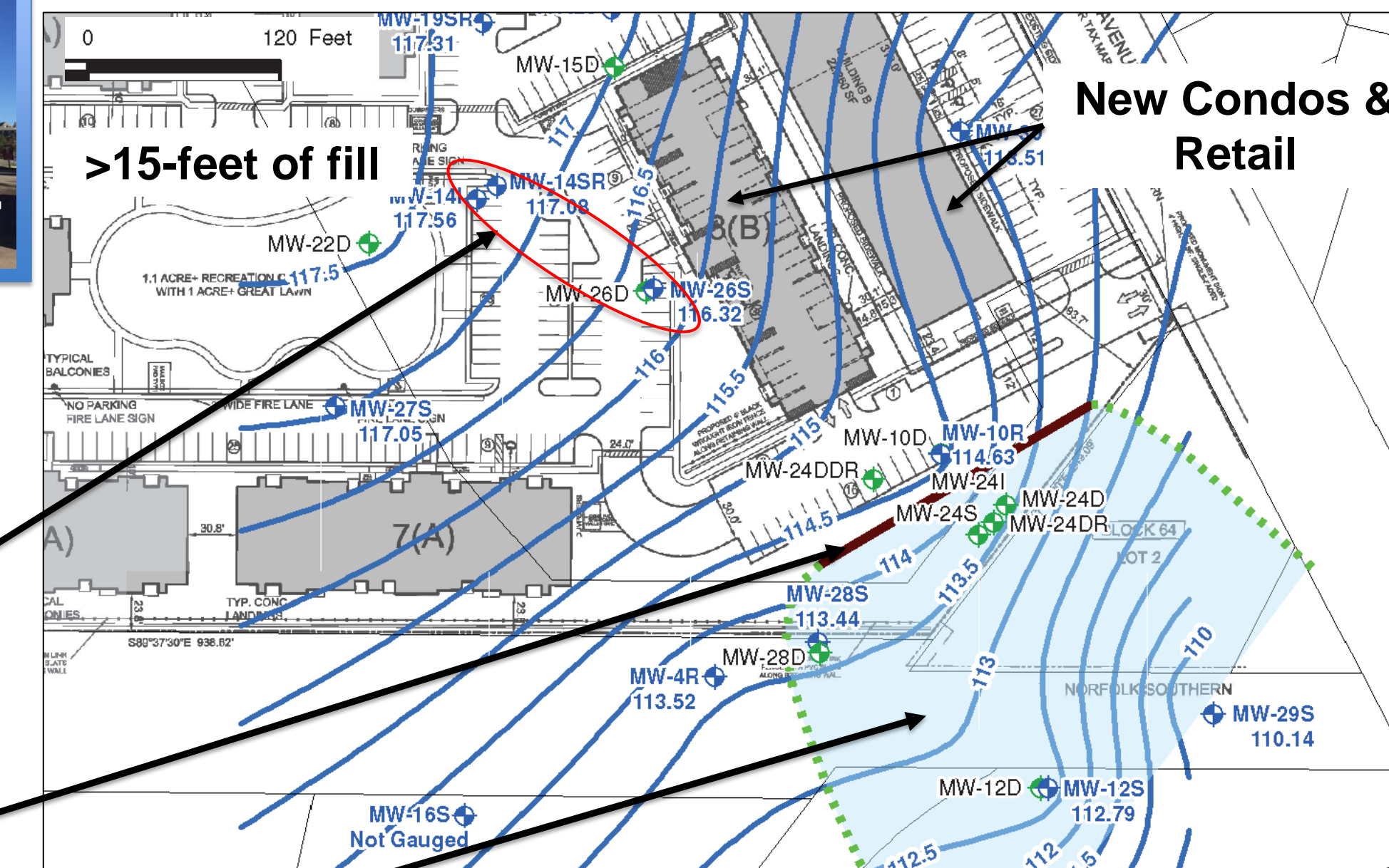
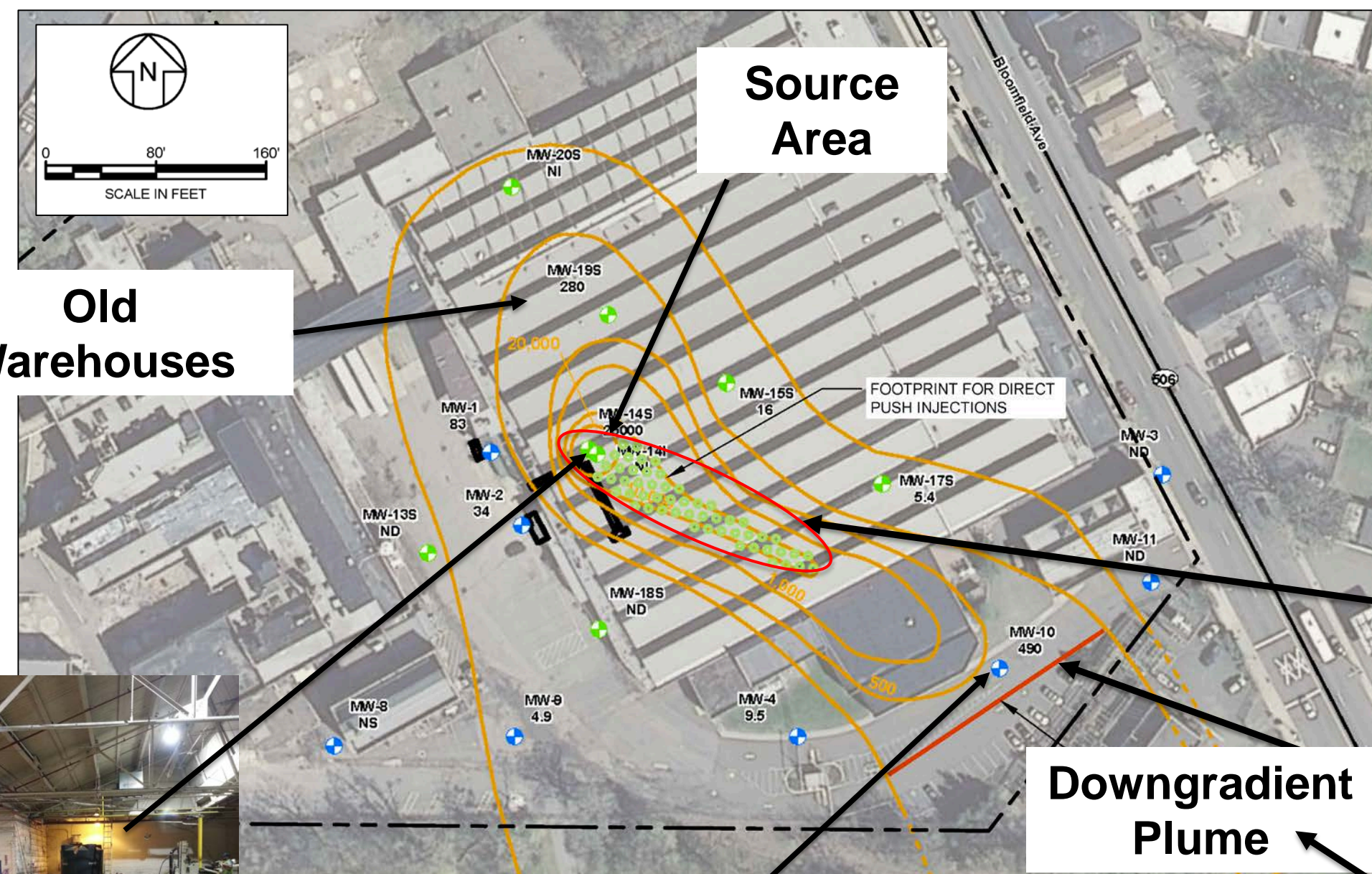




Pilot Testing through Remedy Implementation (2013 - 2015)

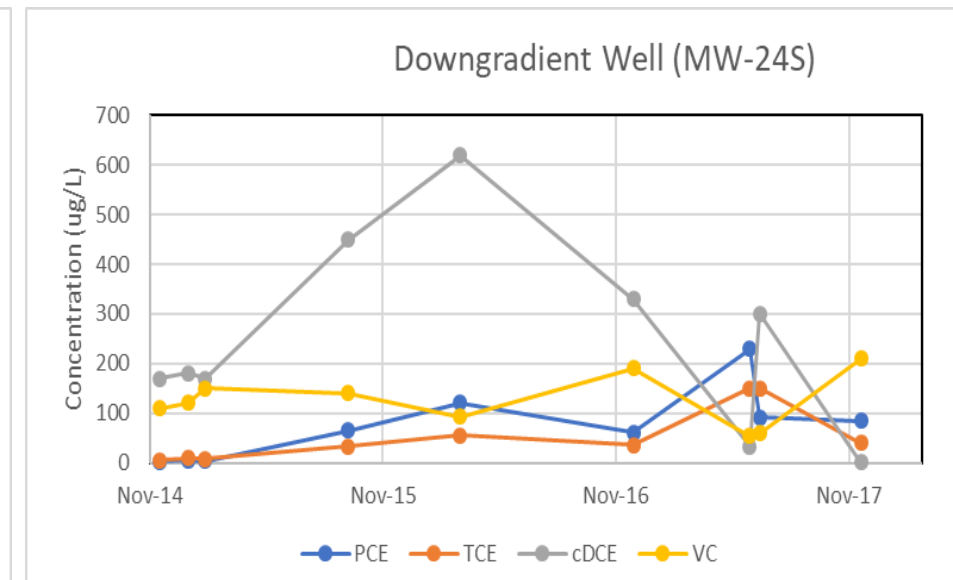
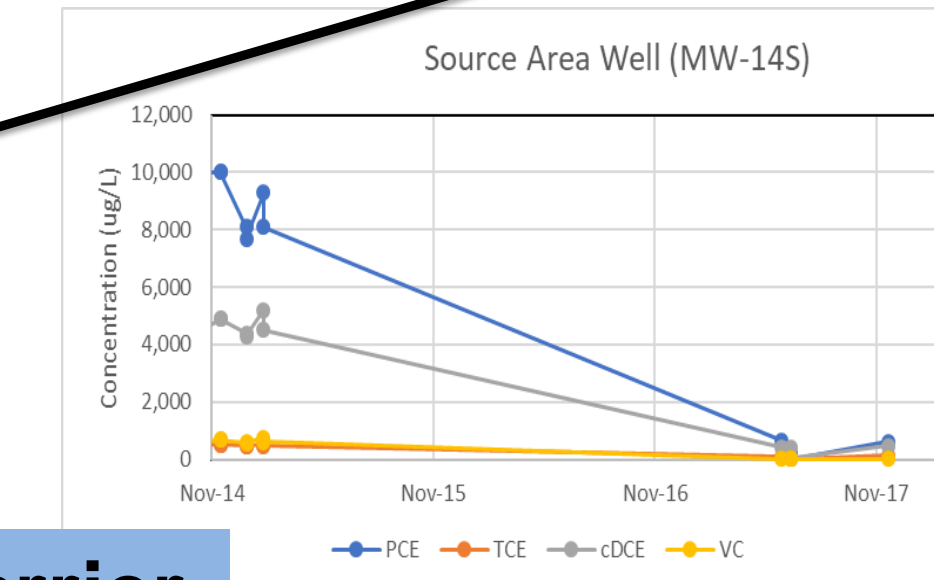
Demo and Site Development (2014-2017)

Developed Site and Operating Remedy (2017-Current)



Remedy Components

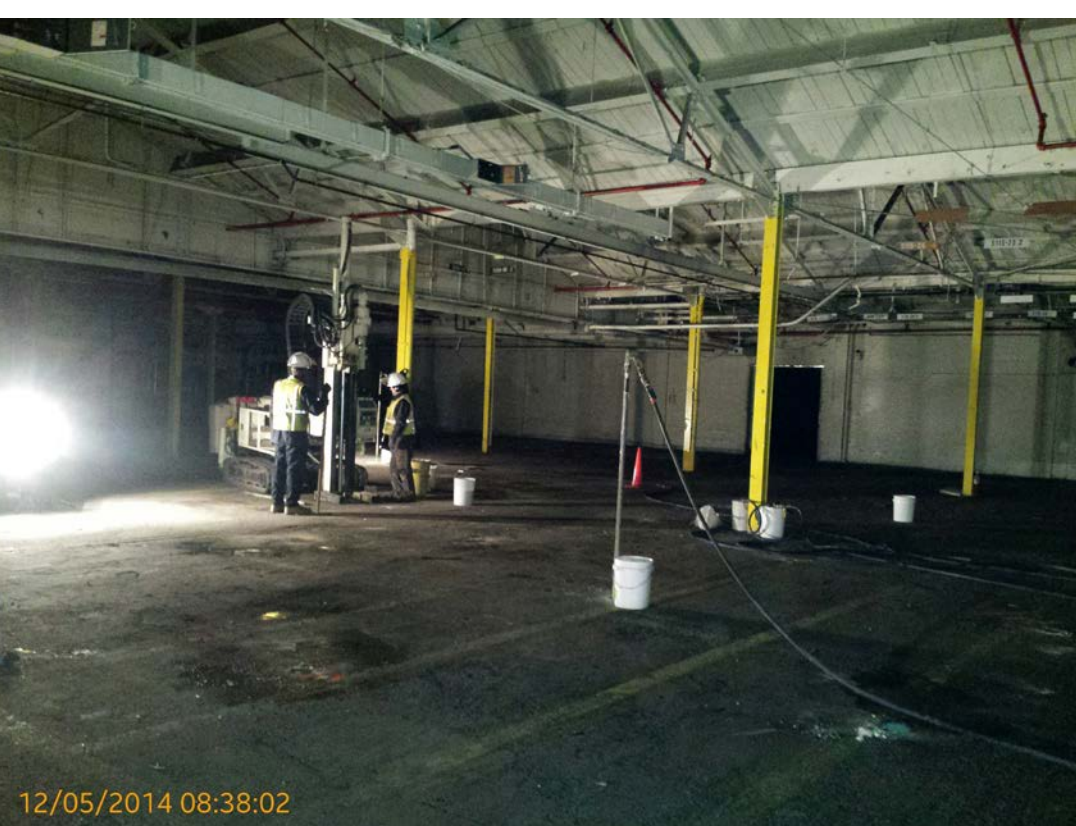
- Source Area**
53 Direct Push Injections with EVO & Bioaugmented with KB-1™
- Biobarrier + ZVI**
200 ft Gravel/ZVI Trench to 30 ft. Amended with EVO & Bioaugmented with KB-1™
- Monitored Natural Attenuation**



Challenges For Remedy Implementation (2014/2015)

- Design, permitting and implementation within 6-months
- Inflexible completion date prescribed by the property transaction
- Implementation coincided with warehouse demolition and placement of ~15-feet of fill at the site
- Our client was not the property owner
- Field work performed between November 2014 and March 2015, one of the coldest and snowiest winters on record
- Monitoring network and performance monitoring postponed for 2 years while the site was developed

Source Area – Direct Push (Nov & Dec 2014)



Downgradient Biobarrier (Dec 2014 - Mar 2015)



Lessons Learned

Bioremediation, implemented with different approaches and combined with ZVI, capping and MNA, provides a robust and flexible remedy for this site. These remedies were compatible with site demolition that occurred concurrent with remedy implementation and complementary to future site use. Constant communication among Geosyntec, the Responsible Party and property owner, as well as flexibility among parties, was critical to designing and implementing this project within the 6-month timeframe and coincident property redevelopment activities.

Special thanks to Rebecca Hollender of TRC in New Providence, NJ for her technical and regulatory assistance as the site LSRP