Warlpiri Transient Camp (Gewyulkgan)

Warlpiri Transient Camp

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.

- Katherine Town Council – Development Guidelines, September 2010

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 Water Corporation,
- Bennett Design inspection reports and population data.

Aurecon undertook a site investigation of the Warlpiri Transient Camp on 6 December 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

Warlpiri Transient Camp has an internal sewage pump station and rising main which pumps to a pump station on Bicentennial Road. Drawings of the internal sewer network layout were not available, so the size, material, grade and location of pipework could not be confirmed.

The internal pump station and rising main are owned by Kalano Community Association Incorporated but are the responsibility of Kalano Aboriginal Housing Corporation to maintain.

The pump station on Bicentennial Road is property of Power and Water Corporation. PWC have advised they do not maintain any of the assets within Warlpiri Transient Camp.

5.1.1 Connection methods and billing

PWC have advised there is currently no customer for Warlpiri that sewerage bills are charged to.

5.2 Existing infrastructure condition assessment

The sewer infrastructure inspection was limited to inspecting the condition of manhole covers and pump stations, as all other sewerage infrastructure is below ground. A total of 11 manholes and one pump station were inspected, with condition ratings as follows:

Table 2 Sewer condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Manholes		1	6	4		11
Pump station			1			1

Figure 1 Round sewer manhole, condition: very *good*

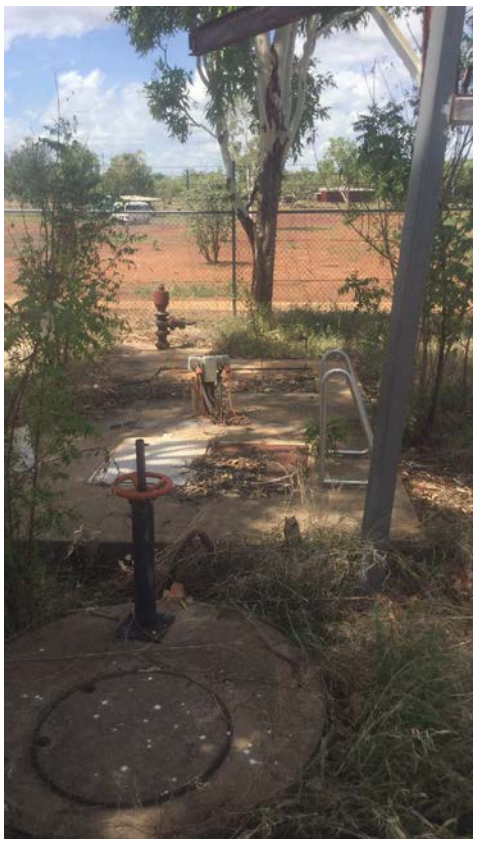


Figure 2 Pump station, condition: *good*

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.
- As Warlpiri Transient Camp disposes to a pump station, the capacity of the pump station has also been assessed.

The current number of houses in Warlpiri is 10, this multiplied by 9 EP per house gives a total current EP of 90. The capacity of the existing sewer was then calculated. The percentage shows how much of the pipe capacity is currently being used.

As no information was available on the diameter of the sewer main, it has been assumed to be DN100 and non-compliant to current PWC standards.

Table 3 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	90	100	1.0	5.6	1.25	22%

Table 3 above shows that the capacity of the existing sewer network is adequate for the current peak population, although the pipe size and grade needs to be confirmed.

5.3.2 Current sewage pump station performance

The capacity of the pump station could not be assessed as there was no information on the pump station available. Therefore the capacity and compliance could not be determined.

5.4 Future demands

As no new developments are currently planned for Warlpiri Transient Camp, there are no additional upgrades required to cater for future demand.

5.5 Recommended works

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. In this case, only one sewer manhole requires upgrades as it currently has a steel lid which does not appear to be fixed securely to the manhole. It is recommended that this manhole is upgraded to meet PWC standards.

It is also recommended that the pipe size, type and grade is confirmed. If found to be DN100, or less, then it should be upgraded to a DN150 PVC, in accordance with PWC standards. A cost estimate has been provided to upgrade to DN150 PVC, including:

- 1500 m DN150 PVC gravity main
- 600 m DN150 PVC rising main

6 Water supply

6.1 Ownership and boundaries

There were no engineering drawings available showing the internal layout of the water reticulation at Warlpiri Transient Camp.

The water supply assets are owned by Kalano Community Association Incorporated but are the responsibility of Kalano Aboriginal Housing Corporation to maintain. The water is supplied from water mains outside of Warlpiri Transient Camp, which is the responsibility PWC. Figure 3 shows the extent of PWC's water services. The bulk water meter within the community is the responsibility of PWC.

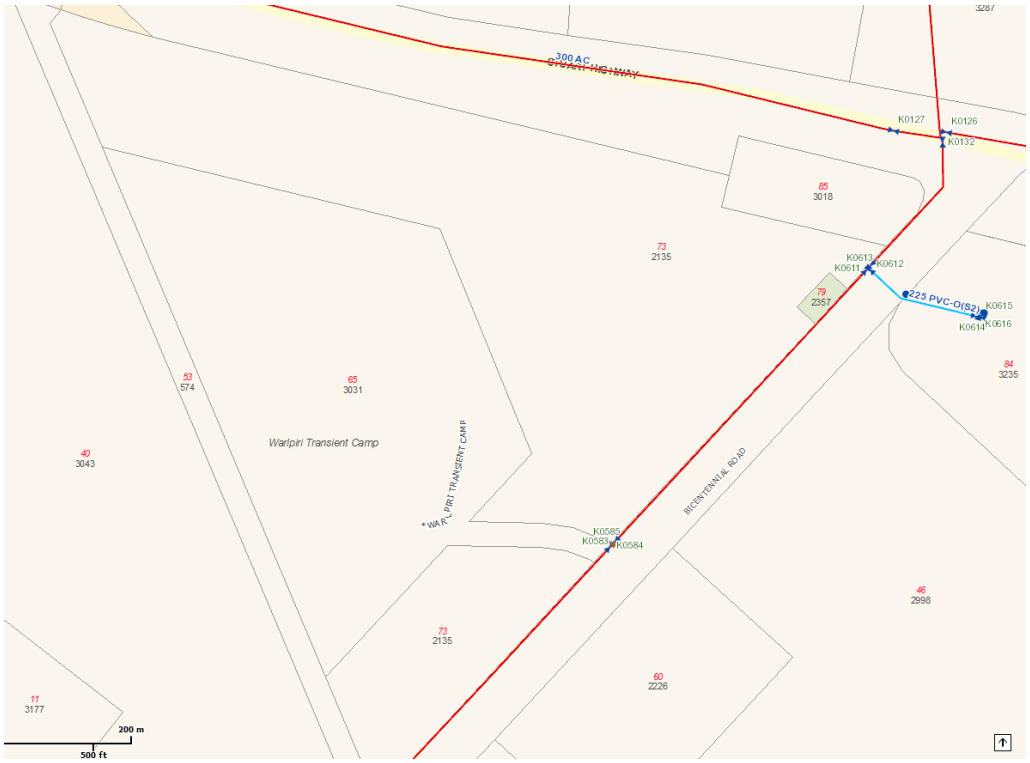


Figure 3 Water mains surrounding Warlpiri Transient Camp

6.1.1 Connection methods and billing

PWC advised that they currently charge a single water bill to the Kalano Community Association Inc. It is not known what contribution the residents make towards the water bills. It is understood that the water usage is measured at the bulk water meter located on the community boundary.

It is proposed that PWC continues to measure the water supply to the entire community with a bulk meter, as opposed to individual lots within the community. Under this scheme, the water bill for the entire community is the responsibility of the governing body, being Kalano Community Association for Warlpiri Transient Camp. It will be up to governing body to assign bills to residents accordingly.

It is also recommended that individual lot meters are installed at property boundaries in addition to the proposed continuation of using a bulk water meter. This will assist with the governing body distributing bills to residents, the identification of any leaks in the network, and meeting PWC standards should the town camp is subdivided in the future.

6.2 Existing infrastructure condition assessment

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

The condition of each asset is as follows:

Table 4 Water asset condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Fire hydrants			5			5
Water meter (bulk)			1			1

Figure 4 Water meter (bulk), condition: *good*

Figure 5 Fire hydrant, condition: *good*

Figure 5 shows a typical fire hydrant at Warlpiri Transient Camp. Each of the fire hydrants were assessed as being in good condition, however all had faded covers which require repainting.

6.3 Current performance and risks

The demand of the water supply was calculated based on the following assumptions:

- The nominal peak day flow is 1100 L/capita/day, based on PWC's supplement to WSA 03 2002. This value is for the northern region of NT. It was assumed that

the nominal peak day flow of 1100 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 5 Current water demand

Total dwellings	EP	Demand	Peak hour demand (l/s)
10	90	1.15	3.44

Due to insufficient information on the existing reticulation networks, the capacity could not be assessed. However it is expected the network has insufficient capacity for fire flow demands.

An additional four fire hydrants are recommended to ensure sufficient fire flow coverage.

Whilst there is limited information available, based on our investigations, the existing network it is believed to be non-compliant with PWC standards. An upgraded of the water reticulation main, including lot meters, is recommended.

6.4 Future demands

As no new developments are currently planned for Warlpiri Transient Camp, 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;

- Repaint five hydrants

The upgrades are proposed to replace the existing water main with a DN150 PVC looped main installed to PWC standards. Water usage is proposed to be measured with the bulk water meter located at the community boundary. Additionally, residential lot water meters should be installed on the connection to each dwelling which will assist with bill distribution to residents and identifying any leaks in the internal network. The cost estimates for upgrades at Warlpiri Transient Camp include;

- Replace existing water main with DN150 PVC looped main, approximately 2100 m.
- Install new DN150 bulk water meter
- Install up to ten residential lot water meters
- Install four new fire hydrants

7 Roadworks

7.1 Ownership and boundaries

It is the current understanding that the roads within the Warlpiri Transient Camp are owned by Kalano Community Association Incorporated but are the responsibility of Kalano Aboriginal Housing Corporation to maintain.

7.2 Existing infrastructure condition assessment

The road network within the Warlpiri Transient Camp consists primarily of sealed roads. There are also numerous tracks which appear to be used frequently which are not included in the inspection and report. Road furniture including signs, speed humps, foot paths and car parks were also inspected. Table 6 below summarise the condition of the road furniture as assessed during the site inspection.

Table 6 Roadworks condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Footpaths			2			2
Signs	1	1	2			4

The footpaths were rated in good condition as only some maintenance is required of them and there is no significant structural issues. Two signs were rated as good condition whereas two were rated less than good, it is recommended that the signs rated below good are replaced. It is also recommended that a road safety audit is undertaken to determine where signage, line marking, etc. are required.

Figure 6 Footpath, condition: *good*

Figure 7 Sign, condition: *very poor*

Figure 8 Warlpiri Transient Camp road network

Table 7 below details the condition of the roads within the Warlpiri Transient camp for specific segments. Figure 8 shows a map of Warlpiri community's road network with the condition ratings, road name, and chainage direction.

Figure 9 Pavement, condition: *poor*

Figure 10 Pavement, condition: *very poor*

Table 7 shows the road condition and particular defects that were observed during the site inspection.

Table 7 Road network condition assessment

Road name	Chainage start (km)	Chainage end (km)	Condition (1 to 5)	Defects and associated condition
606_1	0	0.17	2	-
	0	0.3	2	-10% of the road has surface cracking (2) -30% of the road has edge breaks (2) -1 pothole (2)
	0	0.2	2	-10% of the road has surface cracking (1) -20% of the road has edge breaks (2) -10% of the road has stone loss (2)
	0	0.2	1	-20% of the road has surface cracking (1) -75% of the road has edge breaks (1) -25% of the road has stone loss (1)
606_3	0	0.19	2	-5% of the road has surface cracking (2) -50% of the road has edge breaks (1) -1 pothole (3)
606_4	0	0.2	2	-10% of the road has surface cracks (1) -20% of the road has edge breaks (2) -10% of the road has stone loss (2) -2 potholes (2)
	0.2	0.45	1	-15% of the road has significant surface cracking (1) -75% of the road has edge breaks (1) -5% of the road has stone loss (2)
606_5	0.2	0.41	1	-15% of the road has surface cracks (1) -30% of the road has stone loss (1) -20% of the road has edge breaks (2) -5 potholes (3)
Warlpiri Transient Camp	0.4	0.59	1	-10% of the road has surface cracks (1) -5% of the road has stone loss (3) -4 potholes (1)
	0.45	0.69	1	-60% of the road has stone loss (1) -15% of the road has surface cracking (1) -10% of the road has edge breaks (3) -5 potholes (2)

7.3 Current performance and risks

The road network is sufficient for the current number of houses although the road is in very poor condition. It is recommended that the road is upgraded to a formal two lane road with all associated road furniture and stormwater drainage.

It was noted during the site inspections that a number of unsealed 'short-cuts' had been created and were regularly used. It is not recommended that these paths are formalised.

7.4 Future demands

As no new developments are currently planned for Warlpiri Transient Camp, 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 4 potholes
- Repair 265 m of road edges and shoulders
- Repair 455 m2 of surface cracking
- Replace 2 signs
- Clean two existing signs
- Repair sections of footpath
- Repaint line marking for 1090 m of road
- Total reseal of 6370 m2 (all roads rated very poor)
- General clean of 1060 m of 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 Warlpiri Transient community is 6 m, this means that all 2150 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

The stormwater drainage assets within Warlpiri Transient Camp are owned by Kalano Community Association Incorporated but are the responsibility of Kalano Aboriginal Housing Corporation to maintain. Beyond the boundaries of the community the stormwater assets are the property of the Katherine Town Council.

8.2 Existing infrastructure condition assessment

The site investigation for the stormwater infrastructure included assessing the condition of swales, culverts, headwalls, and side entry pits (SEP). Only the above ground infrastructure was assessed. As the inspection was undertaken outside of a storm event and no CCTV of the pipes was undertaken, flooding due to blockages or damage to the underground infrastructure could not be assessed. Table 8 below summarises the condition of the stormwater assets as assessed during the inspection.

Table 8 Stormwater condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Culverts		1	4			5
Swales			1			1

Figure 11 Swale, condition: *good*

Figure 12 Culvert, condition: *poor*

8.3 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. However based on the condition of the stormwater infrastructure assessed it would appear to be operating inadequately due to the lack of stormwater drainage infrastructure.

The general design philosophy for stormwater drainage is that the design is to be based on a system of sealed roads, kerb and gutter, entry pits and underground drainage. This infrastructure currently does not exist at Warlpiri Transient Camp and there would be major headworks required if stormwater drainage is to be incorporated. The cost estimates have allowed for underground drainage, kerb and gutter, and side entry pits to be constructed at Warlpiri Transient Camp. Further detailed design would be required to determine the size, location, type of drainage infrastructure required.

8.4 Future demands

As no new developments are currently planned for Warlpiri Transient Camp, there are no additional upgrades required to cater for future demand.

8.5 Recommended works

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

- Clear blockages from three culverts (currently blocked up to 20%).
- Construct new underground drainage, including side entry pits and kerbs and gutters.

9 Community structures

9.1 Ownership and boundaries

There are no community structures within Warlpiri Transient Camp.

9.2 Future demands

As no new developments are currently planned for Warlpiri Transient Camp, there are no additional upgrades required to cater for future demand.

10 Electrical services

10.1 Ownership and boundaries

The following points, from Network Policy NP003 Installation Rules Section 3, 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.

The Warlpiri community electrical reticulation systems is supplied by a transformer to an overhead reticulation scheme to individual house.

PWC advise that the Point Of Supply is the LV terminals of the substation and that they own and are responsible for the 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.

Warlpiri Transient Camp community are responsible for 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 9 shows the condition rating given to the distribution switchboards and distribution pillars. The distribution panels had 50% operational rating and minor repair to the metering panel, clear cover to read meters from outside the fence compound.

Table 9 Distribution panel condition assessment

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

Table 10 shows the condition rating given to the street lights. The street lights were of a low voltage overhead feeder design, unknown lamp type, with no lamp covers protected by cages. The street lights have 12% operational rating and 88% inoperable.

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		15	2			17

Table 11 shows the condition rating given to the transformer. The transformer was of pole mount substation design. The transformer was visually accessed to be in good condition.

Table 11 Transformer condition assessment

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

Table 12 shows the condition rating given to the Overhead poles. The overhead poles are of Weld Construction (Universal Pole construction) and steel LV distribution poles.

Table 12 Overhead pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Overhead pole			29			29

Table 13 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			5	1		6
Switchboard		4	2			6

The details of the individual inspections and photographs of each infrastructure item are included 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.
- Street lighting loads were ignored as they are not significant.

The calculated maximum demand of the Walpiri community transformer is 33% of rated capacity based on 4.5kVA/dwelling. The calculated maximum demand is within the total capacity of the substation on site.

Table 14 Warlpiri current demand load vs transformer ratings

Community name	Dwellings	Transformer (kVA)	kVA Total @ 4.5kVA	kVA Total @ 7kVA	Comments
Warlpiri Transient Camp	9	100 25	40.5	63	Two transformers on main feed into for this Town Camp. Suggesting smaller is T off for lighting and should be checked.

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 Warlpiri Transient Camp, there are no additional upgrades required to cater for future demand.

10.5 Recommended works

The following maintenance works and upgrades are recommended:

- Replace fifteen 80W street lights.
- Replace one multiple metering switchboard.
- Replace four switchboards inside the metering panel
- Install new street lighting - approximately 108 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 telephone booths. There were no telecommunication pits found at Warlpiri Transient Camp.

Appendices contains the individual reports.

Table 15 Telephone booth condition assessment

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

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 Warlpiri is displayed in the Figure 13 below. NBN is planned to be available to residents via a fixed telecommunication line on application to an appropriate NBN access provider.

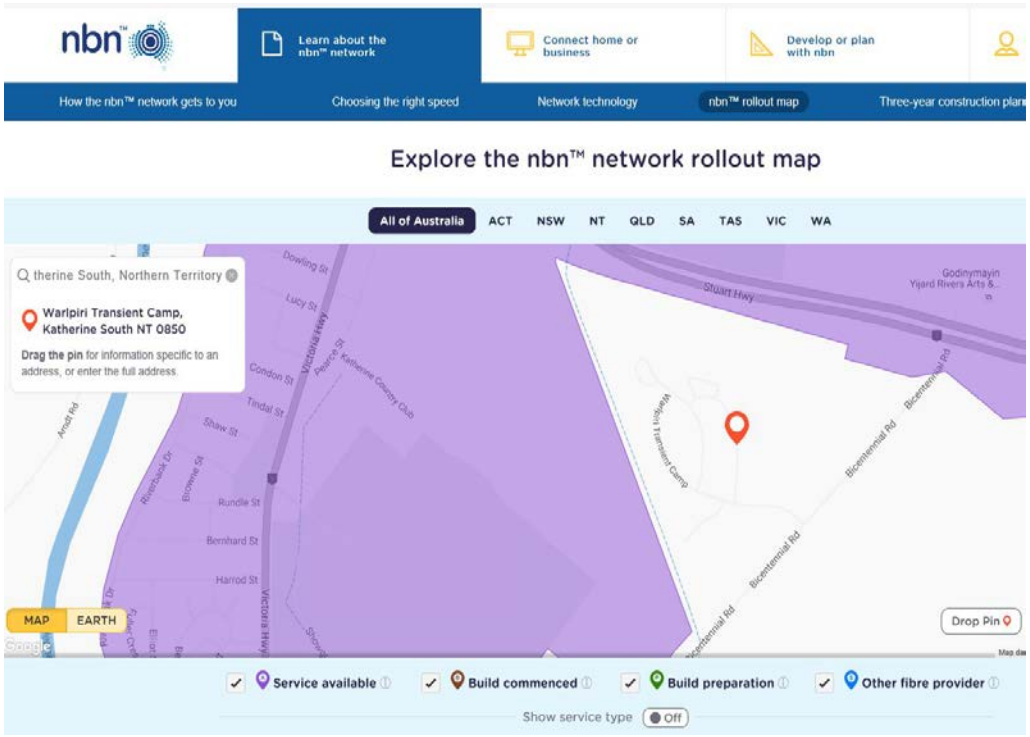


Figure 13 NBN network availability map

NBN is planned to be available to residents via a fixed telecommunication line 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 available to residents via a fixed telecommunication line 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 and to upgrade the existing network to meet current design standards. There are no upgrades required for the future design. The estimates take into account a 30% contingency, are inclusive of GST, and 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	$ 4,000	$ 1,502,000
Water supply	$ 1,000	$ 1,752,000
Roadworks	$ 1,235,000	$ 3,260,000
Stormwater drainage	$ 0	$ 2,181,000
Community structures	$ 0	$ 0
Electrical	$ 31,000	$ 1,931,000
Communications	$ 0	$ 0
Miscellaneous provisions	$ 165,000	$ 1,287,000
Total (including GST)	**$ 1,436,000**	**$ 11,913,000**
Grand total	**$ 13,349,000**	

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 Warlpiri Transient Camp:

Sewerage

- 1500 m DN150 PVC gravity main
- 600 m DN150 PVC rising main
- Replace one sewer manhole

Water supply

- Repaint five hydrants
- Replace existing water main with DN150 PVC looped main, approximately 2200 m.
- Install DN150 new bulk water meter
- Install up to ten residential lot water meters
- Install four new fire hydrants

Roadworks

- Fill and reseal four potholes
- Repair 265 m of road edges and shoulders
- Repair 455 m2 of surface cracking
- Replace two signs
- Clean two existing signs
- Repair sections of footpath
- Repaint line marking for 1090 m of road
- Total reseal of 6370 m2 (all roads rated very poor)
- General clean of 1060 m of 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

- Clear blockages from three culverts (currently blocked up to 20%).
- Construct new underground drainage, including side entry pits and kerbs and gutters.

Community structures

- No works required.

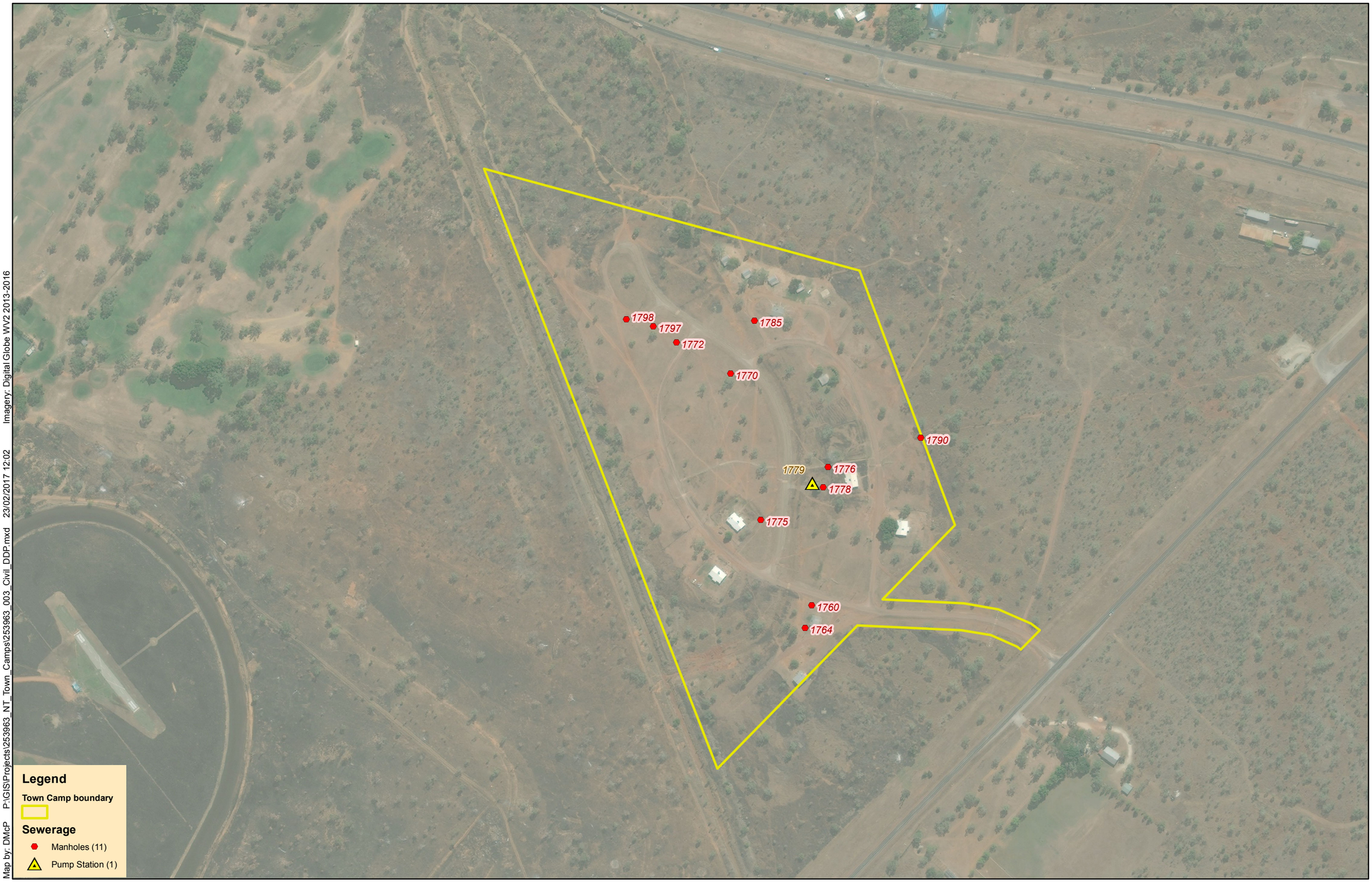
Electrical services

- Replace fifteen 80W street lights.
- Replace one multiple metering switchboard.
- Replace four switchboards inside the metering panel
- Install new street lighting - approximately 108 poles

Communications

- NBN is planned to be available to residents via a fixed telecommunication line on application to an appropriate NBN access provider.

Civil inspection reports



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

A3 scale: 1:4,000

0 20 40 60 80 100 m

Note:
Label numbers refer to survey IDs

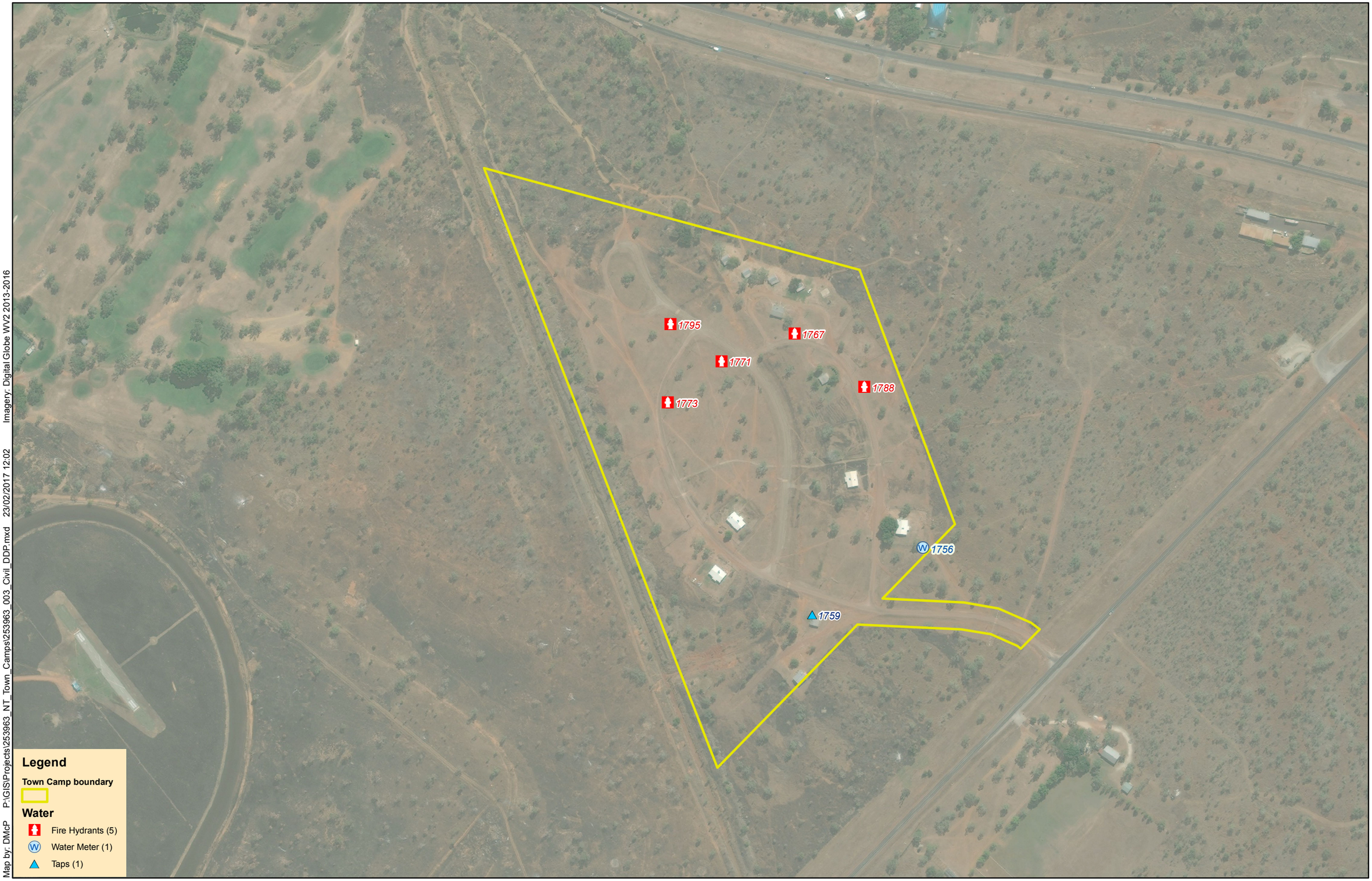
Date: 23/02/2017 Version: 2

Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Sewerage

606 - Walpiri (Katherine)

3554



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

- Fire Hydrants (5)
- Water Meter (1)
- Taps (1)

A3 scale: 1:4,000

0 20 40 60 80 100 m

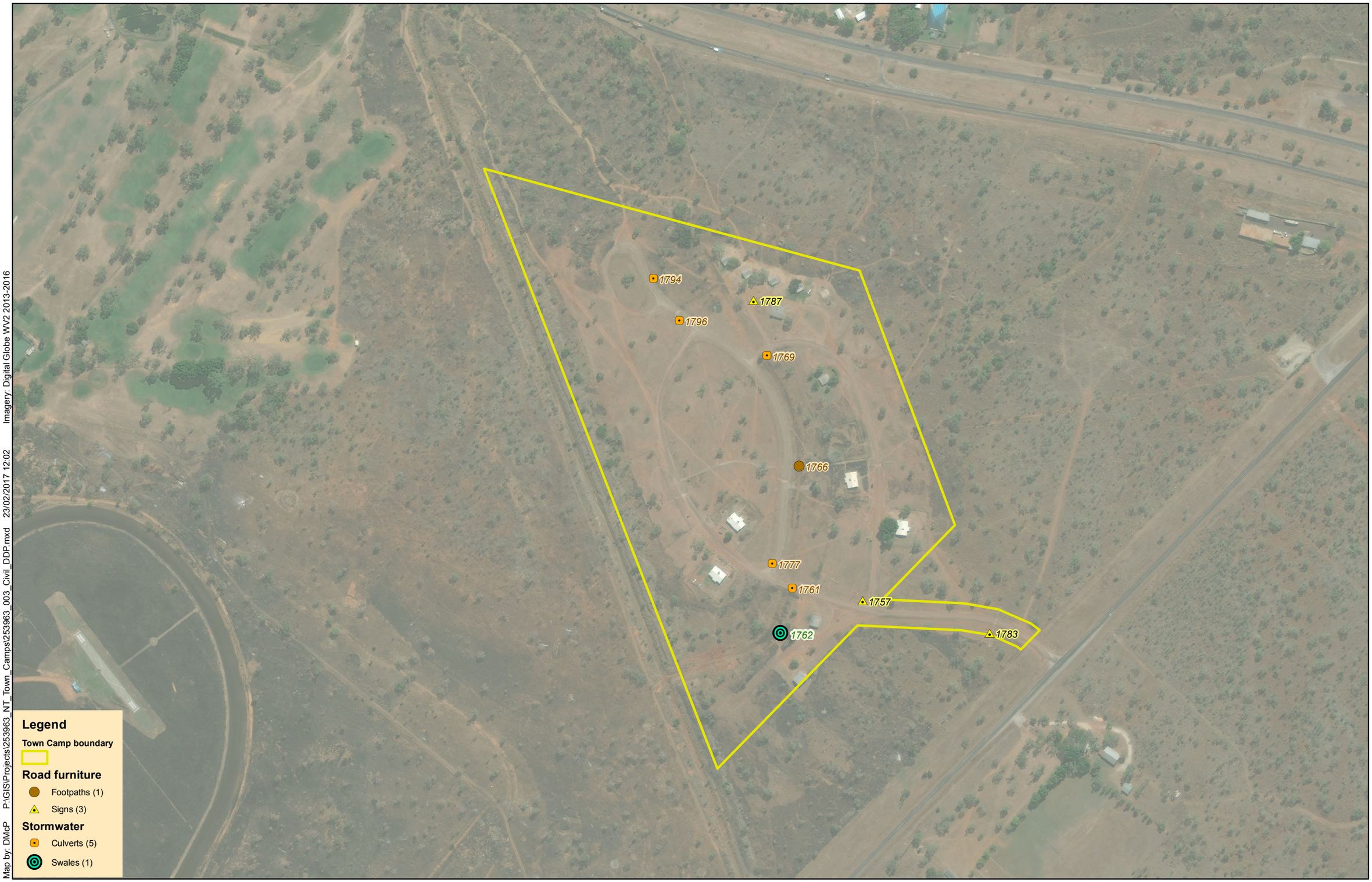
Note:
Label numbers refer to survey IDs

Date: 23/02/2017 Version: 2

Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Water

606 - Walpiri (Katherine)



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

A3 scale: 1:4,000

0 20 40 60 80 100 m

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
606 - Walpiri (Katherine)

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:14:37 AM

Insp ID: 1761 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	900
Culvert Depth (mm):	600
Culvert Length (m):	7
Culvert Condition:	3 - Good
Culvert Blockage (%):	20
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:14:37 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:18:32 AM

Insp ID: 1769 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	900
Culvert Depth (mm):	600
Culvert Length (m):	10
Culvert Condition:	3 - Good
Culvert Blockage (%):	10
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:18:32 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:36:59 AM

Insp ID: 1777 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	750
Culvert Depth (mm):	450
Culvert Length (m):	10
Culvert Condition:	3 - Good
Culvert Blockage (%):	
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:36:59 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:30:02 PM

Insp ID: 1794 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	450
Culvert Depth (mm):	300
Culvert Length (m):	12
Culvert Condition:	3 - Good
Culvert Blockage (%):	
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:30:02 PM

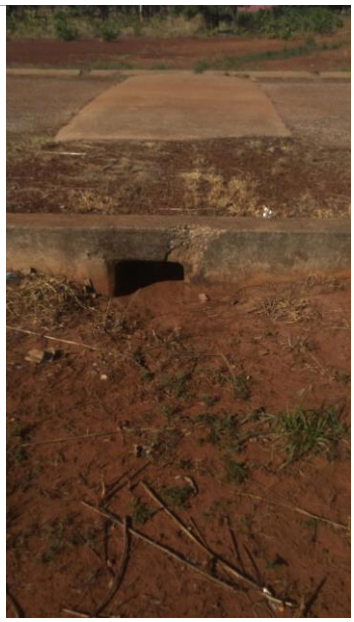
Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:25:21 PM

Insp ID: 1796 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	450
Culvert Depth (mm):	300
Culvert Length (m):	8
Culvert Condition:	2 - Poor
Culvert Blockage (%):	20
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	2 - Poor
Headwall Comment:	
End Wall:	Yes
End Wall condition:	2 - Poor
EW Comment:	



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:25:21 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:50:03 AM

Insp ID: 1767 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	3 - Good
FH Comment:	Not clearly visible

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:15:38 AM

Insp ID: 1771 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	3 - Good
FH Comment:	Not clearly visible

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:11:54 AM

Insp ID: 1773 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	3 - Good
FH Comment:	Not easily noticeable

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:01:54 PM

Insp ID: 1788 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	3 - Good
FH Comment:	Not clearly visible

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:29:04 PM

Insp ID: 1795 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	3 - Good
FH Comment:	Not clearly visible

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:56:13 AM

Insp ID: 1766 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	
What are you inspecting:	Foot Paths
Footpath Width (mm):	2000
Footpath Type:	Concrete
Footpath Condition:	3 - Good
Comment:	Mostly good condition, small areas of significant damage
General Comment:	Footpath crosses roads, not alongside road

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:18:34 AM

Insp ID: 1760 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	700
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:05:29 AM

Insp ID: 1764 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Rectangular
Manhole Cover Diam (mm):	
Manhole Length (mm):	1300
Manhole Width (mm):	900
Manhole Condition:	2 - Poor
Notes on Lid:	
Comments:	Size of steel plate (lid),actual manhole size Unknown but smaller

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:05:29 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:17:23 AM

Insp ID: 1770 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	4 - Very Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:14:23 AM

Insp ID: 1772 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:59:56 AM

Insp ID: 1775 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	4 - Very Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:54:47 AM

Insp ID: 1776 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:53:25 AM

Insp ID: 1778 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	4 - Very Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:12:10 PM

Insp ID: 1785 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	250
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:55:06 PM

Insp ID: 1790 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	4 - Very Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:23:14 PM

Insp ID: 1797 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	250
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	PVC pipe next to cover

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:23:14 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:22:15 PM

Insp ID: 1798 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 8/12/2016 10:27:15 AM

Insp ID: 1816 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Rectangular
Manhole Cover Diam (mm):	
Manhole Length (mm):	1000
Manhole Width (mm):	700
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	Significant termite mounds around manhole

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 8/12/2016 10:27:15 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:21:48 AM

Insp ID: 1758 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_1
What are you inspecting:	Pavements
Ch From (km):	0.2
Ch To (km):	0.45
Road Type:	Sealed - spray seal
Section Width (m):	5.8
Road Condition:	2 - Poor
General Comment:	1 speed hump over culverts, no signs for speed hump

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	15	1 - Very Poor	Significant cracking
Edge Breaks	75	1 - Very Poor	75 percent of section
Stone Loss	5	2 - Poor	5 percent, mostly along edges

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		130		1	Large drop off along section of road

Linemarking Section

Obstruction Section

Northern Territory Town Camps

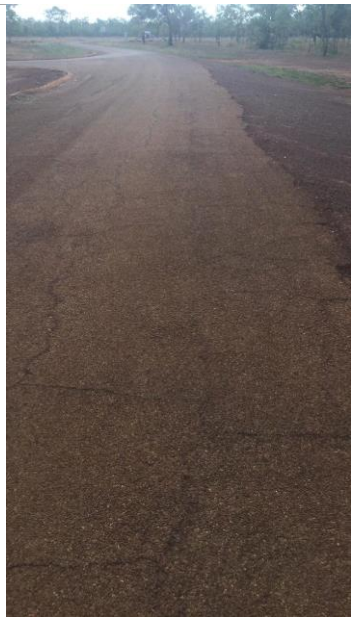
Civil Infrastructure

Inspection Date 7/12/2016 9:21:48 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:21:48 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:21:48 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:09:04 AM

Insp ID: 1763 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_3
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.17
Road Type:	Unsealed
Section Width (m):	5
Road Condition:	2 - Poor
General Comment:	Start of road not clearly defined.

Road Defects Section

Kerbs Section

Shoulders Section

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

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:09:04 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:09:04 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:05:05 AM

Insp ID: 1765 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_1
What are you inspecting:	Pavements
Ch From (km):	0.45
Ch To (km):	0.69
Road Type:	Sealed - spray seal
Section Width (m):	6
Road Condition:	1 - Very Poor
General Comment:	

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Stone Loss	60	1 - Very Poor	60 percent
Surfacing Cracks	15	1 - Very Poor	15 percent
Edge Breaks	10	3 - Good	10 percent
Potholes	5	2 - Poor	

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		30		3	

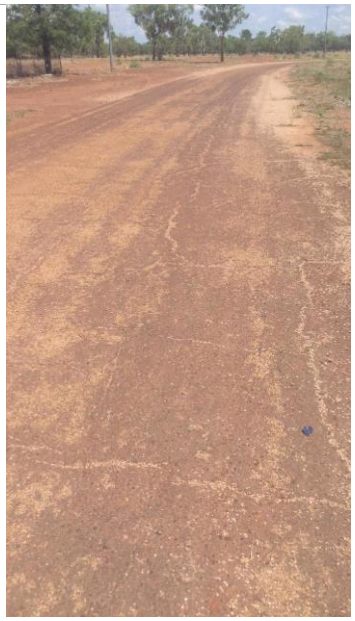
Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:05:05 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 11:05:05 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:39:32 AM

Insp ID: 1780 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_4
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.3
Road Type:	Sealed - spray seal
Section Width (m):	5.9
Road Condition:	2 - Poor
General Comment:	1 speed hump in section, table drains on both sides of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	2 - Poor	10 percent
Edge Breaks	30	2 - Poor	30 percent
Potholes	1	2 - Poor	

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Layback Kerb		Only on 1 side of road

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		40		3	Left side unsealed
Sealed	1.5			2	Right hand side, after kerb

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:39:32 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:39:32 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:18:10 PM

Insp ID: 1781 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_1
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.2
Road Type:	Sealed - spray seal
Section Width (m):	6
Road Condition:	2 - Poor
General Comment:	1 speed hump no signs, island at t intersection with hazardous ramp at start, refer photos

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	1 - Very Poor	Percent
Edge Breaks	20	2 - Poor	Percent
Stone Loss	10	2 - Poor	Percent
Potholes	2	2 - Poor	Number

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		40			

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:18:10 PM

Northern Territory Town Camps

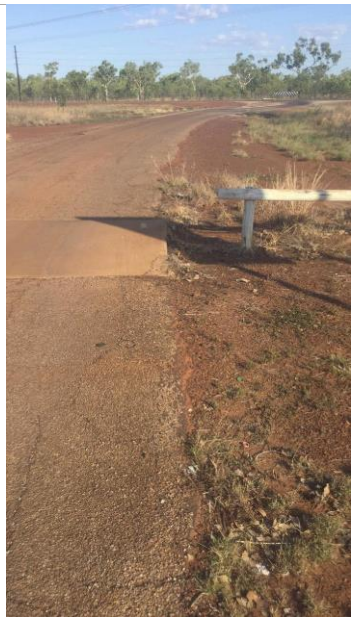
Civil Infrastructure

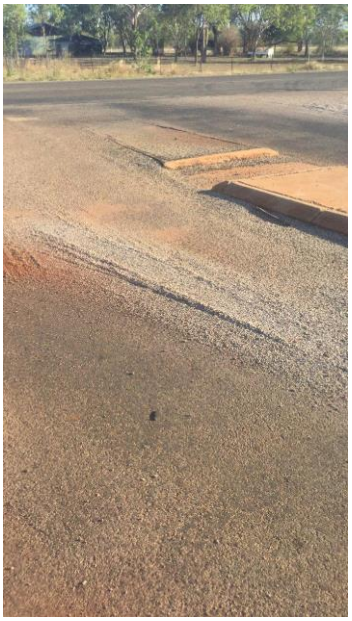
Inspection Date 7/12/2016 5:18:10 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:18:10 PM





Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:03:27 PM

Insp ID: 1786 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_5
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.19
Road Type:	Sealed - spray seal
Section Width (m):	4
Road Condition:	1 - Very Poor
General Comment:	Very steep dip in road, only passable by 4wd

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	2 - Poor	Percent
Edge Breaks	50	1 - Very Poor	Percent
Potholes	1	3 - Good	

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

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

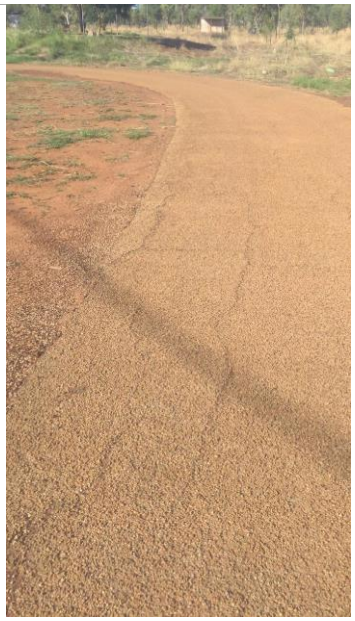
Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

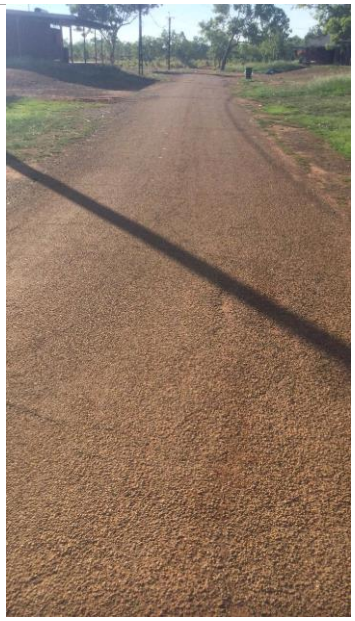
Inspection Date 7/12/2016 5:03:27 PM

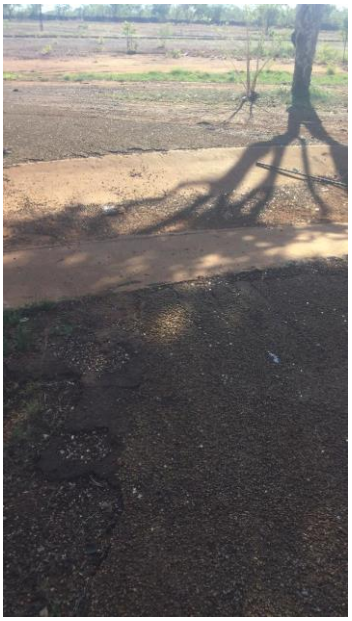


Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:03:27 PM





Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:03:27 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:57:53 PM

Insp ID: 1789 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	Warlpiri Transient Camp
What are you inspecting:	Pavements
Ch From (km):	0.2
Ch To (km):	0.41
Road Type:	Sealed - spray seal
Section Width (m):	6
Road Condition:	1 - Very Poor
General Comment:	

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	15	1 - Very Poor	Percent
Stone Loss	30	1 - Very Poor	Percent
Edge Breaks	20	2 - Poor	Percent
Potholes	5	3 - Good	Number

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		80			

Linemarking Section

Obstruction Section

Northern Territory Town Camps

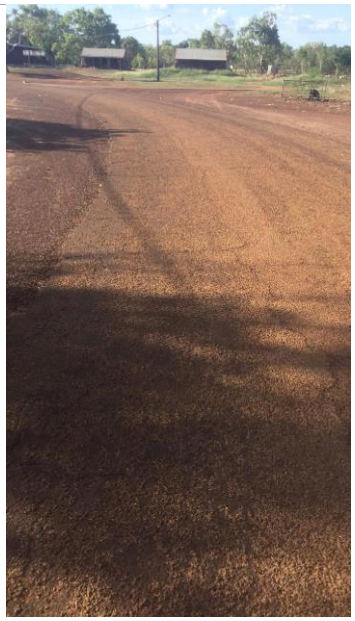
Civil Infrastructure

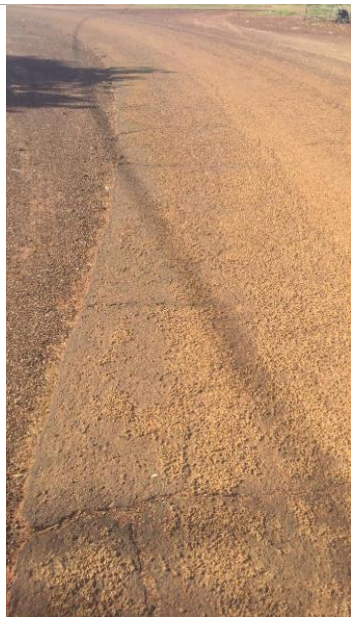
Inspection Date 7/12/2016 4:57:53 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:57:53 PM





Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:49:35 PM

Insp ID: 1791 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	Warlpiri Transient Camp
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.2
Road Type:	Sealed - spray seal
Section Width (m):	5.4
Road Condition:	1 - Very Poor
General Comment:	1 speed hump in section of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	20	1 - Very Poor	Percent
Edge Breaks	75	1 - Very Poor	Percent
Stone Loss	25	1 - Very Poor	Percent

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		80			

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:49:35 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:49:35 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:33:20 PM

Insp ID: 1793 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_4
What are you inspecting:	Pavements
Ch From (km):	0.4
Ch To (km):	0.59
Road Type:	Sealed - spray seal
Section Width (m):	6
Road Condition:	1 - Very Poor
General Comment:	

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	1 - Very Poor	Percent
Stone Loss	5	3 - Good	Percent
Potholes	4	1 - Very Poor	Number

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Layback Kerb	3 - Good	Only for half of the section

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		60			

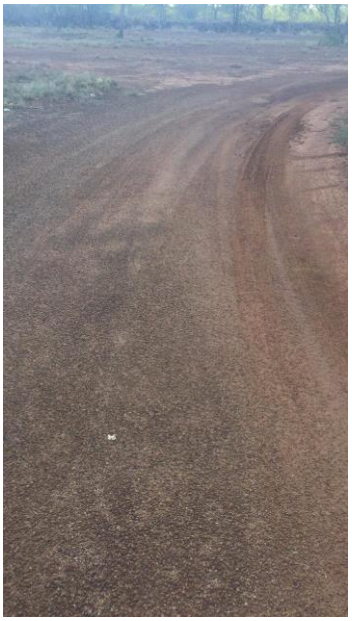
Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

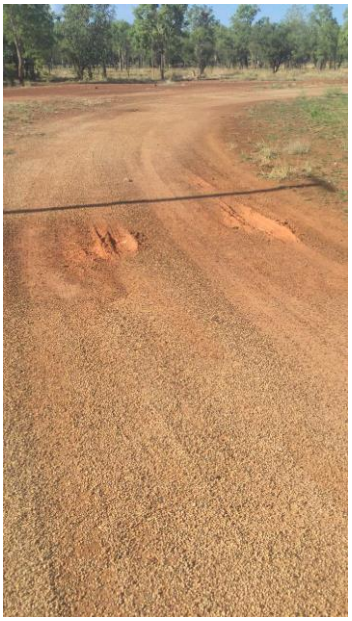
Inspection Date 7/12/2016 4:33:20 PM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:33:20 PM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:33:20 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 4:33:20 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:47:24 AM

Insp ID: 1779 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Sewerage Asset are you capturing:	Pump Station
No of Pumps in Pump Station:	2
Cabinet Condition:	3 - Good
Cabinet Comment:	
Alarm Light:	Yes
Alarm Light Condition:	1 - Very Poor
Overhead Light:	Yes
Overhead Light Condition:	2 - Poor
Light Comments:	
Davit Crane Present:	Yes
Davit Crane Capacity (kg):	500
Davit Crane Condition:	3 - Good
Davit Crane Comments:	
Fence TYPE:	Standard Security Fence (3 Strands barbed)
PS Fence Height (m):	1.8
PS Gates Locked:	Yes
PS Fence Condition:	3 - Good
Fence Comment:	
Flow meter type:	
Flow meter condition:	
Flow meter comments:	
Macerator Pump Make/Model:	
Manufacturers Date:	
Macerator Pump:	
Macerator Pump Condition:	
Macerator Pump Comments:	
Outgoing Pipe Diameter (mm):	
Valves:	
Outgoing Pipe Comments:	
Water Supply to pump station:	Yes
Fire hose reel:	No
Access cover locked:	No
Safety grid beneath access cover:	No Access

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:47:24 AM

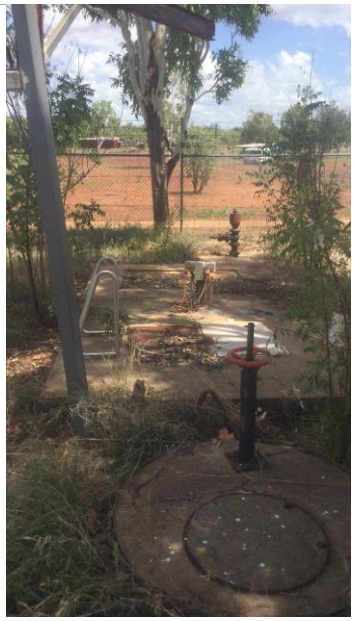
Condition:	
Cabinet Locked:	No
Cabinet Lock Condition:	
Hand rails around entrance:	Yes
Fixed or removable:	fixed
Rail Condition:	3
Safety Comments:	

Pump Station Pumps section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:47:24 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 10:47:24 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:30:17 AM

Insp ID: 1757 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_1
What are you inspecting:	Signs
Type of Sign:	Community sign
Sign Condition:	2 - Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:23:11 PM

Insp ID: 1783 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_1
What are you inspecting:	Signs
Type of Sign:	Community
Sign Condition:	3 - Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 5:08:48 PM

Insp ID: 1787 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Road Name:	606_5
What are you inspecting:	Signs
Type of Sign:	Dip
Sign Condition:	1 - Very Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:12:14 AM

Insp ID: 1762 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

Stormwater Infrastructure:	Swales
Type of lining:	No Lining
Are dimensions uniform along drain:	Yes
Base Width (m):	5
Overall Width (m):	15
Swale Depth (m):	1
Length of Batter 1 (m):	5
Length of Batter 2 (m):	5
Swale Condition:	3 - Good
Swale Ponding:	No
Drain flooded at time of inspection:	No
Swale Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:12:14 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:20:08 AM

Insp ID: 1759 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Taps

Diameter(mm):

Tap Leakage:

Tap Condition:

Tap Comment:

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:32:29 AM

Insp ID: 1756 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Water Asset Are you Capturing: Water Meter

Water Meter Type:	Bulk
Bulk Water Meter Size (mm):	100
Bulk Water Meter Condition:	3 - Good
Bulk Water Meter Comment:	
Lot Number:	
Lot Water Meter Size:	
Lot Water Meter Condition:	
Lot Water Meter Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 9:32:29 AM

Electrical inspection report

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

A3 scale: 1:4,000

0 20 40 60 80 100 m

Date: 23/02/2017 Version: 3

Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Electrical

606 - Walpiri (Katherine)

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:44:48 AM

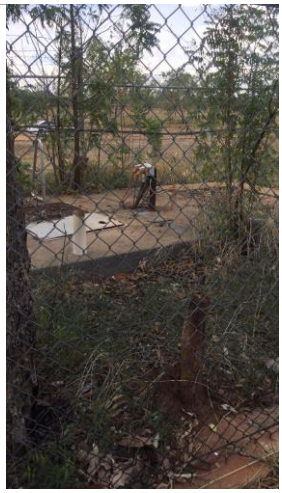
Insp ID: 975 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
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:	3
Condition Comments:	
What is the condition of cables/glands into switchboard:	3
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	No

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:44:48 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:42:14 AM

Insp ID: 976 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
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:	3
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	Yes

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 1/12/2016 10:51:08 AM

Insp ID: 3452 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing: Electrical Meters

Meter Type:	Prepaid
Meter Switchboard Cond:	2
Meter Condition:	4
Meter Comment:	Blank plates are missing on CB slot.
Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 30/11/2016 2:46:35 PM

Insp ID: 3507 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing: Electrical Meters

Meter Type:	Prepaid
Meter Switchboard Cond:	2
Meter Condition:	3
Meter Comment:	Blank plates are missing on CB slot.
Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 30/11/2016 2:36:24 PM

Insp ID: 3508 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition:

Meter Comment: Type & Condition of meter to be confirmed as meter box's door is locked.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 30/11/2016 2:49:17 PM

Insp ID: 3512 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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 30/11/2016 2:28:02 PM

Insp ID: 3513 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 2

Meter Condition: 3

Meter Comment: Blank plates are missing on CB slot.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 30/11/2016 2:31:04 PM

Insp ID: 3514 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 2

Meter Condition: 3

Meter Comment: Blank plates are missing on CB slot.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 30/11/2016 1:35:59 PM

Insp ID: 3515 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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 7/12/2016 12:20:27 PM

Insp ID: 967 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:20:27 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:13:45 PM

Insp ID: 968 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	
What is the Condition:	
How many Lots are connected to this pole:	
Overhead Pole Comments:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:13:45 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:11:18 PM

Insp ID: 969 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	3
Overhead Pole Comments:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:11:18 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:51:15 AM

Insp ID: 972 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	
What is the HV voltage level:	
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 7/12/2016 11:51:15 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:49:46 AM

Insp ID: 973 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	Over grown vegetation

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:49:46 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:48:59 AM

Insp ID: 974 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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 7/12/2016 11:48:59 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:36:50 AM

Insp ID: 977 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
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 7/12/2016 11:36:50 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:35:12 AM

Insp ID: 978 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:35:12 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:32:08 AM

Insp ID: 979 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:32:08 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:29:34 AM

Insp ID: 981 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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 7/12/2016 11:29:34 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 10:07:34 AM

Insp ID: 985 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 10:07:34 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 10:01:56 AM

Insp ID: 986 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 10:01:56 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:58:16 AM

Insp ID: 987 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	1
Overhead Pole Comments:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:58:16 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:49:17 AM

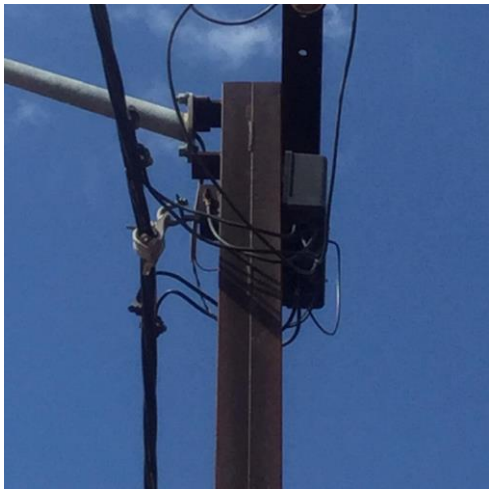
Insp ID: 988 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:49:17 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:45:01 AM

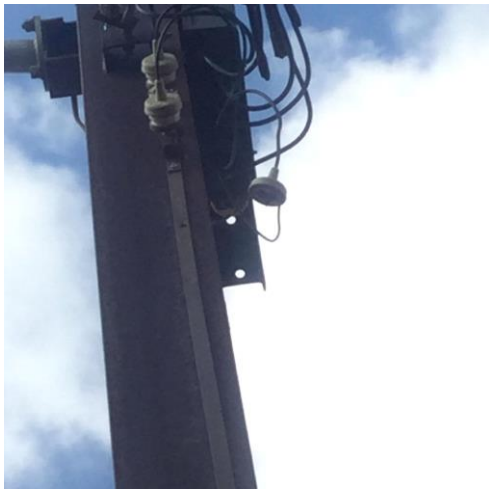
Insp ID: 989 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	1
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID,Surge suppressor ,poor condition

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:45:01 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:38:07 AM

Insp ID: 990 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
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:	1
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:38:07 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:26:22 PM

Insp ID: 992 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:26:22 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:22:40 PM

Insp ID: 993 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
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 7/12/2016 5:22:40 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:21:10 PM

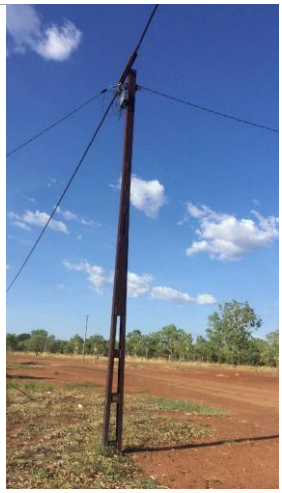
Insp ID: 994 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

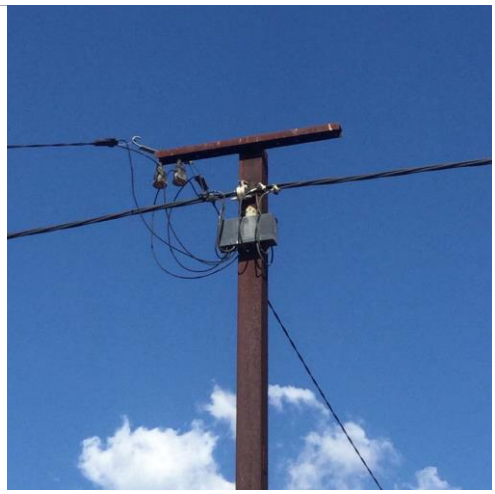
What Category are you capturing:	Overhead Poles
What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	2
Overhead Pole Comments:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:21:10 PM





Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:18:31 PM

Insp ID: 1055 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:18:31 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:12:41 PM

Insp ID: 1057 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:12:41 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:10:12 PM

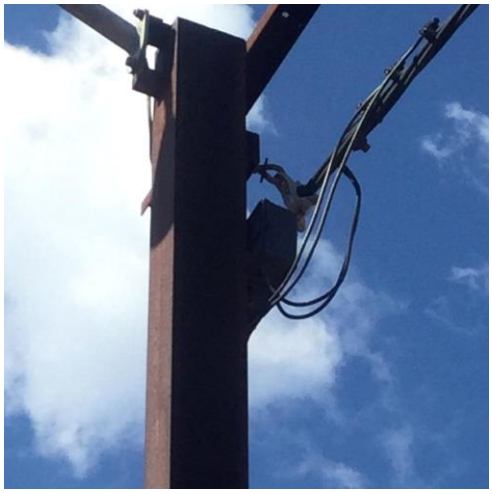
Insp ID: 1059 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:10:12 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:06:28 PM

Insp ID: 1060 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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 7/12/2016 5:06:28 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:04:46 PM

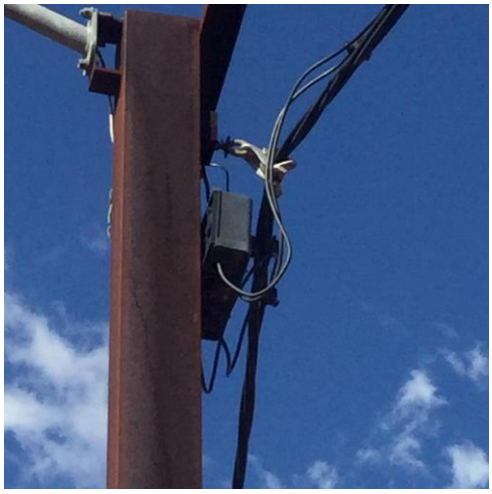
Insp ID: 1061 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:04:46 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:01:27 PM

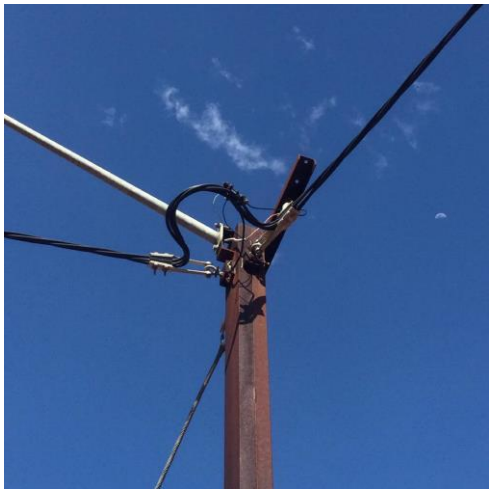
Insp ID: 1062 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:01:27 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:57:33 PM

Insp ID: 1063 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:57:33 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:54:29 PM

Insp ID: 1065 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	No ID

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:54:29 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:10:11 PM

Insp ID: 1066 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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:	2
Overhead Pole Comments:	No Id

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:10:11 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:03:40 PM

Insp ID: 1067 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

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	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
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 7/12/2016 12:03:40 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:20:27 PM

Insp ID: 967 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:11:18 PM

Insp ID: 969 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:49:46 AM

Insp ID: 973 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:29:34 AM

Insp ID: 981 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 10:07:34 AM

Insp ID: 985 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 10:07:34 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:58:16 AM

Insp ID: 987 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:58:16 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:49:17 AM

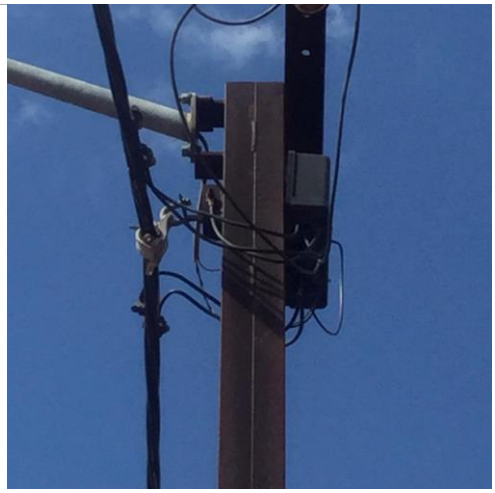
Insp ID: 988 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

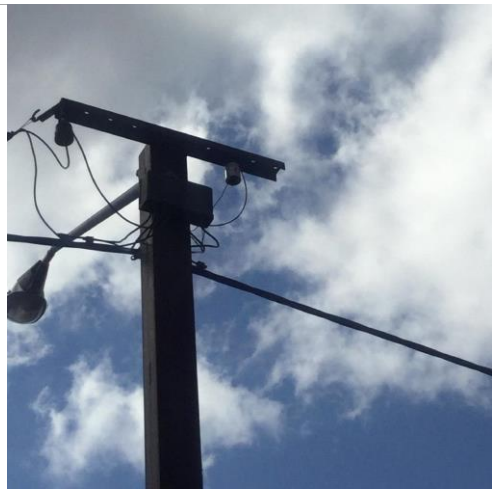
What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:49:17 AM





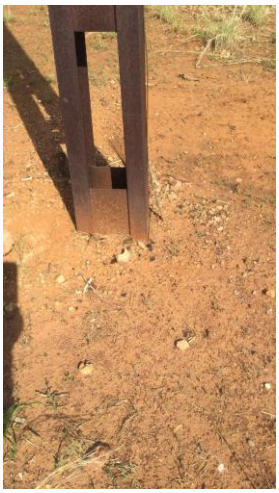
Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:45:01 AM

Insp ID: 989 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

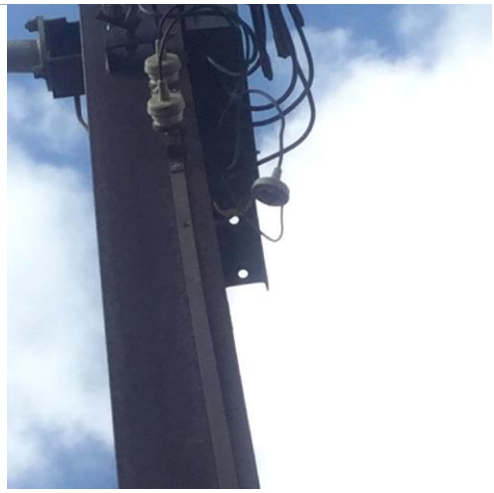
What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 9:45:01 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:26:22 PM

Insp ID: 992 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:26:22 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:18:31 PM

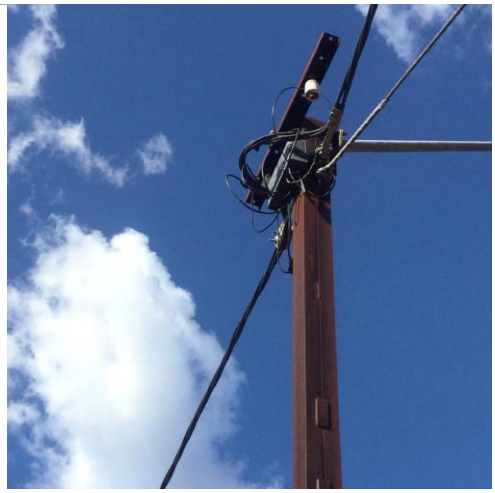
Insp ID: 1055 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:18:31 PM



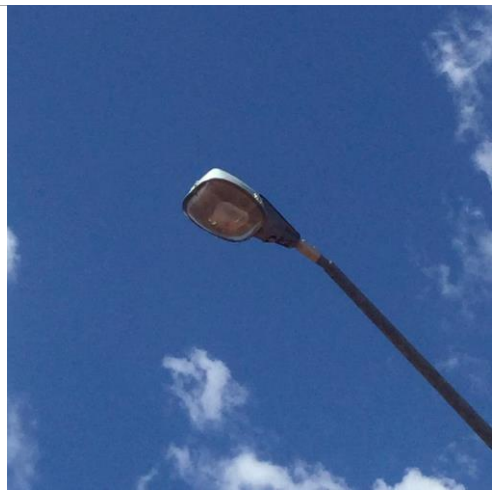
Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:10:12 PM

Insp ID: 1059 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

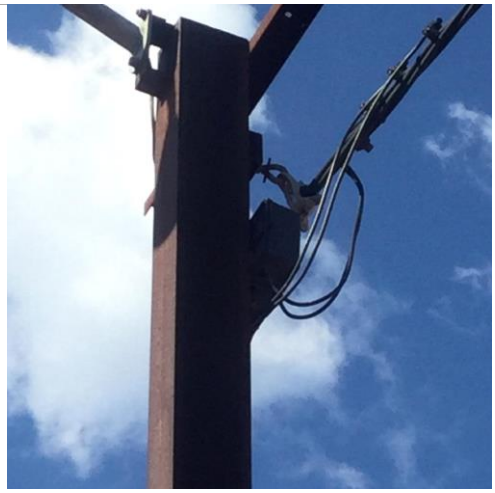
What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:10:12 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:04:46 PM

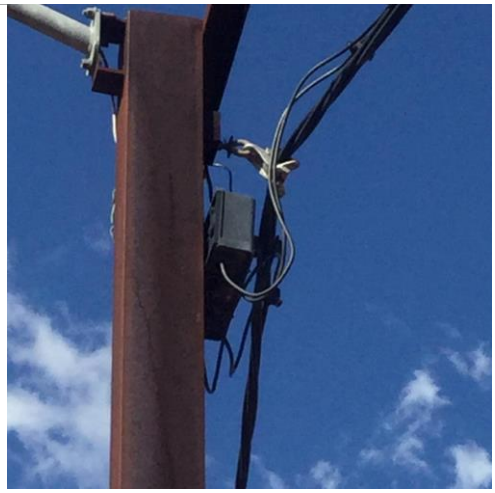
Insp ID: 1061 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:04:46 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:01:27 PM

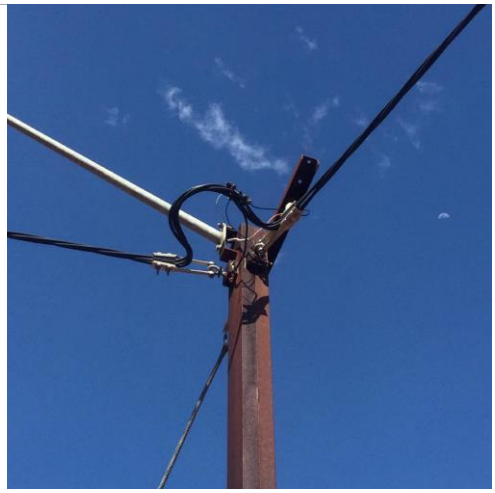
Insp ID: 1062 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 5:01:27 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:57:33 PM

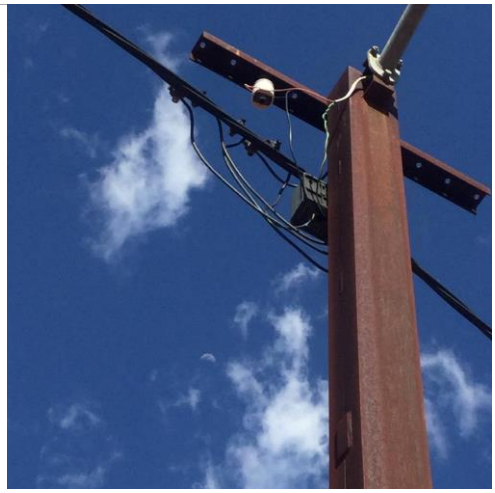
Insp ID: 1063 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:57:33 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 4:54:29 PM

Insp ID: 1065 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:10:11 PM

Insp ID: 1066 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:10:11 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 12:03:40 PM

Insp ID: 1067 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

What Category are you capturing:	Overhead Poles
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:26:31 AM

Insp ID: 983 Group 2 - Katherine, Pine Creek, Mataranka Warlpiri Transient Camp

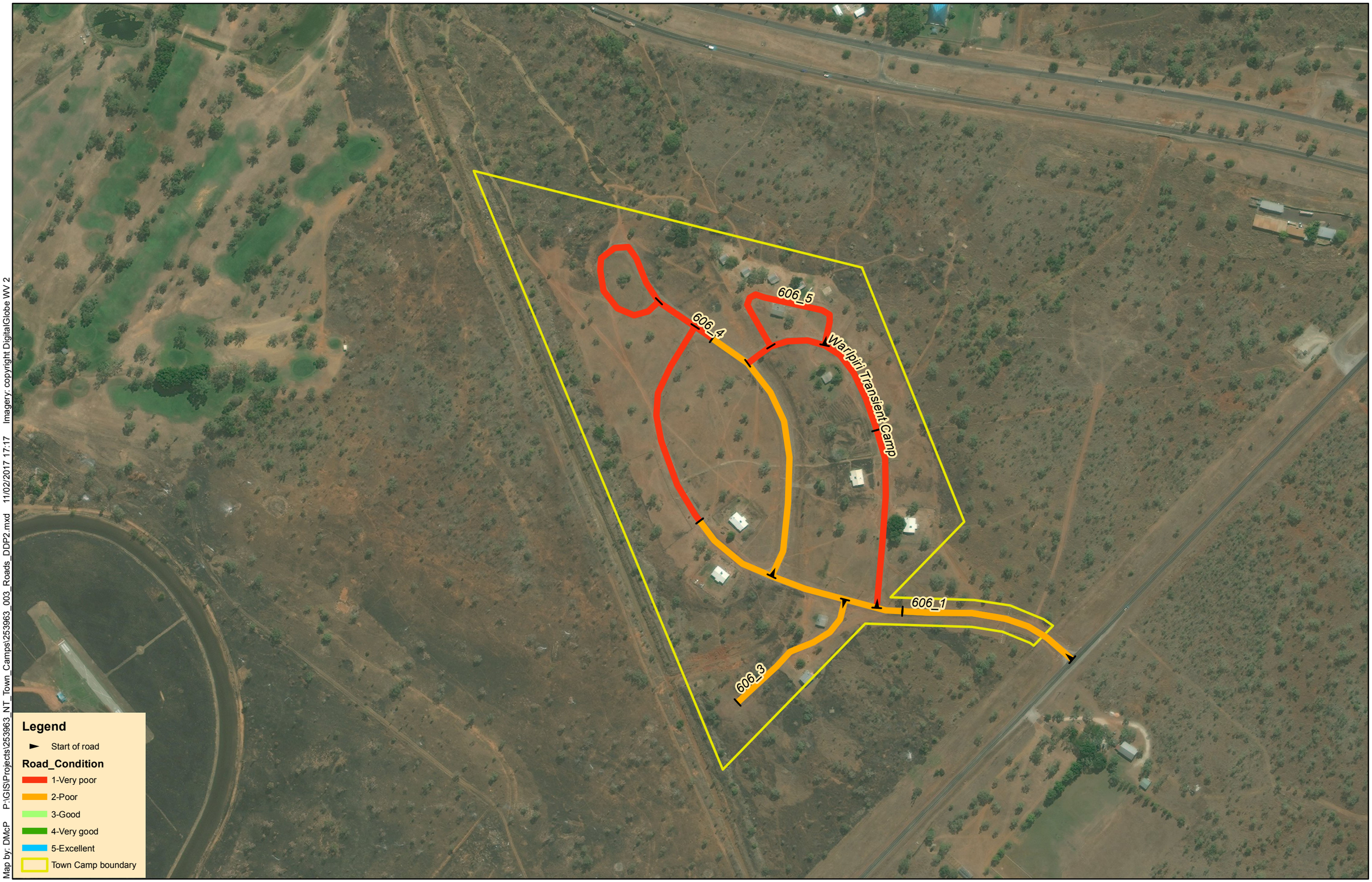
What Category are you capturing:	Transformers
What is Transformer installation method:	Pole
If method know:	11SS1P
What is the condition of the mounting:	3
What is Transformer Rating:	
Is there access to transformers name plate to take a photo:	No Access
What is the condition of transformer:	3
What is cable type to transformer:	Single black insulted
What is cable size to transformer:	
Is there switch gear or fusing associated with the transformer:	Drop out fuses
Transformer Comment:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 11:26:31 AM

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

A3 scale: 1:4,000

0 20 40 60 80 100 m

Date: 11/02/2017 Version: 1

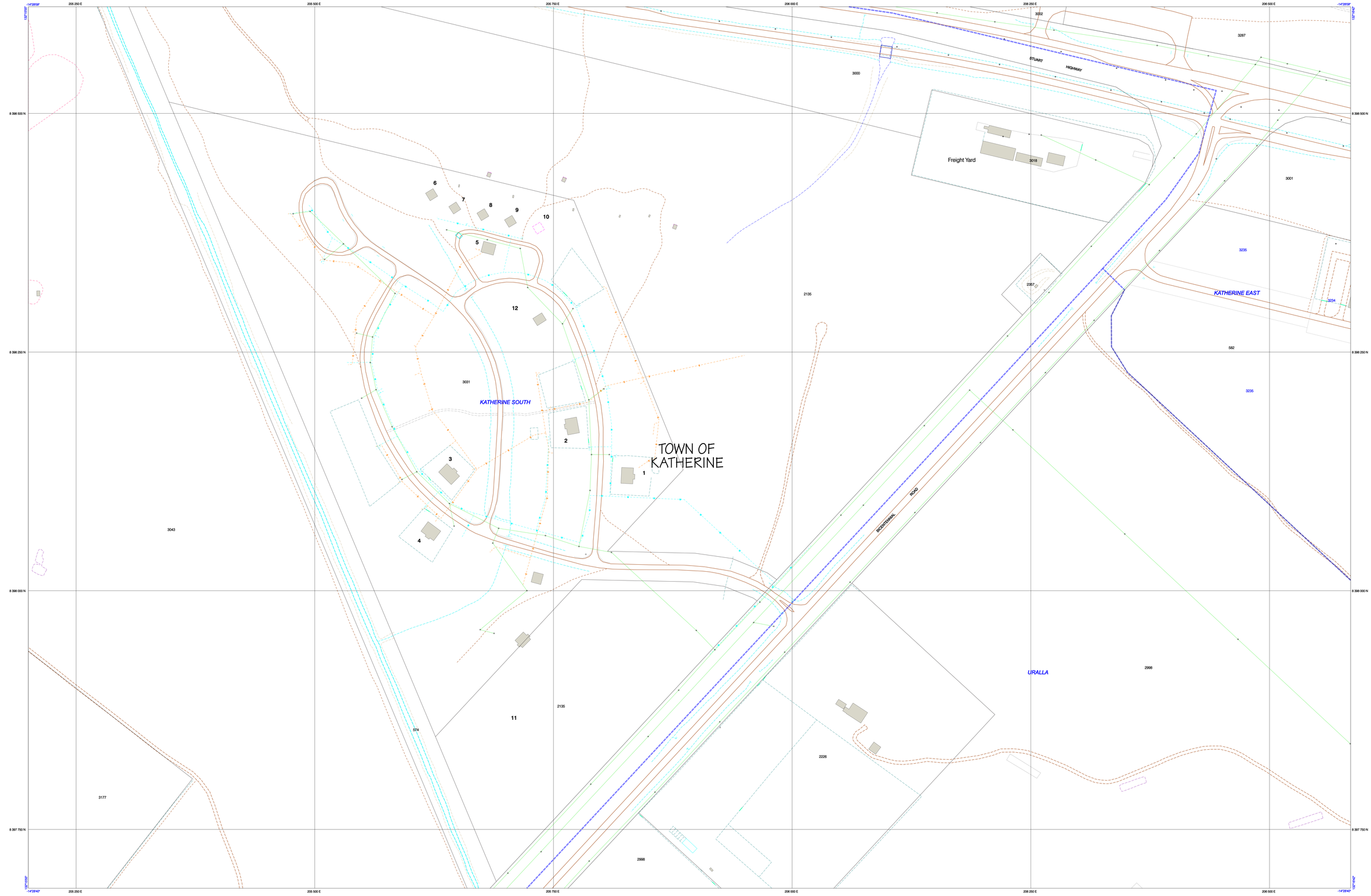
Coordinate system: GDA 1994

NT Town Camp Road Assessments

606 - Walpiri (Katherine)

3733

Existing drawings



LAND USE PLANNING:
APPROX. POSITION OF BUILDING constructed since date of photography

LAND EXCLUDED FROM DEVELOPMENT
GENERAL EXCLUSION/BUFFERS
CULTURAL EXCLUSION AREAS:
Unauthorised entry, works on or use of land where there is a sacred site is an offence under the Northern Territory Aboriginal Sacred Sites Act. For conditions relating to works on or use of land within a Cultural Exclusion Area contact the Aboriginal Areas Protection Authority (AAPA) email enquiries.aapa@nt.gov.au or phone 8999 4332.

This advice does not negate the need for consent for entry, works, or use which may be required under the Aboriginal Land Rights(NT) Act (in the case of Aboriginal land), or another statute.

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CADASTRE
Current 123
Proposed 123
Locality LOCALITY

UTILITY SERVICES
ELECTRICITY
LOW VOLTAGE LV
HIGH VOLTAGE HV
WATER RETICULATION
WATER MAIN W
WATER RISING MAIN W
SEWER
SEWER MAIN S
SEWER RISING MAIN S S

DIAL BEFORE YOU DIG www.1100.com.au

LEGEND

TOPOGRAPHY
Road Sealed, Bridge
Road Unsealed, Track
Footpath, Drain, Culvert
Wall, Gate, Fence, Cattle Grid
Railway, Disused Railway
Aerodrome Tarmac, Landing Strip
Taxiway, Apron
Pipeline: Oil, Water, Undetermined Gas, Sewage
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
Top of Bank, Bottom of Bank, Cliff
Watercourse; Perennial, Intermittent, Channel or Canal
WaterBodies; Perennial, Intermittent
WaterBodies; Reservoir, Water Hole
Swamp; Swamp Perennial, Swamp Intermittent
Flat; Mud Flat, Clay/Saltpan, STI
Pole; Power, General, Light
Tank; Water, Elevated, Non-Water, Silo
Manhole, Pylon, Communication Tower, Bore.

AVAILABLE FROM AND PRODUCED BY:

Northern Territory Government

NOTES:
POWER POLES, MANHOLES, SEPTIC TANKS, TOWERS/POSTS and other similar shaped objects are captured from Aerial Photography and have their locations confirmed from aerial survey techniques.
Other features and attributes as LOCAL SURVEY CONTROL. Their ground location is expected to be within +/-0.3m of their mapped location.

DIAL BEFORE YOU DIG phone 1100 (freecall) or visit www.1100.com.au
For Power and Water sewer information and connection requirements for developments contact Power and Water Corporation, Indigenous Community Development on 1800 245 092, and visit http://www.powerwater.com.au/business

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

This product is a compilation of data holdings from (but not restricted to) NT Dept of Lands and Planning, NT Dept of Housing, Local Government and Regional Services, Power and Water Corporation and Aboriginal Areas Protection Authority. Whilst every effort has been made to ensure the accuracy of the information contained, omissions and omissions may occur. No Warranty is given concerning the accuracy of the information herein. Users should refer to the originating bodies or departments regarding the accuracy and currency of the data.

Topographic Information:
Northern Territory Government
Dept of Lands and Planning
TEL: (08) 8999 5331, FAX: (08) 8999 5366
Email: landinfo.dlp@nt.gov.au

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 Surveyor-General
Dept of Lands and Planning
TEL: (08) 8999 5353, FAX: (08) 8999 5366
Email: landinfo.dlp@nt.gov.au

Planning Information:
Indigenous Community Land Use Planning
Dept of Lands and Planning
TEL: (08) 8999 1300, FAX: (08) 8999 7189
Email: planning@nt.gov.au

Power, Water or Sewer Information:
Remote Operations Planning Branch
Power and Water Corporation
TEL: (08) 8924 5394, FAX: (08) 8924 5360

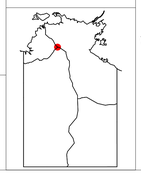
Housing Infrastructure Information:
Infrastructure Delivery Branch
Dept of Housing, Local Government, and Regional Services
TEL: (08) 8999 8010, FAX: (08) 8999 8110
Email: lis.dhlgrs@nt.gov.au

SOURCE INFORMATION

CONTOUR INTERVAL :		CURRENCY OF TOPOGRAPHY :	6 June 2010
HORIZONTAL DATUM :		SOURCE MAP SCALE :	2500
VERTICAL DATUM :		ZONE UTM :	53
PROJECTION :	Transverse Mercator	DATE GENERATED :	21 June 2012

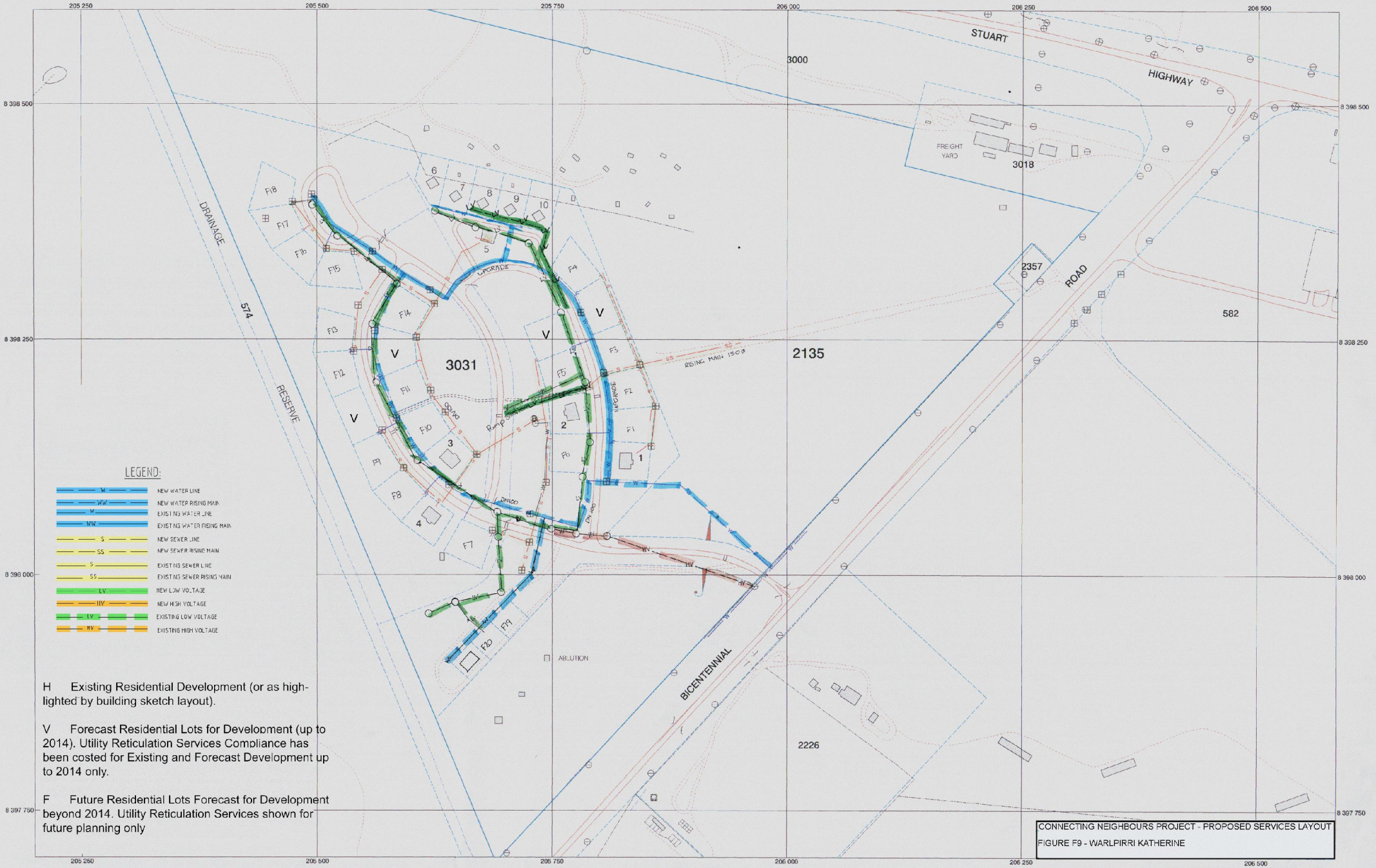
N
0 40 80 120 160 200
GDA

Locality Diagram



SERVICED LAND AVAILABILITY PROGRAM
SLAP Map
Warlpiri Transient Camp (Katherine Town Camp)

Katherine Town Camp
Katherine Town Council
Community ID: 606



H Existing Residential Development (or as high-lighted 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

CONNECTING NEIGHBOURS PROJECT - PROPOSED SERVICES LAYOUT
FIGURE F9 - WARLPIRRI KATHERINE

TERRITORY HOUSING

HORIZONTAL DATUM : GDA94 (ZONE 53) (APPROX)
VERTICAL DATUM : AUSTRALIAN HEIGHT DATUM (metres)

SCALE 1:2500
80 30 0 60 120 180
metres

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DEPARTMENT OF LANDS, PLANNING AND ENVRONMENT
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DATE OF PHOTOGRAPHY 15/7/99

REFERENCE DRAWINGS
DEPT OF LPE
PAWA:

AMENDMENTS

No.	Date	Amendment	Authorized
1	OCT 01	PLAN CREATED	DLPE
2	NOV 01	LOTS 1-4 ADDED	COUNCIL
3	MAR 02	LOTS 5 -10 ADDED	I. REDMOND

PLAN LAST UPDATED BY HA7 ON THE 8/03/02

KALANO COMMUNITY ASSOCIATION

The Serviced Land Availability Program (SLAP) map system contains planning, engineering and topographical information. This map, called the SLAP map, contains information used for land use planning purposes.

SLAP MAP
WALPIRI TRANSIENT CAMP
(KATHERINE TOWN CAMP
KATHERINE TRANSIT CAMP,WARLPIRI CAMP)
606

3736

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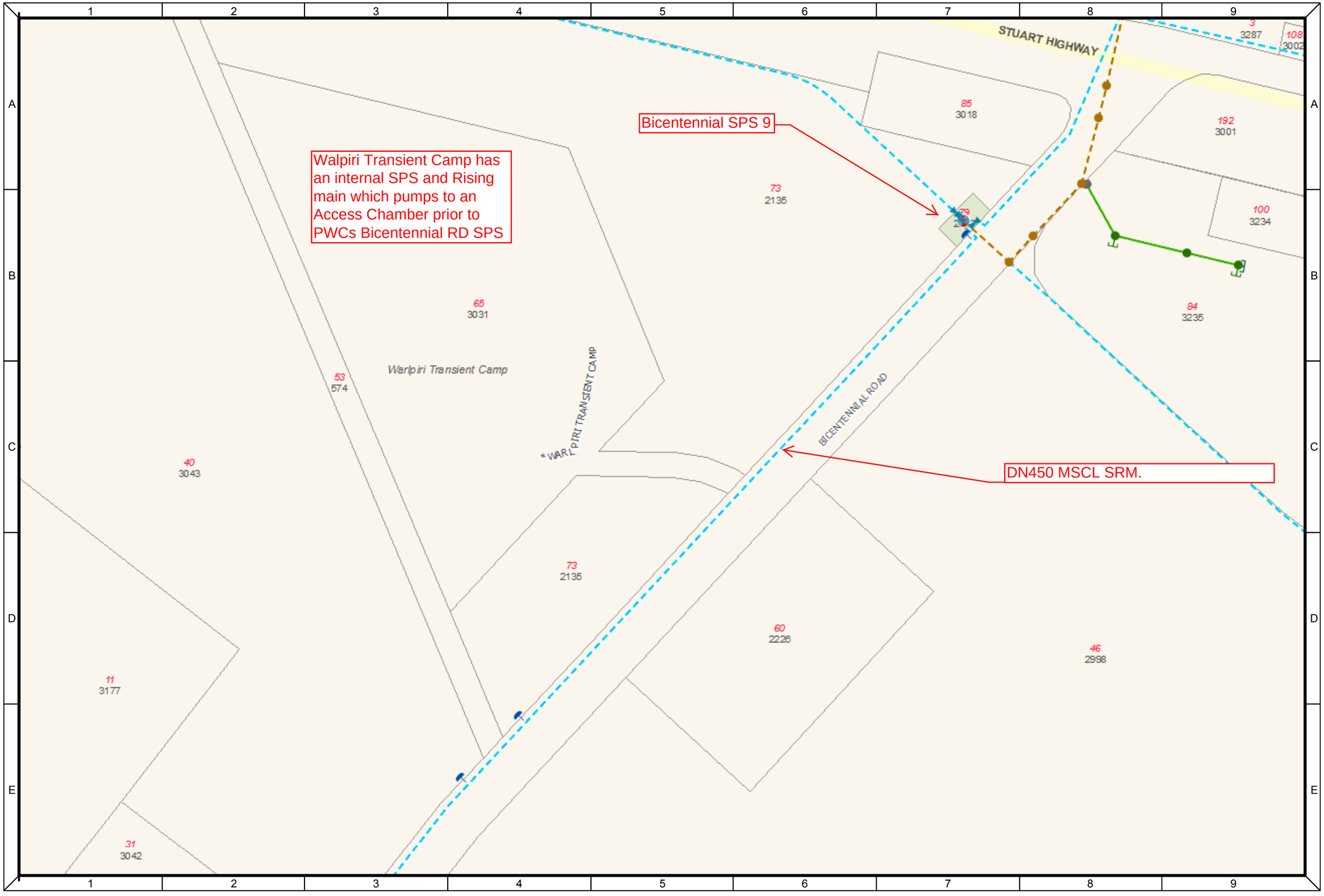


PowerWater

0 62.5 125 250 Meters

Scale: 1:4,370

Original Sheet Size: A3

02/11/2016

3737

Transformer data

Group	Com Id	Location	Community Name	Dwellings No. (Funded Dwellings)	Dwellings No. (Bennett Design)	New Houses ** (Future Demand)	Primary Volatge 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 Alwerrknge (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	Inarlenge (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	Ilpiye Ilpiye (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	Borroloola	Mara	28	29	2	11	6187	12610	100	130.5	203	Two transformers for this Town Camp.
							11	6545	10203				
	229	Borroloola	Garawa 1	16	14		11	6546	10166	100	72	112	Two transformers for this Town Camp.
							11	6332	4890	100			
	278	Borroloola	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	Borroloola	Garawa 2	11	11		11	6189	2669	25	49.5	77	

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

Miali Brumby

Miali Brumby (Kalano)

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.

- Katherine Town Council – Development Guidelines, September 2010

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 Water Corporation,
- Bennett Design inspection reports and population data.

Aurecon undertook a site investigation of Kalano community on 6 December 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

Kalano currently has a reticulated sewer main that disposes to a pump station which then pumps to the town sewer. Drawings from Technical Records show that the size of the gravity main is undersized according to PWC standards, however PWC have stated that a camera inspection from 2010 showed the pipes were DN100 and DN150.

The sewer network upstream of the pump station and the pump station is owned by Kalano Community Association, but is the responsibility of Kalano Aboriginal Housing Corporation to maintain. PWC advised that they provide maintenance for the sewage pump station and that the asset is up to standard, although no detailed drawings of the pump station were available to confirm this.

The sewer rising main from the pump station is property of Power and Water Corporation. PWC have advised they maintain the sewage pump station, although there is no maintenance agreement in place. All other internal sewerage infrastructure is not maintained by PWC.

5.1.1 Connection methods and billing

PWC advised that they currently charge a single sewerage bill based on a total number of houses or sanitary fixtures, which for Miali brumby is 64. The sewerage bill is charged to Kalano Community Association Inc.

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

5.2 Existing infrastructure condition assessment

The sewer infrastructure inspection was limited to inspecting the condition of manhole covers and pump station compounds, as all other sewerage infrastructure is below ground. A total of four manholes and one pump station were inspected, with condition ratings as follows:

Table 2 Sewer condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Manholes		1	2	1		4
Pump station				1		1

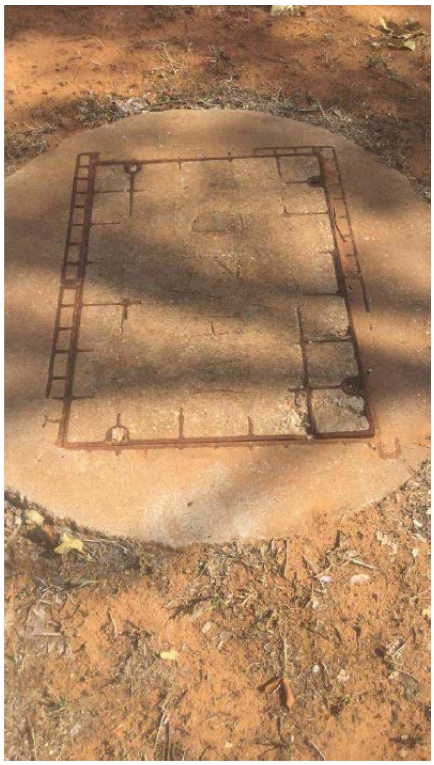


Figure 1 Sewer manhole, condition: good

Figure 2 Pump station, condition: very good

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.
- As Kalano disposes to a pump station, the capacity of the pump station has also been assessed.

The current number of houses in Kalano is 31, this multiplied by 9 EP per house gives a total current EP of 279. The capacity of the existing sewer was then calculated using the pipe diameter as DN100. The percentage shows how much of the pipe capacity is currently being used.

Table 3 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	279	100	1.0	5.60	2.79	50%

Table 3 above shows that the capacity of the existing sewer network is adequate for the current peak population. However, the diameter and location of the pipework is non-compliant and is recommended to be upgraded.

5.3.2 Current sewage pump station performance

The capacity of the pump station could not be assessed as no design drawings were available. PWC have advised the sewage pump station is currently up to PWC standards however this could not be confirmed.

5.4 Future demands

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

5.5 Recommended works

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. At Kalano, only one sewer manhole requires upgrades to meet PWC standards.

As the internal network has a pipe size less than 150 mm diameter, it is recommended that the pipes are upgraded to DN150 PVC gravity main, to be in accordance with PWC standards. The cost estimates for upgrades at Kalano include:

- 2,200 m of DN150 PVC gravity main

Note that the PWC sewer rising main leaving Kalano community is also undersized and non-compliant. Cost estimates for these upgrades have not been included as this would be the responsibility of Power and Water Corporation.

6 Water supply

6.1 Ownership and boundaries

Drawings supplied by Technical Records indicate that the water main has a single feed with several branches spreading over the entire community and does not have any network looping (refer Appendices). The pipe sizes were not displayed on the engineering drawings.

The water supply network within Miali Brumby is owned by Kalano Community Association, but is the responsibility of Kalano Aboriginal Housing Corporation to maintain. PWC have advised they do not maintain any internal water supply infrastructure beyond the bulk water meter. The water is supplied from PWC owned water mains outside of the community. Figure 3 shows the extent of water services surrounding Miali Brumby.

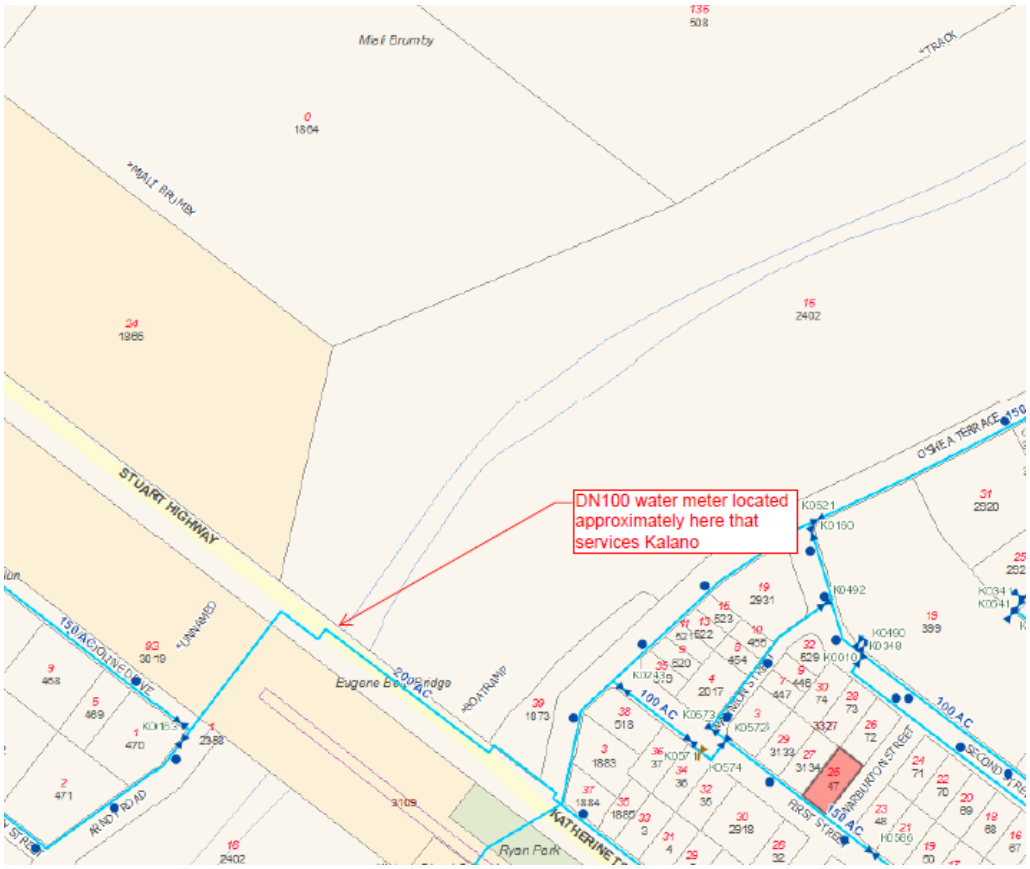


Figure 3 PWC water supply

6.1.1 Connection method and billing

PWC advised that they currently charge a single water bill to the Kalano Community Association Inc. It is not known what contribution the residents make towards the water bills. It is understood that the water usage is measured at the bulk water meter located on the community boundary.

It is proposed that PWC continues to measure the water supply to the entire community with a bulk meter, as opposed to individual lots within the community. Under this scheme, the water bill for the entire community is the responsibility of the governing body, being Kalano Community Association for Miali Brumby. It will be up to governing body to assign bills to residents accordingly.

It is also recommended that residential lot water meters are installed on the connection to each dwelling in addition to maintaining billing through the bulk water meters. This will assist with the governing body distributing bills to residents, the identification of any leaks in the network, and meeting PWC standards should the town camp is subdivided in the future.

6.2 Existing infrastructure condition 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 below ground services were inspected.

The condition of each asset is as follows:

Table 4 Water supply condition assessment

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

Figure 4 Reticulation for oval

Figure 5 Fire hydrant, condition: *very poor*

Figure 6 Tap, condition: *good*

Two fire hydrants were assessed as being in very poor condition and should be repaired. Another fire hydrant was assessed as poor and requires repainting and clearing of the overgrown grass surrounding the hydrant, both factors are impeding visibility of the hydrant.

The tap assessed as being in poor condition related to reticulation for the football oval as seen in Figure 4. The tap was not connected to the HDPE pipe and it is unclear if it is working. It is recommended that this is repaired.

6.3 Current performance and risks

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

- The nominal peak day flow is 1100 L/capita/day, based on PWC's supplement to WSA 03 2002. This value is for the northern region of NT. It was assumed that the nominal peak day flow of 1100 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 5 shows the water demand calculated for Miali Brumby.

Table 5 Current water demand

Total dwellings	EP	Demand (l/s)	Peak hour demand (l/s)
31	279	3.55	10.66

The capacity cannot be accurately analysed due to insufficient information, however it is expected the system does not meet fire flow demands.

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 Miali Brumby the four fire hydrants are not expected to provide adequate coverage for the community. Additional fire hydrants will be required to provide sufficient coverage.

The water reticulation is non-compliant with PWC standards as there are several dead ends, the pipe is undersized and there are insufficient fire hydrants.

6.4 Future demands

As no new developments are currently planned for Kalano, 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 two fire hydrants
- Repaint and clear overgrown grassing at one hydrant
- Repair tap

It is recommended that a DN150 PVC looped main is constructed to PWC standards, replaces the existing water main. All other water supply infrastructure should be connected the new water main, including the water meters and replacement fire hydrants. The cost estimates for upgrades at Kalano include:

- Install new DN150 water main, approximately 2000 m
- Install new DN150 bulk water meter
- Install new fire hydrants, approximately 5
- Install up to 31 residential lot water meters

7 Roadworks

7.1 Ownership and boundaries

It is the current understanding that the roads within Kalano community are owned by Kalano Community Association, but are the responsibility of Kalano Aboriginal Housing Corporation to maintain.

7.2 Existing infrastructure condition assessment

The road network within Kalano community consists primarily of sealed roads with no kerbing. These roads are mainly in very poor or poor condition with one 450 m stretch of good condition pavement. There are also numerous tracks which appear to be used frequently which are not included in the inspection and report. Table 6 below summaries the condition of road furniture including signs and car parks. Figure 7 and Figure 8 show some typical conditions of the road furniture around the community.

Table 6 Roadworks condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Car parks		1				1
Signs	6	6	2	11		25

Figure 7 Sign, condition: *very poor*

Figure 8 Car park, condition: *poor*

The one car park in the community was rated poor, mainly due to the area being unsealed. There were many signs around the community ranging from very poor

condition to very good condition, Figure 7 provides an example of a very poor condition sign. It is recommended that the signs in very poor and poor condition are repaired.

Figure 9 shows a map of Kalano's road network with the condition ratings, road name, and chainage direction. A larger version of Figure 9 can be found in Appendices.

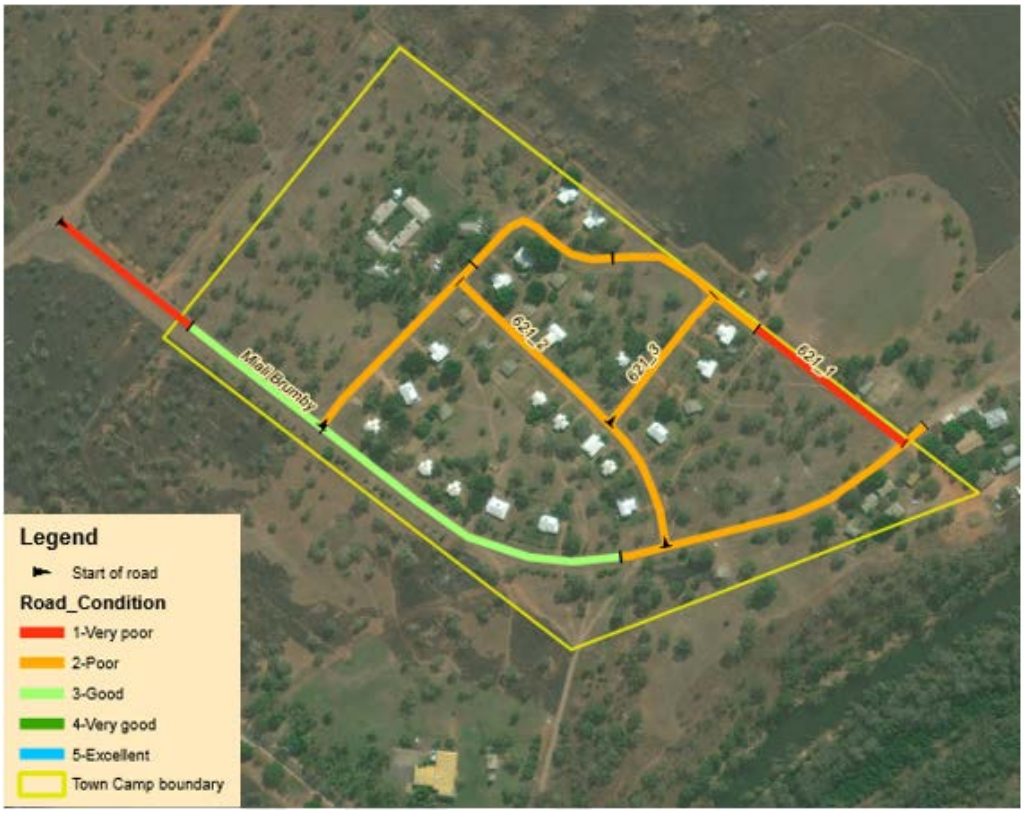


Figure 9 Kalano community road network

Figure 10 and Figure 11 show some typical conditions of the internal road network of Kalano. All roads within the community that are rated at a condition poor or worse are recommended to be resealed to prevent future failure and to increase road safety within the community.

Figure 10 Pavement, condition: *very poor*

Figure 11 Pavement, condition: *poor*

Table 7 shows the road condition and particular defects that were observed during the site inspection. Each defect is given an associated condition representing the severity of the defect.

Table 7 Road network condition assessment

Road name	Chainage start (km)	Chainage end (km)	Condition (1 to 5)	Defects and associated condition
621_1	0	0.2	2	-50% of the road has edge breaks (2) -5% of the road has surface cracking (1)
	0.35	0.2	2	-10% of the road has surface cracking (1) -30% of the road has edge breaks (2)
	0.35	0.5	2	-<5% of the road has longitudinal cracks (2) -10% of the road has edge breaks (3)
	0.5	0.67	1	-10% of the road has edge breaks (1) -10% of the road has longitudinal cracking (2)

Road name	Chainage start (km)	Chainage end (km)	Condition (1 to 5)	Defects and associated condition
621_2	0	0.31	2	-5% of the road has surface cracking (2) -70% of the road has edge breaks (2) -2 significant potholes (2)
621_3	0	0.13	2	-10% of the road has edge breaks occurring mostly at driveways (1)
Miali Brumby	0	0.15	1	-70% of the road has surface failure, mostly from potholes that have been filled in and resealed (2) -70% of the road has edge breaks (2) -5% of the road has surface cracking.
	0.15	0.3	2	-50% of the road has edge breaks (1) -10% of the road has surface cracking (2)
	0.3	0.6	2	-<5% of the road has surface cracks (3) -<10% of the road has edge breaks (3)
	0.75	0.9	2	-10% of the road has longitudinal cracking (1) -<10% of the road has edge breaks (2) -10% of the road has surface cracking (1) -5% of the road has potholes however most a filled in and resealed (3)

7.3 Current performance and risks

The main road into Kalano was rated as being in good condition, although there were significant edge breaks and surface cracking. The majority of the road network within Kalano is in poor condition or worse, therefore requires significant maintenance and/or upgrades. As the roads have undulations and pavement failure, there may be more significant issues to do with the subgrade or drainage that will require remediation before the road can be resealed.

The layout of the road network is sufficient for the current number of houses, although the condition of the road is poor.

It was noted during the site inspections that a number of unsealed 'short-cuts' had been created and were regularly used. It is not recommended that these paths are formalised.

It is also 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 Kalano, 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;

- Total reseal of ≈1525 m^2 of pavement
- Replace 12 various signs
- Clean 13 signs
- Repair 650 m^2 of surface cracking
- Repair 510 m of edge breaks
- Fill and reseal 5 potholes
- Repaint all road lines within community ≈2000 m
- General tidy up of all roads and road reserves ≈2000 m

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 Miali Brumby (Kalano) community is 6.2 m, this means that all 2000 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

The stormwater drainage assets within Kalano community are owned by Kalano Community Association, but are the responsibility of Kalano Aboriginal Housing Corporation to maintain. Beyond the boundaries of the community the stormwater assets are the property of the Katherine Town Council.

8.2 Existing infrastructure condition assessment

The site investigation for the stormwater infrastructure included assessing the condition of swales, culverts, headwalls, and side entry pits (SEP). Only the above ground infrastructure was assessed. As the inspection was undertaken outside of a storm event and no CCTV of the pipes was undertaken, flooding due to blockages or damage to the underground infrastructure could not be assessed. Table 8 below summarises the condition of the stormwater assets as assessed during the inspection.

Table 8 Stormwater condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Culverts		1	6			7
Letterbox pit	1	1	1			3
Swales		1	1			2

Figure 12 RCBC culverts, condition: *good*

Figure 13 Letter box pit, condition: *good*

Figure 14 Swale, condition: *poor*

8.3 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. However based on the condition of the stormwater infrastructure assessed it would appear to be operating inadequately, due to the blockages and limited infrastructure.

The general design philosophy for stormwater drainage is that the design is based on a system of sealed roads, kerb and gutter, entry pits and underground drainage. This infrastructure currently does not exist, or is in poor condition, at Kalano and there would be major headworks required if stormwater drainage is to be incorporated. Cost estimates to upgrade the stormwater infrastructure by constructing underground pipe, kerbs and gutters, and side entry pits have been provided.

8.4 Future demands

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

8.5 Recommended works

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

- Clear blockages from all seven culverts
- Construct stormwater drainage which includes, underground pipes, kerbs and gutter, and side entry pits.

9 Community structures

9.1 Ownership and boundaries

The community structures within Kalano community are owned by Kalano Community Association, but are the responsibility of Kalano Aboriginal Housing Corporation to maintain.

9.2 Existing infrastructure condition assessment

The site investigation for the community structures included assessing the condition and features of the playground, basketball court, BBQ area, bus stop and communal shed. The following table shows the condition rating given to the community structures.

Table 9 Community structures condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Basketball court				1		1
BBQ area	1					1
Bus stop				1		1
Playground			1			1
Shed (no walls)			1			1

Figure 15 Basketball court, condition: *very good*

Figure 16 BBQ area, condition: *very poor*

Figure 17 Bus stop, condition: *good*

Figure 18 Communal shed, condition: *good*

Figure 19 Playground, condition: *good*

9.3 Current performance and risks

The community structures are generally in a good condition, although the BBQ area requires a general tidy up to remove rubbish and graffiti, and the BBQ requires a service.

9.4 Future demands

As no new developments are currently planned for Kalano, 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:

- General clean of BBQ area
- Repaint BBQ area
- Conduct service on BBQ and ensure working
- General clean of bus stop area
- General clean of playground area including landscape maintenance
- Repairing tears to shade cloth over playground

10 Electrical services

10.1 Ownership and boundaries

The following points, from Network Policy NP003 Installation Rules Section 3, 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.

The Miali Brumby (Kalano) community electrical reticulation systems is supplied by a transformer to an overhead reticulation scheme to individual houses and to metering switchboard, then underground to the individual house.

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 the Point Of Supply is the LV terminals of the substation and that they own and are responsible for the 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.

Kalano community are responsible for 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 10 shows the condition rating given to the distribution switchboards and distribution pillars. The distribution panels had 33% operational rating and the other 67% are the sport field lighting that needs immediate rectification.

Table 10 Distribution panel condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Distribution panels	1	3	1	1		6

Table 11 shows the condition rating given to the street lights. The street lighting were the sports field LED lighting scheme feed underground from distribution panels. The street lights have 75% operational rating and 25% inoperable. This is from visual inspection and recommend due to the sun damage on conduit and cables have lighting detail audited.

Table 11 Street light condition assessment

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

Table12 shows the condition rating given to the street lights. The street lights were of a low voltage overhead feeder design, mercury lamp, M80. The street lights have 58% operational rating and 42% inoperable.

Table 12 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		8	11			19

Table 13 shows the condition rating given to the transformer. The transformer was of pole mount substation design. The transformer was visually accessed to be in good condition.

Table 13 Transformer condition assessment

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

Table 14 shows the condition rating given to the Overhead poles. The overhead poles are of Weld Construction (Universal Pole construction). The Overhead poles have 97.7% operational rating and 2.3% inoperable that was an undercut pole plant requiring assessment on stability.

Table 14 Overhead pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Overhead pole		1	40	2		43

Table 15 shows the condition rating given to the metering panels.

Table 15 Meter panel condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Pre-paid meter			25			25
Post-paid meter				1		1
Switchboard		5	13	1		19

Table 16 shows the condition rating given to the switchboards associated to dwellings.

Table 16 Switchboard condition assessment (housing footprint)

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Switchboard		1	6			7

The details of the individual inspections and photographs of each infrastructure item are included 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 Miali Brumby (Kalano) community transformer is 67% of rated capacity based on 4.5kVA/dwelling. The calculated maximum demand is within the total capacity of the substation on site.

Table 17 Miali Brumby (Kalano) current demand load vs transformer ratings

Com Id	Community name	Dwellings	Transformer (kVA)	kVA Total @ 4.5kVA	kVA Total @ 7kVA
621	Miali Brumby (Kalano)	47	315	211.5	329

A tabulated summary of all community transformers is included in the 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 Kalano, there are no additional upgrades required to cater for future demand.

10.5 Recommended works

The following maintenance works and upgrades are recommended:

- Replace eight 80W street lights.
- Replace four sports field switchboards
- Replace sports field lighting
- Audit one overhead pole wash out under concrete plant
- Replace five switchboards inside the metering panel
- Replace one switchboards associated to dwellings
- Install new street lighting - approximately 101 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. Appendices contains the individual reports.

Table 18 Telecommunication pit condition assessment

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

Table 19 Telephone booth condition assessment

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

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 Miali Brumby (Kalano) is displayed in the Figure 21 below. NBN is available to residents via a fixed telecommunication line on application to an appropriate NBN access provider.

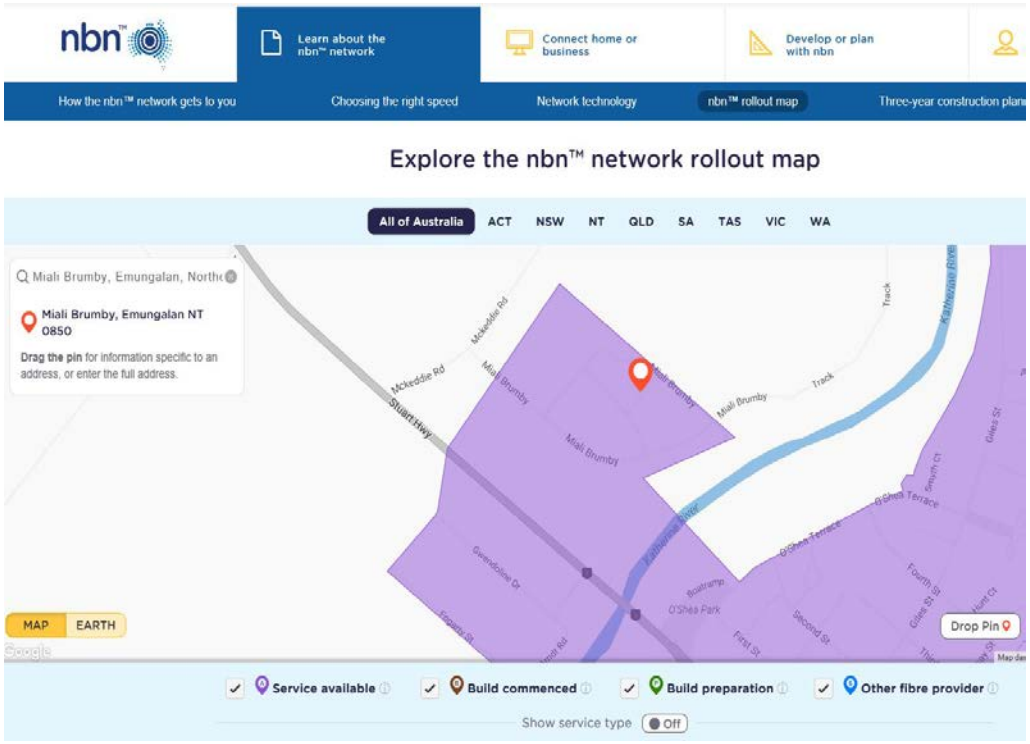


Figure 20 NBN network availability map

The NBN rollout map confirms that NBN is planned to be made available to residents via fixed telecommunications line 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.

No works are required at Kalano because NBN is available to residents via fixed telecommunications line on application to an appropriate NBN access provider.

12 Cost estimates

Table 20 below shows a summary of the cost estimates to undertake the maintenance required to fix the existing infrastructure and to upgrade the existing network to meet current design standards. There are no upgrades required for the future design. The estimates take into account a 30% contingency, are inclusive of GST, and a location factor has been applied to town camps outside of Darwin.

Table 20 Cost estimates

Infrastructure	Maintenance of existing infrastructure	Upgrades to meet current design
Sewerage	$ 4,000	$ 2,059,000
Water supply	$ 0	$ 1,725,000
Roadworks	$ 444,000	$ 3,048,000
Stormwater drainage	$ 0	$ 3,182,000
Community structures	$ 18,000	$ 0
Electrical	$ 102,000	$ 1,805,000
Communications	$ 0	$ 0
Miscellaneous provisions	$ 80,000	$ 1,430,000
Total (including GST)	**$ 648,000**	**$ 13,249,000**
Grand total	**$ 13,897,000**	

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 Miali Brumby (Kalano) community;

Sewerage

- 2,200 m DN150 PVC gravity main
- Upgrade one sewer manhole

Water supply

- Replace two fire hydrants
- Repaint and clear overgrown grassing at one hydrant
- Install new DN150 water main, approximately 2000 m
- Install DN150 bulk water meter
- Install new fire hydrants, approximately 5
- Install up to 31 residential lot water meters

Roadworks

- Total reseal of ≈1525 m^2 of pavement
- Replace 12 various signs
- Clean 13 signs
- Repair 650 m^2 of surface cracking
- Repair 510 m of edge breaks
- Fill and reseal 5 potholes
- Repaint all road lines within community ≈2000 m
- General tidy up of all roads and road reserves ≈2000 m
- 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

- Clear blockages from all seven culverts
- Construct stormwater drainage which includes, underground pipes, kerbs and gutter, and side entry pits.

Community structures

- General clean of BBQ area
- Repaint BBQ area
- Conduct service on BBQ and ensure working
- General clean of bus stop area
- General clean of playground area including landscape maintenance
- Repairing tears to shade cloth over playground

Electrical services

- Replace eight 80W street lights.
- Replace four sports field switchboards
- Replace sports field lighting
- Audit one overhead pole wash out under concrete plant
- Replace five switchboards inside the metering panel
- Replace one switchboards associated to dwellings
- Install new street lighting - approximately 101 poles

Communications

- No works are required because NBN is available to residents on application to an appropriate NBN access provider.

Civil inspection reports

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

A3 scale: 1:4,000

0 20 40 60 80 100 m

Note:
Label numbers refer to survey IDs

Date: 23/02/2017 Version: 2

Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Sewerage

621 - Miali Brumby (Katherine)

3773

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

A3 scale: 1:4,000

0 20 40 60 80 100 m

Note:
Label numbers refer to survey IDs

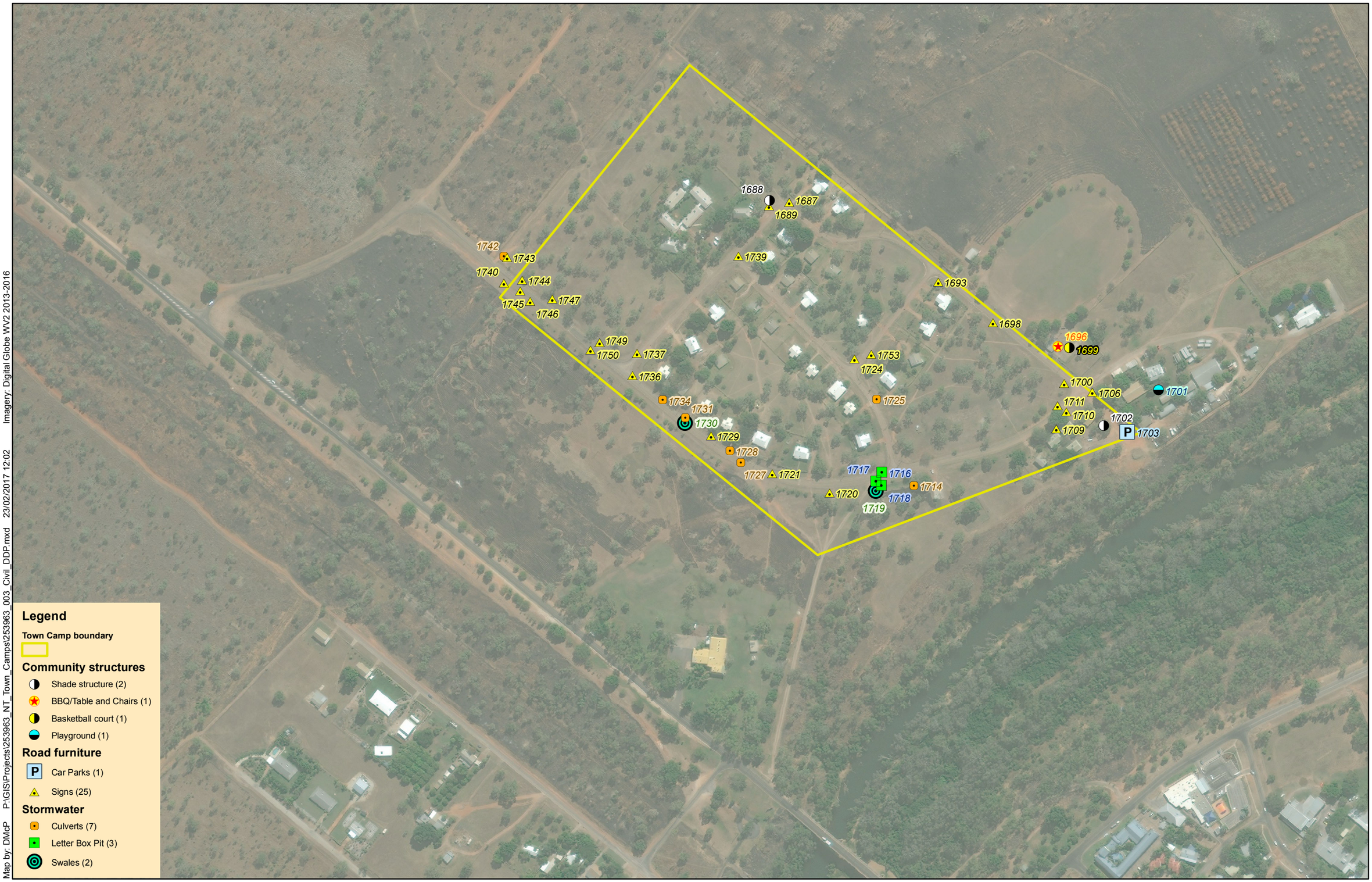
Date: 23/02/2017 Version: 2

Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Water

621 - Miali Brumby (Katherine)

3774



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A3 scale: 1:4,000

0 20 40 60 80 100 m

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
621 - Miali Brumby (Katherine)

3775

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:42:15 PM

Insp ID: 1703 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Car Parks
Carpark Width (m):	10
Carpark Length (m):	20
Carpark Type:	Unsealed
Carpark Condition:	2 - Poor
Line marking:	No
Kerbs:	No
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:42:15 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:52:26 AM

Insp ID: 1714 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	Pvc
Diameter (mm):	150
Width (mm):	
Culvert Depth (mm):	
Culvert Length (m):	
Culvert Condition:	2 - Poor
Culvert Blockage (%):	10
Culvert Comments:	
Culvert Head Wall:	No
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	
Headwall Comment:	
End Wall:	Yes
End Wall condition:	
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:52:26 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:27:17 PM

Insp ID: 1725 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	600
Culvert Depth (mm):	400
Culvert Length (m):	3.5
Culvert Condition:	3 - Good
Culvert Blockage (%):	10
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:28:01 AM

Insp ID: 1727 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	600
Culvert Depth (mm):	300
Culvert Length (m):	3.5
Culvert Condition:	3 - Good
Culvert Blockage (%):	30
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	30
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:28:01 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:26:17 AM

Insp ID: 1728 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	600
Culvert Depth (mm):	300
Culvert Length (m):	3.5
Culvert Condition:	3 - Good
Culvert Blockage (%):	10
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	10
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:26:17 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:20:28 AM

Insp ID: 1731 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	600
Culvert Depth (mm):	300
Culvert Length (m):	3.5
Culvert Condition:	3 - Good
Culvert Blockage (%):	40
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	10
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:20:28 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:17:27 AM

Insp ID: 1734 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	RCBC
Diameter (mm):	
Width (mm):	600
Culvert Depth (mm):	300
Culvert Length (m):	3.5
Culvert Condition:	3 - Good
Culvert Blockage (%):	20
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	10
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:17:27 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 8:00:23 AM

Insp ID: 1742 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Culverts
Culvert Type:	RCP
Diameter (mm):	600
Width (mm):	
Culvert Depth (mm):	
Culvert Length (m):	5
Culvert Condition:	3 - Good
Culvert Blockage (%):	20
Culvert Comments:	
Culvert Head Wall:	Yes
Safety Grate:	No
Headwall Blockage:	20
Headwall Condition:	3 - Good
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 8:00:23 AM

Northern Territory Town Camps

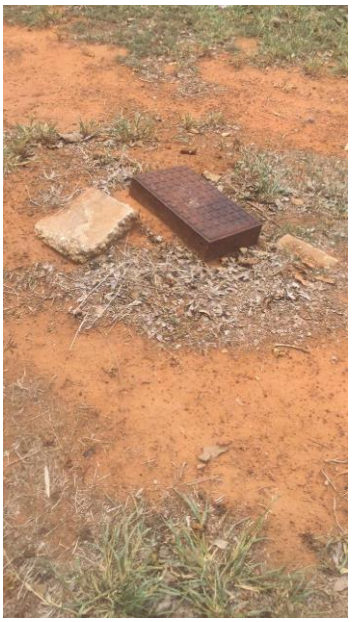
Civil Infrastructure

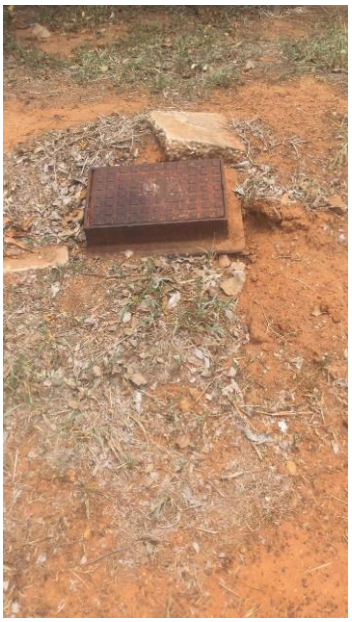
Inspection Date 6/12/2016 11:31:28 AM

Insp ID: 1722 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	1 - Very Poor
FH Comment:	





Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:19:11 AM

Insp ID: 1732 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	3 - Good
FH Comment:	

Northern Territory Town Camps

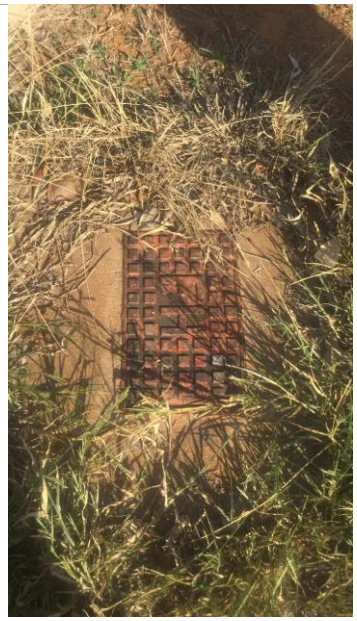
Civil Infrastructure

Inspection Date 6/12/2016 5:04:50 PM

Insp ID: 1751 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:	Single
Sluice Valve:	No
Above or Below ground:	Below ground
FH Leakage:	No Access
Bollards around hydrant:	No
FH Condition:	2 - Poor
FH Comment:	Not clearly visible



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 5:04:50 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:49:58 AM

Insp ID: 1716 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Letter Box Pit
Length (mm):	600
Height (mm):	300
Blockage Percentage (%):	
LB Condition:	2 - Poor
LB Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:49:58 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:46:55 AM

Insp ID: 1717 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Letter Box Pit
Length (mm):	700
Height (mm):	300
Blockage Percentage (%):	
LB Condition:	1 - Very Poor
LB Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:46:55 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:44:41 AM

Insp ID: 1718 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Letter Box Pit
Length (mm):	650
Height (mm):	300
Blockage Percentage (%):	10
LB Condition:	3 - Good
LB Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:44:41 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:09:02 AM

Insp ID: 1694 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Rectangular
Manhole Cover Diam (mm):	
Manhole Length (mm):	1000
Manhole Width (mm):	700
Manhole Condition:	3 - Good
Notes on Lid:	
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:39:57 PM

Insp ID: 1704 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	3 - Good
Notes on Lid:	Concrete chipped away from edges
Comments:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:35:17 PM

Insp ID: 1707 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Round
Manhole Cover Diam (mm):	650
Manhole Length (mm):	
Manhole Width (mm):	
Manhole Condition:	4 - Very Good
Notes on Lid:	
Comments:	

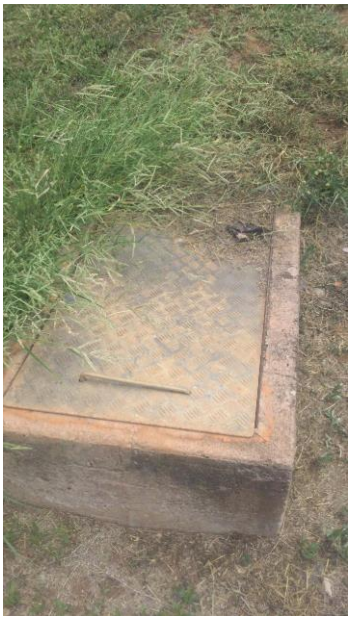
Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:33:36 PM

Insp ID: 1708 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Sewerage Asset are you capturing:	Manholes
MH Cover Shape:	Rectangular
Manhole Cover Diam (mm):	
Manhole Length (mm):	1400
Manhole Width (mm):	600
Manhole Condition:	2 - Poor
Notes on Lid:	
Comments:	



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:33:36 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:43:47 AM

Insp ID: 1690 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Pavements
Ch From (km):	0.35
Ch To (km):	0.2
Road Type:	Sealed - spray seal
Section Width (m):	3.8
Road Condition:	2 - Poor
General Comment:	

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	1 - Very Poor	10 percent
Edge Breaks	30	2 - Poor	30 percent

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		30			

Linemarking Section

Obstruction Section

Northern Territory Town Camps

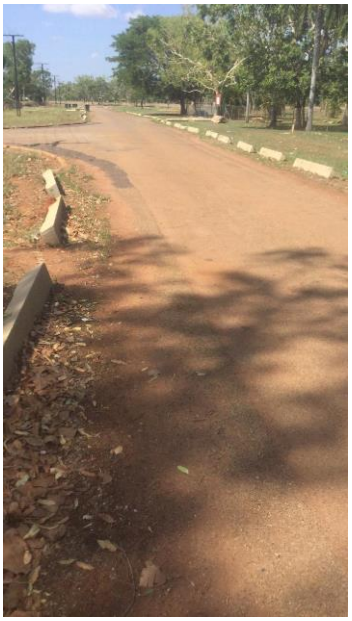
Civil Infrastructure

Inspection Date 6/12/2016 9:43:47 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:43:47 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:43:47 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:15:19 AM

Insp ID: 1692 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Pavements
Ch From (km):	0.35
Ch To (km):	0.5
Road Type:	Sealed - spray seal
Section Width (m):	4
Road Condition:	2 - Poor
General Comment:	Concrete protection on both sides of road, spoon drain on both sides of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Longitudinal Cracks	5	2 - Poor	Less than 5 percent
Edge Breaks	10	3 - Good	10 percent

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		40		3	

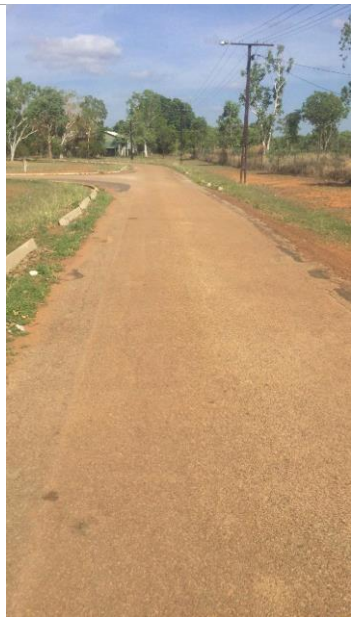
Linemarking Section

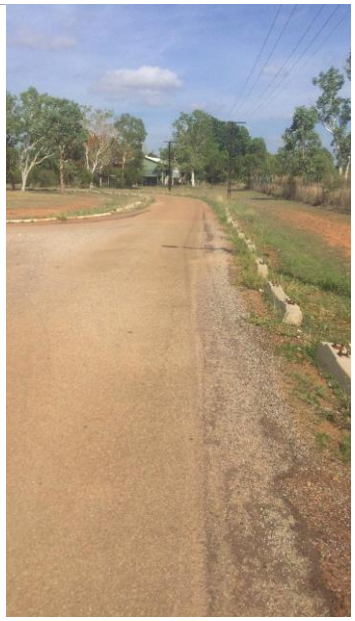
Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:15:19 AM





Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:15:19 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:49:40 AM

Insp ID: 1695 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Pavements
Ch From (km):	0.5
Ch To (km):	0.67
Road Type:	Sealed - spray seal
Section Width (m):	3.5
Road Condition:	1 - Very Poor
General Comment:	Right hand side of road (from 0.5-0.67) has concrete structures to stop cars going off road, 1 small speed hump is section

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Edge Breaks	10	1 - Very Poor	
Longitudinal Cracks	10	2 - Poor	10 percent

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		50		3	

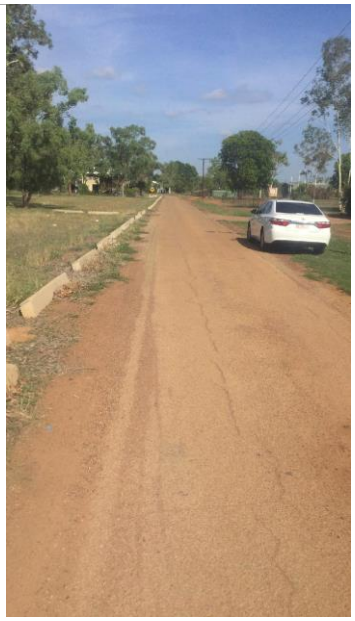
Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:49:40 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:49:40 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:49:40 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:13:02 PM

Insp ID: 1705 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Pavements
Ch From (km):	0.75
Ch To (km):	0.9
Road Type:	Sealed - spray seal
Section Width (m):	6.2
Road Condition:	2 - Poor
General Comment:	Cocrete Barriers and table drains on both sides of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Longitudinal Cracks	10	1 - Very Poor	10 percent
Edge Breaks	10	2 - Poor	Less than 10 percent
Surfacing Cracks	10	1 - Very Poor	10 percent
Potholes	5	3 - Good	5 percent of road, mostly filled in and re-sealed

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

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

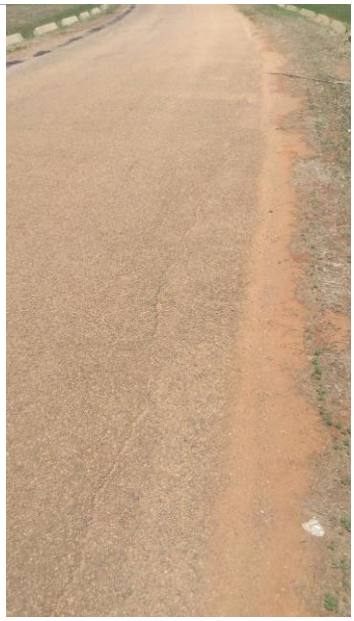
Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:13:02 PM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:13:02 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:13:02 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:35:45 PM

Insp ID: 1723 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_2
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.31
Road Type:	Sealed - spray seal
Section Width (m):	3.6
Road Condition:	2 - Poor
General Comment:	Concrete barriers and table drains along entire road, entire road very similar condition so done in 1 form, driveways have concrete v for table drain

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	2 - Poor	5 percent
Edge Breaks	70	2 - Poor	70 percent of road
Potholes	2	2 - Poor	

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

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

Linemarking Section

Obstruction Section

Northern Territory Town Camps

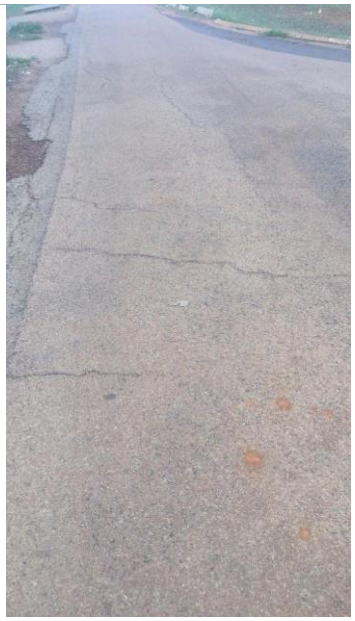
Civil Infrastructure

Inspection Date 6/12/2016 4:35:45 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:35:45 PM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:35:45 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:35:45 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:07:39 AM

Insp ID: 1735 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Pavements
Ch From (km):	0.3
Ch To (km):	0.6
Road Type:	Sealed - spray seal
Section Width (m):	6.2
Road Condition:	3 - Good
General Comment:	Table drain on both side of road as well as concrete barriers

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	Less than 5 percent
Edge Breaks	10	3 - Good	Less than 10 percent

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

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

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:07:39 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:07:39 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:07:39 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 10:27:41 AM

Insp ID: 1738 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.2
Road Type:	Sealed - spray seal
Section Width (m):	4
Road Condition:	2 - Poor
General Comment:	

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Edge Breaks	50	2 - Poor	50 percent
Surfacing Cracks	5	1 - Very Poor	5 percent

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed					Small table drain on both sides of road

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 10:27:41 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 10:27:41 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 10:27:41 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 8:02:39 AM

Insp ID: 1741 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.15
Road Type:	
Section Width (m):	6.2
Road Condition:	1 - Very Poor
General Comment:	Table drain both sides of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Failure	70	2 - Poor	Potholes and other failure mostly filled in and r
Edge Breaks	70	2 - Poor	70 percent of road section
Surfacing Cracks	5	2 - Poor	5 percent

Kerbs Section

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
		60		2	

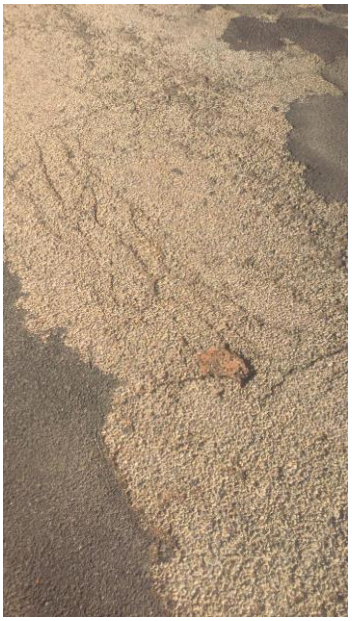
Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 8:02:39 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 8:02:39 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:44:14 AM

Insp ID: 1748 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Pavements
Ch From (km):	0.15
Ch To (km):	0.3
Road Type:	Sealed - spray seal
Section Width (m):	
Road Condition:	3 - Good
General Comment:	1 Speed hump in section, concrete barriers and table drains both sides of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Edge Breaks	50	1 - Very Poor	50 percent
Surfacing Cracks	10	2 - Poor	10 percent

Kerbs Section

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
Unsealed		130		2	

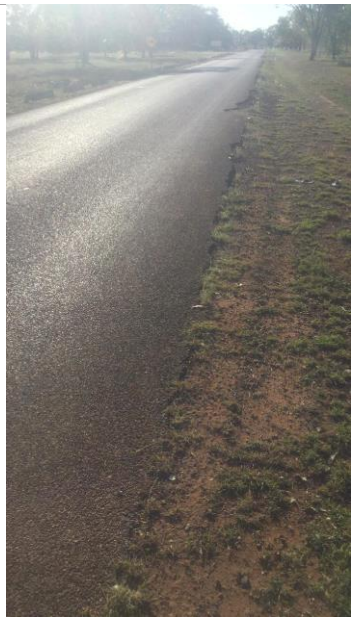
Linemarking Section

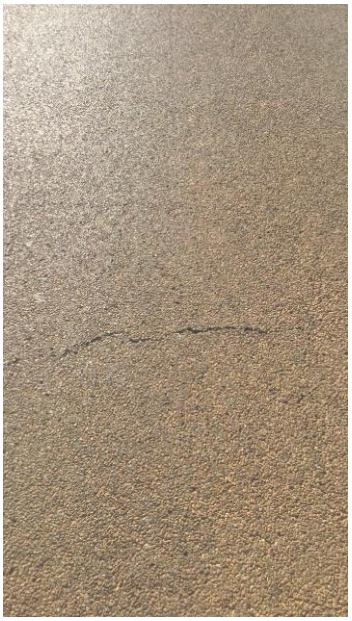
Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:44:14 AM

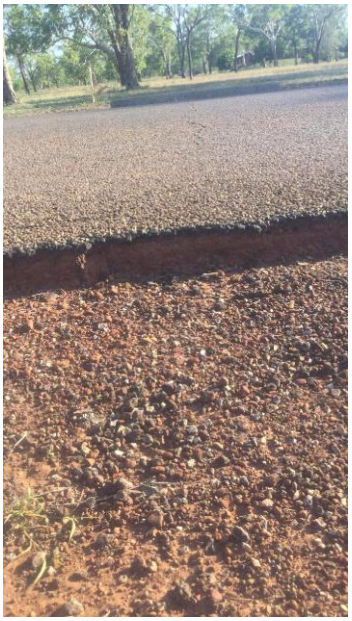




Northern Territory Town Camps

Civil Infrastructure

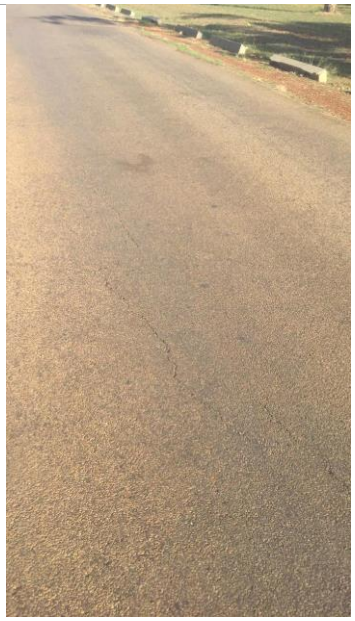
Inspection Date 7/12/2016 7:44:14 AM

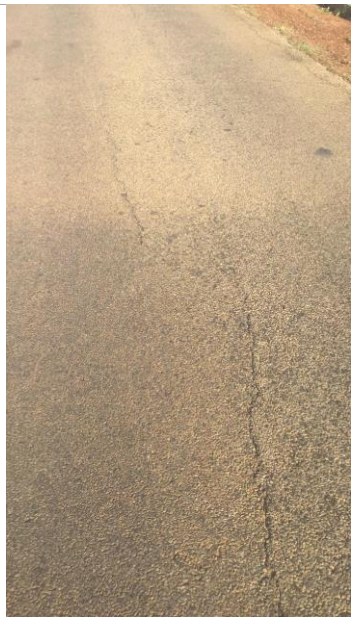


Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:44:14 AM





Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:52:13 PM

Insp ID: 1752 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_3
What are you inspecting:	Pavements
Ch From (km):	0
Ch To (km):	0.13
Road Type:	Sealed - spray seal
Section Width (m):	4
Road Condition:	2 - Poor
General Comment:	Drainage Dip in road, concrete barriers and table drains either side of road

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Edge Breaks	10	1 - Very Poor	Mainly at driveways

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
No kerb		

Shoulders Section

Shoulder Type	Width	Dropoff(mm)	Erosion	Condition	Shoulder Comments
		100		2	Driveways have large drop off, most area okay

Linemarking Section

Obstruction Section

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:52:13 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:52:13 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:52:13 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:55:13 AM

Insp ID: 1713 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Sewerage Asset are you capturing:	Pump Station
No of Pumps in Pump Station:	2
Cabinet Condition:	5 - Excellent
Cabinet Comment:	
Alarm Light:	Yes
Alarm Light Condition:	4 - Very Good
Overhead Light:	Yes
Overhead Light Condition:	4 - Very Good
Light Comments:	Attached to David crane
Davit Crane Present:	Yes
Davit Crane Capacity (kg):	500
Davit Crane Condition:	4 - Very Good
Davit Crane Comments:	
Fence TYPE:	Standard Security Fence (3 Strands barbed)
PS Fence Height (m):	2.1
PS Gates Locked:	Yes
PS Fence Condition:	4 - Very Good
Fence Comment:	
Flow meter type:	
Flow meter condition:	
Flow meter comments:	
Macerator Pump Make/Model:	
Manufacturers Date:	
Macerator Pump:	No Access
Macerator Pump Condition:	
Macerator Pump Comments:	
Outgoing Pipe Diameter (mm):	
Valves:	Pressure guage
Outgoing Pipe Comments:	
Water Supply to pump station:	Yes
Fire hose reel:	No
Access cover locked:	Yes
Safety grid beneath access cover:	No Access

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:55:13 AM

Condition:	
Cabinet Locked:	Yes
Cabinet Lock Condition:	
Hand rails around entrance:	Yes
Fixed or removable:	fixed
Rail Condition:	
Safety Comments:	Rail only on one manhole

Pump Station Pumps section

Pump Capacity	Pump Make	Manufacture Date	Pump Chain	Condition	Comments
			No Access		

Northern Territory Town Camps

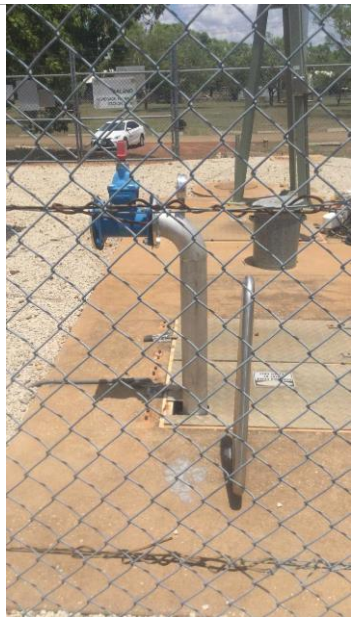
Civil Infrastructure

Inspection Date 6/12/2016 11:55:13 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:55:13 AM



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:55:13 AM

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:52:16 AM

Insp ID: 1688 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Inspection Type:	Shade Structure
Shade Structure Type:	Bus stop
Shade Floor Type:	Concrete
Roof Type:	Tin Roof
Width (mm):	5
Length (mm):	5
Appearance:	3
Appearance Comment:	Stones and broken glass
Condition:	4 - Very Good
Comment:	

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:52:16 AM

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:03:49 AM

Insp ID: 1696 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Inspection Type:	Shade Structure
Shade Structure Type:	BBQ Area
Shade Floor Type:	Concrete
Roof Type:	Tin Roof
Width (mm):	5
Length (mm):	5
Appearance:	2
Appearance Comment:	
Condition:	1 - Very Poor
Comment:	

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:03:49 AM

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:46:55 AM

Insp ID: 1699 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Inspection Type:	Shade Structure
Shade Structure Type:	Basket Ball Court
Shade Floor Type:	Concrete
Roof Type:	Not Covered
Width (mm):	15
Length (mm):	30
Appearance:	4
Appearance Comment:	
Condition:	4 - Very Good
Comment:	

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:46:55 AM

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:46:55 AM

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:52:57 PM

Insp ID: 1701 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Inspection Type:	Shade Structure
Shade Structure Type:	Play ground
Shade Floor Type:	Sand
Roof Type:	Shadecloth
Width (mm):	8
Length (mm):	12
Appearance:	4
Appearance Comment:	
Condition:	3 - Good
Comment:	Damage to shade cloth

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:52:57 PM

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:47:59 PM

Insp ID: 1702 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Inspection Type:	Shade Structure
Shade Structure Type:	Shed with no walls
Shade Floor Type:	Concrete
Roof Type:	Tin Roof
Width (mm):	8
Length (mm):	15
Appearance:	2
Appearance Comment:	
Condition:	3 - Good
Comment:	Used as car park

Northern Territory Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:47:59 PM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:54:29 AM

Insp ID: 1687 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Signs
Type of Sign:	Street name
Sign Condition:	1 - Very Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:51:16 AM

Insp ID: 1689 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Signs
Type of Sign:	Bus stop
Sign Condition:	2 - Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:12:11 AM

Insp ID: 1693 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_3
What are you inspecting:	Signs
Type of Sign:	Street name
Sign Condition:	2 - Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:59:31 AM

Insp ID: 1698 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Signs
Type of Sign:	Speed hump
Sign Condition:	2 - Poor
Sign Comment:	Graffiti
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 8:44:50 AM

Insp ID: 1700 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Signs
Type of Sign:	Give Way
Sign Condition:	3 - Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:36:44 PM

Insp ID: 1706 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Street name
Sign Condition:	1 - Very Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:32:08 PM

Insp ID: 1709 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Community sign
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:31:11 PM

Insp ID: 1710 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	40 kph
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 1:29:56 PM

Insp ID: 1711 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Cross roads
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:34:53 AM

Insp ID: 1720 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:

What are you inspecting: Signs

Type of Sign: Speed hump

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:32:53 AM

Insp ID: 1721 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Speed hump
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:40:10 PM

Insp ID: 1724 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_2
What are you inspecting:	Signs
Type of Sign:	Dip
Sign Condition:	1 - Very Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:24:31 AM

Insp ID: 1729 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Pedestrian Sign
Sign Condition:	2 - Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:04:29 AM

Insp ID: 1736 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Street name
Sign Condition:	1 - Very Poor
Sign Comment:	Not legible
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:03:40 AM

Insp ID: 1737 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_1
What are you inspecting:	Signs
Type of Sign:	Give Way
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 10:35:23 AM

Insp ID: 1739 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_2
What are you inspecting:	Signs
Type of Sign:	Street name
Sign Condition:	1 - Very Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 8:07:23 AM

Insp ID: 1740 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Community
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:58:38 AM

Insp ID: 1743 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Community signs
Sign Condition:	3 - Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:58:38 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:57:46 AM

Insp ID: 1744 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	40 kph
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:56:29 AM

Insp ID: 1745 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	40 kph
Sign Condition:	4 - Very Good
Sign Comment:	Facing both ways
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:55:11 AM

Insp ID: 1746 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Community sign
Sign Condition:	2 - Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:54:14 AM

Insp ID: 1747 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Speed hump
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:51:47 AM

Insp ID: 1749 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	40 kph
Sign Condition:	2 - Poor
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 7/12/2016 7:50:57 AM

Insp ID: 1750 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	Miali Brumby
What are you inspecting:	Signs
Type of Sign:	Speed hump
Sign Condition:	4 - Very Good
Sign Comment:	
General Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 4:50:21 PM

Insp ID: 1753 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Road Name:	621_3
What are you inspecting:	Signs
Type of Sign:	Dip
Sign Condition:	1 - Very Poor
Sign Comment:	
General Comment:	

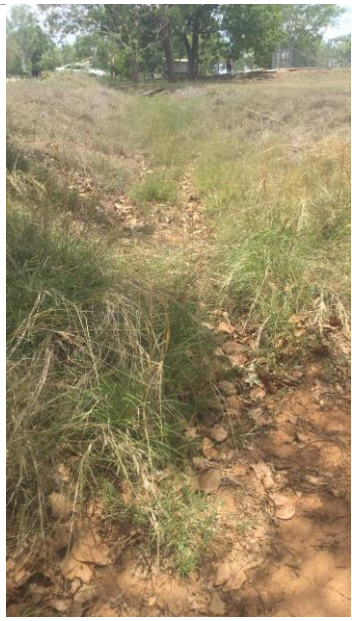
Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:42:23 AM

Insp ID: 1719 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Swales
Type of lining:	Natural Grasses
Are dimensions uniform along drain:	Yes
Base Width (m):	2
Overall Width (m):	6
Swale Depth (m):	1.2
Length of Batter 1 (m):	2
Length of Batter 2 (m):	2
Swale Condition:	2 - Poor
Swale Ponding:	No
Drain flooded at time of inspection:	No
Swale Comments:	



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:42:23 AM

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 11:20:15 AM

Insp ID: 1730 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

Stormwater Infrastructure:	Swales
Type of lining:	Natural Grasses
Are dimensions uniform along drain:	Yes
Base Width (m):	1
Overall Width (m):	4
Swale Depth (m):	0.5
Length of Batter 1 (m):	1.5
Length of Batter 2 (m):	1.5
Swale Condition:	3 - Good
Swale Ponding:	No
Drain flooded at time of inspection:	No
Swale Comments:	Swale may pond in storm, small natural grade

Northern Territory Town Camps

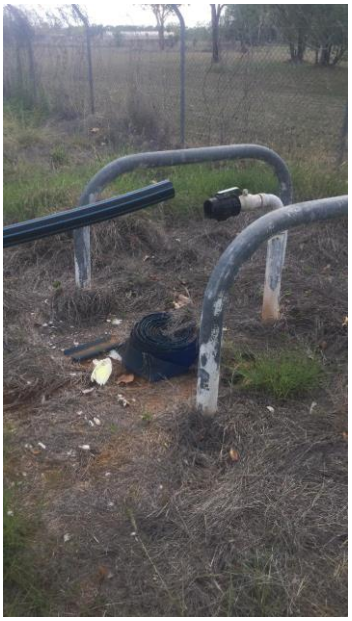
Civil Infrastructure

Inspection Date 6/12/2016 9:33:13 AM

Insp ID: 1691 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Water Asset Are you Capturing: Taps

Diameter(mm):	50
Tap Leakage:	No
Tap Condition:	2 - Poor
Tap Comment:	Not connected, unclear if working. Supply to football feild



Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 9:02:21 AM

Insp ID: 1697 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Water Asset Are you Capturing: Taps

Diameter(mm):	20
Tap Leakage:	No
Tap Condition:	3 - Good
Tap Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 12:02:20 PM

Insp ID: 1712 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Water Asset Are you Capturing: Water Meter

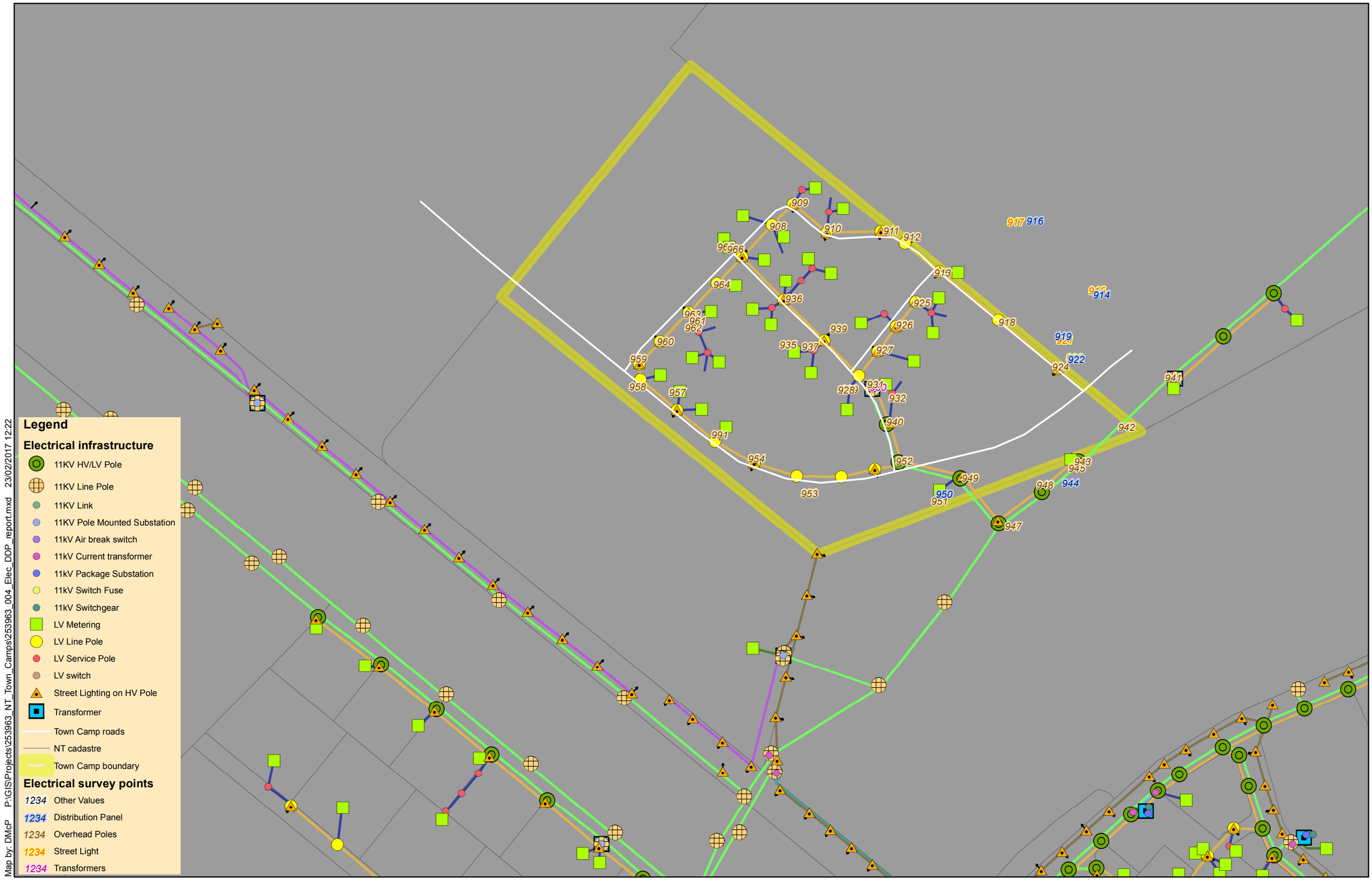
Water Meter Type:	Lot
Bulk Water Meter Size (mm):	
Bulk Water Meter Condition:	
Bulk Water Meter Comment:	
Lot Number:	
Lot Water Meter Size:	30
Lot Water Meter Condition:	3 - Good
Lot Water Meter Comment:	

Northern Territory Town Camps

Civil Infrastructure

Inspection Date 6/12/2016 12:02:20 PM

Electrical inspection report



A3 scale: 1:4,000

0 20 40 60 80 100 m

Date: 23/02/2017 Version: 3

Coordinate system: MGA94 Zone 52

NT Town Camp Infrastructure Assessments: Electrical

621 - Miali Brumby (Katherine)

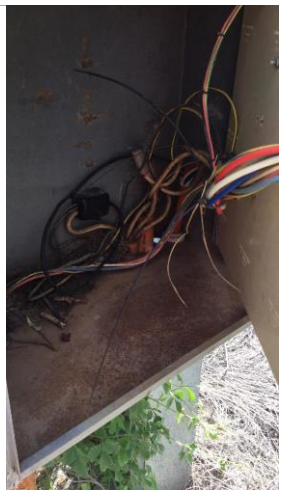
Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:54:14 AM

Insp ID: 914 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

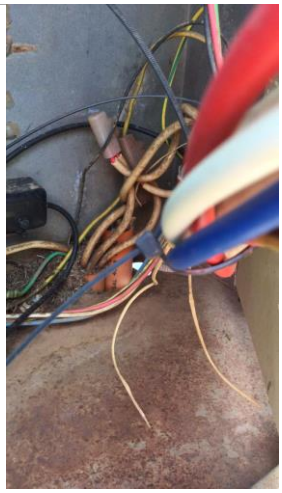
What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
Is the distribution panel labelled:	Yes
What is Distribution Panel main CB Rating:	80
What is the main incoming cable type/Size to Distribution Panel:	
What is the condition of switchboard:	2
Condition Comments:	Open to cable zone, sun damaged cb
What is the condition of cables/glands into switchboard:	2
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	Yes



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:54:14 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:47:09 AM

Insp ID: 916 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
Is the distribution panel labelled:	No
What is Distribution Panel main CB Rating:	80
What is the main incoming cable type/Size to Distribution Panel:	
What is the condition of switchboard:	2
Condition Comments:	Insect nests and mud in board
What is the condition of cables/glands into switchboard:	
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	Yes

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:47:09 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:31:39 AM

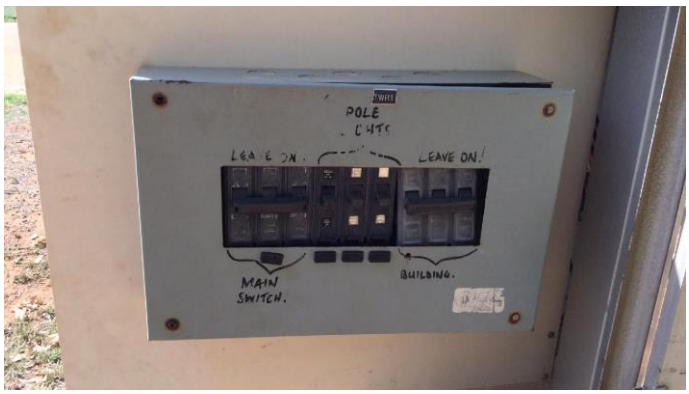
Insp ID: 919 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
Is the distribution panel labelled:	Yes
What is Distribution Panel main CB Rating:	80
What is the main incoming cable type/Size to Distribution Panel:	
What is the condition of switchboard:	1
Condition Comments:	Open to cable entry and back of main switchboard
What is the condition of cables/glands into switchboard:	2
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	Yes

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:31:39 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:25:00 AM

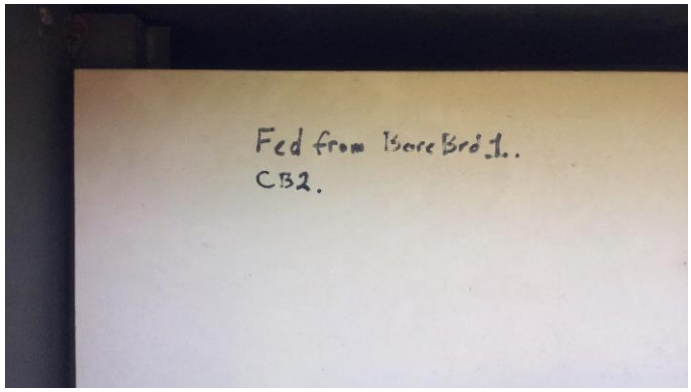
Insp ID: 922 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
Is the distribution panel labelled:	Yes
What is Distribution Panel main CB Rating:	80
What is the main incoming cable type/Size to Distribution Panel:	
What is the condition of switchboard:	2
Condition Comments:	Sun damaged and open slots , finger access to ne
What is the condition of cables/glands into switchboard:	3
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	Yes

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:25:00 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 2:11:18 PM

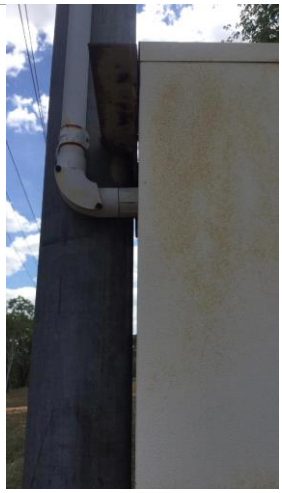
Insp ID: 944 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Pole
Is the distribution panel labelled:	No
What is Distribution Panel main CB Rating:	160
What is the main incoming cable type/Size to Distribution Panel:	
What is the condition of switchboard:	3
Condition Comments:	
What is the condition of cables/glands into switchboard:	3
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	NA

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 2:11:18 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 2:04:04 PM

Insp ID: 946	Group 2 - Katherine, Pine Creek, Mataranka	Miali Brumby (Kalano)

What Comms Category are you capturing:	Distribution
What is distribution method to households:	Underground
Is it Shared with PWC:	
Is there Anti-climb barrier provided for this pole:	
What is Pole construction type:	
Is street light fitted:	
Is there concrete collar around the base of pole:	
What is the condition of tap off to house:	
What is the condition of pole:	
How many Lots are connected to this pole:	
Is there access to Pits to take a photo:	NA
What is Pit Condition:	
Underground Comments:	

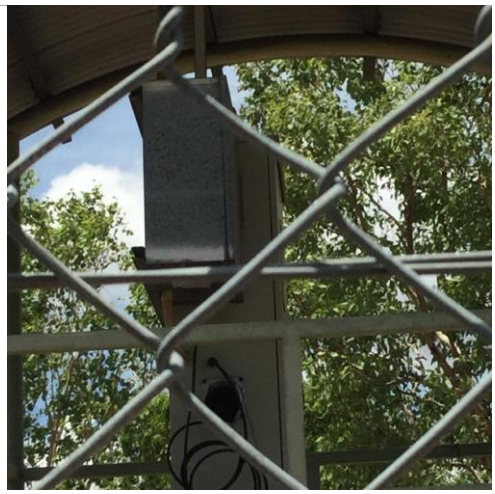
Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 12:19:59 PM

Insp ID: 950 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Distribution Panel
What is Main Distribution Panel installation method:	Outdoor
Is the distribution panel labelled:	No Access
What is Distribution Panel main CB Rating:	
What is the main incoming cable type/Size to Distribution Panel:	
What is the condition of switchboard:	4
Condition Comments:	
What is the condition of cables/glands into switchboard:	
Cable/Gland Condition Comments:	
Distribution Panels name plate access:	No Access



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 12:19:59 PM

Northern Territory Town Camps

Communications Infrastructure

Inspection Date 6/12/2016 11:52:32 AM

Insp ID: 955	Group 2 - Katherine, Pine Creek, Mataranka	Miali Brumby (Kalano)

What Comms Category are you capturing:	General
Telstra Comms Drawing Available:	No
Facility upgrade not in drawings:	NA
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 29/11/2016 3:30:08 PM

Insp ID: 3481 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

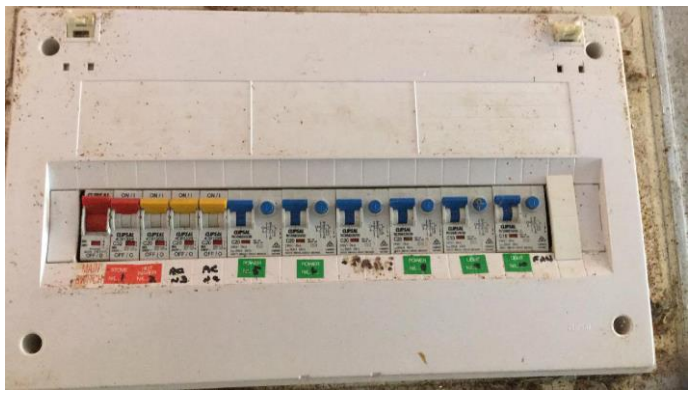
Meter Type: Prepaid

Meter Switchboard Cond:

Meter Condition: 3

Meter Comment: Assumed prepaid meter is servicing, and analogue is out of service. To be confirmed. Con

Comments:



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 29/11/2016 3:18:07 PM

Insp ID: 3482 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 2

Meter Condition: 3

Meter Comment: Blank plates are missing on CB slot.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 29/11/2016 2:43:55 PM

Insp ID: 3483 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type:	Prepaid
Meter Switchboard Cond:	2
Meter Condition:	3
Meter Comment:	Blank plates are missing on CB slot.
Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 29/11/2016 3:00:26 PM

Insp ID: 3484 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 3

Meter Condition: 3

Meter Comment: photos are very similar, better to delete one of them.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 29/11/2016 2:38:27 PM

Insp ID: 3485 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 12:45:14 PM

Insp ID: 3486	Group 2 - Katherine, Pine Creek, Mataranka	Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type:	Prepaid
Meter Switchboard Cond:	2
Meter Condition:	3
Meter Comment:	Blank plates are missing on CB slot.
Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 29/11/2016 12:31:31 PM

Insp ID: 3487 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 12:20:08 PM

Insp ID: 3488 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

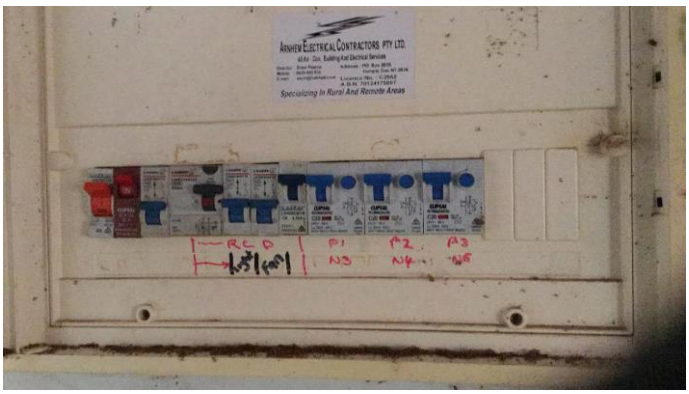
Meter Type: Prepaid

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 29/11/2016 12:07:27 PM

Insp ID: 3489 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 11:53:14 AM

Insp ID: 3490 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 11:39:45 AM

Insp ID: 3491 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 11:27:41 AM

Insp ID: 3492 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 11:17:43 AM

Insp ID: 3493 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 3:22:15 PM

Insp ID: 3494 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 2, Blank plates are missing on CB slot.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 29/11/2016 3:02:50 PM

Insp ID: 3495 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 2:41:16 PM

Insp ID: 3496 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 12:50:52 PM

Insp ID: 3497 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 12:06:19 PM

Insp ID: 3498 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

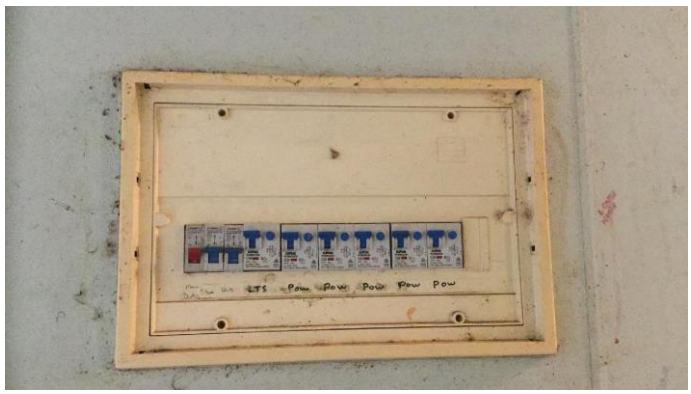
Meter Type: Prepaid

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 29/11/2016 11:46:50 AM

Insp ID: 3499 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 29/11/2016 11:17:36 AM

Insp ID: 3500 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type: Post Paid

Meter Switchboard Cond: 4

Meter Condition: 4

Meter Comment: Digital Meter, Free standing.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 1/12/2016 10:20:04 AM

Insp ID: 3516 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 1/12/2016 9:57:07 AM

Insp ID: 3517 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type:	Prepaid
Meter Switchboard Cond:	2
Meter Condition:	3
Meter Comment:	Blank plates are missing on CB slot.
Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 1/12/2016 10:19:31 AM

Insp ID: 3518 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 1/12/2016 9:50:26 AM

Insp ID: 3519 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 1/12/2016 9:27:11 AM

Insp ID: 3520 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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 1/12/2016 10:51:08 AM

Insp ID: 3553 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing: Electrical Meters

Meter Type: Prepaid

Meter Switchboard Cond: 2

Meter Condition: 3

Meter Comment: Blank plates are missing on CB slot.

Comments:

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:23:40 AM

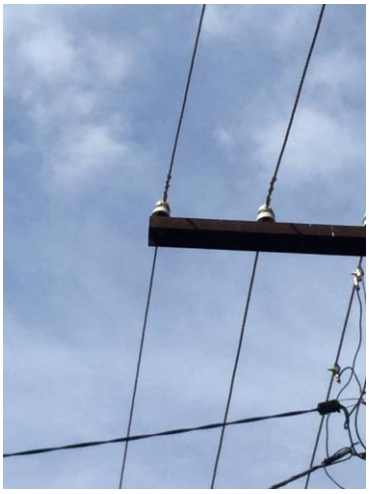
Insp ID: 908 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	2
How many Lots are connected to this pole:	
Overhead Pole Comments:	Tension on one isolator

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:23:40 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:19:38 AM

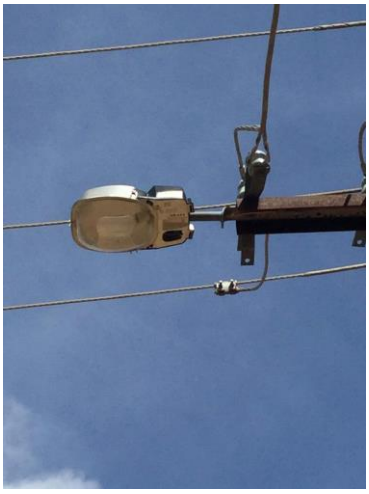
Insp ID: 909 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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	M80
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:19:38 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:14:29 AM

Insp ID: 910 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:14:29 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:09:14 AM

Insp ID: 911 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:09:14 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:04:46 AM

Insp ID: 912 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	No ID no

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:04:46 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:01:23 AM

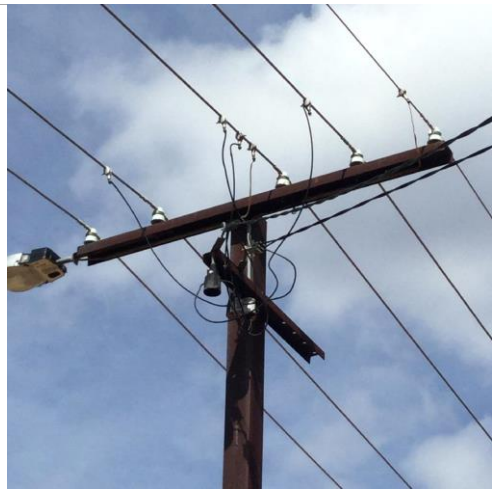
Insp ID: 913 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80 D 01
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 10:01:23 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:36:52 AM

Insp ID: 918 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	No ID number

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:36:52 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:16:39 AM

Insp ID: 924 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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	M80 D 01
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 9:16:39 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 5:38:52 PM

Insp ID: 925 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80 D00
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	22000
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	

Northern Territory Town Camps

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Inspection Date 6/12/2016 5:38:52 PM

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Electrical Infrastructure

Inspection Date 6/12/2016 5:33:22 PM

Insp ID: 926 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	22000
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	No ID

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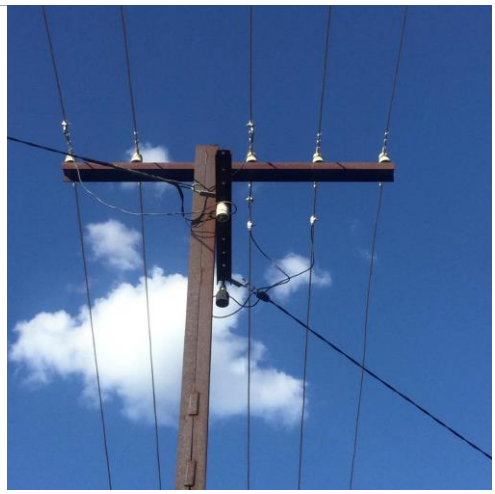
Electrical Infrastructure

Inspection Date 6/12/2016 5:33:22 PM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 5:29:15 PM

Insp ID: 927 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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	M 80 D 00
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	

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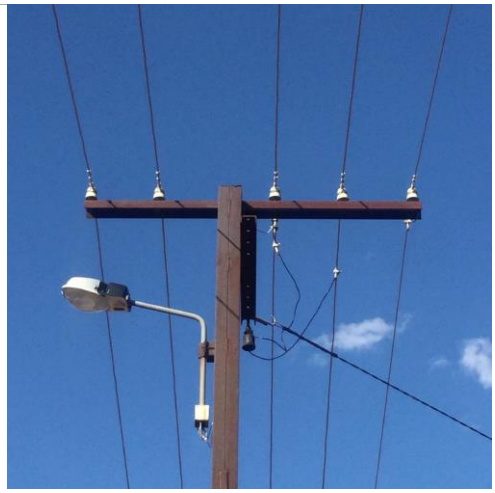
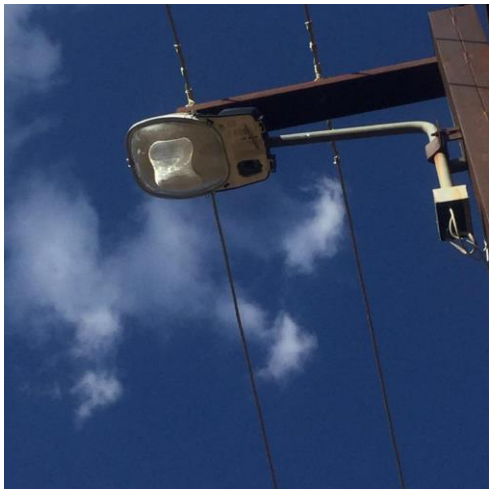
Electrical Infrastructure

Inspection Date 6/12/2016 5:29:15 PM





Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 5:24:29 PM

Insp ID: 928 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
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:	2
Overhead Pole Comments:	

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Inspection Date 6/12/2016 5:24:29 PM

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Electrical Infrastructure

Inspection Date 6/12/2016 5:22:20 PM

Insp ID: 929 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80 D 01
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	3
Overhead Pole Comments:	

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Inspection Date 6/12/2016 5:22:20 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 5:22:20 PM

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Electrical Infrastructure

Inspection Date 6/12/2016 5:11:21 PM

Insp ID: 931 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	
Overhead Pole Comments:	

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Inspection Date 6/12/2016 5:11:21 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 5:04:54 PM

Insp ID: 932 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	
What is the Condition of plant:	
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	

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Inspection Date 6/12/2016 5:04:54 PM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 8:10:49 AM

Insp ID: 935 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	

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Electrical Infrastructure

Inspection Date 7/12/2016 8:10:49 AM

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Electrical Infrastructure

Inspection Date 7/12/2016 8:08:42 AM

Insp ID: 936 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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	M80 D 07
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	5
Overhead Pole Comments:	

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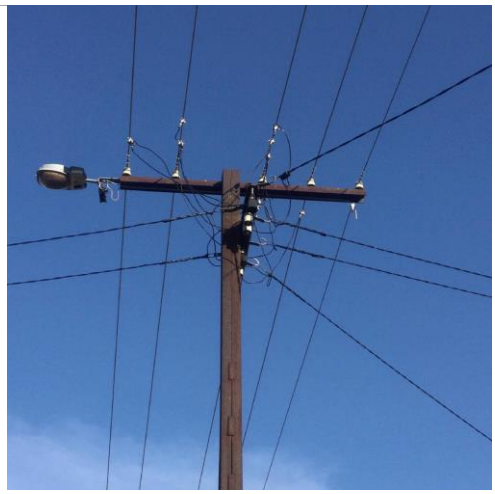
Electrical Infrastructure

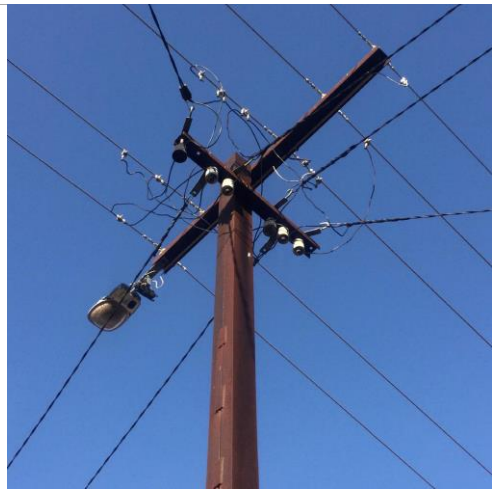
Inspection Date 7/12/2016 8:08:42 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 8:08:42 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 8:02:15 AM

Insp ID: 937 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

What Category are you capturing:	Overhead Poles
What is Pole Material type:	Steel
What is the condition of pole:	3
How is the pole planted:	Direct
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	

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Inspection Date 7/12/2016 8:02:15 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 7:59:54 AM

Insp ID: 939 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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	M80 D 08
Street Light Watts	
Street Light Condition	2
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	

Northern Territory Town Camps

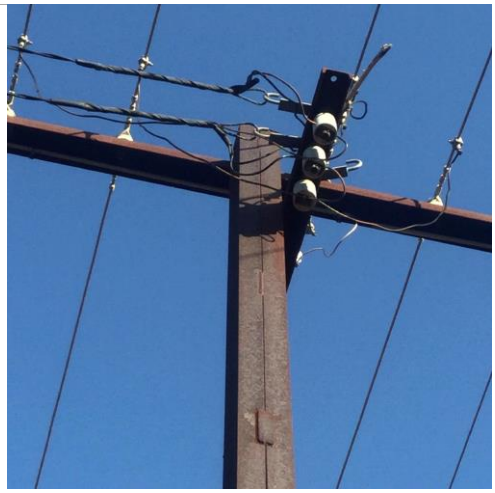
Electrical Infrastructure

Inspection Date 7/12/2016 7:59:54 AM

Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 7/12/2016 7:59:54 AM



Northern Territory Town Camps

Electrical Infrastructure

Inspection Date 6/12/2016 5:02:04 PM

Insp ID: 940 Group 2 - Katherine, Pine Creek, Mataranka Miali Brumby (Kalano)

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:	Concrete
What is the Condition of plant:	2
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80 D 08
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Combined
What is the HV voltage level:	
What is the arrangement of connected cables:	Parallel
Are there isolators on the pole:	Yes
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	