

Managing the Risk of Design Defects

Sid Lockhart, P.E., Special Projects Manager, Oakland County Water
Resources Commissioner

Sal Saputo Meadowbrook Insurance

Ed Boucher, Esq., Kotz Sangster Wysocki P.C.



Agenda

- Most common problems
- Overview of management solutions
- Owner's perspective
- Contractor's perspective
- Insurance solutions

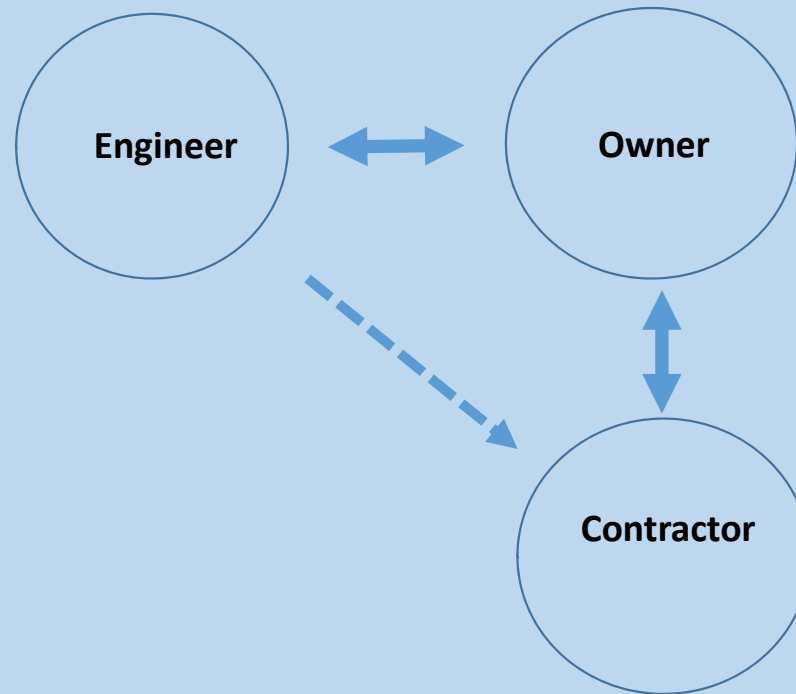


Most Common Design Problems

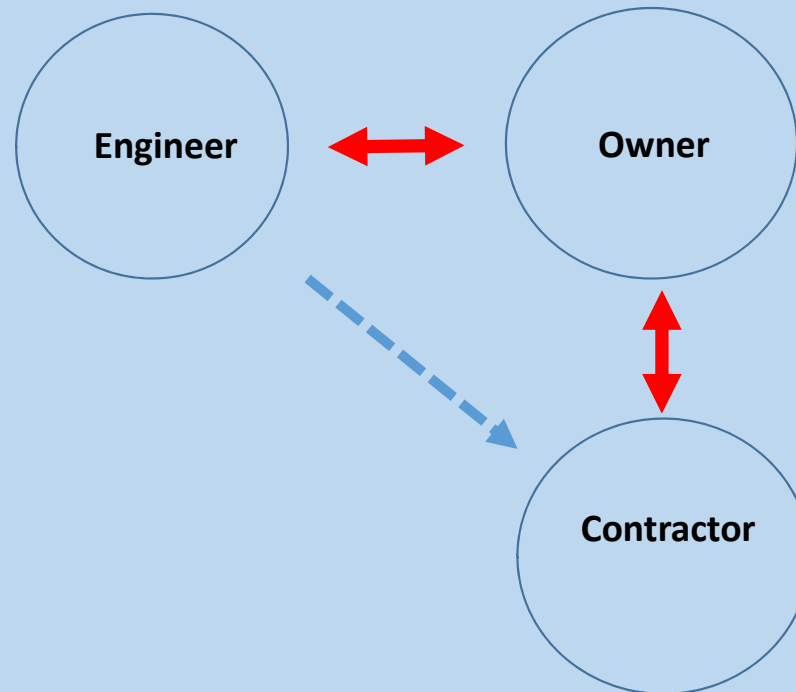
- Design coordination
- Existing conditions investigation
- Estimated quantities
- Delegated design



Delegated Design



Delegated Design



Overview of Management Solutions

- Contractual standards of performance
- Soil & hydrogeologic investigation
- Contractual risk transfer
- “Risk Register”
- Claim procedures
- Wide variety of professional liability insurance solutions



“Owner’s” Perspective

Note: Contractors have same perspective as Owners do for:

- Design-build work
- Commonly delegated design work
 - TERS
 - Bypass
 - Dewatering



“Owner’s” Perspective

- Engineering Services Agreement
- Contractual risk transfer
- Soil & hydrogeologic investigation
- “Risk Register”
- Insurance
- Claims



“Owner’s” Perspective

Engineering Services Agreement

- Standard of Care
- Duty to request additional services
- Coordinate design
- Risk Register
- Verify baseline conditions
- Assume responsibility for preliminary design
- Express indemnification
- No limitations on liability
- Insurance requirements



Owner's Perspective: "Risk Register"

- Risk Identification
- Qualitative Baseline Assessment
- Current Assessment
- Response
- Monitoring & Control



Owner's Perspective: "Risk Register"

Risk Identification						Qualitative Baseline Assessment					Current Assessment					Response			Monitoring & Control			
No.	Name	Risk Group	Phase	Type	Description (Cause, Effect)	Risk Trigger	Probability of Occurrence	Impact to Cost	Impact to Schedule	On or near OPI?	Rank	Probability of Occurrence	Impact to Cost	Impact to Schedule	On or near OPI?	Rank	Owner	Approach	Response plan	Next Action Due By	Status	Delta notes as of 10-19-2021
1	Construction Dewatering Impacts	Technical	Construction	Threat	Private wells or wetland easements dewatered or dry out due to dewatering	Significant dewatering during construction	Low	Low	Very Low	No	6	Low	Moderate	High	No	14	Engineer/Owner	Avoid	Test wells to predict dewatering effects. Use monitoring wells during construction. Create a remediate well impact plan as part of the design documents		Active	Geotechnical Monitoring Plan and impact incorporated into design and have been implemented during construction
2	Pipe buoyancy	Technical	Final	Threat	Pipe rises due buoyancy forces, installed too shallow or not weighted properly.	Insufficiently weighted pipe or materials over pipe.	Moderate	Moderate	Moderate	No	18	Low	Moderate	High	No	14	Engineer	Avoid	Use proper materials and weight to counteract buoyancy. Design and construct with proper buoy drains.		Closed	Buoyancy accounted for in design
3	Infiltration	Technical	Final	Threat	Infiltration of water to storage from high water table causing storage capacity to decrease and maintenance issues.	Storage facility piping is not water tight at pipe joints and well penetrations.	Low	Moderate	High	No	14	Low	Moderate	High	No	14	Engineer	Avoid	Use materials that is water tight and construct well penetrations to be water tight. Add pressure grout requirements to address infiltration.		Closed	Sealant system addressed and grout plan incorporated into design
4	Flushing/Cleaning (area of maintenance)	Contractual	Concept/Design	Opportunity	Provide efficient/cost effective method to maintain the facility designed to the Owners preference.	Insufficient design that prevents easy maintenance of the facility.	Low	Low	Low	Yes	8	Low	Low	Low	Yes	8	Engineer/Owner	Share	Discuss with owner and operator to find best solution that is agreed upon by all parties.		Closed	Storage is compartmentalized to not drawing based on WWTP event change requirements. Initial chamber has flushing system as requested by Owner. If flushing water service line has been provided by Owner to use if needed.
5	Odor	Technical	Concept/Design	Threat	Lingering smell after facility is used.	Proper deodorization techniques are not used or implemented.	Moderate	Very Low	Very Low	Yes	6	Moderate	Very Low	Very Low	Yes	6	Engineer/Owner	Avoid	Design system that can be implemented in the event odor becomes a problem.		Closed	Odor hasn't been a problem with facilities of this nature. However, carbon tanks could be installed in units if needed.
6	Bypass Sewer	Technical	Construction	Threat	Bypass becomes unusable during construction.	Becomes clogged or damaged during construction.	Very Low	Low	Very High	No	8	Very Low	Moderate	Very High	No	8	Engineer/Contractor	Avoid	Careful construction around bypass.		Closed	Bypass Pump Plan required by Contract. Close monitoring being conducted by RPR, Owner and Contractor.
7	Adjacent structure Impacts	Technical	Construction	Threat	Construction causes the soil near existing infrastructure to become unstable resulting in damage or collapse.	Improper excavation and/or heavy rain event without sufficient erosion prevention measures around existing infrastructure.	Low	High	High	No	16	Low	High	High	No	16	Engineer/Contractor	Avoid	Proper assessment of excavation areas, use of TERB and proper implementation of erosion prevention measures.		Active	TERB installed and RPR/Construction observers will monitor construction, SECC measures are required and in place.
8	Water Quality Impact	Technical	Construction	Threat	Construction impacts to wildlife and wetland causing negative effects on the present ecosystem.	Improper stormwater prevention measures and lack of communication with applicable management agencies.	Very Low	Low	Moderate	No	5	Very Low	Low	Moderate	No	5	All Parties	Avoid	Communicate with proper management agencies, adhere to all laws and regulations and implement sufficient stormwater solution prevention plan. Conduct construction efforts during dry months. Use proper materials and construction techniques. Have a containment plan in the event a spill occurs.		Active	RPR & WRC will monitor during construction. SECC measure are being enforced.
9	Storage material spill in construction area	Operational	Construction	Threat	Improper installation of bypass or DRP causing overflow material to spill.	Large rain event causes the flow to exceed capacity during construction, blockage in the bypass occurs, facility is not constructed properly.	Low	Moderate	Very Low	No	8	Low	Low	Very Low	No	6	All Parties	Avoid			Active	Bypass pumping plan required during construction. Isolate area for potential overflow to occur. Contractor to responsible per contract. Contractor and RPR are monitoring during construction.
10	Incomplete/Inaccurate Contract Documents	Contractual	Concept/Design	Threat	Contract documents contain information that is conflicting, missing, inaccurate or contradictory to field information obtained by the contractor.	Conflicting or incomplete information during the development of the plans and specs.	Low	Moderate	Moderate	Yes	12	Low	Moderate	Moderate	Yes	12	Engineer	Avoid	Ensure accurate information is represented and incorporate appropriate information to reflect the Owners bested product.		Closed	Multiple Owner reviews. Internal HRC QA/QC review by Dr. Engineer
11	Permits	Operational	Concept/Design	Threat	A permit is not obtained due to insufficient research potentially causing delays and fines.	A required permit is not obtained.	Low	Low	Moderate	Yes	10	Low	Low	Low	Yes	8	Engineer/Owner	Avoid	Diligently research all applicable permits for construction prior to request for bid.		Closed	Permits have been obtained for project
12	Local and national laws and regulations	Operational	Concept/Design	Threat	A national or local regulation is missed causing a potential delay in construction and legal fine.	Construction violates applicable regulations and laws.	Low	Low	Moderate	No	10	Low	Low	Moderate	No	10	Engineer/Owner	Avoid	Diligently research all applicable laws and regulations before construction commences.		Active	RPR is monitoring during construction for compliance. Permits have been obtained and agencies have been notified.
13	Claims	Contractual	All Phases	Threat	Claims from improper design or construction of facility.	Poor design, unclear plans or specs, wrongly specified product, wrongly executed product, submittal, improper construction of facility.	Low	Moderate	Moderate	No	12	Low	Moderate	Moderate	No	12	All Parties	Avoid	Review contract documents, plans and specifications and construction processes to ensure proper design and construction of the facility.		Closed	Multiple Owner reviews. Internal HRC QA/QC reviews by Dr. Engineer
14	Public Impact/quality usage	Public	Construction	Threat	Public usage of pathway and needs will be impacted during construction which could anger some citizens. Noise from construction could also anger local residents.	Disgruntled citizens demand construction by continuing to walk through construction area or file complaints.	Moderate	Very Low	Low	No	5	Low	Very Low	Low	No	6	All Parties	Mitigate	Notify the local community of the impending construction and to choose an alternate driving or walking route. Place signs directing pedestrians to an alternate route to avoid construction area.		Active	Working with Hov and Contractor has placed proper signage to prevent during construction
15	Design mistakes are wrong or not intended.	Contractual	Concept/Design	Threat	Contract documents contain information that is conflicting, missing, inaccurate or contradictory to field information obtained by the contractor.	Conflicting or incomplete information during the development of the plans and specs.	Low	Moderate	Moderate	Yes	12	Low	Moderate	Moderate	Yes	12	Engineer	Avoid	Ensure accurate information is represented and incorporate appropriate information to reflect the Owners bested product. Perform QA/QC measures		Closed	Multiple Owner reviews. Internal HRC QA/QC review by Dr. Engineer



Contractor's Perspective

- Project management
- Shared risk with subcontractors
- Consultant's Agreements
- Insurance
- Claims



Contractor's Perspective

Project Management

- Baseline conditions
- Pre-award meeting risk register
 - Owner
 - Subcontractors
- Shared risk work items
- Performance standards & parameters
- Contractual risk transfer
- Claim procedures



Contractor's Perspective

Consultant's agreement

- Standard of Care
- Duty to request additional services
- Coordinate design
- Risk Register
- Verify baseline conditions
- Assume responsibility for preliminary design
- Express indemnification
- No limitations on liability
- Insurance requirements



Contractor's Perspective

Claims

- Differing site conditions
- Significant change in scope
- Engineer's interpretation
- **You must give timely and effective notice!**



Insurance Requirements for Construction Related Contracts

- Commercial General Liability
- Umbrella Liability
- Pollution Liability
- Drone Liability
- Business Auto
- Workers Compensation
- Builders Risk
- Professional Liability (E&O)



KOTZ SANGSTER
ATTORNEYS AND COUNSELORS AT LAW

Other Insurance Requirements to Consider

- Limits of Insurance
- Additional Insured language
- Primary Coverage – Contractor is primary and non-contributory
- Waiver of subrogation
- Notice of cancellation
- Deductibles and Self-Insured Retentions (Financials) – Specify minimums
- Verification of coverage – COI, Insurance Policies and Endorsements
- Subcontractor and sub-consultant coverage



Other Insurance Requirements to Consider (continued)

- Acceptability of Insurers
 - AM Best or Standard & Poor's Rating
 - Beware of Captives, Self-Insured Groups, Risk Pools or Alternative Risk Transfer
- Claims Made Policies
 - Engineers, Architects and Other Professionals are almost exclusively Claims Made vs Occurrence Form
 - What are the issues?
 - Claim timing
 - Need for evidence of coverage years after project



Other Insurance Requirements to Consider (continued)

- Acceptable Loss History
 - Require 5 Years of Loss History
 - Use to Qualify Contractors/Professionals
 - Use to Determine if Policy Limits May Be Eroded
- Report Claims Promptly
 - Notice to Prime Professional and Subs
 - Notice to Insurer
 - Understand Claim Reporting Provisions of Policies
 - Claims Made vs Occurrence
 - Statute of limitation & Repose
 - Tolling agreements
 - Timing of litigation if required



Professional Liability Insurance Alternatives

- Construction Contractors Professional Liability Insurance
 - \$3 Million Limit at a Minimum
- Practice Professional Liability Insurance
 - \$5 Million Limits – Corporate Wide for Lead
 - \$2 - \$3 Million Limits for Subs Professionals
 - Coverage not dedicated to project & potentially not adequate
 - Erosion of limits single largest downside
- Project Professional Liability Insurance
 - Lead Professional Buys a Policy that Insures the Lead and all Sub Professionals (credit for eliminating practice policy for project)
 - Limits of \$10 Million are Typical But Higher Limits May Be Available
 - Expensive Alternative
 - Main Advantage is Dedicated Project Limits
 - Additionally, Provides Coverage for 10 Years after Project Completion.



Professional Liability Insurance Alternatives (continued)

- Owners Protective Indemnity Insurance (OPPI)
 - Major attraction is usually cost. It is 30 to 40 percent less expensive than a Project Professional Liability placement
 - The OPPI policy is an OCIP for the professional exposures
 - Primary protection for the named insured (usually owner)
 - Consistency of coverage
 - Reduced cost to administer program
 - The policy supplements the design professional's professional liability program, providing direct benefits to the named insured, and allows the design professional to apply its own practice program.



Professional Liability Insurance Alternatives (OPPI Discussion Continued)

- The policy offers difference-in-conditions (DIC) coverage above the underlying professional liability policy, extending coverage to the named insured in the event the underlying policy is deficient in coverage. Some good examples include mold exclusions, habitational exclusions, construction management exclusions, or contractual liability exclusions that may exist in a design professional's practice program.
- Defense costs for third-party claims arising out of the design professional's services are provided to the named insured under a specific coverage part.
- Contractor's pollution coverage can be included providing the named insured with excess coverage for pollution claims—including mold over the contractor's pollution liability coverage.



Professional Liability Insurance Alternatives (OPPI Discussion Continued)

- Coverage can be provided for the liability of the owner's professional services in the event the owner has an engineering/construction entity on staff.
- The policy can be offered on a project-specific basis for the construction term plus up to 10 years on the extended reporting period (ERP) or annually for all construction ("blanket" coverage) of the named insured.
- In the event the underlying design professional's policy is intact (limits and coverage) at the time of claim payment, the self-insured retention (SIR) under the "protective" policy does not apply. In other words, the SIR is "erodible" by recovered design professional's available limit.
- It can be an effective alternative for those owners requiring design builders and general contractors to secure professional liability from their design professionals.
- Limits of liability can be secured up to \$25 million with one single insurer. Higher limits may be obtained through use of multiple insurers.



Summary

- Contractual standards of performance
- Contractual risk transfer
- “Risk Register”
- Claim procedures
- Wide variety of professional liability insurance solutions



Thank you!



KOTZ SANGSTER
ATTORNEYS AND COUNSELORS AT LAW