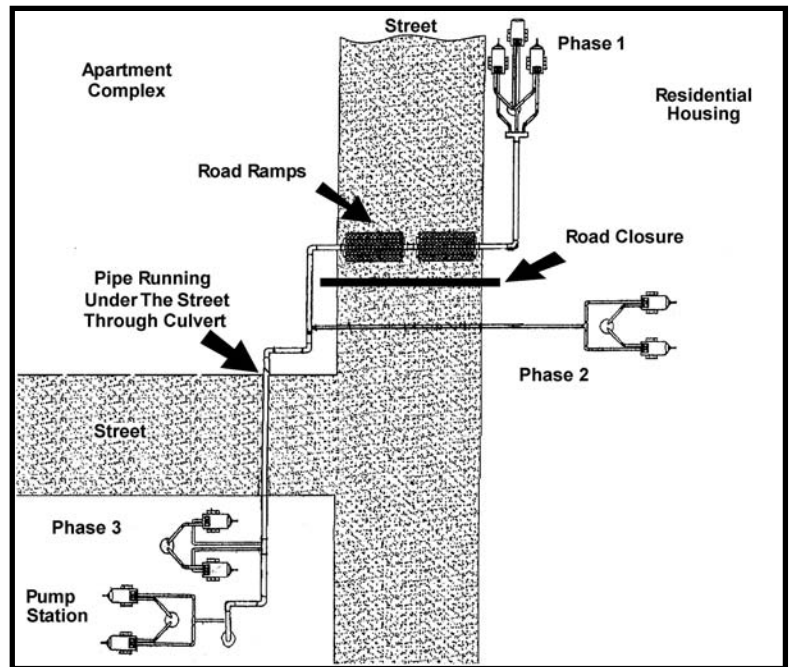


# Application Engineering Bulletin

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## Major Work on Bypass Completed by ITT Flygt Canada with Thompson Pumps

The Landsdowne Sewage Pumping Station in British Columbia, Canada, was due for cleaning, inspection, maintenance and construction work on its discharge bases and main sewer line. This work required that the station and three separate sewer lines that led into the pump station be completely blocked and the sewage bypassed for treatment. Peak flows were measured at 5-million gallons of sewage per day. Randy Columbo, engineering technician for the sewer utility department in Coquitlam, British Columbia, Canada, contacted ITT Flygt, in Vancouver, Canada for their assistance. Using Thompson Pumps to complete the bypass, ITT Flygt combined efforts with Thompson Pump's Applied Products Department and Mr. Columbo, to determine the best system for this application. The project was comprised of three phases:



Schematic of the bypass operation for the Landsdowne Sewage Pumping Station.

The first phase was located on a single street in the middle of a residential section of Coquitlam, which were mostly single-family homes with a highly populated apartment complex across the street. With the bypass taking place in a residential area, there was much concern about noise during operation. Therefore, three Thompson 6-inch Dry Prime Compressor-Assisted Open Trash/Sewage Sound Attenuated Silent Knight® Units with the *ENVIROPRIME*® Priming System were used. One unit was used as the primary unit, handling the majority of the pumping. A second unit was used as stand-by should the flows rise, and a third unit was used as emergency back up. This was necessary to make sure that the pumps could handle the peak flows.

While the Thompson Silent Knight® Sound Attenuated Pumps are capable of reducing sound to 70-decibels, or the equivalent to sound produced during a normal conversation, a plywood sound barrier was constructed around the rear and sides of the pump units to further deaden the sound produced while the pumps were in operation. Each of the pump's 6-inch suction lines was fed directly into the manhole, and 6-inch discharge lines were fed into a common manifold with an air release valve to reduce pressure. The manifold's output led into 12-inch High Density Polyethylene (HDPE) pipe that was used to receive each phase, and eventually direct the entire application to its final destination.



Three of Thompson's 6-inch Dry Prime Compressor-Assisted Open Trash/Sewage Sound Attenuated Silent Knight® Pumps on the first phase of the bypass operation.

As per specifications, the discharge from the first phase was to be directed across the street, to be inline with the pump station. Since the road needed to be accessible at all times by the residents of both the single-family homes and the apartment complex, two 12-inch road ramps were installed to allow free access to the road and to allow the first phase's discharge to be directed across the street.



The road ramps installed to direct the discharge from the first phase across the street in line with the Landsdowne Pumping Station.

The second phase of the bypass was located a few hundred feet from the first phase in a less populated area. Two Thompson 6-inch Dry Prime Compressor-Assisted Open Trash/Sewage Sound Attenuated Silent Knight® Units with the *ENVIROPRIME*® Priming System were used. One unit was used as the primary unit, handling the majority of the pumping with a second unit used as stand-by. Again, the pumps were fed into a common manifold, and discharged into 12-inch HDPE pipe. The discharge pipe from the manifold ran across the street to meet the discharge from the first phase and join into the HDPE piping. The road was closed to traffic and rerouted to the second phase location to accommodate the various construction crews to come in and work on the pumping station across the street from the second phase of the bypass. Because traffic was not a concern at the second phase, road ramps were not used.



The road was closed to oncoming traffic at the second phase of the bypass to allow construction on the pumping station located nearby.

The third phase was located directly by, but across the street from the second phase. With the first and second phases combined into a single stretch of 12-inch HDPE piping, it was then directed into the third and final stage of the bypass. Before the pipe reached the third stage, it was directed through a box culvert. A box culvert is a pipe installed underneath a road that allows the uninterrupted flow of water from a stream, water run-off ditch, or other watercourse and also allows traffic to travel above. By directing the HDPE pipe through the culvert, rather than over the road above, it eliminated the use of further road ramps for the road traveling over the culvert.

The third phase was comprised of two parts. The first was the bypass of the sewer line through a manhole located near the pumping station itself. Two Thompson 6-inch Dry Prime Compressor-Assisted Open Trash/Sewage Sound Attenuated Silent Knight® Units with the *ENVIROPRIME*® Priming System were used. One unit was used as the primary unit, handling the majority of the pumping. A second unit was used as stand-by. The discharge from the two pumps was led into a common manifold, which joined the common HDPE piping from the first two phases once it exited from the culvert. The second part of the third phase was the bypassing of the pumping station itself, which used two more Thompson 6-inch Dry Prime Compressor-Assisted Open Trash/Sewage Sound Attenuated Silent Knight® Units with the *ENVIROPRIME*® Priming System. One unit was used as primary, and a second unit was used as stand-by. These also joined the common line, which finally discharged into a manhole close to the pumping station.



The pumps are installed at the third phase and at the pumping station.

The bypass was a success and the pumping station was successfully restored.