



RUSHBY BREWSTER

CONSULTING CIVIL AND STRUCTURAL ENGINEERS

Our ref: AWR/VW/PMC 239

22nd June 2016

FAO: Ms L Kelly
Environment Agency
Romsey District Office
Canal Walk
Romsey
SO51 7LP

Dear Ms Kelly

Your Reference: EPR / JB3192JH Site at Holybourne Road, Havant

Thank you for your letter dated 31st May 2016. In response to your queries we supply additional information as follows:

Q. Is the culvert able to withstand the additional loading that will result from the proposed development works?

A. The proposed works comprises the construction of a new entrance roadway and parking areas within the 8m Buffer Zone of the culvert.

Our drawing PMC 239-506 submitted to yourselves indicates the closest proximity of the works to the culvert and the relative depths. This information has been based upon the report prepared by OnSite Central Ltd, Ref: 488432 previously obtained from yourselves.

The report indicates that the culvert is in good condition with no structural defects in this location.

With reference to the Concrete Pipeline Systems Association Technical Guide and using their online Structural Design Calculator the designed strength of the concrete pipe culvert is 162Kn/m and the total external load is 151Kn/m assuming that the culvert is **directly beneath** the proposed works. The loading has been assessed using a road type 'Light Road' as defined within the CPSA Technical Guide. The pipeline is therefore of adequate capacity assuming a Class F B or S Bedding has been used in construction.

Clearly the actual loading will be significantly less than the total external load calculated as there will be a degree of load spread through the ground over the distance from the works.

We attach the CPSA Technical Guide and calculation for reference.

Q. What are the depths of excavations relative to depth of culvert and what affect may this have on the integrity of the culvert?

A. Please find attached our drawing no. PMC 239-551 which shows the proposed construction depths of the road and parking areas. As stated above, the structural integrity of the sewer will not be compromised by the proposed development.



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CERT: 050166

Q. A detailed method of works is required to demonstrate the impact of the construction phase on the culvert.

A. The statement below prepared by PMC Construction and Development Services Ltd which was submitted with the application details the proposed construction procedures.

Tree Protection - protection will be provided to trees and shrubs affected by construction activities in accordance with Portsmouth City Council's Arboricultural Development Statement reference CBA 10551V1 section 11.0 and appendix CB3.

Road construction – a 3.5 tonne tracked excavator will be used for all excavating.

A site strip will be undertaken to remove vegetation and material removed from site, levels will then be reduced to underside of road sub-base, approximately 550mm below existing ground level and area proof rolled using a 0.9 tonne roller. The permeable sub-base and asphalt base course will immediately be laid to accommodate construction traffic followed by wearing course at completion of the project. See Rushby Brewster details for full construction build up

Car Park construction - a 3.5 tonne tracked excavator will be used for all excavating.

A site strip will be undertaken to remove vegetation and material removed from site, levels will then be reduced to underside of road sub-base, approximately 480mm below existing ground level and area proof rolled using a 0.9 tonne roller. In root protection zones a "no dig" construction will be employed and excavating will be carried out by hand. The permeable sub-base will immediately be laid down and protective barrier installed to keep construction traffic away, the block paving finish will be laid at completion of the project. See Rushby Brewster details for full construction build up.

We trust you will find the above information to be in order but please do not hesitate to contact us if you have any further queries.



Allen Rushby IEng, AMIStructE
For and on behalf of Rushby Brewster

Enc

cc. PMC Construction
Jon Maskell Esq. Planning Advisor Environment Agency
Kenn Scaddan Associates
Adrian Legg Portsmouth City Council