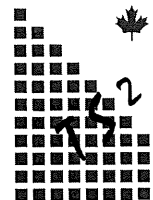


CROWN CAPITAL ENTERPRISE LIMITED.

HONG KONG, SAR, CHINA

**Application of RJSeal™
HuiHe Expressway, Guangdong Province
Peoples Republic of China**

MARCH 2005



**TS² Consulting Inc.
Lamma, Hong Kong**

CROWN CAPITAL ENTERPRISE LIMITED.

Application of RJSeal™ HuiHe Expressway, Guangdong Province Peoples Republic of China

MARCH 2005

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APPENDICES

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A	RJSeal™ Descriptive Literature
B	Desco D200 Sprayer
C	Field Testing.



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Application of RJSeal™ HuiHe Expressway, Guangdong Province Peoples Republic of China

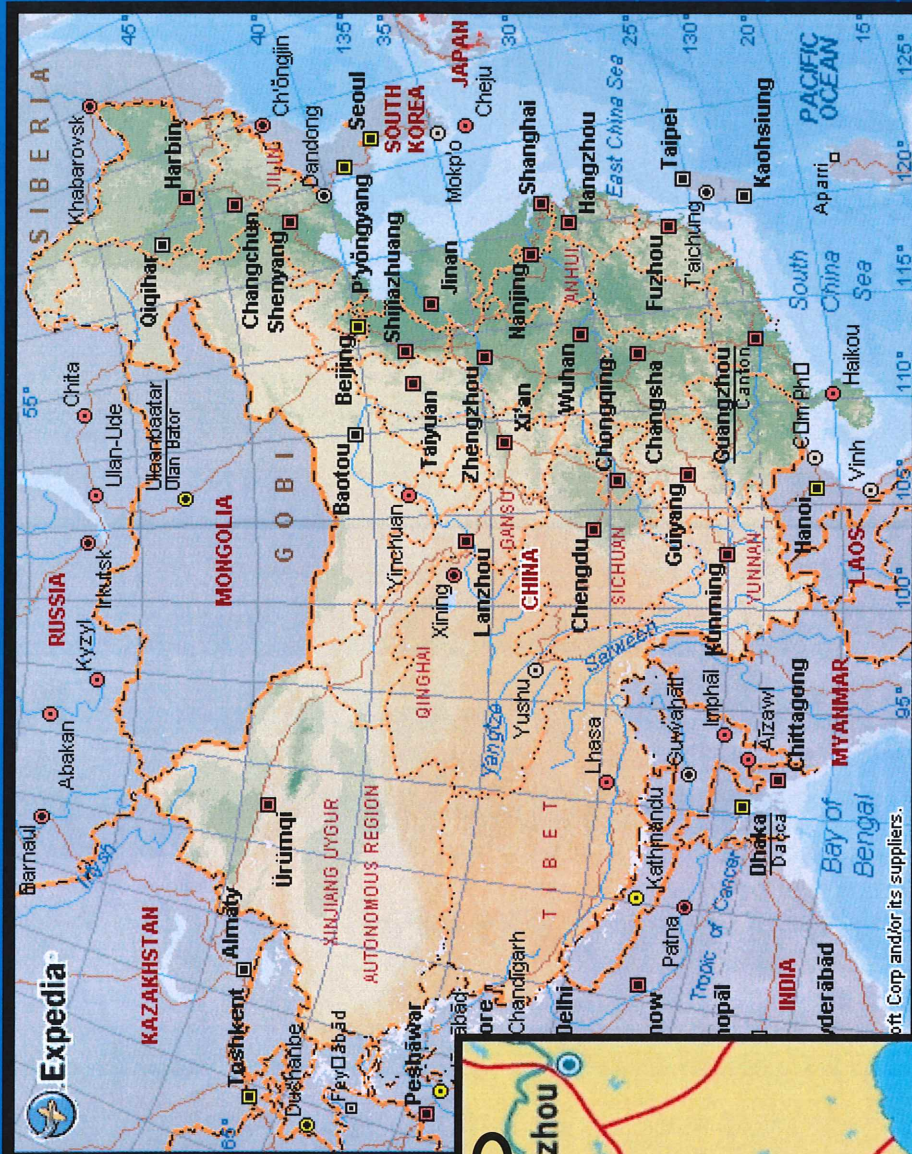
MARCH 2005

1.0 INTRODUCTION

The HuiHe Expressway Management Company, based in Huizhou, Guangdong Province, China entered into an agreement with CROWN CAPITAL ENTERPRISE - CHINA LIMITED, of Shenzhen in January 2005. This agreement requires that the performance of RJSeal™, a sealer/rejuvenator for asphalt pavement be analysed on four test strips on the HuiHe Expressway, a four lane, divided highway that runs north from Huizhou to Heyuan and beyond. Subsequently RJSeal™ was applied to four segments of the HuiHe Expressway between Kilometre 51+660 to Kilometre 56+100, (both southbound lanes and shoulder) on April 18 and 19, 2005.

Huizhou is located in Guangdong province, immediately north of Shenzhen and east of Guangzhou. Guangdong Province is located in the southeastern sector of the Peoples Republic of China, bordered by Fujian, Jiangxi, Hunan, and Guangxi Provinces. Guangzhou is the capital of Guangdong province and is located on the Pearl River. The Pearl River Delta in recent years has seen a major growth in population along with significant construction due to the transfer of manufacturing from Hong Kong. In particular, special economic development zones like the city of Shenzhen and the city of Zhuhai have experienced significant growth along with other cities like Dongguan and Huizhou. This has resulted in an extensive network of toll highways being built to support the export and manufacturing business. See figure 1.0 for a map showing the location of Huizhou in Guangdong Province. The majority of the Pearl River Delta area lies at 20 to 25 metres in elevation, although mountains to the north and west hold some peaks that exceed 1,000 metres. The regions' latitude (23 degrees north), mean that there are four seasons, with temperatures ranging from 45 Celsius in the long, hot summer to 5 Celsius in the short winter. The rainy season is primarily May thru August, but can extend into September.

In the immediate Huizhou area, a sequence of sedimentary rocks predominates, although some metamorphic rocks also occur. Due to the rock cuts along the highways, numerous rock outcrop exposures are available. The asphalt in the area is manufactured from local materials, which is comprised of crushed and screened sandstone, diorite, phylites and granite, as well as washed gravels from the various rivers. The bitumen binder for the asphalt is sourced from various locations. The possibility of bitumen being sourced from offshore is a distinct possibility, so refineries in Singapore and the like should not be forgotten.



Job Site

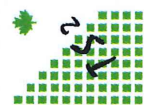
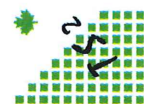


Crown Capital Enterprise Limited

HuiHe Highway

General Location Map

Figure 1.0



2.0 CO-OPERATIVE PROGRAM

The intent of the Agreement is to demonstrate RJSeal™ at different locations, which will subsequently allow analysis of the performance of RJSeal™ on a variety of asphalt surfaces. The application undertaken at four separate locations between milestone Km 51+660 and Km 56+100 on March 18 and 19 on the HuiHe Expressway, some 13 Kilometres north of Huizhou, was undertaken for comparison with several other asphalt pavement maintenance products, namely Credone, emulsified bitumen and one other unspecified product.

The section of the HuiHe Expressway selected for the demonstration by the HuiHe Expressway Maintenance Company at Km 51+660 to Km 56+100 was built in 2002-2003 and the asphalt pavement is approximately 120 mm thick. The pavement is a Stone Matrix Asphalt (SMA) and appears to be wearing quite well, although the asphalt is starting to show signs of aging, with some loss of the bitumen binder and hardening due to oxidation. No details are known about the sub grade, but inspection of the shoulders in the fill sections of the highway, show a sandy silty material. Knowing construction techniques in highways in China in general, minimal gravel would be used in the immediate coarse base, beneath the asphalt pavement.

The comparison of the performance of RJSeal™ versus the other pavement maintenance products will be undertaken, one month following the application of the competing products by the Guangzhou Communications University, solely pertain to the following criteria and testing standard.

1. Water Penetration, (China Testing Standard T 0730-2000)
2. Skid Resistance (China Testing Standard T 0964-03) and
3. Depth of Texture (China Testing Standard T 0961-95).

Core samples are to be taken, but no specific tests have been specified in the terms of the engagement for the University.

3.0 RJSEAL™

RJSeal™ is a proprietary product that is supplied by CROWN CAPITAL ENTERPRISE – CHINA LIMITED of Shenzhen, Guangdong. RJSeal™ has been proven in numerous applications in China as well as North and South America to rejuvenate asphalt pavement at various stages of its life and economically extend the life of the pavement. RJSeal™ is a three component, asphalt sealer rejuvenator that is comprised of Coal Tar, Coal Tar Oils and Petroleum Solvents.

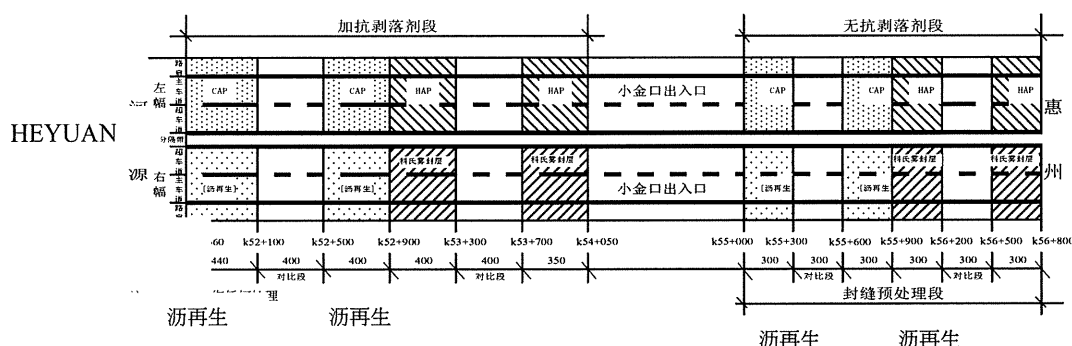
3.1 PRIOR EXPERIENCE

Refer to Appendix A for a copy of the brochure compiled by Crown Capital Enterprise - China Limited of Shenzhen. This outlines the experience with RJSeal™ at various locations in North America and South America. Further information is available from CROWN CAPITAL ENTERPRISE LIMITED. RJSeal™ has been used at numerous airports in North and South America, as well as highways in Alberta, Canada; Cearo State, Brazil and North Dakota and Texas, as well as other locations in the U.S.A. Since 2000, RJSeal™ has been demonstrated successfully at over forty two (42) locations in China and twenty five (25) commercial-scale applications have taken place at various locations, including Shanghai, Guangzhou, Kunming, DaQing, QinHuangDao and Wuhan

4.0 TEST PROGRAM

Since Guangdong Province is located in a semi-tropical climate (Latitude: 22.5 - 25 North) at a low altitude (20-25 metres), it's a demanding setting for asphalt, given the year round warm climate (average of 25 Celsius, with extremes of 45 Celsius) and intense exposure to ultraviolet radiation, all which contribute to the oxidation and breakdown of the asphalt binder. Experience elsewhere in similar settings indicate that on primary highways the life cycle of the asphalt requires that the traveling surface be planed and a new overlay of fresh asphalt be applied every five or six years.

The HuiHe Expressway Management is definitely interested in determining how to economically extend the life of the asphalt road surface. To this end, they contracted to apply RJSeal™ on portions of the HuiHe Expressway from Km 51+660 to Km 56+100 on the southbound lanes (from Heyuan to Huizhou) as shown in colour on the sketch that follows:



4. Application Section – HuiHe Expressway

On March 18, 2005, major portions of the test strips were implemented and then on March 19, the final portions of the test strips were completed. The test strips are at the following geographic location:

Table 4.1		System i.e. Geographic or Universal Transverse Mercator (UTM)	Northing	Easting
Test Strip, Start	Test Strip, Length			
Km 56+100	300	Geographic (deg, min)	23° 11.932 '	114° 23.189'
		UTM Grid (50Q) (metres)	2567949	0232492
Km 55+300	300	Geographic (deg, min)	23° 12.333 '	114° 23.344'
		UTM Grid (50Q) (metres)	2568685	0232770
Km 52+900	400	Geographic (deg, min)	23° 13.280 '	114° 24.278'
		UTM Grid (50Q) (metres)	2570404	0234394
Km 52+100	440	Geographic (deg, min)	23° 13.429 '	114° 24.661'
		UTM Grid (50Q) (metres)	2570668	0235054

See Figure No 4.1 for a photo showing portions of the test strips as implemented. Particulars of the test strips at each of the aforesaid locations are as follows:

Table 4.2				Particulars of the test strip						
Test Strip Location North End	Strip Length (m)	Strip Width (m)	Total Area m²	RJSeal™ Applied			Application Rate			
				US Gals	litres	Kgs	US Gal /yd²	Litres /m²	m² /Litre	m² /Kg
Km 51+660	440	10	4400	279.9	1,057.8	1100	0.053	0.24	4.16	4.00
Km 52+500	400	10	4000	254.4	961.7	1000	0.053	0.24	4.17	4.01
Km 55+000	300	10	3000	190.8	721.3	750	0.053	0.24	4.16	4.00
Km 55+800	300	10	3000	190.8	721.3	750	0.053	0.24	4.16	4.00
Totals	1,440		14,400	915	3,461	3,600	0.053	0.24	4.16	4.00

These test strips on March 18 and 19, were undertaken at an application rate of 4.0 m²/kg and this appeared to be appropriate for the asphalt pavement at this location



Job Site

Crown Capital Enterprise Limited

HuiHe Highway

Specific Location Map

Figure 4.0



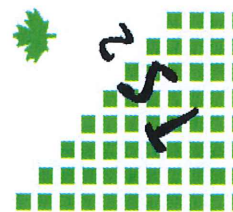


Figure 4.1 Test Strip at 52+100

Work commenced on the Demonstration section at 9:00 am on March 18 on a warm, humid, sunny day, where the mid-day temperature reached 26 Celsius. The test strips are located on straight sections with a slight grade. There is a slight camber to the road which causes water to run off, rather than puddle on the road. The asphalt pavement was reputedly two years old (2002/2003 vintage). No significant oil spills were observed, just the occasional drop of transmission oil, crankcase oil or hydraulic fluid. The highway surface was not noticeably worn and had about 35-40% of the surface composed of exposed aggregate, with a few minor lateral cracks and no rutting due to traffic wear. There was appreciable aging and oxidation of the bitumen, which extended to a depth of one to two millimetres.

The shoulder, driving lane and passing lane, were treated with RJSeal™ in the southbound lanes. The width of the driving lane is 3.65 metres, whilst the paved shoulder is 2.70 metres wide. The width of the passing (inside) lane is 3.65. The white lines were covered with adhesive tape prior to the RJSeal™ application and this tape prevented the white lines from being coated. This adhesive tape was stripped off, following the RJSeal™ application.

RJSeal™ was applied to the test strips using a Desco D200 Spraying Machine. This machine has 10 spray tips and covers a path some 2.2 metres wide. See Appendix B for the specifications of this machine. Several passes were made with this machine to cover the area, with a 10 centimetre overlap between passes.

On March 19, the uncompleted portion of the test strips were completed between 8:00 am and 10:00 am, using the Desco D200 Spraying Machine, and at 2:30pm, the sections completed that morning were re-opened to traffic.

Details of the application are summarized in the table that follows:

Table 4.3		Details on RJSeal™ Application on HuiHe Expressway						
Date	Work Schedule	Work Time (hrs)	Total Area m ²	RJSeal™ Applied			Application Rate	
				US gals	Litres	Kilo Gram	US Gal /yd ²	m ² /Kg
Mar 18	08:00-11:30	3.50	3,810	242	916	953	0.053	4.00
	13:30-14:30	1.00	5,334	339	1,283	1334	0.053	4.00
	15:30-17:00	1.50	2,190	139	525	546	0.053	4.01
Mar 19	08:00-10:00	2.00	3,066	195	737	766	0.053	4.00
Totals		16.00	14,400	915	3,461	3,599	0.053	4.00

Photos showing the test application of RJSeal™ follow in figures 4.2 and 4.3. on the following pages.

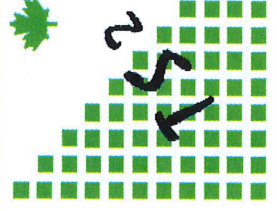


Figure 4.2 Typical Application Procedure.

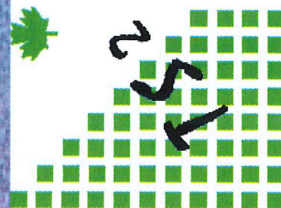


Figure 4.3 Finished Job.

4.2 RJSeal™ Testing

Technicians from TS2 Consulting Inc conducted field testing on the four RJSeal™ test strips on May 31, 2005. Testing equipment brought to the site for comparison on a disciplined, objective basis, was used to ascertain the following properties:

- Water Penetration
- Macro texture (Depth of texture)
- Hydroplaning Potential

The findings are documented in the following tables.

4.3 Water Penetration

Water Penetration Tests (China Testing Standard T 0730-2000) were undertaken at several locations on the HuiHe Expressway in the driving (slow) lane, adjacent to the shoulder, on May 31, 2005, some two months after the application of RJSeal™.

Table 4.4		Water Penetration Meter Readings			
Test Strip Commence ment	Testing Location	Geographic Location Latitude/Longitude (Degrees)		Location relative to shoulder demarcation line	RJSeal™ Treated (ml/min)
Km 51+660	Km 51+690	23 ⁰ 13.445 '	114 ⁰ 24.753'	0.8 m east	0
Km 52+500	Km 52+534	23 ⁰ 13.302 '	114 ⁰ 24.329'	0.8 m east	0
Km 55+000	Km 55+044	23 ⁰ 12.363 '	114 ⁰ 23.348'	0.8 m east	0
Km 55+800	Km 55+818	23 ⁰ 11.969 '	114 ⁰ 23.206'	0.8 m east	0

The readings taken on the RJSeal™ test strips indicates that the asphalt pavement does not have a problem with water penetration. See Figure 4.3 that follows for a pictorial presentation of the Water Penetration Tests.

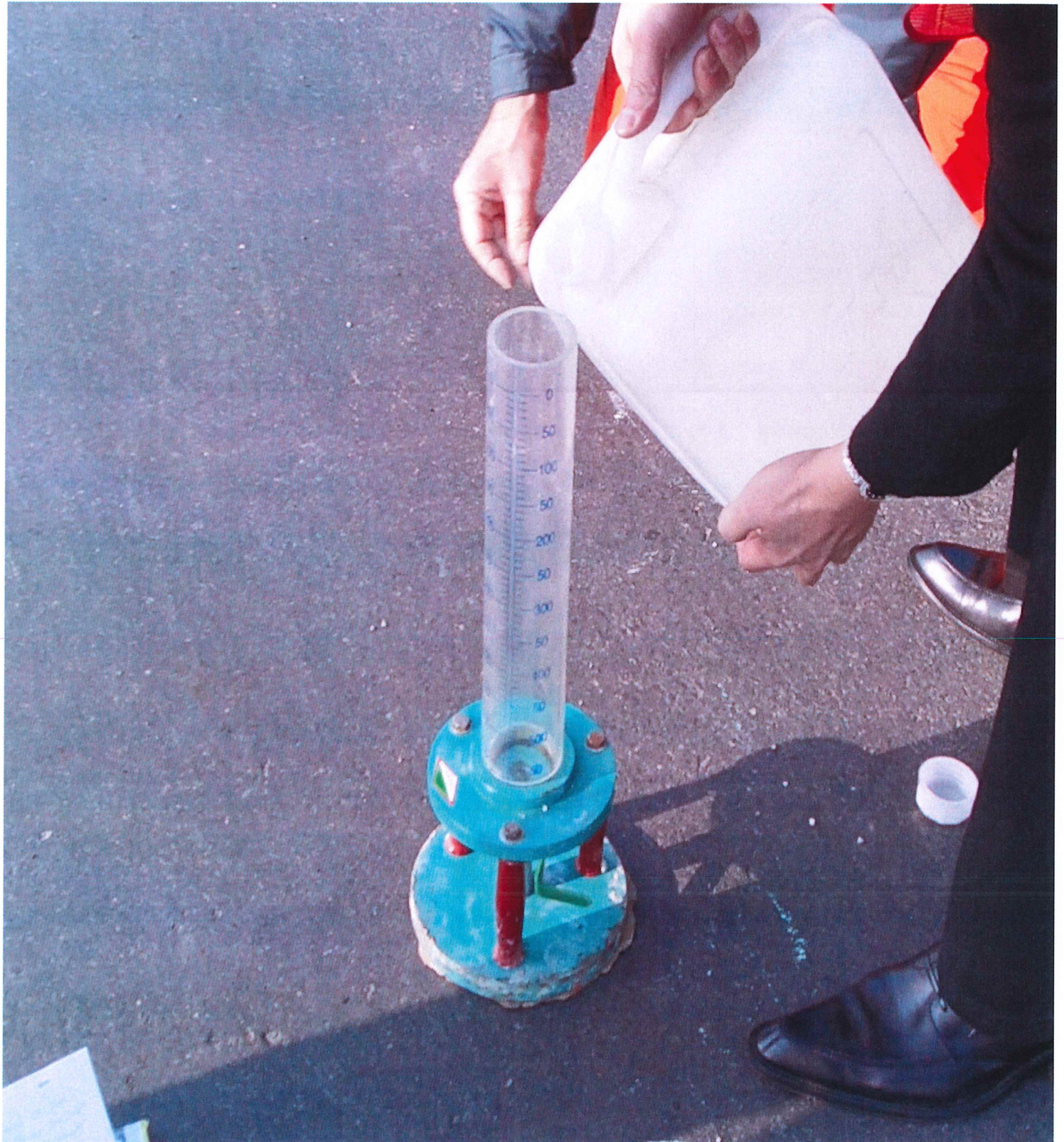
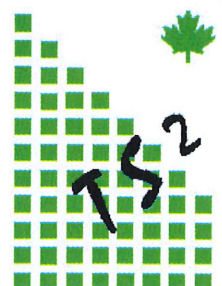


Figure 4.4 Water Penetration Test



4.4 Macro texture (Depth of Structure)

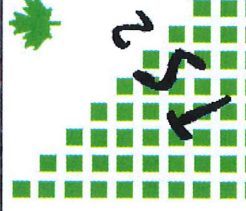
The sand patch test (ASTM Standard E965-96 OR China Standard T 0961-95) was used to ascertain the Pavement Macro texture (Depth of Structure). Comparison was undertaken at several locations on the RJSeal™ treated section in close proximity to the Water Penetration Meter tests. The results are shown in the table that follows:

Table 4.5		Sand Patch Readings (Macro texture Depth)			
Test Strip Commence ment	Testing Location	Geographic Location Latitude/Longitude (Degrees)		Location relative to shoulder demarcation line	Depth of Structure (mm)
Km 51+660	Km 51+690	23 ⁰ 13.445 ‘	114 ⁰ 24.753’	0.8 m east	1.135
Km 52+500	Km 52+534	23 ⁰ 13.302 ‘	114 ⁰ 24.329’	0.8 m east	1.206
Km 55+000	Km 55+044	23 ⁰ 12.363 ‘	114 ⁰ 23.348’	0.8 m east	0.838
Km 55+800	Km 55+818	23 ⁰ 11.969 ‘	114 ⁰ 23.206’	0.8 m east	1.070

The readings taken on the RJSeal™ treated section and untreated section indicate that the road surface at this location is sufficiently rough, to minimize problems with skidding. See Figure 4.6 which follows, showing the sand patch tests.



Figure 4.5 Sand Patch Test



4.5 Hydroplaning Potential

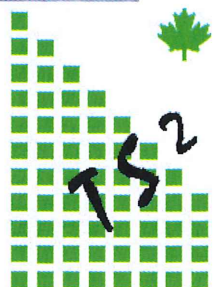
An “Outflow Meter” manufactured in the U.S.A. by Humble Equipment Company of Ruston, Louisiana and sold under the trademark “Outflow Meter” (see figure 4.5) was used to measure the asphalt pavement’s macro texture, as concern has been expressed about hydroplaning on the RJSeal™ treated surface, versus the untreated surface. The procedure is documented in the ASTM Standard E2380-05. The Outflow Meter gives readings in seconds for the dissipation of a known quantity of water. It is suggested that any readings between 3 and 10 seconds are satisfactory results for an asphalt pavement surface, if hydroplaning is to be minimized. The following readings were obtained on the application section:

Table 4.6		Outflow Meter Readings			
Test Strip Commencement	Testing Location	Geographic Location Latitude/Longitude (Degrees)		Location relative to shoulder demarcation line	Outflow Meter Reading (seconds)
Km 51+660	Km 51+690	23 ⁰ 13.445 ‘	114 ⁰ 24.753’	0.8 m east	3
Km 52+500	Km 52+534	23 ⁰ 13.302 ‘	114 ⁰ 24.329’	0.8 m east	3
Km 55+000	Km 55+044	23 ⁰ 12.363 ‘	114 ⁰ 23.348’	0.8 m east	3
Km 55+800	Km 55+818	23 ⁰ 11.969 ‘	114 ⁰ 23.206’	0.8 m east	3

These readings suggest that hydroplaning is not a problem on the section of highway where the RJSeal™ Application was undertaken. See Figure 4.7 which follows, showing the Outflow Meter Tests.



Figure 4.6
Humble Equipment Co. Outflow Meter



4.6 Penetration/Ductility/Viscosity Testing

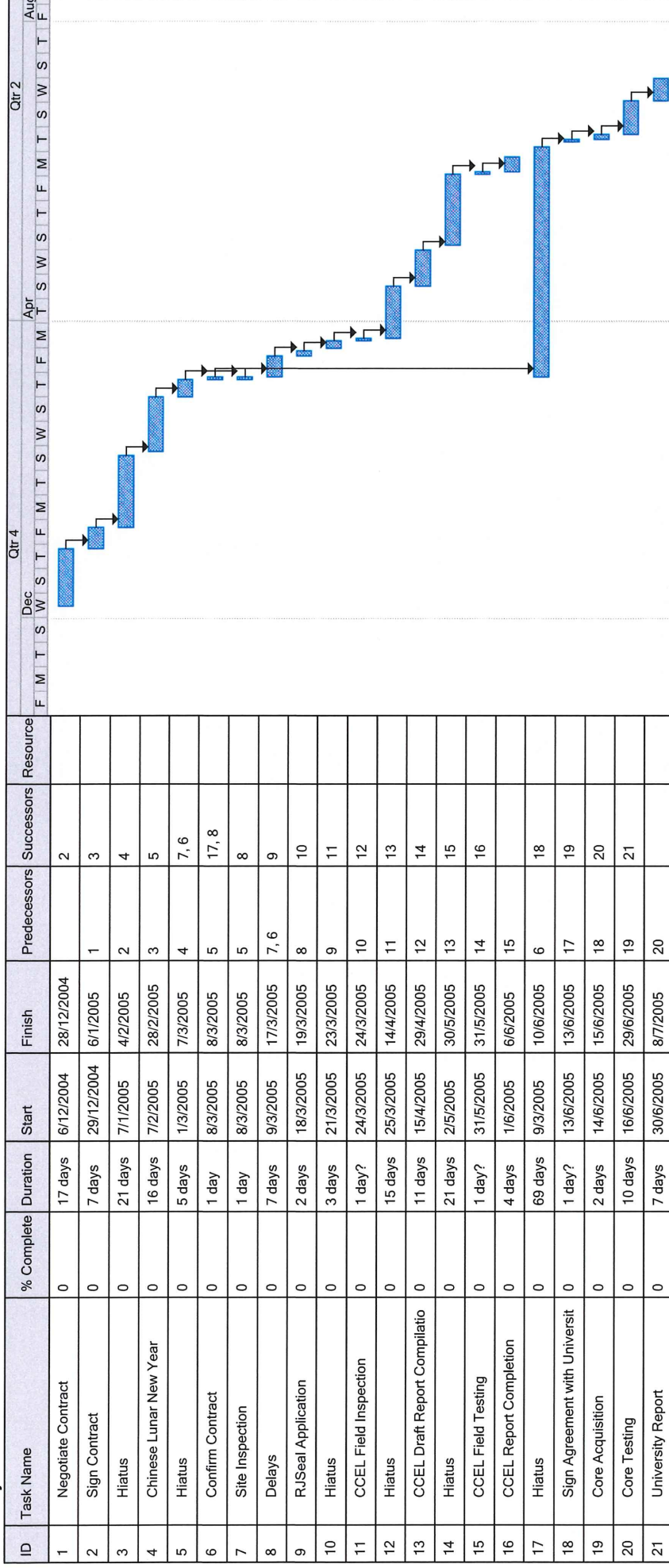
This aspect of the testing was beyond the capabilities of the field equipment available to both CROWN CAPITAL ENTERPRISE LIMITED personnel.

It is understood that the Guangzhou Communications University will acquire cores from the test strips and submit them for testing and as such, the results will be reported separately.

5.0 Test Completion Schedule

Technicians from the Guangzhou Communications University will be dispatched in mid-June to undertake testing on the section of highway where the Test Strips are located. The completion of this testing is scheduled as shown in the following chart.

LiveProject - KunYu Contract



CROWN CAPITAL ENTERPRISE LIMITED.

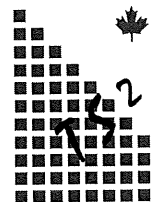
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APPENDICES

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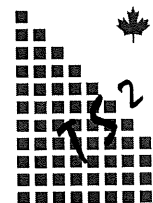
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Appendix A

RJSeal™ Descriptive Literature



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HONG KONG, SAR, CHINA

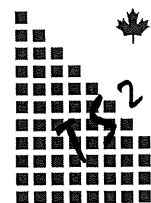
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Appendix B

Desco D200 Sprayer

Technical Specifications



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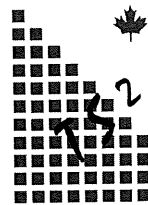
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Appendix C

Field Testing.



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