RECONSTRUCTION OF I-95 OVER WEST RIVER
WEST HAVEN AND NEW HAVEN, CONNECTICUT

STATE PROJECT NO. 92-522

FINAL STRUCTURE SOIL AND ROCK REPORT
BRIDGE NO. 00163
(RECONSTRUCTION OF I-95 OVER WEST RIVER)

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1.0 PROPOSED CONSTRUCTION

Bridge No. 00163, constructed in 1956-57 is a twelve span simply supported structure carrying I-95 over the West River and Kimberly Avenue in West Haven and New Haven, Connecticut (See Figure 1). The I-95 Southbound Off-Ramp to Kimberly Avenue, Bridge No. 00163B, is to be abandoned and removed. The bridge is to be reconstructed to accommodate the realigned and widened I-95, with the roadway grade at the bridge being raised approximately 1 m (3 ft). The new bridge will consist of a 314.7 meter (1032.5 foot) six span continuous structure, with two full height abutments and U-type wingwalls, with five piers. The abutments, wingwalls and piers will be supported on precast prestressed concrete pile foundations.

2.0 EXISTING CONDITIONS

The main bridge, Bridge No. 00163A, is a twelve span structure with unconventional open (spill through) type abutments with flared wingwalls and multi-column pier bents. The southbound off-ramp, Bridge No. 00163B, is an eleven span simply supported structure that shares the three easterly most piers and the east abutment with Bridge No. 00163A before becoming an independent structure.

Available design drawings indicate that either steel H-piles or constant diameter cast-in-place (CIP) concrete shell piles were used to support the existing bridge abutments and piers. All of the piles had an allowance for negative friction. All of the piers within the river and the immediate flood plain utilized CIP piles with an estimated tip elevation between El[1] –29.5 and –32.5 m (–95 and –105 ft).

[1] The existing design elevations are in feet, based on the 1929 NGV Datum, while the reconstruction project is in meters, based on the 1988 NAV Datum. The new datum is 0.326 meters (1.07 ft) higher than the old datum. All elevations shown for the existing bridge in feet are based on the old datum.

Table 1

Location	Pile Type	Estimated Pile Length	Pile / Order Length)	Dead and Live Load)	Negative Friction	Total Pile Design Load
West Abutment	360BP108 (14BP73)	24.5 – 30.5 m (80 – 100 ft)	27.5 m (90 ft)	329 kN (37 tons)	222 kN (25 tons)	551 kN (62 tons)
Pier 1	310BP79 (12BP53)	24.5 – 30.5 m (80 – 100 ft)	49.0 m (160 ft)	213 kN (24 tons)	311 kN (35 tons)	524 kN (59 tons)
Pier 2, 3, 6 & 7	305 mm CIP (12" CIP)	26.0 – 29.0 m (85 – 95 ft)	29.0 m (95 ft)	347 kN (39 tons)	107 kN (12 tons)	454 kN (51 tons)
Pier 4 & 5	305 mm CIP (12" CIP)	24.5 – 27.5 m (80 – 90 ft)	26.0 m (85 ft)	338 kN (38 tons)	53 kN (6 tons)	391 kN (44 tons)
Pier 8	310BP79 (12BP53)	26.0 – 29.0 m (85 – 95 ft)	39.5 m (130 ft)	267 kN (30 tons)	178 kN (20 tons)	445 kN (50 tons)
Pier 9	310BP79 (12BP53)	26.0 – 29.0 m (85 – 95 ft)	39.5 m (130 ft)	222 kN (25 tons)	232 kN (26 tons)	454 kN (51 tons)
Pier 10	310BP79 (12BP53)	26.0 – 29.0 m (85 – 95 ft)	39.5 m (130 ft)	222 kN (25 tons)	258 kN (29 tons)	480 kN (54 tons)
Pier 11	310BP79 (12BP53)	26.0 – 29.0 m (85 – 95 ft)	39.5 m (130 ft)	240 kN (27 tons)	258 kN (29 tons)	498 kN (56 tons)
East Abutment	360BP108 (14BP73)	27.5 – 30.5 m (90 – 100 ft)	29.0 m (95 ft)	329 kN (37 tons)	178 kN (20 tons)	507 kN (57 tons)

Pile load test data was not available for this bridge; however, information on pile order lengths was available in ConnDOT files. The order length information indicated that it was based on pile load test data. Table 1 provides a summary of the existing bridge pile types, loadings and pile lengths (estimated and order lengths) for the abutment and piers. Generally, the H-pile order lengths were 12 to 15 m (40 to 50 ft) longer then the estimated pile lengths, while the CIP pile order lengths were the same or slightly longer then the estimated pile lengths.

The abutments and piers all utilized a combination of vertical and batter piles, with piles battered in both the longitudinal and transverse directions.

Piers 2 through 7 of the main bridge were constructed within cofferdams, with existing soils excavated to either El –6.5 or –10.5 m (-20.5 or –33 ft), and replaced with gravel fill, broken stone and tremie concrete to the bottom of footing elevation. The cofferdams with tremie concrete are shown extending 2 m (6.5 ft) beyond the pier footings in the longitudinal direction and 0.6 m (2 ft) in the transverse direction. Piers 1 and 8 through 11, located outside of the river, were constructed as standard piers without cofferdams.

The existing design drawings also indicate that sand drains and surcharge loading, 0.9 to 1.5 m (3 to 5 ft) over final load conditions, were used during original construction where embankment fill was placed in areas of organic silt.

Bridge No. 00163 is located near the mouth of the West River, where it flows into New Haven Harbor. The subsurface conditions indicated by test borings drilled for the original bridge construction in 1956 – 1957 and shown on the construction plans generally consisted of (1) sand or sand and gravel fill overlying (2) organic silt overlying (3) sand or silty sand. Copies of the drawings showing the boring locations and the boring logs are provided in Appendix C. The borings were drilled in such a manner as to provide Standard Penetration Test N-values that allow estimation of soil density and/or consistency.

The sand or sand and gravel fill did not exist within the river or its immediate flood plain. The fill was medium dense to very dense and was up to 14 m (45 ft) thick. The organic silt was present in all of the test borings and varied form 6 to 12 m (20 to 40 ft) in thickness and from stiff to very soft in consistency. Generally it was very soft to soft, being stiffer in areas with existing fill. The bottom of the organic silt generally varied from El –11.0 to –12.5 m (–35 to –40 ft), generally rising to the north and east. The organic silt is an old bay or river

bottom deposit. The underlying sand to silty sand was loose to very dense. Generally, within the river flood plain it became dense at El –24.5 m (–80 ft), while outside this area it became dense between El –12.5 to –18.5 m (–40 and –60 ft). One test boring extended to El –47.5 m (–155 ft) and was still within this stratum. This is consistent with information on the regional geologic maps that indicate fluvial deposits exist to depths of up to 150 m (500 ft) in this area, before bedrock is encountered.

3.0 PRELIMINARY DESIGN

3.1 Type Study

The Bridge Type Study Report for Bridge No. 00163 recommended replacement of the bridge with a six span structure with full height cantilevered abutments and wingwalls supported on either 355 mm (14 in) constant diameter cast-in-place concrete shell piles or 355 mm (14 in) square precast prestressed concrete piles. The ultimate pile capacities were estimated to be 890 kN (100 tons) for piles extending to approximately El –31m (-100 ft).

3.2 Present Design

The proposed design for Bridge No. 00163 utilizes 406 mm (16 in) square 1512 kN (170 tons) ultimate capacity precast prestressed concrete pile supported foundations for the abutments, wingwalls and piers. The bottoms of the substructure footings are indicated in Table 2 on page 6. A scour study was completed for the bridge and the maximum 500 year scour elevations are summarized in Table 2.

4.0 SUBSURFACE EXPLORATION

Twenty final design borings were drilled at the approximate outside corners and center of the proposed new Bridge No. 00163 abutments and piers. Limited headroom prevented drilling a boring at the center of Abutment 1. The locations of the new test borings are shown on Figure 2. A subsurface profile with the new borings along the northern side of the proposed bridge is provided on Figure 3, while subsurface profiles at the abutments and piers are shown on Figures 4 through 10. Boring logs and laboratory data for these borings are provided in Appendix A and Appendix B, respectively. The ground surface at the new borings varied from El –0.94 to 4.63 m (-3.1 to 15.2 ft).

The new borings generally indicated a silty sand fill layer, except in the river, overlying an organic silt layer, that overlies a sand and silt layer, overlying a silt layer that overlays a clayey silt layer.

The subsurface conditions at each substructure are discussed in more detail below:

ABUTMENT 1

The ground surface at the Abutment 1 borings, A1-1 and A1-2 was El 4.73 and 4.63 m (15.5 and 15.2 ft), respectively. Approximately 6 m (13 ft) of generally medium dense brown to red brown fine sand fill overlay approximately 10.5 m (34.5 ft) of very soft to medium stiff, generally soft, gray to black organic silt. The bottom of the organic silt layer was approximately at El –11.5 m (-38 ft). Beneath the organic silt was a layer of loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this layer varied from approximately El –20.5 to –30 m (-67 to -98.5 ft). This overlay medium dense to dense, generally medium dense, red brown sandy silt to silt with gray clay seams to the bottom of the borings at El –31 m (-102 ft). Ground water was noted at El 1.2 and 2.04 m (3.9 and 6.7 ft).

Table 2

Location	Bottom of Footing Elevation	500 Year Scour Elevation	Estimated Pile Tip Elevation	Estimated Pile Length
Abutment 1	2.2 m (7.2 ft)	No Scour	-24.5 m (-80.5 ft)	26.7 m (88 ft)
Wingwall 1A	6.0 m (19.7 ft)	No Scour	-24.5 m (-80.5 ft)	30.5 m (100 ft)
Wingwall 1B	6.6 m (21.7 ft)	No Scour	-24.5 m (-80.5 ft)	31.1 m (102 ft)
Pier 1	-1.1 m (-3.6 ft)	+1.62 m (+5.3 ft)	-24.5 m (-80.5 ft)	23.4 m (77 ft)
Pier 2	-4.1 m (-13.5)	-7.78 m (-25.5 ft)	-27.5 m (-90 ft)	23.4 m (77 ft)
Pier 3	-4.1 m (-13.5)	-3.58 m (-11.7 ft)	-25.5 m (-83.5 ft)	21.4 m (70 ft)
Pier 4	-1.1 m (-3.6 ft)	-0.46 m (-1.5 ft)	-27 m (-88.5 ft)	25.9 m (85 ft)
Pier 5	0.4 m (1.3 ft)	+1.83 m (6.0 ft)	-24.5 m (-80.5 ft)	24.9 m (82 ft)
Abutment 2	1.3 m (4.3 ft)	No Scour	-24 m (-78.5 ft)	25.3 m (83 ft)
Wingwall 2A	4.5 m (14.8 ft)	No Scour	-24 m (-78.5 ft)	28.5 m (94 ft)
Wingwall 2B	5.3 m (17.4 ft)	No Scour	-24 m (-78.5 ft)	29.3 m (96 ft)

PIER 1

The ground surface at the Pier 1 borings, P1-1, P1-2 and P1-3 varied from El 0.97 to 2.32 m (3.2 and 7.6 ft). Approximately 4.6 to 10.2 m (15 to 33.5 ft) of very loose to dense, generally medium dense brown to red brown fine to coarse sand fill overlay approximately 3 to 8.7 m (10 to 28.5 ft) of very soft to very stiff, generally stiff to very stiff to the north and very soft to the south, gray to olive

brown organic silt. The bottom of the organic silt layer was approximately at El –11 m (-36 ft). Beneath the organic silt was a layer of loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this layer varied from approximately El –18 to –23 m (-59 to –75.5 ft). This overlay medium dense to very dense, generally dense to the north and medium dense to the south, red brown sandy silt to silt to the bottom of the borings at approximately El –38 m (-124.5 ft). Ground water was noted at El –0.27 to –1.62 m (-0.9 and –5.3 ft).

PIER 2

The ground surface at the Pier 2 borings, P2-1, P2-2 and P2-3, with P2-1 and P2-2 being in the river, varied from El –0.48 to 0.68 m (-1.6 and 2.2 ft). There was no fill evident in these borings. The northern borings indicated approximately 9m (29.5 ft) of very soft gray to dark gray organic silt. Boring P2-1, to the north, indicated approximately 3 m (10 ft) of very soft peat, overlying 11.5 m (38 ft) of very soft gray organic silt. The bottom of the organic silt layer was approximately at El –9.5 m (-31 ft) in the northern borings and El –14.5 m (--47.5 ft) in P2-3. Beneath the organic silt was a layer of loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this layer varied from approximately El –21.5 to –26.5 m (-70.5 to –87 ft). This overlay medium dense to very dense, generally dense, red brown sandy silt to silt. In borings P2-1 and P2-3 this was underlain by medium dense to very dense, generally dense red brown silt with little to some clay and a trace of gray clayey silt seams. The borings terminated between El –45.6 to –47.1 m (-149.5 to –154.5 ft).

PIER 3

The ground surface at the Pier 3 borings, P3-1, P3-2 and P3-3, all being in the river, varied from El –0.72 to –0.94 m (-2.4 and –3.1 ft). There was no fill evident in these borings. The borings indicated approximately 10 to 12 m (33 to 39.5 ft) of very soft gray to dark gray organic silt. The bottom of the organic silt layer was

approximately at El –11 to –12.5 m (-36 to 41 ft). Beneath the organic silt was a layer of loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this layer varied from approximately El –21.5 to –31.0 m (-70.5 to –102 ft). This overlay medium dense to very dense, generally dense, red brown sandy silt to silt. This was underlain by dense to very dense, generally dense red brown silt with little to some clay and a trace of gray clayey silt seams. The borings terminated at approximately El –47 m (-154 ft).

PIER 4

The ground surface at the Pier 4 borings, P4-1, P4-2 and P4-3 varied from El 1.05 to 1.38 m (3.4 and 4.5 ft). Approximately 5.6 to 7.2 m (18.5 to 23.5 ft) of very loose to dense, generally loose brown to black fine sand to organic silt fill overlay approximately 4.1 to 9.1 m (13.5 to 30 ft) of very soft to very stiff, generally very soft, gray to dark gray organic silt. The bottom of the organic silt layer was between approximately at El –10.5 to -14 m (-34.5 to -46 ft). Beneath the organic silt was a layer of very loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this layer varied from approximately El –18 to –23 m (-59 to –75.5 ft). This overlay medium dense to very dense, generally dense, red brown sandy silt to silt to the bottom of the borings at approximately El –37.5 m (-123 ft). Ground water was noted at El –1.21 to –1.54 m (-4.0 and –5.0 ft).

PIER 5

The ground surface at the Pier 5 borings, P5-1, P5-2 and P5-3 was approximately El 2.6 m (8.5 ft). Approximately 3.3 to 6.2 m (11 to 20.5 ft) of very loose to dense, generally medium dense brown to black fine sand with brick and concrete rubble fill overlay approximately 7 to 10 m (23 to 33 ft) of very soft to medium stiff, generally very soft to soft, gray organic silt. The bottom of the organic silt layer was between approximately at El –10.5 to –11.5 m (-34.5 to -38 ft). Beneath the organic silt was a layer of loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this

layer varied from approximately El –17 to –23 m (-55.5 to –75.5 ft). This overlay very loose to very dense, generally medium dense, red brown sandy silt to silt to the bottom of the borings at approximately El –33 m (-108 ft). Ground water was noted at approximately El 0.0 m (0.0 ft).

ABUTMENT 2

The ground surface at the Abutment 2 borings, A2-1, A2-2 and A2-3 was approximately El 2.9 m (9.5 ft). Approximately 5.6 to 10.2 m (18.5 to 33.5 ft) of loose to very dense, generally medium dense brown to black fine to coarse sand to black silt, with ash, cinders, glass and metal, fill overlay approximately 3 to 9 m (10 to 29.5 ft) of very soft to medium stiff, generally very soft to soft, gray to dark gray organic silt. The bottom of the organic silt layer was between approximately at El –10.5 to –12 m (-34.5 to –39.5 ft). Beneath the organic silt was a layer of loose to dense, generally medium dense, red brown, fine sand, silty fine sand to sand and silt. The bottom of this layer varied from approximately El –16.5 to –19.5 m (-54 to –64 ft). This overlay very loose to very dense, generally medium dense, red brown sandy silt to silt to the bottom of the borings at approximately El –32 m (-105 ft). Ground water was noted at between approximately El 0.5 to 0.8 m (1.5 to 2.5 ft).

5.0 RECOMMENDATIONS

5.1 General

The underlying organic silt does not provide adequate foundation support for the proposed bridge abutments, wingwalls and piers. It is recommended that the new bridge abutments, wingwalls and piers be supported on 406 mm (16 in) square precast prestressed concrete piles. It is recommended that vertical piles be used to the maximum extent possible to minimize potential conflicts with the existing bridge piles.

The medium dense sand and silt underlying the organic silt will provide frictional and end-bearing support for piles. At the present time, precast prestressed concrete piles are the most cost effective piles available. They provide the highest load per unit length and have the least installed cost per unit length for various pile types.

Cost data obtained by Parsons Brinckerhoff for the New Haven Harbor Corridor Improvement Program indicated that 355 mm (14 in) square precast prestressed concrete piles cost $100 per meter ($64 for furnishing and $36 for driving) while 406 mm (16 in) square precast prestressed concrete piles cost $115 per meter, ($75 for furnishing and $40 for driving piles). Based on this data, 355 mm (14 in) piles are 15% cheaper then 406 mm (16 in) piles on a per foot basis. A 355 mm (14 in) pile has approximately 15% less surface area then a 406 mm (16 in) pile, which means that a 355 mm (14 in) pile would be 15% longer for the same capacity as a 406 mm (16 in) pile. For the same capacity, 355 and 406 mm (14 and 16 in) precast prestressed concrete piles cost approximately the same. The larger piles should have less breakage and be better able to handle driving stresses. Therefore, 406 mm (16 in) precast prestressed piles are recommended for this bridge.

5.2 Pile Compression Capacity

Historic (I-95 and I-91 Pile Load Test Reports in ConnDOT Soils Group Files) and recent (I-95 New Haven Harbor Crossing Corridor Improvement Program, Pile Load Test Program Data Report, July, 2002) pile load test data in the area indicates that pile capacity calculated by standard SPT or CPT methods significantly overestimate the capacity of friction piles. Interpretation of recent load test data in two areas (Pile Load Test data Program Evaluation Report, I-95 New Haven Harbor Crossing Improvements, Contract B, State Project No. 92-532, September 2002 by GeoDesign) indicated that precast prestressed concrete piles had an average ultimate skin friction value of 1070 ksf, and an average ultimate end bearing value of about 65 to 70 ksf. Interpretation of data from two

other areas (Report on Pile Load Test Program Areas C and D, I-95/I-91/SR34 Interchange State project No. 92-531, September 2002 by Haley and Aldrich) resulted in a recommendation that for 16 inch prestressed precast piles the ultimate skin friction should be based on a range of from 0.8 to 1.0 ksf and ultimate end bearing capacity should be based on 50 ksf.

Review of the subsurface conditions at the four load test pile sites, indicates that the conditions at the West River Project are very similar to Area B discussed in the GeoDesign report. After evaluating the above data, the ultimate capacity of precast prestressed concrete piles for the West River Project were estimated based on 65 ksf end bearing and 1000 psf skin friction for embedment in the sands and silty sands underlying the organic silts. No frictional capacity was assumed for the organic silt and overlying fill.

An embedment of approximately 13 m (42.5 ft) into the medium dense sand and silt provides an ultimate pile bearing resistance of approximately 1512 kN (170 tons). This corresponds to a pile tips varying from approximately El –24 to –27.5 m (-78.5 to –90 ft). The estimated pile lengths below the bottom of footing elevations are shown in Table 2, on page 6.

The ultimate pile bearing resistance is 1512 kN (170 tons). In accordance with the AASHTO LRFD Bridge Design Specifications, a resistance factor of 1.0 should be taken for the service limit state and a resistance factor of 0.80 for the strength limit state. The strength limit resistance factor is based on performing pile load tests and pile driving analyzer testing of production piles.

5.3 Pile Downdrag

Abutment 1 is underlain by approximately 10.5 m (34.5 ft) of organic silt, and Abutment 2 is underlain by approximately 3 to 9 m (10 to 29.5 ft) of organic silt. The grade of I-95 is being raised approximately 1 m (3.3 ft) at Bridge No. 00163, and additional embankment fill is being placed along the northbound side of I-95, to allow for widening of the roadway. The placement of fill to raise the grade and

widen the roadway will cause consolidation of the organic silt. To decrease roadway settlements surcharge preloading with prefabricated wick drains will be used to consolidate the organic silts prior to final roadway construction.

The placement of fill will cause downdrag on the new abutment piles. In order to decrease the downdrag on these piles it is recommended that lightweight fill be used behind the abutments. The lightweight fill will also reduce the lateral earth pressures on the abutments. Both of these conditions, reduced drag load and reduced lateral pressures, will reduce the number of piles at the abutments and justify the additional cost of the lightweight fill.

Using lightweight fill at the abutments is estimated to cause approximately 10 mm (3/8 in) of consolidation settlement of the organic silt at Abutment 1 and 50 mm (2 in) at Abutment 2. Downdrag loads for these settlements are estimated to be 347 kN (39 tons) at Abutment 1 and 391kN (44 tons) at Abutment 2.

The downdrag was calculated using a value of 0.024 MPa (500 psf) skin friction for the fill and organic silt above the neutral point. The 0.024 MPa (500 psf) value was obtained from the GeoDesign (Pile Load Test data Program Evaluation Report, I-95 New Haven Harbor Crossing Improvements, Contract B, State Project No. 92-532, September 2002 by GeoDesign) interpretation of the load test data for precast concrete piles, which stated that "Average ultimate skin friction developed in the fill and organics is about 500 psf." It should be noted that Section 10.7.1.4 of the AASHTO LRFD Bridge Design Specifications states that downdrag is a load, and the commentary for this section states that when designing for downdrag, drag loads should not be combined with transient loads. Only permanent loads need to be included with the drag loads.

Since fill is not being placed in the area of the piers and proposed dewatering is only temporary, consolidation of the organic silt is not anticipated. Therefore downdrag is not a consideration.

5.4 Pile Uplift Capacity

The ultimate pile uplift resistance is based on the assumption that 80% of the ultimate downward skin friction (sand and silty sand beneath the organics) is available to resist uplift, or 996 kN (112 tons). A resistance factor of 1.0 should be taken for the service limit state and a resistance factor of 0.80 is recommended for the strength limit state. If uplift controls pile design it is recommended that an uplift load test be performed and the same resistance factors recommended above be used against the ultimate uplift capacity determined from the load test.

5.5 Lateral Pile Capacity

Lateral foundation loads may be resisted by a combination of shear and bending at the tops of the piles and the horizontal component of axial load in batter piles. The abutments, wingwalls and piers were analyzed for combined vertical and horizontal load using the program GROUP, assuming the piles were free-headed. The maximum factored lateral load on an individual abutment or wingwall pile was 98 kN (22 kips), which resulted in a calculated deflection of 9 mm (0.35 in). The maximum factored lateral load on an individual pile in Piers 1, 4 and 5 was 62 kN (14 kips), which resulted in a calculated deflection of 25 mm (1.0 in) and on an individual pile in Piers 2 and 3 was 80 kN (18 kips), which resulted in a calculated deflection of 30 mm (1.2 in).

5.6 Pile Testing

It is recommended that both static pile load tests and pile driving analyzer testing of production piles be performed. Seven static pile load test are recommended, one in each of the abutments and piers. The tested piles should be located in the first portion of each pier and abutment to be constructed, the southern portion.

The load test piles should be driven within a minimum 660 mm (26 in) diameter steel pipe sleeve or casing that extends through the upper fill and organic silts. The estimated elevation of the bottom of the organic silt in the southern portion of the abutments and piers is given in Table 3 below. The casing should be cleaned to the bottom prior to driving the pile within the casing. The piles should then be loaded to their 1,512 kN (170 ton) ultimate capacity. The static load test piles should also be dynamically tested utilizing a Pile Driving Analyzer (PDA). It is recommended that PDA testing be performed on three other vertical test piles evenly spaced across each of the piers and Abutment 1 stage construction sections. Abutment 2, because of its length, is recommended to have 4 PDA tested piles in addition to the static load test pile.

Table 3

Location	Bottom of Footing Elevation	Estimated Bottom of Organic Silt	Estimated Sleeve Length
Abutment 1	2.2 m (7.2 ft)	-11.5 m (-38 ft)	13.7 m (45 ft)
Pier 1	-1.1 m (-3.6 ft)	-11 m (-36 ft)	9.9 m (32.5 ft)
Pier 2	-4.1 m (-13.5)	-14.5 m (-47.5 ft)	10.4 m (34 ft)
Pier 3	-4.1 m (-13.5)	-11 m (-36 ft)	6.9 m (22.5 ft)
Pier 4	-1.1 m (-3.6 ft)	-14 m (-46 ft)	12.9 m (42.5 ft)
Pier 5	0.4 m (1.3 ft)	-10.5 m (-34.5 ft)	10.9 m (36 ft)
Abutment 2	1.3 m (4.3 ft)	-10.5 m (-34.5 ft)	11.8 m (39 ft)

5.7 Lateral Loads

The abutments and wingwalls should be designed for a static lateral earth force of 0.979 H^2 kN/m (.00623 H^2 k/ft) with the resultant force acting at H/3 from the

base. This is based on using light weight expanded shale aggregate as fill behind the abutment and wingwalls, with a unit weight of 960 kg/m^3 (60 pcf) and a friction angle of 41^0. A surcharge force of 3.63 H kN/m (0.076 H k/ft) acting at H/2 from the base should be included to account for live loading adjacent to the abutment and wingwalls.

5.8 Seismic Loads

An Acceleration Coefficient (A) of 0.16, a Seismic Performance Zone of 2, and a Site Coefficient (S) of 1.5 (Soil Profile Type III) are appropriate for seismic design at this site.

The abutments and wingwalls are typically considered non-yielding walls since they are supported by batter piles. For non-yielding walls, the dynamic earth pressure for seismic conditions with light weight fill is a force of 0.636 H^2 kN/m (0.00405 H^2 k/ft) acting at 0.6H from the base, and inertial effects of 0.24 times the weight of concrete and the weight of the soil over the heel, where H is the height of the wall from the base of the footing to the top of the soil behind the wall in meters. However, using these values results in movement of the top of the abutment greater then 0.5% of the abutment height, so the abutment can be considered a yielding abutment. Thus, the dynamic earth pressure to use for design under seismic conditions with light weight fill is a force of 0.184 H^2 kN/m (0.00117 H^2 k/ft) acting at 0.6H from the base, and inertial effects of 0.08 times the weight of concrete and the weight of the soil over the heel.

5.9 Liquefaction

A liquefaction analysis of the soils below the existing groundwater table indicates a factor of safety against liquefaction of less then 1.1 for a 0.16 g earthquake acceleration for total of 22 samples out of 536 samples in eleven of the twenty new bridge borings. The location and factor of safety of the samples are shown in Table 4 on page 16.

Table 4

Boring Number	Factor of Safety	Depth (meters)	Depth (feet)	Elevation (meters)	Elevation (feet)	Comments
P1-3	0.90	3.35	11.0	-1.03	-3.4	Just above organic silts
	0.87	17.06	56.0	-14.74	-48.3	
	0.76	23.16	76.0	-20.74	-68.0	
P2-1	0.73	9.44	31.0	-9.92	-32.5	
	0.77	10.97	36.0	-11.45	-37.6	Just below organic silts
P2-3	0.95	0.30	1.0	0.38	0.12	
P3-1	1.06	12.50	41.0	-13.22	-43.4	
	0.93	15.54	51.0	-16.26	-53.3	
P3-3	0.93	9.75	32.0	-10.69	-35.1	Just below organic silts
P4-1	0.97	3.35	11.0	-2.30	-7.5	
	0.95	4.88	16.0	-3.83	-12.6	Just above organic silts
P4-2	0.95	4.88	16.0	-3.68	-12.1	
	0.88	6.40	21.0	-5.20	-17.1	Just above organic silts
	0.63	12.50	41.0	-11.30	-37.1	Just below organic silts
	0.82	14.02	46.0	-12.82	-42.1	
P5-1	0.82	14.02	46.0	-11.41	-37.4	Just below organic silts
	1.01	20.11	66.0	-17.50	-57.4	
	0.86	26.21	86.0	-23.60	-77.4	
P5-3	0.82	14.02	46.0	-11.43	-37.5	Just below organic silts
A2-2	0.81	15.54	51.0	12.62	-41.4	Just below organic silts
A2-3	0.91	14.02	46.0	-11.08	-36.4	Just below organic silts
	0.92	18.69	61.0	-15.75	-51.7	
	0.81	21.64	71.0	-18.70	-61.4	

Only five of the samples with factors of safety less then 1.1 were not in the upper fill or at the interface with the organic silt. The samples at the organic silt interface probably have misleading blow counts due to a portion of the sample being in the organic silt. It does not appear that there is any continuous zone of liquefiable soil beneath the bridge abutment or pier foundations, so liquefaction is not considered a concern for this bridge.

5.10 Structure Backfill and Drainage

Lightweight fill is recommended behind the abutments and wingwalls, above a slope line starting at the bottom of the heel and extending upward at a slope of 1V:1H. Lightweight fill should be expanded shale aggregate with a maximum

unit weight of approximately of 960 kg/m^3 (60 pcf) and meet the requirements of Section M.02.06 Grading C of Form 815.

The abutments and wingwalls are recommended to have underdrains consisting of 150 mm (6 in) CCM pipe. Underdrains are to be in accordance with the requirements of Section 7.51 of Form 815 for "Structure Underdrain".

5.11 Cofferdams and Dewatering

It is recommended that the substructure for Piers 1 through 4 be constructed within a steel sheet pile cofferdam (pay item Cofferdam and Dewatering). The top elevation of the sheet piles should be set at El 2.54 m (8.5 ft). The Pier 5 substructure is located away from the river, with the bottom of footing at El 0.4 m (1.3 ft). It is anticipated that this substructure will be constructed within an open excavation without the use of sheet piling.

At Piers 1 and 4, it is recommended that following installation of the steel sheet pile cofferdams, soils within the cofferdam be excavated to a depth of 600 mm (2 ft) below the bottom of footing elevation. At subgrade, it is recommended that geotextile (separation) be placed. 600 mm (24 in) of "Granular Fill" in accordance with the requirements of Section 2.14 of Form 815, consisting of crusher-run stone in accordance with the requirements of Section M.02 of Form 815 meeting the gradation requirements No.3 of Section M.01 of Form 815 is recommended to be placed over the geotextile. Then, it is recommended that the cofferdams be dewatered, the piles driven through the stone and geotextile and the footing concrete placed.

At Piers 2 and 3, it is recommended that following installation of the steel sheet pile cofferdams, soils within the cofferdam be excavated to a depth of 2400 mm (8 ft) below the bottom of footing elevation. At subgrade, geotextile and stone as recommended for Pier 1 and 4 should be placed. Then it is recommended that the piles driven through the geotextile and stone, prior to dewatering. It is

recommended that 1800 mm (6 ft) of underwater concrete then be placed and after it has cured the cofferdam be dewatered. Dewatering prior to placing the underwater concrete may result in bottom heave and/or failure due to the unbalanced hydrostatic head.

The use of platform type piers at the locations of Piers 2 and 3 was investigated, but the very shallow water depths resulted in minimal cost savings compared to conventional cofferdam construction. Also, the large number of piles associated with the proposed foundation would complicate construction of a platform type pier. Therefore, this concept was abandoned.

6.0 CONSTRUCTION CONSIDERATIONS

Traffic considerations require that the bridge be constructed in thirds. The southern third will be constructed initially, the central third next and the northern third of the bridge last. The existing bridge will also be demolished in stages following construction of the new bridge segments. The limited headroom beneath the existing bridge dictates that the replacement bridge substructure, piles and sheet pile cofferdams be constructed in stages.

It is recommended that pile supported temporary trestles be used to construct Piers 2 and 3, which are located within the river. Steel sheet pile cofferdams with dewatering will be required as discussed previously. Existing timber piles, docks and old bulkheads within the river may have to be removed to allow cofferdam construction.

Temporary excavation support will also be required longitudinally along I-95 for the staged abutment construction. The existing abutments will be behind the new abutments, with fill placed over them. It is recommended that the old

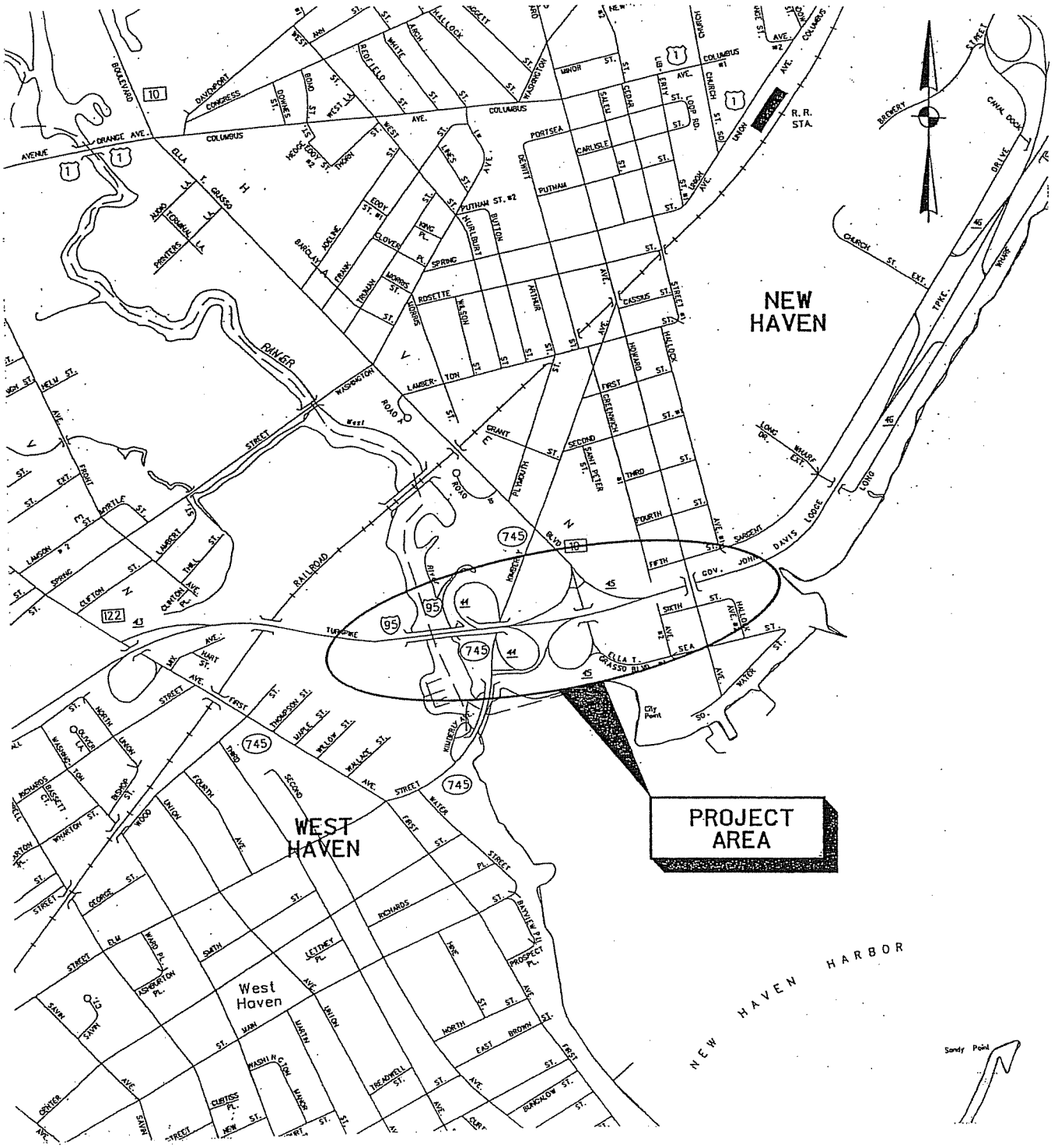
abutments be removed such that they are a minimum of 1200 mm (4 ft) below the bottom of the roadway pavement.

New Abutment 1 piles will be in conflict with some of the H-piles of the existing bridges West Abutment, new Abutment 2 piles will be in conflict with some of the H-piles of the existing bridges Pier 11 and new Pier 5 piles will be in conflict with some of the H-piles of existing bridge Pier 10. This will require the pulling of some of the existing steel H-piles in stages. Any voids should be filled with sand.

Settlement monitoring of the portions of the existing bridge that remain in place and functional during stage construction is recommended during pile driving and pile pulling to assure that detrimental settlements are not occurring.

The bottoms of the excavations for the abutment and Pier 5 footings are anticipated to be above the groundwater table. However, sump pumping from the corners of the excavations may be required. It is recommended that 150 mm (6 in) of "Granular Fill" in accordance with the requirements of Section 2.14 of Form 815, consisting of crusher-run stone in accordance with the requirements of Section M.02 of Form 815 meeting the gradation requirements No.3 of Section M.01 of Form 815 be shown on the drawings below the bottom of the abutment footings to facilitate groundwater control.

FIGURES



FINAL STRUCTURE SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

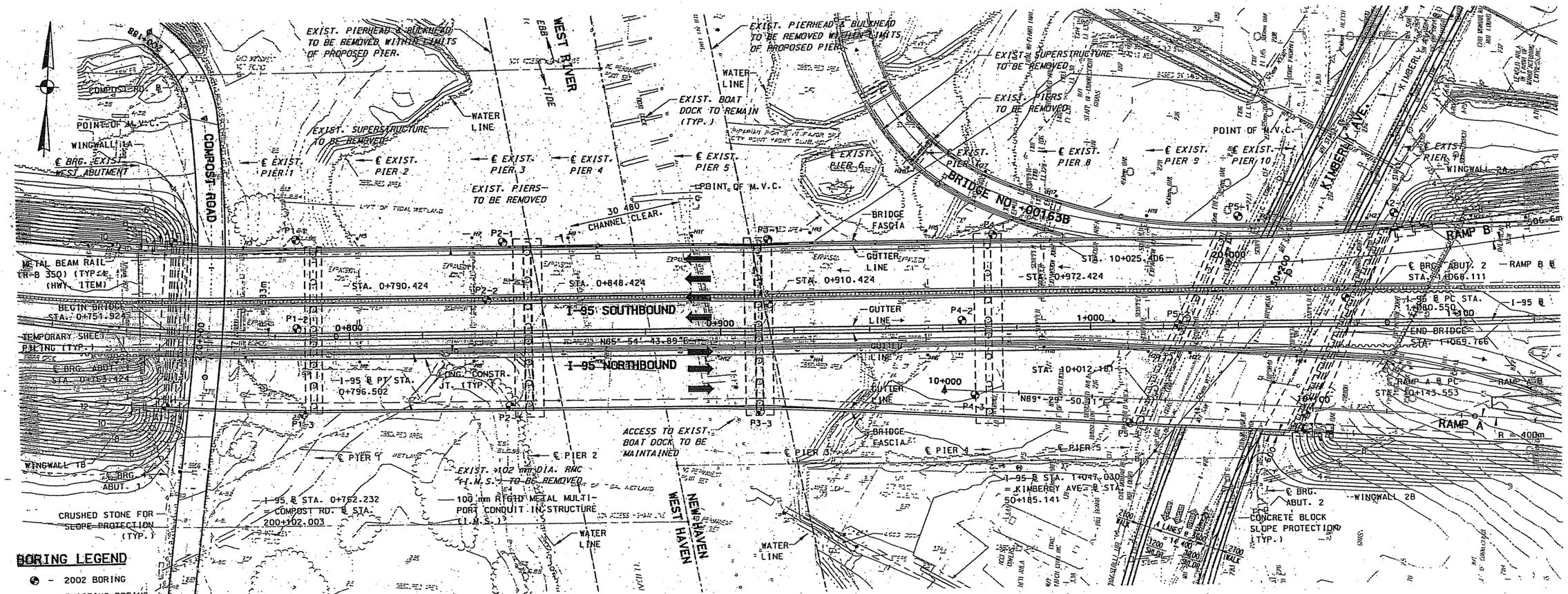
BRIDGE NO. 00163

SITE LOCATION PLAN

DECEMBER 2003

FIGURE 1

PB 100 YEARS



BORING LEGEND

- ⊕ - 2002 BORING
- • - EXISTING BORING

NOTE: EXISTING BORING INFORMATION IS REFERENCED FROM ORIGINAL CONTRACT PLANS FOR STATE PROJECT NO. 316A-01. DATED 1955.

PLAN

SCALE: 1:500

FINAL STRUCTURE SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

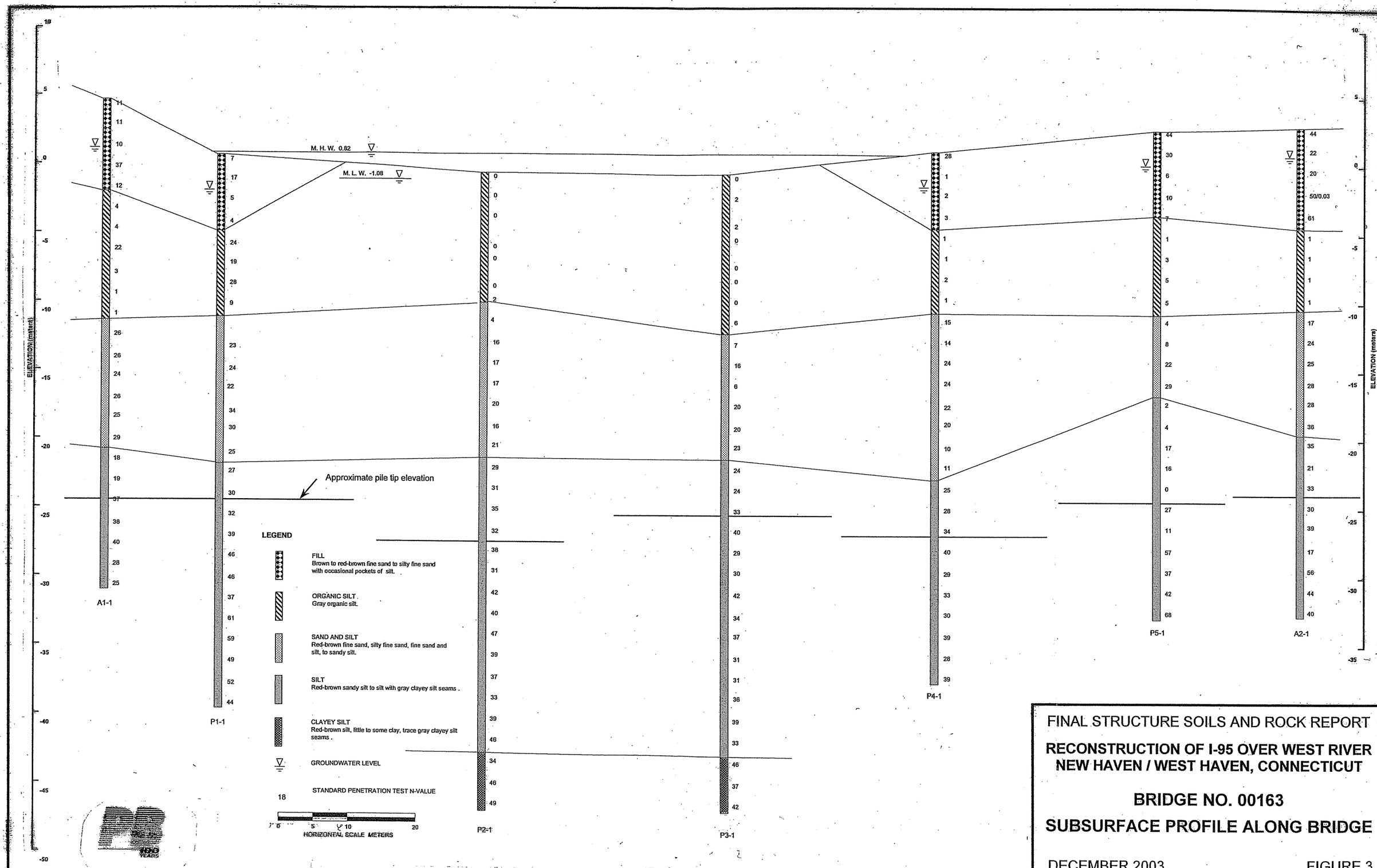
BRIDGE NO. 00163

BORING LOCATION PLAN

DECEMBER 2003

FIGURE 2

PB 100 YEARS



FINAL STRUCTURE SOILS AND ROCK REPORT

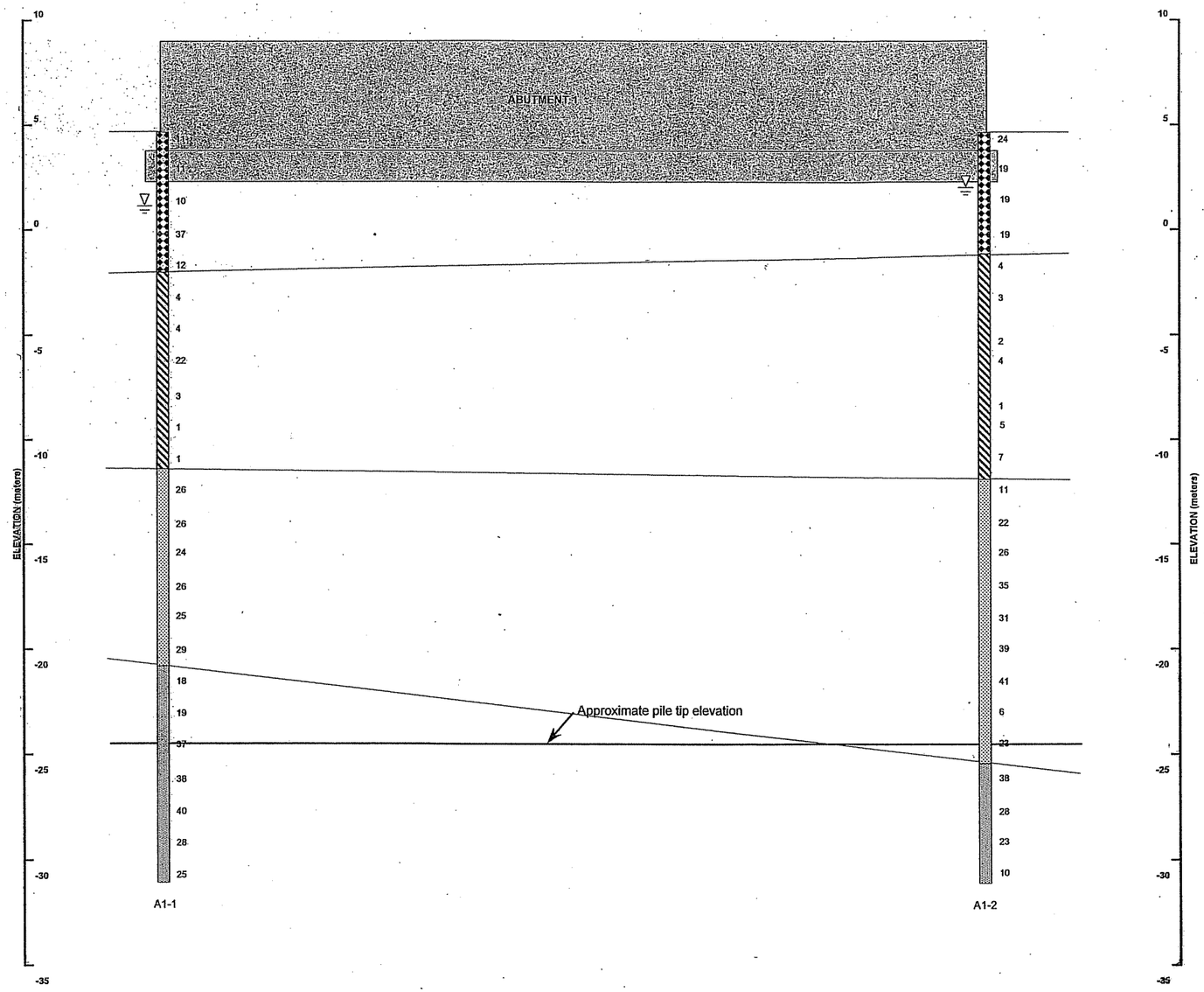
RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE ALONG BRIDGE

DECEMBER 2003

FIGURE 3



LEGEND

FILL
Brown to red-brown fine sand to silty fine sand with occasional pockets of silt.

ORGANIC SILT
Gray organic silt.

SAND AND SILT
Red-brown fine sand, silty fine sand, fine sand and silt, to sandy silt.

SILT
Red-brown sandy silt to silt with gray clayey silt seams .

GROUNDWATER LEVEL

18 STANDARD PENETRATION TEST N-VALUE

0 5 10 20
HORIZONTAL SCALE METERS

FINAL STRUCTURE SOILS AND ROCK REPORT

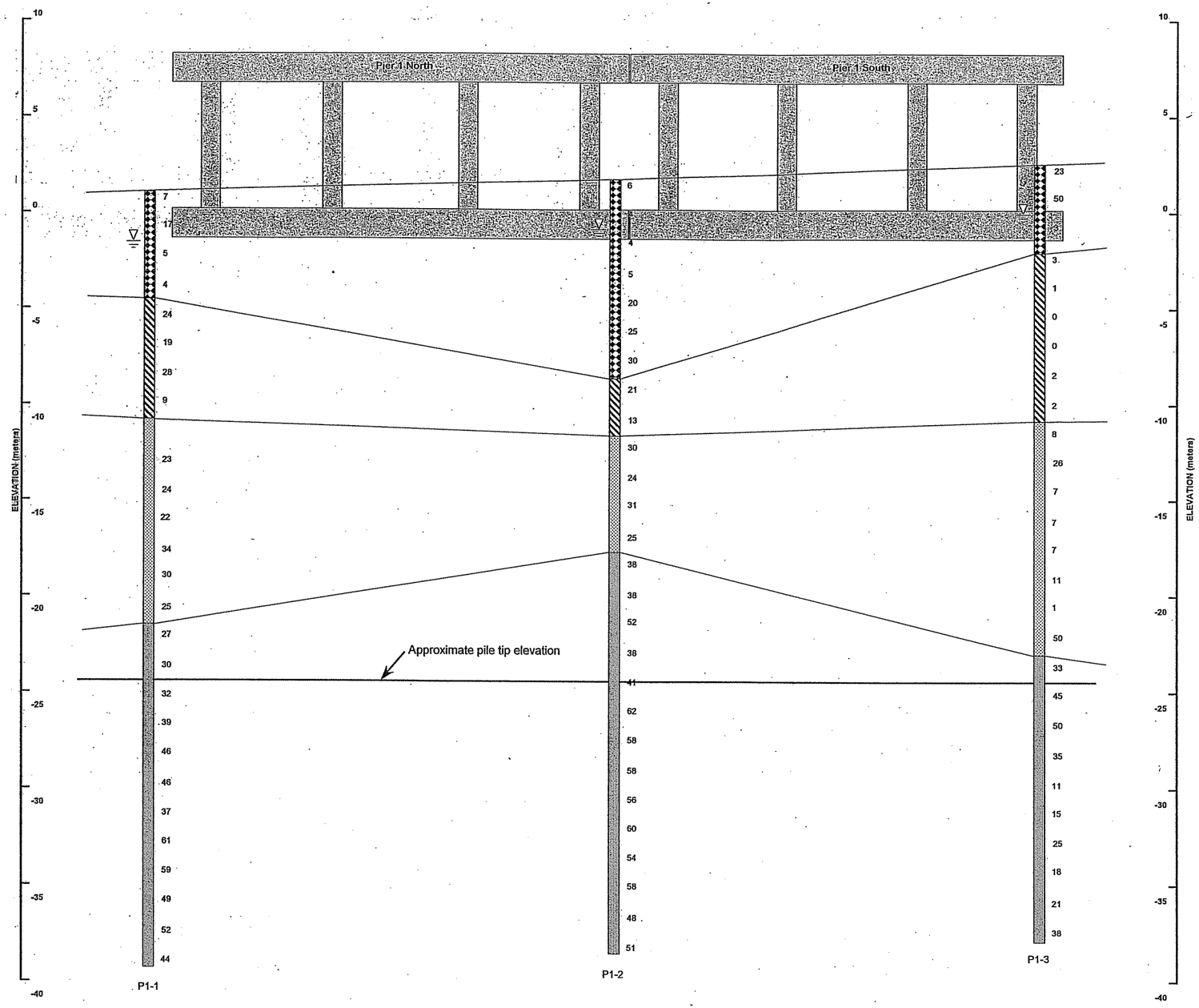
RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE ABUTMENT 1

DECEMBER 2003

FIGURE 4



LEGEND

FILL
Brown to red-brown fine sand to silty fine sand with occasional pockets of silt.

ORGANIC SILT
Gray organic silt.

SAND AND SILT
Red-brown fine sand, silty fine sand, fine sand and silt, to sandy silt.

SILT
Red-brown sandy silt to silt with gray clayey silt seams .

GROUNDWATER LEVEL

18 STANDARD PENETRATION TEST N-VALUE

0 5 10 20
HORIZONTAL SCALE METERS

FINAL STRUCTURE SOILS AND ROCK REPORT

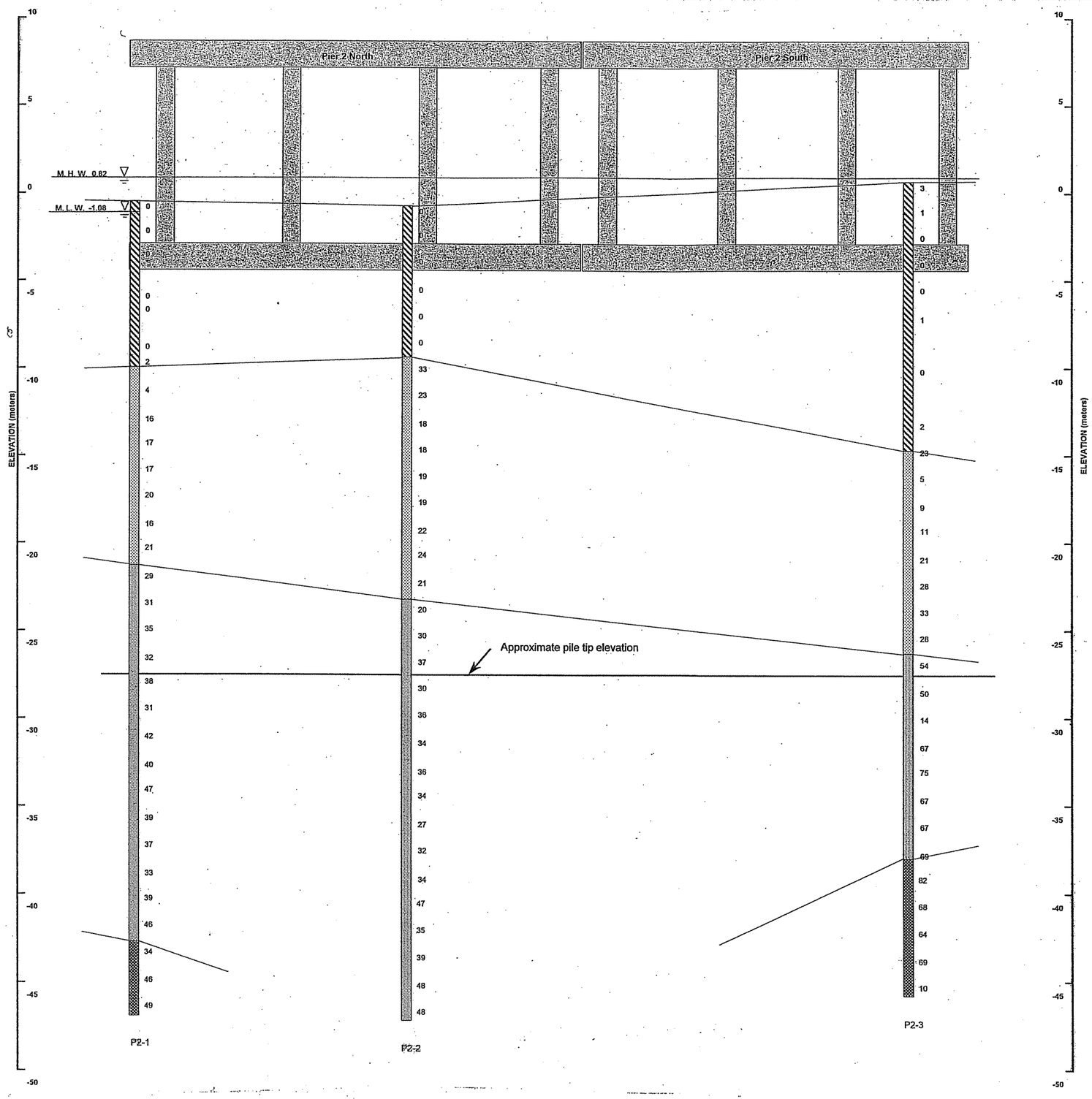
RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE PIER 1

DECEMBER 2003

FIGURE 5



LEGEND

ORGANIC SILT
Gray organic silt.

SAND AND SILT
Red-brown fine sand, silty fine sand, fine sand and silt, to sandy silt.

SILT
Red-brown sandy silt to silt with gray clayey silt seams .

CLAYEY SILT
Red brown silt, little to some clay, trace gray clayey silt seams.

18 STANDARD PENETRATION TEST N-VALUE

0 5 10 20
HORIZONTAL SCALE METERS

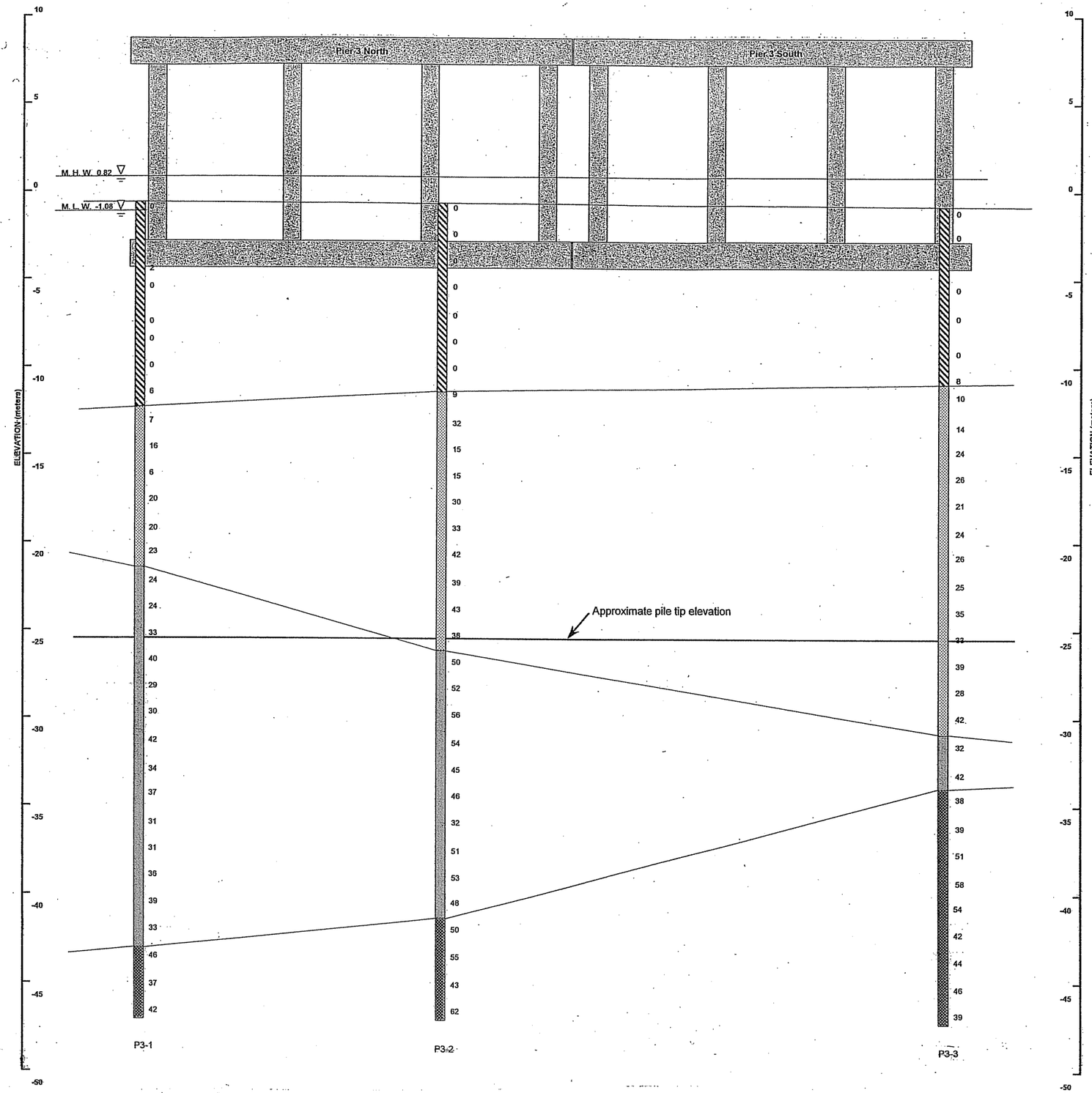
FINAL STRUCTURE SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE PIER 2

DECEMBER 2003 FIGURE 6



LEGEND

ORGANIC SILT
Gray organic silt.

SAND AND SILT
Red-brown fine sand, silty fine sand, fine sand and silt, to sandy silt.

SILT
Red-brown sandy silt to silt with gray clayey silt seams .

CLAYEY SILT
Red brown silt, little to some clay, trace gray clayey silt seams.

18 STANDARD PENETRATION TEST N-VALUE

0 5 10 20
HORIZONTAL SCALE METERS

FINAL STRUCTURE SOILS AND ROCK REPORT

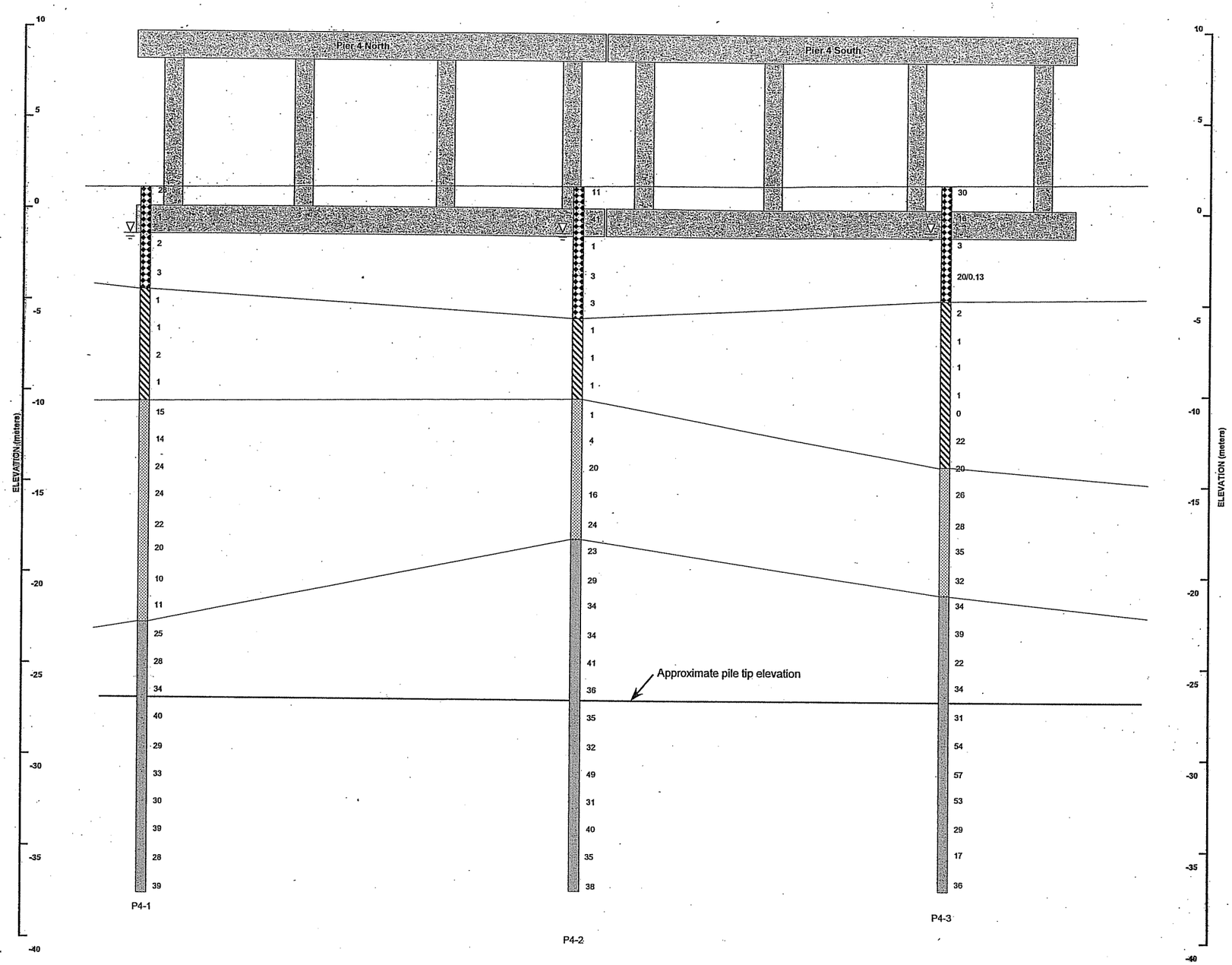
RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE PIER 3

DECEMBER 2003

FIGURE 7



LEGEND

FILL
Brown to red-brown fine sand to silty fine sand with occasional pockets of silt.

ORGANIC SILT
Gray organic silt.

SAND AND SILT
Red-brown fine sand, silty fine sand, fine sand and silt, to sandy silt.

SILT
Red-brown sandy silt to silt with gray clayey silt seams .

GROUNDWATER LEVEL

18 STANDARD PENETRATION TEST N-VALUE

0 5 10 20
HORIZONTAL SCALE METERS

FINAL STRUCTURE SOILS AND ROCK REPORT

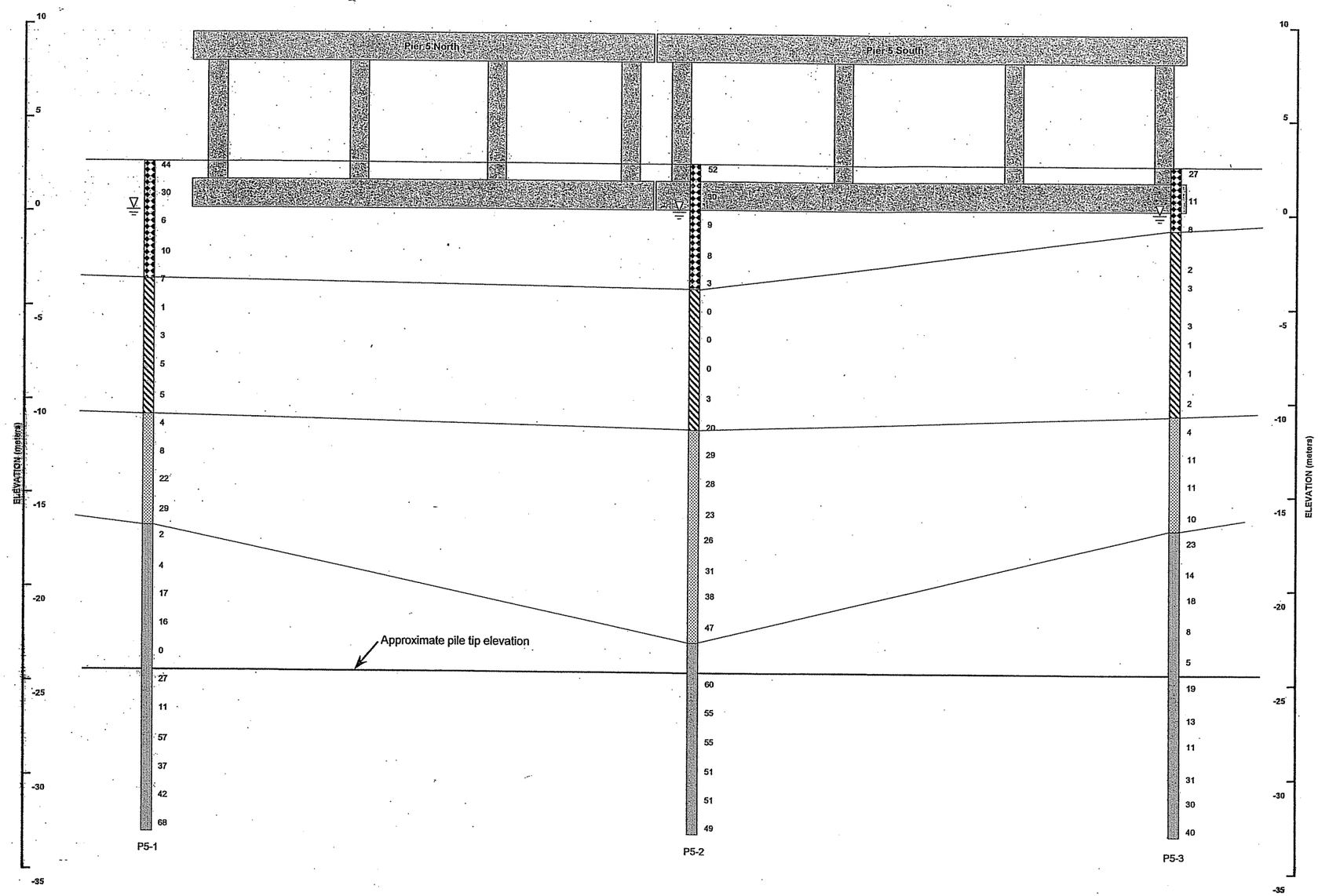
RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE PIER 4

DECEMBER 2003

FIGURE 8



LEGEND

FILL
Brown to red-brown fine sand to silty fine sand with occasional pockets of silt.

ORGANIC SILT
Gray organic silt.

SAND AND SILT
Red-brown fine sand, silty fine sand, fine sand and silt, to sandy silt.

SILT
Red-brown sandy silt to silt with gray clayey silt seams .

GROUNDWATER LEVEL

18 STANDARD PENETRATION TEST N-VALUE

0 5 10 20
HORIZONTAL SCALE METERS

FINAL STRUCTURE SOILS AND ROCK REPORT

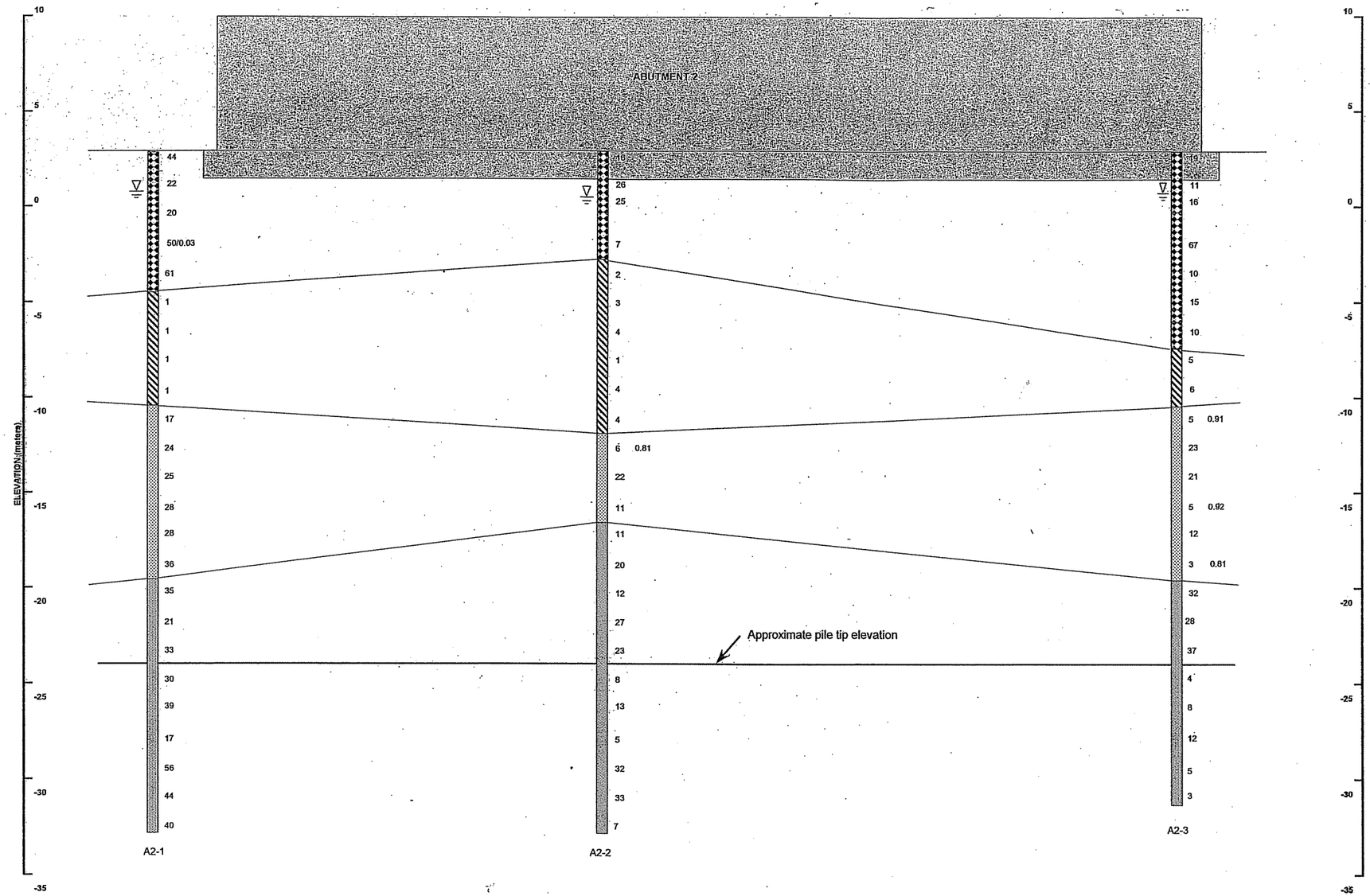
RECONSTRUCTION OF I-95 OVER WEST RIVER NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE PIER 5

DECEMBER 2003

FIGURE 9



FINAL STRUCTURE SOILS AND ROCK REPORT

RECONSTRUCTION OF I-95 OVER WEST RIVER
NEW HAVEN / WEST HAVEN, CONNECTICUT

BRIDGE NO. 00163

SUBSURFACE PROFILE ABUTMENT 2

DECEMBER 2003

FIGURE 10

APPENDIX A

TEST BORING LOGS

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.2
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202427.1
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288780.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 4.73		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/17/02	Utilized			X			X	X	X	X				
Date Finished: 07/18/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~3.53 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.41	D	3	4	7	10		Top 0.08m: Topsoil. Bottom 0.33m: Red brown f SAND and (gray) SILT.
		1.52 - 2.12	2	0.60	0.23	D	4	4	7	3		Red brown f SAND, trace shells, trace f-c gravel.
		3.05 - 3.65	3	0.60	0.33	D	5	5	5	5		Red brown f-c SAND, trace f-c gravel, trace shells.
5		4.57 - 5.17	4	0.60	0.33	D	5	17	20	27		Brown gray f-c SAND, trace f-c gravel.
		6.10 - 6.70	5	0.60	0.38	D	5	6	6	6	6.71	Red brown f-c SAND, trace silt.
											-1.98	
		7.62 - 8.22	6	0.60	0.60	D	2	2	2	3		Gray organic SILT interlayered with black PEAT, trace f sand lenses (~0.16 cm), trace to little shells.
		9.14 - 9.74	7	0.60	0.60	D	1	2	2	2		Dark gray / olive organic SILT, trace shells, trace wood.
10												
		10.06 - 10.66	1	0.60	0.00	UP						Piston - No Recovery, too much sand.
		10.67 - 11.27	8	0.60	0.25	D	10	11	11	10		Top 0.13m: Dark gray organic SILT, some f sand, little shells. Bottom 0.13m: Red brown f SAND, trace silt.
		12.19 - 12.79	9	0.60	0.60	D	1/0.30m		3	5		Gray organic SILT, little shells, little clay. pp = 1.0, 0.75, 1.0 tons / ft^2
		13.11 - 13.71	2	0.60	0.60	UP						Piston.
		13.72 - 14.32	10	0.60	0.60	D	1/0.30m		1	1		Gray organic SILT, trace shells, trace f sand.
15												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A1-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.2
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202427.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288780.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 4.73		Utilized			X			X	X	X	X				
Date Started: 07/17/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/18/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~3.53 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	1	1/0.30m		1		Gray organic SILT, trace shells, trace f sand.
		16.15 - 16.75	3	0.60	0.00	UP					16.00	Piston - No Recovery, silty SAND.
		16.76 - 17.36	12	0.60	0.30	D	7	13	13	15	-11.27	Dark gray f SAND, little silt.
		18.29 - 18.89	13	0.60	0.20	D	10	12	14	14		Dark gray f SAND, little silt.
20		19.81 - 20.41	14	0.60	0.51	D	12	12	12	14		Red brown f SAND, some silt.
		21.34 - 21.94	15	0.60	0.46	D	11	12	14	15		Red brown f SAND, some silt.
		22.86 - 23.46	16	0.60	0.30	D	10	12	13	15		Red brown f SAND, some silt.
		24.38 - 24.98	17	0.60	0.00	D	9	14	15	18		No Recovery.
25											25.45	
		25.91 - 26.51	18	0.60	0.41	D	9	9	9	13	-20.72	Red brown SILT and f SAND, rapid dilatancy.
		27.43 - 28.03	19	0.60	0.30	D	8	9	10	12		Red brown SILT, little f sand.
		28.96 - 29.56	20	0.60	0.60	D	13	18	19	22		Red brown SILT, little f sand.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.2
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202427.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288780.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 4.73		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/17/02	Utilized			X			X	X	X	X				
Date Finished: 07/18/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~3.53 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.46	D	16	18	20	20		Red brown SILT, some f sand.
		32.00 - 32.60	22	0.60	0.15	D	17	20	20	23		Red brown SILT, some f sand.
		33.53 - 34.13	23	0.60	0.46	D	9	12	16	18		Red brown SILT and f SAND.
35												
		35.05 - 35.65	24	0.60	0.51	D	10	11	14	17		Red brown SILT and f SAND.
											35.65 -30.92	Bottom of Boring 35.65 m.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A1-1

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.8
E. Fulton / E. Guven	DEPARTMENT OF TRANSPORTATION	Offset	20.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202382.7
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288781.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 4.63		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/17/02	Utilized			X			X	X	X	X				
Date Finished: 07/19/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.36	D	5	10	14	15		Top 0.10m: Topsoil. Bottom 0.25m: Brown f SAND, trace c sand, trace f gravel, trace silt, trace roots, dry.
		1.52 - 2.12	2	0.60	0.36	D	10	10	9	10		Light brown f-c SAND, trace f gravel, trace silt, moist.
		3.05 - 3.65	3	0.60	0.30	D	6	9	10	11		Light brown f-c SAND, trace f gravel, trace silt, wet.
5		4.57 - 5.17	4	0.60	0.25	D	9	10	9	10		Red brown f SAND, trace c sand, trace silt, trace shells. (5.49m: Rollerbit through obstruction - possibly metal.)
											5.79	
		6.10 - 6.70	5	0.60	0.56	D	1	2	2	3	-1.16	Black organic SILT, trace fibers, trace clay.
		7.62 - 8.22	6	0.60	0.60	D	1	2	1	2		Gray organic SILT interlayered with (olive brown) PEAT, little clay.
		9.14 - 9.74	1	0.60	0.60	UP						Piston.
10		9.75 - 10.35	7	0.60	0.46	D	WOR	1	1	2		Gray organic SILT, trace f sand, trace clay, trace shells, stiff.
		10.67 - 11.27	8	0.60	0.51	D	1	2	2	2		Gray organic SILT, trace f sand, trace clay, trace shells, stiff.
		12.19 - 12.79	2	0.60	0.60	UP						Piston.
		12.80 - 13.40	9	0.60	0.60	D	1/0.30m		1	2		Gray organic SILT, trace clay, trace shells, trace f sand lenses, (very thin).
		13.72 - 14.32	10	0.60	0.60	D	WOR	WOR	5	6		Gray organic SILT, trace clay, trace shells, trace f sand lenses (very thin).
15												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A1-2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.8
E. Fulton / E. Guven	DEPARTMENT OF TRANSPORTATION	Offset	20.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202382.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288781.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	4.63														
Date Started:	07/17/02	Utilized			X			X	X	X	X				
Date Finished:	07/19/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after	hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after	hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	3	3	4	4		Gray organic SILT, trace clay, little f sand, trace shell fragments, trace fibers.
											16.31	
		16.76 - 17.36	12	0.60	0.36	D	8	4	7	12	-11.68	Red brown f SAND, trace silt.
		18.29 - 18.89	13	0.60	0.25	D	8	11	11	8		Red brown f SAND, little silt.
20		19.81 - 20.41	14	0.60	0.15	D	10	11	15	19		Red brown f SAND, some silt, trace shells.
		21.34 - 21.94	15	0.60	0.36	D	15	20	15	17		Red brown f SAND and SILT.
		22.86 - 23.46	16	0.60	0.46	D	10	14	17	21		Red brown f SAND and SILT.
		24.38 - 24.98	17	0.60	0.30	D	14	18	21	27		Red brown f SAND, some silt.
25												
		25.91 - 26.51	18	0.60	0.36	D	14	20	21	24		Red brown f SAND, some silt, trace shells.
		27.43 - 28.03	19	0.60	0.05	D	2	3	3	4		Red brown f SAND, some silt.
		28.96 - 29.56	20	0.60	0.30	D	4	14	9	11		Red brown f SAND and SILT, trace clay.
30											30.02	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+751.8
E. Fulton / E. Guven	DEPARTMENT OF TRANSPORTATION	Offset	20.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202382.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288781.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	4.63	Utilized			X			X	X	X	X				
Date Started:	07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	07/19/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	12	15	23	23	-25.39	Red brown SILT, little clay, trace to little f sand.
		32.00 - 32.60	22	0.60	0.46	D	6	10	18	25		Red brown SILT, some f sand, trace clay.
		33.53 - 34.13	23	0.60	0.60	D	6	9	14	26		Red brown SILT and f SAND, trace clay.
35												
		35.05 - 35.65	24	0.60	0.53	D	15	6	4	22		Red brown SILT and f SAND, trace clay.
											35.65	
											-31.02	Bottom of boring 35.65 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A1-2

Sheet 3 of 3

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+785.6
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	25.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202429.3
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288813.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	0.97	Utilized			X			X	X	X	X				
Date Started:	07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	07/18/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.15	D	5	6	1	1		Brown f SAND, little silt, trace organics, trace f-m gravel.
		1.52 - 2.12	2	0.60	0.15	D	7	9	8	5		Olive brown f SAND, little silt, little c sand.
		3.05 - 3.65	3	0.60	0.08	D	2	2	3	2		Olive brown f SAND, little silt, little c sand, with organics..
5		4.57 - 5.17	4	0.60	0.00	D	2	2	2	2		No Recovery.
											5.64	
											-4.67	
		6.10 - 6.70	5	0.60	0.15	D	4	12	12	10		Olive brown SILT, little f-c sand, trace f-m gravel, with organic fibers.
		7.62 - 8.22	6	0.60	0.36	D	10	9	10	8		Olive brown SILT, little f sand, little f-c gravel.
		9.14 - 9.74	7	0.60	0.33	D	40	17	11	10		Top 0.30m: Olive brown SILT, little f sand, little f-c gravel. Bottom 0.03m: Dark gray / black organic SILT, trace f sand.
10												
		10.67 - 11.27	8	0.60	0.08	D	9	5	4	7		Dark gray organic SILT, some f-c sand, trace f-c gravel.
											11.73	
											-10.76	
		12.19 - 12.79	9	0.60	0.00	UP						Piston - No Recovery.
		13.72 - 14.32	10	0.60	0.60	D	5	11	12	12		Top 0.51m: Gray f SAND, trace f-m gravel. Bottom 0.10m: Red brown f SAND, little silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	10.67m	40.23	
			No. of Samples	
			26D/1UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P1-1

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+785.6
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	25.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202429.3
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288813.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	0.97														
Date Started:	07/17/02	Utilized			X			X	X	X	X				
Date Finished:	07/18/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after	hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after	hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.36	D	6	11	13	15		Red brown f SAND, little silt.
		16.76 - 17.36	11	0.60	0.30	D	5	9	13	16		Red brown f SAND, trace silt.
		18.29 - 18.89	12	0.6	0.41	D	8	15	19	25		Red brown f SAND, trace silt.
20		19.81 - 20.41	13	0.6	0.36	D	11	15	15	20		Red brown f SAND, trace silt.
		21.34 - 21.94	14	0.6	0.46	D	11	12	13	22	22.40	Red brown f SAND, trace silt.
											-21.43	
		22.86 - 23.46	15	0.60	0.36	D	11	10	17	25		Red brown SILT and f SAND.
		24.38 - 24.98	16	0.60	0.48	D	11	13	17	28		Red brown SILT and f SAND.
25												
		25.91 - 26.51	17	0.60	0.46	D	11	14	18	20		Red brown SILT and f SAND.
		27.43 - 28.03	18	0.60	0.38	D	18	17	22	28		Red brown SILT, trace f sand.
		28.96 - 29.56	19	0.60	0.36	D	12	22	24	30		Red brown SILT, little f sand.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	10.67m	40.23	
			No. of Samples	
			26D/1UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P1-1

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+785.6
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	25.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202429.3
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288813.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	0.97	Utilized			X			X	X	X	X				
Date Started:	07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	07/18/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	20	0.60	0.38	D	14	19	27	40		Red brown SILT, little f sand.
		32.00 - 32.60	21	0.60	0.33	D	12	15	22	21		Red brown SILT, little f sand.
		33.53 - 34.13	22	0.60	0.41	D	19	31	30	39		Red brown SILT.
35												
		35.05 - 35.65	23	0.60	0.46	D	21	27	32	42		Red brown SILT.
		36.58 - 37.18	24	0.60	0.38	D	11	19	30	37		Red brown SILT.
		38.10 - 38.70	25	0.60	0.38	D	14	20	32	35		Red brown SILT.
40		39.62 - 40.22	26	0.60	0.43	D	20	19	25	31		Red brown SILT.
											40.22	
											-39.25	Bottom of Boring 40.22 m.
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0.00	10.67m	40.22	
			No. of Samples	
			26D/1UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P1-1

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+786.0
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	2.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202405.7
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288815.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.67		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/17/02	Utilized			X			X	X	X					
Date Finished: 07/19/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.25	D	2	2	4	2		Brown f SAND, little silt.
		1.52 - 2.12	2	0.60	0.46	D	3	2	2	2		Top 0.30m: Brown f SAND, little silt. Bottom 0.30m: Brown SILT, some f sand.
		3.05 - 3.65	3	0.60	0.18	D	2	2	2	3		Brown SILT, some f sand, trace gravel.
5		4.57 - 5.17	4	0.60	0.36	D	2	2	3	2		Top 0.20m: Brown SILT, some f sand, trace f-c gravel. Bottom 0.20m: Brown gray SILT, some f sand, trace gravel.
		6.10 - 6.70	5	0.60	0.15	D	6	8	12	8		Brown / light gray SILT, some f sand, some c gravel.
		7.62 - 8.22	6	0.60	0.20	D	10	11	14	16		Brown SILT, some f sand, little c gravel.
		9.14 - 9.74	7	0.60	0.23	D	21	15	15	11		Top 0.13m: Brown sandy SILT and c GRAVEL. Bottom 0.10m: Brown SILT and f SAND.
10											10.21	
		10.67 - 11.27	8	0.60	0.46	D	8	9	12	13	-8.54	Dark gray organic SILT, trace shells.
		12.19 - 12.79	9	0.60	0.56	D	5	5	8	7		Dark gray organic SILT, some f sand, little shells.
											13.26	
		13.72 - 14.32	10	0.60	0.36	D	11	15	15	17	-11.59	Dark gray f SAND, little silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	40.23	
			No. of Samples	
			27D	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+786.0
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	2.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202405.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288815.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	1.67	Utilized			X			X	X	X					
Date Started:	07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	07/19/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ~2.59 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.38	D	12	12	12	16		Top 0.25m: Light gray f SAND, some silt. Bottom 0.13m: Light gray f SAND, some silt.
		16.76 - 17.36	12	0.60	0.46	D	10	15	16	18		Red brown SILT, little f sand.
		18.29 - 18.89	13	0.60	0.15	D	9	12	13	16		Red brown SILT, little f sand.
											19.35	
20		19.81 - 20.41	14	0.60	0.30	D	11	18	20	24	-17.68	Red brown SILT.
		21.34 - 21.94	15	0.60	0.08	D	15	19	19	19		Red brown SILT.
		22.86 - 23.46	16	0.60	0.05	D	22	23	29	35		Red brown SILT.
		24.38 - 24.98	17	0.60	0.43	D	14	15	23	24		Red brown SILT.
25												
		25.91 - 26.51	18	0.60	0.46	D	15	17	24	26		Red brown SILT.
		27.43 - 28.03	19	0.60	0.46	D	29	31	31	39		Red brown SILT, little to trace f sand.
		28.96 - 29.56	20	0.60	0.41	D	26	29	29	33		Red brown SILT, little to trace f sand.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	40.23	
			No. of Samples	
			27D	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+786.0
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	2.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202405.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288815.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.67		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/17/02	Utilized			X			X	X	X					
Date Finished: 07/19/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH H	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.41	D	18	26	32	44		Red brown SILT, little to trace f sand.
		32.00 - 32.60	22	0.60	0.46	D	20	25	31	40		Red brown SILT.
		33.53 - 34.13	23	0.60	0.41	D	16	26	34	36		Red brown SILT.
35		35.05 - 35.65	24	0.60	0.46	D	17	27	27	34		Red brown SILT.
		36.58 - 37.18	25	0.60	0.46	D	18	26	32	40		Red brown SILT, trace f sand.
		38.10 - 38.70	26	0.60	0.41	D	17	23	25	30		Red brown SILT, trace f sand.
40		39.62 - 40.22	27	0.60	0.46	D	19	24	27	24		Red brown SILT, trace f sand interlayered with brown gray
											40.22	clayey silt.
											-38.55	Bottom of Boring 40.22 m.
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	40.22	
			No. of Samples	
			27D	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P1-2

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+787.7
E. Guven / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	21.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202382.6
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288818.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.32		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/19/02	Utilized			X			X	X	X	X				
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.25	D	7	9	14	16		Brown f-c SAND, trace f gravel, trace silt, trace organics, dry (topsoil).
		1.52 - 2.12	2	0.60	0.46	D	32	23	27	23		Brown f-c SAND, trace f gravel, trace silt, moist.
		3.05 - 3.65	3	0.60	0.25	D	2	2	1	1		Light brown f SAND, trace c sand, trace silt, wet.
											4.57	
5		4.57 - 5.17	4	0.03	0.46	D	1	1	2	2	-2.25	Light brown gray organic SILT interlayered with PEAT, trace clay, wet.
		5.49 - 6.09	1	0.60	0.60	UP						Piston.
		6.10 - 6.70	5	0.60	0.60	D	WOH	WOH	1	1		Gray organic SILT, trace clay, trace shells, wet.
		7.62 - 8.22	6	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, trace clay, trace shells, wet.
		8.53 - 9.13	2	0.60	0.60	UP						Piston.
		9.14 - 9.74	7	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace clay, trace shells, wet.
10												
		10.67 - 11.27	8	0.60	0.60	D	WOH	1	1	1		Gray organic SILT, trace clay, trace shells, wet.
		12.19 - 12.79	9	0.60	0.60	D	1	1	1	2		Gray organic SILT, little f sand, trace clay, trace shells, wet.
											13.26	
		13.72 - 14.32	10	0.60	0.60	D	4	4	4	5	-10.94	Top 0.45m: Gray f-c SAND, some silt. Bottom 0.15m: Brown PEAT with f sand.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	40.23m	
			No. of Samples	
			27D/2UP	

NOTES: Bombardier rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. P1-3
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+787.7
E. Guven / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 21.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202382.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288818.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.32														
Date Started: 07/19/02	Utilized			X			X	X	X	X				
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.46	D	6	13	13	14		Gray f-c SAND, trace f gravel, trace silt, wet.
		16.76 - 17.36	12	0.60	0.56	D	1	1	6	12		Red brown f SAND, trace c sand, trace silt, wet.
		18.29 - 18.89	13	0.60	0.51	D	8	3	4	12		Red brown f SAND, little silt, saturated.
20		19.81 - 20.41	14	0.60	0.38	D	11	4	3	5		Red brown f SAND, little silt, saturated.
		21.34 - 21.94	15	0.60	0.41	D	8	5	6	14		Red brown f SAND, little silt, saturated.
		22.86 - 23.46	16	0.60	0.46	D	4	1/0.30m		4		Red brown f SAND, little silt, saturated.
		24.38 - 24.98	17	0.60	0.38	D	19	25	25	37		Red brown f SAND, trace silt, dense, saturated.
25											25.45	
		25.91 - 26.51	18	0.60	0.46	D	14	16	17	26	-23.18	Red brown SILT, some f sand, wet.
		27.43 - 28.03	19	0.60	0.48	D	17	20	25	28		Red brown SILT, some f sand, wet.
		28.96 - 29.56	20	0.60	0.30	D	15	23	27	31		Red brown SILT, some f sand, wet.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	40.23m	
			No. of Samples	
			27D/2UP	

NOTES: Bombardier rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P1-3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P1-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+787.7
E. Guven / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	21.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202382.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288818.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.32		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/19/02	Utilized			X			X	X	X	X				
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	21	0.60	0.51	D	12	13	22	24		Red brown f SILT, some f sand, with trace f sand lense (~0.16-0.08 cm), trace clayey silt seams (~0.16-0.08cm), wet.
		32.00-32.60	22	0.60	0.60	D	15	7	4	24		Red brown SILT, some f sand, trace f sand lense (~0.16-0.08cm), wet.
		33.53-34.13	23	0.60	0.60	D	11	10	5	16		Top 0.20m: Red brown SILT, little f sand, saturated, Bottom 0.40m: Red brown f SAND and SILT, wet, dense. rapid dilatancy.
35												
		35.05 - 35.65	24	0.60	0.51	D	7	11	14	24		Red brown SILT, some f sand.
		36.58 - 37.18	25	0.60	0.60	D	6	8	10	25		Red brown SILT, little f sand.
		38.10 - 38.70	26	0.60	0.41	D	5	7	14	15		Red brown SILT, trace f sand, trace c sand.
40		39.62 - 40.22	27	0.60	0.56	D	14	15	23	24		Red brown SILT, trace f sand.
											40.22	
											-37.90	Bottom of Boring 40.22 m.
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	40.22m	
			No. of Samples	
			27D/2UP	

NOTES: Bombardier rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P1-3

Sheet 3 of 3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+842.0
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202432.1
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288869.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.48		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/21/02	Utilized			X			X	X	X	X				
Date Finished: 08/26/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.15	D	WOR	WOR	WOR	WOR		Top 0.10m: Dark gray / black organic SILT, little f sand, trace shells.
												Bottom 0.05m: Brown SILT, some f SAND, trace clay.
		1.52 - 2.12	2	0.60	0.60	D	WOR	WOR	WOR	WOR		Dark gray organic SILT, trace shells, soft.
		3.05 - 3.65	3	0.60	0.56	D	WOR	WOR	WOR	WOR		Dark gray organic SILT, trace shells, soft.
5		4.57 - 5.17	1	0.03	0.60	UP						Piston.
		5.18 - 5.78	4	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace shells, very soft.
		6.10 - 6.70	5	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace shells, soft.
		7.62 - 8.22	2	0.60	0.60	UP						Piston.
		8.23 - 8.83	6	0.60	0.51	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace shells, soft.
		9.14 - 9.74	7	0.60	0.56	D	WOH	WOH	2	3	9.39	Top 0.25m: Gray organic SILT, trace shells, soft.
10											-9.87	Bottom 0.30m: Gray f SAND and SILT, trace shells, trace f gravel.
		10.67 - 11.27	8	0.60	0.46	D	5	2	2	4		Gray brown f SAND, some silt, trace f gravel, trace shells.
		12.19 - 12.79	9	0.60	0.46	D	6	7	9	11		Red brown f SAND, little silt, little c sand, trace f gravel, trace shells.
		13.72 - 14.32	10	0.60	0.30	D	5	8	9	11		Red brown f SAND, little silt, trace c sand, trace f gravel.
15												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	15.24	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P2-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+842.0
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202432.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288869.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.48		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/21/02	Utilized			X			X	X	X	X				
Date Finished: 08/26/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.51	D	5	7	10	12		Red brown f SAND, little silt.
		16.76 - 17.36	12	0.60	0.60	D	6	9	11	10		Red brown f SAND, little silt, trace f gravel.
		18.29 - 18.89	13	0.60	0..30	D	4	6	10	13		Red brown f SAND, some silt.
20		19.81 - 20.41	14	0.60	0.60	D	10	10	11	14		Red brown f SAND, some silt.
											20.88	
		21.34 - 21.94	15	0.60	0.60	D	12	14	15	18	-21.36	Red brown SILT, little f sand, trace clayey silt seams (very thin, ~0.08cm), saturated, rapid dilatancy.
		22.86 - 23.46	16	0.60	0.00	D	12	15	16	18		No Recovery.
25		24.38 - 24.98	17	0.60	0.51	D	14	16	19	22		Red brown SILT, trace f sand.
		25.91 - 26.51	18	0.60	0.60	D	15	15	17	24		Red brown SILT.
		27.43 - 28.03	19	0.60	0.08	D	14	18	20	23		Red brown SILT, little f sand, saturated, rapid dilatancy.
30		28.96 - 29.56	20	0.60	0.51	D	9	14	17	19		Red brown SILT, little f sand, trace clayey silt seams (very thin, ~0.08cm), saturated, rapid dilatancy.

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.24	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) hammer was accomplished using a rope and pulley system.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+842.0
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202432.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288869.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.48		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/21/02	Utilized			X			X	X	X	X				
Date Finished: 08/26/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	21	0.60	0.41	D	13	19	23	27		Red brown SILT, saturated.
		32.00 - 32.60	22	0.60	0.56	D	14	18	22	27		Red brown SILT, saturated.
		33.53 - 34.13	23	0.60	0.51	D	18	22	25	30		Red brown SILT, little f sand, saturated.
35												
		35.05 - 35.65	24	0.60	0.60	D	12	16	23	26		Red brown SILT, little f sand, saturated.
		36.58 - 37.18	25	0.60	0.15	D	14	16	21	18		Red brown SILT, trace clayey silt seams (~0.16-0.08cm).
		38.10 - 38.70	26	0.60	0.30	D	14	15	18	24		Red brown SILT, trace clayey silt seams (~0.16-0.08cm).
40		39.62 - 40.22	27	0.60	0.46	D	11	17	22	26		Red brown SILT, trace clayey silt seams (~0.16-0.08cm).
		41.15 - 41.75	28	0.60	0.60	D	18	22	24	20		Red brown SILT, trace clayey silt seams (~0.16-0.08cm).
											42.21	
		42.67 - 43.27	29	0.60	0.08	D	11	15	19	27	-42.69	Red brown SILT, little to some clay.
		44.19 - 44.79	30	0.60	0.46	D	16	22	24	27		Red brown SILT, little to some clay, trace clayey silt seams (~0.79 mm).
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	15.24	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) hammer was accomplished using a rope and pulley system.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+842.0
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202432.1
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288869.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: -0.48		Utilized			X			X	X	X	X				
Date Started: 08/21/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/26/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		45.72 - 46.32	31	0.60	0.51	D	21	24	25	29		Red brown SILT, little to some clay, trace clayey silt seams (~0.79 mm).
											46.32	
											-46.80	Bottom of Boring 46.32 m.
50												
55												
60												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	15.24	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) hammer was accomplished using a rope and pulley system.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P2-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+837.7
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	9.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202416.5
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288866.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.77		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/15/02	Utilized			X			X	X	X					
Date Finished: 08/21/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.51	D	WOR	WOR	WOR	WOR		Dark gray organic SILT, trace f sand, some shells, trace fibers.
		1.52 - 2.12	2	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace shells, trace fibers.
		3.05 - 3.65	3	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace shells, trace fibers.
5		4.57 - 5.17	4	0.60	0.53	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
		6.10 - 6.70	5	0.60	0.53	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
		7.62 - 8.22	6	0.60	0.38	D	WOR	WOR	WOR	WOR		Gray organic SILT, little f sand, trace shells.
											8.69	
		9.14 - 9.74	7	0.60	0.00	D	16	16	17	14	-9.46	No Recovery.
10												
		10.67 - 11.27	8	0.60	0.56	D	10	11	12	14		Gray brown f-c SAND, little silt, trace f gravel.
		12.19 - 12.79	9	0.60	0.58	D	8	7	11	14		Top 0.18m: Gray f SAND, trace c sand, little silt. Bottom 0.40m: Gray f-c SAND, trace f gravel, little silt.
		13.72 - 14.32	10	0.60	0.46	D	8	9	9	8		Red brown f SAND, some silt, wet.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P2-2

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+837.7
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	9.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202416.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288866.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: -0.77	Utilized			X			X	X	X					
Date Started: 08/15/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NX II (dt)
Date Finished: 08/21/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after ____ hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.60	D	8	9	10	10		Red brown f SAND, little silt, saturated.
		16.76 - 17.36	12	0.60	0.51	D	7	9	10	13		Red brown f SAND, some silt, wet.
		18.29 - 18.89	13	0.60	0.46	D	9	11	11	13		Red brown f SAND, little silt, wet.
20		19.81 - 20.41	14	0.60	0.51	D	10	12	12	12		Red brown f SAND, little silt, wet.
		21.34 - 21.94	15	0.60	0.30	D	9	10	11	13		Red brown f SAND, little silt, wet.
		22.86 - 23.46	16	0.60	0.46	D	10	10	10	12		Red brown f SAND, some silt, wet.
											22.40	
		24.38 - 24.98	17	0.60	0.46	D	10	13	17	19	-23.17	Top 0.25m: Red brown SILT and f SAND, few clayey silt seams (very thin). Bottom 0.20m: Red brown SILT, little f sand, few clayey silt seams.
25		25.91 - 26.51	18	0.60	0.41	D	11	18	19	23		Top 0.30m: Red brown SILT, little f sand, few clayey silt seams (very thin). Bottom 0.10m: Red brown SILT and f SAND, saturated, rapid dilatancy.
		27.43 - 28.03	19	0.60	0.30	D	11	13	17	20		Top 0.12m: Red brown SILT and f SAND, rapid dilatancy. Bottom 0.18m: Red brown SILT, some f sand, few clayey silt seams (very thin).
30		28.96 - 29.56	20	0.60	0.46	D	12	17	19	22		Red brown SILT, some f sand, rapid dilatancy.

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%.

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+837.7
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	9.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202416.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288866.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.77		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/15/02	Utilized			X			X	X	X					
Date Finished: 08/21/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	21	0.60	0.00	D	8	15	19	21		No Recovery.
		32.00 - 32.60	22	0.60	0.46	D	14	16	20	22		Red brown SILT.
		33.53 - 34.13	23	0.60	0.46	D	12	16	18	27		Red brown SILT, little f sand, trace clay.
35												
		35.05 - 35.65	24	0.60	0.51	D	8	12	15	19		Red brown SILT, trace clayey silt seams (very thin), rapid dilatancy.
		36.58 - 37.18	25	0.60	0.51	D	12	15	17	21		Red brown SILT, little f sand.
		38.10 - 38.70	26	0.60	0.46	D	15	16	18	24		Red brown SILT, trace to little f sand, rapid dilatancy, saturated.
40		39.62 - 40.22	27	0.60	0.08	D	19	21	26	29		Red brown SILT, trace to little f sand, rapid dilatancy, saturated.
		41.15 - 41.75	28	0.60	0.60	D	10	16	19	23		Red brown SILT, trace to little f sand, rapid dilatancy.
		42.67 - 43.27	29	0.60	0.15	D	13	18	21	27		Red brown SILT, little f sand, trace clayey silt seams (very thin).
		44.19 - 44.79	30	0.60	0.60	D	17	23	25	29		Red brown SILT, little f sand, trace clayey silt seams (very thin).
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. P2-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+837.7
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 9.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202416.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288866.3
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: -0.77		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/15/02	Utilized			X			X	X	X					
Date Finished: 08/21/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		45.72 - 46.32	31	0.60	0.60	D	15	21	27	31		Red brown SILT, trace clayey silt seams (very thin).
											46.32	
											47.09	Bottom of Boring 46.32 m.
50												
55												
60												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P2-2

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+843.3
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	19.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202388.2
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288874.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 0.68		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/19/02	Utilized			X			X	X	X	X				
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~0.0 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.08	D	1	1	2	1		Gray SILT, little f sand, roots, fibers, wood.
		1.52 - 2.12	2	0.60	0.05	D	1/0.30m		1/0.30m			PEAT
											3.05	
		3.05 - 3.65	3	0.60	0.60	D	WOH	WOH	WOH	WOH	-2.37	Gray organic SILT, trace f sand.
5		4.57 - 5.17	4	0.60	0.00	D	1	WOH	WOH	WOH		No Recovery.
		6.10 - 6.70	5	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, trace f sand.
		7.62 - 8.22	6	0.60	0.60	D	WOH	WOH	1	1		Gray organic SILT, trace f sand.
		9.14 - 9.74	1	0.60	0.60	UP						Piston.
10												
		10.67 - 11.27	7	0.60	0.60	D	1	WOH	WOH	1		Gray organic SILT, trace f sand.
		12.19 - 12.79	2	0.60	0.60	UP						Piston.
		13.72 - 14.32	8	0.60	0.51	D	1	1	1	1		Gray organic SILT, trace f sand.
15											15.24	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0		46.32	
			No. of Samples	
			31D/2UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P2-3

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+843.3
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	19.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202388.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288874.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 0.68		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/19/02	Utilized			X			X	X	X	X				
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~0.0 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	9	0.60	0.30	D	8	11	12	14	-14.56	Red brown f SAND, trace silt.
		16.76 - 17.36	10	0.60	0.00	D	4	2	3	3		No Recovery.
		18.29 - 18.89	11	0.60	0.25	D	4	4	5	7		Red brown f SAND, trace silt.
20		19.81 - 20.41	12	0.60	0.36	D	3	6	5	8		Red brown f SAND, trace silt.
		21.34 - 21.94	13	0.60	0.10	D	10	11	10	13		Red brown f SAND, some silt.
		22.86 - 23.46	14	0.60	0.41	D	12	15	13	17		Red brown f SAND and SILT.
		24.38 - 24.98	15	0.60	0.15	D	14	16	17	21		Red brown f SAND and SILT.
25												
		25.91 - 26.51	16	0.60	0.08	D	9	13	15	18		Red brown f SAND and SILT.
											26.97	
		27.43 - 28.03	17	0.60	0.30	D	23	28	26	32	-26.29	Red brown SILT, some f sand.
		28.96 - 29.56	18	0.60	0.38	D	19	23	27	34		Red brown SILT, some f sand.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0		46.32	
			No. of Samples	
			31D/2UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+843.3
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	19.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202388.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288874.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 0.68		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/19/02	Utilized			X			X	X	X	X				
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~0.0 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6	-		0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	19	0.60	0.23	D	9	3	11	23		Red brown SILT, some f sand, trace f gravel. Note: Starting to lose drilling mud at 30.48m.
		32.00 - 32.60	20	0.60	0.38	D	22	33	34	37		Red brown SILT, some f sand, trace (gray) clayey silt seams ~1mm thick, trace clay, trace organics, trace shells, trace fibers.
		33.53 - 34.13	21	0.60	0.41	D	26	36	39	39		Red brown SILT, some f sand, trace (gray) silt seams (~1mm).
35												
		35.05 - 35.65	22	0.60	0.46	D	22	31	36	38		Red brown SILT, some f sand, trace (gray) silt seams (~1mm).
		36.58 - 37.18	23	0.60	0.53	D	23	32	35	50		Red brown SILT, some f sand, trace (gray) silt seams (~1mm).
											37.64	
		38.10 - 38.70	24	0.60	0.48	D	25	33	36	47	-36.96	Red brown SILT, little to some clay, trace gray clayey silt seams (~1mm). Note: Lost whole tub of mud between 36.58m - 39.62m.
40		39.62 - 40.22	25	0.60	0.48	D	25	34	48	48		Red brown SILT, little to some clay, trace gray clayey silt seams (~1mm).
		41.15 - 41.75	26	0.60	0.43	D	23	31	37	45		Red brown SILT, little to some clay, trace gray clayey silt seams (~1mm).
		42.67 - 43.27	27	0.60	0.56	D	21	30	34	32		Red brown SILT, little clay, trace gray silt seams (~1-5mm).
		44.19 - 44.79	28	0.60	0.51	D	25	35	34	40		Red brown SILT, little clay, trace gray silt seams (~1-5mm).
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0		46.32	
			No. of Samples	
			31D/2UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) weight was accomplished with an automatic safety hammer.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

E. Del Priore	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+843.3
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	19.4 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202388.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288874.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 0.68		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 07/19/02	Utilized			X			X	X	X	X					
Date Finished: 07/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)	
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55	
@ ~0.0 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond		
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide		

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		45.72 - 46.32	29	0.60	0.56	D	42	45	56	60		Red brown SILT, little to some clay, trace gray silt seams (~5-10mm).
											46.32	
											-45.64	Bottom of Boring 46.32m.
50												
55												
60												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0		46.32	
			No. of Samples	
			31D/2UP	

NOTES: Bombardier Rig - Raising and dropping of the 140-lb (63.5kg) hammer was accomplished using a trip lever.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P2-3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.3
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202437.2
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288940.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: -0.72	Utilized			X			X	X	X	X				
Date Started: 08/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/14/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.15	D	WOR	WOR	WOR	WOR		Top 0.03m: Black organic SILT, little shells. Bottom 0.13m: Gray organic SILT, trace f sand, trace shells.
		1.52 - 2.12	2	0.60	0.43	D	1	1	1	1		Gray organic SILT, little f sand, trace f gravel, trace shells.
		3.05 - 3.65	1	0.60	0.60	UP						Piston.
		3.65 - 4.27	3	0.60	0.60	D	1	1	1	1		Gray organic SILT, trace f sand, trace shells.
5		4.57 - 5.17	4	0.60	0.30	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
		6.10 - 6.70	2	0.60	0.60	UP						Piston.
		6.70 - 7.31	5	0.60	0.00	D	WOH	WOH	WOH	WOH		No Recovery.
		7.62 - 8.22	6	0.60	0.60	D	WOH	WOH	WOH	WOH		Dark gray organic SILT, trace shells, trace f sand.
		9.14 - 9.74	7	0.60	0.15	D	WOH	WOH	WOH	WOH		Dark gray organic SILT, trace f sand.
10												
		10.67 - 11.27	8	0.60	0.41	D	WOH	WOH	6	7		Top 0.18m: Dark brown / gray organic SILT, trace shells, trace f sand.
											11.73	
											-12.55	Bottom 0.20m: Red brown / brown f SAND, little silt.
		12.19 - 12.79	9	0.60	0.51	D	2	3	4	6		Top 0.30m: Red brown f SAND, little silt, saturated, rapid dilatancy. Middle 0.05m: Red brown f SAND, some silt, little shells. Bottom 0.15m: Red brown f SAND, some silt, saturated, rapid dilatancy.
15		13.72 - 14.32	10	0.60	0.38	D	5	7	9	9		Red brown f SAND, some silt, saturated.

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.3
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202437.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288940.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.72		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 08/09/02	Utilized			X			X	X	X	X					
Date Finished: 08/14/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)	
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55	
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond		
@ Tidal m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide		

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.56	D	3	3	3	6		Red brown f SAND, little silt, trace shells, saturated, rapid dilatancy.
		16.76 - 17.36	12	0.60	0.30	D	8	10	10	11		Red brown f SAND, trace silt, wet.
		18.29 - 18.89	13	0.60	0.51	D	8	9	11	13		Red brown f SAND, trace silt, wet.
20		19.81 - 20.41	14	0.60	0.46	D	10	10	13	14		Red brown f SAND, some silt, saturated, med to rapid dilatancy.
											20.88	
		21.34 - 21.94	15	0.60	0.51	D	10	12	12	16	-21.60	Red brown SILT, some f sand, saturated, rapid dilatancy.
		22.86 - 23.46	16	0.60	0.56	D	9	11	13	15		Red brown SILT, some f sand, saturated, rapid dilatancy.
		24.38 - 24.98	17	0.60	0.56	D	12	14	19	22		Top 0.46m: Red brown SILT, little f sand, trace clayey silt seams (~0.79mm), one f sand lense (~0.79mm), saturated, rapid dilatancy. Bottom 0.10m: Red brown SILT and f sand, saturated.
25												
		25.91 - 26.51	18	0.60	0.51	D	14	19	21	24		Red brown SILT, little f sand, saturated, rapid dilatancy.
		27.43 - 28.03	19	0.60	0.60	D	14	14	15	18		Red brown SILT, little f sand, trace clayey silt seams (~0.79-1.59 mm) saturated, rapid dilatancy.
		28.96 - 29.56	20	0.60	0.56	D	12	14	16	17		Red brown SILT, little f sand, saturated.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.3
R. Sharp / E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202437.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288940.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	-0.72	Utilized			X			X	X	X	X				
Date Started:	08/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished:	08/14/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	21	0.60	0.41	D	14	18	24	20		Red brown SILT, little f sand, one clayey silt seam (~0.16cm), saturated.
		32.00 - 32.60	22	0.60	0.48	D	12	15	19	20		Red brown SILT, little f sand, trace clayey silt seam (~0.16cm), saturated.
		33.53 - 34.13	23	0.60	0.51	D	13	19	18	21		Red brown SILT and f SAND.
35												
		35.05 - 35.65	24	0.60	0.51	D	12	14	17	21		Red brown SILT, some f sand, trace clayey silt seams (~0.08 cm), saturated, rapid dilatancy.
		36.58 - 37.18	25	0.60	0.30	D	8	14	17	20		Red brown SILT, little f sand.
		38.10 - 38.70	26	0.60	0.46	D	12	13	23	26		Red brown SILT, some f sand.
40		39.62 - 40.22	27	0.60	0.46	D	14	17	22	27		Red brown SILT, little f sand, trace clay, trace (light gray) clay seams (~1-5mm).
		41.15 - 41.75	28	0.60	0.51	D	15	16	17	21		Red brown SILT, little clay, trace f sand, trace (light gray) clay seams (~1-5mm).
											42.20	
		42.67 - 43.27	29	0.60	0.56	D	15	18	28	23	-42.92	Red brown SILT, little to some clay, trace (light gray) clay seams (~1-5mm).
		44.19 - 44.79	30	0.60	0.56	D	16	16	21	28		Red brown SILT, little to some clay, trace (light gray) clay seams (~1-10 mm).
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No:	P3-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.3
E. Fulton / R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	24.7 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202437.2
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288940.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: -0.72	Utilized			X			X	X	X	X				
Date Started: 08/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/14/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after ____ hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		45.72 - 46.32	31	0.60	0.48	D	18	20	22	25		Red brown SILT, little to some clay, trace (light gray) clay seams (~1-10 mm).
											46.32	
											-47.04	Bottom of Boring 46.32 m.
50												
55												
60												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	18.29	46.32	
			No. of Samples	
			31D/2UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P3-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.2
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	7.5 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.0
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

		Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: -0.75	Utilized			X			X	X	X					
Date Started: 08/05/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/08/02	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after hours														

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.60	D	WOR	WOR	WOR	WOR		Top 0.03m: Dark gray / black organic SILT and shells Bottom 0.58m: Gray organic SILT, trace f sand, trace shells, trace fibers.
		1.52 - 2.12	2	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
		3.05 - 3.65	3	0.60	0.53	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
5		4.57 - 5.17	4	0.60	0.10	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
		6.10 - 6.70	5	0.60	0.10	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells.
		7.62 - 8.22	6	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, little f sand, trace shells.
		9.14 - 9.74	7	0.60	0.46	D	WOH	WOH	WOH	WOH		Gray organic SILT, some f sand, trace shells, fibers and wood.
10											10.66	
		10.67 - 11.27	8	0.60	0.15	D	WOR	WOR	9	6	-11.41	Gray f SAND, some silt, trace fibers.
		12.19 - 12.79	9	0.60	0.41	D	7	8	24	39		Gray / red brown f SAND, trace silt.
		13.72 - 14.32	10	0.60	0.30	D	6	7	8	11		Red brown f SAND, little silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.33	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.2
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	7.5 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.0
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.75		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/05/02	Utilized			X			X	X	X					
Date Finished: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.30	D	7	7	8	11		Red brown f SAND, little to some silt, trace f gravel.
		16.76 - 17.36	12	0.60	0.43	D	15	14	16	16		Red brown f SAND, little to some silt.
		18.29 - 18.89	13	0.60	0.51	D	16	18	15	16		Red brown f SAND, little to some silt.
20		19.81 - 20.41	14	0.60	0.58	D	19	20	22	18		Red brown f SAND, little to some silt.
		21.34 - 21.94	15	0.60	0.53	D	15	17	22	26		Red brown f SAND, little to some silt.
		22.86 - 23.46	16	0.60	0.46	D	13	19	24	21		Red brown f SAND, little to some silt.
		24.38 - 24.98	17	0.60	0.51	D	18	19	19	25		Red brown f SAND, little to some silt, trace (light gray) silt seams (~1mm).
25											25.45	
		25.91 - 26.51	18	0.60	0.41	D	20	26	24	29	-26.20	Red brown SILT, trace f sand, trace gray silt seams (~1mm).
		27.43 - 28.03	19	0.60	0.46	D	21	25	27	32		Red brown SILT, little f-c gravel, trace f sand.
		28.96 - 29.56	20	0.60	0.41	D	17	24	32	36		Red brown SILT, trace f sand, trace gray silt seams (~1mm).
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.33	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.2
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	7.5 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.0
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.75		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/05/02	Utilized			X			X	X	X					
Date Finished: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	21	0.60	0.38	D	21	25	29	35		Red brown SILT, trace f sand, trace f-c gravel.
		32.00 - 32.60	22	0.60	0.33	D	17	18	27	36		Red brown SILT, trace f sand. Note: Hole collapsed, casing starting to sink, drillers advancing casing to 21.34m.
		33.53 - 34.13	23	0.60	0.15	D	19	22	24	25		Red brown SILT, trace f sand. Note: Barge shifted, casing is at an angle. Drillers are having trouble getting samples. The is hole collapsing. There is a problem with transmission / rig.
35												
		35.05 - 35.65	24	0.60	0.05	D	17	19	13	27		Red brown SILT, trace f sand.
		36.58 - 37.18	25	0.60	0.05	D	21	24	27	30		Red brown SILT, trace f sand.
		38.10 - 38.70	26	0.60	0.00	D	20	25	28	32		No Recovery.
40		39.62 - 40.22	27	0.60	0.00	D	22	22	26	30		No Recovery. Note: Lost whole tub of mud.
											40.69	
		41.15 - 41.75	28	0.60	0.30	D	20	23	27	32	-41.44	Red brown SILT, little to some clay, trace (light gray) silt (~1.5 mm) seams.
		42.67 - 43.27	29	0.60	0.38	D	22	26	29	35		Red brown SILT, little to some clay, trace (light gray) silt (~1.5 mm) seams.
		44.19 - 44.79	30	0.60	0.46	D	15	20	23	32		Red brown SILT, little to some clay, trace (light gray) silt (~1.5 mm) seams.
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	21.34	46.33	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+913.2
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	7.5 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.0
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.75		Casing			Auger		Mud	Sampler		Core Barrel			
Date Started: 08/05/02	Utilized			X		X	X	X					
Date Finished: 08/08/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		45.72 - 46.32	31	0.60	0.30	D	25	29	33	37		Red brown SILT, little to some clay, trace (light gray) silt (~1.5 mm) seams.
											46.32	
											-47.09	Bottom of Boring 46.32 m.
50												
55												
60												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.32	
			No. of Samples	
			31D	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P3-2

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+910.5
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	21.5 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202390.9
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/30/02	Utilized			X			X	X	X	X				
Date Finished: 08/02/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.05	D	WOH	WOH	WOH	WOH		Black organic SILT, little f sand.
		1.52 - 2.12	2	0.60	0.18	D	WOH	WOH	WOH	WOH		Gray organic SILT, little f sand, trace shells.
		3.05 - 3.65	1	0.60	0.00	UP						Piston - No Recovery.
		3.65 - 4.27	2	0.60	0.60	UP						Piston
5		4.57 - 5.17	3	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, little f sand, trace shells.
		6.10 - 6.70	4	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, little f sand, trace shells.
		7.62 - 8.22	3	0.60	0.15	UP						Piston.
		8.23 - 8.84	5	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, little f sand, trace shells.
		9.14 - 9.74	4	0.60	0.60	UP					10.06	Piston.
10		9.75 - 10.36	6	0.60	0.51	D	WOH	3	5	7	-11.00	Gray f-m SAND, trace silt.
		10.67 - 11.27	7	0.60	0.36	D	3	5	5	8		Gray f-c SAND, some f-c gravel, trace silt, trace red brown f sand lenses, trace shells.
		12.19 - 12.79	8	0.60	0.36	D	5	7	7	9		Gray f-c SAND, some f-c gravel, trace silt, trace red brown f sand lenses, trace shells.
		13.72 - 14.32	9	0.60	0.05	D	8	11	13	12		Gray / red brown f SAND, little silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.32	
			No. of Samples	
			31D/4UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P3-3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. P3-3
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 0+910.5
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset 21.5 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202390.9
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 288941.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: -0.94		Utilized			X			X	X	X	X				
Date Started: 07/30/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/02/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ In River m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ Tidal m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	10	0.60	0.46	D	10	12	14	14		Red brown f SAND, little silt, trace f gravel.
		16.76 - 17.36	11	0.60	0.20	D	9	11	10	13		Red brown f SAND, little silt.
		18.29 - 18.89	12	0.60	0.30	D	10	12	12	14		Red brown f SAND, little silt.
20		19.81 - 20.41	13	0.60	0.28	D	12	12	14	16		Red brown f SAND, little silt.
		21.34 - 21.94	14	0.60	0.38	D	11	13	12	14		Red brown f SAND, little silt.
		22.86 - 23.46	15	0.60	0.41	D	9	13	22	24		Red brown f SAND, little silt, trace light gray silt seams (~1 mm).
		24.38 - 24.98	16	0.60	0.36	D	16	14	19	21		Red brown f SAND, little silt, trace c sand.
25		25.91 - 26.51	17	0.60	0.41	D	13	18	21	23		Red brown f SAND, little silt.
		27.43 - 28.03	18	0.60	0.30	D	10	15	13	19		Red brown f SAND, little silt, trace c sand.
		28.96 - 29.56	19	0.60	0.30	D	17	18	24	26		Red brown f SAND, little silt.
30											30.02	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.32	
			No. of Samples	
			31D/4UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+910.5
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	21.5 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202390.9
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.94		Casing			Auger		Mud	Sampler		Core Barrel			
Date Started: 07/30/02	Utilized			X		X	X	X	X				
Date Finished: 08/02/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond
@ Tidal m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.09	20	0.60	0.36	D	12	15	17	21	-30.96	Red brown SILT, trace f sand, trace gray silt seams (~1-5 mm).
		32.00 - 32.60	21	0.60	0.51	D	14	18	24	24		Red brown SILT, trace f sand.
											33.07	
		33.53 - 34.13	22	0.60	0.30	D	17	19	19	23	-34.01	Red brown SILT, little clay, trace light gray silt seams (~1-5 mm).
35												
		35.05 - 35.65	23	0.60		D	12	17	22	26		Red brown SILT, little clay, trace light gray silt seams (~1-5 mm).
		36.58 - 37.18	24	0.60	0.48	D	21	25	26	32		Red brown SILT, little clay, trace light gray silt seams (~1-5 mm).
		38.10 - 38.70	25	0.60	0.56	D	29	27	31	37		Red brown SILT, little to some clay, trace light gray silt seams (~1-5 mm).
40		39.62 - 40.22	26	0.60	0.08	D	23	25	29	31		Red brown SILT, trace clay.
		41.15 - 41.75	27	0.60	0.51	D	25	19	23	34		Red brown SILT, little to some clay, trace light gray silt seams (~1-10 mm).
		42.67 - 43.27	28	0.60	0.51	D	23	24	20	27		Red brown SILT, little to some clay, trace light gray silt seams (~1-10 mm).
		44.19 - 44.79	29	0.60	0.56	D	17	21	25	34		Red brown SILT, little to some clay, trace light gray silt seams (~1-10 mm).
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.32	
			No. of Samples	
			31D/4UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P3-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+910.5
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	21.5 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202390.9
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288941.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: -0.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/30/02	Utilized			X			X	X	X	X				
Date Finished: 08/02/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ In River m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ Tidal m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		45.72 - 46.32	31	0.60	0.51	D	18	19	20	23		Red brown SILT, little to some clay, trace light gray silt seams
											46.32	(~1-10 mm).
											-47.26	Bottom of Boring 46.32 m.
50												
55												
60												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	21.34	46.32	
			No. of Samples	
			31D/4UP	

NOTES: Barge / Skid Rig - Raising and dropping of the 140-lb (63.5kg) safety hammer accomplished using a rope and cathead.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P3-3

Sheet 4 of 4

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+973.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202441.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289001.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.05		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/15/02	Utilized			X			X	X	X	X				
Date Finished: 07/16/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.36	D	6	14	14	19		Brown black f SAND, trace f-m gravel, trace silt, trace c sand.
		1.52 - 2.12	2	0.60	0.00	D	1/0.30m		1	1		No Recovery.
		3.05 - 3.65	3	0.60	0.05	D	1	1	1	1		Black f SAND, little silt, trace wood.
5		4.57 - 5.17	4	0.60	0.60	D	3	1	2	1		Top 0.30m: Gray f SAND, trace to little silt. Middle 0.20m: Gray organic SILT, trace clay, trace f sand, trace shells.
											5.64	Bottom 0.10m: Gray f SAND, little silt.
		6.10 - 6.70	5	0.60	0.60	D	1	1/0.30m		1	-4.59	Gray organic SILT, trace f sand, little shells.
		7.01 - 7.61	1	0.60	0.56	UP						Piston.
		7.62 - 8.22	6	0.60	0.60	D	1	1/0.30m		1		Gray organic SILT, few f sand lenses (~0.16cm), trace shells, trace leaves.
		9.14 - 9.74	7	0.60	0.60	D	1	1	1	1		Gray organic SILT, trace f sand, little shells, trace leaves.
10												
		10.06 - 10.66	2	0.60	0.60	UP						Piston.
		10.67 - 11.27	8	0.60	0.60	D	1/0.30m		1/0.30m			Gray organic SILT, trace f sand, trace clay, little shells, 0.05m lense of brachiopods in top of spoon.
											11.73	
		12.19 - 12.79	9	0.60	0.25	D	6	6	9	11	-10.68	Red brown f SAND, trace silt.
		13.72 - 14.32	10	0.60	0.15	D	6	7	7	9		Red brown f SAND, some silt, trace f-c gravel.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	38.71	
			No. of Samples	
			26D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+973.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202441.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289001.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.05		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/15/02	Utilized			X			X	X	X	X				
Date Finished: 07/16/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.00	D	10	12	12	13		No Recovery.
		16.76 - 17.36	12	0.60	0.00	D	11	12	12	12		No Recovery.
		18.29 - 18.89	13	0.60	0.13	D	8	10	12	15		Red brown f SAND, little to some silt.
20		19.81 - 20.41	14	0.60	0.30	D	7	9	11	13		Red brown f SAND and SILT.
		21.34 - 21.94	15	0.60	0.00	D	4	5	5	4		No Recovery.
		22.86 - 23.46	16	0.60	0.46	D	4	5	6	12		Red brown f SAND, trace silt.
											23.93	
		24.38 - 24.98	17	0.60	0.46	D	10	11	14	16	-22.88	Red brown f SILT, some f sand, rapid dilatancy.
25												
		25.91 - 26.51	18	0.60	0.30	D	10	13	15	18		Red brown SILT, some f sand, low dilatancy.
		27.43 - 28.03	19	0.60	0.30	D	16	16	18	18		Red brown SILT, some f sand, medium dilatancy.
		28.96 - 29.56	20	0.60	0.30	D	18	19	21	24		Red brown SILT, some f sand, rapid dilatancy, trace clayey silt seams (~0.16 cm), trace sand lenses (~0.16 cm).
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0		38.71	
			No. of Samples	
			26D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+973.9
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202441.6
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289001.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 1.05		Utilized			X			X	X	X	X				
Date Started: 07/15/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 07/16/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.59 m after ____ hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ ____ m after ____ hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.10	D	12	14	15	19		Red brown SILT, some f sand, medium to rapid dilatancy.
		32.00 - 32.60	22	0.60	0.23	D	11	14	19	23		Red brown SILT, some to little f sand, medium to rapid dilatancy.
		33.53 - 34.13	23	0.60	0.38	D	10	13	17	19		Red brown SILT, some f sand, rapid dilatancy.
35												
		35.05 - 35.65	24	0.60	0.60	D	17	18	21	27		Red brown SILT, some f sand, medium dilatancy.
		36.58 - 37.18	25	0.60	0.30	D	16	9	19	23		Red brown SILT, little to some f sand, rapid dilatancy.
		38.10 - 38.70	26	0.60	0.41	D	14	18	21	21		Red brown SILT, trace f sand, trace (~0.16 cm) clayey silt seams.
											38.70	
40											-37.65	Bottom of Boring 38.70 m.
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	38.70	
			No. of Samples	
			26D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-1

Sheet 3 of 3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+965.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	2.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202418.3
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288994.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.20		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/10/02	Utilized			X			X	X	X					
Date Finished: 07/12/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.03	D	3	6	5	6		Brown black f SAND, little silt, little c sand, trace f-c gravel.
		1.52 - 2.12	2	0.60	0.46	D	12	19	22	28		Top 0.30m: Black f-c SAND, little silt. Bottom 0.15m: Wood.
		3.05 - 3.65	3	0.60	0.03	D	1/0.30m		1	1		Black/dark gray SILT, trace f-c sand, trace f gravel.
5		4.57 - 5.17	4	0.60	0.30	D	1	1	2	3		Dark gray / black f SAND, trace to little silt, trace c sand, trace f gravel, trace wood.
		6.10 - 6.70	5	0.60	0.10	D	2	2	1	6		Dark gray black f-c SAND, little silt, trace f gravel, trace wood.
											7.16	
		7.62 - 8.22	6	0.60	0.13	D	1	1/0.30m		2	-6.40	Dark gray organic SILT, trace fibers, trace shells.
		9.14 - 9.74	7	0.60	0.60	D	1/0.30m		1	1		Dark gray organic SILT, trace fibers, trace shells.
10												
		10.67 - 11.27	8	0.60	0.60	D	1/0.30m		1	1		Dark gray organic SILT, trace fibers, trace shells.
											11.73	
		12.19 - 12.79	8	0.60	0.60	D	1/0.30m		1	1	-10.53	Gray f SAND, little silt.
		13.72 - 14.32	9	0.60	0.60	D	1	2	2	2		Gray f SAND, little silt, trace shells.
15												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	38.71	
			No. of Samples	
			26D	

NOTES: Pump broke 7/11/02, installed another one 7/12/02.
Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test
PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-2
Sheet 1 of 3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+965.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	2.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202418.3
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288994.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.20		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/10/02	Utilized			X			X	X	X					
Date Finished: 07/12/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL; REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.00	D	6	9	11	14		Brown gray f-c SAND (WASH).
		16.76 - 17.36	12	0.60	0.46	D	7	8	8	9		Top 0.25m: Red brown f SAND, trace silt. Middle 0.10m: Red brown f-c SAND, trace silt, trace f gravel. Bottom 0.10m: Red brown f SAND, some silt.
		18.29 - 18.89	13	0.60	0.46	D	11	12	12	14		Red brown f SAND, some silt, saturated.
											19.35	
20		19.81 - 20.41	14	0.60	0.30	D	10	10	13	17	-18.15	Red brwon SILT and f SAND.
		21.34 - 21.94	15	0.60	0.38	D	12	14	15	23		Red brown SILT and f SAND.
		22.86 - 23.46	16	0.60	0.41	D	12	17	17	22		Red brown SILT and f SAND.
		24.38 - 24.98	17	0.60	0.38	D	10	14	20	24		Red brown SILT, little f sand, trace clayey silt seams, medium dilatancy.
25												
		25.91 - 26.51	18	0.60	0.51	D	17	19	22	25		Red brown SILT, little f sand, trace clayey silt seams, medium dilatancy.
		27.43 - 28.03	19	0.60	0.30	D	12	17	19	23		Red brown SILT, little f sand, trace clayey silt seams, medium dilatancy.
		28.96 - 29.56	20	0.60	0.41	D	11	14	21	23		Red brown SILT, some f sand.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	38.71	
			No. of Samples	
			26D	

NOTES: Pump broke 7/11/02, installed another one 7/12/02.
Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test
PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+965.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	2.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202418.3
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288994.1
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.20		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/10/02	Utilized			X			X	X	X					
Date Finished: 07/12/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.46	D	13	15	17	19		Red brown SILT, trace f sand, f sand lenses (~0.32 cm).
		32.00 - 32.60	22	0.60	0.36	D	16	21	28	33		Red brown SILT, little f SAND, saturated rapid dilatancy.
		33.53 - 34.13	23	0.60	0.38	D	12	14	17	21		Top 0.13m: Red brown SILT, some f sand. Bottom 0.25m: Red brown SILT, little f sand.
35												
		35.05 - 35.65	24	0.60	0.60	D	14	19	21	24		Red brown SILT, little f sand.
		36.58 - 37.18	25	0.60	0.56	D	21	18	17	20		Red brown SILT.
		38.10 - 38.70	26	0.60	0.51	D	19	21	17	18		Red brown SILT, trace clayey silt seams, saturated.
											38.70	
											-37.50	Bottom of Boring 38.70 m.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	38.70	
			No. of Samples	
			26D	

NOTES: Pump broke 7/11/02, installed another one 7/12/02.
Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test
PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-2
Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+968.5
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	18.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288998.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.38		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/15/02	Utilized			X			X	X	X	X				
Date Finished: 07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.25	D	16	10	20	25		Top 0.10m: Brown f-c SAND, mostly c, little silt. Bottom 0.15m: Dark brown f SAND, little c sand, little silt, trace to little f gravel.
		1.52 - 2.12	2	0.60	0.23	D	5	3	13	11		Brown black f SAND, little c sand, little silt, trace f gravel.
		3.05 - 3.65	3	0.60	0.30	D	1	1	2	2		Gray organic SILT, trace f sand, trace clay, trace shells.
5		4.57 - 4.70	4	0.13	0.13	D	20/0.13m					Gray black f-c SAND, trace silt (WASH from fill layer). (See note below.)
											6.25	
		6.71 - 7.32	5	0.60	0.60	D	1	1	1	1	-4.87	Gray organic SILT, trace shells.
		7.62 - 8.22	1	0.60	0.05	UP						Piston - did not keep recovery, made 2 attempts.
		8.23 - 8.83	6	0.60	0.51	D	1/0.30m		1	1		Gray organic SILT, trace shells.
		9.14 - 9.74	2	0.60	0.58	UP						Piston.
10		9.75 - 10.35	7	0.60	0.60	D	1/0.30m		1/0.30m			Gray organic SILT, little f sand, trace shells.
		10.67 - 11.27	3	0.60	0.60	UP						Piston.
		11.28 - 11.88	8	0.60	0.60	D	1/0.30m		1/0.30m			Gray organic SILT, trace clay, little shells, trace f sand.
		12.19 - 12.79	9	0.60	0.51	D	WOR	WOR	WOR	WOR		Top 0.33m: Gray organic SILT, some f sand, trace shells. Bottom 0.18m: Gray organic SILT, trace f sand, little shells. pp = 1.0 (bottom 0.13m), 0.0 (top 0.38m), 0.5 (top 0.38m) tons/ft^2
		13.72 - 14.32	10	0.60	0.36	D	9	12	10	12		Top 0.10m: Gray organic SILT, little shells, soft. Bottom 0.25m: Red brown f sand, trace c sand, trace silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	6.71	38.71	
			No. of Samples	
			26D/3UP	

NOTES: Casing kept slipping down while attempting to wash out at 4.57m. While washing out c gravel from fill area, forced casing past 4.57m, unable to sample at 4.57m, drove casing to 6.10m, gravel continued to be a problem, drove casing to 6.71m. Raising and dropping of the 140 lb. (63.5 kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+968.5
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	18.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288998.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.38		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/15/02	Utilized			X			X	X	X	X				
Date Finished: 07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.56	D	10	10	10	12	15.39	Top 0.15m: Gray organic SILT, little shells, soft.
											-14.01	Bottom 0.41m: Red brown f SAND, little to some silt, medium dilatancy.
		16.76 - 17.36	12	0.60	0.25	D	7	11	15	16		Red brown f SAND, little silt, medium dilatancy.
		18.29 - 18.89	13	0.60	0.30	D	13	13	15	17		Red brown f SAND, little silt, medium dilatancy.
20		19.81 - 20.41	14	0.60	0.30	D	15	16	19	20		Red brown f SAND, some silt.
		21.34 - 21.94	15	0.60	0.30	D	15	16	16	19		Red brown f SAND, some silt.
											22.40	
		22.86 - 23.46	16	0.60	0.41	D	13	15	19	20	-21.02	Red brown SILT, some f sand, rapid dilatancy.
		24.38 - 24.98	17	0.60	0.36	D	15	18	21	24		Red brown SILT, little f sand.
25												
		25.91 - 26.51	18	0.60	0.20	D	12	16	6	16		Red brown SILT, some f sand.
		27.43 - 28.03	19	0.60	0.41	D	13	15	19	17		Red brown SILT, some f sand, rapid dilatancy, dense.
		28.96 - 29.56	20	0.60	0.30	D	10	14	17	9		Red brown SILT, some f sand, rapid dilatancy, dense.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	38.71	
			No. of Samples	
			26D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P4-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 0+968.5
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	18.1 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	288998.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 1.38		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/15/02	Utilized			X			X	X	X	X				
Date Finished: 07/17/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	17	24	30	31		Red brown SILT, little f sand, rapid dilatancy, very dense.
		32.00 - 32.60	22	0.60	0.51	D	18	24	33	30		Red brown SILT, some f sand, medium dilatancy, very dense.
		33.53 - 34.13	23	0.60	0.25	D	18	22	31	31		Red brown SILT, little f sand, medium dilatancy, very dense, trace clayey silt seams (~0.16 cm).
35												
		35.05 - 35.65	24	0.60	0.51	D	10	13	16	20		Red brown SILT, little clayey silt seams (~0.08 - 0.16 cm).
		36.58 - 37.18	25	0.60	0.51	D	8	8	9	13		Red brown SILT, little clayey silt seams (~0.08 - 0.16 cm), medium dilatancy.
		38.10 - 38.70	26	0.60	0.46	D	9	15	21	25		Red brown SILT, little clayey silt seams (~0.08 - 0.16 cm), medium dilatancy.
											38.70	
40											-37.32	Bottom of Boring 38.70 m.
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	38.70	
			No. of Samples	
			26D/3UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P4-3

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+040.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	29.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202450.7
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289066.9
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.61		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/10/02	Utilized			X			X	X	X	X				
Date Finished: 07/11/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0.- 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.43	D	5	20	24	18		Light brown / brown f SAND, little silt, trace c sand, trace brick, trace f gravel.
		1.52 - 2.12	2	0.60	0.23	D	15	15	15	24		Red brown f SAND, trace c sand, trace f gravel.
		3.05 - 3.65	3	0.60	0.46	D	2	3	3	5		Red brown f SAND, little to trace silt, little c sand, brick and wood, wet.
5		4.57 - 4.72	4	0.60	0.41	D	3	5	5	5		Brown f SAND, trace silt, trace c sand, trace f gravel.
		6.10 - 6.71	5	0.60	0.23	D	21	4	3	3	6.18	Top 0.08m: Gray brown c GRAVEL.
											-3.57	Bottom 0.15: Gray organic SILT, trace shells, trace f sand.
		7.01 - 7.61	1	0.60	0.60	UP						Piston.
		7.62 - 8.22	6	0.60	0.20	D	1/0.30m		1/0.30m			Gray organic SILT, trace shells, trace f sand, trace clay.
		9.14 -9.74	7	0.60	0.60	D	1	1	2	2		Gray organic SILT, trace f sand, trace clay, trace shells.
10												
		10.06 - 10.66	2	0.60	0.60	UP						Piston.
		10.67 - 11.27	8	0.60	0.46	D	2	3	2	4		Gray organic SILT, trace f sand, trace shells.
		12.19 - 12.79	9	0.60	0.51	D	2	2	3	4		Gray organic SILT, trace clay, trace shells.
											13.26	
		13.72 - 14.32	10	0.60	0.60	D	2	2	2	4	-10.65	Gray f SAND, little silt, trace shells.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P5-1

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+040.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	29.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202450.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289066.9
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation:	2.61														
Date Started:	07/10/02	Utilized			X			X	X	X	X				
Date Finished:	07/11/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours		Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.51	D	3	3	5	7		Gray f SAND, little silt, trace shells.
		16.76 - 17.36	12	0.60	0.46	D	5	11	11	16		Red brown f SAND, little silt.
		18.29 - 18.89	13	0.60	0.51	D	6	13	16	17		Red brown f SAND, some silt.
											19.35	
20		19.81 - 20.41	14	0.60	0.41	D	WOR	WOR	2	5	-16.74	Red brown SILT, little f sand, saturated.
		21.34 - 21.94	15	0.60	0.46	D	WOR	1	3	5		Red brown SILT, little f sand, saturated.
		22.86 - 23.46	16	0.60	0.51	D	8	9	8	9		Red brown SILT and f SAND, saturated.
		24.38 - 24.98	17	0.60	0.30	D	5	7	9	9		Red brown SILT and f SAND, rapid dilatancy, saturated.
25												
		25.91 - 26.51	18	0.60	0.03	D	WOR	WOR	WOR	3		Red brown SILT and f SAND, rapid dilatancy, saturated.
		27.43 - 28.03	19	0.60	0.20	D	10	12	15	17		Red brown SILT and f SAND, rapid dilatancy, saturated.
		28.96 - 29.56	20	0.60	0.25	D	1	5	6	8		Red brown SILT and f SAND, rapid dilatancy, saturated.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. P5-1
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+040.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 29.1 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202450.7
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289066.9
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 2.61		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/10/02	Utilized			X			X	X	X	X				
Date Finished: 07/11/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.46	D	20	26	31	31		Red brown SILT and f SAND, rapid dilatancy.
		32.00 - 32.60	22	0.60	0.36	D	12	16	21	27		Red brown SILT and f SAND, saturated.
		33.53 - 34.13	23	0.60	0.46	D	14	19	23	37		Red brown SILT, some f sand, trace f sand lenses, trace clayey silt seams (~0.08 - 0.32 cm).
35												
		35.05 - 35.65	24	0.60	0.20	D	20	31	37	46		Red brown SILT and f SAND, trace clayey silt seams (~0.16 cm).
											35.65	
											-33.04	Bottom of Boring 35.65 m.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	35.65	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P5-1

J. Maccino	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+023.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	0.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.8
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289052.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.61		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/29/02	Utilized			X			X	X	X					
Date Finished: 07/30/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136		-	Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.30	D	7	20	32	50		Light / medium brown f SAND, some c sand, little f-c gravel, trace silt.
		1.52 - 2.12	2	0.60	0.41	D	21	16	14	11		Top 0.05m: CONCRETE Bottom 0.36m: Red brown f SAND, some silt, trace c sand.
		3.05 - 3.65	3	0.60	0.46	D	6	5	4	6		Dark gray f SAND, some silt, trace c sand, trace f-c gravel, 0.03m of conrete in middle of sample, moist.
5		4.57 - 4.72	4	0.60	0.51	D	7	3	5	4		Top 0.40m: Dark gray c SAND, little f sand, little silt. Bottom 0.10m: Gray organic SILT, trace shells and fibers.
											5.64	
		6.10 - 6.71	5	0.60	0.60	D	3	2	1	3	-3.03	Gray organic SILT, little f sand, trace c sand, trace f gravel, trace fibers.
		7.62 - 8.22	6	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, trace f sand, trace shells, trace fibers.
		9.14 - 9.74	7	0.60	0.60	D	WOH	WOH	WOH	WOH		Gray organic SILT, trace f sand, trace shells, trace fibers.
10												
		10.67 - 11.27	8	0.60	0.60	D	WOR	WOR	WOR	WOR		Gray organic SILT, trace f sand, trace shells, trace fibers.
		12.19 - 12.79	9	0.60	0.56	D	2	1	2	1		Gray organic SILT, trace f sand, trace shells, trace fibers.
		13.72 - 14.32	10	0.60	0.60	D	6	7	13	15	14.13	Top 0.40m: Gray organic SILT and f SAND.
15											-11.52	Bottom 0.20m: Gray red brown f SAND, little silt.

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D	

NOTES: Bombardier rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P5-2

J. Maccino	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+023.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	0.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289052.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.61		Casing				Auger		Mud	Sampler		Core Barrel				
Date Started: 07/29/02	Utilized			X			X	X	X						
Date Finished: 07/30/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)	
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55	
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond		
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide		

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.30	D	9	14	15	11		Gray f-c SAND, little f-c gravel, little silt, trace f sand lense.
		16.76 - 17.36	12	0.60	0.08	D	16	14	14	15		Red brown f SAND, little silt, trace c sand, trace f gravel.
		18.29 - 18.89	13	0.60	0.36	D	14	11	12	9		Red brown f SAND, little silt, trace c gravel.
20		19.81 - 20.41	14	0.60	0.53	D	12	12	14	16		Red brown f SAND, little silt, trace c gravel.
		21.34 - 21.94	15	0.60	0.48	D	17	17	14	17		Red brown f SAND, trace silt.
		22.86 - 23.46	16	0.60	0.41	D	14	19	19	22		Red brown f SAND, some silt.
		24.38 - 24.98	17	0.60	0.36	D	16	23	24	19		Red brown f SAND, some silt.
25											25.45	
		25.91 - 26.51	18								-22.85	(Hole collapsed, driller had to wash it out, ended up 0.60m ahead, so he skipped the sample and went to 27.43m. Inspector was not there when it happened.)
		27.43 - 28.03	19	0.60	0.25	D	31	30	30	29		Red brown SILT, little to some f sand, trace clayey silt seams (~0.08 - 0.16cm).
		28.96 - 29.56	20	0.60	0.36	D	22	24	31	30		Red brown SILT, little f sand, saturated, rapid dilatancy, trace clayey silt seams. (~0.08cm).
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D	

NOTES: Bombardier rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

J. Maccino	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+023.9
R. Sharp	DEPARTMENT OF TRANSPORTATION	Offset	0.3 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202420.8
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289052.7
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.61		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/29/02	Utilized			X			X	X	X					
Date Finished: 07/30/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	21	25	30	29		Red brown SILT, little f sand, saturated, rapid dilatancy, trace clayey silt seams. (~0.08cm).
		32.00 - 32.60	22	0.60	0.41	D	19	22	29	28		Red brown SILT, some f sandD.
		33.53 - 34.13	23	0.60	0.38	D	23	22	29	32		Red brown SILT, little to some f sand.
35												
		35.05 - 35.65	24	0.60	0.46	D	17	21	28	23		Red brown SILT, little f sand, little clayey silt seams (~0.08-0.16 cm).
											35.65	
											-33.04	Bottom of Boring 35.65 m.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	35.65	
			No. of Samples	
			24D	

NOTES: Bombardier rig - Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P5-2

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+010.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	26.3 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202393.3
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289041.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.59		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/12/02	Utilized			X			X	X	X	X				
Date Finished: 07/15/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.20	D	3	10	17	20		Dark brown f SAND, trace c sand, little silt, trace brick, trace wood fibers.
		1.52 - 2.12	2	0.60	0.18	D	7	5	6	8		Top 0.10m: Brown f SAND, little silt, trace brick. Middle 0.03m: CONCRETE. Bottom 0.05m: Red BRICK fragments.
		3.05 - 3.65	3	0.60	0.25	D	4	5	3	3	3.35	Top 0.05m: Brown black f SAND, trace silt, trace wood.
											-0.76	Bottom 0.20m: Gray organic SILT, trace clay, trace shells.
5		4.57 - 5.17	1	0.60	0.36	UP						Piston.
		5.18 - 5.78	4	0.60	0.60	D	1	1	1	2		Gray organic SILT, trace clay, trace f sand, trace shells.
		6.10 - 6.70	5	0.60	0.60	D	1	1	2	1		Gray organic SILT, trace f sand, trace shells, trace clay.
		7.62 - 8.22	2	0.60	0.60	UP						Piston.
		8.22 - 8.84	6	0.60	0.46	D	1	1	2	3		Gray organic SILT, trace f sand, trace shells.
		9.14 - 9.74	7	0.60	0.60	D	1/0.30m		1/0.30m			Gray organic SILT, trace shells.
10												
		10.67 - 11.27	8	0.60	0.60	D	1/0.30m		1/0.30m			Gray organic SILT, trace shells.
		12.19 - 12.79	9	0.60	0.60	D	1	1	1	1		Gray organic SILT, little shells, trace clay.
											13.26	
		13.72 - 14.32	10	0.60	0.60	D	1	2	2	2	-10.67	Top 0.50m: Gray f SAND, little silt. Bottom 0.10m: Brown black PEAT, little silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P5-3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	P5-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+010.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	26.3 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202393.3
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289041.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.59		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/12/02	Utilized			X			X	X	X	X				
Date Finished: 07/15/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.30	D	3	5	6	6		Top 0.10m: Brown f-c SAND. Bottom 0.20m: Red brown f SAND, little silt.
		16.76 - 17.36	12	0.60	0.30	D	3	5	6	6		Red brown f SAND, trace to little silt.
		18.29 - 18.89	13	0.60	0.51	D	5	5	5	7		Red brown f SAND, little silt, saturated, rapid dilatancy.
											19.35	
20		19.81 - 20.41	14	0.60	0.36	D	5	8	15	16	-16.76	Red brown SILT, trace f sand, trace clayey silt seams, saturated, rapid dilatancy.
		21.34 - 21.94	15	0.60	0.00	D	4	6	8	8		No Recovery.
		22.86 - 23.46	16	0.60	0.30	D	6	6	12	14		Red brown SILT, little f sand, rapid dilatancy.
		24.38 - 24.98	17	0.60	0.00	D	13	6	2	7		No Recovery.
25												
		25.91 - 26.51	18	0.60	0.36	D	WOR	WOR	5	10		Red brown SILT, trace to little f sand, rapid dilatancy.
		27.43 - 28.03	19	0.60	0.60	D	6	9	10	16		Red brown SILT, trace to little f sand, rapid dilatancy.
		28.96 - 29.56	20	0.60	0.51	D	WOR	4	9	14		Red brown SILT, little f SAND, rapid dilatancy, saturated.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	4.57	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM -'001 - M REV. 1/94 BORING REPORT	Hole No.	P5-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+010.4
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	26.3 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202393.3
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289041.0
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.59		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/12/02	Utilized			X		-	X	X	X	X				
Date Finished: 07/15/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.59 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.46	D	WOR	WOR	11	24		Red brown SILT, little f sand, trace clayey silt seams.
		32.00 - 32.60	22	0.60	0.56	D	5	10	21	24		Red brown SILT, some f sand, trace clayey silt seams, rapid dilatancy.
		33.53 - 34.13	23	0.60	0.30	D	4	11	19	20		Red brown SILT, trace f sand, trace clayey silt seams, saturated
35												
		35.05 - 35.65	24	0.60	0.41	D	11	13	27	27		Red brown SILT.
											35.65	
											-33.06	Bottom of Boring 35.65 m.
40												
45												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	4.57	35.65	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. P5-3

Sheet 3 of 3

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+082.7
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	29.4 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202454.0
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289109.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.91		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/08/02	Utilized			X			X	X	X					
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.13 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.25	D	6	20	24	31		Brown SILT, little f-c sand, trace f gravel, roots.
		1.52 - 2.12	2	0.60	0.46	D	13	12	10	9		Red brown f SAND, trace silt, moist.
		3.05 - 3.65	3	0.60	0.30	D	5	8	12	14		Brown f SAND, trace silt, trace c sand, trace shells.
5		4.57 - 5.17	4	0.03	0.00	D	50/0.03m					Rods bouncing, pulled up SS to roller bit past obstruction, ~0.30m.
		6.10 - 6.70	5	0.60	0.30	D	31	37	24	7		Black SILT, little f-c sand, trace f gravel, creosote soaked.
											7.16	
		7.62 - 8.22	6	0.60	0.60	D	2	1/0.30m		1	-4.25	Top 0.53m: Gray organic SILT, trace clay, little fibers. Bottom 0.08m: Gray organic SILT, little shells.
		9.14 - 9.74	1	0.60	0.60	D	1	1/0.30m		1		Gray organic SILT, trace fibers, trace shells, little clay.
10												
		10.67 - 11.27	8	0.60	0.60	D	1	1/0.30m		1		Gray organic SILT, trace fibers, trace shells, little clay.
		12.19 - 12.79	9	0.60	0.60	D	1	1/0.30m		1		Gray organic SILT, trace fibers, trace shells, trace f sand lenses (~1.59 mm).
											13.26	
		13.72 - 14.32	10	0.60	0.60	D	4	6	11	12	-10.35	Red brown f SAND, trace c sand, little silt.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-1

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-1
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+082.7
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	29.4 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202454.0
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289109.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.91		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/08/02	Utilized			X			X	X	X	X				
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.13 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.15	D	11	12	12	13		Top 0.10m: Red brown / brown f-c SAND, trace f gravel, trace silt. Bottom 0.05m: Red brown f SAND, some silt.
		16.76 - 17.36	12	0.60	0.30	D	10	12	13	16		Red brown f SAND, little silt, trace m-c gravel.
		18.29 - 18.89	13	0.60	0.30	D	7	13	15	18		Red brown f SAND, some silt.
20		19.81 - 20.41	14	0.60	0.46	D	12	14	14	20		Red brown f SAND, some silt.
		21.34 - 21.94	15	0.60	0.38	D	12	15	21	23		Red brown f SAND, some silt.
											22.40	
		22.86 - 23.46	16	0.60	0.30	D	14	16	19	24	-19.49	Red brown SILT, some f sand, trace clayey silt seams.
		24.38 - 24.98	17	0.60	0.51	D	7	10	11	14		Red brown SILT and f SAND.
25												
		25.91 - 26.51	18	0.60	0.25	D	11	14	19	23		Red brown SILT and f SAND.
		27.43 - 28.03	19	0.60	0.25	D	12	13	17	21		Red brown SILT, little to some f sand, saturated.
		28.96 - 29.56	20	0.60	0.30	D	11	19	20	26		Red brown SILT, little to some f sand, saturated.
30												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

R. Posa	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. A2-1
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+082.7
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 29.4 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202454.0
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289109.2
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

Surface Elevation: 2.91		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/08/02	Utilized			X			X	X	X					
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.13 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH; ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	7	8	9	22		Top 0.15m: Red brown SILT and f SAND, rapid dilatancy. Bottom 0.15m: F-m gravelly c SAND wash.
		32.00 - 32.60	22	0.60	0.25	D	18	25	31	36		Red brown SILT and f SAND, trace f sand seams (~1.59 mm).
		33.53 - 34.13	23	0.60	0.18	D	17	24	20	23		Red brown SILT and f SAND, rapid dilatancy.
35												
		35.05 - 35.65	24	0.60	0.30	D	15	19	21	25		Red brown SILT and f SAND. Note: Every rod being pulled up is covered in black creosote.
											35.65	
											-32.74	Bottom of boring 35.656 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-1

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. A2-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+1069.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 6.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202430.5
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289097.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.92		Utilized			X			X	X	X	X				
Date Started: 08/22/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/23/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.44 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.30	D	5	7	9	13		Brown gray f SAND, little silt, trace c sand, moist.
		1.52 - 2.12	2	0.60	0.36	D	11	13	13	12		Brown gray, trace silt, trace c sand.
		2.44 - 3.04	3	0.60	0.46	D	2	15	10	14		Top 0.08m: Brown f SAND, little silt. Bottom 0.38m: Black f SAND, little silt, trace c sand, trace f gravel, trace glass shards, trace metal, covered in creosote, wet.
5		4.57 - 5.17	4	0.60	0.05	D	14	4	3	5	5.64	Black / dark gray c SAND and f GRAVEL, trace silt, trace f sand, wet.
		6.10 - 6.70	5	0.60	0.13	D	1	1	1	2	-2.72	Dark gray organic SILT, trace f sand, trace clay, trace shells, soft. pp = 0.00, 0.00, 0.00 tons / ft^2
		7.62 - 8.22	6	0.60	0.41	D	1	2	1	1		Dark gray organic SILT, trace clay, trace shells, soft. pp = 0.00, 0.00, 0.00 tons / ft^2
		8.23 - 8.83	1	0.60	0.60	UP						Piston
		9.14 - 9.74	7	0.60	0.46	D	1	2	2	2		Gray organic SILT, trace clay, little shells, very soft. pp = 0.00, 0.00, 0.00 tons / ft^2
10												
		10.67 - 11.27	8	0.60	0.51	D	1/0.30m		1	1		Gray organic SILT, trace clay, little shells, very soft.
		11.28 - 11.88	2	0.60	0.60	UP						Piston
		12.19 - 12.79	9	0.60	0.51	D	1	2	2	2		Gray organic SILT, trace clay, little shells, very soft.
		13.72 - 14.32	10	0.60	0.38	D	1	2	2	3		Gray organic SILT, trace to little clay, little shells. pp = 0.25, 0.25, 0.25 tons / ft^2
15											14.78	

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-2
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+1069.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	6.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202430.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289097.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER-	

Surface Elevation: 2.92		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 08/22/02	Utilized			X			X	X	X	X				
Date Finished: 08/23/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.44 m after ____ hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ ____ m after ____ hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.25	D	WOR	WOR	6	7	-11.86	Gray brown f SAND, trace silt, trace f gravel.
		16.76 - 17.36	12	0.60	0.00	D	11	10	12	13		No Recovery.
		18.29 - 18.89	13	0.60	0.08	D	3	7	4	8		Red brown f SAND and SILT, saturated. (Sample slipped out of spoon and on to ground. None of sample made it to jar.)
											19.35	
20		19.81 - 20.41	14	0.60	0.51	D	4	5	6	9	-16.43	Red brown SILT, little to some f sand, saturated, rapid dilatancy.
		21.34 - 21.94	15	0.60	0.43	D	6	9	11	11		Red brown SILT, little to some f sand, saturated, rapid dilatancy.
		22.86 - 23.46	16	0.60	0.30	D	5	5	7	9		Red brown SILT and f SAND, saturated.
		24.38 - 24.98	17	0.60	0.36	D	13	9	18	15		Red brown SILT, some f sand.
25												
		25.91 - 26.51	18	0.60	0.41	D	12	11	12	19		Red brown SILT, some f sand.
		27.43 - 28.03	19	0.60	0.30	D	6	3	5	8		Red brown SILT, little to some f sand, saturated.
		28.96 - 29.56	20	0.60	0.38	D	7	6	7	7		Red brown SILT, some f sand.
30												

Casing			Meters of	
Size	From	To	Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No. A2-2
DRILLER	STATE OF CONNECTICUT	Line & Station I-95 1+1069.3
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset 6.8 LT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate 202430.5
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate 289097.5
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER

			Casing				Auger		Mud	Sampler		Core Barrel			
Surface Elevation: 2.92		Utilized			X			X	X	X	X				
Date Started: 08/22/02		Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Date Finished: 08/23/02		Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
Groundwater Observations		Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ ~2.44 m after hours		Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	
@ m after hours															

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.30	D	4	3	2	8		Red brown SILT, trace f sand, saturated, rapid dilatancy.
		32.00 - 32.60	22	0.60	0.41	D	14	14	18	29		Red brown SILT, little f sand, trace clayey silt seams (~0.79 mm).
		33.53 - 34.13	23	0.60	0.36	D	15	17	16	21		Red brown SILT, little f sand, trace clayey silt seams (~0.79 mm).
35												
		35.05 - 35.65	24	0.60	0.05	D	5	2	5	5		Red brown SILT, trace f sand, saturated.
											35.65	
											-32.73	Bottom of Boring 35.65 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	35.66	
			No. of Samples	
			24D/2UP	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-2

Sheet 3 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+058.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289088.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/08/02	Utilized			X			X	X	X					
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.29 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		0.00 - 0.60	1	0.60	0.41	D	6	9	10	11		Top 0.20m: Brown SILT, some to little f sand, trace f-c gravel. Bottom 0.20m: Light brown f SAND, trace c sand.
		1.52 - 2.12	2	0.60	0.20	D	3	4	7	20		Top 0.05m: Light brown f SAND, trace c sand. Middle 0.08m: Light brown f SAND, trace c sand. Bottom 0.08m: Dark brown / black, ASH / CINDERS, trace f-c gravel.
		2.44 - 3.04	3	0.60	0.08	D	6	8	8	12		Brown f SAND, trace f-c gravel, trace c sand, trace silt, wet.
5		4.57 - 5.17	4	0.30	0.15	D	34	17	50			Gray f-c SAND, little f-c gravel, trace silt, gravel lodged in tip.
		6.10 - 6.70	5	0.30	0.15	D	27	10				Black f-c SAND, trace to little f-c gravel, trace silt, wet. Note: Gravel wedged between rods and casing, while driving spoon casing was being pulled down. Driller stopped after 0.30m.
		7.62 - 8.22	6	0.60	0.15	D	9	6	9	10		Dark brown / black f SAND, little silt, trace f gravel.
10		9.14 - 9.74	7	0.60	0.03	D	13	5	5	5		Dark gray / black f SAND, little to trace silt, piece of c gravel in tip.
											10.21	
		10.67 - 11.27	8	0.60	0.51	D	3	2	3	3	-7.27	Gray organic SILT, trace shells, little f sand, trace clay.
		12.19 - 12.79	9	0.60	0.20	D	3	3	3	4		Gray organic SILT, trace shells, little f sand, trace clay.
											13.26	
		13.72 - 14.32	10	0.60	0.46	D	2	3	2	7	-10.32	Gray f SAND, little silt, trace organics.
15												

Casing Size	From	To	Meters of Earth	Rock
100 mm	0	3.05	34.13	
			No. of Samples	
			23D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-3

Sheet 1 of 3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+058.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289088.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/08/02	Utilized			X			X	X	X	X				
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.29 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type	X	Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		15.24 - 15.84	11	0.60	0.25	D	9	11	12	7		Red brown f SAND, little silt.
												Bottom 0.05m: Brown f-c SAND, f-m gravel, trace silt.
												hole, running out of water and betonite.
		16.76 - 17.36	12	0.60	0.23	D	7	10	11	15		Red brown f SAND, little silt.
		18.29 - 18.89	13	0.60	0.51	D	2	2	3	5		Red brown f SAND, little silt, saturated.
20		19.81 - 20.41	14	0.60	0.25	D	3	5	7	9		Red brown f SAND, some silt.
		21.34 - 21.94	15	0.60	0.51	D	1	1	2	8		Top 0.41m: Red brown f SAND, some silt.
												Bottom 0.10m: Red brown f SAND, little silt.
											22.40	
		22.86 - 23.46	16	0.60	0.30	D	12	15	17	17	-19.46	Red brown SILT, little to some f sand.
		24.38 - 24.98	17	0.60	0.25	D	6	12	16	19		Red brown SILT, some f sand.
25												
		25.91 - 26.51	18	0.60	0.30	D	11	18	19	20		Red brown SILT and f SAND, saturated.
		27.43 - 28.03	19	0.60	0.60	D	6	2	2	8		Top 0.20m: Red brown SILT and f SAND, rapid dilatancy.
												Middle 0.15m: Red brown f SAND, some silt.
												Bottom 0.25m: Red brown SILT and f SAND, rapid dilatancy.
		28.96 - 29.56	20	0.60	0.00	D	3	3	5	9		No Recovery - lost mud.
30												

Casing Size	From	To	Meters of Earth	Rock
			34.13	
			No. of Samples	
			23D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-3

M. Jennett	SM - 001 - M REV. 1/94 BORING REPORT	Hole No.	A2-3
DRILLER	STATE OF CONNECTICUT	Line & Station	I-95 1+058.1
E. Fulton	DEPARTMENT OF TRANSPORTATION	Offset	24.6 RT
INSPECTOR	TOWN: New Haven / West Haven, CT	N. Coordinate	202398.4
Parsons Brinckerhoff Quade & Douglas, Inc.	PROJECT NAME: Reconstruction I-95 Over West River	E. Coordinate	289088.6
SOILS ENGINEER	PROJECT NUMBER 92-533	Parsons Brinckerhoff Quade & Douglas, Inc.	
	BORING CONTRACTOR: General Borings, Inc.	PRIME DESIGNER	

Surface Elevation: 2.94		Casing				Auger		Mud	Sampler		Core Barrel			
Date Started: 07/08/02	Utilized			X			X	X	X					
Date Finished: 07/09/02	Type	BW	NW	HW	Pipe	Solid	Hollow	Bentonite	SS	UP	B (st)	B (dt)	NX (st)	NV II (dt)
Groundwater Observations	Size I.D. (mm)	60	76	100	64		150	X	36		35	35	55	55
@ ~2.29 m after hours	Hammer (kg)	136	136	136	136			Bit	63.5		Type		Diamond	
@ m after hours	Fall (m)	0.6	0.6	0.6	0.6			0.80 mm	0.76		of Bit		Carbide	

DEPTH	Casing blows per half meter	SAMPLE DEPTH IN METERS FROM - TO	NO.	PEN. m	REC. m	Type	BLOWS PER 0.15 METERS ON SAMPLER 0 - 0.15	0.15 - 0.30	0.30 - 0.45	0.45 - 0.60	STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		30.48 - 31.08	21	0.60	0.51	D	6	3	9	14		Red brown SILT and f SAND, rapid dilatancy. Note: From 24.38m - 30.48m drillers lost 4 tubs of mud down hole, running out of water and bentonite.
		32.00 - 32.60	22	0.60	0.51	D	7	2	3	9		Red brown SILT and f SAND, trace clayey silt seams (very thin), saturated, rapid dilatancy.
		33.53 - 34.13	23	0.60	0.61	D	8	2	1	13		Red brown SILT and f SAND, trace clayey silt seams (very thin), saturated, rapid dilatancy.
35											34.13	Drillers out of mud and water, unable to continue to 35.66m.
											-31.19	Bottom of Boring 34.13 m.
40												
45												

Casing Size	From	To	Meters of Earth	Rock
			34.13	
			No. of Samples	
			23D	

NOTES: Raising and dropping of the 140-lb (63.5kg) safety hammer was accomplished using a wire winch.

SAMPLE TYPE CODING: D=Driven C=Core A=Auger UP=Undisturbed Piston V=Vane Test

PROPORTIONS USED: Trace = 1 -10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Hole No. A2-3

Sheet 3 of 3

APPENDIX B

LABORATORY DATA

LABORATORY TESTING DATA SHEET

roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

roject No.: L17371

roject Engineer: D. SCHULZE

Assigned By: R. BORJESON

Date: AUG .02

Reviewed By:

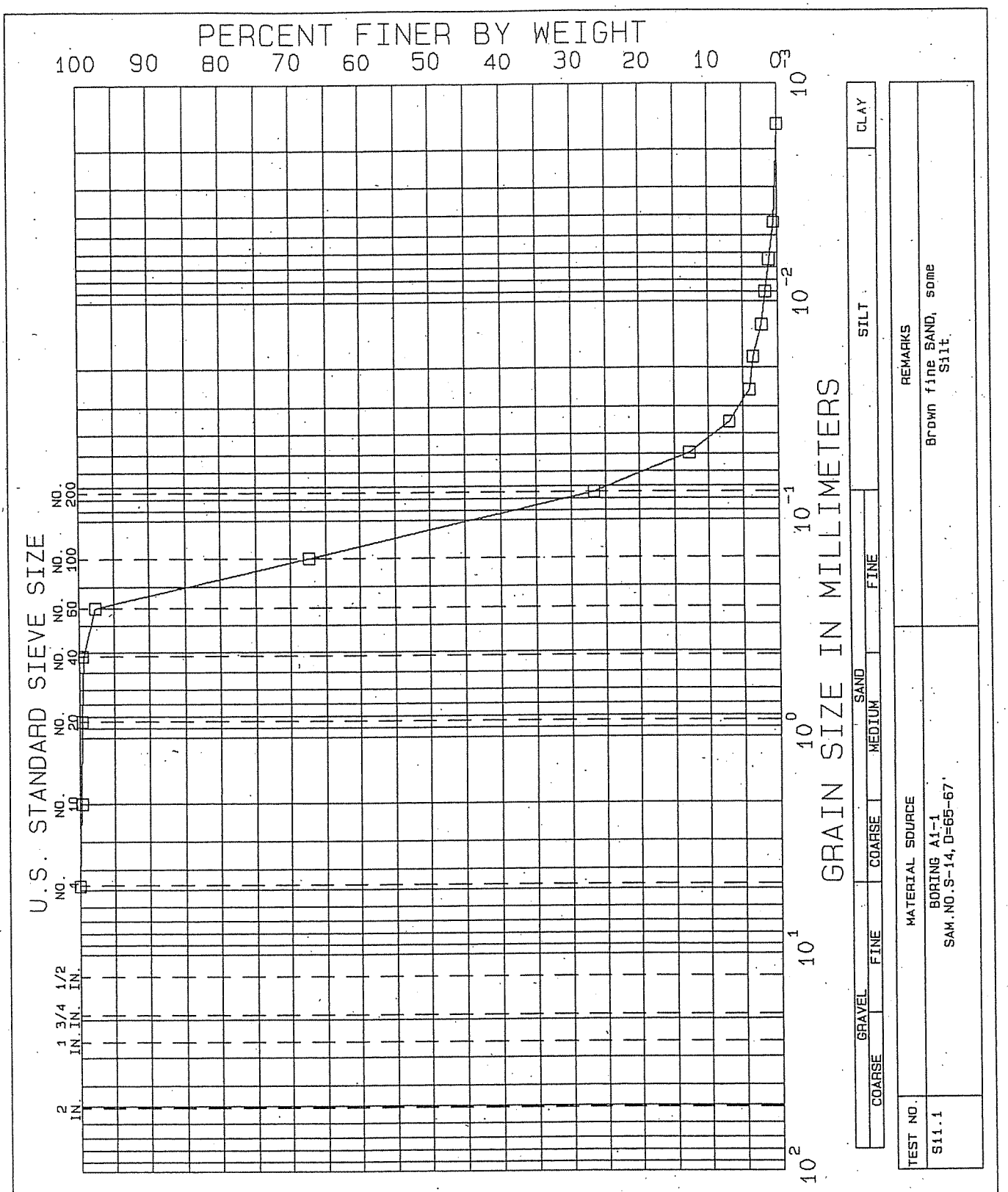
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
A1-1	S-14	65-67	11				27	<1												Brown fine SAND, some Silt
A2-3	S-19	90-95	12				65	<1												Brown SILT and fine SAND
P4-3	S-7	80-82	13				83	1												Brown SILT, little fine Sand
	S-25	125-127	14				99	8												Brown SILT

GZA GeoEnvironmental, Inc.

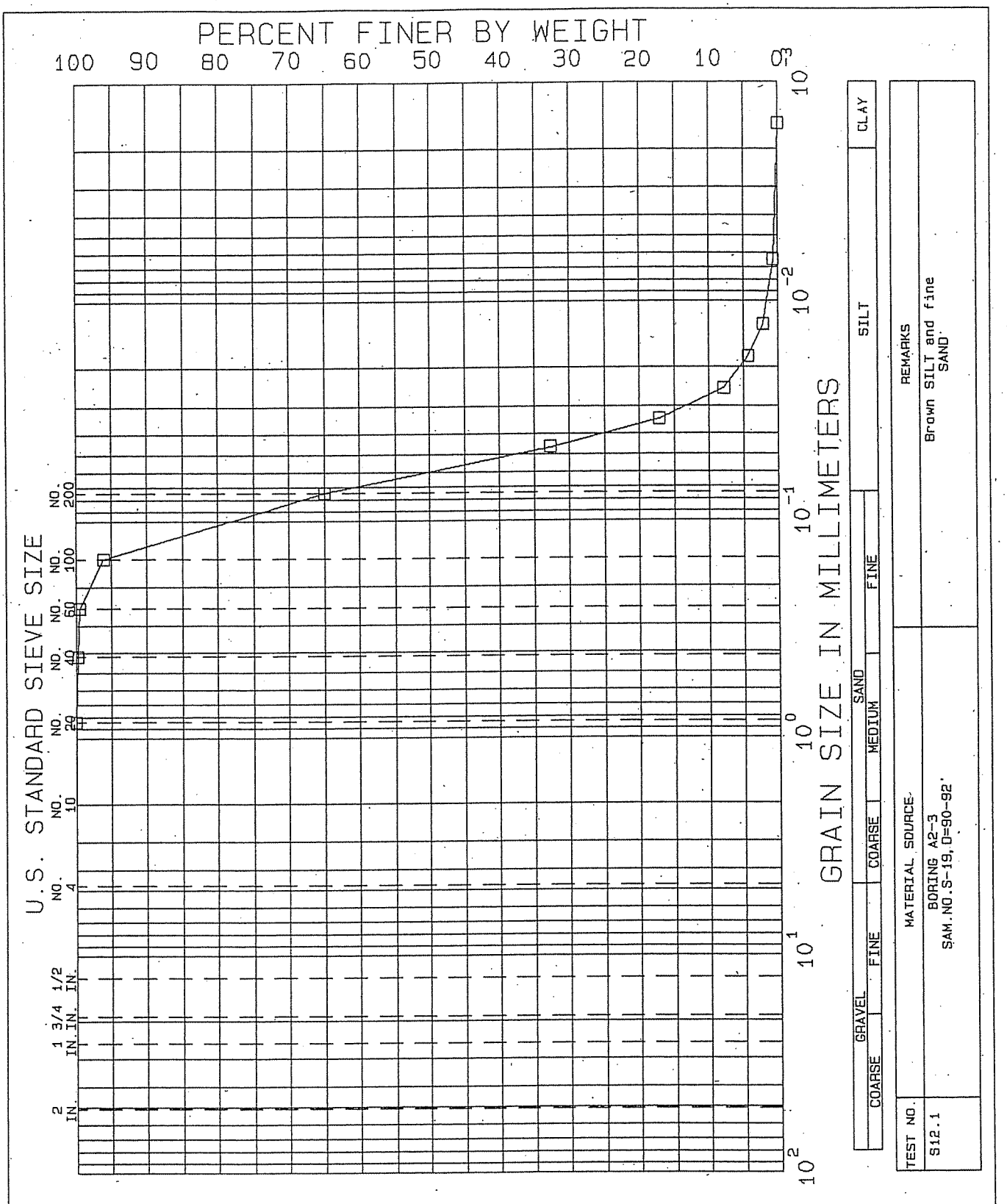
Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls



RECONSTRUCTION I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A1-1	TEST SERIES	
SAMPLE	S-14	NO.	11
DEPTH	65-67	DATE	July 02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

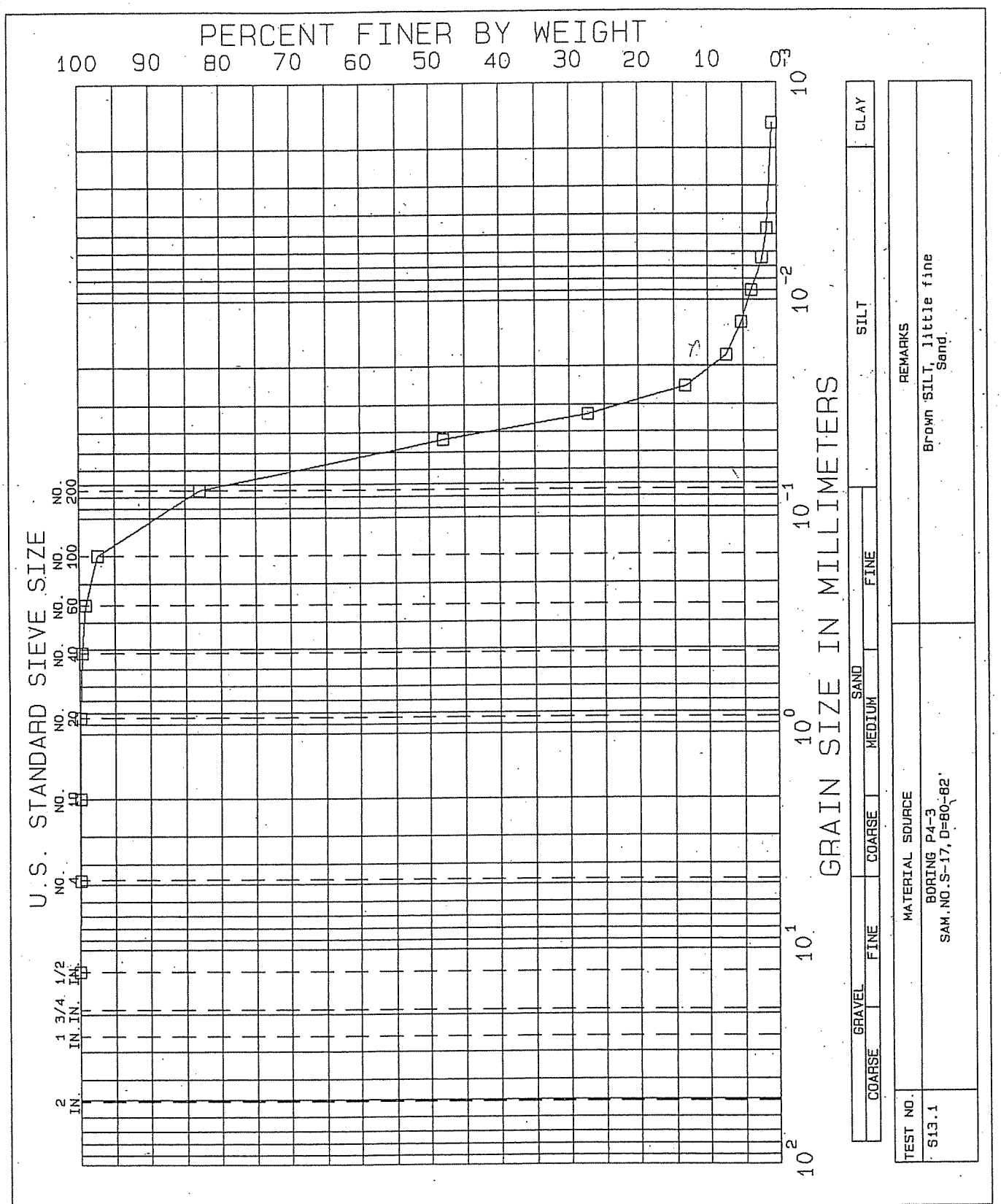


RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. A2-3
SAMPLE S-19
DEPTH 90-92
TECH. MST
REVIEWER DAS

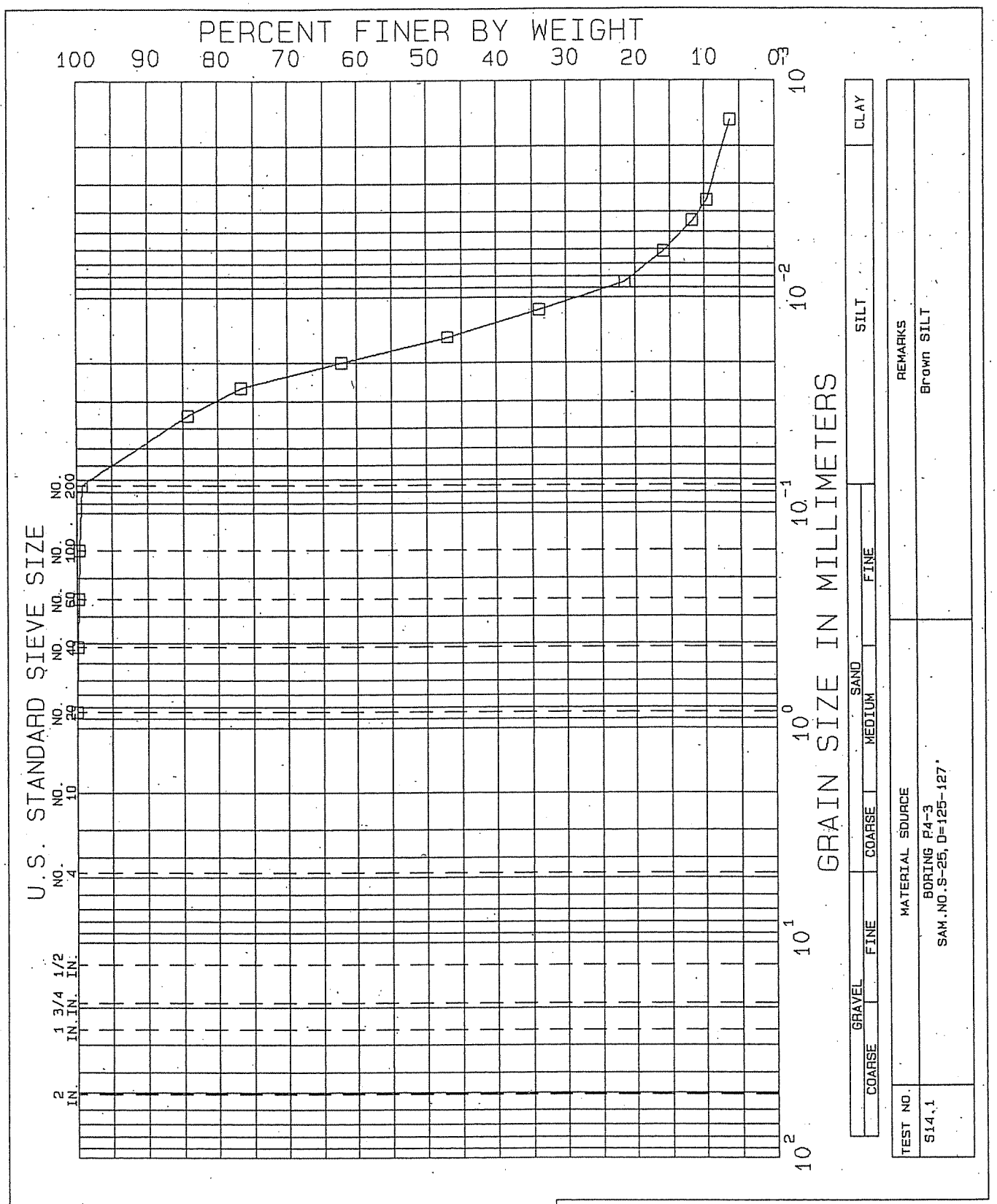
TEST SERIES
NO. 12
DATE July 02

FILE L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P4-3	TEST SERIES	
SAMPLE	S-17	NO.	13
DEPTH	80-82	DATE	July 02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P4-3	TEST SERIES	
SAMPLE	S-26	NO.	14
DEPTH	125-127'	DATE	July 02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

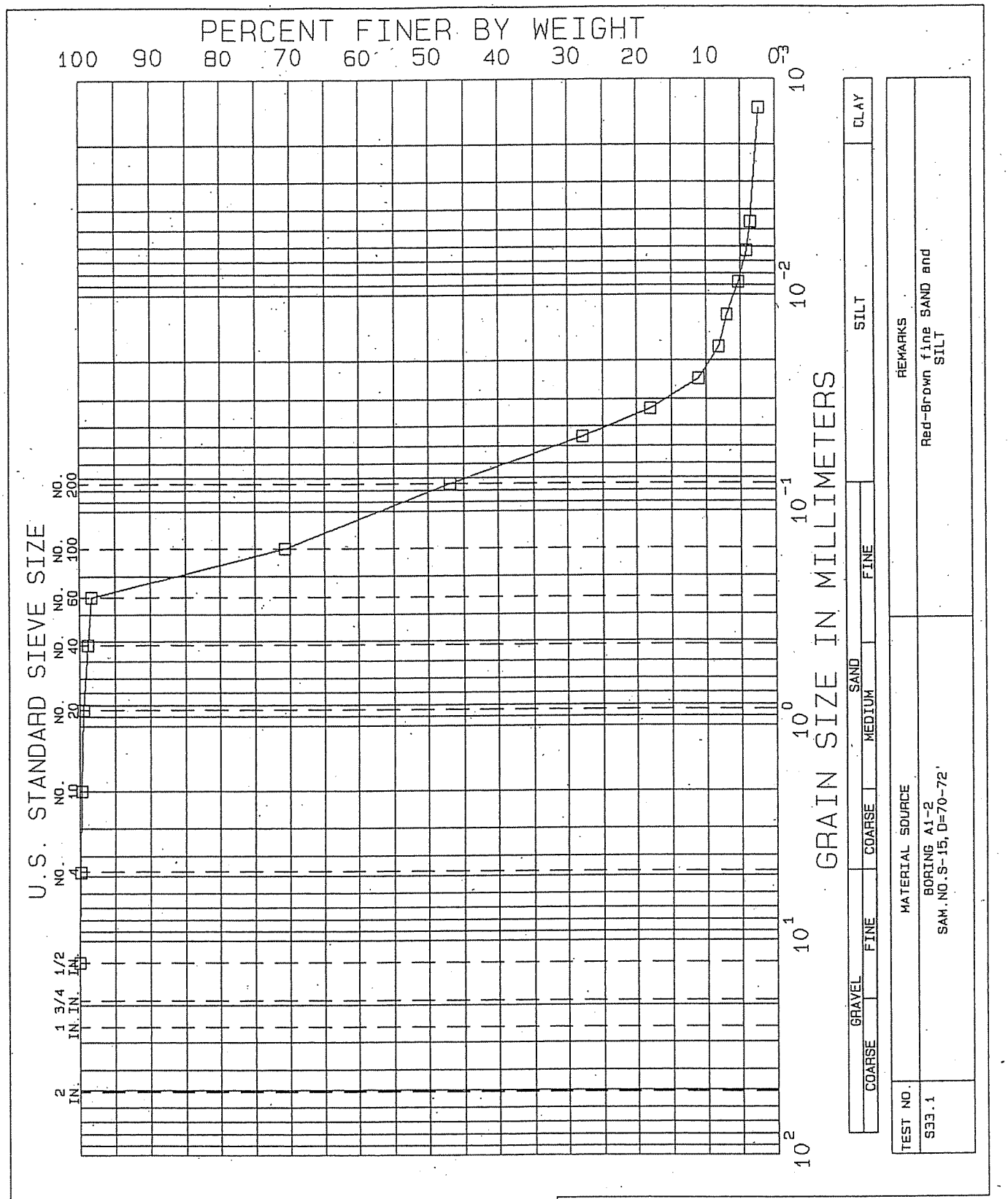
LABORATORY TESTING DATA SHEET

:oject Name: RECONSTRUTION OF I-95 OVER WEST RIVER

roject No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

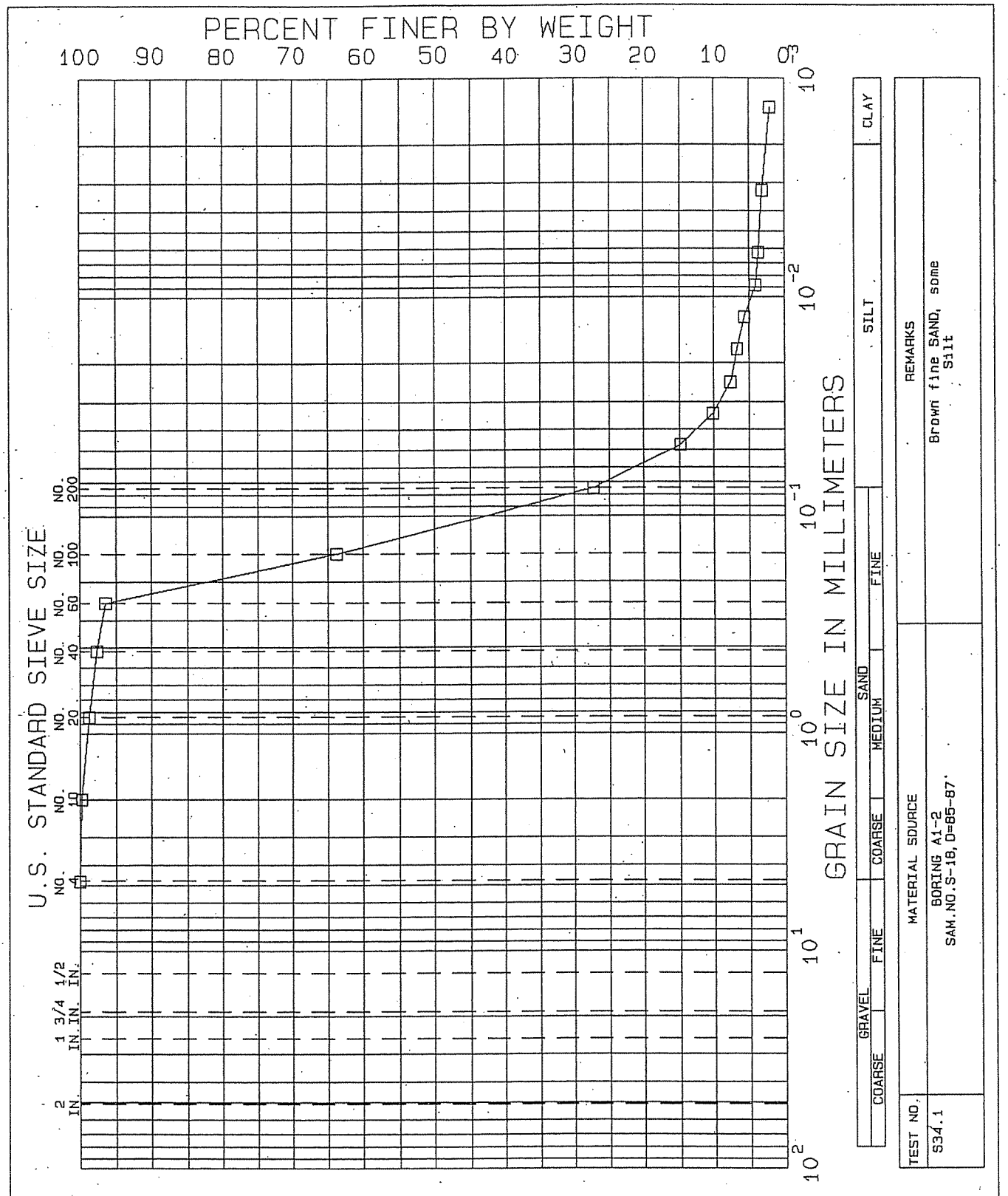
roject Engineer: D. SCHULZE | Date: AUG.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
A1-2	S-15	70-72	33				47	3												Red-Brown fine SAND and SILT
	S-18	85-87	34				27	3												Brown fine SAND, some Silt
	S-21	100-102	35				90	7												Red-Brown Clayey SILT, trace (+) fine Sand
A2-1	S-20	95-97	36				81	6												Red-Brown SILT, little (+) fine Sand
	S-23	110-112	37				55	3												Red-Brown SILT and fine SAND
A2-3	S-16	75-77	38				83	5												Red-Brown SILT, little (+) fine Sand
	S-23	110-112	39				53	2												Red-Brown SILT and fine Sand
P1-3	S-21	100-102	40				78	3												Red-Brown SILT, some (-) fine Sand
P4-1	S-17	80-82	41				74	4												Red-Brown SILT, some fine Sand
	S-20	95-97	42				73	4												Red-Brown SILT, some fine Sand



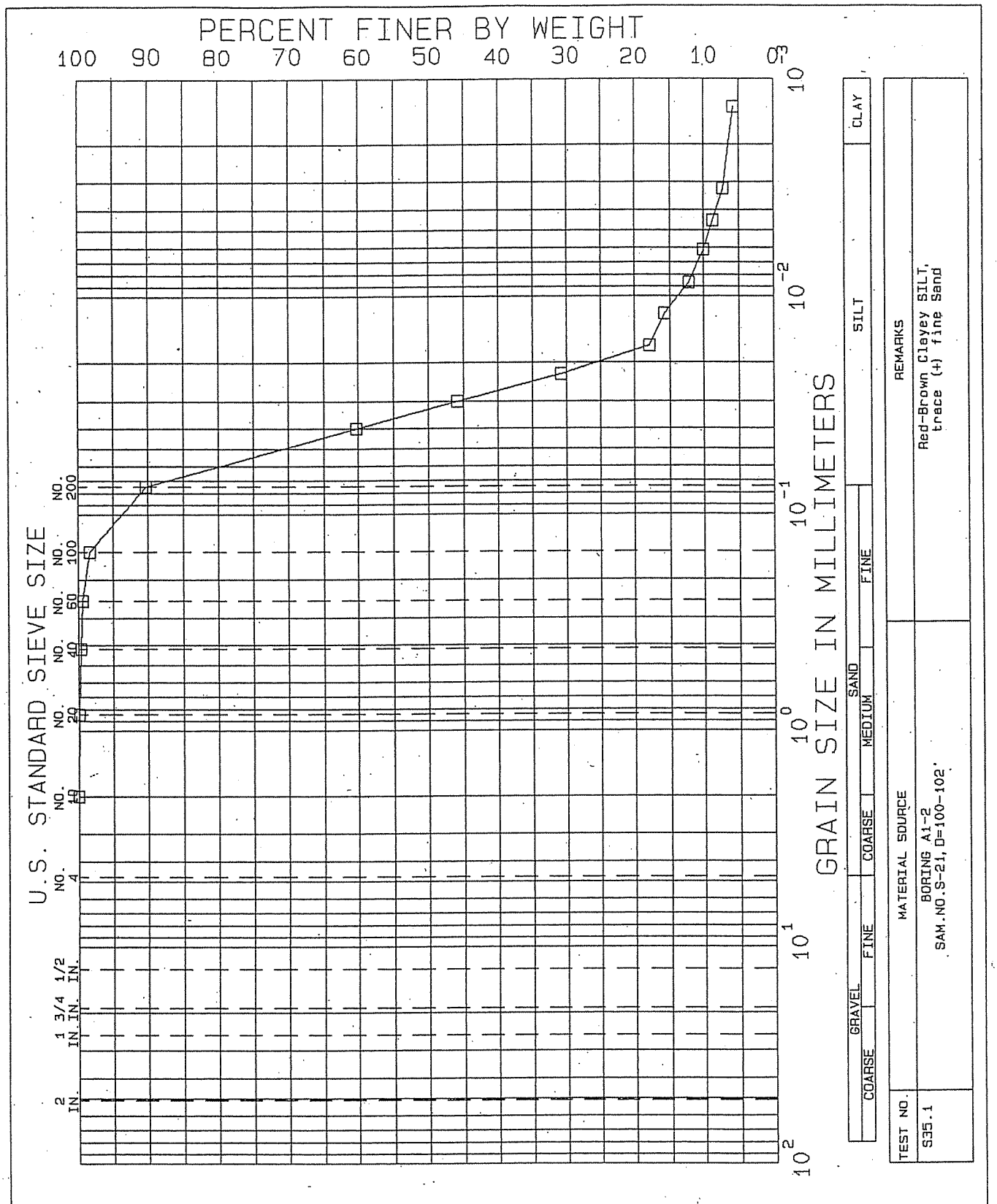
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A1-2	TEST SERIES	
SAMPLE	S-15	NO.	33
DEPTH	70-72'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



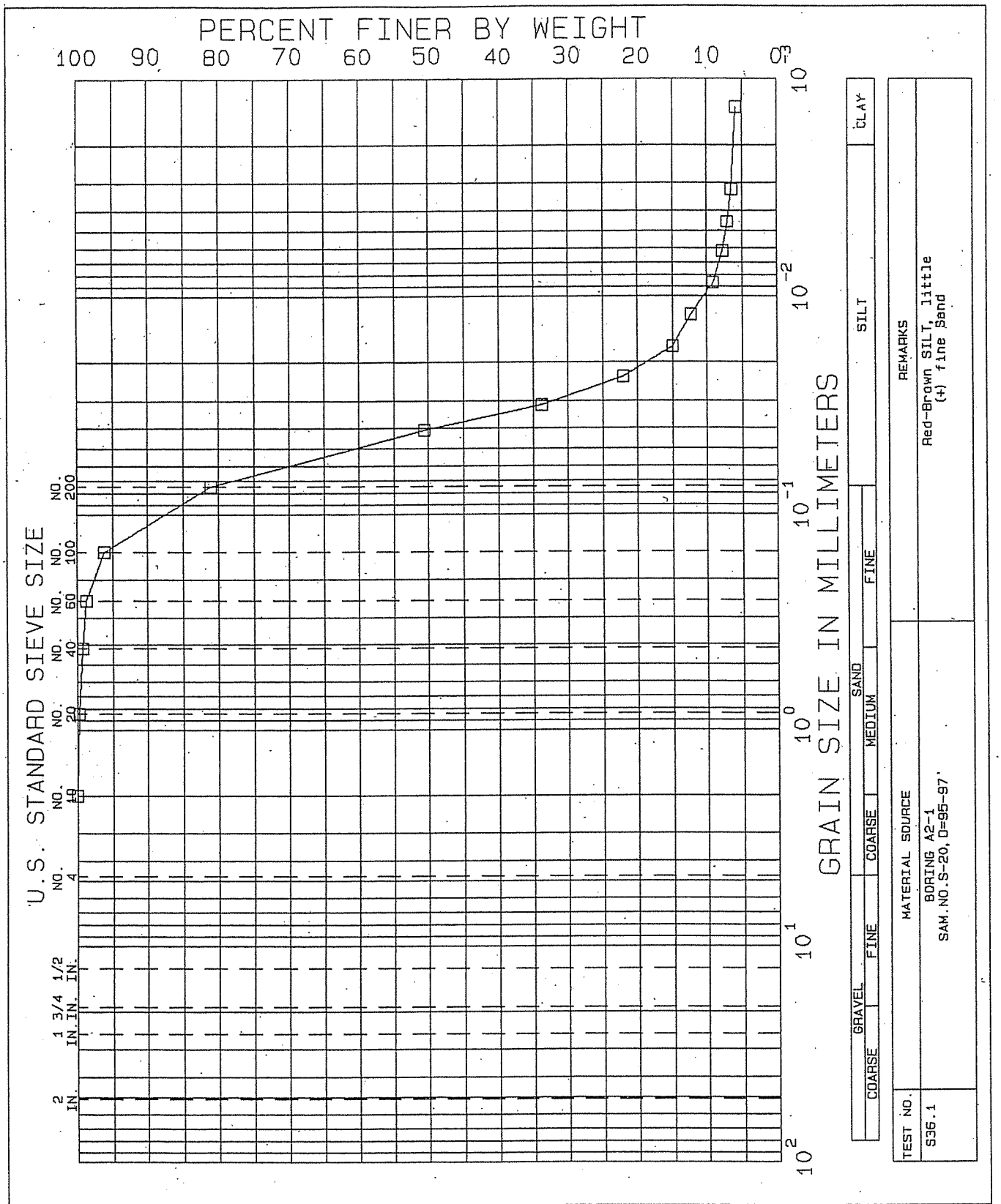
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A1-2	TEST SERIES	
SAMPLE	S-18	NO.	34
DEPTH	85-87'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



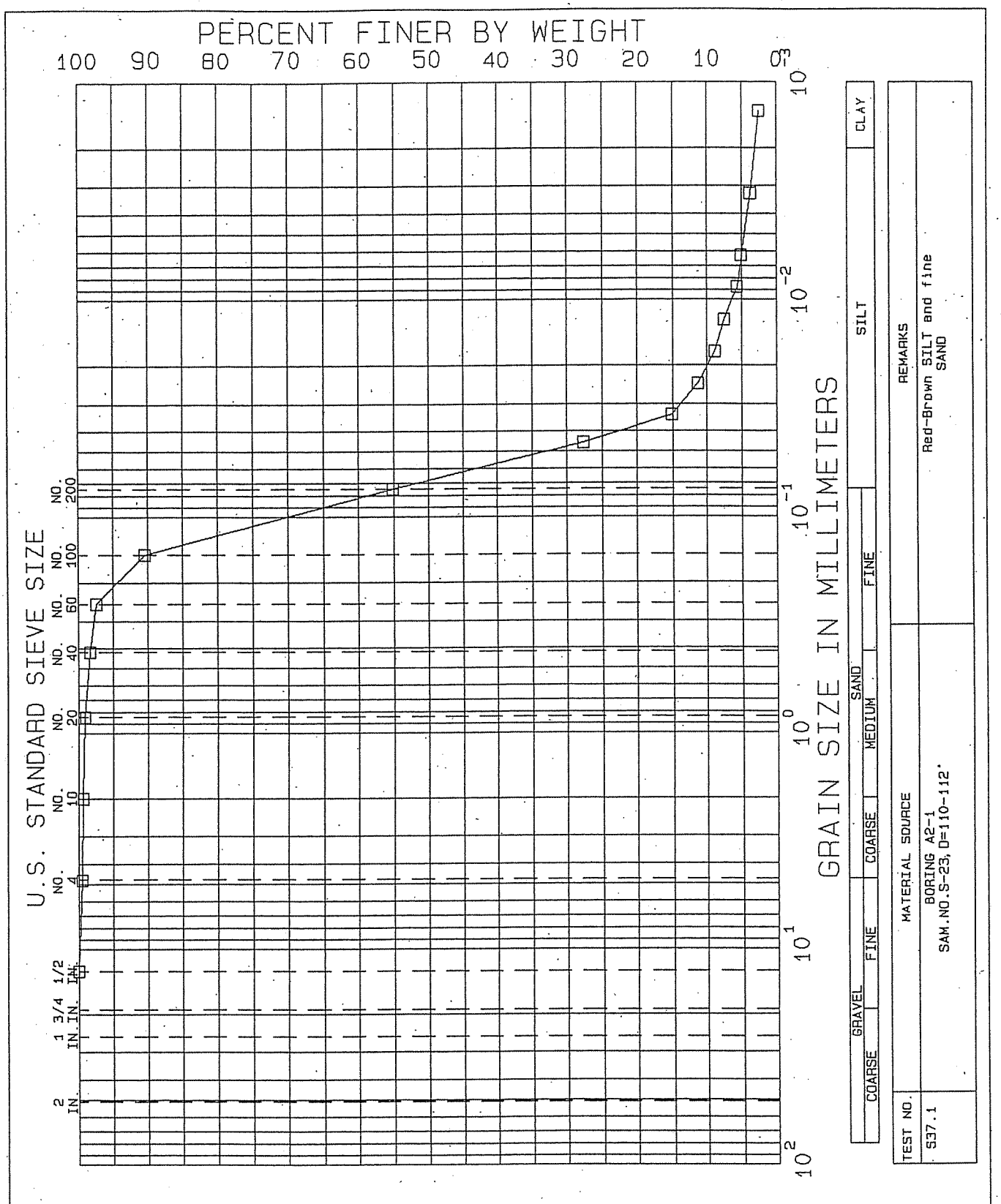
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A1-2	TEST SERIES	
SAMPLE	S-21	NO.	35
DEPTH	100-102'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



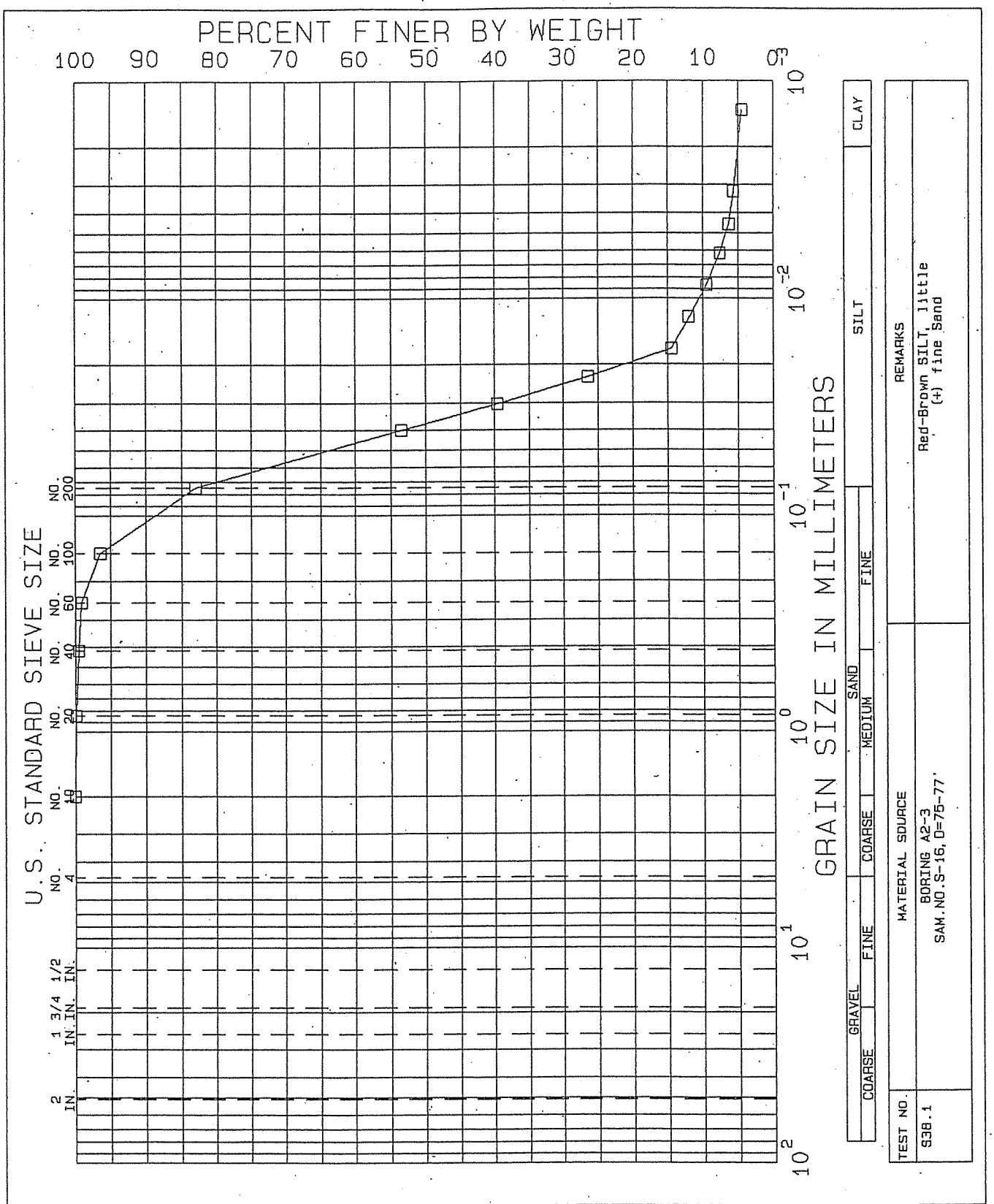
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A2-1	TEST SERIES	
SAMPLE	S-20	NO.	36
DEPTH	95-97'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



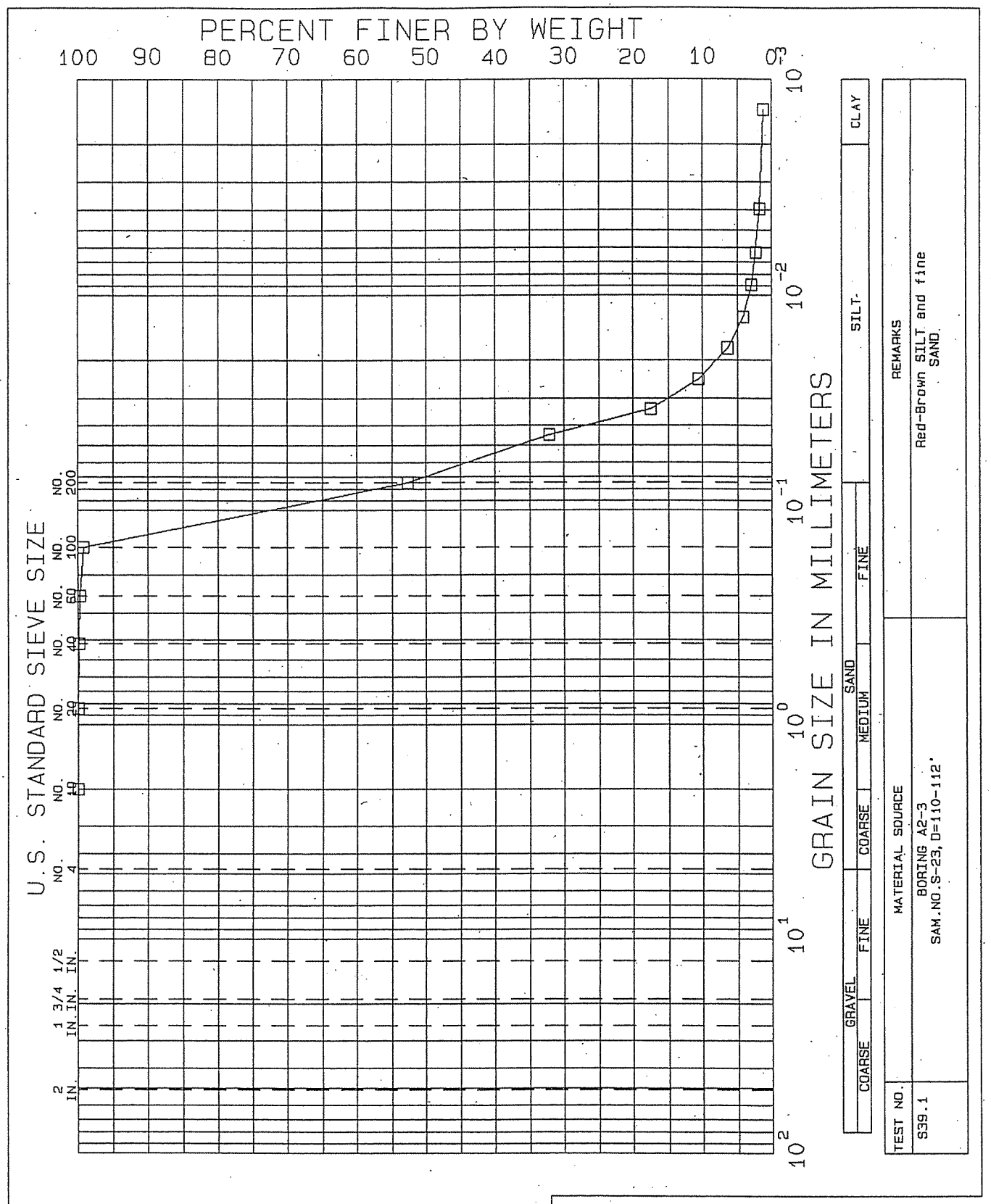
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A2-1	TEST SERIES	
SAMPLE	S-23	NO.	37
DEPTH	110-112'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



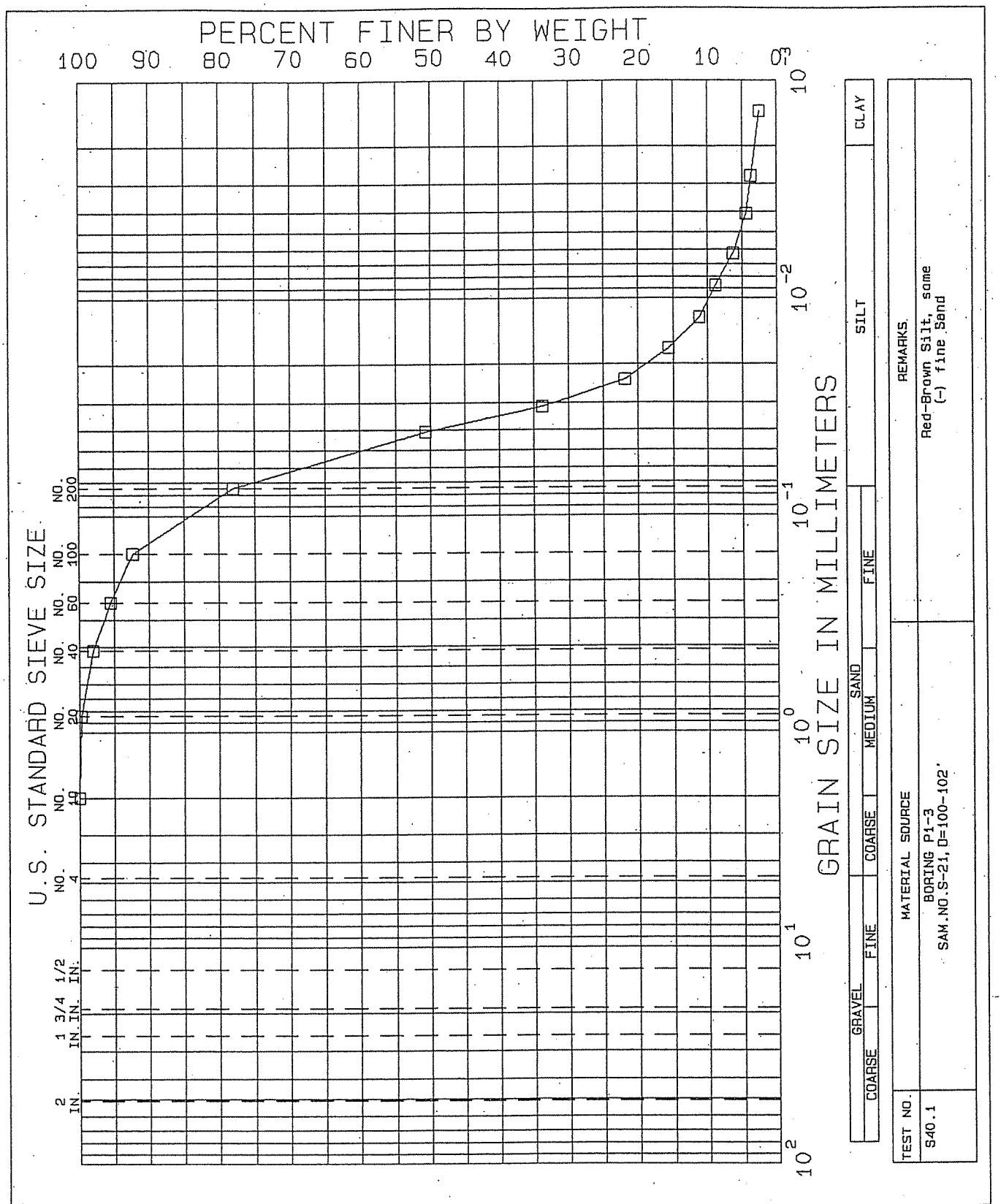
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A2-3	TEST SERIES	
SAMPLE	S-16	NO.	38
DEPTH	75-77'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



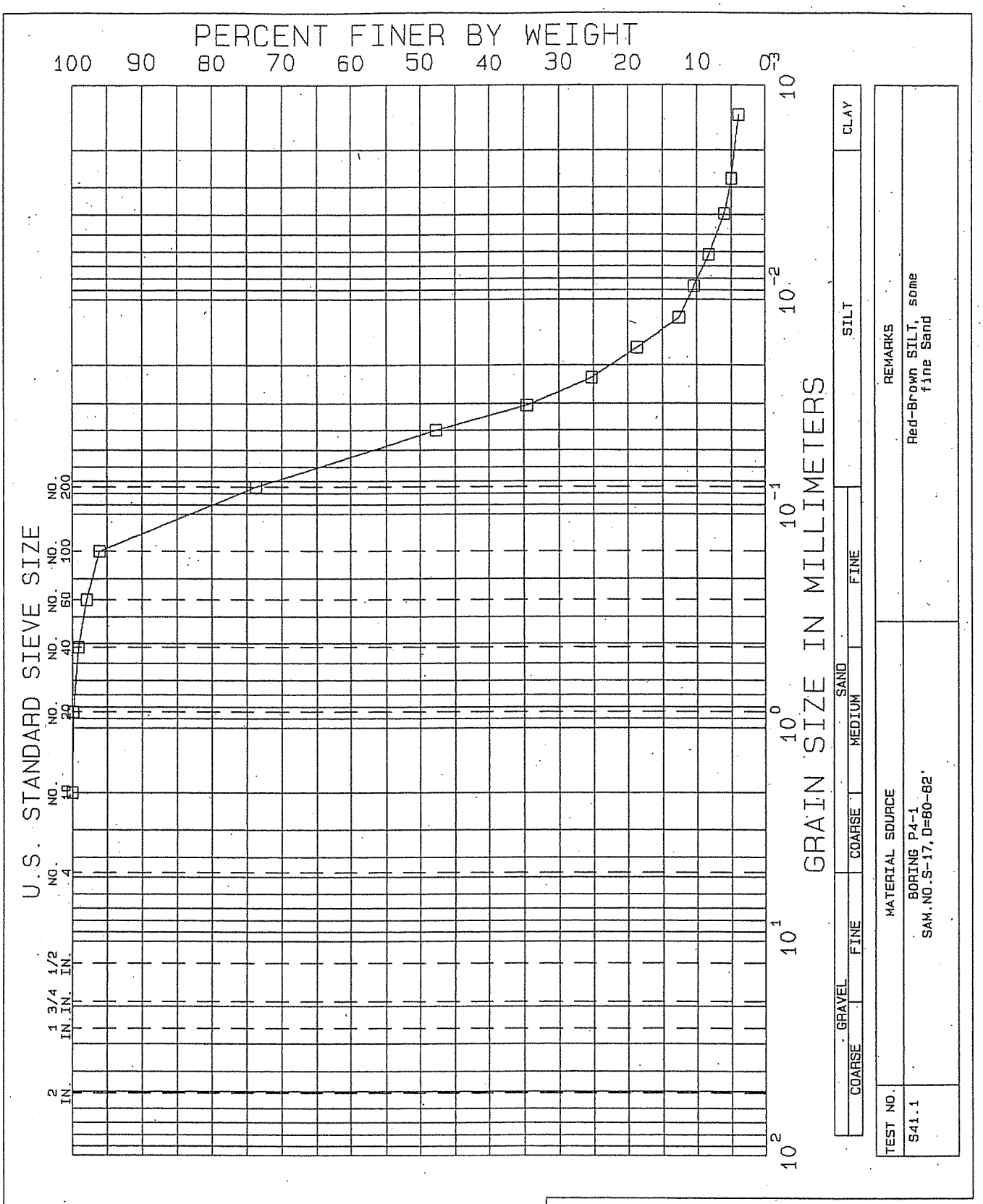
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A2-3	TEST SERIES	
SAMPLE	S-23	NO.	39
DEPTH	110-112'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

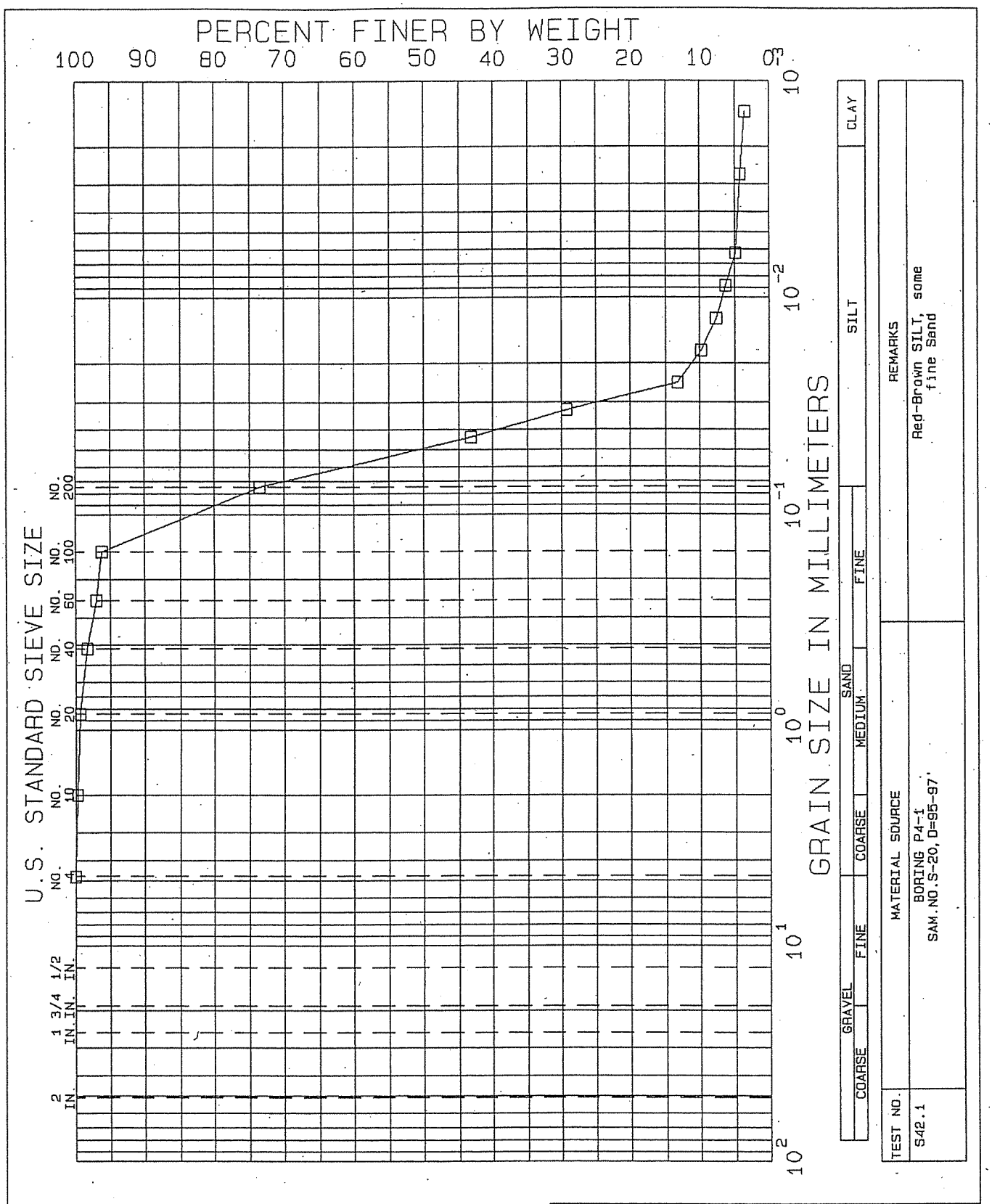
BORING NO.	P1-3	TEST SERIES	
SAMPLE	S-21	NO.	40
DEPTH	100-102'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER

GRADATION TESTS

BORING NO.	P4-1	TEST SERIES	
SAMPLE	S-17	NO.	41
DEPTH	80-82'	DATE	Aug:02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



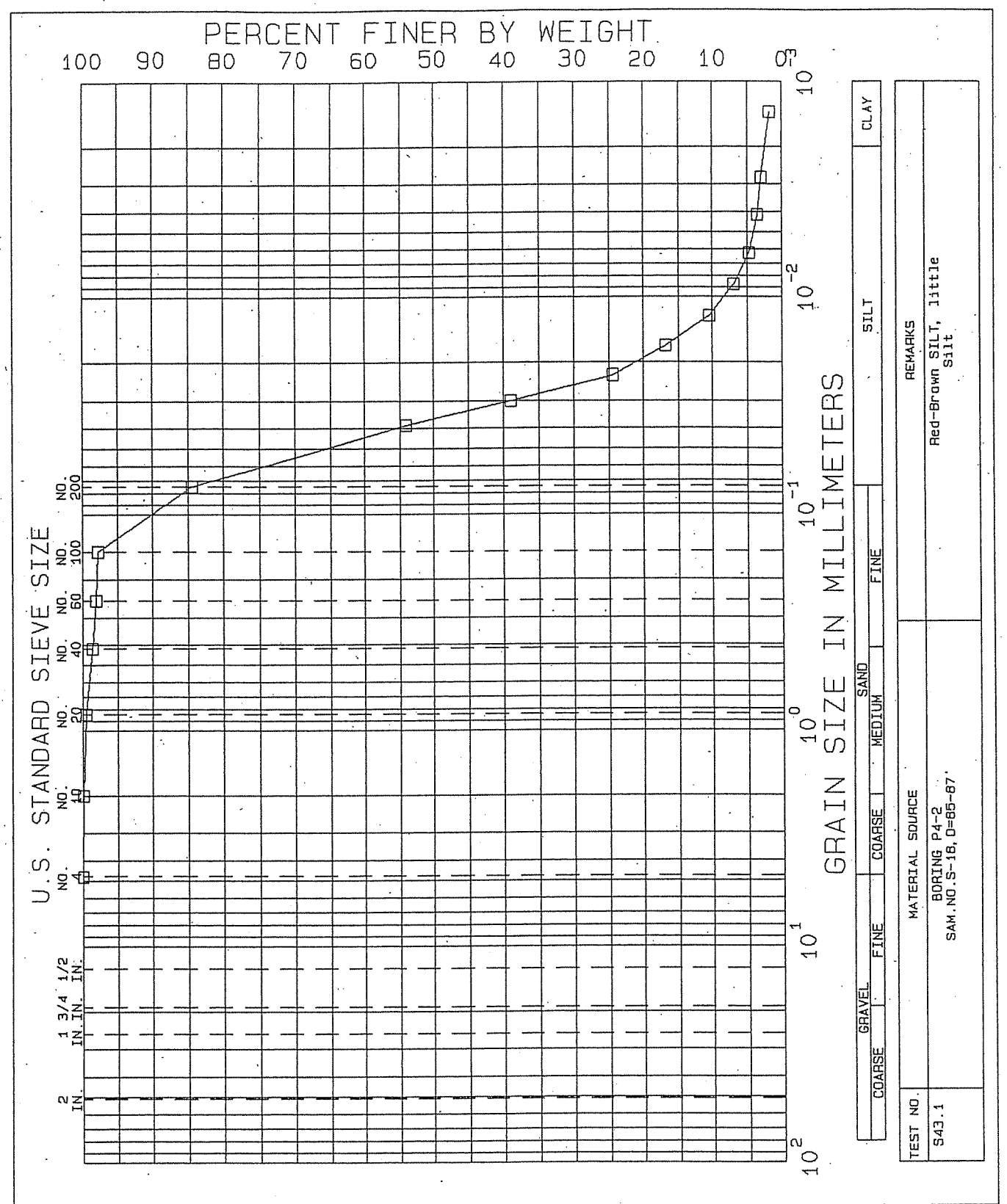
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P4-1	TEST SERIES	
SAMPLE	S-20	NO.	42
DEPTH	95-97'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

LABORATORY TESTING DATA SHEET

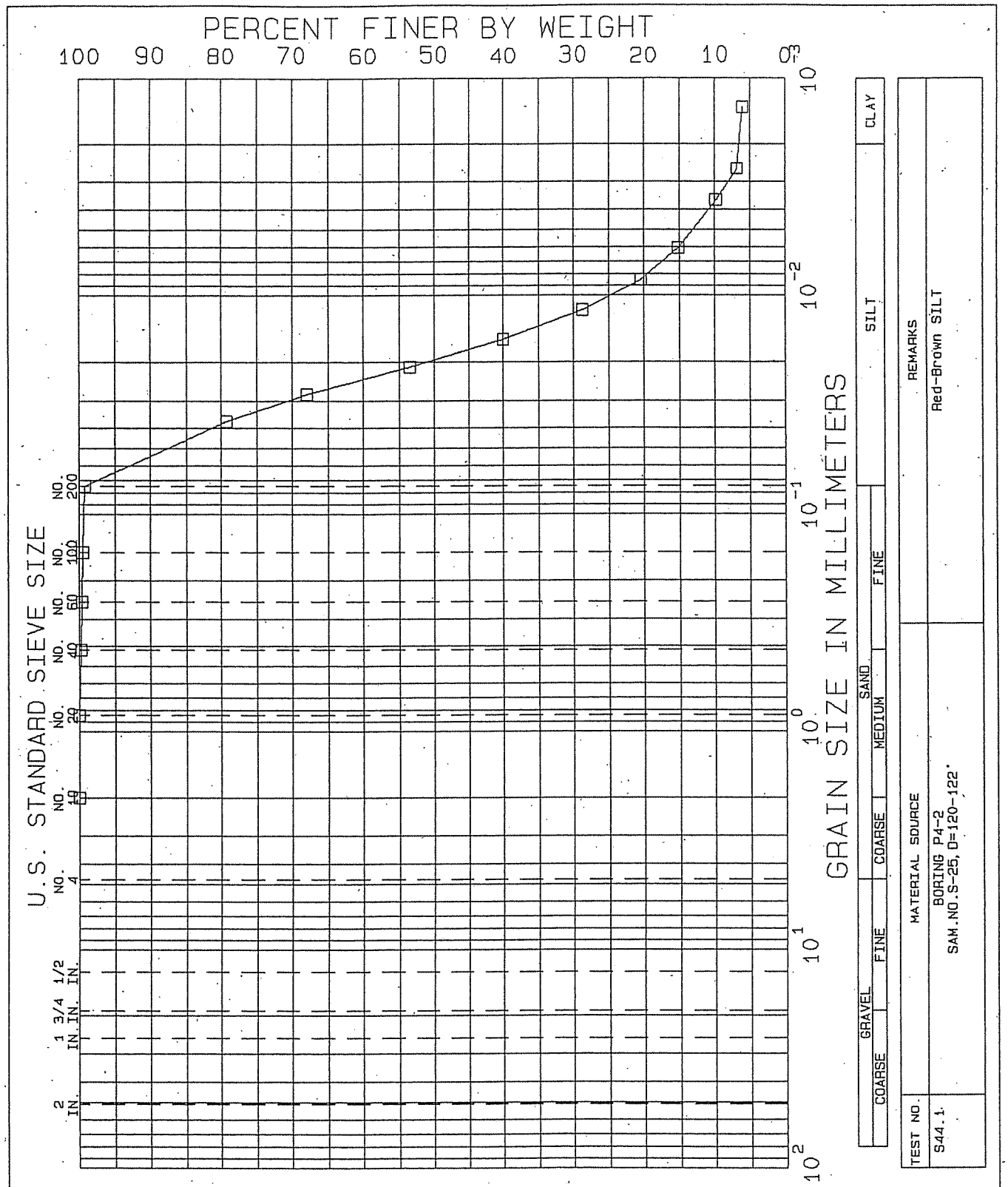
oject Name: RECONSTRUTION OF I-95 OVER WEST RIVER
oject No.: L17371
oject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: AUG.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
P4-2	S-18	85-87	43				84	2												Red-Brown SILT, little Sand
	S-25	120-122	44				99	7												Red-Brown SILT
P4-3	S-24	115-117	45				99	8												Red-Brown SILT
P5-1	S-19	90-92	46				64	2												Red-Brown SILT and fine SAND
	S-21	100-102	47				55	2												Red- Brown SILT and fine SAND
P5-2	S-19	90-92	48				81	3												Red-Brown SILT, little (+) fine Sand
	S-23	110-112	49				83	4												Red-Brown SILT, little (+) fine Sand
P5-3	S-16	75-77	50				90	3												Red-Brown SILT, little (-) fine Sand
	S-22	105-107	51				71	3												Red-Brown SILT, some fine Sand
	S-24	115-117	52				97	10												Red-Brown SILT



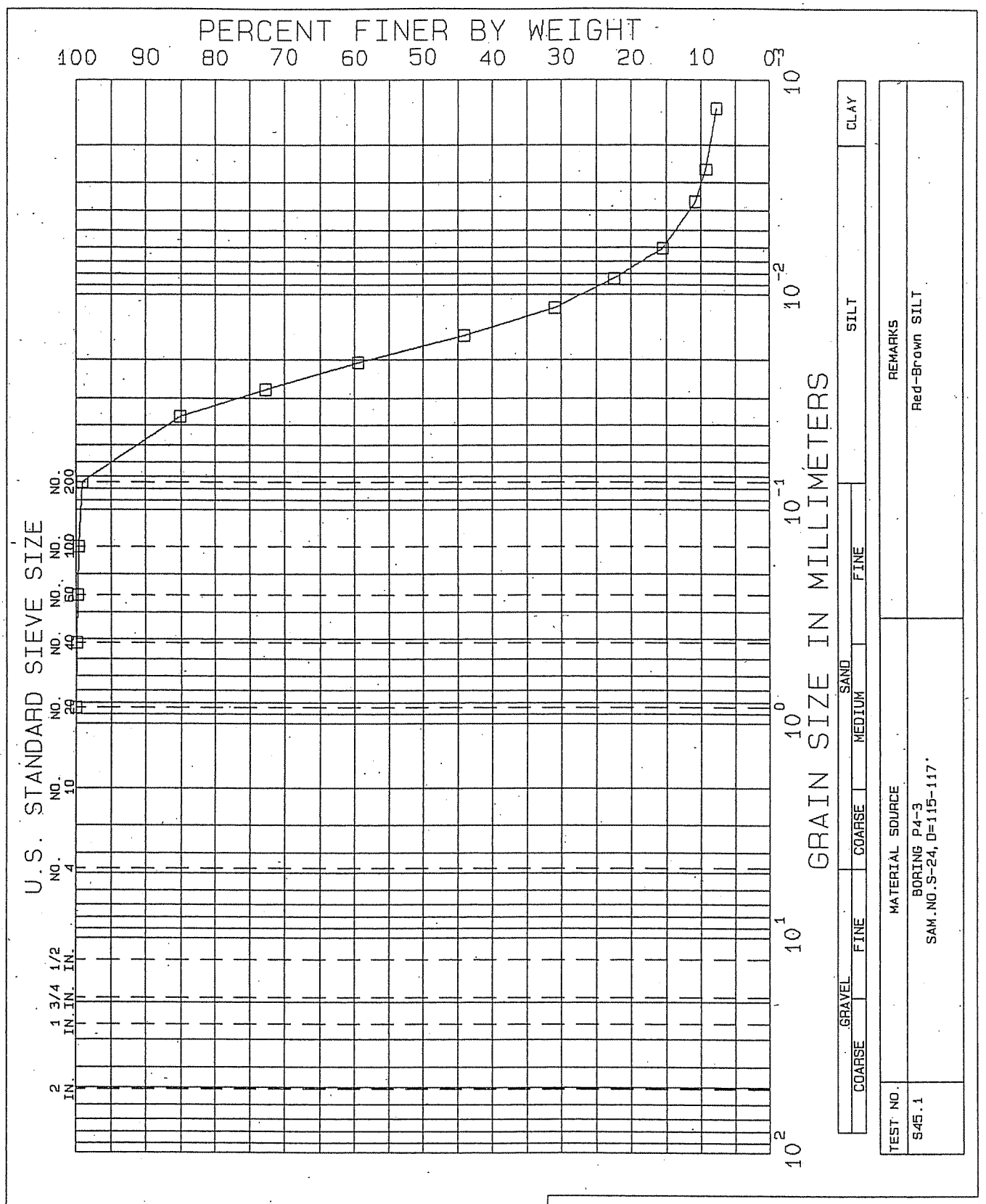
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P4-2	TEST SERIES	
SAMPLE	S-18	NO.	43
DEPTH	85-87'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

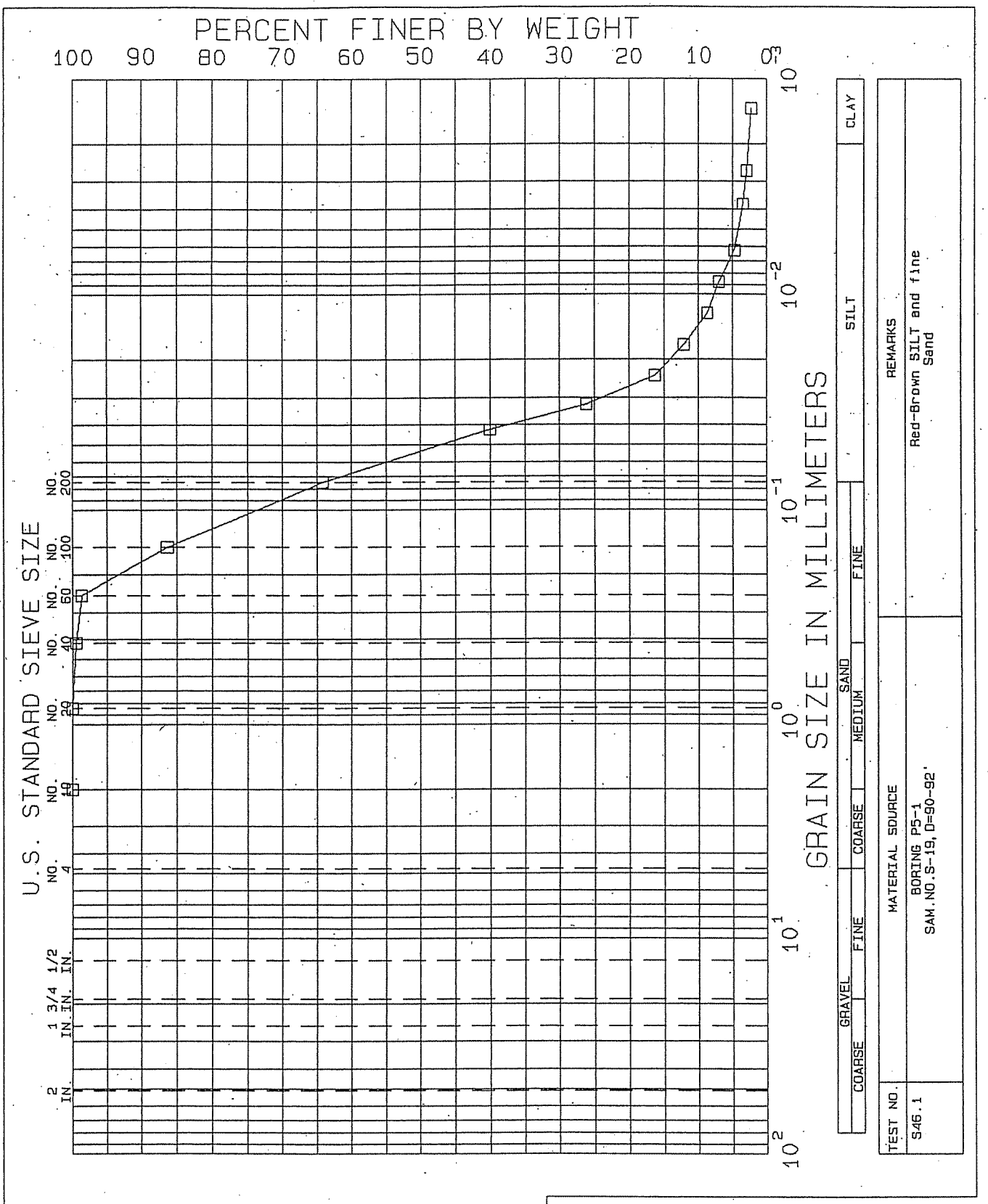
BORING NO.	P4-2	TEST SERIES	
SAMPLE	S-25	NO.	44
DEPTH	120-122'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER

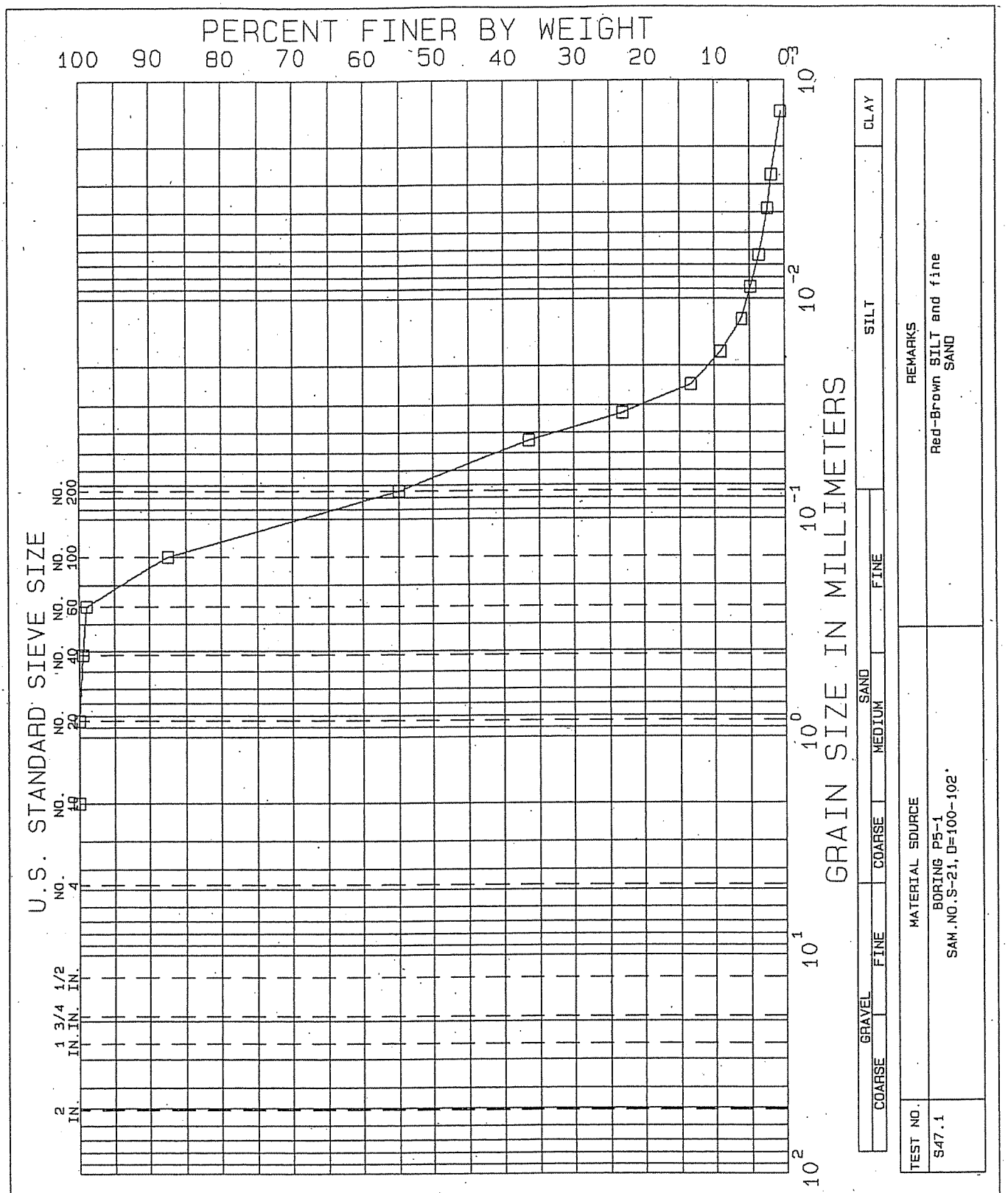
GRADATION TESTS

BORING NO.	P4-3	TEST SERIES	
SAMPLE	S-24	NO.	45
DEPTH	115-117'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



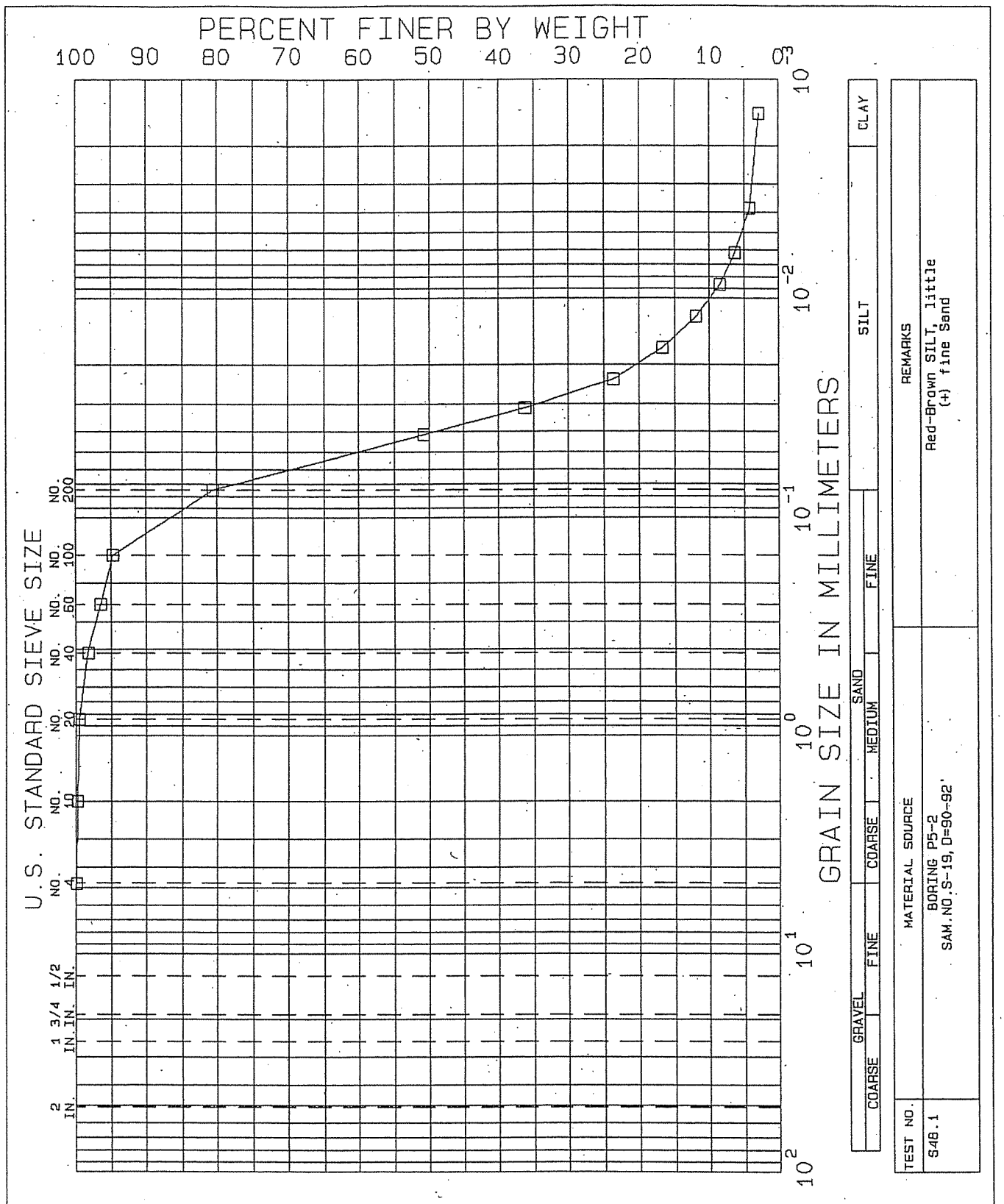
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-1	TEST SERIES	
SAMPLE	S-19	NO.	46
DEPTH	90-92'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



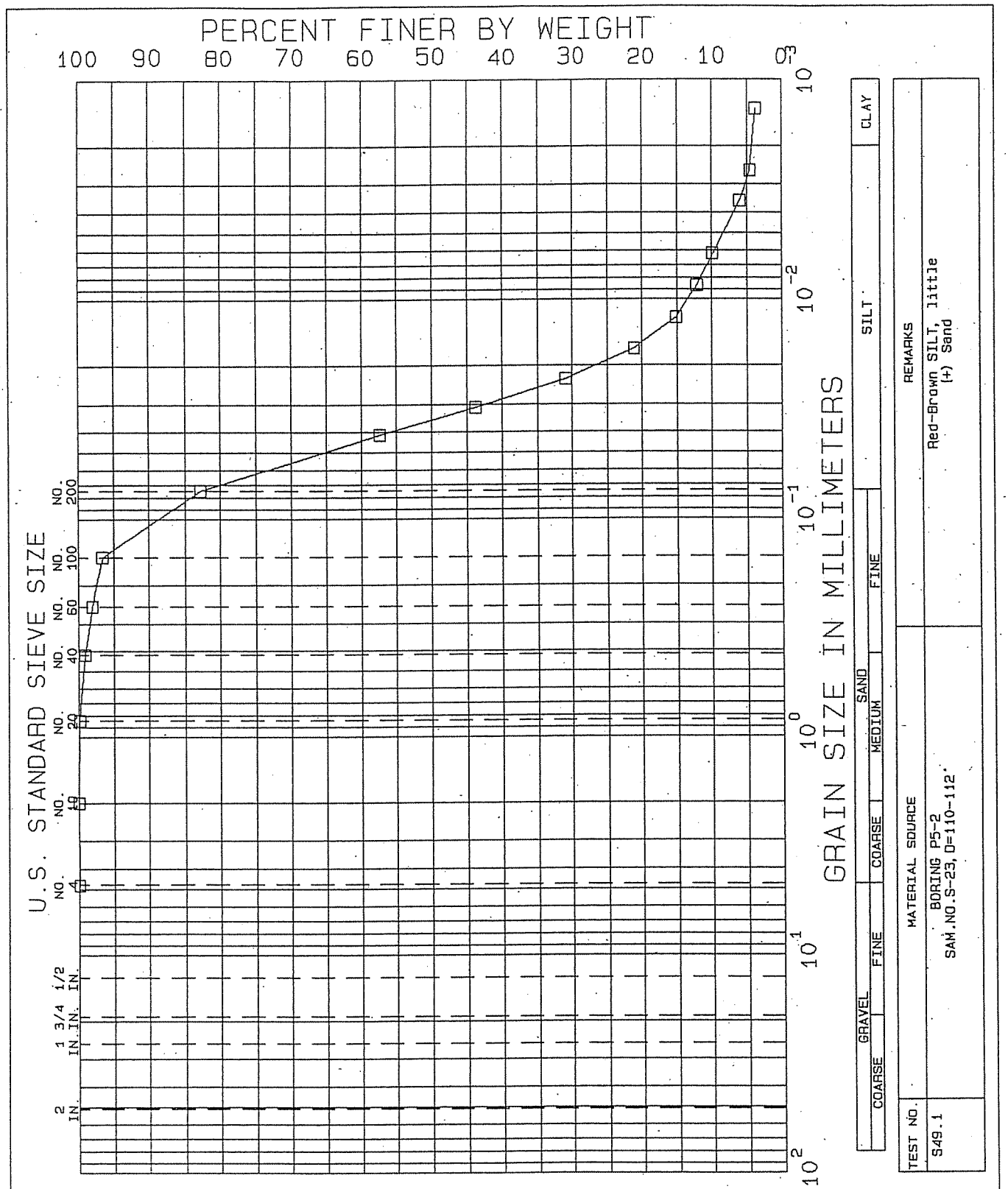
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-1	TEST SERIES	
SAMPLE	S-21	NO.	47
DEPTH	100-102'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



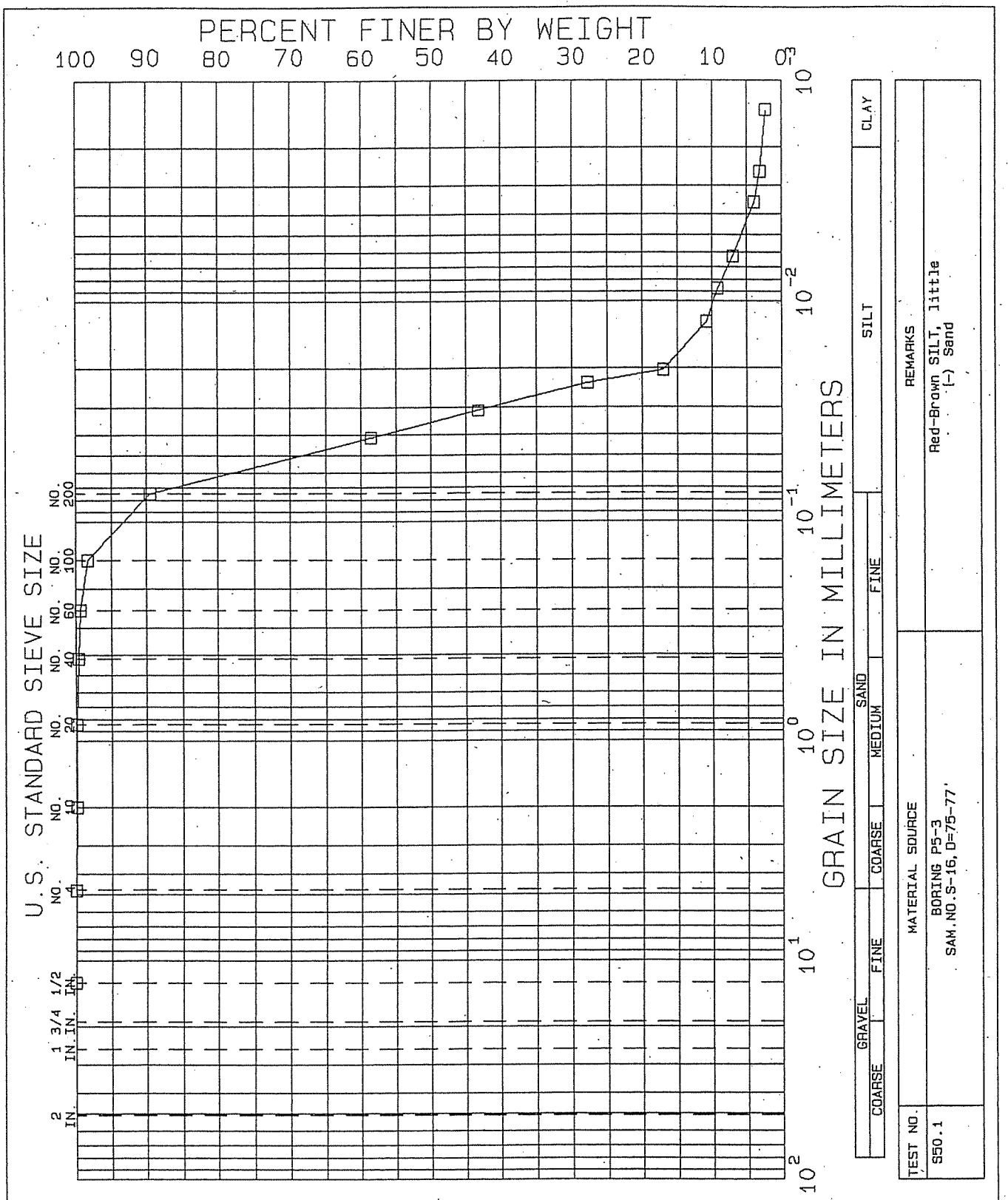
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-2	TEST SERIES	
SAMPLE	S-19	NO.	48
DEPTH	90-92'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



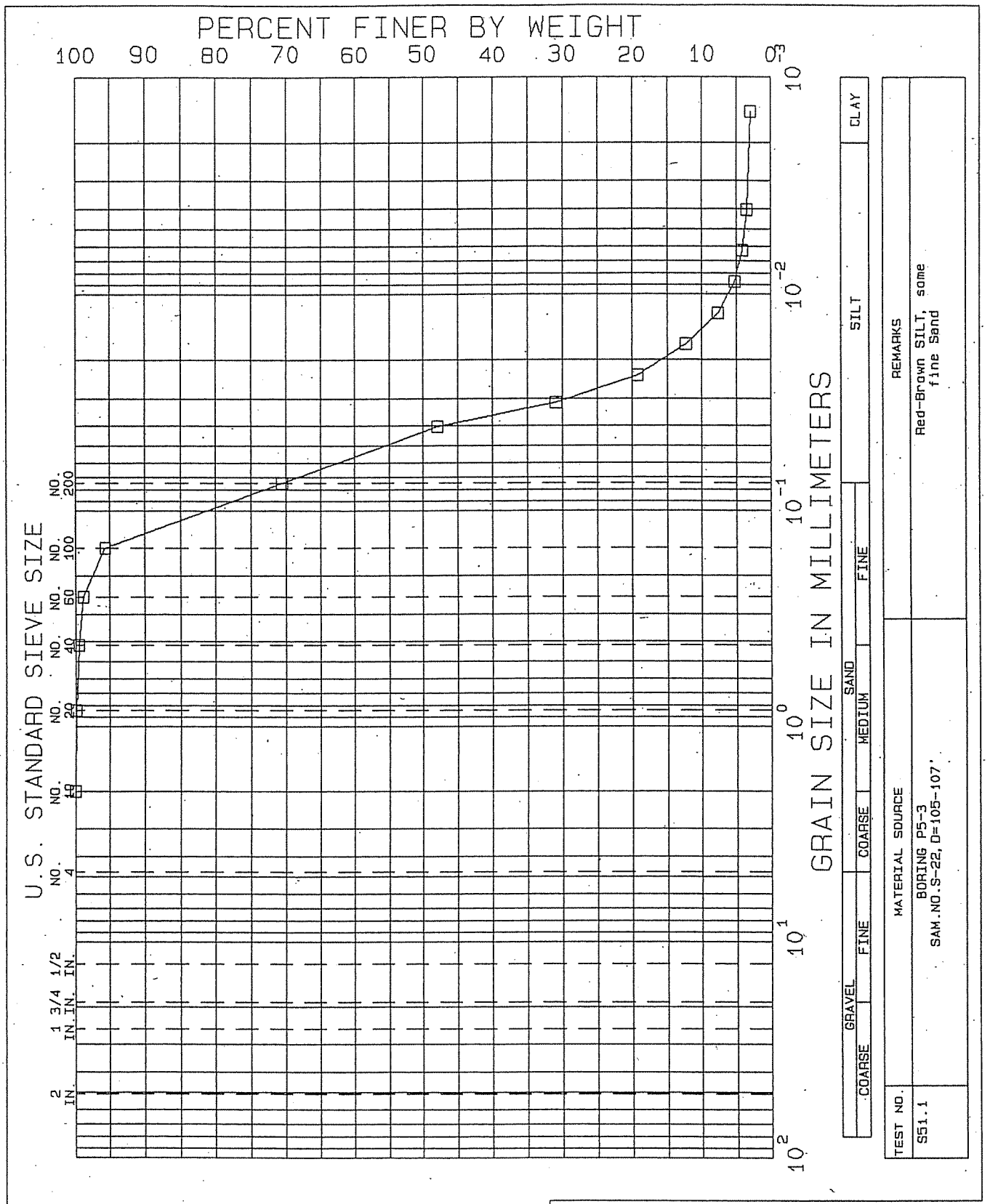
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-2	TEST SERIES	
SAMPLE	S-23	NO.	49
DEPTH	110-112'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



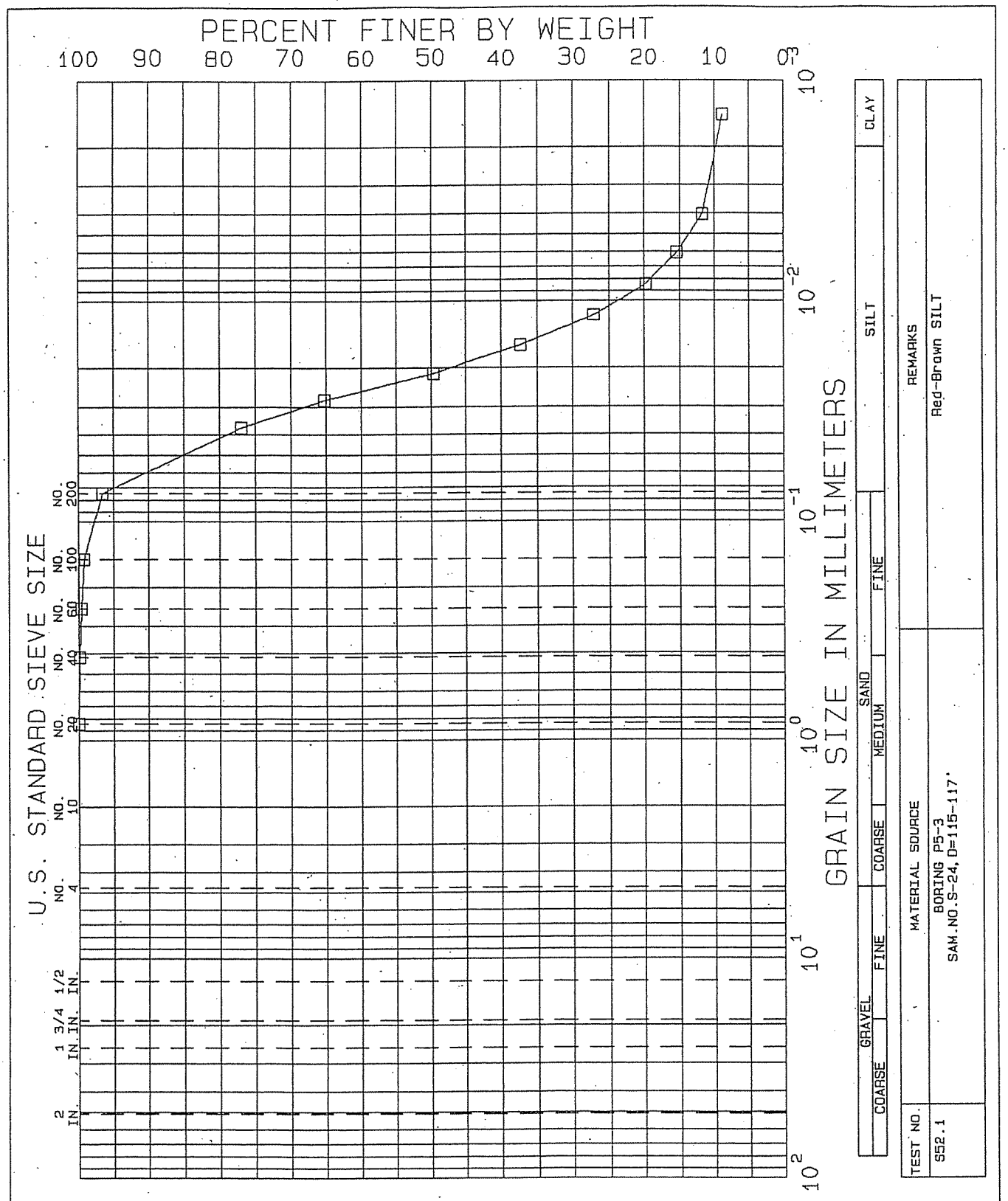
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-3	TEST SERIES	
SAMPLE	S-16	NO.	50
DEPTH	75-77'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-3	TEST SERIES	
SAMPLE	S-22	NO.	51
DEPTH	105-107'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



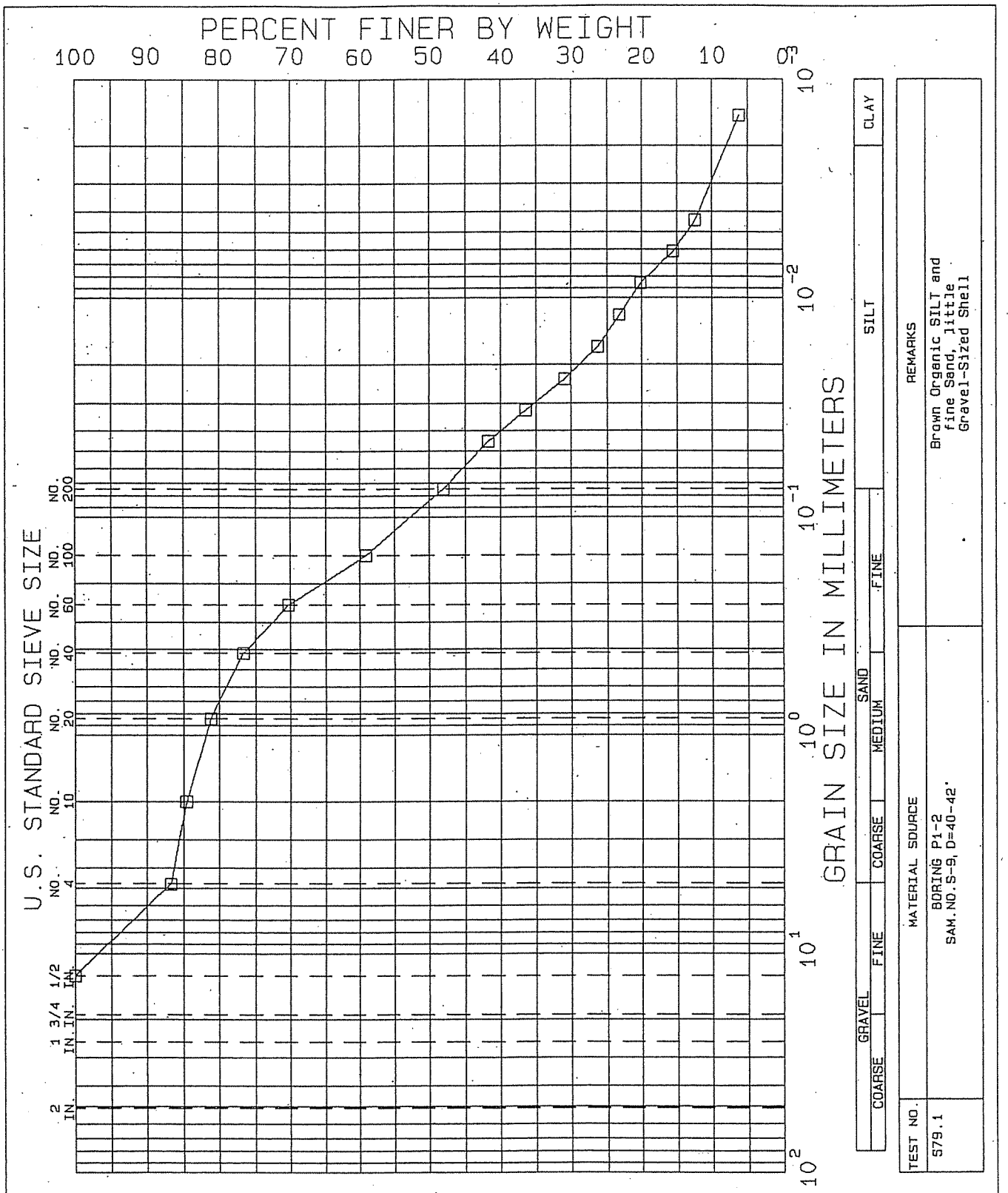
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P5-3	TEST SERIES	
SAMPLE	S-24	NO.	52
DEPTH	115-117'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

LABORATORY TESTING DATA SHEET

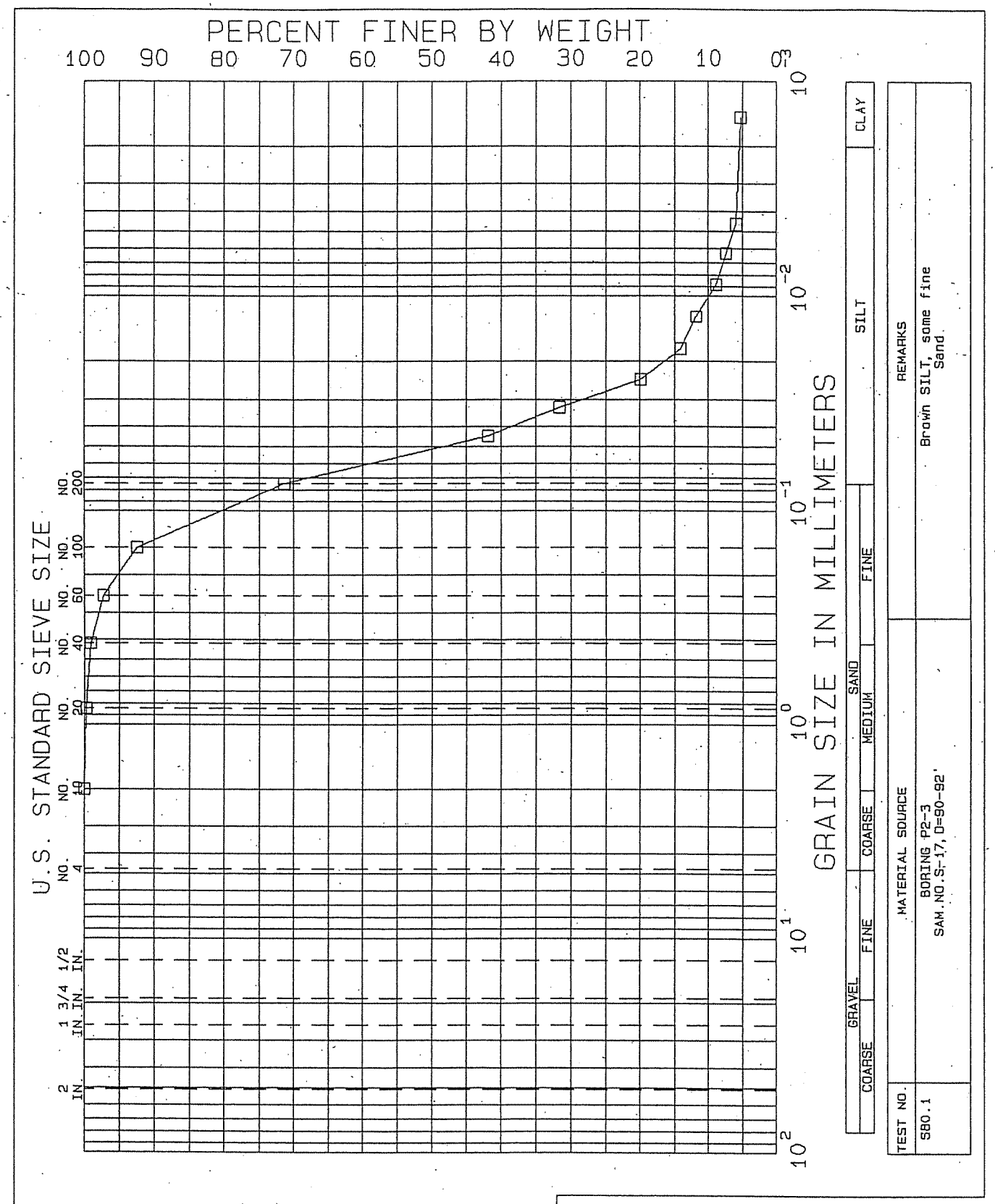
Project Name: RECONSTRUTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: AUG.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
B164-2	S-11	50-52	69				93	33												Grey Organic SILT, trace (+) Sand
	S-17	85-87	70				48	3												Brown fine SAND and SILT
B164-5	S-19	85-87	71				51	3												Brown SILT and fine SAND
	S-25	115-117	72				58	4												Brown SILT and fine Sand
B164-6	S-16	75-77	73				60	3												Brown SILT and fine SAND
	S-23	110-112	74				63	3												Brown SILT and fine SAND
B165-2	S-14	65-67	75				97	8												Brown Clayey SILT
	S-19	90-92	76				99	8												Brown Clayey SILT
B165-5	S-12	55-57	77				99	7												Brown Clayey SILT
	S-20	95-97	78				98	12												Brown Clayey SILT
P1-2	S-9	40-42	79				48	8												Grey f-m SAND and Organic SILT, little Gravel-sized Shells
P2-3	S-17	90-92	80				71	6												Brown SILT, some fine Sand
	S-25	130-132	81				99	14												Grey Clayey SILT



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P1-2	TEST SERIES	
SAMPLE	S-9	NO.	79
DEPTH	40-42'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

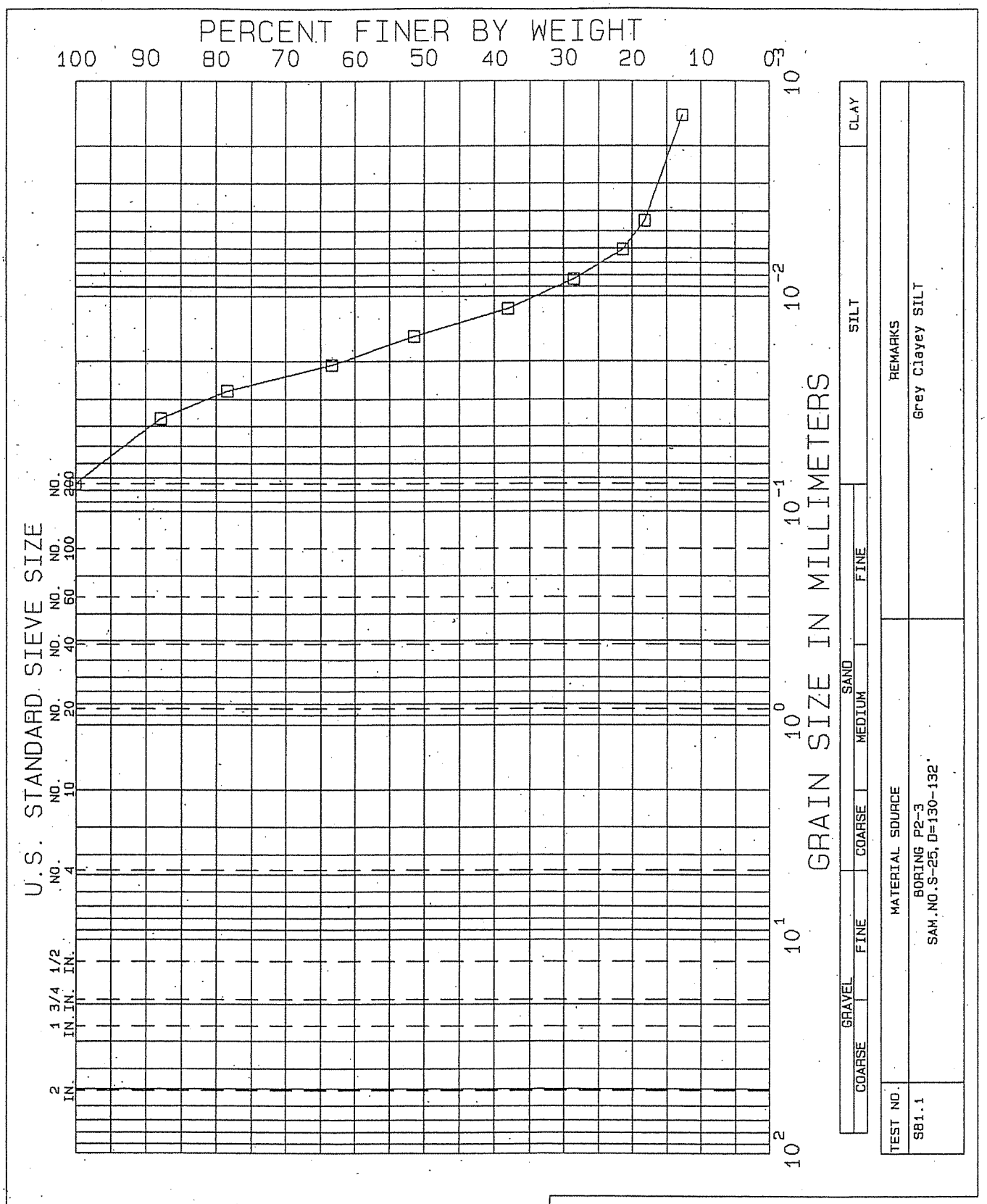


RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. P2-3
SAMPLE S-17
DEPTH 90-92'
TECH. MST
REVIEWER DAS

TEST SERIES
NO. 80
DATE Aug.02

FILE L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P2-3	TEST SERIES	
SAMPLE	S-25	NO.	81
DEPTH	130-132'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

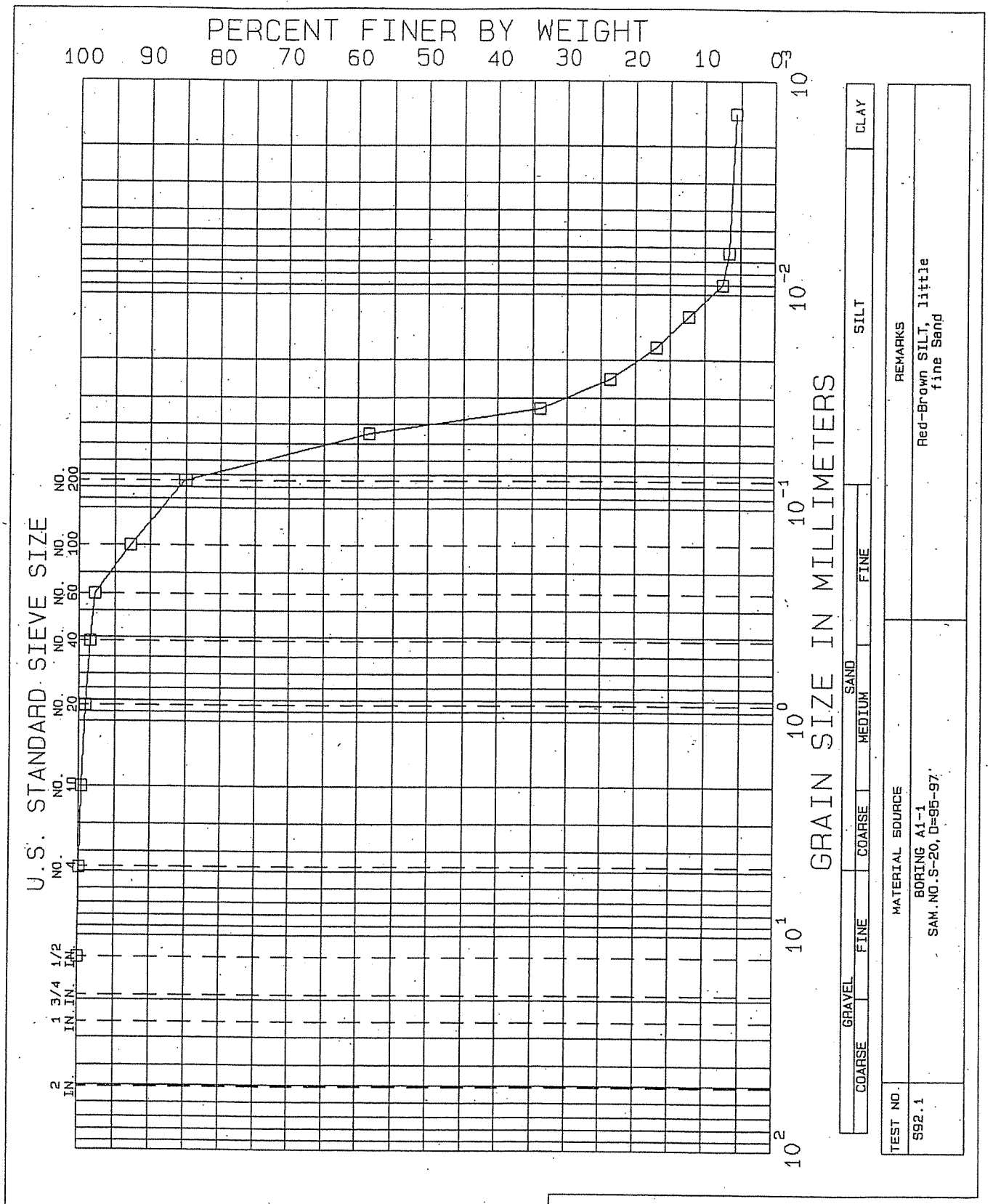
LABORATORY TESTING DATA SHEET

'roject Name: RECONSTRUTION OF I-95 OVER WEST RIVER

'roject No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

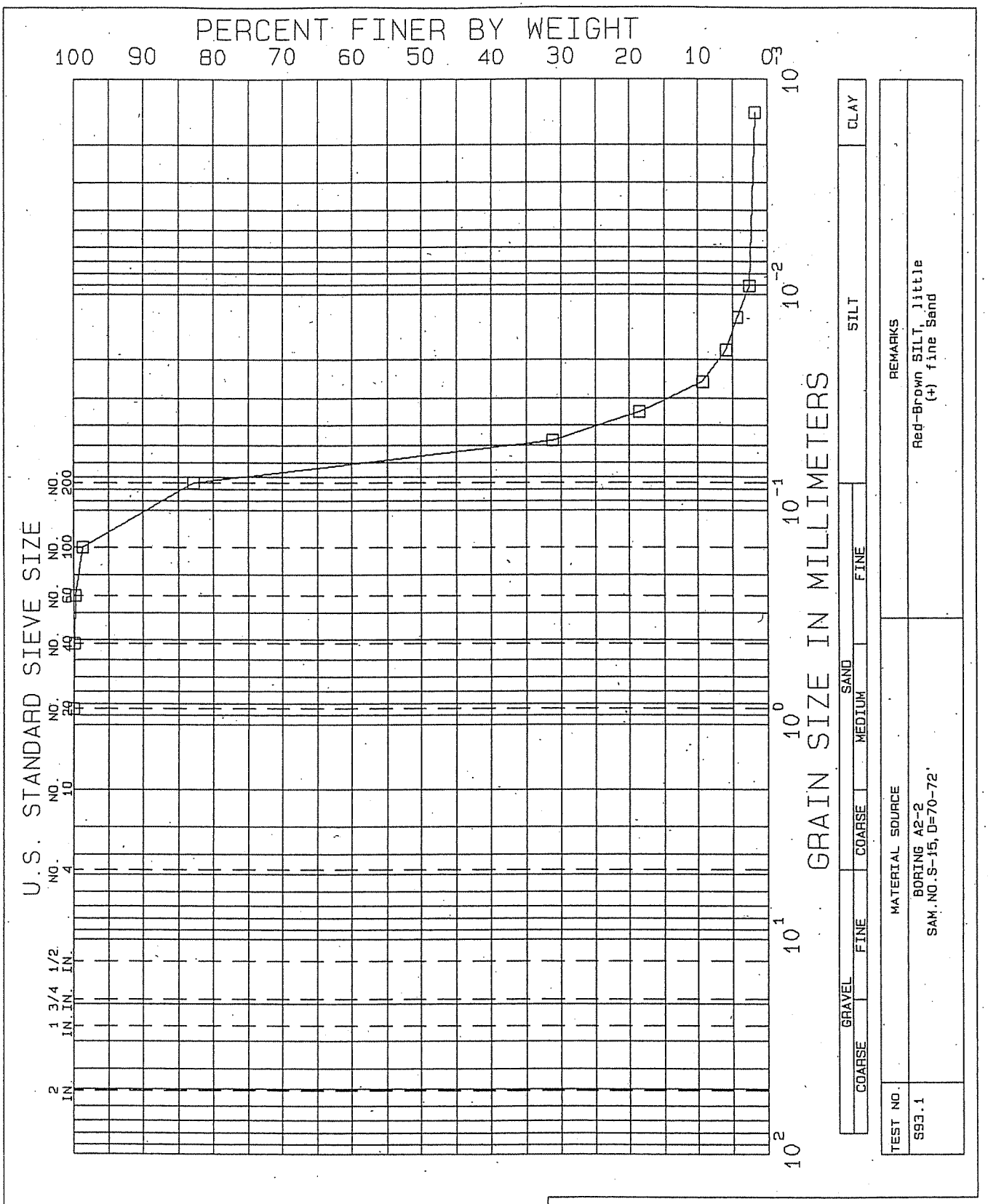
'roject Engineer: D. SCHULZE | Date: AUG.02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
A1-1	S-20	95-97	92				85	6												Red-Brown SILT, little fine Sand
A2-2	S-15	70-72	93				83	2												Red-Brown SILT, little (+) fine Sand
	S-21	100-102	94				94	4												Red-Brown SILT, trace fine Sand
P1-1	S-19	95-97	95				84	3												Red-Brown SILT, little fine Sand
	S-25		96				98	7												Red-Brown SILT
P1-2	S-17	80-82	97				97	7												Red-Brown SILT
	S-24	115-117	98				97	5												Red-Brown SILT
P2-1	S-18	85-87	99				98	3												Red-Brown SILT
	S-26	125-127	100				100	8												Red-Brown SILT
	S-30	145-147	101				99	13												Red-Brown Clayey SILT



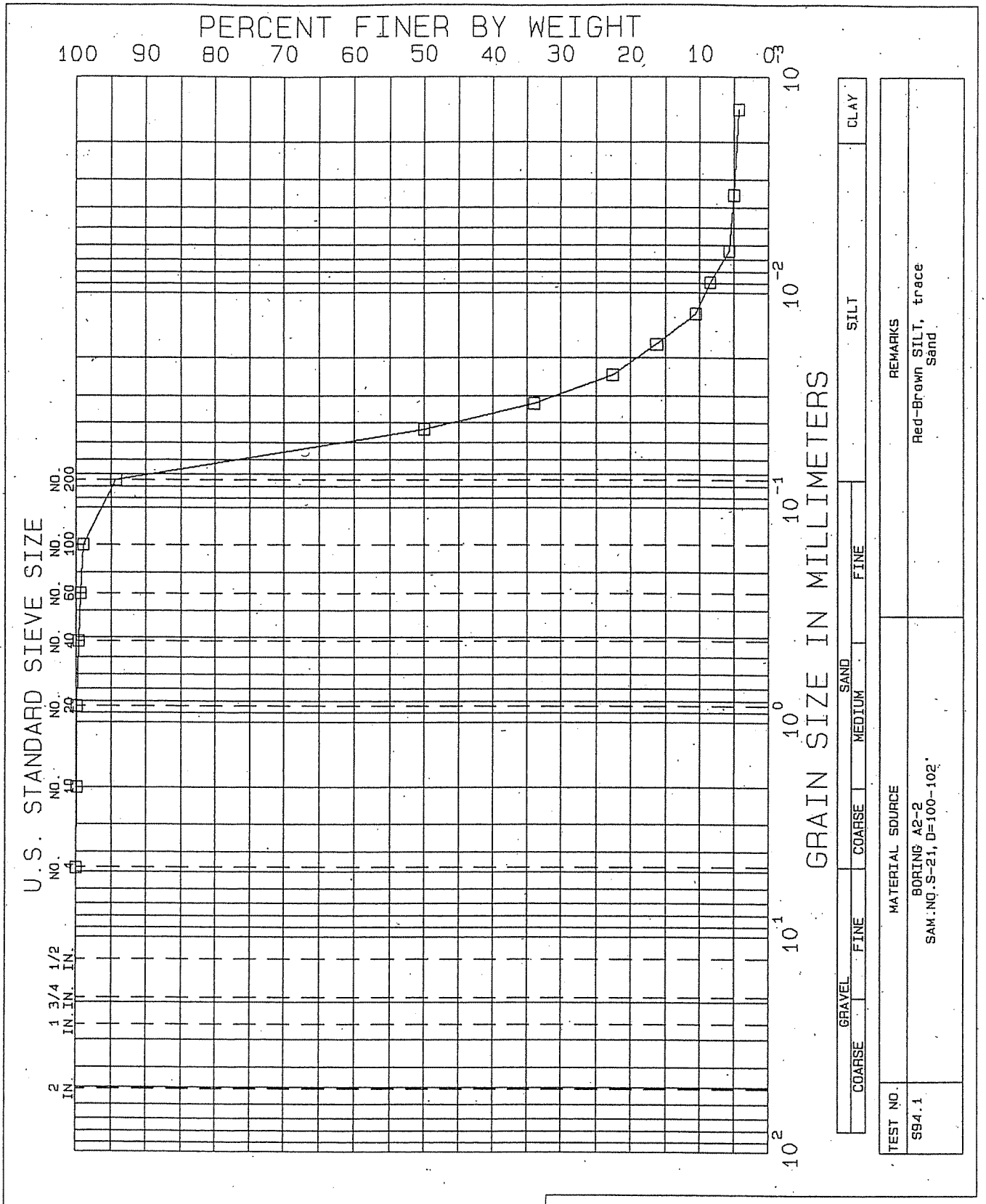
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A1-1	TEST SERIES	
SAMPLE	S-20	NO.	92
DEPTH	95-97'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	A2-2	TEST SERIES	
SAMPLE	S-15	NO.	93
DEPTH	70-72'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

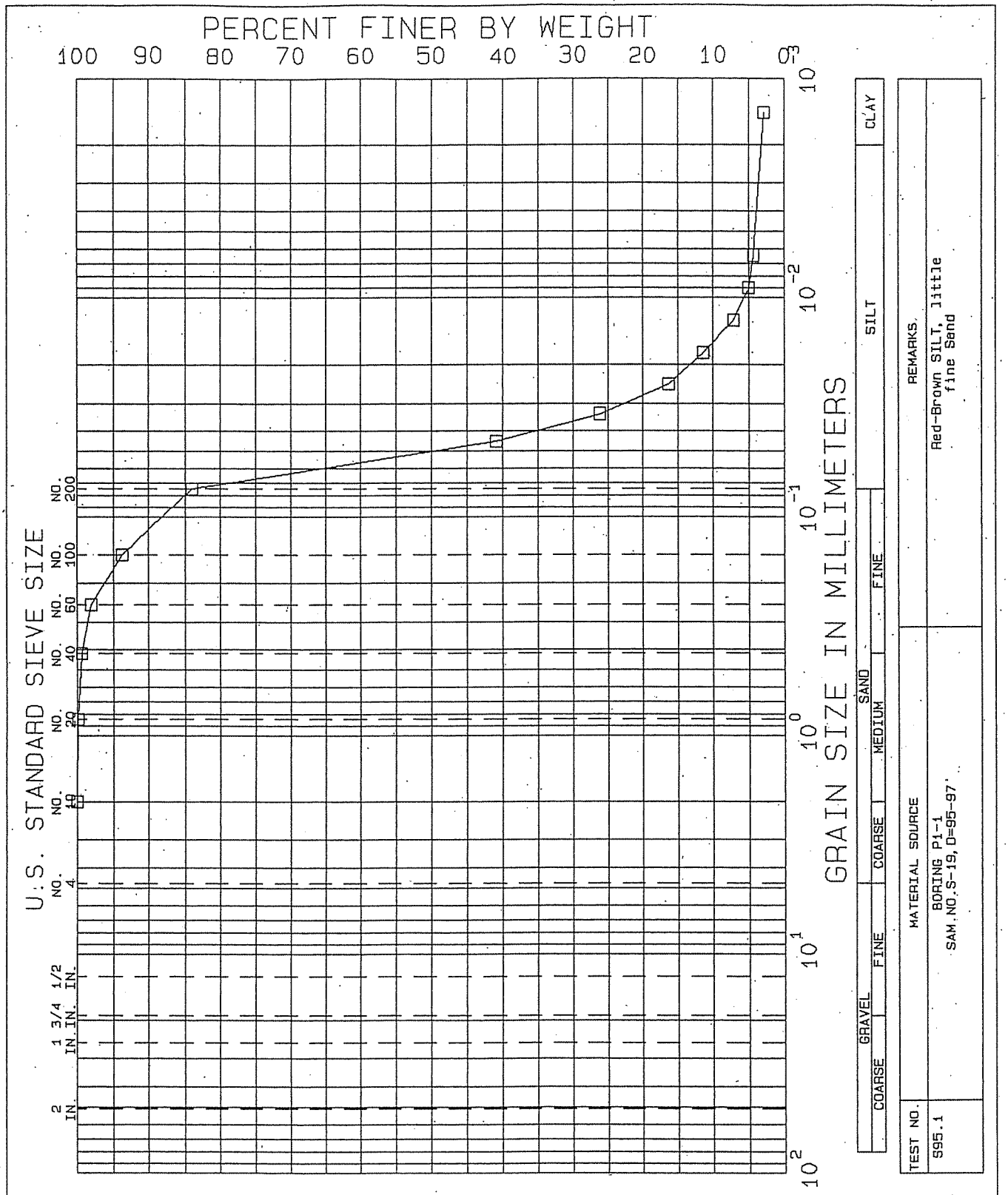


RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. A2-2
SAMPLE S-21
DEPTH 100-102'
TECH. MST
REVIEWER DAS

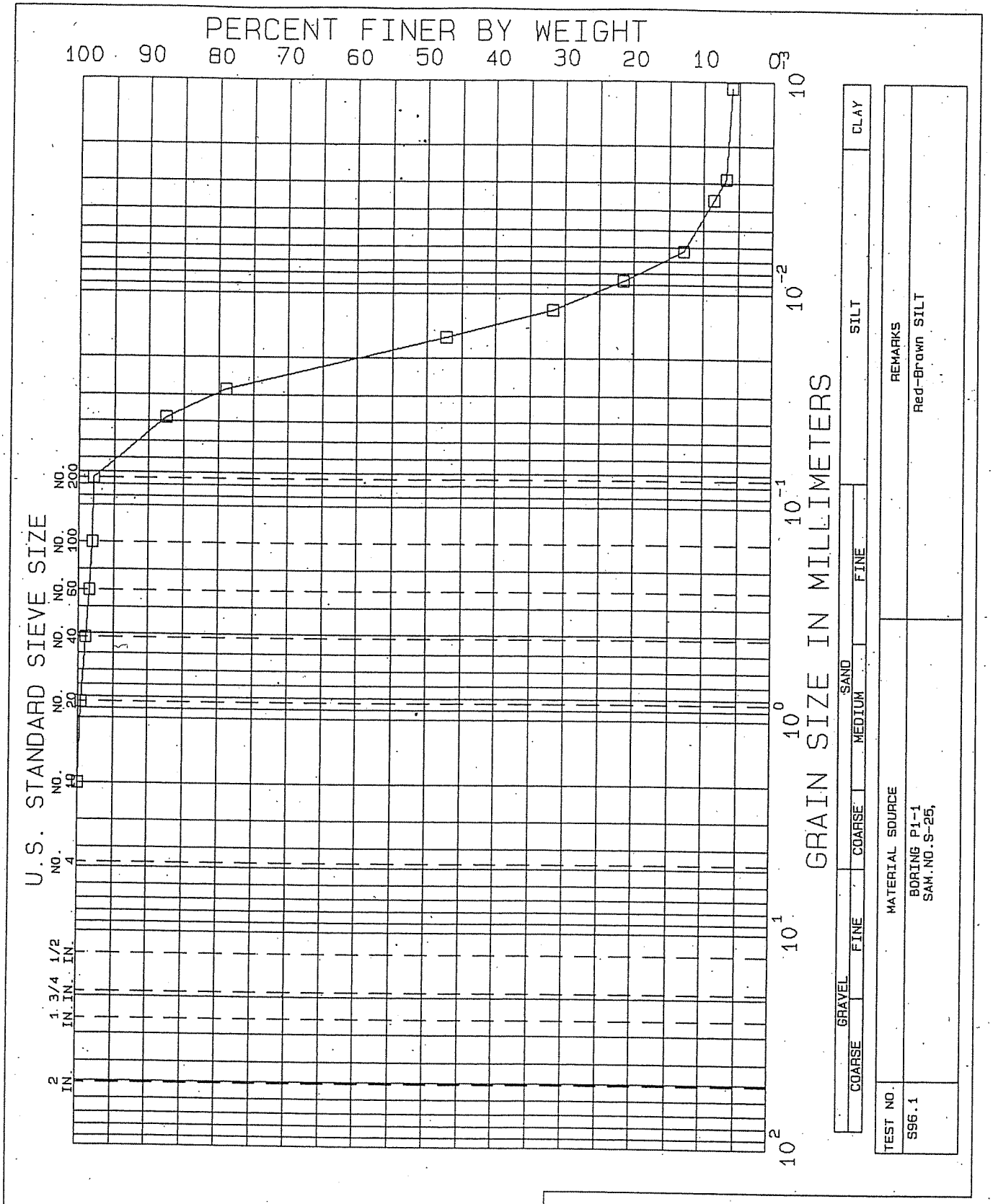
TEST SERIES
NO. 94
DATE Aug.02

FILE L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P1-1	TEST SERIES	
SAMPLE	S-19	NO.	95
DEPTH	95-97'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



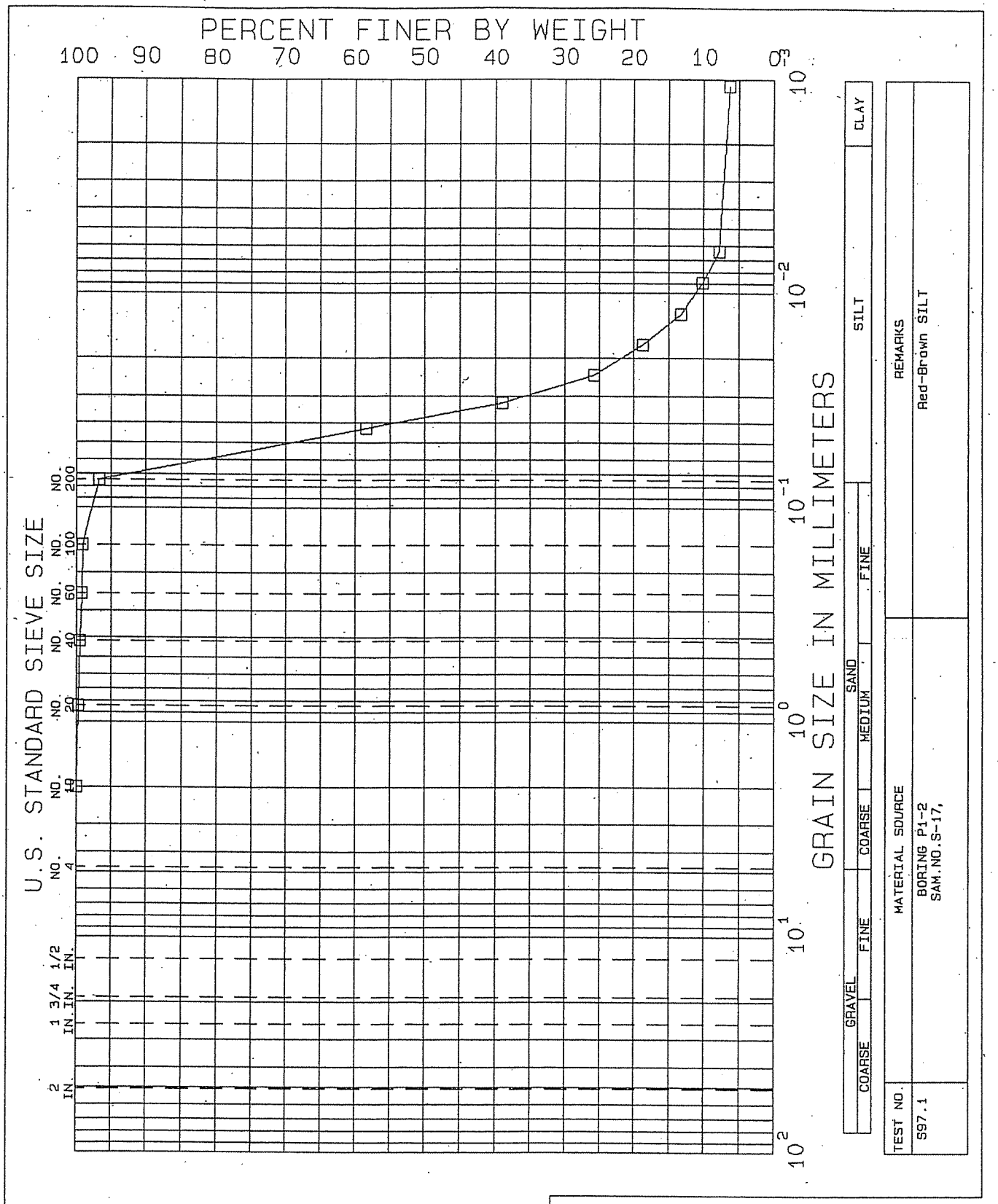
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. P1-1
SAMPLE S-25
DEPTH
TECH. MST
REVIEWER DAS

TEST SERIES
NO. 96
DATE Aug.02

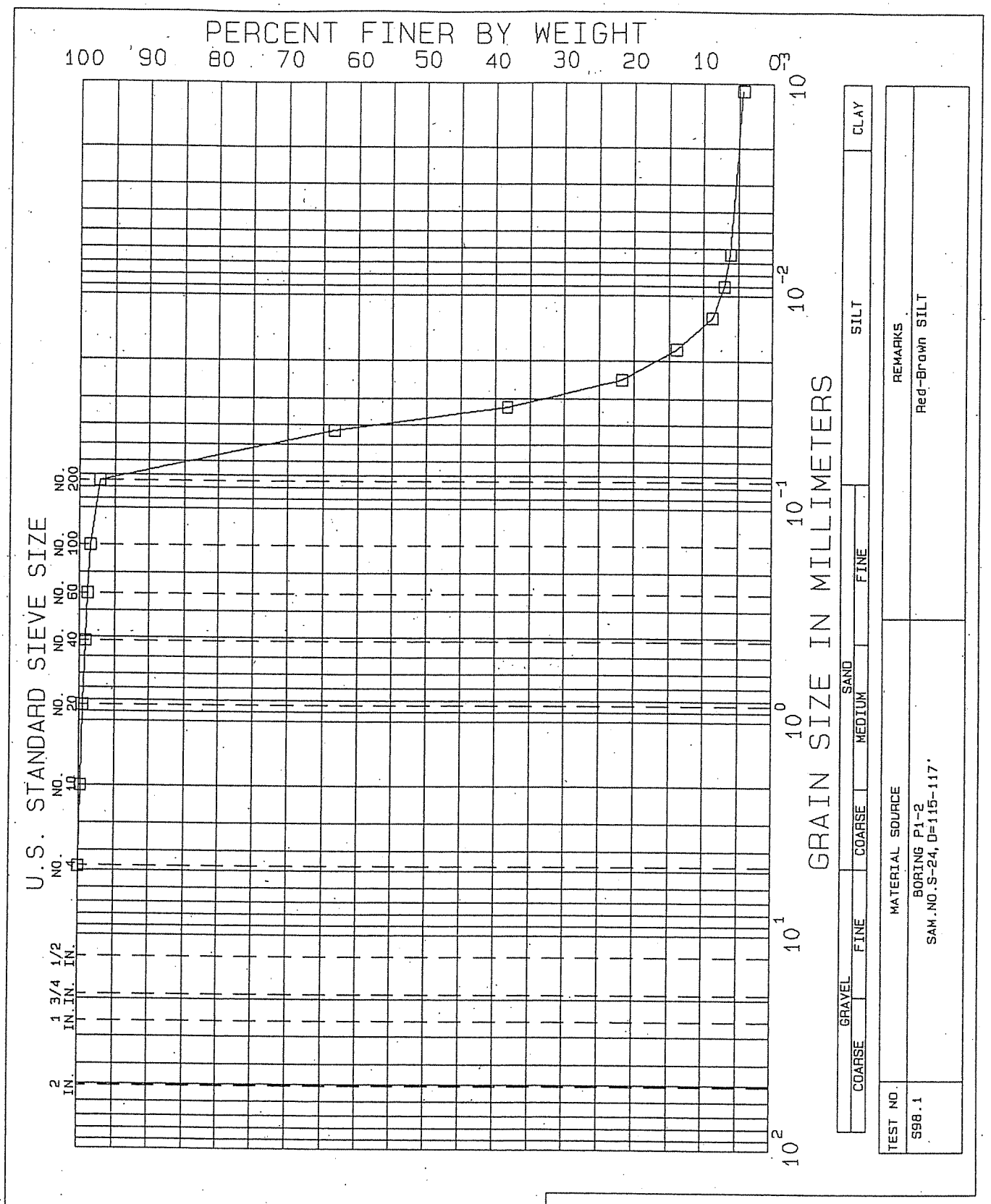
FILE L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P1-2	TEST SERIES	
SAMPLE	S-17	NO.	97
DEPTH	80-82'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



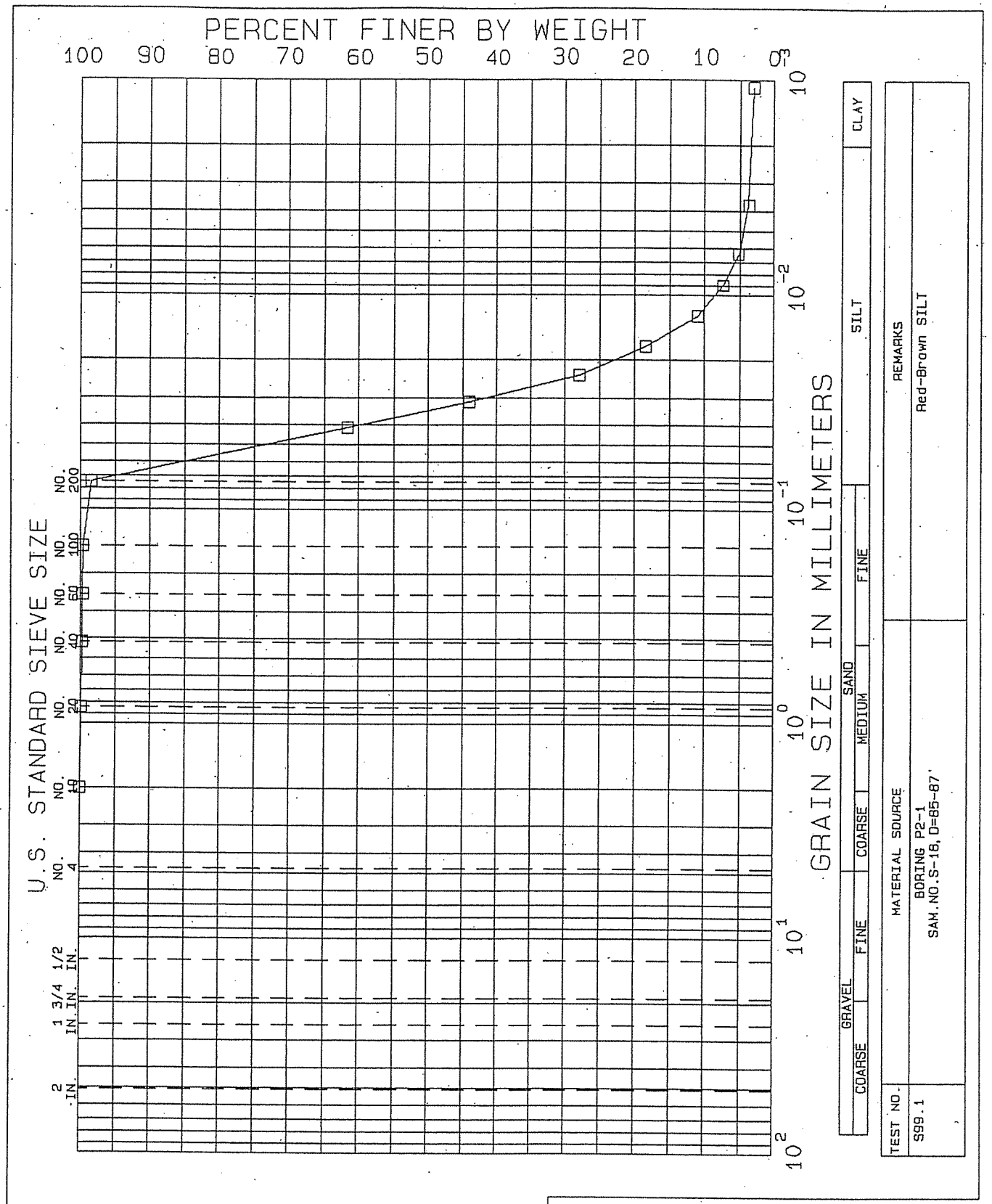
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. P1-2
SAMPLE S-24
DEPTH 115-117'
TECH. MST
REVIEWER DAS

TEST SERIES
NO. 98
DATE Aug.02

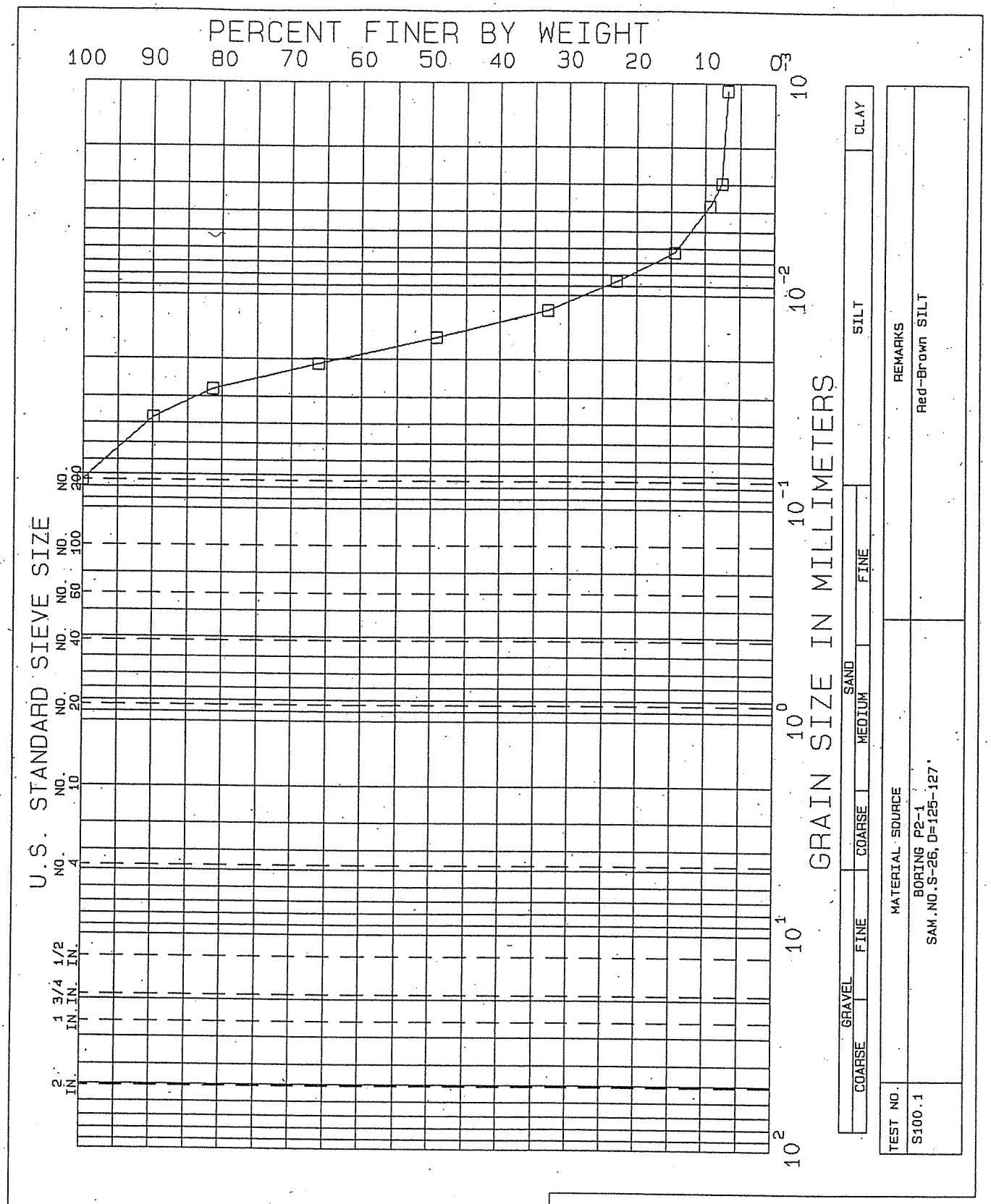
FILE L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P2-1	TEST SERIES	
SAMPLE	S-18	NO.	99
DEPTH	85-87'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



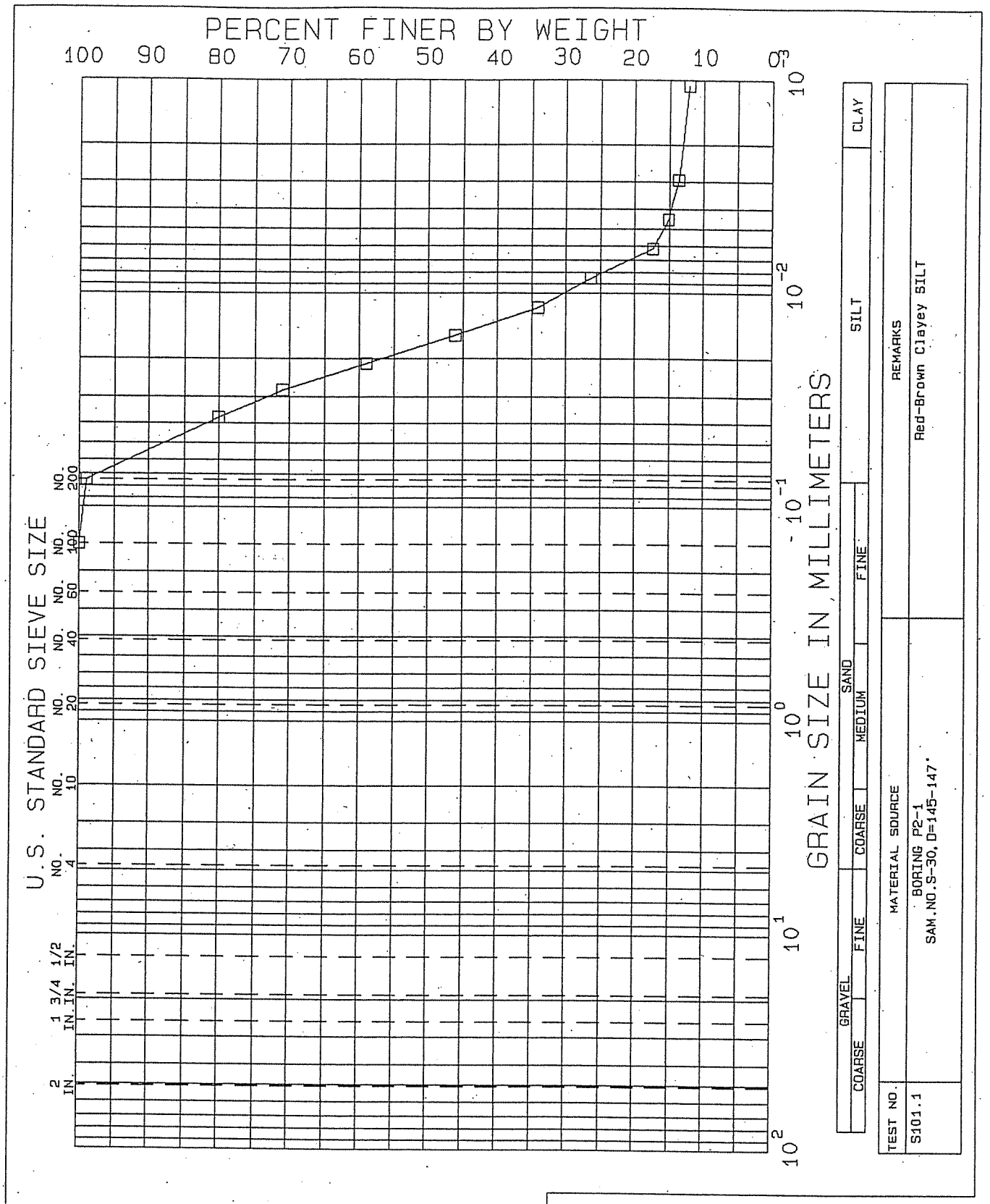
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. P2-1
SAMPLE S-26
DEPTH 125-127'
TECH. MST
REVIEWER DAS

TEST SERIES
NO. 100
DATE Aug.02

FILE L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO. P2-1
SAMPLE S-30
DEPTH 145-147'
TECH. MST
REVIEWER DAS

TEST SERIES
NO. 101
DATE Aug.02

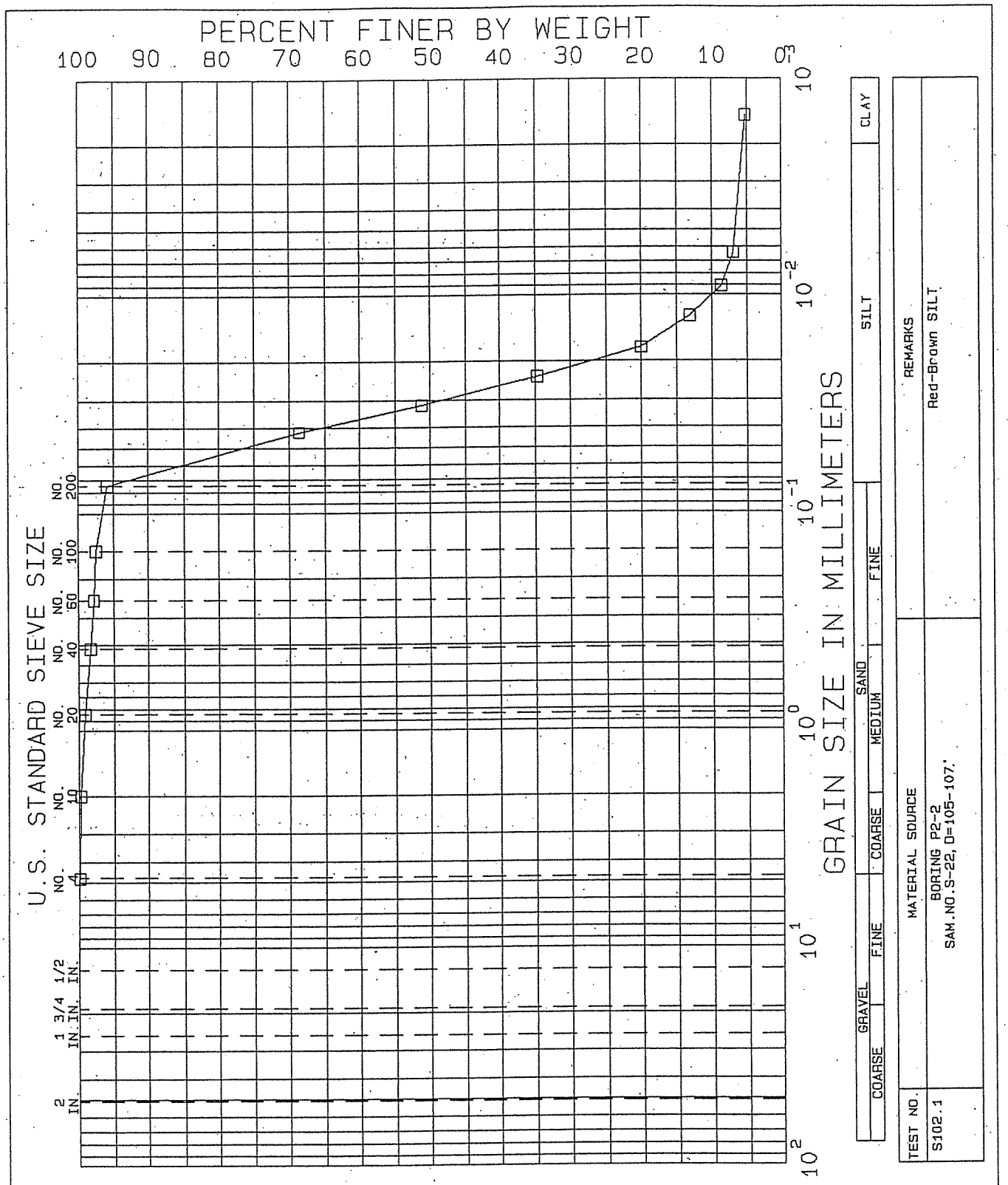
FILE L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

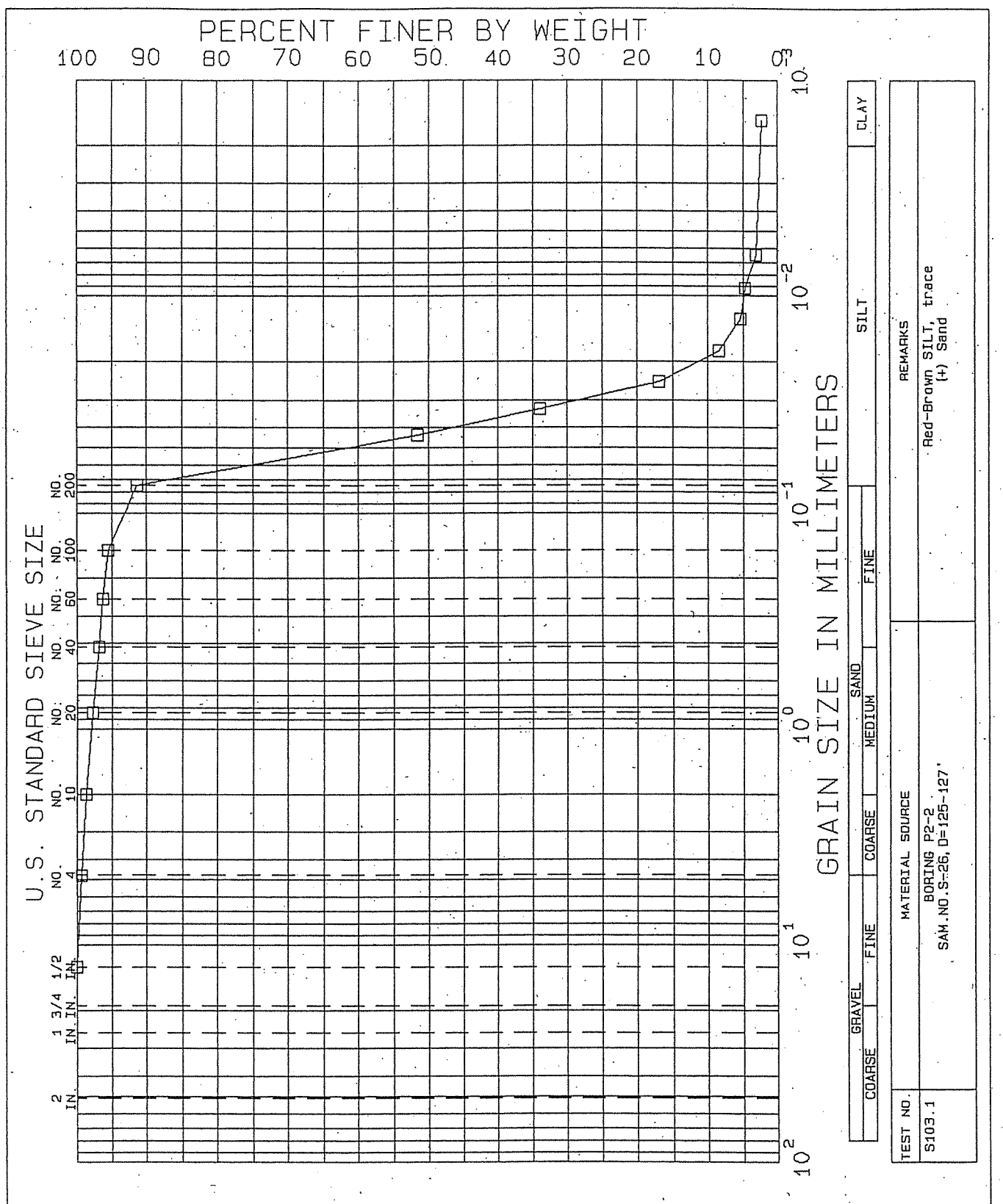
'roject Name: RECONSTRUTION OF I-95 OVER WEST RIVER
'roject No.: L17371
'roject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: AUG.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
P2-2	S-22	105-107	102				96	6												Red-Brown SILT
	S-26	125-127	103				91	3												Red-Brown SILT, trace (+) Sand
	S-31	150-152	104				99	4												Red-Brown SILT
P2-3	S-29	150-152	105				100	12												Red-Brown Clayey SILT
P3-1	S-16	75-77	106				77	3												Red-Brown SILT, some fine Sand
	S-21	100-102	107				87	4												Red-Brown SILT, little fine Sand
	S-31	150-152	108				100	13												Red-Brown Clayey SILT
P3-2	S-11	50-52	109				19	2												Red-Brown f-m SAND, little (+) Silt
	S-19	90-92	110				77	6												Red-Brown SILT, some f-c Gravel, trace (-) Sand
	S-29	140-142	111				96	21												Red-Brown Clayey SILT



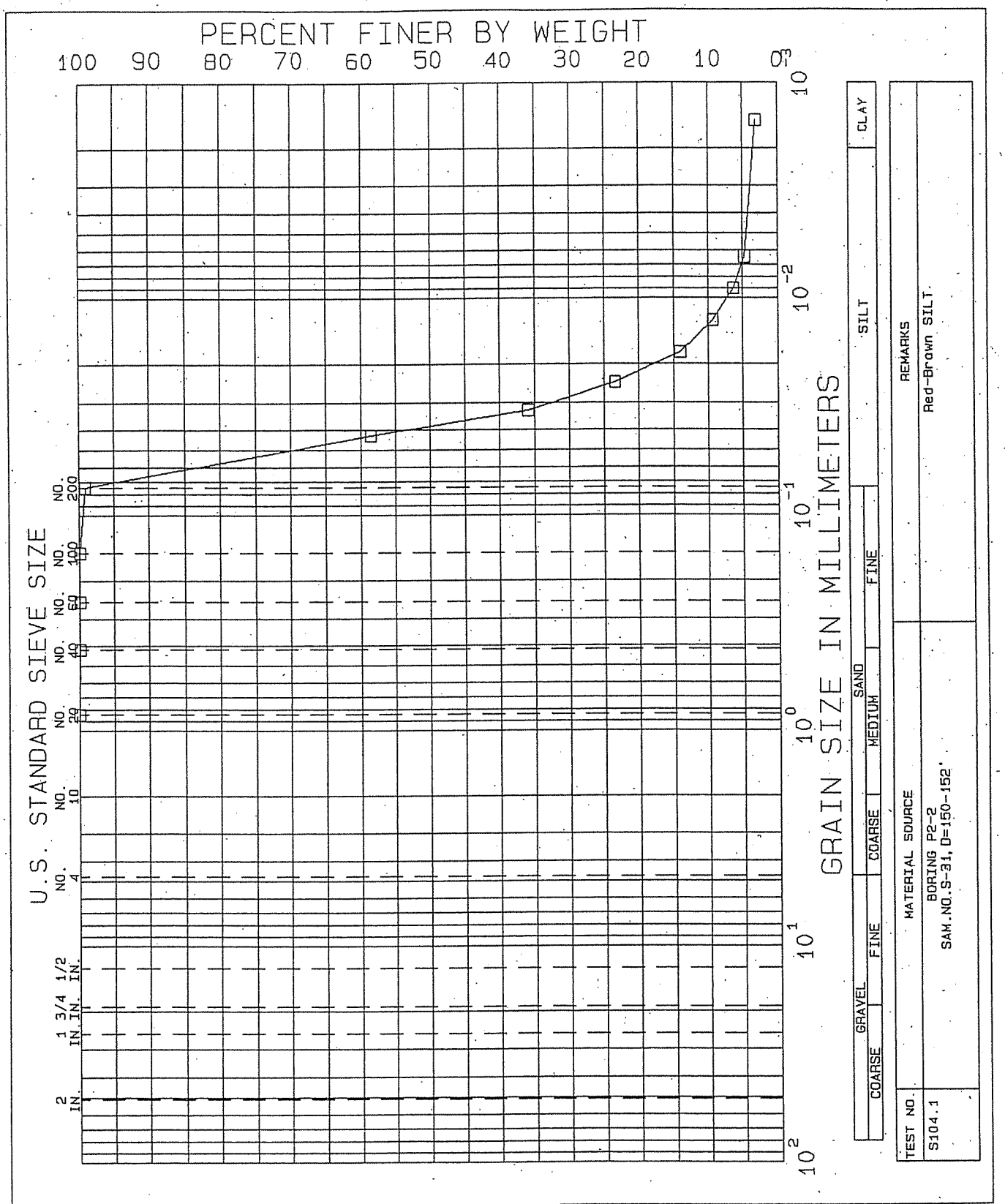
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P2-2	TEST SERIES	
SAMPLE	S-22	NO.	102
DEPTH	105-107'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



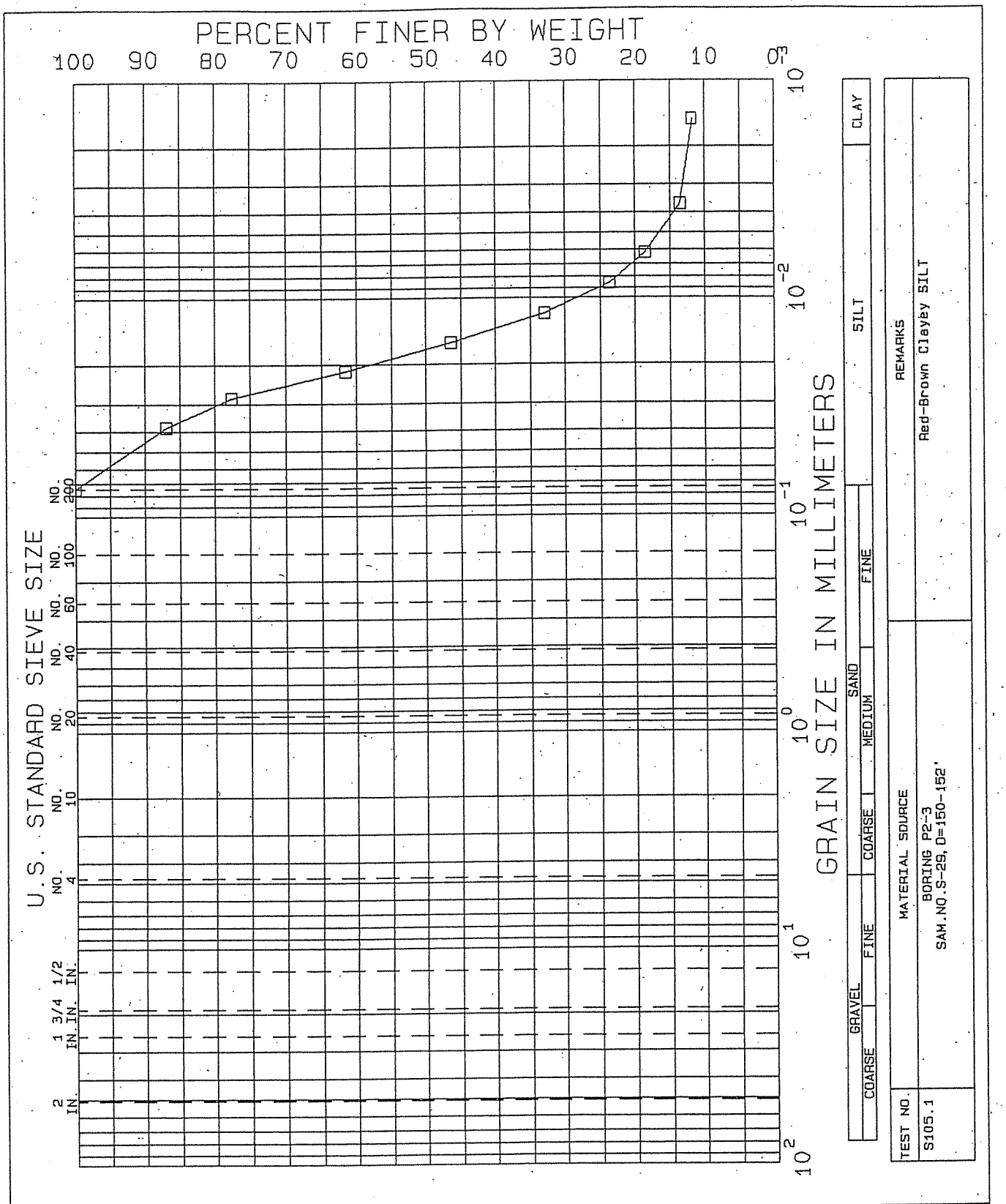
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P2-2	TEST SERIES	
SAMPLE	S-26	NO.	103
DEPTH	125-127'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



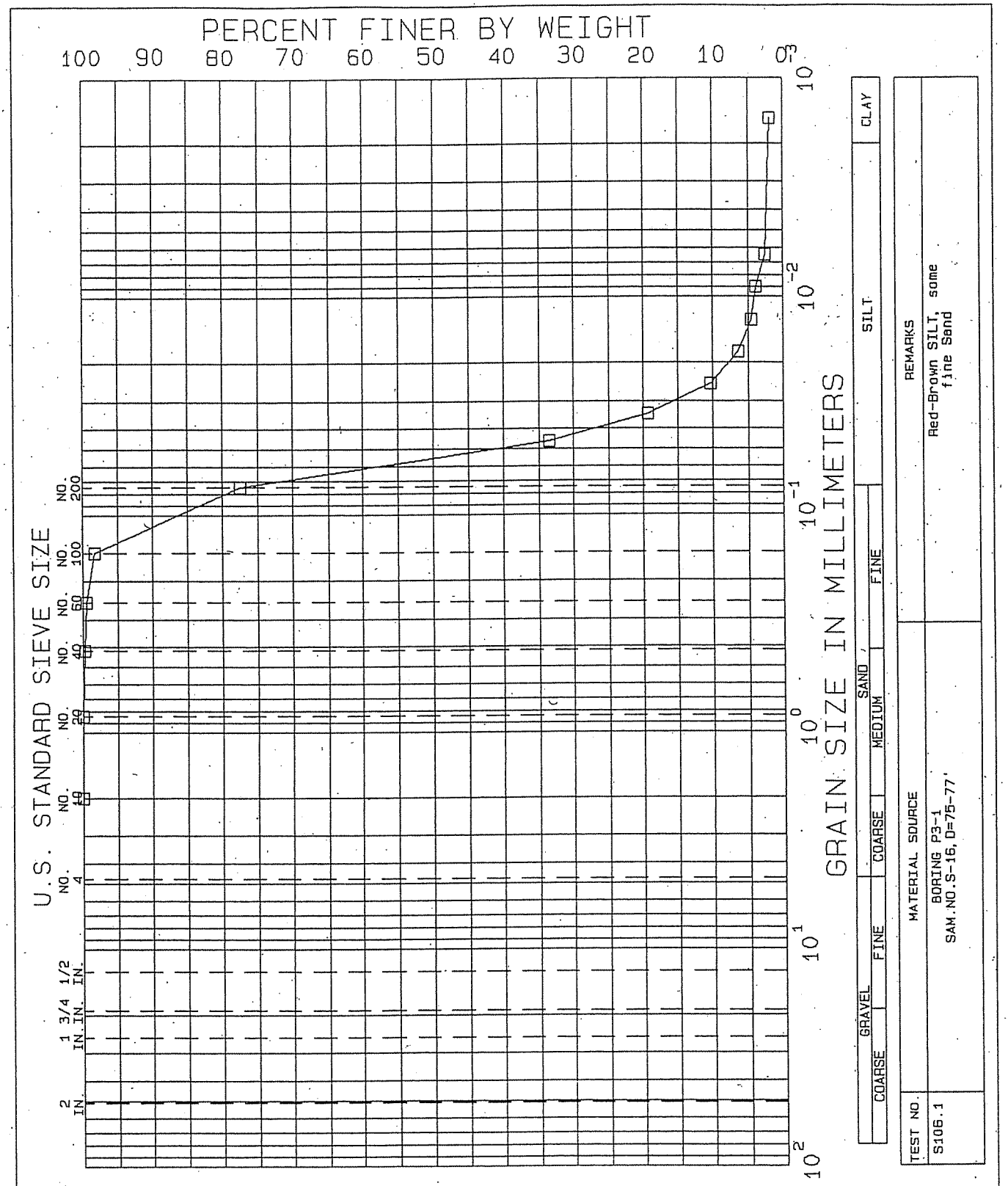
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P2-2	TEST SERIES	
SAMPLE	S-31	NO.	104
DEPTH	150-152'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



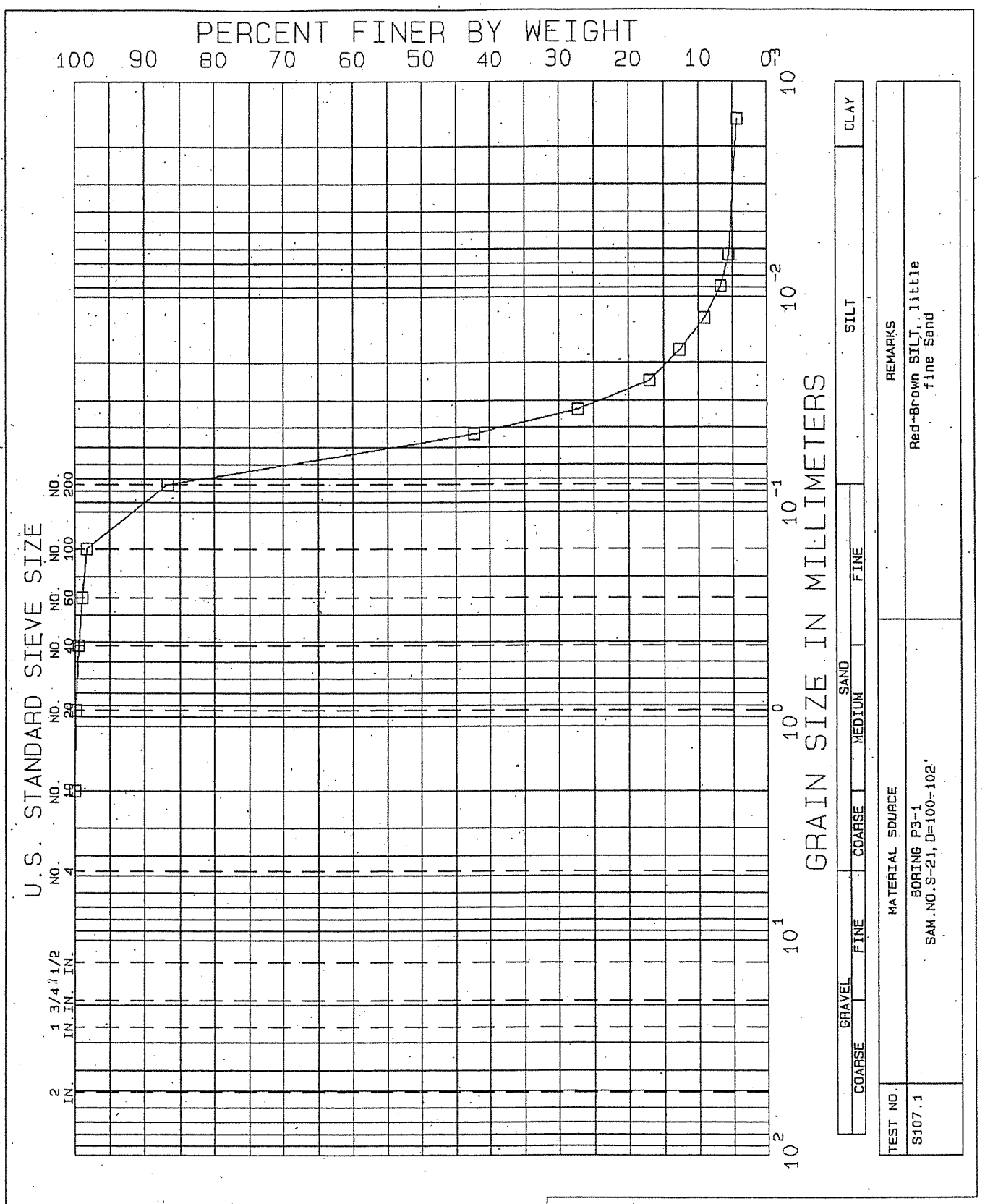
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P2-3	TEST SERIES	
SAMPLE	S-29	NO.	105
DEPTH	150-152'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



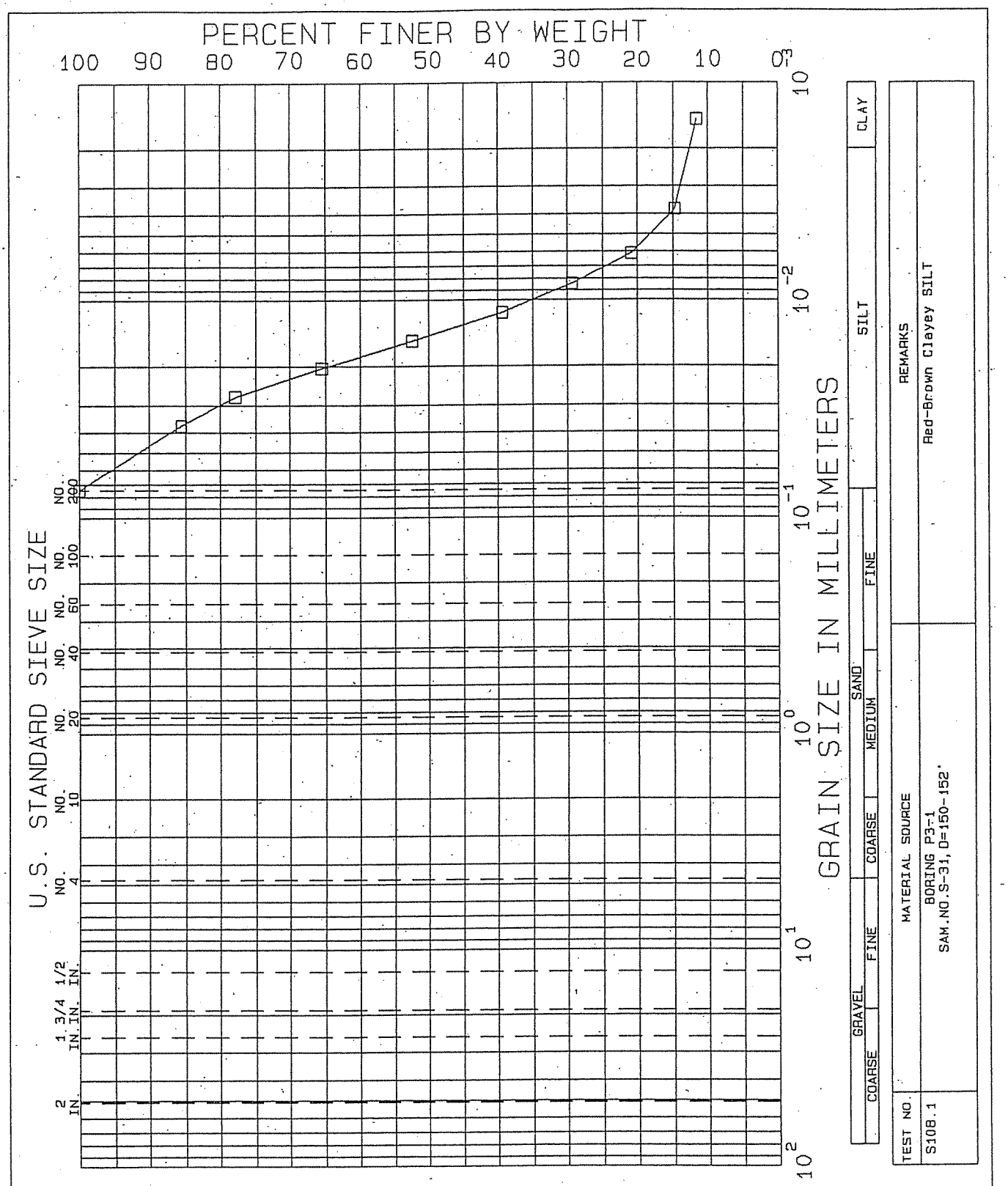
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-1	TEST SERIES	
SAMPLE	S-16	NO.	106
DEPTH	75-77'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



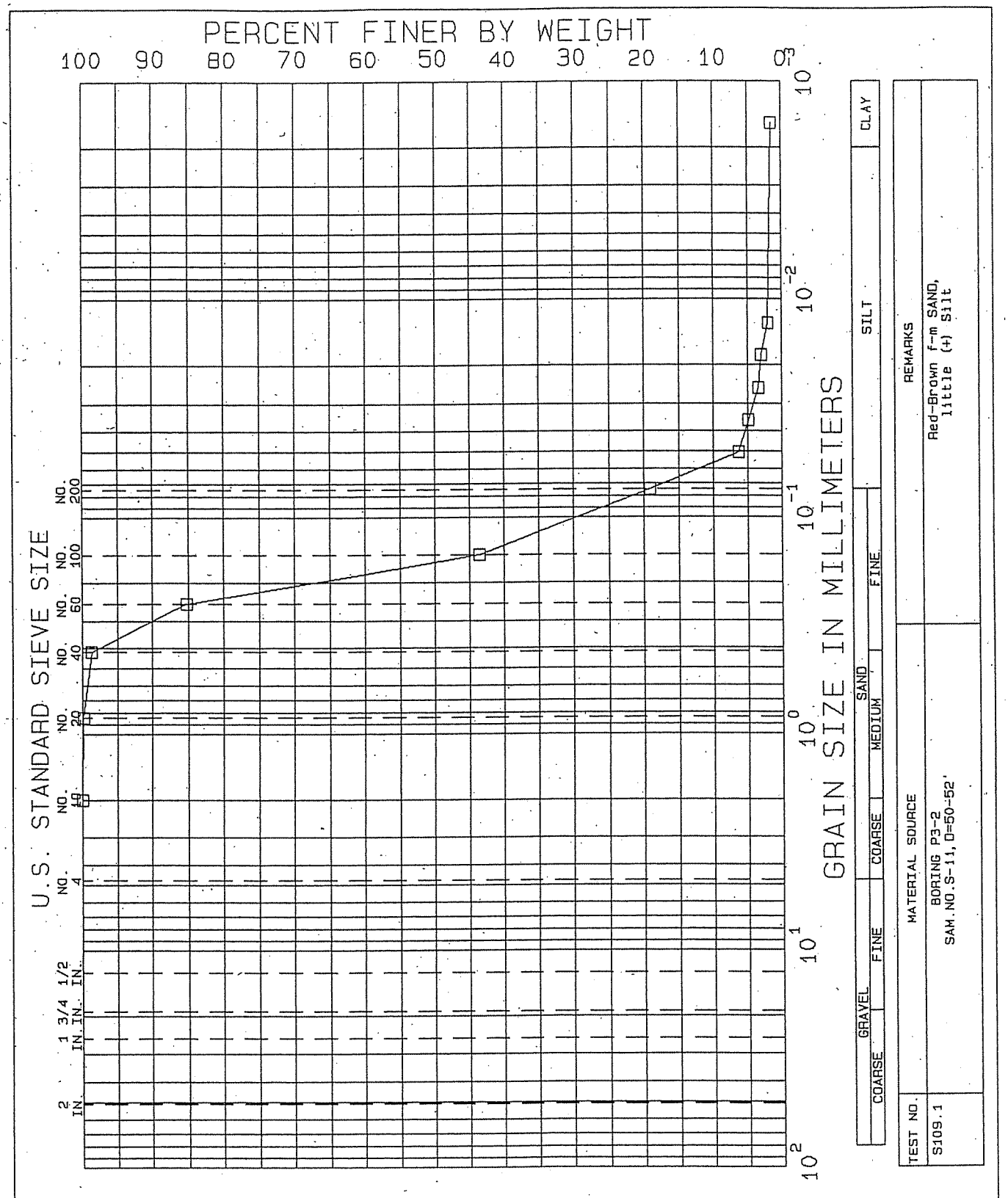
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-1	TEST SERIES	
SAMPLE	S-21	NO.	107
DEPTH	100-102'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



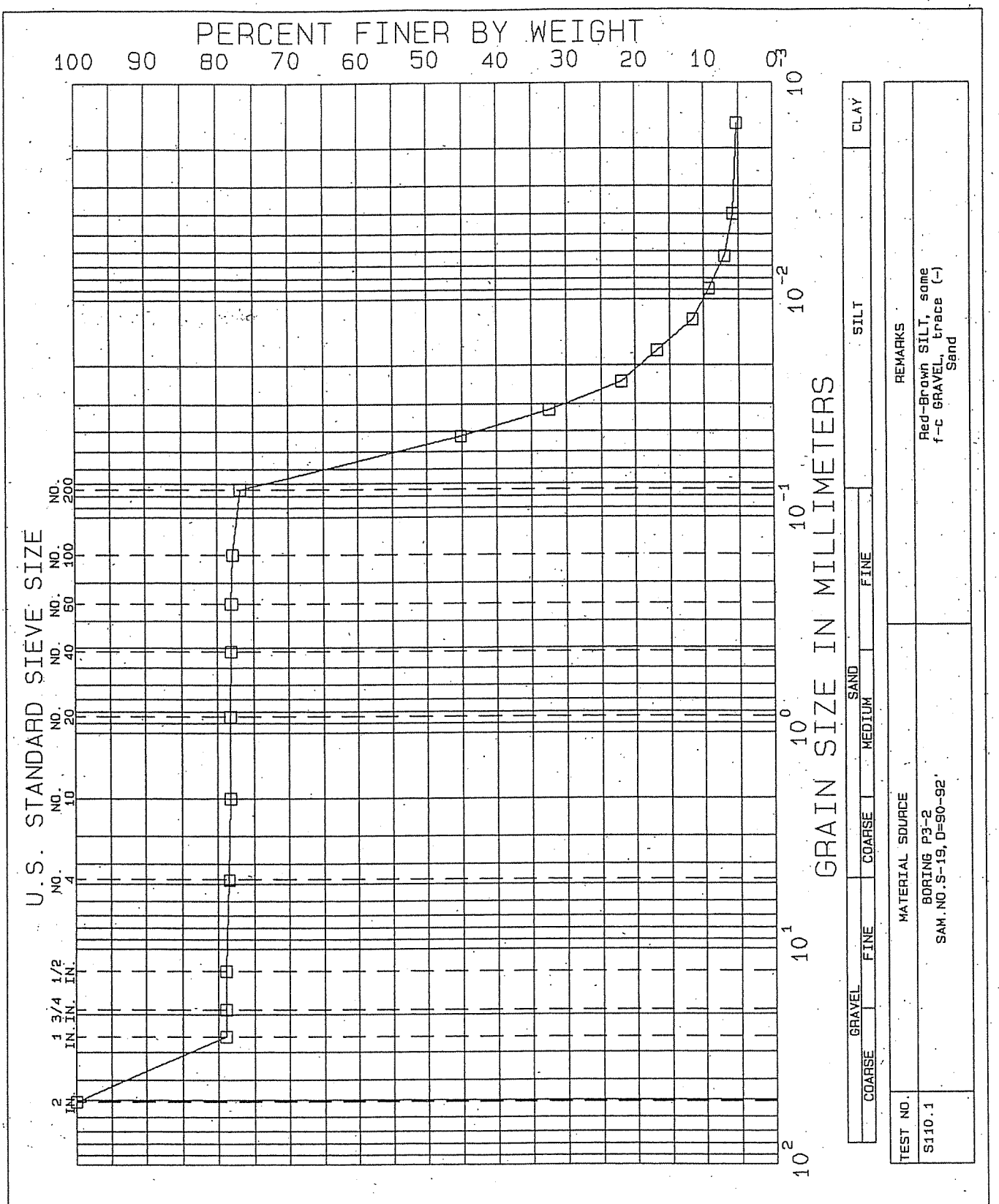
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-1	TEST SERIES	
SAMPLE	S-31	NO.	108
DEPTH	150-152'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



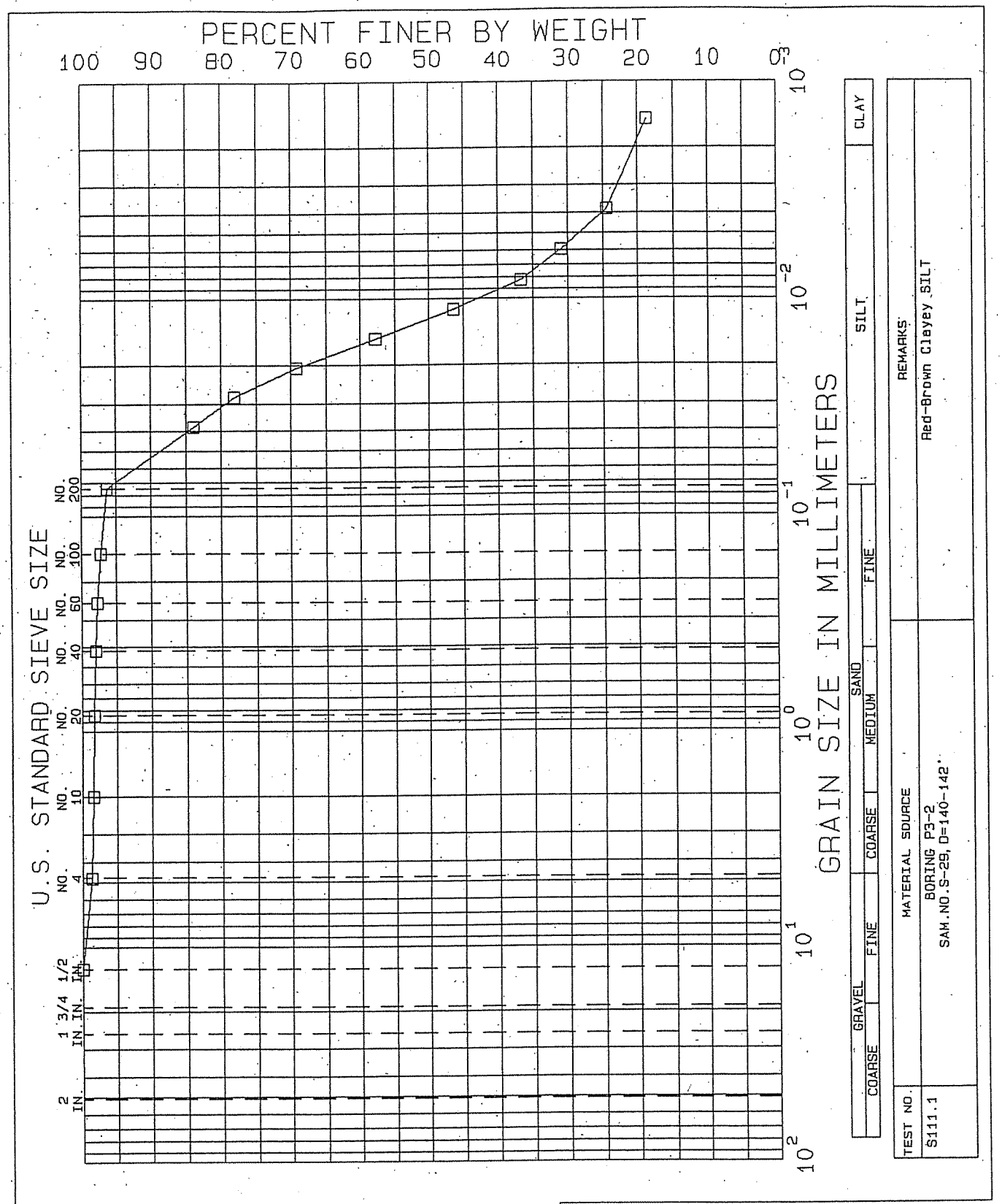
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-2	TEST SERIES	
SAMPLE	S-11	NO.	109
DEPTH	50-52'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-2	TEST SERIES	
SAMPLE	S-19	NO.	110
DEPTH	90-92'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



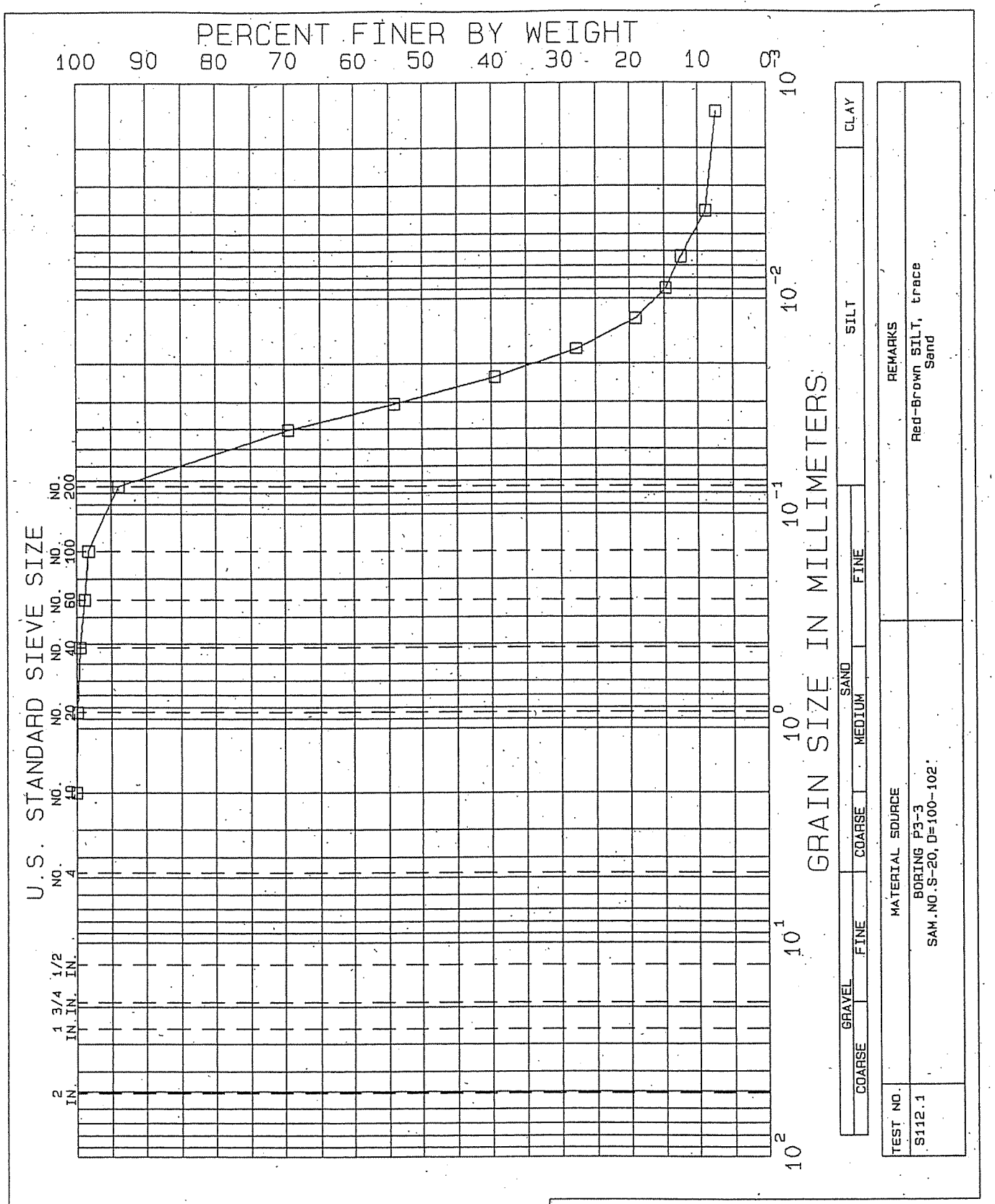
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-2	TEST SERIES	
SAMPLE	S-29	NO.	111
DEPTH	140-142'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

LABORATORY TESTING DATA SHEET

oject Name: RECONSTRUTION OF I-95 OVER WEST RIVER
oject No.: L17371
oject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: AUG.02
Reviewed By:
Date Reviewed:

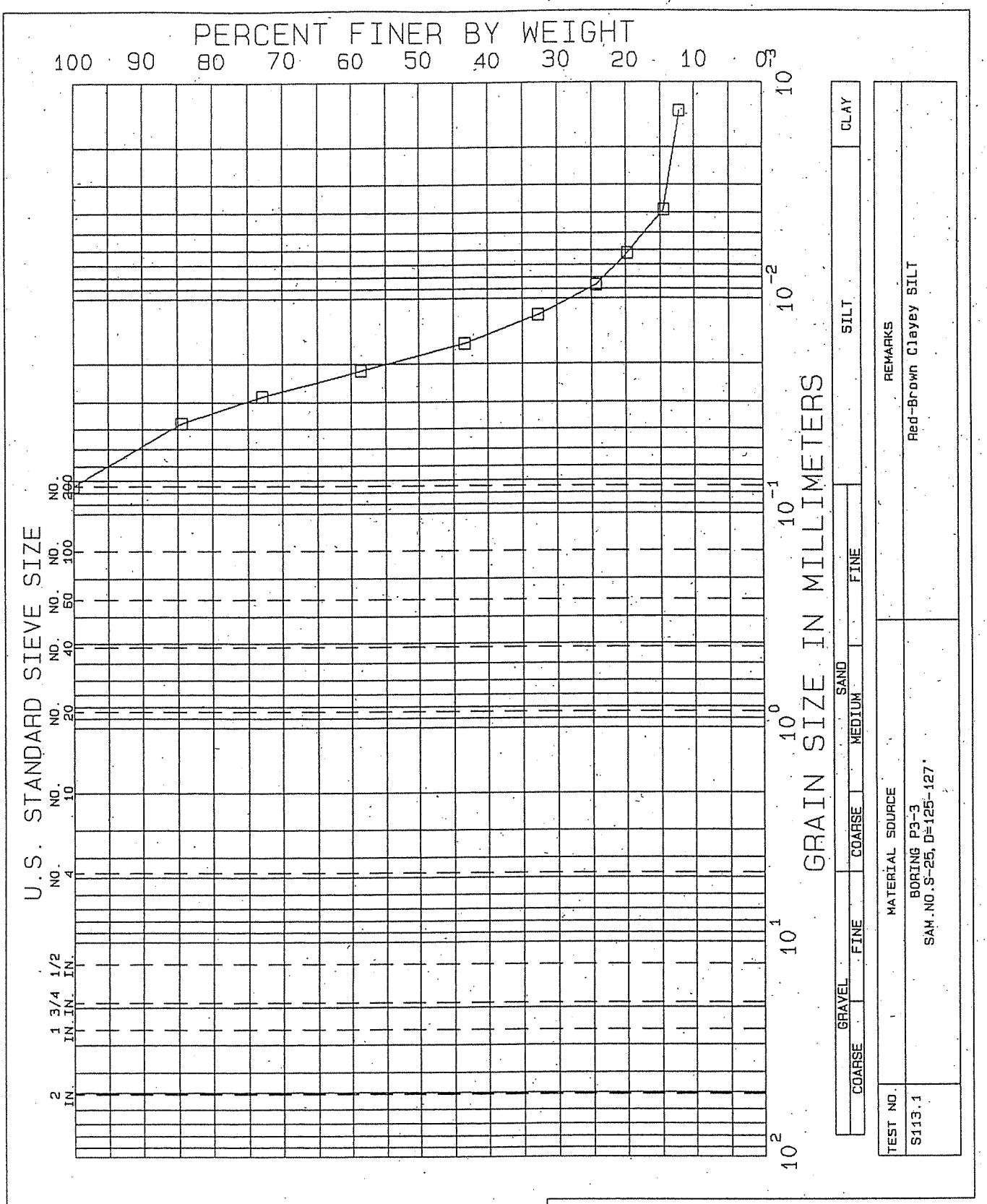
Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P3-3	S-20	100-102	112				94	8												Red-Brown SILT, trace Sand
	S-25	125-127	113				100	13												Red-Brown Clayey SILT
	S-28	140-142	114				100	18												Red-Brown Clayey SILT
P4-1	S-26	127-129	115				92	4												Red-Brown SILT, trace (+) Sand
R-1	S-9	40-42	116				11	4												Grey-f-m SAND, little (-) Silt
R-2	S-12	55-57	117				8	2												Red-Brown f-m SAND, trace (+) Silt
R-4	S-14	65-67	118				10	2												Red-Brown f-m SAND, some f-c Gravel, trace (+) Silt
R-5	S-10	45-47	119	55.0	77	35														Grey Organic SILT of very high plasticity
R-6	S-11	50-52	120	71.7	82	38														Grey Organic SILT of very high plasticity
R-7	S-9	40-42	121	75.7	107	41														Grey Organic SILT of very high plasticity
R-8	S-14	65-67	122				53	3												Red-Brown SILT and fine SAND
R-10	S-12	60-62	123				44	2												Red-Brown fine SAND and SILT
R-11	S-9	40-42	124				26	2												Red-Brown fine SAND, some Silt



RECONSTRUCTION OF I-95
OVER WEST RIVER

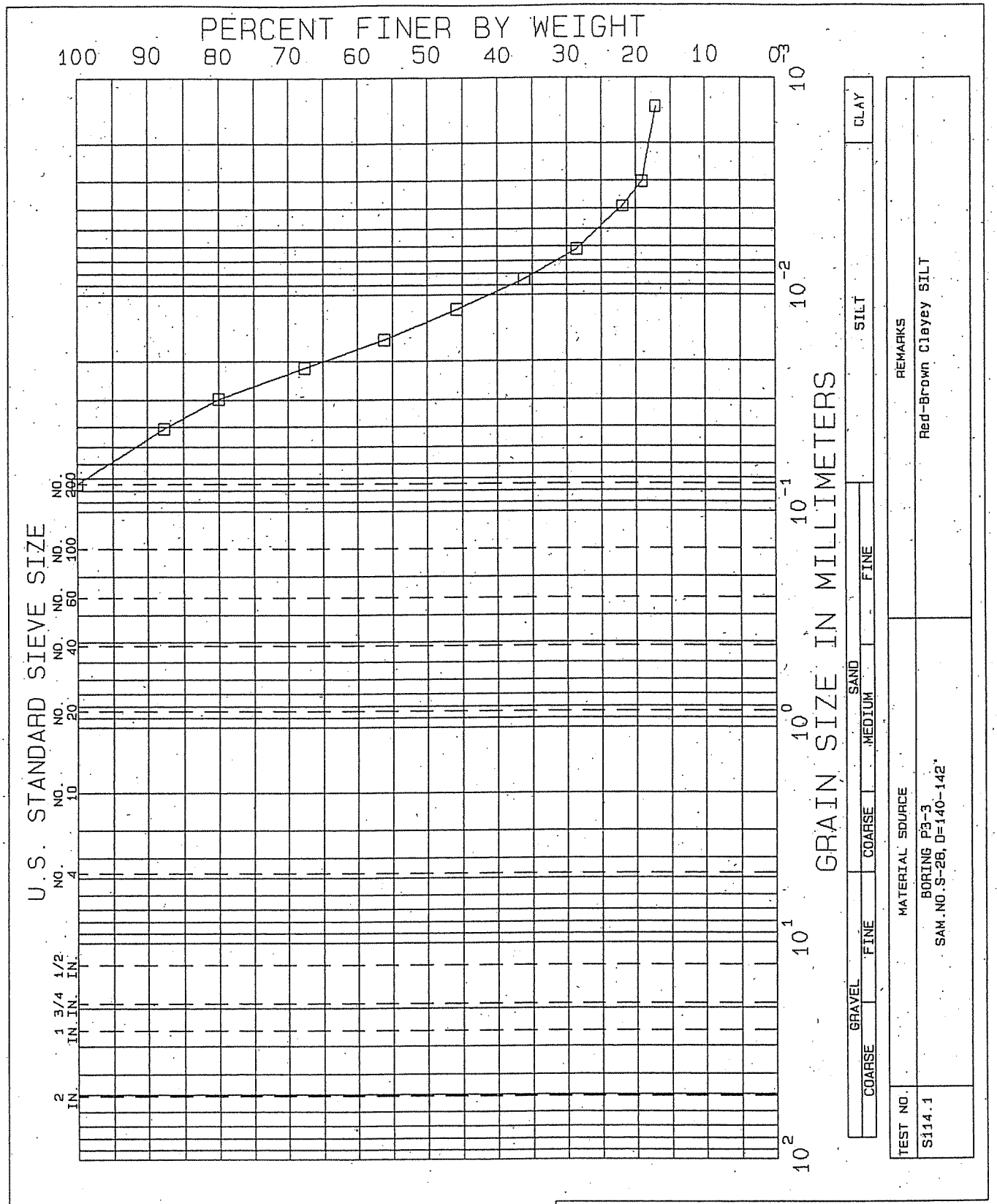
GRADATION TESTS

BORING NO.	P3-3	TEST SERIES	
SAMPLE	S-20	NO.	112
DEPTH	100-102'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



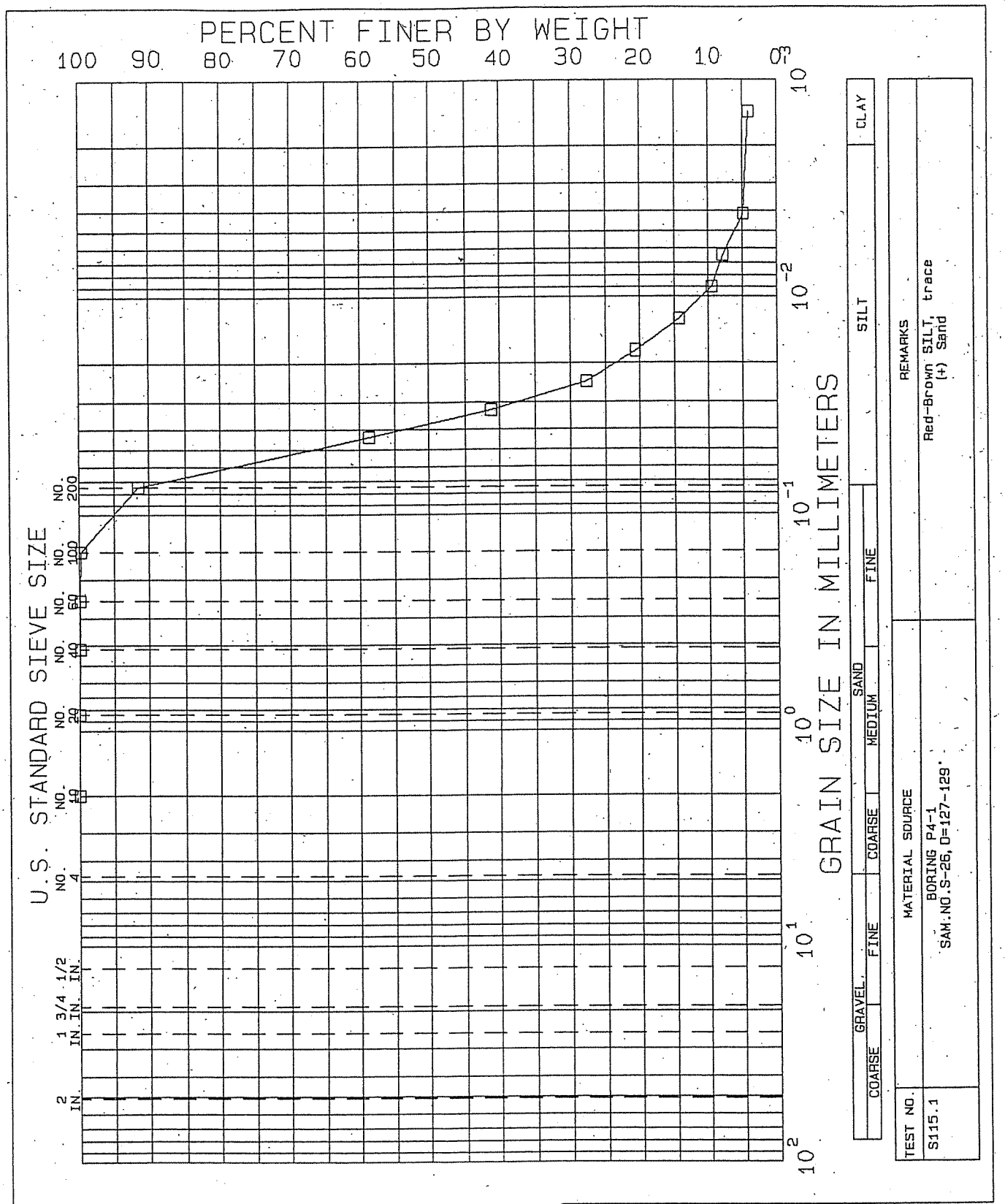
RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-3	TEST SERIES	
SAMPLE	S-25	NO.	113
DEPTH	125-127'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P3-3	TEST SERIES	
SAMPLE	S-28	NO.	114
DEPTH	140-142'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371



RECONSTRUCTION OF I-95
OVER WEST RIVER
GRADATION TESTS

BORING NO.	P4-1	TEST SERIES	
SAMPLE	S-26	NO.	115
DEPTH	127-129'	DATE	Aug.02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

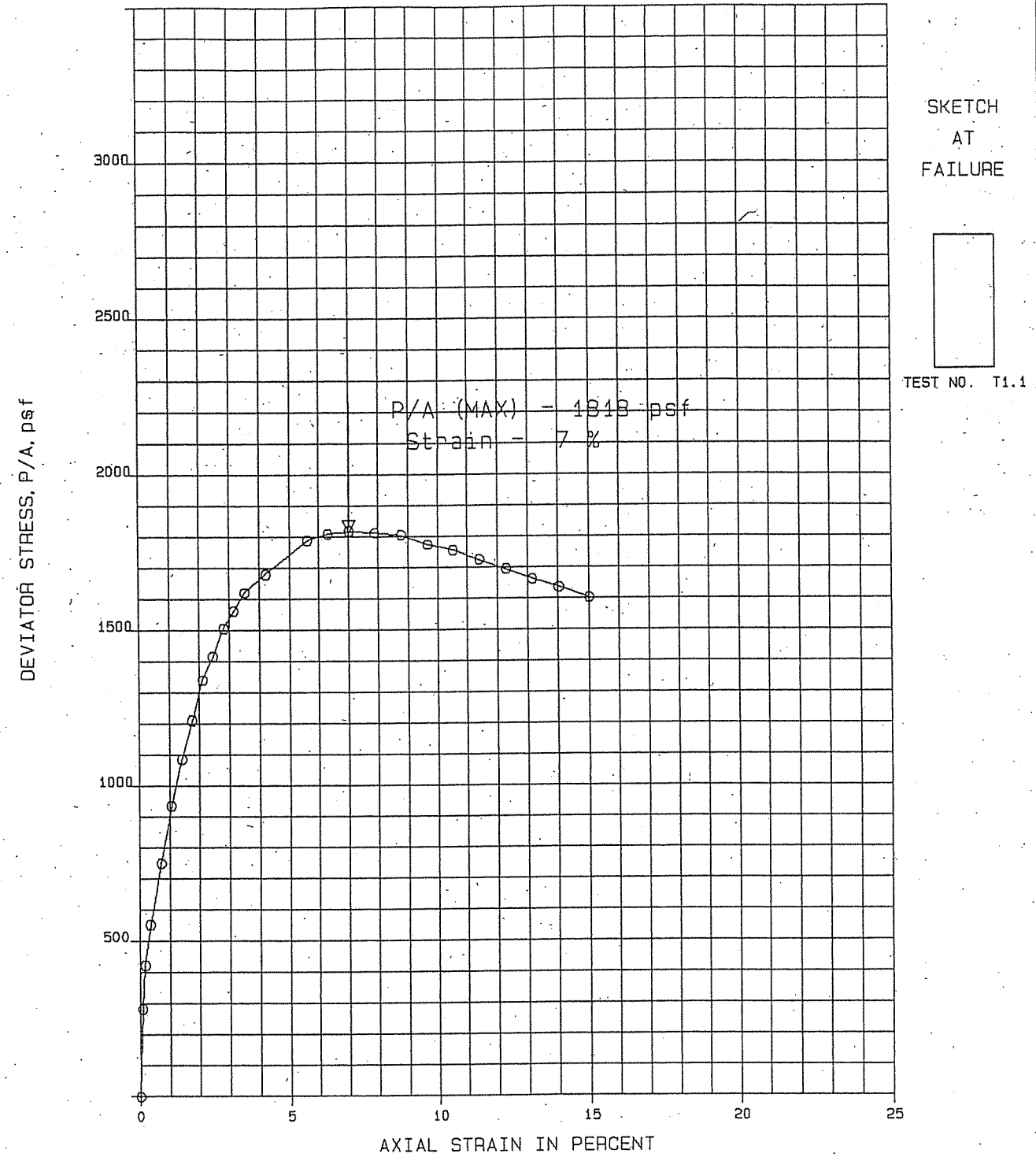
LABORATORY TESTING DATA SHEET

roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

roject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

roject Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
A1-2	UP-1	30-32	1		Average Total Unit Weight (30.0-31.9') = 97.7 Pcf															
		30.2		74.5										Tv= 0.26 tsf						Grey Organic SILT of high plasticity, medium consistency, trace Shells, trace fine Sand
		30.2-30.7		Save																
		30.8		70.8										Tv=0.40 tsf						
		30.7-31.2		69.4							58.6			UU	2304	P/A MAX	1818	7.0		
		31.3		64.9										Tv= 0.41 tsf						
		31.3-31.4		73.4							56.4								0.26	
		31.4-31.6		68.8	86	39														



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T1.1	69.4	58.6	5.70 2.84	2304.	–	–	–	68.1	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

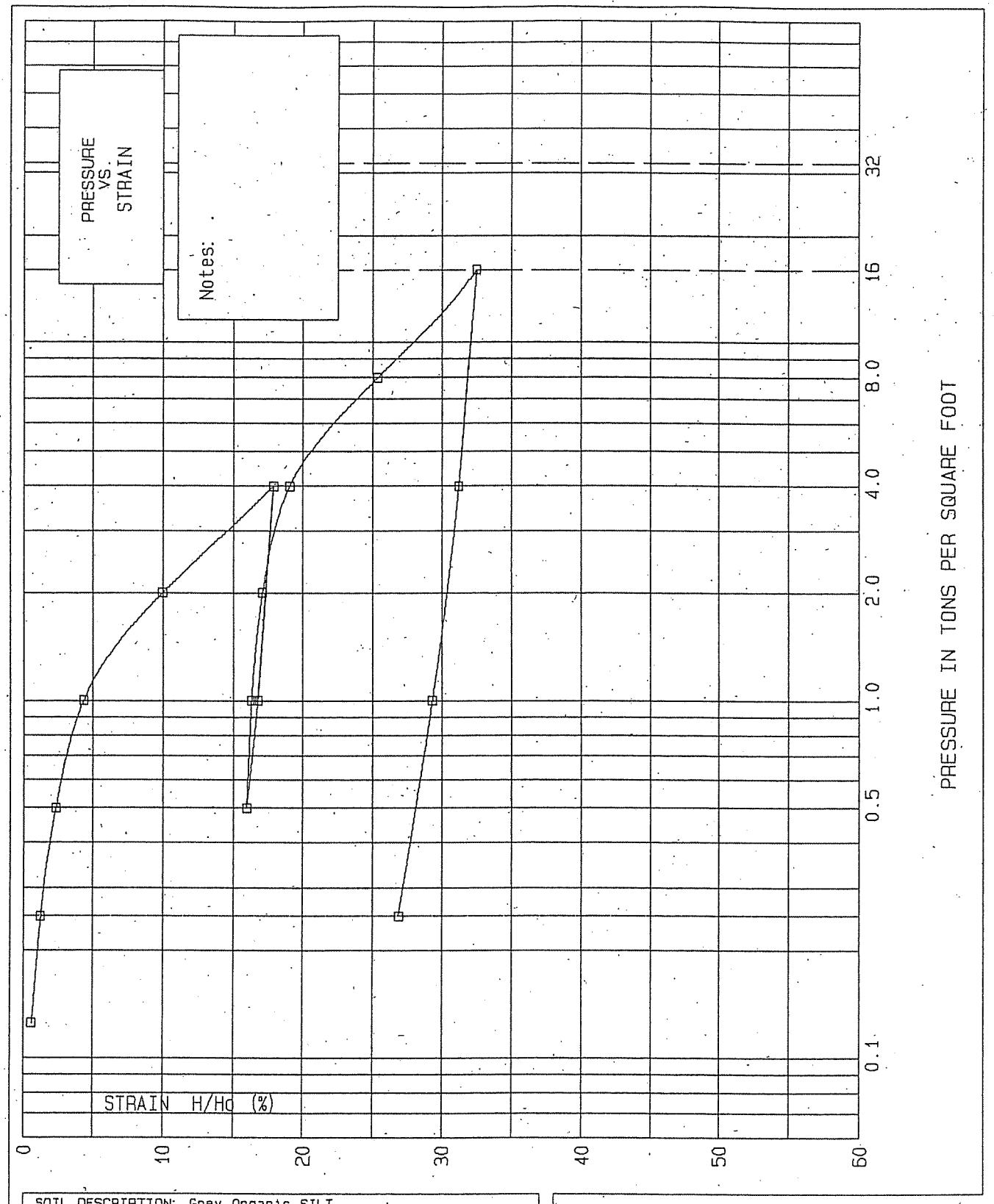
LIQUID LIMIT	86 %	PLASTIC LIMIT	39 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	A1-2	TEST SERIES NO.	1
SAMPLE	UP-1	DATE	JULY 02
DEPTH	30.7-31.2'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	86 %	39 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	73.40	56.43			0.80
FINAL	47.10	77.17			0.58

RECONSTRUCTION OF I-95

CONSOLIDATION TEST

BORING NO.	A1-2	TEST SERIES	
SAMPLE	UP-1	NO.	C1.1
DEPTH	31.3-31.4'	DATE	8/15/02
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

Job Number L17371
Project Name ..... RECONSTRUCTION OF I-95
Test Number C1.1
Sample Description .. Grey Organic SILT
Boring Number A1-2
Sample Number UP-1
Depth ..... 31.3-31.4'

Technician ..... MST
Reviewer ..... DAS

NOTES:

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 5.8170E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 5.8500E-01
Initial Water Content .... 7.3400E+01
Final Water Content ..... 4.7100E+01
Liquid Limit ..... 8.6000E+01
Plastic Limit ..... 3.9000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)
1	0.000	0.0	0.00	1.897		
2	0.125	46.0	0.57	1.880		
3	0.250	99.0	1.24	1.861	1.4	102.33
4	0.500	188.0	2.35	1.829	1.0	140.71
5	1.000	348.0	4.35	1.771	1.7	80.17
6	2.000	798.0	9.97	1.608	5.3	23.72
7	4.000	1433.0	17.91	1.378	8.4	12.86
8	1.000	1341.0	16.76	1.411		
9	0.500	1275.0	15.94	1.435		
10	1.000	1305.0	16.31	1.425	1.4	73.31
11	2.000	1369.0	17.11	1.401	1.7	59.53
12	4.000	1525.0	19.06	1.345	2.0	48.94
13	8.000	2031.0	25.39	1.162	6.3	14.01
14	16.000	2600.0	32.50	0.956	4.0	18.42
15	4.000	2498.0	31.22	0.992		
16	1.000	2345.0	29.31	1.048		
17	0.250	2154.0	26.92	1.117		

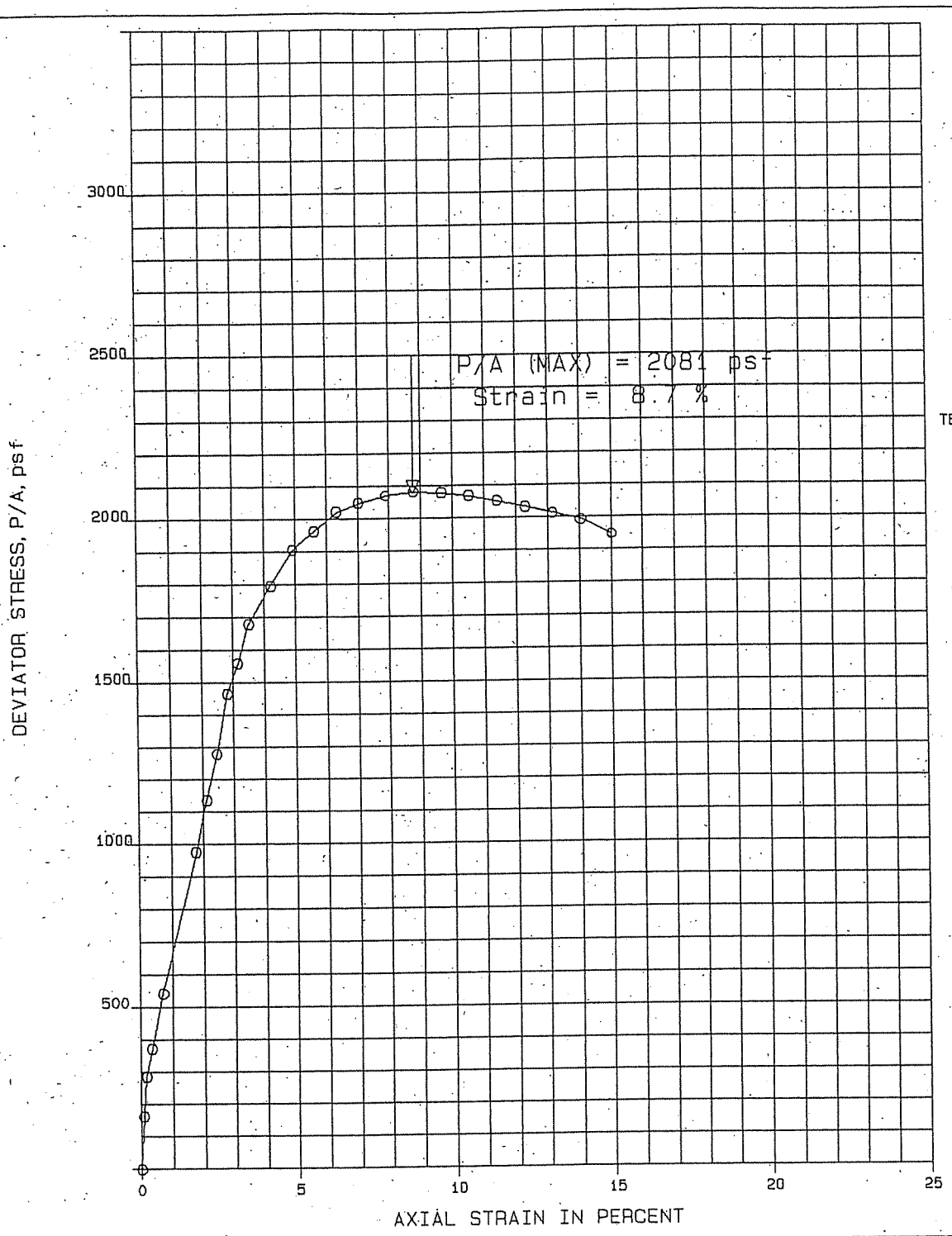
LABORATORY TESTING DATA SHEET

oject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

oject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

oject Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
A1-2	UP-2	40-42	2	Average Total Unit Weight (40.0-41.8') = 98.9 Pcf																
		40.3		74.4										Tv=0.35 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		40.3-40.8		Save																
		40.8		72.8										Tv= 0.41 tsf						
		40.8-41.3		70.2							57.5			UU	2599	P/A MAX	2081	8.7		
		41.4		68.8										Tv= 0.38 tsf						
		41.4-41.5		69.6							58.6								0.29	
		41.5-41.7		72.3	89	40														



SKETCH AT FAILURE

TEST NO. T2.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T2.1	70.2	57.5	5.70 2.86	2599.	–	–	–	69.2	–	0.50

SOIL DESCRIPTION: Grey ORganic SILT

LIQUID LIMIT 89 % PLASTIC LIMIT 40 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER

TRIAXIAL COMPRESSION TESTS (UU)

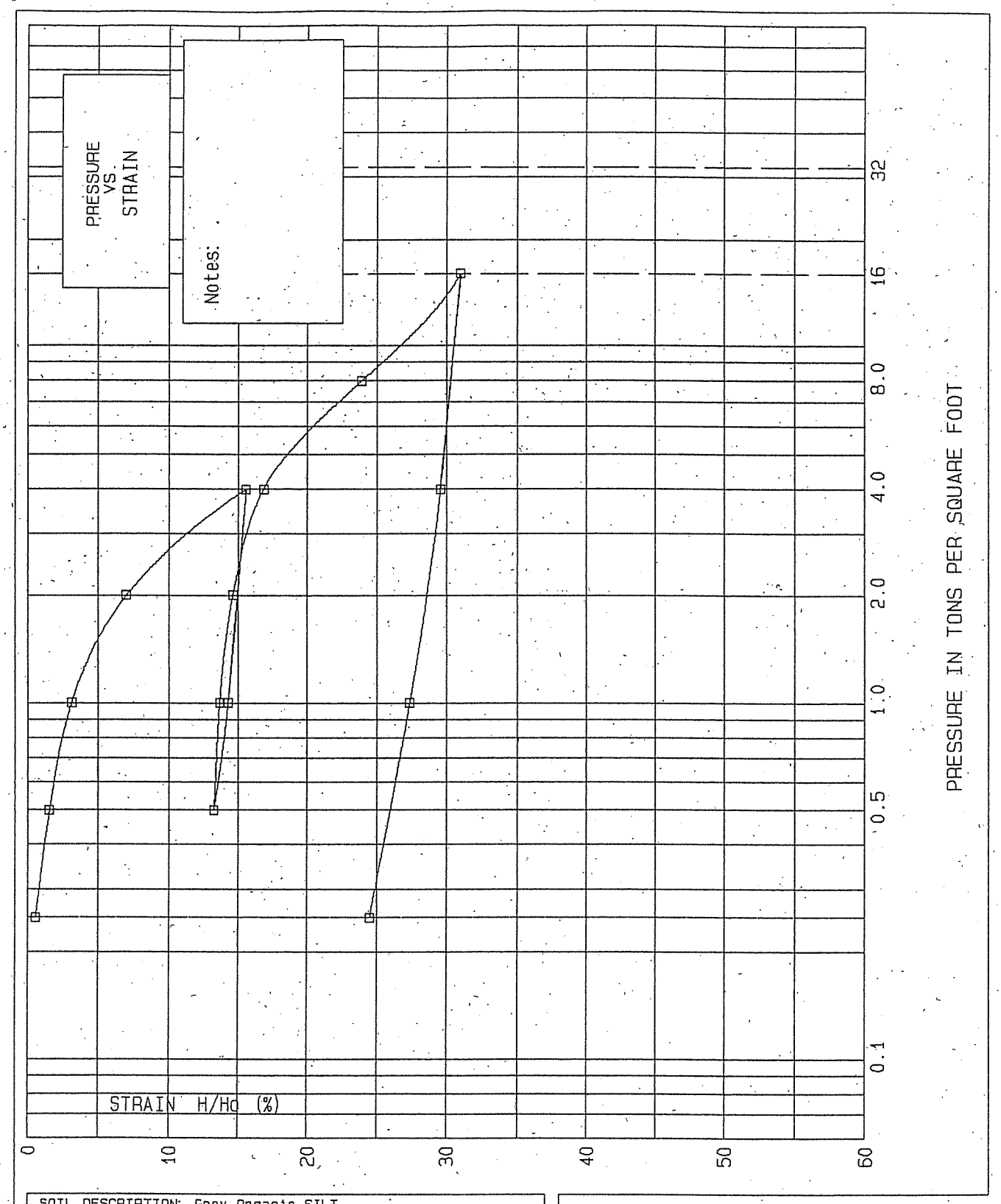
BORING NO. A1-2
SAMPLE UP-2
DEPTH 40.8-41.3'
TECH. MST
REVIEWER

TEST SERIES NO. 2
DATE JULY 02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 89 %	PLASTIC LIMIT 40 %	SPECIFIC GRAVITY 2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	69.60	58.63			0.80
FINAL	47.10	77.92			0.60

RECONSTRUCTION OF I-95

CONSOLIDATION TEST

FIGURE

BORING NO.	A-1-2	TEST SERIES NO.	C2.1
SAMPLE	UP-2	DATE	8/15/02
DEPTH	41.4-41.5'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17371
Project Name ..... RECONSTRUCTION OF I-95
Test Number C2.1
Sample Description .. Grey Organic SILT
Boring Number A1-2
Sample Number UP-2
Depth ..... 41.4-41.5'

Technician ..... MST
Reviewer ..... DAS

NOTES:

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.0440E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.0200E-01
Initial Water Content .... 6.9600E+01
Final Water Content ..... 4.7100E+01
Liquid Limit ..... 8.9000E+01
Plastic Limit ..... 4.0000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment Number	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)
1	0.125	19.0	0.00	1.788		
2	0.250	63.0	0.55	1.773	4.8	30.23
3	0.500	146.0	1.59	1.744	4.8	29.75
4	1.000	272.0	3.16	1.700	3.6	38.62
5	2.000	582.0	7.04	1.592	6.3	20.86
6	4.000	1265.0	15.57	1.354	9.6	11.95
7	1.000	1161.0	14.27	1.390		
8	0.500	1078.0	13.24	1.419		
9	1.000	1111.0	13.65	1.408	2.6	42.04
10	2.000	1188.0	14.61	1.381	2.6	41.37
11	4.000	1365.0	16.82	1.319	3.2	32.39
12	8.000	1932.0	23.91	1.122	8.4	11.01
13	16.000	2498.0	30.99	0.924	6.8	11.29
14	4.000	2384.0	29.56	0.964		
15	1.000	2208.0	27.36	1.025		
16	0.250	1980.0	24.51	1.105		

LABORATORY TESTING DATA SHEET

oject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

oject No. L17371 — Assigned By: R. BORJESON — Reviewed By:

oject Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P4-1	UP-1	23-25	3		Average Total Unit Weight (23.0-25.0') = 90.4 Pcf															
		23.3		101										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine sand
		23.3-23.8		Save																
		23.8-24.3		89.7										Tv=0.30 tsf						
		23.8-24.3		92.8							48.0			UU	1300	P/A MAX	974	6.3		
		24.4		84.5										Tv= 0.28 tsf						
		24.4-24.6		84.1	88	42														

GZA GeoEnvironmental, Inc.

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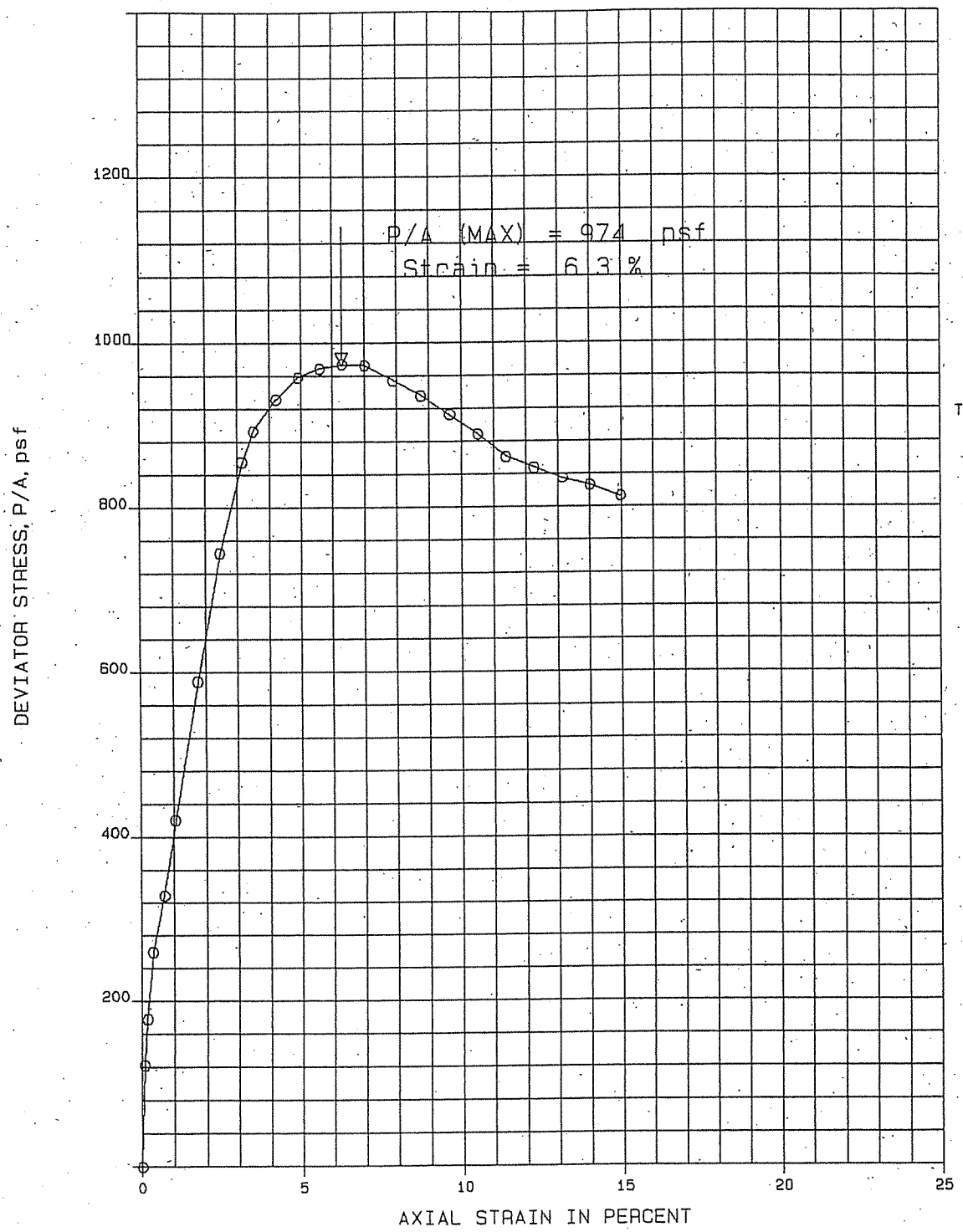
labform1.xls



SKETCH AT FAILURE

TEST NO. T3.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T3.1	92.8	48.0	5.71 2.83	1300.	–	–	–	92.3	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
88 %	42 %	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P4-1	TEST SERIES NO.	3
SAMPLE	UP-1	DATE	JULY 02
DEPTH	23.8-24.3'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

ɔject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
ɔject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:
ɔject Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
P4-1	UP-2	33-35	4		Average Total Unit Weight (33.0-35.0') = 85.4 Pcf															
		33.3		84.0										Tv= 0.05 tsf						Grey Organic SILT of very high plasticity,
		33.4-33.9		Save																Note: Entire Sample disturbed
		33.9		87.2										Tv= 0.06 tsf						
		34.0-34.5		Save																
		34.5		83.3										Tv= 0.04 tsf						
		34.5-34.7		80.1	93	41														

LABORATORY TESTING DATA SHEET

ɔject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

ɔject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

ɔject Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

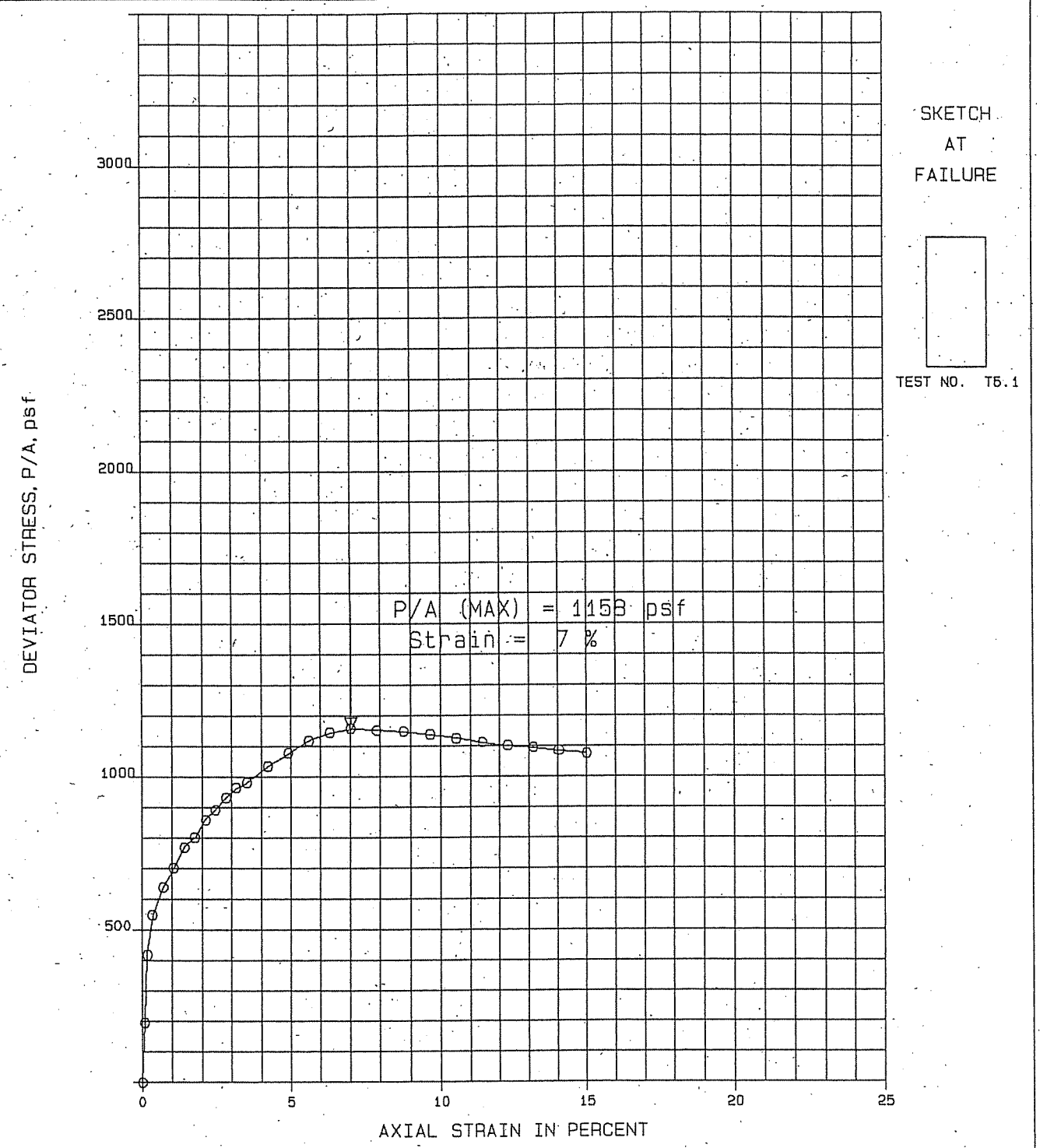
Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P4-3	UP-2	30-32	5		Average Total Unit Weight (30.0-30.2') = 84.5 Pcf															
		30.3		89.2										Tv= 0.06 tsf						Grey Organic SILT of very high plasticity, trace Shell, trace fine Sand
		30.4-30.9		Save																
		30.9		83.7										Tv= 0.07 tsf						Note: Bottom of tube dented, Entire Sample Disturbed
		31.0-31.5		Save																
		31.5		94.3										Tv= 0.05 tsf						
		31.5-31.7		90.6	95	37														

LABORATORY TESTING DATA SHEET

Project Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
Project No.: L17371
Project Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Jul-02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P4-3	UP-3	35-37	6		Average Total Unit Weight (35.0-36.9') = 92.0 Pcf															Grey Organic SILT of very high plasticity medium consistency, trace Shell, trace fine Sand
		35.4		73.0										Tv= 0.28 tsf						
		35.4-35.9		Save																
		36.0		87.3										Tv= 0.30 tsf						
		36.0-36.5		78.4							54.1			UU	1800	P/A MAX	1158	7.0		
		36.5		88.0										Tv= 0.32 tsf						
		36.5-36.7		76.3	88	37														

GZA GeoEnvironmental, Inc.



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T6.1	78.4	54.1	5.70 2.82	1800.	—	—	—	76.6	—	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	88 %	PLASTIC LIMIT	37 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P4-3	TEST SERIES NO.	6
SAMPLE	UP-3	DATE	JULY 02
DEPTH	36.0-36.5'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

ɔject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

ɔject No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

ɔject Engineer: D. SCHULZE | Date: Jul-02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
P5-1	UP-1	23-25	7		Average Total Unit Weight (23.0-24.9') = 84.4 Pcf															
		23.2		66.7										Tv= 0.04 tsf						Grey Organic SILT of very high plasticity, trace Shell, trace fine Sand
		23.2-23.8		Save																
		23.8		64.2										Tv= 0.07 tsf						Note:Entire Sample Disturbed
		23.8-24.3		Save																
		24.3		65.1										Tv= 0.07 tsf						
		24.3-24.5		65.9	71	33														

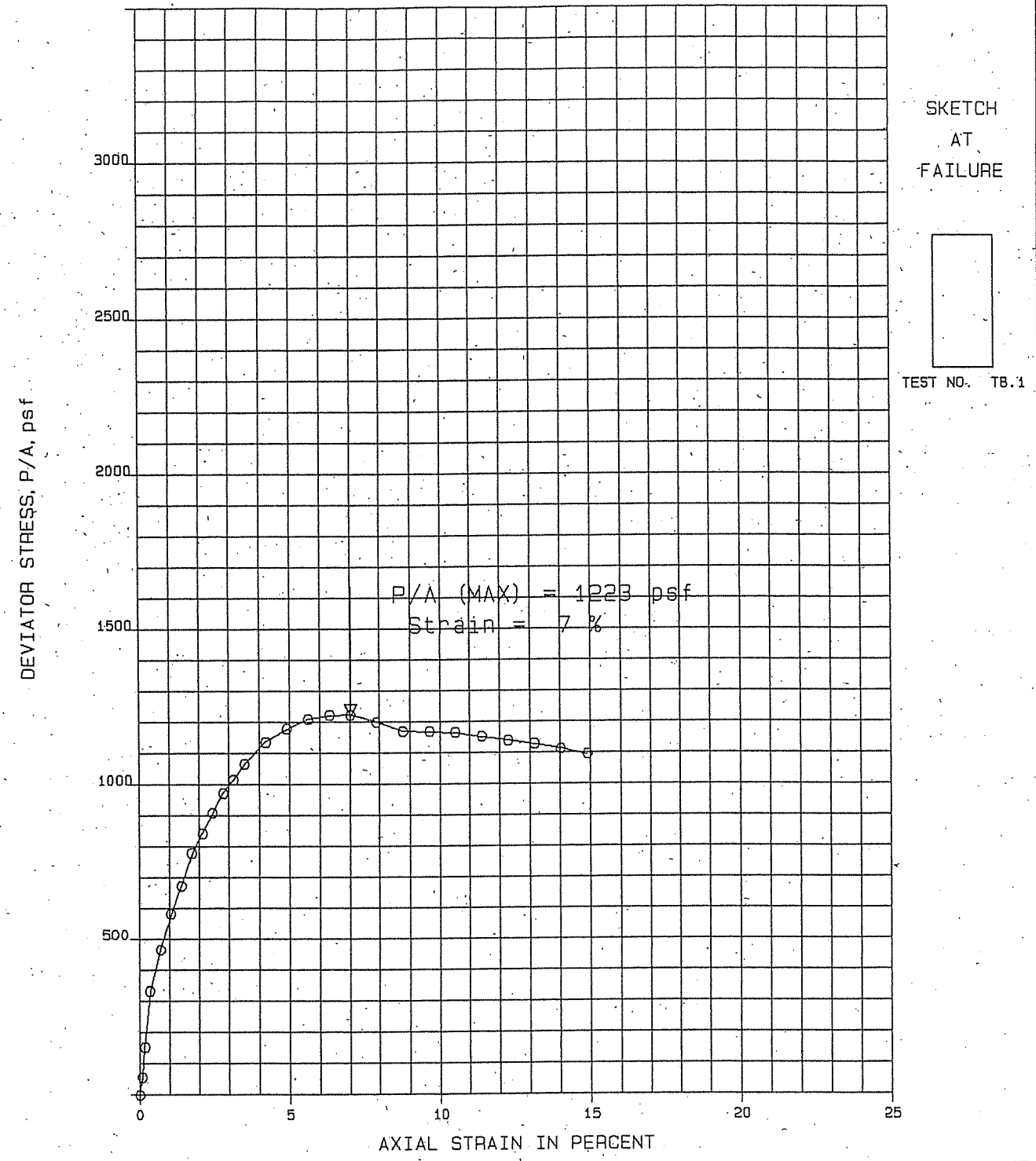
LABORATORY TESTING DATA SHEET

'roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

'roject No.: L17371 | Assigned By: R. BORJESON | Reviewed By:

'roject Engineer: D. SCHULZE | Date: Jul-02 | Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol: $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
P5-1	UP-2	33-35	8	Average Total Unit Weight (33.0-35.0') = 91.7 Pcf																
		33.4		79.6										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace shell, trace fine Sand
		33.4-33.9		Save																
		33.9		78.1										Tv= 0.32 tsf						
		33.9-34.4		83.8							51.2			UU	1800	P/A MAX	1223	7.0		
		34.4		83.9										Tv= 0.32 tsf						
		34.4-34.7		72.5	85	41														



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
TB.1	83.8	51.2	5.70 2.83	1800.	—	—	—	82.3	—	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	85 %	PLASTIC LIMIT	41 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P5-1	TEST SERIES NO.	8
SAMPLE	UP-2	DATE	JULY 02
DEPTH	33.9-34.4'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

roject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

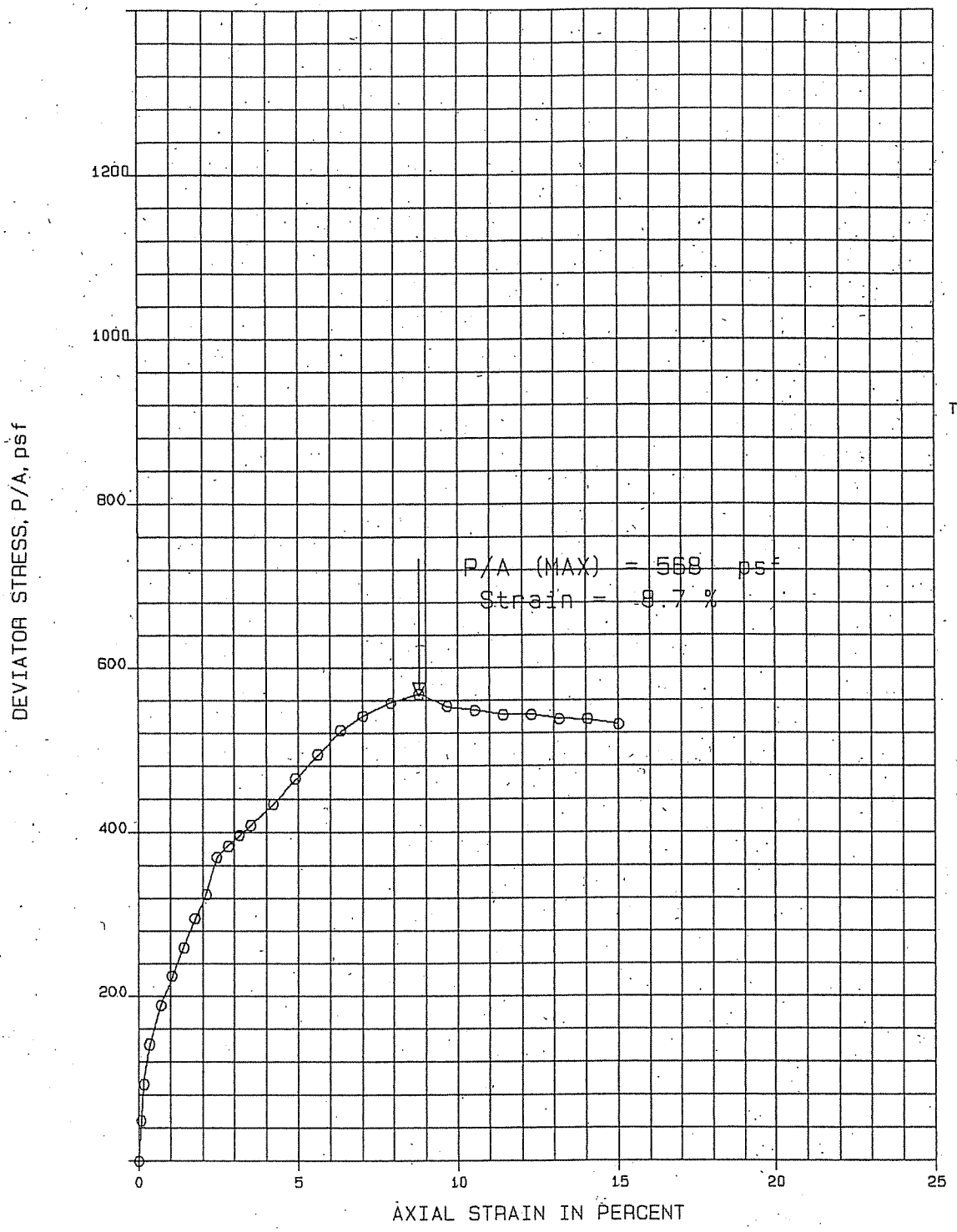
roject Engineer: D. SCHULZE — Date: Jul-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
P5-3	UP-1	15-17	9	Average Total Unit Weight (15.0-16.3') = 101.5 Pcf																From 15-15.3' Depth- Grey Organic SILT of soft consistency, trace shell, trace fine sand
		15.1		54.6										Tv= 0.15 tsf						
		15.1-15.6		Save																
		15.7		54.6										Tv= 0.18 tsf						From 15.3-15.5' Depth- Grey f-m SAND, trace Shell, trace Silt
		15.7-15.8		43.1	57	26														
		15.8-16.2		Save																From 15.5-15.9' Depth- Grey Organic Silt of high plasticity, soft consistency, trace fine Sand, trace Shell
		16.2		44.1										Tv= 0.15 tsf						
																				From 15.9-16.3' Depth- Grey f-m SAND, trace Shell, trace Silt

LABORATORY TESTING DATA SHEET

roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
roject No.: L17371
roject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Jul-02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{G_s}{1+e_0}$	Laboratory Log and Soil Description
P5-3	UP-2	25-27	10	Average Total Unit Weight (25.0-27.0') = 95.2 Pcf																Grey Organic SILT of very high plasticity, soft consistency, trace Shell, trace fine Sand
		25.3		77.5										Tv= 0.15 tsf						
		25.3-25.8		Save																
		25.8		82.1										Tv= 0.20 tsf						
		25.8-26.3		90.6							48.4			UU	1397	P/A MAX	568	8.7		
		26.3		87.4										Tv= 0.21 tsf						
		26.3-26.6		70.2	79	37														



SKETCH AT FAILURE

TEST NO. T10.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T10.1	90.6	48.4	5.70 2.85	1397	–	–	–	90.6	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
79 %	37 %	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P5-3	TEST SERIES NO.	10
SAMPLE	UP-2	DATE	JULY 02
DEPTH	25.8-26.3'		
TECH.	MST		
REVIEWER		FILE	L17371

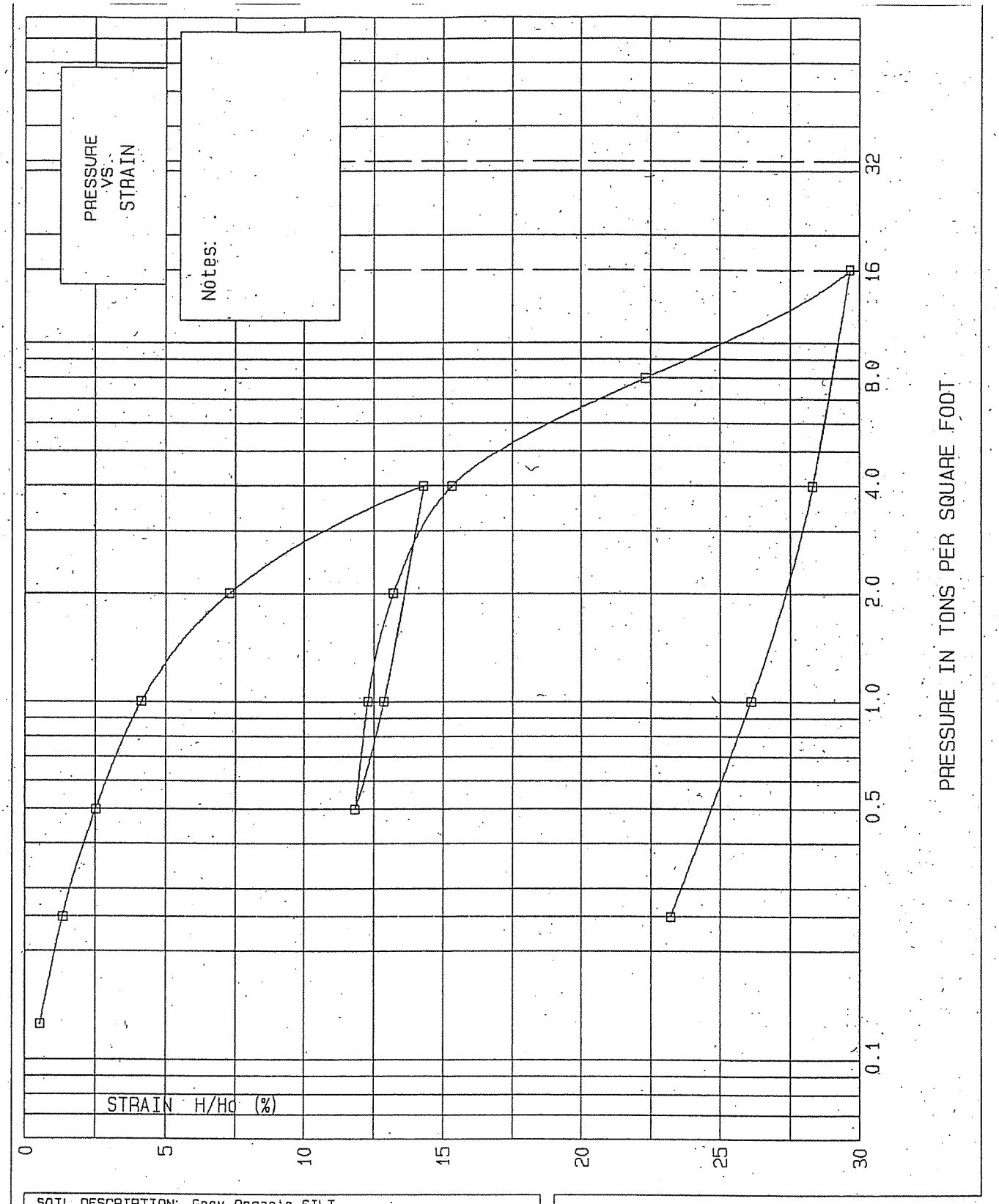
FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

oject Name	RECONSTRUCTION OF I-95 OVER WEST RIVER				
oject No.	L17371	Assigned By	R. BORJESON	Reviewed By	
oject Engineer	D. SCHULZE	Date	Aug.02	Date Reviewed	

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
A1-1	UP-2	13-15	20	Average Total Unit Weight (13.0-14.9') = 96.1 Pcf																
		13.2		78.9										Tv= 0.27 tsf						Grey Organic Silt of very high plasticity, medium consistency, trace Shell, trace fine Sand
		13.2-13.7		Save																
		13.7		70.7										Tv= 0.45 tsf						
		14.0-14.1		68.1							59.2								0.26	
		14.1-14.2		77.3	103	53														
		14.2		67.4										Tv= 0.50 tsf						
		14.2-14.7		57.5							65.7			UU	1397	P/A MAX	1960	8.7		



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	103 %	53 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	68.10	59.20			0.80
FINAL	45.50	77.14			0.61

RECONSTRUCTION OVER I-95

CONSOLIDATION TEST

BORING NO.	A1-1	TEST SERIES NO.	C20.1
SAMPLE	UP-2	DATE	9/5/02
DEPTH	13.9-14.0'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

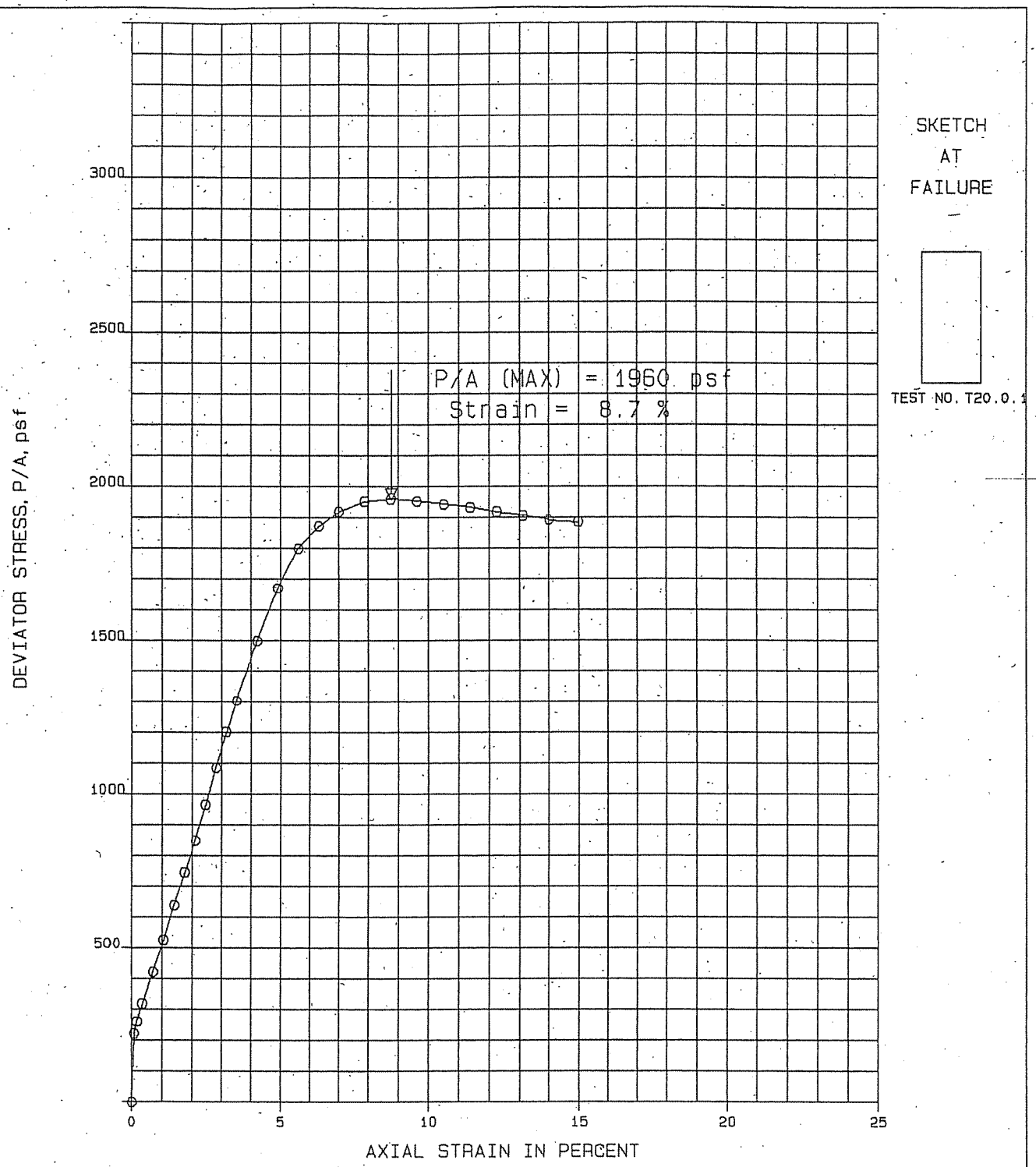
Job Number L17371
Project Name ..... RECONSTRUCTION OVER I-95
Test Number C20.1
Sample Description .. Grey Organic SILT
Boring Number A1-1
Sample Number UP-2
Depth ..... 13.9-14.0'

Technician ..... MST
Reviewer ..... DAS

NOTES:

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.1030E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.1400E-01
Initial Water Content .... 6.8100E+01
Final Water Content ..... 4.5500E+01
Liquid Limit ..... 1.0300E+02
Plastic Limit ..... 5.3000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Ca
1	0.000	0.0	0.00	1.761			
2	0.125	43.0	0.54	1.747			
3	0.250	107.0	1.34	1.724	2.9	49.37	
4	0.500	202.0	2.52	1.692	5.3	26.47	
5	1.000	332.0	4.15	1.647	5.3	25.72	
6	2.000	581.0	7.26	1.561	3.2	40.54	
7	4.000	1143.0	14.29	1.367	8.4	13.83	.0114
8	1.000	1030.0	12.87	1.406			
9	0.500	947.0	11.84	1.434			
10	1.000	983.0	12.29	1.422	2.0	56.41	0.0008
11	2.000	1057.0	13.21	1.397	2.6	42.72	
12	4.000	1227.0	15.34	1.338	2.6	41.24	
13	8.000	1786.0	22.32	1.145	4.8	20.02	
14	16.000	2372.0	29.65	0.943	5.3	15.08	
15	4.000	2264.0	28.30	0.980			
16	1.000	2087.0	26.09	1.041			
17	0.250	1859.0	23.24	1.120			



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T20.0	57.5	65.7	5.72 2.85	1397.	–	–	–	57.3	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	103 %	PLASTIC LIMIT	53 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	A1-1	TEST SERIES NO.	20
SAMPLE	UP-2	DATE	Aug.02
DEPTH	14.2-14.7'		
TECH.	MST		
REVIEWER		FILE	L17371

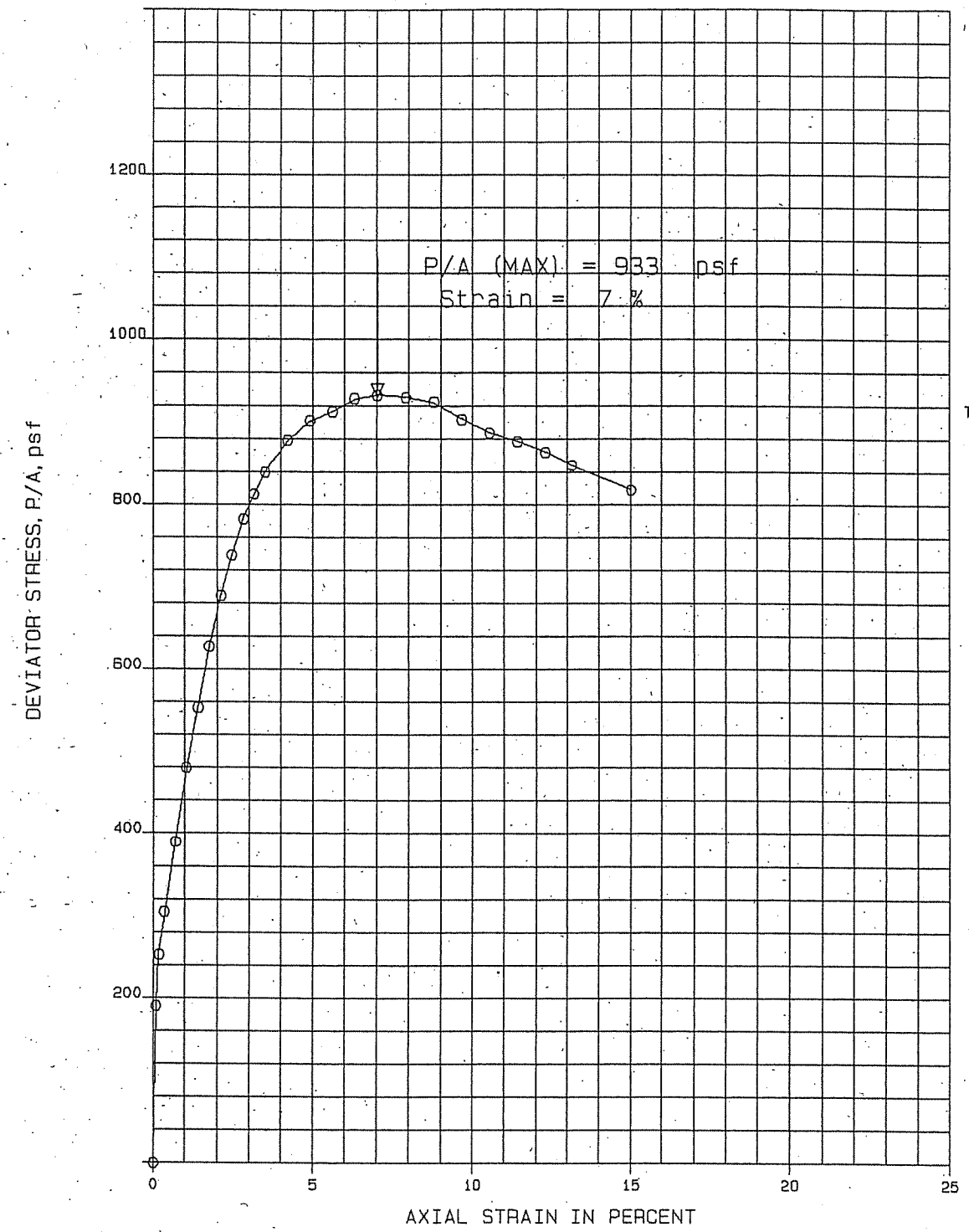
FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

'roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
'roject No.: L17371
'roject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug-02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd. -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
P1-3	UP-1	18-20	21		Average Total Unit Weight (18.0-20.0') = 93.0 Pcf															Grey Organic SILT of very high plasticity, soft consistency,
		18.2		78.3										Tv= 0.20 tsf						
		18.2-18.7		Save																
		18.7		77.9										Tv= 0.24 tsf						
		18.7-19.3		76.3							55.3			UU	1296	P/A MAX	933	7.0		
		19.4		84.6										Tv= 0.22 tsf						
		19.4-19.6		75.1	91	37														



SKETCH AT FAILURE

TEST NO. T21.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T21.0	76.3	55.3	5.70 2.84	1296.	–	–	–	75.3	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 91 % PLASTIC LIMIT 37 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS - (UU)

BORING NO. P1-3
SAMPLE UP-1
DEPTH 18.7-19.3'
TECH. MST
REVIEWER

TEST SERIES NO. 21
DATE Aug. 02

FILE L17371

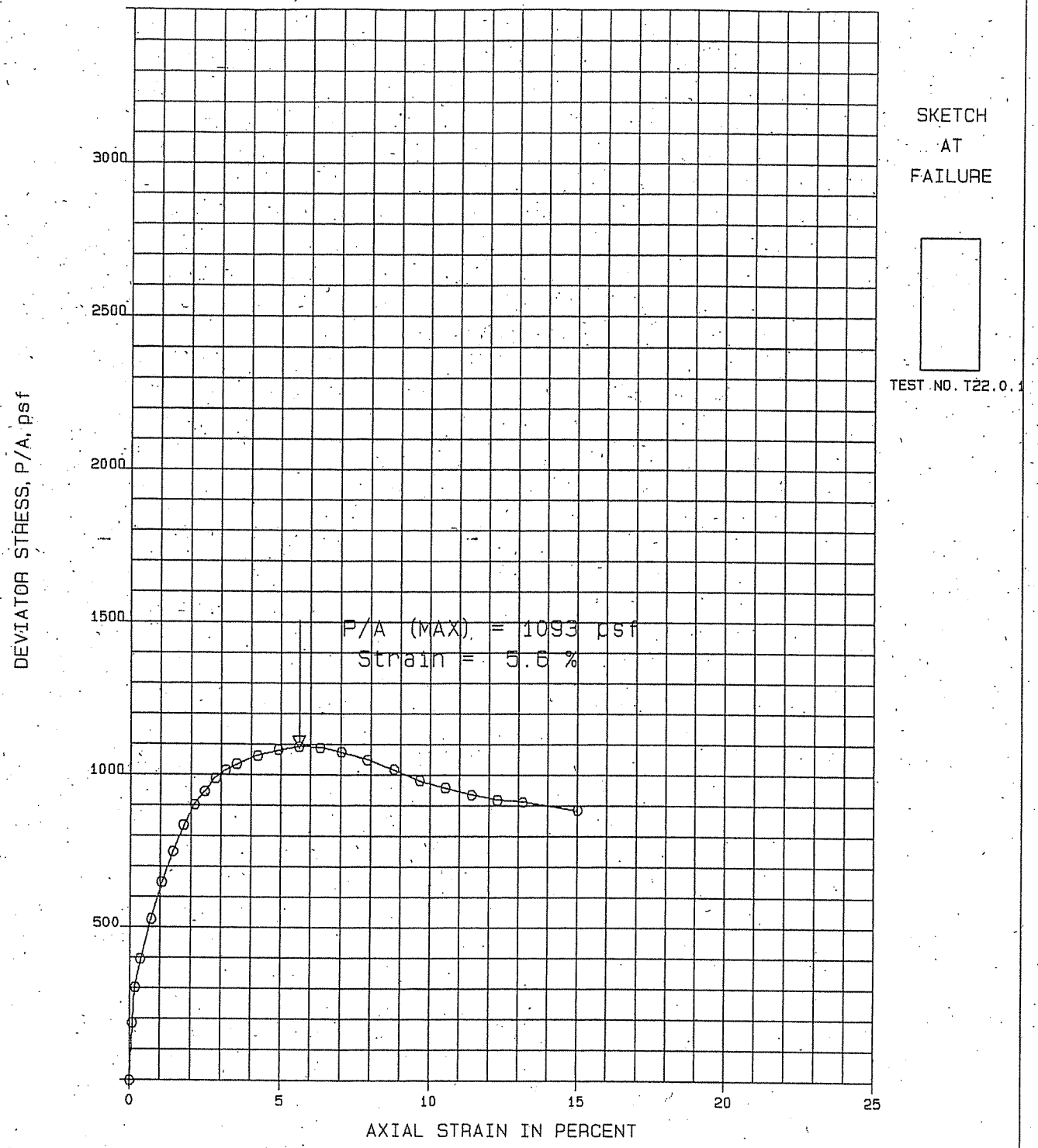
FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

'roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
'roject No.: L17371
'roject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug-02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
P1-3	UP-2	28-30	22	Average Total Unit Weight (28.0-30.0') = 92.6 Pcf																
		28.3		81.8										Tv= 0.25 tsf						Olive Grey Organic SILT of very high plasticity, medium consistency trace Shell, trace fine Sand
		28.3-28.8		Save																
		28.9		83.0										Tv= 0.26 tsf						
		28.9-29.4		82.5							52.8			UU	1598	P/A MAX	1093	5.6		
		29.4		80.2										Tv= 0.27 tsf						
		29.4-29.6		78.8	86	37														



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T22.0	82.5	52.8	5.70 2.84	1598.	–	–	–	80.9	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	86	%	PLASTIC LIMIT	37	%	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. P1-3
SAMPLE UP-2
DEPTH 28.9-29.4'
TECH. MST
REVIEWER

TEST SERIES NO: 22
DATE Aug. 02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

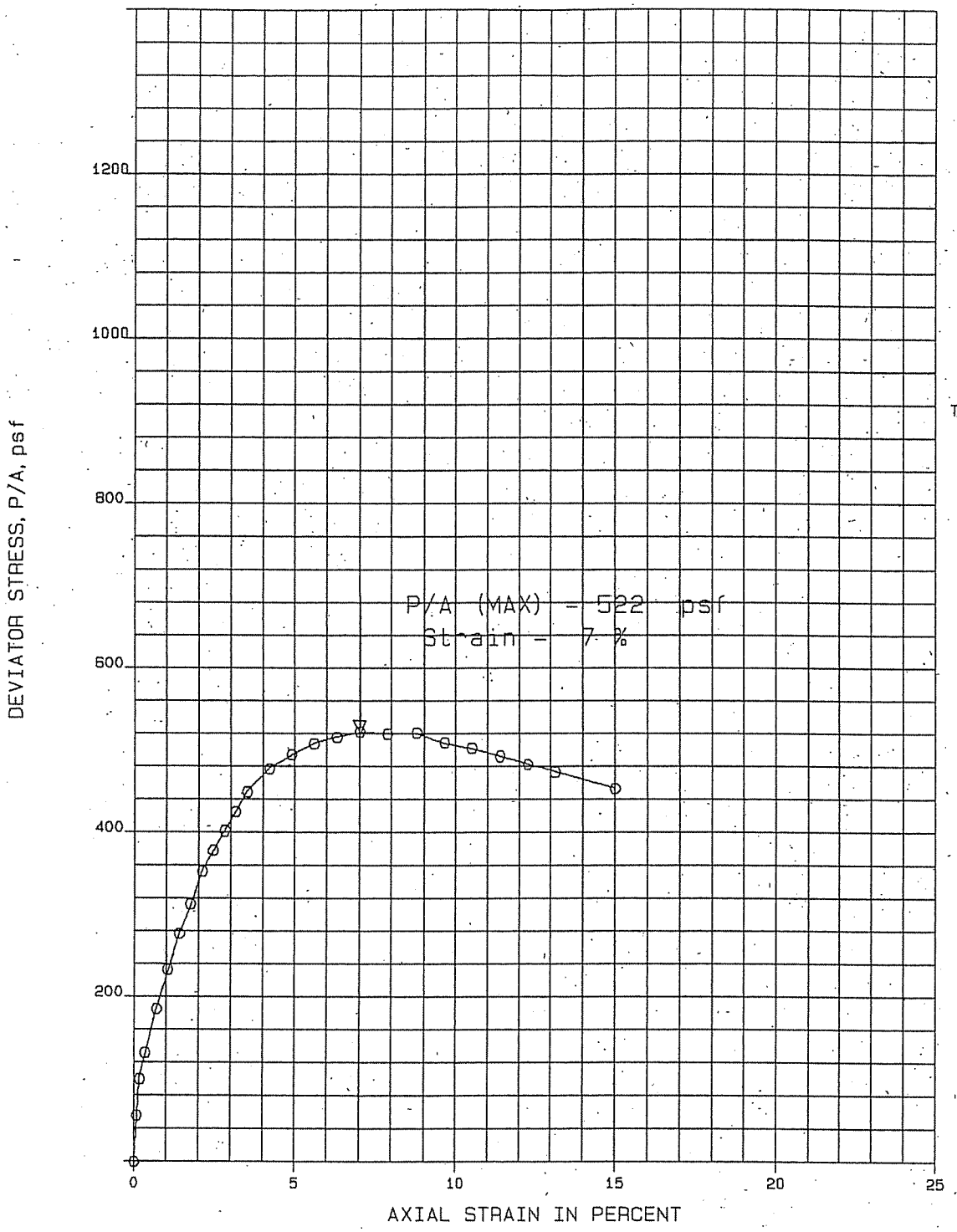
LABORATORY TESTING DATA SHEET

roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

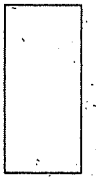
roject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

roject Engineer: D. SCHULZE — Date: Aug-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P2-3	UP-1	30-32	23	Average Total Unit Weight (30.0-32.0') = 86.5 Pcf																
		30.3		103										Tv= 0.18 tsf						Grey Organic SILT of very high plasticity, soft consistency, trace Shell, trace fine Sand
		30.4-30.9		Save																
		30.9		96.7										Tv= 0.20 tsf						
		30.9-31.4		101							45.1			UU	994	P/A MAX	522	7.0		
		31.4		94.4										Tv= 0.22 tsf						
		31.4-31.7		93.1	104	39														



SKETCH AT FAILURE



TEST NO. T23.0.1

TEST NO /SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T23.0	101.0	45.1	5.71 2.83	994	–	–	–	100	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 104 % PLASTIC LIMIT 39 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. P2-3
SAMPLE UP-1
DEPTH 30.9-31.4'
TECH. MST
REVIEWER

TEST SERIES NO. 23
DATE Aug. 02

FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

'roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

'roject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

'roject Engineer: D. SCHULZE — Date: Aug-02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{e_c}{1+e_0}$	Laboratory Log and Soil Description
P2-3	UP-2	40-42	24		Average Total Unit Weight (40.0-42.0') = 116.3 Pcf															
		40.3		53.5										Tv= 0.25 tsf						Grey Organic SILT of medium plastciity, medium plasticity, some fine Sand
		40.3-40.8		Save																
		40.8		56.2										Tv= 0.26 tsf						
		40.8-41.3		37.8							82.0			UU	1296	P/A MAX	2014	14.9		
		41.3		55.7										Tv= 0.25 tsf						
		41.3-41.6		53.4	48	30														

GZA GeoEnvironmental, Inc.

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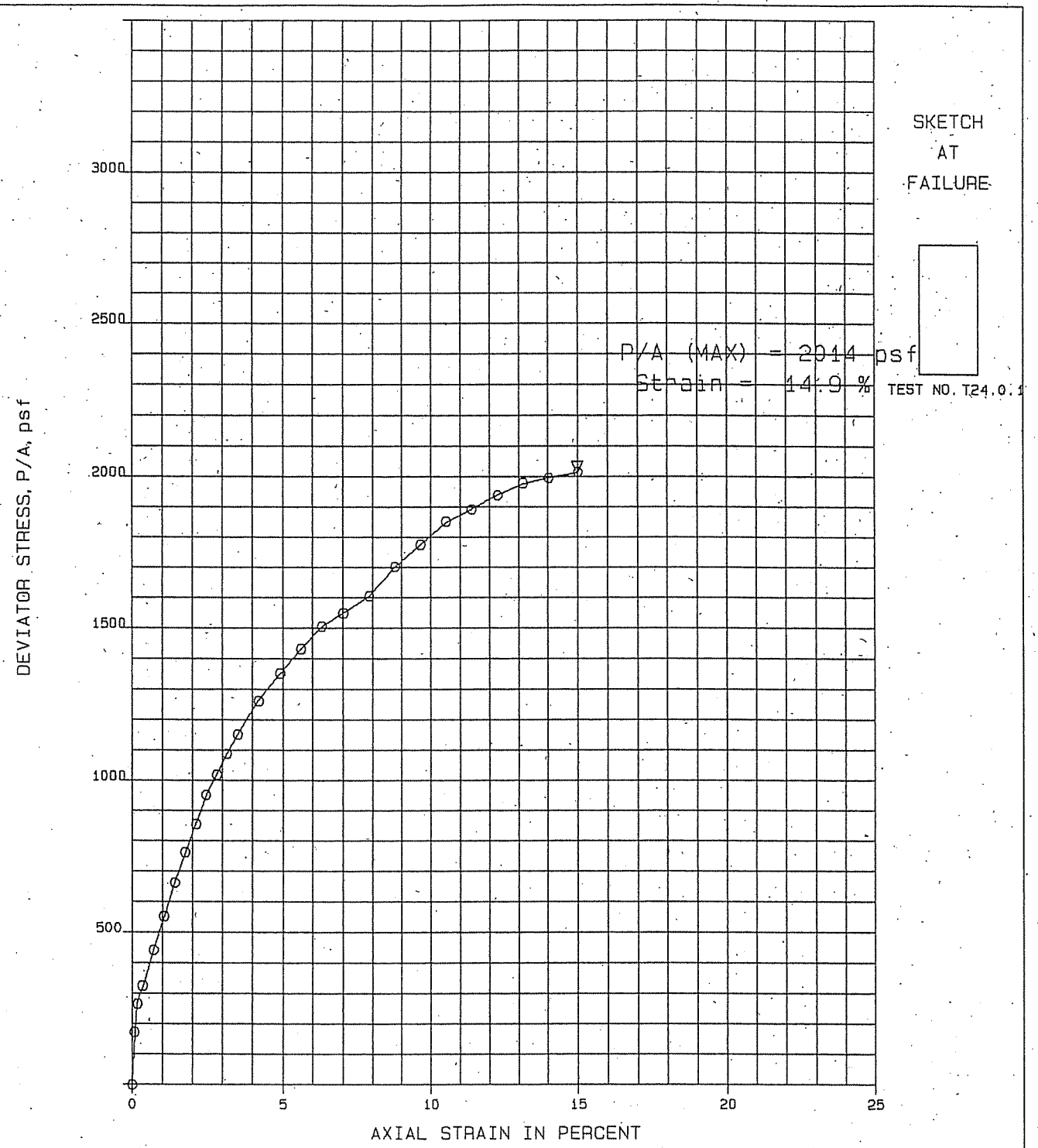
labform1.xls



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T24.0	37.8	82.0	5.71 2.86	1296.	–	–	–	37.3	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	48 %	PLASTIC LIMIT	30 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P2-3	TEST SERIES NO.	24
SAMPLE	UP-2	DATE	Aug. 02
DEPTH	40.8-41.3'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

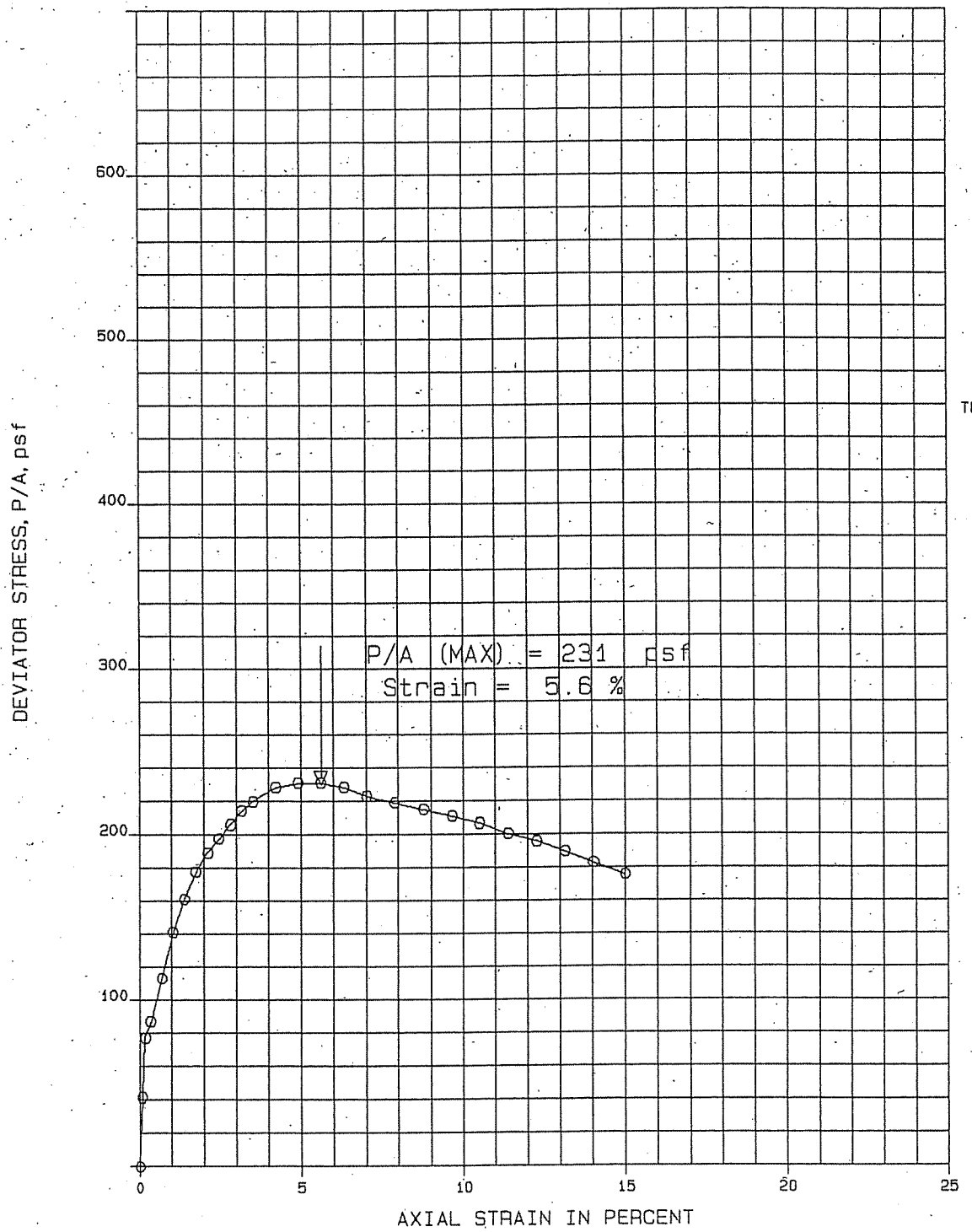
LABORATORY TESTING DATA SHEET

ject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

ject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

ject Engineer: D. SCHULZE — Date: Aug.02 — Date Reviewed:

oring/ est Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P3-3	UP-2	12-14	26		Average Total Unit Weight (12.0-14.0') = 84.1 Pcf															
		12.3		103										Tv= 0.10 tsf						Grey Organic SILT of high plasticity, soft consistency, trace Shell, trace fine Sand
		12.4-12.9		Save																
		12.9		104										Tv=0.11 tsf						
		12.9-13.4		98.6							45.9			UU	706	P/A MAX	231	5.6		
		13.4		104										Tv= 0.10 tsf						
		13.4-13.6		97.5	81	37														



SKETCH AT FAILURE

TEST NO. T26.0.1

TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %.	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T26.0	98.6	45.9	5.70 2.83	706	–	–	–	96.4	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	81 %	PLASTIC LIMIT	37 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

FIGURE

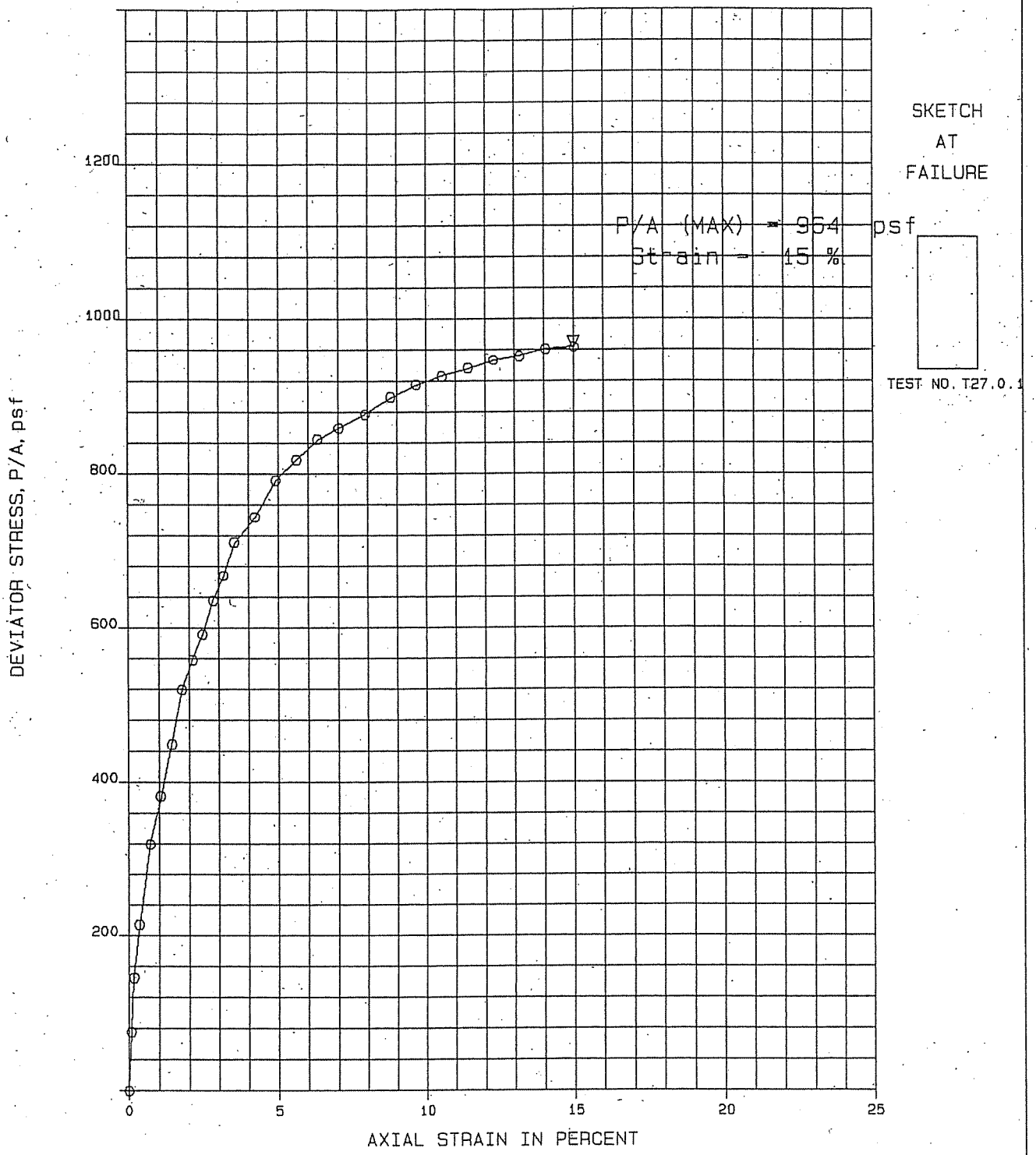
BORING NO.	P3-3	TEST SERIES NO.	26
SAMPLE	UP-2	DATE	Aug.02
DEPTH	12.9-13.4'		
TECH.	MST		
REVIEWER		FILE	L17371

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

ject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
ject No.: L17371
ject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

oring/ est Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{e_0}{1+e_0}$	Laboratory Log and Soil Description
P3-3	UP-4	30-32	27		Average Total Unit Weight (30.0-32.0') = 112.5 Pcf															
		30.3		35.0										Tv= 0.17 tsf						Grey Organic SILT of medium plasticity, medium consistency, some fine Sand, trace Shell
		30.4-30.9		Save																
		30.9		31.9										Tv=0.20 tsf						
		30.9-31.4		34.7							85.2			UU	1296	P/A MAX	964	15.0		
		31.4		42.9										Tv= 0.20 tsf						
		31.4-31.6		44.0	38	12														



TEST NO:/SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T27.0	34.7	85.2	5.70 2.87	1296.	–	–	–	34	–	0.50

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT	38	%	PLASTIC LIMIT	26	%	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P3-3	TEST SERIES NO.	27
SAMPLE	UP-4	DATE	Aug.02
DEPTH	30.9-31.4'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

roject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

roject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

roject Engineer: D. SCHULZE — Date: Aug.02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
P2-2	UP-1	27-29	86		Average Total Unit Weight (27.0-29.0') = 91.0 Pcf															
		27.2		76.0										Tv= 0.25 tsf						Grey Organic SILT of very high plastcity, medium consistency, trace Shell, trace fine Sand
		27.2-27.7		Save																
		27.7		74.0										Tv= 0.28 tsf						
		27.7-28.2		75.3							55.8			UU	2002	P/A MAX	1477	7.0		
		28.2		74.7										Tv= 0.30 tsf						
		28.2-28.4		74.2	77	36														

GZA GeoEnvironmental, Inc.

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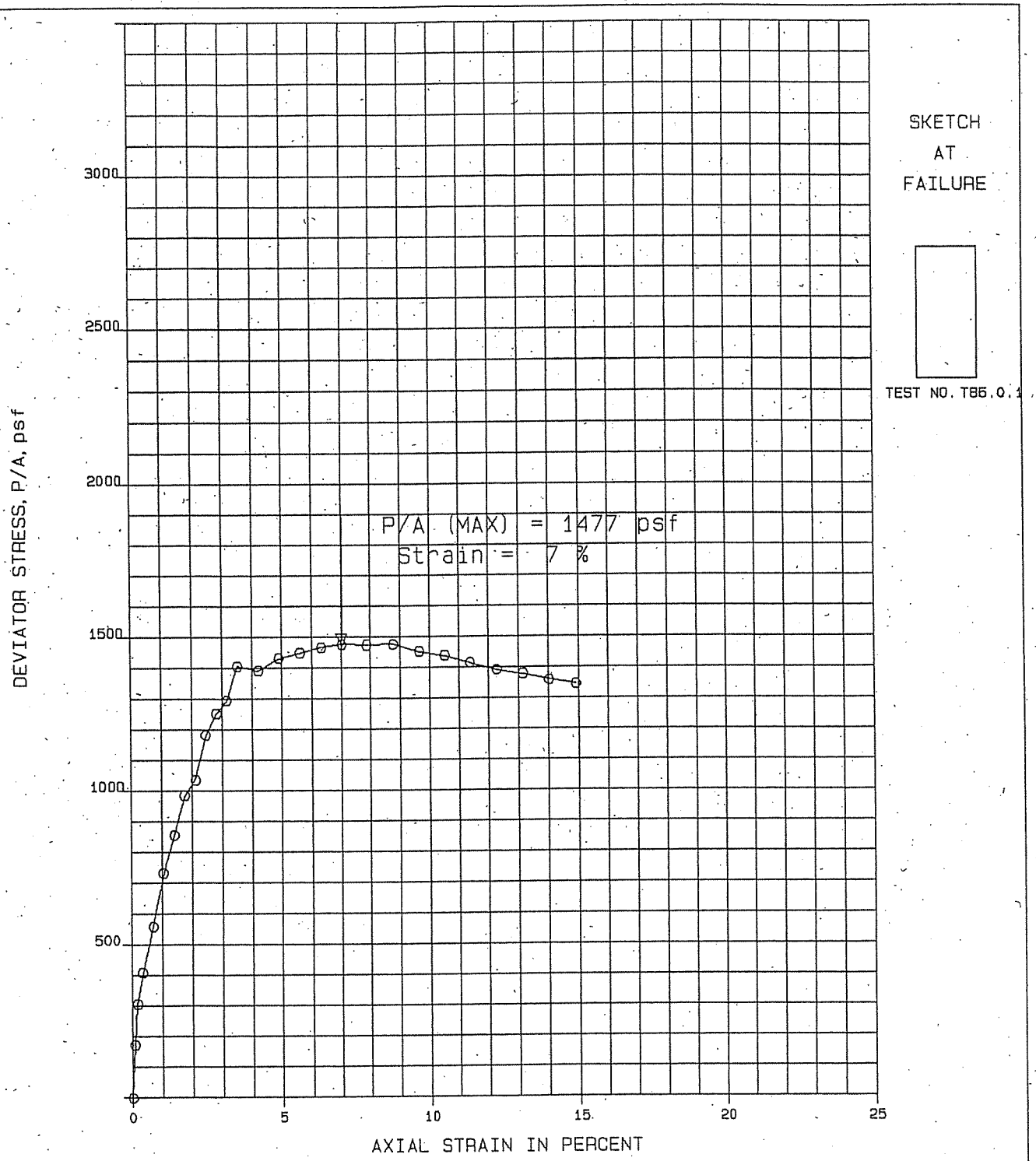

TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: CONFINING STRESS, psf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE,	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
T86.0	75.3	55.8	5.71 2.84	2002.	–	–	–	74.2	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	77 %	PLASTIC LIMIT	36 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	A2-2	TEST SERIES NO.	86
SAMPLE	UP-1	DATE	Sept.02
DEPTH	27.7-28.2'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

oject Name RECONSTRUCTION OF I-95 OVER WEST RIVER

oject No. L17371 Assigned By R. BORJESON Reviewed By

oject Engineer D. SCHULZE Date Aug.02 Date Reviewed

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
A2-2	UP-2	37-39	87	Average Total Unit Weight (37.0-39.0') = 93.2 Pcf																
		37.4		76.6										Tv= 0.22 tsf						Grey Organic SILT of high plasticity, soft to medium consistency, trace Shell, trace fine Sand
		37.4-37.9		Save																
		38.0		65.9										Tv= 0.25 tsf						
		38.1-38.2		69.1							58.2								0.26	
		38.2-38.4		76.5	74	36														
		38.5		82.0										Tv= 0.25 tsf						

GZA GeoEnvironmental, Inc.
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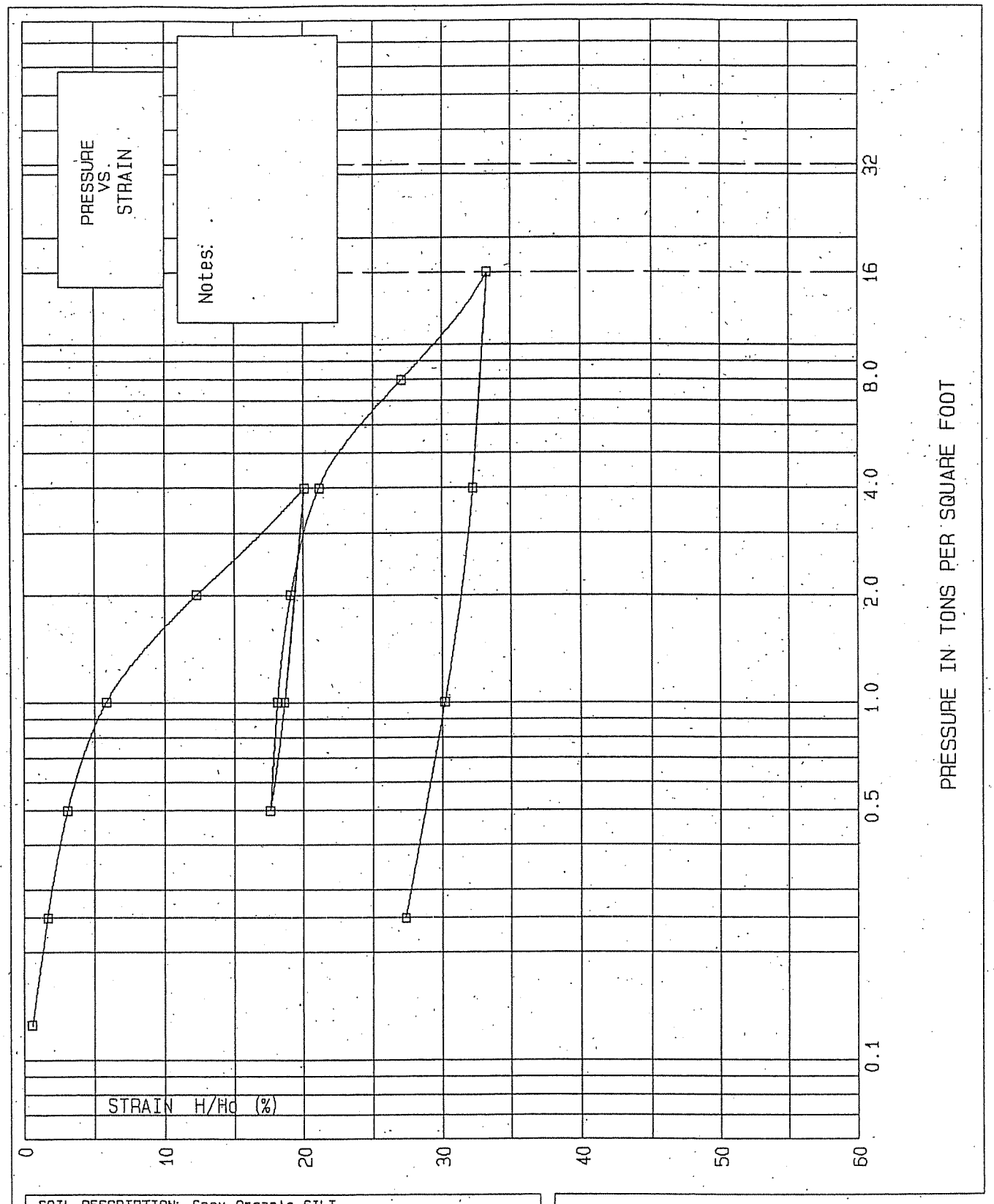
labform1.xls



SOIL DESCRIPTION: Grey Organic SILT

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	74 %	36 %	2.62

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	69.10	58.24			0.80
FINAL	43.50	80.20			0.58

I-95 RECONSTRUCTION

CONSOLIDATION TEST

FIGURE

BORING NO.	A2-2	TEST SERIES NO.	C87.1
SAMPLE	UP-2	DATE	10/23/02
DEPTH	38.2-38.3'		
TECH.	MST		
REVIEWER	DAS	FILE	L17371

Job Number L17371
Project Name ..... I-95 RECONSTRUCTION
Test Number C87.1
Sample Description .. Grey Organic SILT
Boring Number A2-2
Sample Number UP-2
Depth ..... 38.2-38.3'

Technician ..... MST
Reviewer ..... DAS

NOTES:

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.0040E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 5.8100E-01
Initial Water Content .... 6.9100E+01
Final Water Content ..... 4.3500E+01
Liquid Limit ..... 7.4000E+01
Plastic Limit ..... 3.6000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm²/sec)	Cα
1	0.000	0.0	0.00	1.807			
2	0.125	46.0	0.57	1.791			
3	0.250	134.0	1.67	1.760	2.4	59.43	
4	0.500	248.0	3.10	1.720	3.2	43.44	
5	1.000	468.0	5.85	1.643	4.8	27.73	
6	2.000	984.0	12.30	1.462	10.2	11.82	
7	4.000	1605.0	20.06	1.244	13.7	7.48	0.014
8	1.000	1490.0	18.62	1.284			
9	0.500	1408.0	17.60	1.313			
10	1.000	1448.0	18.10	1.299	3.2	30.77	
11	2.000	1526.0	19.07	1.271	3.2	30.22	0.001
12	4.000	1690.0	21.12	1.214	4.0	23.28	
13	8.000	2166.0	27.07	1.047	6.8	12.36	
14	16.000	2663.0	33.29	0.873	4.8	14.82	
15	4.000	2580.0	32.25	0.902			
16	1.000	2415.0	30.19	0.960			
17	0.250	2191.0	27.39	1.038			

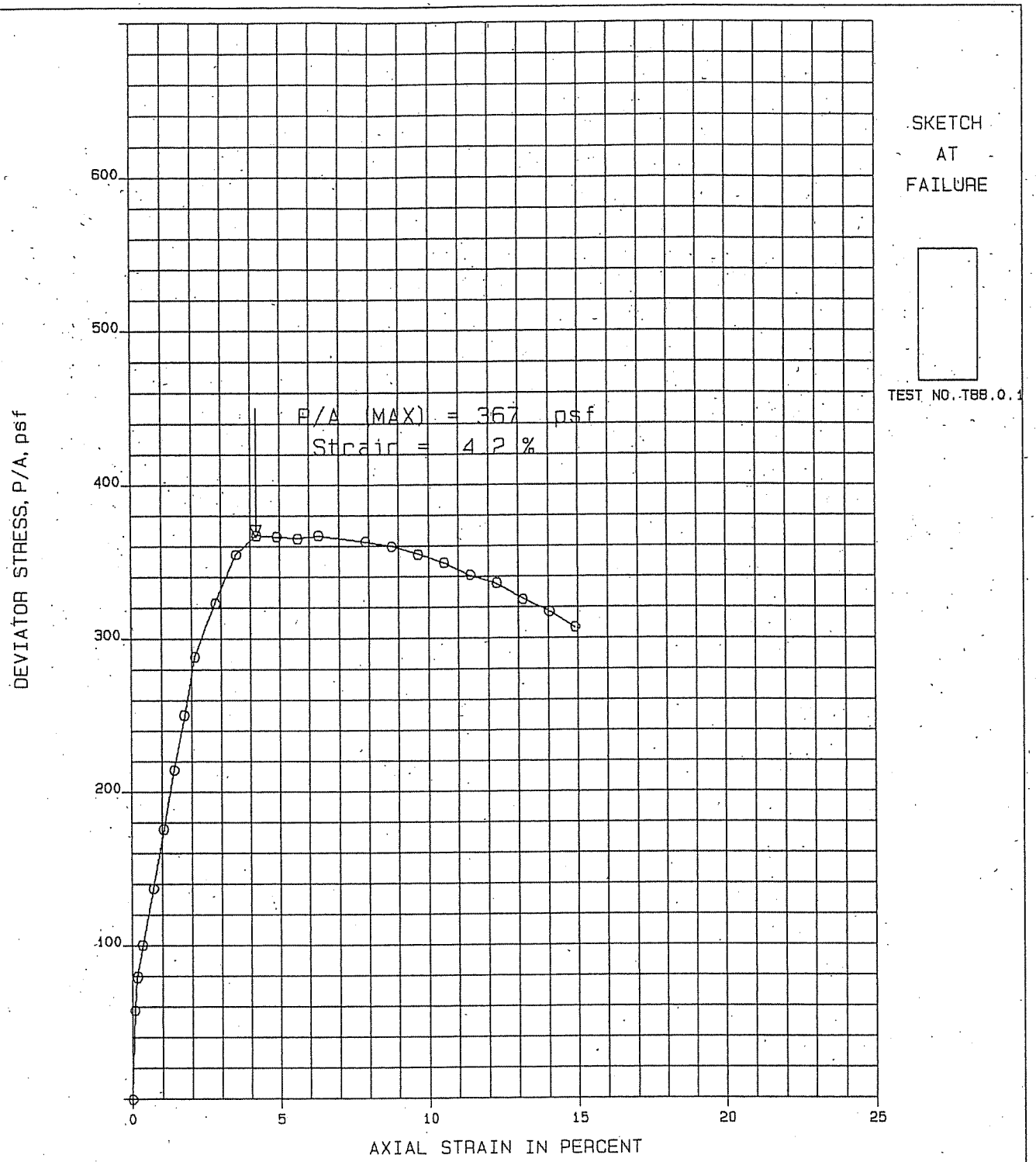
LABORATORY TESTING DATA SHEET

oject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER

oject No.: L17371 — Assigned By: R. BORJESON — Reviewed By:

oject Engineer: D. SCHULZE — Date: Aug.02 — Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
P2-1	UP-1	15-17	88	Average Total Unit Weight (15.0-17.0') = 86.5 Pcf																
		15.2		104										Tv= 0.12 tsf						Grey Organic SILT of very high plasticity, soft consistency, trace Shell, trace fine Sand
		15.2-15.7		Save																
		15.7		102										Tv= 0.15 tsf						
		15.7-16.2		103							45.0			UU	504	P/A MAX	367	4.2		
		16.3		97.4										Tv= 0.17 tsf						
		16.3-16.5		93.8	88	37														



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T88.0	103.0	45.0	5.70 2.84	504.	–	–	–	102	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT	88 %	PLASTIC LIMIT	37 %	SPECIFIC GRAVITY	2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO.	P2-1	TEST SERIES NO.	B8
SAMPLE	UP-1	DATE	Sept.02
DEPTH	15.7-16.2'		
TECH.	MST		
REVIEWER		FILE	L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

oject Name: RECONSTRUCTION OF I-95 OVER WEST RIVER
oject No.: L17371
oject Engineer: D. SCHULZE
Assigned By: R. BORJESON
Date: Aug.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{\Delta e}{1+e_0}$	Laboratory Log and Soil Description
P2-1	UP-2	25-27	89		Average Total Unit Weight (25.0-27.0') = 92.2 Pcf															
		25.3		79.4										Tv= 0.25 tsf						Grey Organic SILT of very high plasticity, medium consistency, trace Shell, trace fine Sand
		25.3-25.8		Save																
		25.8		80.7										Tv= 0.30 tsf						
		25.8-26.3		82.9							51.8			UU	806	P/A MAX	612	10.5		
		26.3		93.6										Tv= 0.28 tsf						
		26.3-26.6		79.9	78	34														

GZA GeoEnvironmental, Inc.
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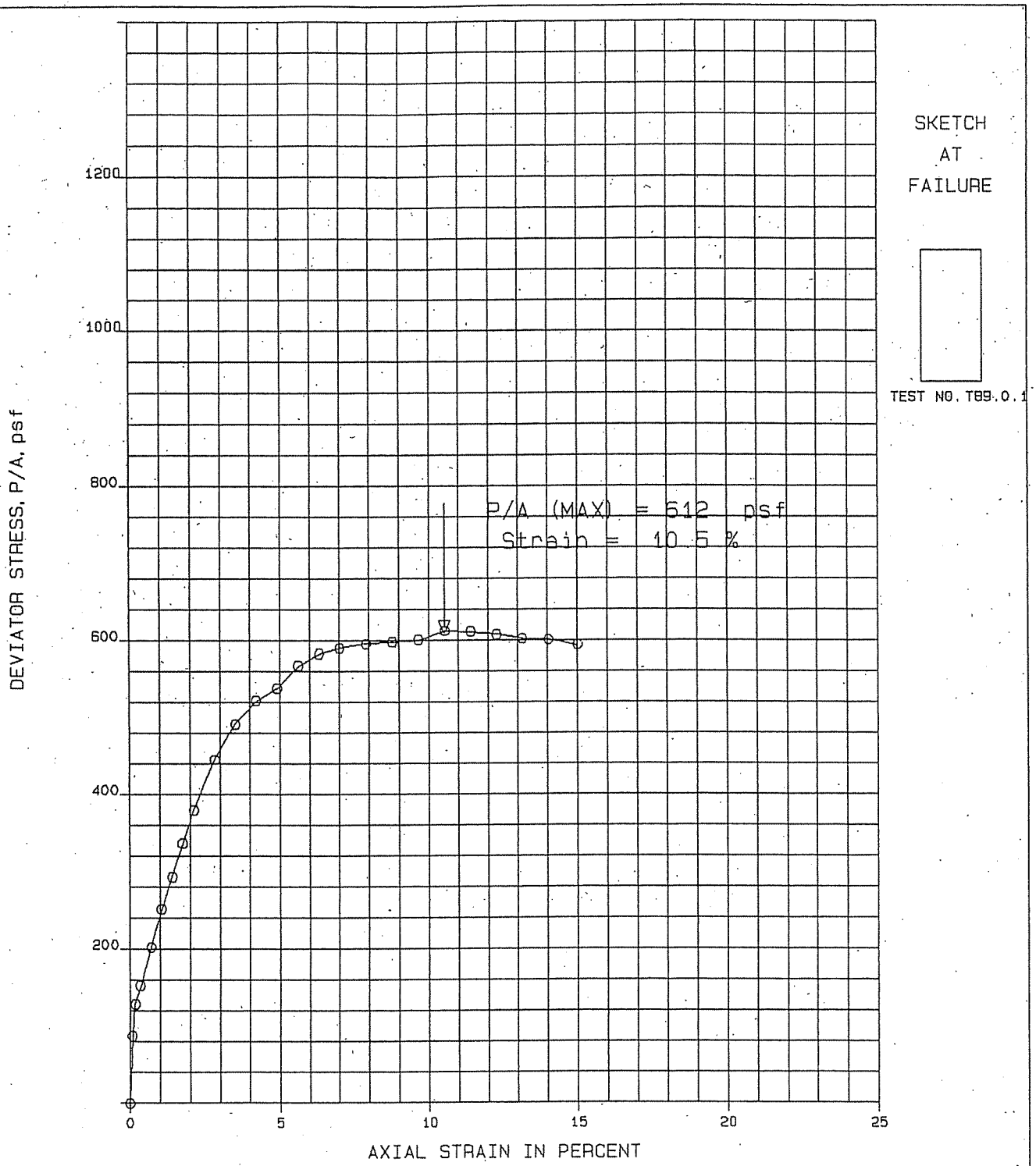
labform1.xls



TEST NO./SYMBOL	INITIAL CONDITIONS			CONDITIONS BEFORE SHEAR				FINAL CONDITIONS		RATE OF STRAIN, PERCENT PER MINUTE
	INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONFINING STRESS, psf	FINAL BACK PRESSURE,	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	
T89.0	82.9	51.8	5.70 2.84	806.	–	–	–	81.7	–	0.50

SOIL DESCRIPTION: Grey Organic SILT

LIQUID LIMIT 78 % PLASTIC LIMIT 34 % SPECIFIC GRAVITY 2.62

RECONSTRUCTION OF I-95 OVER WEST RIVER
TRIAXIAL COMPRESSION TESTS (UU)

BORING NO. P2-1
SAMPLE UP-2
DEPTH 25.8-26.3'
TECH. MST
REVIEWER

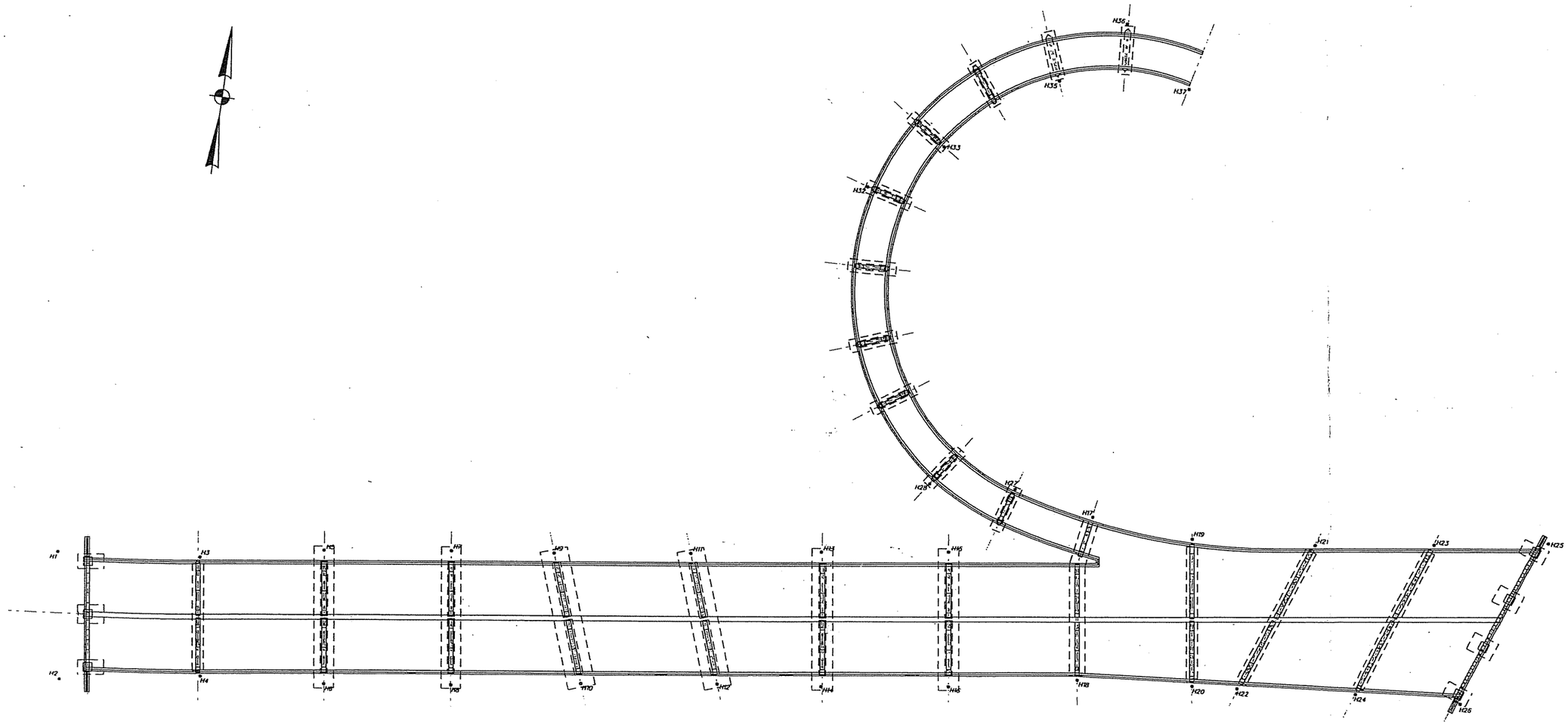
TEST SERIES NO. 89
DATE Sept.02
FILE L17371

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX C

BRIDGE NO. 00163
EXISTING TEST BORING LOCATION AND LOG DRAWINGS



REV.	DATE	DESCRIPTION	SHEET. NO
		REVISIONS	

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OR ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

SCALE AS NOTED

DESIGNER:

DRAFTER:

CHECKED BY:

DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.

APPROVED BY: DATE:

PROJECT TITLE: RECONSTRUCTION OF I-95 OVER WEST RIVER (BRIDGE NO. 00163)

CADD PLOTTED 10/25/2002

TOWN: NEW HAVEN / WEST HAVEN

DRAWING TITLE: EXISTING BORING LOCATION PLAN

PROJECT NO.: 92-522

DRAWING NO.:

SHEET NO.:

12:57:33 PM
10/25/2002
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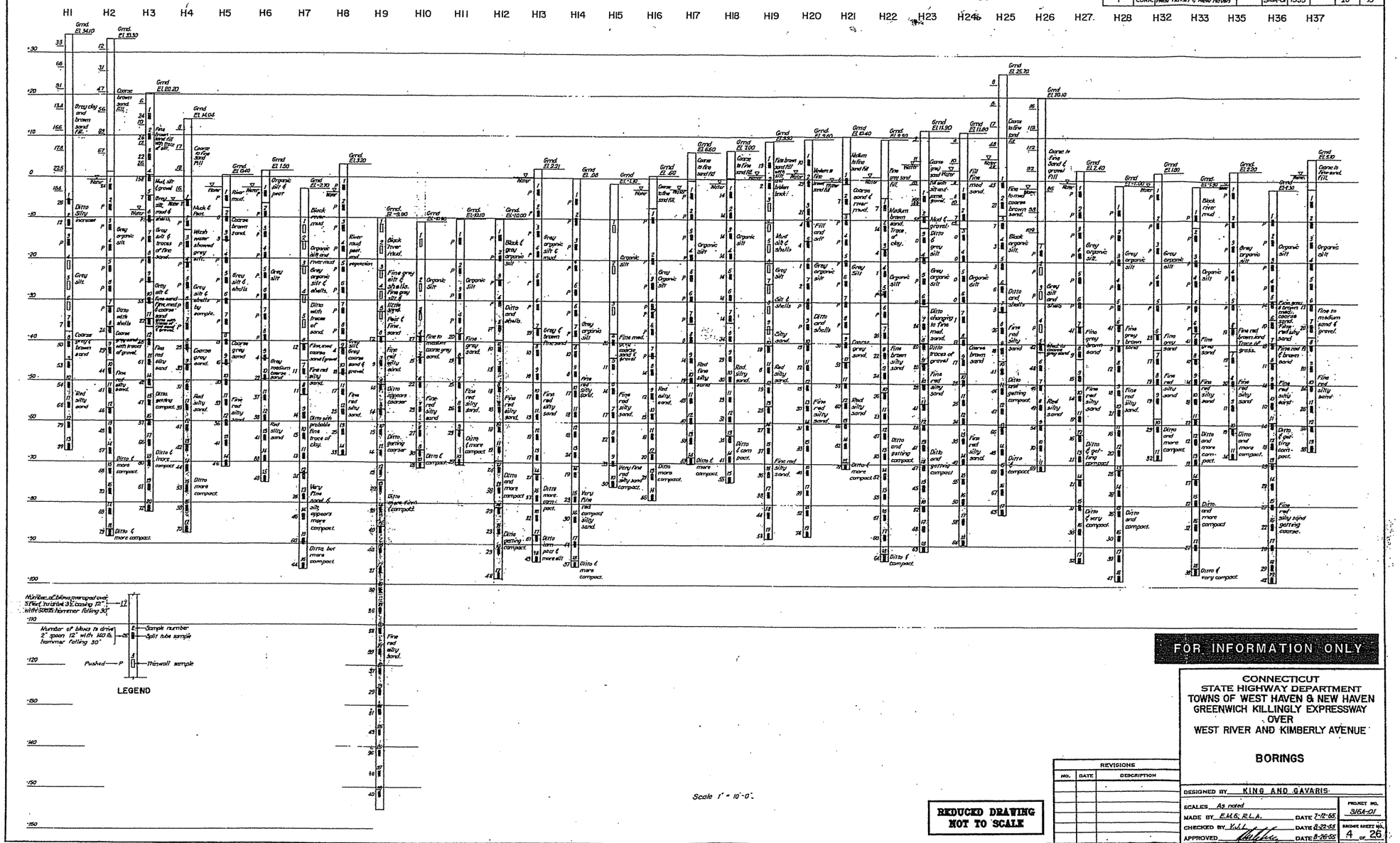
STRUCTURE LAYOUT FOR DESIGN SUBMISSION



NOTE
THE "BORINGS" DRAWING SHOWN ON THIS SHEET HAS BEEN REPRODUCED FROM THE ORIGINAL DESIGN DRAWINGS OF STATE PROJECT NO. 316A-01, DATED 1955.

REV.	DATE	DESCRIPTION	SHEET. NO
		REVISIONS	

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OR ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

DESIGNER: R. BORJESON
DRAFTER: T. LALIBERTE
CHECKED BY: T. LALIBERTE
DATE CHECKED: 10-11-02

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

ENGINEER: PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
APPROVED BY: DATE:

PROJECT TITLE: RECONSTRUCTION OF I-95 OVER WEST RIVER (BRIDGE NO. 00163)
CADD FILE: EXBORING.DGN PLOTTED 10/25/2002

TOWN: NEW HAVEN / WEST HAVEN
DRAWING TITLE: EXISTING BORINGS

PROJECT NO.: 92-522
DRAWING NO.: SLD-7
SHEET NO.:

12:44:41 PM
10/25/2002
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STRUCTURE LAYOUT FOR DESIGN SUBMISSION