

Northern Territory Town Camps

Communications Infrastructure

Inspection Date 18/11/2016 12:07:33 PM

Insp ID: 335 Group 4 - Alice Springs Ipiye Ipiye

What Comms Category are you capturing: General
Telstra Comms Drawing Available: No
Facility upgrade not in drawings: Yes
Which telecoms carriers are present in the town camp: Telstra
How many Communications Pit(s) are allocated in this town camp:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:09:00 PM

Insp ID: 3470

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: Photo ID 5344 should be deleted, Not Relevant.

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:29:16 PM

Insp ID: 3471

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Condition of CB not assessed.

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:27:08 PM

Insp ID: 3472

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Electrical Meters

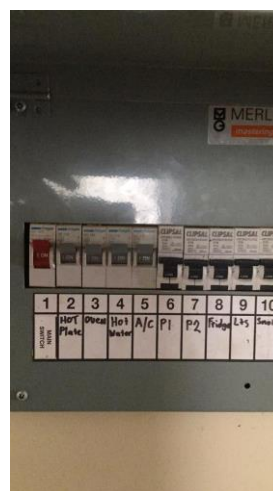
Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Condition of CB not assessed. Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:42:11 PM

Insp ID: 3473

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Electrical Meters

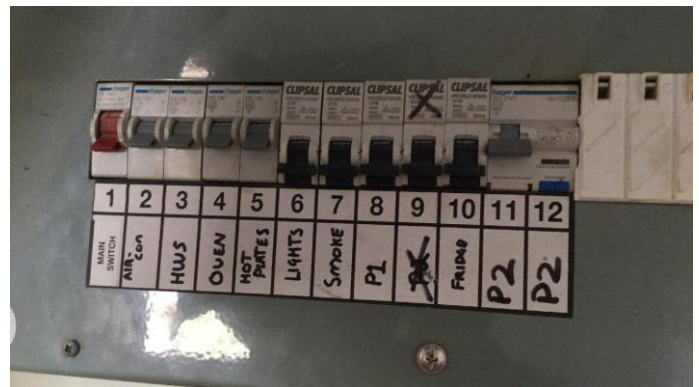
Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Condition of CB not assessed. Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:55:04 PM

Insp ID: 3474 Group 4 - Alice Springs Ipiye Ipiye

What Category are you capturing: Electrical Meters

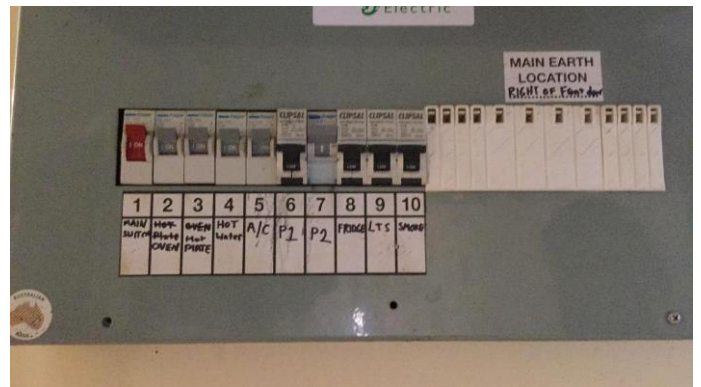
Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Condition of CB not assessed. Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 1:02:24 PM

Insp ID: 3475

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment:

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:38:30 PM

Insp ID: 3476 Group 4 - Alice Springs Ipiye Ipiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid
Meter Switchboard Cond: 3
Meter Condition: 3
Meter Comment: Indoor SB, Cond 3
Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:10:31 PM

Insp ID: 3477

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Condition of CB not assessed. Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 23/11/2016 12:27:52 PM

Insp ID: 3478

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Condition of CB not assessed.

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/01/2017 2:18:52 PM

Insp ID: 3619

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/01/2017 2:06:24 PM

Insp ID: 3620

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Electrical Meters

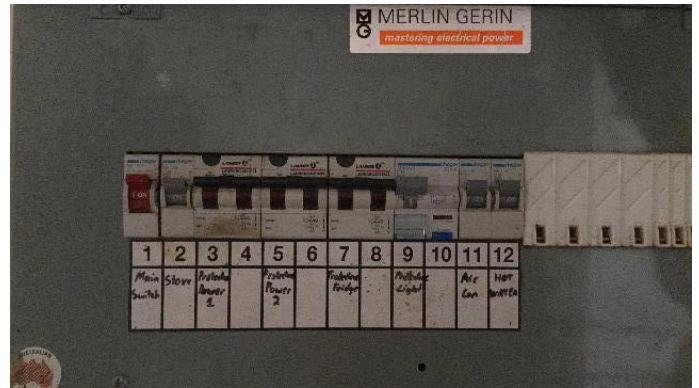
Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/01/2017 2:07:43 PM

Insp ID: 3647

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Electrical Meters

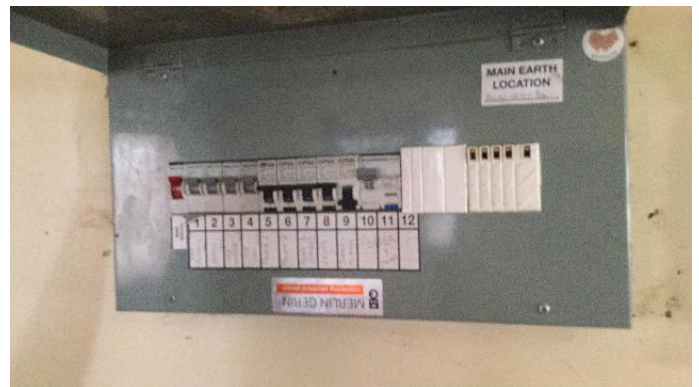
Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/01/2017 2:24:49 PM

Insp ID: 3648

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Electrical Meters

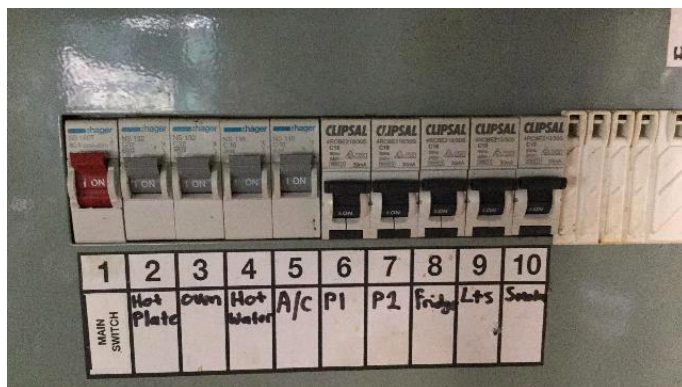
Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 1:22:07 PM

Insp ID: 347

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Pits and Conduits

Comments: Apparently under construction



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 11:07:43 AM

Insp ID: 308

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 13

What Wattage is the lamp:

70

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 10:54:10 AM

Insp ID: 312

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 13

What Wattage is the lamp:

70

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 10:48:05 AM

Insp ID: 314

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 10:44:07 AM

Insp ID: 316

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 14

What Wattage is the lamp:

70

What is the condition of street lights:

4

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 10:40:12 AM

Insp ID: 318 Group 4 - Alice Springs Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 13

What Wattage is the lamp:

70

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 10:29:20 AM

Insp ID: 322

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 12:54:20 PM

Insp ID: 325

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 12:40:53 PM

Insp ID: 329 Group 4 - Alice Springs Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 12:30:58 PM

Insp ID: 332

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 12:12:52 PM

Insp ID: 334

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

What Wattage is the lamp:

What is the condition of street lights: 3

What is Street Lighting pole installation height (approximate): 7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 12:01:45 PM

Insp ID: 339

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 14

What Wattage is the lamp:

70

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 11:56:50 AM

Insp ID: 342 Group 4 - Alice Springs Ipiye Ipiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 11:25:32 AM

Insp ID: 343

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 12

What Wattage is the lamp:

70

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 11:21:59 AM

Insp ID: 345

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S70D 13

What Wattage is the lamp:

70

What is the condition of street lights:

4

What is Street Lighting pole installation height (approximate):

7



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 1:20:35 PM

Insp ID: 348

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 13

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 1:34:30 PM

Insp ID: 354

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 1:32:14 PM

Insp ID: 355 Group 4 - Alice Springs Ipiye Ipiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S250C 13

What Wattage is the lamp:

250

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 1:08:43 PM

Insp ID: 356

Group 4 - Alice Springs

Ilpiye Ilpiye

What Category are you capturing: Street Light

What is power supply method:

Underground

What is the lamp type:

S150C 14

What Wattage is the lamp:

150

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

8



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 18/11/2016 12:17:54 PM

Insp ID: 333

Group 4 - Alice Springs

Ipiye Ipiye

What Category are you capturing: Transformers

What is Transformer installation method:

Outdoor

If method know:

11SUBP

What is the condition of the mounting:

3

What is Transformer Rating:

Unknown

Is there access to transformers name plate to take a photo:

Yes

What is the condition of transformer:

4

What is cable type to transformer:

Unknown

What is cable size to transformer:

Is there switch gear or fusing associated with the transformer:

Transformer Comment:



Northern Territory Town Camps

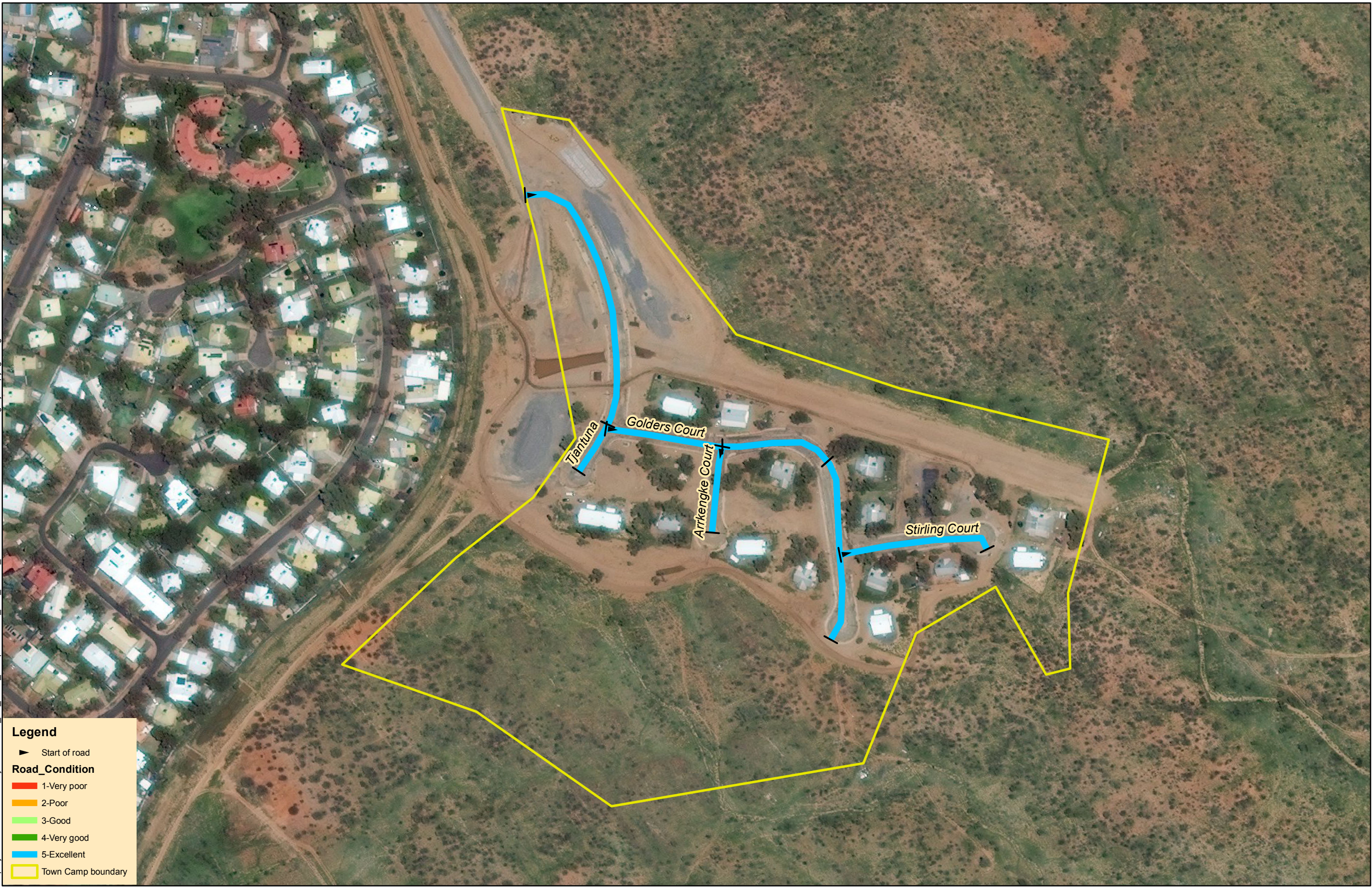
Electrical Infrastructure

Inspection Date 18/11/2016 12:17:54 PM



Road map

Map by: DMCP P:\GIS\Projects\253963_NT_Town_Camps\253963_003_Roads_DDP2.mxd 11/02/2017 17:17 Imagery: copyright DigitalGlobe WV 2

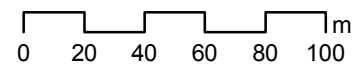


Legend

- ▶ Start of road
- Road_Condition**
- 1-Very poor
- 2-Poor
- 3-Good
- 4-Very good
- 5-Excellent
- Town Camp boundary



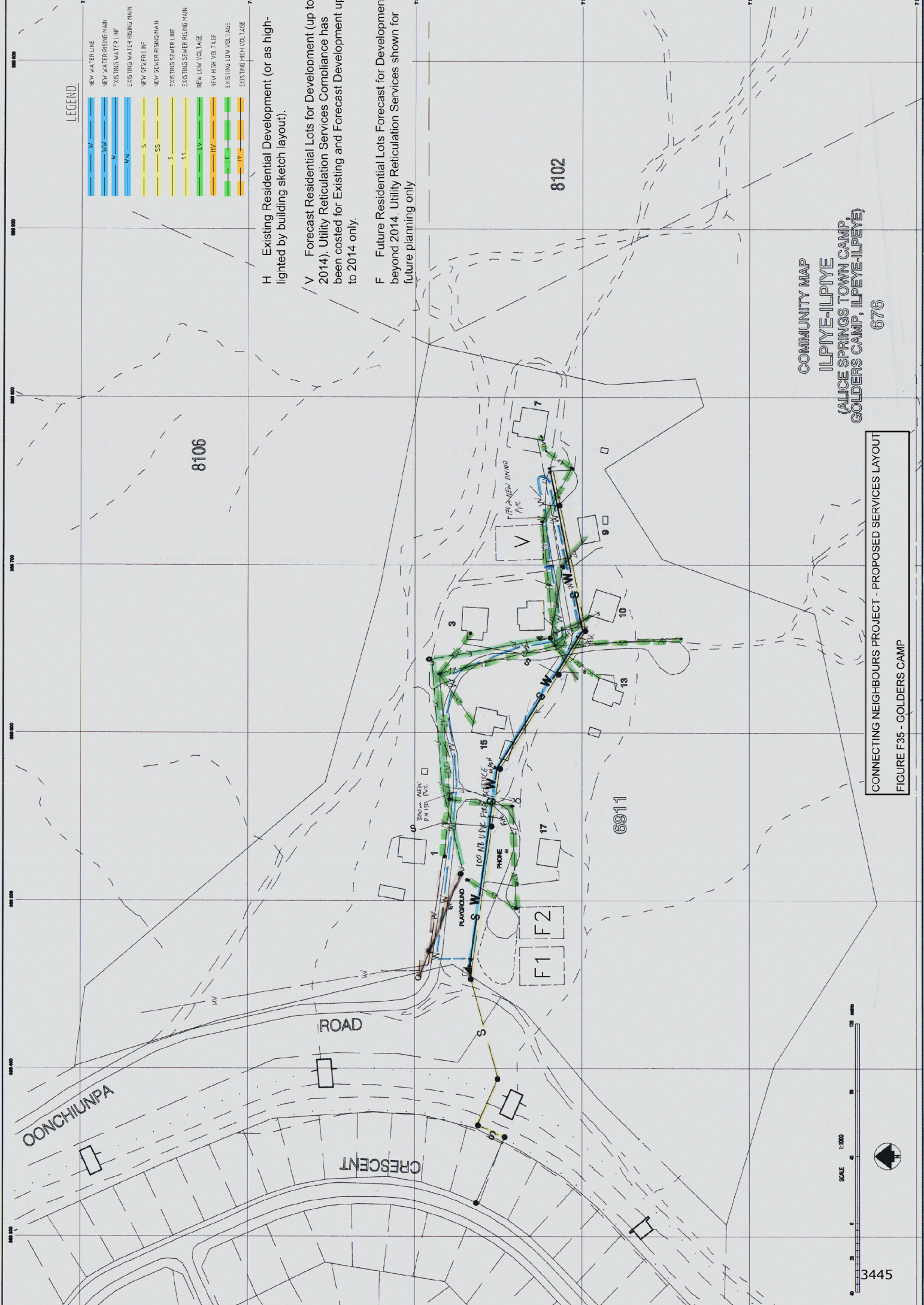
A3 scale: 1:2,500



Date: 11/02/2017 Version: 1
Coordinate system: GDA 1994

NT Town Camp Road Assessments 676 - Ilpeye Ilpeye Estate (Alice Springs)

Existing drawings



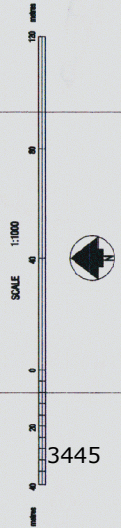
LEGEND:

- W NEW WATER LINE
- WW NEW WATER RISING MAIN
- W EXISTING WATER LINE
- WW EXISTING WATER RISING MAIN
- S NEW SEWER LINE
- SS NEW SEWER RISING MAIN
- S EXISTING SEWER LINE
- SS EXISTING SEWER RISING MAIN
- LV NEW LOW VOLTAGE
- LV EXISTING LOW VOLTAGE
- HV NEW HIGH VOLTAGE
- HV EXISTING HIGH VOLTAGE

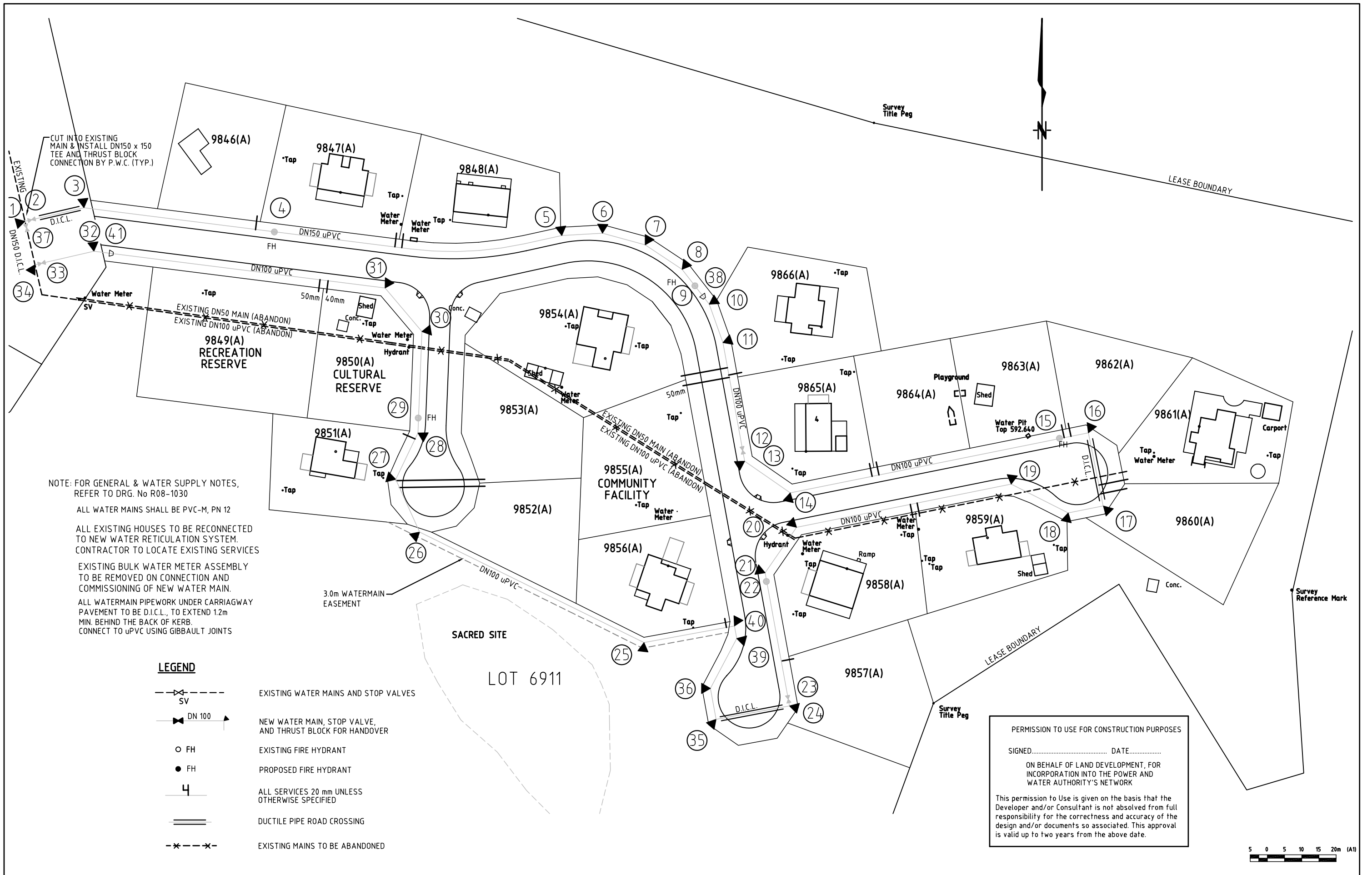
- H Existing Residential Development (or as highlighted by building sketch layout).
- V Forecast Residential Lots for Development (up to 2014). Utility Reticulation Services Compliance has been costed for Existing and Forecast Development up to 2014 only.
- F Future Residential Lots Forecast for Development beyond 2014. Utility Reticulation Services shown for future planning only

COMMUNITY MAP
 ILPIYE-ILPIYE
 (ALICE SPRINGS TOWN CAMP,
 GOLDERS CAMP, ILPEYE-ILPEYE)
 676

CONNECTING NEIGHBOURS PROJECT - PROPOSED SERVICES LAYOUT
 FIGURE F35 - GOLDERS CAMP



3445



NOTE: FOR GENERAL & WATER SUPPLY NOTES, REFER TO DRG. No R08-1030

ALL WATER MAINS SHALL BE PVC-M, PN 12

ALL EXISTING HOUSES TO BE RECONNECTED TO NEW WATER RETICULATION SYSTEM. CONTRACTOR TO LOCATE EXISTING SERVICES

EXISTING BULK WATER METER ASSEMBLY TO BE REMOVED ON CONNECTION AND COMMISSIONING OF NEW WATER MAIN.

ALL WATERMAIN PIPEWORK UNDER CARRIAGWAY PAVEMENT TO BE D.I.C.L., TO EXTEND 1.2m MIN. BEHIND THE BACK OF KERB. CONNECT TO uPVC USING GIBBAULT JOINTS

LEGEND

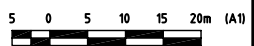
	EXISTING WATER MAINS AND STOP VALVES
	NEW WATER MAIN, STOP VALVE, AND THRUST BLOCK FOR HANDOVER
	EXISTING FIRE HYDRANT
	PROPOSED FIRE HYDRANT
	ALL SERVICES 20 mm UNLESS OTHERWISE SPECIFIED
	DUCTILE PIPE ROAD CROSSING
	EXISTING MAINS TO BE ABANDONED

PERMISSION TO USE FOR CONSTRUCTION PURPOSES

SIGNED..... DATE.....

ON BEHALF OF LAND DEVELOPMENT, FOR INCORPORATION INTO THE POWER AND WATER AUTHORITY'S NETWORK

This permission to Use is given on the basis that the Developer and/or Consultant is not absolved from full responsibility for the correctness and accuracy of the design and/or documents so associated. This approval is valid up to two years from the above date.

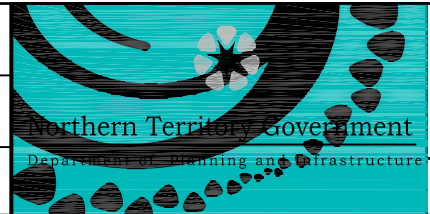


No.	DESCRIPTION	DATE	INIT.
D	SOME WATER SERVICES REPOSITIONED	6-8-08	G.M.
C	ISSUED FOR APPROVAL	10-01-08	G.M.
B	ISSUED FOR 90% REVIEW	23-11-07	G.M.
A	ISSUED FOR 30% REVIEW	28-10-07	G.M.
AMENDMENTS			

Cardno (NT) Pty Ltd

ABN 78 078 713 934
Level 6, 96 Mitchell Street, Darwin, NT 0800
GPO Box 1162, Darwin, NT 0801
Tel: 08 8942 8220 Fax: 08 8942 8211
dwm@nt.cardno.com.au www.cardno.com.au

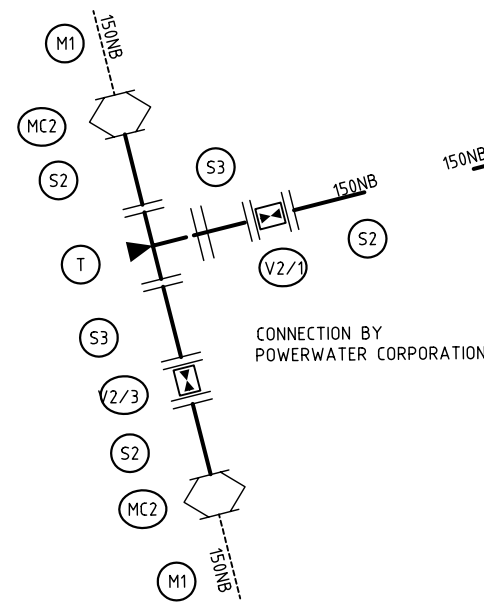
DRAWN	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGNED	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



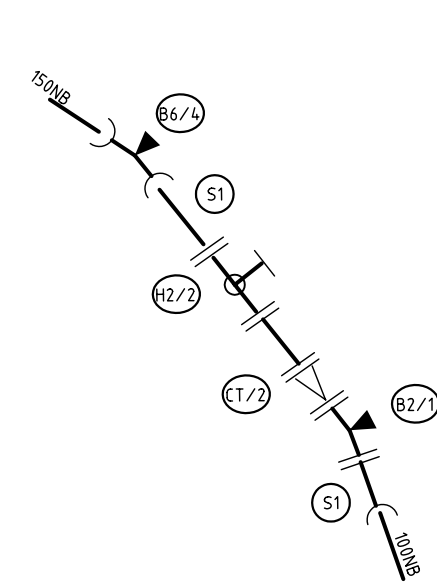
SOUTHERN REGION - ALICE SPRINGS			
CONNECTING NEIGHBOURS PROJECT - ILPIYE ILPYIE UPGRADE WORKS			
WATER SUPPLY COMPILATION PLAN			
FILE No.	ASSET No.	SHEET No.	DRAWING No.
XX	XX	14 OF 19	R08-1028
AMEND.	SHEET		
D	A1		

WATERMAIN FITTING SET-OUT SCHEDULE

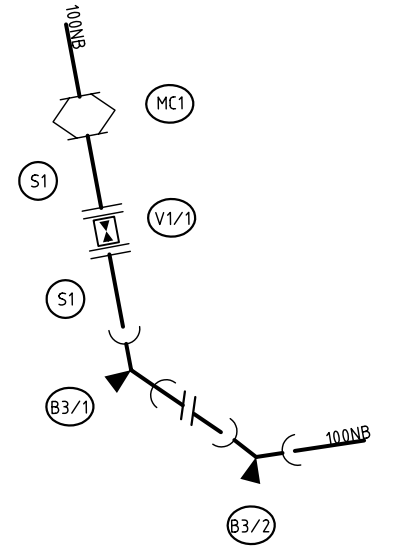
POINT NO.	FITTING LEGEND	FITTING	EASTING	NORTHING
1	T	150x150 TEE (FL-FL)	8438.391	78590.423
2	V2/1	DN150 PN16 RESILIENT SEATED GATE VALVE (FL-FL)	8440.328	78590.890
3	B6/1	150x22.5° BEND (SOC-SOC)	8455.543	78594.370
4	H2/1	B5 750 HYDRANT WITH DN 150x80 HYDRANT TEE (SOC-SP-FL)	8510.962	78587.371
5	B5/1	150x11.25° BEND (SOC-SOC)	8594.602	78586.279
6	B6/2	150x22.5° BEND (SOC-SOC)	8606.437	78586.944
7	B6/3	150x22.5° BEND (SOC-SOC)	8618.868	78583.568
8	B6/4	150x22.5° BEND (SOC-SOC)	8629.597	78576.440
9	H2/2	B5 750 HYDRANT WITH DN 150x80 HYDRANT TEE (FL-FL-FL)	8633.291	78571.710
10	B2/1	100x22.5° BEND (FL-FL)	8637.526	78566.288
11	B1/1	100x11.25° BEND (SOC-SOC)	8641.499	78555.119
12	V1/1	DN 100 PN 16 RESILIENT SEATED GATE VALVE (FL-FL)	8647.239	78523.772
13	B3/1	100x45° BEND (SOC-SOC)	8647.816	78520.620
14	B3/2	100x45° BEND (SOC-SOC)	8661.101	78511.412
15	H1/1	B5 750 HYDRANT WITH DN 100x80 HYDRANT TEE (SOC-SP-FL)	8739.478	78527.189
16	B4/1	100x90° BEND (SOC-SOC)	8747.845	78528.873
17	B4/2	100x90° BEND (SOC-SOC)	8752.127	78507.558
18	B3/3	100x45° BEND (SOC-SOC)	8741.977	78505.558
19	B3/4	100x45° BEND (SOC-SOC)	8725.372	78513.945
20	B3/5	100x45° BEND (SOC-SOC)	8662.910	78501.372
21	B4/3	100x90° BEND (SOC-SOC)	8653.762	78488.147
22	H1/2	B5 750 HYDRANT WITH DN 100x80 HYDRANT TEE (SOC-SP-FL)	8654.217	78485.662
23	V1/2	DN 100 PN 16 RESILIENT SEATED GATE VALVE (FL-FL)	8660.637	78450.596
24	B4/4	100x90° BEND (FL-FL)	8660.854	78449.416
25	B2/2	100x22.5° & 100x11.25° BEND (SOC-SOC)	8618.528	78467.842
26	B3/6	100x45° BEND (SOC-SOC)	8553.231	78500.005
27	B3/7	100x45° BEND (SOC-SOC)	8546.287	78515.327
28	B2/3	100x22.5° BEND (SOC-SOC)	8552.740	78533.199
29	H1/3	B5 750 HYDRANT WITH DN 100x80 HYDRANT TEE (SOC-SP-FL)	8552.912	78533.199
30	B3/8	100x45° BEND (SOC-SOC)	8553.904	78558.336
31	B3/9	100x45° BEND (SOC-SOC)	8543.170	78571.007
32	B6/5	150x22.5° BEND (SOC-SOC)	8458.457	78581.705
33	V2/2	DN 150 PN 16 RESILIENT SEATED GATE VALVE (FL-FL)	8443.239	78578.204
34	B8/1	150x90° BEND (FL-FL)	8441.305	78577.758
35	B4/5	100x90° BEND (SOC-SOC)	8639.509	78445.508
36	B3/10	100x45° BEND (SOC-SOC)	8637.861	78454.511
37	V2/3	DN 150 PN16 RESILIENT SEATED GATE VALVE (FL-FL)	-	-
38	CT/2	DN 150x100 DICL TAPER (FL-FL)	8635.769	78568.539
39	B3/11	100x45° BEND (SOC-SOC)	8645.515	78479.025
40	B4/6	100x90° BEND (SOC-SOC)	8644.849	78472.662
41	CT/2	DN 150x100 DICL TAPER (SOC-SCO)	8463.499	78581.079
	M1	EXISTING 150 N.B D.I.C.L WATERMAIN		
	S1	DN 100 D.I.C.L SHORT PIPE (FL-SP) 0.5m MIN LENGTH		
	S1/1	DN 100 D.I.C.L SHORT PIPE (FL-FL) 0.5m MIN LENGTH		
	S2	DN 150 D.I.C.L SHORT PIPE (FL-SP) 0.5m MIN LENGTH		
	S3	DN 150 D.I.C.L SHORT PIPE (FL-FL) 0.5m MIN LENGTH		
	MC1	DN100 MECHANICAL COUPLING		
	MC2	DN150 MECHANICAL COUPLING		



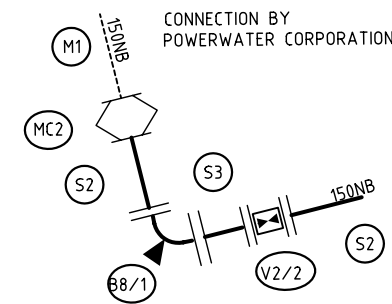
DETAIL AT POINTS 1 - 3



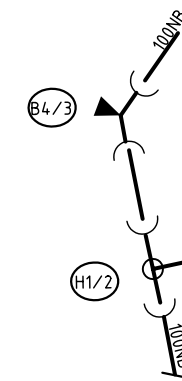
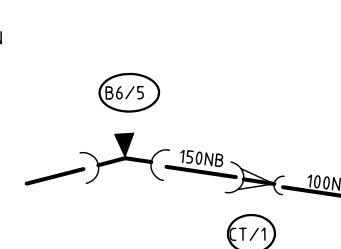
DETAIL AT POINTS 8 - 10



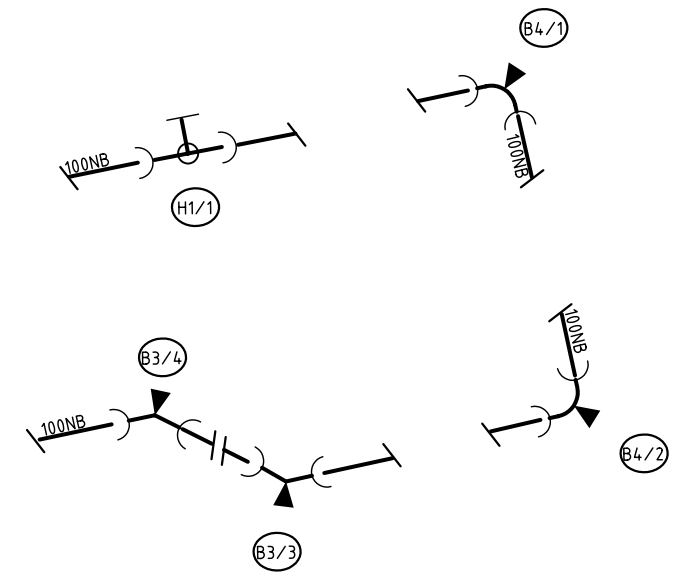
DETAIL AT POINTS 12 - 14



DETAIL AT POINTS 32 - 34



DETAIL AT POINTS 21 - 24



DETAIL AT POINTS 15 - 19

PERMISSION TO USE FOR CONSTRUCTION PURPOSES
 SIGNED..... DATE.....
 ON BEHALF OF LAND DEVELOPMENT, FOR
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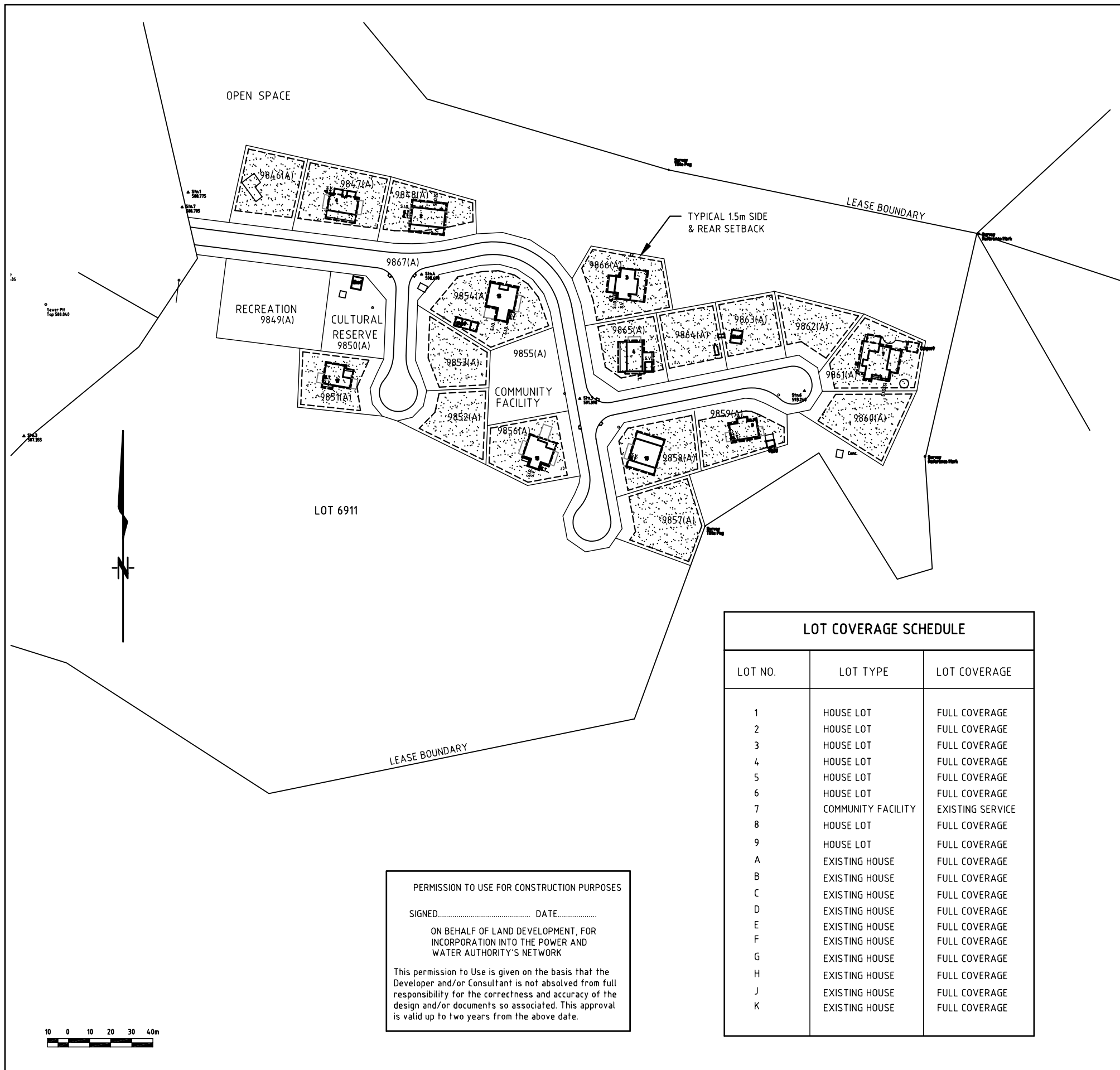
B	ISSUED FOR APPROVAL	10-01-08	G.M.
A	ISSUED FOR 90% REVIEW	23-11-07	G.M.
No.	DESCRIPTION	DATE	INIT.
AMENDMENTS			

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DRAWN	G.M.	CHECKED	
DATE	23-11-07	DATE	
DESIGNED	G.M.	CHECKED	
DATE	23-11-07	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



SOUTHERN REGION - ALICE SPRINGS CONNECTING NEIGHBOURS PROJECT - ILPIYE ILPIYE UPGRADE WORKS			
WATER SUPPLY SCHEMATICS & SETTING OUT DETAILS			
FILE No.	ASSET No.	SHEET No.	DRAWING No.
XX	XX	15 OF 19	R08-1029
AMEND.	B	SHEET	447



PERMISSION TO USE FOR CONSTRUCTION PURPOSES

SIGNED..... DATE.....

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LOT COVERAGE SCHEDULE		
LOT NO.	LOT TYPE	LOT COVERAGE
1	HOUSE LOT	FULL COVERAGE
2	HOUSE LOT	FULL COVERAGE
3	HOUSE LOT	FULL COVERAGE
4	HOUSE LOT	FULL COVERAGE
5	HOUSE LOT	FULL COVERAGE
6	HOUSE LOT	FULL COVERAGE
7	COMMUNITY FACILITY	EXISTING SERVICE
8	HOUSE LOT	FULL COVERAGE
9	HOUSE LOT	FULL COVERAGE
A	EXISTING HOUSE	FULL COVERAGE
B	EXISTING HOUSE	FULL COVERAGE
C	EXISTING HOUSE	FULL COVERAGE
D	EXISTING HOUSE	FULL COVERAGE
E	EXISTING HOUSE	FULL COVERAGE
F	EXISTING HOUSE	FULL COVERAGE
G	EXISTING HOUSE	FULL COVERAGE
H	EXISTING HOUSE	FULL COVERAGE
J	EXISTING HOUSE	FULL COVERAGE
K	EXISTING HOUSE	FULL COVERAGE

DRAWING NOTES

GENERAL

- CONSTRUCTION OF THE WATER AND SEWERAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE POWER AND WATER CONNECTION CODE AND ASSOCIATED DOCUMENTS.
- ALL LEVELS GIVEN ARE TO A.H.D.
- ALL DIMENSIONS ARE IN METRES, UNLESS SHOWN OTHERWISE.
- MINIMUM COVER TO PIPE IS 750mm IN TRAFFICABLE AREAS, 600mm IN OTHER AREAS.
- IT IS NOT GUARANTEED THAT ALL SERVICES HAVE BEEN SHOWN ON THE DRAWING.
- OBTAIN PERMIT(S) FROM THE RELEVANT ROAD AUTHORITY PRIOR TO ROAD EXCAVATION.
- ALL WATER AND SEWERAGE (HYDRAULIC) WORKS SHALL BE CARRIED OUT AS SHOWN ON THE LATEST AMENDMENT OF THE DESIGN DRAWINGS.
- CONSTRUCTION SITE DRAWINGS MUST BE SIGNED AS "APPROVED FOR CONSTRUCTION" BY AN OFFICER OF DEPARTMENT OF PLANNING & INFRASTRUCTURE
- SEVEN (7) DAYS NOTICE HAS TO BE GIVEN TO D.P.I., POWER AND WATER (SOUTHERN REGION) WITH A "NOTICE OF INTENTION TO START WORK" PRIOR TO COMMENCEMENT OF WORK.
- ANY CHANGES TO THIS DRAWING, REQUIRED OR DESIRED DURING THE CONSTRUCTION PHASE MUST BE AUTHORISED BY THE SUPERINTENDENT.
- "AS CONSTRUCTED" DRAWINGS MUST BE PROVIDED TO D.P.I., POWER AND WATER PRIOR TO HANDOVER INSPECTION.
- CONTRACTOR TO CONTACT D.P.I. & POWER AND WATER TO ARRANGE FOR HANDOVER INSPECTIONS. SEVEN (7) DAYS NOTICE MUST BE PROVIDED PRIOR TO HANDOVER INSPECTIONS.
- CONNECTIONS TO EXISTING WATER MAINS WILL ONLY BE CARRIED OUT WHEN ALL WORKS UPSTREAM OF THE CONNECTION ARE COMPLETE (ie TESTED, DISINFECTED WHERE APPLICABLE, BACKFILLED AND CERTIFICATES SUBMITTED) IN ACCORDANCE WITH THE APPROVED DESIGN DRAWINGS, AND HAVE SATISFACTORILY PASSED FINAL HANDOVER INSPECTION.
- POWER AND WATER PERSONNEL SHALL INSTALL FINAL WATER CONNECTION TO EXISTING MAIN, ONLY AFTER ACCEPTANCE OF THE WORK HAS BEEN ACHIEVED. THE CONSTRUCTOR IS RESPONSIBLE FOR ALL CONNECTION FEES, MATERIALS AND LABOUR FOR EXCAVATION, BACKFILLING AND REINSTATEMENT.

WATER

- WATER PIPES SHALL BE SERIES 1, PVC-M, PN12 UP TO 150 DIA. & SERIES 2, PN12 FOR DN200 AND LARGER PIPES, ALL WITH D.I.C.L. FITTINGS, UNLESS NOTED OTHERWISE.
- WATER MAINS SHALL BE OFFSET FROM PROPERTY BOUNDARIES A DISTANCE OF 2.4m IN ROAD RESERVES & 1.5m IN PRIVATE PROPERTY, EXCEPT WHERE SHOWN OTHERWISE ON DRAWINGS..
- THE SUPERINTENDENT SHALL DETERMINE WATER PIPE BEDDING TYPE AFTER INSPECTION OF EXCAVATED TRENCH, NORMAL TRENCH BEDDING SHALL BE TYPE 1A. REFER TO SPECIFICATION FOR BEDDING AT ROAD & SERVICE CROSSINGS
- ALL BENDS TO BE SUPPORTED BY THRUST BLOCKS, AS PER STD. P.W.C. DRAWING.
- MARKING TAPE, COLOURED GREEN AND MARKED "WATERMAIN" SHALL BE LAID CONTINUOUSLY AND LOCATED 300mm ABOVE THE PIPEWORK. THE 1.6mm DIAMETER STAINLESS STEEL TRACE WIRE SHALL BE BROUGHT UP TO THE SURFACE INSIDE THE VALVE AND HYDRANT BOXES.
- WATERMAIN TO BE HYDROSTATICALLY TEST FOR 4 HRS. AT 1000 KPa WATER PRESSURE, DISINFECT AND FLUSH THE WATER MAIN IN ACCORDANCE WITH POWER AND WATER REQUIREMENTS, CONNECTION CODE AND CUSTOMER INFORMATION HANDOUT NO 5. ALL TESTING TO BE THE RESPONSIBILITY OF THE CONTRACTOR. NOTIFY POWER AND WATER OF INTENTION TO TEST.
- METER TAPS SHALL BE FITTED WITH TEMPORARY SCREWED PLUG (UNTILL METER INSTALLED). SERVICE UPSTAND PIPES SHALL BE PROTECTED BY TEMPORARY POSTS OR FENCING
- SUPPLY AND INSTALL MARKER POSTS AT VALVES & HYDRANTS. MARKER POSTS TO INCORPORATE THE OFFSET DISTANCE FROM THE MARKER TO THE FITTING. REFER TO PWC PRODUCT MANUAL FOR DETAILS OF MARKER POSTS. FOR STOP VALVES, USE 75 x 75 x 2.5 S.H.S, FOR FIRE HYDRANTS, USE 100 x 50 x 2.0 R.H.S. POSTS.
- ALL WATERMAIN PIPEWORK UNDER CARRIAGWAY PAVEMENT TO BE D.I.C.L. TO EXTEND 1.2m MIN. BEHIND THE BACK OF KERB.

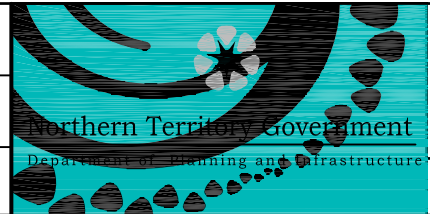
SEWERAGE

- ALL GRAVITY SEWER PIPES SHALL BE uPVC CLASS SN8 WITH STYRENE-BUTADIENE RUBBER RING JOINTS (SBR), UNLESS NOTED OTHERWISE.
- SEWERS SHALL BE OFFSET FROM PROPERTY BOUNDARIES A DISTANCE OF 1.5m IN ROAD RESERVES AND 1.5m IN PRIVATE PROPERTY, EXCEPT WHERE SHOWN OTHERWISE ON THE DRAWINGS.
- ALL GRAVITY SEWERS ARE DN150, UNLESS NOTED OTHERWISE.
- THE SUPERINTENDENT SHALL DETERMINE SEWER PIPE BEDDING TYPE, AFTER INSPECTION OF EXCAVATED TRENCH, NORMAL TRENCH BEDDING SHALL BE TYPE 1A. REFER TO SPECIFICATION FOR BEDDING AT ROAD & SERVICE CROSSING
- MAINTENANCE HOLE COVERS SHALL FINISH AT:
 - FINISHED SURFACE LEVEL IN ROAD RESERVES AND FOOTPATHS; AND
 - 150mm ABOVE SURFACE LEVEL IN PRIVATE PROPERTY AND OPEN SPACE.
- THE CONTRACTOR SHALL INSCRIBE THE MAINTENANCE HOLE COVER WITH THE IDENTIFYING NUMBER AS SHOWN ON THE DRAWINGS MIN. HEIGHT 100mm.
- FINISHED SURFACE LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS.

B	ISSUED FOR APPROVAL	10-01-08	G.M.
A	ISSUED FOR 90% REVIEW	23-11-07	G.M.
No.	DESCRIPTION	DATE	INIT.
AMENDMENTS			

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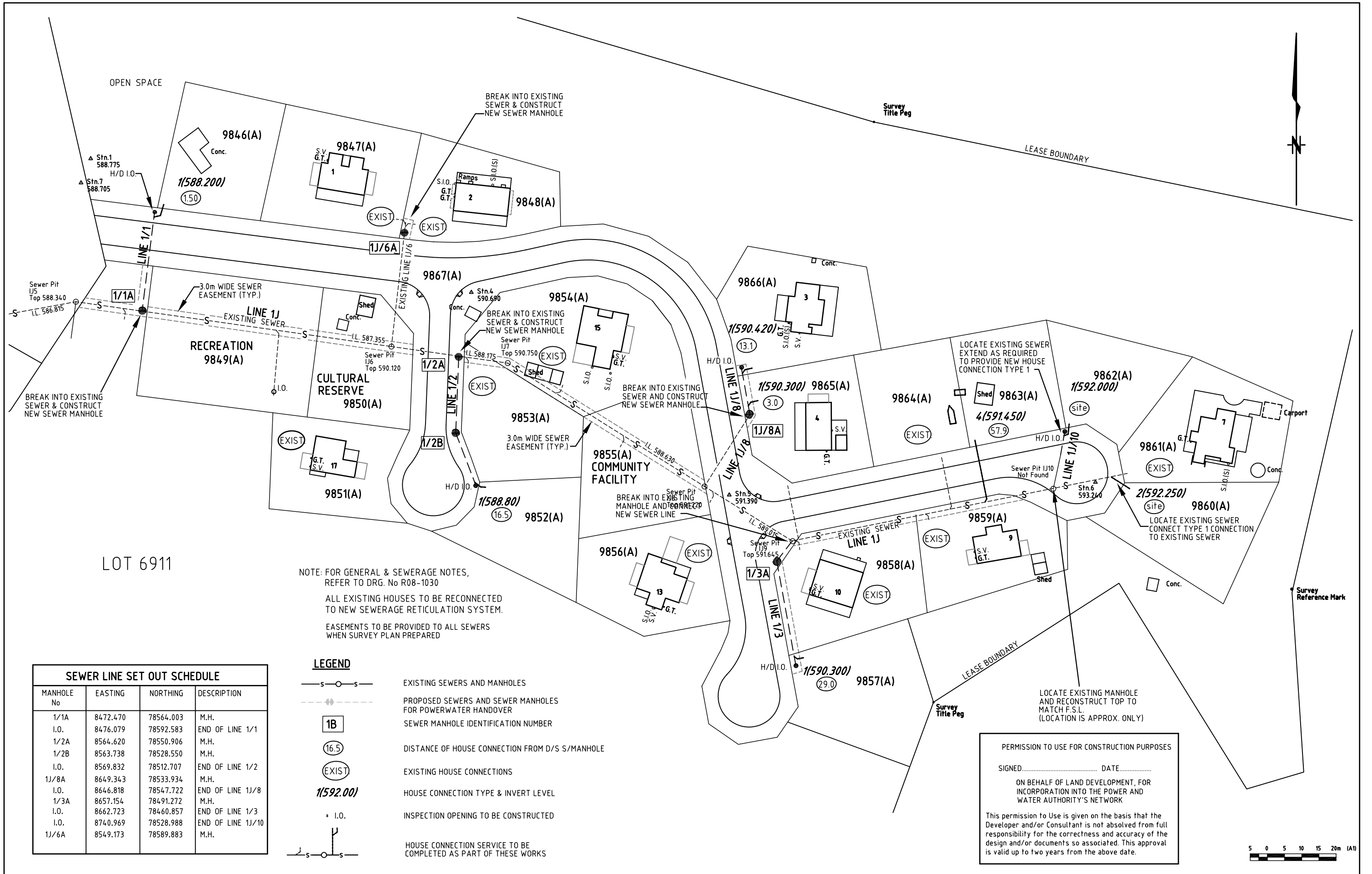
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DATE	26-10-07	DATE	
DESIGNED	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



SOUTHERN REGION - ALICE SPRINGS
 CONNECTING NEIGHBOURS PROJECT - ILPIYE ILPIYE
 UPGRADE WORKS

SEWERAGE LOT COVERAGE PLAN & TABLE, HYDRAULIC NOTES

FILE No.	ASSET No.	SHEET No.	DRAWING No.	AMEND.	SHEET
XX	XX	16 OF 19	R08-1030	B	A1



NOTE: FOR GENERAL & SEWERAGE NOTES, REFER TO DRG. No R08-1030

ALL EXISTING HOUSES TO BE RECONNECTED TO NEW SEWERAGE RETICULATION SYSTEM.

EASEMENTS TO BE PROVIDED TO ALL SEWERS WHEN SURVEY PLAN PREPARED

LEGEND

- EXISTING SEWERS AND MANHOLES
- PROPOSED SEWERS AND SEWER MANHOLES FOR POWERWATER HANDOVER
- SEWER MANHOLE IDENTIFICATION NUMBER
- DISTANCE OF HOUSE CONNECTION FROM D/S S/MANHOLE
- EXISTING HOUSE CONNECTIONS
- HOUSE CONNECTION TYPE & INVERT LEVEL
- INSPECTION OPENING TO BE CONSTRUCTED
- HOUSE CONNECTION SERVICE TO BE COMPLETED AS PART OF THESE WORKS

SEWER LINE SET OUT SCHEDULE			
MANHOLE No	EASTING	NORTHING	DESCRIPTION
1/1A	8472.470	78564.003	M.H.
I.O.	8476.079	78592.583	END OF LINE 1/1
1/2A	8564.620	78550.906	M.H.
1/2B	8563.738	78528.550	M.H.
I.O.	8569.832	78512.707	END OF LINE 1/2
1J/8A	8649.343	78533.934	M.H.
I.O.	8646.818	78547.722	END OF LINE 1J/8
1/3A	8657.154	78491.272	M.H.
I.O.	8662.723	78460.857	END OF LINE 1/3
I.O.	8740.969	78528.988	END OF LINE 1J/10
1J/6A	8549.173	78589.883	M.H.

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SIGNED..... DATE.....

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C	ISSUED FOR APPROVAL	10-01-08	G.M.
B	ISSUED FOR 90% REVIEW	23-11-07	G.M.
A	ISSUED FOR COMMENT	28-10-07	G.M.
No.	DESCRIPTION	DATE	INIT.
AMENDMENTS			

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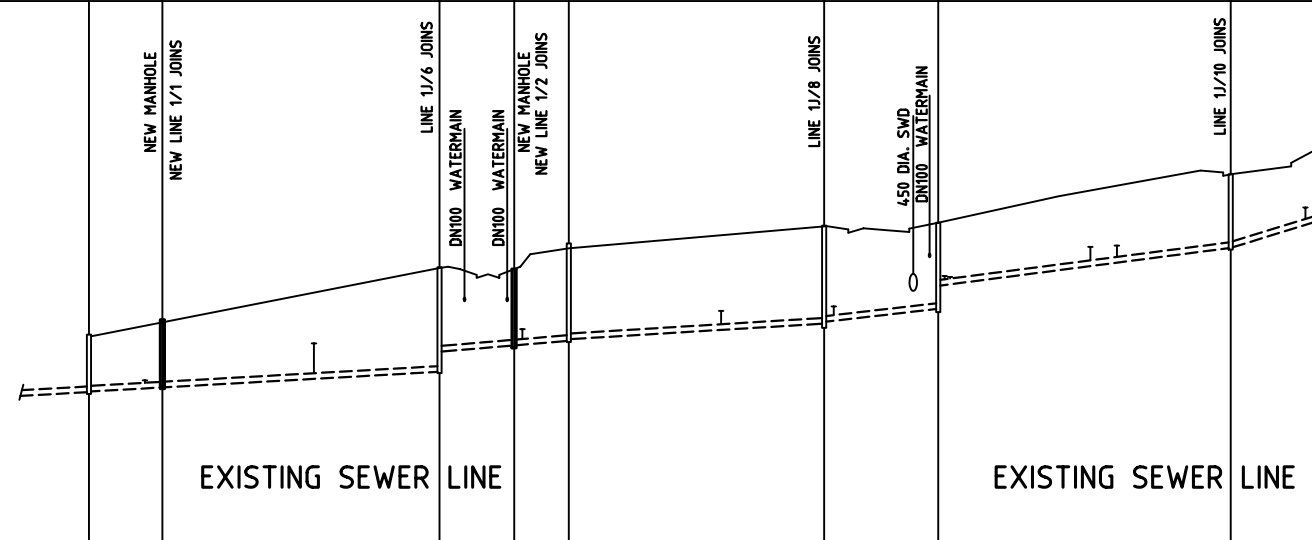
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dwn@nt.cardno.com.au www.cardno.com.au

DRAWN	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGNED	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



SOUTHERN REGION - ALICE SPRINGS			
CONNECTING NEIGHBOURS PROJECT - ILPIYE ILPIYE UPGRADE WORKS			
SEWERAGE COMPILATION PLAN			
FILE No.	ASSET No.	SHEET No.	DRAWING No.
XX	XX	17 OF 19	R08-1031
AMEND.	C	SHEET	AT

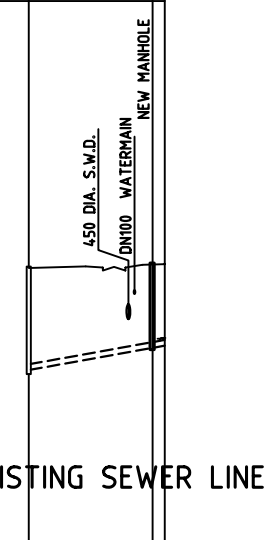
JOINS WITH LINE No.	EXIST	1/1	EXIST	1/2	EXIST	EXIST	EXIST	CRD
MANHOLE & COVER TYPE	1	1	2	1	1	1,3	3	1,1
MANHOLE DROP TYPE	1	1	2	1	1	1,3	3	1,1
MANHOLE No.	IJ/5	1/1A	IJ/6	1/2A	IJ/7	IJ/8	IJ/9	IJ/10



LOCATION	CROWN LAND	PRIVATE PROPERTY	ROAD RESERVE	PRIVATE PROPERTY	ROAD RESERVE	PRIVATE PROPERTY	ROAD RESERVE						
PIPE MATERIAL - CLASS		uPVC - CLASS SH				uPVC - CLASS SH							
LENGTH - PIPE DIAMETER		92.75 - 150Ø	34.20 - 150Ø	67.58 - 150Ø	30.17 - 150Ø	77.40 - 150Ø	22.00 - 150Ø						
GRADE - mm/m		5.65	8.45	6.14	11.10	12.98	30.77						
DATUM RL	578.00												
R.L. TOP OF MANHOLE	588.340	588.790	590.120	590.020	590.750	591.220	591.300	592.580					
JUNCTION INVERT LEVEL		587.525		588.180									
DEPTH TO INVERT	1.465	1.449	2.745	2.214	2.445	2.405	2.570	2.520	2.285	1.665	2.130	2.120	1.983
INVERT LEVEL	586.815	586.831	587.355	587.886	588.175	588.215	588.630	588.680	589.015	589.635	590.640	590.650	591.327
FINISHED SURFACE LEVEL	588.280	588.640	590.100	590.020	590.620	591.200	591.200	591.200	591.300	591.300	592.580	592.580	593.310
CHAINAGE	0.00	19.450	92.750	112.540	126.950	194.530	224.700	224.700	302.100	302.100	324.100	324.100	324.100

LINE 1J

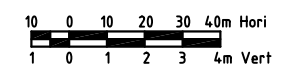
JOINS WITH LINE No.	EXIST	1J	CRD
MANHOLE & COVER TYPE	1	1	1
MANHOLE DROP TYPE	1	1	1
MANHOLE No.	IJ/6	1J/6A	



LOCATION	PRIVATE PROPERTY	ROAD RESERVE	PRIVATE PROPERTY
PIPE MATERIAL - CLASS		uPVC - CLASS SH	
LENGTH - PIPE DIAMETER		36.50 - 150Ø	
GRADE - mm/m		17.67	
DATUM RL	578.00		
R.L. TOP OF MANHOLE	590.120	590.400	
JUNCTION INVERT LEVEL			
DEPTH TO INVERT	2.745	2.700	2.155
INVERT LEVEL	587.355	587.400	588.045
FINISHED SURFACE LEVEL	590.100	590.250	590.200
CHAINAGE	0.00	32.800	36.500

LINE 1J/6

NOTE: ALL MANHOLE CHAMBERS TO BE PRECAST AND 150 DIA. AS PER STD. DRG. W2-2-02/3



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B	ISSUED FOR APPROVAL	10-01-08	G.M.
A	ISSUED FOR 90% REVIEW	23-11-07	G.M.
No.	DESCRIPTION	DATE	INIT.
AMENDMENTS			

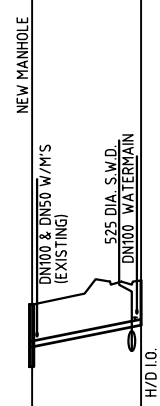
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DRAWN	G.M.	CHECKED	
DATE	26-4-07	DATE	
DESIGNED	G.M.	CHECKED	
DATE	26-4-07	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	

Northern Territory Government
 Department of Planning and Infrastructure

SOUTHERN REGION - ALICE SPRINGS			
CONNECTING NEIGHBOURS PROJECT - ILPIYE ILPIYE UPGRADE WORKS			
SEWERAGE LONGITUDINAL SECTIONS - SHEET 1			
FILE No.	ASSET No.	SHEET No.	DRAWING No.
XX	XX	18 OF 19	R08-1032
AMEND.	SHEET	450	
B	A1		

JOINS WITH LINE No.	1J
MANHOLE & COVER TYPE	CRD
MANHOLE DROP TYPE	1
MANHOLE No.	1/1A

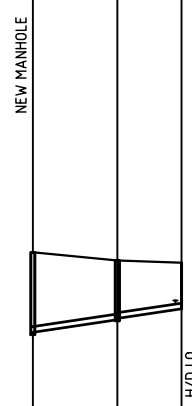


LOCATION PRIVATE ROAD RESERVE
 PIPE MATERIAL - CLASS uPVC - SN8
 LENGTH - PIPE DIAMETER 28.80 - 150φ
 GRADE - mm/m 20.0

DATUM RL	578.00
R.L. TOP OF MANHOLE	588.790
JUNCTION INVERT LEVEL	
DEPTH TO INVERT	1.115
INVERT LEVEL	587.525
FINISHED SURFACE LEVEL	588.640
CHAINAGE	0.00

LINE 1/1

1J	
CRD	CRD
2	1
1/2A	1/2B

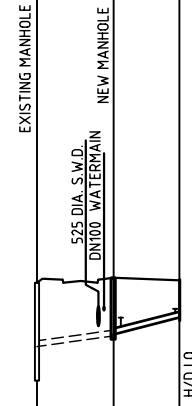


ROAD RESERVE
 uPVC - SN8
 22.37-150φ 17.0-150φ
 16.00 16.00

DATUM RL	578.00
R.L. TOP OF MANHOLE	590.020
JUNCTION INVERT LEVEL	589.810
DEPTH TO INVERT	2.120
INVERT LEVEL	587.850
FINISHED SURFACE LEVEL	589.020
CHAINAGE	0.00

LINE 1/2

1J	
EXIST.	CRD
3	1
1J/8	1J/8A

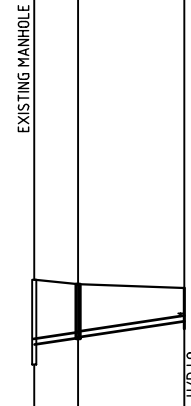


EXISTING SEWER LINE
 ROAD RESERVE PRIVATE
 uPVC - SH uPVC - SN8
 24.79-150φ 14.02-150φ
 13.75 25.60

DATUM RL	580.00
R.L. TOP OF MANHOLE	591.220
JUNCTION INVERT LEVEL	590.100
DEPTH TO INVERT	1.668
INVERT LEVEL	588.630
FINISHED SURFACE LEVEL	591.200
CHAINAGE	0.00

LINE 1J/8

1J	
CRD	CRD
2	1
1J/9	1/3A

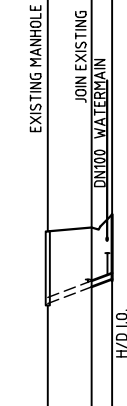


ROAD RESERVE PRIVATE
 uPVC - SN8
 7.40-150φ 30.92-150φ
 15.00 15.00

DATUM RL	580.00
R.L. TOP OF MANHOLE	591.300
JUNCTION INVERT LEVEL	591.180
DEPTH TO INVERT	1.725
INVERT LEVEL	589.015
FINISHED SURFACE LEVEL	591.300
CHAINAGE	0.00

LINE 1/3

1J	
CRD	
1	
1J/9	1/J8



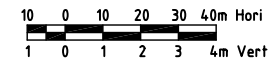
EXISTING SEWER LINE
 ROAD RESERVE
 uPVC - SH uPVC - SN8
 10.00-150φ 7.00-150φ
 32.80 32.80

DATUM RL	580.00
R.L. TOP OF MANHOLE	592.580
JUNCTION INVERT LEVEL	
DEPTH TO INVERT	1.910
INVERT LEVEL	590.670
FINISHED SURFACE LEVEL	592.580
CHAINAGE	0.00

LINE 1J/10

NOTE: ALL MANHOLE CHAMBERS TO BE PRECAST AND 150 DIA. AS PER STD. DRG. W2-2-02/3

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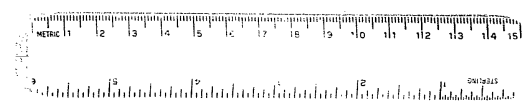
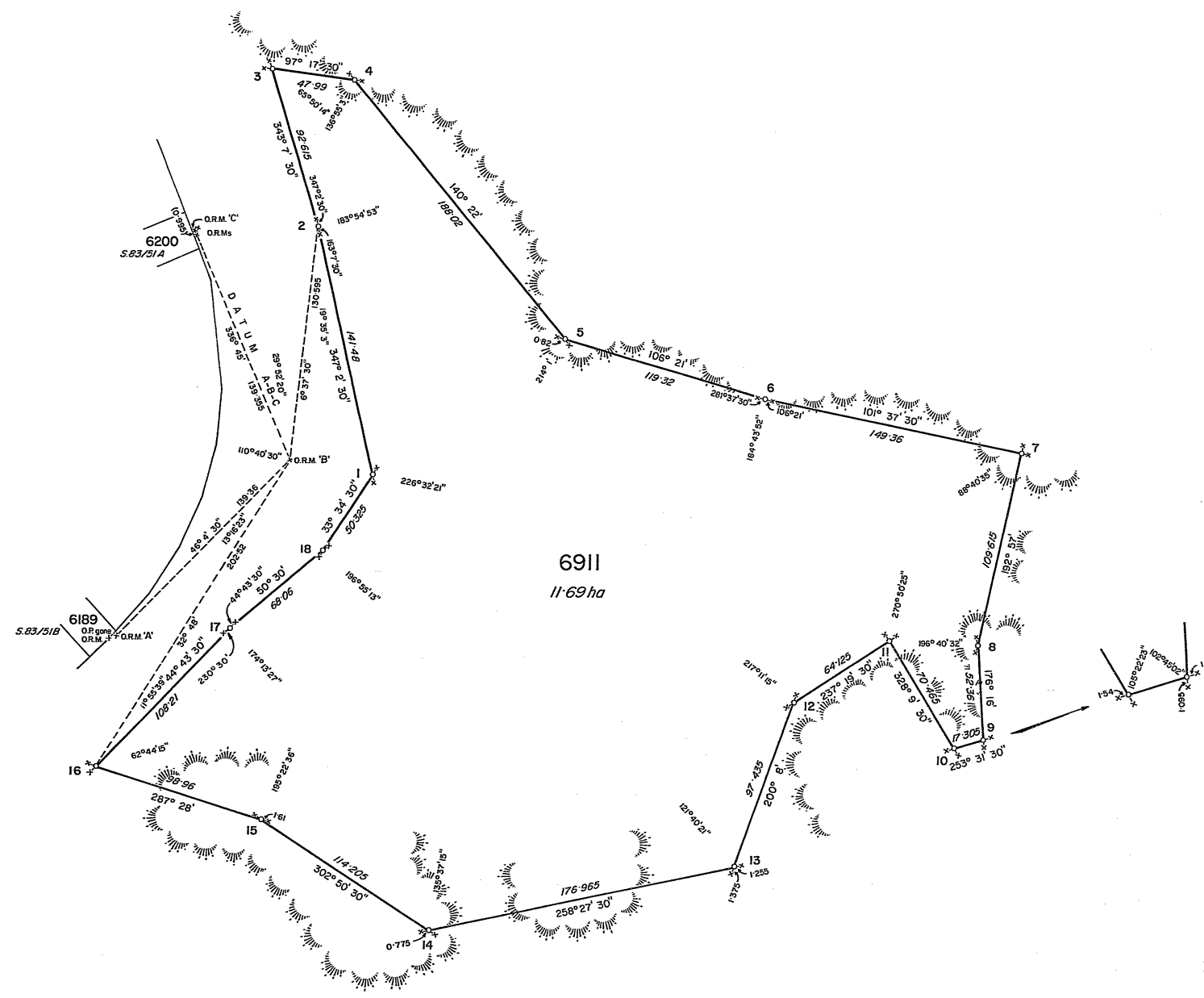
B	ISSUED FOR APPROVAL	10-01-08	G.M.
A	ISSUED FOR 90% REVIEW	23-11-07	G.M.
No.	DESCRIPTION	DATE	INIT.
AMENDMENTS			

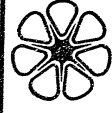

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DRAWN	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGNED	G.M.	CHECKED	
DATE	26-10-07	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



SOUTHERN REGION - ALICE SPRINGS			
CONNECTING NEIGHBOURS PROJECT - ILPIYE ILPIYE UPGRADE WORKS			
SEWERAGE LONGITUDINAL SECTIONS - SHEET 2			
FILE No.	ASSET No.	SHEET No.	DRAWING No.
XX	XX	19 OF 19	R08-1033
AMEND.	B	SHEET	AT



Department of Lands  Northern Territory	I, PAUL GILBERT MONTEFIORE , hereby certify that the survey represented on this plan was carried out by me or under my immediate supervision and was completed on 21/1/86 and that this survey has been executed in accordance with the Licensed Surveyors Act and the Directions thereunder. <i>P. Montefiore</i> Licensed Surveyor	AMENDMENTS Reference Details Approved Date		Notes: REFERENCE MARKS ARE AT ONE METRE AND ON THE PROLONGATION OF BOUNDARIES, UNLESS OTHERWISE SHOWN.	Field Book S.85/15 Drawn G.M. DYER 20-1-86 Examined J. Porter 1-1-86 Map Reference	 GRID Bearings	LEGEND Concrete Post □ Concrete Block ■ Peg or Wooden Post ○ Reference Mark x Lockspit ↗ Fence Post ⊙	LOT 6911 TOWN OF ALICE SPRINGS SCALE 1:1500 S.85/15
	SURVEY APPROVED <i>Paul Gilbert</i> Surveyor-General 30-1-1986 Date					Assumed from S.83/51 A & B Observed at	AZIMUTH	30 0 30 60 90 metres

WARNING - Damaged or creased plan will be rejected.

Date Registered: 02/03/2010

Volume 745 Folio 281

Duplicate Certificate as to Title issued? Yes 02/03/2010

SEARCH CERTIFICATE

Lot 6911 Town of Alice Springs from plan(s) S 85/015
Area under title is 11 hectares 6900 square metres

Owner:

Commonwealth of Australia

of C/- The Department of Families, Housing, Community Services and Indigenous Affairs, Centraplaza, 16 Bowes Street,
Woden ACT 2606

Registered Date	Dealing Number	Description
		Previous title is Volume 745 Folio 053
02/03/2010	721812	Request to issue Certificate as to Title
02/03/2010	721811	Lease to Northern Territory of Australia - expiring 31/01/2013
End of Dealings		



NORTHERN TERRITORY OF AUSTRALIA

Record of Administrative Interests and Information

Record of Administrative Interests and Information

The information contained in this record of Administrative Interests only relates to the below parcel reference.

Parcel Reference: Lot 06911 Town of Alice Springs plan(s) S 85/015

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

Registrar General

Government Land Register

(none found)

Custodian - Registrar General (+61 8 8999 6252)

Current Title

CUFT 745 281 (order 1)

Tenure Type

ESTATE IN FEE SIMPLE

Tenure Status

Current

Area Under Title

11 hectares 6900 square metres

Owners

Commonwealth of Australia

C/- The Department of Families, Housing, Community Services and Indigenous Affairs, Centraplaza, 16 Bowes Street, Woden ACT 2606

Easements

(none found)

Scheme Name

(none found)

Scheme Body Corporate Name

(none found)

Reserved Name(s)

(none found)



Unit Entitlements

(none found)

Transfers

(none found)

Tenure Comments

(none found)

Historic Titles

CUFT 745 053 (order 1)

CUCL 198 072 (order 2)

CUCL 198 072 (order 1)

Visit the website http://www.nt.gov.au/justice/bdm/land_title_office/

Custodian - Surveyor General (+61 8 8995 5362)**Address**

45 OONCHIUNPA RD, SADADEEN

Survey Plan

S 85/015

Survey Status

Approved

Parcel Status

CURRENT

Parcel Area

11 hectares, 6900 square metres

Map Reference

Code 010 Scale 2500 Sheet 31.33

Parent Parcels

(none found)

Parcel Comments

ILPIYE ILPIYE COMMUNAL LIVING AREA, SADADEEN. GRANT OF CLP NTG G6 13/2/1985. SEE S2008/003 LOTS 9846(A) TO 9867(A) FOR LOT ALLOCATIONS UNDER THE CONNECTING NEIGHBOURS INITIATIVE.

Survey Comments

(none found)

Proposed Easements

(none found)

Municipality

ALICE SPRINGS MUNICIPALITY

Region

ALICE SPRINGS

Custodian - Valuer General (+61 8 8995 5375)**Owner's Last Known Address**

CEO Housing & Department of Lands and Planning, ATTENTION: CHIEF FINANCE OFFICER, GPO BOX 4621, DARWIN NT 0801

Parcels in Valuation

Lot 06911 Town of Alice Springs

Unimproved Capital Value

\$1,025,000 on 01/07/2015

\$1,126,000 on 01/07/2012

\$1,073,000 on 01/07/2009

\$730,000 on 01/07/2006

\$570,000 on 01/07/2003

\$399,000 on 01/07/2000

\$385,000 on 01/07/1997

\$315,000 on 01/07/1994

\$260,000 on 01/07/1991

\$170,000 on 01/01/1989

\$129,000 on 01/01/1986

Valuation Improvements

28/05/1990 House x 9

Improvement type(P)

Custodian - Property Purchasing (+61 8 8999 6631)**Acquisitions**

(none found)

Custodian - Building Advisory Service (+61 8 8999 8965)**Building Control Areas**

BBASP001 - Building Control Area ALICE SPRINGS BUILDING AREA

Building Permits

Application Number: 30 of 31
Description: II 9847 - New concrete and steel residential 3 bedroom dwelling (Type H6VAS)
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Non-habitable building
Area: 136 square metres
Certification: Single Dwelling - Full Code - *issued on 06/02/2012*
Non-habitable building - Full Code - *issued on 06/02/2012*

Application Number: 28 of 31
Description: House 9852, 45 Onchiunpa Road, Ilpeye-Ilpeye Town Camp, Alice Springs
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Area: 136 square metres
Certification: Single Dwelling - Full Code - *issued on 05/10/2011*

Application Number: 27 of 31
Description: House 9860 - New concrete and steel residential 3 bedroom dwelling (Type H6VAS)
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Area: 136 square metres
Certification: Single Dwelling - Full Code - *issued on 05/10/2011*

Application Number: 26 of 31
Description: New concrete and steel residential 3 bedroom dwelling (Type H7EAS)
House 9857 - Ilpeye Ilpeya Camp
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Area: 139 square metres
Certification: Single Dwelling - Full Code - *issued on 05/10/2011*

Application Number: 25 of 31
Description: New concrete and steel residential duplex building (Type H4DAS)
House 40A & 40B - Ilpeye Ilpeya Camp
Number of Residential Units: 2
Australian Bureau of Statistics Type: Semi-detached town house of one storey

Building Class: Single Dwelling
Area: 228 square metres
Certification: Single Dwelling - Full Code - *issued on 06/10/2011*

Application Number: 23 of 31
Description: Refurbishment
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Area: (none found)
Certification: Single Dwelling - Full Code - *issued on 14/11/2011*

Application Number: 20 of 31
Description: Upgrades to dwellings including wall cladding, sunshade awnings, verandas
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Area: (none found)
Certification: Single Dwelling - Full Code - *issued on 17/12/2008*

Application Number: 19 of 31
Description: Single residential dwelling
Number of Residential Units: 1
Australian Bureau of Statistics Type: Separate House
Building Class: Single Dwelling
Area: 129 square metres
Certification: Single Dwelling - Full Code - *issued on 01/08/2007*

Visit the website <http://www.nt.gov.au/building/>

Custodian - Town Planning and Development Assessment Services (+61 8 8999 6046)

Planning Scheme Zone
CL (Community Living)

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2013/0957

Type
Exceptional Development

Date Received
29/11/2013

Application Purpose

Subdivision to create 32 lots

Application Status

Approved

Other Affected Parcels

(none found)

Instrument Signed

13/02/2014

Instrument Number

EDP14/0001

Instrument Issued

Signed

Instrument Status

Current

File Number

PA1985/0042

Type

Subdivision

Date Received

31/01/1985

Application Purpose

CREATE ONE LOT SEE PREVIOUS PAGE FOR REZONING.

Application Status

Approved

Other Affected Parcels

(none found)

Instrument Signed

23/01/1986

Instrument Number

S 1275

Instrument Issued

Signed

Instrument Status

Completed

Custodian - Power and Water Corporation (1800 245 092)**Meters on Parcel**

Power Water - Electricity	9
Power Water - Water	13

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status

(none found)

For more information, contact the Pool Fencing Unit (+61 8 8924 3641).

Custodian - Mines and Energy (+61 8 8999 5322)

For information on possible Exploration Licences, contact Mines & Energy or visit the website
http://www.nt.gov.au/d/Minerals_Energy/

For information on possible Petroleum Titles, contact Mines & Energy for further details.

Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment

(none found)

For further information contact Environment Protection Authority or visit the website
<https://ntepa.nt.gov.au/waste-pollution/contaminated-land>

Custodian - Heritage Branch (+61 8 8999 5039)

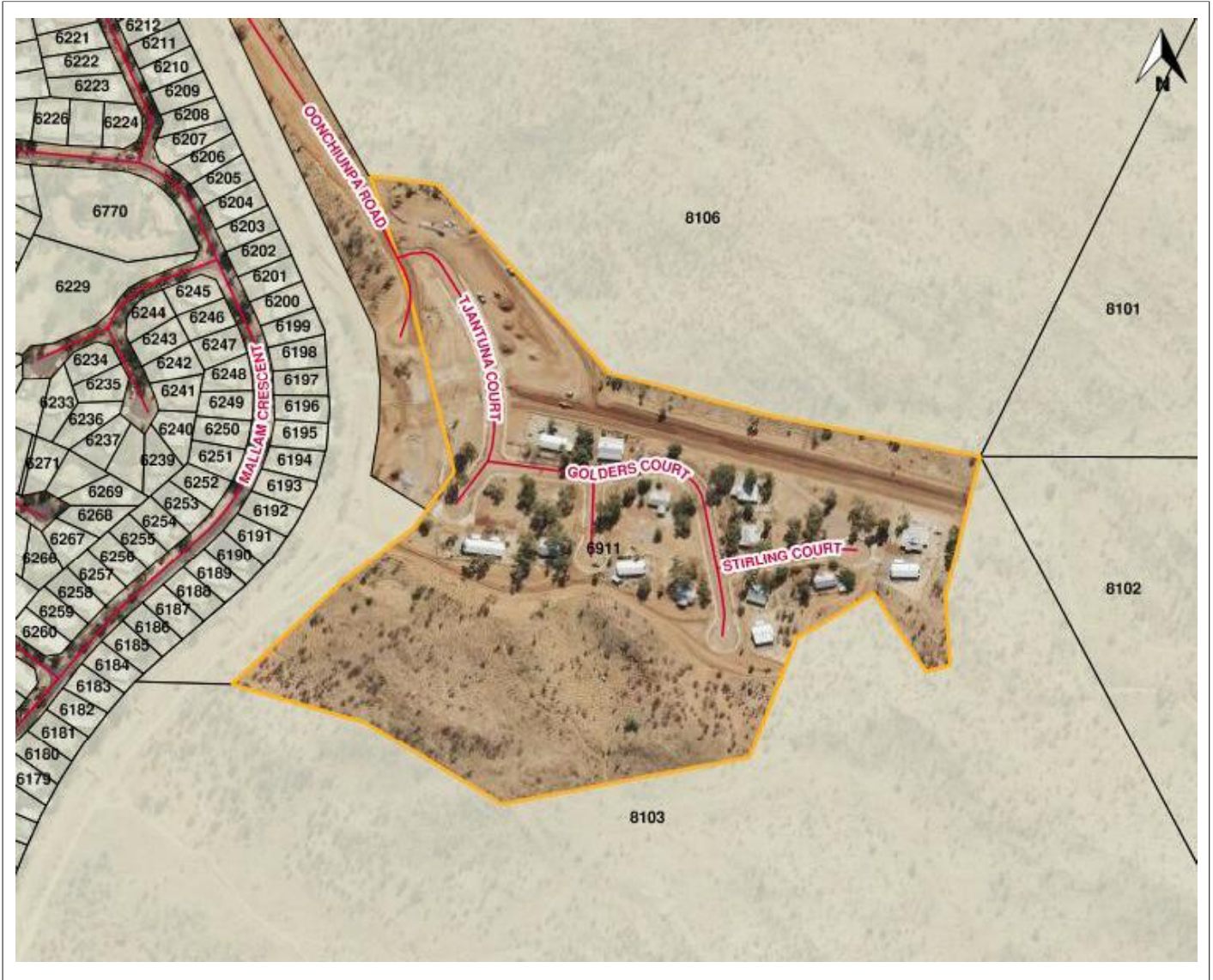
Heritage Listing:

(none found)

For further information on heritage places contact Heritage Branch or visit the website
<https://nt.gov.au/property/land/heritage-register-search-for-places-or-objects>

Other Interests

For Account balances, contact Alice Springs Town Council



Transformer data

Group	Com Id	Location	Community Name	Dwellings No. (Funded Dwellings)	Dwellings No. (Bennett Design)	New Houses ** (Future Demand)	Primary Voltage Level (KV)	PWC Substation ID	PWC Test Number	Transformer size (KVA)	KVA Total dwellings @ 4.5KVA	KVA Total dwellings @ 7KVA	Comments
1	290	Darwin	Bagot	55	55		11	1924	1735	300	247.5	385	
	344	Darwin	Knuckey Lagoons	18	19	2	11	1771	2163	100	85.5	133	
	347	Darwin	Kulaluk	19	19		11	1092	10607	50	85.5	133	
	403	Darwin	Palmerston Town Camp	20	16		22	10196	10245	100	90	140	Two transformers for this Town Camp. Transformers are not in boundary of Town Camp [The nearest transformers data to Town Camp are highlighted in yellow].
							22	265	11645	25			
	412	Darwin	Railway Dam (One Mile Dam)	5	6	2	11	1041	4378	200	27	42	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	427	Adelaide River	Amangal	9	9		22	216	12187	100	40.5	63	Two transformers for this Town Camp.
							22	184	5646	63			
687	Jabiru	Manabadurma	10	12		11	5050	11107	200	54	84		
825	Darwin	Minmarama Park	24	24		11	2147	11372	100	108	168		
2	606	Katherine	Warlpiri Transient Camp	9	9		22	6416	4886	100	40.5	63	Two transformers for this Town Camp.
							22	6074	4695	25			
	621	Katherine	Miali Brumby (Kalano)	47	31		22	6133	12247	315	211.5	329	
	640	Pine Creek	Pine Creek Compound	4	4		22	6666	3147	25	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
971	Mataranka	Mulggan	12	9	4	22	6819	5296	16	54	84		
						22	6818	5297	16				
						22	6384	11028	25				
3	215	Tennant Creek	Blueberry Hill (Munji-Marla)	2	2		22	7079	1868	200	9	14	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	223	Tennant Creek	Dump Camp (Marla-Marla)	7	7		22	7181	11088	200	31.5	49	
	224	Elliott	Elliott South Camp	12	12		11	7504	4718	200	54	84	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	225	Elliott	Elliott North Camp	36	25		11	7505	4715	100	162	252	
	238	Tennant Creek	Kargaru (East Side Camp)	12	12	1	22	7572		200	54	84	
	246	Tennant Creek	Ngalpa Ngalpa	18	21		22	7179		200	94.5	147	Two transformers for this Town Camp.
							22	7033	10904	315			
	271	Tennant Creek	Village Camp	12	12	1	22	7183	11107	200	54	84	
681	Tennant Creek	Tingkarli	12	12		22	7180		200	54	84		
684	Tennant Creek	Wuppa	15	15	1	22	7141	11092	100	67.5	105	Two transformers for this Town Camp.	
						22	7182	11095	200				
4	3	Alice Springs	Akngwertnarre (Morris Soak)	11	15		11	8596	11336	300	67.5	105	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	16	Alice Springs	Anthelk Ewlpaye (Charles Creek)	17	10		11	8569		315	76.5	119	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	17	Alice Springs	Anthepe	15	15		22	8598	5874	200	67.5	105	Data extracted from PWC asset information. There was not access to this Town Camp due to ceremony on inspection day.
							22	8597	11244	315			
	19	Alice Springs	Aper Alwerrkng (Palmers)	7	6		11	8405	2939	200	31.5	49	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	35	Alice Springs	Ewyenper Atwatye (Hidden Valley)	47	47		11	8622	11202	100	211.5	329	
							11	8623	11203	100			
							22	8625	11205	63			
							11	8626	11204	100			
	47	Alice Springs	Ilparpa	13	13		22	8611	11702	200	58.5	91	
	48	Alice Springs	Ilperle Tyathe (Walpiri)	10	9		11	8001	11209	315	45	70	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	50	Alice Springs	Ilyperenye (Old Timers)	10	10		22	8145	3323	100	45	70	
	64	Alice Springs	Bassos	2	2		11	8002	10946	50	9	14	
	69	Alice Springs	Karnte	19	19		22	8282	2345	100	85.5	133	
87	Alice Springs	Yarrenty Altere (Larapinta Valley)	34	34		11	8617	11334	100	153	238		
						11	8618	11200	63				
						11	8619	11335	100				
						11	8620	11201	100				
90	Alice Springs	Inarleng (Little Sisters)	16	22		22	8137	2925	100	99	154	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].	
108	Alice Springs	Mpwetyerre (Abbotts)	6	6		11	8093	11703	315	27	42	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].	
113	Alice Springs	Mount Nancy (Nyewente)	11	12		11	8405	2939	200	54	84		
129	Alice Springs	Nyewente (Trucking Yards)	26	26		11	8629	11312	300	117	182		
675	Alice Springs	Hoppys	15	19						85.5	133	There is not any Transformer in boundary of Town Camp. Also it's not shown in PWC asset information.	
676	Alice Springs	Ipiye Ipiye (Golders Camp)	15	14		11	8314	369	50	67.5	105		
1029	Alice Springs	Kunoth	4	4		11	8569		315	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].	
5	222	Borrooloola	Mara	28	29	2	11	6187	12610	100	130.5	203	Two transformers for this Town Camp.
							11	6545	10203				
	229	Borrooloola	Garawa 1	16	14		11	6546	10166	100	72	112	Two transformers for this Town Camp.
							11	6332	4890	100			
	278	Borrooloola	Yanyula	29	29		11	6162	10496	200	130.5	203	Data extracted from PWC asset information. It's outside of Twon Camp, shown only Transformer to this Town Camp.
						11		10167					This transformer is not shown in PWC asset information. It's installed in Boat Ramp Road near to Town Camp and connected to Electrical reticulation of Town Camp.
992	Borrooloola	Garawa 2	11	11		11	6189	2669	25	49.5	77		

** For New house's demand calculation see section 13.4 "Future Demand".

Kunoth

Kunoth

1 Design

The infrastructure reviews have been undertaken against current relevant standards for typical sub-divisions. The following standards have been used in undertaking the reviews.

Sewerage and water supply

- Water Services Association of Australia – Sewerage Code – WSA 02 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 02
- Water Services Association of Australia – Sewerage Pumping Station Code – WSA 04 -2005 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 04
- Water Services Association of Australia – Water Supply Code – WSA 03 2002 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 03
- Power and Water Corporation Indigenous Community Engineering Guidelines (2008)
- Department of Housing and Community Development Indigenous Community Engineering Guidelines (ICEG 2014, updated September 2016)
- Power and Water Corporation Essential Services Infrastructure Assessment and Upgrade Guidelines (for Town Camps in Urban Communities, 2009)
- Power and Water Corporation Standard Drawings
- Australian Standards

Electrical services

Electrical infrastructure has been assessed against AS/NZS3000 Wiring Rules and against PWC Service, Installation and Metering Rules and Urban Residential Development (URD) Design Standards where possible.

With one exception, town camps are each a single lot and compliance with AS/NZS3000 is sufficient to address potential safety concerns.

As such application of PWC URD Design Standards will mainly apply to the incoming supply and bulk or initial multi-metering panels if provided.

URD Design Standards for internal reticulation and street lighting appear to have been applied in many cases for convenience rather than compliance.

For the purposes of this report, the demand per dwelling allowances of URD Design Standards have been used to estimate incoming supply and overall distribution capacity requirements.

The following standards apply:

- Australian Standards
- Power Networks Design and Construction Guidelines, Power and Water Corporation
 - NP001.1_Design and Construction of Network Assets – General Requirements
 - NP001.3_General Specification for Overhead Electrical Reticulation
 - NP001.6_General Specification for URD Subdivisions
 - NP003_Installation Rules_V3
 - NP007_Service Rules
 - NP027_Capture of Newly Installed Street Lighting Information
 - NP041_Guidelines for Electrical Design Consultants

Further referral to the guidelines in this report will be designated by the guidelines number, NP001.1.

Communications

- National Broadband Network Website viewed 21 January 2017 (<http://www.nbnco.com.au/>) – NBN rollout maps

Council guidelines

In addition to the above standards, the following Council guidelines will be used where applicable.

- Alice Springs Town Council – Subdivision and Development Guidelines, November 2012

General

It should be noted that if the town camps are proposed to be subdivided and services assets gifted to Power and Water Corporation (PWC) for operation and maintenance, all of these services will need to fully meet PWC standards. With the exception of a few town camps that have recently been upgraded, this will require the full replacement and/or realignment of most services.

2 Condition assessment

2.1 Rating assessment matrix

A condition rating matrix was developed and used to assess all municipal infrastructure. The same rating was used for all services to maintain consistency in assessments. Table 1 Below shows the condition rating and operability.

Table 1 Condition rating

Condition rating	Operability
1	Very Poor Not operational
2	Poor Not fully operational or requires immediate maintenance to keep operational
3	Good Fully operational, may require routine maintenance
4	Very Good Fully operational, may require maintenance in the next six months
5	Excellent New, fully operational

2.2 Civil assessment limitations

The civil infrastructure condition investigations were subject to a number of limitations. These include:

- Only accessible services have been investigated. This includes inspecting the top of sewer manholes, side entry pits, etc., however, does not include opening pits to inspect infrastructure below ground.
- No physical testing of the sewer, water or stormwater network was undertaken.
- No survey or service locating was undertaken.

As there was no survey, potholing or CCTV undertaken on the underground infrastructure there is insufficient information to make determinations on the asset condition. The condition assessments discussed in this report are only for the accessible services and do not necessarily represent the condition of the underground infrastructure. For the majority of the town camps, other than a few that have recently been upgraded it was found that the underground services are generally undersized and it is likely, due to their age, that the these services are in poor condition. Either factor would trigger the need for a complete replacement to meet current relevant standards.

2.3 Electrical assessment limitations

The electrical infrastructure condition investigations were subject to a number of limitations. These include:

- Inspections were carried out without the assistance of an electrical tradesman.
- Only accessible services were investigated. Assessments were of a visual nature and no pit covers were removed.
- Overhead equipment was assessed from ground level.
- Switchboards were not opened and no assessment of the internal connections or bus ratings was made.

- Electrical infrastructure was assessed down to the meter for multi-meter panels and down to the termination, overhead pole or distribution pillar, of the supply cable to a meter located at a dwelling.

3 Current infrastructure issues

Power and Water Corporation (PWC) have advised of the following concerns and issues in regard to the sewerage, water and electrical infrastructure at all town camps.

3.1 Ownership and maintenance

PWC stated there has always been confusion regarding the ownership and responsibilities of the internal sewer, water and electrical infrastructure. PWC have advised that they have no legal tenure on the majority of assets in any town camps and that the owner is essentially that of the land owner or leaseholder. This is further discussed for each type of infrastructure for each town camp.

The ownership and who is responsible for the maintenance of the sewage pump stations and street lighting is a major concern. In most town camps it was found that PWC have been maintaining the assets on an in-kind basis, although there are no maintenance or access agreements in place and the infrastructure is generally not compliant to PWC standards.

3.2 Access to infrastructure

PWC advised that due to the uncertainty surrounding ownership and responsibility of the sewerage, water and electrical infrastructure, each town camp is seen as a single lot with multiple houses on it. There are no formal road reserves or easements where the municipal infrastructure should be located. PWC therefore have no legal right to enter the town camps to work on the infrastructure, nor can PWC stop others from working on the infrastructure. There is a risk that the maintenance undertaken by others may be to a lower standard than PWC.

It should be noted that there are currently no legal services easements within the town camps, except for a few cases where a town service passes through the town camp. Therefore it is recommended that easements are created over any infrastructure owned by PWC and any future assets to be gifted to PWC, to allow the service providers access to the infrastructure.

3.3 Existing infrastructure

PWC have stated that although the existing sewerage and water infrastructure appears to comply with relevant standards in some locations, the capacity cannot be assumed to meet PWC requirements due to the potential for underground substandard condition and/or grading of pipework. It is likely that these assets will need to be fully replaced to PWC standards to ensure sufficient capacity.

The planning process currently allows construction within the town camps on Commonwealth land without requiring service authority (PWC) approvals. This means that there has been no opportunity for PWC to recover contributions towards required upgrades to headworks servicing the developments and these upgrades have been paid for by PWC in the past. This inconsistency needs to be addressed for future developments within the town camps to ensure PWC are able to continue to provide adequate services.

3.4 Safety concerns

PWC have expressed concerns with safety of PWC staff and contractors working within the camps. PWC have employed procedures such as multiple people / vehicles to attend the site, with police or housing safety officers as required. This

generally leads to a delayed response time and increased cost to respond to and remediate emergency situations.

PWC have also raised the concern that if others work on water infrastructure within the town camps and do not apply the correct sanitation procedures they not only risk contaminating the entire water supply network within the town camp, at some town camps with direct connections to the town supply, they risk contaminating the entire town's water supply.

4 Available information

As the site investigations were limited to accessible / visible services, information on below ground services (such as electrical cables, sewer pipes, water supply pipes, etc.) were determined from available information. This information included:

- Serviced Land Availability Program (SLAP) maps,
- Department of Family & Community Services - Connecting Neighbours Program – Essential Services Scoping Study Report Volume 1 April 2005,
- Connecting Neighbours Project – Infrastructure Assessment and Recommendation Report - Arup Pty Ltd, April 2005,
- Drawings supplied by NT Department of Infrastructure - Technical Records,
- Drawings supplied by Power and Water Corporation,
- Bennett Design inspection reports and population data.

Aurecon undertook a site investigation of the Kunoth community on 21 November 2016 to inspect roads, stormwater drainage, electrical services, sewerage and water supply, and community structures. The following sections detail the outcomes of this investigation and the assessments of the infrastructure.

The civil and electrical inspection reports can be found in the Appendices.

5 Sewerage

5.1 Ownership and boundaries

The sewerage infrastructure within Kunoth is owned by Anthelk-Ewlpaye Association Incorporation, but is the responsibility of Ingkerreke Outstations Resource Services to maintain.

PWC own a DN150 PVC gravity main at the boundary between Charles Creek community and Kunoth community, and along Ulpaya Road, as shown in Figure 1. It is understood that the internal sewer network in Charles Creek connects to the PWC town sewer.



Figure 1 PWC owned sewer infrastructure

5.1.1 Connection methods and billing

PWC advised that they currently charge a single sewerage bill based on the number of houses, which for Kunoth is three plus one other (with one fixture). The sewerage bill is charged to the Department of Housing and Community Development.

It is not known what contribution the residents make towards the sewerage bills.

5.2 Existing infrastructure condition assessment

There were no sewerage infrastructure assets within Kunoth.

5.3 Current performance and risks

5.3.1 Current sewer network performance

The current capacity of the sewer network was calculated based on the following design assumptions:

- The adopted minimum grade for the pipework is 1.0%, as advised by Power and Water Corporation.
- The Equivalent Population (EP) has been calculated assuming one household equates to 9 EP, based on discussions with Power and Water Corporation.
- The capacity has been assessed by calculating the current flow rate, and the maximum flow rate when the sewer pipe flows full. The result is then a percentage of how much of the pipe is currently being used.
- Manning's roughness coefficient of the pipework is 0.012, as recommended by PWC for PVC pipes.
- Where the sewer pipe grade, size or material is not known, it is assumed to be non-compliant to PWC standards.

The current number of houses in Kunoth is 4, this multiplied by 9 EP per house gives a total current EP of 36. The capacity of the existing sewer was then calculated. The percentage shows how much of the pipe capacity is currently being used.

Table 2 Existing sewer capacity

Catchment	Current total EP	Diameter of connection (mm)	Adopted PWC minimum slope (%)	Q _{full} (L/s)	Current Q (L/s)	Current capacity (%)
Catchment 1	36	150	1.0	16.50	0.64	4%

Table 2 above shows that the capacity of the existing sewer network is adequate for the current peak population. At these low flows, it is likely that self-cleansing velocities are not achieved.

A new gravity reticulation main that disposes to the PWC network is recommended. This includes a new DN150 gravity main, with new house connections and manholes. The network should be positioned within the road reserve or within easements.

5.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

5.5 Recommended works

The following works are recommended:

- New DN150 PVC reticulation main with housing connections, manholes, and connection to PWC town sewer.

6 Water supply

6.1 Ownership and boundaries

The existing water main servicing Kunoth is a DN150 PVC pipe. The water main passes through the community and services Charles Creek, Hoppys as well as other sections of Alice Springs.

PWC have advised that the water reticulation network at Kunoth is a part of the PWC town network, however is not strictly up to current standards. PWC maintain the water assets up to the housing meters, although there is no formal agreement to conduct this maintenance. It is believed the remaining water infrastructure is owned by Anthelk-Ewlpaye Association Incorporated, but are the responsibility of Ingkerreke Outstations Resource Services to maintain.

Figure 2 shows the extent of water services for Kunoth.



Figure 2 Kunoth water supply

6.1.1 Connection methods and bills

Through consultation with PWC, it has been determined that the water supply to Kunoth is currently charged using a fixed daily rate for a total of 10 lot water meters. The water bills for Kunoth are issued to the Department of Housing and Community Development. It is not known what contributions are made by the residents.

It is intended that upgrades are undertaken to isolate the water supply to the community which would allow PWC to measure usage for the entire community, as opposed to individual lots within the community. This would require the installation of a bypass main. It is expected that the installation of a bypass main is not economically viable. Therefore, the current practice of measuring water usage at lot meters is seen to be the most practical.

A single residential lot water meter was assessed during the inspection. Therefore, up to an additional three water meters are required to be installed to cover the properties without an existing water meter. Note, some water meters may have been present however not visible due to overgrown flora or restricted property access. Consequently water meters may have not been discovered during the inspection.

6.2 Existing infrastructure assessment

The site investigation for the water infrastructure included assessing the condition of any air valves, fire hydrants, tanks, taps, and water meters. The assessment was limited to services that could be accessed above ground; no excavation of below ground services was undertaken.

The condition of each asset is as follows:

Table 3 Water asset condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Water meter (residential lots)	1					1

The single residential lot water meter was the only water asset found during the inspection. The water meter was in very poor condition and needs to be replaced.

6.3 Current performance and risks

The current peak hour water demand supply was calculated based on the following design assumptions:

- The nominal peak day flow is 1300 L/capita/day, based on PWC’s supplement to WSA 03 2002. This value is for the southern region of NT. It was assumed that the nominal peak day flow of 1300 L/capita/day also applies to water usage within the community, although it is possible that this value could be higher in real life due to a lack of controls to reduce water usage.
- The Equivalent Population (EP) has been calculated assuming one household equates to 9 EP, based on discussions with Power and Water Corporation.
- The peak hour factors are listed in PWC’s Supplement to WSA 03-2002, and they depend on the population range of the community. The peak hour factor of 3.0 has been adopted, for populations less than 500.

Table 4 shows the peak hour demand calculated for Kunoth.

Table 4 Current water demand

Total dwellings	EP	Demand (l/s)	Peak hour demand (l/s)
4	36	0.54	1.62

Given the demand on the system is relatively low, it is expected that the network will supply adequate pressure throughout the community.

The assessment of water supply for firefighting has been based on the size of the water mains and the condition of the accessible fire hydrants. Additional hydrants have been recommended where it appears the existing number of hydrants are insufficient. In the case of Kunoth, additional fire hydrants are required to provide adequate coverage throughout the community. Two new fire hydrants have been incorporated into the cost estimates.

It should be noted that there are significant concerns with the existing layout since the main that passes through the community is a town supply main. The issues regarding health and safety concerns and access limitations detailed in Section 5 are directly relevant to water network at Kunoth.

6.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

6.5 Recommended works

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. The following maintenance works are recommended;

- Replace broken residential lot water meter.
- Clear debris away from existing fire hydrant.

Upgrades to isolate the town camp water supply are highly recommended. With respect to the current water main layout, the simplest foreseeable method to isolate the community water supply from the main network is to install a bypass main. It is expected that this will come with significant cost and not be economically viable. Therefore, the recommended upgrades to the community water supply include;

- Install up to three new residential lot water meters.
- Install two new fire hydrant

7 Roadworks

7.1 Ownership and boundaries

It is the current understanding that the road infrastructure at Kunoth Camp is owned by the Anthelk-Ewlpaye Association Incorporated, however is the responsibility of Ingkerreke Outstations Resource Services to maintain.

7.2 Existing infrastructure condition assessment

The road network within the Kunoth community consists of a single formal sealed road called 'Paddy Court'.

Road furniture including signs were also inspected. Table 5 Roadworks condition assessment below summarise the condition of the road furniture as assessed during the site inspection.

Table 5 Roadworks condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Sign	1		1	1		3

The only road furniture within the community was three signs in various conditions, one requires a replacement whereas the other two do not require any immediate maintenance.



Figure 3 Sign, condition: *very poor*



Figure 4 Sign, condition: *good*

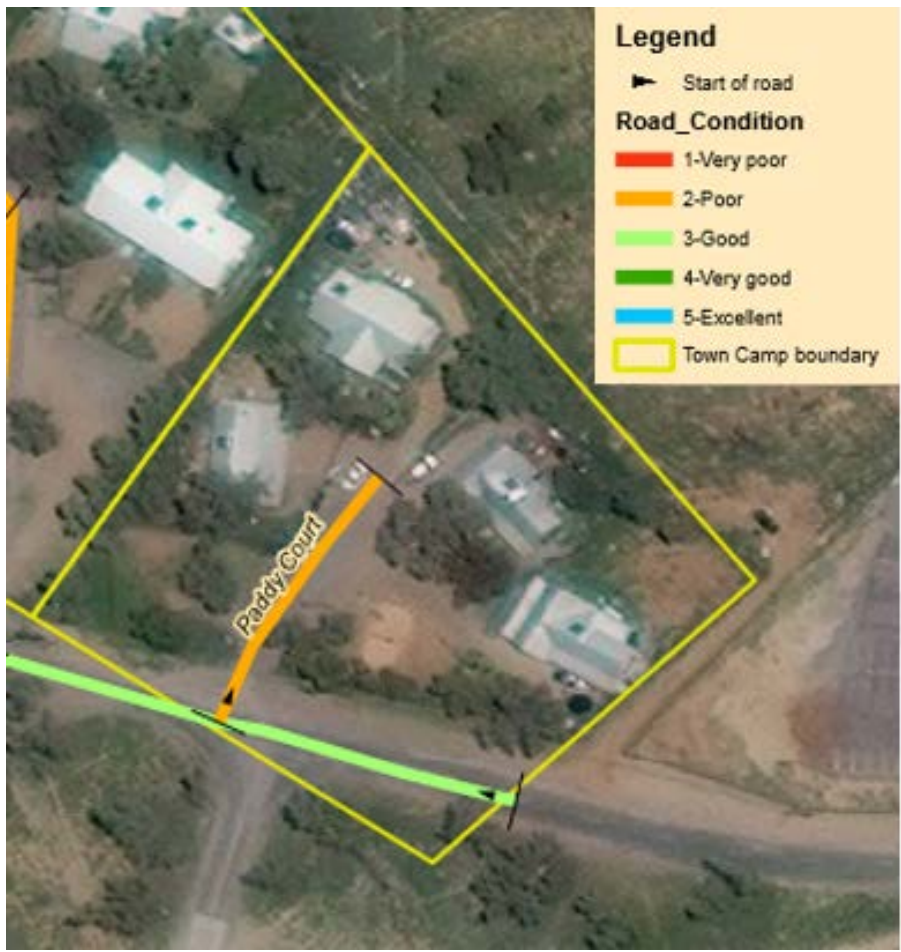


Figure 5 Kunoth community road network

Table 6 below details the condition of the roads within Kunoth community for specific segments. Figure 5 Kunoth community road network shows a map of the community's road network with the condition ratings, road name, and chainage direction. Note, the percentage refers to the percentage of that particular road segment which experiences the defect.

Table 6 Road network condition assessment

Road name	Chainage start (km)	Chainage end (km)	Condition (1 to 5)	Defects and associated condition
Paddy Court	0	0.05	2	-90% of the road has edge breaks (2) -1 large significant pothole (1)



Figure 6 Pavement, condition: *poor*



Figure 7 Edge breaks, condition: *poor*

7.3 Current performance and risks

Paddy Court was rated as having poor condition, due to significant edge breaks and a large pothole. The road requires significant maintenance and/or upgrades.

The layout of the road network is sufficient for the current number of houses.

It is recommended that a road safety audit is undertaken to determine where signage, line marking, etc. are required.

7.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

7.5 Recommended works

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. The following works are recommended to upgrade the current infrastructure;

- Fill and reseal one large pothole
- Repair 45 m of edge breaks
- Replace one sign
- General clean of 50 m of pavement and road reserve

In order to allow for a longer term sustainable road network a significant upgrade would be required. It is recommended that a long term design which incorporates a full two lane road network, with all appropriate road furniture, line-marking, kerbs and gutters is constructed. A cost estimate to reinstate the base and subbase

material, reseal with a two coat spray seal surface, construct subsoil drainage, line marking and signage has been included. Note that these works will need to be fully designed, the cost estimate is for budgetary purposes only and only indicates the construction phase. A footpath next to the road is also recommended to provide a safe trail for pedestrians.

As the maximum road width within the Kunoth community is 5 m, this means that all 50 m of the road network will need to be upgraded to a 7.2 m wide road. The stormwater drainage infrastructure upgrades that are closely associated with the road upgrade i.e. kerb and gutters, side entry pits and underground drainage pipes are included in the stormwater section of this report.

8 Stormwater drainage

8.1 Ownership and boundaries

There were no stormwater drainage assets within Kunothe community.

The Connecting Neighbours Program designed stormwater drainage for the community, however it appears as though the infrastructure has not been built.

8.2 Current performance and risks

The detailed performance of the stormwater network cannot be fully analysed without significant hydraulic and hydrodynamic modelling, which is outside the scope of this project.

The Alice Springs Town Council's general design philosophy for stormwater drainage is that the system is based on a network of sealed roads, kerb and gutters, side entry pits and underground drainage pipes, including grassed open channels and diversion drains. It is recommended that kerbs and gutters, side entry pits and underground pipes are installed to help reduce flooding in the community. The cost estimates allow for 100 m of stormwater drainage.

8.3 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

8.4 Recommended works

The following works are recommended to upgrade or improve the current infrastructure:

- Construct kerb and gutters, side entry pits, and underground drainage.

9 Community structures

9.1 Ownership and boundaries

It is believed the community structures are owned by Anthelk-Ewlpaye Association Incorporated, but are the responsibility of Ingkerreke Outstations Resource Services to maintain

9.2 Existing infrastructure condition assessment

The site investigation for the community structures included assessing the condition and features of playgrounds, basketball courts and shade structures. The following table shows the condition rating given to the community structures.

Table 7 Community structures condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Playground				1		1



Figure 8 Playground, condition: *very good*

9.3 Current performance and risks

The only community structure within Kunoth was a playground as shown in Figure 8, it is recommended that a shade structure is placed over this for sun protection and rubbish removed from around the playground.

9.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

9.5 Recommended works

The following works are recommended to upgrade the community structures:

- Install shade structure over existing playground
- General clean-up of playground and surrounding areas

10 Electrical services

10.1 Ownership and boundaries

The following points, from Network Policy NP003 Installation Rules Section3, define the typical shared ownership of electrical infrastructure by Power and Water Corporation (PWC) and customers.

- The point of supply is defined as the point where PWC makes the electrical supply available. For domestic supply, this is normally one of the following:
- A point of attachment of an overhead service on to a building or pole on which a metering panel is fitted.
- A point of attachment of an overhead service on to a pole forming part of unmetered aerial consumer's mains.
- A nominated point on a distribution substation located on the customer's lot.
- A point of connection of an underground service in a metering panel, including underground services originating at an overhead line.
- A point of connection of an underground service in a pillar or junction box forming part of unmetered consumer's mains, located on the customer's lot.
- A point on a Power and Water pillar located on the customer's lot.

Typically, distribution infrastructure upstream of the Point Of Supply is owned and maintained by PWC and infrastructure below the point of supply is owned and maintained by the customer.

In many cases PWC have defined a Point Of Supply to ensure that they retain responsibility for aerial high voltage infrastructure, and aerial low voltage infrastructure where installed with aerial high voltage infrastructure, to minimise the possibility of the community or it's contractors coming into contact, either deliberately or inadvertently, with aerial high voltage infrastructure.

In other cases isolation facilities are present or desired by PWC to define the Point of Supply at or near the boundary of the town camp.

PWC advise that most of Tennant Creek/Alice Springs Town Camps have undergone upgrades under the SIHIP program with the intent to normalise the services to look like an urban subdivision but have never been formally handed over to PWC for operations and maintenance.

The Kunoth community electrical reticulation systems is supplied by an underground reticulation scheme to meters of individual houses and overhead for street lighting.

PWC advise that the Point Of Supply is the LV terminals of the substations and that they own and are responsible for the first pole mount substation and upstream infrastructure.

PWC recommend that a GBS (Gas Break Switch) be provided upstream of the first transformer to establish a demarcation point.

PWC advise that street lighting is supplied from unmetered LV infrastructure and is the responsibility of the lot holder and not PWC.

All meters, whether pre- or post-paid are the property of PWC.

Kunoth community are responsible for maintain all unmetered and metered LV infrastructure including the main switchboard, metering panel (excluding meter), LV distribution feeders, distribution pillars, consumers' mains and consumer switchboards and street lights.

10.2 Existing infrastructure condition assessment

Table 8 Distribution panel condition assessment shows the condition rating given to the Distribution Panel. The distribution panel has major maintenance issues to address, Refer to Appendicies.

Table 8 Distribution panel condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Distribution panels		1				1

Table 9 Street light condition assessment shows the condition rating given to the street lights. The street lights were of a low voltage overhead feeder design, sodium lamp type S100D, with lamp covers protected by cages.

Table 9 Street light condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Street light			1			1

Table 10 Street light on O/H pole condition assessment shows the condition rating given to the street lights. The street lights on OH poles were of a low voltage overhead feeder design, sodium lamp type S70D, with lamp covers protected by cages.

Table 10 Street light on O/H pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Street light on O/H pole			1			1

Table 11 Overhead pole condition assessment shows the condition rating given to the Overhead poles. The overhead poles are of Weld Construction (Universal Pole construction) and steel LV construction. The overhead poles have 100% operational rating from the visual inspection.

Table 11 Overhead pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Overhead pole			2			2

Table 12 Pit condition assessment shows the condition ratings given to pits. LV supply connection pits were constructed of concrete.

Table 12 Pit condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Pit						1 (status unknown)

Table 13 Meter Panel condition assessment shows the condition rating given to the Metering panels. All assessed meters in this community are prepaid digital meters.

Table 13 Meter Panel condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Pre-paid Meter			2			2
Switchboard			2			2

Table 14 Switchboard condition assessment (Housing footprint) shows the condition rating given to the switchboards associated to dwellings.

Table 14 Switchboard condition assessment (Housing footprint)

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Switchboard			1			1

The details of the individual inspections and photographs of each piece of infrastructure are in Appendices.

10.3 Current performance and risks

The electrical infrastructure evaluation was conducted against the following criteria

- Number of dwellings on tenure, the higher value of the funded dwelling and as quoted in the population report was utilised.
- Urban area, NP001.1, 4. Definitions.
- General Specification for URD Subdivisions, NP001.6, 4.3 Substation Size.
- Normal ADMD (After Diversity Maximum Demand) of 4.5 kVA and high cost subdivisions at 7 kVA.
- Transformer ratings were assumed to be correct in Dekho (PWC asset information system) and compared against photographs of test or transformer numbers collected.
- Substation loads were compared against transformer sizes only. No load flow analysis was conducted.
- No load calculations were performed or assessment conducted on overhead or underground cable, visual inspection from the ground only.
- Streetlighting loads were ignored as they are not significant.

The calculated maximum demand of the Kunothe community transformer is 6% of rated capacity based on 4.5kVA/dwelling.

Table 15 Kunothe current demand load vs transformer ratings

Community name	Dwellings	Transformer (kVA)	kVA Total @ 4.5kVA	kVA Total @ 7kVA	Comments
Kunothe	4	315	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].

A tabulated summary of all community transformers is included in Appendices.

There is a risk of equipment not being maintained associated with the non-standard division of responsibilities between the customer and PWC.

The following points from the PWC Metering Rules should be noted:

- The routine maintenance of metering installations and the replacement of any faulty meters is the responsibility of PWC.
- The property owners are responsible for the maintenance and upkeep of meter rooms, boxes and panels (including lids, doors and locking mechanisms).
- The installation of pre-paid metering is a cost to the customer, refer NP010 Meter Manual-Maintenance of Metering Installations, Power and Water Corporation.

10.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

10.5 Recommended works

The following maintenance works and upgrades are recommended:

- Replace one switchboard
- Install new street lighting - approximately 3 poles

11 Communications

11.1 Ownership and boundaries

Details of Telstra pit and conduit infrastructure within the town camp boundaries were sought but were not forthcoming.

11.2 Existing infrastructure condition assessment

The telecommunications infrastructure assessed included pits and telephone booths. None were found at Kunoth.

11.3 Current performance and risks

No details of the performance of communications infrastructure were obtained.

11.4 Future demands

The current availability of broadband services at Kunoth is displayed in the Figure 9 NBN network availability map below.

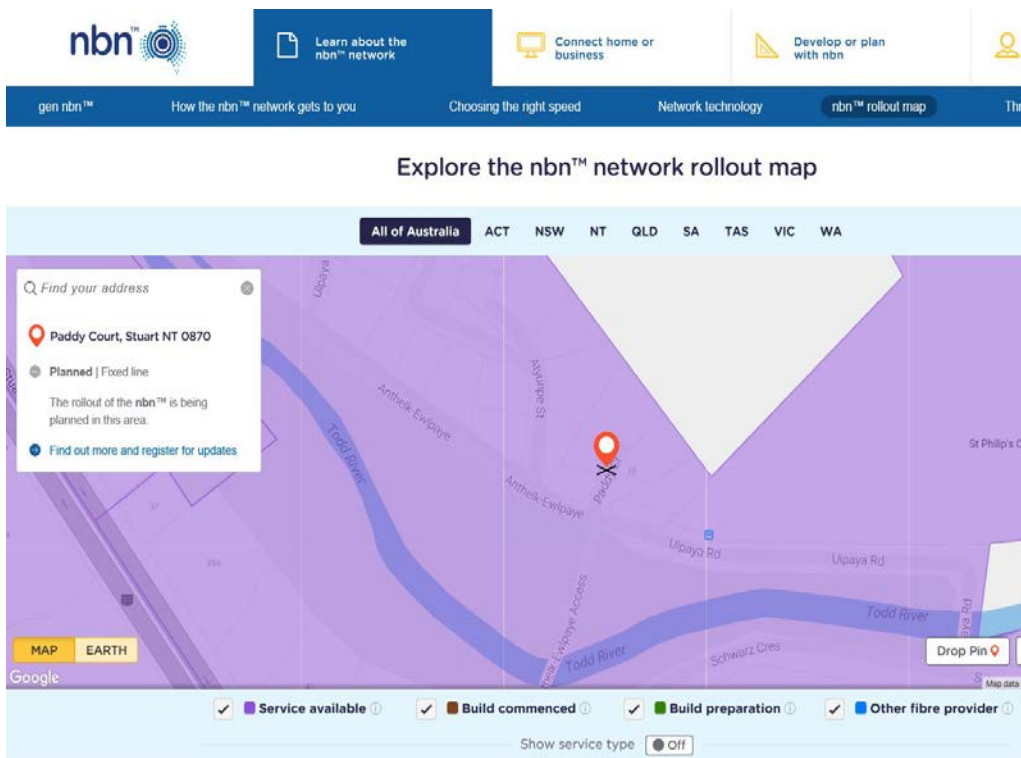


Figure 9 NBN network availability map

NBN is planned to be made available to residents via a fixed telecommunication line. When complete broadband services will be available on application to an appropriate NBN access provider.

11.5 Recommended works

Representatives from NBN's Land Access and Stake Holder management teams are currently engaged with Yilli Housing and NT Housing to look at how camps will be serviced. It is expected that any existing premises in these camps will have some type of NBN service via the NBN brownfields rollout in the future.

NBN is planned to be made available to residents via a fixed telecommunication line. When complete broadband services will be available on application to an appropriate NBN access provider.

12 Cost estimates

Table 16 below shows a summary of the cost estimates to undertake the maintenance required to fix the existing infrastructure, to upgrade the existing network to meet current design standards, and to upgrade the existing network to cater for the future design (included in current upgrades). The estimates take into account a 30% contingency, are inclusive of GST. A location factor has been applied to town camps outside of Darwin.

Table 16 Cost estimates

Infrastructure	Maintenance of existing infrastructure	Upgrades to meet current design
Sewerage	\$ 0	\$ 117,000
Water supply	\$ 2,000	\$ 27,000
Roadworks	\$ 6,000	\$ 62,000
Stormwater drainage	\$ 0	\$ 86,000
Community structures	\$ 10,000	\$ 0
Electrical	\$ 2,000	\$ 43,000
Communications	\$ 0	\$ 0
Miscellaneous provisions	\$ 12,000	\$ 50,000
Total (including GST)	\$ 32,000	\$ 385,000
Grand total	\$ 417,000	

The cost estimates are a preliminary estimate only. Since Aurecon has no control over the cost of labour, materials, equipment or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Aurecon cannot guarantee actual costs will not vary from these estimates.

13 Summary

The following works are recommended for Kunoith community:

Sewerage

- New DN150 PVC reticulation main with housing connections, manholes, and connection to PWC town sewer.

Water supply

- Replace broken residential lot water meter.
- Clear debris away from existing fire hydrant.
- Install up to three new residential lot water meters.
- Install two new fire hydrants.

Roadworks

- Fill and reseal one large pothole
- Repair 45 m of edge breaks
- Replace one sign
- General clean of 50 m of pavement and road reserve
- It is recommended that the road is upgraded to a two lane network with all appropriate road furniture, line marking, kerbs, footpaths, etc.

Stormwater drainage

- Construct kerb and gutters, side entry pits, and underground drainage.

Community structures

- Install shade structure over existing playground
- General clean-up of playground and surrounding areas

Electrical services

- Replace one switchboard
- Install new street lighting - approximately 3 poles

Communications

- NBN is planned to be made available to residents via a fixed telecommunication line. When complete broadband services will be available on application to an appropriate NBN access provider.


Civil inspection reports

P:\GIS\Projects\253963_NT_Town_Camps\253963_003_Civil_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016



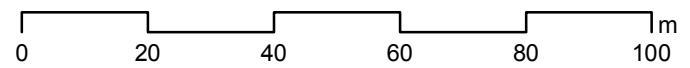
Legend

Town Camp boundary



A3 scale: 1:1,200

Note:
Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2
Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Sewerage

1029 - Kunoth (Alice Springs)

Map by: DMCP P:\GIS\Projects\253963_NT_Town_Camps\253963_003_Civil_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016

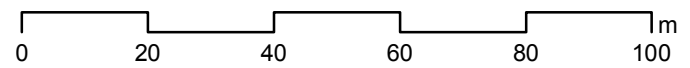


Legend

- Town Camp boundary
- Water
- Water Meter (1)

A3 scale: 1:1,200

Note:
Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2
Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Water
1029 - Kunoth (Alice Springs)

Map by: DMCP P:\GIS\Projects\253963_NT_Town_Camps\253963_003_Civil_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016



Legend

- Town Camp boundary
- Community structures
 - Playground (1)
- Road furniture
 - Signs (3)



Note:
Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2
Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments
Road furniture, stormwater drainage & community structures
1029 - Kunoth (Alice Springs)

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:37:05 AM

Insp ID: 886 Group 4 - Alice Springs Kunoth

Road Name: Paddy Court

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.05

Road Type: Sealed - spray seal

Section Width (m): 5

Road Condition: 2 - Poor

General Comment:

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Edge Breaks	90	2 - Poor	90 percent of road
Potholes	1	1 - Very Poor	1 pothole

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Flush Kerb	1 - Very Poor	Only at entrance

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		70			

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:37:05 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:37:05 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:37:05 AM



Northern Territory Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:34:12 AM

Insp ID: 887

Group 4 - Alice Springs

Kunoth

Inspection Type: Shade Structure

Shade Structure Type: Play ground

Shade Floor Type: Sand

Roof Type: Not Covered

Width (mm): 7

Length (mm): 15

Appearance: 3

Appearance Comment:

Condition: 4 - Very Good

Comment:



Northern Territory Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:34:12 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:46:25 AM

Insp ID: 855

Group 4 - Alice Springs

Kunoth

Road Name: Paddy Court

What are you inspecting: Signs

Type of Sign: Community

Sign Condition:

Sign Comment:

General Comment:

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:45:32 AM

Insp ID: 856

Group 4 - Alice Springs

Kunoth

Road Name: Paddy Court

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 3 - Good

Sign Comment:

General Comment:



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:44:41 AM

Insp ID: 857

Group 4 - Alice Springs

Kunoth

Road Name: Paddy Court

What are you inspecting: Signs

Type of Sign: No drinking

Sign Condition: 1 - Very Poor

Sign Comment:

General Comment:



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 21/11/2016 11:42:41 AM

Insp ID: 858

Group 4 - Alice Springs

Kunoth

What Water Asset Are you Capturing: Water Meter

Water Meter Type: Lot

Bulk Water Meter Size (mm):

Bulk Water Meter Condition:

Bulk Water Meter Comment:

Lot Number:

Lot Water Meter Size:

Lot Water Meter Condition: 1 - Very Poor

Lot Water Meter Comment:

Electrical inspection report

P:\GIS\Projects\253963_NT_Town_Camps\253963_004_Elec_DDP_report.mxd 23/02/2017 12:22
Map by: DMCP



Legend

Electrical infrastructure

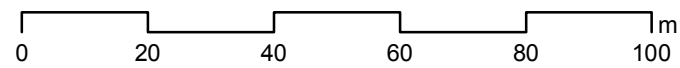
- 11kV Line Pole
- 11kV Pole Mounted Substation
- 11kV Current transformer
- 11kV Switch Fuse
- LV Metering
- LV Line Pole
- LV switch
- Transformer

Town Camp roads
NT cadastre
Town Camp boundary

Electrical survey points

- 1234 Other Values
- 1234 Distribution Panel
- 1234 Overhead Poles
- 1234 Street Light
- 1234 Transformers

A3 scale: 1:1,200



Date: 23/02/2017 Version: 3
Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Electrical
1029 - Kunoth (Alice Springs)

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:19:34 PM

Insp ID: 425

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Distribution Panel

What is Main Distribution Panel installation method:

Outdoor

Is the distribution panel labelled:

No

What is Distribution Panel main CB Rating:

What is the main incoming cable type/Size to Distribution Panel:

What is the condition of switchboard:

2

Condition Comments:

What is the condition of cables/glands into switchboard:

Cable/Gland Condition Comments:

Distribution Panels name plate access:

No



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:19:34 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 16/01/2017 4:50:33 PM

Insp ID: 3585

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: Indoor SB, Cond 3

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 16/01/2017 4:42:02 PM

Insp ID: 3639

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment:

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:40:50 PM

Insp ID: 423

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70 D14
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	11000
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	
How many Lots are connected to this pole:	
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:40:50 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:40:50 PM

Insp ID: 423

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type S70 D14

Street Light Watts 70

Street Light Condition 3

Street Light Height



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:26:10 PM

Insp ID: 424

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Pits and Conduits

Comments: Good condition



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 21/11/2016 12:12:45 PM

Insp ID: 426

Group 4 - Alice Springs

Kunoth

What Category are you capturing: Street Light

What is power supply method:

Overhead

What is the lamp type:

S100 D14

What Wattage is the lamp:

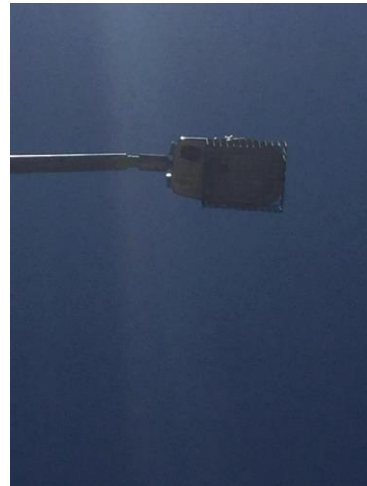
100

What is the condition of street lights:

3

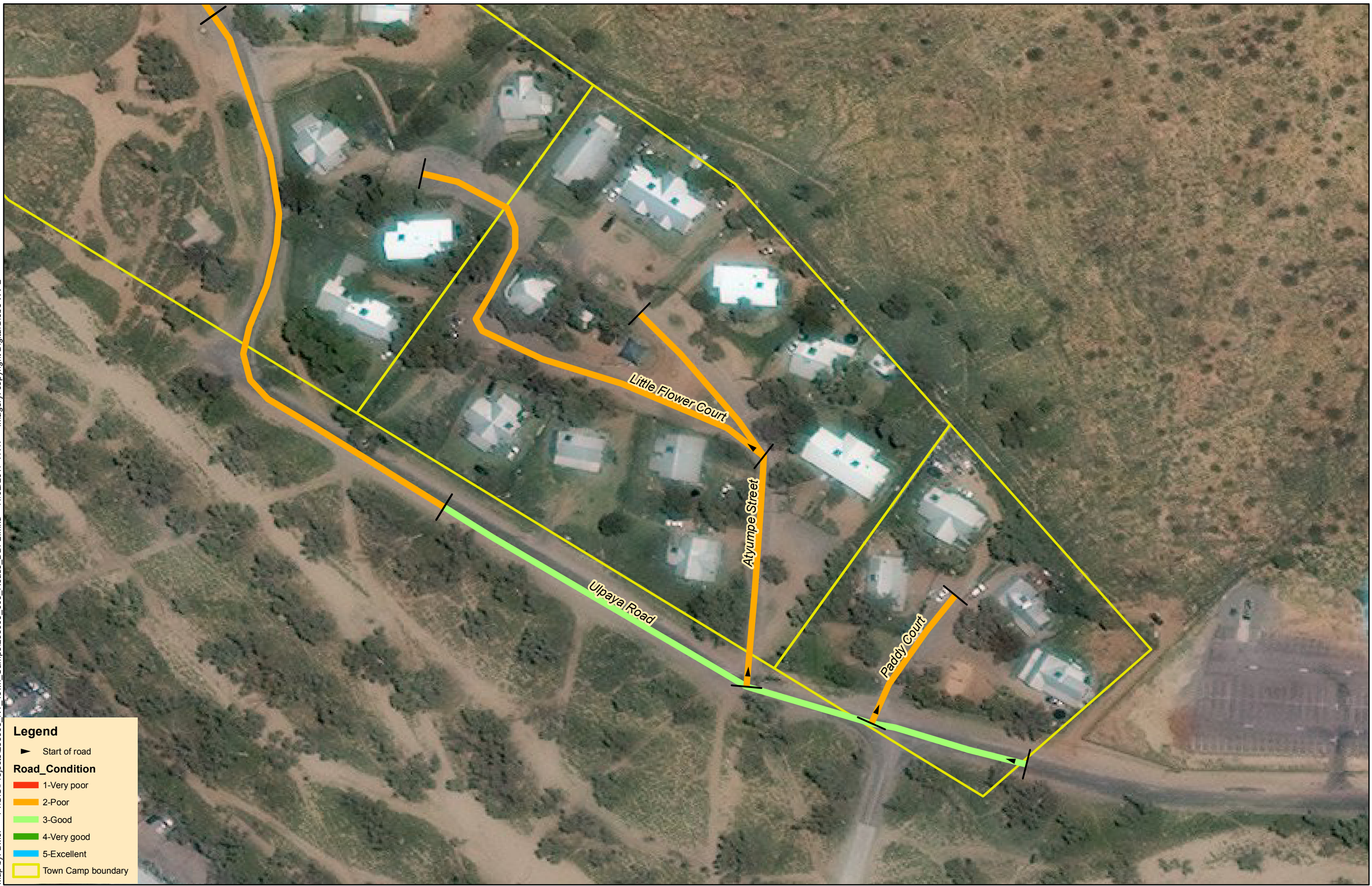
What is Street Lighting pole installation height (approximate):

6



Road map

Map by: DMcP P:\GIS\Projects\253963_NT_Town_Camps\253963_003_Roads_DDP2.mxd 11/02/2017 17:17 Imagery: copyright DigitalGlobe WV 2

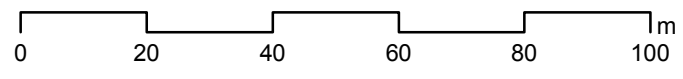


Legend

- ▶ Start of road
- Road_Condition**
- 1-Very poor
- 2-Poor
- 3-Good
- 4-Very good
- 5-Excellent
- Town Camp boundary



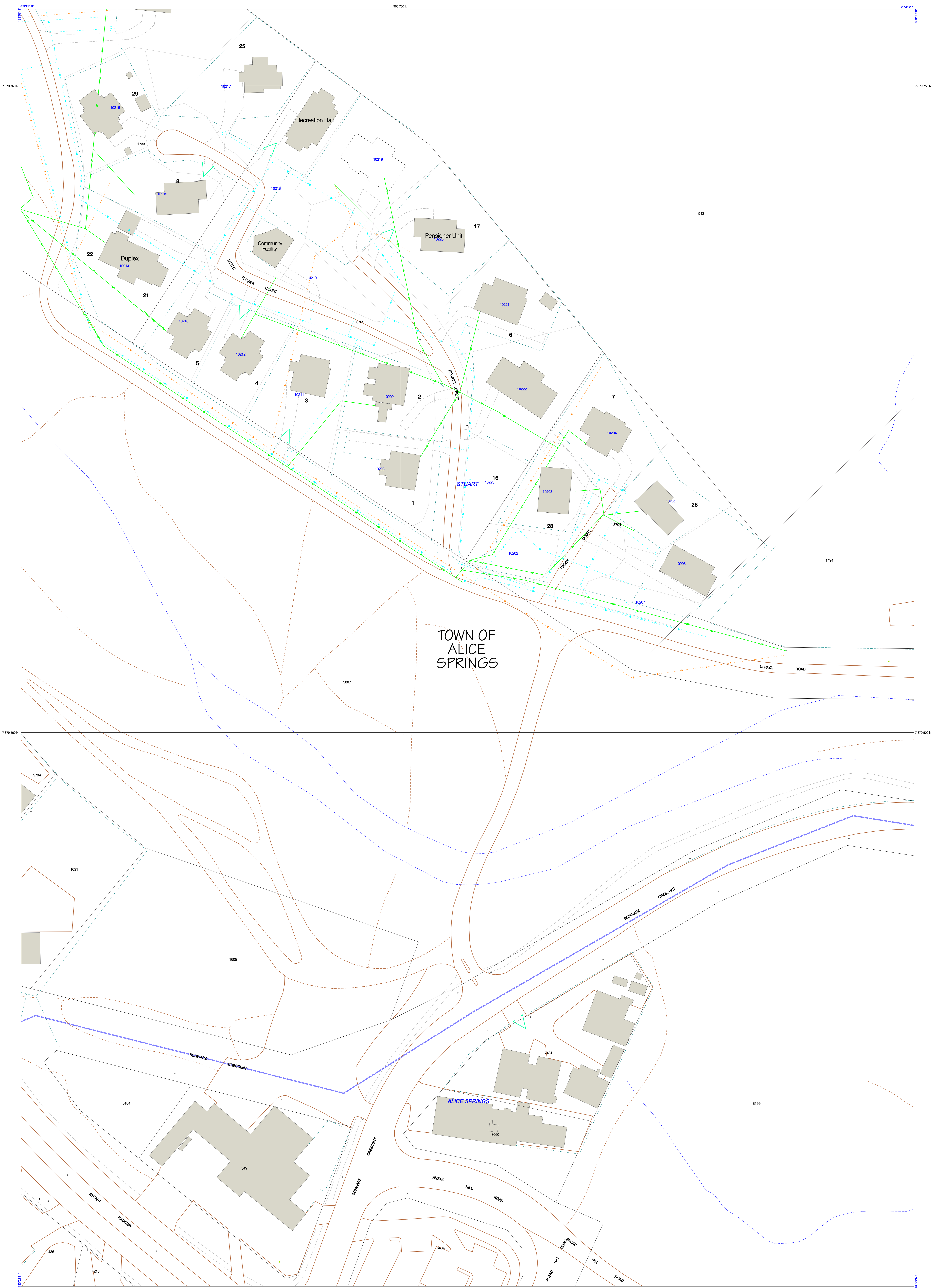
A3 scale: 1:1,200



Date: 11/02/2017 Version: 1
Coordinate system: GDA 1994

NT Town Camp Road Assessments 1029 - Kunoth (Alice Springs)

Existing drawings



TOWN OF ALICE SPRINGS

LEGEND

<p>LAND USE PLANNING</p> <ul style="list-style-type: none"> APPROX. PORTION OF BUILDING GENERAL EXCLUSION AREAS CULTURAL EXCLUSION AREAS 	<p>CADASTRE</p> <ul style="list-style-type: none"> Current Proposed LOCALITY <p>TOPOGRAPHY</p> <ul style="list-style-type: none"> Road Sealed, Bridge Road Unsealed, Track Footpath, Drain, Culvert Wall, Gate, Fence, Cattle Grid Railway, Disused Railway Aerodrome/Terminal, Landing Strip Towhee, Apron Pipeline: Oil, Water, Undetermined Gas, Storage Building, Building Shape (unconfirmed) Shade Structure, Incomplete Building Sewage Ponds, Tailings Pond Oval, Arena, Swimming Pool High Water Mark, Low Water Mark Mine: Quarry, Surface Excavation Contour: Index, Intermediate Contour: Depression 	<p>UTILITY SERVICES</p> <ul style="list-style-type: none"> ELECTRICITY LOW VOLTAGE HIGH VOLTAGE WATER RETICULATION WATER MAIN SEWER MAIN SEWER MAIN SEWER MAIN
--	--	---

LOCALITY DIAGRAM

General enquiries, corrections, updates, errors and omissions:
 Indigenous Community Land Use Planning, Department of Lands and Planning
 TEL: (08) 8999 1300, FAX: (08) 8999 7189, Email: planning@nt.gov.au

Topographic Information:
 Land Information Division
 Dept of Lands and Planning
 TEL: (08) 8999 5331
 FAX: (08) 8999 5360
 Email: landinfo@nt.gov.au

Power, Water or Sewer Information:
 Northern Territory Planning Branch
 Power and Water Corporation
 TEL: (08) 8999 5360
 FAX: (08) 8924 5360

Aboriginal Areas Protection Authority:
 The Registrar
 Aboriginal Areas Protection Authority
 TEL: (08) 8999 4332
 Email: enquiries.aapa@nt.gov.au

Cadastral Information:
 Office of the Survey General
 Dept of Lands and Planning
 TEL: (08) 8999 5363
 FAX: (08) 8999 5365
 Email: landinfo@nt.gov.au

Planning Information:
 Indigenous Community Land Use Planning
 Dept of Lands and Planning
 TEL: (08) 8999 5363
 FAX: (08) 8999 7189
 Email: planning@nt.gov.au

Housing Infrastructure Information:
 The Registrar
 Dept of Housing, Local Government & Regional Services
 TEL: (08) 8999 5013
 FAX: (08) 8999 5110
 Email: info@hlg@nt.gov.au

AVAILABLE FROM AND PRODUCED BY:
 Northern Territory Government

NOTES: POWER POLES, MASTS, CABLES, OPTIC TOWERS, TELEPHONE TOWERS and other similar objects are not shown from aerial photographs and were not included from land survey techniques. These features are visible as LOCAL SURVEY CONTROL. The ground location is expected to be within +/- 0.2m of that mapped location.
 Data: 899999 100 000 (plus 00) (height) is not shown. All data is for water, sewer and power infrastructure and construction requirements for developments owned Power and Water Corporation, Indigenous Community Development or 1000 240 000, and all <http://www.nt.gov.au/landuse>

SOURCE INFORMATION

CURRENCY OF TOPOGRAPHY: 10 June 2007
 SOURCE MAP SCALE: 2500
 ZONE UTM: 53
 CONTOUR INTERVAL: 5
 HORIZONTAL DATUM: Transverse Mercator
 VERTICAL DATUM: Transverse Mercator
 DATE GENERATED: 20 June 2012

Scale: 0 8 16 24 32 40 metres

SERVICED LAND AVAILABILITY PROGRAM

SLAP Map

Kunoth (Alice Springs Town Camp)

The Village

Alice Springs Town Council

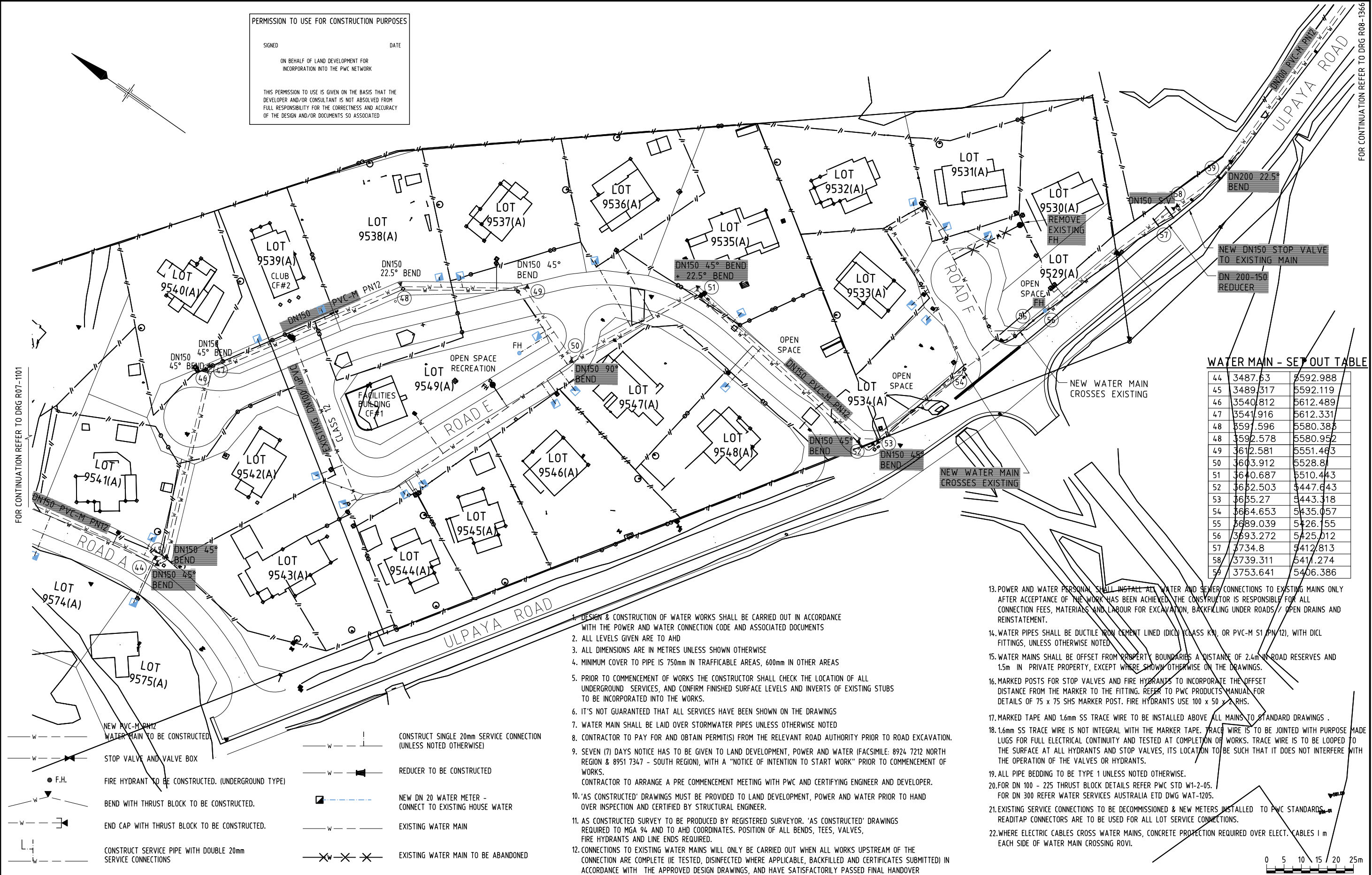
Community ID : 1029

PERMISSION TO USE FOR CONSTRUCTION PURPOSES

SIGNED _____ DATE _____

ON BEHALF OF LAND DEVELOPMENT FOR INCORPORATION INTO THE PWC NETWORK

THIS PERMISSION TO USE IS GIVEN ON THE BASIS THAT THE DEVELOPER AND/OR CONSULTANT IS NOT ABSOLVED FROM FULL RESPONSIBILITY FOR THE CORRECTNESS AND ACCURACY OF THE DESIGN AND/OR DOCUMENTS SO ASSOCIATED

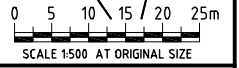
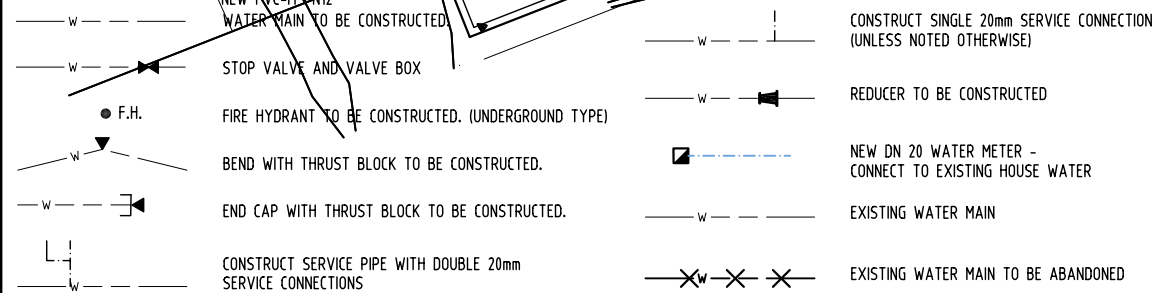


WATER MAIN - SET OUT TABLE

Station	Chainage	Spot Height
44	3487.63	5592.988
45	3489.317	5592.119
46	3540.812	5612.489
47	3541.916	5612.331
48	3591.596	5580.388
49	3592.578	5580.952
50	3612.581	5551.463
51	3613.912	5528.8
52	3640.687	5510.443
53	3652.503	5447.643
54	3655.27	5443.318
55	3664.653	5435.057
56	3689.039	5426.55
57	3693.272	5425.012
58	3734.8	5412.813
59	3739.311	5411.274
60	3753.641	5406.386

- DESIGN & CONSTRUCTION OF WATER WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE POWER AND WATER CONNECTION CODE AND ASSOCIATED DOCUMENTS
- ALL LEVELS GIVEN ARE TO AHD
- ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE
- MINIMUM COVER TO PIPE IS 750mm IN TRAFFICABLE AREAS, 600mm IN OTHER AREAS
- PRIOR TO COMMENCEMENT OF WORKS THE CONSTRUCTOR SHALL CHECK THE LOCATION OF ALL UNDERGROUND SERVICES, AND CONFIRM FINISHED SURFACE LEVELS AND INVERTS OF EXISTING STUBS TO BE INCORPORATED INTO THE WORKS.
- IT'S NOT GUARANTEED THAT ALL SERVICES HAVE BEEN SHOWN ON THE DRAWINGS
- WATER MAIN SHALL BE LAID OVER STORMWATER PIPES UNLESS OTHERWISE NOTED
- CONTRACTOR TO PAY FOR AND OBTAIN PERMITS FROM THE RELEVANT ROAD AUTHORITY PRIOR TO ROAD EXCAVATION.
- SEVEN (7) DAYS NOTICE HAS TO BE GIVEN TO LAND DEVELOPMENT, POWER AND WATER (FACSIMILE: 8924 7212 NORTH REGION & 8951 7347 - SOUTH REGION), WITH A "NOTICE OF INTENTION TO START WORK" PRIOR TO COMMENCEMENT OF WORKS. CONTRACTOR TO ARRANGE A PRE COMMENCEMENT MEETING WITH PWC AND CERTIFYING ENGINEER AND DEVELOPER.
- 'AS CONSTRUCTED' DRAWINGS MUST BE PROVIDED TO LAND DEVELOPMENT, POWER AND WATER PRIOR TO HAND OVER INSPECTION AND CERTIFIED BY STRUCTURAL ENGINEER.
- AS CONSTRUCTED SURVEY TO BE PRODUCED BY REGISTERED SURVEYOR. 'AS CONSTRUCTED' DRAWINGS REQUIRED TO MGA 94 AND TO AHD COORDINATES. POSITION OF ALL BENDS, TEES, VALVES, FIRE HYDRANTS AND LINE ENDS REQUIRED.
- CONNECTIONS TO EXISTING WATER MAINS WILL ONLY BE CARRIED OUT WHEN ALL WORKS UPSTREAM OF THE CONNECTION ARE COMPLETE (IE TESTED, DISINFECTED WHERE APPLICABLE, BACKFILLED AND CERTIFICATES SUBMITTED) IN ACCORDANCE WITH THE APPROVED DESIGN DRAWINGS, AND HAVE SATISFACTORILY PASSED FINAL HANDOVER INSPECTION.

- POWER AND WATER PERSONNEL SHALL INSTALL ALL WATER AND SEWER CONNECTIONS TO EXISTING MAINS ONLY AFTER ACCEPTANCE OF THE WORK HAS BEEN ACHIEVED. THE CONSTRUCTOR IS RESPONSIBLE FOR ALL CONNECTION FEES, MATERIALS AND LABOUR FOR EXCAVATION, BACKFILLING UNDER ROADS / OPEN DRAINS AND REINSTATEMENT.
- WATER PIPES SHALL BE DUCTILE IRON CEMENT LINED (DIDL) (CLASS K), OR PVC-M 51 (PN 12), WITH DIDL FITTINGS, UNLESS OTHERWISE NOTED
- WATER MAINS SHALL BE OFFSET FROM PROPERTY BOUNDARIES A DISTANCE OF 2.4m IN ROAD RESERVES AND 1.5m IN PRIVATE PROPERTY, EXCEPT WHERE SHOWN OTHERWISE ON THE DRAWINGS.
- MARKED POSTS FOR STOP VALVES AND FIRE HYDRANTS TO INCORPORATE THE OFFSET DISTANCE FROM THE MARKER TO THE FITTING. REFER TO PWC PRODUCTS MANUAL FOR DETAILS OF 75 x 75 SHS MARKER POST. FIRE HYDRANTS USE 100 x 50 x 2 RHS.
- MARKED TAPE AND 1.6mm SS TRACE WIRE TO BE INSTALLED ABOVE ALL MAINS TO STANDARD DRAWINGS .
- 1.6mm SS TRACE WIRE IS NOT INTEGRAL WITH THE MARKER TAPE. TRACE WIRE IS TO BE JOINED WITH PURPOSE MADE LUGS FOR FULL ELECTRICAL CONTINUITY AND TESTED AT COMPLETION OF WORKS. TRACE WIRE IS TO BE LOOPED TO THE SURFACE AT ALL HYDRANTS AND STOP VALVES, ITS LOCATION TO BE SUCH THAT IT DOES NOT INTERFERE WITH THE OPERATION OF THE VALVES OR HYDRANTS.
- ALL PIPE BEDDING TO BE TYPE 1 UNLESS NOTED OTHERWISE.
- FOR DN 100 - 225 THRUST BLOCK DETAILS REFER PWC STD W1-2-05. FOR DN 300 REFER WATER SERVICES AUSTRALIA ETD DWG WAT-1205.
- EXISTING SERVICE CONNECTIONS TO BE DECOMMISSIONED & NEW METERS INSTALLED TO PWC STANDARDS. READITAP CONNECTORS ARE TO BE USED FOR ALL LOT SERVICE CONNECTIONS.
- WHERE ELECTRIC CABLES CROSS WATER MAINS, CONCRETE PROTECTION REQUIRED OVER ELECT. CABLES 1m EACH SIDE OF WATER MAIN CROSSING ROWI.



C:\drive\working\cd\extract\R07-1100-R07-1102.dwg

NOT CONSTRUCTED

A ISSUED FOR INFORMATION / APPROVAL

No. DESCRIPTION DATE INIT.

AMENDMENTS

17/11/06	B.S
DATE	INIT.



Suite 5, GHD Building, 82 Todd Street Alice Springs NT
 PO Box 3744 Alice Springs NT 0871
 T 61 8 8958 3200 F 61 8 8958 3201
 E aspmail@ghd.com.au W www.ghd.com.au

DRAWN	B.S	CHECKED	
DATE	22/07/2008	DATE	
DESIGNED	G.C.	CHECKED	
DATE	22/07/2008	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



ALICE SPRINGS CONNECTING NEIGHBOURS PROGRAM UPGRADE WORKS FOR CHARLES CREEK, HOPPY'S AND KUNOTH AULA'S			
WATER LAYOUT PLAN SHEET 3 OF 4			
FILE No.	ASSET No.	SHEET No.	DRAWING No.
43-21040	-	39 OF 49	R07-1102
AMEND.	SHEET SIZE		
A	A1		

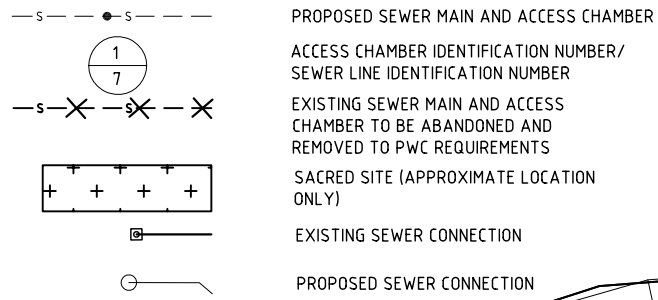
FOR CONTINUATION REFER TO DRG R08-1366

FOR CONTINUATION REFER TO DRG R07-1101

CONSTRUCTION NOTES

- R.L. SHOWN FOR TOP OF MAINTENANCE HOLE IS INDICATIVE ONLY. FINAL LEVEL TO BE DETERMINED ON-SITE TO SUIT THE SURROUNDING FINISHED SURFACE LEVELS.
- TMS => TERMINAL MAINTENANCE SHAFT WITH HEAVY DUTY COVER REFER STD. DRG. No. W2-1-06
- CRD => NEW CAST IN-SITU BASE, 1200 DIA CIRCULAR MAINTENANCE HOLE RECTANGULAR HEAVY DUTY LID
- ALL NEW & EXISTING INSPECTION OPENING COVERS TO BE HEAVY DUTY.
- ALL NEW SEWER ACCESS CHAMBER'S COORDINATE POINTS REFER TO CENTER OF ACCESS CHAMBER.

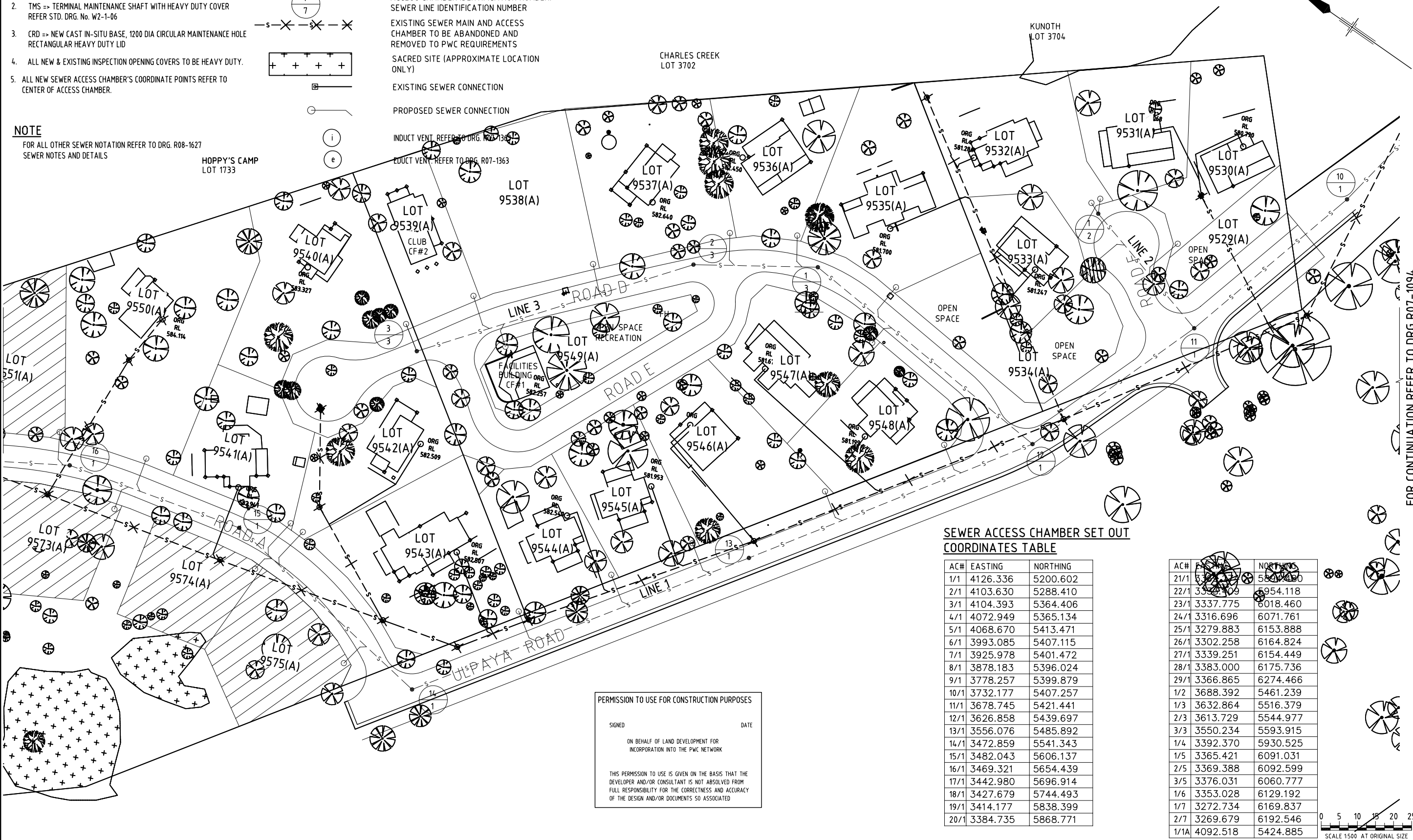
LEGEND



NOTE
 FOR ALL OTHER SEWER NOTATION REFER TO DRG. R08-1627
 SEWER NOTES AND DETAILS

FOR CONTINUATION REFER TO DRG R07-1092

FOR CONTINUATION REFER TO DRG R07-1094



SEWER ACCESS CHAMBER SET OUT COORDINATES TABLE

AC#	EASTING	NORTHING	AC#	EASTING	NORTHING
1/1	4126.336	5200.602	21/1	3322.409	5954.118
2/1	4103.630	5288.410	22/1	3322.409	6018.460
3/1	4104.393	5364.406	23/1	3337.775	6071.761
4/1	4072.949	5365.134	24/1	3316.696	6153.888
5/1	4068.670	5413.471	25/1	3279.883	6164.824
6/1	3993.085	5407.115	26/1	3302.258	6175.736
7/1	3925.978	5401.472	27/1	3339.251	6274.466
8/1	3878.183	5396.024	28/1	3383.000	5461.239
9/1	3778.257	5399.879	29/1	3366.865	5516.379
10/1	3732.177	5407.257	1/2	3688.392	5544.977
11/1	3678.745	5421.441	1/3	3632.864	5593.915
12/1	3626.858	5439.697	2/3	3613.729	5930.525
13/1	3556.076	5485.892	3/3	3550.234	6091.031
14/1	3472.859	5541.343	1/4	3392.370	6092.599
15/1	3482.043	5606.137	1/5	3365.421	6060.777
16/1	3469.321	5654.439	2/5	3369.388	6129.192
17/1	3442.980	5696.914	3/5	3376.031	6169.837
18/1	3427.679	5744.493	1/6	3353.028	6192.546
19/1	3414.177	5838.399	2/7	3269.679	5424.885
20/1	3384.735	5868.771	1/1A	4092.518	

PERMISSION TO USE FOR CONSTRUCTION PURPOSES

SIGNED _____ DATE _____

ON BEHALF OF LAND DEVELOPMENT FOR
 INCORPORATION INTO THE PWC NETWORK

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 DEVELOPER AND/OR CONSULTANT IS NOT ABSOLVED FROM
 FULL RESPONSIBILITY FOR THE CORRECTNESS AND ACCURACY
 OF THE DESIGN AND/OR DOCUMENTS SO ASSOCIATED

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NOT CONSTRUCTED			
B	ISSUED FOR APPROVAL	9/03/07	B.S
A	ISSUED FOR 90% REVIEW	19/12/06	B.S
No.	DESCRIPTION	DATE	INIT.
AMENDMENTS			



DRAWN	B.S	CHECKED	
DATE	17/11/2006	DATE	
DESIGNED	T.L	CHECKED	
DATE	17/11/2006	DATE	
DESIGN PROJECT LEADER		PROJECT OFFICER	
DATE		DATE	



ALICE SPRINGS CONNECTING NEIGHBOURS PROGRAM UPGRADE WORKS FOR CHARLES CREEK, HOPPY'S AND KUNOTH AULA'S SEWER SERVICES PLAN SHEET 3 OF 4				
FILE No.	ASSET No.	SHEET No.	DRAWING No.	AMEND.
43-21040	-	26 OF 49	R07-1093	B A1

Transformer data

Group	Com Id	Location	Community Name	Dwellings No. (Funded Dwellings)	Dwellings No. (Bennett Design)	New Houses ** (Future Demand)	Primary Voltage Level (KV)	PWC Substation ID	PWC Test Number	Transformer size (KVA)	KVA Total dwellings @ 4.5KVA	KVA Total dwellings @ 7KVA	Comments
1	290	Darwin	Bagot	55	55		11	1924	1735	300	247.5	385	
	344	Darwin	Knuckey Lagoons	18	19	2	11	1771	2163	100	85.5	133	
	347	Darwin	Kulaluk	19	19		11	1092	10607	50	85.5	133	
	403	Darwin	Palmerston Town Camp	20	16		22	10196	10245	100	90	140	Two transformers for this Town Camp. Transformers are not in boundary of Town Camp [The nearest transformers data to Town Camp are highlighted in yellow].
	412	Darwin	Railway Dam (One Mile Dam)	5	6	2	11	1041	4378	200	27	42	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	427	Adelaide River	Amangal	9	9		22	216	12187	100	40.5	63	Two transformers for this Town Camp.
	687	Jabiru	Manabadurma	10	12		11	5050	11107	200	54	84	
	825	Darwin	Minmarama Park	24	24		11	2147	11372	100	108	168	
2	606	Katherine	Warlpiri Transient Camp	9	9		22	6416	4886	100	40.5	63	Two transformers for this Town Camp.
	621	Katherine	Miali Brumby (Kalano)	47	31		22	6074	4695	25			
	640	Pine Creek	Pine Creek Compound	4	4		22	6133	12247	315	211.5	329	
	971	Mataranka	Mulggan	12	9	4	22	6666	3147	25	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
3	215	Tennant Creek	Blueberry Hill (Munji-Marla)	2	2		22	6819	5296	16	54	84	
	223	Tennant Creek	Dump Camp (Marla-Marla)	7	7		22	6818	5297	16	31.5	49	
	224	Elliott	Elliott South Camp	12	12		22	6384	11028	25	54	84	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	225	Elliott	Elliott North Camp	36	25		11	7079	1868	200	162	252	
	238	Tennant Creek	Kargaru (East Side Camp)	12	12	1	22	7504	4718	200	54	84	
	246	Tennant Creek	Ngalpa Ngalpa	18	21		22	7572		200	94.5	147	Two transformers for this Town Camp.
	271	Tennant Creek	Village Camp	12	12	1	22	7179	10904	315	54	84	
	681	Tennant Creek	Tingkarli	12	12		22	7183	11107	200	54	84	
4	3	Alice Springs	Akngwertnarre (Morris Soak)	11	15		22	7180		200	67.5	105	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	16	Alice Springs	Anthelk Ewlpaye (Charles Creek)	17	10		22	7141	11092	100	76.5	119	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	17	Alice Springs	Anthepe	15	15		22	7182	11095	200	67.5	105	Data extracted from PWC asset information. There was not access to this Town Camp due to ceremony on inspection day.
	19	Alice Springs	Aper Alwerrkng (Palmers)	7	6		11	8405	2939	200	31.5	49	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	35	Alice Springs	Ewyenper Atwatye (Hidden Valley)	47	47		11	8622	11202	100	211.5	329	
	47	Alice Springs	Ilparpa	13	13		11	8623	11203	100	58.5	91	
	48	Alice Springs	Ilperle Tyathe (Walpiri)	10	9		22	8625	11205	63	45	70	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	50	Alice Springs	Ilyperenye (Old Timers)	10	10		22	8626	11204	100	45	70	
	64	Alice Springs	Bassos	2	2		11	8611	11702	200	9	14	
	69	Alice Springs	Karnte	19	19		22	8001	11209	315	85.5	133	
	87	Alice Springs	Yarrenty Altere (Larapinta Valley)	34	34		11	8145	3323	100	153	238	
	90	Alice Springs	Inarlenge (Little Sisters)	16	22		11	8002	10946	50	99	154	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	108	Alice Springs	Mpwetyerre (Abbotts)	6	6		22	8282	2345	100	27	42	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	113	Alice Springs	Mount Nancy (Nyewente)	11	12		11	8617	11334	100	54	84	
	129	Alice Springs	Nyewente (Trucking Yards)	26	26		11	8618	11200	63	117	182	
	675	Alice Springs	Hoppys	15	19		11	8619	11335	100	85.5	133	There is not any Transformer in boundary of Town Camp. Also it's not shown in PWC asset information.
676	Alice Springs	Ipiye Ipiye (Golders Camp)	15	14		11	8620	11201	100	67.5	105		
1029	Alice Springs	Kunoth	4	4		11	8596	11336	300	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].	
5	222	Borrooloola	Mara	28	29	2	11	8598	5874	200	130.5	203	Two transformers for this Town Camp.
	229	Borrooloola	Garawa 1	16	14		11	8597	11244	315	72	112	Two transformers for this Town Camp.
	278	Borrooloola	Yanyula	29	29		11	6546	10166	100	130.5	203	Data extracted from PWC asset information. It's outside of Twon Camp, shown only Transformer to this Town Camp.
	992	Borrooloola	Garawa 2	11	11		11	6332	4890	100	49.5	77	This transformer is not shown in PWC asset information. It's installed in Boat Ramp Road near to Town Camp and connected to Electrical reticulation of Town Camp.

** For New house's demand calculation see section 13.4 "Future Demand".