

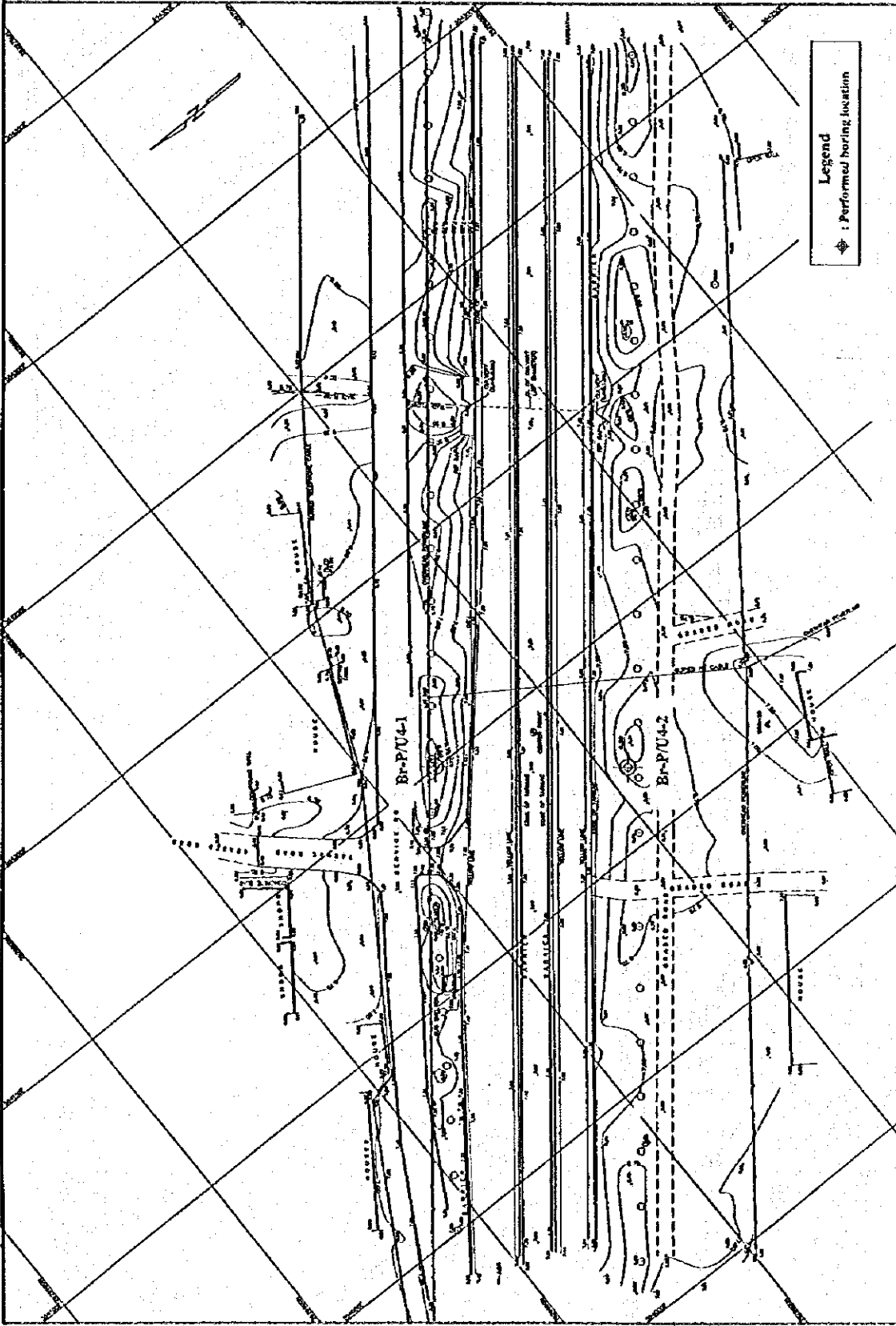
Legend
 ◆ : Performed boring location

The detailed design study on road development project

Route	Batimah highway
Title	Performed location of soil investigation
Location	A' Tareef PUS-3
Note	Total boring number: 2

Location: #015, A' Tareef

Bore Hole or Test Pit	Depth of Boring (m)	Depth Position (m)	Pressure Meter Test (m)	Lab. Test of SF Sample (m)	Thermal Test of SF Sample (m)	Lab. Test of Tube Sample (m)	Ground Water Level Measure	Ground Water Sampling (m)	Lab. Test of G. Water (m)	Location (distance from the bore hole) (m)
Br-PUS-1	10	10								Centre of Existing S.A. I Existing Highway Center to A' Tareef to Munsaf mountains
Br-PUS-2	10	10								31

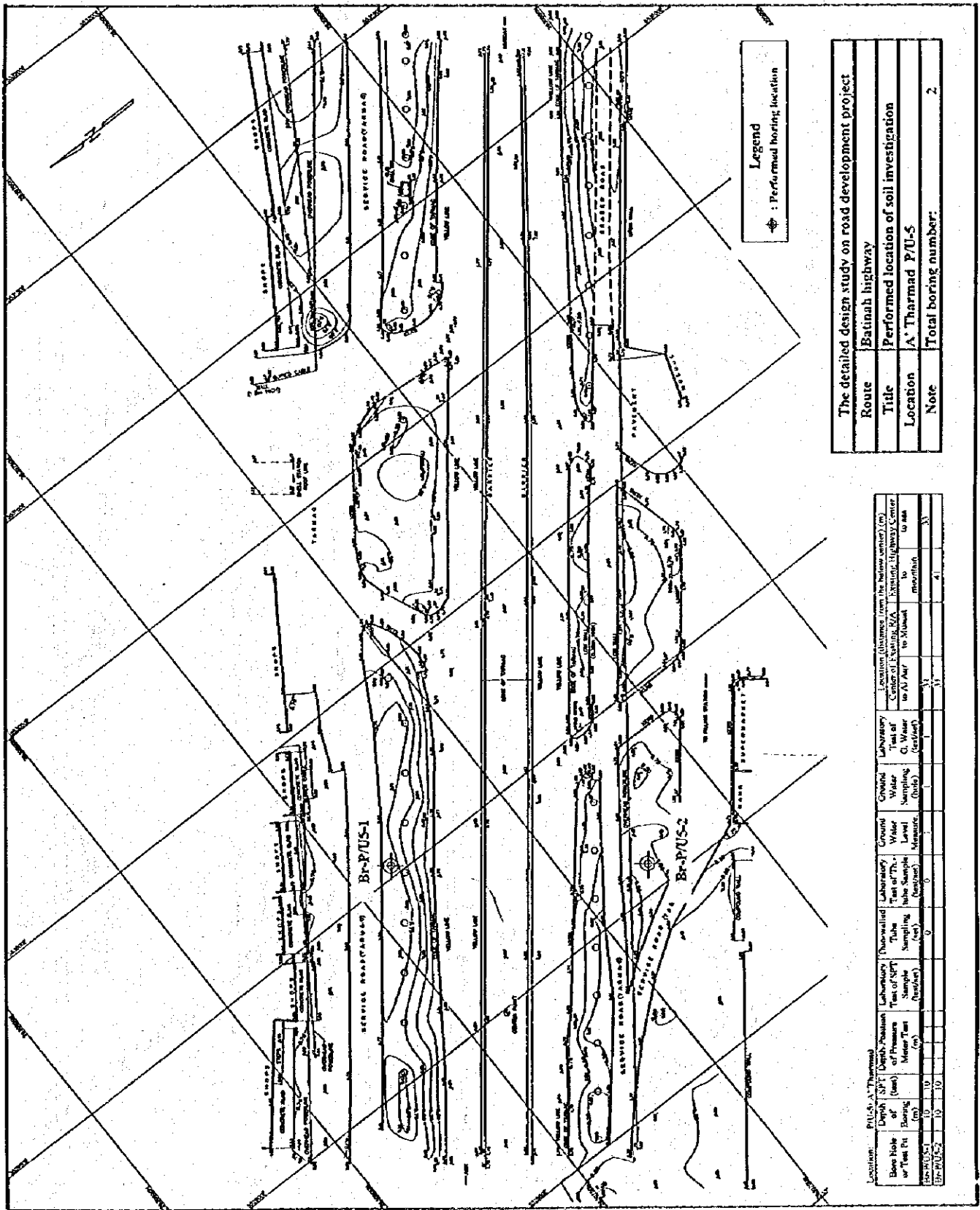


Legend
 ◆ : Performed boring location

The detailed design study on road development project

Route	Batinah highway
Title	Performed location of soil investigation
Location	Al Qarrat P/U-4
Note	Total boring number: 2

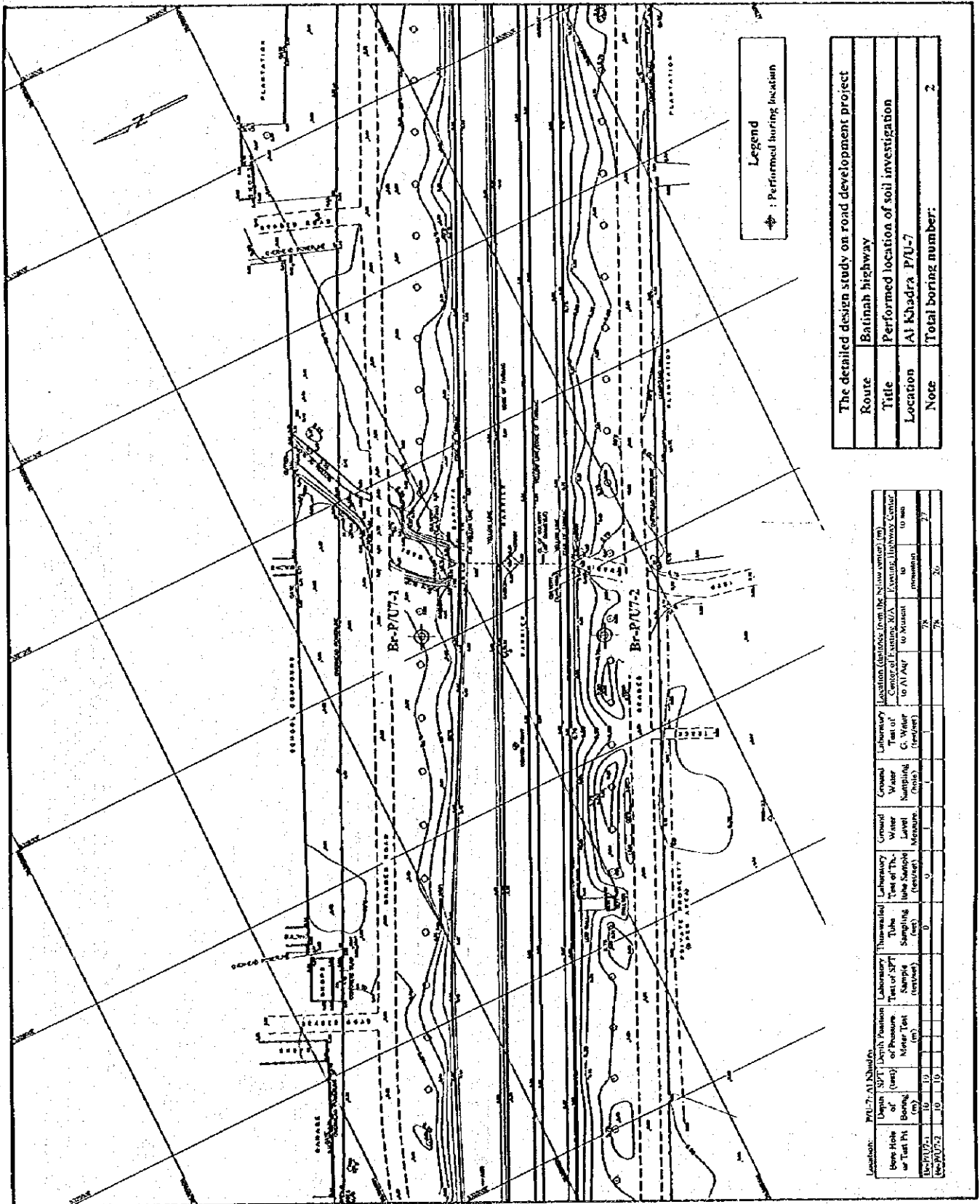
Locations	P/U-4: Al Qarrat		Depth of Pressure Meter Test (m)	Laboratory Test of N ₆₀ Sample (test/unit)	Thin-walled Tube Sampling (cm)	Laboratory Test of TN ₆₀ Sample (test/unit)	Ground Water Level (m)	Ground Water Sampling (tube)	Laboratory Test of C _u Water (test/unit)	Location (distance from the below centerline)	
	Bore Hole or Test Pk.	Depth of Boring (m)								Number of Samples	Distance to Al Qarrat
Br-PV4-1	10	10		0	0	0	0	0	0	31	35
Br-PV4-2	10	10		0	0	0	0	0	0	31	35



The detailed design study on road development project

Route	Batinah highway
Title	Performed location of soil investigation
Location	A. Tharmad P/U-5
Note	Total boring number: 2

Location	P/U-5 A. Tharmad															
	Bore Hole or Test Pit	Depth of Boring (m)	SPT (blows/30 cm)	Depth-Position of Pressure Meter (m)	Test of SPT Sample (blows)	Lab. Test of SPT Sample (blows)	Lab. Test of Th. Tube Sample (blows)	Ground Water Level Measurement	Ground Water Sampling (blows)	Lab. Test of C. Water (blows)	Location (distances from the below center) (m)					
											Center of Existing R/A	Existing Highway Center	to NW Air	to SW bank	to mountain	to sea
B-PUS-1		10	10													
B-PUS-2		10	10													

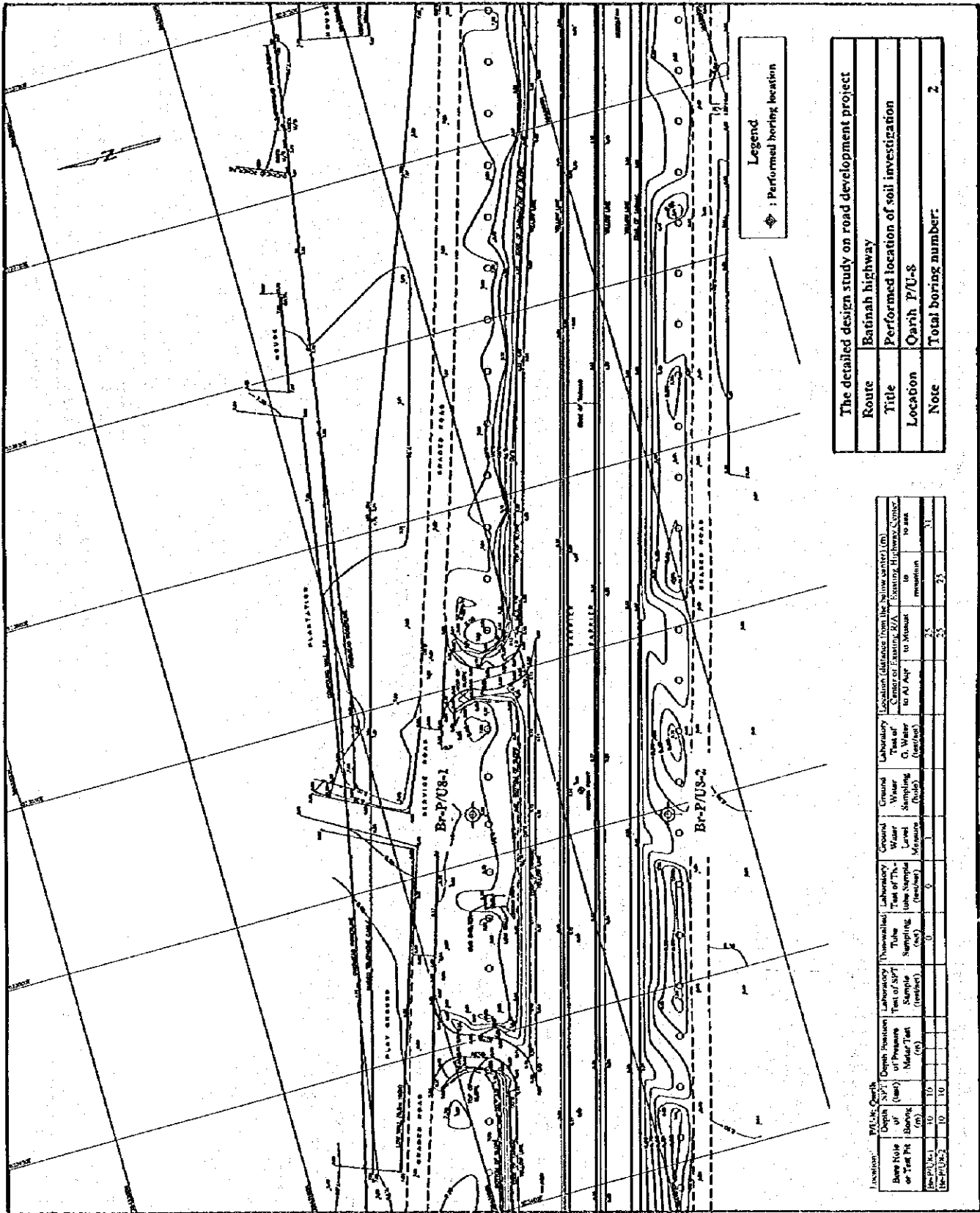


The detailed design study on road development project

Route	Batimah highway
Title	Performed location of soil investigation
Location	Al Khadra P/U-7
Note	Total boring number: 2

Location: P/U-7, Al Khadra

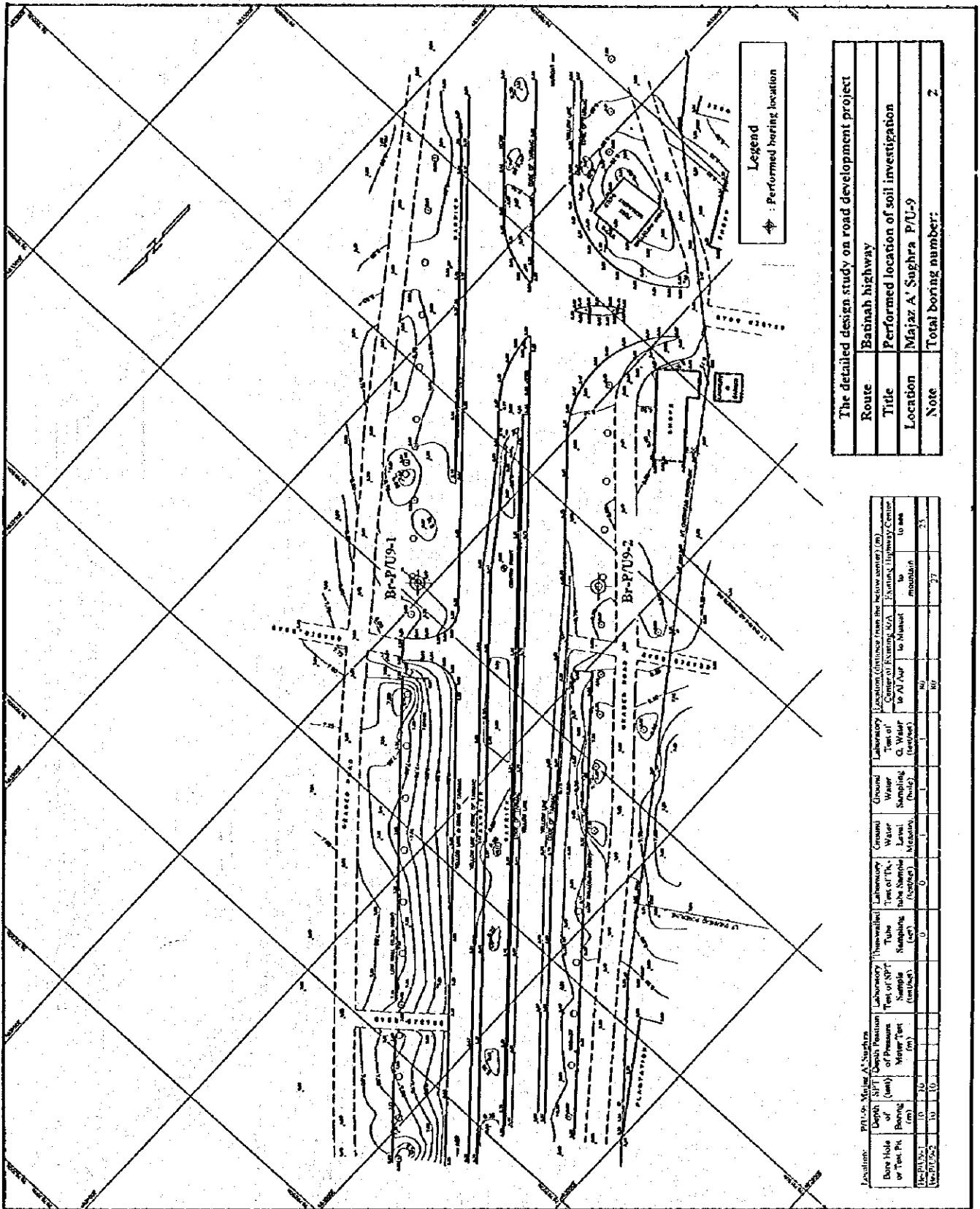
Bore Hole or Test Pit	Depth of Boring (m)	SPT (blows)	Depth of Pressure Meter Test (m)	Lab. Sample (retover)	Thickened Tube Sampling (sec)	Lab. Test of Thickened Sample (retover)	Ground Water Level (m)	Ground Water Sampling (m)	Lab. Test of C. Water (retover)	Location (distance from the New street) (m)
B-P-U7-1	10	19			0	0				Central Existing R/A to Al Aqr to street
B-P-U7-2	10	19			0	0				Existing Highway Center to street



The detailed design study on road development project

Route	Batimah highway
Title	Performed location of soil investigation
Location	Qarah P/U-8
Note	Total boring number: 2

Location	Depth of Bore Hole		Depth of Penetration of Pressure Meter Test (ft)	Laboratory Sample (retained)	Thin Wall Tube Sampling (retained)	Laboratory Test of Th. Wall Sampling (retained)	Ground Water Sampling (ft/min)	Laboratory Test of C. Water (retained)	Location distance from the below center (m)	
	10	10							to AI ACP	to Existing Highway Center
Br-P/US-1	10	10		0	0	0	0	0	25	35
Br-P/US-2	10	10		0	0	0	0	0	25	35

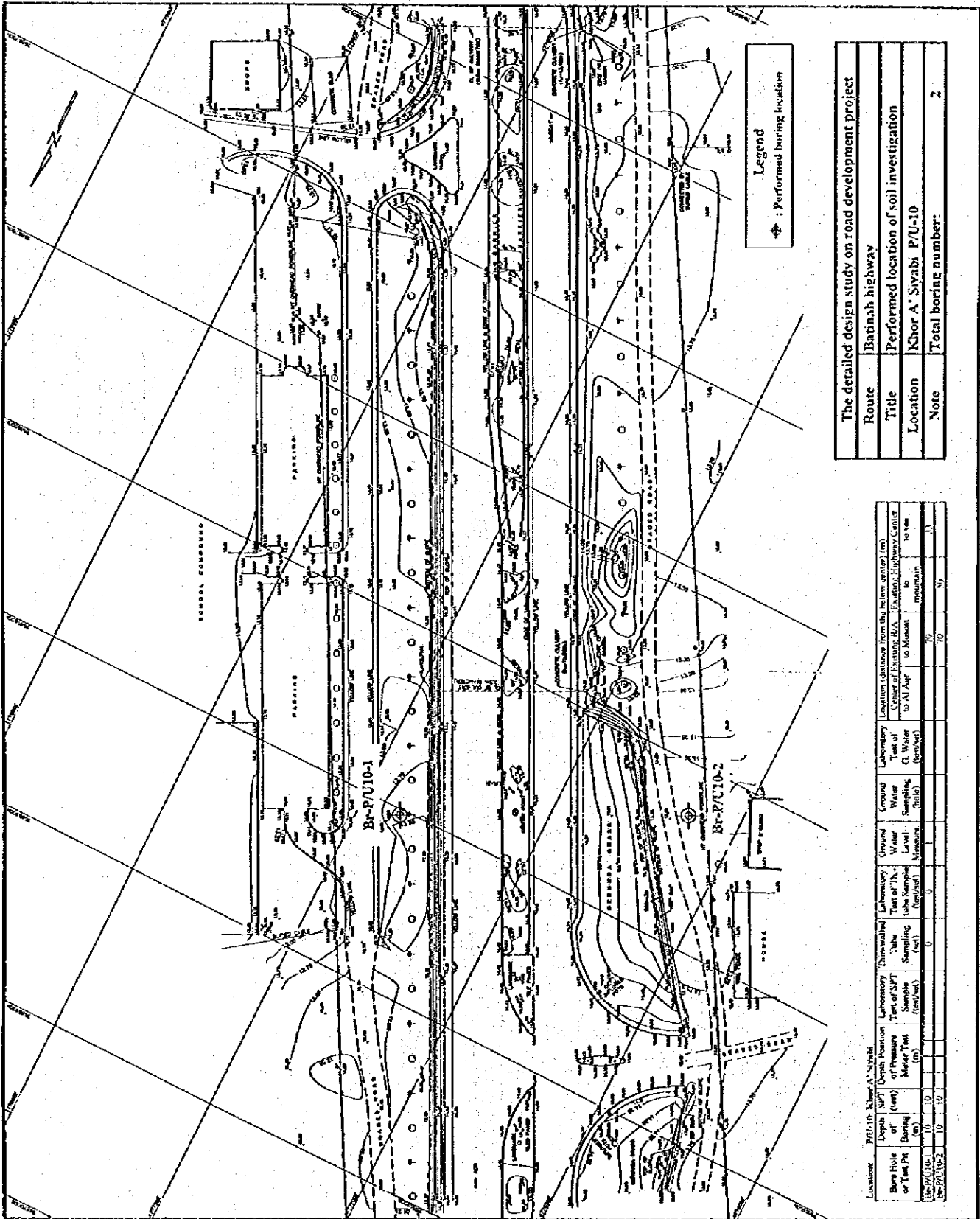


The detailed design study on road development project

Route	Batnah highway
Title	Performed location of soil investigation
Location	Majaz A' Saghra P/U-9
Note	Total boring number: 2

Location: P/U-9, Majaz A' Saghra

Bore Hole or Test Pit No.	Depth of Boring (m)	SP-1	Depth of Pressure Meter Test (m)	Lab. Test of Sample (vertical)	Penetration Tube Sampling (cm)	Lab. Test of Tube Sampling (vertical)	Ground Water Sampling (Depth)	Lab. Test of G. Water (vertical)	Location (distance from the bore hole) (m)	Center of Gravity (to the center of gravity)	to Al-Naj	to Majaz	to station
Br-P/U9-1	10	10			0	0	1	1	60	60	60	60	21
Br-P/U9-2	10	10			0	0	1	1	60	60	60	60	21

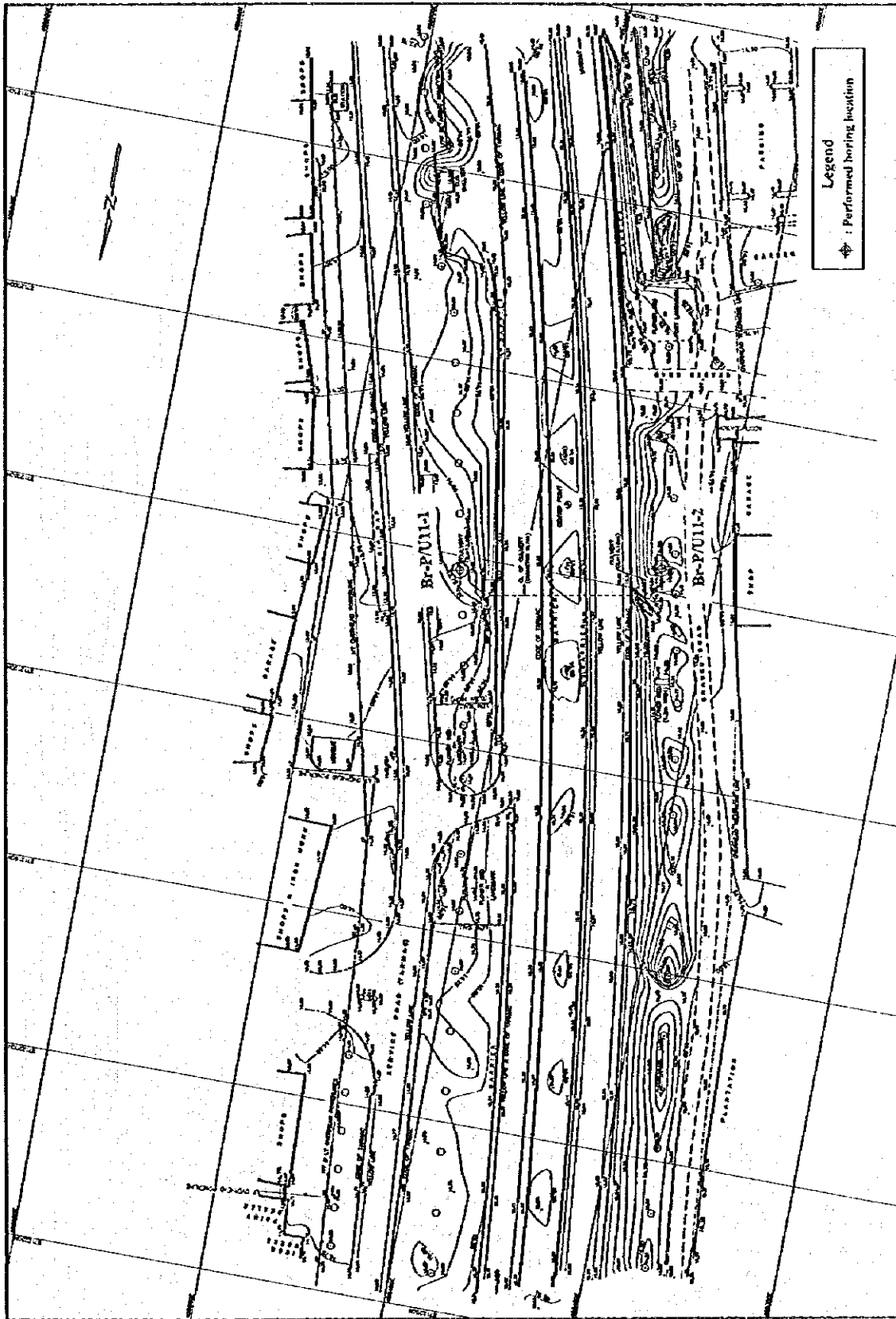


The detailed design study on road development project

Route	Batinah highway
Title	Performed location of soil investigation
Location	Khor A' Sivabi P/U-10
Note	Total boring number: 2

Location: P/U-10, Khor A' Sivabi

Bore Hole or Test Pit	Depth of Boring (m)	Depth of Pressure Meter Test (m)	Laboratory Test of SPT Sample (no./m)	Laboratory Thin-walled Tube Sampling (no./m)	Laboratory Test of Th. Tube Sample (no./m)	Ground Water Level Measure	Ground Water Sampling (no./m)	Laboratory Test of C. Water (no./m)	Location (distance from the below center) (m)	
									Center of Existing R.A. to Al Asir	Existing Highway Center to sea
Br-P/U10-1	10	10	0	0	0				70	0
Br-P/U10-2	10	10	0	0	0				70	0



Legend
 ◆ : Performed boring location

The detailed design study on road development project	
Route	Batinah highway
Title	Performed location of soil investigation
Location	Ljwa PU-11
Note	Total boring number: 2

Location	Bore Hole or Test Pit	Depth of SPT During (cm)	Depth of Penetration of Pressure Meter (cm)	Laboratory Test of Sample (test/sect)	Timewalled Tube Sampling (sec)	Laboratory Test of Tube Sample (test/sect)	Ground Water Measure (m)	Ground Water Sampling (hole)	Laboratory Test of G. When (test/sect)	Location (distance from the below center) (m)		
										Central Facility, B/A	Existing Highway Center	to sea
B-P011-1	10	10		0	0	0			0	50	to mountain	25
B-P011-2	10	10		0	0	0			0	50	to mountain	25

5 Details of Soil Investigation Quantities at the Proposed Study Pedestrian Underpasses

Summary of Details for Soil Investigation Quantities at the Proposed Study Pedestrian Underpasses

Name of Roundabout	Number of Boring Hole (hole)	Boring Total Length (m)	Numbers of SPT (test)	Numbers of Pressure Meter Test (test)	Laboratory Test of SPT Sample (test/set)	Th.-walled Tube Sampling (set)	Laboratory Test of T-Sample (test/set)	Ground Water Leveling Measurement (hole)	Ground Water Sampling (hole)	Laboratory Test of G. Water Sample (test/set)	Numbers of Test Pit (test)
P/U- 1: Barka	2	20	20			0	0	1			
P/U- 2: Al Billah	2	20	20			0	0	1			
P/U- 3: A' Tareef	2	20	20			0	0	1			
P/U- 4: Al Qarat	2	20	20			0	0	1			
P/U- 5: A' Tharmad	2	20	20			0	0	1	1	1	
P/U- 6: A' Suweiq	2	20	20			0	0	1			
P/U- 7: Al Khadra	2	20	20			0	0	1	1	1	
P/U- 8: Qarih	2	20	20			0	0	1			
P/U- 9: Majaz A' Sughra	2	20	20			0	0	1	1	1	
P/U-10: Khor A' Sivabi	2	20	20			0	0	1			
P/U-11: Lawa	2	20	20			0	0	1			
P/U-12: Asrar Bani Sa'd	2	20	20			0	0	1			
Performed total	24	240	240			0	0	12	3	3	
Proposed total	24	240	240			12	12	12	0	0	
Balance	-	-	-			-12	-12	-	+3	+3	

SPT: Standard Penetration Test

Details of Soil Investigation Quantities at the Proposed Study Pedestrian Underpasses (1/3)

Location: P/U-1: Barka

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to AI Agr	Existing Highway Center to Muscat mountain to sea
Br-P/U1-1	10	10			0	0	1			35	23
Br-P/U1-2	10	10								55	26

Location: P/U-2: Al Billah

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to AI Agr	Existing Highway Center to Muscat mountain to sea
Br-P/U2-1	10	10			0	0	1			104	31
Br-P/U2-2	10	10								104	24

Location: P/U-3: A' Tareef

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to AI Agr	Existing Highway Center to Muscat mountain to sea
Br-P/U3-1	10	10			0	0	1			50	31
Br-P/U3-2	10	10								50	33

Location: P/U-4: Al Qarat

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to AI Agr	Existing Highway Center to Muscat mountain to sea
Br-P/U4-1	10	10			0	0	1			31	26
Br-P/U4-2	10	10								31	25

Details of Soil Investigation Quantities at the Proposed Study Pedestrian Underpasses (2/5)

Location: P/U-5: A' Tharmad

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to sea
Br-P/U5-1	10	10			0	0	1	1	1	31	41
Br-P/U5-2	10	10								31	
											33

Location: P/U-6: A' Suweiq

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to sea
Br-P/U6-1	10	10			0	0	1			27	28
Br-P/U6-2	10	10								27	27

Location: P/U-7: Al Khadra

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to sea
Br-P/U7-1	10	10			0	0	1	1	1	78	27
Br-P/U7-2	10	10								78	26

Location: P/U-8: Qarib

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to sea
Br-P/U8-1	10	10			0	0	1			25	31
Br-P/U8-2	10	10								25	25

Details of Soil Investigation Quantities at the Proposed Study Pedestrian Underpasses (3/5)

Location: P/U-9: Majaz A' Sughra

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to Muscat mountain to sea
Br-P/U9-1	10	10			0	0	1	1	1	80	25
Br-P/U9-2	10	10								80	27

Location: P/U-10: Khor A' Siyabi

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to Muscat mountain to sea
Br-P/U10-1	10	10			0	0	1			70	33
Br-P/U10-2	10	10								70	50

Location: P/U-11: Liwa

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to Muscat mountain to sea
Br-P/U11-1	10	10			0	0	1			50	28
Br-P/U11-2	10	10								50	25

Location: P/U-12: Asrar Bani Sa'd

Bore Hole or Test Pit	Depth of Boring (m)	SPT (test)	Depth Position of Pressure Meter Test (m)	Laboratory Test of SPT Sample (test/set)	Thin-walled Tube Sampling (set)	Laboratory Test of Th. tube Sample (test/set)	Ground Water Level Measure.	Ground Water Sampling (hole)	Laboratory Test of G. Water (test/set)	Location (distance from the below center) (m)	
										Center of Existing R/A to Al Aqr	Existing Highway Center to Muscat mountain to sea
Br-P/U12-1	10	10			0	0	1			65	23
Br-P/U12-2	10	10								65	28

6 Details of Soil Laboratory Test Quantities at the Proposed Study Roundabouts

Summary of Details for Soil Laboratory Tests Quantities at the Proposed Study Roundabouts

Name of Roundabout	Numbers of Soil Sample from SPT Sampler		Soil Sample from SPT Sampler				Numbers of Ground Water Sample			
	Soil Sample from SPT Sampler (sample)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
R/A- 2: A'Naseem Garden	9	9	9	9	9	9	9	0	0	0
R/A- 3: Barka	9	9	9	9	9	9	9	0	0	0
Junc- 5: Al Muladdah	9	9	9	9	9	9	9	0	0	0
R/A- 8: Al Khaburah	9	9	9	9	9	9	9	0	0	0
R/A-10: Saham	9	9	9	9	9	9	9	0	0	0
R/A-12: Sohar	9	9	9	9	9	9	9	2	2	2
R/A-14: Falaj Al Qabail	9	9	9	9	9	9	9	0	0	0
R/A-18: Al Agr	9	9	9	9	9	9	9	2	2	2
Performed total	72	72	72	72	72	72	72	4	4	4
Proposed total	72	72	72	72	72	72	72	16	16	16
Balance	-	-	-	-	-	-	-	-12	-12	-12

SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)
- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Tests Quantities at the Proposed Study Roundabouts (1/4)

Location: R/A-2: A' Naseem Garden

Bore Hole	Depth of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler			Numbers of Ground Water Sample (sample)					
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-R/A2-1											
Br-R/A2-2											
Br-R/A2-3	3.5	3	3	3	3	3	3	0	0	0	0
Br-R/A2-4											
Br-R/A2-5											
Br-R/A2-6	3.5	3	3	3	3	3	3				
Br-R/A2-7											
Br-R/A2-8											
Br-R/A2-9	3.5	3	3	3	3	3	3	0	0	0	0
Br-R/A2-10											
Br-R/A2-11											

Location: R/A-3: Barka

Bore Hole	Depth of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler			Numbers of Ground Water Sample (sample)					
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-R/A3-1											
Br-R/A3-2											
Br-R/A3-3	3.5	3	3	3	3	3	3	0	0	0	0
Br-R/A3-4											
Br-R/A3-5											
Br-R/A3-6	3.5	3	3	3	3	3	3				
Br-R/A3-7											
Br-R/A3-8											
Br-R/A3-9	3.5	3	3	3	3	3	3	0	0	0	0
Br-R/A3-10											
Br-R/A3-11											

SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)

- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Tests Quantities at the Proposed Study Roundabouts (2/4)

Bore Hole	Depth Position of SPT Sample (m)	June-5: Al Mulaiddah			Soil sample from SPT sampler				Numbers of			Ground water sample		
		Soil Sample from SPT Sampler (sample)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	Ground Water Sample (sample)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)		
Br-R/AS-1														
Br-R/AS-2														
Br-R/AS-3	3 5 7	3	3	3	3	3	3	3	0	0	0	0	0	
Br-R/AS-4														
Br-R/AS-5														
Br-R/AS-6	3 5 7	3	3	3	3	3	3	3						
Br-R/AS-7														
Br-R/AS-8														
Br-R/AS-9	3 5 7	3	3	3	3	3	3	3	0	0	0	0	0	
Br-R/AS-10														
Br-R/AS-11														

Bore Hole	Depth Position of SPT Sample (m)	R/A-8: Al Khaburah			Soil sample from SPT sampler				Numbers of			Ground water sample		
		Soil Sample from SPT Sampler (sample)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	Ground Water Sample (sample)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)		
Br-R/AS-1														
Br-R/AS-2														
Br-R/AS-3	3 5 7	3	3	3	3	3	3	3	0	0	0	0	0	
Br-R/AS-4														
Br-R/AS-5														
Br-R/AS-6	3 5 7	3	3	3	3	3	3	3						
Br-R/AS-7														
Br-R/AS-8														
Br-R/AS-9	3 5 7	3	3	3	3	3	3	3	0	0	0	0	0	
Br-R/AS-10														
Br-R/AS-11														

SPT: Standard Penetration Test
 - Water-soluble Component of Chloride Test (include Chloride Content Test)
 - Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Tests Quantities at the Proposed Study Roundabouts (3/4)

Location: R/A-10: Saham

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler				Numbers of Ground Water Sample (sample)	Ground water sample				
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)		Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-R/A10-1												
Br-R/A10-2												
Br-R/A10-3	3 5 7	3	3	3	3	3	3	3	0	0	0	0
Br-R/A10-4												
Br-R/A10-5												
Br-R/A10-6	3 5 7	3	3	3	3	3	3	3				
Br-R/A10-7												
Br-R/A10-8												
Br-R/A10-9	3 5 7	3	3	3	3	3	3	3	0	0	0	0
Br-R/A10-10												
Br-R/A10-11												

Location: R/A-12: Sohar

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler				Numbers of Ground Water Sample (sample)	Ground water sample				
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)		Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-R/A12-1												
Br-R/A12-2												
Br-R/A12-3	3 5 7	3	3	3	3	3	3	3	0	0	0	0
Br-R/A12-4												
Br-R/A12-5												
Br-R/A12-6	3 5 7	3	3	3	3	3	3	3	1	1	1	1
Br-R/A12-7												
Br-R/A12-8	3 5 7	3	3	3	3	3	3	3	1	1	1	1
Br-R/A12-9												
Br-R/A12-10												
Br-R/A12-11												

SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)
- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Tests Quantities at the Proposed Study Roundabouts (4/4)

Location: R/A-14: Falaj Al Qabail		Depth Position of SPT Sample (m)		Numbers of Soil Sample from SPT Sampler		Soil sample from SPT sampler				Numbers of Ground water sample				
Bore Hole		3	5	7		Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-R/A14-1														
Br-R/A14-2														
Br-R/A14-3		3	5	7	3	3	3	3	3	3	3	0	0	0
Br-R/A14-4														
Br-R/A14-5														
Br-R/A14-6		3	5	7	3	3	3	3	3	3	3			
Br-R/A14-7														
Br-R/A14-8														
Br-R/A14-9		3	5	7	3	3	3	3	3	3	3	0	0	0
Br-R/A14-10														
Br-R/A14-11														

Location: R/A-18: Al Agr		Depth Position of SPT Sample (m)		Numbers of Soil Sample from SPT Sampler		Soil sample from SPT sampler				Numbers of Ground water sample				
Bore Hole		3 <th>5 <th>7 <th></th> <th>Natural Water Content (test)</th> <th>Specific Gravity (test)</th> <th>Grain size Analysis (test)</th> <th>pH Test of Soil (test)</th> <th>Water-soluble Component of Chloride (test)</th> <th>Water-soluble Component of Sulfate (test)</th> <th>pH Test of Ground Water (test)</th> <th>Chloride Content (test)</th> <th>Sulfate Content (test)</th> </th></th>	5 <th>7 <th></th> <th>Natural Water Content (test)</th> <th>Specific Gravity (test)</th> <th>Grain size Analysis (test)</th> <th>pH Test of Soil (test)</th> <th>Water-soluble Component of Chloride (test)</th> <th>Water-soluble Component of Sulfate (test)</th> <th>pH Test of Ground Water (test)</th> <th>Chloride Content (test)</th> <th>Sulfate Content (test)</th> </th>	7 <th></th> <th>Natural Water Content (test)</th> <th>Specific Gravity (test)</th> <th>Grain size Analysis (test)</th> <th>pH Test of Soil (test)</th> <th>Water-soluble Component of Chloride (test)</th> <th>Water-soluble Component of Sulfate (test)</th> <th>pH Test of Ground Water (test)</th> <th>Chloride Content (test)</th> <th>Sulfate Content (test)</th>		Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-R/A18-1														
Br-R/A18-2														
Br-R/A18-3		3	5	7	3	3	3	3	3	3	3	1	1	1
Br-R/A18-4														
Br-R/A18-5														
Br-R/A18-6														
Br-R/A18-7														
Br-R/A18-8		3	5	7	3	3	3	3	3	3	3	1	1	1
Br-R/A18-9		3	5	7	3	3	3	3	3	3	3	1	1	1
Br-R/A18-10														
Br-R/A18-11														

SPT: Standard Penetration Test
 - Water-soluble Component of Chloride Test (include Chloride Content Test)
 - Water-soluble Component of Sulfate Test (include Sulfate Content Test)

7 Details of Soil Laboratory Test Quantities at the Proposed Study Pedestrian Underpasses

Summary of Details for Soil Laboratory Test Quantities at the Proposed Study Pedestrian Underpasses

Name of Roundabout	Numbers of Soil Sample from SPT Sampler		Soil Sample from SPT Sampler				Numbers of Ground Water Sample		
	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
P/U- 1: Barka									
P/U- 2: Al Billah									
P/U- 3: A' Tareef									
P/U- 4: Al Qarat									
P/U- 5: A' Tharmad							1	1	1
P/U- 6: A' Suweig									
P/U- 7: Al Khadra							1	1	1
P/U- 8: Qarih									
P/U- 9: Maiaz A' Sughra							1	1	1
P/U-10: Khor A' Siyabi									
P/U-11: Liwa									
P/U-12: Asrar Bani Sa'd									
Performed total							3	3	3
Proposed total							0	0	0
Balance							+3	+3	+3

SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)
- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Test Quantities at the Proposed Study Pedestrian Underpasses (1/3)

Location: P/U-1; Barka

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler				Numbers of Ground Water Sample (sample)	Ground water sample					
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)		Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)	
Br-P/U1-1													
Br-P/U1-2													

Location: P/U-2; Al Billah

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler				Numbers of Ground Water Sample (sample)	Ground water sample					
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)		Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)	
Br-P/U2-1													
Br-P/U2-2													

Location: P/U-3; A' Tareef

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler				Numbers of Ground Water Sample (sample)	Ground water sample					
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)		Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)	
Br-P/U3-1													
Br-P/U3-2													

Location: P/U-4; Al Qarat

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler				Numbers of Ground Water Sample (sample)	Ground water sample					
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)		Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)	
Br-P/U4-1													
Br-P/U4-2													

SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)
- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Test Quantities at the Proposed Study Pedestrian Underpasses (2/3)

Location: P/U-5: A' Tharmad

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler			Numbers of Ground Water Sample (sample)	Ground water sample				
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)		pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)
BR-P/U5-1						1			1		
BR-P/U5-2											

Location: P/U-6: A' Suwciq

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler			Numbers of Ground Water Sample (sample)	Ground water sample				
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)		pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)
BR-P/U6-1											
BR-P/U6-2											

Location: P/U-7: Al Khadra

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler			Numbers of Ground Water Sample (sample)	Ground water sample				
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)		pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)
BR-P/U7-1						1			1		
BR-P/U7-2											

Location: P/U-8: Qarih

Bore Hole	Depth Position of SPT Sample (m)	Numbers of Soil Sample from SPT Sampler (sample)	Soil sample from SPT sampler			Numbers of Ground Water Sample (sample)	Ground water sample				
			Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)		pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	pH Test of Ground Water (test)	Chloride Content (test)
BR-P/U8-1											
BR-P/U8-2											

SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)
- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Details of Soil Laboratory Test Quantities at the Proposed Study Pedestrian Underpasses (3/3)

Location: P/U-9: Majaz A' Sughra		Soil sample from SPT sampler				Numbers of			Ground water sample		
Bore Hole	Depth Position of SPT Sample (m)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	Ground Water Sample (sample)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-P/U9-1								1			
Br-P/U9-2											

Location: P/U-10: Khor A' Sivabi		Soil sample from SPT sampler				Numbers of			Ground water sample		
Bore Hole	Depth Position of SPT Sample (m)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	Ground Water Sample (sample)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-P/U10-1											
Br-P/U10-2											

Location: P/U-11: Liwa		Soil sample from SPT sampler				Numbers of			Ground water sample		
Bore Hole	Depth Position of SPT Sample (m)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	Ground Water Sample (sample)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-P/U11-1											
Br-P/U11-2											

Location: P/U-12: Asrar Bani Sa'd		Soil sample from SPT sampler				Numbers of			Ground water sample		
Bore Hole	Depth Position of SPT Sample (m)	Natural Water Content (test)	Specific Gravity (test)	Grain size Analysis (test)	pH Test of Soil (test)	Water-soluble Component of Chloride (test)	Water-soluble Component of Sulfate (test)	Ground Water Sample (sample)	pH Test of Ground Water (test)	Chloride Content (test)	Sulfate Content (test)
Br-P/U12-1											
Br-P/U12-2											

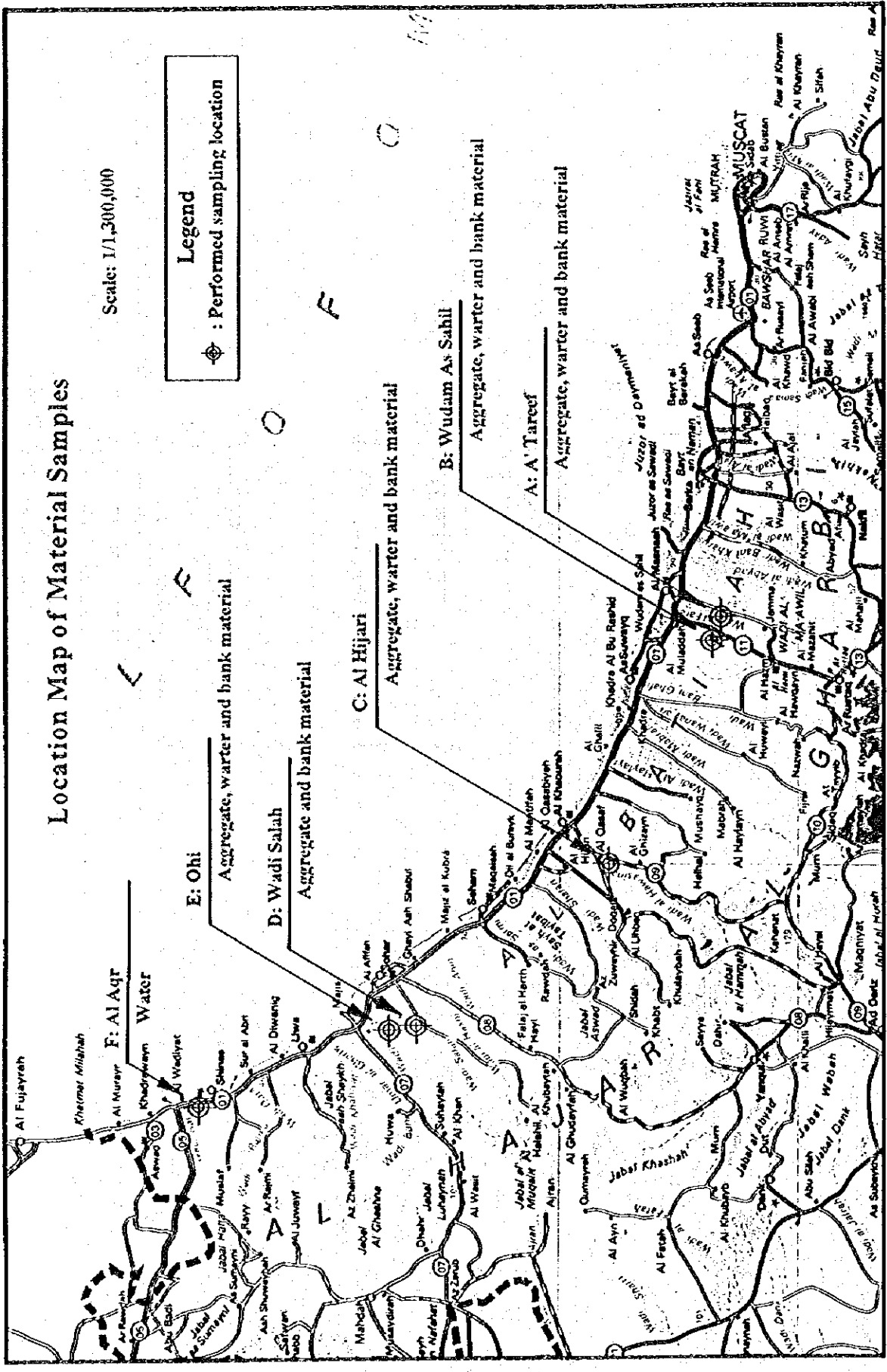
SPT: Standard Penetration Test

- Water-soluble Component of Chloride Test (include Chloride Content Test)
- Water-soluble Component of Sulfate Test (include Sulfate Content Test)

Location Map of Material Samples

Scale: 1/1,300,000

Legend
 ⊕ : Performed sampling location



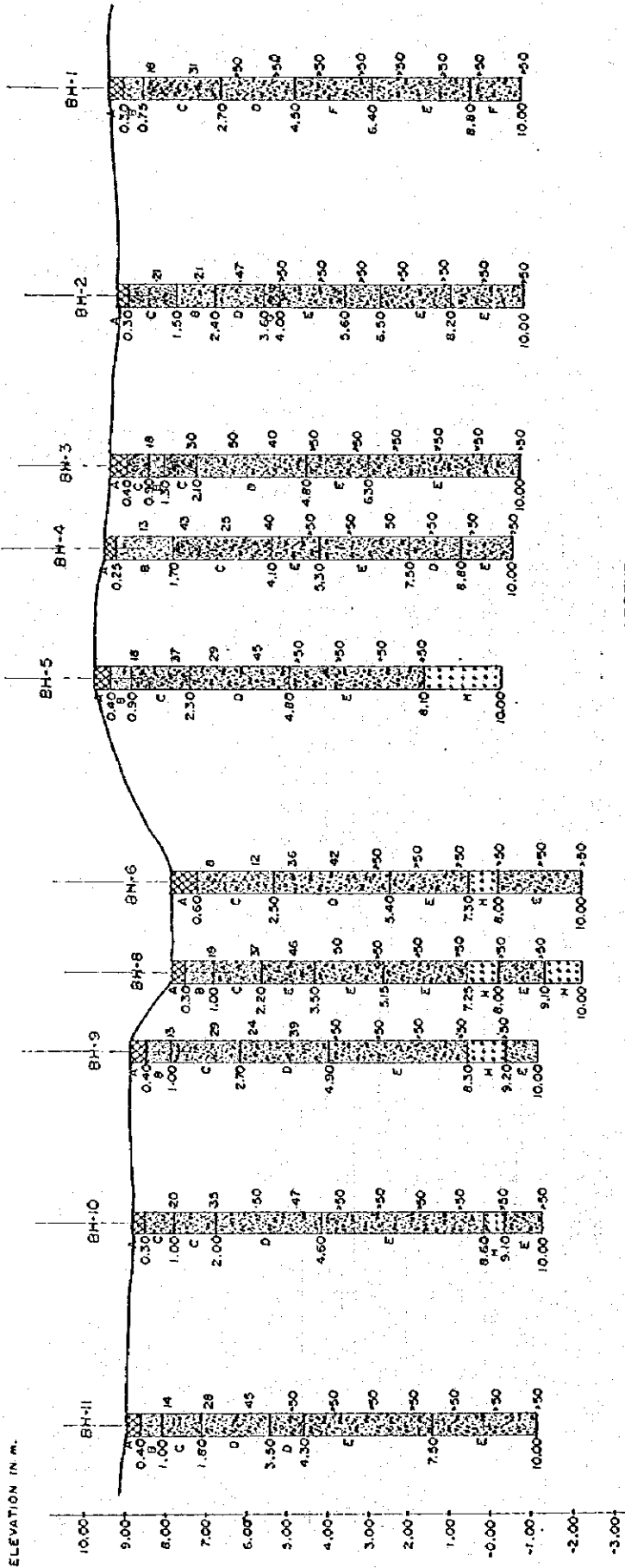
Partial Soil Conditions at the Four Proposed Study Roundabouts

Name of roundabout	Bearing layer (N value ≥ 30)		Bearing layer (N value ≥ 50)	
	Soil conditions	Depth	Soil conditions	Depth
R/A- 2 : A' Naseem Garden	Silty, fine to coarse SAND and GRAVEL	2.0 m - 4.0 m	Silty, fine to coarse SAND and fine GRAVEL	3.0 m - 5.0 m
R/A- 3 : Barka	Silty, fine to coarse SAND and GRAVEL	2.0 m - 5.0 m	Silty, fine to coarse SAND and GRAVEL	3.0 m - 5.0 m
Junc- 5 : Al Muliaddah	Weakly cemented, slightly silty, fine to medium SAND	2.0 m - 4.0 m	Slightly silty, fine to medium SAND with gravel and cobbles	4.0 m - 6.0 m
R/A- 8 : Al Khaburah	Very silty, fine SAND with some gravel	4.0 m - 6.0 m	Slightly silty, fine to coarse SAND and GRAVEL with rounded cobbles and boulders	5.0 m - 7.0 m
R/A- 10 : Saham	N.A.	6.0 m - 8.0 m	N.A.	7.0 m - 9.0 m
R/A- 12 : Sohar	N.A.	N.A.	N.A.	N.A.
R/A- 14 : Falaj Al Qabail	N.A.	1.0 m - 4.0 m	N.A.	3.0 m - 5.0 m
R/A- 18 : Al Aqr	N.A.	N.A.	N.A.	N.A.

N.A.: Not available at the time of this reporting

Soil profile

R/A-2: A' Naseem Garden

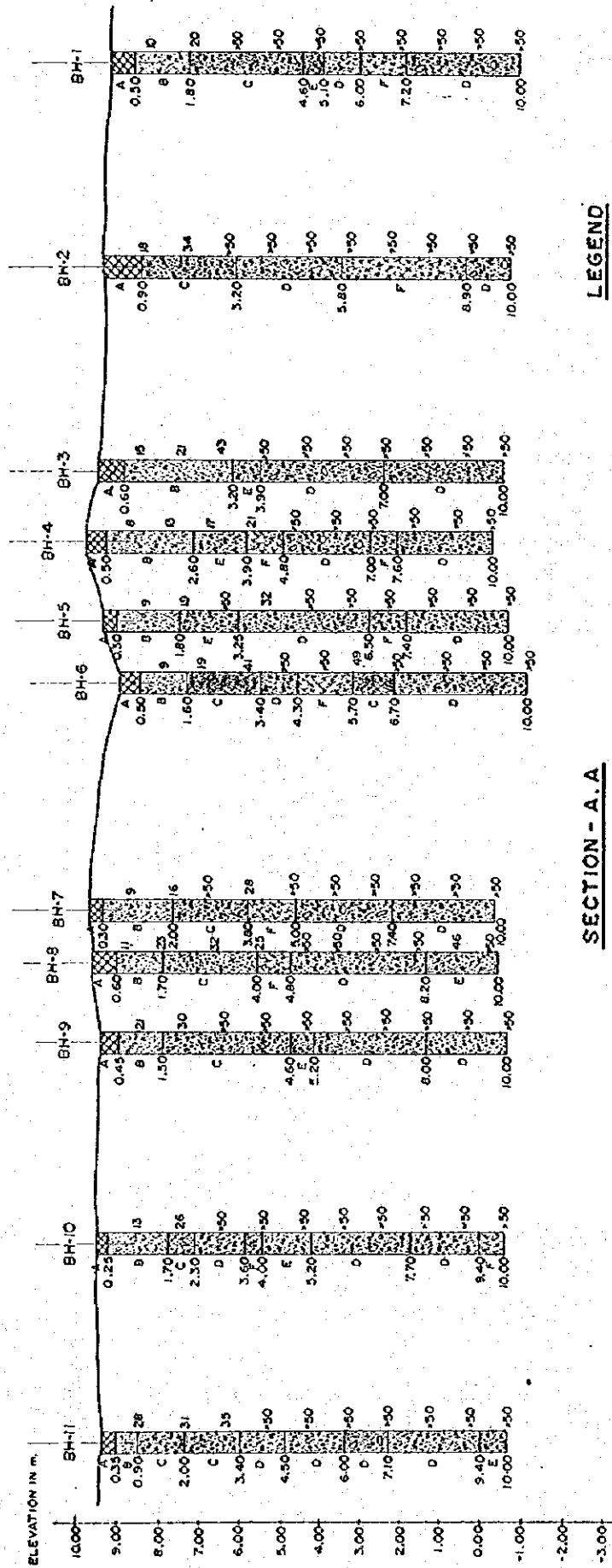


LEGEND

SECTION - A.A

- A : MADEGROUND
- B : Brown, loose to medium dense, silty, fine to medium SAND.
- C : Brown / grey, medium dense to dense, silty, fine to medium SAND with gravel.
- D : Brown / grey, dense to very dense, silty, fine to coarse SAND and GRAVEL.
- E : Greyish brown, very dense, weakly cemented silty, fine to coarse SAND and fine GRAVEL.
- F : Greyish brown, weakly cemented, very silty, clayey, fine to medium SAND and fine GRAVEL.
- G : Greyish brown, dense to very dense, weakly cemented, clayey, SILT with fine gravel.
- H : Greyish brown, very weak to weak, CONGLOMERATE.

**Soil profile
R/A-3: Barika**



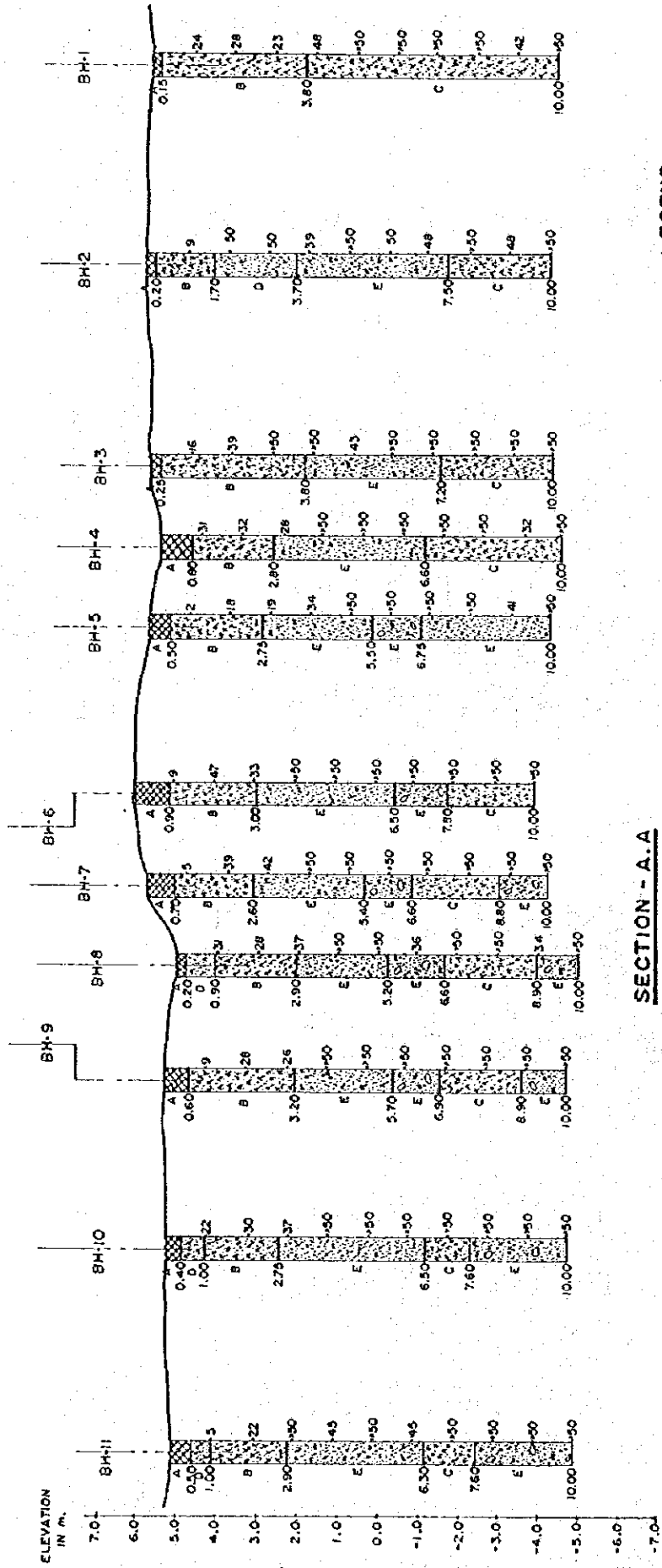
SECTION - A.A

LEGEND

- A : MADEGROUND
- B : Brown, loose to medium dense, silty, fine to medium SAND with fine gravel.
- C : Brown / grey, medium dense to dense, silty, fine to coarse SAND and GRAVEL.
- D : Brown / grey, very dense, weasley cemented, silty, fine to coarse SAND and GRAVEL.
- E : Brown / grey, medium dense to dense, weasy cemented, silty, clayey, fine to coarse SAND and GRAVEL.
- F : Light greenish grey / br/whish grey, dense to very dense, cemented, clayey, SILT with fine gravel.

Soil profile

Junc-5: Al Muladdah



LEGEND

- A. MADEGROUND
- B. Brown, loose to medium dense, sandy, clayey, SILT with thin layers of silty fine sand.
- C. Brown, dense to very dense, weakly cemented, fine sandy, clayey SILT with some gravel.
- D. Brownish grey, dense to very dense weakly cemented, slightly silty, fine to medium SAND.
- E. Brownish grey dense to very dense, slightly silty, fine to medium SAND with gravel and cobbles.

SECTION - A.A

11 Partial Soil Conditions at the Four Proposed Study Pedestrian Underpasses

Partial Soil Conditions at the Four Proposed Study Pedestrian Underpass Locations

Name of roundabout	Bearing layer (N value ≥ 30)		Bearing layer (N value ≥ 50)	
	Soil conditions	Depth	Soil conditions	Depth
P/U- 1 : Barka	N.A.	N.A.	N.A.	N.A.
P/U- 2 : Al Billah	N.A.	N.A.	N.A.	N.A.
P/U- 3 : A' Tareef	N.A.	N.A.	N.A.	N.A.
P/U- 4 : Al Qarar	N.A.	N.A.	N.A.	N.A.
P/U- 5 : A' Tharmad	Slightly silty, fine to medium SAND and GRAVEL with cobbles	2.0 m - 3.0 m	Dense	Dense to very dense
P/U- 6 : A' Suweiq	Slightly silty, fine to coarse SAND with fine gravel to medium SAND with some gravel and occasional cobbles	5.0 m	Dense	Very dense
P/U- 7 : Al Khadra	Fine SAND and SILT	3.0 m - 4.0 m	Dense	Dense to very dense
P/U- 8 : Qarih	Fine SAND and SILT	8.0 m	Medium dense	Dense to very dense
P/U- 9 : Majaz A' Sughra	N.A.	N.A.	N.A.	N.A.
P/U- 10 : Khor A' Sivabi	N.A.	N.A.	N.A.	N.A.
P/U- 11 : Liwa	N.A.	N.A.	N.A.	N.A.
P/U- 12 : Asrar Bani Sa'id	N.A.	N.A.	N.A.	N.A.

N.A.: Not available at the time of this reporting