

DATE PLOTTED: 18 October 2019 4:43 PM BY: YIN NWE LWN

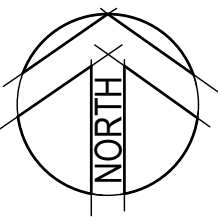


Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2065  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

VERNON TRUST

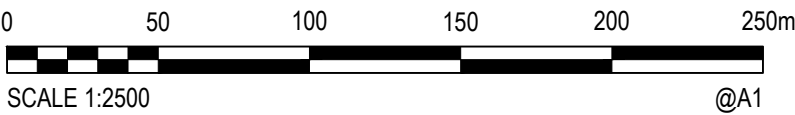
# SANDY HOLLOW SOLAR FARM

## DEVELOPMENT APPLICATION



SCHEDULE OF DRAWINGS

DRAWING No.	DESCRIPTION
80219037-CI-1001	COVER SHEET AND DRAWING SCHEDULE
80219037-CI-1011	GENERAL NOTES AND LEGENDS
80219037-CI-1031	GENERAL ARRANGEMENT PLAN
80219037-CI-1101	EROSION AND SEDIMENTATION CONTROL PLAN
80219037-CI-1131	EROSION AND SEDIMENTATION CONTROL DETAILS
80219037-CI-1201	SITEWORKS PLAN
80219037-CI-1251	OSD BASIN PLAN
80219037-CI-1301	BASIN DETAILS
80219037-CI-1601	SITEWORKS AND STORMWATER DETAILS
80219037-CI-1651	UTILITIES COORDINATION PLAN
80219037-CI-2101	CATCHMENT PLAN



XREFs: XR-80219037-BOUNDARY: XR-80219037-AERIAL IMAGE  
CAD File: \\cardno.org\global\AU\NSW\Drawings\Build\80219037-CI-1001-COVER SHEET AND DRAWING SCHEDULE.dwg

Rev.	Date	Description	Des.	Verif.	Appd.
3	18/10/2019	ISSUED FOR DA APPROVAL	HLD	PL	RKP
2	28/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.

Drawn GJJ	Date 14/06/2019	Status	<b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Checked PL	Date 14/06/2019					
Designed HLD	Date 14/06/2019					
Verified PL	Date 14/06/2019					
Approved						
RKP	14/06/2019					
		DATUM AHD	DATE 6/14/2019	Scale 1:2500	Size A1	
		Drawing Number 80219037-CI-1001				Revision 3



6. A MINIMUM OF 3m OF SUBSOIL LINE SHALL BE LAID INTO UPSTREAM SIDE OF COUNCIL PITS

2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. ANY DISCREPANCIES TO BE REPORTED TO CARDNO.
3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS.
4. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
5. ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACKFILLED WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMOVED OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL. COMPACTED IN 150mm LAYERS TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
6. PROVIDE 10mm WIDE EXPANSION JOINTS BETWEEN BUILDINGS AND ALL CONCRETE OR CONUIT PAVEMENTS.
7. ASPHALTIC COURSE MATERIAL SHALL CONFORM TO R.M.S. SPECIFICATION R116.
8. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S. FORM 3051, COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m<sup>2</sup> OF BASECOURSE MATERIAL PLACED.
9. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH R.M.S. FORM 3051, AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m<sup>2</sup> OF SUB-BASE COURSE MATERIAL PLACED.
10. AS AN ALTERNATIVE TO THE USE OF IGNEOUS ROCK AS A SUB-BASE MATERIAL IN (b) A CERTIFIED RECYCLED CONCRETE MATERIAL COMPLYING WITH R.M.S. FORM 3051 WILL BE CONSIDERED. SUBJECT TO MATERIAL SAMPLES AND APPROPRIATE CERTIFICATIONS BEING PROVIDED TO THE SATISFACTION OF CARDNO.
11. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
12. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS. (eg ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

— OHE — OVERHEAD ELECTRICITY CABLE.

1. ORIGIN OF LEVELS: REFER SURVEY NOTES
2. STRIP ALL TOPSOIL/ORGANIC MATERIAL FROM CONSTRUCTION AREA AND REMOVE FROM SITE OR STOCK PILE AS DIRECTED BY SUPERINTENDENT.
3. EXCAVATED MATERIAL TO BE USED AS STRUCTURAL FILL PROVIDED THE PLACEMENT MOISTURE CONTENT OF THE MATERIAL IS +/- 2% OF THE OPTIMUM MOISTURE CONTENT.
4. COMPACT FILL AREAS AND SUBGRADE TO NOT LESS THAN:  

LOCATION	STANDARD DRY DENSITY (AS 1289 5.1.1.)
UNDER ROADS	98%
LANDSCAPED AREAS UNLESS NOTED OTHERWISE	95%
5. FOR NON COHESIVE MATERIAL, COMPACT TO 75% DENSITY INDEX.
6. BEFORE PLACING FILL, PROOF ROLL EXPOSED SUBGRADE WITH AN 12 TONNE (MIN) DEADWEIGHT SMOOTH DRUM VIBRATORY ROLLER TO DETECT THEN REMOVE SOFT SPOTS (AREAS WITH MORE THAN 2mm MOVEMENT UNDER ROLLER).
7. FREQUENCY OF COMPACTION TESTING SHALL BE NOT LESS THAN :-  
(A) 1 TEST PER 500m<sup>2</sup> OF FILL PLACED PER 300 LAYER OF FILL.  
(B) 3 TESTS PER VISIT  
(C) 1 TEST PER 2500m<sup>2</sup> OF EXPOSED SUBGRADE "LEVEL 1" TESTING SHALL BE TESTING IN ACCORDANCE WITH AS 3798 (1996).
8. FILLING TO BE PLACED IN MAXIMUM 150mm - LOOSE LAYERS AND COMPACTED AS SPECIFIED
9. NO FILLING SHALL TAKE PLACE TO EXPOSED SUBGRADE UNTIL THE AREA HAS BEEN PROOF ROLLED IN THE PRESENCE OF CARDNO AND APPROVAL GIVEN IN WRITING THAT FILLING CAN PROCEED.

- a. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
- b. ENSURING THAT NOTHING IS NAILED TO THEM
- c. PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS.
  - (I) ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER
  - (II) A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAD. BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
  - (III) CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.

The diagram illustrates various features and their retention status during construction:

- CONCRETE HEADWALL:** Indicated by a grey trapezoidal shape at the top left.
- ROCK SCOUR PROTECTION:** Indicated by a cluster of grey circles below the headwall.
- EXISTING TREE TO BE RETAINED:** Indicated by a green circle with a green outline and a green cross inside.
- EXISTING TREE TO BE REMOVED WHERE REQUIRED:** Indicated by a red circle with a red outline and a red cross inside.
- BATTER SLOPE:** Indicated by a grey triangular area at the bottom left, labeled with a '1'.

STORMWATER DESIGN CRITERIA:  
(A) ANNUAL EXCEEDANCE PROBABILITIES (AEP):

20% (1 IN 5)	MINOR (PIPED) NETWORK
1% (1 IN 100)	MAJOR (OVERLAND FLOW) SYSTEM

(B) RAINFALL INTENSITIES:  
ARR 2016  
RAINFALL FROM BUREAU OF METEOROLOGY WEBSITE

(C) HYDROLOGIC METHOD:  
DRAINS WITH ARR 2016 PROCEDURES AND ILSAX HYDROLOGY MODEL.

2. PIPES 375 DIA. AND LARGER TO BE REINFORCED CONCRETE CLASS "2" APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS. U.N.O.

3. PIPES 300 DIA AND LESS SHALL BE DWV GRADE (CLASS SN8) uPVC WITH SOLVENT WELDED JOINTS.

4. EQUIVALENT STRENGTH FRC PIPES MAY BE USED.

5. ALL PIPES ARE TO BE UNIFORMLY SUPPORTED ALONG THE LENGTH OF THE BARREL BY SUITABLE FILL MATERIAL. REFER TO BEDDING SUPPORT TYPE.

6. PIPES WITH SOCKETS SHALL BE LAID IN BEDDING WHERE SUITABLE RECESSES HAVE BEEN PROVIDED TO ENSURE PIPES DO NOT BEAR ON THEIR SOCKETS.

7. ALL STORMWATER DRAINAGE LINES UNDER PROPOSED BUILDING SLABS TO BE uPVC PRESSURE PIPE GRADE 6. ENSURE ALL VERTICALS AND DOWNPIPES ARE uPVC PRESSURE PIPE. GRADE 6 FOR A MIN OF 3.0m IN HEIGHT.

8. PIPES TO BE INSTALLED TO TYPE HSI SUPPORT IN ACCORDANCE WITH AS 3725 (2007) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL. COMPACTED IN 150mm LAYERS TO MINIMUM 98% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75).

9. REFER TO AS/NZS 3725:2007 TABLE B1 FOR REQUIRED FILL DEPTHS ABOVE PIPE BARREL RIOR TO BE USED OF COMPACTION MACHINERY OR TRAVERSING OF PIPES BY GENERAL SITE EQUIPMENT.

10. WHERE WORKING METHODS REQUIRE HIGHER CLASS PIPE, THE CONTRACTOR SHALL REFER TO AS 3725 (2007) TO DETERMINE THE APPROPRIATE PIPE CLASS. PROPOSED PIPE CLASS SHALL BE REVIEWED BY CARDNO PRIOR TO INSTALLATION.

11. ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS/NZS 3500.3:2015.

12. PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY CARDNO.

13. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

14. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

15. CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.

16. GRATES AND COVERS SHALL CONFORM TO AS 3996.

17. ALL BOX CULVERTS SHALL BE STRUCTURALLY DESIGNED BY THE MANUFACTURER AND DELIVERED TO SITE AS FIT FOR PURPOSE.

18. AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

19. ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

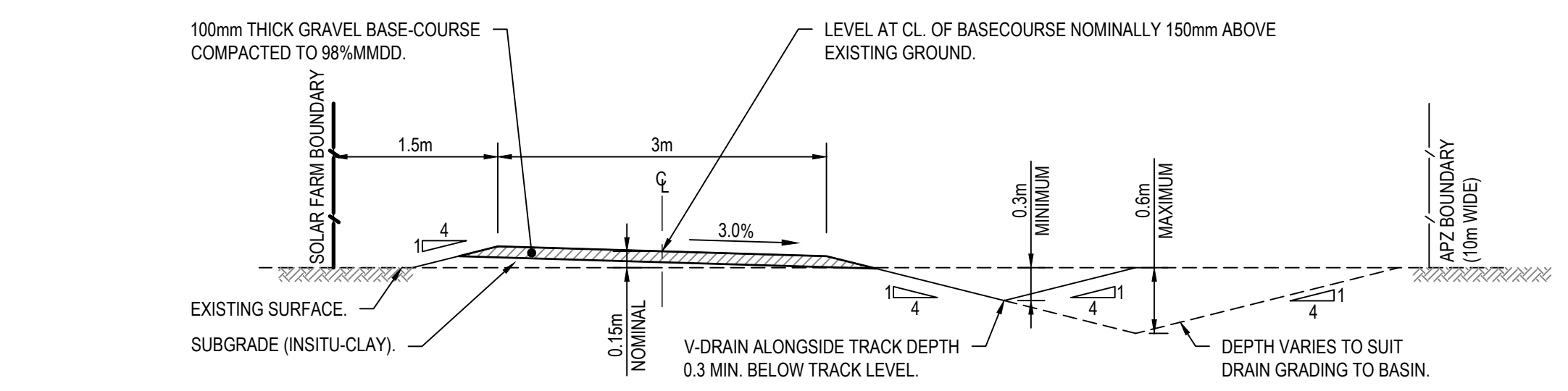
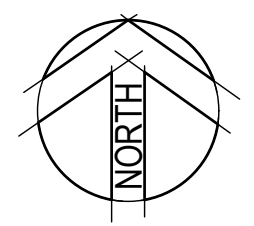
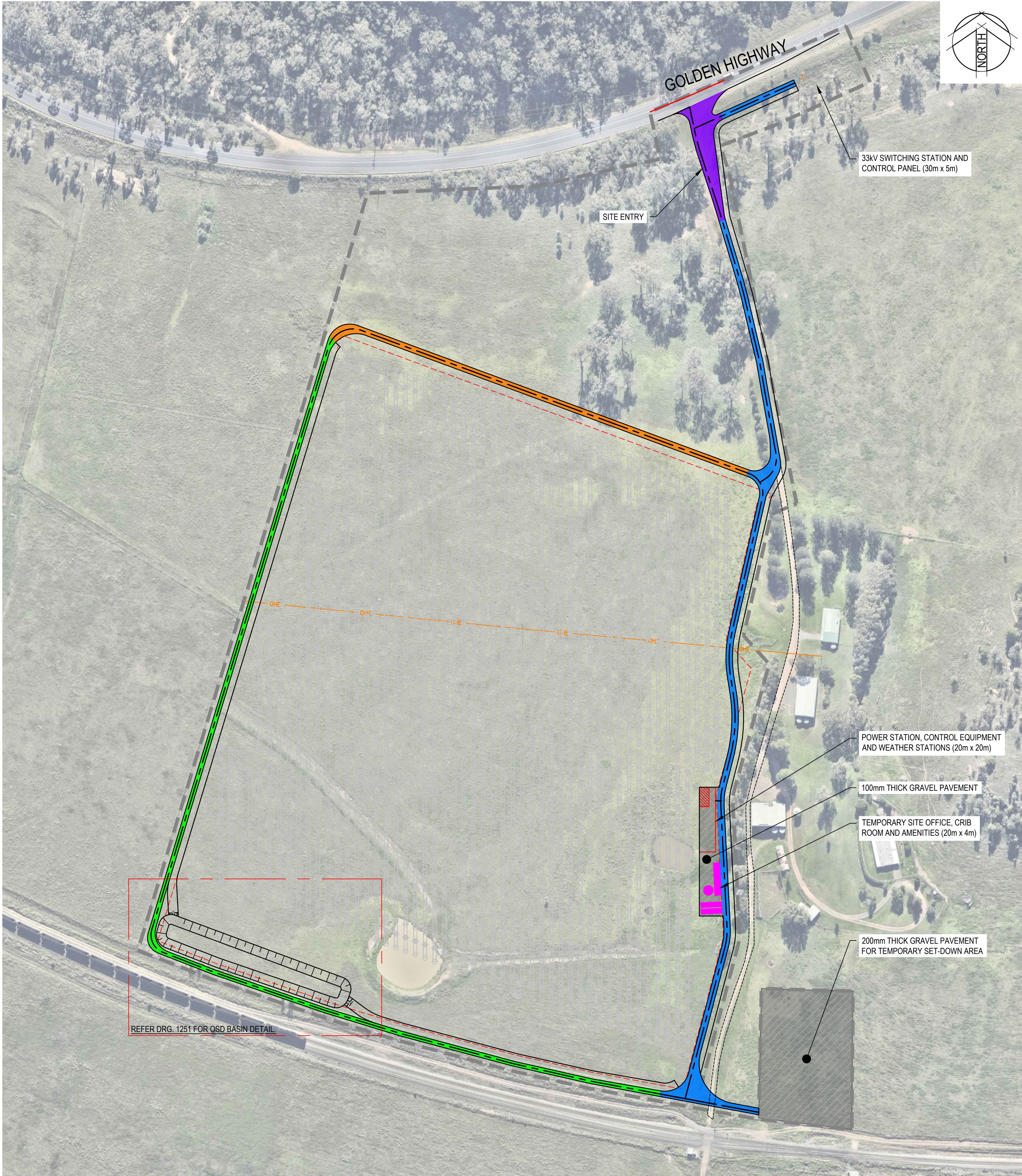
2	18/10/2019	ISSUED FOR DA APPROVAL		HLD	PL	RKP
	14/06/2019	ISSUED FOR INFORMATION		HLD	PL	RKP
Rev.	Date	Description		Des.	Verif.	Appd.

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the  
benefit of and use by the client in accordance with the  
terms of the retainer. Cardno Limited does not and shall not  
assume any responsibility or liability whatsoever to any third  
party arising out of any use or reliance by third party on the  
content of this document.

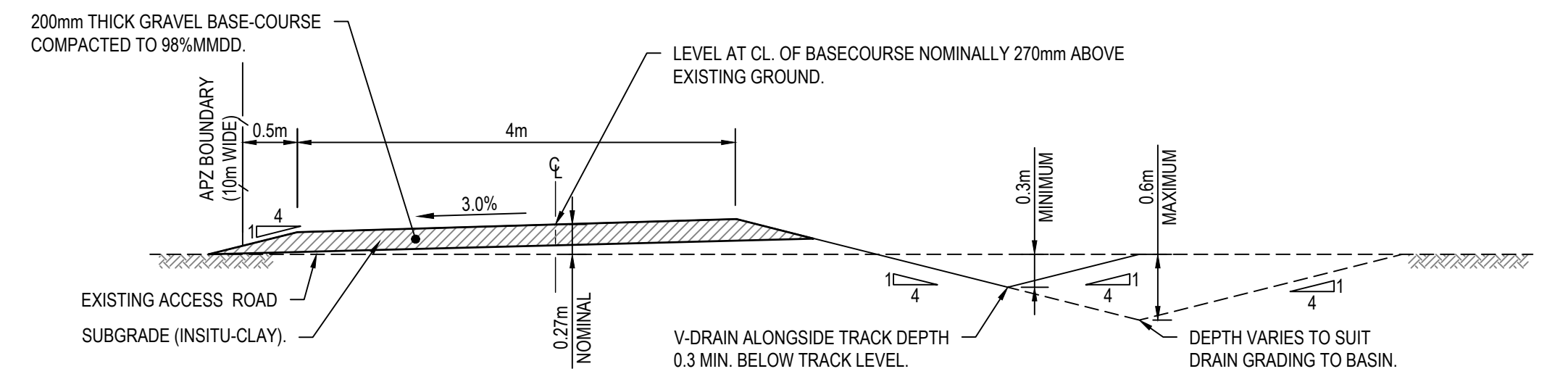


Drawn GJJ	Date 14/06/2019	Client VERNON TRUST				
Checked PL	Date 14/06/2019	Project SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION	Status FOR APPROVAL			
Designed HLD	Date 14/06/2019		NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Verified PL	Date 14/06/2019	Title GENERAL NOTES AND LEGENDS	DATUM AHD	DATE 6/14/2019	Scale N.T.S	Size A1
Approved			Drawing Number 80219037-CI-1011			
RKP	14/06/2019					

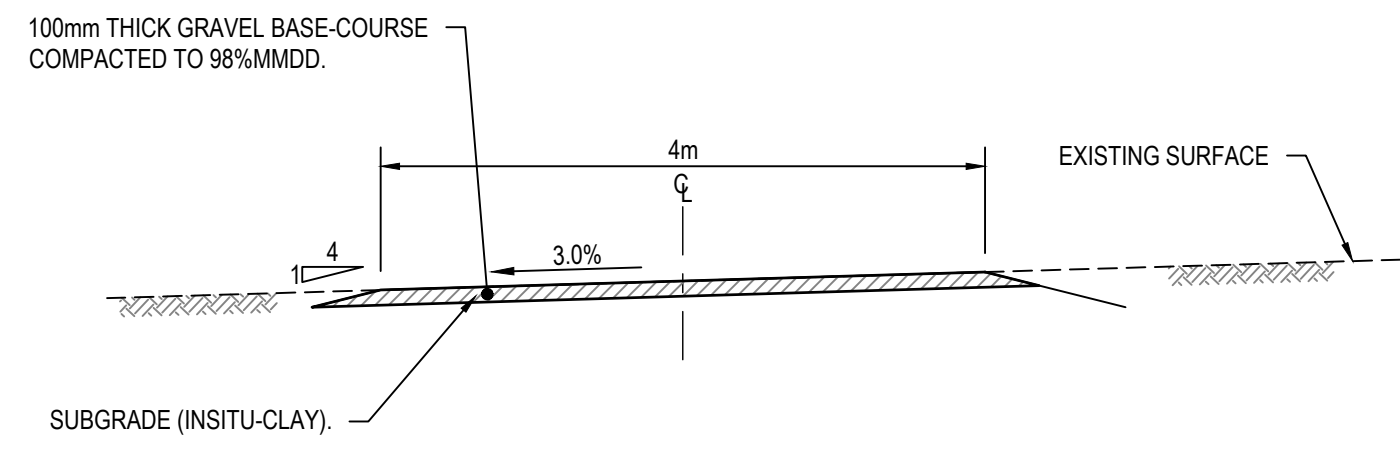




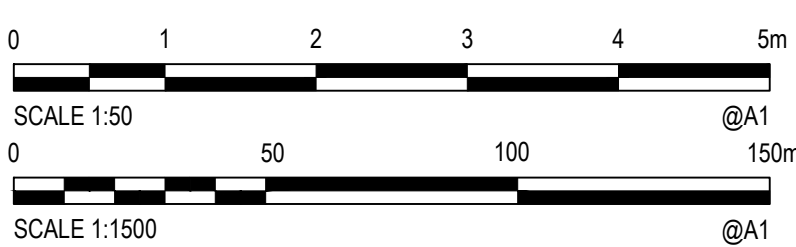
SECTION 1 (TYPE 1)  
SCALE 1:50



SECTION 2 (TYPE 2)  
SCALE 1:50



SECTION 3 (TYPE 3)  
SCALE 1:50



**NOTE:**  
SUB-GRADE FILL MATERIAL FOR TRACK TO BE OBTAINED BY CUTTING IN-SITU MATERIAL FROM V-DRAIN. TRACK SUB-GRADE LEVEL SET BY CUT TO FILL BALANCE OF TRACK AND V-DRAIN.  
PAVEMENTS HAVE BEEN DESIGNED USING DESIGN SUBGRADE CBR 3%. CBR TO BE CONFIRMED ON SITE AFTER ROAD BOXING. FOR CBR LESS THAN 3%, PAVEMENT REDESIGN REQUIRED (NOTIFY SUPERINTENDENT PRIOR TO TREATMENT FOR CONFIRMATION DESIGN).

LEGEND:			
<span style="display:inline-block; width:15px; height:15px; background-color:blue;"></span>	ROAD SECTION TYPE 1	<span style="display:inline-block; width:15px; height:15px; background-color:orange;"></span>	ROAD SECTION TYPE 3
<span style="display:inline-block; width:15px; height:15px; background-color:green;"></span>	ROAD SECTION TYPE 2	<span style="display:inline-block; width:15px; height:15px; background-color:purple;"></span>	ENTRY WIDENING

Rev.	Date	Description	Des.	Verif.	Appd.
3	18/10/2019	ISSUED FOR DA APPROVAL	HLD	PL	RKP
2	28/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



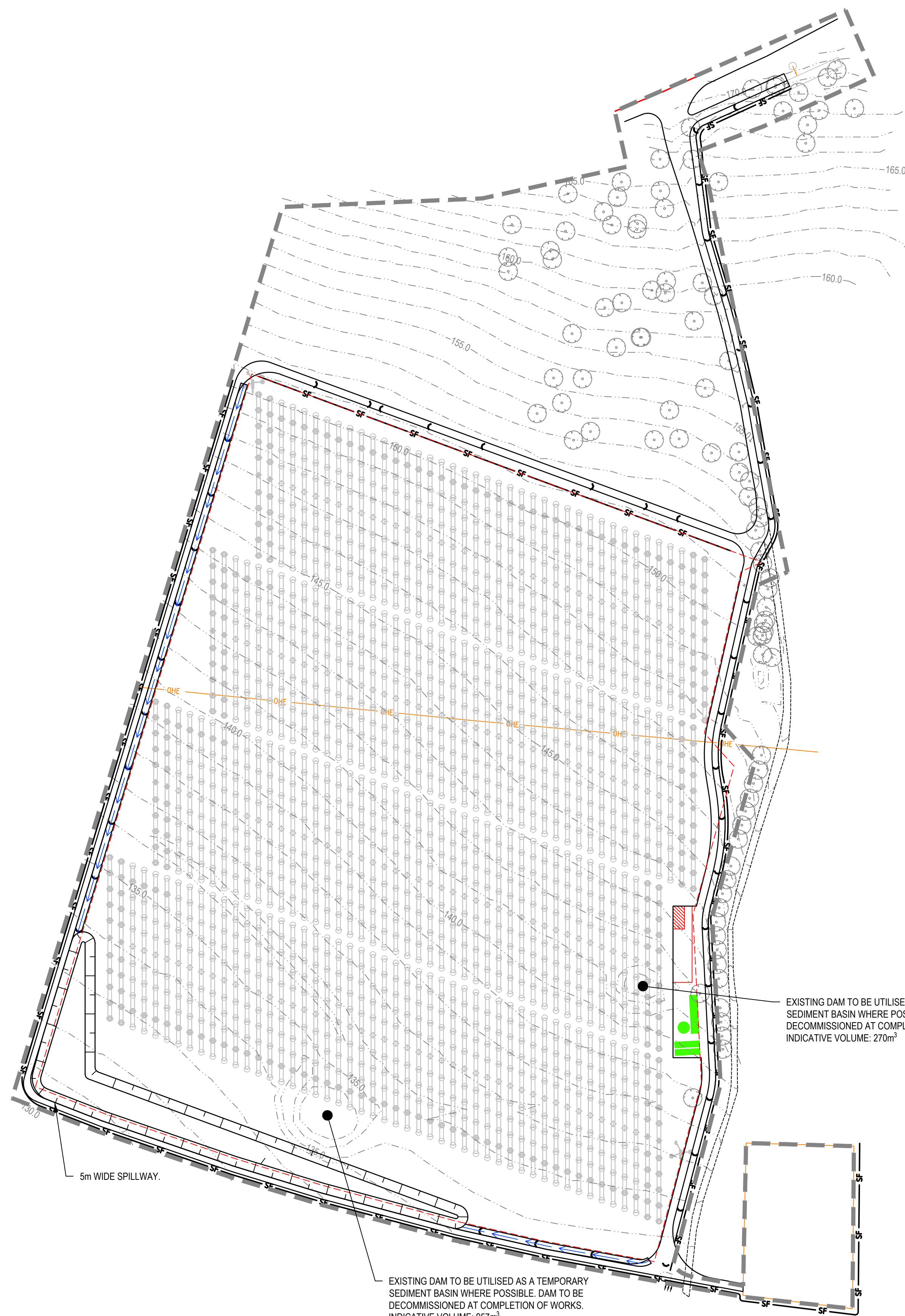
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2055  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

Drawn	GJI	Date	14/06/2019
Checked	PL	Date	14/06/2019
Designed	HLD	Date	14/06/2019
Verified	PL	Date	14/06/2019
Approved	RKP	Date	14/06/2019

Client	VERNON TRUST
Project	SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION
Title	GENERAL ARRANGEMENT PLAN

Status				
FOR APPROVAL				
NOT TO BE USED FOR CONSTRUCTION PURPOSES				
DATUM	DATE	Scale	Size	
AHD	6/14/2019	AS SHOWN		A1
Drawing Number				Revision
80219037-CI-1031				3








- EXISTING DAM TO BE UTILISED AS A TEMPORARY SEDIMENT BASIN WHERE POSSIBLE. DAM TO BE DECOMMISSIONED AT COMPLETION OF WORKS. INDICATIVE VOLUME: 270m<sup>3</sup>

EXISTING DAM TO BE UTILISED AS A TEMPORARY SEDIMENT BASIN WHERE POSSIBLE. DAM TO BE DECOMMISSIONED AT COMPLETION OF WORKS.  
INDICATIVE VOLUME: 957m<sup>3</sup>

5m WIDE SPILLWAY

## LEGEND:

	SEDIMENT FENCE
	STRAW BALE SEDIMENT FILTER
	LEVEL SPREADER

0 50 100 150  
SCALE 1:1500 @A1

3	18/10/2019	ISSUED FOR DA APPROVAL		HLD	PL	RKP
2	28/06/2019	ISSUED FOR INFORMATION		HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION		HLD	PL	RKP
Rev.	Date	Description		Des.	Vectf	Appd.

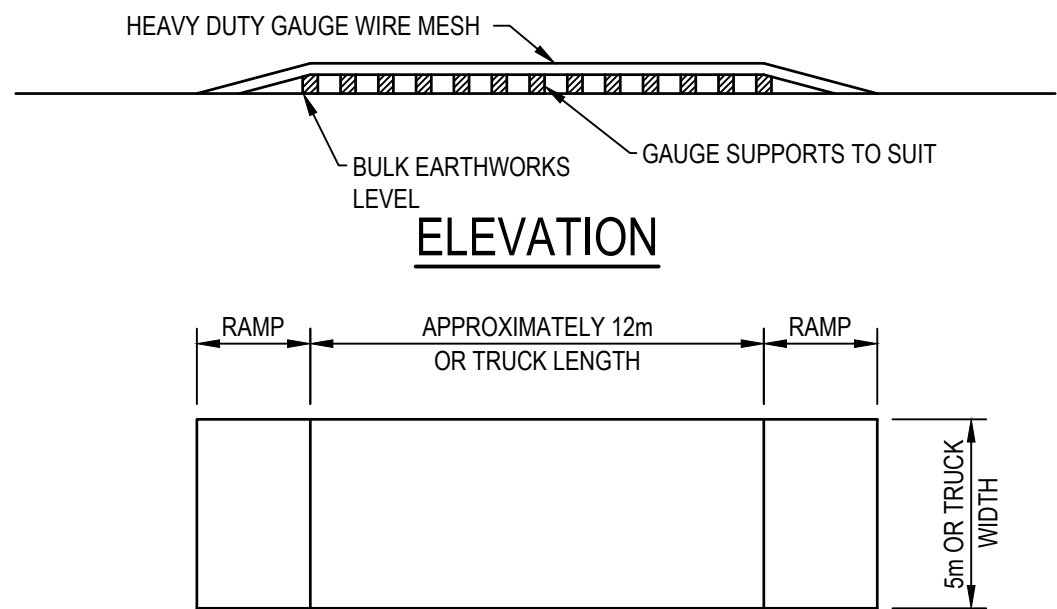
© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2065  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: [www.cardno.com.au](http://www.cardno.com.au)

Drawn GJI	Date 14/06/2019	Client <b>VERNON TRUST</b>	Project <b>SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION</b>	Status <b>FOR APPROVAL</b> <b>NOT TO BE USED FOR CONSTRUCTION PURPOSES</b>		
Checked PL	Date 14/06/2019					
Designed HLD	Date 14/06/2019					
Verified PL	Date 14/06/2019					
Approved						
		Title <b>EROSION AND SEDIMENTATION CONTROL PLAN</b>	DATUM <b>AHD</b>	DATE <b>6/14/2019</b>	Scale <b>1:1500</b>	Size <b>A1</b>
			Drawing Number <b>80219037-CI-1101</b>	Revision <b>3</b>		
RKP	14/06/2019					

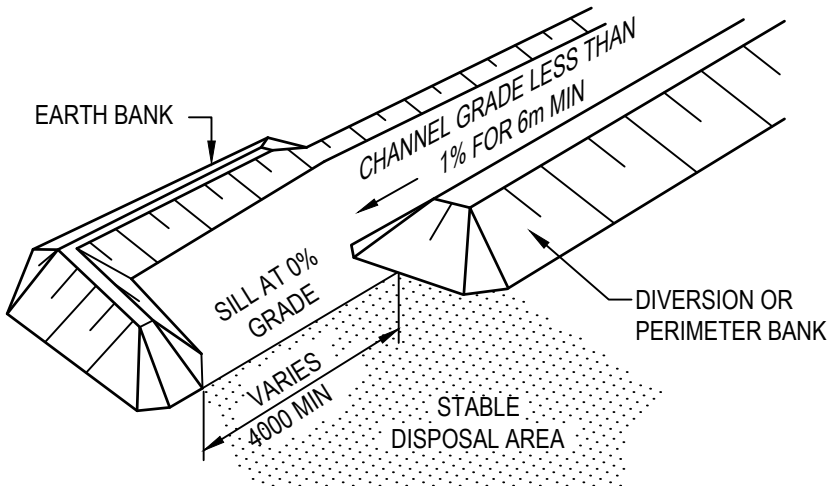




TEMPORARY CONSTRUCTION EXIT  
(WASH DOWN DETAIL)

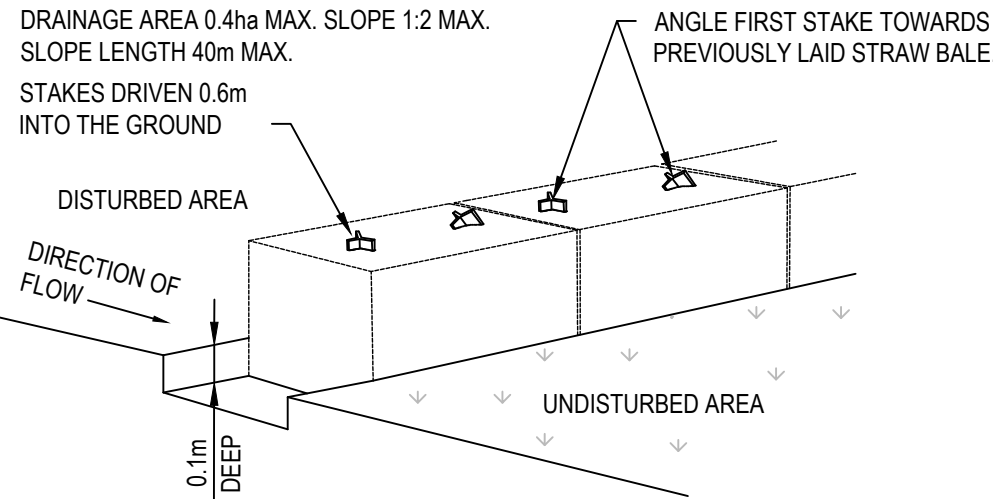
SCALE 1:200

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY. THIS MAY REQUIRE REPAIR AND OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY.



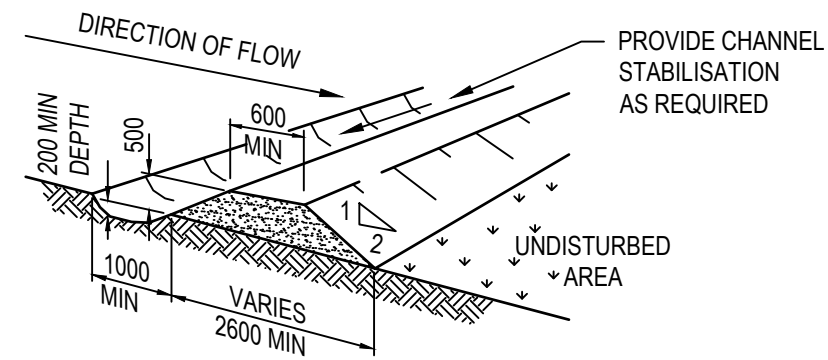
LEVEL SPREADER

NOT TO SCALE



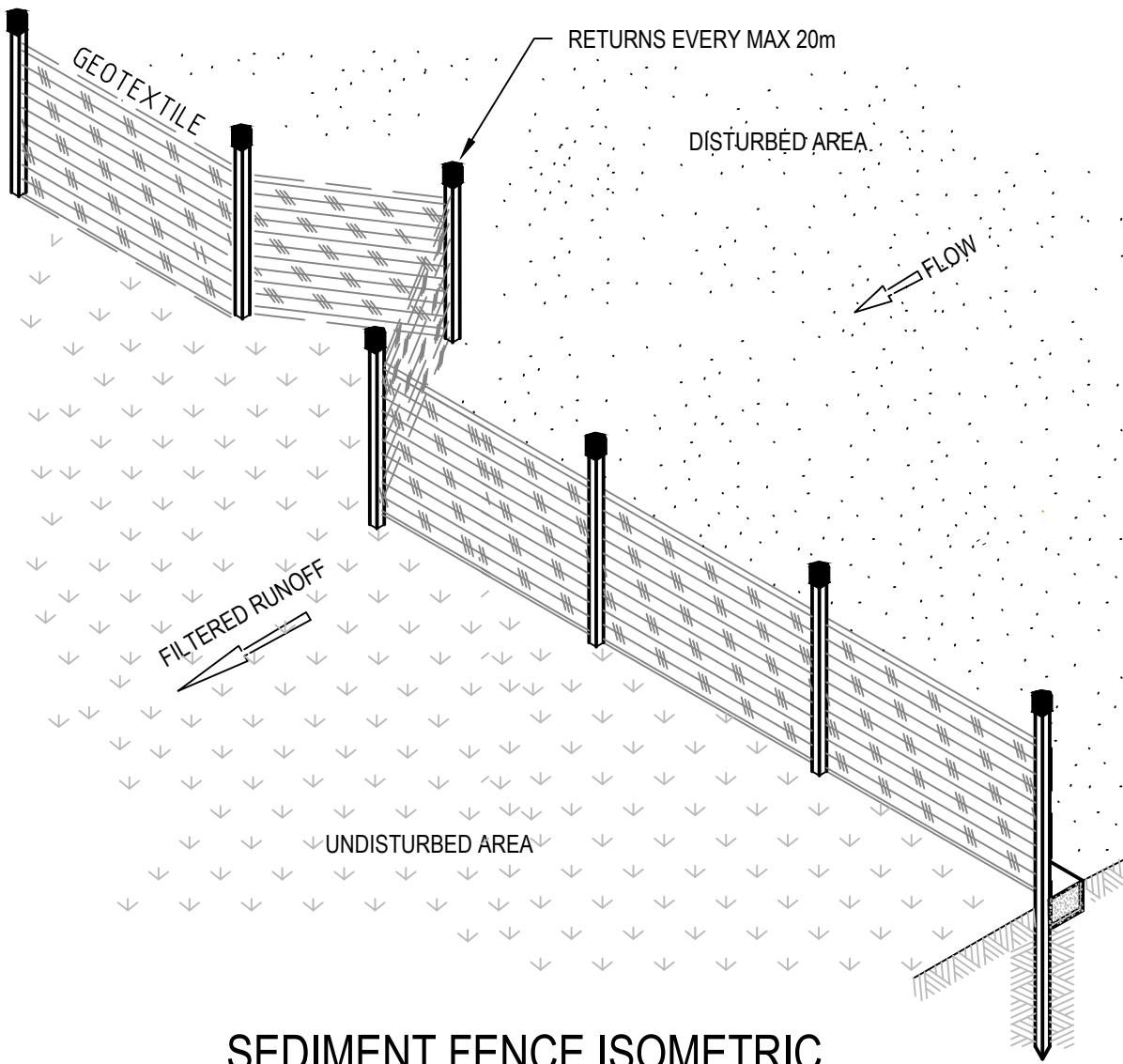
STRAW BALE SEDIMENT FILTER

NOT TO SCALE



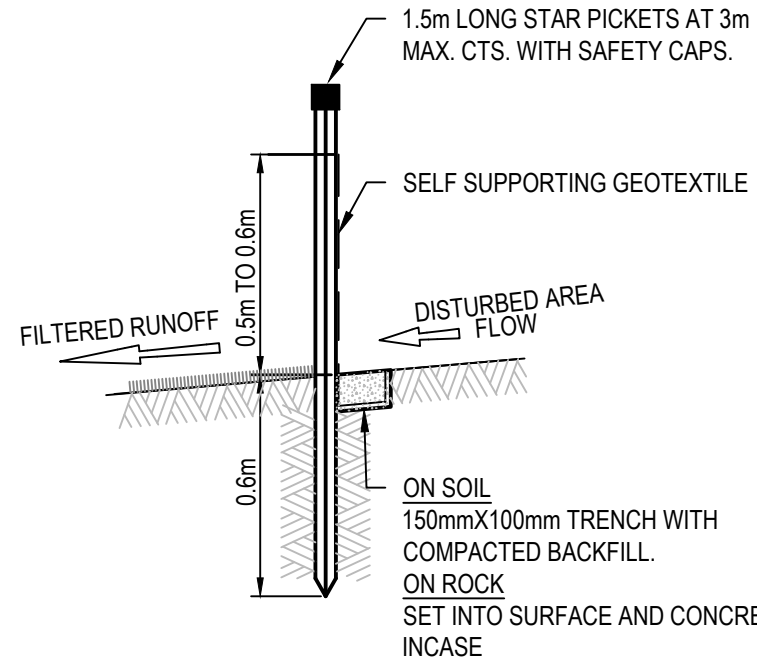
DIVERSION BANK  
(WITH CHANNEL)

NOT TO SCALE



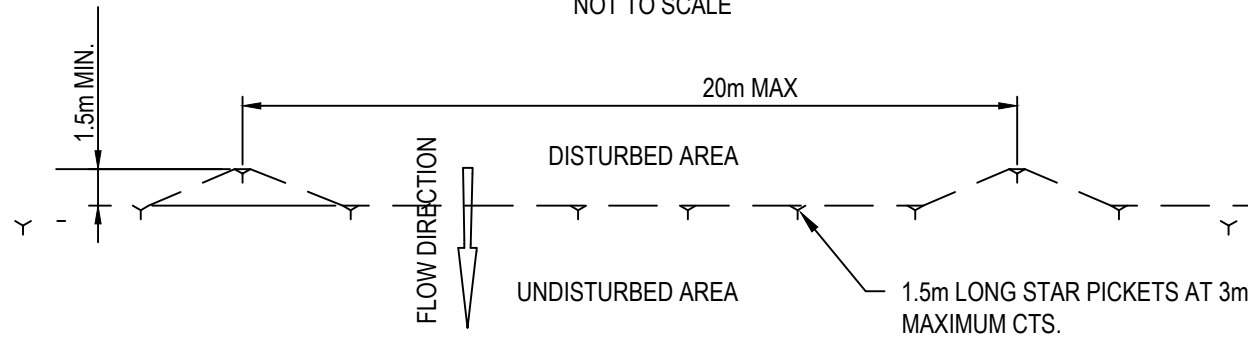
SEDIMENT FENCE ISOMETRIC

NOT TO SCALE



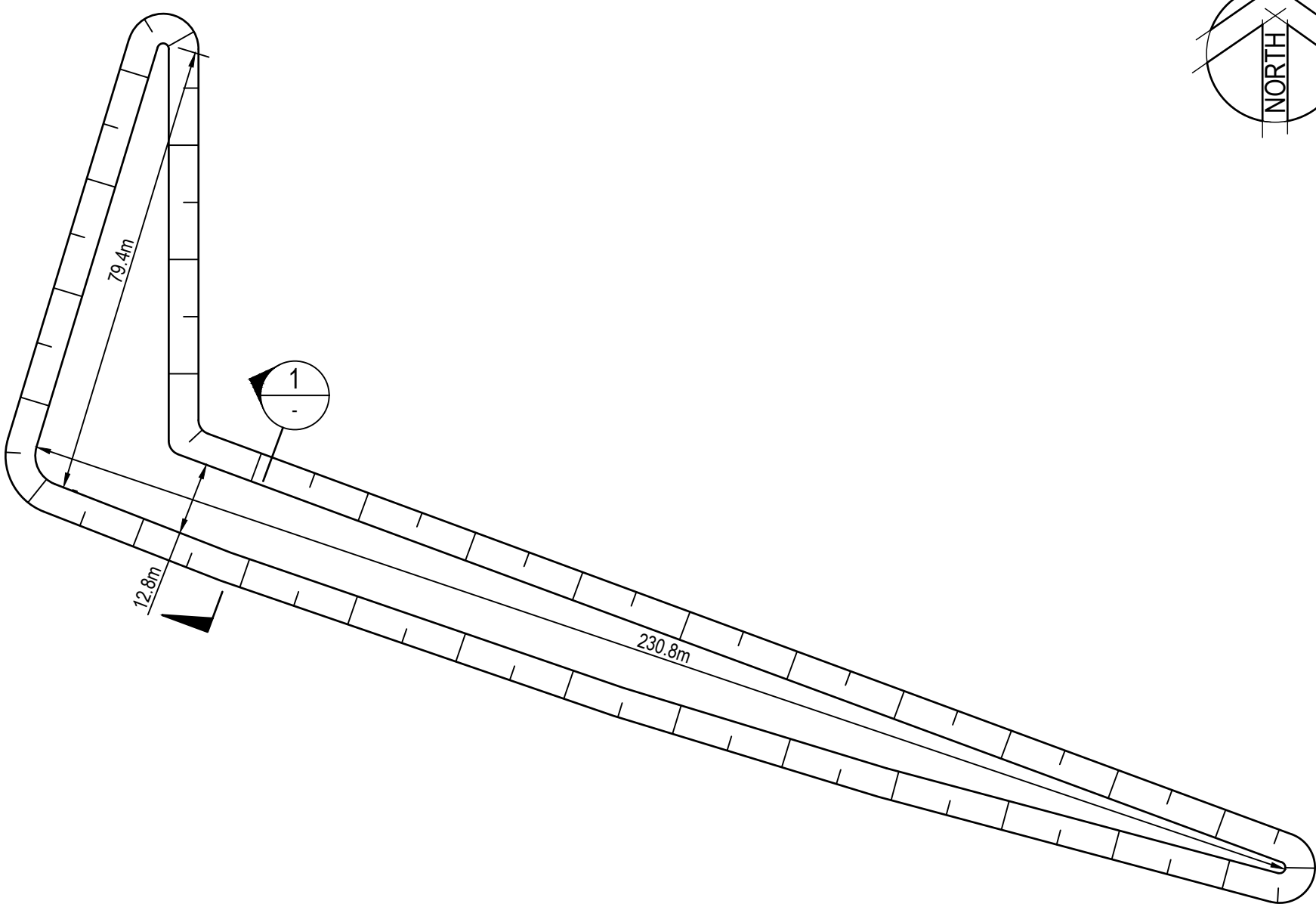
SEDIMENT FENCE SECTION

NOT TO SCALE



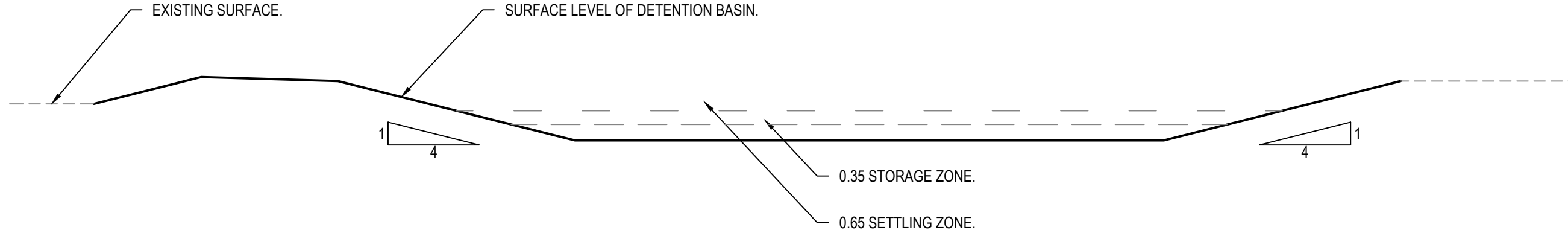
SEDIMENT FENCE PLAN

NOT TO SCALE



TEMPORARY SEDIMENT BASIN

SCALE 1:1000



SECTION 1

SCALE 1:100

## 1. Site Data Sheet

Site name: Sandy Hollow Solar Farm

Site location: Muswellbrook Shire Council

Precinct: Sandy Hollow Solar Farm

Description of site: Renewable Energy project

Site area	Site					Remarks
	1	2	3	4		
Total catchment area (ha)	17.247					
Disturbed catchment area (ha)	17.247					

### Soil analysis

Soil landscape		DIPNR mapping (if relevant)
Soil Texture Group	F	Sections 6.3.3(c), (d) and (e)

### Rainfall data

Design rainfall depth (days)	5	See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	80	See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	22.6	See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm	6.07	See IFD chart for the site
Rainfall erosivity (R-factor)	1040	Automatic calculation from above data

## 2. Volume of Sediment Basins, Type D and Type F Soils

Basin volume = settling zone volume + sediment storage zone volume

### Settling Zone Volume

The settling zone volume for Type F and Type D soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{x\text{-day}, y\text{-tile}, x\text{-day}} \text{ (m}^3\text{)}$$

where:

10 = a unit conversion factor

$C_v$  = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period

R = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).

A = total catchment area (ha)

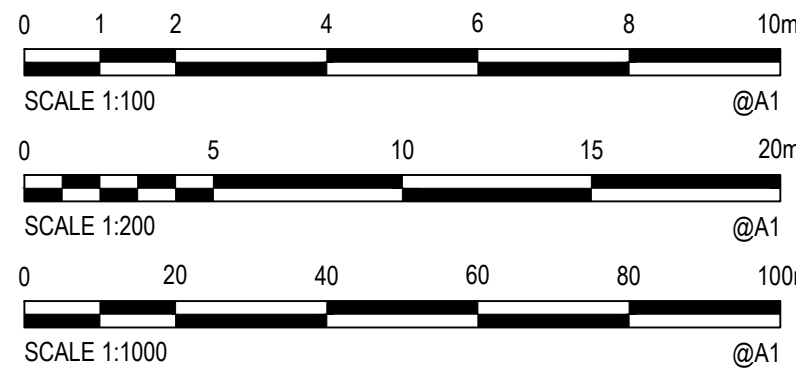
### Sediment Storage Zone Volume

In the standard calculation, the sediment storage zone is 50 percent of the settling zone. However, designers can work to capture the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)), in which case the "Detailed Calculation" spreadsheets should be used.

Total Basin Volume					
Site	$C_v$	R x-day y-tile	Total catchment area (ha)	Settling zone volume (m <sup>3</sup> )	Total basin volume (m <sup>3</sup> )
1	0.51	22.6	17.2468	1987.896168	2981.796252

### NOTE:

- TEST ANY STORED WATER AND FLOCCULATE AS REQUIRED TO ENSURE WATER QUALITY MEETS THE REQUIREMENTS OF COUNCIL PRIOR TO PUMPING FOR DUST CONTROL. REFER TO APPENDIX E OF 'BLUE BOOK' FOR FLOCCULATION DETAILS.
- TEMPORARY BASIN IS REFERRED TO AS 'SITE 1' IN BASIN CALCULATIONS



Rev.	Date	Description	Des.	Verif.	Appd.
2	18/10/2019	ISSUED FOR DA APPROVAL	HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.

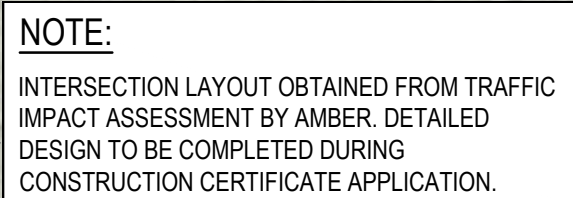
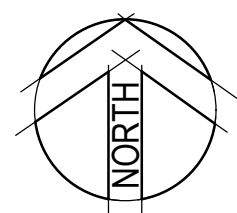


Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2055  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

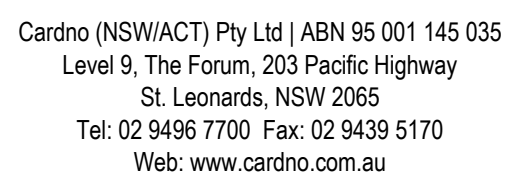
Drawn GJI	Date 14/06/2019	Client VERNON TRUST
Checked PL	Date 14/06/2019	Project SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION
Designed HLD	Date 14/06/2019	Title EROSION AND SEDIMENTATION CONTROL DETAILS
Verified PL	Date 14/06/2019	
Approved RKP	Date 14/06/2019	

Status NOT TO BE USED FOR CONSTRUCTION PURPOSES			
DATUM AHD	DATE 6/14/2019	Scale AS SHOWN	Size A1
Drawing Number 80219037-CI-1131			Revision 2





© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



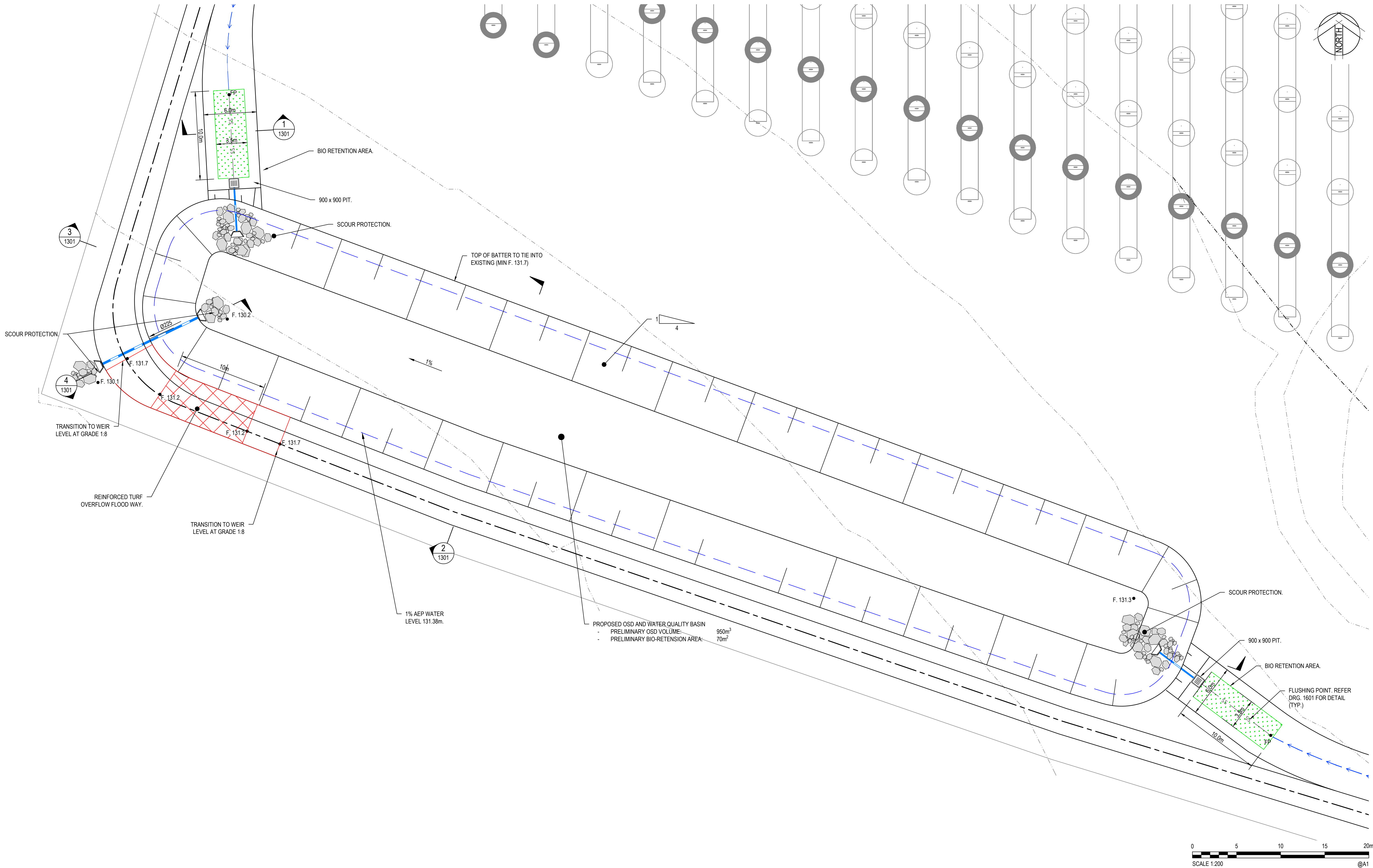
Client	VERNON TRUST
Project	SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION
Title	SITWORKS PLAN

Status			
<b>FOR APPROVAL</b>			
<b>NOT TO BE USED FOR CONSTRUCTION PURPOSES</b>			
DATUM	DATE	Scale	Size
AHD	6/14/2019	AS SHOWN	A1
Drawing Number			Revision
80219037-CI-1201			3



DATE PLOTTED: 18 October 2019 5:16 PM BY: YIN NWE LWN

XREFs: XR-80219037-VPORIT: XR-80219037-ARCHITECTURAL: XR-80219037-EXISTING CONTOURS: XR-80219037-SITEWORKS: XR-80219037-BOUNDARY: XR-80219037-DESIGN CONTOURS  
CAD File: \\cardno\proj\global\AU\NSW\Drawings\Structure\Projects\80219037\_Sandy Hollow Solar Farm\Drawings\Build\80219037-CI-1251-OSD BASIN PLAN.dwg



© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2055  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

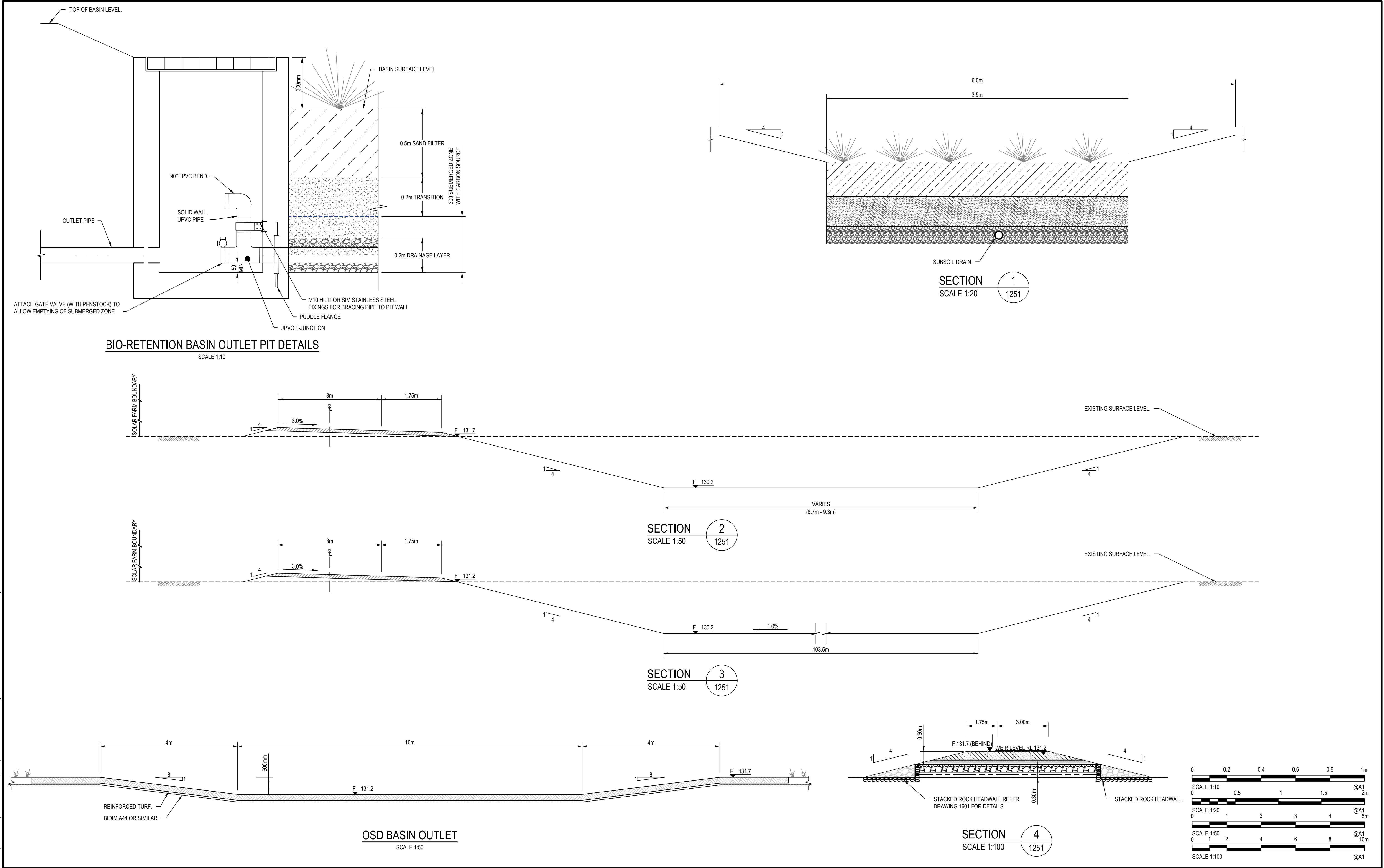
Drawn	GJI	Date	14/06/2019
Checked	PL	Date	14/06/2019
Designed	HLD	Date	14/06/2019
Verified	PL	Date	14/06/2019
Approved	RKP	Date	14/06/2019

Client VERNON TRUST  
Project SANDY HOLLOW SOLAR FARM  
DEVELOPMENT APPLICATION  
Title OSD BASIN PLAN

Status				FOR APPROVAL	
NOT TO BE USED FOR CONSTRUCTION PURPOSES					
DATUM		DATE	Scale	Size	
AHD		6/14/2019	1:200		A1
Drawing Number					Revision
80219037-CI-1251					2

Rev.	Date	Description	Des.	Verif.	Appd.
2	18/10/2019	ISSUED FOR DA APPROVAL	HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP





Rev.	Date	Description	Des.	Verif.	Appd.
2	18/10/2019	ISSUED FOR DA APPROVAL	HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP

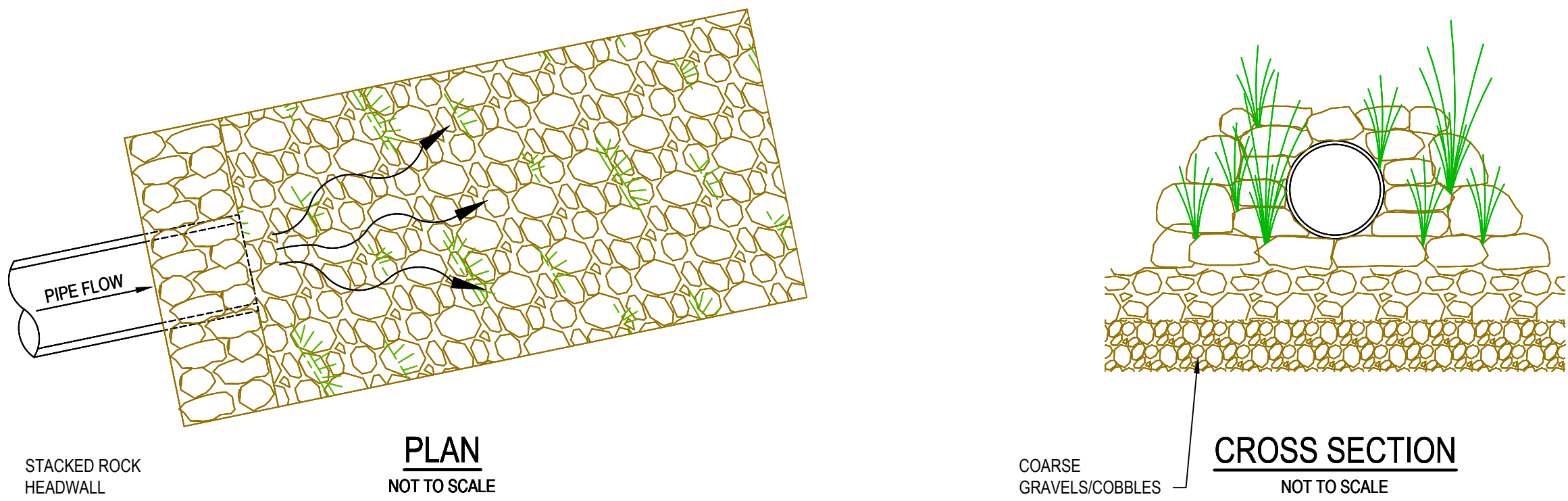
© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St Leonards, NSW 2055  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

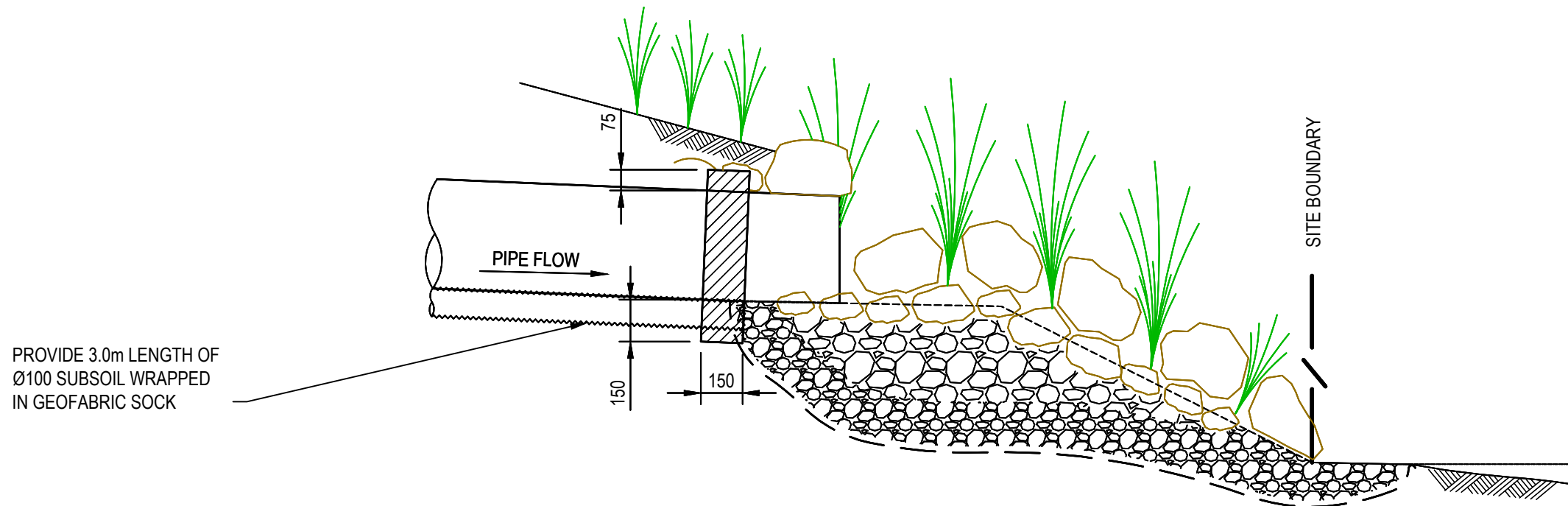
Drawn GJI 14/06/2019	Date 14/06/2019	Client VERNON TRUST
Checked PL 14/06/2019	Date 14/06/2019	Project SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION
Designed HLD 14/06/2019	Date 14/06/2019	Status <div>FOR APPROVAL</div> <div>NOT TO BE USED FOR CONSTRUCTION PURPOSES</div>
Verified PL 14/06/2019	Date 14/06/2019	
Approved RKP 14/06/2019	Date 14/06/2019	
Title BASIN DETAILS		DATUM AHD
		DATE 6/14/2019
		Scale AS SHOWN
		Size A1
Drawing Number 80219037-CI-1301		Revision 2



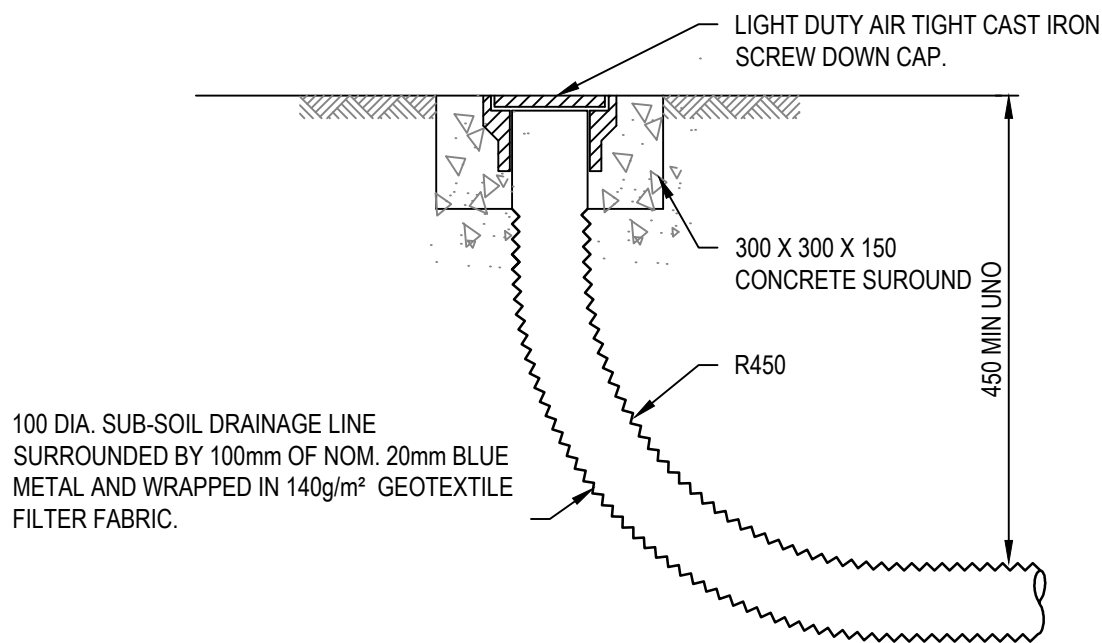


PLAN  
NOT TO SCALE

CROSS SECTION  
NOT TO SCALE



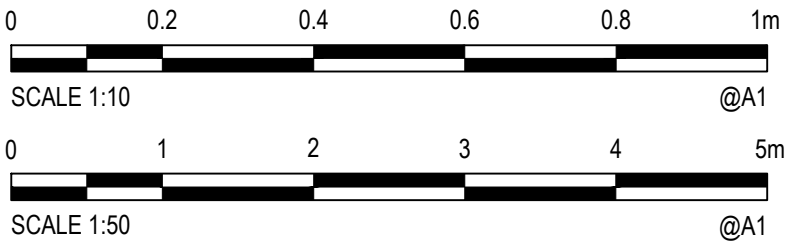
ROCK HEADWALL - TYPICAL ARRANGEMENT  
NOT TO SCALE



FLUSHING POINT  
SCALE 1:10

FILE NAME: Flushing\_Point.DWG  
DESIGNER NOTES:  
1. CHECK ALL DRG NUMBERS & AMEND/RENAME/ADD AS REQUIRED.  
2. SLOTTED RIGID PVC PIPE AND FITTINGS MAY BE USED.

**NOTE:**  
SUB-GRADE FILL MATERIAL FOR TRACK TO BE OBTAINED BY CUTTING IN-SITU MATERIAL FROM V-DRAIN. TRACK SUB-GRADE LEVEL SET BY CUT TO FILL BALANCE OF TRACK AND V-DRAIN.  
PAVEMENTS HAVE BEEN DESIGNED USING DESIGN SUBGRADE CBR 3%. CBR TO BE CONFIRMED ON SITE AFTER ROAD BOXING. FOR CBR LESS THAN 3%, PAVEMENT REDESIGN REQUIRED (NOTIFY SUPERINTENDENT PRIOR TO TREATMENT FOR CONFIRMATION DESIGN).



3	18/10/2019	ISSUED FOR DA APPROVAL	HLD	PL	RKP
2	28/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP
1	14/06/2019	ISSUED FOR INFORMATION	HLD	PL	RKP
Rev.	Date	Description	Des.	Verif.	Appd.

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



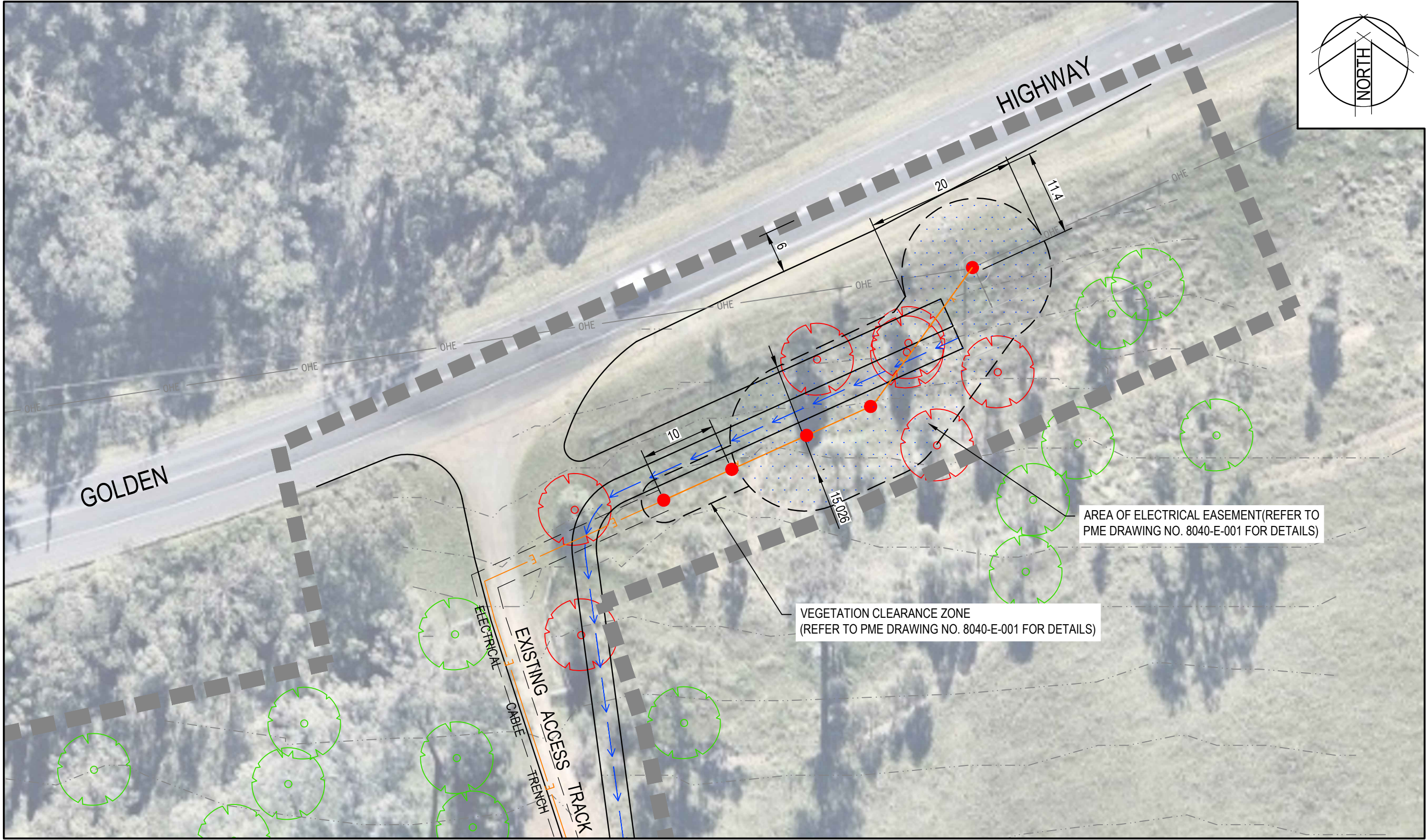
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2055  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

Drawn	Date
GJI	14/06/2019
Checked	Date
PL	14/06/2019
Designed	Date
HLD	14/06/2019
Verified	Date
PL	14/06/2019
Approved	
RKP	14/06/2019

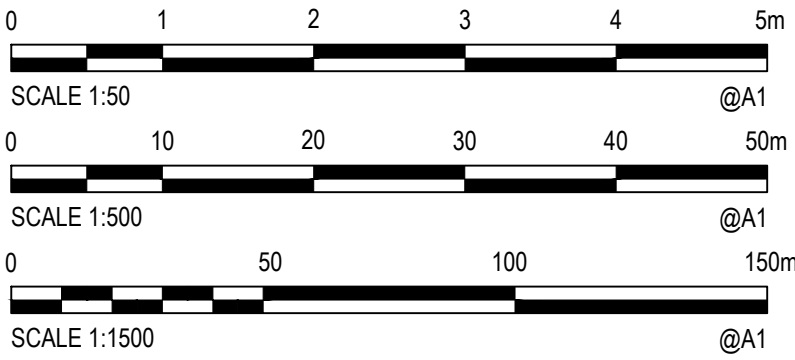
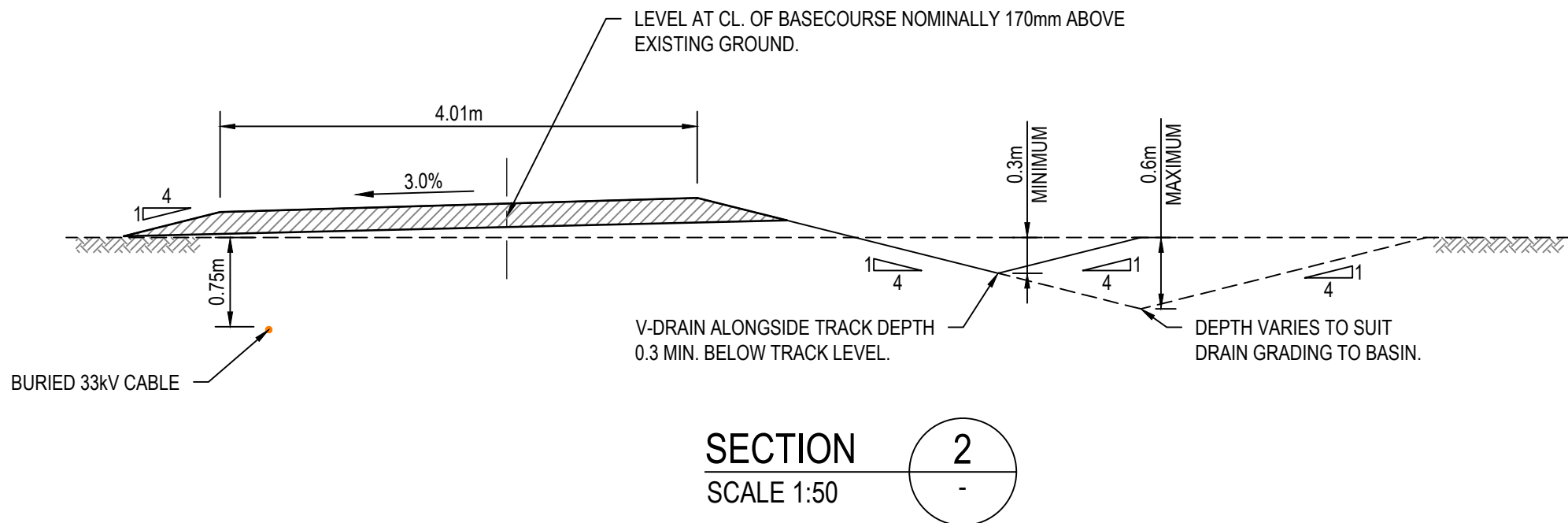
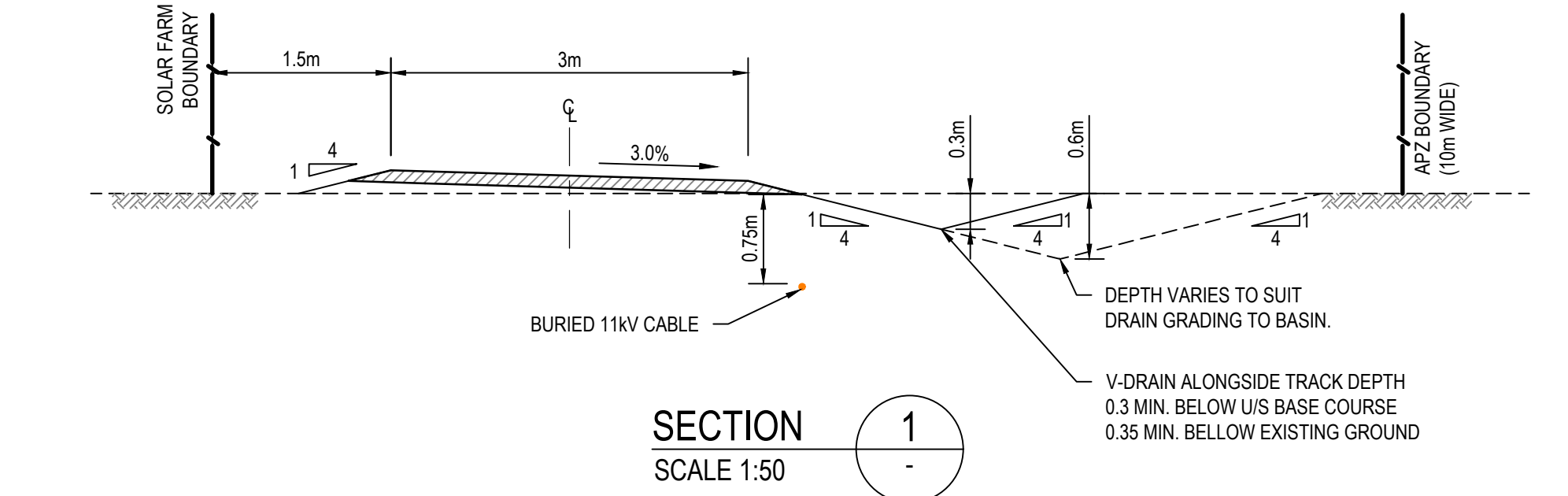
Client	VERNON TRUST
Project	SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION
Title	SITWORKS AND STORMWATER DETAILS

Status	FOR APPROVAL
DATUM	AHD
DATE	6/14/2019
Scale	AS SHOWN
Size	A1
Drawing Number	80219037-CI-1601
Revision	3





INSET A  
SCALE 1:500



Rev.	Date	Description	HLD Des.	PL Verif.	RKP Appd.
1	18/10/2019	ISSUED FOR DA APPROVAL			

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.

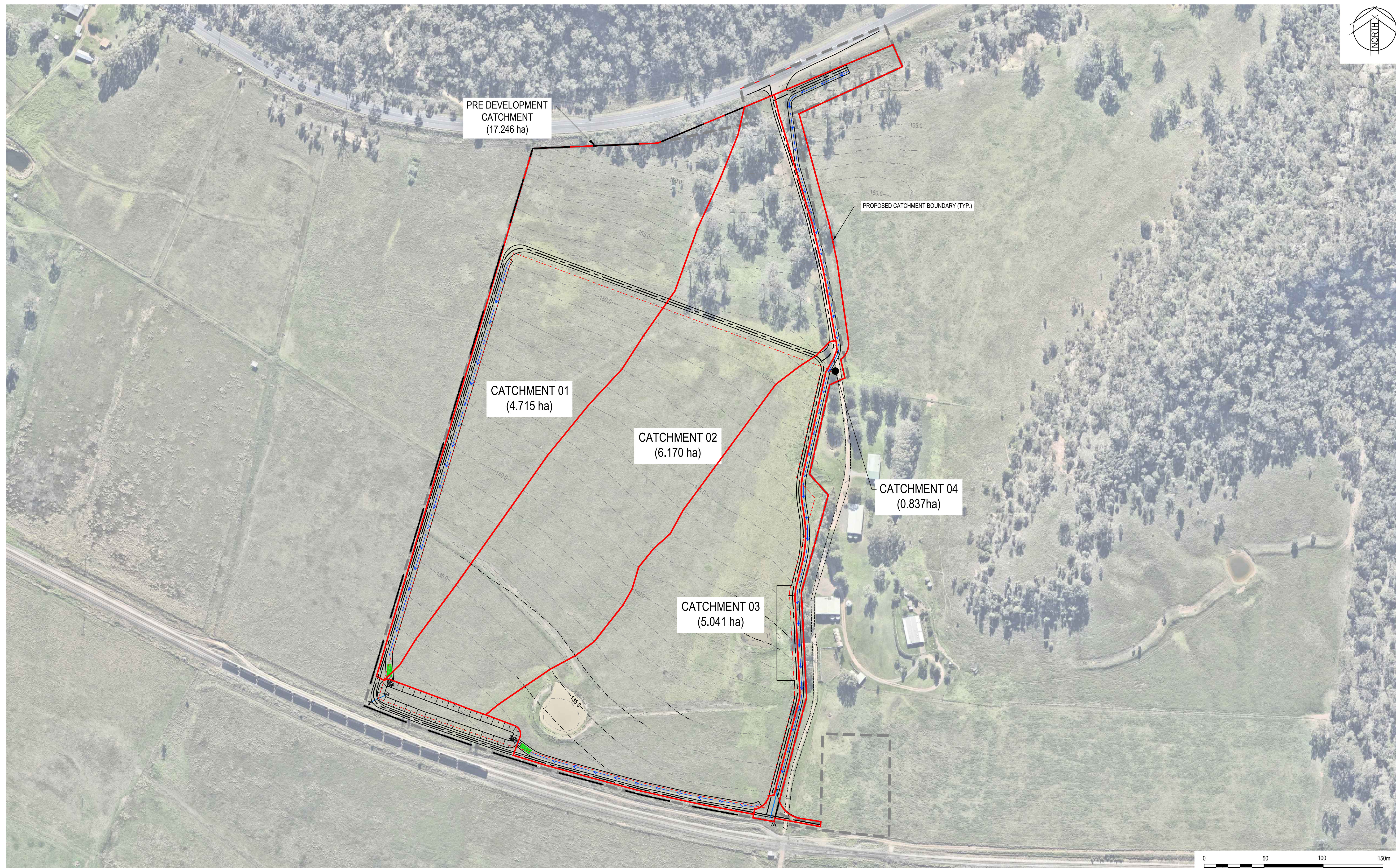
Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St Leonards, NSW 2005  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: www.cardno.com.au

Drawn GJJ	Date 6/14/2019
Checked PL	Date 14/06/2019
Designed HLD	Date 6/14/2019
Verified PL	Date 6/14/2019
Approved RKP	Date 6/14/2019

Client VERNON TRUST	Project SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION
Title UTILITIES COORDINATION PLAN	

Status NOT TO BE USED FOR CONSTRUCTION PURPOSES	FOR APPROVAL		
DATUM AHD	DATE 6/14/2019	Scale AS SHOWN	Size A1
Drawing Number 80219037-CI-1651	Revision 1		



[illegible]

© Cardno Limited All Rights Reserved.  
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



Cardno (NSW/ACT) Pty Ltd | ABN 95 001 145 035  
Level 9, The Forum, 203 Pacific Highway  
St. Leonards, NSW 2065  
Tel: 02 9496 7700 Fax: 02 9439 5170  
Web: [www.cardno.com.au](http://www.cardno.com.au)

Drawn GJI	Date 14/06/2019	Client VERNON TRUST				
Checked PL	Date 14/06/2019	Project SANDY HOLLOW SOLAR FARM DEVELOPMENT APPLICATION	Status <b>FOR APPROVAL</b> NOT TO BE USED FOR CONSTRUCTION PURPOSES			
Designed HLD	Date 14/06/2019		DATUM AHD	DATE 6/14/2019	Scale 1:1500	Size A1
Verified PL	Date 14/06/2019	Title CATCHMENT PLAN	Drawing Number 80219037-CI-2101			
Approved			Revision 2			
RKP	14/06/2019					