

SECTION 14 INCIDENT REPORT (*Waste Management and Pollution Control Act*)

Date and Time of Notification:	Friday 05/02/2021 16:01hrs
Person / Company:	Power and Water Corporation (PWC)
Incident:	Discharge of highly diluted sewage from sewerage network due to wet weather

(a) the incident causing or threatening to cause pollution

i. Description of the waste that was discharged.

Highly diluted sewage.

ii. Indicative wastewater quality for the discharge.

Indicative wastewater quality for these overflows may be extrapolated from Table 1. The rainfall total for the month of February to date is 113.0mm. (Darwin Airport Weather Station – 014015), with high rainfall events having occurred last night within short timeframes – as shown in Figure 1 below. As a result inflows of up to 4.31ML/hour were received at Ludmilla Wastewater Treatment Plant (06:00hrs), equating to ~104ML/day or **>8x Average Dry Weather Flows (ADWF)**.

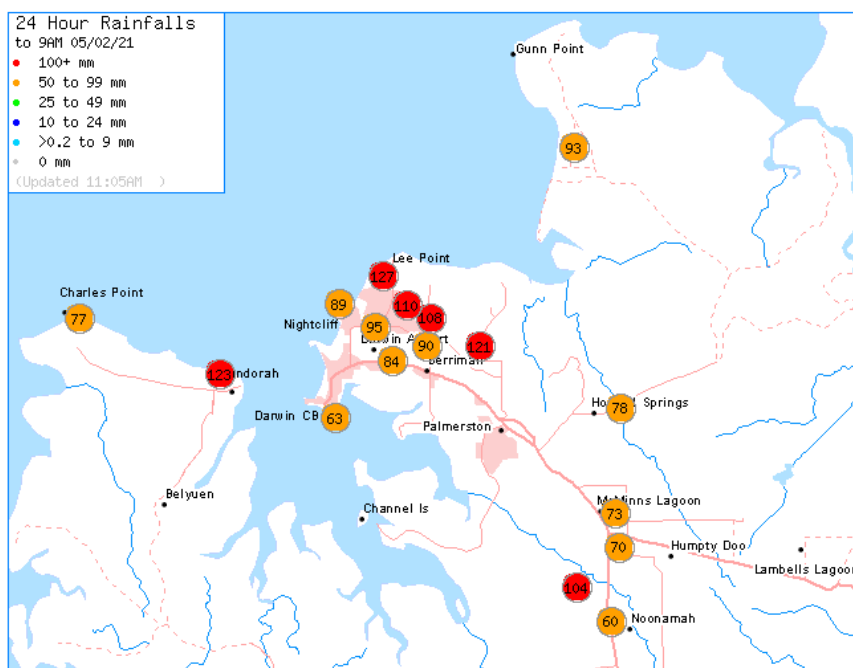


Table 1: Inflows to Ludmilla WWTP

	Median Inflow (ML)	Median E. coli	Median Enterococci	Dilution Terminology
below ADWF	11.401	14,136,000	713,550	Undiluted
>ADWF	13.253	11,616,000	727,000	Partially Diluted
>2xADWF	29.629	8,164,000	323,000	Diluted
>3xADWF	44.043	6,488,000	261,300	Highly diluted
>4xADWF	51.048	5,634,500	238,100	
>5xADWF	99.841	2,359,000	218,700	

NOTE:

Based on 01/01/2018 to 31/12/2020 inflows to Ludmilla WWTP and monitoring events data.
Average dry weather inflow being 11.9012 ML/day.

iii. Volume of the waste that was discharged.

The volume of waste discharged at each discharge location is unknown. No telemetric monitoring occurs at these locations, with the exception of the sewer relief point located at the corner of Rapid Creek Road and Trower Road. This data will be downloaded and can be supplied at a later date.

(b) the place where the incident occurred

i. Description of the PWC asset from which the discharge occurred.

Sewer overflow relief valve – 194 Casuarina Drive/Aralia St, Nightcliff
 Sewer overflow relief valve – 24 East Point Road, Parap
 Sewer overflow relief valve - Corner of Trower Road and Rapid Creek Road, Rapid Creek
 Manholes (2) - Corner Gregory Street & East Point Road, Parap
 Manhole - 5 Roberts Place, Millner
 Manhole - 1 Earl Place, Millner
 Manhole - 21 Robinson Road, Millner
 Manhole - 43 Trower Road, Rapid Creek
 Manhole - 1 Merry Place, Rapid Creek
 Manhole - 20 Waters Street, Rapid Creek
 Manhole - 16 Erldunda Street, Tiwi
 Sewage pumping station (SP042) - Namarluk Drive, Ludmilla
 Sewage pumping station (SP008) - Lakeside Drive, Alawa
 Sewage pumping station (SP007) - Rapid Creek Road, Rapid Creek

ii. GPS coordinates of the discharge point from the PWC asset, and the final coordinates of the final discharge point.

Sewer overflow relief valve – 194 Casuarina Drive/Aralia St, Nightcliff
 1. Discharge Point: 12.381805 S, 130.841327 E
 2. Final Point: 12.381806 S, 130.840992 E
 Sewer overflow relief valve – 24 East Point Road, Parap
 1. Discharge Point: 130.8376568E, 12.4342520S
 2. Final discharge point: 130.8358461E, 12.4336630S (Vestey's Lagoon)
 Sewer overflow relief valve - Corner of Trower Road and Rapid Creek Road, Rapid Creek
 1. Discharge Point: 12.385673 S, 130.864963 E
 2. Final Point: 12.385733 S, 130.865954 E
 Manholes (2) – Corner Gregory Street & East Point Road, Parap
 1. Discharge Point A: 12.4320022 S, 130.8378083 E and
 1. Discharge Point B: 12.4321384 S, 130.8379457 E
 2. Final Point: 12.4316500 S, 130.8362400 E

	Manhole - 5 Roberts Place, Millner 1. Discharge Point: 12.391619 S, 130.867892 E 2. Final Point: 12.391597 S, 130.867937 E 2. Final Point: 12.379891 S, 130.869638 E Manhole – 1 Earl Place, Millner 1. Discharge Point: 12.3931053 S, 130.8635595 E 2. Final Point: 12.3928388 S, 130.8635666 E Manhole – 21 Robinson Road (corner Ryland Rd), Millner 1. Discharge Point: 12.3910565 S, 130.8631956 E 2. Final Point: 12.3910648 S, 130.8632194 E Manhole – 43 Trower Road, Rapid Creek 1. Discharge Point: 12.3864969 S, 130.8609113 E 2. Final Point: 12.3864291 S, 130.8610672 E Manhole – 1 Merry Place, Rapid Creek 1. Discharge Point: 12.3860435 S, 130.8609998 E 2. Final Point: 12.3860225 S, 130.8609998 E Manhole – 20 Waters Street (cnr. Ryland Rd), Rapid Creek 1. Discharge Point: 12.3849735 S, 130.8607641 E 2. Final Point: 12.3845428 S, 130.8622037 E Manhole – 16 Erldunda Street, Tiwi 1. Discharge Point: 12.3641447 S, 130.8764343 E 2. Final Point: 12.3639532 S, 130.8764379 E Ludmilla sewage pumping station, Namarluk Drive, Ludmilla 1. Discharge Point: 12.4144849 S, 130.8503154 E 2. Final Point: 12.4144254 S, 130.8458232 E Lakeside Drive sewage pumping station, Lakeside Drive, Alawa 1. Discharge Point: 12.3805474 S, 130.8656243 E 2. Final Point: 12.3804945 S, 130.8656257 E Rapid Creek sewage pumping station, Rapid Creek Road, Rapid Creek 1. Discharge Point: 12.3805474 S, 130.8656243 E 2. Final Point: 12.3804945 S, 130.8656257 E <i>iii. Indicate any locations nearby to the discharge point where public can gain ready-access, such as public open spaces through which the discharge moves.</i> Public access is available to discharge locations throughout Darwin although due to wet weather conditions present the likelihood of people visiting these areas is low. Where possible signage was utilised to alert the public and deter access to sites. Clean up consistent with Sewage Spills/Overflow Response Work Instruction as appropriate to the location, and to minimise risk to the environment.
(c) the date and time of the incident	<i>i. The time and date of commencement and cessation of the discharge.</i> For the below overflows, that started on the 5th February 2021, start and stop times are as per below. Note that for the overflow relief points, the time of closing the valve, does not necessarily coincide with the time that sewage ceased to overflow. Overflows may have ceased prior to the valve being closed. For the manhole covers, the exact start and stop times are not determinable, as no telemetric monitoring occurs from these locations. It is presumed that they started to overflow in the early hours of the 5th February around 05:00hrs, as flows within the sewerage system began to peak. Overflows would have been intermittent, rainfall dependant until flows eased in the early hours of the 8th February, approximately 04:00hrs. Sewer overflow relief valve – 194 Casuarina Drive/Aralia St, Nightcliff (jetty end). Opened approx. 07:10hrs, 05/02/2021.

	Closed approx. 08:00hrs 08/02/2021. • Sewer overflow relief valve – 24 East Point Road, Parap Opened approx. 07:15hrs, 05/02/2021. Closed approx. 08:00hrs 08/02/2021. • Sewer overflow relief valve – Cnr. of Trower Rd and Rapid Creek Opened approx. 07:00hrs, 05/02/2021. Closed approx. 08:00hrs 08/02/2021. • Ludmilla SPS - Started 02:45hrs, 05/02/2021. Stopped 09:10hrs, 10/02/2021. • Lakeside Drive SPS - Started 04:40hrs, 05/02/2021. Stopped 00:17hrs, 10/02/2021. • Rapid Creek SPS - Started 04:56hrs, 05/02/2021. Stopped 13:25hrs, 06/02/2021 Started 17:08hrs 07/02/2021 Stopped 02:24hrs, 08/02/2021 Started 03:50hrs. 08/02/2021 Stopped 06:13hrs, 08/02/2021. <i>ii. How PWC were notified, or became aware of the discharge.</i> Multiple PWC high-level alarms alerted operations staff of a number of overflows, and the need to open overflow relief valves. The overflowing manhole covers are checked routinely by operations staff following prolonged or intensive rainfall events. <i>iii. The process by which the discharge occurred.</i> Due to significant rainfall in the Darwin catchment over the past few days, and in particular significant downpours within short periods of time, sewage volumes within the sewerage system have increased significantly due to inflow and infiltration of stormwater. As a result of this, sewer overflows have occurred from sewer infrastructure. Power and Water also undertook opening sewer relief points to relieve pressure in the system and manage potential human health/environmental impacts. <i>iv. The reason why the discharge occurred.</i> As per (c) iii. Sewerage network infrastructure has been designed to overflow with the best public health and environmental outcomes possible. Design focuses on not overflowing directly inside houses; rather discharge is designed to occur in a controlled manner at locations which can be accessed for infrastructure repair and clean up and with minimal public health or environmental impacts.
(d) how the pollution has occurred, is occurring or may occur	As per (c) iii & (c) iv. Minimal environmental harm resulting from the discharge is anticipated as the effluent discharged was highly diluted due to the intense rainfall and discharged into areas already significantly impacted due to catchment / stormwater runoff due to intense rainfall. It is not possible to prevent overflows in extreme rainfall events and the system is designed to permit overflows rather than resulting in structural collapse and public health impacts from sewage backing up in homes.
(e) the attempts made to prevent, reduce, control, rectify or clean up the pollution or resultant environmental harm caused	<i>i. Confirmation signage and fencing has been erected, as appropriate.</i> Where possible signage and fencing was installed to alert the public and prevent access to the sites as per Sewage Spills/Overflow Response Work Instruction.

or threatening to be caused by the incident	<i>ii. Decontamination of the site as appropriate.</i> Clean up consistent with Sewage Spills/Overflow Response Work Instruction as appropriate to the location, and to minimise risk to the environment. Discharge sites inspected for gross pollutants and removed as identified. Manhole lids across the discharge sites were still in place and generally only allowing liquid to escape while trapping solid matter within the manhole chambers.
(f) the identity of the person notifying the NT EPA	PWC Environmental Team on behalf of Water Services

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Sewer overflow relief valve - 194 Casuarina Drive/Aralia St, Nightcliff (jetty end)



Sewer overflow relief valve – 24 East Point Road, Parap



Sewer overflow relief valve - Corner of Trower Road and Rapid Creek Road, Rapid Creek



Manholes (2) - Corner Gregory Street & East Point Road, Parap



Manhole - 5 Roberts Place, Millner



Manhole – 1 Earl Place, Millner



Manhole – 21 Robinson Road, Millner



Manhole – 43 Trower Road, Rapid Creek



Manhole - 1 Marry Place, Rapid Creek



Manhole – 20 Waters Street (cnr. Ryland Rd), Rapid Creek



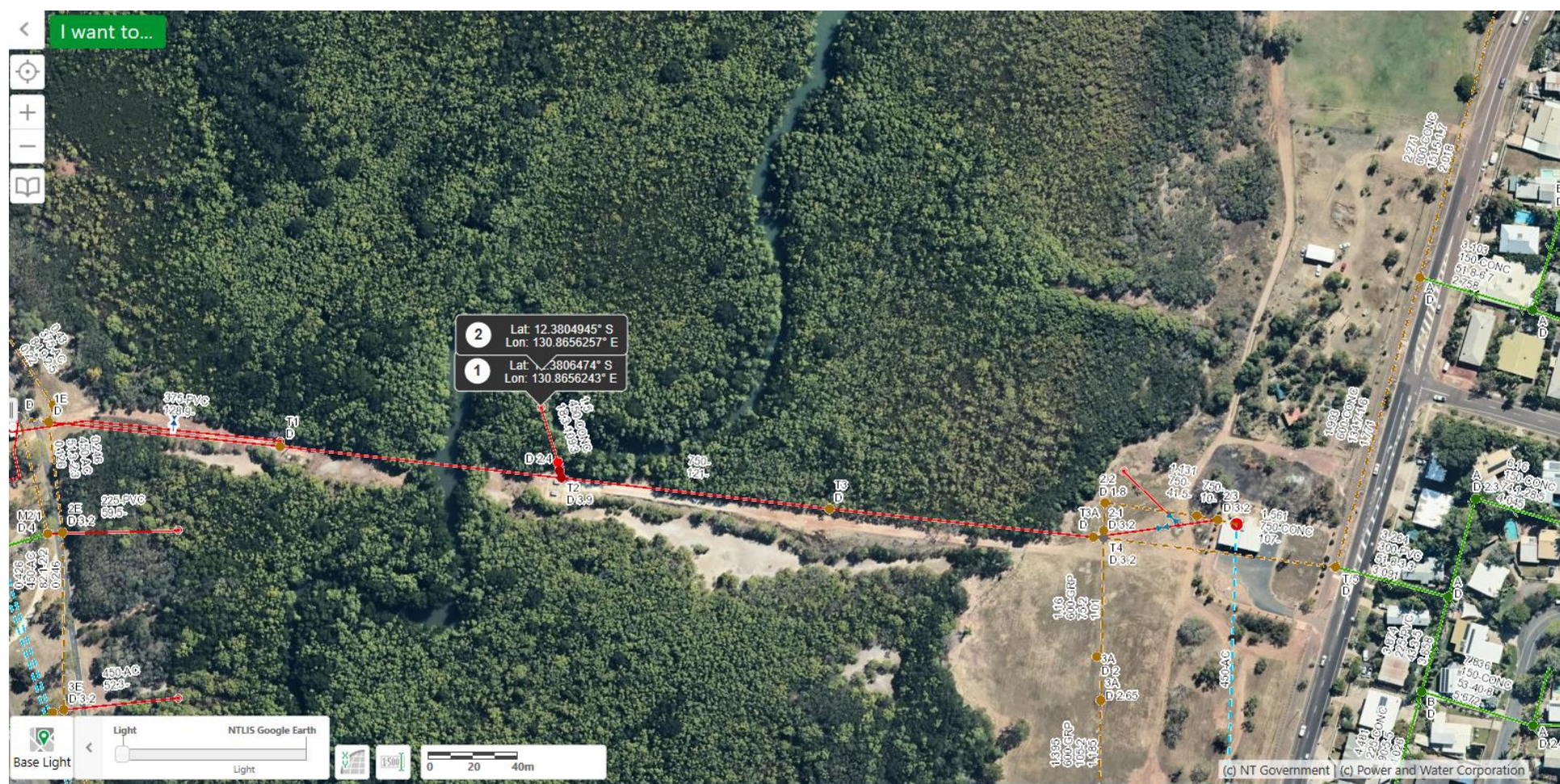
Manhole – 16 Erldunda Street, Tiwi



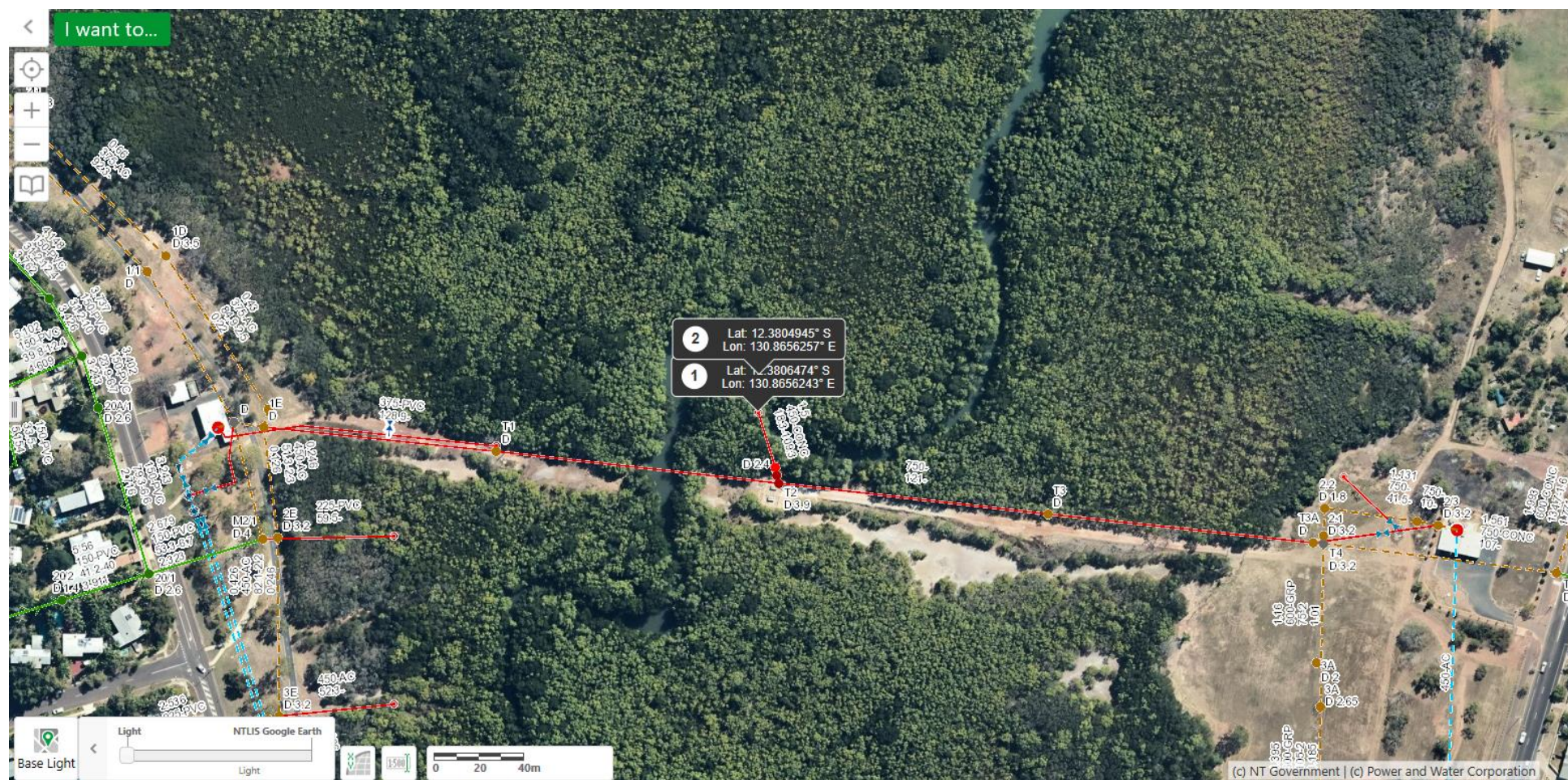
Ludmilla sewage pumping station – end of Nemarluk Drive, Ludmilla



Lakeside Drive sewage pumping station, Lot 9076 Lakeside Drive, Alawa



Rapid Creek sewage pumping station – Rapid Creek Road, Rapid Creek



Signage being displayed at sewer overflow relief points;

194 Casuarina Drive/Aralia St, Nightcliff (jetty end)

Corner of Trower Road and Rapid Creek Road, Rapid Creek

24 East Point Road, Parap



Fencing and signage at manholes - corner Gregory Street & East Point Road, Parap



Fencing and signage at manhole - 5 Roberts Place, Millner



Fencing and signage at manhole – 1 Earl Place, Millner



Fencing and signage at manhole – 21 Robinson Road, Millner



Fencing and signage at manhole – 43 Trower Road, Rapid Creek



Fencing and signage at manhole – 1 Marry place, Rapid Creek



Fencing and signage at manhole – 20 Waters Street, Rapid Creek



Fencing and signage at manhole – 16 Erldunda Street, Tiwi

