Department of Transport and Main Roads

Job Number 211/10C/8735

Bruce Highway
(Maryborough – Gin Gin)
Childers Bypass – s 47C

Childers Bypass
PLANNING REPORT
TWO LANE HEAVY VEHICLE BYPASS

June 2018

Document control sheet

Contact for enquiries and proposed changes

If you have any questions regarding this document or if you have a suggestion for improvements, please contact:

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Version history

Version no.	Date	Changed by	Nature of amendment
01	October 2016	GHD Bundaberg	Draft Issue
02	January 2017	GHD Bundaberg	Updated Issue
03	June 2018	GHD Bundaberg	Final Issue including Capacity Assessment

Endorsement and Approval

Project Customer

I agree to the project proceeding as proposed in this document.

Name s 47F

Position Regional Director - North Coast and Wide Bay Region

Signature _____ Date _____

Comments

Project Sponsor

I agree to the project proceeding as proposed in this document.

Name s 47F

Position Acting District Director - Wide Bay / Burnett District

Signature s 47F Date 19/7/18.

Comments

The following officers have **endorsed** this document:

Concept Manager:

Name s 47F

Position Manager (Project Planning and Corridor Management)

Signature s 47F Date 05.07.2018.

Comments

Project Director:

Name s 47F

Position Principal Engineer (Project Planning)

Signature s 47F Date 5/7/18

Comments

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Position Principal Project Manager)

Signature s 47F Date 4.7.18

Comments

Contents

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Acronyms and Abbreviations

This section provides a list of acronyms and abbreviations used throughout the document.

Acronym	Term
AADT	Annual average daily traffic
AHD	Australian Height Datum
BRC	Bundaberg Regional Council
CBR	California Bearing Ratio
CH	Chainage
Customer	Decision maker ‘owning’ the new asset
DERM	Department of Environment and Resource Management
DESA	Design Number of Equivalent Standard Axle
DOS	Degree of Saturation
EDD	Extended Design Domain
EMR	Environmental Management Register
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
ESA	Equivalent Standard Axle
ESR	Environmental Scoping Report
HV	Heavy Vehicle
LOS	Level of Service
MUTCD	Manual of Uniform Traffic Control Devices
NC Act	Nature Conservation Act 1992
NDD	Normal Design Domain
NPA	National Partnership Agreement
PAF	Project Assurance Framework
PPP	Public Private Partnership
QTRIP	Queensland Transport and Road Investment Program
RSS	Reinforced Soil Structure
SiD	Safety in Design
Sponsor	Head of the delivery group
TARS	Traffic Analysis and Reporting System
TDist	Through Distance
TMR	Department of Transport and Main Roads
TRUM	Traffic and Road Use Management Manual
TSP	Transport Strategy and Planning (Branch)

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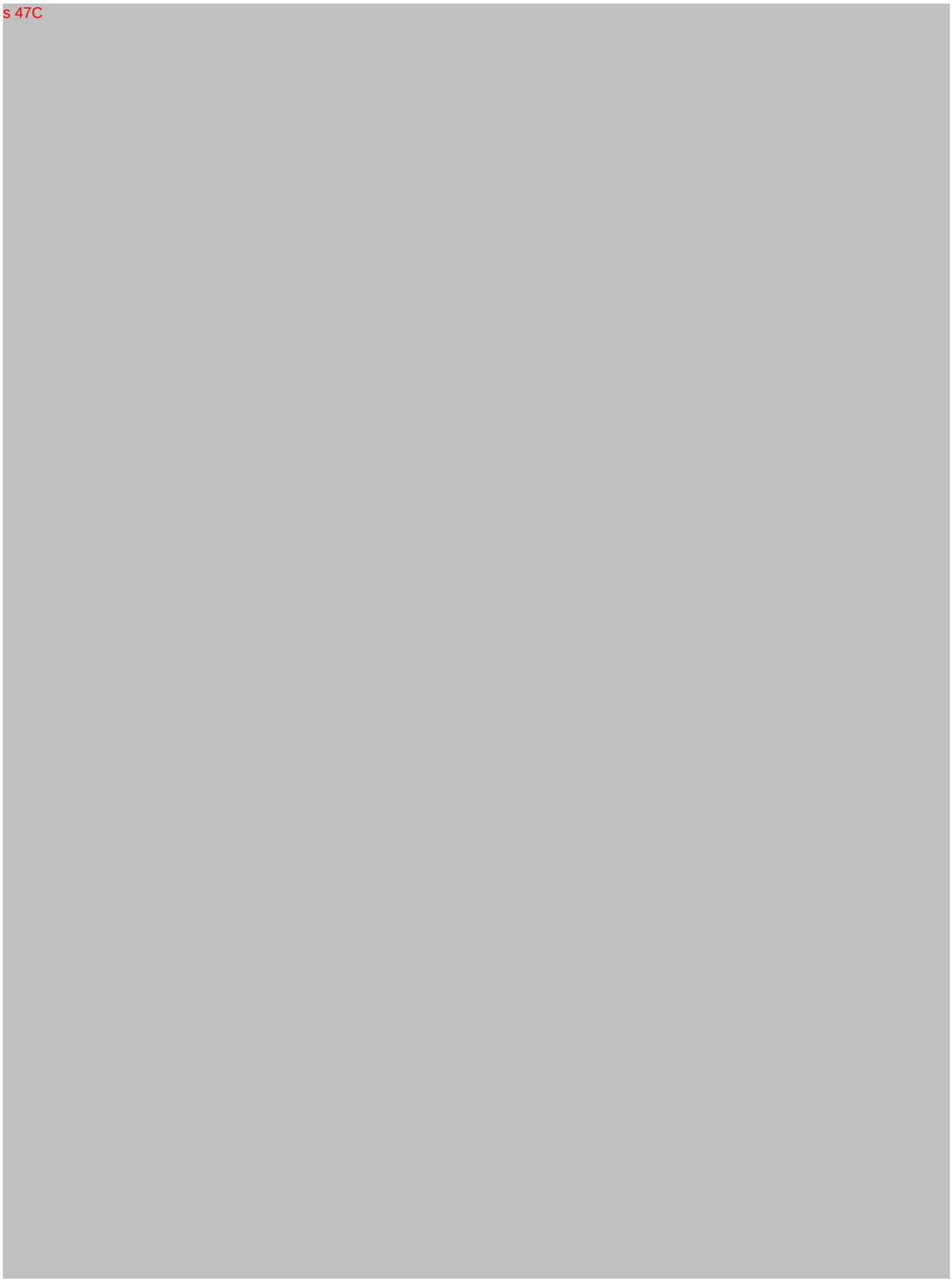

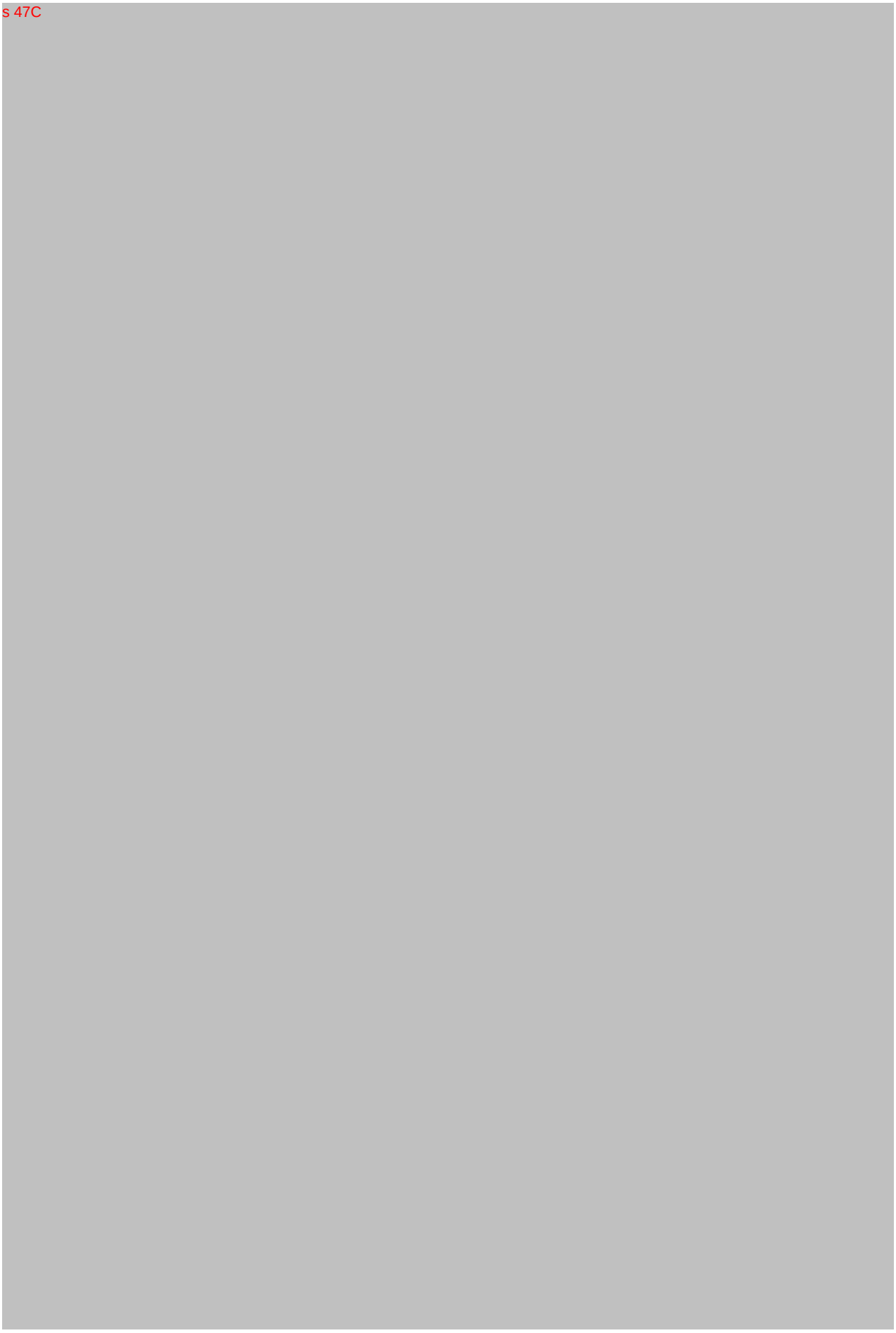
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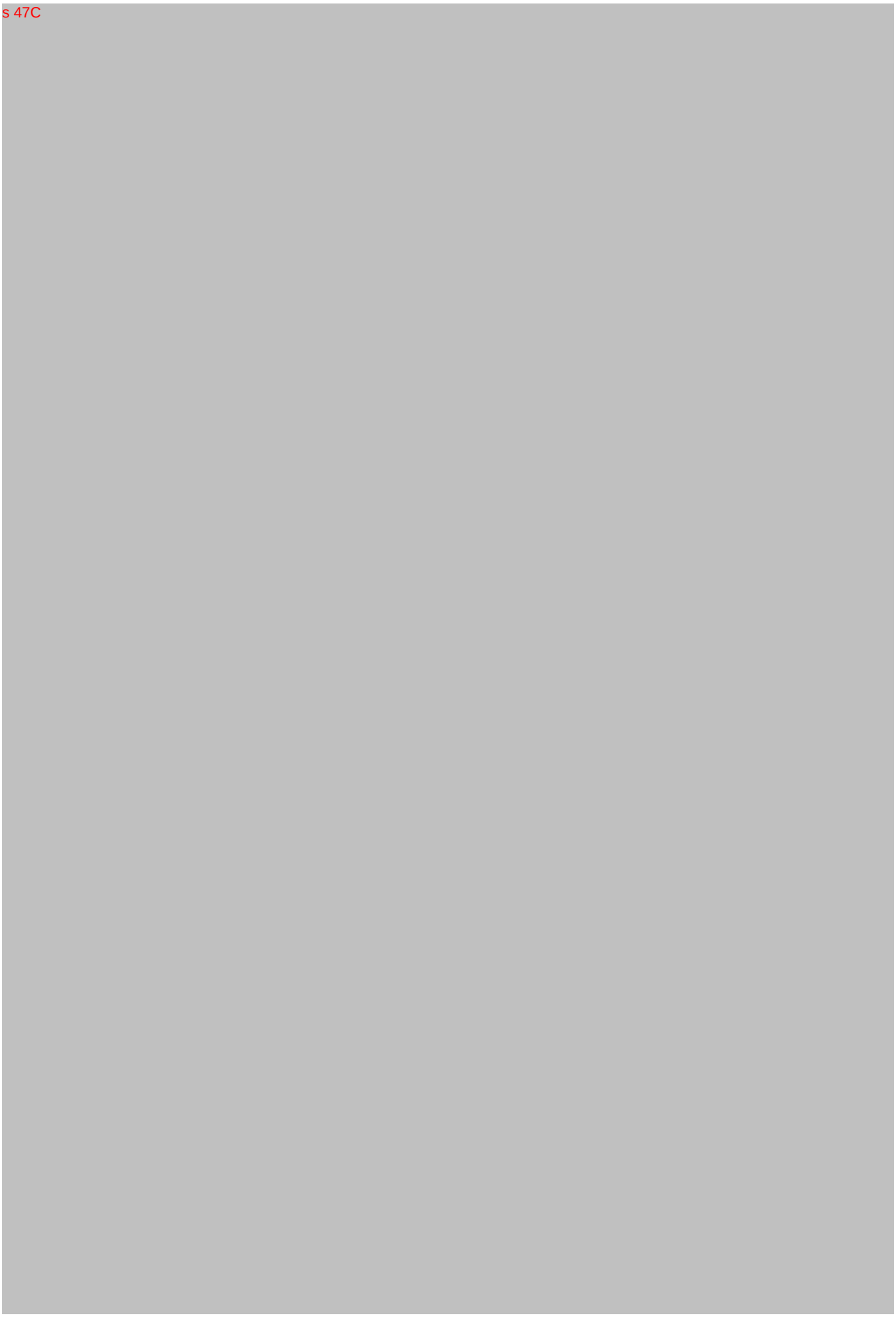

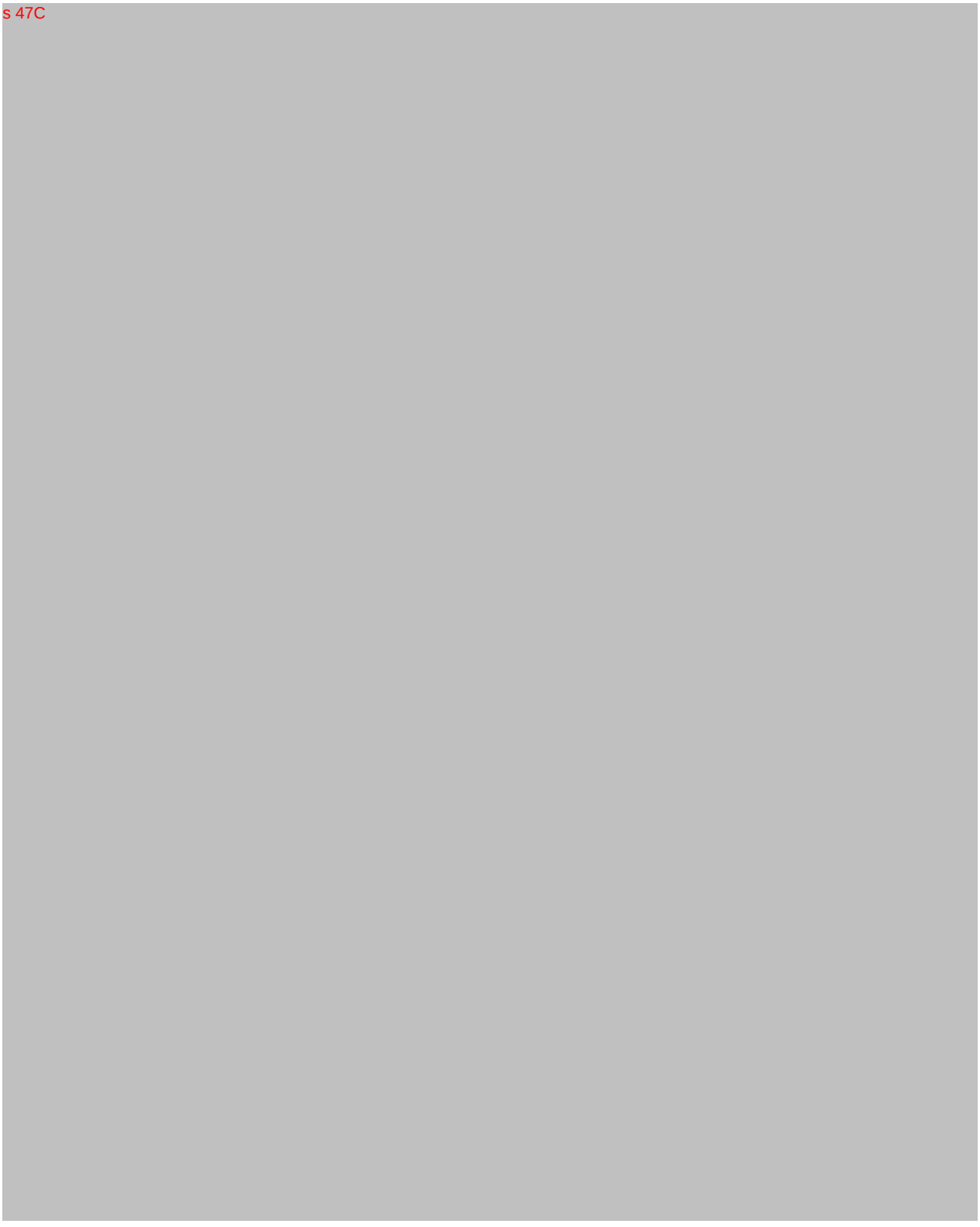
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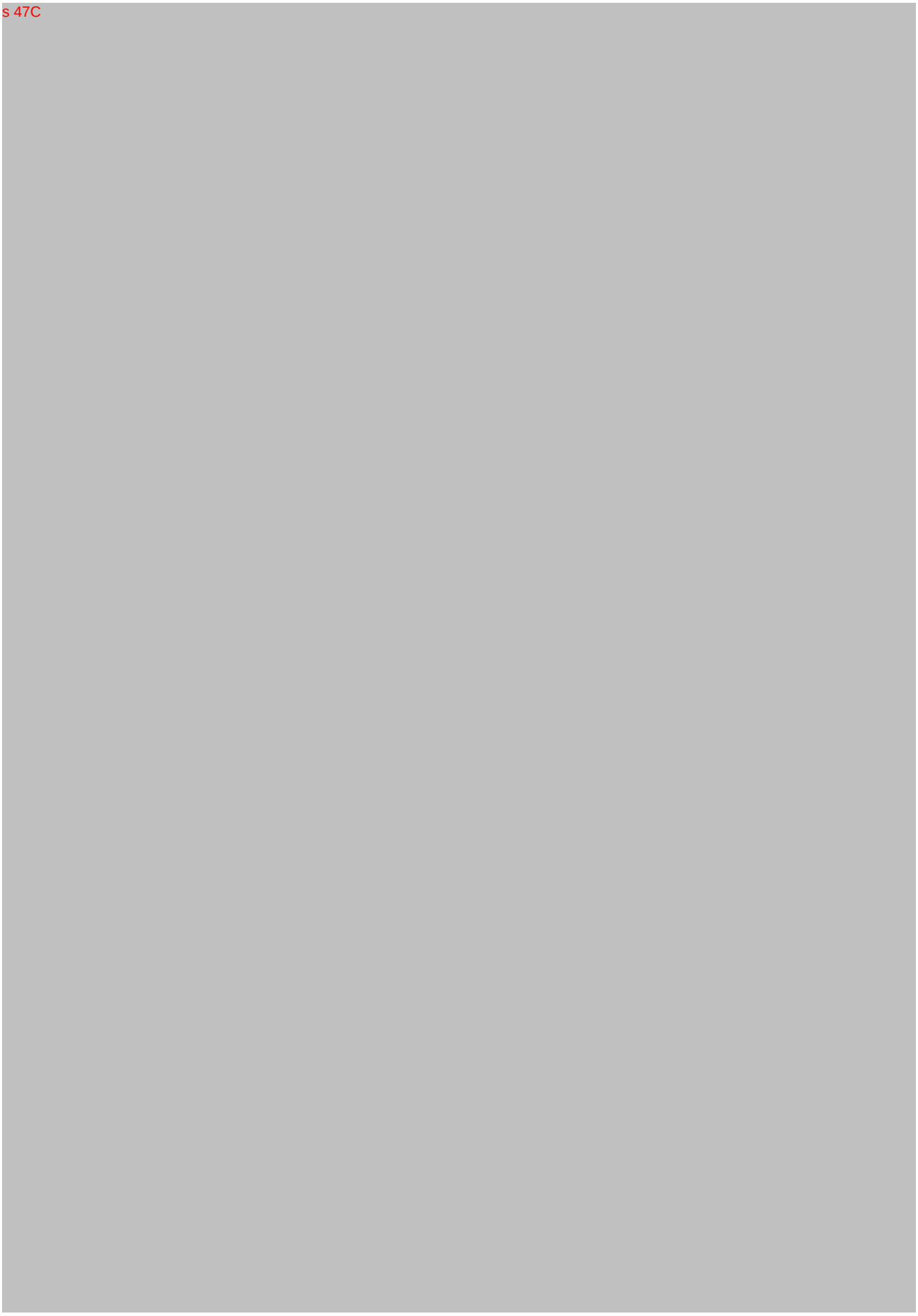

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The key focus and purpose of this study is to:

- Identify the corridor required for the two lane heavy vehicle bypass
- Document and select connectivity options required to the existing Bruce Highway at the bypass extremities (north and south) and to the township
- Identify land requirements for the protection of the corridor in terms of both the two lane and ultimate corridors as required
- Identify the functional requirements which define the need for the project
- Provide direction of future actions to be undertaken in subsequent project phases
- Support the Customer's commitment to the corridor based on the Bruce Highway funding planning and preserve projects "guidelines".

This report identifies the functional requirements that define the need for this project, summarises all supporting information and recommends a preferred corridor to be further developed during subsequent planning and design phases of the project.

1.1 Project Objectives

In line with previous corridor objectives relating to the Bruce Highway, the following are considered to remain relevant:

- Improve heavy vehicle efficiency - divert heavy vehicle traffic away from built up areas, reducing congestion and increasing amenity and safety.
- Address community concerns eg. regarding greater separation between communities and facilities and services that they rely on.
- Safer roads - separate high-speed traffic from local traffic, pedestrians and other non-motorised forms of transport, restrict driveway access, maintain reasonable spacing between interchanges and divide the highway carriageways.
- Efficient and effective transport - limit access to the highway to promote high speed movement of passenger and freight vehicles and provide a high level of flood immunity.
- Achieve adequate connectivity and accessibility - connectivity from the Bruce Highway, in particular from the side that will serve the Childers community by providing efficient access to local industry and business, clearer definition for developing urban and rural areas, and reasonable access from the highway through interchanges and service roads.
- Minimise environmental impacts by avoiding environmentally or culturally sensitive areas, minimising or mitigating environmental impacts and adopting best practice during construction and operation of the highway.

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1.2 Technical Objectives

Technical objectives that are relevant and consistent with the overall project objectives include:

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- Meet design standards appropriate for the National Highway for an ultimate four lane highway design speed of 110 km/hr for a posted speed of 100 km/hr.

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- Minimise project whole of life costs by achieving an optimised geometric solution, taking pressure off the existing Bruce Highway road network through Childers.
- Engage with BRC as a key stakeholder with assets affected by the project.
- Manage potential impacts on the environment by identifying if there are key environmental constraints or impacts affected by the project.
- Manage cultural heritage values including native title by identifying and mitigating risks along the bypass corridor.

1.3 Previous Planning Reports

The strategic focus and state and local government requirements for the Bruce Highway bypass of the township of Childers has been the subject of ongoing studies since 1986 and, more recently, identified in the Bruce Highway Action Plan for corridor protection. Key points and relevant extracts from these historical studies (not current policy) are detailed below.

1.3.1 Wide Bay Integrated Transport Plan 2002 – 2020 (November 2002)

Plan and manage the Bruce Highway as the principal corridor serving Wide Bay [Strategy 2.1, p.29].

- 2.1.4 Action – Confirm the corridor for the Childers Bypass by undertaking an environmental impact assessment to meet legislative requirements.
- 2.1.5 Action – Implement the recommendations of the Childers Bypass study (2.1.4) as appropriate, including ensuring proposed development is managed to safeguard the viability of the selected route.

1.3.2 Wide Bay Burnett Regional Plan (September 2011)

Rural Towns – Towns like Childers are distinct rural communities that have a strong character and direct links with rural production and regional landscape values. They contain a concentration of business and employment that primarily serves local residents, primary production industries and a growing tourism market. These assets will be enhanced in future

planning decisions to ensure their long-term viability, and in particular their ability to generate local employment opportunities [8.3 Notes, p.118].

1.3.3 Bruce Highway Upgrade Strategy: Connecting Regions (December 2011)

The upgrade strategy identifies a bypass of Childers that will play an important role in delivering faster, safer and more efficient transport. The Childers Bypass will significantly divert heavy vehicle traffic away from built up areas, reducing congestion and increasing amenity and safety [Bypasses and deviations, p.09].

Over the next 20 years, delivery of this strategy will result in a major transformation of the highway by upgrading to four lanes to south of the Bundaberg turn-off (Isis Highway, north of Childers). A bypass will also be provided at Childers. Drivers will be able to travel between Brisbane and the Isis Highway turnoff to Bundaberg on high-standard dual carriageway highway, with full motorway conditions provided between Brisbane and Curra. Construct new highway alignment to bypass town centre of Childers, improve road safety and freight efficiency by separating through and local traffic (11-20 years) [Wide Bay Burnett, p.14].

1.3.4 Bruce Highway Action Plan (2012)

The Bruce Highway Action Plan sets out a detailed program of works which would improve the safety, flood immunity and capacity of the Bruce Highway over a 10 year period. Proposed projects includes $8 billion worth of capacity improvements, including new alignments, extra lanes, intersections, service roads and town bypasses.

The Action Plan noted the following with respect to the Childers Bypass:

- Current Situation – The Bruce Highway through Childers has a very low posted speed limit due to many accesses, intersections, pedestrian crossing points and complex roadside parking arrangements. The highway severs a boutique shopping precinct which precludes any future expansion of the highway to accommodate future traffic growth. In the medium term the highway will have to be relocated elsewhere if the town's safety and amenity are to be preserved. Also the very low travel speeds through the town do not suit the strategic road freight function of the highway.
- Proposed Solution – Plan and preserve a transport corridor for a future heavy vehicle bypass of Childers so that the safety and transport efficiency of the Bruce Highway can be maintained in the medium to long term. Also this will preserve/enhance the amenity of the town.
- Improved Capacity – A bypass can easily service all predicted transport demand into the long term.
- Improved Efficiency – Posted speed limit will be increased from 50/60/80 km/hr to 100 km/hr.
- Improved Traffic – Stop/start traffic through the township will be avoided.
- Improved Safety – The bypass will avoid all safety impacts associated with the township including roadside parking, many property and side road accesses and pedestrian movements.

- Improved Amenity – The bypass will dramatically reduce amenity impacts on various parts of the town.
- Status – Preliminary planning.
- Timing of Planning – High Priority 1.

1.3.5 Moving Freight – A Plan for More Efficient Freight Movement (December 2013)

- Community – Freight movements may affect a community's sense of wellbeing. As Queensland's freight task continues to grow, managing the associated impacts on community amenity will be critical in responding to the impacts of economic growth. In Queensland, community amenity and freight activity is managed with regard to the framework [Managing the system, p.30].
- Priorities – The Queensland Government has identified a number of transport investment priorities that it is pursuing, which provide freight benefits. Key area of focus currently underway includes the Bruce Highway Action Plan [Priority three, p.44].
- Freight planning – Key considerations in future transport planning activities for improving freight system performance include minimising freight impacts on the community, preserving new corridors to support freight growth. Key corridors where increasing emphasis is required include Bruce Highway, supporting population growth demands along the Queensland coastline [Priority four, p.45].
- Corridor preservation – Preserving future freight alignments will be critical to facilitating freight movement to and from growing markets and promoting broader economic development opportunities. The Department is proactively preserving, or seeking to preserve, a number of future transport corridors [Priority four, p.47].

1.3.6 National Partnership Agreement on Land Transport Infrastructure Projects

(September 2014) Identified as "Childers Bypass Plan and Preserve of Corridor" in the beyond forward estimates sent to TMR from the Federal Government.

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1.3.10 National Partnership Agreement (2013-14 to 2022-23)

The $8.5 billion, 10-year Bruce Highway commitment (2013-14 to 2022-23) is reflected in the current National Partnership Agreement (NPA). The NPA commits planning and preservation funding to six projects in 2019-20 onwards, however does not commit to construction.

Under this agreement, an allowance of $8m has been committed to the Childers Bypass project. Additional information relating to this can be found in the Bruce Highway working document contained in Annexure M.

1.4 Current Related Planning Studies

The Bruce Highway section to the north-west of the Childers township traverses through Apple Tree Creek.

- The existing highway around the township of Apple Tree Creek (Project No. 211/10C/403) has recently been upgraded. This project incorporates TMR's strategy to provide wide centre line treatments, channelisation of intersections and safety barrier.
- The existing section of highway between the townships of Childers and Apple Tree Creek is currently being investigated for safety improvements including wide centre line treatments, channelisation of intersections and barrier upgrades. It is anticipated that this work will be completed under Tranche 2A funding, with construction expected in 2022.

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1.5 Project Management

1.5.1 Approvals and Project Management

The project definition gate flow chart from the TSP Guidelines for TMR is shown below.

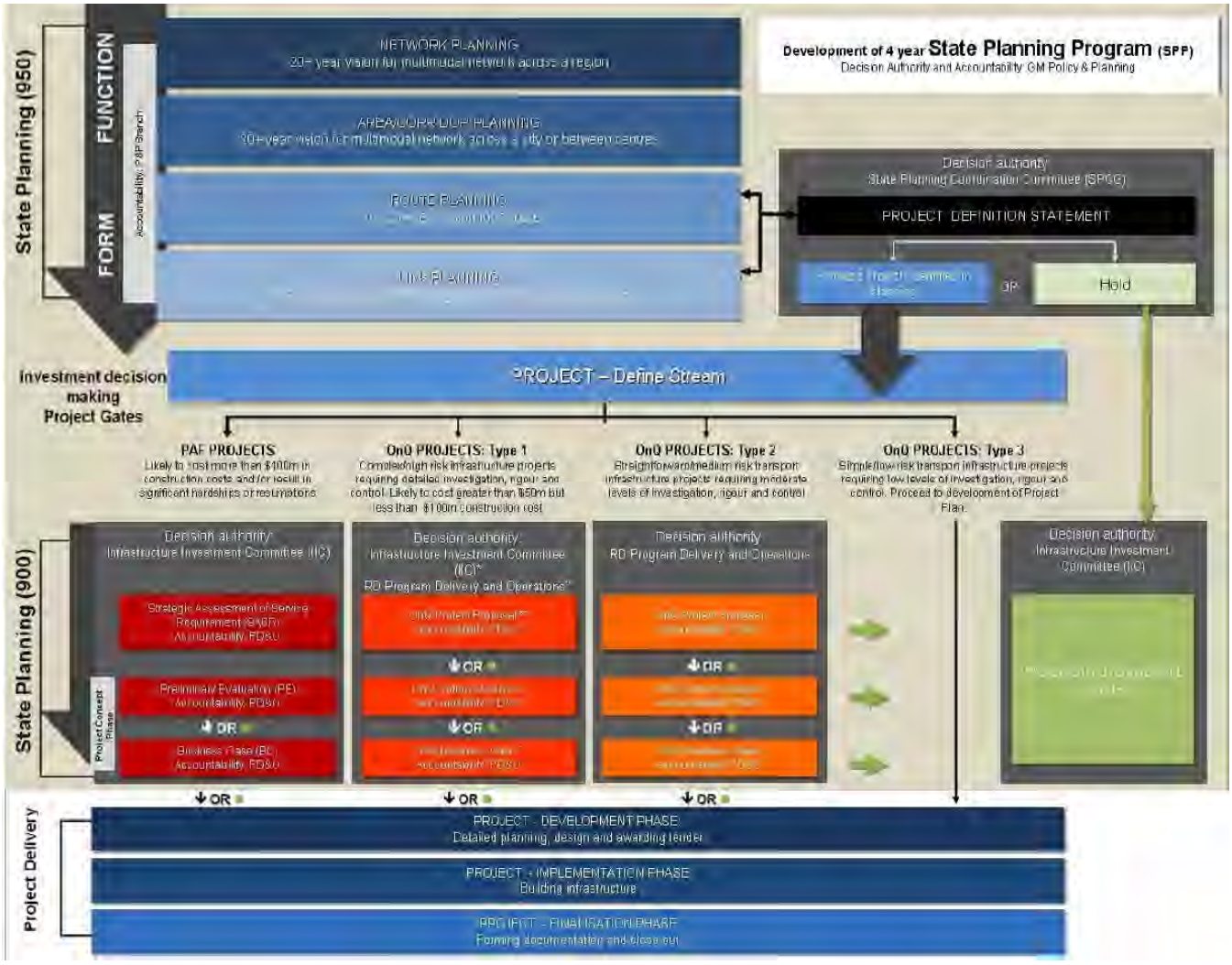

Figure 2 TMR Project Definition Gate Flow Chart

An overview of the planning and investment process for TMR is shown below.

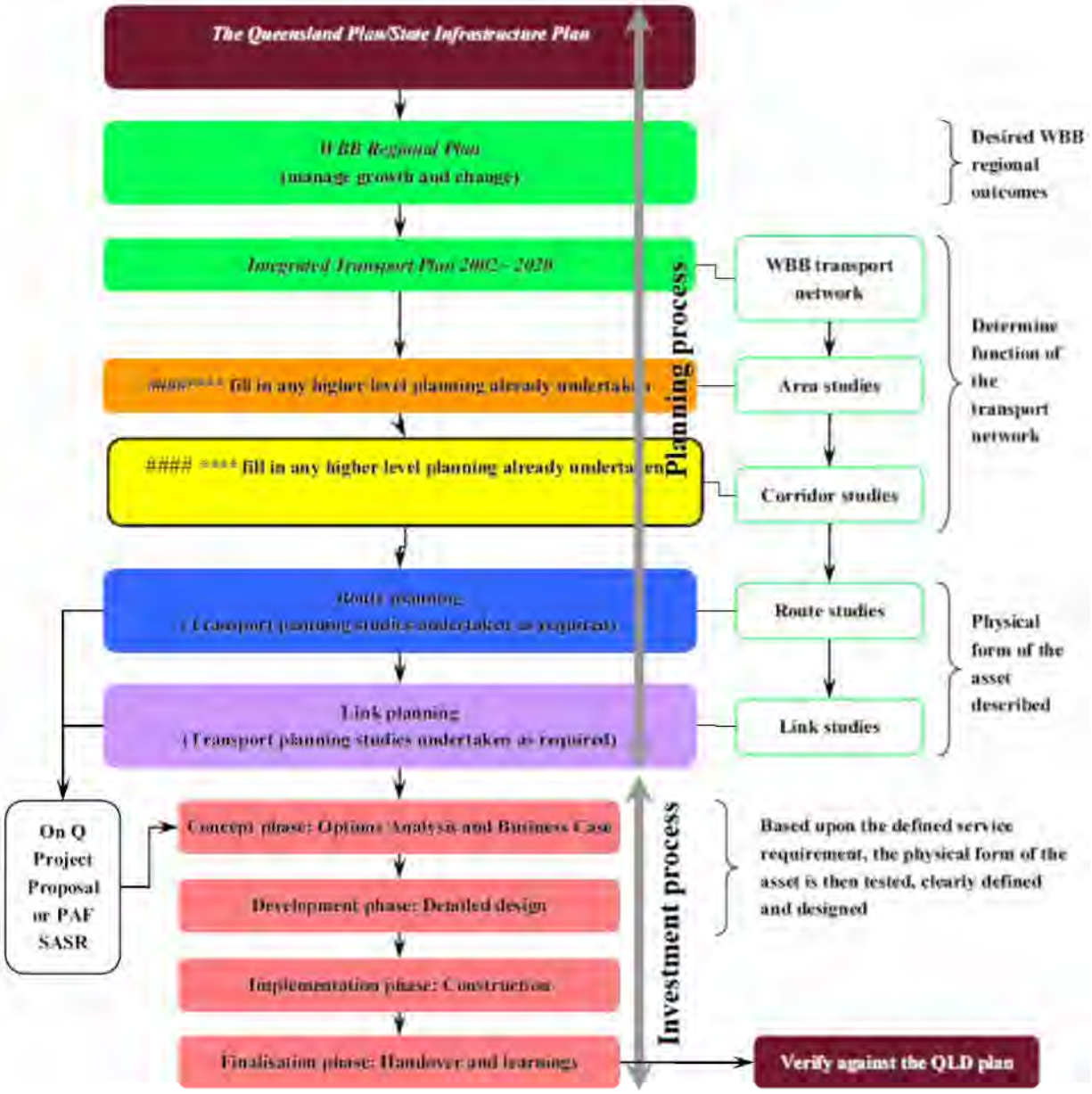

Figure 3 TMR Planning and Investment Process Overview

2 Project Background

Childers is a historic town built on a ridge with fertile volcanic soil and it supports local sugarcane, orchard and small crop farming industries. Childers has a population of 1500 with a district population of 6500 and is situated on the Bruce Highway, between Maryborough and Gin Gin. It is approximately 50 km from Bundaberg, Maryborough and Gin Gin.

With Childers located on a ridge, the Bruce Highway has climbing lanes on both the southern and northern approaches to the town. The other roads into Childers controlled by TMR are the Isis Highway and Goodwood Road. The Isis Highway has a winding uphill approach into Childers.

The current Bruce Highway passes through the main business centre of Childers and caters for approximately 8600 vehicles inclusive of 20% heavy vehicles. A low speed environment (50 km/hr) exists through the township, thus influencing travel times and potentially contributing to a higher risk of noise, pollution and general safety issues as traffic increases.

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2.1 Current Situation

Existing Bruce Highway constraints through Childers are summarised below:

- **Inefficient freight route:** Low speed (50 km/hr) and traffic lights on the highway through Childers result in increased travel times and fuel consumption.
- **Diminished level of service:** As a result of increased travel associated with population growth in the general area, there is an increase in freight movements, mixing of local traffic on the highway and traffic volume growth.
- **Crash history - Wechsels Road to Gentle Annie Road:** One fatality, eight hospitalisations, 14 received medical, five minor and 15 property damage only (2006 - 2015). Refer to Annexure G for crash history details.
- **Risk of pedestrian related incidents:** As a result of conflicts between increasing traffic volumes and pedestrians within the developing Childers business centre.
- **Reduced opportunity for active transport:** Increased traffic growth resulting in reluctance to cycle on the highway through the township.
- **Diminished noise and air quality:** Due to increased traffic volumes and varying speeds of heavy vehicles.
- **Increased risk of degradation to historic buildings and cultural heritage sites:** As a result of pollutants from vehicle exhaust and the potential for vehicle crashes impacting historic site (increased traffic volumes and proximity of the highway).

2.1.1 Existing Traffic

AADT on the highways and Goodwood Road has been obtained from TARS. Minor road traffic information has been sourced from TMR intersection counts.

Location and year of traffic count	AADT	% HV	Growth Rate (10 Yr)	Comment
Bruce Hwy 10C South of Lucketts Road (2013)	7539	23	2%	Incl. **636** articulated and **505** B-Doubles
Bruce Hwy 10C Through Childers (2013)	8608	20	2%	Incl. **585** articulated and **453** B-Doubles
Bruce Hwy 10C North of Old Creek Road (2013)	7094	24	2%	Incl. **582** articulated and **430** B-Doubles
Isis Hwy 19B North of Nissens Lane (2013)	1122	11	3%	Incl. **29** articulated and **10** B-Doubles
Wechsels Road at 10C (R) (2014)	66 (12 hr)	12	2%	**6** AM peak and **4** PM peak, combined north and southbound
South Isis Road at 10C (L) (2014)	114 (12 hr)	9		**13** AM peak and **14** PM peak, combined north and southbound
Lucketts Road at 10C (R) (2014)	1400 (12 hr)	2		**94** AM peak and **99** PM peak, combined north and southbound
Butchers Road at 10C (L) (2014)	700 (12 hr)	8		**40** AM peak and **48** PM peak, combined north and southbound

Location and year of traffic count	AADT	% HV	Growth Rate (10 Yr)	Comment
Goodwood Road 171 at 10C (R) (2014)	2900 (12 hr)	13		**205** AM peak and **240** PM peak, combined north and southbound
Goodwood Road 171 North of Isis Golf Club (2013)	2989	11	2%	Incl. **85** articulated and **24** B-Doubles
Taylors Road (Rainbows Road) at 10C (L) (2014)	900 (12 hr)	6		**110** AM peak and **86** PM peak, combined north and southbound
Old Creek Road at 10C (R) (2014)	300 (12 hr)	3		**21** AM peak and **13** PM peak, combined north and southbound

2.1.2 Origin-Destination Traffic Survey

On 12 March 2014 an origin-destination survey was undertaken across the Childers and Apple Tree Creek area. The purpose of the survey was to provide an indication of the transport demands from the adjacent links that would support connections to the proposed bypass of Childers.

The information gathered from this study provides an appreciation of the traffic volumes and heavy vehicle percentages of vehicles using the state controlled road network currently bypassing the Childers township.

The Origin–Destination Traffic Study is contained in Annexure K.

2.2 Route Planning Pressures

2.2.1 Bypass Planning History

A realignment of the Bruce Highway to bypass Childers has been under consideration by TMR since 1986. In the recent past, preliminary planning reports have been undertaken by TMR as well as discussions with BRC. Community sentiment to date suggests an inconclusive view for the bypass to be constructed, although future detailed consultation by TMR will assess this separately.

As the volume of traffic travelling through the Childers town centre increases (along with the number of heavy vehicles), the pressure builds for an alternate route for heavy vehicles, to provide improved safety for the community as well as increased efficiency for freight transport. This is supported by the inclusion of the bypass of Childers in the 2012 Bruce Highway Action Plan.

Since the 1980s, alignment corridor options have been investigated by TMR on both sides of Childers as well as through the centre of town. Various internal studies were carried out to assess the impacts of a bypass of Childers. s 47C

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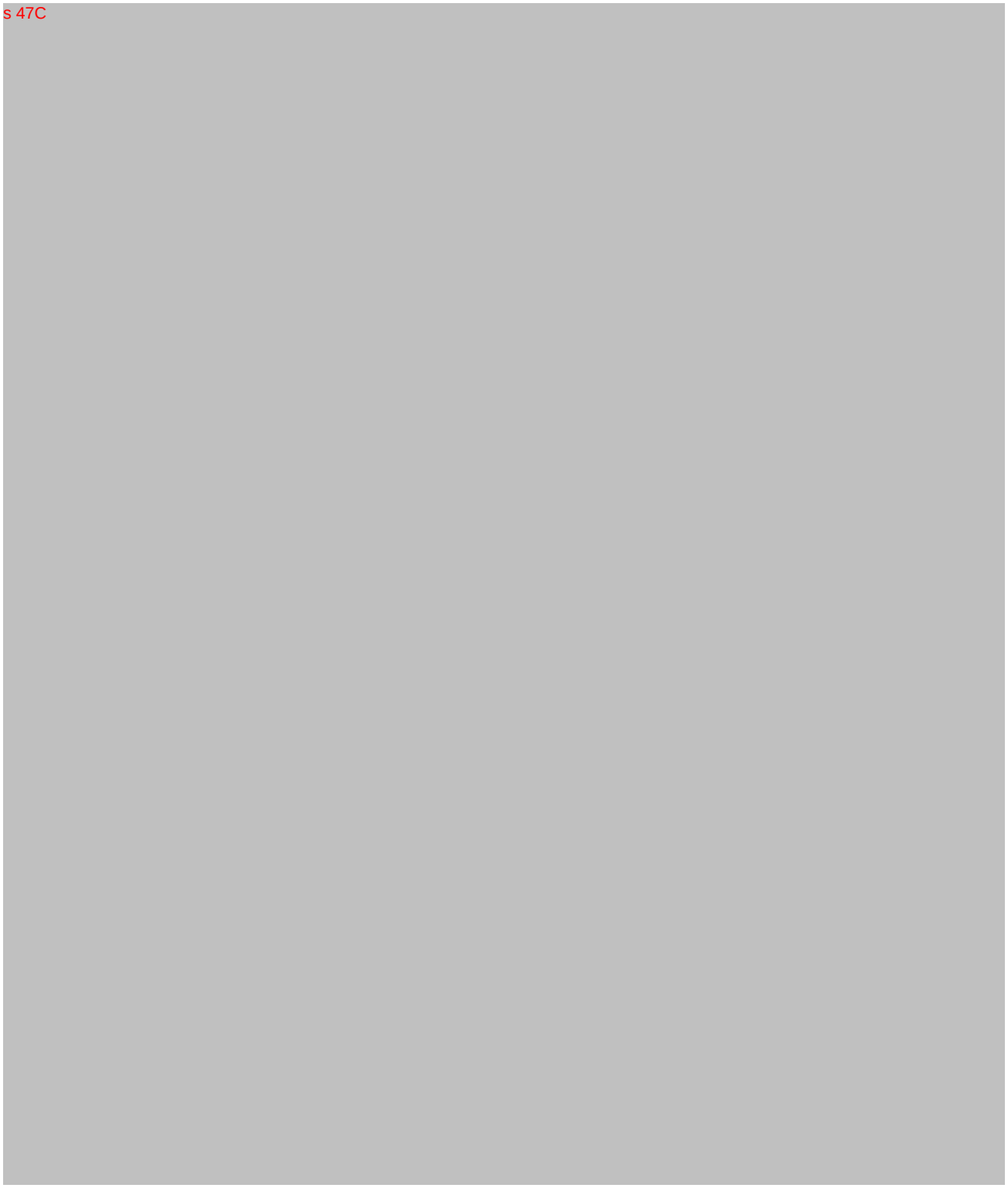

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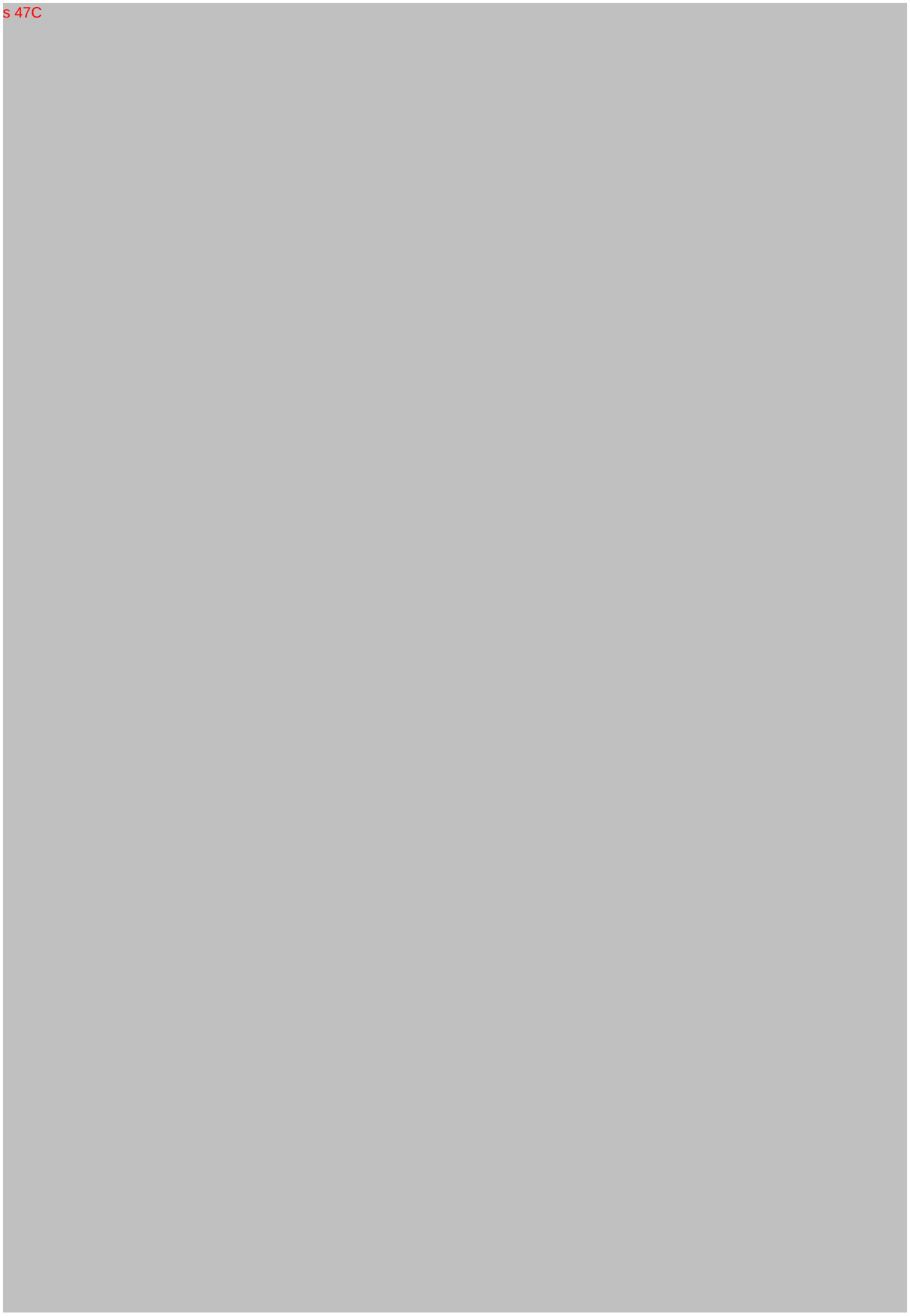

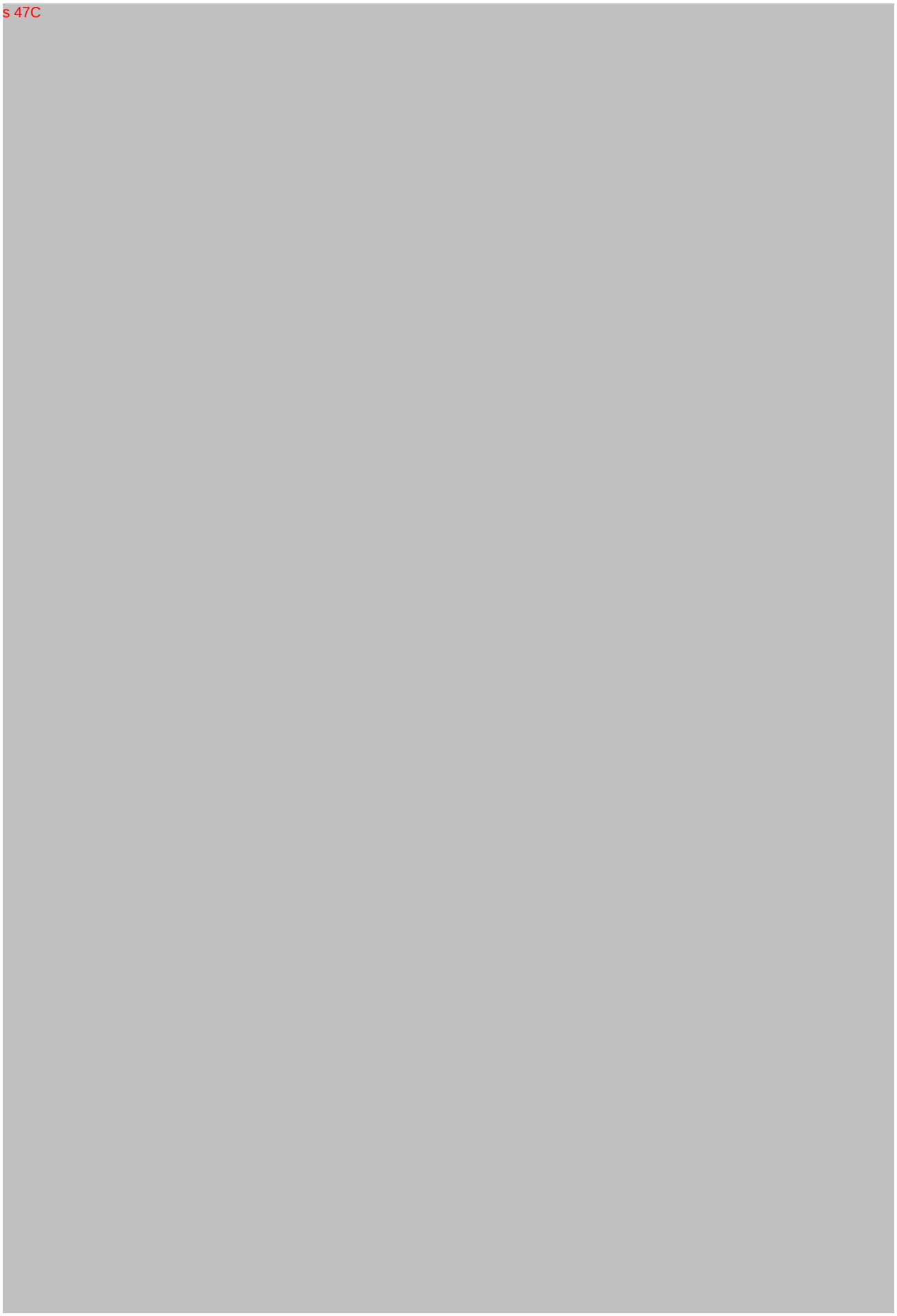
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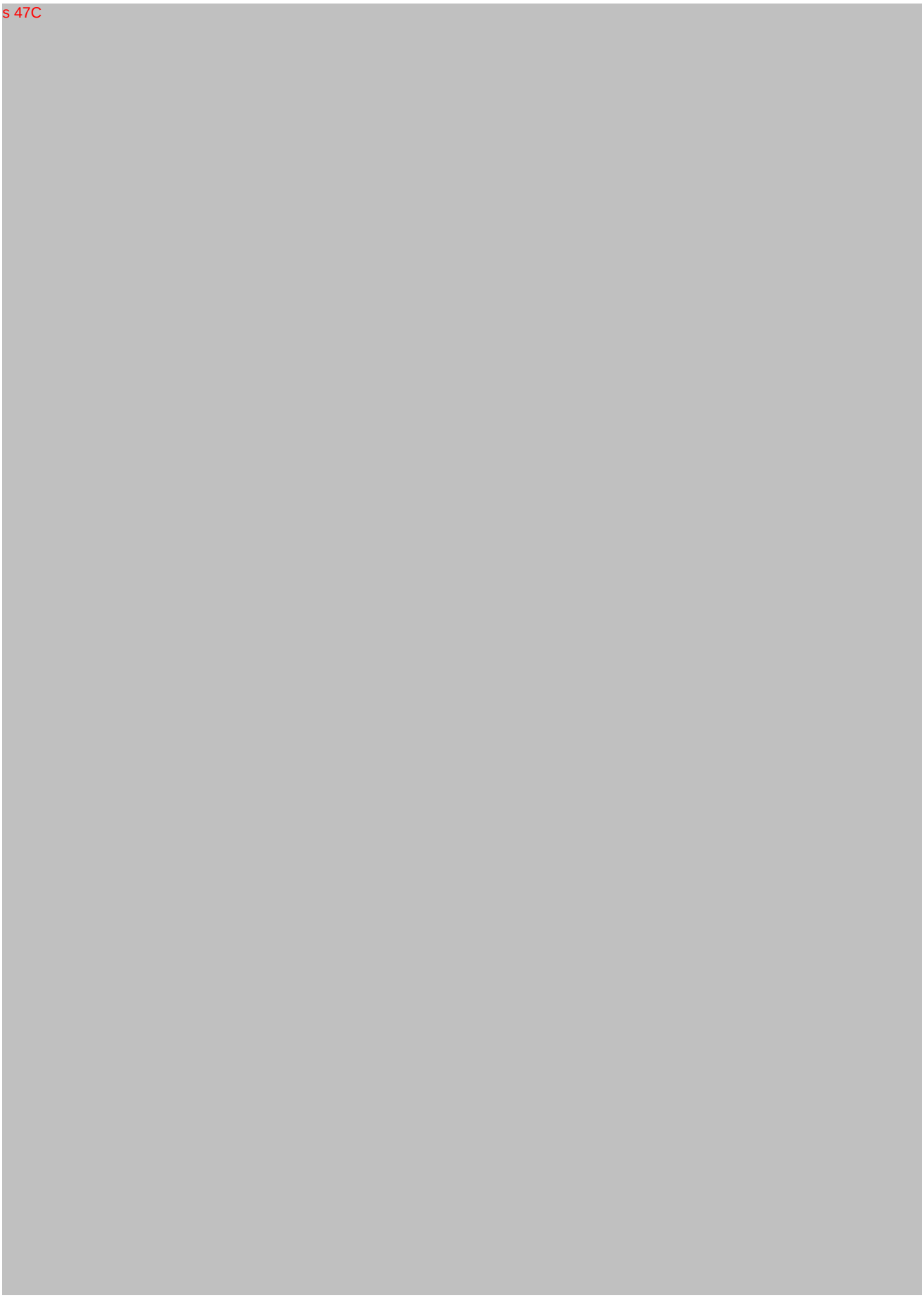

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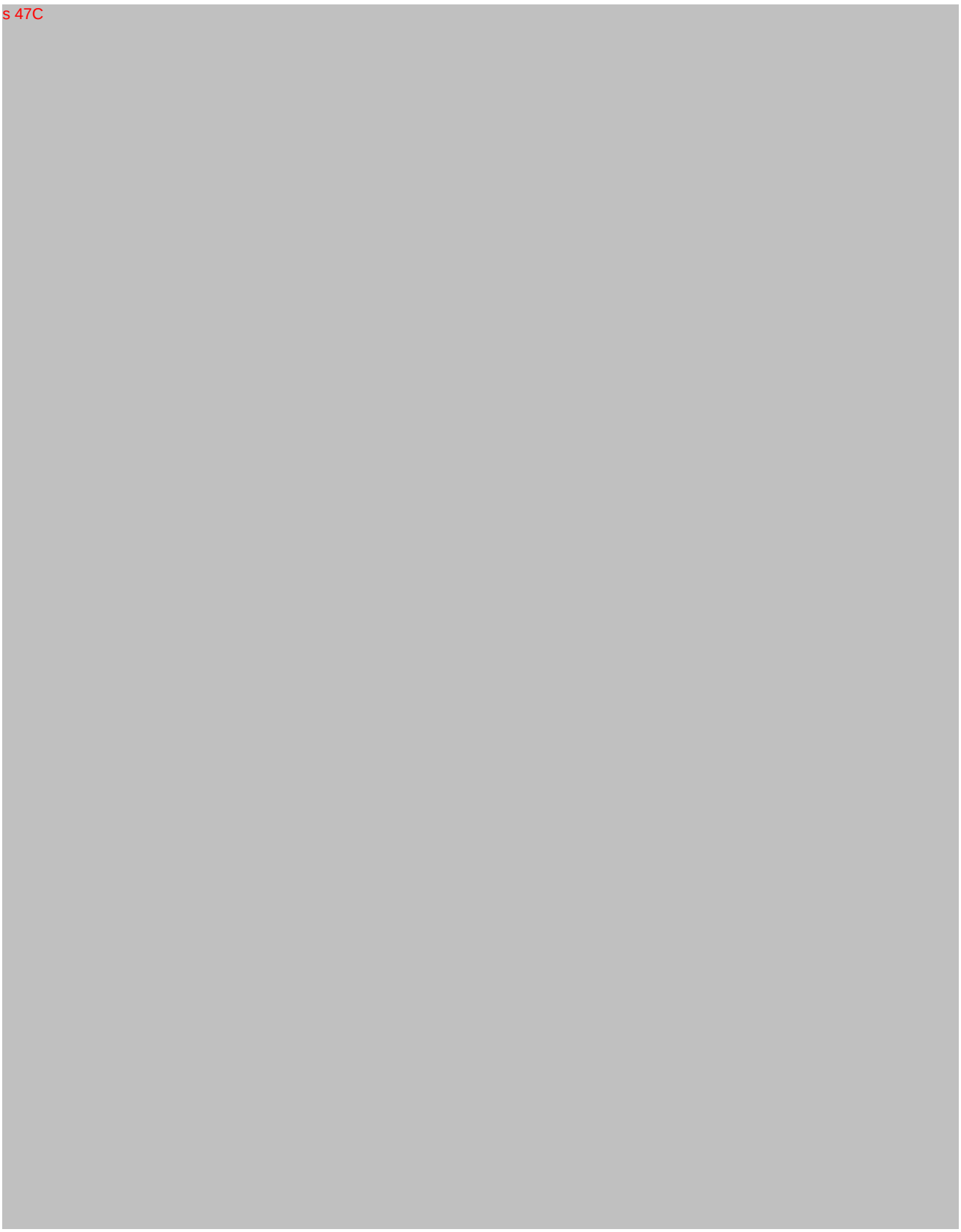

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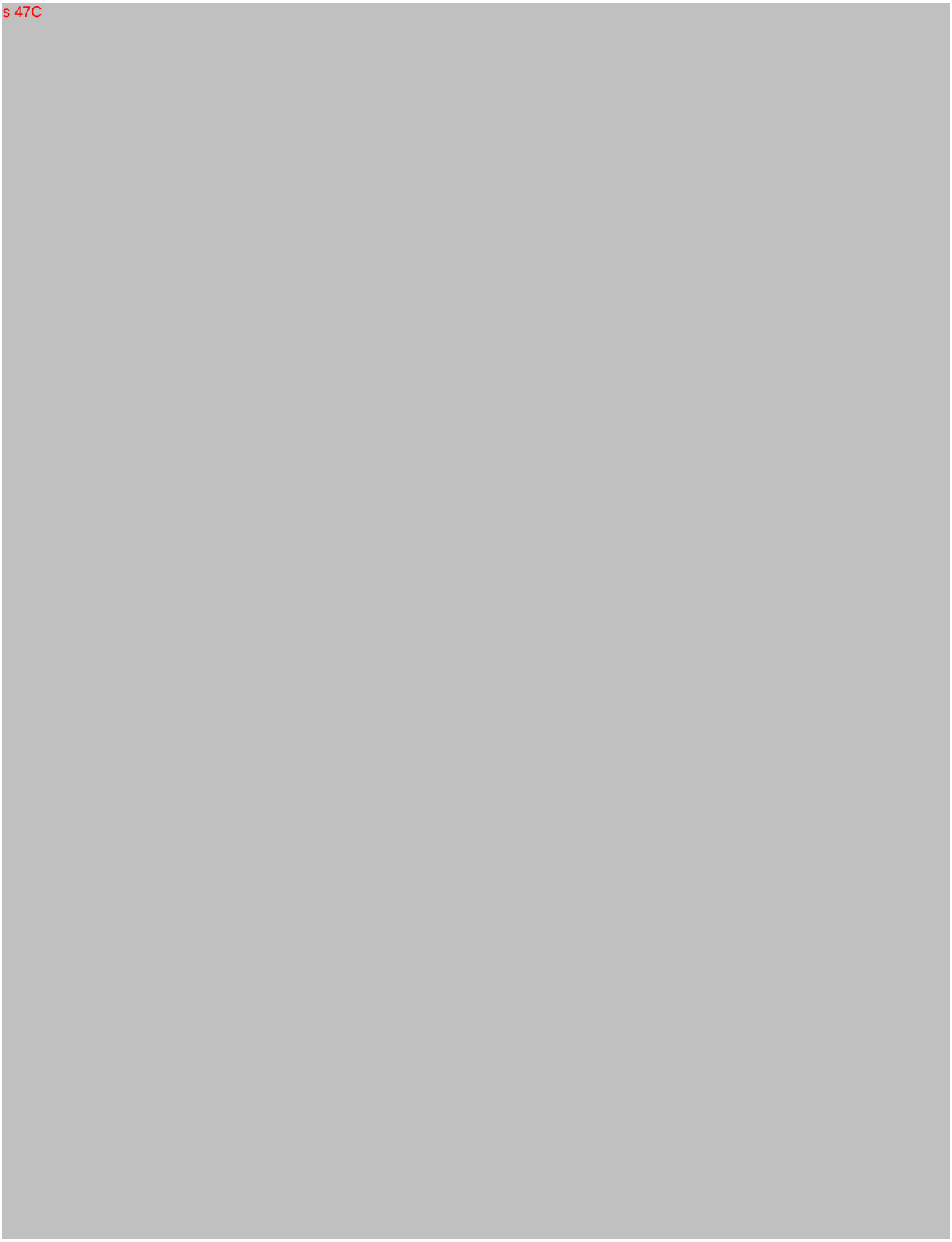

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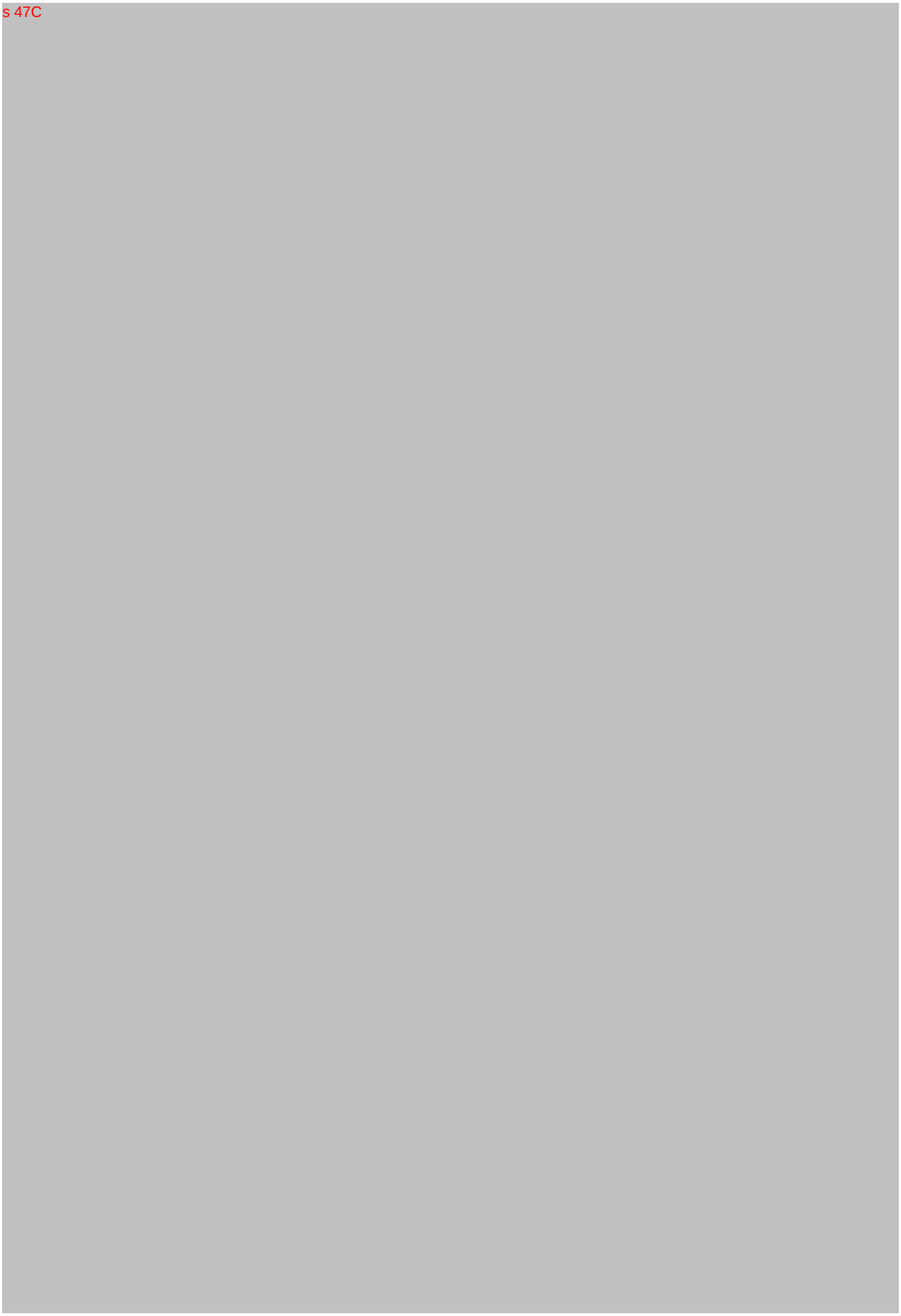

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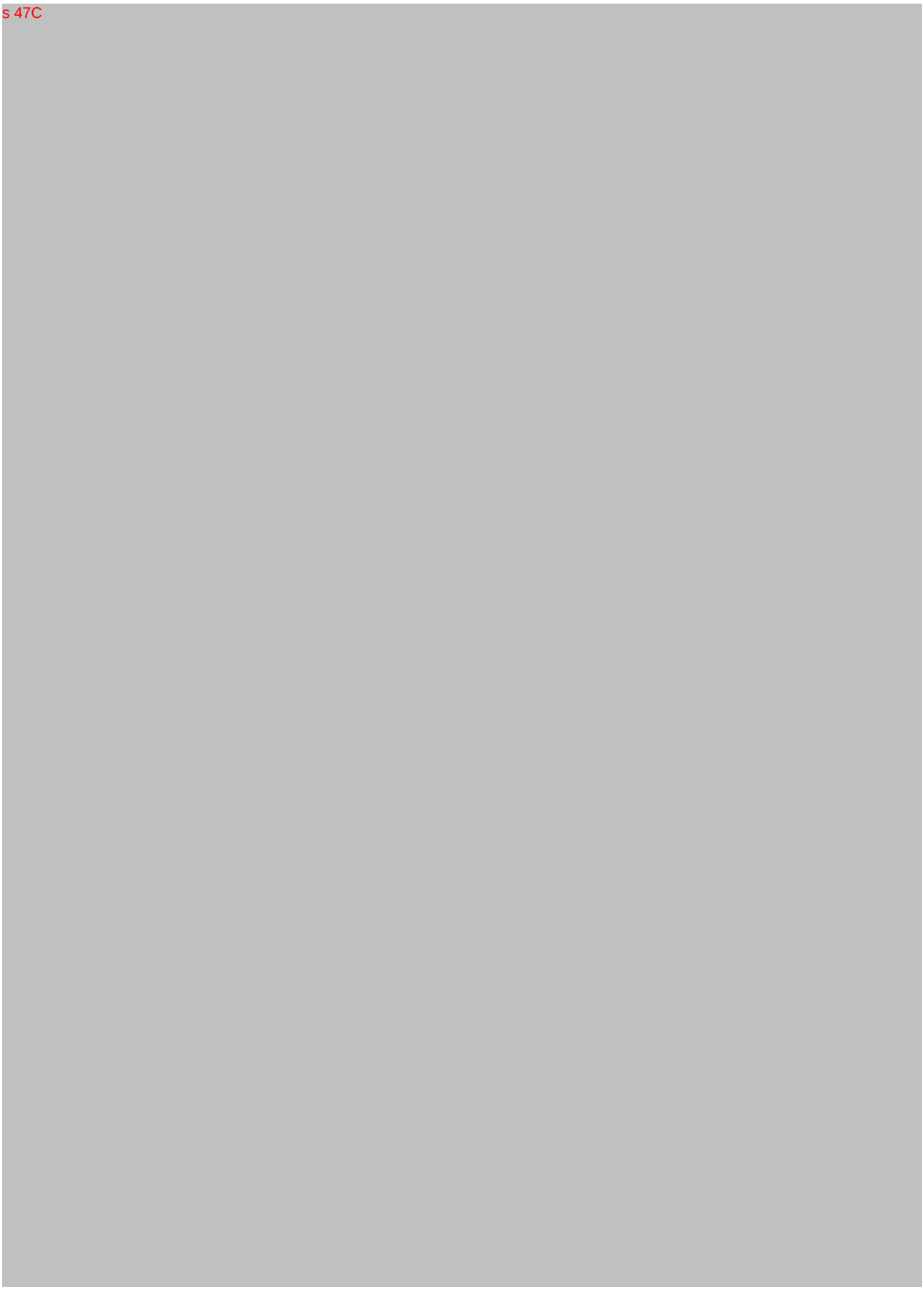
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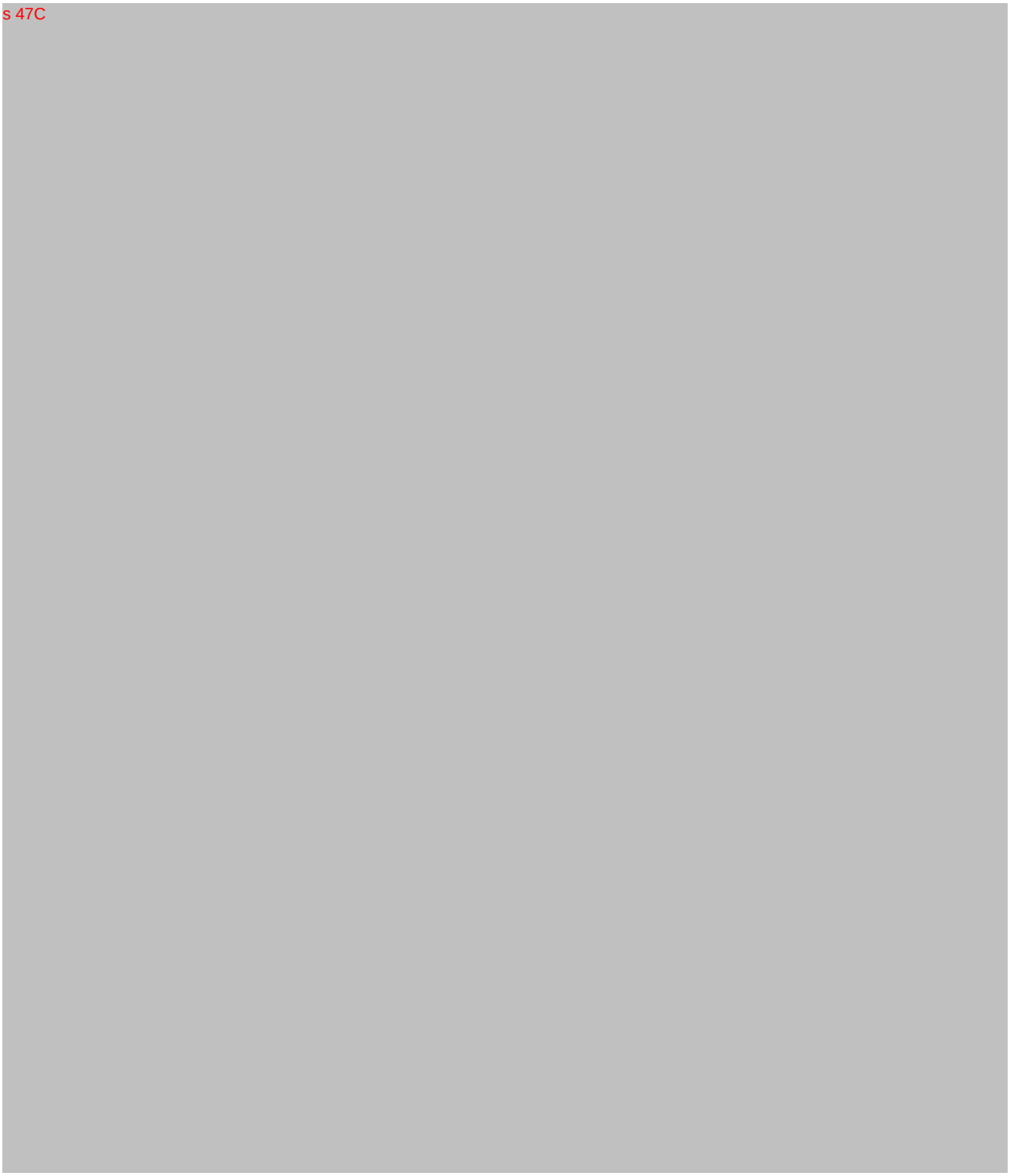

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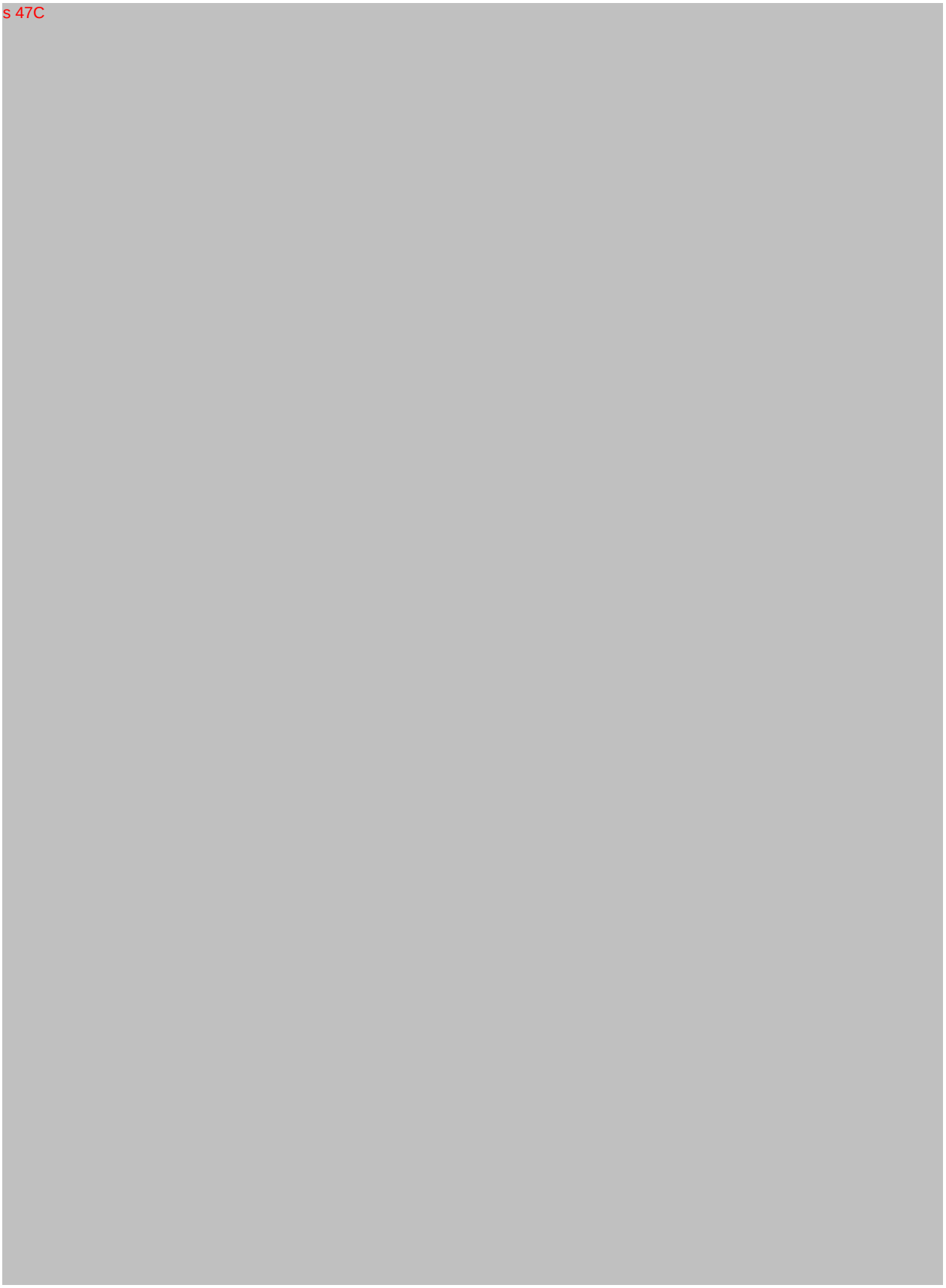

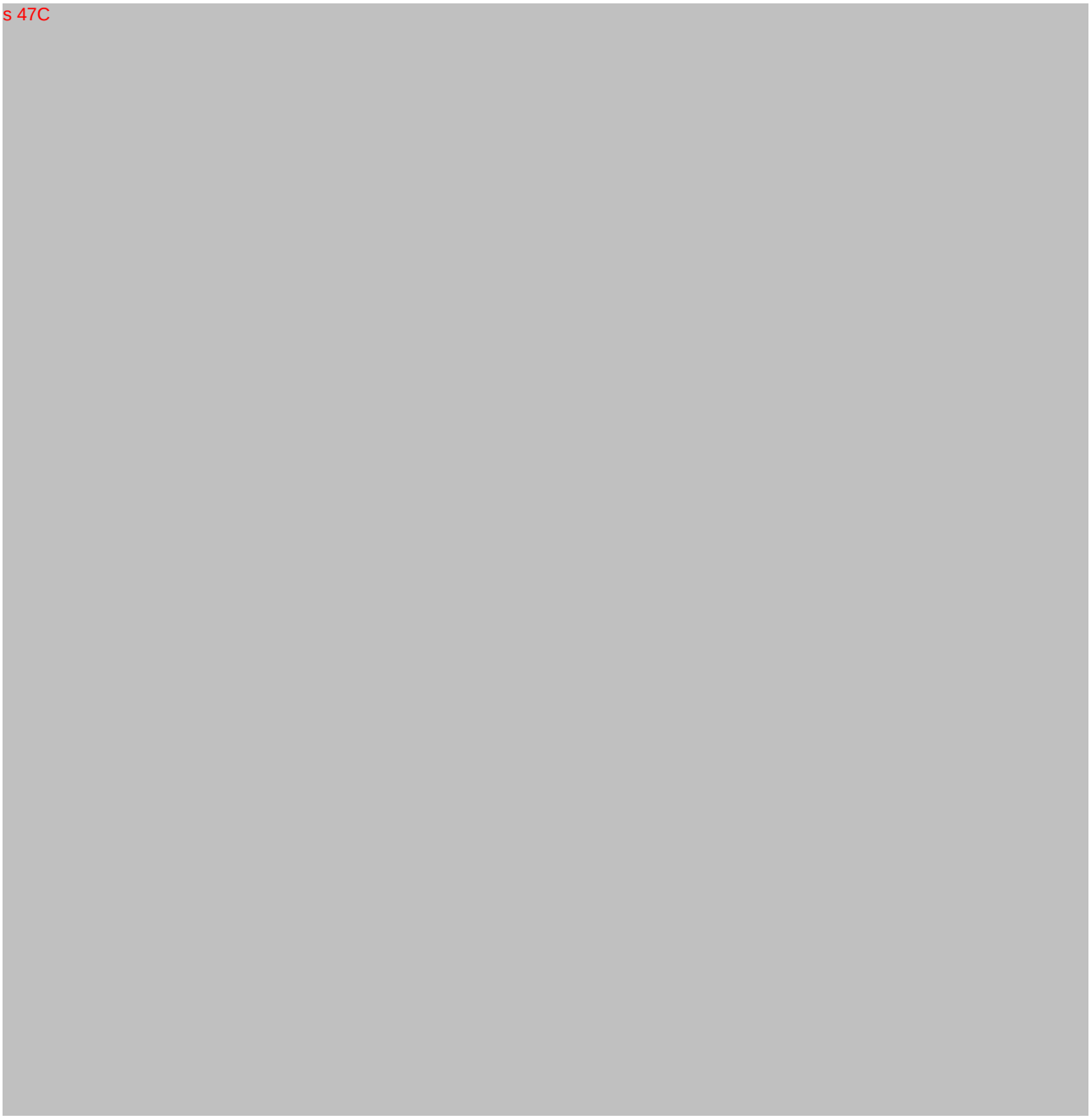
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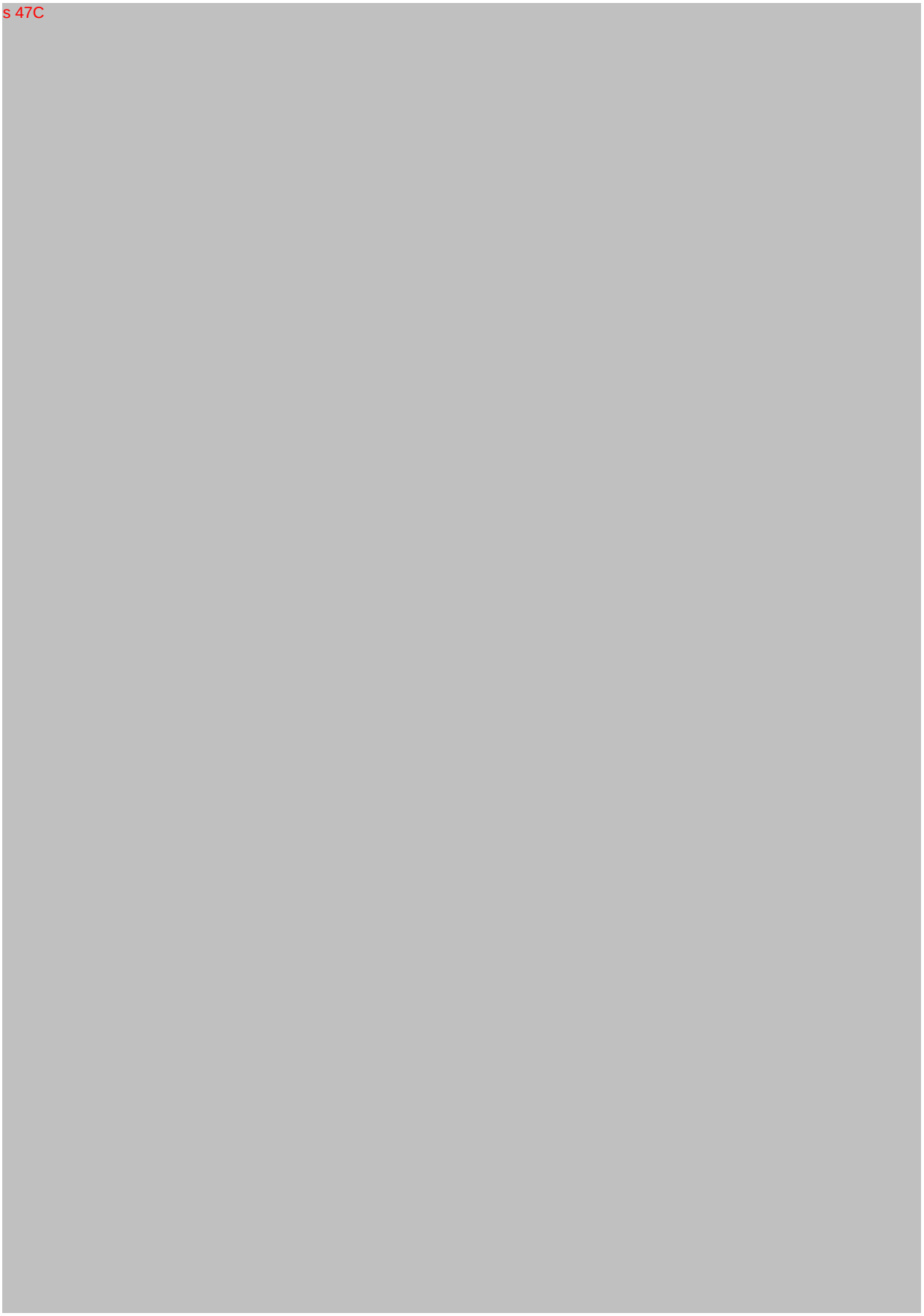

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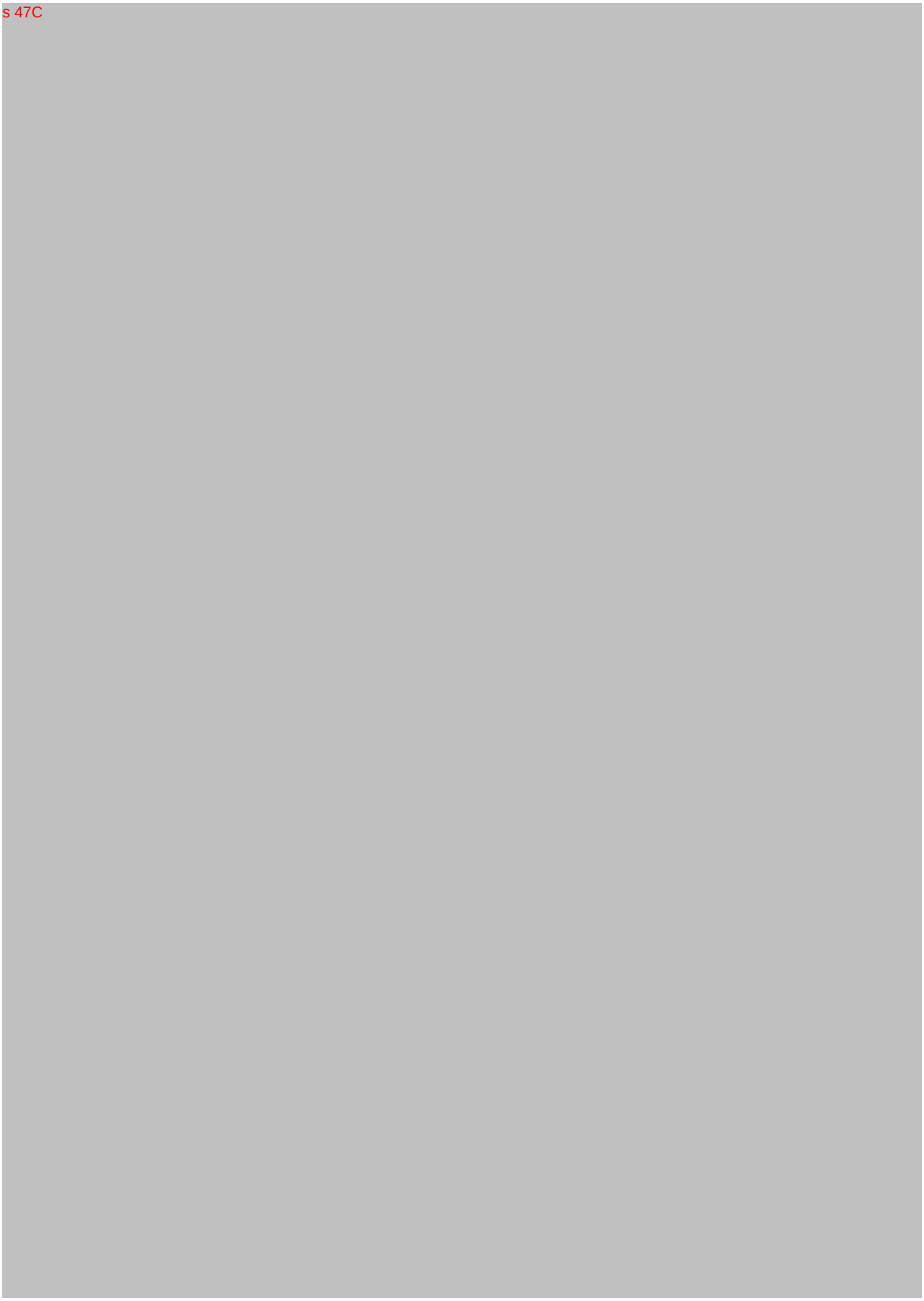
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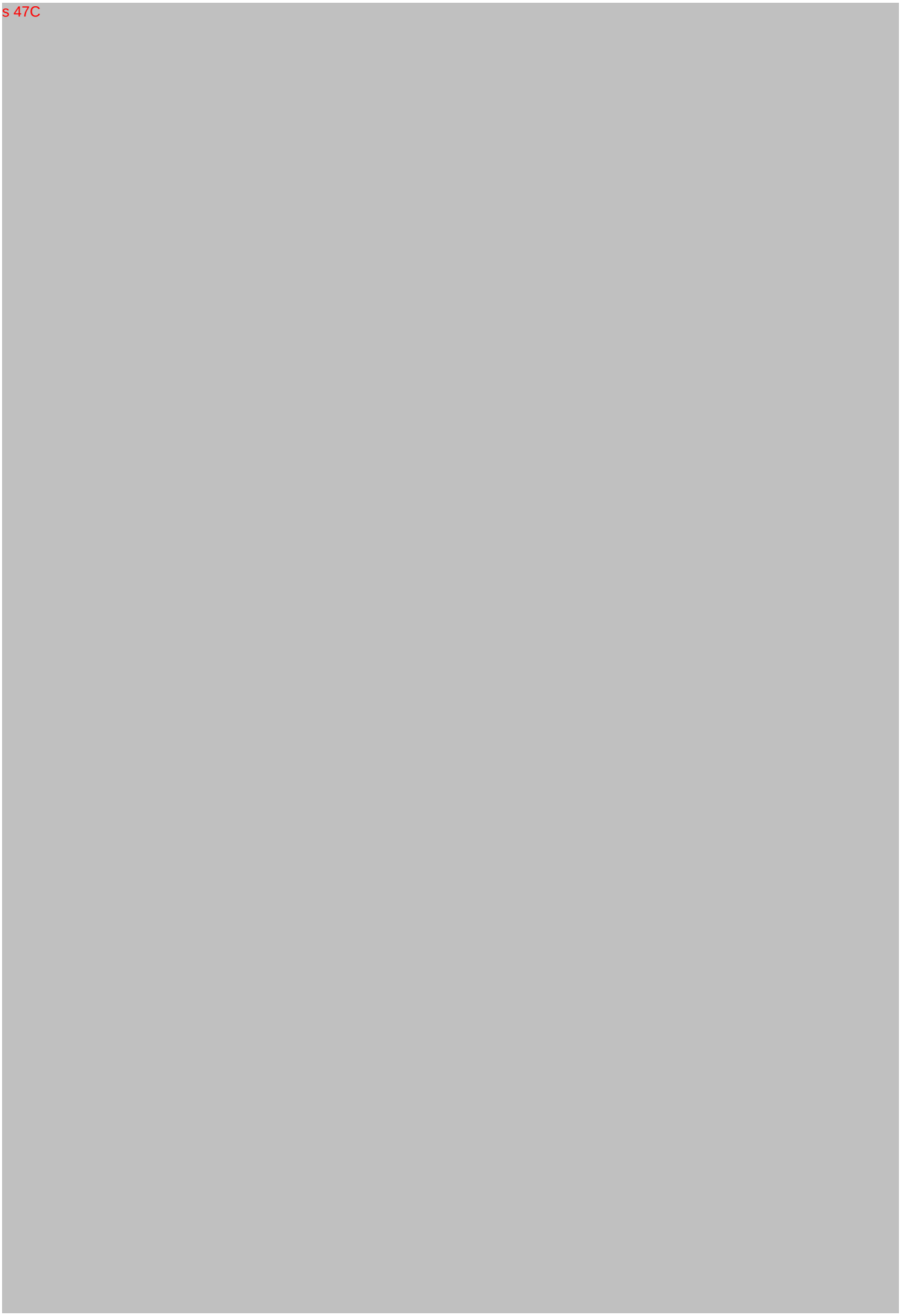

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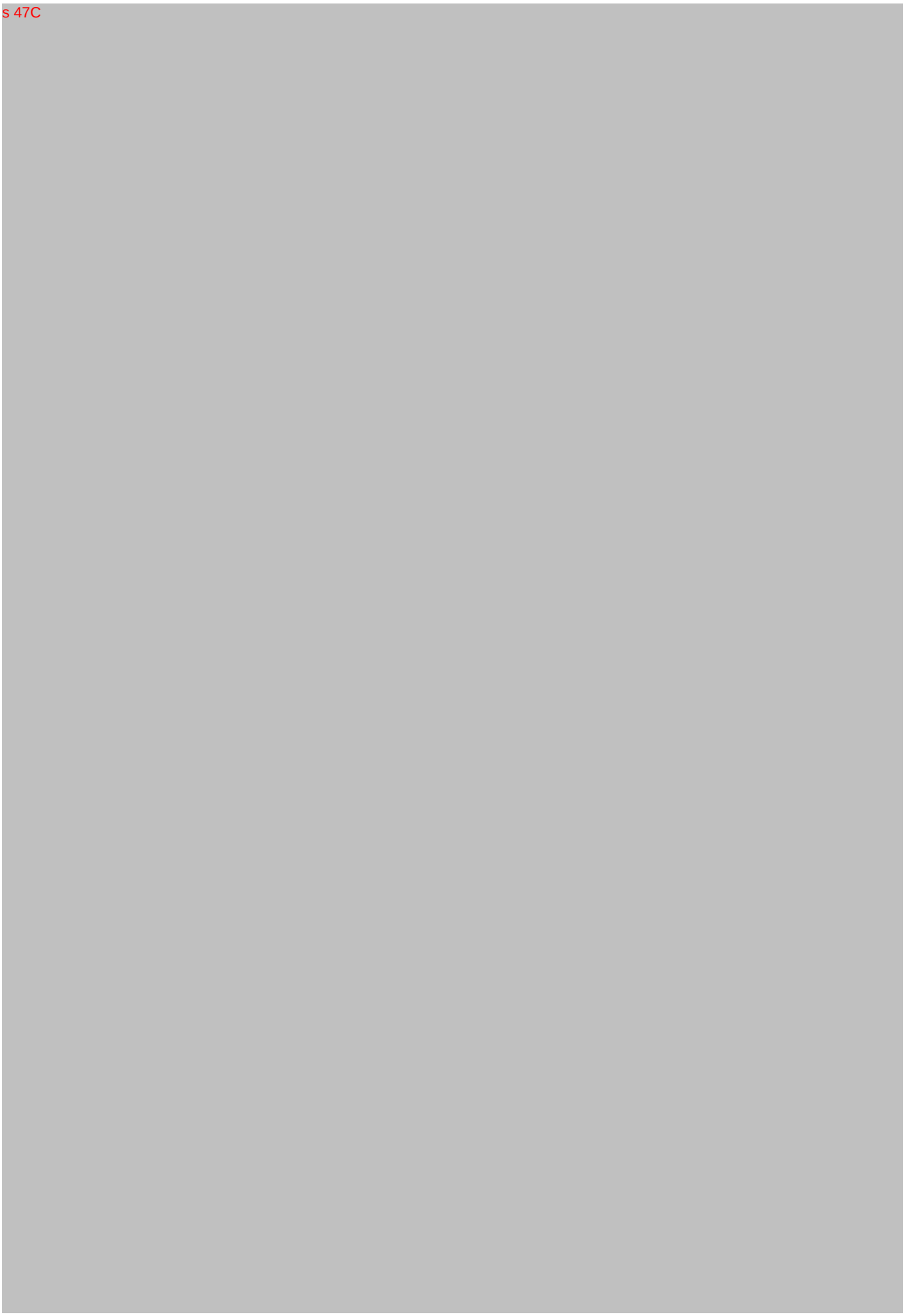

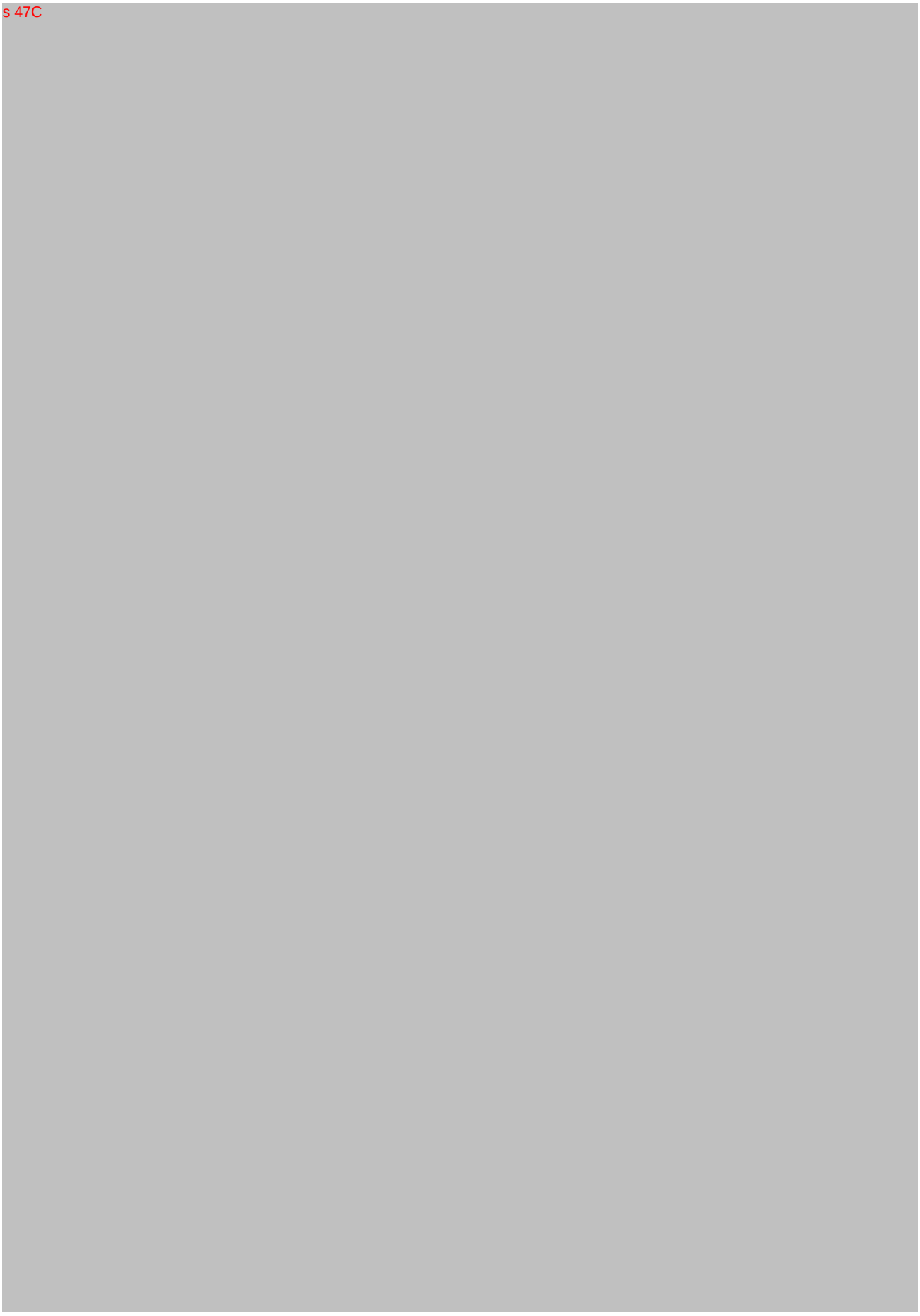
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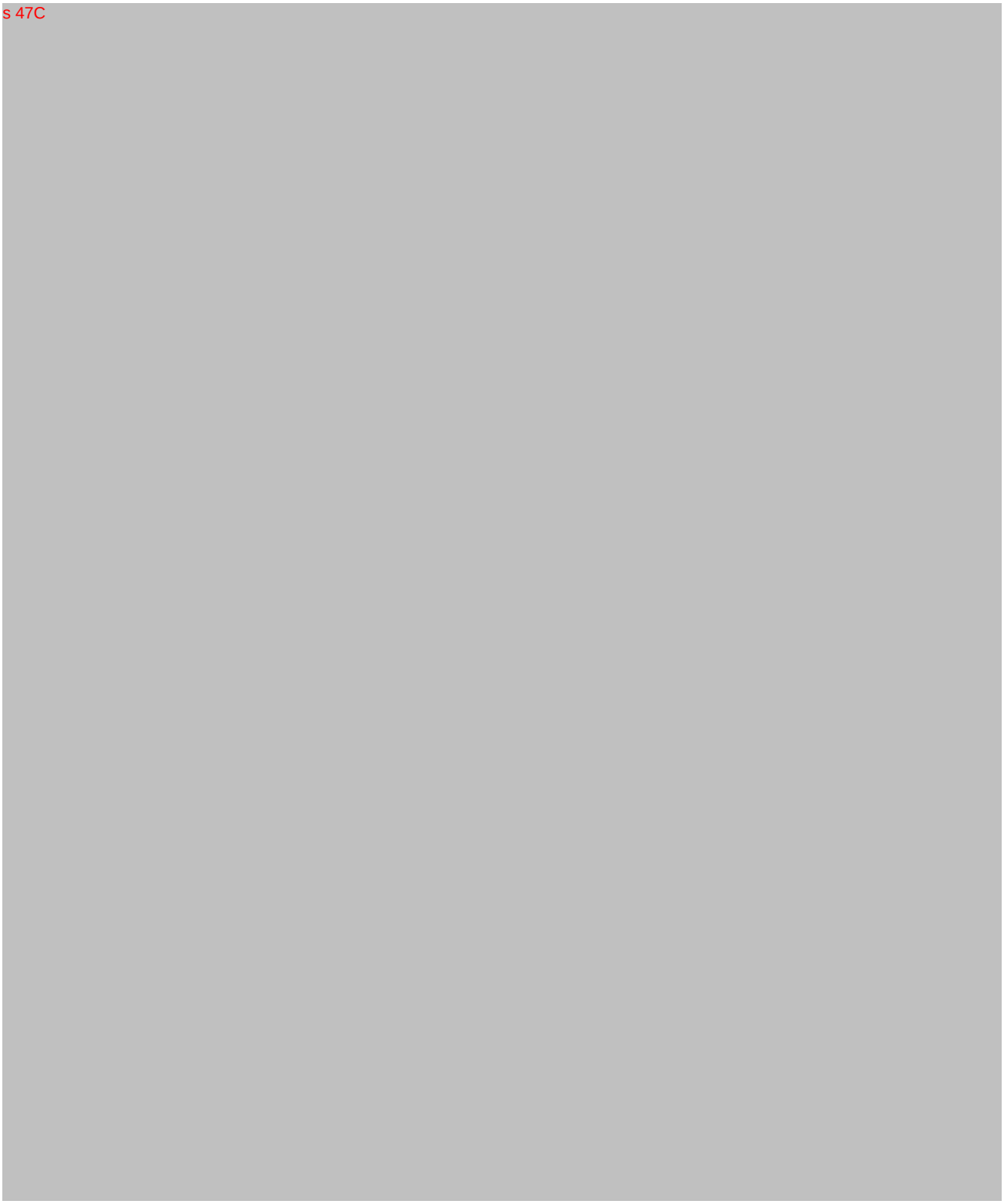

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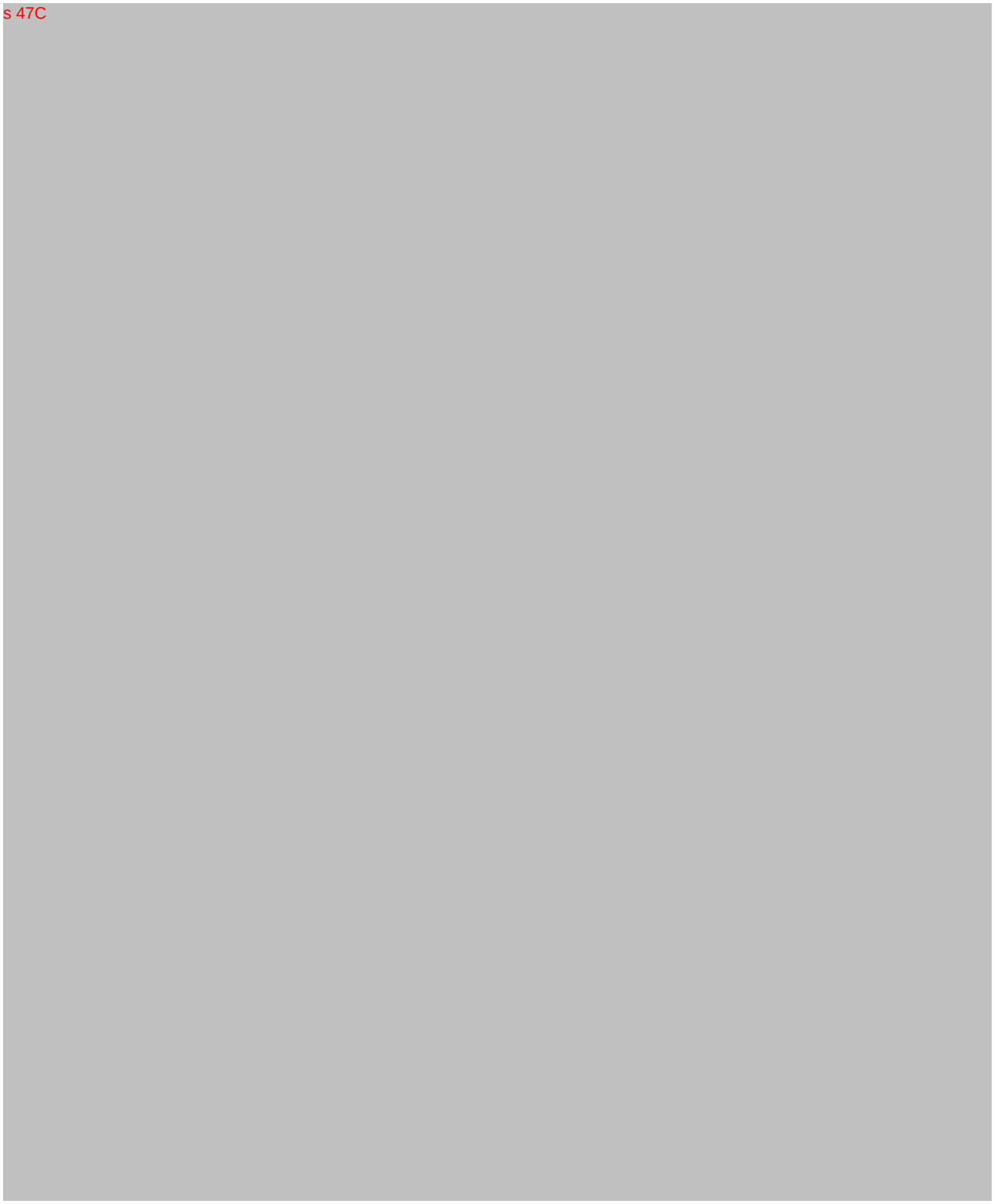

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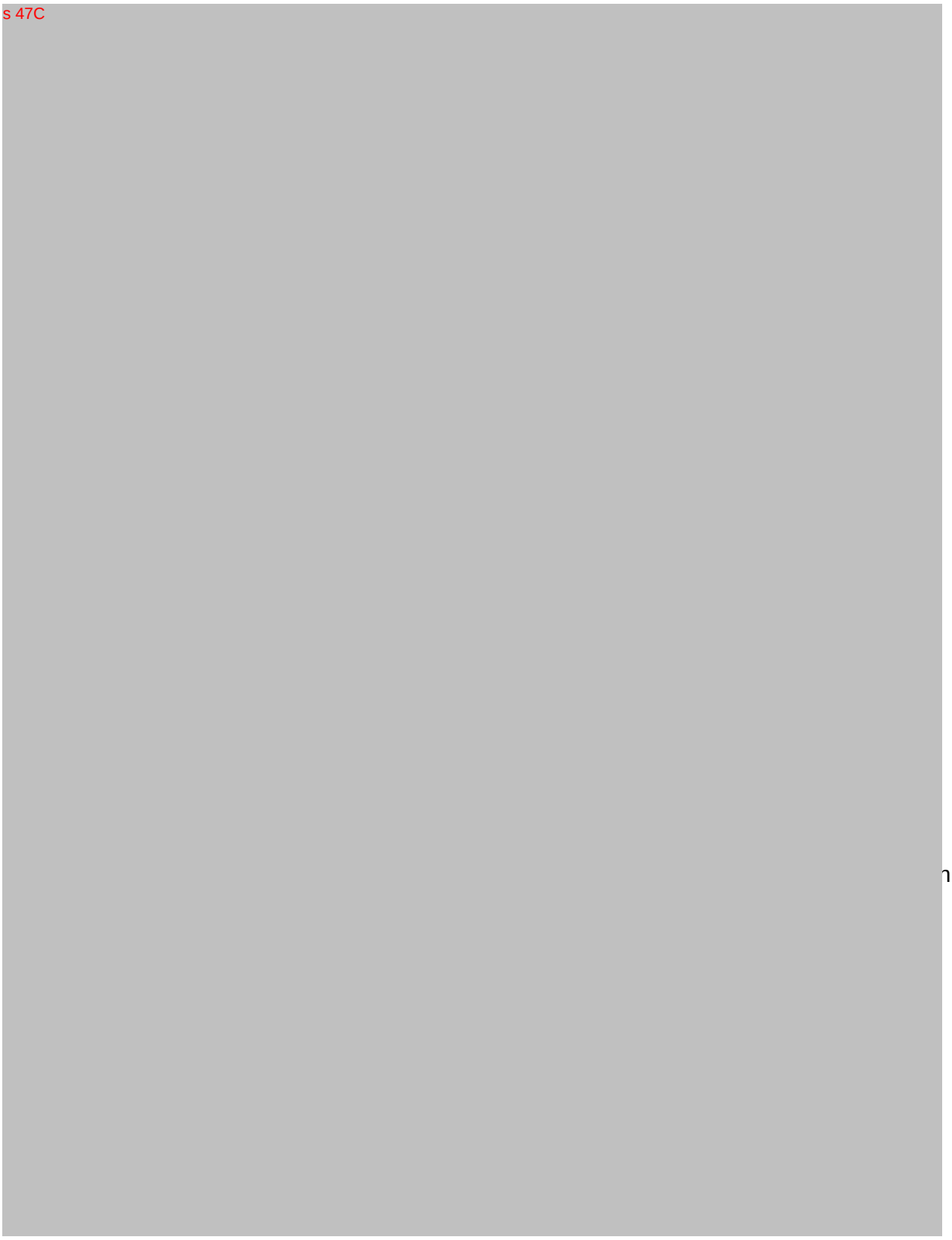

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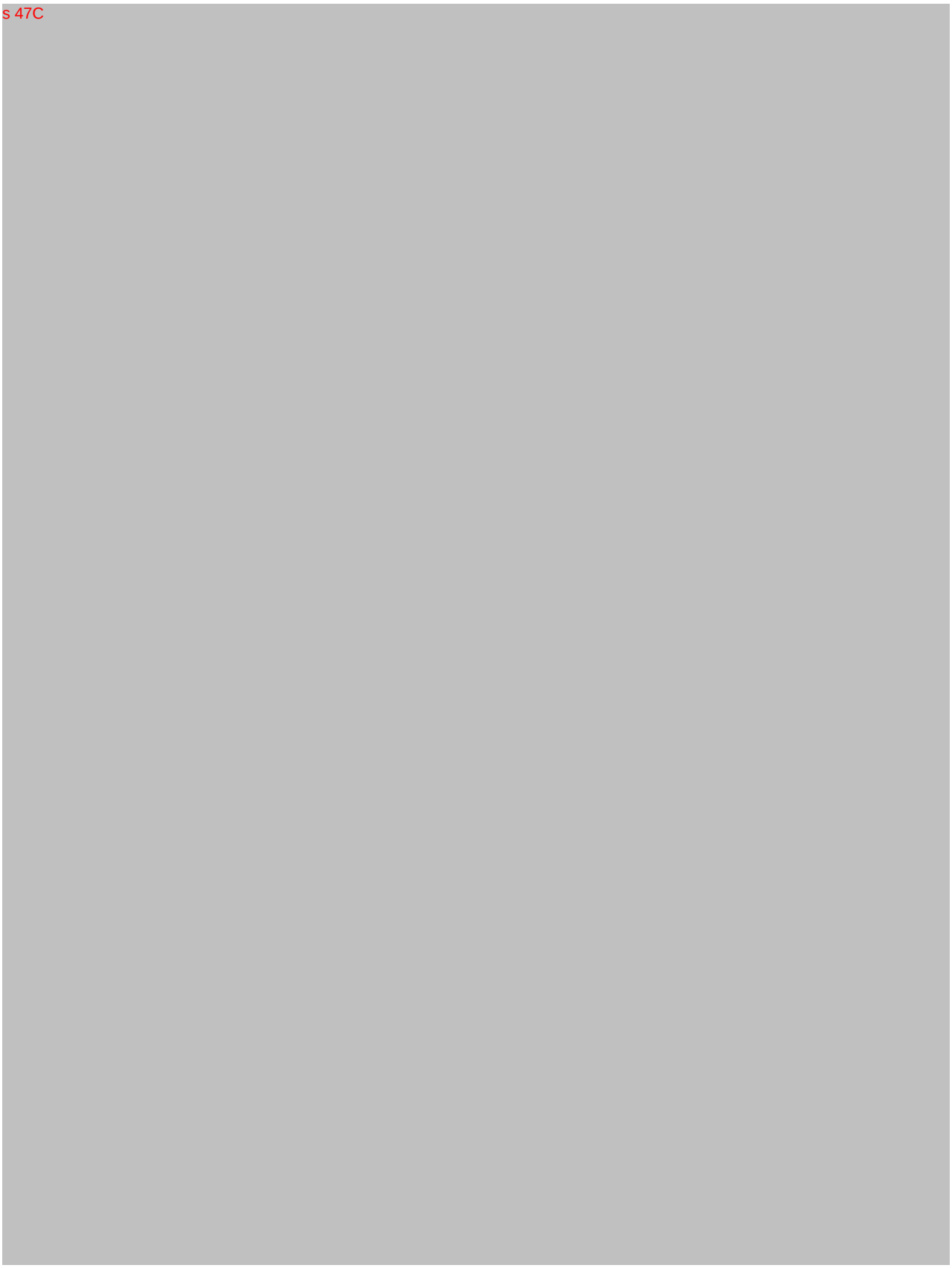

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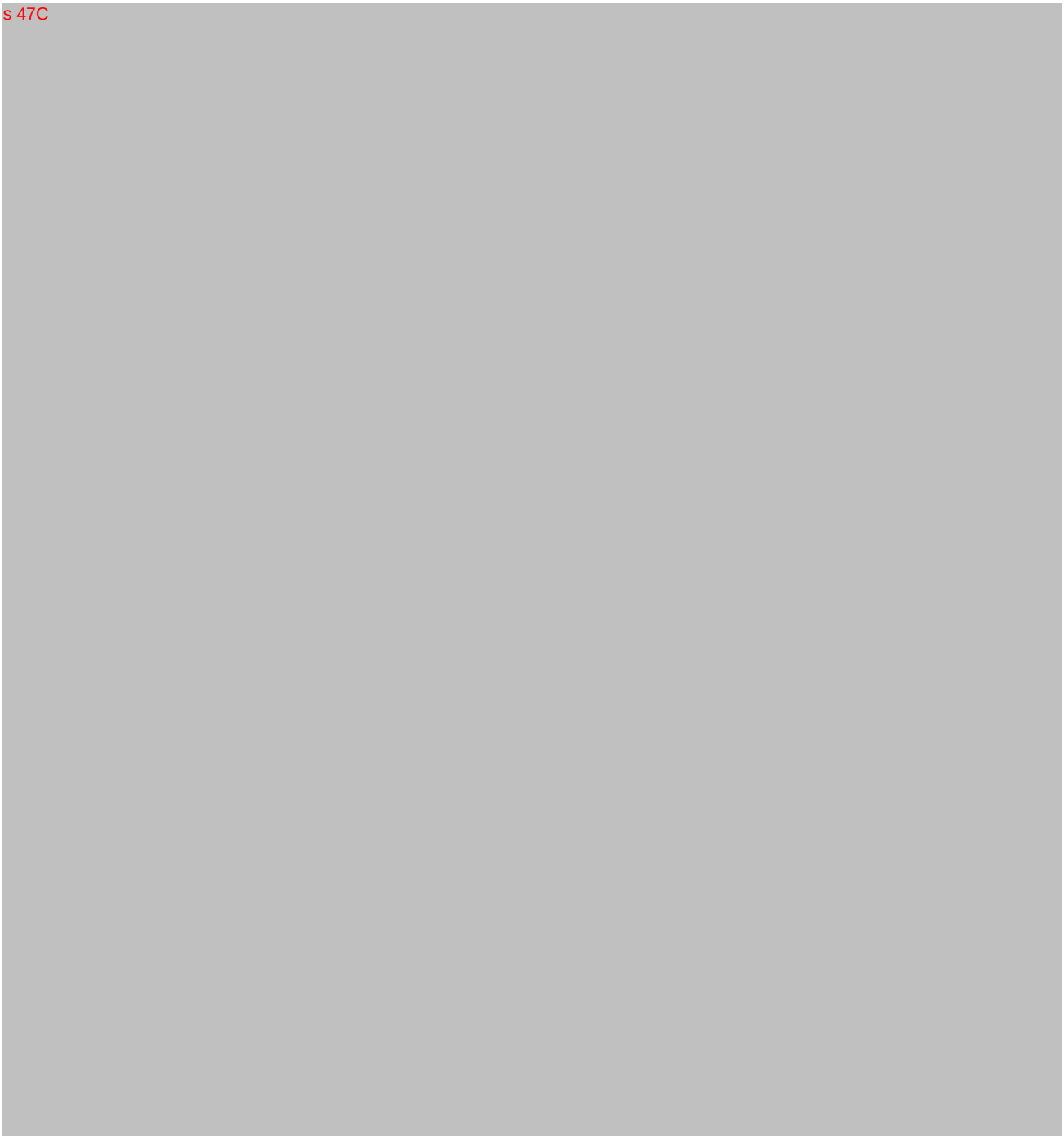

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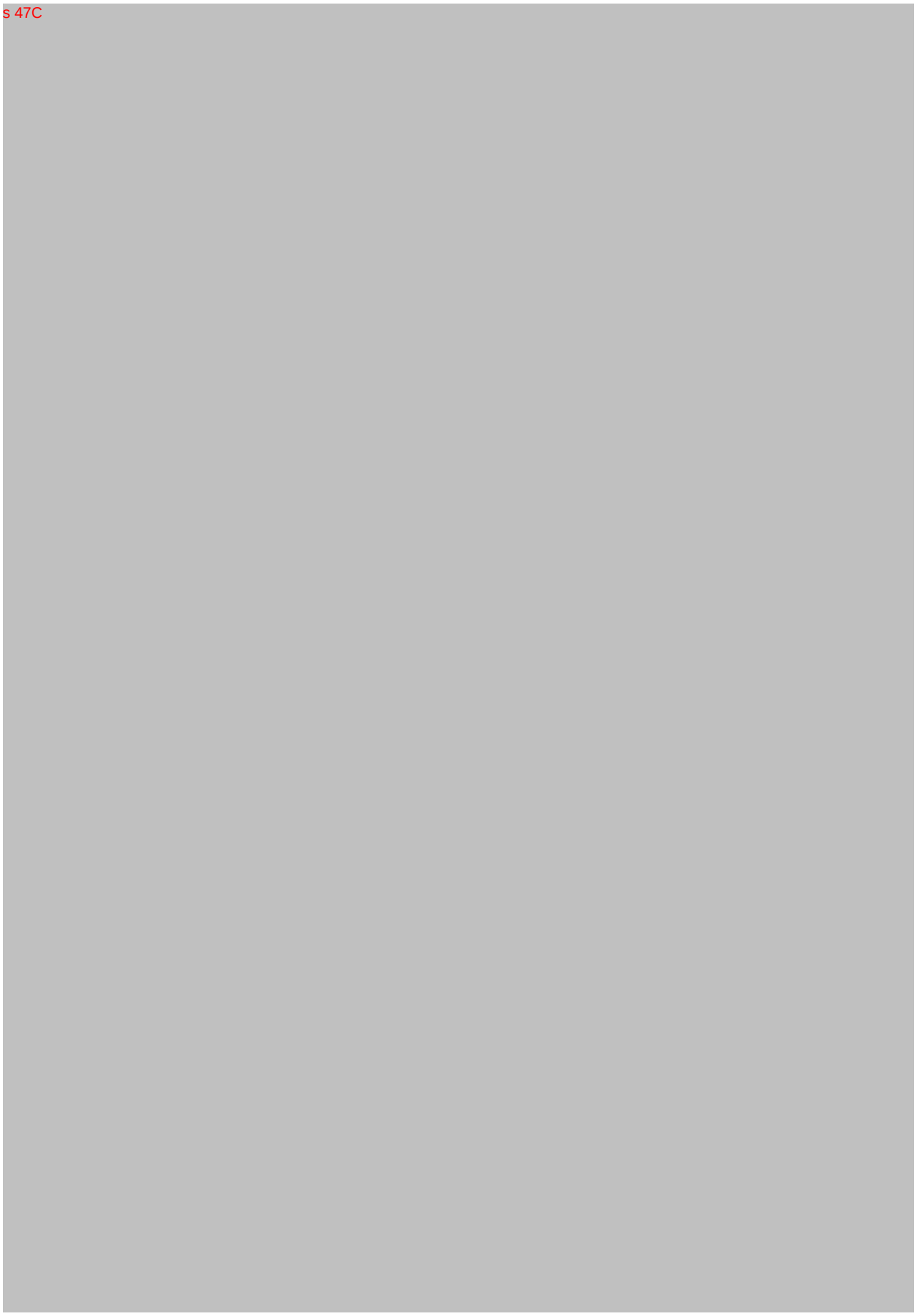

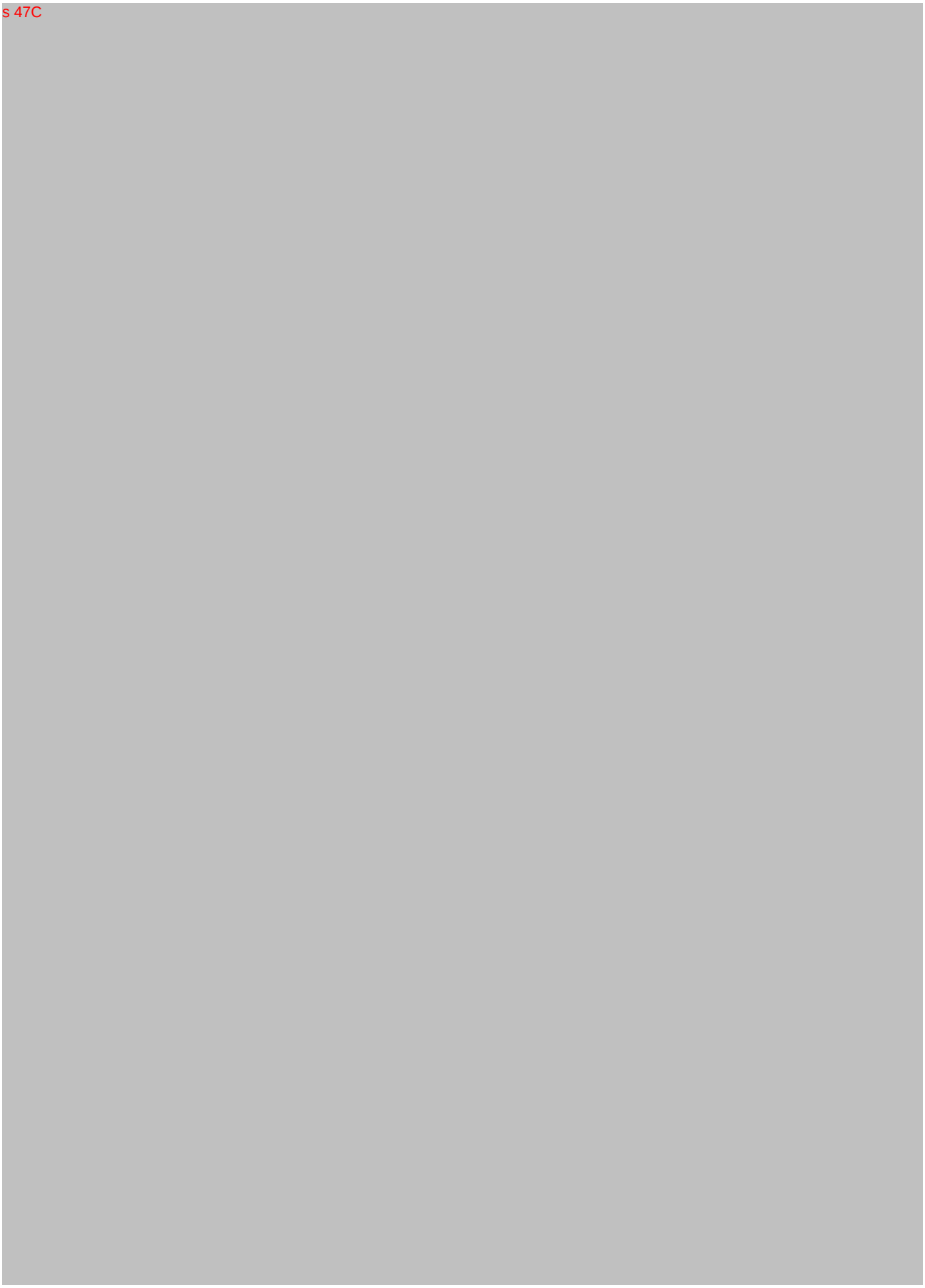
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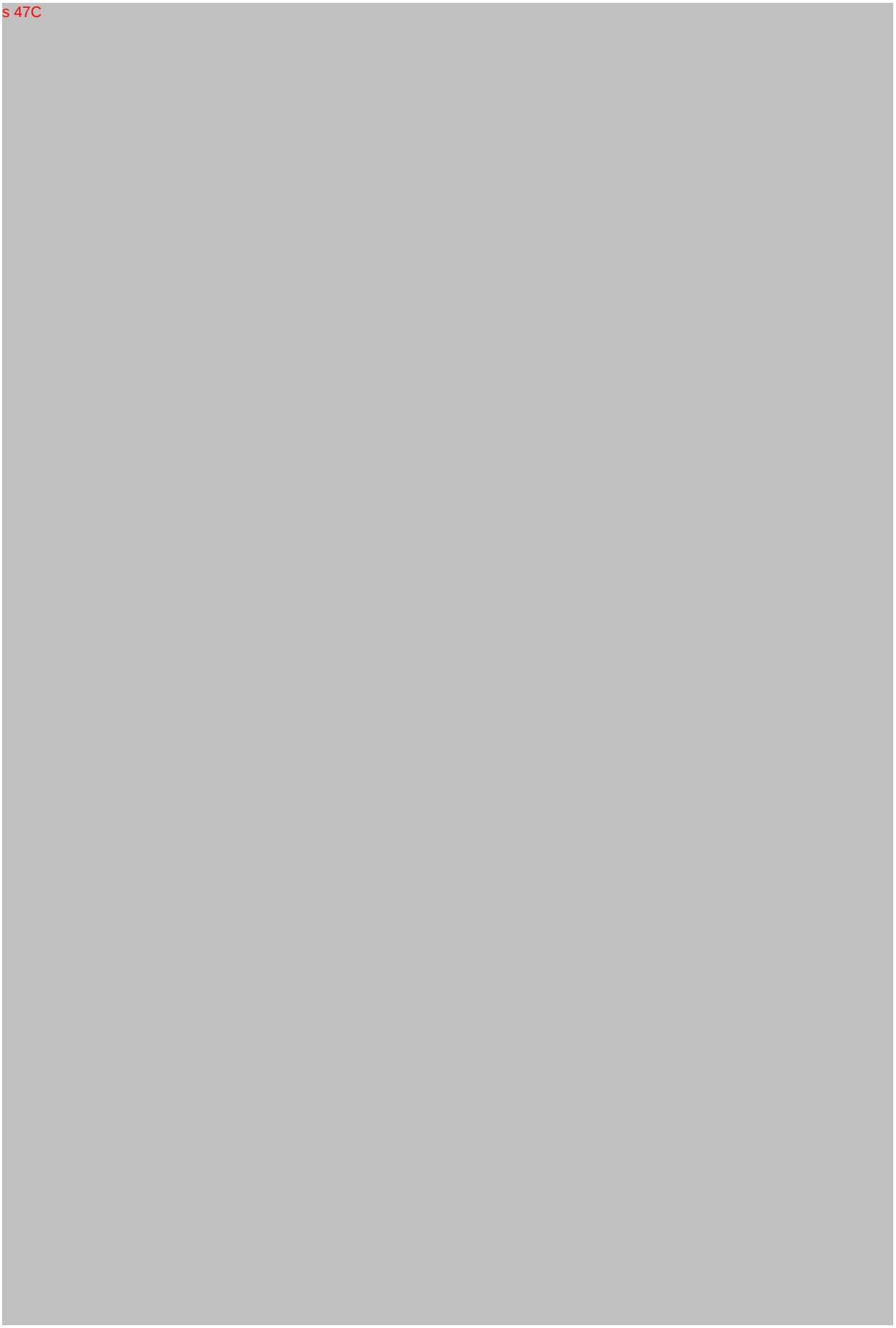

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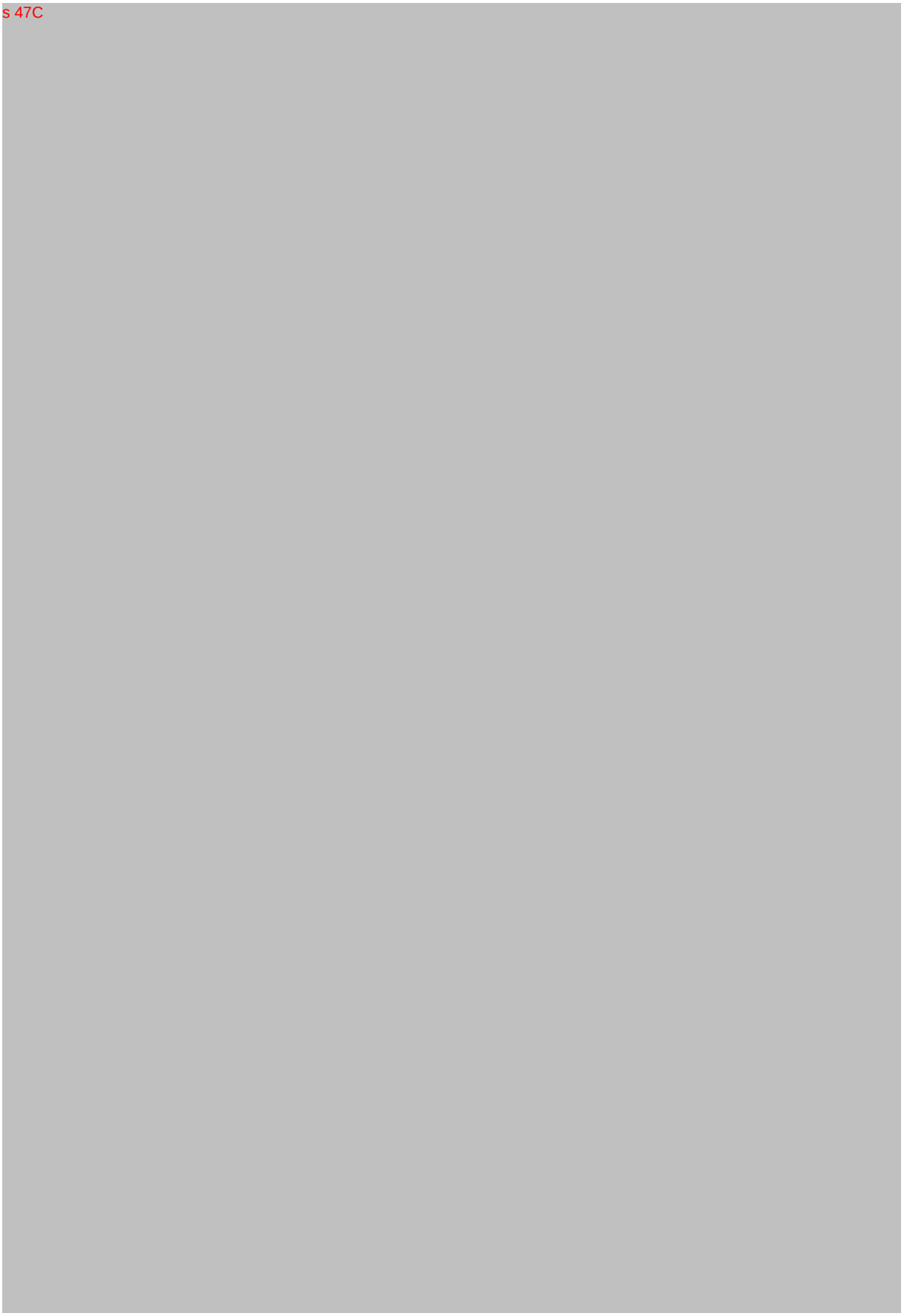

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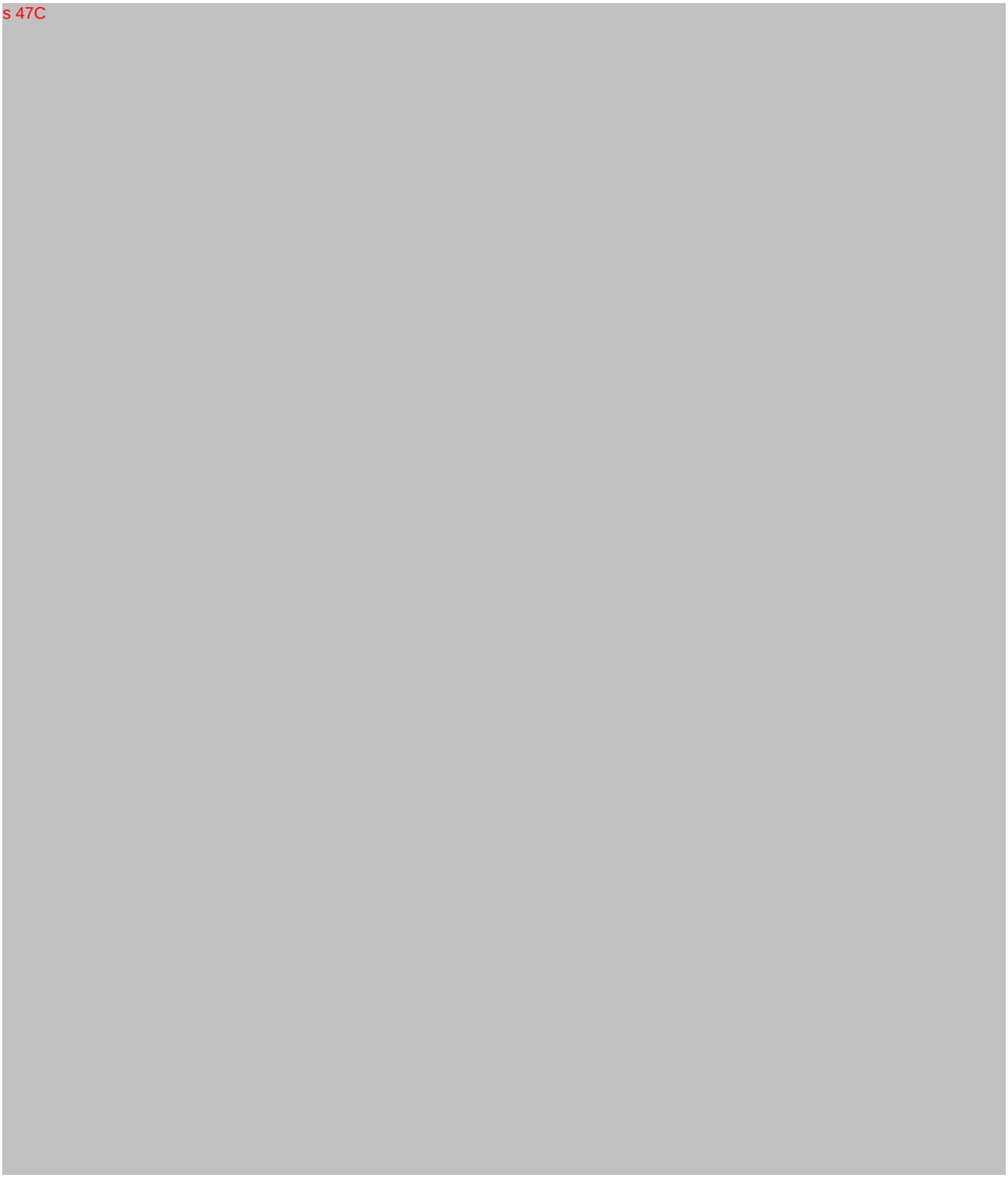

5.2 Preliminary Pavement Design

Indicative pavement types for the proposed bypass are based on similar Bruce Highway projects located in the Childers vicinity. Pavement types adopted were used for comparative costings and are summarised below.

Pavement Type 1 (Bruce Highway and Isis Highway, including ramps)

- 50 mm AC14 Asphalt wearing course
- Prime and seal
- 200 mm Base material Type 2.1
- 485 mm Subbase material Type 2.3
- 150 mm Lower Subbase Type 2.5.

Pavement Type 1 is based on Subgrade CBR3 and DESA = 2.9x10^7 ESA / 20 years.

Pavement Type 2 (all other roads)

- Prime and seal
- 150 mm Base material Type 2.1
- 170 mm Subbase material Type 2.3.

Pavement Type 2 is based on Subgrade CBR3 and DESA = 4.3x10^3 ESA / 20 years.

5.3 Preliminary Geotechnical Analysis

A high-level geotechnical analysis has been carried out for the bypass investigation. This investigation was undertaken as a desktop assessment to gain an appreciation of the geotechnical issues affecting the project.

Annexure J contains the TMR Preliminary Geotechnical Advice and an options review report by GHD.

Regional Geology

Regional geology mapping from the Department of Environment and Recourses Management (DERM) geospatial data set shows that the geology along the alignment comprises primarily Tertiary ferricrete deposits described as duricrusted old land surface, silcrete and palaeosoils lyng at the top of a deep weathering profile. These materials are derived from a combination of underlying Late Jurassic to Early Cretaceous andesitic and rhyolitic lavas and volcanoclastics of the Grahams Creek Formation and Late Triassic to Early Jurassic quartzose sandstone, siltstone, shale and coal of the Tiaro Coal Measures.

The sedimentary and volcanic units are locally intruded by granites, biotite, diorite and granodiorite of the Broomfield Granite formation to the south of the alignment.

The duricrust deposits are locally incised and infilled with alluvial material. The eastern end of the alignment at the proposed southern interchange is underlain by a holocene aged alluvial river terrace described as comprising sand, silt, clay and gravel. Further west a quaternary alluvial channel cuts across the alignment from north to south and comprises of clay, silt, sand and gravel floodplain alluvium.

The topography of the alignment is largely controlled by the ferricrete and duricrust deposits with ridgelines extending south and south-east at the central and eastern end of the alignment at an elevation of approximately 100 to 110 m AHD. Alluvial channel and river terrace deposits cut through these deposits down to around 70 to 80 m AHD, and locally expose underlying units.

Information from publically available databases sighted as part of this study includes references to hydrogeological and agronomic investigations around the town of Childers. Groundwater data indicates relatively deep groundwater along the alignment, although shallow groundwater may be expected locally within alluvial units.

Geotechnical Investigations

No existing geotechnical investigation data is available for the alignment. Nearby hydrogeological investigations were reviewed as part of this study.

General – Cuts

Existing cuts would be formed in ferricrete duricrust deposits recorded as being deeply weathered leading to a risk that slopes would requiring laying back at shallower batters, increasing cut volumes and footprint. It would be prudent where practical to reduce batter heights. Hard rock conditions are considered unlikely to be encountered in cuts, however localised ferricrete and silcrete bands may provide difficult excavation.

General – Fills

Limited opportunity exists for soft soils along the alignment, may be encountered locally in the quaternary alluvial channel intersecting the alignment between the central and northern interchange. Recent river terrace deposits identified at the southern interchange may present potential for localised soft soils presenting risk of differential settlement which incorporates embankments up to 12 m in height. Localised foundation treatment or removal of soft soils may be required in this area.

TMR minimum geotechnical design standards require the use of Class A or B fill within 25 m of bridge abutments, and given the limited opportunity for soft soils at bridge abutment approaches differential settlements within the abutment approaches are not expected to present significant issues.

General – Bridge Foundations

In the absence of any site specific geotechnical data or any records of existing bridge construction in the area, only general advice regarding foundation options can be given. Shallow good quality rock is considered unlikely to be encountered along the alignment.

Bridge foundation solutions are likely to be similar between options with the potential for driven or cast in-situ piles dependant on depth to competent bedrock. Driven piles may be impeded by the presence of localised silcrete or ferricrete bands within duricrust deposits and pre-boring may be required.

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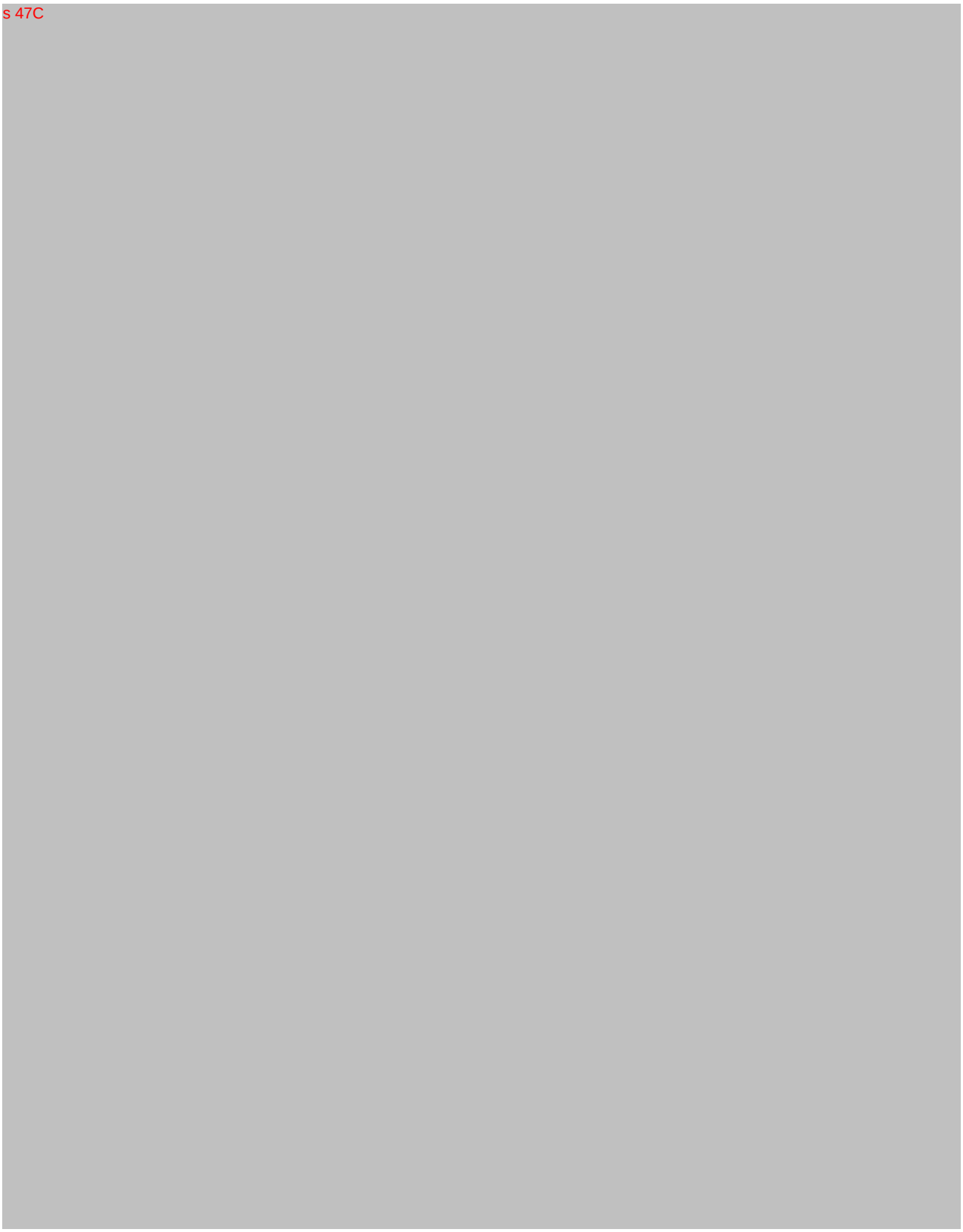

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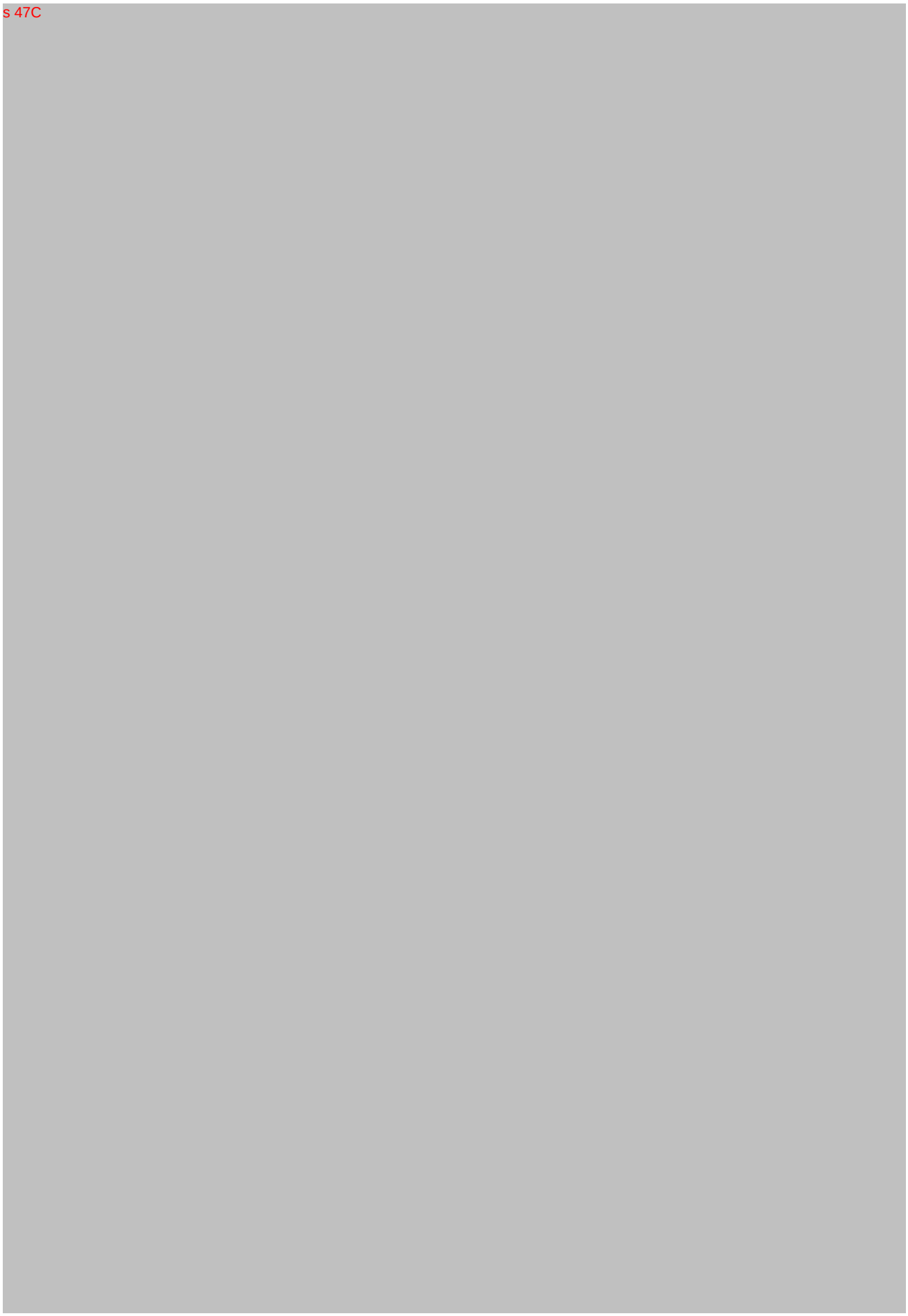

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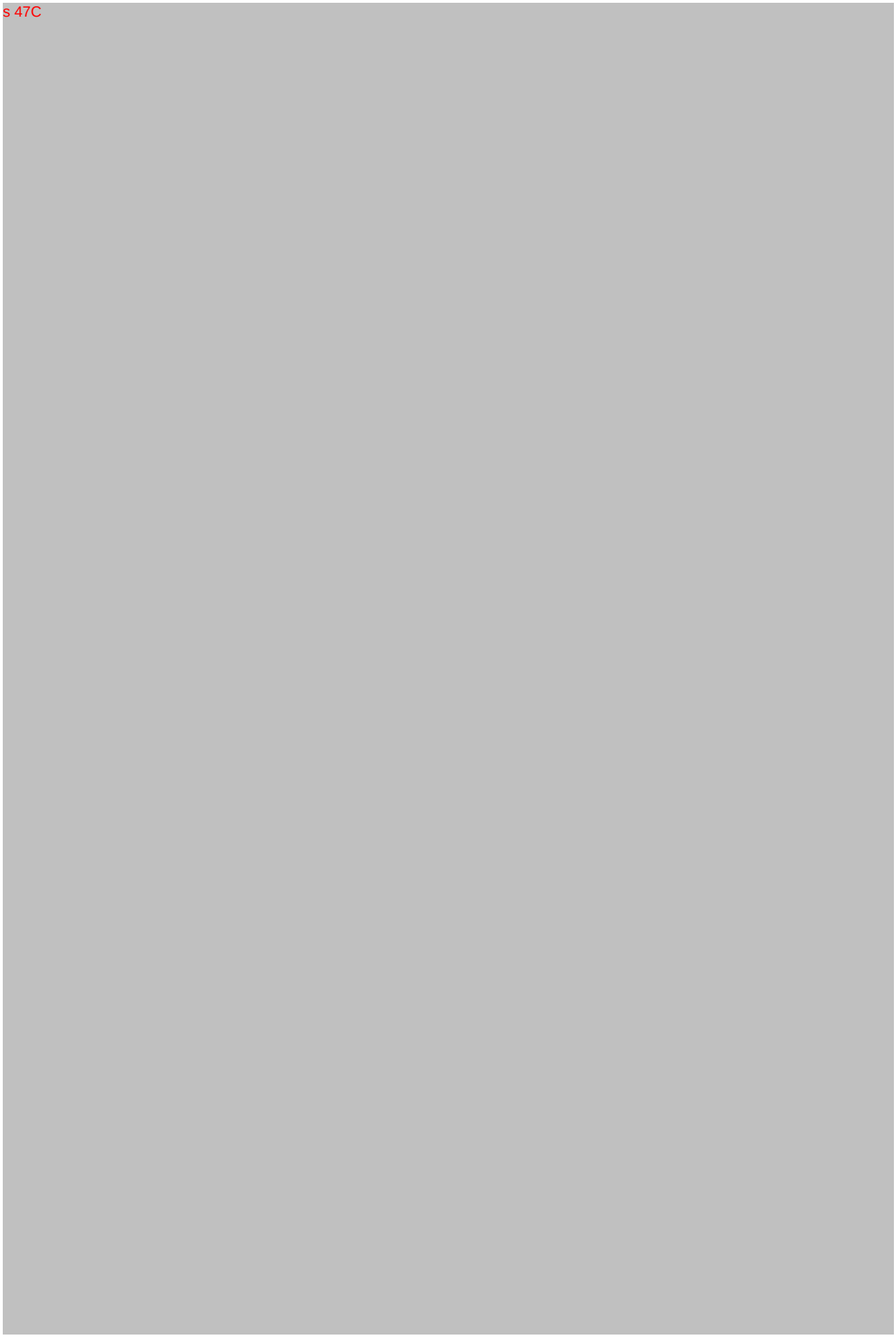

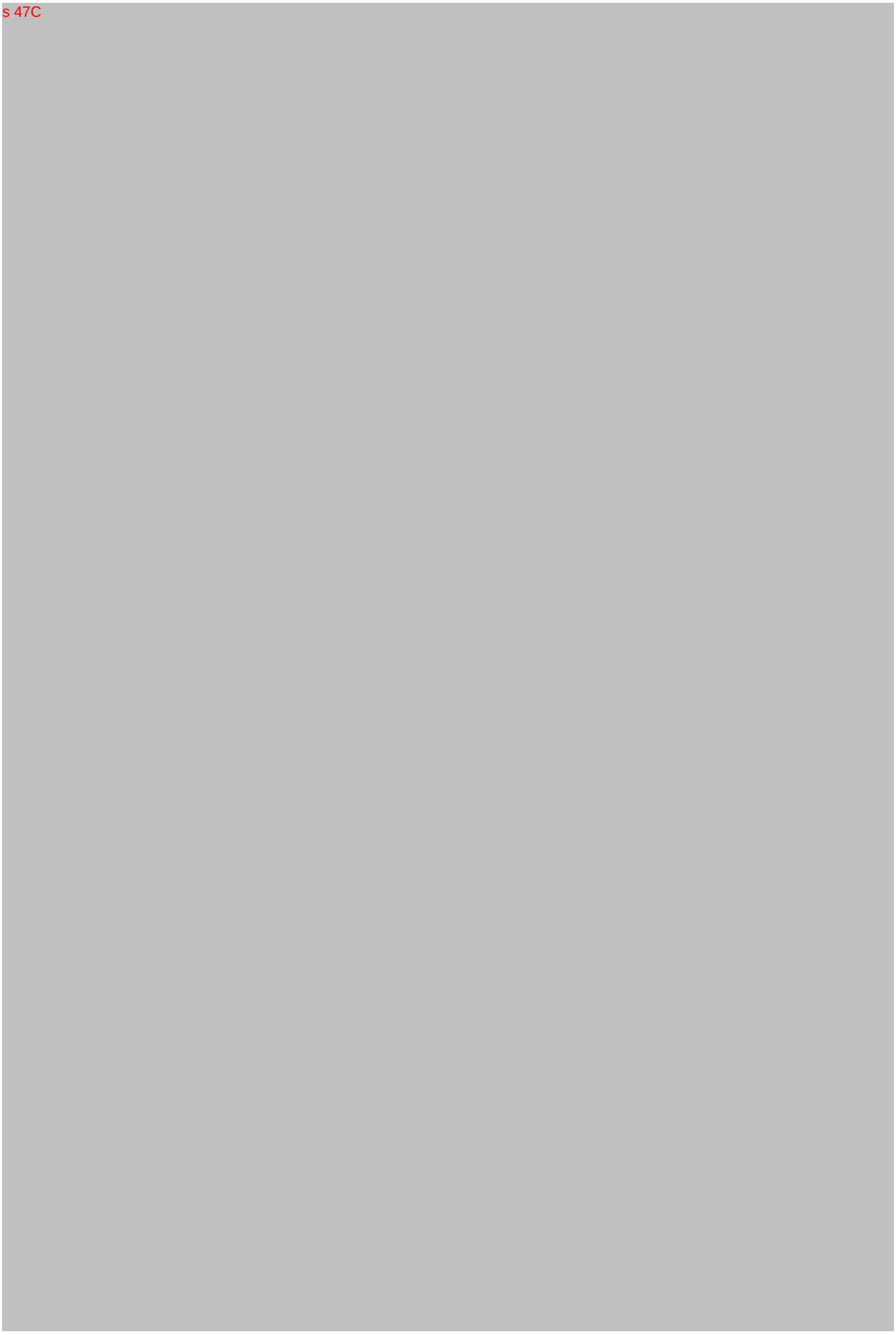
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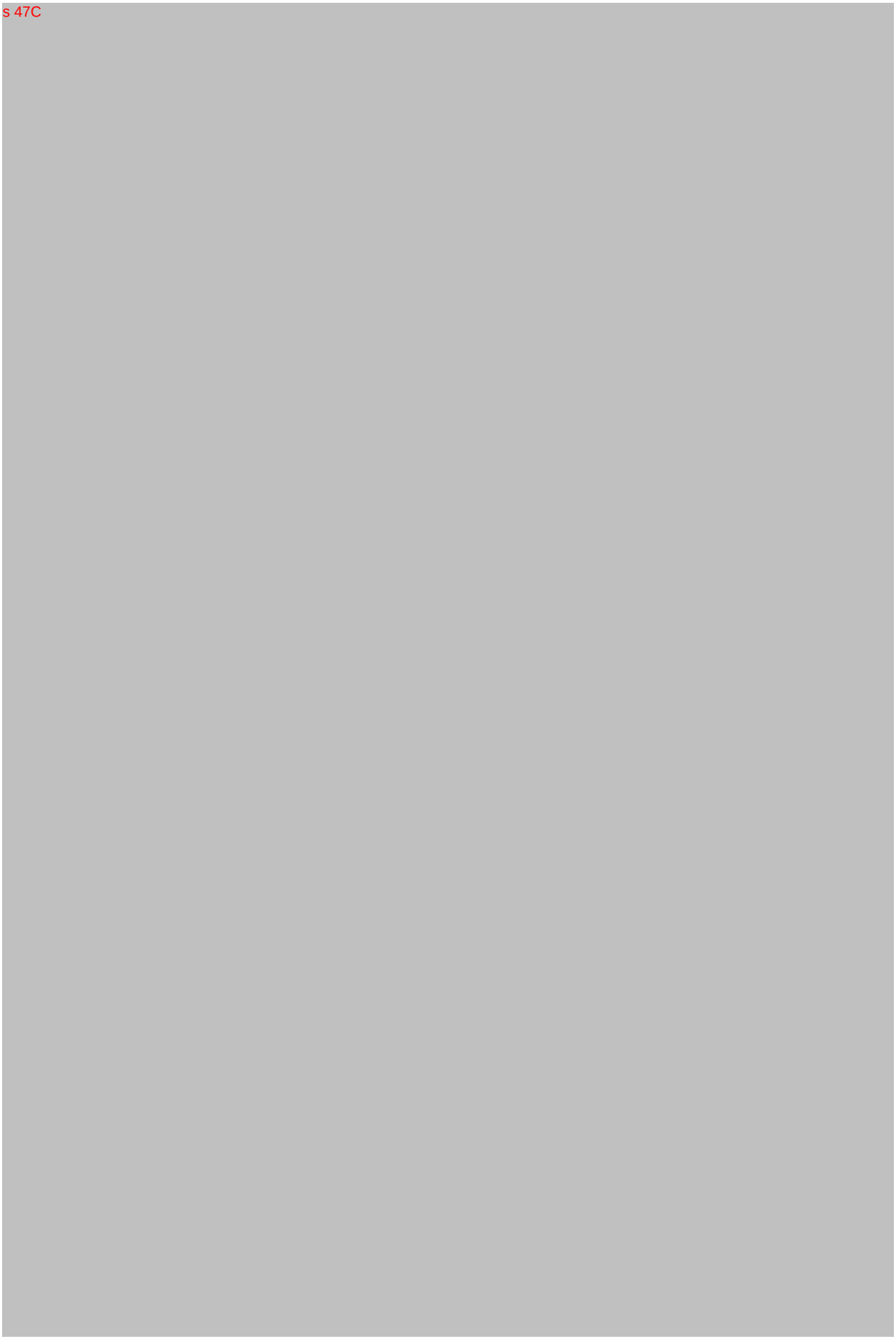

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5.7 Public Utility Plant

To date, public utility plant investigations have been carried out in desktop format. A Dial Before You Dig enquiry was undertaken for the project site on 22 January 2016. Responses to the enquiry are included in the, Childers Bypass Four Lane Link Study, Options Analysis Report (October 2016). The following service authorities were identified by the enquiry:

Type	Sequence Number	Authority	Phone Number
Council/Shire	50359672	Bundaberg Regional Council	1300 883 699
Electricity	50359668	Ergon Energy, Maryborough	13 10 46
Communications	50359671	NBN Co. Qld	1800 626 762
Water	50359670	SunWater Limited	13 15 89
Communications	50359669	Telstra Qld, Regional	1800 653 935

A summary of the service impacts identified to date is provided below.

Bundaberg Regional Council

Although various BRC infrastructure (water, stormwater and sewer) exists throughout the township of Childers, it is expected that infrastructure directly affected by the bypass corridor will be relatively low, with no significant issues of concern. s 47C

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Ergon Energy

Conflicts with Ergon Energy infrastructure will occur along the majority of existing roadways along the alignment of the bypass. Underground services comprise of 240V and 415V low voltage cable and 11kV high voltage cable. There are also a number of underground communication cables that have been identified and will need further evaluation. Above ground services comprise of low and high voltage cabling. On the basis that it is possible to relocate conflicting services, there are no specific issues of concern which have been identified at this time.

SunWater

s 47C

NBN Co. Ltd

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Telstra

Information provided by Telstra indicates that, while the majority of services are located in the township of Childers, conflicts will also occur along existing roadways in the bypass corridor. Figure 31 displays Telstra infrastructure within the bypass corridor.

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Existing Telstra services along the Isis Highway will be severed by the bypass and will need to be relocated along the realignment as required.

Given the “greenfield” nature of the corridor, major impacts to Telstra infrastructure does not appear a high risk. Due consideration of impacts will be required during subsequent design phases.

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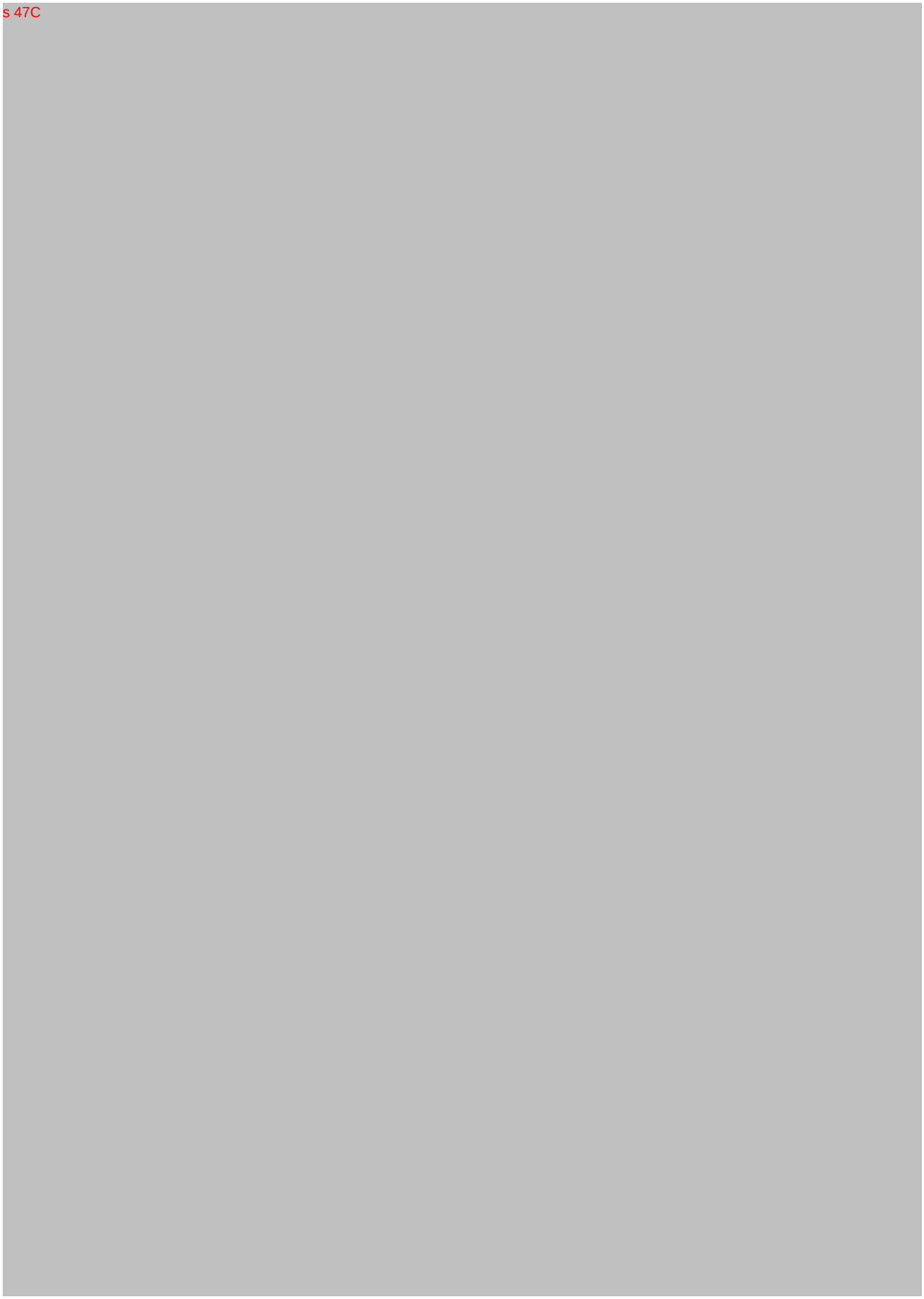

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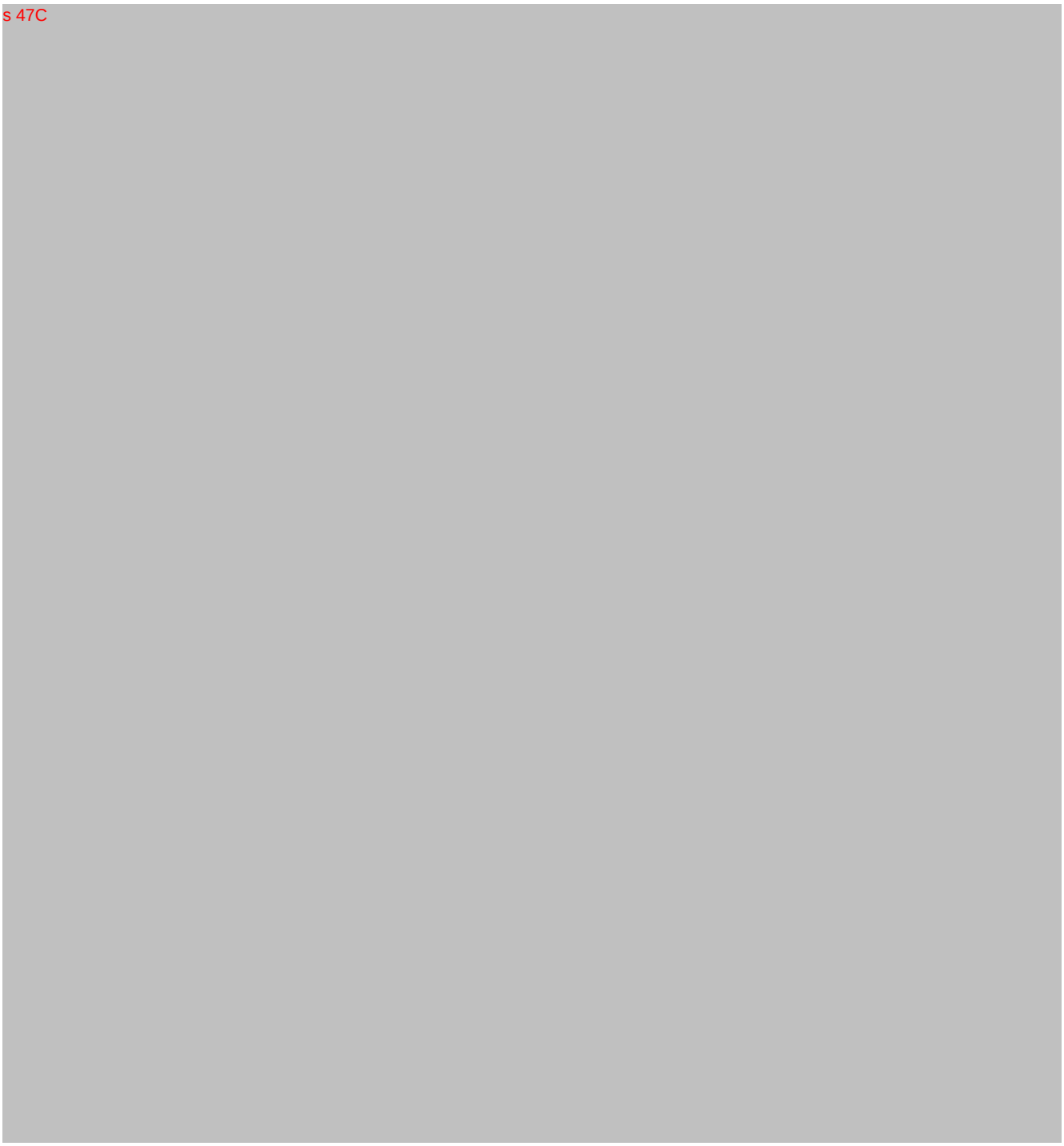

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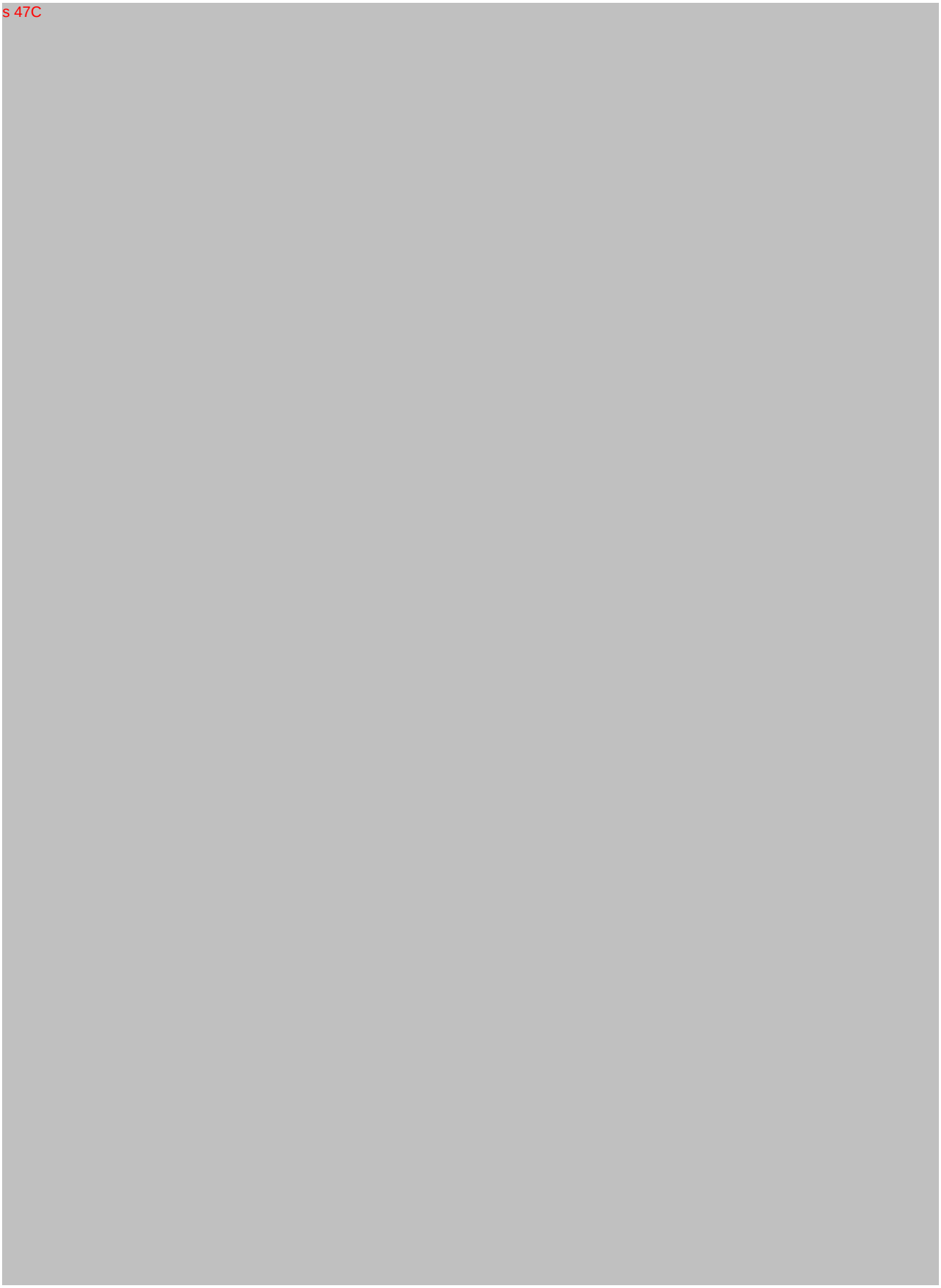

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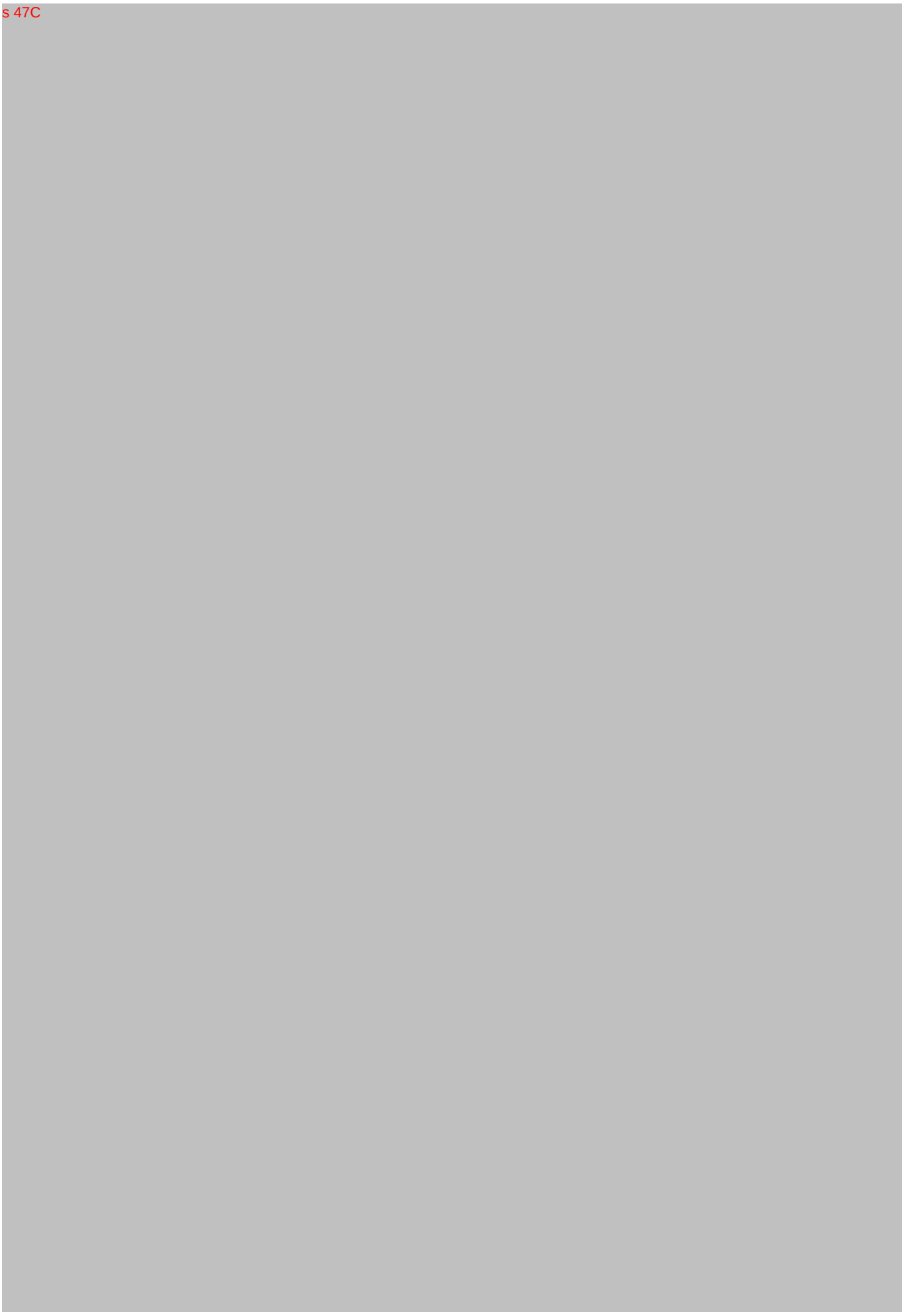

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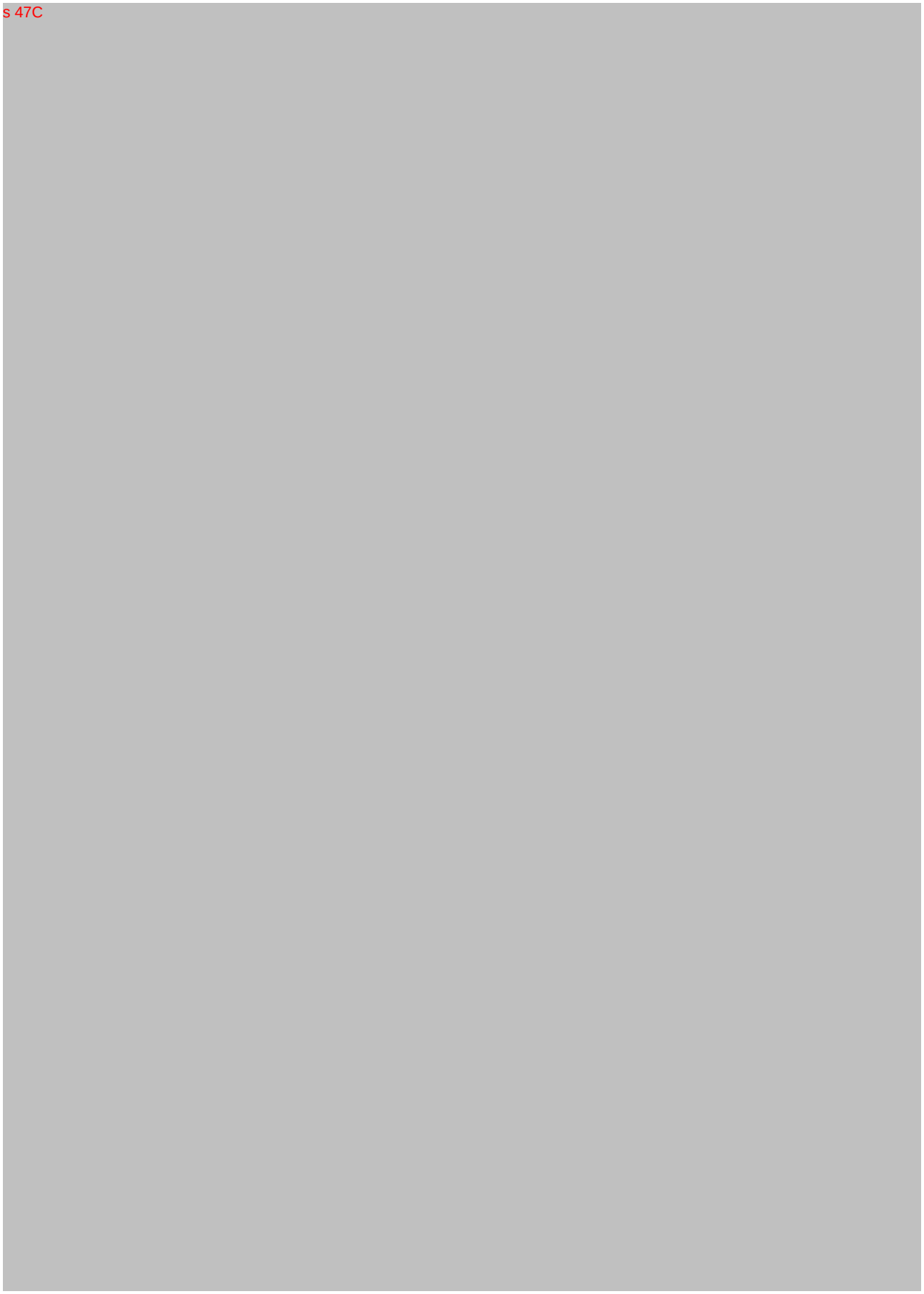

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8 Other Key Considerations

Other investigations considered relevant to the two lane vehicle bypass project have been undertaken and include a review of the need and expected timing for the two lane bypass.

8.1 Travel Time Assessment

There have been two travel time investigations carried out for the two lane bypass.

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Existing Bruce Highway (Through Childers Route)

The VEHSIM assessment undertaken in both directions along the existing highway through Childers, relied on Lidar information to establish the existing horizontal and vertical geometry.

- Both ends start and end at 80 km/hr. The model accounts for existing 50 km/hr and 60 km/hr posted speed changes through Childers

- To assess a typical speed reduction within Childers, a 50 m section was modelled at 10 km/hr in each direction.

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8.1.2 Travel Time Survey

On 09 June 2016, TMR undertook travel time surveys on the existing highway corridor through Childers, in each direction of travel. This was undertaken to compare the theoretical results obtained using VEHSIM. The start and end points in each direction were similar to those used in the VEHSIM assessment.

Direction	Length (km)	Ave Time (s)	Ave Speed (km/hr)	Comments
Northbound	5.0 (4.9)	329 (317)	55.1 (55.6)	Travel time survey results 7 am to 5 am VEHSIM six-cylinder car comparison in red
Southbound	4.3 (4.2)	295 (302)	52.2 (49.8)	Travel time survey results 7 am to 5 am VEHSIM six-cylinder car comparison in red

In the northbound direction, the travel time survey measured an average daily speed of 55.1 km/hr, compared with 55.6 km/hr for the VEHSIM result for the six-cylinder car.

In the southbound direction, the travel time survey measured an average daily speed of 52.2 km/hr, compared with 49.8 km/hr for the VEHSIM result for the six-cylinder car.

The travel time surveys confirmed the VEHSIM results provided a very good comparison of travel time savings. Refer to Annexure C for results.

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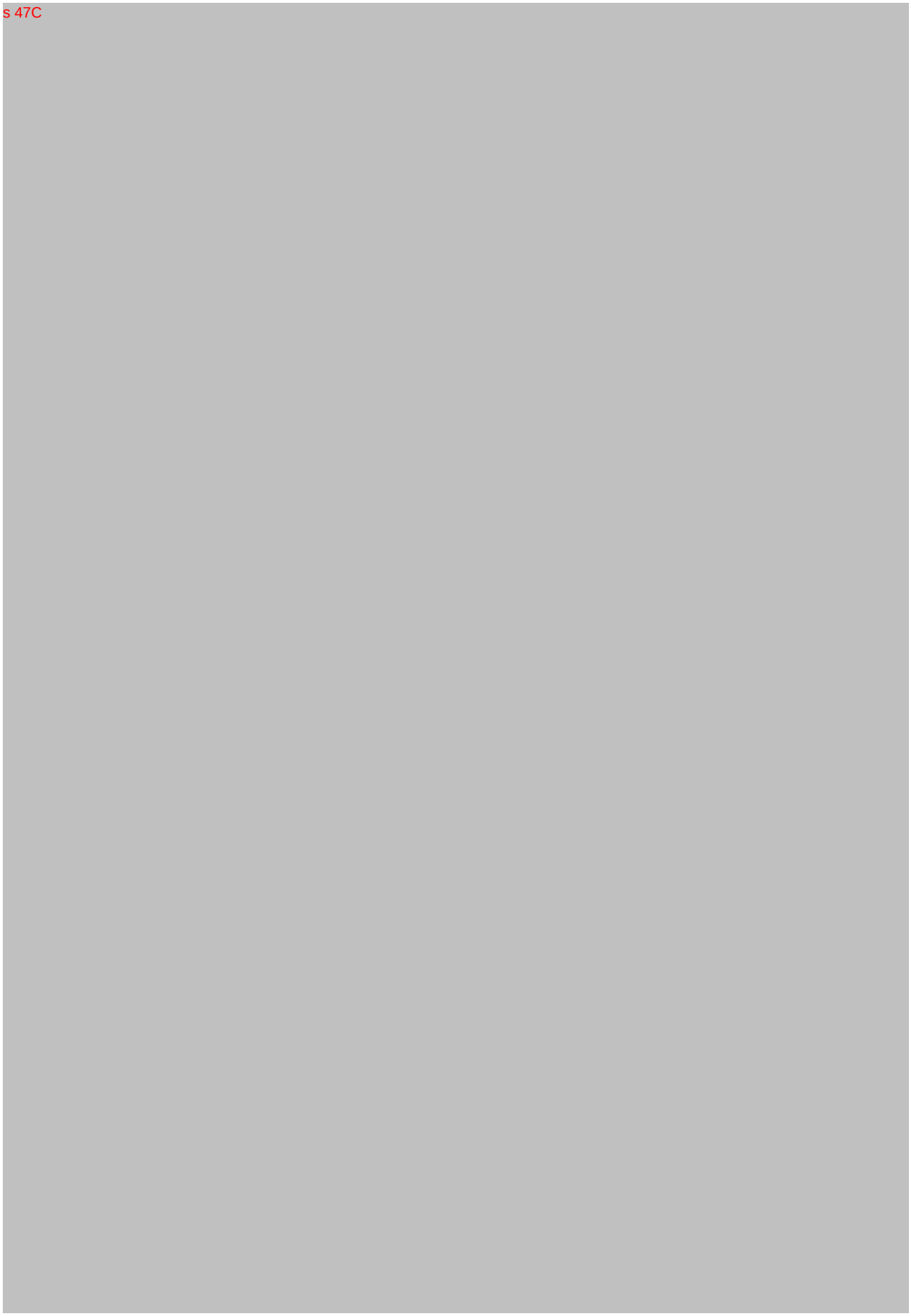

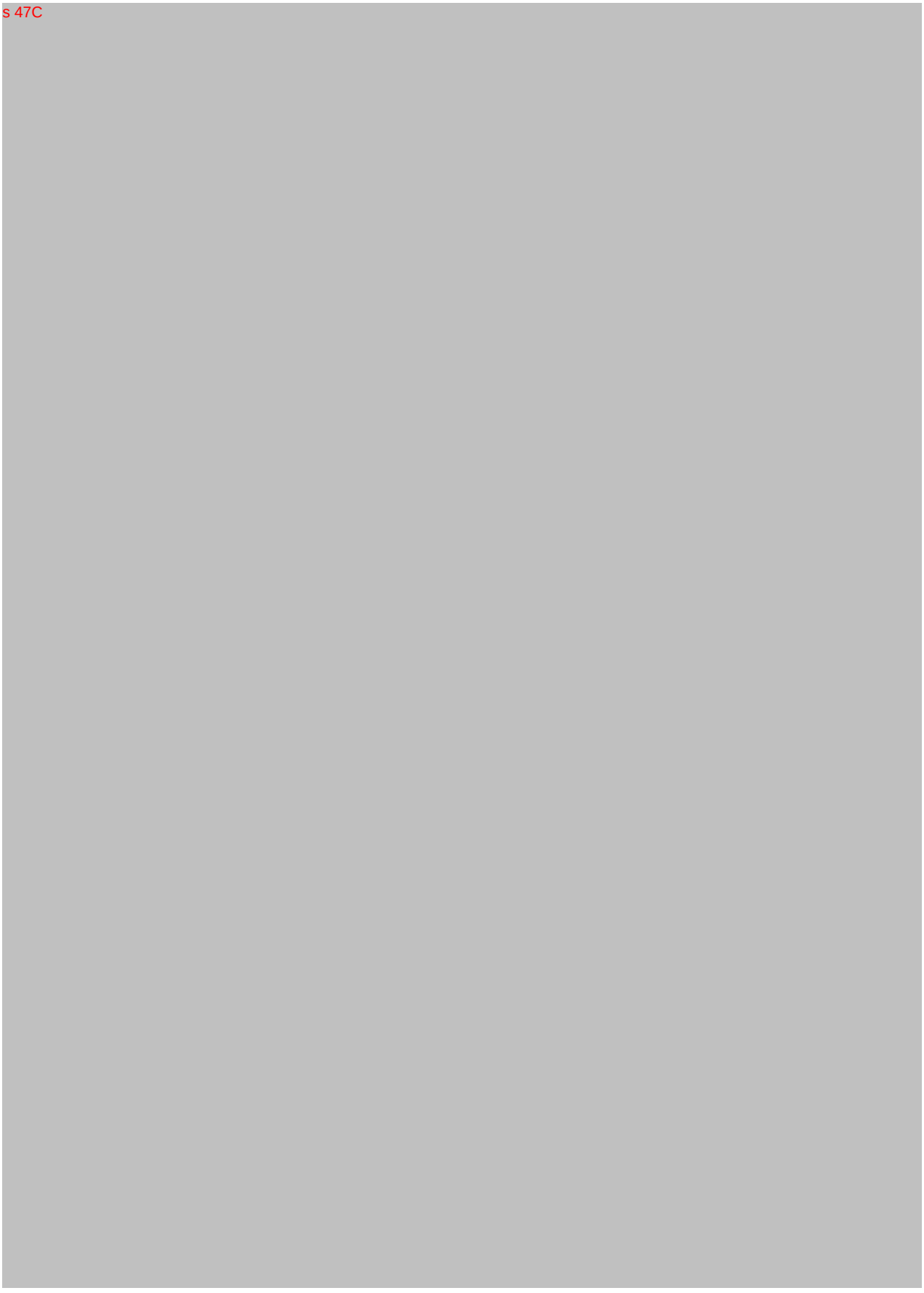
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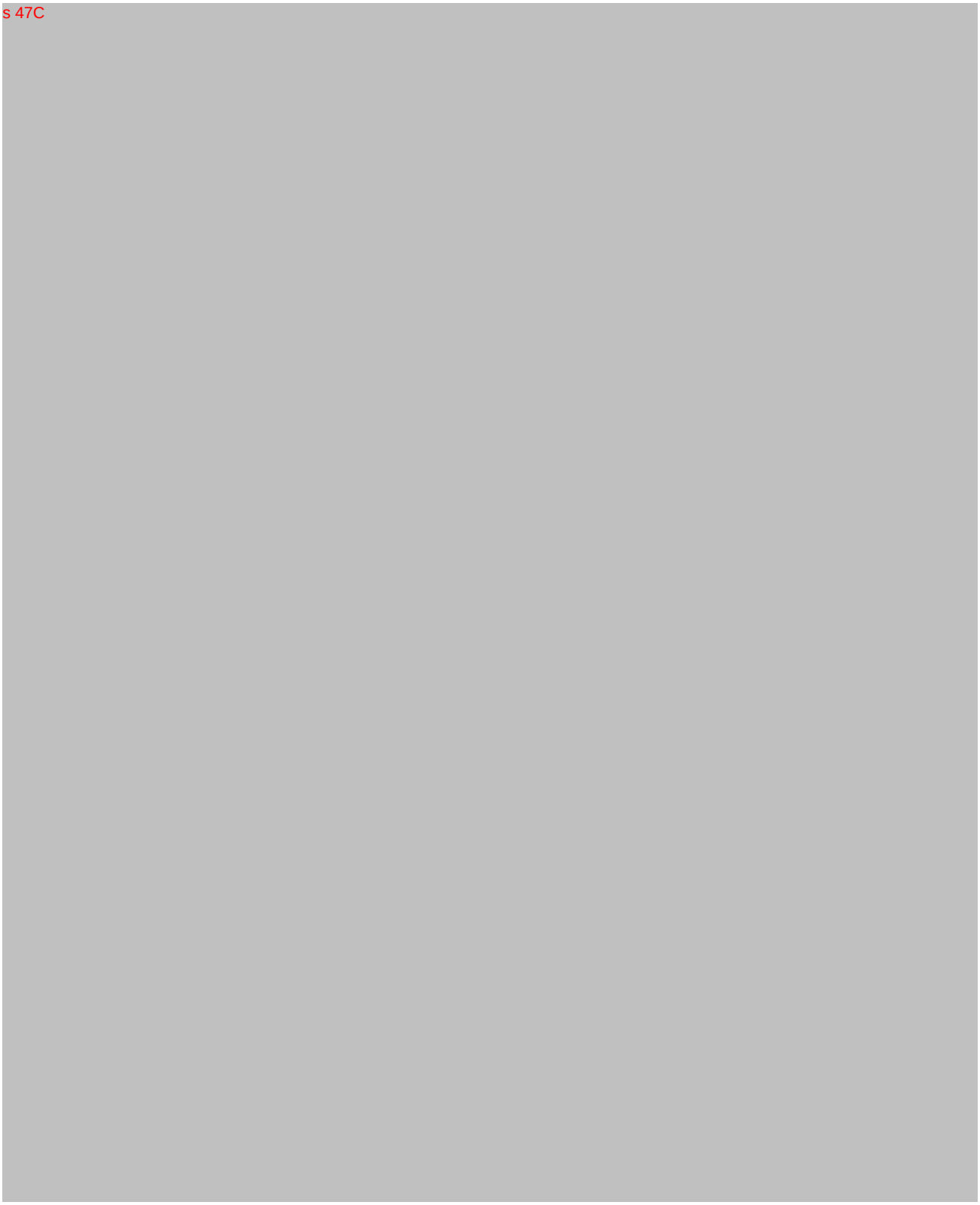

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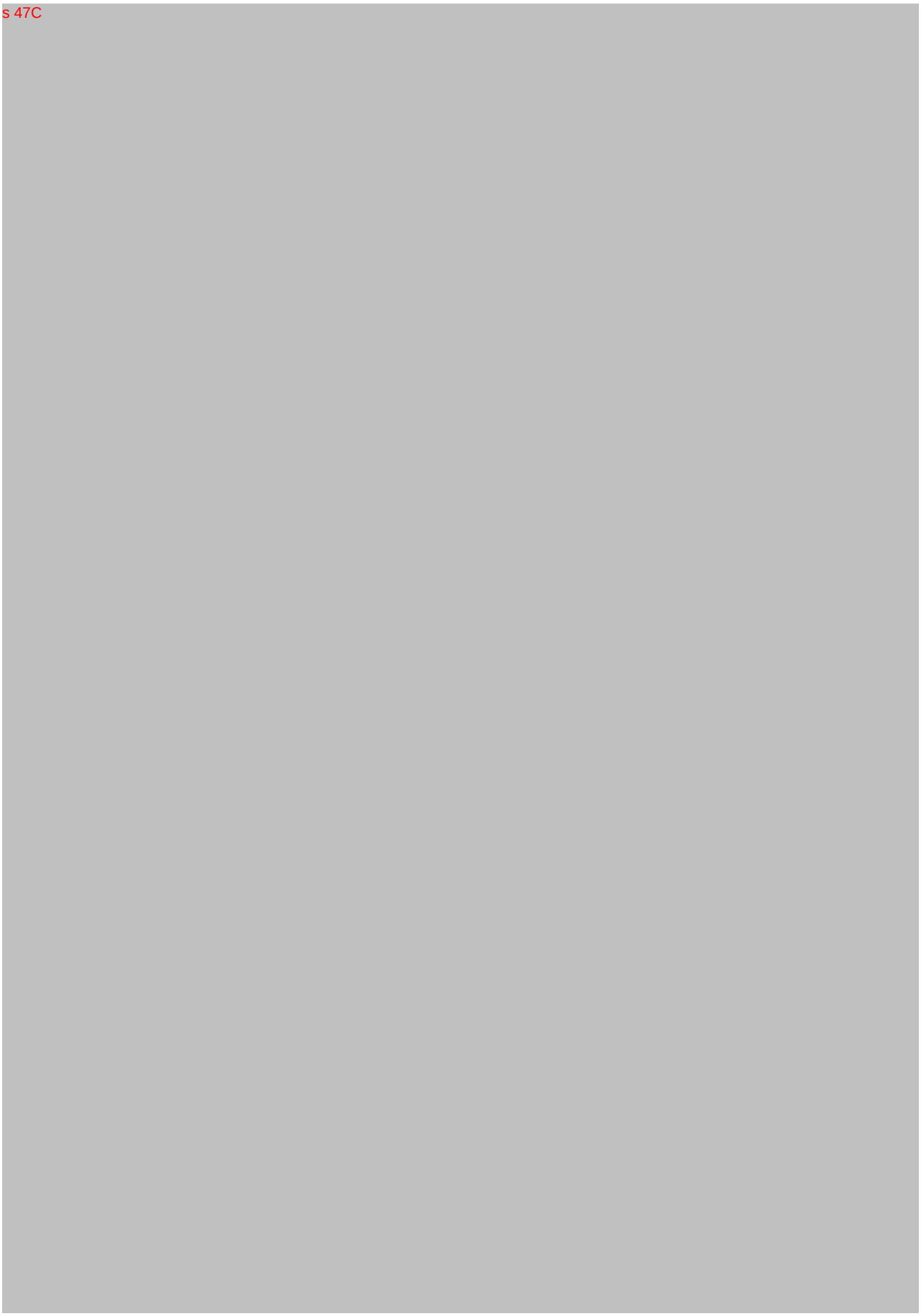

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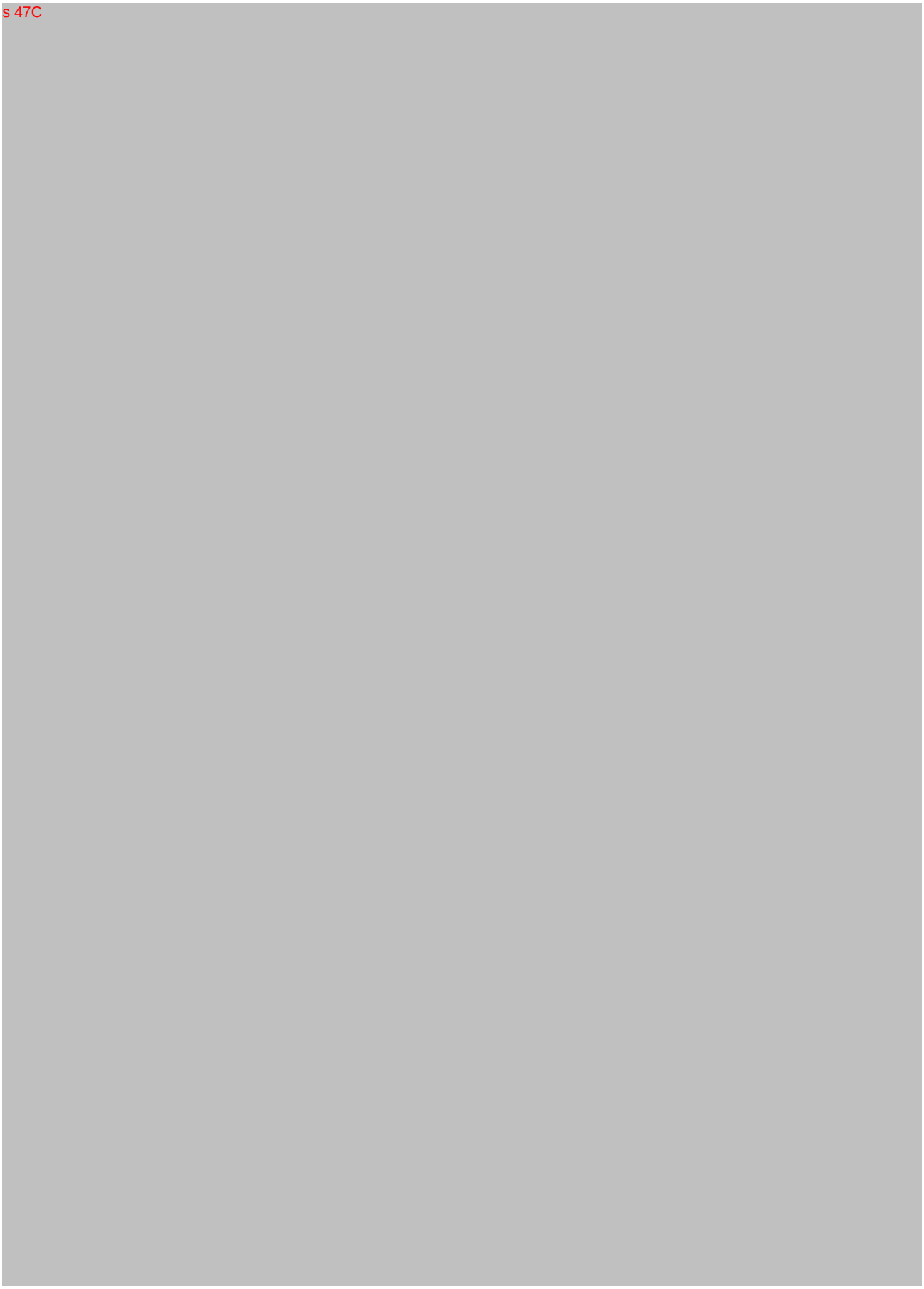

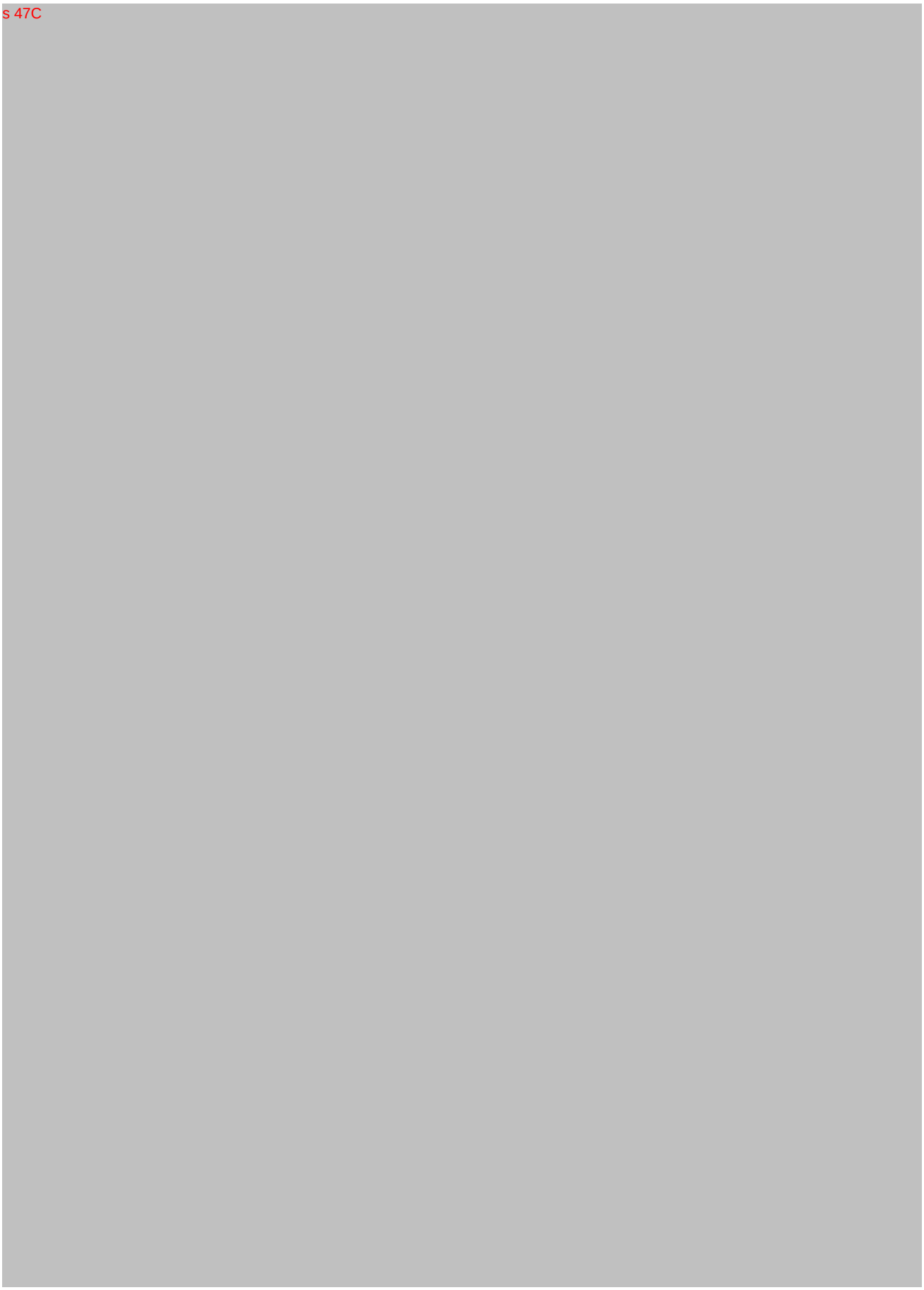
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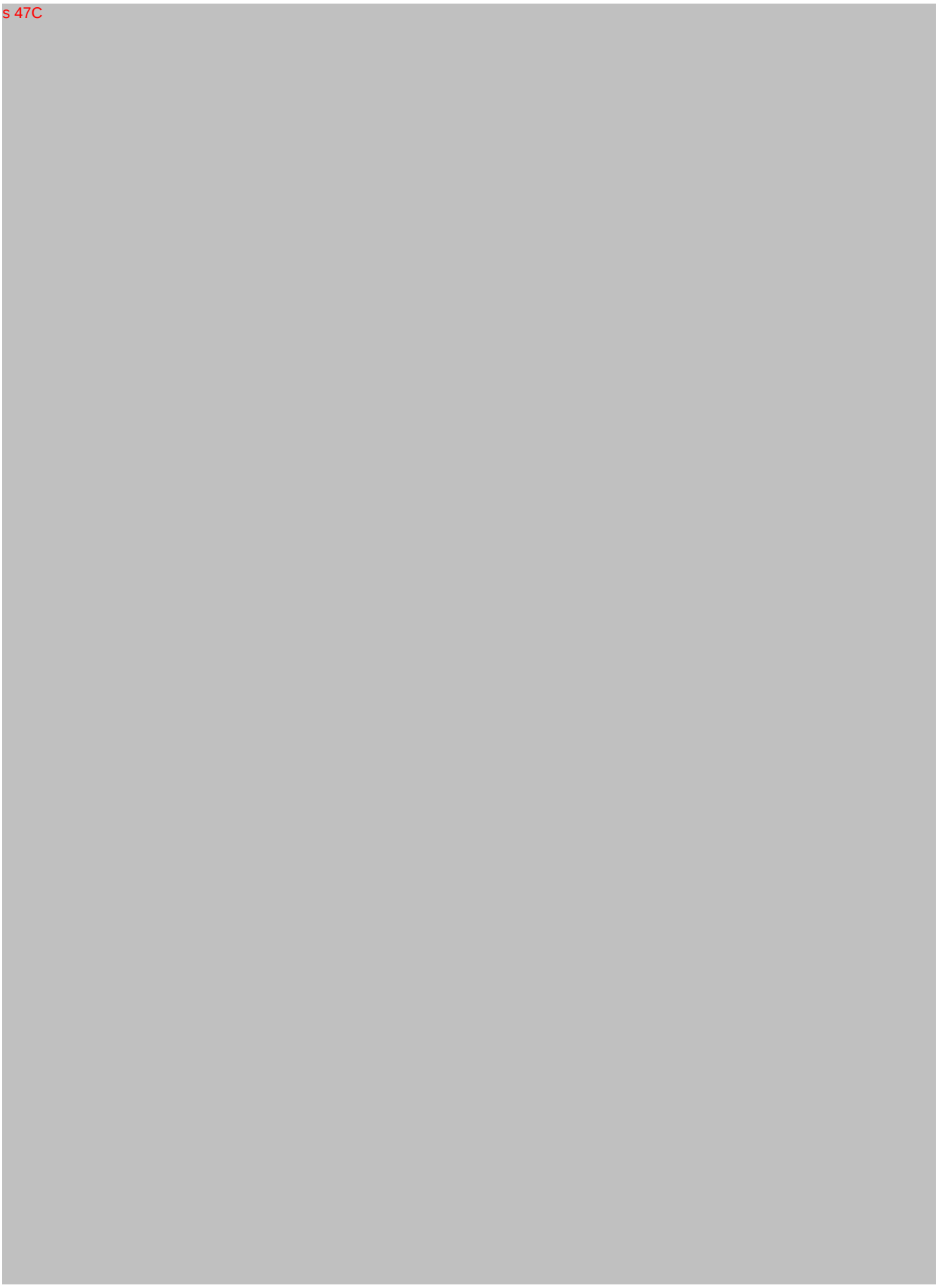
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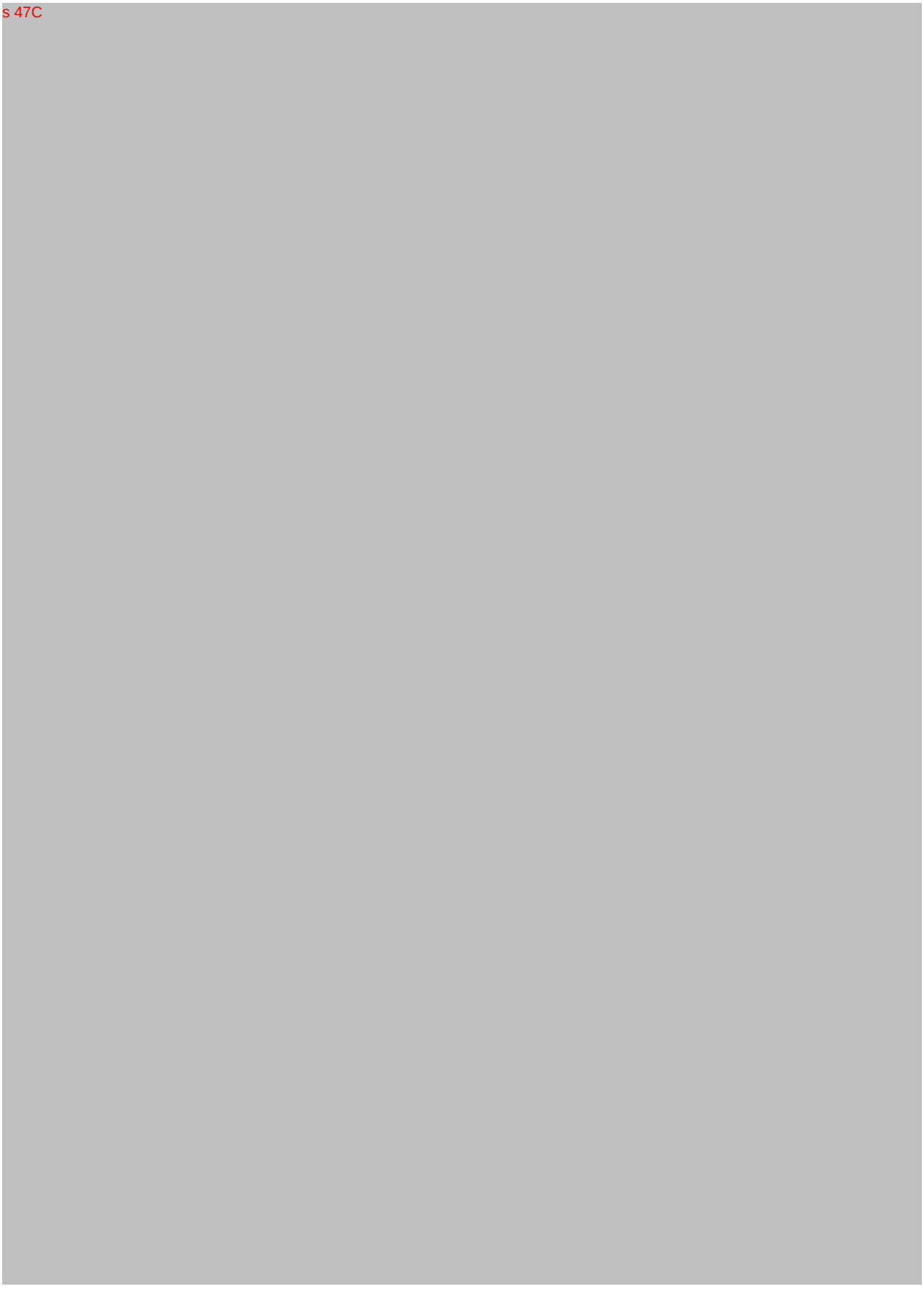


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Annexure A exempt in full - s 47C

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Department of Transport and Main Roads

Job No. 211/10C/8735

Bruce Highway (Maryborough – Gin Gin)
Childers Bypass
Planning Report – Two Lane Heavy Vehicle Bypass

Annexure B
VehSim Assessment

Vehsim Assessment, Childers Bypass Both Directions

(2 pages)

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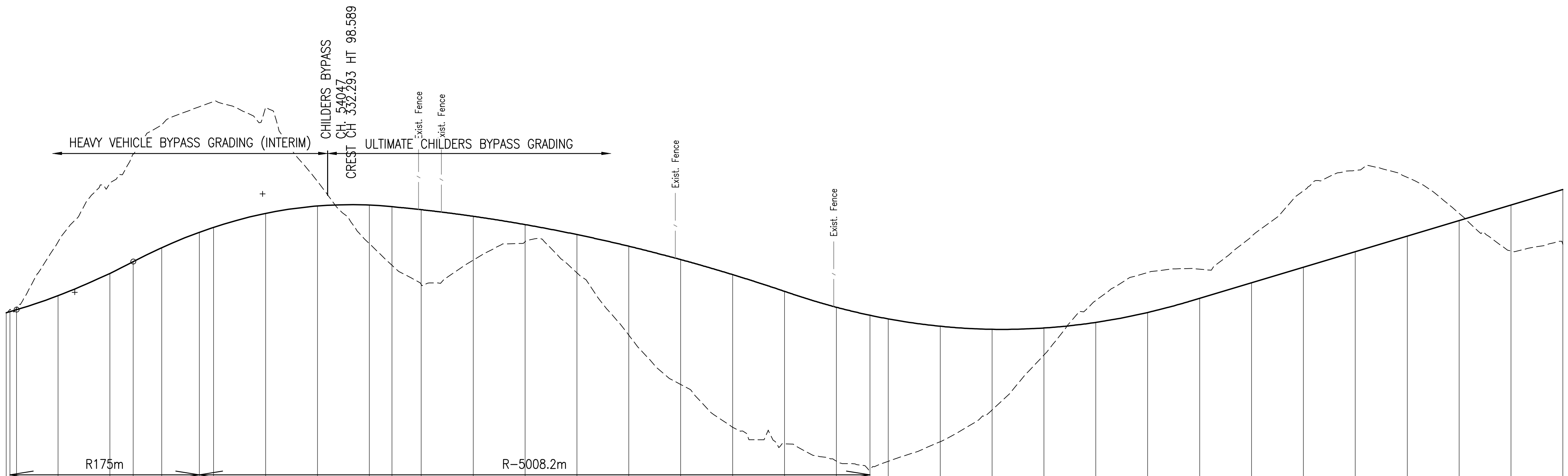
Childers Bypass, Long Sections

(3 pages)



Horiz Curve Data: R175m; R-5008.2m

Vertical Geometry Grade (%) / Vertical Grade Length: 3 % / 66.193m; 5.248 % / 180.882m; −0.987 % / 131.926m; 3 % / 404m

Vertical Curve Length (m) / Vertical Curve Radius (m): 112.385m VC / R = 5000; 249.379m VC / R = 4000

DATUM R.L. 62.50

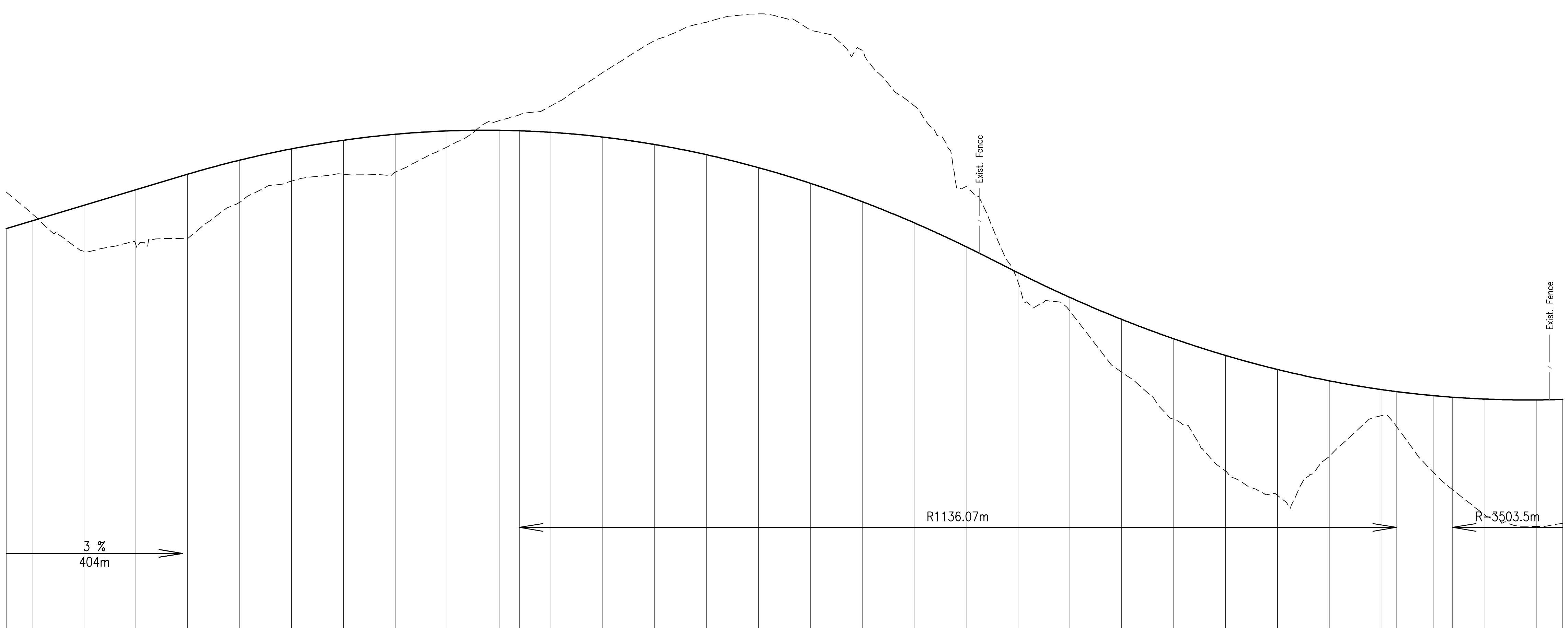
DEPTH TO EXISTING SURFACE	−0.000	−0.204	−0.161	−5.178	−8.662	−10.387	−11.840	−12.114	−12.140
DESIGN HEIGHT	88.147	88.259	88.447	89.807	91.957	93.081	94.435	95.916	96.401
EXISTING SURFACE	88.147	88.463	88.607	94.985	100.619	103.469	106.275	108.030	108.542
CHAINAGE	0	3.735	10	50	100	122.385	150	186.058	200

DEPTH TO EXISTING SURFACE	−10.204	−2.382	−3.719	−5.654	−7.217	−4.244	−1.650	−3.701	−8.581	−12.057	−14.736	−14.716
DESIGN HEIGHT	97.742	98.459	98.550	98.394	98.104	97.467	96.667	95.704	94.578	93.290	91.838	90.224
EXISTING SURFACE	107.947	100.840	94.830	92.740	90.887	93.222	95.017	92.003	85.998	81.233	77.103	75.508
CHAINAGE	250	300	350	371.764	400	450	500	550	600	650	700	750

DEPTH TO EXISTING SURFACE	−14.852	−14.830	−13.740	−11.151	−7.793	−2.609	−2.115	−3.859	−2.809	−4.462	−7.372	−7.840	−5.673	−0.702	−4.424	−5.299
DESIGN HEIGHT	88.688	87.913	87.563	86.853	86.561	86.685	87.225	88.182	89.548	91.048	92.548	94.048	95.548	97.048	98.548	100.048
EXISTING SURFACE	73.836	73.083	73.823	75.702	78.768	84.076	89.340	92.041	92.357	95.510	99.920	101.888	101.221	97.750	94.124	94.749
CHAINAGE	800	832.321	850	900	950	1000	1050	1100	1150	1200	1250	1300	1350	1400	1450	1500

HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:500

LONGITUDINAL SECTION MC12



Horiz Curve Data

Vertical Geometry Grade (%)
Vertical Grade Length

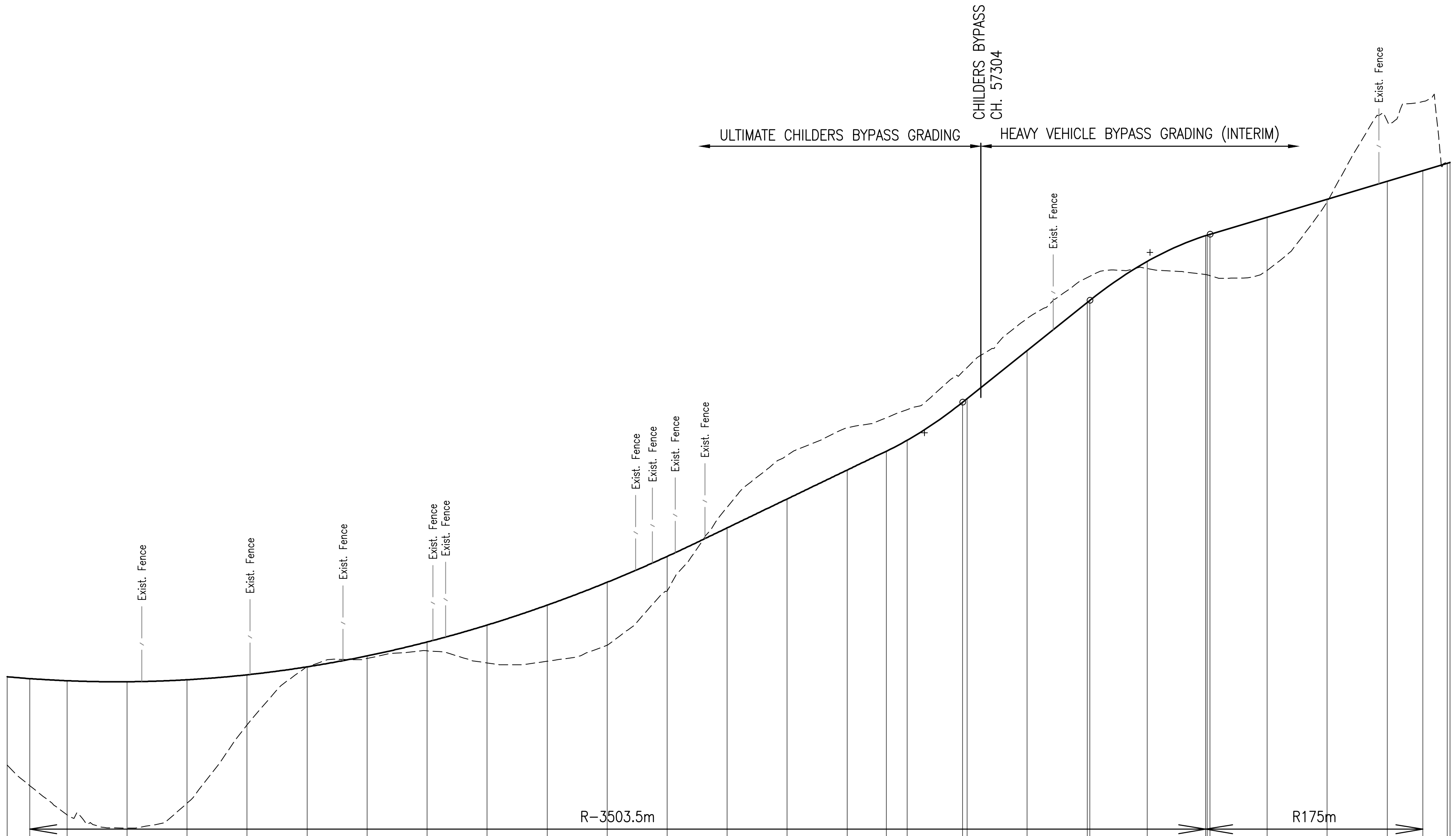
Vertical Curve Length (m)
Vertical Curve Radius (m)

DATUM R.L. 57.50

CHAINAGE	EXISTING SURFACE	DESIGN HEIGHT	DEPTH TO EXISTING SURFACE
1375	99.837	96.298	−3.539
1400	97.750	97.048	−0.702
1450	94.124	98.548	−4.424
1500	94.749	100.048	−5.299
1550	95.349	101.547	−6.198
1600	98.835	102.894	−4.059
1650	100.880	103.985	−3.105
1700	101.539	104.818	−3.280
1750	101.747	105.395	−3.648
1800	104.170	105.714	−1.544
1850	106.691	105.777	−0.914
1869.614	107.272	105.731	−1.541
1900	108.137	105.581	−2.556
1950	111.355	105.124	−6.231
2000	114.414	104.405	−10.010
2050	116.204	103.423	−12.781
2100	116.991	102.178	−14.813
2150	115.446	100.669	−14.777
2200	113.480	98.897	−14.583
2250	108.144	96.861	−11.283
2300	100.361	94.561	−5.800
2350	91.175	92.051	−0.876
2400	88.371	89.673	−1.303
2450	82.463	87.552	−5.089
2500	77.938	85.688	−7.750
2550	72.948	84.080	−11.132
2600	70.592	82.728	−12.136
2650	74.340	81.632	−7.292
2700	78.264	80.791	−2.528
2714.503	77.266	80.596	−3.330
2750	72.853	80.207	−7.355
2768.836	71.139	80.053	−8.913
2800	68.697	79.874	−11.177
2850	67.597	79.790	−12.193
2875	67.914	79.842	−11.928

HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:500

LONGITUDINAL SECTION MC12



Horiz Curve Data: R-3503.5m | R175m

Vertical Geometry Grade (%) / Vertical Grade Length: 4.818 % / 41.389m | 8 % / 187.912m | 3 % / 250m

Vertical Curve Length (m) / Vertical Curve Radius (m): 63.632m VC / R = 2000 | 100m VC / R = 2000

DATUM R.L. 57.50

DEPTH TO EXISTING SURFACE	-7.355	-8.913	-11.177	-12.193	-10.287	-4.171	-0.016	-0.217	-0.740	-3.156	-4.673
DESIGN HEIGHT	80.207	80.053	79.874	79.790	79.955	80.369	81.031	81.943	83.103	84.512	86.170
EXISTING SURFACE	72.853	71.139	68.697	67.597	69.668	76.198	81.016	81.725	82.363	81.356	81.497
CHAINAGE	2750	2768.836	2800	2850	2900	2950	3000	3050	3100	3150	3200

DEPTH TO EXISTING SURFACE	-5.251	-2.896	-1.721	-3.635	-3.527	-2.780	-2.555	-2.530	-2.601	-2.671	-2.083
DESIGN HEIGHT	88.077	90.233	92.608	95.018	97.427	98.996	99.912	103.075	103.378	107.378	111.378
EXISTING SURFACE	82.826	87.336	94.329	98.652	100.953	101.777	102.467	105.605	105.979	110.050	113.461
CHAINAGE	3250	3300	3350	3400	3450	3482.573	3500	3546.205	3550	3600	3650

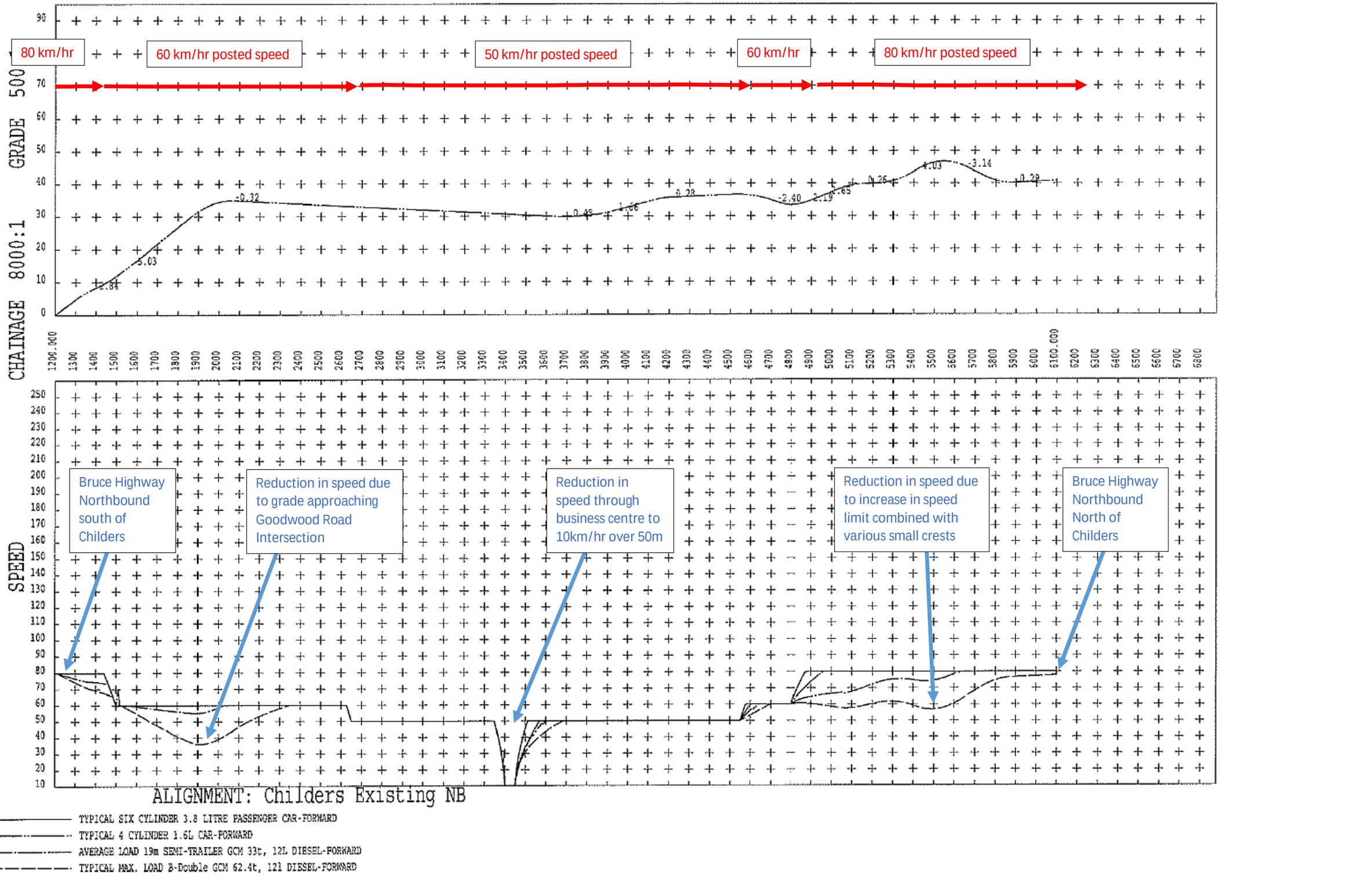
DEPTH TO EXISTING SURFACE	-2.014	-0.590	-3.239	-3.299	-3.449	-4.430	-0.216	-5.016	-5.738	-0.006	-0.000
DESIGN HEIGHT	111.562	114.810	116.953	116.992	117.062	118.493	119.993	121.493	122.387	122.993	123.062
EXISTING SURFACE	113.576	114.220	113.714	113.693	113.614	114.063	119.777	126.509	128.125	122.988	123.062
CHAINAGE	3652.302	3700	3748.769	3750	3752.302	3800	3850	3900	3929.78	3950	3952.302

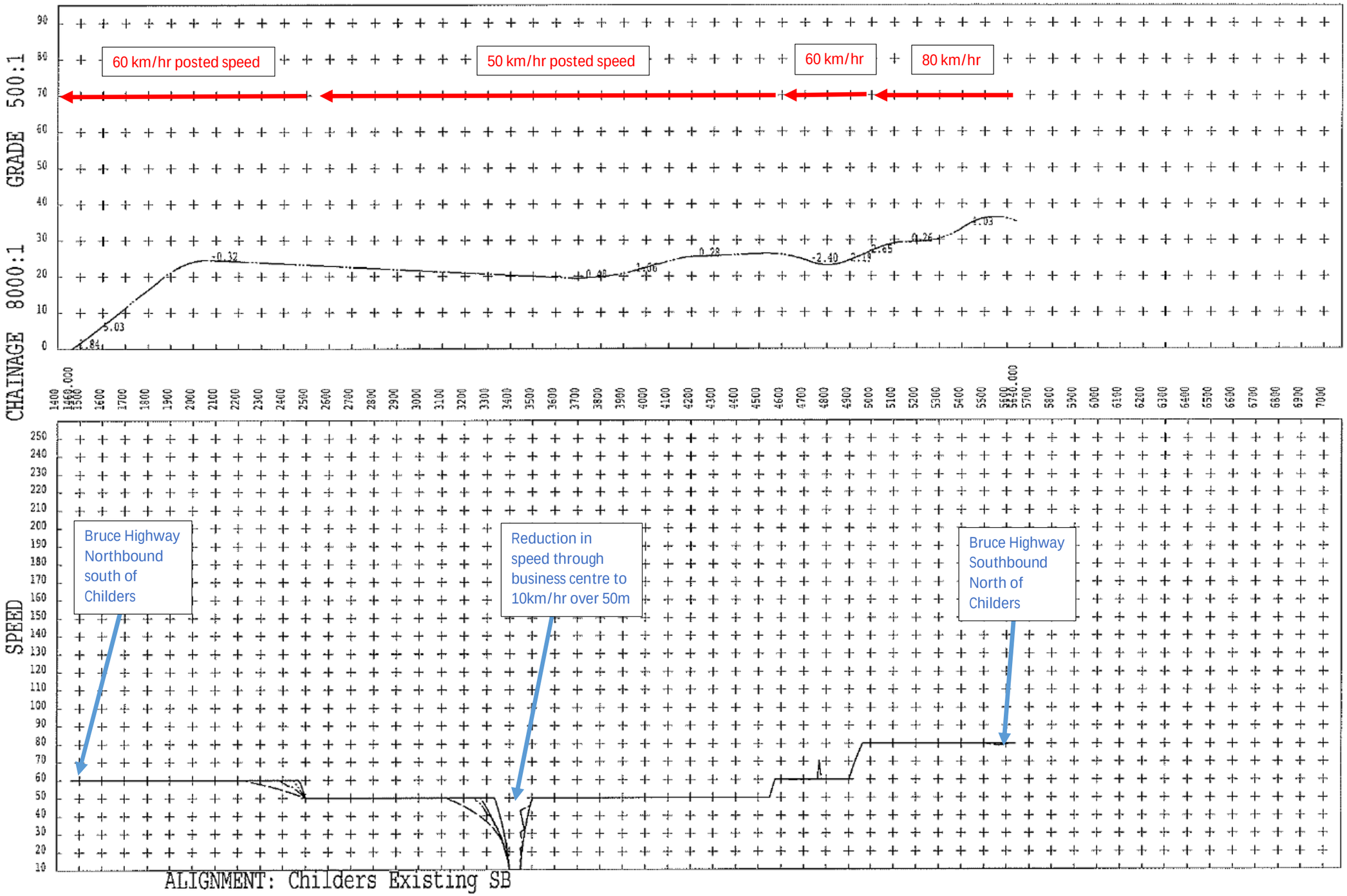
HORIZONTAL SCALE 1:5000
VERTICAL SCALE 1:500

LONGITUDINAL SECTION MC12

Vehsim Assessment, Childers (Existing Bruce Highway) Both Directions

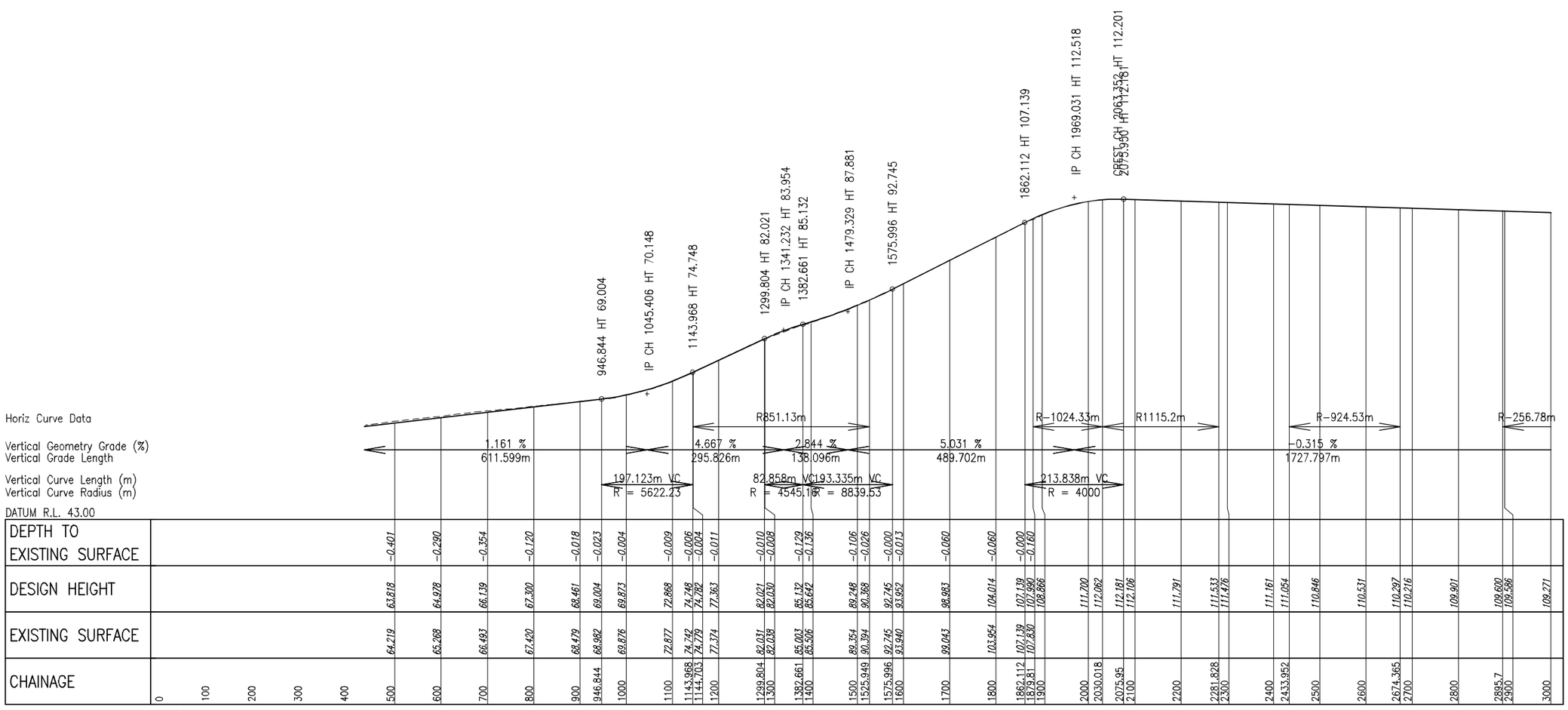
(2 pages)


80 km/hr
60 km/hr posted speed
50 km/hr posted speed
60 km/hr
80 km/hr posted speed
GRADE 500
8000:1
CHAINAGE
SPEED
Bruce Highway Northbound south of Childers
Reduction in speed due to grade approaching Goodwood Road Intersection
Reduction in speed through business centre to 10km/hr over 50m
Reduction in speed due to increase in speed limit combined with various small crests
Bruce Highway Northbound North of Childers
ALIGNMENT: Childers Existing NB
TYPICAL SIX CYLINDER 3.8 LITRE PASSENGER CAR-FORWARD
TYPICAL 4 CYLINDER 1.6L CAR-FORWARD
AVERAGE LOAD 19m SEMI-TRAILER GCM 33t, 12L DIESEL-FORWARD
TYPICAL MAX. LOAD B-Double GCM 62.4t, 12l DIESEL-FORWARD


60 km/hr posted speed
50 km/hr posted speed
60 km/hr
80 km/hr
GRADE 500:1
8000:1
CHAINAGE
SPEED
Bruce Highway Northbound south of Childers
Reduction in speed through business centre to 10km/hr over 50m
Bruce Highway Southbound North of Childers
ALIGNMENT: Childers Existing SB
TYPICAL SIX CYLINDER 3.8 LITRE PASSENGER CAR-REVERSE
TYPICAL 4 CYLINDER 1.6L CAR-REVERSE
AVERAGE LOAD 19m SEMI-TRAILER GCM 33t, 12L DIESEL-REVERSE
TYPICAL MAX. LOAD B-Double GCM 62.4t, 12l DIESEL-REVERSE

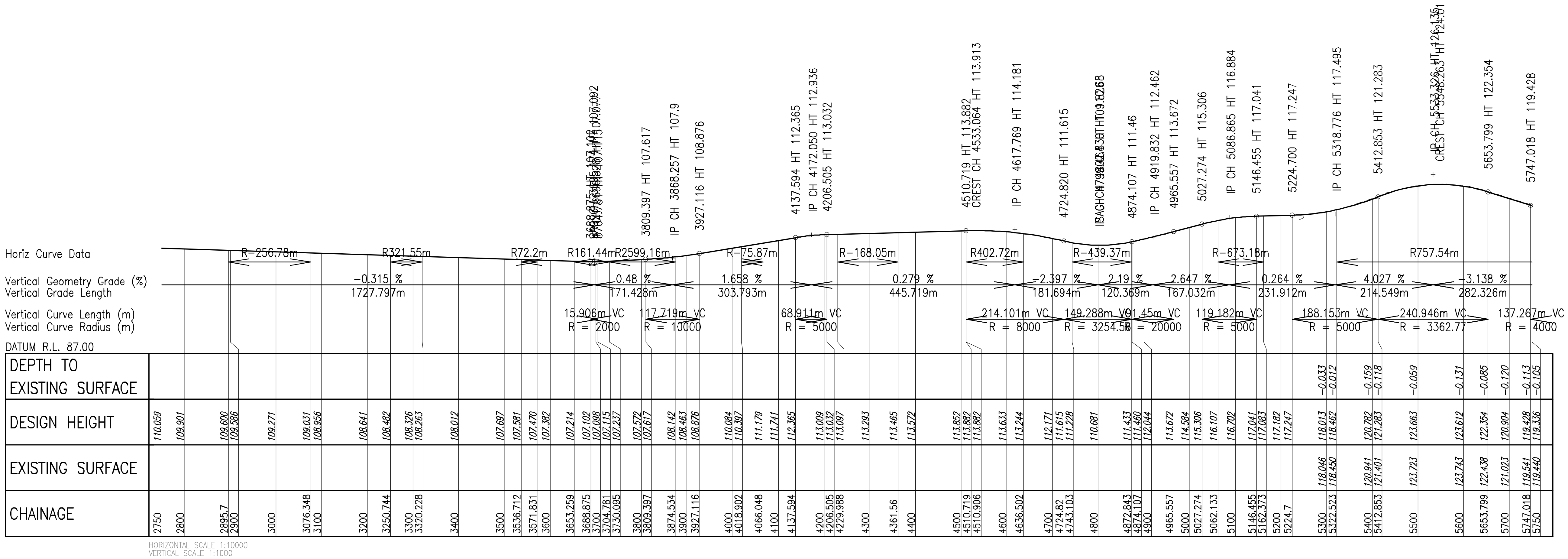
Childers (Existing), Long Sections

(3 pages)

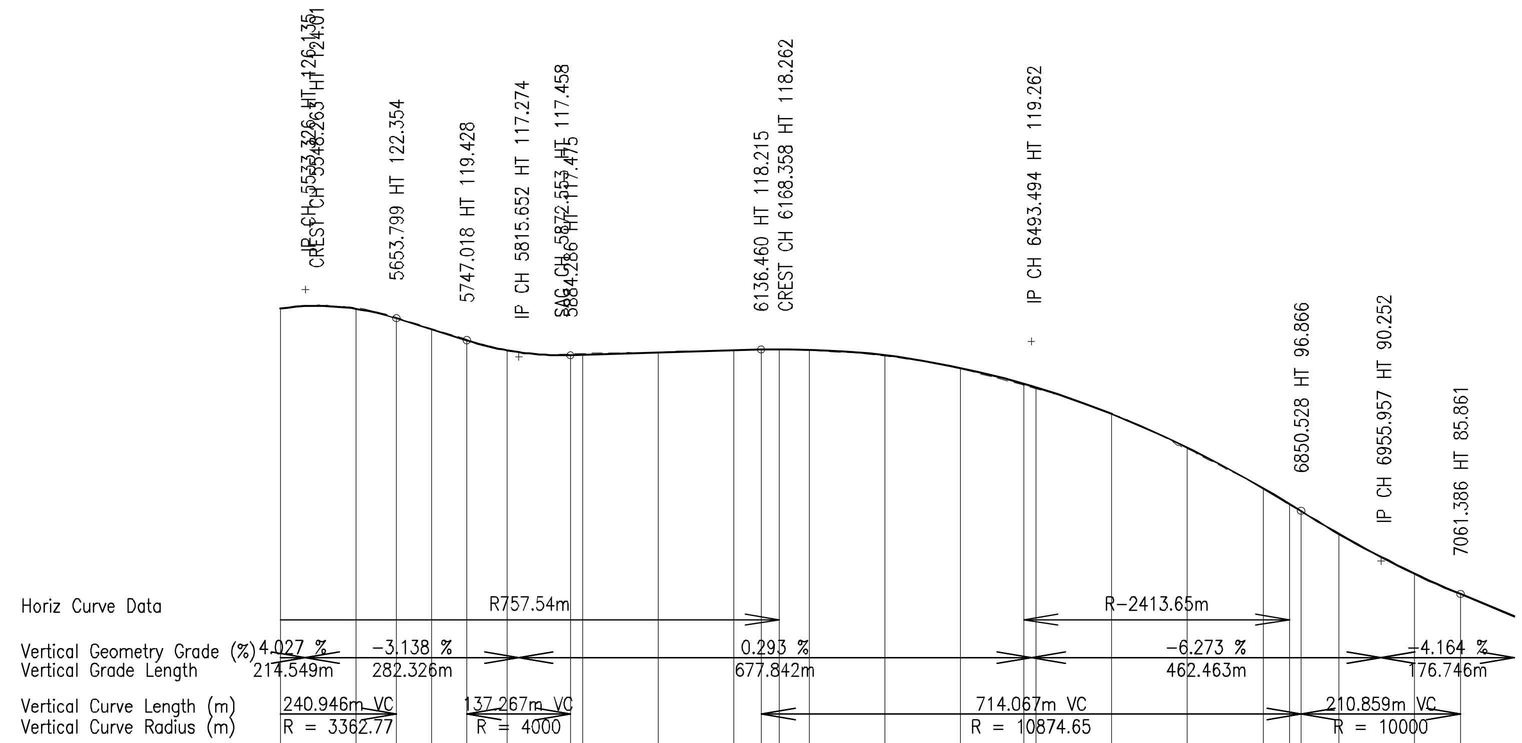


HORIZONTAL SCALE 1:10000
VERTICAL SCALE 1:1000

LONGITUDINAL SECTION MC00



LONGITUDINAL SECTION MC00



DATUM R.L. 62.50

CHAINAGE	DEPTH TO EXISTING SURFACE	DESIGN HEIGHT	EXISTING SURFACE
5500	−0.059	123.663	123.723
5600	−0.131	123.612	123.743
5653.799	−0.085	122.354	122.438
5700	−0.120	120.904	121.023
5747.018	−0.113	119.428	119.541
5800	−0.098	118.116	118.215
5884.286	−0.154	117.475	117.630
5900	−0.180	117.522	117.701
6000	−0.022	117.815	117.837
6100	−0.038	118.108	118.147
6136.46	−0.031	118.215	118.246
6160.159	−0.038	118.259	118.296
6200	−0.095	118.216	118.121
6300	−0.095	117.465	117.370
6400	−0.143	115.795	115.652
6483.453	−0.201	113.697	113.495
6500	−0.155	113.205	113.050
6600	−0.025	109.695	109.720
6700	−0.167	105.266	105.100
6800	−0.068	99.918	99.850
6835.394	−0.152	97.804	97.652
6850.528		96.866	
6900		93.885	
7000		88.606	
7061.386		85.861	

HORIZONTAL SCALE 1:10000
VERTICAL SCALE 1:1000

LONGITUDINAL SECTION MC00

Vehsim Results Comparison

(1 page)


s 47C

Department of Transport and Main Roads

Job No. 211/10C/8735

Bruce Highway (Maryborough – Gin Gin)
Childers Bypass
Planning Report – Two Lane Heavy Vehicle Bypass

Annexure C
TMR Travel Time Assessment

TMR Travel Time Survey
Childers
Thursday, 9 June 2016

Route of Travel : Bruce Highway Childers from the 80km/hr sign south of Childers to the 80km/hr north of Childers
Peak Period : 7 am to 5 pm
Direction : Southbound

Way Points	Length (m)	9/06/2016 Average Time Taken 7 am to 8 am	9/06/2016 Average Time Taken 8 am to 9 am	9/06/2016 Average Time Taken 9 am to 10 am	9/06/2016 Average Time Taken 10 am to 11 am	9/06/2016 Average Time Taken 11 am to 12 noon	9/06/2016 Average Time Taken 12 noon to 1 pm	9/06/2016 Average Time Taken 1 pm to 2 pm	9/06/2016 Average Time Taken 2 pm to 3 pm	9/06/2016 Average Time Taken 3 pm to 4 pm	9/06/2016 Average Time Taken 4 pm to 5 pm	Average Time (sss)	Average Speed (Km/h)
Southbound	4268	295.0	287.1	322.5	245.8	305.7	303.2	292.5	301.9	299.3	293.0	295	52

Route of Travel : Bruce Highway Childers from the 80km/hr sign south of Childers to the 80km/hr north of Childers
Peak Period : 7 am to 5 pm
Direction : Northbound

Way Points	Length (m)	9/06/2016 Average Time Taken 7 am to 8 am	9/06/2016 Average Time Taken 8 am to 9 am	9/06/2016 Average Time Taken 9 am to 10 am	9/06/2016 Average Time Taken 10 am to 11 am	9/06/2016 Average Time Taken 11 am to 12 noon	9/06/2016 Average Time Taken 12 noon to 1 pm	9/06/2016 Average Time Taken 1 pm to 2 pm	9/06/2016 Average Time Taken 2 pm to 3 pm	9/06/2016 Average Time Taken 3 pm to 4 pm	9/06/2016 Average Time Taken 4 pm to 5 pm	Average Time (sss)	Average Speed (Km/h)
Northbound	5038	323.4	332.3	343.5	274.8	330.4	370.0	317.5	328.0	349.6	319.9	329	55

Notes:
8:20 AM Southbound - Following a caravan below speed limit.
10:05 AM Southbound - Following a car below speed limit.
11:18 AM Southbound - Following a caravan below speed limit.
11:27 AM Northbound - Following a truck below speed limit.
12:13 PM Northbound - Following a car below speed limit.
2:48 PM Northbound - Following a truck below speed limit.
3:49 PM Southbound - Following a truck below speed limit.

Annexure D exempt in full - s 47C

s 47C

Annexure E exempt in full - s 47C

s 47C

Annexure F exempt in full - s 47C

s 47C

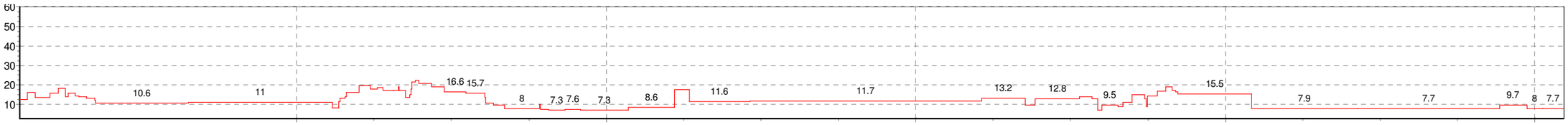
Department of Transport and Main Roads

Job No. 211/10C/8735

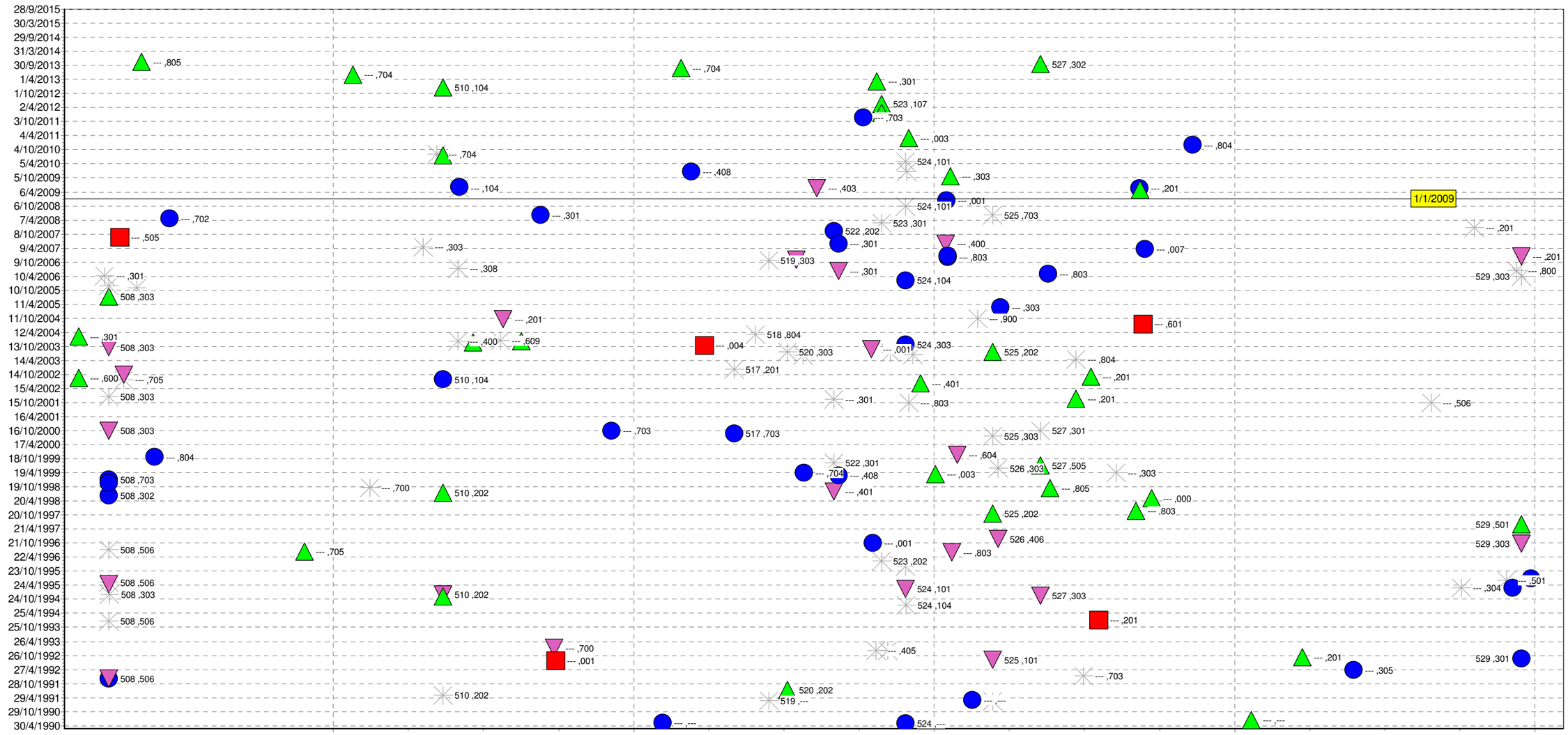
Bruce Highway (Maryborough – Gin Gin)
Childers Bypass
Planning Report – Two Lane Heavy Vehicle Bypass

Annexure G
Crash History

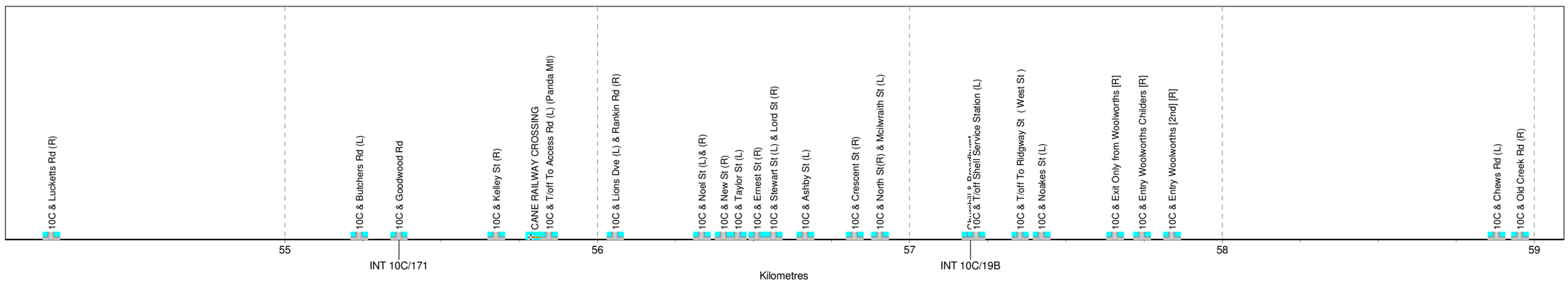
Queensland Government Road Section 10C - BRUCE HIGHWAY (MARYBOROUGH - GIN GIN) (111.6 km) from Roadlink refreshed on 28 Nov 2015 00:19



54.104km to 59.092km
Total Seal Width
C'ways 1 & 2
Source Date : 27/11/2015



-- Hidden Text --
54.104km to 59.092km
Crashes by Crash Date
C'ways 1 & 2
Source Date : Not Availa
Labelled by
Intersection ID
Crash DCA Code
Shape by Crash Severity
Colour by Crash Severity
FATAL
ADMITTED TO HOSPITAL
RECEIVED MEDICAL TREATMENT
MINOR INJURY - FIRST AID OR NO
PROPERTY DAMAGE ONLY



54.104km to 59.092km
Bridges
C'ways 1 & 2
Source Date : Not Availa
Labelled by Structure Name
Culverts
C'ways 1 & 2
Source Date : Not Availa
Labelled by Structure ID
Rail Crossing
C'ways 1 & 2
Source Date : Not Availa
Labelled by Description
Intersection
C'ways 1 & 2
Source Date : Not Availa
Labelled by Description

Queensland Government

Road Crash 2
CRASH GRAPHS

Crash Types

Crash Dates 01-JAN-1990 - 30-NOV-2015

Owner MR DEPARTMENT OF MAIN ROADS

DCA Code

Group

Fatalities =

Severity

Nature

Alignment: Vertical

Horizontal

Feature

Traffic Ctrl

Speed Limit

Contrib Circ.

Unit Type

Risk Factor

Area

LGA SLA Police Division

Road Sections

All Road Sections S Include Crashes on Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

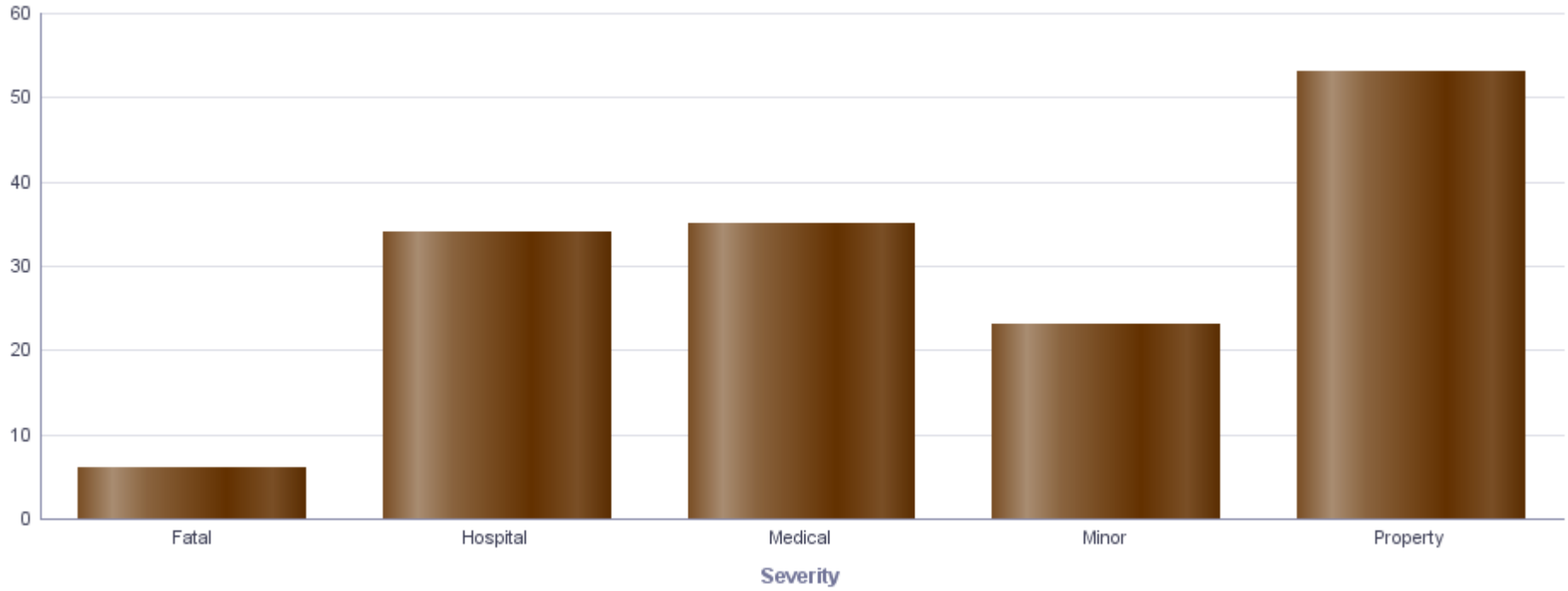
Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	6	33	32	23	51	145

Intersections

All Intersections N

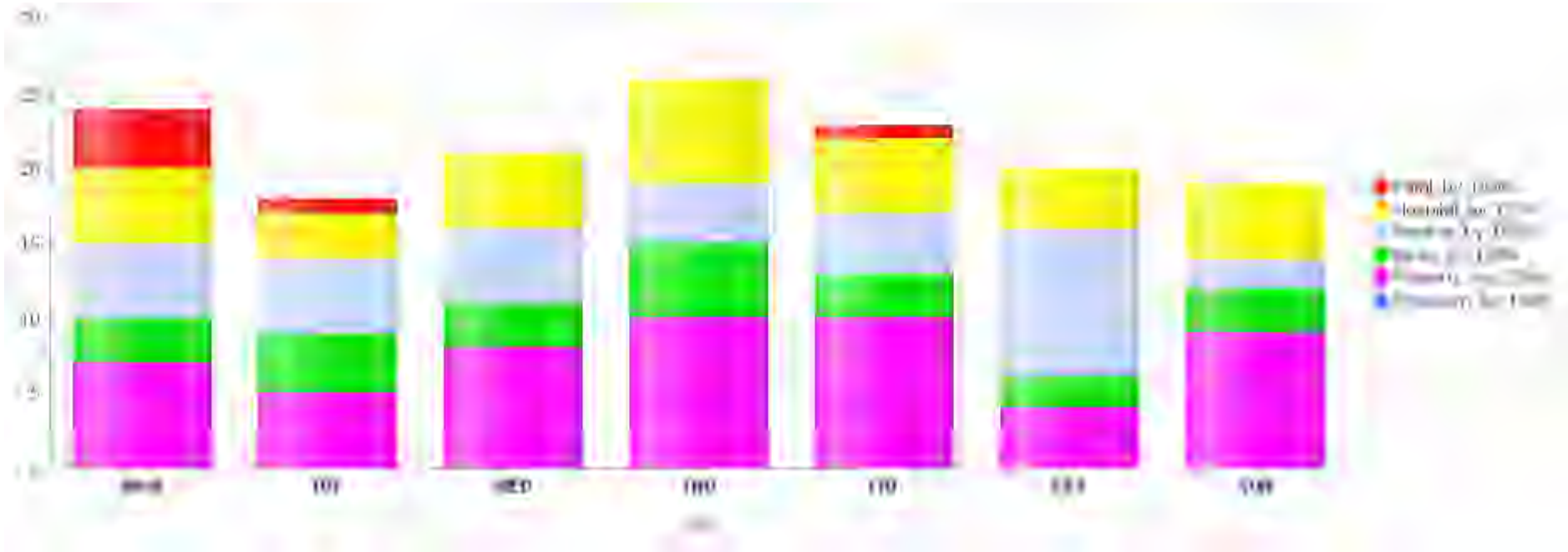
Number of Crashes by Severity

	Fatal	Hospital	Medical	Minor	Property
Crashes	6	34	35	23	53



Number of Crashes by Day of Week

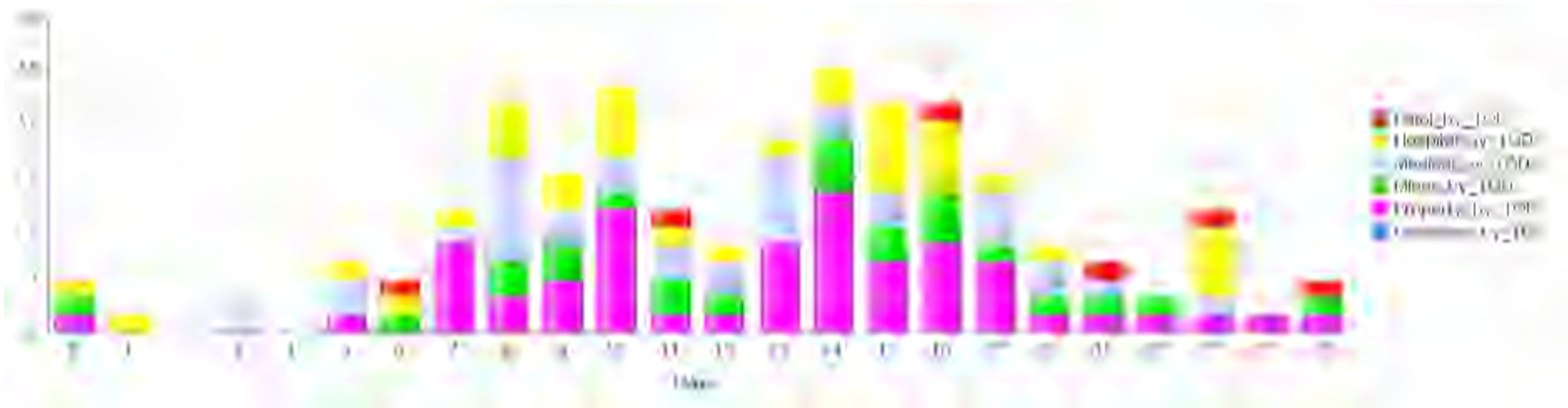
	MON	TUE	WED	THU	FRI	SAT	SUN
Fatal	4	1	0	0	1	0	0
Hospital	5	3	5	7	5	4	5
Medical	3	4	3	5	3	2	3
Minor	3	4	3	5	3	2	3
Property	7	5	8	10	10	4	9
Unknown	0	0	0	0	0	0	0



Number of Crashes by Time of Day

	0	1	2	3	4	5	6	7	8	9	10	11
Fatal	0	0	0	0	0	0	1	0	0	0	0	1
Hospital	1	1	0	0	0	1	1	1	3	2	4	1
Medical	0	0	0	2	0	2	0	1	6	2	2	2
Minor	1	0	0	0	0	0	1	0	2	2	1	2
Property	1	0	0	0	0	1	0	5	2	3	7	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

	12	13	14	15	16	17	18	19	20	21	22	23
Fatal	0	0	0	0	1	0	0	1	0	1	0	1
Hospital	1	1	2	5	4	1	1	0	0	4	0	0
Medical	2	5	2	2	0	3	2	1	0	1	0	0
Minor	1	0	3	2	3	1	1	1	1	0	0	1
Property	1	5	8	4	5	4	1	1	1	1	1	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

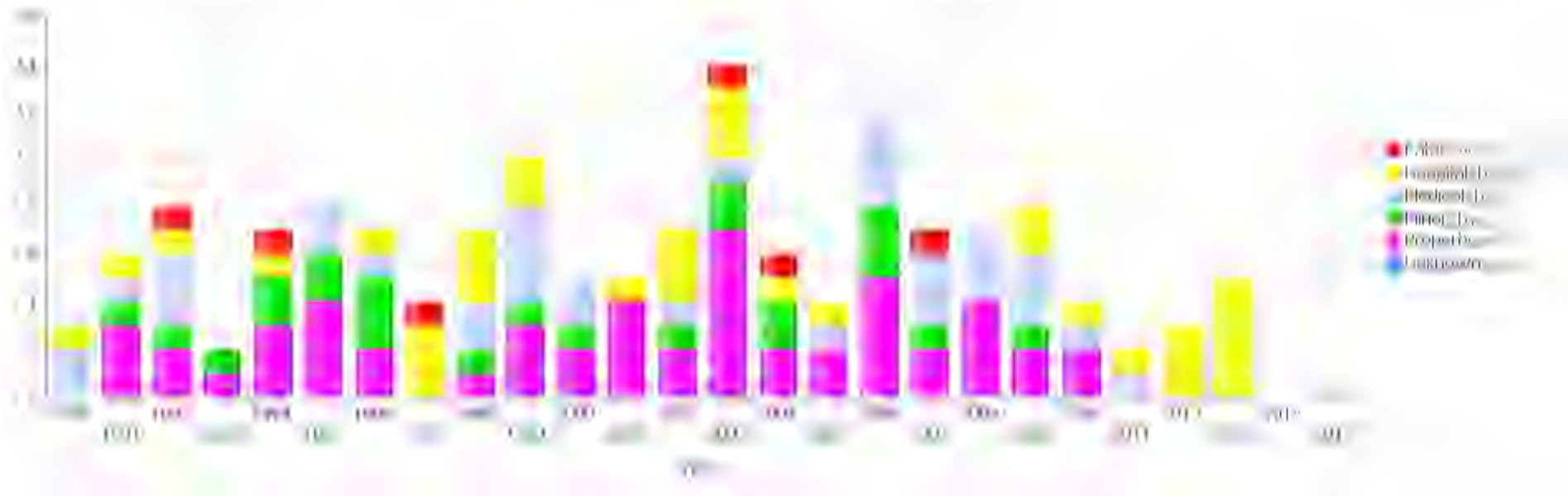


Number of Crashes by Year

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Fatal	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	0	0
Hospital	1	1	1	0	1	0	1	3	3	2	0	1	3	3	1	1	0
Medical	2	1	3	0	0	2	1	0	2	4	2	0	1	1	0	1	4
Minor	0	1	1	1	2	2	3	0	1	1	1	0	1	2	2	0	3
Property	0	3	2	1	3	4	2	0	1	3	2	4	2	7	2	2	5
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

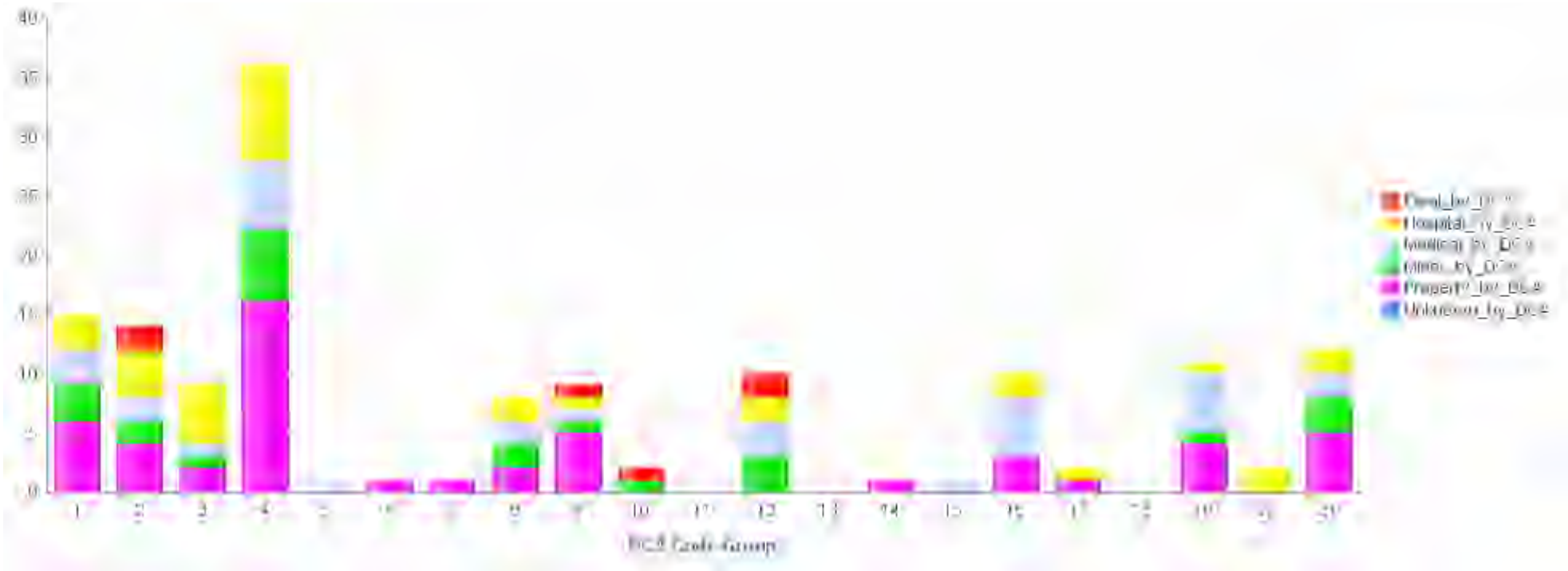
Road Crash 2
CRASH GRAPHS

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fatal	1	0	0	0	0	0	0	0	0
Hospital	0	0	2	1	1	3	5	0	0
Medical	3	3	3	1	1	0	0	0	0
Minor	1	0	1	0	0	0	0	0	0
Property	2	4	2	2	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0



Number of Crashes by DCA Code Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Fatal	0	2	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0
Hospital	3	4	5	8	0	0	0	2	1	0	0	2	0	0	0	2	1	0	1	2	2
Medical	3	2	1	6	1	0	0	2	1	0	0	3	0	0	1	5	0	0	5	0	2
Minor	3	2	1	6	0	0	0	2	1	1	0	3	0	0	0	0	0	0	1	0	3
Property	6	4	2	16	0	1	1	2	5	0	0	0	0	1	0	3	1	0	4	0	5
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Queensland Government

Road Crash 2
CRASH LISTING REPORT

Crash Types

Crash Dates: 01-JAN-1990 - 30-NOV-2015

Owner: MR DEPARTMENT OF MAIN ROADS

DCA Code:

Group:

Fatalities: =

Severity:

Nature:

Alignment: Vertical:

Horizontal:

Feature:

Traffic Ctrl:

Speed Limit:

Contrib Circ.:

Unit Type:

Risk Factor:

Area

LGA:

SLA:

Police Division:

Road Sections

All Road Sections: S Include Crashes on: Y Thru road Mid-block: Y Thru roads at Intersections: Y Intersecting roads at Intersections

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	6	33	32	23	51	145

Intersections

All Intersections: N

Queensland Government

Road Crash 2
CRASH LISTING REPORT

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
970027795	19-DEC-1997	Fri	21	201	W	Fatal	1	99	Car, Station \	Car, Station \		1	9A	7.885	54.033	Bruce Hwy	
20020021789	01-SEP-2002	Sun	07	600	E	Hosp	0	99	Bicycle			1	9A	8.005	54.153	Bruce Hwy	
20040004297	19-FEB-2004	Thu	15	301	S	Hosp	0	99	Articulated V	Car, Station \		1	9A	8.005	54.153	Bruce Hwy	
20060009755	20-APR-2006	Thu	10	301	W	Prop	0	99	Articulated V	Car, Station \		1	9A	8.090	54.238	Bruce Hwy	
910008469	31-DEC-1991	Tue	20	506	W	Inj	0	11	Articulated V	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
920000253	04-JAN-1992	Sat	13	506	W	Treat	0	11	Utility, Panel	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
940001145	17-JAN-1994	Mon	17	506	N	Prop	0	11	Car, Station \	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
950010242	09-MAY-1995	Tue	14	102	W	Inj	0	11	Car, Station \	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
950012037	01-JUN-1995	Thu	09	506	N	Prop	0	11	Car, Station \	Articulated V	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
960018074	01-AUG-1996	Thu	07	506	N	Prop	0	11	Car, Station \	Utility, Panel	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
980017821	03-JUL-1998	Fri	12	302	S	Treat	0	11	Car, Station \	Utility, Panel	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
980027438	15-DEC-1998	Tue	11	104	S	Treat	0	11	Utility, Panel	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
990001270	20-JAN-1999	Wed	08	703	W	Treat	0	11	Car, Station \		508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
20000022569	19-OCT-2000	Thu	06	303	W	Inj	0	11	Car, Station \	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
20010031258	31-DEC-2001	Mon	17	303	W	Prop	0	11	Car, Station \	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
20030024662	04-OCT-2003	Sat	16	303	N	Inj	0	11	Articulated V	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
20050018078	22-JUL-2005	Fri	08	303	W	Hosp	0	11	Utility, Panel	Utility, Panel	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
20050031436	11-DEC-2005	Sun	19	303	W	Prop	0	11	Road Train/B	Car, Station \	508	1	9A	8.105	54.253	Bruce Hwy	Lucketts Rd
940029464	24-DEC-1994	Sat	07	303	N	Prop	0	11	Car, Station \	Car, Station \	508	1	9A	8.107	54.255	Bruce Hwy	Lucketts Rd
20700255126	27-AUG-2007	Mon	16	505	E	Fatal	2	11	Car, Station \	Car, Station \		1	9A	8.141	54.289	Bruce Hwy	Lucketts Rd
20020018745	01-AUG-2002	Thu	14	705	E	Prop	0	99	Utility, Panel			1	9A	8.153	54.301	Bruce Hwy	
20020025694	15-OCT-2002	Tue	14	301	E	Inj	0	99	Utility, Panel	Utility, Panel		1	9A	8.155	54.303	Bruce Hwy	
20050028396	11-NOV-2005	Fri	14	506	E	Prop	0	99	Articulated V	Omnibus		1	9A	8.198	54.346	Bruce Hwy	

Queensland Government

Road Crash 2
CRASH LISTING REPORT

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
20131404022	13-NOV-2013	Wed	01	805	N	Hosp	0	99	Car, Station \			1	9A	8.212	54.360	Bruce Hwy	
990024785	15-NOV-1999	Mon	08	804	S	Treat	0	99	Car, Station \			1	9A	8.257	54.405	Bruce Hwy	
20800266855	27-APR-2008	Sun	13	702	W	Treat	0	99	Car, Station \			1	9A	8.305	54.453	Bruce Hwy	
960015496	04-JUL-1996	Thu	00	705	N	Hosp	0	99	Bicycle			1	9A	8.755	54.903	Bruce Hwy	
20130645299	01-JUN-2013	Sat	16	704	N	Hosp	0	99	Car, Station \			1	9A	8.917	55.065	Bruce Hwy	
980022547	15-OCT-1998	Thu	05	700	S	Prop	0	99	Car, Station \			1	9A	8.974	55.122	Bruce Hwy	
20700080315	27-APR-2007	Fri	08	303	S	Prop	0	11	Utility, Panel	Utility, Panel		1	9A	9.151	55.299	Bruce Hwy	Butchers Rd
20100726264	05-AUG-2010	Thu	10	704	S	Prop	0	99	Car, Station \			1	9A	9.197	55.345	Bruce Hwy	
9192697	28-MAY-1991	Tue	16	202	N	Prop	0	11	Car, Station \	Car, Station \	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
940027047	27-NOV-1994	Sun	10	202	N	Hosp	0	11	Car, Station \	Motor Cycle	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
940029735	26-DEC-1994	Mon	08	202	N	Inj	0	11	Car, Station \	Car, Station \	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
980016930	06-AUG-1998	Thu	06	202	W	Hosp	0	11	Car, Station \	Car, Station \	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
20020020015	14-AUG-2002	Wed	18	104	S	Treat	0	11	Car, Station \	Motor Cycle	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
20100683419	21-JUL-2010	Wed	18	104	W	Hosp	0	11	Car, Station \	Motor Cycle	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
20121320223	20-DEC-2012	Thu	15	104	W	Hosp	0	11	Omnibus	Truck	510	1	10	0.000	55.365	Bruce Hwy	Goodwood Rd
20030031717	18-DEC-2003	Thu	23	400	N	Prop	0	99	Articulated V			1	10	0.050	55.415	Bruce Hwy	
20060016811	24-JUL-2006	Mon	10	308	N	Prop	0	99	Car, Station \	Car, Station \		1	10	0.050	55.415	Bruce Hwy	
20900390049	23-MAY-2009	Sat	07	104	W	Prop	0	11	Car, Station \	Car, Station \		1	10	0.055	55.420	Bruce Hwy	Goodwood Rd
20900446667	12-JUN-2009	Fri	13	700	S	Treat	0	99	Car, Station \			1	10	0.055	55.420	Bruce Hwy	
20030030268	03-DEC-2003	Wed	21	303	S	Hosp	0	99	Car, Station \	Car, Station \		1	10	0.100	55.465	Bruce Hwy	
20030032646	30-DEC-2003	Tue	21	609	N	Prop	0	99	Car, Station \	Animal - Othe		1	10	0.190	55.555	Bruce Hwy	
20040024870	30-SEP-2004	Thu	00	201	W	Inj	0	99	Car, Station \	Articulated V		1	10	0.200	55.565	Bruce Hwy	
20030032043	22-DEC-2003	Mon	14	302	E	Hosp	0	99	Car, Station \	Omnibus		1	10	0.260	55.625	Bruce Hwy	

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
20800375892	14-JUN-2008	Sat	14	301	E	Treat	0	99	Motor Cycle	Car, Station \		1	10	0.325	55.690	Bruce Hwy	
930002519	06-FEB-1993	Sat	18	700	N	Inj	0	99	Utility, Panel			1	10	0.370	55.735	Bruce Hwy	
920019351	25-AUG-1992	Tue	23	001	E	Fatal	1	30	Pedestrian	Articulated V		1	10	0.375	55.740	Bruce Hwy	
20000022270	14-OCT-2000	Sat	17	703	S	Treat	0	99	Car, Station \			1	10	0.560	55.925	Bruce Hwy	
90061400646	07-JUN-1990	Thu	05		N	Treat	0	99	Car, Station \			1	10	0.730	56.095	Churchil	
20131029279	27-AUG-2013	Tue	08	704	N	Hosp	0	99	Utility, Panel			1	10	0.792	56.157	Bruce Hwy	
20901022728	29-DEC-2009	Tue	10	408	N	Treat	0	99	Car, Station \	Car, Station \		1	10	0.825	56.190	Bruce Hwy	
20030026749	27-OCT-2003	Mon	19	004	E	Fatal	1	99	Pedestrian	Car, Station \		1	10	0.869	56.234	Bruce Hwy	
20000020225	16-SEP-2000	Sat	03	703	W	Treat	0	11	Car, Station \		517	1	10	0.969	56.334	Bruce Hwy	Noel St
20020031775	22-DEC-2002	Sun	13	201	E	Prop	0	10	Car, Station \	Car, Station \	517	1	10	0.969	56.334	Bruce Hwy	Noel St
20040006327	12-MAR-2004	Fri	00	804	W	Prop	0	11	Articulated V		518	1	10	1.040	56.405	Bruce Hwy	New St
20600091960	02-NOV-2006	Thu	15	303	E	Prop	0	11	Articulated V	Car, Station \	519	1	10	1.084	56.449	Bruce Hwy	Taylor St
91032200997	24-MAR-1991	Sun	22		E	Prop	0	11	Car, Station \		519	1	10	1.084	56.449	Churchil	Taylor St
9197076	05-AUG-1991	Mon	16	202	N	Hosp	0	11	Car, Station \	Motor Cycle	520	1	10	1.146	56.511	Churchill St	Ernest St
20030019282	07-AUG-2003	Thu	07	303	W	Prop	0	11	Utility, Panel	Utility, Panel	520	1	10	1.146	56.511	Bruce Hwy	Ernest St
20600096304	10-NOV-2006	Fri	09	001	E	Inj	0	99	Car, Station \	Pedestrian		1	10	1.176	56.541	Bruce Hwy	
20030015337	25-JUN-2003	Wed	18	101	S	Prop	0	10	Car, Station \	Articulated V	521	1	10	1.198	56.563	Bruce Hwy	Lord St
990008421	24-APR-1999	Sat	21	704	W	Treat	0	10	Utility, Panel			1	10	1.200	56.565	Bruce Hwy	Stewart St
20900384281	21-MAY-2009	Thu	11	403	S	Inj	0	99	Car, Station \	Car, Station \		1	10	1.243	56.608	Bruce Hwy Service R	
980017853	17-AUG-1998	Mon	12	401	E	Inj	0	11	Utility, Panel	Car, Station \		1	10	1.300	56.665	Ashby La	Bruce Hwy
990018507	28-AUG-1999	Sat	14	301	E	Prop	0	99	Utility, Panel	Car, Station \	522	1	10	1.300	56.665	Bruce Hwy	
20010028780	01-DEC-2001	Sat	17	301	W	Prop	0	11	Articulated V	Car, Station \		1	10	1.300	56.665	Ashby La	Bruce Hwy
20700427576	14-NOV-2007	Wed	18	202	E	Treat	0	11	Utility, Panel	Motor Cycle	522	1	10	1.300	56.665	Ashby La	Bruce Hwy

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
990005344	15-MAR-1999	Mon	13	408	E	Treat	0	99	Special Purp	Car, Station \		1	10	1.315	56.680	Bruce Hwy	
20060015630	13-JUN-2006	Tue	16	301	E	Inj	0	99	Car, Station \	Car, Station \		1	10	1.315	56.680	Bruce Hwy	
20700108948	07-JUN-2007	Thu	10	301	E	Treat	0	99	Car, Station \	Car, Station \		1	10	1.315	56.680	Bruce Hwy	
20111077639	01-DEC-2011	Thu	14	703	N	Treat	0	99	Car, Station \	Utility, Panel		1	10	1.397	56.762	Bruce Hwy	
20030021828	03-SEP-2003	Wed	17	001	W	Inj	0	99	Utility, Panel	Pedestrian		1	10	1.426	56.791	Bruce Hwy	
960025246	25-OCT-1996	Fri	17	001	W	Treat	0	11	Car, Station \	Pedestrian		1	10	1.430	56.795	Bruce Hwy	Crescent St
920029555	29-DEC-1992	Tue	14	405	N	Prop	0	99	Car, Station \			1	10	1.440	56.805	Churchill St	
20130288664	10-MAR-2013	Sun	10	301	E	Hosp	0	99	Car, Station \	Car, Station \		1	10	1.443	56.808	Bruce Hwy	
960005108	04-MAR-1996	Mon	10	202	W	Prop	0	11	Car, Station \	Articulated V	523	1	10	1.458	56.823	Churchill St	Crescent St
20120096353	29-JAN-2012	Sun	12	303	W	Hosp	0	11	Utility, Panel	Car, Station \	523	1	10	1.458	56.823	Bruce Hwy	Crescent St
20120483762	21-MAY-2012	Mon	08	107	S	Hosp	0	11	Car, Station \	Road Train/B	523	1	10	1.458	56.823	Bruce Hwy	Crescent St
20800135038	29-FEB-2008	Fri	11	301	W	Prop	0	11	Car, Station \	Road Train/B	523	1	10	1.458	56.823	Bruce Hwy	Crescent St
930000502	03-JAN-1993	Sun	16	301	W	Prop	0	99	Car, Station \	Car, Station \		1	10	1.480	56.845	Churchill St	
20030017883	23-JUL-2003	Wed	14	401	S	Prop	0	99	Car, Station \	Car, Station \		1	10	1.488	56.853	Bruce Hwy	
950005011	05-MAR-1995	Sun	19	101	S	Inj	0	10	Car, Station \	Car, Station \	524	1	10	1.538	56.903	Churchill St	North St
950030056	26-DEC-1995	Tue	14	104	W	Prop	0	10	Car, Station \	Car, Station \	524	1	10	1.538	56.903	Bruce Hwy	North St
20030027371	04-NOV-2003	Tue	08	303	W	Treat	0	10	Truck	Car, Station \	524	1	10	1.538	56.903	Bruce Hwy	North St
20060003776	14-FEB-2006	Tue	13	104	S	Treat	0	10	Car, Station \	Car, Station \	524	1	10	1.538	56.903	Bruce Hwy	North St
20100455874	03-MAY-2010	Mon	16	101	E	Prop	0	10	Car, Station \	Car, Station \	524	1	10	1.538	56.903	Bruce Hwy	North St
20800628215	03-OCT-2008	Fri	16	101	N	Prop	0	10	Car, Station \	Car, Station \	524	1	10	1.538	56.903	Bruce Hwy	Mcilwraith St
90061300562	01-JUN-1990	Fri	08		N	Treat	0	10	Bicycle	Car, Station \	524	1	10	1.538	56.903	Churchil	Mcilwraith St
940018151	11-AUG-1994	Thu	16	104	N	Prop	0	10	Car, Station \	Utility, Panel	524	1	10	1.540	56.905	Bruce Hwy	Mcilwraith St
20901018507	27-DEC-2009	Sun	13	201	N	Prop	0	99	Car, Station \	Car, Station \	524	1	10	1.544	56.909	Bruce Hwy	

Queensland Government

Road Crash 2
CRASH LISTING REPORT

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
20010024650	17-OCT-2001	Wed	10	803	W	Prop	0	99	Car, Station \	Utility, Panel		1	10	1.550	56.915	Bruce Hwy	
20110184968	03-MAR-2011	Thu	15	003	S	Hosp	0	10	Pedestrian	Car, Station \		1	10	1.550	56.915	Bruce Hwy	North St
20030015883	01-JUL-2003	Tue	12	401	W	Prop	0	99	Utility, Panel	Car, Station \		1	10	1.563	56.928	Bruce Hwy	
20020015172	22-JUN-2002	Sat	17	401	N	Hosp	0	99	Car, Station \	Motor Cycle		1	10	1.588	56.953	Bruce Hwy	
990006976	06-APR-1999	Tue	16	003	N	Hosp	0	99	Pedestrian	Utility, Panel		1	10	1.638	57.003	Bruce Hwy	
20700110176	08-JUN-2007	Fri	11	400	W	Inj	0	99	Car, Station \	Motor Cycle		1	10	1.673	57.038	Bruce Hwy	
20800820245	17-DEC-2008	Wed	19	001	N	Treat	0	99	Pedestrian	Utility, Panel		1	10	1.675	57.040	Bruce Hwy	
20600117970	16-DEC-2006	Sat	05	803	W	Treat	0	99	Utility, Panel	Car, Station \		1	10	1.680	57.045	Bruce Hwy	
20600126096	30-DEC-2006	Sat	11	300	W	Treat	0	99	Utility, Panel	Car, Station \		1	10	1.680	57.045	Bruce Hwy	
20900826814	23-OCT-2009	Fri	09	303	N	Hosp	0	99	Car, Station \	Car, Station \		1	10	1.688	57.053	Bruce Hwy	
960014855	26-JUN-1996	Wed	23	803	N	Inj	0	99	Articulated V	Car, Station \		1	10	1.693	57.058	Bruce Hwy	
990027505	10-DEC-1999	Fri	16	604	S	Inj	0	99	Car, Station \	Car, Station \		1	10	1.710	57.075	Bruce Hwy	
91032000921	30-MAR-1991	Sat	08		S	Treat	0	99	Car, Station \	Utility, Panel		1	10	1.760	57.125	Churchil	
20040026086	13-OCT-2004	Wed	08	900	N	Prop	0	99	Road Train/B			1	10	1.780	57.145	Bruce Hwy	
920019970	27-AUG-1992	Thu	10	101	E	Inj	0	10	Truck	Utility, Panel	525	1	11	0.000	57.195	Bruce Hwy	Isis Hwy
970024381	06-NOV-1997	Thu	09	202	E	Hosp	0	11	Car, Station \	Motor Cycle	525	1	11	0.000	57.195	Bruce Hwy	Isis Hwy
20000017375	11-AUG-2000	Fri	15	303	E	Prop	0	11	Utility, Panel	Car, Station \	525	1	11	0.000	57.195	Bruce Hwy	Isis Hwy
20030019058	04-AUG-2003	Mon	16	202	E	Hosp	0	11	Utility, Panel	Car, Station \	525	1	11	0.000	57.195	Bruce Hwy	Isis Hwy
20800369118	11-JUN-2008	Wed	15	703	W	Prop	0	11	Articulated V		525	1	11	0.000	57.195	Bruce Hwy	Isis Hwy
91032200998	10-MAR-1991	Sun	13		S	Prop	0	11	Omnibus	Car, Station \	525	1	11	0.000	57.195	Broadhurst St	Churchil
960029582	15-DEC-1996	Sun	15	406	E	Inj	0	99	Car, Station \	Utility, Panel	526	1	11	0.017	57.212	Churchill St	
990012696	18-JUN-1999	Fri	13	303	S	Prop	0	99	Car, Station \	Car, Station \	526	1	11	0.017	57.212	Bruce Hwy	
20050005771	09-MAR-2005	Wed	12	303	S	Treat	0	99	Car, Station \	Car, Station \		1	11	0.025	57.220	Bruce Hwy	

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
940028413	12-DEC-1994	Mon	08	303	N	Inj	0	11	Utility, Panel	Car, Station \	527	1	11	0.159	57.354	Bruce Hwy	Ridgway St
990015977	28-JUL-1999	Wed	15	505	W	Hosp	0	11	Car, Station \	Car, Station \	527	1	11	0.159	57.354	Bruce Hwy	West St
20000022304	15-OCT-2000	Sun	09	301	N	Prop	0	11	Car, Station \	Car, Station \	527	1	11	0.159	57.354	Bruce Hwy	Ridgway St
20131285462	19-OCT-2013	Sat	13	302	W	Hosp	0	11	Car, Station \	Utility, Panel	527	1	11	0.159	57.354	Bruce Hwy	Ridgway St
20060011705	15-MAY-2006	Mon	03	803	S	Treat	0	99	Utility, Panel			1	11	0.184	57.379	Bruce Hwy	
980021462	01-OCT-1998	Thu	14	805	S	Hosp	0	99	Articulated V			1	11	0.190	57.385	Bruce Hwy	
20010029113	05-DEC-2001	Wed	21	201	W	Hosp	0	99	Utility, Panel	Truck		1	11	0.277	57.472	Bruce Hwy	
20030010002	27-APR-2003	Sun	17	804	N	Prop	0	99	Car, Station \			1	11	0.277	57.472	Bruce Hwy	
920002852	09-FEB-1992	Sun	07	703	W	Prop	0	99	Car, Station \			1	11	0.300	57.495	Bruce Hwy	
20020022975	14-SEP-2002	Sat	10	201	N	Hosp	0	99	Motor Cycle	Car, Station \		1	11	0.327	57.522	Bruce Hwy	
940002183	31-JAN-1994	Mon	11	201	N	Fatal	1	99	Car, Station \	Car, Station \		1	11	0.350	57.545	Churchill St	
990008090	21-APR-1999	Wed	13	303	N	Prop	0	99	Truck	Utility, Panel		2	11	0.410	57.605	Bruce Hwy	
970027471	15-DEC-1997	Mon	11	803	S	Hosp	0	99	Motor Cycle			2	11	0.477	57.672	Bruce Hwy	
20900395895	25-MAY-2009	Mon	15	201	W	Treat	0	99	Car, Station \	Truck		2	11	0.487	57.682	Bruce Hwy	
20900355438	10-MAY-2009	Sun	15	408	N	Hosp	0	99	Car, Station \	Car, Station \		2	11	0.489	57.684	Bruce Hwy	
20040019378	02-AUG-2004	Mon	06	601	E	Fatal	2	99	Truck	Truck		2	11	0.498	57.693	Bruce Hwy	
20700061098	29-MAR-2007	Thu	15	007	E	Treat	0	99	Pedestrian	Special Purp		2	11	0.506	57.701	Bruce Hwy	
980011278	29-MAY-1998	Fri	05	000	S	Hosp	0	99	Car, Station \	Pedestrian		2	11	0.527	57.722	Bruce Hwy	
20800082627	06-FEB-2008	Wed	20	808	E	Prop	0	99	Car, Station \			3	11	0.527	57.722	Bruce Hwy	
20101085955	04-DEC-2010	Sat	07	804	N	Treat	0	99	Utility, Panel			1	11	0.664	57.859	Bruce Hwy	
90072601190	13-JUL-1990	Fri	21		E	Hosp	0	99	Car, Station \			1	11	0.860	58.055	Churchil	
920022926	06-OCT-1992	Tue	21	201	E	Hosp	0	99	Utility, Panel	Car, Station \		1	11	1.030	58.225	Bruce Hwy	
920008943	21-APR-1992	Tue	17	305	E	Treat	0	99	Car, Station \	Car, Station \		1	11	1.200	58.395	Bruce Hwy	

Road Crash 2
CRASH LISTING REPORT

Road Section 10C Maryborough - Gin Gin Cway Tdist 54.000 - 59.000

Road Section 10C Maryborough - Gin Gin

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
20010024534	17-OCT-2001	Wed	15	506	S	Prop	0	99	Utility, Panel	Car, Station \		1	11	1.460	58.655	Bruce Hwy	
950007505	27-MAR-1995	Mon	14	304	N	Prop	0	99	Car, Station \	Car, Station \		1	11	1.558	58.753	Bruce Hwy	
20700526553	28-DEC-2007	Fri	09	201	N	Prop	0	99	Car, Station \	Car, Station \		1	11	1.601	58.796	Bruce Hwy	
950013980	23-JUN-1995	Fri	10	501	S	Prop	0	99	Car, Station \	Car, Station \		1	11	1.708	58.903	Bruce Hwy	
950006160	20-MAR-1995	Mon	09	201	N	Treat	0	99	Car, Station \	Articulated Ve		1	11	1.730	58.925	Bruce Hwy	
20060016791	23-JUN-2006	Fri	14	800	N	Prop	0	99	Car, Station \			1	11	1.743	58.938	Bruce Hwy	
920021544	19-SEP-1992	Sat	08	301	W	Treat	0	11	Utility, Panel	Car, Station \	529	1	11	1.758	58.953	Bruce Hwy	Old Creek Rd
960024548	17-OCT-1996	Thu	15	303	N	Inj	0	11	Car, Station \	Truck	529	1	11	1.758	58.953	Bruce Hwy	Old Creek Rd
970013824	27-JUN-1997	Fri	10	501	N	Hosp	0	11	Car, Station \	Car, Station \	529	1	11	1.758	58.953	Bruce Hwy	Old Creek Rd
20060008922	10-APR-2006	Mon	10	303	N	Prop	0	11	Car, Station \	Utility, Panel	529	1	11	1.758	58.953	Bruce Hwy	Old Creek Rd
20600124090	27-DEC-2006	Wed	09	201	N	Inj	0	99	Articulated Ve	Car, Station \		1	11	1.758	58.953	Bruce Hwy	
950016683	23-JUL-1995	Sun	09	804	S	Treat	0	99	Car, Station \			1	11	1.790	58.985	Bruce Hwy	

Road Section 19B Childers - Biggenden

Crash No.	Date	Day	Hour	Dca	Key	Seve	Fatal	Feature	Vehicle 1	Vehicle 2	Inter	Cway	RPC	Dist	Tdist	Street 1	Street 2
20040024591	26-SEP-2004	Sun	14	001	N	Inj	0	11	Pedestrian	Car, Station \	525	1	1	0.000	0.000	Bruce Hwy	Isis Hwy

Queensland Government

Road Crash 2
CRASH RATES REPORT - ROAD SECTION

Crash Types

Crash Dates 01-JAN-1990 - 30-NOV-2015

Owner MR DEPARTMENT OF MAIN ROADS

DCA Code

Group

Fatalities =

Severity

Nature

Alignment: Vertical

Horizontal

Feature

Traffic Ctrl

Speed Limit

Contrib Circ.

Unit Type

Risk Factor

Area

LGA

SLA

Police Division

Road Sections

All Road Sections S Include Crashes on Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	6	33	32	23	51	145

Intersections

All Intersections N

Order by Ordered By Road Section. Calculation Type Segment Based

Queensland Government

Road Crash 2
CRASH RATES REPORT - ROAD SECTION

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Length	AADT	Highest Speed	Crash Rates $10^4 per Km
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	5.000	6,497	100	955.70

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
6	20	22	12	26	86

Crashes per DCA Code Group

											Total
1-10	1	11	0	15	1	1	1	7	3	2	
11-20	0	9	0	1	1	7	2	0	10	2	86
21	12										

Queensland Government

Road Crash 2
CRASH RATES REPORT - ROAD SECTION

Crash Types

Crash Dates 01-JAN-1990 - 30-NOV-2015

Owner MR DEPARTMENT OF MAIN ROADS

DCA Code

Group

Fatalities =

Severity

Nature

Alignment: Vertical

Horizontal

Feature

Traffic Ctrl

Speed Limit

Contrib Circ.

Unit Type

Risk Factor

Area

LGA

SLA

Police Division

Road Sections

All Road Sections S Include Crashes on Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	6	33	32	23	51	145

Intersections

All Intersections N

Order by Ordered By Road Section. Calculation Type Segment Based

Queensland Government

Road Crash 2
CRASH RATES REPORT - ROAD SECTION

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Length	AADT	Highest Speed	Crash Rates $10^4 per 10^8 VKT
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	5.000	6,497	100	2,147.58

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
6	20	22	12	26	86

Crashes per DCA Code Group

											Total
1-10	1	11	0	15	1	1	1	7	3	2	
11-20	0	9	0	1	1	7	2	0	10	2	86
21	12										

Queensland Government

Road Crash 2
CRASH RATES REPORT - INTERSECTIONS

Crash Types

Crash Dates 01-JAN-1990 - 30-NOV-2015

Owner MR DEPARTMENT OF MAIN ROADS

DCA Code

Group

Fatalities =

Severity

Nature

Alignment: Vertical

Horizontal

Feature

Traffic Ctrl

Speed Limit

Contrib Circ.

Unit Type

Risk Factor

Area

LGA

SLA

Police Division

Road Sections

All Road Sections S Include Crashes on Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
10C MARYBOROUGH - GIN GIN		9A	7.852	11	1.805	54.000	59.000	6	33	32	23	51	145

Intersections

All Intersections N

Order by Ordered By Location.

Road Section: 10C Maryborough - Gin Gin

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
508 10C & Lucketts Rd (R)	4,668	752	100	916.08	15

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	54.253
M11 Lucketts Road	1	.000

Crashes per DCA Code Group

1-10	2	0	0	7	0	0	0	0	5	0
11-20	0	0	0	0	0	1	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	1	4	4	6	15

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
510 10C & Goodwood Rd	7,790	2,560	80	373.32	7

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	55.365
171 Goodwood Road	1	.000

Crashes per DCA Code Group

1-10	3	0	4	0	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	4	1	1	1	7

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
517 10C & Noel St (L)& (R)			60	121.07	2

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.334

Crashes per DCA Code Group

1-10	0	1	0	0	0	0	0	0	0	0
11-20	0	0	0	0	0	1	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	1	0	1	2

*Crash Rates are not based on AADT values**

Road Section: 10C Maryborough - Gin Gin

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
518 10C & New St (R)			60	57.77	1

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.405

Crashes per DCA Code Group

1-10	0	0	0	0	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	1	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	0	0	1	1

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
519 10C & Taylor St (L)	6,032	350	50	21.65	1

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.449
M270 Taylor Street (Childers)	1	.000

Crashes per DCA Code Group

1-10	0	0	0	1	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	0	0	1	1

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
520 10C & Ernest St (R)	5,494	30	60	60.72	2

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.511
M271 Ernest Street	1	.000

Crashes per DCA Code Group

1-10	0	0	1	1	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	1	0	0	1	2

*Crash Rates are not based on AADT values**

Road Section: 10C Maryborough - Gin Gin

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
521 10C & Stewart St (L) & Lord St (			60	34.13	1

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.563

Crashes per DCA Code Group

1-10	1	0	0	0	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	0	0	1	1

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
522 10C & Ashby St (L)			60	60.72	2

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.665

Crashes per DCA Code Group

1-10	0	0	1	1	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	1	0	1	2

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
523 10C & Crescent St (R)	7,039	554	60	116.50	4

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.823
M272 Crescent Street	1	.000

Crashes per DCA Code Group

1-10	1	0	1	2	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	2	0	0	2	4

*Crash Rates are not based on AADT values**

Road Section: 10C Maryborough - Gin Gin

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
524 10C & North St(R) & Mcilwraith	1,079	10,580	60	299.77	8

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	56.903
M472 North Street	1	.000
M473 Mcillwraith Street	1	.000

Crashes per DCA Code Group

1-10	6	1	0	1	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	2	1	5	8

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
525 Churchill & Broadhurst	9,334	2,387	100	281.84	6

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	57.195
19B Childers - Biggenden	1	.000

Crashes per DCA Code Group

1-10	1	0	2	1	0	0	0	0	0	0
11-20	0	1	0	0	0	1	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	2	0	2	2	6

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
526 10C & T/off Shell Service Statio	7,730	1,938	60	49.69	2

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	57.212
M273 Shell Service Station T/O	1	.000

Crashes per DCA Code Group

1-10	0	0	0	1	0	0	0	1	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	0	0	1	1	2

*Crash Rates are not based on AADT values**

Road Crash 2
CRASH RATES REPORT - INTERSECTIONS

Road Section: 10C Maryborough - Gin Gin

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
527 10C & T/off To Ridgway St (W	7,381	1,048	60	107.07	4

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	57.354
M274 West Street (Fairnsfield T/O)	1	.000

Crashes per DCA Code Group

1-10	0	0	0	0	3	0	0	0	0	1	0
11-20	0	0	0	0	0	0	0	0	0	0	0
21	0										

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	2	0	1	1	4

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
529 10C & Old Creek Rd (R)	9,012	213	100	346.45	4

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	58.953
M474 Old Creek Road	1	.000

Crashes per DCA Code Group

1-10	0	1	0	3	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	1	1	1	1	4

*Crash Rates are not based on AADT values**

Road Crash 2
CRASH RATES REPORT - INTERSECTIONS

Road Section: 171 Goodwood Road

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
510 10C & Goodwood Rd	7,790	2,560	80	373.32	7

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	55.365
171 Goodwood Road	1	.000

Crashes per DCA Code Group

1-10	3	0	4	0	0	0	0	0	0	0
11-20	0	0	0	0	0	0	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	4	1	1	1	7

*Crash Rates are not based on AADT values**

Queensland Government

Road Crash 2
CRASH RATES REPORT - INTERSECTIONS

Road Section: 19B Childers - Biggenden

Intersection	AADT1	AADT2	Highest Speed	$10^4 per Intersection	Total
525 Churchill & Broadhurst	9,334	2,387	100	281.84	6

Road Section	Cway	TDist
10C Maryborough - Gin Gin	1	57.195
19B Childers - Biggenden	1	.000

Crashes per DCA Code Group

1-10	1	0	2	1	0	0	0	0	0	0
11-20	0	1	0	0	0	1	0	0	0	0
21	0									

Number of Crashes

Fatal	Hosp.	Medical	Minor	PDO	Total
0	2	0	2	2	6

*Crash Rates are not based on AADT values**

Annexure H redacted in full - s 47C

s 47C

Annexure I exempt in part - s 47C

s 47C

Australian Government

Department of the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

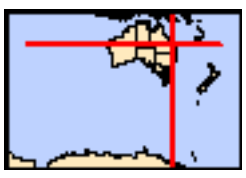
Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 24/02/16 09:16:53

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates

Buffer: 5.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	24
Listed Migratory Species:	13

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	25
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll [331]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Other		
Cycas megacarpa		
[55794]	Endangered	Species or species habitat likely to occur within area
Macrozamia pauli-guilielmi		
Pineapple Zamia [5712]	Endangered	Species or species habitat likely to occur within area
Plants		
Alectryon ramiflorus		
[6416]	Endangered	Species or species habitat likely to occur within area
Bosistoa transversa		
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Cossinia australiana		
Cossinia [3066]	Endangered	Species or species habitat likely to occur within area
Cupaniopsis shirleyana		
Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus hallii		
Goodwood Gum [20433]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis		
Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Phebalium distans		
Mt Berryman Phebalium [81869]	Critically Endangered	Species or species habitat may occur within area
Reptiles		
Delma torquata		
Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa		
Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Furina dunmalli		
Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat likely to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat likely to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat likely to occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat likely to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

Invasive Species

[Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Vachellia nilotica Prickly Acacia, Blackthorn, Prickly Mimosa, Black Piquant, Babul [84351]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-25.24494 152.27385

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Parks and Wildlife Commission NT, Northern Territory Government
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: Rare and threatened species
Records: All
Date: All
Latitude: -25.2384
Longitude: 152.2585
Distance: 2
Email: peter.moonie@ghd.com
Date submitted: Friday 19 Feb 2016 13:54:48
Date extracted: Friday 19 Feb 2016 14:00:06

The number of records retrieved = 2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	1
plants	higher dicots	Sapindaceae	*Alectryon ramiflorus*			E	E	3/2

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

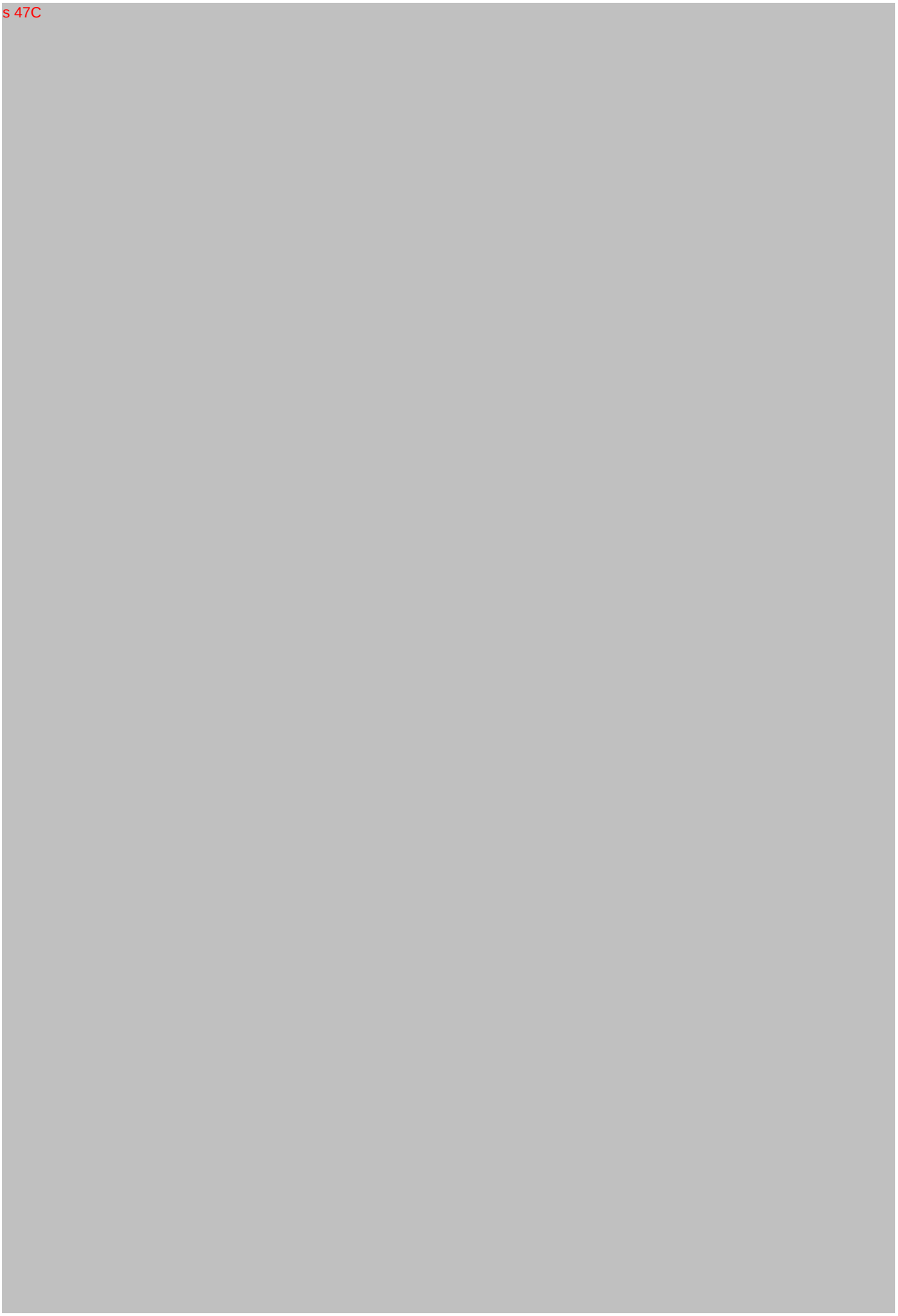
A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

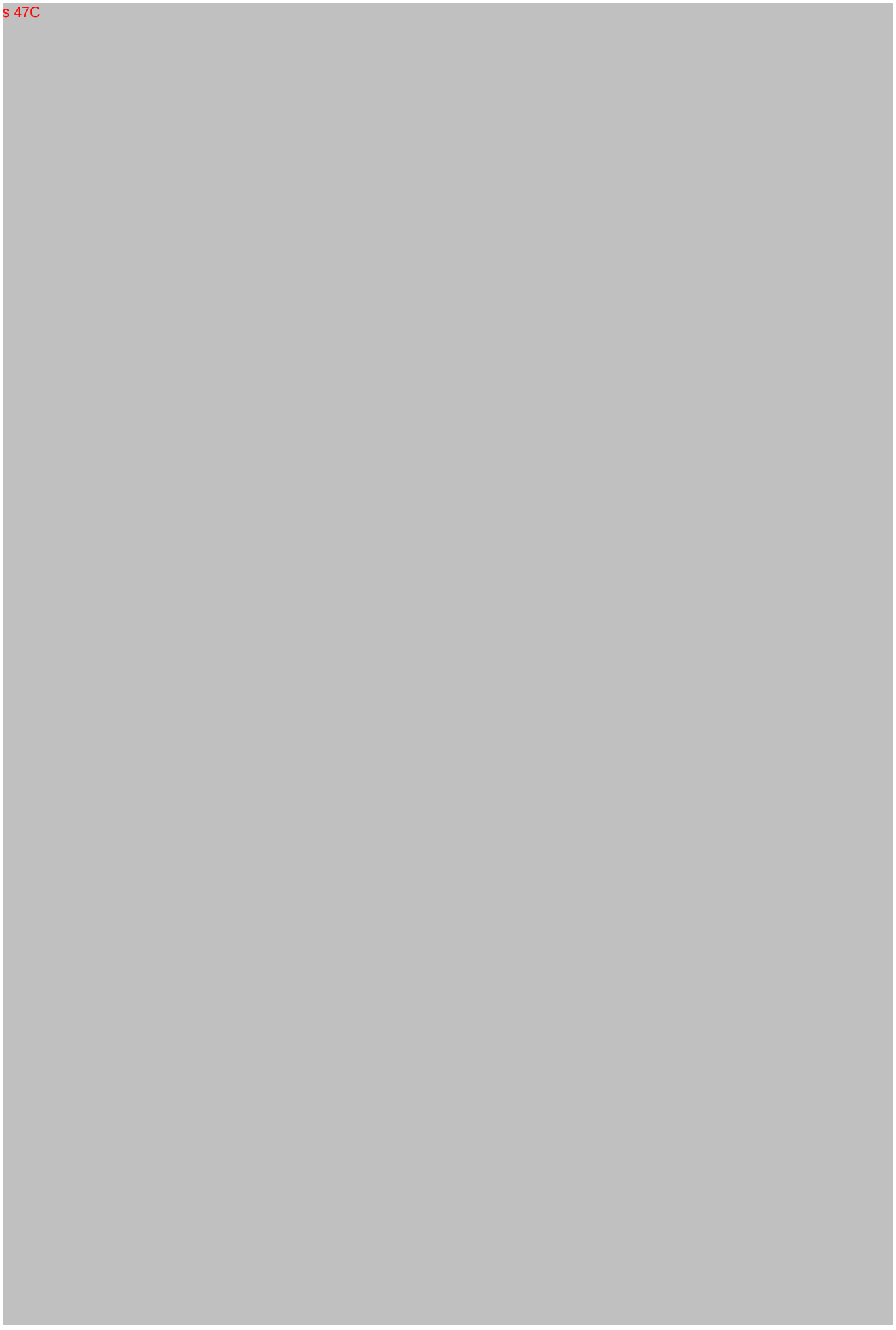
Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

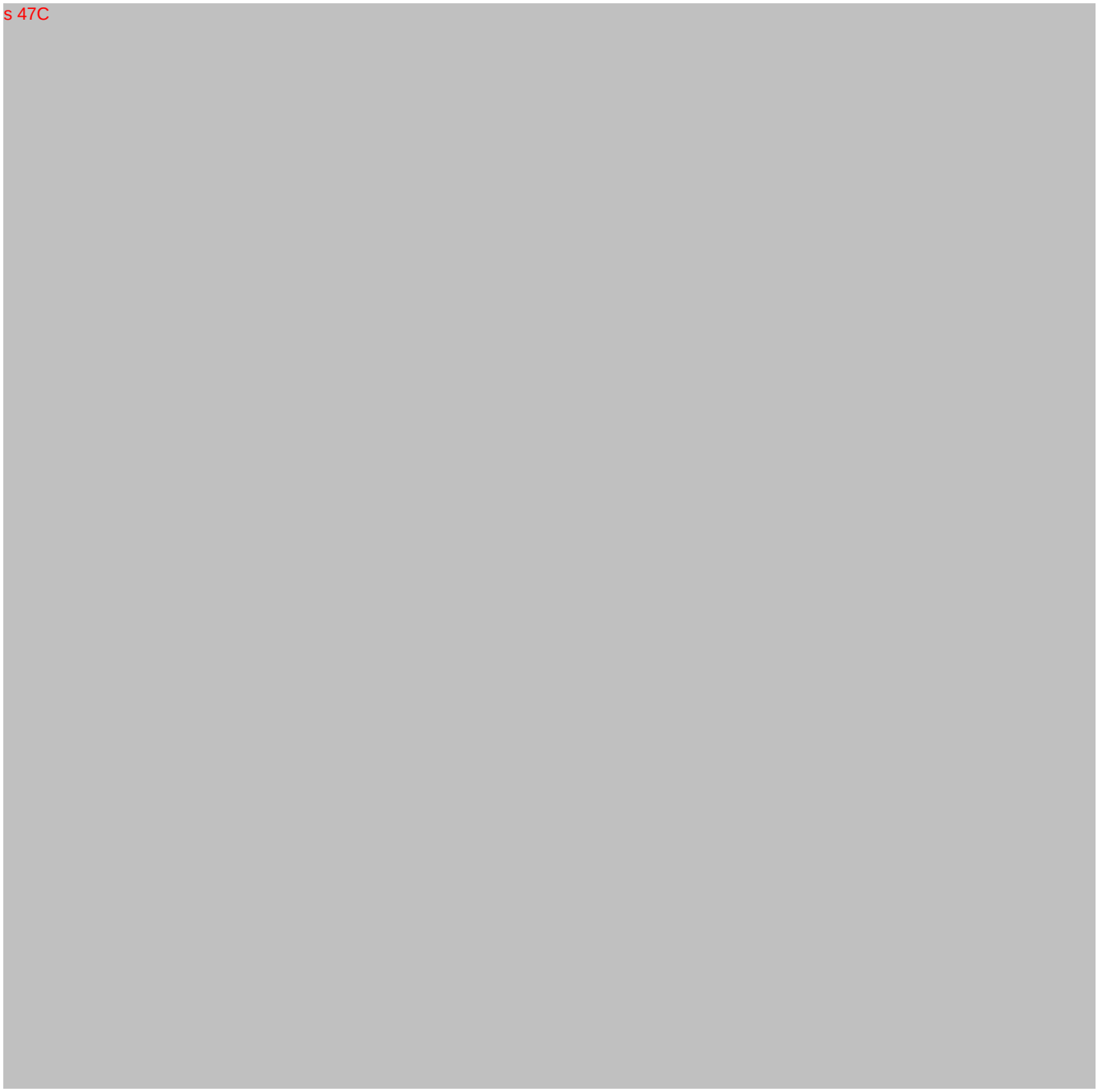
s 47C

s 47C

s 47C




s 47C


s 47C

Department of Transport and Main Roads

Job No. 211/10C/8735

Bruce Highway (Maryborough – Gin Gin)
Childers Bypass
Planning Report – Two Lane Heavy Vehicle Bypass

Annexure J
Preliminary Geotechnical Advice

Memorandum

Our ref : MR2560 Rev 0
(FG6218)
Your ref:
Date: 04 December 2014

To s 47F
Senior Advisor (Materials)
Wide Bay / Burnett Region
Program Delivery and Operations
Floor 2, Bundaberg – Claude Wharton Building
46 Quay Street
Bundaberg Qld 4670

Subject **Preliminary Geotechnical Advice on the Proposed Childers Bypass (Option 6) Cuttings**

1.0 Introduction

Transport and Main Roads (TMR) Geotechnical Section was engaged by TMR Wide Bay / Burnett Region, Geoff Cocking, Senior Advisor (Materials) to provide preliminary geotechnical advice on the excavatabilty and potential construction issues for cuttings on the proposed Childers Bypass (Option 6).

s 47C

The cut inspections were carried out by TMR Engineering Geologists, s 47F s 47F on 28 November 2014.

Department of Transport and Main Roads
Engineering and Technology
Geotechnical Section
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Telephone s 47F
Mobile s 47F

Geotechnical Terms and Symbols used in this memorandum are as per Form F:GEOT 017/8-2014 attached in Appendix A. Site photographs and a site plan are attached in Appendix B and Appendix C respectively. A geological map of the Childers area is attached in Appendix D.

2. 0 Regional Geology

According to the Regional Geological Map of Queensland published by Mines Online Maps (DNRM), the geological units in the vicinity of the proposed Option 6 alignment are outlined in Table 1. A geological map of the Childers area is attached in Appendix D.

Table 1: Geology of Childers Area

Geological Unit	Map Symbol	Age	Lithology	Approximate Distance to Proposed Cut 19B(1)
Oligocene-Miocene Sediments	Tm	Oligocene to Miocene (Tertiary)	Poorly lithified sandstone, conglomerate and mudstone.	At site
Triassic Intrusives	Rg	Triassic	Granite, granodiorite, tonalite, diorite and gabbro.	<800m
Duckinwilla Group	Rjd	Late Triassic – Early Jurassic	Lithofeldspathic labile and sublabile to quartzose sandstone, siltstone, shale, coal, ferruginous oolite marker.	<1km
Grahams Creek Formation	Jkr	Late Jurassic – Early Cretaceous	Andesitic to rhyolitic lavas and volcaniclastics, volcaniclastic sandstone; some basalt near base.	<1.5km
Maryborough Formation	Km	Early Cretaceous	Mudstone, siltstone, shale, labile sandstone, glauconitic sandstone, silicified siltstone to mudstone	<4km

Notes: *(1) Based on the geological map only*

3. 0 Preliminary Geotechnical Assessments

Four cuttings were inspected along the Isis Highway (Childers to Biggenden) to give an indication of the materials that are likely to be excavated during the construction of the proposed Childers Bypass. Preliminary geotechnical assessments of each cut are given in Sections 3.1 to 3.4 below. The site plan attached in Appendix C shows the locations of the inspected cuts.

3.1 Cut 1 (Left Hand Side and Right Hand Side)

Existing Cut Geometry:

- Cut length: 75m
- Maximum cut height: 5m
- Approximate batter slope angle: 45° - 65°

Material Descriptions:

Table 2: Cut 1 Material Descriptions

Material	Depth(1)	Description	Defects	GSI(2)
Felsic Sill (MW)(3)	0m - 3m	Pale white brown, fine grained, crystalline, blocky, medium strength.	Close to medium spaced joints.	55-65
Granite (XW)	0m-5m	Exhibits properties of pale brown-orange, dry, dense to very dense, silty sand. Felsic veins throughout, shallow to moderately dipping.	N/A(4)	N/A(4)

Notes: *(1) Depth below cut crest*
(2) GSI – Geological Strength Index
(3) Felsic Sill located on the south-western end (last ~20m) of the left hand side cut only.
(4) XW Rock exhibits the properties of soil.

Geotechnical Assessment:

- Excavatabilty – Digging to easy ripping.
- Erodability - High

2.2 Cut 2 (Left Hand Side)

Existing Cut Geometry:

- Maximum cut height: 2m
- Approximate batter slope angle: 45° - 50°

Material Descriptions:

Table 3: Cut 2 Material Descriptions

Material	Depth(1)	Description	Defects	GSI(2)
Residual Soil	0m – 1m	Sandy Clay with Gravel: Brown-red, dry, very stiff to hard, high plasticity.	N/A	N/A
Basalt (HW)	1m – 2.0m	Red-brown, fine grained, crystalline, very low to low strength with medium strength core-stones.	Very closely to closely spaced. J1: 15°/275° J2: 40°/344° J3: 60°/330°	40-50

Notes: *(1) Depth below cut crest*
(2) GSI – Geological Strength Index

Geotechnical Assessment:

- Excavatabilty – Digging to easy ripping.
- Erodability – Moderate to high.

2.3 Cut 3 (Left Hand Side)

Existing Cut Geometry:

- Maximum cut height: 3m
- Approximate batter slope angle: 50° - 60°

Material Descriptions:

Table 4: Cut 3 Material Descriptions

Material	Depth(1)	Description	Defects	GSI(2)
Colluvium	0m – 1.0m	Gravelly Clay: Pale red-brown, dry, very stiff to hard, high plasticity, trace rounded cobbles <100mm.	N/A	N/A
Siltstone (MW)	1.0– 3.0m	Pale grey with pale orange-brown stained joints, fine grained, thickly laminated to thinly bedded, very blocky, low to medium strength.	Very closely to closely spaced. BED: 38°/150° J1: 50°/304° J2: 65°/020°	55-65

Notes: *(1) Depth below cut crest*
(2) GSI – Geological Strength Index

Geotechnical Assessment:

- Excavatabilty – Easy ripping.
- Erodability - Moderate

2.4 Cut 4 (Left Hand Side)

Existing Cut Geometry:

- Maximum cut height: 1.5m
- Approximate batter slope angle: 60° - 65°

Material Descriptions:

Table 5: Cut 4 Material Descriptions

Material	Depth(1)	Description	Defects	GSI(2)
Residual Soil	0m – 1.5m	Clayey Silt: Brown-red, dry, very stiff to hard.	N/A	N/A

Notes: *(1) Depth below cut crest*
(2) GSI – Geological Strength Index

Geotechnical Assessment:

- Excavatabilty – Digging.
- Erodability - Moderate.

4. 0 Discussion and Summary

The findings of this preliminary geotechnical study found that the proposed Childers Bypass (Option 6) cuttings will likely be constructed mainly in sedimentary rock, with igneous intrusions also likely.

All materials inspected appear to be easily rippable. However, the relatively shallow depth of the inspected cuts (<5m) may not represent the materials encountered at a greater depth. Therefore, it is recommended geotechnical boreholes and seismic refraction surveys are carried out to investigate any deeper cuts, including Cut 19B, where it is expected the rock will be less weathered and higher strength.

Design batter angles should be assessed when materials at the base of the cuts have been investigated.

The material appears to be generally highly erodible throughout the proposed site, with rilling erosion evident on existing cut batters and deeply incised drainage lines. It is likely that the constructed batters, any benches and table drains will require erosion protection.

If you have any queries regarding the information contained in this document, please contact Principal Engineering Geologist, s 47F

s 47F
Engineering Geologist

APPENDIX A
Geotechnical Terms & Symbols

Geotechnical Terms and Symbols

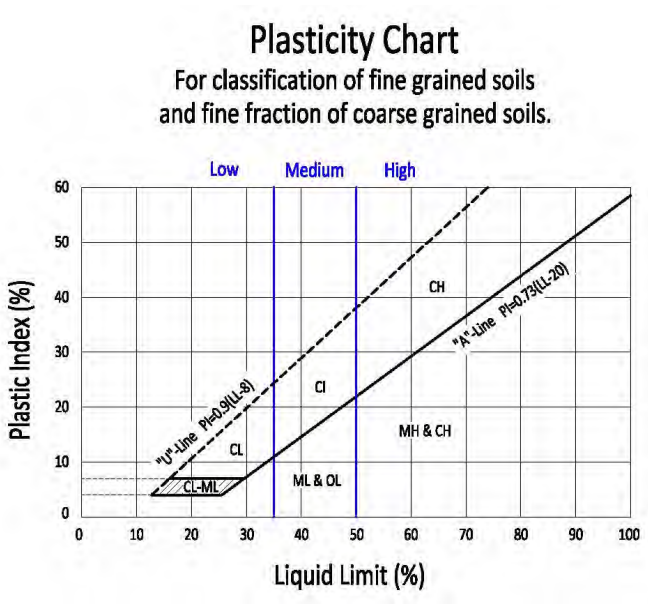
The following information is intended to assist in the interpretation of terms and symbols used in geotechnical borehole logs, test pit logs and reports issued by or for the Queensland Department of Transport and Main Roads (TMR). More detailed information relating to specific test methods is available in the TMR Materials Testing Manual (MTM) and the relevant Australian Standards.

Soil Descriptions

Description and Classification of Soils for Geotechnical Purposes: Refer to AS1726-1993 (Appendix A).
The following chart (adapted from AS1726-1993, Appendix A, Table A1) is based on the Unified Soil Classification System (USCS).

Major Divisions		Particle size mm	USCS Group Symbol	Typical Names	Laboratory Classification				
					% < 0.075mm (2)	Plasticity of fine fraction	$C_u = \frac{D_{60}}{D_{10}}$	$C_c = \frac{(D_{30})^2}{(D_{10})(D_{60})}$	NOTES
COARSE GRAINED SOILS (more than half of material less than 63 mm is larger than 0.075 mm)	BOULDERS	____200							
	COBBLES	_____63							
	GRAVELS (more than half of coarse fraction is larger than 2.36mm)	coarse _____20	GW	Well graded gravels and gravel-sand mixtures, little or no fines	0-5	—	>4	Between 1 and 3	(1) Identify fines by the method given for fine-grained soils.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines, uniform gravels	0-5	—	Fails to comply with above		
		medium _____6	GM	Silty gravels, gravel-sand-silt mixtures (1)	12-50	Below 'A' line or PI<4	—	—	
		fine ___2.36	GC	Clayey gravels, gravel-sand-clay mixtures (1)	12-50	Above 'A' line and PI>7	—	—	
	SANDS (more than half of coarse fraction is smaller than 2.36mm)		SW	Well graded sands and gravelly sands, little or no fines	0-5	—	>6	Between 1 and 3	(2) Borderline classifications occur when the percentage of fines (fraction smaller than 0.075mm size) is greater than 5% and less than 12%. Borderline classifications require the use of SP-SM, GW-GC.
		coarse ____0.6	SP	Poorly graded sands and gravelly sands, little or no fines	0-5	—	Fails to comply with above		
		medium ____0.2	SM	Silty sands, sand silt mixtures (1)	12-50	Below 'A' line or PI<4	—	—	
		fine 0.075	SC	Clayey sands, sand-clay mixtures (1)	12-50	Above 'A' line and PI>7	—	—	
FINE GRAINED SOILS (more than half of material less than 63 mm is smaller than 0.075 mm)	SILTS & CLAYS (Liquid Limit ≤50%)		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity					
			CL CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					
			OL	Organic silts and clays of low plasticity					
	SILTS & CLAYS (Liquid Limit >50%)		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts					
			CH	Inorganic clays of high plasticity, fat clays					
			OH	Organic silts and clays of high plasticity					
	HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils					

Use the gradation curve of material passing 63 mm for classification of fractions according to the criteria given in 'Major Divisions'



Soil Colour: Is described in the moist condition using black, white, grey, red, brown, orange, yellow, green or blue. Borderline cases can be described as a combination of two colours, with the weaker followed by the stronger. Modifiers such as pale, dark or mottled, can be used as necessary. Where colour consists of a primary colour with secondary mottling, it should be described as follows:
(Primary) mottled (Secondary). Refer to AS1726-1993, A2.4 and A3.3.

Soil Moisture Condition: Is based on the appearance and feel of soil. Refer to AS1726-1993, A2.5.

Term	Description
Dry	Cohesive soils; hard and friable or powdery, well dry of plastic limit. Granular soils; cohesionless and free-running.
Moist	Soil feels cool, darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.
Wet	Soil feels cool, darkened in colour. Cohesive soils usually weakened and free water forms on hands when handling. Granular soils tend to cohere and free water forms on hands when handling.

Consistency of Cohesive Soils: May be estimated using simple field tests, or described in terms of a strength scale. In the field, the undrained shear strength (s_u) can be assessed using a simple field tool appropriate for cohesive soils, in conjunction with the relevant calibration. Refer to AS1726-1993, Table A4.

Consistency - Essentially Cohesive Soils					
Term	**Field Guide**	**Symbol**	**SPT "N" Value**	**Undrained Shear Strength s_u (kPa)**	**Unconfined Compressive Strength q_u (kPa)**
Very soft	Oozes between fingers when squeezed in hand.	VS	0-2	<12	<25
Soft	Easily moulded with fingers.	S	2-4	12-25	25-50
Firm	Can be moulded by strong pressure of fingers.	F	4-8	25-50	50-100
Stiff	Not possible to mould with fingers.	St	8-15	50-100	100-200
Very stiff		VSt	15-30	100-200	200-400
Hard	Can be indented with difficulty by thumb nail.	H	>30	>200	>400

Note: SPT - N to q_u correlation from Terzaghi and Peck, 1967. (General guide only).

Soil Particle Sizes	
Term	**Size Range**
BOULDERS	>200mm
COBBLES	63-200mm
Coarse GRAVEL	20-63mm
Medium GRAVEL	6-20mm
Fine GRAVEL	2.36-6mm
Coarse SAND	0.6-2.36mm
Medium SAND	0.2-0.6mm
Fine SAND	0.075-0.2mm
SILT	0.002-0.075mm
CLAY	<0.002mm

Consistency of Non-Cohesive Soils: Is described in terms of the density index, as defined in AS1289.0-2000. This can be assessed using a field tool appropriate for non-cohesive soils, in conjunction with the relevant calibration. Refer to AS1726-1993, Table A5; BS5930-1999, p117.

Consistency - Essentially Non-Cohesive Soils				
Term	**Symbol**	**SPT N Value**	**Field Guide**	**Density Index (%)**
Very loose	VL	0-4	Foot imprints readily	0-15
Loose	L	4-10	Shovels Easily	15-35
Medium dense	MD	10-30	Shovelling difficult	35-65
Dense	D	30-50	Pick required	65-85
Very dense	VD	>50	Picking difficult	85-100

Standard Penetration Test (SPT): Refer to. AS 1289.6.3.1-2004. Example report formats for SPT results are shown below:

Test Report	Penetration Resistance (N)	Explanation / Comment
4, 7, 11	N=18	Full penetration; N is reported on engineering borehole log
18, 27, 32	N=59	Full penetration; N is reported on engineering borehole log
4, 18, 30/15 mm	N is not reported	30 blows causes less than 100 mm penetration (3rd interval) – test discontinued
30/80 mm	N is not reported	30 blows causes less than 100 mm penetration (1st interval) – test discontinued
rw	N<1	Rod weight only causes full penetration
hw	N<1	Hammer and rod weight only causes full penetration
hb	N is not reported	Hammer bouncing for 5 consecutive blows with no measurable penetration – test discontinued

Rock Descriptions

Refer to AS1726-1993 (Appendix A3.3) for the description and classification of rock material composition, including:

(a) Rock type (Table A6, (a) and (b))
(b) Grain size
(c) Texture and fabric
(d) Colour (describe as per soil)

The condition of a rock material refers to its weathering characteristics, strength characteristics and rock mass properties. Refer to AS1726-1993 (Appendix A3 Tables A8, A9 and A10).

Weathering Condition (Degree of Weathering):

The degree of weathering is a continuum from fresh rock to soil. Boundaries between weathering grades may be abrupt or gradational.

Rock Material Weathering Classification		
Weathering Grade	**Symbol**	**Definition**
Residual Soil	RS	Soil-like material developed on extremely weathered rock; the mass structure and substance fabric are no longer evident; there is a large change in volume but the material has not been significantly transported.
Extremely Weathered Rock	XW	Rock is weathered to such an extent that it has 'soil' properties, i.e. it either disintegrates or can be remoulded in water, but substance fabric and rock structure still recognisable.
Highly Weathered Rock	HW	Strong discolouration is evident throughout the rock mass, often with significant change in the constituent minerals. The intact rock strength is generally much weaker than that of the fresh rock.
Moderately Weathered Rock	MW	Modest discolouration is evident throughout the rock fabric, often with some change in the constituent minerals. The intact rock strength is usually noticeably weaker than that of the fresh rock.
Slightly Weathered Rock	SW	Rock is slightly discoloured but shows little or no change of strength from fresh rock.
Fresh Rock	FR	Rock shows no sign of decomposition or staining.

Notes:
1. Minor variations within broader weathering grade zones will be noted on the engineering borehole logs.
2. Extremely weathered rock is described in terms of soil engineering properties.
3. Weathering may be pervasive throughout the rock mass, or may penetrate inwards from discontinuities to some extent.
4. The 'Distinctly Weathered (DW)' class as defined in AS1726-1993 is divided to incorporate HW and MW in the above table. The symbol DW should not be used.

Strength Condition (Intact Rock Strength):

Strength of Rock Material (Based on Point Load Strength Index, corrected to 50mm diameter – $I_{s(50)}$. Field guide used if no tests available. Refer to AS 4133.4.1-2007.			
Term	**Symbol**	**Point Load Index (MPa)** $I_{s(50)}$	**Field Guide to Strength**
Extremely Low	EL	≤0.03	Easily remoulded by hand to a material with soil properties.
Very Low	VL	>0.03 ≤0.1	Material crumbles under firm blows with sharp end of pick; can be peeled with knife; too hard to cut a triaxial sample by hand. Pieces up to 3cm thick can be broken by finger pressure.
Low	L	>0.1 ≤0.3	Easily scored with a knife; indentations 1mm to 3mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150mm long by 50mm diameter may be broken by hand. Sharp edges of core may be friable and break during handling.
Medium	M	>0.3 ≤1.0	Readily scored with a knife; a piece of core 150mm long by 50mm diameter can be broken by hand with difficulty.
High	H	>1 ≤3	A piece of core 150mm long by 50mm diameter cannot be broken by hand but can be broken by a pick with a single firm blow; rock rings under hammer.
Very High	VH	>3 ≤10	Hand specimen breaks with pick after more than one blow; rock rings under hammer.
Extremely High	EH	>10	Specimen requires many blows with geological pick to break through intact material; rock rings under hammer.

Notes:
1. These terms refer to the strength of the rock material and not to the strength of the rock mass which may be considerably weaker due to the effect of rock defects.
2. Anisotropy of rock material samples may affect the field assessment of strength.

Discontinuity Description: Refer to AS1726-1993, Table A10.

Anisotropic Fabric	
BED	Bedding
FOL	Foliation
LIN	Mineral lineation
Defect Type	
LP	Lamination Parting
BP	Bedding Parting
FP	Cleavage / Foliation Parting
J, Js	Joint, Joints
SZ	Sheared Zone
CZ	Crushed Zone
BZ	Broken Zone
HFZ	Highly Fractured Zone
AZ	Alteration Zone
VN	Vein

Roughness (e.g. Planar, Smooth is abbreviated Pl / Sm)		**Class**
Stepped (Stp)	Rough or irregular (Ro)	I
	Smooth (Sm)	II
	Slickensided (Sl)	III
Undulating (Un)	Rough (Ro)	IV
	Smooth (Sm)	V
	Slickensided (Sl)	VI
Planar (Pl)	Rough (Ro)	VII
	Smooth (Sm)	VIII
	Slickensided (Sl)	IX

Aperture		**Infilling**		
Closed	CD	No visible coating or infill	Clean	Cn
Open	OP	Surfaces discoloured by mineral/s	Stain	St
Filled	FL	Visible mineral or soil infill <1mm	Veneer	Vr
Tight	TI	Visible mineral or soil infill >1mm	Coating	Ct

Other	
Cly	Clay
Fe	Iron
Co	Coal
Carb	Carbonaceous
Sinf	Soil Infill Zone
Qz	Quartz
CA	Calcite
Chl	Chlorite
Py	Pyrite
Int	Intersecting
Inc	Incipient
DI	Drilling Induced
H	Horizontal
V	Vertical

Note: Describe 'Zones' and 'Coatings' in terms of composition and thickness (mm).

Discontinuity Spacing: On the geotechnical borehole log, a graphical representation of defect spacing vs depth is shown. This representation takes into account all the natural rock defects occurring within a given depth interval, excluding breaks induced by the drilling / handling of core. Refer to AS1726-1993, BS5930-1999.

Defect Spacing			**Bedding Thickness (Sedimentary Rock Stratification)**	
Spacing/Width (mm)	Descriptor	Symbol	Descriptor	Spacing/Width (mm)
			Thinly Laminated	< 6
<20	Extremely Close	EC	Thickly Laminated	6 – 20
20 – 60	Very Close	VC	Very Thinly Bedded	20 – 60
60 – 200	Close	C	Thinly Bedded	60 – 200
200 – 600	Medium	M	Medium Bedded	200 – 600
600 – 2000	Wide	W	Thickly Bedded	600 – 2000
2000 – 6000	Very Wide	VW	Very Thickly Bedded	> 2000
>6000	Extremely Wide	EW		

Defect Spacing in 3D	
Term	**Description**
Blocky	Equidimensional
Tabular	Thickness much less than length or width
Columnar	Height much greater than cross section

Defect Persistence
(areal extent)
Trace length of defect given in metres

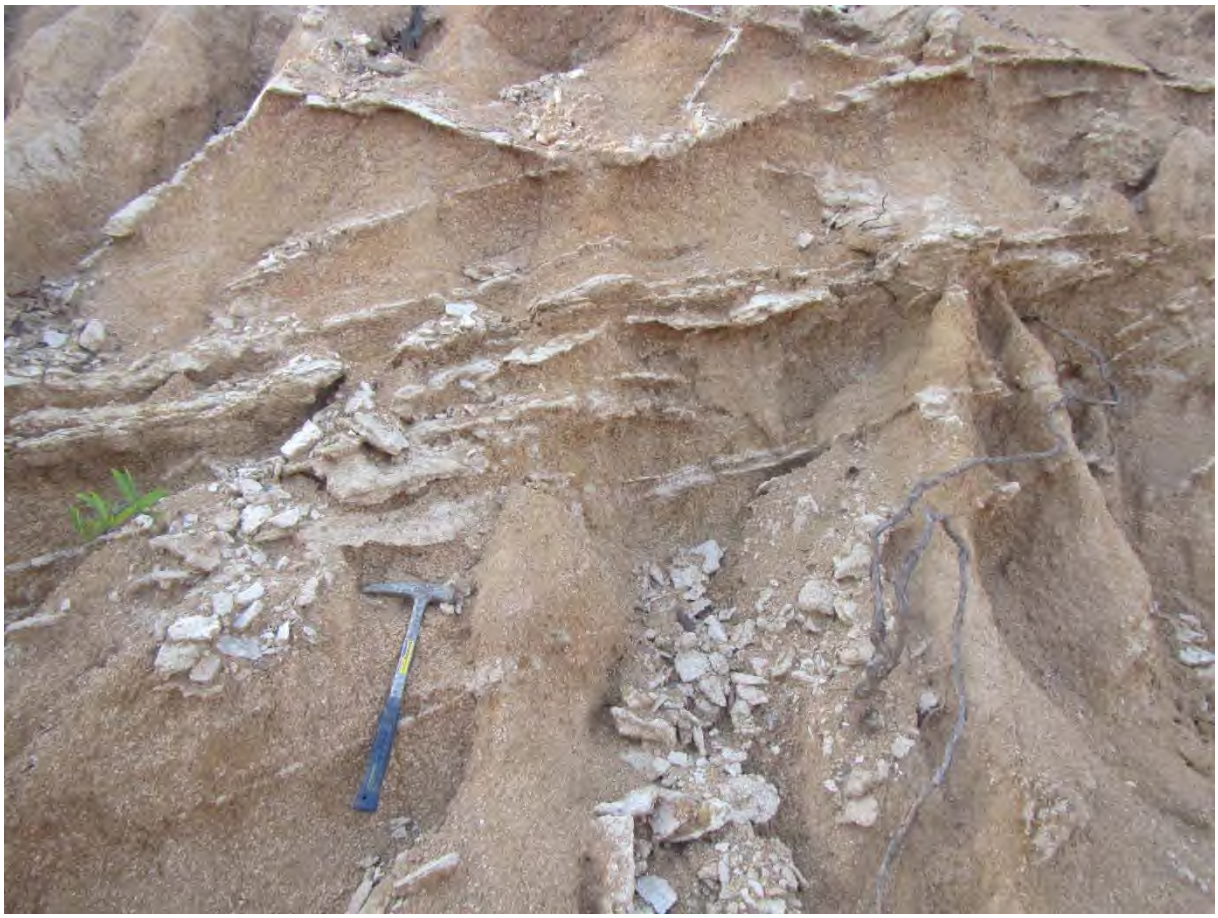
Symbols: The list below provides an explanation of terms and symbols used on the geotechnical borehole, test pit and penetrometer logs.

Test Results			
PI	Plasticity Index	c'	Effective Cohesion
LL	Liquid Limit	c_u	Undrained Cohesion
LI	Liquidity Index	c'_R	Residual Cohesion
DD	Dry Density	ϕ'	Effective Angle of Internal Friction
WD	Wet Density	ϕ_u	Undrained Angle of Internal Friction
LS	Linear Shrinkage	ϕ'_R	Residual Angle of Internal Friction
MC	Moisture Content	c_v	Coefficient of Consolidation
OC	Organic Content	m_v	Coefficient of Volume Compressibility
WPI	Weighted Plasticity Index	$c_{\alpha\varepsilon}$	Coefficient of Secondary Compression
WLS	Weighted Linear Shrinkage	e	Voids Ratio
DoS	Degree of Saturation	ϕ'_{cv}	Constant Volume Friction Angle
APD	Apparent Particle Density	q_t / q_c	Piezocone Tip Resistance (corrected / uncorrected)
s_u	Undrained Shear Strength	q_d	PANDA Cone Resistance
q_u	Unconfined Compressive Strength	$I_{s(50)}$	Point Load Strength Index
R	Total Core Recovery	*RQD*	Rock Quality Designation

Test Symbols	
DCP	Dynamic Cone Penetrometer
SPT	Standard Penetration Test
CPTu	Cone Penetrometer (Piezocone) Test
PANDA	Variable Energy DCP
PP	Pocket Penetrometer Test
U50	Undisturbed Sample 50 mm (nominal diameter)
U100	Undisturbed Sample 100mm (nominal diameter)
UCS	Uniaxial Compressive Strength
Pm	Pressuremeter
FSV	Field Shear Vane
DST	Direct Shear Test
PR	Penetration Rate
A	Point Load Test (axial)
D	Point Load Test (diametral)
L	Point Load Test (irregular lump)

28/11/13 Groundwater level on the date shown	Water Inflow	Water Outflow

APPENDIX B
Site Photographs



Photograph 1: Cut 1 (RHS) - Shallow dipping felsic veins in XW Granite

Photograph 2: Cut 1 (RHS) - Rilling erosion in XW granite

Photograph 3: Cut 1 (LHS) - MW Felsic dyke

Photograph 4: Cut 2 (LHS) - HW Basalt

Photograph 5: Cut 3 (LHS) - MW Siltstone

Photograph 6: Cut 3 (LHS) - MW Siltstone

Photograph 7: Cut 4 (LHS) - Residual soil batter

Photograph 8: Cut 4 (LHS) - Residual soil

APPENDIX C

Site Plan


s 47C

APPENDIX D

Geological Map of Childers Area

Appendix D: Geological Map of Childers area (Maps Online Maps – DNRM)

Legend:

Map Symbol	Geological Unit	Age	Lithology
Tm	Oligocene-Miocene Sediments	Oligocene to Miocene (Tertiary)	Poorly lithified sandstone, conglomerate and mudstone.
Rg	Triassic Intrusives	Triassic	Granite, granodiorite, tonalite, diorite and gabbro.
Rjd	Duckinwilla Group	Late Triassic – Early Jurassic	Lithofeldspathic labile and sublabile to quartzose sandstone, siltstone, shale, coal, ferruginous oolite marker.
Jkr	Grahams Creek Formation	Late Jurassic – Early Cretaceous	Andesitic to rhyolitic lavas and volcaniclastics, volcaniclastic sandstone; some basalt near base.
Km	Maryborough Formation	Early Cretaceous	Mudstone, siltstone, shale, labile sandstone, glauconitic sandstone, silicified siltstone to mudstone

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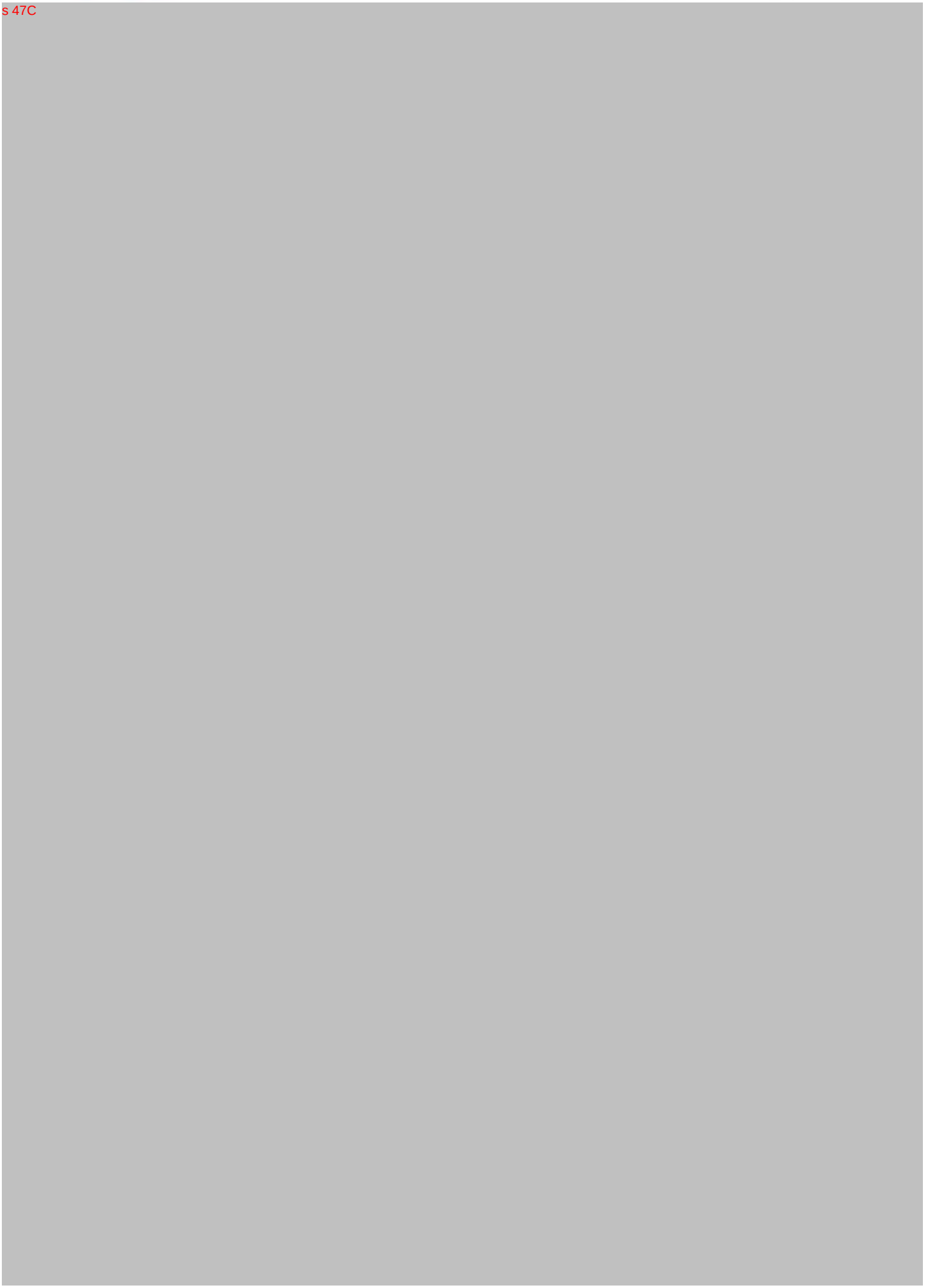

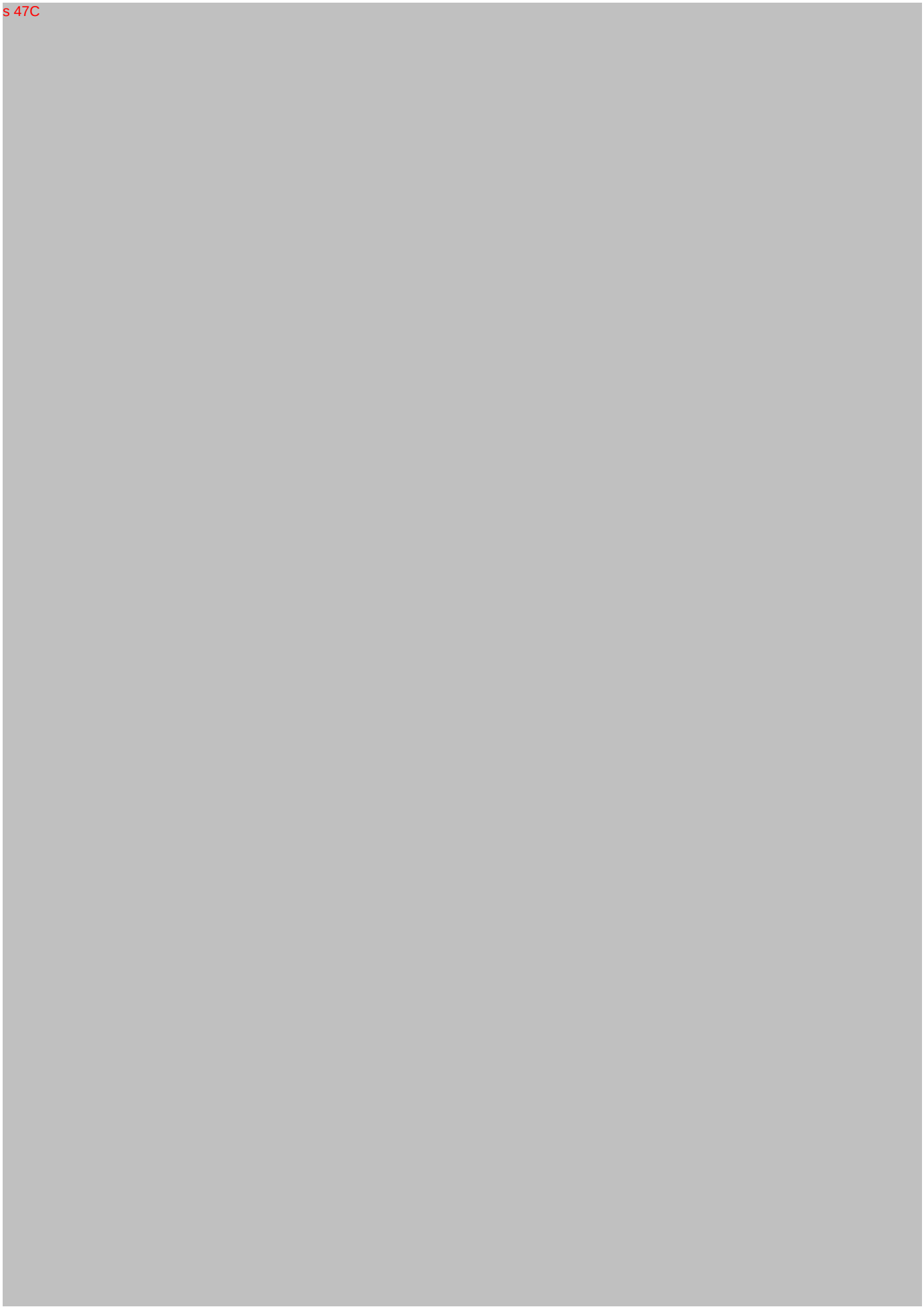
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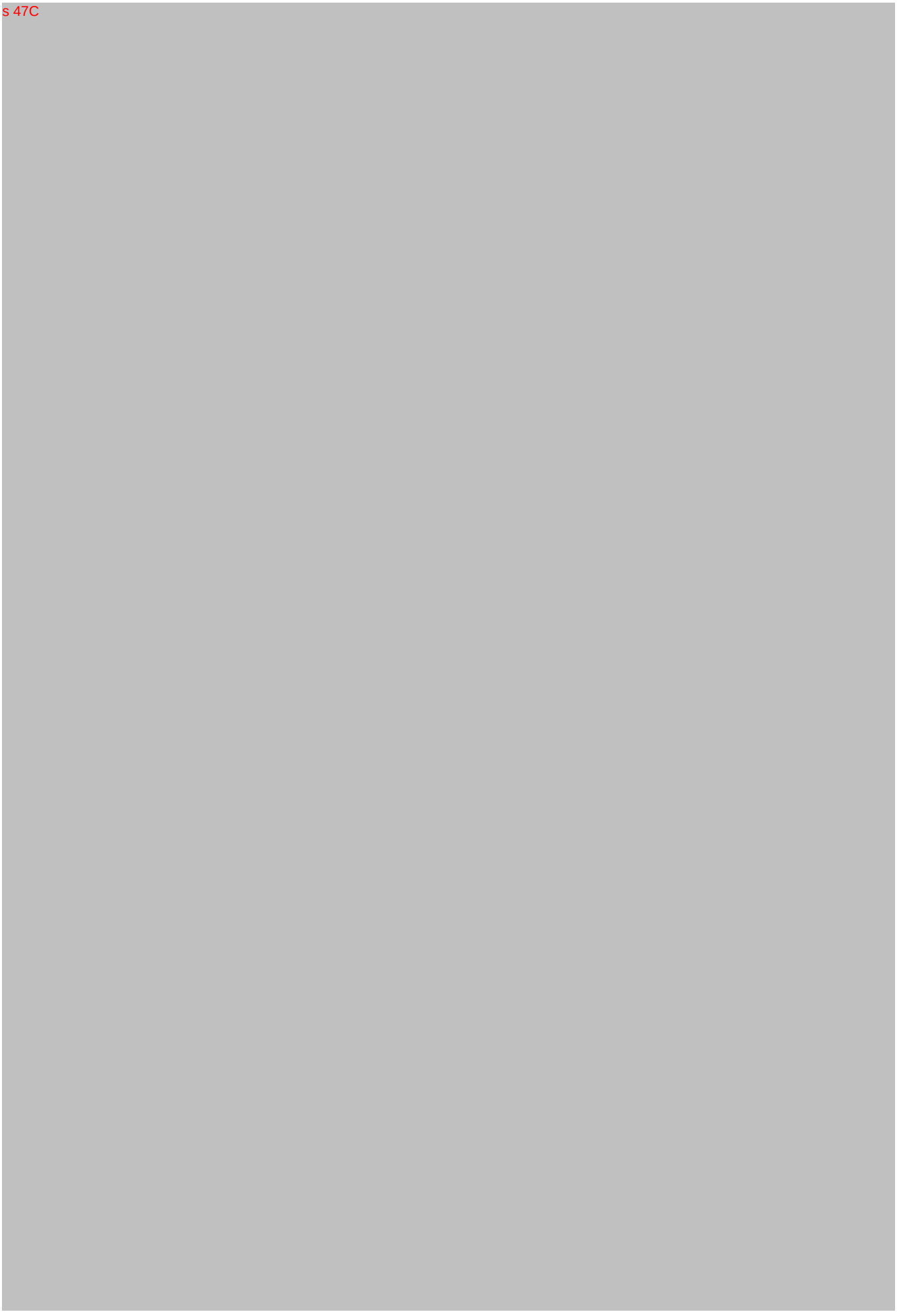
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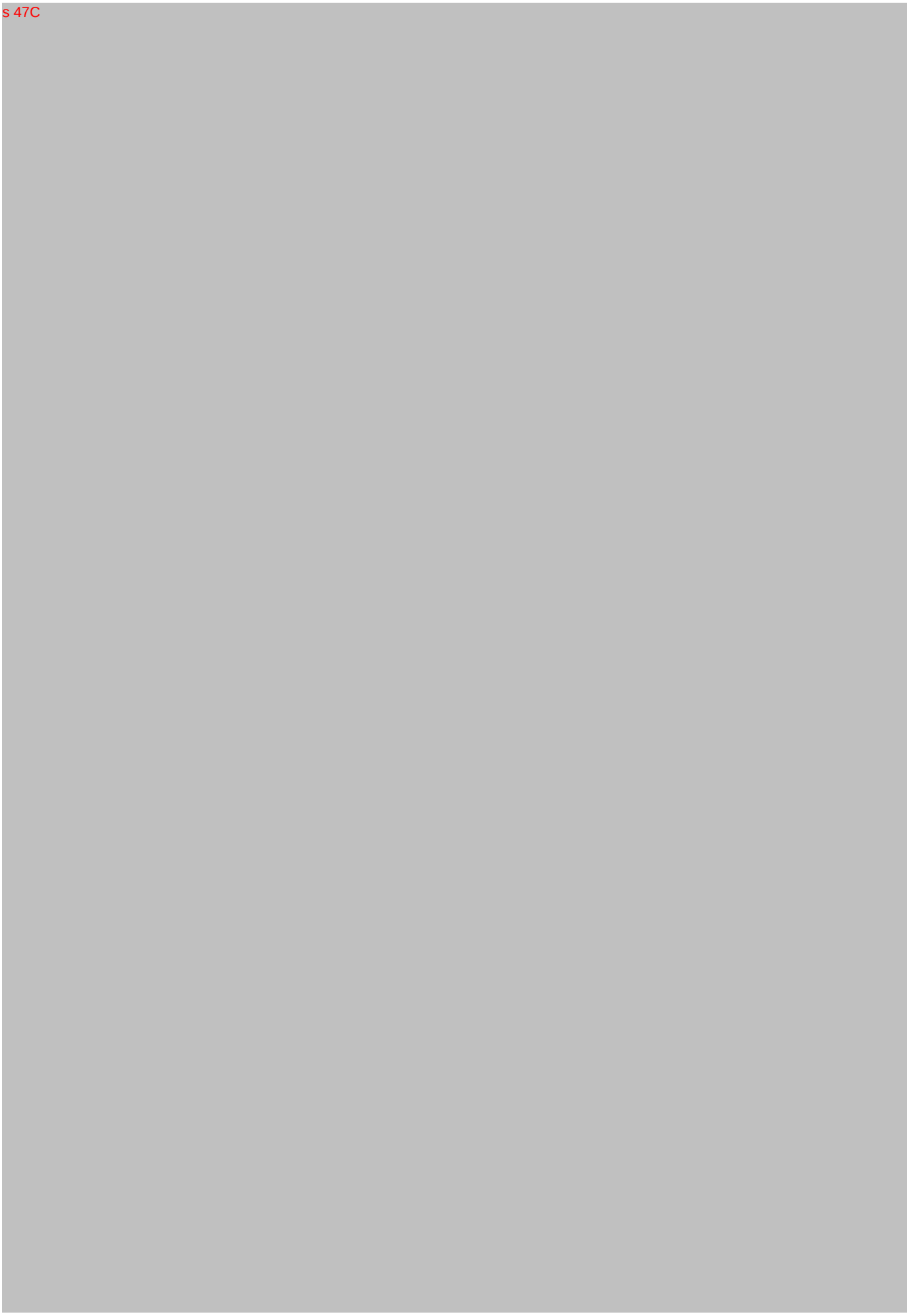

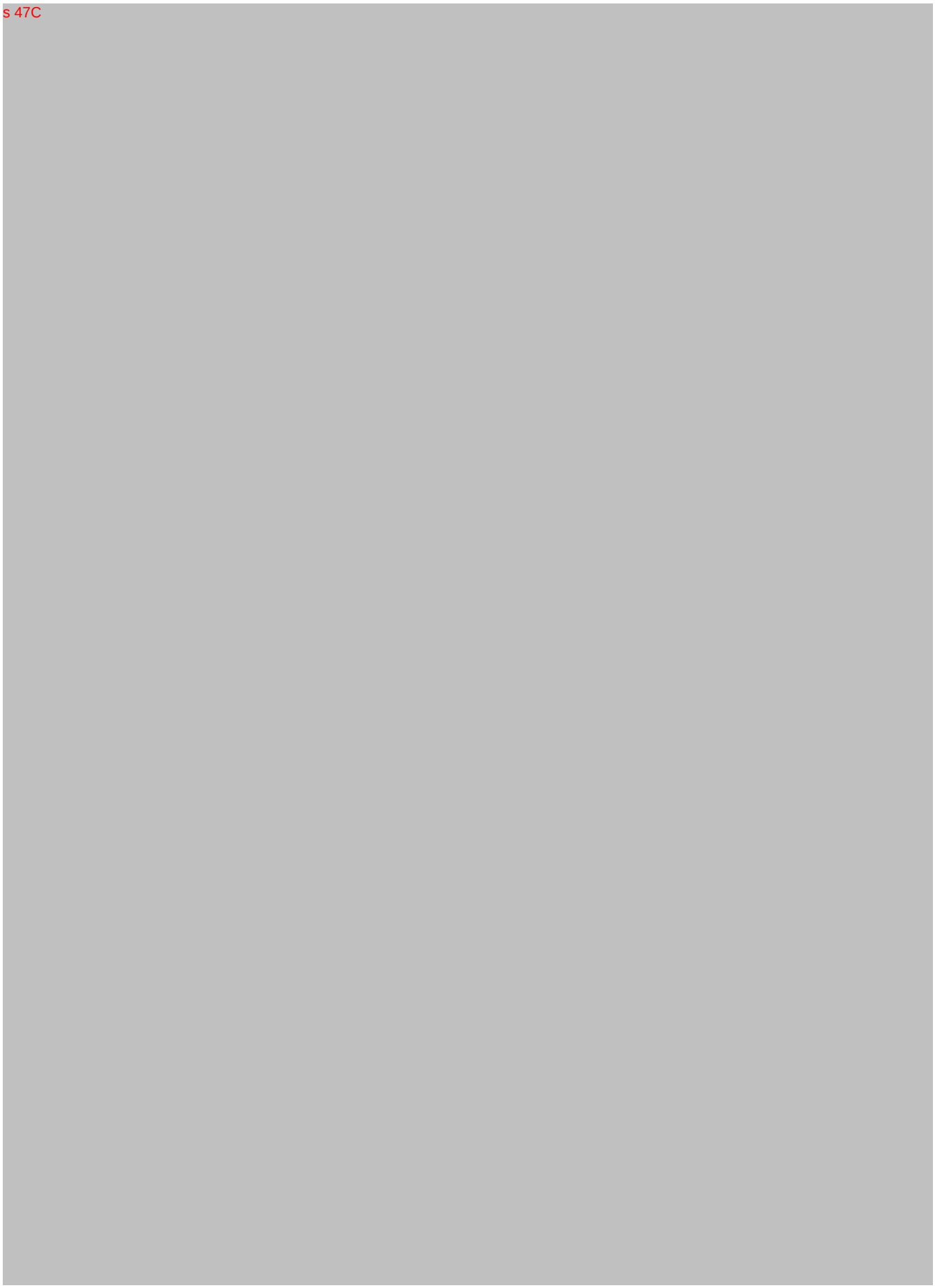
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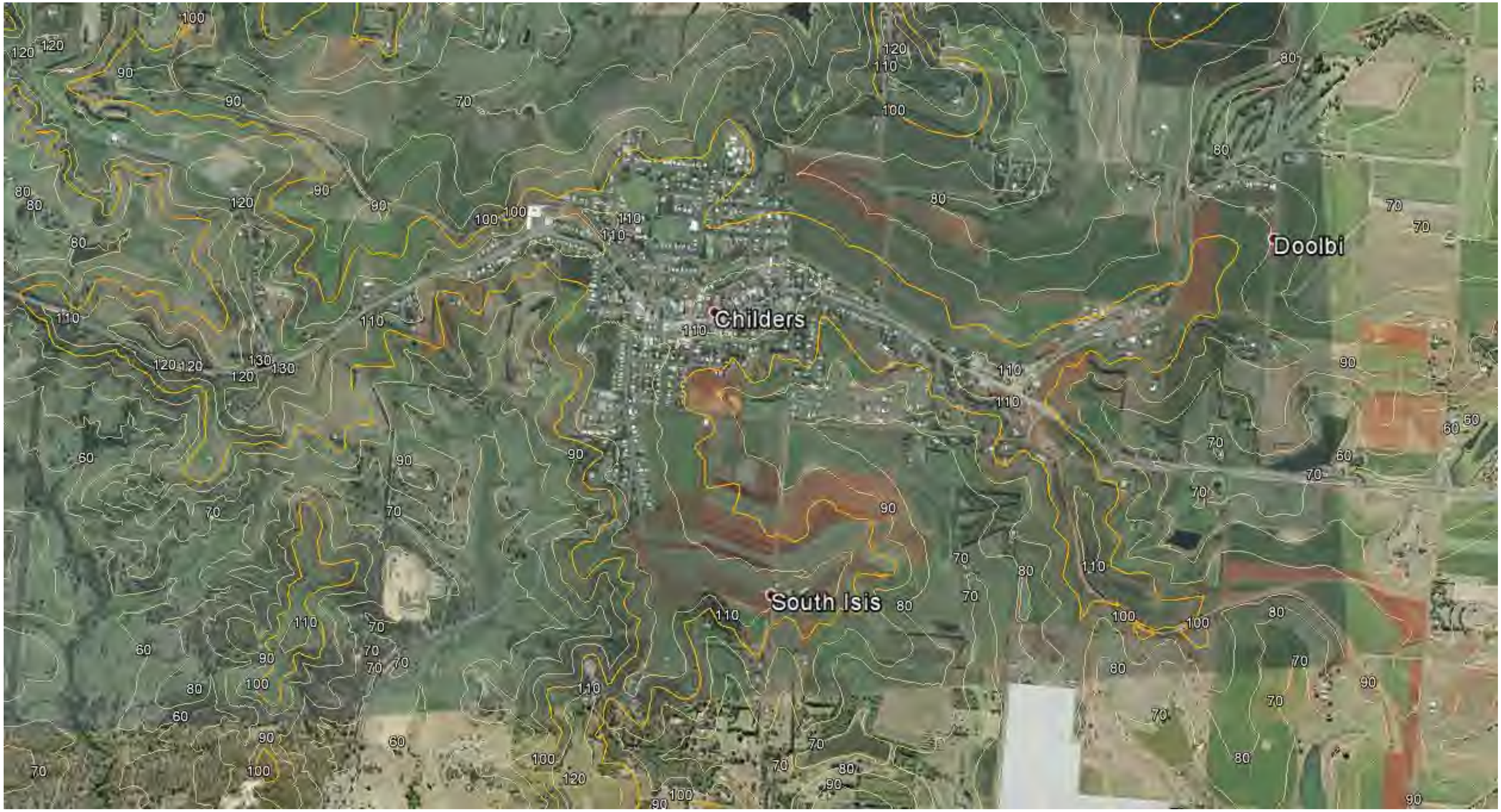
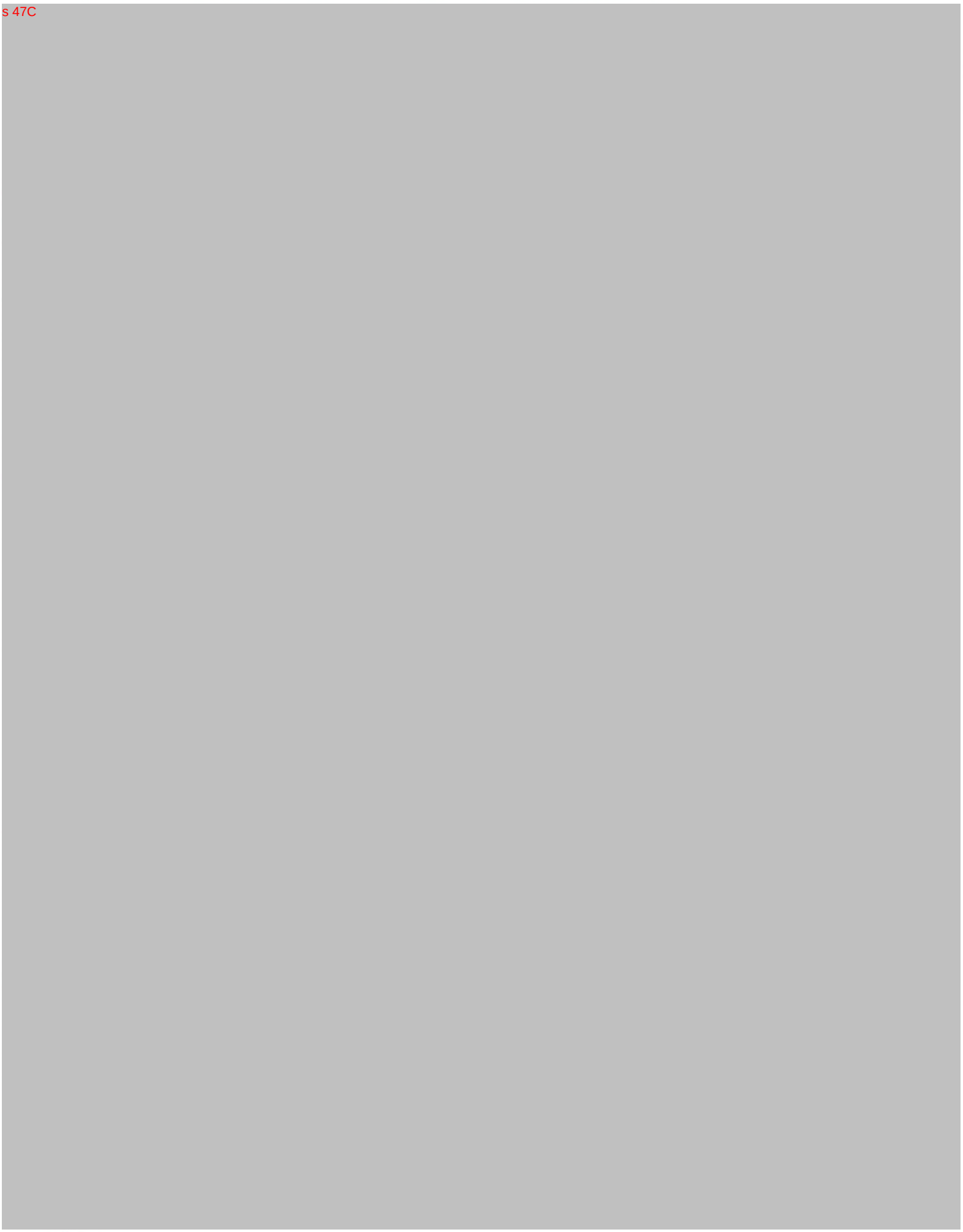
Appendix A – Scope and Limitations of Geotechnical Assessments

Appendix B – Figures and Reference Drawings


Childers
Doolbi
South Isis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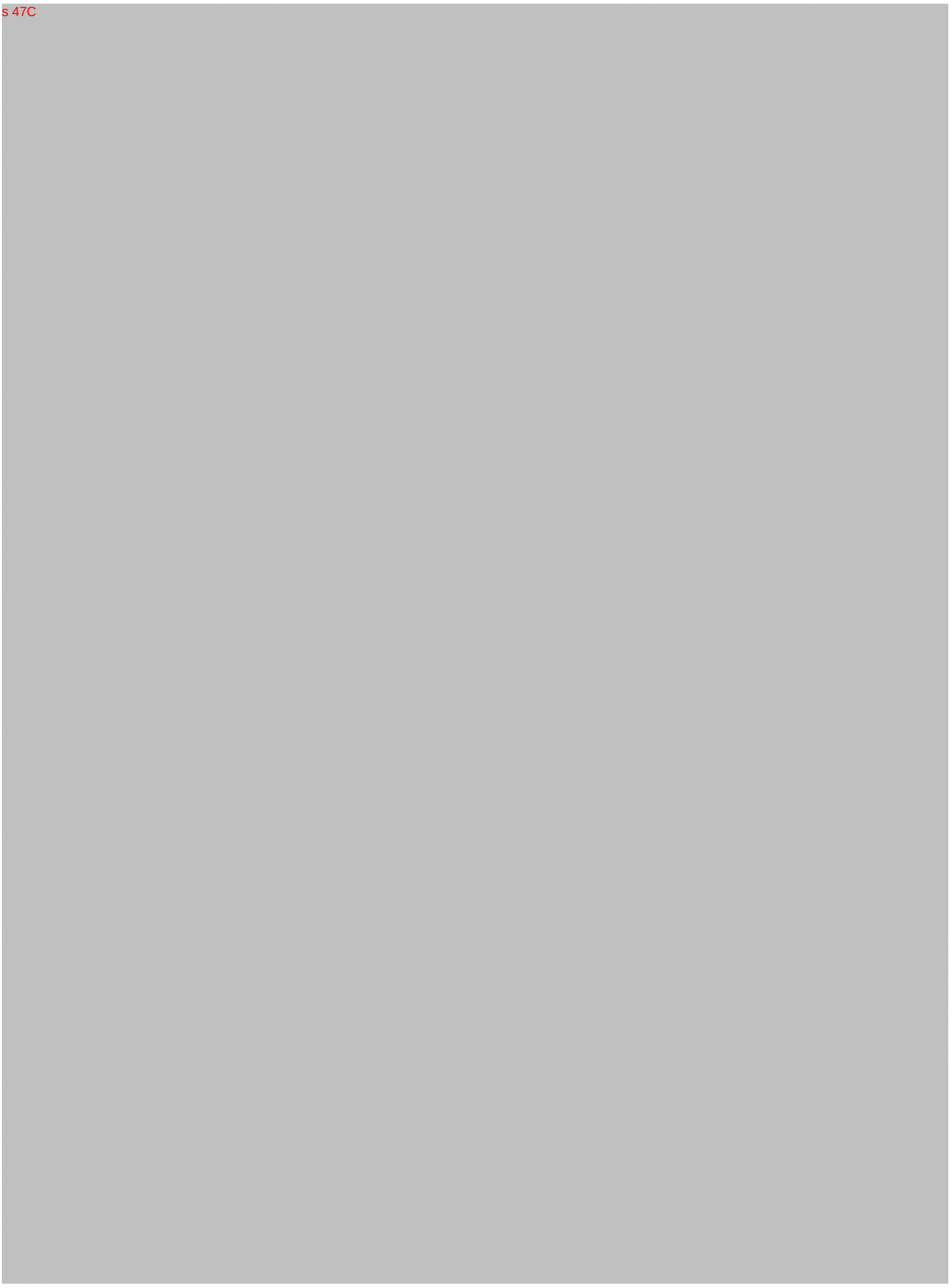
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Department of Transport and Main Roads

Job No. 211/10C/8735

Bruce Highway (Maryborough – Gin Gin)
Childers Bypass
Planning Report – Two Lane Heavy Vehicle Bypass

Annexure K
Traffic Data

Traffic Volumes – Childers Region

(1 page)

s 47C

Origin – Destination Movement Summary – Childers Region

(1 page)

Cordalba

Claytons Rd

[234 (5–4) 39 HV]
[33 (5–3) 7 HV]
[209 (5–1) 38 HV]
[27 (5–7) 8 HV]
[20 (5–2) 3 HV]

5

Knockroe Rd

[6 (6–7) 2 HV]
[14 (6–1) 2 HV]
[3 (6–4) 0 HV]

6

[28 (6–5) 1 HV]

Henkes Rd

Stockyard Rd

Coach Rd

[4 (7–6) 0 HV]
[32 (7–4) 9 HV]
[97 (7–5) 16 HV]
[14 (7–2) 1 HV]
[410 (7–1) 48 HV]

7

Mullers Rd

Isis Hwy 19A (Bundaberg–Childers)

North Isis Rd

Apple Tree Creek

Goodwood Rd (171)

[5 (4–7) 1 HV]
[1 (4–6) 0 HV]

Bruce Hwy (10C)

4

[147 (4–5) 67 HV]
[543 (4–1) 167 HV]
[8 (4–2) 4 HV]
[10 (4–3) 4 HV]

North–South Rd

Childers

Conions Rd

[182 (1–7) 34 HV]
[678 (1–5) 128 HV]
[17 (1–6) 3 HV]

1

[26 (1–2) 4 HV]
[455 (1–4) 93 HV]
[2 (1–3) 0 HV]

Bruce Hwy (10C)

Gelsominos Rd

North–South Rd

[135 (3–5) 17 HV]

3

[16 (3–4) 1 HV]

Isis Hwy 19B (Childers–Biggenden)

[6 (2–6) 0 HV]
[6 (2–1) 0 HV]

2

[1 (2–3) 0 HV]

[38 (2–5) 0 HV]

O–D MOVEMENTS

24hr Combined Vehicle Directional Movements [Volume (direction) HV]
Childers Origin–Destination Study
(Capture Date 12/03/2014)

Site	Road	Description
1	Bruce Highway	South of Gelsominos Road
2	Isis Highway (Childers – Biggenden)	East of North–South Road
3	North–South Road	North of Isis Hwy
4	Bruce Highway	West of North–South Road
5	Isis Highway (Bundaberg – Childers)	North of Claytons Road
6	North Isis Road	North of Henkes Road
7	Goodwood Road	East of Coach/Mullers Road

Annexure L exempt in full - s 47C

s 47C

Annexure M exempt in full - s 47C

s 47C