

PROJECT DESCRIPTION

PKZ Engineering is working with AKM Consulting Engineers to design a groundwater well and PFAS treatment facility, providing clean water for the South Montebello Irrigation District.

SITE DESCRIPTION

Proposed Treatment Site



South Montebello Irrigation District

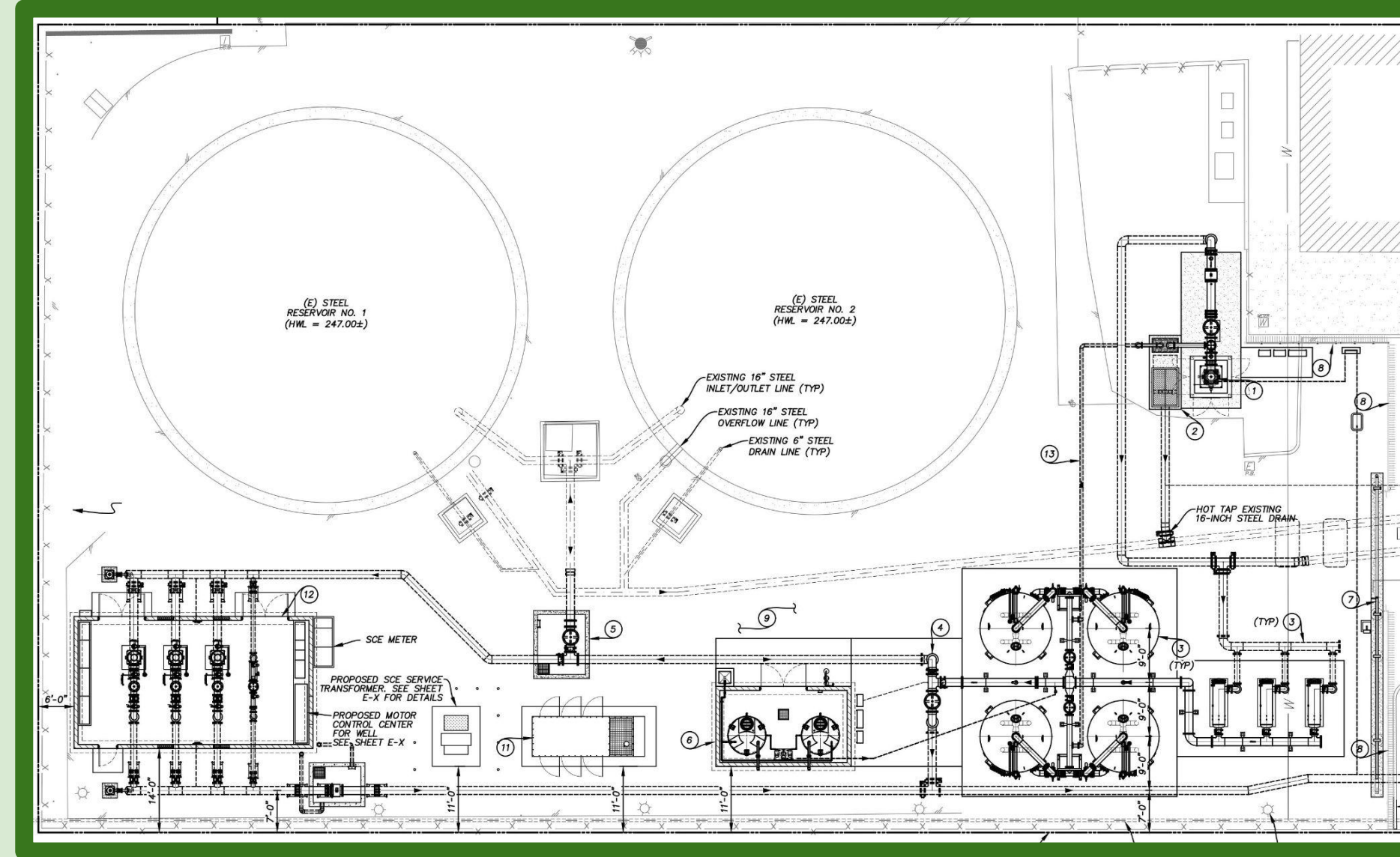
PFAS BACKGROUND

Per- and Polyfluorinated Substances

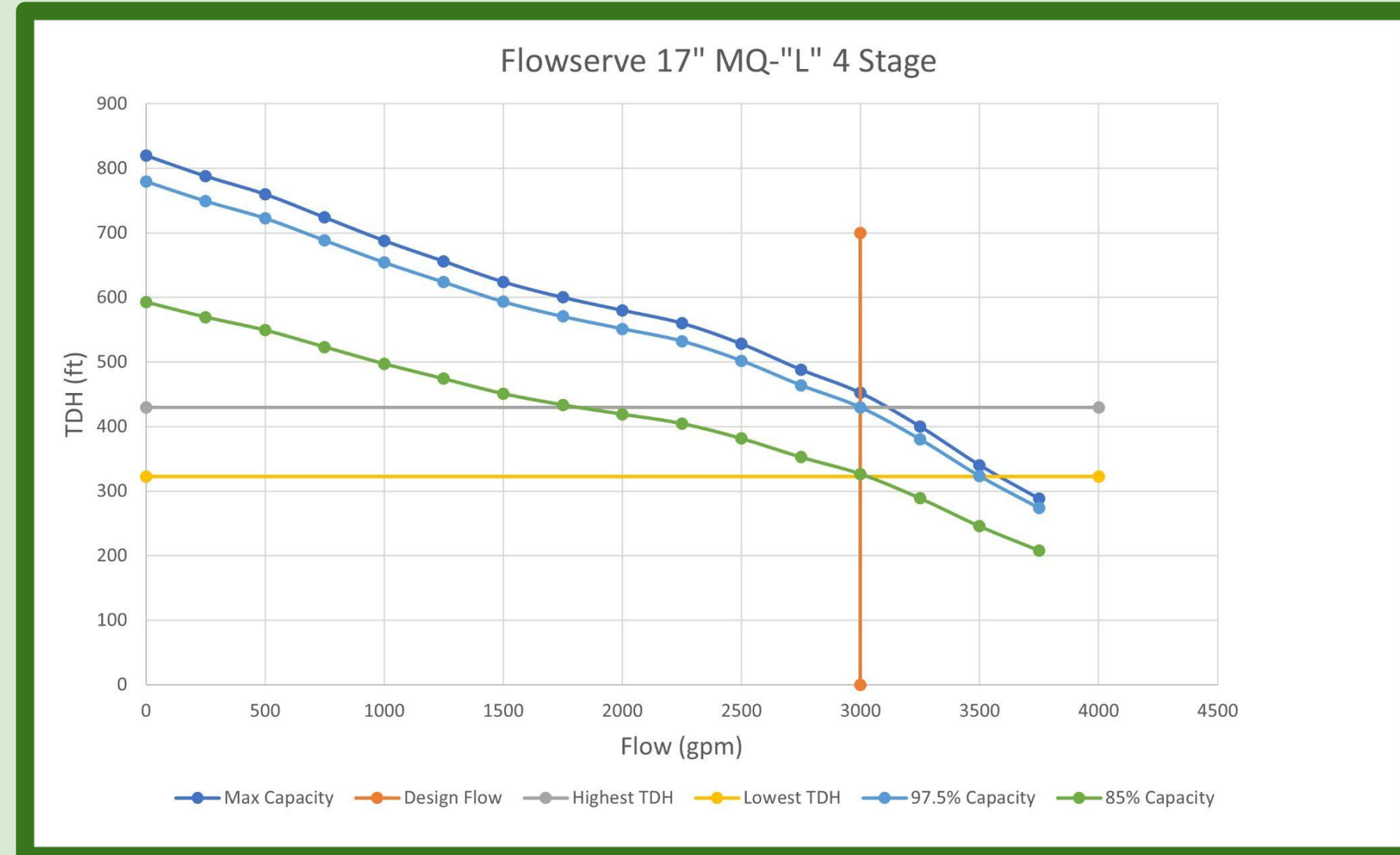
- Carcinogenic & harmful to organic life
- Stems from adhesives, plastics, non-stick, and other consumer goods
- Considered as “forever chemical” due to its non-biodegradable nature

CA PFAs Notification & Response Levels:

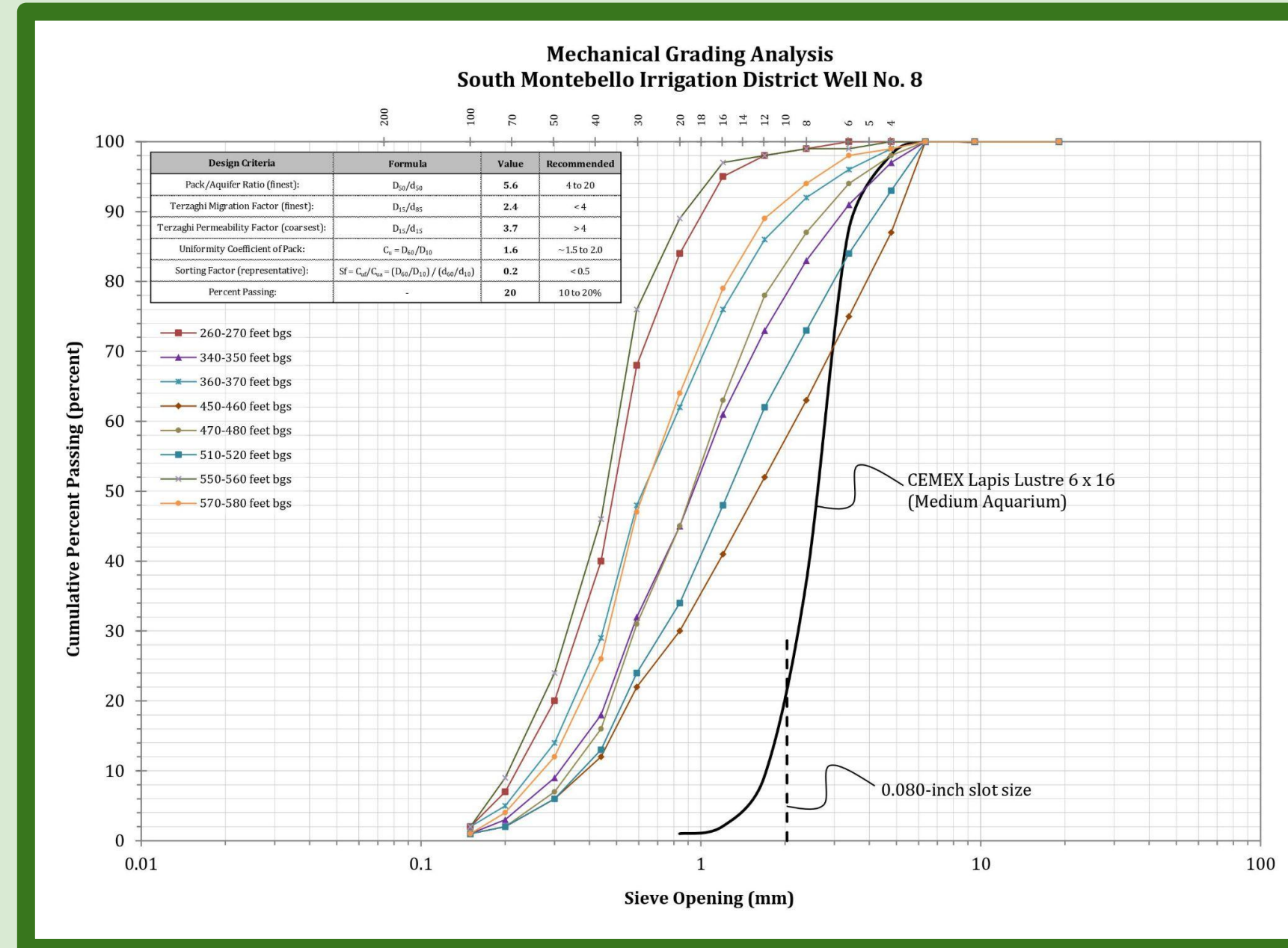
PFOA: 5.1 ppt & 10 ppt
PFOS: 6.6 ppt & 40 ppt
PFBS: 0.5 ppb & 5 ppb
PFHxS: 3.0 ppt & 20 ppt



PLAN VIEW OF SITE



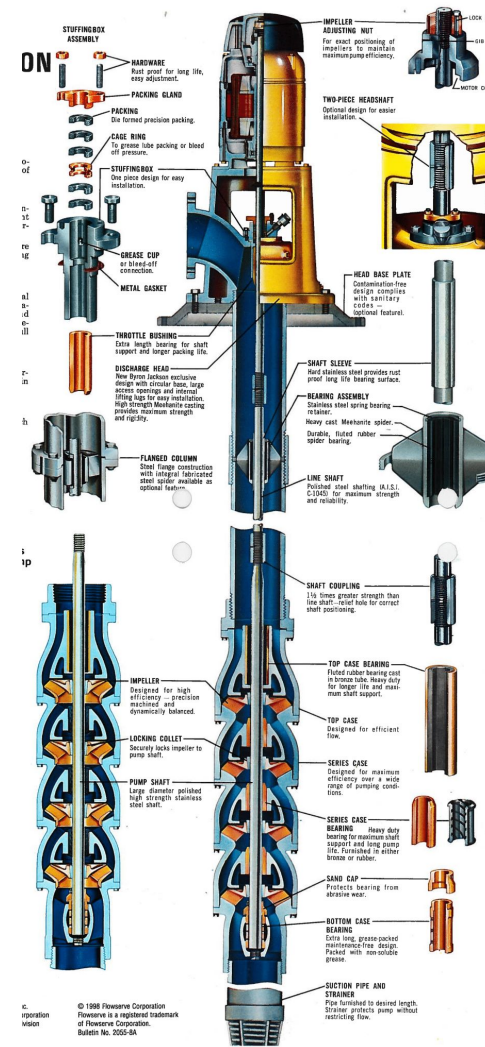
FLOWSERVE 17” MQ-“L” 4 STAGE PUMP CURVE



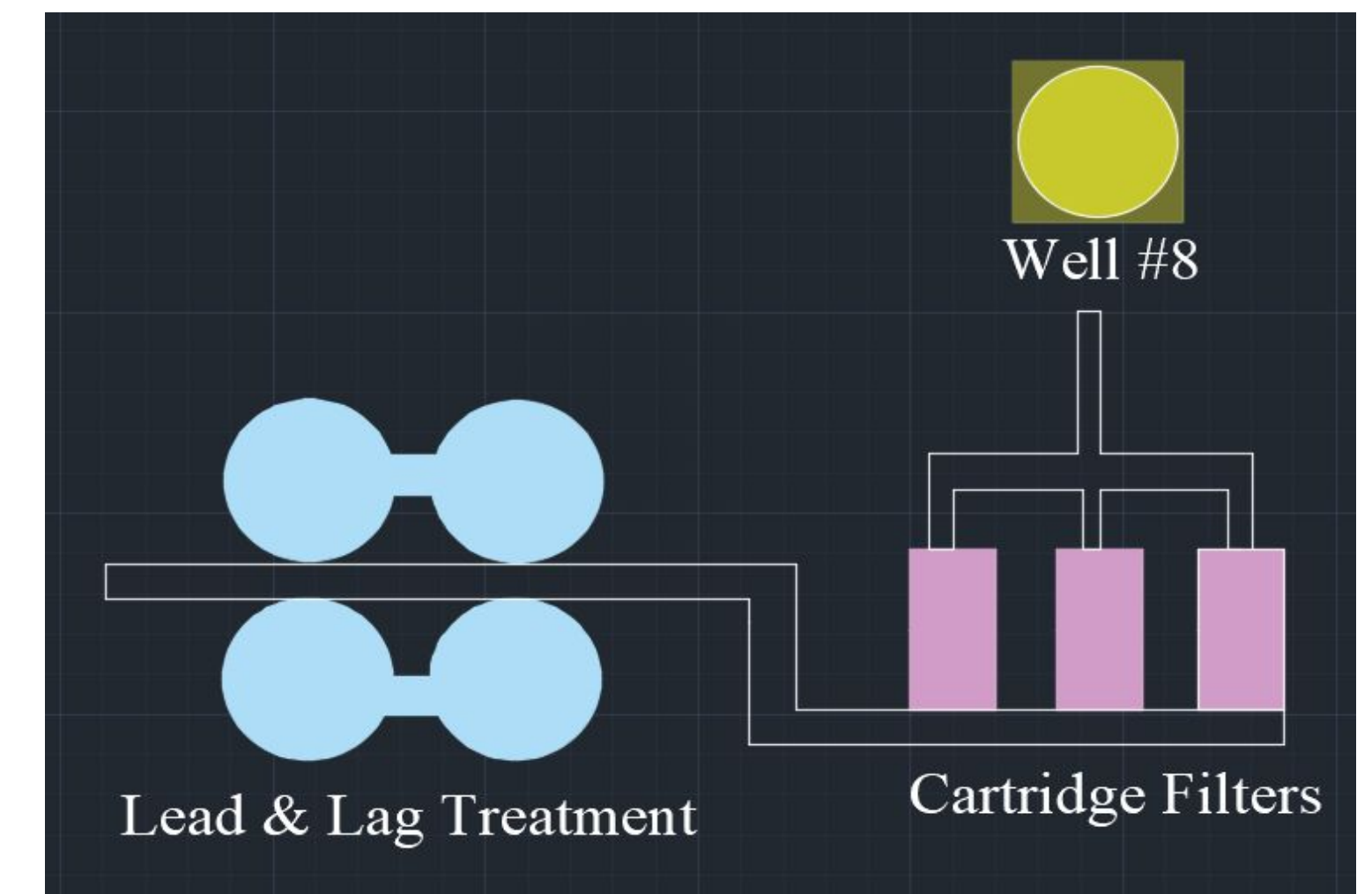
MECHANICAL GRADING ANALYSIS

PUMP DESIGN

- Design flow of 3000 GPM
- Discharge pressure of 70 psi
- Variable dynamic head ranging from 323 to 430 feet
- Flowserve 17” MQ-“L” 4 Stage Pump with 12 5/16 inch diameter bowl
- Above ground motor



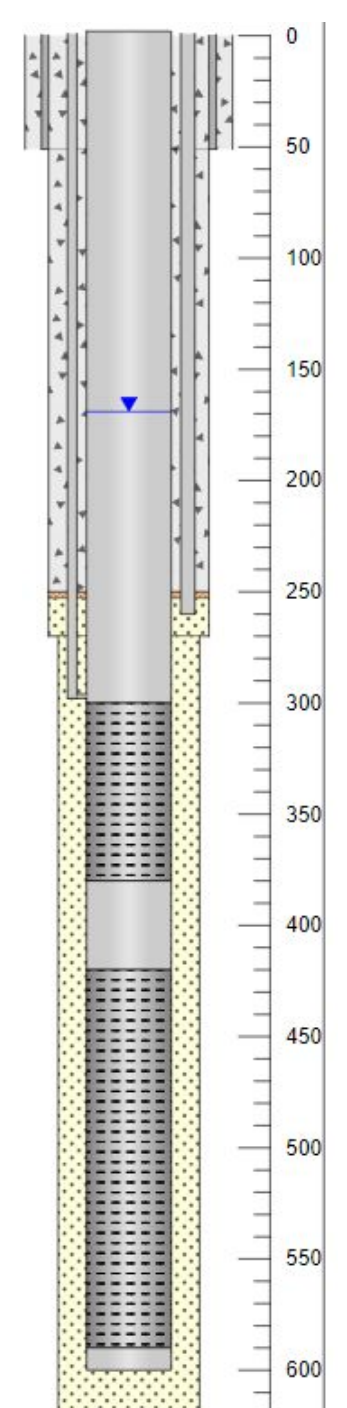
TREATMENT DESIGN



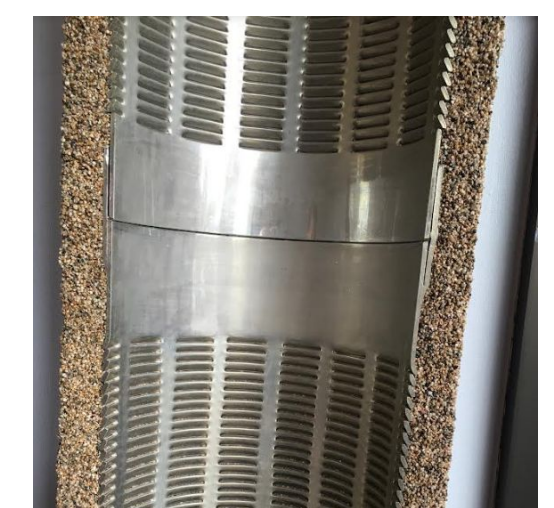
- Cartridge filtering at 5 microns
- Employs a lead & lag system
- Lead tanks filter out all of the PFAS
- Lead & lag tanks swap once PFAS reaches notification level
- GAC was assessed as an alternative for ion exchange resin
- Resin was chosen due to a shorter empty bed contact time

PROJECT MANAGER: PASHA WYNANT
PROJECT ENGINEERS:
ZACH WHARTON
KRISTINE NGUYEN
INDUSTRY ADVISOR: ZEKI KAYIRAN, P.E.
FACULTY ADVISOR: ADEYEMI ADEYELE, PH.D.

WELL DESIGN



- Testings Done**
- Drilling pilot hole
 - Isolated zone testing
 - Alignment test
 - Caliper test
 - Sieve Analysis



Well Screen/Casing Material:
ASTM A778 304L Stainless Steel

Well Screen:
Louvered, 0.080-inch slot size



Gravel Pack:
CEMEX Lapis Lustre Medium Aquarium