

NJWEA - Winter Tech Transfer 2025 Trenchless Technologies



Bypass Pumping for Collections

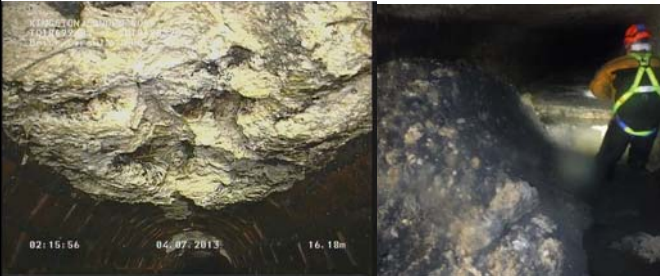
Ryan Booth
Vice President

Brett Anderson
Rental Sales Lead

Pumping Services, Inc.

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02:15:56

04/07/2013

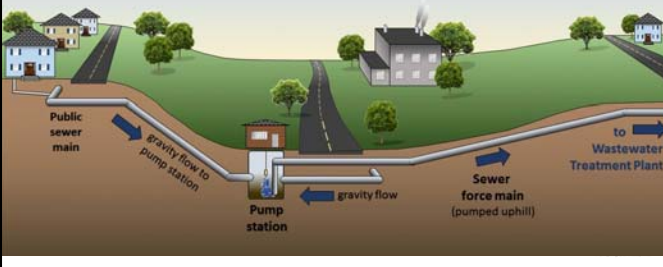
14.18m

Pumping Services, Inc.

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Estim

How the Sewer Works

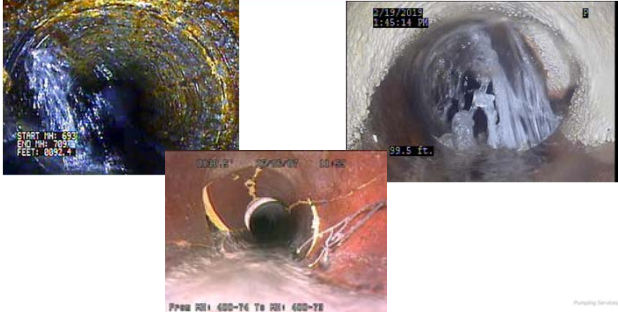


Public sewer main → gravity flow to pump station → Pump station → gravity flow → Sewer force main (pumped uphill) → to Wastewater Treatment Plant

Pumping Services, Inc.

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STARTING 655
END 140
FEET: 0052.4

39.5 ft.

PIPE 400-76 TO 400-76

Pumping Services, Inc.

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Pumping Services, Inc.

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Impacts



Spills, Fines, Environmental Impact

Need for increased treatment capacity

Running equipment harder/longer

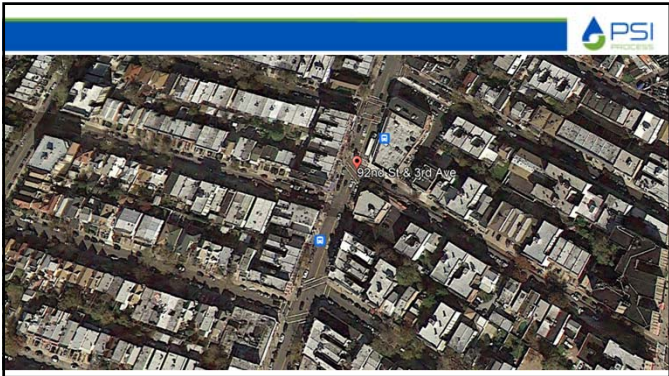
Majority of these go undetected

Physical Hazard to This:



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Gravity Sewer Repair

Understanding System Components:
Temporary Diversion System

Utilizing a surface-mounted, automatic self-priming, solids-handling portable pump

Flow →

godwin pumps

Best Choice, Best Quality, Great Pumps, Great People.

Why are we bypassing?
Cleaning
Repair/Replacement
Lining
How long do you think it's going to take?
Planned or Unplanned?

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Pump Station Bypass

Why are we bypassing?
Cleaning
Repair/Replacement
Capacity Issue
Mechanical Failure
Electrical or Control Failure
Bid Upgrade
How long do you think it will take?
Planned or Unplanned?

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TYPES - EQUIPMENT

- Engine driven surface-mounted, automatic self-priming, solids handling portable pump
- Electric driven surface-mounted, automatic self-priming, solids handling portable pump

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TYPES - EQUIPMENT

o Electric Driven Submersible Pumps

o Hydraulic Driven Submersible Pumps



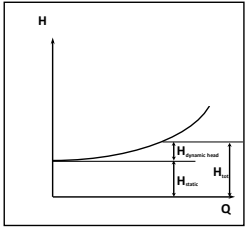
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Equipment Selection Guidelines

The System Curve

The System Curve is a plot specific to the piping system that describes the head at various flows

- The vertical axis is Head
- The horizontal axis is Flow



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EQUIPMENT SELECTION - DEPTH

Bypass from wet well
Depth 20' or more
Site has electric



Bypass from wet well or Manhole
Depth 20' or less
Site has no electric



Bypass from wet well or Manhole
Depth 20' or more
Site has no electric



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Equipment Selection Guidelines

The Pump Curve

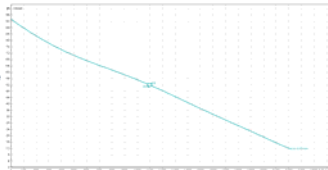
The pump curve will describe the expected range of flows given various magnitudes of head to achieve:

A pumps operational point will often be described as:

Flow @ Total Head
Static Head = ____

Plot the system curve onto the pump curve:

System Curve Points:
1000 GPM @ 48 feet Total Head
20 feet Static Head



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EQUIPMENT SELECTION

o Surge

o Variations in suction lift - level can get before impacting properties upstream



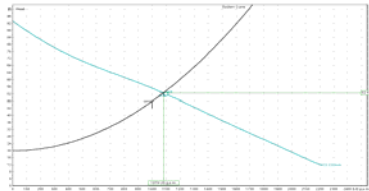
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Equipment Selection Guidelines

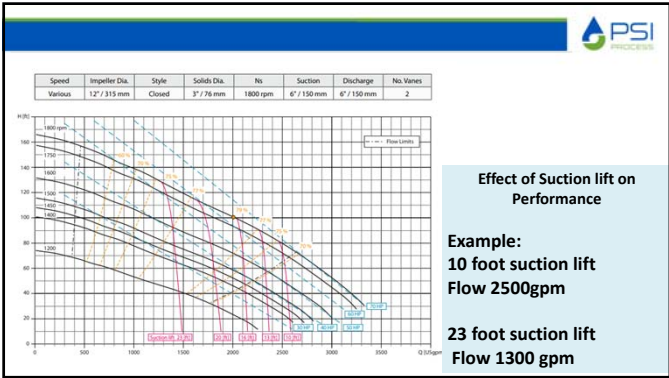
The Pump Curve – The Duty Point

The Duty Point is the point at which the system curve and the pump curve intersect:

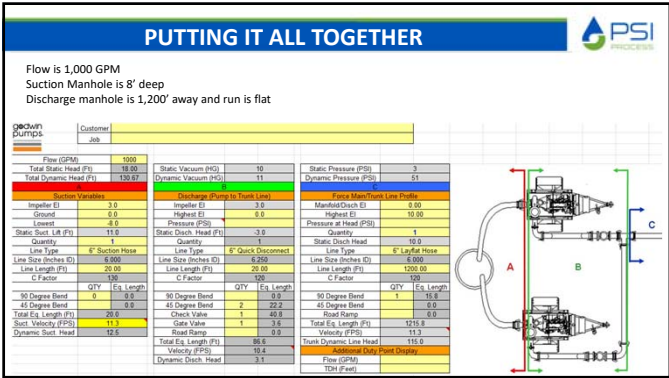
- This is the point that the pump will be expected to run at



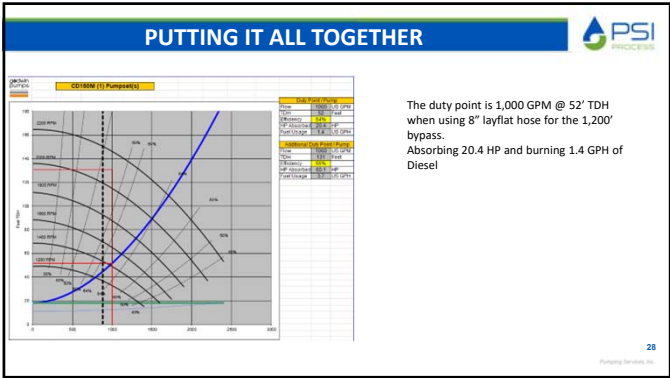
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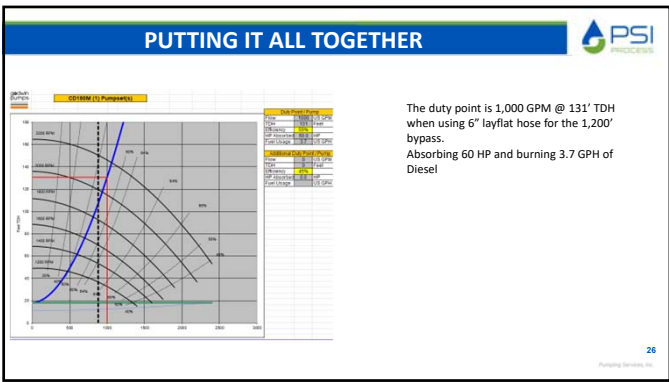
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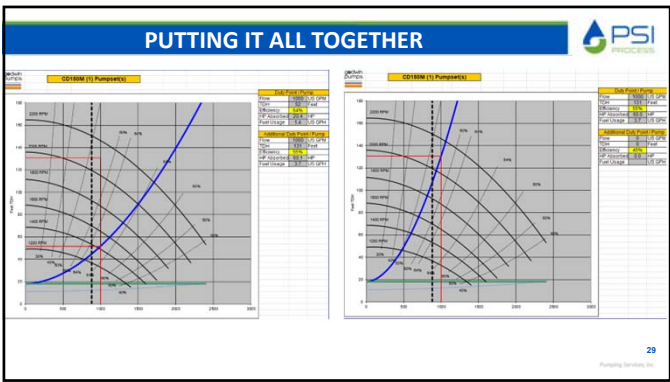
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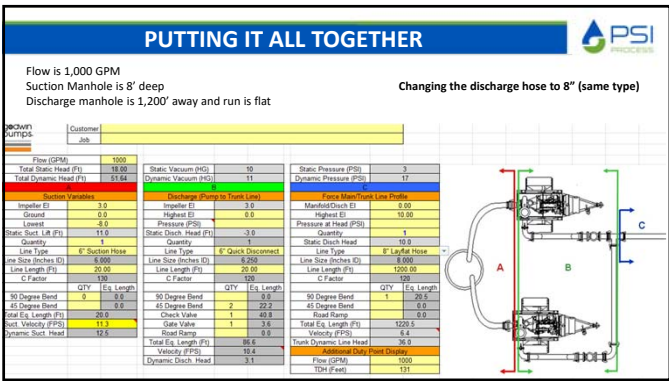
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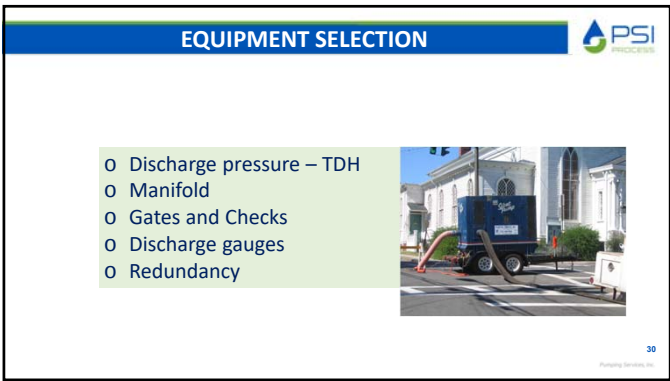
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EQUIPMENT SELECTION – HOSE, PIPE, FITTINGS



PSI

PROCESS

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BYPASSING IS NEVER THE GOAL

Uninterrupted Sewerage Collection and Transportation is the Goal

Planning for Long Term Success for new construction or upgrading

- Obtain a long-term vision of the system
- Obtain a long-term vision of the system

For Existing Stations

- Identify the station
- Identify the station
- Identify the station

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PROCESS

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EQUIPMENT SELECTION – HOSE, PIPE, FITTINGS



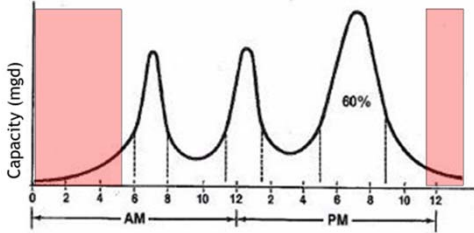
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SITE CONSIDERATIONS



Sewage flow pattern for a typical municipality

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EQUIPMENT SELECTION – HOSE, PIPE, FITTINGS



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Sound Attenuation – Residential Areas

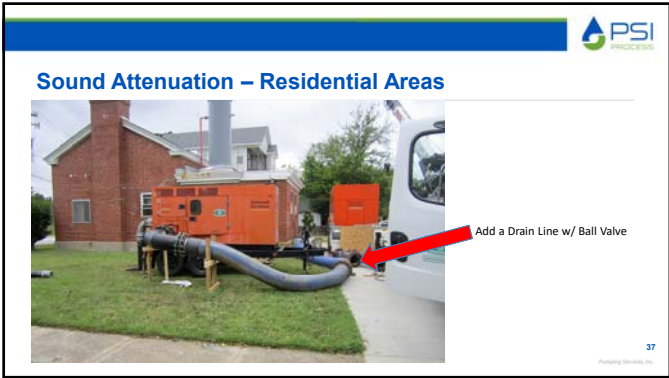


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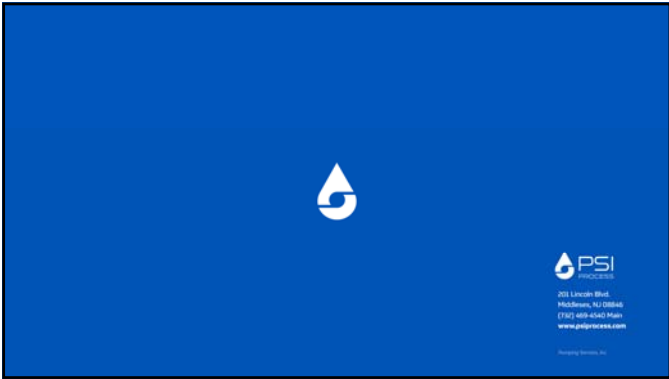
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