

D.3.5 Twin Bridges over Deep Creek – Station 64km900

These bridges carry the highway over Deep Creek. They are on a straight horizontal alignment and comprise an end span of 30.0m and two equal spans of 32.0m. They have five 1500mm deep Super-T girders per span. The width of the bridge deck for each carriageway is 10.5m from barrier to barrier. Spill through abutments are adopted with a slope of 1.5H:1V. The substructure comprises reinforced concrete headstocks supported on 1000mm diameter circular concrete piers.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier / parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. For each bridge a longitudinal drainage pipe is located between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation.

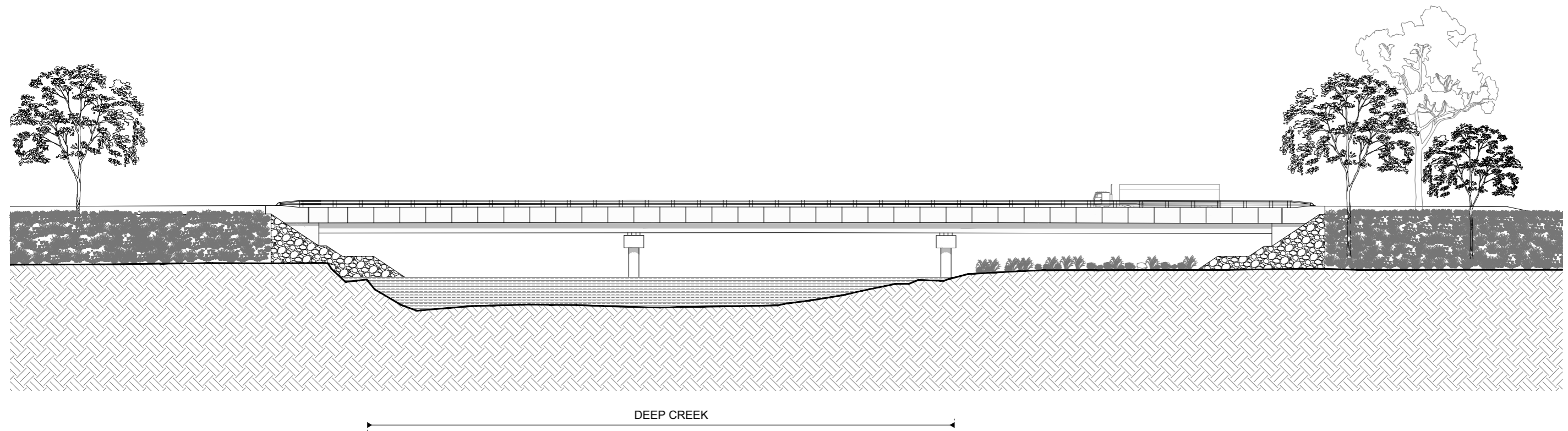
The abutments are potentially subject to scour and they are accordingly treated with stone boulders.

Changes since 15% DCD

- Central and one end span lengths swapped over.

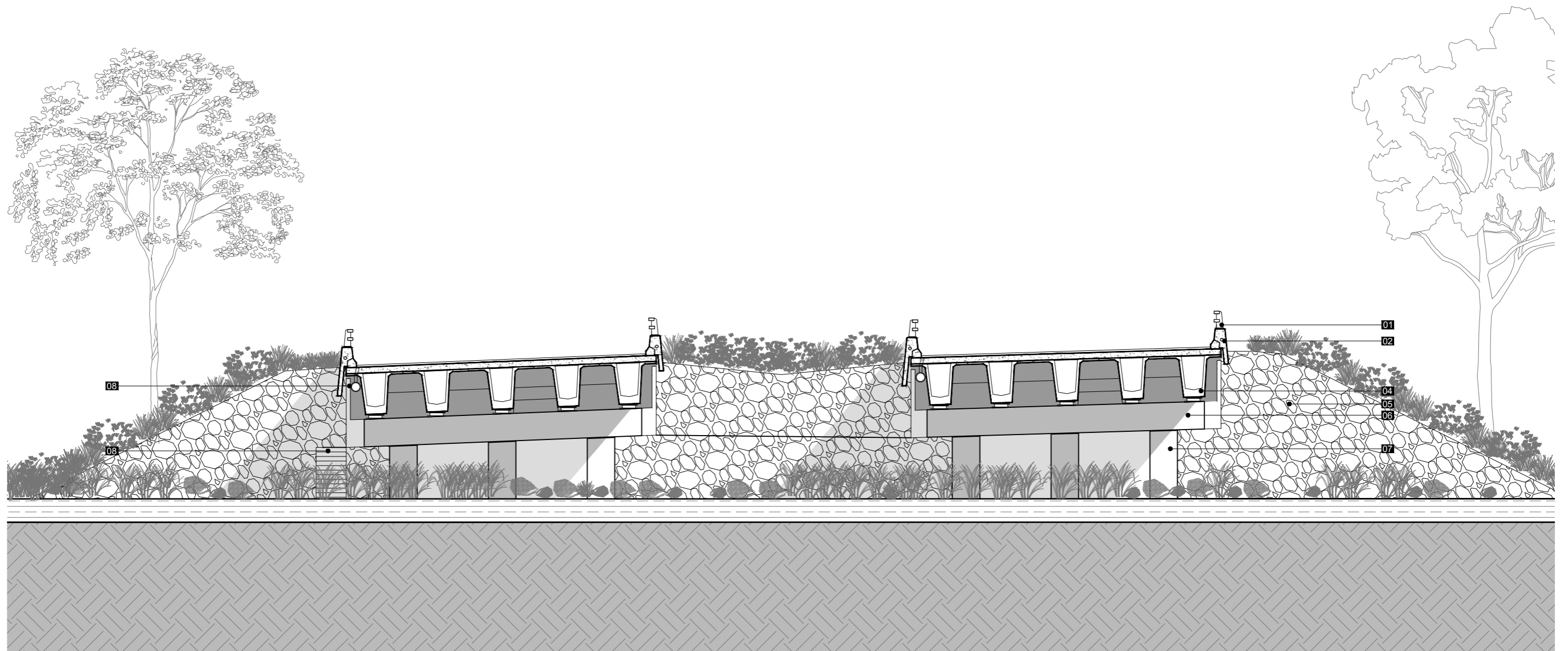
Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.



Drawings are for illustrative purposes only.
For dimensions and extent of works refer to Engineers Drawings.
For Landscape types and extents refer to Landscape Drawings.

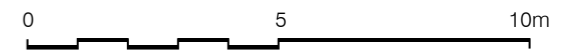
Figure D.3.5.1 Twin bridges over Deep Creek: Elevation



- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 MAINTENANCE ACCESS STAIRS, DARK TINTED CONCRETE
- 04 SUPER-T GIRDERS
- 05 STONE BOULDER SCOUR PROTECTION
- 06 CONCRETE HEADSTOCK
- 07 CIRCULAR CONCRETE PIERS
- 08 DRAINAGE PIPE

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Figure D.3.5.2 Twin bridges over Deep Creek: Cross Sectional Elevation



D.3.6 Twin Bridges over McGraths Creek Floodplain No.1 – Station 71km550

These bridges carry the highway over the McGraths Creek Floodplain. They are on a straight horizontal alignment and comprise two unequal spans of 26.5m and 23.6m. They have five 1200mm deep Super-T girders per span. The width of the bridge deck for each carriageway is 10.5m from barrier to barrier. Spill through abutments are adopted with a slope of 1.5H:1V. The substructure comprises reinforced concrete headstocks supported on 1000mm diameter circular concrete piers.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier / parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. For each bridge, a longitudinal drainage pipe is located between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation.

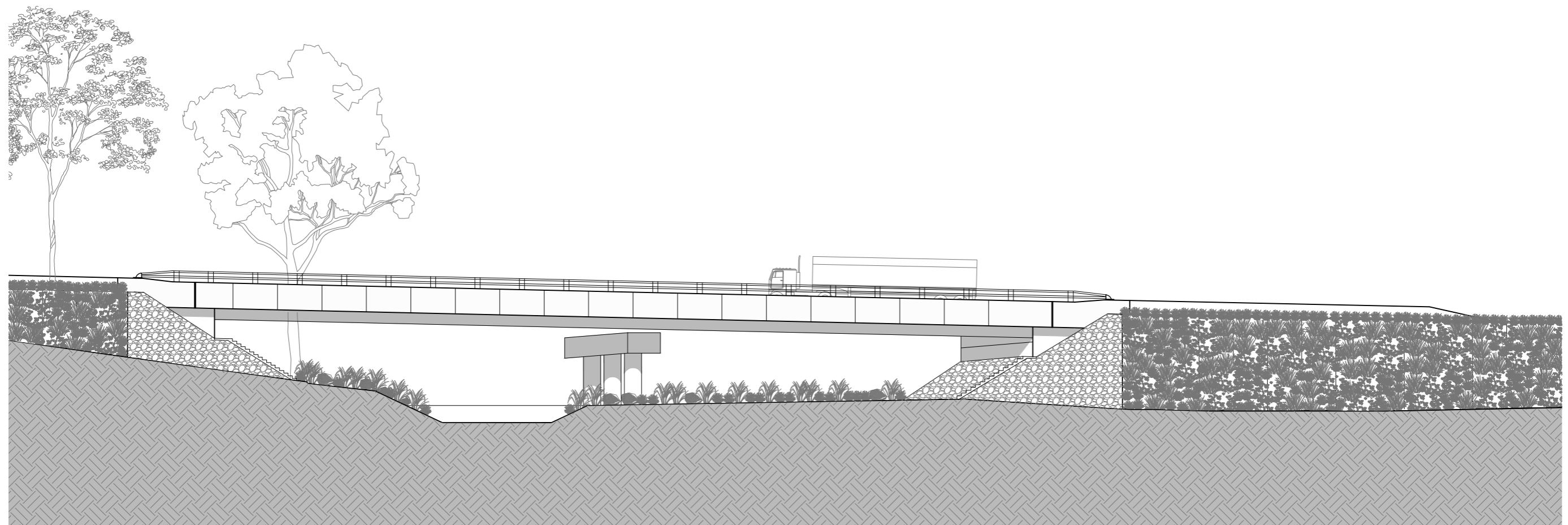
The abutments are potentially subject to scour and they are accordingly treated with stone boulders.

Changes since 15% DCD

- Two equal spans of 36.0m reduced to one span of 26.5m and a second span of 23.6m.
- Super-T girder depth reduced from 1800mm to 1200mm.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.



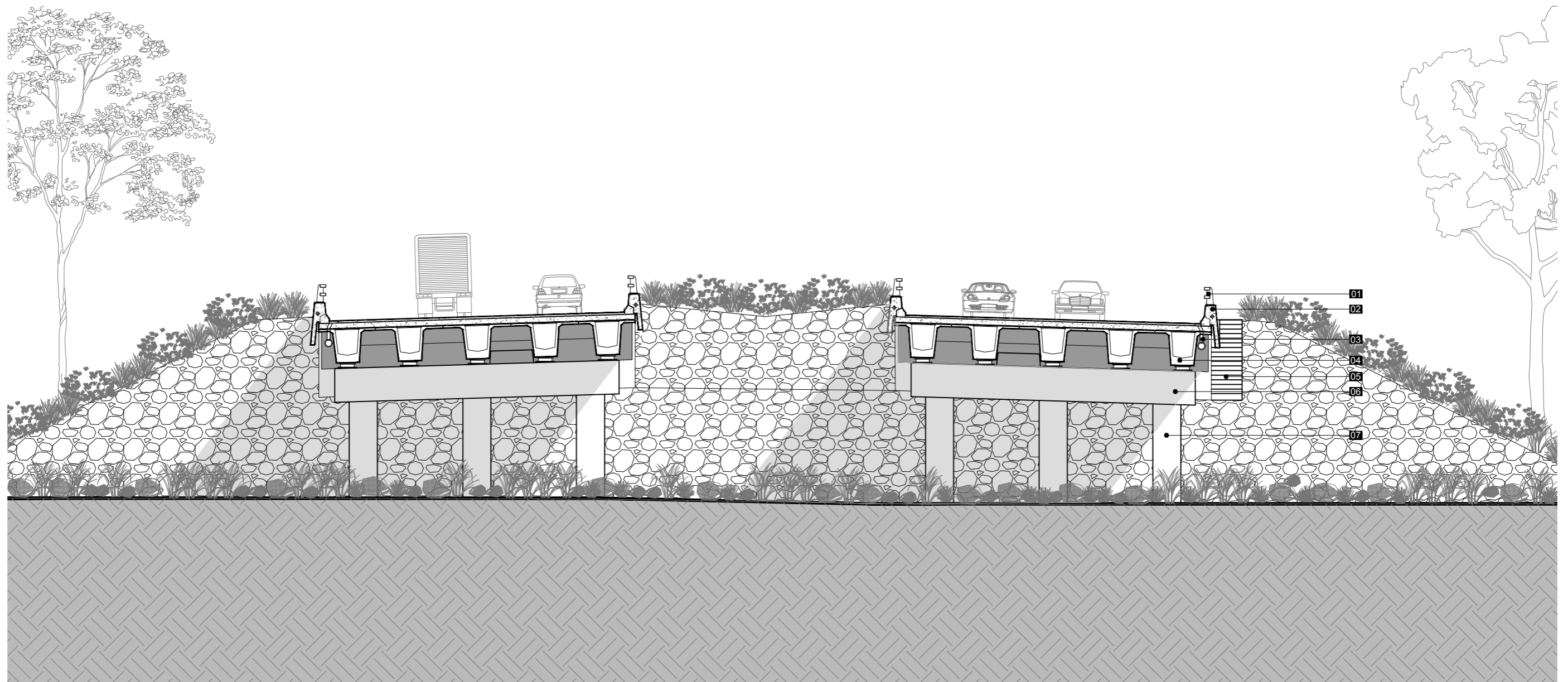
MCGRATHS CREEK

E 3.6.2

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For Landscape types and extents refer to Landscape Drawings.

0 10 20m

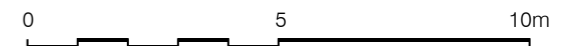
Figure D.3.6.1 Twin bridges over McGraths Creek Floodplain No.1: Elevation



- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 DRAINAGE PIPE
- 04 SUPER-T GIRDERS
- 05 MAINTENANCE ACCESS STAIRS
- 06 CONCRETE HEADSTOCK
- 07 CIRCULAR CONCRETE PIERS

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Figure D.3.6.2 Twin bridges over McGraths Creek Floodplain No.1: Cross Sectional Elevation



D.3.7 Twin Bridges over McGraths Creek Floodplain No. 2 – Station 71km930

These bridges also carry the highway over the McGraths Creek Floodplain. They also accommodate on and off ramps for the Ballards Road Interchange. They comprise a single span of 24.0m with seven 1200mm deep Super-T girders for the northbound bridge and six 1200mm deep Super-T girders for the southbound bridge. The inclusion of ramps means the width of the bridge deck for each carriageway varies, with a minimum of 12.72m and a maximum of 16.64m. Spill through abutments are adopted with a slope of 1.5H:1V. The abutment structures comprise reinforced concrete beams with wing walls and are supported on piles.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier / parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. For each bridge a longitudinal drainage pipe is located between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation.

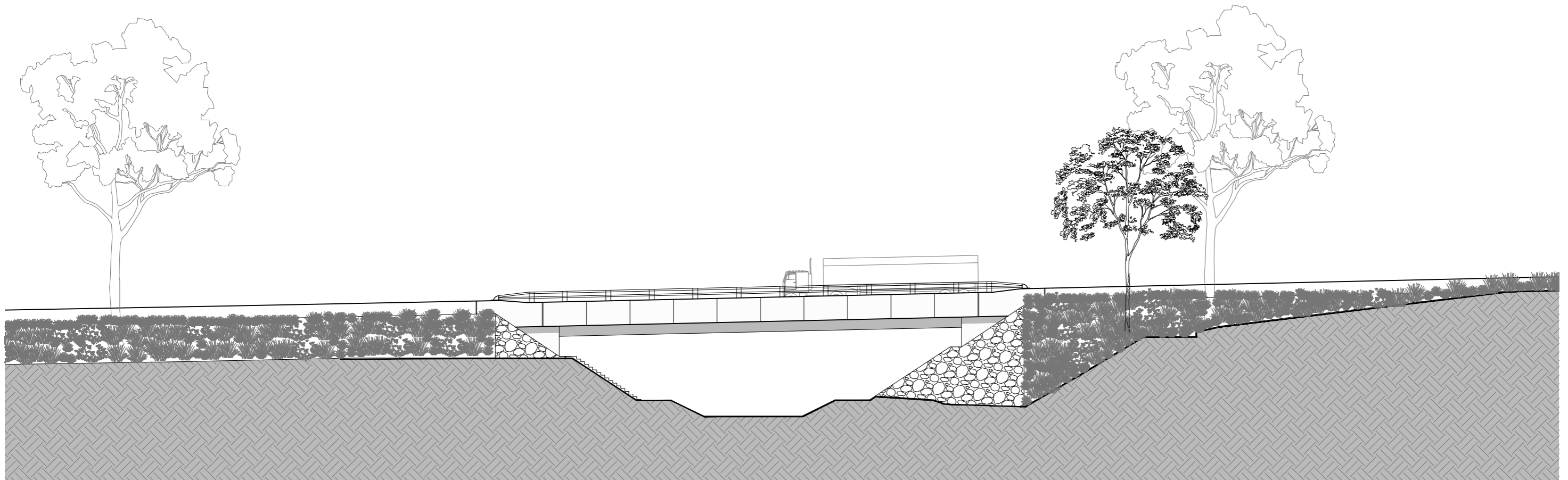
The abutments are potentially subject to scour and they are accordingly treated with stone boulders.

Changes since 15% DCD

- Span reduced from 27.0m to 24.0m.
- One Super-T girder eliminated for each bridge.
- Minimum deck width reduced from 14.17m to 12.72m and maximum deck width reduced from 17.14m to 16.64m.
- Longitudinal drainage pipe added to each bridge.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.



McGRATHS CREEK FLOODPLAIN 2

E 3.7.2

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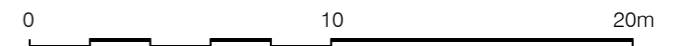
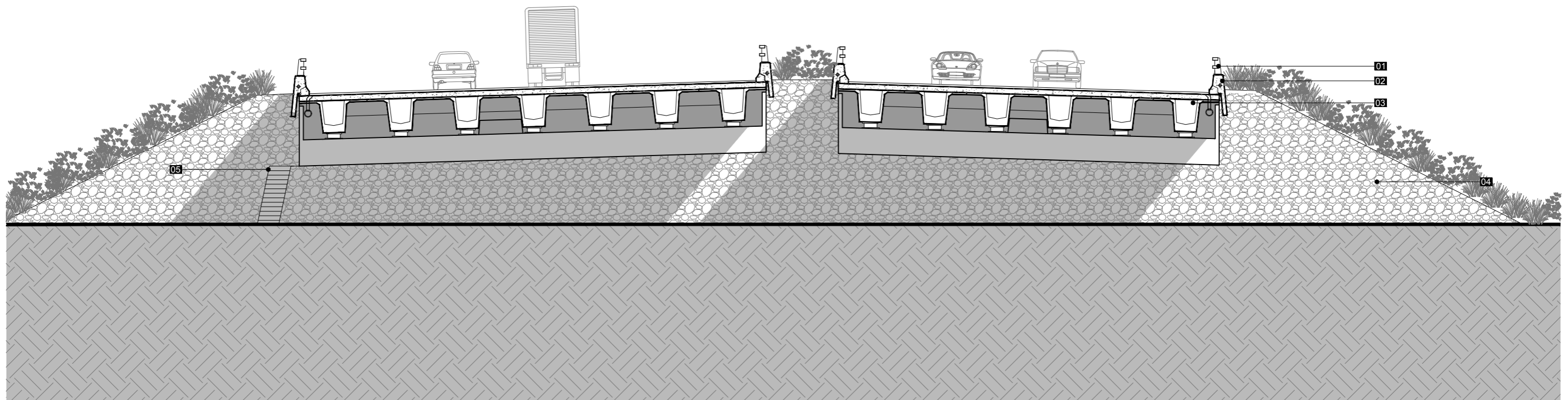


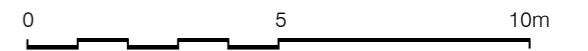
Figure D.3.7.1 Twin bridges over McGraths Creek Floodplain No.2: Elevation



- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 SUPER-T GIRDERS
- 04 STONE BOULDER SCOUR PROTECTION
- 05 MAINTENANCE ACCESS STAIRS

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Figure D.3.7.2 Twin bridges over McGraths Creek Floodplain 2: Cross Sectional Elevation



D.3.8 Northbound Bridge over Dalhousie Creek – Station 73km370

This bridge crosses Dalhousie Creek, where the median between the main carriageways is substantially widened to approximately 50m. It is on a straight horizontal alignment and comprises a single span of 33.9m with six 1500mm deep Super-T girders. The width of the bridge deck is 11.0m from barrier to barrier. Spill through abutments are adopted with a slope of 1.5H:1V. The abutment structures comprise reinforced concrete beams with wing walls and are supported on piles.

The parapets are medium performance level barriers comprising a 650mm high precast concrete parapet with twin steel rails providing an overall height of 1300mm above road surface level. A single conduit is provided in each barrier. A longitudinal drainage pipe is located between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation.

The abutments are potentially subject to scour and they are accordingly treated with stone boulders.

D.3.9 Southbound Bridge over Dalhousie Creek – Station 73km400

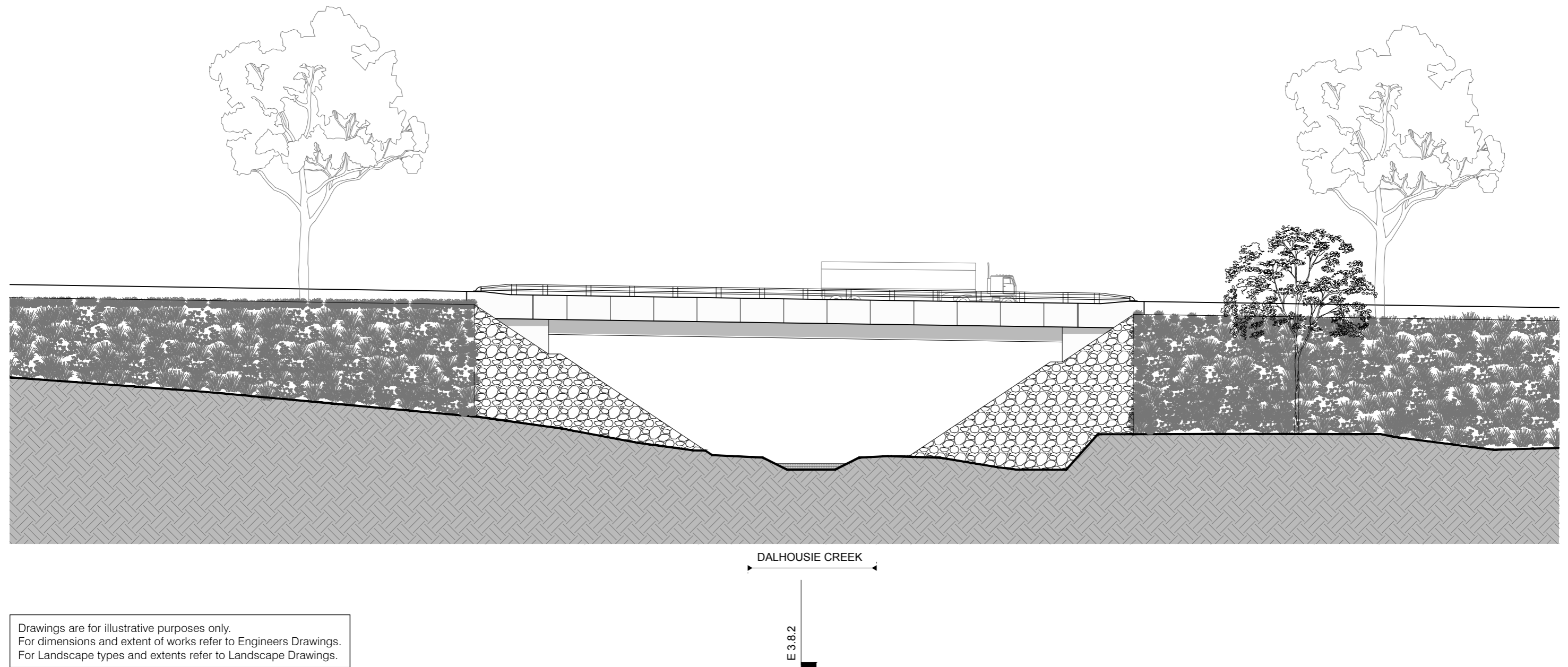
This bridge has the same specifications and appearance as the Northbound Bridge over Dalhousie Creek as described above.

Changes since 15% DCD

– None.

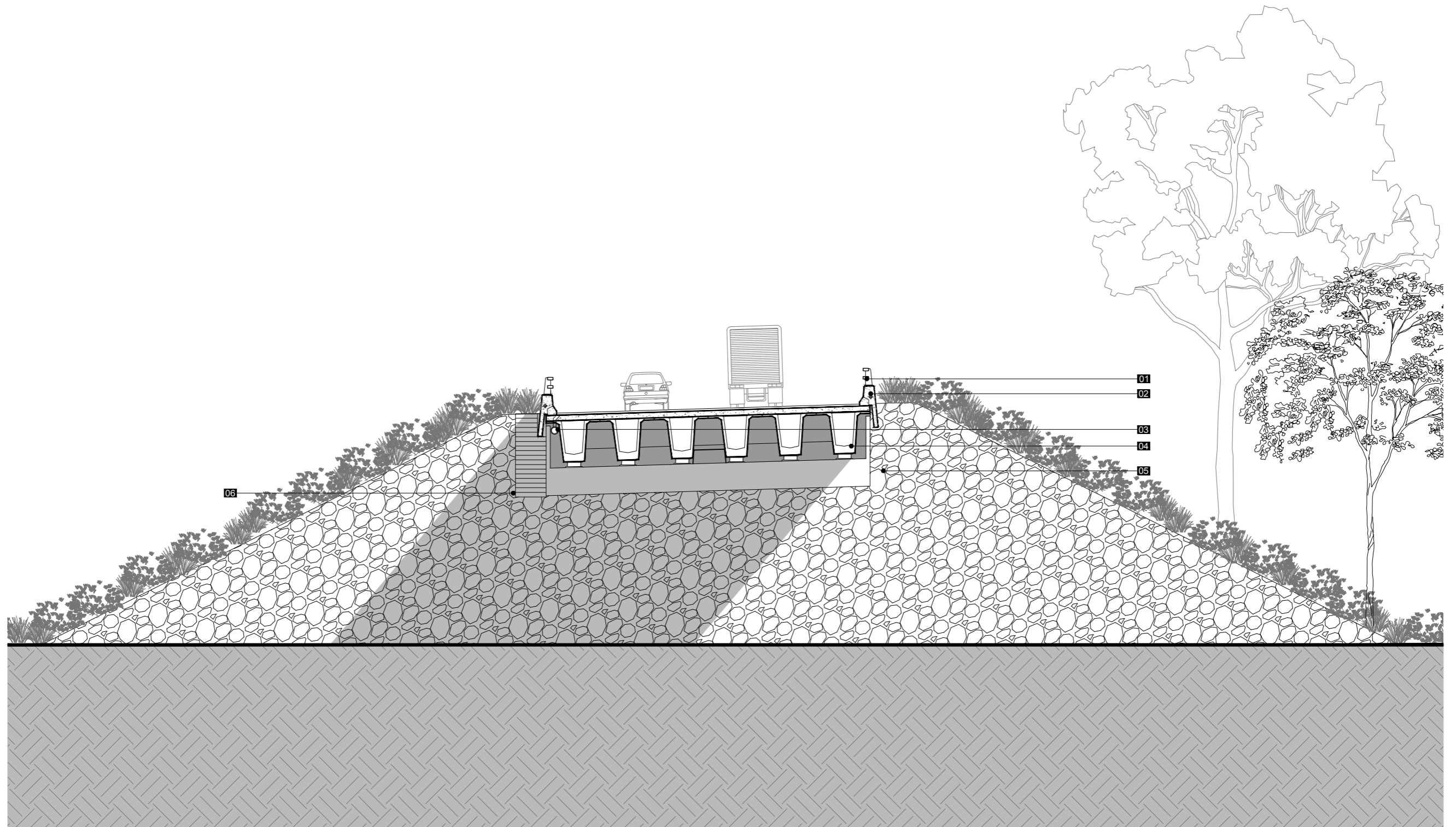
Urban Design Comments on 85% PDD to be incorporated in 100% SDD

– None.



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For Landscape types and extents refer to Landscape Drawings.

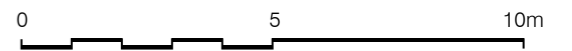
Figure D.3.8.1 Northbound bridge over Dalhousie Creek: Elevation



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 For Landscape types and extents refer to Landscape Drawings.

- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 DRAINAGE PIPE
- 04 SUPER-T GIRDERS
- 05 STONE BOULDER SCOUR PROTECTION
- 06 MAINTENANCE ACCESS STAIRS

Figure D.3.8.2 Northbound bridge over Dalhousie Creek: Cross Sectional Elevation



D.3.10 Twin Bridges over Fauna Crossing – Station 74km810

These bridges provide a fauna crossing under the highway. They are on a curved horizontal alignment and comprise a single 27.5m span with six 1200mm deep Super-T girders for the northbound bridge and five 1200mm deep Super-T girders for the southbound bridge. The width of the bridge deck is 13.05m for the northbound carriageway and 11.00m for the southbound carriageway. Spill through abutments are adopted with a slope of 1.5H:1V. The abutment structures comprise reinforced concrete beams with wing walls and are supported on piles.

The parapets are medium performance level barriers comprising a 650mm high precast concrete parapet with twin steel rails providing an overall height of 1300mm above road surface level. A single conduit is provided in each barrier. For each bridge a longitudinal drainage pipe is located between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation.

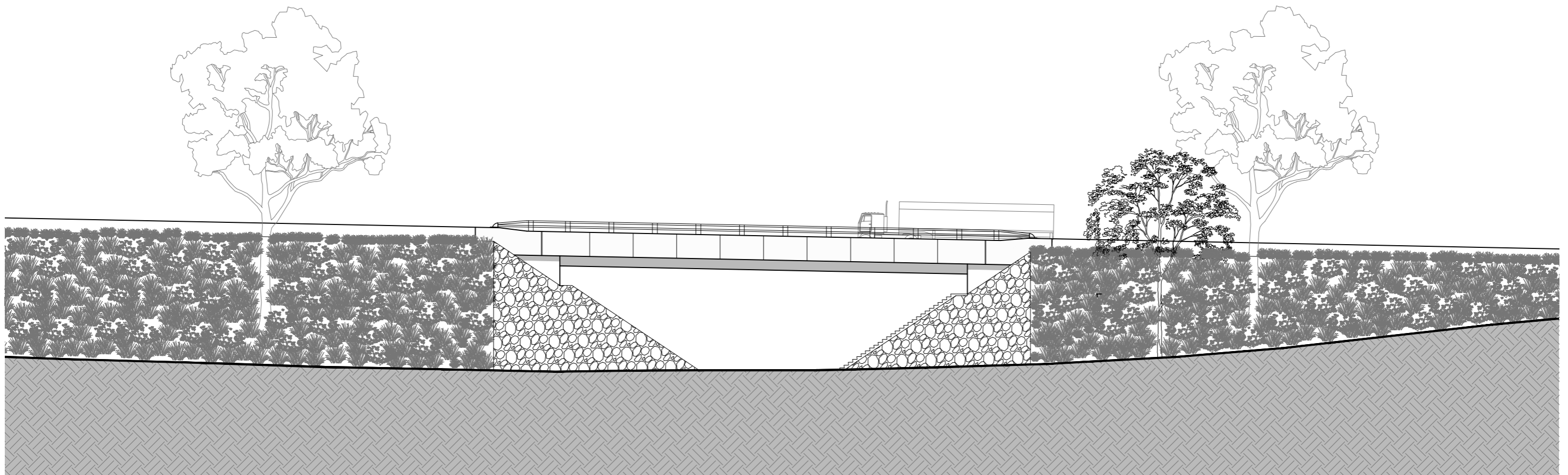
The abutment slopes are treated with stone boulders as they are potentially susceptible to scour.

Changes since 15% DCD

- None.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.

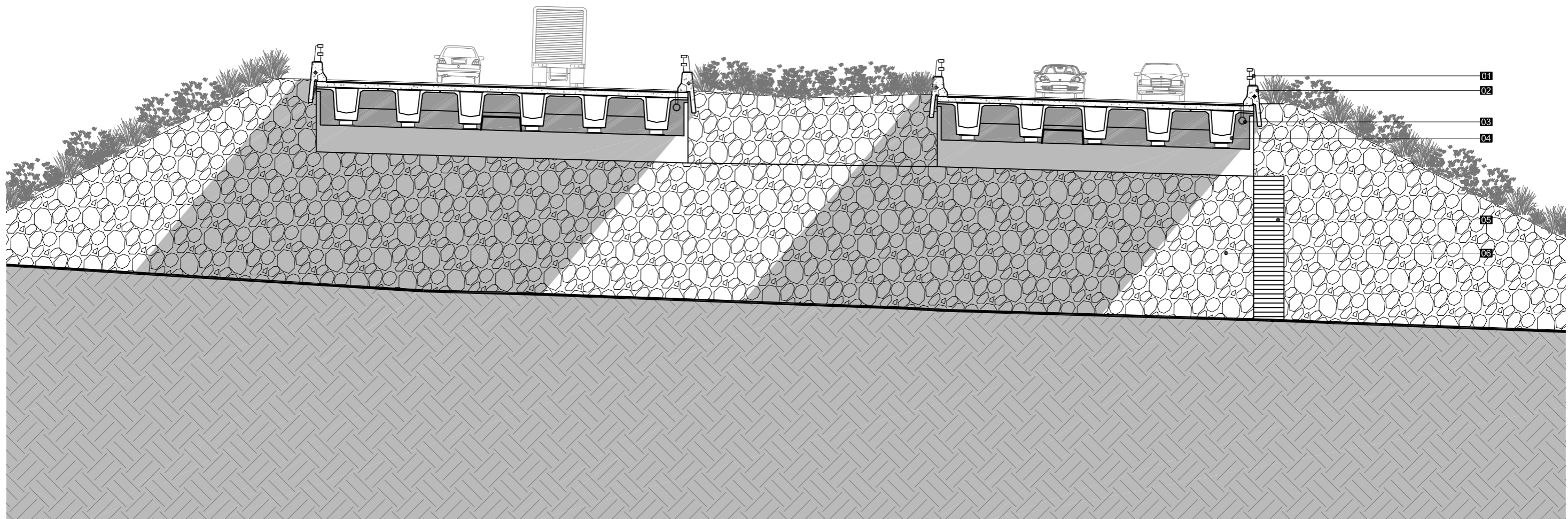


Drawings are for illustrative purposes only.
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For Landscape types and extents refer to Landscape Drawings.

E 3.10.2

Figure D.3.10.1 Twin bridges over Fauna Crossing: Elevation

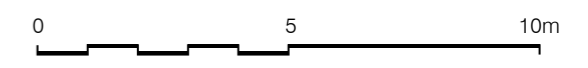
0 10 20m



- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 DRAINAGE PIPE
- 04 SUPER-T GIRDERS
- 05 DARK TINTED CONCRETE MAINTENANCE ACCESS STAIRS
- 06 STONE BOULDER SCOUR PROTECTION

Drawings are for illustrative purposes only.
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 For Landscape types and extents refer to Landscape Drawings.

Figure D.3.10.2 Twin bridges over Fauna Crossing: Cross Sectional Elevation



D.3.11 Twin Bridges over Kalang River Floodplain No.1 – Station 76km950

These bridges carry the highway over the Kalang River Floodplain. They are on a straight horizontal alignment and comprise six equal spans of 15.50m. The superstructure utilises thirteen 600mm deep pre-stressed concrete planks per span. The width of the bridge deck for each carriageway is 10.5m from barrier to barrier. Spill through abutments are adopted with a slope of 1.5H:1V. The substructure comprises reinforced concrete headstocks supported on 1000mm diameter circular concrete piers.

The parapets are medium performance level barriers comprising a 650mm high precast concrete barrier/parapet surmounted by twin steel rails, providing an overall height of 1300mm above road surface level. A single conduit is located in each barrier. For each bridge a longitudinal drainage pipe is located between the outermost and second planks, concealing the drainage pipe when the bridge is viewed in elevation.

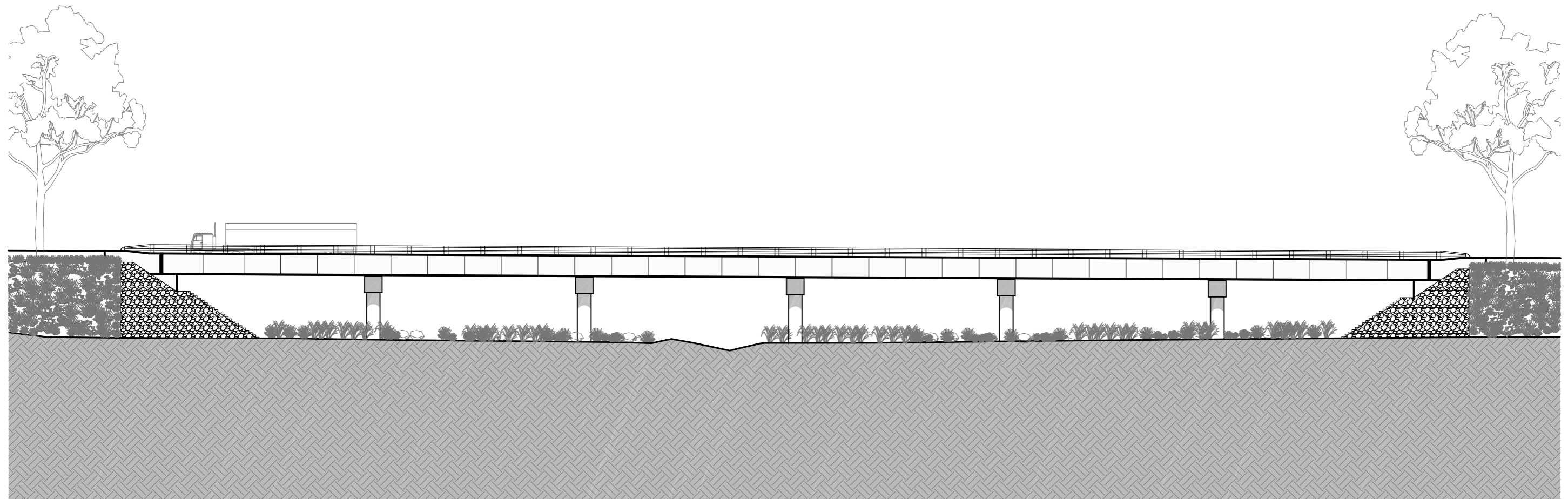
The abutments are potentially subject to scour and they are accordingly treated with stone boulders.

Changes since 15% DCD

- None.

Urban Design Comments on 85% PDD to be incorporated in 100% SDD

- None.



KALANG RIVER FLOODPLAIN

E 3.11.2

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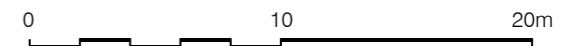
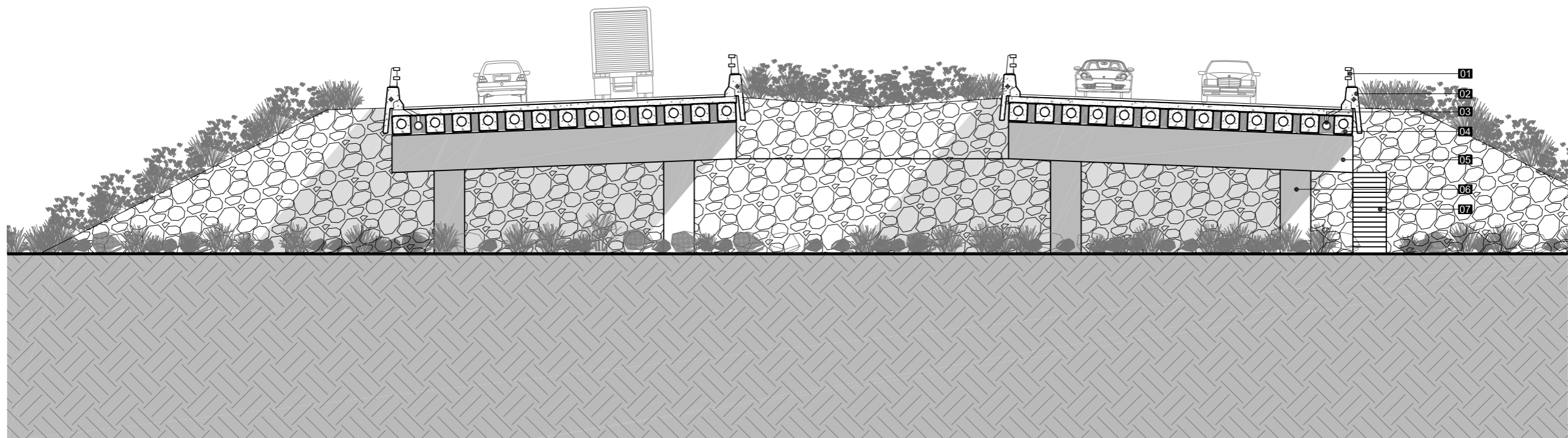


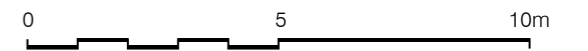
Figure D.3.11.1 Twin Bridges over Kalang River Floodplain: Elevation



- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 DRAINAGE PIPE
- 04 PSC PLANKS
- 05 CONCRETE HEADSTOCK
- 06 CIRCULAR CONCRETE PIERS
- 07 MAINTENANCE ACCESS STAIRS

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Figure D.3.11.2 Twin Bridges over Kalang River Floodplain: Cross Sectional Elevation



D.3.12 Northbound Bridge over Fauna Crossing – Station 79km860

This bridge creates a fauna underpass beneath the northbound alignment, where the median between the main carriageways is substantially widened to approximately 60m. It is on a gently curved horizontal alignment and comprises a single span of 30.0m with five 1500mm deep Super-T girders. The width of the bridge deck is 11.0m from barrier to barrier. Spill through abutments are adopted with a slope of 1.5H:1V. The abutment structures comprise reinforced concrete beams with wing walls and are supported on piles.

The parapets are medium performance level barriers comprising a 650mm high precast concrete parapet with twin steel rails providing an overall height of 1300mm above road surface level. A single conduit is provided in each barrier. A longitudinal drainage pipe is located between the parapet skirt and outermost Super-T. The skirt extends downwards sufficiently to conceal the drainage pipe when the bridge is viewed in elevation.

The abutments are potentially subject to scour and they are accordingly treated with stone boulders.

D.3.13 Southbound Bridge over Fauna Crossing – Station 79km910

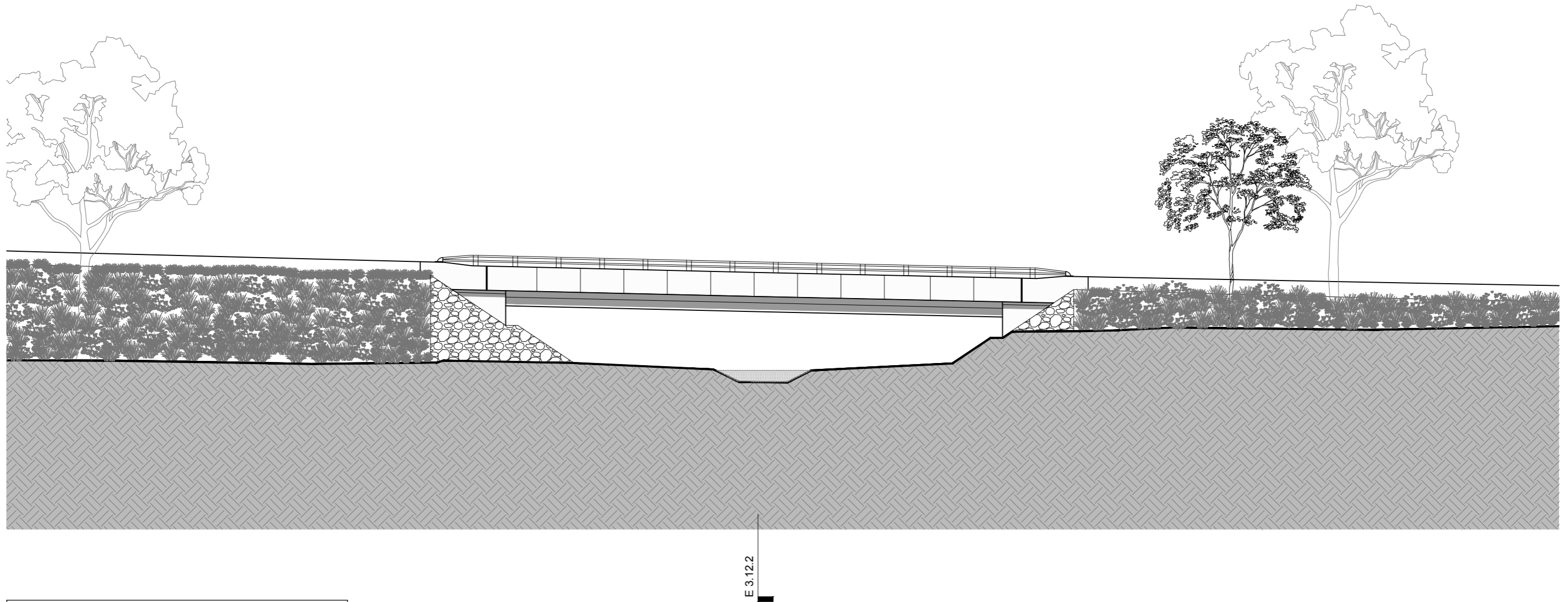
This bridge has the same specifications and appearance as the Northbound Bridge at Station 79km860 as described above.

Changes since 15% DCD

- Span reduced from 33.2m to 30.0m.

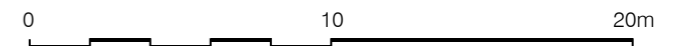
Urban Design Comments on 85% PDD to be incorporated in 100% SDD

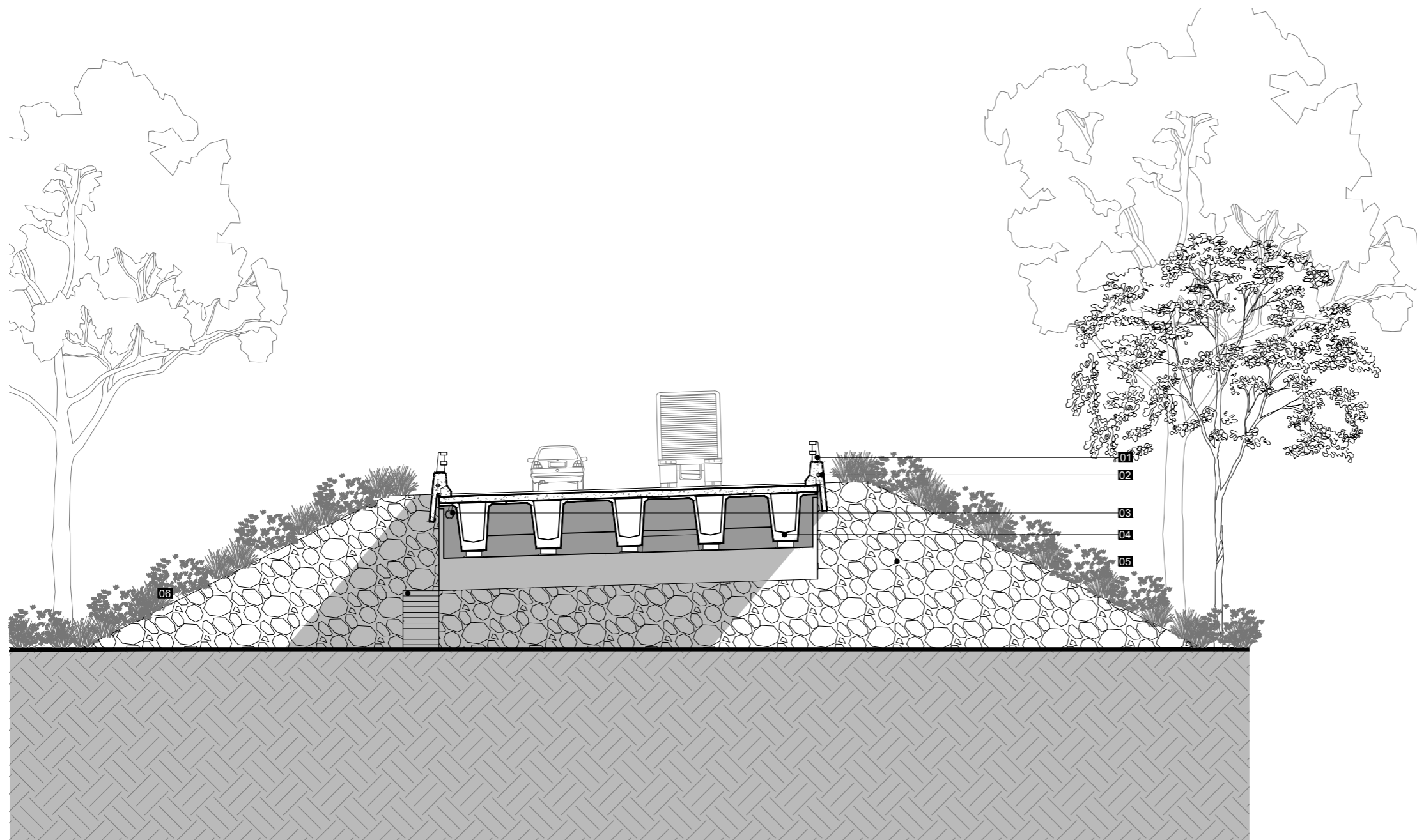
- None.



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Figure D.3.12.1 Northbound Bridge over Fauna Crossing: Elevation





- 01 TWIN METAL RAIL BARRIER
- 02 CONCRETE PARAPET
- 03 DRAINAGE PIPE
- 04 SUPER-T GIRDERS
- 05 STONE BOULDER SCOUR PROTECTION
- 06 MAINTENANCE ACCESS STAIRS

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Figure D.3.12.2 Northbound Bridge over Fauna Crossing: Cross Sectional Elevation

