



Owner : CBH Group

Subsidiary(ies) : Freyssinet Australia

Beginning of works : 04/2008

End of works : 05/2009



Description of the work :

Constructed from slip formed reinforced concrete, the Geraldton silos were designed and constructed in the early to mid 1960's. The structure consists of 24No interconnected silos in three rows of eight, . The void formed between four adjacent cells forms a separate storage area referred to as a star cell. These add a further 14 cells which are used predominately for storage of boutique grains. The main cells are 13m in diameter and 36m in height, resulting in a plan layout of 100m long and around 40m wide. Insufficient hoop reinforcement in the silo walls had resulted in extensive vertical cracking and led to restriction in grain loading and operation. As the silos are also located in a temperate sea side location, 40 years of chloride ingress had also led to significant corrosion to the embedded reinforcement, with resulting in widespread delamination and spalling.

Freyssinet mission :

Freyssinet Australia were invited to develop a solution to the restoration of the silos using the company developed silo strengthening system incorporating external post tensioning and proprietary 1X15 anchorages as a design and construct solution. As the other major component of the project was in the field of specialist concrete repair, including both ultra high pressure hydro demolition and dry process gunite reinstatement. In order to verify the Freyssinet techniques for repair and strengthening, initial works included a prototype to an initial three silos. External and internal access was provided using combination of single and twin tower mast climbers. Repair areas in these early works was substantial, with around 30% of the surface area reinstated prior to application of protective coatings and external post tensioning.

