الـمـلـحق رقـم

١

تصحيح المضلع (Traverse)

Blunder Detection/Analysis

								Reliability Tests	
Type	Pnt1	Pnt2	Pnt3	Adjusted	Resid	Redun	Estimate	Marg	Ext
DIST	200	1		128.74	-0.009	0.032	0.289	p	p
ANG	100	200	1	122-33-57.8	22.8	0.303	-75.356	p	p
DIST	1	2		158.908	0	0.099	0.002	p	p
ANG	200	1	2	247-40-2523	15.234	0.116	-131.6	p	p
DIST	3	4		62.652	0.002	0.1	0.02	p	p
ANG	2	3	4	236-09-08.84	13.84	0.103	-134.601	p	p
DIST	4	5		18.883	-0.009	0.036	0.244	p	p
ANG	3	4	5	108-00-26.52	-3.484	0.33	10.56	p	p
DIST	2	3		75.518	-0.007	0.049	0.144	p	p
ANG	1	2	3	136-20-7.47	12.473	0.079	-156.975	p	p
DIST	6	7		67.665	0.007	0.083	-0.085	p	p

ANG	5	6	7	174-13-08.97	-16.028	0.089	180.673	p	p
DIST	7	8		74.402	0.001	0.099	-0.013	p	p
ANG	6	7	8	141-57-32.35	-22.654	0.092	246.193	p	p
DIST	10	300		186.079	0.001	0.103	-0.011	p	p
ANG	9	10	300	134-36-35.88	-14.11	90.086	164.134	p	p
DIST	9	10		149.97	0.008	0.079	-0.104	p	p
ANG	8	9	10	274-27-56.38	-38.617	0.131	294.991	p	p
DIST	300	400		89.088	0.012	0.131	-0.059	p	p
ANG	10	300	400	193-37-43.64	-41.362	0.322	128.405	p	p
DIST	8	9		42.197	-0.007	0.051	0.132	p	p
ANG	7	8	9	130-11-30.14	-64.862	0.227	285.162	p	p
DIST	5	6		56.026	0.008	0.76	-0.0101	p	p
ANG	4	5	6	291-32-33.26	-11.738	0.371	36.987	p	p

Redundancy is the observation's contribution to the degree of freedom.

(From 0 to 1 with 1 being best)

Estimate is used to estimate the blunder which might cause large residuals.

Marg is a reliability test for a single blunder (Type II error).

Ext is an external reliability test for an observation P = PASS FAIL = FAIL

- **من هنا وبعد الحصول على هذه المعلومات وبعد الاعتماد على جدول (٥-١) نستطيع أن نصنف هذا المضلع إلى المرتبة الثالثة صنف أول.**

الـمـلـحق رقـم

٢

ملحق المنحنيات الأفقية (*Horizontal Curve*)

Alignment: ASHTTO

Description:

Tangent Data

Description	PT Station	Northing	Easting
Start:	0.000	105824.854	159939.976
End:	53.848	105774.170	159958.164

Tangent Data

Parameter	Value	Parameter	Value
Length:	53.848	Course:	S 19° 44’ 28.4388" E

Curve Point Data

Description	Station	Northing	Easting
PC:	53.848	105774.170	159958.164
RP:		105801.192	160033.462
PT:	1+44.133	105721.574	160025.660

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	64° 39’ 42.7623"	Type:	LEFT
Radius:	80.000		
Length:	90.285	Tangent:	50.634
Mid-Ord:	12.402	External:	14.678
Chord:	85.569	Course:	S 52° 04’ 19.8200" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	1+44.133	105721.574	160025.660
End:	1+64.508	105719.586	160045.938

Tangent Data

Parameter	Value	Parameter	Value
Length:	20.375	Course:	S 84° 24’ 11.2012" E

Curve Point Data

Description	Station	Northing	Easting
PC:	1+64.508	105719.586	160045.938
RP:		105639.968	160038.136
PT:	2+59.281	105662.725	160114.831

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	67° 52’ 33.9740"	Type:	RIGHT
Radius:	80.000		
Length:	94.773	Tangent:	53.835
Mid-Ord:	13.629	External:	16.427
Chord:	89.327	Course:	S 50° 27’ 54.2141" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	2+59.281	105662.725	160114.831
End:	3+40.274	105584.692	160136.524

Tangent Data

Parameter	Value	Parameter	Value
Length:	80.993	Course:	S 15° 32’ 09.0438" E

Curve Point Data

Description	Station	Northing	Easting
PC:	3+40.274	105584.692	160136.524
RP:		105606.119	160213.601
PCC:	4+00.795	105537.632	160172.255

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	43° 20’ 41.0892"	Type:	LEFT
Radius:	80.000		
Length:	60.521	Tangent:	31.791
Mid-Ord:	5.655	External:	6.085
Chord:	59.088	Course:	S 37° 12’ 29.5884" E

Curve Point Data

Description	Station	Northing	Easting
PCC:	4+00.795	105537.632	160172.255
RP:		105470.000	160131.426
PT:	4+86.250	105465.733	160210.311

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	61° 58’38.4282"	Type:	RIGHT
Radius:	79.000		
Length:	85.455	Tangent:	47.447
Mid-Ord:	11.276	External:	13.153
Chord:	81.349	Course:	S 27° 53’30.9189" E

Tangent Data

Description	PT Station	Northing	Easting
Start:	4+86.250	105465.733	160210.311
End:	5+15.350	105436.675	160208.739

Tangent Data

Parameter	Value	Parameter	Value
Length:	29.100	Course:	S 03° 05’48.2952" W

Curve Point Data

Description	Station	Northing	Easting
PC:	5+15.350	105436.675	160208.739
RP:		105440.997	160128.855
PCC:	5+69.658	105387.474	160188.314

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	38° 53’44.2299"	Type:	RIGHT
Radius:	80.000		
Length:	54.309	Tangent:	28.248
Mid-Ord:	4.564	External:	4.841
Chord:	53.272	Course:	S 22° 32’40.4102" W

Curve Point Data

Description	Station	Northing	Easting
PCC:	5+69.658	105387.474	160188.314

RP:		105333.952	160247.773
PT:	6+35.731	105326.522	160168.119

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	47° 19’ 16.4440"	Type:	LEFT
Radius:	80.000		
Length:	66.073	Tangent:	35.052
Mid-Ord:	6.725	External:	7.342
Chord:	64.211	Course:	S 18° 19’ 54.3030" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	6+35.731	105326.522	160168.119
End:	7+09.939	105252.635	160175.010

Tangent Data

Parameter	Value	Parameter	Value
Length:	74.208	Course:	S 05° 19’ 43.9190" E

Curve Point Data

Description	Station	Northing	Easting
PC:	7+09.939	105252.635	160175.010
RP:		105245.205	160095.356
PT:	7+76.705	105191.170	160154.349

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	47° 49’ 03.5912"	Type:	RIGHT
Radius:	80.000		
Length:	66.766	Tangent:	35.466
Mid-Ord:	6.865	External:	7.509
Chord:	64.845	Course:	S 18° 34’ 47.8767" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	7+76.705	105191.170	160154.349
End:	8+16.194	105162.050	160127.676

Tangent Data

Parameter	Value	Parameter	Value
Length:	39.489	Course:	S 42° 29’ 19.6723" W

Curve Point Data

Description	Station	Northing	Easting
PC:	8+16.194	105162.050	160127.676
RP:		105108.014	160186.669
PT:	8+80.271	105103.266	160106.810

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	45° 53’ 28.6411"	Type:	LEFT
Radius:	80.000		
Length:	64.076	Tangent:	33.868
Mid-Ord:	6.330	External:	6.874
Chord:	62.377	Course:	S 19° 32’ 35.3517" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	8+80.271	105103.266	160106.810
End:	10+35.281	104948.779	160119.538

Tangent Data

Parameter	Value	Parameter	Value
Length:	155.011	Course:	S 04° 42’ 36.5234" E

Curve Point Data

Description	Station	Northing	Easting
PC:	10+35.281	104948.779	160119.538
RP:		104942.210	160039.809
PT:	10+55.069	104929.059	160118.720

Circular Curve Data

Parameter	Value	Parameter	Value
Delta:	14° 10’ 17.8913"	Type:	RIGHT
Radius:	80.000		
Length:	19.787	Tangent:	9.944
Mid-Ord:	0.611	External:	0.616
Chord:	19.737	Course:	S 02° 22’ 32.4223" W

Tangent Data

Description	PT Station	Northing	Easting
Start:	10+55.069	104929.059	160118.720
End:	11+35.120	104850.097	160105.561

Tangent Data

Parameter	Value	Parameter	Value
Length:	80.051	Course:	S 09° 27’ 41.3679" W

الـمـلـحق رقـم

٣

(*Horizontal Incremental Stationing Report*)

Horizontal Incremental Stationing Report

Tangential Direction	Easting	Northing	Station
٣٢-١٥-١٦٠	١٥٩٩٣٩.٩٧٦	١٠٥٨٢٤.٨٥٤	٠٠٠+٠
٣٢-١٥-١٦٠	١٥٩٩٤٦.٧٣١	١٠٥٨٠٦.٠٢٩	٠٢٠+٠
٣٢-١٥-١٦٠	١٥٩٩٥٣.٤٨٧	١٠٥٧٨٧.٢٠٥	٠٤٠+٠
١٠-٥١-١٥٥	١٥٩٩٦٠.٤٦٣	١٠٥٧٦٨.٤٦٦	٠٦٠+٠
٤٤-٣١-١٤١	١٥٩٩٧٠.٨٢٩	١٠٥٧٥١.٤٢٣	٠٨٠+٠
١٨-١٢-١٢٧	١٥٩٩٨٥.٠٨٩	١٠٥٧٣٧.٤٧٤	١٠٠+٠
٥٢-٥٢-١١٢	١٦٠٠٠٢.٣٥٧	١٠٥٧٢٧.٤٨٧	١٢٠+٠
٢٦-٣٣-٩٨	١٦٠٠٢١.٥٥٩	١٠٥٧٢٢.٠٨٣	١٤٠+٠
٤٩-٣٥-٩٥	١٦٠٠٤١.٤٥١	١٠٥٧٢٠.٠٢٦	١٦٠+٠
٣١-٤١-١٠٦	١٦٠٠٦١.١١٤	١٠٥٧١٦.٥٩٧	١٨٠+٠
٥٧-٠٠-١٢١	١٦٠٠٧٩.٣٥٨	١٠٥٧٠٨.٥٣٠	٢٠٠+٠
٢٣-٢٠-١٣٥	١٦٠٠٩٥.٠٣٩	١٠٥٦٩٦.٢٠٠	٢٢٠+٠
٥٠-٣٩-١٤٩	١٦٠١٠٧.١٨٢	١٠٥٦٨٠.٣٧٤	٢٤٠+٠
٢٣-٢٨-١٦٣	١٦٠١١٥.٠٣٥	١٠٥٦٦٢.٠٣٦	٢٦٠+٠
٢٣-٢٨-١٦٣	١٦٠١٢٠.٧٢٤	١٠٥٦٤٢.٨٦٣	٢٨٠+٠
٢٣-٢٨-١٦٣	١٦٠١٢٦.٤١٤	١٠٥٦٢٣.٦٨٩	٣٠٠+٠
٥٣-٣٩-١٦٦	١٦٠١٣١.٧٢٥	١٠٥٦٠٤.٤١٣	٣٢٠+٠
٤١-٤٠-١٦٣	١٦٠١٣٦.٤٤٤	١٠٥٥٨٤.٩٧٩	٣٤٠+٠
١٥-٢١-١٤٩	١٦٠١٤٤.٣٩٣	١٠٥٥٦٦.٦٨٤	٣٦٠+٠
٤٩-٠١-١٣٥	١٦٠١٥٦.٦٢١	١٠٥٥٠٠.٩٢٣	٣٨٠+٠
١٩-٤٨-١٢٧	١٦٠١٧٢.١٦٣	١٠٥٥٣٨.٣٨٣	٤٠٠+٠
١١-١٥-١٣٥	١٦٠١٨٧.٥٣٤	١٠٥٥٢٥.٦١٥	٤٢٠+٠
٣٠-٤٥-١٤٩	١٦٠١٩٩.٦٧٥	١٠٥٥٠٩.٧٨٩	٤٤٠+٠
٤٩-١٥-١٦٤	١٦٠٢٠٧.٤٦٥	١٠٥٤٩١.٤٢٦	٤٦٠+٠
٠٨-٤٦-١٧٨	١٦٠٢١٠.٤٠٨	١٠٥٤٧١.٦٩٨	٤٨٠+٠
٤٨-٠٥-١٨٣	١٦٠٢٠٩.٥٥٣	١٠٥٤٥١.٧٢٠	٥٠٠+٠
٢٥-٥٩-١٨٦	١٦٠٢٠٨.٢٨٨	١٠٥٤٣١.٧٦٤	٥٢٠+٠
٥١-١٨-٢٠١	١٦٠٢٠٣.٤١١	١٠٥٤١٢.٤٢١	٥٤٠+٠
١٧-٣٨-٢١٥	١٦٠١٩٣.٩٠٠	١٠٥٣٩٤.٨٨٧	٥٦٠+٠
٤٤-١٨-٢١٤	١٦٠١٨١.٦٩٥	١٠٥٣٧٩.٠٤٨	٥٨٠+٠
١٨-٥٩-١٩٩	١٦٠١٧٢.٥٩٢	١٠٥٣٦١.٢٩٨	٦٠٠+٠
٥٢-٣٩-١٨٥	١٦٠١٦٨.١٦٤	١٠٥٣٤١.٨٤٨	٦٢٠+٠
١٦-٤٠-١٧٤	١٦٠١٦٨.٥٥١	١٠٥٣٢١.٨٩٢	٦٤٠+٠
١٦-٤٠-١٧٤	١٦٠١٧٠.٤٠٨	١٠٥٣٠١.٩٧٨	٦٦٠+٠
١٦-٤٠-١٧٤	١٦٠١٧٢.٢٦٥	١٠٥٢٨٢.٠٦٥	٦٨٠+٠
١٦-٤٠-١٧٤	١٦٠١٧٤.١٢٣	١٠٥٢٦٢.١٥١	٧٠٠+٠
٠١-٠٩-١٨٢	١٦٠١٧٥.٣٠٠	١٠٥٢٤٢.٢٠٤	٧٢٠+٠
٢٧-٢٨-١٩٦	١٦٠١٧٢.٠٧٢	١٠٥٢٢٢.٥١٩	٧٤٠+٠
٥٣-٤٧-٢١٠	١٦٠١٦٤.٠٧٤	١٠٥٢٠٤.٢٤٤	٧٦٠+٠
٢٠-٢٩-٢٢٢	١٦٠١٥١.٨٦٦	١٠٥١٨٨.٤٥٨	٧٨٠+٠
٢٠-٢٩-٢٢٢	١٦٠١٣٨.٣٥٧	١٠٥١٧٣.٧١٠	٨٠٠+٠
٢٤-٢٩-٢١٩	١٦٠١٢٤.٩٣٠	١٠٥١٥٨.٨٩٠	٨٢٠+٠
٥٧-٠٩-٢٠٥	١٦٠١١٤.٢٦٢	١٠٥١٤٢.٠٣٣	٨٤٠+٠
٣١-٥٠-١٩٠	١٦٠١٠٨.٠٩٧	١٠٥١٢٣.٠٦٢	٨٦٠+٠
٢٣-١٧-١٧٥	١٦٠١٠٦.٨١٩	١٠٥١٠٣.١٥٦	٨٨٠+٠
٢٣-١٧-١٧٥	١٦٠١٠٨.٤٦١	١٠٥٠٨٣.٢٢٣	٩٠٠+٠
٢٣-١٧-١٧٥	١٦٠١١٠.١٠٣	١٠٥٠٦٣.٢٩١	٩٢٠+٠

٢٣-١٧-١٧٥	١٦٠١١١.٧٤٦	١٠٥٠٤٣.٣٥٨	٩٤٠+٠
٢٣-١٧-١٧٥	١٦٠١١٣.٣٨٨	١٠٥٠٢٣.٤٢٦	٩٦٠+٠
٢٣-١٧-١٧٥	١٦٠١١٥.٠٣٠	١٠٥٠٠٣.٤٩٣	٩٨٠+٠
٢٣-١٧-١٧٥	١٦٠١١٦.٦٧٣	١٠٤٩٨٣.٥٦١	٠٠٠+١
٢٣-١٧-١٧٥	١٦٠١١٨.٣١٥	١٠٤٩٦٣.٦٢٨	٠٢٠+١
٣٤-٥٦-١٧٨	١٦٠١١٩.٧٩٥	١٠٤٩٤٣.٦٨٦	٠٤٠+١
٤١-٢٧-١٨٩	١٦٠١١٧.٨٤٧	١٠٤٩٢٣.٨١٨	٠٦٠+١
٤١-٢٧-١٨٩	١٦٠١١٤.٥٥٩	١٠٤٩٠٤.٠٩٠	٠٨٠+١
٤١-٢٧-١٨٩	١٦٠١١١.٢٧٢	١٠٤٨٨٤.٣٦٣	١٠٠+١
٤١-٢٧-١٨٩	١٦٠١٠٧.٩٨٤	١٠٤٨٦٤.٦٣٥	١٢٠+١

Horizontal Alignment Information

Name: AAshto
Station Range: 0+000 to 1+135.12
Station Equations: None

Station	Elevation
	Center FG
0+000	980.364
0+010	981.052
0+020	981.740
0+030	982.428
0+040	983.116
0+050	983.787
0+060	984.337
0+070	984.748
0+080	985.019
0+090	985.151
0+100	985.143
0+110	984.996
0+120	984.710
0+130	984.284
0+140	983.718
0+150	983.014
0+160	982.170

Station	Elevation
	Center FG
0+170	981.254
0+180	980.339
0+190	979.455
0+200	978.647
0+210	977.916
0+220	977.262
0+230	976.685
0+240	976.184
0+250	975.760
0+260	975.413
0+270	975.097
0+280	974.781
0+290	974.474
0+300	974.232
0+310	974.064
0+320	973.971
0+330	973.952
0+340	974.007
0+350	974.137
0+360	974.331
0+370	974.535
0+380	974.739
0+390	974.943
0+400	975.147
0+410	975.350
0+420	975.554
0+430	975.758
0+440	975.962

Station	Elevation
	Center FG
0+450	976.166
0+460	976.369
0+470	976.573
0+480	976.777
0+490	976.981
0+500	977.185
0+510	977.350
0+520	977.381
0+530	977.273
0+540	977.028
0+550	976.644
0+560	976.122
0+570	975.461
0+580	974.667
0+590	973.833
0+600	973.000
0+610	972.167
0+620	971.333
0+630	970.500
0+640	969.667
0+650	968.833
0+660	968.000
0+670	967.167
0+680	966.333
0+690	965.500
0+700	964.667
0+710	963.833
0+720	963.000

Station	Elevation
	Center FG
0+730	962.191
0+740	961.457
0+750	960.800
0+760	960.219
0+770	959.715
0+780	959.288
0+790	958.937
0+800	958.663
0+810	958.465
0+820	958.344
0+830	958.299
0+840	958.329
0+850	958.384
0+860	958.439
0+870	958.494
0+880	958.549
0+890	958.604
0+900	958.658
0+910	958.713
0+920	958.768
0+930	958.823
0+940	958.878
0+950	958.936
0+960	959.052
0+970	959.245
0+980	959.514
0+990	959.860
1+000	960.282

Station	Elevation
	Center FG
1+010	960.781
1+020	961.357
1+030	962.009
1+040	962.737
1+050	963.542
1+060	964.405
1+070	965.271
1+080	966.137
1+090	967.004
1+100	967.870
1+110	968.736
1+120	969.603
1+130	970.469

الـمـلـحق رقـم

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ملحق المنحنيات الرأسية (*Vertical Curve*)

Vertical Alignment Report

PVI Stations and Curves

Data generated:
05/06/2009 08:47:00

Units: meter

Horizontal Alignment Information

Name: Ashtto
Station Range: 0+000 to 1+135.12
Station Equations: None

Curve Calculation Options ▲

Passing Eye Height	1.070000
Passing Object Height	1.300000
Stopping Eye Height	1.070000
Stopping Object Height	0.150000
Headlight Height	0.600000
Headlight Angle (deg)	1.000000

Vertical Alignment: Center FG

PVI	Station	Elevation	Grade Out (%)	Curve Length
1	0+000	980.364	6.880	
2	0+102.60	987.423	-9.153	115.000
	Vertical Curve Information: (crest curve)			
	PVC Station: 0+045.10	Elevation: 983.467		
	PVI Station: 0+102.60	Elevation: 987.423		
	PVT Station: 0+160.10	Elevation: 982.160		
	Grade in (%): 6.880	Grade out (%): -9.153		
	Change (%): 16.033	K: 7.173		
	Curve Length: 115.000			
	High Point: 0+094.45	Elevation: 985.165		
	Passing Distance: 82.363	Stopping Distance: 53.848		
3	0+220	976.678	-3.162	78.000
	Vertical Curve Information: (sag curve)			
	PVC Station: 0+181	Elevation: 980.247		

PVI	Station	Elevation	Grade Out (%)	Curve Length
	PVI Station: 0+220 Elevation: 976.678 PVT Station: 0+259 Elevation: 975.445 Grade in (%): -9.153 Grade out (%): -3.162 Change (%): 5.991 K: 13.019 Curve Length: 78.000 Headlight Distance: 68.316			
4	0+320	973.516	2.038	70.000
	Vertical Curve Information: (sag curve) PVC Station: 0+285 Elevation: 974.623 PVI Station: 0+320 Elevation: 973.516 PVT Station: 0+355 Elevation: 974.229 Grade in (%): -3.162 Grade out (%): 2.038 Change (%): 5.200 K: 13.462 Curve Length: 70.000 Low Point: 0+327.56 Elevation: 973.950 Headlight Distance: 70.056			
5	0+540	978.000	-8.333	75.000
	Vertical Curve Information: (crest curve) PVC Station: 0+502.50 Elevation: 977.236 PVI Station: 0+540 Elevation: 978.000 PVT Station: 0+577.50 Elevation: 974.875 Grade in (%): 2.038 Grade out (%): -8.333 Change (%): 10.371 K: 7.231 Curve Length: 75.000 High Point: 0+517.24 Elevation: 977.386 Passing Distance: 83.094 Stopping Distance: 54.067			
6	0+780	958.000	0.549	116.000
	Vertical Curve Information: (sag curve) PVC Station: 0+722 Elevation: 962.833 PVI Station: 0+780 Elevation: 958.000 PVT Station: 0+838 Elevation: 958.318			

PVI	Station	Elevation	Grade Out (%)	Curve Length
	Grade in (%): -8.333 Grade out (%): 0.549 Change (%): 8.882 K: 13.060 Curve Length: 116.000 Low Point: 0+830.83 Elevation: 958.299 Headlight Distance: 68.479			
7	1+000	959.207	8.663	106.000
	Vertical Curve Information: (sag curve) PVC Station: 0+947 Elevation: 958.916 PVI Station: 1+000 Elevation: 959.207 PVT Station: 1+053 Elevation: 963.799 Grade in (%): 0.549 Grade out (%): 8.663 Change (%): 8.114 K: 13.064 Curve Length: 106.000 Headlight Distance: 68.493			
8	1+135.12	970.912		

Pipe Report

Average Velocity (m/s)	Total Flow (l/s)	Section Size	Material	Section Shape	Length (m)	Bend Angle (radians)	Constructed Slope (m/m)	Downstream Node	Upstream Node	Label
0.17	0.12816	200 mm	PVC	Circular	19.5	0.23	0.005	MH-5	MH-6	P-5
0.56	0.6408	200 mm	PVC	Circular	41	0	0.076585	MH-1 ,O-1	MH-2	P-1
0.32	0.51264	200 mm	PVC	Circular	20	0.06	0.036875	MH-2	MH-3	P-2
0.26	0.38448	200 mm	PVC	Circular	20.5	0.25	0.005	MH-3	MH-4	P-3
0.19	0.25632	200 mm	PVC	Circular	20.5	0.26	0.005	MH-4	MH-5	P-4
0.25	0.03185	200 mm	PVC	Circular	20	0.33	0.101	MH-8	MH-7	P-6
0.29	0.0637	200 mm	PVC	Circular	21	0.23	0.080905	MH-9	MH-8	P-7
0.31	0.09555	200 mm	PVC	Circular	20	0.3	0.06245	MH-10	MH-9	P-8
0.32	0.1274	200 mm	PVC	Circular	20.5	0.24	0.04678	MH-11	MH-10	P-9
0.32	0.15925	200 mm	PVC	Circular	34.5	0.09	0.035043	MH-12	MH-11	P-10
0.29	0.1911	200 mm	PVC	Circular	40	0	0.018725	MH-13,O-2	MH-12	P-11
0.58	3.72091	200 mm	PVC	Circular	40	0	0.007475	MH-13,O-2	MH-13	P-12
0.64	3.22667	200 mm	PVC	Circular	21.5	0.31	0.015767	MH-15	MH-14	P-13
0.61	2.73243	200 mm	PVC	Circular	21.5	0.26	0.016233	MH-16	MH-15	P-14
0.6	2.23819	200 mm	PVC	Circular	20	0.02	0.01995	MH-17	MH-16	P-15
0.54	1.74395	200 mm	PVC	Circular	20.5	0.28	0.016537	MH-18	MH-17	P-16
0.49	1.24971	200 mm	PVC	Circular	20	0.25	0.01695	MH-19	MH-18	P-17
0.44	0.75547	200 mm	PVC	Circular	20.5	0.26	0.019463	MH-20	MH-19	P-18
0.3	0.26123	200 mm	PVC	Circular	40	0.17	0.0125	MH-21	MH-20	P-19
0.42	0.26123	200 mm	PVC	Circular	20	0.04	0.063	MH-22	MH-21	P-20
0.53	0.52246	200 mm	PVC	Circular	20.5	0.25	0.075073	MH-23	MH-22	P-21
0.61	0.78369	200 mm	PVC	Circular	21	0.24	0.085667	MH-24	MH-23	P-22
0.62	1.04492	200 mm	PVC	Circular	19	0.2	0.065737	MH-25	MH-24	P-23
0.7	1.30615	200 mm	PVC	Circular	20.5	0.03	0.078	MH-26	MH-25	P-24

0.74	1.56738	200 mm	PVC	Circular	39.5	3.71E-03	0.081241	MH-27	MH-26	P-25
0.77	1.82861	200 mm	PVC	Circular	24	0.11	0.080792	MH-28	MH-27	P-26
0.83	2.08984	200 mm	PVC	Circular	16.5	0.24	0.092061	MH-29	MH-28	P-27
0.8	2.35107	200 mm	PVC	Circular	20	0.28	0.07045	MH-30	MH-29	P-28
0.77	2.6123	200 mm	PVC	Circular	20.5	0.21	0.050683	MH-31	MH-30	P-29
0.7	2.83521	200 mm	PVC	Circular	40	0.05	0.030225	MH-32	MH-31	P-30
0.66	3.05812	200 mm	PVC	Circular	20	0	0.019835	MH-33, O-3	MH-32	P-31
0.47	2.2291	200 mm	PVC	Circular	20	0	0.005	MH-33, O-3	MH-33	P-32
0.45	2.00619	200 mm	PVC	Circular	20.5	0.23	0.005	MH-35	MH-34	P-33
0.44	1.78328	200 mm	PVC	Circular	40	0.27	0.005208	MH-36	MH-35	P-34
0.43	1.56037	200 mm	PVC	Circular	40	0.03	0.005822	MH-37	MH-36	P-35
0.51	1.33746	200 mm	PVC	Circular	40	2.93E-03	0.018975	MH-38	MH-37	P-36
0.6	1.11455	200 mm	PVC	Circular	40	0.01	0.049975	MH-39	MH-38	P-37
0.61	0.89164	200 mm	PVC	Circular	20	0.05	0.07495	MH-40	MH-39	P-38
0.57	0.66873	200 mm	PVC	Circular	20	0.17	0.07945	MH-41	MH-40	P-39
0.52	0.44582	200 mm	PVC	Circular	40.5	0.02	0.082938	MH-42	MH-41	P-40
0.45	0.22291	200 mm	PVC	Circular	16	0.01	0.105	MH-43	MH-42	P-41
0.63	0.98951	200 mm	PVC	Circular	14	0.33	0.072857	MH-48	MH-47	P-42
0.82	1.97902	200 mm	PVC	Circular	14.5	0.32	0.095793	MH-49	MH-48	P-43
0.81	2.96853	200 mm	PVC	Circular	13	0.15	0.055308	MH-50	MH-49	P-44
0.86	3.95804	200 mm	PVC	Circular	17.5	0.05	0.050229	MH-51	MH-50	P-45
0.77	4.94755	200 mm	PVC	Circular	14.5	0.19	0.02269	MH-52	MH-51	P-46
0.84	5.93706	200 mm	PVC	Circular	40	0.01	0.026225	MH-53	MH-52	P-47
0.65	6.92657	200 mm	PVC	Circular	40	0	0.005482	MH-54	MH-53	P-48
0.6	0.98951	200 mm	PVC	Circular	43.5	2.73E-03	0.061609	MH-46	MH-45	P-49
0.63	1.97902	200 mm	PVC	Circular	40	0	0.030232	MH-45,O-4	MH-46	P-50

Manhole Report

Manhole Depth (m)	Manhole Diameter (m)	Sump Elevation (m)	Rim Elevation (m)	Ground Elevation (m)	Label
1.7	1.2	983.27	984.97	984.97	MH-6
1.7	1.2	982.23	983.93	983.93	MH-2
2.02	1.2	982.96	984.98	984.98	MH-3
2.48	1.2	983.07	985.55	985.55	MH-4
2.35	1.2	983.17	985.52	985.52	MH-5
1.7	1.2	979.09	980.79	980.79	MH-1,O-1
1.7	1.2	980.89	982.59	982.59	MH-7
1.76	1.2	978.81	980.57	980.57	MH-8
1.76	1.2	977.05	978.81	978.81	MH-9
1.76	1.2	975.74	977.5	977.5	MH-10
1.76	1.2	974.72	976.48	976.48	MH-11
1.76	1.2	973.45	975.21	975.21	MH-12
1.76	1.2	973	974.76	974.76	MH-13
1.76	1.2	973.4	975.16	975.16	MH-14
1.76	1.2	973.81	975.57	975.57	MH-15
1.76	1.2	974.27	976.03	976.03	MH-16
1.76	1.2	974.67	976.43	976.43	MH-17
1.76	1.2	975.07	976.83	976.83	MH-18
1.76	1.2	975.53	977.29	977.29	MH-19
1.7	1.2	976.09	977.79	977.79	MH-20
1.7	1.2	972.7	974.4	974.4	MH-21
1.7	1.2	975.59	977.29	977.29	MH-22
1.76	1.2	974.27	976.03	976.03	MH-23
1.76	1.2	972.67	974.43	974.43	MH-24
1.76	1.2	970.81	972.57	972.57	MH-25
1.76	1.2	969.5	971.26	971.26	MH-26
1.76	1.2	967.84	969.6	969.6	MH-27
1.76	1.2	964.57	966.33	966.33	MH-28
1.76	1.2	962.57	964.33	964.33	MH-29
1.76	1.2	960.99	962.75	962.75	MH-30
1.76	1.2	959.52	961.28	961.28	MH-31
1.76	1.2	958.42	960.18	960.18	MH-32

1.76	1.2	957.15	958.91	958.91	MH-33
1.96	1.2	956.85	958.81	958.81	MH-34
1.9	1.2	957.01	958.91	958.91	MH-35
1.95	1.2	957.28	959.23	959.23	MH-36
1.76	1.2	957.58	959.34	959.34	MH-37
1.76	1.2	958.4	960.16	960.16	MH-38
1.76	1.2	960.46	962.22	962.22	MH-39
1.76	1.2	962.02	963.78	963.78	MH-40
1.76	1.2	963.67	965.43	965.43	MH-41
1.76	1.2	967.09	968.85	968.85	MH-42
1.7	1.2	968.83	970.53	970.53	MH-43
1.98	1.2	956.75	958.73	958.73	MH-44
1.6	1.2	970.85	972.45	972.45	MH-45

الـمـلـحق رقـم

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ملحق الشبكات الصحية (*Manhole And Pipe Report*)

الـمـلـحق رقـم

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ملحق جداول المساحات والحجوم (Cut And Fill)

Alignment: AASHTO
END AREA VOLUME LISTING

Station	Cut Area (m2)	Fill Area (m2)	Cut 1.0000 Volume (m3)	Fill 1.0000 Volume (m3)	Cut 1.0000 Tot Vol (m3)	Fill 1.0000 Tot Vol (m3)	Mass Ordinate
					٠.٠٠٠	٤.٣١٨	٠٠٠+٠
٨٠.١٣٨	٠.٠٠٤	٨٠.١٤٣	٠.٠٠٤	٨٠.١٤٣			
					٠.٠٠٠	٢.٠٩٤	٠٢٥+٠
١١١.٦٤٧	٣.٤٦١	١١٥.١٠٨	٣.٤٥٦	٣٤.٩٦٥			
					٠.٢٧٦	٠.٧٠٤	٠٥٠+٠
٢١١.٠٣٤	٦.٩١٧	٢١٧.٩٥٠	٣.٤٥٦	١٠٢.٨٤٢			
					٠.٠٠٠	٧.٥٢٤	٠٧٥+٠
٤٤٠.٤٩٨	٦.٩٢١	٤٤٧.٤١٩	٠.٠٠٤	٢٢٩.٤٦٩			
					٠.٠٠٠	١٠.٨٣٤	١٠٠+٠
٧٣٧.٧٩٧	٦.٩٢٣	٧٤٤.٧٢٠	٠.٠٠٢	٢٩٧.٣٠١			
					٠.٠٠٠	١٢.٩٥٠	١٢٥+٠
٩١٧.٦٢٠	٧.٧٥٨	٩٢٥.٣٧٨	٠.٨٣٥	١٨٠.٦٥٨			
					٠.٠٦٧	١.٥٠٢	١٥٠+٠
٨٨٨.٥٤٣	٥٥.٦١٥	٩٤٤.١٥٨	٤٧.٨٥٧	١٨.٧٨٠			
					٣.٧٦٢	٠.٠٠٠	١٧٥+٠
٨٢٢.٦٣٠	١٢٩.٨٩٨	٩٥٢.٥٢٩	٧٤.٢٨٤	٨.٣٧١			
					٢.١٨١	٠.٦٧٠	٢٠٠+٠
٨٤١.١٧٥	١٦٣.٣٠٠	١٠٠٤.٤٧٤	٣٣.٤٠١	٥١.٩٤٦			
					٠.٤٩١	٣.٤٨٦	٢٢٥+٠
٨٥٥.٤٧٤	١٩٣.٧٨٦	١٠٤٩.٢٥٩	٣٠.٤٨٦	٤٤.٧٨٥			
					١.٩٤٨	٠.٠٩٧	٢٥٠+٠
٨٤٥.٠٥٤	٢٣٥.٥١٢	١٠٨٠.٥٦٥	٤١.٧٢٦	٣١.٣٠٦			
					١.٣٩٠	٢.٤٠٨	٢٧٥+٠
٨٥٦.٧٦٩	٢٦٨.٦٣٩	١١٢٥.٤٠٨	٣٣.١٢٨	٤٤.٨٤٣			
					١.٢٦٠	١.١٨٠	٣٠٠+٠
٨٤٥.١٤١	٣٠٨.٧٥٤	١١٥٣.٨٩٥	٤٠.١١٥	٢٨.٤٨٧			
					١.٩٤٩	١.٠٩٩	٣٢٥+٠
٨٠٨.٢٥٠	٣٨٣.٦٨٣	١١٩١.٩٣٣	٧٤.٩٢٩	٣٨.٠٣٧			
					٤.٠٤٥	١.٩٤٤	٣٥٠+٠
٨٨٠.٤٤٢	٤٣٤.٢٤٥	١٣١٤.٦٨٨	٥٠.٥٦٢	١٢٢.٧٥٥			
					٠.٠٠٠	٧.٨٧٧	٣٧٥+٠
١٠١١.٥٣٧	٤٣٤.٢٤٥	١٤٤٥.٧٨٢	٠.٠٠٠	١٣١.٠٩٤			
					٠.٠٠٠	٢.٦١١	٤٠٠+٠
١٠٠٥.٩٤٤	٤٧٣.٤٦٨	١٤٧٩.٤١٢	٣٩.٢٢٢	٣٣.٦٣٠			
					٣.١٣٨	٠.٠٧٩	٤٢٥+٠
٩٢١.٢٢٧	٥٥٩.١٧٨	١٤٨٠.٤٠٥	٨٥.٧١٠	٠.٩٩٣			

٤٥٠+٠	٠.٠٠٠	٣.٧١٩	٢٦.١٠٥	٤٧.٠٥٣
٤٧٥+٠	٢.٠٨٨	٠.٠٤٥	١١٥.٦٣٥	٠.٥٦٥
٥٠٠+٠	٧.١٦٢	٠.٠٠٠	١٤٤.٢٤٠	٠.٠٠٠
٥٢٥+٠	٤.٣٧٧	٠.٠٠٠	١٤٠.٤١٢	٠.٠٠٠
٥٥٠+٠	٦.٨٥٦	٠.٠٠٠	١٢٣.٥٥٤	٠.٠٠١
٥٧٥+٠	٣.٠٢٨	٠.٠٠٠	٦٢.٣٤٣	١٤.١٠٦
٦٠٠+٠	١.٩٥٩	١.١٢٨	٢٧.٢٥٧	٧٨.٦١٤
٦٢٥+٠	٠.٢٢١	٥.١٦١	٢.٧٦٥	١٠٠.٣٦٣
٦٥٠+٠	٠.٠٠٠	٢.٨٦٨	٨.١١٣	٤٣.٤٩٩
٦٧٥+٠	٠.٦٤٩	٠.٦١٢	٣٣.٥١٤	٧.٦٤٧
٧٠٠+٠	٢.٠٣٢	٠.٠٠٠	٤١.٧٤٧	٠.٠١٨
٧٢٥+٠	١.٣٠٨	٠.٠٠١	١٦.٣٥٨	١٩.٨٢٥
٧٥٠+٠	٠.٠٠١	١.٥٨٥	٠.٠١٢	٦٦.٩٢١
٧٧٥+٠	٠.٠٠٠	٣.٧٦٩	٠.٠٠٠	٧١.٢٢٢
٨٠٠+٠	٠.٠٠٠	١.٩٢٩	٠.٠٠٠	٥٩.٨٩٦
٨٢٥+٠	٠.٠٠٠	٢.٨٦٣	٦.٨٣٩	٥٢.٥٣٦
٨٥٠+٠	٠.٥٤٧	١.٣٤٠	٣٧.٨٦٠	١٦.٧٦٠
٨٧٥+٠	٢.٤٨٢	٠.٠٠١	٣١.٣٩٨	٧.٢٣٩
٩٠٠+٠	٠.٠٣٠	٠.٥٧٨	١٢.٧٨٤	١٤.٧٦٧
٩٢٥+٠	٠.٩٩٣	٠.٦٠٣	١٣.٩٤٢	٢٤.٠٤٩
٩٥٠+٠	٠.١٢٣	١.٣٢١		

٩٠٠.٢٧٩	٦٠٦.٢٣١	١٥٠٦.٥٠٩	٤٧.٠٥٣
١٠١٥.٣٤٩	٦٠٦.٧٩٦	١٦٢٢.١٤٥	٠.٥٦٥
١١٥٩.٥٨٩	٦٠٦.٧٩٦	١٧٦٦.٣٨٥	٠.٠٠٠
١٣٠٠.٠٠٢	٦٠٦.٧٩٦	١٩٠٦.٧٩٧	٠.٠٠٠
١٤٢٣.٥٥٤	٦٠٦.٧٩٧	٢٠٣٠.٣٥١	٠.٠٠١
١٤٧١.٧٩٢	٦٢٠.٩٠٣	٢٠٩٢.٦٩٤	١٤.١٠٦
١٤٢٠.٤٣٦	٦٩٩.٥١٦	٢١١٩.٩٥٢	٧٨.٦١٤
١٣٢٢.٨٣٨	٧٩٩.٨٨٠	٢١٢٢.٧١٧	١٠٠.٣٦٣
١٢٨٧.٤٥٢	٨٤٣.٣٧٨	٢١٣٠.٨٣٠	٤٣.٤٩٩
١٣١٣.٣١٨	٨٥١.٠٢٦	٢١٦٤.٣٤٤	٧.٦٤٧
١٣٥٥.٠٤٧	٨٥١.٠٤٤	٢٢٠٦.٠٩١	٠.٠١٨
١٣٥١.٥٨٠	٨٧٠.٨٧٠	٢٢٢٢.٤٤٩	١٩.٨٢٥
١٢٨٤.٦٧١	٩٣٧.٧٩٠	٢٢٢٢.٤٦٢	٦٦.٩٢١
١٢١٣.٤٤٩	١٠٠٩.٠١٢	٢٢٢٢.٤٦٢	٧١.٢٢٢
١١٥٣.٥٥٣	١٠٦٨.٩٠٨	٢٢٢٢.٤٦٢	٥٩.٨٩٦
١١٠٧.٨٥٦	١١٢١.٤٤٤	٢٢٢٩.٣٠٠	٥٢.٥٣٦
١١٢٨.٩٥٧	١١٣٨.٢٠٤	٢٢٦٧.١٦٠	١٦.٧٦٠
١١٥٣.١١٦	١١٤٥.٤٤٢	٢٢٩٨.٥٥٨	٧.٢٣٩
١١٥١.١٣٣	١١٦٠.٢٠٩	٢٣١١.٣٤٢	١٤.٧٦٧
١١٤١.٠٢٦	١١٨٤.٢٥٨	٢٣٢٥.٢٨٤	٢٤.٠٤٩

٩٧٥+٠	٠.٠٦٣	٢.٤١٠	٢.٣٢٢	٤٦.٦٤١	٢٣٢٧.٦٠٦	١٢٣٠.٨٩٩	١٠٩٦.٧٠٧		
٠٠٠+١	٠.٥٦٥	٠.٣٠٤	٧.٨٤٥	٣٣.٩٣١	٢٣٣٥.٤٥١	١٢٦٤.٨٣٠	١٠٧٠.٦٢١		
٠٢٥+١	٠.٦٨٦	٠.٥٦٢	١٥.٦٣١	١٠.٨٢٦	٢٣٥١.٠٨٢	١٢٧٥.٦٥٦	١٠٧٥.٤٢٧		
٠٥٠+١	٠.٠٠٠	٣.٣٥٦	٨.٥٧٣	٤٨.٩٧٥	٢٣٥٩.٦٥٥	١٣٢٤.٦٣١	١٠٣٥.٠٢٤		
٠٧٥+١	٠.٠٠٠	٤.٠٩٠	٠.٠٠٠	٩٣.٠٧٢	٢٣٥٩.٦٥٥	١٤١٧.٧٠٣	٩٤١.٩٥٢		
١٠٠+١	٠.٨٥٥	٠.٠٠١	١٠.٦٨٦	٥١.١٣٣	٢٣٧٠.٣٤٢	١٤٦٨.٨٣٦	٩٠١.٥٠٦		
١٢٥+١	٤.٧٦٤	٠.٠٠٠	٧٠.٢٣١	٠.٠١٣	٢٤٤٠.٥٧٢	١٤٦٨.٨٤٩	٩٧١.٧٢٣		

الـمـلـحق رقـم

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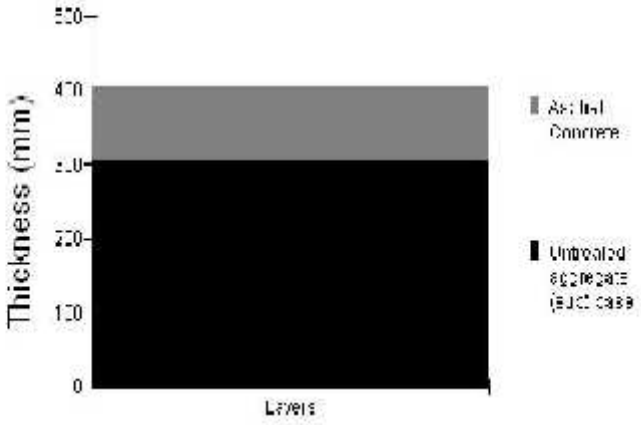
ملحق تحديد سمك الرصفة (*Asphalt Institute Method*)

Asphalt Institute

Pavement Design Detail Report

SW-1 Thickness Design Software version 1.0



User:	شاهر	Date:	01/07/2009	Time:	08:18
Project Information					

User:	شاهر	Date:	01/07/2009	Time:	08:18
Project Information					
Project Name:	Gravel Base Problem				
Description:					
Pavement Use:	General Roadway				
Problem Type:	New Pavement Design				
Design Input Summary					
Climate:	15° C				
Design Traffic (ESAL):	40,941				
Subgrade M_r (MPa):	235.8				
Design Traffic Details					
Design Life (years):	20				
Design Lane Factor:	0.5				
Initial Average Annual Daily Traffic (AADT):	236				
Truck Volume, as a percentage of AADT:	17				
Annual Compound Growth Rate (%):	2.5				
Type of usage:	Urban				
Truck Classification	% Trucks	Truck Factor			

Design Traffic Details		
Design Life (years):	20	
Design Lane Factor:	0.5	
Initial Average Annual Daily Traffic (AADT):	236	
Truck Volume, as a percentage of AADT:	17	
Annual Compound Growth Rate (%):	2.5	
Type of usage:	Urban	
Truck Classification	% Trucks	Truck Factor
TRUCK(2 AXLE,4 TIRE)	66	0.01
TRUCK(2-AXLE,6-TIRE)	12	0.19
TRUCK(3-AXLE or MORE)	3	0.82
MULT.TRUCK(5-AXLE)	15	0.90
MULT.TRUCK(>=6 AXLE)	1	0.92
TOTAL:	100	N/A
Calculated Equivalent Single Axle Loads (ESAL)		
Initial Year Traffic (ESAL):	1,603	
Design Life (ESAL):	40,941	
Subgrade Information		
Type of Measurement:	Resilient Modulus (M_r)	
Correlation Equation:	N/A	
Recommended Design Strength Percentile	75.0	
Design Strength Percentile:	N/A	
Individual M_r Values	M_r	
	236	
Average:	236	236
Std Dev:	0	0
Design M_r	236	
Design Results		
HMA Thickness (mm)	101.6	
Aggregate Base Thickness (mm)	304.8	