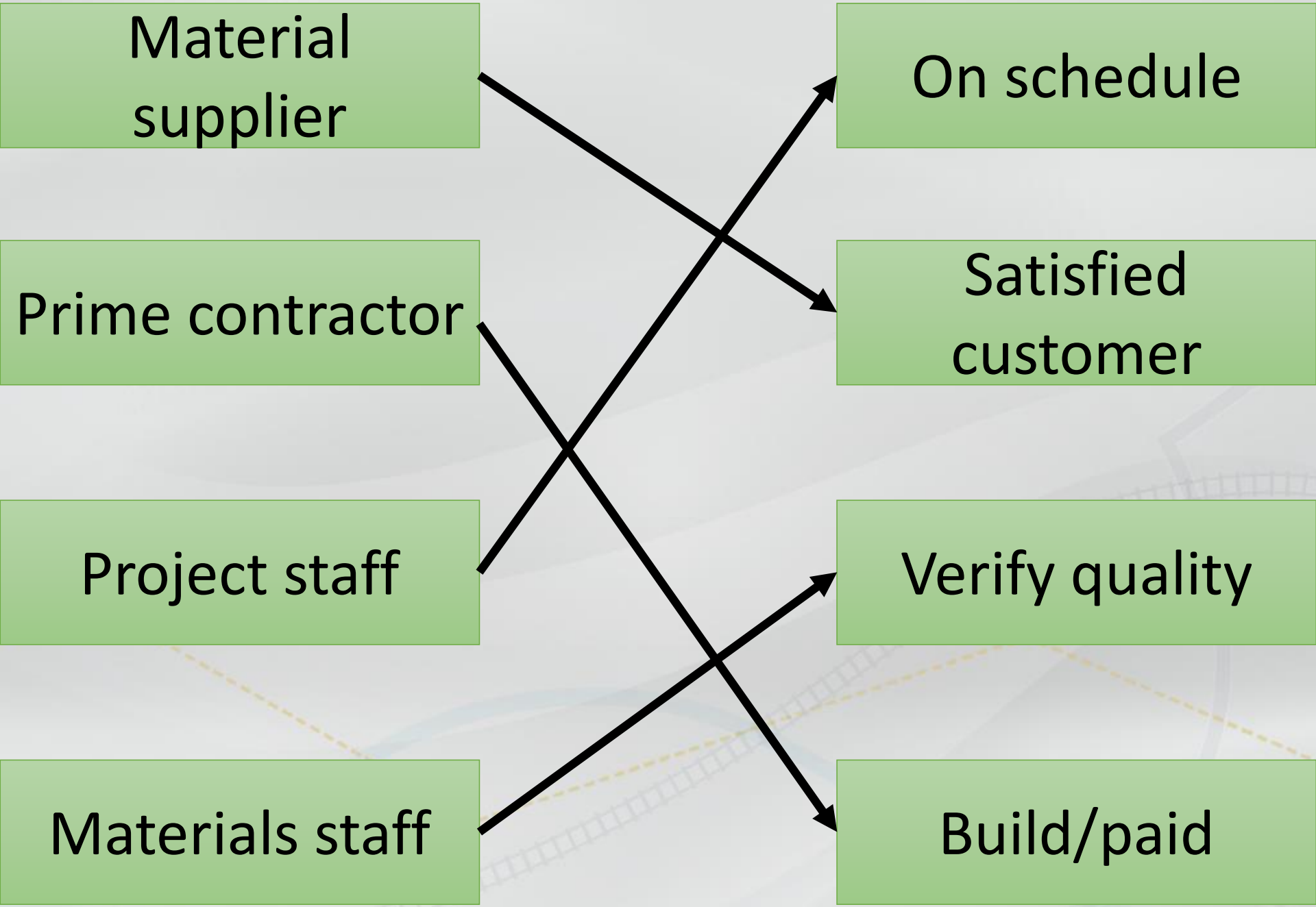
Aggregate Materials Training

Outline

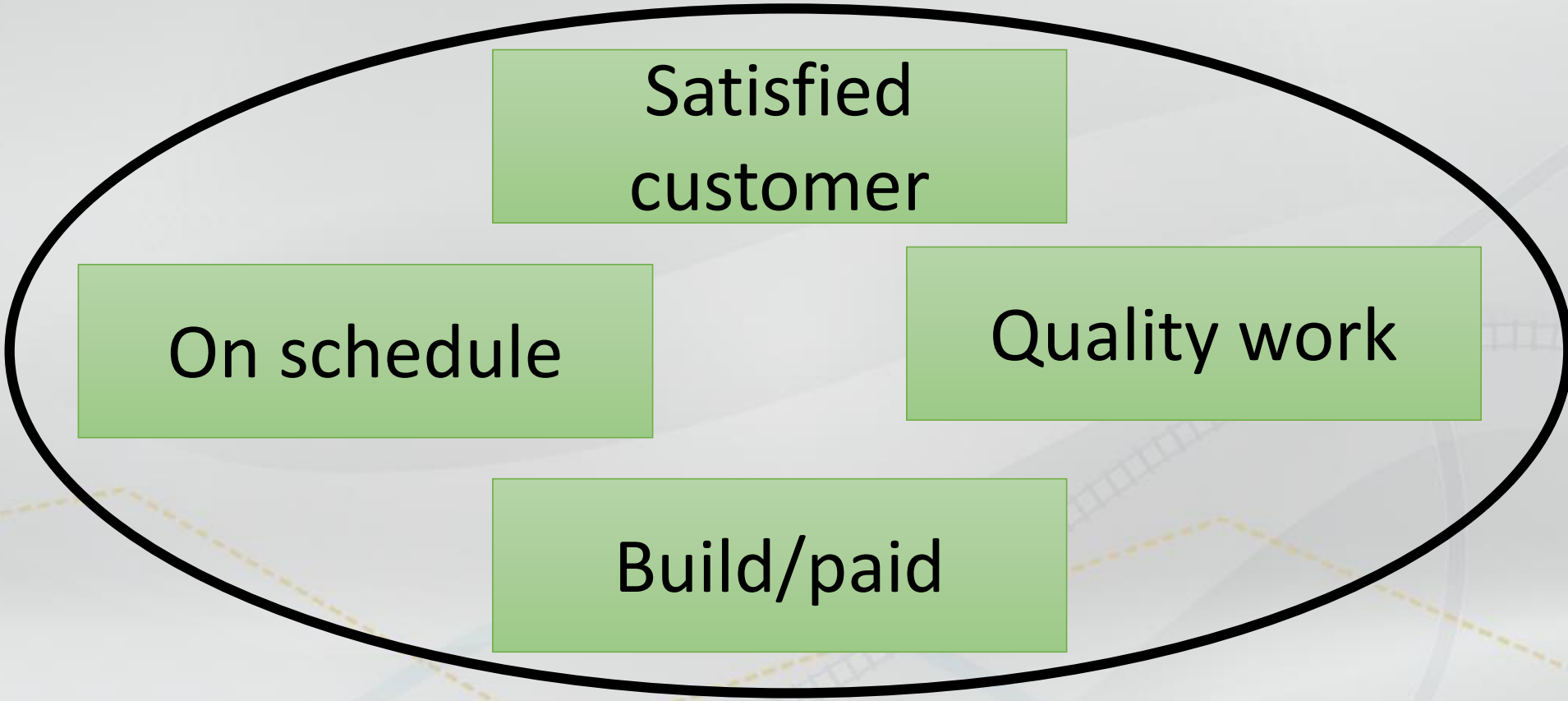
1. Communication
2. Small quantities specification update
3. Freeze/Thaw research
4. Mill & Relay and Pulverize & Relay specification update
5. Geogrid specification update

Communication


THOR


Material supplier
Prime contractor
Project staff
Materials staff
On schedule
Satisfied customer
Verify quality
Build/paid

We can have it all!



701.3.3.2 Quality Verification Testing (2) The department will sample and test randomly at locations independent of the contractor's QC tests and use separate equipment and laboratories. The department will notify the contractor before sampling so the contractor can observe QV sampling. The department will conduct a minimum of one verification test for each 5 contractor QC tests unless specific QMP provisions specify otherwise.

730.3.3 Department QV Testing (1) The department will notify the contractor's project materials coordinator before obtaining a sample

MSHA requirement for entering a quarry

730.3.2 Contractor QC Testing
(1) Provide stockpile test results to the engineer before placing material.

Engineer should review test results prior to placement

Know the specifications!

Communicate!

t will benefit all parties!

Small Quantities Specification Update

Tonnage	500	6000	Total
Count	287	630	792
Percent Count	36%	80%	100%
Sum of Tonnage for Projects <	47,437	784,429	6,983,656
Percent of Total Tonnage	0.7%	11.2%	100.0%
#QMP Base Tests	574	1260	3488
Percent Total Tests	16%	36%	100%

Density of Base	135lbs/ft^3
	0.0675tons/ft^3
Base Width	36ft
Base Thickness	1ft

Tonnage	**Distance Covered, ft**
50	21
100	41
500	**206**
1000	412
6000	2469

730.3.4.1 Contractor QC Testing

Replace the entire text with the following:

(1) For small quantity contracts with ≤ 500 tons, submit 2 production tests or 1 stockpile test. Production tests are valid for 3 years from the date the production sample was obtained; the first day of placement must be within 3 years of the date sampled.

(2) For small quantity contracts with ≤ 6000 tons and ≥ 500 tons, do the following:

1. Conduct one QC stockpile test before placement.

2. Submit 2 production tests or conduct 1 loadout test instead of placement tests. Production tests are valid for 3 years from the date the production sample was obtained; the first day of placement must be within 3 years of the date sampled.

3. If the actual quantity placed is more than 6000 tons, on the next day of placement perform one additional random QC test for each 3000 tons of overrun, or fraction thereof.

730.3.1 General

Replace paragraph three with the following:

(3) Stockpile tests[1] can be used for multiple projects. If placement on a project does not begin within 120 calendar days after the date the stockpile sample was obtained, retest the stockpile before placement begins.

730.3.4.2 Department QV Testing

(1) Conform to the QV testing under 730.3.3; the department may waive QV testing for contract bid item quantities of 500 tons or less.

Internal Freeze/Thaw Research


A1
4

Problem Source

High Performance Concrete Spec <12%

Contractor
5.3%

DOT
14.6%

RESULTS ARE OUTSIDE OF TOLERANCE (4%)!

6-WAY SPLIT!

20%

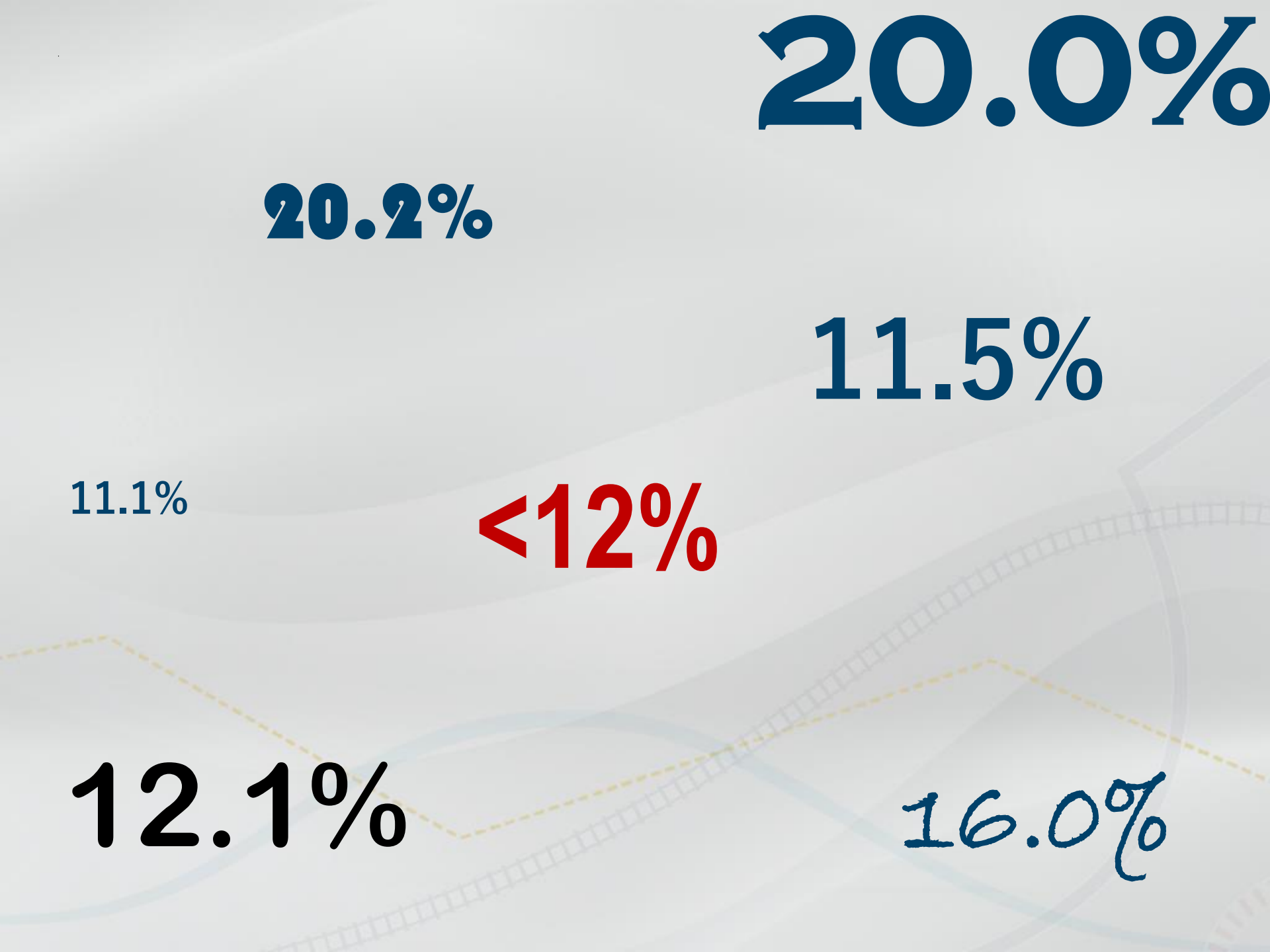
16%

11.5%

Consultant A = 11.1%

Consultant B = 20.2%

Contractor = 12.1%


20.0%
20.2%
11.5%
11.1%
<12%
12.1%
16.0%

What the freeze-thaw?

AASTHO T103

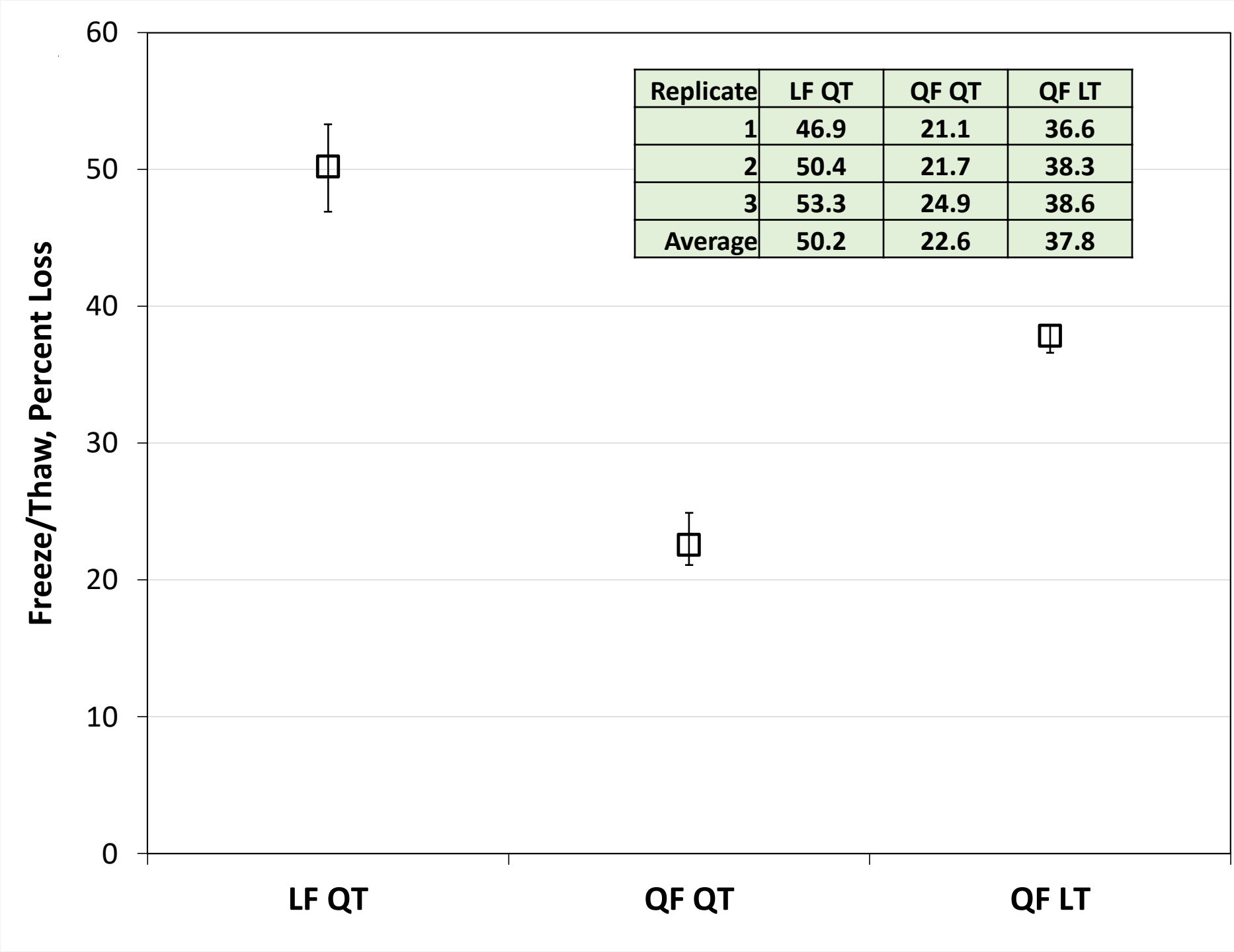
One test cycle consists of one freeze cycle and one thaw cycle. Repeat the procedure of alternate freezing and thawing for 25 cycles.

One complete cycle shall not exceed 24 h.

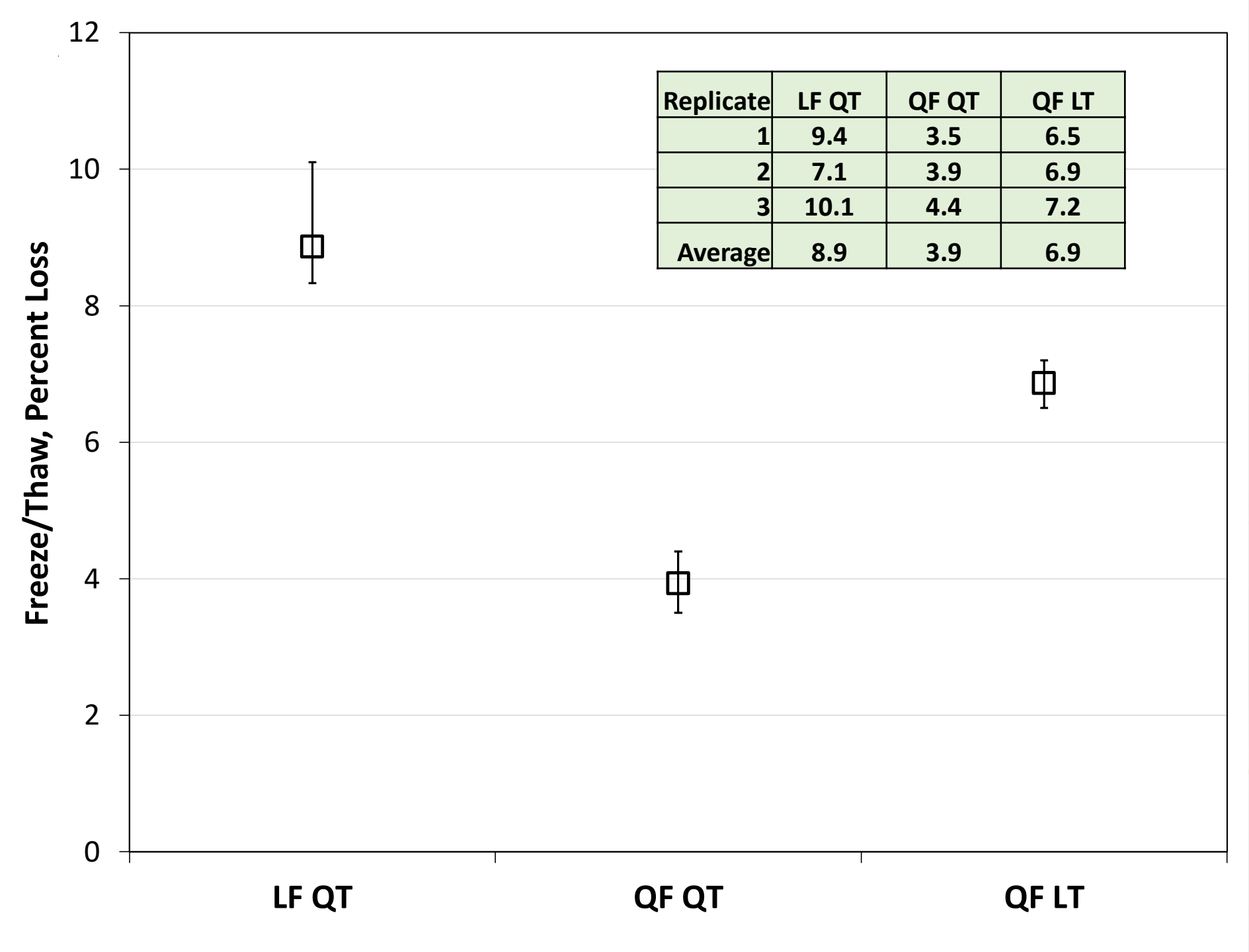
Some authorities have required 50, 16, and 25 cycles for Procedures A, B, and C, respectively.

Test Matrix Within AASHTO T103 Standard Requirements

	Thawing Rate	
Freezing Rate	Slow (18 hours)	Fast (1.5 hours)
Slow (18 hours)		N=3
Fast (1.5 hours)	N=3	N=3



Replicate	LF QT	QF QT	QF LT
1	46.9	21.1	36.6
2	50.4	21.7	38.3
3	53.3	24.9	38.6
Average	50.2	22.6	37.8



Replicate	LF QT	QF QT	QF LT
1	9.4	3.5	6.5
2	7.1	3.9	6.9
3	10.1	4.4	7.2
Average	8.9	3.9	6.9

Summary

- Freezing and thawing rates significantly affect results of the T103 procedure within limitations of the test.
- Need for procedure that minimizes variability, maximizes efficiency and properly ranks soundness of aggregates.

- **Short Term: WisDOT modified method CMM 8-60**
- **AASHTO Taskforce**

Mill & Relay and Pulverize & Relay Specification Update

1 minute density tests

Test Strip v. Proctor

Pass	Avg. Wet Density, pcf	Difference
1	140.2	
2	142.7	**2.5**
3	142.8	0.11

1. **Wet density used and not dry.**
2. **Not actual density measurement (asphalt binder).**
3. **Based on passes. Only as dense as equipment onsite.**

C.2.5.1 Contractor Required Quality Control (QC) Testing

(1) Conduct testing at a minimum frequency of one test per lot. A lot will consist of each 3000 SY, for each layer with a minimum lift thickness of 2", of Milled and Pulverized material re-laid, regardless of location. Each lot of in-place mainline re-laid material will be accepted for compaction when the lot field density meets the required minimum ~~93.0~~ 96.0% of target density. Lots that don't achieve ~~93.0~~ 96.0% of target density must be addressed and approved in accordance with C.2.7.

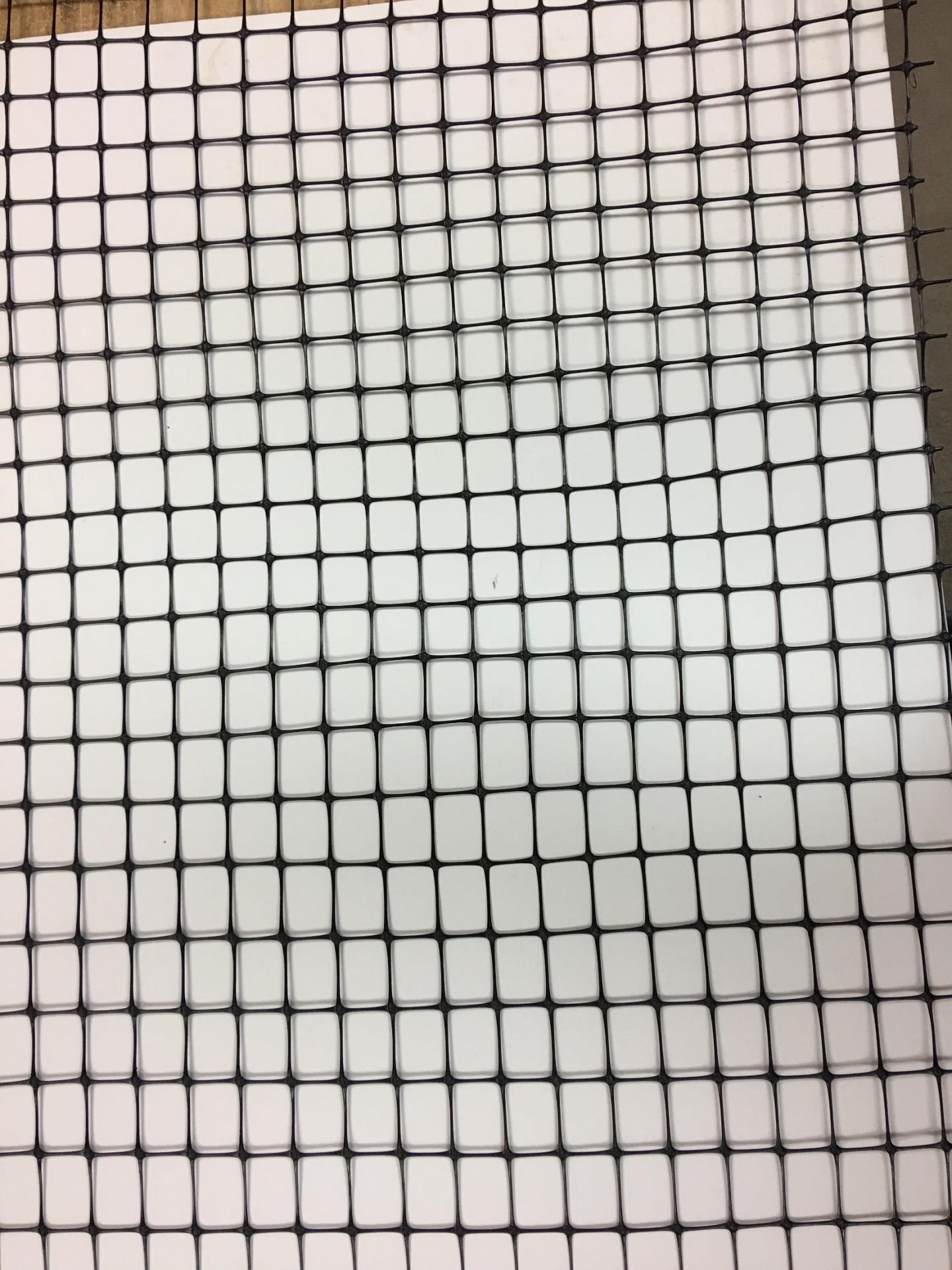
C.2.7 Corrective Action

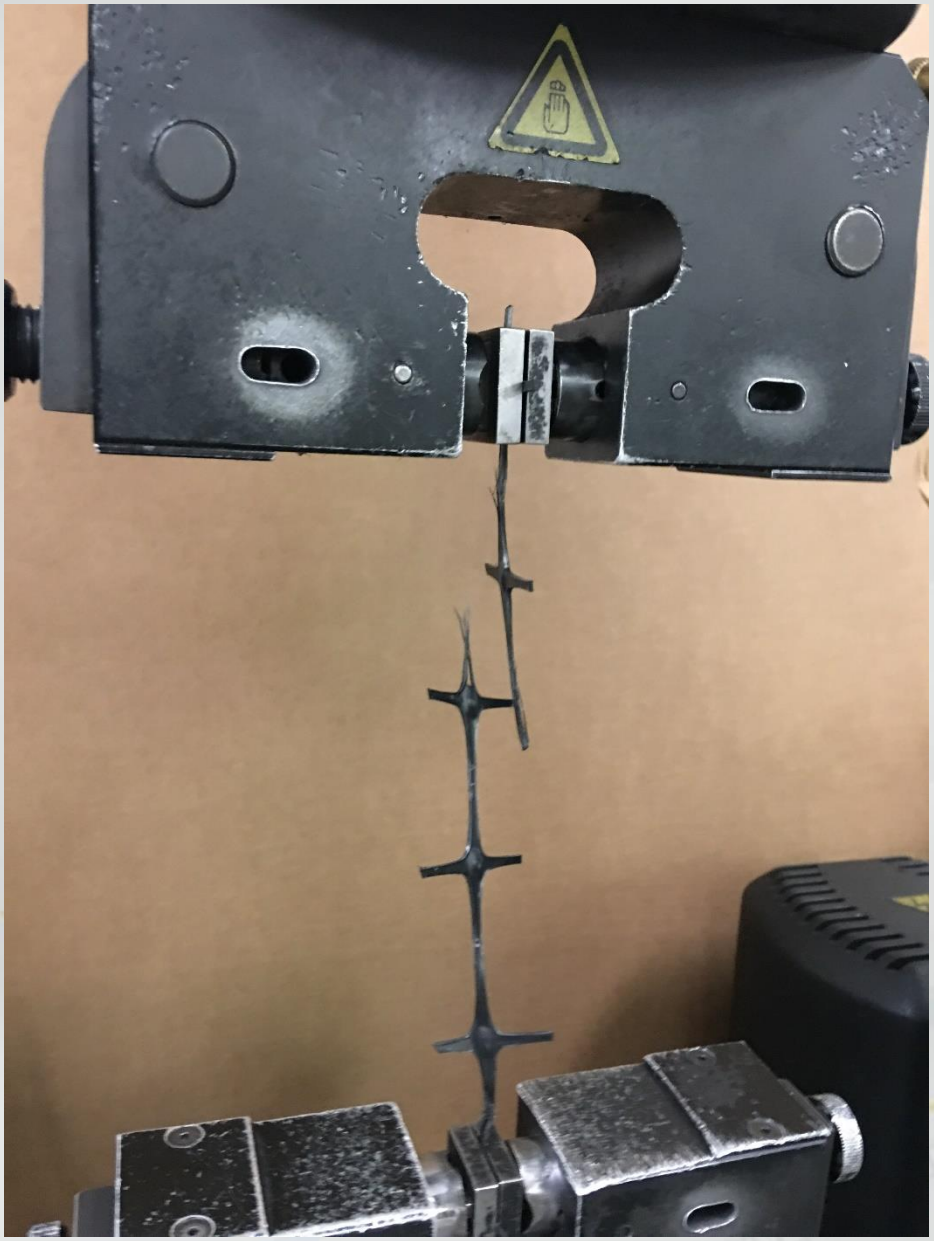
(4) Lots with moisture contents within -2.0 or +4.0 percentage points of the target moisture content for the control strip and exhibiting signs of deflection when subjected to loading by the heaviest roller used in the placement and compaction operations, will be reviewed by the engineer. The engineer may request subgrade improvement methods, such as excavation below subgrade (EBS), installation of geotextile fabrics, installation of breaker run material or others to be completed as ~~specified in standard specification 301.5~~ extra work; or may request an additional pass of compactive effort using equipment and methods representative of the operations used to mill or pulverize, relay, and compact the base and density test.

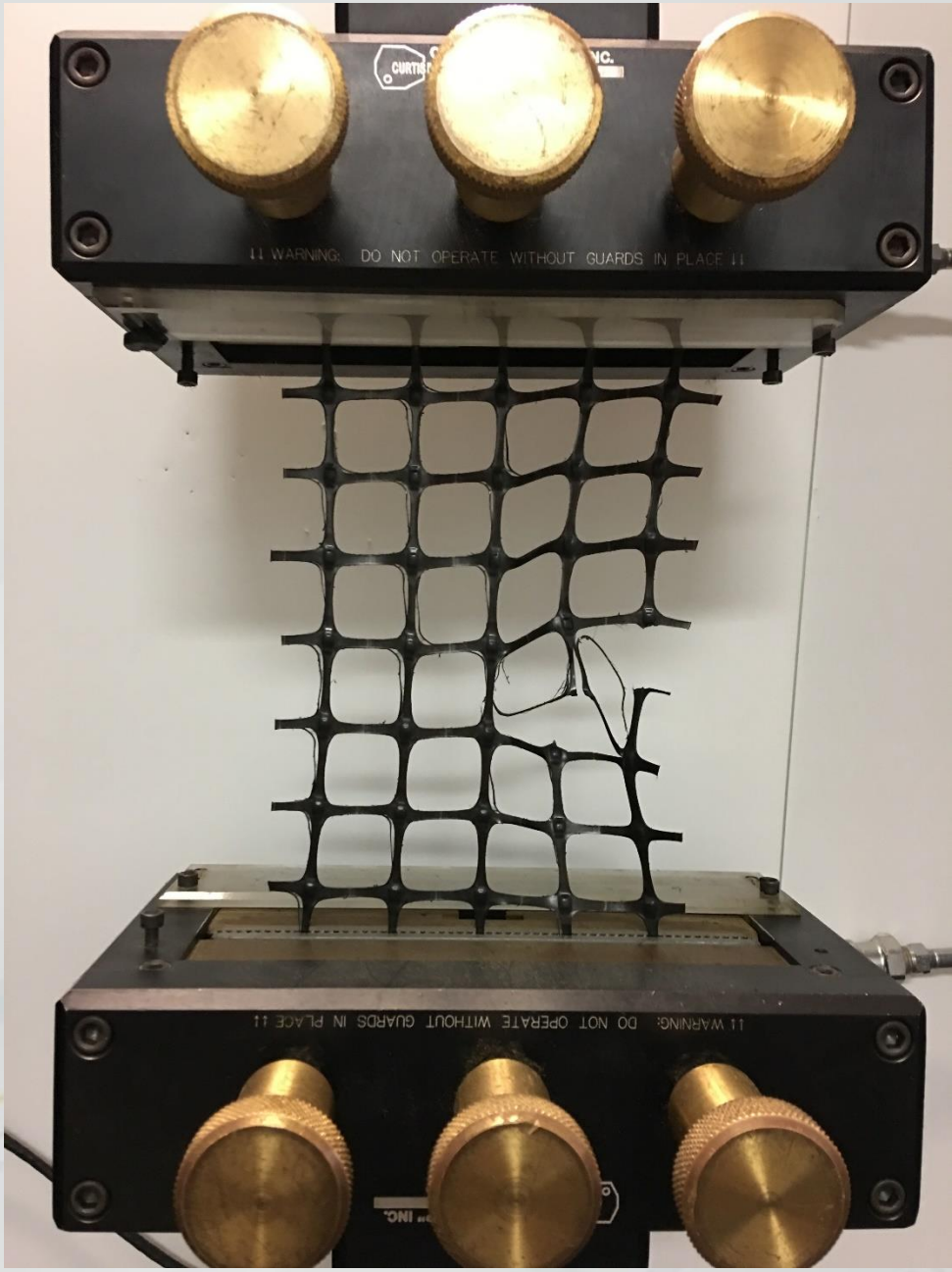
E Payment

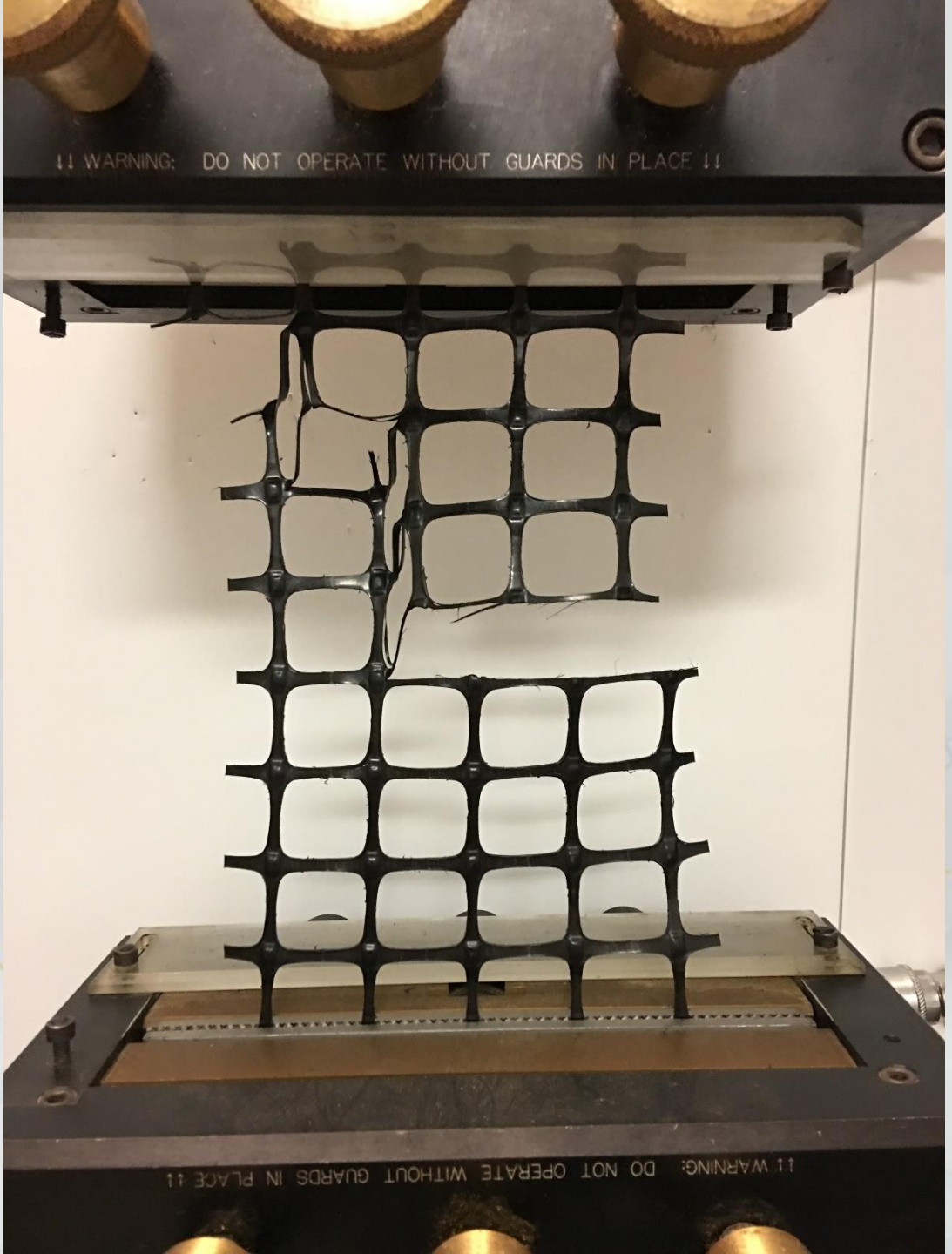
(3) Subgrade improvements requested by the engineer as part of corrective action in C.2.7 will be paid as extra work.

Geogrid Specification Update






!! WARNING: DO NOT OPERATE WITHOUT GUARDS IN PLACE !!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START
STOP
HOME

Specification Changes

- Tensile Strength ASTM D4595 → D6637
- Rigidity ASTM D1388 → D7748

- 2021 Specifications and Spring 2020 ASP6

- What does this mean? Test reports will change.

- When sampling, no tighter than a 6 inch diameter roll please.

REBAR TIMELINE

1. Sample
2. Transport to BTS
3. Test/report
   - 2 days to 2 weeks max

NON-CONFORMING STEEL

WHAT ARE YOUR ALTERNATIVES?

END

No questions please.