

4550102DB STRUCTURES FOUNDATIONS  
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

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Comments: (5-1-19, 5-9-19, Internal)

Suggest the following changes:

**1. 455-5.11.4 Set-checks and Pile Redrive:**

I'm not sure why we need a different definition of set-checks on DB. Driving at least 24" seems to be excessive. If an "uninstrumented set-check" reaches refusal prior to driving at least 24", according to the suggested revision, it would have to be instrumented for acceptance  
**Set-checks or redrives for piles redriven less than 24 inches must be instrumented for pile acceptance.**

Set checks can be determined to achieve bearing in inches and not 2 feet. This is excessive

Response: It was not our intent to drive 2 feet under practical refusal conditions. The intent was that for redrives longer or equal than 2 feet, we can apply a driving criterion that accepts piles based on 2 feet with bearing, without refusal.

Blow count in just few blows or few inches is not reliable to establish capacity. Time- dependent soil strength, a rebound component on the driving (high or low), different transferred energy, and other factors will affect the blow count-capacity relationship. There is an added benefit of having instrumented set-checks for both Department and Contractor: instrumented set-checks will minimize comments and rejections on questionable piles and minimize verification tests. This will reduce time and cost for both the contractor and the Department.

Change made to language to read "Unless practical refusal is obtained as defined in 455-5.11.3, set-checks or redrives for piles redriven less than 24 inches must be instrumented for pile acceptance."

**2. 455-8.9 Filling Pipe Piles:** Ensure closed-end pipe piles are watertight. ~~The Engineer may reject closed-end pipe piles that exhibits water leakage or require pile extraction to repair integrity defects.~~

Response: Agree. Change made.

3. The design of the closed end pipe pile is up to the department. If I drive the pile and the bottom breaks out or is leaking that should be on the department and not the contractor. The contractor should not be responsible for watertight.

Response: Disagree. In both DB projects and conventional projects, the integrity of steel pipe piles is contingent on the quality of the welds at both the plate at the bottom and at the splice locations. The quality and workmanship of the welding is a contractor's responsibility. We have observed pipe piles that failed because of poor quality welds at the bottom and/or splice

locations. Properly welded pipe piles should be able to withstand the stresses when they don't exceed the maximum allowed stresses per 455-5.12.2. In addition, for DB projects the design and pile installation is completely under the DB team control.

No change made.

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Comments: (5-6-19)

1.

SUBARTICLE 455-8.9 is deleted and the following substituted:¶  
→ **455-8.9 Filling Pipe Piles:** Ensure closed-end pipe piles are watertight. The Engineer may reject closed-end pipe piles that exhibits water leakage or require pile extraction to repair integrity defects. When required by the Plans, fill pipe piles with the specified materials. Use

Response: Agree. Change made.

2. 455-15.1.2

→ → → 5. Details of slurry, including proposed methods to mix, circulate, de-sand, test methods, and proposed CTQP certified technician that will perform and document the fluid tests.¶  
→ → → 6. Details of proposed methods to clean the shaft excavation ¶

Response: Existing text/language is correct as written.

No change made.

3. 455-17.16.1.3

~~Save screen captures of these pages from the file reporter website that is acceptable.~~¶  
→ → → → 9. A conclusion stating whether the tested shaft is free from integrity defects and meets the minimum concrete cover and diameter requirements by the specifications. When anomalies are detected, include in the report a three-dimensional rendering of the shape of the shaft.¶

Response: Change will be made.

Change made.

4.

▪ **455-41 Grout Mix Proportions.**¶  
→ Use a cement grout mix consisting of a mixture of cementitious materials, admixtures, sand and water. Proportioned and mixed to produce a grout capable of maintaining the solids in suspension without appreciable bleed water which may be pumped without difficulty and will fill open voids in the adjacent soils and rock. The grout mix may also include a fluidifier if desired. Add the fluidifier without exceeding violating the speed of application, dosage, or any other limits contained in the manufacturer's technical data sheet. Proportion these materials to produce a hardened grout of the required strength.¶

Response: Language changed to “The grout mix may include a fluidifier used in accordance with the manufacturer’s technical representative”

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Comments: (5-14-19)

Hold Cylinders for QC (2) are different than hold cylinders for VT (1), see section 455-43. 2 hold cylinders for both QC and VT is what should be required

Response: Agree. Language changed to “The Engineer will cast three verification cylinders and two “hold” cylinders from one of every four consecutive Lots, randomly selected.”

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