

## ***SOIL INVESTIGATION WORK***

**RAIL ROAD TRACK  
RN 5 km 100 to 183,  
Florida - Durazno**

### ***TECHNICAL REPORT***

***November 2016.***

***Requested by: MTOP***

## **SOIL INVESTIGATION WORK**

### **RAIL ROAD TRACK – FLORIDA - DURAZNO**

#### **TECHNICAL REPORT**

Client: *MTOP*  
Site work: Rail Road Track  
Location: RN 5 km 100 to 183, Florida - Durazno  
Ref. N°: IG 3312/16

#### **1. INTRODUCTION**

The present report refers to the soils exploration carried out to determine the main geotechnical characteristics of the subsoil of the reference site work.

#### **2. GEOLOGICAL SURVEY (GEOLOGICAL MAPPING)**

A geological survey of the interested area was made in order to create a geological maps of the sub surfaces.

The geological maps depicts the three-dimensional form of geological surfaces by means of contours and cross sections, indicating the existing geological units, contacts between them, the dominant structural features, and interpretation of the rigid structures that cut subsurface lithologies.

The geological survey is attached in the *Annex I*.

#### **3. FIELDWORKS - STANDARD PENETRATION TEST (S.P.T.)**

According to the request, 84 standard penetration tests (SPT) were carried out at the locations defined by the client.

Borings with standard penetration tests every meter were executed according to the A.S.T.M. D 1586-99 standard.

The survey of the boreholes was made with a handheld GPS in UTM coordinates.

Each point was marked in the terrain with a stake in such a way that the point can be found later if new measurements are needed.

All the fieldworks were made between the 05<sup>th</sup> and the 22<sup>th</sup> of October of 2016, and the boring test logs are attached in the Annex II.

#### **4. LABORATORY TESTS**

The investigation sample from every 20th point was delivered to the laboratory.

The laboratory studies for samples are:

- water content determination (moisture content)
- granularity from two different depths, which differ most from each other by soil type.

All the laboratory test results are attached in the Annex III.

*By Ingeniería en Fundaciones SRL*



*Mariano Cabrera*  
Civil Engineer

#### **ANNEX'S:**

*Annex I: Geological Survey*

*Annex II: Boring Test Logs (IGF Format)*

*Annex III: Laboratory Test Results (IGF Format)*

## ***ANNEX I: GEOLOGICAL SURVEY***

***ANNEX II: BORING TEST LOGS (IGF FORMAT)***

**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570434 y: 6229794 z: 98

BOREHOLE #: 201

LOC. OF POINT: 1000 m

ROUTE 5 KM: 100.502

(track km: 113+600)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic  Depth 1,00m
		69					
2		>80					Completely weathered rock as soil
		>80					Stone
3							End of the drilling
							Impenetrable to the soil drilling equipment
4							
5							
6							
7							
8							
9							
10							
11							
12							
		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	97
"Upper level of bed rock"	
Depth 2,00m	96
Elevation: +96,00 m	
	95
	94
	93
	92
	91
	90
	89
	88
	87
	86
0 50 100	RQD.

Groundwater Level: Not Found	Groundwater Elevation: Not found
Maximum depth: 2,00 m	Max. Depth Elevation: +96,00 m
Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A
IGF Ref. Nº: IG3312	Date of Investigation: 05/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570253 y: 6230974 z: 106

BOREHOLE #: 202

LOC. OF POINT: 2200 m

ROUTE 5 KM: 101.700

(track km: 114+800)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	
			Nº of blows / 30 cm					
			5	15	25	35		
	DRILLING WITH MECHANICAL EQUIPMENT						Organic	
								<i>Depth 0,80m</i>
1			42					Clay <span style="float: right;"><i>Depth 1,10m</i></span>
								Completely weathered rock as soil
2								Stone
			>80					<i>End of the drilling</i>
3								<i>Impenetrable to the soil drilling equipment</i>
4								
5								
6								
7								
8								
9								
10								
11								
12		%						
		REC.	100	50	0			

OBSERVATIONS	ELEV. (m)
	105
"Upper level of bed rock"	
<i>Depth 2,05m</i>	104
<i>Elevation: +103,95 m</i>	
	103
	102
	101
	100
	99
	98
	97
	96
	95
	94
0	RQD.

Groundwater Level:	Not Found	Groundwater Elevation:	Not found
Maximum depth:	2,05 m	Max. Depth Elevation:	+103,95 m
Client:	Equipment:	IGF Ref. Nº:	Date of Investigation:
MTOP	ROLATEC ML 76A	IG3312	05/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570051 y: 6232283 z: 111

BOREHOLE #: 203

LOC. OF POINT: 3500 m

ROUTE 5 KM: 103.000

(track km: 116+100)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,75m</i>
1		48					Dark clay Clay with lime nodules
2		41					Clay with gravel <i>Depth 2,45m</i>
3		>80					Completely weathered rock as soil
4							Stone  <i>End of the drilling</i>
5							<i>Impenetrable to the soil drilling equipment</i>
6							
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	110
	109
"Upper level of bed rock"	108
<i>Depth 3,25m</i>	
<i>Elevation: +107,75 m</i>	
	107
	106
	105
	104
	103
	102
	101
	100
	99
0	RQD.

Groundwater Level: Not Found      Groundwater Elevation: Not found  
 Maximum depth: 3,25 m      Max. Depth Elevation: +107,75 m

Client: **MTOP**      Equipment: ROLATEC ML 76A      IGF Ref. Nº: IG3312      Date of Investigation: 05/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569917 y: 6233267 z: 98

BOREHOLE #: 204

LOC. OF POINT: 4500 m

ROUTE 5 KM: 104.000

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT					Organic Dark clay <i>Depth 1,10m</i>		97	
2		47			Clay with dark nodules		96		
3		21			Clay with dark nodules		95		
4		20			Clay with wethered rock <i>Depth 3,70 m</i>		94		
5		>80			Completely weathered rock as soil	"Upper level of bed rock"	94		
6					Stone	<i>Depth 4,80m</i> Elevation: +93,20 m	93		
7					<i>End of the drilling</i>		92		
8					<i>Impenetrable to the soil drilling equipment</i>		91		
9							90		
10							89		
11							88		
12							87		
		%					86		
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found      Groundwater Elevation: Not found

Maximum depth: 4,80 m      Max. Depth Elevation: +93,20 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 05/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569892 y: 6234273 z: 112

BOREHOLE #: 205

LOC. OF POINT: 5500 m

ROUTE 5 KM: 105.000

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
							Depth 0,60 m		
1							Clay with gravel		
							Depth 1,10 m	111	
			>80				Completely weathered rock	"Upper level of bed rock"	
			>80					Depth 1,75 m	
2							Stone	Elevation: +110,25 m	110
							End of the drilling		
3							Impenetrable to the soil drilling equipment		109
4									108
5									107
6									106
7								105	
8								104	
9								103	
10								102	
11								101	
12		%						100	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 1,75 m Max. Depth Elevation: +110,25 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 05/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569860 y: 6235351 z: 95

BOREHOLE #: 206

LOC. OF POINT: 6600 m

ROUTE 5 KM: 106.110

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35	Organic		
1	DRILLING WITH MECHANICAL EQUIPMENT						Depth 1,10 m		94
		12					Clay with silt (brown)		
2							Depth 2,00 m		93
		65					Completely weathered rock as soil	"Upper level of bed rock"	
3							Completely weathered rock		92
		>80						Depth: 3,50 m	
4							Stone	Elevation: +91,50 m	91
							End of the drilling		
5							Impenetrable to the soil drilling equipment		90
6									89
7									88
8									87
9								86	
10								85	
11								84	
12		%						83	
		REC.	100	50	0				RQD.

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 3,50 m Max. Depth Elevation: +91,50 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 06/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569851 y: 6236436 z: 108

BOREHOLE #: 207

LOC. OF POINT: 7700 m

ROUTE 5 KM: 107.200

(track km: 120+600)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,90 m</i>
		64					Clay
2							Clay with wethered rock
		>80					Stone
3							<i>End of the drilling</i>
4							<i>Impenetrable to the soil drilling equipment</i>
5							
6							
7							
8							
9							
10							
11							
12							
		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	107
	106
<i>Depth: 2,20 m</i>	
<i>Elevation: +105,80 m</i>	
<i>"Upper level of bed rock"</i>	105
	104
	103
	102
	101
	100
	99
	98
	97
	96
0 50 100	RQD.

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 2,20 m

Max. Depth Elevation: +105,80 m

Client: MTOP

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 06/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570008 y: 6237507 z: 101

BOREHOLE #: 208

LOC. OF POINT: 8800 m

ROUTE 5 KM: 108.270

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
							Organic	Depth 0,20 m	
1	DRILLING WITH MECHANICAL EQUIPMENT						Clay	Depth 1,00 m	100
		>80					Completely weathered rock as soil	"Upper level of bed rock" Depth: 1,55 m	
2		>80					Stone	Elevation: +99,45 m	99
							End of the drilling		
3							Impenetrable to the soil drilling equipment		98
4									97
5									96
6									95
7									94
8									93
9									92
10									91
11									90
12		%							89
		REC.	100	50	0				RQD.

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 1,55 m Max. Depth Elevation: +99,45 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. Nº: <b>IG3312</b>	Date of Investigation: <b>06/10/2016</b>
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570153 y: 6238489 z: 117

BOREHOLE #: 209

LOC. OF POINT: 9800 m

ROUTE 5 KM: 109.280

(track km: 122+800)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		44					Organic <i>Depth 1,25 m</i>	116	
2							Completely weathered rock as soil	115	
	49								
3						Completely weathered rock as soil	114		
	>80								
4						Stone	<i>Depth: 3,50 m</i>	113	
5						<i>End of the drilling</i>	<i>Elevation: +113,50 m</i>	112	
6						<i>Impenetrable to the soil drilling equipment</i>		111	
7								110	
8								109	
9								108	
10								107	
11								106	
12								105	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 3,50 m

Max. Depth Elevation: +113,50 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. N°: IG3312

Date of Investigation: 06/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570331 y: 6239662 z: 116

BOREHOLE #: 210

LOC. OF POINT: 11000 m

ROUTE 5 KM: 110.470

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
							Organic		
							Depth 0,50 m		
1	DRILLING WITH MECHANICAL EQUIPMENT	>80					Clay	115	
							Clay with wethered rock		
2							Stone		
							End of the drilling		
3							Impenetrable to the soil drilling equipment	113	
4								112	
5								111	
6								110	
7								109	
8								108	
9								107	
10								106	
11								105	
12								104	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 1,40 m

Max. Depth Elevation: +114,60 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 06/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570473 y: 6240629 z: 128

BOREHOLE #: 211

LOC. OF POINT: 12000 m

ROUTE 5 KM: 111.440

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,50 m</i>		
1							Clay (brown)	127	
			13				Clay with lime nodules		
2							Clay (brown)	126	
			18				Clay with sand		
3							Clay with sand <i>Depth 3,70 m</i>	125	
			16				Completely weathered rock		
4			>80				"Upper level of bed rock" <i>Depth: 4,15 m</i>	124	
							Stone <i>Elevation: +123,85 m</i>		
5							End of the drilling	123	
							Impenetrable to the soil drilling equipment		
6								122	
7							121		
8							120		
9							119		
10							118		
11							117		
12							116		
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 4,15 m

Max. Depth Elevation: +123,85 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 06/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570416 y: 6241592 z: 126

BOREHOLE #: 212

LOC. OF POINT: 13000 m

ROUTE 5 KM: 112.415

(track km: 127+400)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,10 m</i>
		60					Clay with gravel <i>Depth 1,50 m</i>
2							Completely weathered rock as soil
		43					
3							Completely weathered rock as soil
		61					
4							Stone  <i>End of the drilling</i>  <i>Impenetrable to the soil drilling equipment</i>
		>80					
5							
6							
7							
8							
9							
10							
11							
12							
		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	125
"Upper level of bed rock"	124
	123
<i>Depth: 4,10 m</i>	122
<i>Elevation: +121,90 m</i>	121
	120
	119
	118
	117
	116
	115
	114
0 50 100	RQD.

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 4,10 m Max. Depth Elevation: +121,90 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 07/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 570198 y: 6242574 z: 119

BOREHOLE #: 213

LOC. OF POINT: 14000 m

ROUTE 5 KM: 113.470

DEPTH (m)	DRILLING WITH MECHANICAL EQUIPMENT	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
								Depth 0,90 m	118
			>80				Completely weathered rock as soil	"Upper level of bed rock"	
2								Depth: 1,90 m	117
			>80				Stone	Elevation: +117,10 m	
3							End of the drilling	"Upper level of bed rock"	116
							Impenetrable to the soil drilling equipment		
4									115
5									114
6									113
7									112
8									111
9								110	
10								109	
11								108	
12								107	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 1,90 m Max. Depth Elevation: +117,10 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 07/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569930 y: 6243546 z: 122

BOREHOLE #: 214

LOC. OF POINT: 15000 m

ROUTE 5 KM: 114.490

DEPTH (m)	DRILLING WITH MECHANICAL EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
							Organic <i>Depth 0,50 m</i>		
1							Clay with gravel	121	
							Completely weathered rock as soil		
2		>80					<i>End of the drilling</i>	120	
							<i>Impenetrable to the soil drilling equipment</i>		
3								119	
4								118	
5								117	
6								116	
7								115	
8								114	
9								113	
10								112	
11								111	
12								110	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 1,40 m

Max. Depth Elevation: +120,60 m

Client: **MTOP**

Equipment: **ROLATEC ML 76A**

IGF Ref. Nº: **IG3312**

Date of Investigation: **08/10/2016**



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569668 y: 6244500 z: 112

BOREHOLE #: 215

LOC. OF POINT: 16000 m

ROUTE 5 KM: 115.490

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT					Organic Dark clay <i>Depth 1,10 m</i>	<p><i>Depth 2,10 m</i></p> <p><i>Depth: 3,90 m</i></p>	111	
2		17			Clay	110			
3		51			Clay with sand (brown)	109			
4		25			Clay with sand	108			
5		>80			Stone  <i>End of the drilling</i>  <i>Impenetrable to the soil drilling equipment</i>	<p><i>Elevation: +108,10 m</i> <i>"Upper level of bed rock"</i></p>	107		
6							106		
7							105		
8							104		
9							103		
10							102		
11							101		
12		%					100		
		REC.	100	50	0			RQD.	

Groundwater Level: 2,10 m

Groundwater Elevation: +109,90 m

Maximum depth: 3,90 m

Max. Depth Elevation: +108,10 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 08/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

**TRACKLINE:** FLORIDA - DURAZNO      **JOB NUMBER:** 1\_3

**COORDINATES:** UTM 21H x: 569406 y: 6245452 z: 126

**BOREHOLE #:** 216

**LOC. OF POINT:** 17000 m

**ROUTE 5 KM:** 116.480

DEPTH (m)	DRILLING WITH MECHANICAL EQUIPMENT	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	49					Organic Dark clay <i>Depth 1,10 m</i>	125	
2							Clay with calcareous nodules <i>Depth: 2,10 m</i>		124
3		>80					Stone <i>End of the drilling</i>	123	
4						<i>Impenetrable to the soil drilling equipment</i>	122		
5								121	
6								120	
7								119	
8								118	
9								117	
10								116	
11								115	
12			%						114
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 2,10 m

Max. Depth Elevation: +123,90 m

Client: **MTOP**

Equipment: **ROLATEC ML 76A**

IGF Ref. Nº: **IG3312**

Date of Investigation: **08/10/2016**



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569201 y: 6246418 z: 129

BOREHOLE #: 217

LOC. OF POINT: 18000 m

ROUTE 5 KM: 117.460

DEPTH (m)	DRILLING WITH MECHANICAL EQUIPMENT	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,90 m</i>	128	
		75					Clay		
2		>80					Stone  <i>End of the drilling</i>	<i>Depth: 1,85 m</i> <i>Elevation: +127,15 m</i> <i>"Upper level of bed rock"</i>	127
3							<i>Impenetrable to the soil drilling equipment</i>	126	
4								125	
5								124	
6								123	
7								122	
8								121	
9								120	
10								119	
11								118	
12		%					117		
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found      Groundwater Elevation: Not found

Maximum depth: 1,85 m      Max. Depth Elevation: +127,15 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. Nº: <b>IG3312</b>	Date of Investigation: <b>08/10/2016</b>
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 569035 y: 6247197 z: 135

BOREHOLE #: 218

LOC. OF POINT: 18800 m

ROUTE 5 KM: 118.260

(track km: 129+000)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,40 m</i>
1							Dark clay <i>Depth 1,10 m</i>
		45					Clay with Gravel
2							
		>80					Completely weathered rock as soil
3							<i>End of the drilling</i>
							<i>Impenetrable to the soil drilling equipment</i>
4							
5							
6							
7							
8							
9							
10							
11							
12							
		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	134
	133
<i>Depth: 2,40 m</i>	
<i>Elevation: +132,60 m</i>	
<i>"Upper level of bed rock"</i>	132
	131
	130
	129
	128
	127
	126
	125
	124
	123
0 50 100	RQD.

Groundwater Level: Not Found	Groundwater Elevation: Not found
Maximum depth: 2,40 m	Max. Depth Elevation: +132,60 m
Client: MTOP	Equipment: ROLATEC ML 76A
IGF Ref. Nº: IG3312	Date of Investigation: 08/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 568857 y: 6248057 z: 137

BOREHOLE #: 219

LOC. OF POINT: 19700 m

ROUTE 5 KM: 119.150

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,10 m</i>	136	
2		34				Clay (brown)	135		
3		43				Clay (brown)	134		
4		>80				Clay (brown) Stone <i>End of the drilling</i> <i>Impenetrable to the soil drilling equipment</i>	<i>Depth: 3,50 m</i> <i>Elevation: +133,50 m</i> <i>"Upper level of bed rock"</i>	133	
5								132	
6								131	
7								130	
8								129	
9								128	
10								127	
11								126	
12		%						125	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 3,50 m

Max. Depth Elevation: +133,50 m

Client:

MTOP

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 568697 y: 6248809 z: 141

BOREHOLE #: 220

LOC. OF POINT: 20500 m

ROUTE 5 KM: 119.920

(track km: 135+900)

DEPTH (m)	DRILLING WITH MECHANICAL EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
							Organic <i>Depth 0,10 m</i>
1		>80					Completely weathered rock as soil
2							Stone  <i>End of the drilling</i>
3							<i>Impenetrable to the soil drilling equipment</i>
4							
5							
6							
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
"Upper level of bed rock"	
	140
<i>Depth: 1,30 m</i>	
<i>Elevation: +139,70 m</i>	
"Upper level of bed rock"	139
	138
	137
	136
	135
	134
	133
	132
	131
	130
	129
0 50 100	RQD.

Groundwater Level: Not Found	Groundwater Elevation: Not found
Maximum depth: 1,30 m	Max. Depth Elevation: +139,70 m
Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A
IGF Ref. Nº: IG3312	Date of Investigation: 08/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 568508 y: 6249711 z: 140

BOREHOLE #: 221

LOC. OF POINT: 21400 m

ROUTE 5 KM: 120.840

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,10 m</i>
		12					Clay (brown)
2							Clay with sand <i>Depth 2,10 m</i>
		50					Completely weathered rock as soil
3			>80				Stone
4							<i>End of the drilling</i>
5							<i>Impenetrable to the soil drilling equipment</i>
6							
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	139
	138
"Upper level of bed rock"	
<i>Depth: 2,90 m</i>	137
<i>Elevation: +137,10 m</i>	
	136
	135
	134
	133
	132
	131
	130
	129
	128
0 50 100	RQD.

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 2,90 m Max. Depth Elevation: +137,10 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 09/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 568218 y: 6250516 z: 138

BOREHOLE #: 222

LOC. OF POINT: 22300 m

ROUTE 5 KM: 121.690

DEPTH (m)	DRILLING WITH MECHANICAL EQUIPMENT	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	63					Organic Dark clay <i>Depth 1,10 m</i>	"Upper level of bed rock"	137
2							Completely weathered rock as soil <i>Depth: 2,10 m</i>		136
3		>80					Stone <i>End of the drilling</i>	Elevation: +135,90 m	135
4						<i>Impenetrable to the soil drilling equipment</i>	134		
5							133		
6							132		
7							131		
8							130		
9							129		
10							128		
11							127		
12			%						126
		REC.	100	50	0				RQD.

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 2,10 m

Max. Depth Elevation: +135,90 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 567844 y: 6251363 z: 153

BOREHOLE #: 223

LOC. OF POINT: 23200 m

ROUTE 5 KM: 122.620

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 0,80 m</i>	152	
		36					Calcareous clay		
2							Calcareous clay	151	
		46							
3								Depth: 3,05 m	150
		75					Stone	Elevation: +149,95 m	
4							End of the drilling	"Upper level of bed rock"	149
							Impenetrable to the soil drilling equipment		
5									148
6									147
7									146
8									145
9								144	
10								143	
11								142	
12								141	
		%							
		REC.	100	50	0				
								RQD.	

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 3,05 m Max. Depth Elevation: +149,95 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 09/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 567467 y: 6252222 z: 149

BOREHOLE #: 224

LOC. OF POINT: 24100 m

ROUTE 5 KM: 123.450

(track km: 139+850)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 0,80 m</i>
		34					Clay with lime nodules
2			21				Clay with lime nodules
							<i>Depth 3,10 m</i>
3			36				Sand with clay and gravel
4			>80				Stone
5							<i>End of the drilling</i>
6							<i>Impenetrable to the soil drilling equipment</i>
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	148
	147
<i>Depth 3,10 m</i>	146
<i>Depth: 4,05 m</i>	145
<i>Elevation: +144,95 m</i> <i>"Upper level of bed rock"</i>	144
	143
	142
	141
	140
	139
	138
	137
0 50 100	RQD.

Groundwater Level: 3,10 m

Groundwater Elevation: +145,90 m

Maximum depth: 4,05 m

Max. Depth Elevation: +144,95 m

Client:

MTOP

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

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Date of Investigation:

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 566970 y: 6252951 z: 154

BOREHOLE #: 225

LOC. OF POINT: 25000 m

ROUTE 5 KM: 124.440

(track km: 140+750)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
		>80					Organic Stone
1							End of the drilling
							Impenetrable to the soil drilling equipment
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
Depth: 0,20 m	
Elevation: +153,80 m	
"Upper level of bed rock"	153
	152
	151
	150
	149
	148
	147
	146
	145
	144
	143
	142
0 50 100	RQD.

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 0,20 m

Max. Depth Elevation: +153,80 m

Client: MTOP

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 09/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 566359 y: 6253763 z: 155

BOREHOLE #: 226

LOC. OF POINT: 26000 m

ROUTE 5 KM: 125.450

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic  Depth 0,90 m		154
							Clay		
2		70					Stone  End of the drilling	Depth: 1,55 m Elevation: +153,45 m "Upper level of bed rock"	153
3							Impenetrable to the soil drilling equipment		152
4									151
5									150
6									149
7									148
8									147
9									146
10									145
11									144
12		%						143	
		REC.	100	50	0				RQD.

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 1,55 m      Max. Depth Elevation: +153,45 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. N°: <b>IG3312</b>	Date of Investigation: <b>09/10/2016</b>
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 565711 y: 6254535 z: 150

BOREHOLE #: 227

LOC. OF POINT: 27000 m

ROUTE 5 KM: 126.450

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic  Depth 0,70 m		
							Completely weathered rock as soil	149	
2		>80					Stone	Depth: 1,55 m Elevation: +148,45 m "Upper level of bed rock"	148
3							End of the drilling  Impenetrable to the soil drilling equipment	147	
4								146	
5								145	
6								144	
7								143	
8								142	
9								141	
10								140	
11								139	
12		%					138		
		REC.	100	50	0			RQD.	

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 1,55 m      Max. Depth Elevation: +148,45 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. N°: <b>IG3312</b>	Date of Investigation: <b>09/10/2016</b>
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 565136 y: 6255219 z: 157

BOREHOLE #: 228

LOC. OF POINT: 27900 m

ROUTE 5 KM: 127.350

(track km: 143+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	
			Nº of blows / 30 cm					
			5	15	25	35		
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic	
								<i>Depth 1,10 m</i>
			23					Clay with wethered rock (gray)
2								
								Stone
3			>80					<i>End of the drilling</i>
								<i>Impenetrable to the soil drilling equipment</i>
4								
5								
6								
7								
8								
9								
10								
11								
12		%						
		REC.	100	50	0			

OBSERVATIONS	ELEV. (m)
	156
	155
<i>Depth: 2,20 m</i>	
<i>Elevation: +154,80 m</i>	
<i>"Upper level of bed rock"</i>	154
	153
	152
	151
	150
	149
	148
	147
	146
	145
0	RQD.

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 2,20 m      Max. Depth Elevation: +154,80 m

Client: **MTOP**      Equipment: ROLATEC ML 76A      IGF Ref. Nº: IG3312      Date of Investigation: 09/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 564852 y: 6256268 z: 157

BOREHOLE #: 229

LOC. OF POINT: 29000 m

ROUTE 5 KM: 128.460

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	12					Organic Dark clay <i>Depth 1,10 m</i>	Depth: 2,35 m Elevation: +154,65 m "Upper level of bed rock"	156
2							Clay with gravel (brown)		155
3		>80	Completely weathered rock as soil	154					
4			End of the drilling <i>Impenetrable to the soil drilling equipment</i>	153					
5				152					
6				151					
7				150					
8				149					
9				148					
10				147					
11				146					
12			%		145				
		REC.	100	50	0			RQD.	

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 2,35 m      Max. Depth Elevation: +154,65 m

Client: **MTOP**      Equipment: ROLATEC ML 76A      IGF Ref. N°: IG3312      Date of Investigation: 09/10/2016



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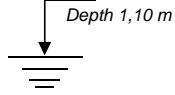
TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 564679 y: 6257247 z: 139

BOREHOLE #: 230

LOC. OF POINT: 30000 m

ROUTE 5 KM: 129.440

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,10 m</i>		138
2		9					Clay with weathered rock (brown) <i>Depth 2,10 m</i>		137
3		>80					Completely weathered rock as soil <i>Depth: 2,95 m</i>		136
4							"Upper level of bed rock"		
							<i>Elevation: +136,05 m</i>		
5						Stone  <i>End of the drilling</i>		135	
						<i>Impenetrable to the soil drilling equipment</i>			
6								134	
7								133	
8								132	
9								131	
10								130	
11								129	
12								128	
		%						127	
		REC.	100	50	0			RQD.	

Groundwater Level: 1,10 m

Groundwater Elevation: +137,90 m

Maximum depth: 2,95 m

Max. Depth Elevation: +136,05 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 10/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 564518 y: 6258255 z: 146

BOREHOLE #: 231

LOC. OF POINT: 31000 m

ROUTE 5 KM: 130.460

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		17					Dark clay <i>Depth 1,30 m</i>	145	
2		36					Clay with weathered rock <i>Depth 2,05 m</i>	144	
3		>80				Stone	"Upper level of bed rock" <i>Depth: 2,55 m</i> <i>Elevation: +143,45 m</i>	143	
4						<i>End of the drilling</i>  <i>Impenetrable to the soil drilling equipment</i>		142	
5								141	
6								140	
7								139	
8								138	
9								137	
10								136	
11								135	
12		%						134	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 2,55 m Max. Depth Elevation: +143,45 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 10/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 564347 y: 6259242 z: 144

BOREHOLE #: 232

LOC. OF POINT: 32000 m

ROUTE 5 KM: 131.470

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	8					Organic Dark clay <i>Depth 1,10 m</i>		143
2		25					Silt with clay		142
3		24					Silt with clay		141
4		56					Silt (brown)		140
5		28					Silt with gravel		139
6			End of the drilling					138	
7								137	
8								136	
9								135	
10								134	
11								133	
12		%						132	
		REC.	100	50	0			RQD.	

Groundwater Level: 1,90 m

Groundwater Elevation: +142,10 m

Maximum depth: 5,15 m

Max. Depth Elevation: +138,85 m

Client:

**MTOP**

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

Date of Investigation:

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 564177 y: 6260251 z: 145

BOREHOLE #: 233

LOC. OF POINT: 33000 m

ROUTE 5 KM: 132.490

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		144
		15					Dark clay		
2							Dark clay	Depth 3,10 m	143
		33							
3							Dark clay		142
		63					Dark clay	Depth 3,25 m	
4									141
		>80					Clay (brown)		
5							End of the drilling	Depth: 4,40 m	140
							Impenetrable to the soil drilling equipment	Elevation: +140,60 m	
6									139
7									138
8								137	
9								136	
10								135	
11								134	
12								133	
		REC.	100	50	0			RQD.	

Groundwater Level: 3,10 m

Groundwater Elevation: +141,90 m

Maximum depth: 4,40 m

Max. Depth Elevation: +140,60 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 10/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 564033 y: 6261339 z: 154

BOREHOLE #: 234

LOC. OF POINT: 34100 m

ROUTE 5 KM: 133.590

(track km: 151+550)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,00 m</i>	153	
		23					Clay with calcareous nodules		
2							Clay with calcareous nodules	152	
		21							
3							Clay with calcareous nodules	151	
		19							
4						Clay (brown)	150		
		20							
5						Clay (brown)	149		
		19							
6						<i>End of the drilling</i>	<i>Depth: 5,55 m</i> <i>Elevation: +148,45 m</i>	148	
7								147	
8								146	
9								145	
10								144	
11								143	
12								142	
		%							
		REC.	100	50	0				
								RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 5,55 m

Max. Depth Elevation: +148,45 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 10/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

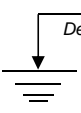
COORDINATES: UTM 21H x: 563913 y: 6262027 z: 156

BOREHOLE #: 235

LOC. OF POINT: 34800 m

ROUTE 5 KM: 134.290

(track km: 152+250)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,20 m</i>		
1								155	
		13					Clay with calcareous nodules (brown)		
2								154	
		12					Clay with calcareous nodules (brown)		
3							153		
		10				Clay (brown)	 <i>Depth 3,10 m</i>	153	
4								152	
		31				Clay (brown)			
5								151	
		54				Clay with silt	<i>Depth: 5,55 m</i>		
6							<i>Elevation: +150,45 m</i>	150	
						End of the drilling			
7								149	
8								148	
9								147	
10								146	
11								145	
12								144	
		%							
		REC.	100	50	0				
								RQD.	

Groundwater Level: 3,10 m

Groundwater Elevation: +152,90 m

Maximum depth: 5,55 m

Max. Depth Elevation: +150,45 m

Client: **MTOP**

Equipment: **ROLATEC ML 76A**

IGF Ref. Nº: **IG3312**

Date of Investigation: **10/10/2016**



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 563737 y: 6262637 z: 152

BOREHOLE #: 236

LOC. OF POINT: 35400 m

ROUTE 5 KM: 134.930

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,15 m</i>
		17					Clay with calcareous nodules (brown) <i>Depth 2,10 m</i>
2							Completely weathered rock as soil
		44					Completely weathered rock as soil
3			44				Stone
4							<i>End of the drilling</i> <i>Impenetrable to the soil drilling equipment</i>
5							
6							
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	151
	150
"Upper level of bed rock"	149
<i>Depth: 3,25 m</i> <i>Elevation: +148,75 m</i>	148
	147
	146
	145
	144
	143
	142
	141
	140
0 50 100	RQD.

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 3,25 m Max. Depth Elevation: +148,75 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 11/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 563523 y: 6263392 z: 156

BOREHOLE #: 237

LOC. OF POINT: 36200 m

ROUTE 5 KM: 135.720

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION
			5	15	25	35	
1	DRILLING WITH MECHANICAL EQUIPMENT					Organic	
2		12				Dark clay	
3		12				Clay with calcareous nodules (brown)	
4		29				Clay with gravel (brown)	
5		67				Stone	
6						End of the drilling	
7						Impenetrable to the soil drilling equipment	
8							
9							
10							
11							
12							
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	155
	154
	153
	152
Depth: 4,15 m	
Elevation: +147,85 m	
"Upper level of bed rock"	151
	150
	149
	148
	147
	146
	145
	144
0 50 100	RQD.

Groundwater Level: 2,30 m

Groundwater Elevation: +153,70 m

Maximum depth: 4,15 m

Max. Depth Elevation: +151,85 m

Client:

MTOP

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 563187 y: 6264559 z: 151

BOREHOLE #: 238

LOC. OF POINT: 37400 m

ROUTE 5 KM: 136.890

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		10					Dark clay	150	
2		40					Depth 2,10 m	149	
							Clay (brown)		
							Depth 2,50 m		
3		>80					Completely weathered rock as soil	"Upper level of bed rock"	
							End of the drilling	Depth: 2,85 m	
							Impenetrable to the soil drilling equipment	Elevation: +148,15 m	
4								147	
5								146	
6								145	
7								144	
8								143	
9								142	
10								141	
11								140	
12		%						139	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 2,85 m Max. Depth Elevation: +148,15 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. Nº: <b>IG3312</b>	Date of Investigation: <b>11/10/2016</b>
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 562964 y: 6265335 z: 151

BOREHOLE #: 239

LOC. OF POINT: 38200 m

ROUTE 5 KM: 137.700

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
			11				Dark clay	150	
2							Depth 1,50 m		
							Clay with calcareous nodules (brown)	149	
		20					Depth: 2,80 m		
3		>80					Stone	148	
							End of the drilling		
4							Impenetrable to the soil drilling equipment	147	
5								146	
6								145	
7								144	
8								143	
9								142	
10								141	
11								140	
12		%						139	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found Groundwater Elevation: Not found

Maximum depth: 2,80 m Max. Depth Elevation: +148,20 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 11/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 562861 y: 6266188 z: 160

BOREHOLE #: 240

LOC. OF POINT: 39000 m

ROUTE 5 KM: 138.550

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		28					Clay (brown)	159	
2							Clay with calcareous nodules (brown)	158	
		31							
3						Clay with calcareous nodules (brown)	157		
	24								
4						Clay with calcareous nodules	156		
	32								
5						Completely weathered rock as soil	155		
	53								
6							"Upper level of bed rock" Depth: 5,55 m Elevation: +154,45 m	154	
7						End of the drilling		153	
8								152	
9								151	
10								150	
11								149	
12								148	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 5,55 m      Max. Depth Elevation: +154,45 m

Client: **MTOP**      Equipment: ROLATEC ML 76A      IGF Ref. Nº: IG3312      Date of Investigation: 11/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 562894 y: 6267187 z: 151

BOREHOLE #: 241

LOC. OF POINT: 40000 m

ROUTE 5 KM: 139.555

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 0,90 m</i>	150	
2		23				Clay with calcareous nodules (brown)	149		
3		24				Clay with calcareous nodules (brown)	148		
4		23				Clay with calcareous nodules (brown)	147		
5		23				Clay with gravel (brown)	146		
		38				Clay with gravel <i>Depth: 5,35 m</i>			
6						<i>End of the drilling</i>	Elevation: +145,65 m 145		
7							144		
8							143		
9							142		
10							141		
11							140		
12		%					139		
		REC.	100	50	0		0 50 100	RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 5,35 m

Max. Depth Elevation: +145,65 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. N°: IG3312

Date of Investigation: 12/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 562933 y: 6268287 z: 151


BOREHOLE #: 242

LOC. OF POINT: 41100 m

ROUTE 5 KM: 140.660

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	
			Nº of blows / 30 cm					
			5	15	25	35		
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic	
			12					Dark clay <i>Depth 1,35 m</i>
2			11					Clay (brown)
3			17					Clay with gravel (brown)
4			59					Completely weathered rock as soil
5								End of the drilling
6								Impenetrable to the soil drilling equipment
7								
8								
9								
10								
11								
12		%						
		REC.	100	50	0			

OBSERVATIONS	ELEV. (m)
	150
	149
 <i>Depth 2,80 m</i>	148
	147
<i>Depth: 4,15 m</i>	
<i>Elevation: +146,85 m</i>	
<i>"Upper level of bed rock"</i>	146
	145
	144
	143
	142
	141
	140
	139
0 50 100	RQD.

Groundwater Level: 2,80 m

Groundwater Elevation: +148,20 m

Maximum depth: 4,15 m

Max. Depth Elevation: +146,85 m

Client:

MTOP

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 562514 y: 6269228 z: 140

BOREHOLE #: 243

LOC. OF POINT: 42100 m

ROUTE 5 KM: 141.740

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
							Dark clay	Depth 0,90 m	139
		22					Clay	Depth 1,20 m	
2			61				Completely weathered rock as soil		138
							Stone	Depth: 2,25 m	
3							End of the drilling	Elevation: +137,75 m	137
							Impenetrable to the soil drilling equipment	"Upper level of bed rock"	
4									136
5									135
6									134
7									133
8									132
9								131	
10								130	
11								129	
12		%						128	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 2,25 m Max. Depth Elevation: +137,75 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. N°: IG3312 Date of Investigation: 12/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 561532 y: 6270836 z: 140

BOREHOLE #: 245

LOC. OF POINT: 44000 m

ROUTE 5 KM: 143.620

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
			26					Depth 1,10 m	139
2							Clay (brown)		
			18						138
3						Clay with calcareous nodules (brown)			
		14						137	
4						Clay with calcareous nodules			
		25						136	
5		49				Completely weathered rock as soil	Depth: 4,95 m	135	
6						End of the drilling	Elevation: +135,05 m "Upper level of bed rock"		
						Impenetrable to the soil drilling equipment		134	
7								133	
8								132	
9								131	
10								130	
11								129	
12		%						128	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 4,95 m      Max. Depth Elevation: +135,05 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. Nº: <b>IG3312</b>	Date of Investigation: <b>12/10/2016</b>
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 561427 y: 6271821 z: 145

BOREHOLE #: 246

LOC. OF POINT: 45000 m

ROUTE 5 KM: 144.600

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	11					Organic		144
2		9					Dark clay		143
3		10					Clay with calcareous nodules (brown)		142
4		23					Clay with silt (brown)		141
5		55					Clay with silt (brown)		140
6			Clay with silt (brown)				Clay with silt (brown)	Depth: 5,55 m	139
7			End of the drilling					Elevation: +139,45 m	138
8								137	
9								136	
10								135	
11								134	
12		%						133	
		REC.	100	50	0			0	RQD.

Groundwater Level: 2,10 m

Groundwater Elevation: +142,90 m

Maximum depth: 5,55 m

Max. Depth Elevation: +139,45 m

Client:

**MTOP**

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

Date of Investigation:

12/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 561370 y: 6272874 z: 139

BOREHOLE #: 247

LOC. OF POINT: 46000 m

ROUTE 5 KM: 145.655

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic  Depth 0,90 m	138	
2		11				Clay (brown)	137		
3		27				Clay with calcareous nodules (brown)	136		
4		15				Clay with calcareous nodules (brown)  Depth 4,10 m	135		
5		36				Silt (brown)	134		
6		25				Silt (brown)  Depth: 5,60 m Elevation: +133,40 m	133		
7						End of the drilling	132		
8							131		
9							130		
10							129		
11							128		
12		%					127		
		REC.	100	50	0			RQD.	

Groundwater Level: 0,90 m

Groundwater Elevation: +138,10 m

Maximum depth: 5,60 m

Max. Depth Elevation: +133,40 m

Client:

**MTOP**

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

Date of Investigation:

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

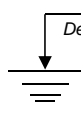
TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 561317 y: 6273851 z: 135

BOREHOLE #: 248

LOC. OF POINT: 47000 m

ROUTE 5 KM: 146.775

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 1,10 m</i>		134
		13					Clay with calcareous nodules		
2							Clay (brown) <i>Depth 3,10 m</i>		133
		15							
3							Silt	 <i>Depth 3,00 m</i>	132
		29							
4								<i>Depth: 3,95 m</i>	131
		>80					Silt	<i>Elevation: +131,05 m</i>	
5							End of the drilling		130
							Impenetrable to the soil drilling equipment		
6									129
7									128
8								127	
9								126	
10								125	
11								124	
12								123	
		REC.	100	50	0			RQD.	

Groundwater Level: 3,00 m

Groundwater Elevation: +132,00 m

Maximum depth: 3,95 m

Max. Depth Elevation: +131,05 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 13/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 561260 y: 6274877 z: 153

BOREHOLE #: 249

LOC. OF POINT: 48000 m

ROUTE 5 KM: 147.820

DEPTH (m)	DRILLING WITH MECHANICAL EQUIPMENT	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1		11				Organic Dark clay	Depth 0,90 m	152	
2		>80				Depth 1,80 m	Depth: 1,90 m	151	
3						Cemented silt End of the drilling	Elevation: +151,10 m	150	
4						Impenetrable to the soil drilling equipment		149	
5								148	
6								147	
7								146	
8								145	
9								144	
10								143	
11								142	
12		%						141	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 1,90 m

Max. Depth Elevation: +151,10 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 561108 y: 6277259 z: 151

BOREHOLE #: 251

LOC. OF POINT: 50300 m

ROUTE 5 KM:

(track km: 168+700)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		10					Dark clay	150	
2			14				Clay with calcareous nodules <i>Depth 2,10 m</i>	149	
3			29				Clay (brown) <i>Depth 3,55 m</i>	148	
4			>80				Silt	147	
							Cemented silt	<i>Depth: 4,30 m</i>	
5							<i>End of the drilling</i>	<i>Elevation: +146,70 m</i>	
6							<i>Impenetrable to the soil drilling equipment</i>	146	
7								145	
8								144	
9								143	
10								142	
11							141		
12							140		
		%					139		
		REC.	100	50	0		0	50	
							100	RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 4,30 m

Max. Depth Elevation: +146,70 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 560895 y: 6277967 z: 151

BOREHOLE #: 252

LOC. OF POINT: 51000 m

ROUTE 5 KM: 151.045

(track km: 168+700)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		24					Dark clay <i>Depth 1,30 m</i>	150	
2							Clay (brown) <i>Depth 2,10 m</i>	149	
		38					Silt with calcareous nodules		
3		>80					Cemented silt	148	
							<i>Depth: 3,40 m</i>		
4							<i>Elevation: +147,60 m</i>	147	
						<i>End of the drilling</i>			
5						<i>Impenetrable to the soil drilling equipment</i>		146	
6								145	
7								144	
8								143	
9								142	
10								141	
11								140	
12		%						139	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 3,40 m

Max. Depth Elevation: +147,60 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 13/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 560596 y: 6278946 z: 138

BOREHOLE #: 253

LOC. OF POINT: 52000 m

ROUTE 5 KM: 152.045

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
		11					Dark clay	137	
2							Depth 2,10 m	136	
		15					Clay (brown)		
3							Depth 3,10 m	135	
		67					Cemented sand		
		>80							
4							Cemented sand	Depth: 3,80 m Elevation: +134,20 m	134
5							End of the drilling		133
							Impenetrable to the soil drilling equipment		
6									132
7									131
8									130
9									129
10									128
11									127
12		%							126
		REC.	100	50	0				RQD.

Groundwater Level: Not Found Groundwater Elevation: Not found

Maximum depth: 3,80 m Max. Depth Elevation: +134,20 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 14/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 560302 y: 6279924 z: 137

BOREHOLE #: 254

LOC. OF POINT: 53000 m

ROUTE 5 KM: 153.035

(track km: 136+900)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 1,10 m</i>	136	
2		12				Clay (brown)	135		
3		15				Clay (brown)	134		
4		21				Clay (gray)	133		
5		24				Clay (gray)	132		
6		23				Clay with silt (gray)	131		
7						<i>End of the drilling</i>	130		
8							129		
9							128		
10							127		
11							126		
12		%					125		
		REC.	100	50	0		0 50 100	RQD.	

Groundwater Level: 4,50 m

Groundwater Elevation: +132,50 m

Maximum depth: 5,55 m

Max. Depth Elevation: +131,45 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 14/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 560073 y: 6280715 z: 126

BOREHOLE #: 255

LOC. OF POINT: 53800 m

ROUTE 5 KM: 153.830

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT					Organic	<p>Depth 1,10 m</p> <p>Depth 2,50 m</p> <p>Depth: 4,00 m</p>	125	
2		4			Clay (gray)	124			
3		9			Clay with sand (gray)	123			
4		22			Clay with sand (gray)	122			
		>80			Cemented sand	Elevation: +122,00 m	122		
5					End of the drilling		121		
6					Impenetrable to the soil drilling equipment		120		
7							119		
8							118		
9							117		
10							116		
11							115		
12							114		
		REC.	100	50	0			RQD.	

Groundwater Level: 2,50 m

Groundwater Elevation: +123,50 m

Maximum depth: 4,00 m

Max. Depth Elevation: +122,00 m

Client: **MTOP**

Equipment: **ROLATEC ML 76A**

IGF Ref. Nº: **IG3312**

Date of Investigation: **14/10/2016**



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 559708 y: 6281780 z: 144

BOREHOLE #: 256

LOC. OF POINT: 54900 m

ROUTE 5 KM: 154.980

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	13					Organic Dark clay <i>Depth 1,10 m</i>	143	
2		18					Clay with calcareous nodules (brown)	142	
3		18					Clay with calcareous nodules (brown)	141	
4		24					Clay con dark nodules (brown)	140	
5		37					Clay with silt (brown) <i>Depth 5,10 m</i>	139	
6							Silt with calcareous nodules <i>Depth: 5,55 m</i>	138	
7							<i>End of the drilling</i>	137	
8								136	
9								135	
10								134	
11								133	
12		%						132	
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 5,55 m

Max. Depth Elevation: +138,45 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 17/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 559322 y: 6283071 z: 138

BOREHOLE #: 257

LOC. OF POINT: 56200 m

ROUTE 5 KM: 156.345

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
1							Dark clay	137	
		12					Depth 1,40 m		
2							Clay (brown)	136	
		13							
3						Clay (brown)	135		
	14								
4						Clay with calcareous nodules (brown)	134		
	18								
5						Clay with calcareous nodules (gray)	133		
	24								
6						End of the drilling	Depth: 5,55 m Elevation: +132,45 m	132	
7								131	
8								130	
9								129	
10								128	
11								127	
12								126	
		%							
		REC.	100	50	0				
								RQD.	

Groundwater Level: Not Found

Groundwater Elevation: Not found

Maximum depth: 5,55 m

Max. Depth Elevation: +132,45 m

Client: **MTOP**

Equipment: **ROLATEC ML 76A**

IGF Ref. Nº: **IG3312**

Date of Investigation: **17/10/2016**



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 558976 y: 6284241 z: 133

BOREHOLE #: 258

LOC. OF POINT: 57400 m

ROUTE 5 KM: 157.725

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		132
			23				Dark clay		
2								Depth 1,90 m	131
			17				Clay (brown)		
3							Clay (brown)		130
			11						
4								Depth 4,10 m	129
			57				Cemented sand		
5							Cemented sand	Depth: 5,25 m	128
			>80					Elevation: +127,75 m	
6							End of the drilling		127
7									126
8								125	
9								124	
10								123	
11								122	
12		%						121	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 5,25 m

Max. Depth Elevation: +127,75 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 18/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 558733 y: 6285015 z: 141

BOREHOLE #: 259

LOC. OF POINT: 58200 m

ROUTE 5 KM: 158.540

(track km: 178+300)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
								Depth 1,10 m	140
		12					Clay with calcareous nodules (brown)		
2							Clay (brown)		139
		16							
3						Clay (brown)		138	
		35							
4						Clay (brown)		137	
		17							
5						Clay (gray)		136	
		17					Depth: 5,55 m		
6							Elevation: +135,45 m	135	
						End of the drilling			
7								134	
8								133	
9								132	
10								131	
11								130	
12		%						129	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 5,55 m

Max. Depth Elevation: +135,45 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 558272 y: 6285799 z: 135

BOREHOLE #: 260

LOC. OF POINT: 59100 m

ROUTE 5 KM: 159.245

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
								Depth 1,10 m	134
		15					Clay with gravel (brown)		
2									133
		26					Clay with weathered rock (brown)		
3									132
		>80					Completely weathered rock as soil	Depth: 3,25 m	
4							End of the drilling	Elevation: +127,75 m	
							Impenetrable to the soil drilling equipment	"Upper level of bed rock"	131
5									130
6									129
7									128
8									127
9									126
10									125
11									124
12		%							123
		REC.	100	50	0				RQD.

Groundwater Level: Not found Groundwater Elevation: Not found

Maximum depth: 3,25 m Max. Depth Elevation: +131,75 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 18/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 557773 y: 6286581 z: 130

BOREHOLE #: 261

LOC. OF POINT: 60000 m

ROUTE 5 KM: 160.165

DEPTH (m)	DRILLING WITH MECHANICAL EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
							Organic		
							Depth 0,80 m		
1							Completely weathered rock	Depth: 0,90 m	
		>80					as soil	Elevation: +129,10 m "Upper level of bed rock"	
2							End of the drilling	128	
							Impenetrable to the soil drilling equipment		
3								127	
4								126	
5								125	
6								124	
7								123	
8								122	
9								121	
10								120	
11								119	
12								118	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 0,90 m      Max. Depth Elevation: +129,10 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 18/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 557223 y: 6287442 z: 136

BOREHOLE #: 262

LOC. OF POINT: 61000 m

ROUTE 5 KM: 161.190

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
			8						
2			>80				Dark clay <i>Depth 1,80 m</i>	"Upper level of bed rock" <i>Depth: 1,95 m</i>	135
							Completely weathered rock as soil	<i>Elevation: +134,05 m</i>	134
3							End of the drilling		133
							Impenetrable to the soil drilling equipment		132
4									131
5									130
6									129
7									128
8									127
9									126
10								125	
11								124	
12		%						RQD.	
		REC.	100	50	0				

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 1,95 m

Max. Depth Elevation: +134,05 m

Client: MTOP

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 18/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 556666 y: 6288312 z: 139

BOREHOLE #: 263

LOC. OF POINT: 62000 m

ROUTE 5 KM: 162.260

(track km: 182+300)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,10 m</i>		138
		10					Clay (brown)		
2							Clay with silt (brown)		137
		16							
3							Clay with silt (brown)		136
		17							
4							Clay with silt (brown)		135
		35					Clay with gravel		
5			51				Clay with sand and gravel <i>Depth: 5,00 m</i>	<i>Elevation: +134,25 m</i>	134
							<i>End of the drilling</i>		
6									133
7									132
8								131	
9								130	
10								129	
11								128	
12		%						127	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 5,00 m

Max. Depth Elevation: +134,00 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 22/10/2016



Expert: **Eng. Juan Diego Artucio**

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 556012 y: 6289332 z: 142

BOREHOLE #: 264

LOC. OF POINT: 63200 m

ROUTE 5 KM: 163.430

(track km: 183+500)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
							Dark clay	141	
			22				Depth 1,30 m		
2								140	
			17				Clay with silt (brown)		
							Depth 3,10 m	139	
3							Silt with sand		
			29				Depth 4,10 m	138	
4							Completely weathered rock as soil		
			>80				"Upper level of bed rock"		
			>80				Depth: 4,80 m		
5							Stone	Elevation: +127,75 m	137
						End of the drilling			
6						Impenetrable to the soil drilling equipment		136	
7								135	
8								134	
9								133	
10								132	
11								131	
12								130	
		%							
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 4,80 m

Max. Depth Elevation: +137,20 m

Client: MTOP

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 18/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 555168 y: 6290662 z: 119

BOREHOLE #: 266

LOC. OF POINT: 64700 m

ROUTE 5 KM: 165.000

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
			10					Depth 1,10 m	118
2							Clay with sand (gray)		
									117
								Depth: 2,25 m	
3			>80				Stone	Elevation: +116,75 m	
							End of the drilling	"Upper level of bed rock"	116
4							Impenetrable to the soil drilling equipment		115
									114
5									113
6									112
7								111	
8								110	
9								109	
10								108	
11								107	
12		%							
		REC.	100	50	0				
								RQD.	

Groundwater Level: Not found Groundwater Elevation: Not found

Maximum depth: 2,25 m Max. Depth Elevation: +116,75 m

Client: **MTOP** Equipment: ROLATEC ML 76A IGF Ref. Nº: IG3312 Date of Investigation: 21/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 555573 y: 6290030 z: 121

BOREHOLE #: 265

LOC. OF POINT: 64000 m

ROUTE 5 KM: 164.260

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Clay (brown) <i>Depth 1,10 m</i>	120	
		13					Dark clay		
2							Clay with weathered rock	119	
		18							
3							Clay with weathered rock	118	
		48							
4							<i>Depth 4,10 m</i>	117	
		>80					Completely weathered rock as soil	"Upper level of bed rock" <i>Depth: 4,50 m</i>	
5							End of the drilling	Elevation: +116,50 m	116
6							Impenetrable to the soil drilling equipment		115
7									114
8									113
9								112	
10								111	
11								110	
12								109	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 4,50 m

Max. Depth Elevation: +116,50 m

Client: MTOP

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 18/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 554670 y: 6291439 z: 119

BOREHOLE #: 267

LOC. OF POINT: 65600 m

ROUTE 5 KM: 165.840

DEPTH (m)	DRILLING WITH MECHANICAL EQUIPMENT	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
							Organic		
							Depth 0,80 m		
1		31					Completely weathered rock as soil	"Upper level of bed rock" 118	
2								Depth: 1,95 m 117	
		>80					Stone	Elevation: +117,05 m	
3							End of the drilling	116	
							Impenetrable to the soil drilling equipment		
4								115	
5								114	
6								113	
7								112	
8								111	
9								110	
10								109	
11								108	
12		%						107	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 1,95 m

Max. Depth Elevation: +117,05 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 21/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

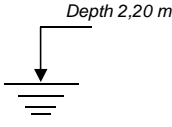
TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 554281 y: 6292035 z: 117

BOREHOLE #: 268

LOC. OF POINT: 66300 m

ROUTE 5 KM: 166.560

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic  Dark clay with sand  Silt with sand (Gray)  Depth 2,10 m	 Depth 2,20 m  Depth: 3,10 m	116
2		8				115			
3		4				114			
4		>80				Stone  End of the drilling  Impenetrable to the soil drilling equipment	Elevation: +113,90 m "Upper level of bed rock"	113	
5								112	
6								111	
7								110	
8								109	
9								108	
10								107	
11								106	
12		%						105	
		REC.	100	50	0			RQD.	

Groundwater Level: 2,20 m

Groundwater Elevation: +114,80 m

Maximum depth: 3,10 m

Max. Depth Elevation: +113,90 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 21/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 554001 y: 6292491 z: 122

BOREHOLE #: 269

LOC. OF POINT: 66800 m

ROUTE 5 KM: 167.085

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		121
2		11					Dark clay	<p>Depth 2,50 m</p>	120
3		12					Clay with gravel		119
4		>80					Depth 3,10 m		118
5							Completely weathered rock as soil	"Upper level of bed rock" Depth: 3,60 m Elevation: +118,40 m	117
6							End of the drilling		116
7							Impenetrable to the soil drilling equipment		115
8									114
9									113
10									112
11									111
12		%							110
		REC.	100	50	0				RQD.

Groundwater Level: 2,50 m

Groundwater Elevation: +119,50 m

Maximum depth: 3,60 m

Max. Depth Elevation: +118,40 m

Client:

**MTOP**

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 553467 y: 6293196 z: 131

BOREHOLE #: 270

LOC. OF POINT: 67700 m

ROUTE 5 KM: 168.000

(track km: 188+600)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)	
			5	15	25	35				
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic			
								Depth 1,10 m	130	
2		11					Clay with sand		129	
								Clay with calcareous nodules		
3		15							128	
								Clay with gravel		
4		18							127	
								Clay with gravel		
5		>80						Compleately weathered rock as soil	Depth: 4,55 m Elevation: +126,45 m "Upper level of bed rock"	126
6								End of the drilling		
7								Impenetrable to the soil drilling equipment		
8									125	
9								124		
10								123		
11								122		
12								121		
								120		
								119		
		REC.	100	50	0			RQD.	0 50 100	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 4,55 m

Max. Depth Elevation: +126,45 m

Client:

MTOP

Equipment:

ROLATEC ML 76A

IGF Ref. N°:

IG3312

Date of Investigation:

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 552700 y: 6294051 z: 126

BOREHOLE #: 271

LOC. OF POINT: 68800 m

ROUTE 5 KM: 169.140

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		125
		13					Dark clay		
2							Depth 1,80 m		124
		10					Clay (brown)		
3							Depth 3,10 m		123
	23					Fine sand			
4							Fine sand		122
	51					Depth 3,80 m			
5							Clay (brown)		121
	56					Depth: 5,55 m			
6							End of the drilling	Elevation: +120,45 m	120
7									119
8									118
9									117
10									116
11									115
12									114
		%							
		REC.	100	50	0				RQD.

Groundwater Level: 1,90 m

Groundwater Elevation: +124,10 m

Maximum depth: 5,55 m

Max. Depth Elevation: +120,45 m

Client: **MTOP**

Equipment: **ROLATEC ML 76A**

IGF Ref. Nº: **IG3312**

Date of Investigation: **21/10/2016**



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 552086 y: 6294750 z: 119

BOREHOLE #: 272

LOC. OF POINT: 69700 m

ROUTE 5 KM: 170.065

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 1,10 m</i>	118	
2		10					Dark clay with sand	117	
3		15					Clay with sand (brown) <i>Depth 3,10 m</i>	116	
4		57					Sand	115	
5		>80					Cemented sand	114	
6							<i>End of the drilling</i> <i>Impenetrable to the soil drilling equipment</i>	113	
7								112	
8								111	
9								110	
10								109	
11								108	
12								107	
		REC.	100	50	0			RQD.	

Groundwater Level: 2,70 m

Groundwater Elevation: +116,30 m

Maximum depth: 4,60 m

Max. Depth Elevation: +114,40 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 21/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 551610 y: 6295284 z: 118

BOREHOLE #: 273

LOC. OF POINT: 70400 m

ROUTE 5 KM: 170.800

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)		
			5	15	25	35					
1	DRILLING WITH MECHANICAL EQUIPMENT	>80					Organic Dark clay with sand <i>Depth 1,10 m</i>	<p>Depth 0,50 m</p> <p>Depth: 1,25 m</p> <p>Elevation: +116,75 m</p> <p>"Upper level of bed rock"</p>	117		
2			Clay with gravel Stone  End of the drilling	116							
3			Impenetrable to the soil drilling equipment	115							
4				114							
5				113							
6				112							
7				111							
8				110							
9				109							
10				108							
11				107							
12					106						
		REC.	100	50	0			0	50	100	RQD.

Groundwater Level: 0,50 m

Groundwater Elevation: +117,50 m

Maximum depth: 1,25 m

Max. Depth Elevation: +116,75 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. N°: IG3312

Date of Investigation: 20/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 550826 y: 6296220 z: 129

BOREHOLE #: 274

LOC. OF POINT: 71600 m

ROUTE 5 KM: 172.000

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic  <i>Depth 1,10 m</i>	128	
		21					Clay with weathered rock (brown)		
2							Clay with weathered rock  <i>Depth 2,80 m</i>	127	
		43							
3							Completely weathered rock as soil	"Upper level of bed rock" <i>Depth: 3,20 m</i> <i>Elevation: +125,30 m</i>	126
		>80					<i>End of the drilling</i>		
4							<i>Impenetrable to the soil drilling equipment</i>	125	
5								124	
6								123	
7								122	
8								121	
9								120	
10							119		
11							118		
12							117		
		%							
		REC.	100	50	0				
								RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 3,20 m

Max. Depth Elevation: +125,80 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 20/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 549434 y: 6298021 z: 116

BOREHOLE #: 276

LOC. OF POINT: 73800 m

ROUTE 5 KM: 174.275

DEPTH (m)	DRILLING WITH MECHANICAL EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35	Organic <i>Depth 0,20 m</i>		
1							Clay with gravel <i>Depth 1,10 m</i>		115
		>80					Completely weathered rock as soil	<i>Depth: 1,25 m</i>	
2							End of the drilling	<i>Elevation: +114,75 m</i> <i>"Upper level of bed rock"</i>	114
3							Impenetrable to the soil drilling equipment		113
4									112
5									111
6									110
7									109
8									108
9									107
10									106
11									105
12		%							104
		REC.	100	50	0				RQD.

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 1,25 m      Max. Depth Elevation: +114,75 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 20/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 548691 y: 6298988 z: 127

BOREHOLE #: 277

LOC. OF POINT: 75000 m

ROUTE 5 KM: 175.500

(track km: 196+600)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
								Depth 1,10 m	126
2		14					Clay with gravel (brown)		
									125
3		12					Clay with gravel (brown)		
									124
4		15					Clay with weathered rock		
									123
5		>60					Completely weathered rock as soil	"Upper level of bed rock"	
									122
6		>80					Completely weathered rock as soil	Depth: 5,50 m	
								Elevation: +121,50 m	121
7						End of the drilling		120	
8								119	
9								118	
10								117	
11								116	
12								115	
		REC.	100	50	0			0	
								50	
								100	
								RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 5,50 m

Max. Depth Elevation: +121,50 m

Client: MTOP

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 20/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 548028 y: 6299732 z: 124

BOREHOLE #: 278

LOC. OF POINT: 76000 m

ROUTE 5 KM: 176.500

(track km: 197+600)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic		
								Depth 1,10 m	123
		12					Clay with calcareous nodules (brown)		
2			11				Clay with sand		122
3			25				Clay with weathered rock as soil		121
4			>80				Completely weathered rock as soil	"Upper level of bed rock"	120
								Depth: 4,25 m	
								Elevation: +119,75 m	
5							End of the drilling		119
							Impenetrable to the soil drilling equipment		
6								118	
7								117	
8								116	
9								115	
10								114	
11								113	
12		%						112	
		REC.	100	50	0			RQD.	

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 4,25 m      Max. Depth Elevation: +119,75 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 20/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 547336 y: 6300409 z: 123

BOREHOLE #: 279

LOC. OF POINT: 77000 m

ROUTE 5 KM: 177.470

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35	Completely weathered rock as soil	"Upper level of bed rock" Depth: 0,50 m	
		>80					Stone	Elevation: +122,50 m	122
1							End of the drilling		
							Impenetrable to the soil drilling equipment		
2									121
3									120
4									119
5									118
6									117
7									116
8									115
9									114
10									113
11									112
12		%							111
		REC.	100	50	0				RQD.

Groundwater Level: Not found      Groundwater Elevation: Not found

Maximum depth: 0,50 m      Max. Depth Elevation: +122,50 m

Client: <b>MTOP</b>	Equipment: <b>ROLATEC ML 76A</b>	IGF Ref. Nº: <b>IG3312</b>	Date of Investigation: <b>20/10/2016</b>
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Expert: **Eng. Juan Diego Artucio**

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 546712 y: 6301164 z: 118

BOREHOLE #: 280

LOC. OF POINT: 78000 m

ROUTE 5 KM: 178.455

(track km: 199+850)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,25 m</i>		
1							Clay with sand (brown)	117	
		13							
2							Sand <i>Depth 2,10 m</i>	116	
		35							
3								<i>Depth: 3,05 m</i>	115
			>80				Stone	Elevation: +114,95 m "Upper level of bed rock"	
4							End of the drilling		114
							Impenetrable to the soil drilling equipment		
5									113
6									112
7							111		
8							110		
9							109		
10							108		
11							107		
12							106		
		REC.	100	50	0			RQD.	

Groundwater Level: Not found

Groundwater Elevation: Not found

Maximum depth: 3,05 m

Max. Depth Elevation: +114,95 m

Client: **MTOP**

Equipment: ROLATEC ML 76A

IGF Ref. Nº: IG3312

Date of Investigation: 20/10/2016



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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 546129 y: 6301956 z: 115

BOREHOLE #: 281

LOC. OF POINT: 79000 m

ROUTE 5 KM: 179.440

(track km: 200+800)

DEPTH (m)	DRILLING WITH MECHANICAL EQUIP.	N	S.P.T. TEST Nº of blows / 30 cm				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT						Organic Dark clay <i>Depth 1,00 m</i>	114	
		16				Completely weathered rock as soil with gravel	"Upper level of bed rock"		
2		>80				Completely weathered rock as soil	<i>Depth: 2,00 m</i> <i>Elevation: +113,00 m</i>	113	
3						<i>End of the drilling</i>		112	
4						<i>Impenetrable to the soil drilling equipment</i>		111	
5								110	
6								109	
7								108	
8								107	
9								106	
10								105	
11								104	
12		%					103		
		REC.	100	50	0			RQD.	

Groundwater Level: Not Found      Groundwater Elevation: Not found

Maximum depth: 2,00 m      Max. Depth Elevation: +113,00 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 19/10/2016
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 545528 y: 6302729 z: 121

BOREHOLE #: 282

LOC. OF POINT: 80000 m

ROUTE 5 KM:

(track km: 201+850)

DEPTH (m)	DRILLING WITH MECHANICAL EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
							Organic <i>Depth 0,40 m</i>
							Clay (brown)
1		>80					Completely weathered rock as soil
							<i>End of the drilling</i>
2							<i>Impenetrable to the soil drilling equipment</i>
3							
4							
5							
6							
7							
8							
9							
10							
11							
12		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
"Upper level of bed rock"	
<i>Depth: 0,85 m</i>	120
<i>Elevation: +120,15 m</i>	
	119
	118
	117
	116
	115
	114
	113
	112
	111
	110
	109
0 50 100	RQD.

Groundwater Level: Not Found      Groundwater Elevation: Not found  
 Maximum depth: 0,85 m      Max. Depth Elevation: +120,15 m

Client: **MTOP**      Equipment: ROLATEC ML 76A      IGF Ref. Nº: IG3312      Date of Investigation: 19/10/2016

**Ingefund**  
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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 545013 y: 6303535 z: 107

BOREHOLE #: 283

LOC. OF POINT: 81000 m

ROUTE 5 KM:

(track km: 203+000)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION	OBSERVATIONS	ELEV. (m)
			Nº of blows / 30 cm						
			5	15	25	35			
1	DRILLING WITH MECHANICAL EQUIPMENT	13					Organic	106	
2		15					Dark clay	105	
3		14					Clay (brown)	104	
4		28					Clay with sand	103	
5		27					Clay with sand	102	
6							Depth: 4,50 m	101	
7						End of the drilling	Elevation: +101,45 m	100	
8								99	
9								98	
10								97	
11								96	
12		%						95	
		REC.	100	50	0			RQD.	

Groundwater Level: 4,50 m

Groundwater Elevation: +102,50 m

Maximum depth: 5,55 m

Max. Depth Elevation: +101,45 m

Client:

MTOP

Equipment:

ROLATEC ML 76A

IGF Ref. Nº:

IG3312

Date of Investigation:

19/10/2016

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**STANDARD PENETRATION TEST (S.P.T. - A.S.T.M. D 1586-99)**

TRACKLINE: FLORIDA - DURAZNO JOB NUMBER: 1\_3

COORDINATES: UTM 21H x: 544586 y: 6304430 z: 95

BOREHOLE #: 284

LOC. OF POINT: 82000 m

ROUTE 5 KM: 182.350

(track km: 204+000)

DEPTH (m)	DRILLING EQUIP.	N	S.P.T. TEST				VISUAL DESCRIPTION
			Nº of blows / 30 cm				
			5	15	25	35	
	DRILLING WITH MECHANICAL EQUIPMENT						Organic <i>Depth 0,55 m</i>
1							Clay (brown) <i>Depth 1,00 m</i>
			>80				Completely weathered rock as soil
2							<i>End of the drilling</i>
							<i>Impenetrable to the soil drilling equipment</i>
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
		%					
		REC.	100	50	0		

OBSERVATIONS	ELEV. (m)
	94
"Upper level of bed rock" <i>Depth: 1,40 m</i>	
<i>Elevation: +93,60 m</i>	93
	92
	91
	90
	89
	88
	87
	86
	85
	84
	83
0 50 100	RQD.

Groundwater Level: Not found Groundwater Elevation: Not found

Maximum depth: 1,40 m Max. Depth Elevation: +93,60 m

Client: <b>MTOP</b>	Equipment: ROLATEC ML 76A	IGF Ref. Nº: IG3312	Date of Investigation: 21/10/2016
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***ANNEX III: LABORATORY TEST RESULTS (IGF  
FORMAT)***

**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 3+500  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 203  
 PROF.: 1,00 a 1,45  
 MUESTRA: 1  
 TIPO: SPT  
 FECHA ENSAYO: 17102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
100,0	N°4	4.760
95,2	N°10	2.000
75,4	N°40	425
67,5	N°100	149
64,3	N°200	74

% de grava	0
% de arena	36
% de finos	64

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

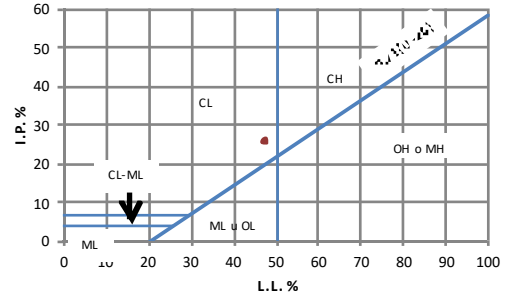
**Límites de Atterberg**

Límite Líquido: 47,4  
 Límite Plástico: 21,7  
 Índice de Plasticidad: 25,7  
 % de humedad: 9,4

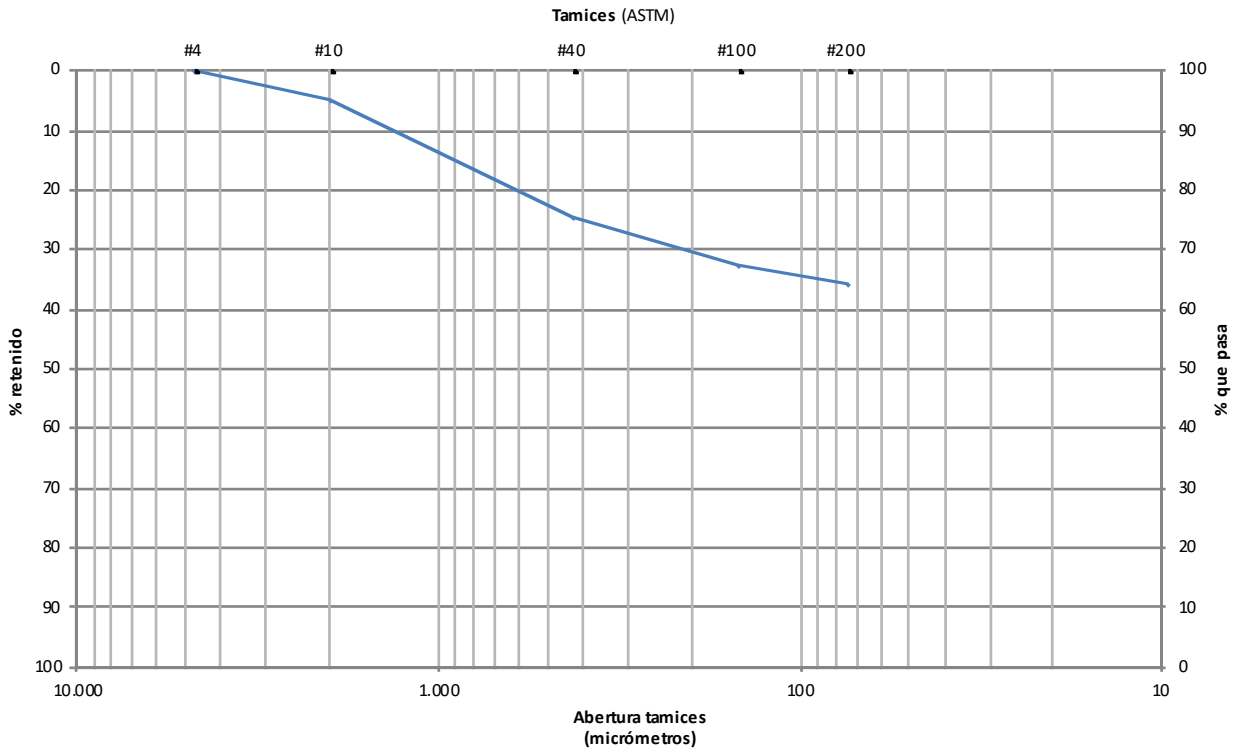
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CLASIFICACIÓN S.U.C.S.  
 CL

**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Ituria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 3+500  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 203  
 PROF.: 3,10 a 3,25  
 MUESTRA: 3  
 TIPO: SPT  
 FECHA ENSAYO: 17102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
%		
99,8	N°4	4.760
90,2	N°10	2.000
33,7	N°40	425
21,1	N°100	149
18,0	N°200	74

% de grava	0
% de arena	82
% de finos	18

Coef. de uniformidad  $C_u = -$  Coef. de curvatura  $C_c = -$

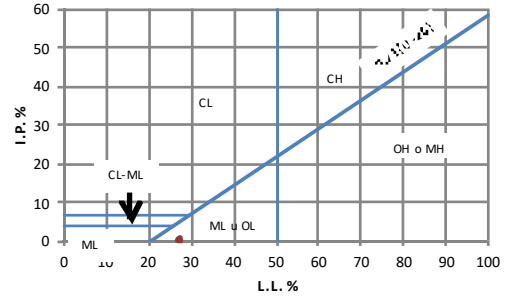
**Límites de Atterberg**

Límite Líquido: 27,0 %  
 Límite Plástico: N.P.  
 Índice de Plasticidad: N.P.  
 % de humedad: 2,3

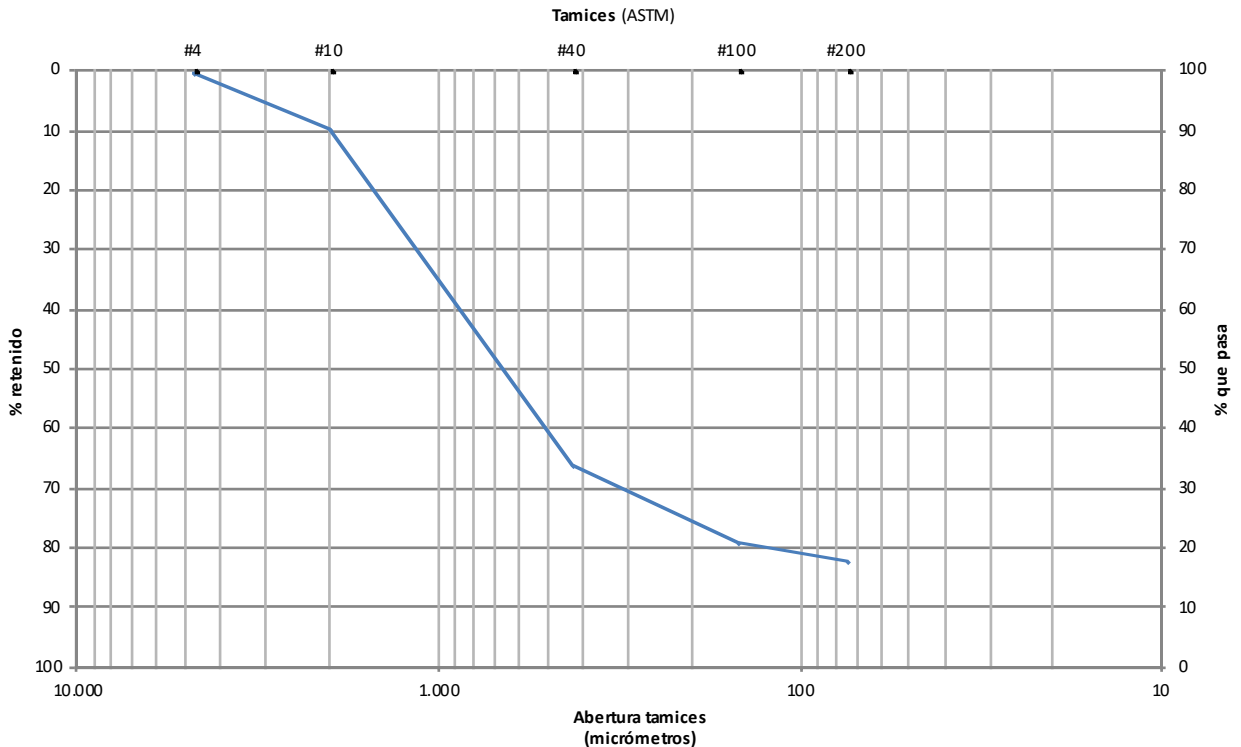
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Carta de Plasticidad (S.U.C.S.)



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 23+200  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 223  
 PROF.: 1,00 a 1,45  
 MUESTRA: 1  
 TIPO: SPT  
 FECHA ENSAYO: 17102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
%		
95,4	N°4	4.760
88,1	N°10	2.000
71,4	N°40	425
64,9	N°100	149
60,9	N°200	74
<b>% de grava</b>		
	5	
<b>% de arena</b>		
	34	
<b>% de finos</b>		
	61	

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

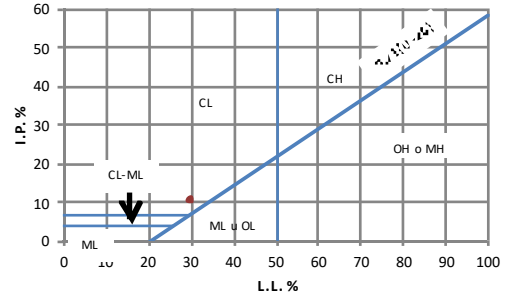
**Límites de Atterberg**

Límite Líquido: 30,0  
 Límite Plástico: 19,2  
 Índice de Plasticidad: 10,8  
 % de humedad: 3,8

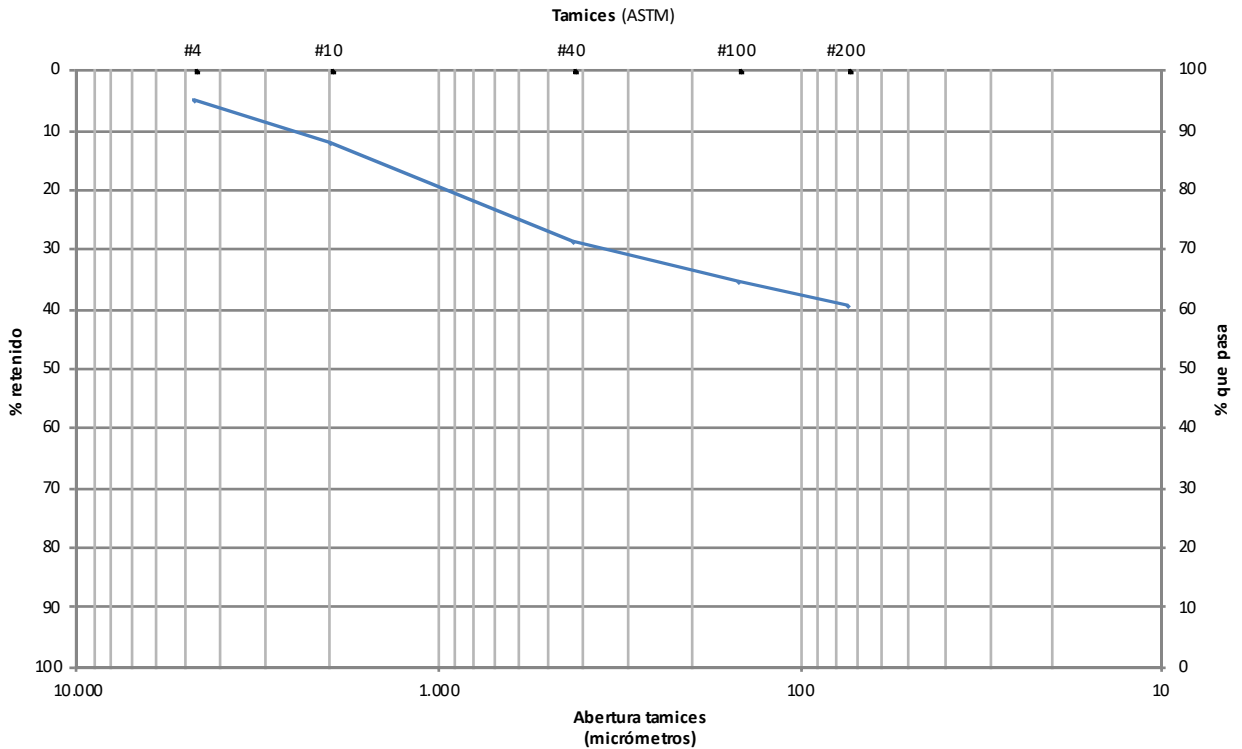
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**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 23+200  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 223  
 PROF.: 2,60 a 3,05  
 MUESTRA: 3  
 TIPO: SPT  
 FECHA ENSAYO: 17102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
%		
94,1	N°4	4.760
79,8	N°10	2.000
44,3	N°40	425
35,7	N°100	149
31,4	N°200	74
<b>% de grava</b>		
6		
<b>% de arena</b>		
63		
<b>% de finos</b>		
31		

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

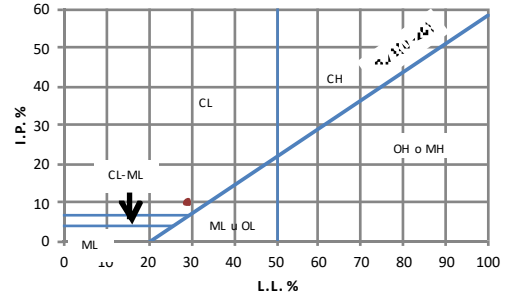
**Límites de Atterberg**

Límite Líquido: 29,0 %  
 Límite Plástico: 19,0 %  
 Índice de Plasticidad: 10,0  
 % de humedad: 2,7

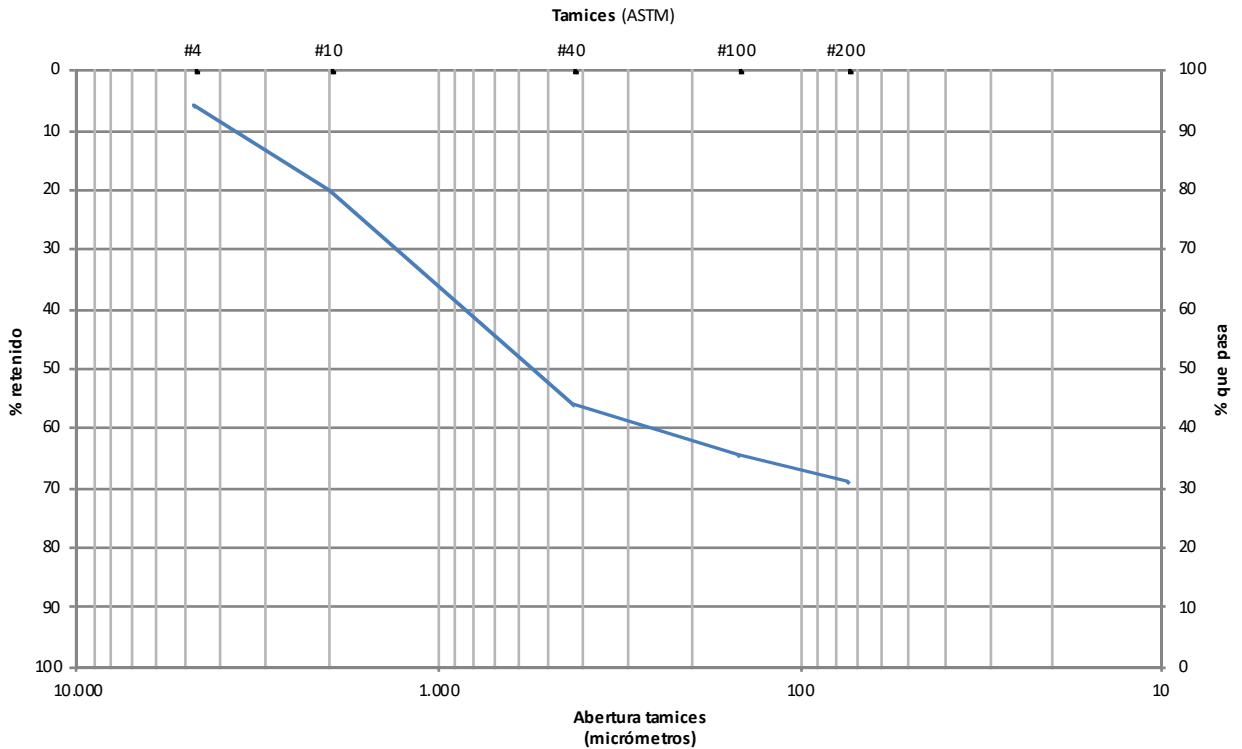
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**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 44+000  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 245  
 PROF.: 1,00 a 1,45  
 MUESTRA: 1  
 TIPO: SPT  
 FECHA ENSAYO: 17102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
100,0	N°4	4.760
99,0	N°10	2.000
95,1	N°40	425
90,8	N°100	149
89,6	N°200	74

% de grava	0
% de arena	10
% de finos	90

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

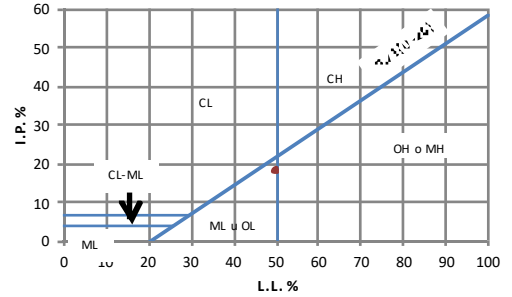
**Límites de Atterberg**

Límite Líquido: 49,9  
 Límite Plástico: 32,0  
 Índice de Plasticidad: 17,9  
 % de humedad: 22,2

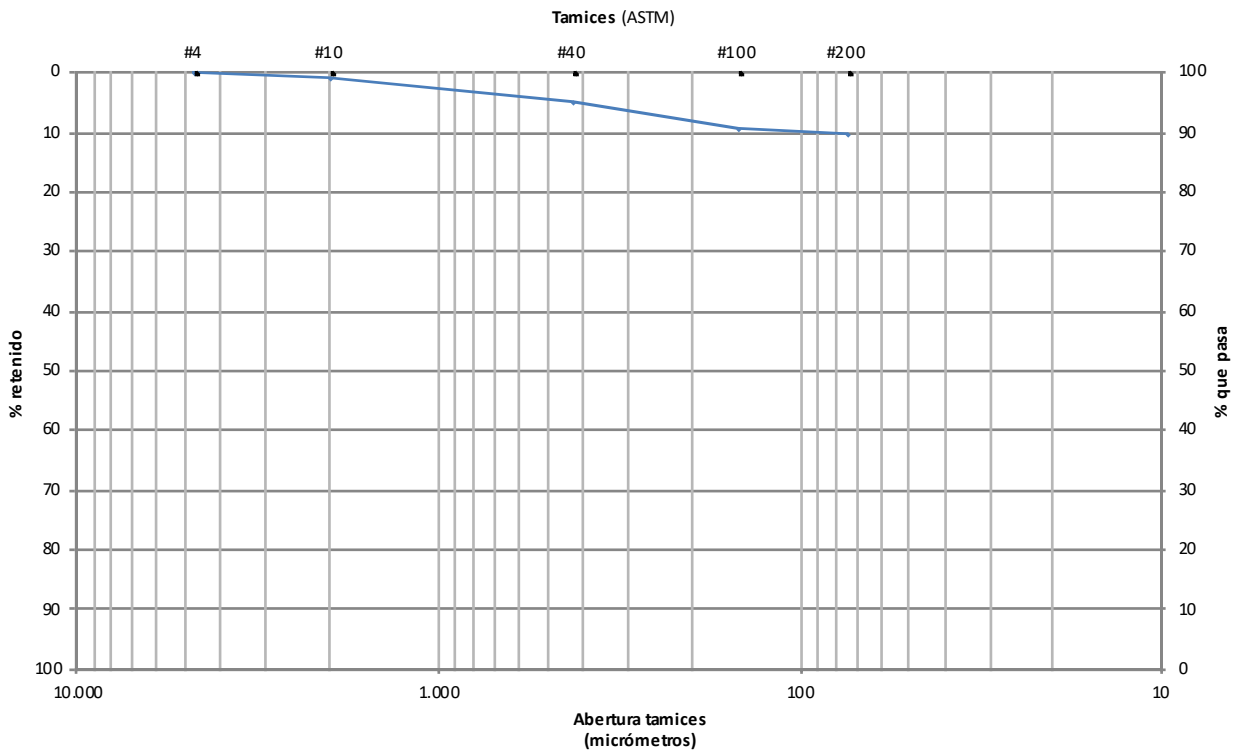
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 ML

**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 44+000  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 245  
 PROF.: 4,50 a 4,95  
 MUESTRA: 5  
 TIPO: SPT  
 FECHA ENSAYO: 17102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
%		
97,7	N°4	4.760
77,2	N°10	2.000
50,1	N°40	425
39,4	N°100	149
35,8	N°200	74
<b>% de grava</b>		
	2	
<b>% de arena</b>		
	62	
<b>% de finos</b>		
	36	

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

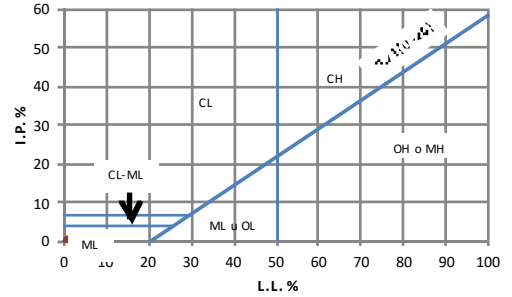
**Límites de Atterberg**

Límite Líquido: N.P.  
 Límite Plástico: N.P.  
 Índice de Plasticidad: N.P.  
 % de humedad: 11,5

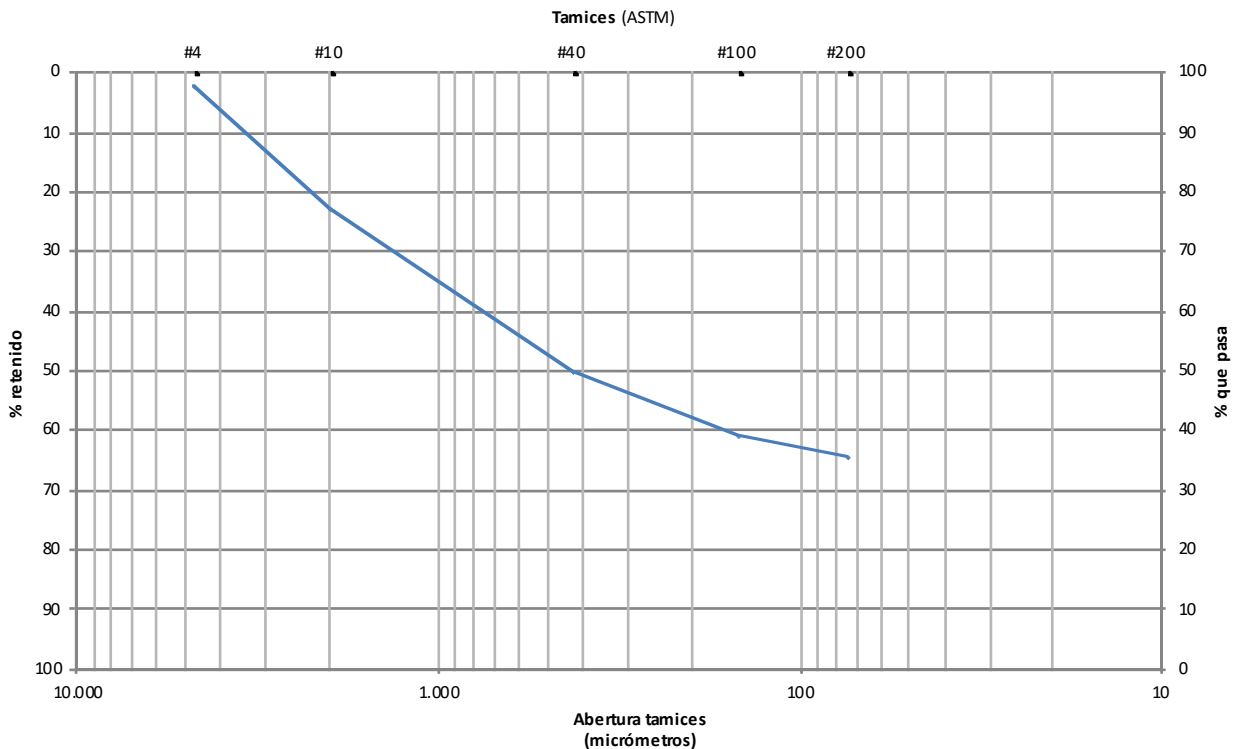
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**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera





**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 62+000  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 263  
 PROF.: 1,00 a 1,45  
 MUESTRA: 1  
 TIPO: SPT  
 FECHA ENSAYO: 31102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
%		
97,9	N°4	4.760
95,0	N°10	2.000
86,1	N°40	425
77,2	N°100	149
74,3	N°200	74

% de grava	2
% de arena	24
% de finos	74

Coef. de uniformidad  $C_u = -$  Coef. de curvatura  $C_c = -$

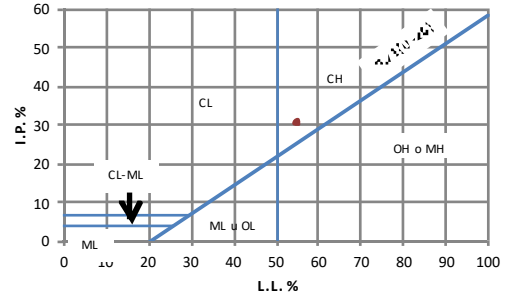
**Límites de Atterberg**

Límite Líquido: 54,8 %  
 Límite Plástico: 24,1 %  
 Índice de Plasticidad: 30,7  
 % de humedad: 25,3

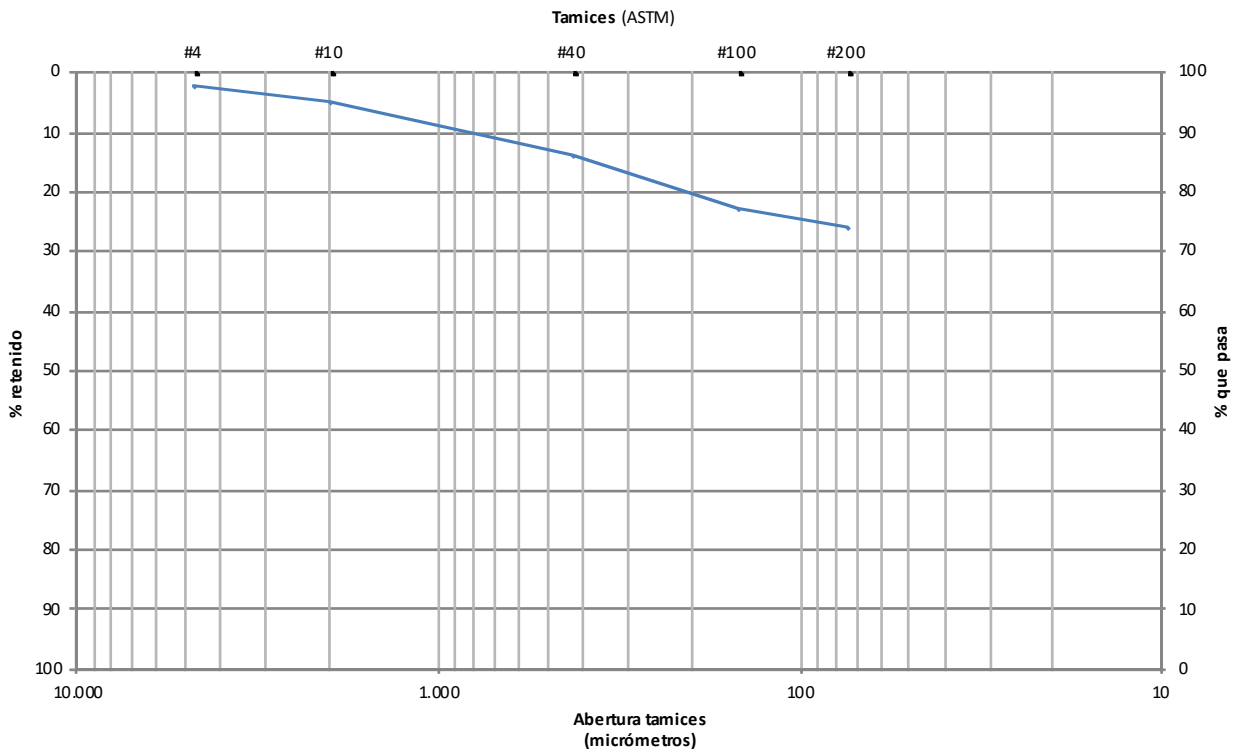
CLASIFICACIÓN A.A.S.H.T.O.

CLASIFICACIÓN S.U.C.S.  
 CH

**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 62+000  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 263  
 PROF.: 4,55 a 5,00  
 MUESTRA: 5  
 TIPO: SPT  
 FECHA ENSAYO: 31102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
%		
76,6	N°4	4.760
65,7	N°10	2.000
56,4	N°40	425
43,5	N°100	149
37,2	N°200	74
<b>% de grava</b>		
	23	
<b>% de arena</b>		
	40	
<b>% de finos</b>		
	37	

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

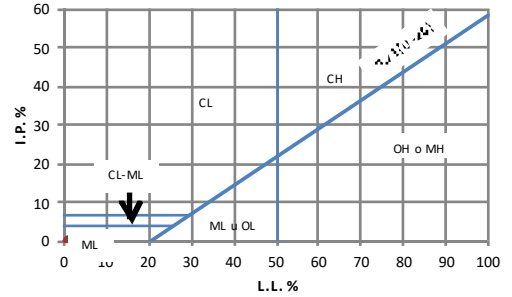
**Límites de Atterberg**

Límite Líquido: N.P.  
 Límite Plástico: N.P.  
 Índice de Plasticidad: N.P.  
 % de humedad: 22,3

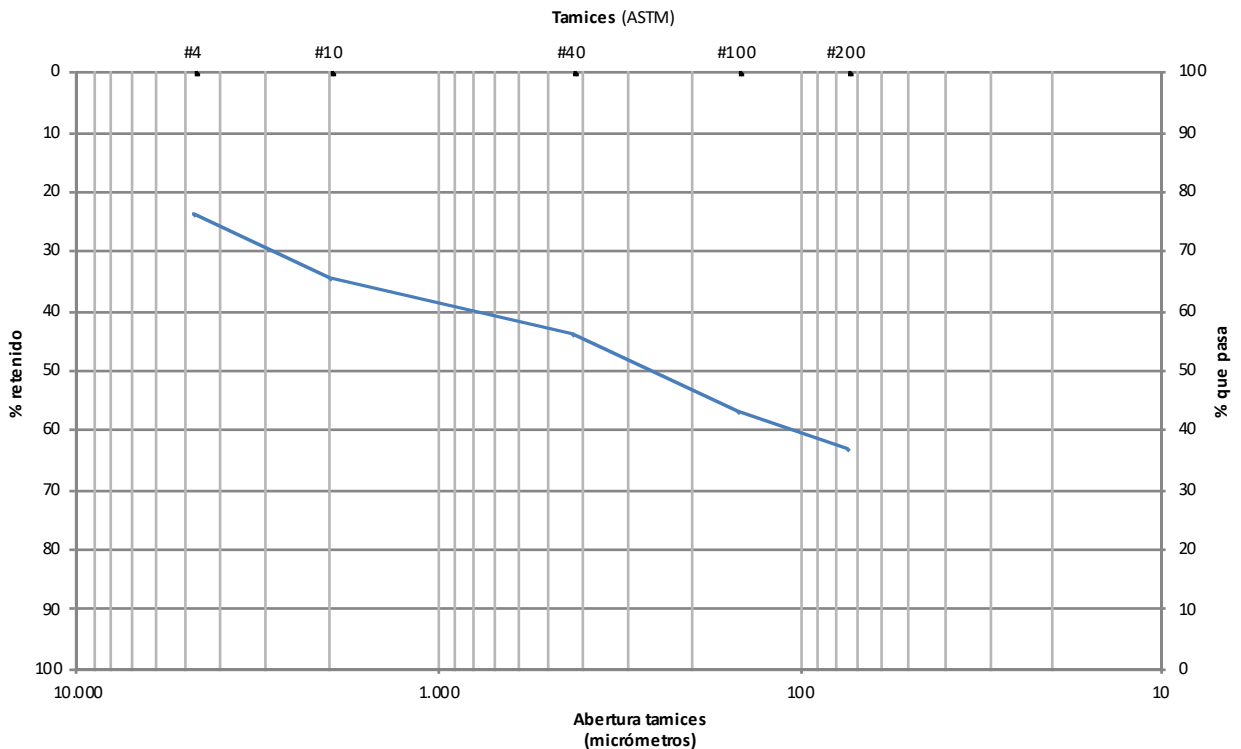
CLASIFICACIÓN A.A.S.H.T.O.

CLASIFICACIÓN S.U.C.S.  
 SM

**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
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Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 81+000  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 283  
 PROF.: 1,00 a 1,45  
 MUESTRA: 1  
 TIPO: SPT  
 FECHA ENSAYO: 31102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
99,1	N°4	4.760
95,6	N°10	2.000
80,9	N°40	425
74,8	N°100	149
71,9	N°200	74

% de grava	1
% de arena	27
% de finos	72

Coef. de uniformidad  $C_u = -$  Coef. de curvatura  $C_c = -$

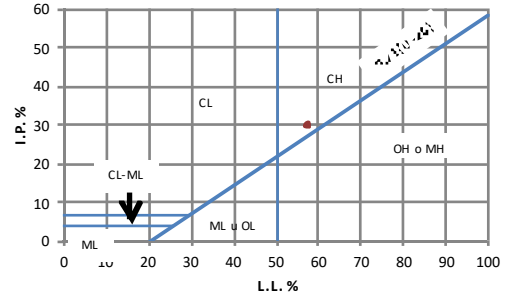
**Límites de Atterberg**

Límite Líquido: 57,4 %  
 Límite Plástico: 27,3 %  
 Índice de Plasticidad: 30,1 %  
 % de humedad: 26,6 %

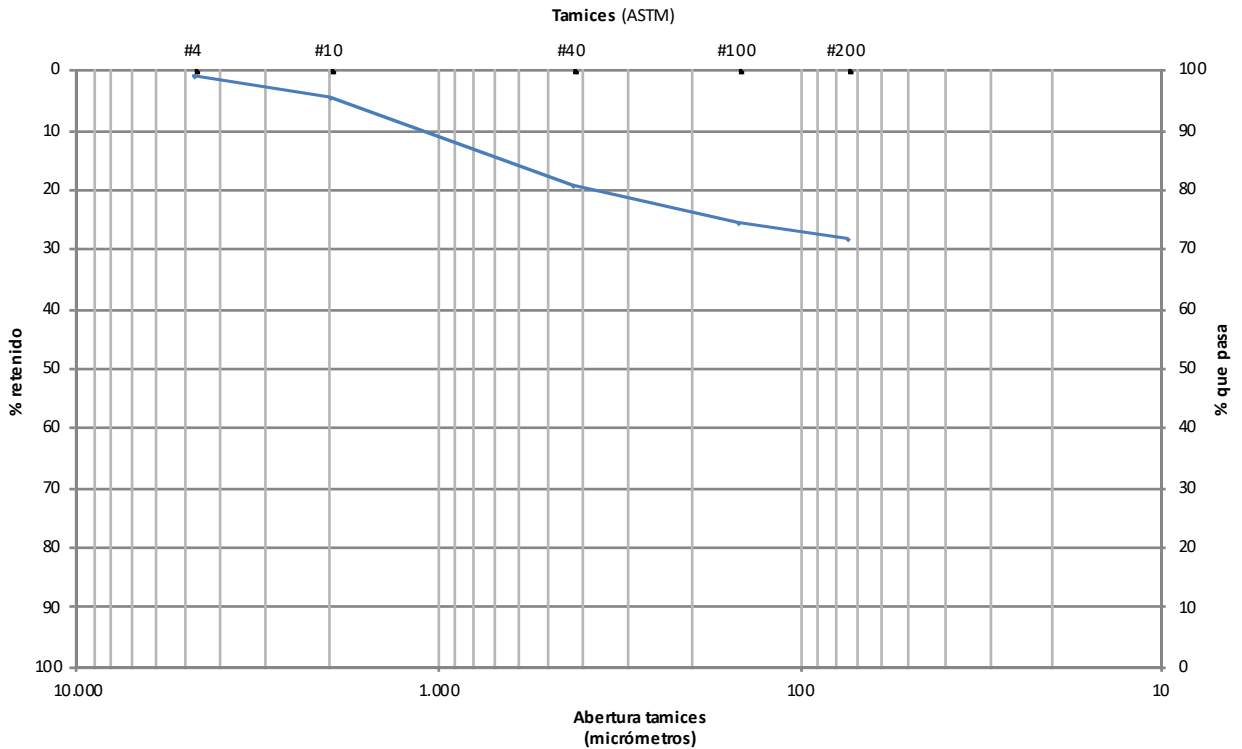
CLASIFICACIÓN A.A.S.H.T.O.

CLASIFICACIÓN S.U.C.S.  
 CH

**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
--------	--------	--------------------------

Laboratorista:  
 Sr. Juan Carlos Iturria  
 Técnico Responsable:  
 Ing. Mariano Cabrera



**INFORME DE ENSAYO DE LABORATORIO**

OBRA: Vía Férrea  
 UBICACIÓN: Florida - Durazno LOC. OF POINT: 81+000  
 COMITENTE: MTOP  
 REF. N°: IG3312/16

PROCEDENCIA: 283  
 PROF.: 5,10 a 5,55  
 MUESTRA: 5  
 TIPO: SPT  
 FECHA ENSAYO: 31102016

**ANÁLISIS GRANULOMÉTRICO DE SUELOS POR TAMIZADO**

Muestra que pasa	Tamices	
	ASTM	µm
97,0	N°4	4.760
87,8	N°10	2.000
59,5	N°40	425
44,6	N°100	149
40,1	N°200	74
<b>% de grava</b>		
	3	
<b>% de arena</b>		
	57	
<b>% de finos</b>		
	40	

Coef. de uniformidad Cu = - Coef. de curvatura Cc = -

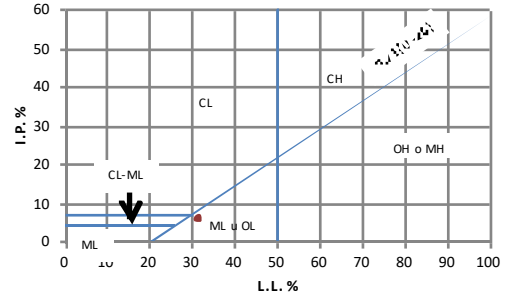
**Límites de Atterberg**

Límite Líquido: 31,7 %  
 Límite Plástico: 25,8 %  
 Índice de Plasticidad: 5,9  
 % de humedad: 16,8

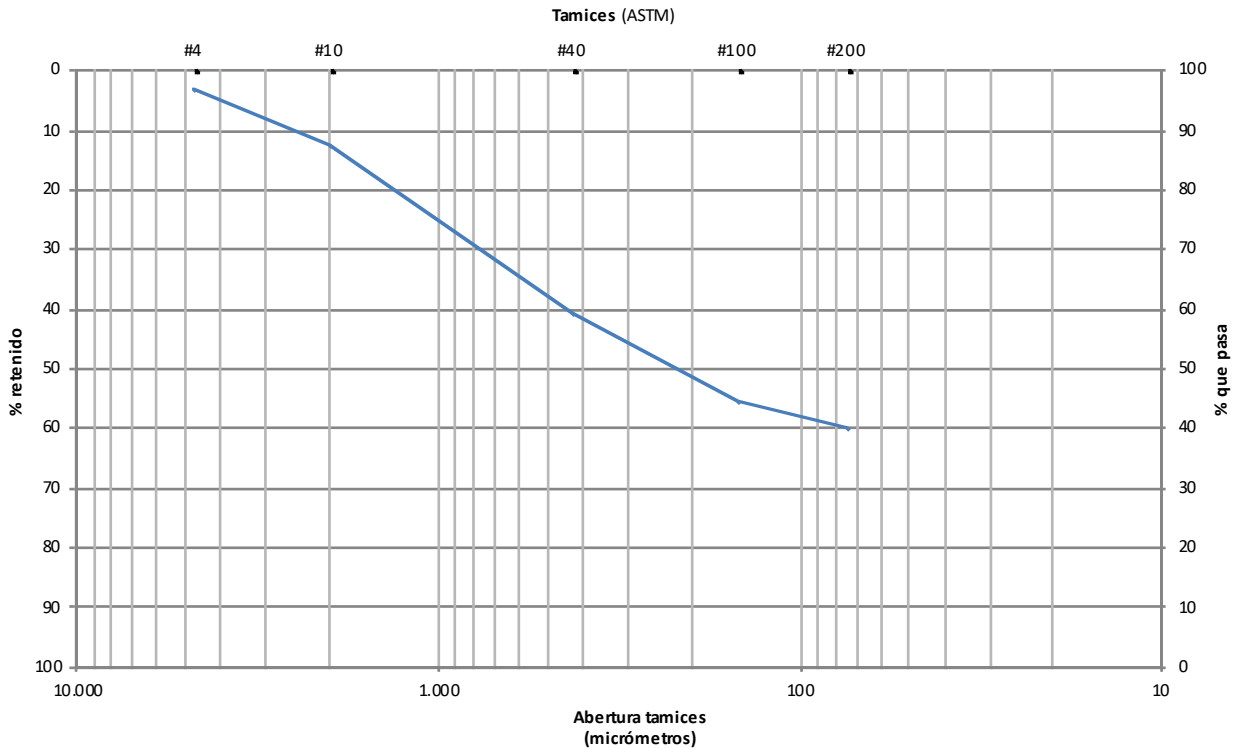
CLASIFICACIÓN A.A.S.H.T.O.

CLASIFICACIÓN S.U.C.S.  
 SM

**Carta de Plasticidad (S.U.C.S.)**



**CURVA GRANULOMÉTRICA**



GRAVAS	ARENAS	FINOS (arcillas y limos)
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Laboratorista:  
 Sr. Juan Carlos Ituria  
 Técnico Responsable:  
 Ing. Mariano Cabrera

