

TRI - REGIONAL JETS 2025



Navigating Dewatering Challenges in High-Precipitation Zones

(Civil Works Panel B-II)

Abstract: Industry-Government Expert Panel discussing the challenges of dewatering for civil works construction in regions like South Florida, where high water tables and intense rainfall present unique challenges. This session provides a forum to discuss dewatering challenges and explore best practices in understanding government specs and achieve desired outcomes.



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Navigating Dewatering Challenges in High-Precipitation Zones

Panelists:

- Dan Blaydes, PE, Lead Engineer (Dams & Levees), USACE Jacksonville
- Richard Bird, PE, Principal Geotechnical Engineer, AECOM
- Greg Landry, PE, LEED AP, Chief Engineer-Dewatering, Keller-North America

Moderator:

Jason Kirk, PE, CQM-C, VP/Federal Strategy, Black & Veatch



MODERATOR

Jason Kirk PE, F.SAME, CQM-C, Assoc. DBIA™

Black & Veatch

VP, Federal Strategy & Growth Officer



BLACK & VEATCH

- **Sports Teams:** Chicago Cubs, Chicago Bears, Army Football
- **Vacation Spots:** Hiking the Appalachian Trail, recent visit to Quebec
- **Did You Know:** I hit my little league foul balls into the cornfields of Northern Illinois and practiced 7th grade football next to cottonfields in Northern Louisiana
- **Hobbies:** Mountain biking, hiking
- **Cooler Project(s):** Everglades and Louisiana Coastal Area Restoration



PANELIST

Dan Blaydes, PE
USACE Jacksonville
Lead Engineer, Dams and Levees



US Army Corps
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Jacksonville District

- **Sports Teams:** Georgia Tech Yellow Jackets, Atlanta Braves, Jacksonville Jaguars
- **Vacation Spots:** “Forgotten Coast” of Florida
- **Did You Know:** Has regular encounters with sharks
- **Hobbies:** Scuba Diving/Spearfishing, Pickleball
- **Cooler Project(s):** South Florida Ecosystem Restoration



PANELIST

Richard Bird, PE

AECOM

Principle Geotechnical Engineer

AECOM

- **Sports Teams:** Baseball - Cardinals
- **Vacation Spots:** Hawaii sightseeing, small sloop sailing in Mediterranean and Caribbean
- **Did You Know:** I first met USACE engineers while studying at Harvard 58 years ago
- **Hobbies:** Part-time-on-call work for AECOM
- **Cooler Project(s):** Conceptual dewatering design for Dry Dock 2 replacement, Norfolk Naval Shipyard (VA) and Turn-Key sub-subcontract dewatering design, installation, operation, monitoring, maintenance and removal for Moscone Convention Center (CA)



PANELIST

Greg Landry, PE, LEED AP
Keller North America
Chief Engineer – Dewatering



- **Sports Teams:** I'm a fair weather fan, so whichever Toronto team is in the playoffs.
- **Vacation Spots:** Maine
- **Did you Know Fun Fact:** The most expensive dewatering project ever performed in the United States was for Mississippi River Lock and Dam 26 in the 1980s.
- **Hobbies:** Scouting with my two sons.
- **Coollest Project(s):** Beacon Hill Light Rail Station in Seattle, WA and Plant Gorgas Ash Pond Closure in Parrish, AL

Learning Objectives:

- ✓ Dewatering Systems Most Successful in South Florida
- ✓ Responsibility for Dewatering: Government vs Contractor
- ✓ Understand the Contractual Specifications for Dewatering
- ✓ Importance of having a Dewatering Expert with Regional Knowledge on Your Team



Agenda

- Permanent Dewatering System Examples (*AECOM*)
- Dewatering Specifications Best Practices (*Keller*)
- Perspective on construction dewatering and examples (*USACE*)
- Q&A / Discussion

Permanent Dewatering System

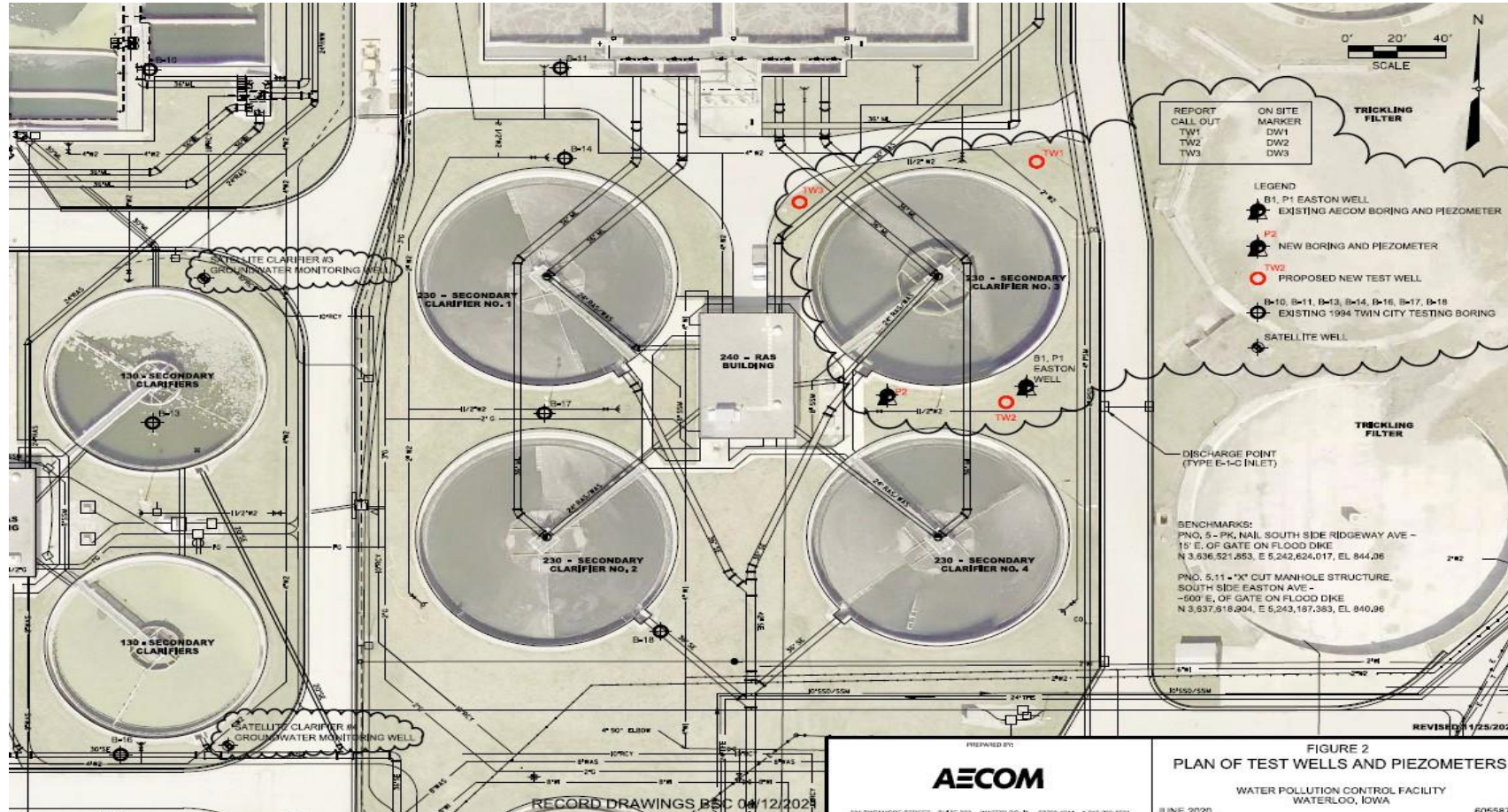


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Plan of Test Wells and New Piezometer

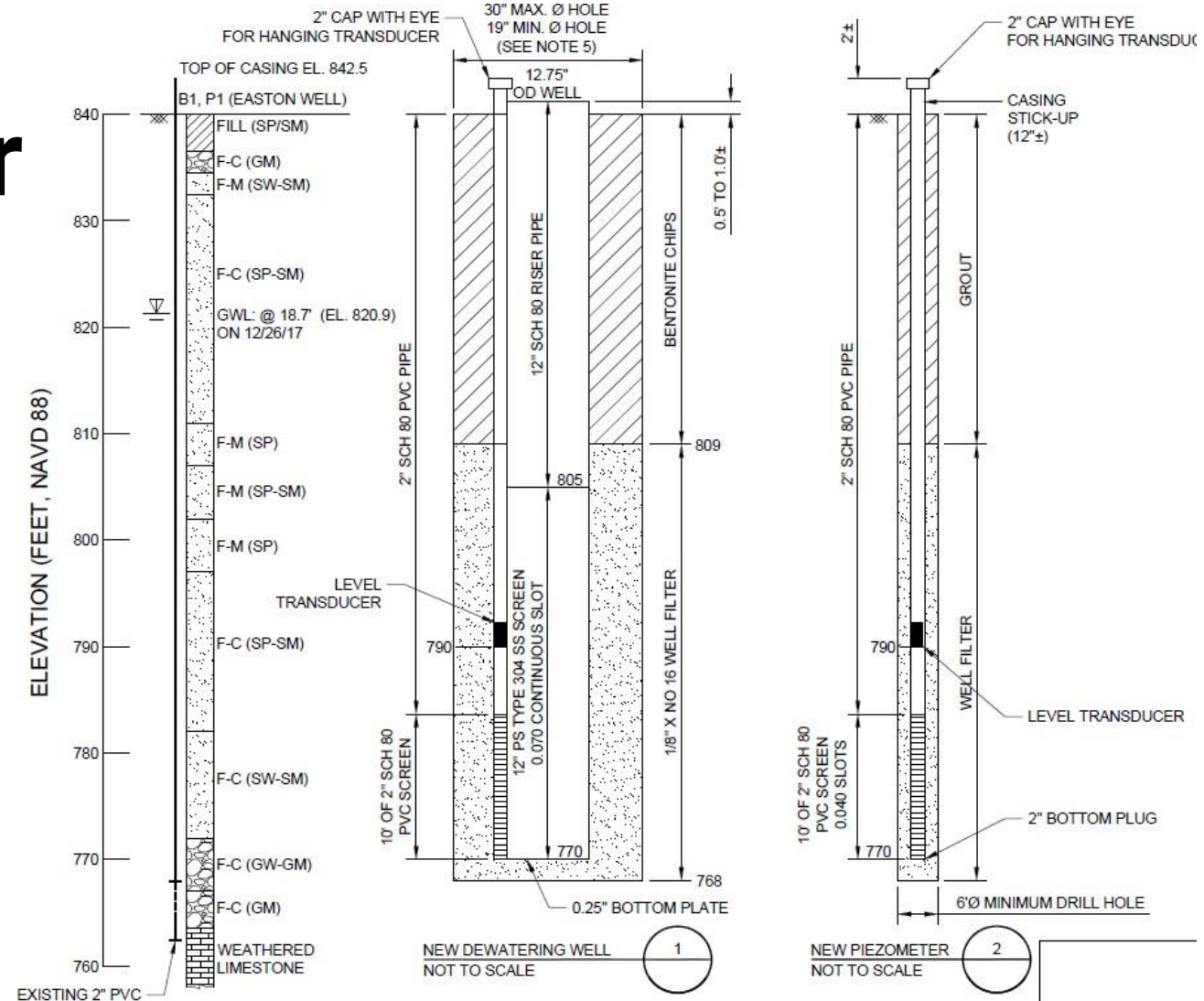
Secondary Clarifier 3



Secondary Clarifier 3



Test Boring 1, Well and Piezometer Details



Design Curves & Piezometric Elevations

Table 1 Calculated Drawdowns and Piezometric Elevations at End of Extended Pumping of All Three Wells on March 4, 2021

Location	Well	Distance (ft)	Drawdown (ft)	Sum = Total Drawdown (ft)	Estimated Piezometric Elevation	Observed Piezometric Elevation
P-1	TW-1	111	0.9	5.4	814.2	813.4
	TW-2	10.5	3.7			
	TW-3	132	0.8			
P-2	TW-1	132	0.8	3.9	815.6	814.9
	TW-2	50	2.1			
	TW-3	105	1.0			
A (midway between TW-1 & TW-3)	TW-1	50	1.6	4.3	815.3	--
	TW-2	116	1.2			
	TW-3	50	1.6			
B (midway between TW-2 & TW-3)	TW-1	88	1.1	4.2	815.3	--
	TW-2	66	1.3			
	TW-3	66	1.8			
C (midway between TW-1 and TW-2)	TW-1	60	1.1	4.0	815.5	--
	TW-2	60	1.9			
	TW-3	101	1.0			

Drawdown vs Distance

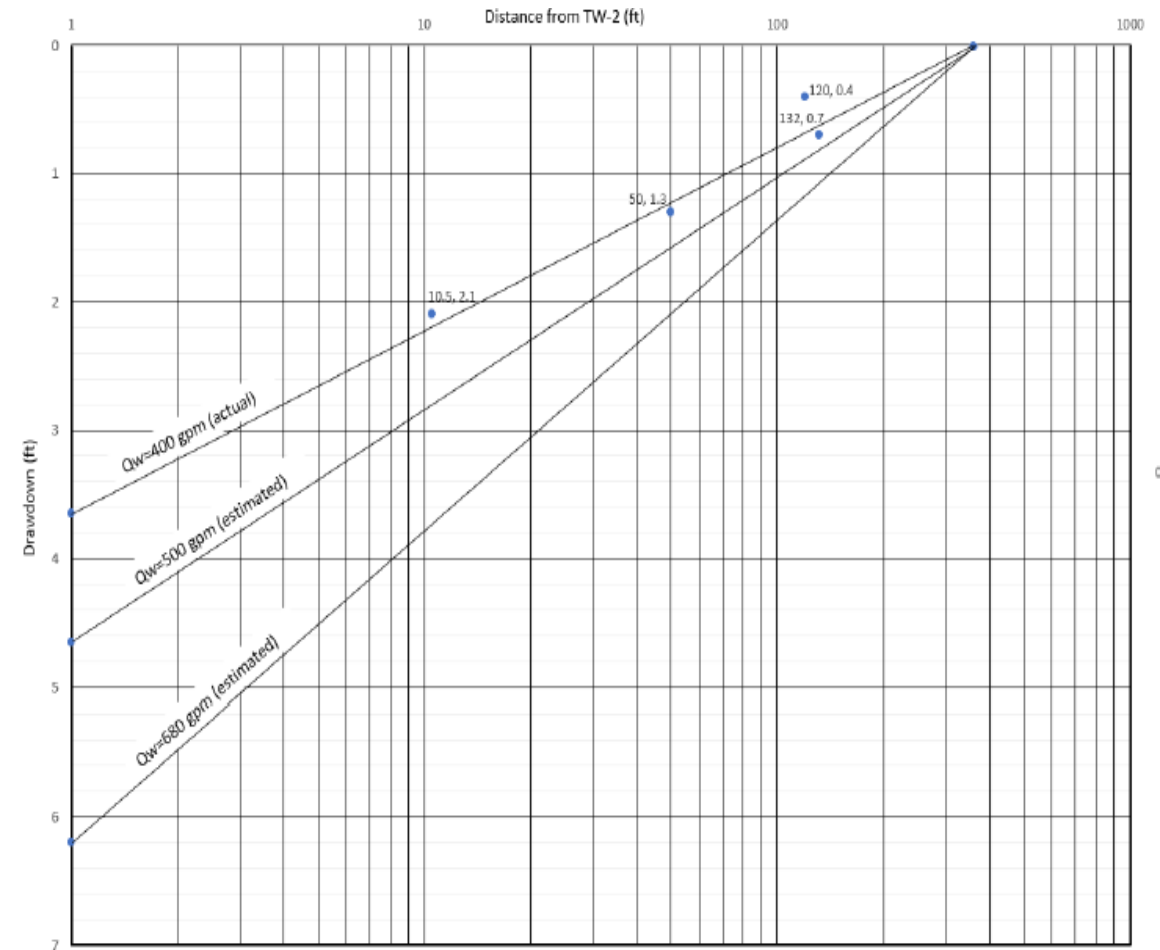


Figure 1 Typical Well Drawdown vs. Distance Design Curves

Construction Dewatering Specifications

What your dewatering contractor really thinks about you





Construction Dewatering

A Definition to Start

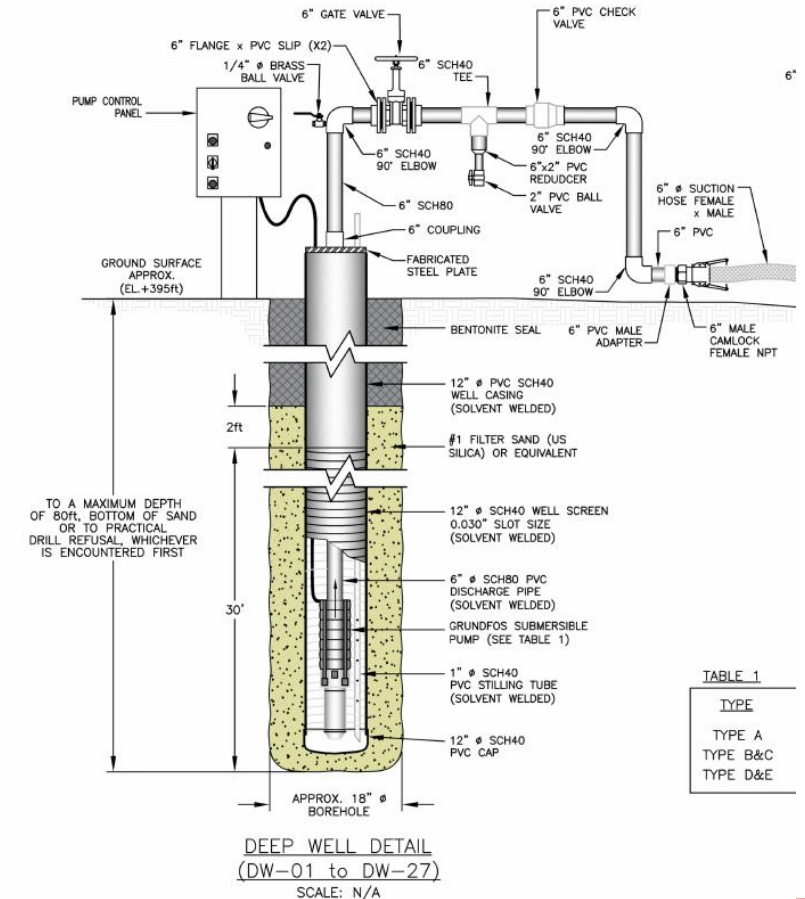
That element of an underground project which when disregarded will generate the “low bidder”.



Construction Dewatering Specifications

What your dewatering contractor really thinks about you

- What does the specification try to achieve?
- Different methods of specifying work
- Who takes what risk?



Contracts & Specifications

What are the Owner's interests?

- Safety
- Control costs
- Avoid delays
- Quality control
- Prevent damage to third parties



Contracts & Specifications

Performance

- All risk on contractor
- Contractor ingenuity
- Most common

Owner Designed

- Performance risk on Owner
- Possible disputes/delays
- Lack of designers

Minimum System

- Require a qualified subcontractor
- Have a mechanism for augmenting the system
- Collaboration

Who is obligated or incentivized to do what if things don't go as planned?



Contracts & Specifications

Where do things go wrong?

Points of Contention

- Scope gaps
- Procedures for making changes to the dewatering system
- Differing site conditions



Contracts & Specifications

Geotechnical Baseline Reports

Explicitly a contract document with an order of precedence

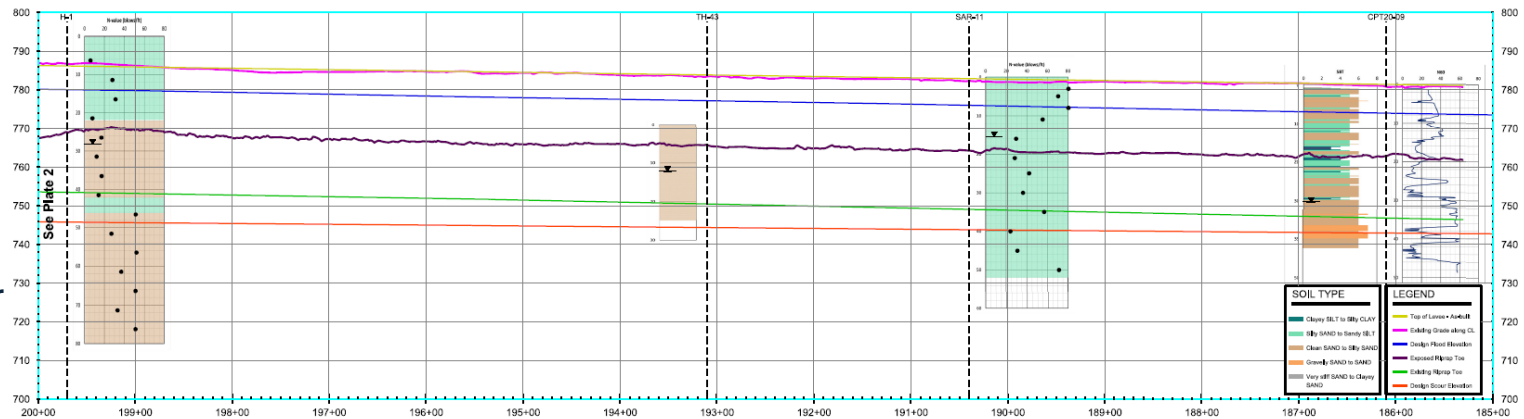
Describes anticipated subsurface conditions and provides a baseline for bidding

Typical baseline values for conductivity, groundwater levels, and flow

Prevalence of obstructions, groundwater impacts

Contractor bears risk for conditions less adverse than baseline

Owner bears risk for conditions more adverse than baseline



Dewatering In Action



Well Point Dewatering



Deep Well Dewatering



Open Sump Dewatering



Open Sump Dewatering



Open Sump Dewatering



Open Sump Dewatering with Massive Flow Rates



Open Sump Dewatering w/Cutoff Wall



***Panel: Navigating Dewatering
Challenges in High-Precipitation Zones***

Q&A / DISCUSSION



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Contact Us:



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