

CASE STUDY

I-210 Logistics Center Rialto, California

Storage Provided:	72,857 cu. ft.
Area:	718,000 SF
Models:	Recharger® V8HD
Number of Units:	726
Installed:	July 2013
Project Engineer:	SB&O Inc. San Diego, CA
Contractor:	E.W. Harmon Contracting, Inc., Norco, CA



Rialto, Calif.-based I-210 Logistics Center is part of a proposed master-planned project located on and around the Rialto Municipal Airport. The 1,445 acre site is a premier West Rialto location, with high-profile corporate neighbors including Target, Under Armour, Black & Decker, Solo Cup and Kuehne + Nagel. The 718,000 square-foot industrial distribution warehouse will house products until they are ready to be shipped to their final destinations across the country.

Upon completion, the Logistics Center will feature a cross-dock facility with 32' minimum warehouse clearance, 185' – 344' concrete truck courts, 112 dock loading doors, each 9' x 10' high, and 249 trailer parking spaces each measuring 10' x 53'. Approximately 3,380 square-feet of the building will be dedicated to the office space.

In addition to designing the facility, engineers from SB&O Inc. collaborated with EW Harmon Contracting, Inc. to design and install a stormwater detention and retention system to comply with water quality requirements as well as provide stormwater pre-treatment to the site.

Engineers determined that the most economically effective method of stormwater management would be to combine an underground network of chambers with a separate above-ground system consisting of retention/detention basins – a relatively new practice. A challenging aspect of the dual-system design was determining how the two systems would interact with each other, and how to keep siltation out of the underground system, into which water from the above-ground system migrates.

To mitigate water quality concerns, engineers chose to raise the inlets in the above-ground detention basins so that the silts had a chance to settle prior



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to flowing into the underground chamber system consisting of 726 units. Two CULTEC StormFilter® 330 units filter runoff before it enters a CULTEC Separator Row™. The StormFilter 330 is a chamber-shaped secondary filter which contains two removable pass-thru filters. Water passes thru the filter baffles and is captured or settles to the bottom of the unit. For maintenance, the StormFilter housing can be vacuumed out and the filter bags may be replaced or cleaned and reused.

The Separator Row, comprised of the first row of underground chambers, is enveloped with CULTEC's No. 410™ filter fabric and sits on top of two layers of woven geotextile fabric. The Separator Row also pre-treats runoff by capturing silts and fine particles in a row of chambers prior to runoff overflowing into the rest of the infiltration basin. To help maintain the stormwater system, debris can be easily vacuumed out using a water jet, which pushes water toward the catch basin and sump while removing waste.

The Recharger V8HD was selected for the Logistics Center because it both maximizes storage in a small footprint and satisfies the other design requirements of the site. The internal manifold feature available on the CULTEC stormwater chamber allows for a more cost-effective and condensed bed size since a costly and time consuming custom pipe and fitting external manifold fabrication is not required. Smaller chamber-like "feed connectors" are inserted into side portals located on the sidewalls of the stormwater chambers to create the internal manifold. Installation is quick and efficient.

Regulatory bodies called for a stormwater solution that would mitigate the proposed flows to be equal to or less than the existing flows on site – particularly for higher-flow flood conditions. Moreover, to meet water quality regulations, a certain volume had to be retained onsite and infiltrated into the ground to accommodate lower-flow water quality requirements.

"Water flows into the above-ground detention/retention basins and fills about a foot deep before overflowing into the CULTEC chambers located underground," said Don Brooks, Engineer with SB&O Inc. "The two systems combined provide the detention and retention volumes required to meet the regulatory requirements of the county."

Each Recharger V8HD chamber measures 32 inches high and 60 inches wide and has a bare chamber capacity of 8.68 cubic feet per linear foot. The bed of chambers provides the site with a total of 72,857 cubic feet of storage. In addition, the V8HD model is able to withstand traffic loading with minimal cover – a major site requirement since the chambers will largely be covered with parking areas. Further, there is no underground storm drain system to tie

into, so the runoff outlets are located to the street surface. For this reason, the engineers were eager to keep the storage elevation as high as possible to direct the flow to the street.

“This was our first time working with CULTEC, and we look forward to teaming up with them again in the future,” recalled Brooks. “Their team was very responsive and helped us get the job done quickly and efficiently.”

