

Case Study

Dura Slope[®] Channel Drains

REPURPOSED WAREHOUSE UTILIZES DURA SLOPE[®] CHANNELS WITH DUCTILE FRAME AND GRATES TO HANDLE SHEETFLOW AND HEAVY TRAFFIC

A site previously used as an auto salvage yard in a busy area of Philadelphia was scheduled for an upgrade. The owners decided to convert the space into a warehouse and storage facility, and therefore needed to incorporate stormwater drainage improvements as part of their planning.

The existing property would see several interior and exterior upgrades, with the outside hardscape requiring an enhanced stormwater solution that could handle at least an acre of water runoff. In addition, the system chosen would need to meet H-20 load ratings as the area would experience a lot of traffic with deliveries from class 4 to class 8 trucks, which can weigh upwards of 33,000 lbs. when fully loaded.

While precast trench drains from a pre-caster were an initial choice for the specifier, NDS was engaged to determine if there were any alternative, more cost-effective options.

The NDS Design Worx[®] team consulted with the engineering firm, providing an analysis of the site and noted that due to site constraints, bottom outlets would not be a viable option.

A DOUBLE AND SINGLE RUN CHANNEL DRAIN MAKES THE PERFECT COMBINATION

To address a need for increased capacity coupled with the limited depth constraints, the team came up with a plan to place a dual run of NDS Dura Slope trench drains on the north side of the building and a single run on the west side. The site required a combination of both neutral and sloped 6" drains to maintain a shallow installation and allow for the use of end outlets.

PROJECT SUMMARY

PROJECT TYPE
Capture & Convey

PROPERTY
Warehouse

STAKEHOLDERS
DPA Construction
Bohler Engineering

NDS PRODUCTS USED
585 linear ft. of 6" Dura Slope channel drains with ductile iron frames and grates



While unique in design, the combination of a side-by-side and single run would meet the job's criteria, handling large amounts of water while also living up to the rigors of heavy traffic. Ductile iron frames and grates were also specified since they provide a Class D load rating of 326-575 psi and are suitable for heavy-duty equipment at speeds less than 20 mph. These frames are also ideal for use with hard tires such as forklifts.

The NDS Dura Slope solution – with channels made from HDPE – would be easier and much less expensive to install since it's modular and lighter weight compared to larger and heavier pre-cast units. It's also more effective at managing sheetflow thanks to channels with the .7% built-in slope, which optimizes flow rates.

COLLABORATION MAKES FOR EASY FINISH

NDS worked with the Bohler team to provide calculations and layouts, and collaborated over numerous Teams calls to ensure the specific site details were finalized. When it was time for installation, DPA Construction reported that the Dura Slope solution was easy for its crew to install and ultimately saved them time and money on the project.

NDS Design Worx Services Utilized:

1. Layout drawings
2. Calculations
3. Installation instructions