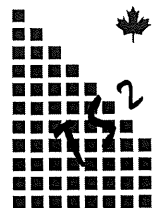


**CROWN CAPITAL ENTERPRISE
LIMITED**

WANCHAI, HONG KONG

**RJSeal™ Application
Jing-Qin Expressway,
Hebei Province,
Peoples Republic of China**

April 2006



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

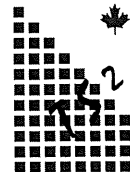
CROWN CAPITAL ENTERPRISE LIMITED

RJSeal™ Application
Jing-Qin Expressway, Hebei Province,
Peoples Republic of China

April 2006

APPENDICES

No.	Description
A	RJSeal™ Descriptive Literature
B	Desco D200 Sprayer – Technical Data



TS² Consulting Inc.
Lamma, Hong Kong

CROWN CAPITAL ENTERPRISE LIMITED

Application of RJSeal™ Jing-Qin Expressway, Hebei Province Peoples Republic of China

April 2006

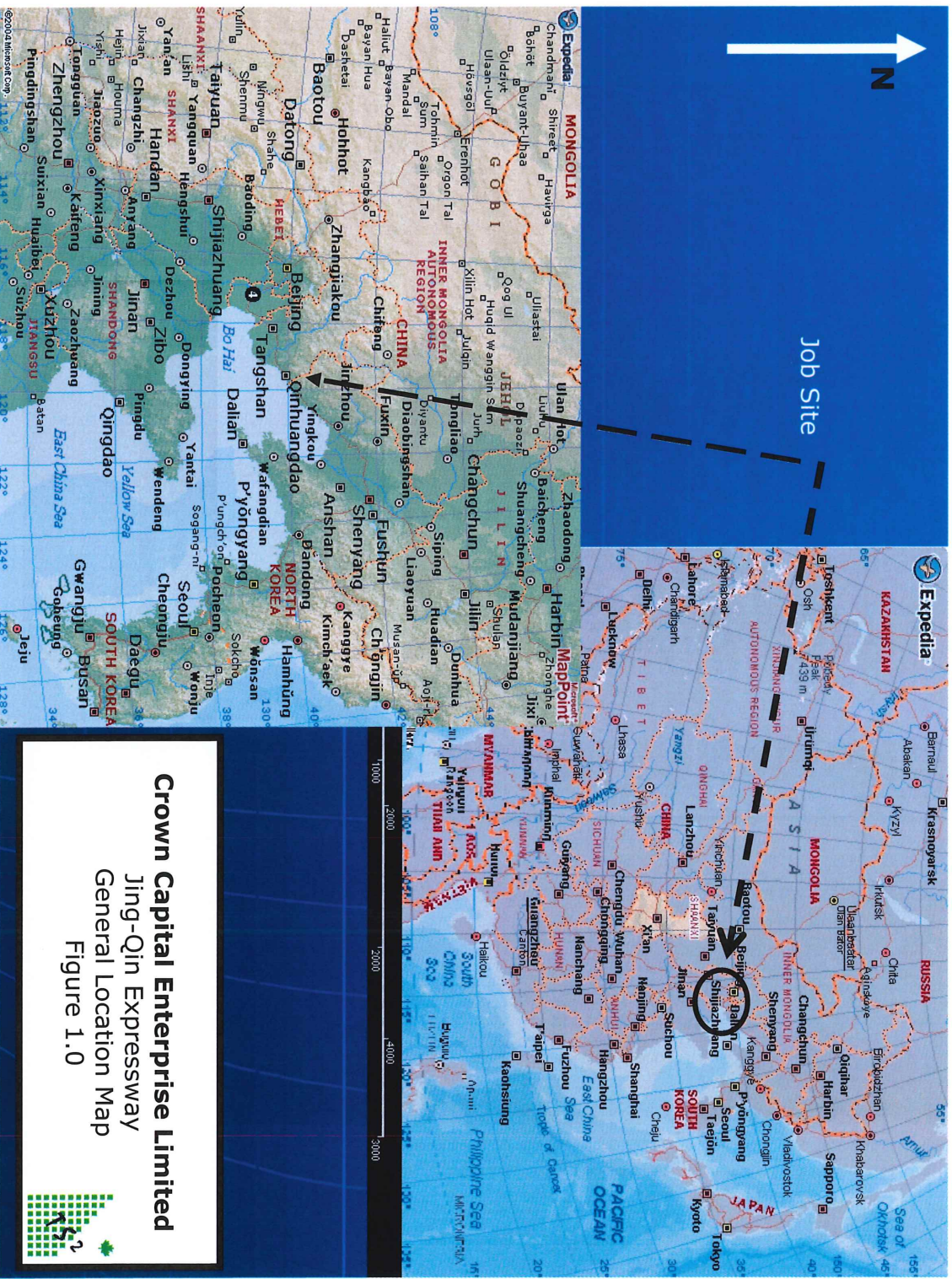
1.0 INTRODUCTION

Crown Capital Enterprise Limited of Hong Kong entered into an arrangement with the Jing-Qin Expressway Maintenance Management Co., which is responsible for the maintenance of the infrastructure of the Jing-Qin Expressway in Hebei Province, China in April 2006. This arrangement calls for the analysis of the performance of RJSeal™, a sealer/rejuvenator for asphalt pavement on Jing-Qin Expressway near QinHuangDao, Hebei Province.

Hebei Province is situated to the north of the Yellow River (HuangHe) at its confluence with the Sea of Bohai. Hebei is bordered by Henan, Shanxi, Shandong and Liaoning Provinces as well as Mongolia. Furthermore, Beijing and TianJin and their independently administered Municipalities are hosted by Hebei Province. Hebei has seen a major growth in the highway system, in recent years, due to a government drive to build national highways linking Beijing and TianJin with major cities in the adjoining provinces and the massive increase in the world export trade. Shijiazhuang is the capital city of Hebei Province with a population of approximately 3 million. See figure 1.0 for a map showing the location of Shijiazhuang and Hebei Province.

In the immediate area, a significant unconsolidated sedimentary sequence predominates and this is due to the site adjoining the delta of the Yellow River. The asphalt in the area is manufactured from imported materials, which is comprised of crushed and screened sandstone and diorites hauled in from quarries elsewhere in Hebei Province, as well as washed gravels from the various rivers. The bitumen binder for the asphalt is sourced from various locations. Since Hebei Province borders the Sea of Bohai, the possibility of bitumen being sourced from offshore is a distinct possibility so refineries in Singapore and the like should not be forgotten.

Hebei has seen a major growth in the highway system, due to a government drive to build national highways linking Beijing with major cities in the adjoining provinces. The six lane highway from Beijing to QinHuangDao and beyond to Shenyang was the longest six-lane highway in China, at the time of its completion in 2000. Other Expressways connect Tangshan with TianJin and Shijiazhuang with Taiyuan in Shanxi province. A 42 km Expressway between Beijing and Kaifen was opened in 2001, forming part of the national route between Beijing and Guangzhou.



Crown Capital Enterprise Limited
Jing-Qin Expressway
General Location Map
Figure 1.0

2.0 CO-OPERATIVE PROGRAM

The intent of the arrangement with Jing-Qin Expressway Maintenance Management Co., which is responsible for the maintenance of Jing-Qin Expressway, outside QinHuangDao, is to demonstrate RJSeal™ at a location selected by the maintenance company. The application will subsequently allow analysis of the performance of RJSeal™ on a variety of asphalt surfaces. An application was undertaken on the Jing-Qin Expressway, outside QinHuangDao. The work was undertaken in late April, 2006. The portion of the highway that was treated is composed of asphalt pavement, nominally 15 centimetres thick, which overlays a silty sand.

The age of the asphalt pavement is circa 2002. Keen interest was expressed in having the life of the asphalt pavement extended on this highway as the bitumen binder is now quite inflexible. The asphalt pavement has some patches where potholes and damaged pavement has been replaced. There are limited lateral and linear cracks which were sealed with molten road tar earlier in the springtime.

3.0 RJSeal™

RJSeal™ is a proprietary product that is supplied by Crown Capital Enterprise Limited of Wanchai, Hong Kong. RJSeal™ has been proven in numerous applications in North and South America and recently in China 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 that outlines the experience with RJSeal™ at various locations in North America and South America as well as China. 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 other locations in the U.S.A. Since 2000, RJSeal™ has been demonstrated successfully at over sixty (60) locations in China and sixty (60) commercial-scale applications have taken place at various locations, including Beijing, Shanghai, Kunming, QinHuangDao and ChangChun plus Harbin, DaQing and LiuShunTun in Heilongjiang Province.

4.0 TEST PROGRAM

Since Hebei Province is located in a northern climate (Latitude: 38 to 43 North) at a low altitude (150 to 200 metres), it's a demanding setting for asphalt, given the climate (extremes of 45 Celsius in summer and minus 25 Celsius in the winter) and intense exposure to ultraviolet radiation, all which contribute to the oxidation and breakdown of the asphalt binder.

Hebei has a significant concentration of highways in China, with some 5,000 kms of National and Provincial Highway. Jing-Qin Expressway Maintenance Management Co. is responsible for the maintenance of the Jing-Qin Expressway which leads from Beijing to QinHuangDao.

In view of the relatively short life of the asphalt surface, and a tight maintenance budget, the road maintenance department is definitely interested in economically extending the life of the asphalt road surface. To this end, they agreed to try RJSeal™ on the Jing-Qin Expressway, outside QinHuangDao. See Figure 4.0, showing the location of this highway with respect to QinHuangDao and Hebei Province

On April 28 and again on April 29, 2006, the westbound lanes of the Jing-Qin Expressway were treated with RJSeal™. The location selected for the application of RJSeal™ was at the following geographic location:

Table 4.1		Location of Test Strip on Jing-Qin Expressway		
Km Marker	Date	Lane(s)	Latitude	Longitude
k219+580	28-Apr	Westbound	39 deg 56.017 min	119 deg 19.122 min
k212+200	29-Apr	Westbound	39 deg 56.017 min	119 deg 19.122 min

There is a slight camber to the road, which causes water to run off toward the shoulder, rather than puddle on the road. No significant oil spills were observed, just the occasional drop of transmission oil, crankcase oil or hydraulic fluid. The asphalt pavement surface was not appreciably worn with no rutting due to traffic wear. There was aging and oxidation of the bitumen, which extended to a depth of several millimetres. The entire portion of the treated asphalt pavement section at Km 219 overlies a compacted silty-clay, sub-grade. The road has extensive lineal and lateral cracks that had been recently filled with molten road tar. Whereas the asphalt pavement section at Km 212 is a 10 cm asphalt overlay on a bridge deck

RJSeal™ was applied, using a Desco D200 Sprayer. See Appendix B for technical information on this unit. This unit can uniformly apply the RJSeal™ in the application.

Ambient temperatures at the time of the application on April 28 and 29 were in the 20 degree Celsius range, with humidity in the 50% range.

Particulars of the RJSeal™ Application are shown in the table that follows:

Table 4.2			Particulars of the application on Jing-Qin Expressway							
Date	Work Time (hrs)	Total Area (m ²)	Total Area (yd ²)	RJSeal™ Applied			RJSeal™ Application Rate			
				US gals	Litres	Kgs	US Gal /yd ²	Litre/m ²	m ² /Litre	m ² /Kg
28-Oct-05	10.5	13,284	15,879	948	3,585	3,800	0.060	0.29	3.71	3.50
29-Oct-05	10.0	6,152	7,354	424	1,604	1,700	0.058	0.28	3.84	3.62
Total	20.5	19,436	23,233	1,373	5,189	5,500	0.059	0.28	3.75	3.53

Subsequent inspection, showed that the application rate of 3.5 m²/kg was adequate for the asphalt pavement at this location

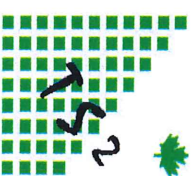
The section on the Jing-Qin Expressway is comprised entirely of asphalt pavement. The location with respect to QinHuangDao is graphically shown in figure 4.0.

Photos showing the application of RJSeal™ follow in figures 4.1, 4.2, and 4.3 on the following pages.





Figure 4.1 Test Strip on Highway



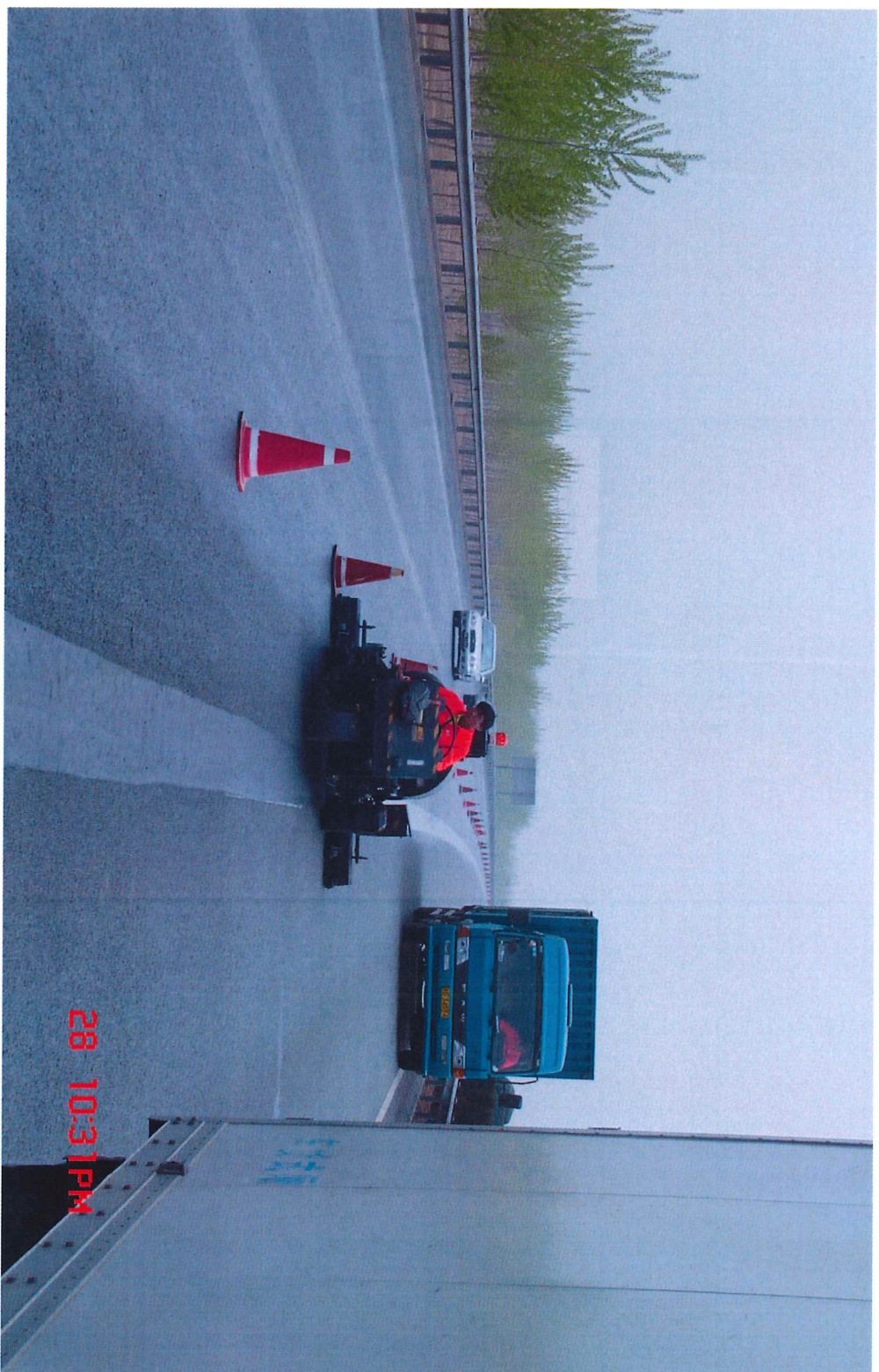


Figure 4.2 Typical Application Procedure.



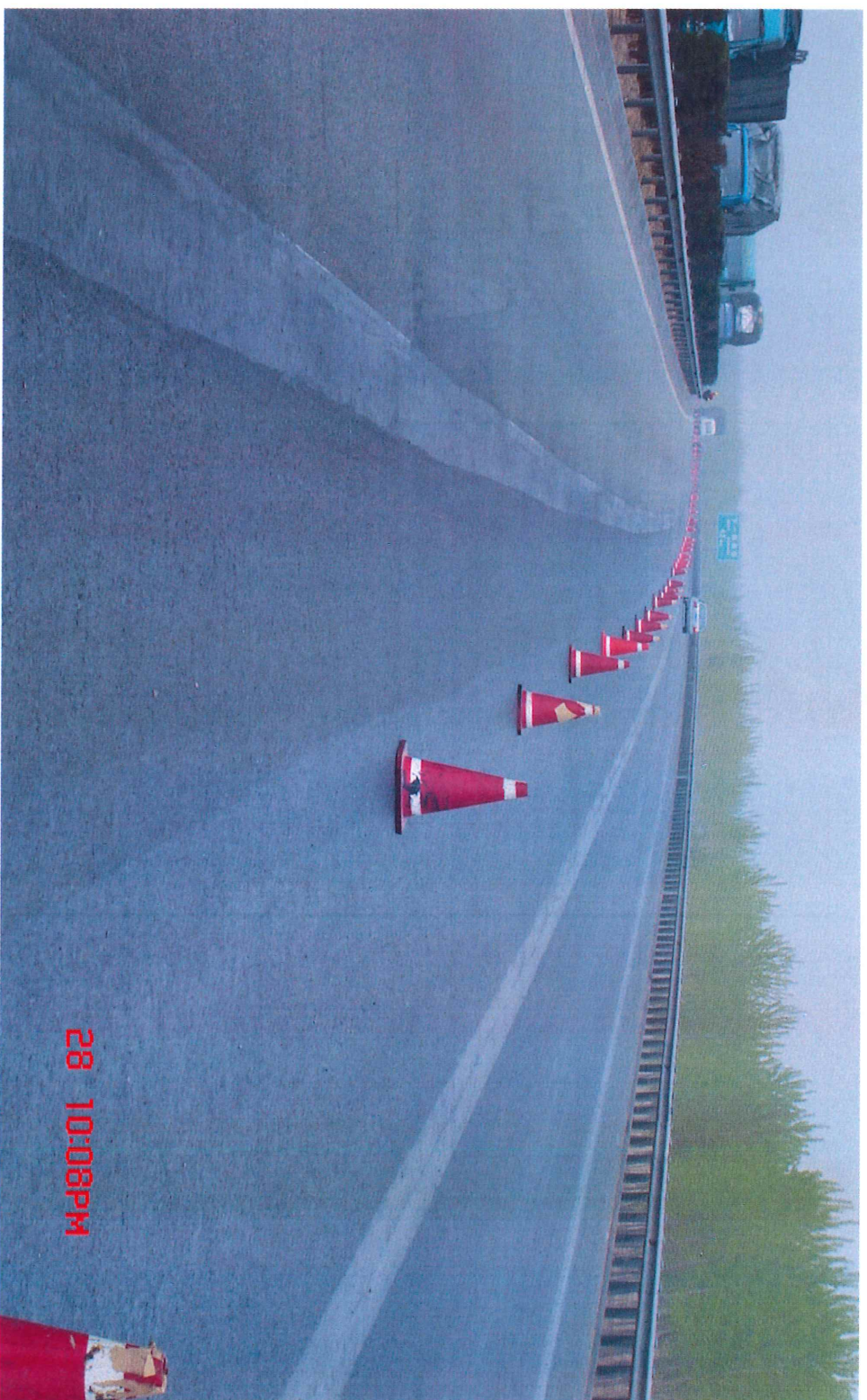


Figure 4.3 Finished Surface.



4.1 RJSeal™ Testing

To date the comparison of the asphalt treated with RJSeal™ has been compared on a subjective basis over a very short period on Highway near QinHuangDao. Testing equipment was brought to the site for comparison on a more disciplined, objective basis included the following tests.

- Water Penetration
- Macrotexture (Depth of Texture)
- Skid Potential

At a later date, cores will be acquired from the asphalt pavement for laboratory testing and the following properties of the asphalt pavement will be determined:

- Viscosity
- Ductility
- Penetration
- Softening Point

4.2 Water Penetration

Water Penetration Tests (China Testing Standard T 0730-2000) were undertaken at several locations on the untreated portion of the road, in close proximity to the test strip and later on the RJSeal™ treated section, in close proximity to the Sand Patch tests.

Table 4.3 Highway Location	Application Date	Lane	Wheel Path	Direction of Traffic	Water Penetration	
					Before ml/min	After ml/min
k219+580	28-Apr-06	Slow Lane	right wheel	Westbound	0	n/a
k212+200	29-Apr-06	Middle Lane	right wheel	Westbound	0	n/a

See Figure 4.4 that follows for a pictorial presentation of the Water Penetration Meter.



Figure 4.4 Water Penetration Test



4.3 Macrotexture (Depth of Texture)

The sand patch test (ASTM Standard E965-96 OR China Standard T 0961-95) was employed to ascertain the Pavement Macrotexture Depth. Comparison was undertaken at several locations on both the untreated and RJSealTM treated sections. The results of the testing are documented in the table that follows:

Table 4.4	Highway Location	Application Date	Lane	Wheel Path	Direction of Traffic	Depth of Texture	
						Before	After
						mm	Mm
	k219+580	28-Apr-06	Slow Lane	right wheel	Westbound	0.53	n/a
	k212+200	29-Apr-06	Middle Lane	right wheel	Westbound	0.66	n/a

See Figure 4.5 which follows, showing the sand patch testing procedure.

4.4 Skid Resistance

A British Pendulum (ASTM Standard E303-93 OR China Standard T 0964-95) was employed to determine the skid resistance of the road surface prior to the application of RJSealTM and also after the application.

Table 4.5	Highway Location	Application Date	Lane	Wheel Path	Direction of Traffic	British Pendulum	
						Before	After
						BPN	BPN
	k219+580	28-Apr-06	Slow Lane	right wheel	Westbound	55	n/a
	k212+200	29-Apr-06	Middle Lane	right wheel	Westbound	55	n/a

The test results from the British Pendulum, are not correlateable with the sand patch test. A BPN of 42 is indicative of an acceptable road surface from a skid resistance point of view. Whereas a BPN of 50 infers that the road surface is highly acceptable. In the instance of the numbers shown in the aforesaid table, the reader is cautioned to treat them with some caution as they are ambiguous as the sand patch tests indicate a wide variation in the macrotexture, which should also be reflected by the British Pendulum Numbers. Furthermore it suggests that the operator of the equipment should be more judicious in selecting a location that is more representative of the road surface.

See Figure 4.6 which follows, showing the British Pendulum Testing.

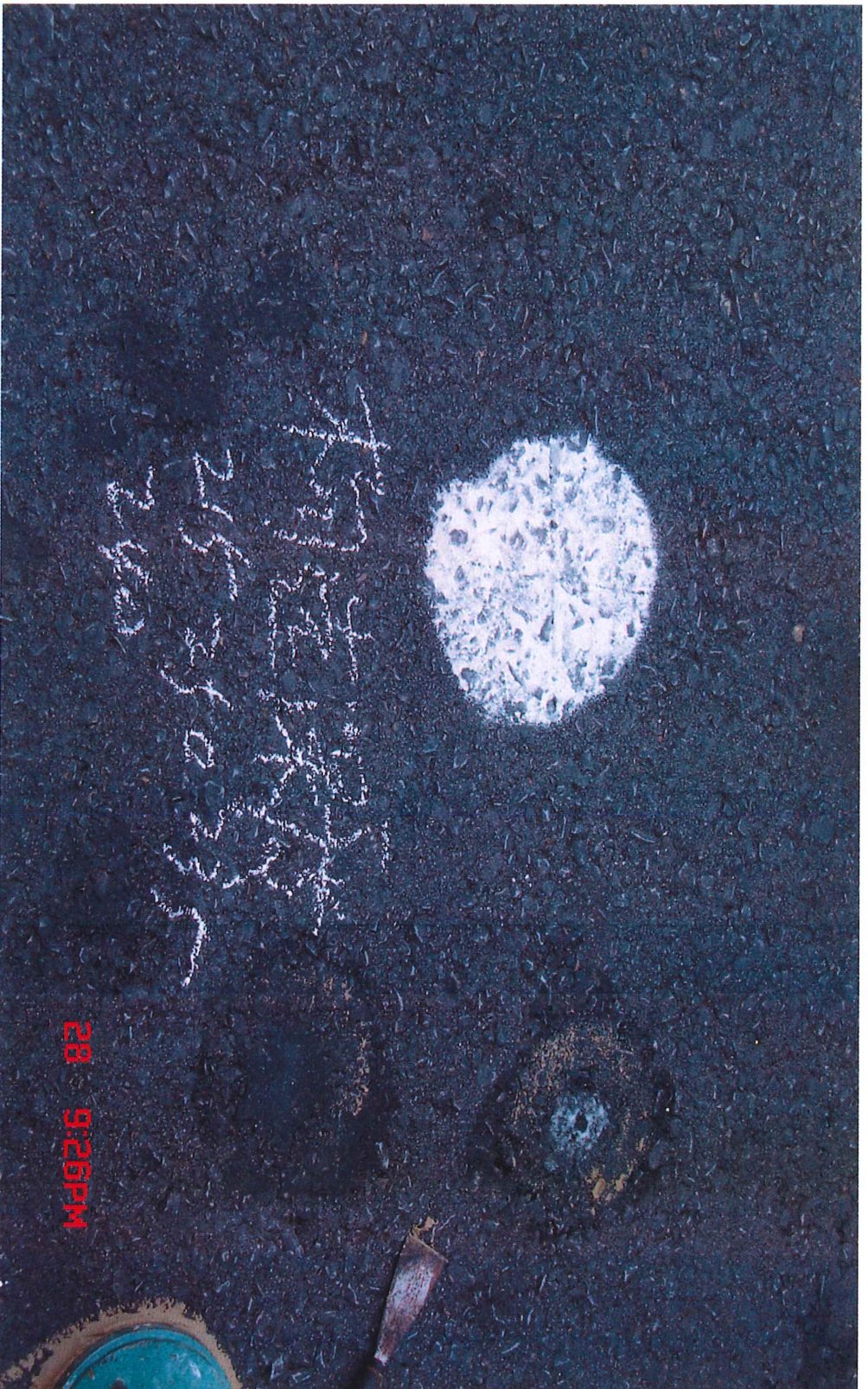
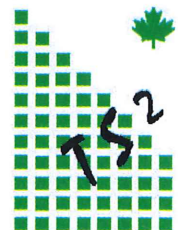


Figure 4.5 Sand Patch Test





Figure 4.6 British Pendulum Test



4.5 Ductility/Viscosity/Penetration Testing

This aspect of the testing is beyond the capabilities Crown Capital Enterprise Limited personnel and external assistance has been sought from outside experts in the field of Asphalt Testing. To this end, the Provincial Highways Maintenance Department has retained an independent testing company to conduct tests on the treated section. This will be reported separately.

5.0 Test Completion Schedule

The technicians from the testing laboratory, retained by the Jing-Qin Expressway Maintenance Management Co. will be dispatched to undertake further testing on the trial section in the near future. The projected completion of this testing is scheduled as shown in the following chart.

CROWN CAPITAL ENTERPRISE LIMITED

WANCHAI, HONG KONG

**RJSeal™ Application
Jing-Qin Expressway,
Hebei Province,
Peoples Republic of China**

April 2006

APPENDICES

No.	Description
A	RJSeal™ Descriptive Literature
B	Desco D200 Sprayer – Technical Data



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

**CROWN CAPITAL ENTERPRISE
LIMITED**

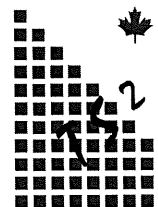
WANCHAI, HONG KONG

**RJSeal™ Application
Jing-Qin Expressway, Hebei Province,
Peoples Republic of China**

April 2006

Appendix A

RJSeal™ Descriptive Literature



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

**CROWN CAPITAL ENTERPRISE
LIMITED**

WANCHAI, HONG KONG

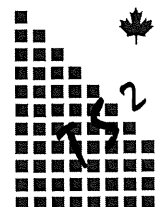
**RJSeal™ Application
Jing-Qin Expressway, Hebei Province,
Peoples Republic of China**

April 2006

Appendix B

Desco D200 Sprayer

Technical Data



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

CROWN CAPITAL ENTERPRISE LIMITED

RJSeal™ Application Jing-Qin Expressway, Hebei Province, Peoples Republic of China

April 2006

TABLE OF CONTENTS

Section	Description	Page
1.0	Introduction	1
2.0	Co-operative Program	3
3.0	RJSeal™	4
3.1	Prior Experience	4
4.0	Test Program	5
4.1	RJSeal™ Testing	11
4.2	Water Penetration	11
4.3	Macrotexture	13
4.4	Skid Resistance	13
4.5	Ductility/Viscosity/Penetration Testing	16
5.0	Test Completion Schedule	17
6.0	Statement of Qualifications	19

FIGURES

No.	Description	Page
1.0	General Location Map	2
4.0	Specific Location Map	7
4.1	Initial Test Application	8
4.2	Typical Application Procedure	9
4.3	Finished Surface	10
4.4	Water Penetration Meter	12
4.5	Sand Patch Test	14
4.6	British Pendulum Test	15
5.0	Test Completion Schedule	18

TABLES

No.	Description	Page
4.1	Geographic Location of RJSeal™ demo on Jing-Qin Expressway	5
4.2	Particulars of the RJSeal™ demo on Jing-Qin Expressway	6
4.3	Water Penetration Tests	11
4.4	MacroTexture (Sand Patch Tests)	13
4.5	Skid Resistance Tests	13