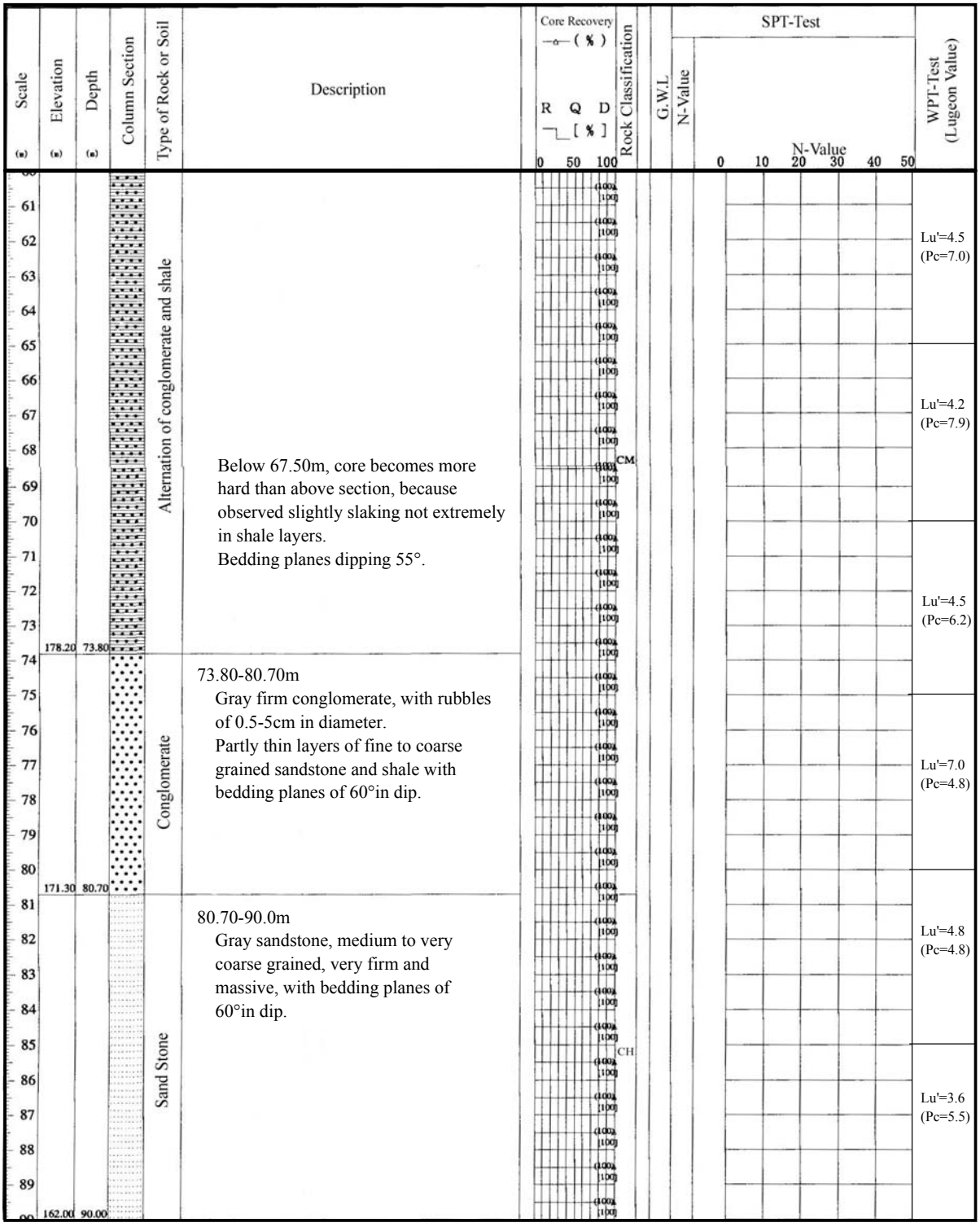
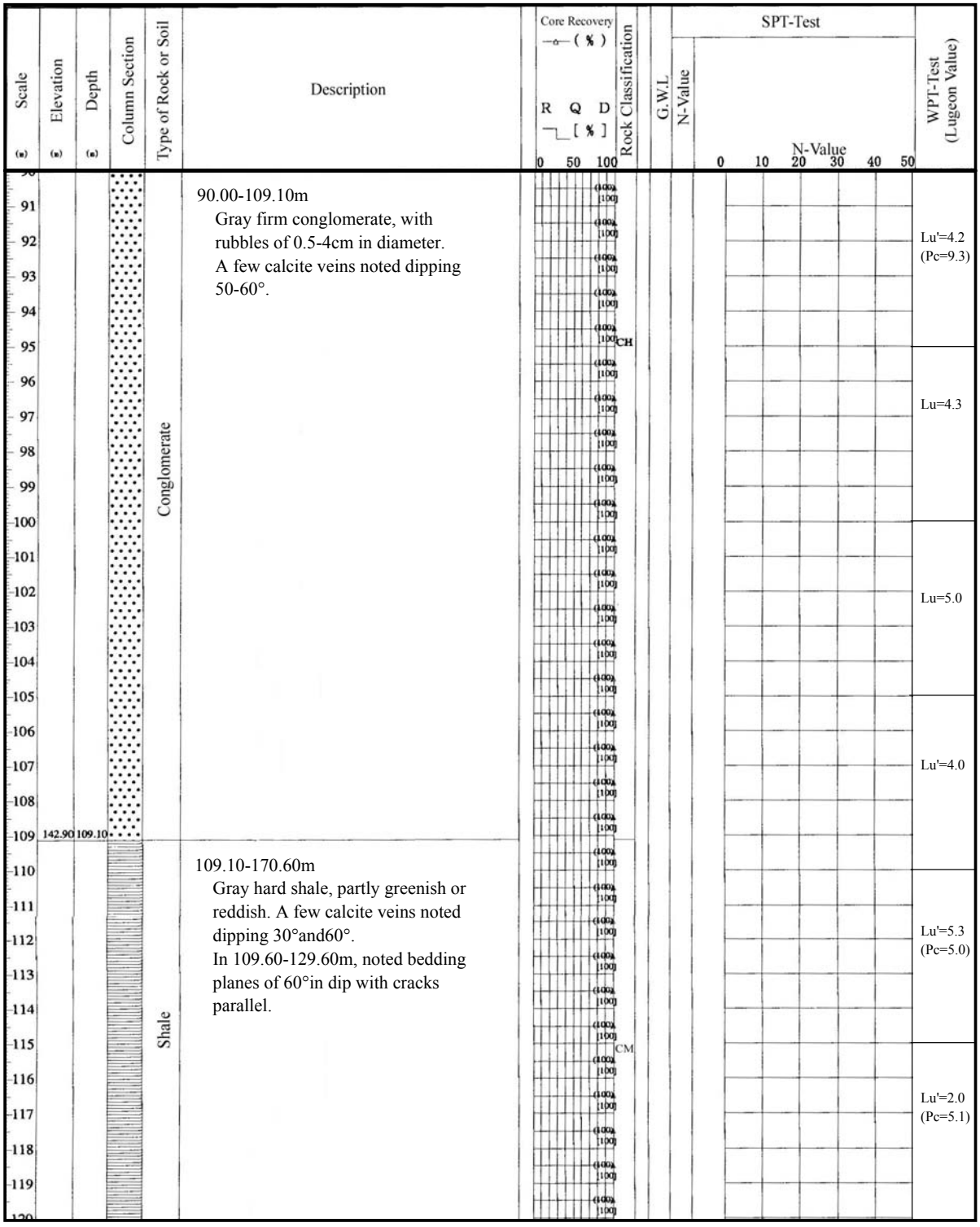
DRILL LOG HOLE NO. TD-3 SHEET NO. 3 OF 7

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	200.00m	ELEVATION	252.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 14°34'24"; E 121°26'13.2"	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	96.00m	DATE		DRILLED	Palma		



DRILL LOG HOLE NO. TD-3 SHEET NO. 4 OF 7

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	200.00m	ELEVATION	252.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 14°34'24"; E 121°26'13.2"	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	96.00m	DATE		DRILLED	Palma		



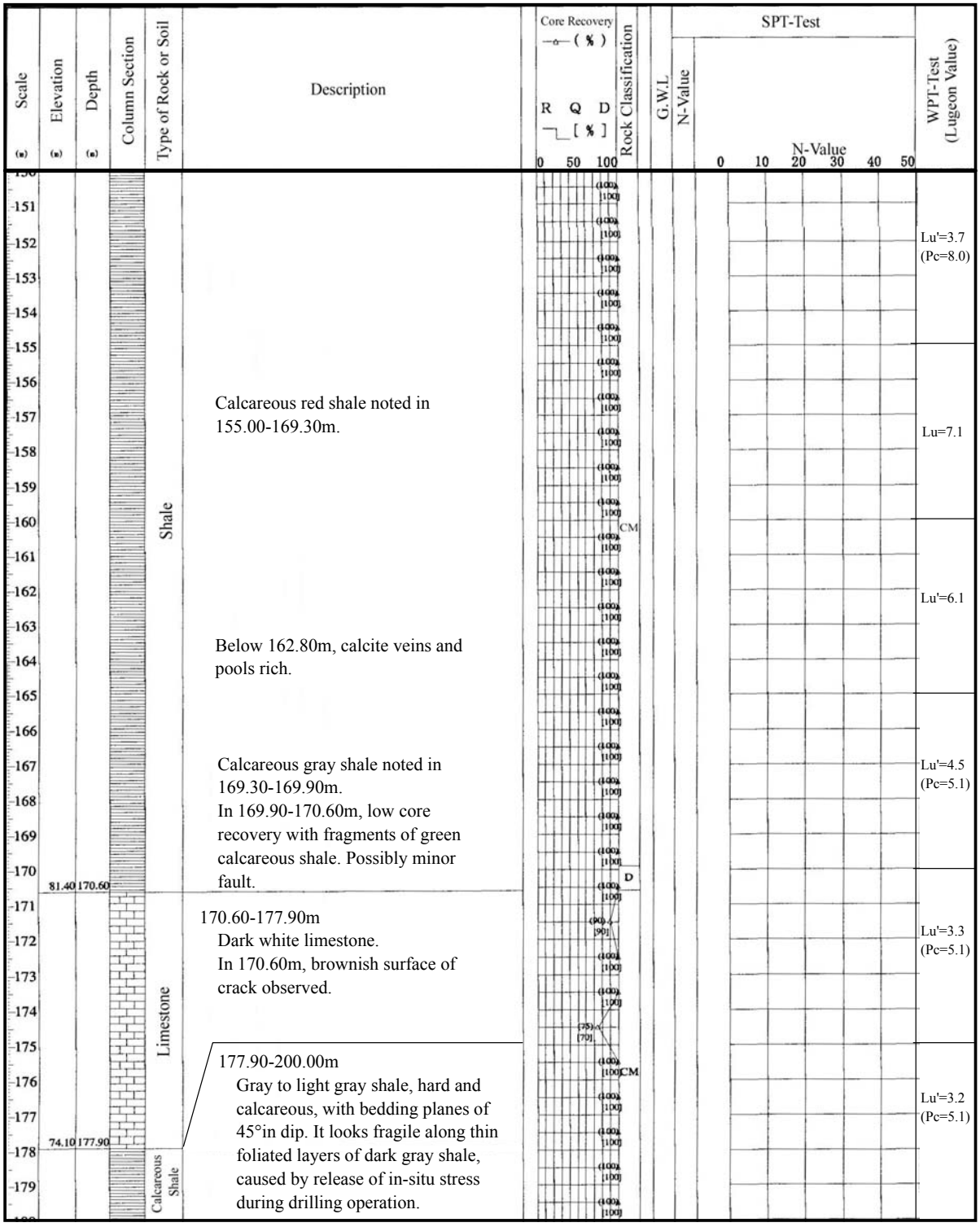
DRILL LOG HOLE NO. TD-3 SHEET NO. 5 OF 7

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	200.00m	ELEVATION	252.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 14°34'24"; E 121°26'13.2"	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	96.00m	DATE		DRILLED	Palma		

Scale (m)	Elevation (m)	Depth (m)	Column Section	Type of Rock or Soil	Description	Core Recovery —o— (%) R Q D —[%] 0 50 100	Rock Classification	G.W.L	SPT-Test N-Value 0 10 20 30 40 50	WPT-Test (Lugeon Value)
121				Shale	In 125.50-129.30m, alternation with fine to medium grained sandstone layers of 20-60cm in thickness. In 129.60-170.60m, noted bedding planes of 45-55°in dip with some cracks parallel. Slightly cracky and fragile in 137.30-138.40m and 140.00-141.90m. In 141.90-146.50m, alternation with medium grained sandstone layers of 10-70cm in thickness.	(100) [100]	CM			Lu'=7.4 (Pc=9.8) Lu'=6.6 Lu'=4.0 (Pc=5.0) Lu'=3.3 (Pc=6.0) Lu'=11.0 Lu'=4.7 (Pc=9.4)

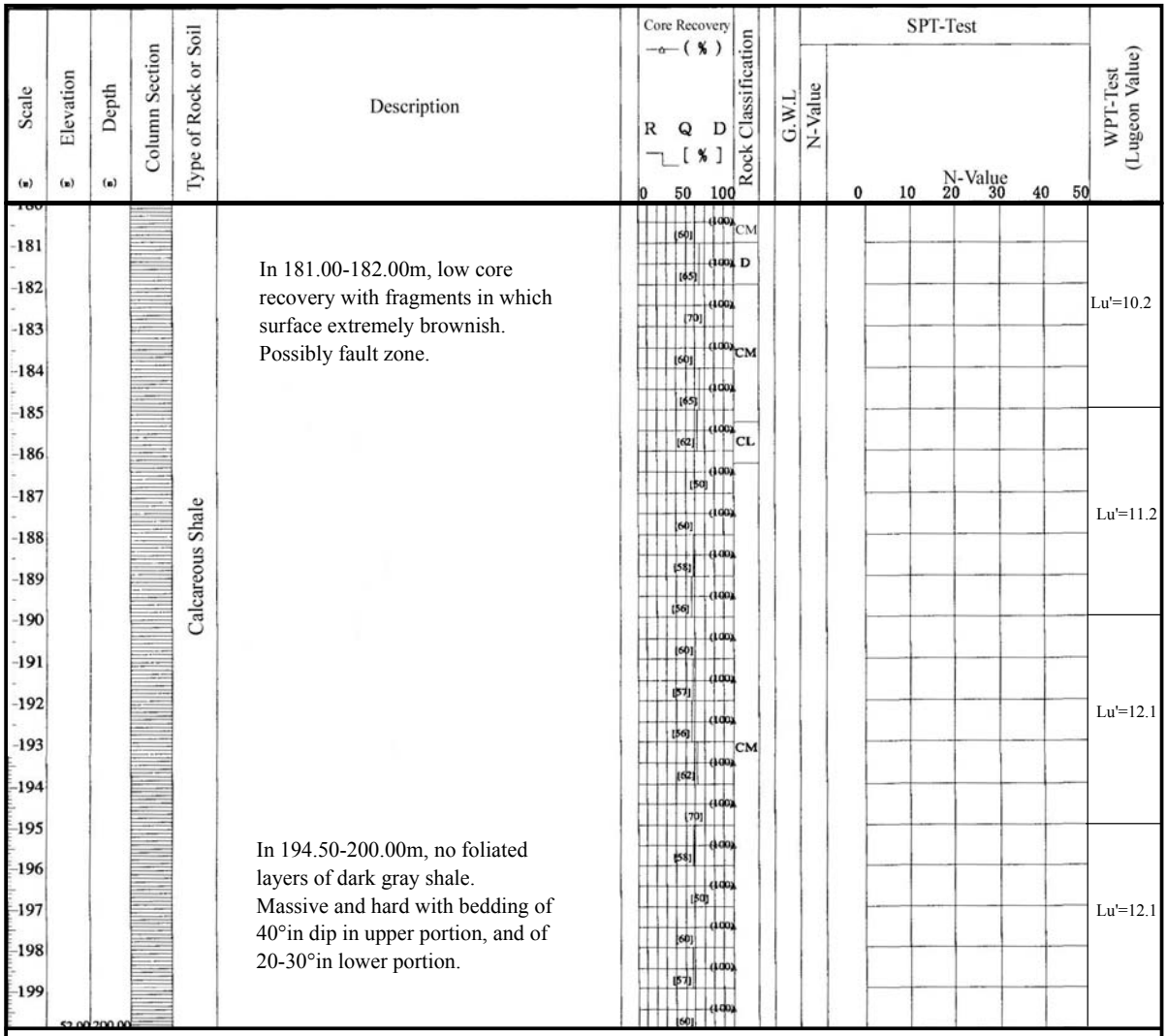
DRILL LOG HOLE NO. TD-3 SHEET NO. 6 OF 7

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	200.00m	ELEVATION	252.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 14°34'24"; E 121°26'13.2"	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	96.00m	DATE		DRILLED	Palma		



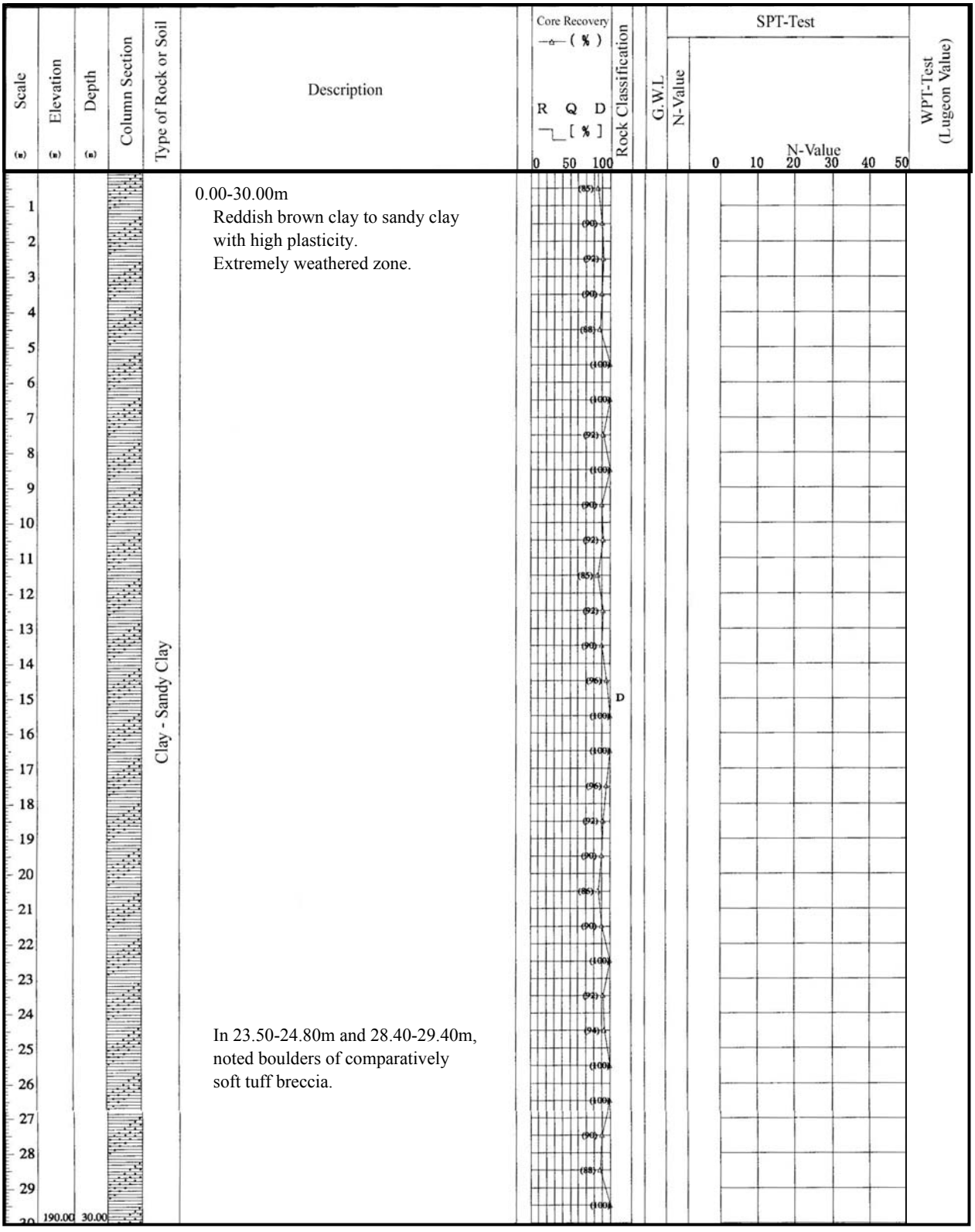
DRILL LOG HOLE NO. TD-3 SHEET NO. 7 OF 7

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	200.00m	ELEVATION	252.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 14°34'24"; E 121°26'13.2"	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	96.00m	DATE		DRILLED	Palma		



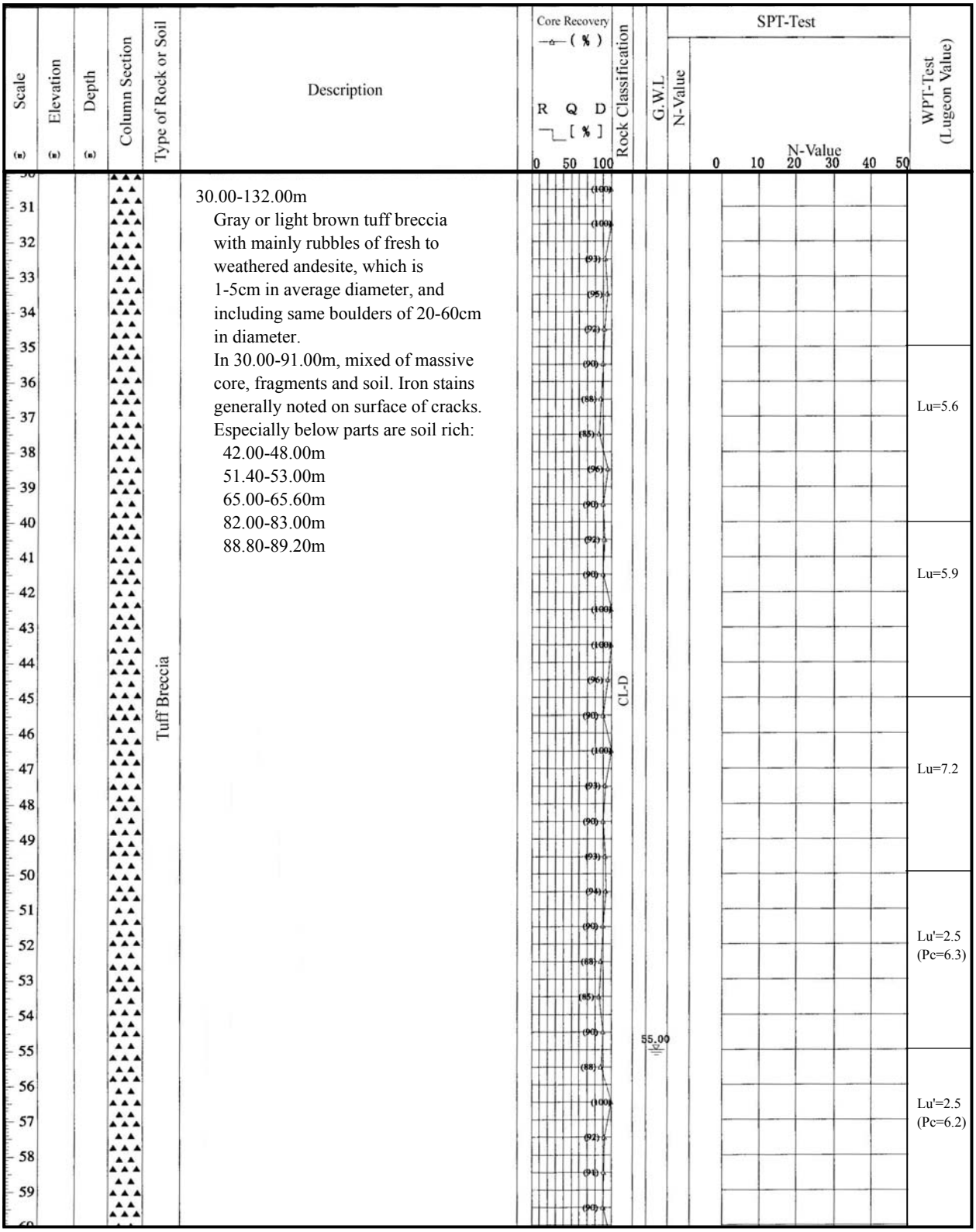
DRILL LOG HOLE NO. TD-4 SHEET NO. 1 OF 5

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	150.00m	ELEVATION	220.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,380 ; E 529,970	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	24.00m	DATE		DRILLED	Palma		



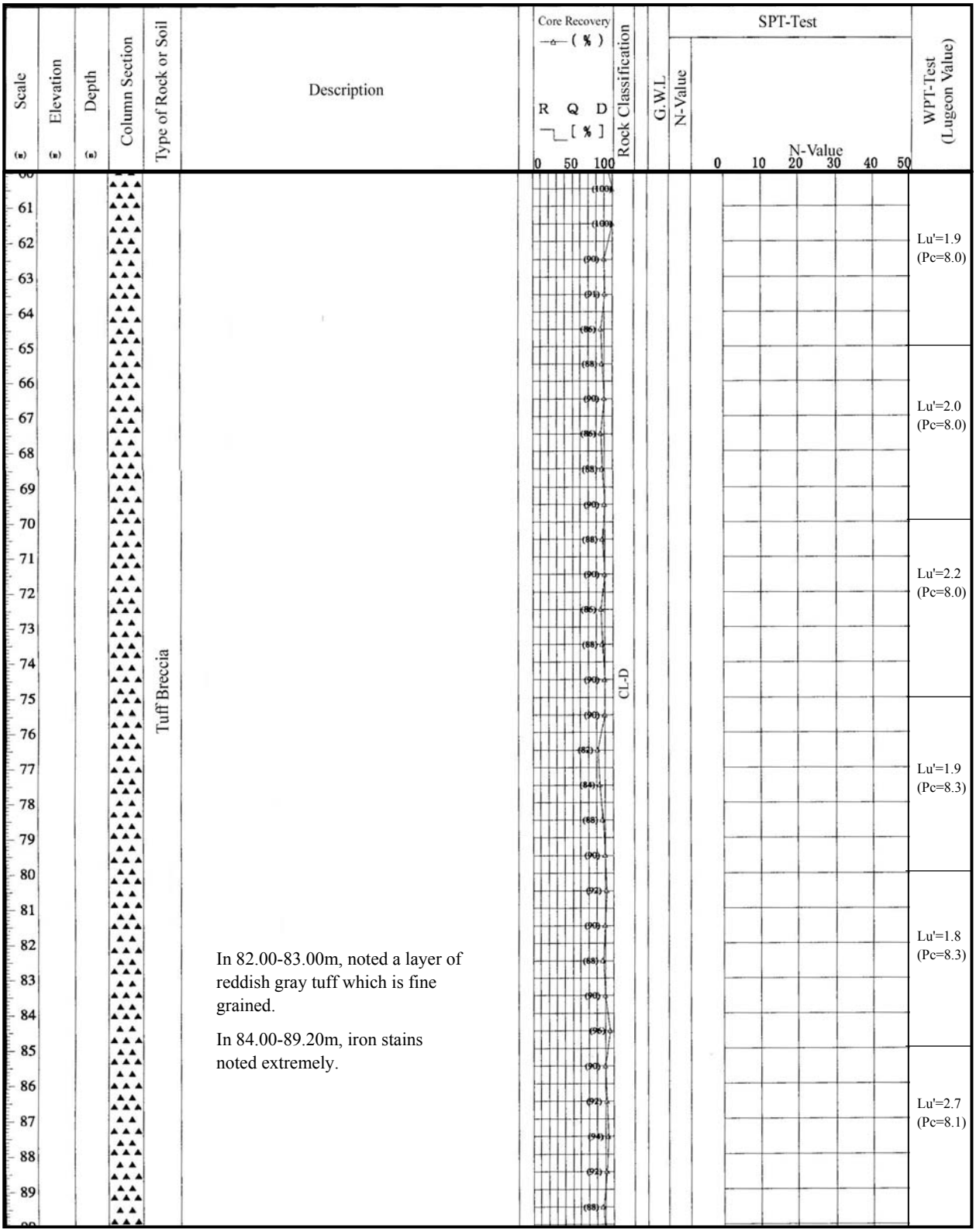
DRILL LOG HOLE NO. TD-4 SHEET NO. 2 OF 5

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	150.00m	ELEVATION	220.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,380 ; E 529,970	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	24.00m	DATE		DRILLED	Palma		



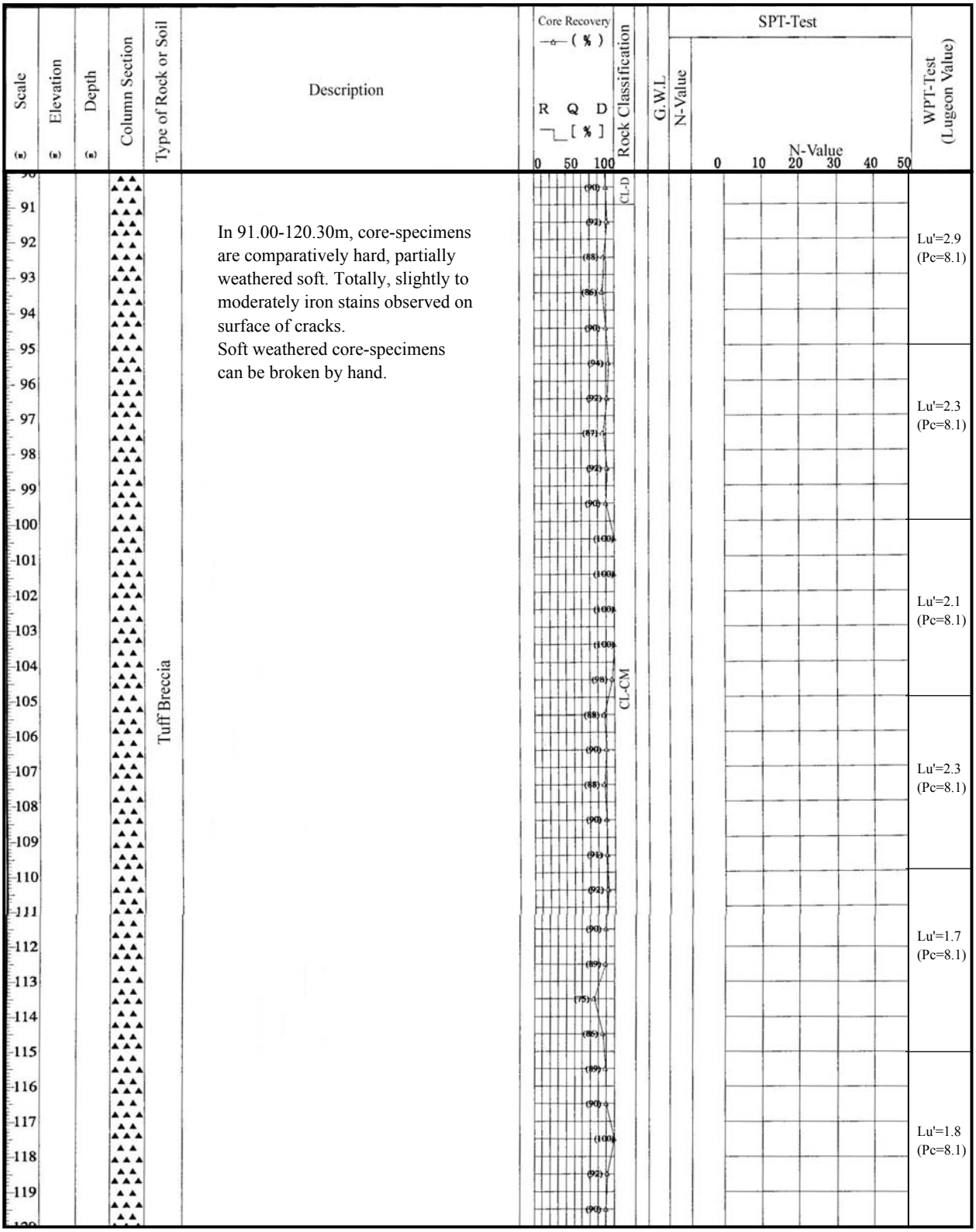
DRILL LOG HOLE NO. TD-4 SHEET NO. 3 OF 5

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	150.00m	ELEVATION	220.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,380 ; E 529,970	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	24.00m	DATE		DRILLED	Palma		



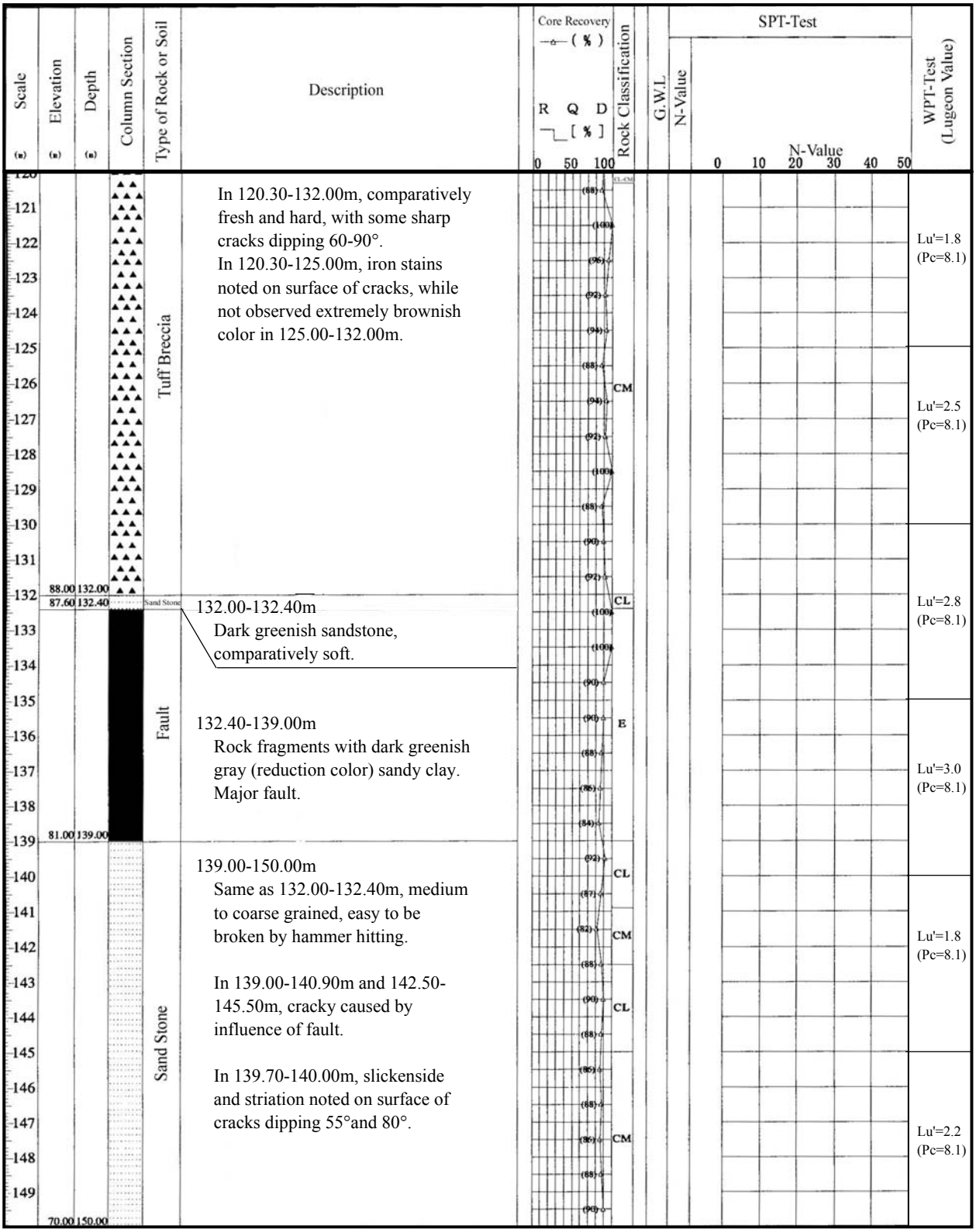
DRILL LOG HOLE NO. TD-4 SHEET NO. 4 OF 5

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	150.00m	ELEVATION	220.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,380 ; E 529,970	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	24.00m	DATE		DRILLED	Palma		



DRILL LOG HOLE NO. TD-4 SHEET NO. 5 OF 5

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	150.00m	ELEVATION	220.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,380 ; E 529,970	INCLINATION	Vertical	DRILL RIG	LY 44
CASING DEPTH	24.00m	DATE		DRILLED	Palma		



DRILL LOG HOLE NO. TD-5 SHEET NO. 1 OF 3

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	70.00m	ELEVATION	158.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,530 ; E 527,380	INCLINATION	Vertical	DRILL RIG	LY 24
CASING DEPTH	None	DATE		DRILLED	Palma		

Scale (m)	Elevation (m)	Depth (m)	Column Section	Type of Rock or Soil	Description	Core Recovery (%) R Q D [%]	Rock Classification	G.W.L	SPT-Test N-Value	WPT-Test (Lugeon Value)
1–12				Shale	0.00-12.00m Gray to greenish gray sandy shale, firm, with bedding planes of 5-10° in dip.	[80] [84] [88] [90] [90] [100] [100] [100] [100] [100] [100]	CL			Lu'=1.8
12	146.00	12.00								
12–18				Sand Stone	12.00-15.00m Gray firm sandstone, very coarse to medium grained, with graded bedding of 8°in dip. Surface of sharp vertical crack shows brownish color. 15.00-18.50m Low core recovery, although same as 12.00-15.00m.	[100] [80] [84] [90] [90] [84]	CM D			Lu'=1.2 (Pc=6.3) Lu'=1.1 (Pc=7.1)
18	139.50	18.50								
18–25				Shale	18.50-25.70m Gray, reddish gray or greenish gray sandy shale, banded , firm but cracky. Surface of sharp vertical crack indicates brownish color.	[92] [90] [100] [88] [90] [100] [100]	CL			Lu'=0.9 (Pc=5.0)
25	132.30	25.70								
26	131.50	26.50		Fault	25.70-26.50m Brown soft soil. Possibly fault.	[98]	D			Lu'=1.1 (Pc=8.5)
27–29				Sand Stone	26.50-46.50m Gray sandstone, fine to medium grained, banded and firm.	[100] [75] [92] [100]	CM			

DRILL LOG HOLE NO. TD-5 SHEET NO. 2 OF 3

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	70.00m	ELEVATION	158.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,530 ; E 527,380	INCLINATION	Vertical	DRILL RIG	LY 24
CASING DEPTH	None	DATE		DRILLED	Palma		

Scale (m)	Elevation (m)	Depth (m)	Column Section	Type of Rock or Soil	Description	Core Recovery R Q D [%]	Rock Classification	G.W.L	SPT-Test N-Value	WPT-Test (Lugeon Value)
31–46				Sand Stone	In 31.60m, brownish surface of sharp crack dipping 85°. In 42.30-46.50m, some cracks dipping 60-80°with slightly brownish surface.	100	CM	36.00		Lu'=1.2 (Pc=8.9) Lu'=1.0 (Pc=8.7) Lu'=0.9 (Pc=5.9)
46–50	111.50	46.50		Shale	46.50-50.0m Gray sandy shale, firm, with graded bedding. Some cracks with slightly brownish surface.	100	CL-CM			Lu'=0.9 (Pc=8.0)
50–51	108.00	50.00		Sand Stone	50.00-51.50m Gray sandstone, fine to coarse graded, slightly greenish.	100				
51–55	106.50	51.50		Conglomerate	51.50-55.20m Gray conglomerate including granules. Below 53.70m, no brownish surface of cracks.	100	CM			Lu'=1.0 (Pc=8.1)
55–59	102.80	55.20		Alternation of shale and sandstone		100				Lu'=1.2 (Pc=8.6)

DRILL LOG HOLE NO. TD-5 SHEET NO. 3 OF 3

PROJECT	Study on Water Resources Development for Metro Manila			DEPTH	70.00m	ELEVATION	158.00m
SITE	Transfer Tunnel No.1 Route	COODINATE	N 1,612,530 ; E 527,380	INCLINATION	Vertical	DRILL RIG	LY 24
CASING DEPTH	None	DATE		DRILLED	Palma		

Scale (m)	Elevation (m)	Depth (m)	Column Section	Type of Rock or Soil	Description	Core Recovery (%) R Q D [%]	Rock Classification	G.W.L	N-Value	SPT-Test N-Value	WPT-Test (Lugeon Value)
61				Alternation of shale and sandstone	55.20-70.00m Alternation of sandy shale and sandstone, shale rich (65%) and 50-100cm cycled. Shale is gray, greenish gray or reddish gray, and banded with bedding planes of 10°in dip. Sandstone is fine tocoarse grained, and gray. In 60.30-70.00m, comparatively cracky.	0 50 100 [90] [92] [100] [92] [100] [90] [100] [90] [92] [94]	CM CL-CM			0 10 20 30 40 50	Lu'=1.0 (Pc=8.7) Lu'=0.8 (Pc=6.2)
62											
63											
64											
65											
66											
67											
68											
69	88.00	70.00									