ALBERTA TRANSPORTATION
PAVEMENT MONITORING RESULTS
FALL 2011

SECTION C

NORTH CENTRAL (STONY PLAIN) REGION

SITE NC22: HWY 759:02, KM 1.5
(NORTH OF JUNCTION HWY 39 AND HWY 759)

1.0 OBSERVATIONS

1.1 Field Program

A total of fifteen reference points have been established along the remediated road surface. Survey control was monitored along centreline, east edge of pavement and west edge of pavement. A level survey was conducted on Oct 5, 2011 by Ms. Elizabeth Kravontka, T.T. and Mr. Logan McDowell, EIT of EBA, A Tetra Tech Company (EBA).

As part of the pilot study, the site was proposed to be monitored for settlement during frost free months for two years. EBA is conducting the level surveys as part of the NC 22 foam injection pilot project being conducted under EBA project number E12101085.011. The interim results of this work are reported as part of the GRMP reporting as this is the last series of reports to be issued by EBA under the current contract.

2.0 INTERPRETATION

2.1 General

2.1 Survey

Survey plots for the section of remediation from 55 metres north of the south boundary to 30 metres north of the south boundary along centreline, east edge of pavement (northbound lane) and west edge of pavement (southbound lane), are presented in Section D and are summarized in the attached tables. Grid line references are shown on the attached Figure NC22-1.

2.2 Interpretation of Monitoring Results

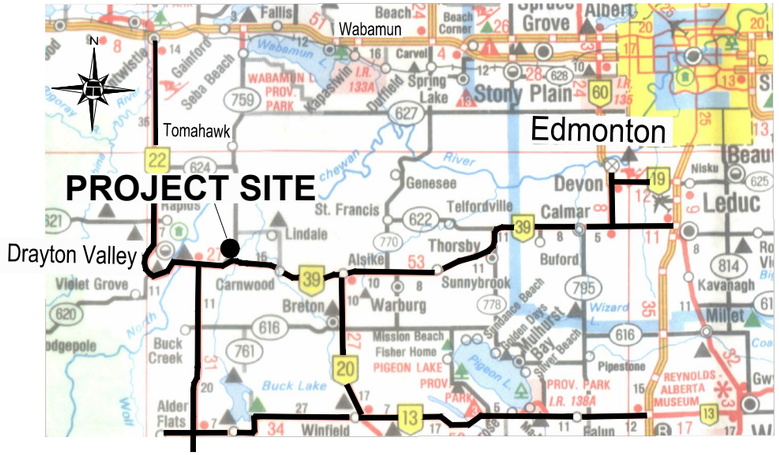
A level survey was completed on the day of paving, September 10, 2010 and data collected was used as the benchmark for comparing subsequent monitoring to performance of the remedial measures. The fall 2011 monitoring shows variable settlement ranging from no settlement to 8 mm of settlement. The survey also shows some heave in monitoring up to 109 mm. Survey error is more likely for the anomalous readings.

In general it appears that, aside from a couple of anomalous readings, the latest survey shows there has been negligible settlement compared to the baseline survey. It is expected that additional level surveys will be required to identify a trend in the survey data and the magnitude of variance/error from that trend. An inspection of the pavement surface on November 9, 2011 did not encounter any new cracking which could be interpreted to be signs of deflection due to settlement.

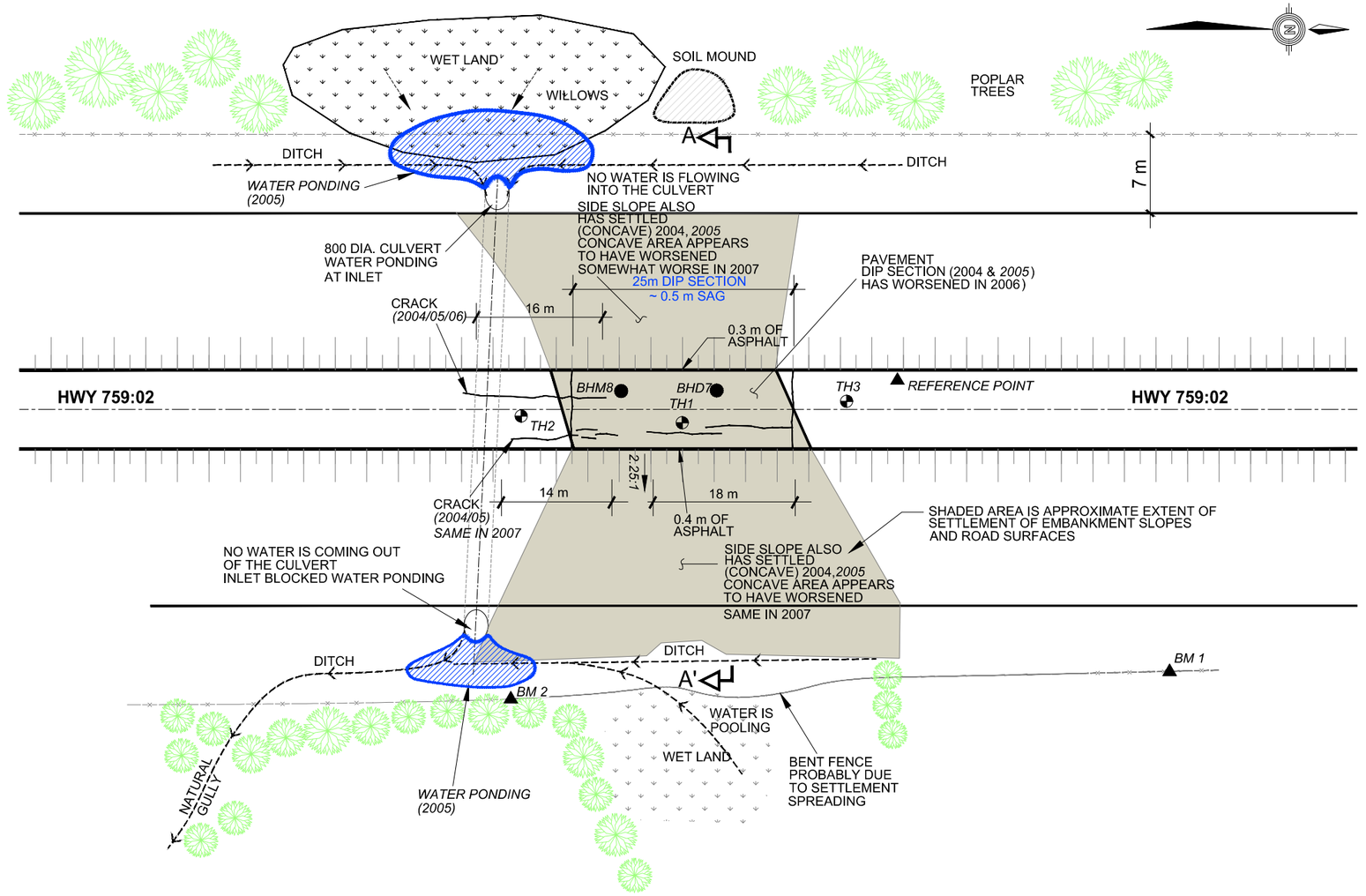
3.0 RECOMMENDATIONS

3.1 Future Work

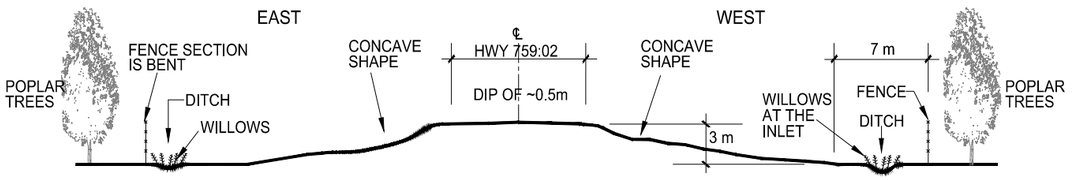
Survey monitoring should continue for one more year as per proposed scheduling. Two events of monitoring should be done during frost free months of 2012. Upon completion of those surveys, EBA will prepare a brief summary of the monitoring, along with any conclusions and recommendations for future applications of this repair method.



KEY PLAN
N.T.S



SITE PLAN
NOT TO SCALE



SECTION A-A'
(NOT TO SCALE)

BASE DRAWING PROVIDED BY THURBER ENGINEERING LTD.

LEGEND :

- BOREHOLE DRILLED BY JACQUES WHITFORD (2006)
- BOREHOLE DRILLED BY EBA (2010)
- BENCH MARK
- CONCAVE SIDE SLOPES

NOTES :

1. FEATURE LOCATIONS ARE APPROXIMATE.
2. SITE INSPECTION CARRIED OUT IN MAY, 2004
3. *MAY 2007 OBSERVATIONS SHOWN IN RED*
4. *BM1 - RELATIVE ELEVATION 99.42 m*
5. *BM2 - RELATIVE ELEVATION 96.282 m*
4. *REFERENCE POINT - RELATIVE ELEVATION 100.0 m*

CLIENT
Government of Alberta ■ Transportation

NC 22 PAVEMENT DIP - FOAM TREATMENT PLAN
HWY 759:02, KM 1.5

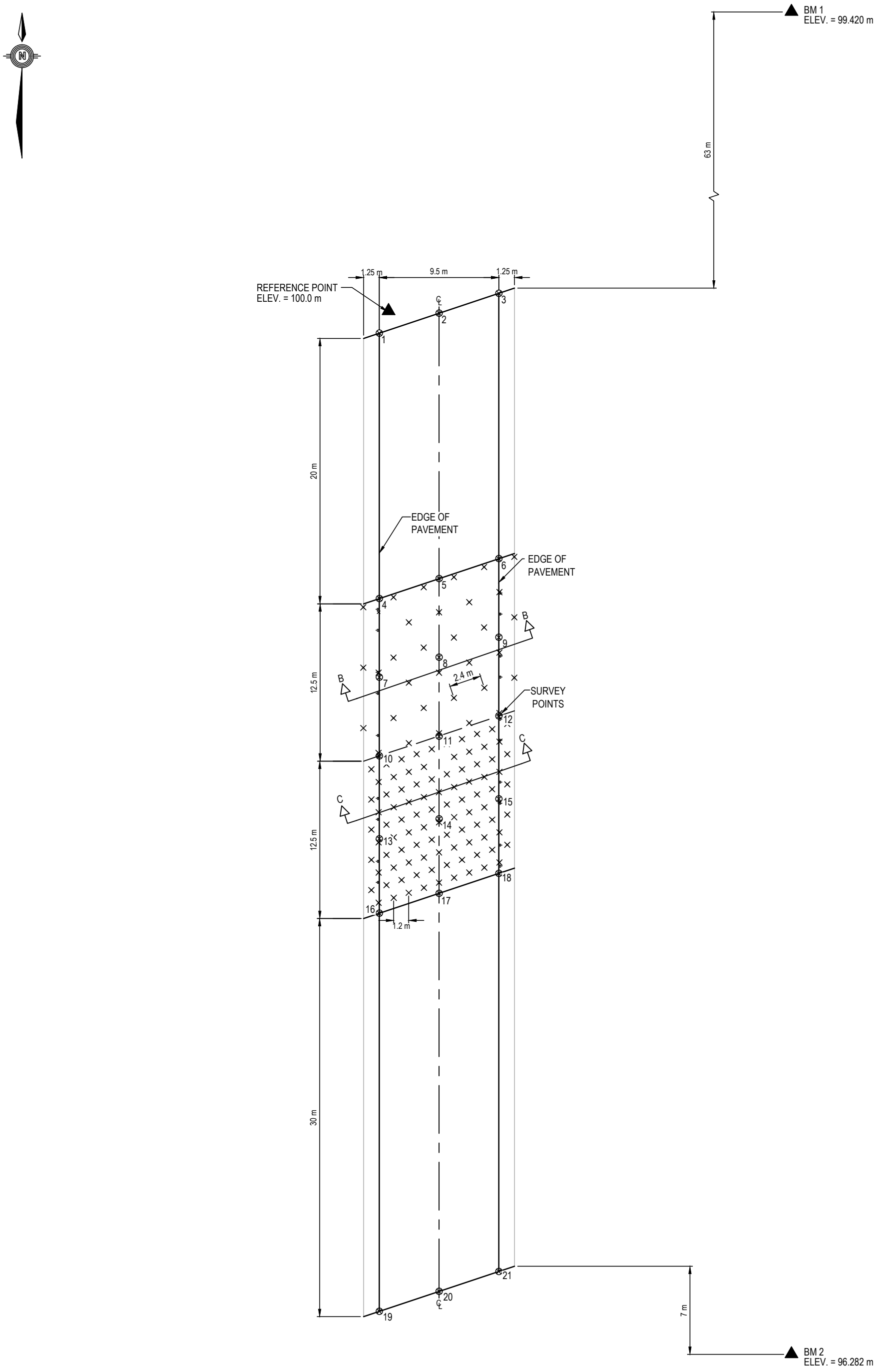
NC 22 PAVEMENT DIP SITE PLAN

eba A TETRA TECH COMPANY

PROJECT NO.	DWN	CKD	REV
E12101085.003	TK	RJM	0
OFFICE: EDM	DATE: November 18, 2011		

Figure 1

Q:\Edmonton\Drafting\DIVISIONS2007\E12\E12101085\003\Acad\E12101085.003_FIG 1.dwg [FIGURE 1] November 18, 2011 - 2:30:23 pm (BY: KIROS, TIGIST)



LEGEND:

⊗ - SURVEY POINTS
× - INJECTION POINTS

0 10
Scale: 1: 300 (metres)

CLIENT

Government of Alberta ■ Transportation

eba A TETRA TECH COMPANY

NC 22 PAVEMENT DIP - FOAM TREATMENT PLAN
HWY 759:02, KM 1.5

E12101085 NORTH CENTRAL (STONY PLAIN)
GEOHAZARD RISK MANAGEMENT PROGRAM
NC 22 FOAM INJECTION TREATMENT PLAN

PROJECT NO.	DWN	CKD	REV
E12101085.003	TK	RJM	0

OFFICE	DATE
EDM	November 18, 2011

Figure 2

NC-22 HWY 759:02 KM1.5
(North of Junction Hwy 39 and Hwy 759)

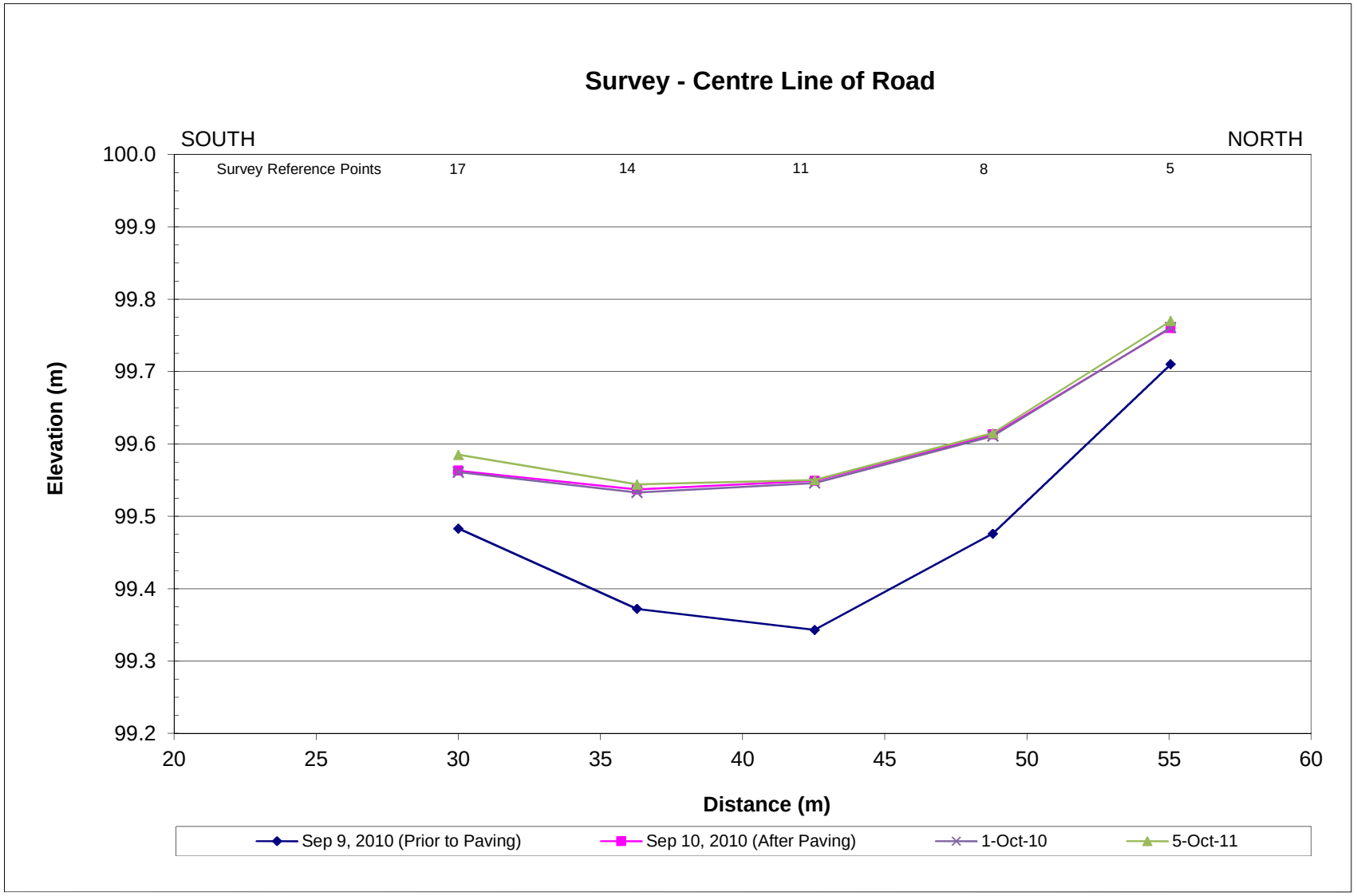
Survey Monitoring
Change in Elevation (m)

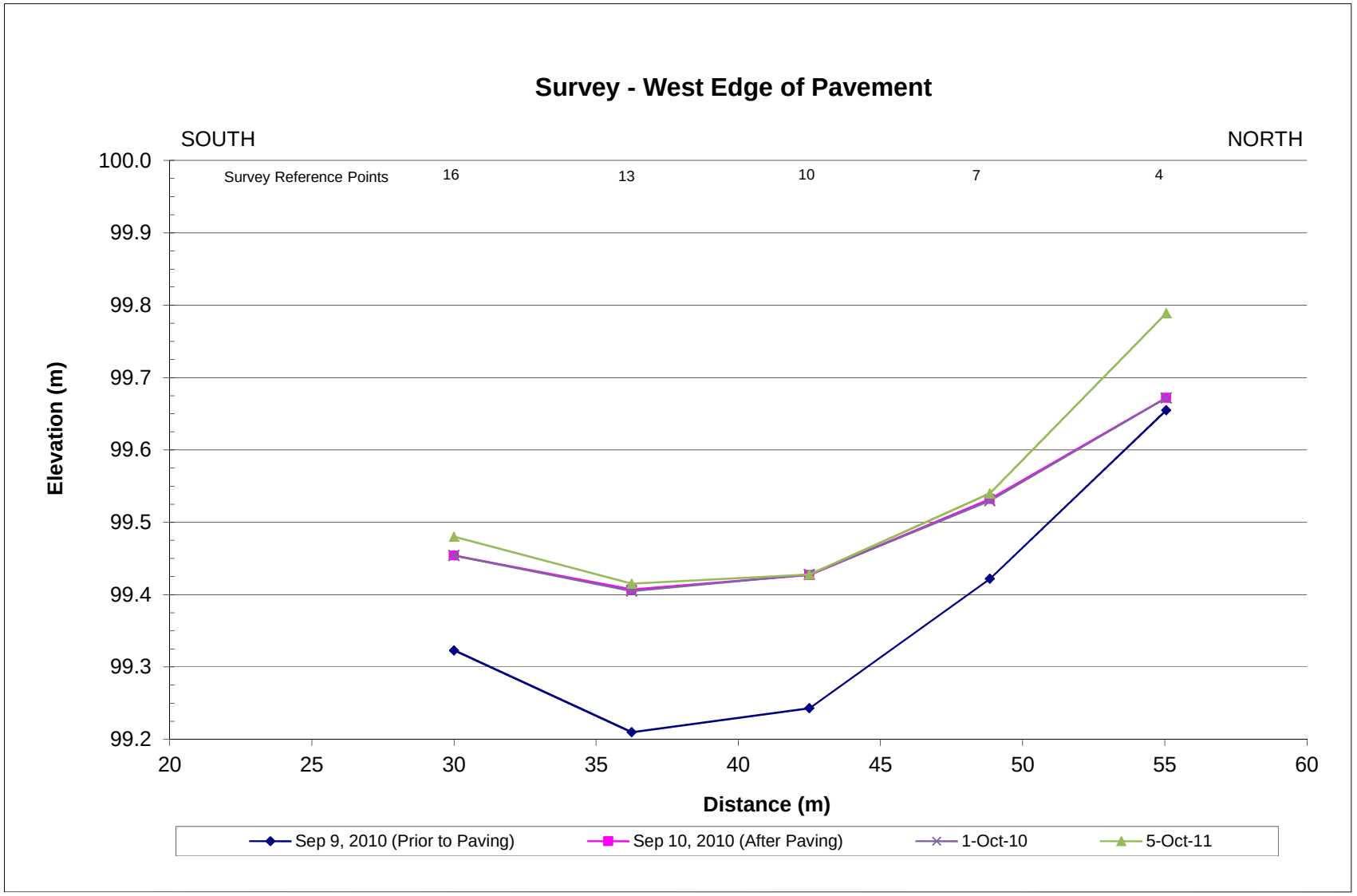
Survey Reference Point	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Grid Line	A	A	A	CD	CD	CD	F	F	F	KL	KL	KL	P	P	P
Offset (m)	-4.8	CL	4.8	-4.8	CL	4.8	-4.8	CL	4.8	-4.8	CL	4.8	-4.8	CL	4.8
Distance (m)	55.05	55.05	55.05	48.85	48.80	48.75	42.50	42.53	42.55	36.25	36.28	36.30	30.00	30.00	30.00
Date															
9-Sep-10	0.017	0.050	0.117	0.110	0.137	0.180	0.184	0.206	0.178	0.197	0.165	0.147	0.131	0.080	0.041
10-Sep-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17-Sep-10	-0.003	-0.002	-0.003	-0.002	-0.003	-0.005	-0.001	-0.005	-0.002	-0.003	-0.006	-0.003	-0.002	-0.003	-0.005
1-Oct-10	0.000	0.001	0.002	-0.002	-0.002	-0.001	0.001	-0.003	0.000	-0.002	-0.004	-0.002	0.000	-0.002	-0.002
5-Oct-11	0.117	0.010	0.007	0.008	0.002	0.000	0.001	0.001	0.013	0.008	0.007	0.008	0.026	0.022	0.019

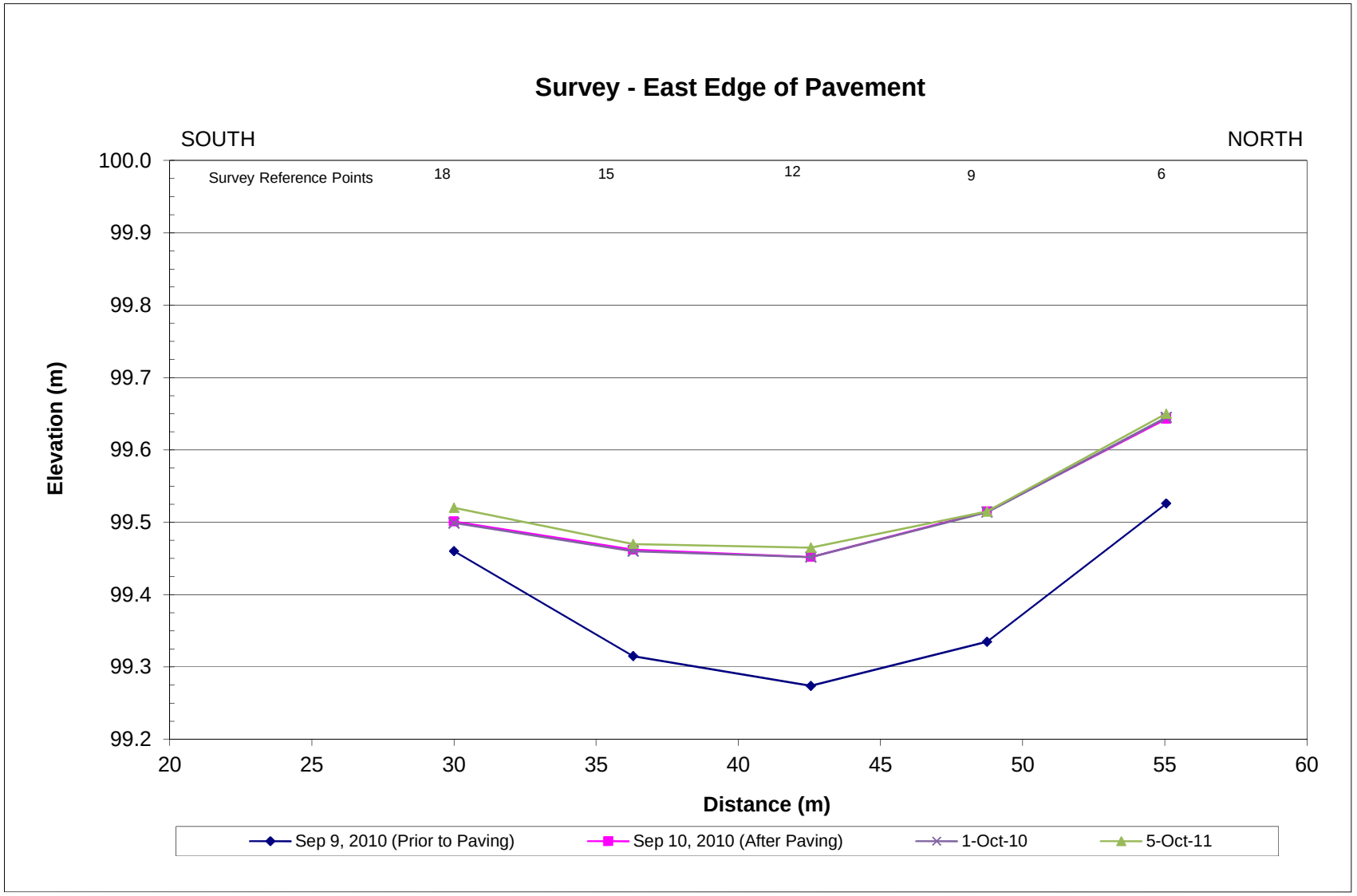
FALL 2011

NC-22 HWY 759:02 KM1.5
(North of Junction Hwy 39 and Hwy 759)

E12101085




Survey - West Edge of Pavement
SOUTH
NORTH
Survey Reference Points
16
13
10
7
4
100.0
99.9
99.8
99.7
99.6
99.5
99.4
99.3
99.2
Elevation (m)
20
25
30
35
40
45
50
55
60
Distance (m)
Sep 9, 2010 (Prior to Paving)
Sep 10, 2010 (After Paving)
1-Oct-10
5-Oct-11


Survey - East Edge of Pavement
SOUTH
NORTH
Survey Reference Points
18
15
12
9
6
100.0
99.9
99.8
99.7
99.6
99.5
99.4
99.3
99.2
Elevation (m)
20
25
30
35
40
45
50
55
60
Distance (m)
Sep 9, 2010 (Prior to Paving)
Sep 10, 2010 (After Paving)
1-Oct-10
5-Oct-11