

BEFORE THE
MARYLAND STATE BOARD OF CONTRACT APPEALS

Appeal of CHERRY HILL)
CONSTRUCTION, INC.)
Under SHA Contract No.)
AW 991-501-324)

Docket No. MSBCA 1547

August 1, 1991

Differing Site Condition - Type I - Where the contractor encountered a soil condition at the site differing materially from that indicted in the sole boring at that general location, the Board found under the specific circumstances presented that a Type I differing site condition existed. The State's assertion that the contractor could not rely on the single boring was rejected.

APPEARANCES FOR APPELLANT:

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APPEARANCES FOR RESPONDENT:

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OPINION BY CHAIRMAN HARRISON

Appellant timely appeals the denial of its claim for an equitable adjustment based on an alleged differing site condition.

Findings of Fact

1. In the spring of 1989 Appellant was awarded the subject contract for the construction of noise abatement walls along a portion of the Capital Beltway (Interstate 495).
2. The contract documents detailed the following noise abatement wall lengths and foundation borings.

<u>Wall</u>	<u>Caissons</u>	<u>Foundations Boring Logs</u>
Wall "A"	207 Caissons or 2,454 lf	6 borings avg depth 19.5'
Wall "B"	166 Caissons or 2,349 lf	5 borings avg depth 18.8'
Wall "C"	164 Caissons or 2,640 lf	1 boring depth 28'
Wall "D"	224 Caissons or 3,636 lf	5 borings avg depth 16.2'
Wall "E"	192 Caissons or 3,073 lf	6 borings avg depth 36.7'
Wall "F"	144 Caissons or 2,432 lf	5 borings avg depth 31.8'

3. In preparing its bid for the project, Appellant reasonably relied upon the information and representations pertaining to subsurface conditions contained in the Foundations Boring Logs

provided by SHA in the bid documents.¹

4. Appellant's claim arises out of actual rock fill² conditions encountered at Wall "C". Wall "C" is 1,992 feet long and is located in an area of embankment from the original Interstate construction tapering into existing ground at either end. For Wall "C" SHA provided only one Foundations Boring Log, "C-5", which was based on a boring taken 380' feet from the eastern terminus of the wall.³ (Foundations Boring Log, "C-5" is attached hereto as Exhibit A and incorporated herein by reference). The "C-5" soil boring indicates "Boulders (Quartzite)" at a depth range of 8.5 to 11.5 feet and "Rock (Quartzite)" below the approximately 15 foot required depth of the caissons at a depth range of 23 to 28 feet. Unlike certain other borings for other walls, the word "fill" does not appear on Foundations Boring Log "C-5."⁴ The word "quartzite" does not appear on any other boring log. Appellant's pre-bid site investigation indicated that Wall "C" was in a transition area which contained some in situ ground and some fill areas which would not contain material that would impact caisson production.

5. During the augering operation for Wall "C" caisson placement Appellant encountered a rock fill area consisting of a uniform layer of large fractured gneiss rock with evidence of blast holes, apparently created during the previous Interstate construction, commencing 230 feet west of the soil boring and

¹ Information concerning the site that may have been compiled when Interstate 495 was constructed some 40 years previously was no longer available as SHA's records for the Interstate project had been destroyed.

² A rock fill is a fill consisting of broken rocks and/or boulder material that has been manually or mechanically placed in the fill area.

³ The project engineer had requested that SHA take five or six borings for each wall. SHA took five or six borings on all walls but Wall "C" where it took one boring.

⁴ Each boring for Walls "A" through "F" which was taken in a fill area was classified on the boring as "fill" in a parenthetical or underlined phrase.

location and continuing throughout 1300 feet of wall at depths above the required depth of the caissons at 70 out of 113 caissons or in 62% of the caissons placed at Wall "C" as follows:

- 19 caissons approximately at 5' to 8' in depth
- 13 caissons approximately at 6' to 9' in depth
- 7 caissons approximately at 12' to 15' in depth
- 3 caissons approximately at 11' to 14' in depth
- 28 caissons approximately at 8' to 19' in variable depth

6. Appellant required 31 days to complete the Wall "C" work. As discussed below it had anticipated completing the work in 12 days.

7. On July 5, 1990, Appellant submitted its claim for an equitable adjustment based on the conditions encountered at Wall "C". The claim was denied in its entirety on September 12, 1990, SHA maintaining that rocks and boulders as noted in the Wall "C" boring log should have been understood to be the same.⁵

⁵ In pertinent part the SHA final decision provides:

In the [claim], you contend that the information provided in the contract documents (soil boring) for wall "C" indicated that no rock would be in the excavation of the caissons. You claim to have encountered rock 230 feet west of the soil boring and it continued the remaining 1,300 feet of the wall.

Also, you had stated that the material excavated was rock as compared to "boulder" as was stated on the soil boring log. You say Webster defines "boulder" as a "rounded or much-worn mass of rock" and that you encountered rock which was originally removed from its natural state.

Because you encountered rock on the "C" wall, you claim to have lost time in your production schedule, which in turn cost extra money for labor and equipment. You have requested compensation for an additional 19 days for the auger crew, 6 days for a carpentry crew for forming the caissons and additional cost for the equipment and its repairs...

The basis of the claim is on the assumption that the crews could auger 14 caissons per day, and carpentry/concrete crew production went from 10 caissons formed and poured per shift to eight caissons per shift.

8. Appellant asserted in its claim that it is entitled to costs incurred for 19 days of additional time required to complete the augering of the caisson holes on Wall "C" due to encountering the rock fill and 6 days of additional carpenter crew work attributable to the condition. The record reflects that it is more difficult to auger through rock fill than it would be to auger through three feet of boulders in an in situ or naturally occurring condition or, indeed, to auger through competent (naturally occurring solid material) rock.⁶ The record reflects

A review of the records (which you provided) indicates an average of 8.4 caissons augured per day when no rock was encountered. This is not the 14 caissons which you claim to be your average. This also is on days which indicate no rock was encountered, which should have been ideal conditions for the excavation of "C" wall.

Furthermore, a review of SHA's IDR's for the same period reveals the same for the excavating of the caissons and reveals an average of 7.3 caissons poured on these same days.

The Caisson Drilling Log provided by you indicates that the auger crew encountered rock an average of between 5 feet to 17 feet. The soil boring log on page 125 of the proposal indicates the following:

0 - 3 feet Traces of Rock Fragments
8.5' to 11.5' Boulders (Quartzite)
23.0' to 28.0' Rock (Quartzite)

Although only one soil boring was performed for the section of "C" wall, it does indicate rock or boulders encountered. Since Quartzite is listed under the Boulders Section and under the Rock Section, it should have been understood to be the same. Quartzite as defined in Webster's Dictionary states "a compact granular rock composed of quartz and derived from sandstone by metamorphism."

Therefore the claim is being denied in it's entirety.

⁶ Rock fill will not "stand still to be drilled. It begins to move at the same time as soon as you free enough of the rock the auger will just start spinning the rock or wedge the rock or get wedged in the rock itself...Where in competent rock it will obviously stand there while you drill it." Tr. p. 55. See Tr. p. 31, pp. 51-55.

that the boulder classification on the Wall "C" soil boring would have been reasonably understood to be a representation that the subsurface condition from eight and one-half feet through eleven and one-half feet would be naturally occurring or in situ individual quartzite boulders eight to ten inches in diameter that would be only occasionally encountered, and, therefore, the area would be fairly easy to auger. Rock fill is generally much more than three feet in depth and rock placed therein by man would normally be encountered more frequently than boulders reflecting in situ or natural ground conditions.

9. The record reflects that to mitigate the effect of the rock fill condition actually encountered Appellant performed test drilling to find holes that would be easier to auger to keep the carpenter crews busy returning to auger the more difficult holes at a later time. Such procedure resulting in augering holes out of linear sequence was reasonable given the conditions encountered. SHA concedes that Appellant was delayed 11 days for augering crews and 3 days for carpenter crews.⁷

10. Appellant bases its claim of 19 days and six days of delay on an anticipated time of completion for Wall "C" caisson work of 12 days based on an anticipated rate of production of 14 caissons per day. Appellant's anticipated rate of production on Wall "C" was based on the actual production rates for the just previously completed work for Wall "A" where Appellant did not encounter rock fill. The production rates for Wall "A" and Wall "C" were as follows:

ACTUAL PRODUCTION RATES

WALL "A"

DATE

NUMBER OF CAISSONS

⁷ See Tr. pp. 132-134. The parties have only requested that the Board determine the number of additional days involved in completion of Wall "C" due to a differing site condition. In Respondent's post hearing brief it suggests that, assuming a differing site condition, Appellant was delayed for "no more than 13 days" for augering.

10/03/89	3
10/09/89	5
10/10/89	8
10/11/89	5
10/12/89	2
10/13/89	13
10/14/89, 10/16/89	22
10/23/89	13
10/24/89	19+(2 rock) [§]
10/25/89	3+(2 rock)

WALL "C"

<u>DATE</u>	<u>NUMBER OF CAISSONS</u>
10/26/89	7
10/27/89	14
10/28/89	17
10/30/89	5
10/31/89	8+(2 rock)
11/01/89	(4 rock)
11/02/89	(3 rock)
11/03/89	(3 rock)
11/04/89	(3 rock)
11/05/89	(2 rock)
11/06/89	(3 rock)
11/07/89	1+(2 rock)
11/08/89	(9 rock)
11/09/89	2+(2 rock)
11/10/89	1+(5 rock)
11/11/89	(3 rock)
11/12/89	(8 rock)
11/13/89	(2 rock)
11/14/89	(7 rock)
11/15/89	5+(4 rock)
11/17/89	2+(7 rock)
11/20/89	2
11/21/89	6+(1 rock)
11/22/89	10+(1 rock)
11/24/89	(1 rock)
11/27/89	2+(1 rock)
11/28/89	(3 rock)

The record reflects that as Appellant proceeded along Wall "A" it was improving its learning curve and reached a production

[§] Apparently, the rock encountered on 10/24 and 10/25 was competent rock.

rate of 14 caissons per day by October 24, 1989. The record reflects that on October 25, 1989, Appellant disassembled its auger and demobilized on Wall "A" and then moved to Wall "C" where it reassembled its auger and remobilized on October 26, 1989; such activity explaining the decrease in production between October 25 and October 27, 1989. There is no explanation in the record, however, for the drop-off in production to 5 caissons on October 30, 1989, the last day before Appellant encountered the rock fill on Wall "C".

Decision

The contract as required by Section 13-218(b) of the State Finance and Procurement Article contains a differing site condition clause³ providing for an equitable adjustment for damages flowing from (1) subsurface or latent physical conditions at the site differing materially from those indicated in the contract; i.e. Type I, or (2) unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract; i.e. Type 2. The instant appeal involves an alleged Type I differing site condition.

We have previously defined a Type I differing site condition in the following terms:

A 'type 1' differing site condition is contingent upon the existence of some contractual indication concerning the subsurface or physical conditions to be expected. The indication need not be express, may be proved by inference or implication, and need only be sufficient to impress or lull a

³ See COMAR 21.07.02.05; SHA GP-4.04. The differing site condition clause is designed to protect the parties from unforeseen circumstances, thus eliminating the speculation often present in subsurface projects and reducing the risk of inflated bidding. See Corman Construction, Inc., MSBCA 1254, 3 MSBCA ¶ 206 at p. 21 (1989).

reasonable bidder. Foster Construction Co., et al. v. United States, 193 Ct. Cl. 587, 435 F.2d 873, 881 (1970).

C.J. Langenfelder & Son, Inc., MDOT 1000, 1003, 1006, 1 MSBCA ¶2 (1980) at 34, aff'd Md. Port Administration v. C.J. Langenfelder & Son, Inc., 50 Md. App. 525 (1982). See Fruin-Colnon Corporation and Horn Construction Co., Inc., (A Joint Venture), MDOT 1025, 2 MSBCA ¶ 165 (1987); American Dredging Co. v. United States, 207 Ct. Cl. 1010 (1975). Hardaway Constructors, Inc., MSBCA 1249, 3 MSBCA ¶ 227 (1989). Thus a Type 1 differing site condition may be found to exist when indications of subsurface conditions in the contract would reasonably lead a contractor bidding on the work to a certain conclusion about the subsurface conditions. Fruin-Colnon Corp. and Horn Construction Co., Inc., supra, at 55, 60; Pacific Alaska Contractors, Inc. v. United States, 193 Ct. Cl. 850, 436 F.2d 461 (1971), Martin G. Imbach, Inc., MDOT 1020, 1 MSBCA ¶ 52 (1983). [Regarding the reasonableness of a contractor's reliance on representation of subsurface conditions in a construction contract, the Maryland Court of Special Appeals in Raymond International, Inc. v. Baltimore County, 45 Md. App. 247, 412 A.2d 1296 (1988) citing Hollerbach v. United States, 233 U.S. 165 (1914) observed:

We think this positive statement of the specifications must be taken as true and binding upon the Government, and that upon it rather than upon the claimants must fall the loss resulting from such mistaken representations...If the Government wished the matter open to independent investigation of the claimants, it might easily have omitted the specification...In its positive assertion of the nature of this much of the work it made a representation upon which claimants had a right to rely without an investigation to prove its falsity.

45 Md. App. 247, 255 (Underscoring added).

Soil borings are the most specific and usually the most reliable indications of subsurface conditions. United Contractors v. United States, 177 Ct. Cl. 151, 368 F. 2d 585, 598

(1966). In Account General, Inc. 87-2 BCA, ¶ 19,689 (1987) the Armed Services Board of Contract Appeals approached the issue of soil borings with practicality and reasonableness:

We are not unmindful that as an absolute proposition a boring, and its attendant log, show the conditions only in the bored hole. We live, however, in a practical world and it is certainly not practical, even if it were possible, to drill every square inch of a proposed construction site to determine subsurface conditions. This fact of life has to be taken into consideration in determining what use prospective bidders can make of the boring log information furnished to them.

. . . .

There is no firm rule of which we are aware regarding the distance around a boring that may be considered as falling within the indications shown in the boring log. On prior occasions we have simply determined what was reasonable . . .

Id. at 99,680, 99,681 (emphasis added). See also Corman Construction, Inc., supra; Structural Preservation Systems, Inc., MSBCA 1440, 3 MSBCA ¶ 234 (1989).]

Here SHA provided in the bid documents 5 to 6 borings for the other walls thus raising a reasonable inference that the sole boring for Wall "C" was an accurate reflection of the subsurface condition to be encountered along its length, and we find that Appellant was entitled to rely on it.¹⁰ The boring indicates

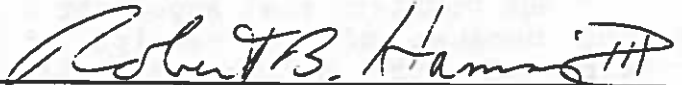
¹⁰ SHA counters that Appellant did not in fact rely on the soil boring because of its receipt of the opinion of a potential subcontractor that excavation would be more costly than Appellant's bid anticipated. We need not consider the affect of such an opinion on whether Appellant may have reasonably relied on representations in the bid documents because the opinion of the potential subcontractor was rendered after bid opening and Appellant performed the subject work with its own forces.

that a contractor would encounter quartzite boulders at depths of 8.5 feet to 11.5 feet, such material being in its in situ (natural) state. However, commencing 230 feet west of the boring the Appellant actually encountered rock fill, a uniform layer of large fractured gneiss rock placed by man as fill material apparently during the construction of the Interstate. Thus the Board determines that Appellant encountered a Type I differing site condition because the condition encountered at the site differed materially from that indicated in the boring.


The requirement to auger through rock fill caused delay in Wall "C" completion. The record fails to support SHA's implied assertion that boulders or rock in an in situ condition would create an equally difficult subsurface drilling condition as rock fill. Appellant has failed, however, to meet its burden to demonstrate that it reasonably could have achieved a production rate of 14 caissons per day on Wall "C". While it ultimately achieved a learning curve productive of a 14 caisson per day production rate on Wall "A", the unexplained drop to only 5 caissons on Wall "C" on October 30, 1989 prior to encountering the rock fill precludes the Board from finding that Appellant would have achieved a 14 caisson production rate on Wall "C" but for encountering the differing site condition. However, the State has conceded that Appellant was delayed 11 days for auguring crews and 3 days for carpenter crews on Wall "C" and Appellant is entitled to an equitable adjustment based on such delay attributable to the differing site condition.


The appeal is thus sustained in part and remanded to SHA for appropriate action.

Dated: *August 1, 1991*


Robert B. Harrison III
Chairman

I concur:


Sheldon H. Press
Board Member


Neal E. Malone
Board Member

* * *

I certify that the foregoing is a true copy of the Maryland State Board of Contract Appeals decision in MSBCA 1547, appeal of CHERRY HILL CONSTRUCTION, INC., under SHA Contract No. AW 991-501-324.

Dated: August 1, 1991


Mary A. Priscilla
Recorder

STATE HIGHWAY ADMINISTRATION
OF MARYLAND
BUREAU OF SOILS AND FOUNDATIONS

FOUNDATIONS BORING LOG

CONTRACT NO. H-588-201-324 BORING NO. C-5

NO. 1 OF 1 BORINGS
SHEET 1 OF 1

DESCRIPTION Noise Barrier I-495 MD Rte. 193 MD Rte. -650- 212

HAMMER DROP 30 IN.

STATION 16+00

DRIVE HAMMER -- LB

SURFACE ELEVATION 276.9 302.5 DATE STARTED 8/3/88

SPOON HAMMER 140 LB.

DATE COMPLETED 8/4/88

CASING AUGER SIZE 3 1/2 IN.

SPOON SIZE 2 IN.

SIZE OF CORE 1 3/8 IN.

SIZE OF BIT 2"

CORE BARREL TYPE M Series

AUGER DEPTH 23'

WATER TABLE

DEPTH BELOW SURFACE	TIME	DATE
23.0	0 Hr.	8/4/88
Dry	24 Hr.	8/5/88

DRILLER P. Skipper

RIG TYPE CME 550

RIG NO. 80311

DEPTH IN FEET	MATERIAL CLASSIFICATION	SPOON			CORE RECOVERY %	REMARKS	DEPTH	BLOW PER FOOT
		SAMPLE NO.	BLOW	DEPTH				
0.0'	Stiff Brown Micaceous Silt, Some Sand, Trace of Rock Fragments		5-5	0.0'			1	
		1	5	1.5'			2	
3.0'							3	
3.0'	Very Stiff Varicolored Micaceous Silt And Sand		8-13	3.5'			4	
		2	12	5.0'			5	
8.5'	Boulders (Quartzite)			8.5'			6	
				11.5'	63%		7	
11.5'	Very Stiff Varicolored micaceous Silt, Some Sand		12-8	13.5'			8	
		3	10	15.0'			9	
18.0'							10	
18.0'	Very Hard Varicolored Silt Size Particles, Some Sand size Particles (Rock Penetrated By A Split Barrel Sampler)		34	18.5'			11	
		4	100/6	19.5'			12	
23.0'	Rock (Quartzite)						13	
							14	
23.0'							15	
							16	
							17	
28.0'							18	
	BORING AND SAMPLING CONFORMS TO AASHTO DESIGNATION <u>T-205</u> <u>T-225</u> SOIL HAS BEEN CLASSIFIED VISUALLY BY THE DRILLER ROCK HAS BEEN CLASSIFIED BY A GEOLOGIST. <u>BWT</u>						19	
							20	
							21	
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							23	
							24	
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