GENERAL

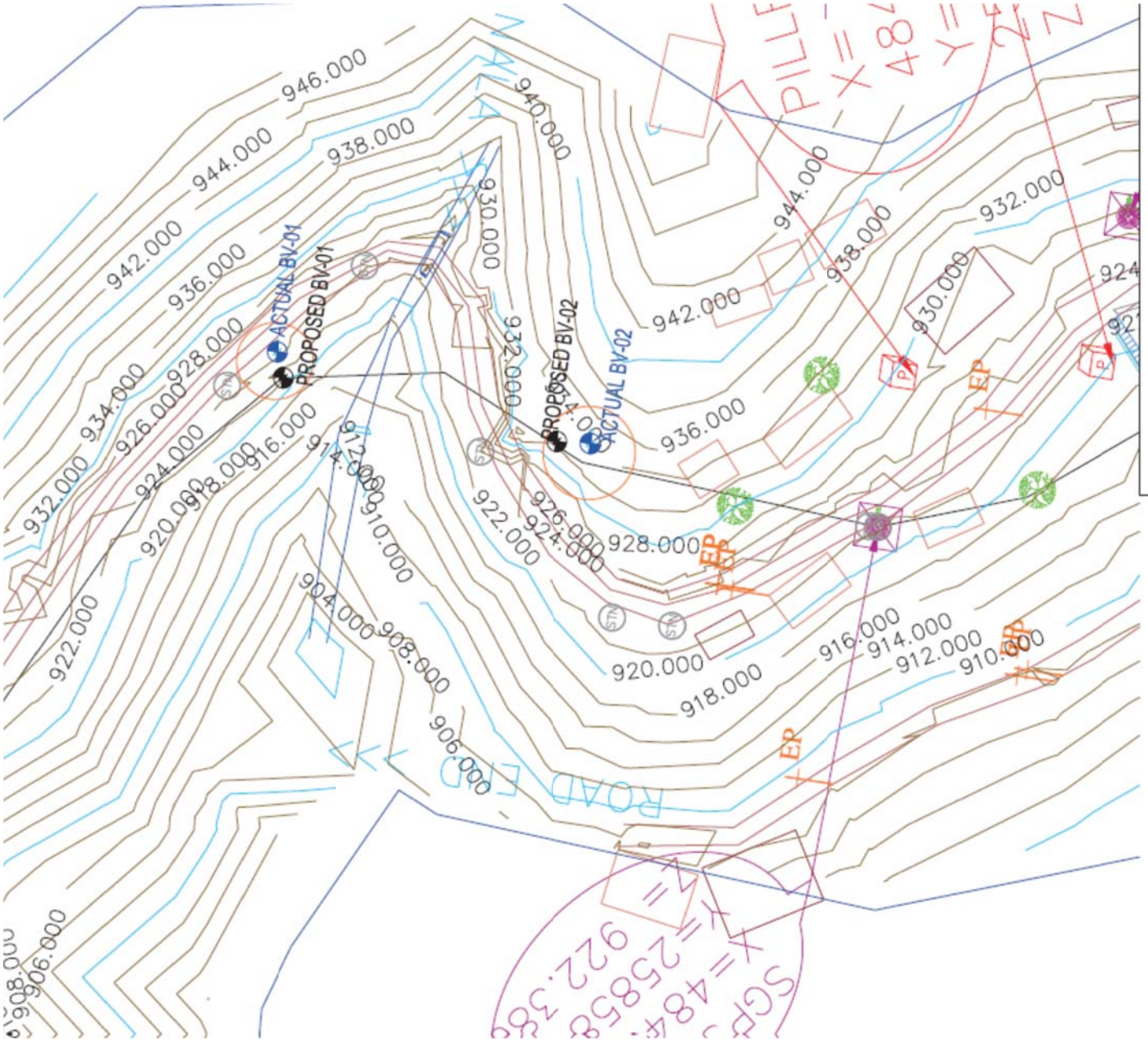
The Works is carried out to provide geological data at landslide and bridge planning sites for the proposed road of the NH54 bypass, at Chhiahtlang (Bypass1), Serchhip (Bypass2), Hnahthial (Bypass3) and Lawngtlai (Bypass4) respectively in Mizoram State.
The objectives of the Works are to determine the nature and characteristics of the geological strata, properties of the geology using SPT and monitor a groundwater in borehores.

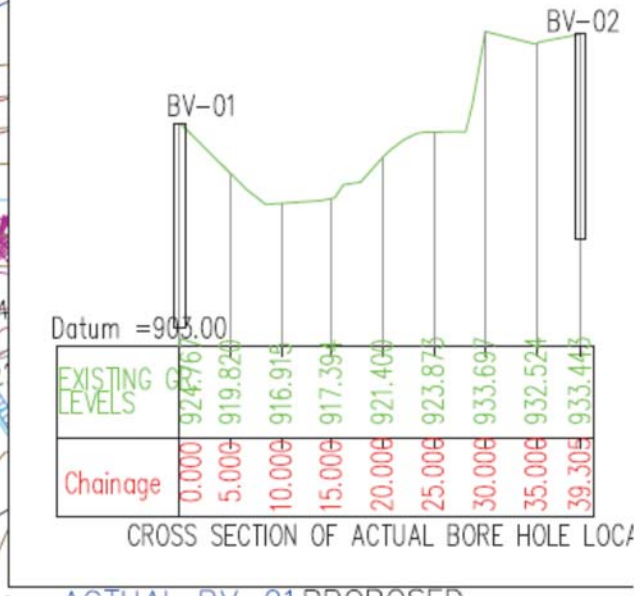
The quantities of the Works actually conducted are shown in table below.

Table. Actual quantities of the works

Item	Description	Unit	Quantity
Core Drilling	Bridge planning site Bypass1 BV-1	m	20
	Bridge planning site Bypass1 BV-2	m	20
	Bridge planning site Bypass2(A) BV-1	m	20
	Bridge planning site Bypass2(A) BV-2	m	20
	Bridge planning site Bypass2(B) BV-3	m	20
	Bridge planning site Bypass2(B) BV-4	m	20
	Bridge planning site Bypass2(B) BV-5	m	20
	Bridge planning site Bypass3 BV-1	m	20
	Bridge planning site Bypass3 BV-2	m	20
	Landslide site Bypass4 BV-1 (all core)	m	15
	Landslide site Bypass4 BV-2 (all core)	m	20
	Landslide site Bypass4 BV-2S	m	20
	Landslide site Bypass4 BV-3 (all core)	m	20
	Landslide site Bypass4 BV-4 (all core)	m	30
Standard Penetration Test	Bridge planning site	Nos	10
	Landslide site	Nos	3
Installation of PVC pipes	Installation of perforated PVC pipes in all boreholes.	hole	14
Measurement of GroundwaterLevel	Landslide site only. In 4 boreholes once a week for 8 weeks. (4x8=32times)	times	32
Cross-section survey	Landslide site	m	300

1. LOCATION OF THE BOREHOLES



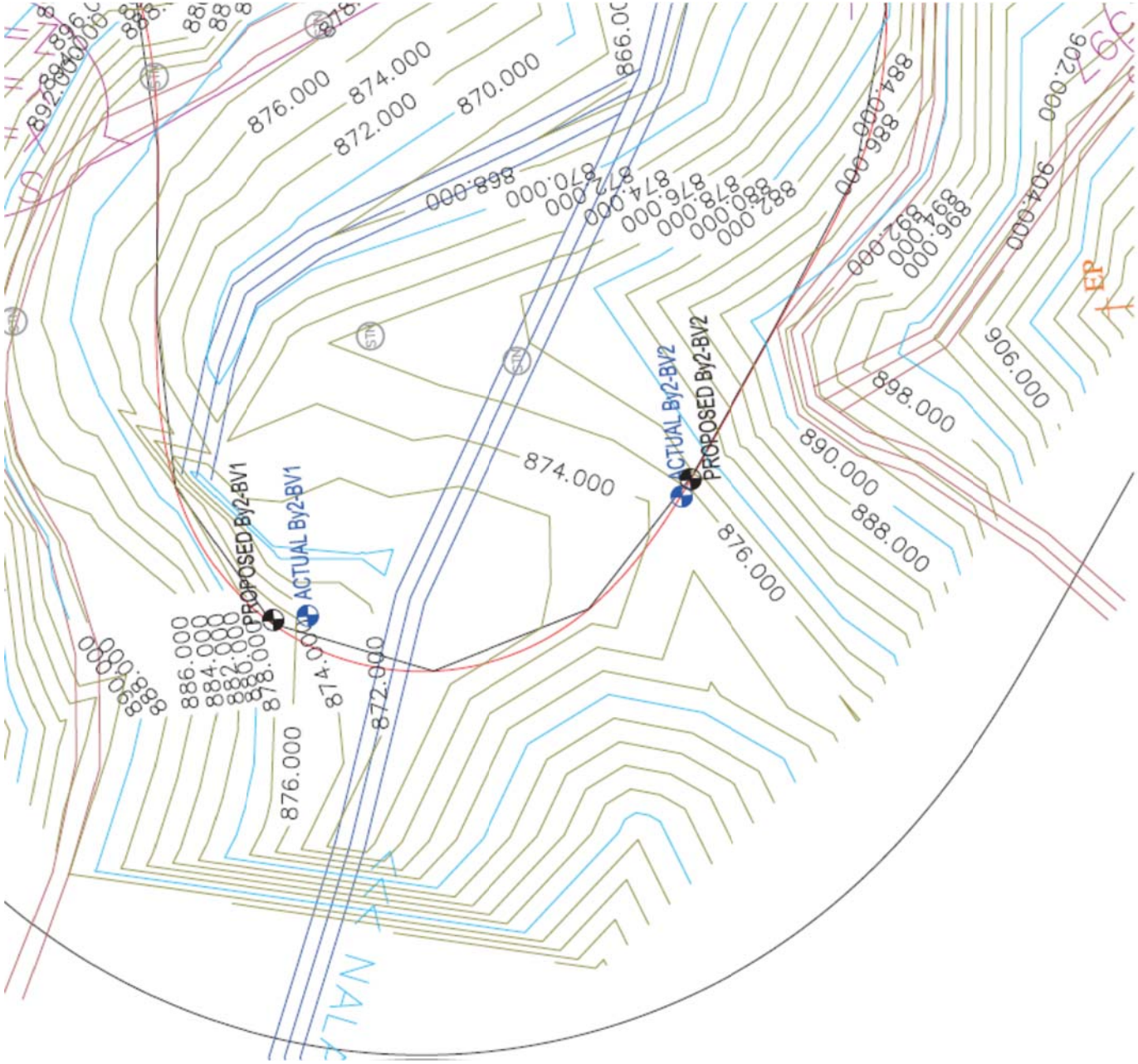


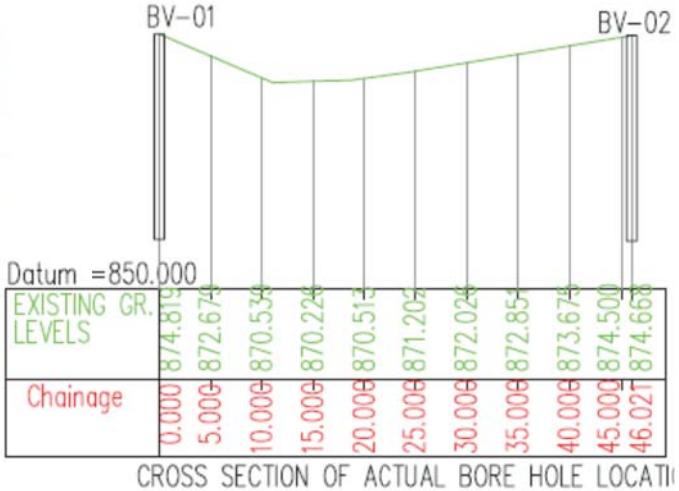
ACTUAL BV-01
X=484012.535
Y=2585974.360
Z= 924.767

PROPOSED BV-01
X=484009.596
Y=2585973.200

ACTUAL BV-02
X=484007.406
Y=2585935.391

PROPOSED BV-02
X=484007.028
Y=2585939.423

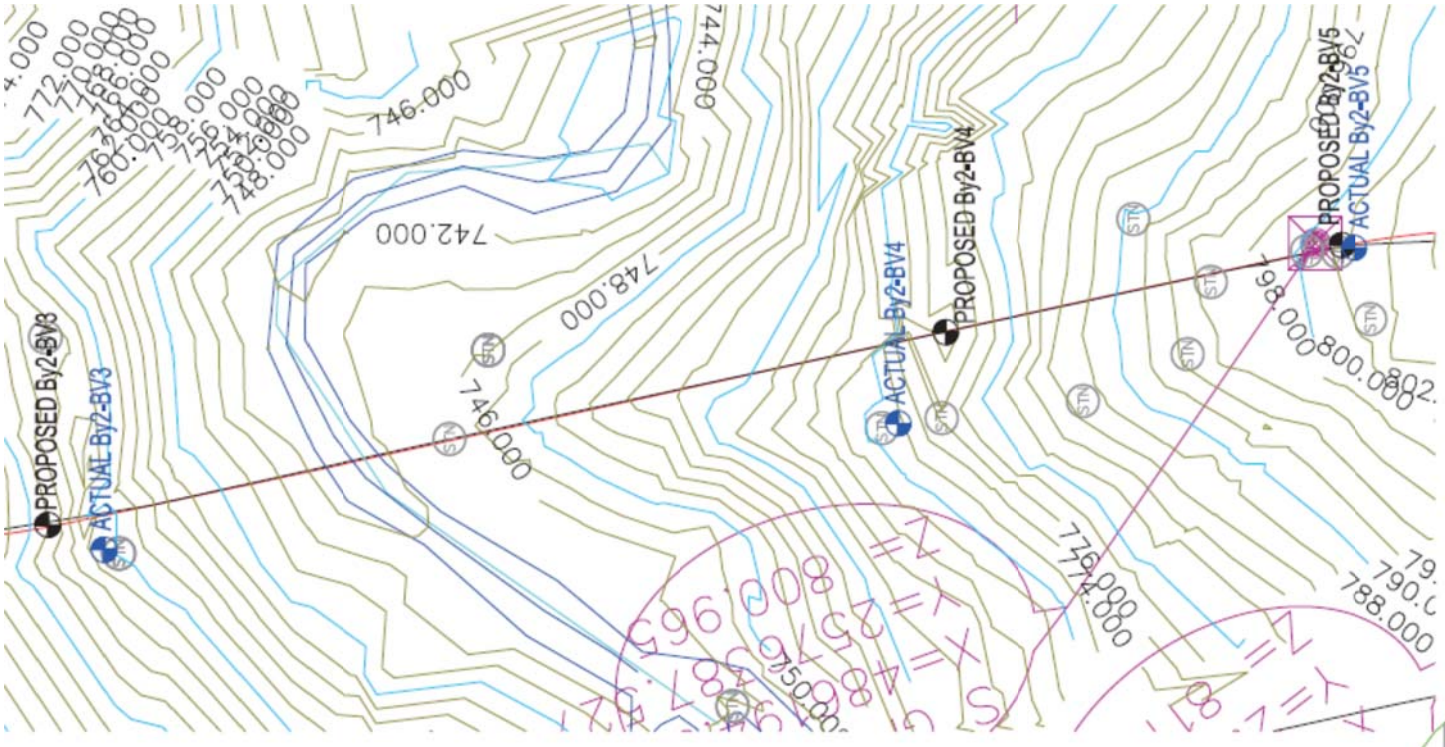




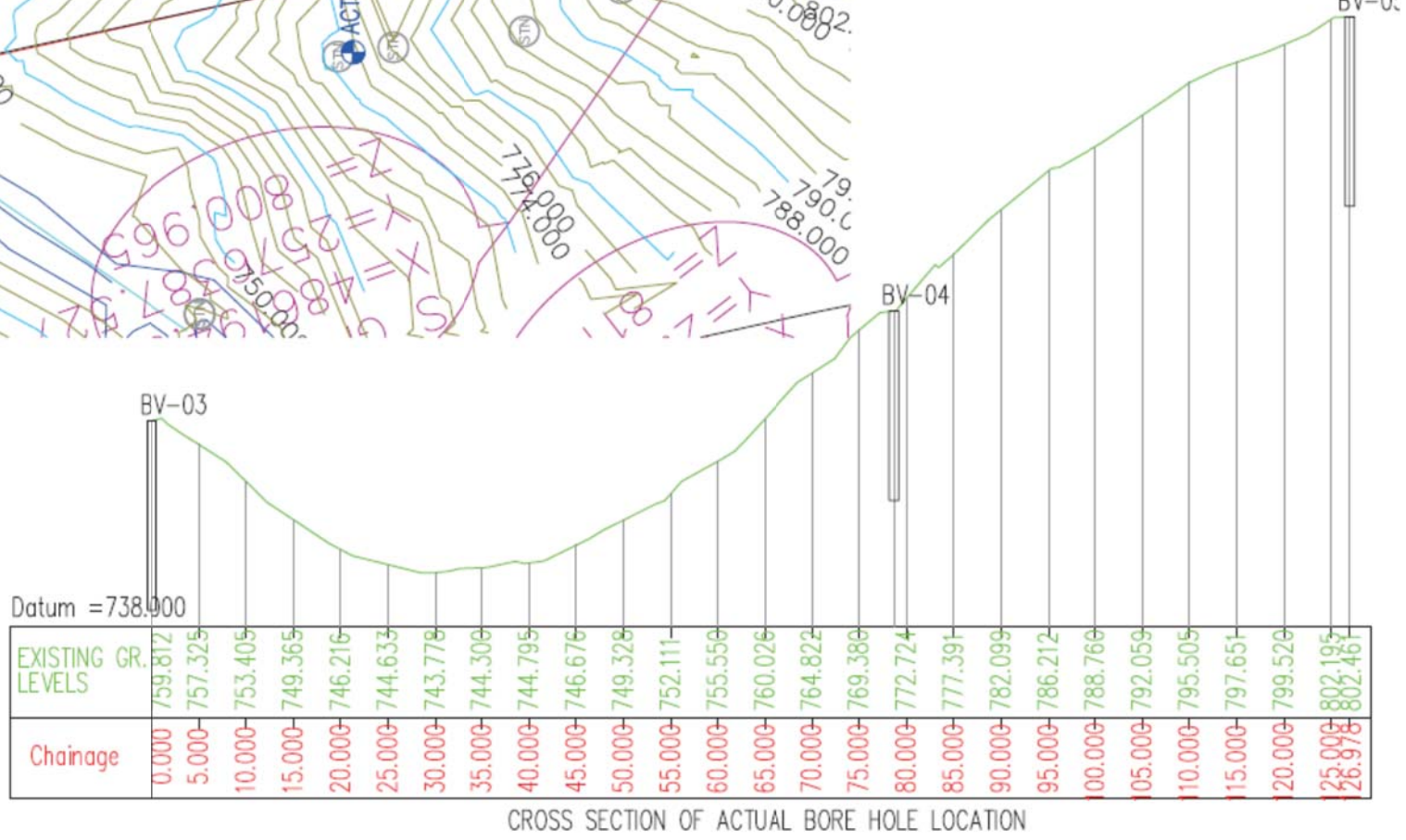
CROSS SECTION OF ACTUAL BORE HOLE LOCATI

ACTUAL By2–BV1	PROPOSED By2–BV1
X=485630.172	X = 485630.019
Y=2579915.445	Y = 2579919.506
Z= 874.819	Z = 878.535

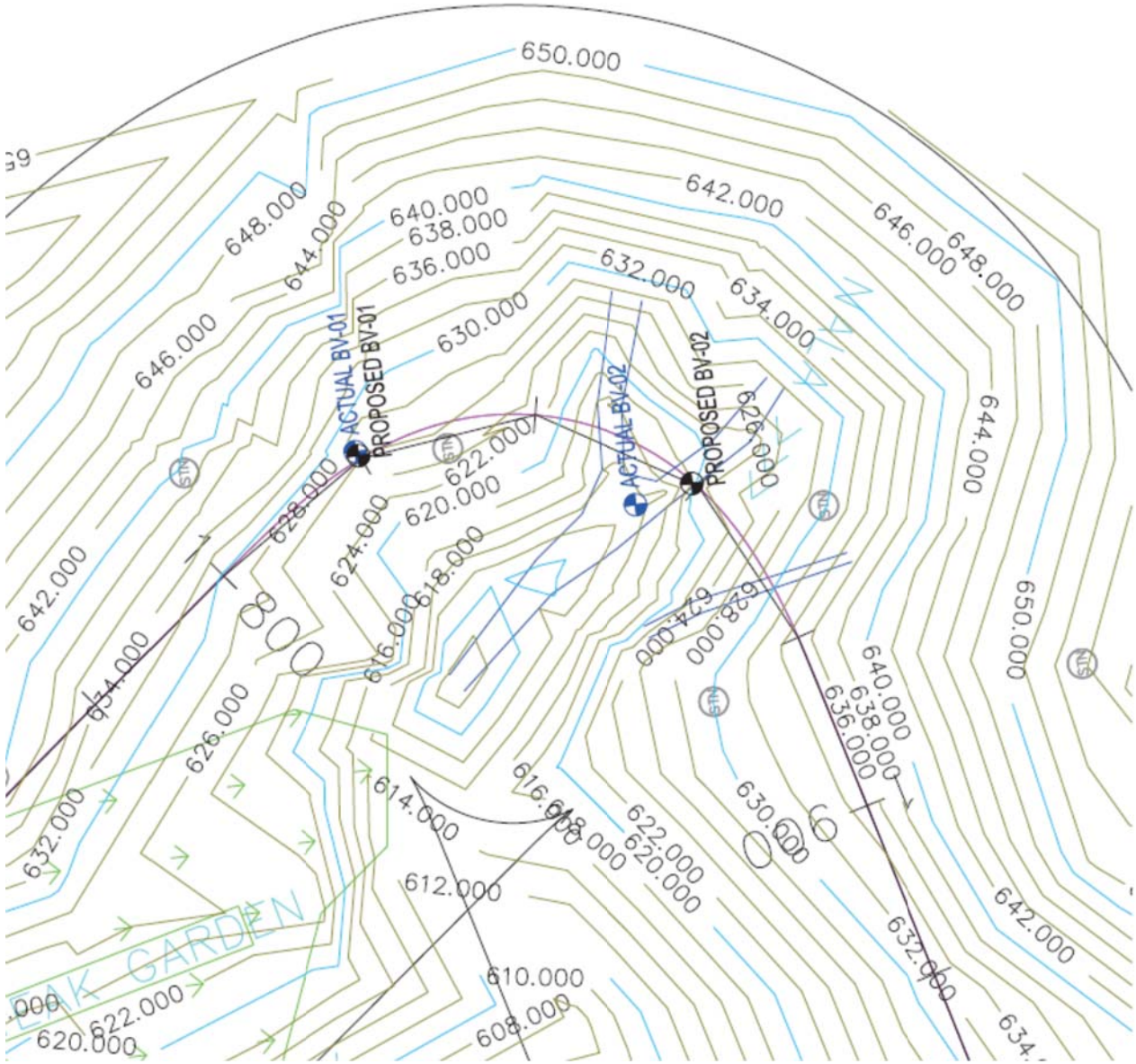
ACTUAL By2–BV2	PROPOSED By2–BV2
X=485640.294	X = 485642.220
Y=2579870.551	Y = 2579869.340
Z= 874.668	Z = 877.865

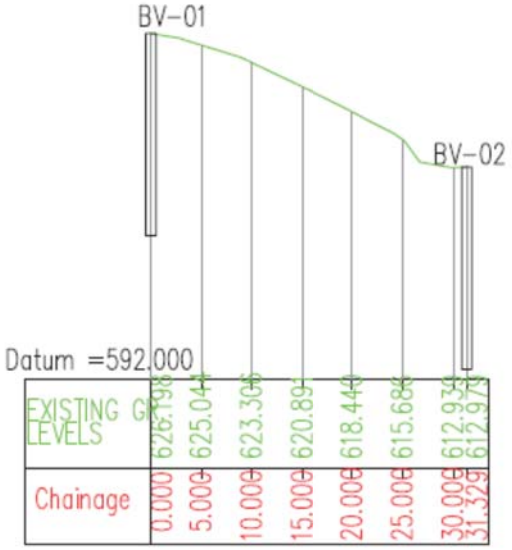


ACTUAL By2-BV3	PROPOSED By2-E
X=486164.534	X=486166.957
Y=2576506.202	Y=2576511.703
Z= 759.812	Z= 768.294
ACTUAL By2-BV4	PROPOSED By2-E
X=486176.888	X = 486185.800
Y=2576428.489	Y = 2576423.85
Z= 771.443	Z = 772.742
ACTUAL By2-BV5	PROPOSED By2-E
X=486194.063	X = 486194.320
Y=2576383.646	Y = 2576384.92
Z= 802.461	Z = 801.731



CROSS SECTION OF ACTUAL BORE HOLE LOCATION





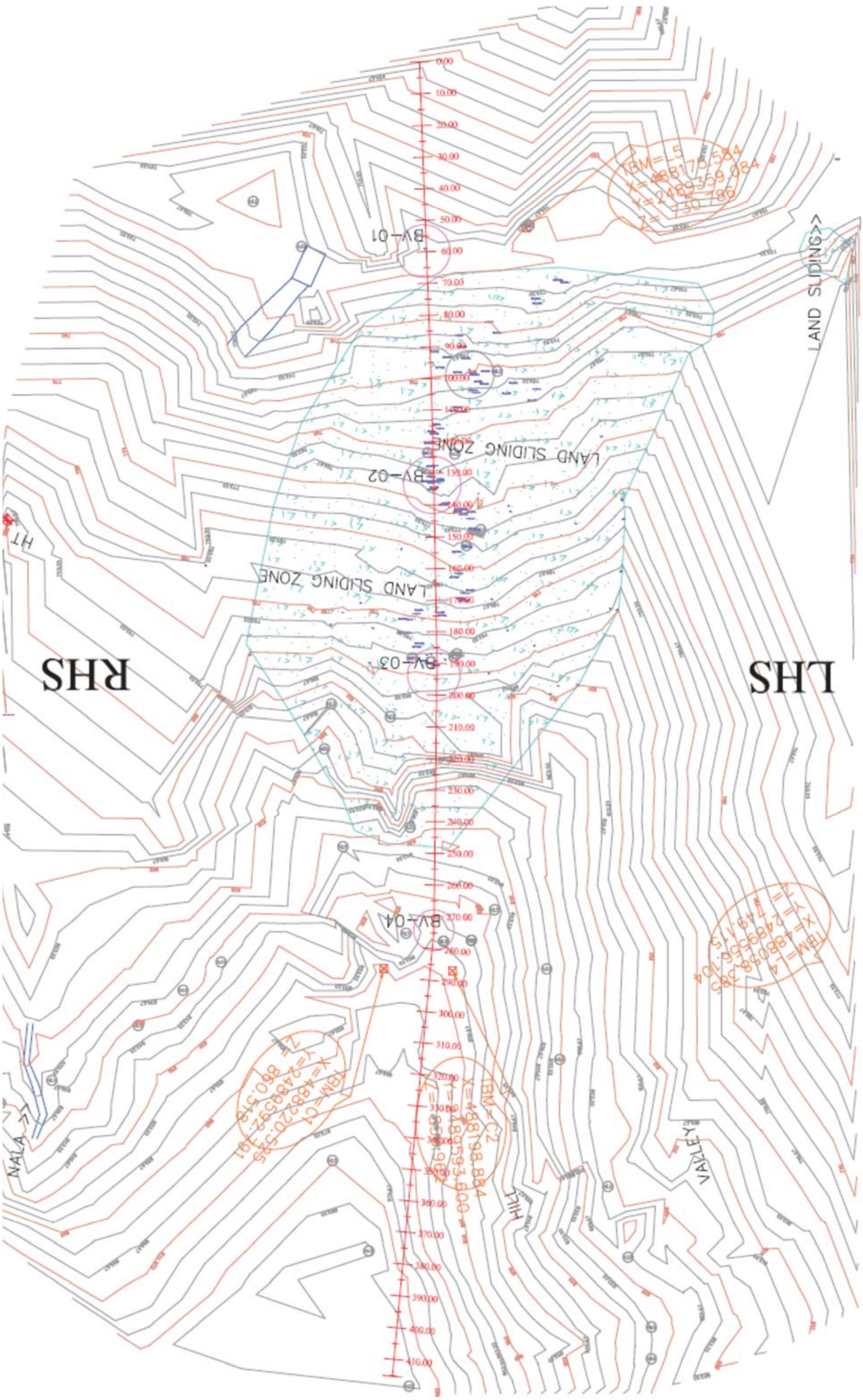
CROSS SECTION OF ACTUAL BORE HOLE LOCATION

ACTUAL BV-01
X=492329.787
Y=2540271.700
Z= 626.198

PROPOSED BV-01
X=492329.319
Y=2540271.429
Z= 626.166

ACTUAL BV-02
X = 492320.403

PROPOSED BV-02
X = 492322.021
Y= 2540235.411


RHS
LHS
LAND SLIDING ZONE
LAND SLIDING ZONE
LAND SLIDING>>
BV-01
BV-02
BV-03
BV-04
NALA
HILL
VALLEY
HT
IBM=L5
IBM=C1
IBM=C2
IBM=4
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
130.00
140.00
150.00
160.00
170.00
180.00
190.00
200.00
210.00
220.00
230.00
240.00
250.00
260.00
270.00
280.00
290.00
300.00
310.00
320.00
330.00
340.00
350.00
360.00
370.00
380.00
390.00
400.00
410.00

2. GEOLOGICAL LOG OF BORE HOLE

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**

Type's of Core Barrel : **NX Double Core barrel**

Location : Chhiahtlang (Bypass1)

Method of Boring / Drilling : Shell / RMC

Boring / Drilling Equipment : Geo rig with Diamond bit

Coordinates : **X = 484012.535 Y = 2585974.360**

Bore Hole No. : BV-01

Depth of hole : +20.000m

Ground Elevation : +924.767m

Date of Commencement : 3-Mar-16

Date of Completion : 8-Mar-16

Operator Name : SK Karim

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
03/03/16	924.77	0.5	0.00	1.00	1.00					0.22	22.00	Nil	18		NX	NX				1.61		Overburden consist of slope wash materials having upper top soil with hard soil & softrock matrix
	923.77	1	1.00	2.00	1.00					0.32	32.00	Nil	19	NX Casing Bit	NX	NX				1.45		Fractured core pieces recovered.Grey shale
	922.77	1	2.00	3.00	1.00					0.42	42.00	Nil	31		NX	NX				1.54		
	921.77	3	3.00	4.00	1.00					0.44	44.00	Nil	50		NX	NX				1.61		
04/03/16	920.77	3	4.00	5.00	1.00					0.54	54.00	Nil	40		NX	NX	2.7		800.0	1.43		
	919.77	3	5.00	6.00	1.00					0.45	45.00	Nil	22		NX	NX			1100.0	1.32		
	918.77	3	6.00	7.00	1.00					0.52	52.00	Nil	18		NX	NX			1500.0	1.00		
	917.77	3	7.00	8.00	1.00					0.40	40.00	Nil	17		NX	NX			1000.0	0.91		
05/03/16	916.77	8	8.00	9.00	1.00					0.53	53.00	Nil	22		NX	NX	0.0		100.0	0.83		
	915.77	8	9.00	10.00	1.00					0.30	30.00	Nil	7		NX	NX			1200.0	0.89		
	914.77	8	10.00	11.00	1.00					0.47	47.00	Nil	38		NX	NX			1000.0	0.87		
	913.77	8	11.00	12.00	1.00					0.40	40.00	Nil	19		NX	NX			900.0	0.91		
06/03/16	912.77	8	12.00	13.00	1.00					0.31	31.00	Nil	17		NX	NX	10.0		700.0	0.90		
	911.77	8	13.00	14.00	1.00					0.42	42.00	Nil	18		NX	NX			1300.0	0.78		
	910.77	8	14.00	15.00	1.00					0.42	42.00	Nil	13		NX	NX			500.0	0.83		
07/03/16	909.77	8	15.00	16.00	1.00					0.55	55.00	Nil	38		NX	NX	15.0		950.0	0.85		
	908.77	8	16.00	17.00	1.00					0.58	58.00	Nil	25		NX	NX			1100.0	0.95		
	907.77	8	17.00	18.00	1.00					0.40	40.00	Nil	46		NX	NX			1000.0	0.93		
	906.77	8	18.00	19.00	1.00					0.57	57.00	20.0	9		NX	NX			1500.0	0.89		
08/03/16	905.77	8	19.00	20.00	1.00					0.41	41.00	Nil	25		NX	NX	15.0		950.0	1.00		
					20 (Termination Depth)																	

Complete

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


BY PASS 1 BV-01
~~BY-3-BV-1~~
BY-2
~~BY-3-BV-2~~
~~BX-1~~
3.00M
1.00M
BY PASS 1 BV-01
0.00M 1.00M 2.00M 3.00M 4.00M 5.00M 6.00M 7.00M 8.00M 9.00M 10.00M


12.00M 13.00M 15.00M 16.00M 17.00M 18.00M 19.00M 20.00M.
BY PASS-1 BV-1
BY PASS-1 BV-1
10.00M 13.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Preparatory Study for Road Network improvement in North-east of India

Project	:	Bore Hole No.	: BV-02
Type's of Core Barrel	: **NX Double Core barrel**	Depth of hole	: +20.000m
Location	: Chhiahtlang (Bypass1)	Ground Elevation	: +933.443m
Method of Boring/ Drilling	: Shell / RMC	Date of Commencement	: 10-Mar-16
Boring/ Drilling Equipment	: Geo rig with Diamond bit	Date of Completion	: 13-Mar-16
Coordinates	: **X = 484007.406 Y = 2585935.391**	Operator Name	: SK Karim

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	/ Recovery (%)	Type / R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
10/03/16	933.44	0.5	0.00	0.30	0.30	7	11	75	86					NX Casing Bit	NX	NX						Overburden consist of slope wash materials having upper top soil with gravely matrix
	933.14		0.30	1.00	0.70					0.20	28.57		14									
	932.44	0.5	1.00	2.00	1.00					0.29	29.00	Nil	18		NX	NX				2.00		Fractured core pieces recovered.yellowish colour sand stone
	931.44	2	2.00	3.00	1.00					0.56	56.00	Nil	22		NX	NX				1.67		
	930.44	2	3.00	4.00	1.00					0.42	42.00	Nil	26		NX	NX				1.00		
	929.44	4	4.00	5.00	1.00					0.45	45.00	Nil	21		NX	NX				1.00		
11/03/16	928.44	4	5.00	6.00	1.00					0.62	62.00	Nil	20		NX	NX	2.2			0.99		
	927.44	4	6.00	7.00	1.00					0.57	57.00	Nil	12		NX	NX				0.95		
	926.44	4	7.00	8.00	1.00					0.55	55.00	Nil	40		NX	NX				1.11		
	925.44	4	8.00	9.00	1.00					0.53	53.00	12.00	11		NX	NX				0.91		
	924.44	4	9.00	10.00	1.00					0.57	57.00	12.00	14		NX	NX				0.83		Fractured core pieces recovered.grey colour sand stone
12/03/16	923.44	10	10.00	11.00	1.00					0.47	47.00	Nil	25	NX Casing Bit	NX	NX	3.7			0.87		
	922.44	10	11.00	12.00	1.00					0.58	58.00	Nil	34		NX	NX		Complete	1000.0	0.77		
	921.44	10	12.00	13.00	1.00					0.50	50.00	Nil	30		NX	NX			900.0	0.59		Fractured core pieces recovered.Grey colour shale
	920.44	10	13.00	14.00	1.00					0.48	48.00	Nil	28		NX	NX			500.0	0.95		
	919.44	10	14.00	15.00	1.00					0.51	51.00	Nil	26		NX	NX			500.0	0.93		
13/03/16	918.44	10	15.00	16.00	1.00					0.65	65.00	Nil	40		NX	NX	11.0		1100.0	0.89		
	917.44	10	16.00	17.00	1.00					0.57	57.00	Nil	28		NX	NX			700.0	0.92		
	916.44	10	17.00	18.00	1.00					0.43	43.00	Nil	26		NX	NX			800.0	1.00		
	915.44	10	18.00	19.00	1.00					0.52	52.00	Nil	18		NX	NX			1100.0	0.85		
	914.44	10	19.00	20.00	1.00					0.50	50.00	Nil	30		NX	NX			600.0	0.99		
					20 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test

W00.0
W00.1
W00.2
W00.3
W00.4
W00.5
W00.6
W00.7
W00.8
W00.9
W00.10
BY PASS-1 BV-2
BY PASS-1 BV-2


12.00
12.00
14.00
15.00
16.00
17.00
18.00
19.00
20.00
BY PASS-1 BV-2
13.00 M
11.00 M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**

Type's of Core Barrel : **NX Double Core barrel**

Location : Serchip (Bypass2)

Method of Boring / Drilling : Shell / RMC

Boring / Drilling Equipment : Geo rig with Diamond bit

Coordinates : **X = 485630.172 Y = 2579915.445**

Bore Hole No. : BV-01

Depth of hole : +20.000m

Ground Elevation : +874.819m

Date of Commencement : 16-Mar-16

Date of Completion : 20-Mar-16

Operator Name : SK Karim

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	To																		
16/03/16	874.82	0.5	0.00	1.00	1.00					0.29	29.00	Nil	32	NX Casing Bit	NX	NX		Nil		3.33		Fractured core pieces recovered.Grey shale
	873.82	0.5	1.00	2.00	1.00					0.36	36.00	Nil	19		NX	NX		Nil		2.70		
	872.82	0.5	2.00	3.00	1.00					0.40	40.00	Nil	33		NX	NX		Nil		2.00		
	871.82	1.5	3.00	4.00	1.00					0.43	43.00	Nil	21		NX	NX		Nil		1.92		
17/03/16	870.82	1.5	4.00	5.00	1.00					0.41	41.00	Nil	22		NX	NX	2.8	Nil		1.79		
	869.82	1.5	5.00	6.00	1.00					0.50	50.00	Nil	55		NX	NX		Nil		1.43		
	868.82	1.5	6.00	7.00	1.00					0.55	55.00	Nil	36		NX	NX		Nil		1.11		
	867.82	1.5	7.00	8.00	1.00					0.54	54.00	14	13		NX	NX		Nil		0.83		
	866.82	7.0	8.00	9.00	1.00					0.41	41.00	Nil	34		NX	NX		Nil		0.91		
18/03/16	865.82	7.0	9.00	10.00	1.00					0.43	43.00	Nil	32		NX	NX	2.85	Nil		0.87		
	864.82	7.0	10.00	11.00	1.00					0.35	35.00	Nil	21	NX Casing Bit	NX	NX		Nil		0.85		
	863.82	7.0	11.00	12.00	1.00					0.38	38.00	Nil	30		NX	NX		Nil		0.92		
	862.82	7.0	12.00	13.00	1.00					0.43	43.00	Nil	29		NX	NX		Nil		0.78		
	861.82	7.0	13.00	14.00	1.00					0.42	42.00	Nil	22		NX	NX		Nil		0.99		
	860.82	7.0	14.00	15.00	1.00					0.40	40.00	Nil	40		NX	NX		Nil		0.87		
19/03/16	859.82	7.0	15.00	16.00	1.00					0.40	40.00	Nil	15		NX	NX	3	Nil		0.85		
	858.82	7.0	16.00	17.00	1.00					0.67	67.00	47	10		NX	NX		Nil		0.80		
	857.82	7.0	17.00	18.00	1.00					0.57	57.00	Nil	38		NX	NX		Nil		0.85		
	856.82	7.0	18.00	19.00	1.00					0.53	53.00	30	11		NX	NX		Nil		0.83		
20/03/16	855.82	7.0	19.00	20.00	1.00					0.90	90.00	80	1		NX	NX	2.8	Nil		1.00		
					20 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test

BY PASS-2 (A) BV-01
BY PASS-2 (A) BV-01
0.00M. 2.00M. 4.00M. 5.00M 6.00M 7.00M 8.00M 9.00M
2.00M. 4.00M 5.00M 6.00M 7.00M 8.00M. 9.00M. 10.00M
3.00M
1.00M.
CM/L-5176769
THICKNESS:
NO. OF PLIES:

BY PASS-2(A) BV-01
BY PASS-2(A) BV-01
20 M B-R B-#1
11.00M
13.00M
10.00M 12.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M
12.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M 20.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**
Type's of Core Barrel : **NX Double Core barrel**
Location : Serchip (Bypass2)
Method of Boring/ Drilling : Shell / RMC
Boring/ Drilling Equipment : Geo rig with Diamond bit
Coordinates : **X = 485640.294 Y = 2579870.551**

Bore Hole No. : BV-02
Depth of hole : +20.000m
Ground Elevation : +874.668m
Date of Commencement : 22-Mar-16
Date of Completion : 25-Mar-16
Operator Name : SK Karim

Date	Elevation (m)	Sample and in-situ Test: Casing depth (m)	Depth/Run(m): From	Depth/Run(m): To	Depth (m)	* No. of Blows	'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
22/03/16	874.67	0.50	0.00	1.00	1.00			0.31	31.00	Nil	22	NX Casing Bit	NX	NX		Nil		3.33		
	873.67	0.50	1.00	2.00	1.00			0.36	36.00	Nil	35		NX	NX		Nil		2.56		
	872.67	2.50	2.00	3.00	1.00			0.33	33.00	Nil	19		NX	NX		Nil		2.86		
	871.67	2.50	3.00	4.00	1.00			0.32	32.00	Nil	24		NX	NX		Nil		2.63		
	870.67	2.50	4.00	5.00	1.00			0.38	38.00	Nil	11		NX	NX		Nil		2.56		
23/03/16	869.67	2.50	5.00	6.00	1.00			0.45	45.00	Nil	15		NX	NX	3.00	Nil		2.22		
	868.67	6.00	6.00	7.00	1.00			0.36	36.00	Nil	37		NX	NX		Nil		2.04		
	867.67	6.00	7.00	8.00	1.00			0.41	41.00	26	3		NX	NX		Nil		1.67		
	866.67	6.00	8.00	9.00	1.00			0.33	33.00	18	3		NX	NX		Nil		1.54		
	865.67	6.00	9.00	10.00	1.00			0.36	36.00	Nil	23		NX	NX		Nil		1.43		
	864.67	6.00	10.00	11.00	1.00			0.55	55.00	28	4	NX Casing Bit	NX	NX		Nil		1.00		Fractured core pieces recovered.Grey shale
24/03/16	863.67	6.00	11.00	12.00	1.00			0.54	54.00	38	3		NX	NX	3.50	Nil		0.95		
	862.67	6.00	12.00	13.00	1.00			0.50	50.00	43	2		NX	NX		Nil		0.87		
	861.67	6.00	13.00	14.00	1.00			0.47	47.00	29	23		NX	NX		Nil		0.83		
	860.67	6.00	14.00	15.00	1.00			0.50	50.00	46	4		NX	NX		Nil		0.87		
	859.67	6.00	15.00	16.00	1.00			0.47	47.00	Nil	14		NX	NX		Nil		0.78		
	858.67	6.00	16.00	17.00	1.00			0.40	40.00	27	5		NX	NX		Nil		0.77		
25/03/16	857.67	6.00	17.00	18.00	1.00			0.61	61.00	24	3		NX	NX	2.90	Nil		0.80		
	856.67	6.00	18.00	19.00	1.00			0.46	46.00	25	4		NX	NX		Nil		0.91		
	855.67	6.00	19.00	20.00	1.00			0.69	69.00	39	21		NX	NX	3.30	Nil		0.90		
					20 (Termination Depth)															

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


10.00M 9.00M 8.00M 7.00M 6.00M 5.00M 4.00M 2.00M
3.00M 1.00M
BY PASS 2(A) BV2
BY PASS 2(A) BV2
9.00 M 8.00M 7.00 M 6.00M 5.00 M 4.00M 2.00M 0.00 M


11.00M 12.00M 14.00M 16.00M 17.00M 18.00M 19.00M 20.00M.
13.00M
15.00M.
B.R.L 18.M
BR-2 19.M
BY PASS 2 (A) BV-2
BY PASS 2 (A) BV-2
10.00M 11.00M. 12.00M 14.00M 16.00M 17.00M 18.00M 19.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**
Type's of Core Barrel : **NX Double Core barrel**
Location : Serchip (Bypass2B)
Method of Boring / Drilling : Shell / RMC
Boring / Drilling Equipment : Geo rig with Diamond bit
Coordinates : **X = 486164.534 Y = 2576506.202**

Bore Hole No. : BV-03
Depth of hole : +20.300m
Ground Elevation : +759.812m
Date of Commencement : 16-Apr-16
Date of Completion : 18-Apr-16
Operator Name : SK Karim

Date	Elevation (m)	Sample and in-situ Test: Casing depth (m)	Depth/Run(m): From	To	Depth (m)	* No. of Blows	'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd Lvl	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
16/04/16	759.81		0.00	1.00	1.00			0.39	39.00	Nil	26	NX Casing Bit	NX			Complete	120	3.33		Fractured core pieces recovered.Grey shale
	758.81		1.00	2.00	1.00			0.24	24.00	Nil	35		NX	NX			100	2.63		
	757.81	1.00	2.00	3.00	1.00			0.45	45.00	Nil	39		NX	NX			135	2.44		
	756.81	1.00	3.00	4.00	1.00			0.44	44.00	Nil	22		NX	NX			200	2.22		
	755.81	1.00	4.00	5.00	1.00			0.46	46.00	Nil	36		NX	NX			301	1.96		
	754.81	1.00	5.00	6.00	1.00			0.46	46.00	Nil	41		NX	NX			280	1.61		
	753.81	5.80	6.00	7.00	1.00			0.49	49.00	Nil	10		NX	NX			200	1.43		
17/04/16	752.81	5.80	7.00	8.00	1.00			0.47	47.00	Nil	11		NX	NX	5.70		1000	1.33		
	751.81	5.80	8.00	9.00	1.00			0.48	48.00	Nil	6		NX	NX			500	1.45		
	750.81	5.80	9.00	10.00	1.00			0.41	41.00	Nil	7		NX	NX			700	1.32		
	749.81	5.80	10.00	11.00	1.00			0.54	54.00	Nil	17		NX	NX			700	1.25		
	748.81	5.80	11.00	12.00	1.00			0.46	46.00	Nil	6		NX	NX			500	1.05		
	747.81	5.80	12.00	13.00	1.00			0.55	55.00	10	5		NX	NX			400	0.99		
	746.81	5.80	13.00	14.00	1.00			0.45	45.00	Nil	6		NX	NX			300	0.93		
18/04/16	745.81	5.80	14.00	15.00	1.00			0.52	52.00	Nil	13		NX	NX	5.50		350	0.89		
	744.81	5.80	15.00	16.00	1.00			0.54	54.00	Nil	21		NX	NX				1.00		
	743.81	5.80	16.00	17.00	1.00			0.56	56.00	40	3		NX	NX				0.85		
	742.81	5.80	17.00	18.00	1.00			0.53	53.00	36	5		NX	NX				0.83		
	741.81	5.80	18.00	19.00	1.00			0.54	54.00	30	3		NX	NX				0.77		
	740.81	5.80	19.00	20.30	1.30			0.60	46.15	46	5		NX	NX				1.09		
					20.3 (Termination Depth)															

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated


2.00M 4.00M 6.00M 7.00M 8.00M 9.00M 10.00M
BY PASS-2 BV-3
1.00M
5.00M
BV-3
BY PASS-2 BV-3
00.0M 2.00M 4.00M 6.00M 7.00M 8.00M 9.00M


12.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M 20.00M
BY PASS-2 BV-3
BY PASS-2 BV-3
10.00M 12.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**
Type's of Core Barrel : **NX Double Core barrel**
Location : Serchip (Bypass2B)
Method of Boring / Drilling : Shell / RMC
Boring / Drilling Equipment : Geo rig with Diamond bit
Coordinates : **X = 486176.888 Y = 2576428.489**

Bore Hole No. : BV-04
Depth of hole : +20.300m
Ground Elevation : +771.443m
Date of Commencement : 3-Apr-16
Date of Completion : 8-Apr-16
Operator Name : SK Karim

Date	Elevation (m)	Sample and in-situ Test: Casing depth (m)	Depth/Run(m): From	Depth/Run(m): To	Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd Lvl	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
03/04/16	771.44		0.00	0.50	0.50	7	19	25	44						NX			Nil				Overburden consist of slope wash materials having upper top soil with gravely matrix & softrock
	770.94	0.50	0.50	1.00	0.50	20	100		100						NX	NX		Nil				
	770.44	0.50	1.00	2.00	1.00					0.51	51.00	Nil	25.0	NX Casing Bit	NX	NX		Complete	200.0	5.00		Fractured core pieces recovered.Grey shale
	769.44	1.50	2.00	3.00	1.00					0.48	48.00	Nil	17.0		NX	NX			280.0	3.45		
04/04/16	768.44	1.50	3.00	4.00	1.00					0.36	36.00	Nil	21.0		NX	NX	2.80		300.0	2.50		
	767.44	3.00	4.00	5.00	1.00					0.61	61.00	Nil	15.0		NX	NX			900.0	2.04		
	766.44	3.00	5.00	6.00	1.00					0.63	63.00	Nil	28.0		NX	NX			500.0	2.22		
05/04/16	765.44	5.50	6.00	7.00	1.00					0.62	62.00	Nil	25.0		NX	NX	5.50		700.0	2.08		
	764.44	5.50	7.00	8.00	1.00					0.65	65.00	Nil	29.0		NX	NX			600.0	1.43		
	763.44	5.50	8.00	9.00	1.00					0.77	77.00	25	21.0		NX	NX			700.0	1.69		
06/04/16	762.44	5.50	9.00	10.00	1.00					0.69	69.00	Nil	16.0		NX	NX	7.10		800.0	0.99		
	761.44	5.50	10.00	11.00	1.00					0.72	72.00	30	4.0		NX	NX			900.0	0.83		
	760.44	5.50	11.00	12.00	1.00					0.39	39.00	13	15.0		NX	NX			1000.0	0.90		
07/04/16	759.44	5.50	12.00	13.00	1.00					0.57	57.00	Nil	12.0		NX	NX	11.60		1200.0	0.87		
	758.44	5.50	13.00	14.00	1.00					0.73	73.00	33	11.0		NX	NX			1100.0	0.99		
	757.44	5.50	14.00	15.00	1.00					0.65	65.00	37	4.0		NX	NX			1200.0	1.05		
	756.44	5.50	15.00	16.00	1.00					0.79	79.00	50	12.0		NX	NX			1300.0	0.89		
	755.44	5.50	16.00	17.00	1.00					0.49	49.00	19	4.0		NX	NX			1500.0	0.91		
	754.44	5.50	17.00	18.00	1.00					0.64	64.00	60	3.0		NX	NX			1400.0	0.85		
08/04/16	753.44	5.50	18.00	19.00	1.00					0.61	61.00	29	8.0		NX	NX	17.00		1200.0	0.83		
	752.44	5.50	19.00	20.30	1.30					0.96	73.85	70	6.0		NX	NX			1300.0	1.27		
					20.3 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated


5.00M 6.00M 7.00M 8.00M 9.00M 10.00M 11.00M
BY PASS-2 BV-4
2.00M
4.00M
1.00M
BY PASS-2 BV-4
0.00M 3.00M 5.00M 6.00M 7.00M 8.00M 9.00M 10.00M


20.30M. 19.00M 18.00M 17.00M 16.00M 15.00M 14.00M 13.00M
BY PASS-2 BV-4
12.00M
BY PASS-2 BV-4
19.00M 18.00M 17.00M 16.00M 15.00M 14.00M 13.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**
Type's of Core Barrel : **NX Double Core barrel**
Location : Serchip (Bypass2B)
Method of Boring / Drilling : Shell / RMC
Boring / Drilling Equipment : Geo rig with Diamond bit
Coordinates : **X = 486194.063 Y = 2576383.646**

Bore Hole No. : BV-05
Depth of hole : +20.000m
Ground Elevation : +802.461m
Date of Commencement : 2-Apr-16
Date of Completion : 7-Apr-16
Operator Name : Md.Johrual

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	To																		
02/04/16	802.46		0.00	0.50	0.50	2	3	9	12						NX	NX		Nil				Overburden consist of slope wash materials having upper top soil with gravely matrix & softrock
	801.96		0.50	1.00	0.50	14	20	25	45						NX	NX		Nil				
	801.46	0.5	1.00	1.05	0.05	91			>100													
	801.41	0.5	1.05	2.00	0.95					0.46	48.42	Nil	20	NX Casing Bit	NX	NX			400.0	3.28		Fractured core pieces recovered.Yellowish shale
	800.46	0.5	2.00	3.00	1.00					0.51	51.00	Nil	40		NX	NX			450.0	2.63		
03/04/16	799.46	3.0	3.00	4.00	1.00					0.37	37.00	Nil	35		NX	NX	2.7		500.0	2.56		
	798.46	3.0	4.00	5.00	1.00					0.40	40.00	Nil	42		NX	NX			650.0	2.22		
	797.46	5.0	5.00	6.00	1.00					0.48	48.00	Nil	22		NX	NX			700.0	1.75		
	796.46	5.0	6.00	7.00	1.00					0.51	51.00	Nil	52		NX	NX			800.0	2.04		
	795.46	5.0	7.00	8.00	1.00					0.55	55.00	Nil	41		NX	NX			800.0	1.67		
04/04/16	794.46	5.0	8.00	9.00	1.00					0.73	73.00	Nil	46		NX	NX	7.7		850.0	1.61		
	793.46	5.0	9.00	10.00	1.00					0.75	75.00	Nil	48		NX	NX			800.0	1.59		
	792.46	5.0	10.00	11.00	1.00					0.84	84.00	Nil	15		NX	NX			850.0	1.49		
05/04/16	791.46	5.0	11.00	12.00	1.00					0.85	85.00	Nil	8		NX	NX	10.8		850.0	1.33		
	790.46	5.0	12.00	13.00	1.00					0.70	70.00	Nil	47		NX	NX			800.0	1.27		
	789.46	5.0	13.00	14.00	1.00					0.78	78.00	Nil	58		NX	NX			800.0	1.18		
06/04/16	788.46	5.0	14.00	15.00	1.00					0.92	92.00	Nil	36		NX	NX	13.5		850.0	1.12		Fractured core pieces recovered.Grey shale
	787.46	5.0	15.00	16.00	1.00					0.87	87.00	44	29		NX	NX			850.0	1.09		
	786.46	5.0	16.00	17.00	1.00					0.42	42.00	12	35		NX	NX			750.0	1.00		
07/04/16	785.46	5.0	17.00	18.00	1.00					0.68	68.00	41	33		NX	NX	15.0		800.0	0.93		
	784.46	5.0	18.00	19.00	1.00					0.64	64.00	14	64		NX	NX			750.0	0.89		
	783.46	5.0	19.00	20.00	1.00					0.34	34.00	Nil	92		NX	NX			800.0	0.85		
					20 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated


2.00M
4.00M
5.00M
6.00M
7.00M
8.00M
9.00M
10.00M
BY PASS-2 BV-5
1.05M
3.00M
BY PASS-2 BV-5
M.R. GRADE
0.00M
2.00M
4.00M
5.00M
6.00M
7.00M
8.00M
9.00M


11.00M 12.00M 13.00M 14.00M 15.00M 16.00M 18.00M 20.00M
BY PASS-2 BV-5
BY PASS-2 BV-5
10.00M 11.00M 12.00M 13.00M 14.00M 15.00M 16.00M 18.00M
17.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project	: **Preparatory Study for Road Network improvement in North-east of India**	Bore Hole No.	: BV-01
Type's of Core Barrel	: **NX Double Core barrel**	Depth of hole	: +20.000m
Location	: Hnathial (Bypass3)	Ground Elevation	: +626.198m
Method of Boring / Drilling	: Shell / RMC	Date of Commencement	: 19-Mar-16
Boring / Drilling Equipment	: Geo rig with Diamond bit	Date of Completion	: 22-Mar-16
Coordinates	: **X = 492329.787 Y = 2540271.700**	Operator Name	: Md.Johrual

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	To																		
19/03/16	626.20		0.00	0.50	0.50	3	5	6	11						NX	NX		Nil				Overburden consist of slope wash materials having upper top soil with gravely matrix
	625.70	0.5	0.50	1.00	0.50	15	18	35	53						NX	NX		Nil				
	625.20	0.5	1.00	1.25	0.25	30	55	100	>100						NX	NX		Nil				
	624.95	0.5	1.25	2.00	0.75					0.21	28.00	Nil	20	NX Casing Bit	NX	NX		Nil		1.50		
	624.20	0.5	2.00	3.00	1.00					0.26	26.00	Nil	40		NX	NX		Nil		1.96	Yellowish	Fractured core pieces recovered.Grey shale
	623.20	3.0	3.00	4.00	1.00					0.26	26.00	Nil	35		NX	NX	3	Nil		1.72	Yellowish	
	622.20	3.0	4.00	5.00	1.00					0.45	45.00	18	42		NX	NX		Nil		1.61	Yellowish	
	621.20	5.0	5.00	6.00	1.00					0.47	47.00	29	22		NX	NX		Nil		1.33	Yellowish	
	620.20	5.0	6.00	7.00	1.00					0.50	50.00	15	52		NX	NX		Nil		1.09	Greyish	
20/03/16	619.20	5.0	7.00	8.00	1.00					0.61	61.00	Nil	41		NX	NX	3	Nil		1.22	Greyish	
	618.20	5.0	8.00	9.00	1.00					0.58	58.00	Nil	46		NX	NX		Nil		1.18	Greyish	
	617.20	5.0	9.00	10.00	1.00					0.42	42.00	Nil	48		NX	NX		Nil		1.11	Greyish	
	616.20	5.0	10.00	11.00	1.00					0.46	46.00	29	15		NX	NX		Nil		1.09	Greyish	
21/03/16	615.20	5.0	11.00	12.00	1.00					0.55	55.00	32	8		NX	NX	3	Nil		1.05	Greyish	
	614.20	5.0	12.00	13.00	1.00					0.69	69.00	Nil	47		NX	NX		Nil		1.11	Greyish	
	613.20	5.0	13.00	14.00	1.00					0.75	75.00	Nil	58		NX	NX		Nil		1.03	Greyish	
	612.20	5.0	14.00	15.00	1.00					0.72	72.00	54	36		NX	NX		Nil		1.00	Greyish	
	611.20	5.0	15.00	16.00	1.00					0.80	80.00	30	29		NX	NX		Nil		0.95	Greyish	
22/03/16	610.20	5.0	16.00	17.00	1.00					0.64	64.00	48	35		NX	NX	3	Nil		0.93	Greyish	
	609.20	5.0	17.00	18.00	1.00					0.62	62.00	10	33		NX	NX		Nil		0.89	Greyish	
	608.20	5.0	18.00	19.00	1.00					0.75	75.00	Nil	64		NX	NX		Nil		0.85	Greyish	
	607.20	5.0	19.00	20.00	1.00					0.83	83.00	50	92		NX	NX		Nil		0.83	Greyish	
					20 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


10.00M 9.00M 8.00M 7.00M 6.00M 5.00M 4.00 00.0
1.00M
3.00M
BY PASS-3 BV-1
BYPASS-3 BV-1
9.00M 8.00M 7.00M 6.00M 5.00M 4.00M 3.00 2.00


12.00M 13.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00
BY PASS-3 BV-1
11.00 M
13.00 M
10.00 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M 20.00M
BY PASS-3 BV-1

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project	: **Preparatory Study for Road Network improvement in North-east of India**	Bore Hole No.	: BV-02
Type's of Core Barrel	: **NX Double Core barrel**	Depth of hole	: +20.150m
Location	: Hnathial (Bypass3)	Ground Elevation	: +612.979m
Method of Boring / Drilling	: Shell / RMC	Date of Commencement	: 24-Mar-16
Boring / Drilling Equipment	: Geo rig with Diamond bit	Date of Completion	: 26-Mar-16
Coordinates	: **X = 492320.403 Y = 2540241.809**	Operator Name	: Md.Johrual

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
24/03/16	612.98		0.00	1.00	1.00					0.23	23.00	Nil	15	NX Casing Bit	NX	NX		Nil		2.50		Fractured core pieces recovered.Grey shale
	611.98	0.50	1.00	2.00	1.00					0.30	30.00	Nil	13		NX	NX	0.50	Nil		2.38	Greyish	
	610.98	0.50	2.00	3.00	1.00					0.28	28.00	Nil	8		NX	NX	0.50	Nil		2.22	Greyish	
	609.98	0.50	3.00	4.00	1.00					0.33	33.00	Nil	12		NX	NX	0.50	Nil		1.82	Greyish	
	608.98	0.50	4.00	5.00	1.00					0.31	31.00	Nil	6		NX	NX	0.50	Nil		1.75	Greyish	
	607.98	0.50	5.00	6.00	1.00					0.35	35.00	Nil	10		NX	NX	0.50	Nil		1.61	Greyish	
	606.98	0.50	6.00	7.00	1.00					0.48	48.00	14	11		NX	NX	0.50	Nil		1.61	Greyish	
	605.98	0.50	7.00	8.00	1.00					0.37	37.00	Nil	14		NX	NX	0.50	Nil		1.54	Greyish	
	604.98	0.50	8.00	9.00	1.00					0.42	42.00	Nil	18		NX	NX	0.50	Nil		1.67	Greyish	
	603.98	0.50	9.00	10.00	1.00					0.39	39.00	26	3		NX	NX	0.50	Nil		1.61	Greyish	
25/03/16	602.98	0.50	10.00	11.00	1.00					0.37	37.00	Nil	4		NX	NX	0.50	Nil		1.39	Greyish	
	601.98	0.50	11.00	12.00	1.00					0.31	31.00	Nil	18		NX	NX	0.50	Nil		1.33	Greyish	
	600.98	0.50	12.00	13.00	1.00					0.40	40.00	Nil	22		NX	NX	0.50	Nil		1.30	Greyish	
	599.98	0.50	13.00	14.00	1.00					0.39	39.00	Nil	32		NX	NX	0.50	Nil		1.25	Greyish	
	598.98	0.50	14.00	15.00	1.00					0.41	41.00	14	9		NX	NX	0.50	Nil		1.67	Greyish	
26/03/16	597.98	0.50	15.00	16.00	1.00					0.48	48.00	22	5		NX	NX	0.50	Nil		1.61	Greyish	
	596.98	0.50	16.00	17.00	1.00					0.63	63.00	45	5		NX	NX	0.50	Nil		1.92	Greyish	
	595.98	0.50	17.00	18.00	1.00					0.50	50.00	10	13		NX	NX	0.50	Nil		1.54	Greyish	
	594.98	0.50	18.00	19.00	1.00					0.68	68.00	Nil	37		NX	NX	0.50	Nil		1.67	Greyish	
	593.98	0.50	19.00	20.15	1.15					0.74	64.35	21	44		NX	NX	0.50	Nil		1.77	Greyish	
					20.15 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


BY PASS-3 BV-2
0.00M 2.00M 4.00M 5.00M 6.00M 7.00M 8.00M 9.00M
1.00M
2.00M
2.00M 4.00M 5.00M 6.00M 7.00M 8.00M 9.00M 10.00M
10.00M
TERMITE RESISTANT
THICKNESS:
NO. OF PLIES:
TYPE : AA
BY PASS-3 BV-2


12.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M 20.00M
BY PASS-3 BV-2
13.00M
11.00M
BY PASS-3 BV-2
10.00M 12.00M 14.00M 15.00M 16.00M 17.00M 18.00M 19.00M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project	: **Preparatory Study for Road Network improvement in North-east of India**	Bore Hole No.	: BV-01
Type's of Core Barrel	: **NX Double Core barrel**	Depth of hole	: +15.000m
Location	: Lawngtlai (Bypass 4)	Ground Elevation	: +728.888m
Method of Boring / Drilling	: Shell / RMC	Date of Commencement	: 6-Mar-16
Boring / Drilling Equipment	: Geo rig with Diamond bit	Date of Completion	: 9-Mar-16
Coordinates	: **X = 488207.079 Y = 2489365.574**	Operator Name	: Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
06/03/16	728.89		0.00	1.00	1.00					0.27	27.00	Nil	35	NX Casing Bit	NX	NX				2.70		Fractured core pieces recovered.Yellowish Grey shale
	727.89	1.0	1.00	2.00	1.00					0.35	35.00	Nil	32		NX	NX				2.04		
	726.89	1.5	2.00	3.00	1.00					0.36	36.00	Nil	42		NX	NX			300.0	2.22		
	725.89	3.0	3.00	4.00	1.00					0.38	38.00	Nil	36		NX	NX		Partial	200.0	1.67		
	724.89	3.0	4.00	5.00	1.00					0.45	45.00	Nil	42		NX	NX			250.0	1.41		
	723.89	4.5	5.00	6.00	1.00					0.45	45.00	Nil	18		NX	NX			250.0	1.43		
07/03/16	722.89	6.0	6.00	7.00	1.00					0.47	47.00	Nil	45		NX	NX	5.5		300.0	1.33		
	721.89	6.0	7.00	8.00	1.00					0.48	48.00	Nil	19		NX	NX			500.0	1.11		
	720.89	7.5	8.00	9.00	1.00					0.40	40.00	Nil	20		NX	NX			450.0	1.61		
	719.89	9.0	9.00	10.00	1.00					0.43	43.00	Nil	23		NX	NX			500.0	1.56		
08/03/16	718.89	9.0	10.00	11.00	1.00					0.40	40.00	Nil	50		NX	NX	8.7		550.0	1.54		
	717.89	10.5	11.00	12.00	1.00					0.43	43.00	Nil	18		NX	NX			500.0	1.52		
	716.89	12.0	12.00	13.00	1.00					0.40	40.00	Nil	22		NX	NX			550.0	1.59		
09/03/16	715.89	12.0	13.00	14.00	1.00					0.46	46.00	Nil	27		NX	NX	9.1		600.0	1.56		
	714.89	12.0	14.00	15.00	1.00					0.30	30.00	Nil	15		NX	NX			650.0	1.22		
					15 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


1.M
2.M
3.M
4M
5.M
9.M
9.M
10.M
8.M
6.M
BYPASS-4-BV-1
BYPASS-4-BV-1
0.00M
1.M
2.M
3.M
4.M
5.M
7.M
9.M


11.M 12.M 13.M 14.M 15.M
BYPASS-4 BV-1
BYPASS-4 BV-1
10.M 11.M 12.M 13.M 14.M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project	: **Preparatory Study for Road Network improvement in North-east of India**	Bore Hole No.	: BV-02
Type's of Core Barrel	: **NX Double Core barrel**	Depth of hole	: +12.000m
Location	: Lawngtlai (Bypass 4)	Ground Elevation	: +749.947m
Method of Boring / Drilling	: Shell / RMC	Date of Commencement	: 11-Mar-16
Boring / Drilling Equipment	: Geo rig with Diamond bit	Date of Completion	: 13-Mar-16
Coordinates	: **X = 488192.684 Y = 2489404.449**	Operator Name	: Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	To																		
11/03/16	749.95		0.00	1.00	1.00					0.25	25.00	Nil	35	NX Casing Bit	NX	NX		Complete		2.50		Fractured core pieces recovered.Yellowish colour shale
	748.95	0.50	1.00	2.00	1.00					0.28	28.00	Nil	40		NX	NX			300.0	2.00		
	747.95	1.50	2.00	3.00	1.00					0.30	30.00	Nil	26		NX	NX			400.0	2.00		
12/03/16	746.95	1.50	3.00	4.00	1.00					0.30	30.00	Nil	22		NX	NX	2.30		450.0	1.25		
	745.95	3.00	4.00	5.00	1.00					0.37	37.00	Nil	24		NX	NX			400.0	0.91		Fractured core pieces recovered.Grey shale
	744.95	3.00	5.00	6.00	1.00					0.40	40.00	Nil	20		NX	NX			450.0	1.11		
	743.95	5.50	6.00	7.00	1.00					0.35	35.00	Nil	19		NX	NX			400.0	1.11		
13/03/16	742.95	5.50	7.00	8.00	1.00					0.42	42.00	Nil	25		NX	NX	5.40		450.0	1.06		
	741.95	7.00	8.00	9.00	1.00					0.47	47.00	Nil	27		NX	NX			450.0	1.54		
	740.95	9.00	9.00	10.00	1.00					0.41	41.00	Nil	30		NX	NX			350.0	1.61		
	739.95	10.50	10.00	11.00	1.00					0.42	42.00	Nil	34		NX	NX			400.0	1.33		
	738.95		11.00	12.00	1.00					0.30	30.00	Nil	26		NX	NX			450.0	1.67		
					12 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


1.M 2.M 3.M 4.M 6.M 8.M 10.M 12.M
BY PASS-4 BV-2
5.M
7.M
9.M
11M
BY-PASS-4 BV-2
0.00M 1.M 2.M 3.M 4.M 6.M 8.M 10.M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**

Type's of Core Barrel : **NX Double Core barrel**

Location : Lawngtlai (Bypass 4)

Method of Boring / Drilling : Shell / RMC

Boring / Drilling Equipment : Geo rig with Diamond bit

Coordinates : **X = 488205.426 Y = 2489437.422**

Bore Hole No. : BV-02-1

Depth of hole : +20.000m

Ground Elevation : +763.840m

Date of Commencement : 18-Mar-16

Date of Completion : 21-Mar-16

Operator Name : Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
18/03/16	763.84		0.00	1.00	1.00					0.29	29.00	Nil	10	NX Casing Bit	NX	NX		Complete		2.13		
	762.84	0.50	1.00	2.00	1.00					0.35	35.00	Nil	19		NX	NX				2.22		
	761.84	2.50	2.00	3.00	1.00					0.36	36.00	Nil	20		NX	NX			200.0	2.33		
19/03/16	760.84	2.50	3.00	4.00	1.00					0.36	36.00	Nil	7		NX	NX	2.10		300.0	2.44		
	759.84	2.50	4.00	5.00	1.00					0.51	51.00	23	5		NX	NX			350.0	2.50		
20/03/16	758.84	2.50	5.00	6.00	1.00					0.36	36.00	Nil	10		NX	NX	4.20		300.0	1.92		Fractured core pieces recovered.Yellowish Sand stone
	757.84	6.00	6.00	7.00	1.00					0.34	34.00	Nil	16		NX	NX			400.0	1.75		
	756.84	6.00	7.00	8.00	1.00					0.40	40.00	Nil	13		NX	NX			450.0	1.59		
	755.84	6.00	8.00	9.00	1.00					0.45	45.00	Nil	6		NX	NX			400.0	1.82		
	754.84	9.00	9.00	10.00	1.00					0.41	41.00	Nil	6		NX	NX			350.0	1.59		
	753.84	9.00	10.00	11.00	1.00					0.34	34.00	Nil	11		NX	NX			400.0	1.96		
	752.84	9.00	11.00	12.00	1.00					0.29	29.00	Nil	6		NX	NX			550.0	2.27		
	751.84	12.00	12.00	13.00	1.00					0.25	25.00	Nil	13		NX	NX			500.0	2.13		
	750.84	12.00	13.00	14.00	1.00					0.25	25.00	Nil	8		NX	NX			350.0	2.22		
21/03/16	749.84	12.00	14.00	15.00	1.00					0.26	26.00	Nil	12		NX	NX	6.00		300.0	1.89		Fractured core pieces recovered.Grey shale
	748.84	15.00	15.00	16.00	1.00					0.28	28.00	Nil	16		NX	NX			550.0	1.96		
	747.84	15.00	16.00	17.00	1.00					0.25	25.00	Nil	25		NX	NX			500.0	1.56		
	746.84	15.00	17.00	18.00	1.00					0.32	32.00	Nil	23		NX	NX			450.0	1.49		
	745.84	15.00	18.00	19.00	1.00					0.50	50.00	Nil	13		NX	NX			600.0	1.09		
	744.84	15.00	19.00	20.00	1.00					0.55	55.00	Nil	9		NX	NX			550.0	1.05		
					20 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test

1M. 2.M 3.M 4.M 6.M 6.M 8.M 10.M
BYPASS-4.BV-2/1
BYPASS-4BV-2/1
7-m
9-1
000M 1M 2M 3M 4M 5M 6M 8M


BY PASS-4 BV-2/1
BYPASS-4.BV-2/1

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**
Type's of Core Barrel : **NX Double Core barrel**
Location : Lawngtlai (Bypass 4)
Method of Boring / Drilling : Shell / RMC
Boring / Drilling Equipment : Geo rig with Diamond bit
Coordinates : **X = 488204.367 Y = 2489437.639**

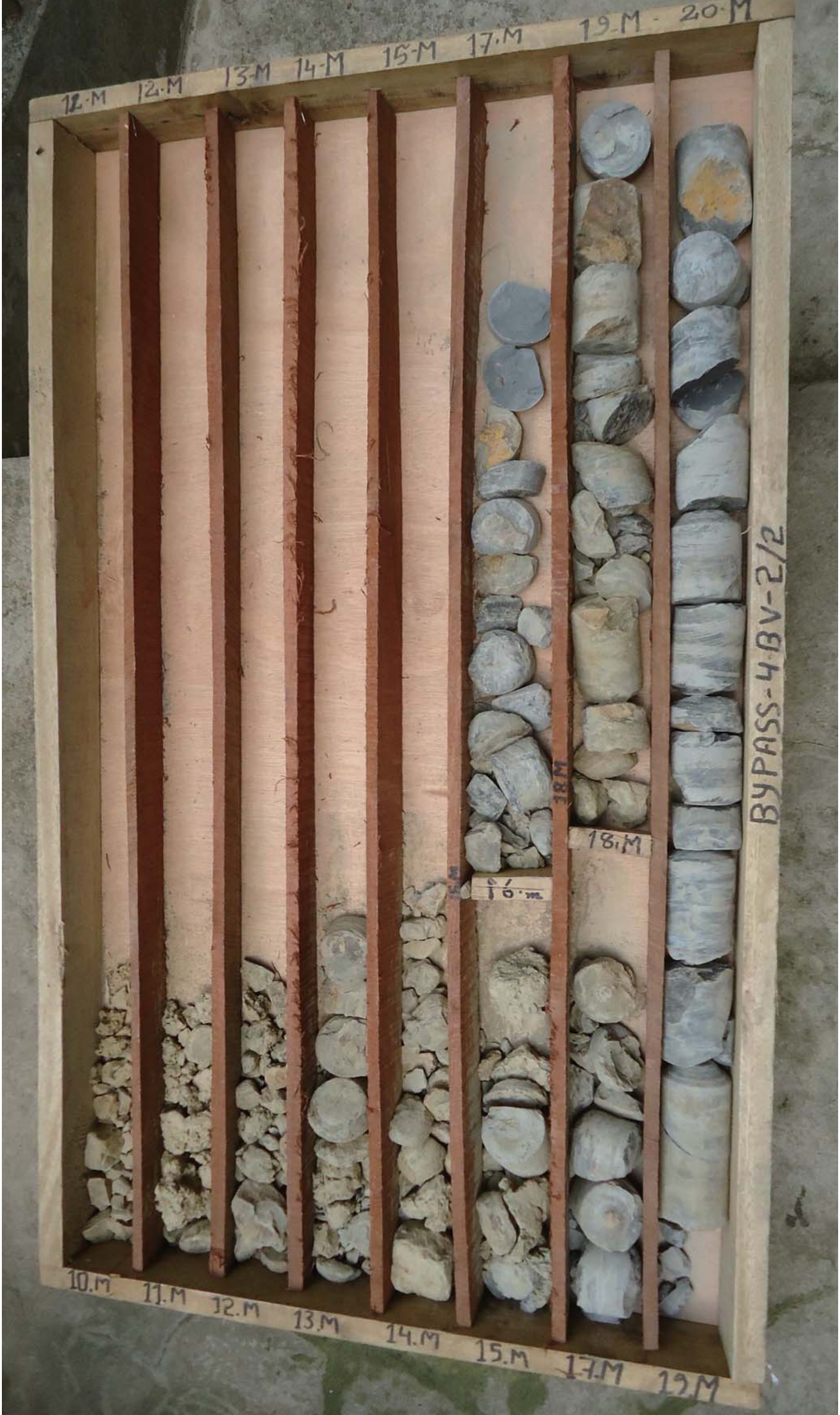
Bore Hole No. : BV-02-2
Depth of hole : +20.000m
Ground Elevation : +763.840m
Date of Commencement : 22-Mar-16
Date of Completion : 24-Mar-16
Operator Name : Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test: Casing depth (m)	Depth/Run(m): From	Depth/Run(m): To	Depth (m)	* No. of Blows	'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
22/03/16	763.84		0.00	1.00	1.00			0.26	26.00	Nil	12	NX Casing Bit	NX	NX		Complete		2.22		Fractured core pieces recovered.Yellowish Sand stone
	762.84	0.50	1.00	2.00	1.00			0.31	31.00	Nil	10		NX	NX				2.33		
	761.84	2.50	2.00	3.00	1.00			0.33	33.00	Nil	11		NX	NX			200.0	2.56		
	760.84	2.50	3.00	4.00	1.00			0.36	36.00	Nil	9		NX	NX			250.0	2.50		
	759.84	2.50	4.00	5.00	1.00			0.29	29.00	Nil	8		NX	NX			300.0	2.22		
	758.84	2.50	5.00	6.00	1.00			0.29	29.00	Nil	9		NX	NX			350.0	2.13		
	757.84	6.00	6.00	7.00	1.00			0.25	25.00	Nil	5		NX	NX			450.0	2.50		Fractured core pieces recovered.Grey shale
23/03/16	756.84	6.00	7.00	8.00	1.00			0.25	25.00	Nil	5		NX	NX	5.40		450.0	2.44		
	755.84	6.00	8.00	9.00	1.00			0.27	27.00	Nil	6		NX	NX			500.0	1.92		
	754.84	9.00	9.00	10.00	1.00			0.28	28.00	Nil	8		NX	NX			400.0	1.79		
	753.84	9.00	10.00	11.00	1.00			0.26	26.00	Nil	7	NX Casing Bit	NX	NX			350.0	1.96		
	752.84	9.00	11.00	12.00	1.00			0.27	27.00	Nil	13		NX	NX			500.0	1.75		
	751.84	12.00	12.00	13.00	1.00			0.27	27.00	Nil	11		NX	NX			500.0	1.64		
	750.84	12.00	13.00	14.00	1.00			0.28	28.00	Nil	20		NX	NX			350.0	1.67		
	749.84	12.00	14.00	15.00	1.00			0.37	37.00	Nil	7		NX	NX			400.0	1.69		
24/03/16	748.84	15.00	15.00	16.00	1.00			0.35	35.00	Nil	18		NX	NX	8.50		500.0	1.43		
	747.84	15.00	16.00	17.00	1.00			0.45	45.00	Nil	11		NX	NX			550.0	1.05		
	746.84	15.00	17.00	18.00	1.00			0.36	36.00	Nil	20		NX	NX			500.0	1.08		
	745.84	15.00	18.00	19.00	1.00			0.58	58.00	Nil	10		NX	NX			650.0	0.96		
	744.84	15.00	19.00	20.00	1.00			0.90	90.00	Nil	14		NX	NX			600.0	0.89		
					20 (Termination Depth)															

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test

BY PASS-4 BV-2/2
BYPASS-4 BV-2/2
1.M
2.M
3.M
4.M
5.M
6.M
8.M
10.M
7.M
9.M


12.M 12.M 13.M 14.M 15.M 17.M 19.M 20.M
BYPASS-4-BV-2/2
18.M
18.M
10.M 11.M 12.M 13.M 14.M 15.M 17.M 19.M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Preparatory Study for Road Network improvement in North-east of India

Project	:	Bore Hole No.	: BV-03
Type's of Core Barrel	: **NX Double Core barrel**	Depth of hole	: +20.000m
Location	: Lawngtlai (Bypass 4)	Ground Elevation	: +797.272m
Method of Boring / Drilling	: Shell / RMC	Date of Commencement	: 6-Apr-16
Boring / Drilling Equipment	: Geo rig with Diamond bit	Date of Completion	: 8-Apr-16
Coordinates	: **X = 488203.727 Y = 2489495.656**	Operator Name	: Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test: Casing depth (m)	Depth/Run(m): From	Depth/Run(m): To	Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
06/04/16	797.27	0.50	0.00	1.00	1.00					0.25	25.00	Nil	7	NX Casing Bit	NX	NX		Complete		2.50		Fractured core pieces recovered.Yellowish Sand stone
	796.27	1.50	1.00	2.00	1.00					0.27	27.00	Nil	10		NX	NX			300	2.50		
	795.27	2.50	2.00	3.00	1.00					0.27	27.00	Nil	11		NX	NX			300	2.22		
	794.27	3.00	3.00	4.00	1.00					0.33	33.00	17	4		NX	NX			350	2.22		
	793.27	4.00	4.00	5.00	1.00	18	26	55	81		0.00	Nil	Nil		NX	NX			Nil	2.50		
	792.27	4.50	5.00	6.00	1.00					0.25	25.00	Nil	13		NX	NX			260	2.22		
	791.27	6.00	6.00	7.00	1.00					0.39	39.00	17	5		NX	NX			300	2.22		
07/04/16	790.27	6.00	7.00	8.00	1.00					0.30	30.00	Nil	6		NX	NX	5.30		300	2.22		
	789.27	8.50	8.00	9.00	1.00					0.32	32.00	Nil	17		NX	NX			400	2.22		
	788.27	9.00	9.00	10.00	1.00					0.35	35.00	Nil	9		NX	NX			400	2.00		
	787.27	10.50	10.00	11.00	1.00					0.27	27.00	Nil	12		NX	NX			450	2.22		
08/04/16	786.27	10.50	11.00	12.00	1.00					0.25	25.00	Nil	16		NX	NX	10.2		450	2.00		Fractured core pieces recovered.Grey shale
	785.27	10.50	12.00	13.00	1.00					0.30	30.00	Nil	20		NX	NX			450	2.00		
	784.27	10.50	13.00	14.00	1.00					0.35	35.00	Nil	12		NX	NX			450	2.00		
	783.27	10.50	14.00	15.00	1.00					0.25	25.00	Nil	14		NX	NX			475	1.82		
	782.27	10.50	15.00	16.00	1.00					0.36	36.00	Nil	16		NX	NX			475	2.00		
	781.27	10.50	16.00	17.00	1.00					0.25	25.00	Nil	12		NX	NX			475	1.92		
	780.27	10.50	17.00	18.00	1.00					0.36	36.00	Nil	19		NX	NX			480	1.82		
	779.27	10.50	18.00	19.00	1.00					0.32	32.00	Nil	11		NX	NX			500	1.67		
	778.27	10.50	19.00	20.00	1.00					0.45	45.00	Nil	11		NX	NX			550	1.72		
					20 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test


1M 2M 3M 4M 5M 6M 8M 10M
NH-54 (BYPASS-4) (BV-3)
NH-54 (BYPASS-4) (BV-3)
7M
9M
0.000 1-M 2-M 3M 4M 5M 6M 8M


20M
18M
16M
15M
14M
13M
12M
11M
10M
NH-54 (BYPASS-4) (BV-3)
15M
14M
10M 11M 12M 13M 14M 15M 16M 18M

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**

Type's of Core Barrel : **NX Double Core barrel**

Location : Lawngtlai (Bypass 4)

Method of Boring / Drilling : Shell / RMC

Boring / Drilling Equipment : Geo rig with Diamond bit

Coordinates : **X = 488202.882 Y = 2489580.808**

Bore Hole No. : BV-04

Depth of hole : +20.000m

Ground Elevation : +855.126m

Date of Commencement : 18-Apr-16

Date of Completion : 22-Apr-16

Operator Name : Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
18/04/16	855.13		0.00	1.00	1.00	8	13	33	46		0.0	Nil		NX Casing Bit	NX	NX		Complete		14.29		Fractured core pieces recovered.Grey shale
	854.13		1.00	2.00	1.00	12	16	44	60		0.0	Nil			NX	NX				11.11		
	853.13	3.00	2.00	3.00	1.00					0.26	26.0	Nil	23		NX	NX			300	3.13		
	852.13	3.00	3.00	4.00	1.00					0.40	40.0	17	9		NX	NX			400	2.86		
	851.13	3.00	4.00	5.00	1.00					0.29	29.0	Nil	10		NX	NX			500	2.63		
	850.13	3.00	5.00	6.00	1.00					0.34	34.0	Nil	6		NX	NX			500	2.38		
	849.13	3.00	6.00	7.00	1.00					0.35	35.0	17	9		NX	NX			550	2.50		
19/04/16	848.13	12.00	7.00	8.00	1.00					0.38	38.0	Nil	18		NX	NX	6.1		550	2.38		
	847.13	12.00	8.00	9.00	1.00					0.36	36.0	Nil	14		NX	NX			500	2.04		
	846.13	12.00	9.00	10.00	1.00					0.30	30.0	Nil	15		NX	NX			500	2.08		
	845.13	12.00	10.00	11.00	1.00					0.47	47.0	Nil	7		NX	NX			600	2.22		
	844.13	12.00	11.00	12.00	1.00					0.50	50.0	Nil	8		NX	NX			650	2.04		
	843.13	12.00	12.00	13.00	1.00					0.37	37.0	Nil	8		NX	NX			550	1.92		
20/04/16	842.13	12.00	13.00	14.00	1.00					0.45	45.0	14	5		NX	NX	11.8		500	1.64		
	841.13	12.00	14.00	15.00	1.00					0.50	50.0	15	8		NX	NX			500	1.72		
	840.13	12.00	15.00	16.00	1.00					0.57	57.0	Nil	8		NX	NX			450	1.56		
	839.13	12.00	16.00	17.00	1.00					0.48	48.0	36	3		NX	NX			400	1.92		
	838.13	12.00	17.00	18.00	1.00					0.38	38.0	26	4		NX	NX			500	2.08		
	837.13	12.00	18.00	19.00	1.00					0.43	43.0	Nil	7		NX	NX			500	1.82		
	836.13	12.00	19.00	20.00	1.00					0.54	54.0	26	6		NX	NX			550	1.59		
21/04/16	835.13	12.00	20.00	21.00	1.00					0.49	49.0	Nil	7		NX	NX	17.7		450	1.67		
	834.13	12.00	21.00	22.00	1.00					0.46	46.0	27	4		NX	NX			400	1.89		
	833.13	12.00	22.00	23.00	1.00					0.60	60.0	Nil	10		NX	NX			350	1.56		
	832.13	12.00	23.00	24.00	1.00					0.50	50.0	Nil	6		NX	NX			400	1.75		
	831.13	12.00	24.00	25.00	1.00					0.48	48.0	13	5		NX	NX			250	1.79		

GEOLOGICAL LOG OF BORE / DRILL HOLE

Project : **Preparatory Study for Road Network improvement in North-east of India**

Type's of Core Barrel : **NX Double Core barrel**

Location : Lawngtlai (Bypass 4)

Method of Boring / Drilling : Shell / RMC

Boring / Drilling Equipment : Geo rig with Diamond bit

Coordinates : **X = 488202.882 Y = 2489580.808**

Bore Hole No. : BV-04

Depth of hole : +20.000m

Ground Elevation : +855.126m

Date of Commencement : 18-Apr-16

Date of Completion : 22-Apr-16

Operator Name : Md.Qamrudin

Date	Elevation (m)	Sample and in-situ Test			Depth (m)	* No. of Blows			'N' Value	Core Recovered (m)	Recovery (%)	R.Q.D. (%)	No. of pieces	Type of Barrel	Size of Hole	Type of Casing	Depth of water levels from grd	Water loss	Water used in lit	Pentration rate cm/min	Colour of return water	Remarks
		Casing depth (m)	Depth/Run(m) From	Depth/Run(m) To																		
	830.13	12.00	25.00	26.00	1.00					0.50	50.0	14	7	NX Casing Bit	NX	NX		Partially	300	1.61		Fractured core pieces recovered.Grey shale mixed with partially sandstone
22/04/16	829.13	12.00	26.00	27.00	1.00					0.50	50.0	Nil	4		NX	NX	18.7		200	1.69		
	828.13	12.00	27.00	28.00	1.00					0.56	56.0	Nil	9		NX	NX			250	1.96		
	827.13	12.00	28.00	29.00	1.00					0.71	71.0	20	11		NX	NX			200	1.54		
	826.13	12.00	29.00	30.00	1.00					0.86	86.0	23	10		NX	NX			200	1.45		
					30 (Termination Depth)																	

*Each value in this column for SPT indicates no.of blows for each 10.0 cm penetration unless otherwise stated

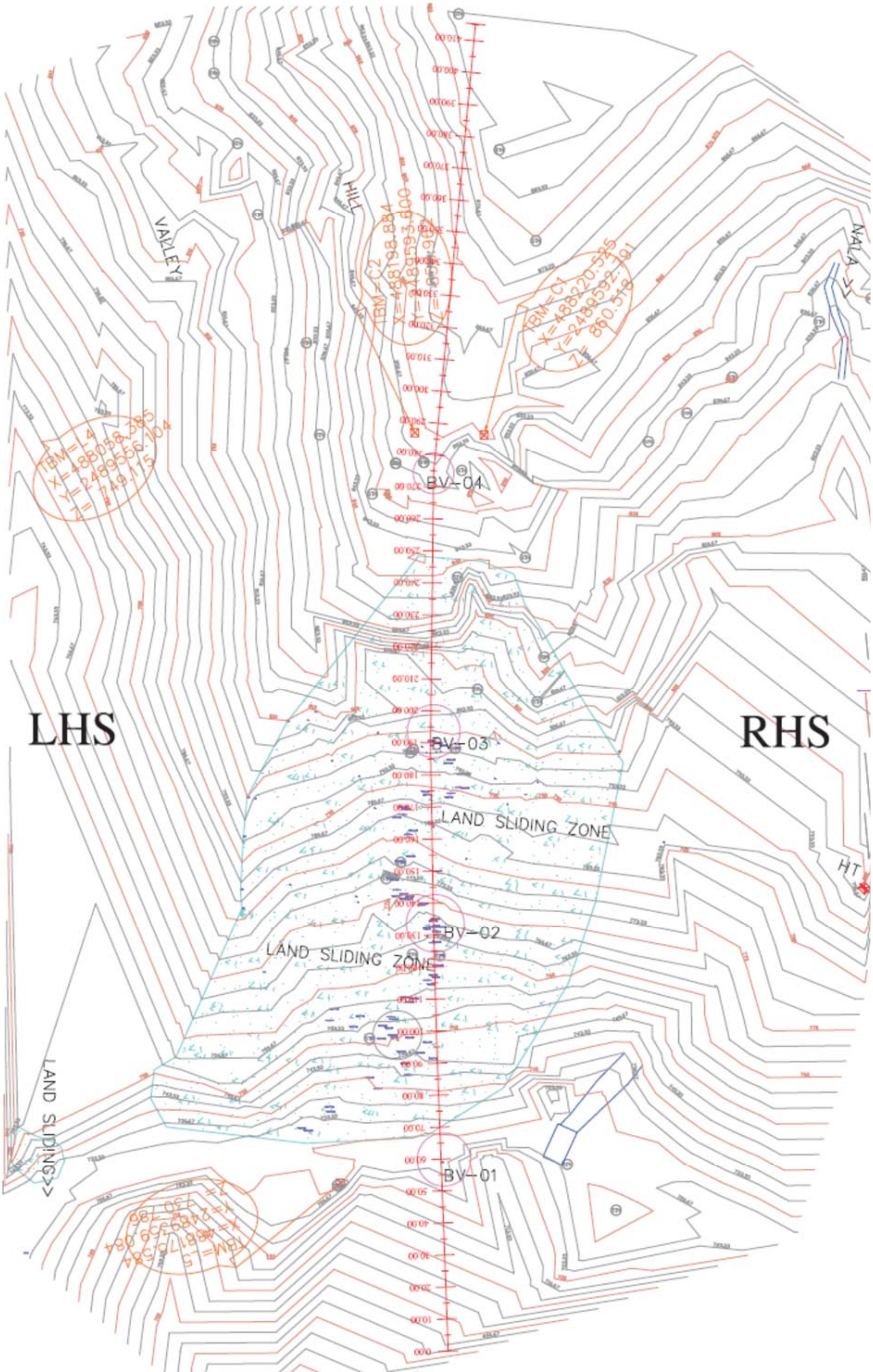
U-Undisturbed Sample **C**-Core Sample **D**-Disturbed Sample **P**-Standard Penetration Test

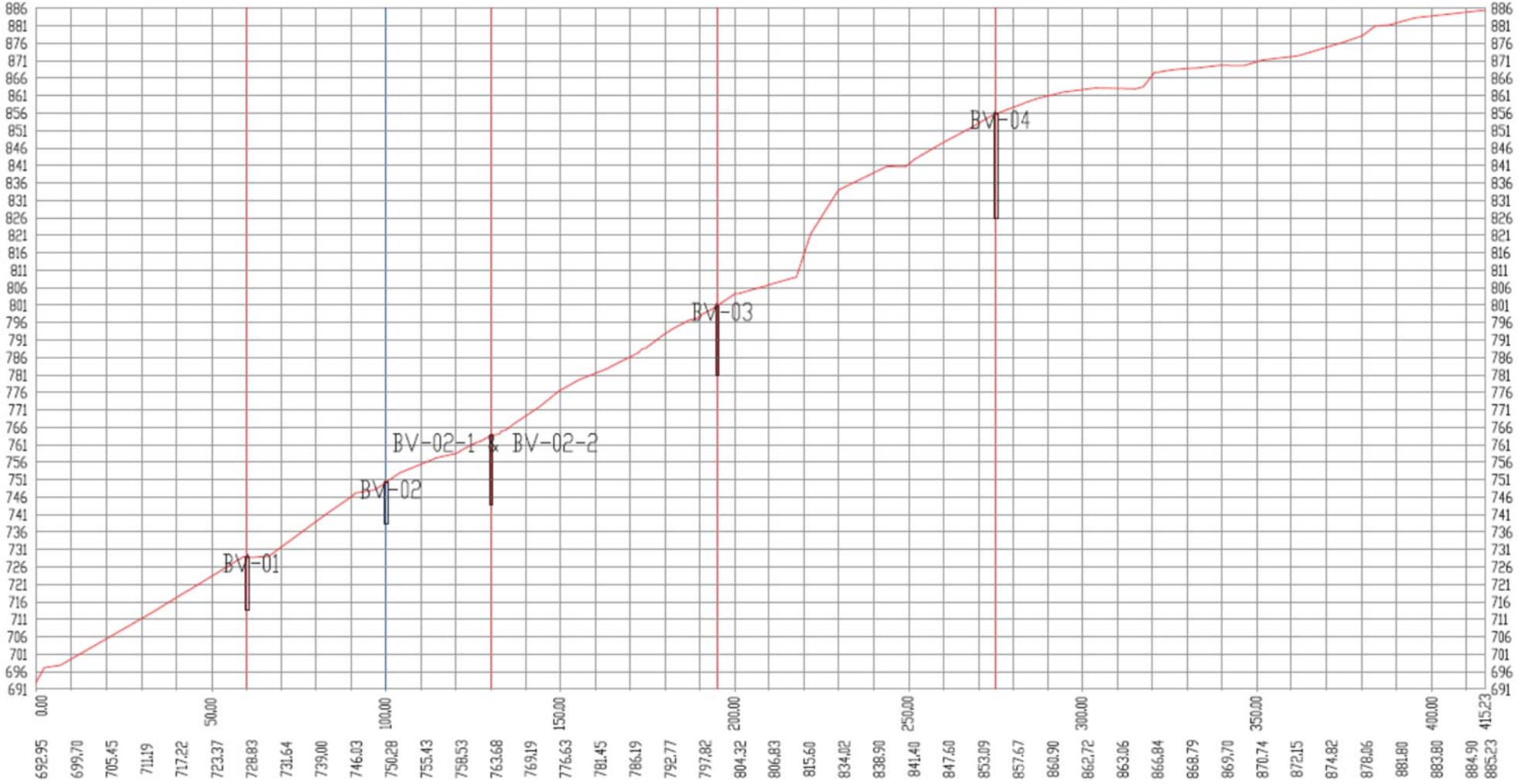
NH 5H (BY PASS) B.V-4
10M
8M
1M
2M
3M
4M
5M
6M
7M
9M

W6I
W5I
W4I
W3I
W2I
W1I
20M
18M
NH-54 (BYPASS-4) B.V.-4
BH No. 2 RAN. 1


22M 23M 24M 25M 27M 29M
NH54 (BYPASS-4) B.V.-4
26M
29M
21M 22M 23M 24M 25M 27M 28M 30

3. CROSS SECTION DRAWING


LHS
RHS
LAND SLIDING ZONE
LAND SLIDING ZONE
BV-01
BV-02
BV-03
BV-04
VALLEY
HILL
NALA ->
HT
LAND SLIDING>
TBM=L4
X=488058.385
Y=2489556.104
Z=749.115
TBM=C1
X=488220.525
Y=2489592.191
Z=860.518
TBM=C2
X=488198.884
Y=2489593.600
TBM=L5
X=488175.584
Y=2489359.084
Z=730.786


BV-01
BV-02
BV-02-1
BV-02-2
BV-03
BV-04
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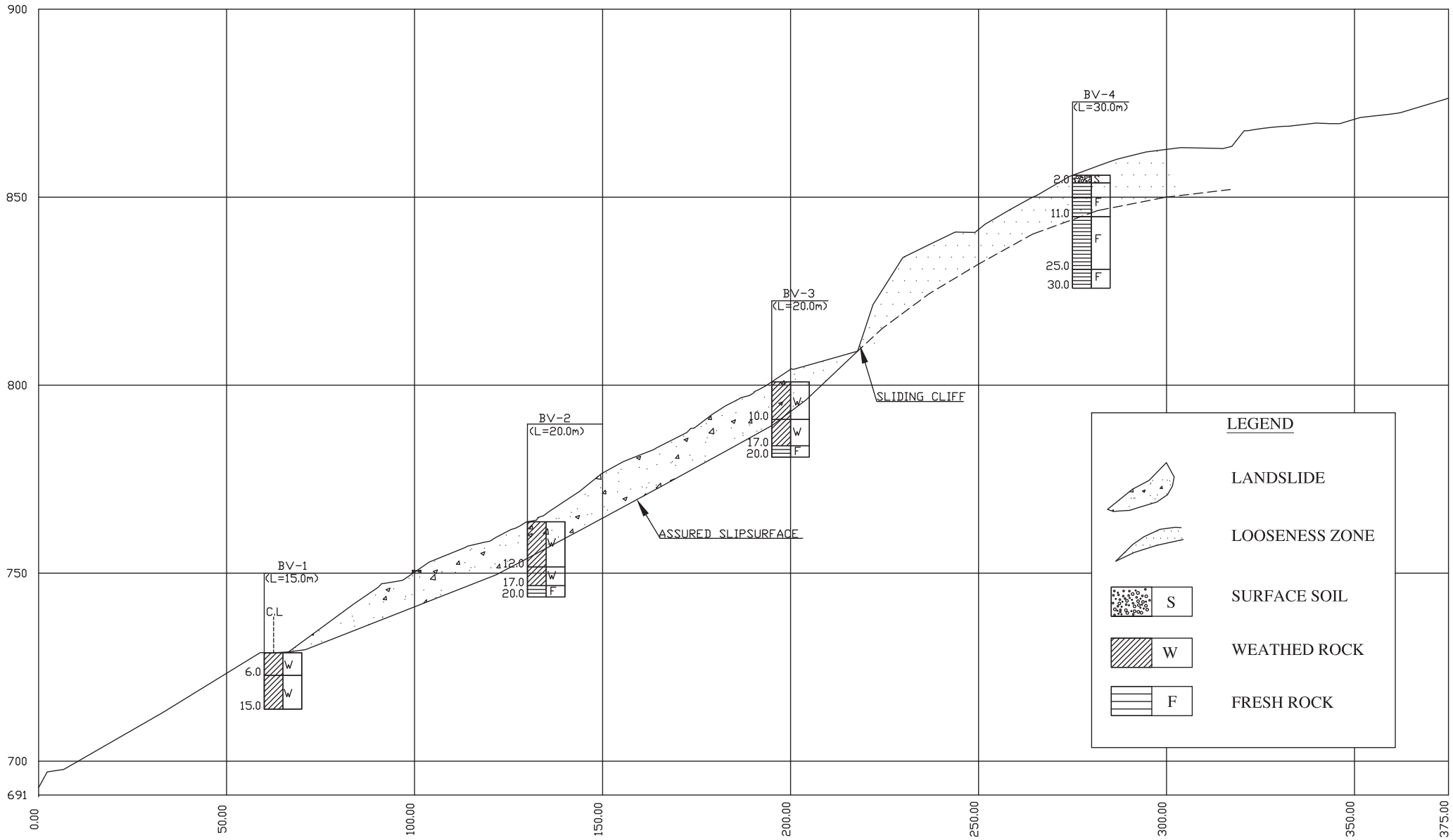
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
415.23



LAND SLIDE CROSS SECTION

4. DAILY DRILLING REPORT

The drilling report was recorded everyday by Sub-contractor at site.
Finally, the record is utilized to make up geological log of bore holes. Hence, the information can be equal to geological log shown on 2.GEOLOGICAL LOG OF BORE HOLES.

Here, some example of daily report recorded by Sub-contractor at site is shown as picture below.

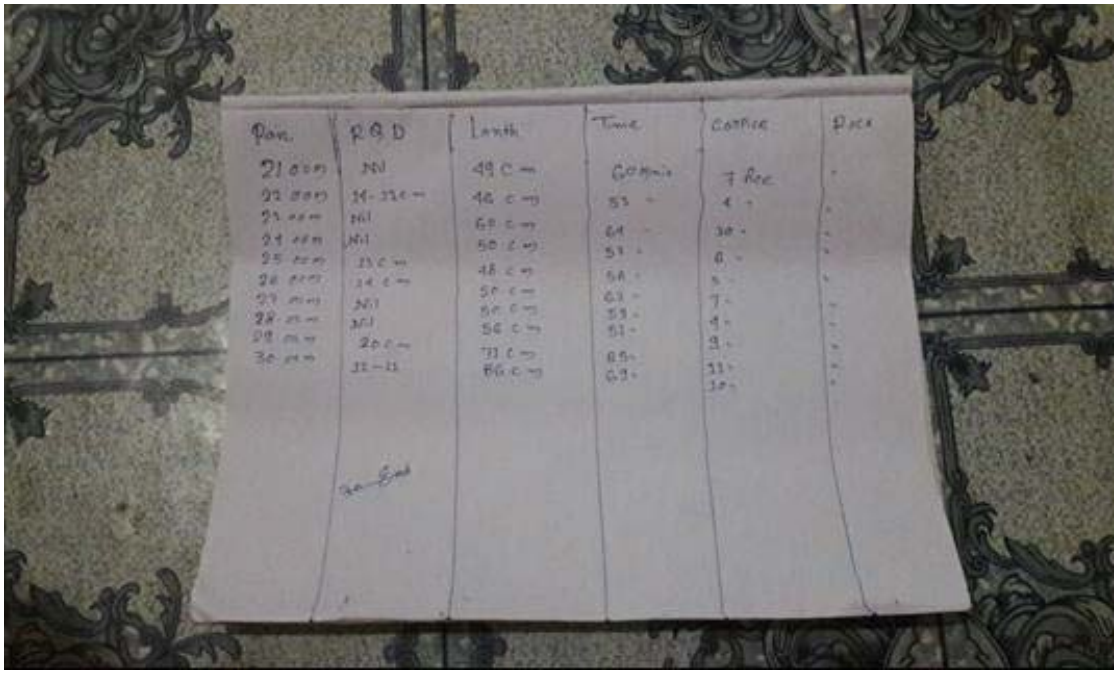


Figure 4.1 Daily drilling report (1)

Figure 4.2 Daily drilling report (2)

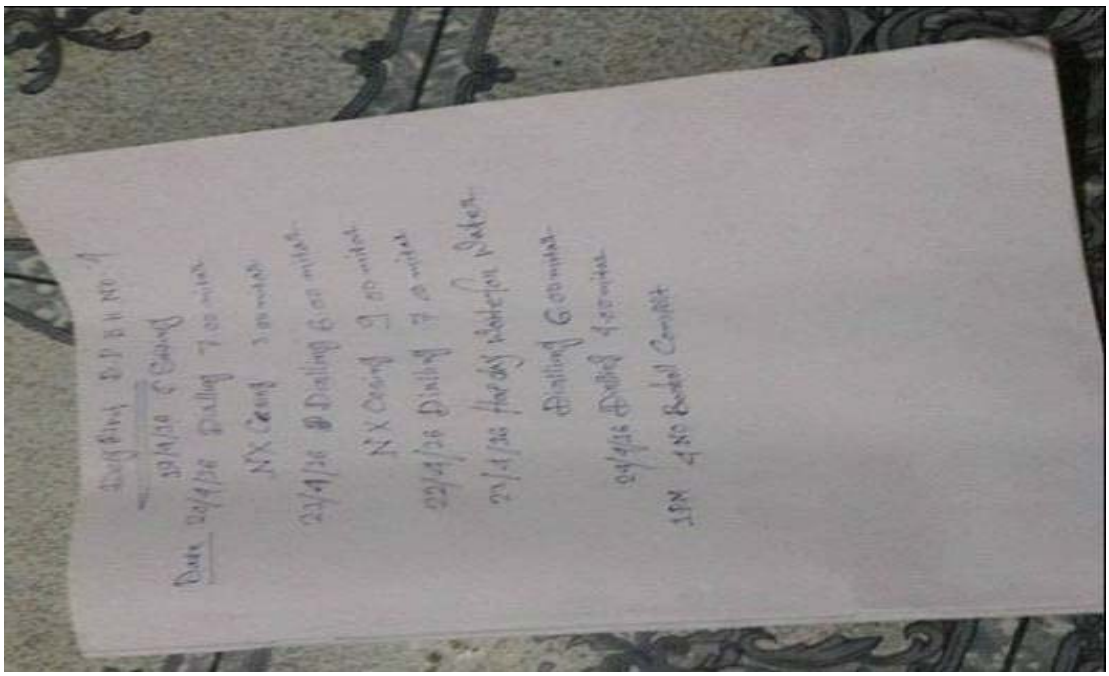


Figure 4.3 Daily drilling report (3)

5. GROUND WATER MONITORING

Groundwater Level Details at Land Slide BypassNo.4

Sl No	Date	BV-1 (M)	BV-2 (M)	BV-2/1 (M)	BV-2/2 (M)	BV-3 (M)	BV-4 (M)	Time	Remarks
1	19-Apr-16	NIL	NIL	14.2	14.3	13.5		MORNING TIME	
2		NIL	NIL	14.4	14.7	13.9		EVENING TIME	
3	20-Apr-16	NIL	NIL	7	15	14		MORNING TIME	
4		NIL	NIL	8.4	13.8	15.2		EVENING TIME	
5	21-Apr-16	NIL	NIL	7.1	10.2	13		MORNING TIME	
6		NIL	NIL	6.2	10	13.5		EVENING TIME	
7	22-Apr-16	NIL	NIL	6.2	15	11.2		MORNING TIME	
8		NIL	NIL	6.4	15	12.5		EVENING TIME	
9	23-Apr-16	NIL	NIL	7.1	14.3	10.5		MORNING TIME	
10		NIL	NIL	6.9	14.5	11		EVENING TIME	
11	24-Apr-16	NIL	NIL	7.5	14.7	11		MORNING TIME	
12		NIL	NIL	7.7	15	11.1		EVENING TIME	
13	25-Apr-16	NIL	NIL	7.2	15	10.7	18.7	MORNING TIME	
14		NIL	NIL	7	14.1	10.5	20.5	EVENING TIME	
15	26-Apr-16	NIL	NIL	7	14	10.5	25.5	MORNING TIME	
16		NIL	NIL	7	14.1	10.5	26	EVENING TIME	
17	27-Apr-16	NIL	NIL	7.3	16.3	14.1	27.4	MORNING TIME	
18		NIL	NIL	7	15.9	14.8	26.2	EVENING TIME	
19	28-Apr-16	NIL	NIL	7	16.7	14.6	27.1	MORNING TIME	
20		NIL	NIL	7.4	15.8	14.3	27.7	EVENING TIME	
21	29-Apr-16	NIL	NIL	7	15.5	14.5	27	MORNING TIME	
22		NIL	NIL	7.2	15.2	14.3	27.2	EVENING TIME	
23	30-Apr-16	NIL	NIL	13.8	16.3	16	27	MORNING TIME	
24		NIL	NIL	14.8	16.6	16.2	27.2	EVENING TIME	
25	1-May-16	NIL	NIL	13.8	16.8	16.2	27.2	MORNING TIME	Light Rain (10 am to 12.30 pm)
26		NIL	NIL	13.8	16.8	16.2	27	EVENING TIME	
27	2-May-16	14.8	11.9	14.2	15.5	16	27.1	MORNING TIME	Rain (5.40 pm to 11 pm)
28		14.6	11.7	16.8	16.6	16	27	EVENING TIME	

Groundwater Level Details at Land Slide BypassNo.4

Sl No	Date	BV-1 (M)	BV-2 (M)	BV-2/1 (M)	BV-2/2 (M)	BV-3 (M)	BV-4 (M)	Time	Remarks
29	3-May-16	14.6	11.4	5.8	16.4	16	27.2	MORNING TIME	
30		14.7	11.6	5.8	16.4	16.2	27.5	EVENING TIME	
31	4-May-16	14.8	11.7	5.7	16.5	16.3	28	MORNING TIME	Rain (9.20 pm to 11 pm)
32		14.8	11.7	5.7	16.5	16.3	28.2	EVENING TIME	
33	5-May-16	14.8	11.7	5.7	16.5	16.3	28.7	MORNING TIME	
34		14.8	11.6	5.7	16.4	16.3	28.8	EVENING TIME	
35	6-May-16	14.8	11.7	5.8	16.4	16.4	29	MORNING TIME	
36		14.9	11.8	5.8	16.4	16.4	29.2	EVENING TIME	
37	7-May-16	NIL	11.9	5	16.5	16.5	29.3	MORNING TIME	
38		NIL	11.9	5	16.5	16.5	29.4	EVENING TIME	
39	8-May-16	NIL	11.9	5	16.5	16.5	29.5	MORNING TIME	
40		NIL	11.9	5	16.7	16.6	29.7	EVENING TIME	
41	9-May-16	NIL	NIL	5	16.8	16.7	29.8	MORNING TIME	
42		NIL	NIL	5	16.8	16.7	29.9	EVENING TIME	
43	10-May-16	NIL	NIL	5	16.8	16.7	NIL	MORNING TIME	
44		NIL	NIL	5	16.8	16.7	NIL	EVENING TIME	
45	11-May-16	NIL	NIL	5	16.8	16.7	NIL	MORNING TIME	
46		NIL	NIL	5	16.8	16.7	NIL	EVENING TIME	
47	12-May-16	NIL	NIL	5	16.8	16.7	NIL	MORNING TIME	Rain (5.10 pm to 9.30 pm)
48		NIL	NIL	5	16.8	16.7	NIL	EVENING TIME	
49	13-May-16	14.4	11.3	5.6	16.2	15.8	NIL	MORNING TIME	Rain (10 am to 12 pm)
50		14.4	11.3	5.6	15.8	16.2	NIL	EVENING TIME	Rain (6 pm to 9 pm)
51	14-May-16	14.3	11.2	6.1	15.7	16	29.8	MORNING TIME	
52		14.4	11.3	6	15.7	16.1	29.9	EVENING TIME	
53	15-May-16	14.5	11.4	5.6	16	16.1	NIL	MORNING TIME	
54		14.5	11.4	5.8	16.1	16.2	NIL	EVENING TIME	
55	16-May-16	14.8	11.5	5.6	16.4	16.3	NIL	MORNING TIME	
56		14.8	11.5	5.5	16.4	16.3	NIL	EVENING TIME	
57	17-May-16	14.9	11.6	5.5	16.4	16.3	NIL	MORNING TIME	

Groundwater Level Details at Land Slide BypassNo.4

Sl No	Date	BV-1 (M)	BV-2 (M)	BV-2/1 (M)	BV-2/2 (M)	BV-3 (M)	BV-4 (M)	Time	Remarks
58	17-May-16	14.9	11.6	5.5	16.4	16.4	NIL	EVENING TIME	
59	18-May-16	15.5	11.4	5.3	16.3	16.2	NIL	MORNING TIME	Rain (9.30 am to 11.20 am)
60		14.5	11.4	5.3	16.3	16.2	NIL	EVENING TIME	Rain (4.45 pm to 9.30 pm)
61	19-May-16	14.3	11.4	5	16.2	16.1	NIL	MORNING TIME	Rain Midnight
62		14.3	11.4	4	16.2	16.1	NIL	EVENING TIME	
63	20-May-16	14.2	11.3	4	16.1	16	NIL	MORNING TIME	Rain Evening time
64		14.1	11.2	3.9	16.1	15.9	29.7	EVENING TIME	
65	21-May-16	14.2	11.3	3.7	10	15.9	NIL	MORNING TIME	Rain (5 pm to 3 am)
66		14.2	11.3	3.6	10.2	15.8	NIL	EVENING TIME	
67	22-May-16	14.1	11.2	10.2	3.8	15.7	29.4	MORNING TIME	Day Night Rain
68		14	11.2	3.8	10.1	15.7	29.6	EVENING TIME	
69	23-May-16	14.3	11.1	4.9	10.7	16.2	29.9	MORNING TIME	
70		14.4	11.3	5	10.8	16.3	NIL	EVENING TIME	
71	24-May-16	14.5	11.4	5.1	10.8	16.3	NIL	MORNING TIME	Rain (12 pm to 4.35pm)
72		14.6	11.5	5.3	10.9	16.4	NIL	EVENING TIME	Rain (6.20 pm to 9.30 pm)
73	25-May-16	14.6	11.5	5.2	11	16.5	NIL	MORNING TIME	Rain (6.30 pm to 11.30 pm)
74		14.55	11.5	5.3	10.7	16.3	NIL	EVENING TIME	
75	26-May-16	14.5	11.5	5.4	10.8	16.2	NIL	MORNING TIME	Rain 7.40 pm to 10.30 pm
76		14.5	11.6	5.5	10.8	16.2	NIL	EVENING TIME	
77	27-May-16	14.4	11.5	5.4	10.8	16.2	NIL	MORNING TIME	Rain 6.40 pm to 8.40 pm
78		14.6	11.6	5.5	10.9	16.2	NIL	EVENING TIME	
79	28-May-16	14.8	11.2	5.2	11.1	16	NIL	MORNING TIME	Rain 6.30 pm to 10.40 pm
80		14.9	10.9	5.1	11.9	15.8	NIL	EVENING TIME	
81	29-May-16	NIL	10.9	4.9	11.6	15.6	NIL	MORNING TIME	
82		NIL	11	5	11.7	15.7	NIL	EVENING TIME	
83	30-May-16	NIL	11.2	5.2	11.8	15.7	NIL	MORNING TIME	
84		NIL	11.2	5.3	11.8	15.8	NIL	EVENING TIME	
85	31-May-16	NIL	11.3	5.7	11.8	15.9	NIL	MORNING TIME	
86		NIL	11.3	5.8	11.9	16	NIL	EVENING TIME	

Groundwater Level Details at Land Slide BypassNo.4

Sl No	Date	BV-1 (M)	BV-2 (M)	BV-2/1 (M)	BV-2/2 (M)	BV-3 (M)	BV-4 (M)	Time	Remarks
87	1-Jun-16								
88									
89	2-Jun-16								
90									
91	3-Jun-16								
92									
93	4-Jun-16								
94									
95	5-Jun-16	NIL	11.2	5.5	12.1	15.8	NIL	MORNING TIME	Rain 8.30 pm to 11.40 pm
96		NIL	11.2	5.6	12.3	15.6	NIL	EVENING TIME	
97	6-Jun-16								
98									
99	7-Jun-16								
100									
101	8-Jun-16								
102									
103	9-Jun-16	NIL	11.6	5.9	11.6	15.7	NIL	MORNING TIME	Rain 7.20 pm to 9.20 pm
104		NIL	11.6	5.9	11.7	15.6	NIL	EVENING TIME	
105	10-Jun-16								
106									
107	11-Jun-16								
108									
109	12-Jun-16								
110									
111	13-Jun-16								
112									
113	14-Jun-16	14.3	9.8	4.3	9.8	13.6	NIL	MORNING TIME	Taken By Sharma ji
114									

APPENDIX.
PHOTOGRAPHS OF THE WORKS

PHOTOGRAPHS FOR

Bypass No.1

































PHOTOGRAPHS FOR

Bypass No.2


































Reebok

PHOTOGRAPHS FOR

Bypass No.3









PHOTOGRAPHS FOR

Bypass No.4