

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

Date and Time of Notification:	Friday 29/12/2022 16:00hrs Amended 05/01/2023
Person / Company:	Power and Water Corporation
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 interpreted from Table 1. A high rainfall event occurred on the night of the 28th December 2022 to the morning of the 29th; In addition to this, Darwin experienced further heavy rainfall up to and including the 3rd of January 2023, rainfall figures shown in table 2. This prolonged heavy rainfall over a week long duration resulted in sewage inflows to Ludmilla wastewater treatment plant, ranging from 56.4ML/Day to 102.4ML/Day, and peaking at 5.25ML/Hr at 14:00Hrs 31/12/2022, which extrapolates to an equivalent inflow of 126ML/day, or **>6 times 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.

Table 2: Recent 24 Hour Rainfall Figures for Darwin Airport

Darwin Airport Rainfall Figures			
29/12/2022	60.6mm	1/01/2023	62.6mm
30/12/2022	53.6mm	2/01/2023	21.6mm
31/12/2022	80.2mm	3/01/2023	32.4mm

iii. Volume of the waste that was discharged.

	The volume of wastewater discharged at each discharge location is unknown. No telemetric monitoring occurs at these locations, with the exception of the sewer overflow 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>i. Description of the PWC asset from which the discharge occurred.</i> • Sewer overflow relief point (1/10) – 24 East Point Road, Parap • Sewer overflow relief point (3H) - Corner of Trower Road and Rapid Creek Road, Rapid Creek • Sewer overflow relief point (7/35) – 194 Casuarina Drive/Aralia St, Nightcliff • Sewer overflow relief point (7/29) – Corner of Palm Street and Casuarina Drive, Nightcliff • Sewer overflow relief point (M2/23) – Corner of 29 Solomon Street and Rapid Creek Road, Millner • Sewer overflow relief point (M2/18) – Corner of 14 Aldridge Place and Rapid Creek Road, Millner • Sewer overflow relief point (2C) – University Drive South, Charles Darwin University, Nakara • Sewer overflow relief point (M) – 4 Britomart Gardens Road, Alawa • Sewer overflow relief point (N/A) – Corner of Young Crescent and Wellington Parade, Alawa • Sewer overflow relief point (3M) – 60 Freshwater Road, Jingili • Sewer overflow relief point – Old Bagot Ponds, Ludmilla (between Namarluk and Dick Ward Drives) • Sewer overflow relief point (13M) – 4 Gothenburg Crescent, Stuart Park • Manhole (AC 1/6 & 1/7) – Corner of East Point Road and Gregory Street, Parap • Manhole (ACM2 & M24) – 5 Roberts Place, Millner • Sewage pumping station (SP042) - Namarluk Drive, Ludmilla • Sewage pumping station (SP007) – Rapid Creek Road, Rapid Creek • Sewage pumping station (SP008) – Lakeside Drive, Alawa <i>ii. GPS coordinates of the discharge point from the PWC asset, and the final coordinates of the final discharge point.</i> • Sewer overflow relief point – 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 point - 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 • Sewer overflow relief point – 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 point – Corner of Palm Street and Casuarina Drive, Nightcliff 1. Discharge Point: 12.3835904 S, 130.8423179 E 2. Final Point: 12.3840031 S, 130.8416739 E • Sewer overflow relief point – Corner of 29 Solomon Street and Rapid Creek Road, Millner 1. Discharge Point: 12.3909409 S, 130.8674101 E 2. Final Point: 12.3909057 S, 130.8674520 E • Sewer overflow relief point – Corner of 14 Aldridge Place and Rapid Creek Road, Millner 1. Discharge Point: 12.3891770 S, 130.8658156 E 2. Final Discharge Point: 12.380997 S, 130.8658159 E • Sewer overflow relief point – University Drive South, Charles Darwin University, Nakara 1. Discharge Point: 12.33745311 S, 130.8684845 E 2. Final Discharge Point: 12.3746330 S, 130.8683233 E • Sewer overflow relief point – 4 Britomart Gardens Road, Alawa 1. Discharge Point: 12.3769951 S, 130.8771645 E 2. Final Point: 12.3769334 S, 130.8771040 E • Sewer overflow relief point – Corner of Young Crescent and Wellington Parade, Alawa 1. Discharge Point: 12.3794861 S, 130.8723377 E 2. Final Point: 12.3795841 S, 130.8722684 E • Sewer overflow relief point – 60 Freshwater Road, Jingili 1. Discharge Point: 12.3894775 S, 130.8710299 E 2. Final Point: 12.3895363 S, 130.8709853 E • Sewer overflow relief point – Old Bagot Ponds, Ludmilla (between Namarluk and Dick Ward Drives) 1. Discharge Point: 12.4192582 S, 130.8507206 E 2. Final Point: 12.4194289 S, 130.8504072 E • Sewer overflow relief point – 4 Gothenburg Crescent, Stuart Park 1. Discharge Point: 12.4486975 S, 130.8444842 E 2. Final Point: 12.4487370 S, 130.8445834 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 • 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
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	• Rapid Creek sewage pumping station, Rapid Creek Discharge point: 12.3806488 S, 130.8656252 E Final point: 12.3805596 S, 130.8665271 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 possible to discharge locations throughout Darwin although due to wet weather conditions present the likelihood of people visiting these areas is low. Where possible signage and fencing 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 29th December 2022, start times are as per below. Stop times and dates will be provided once all sites have ceased to overflow. • Sewer overflow relief point – 24 East Point Rd, Parap Started approx. 07:30hrs, 29/12/2022 Ceased approx. 08:30hrs, 02/01/2023 • Sewer overflow relief point – Cnr. of Trower Rd and Rapid Creek Started approx. 08:00hrs, 29/12/2022 Ceased approx. 07:30hrs, 02/01/2023 Opened approx. 08:00hrs, 03/01/2023 Ceased approx. 08:00hrs, 04/01/2023 • Sewer overflow relief point – 194 Casuarina Drv/Aralia St Opened approx. 14:00hrs, 29/12/2022 Ceased approx. 18:00hrs, 02/01/2023 • Sewer overflow relief point – Corner of Palm St and Casuarina Drv, Nightcliff Opened approx. 08:00hrs, 03/01/2023 Ceased approx. 07:00hrs, 02/01/2023 • Sewer overflow relief point – Corner of 29 Solomon St and Rapid Creek Rd, Millner Opened approx. 07:30hrs, 29/12/2022 Ceased approx. 08:00hrs, 04/01/2023 • Sewer overflow relief point – Cnr. of 14 Aldridge Pl. and Rapid Creek Rd, Millner Opened approx. 08:00hrs, 29/12/2022 Ceased approx. 07:30hrs, 02/01/2023 • Sewer overflow relief point – University Drv. South, Charles Darwin University, Nakara Opened approx. 09:00hrs, 30/12/2022 Ceased approx. 08:00hrs, 02/01/2023 • Sewer overflow relief point – 4 Britomart Gardens Rd, Alawa Opened approx. 09:00hrs, 30/12/2022 Ceased approx. 08:00hrs, 02/01/2023 • Sewer overflow relief point – Corner of Young Crescent and Wellington Parade, Alawa Opened approx. 09:30hrs, 30/12/2022 Ceased approx. 08:00hrs, 02/01/2023 • Sewer overflow relief point – 60 Freshwater Road, Jingili Opened approx. 09:30hrs, 30/12/2022 Ceased approx. 08:00hrs, 02/01/2023 • Sewer overflow relief point – Old Bagot Ponds, Ludmilla (between Namarluk and Dick Ward Drives) Opened approx. 10:30hrs, 30/12/2022 Ceased approx. 08:30hrs, 02/01/2023

	• Sewer overflow relief point – 4 Gothenburg Crescent, Stuart Park Opened approx. 11:00hrs, 30/12/2022 Ceased approx. 08:30hrs, 02/01/2023 • Manhole - 5 Roberts Place, Millner Started 08:15hrs, 29/12/2022 Stopped ~12:00hrs, 29/12/2022 • Manhole - Cnr Gregory Street & East Point Road, Parap Started ~07:30hrs, 29/12/2022 Stopped approx. 08:00hrs. 02/01/2023 • Manhole (AC 1/6 & 1/7) – Corner of East Point Road and Gregory Street, Parap Started approx. 07:30hrs, 29/12/2022 Stopped approx. 08:00hrs. 02/01/2023 • Manhole (ACM2 & M24) – 5 Roberts Place, Millner Started approx. 07:30hrs, 29/12/2022 Stopped approx. 08:00hrs. 02/01/2023 • Sewage pumping station (SP042) - Namarluk Drive, Ludmilla Started approx. 06:00hrs, 28/12/2022 Stopped approx. 18:30hrs, 07/01/2023 • Sewage pumping station (SP007) – Rapid Creek Road, Rapid Creek Started approx. 07:00hrs, 29/12/2022 Stopped approx. 23:00hrs, 04/01/2023 • Sewage pumping station (SP008) – Lakeside Drive, Alawa Started 06:55hrs, 29/12/2022 Stopped during 08/01/2023, time unknown. <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. <i>iii. The process by which the discharge occurred.</i> Due to significant rainfall in the Darwin catchment over the past 24 hours, and more heavy and intense rainfall forecast, 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, preventing overflows within households, 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.

(e) the attempts made to prevent, reduce, control, rectify or clean up the pollution or resultant environmental harm caused or threatening to be caused by the incident	<i>i. Confirmation signage and fencing has been erected, as appropriate.</i> Where appropriate, signage is displayed to alert the public and fencing in place to prevent access to the sites as per Sewage Spills/Overflow Response Work Instruction. <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 any gross pollutants and removed as required.
(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 – 24 East Point Road, Parap



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



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



Corner Palm Street and Casuarina Drive, Nightcliff



20 Solomon Street, Millner



14 Aldridge Place, Millner



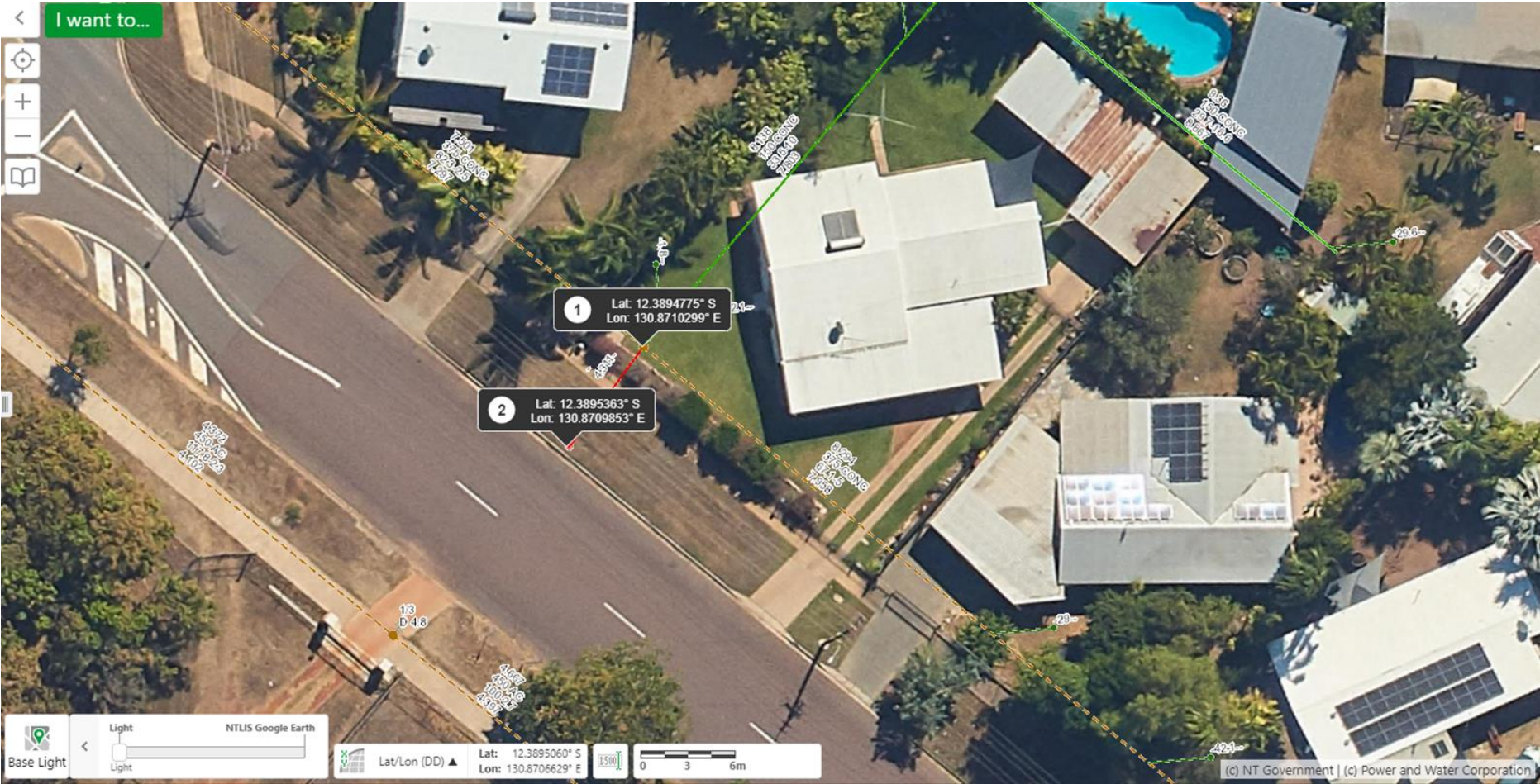
University Drive South, Charles Darwin University, Nakara



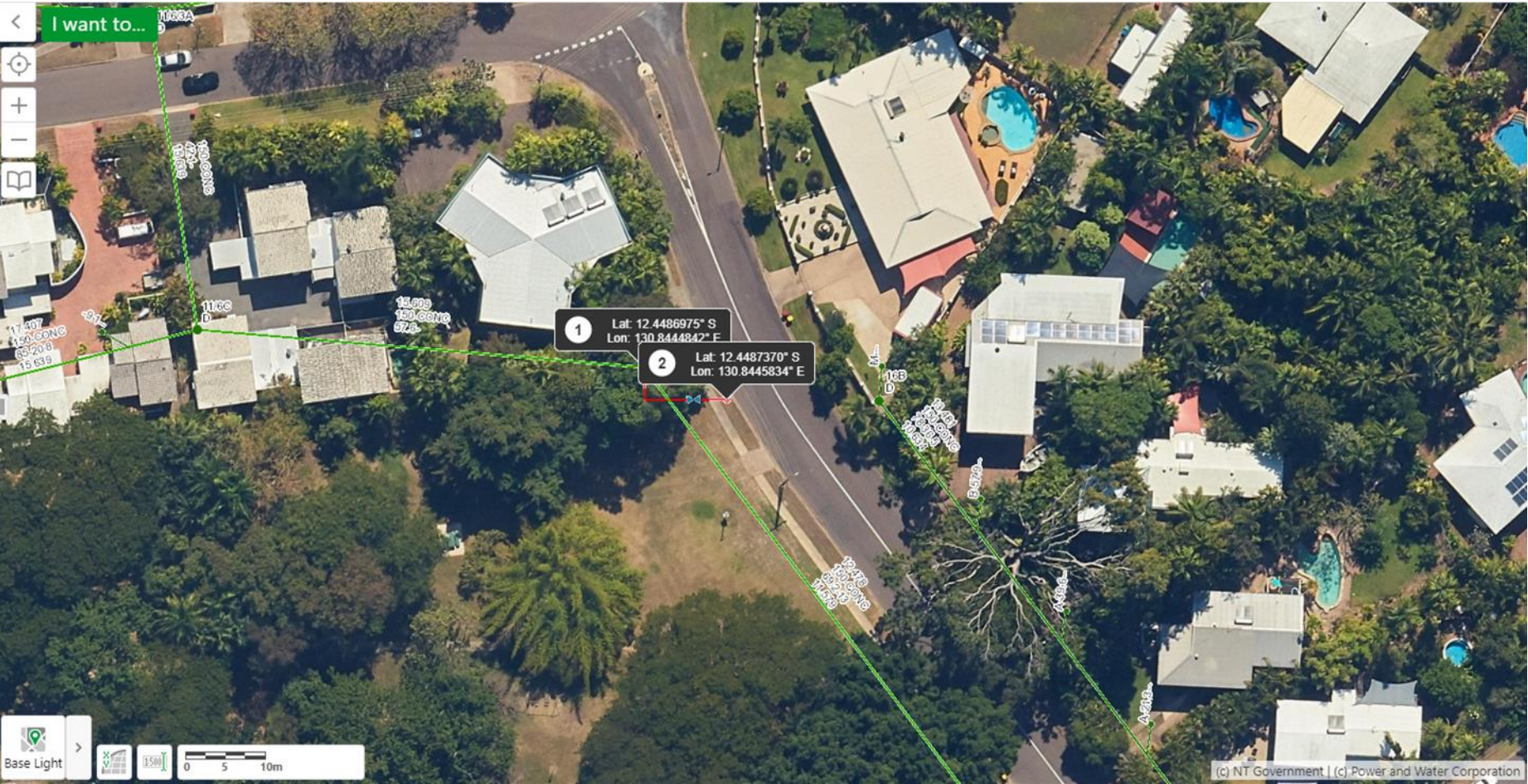
4 Britomart Gardens Road, Alawa



60 Freshwater Road, Jingili



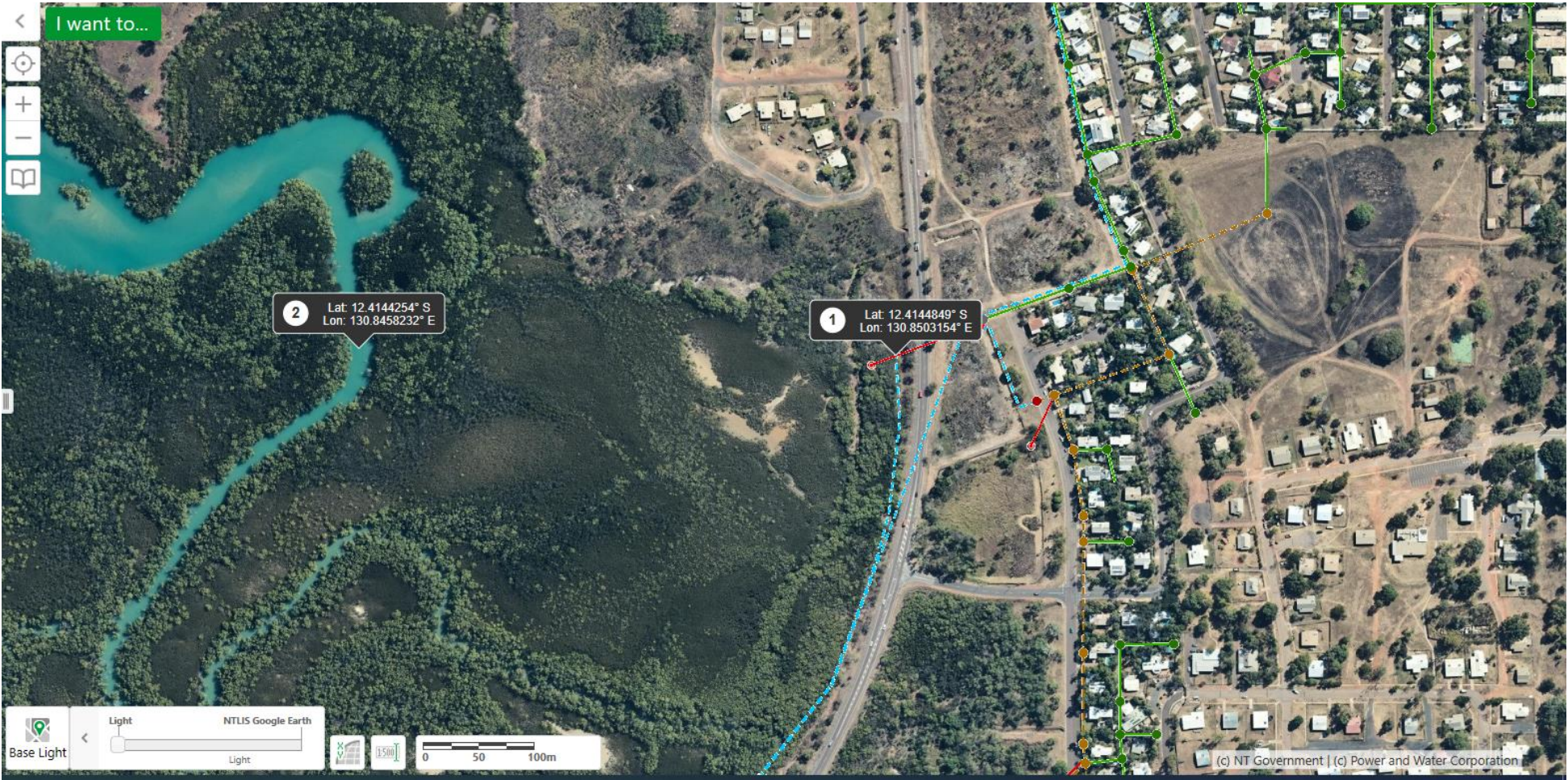
4 Gothenburg Crescent, Stuart Park



Rapid Creek & Lakeside Drive Sewage Pumping Stations, Rapid Creek & Alawa



Ludmilla sewage pumping station – end of Nemarluk Drive, Ludmilla



Signage being displayed at sewer overflow relief points

24 East Point Road, Parap



Image taken 29/12/2022

Corner of Trower Road and Rapid Creek Road, Rapid Creek



Image taken 29/12/2022

5 Roberts Place, Millner



Image taken 29/12/2022



Image taken 29/12/2022

- Corner of East Point Road & Gregory Street



Image taken 29/12/2022



Image taken 29/12/2022