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3rd November 2022

Brett Hutton
JCDecaux
Unit 2-3, 182-190 Euston Rd,
Alexandria NSW 2015

RE: M4 Motorway, Rosehill, NSW
Proposed Digital Portrait Signage
Structural Feasibility Statement

This Structural Feasibility Statement has been conducted by Dennis Bunt Consulting Engineers Pty Ltd (DBCE) at the request of JCDecaux.

The proposed signs are documented in the concept drawings by the Architects Tzannes TZ_JCD_M4 Rosehill_Concept design_031022 and the DA drawings by DBCE 22036 / DA01(B), DA02(F) and DA03(D).

A survey of the site was commissioned by JCDecaux.

The signage will consist of two portrait LED screens with visual screen dimensions of 5300mm horizontally x 8000mm vertically.

Site Description

There will be two digital portrait signs, one facing inbound traffic and one facing outbound traffic on the M4 Motorway in Rosehill.

The footing for the signage will be located on Sydney Trains land adjacent to the Motorway. The top of the signs will be located approximately 21m above ground level so the top of the signs can be viewed by the traffic on the elevated M4 Motorway. The top of the signs will be approximately 13.5m above the M4 Motorway.

Both screens will be fixed to a three-dimensional (3D) steel box that has internal walkways at 3 levels. The rear of the screens can be accessed from the walkways when maintenance of the screens is required.

The walkways in the box are accessed by a ladder that is fixed to the side of a square steel column that will cantilever up from the concrete footing at ground level.

There is an existing double sided front lit supersite sign at the site that will be removed including its existing support structure and column. The existing pile cap and pile will clash with the footing for the new sign and will need to be cut back to a depth of 1.5m below ground.

Structural Description

Steel frame

The structure will consist of 3 parts:

1. a 3D welded steel box that the digital screens will fix to.
2. an L shaped structure consisting of a fabricated square 750mm steel column and a horizontal rectangular steel box section. The 3D welded steel box will be bolted to the horizontal member of the L shaped structure. The L shaped structure will have stainless steel cladding.
3. a fabricated square 750mm steel column that will be fixed to a concrete footing at ground level and cantilever vertically up about 10m and be fixed to the column in the L shaped structure with a bolted socket/spigot connection.

The LED screens will be assembled in the contractor's factory and clamped to the 3D welded box so it can be transported to site as one unit.

The L shaped structure will have stainless steel cladding fixed to it also in the contractor's factory and be transported to the site as one unit.

The 750mm steel column will be transported separately.

The weight of the 3D box, digital screens, cladding, L shaped structure and square steel column is approximately 14 tonnes.

The sign is to be designed for a wind load for region A, terrain category 2.5 and a 50-year design life in accordance with AS1170.2.

Footing

The existing pile cap and pile will clash with the new footing and will need to be cut back to a depth of 1.5m below ground. The reinforcement in the cut back concrete will need to be coated with an approved primer and epoxy mortar.

The new footing will consist of a new pile cap 5m long and 1.5m wide x 1.2m deep and 2/750mm diameter piles spaced 3m apart. There will be a 1.5m x 1.5m x .3m deep concrete plinth on top of the pile cap. The top of the plinth will be level with the ground. The depth of the new piles will be approximately 8m below ground depending on the geotechnical report.

If the ground is non-cohesive ie sand continuous flight augur piles (CFA) are recommended. For a CFA pile the concrete is pumped into the hole as the drill bit is removed so the concrete stops the walls of the hole from collapsing inwards.

Recommendations

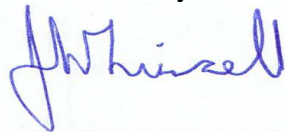
Based on the survey and our preliminary design we see no reason why the cantilevered signage cannot be installed.

A geotechnical report is commissioned to provide information on the soil and its profile.

A services search is undertaken in the area of the footing.

If you have any questions, please do not hesitate to ring the undersigned on 9451 7757

Yours Faithfully,



John Linsell BE(Hons), MIEAust, CPEng, NPER(Struct)
for Dennis Bunt Consulting Engineers Pty Ltd