

Report on Preliminary Contamination Assessment

Proposed Underground Power Cable Installation

Redlynch to Woree QLD

Prepared for Powerlink Queensland

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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1. Introduction

This report prepared by Douglas Partners Pty Ltd (Douglas) presents the results of a preliminary contamination assessment undertaken in connection with a proposed 132 kV underground cable installation between the Cairns suburbs of Redlynch and Woree. The investigation was commissioned by Powerlink Queensland (Powerlink) and was undertaken concurrently with a geotechnical investigation in general accordance with Douglas' proposal 230048.00.P.001.Rev0, dated 12 July 2024.

The proposed underground cable route (approximately 10.3 km) runs from Redlynch, and travels through the suburbs of Brinsmead, Kanimbla, Mooroobool, Earlville and Woree, predominantly in road reserves. The proposed cable route is shown on Powerlink drawing set A3-H-159587-002 (sheets 1 to 34), which is attached in Appendix A.

It is understood that trench excavation to approximately 1.5 m depth is anticipated along most of the cable route, however, trenchless crossings of existing creeks, major roads, and rail crossings is proposed at a number of locations.

The objective of this preliminary contamination assessment was to conduct a high level review of current and historical land uses along the proposed cable route to identify potential land contamination risk areas and associated contaminants of potential concern, in order to:

- Inform requirements for limited soil sampling and analysis (for preliminary contamination assessment purposes) to be conducted at the geotechnical test locations; and
- Allow preliminary assessment of potential soil management requirements during the construction phase of the project.

This report must be read in conjunction with all appendices including the notes provided in Appendix D.

2. Information Sources

The investigation comprised a limited inspection of the proposed cable route by a senior environmental scientist, followed by a high level review of the following information sources:

- Current and historical aerial imagery;
- Searches of the Queensland Department of Environment, Science and Innovation (DESI) Environmental Management Register (EMR); and
- Current Environmental Authority (EA) locations.

The information used in this desktop assessment was obtained from reputable and reliable sources, including official records held by DESI. Aerial photographs provide high quality



information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events, such as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence.

3. Summary of Current Land Uses Along the Proposed Cable Route

The below information is based on review of current aerial imagery and the inspection of the proposed cable route conducted by a senior environmental scientist on 29 October 2024.

3.1 Redlynch to Brinsmead

The northern extent of the proposed cable route (from CHO to approximately CH600) is located within large freehold allotments (Lots 1 and 2 SP279529). At the time of the inspection, the relevant part of Lot 1 was under cane cultivation and the relevant part of Lot 2 was vacant and grassed.

CH600 to CH810 of the proposed cable route comprises a trenchless crossing of Freshwater Creek, through a densely vegetated drainage reserve. From CH810 to approximately CH1063, the proposed cable route extends through freehold Lot 2 RP729485, which comprises parkland (Goomboora Park), which was vegetated by lawns and treed areas, and included a sealed access road. From Goomboora Park, the proposed cable route extends along road reserves (Shale Street and Christie Drive), through an area of mostly low-density housing, before extending in a south-easterly direction along the grassed verge on the western side of Brinsmead Road (Cairns Western Arterial Road).

3.2 Brinsmead to Kanimbla

This section of the proposed cable route (from approximately CH1543 to CH1700) runs adjacent to Lot 5 RP860941, which contained a service station (Mobil), mechanical workshop (OC Mechanical), and various commercial outlets. At the time of the inspection, water was observed in the open drain within the road verge on the northern side of the service station outbound driveway (refer Figures 1 and 2, Appendix B). The water appeared to have been sourced from the service station site, directed to the roadside drain via stormwater pipes.

Beyond Lot 5 RP860941, the proposed cable route continues in a south-easterly direction along the grassed verge of Brinsmead Road, adjacent to the mostly undeveloped and heavily vegetated Lot 30 SP281326, before crossing into the Brinsmead Terrace road reserve at approximately CH2000).

The proposed cable route then continues in a south-easterly direction along Brinsmead Terrace, which was bordered by mostly low density housing to the west, and by a steep batter down to Brinsmead Road to the east. At approximately CH2602, the proposed cable route crosses Lake Morris Road and returns to the Brinsmead Road verge and continues south-east before turning south and entering the Ramsey Drive road reserve at CH3100.



3.3 Kanimbla to Mooroobool

The proposed cable route continues south within the Ramsey Drive road reserve, which was generally bordered by low and medium density housing to the west, and by several mostly vacant council reserves (which are understood to be linked to the Moody Creek detention basin system) to the east. Toward its southern extent, Ramsey Drive is bordered to the east by Lot 796 SP257825, which includes an operational rock quarry (Marino's Quarry).

From the southern end of Ramsey Drive (at approximately CH5000), the proposed cable route continues south within the Irene Street road reserve. This section of Irene Street is generally bordered to the east and west by low and medium density housing, except for a sporting field (Vico Oval) on the eastern side of the road at approximately CH5300, and a vacant drainage reserve/dog park (on both sides of Irene Street) between approximately CH6700 and CH6900. It is noted that the proposed cable rout intersects a cane rail (MSF Sugar) level crossing on Irene Street at approximately CH5780.

3.4 Mooroobool to Earlville

At CH6900, the proposed cable route leaves Irene Street and travels in a south-easterly to easterly direction within the road reserves of Langan, Watson, Cavendish, and Downing Streets (all bordered by low density housing). At CH8073, the proposed cable route travels in a north-easterly direction through the Henley Street road reserve, intersecting the same cane rail (MSF Sugar) line, crossing Henley Street at approximately CH8150. The cane rail line was constructed along a fill embankment. Several house bricks were observed to be protruding from the fill embankment during the inspection (refer Figures 3 and 4, Appendix B). Beyond the cane rail crossing, Henley Street is bordered to the north by Lot 1 RP731489 (Lions Park, occupied by a various recreational and sporting facilities), and to the south by a concrete lined drainage channel (Clarkes Creek).

A trenchless crossing of Mulgrave Road (a major arterial road) is proposed from near the eastern end of Hanley Street (CH8378) to the McGuigan Street road reserve (CH8465). This section of the proposed cable route is anticipated to be installed below existing culverts under Mulgrave Road. It is noted that the eastern end of the proposed trenchless crossing is situated close to the southern boundary of Lot 2 RP746717, a large freehold allotment comprising Earlville Shopping Centre, along with a service station (Ampol). The service station is situated approximately 80 m north of the trenchless crossing at the closest point. Another service station (Liberty) was located on the southern/western side of Mulgrave Road, (on Lot 50 RP743974) approximately 60 m south of the proposed trenchless crossing at the closest point (refer Figure 5, Appendix B).

3.5 Earlville to Woree

From CH8465, the proposed cable route travels in a south-easterly direction along McGuigan Street, which is bordered to the north by low density housing, and to the south by Mulgrave Road (with predominantly commercial properties situated beyond).

Between approximately CH9000 and CH9400, the proposed cable route along McGuigan Street is bordered to the north by Cannon Park Racecourse (on Lot 3 RP707561). Beyond CH9400, the proposed cable route passes the southern boundaries of two relatively small (less than 2,000 m²) irregular shaped vacant freehold allotments (Lots 1 and 2 RP712804), before continuing in a southeasterly direction through the Gordon Creek drainage reserve via a trenchless section (from CH9500 to CH9650).



From CH9650, the proposed cable route continues in a south-easterly direction through a grassed road reserve bordered by commercial/industrial properties to the north-east, and by Mulgrave Road to the south-west. The proposed cable route then extends through a fenced Department of Transport and Main Roads (DTMR) storage compound, which at the time of the inspection, was paved with asphalt and was being used to store galvanised light poles and small concrete box culverts (refer Figure 6, Appendix B).

From CH9874, the proposed cable route turns northward and extends through the grassed verge on the western side of Ray Jones Drive to CH10033. The final section of the proposed cable route (from CH10033 to CH10231) comprises a trenchless crossing of Ray Jones Drive / Bruce Highway, and the Queensland Rail (QR) North Coast Line (on Lot 52 SP237150), terminating at the Powerlink Woree Substation within Lot 3 RP749188. Various industrial businesses were located directly south of the Woree Substation, including a scrap metal facility (Queensland Recycling Materials Pty Ltd (Newport Recycling)).

4. Review of Historical Aerial Photographs

Selected historical aerial photographs dating back to 1952 have been reviewed and a summary of historical land uses along the proposed cable route is presented in Tables 1 to 3 below and on the following pages.

Table 1: Summary of Historical Aerial Photographs - Redlynch to Kanimbla

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route
	• The northern extent of the proposed cable route (within Lots 1 and 2 SP279529 on the northern side of Freshwater Creek) was under cane cultivation.
1952	 The area on the southern and eastern side of Freshwater Creek (current Goomboora Park and the lower parts of the adjacent residential area (including part of Shale Street) was mostly under cane cultivation, and the more elevated land in this area was cleared and possibly used for grazing.
	Brinsmead Road was in place, approximately in its current alignment.
	The western side of Brinsmead Road was generally cleared and possibly used for grazing, with a single rural residence approximately at the current location of Brinsmead Terrace.
1965	No substantial change
	While the land directly north and south of Freshwater Creek remained under cane cultivation, the residential streets directly adjacent to the current Goomboora Park (including Shale Street) were constructed with many dwellings also constructed.
1977	 A dwelling had been constructed on the western side of Brinsmead Road (approximately at the location of the current Mobil service station).
	Brinsmead Terrace was in place, approximately in the current alignment, servicing a number of dwellings which had emerged in that area.



Table 1: Summary of Historical Aerial Photographs – Redlynch to Kanimbla (continued)

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route
1977 (continued)	Lake Morris Road had been constructed, however there was no housing in this area. Land north of Lake Morris Road was cleared and possibly used for grazing, while land on the southern side was under cane cultivation.
1983	 Land directly north and south of Freshwater Creek was still under cane cultivation and more housing had been constructed in the adjacent residential area (vicinity of Shale Street etc). More housing had been constructed off Brinsmead Terrace. Some housing was emerging on the northern side of Lake Morris Road.
	 While land to the north of Freshwater Creek was still under cane cultivation, cane farming had ceased on the southern side of the creek (in the Goomboora park area of the proposed cable route) and this area appeared to be used as parkland. Christie Drive appeared newly constructed.
1990	 The current Mobil service station building had been constructed (replacing a former dwelling) on the western side of Brinsmead Road. The current dual driveways/crossovers to the north-bound lane of Brinsmead Road were in place. No agricultural land use was evident on the western side of Brinsmead Road and housing had expanded in the vicinity of Lake Morris Road.
2000	Additional buildings and concrete pavements had been added to the current Mobil service station site.
2006 and 2016	No substantial change
2022	Land on the northern side of Freshwater Creek was still under cane cultivation, however, the current bike path through Lot 2 SP279529 had been constructed.

Table 2: Summary of Historical Aerial Photographs - Kanimbla to Earlville

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route
	Land use along the proposed cable alignment between Brinsmead Road (in the north) and Chinaman Creek (in the south) was dominated by extensive cane cultivation, with occasional rural residences.
1952	 Ramsey Drive had not been constructed. A cane rail line extended through the area to the west of (and parallel with) the current Ramsey
	 Drive alignment (current MSF cane rail alignment). Irene Street had been constructed (between the intersection with McGregor Street in the north, to the intersection with Beatrice Street in the south) through cane farming land.
1965	No substantial change
1978	 Emergence of some low density housing on the northern side of Chinaman Creek, east of the current Irene Street alignment. Quarrying activity had commenced at the current Marino's Quarry.



Table 2: Summary of Historical Aerial Photographs – Kanimbla to Earlyille (continued)

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route
1983	 Irene Street had extended south to Chinaman Creek (and beyond). Cane cultivation had ceased on the eastern side of Irene Street and was replaced with several rural residences and a sporting field (current Vico Oval) between McGregor Street and Beatrice Street, and by extensive housing between Beatrice Street and Chinaman Creek. Ramsey Drive had not been constructed and this area was still dominated by cane cultivation.
1990	 The northern end of Ramsey Drive (an approximately 400 m long section) and adjoining streets had been constructed from Brinsmead Road and was surrounded by low density housing. Land from the southern end of the newly constructed section of Ramsey Drive, to Irene Street, was still dominated by cane cultivation. Cane cultivation had almost ceased on the western side of Irene Street and was replaced with extensive housing.
2002	 Ramsey Drive had been extended south and connected with Irene Street. Land on the western side of this new section of Ramsey Drive was still under cane cultivation.
2006	 Cane cultivation had ceased along the Ramsey Drive alignment, replaced with extensive housing on the western side (which had expanded from south to north over time). Earthworks were evident in the vacant Council reserves on the eastern side of Ramsey Drive, presumably associated with the development of the Moody Creek Detention Basins.
2016	Works associated with the Moody Creek Detention Basin system (including construction of an earthen dam, concrete spillway, and channel) along the eastern side of Ramsey Drive, appeared to have been completed.
2022	No substantial change.

Table 3: Summary of Historical Aerial Photographs - Earlville to Woree

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route					
	Mulgrave Road and Cannon Park Racecourse were in place, approximately in the current alignment/position, with Mulgrave Road connecting with the Bruce Highway south of the racecourse.					
1952	Land uses across the relevant parts of Earlville (south of Chinaman Creek), along Mulgrave Road, and the relevant part of Woree (south-east of the racecourse) were predominantly agricultural (mostly cane cultivation, with some possible grazing or otherwise undeveloped and generally cleared areas).					
1971	Significant housing development had occurred in the relevant part of Earlville, with Langan, Watson, Cavendish, and Downing Streets all constructed and surrounded by housing.					



Table 3: Summary of Historical Aerial Photographs – Earlville to Woree (continued)

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route
1971 (continued)	 Henley Street had also been constructed, however, the relevant part of Henley Street (between Downing Street and Mulgrave Road, appeared to be an unsealed track with vacant land to the north (where Lions Park is currently located) and Clarkes Creek to the south. Land at the southern part of the current Earlville Shopping Centre site was largely vacant. The northern/eastern side of Mulgrave Road between Clarkes Creek and the racecourse (approximately where the current McGuigan Street is now located) was occupied by housing (similar to the present time). A row of houses was also present along the southern/western side of this section of Mulgrave Road. Land between the racecourse and Mulgrave Road appeared to be sparsely treed with several sheds and possible dwellings, including two dwellings near Gordon Creek (on current Lots 1 and 2 RP712804). The North Coast rail line crossed Gordon Creek and was aligned along the eastern side of the racecourse. Land use to the south-east of the racecourse (including across the area where Ray Jones Drive, QR North Coast Line, and the Powerlink Woree Substation are presently located) was being used for cane cultivation and grazing.
1977	 The relevant section of Hanley Street had been constructed (including a cane rail crossing on the western end) and tennis courts had been constructed at the current position within Lions Park. Commercial buildings were evident on the southern/western side of Mulgrave Road just south of the Clarkes Creek crossing. These included a service station at the location of the current Liberty service station on the southern/western side of Mulgrave Road.
1983	 Additional lanes had been added to Mulgrave Road and Clarkes Creek had been converted to a concrete lined drain (with current concrete culverts below Mulgrave Road). Earlville shopping Centre had been constructed. McGuigan Street had been constructed.
1991	 Several former buildings/sheds between the racecourse and Mulgrave Road had been removed. Gordon Creek had been significantly modified and re-aligned to run parallel with the North Coast rail line on the eastern side of the racecourse. The former creek alignment had been filled and levelled. Ray Jones Drive had been constructed through former agricultural land.
1996	 Additional recreational facilities were added to Lions Park on the northern side of Hanley Street. The North Coast rail line was re-aligned to its current alignment on the southern side of Ray Jones Drive. A works compound (current DTMR storage compound) had been established on the eastern side of Mulgrave Road, at the intersection with Ray Jones Drive. The compound was occupied by several buildings/sheds and used to stores various equipment. Links Drive had been constructed, extending south off Ray Jones Drive, and primarily industrial land uses were emerging in this area.



Table 3: Summary of Historical Aerial Photographs - Earlville to Woree (continued)

Aerial Photograph Date	Summary of Land Uses in Vicinity of Proposed Cable Route
2003	 A service station within the Earlville Shopping Centre site (currently Ampol) had been constructed. Earthworks were evident in the area of the current Atticus Street industrial/commercial complex, directly east of the works compound. A new branch of the Bruce Highway had been constructed on the western side the North Coast rail line, connecting with Ray Jones Drive. The Woree Powerlink Substation had been constructed on the western side of Links Drive (off Marsh Street). Various industrial developments were evident on the southern side of Marsh Street.
2008	 The Atticus Street industrial/commercial complex had been completed. Additional equipment had been added to the Powerlink Woree Substation. Scrap yard activities were evident on a previously vacant lot (Lot 54 RP749186) directly south of the Powerlink Woree Substation (current Newport Recycling property).
2016	 The two dwellings previously situated near Gordon Creek (on current Lots 1 and 2 RP712804) had been removed. The buildings and equipment previously located within the DTMR works compound had been removed. The Mulgrave Road overpass (over Ray Jones Drive / Bruce Highway) had been completed.
2022	No substantial change.

5. Environmental Authority (EA) Locations

A search of the DESI EA register was conducted to identify prescribed environmentally relevant activities (ERAs) within approximately 100 m of the proposed cable route.

The only identified ERAs within 100 m of the proposed cable route were related to activities on Lot 54 RP749186. This site (operated by QLD Recycling Metals Pty Ltd (Newport Recycling) is located on the southern side of Marsh Street, south-west of the Powerlink Woree Substation, just under 100 m to the south of the final section of the proposed cable route (trenchless section). Under the EA permit reference number EA0000766, the site operator is authorised to undertake the following prescribed ERAs:

- ERA 62 Resource recovery and transfer facility operation 1(a) Operating a facility for receiving and sorting, dismantling, bailing or temporarily storing scrap metal, non-putrescible waste or green waste only; and
- ERA 54 Mechanical waste reprocessing 1 Operating a facility for receiving and mechanically reprocessing, in a year, more than 5,000t of inert, non-putrescible waste or green waste only.



6. Environmental Management Register (EMR) Searches

EMR searches have been conducted (either by Powerlink or by Douglas) for a total of 16 allotments. It is noted that EMR searches conducted by Powerlink were requested prior to this contamination assessment. It is understood that Powerlink generally conducted searches (as a due diligence exercise) for freehold allotments intersected by significant sections of the proposed cable route. Other allotments located adjacent to the proposed cable route were searched where Powerlink perceived some risk of potential site contamination. EMR searches by Douglas were based on the above review of current and historical land uses.

Table 4 below summarises the EMR search results. Copies of the EMR search results for searches conducted by Douglas are provided in Appendix C. Powerlink only provided EMR search results for EMR listed properties, and these are also attached in Appendix C.

Table 4: Summary of EMR Searches

Searched by	Lot / Plan	Description / Location	Listed on the EMR (Yes/No)	Notifiable Activity / Hazardous Contaminant
Powerlink	1 SP279529	Northern end of proposed cable route (cane farm)	No	-
Powerlink	2 SP279529	Northern end of proposed cable route (cane farm)	No	-
Powerlink	2 RP729485	Goomboora Park	No	-
Powerlink	5 RP860941	Brinsmead service station (Mobil) site	Yes	Notifiable Activity: 'Service Stations – operating a Commercial Service Station'
Powerlink	812 SP257825	Council reserve / Moody Creek Detention Basin system, eastern side of Ramsey Drive	No	-
Powerlink	810 SP146132	Council reserve / Moody Creek Detention Basin system, eastern side of Ramsey Drive	No	-
Douglas	796 SP257825	Marino's Quarry	No	-
Powerlink	36 RP903336	Council Reserve, eastern side of Irene Street	No	-
Powerlink	724 NR7504	Council Reserve, eastern side of Irene Street	No	-
Douglas	2 RP746717	Earlville shopping centre site (including Ampol service station)	Yes	Notifiable Activity: 'Service Stations – operating a Commercial Service Station'



Table 4: Summary of EMR Searches (continued)

Searched by	Lot / Plan	Description / Location	Listed on the EMR (Yes/No)	Notifiable Activity / Hazardous Contaminant
Douglas	50 RP743974	Service station (Liberty) off Mulgrave Road	Yes	Notifiable Activity: 'Service Stations – operating a Commercial Service Station' and Hazardous Contaminant: 'This site has been subject to a hazardous contaminant'
Douglas	3 RP707561	Cannon Park Racecourse	No	-
Powerlink	2 RP712804	Vacant allotment on western side of Gordon Creek (site of former dwelling)	No	-
Powerlink	52 SP237150	North Coast rail line (QR)	Yes	Hazardous Contaminant: 'Possible high arsenic levels along rail corridor'
Douglas	3 RP749188	Southern extent of proposed cable route (includes part of Powerlink Woree Substation)	No	-
Douglas	54 RP749186	Newport Recycling yard	No	-

Notes to Table 4:

Hazardous contaminants listed as total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene and xylenes (BTEX). It is considered that the inclusion of hazardous contaminants in the search response may indicate that contamination has previously been reported for this site. It is noted that no Site Management Plan (SMP) was attached to the search result.

7. Preliminary Review Findings / Sampling and Testing Recommendations

Based on the above high level review of the various information sources, it is considered that potential land contamination risks, which may require management during the construction phase of the project, can be separated into the following two groups:

- Broadscale potential contamination risks; and
- Site-specific potential areas of environmental concern.

These groups are discussed in the following subsections. It should be noted that the recommendations provided below are for preliminary contamination assessment purposes. Further contamination assessment, including additional sampling and testing, may be required at later stages.



7.1 Broadscale Potential Contamination Risks

7.1.1 Agricultural Land Uses

Agricultural land uses (predominantly cane cultivation with minor areas of potential grazing) have historically taken place along the majority of the proposed cable alignment. While it is considered that the potential for soil contamination due to such land uses is relatively low risk, sampling and testing of near-surface soils for related contaminants of potential concern (CoPC) would be required to appropriately assess the risk to the project.

It is recommended that the following be conducted at each of the proposed test pit (EX) locations:

- Collection of a near-surface soil sample (within approximately 0.5 m of the natural soil surface (below any fill)); and
- Analysis of samples for eight metals (arsenic, cadmium, chromium, copper, lead, nickel, zinc, and mercury), and organochlorine and organophosphate pesticides (OCP/OPP).

In addition to the above CoPC, it is noted that application of biosolids from water treatment plants to agricultural soils (for soil conditioning/fertilisation purposes) can be a source of per- and polyfluoroalkyl substances (PFAS). Investigation into the potential historical application of biosolids to agricultural soils in the vicinity of the proposed cable alignment was outside the scope of this investigation. It is noted, however, that Powerlink have requested PFAS soil testing at all geotechnical test locations, and it is considered that this would be sufficient to assess the risk of PFAS in soils due to possible land application of biosolids.

7.1.2 Fill Materials

It is anticipated that fill materials will be encountered in trenched (and to a lesser extent trenchless) sections of the proposed cable route. While there is an inherent risk of contamination in fill from unknown sources, based on the review of land uses, it is anticipated that the majority of fill that will be encountered along the proposed cable route is likely derived from either local quarries or from cut-to-fill earthworks associated with road and residential subdivision construction. Unless identified in Section 7.2 below, the risk of contamination in such materials is considered to be relatively low.

It is recommended that fill encountered at the proposed geotechnical test locations should be visually assessed for obvious evidence of contamination (such as the presence of staining, odours, and non-soil materials (including building materials). If such contamination indicators are identified, then samples should be collected and tested for potential contaminants.

7.2 Site-specific Potential Areas of Environmental Concern

A number of site-specific potential areas of environmental concern (PAEC) have been identified. Table 5 on the following pages provides a summary of identified PAEC, and includes interpreted contamination risk levels, relevant CoPC, and recommendations for sampling and testing. It is noted that, as requested by Powerlink, PFAS testing is required at all test locations.



Table 5: Summary of Site-specific Potential Areas of Environmental Concern (PAEC)

PAEC Number	PAEC Location / Description	Approx. Length of Cable Route Potentially Impacted	Interpreted Contamination Risk Level	СоРС	Suitable Existing Geotechnical Test Locations	Recommendations for Additional Test Locations or Groundwater Wells	General Preliminary Sampling/Testing Recommendations
1	Vicinity of Brinsmead service station on Lot 5 RP860941.	100 m trenched (CH1543 to CH1645)	Medium to High Potential for CoPC impact to soils and/or groundwater from stormwater runoff or above or below ground fuel leaks/spills).	TRH ¹ , BTEXN ² , PAHs ³ , and metals ⁴	EX-09	One additional pit	Soil samples tested for CoPC from each test location
2	MSF cane rail crossing within Irene St road reserve	> 10	Low Potential for CoPC impact in near surface soils directly below the track alignment	OCP/OPP ⁵ , asbestos fines	Nil	Near-surface soil sampling point directly adjacent to track	Single sample (>0.5 m depth) tested for CoPC
3	MSF cane rail crossing within Henley St road reserve (predominantly fill embankment materials)	>10	Medium Potential for various CoPC (including asbestos) in approximately 2.5 m high fill embankment	Various, including asbestos	Nil	Nil	Management during construction (refer Note A)
4	Mulgrave Road crossing	100 m trenchless (CH8373 to CH8465)	Low Potential for CoPC impact to soil and/or groundwater from potential groundwater contamination plume(s) associated with nearby service stations (Ampol and Liberty)	TRH, BTEXN, PAHs, and metals	BH-16, BH-17	Installation of groundwater monitoring wells in BH-16 and BH-17	Testing of groundwater samples for CoPC
5	Section of proposed cable route between Mulgrave Road and Cannon Park Racecourse	400 m trenched (CH9100 to CH9500)	Low Potential for CoPC impact to fill due to demolition of former buildings in vicinity	Asbestos	EX-39, EX-40, BH18	Nil	Inspection and testing for asbestos in fill material



Table 5: Summary of Site-specific Potential Areas of Environmental Concern (PAEC) (continued)

PAEC Number	PAEC Location / Description	Approx. Length of Cable Route Potentially Impacted	Interpreted Contamination Risk Level	СоРС	Suitable Existing Geotechnical Test Locations	Recommendations for Additional Test Locations or Groundwater Wells	General Preliminary Sampling/Testing Recommendations
6	Former North Coast rail alignment on the northern side of Mulgrave Road and DTMR storage compound	300 m trenched (CH9600 to CH9900)	Medium Potential for CoPC in near-surface soils/fill material	TRH, BTEXN, PAH, metals, OCP/OPP, asbestos	ВН19, EX-41	One additional pit	Samples tested for CoPC from each test location
7	QR North Coast rail corridor on EMR listed Lot 52 SP237150	100 m trenchless (CH10100 to CH10200)	Low to Medium Primary CoPC are considered to be low risk as generally limited to near-surface soils directly below track alignment, to depths of < 1m (well above anticipated proposed trenchless crossing invert depth (> 3m below tracks). Secondary CoPC (related to potential spills) are considered to be relatively low likelihood but potential to impact soils/groundwater at depth.	Primary CoPC: OCP/OPP, metals, asbestos fines. Secondary CoPC: TRH, BTEXN, metals, PAH.	BH-21, BH-22	Installation of groundwater monitoring wells in BH-21 and BH-22	BH-21: Near-surface soil sample (< 1m depth) tested for secondary CoPC. Groundwater sample tested for secondary CoPC. BH-22: Near-surface soil sample (<1m depth) tested for primary CoPC. Deeper soil samples (approximate cable invert depth) tested for secondary CoPC. Groundwater sample tested for secondary CoPC. Groundwater sample tested for secondary CoPC. Potential management during construction (refer Note B).



Table 5: Summary of Site-specific Potential Areas of Environmental Concern (PAEC) (continued)

PAEC Number	PAEC Location / Description	Approx. Length of Cable Route Potentially Impacted	Interpreted Contamination Risk Level	СоРС	Suitable Existing Geotechnical Test Locations	Recommendations for Additional Test Locations or Groundwater Wells	General Preliminary Sampling/Testing Recommendations
8	Section of proposed cable route into Lot 3 RP749188	80 m trenchless	Low to Medium This PAEC overlaps with PAEC 7. In additional to risk associated with PAEC 7, it is considered that some potential exists for soil / groundwater impact from Lot 54 RP749186 (primarily petroleum hydrocarbons, metals, and VHCs) and also from the Powerlink substation (primarily PCBs).	CoPC for PAEC 7, and additionally PCBs ⁶ , and VHCs ⁷	BH-22, EX-42	Installation of groundwater monitoring well in BH-22 (as above).	BH-22: Groundwater sample tested for PCBs and VHCs (in addition to analysis specified above for PAEC 7. EX-42: Soil samples tested for TRH, BTEXN, PAH, metals, OCP/OPP, VHCs, and PCBs.

Notes to Table 5:

- 1 Total recoverable hydrocarbons.
- 2 Benzene, toluene, ethylbenzene, xylenes, and naphthalene.
- 3 Polycyclic aromatic hydrocarbons.
- 4 Metals testing should generally include arsenic, cadmium, chromium, copper, lead, nickel, zinc, and mercury.
- 5 Organochlorine and organophosphate pesticides.
- 6 Polychlorinated biphenyls.
- 7 Volatile halogenated organic compounds.
- A It is considered that material excavated from the fill embankment should be separated and inspected and assessed by a suitably qualified environmental consultant.
- B Further testing and possibly soil disposal permits may be required for off-site disposal of directional drill spoil due to EMR listing.



8. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report in line with Douglas' proposal dated 12 July 2024 and acceptance received from Heath Williams of Powerlink Queensland dated 2 October 2024. The work was carried out under a mutually acceptable form of Powerlink Queensland's Professional Services Agreement dated 3 October 2024. This report is provided for the exclusive use of Powerlink Queensland for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

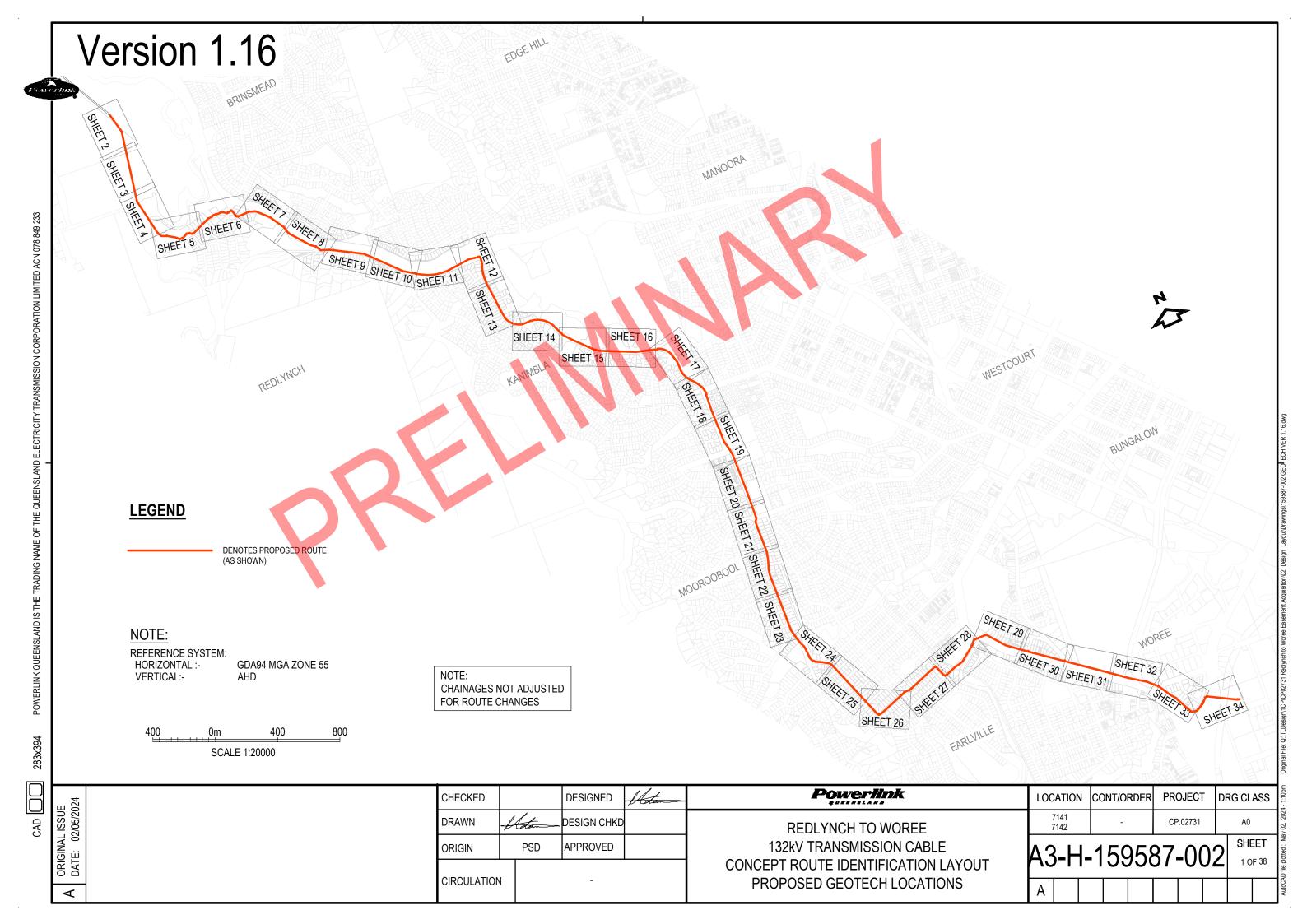
The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

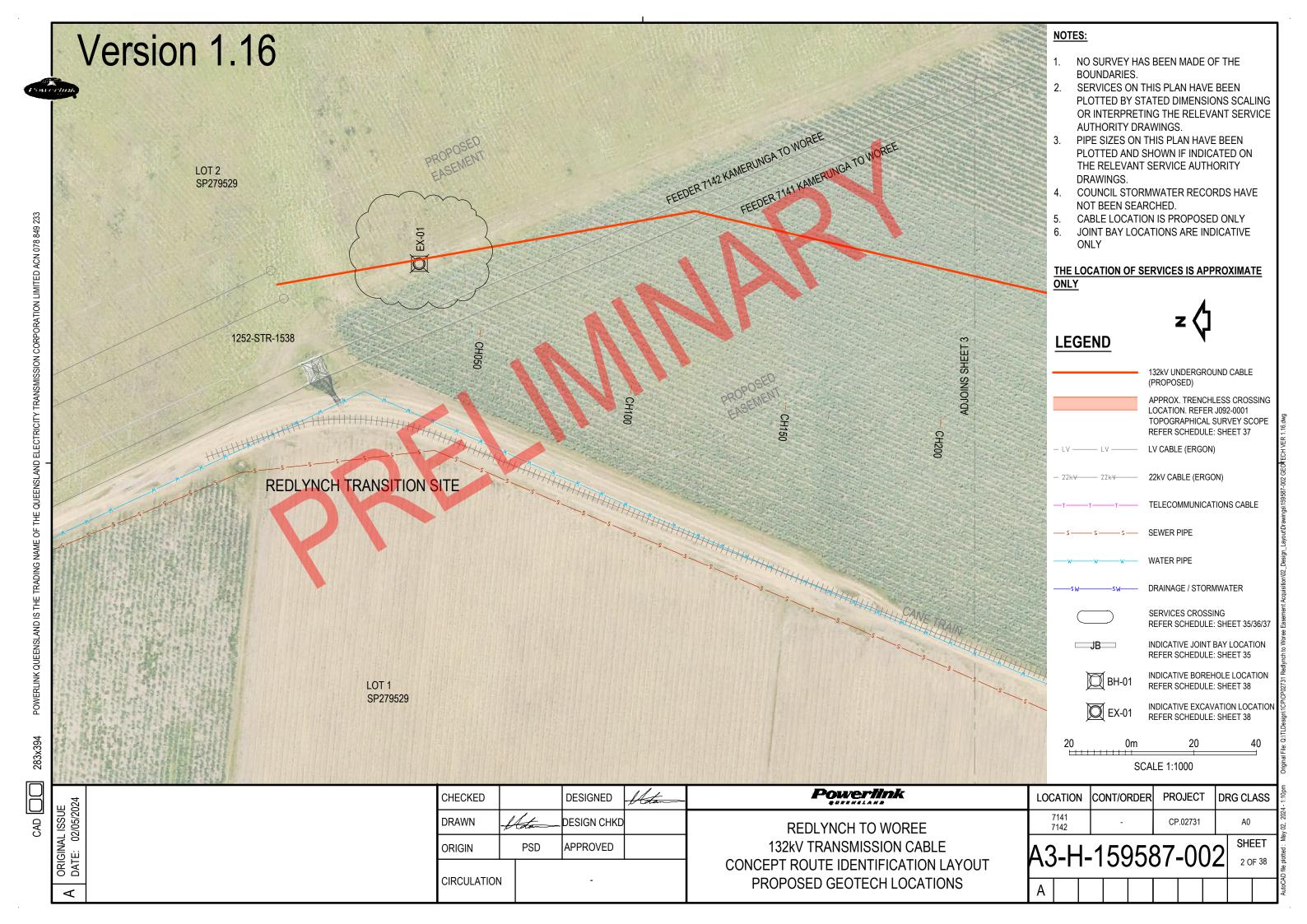
This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

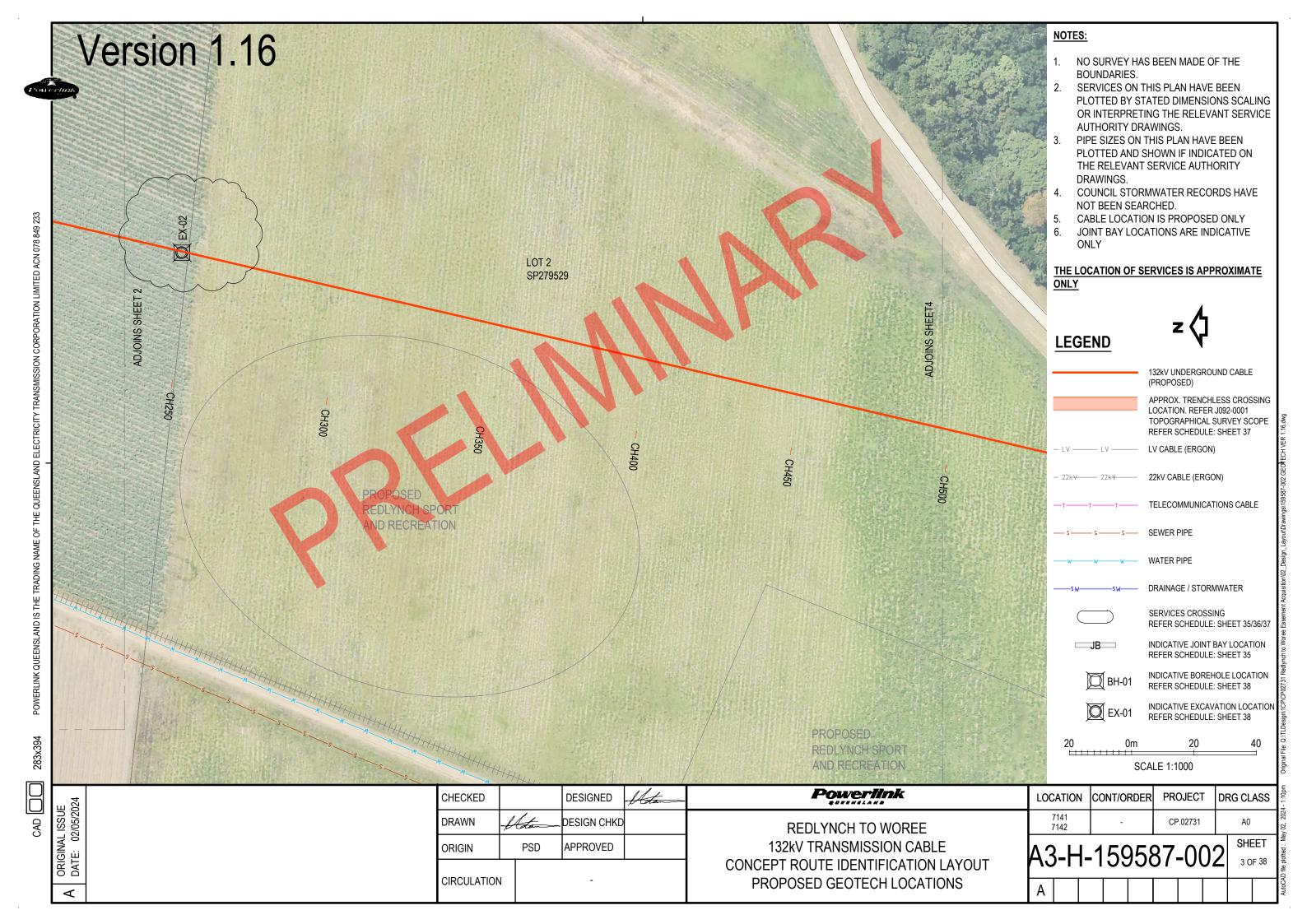
This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

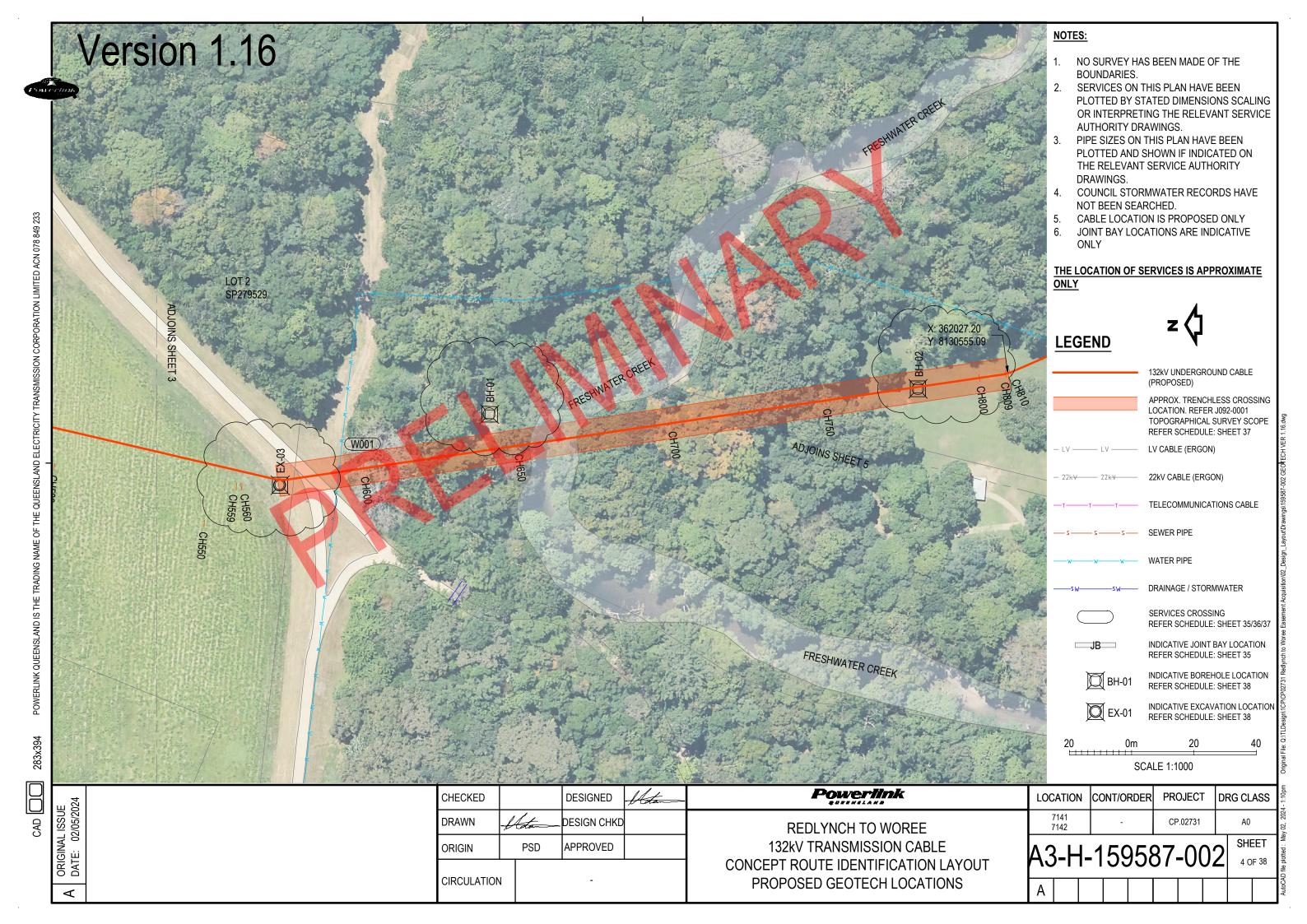
Appendix A

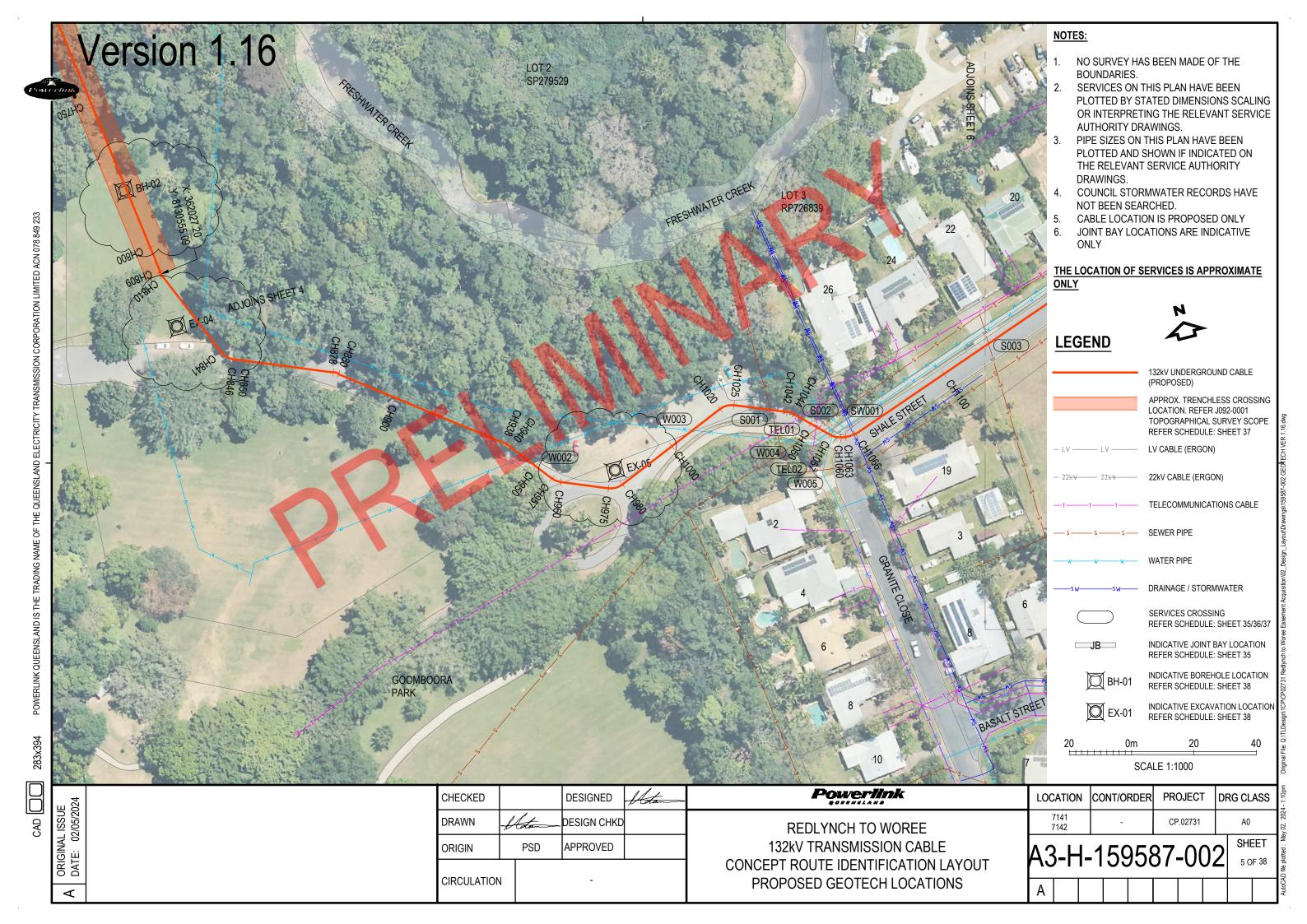
Powerlink Queensland Drawings

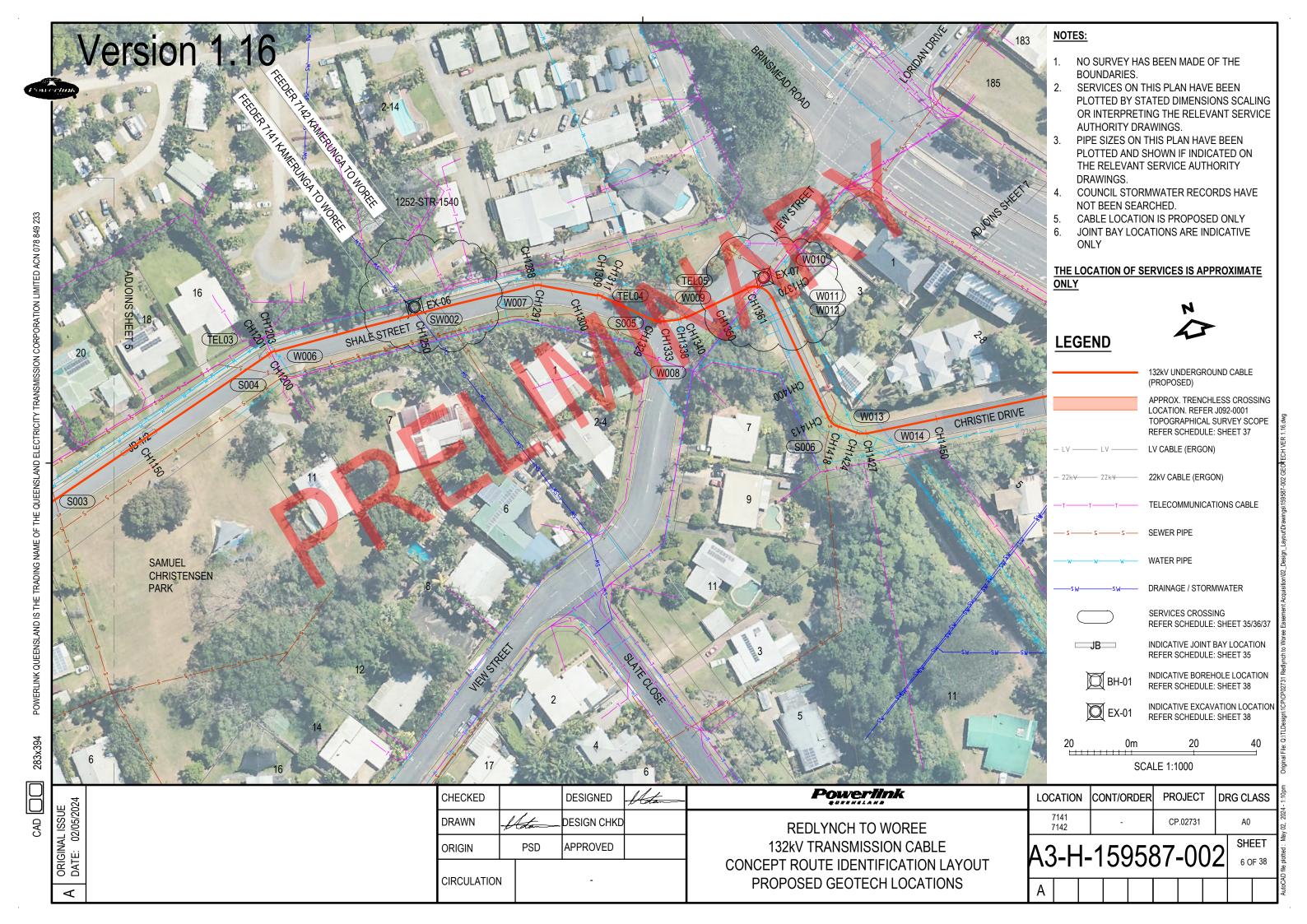


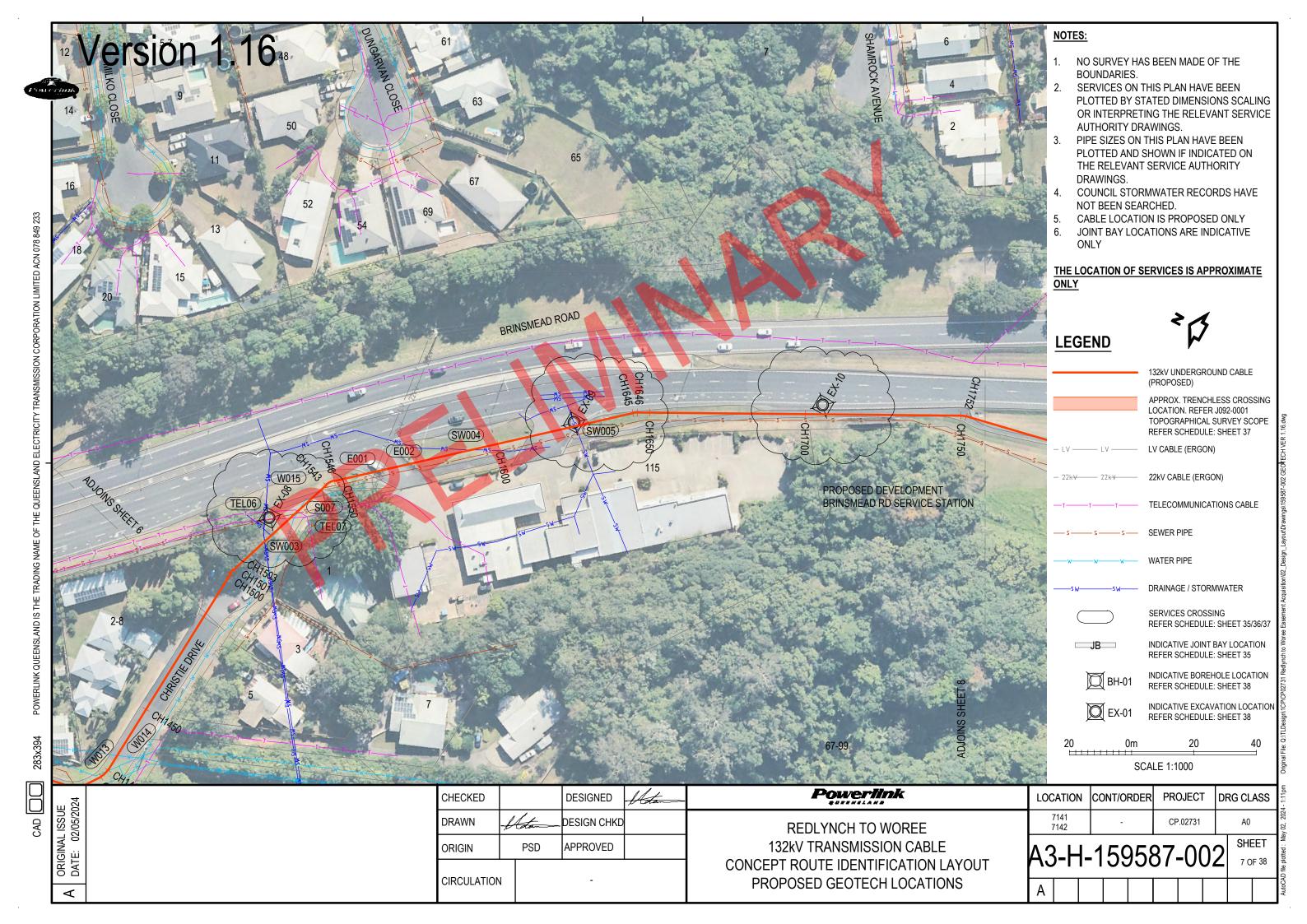


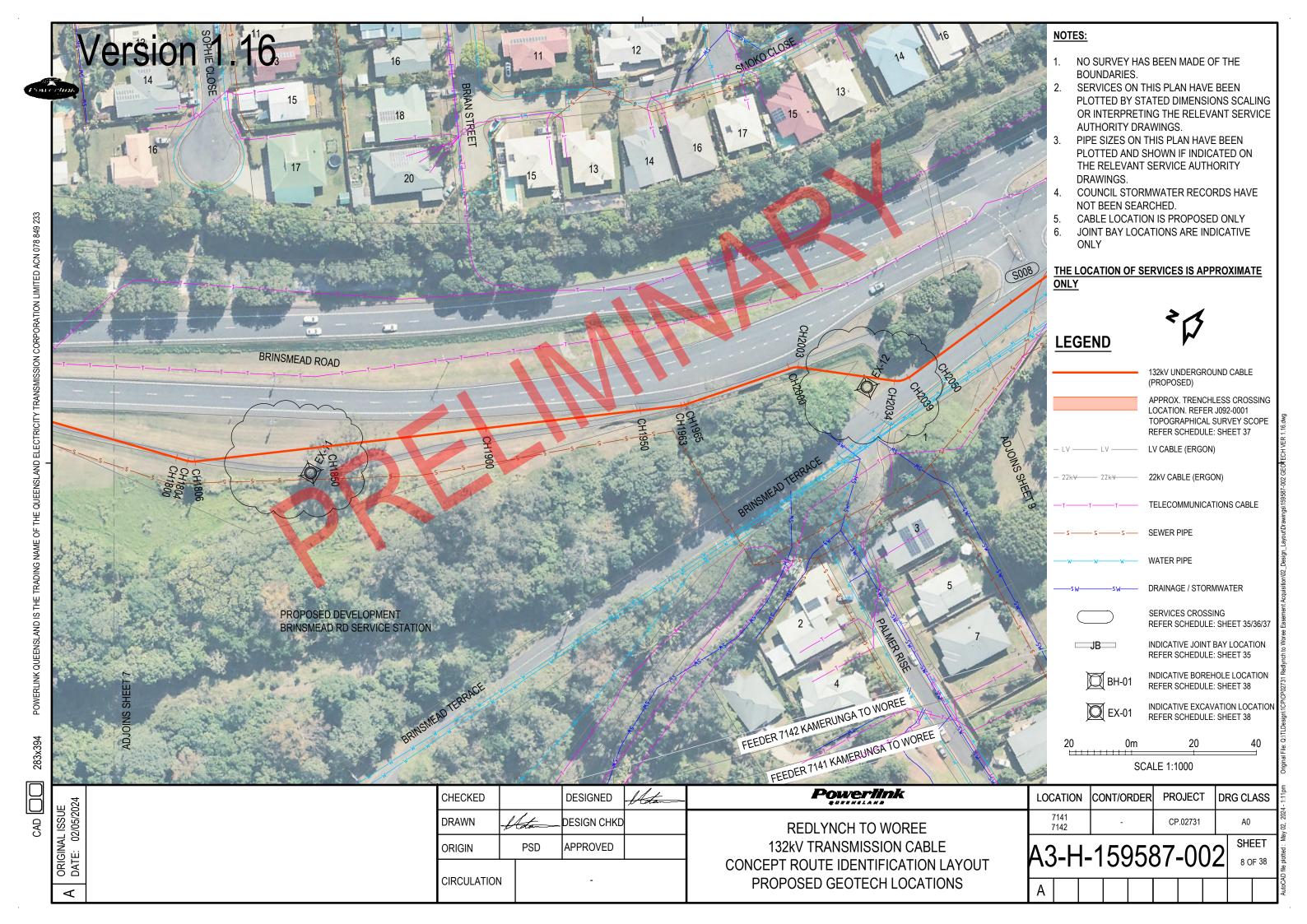




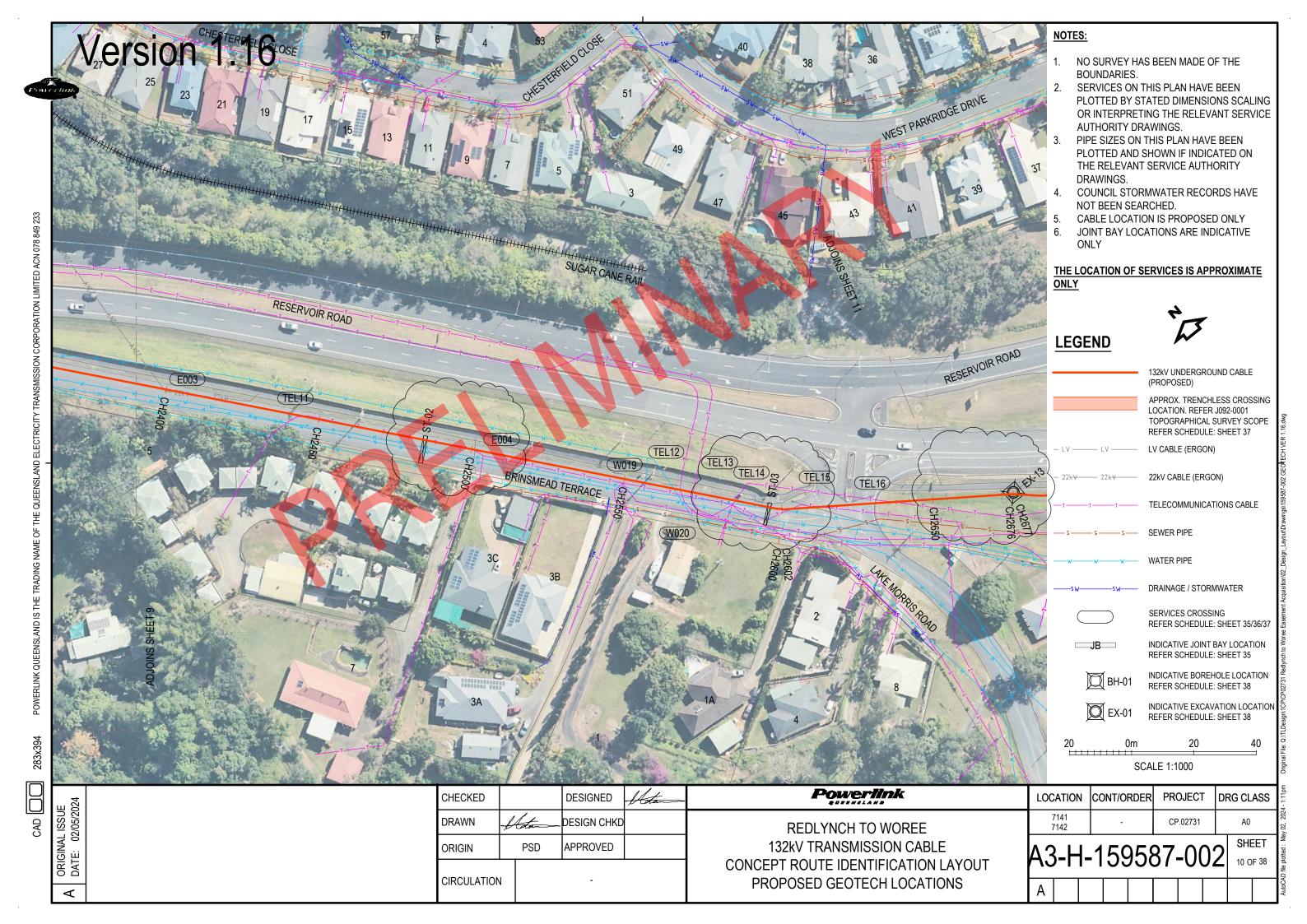




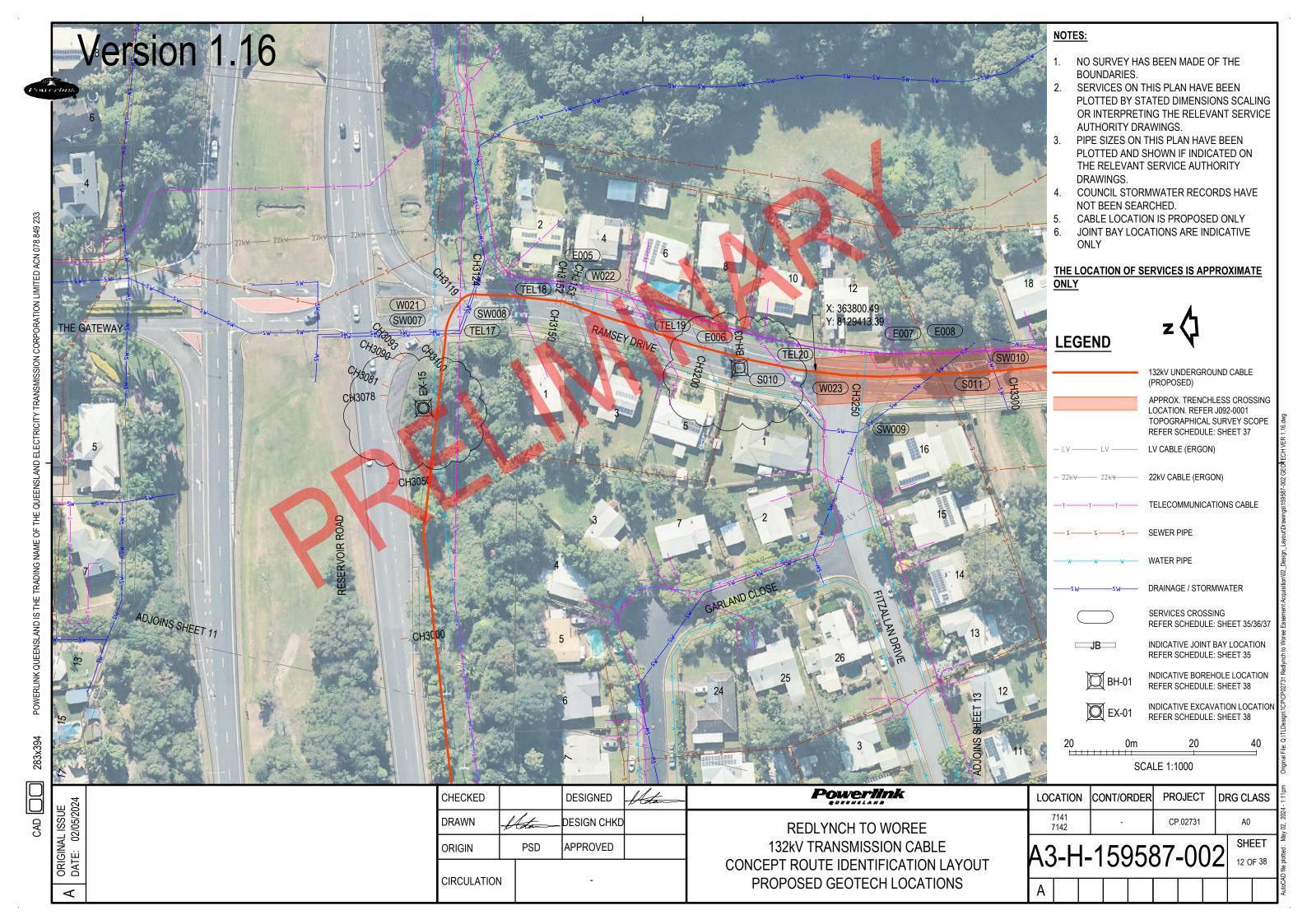


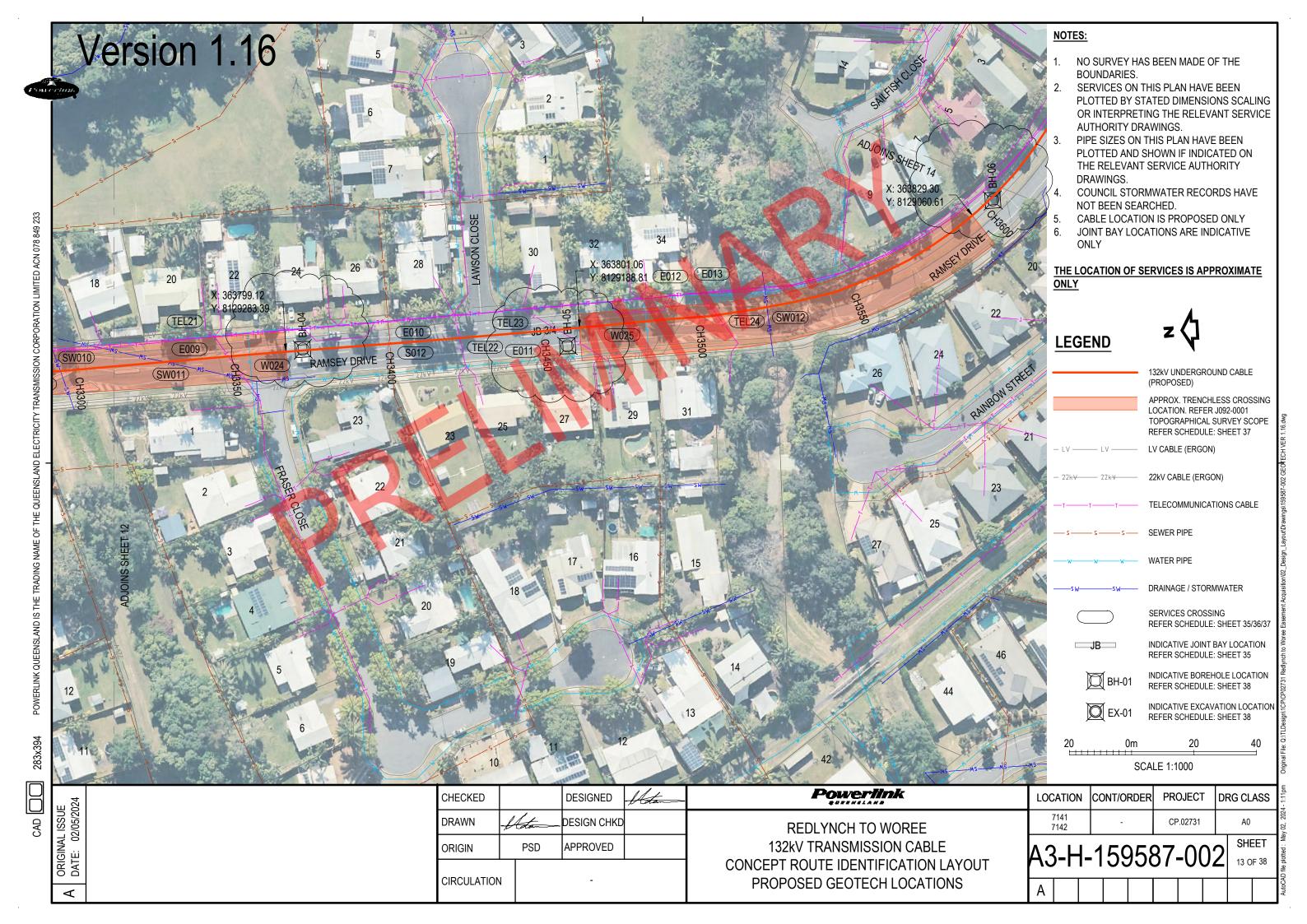


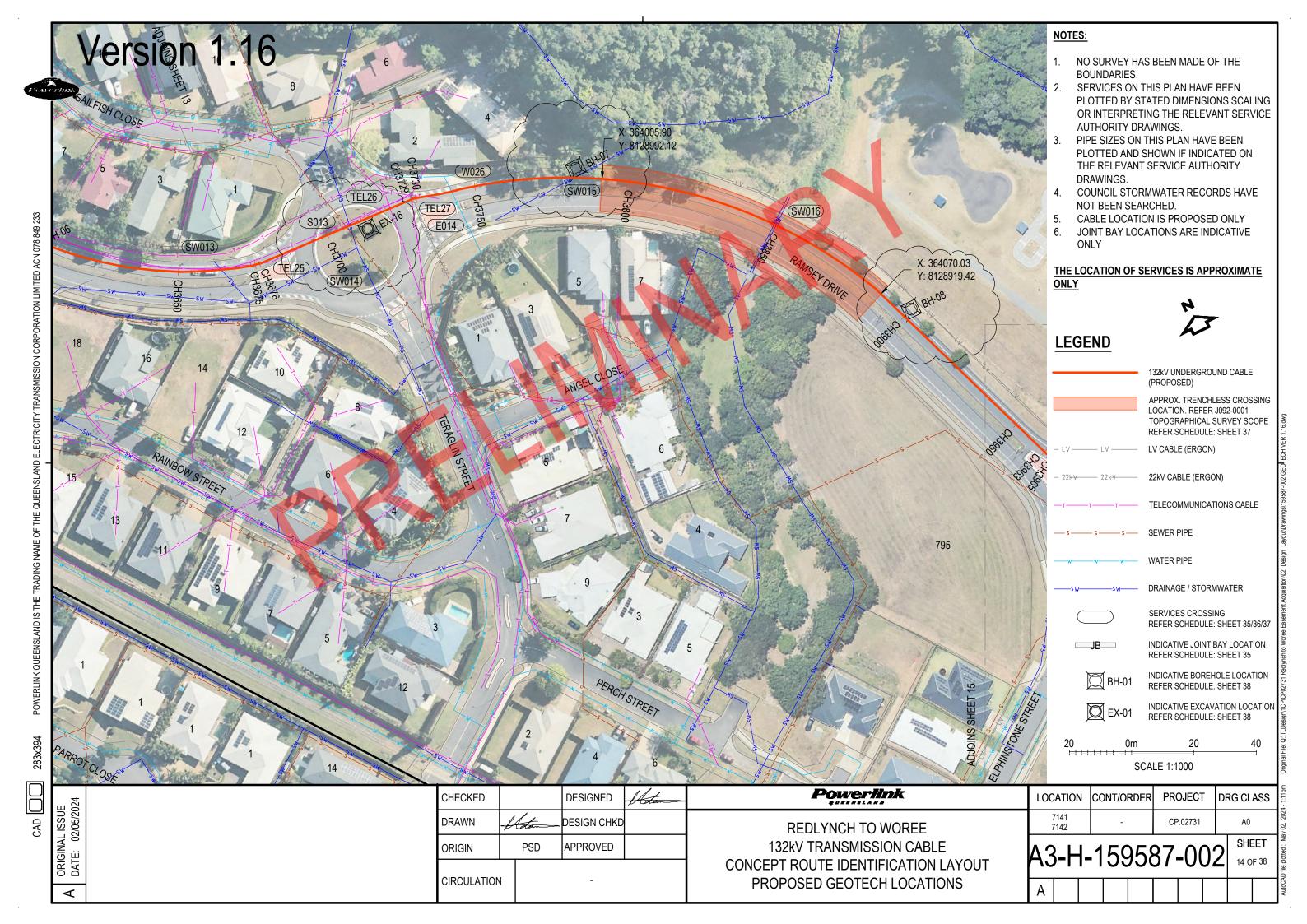


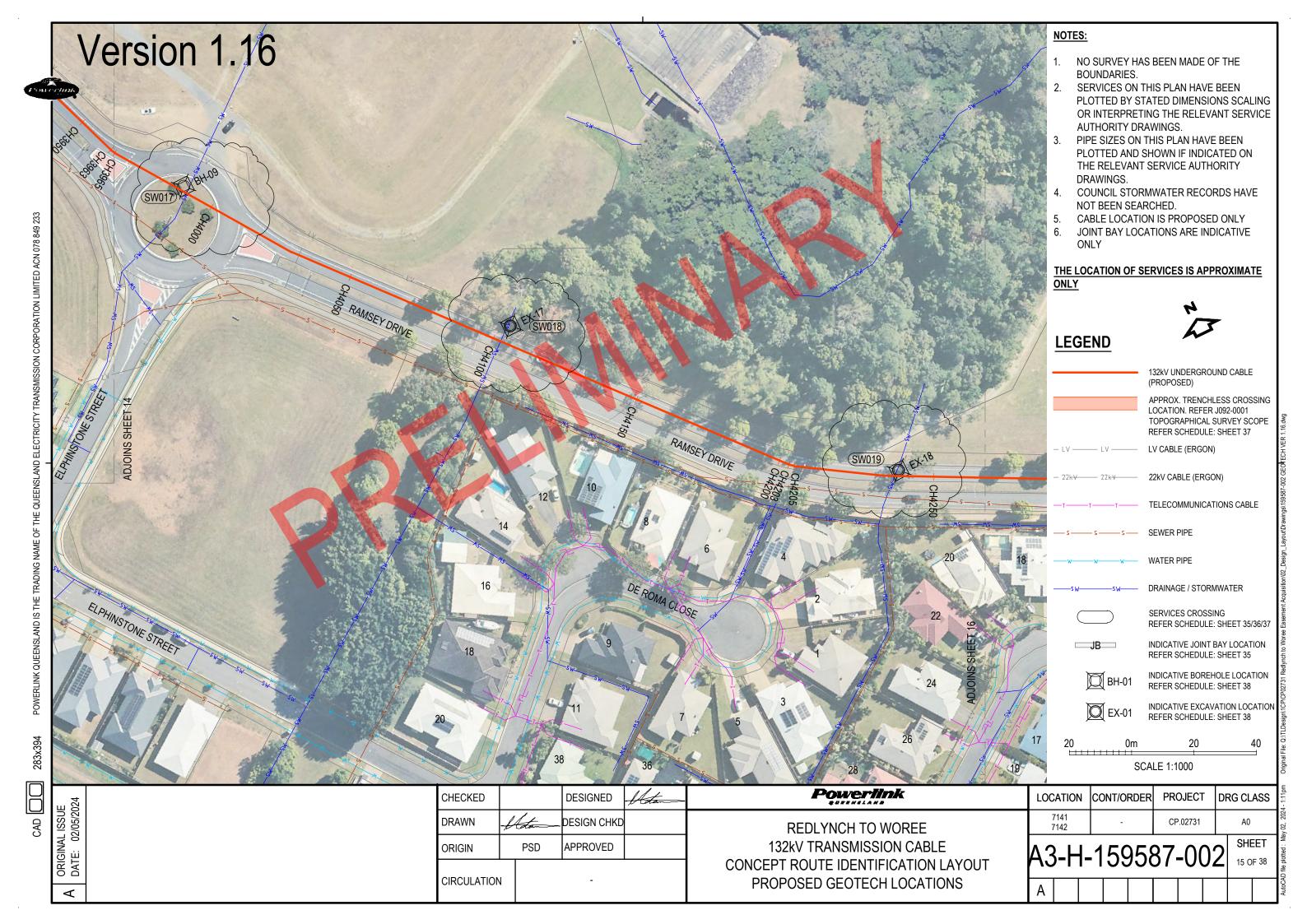


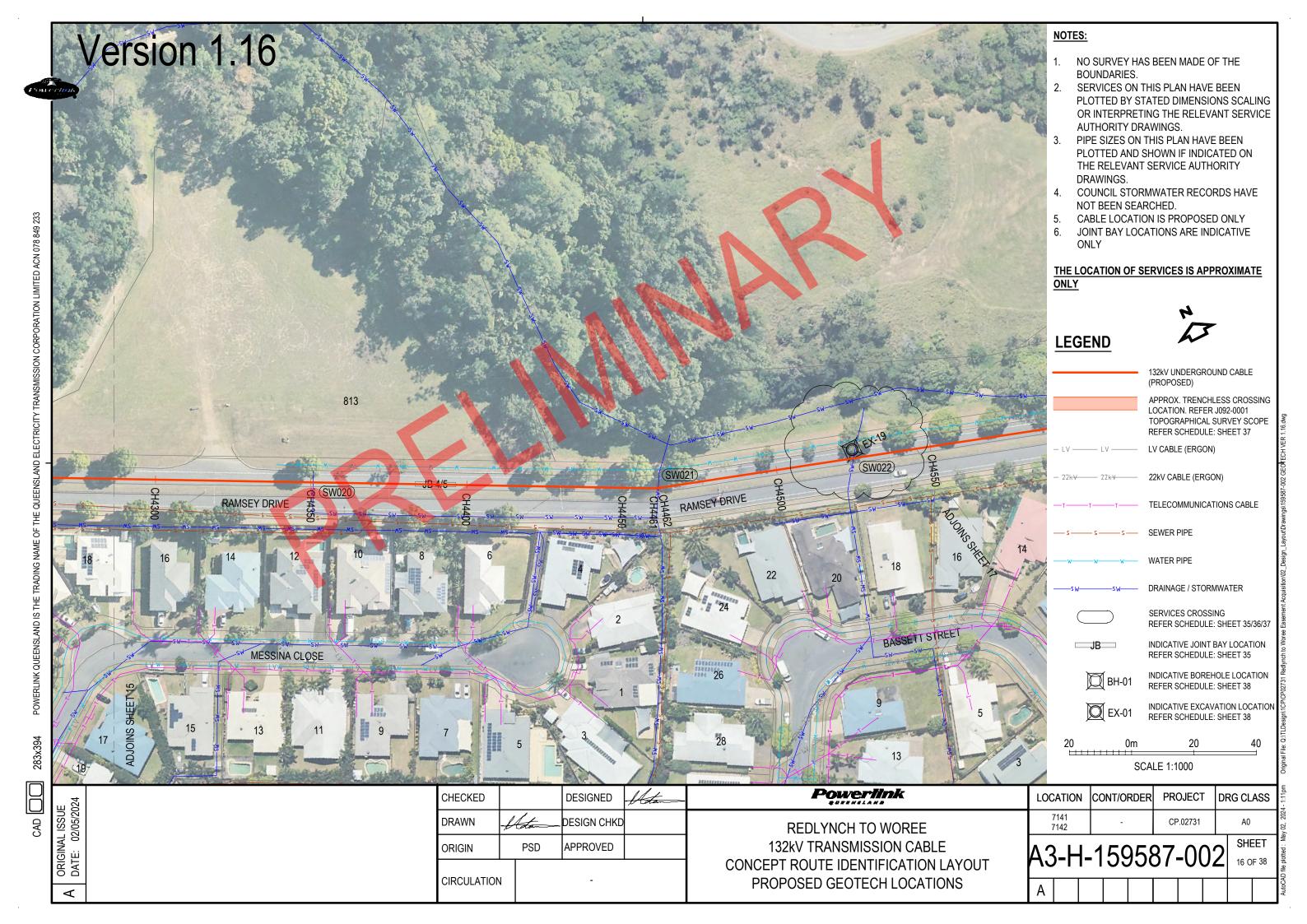


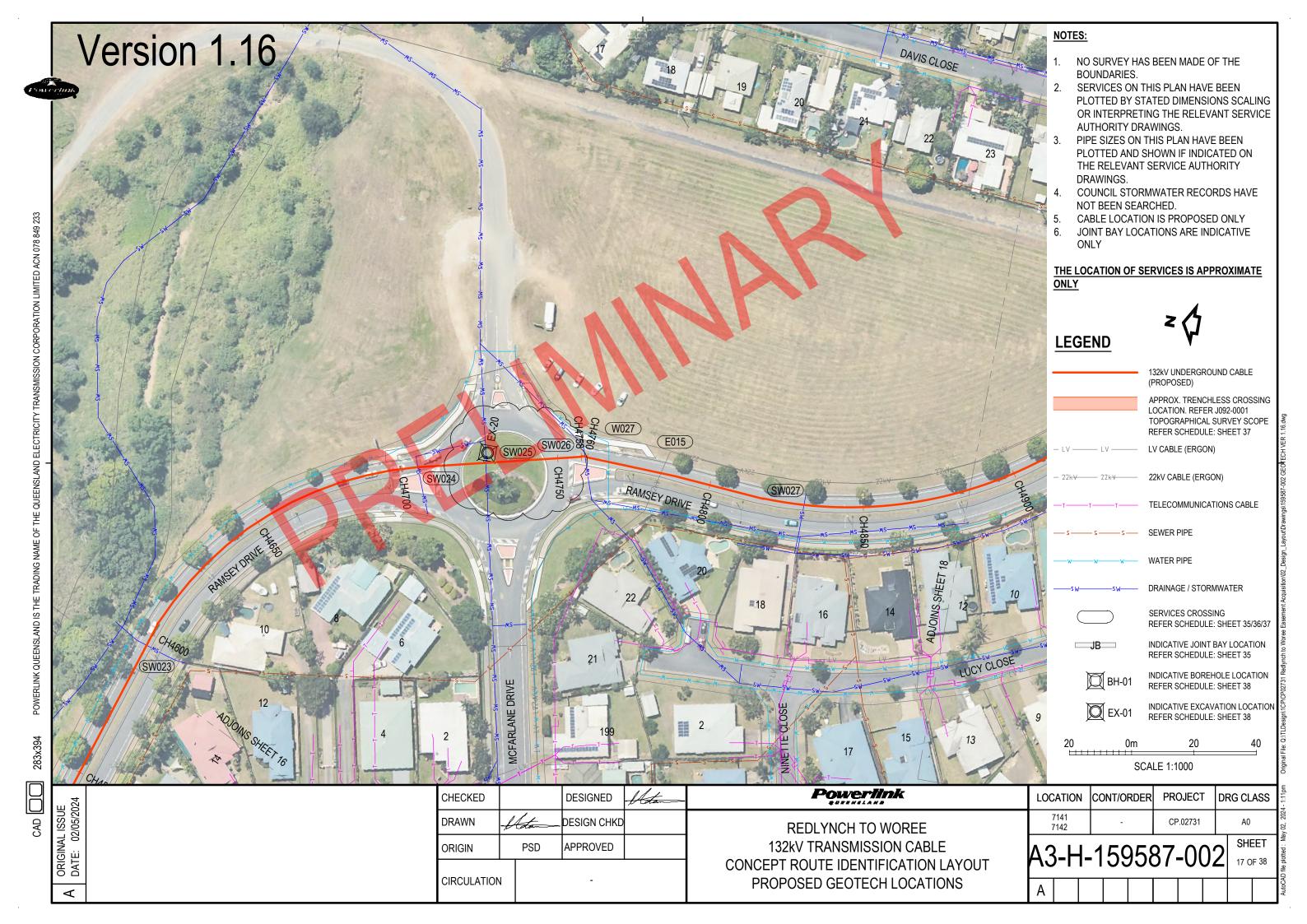


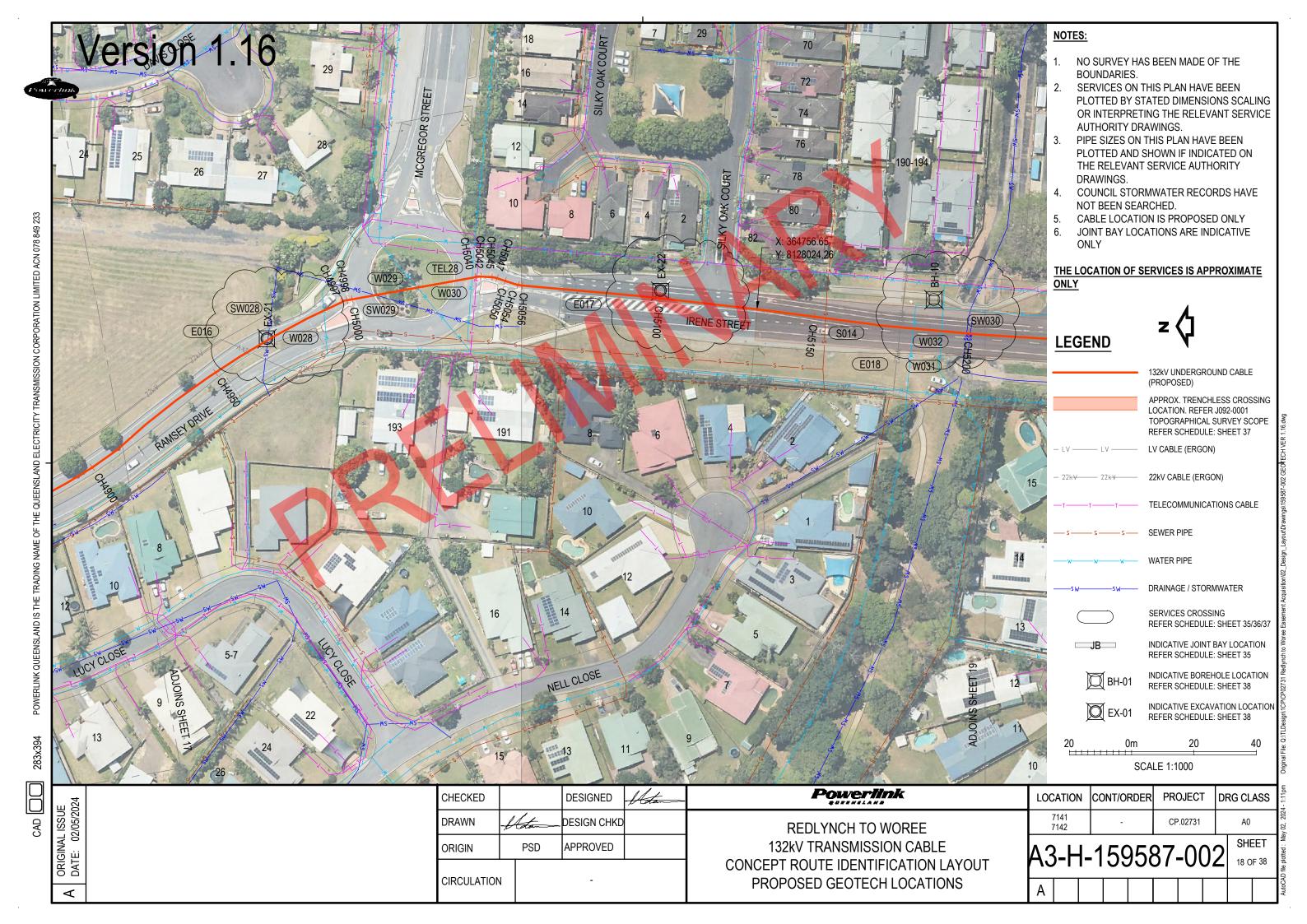


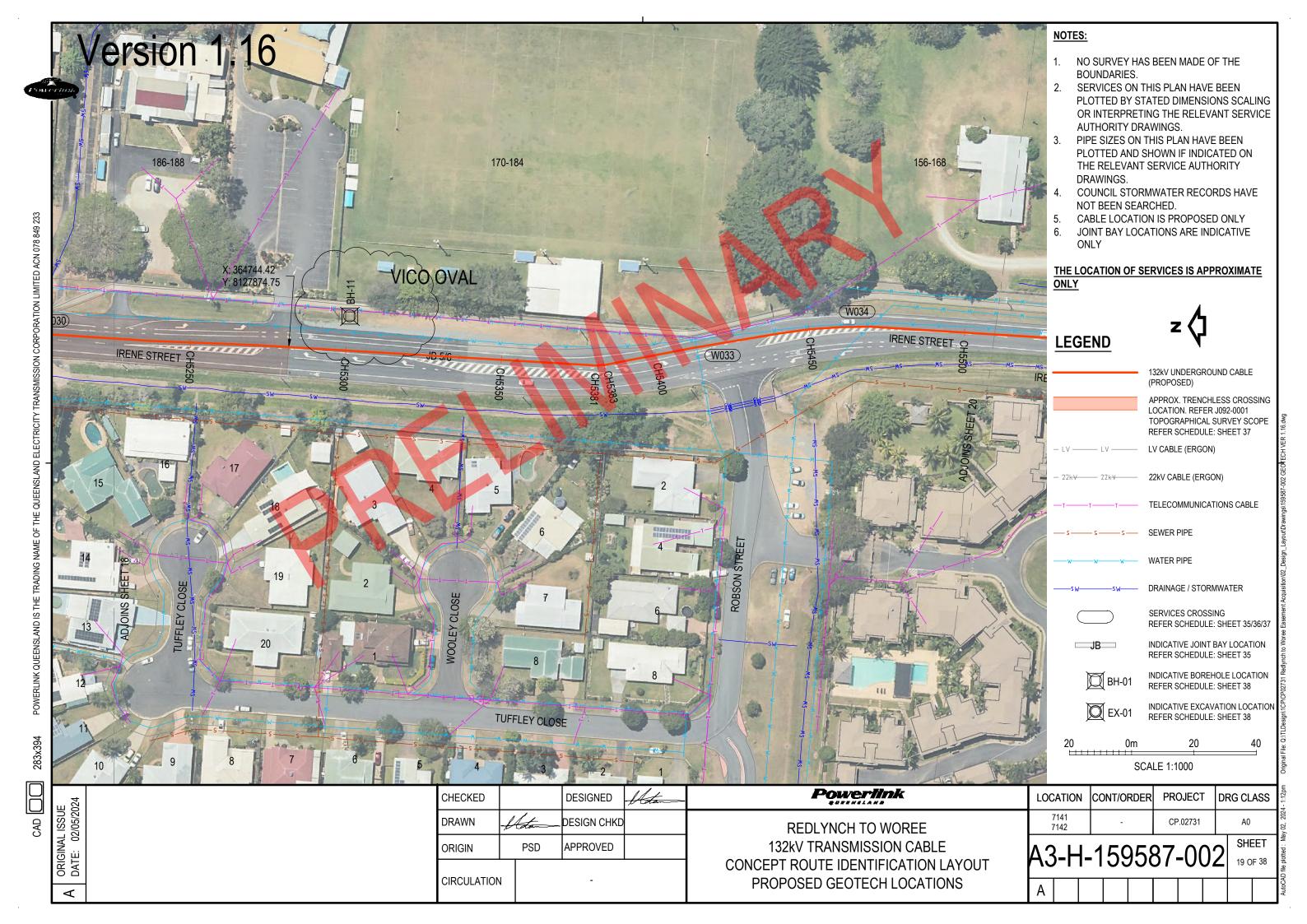




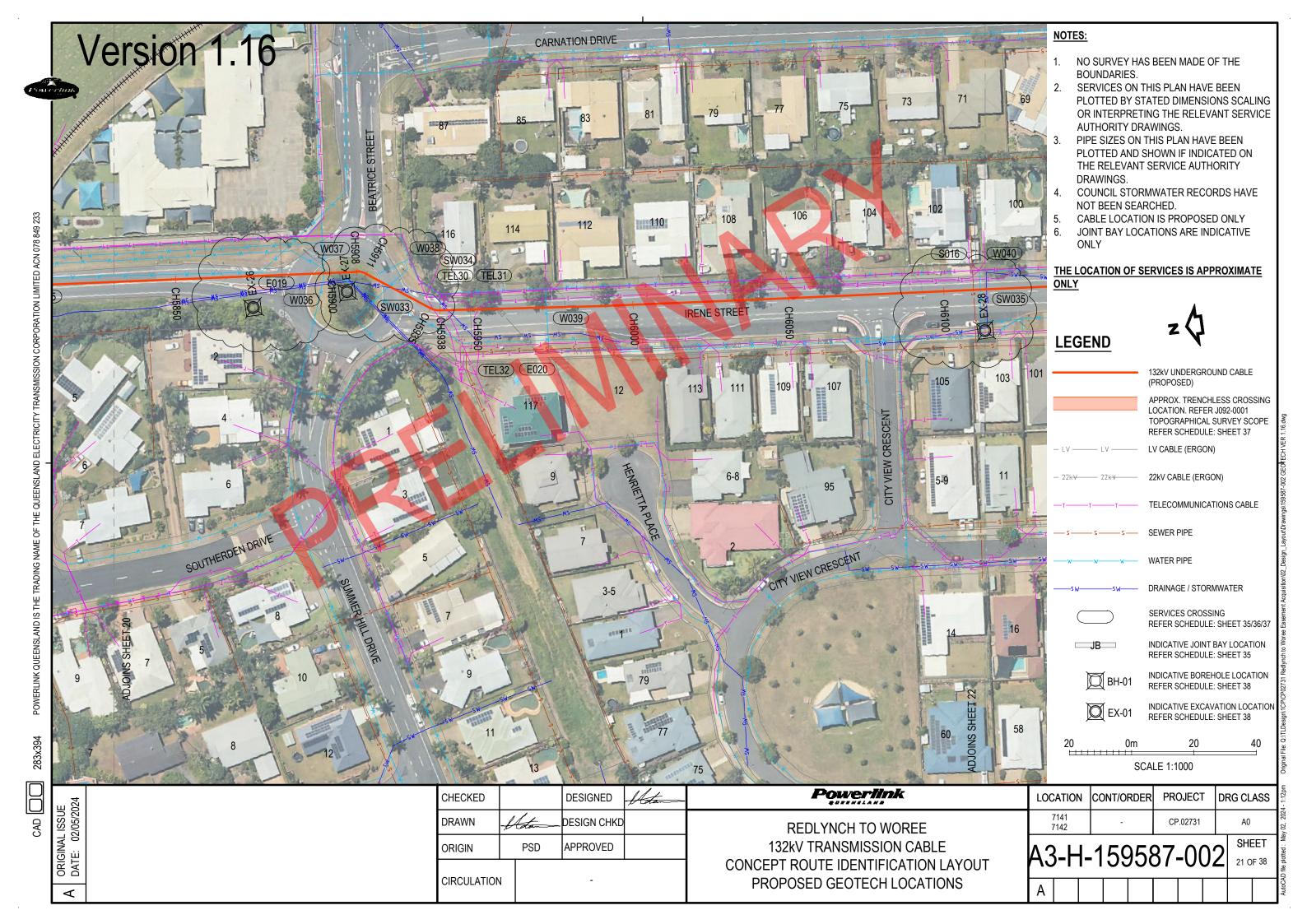


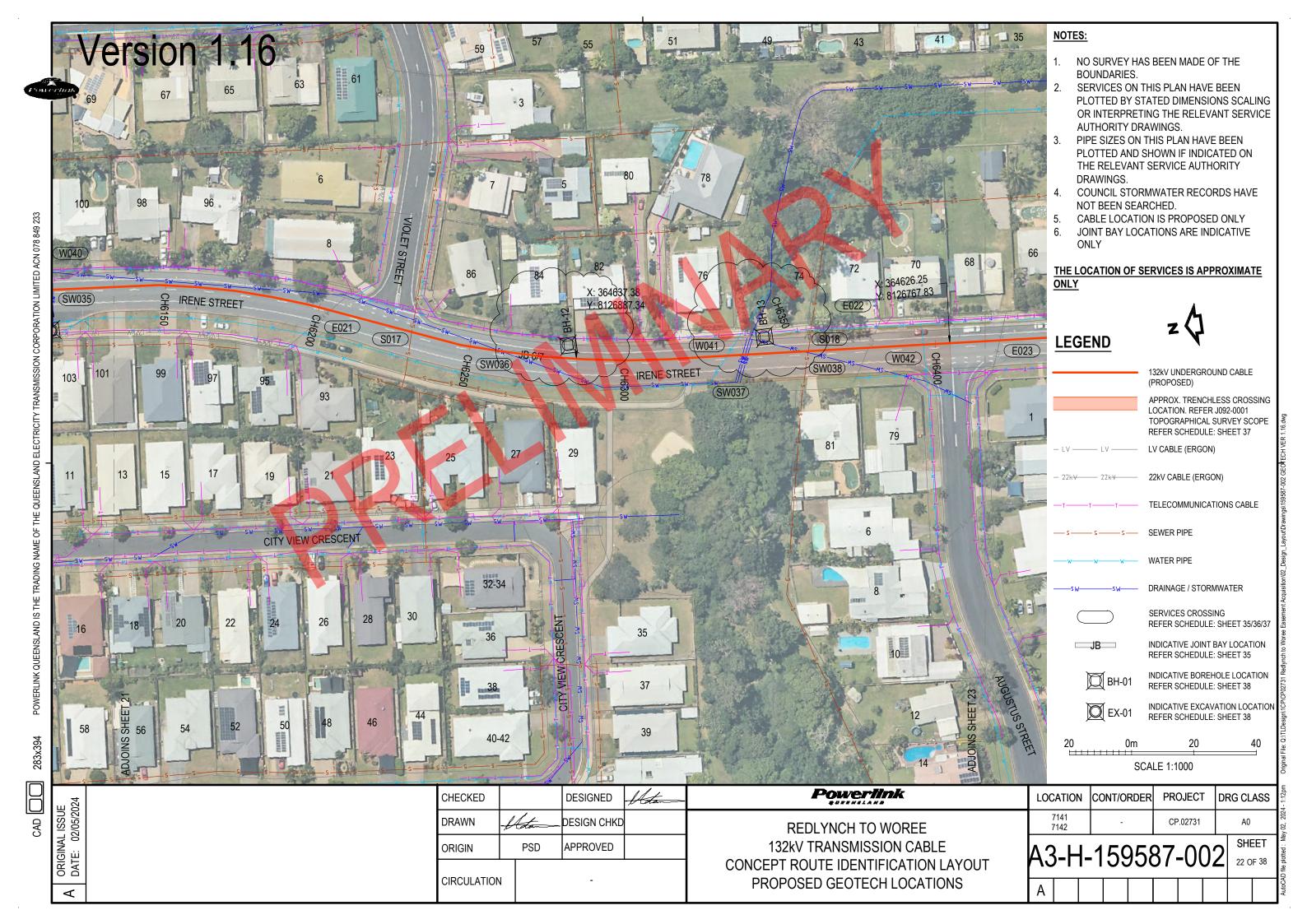


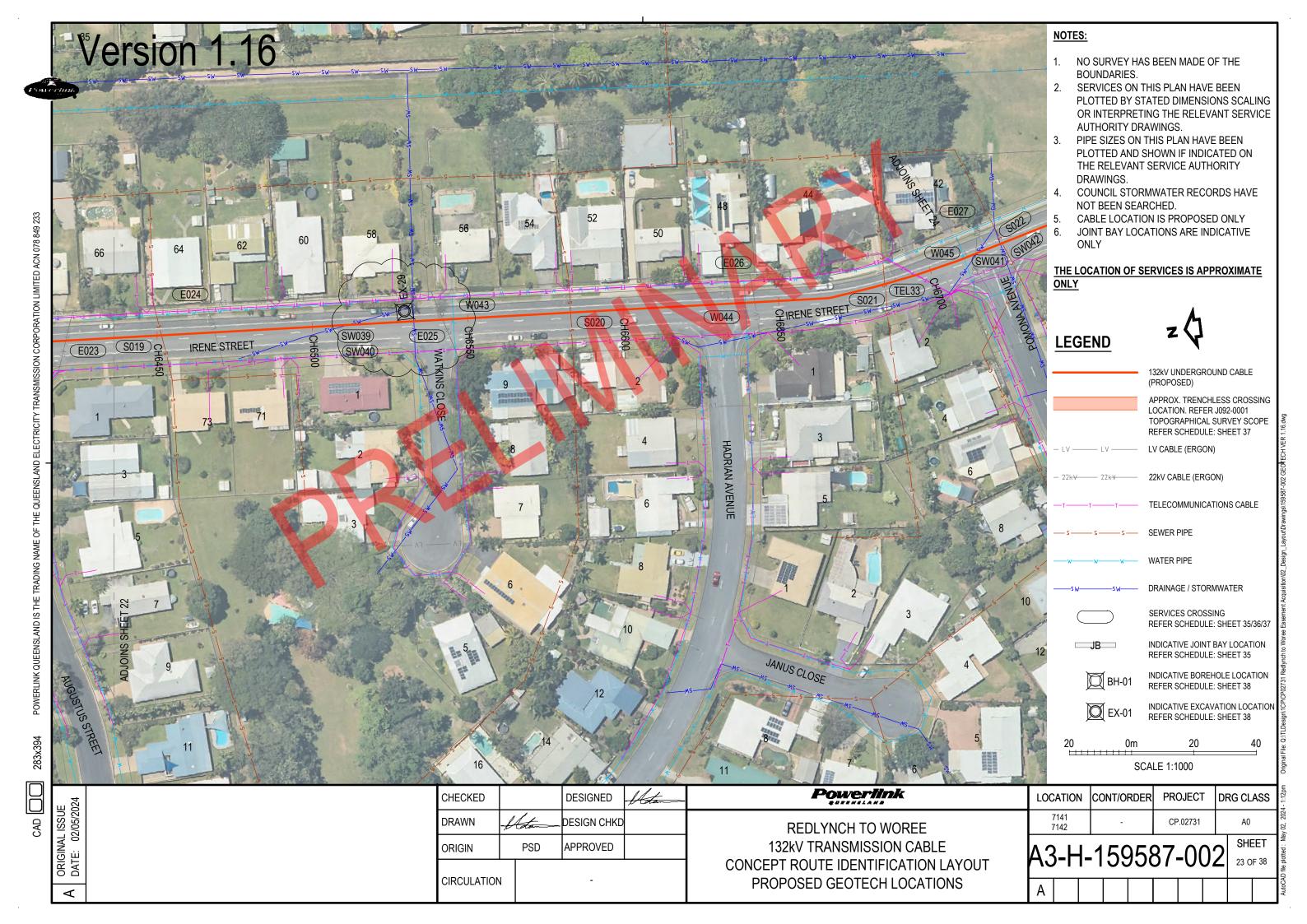


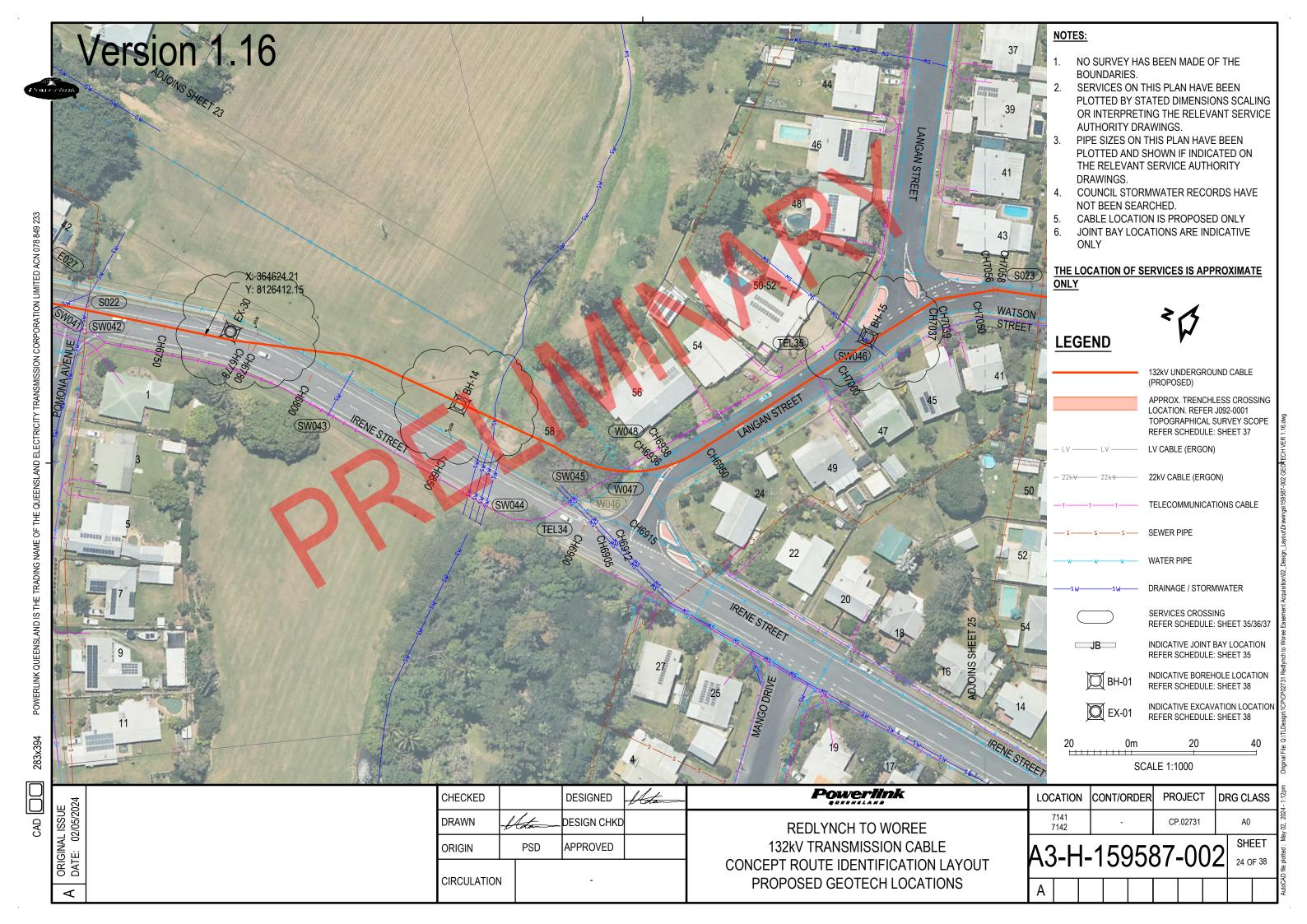


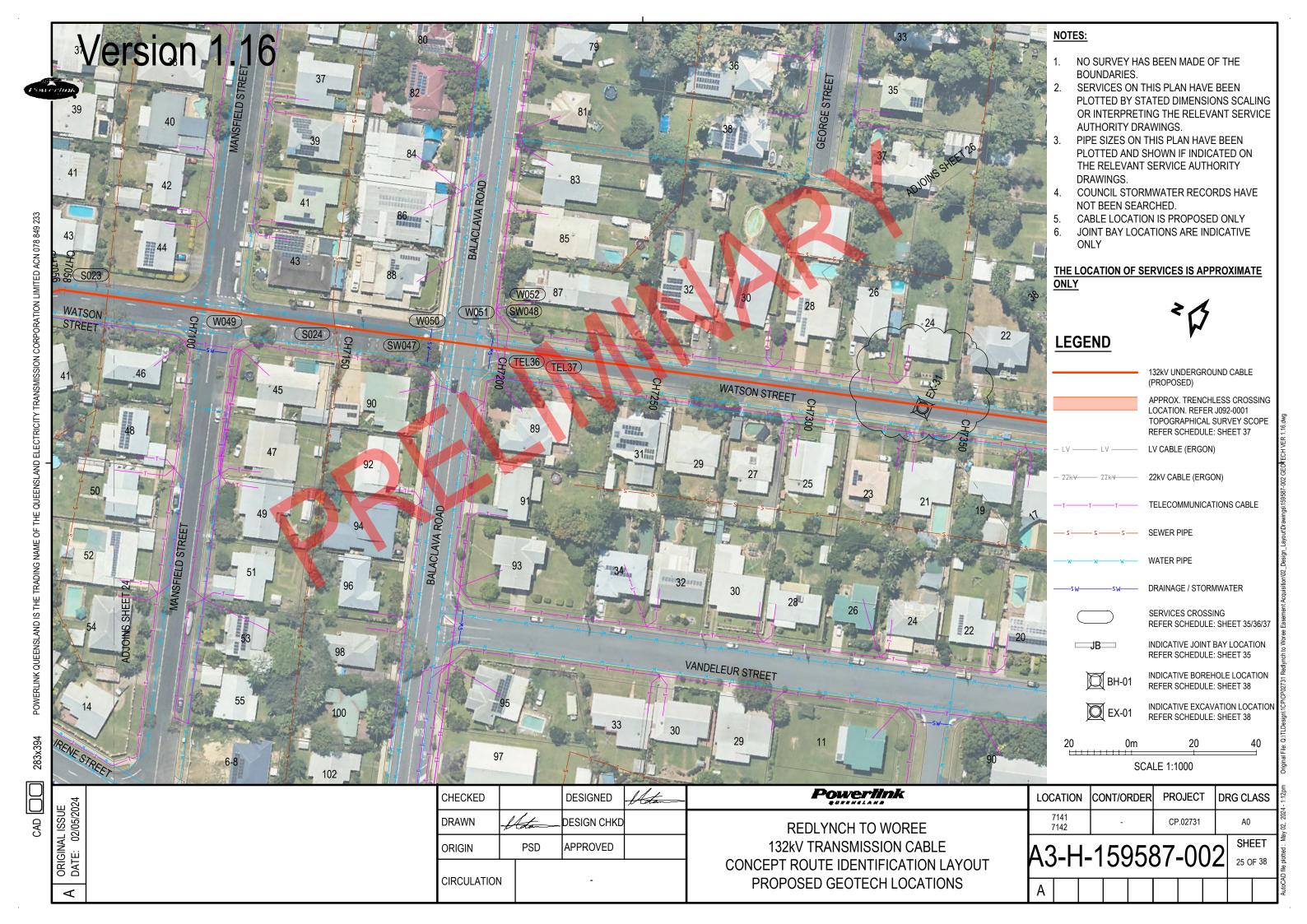


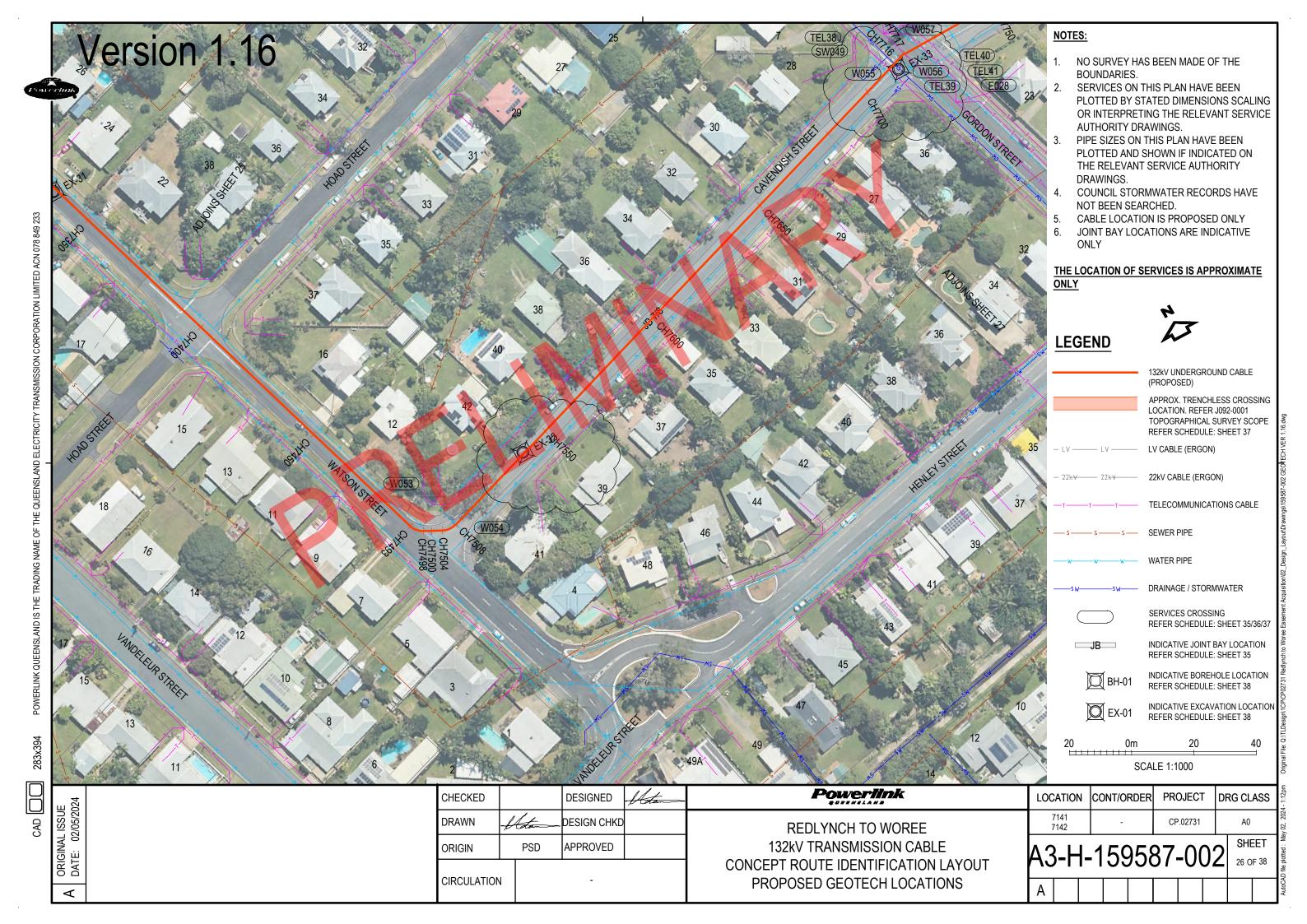


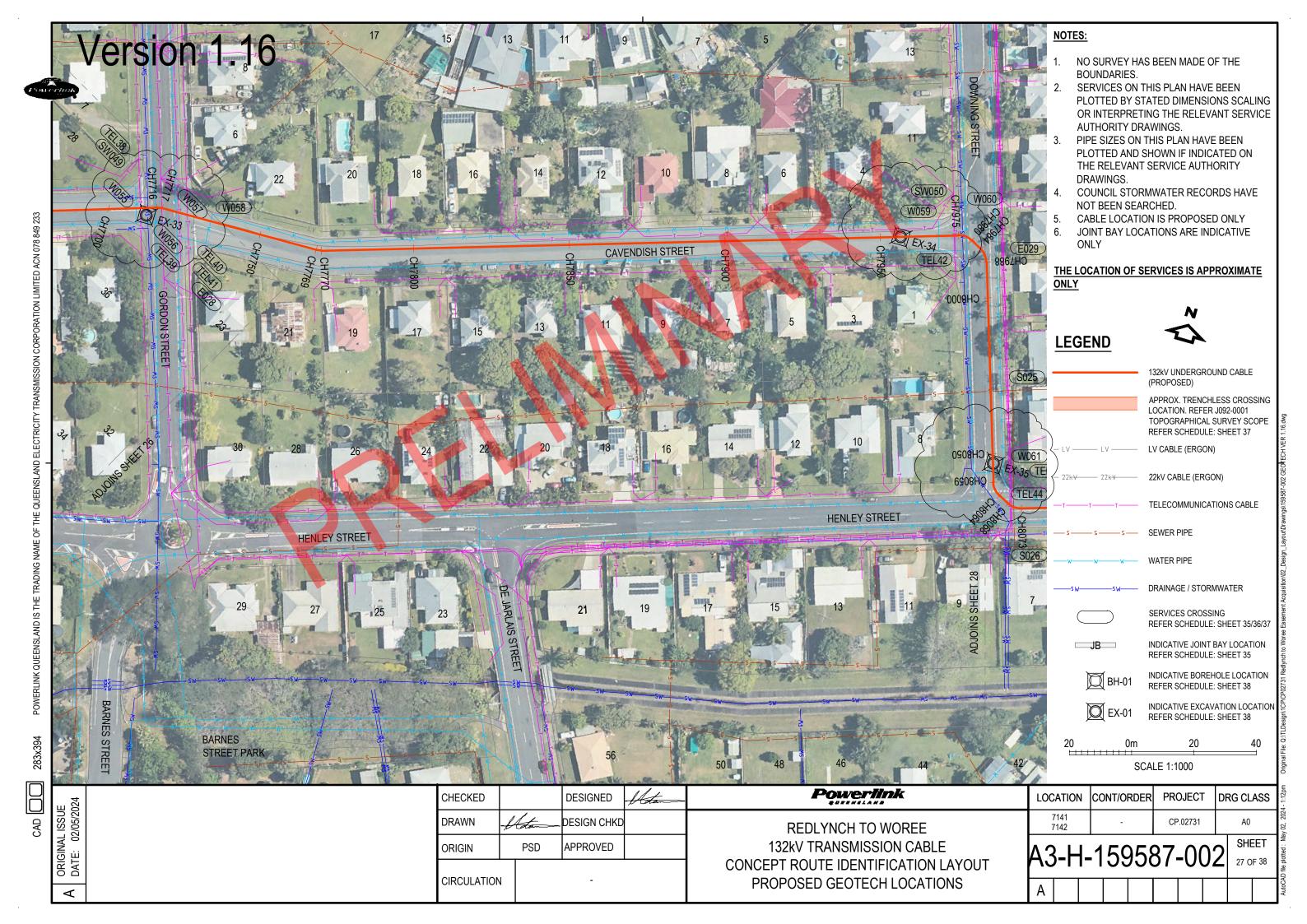


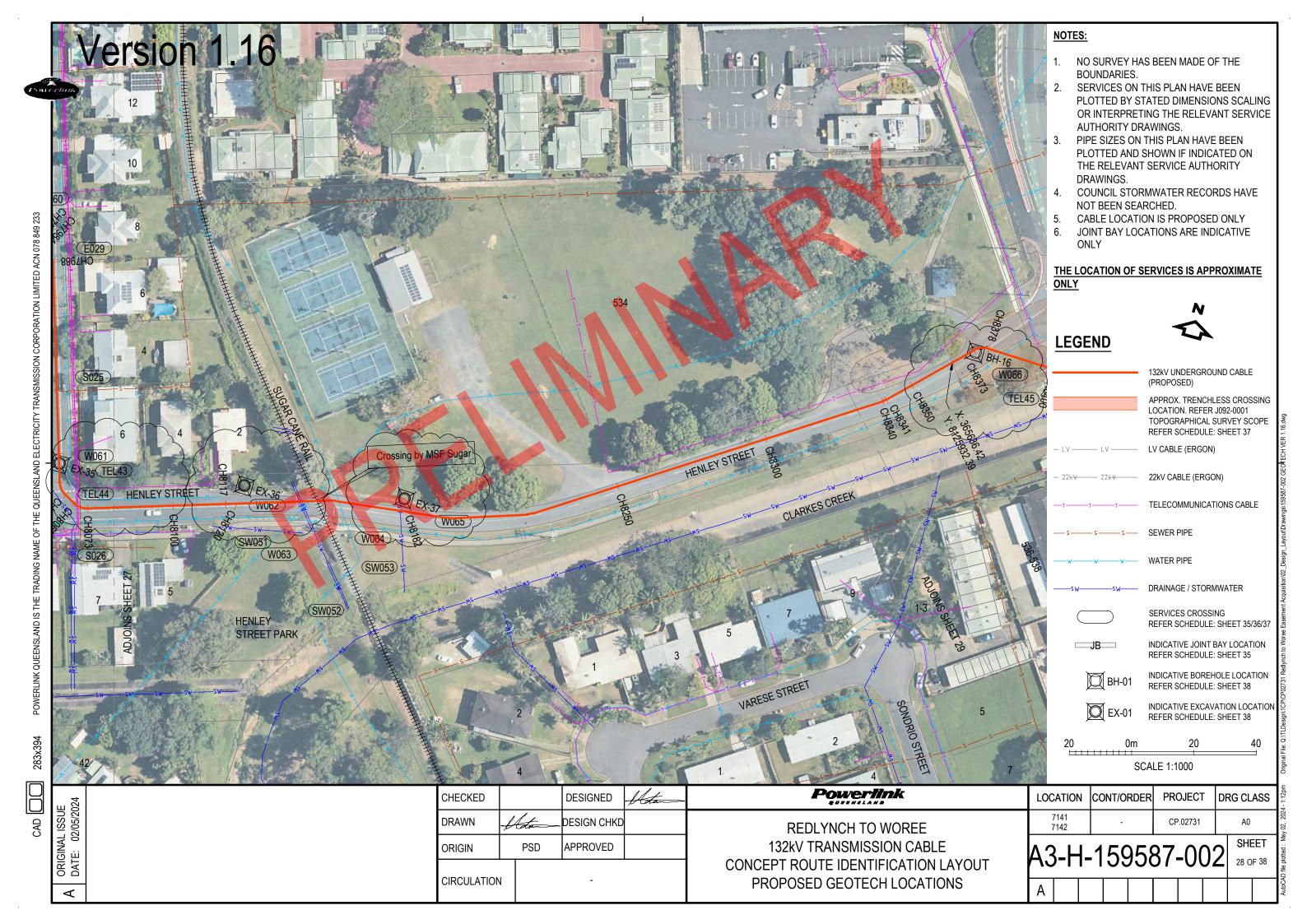


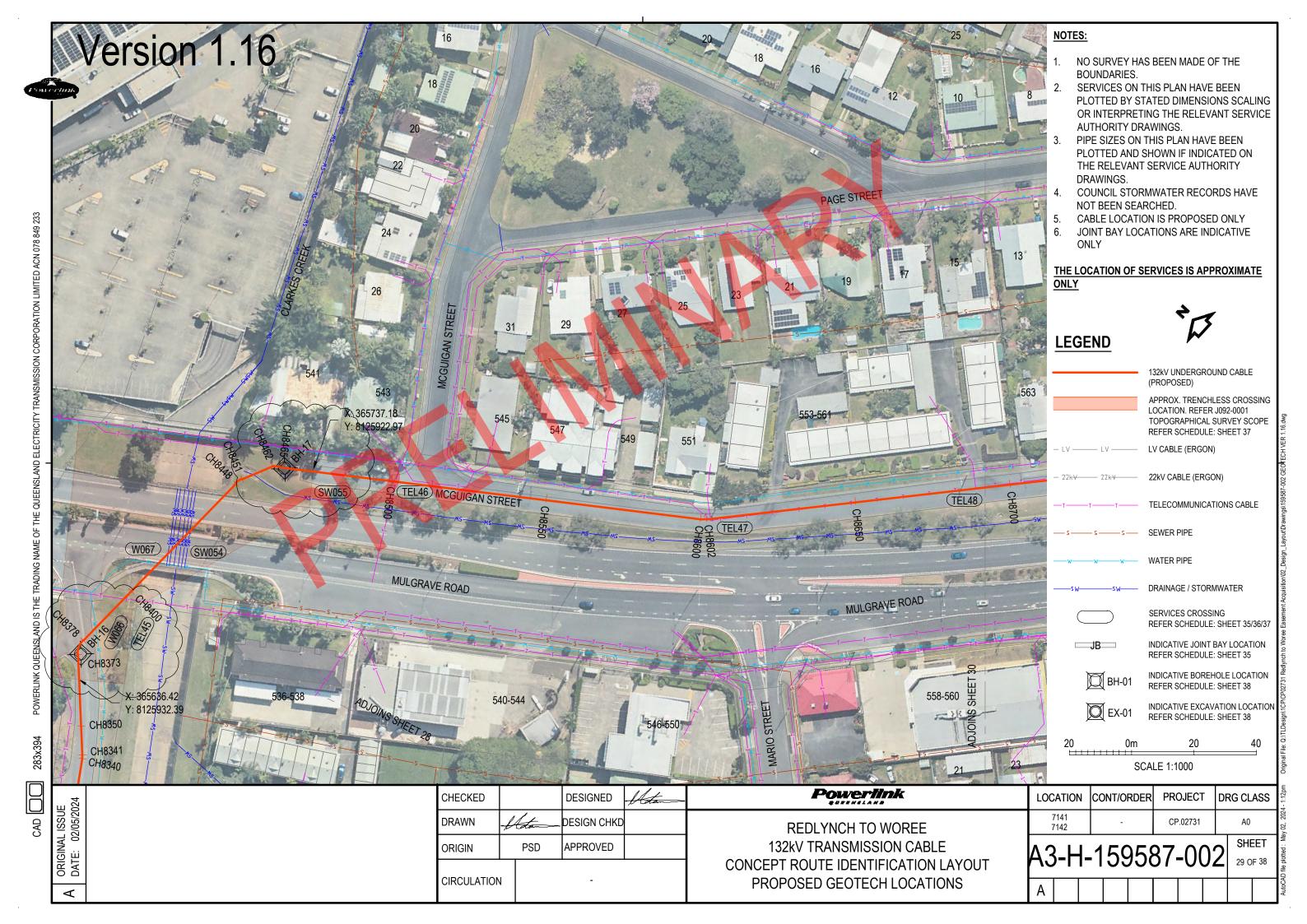


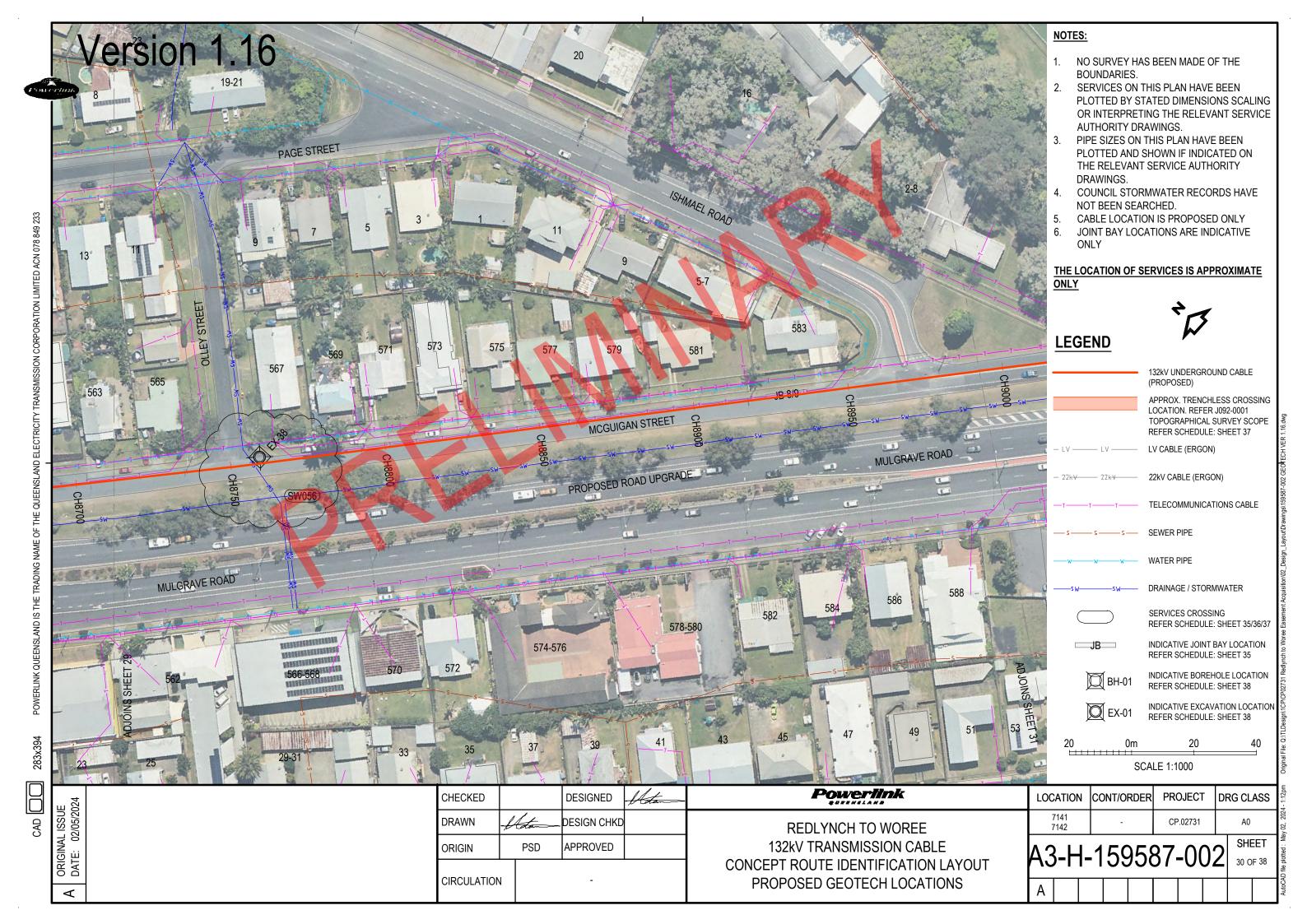


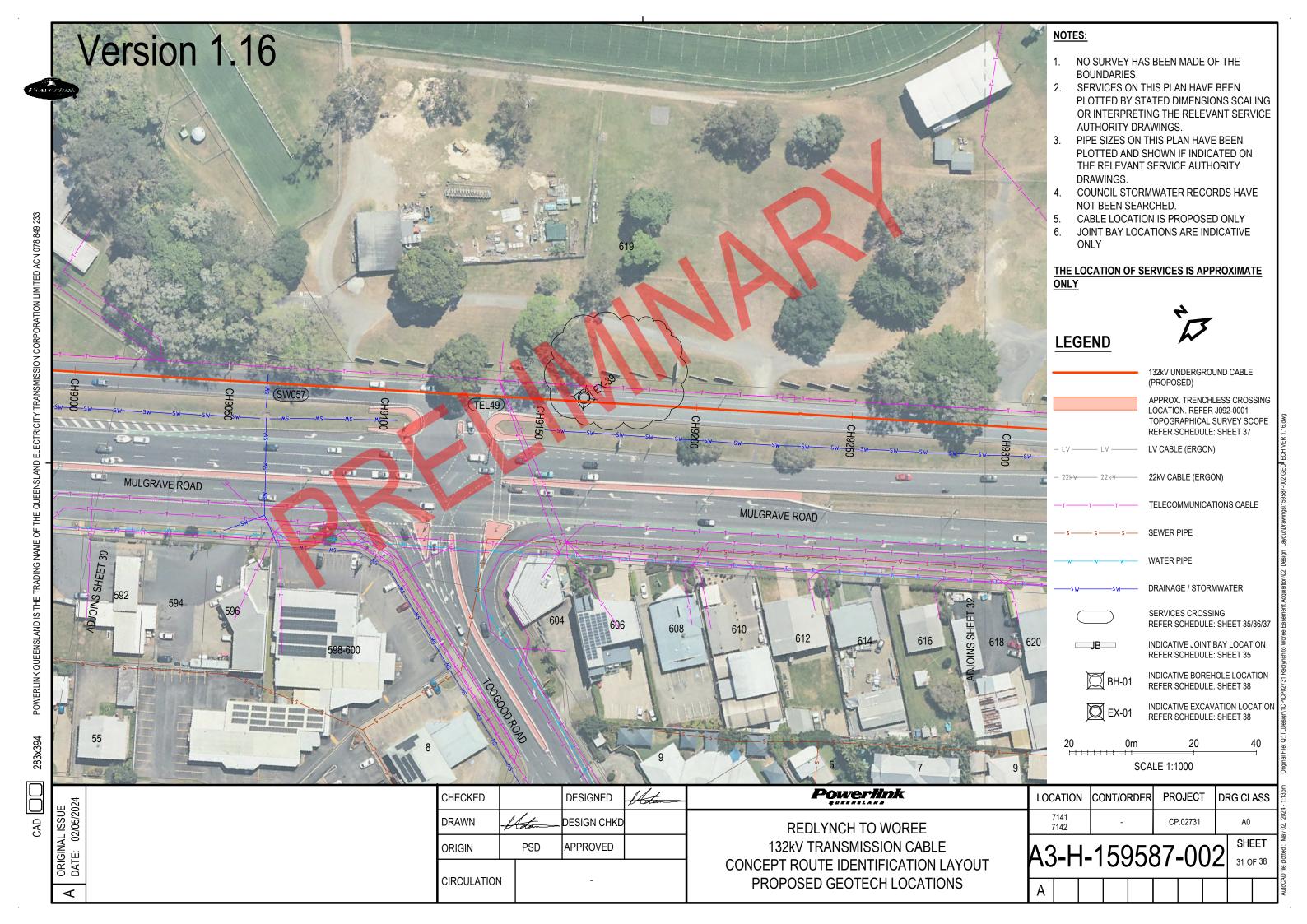


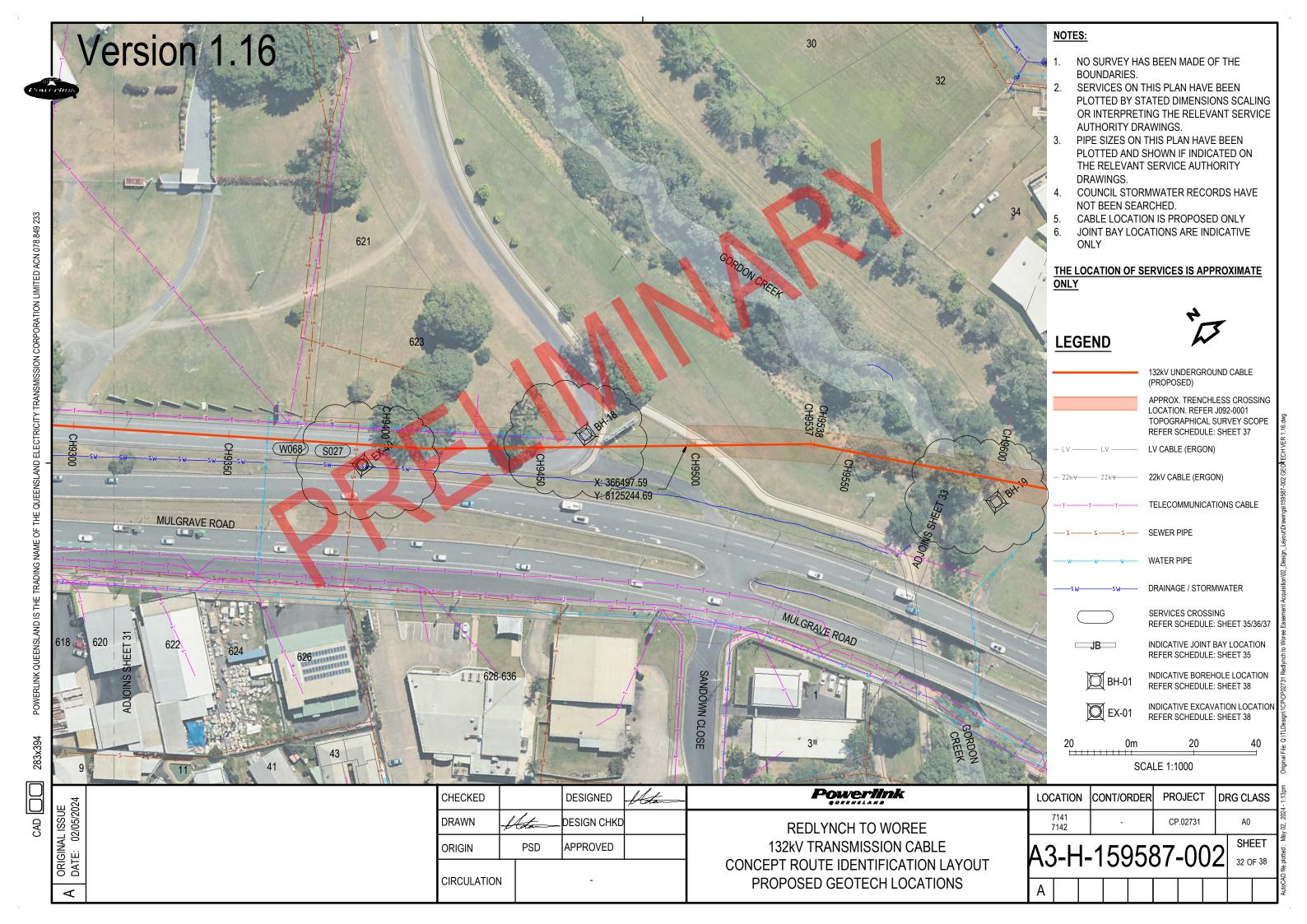


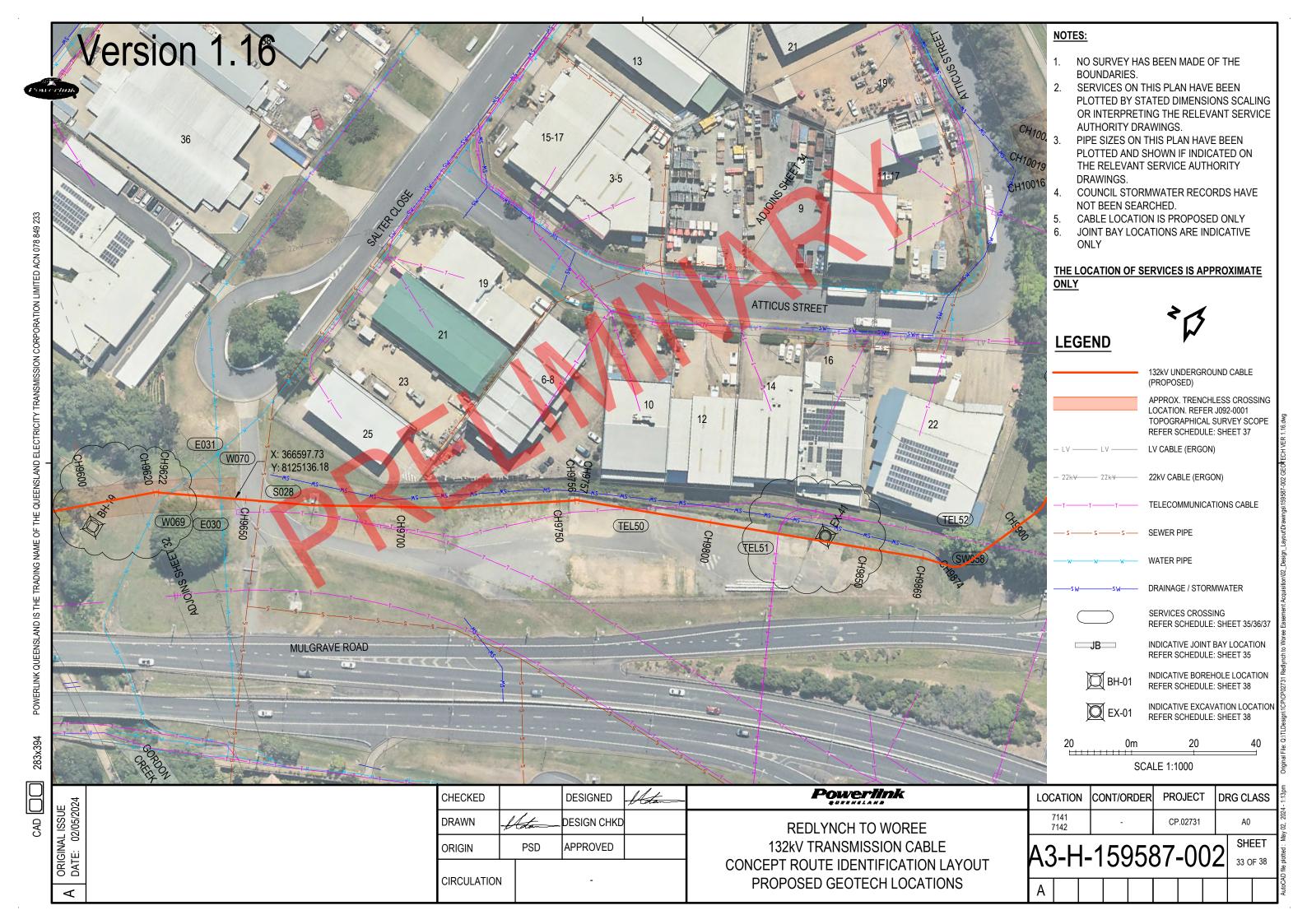


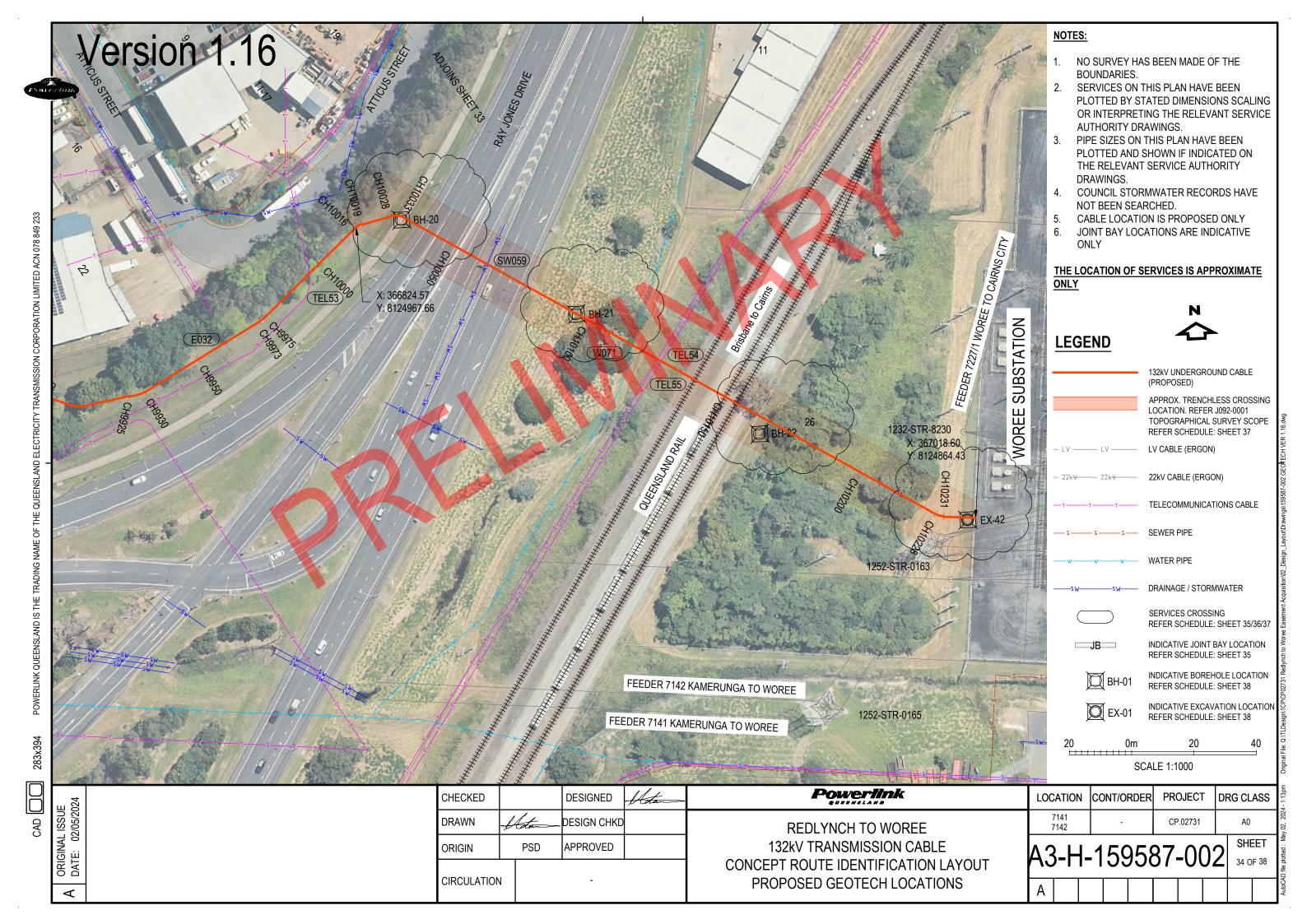












		INAGE / STOR				
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH TO TOP	SHEET NUMBER
SW001	SHALE STREET	U/G PIPE	675	RCP	1300	05
SW002	SHALE STREET	U/G PIPE	375	RCP	500	06
SW003	CHRISTIE DRIVE	U/G PIPE	750	RCP	1120	07
SW004	BRINSMEAD ROAD	OPEN DRAIN	-	CONCRETE	600	07
SW005	BRINSMEAD ROAD	ABANDONED	525	RCP	1610	07
SW006	BRINSMEAD TERRACE	U/G PIPE	600	RCP	1300	09
SW007	RAMSEY DRIVE	2 x U/G PIPE	900	RCP	2200	12
SW008	RAMSEY DRIVE	2 x U/G PIPE	900	RCP	-	12
SW009	RAMSEY DRIVE	U/G PIPE	900	RCP	-	12
SW010	RAMSEY DRIVE	CULVERT	2100 x 1500	RCBC	-	12 / 13
SW011	RAMSEY DRIVE	U/G PIPE CULVERT	525 2400 x 2400	RCP	-	13 13
SW012 SW013	RAMSEY DRIVE RAMSEY DRIVE	U/G PIPE	375	RCBC RCP	1500	14
SW014	RAMSEY DRIVE	U/G PIPE	525	RCP	2300	14
SW014	RAMSEY DRIVE	U/G PIPE	525	RCP	1500	14
SW015	RAMSEY DRIVE	2 x CULVERT	2400 x 2400	RCBC	-	14
SW017	RAMSEY DRIVE	U/G PIPE	375	RCP	1100	15
SW017	RAMSEY DRIVE	CULVERT	2400 x 2400	RCBC	-	15
SW019	RAMSEY DRIVE	U/G PIPE	450	RCP	1900	15
SW020	RAMSEY DRIVE	U/G PIPE	375	RCP	1100	16
SW021	RAMSEY DRIVE	U/G PIPE	750	RCP	2000	16
SW022	RAMSEY DRIVE	U/G PIPE	1650	RCP	3100	16
SW023	RAMSEY DRIVE	U/G PIPE	375	RCP	1500	17
SW024	RAMSEY DRIVE	U/G PIPE	450	RCP	8300	17
SW025	RAMSEY DRIVE	U/G PIPE	1200	RCP	2600	17
SW026	RAMSEY DRIVE	U/G PIPE	900	RCP	2100	17
SW027	RAMSEY DRIVE	U/G PIPE	375	RCP	1300	17
SW028	RAMSEY DRIVE	U/G PIPE	375	RCP	700	18
SW029	RAMSEY DRIVE	U/G PIPE	375	RCP	400	18
SW030	IRENE STREET	2 x CULVERT	2100 x 1500	RCBC	-	18
SW031	IRENE STREET	2 x CULVERT	750 x 300	RCBC	-	20
SW032	IRENE STREET	2 x U/G PIPE	450	RCP		20
SW033	IRENE STREET	U/G PIPE	450	RCP		21
SW034	IRENE STREET	U/G PIPE	375	RCP	-	21
SW035 SW036	IRENE STREET IRENE STREET	U/G PIPE U/G PIPE	375 450	RCP RCP	<u>-</u>	21 / 22 22
SW037	IRENE STREET	3 x U/G PIPE	1800	RCP	-	22
SW037	IRENE STREET	U/G PIPE	450	RCP	-	22
SW039	IRENE STREET	U/G PIPE	375	RCP	-	23
SW040	IRENE STREET	U/G PIPE	525	RCP	_	23
SW041	IRENE STREET	U/G PIPE	450	RCP	-	23 / 24
SW042	IRENE STREET	U/G PIPE	600	RCP	-	23 / 24
SW043	IRENE STREET	U/G PIPE	375	RCP	-	24
SW044	IRENE STREET	4 x CULVERT	2100 x 2100	RCBC	-	24
SW045	IRENE STREET	2 x CULVERT	2100 x 2100	RCBC	-	24
SW046	LANGAN STREET	U/G PIPE	600	RCP	-	24
SW047	WATSON STREET	CULVERT	450 x 225	RCBC	-	25
SW048	WATSON STREET	CULVERT	600 x 300	RCBC	-	25
SW049	CAVENDISH STREET	U/G PIPE	825	RCP	-	26 / 27
SW050	CAVENDISH STREET	U/G PIPE	600	RCP	-	27
SW051	HENLEY STREET	U/G PIPE	375	RCP	-	28
SW052	HENLEY STREET	OPEN DRAIN	-	CONCRETE	-	28
SW053	HENLEY STREET	U/G PIPE	525	RCP	-	28
SW054	MULGRAVE ROAD	6 x CULVERT	3000 x 1800	RCBC	-	29
SW055	MCGUIGAN STREET	OPEN DRAIN	- 750	CONCRETE	-	29
SW056	MCGUIGAN STREET	U/G PIPE	750	RCP	-	30
SW057	MCGUIGAN STREET	CULVERT	1200 x 300	CONCRETE	-	31
CIVIUEO	MIN (20 V/V D/ V/V					
SW058 SW059	MULGRAVE ROAD RAY JONES DRIVE	OPEN DRAIN U/G PIPE	375	UNLINED PRIV-RCP	1080	33 34

		SEWER I	PIPE CROS	SINGS		
ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH TO TOP	SHEET NUMBER
S001	GOOMBOORA PARK	OVERFLOW	150	PVC	2100	05
S002	SHALE STREET	GMAIN	150	PVC	2450	05
S003	SHALE STREET	GMAIN	150	PVC	2050	05 / 06
S004	SHALE STREET	GMAIN	150	PVC	2150	06
S005	SHALE STREET	RM <mark>AIN</mark>	100	PVC	1500	06
S006	CHRISTIE DRIVE	GM <mark>AIN</mark>	150	PVC	1450	06
S007	CHRISTIE DRIVE	GM <mark>AIN</mark>	150	PVC	1200	07
S008	BRINSMEAD TERRACE	RMAIN	80	PVC	-	08 / 09
S009	BRINSMEAD TERRACE	RMAIN	80	PVC	-	09
S010	RAMSEY DRIVE	GMAIN	150	PVC	1700	12
S011	RAMSEY DRIVE	GMAIN	150	PVC	1750	12
S012	RAMSEY DRIVE	GMAIN	150	PVC	2600	13
S013	RAMSEY DRIVE	GMAIN	225	PVC	2200	14
S014	IRENE STREET	GMAIN	300	PVC	4150	18
S015	IRENE STREET	GMAIN	150	PVC	1600	20
S016	IRENE STREET	GMAIN	225	UPVC	2300	21
S017	IRENE STREET	GMAIN	225	AC	2155	22
S018	IRENE STREET	GMAIN	150	AC	2680	22
S019	IRENE STREET	GMAIN	150	AC	1000	23
S020	RENE STREET	GMAIN	150	AC	2800	23
S021	IRENE STREET	GMAIN	150	AC	1600	23
S022	IRENE STREET	GMAIN	225	AC	865	23 / 24
S023	WATSON STREET	GMAIN	150	AC	1290	24 / 25
S024	WATSON STREET	GMAIN	150	AC	820	25
S025	DOWNING STREET	GMAIN	300	AC	2210	27 / 28
S026	HENLEY STREET	GMAIN	150	PVC	1825	27 / 28
S027	MCGUIGAN STREET	RMAIN	100	AC	1200	32
S028	SALTER CLOSE	GMAIN	450	CONCRETE	2950	33

			JOINT BAY LOCATION			
ITEM	SECTION	CHAINAGE	LOCATION	SECTION LENGTH	TYPE	SHEET NUMBER
JB 1/2	1	1150	20 SHALE STREET - SAMUAL CHRISTENSEN PARK	1150	CROSS	06
JB 2/3	2	2300	13 BRINSMEAD TERRACE	1150	CROSS	09
JB 3/4	3	3450	30 RAMSEY DRIVE	1150	EARTH	13
JB 4/5	4	4390	813 RAMSEY DRIVE - BEHIND 8 MESSINA CLOSE	940	CROSS	16
JB 5/6	5	5330	172 IRENE STREET - BEHIND 4 WOLLY CLOSE	940	CROSS	19
JB 6/7	6	6270	84 IRENE STREET	940	EARTH	22
JB 7/8	7	7600	36 CAVENDISH STREET	1330	CROSS	26
JB 8/9	8	8930	583 MCGUIGAN ST	1330	CROSS	30

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

		CHECKED		DESIGNED	Udam	Powerlink	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
CAD [<u> ≅ </u>	DRAWN	Man	DESIGN CHKD)	REDLYNCH TO WOREE	7141 7142	-	CP.02731	A0
Ü	ORIGINAL DATE: 02	ORIGIN	PSD	APPROVED		132kV TRANSMISSION CABLE	Δ3_Н.	-15958	27_00	2 SHEET
	IS DE LEGITIES OF THE LEGITIES		,	_		CONCENTRACTE IDENTIFICATION EXTRACT	(0 11	10000	J1 00,	35 OF 38
	< <	CIRCULATION	N	-		PROPOSED GEOTECH LOCATIONS	A			

—		U	V:			· · · · · · · · · · · · · · · · · · ·
W001	FRESHWATER CREEK	TRUNK	375	DICL	-	04
W002	GOOMBOORA PARK	RETIC MINOR	50	PVC	_	05
W002	GOOMBOORA PARK	TRUNK	375	DICL	-	05
W004	SHALE STREET	TRUNK	375	DICL	-	05
W005	SHALE STREET	RETIC MAJOR	100	AC	-	05
W006	SHALE STREET	RETIC MAJOR	100	PVC	-	06
W007	SHALE STREET	RETIC MINOR	40	PVC	-	06
W008	VIEW STREET	RETIC MAJOR	100	AC	-	06
W009	VIEW STREET	TRUNK	375	DICL	-	06
		DETICANNOD				
W010	VIEW STREET	RETIC MINOR	40	PVC	-	06
W011	CHRISTIE DRIVE	TRUNK	375	DICL	-	06
W012	CHRISTIE DRIVE	RETIC MAJOR	100	DICL	-	06
W013	CHRISTIE DRIVE	TRUNK	525	AC	-	06 / 07
W014	CHRISTIE DRIVE	ABANDONED	300	AC	-	06 / 07
W015	CHRISTIE DRIVE	RETIC MAJOR	100	PVC	-	07
W016	BRINSMEAD TERRACE	TRUNK	1085	MSCL		09
					-	
W017	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	09
W018	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	09
W019	BRINSMEAD TERRACE	TRUNK	600	MSCL	-	10
W020	BRINSMEAD TERRACE	TRUNK	1085	MSCL	-	10
W021	RAMSEY DRIVE	TRUNK	600	AC	-	12
W022	RAMSEY DRIVE	RETIC MAJOR	100	AC	-	12
W023	RAMSEY DRIVE	RETIC MAJOR	150	AC	-	12
W024	RAMSEY DRIVE	RETIC MAJOR	150	AC	-	13
						13
W025	RAMSEY DRIVE	RETIC MAJOR	100 150	AC		
W026	RAMSEY DRIVE	RETIC MAJOR		PVC	-	14
W027	RAMSEY DRIVE	RETIC MAJOR	100	PVC	-	17
W028	RAMSEY DRIVE	RETIC MAJOR	150	PVC	-	18
W029	RAMSEY DRIVE	TRUNK	450	DICL	-	18
W030	IRENE STREET	RETIC MINOR	40	PVC	-	18
W031	IRENE STREET	TRUNK	1085	MSCL	-	18
W032	IRENE STREET	RETIC MAJOR	100	PVC		18
W033	IRENE STREET	RETIC MAJOR	100	PVC		19
W034	IRENE STREET	TRUNK	450	AC	_	19
W035	IRENE STREET	TRUNK	450	DICL	_	20
W036	IRENE STREET	TRUNK	375	DICL		21
				AC	-	21
W037	IRENE STREET	TRUNK	450		-	21
W038	IRENE STREET	RETIC MAJOR	150	PVC	-	21
W039	IRENE STREET	RETIC MAJOR	150	DICL	-	21
W040	IRENE STREET	RETIC MAJOR	150	AC	-	21
W041	IRENE STREET	TRUNK	450	AC	-	22
W042	IRENE STREET	RETIC MAJOR	150	AC	-	22
W043	IRENE STREET	RETIC MAJOR	100	AC	-	23
W044	IRENE STREET	RETIC MAJOR	100	AC	-	23
W045	IRENE STREET	RETIC MAJOR	150	AC	_	23
W046	IRENE STREET	RETIC MAJOR	225	AC	<u>-</u>	24
W047	LANGAN STREET	RETIC MAJOR	100	AC	-	24
					-	
W048	LANGAN STREET	TRUNK	450	AC	-	24
W049	WATSON STREET	RETIC MAJOR	100	AC	-	25
W050	WATSON STREET	RETIC MAJOR	100	AC	-	25
W051	WATSON STREET	RETIC MAJOR	225	AC	-	25
W052	WATSON STREET	RETIC MAJOR	100	CICL	-	25
W053	WATSON STREET	RETIC MAJOR	150	CICL	-	26
W054	CAVENDISH STREET	RETIC MAJOR	100	AC	-	26
W055	CAVENDISH STREET	RETIC MINOR	40	PVC	-	26 / 27
W056	CAVENDISH STREET	TRUNK	375	AC	-	26 / 27
W057	CAVENDISH STREET	RETIC MAJOR	150	CICL		26 / 27
					-	
W058	CAVENDISH STREET	RETIC MAJOR	100	AC	-	27
W059	CAVENDISH STREET	RETIC MAJOR	100	AC	-	27

WATER PIPE CROSSINGS

ITEM | LOCATION REFERENCE | SERVICE TYPE | SIZE | MATERIAL | DEPTH TO TOP | SHEET NUMBER

W060	DOWNING STREET	RETIC MAJOR	100	CICL	-	27
W061	DOWNING STREET	RETIC MAJOR	100	AC	-	27 / 28
W062	HENLEY STREET	RETIC MAJOR	225	AC	-	28
W063	HENLEY STREET	TRUNK	500	CICL	-	28
W064	HENLEY STREET	TRUNK	1085	MSCL	-	28
W065	HENLEY STREET	RETIC MAJOR	225	AC	-	28
W066	HENLEY STREET	RETIC MAJOR	225	AC	-	28 / 29
W067	MULGRAVE ROAD	RETIC MAJOR	150	DICL	-	29
W068	MCGUIGAN STREET	RETIC MAJOR	100	AC	-	32
W069	SALTER CLOSE	ABANDONED	75	AC	-	33
W070	SALTER CLOSE	RETIC MAJOR	150	DICL	-	33
W071	RAY JONES DRIVE	RETIC MAJOR	150	PVC	-	34

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			ELECTRICAL CR	OSSIN	GS		
	ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH TO TOP	SHEET NUMBER
	E001	CHRISTIE DRIVE	LV U/G CABLE (ERGON)	-	-	-	07
1	E002	CHRISTIE DRIVE	22kV U/G CABLE (ERGON)	-	-	-	07
ſ	E003	BRINSMEAD TERRACE	22kV U/G CABLE (ERGON)	-	-	-	10
	E004	BRINSMEAD TERRACE	LV U/G CABLE (ÉRGON)	-	-	-	10
	E005	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	12
	E006	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	12
	E007	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	12
	E008	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	ı	•	-	12
	E009	RAMSEY DRIVE	LV U/G CABLE (ÉRGON)	•	-	-	13
	E010	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
	E011	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
	E012	RAMSEY DRIVE	LV U/G CABLE (ERGON)	-	-	-	13
	E013	RAMSEY DRIVE	22kV U/G CABLE (ERGOŃ)	•	-	-	13
	E014	RAMSEY DRIVE	LV & 22kV U/G CABLE (ERGÓN)	1	-	-	14
L	E015	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	-	-	-	17
	E016	RAMSEY DRIVE	22kV U/G CABLE (ERGON)	-	-	-	18
	E017	IRENE STREET	LV U/G CABLE (ERGON)	•	-	-	18
	E018	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	•	-	-	18
	E019	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	21
	E020	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	21
	E021	IRENE STREET	22kV U/G CABLE (ERGON)	-	-	-	22
	E022	IRENE STREET	LV U/G CABLE (ÈRGON)	•	-	-	22
	E023	IRENE STREET	LV U/G CABLE (ERGON)	1	•	-	22 / 23
	E024	IRENE STREET	LV U/G CABLE (ERGON)	•	-	-	23
	E025	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	23
	E026	IRENE STREET	LV U/G CABLE (ERGON)	-	-	-	23
	E027	IRENE STREET	LV & 22kV U/G CABLE (ERGON)	-	-	-	23 / 24
	E028	CAVENDISH STREET	LV U/G CABLE (ERĞON)	-	-	-	26 / 27
	E029	CAVENDISH STREET	LV U/G CABLE (ERGON)	-	-	-	27 / 28
	E030	SALTER CLOSE	LV & 22kV U/G CABLE (ERGON)	-	-	-	33
	E031	SALTER CLOSE	LV U/G CABLE (ERĞON)	-	-	-	33
	E032	ATTICUS STREET	LV U/G CABLE (ERGON)	-	-	-	34

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

	924	CHECKED		DESIGNED	Astan	Powerlink	LOCATION	CONT/ORDER	PROJECT	DRG CLASS
P S		DRAWN	Man	DESIGN CHKD		REDLYNCH TO WOREE	7141 7142	-	CP.02731	A0
	(70) :	ORIGIN	PSD	APPROVED		132kV TRANSMISSION CABLE	ΔЗ_Н.	-15958	37-00	2 SHEET
ORI	рате	CIRCULATION	.	-		CONCEPT ROUTE IDENTIFICATION LAYOUT PROPOSED GEOTECH LOCATIONS	1011			36 OF 38
	∢					THOI COLD GLOTLOTT LOCATIONS	A			

Version 1.16



ITEM	LOCATION REFERENCE	SERVICE TYPE	SIZE	MATERIAL	DEPTH TO TOP	SHEET NUMBER
TEL01	SHALE STREET	TELSTRA U/G CABLE	-	-	-	05
TEL02	SHALE STREET	TELSTRA U/G CABLE	-	-	-	05
TEL03	SHALE STREET	TELSTRA U/G CABLE	-	-	-	06
TEL04	SHALE STREET	TELSTRA U/G CABLE	-	-	-	06
TEL05	VIEW STREET	TELSTRA U/G CABLE	-	-	-	06
TEL06	CHRISTIE DRIVE	TELSTRA U/G CABLE	-	-	-	07
TEL07	CHRISTIE DRIVE	TELSTRA U/G CABLE	-	-	-	07
TEL08	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	09
TEL09	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	09
TEL10	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	09
TEL11	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL12	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL13	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL14	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL15	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL16	BRINSMEAD TERRACE	TELSTRA U/G CABLE	-	-	-	10
TEL17	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL18	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL19	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL20	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	12
TEL21	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL22	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL23	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL24	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	13
TEL25	RAMSEY DRIVE	TELSTRA U/G CABLE	-	-	-	14
TEL26	RAMSEY DRIVE	TELSTRA/OPTUS U/G CABLE	-		-	14
TEL27	RAMSEY DRIVE	TELSTRA U/G CABLE		-	-	14
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		TR	ENCH	LESS CROS	SINGS	
MIIMDE	ED STREET / I OCATIO				ING TYPE	DDO

TEL28 IRENE STREET TELSTRA U/G CABLE - - 18 TEL29 IRENE STREET TELSTRA U/G CABLE - - 20 TEL30 IRENE STREET TELSTRA U/G CABLE - - 21 TEL31 IRENE STREET TELSTRA U/G CABLE - - 21 TEL32 IRENE STREET TELSTRA U/G CABLE - - 23 TEL33 IRENE STREET TELSTRA U/G CABLE - - 23 TEL34 IRENE STREET TELSTRA U/G CABLE - - 24 TEL35 LANGAN STREET TELSTRA U/G CABLE - - 24 TEL36 WATSON STREET TELSTRA U/G CABLE - - 25 TEL37 WATSON STREET TELSTRA U/G CABLE - - 26/27 TEL39 CAVENDISH STREET TELSTRA U/G CABLE - - 26/27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - 26/27 TEL41							
TEL30	TEL28	IRENE STREET	TELSTRA U/G CABLE	-	-	•	
TEL31	TEL29	IRENE STREET	TELSTRA U/G CABLE	-	-	-	20
TEL32	TEL30	IRENE STREET	TELSTRA U/G CABLE		-	-	
TEL33 IRENE STREET TELSTRA U/G CABLE - - 23 TEL34 IRENE STREET TELSTRA U/G CABLE - - 24 TEL35 LANGAN STREET TELSTRA U/G CABLE - - 25 TEL36 WATSON STREET TELSTRA U/G CABLE - - 25 TEL37 WATSON STREET TELSTRA U/G CABLE - - 26 / 27 TEL39 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL43 HENLEY STREET TELSTRA U/G CABLE - - 27 / 28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - -	TEL31	IRENE STREET	TELSTRA U/G CABLE	-	-	-	
TEL34 IRENE STREET TEL\$TRA U/G CABLE - - 24 TEL35 LANGAN STREET TEL\$TRA U/G CABLE - - 24 TEL36 WATSON STREET TEL\$TRA U/G CABLE - - 25 TEL37 WATSON STREET TEL\$TRA U/G CABLE - - 26 / 27 TEL38 CAVENDISH STREET TEL\$TRA U/G CABLE - - 26 / 27 TEL40 CAVENDISH STREET TEL\$TRA U/G CABLE - - 26 / 27 TEL41 CAVENDISH STREET TEL\$TRA U/G CABLE - - 26 / 27 TEL42 CAVENDISH STREET TEL\$TRA U/G CABLE - - 26 / 27 TEL42 CAVENDISH STREET TEL\$TRA U/G CABLE - - 26 / 27 TEL43 HENLEY STREET TEL\$TRA U/G CABLE - - 27 / 28 TEL44 HENLEY STREET TEL\$TRA U/G CABLE - - 27 / 28 TEL45 HENLEY STREET TEL\$TRA U/G CABLE - - 29 <td></td> <td>IRENE STREET</td> <td>TEL<mark>ST</mark>RA U/G CABLE</td> <td>-</td> <td>-</td> <td>-</td> <td>21</td>		IRENE STREET	TEL <mark>ST</mark> RA U/G CABLE	-	-	-	21
TEL35 LANGAN STREET TELSTRA U/G CABLE - - 24 TEL36 WATSON STREET TELSTRA U/G CABLE - - 25 TEL37 WATSON STREET TELSTRA U/G CABLE - - 26/27 TEL38 CAVENDISH STREET TELSTRA U/G CABLE - - 26/27 TEL39 CAVENDISH STREET TELSTRA U/G CABLE - - 26/27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - 26/27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - 26/27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - 27/28 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - 27/28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - 27/28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - 29/29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - 29 <		IRENE STREET	TEL <mark>ST</mark> RA U/G CABLE	-	-	•	
TEL36 WATSON STREET TELSTRA U/G CABLE - - 25 TEL37 WATSON STREET TELSTRA U/G CABLE - - 26 / 27 TEL38 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 27 / 28 TEL43 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29	TEL34	IRENE STREET	TEL <mark>ST</mark> RA U/G CABLE	-	-	-	24
TEL37 WATSON STREET TELSTRA U/G CABLE - - 25 TEL38 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL39 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL43 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - -		LANGAN STREET	TEL <mark>ST</mark> RA U/G CABLE		-	-	24
TEL38 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL39 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 27 / 28 TEL43 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - <	TEL36	WATSON STREET	TELSTRA U/G CABLE		-	ı	25
TEL39 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 27 / 28 TEL43 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 33 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33	TEL37	WATSON STREET	TELSTRA U/G CABLE	-	-	-	25
TEL40 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 27 TEL43 HENLEY STREET TPG U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA/OPTUS U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 33 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - -<	TEL38	CAVENDISH STREET		-	-	-	
TEL41 CAVENDISH STREET TELSTRA U/G CABLE - - 26 / 27 TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - - 27 TEL43 HENLEY STREET TPG U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA/OPTUS U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 33 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - -	TEL39			-	-	ı	
TEL42 CAVENDISH STREET TELSTRA U/G CABLE - - 27 TEL43 HENLEY STREET TPG U/G CABLE - - - 27 / 28 TEL44 HENLEY STREET TELSTRA/OPTUS U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 33 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - -	TEL40	CAVENDISH STREET	TELSTRA U/G CABLE	-	-	-	26 / 27
TEL43 HENLEY STREET TPG U/G CABLE - - 27 / 28 TEL44 HENLEY STREET TELSTRA/OPTUS U/G CABLE - - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - -	TEL41	CAVENDISH STREET	TELSTRA U/G CABLE		-	-	
TEL44 HENLEY STREET TELSTRA/OPTUS U/G CABLE - - 27 / 28 TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 31 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - - -<		CAVENDISH STREET	TELSTRA U/G CABLE	-	-	ı	
TEL45 HENLEY STREET TELSTRA U/G CABLE - - - 28 / 29 TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 31 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - - 34	TEL43	HENLEY STREET	TPG U/G CABLE	-	-	-	
TEL46 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 31 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - - 34				-	-	ı	
TEL47 MCGUIGAN STREET TELSTRA U/G CABLE - - 29 TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 31 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - 34	TEL45			-	-	-	
TEL48 MCGUIGAN STREET TELSTRA U/G CABLE - - - 29 TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 31 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - 34			TELSTRA U/G CABLE	-	-	-	
TEL49 MCGUIGAN STREET TELSTRA U/G CABLE - - - 31 TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - 34	TEL47	MCGUIGAN STREET	TELSTRA U/G CABLE	-	-	-	
TEL50 MULGRAVE ROAD TELSTRA U/G CABLE - - - 33 TEL51 MULGRAVE ROAD TELSTRA U/G CABLE - - - - 33 TEL52 MULGRAVE ROAD TELSTRA U/G CABLE - - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - 34				-	-	-	29
TEL51 MÜLGRAVE ROAD TELŠTRA U/G ČABLE - - - 33 TEL52 MÜLGRAVE ROAD TELSTRA U/G CABLE - - - - 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE - - - 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - - 34		MCGUIGAN STREET	TELSTRA U/G CABLE	-	-	ı	31
TEL52 MULGRAVE ROAD TELSTRA U/G CABLE 33 TEL53 ATTICUS STREET TELSTRA U/G CABLE 34 TEL54 RAY JONES DRIVE OPTUS U/G CABLE 34				-	-	-	
TEL54 RAY JONES DRIVE OPTUS U/G CABLE 34				-	-	-	33
TEL54 RAY JONES DRIVE OPTUS U/G CABLE 34				-	-	-	33
TEL54 RAY JONES DRIVE OPTUS U/G CABLE - - 34				-	-	-	34
	TEL54	RAY JONES DRIVE	OPTUS U/G CABLE	-	-	-	34
TEL55 RAY JONES DRIVE REEF NETWORKS U/G CABLE 34	TEL55	RAY JONES DRIVE	REEF NETWORKS U/G CABLE	-	-	-	34

			TRENCHLESS CROSSINGS		
NUMBER	STREET / LOCATION	APPROX. LENGTH	CROSSING TYPE	PROPOSED METHOD	SHEET NUMBER
1	GOOMBOORA PARK	260	CREEK	HDD	4
2	12 RAMSEY DRIVE	50	STORMWATER, CREEK OR CULVERT	HDD	12 / 13
3	34 RAMSEY DRIVE	50	STORMWATER, CREEK OR CULVERT	HDD	13
4	7 ANGEL	50	STORMWATER, CREEK OR CULVERT	HDD	14
5	2 NELL CLOSE	50	STORMWATER, CREEK OR CULVERT	HDD	18 / 19
6	A ADIEL COLIDT	30	CANE PAIL	AUCER BORE	20
7	81 IRENE STREET	50	STORMWATER, CREEK OR CULVERT	HDD	22
8	50 LANGAN STREET	50	CTORMWATER, CREEK OR CULVERT	HDD	24
Ô	2 HENLEY CTREET	20	CANE RAIL	HDD / ALICED BODE	20
10	536 MULGRAVE ROAD	70	HIGHWAY AND CULVERT	HDD / MOOEN BONE	28 / 29
11	CANNON PARK	150	CREEK	HDD	32 / 33
12	27-17 ATTICUS STREET	210	HIGHWAY, QUEENSLAND RAIL (3 LINES), CREEK & INTO SUBSTATION	HDD	34

-	THIRD PARTY C	CONSTRUCTION	N				
STREET / LOCATION CROSSING TYPE COMPLETED BY SHEET NUMBER							
ARIEL COURT	CANE TRAIN CROSSING	MSF SUGAR	20				
HENLEY ST	CANE TRAIN CROSSING	MSF SUGAR	28				

DRAWING REFERENCE:

CONCEPT ROUTE IDENTIFICATION LAYOUT

SHEETS: 1 TO 34

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GEOTECH LOCATIONS										
ITEM	EM APPROX. TYPE		DEPTH (M)	LOCATION REFERENCE	EASTING	NORTHING	SHEET NUMBER			
EX-01	50	EXCAVATION	1.5	REDLYNCH SPORTS	362080.66	8131327.08	02			
EX-02	260	EXCAVATION	1.5	REDLYNCH SPORTS	362066.42	8131106.69	03			
EX-03	560	EXCAVATION	1.5	FRESHWATER CREEK	361991.30	8130788.96	04			
BH-01	650	BOREHOLE	12	FRESHWATER CREEK	362014.12	8130721.61	04			
BH-02	790	BOREHOLE	12	FRESHWATER CREEK	362022.25	8130583.99	04			
EX-04	820	EXCAVATION	1.5	FRESHWATER CK BORE	362028.18	8130537.41	05			
EX-05	990	EXCAVATION	1.5	SHALE STREET	362153.59	8130458.81	05			
EX-06	1250	EXCAVATION	1.5	SHALE STREET	362406.95	8130501.37	06			
EX-07	1365	EXCAVATION	1.5	VIEW STREET	362518.04	8130483.65	06			
EX-08	1515	EXCAVATION	1.5	CHRISTIE DRIVE	362634.10	8130422.16	07			
EX-09	1630	EXCAVATION	1.5	BRINSMEAD ROAD (CWAR)	362709.04	8130352.25	07			
EX-10	1700	EXCAVATION	1.5	BRINSMEAD ROAD (CWAR)	362753.45	8130285.46	07			
EX-11	1835	EXCAVATION	1.5	BRINSMEAD ROAD (CWAR)	362801.56	8130157.04	08			
EX-12	2030	EXCAVATION	1.5	BRINSMEAD TERRACE	362913.96	8130015.29	08			
ST-01	2315	EXCAVATION (SLIT TRENCH)	1.5	BRINSMEAD TERRACE	363158.49	8129864.30	09			
ST-02	2500	EXCAVATION (SLIT TRENCH)	1.5	BRINSMEAD TERRACE	363270.79	8129737.82	10			
ST-03	2600	EXCAVATION (SLIT TRENCH)	1.5	BRINSMEAD TERRACE	363344.16	8129652.41	10			
EX-13	2676	EXCAVATION	1.5	RESERVOIR ROAD (CWAR)	363410.20	8129608.41	10 / 11			
EX-14	2900	EXCAVATION	1.5	RESERVOIR ROAD (CWAR)	363623.42	8129540.66	11			
EX-15	3100	EXCAVATION	1.5	RAMSEY DRIVE	363796.51	8129539.87	11			
BH-03	3225	BOREHOLE	8	RAMSEY DRIVE	363803.26	8129437.68	12			
BH-04	3370	BOREHOLE	8	FRASER CLOSE	363799.46	8129277.98	13			
BH-05	3460	BOREHOLE	8	LAWSON CLOSE	363795.37	8129193.04	13			
BH-06	3605	BOREHOLE	8	RAMSEY DRIVE	363833.78	8129053.80	13			
EX-16	3710	EXCAVATION	1.5	TERAGLIN STREET	363931.53	8129010.93	14			
BH-07	3780	BOREHOLE	8	RAMSEY DRIVE	363999.90	8128998.95	14			
BH-08	3900	BOREHOLE	8	RAMSEY DRIVE	364076.52	8128910.72	14			
BH-09	4000	BOREHOLE	8	ELPHINSTONE STREET	364110.58	8128829.73	15			
EX-17	4100	EXCAVATION	1.5	RAMSEY DRIVE	364184.99	8128743.08	15			
EX-18	4250	EXCAVATION	1.5	RAMSEY DRIVE	364276.38	8128646.35	15			
EX-19	4520	EXCAVATION	1.5	RAMSEY DRIVE	364534.96	8128526.39	16			
EX-20	4730	EXCAVATION	1.5	MCFARLANE DRIVE	364682.23	8128405.49	17			
EX-21	4970	EXCAVATION	1.5	MCGREGOR STREET	364747.09	8128181.77	18			
EX-22	5100	EXCAVATION	1.5	SILKY OAK COURT	364762.43	8128055.26	18			
BH-10	5185	BOREHOLE 8		IRENE STREET	364759.64	8127967.42	18			

BH-11	5300	BOREHOLE	8	VICO OVAL	364754.34	8127855.11	19
EX-23	5585	EXCAVATION	8	ELEANOR CLOSE	364741.41	8127580.68	20
EX-24	5740	EXCAVATION	3	IRENE STREET	364734.57	8127418.98	20
EX-25	5800	EXCAVATION	3	IRENE STREET	364730.03	8127354.79	20
EX-26	5875	EXCAVATION	1.5	BEATRICE STREET	364707.85	8127285.29	21
EX-27	5900	EXCAVATION	1.5	BEATRICE ST R/ABOUT	364708.82	8127254.75	21
EX-28	6120	EXCAVATION	1.5	CITY VIEW CRESCENT	364669.00	8127053.28	21
BH-12	6280	BOREHOLE	8	IRENE STREET	364642.09	8126889.27	22
BH-13	6350	BOREHOLE	8	IRENE STREET	364636.26	8126826.54	22
EX-29	6530	EXCAVATION	1.5	WATKINS CLOSE	364619.64	8126642.72	23
EX-30	6780	EXCAVATION	1.5	IRENE STREET	364628.97	8126405.11	24
BH-14	6850	BOREHOLE	10	IRENE STREET	364639.36	8126328.58	24
BH-15	7010	BOREHOLE	10	LANGAN STREET	364714.63	8126219.12	24
EX-31	7340	EXCAVATION	1.5	WATSON STREET	364829.31	8125922.08	25 / 26
EX-32	7540	EXCAVATION	1.5	CAVENDISH STREET	364920.88	8125775.82	26
EX-33	7716	EXCAVATION	1.5	GORDON STREET	365085.98	8125825.16	26 / 27
EX-34	7960	EXCAVATION	1.5	CAVENDISH STREET	365320.95	8125884.64	27
EX-35	8050	EXCAVATION	1.5	HENLEY STREET	365369.50	8125822.74	27 / 28
EX-36	8120	EXCAVATION	3	HENLEY STREET	365428.57	8125832.14	28
EX-37	8182	EXCAVATION	3	MSF XING	365479.17	8125842.23	28
BH-16	8378	BOREHOLE	12	CLARKES CREEK	365642.75	8125937.51	28 / 29
BH-17	8465	BOREHOLE	12	MCGUIGAN STREET	365730.99	8125929.83	29
EX-38	8760	EXCAVATION	1.5	OLLEY STREET	365931.73	8125717.64	30
EX-39	9160	EXCAVATION	1.5	MCGUIGAN ST (MULGRAVE RD)	366240.39	8125456.69	31
EX-40	9380	EXCAVATION	1.5	MCGUIGAN ST (MULGRAVE RD)	366410.36	8125302.07	32
BH-18	9460	BOREHOLE	10	MCGUIGAN ST (MULGRAVE RD)	366473.51	8125266.88	32
BH-19	9610	BOREHOLE	10	GORDON CREEK	366566.05	8125170.34	32 / 33
EX-41	9840	EXCAVATION	1.5	MULGRAVE ROAD	366687.53	8124968.69	33
BH-20	10033	BOREHOLE	8	RAY JONES DRIVE	366839.16	8124969.28	34
BH-21	10100	BOREHOLE	8	RAY JONES DRIVE (ADJ TO QLD RAIL)	366893.81	8124936.21	34
BH-22	10170	BOREHOLE	8	WOREE SUBSTATION (ADJ TO QLD RAIL)	366950.68	8124894.86	34
EX-42	10240	EXCAVATION	1.5	WOREE SUBSTATION	367016.03	8124863.95	34

NOTE:
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NOTE: CHAINAGES NOT ADJUSTED FOR ROUTE CHANGES

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Appendix B

Site Photographs



Figure 1: Water in drain just north of Brinsmead service station (looking south-east)



Figure 2: Brinsmead service station (looking south-east)



Figure 3: View of cane rail fill embankment (Henley Street, Earlville), looking south.



Figure 4: View of cane rail fill embankment, looking west.



Figure 5: View across Mulgrave Street culvert, looking south towards Liberty service station.



Figure 6: View of the DTMR storage compound (former works in Woree, looking north-west.

Appendix C

EMR Search Results



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50967926 EMR Site Id: 21156 22 October 2024

This response relates to a search request received for the site:

Lot: 5 Plan: RP860941

EMR RESULT

The above site IS included on the Environmental Management Register.

The site you have searched has been subdivided from the following site, which IS included on the EMR or the CLR.

Lot: 5 Plan: RP804028

Address: BRINSMEAD ROAD

BRINSMEAD QLD 4870

The site has been subject to the following Notifiable Activity or Hazardous Contaminant. SERVICE STATIONS - operating a commercial service station.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50969639 EMR Site Id: 30 October 2024

This response relates to a search request received for the site:

Lot: 796 Plan: SP257825

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50969642 EMR Site Id: 37098 30 October 2024

This response relates to a search request received for the site:

Lot: 2 Plan: RP746717

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 2 Plan: RP746717

Address: 483 MULGRAVE ROAD EARLVILLE 4870

The site has been subject to the following Notifiable Activity or Hazardous Contaminant. SERVICE STATIONS - operating a commercial service station.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50969644 EMR Site Id: 13290 30 October 2024

This response relates to a search request received for the site:

Lot: 50 Plan: RP743974

EMR RESULT

The above site IS included on the Environmental Management Register.

Lot: 50 Plan: RP743974

Address: 540-544 BRUCE HIGHWAY WOREE QLD 4868

The site has been subject to the following Notifiable Activity or Hazardous Contaminant.

SERVICE STATIONS - operating a commercial service station.

HAZARDOUS CONTAMINANT - This site has been subject to a hazardous contaminant. Refer to the summary given below.

Total Recoverable Hydrocarbons (TRH) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX).

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50969645 EMR Site Id: 30 October 2024

This response relates to a search request received for the site:

Lot: 3 Plan: RP707561

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50967928 EMR Site Id: 197363 22 October 2024

This response relates to a search request received for the site:

Lot: 52 Plan: SP237150

EMR RESULT

The above site IS included on the Environmental Management Register.

The site you have searched has been subdivided from the following site, which IS included on the EMR or the CLR.

Lot: 52 Plan: SP109363

Address: WOREE

WOREE 4870

The site has been subject to contamination from a hazardous contaminant as follows:

HAZARDOUS CONTAMINANT - This site has been subject to a hazardous contaminant. Refer to the summary given below.

Possible high arsenic levels along rail corridor.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50969647 EMR Site Id: 30 October 2024

This response relates to a search request received for the site:

Lot: 3 Plan: RP749188

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au



SEARCH RESPONSE

ENVIRONMENTAL MANAGEMENT REGISTER (EMR) CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50970979 EMR Site Id: 05 November 2024

This response relates to a search request received for the site:

Lot: 54 Plan: RP749186

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated. The EMR/CLR does NOT include:-

- 1. land which is contaminated land (or a complete list of contamination) if DESI has not been notified
- 2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DESI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@des.qld.gov.au

Appendix D

Report Notes

About this Report



October 2024

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open:
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather

- changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.



About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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