To: CSP Pacific

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Summary as requested to explain how the RAPTOR™ Crash Cushion dissipates energy during an end on or re-directive vehicle impact

The RAPTOR™ is a compact crash cushion specifically designed to lessen the impact severity of an errant vehicle with a utility pole or tree. The RAPTOR™ consists of 2 identical shells that are connected together around the hazard and contain 4 cartridges each. These cartridges are arranged in such a way the crash cushion will re-direct or absorb kinetic energy through deforming plastic and compressing air.

During an end on impact the RAPTOR™ employs a 2 stage absorption technique. Firstly the large outer shell will spread the impact load against the rigid hazard and the shell itself will start to deform and compress. The second stage of absorption is from the 2 horizontal cartridges (red cartridges shown below complete with pipes) contained within the shell that are compressed between the vehicle and hazard.

For a re-directive impact the principle is the same except due to decreased severity and contact time there is only 1 vertical cartridge (blue cartridges shown below without pipes) located on each side of the horizontal cartridges within the shell. In addition, the sidewall flange (and packer piece when using the 600 system) shield the hazard where the 2 shells are connected together with 10 steel connectors and fixings.

The shells and cartridges are made of a 'special brew' of UV Stabilized HDPE.

Through absorbing energy as outlined above, the RAPTOR™ controls vehicle impacts so that occupant risk, vehicle damage and hazard preservation is at an acceptable level.

RAPTOR™ 600

RAPTOR™ Cartridges

820C Head On (80kph)