	1°20'6.87"N		2.54	7 - 16	0.14	Vegetated clay banks and sandy bed.	<i>Alocasia macrorrhizos</i> <i>Caryota mitis</i> <i>Piper sarmentosum</i> <i>Ptychosperma macarthurii</i> <i>Spathodea campanulata</i> <i>Adiantum latifolium</i> <i>Dimocarpus longan</i> <i>Ficus fistulosa</i> <i>Leea indica</i> <i>Piper betle</i> <i>Tectaria incisa</i> <i>Syngonium angustatum</i> <i>Syzygium grande</i>	5-10	70	Mild (R) High (L)	No remarks.
EW6	CS5 (Drawing 2)	103°47'49.25"E	1°20'6.48"N		2.91	12	0.13	Clay sand bed. Clay bank on left, vegetated clay bank on right.	<i>Alocasia macrorrhizos</i> <i>Cinnamomum iners</i> <i>Ptychosperma macarthurii</i> <i>Spathodea campanulata</i> <i>Baphia nitida</i> <i>Clausena excavata</i> <i>Ficus fistulosa</i> <i>Syngonium angustatum</i> <i>Tectaria incisa</i> <i>Terminalia catappa</i> <i>Syzygium polyanthum</i>	15	85	High (L) Low (R)	Relatively clear water
EW7	CS4 (Drawing 2)	103°47'49.63"E	1°20'6.00"N		3.15	47	Almost stagnant; very low flow	Sandy clay root banks. Sandy bed.	<i>Spathodea campanulata</i> <i>Baphia nitida</i> <i>Pterocarpus indicus</i>	Unable to see through water.	100	High	Turbid waters.
EW8	CS3 (Drawing 2)	103°47'50.16"E	1°20'5.27"N		4.33	10 - 16	0.15	Sandy bed. Soil clay banks that are slightly vegetated.	<i>Baphia nitida</i> <i>Cinnamomum iners</i> <i>Piper sarmentosum</i> <i>Syngonium angustatum</i> <i>Caryota mitis</i> <i>Dimocarpus longan</i> <i>Elaeis guineensis</i> <i>Syzygium polyanthum</i>	15	40	No (L) Mild (R)	Relatively clear water. Some leaf litter accumulating on surface.
EW9	CS3 (Drawing 2)	103°47'50.64"E	1°20'5.05"N		2.24	11 - 16	0.12	Sandy bed. Vegetated sandy banks.	<i>Baphia nitida</i> <i>Ficus microcarpa</i> <i>Syngonium angustatum</i>	0-5	80	No	Relatively clear water. Trees are also growing in the middle of the stream.

D12-A Tributary End






Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
<b>D12-B Tributary</b>													
EW10	CS17 (Drawing 2)	103°47'49.06"E	1°20'9.45"N		3.00	33 - 66	Stagnant	Vegetated earth banks.	<i>Alocasia macrorrhizos</i> <i>Aphanamixis polystachya</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Dracaena fragrans</i> <i>Epipremnum pinnatum</i> <i>Isachne globosa</i> <i>Mikania micrantha</i> <i>Piper betle</i> <i>Spathodea campanulata</i> <i>Tetracera indica</i> <i>Thunbergia fragrans</i> <i>Syngonium angustatum</i>	Unable to see through water.	71.3	Mild	Some rubbish and leaf litter floating on surface of water. Waters have surface film. Water has odour.
EW11	CS16 (Drawing 2)	103°47'49.40"E	1°20'8.98"N		0.72	1	0.22	Sandy gravel bed. Beginning of concrete banks on left, while right bank remains as vegetated sand banks.	<i>Andira inermis</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Dieffenbachia seguine var. seguine</i> <i>Ficus fistulosa</i> <i>Ficus heteropleura</i> <i>Piper betle</i> <i>Ptychosperma macarthurii</i> <i>Terminalia catappa</i> <i>Tinospora crispa</i> <i>Syngonium angustatum</i>	10 - 20	89	No	Yellow specks observed in water, indicating iron-utilising bacteria presence.
EW12	CS16 (Drawing 2)	103°47'49.63"E	1°20'8.60"N		1.08	3	Stagnant	Vegetated soil clay and sand banks. And bed.	<i>Alocasia macrorrhizos</i> <i>Andira inermis</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Dieffenbachia seguine var. seguine</i> <i>Pandanus amaryllifolius</i> <i>Piper betle</i> <i>Ptychosperma macarthurii</i> <i>Syzygium polyanthum</i> <i>Terminalia catappa</i> <i>Syngonium angustatum</i>	10 - 20	78.6	High (L) No (R)	Surface film on water observed.
EW13	CS15 (Drawing 2)	103°47'49.96"E	1°20'7.97"N		0.95	21	Almost stagnant. Very low flow.	Concrete bank (L), grassy soil bank on right bank. Red clay and sand bed.	<i>Andira inermis</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Dieffenbachia seguine var. seguine</i> <i>Ptychosperma macarthurii</i> <i>Syzygium myrtifolium</i> <i>Syzygium polyanthum</i> <i>Syngonium angustatum</i>	30-40	79.6	No	Slightly yellow water.
EW14	CS14 (Drawing 2)	103°47'50.18"E	1°20'7.38"N		2.5	40	Stagnant	Leaf litter on top of clay bed. Grassy soil banks.	<i>Andira inermis</i> <i>Caryota mitis</i> <i>Cenchrus purpureus</i> <i>Dieffenbachia seguine var. seguine</i> <i>Ficus fistulosa</i> <i>Lea indica</i> <i>Callisia repens</i> <i>Syngonium angustatum</i> <i>Syzygium polyanthum</i>	100	95	No	Turbid waters.






Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
EW15	CS13 (Drawing 2)	103°47'50.56"E	1°20'6.65"N		4.60	64	0.02	Sandy egetates root banks with sandy bed. Trees are observed growing in the watercourse.	<i>Callisia repens</i> <i>Caryota mitis</i> <i>Causonis trifolia</i> <i>Cinnamomum iners</i> <i>Clausena excavata</i> <i>Hydrilla verticillata</i> <i>Leea indica</i> <i>Ptychosperma macarthurii</i> <i>Syzygium polyanthum</i> <i>Terminalia catappa</i> <i>Syngonium angustatum</i>	5-10	71	No	No remarks.
EW16	CS12 (Drawing 2)	103°47'50.44"E	1°20'5.97"N		4.60	64	0.02	Sandy egetates root banks with sandy bed. Trees are observed growing in the watercourse.	<i>Alocasia macrorrhizos</i> <i>Adenanthera pavonina</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Dieffenbachia seguine var. seguine</i> <i>Syngonium angustatum</i> <i>Syzygium polyanthum</i> <i>Aphanamixis polystachya</i> <i>Cinnamomum iners</i>	5-10	71	No	No remarks.
EW17	CS11 (Drawing 2)	103°47'50.60"E	1°20'5.73"N		4.60	64	0.02	Sandy egetates root banks with sandy bed. Trees are observed growing in the watercourse.	<i>Baphia nitida</i> <i>Ficus microcarpa</i> <i>Ptychosperma macarthurii</i> <i>Spathodea campanulata</i>	5-10	71	No	No remarks.
EW18	CS2 (Drawing 2)	103°47'50.88"E	1°20'4.82"N		4.60	64	0.02	Sandy egetates root banks with sandy bed. Trees are observed growing in the watercourse.	<i>Baphia nitida</i> <i>Ficus microcarpa</i>	5-10	71	No	No remarks.
<b>D12-B Tributary End</b>													
<b>D12</b>													
EW19	CS1 (Drawing 2)	103°47'51.08"E	1°20'4.43"N		4.22	55	0.03	Sandy bed with vegetated sandy banks. Trees are also growing in the watercourse and root clumps observed in water.	<i>Baphia nitida</i> <i>Christella dentata</i> <i>Ptychosperma macarthurii</i>	10-20	76.8	No (L) Mild (R)	No remarks.






Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
EW20	Nil, drain.	103°47'51.29"E	1°20'3.55"N		2.99	53	0.06	Sandy banks with some vegetation on the right bank and sandy bed. Log and rubbish causing blockage in watercourse.	<i>Baphia nitida</i> <i>Bridelia tomentosa</i>	0-5	70.2	Mild	No remarks.
EW21	Nil, drain.	103°47'51.51"E	1°20'2.89"N		1.15	17	0.25	Sandy bed. Sandy root bank on left and concrete bank right.	<i>Baphia nitida</i> <i>Ficus fistulosa</i> <i>Ptychosperma macarthurii</i> <i>Aphanamixis polystachya</i>	0-5	70.2	No	No remarks.
EW22	Nil, drain.	103°47'51.92"E	1°20'2.43"N		1.35	37	0.13	Concrete banks. Bed is sandy with small rocks. Watercourse is partly blocked with log.	<i>Baphia nitida</i>	0-5	85.8	No	Water is slightly cloudy.
EW23	Nil, drain.	103°47'52.08"E	1°20'1.88"N		0.81	32	0.33	Concrete banks, concrete bed with a layer of sand. Root clumps are also observed in the watercourse.	<i>Cinnamomum iners</i> <i>Ficus religiosa</i> <i>Ptychosperma macarthurii</i> <i>Syzygium myrtifolium</i> <i>Aphanamixis polystachya</i>	0-5	86.6	No	No remarks.
EW24	Nil, drain.	103°47'52.25"E	1°20'1.20"N		0.65	28	0.40	Concrete banks and bed. Banks are covered in moss. Root clumps are also observed in the watercourse.	<i>Alocasia macrorrhizos</i> <i>Cinnamomum iners</i> <i>Peltophorum pterocarpum</i> <i>Spathodea campanulata</i> <i>Syzygium polyanthum</i> <i>Centotheca lappacea</i>	0-5	37.5	No	No remarks.

Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
EW25	Nil, drain.	103°47'52.21"E	1°20'0.77"N		1.50	4	0.67	Concrete banks and bed.	<i>Alocasia macrorrhizos</i> <i>Bridelia tomentosa</i> <i>Cenchrus purpureus</i> <i>Ficus fistulosa</i>	0-5	85.9	No	No remarks.
D12 End D7 (after Site B)													
EW26	CS18 (Drawing 2)	103°47'50.74"E	1°20'7.30"N		1.77	39	0.03	Vegetated soil banks. Bed is covered in leaf litter.	<i>Alocasia macrorrhizos</i> <i>Andira inermis</i> <i>Aphanamixis polystachya</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Causonis trifolia</i> <i>Claoxyton indicum</i> <i>Leea indica</i> <i>Paederia foetida</i> <i>Syzygium polyanthum</i> <i>Syngonium angustatum</i>	100	82.7	High (R) Medium (L)	Clear water with small fishes observed.
EW27	CS19 (Drawing 2)	103°47'51.04"E	1°20'7.81"N		1.21	36	0.15	Vegetated sandy banks. Gravelly sandy bed with roots.	<i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Ptychosperma macarthurii</i> <i>Syzygium grande</i> <i>Syzygium polyanthum</i> <i>Terminalia catappa</i> <i>Syngonium angustatum</i>	90	61.6	Medium (R) High (L)	Clear water.
EW28	CS20 (Drawing 2)	103°47'51.55"E	1°20'8.32"N		1.35	27	0.03	Vegetated soil bank (L). Soil bank (R). Sandy bed with leaf litter.	<i>Alocasia macrorrhizos</i> <i>Aphanamixis polystachya</i> <i>Callisia repens</i> <i>Ficus fistulosa</i> <i>Mikania micrantha</i> <i>Paederia foetida</i> <i>Cenchrus purpureus</i>	100	65.2	Overhang (L) High (R)	Clear water. Rubbish and small fishes observed. Surface film observed.
EW29	CS21 (Drawing 3)	103°47'51.76"E	1°20'8.76"N		2.25	38	0.02	Grassy soil banks on right. Grassy and vegetated soil banks on left. Bed is covered in leaf litter.	<i>Alocasia macrorrhizos</i> <i>Andira inermis</i> <i>Callisia repens</i> <i>Cinnamomum iners</i> <i>Dracaena fragrans</i> <i>Leea indica</i> <i>Mikania micrantha</i> <i>Ptychosperma macarthurii</i> <i>Terminalia catappa</i> <i>Syngonium angustatum</i>	90-100	50.6	Low	Slightly turbid waters.

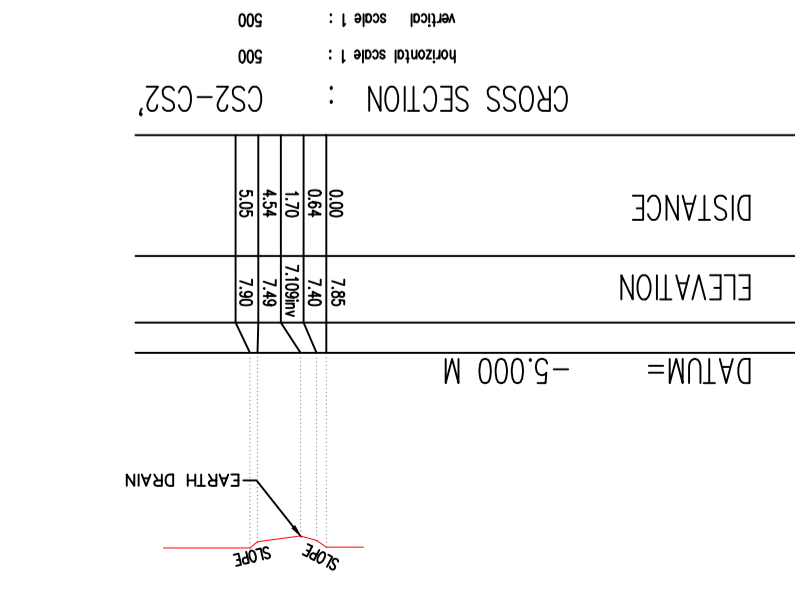
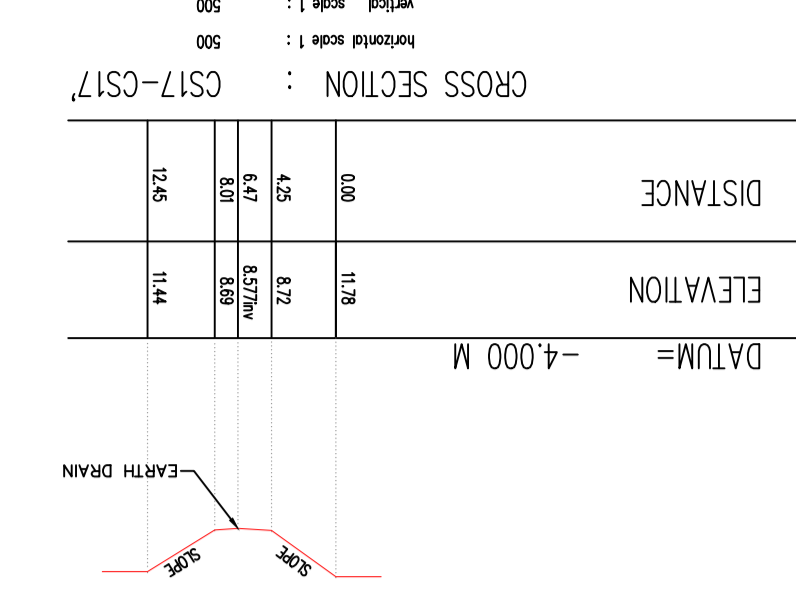
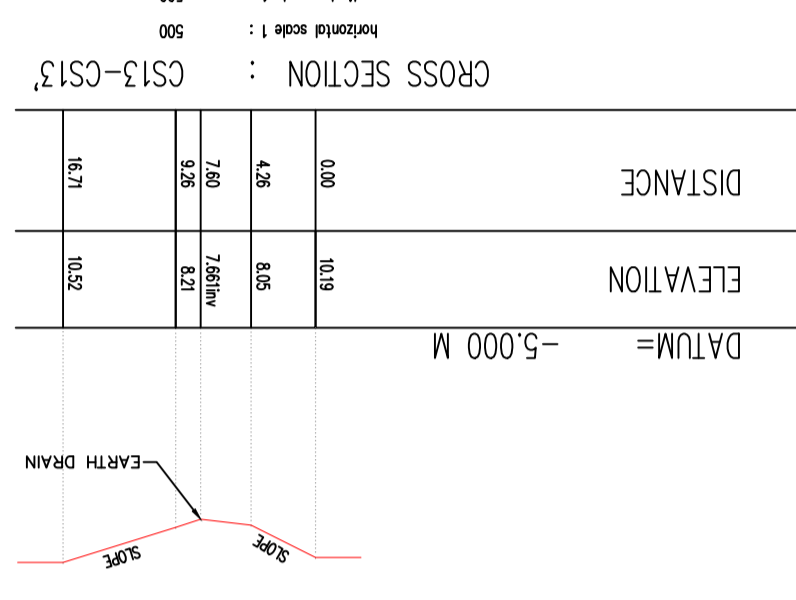
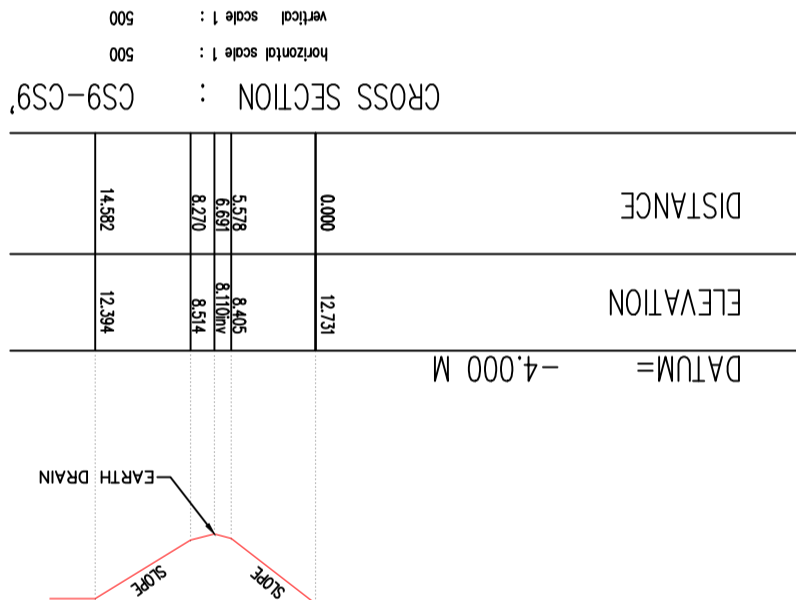
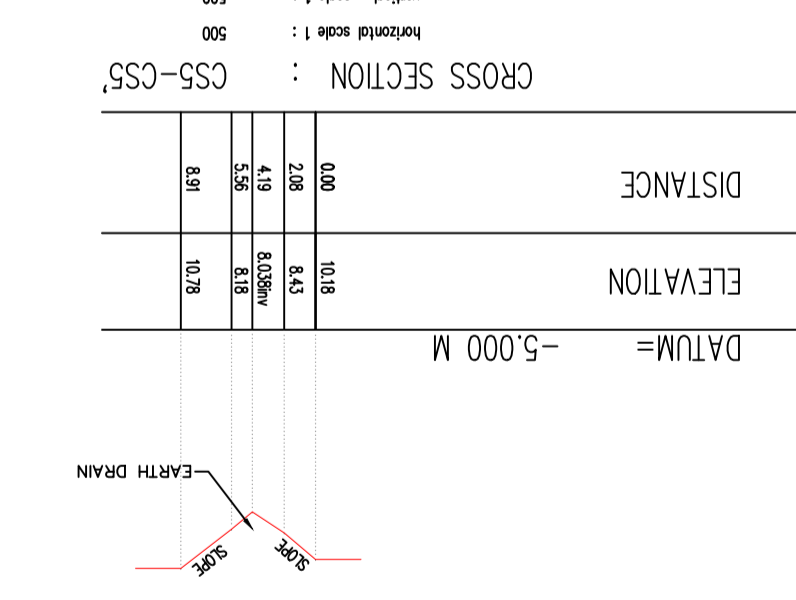
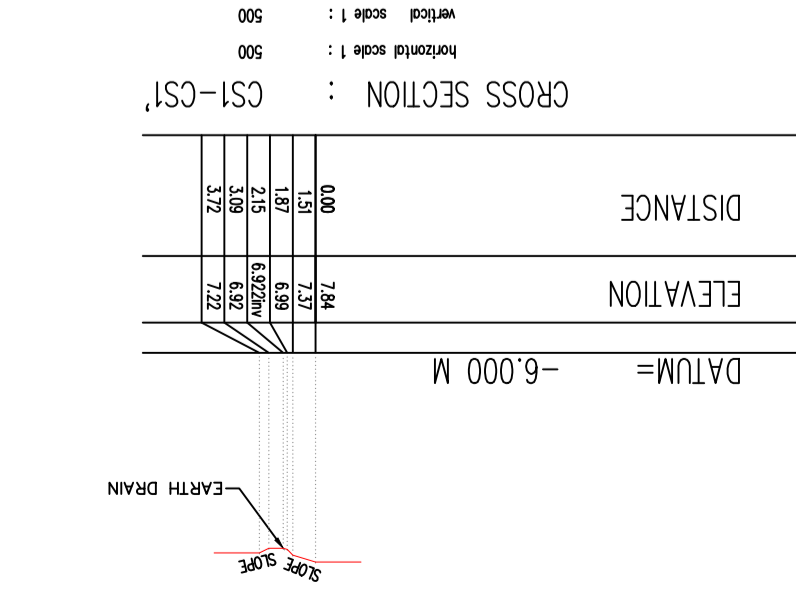
Detailed Records of Stream Mapping Turf EIA

Stream Mapping Point	Cross-section No.	Longitude	Latitude	Photo (In the order of: Upstream, Stream Bed and Downstream)	Channel Wetted Width (m)	Water Depth (cm)	Flow Velocity (Dry Weather) (m/s)	Bed Substrate and Bank Conditions	Riparian Vegetation	Leaf Litter Cover (%)	Canopy Cover (%)	Soil Erosion	Remarks
EW30	CS22 (Drawing 3)	103°47'52.05"E	1°20'9.46"N		2.00	49	0.02	Soil banks on right. Vegetated soil banks on left. Bed is covered with leaf litter and roots.	<i>Adiantum latifolium</i> <i>Andira inermis</i> <i>Aphanamixis polystachya</i> <i>Callisia repens</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Epipremnum aureum</i>	90-100	80	No (R) Medium L	Turbid waters.
EW31	CS23 (Drawing 3)	103°47'52.36"E	1°20'10.21"N		5.00	103	Very low	Vegetated soil banks. Unable to assess the bed conditions due to very turbid waters.	<i>Adenanthera pavonina</i> <i>Adiantum latifolium</i> <i>Alsophila latebrosa</i> <i>Andira inermis</i> <i>Aphanamixis polystachya</i> <i>Arthropodium jackianum</i> <i>Caryota mitis</i> <i>Dimocarpus longan</i> <i>Ptychosperma macarthurii</i> <i>Syzygium grande</i> <i>Grypothrix triphylla</i>	Unable to assess due to turbid waters.	46	Low	Turbid waters with rubbish downstream.
EW32	CS23 (Drawing 3)	103°47'52.34"E	1°20'10.54"N		4.47	56	Very low, almost stagnant.	Vegetated soil banks with a mix of litter and leaf litter bed.	<i>Adenanthera pavonina</i> <i>Adiantum latifolium</i> <i>Andira inermis</i> <i>Caryota mitis</i> <i>Cinnamomum iners</i> <i>Claoxylon indicum</i> <i>Epipremnum aureum</i> <i>Ficus fistulosa</i> <i>Ptychosperma macarthurii</i> <i>Syzygium polyanthum</i>	Estimated 50% from surface of water.	42.7	Low	Surface film with lots of bubbles on surface of water.
EW33	CS24 (Drawing 3)	103°47'52.70"E	1°20'11.27"N		4.40	98	Stagnant	Vegetated soil and clay banks. Sandy and gravelly bed.	<i>Adiantum latifolium</i> <i>Alsophila latebrosa</i> <i>Andira inermis</i> <i>Aphanamixis polystachya</i> <i>Caryota mitis</i> <i>Leea indica</i> <i>Stenochlaena palustris</i> <i>Syzygium cerasiforme</i> <i>Taenitis blechnoides</i> <i>Grypothrix triphylla</i>	30	66.3	Medium	Film observed on surface. Waters are turbid.
EW34	CS25 (Drawing 3)	103°47'52.851"E	1°20'11.827"N		3.00	31	Very low, almost stagnant (~0.01 m/s)	Vegetated sandy-clay banks with sandy bed. Leaf litter in middle of stream.	<i>Adenanthera pavonina</i> <i>Adiantum latifolium</i> <i>Alsophila latebrosa</i> <i>Andira inermis</i> <i>Cinnamomum iners</i> <i>Ficus fistulosa</i> <i>Leea indica</i> <i>Nephelium lappaceum</i> <i>Stenochlaena palustris</i> <i>Syzygium polyanthum</i> <i>Miconia crenata</i> <i>Grypothrix triphylla</i>	15-20	83.8	High	Very turbid waters.

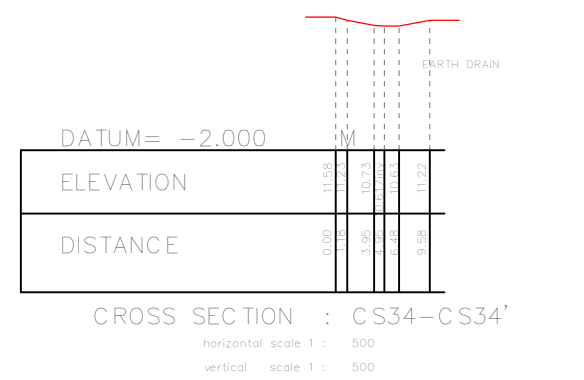
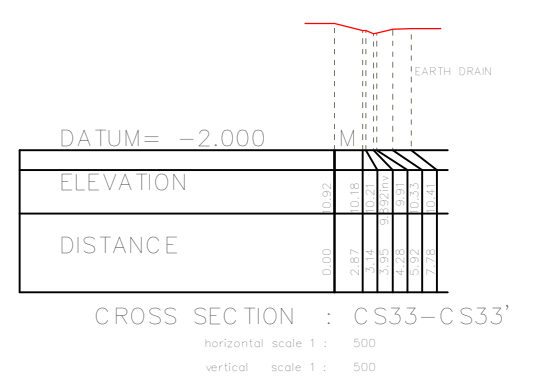
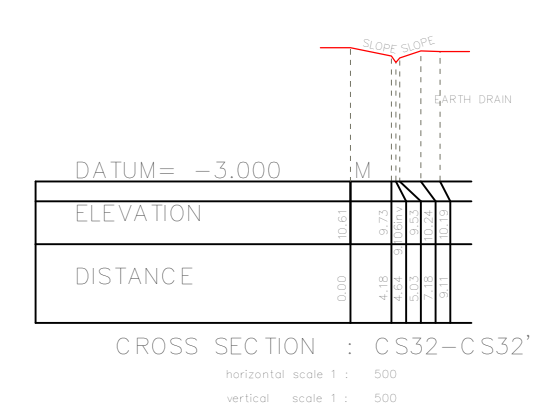
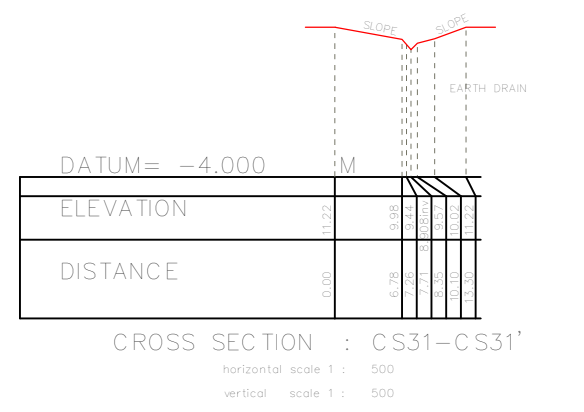
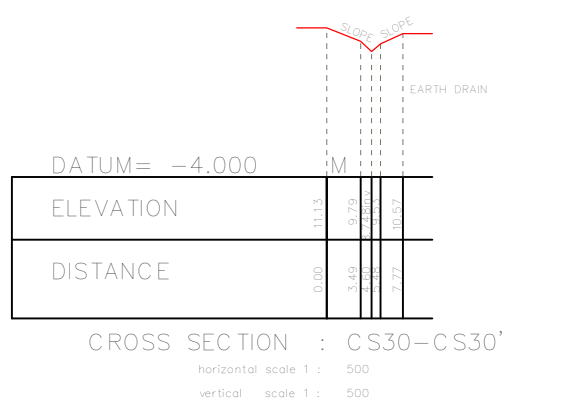
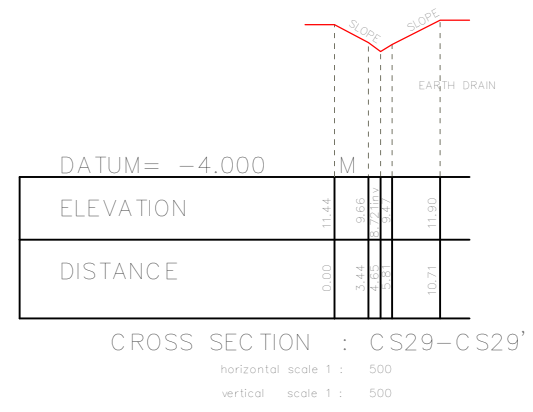
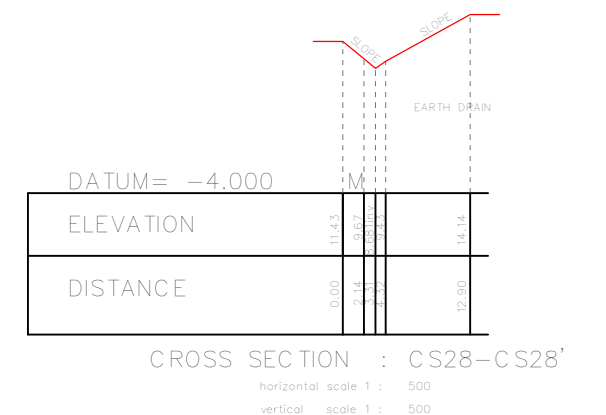
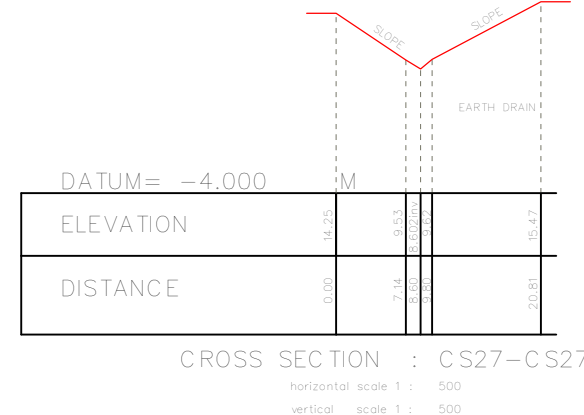
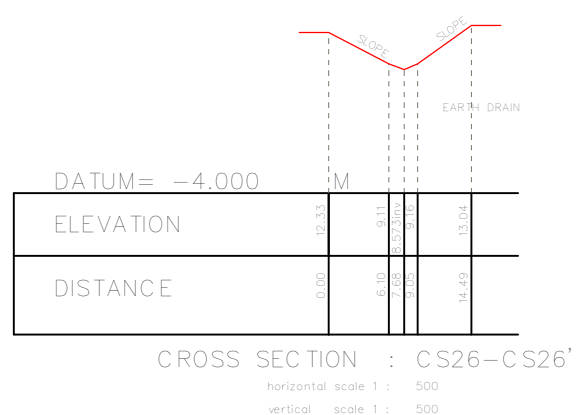
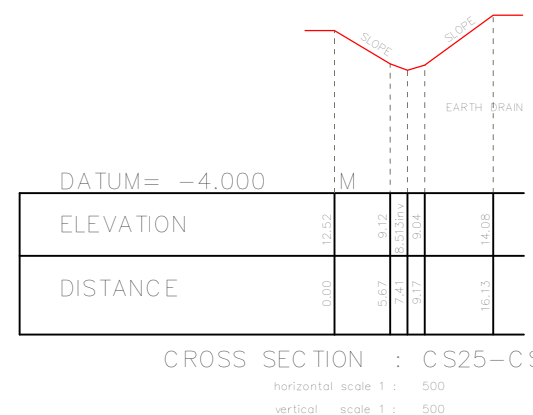
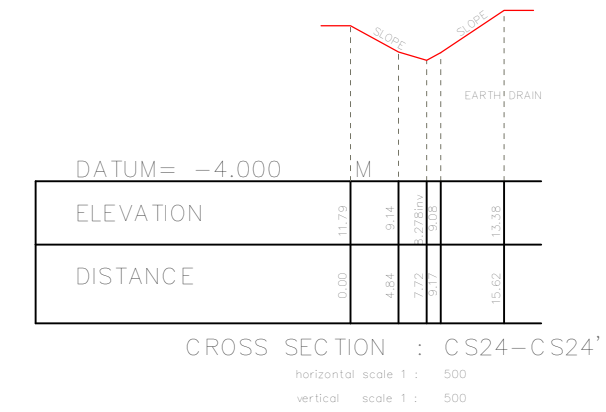
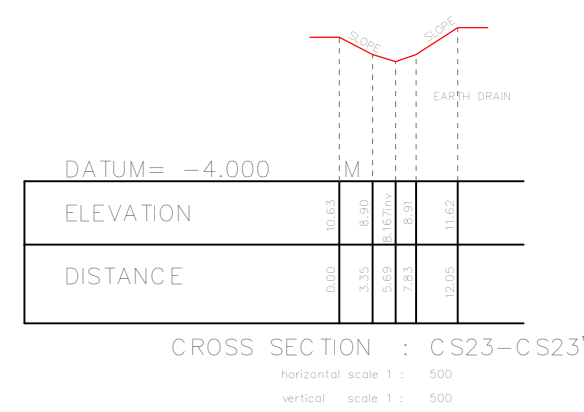
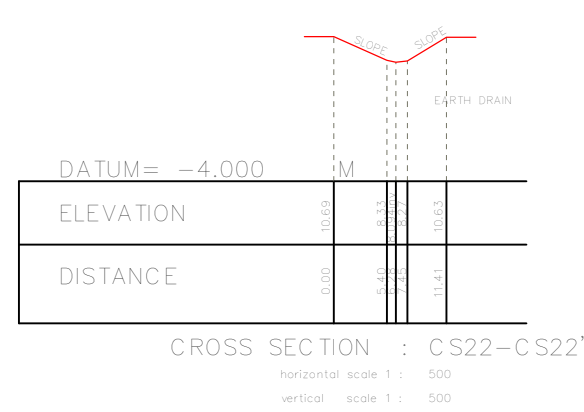
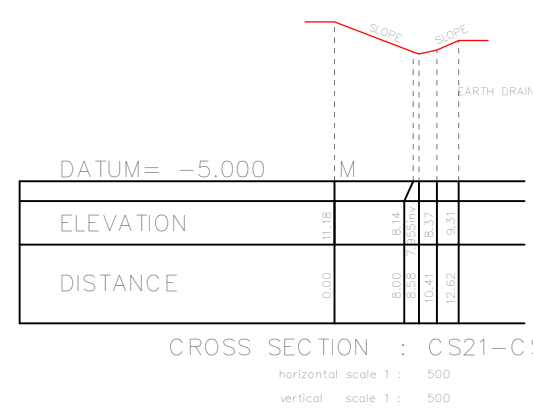
D7 (after Site B)



# DRAWING 2



# DRAWING 3



- NOTES:
1. INFORMATION SHOWN IS CORRECT AT THE TIME OF SURVEY.
  2. ALL LEVELS SHOWN ARE IN METRES.
  3. LEVELS ARE BASED ON SLA VRS RTK SYSTEM REFERRED TO SINGAPORE HEIGHT DATUM(SHD).
  4. THIS IS NOT AN ENCROACHMENT SURVEY PLAN.
  5. CROSS SECTION LOCATION PLEASE REFER TOPO DRAWING YJP/80029/F1/TP/23/5 & YJP/80029/F1/TP/23/6



SURVEYOR :  

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CLIENT :  
**AECOM SINGAPORE PTE LTD**

PROJECT TITLE :  
**ENVIRONMENTAL BASELINE SURVEY (EBS)  
 FOR FORMER TURF CLUB (BUKIT TIMAH  
 PLANNING AREA)(AREA F1-STREAM)**

DRAWING TITLE :  
**CROSS SECTIONS  
 CS21-C21' TO CS34-C34'**

DRAWING NO. :	YJP80029-AECOM-CS-F1-02 OF 02
SCALE :	A1 - 1:500
DRAWN BY :	ZILA
CHECKED BY :	JANSEN
SURVEYED BY :	PANI
DATE OF SURVEY :	21/02/2024 TO 27/02/2024

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