



# Berry Bypass Urban Design Strategy

Community Workshop –  
Berry Bridge and Northern Interchange Precinct

28 March 2012

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- Philosophy
- Vantage Points
- Landscape Approach – Cross Sections





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## Berry Bridge + Northern Interchange Plan





## Berry Bridge - Design Philosophy

- Appropriate to its place – a picturesque rural setting.
- In scale with the township, landforms and existing landscape.
- Not draw attention to itself – a grand statement is inappropriate.
- The emphasis should be the dramatic backdrop of escarpment, the attractive pastoral valley/floodplain and creek-line vegetation.
- No tack-on decoration.
- Should have clean lines and neat detailing –not be fussy or cluttered.

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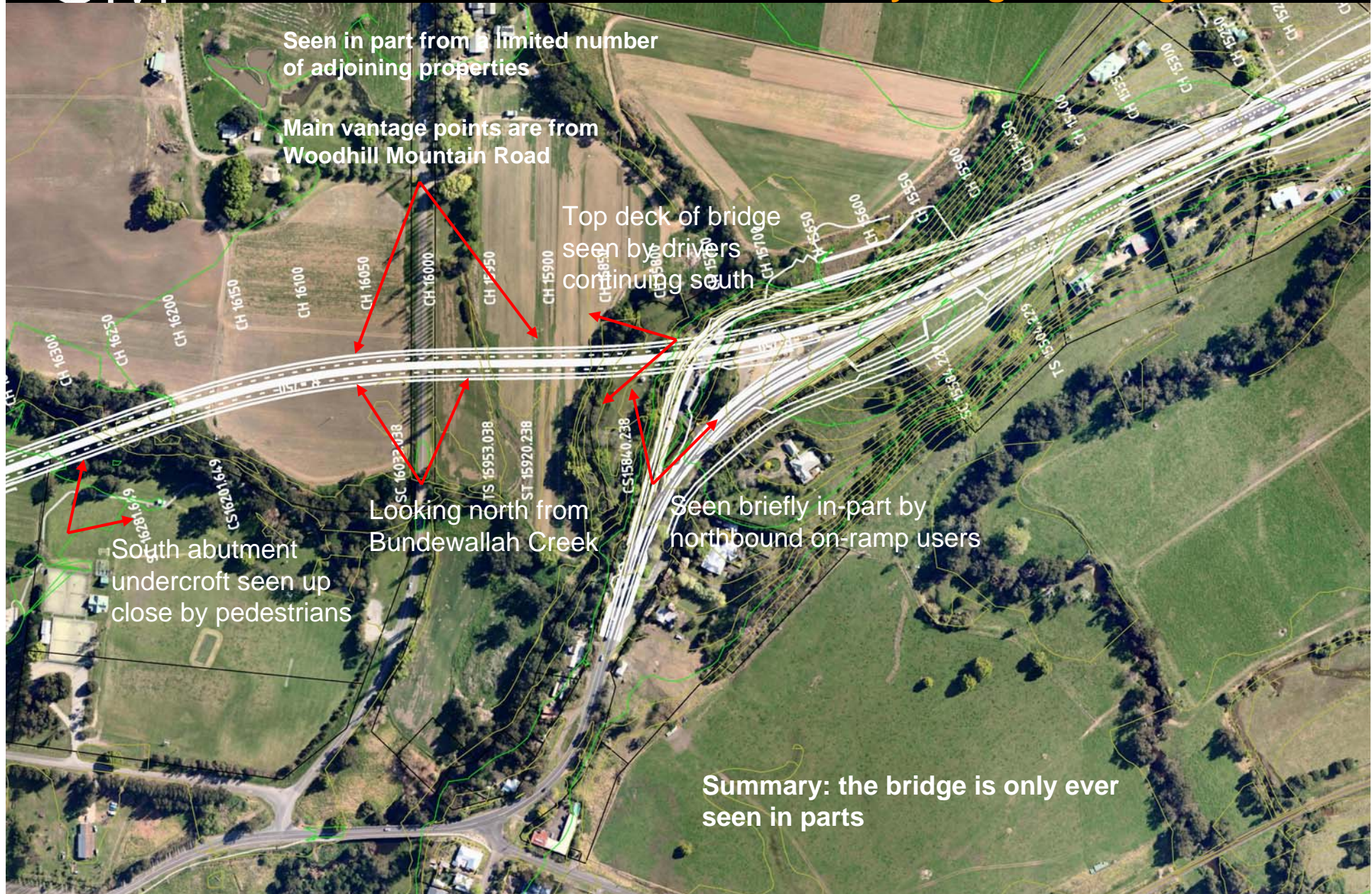
- The architectural expression should be one of simplicity and straightforward structural expression
- Respond to creek and floodplain environment.
- Viaduct-like in character – rhythm of piers/columns – not a forest.
- Columns/piers - consider how they pick up the light/shadow.
- Should age and weather well - minimise maintenance/design for self cleaning surfaces, design that deters graffiti/vagrancy.
- Get the details right: surfaces with texture, expressing the forms with light and shade, reinforce linear expression.



## **Berry Bridge – Cultural/Heritage Response**

- Alignment relocated further away from township to respect heritage.
- Screened from township by existing vegetation along creekline.
- Relocate the Alexander/David Berry Memorial.
- Mark the turn off into Berry township with appropriate signage.
- Draw inspiration for finishes palette from locally available stone and timber.
- Incorporate endemic landscape themes and cultural plantings.









## **Berry Bypass Project – A ‘Family’ of Coordinated Project Elements + Finishes**

Coordination of all project elements including:

- Interchange, Bridges & Throw Screens
- Cut and Fill Batters, Retaining Walls, Noise Walls/Mounds
- Lighting, Township Placemaking Signage
- Corridor Endemic/Cultural Landscape (e.g. poplars)

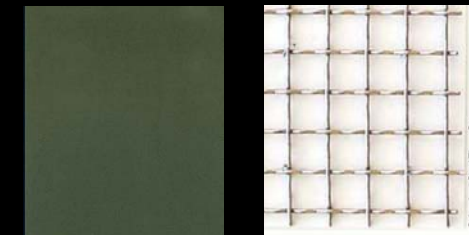


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## **Materials, Colours + Finishes Strategy**

- A low key approach.
- Complementing the natural environment.
- 'Natural' finishes preferred rather than applied.
- Utilising locally sourced stone and timber.
- Selecting finishes that weather and age well.
- Detailing that minimises staining and is self cleaning.

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## Berry Bridge – Technical Criteria

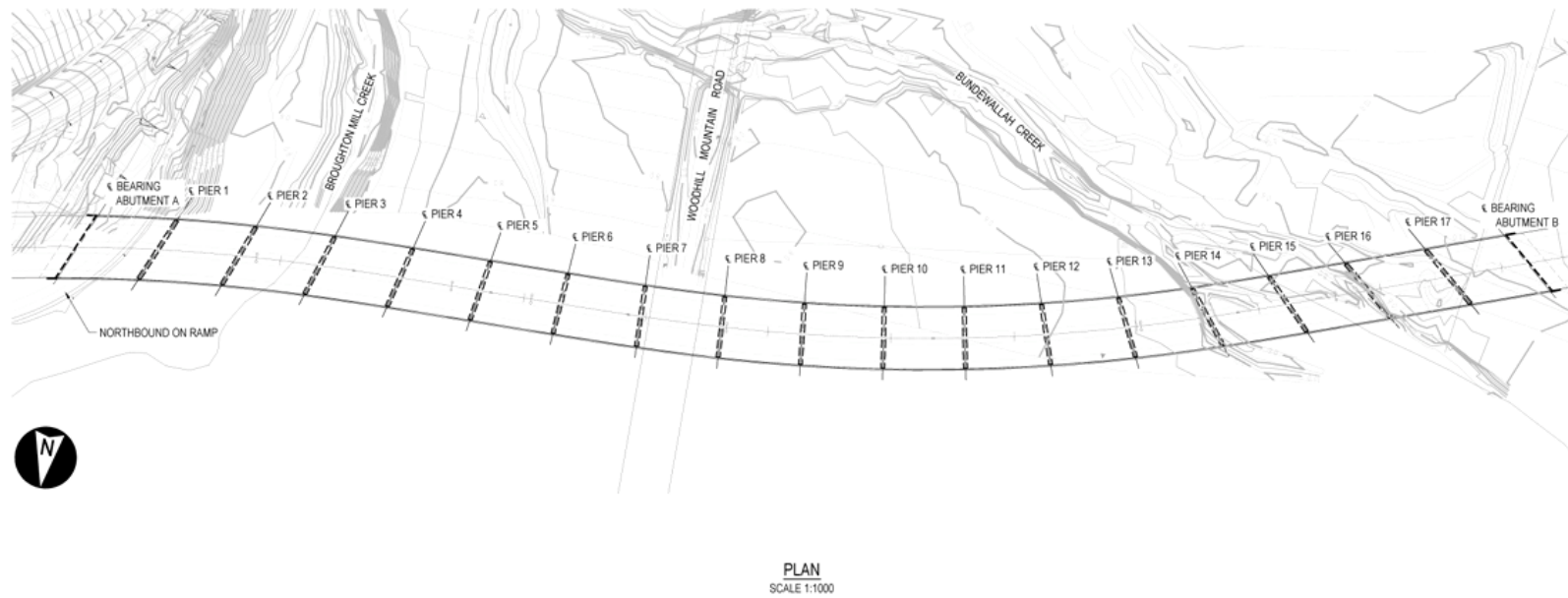
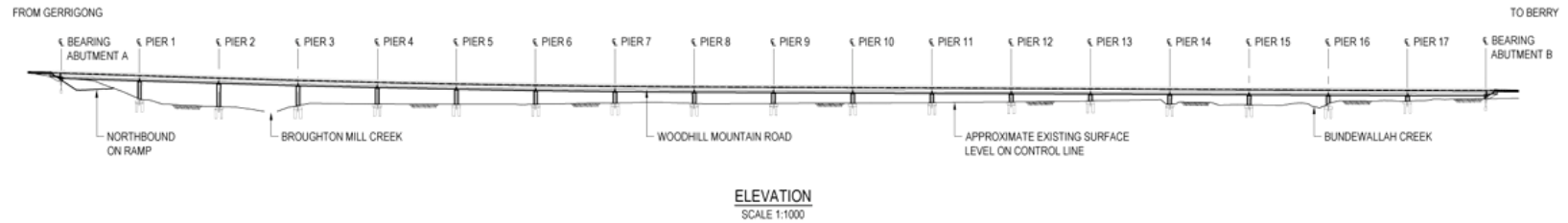
- 550-600m long and 26.5m wide.
- Has an 'S' shaped double curvature in plan – serpentine in nature.
- Results in super-elevation one way then the other.
- Varying horizontal alignment – coming off the ridge high (at north abutment) and then sweeps down quickly to become very low (at south abutment/Connelly's Creek).
- Bridge clearance varies between high of 11.7m and low of 2.6m.
- Super 'T' beam structure.
- Most efficient structure with least columns.
- 33m spans, 1.5m deep beam.

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Aerial view from northeast towards Berry



## Berry Bridge - Overall Plan + Side Elevation



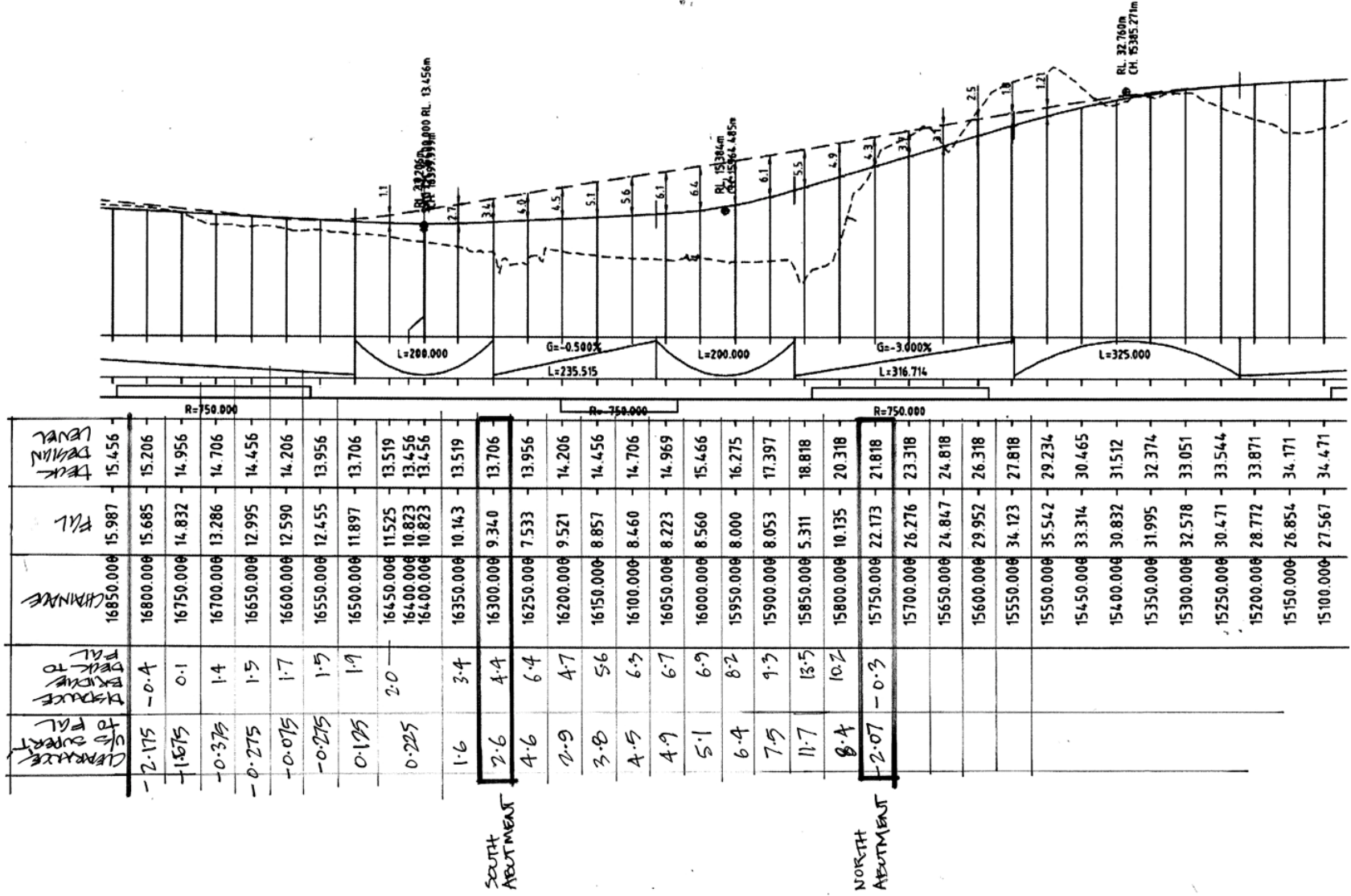


## Berry Bridge – Clearances

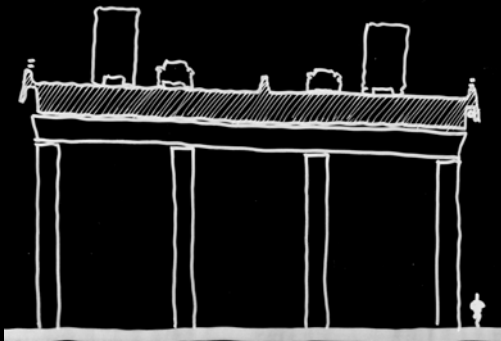
Maintain 3m clearance wherever possible (u/s bridge Super 'T's to ground level) to:

- Deter graffiti
- Deter vagrancy
- Safe passage of pedestrians
- Maximise light and rain penetration to undercroft
- Properly ventilate

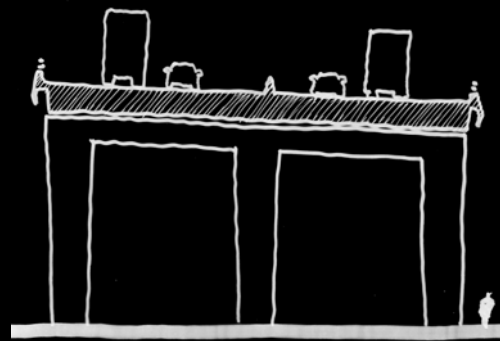
## Current Status: VERTICAL ALIGNMENT



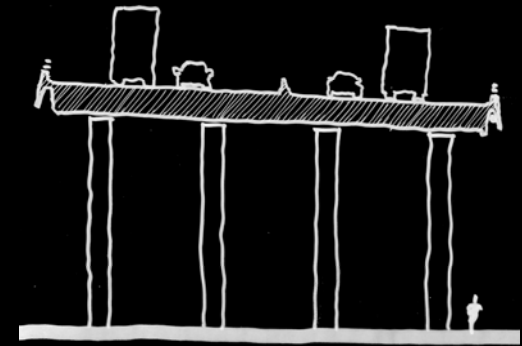
## Berry Bridge – Generic Bridge Pier Study



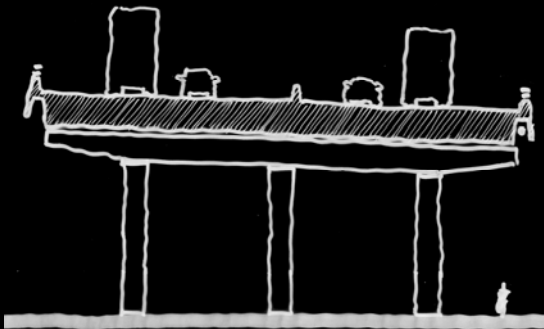
Circular columns -  
integrated headstock.



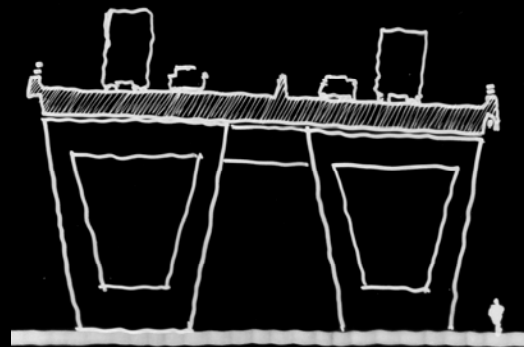
Portal Frame –  
integrated headstock.



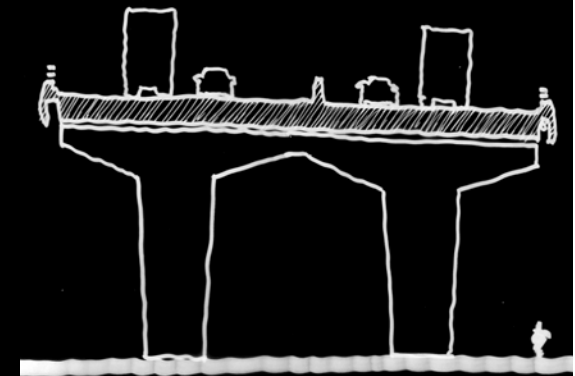
Circular columns –  
recessed headstock.



Circular columns -  
expressed headstock



Double 'V' shaped piers.



Double 'T' shaped piers.

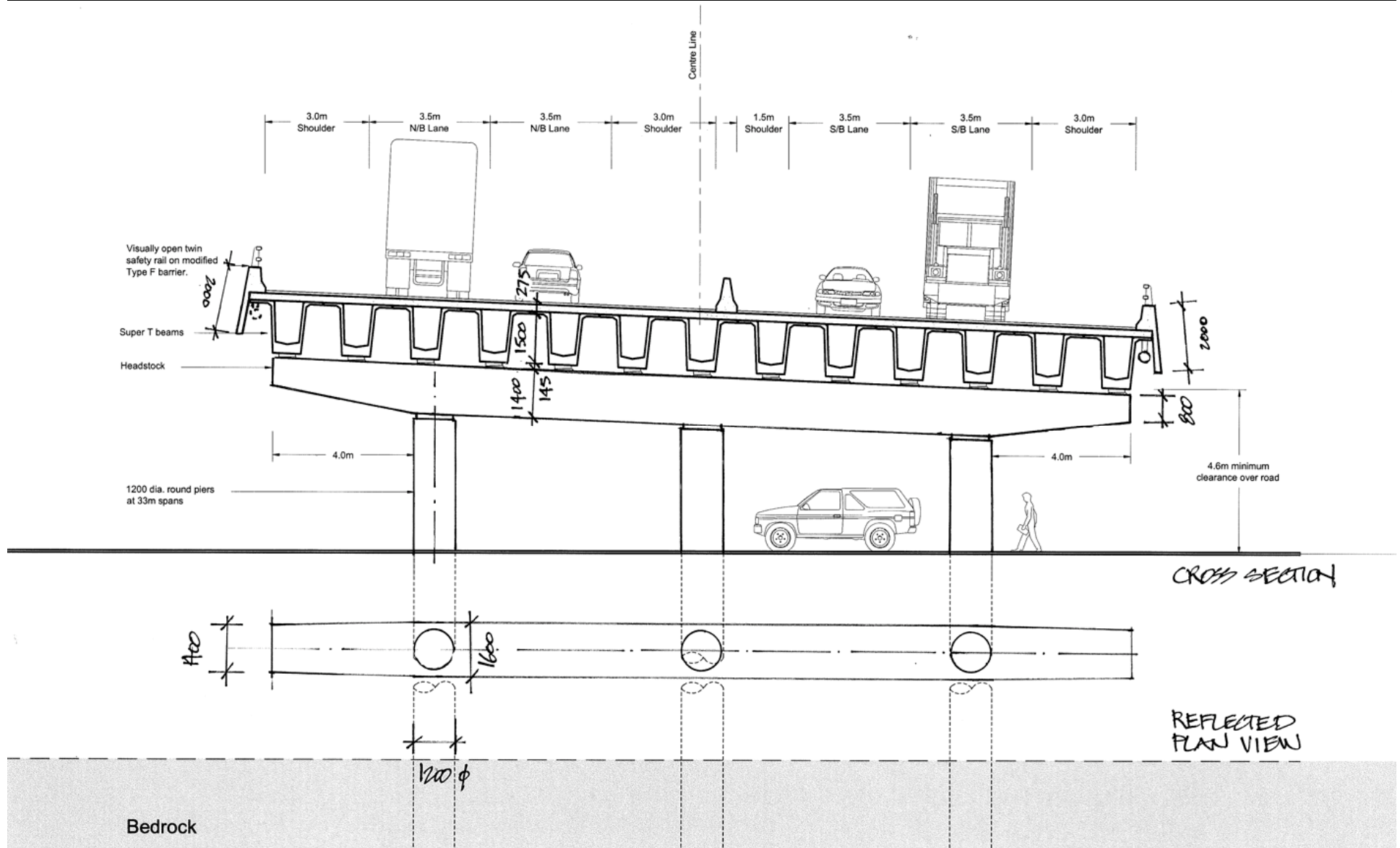


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**Example of recessed crossbeam  
Sydney Airport Flyover**



## Berry Bridge – Pier and Parapet Options Original Pier Option (Refined)



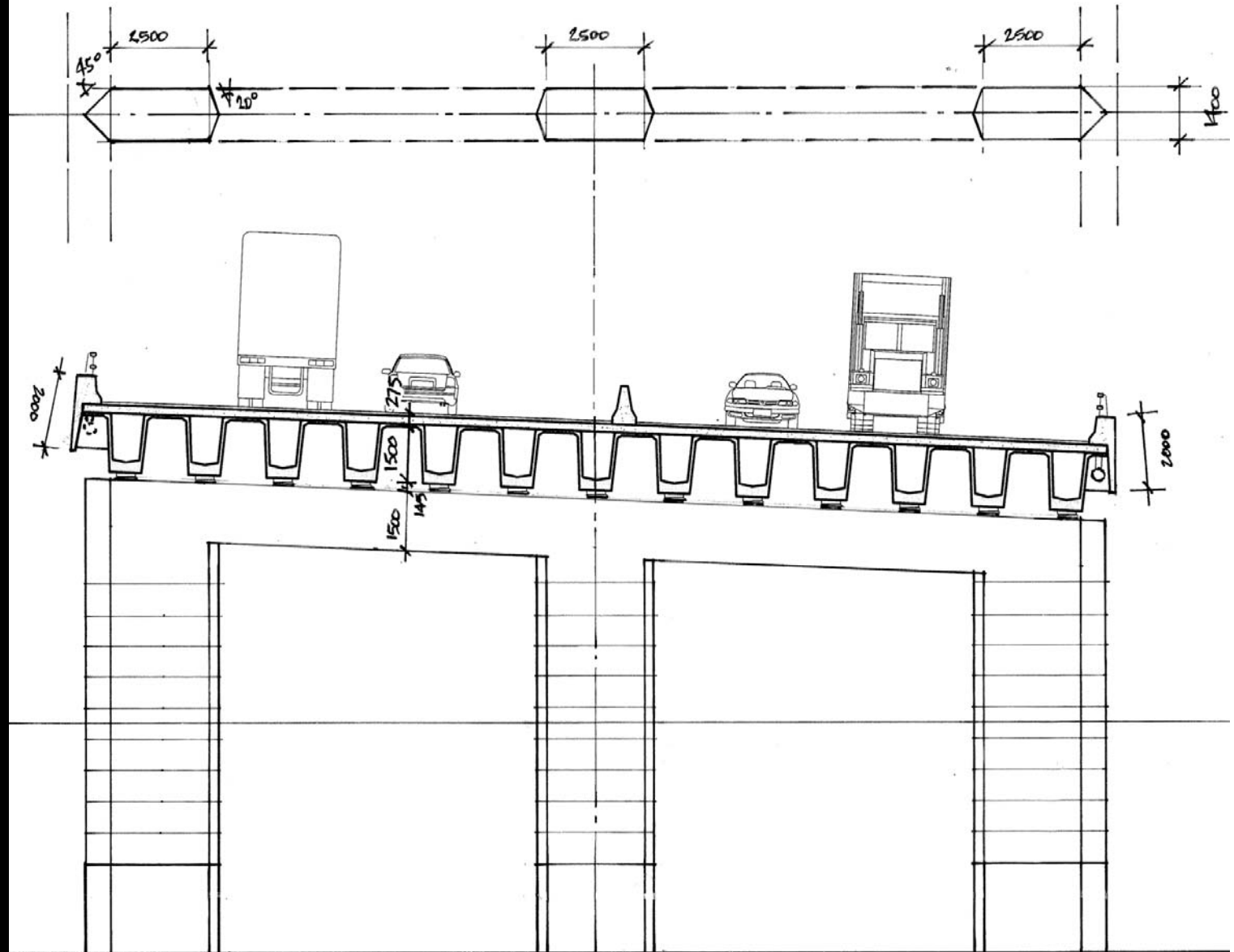
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View south from Woodhill Mountain Road



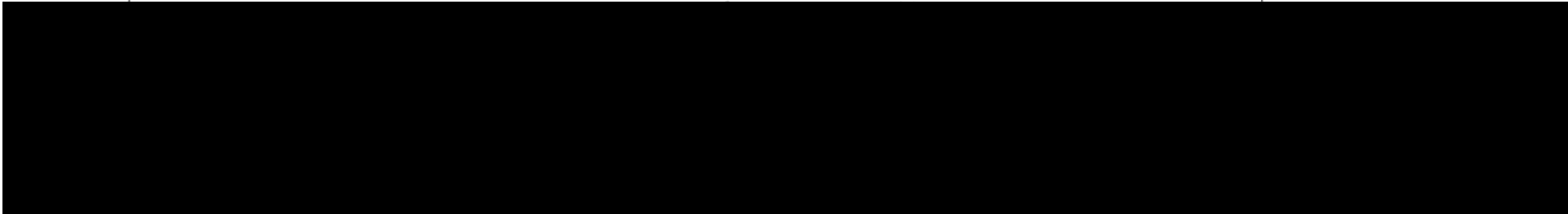
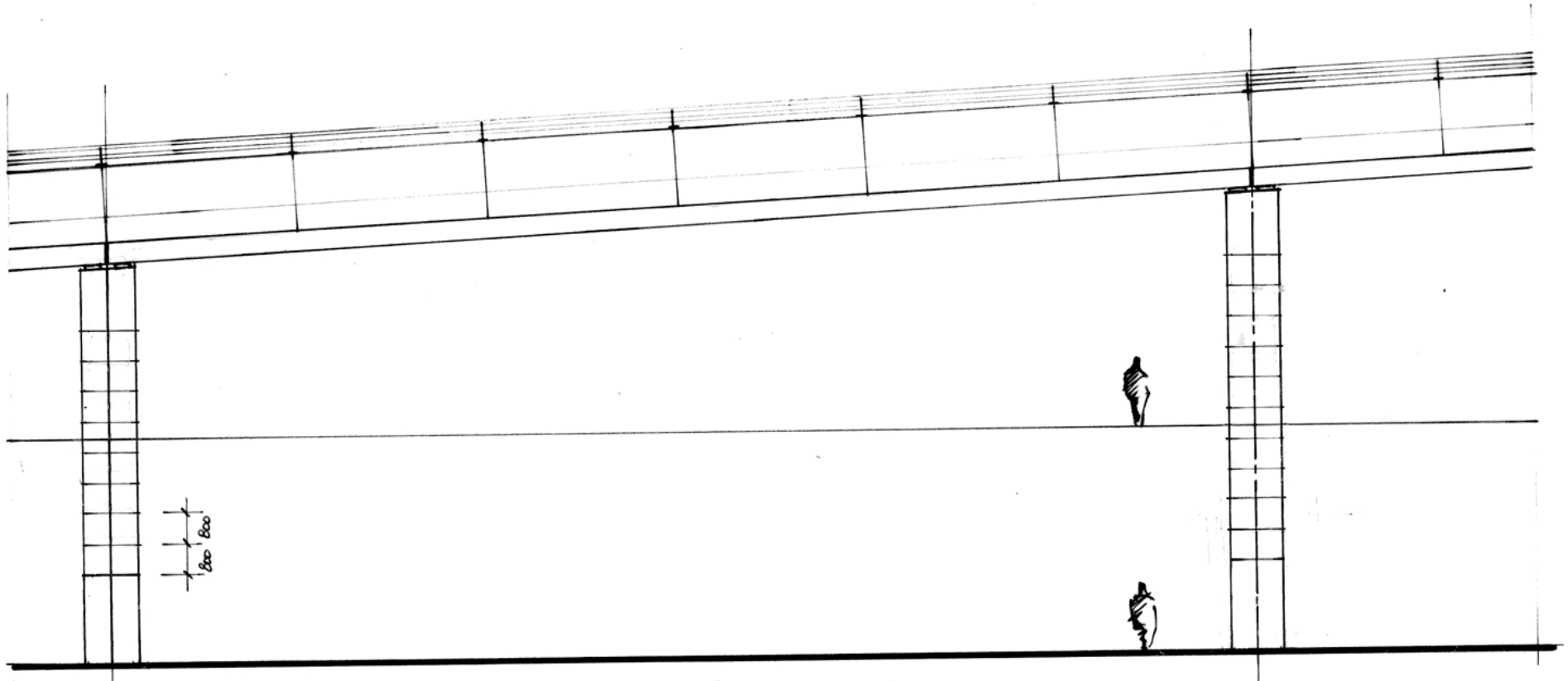


## Berry Bridge – Pier and Parapet Options Floodplain Expressed Coursing



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**Berry Bridge – Pier and Parapet Options**  
Floodplain Expressed Coursing



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View south from Woodhill Mountain Road



View from North



View from South



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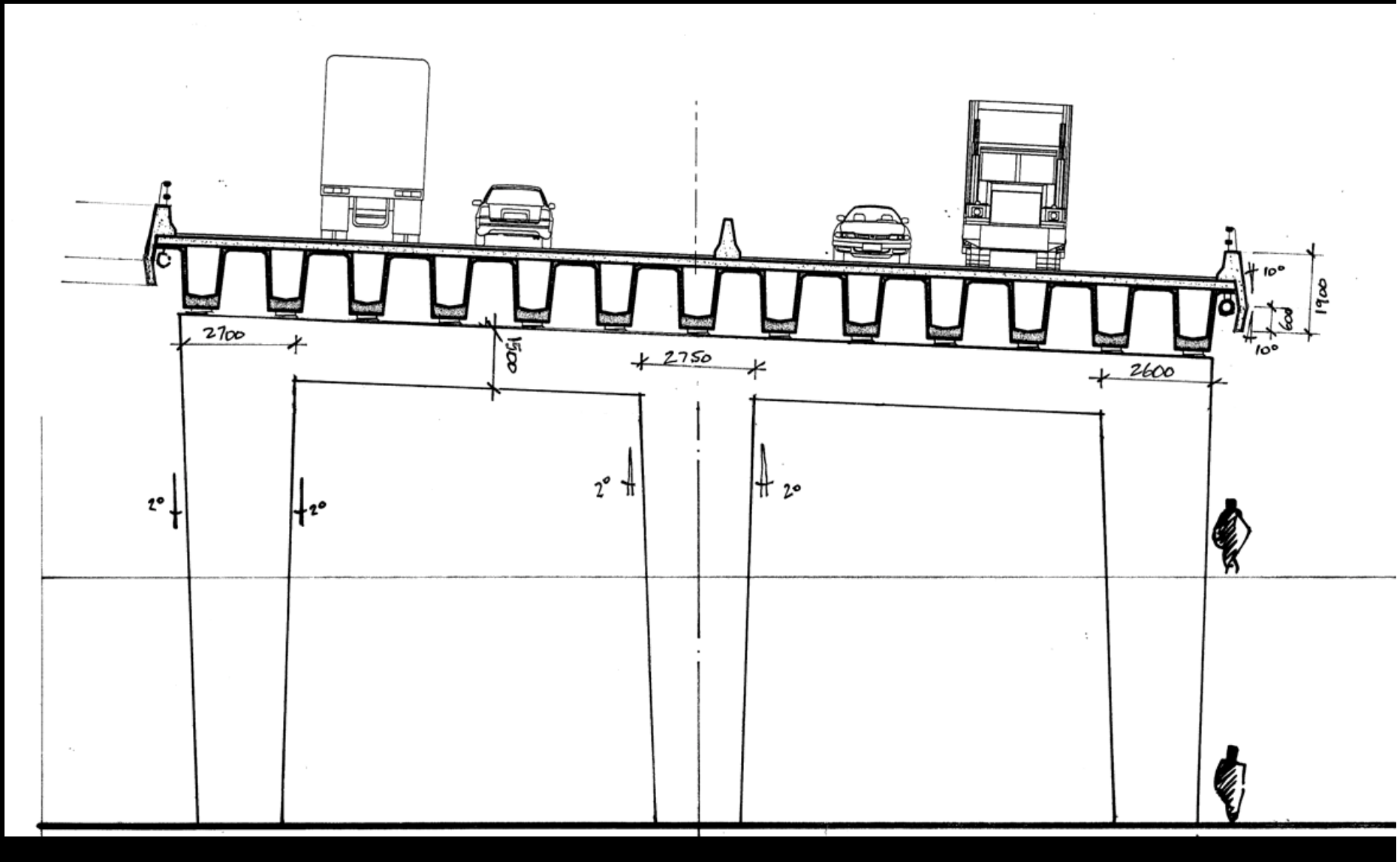
## Berry Bridge – Pier and Parapet Options



Third Hunter River Crossing,  
Maitland

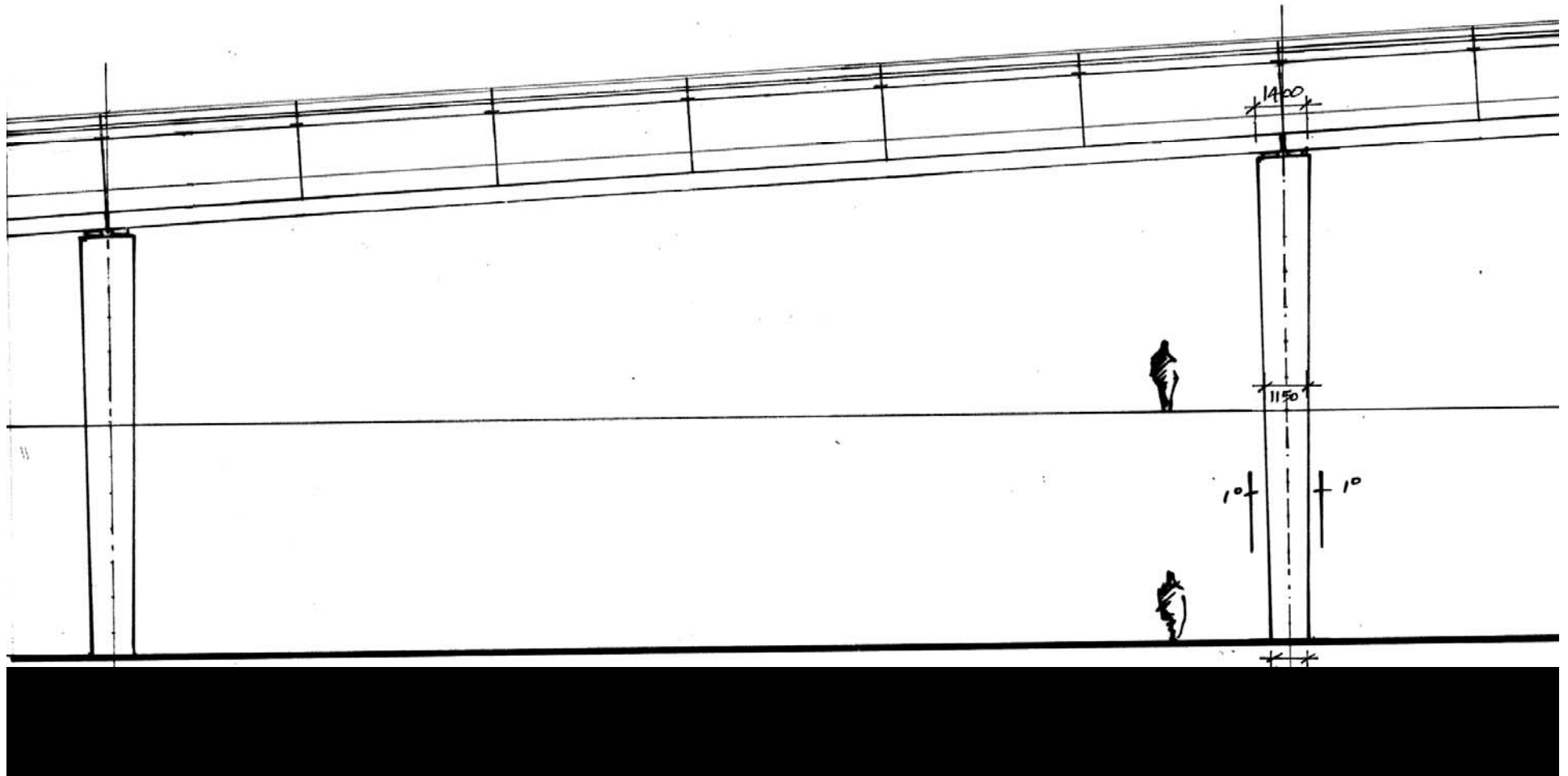
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**Berry Bridge – Pier and Parapet Options**  
Contemporary Portal Frame



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**Berry Bridge – Pier and Parapet Options**  
Contemporary Portal Frame





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**View from Woodhill Mountain Road**



View from North



View from South

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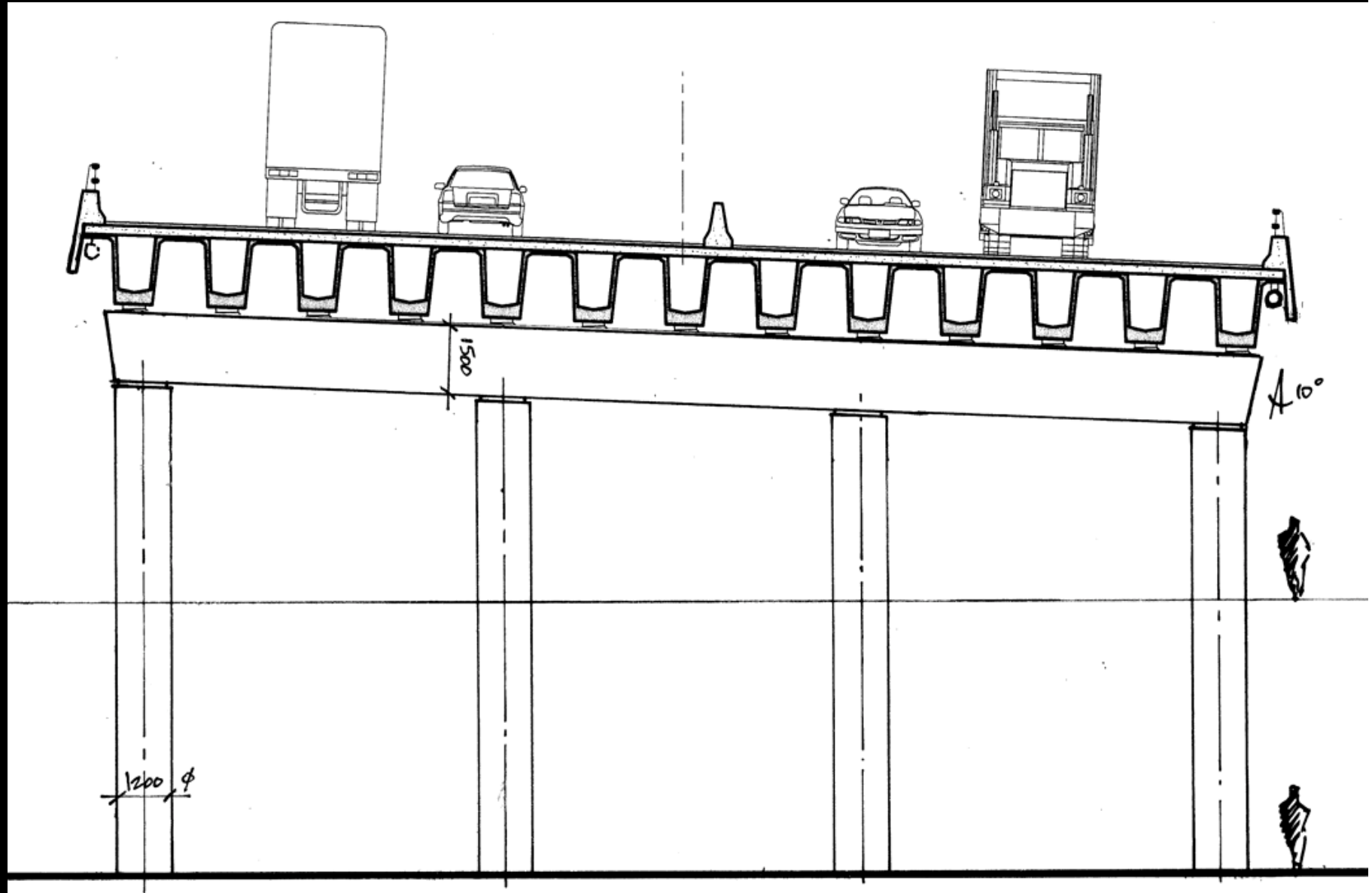


Mehi River Bridge, Moree



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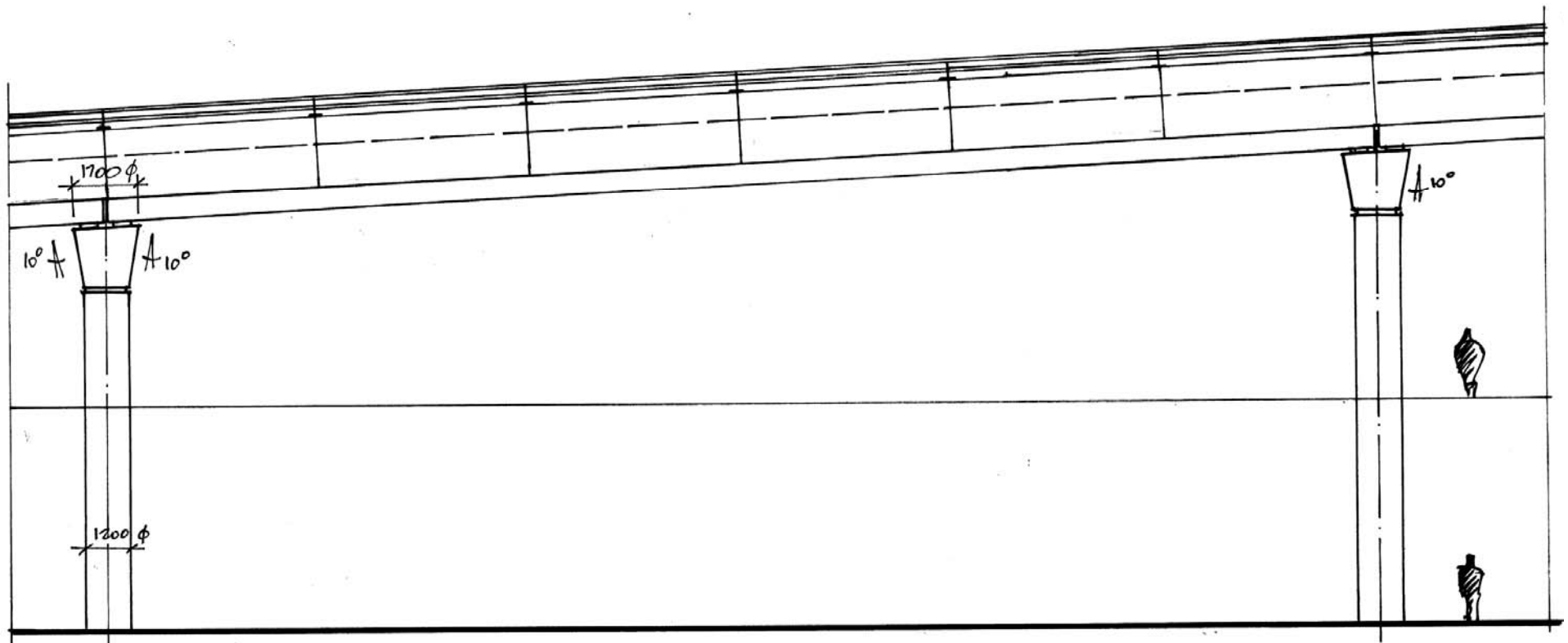
**Berry Bridge – Pier and Parapet Options**  
Flared Capital/Integrated Headstock





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## Berry Bridge – Pier and Parapet Options Flared Capital/Integrated Headstock



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View south from Woodhill Mountain Road



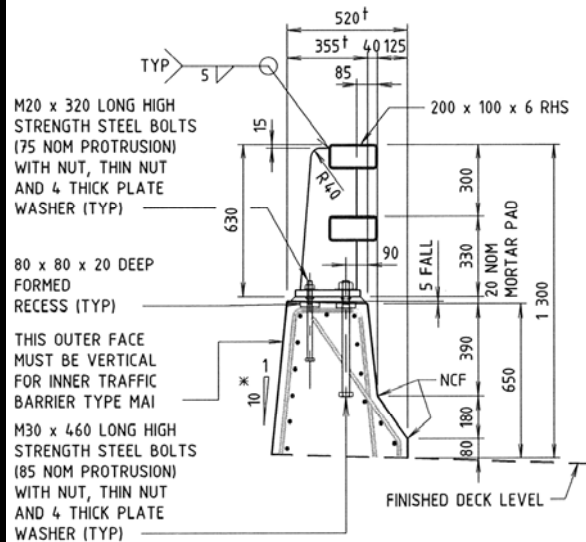
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Pacific Highway, Bonville

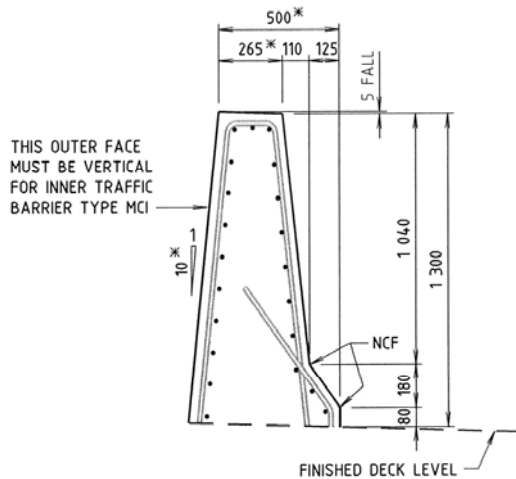


## Berry Bridge – Safety Barriers/Rails



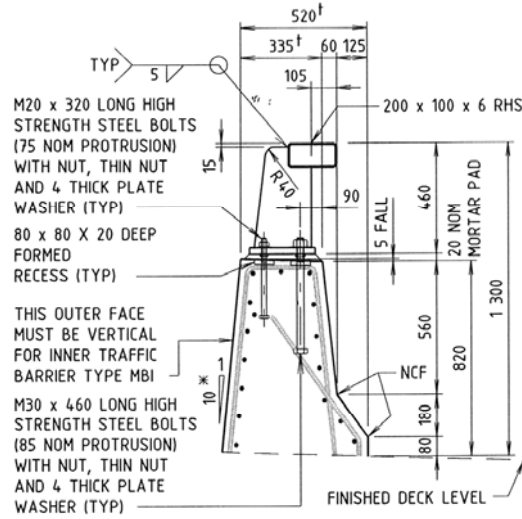
**TYPE MAO**

OUTER TRAFFIC BARRIER TYPE MAO SHOWN, INNER TRAFFIC BARRIER TYPE MAI SIMILAR. (PROVISION FOR CYCLISTS)



**TYPE MCO**

OUTER TRAFFIC BARRIER TYPE MCO SHOWN, INNER TRAFFIC BARRIER TYPE MCI SIMILAR. (PROVISION FOR CYCLISTS)

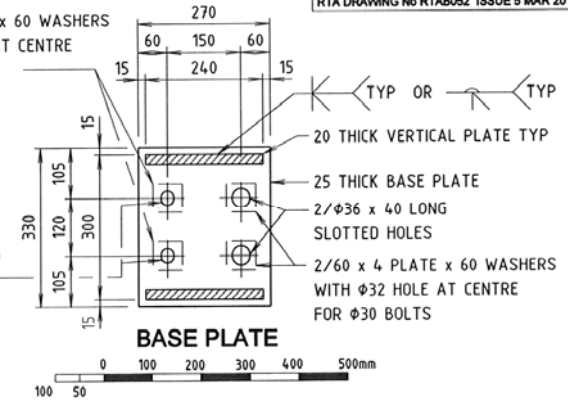


**TYPE MBO**

OUTER TRAFFIC BARRIER TYPE MBO SHOWN, INNER TRAFFIC BARRIER TYPE MBI SIMILAR. (PROVISION FOR CYCLISTS)

2/60 x 4 PLATE x 60 WASHERS WITH  $\phi 22$  HOLE AT CENTRE FOR  $\phi 20$  BOLTS

2/ $\phi 26$  x 30 LONG SLOTTED HOLES



LARGE SERIES WASHERS TO SUIT BOLTS SIZES MAY BE USED INSTEAD OF PLATE WASHERS

### GENERAL NOTES

SCALE 0 200 400 600 800 1000mm OR AS SHOWN.

THE FOLLOWING ASSUMPTIONS HAVE BEEN USED IN THIS DESIGN:

- CONCRETE EXPOSURE CLASSIFICATION: B1
- MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE: 40MPa
- NOMINAL COVER TO REINFORCEMENT NEAREST TO THE CONCRETE SURFACE: 40mm

STEEL PLATE SHALL CONFORM TO AS/NZS 3678 - 250.

RECTANGULAR HOLLOW SECTIONS SHALL CONFORM TO AS 1163 - C350L0.

HIGH STRENGTH STEEL BOLTS SHALL BE PROPERTY CLASS 8.8 TO AS/NZS 1252.

HIGH STRENGTH STEEL NUTS SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.

BOLTING CATEGORY FOR HIGH STRENGTH STEEL BOLTS SHALL BE 8.8/S IN ACCORDANCE WITH AS 5100.6.

STEEL WASHERS, LARGE SERIES, SHALL CONFORM TO AS 1237.1, PRODUCT GRADE A.

ALL STEEL COMPONENTS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH RTA SPECIFICATION B241.

BOLTS, NUTS AND WASHERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AS 1214.

ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN RTA SPECIFICATION B204.

THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1.

WELDING SYMBOLS COMPLY WITH AS 1101.3.

INDICATIVE REINFORCEMENT SHOWN ONLY. THE SIZE AND SPACING OF REINFORCEMENT MUST BE DETERMINED BY THE DESIGN ENGINEER.

MAXIMUM POST SPACING = 2 700mm

\* DENOTES NOMINAL VALUE.

† DENOTES MINIMUM DIMENSION.

NCF DENOTES NO CHAMFER OR FILLET.

## **Berry Bridge – Safety Barriers/Rails**

Proposed twin rail safety barrier with modified Type F solid concrete upturn:

- Reduces unnecessary parapet depth & heaviness.
- Provides a lighter/contrasting top profile.
- Emphasizes the bridge's streamlining/horizontal lines.
- Provides a sense of openness and views when driving over.
- Provides some acoustic attenuation.

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## Berry Bridge – North Abutment

- Spill through type.
- Seen up close from northbound on-ramp.
- Continues as a 2H:1V cut batter within interchange.
- Rock face bridge undercroft area with local stone.
- Integrate maintenance access in abutment design.



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## **Berry Bridge – South Abutment**

- Spill through type.
- Riparian setback to creek bank required.
- Seen close up by pedestrians along Connolly's Creek.
- Angled to follow creek alignment.
- Scour protection may be required.
- Rock face with local stone in bridge undercroft.
- Integrate maintenance access in abutment design.



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## Northern Interchange – Design Philosophy

- Minimise the visual presence of interchange structures.
- Minimise impacts on existing properties and access.
- Minimise the interchange footprint.
- Retain mature trees wherever possible.
- Consider the sequential views on the northern approach.
- Contribute to the township arrival/departure experience.
- Develop strategy for Berry township entry signage.
- Frame rural and township views from elevated vantage points.





View 1- View from Berry Bypass South Bound





View 2- View from Berry Bypass South Bound Exit Lan







View 3- View from Berry Bypass South Bound Exit Lane looking West







View 4 - View from Berry Bypass North Bound Entry Lane Looking North





View 5- View from Berry Bridge South Bound Lane at Ch 1580







View 6- View from Berry Bridge South Bound Lane at Ch 1592





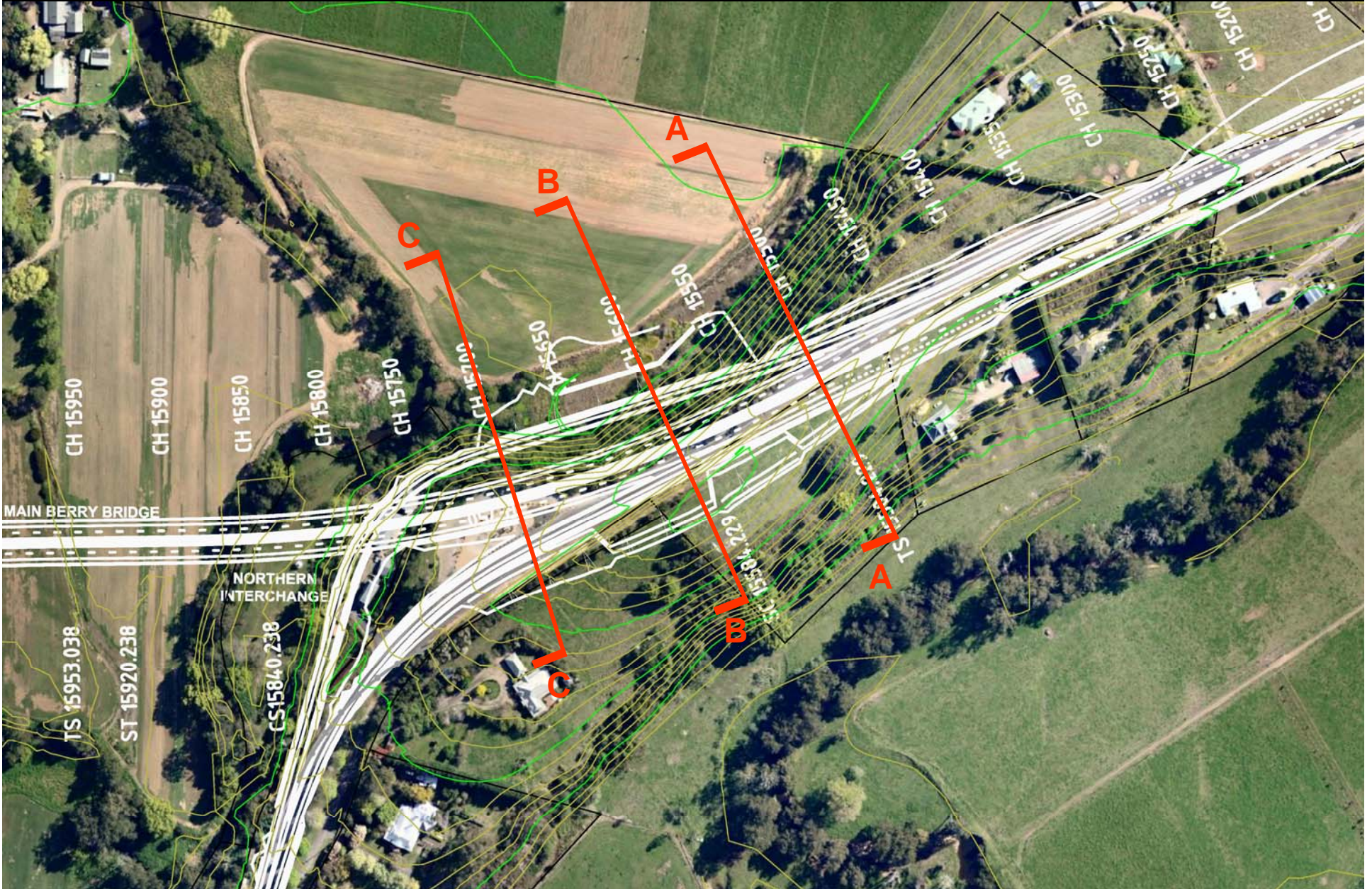
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Berry bypass revised alignment 6.12.2011

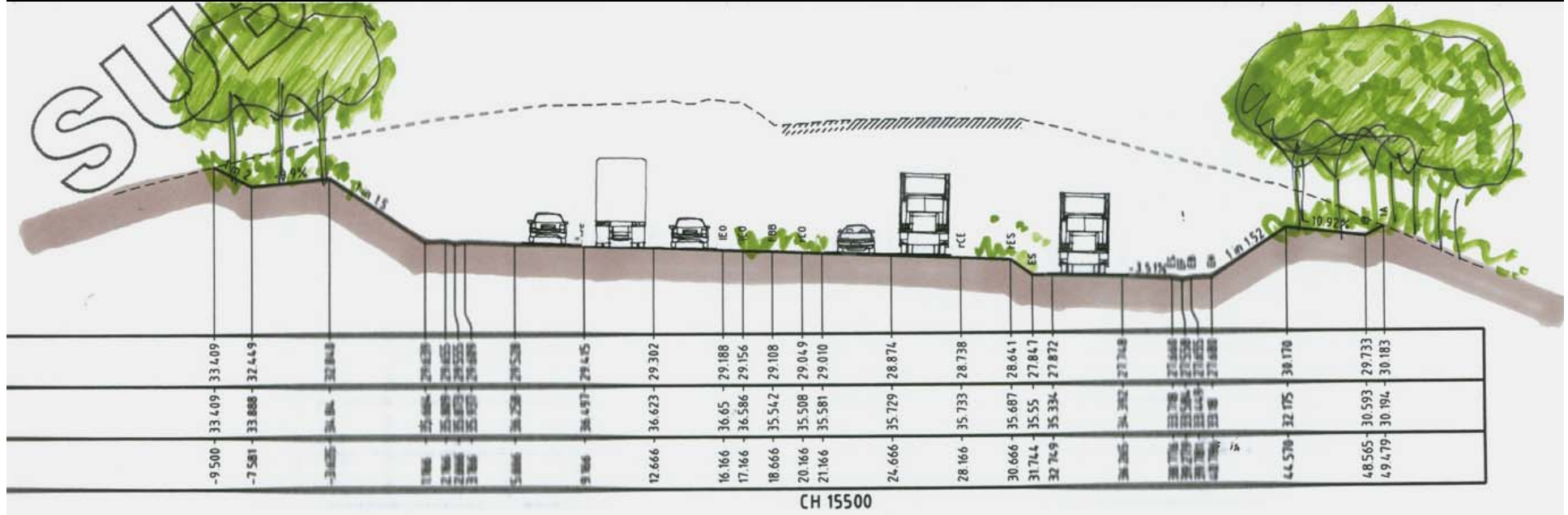


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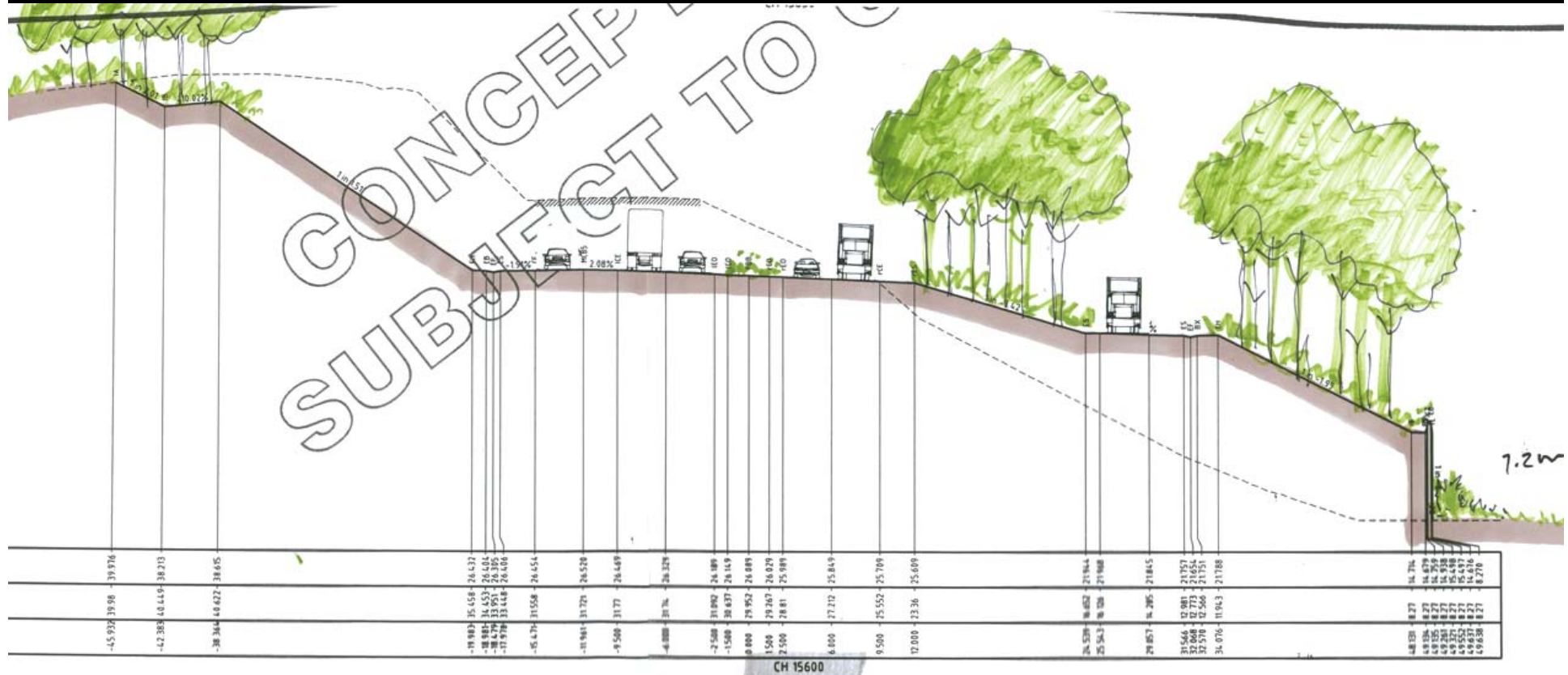
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Section A



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## Section B





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