

۲۰۱۳/۷/۱۴

ئەندازىار محمد احمد فرھادى

وھرىگرتووه سالى (۱۹۹۰) ى لھ زانگوى تاران پىپورى ئەندازىار شارستانى

وتار :

Retaining pile Analysis, use SAP 2000 & Plaxis Soft wares

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Graduated 1990 at Tehran University.

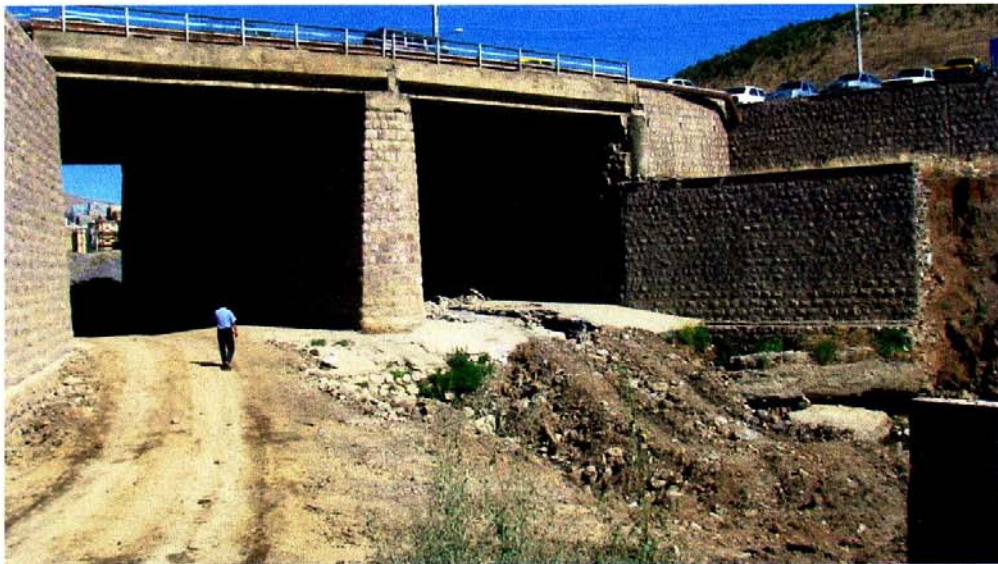
In the name of God

This article prepared as a practice in retaining pile analysis use two soft wares :

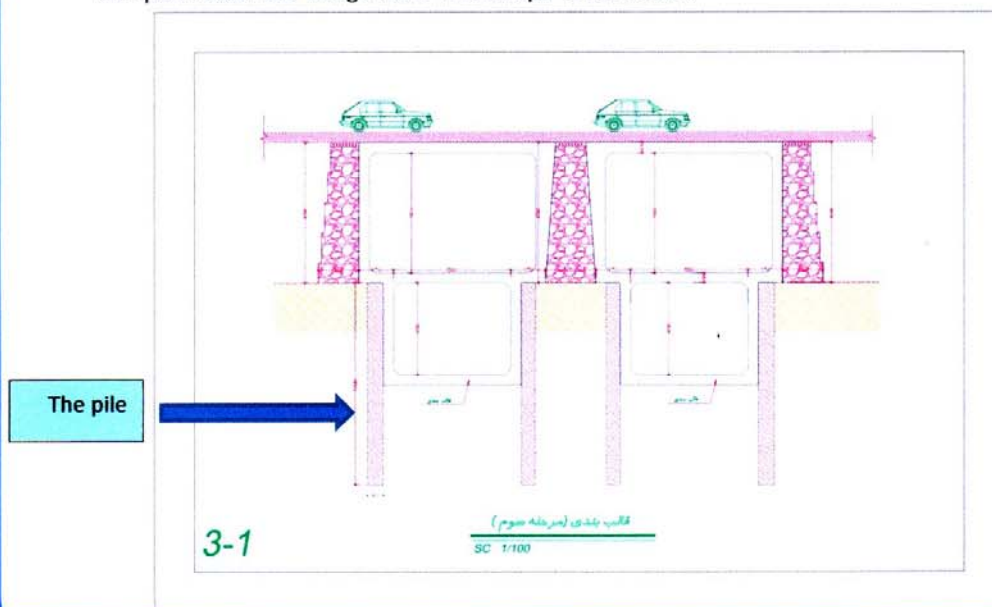
- a . sap200
- b . plaxis

This practice obtained in Tawhid bridge structural improvement - Sanandaj

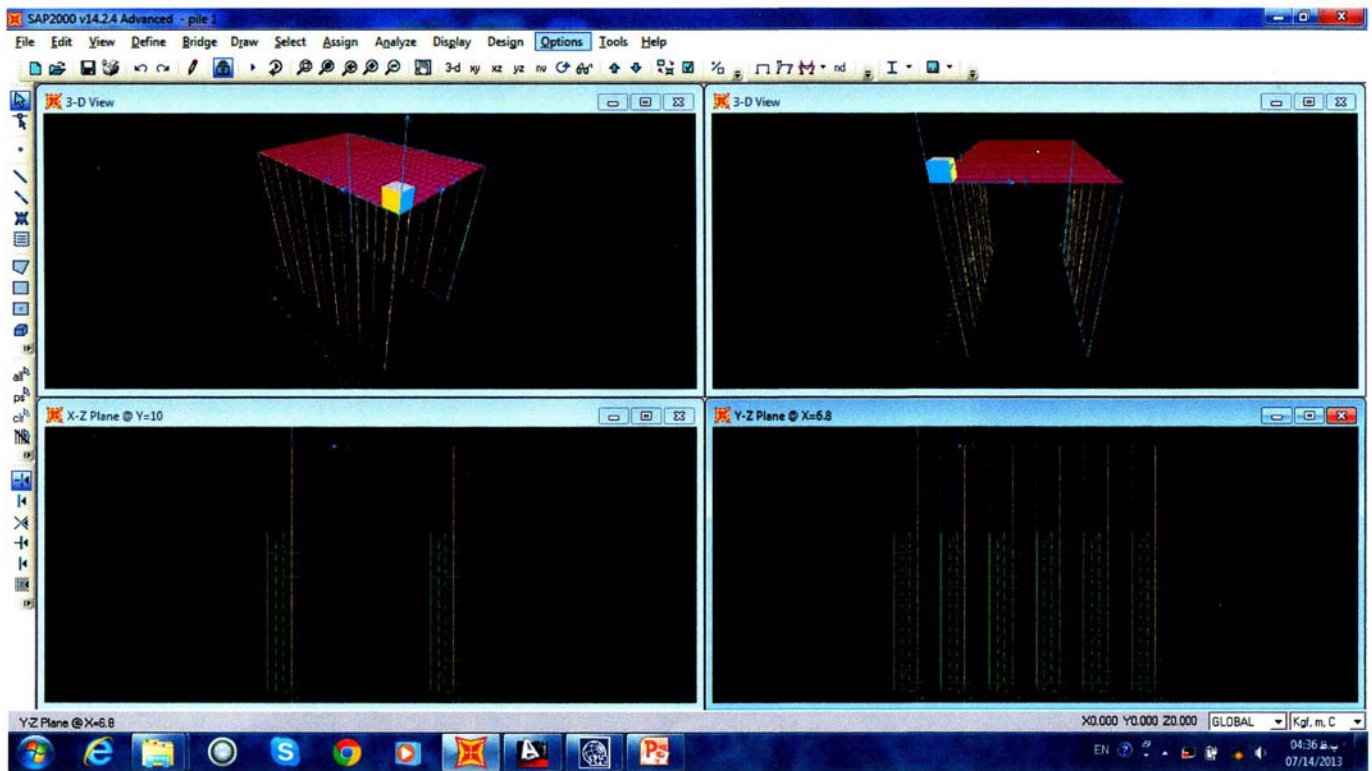
The problem form is as below :

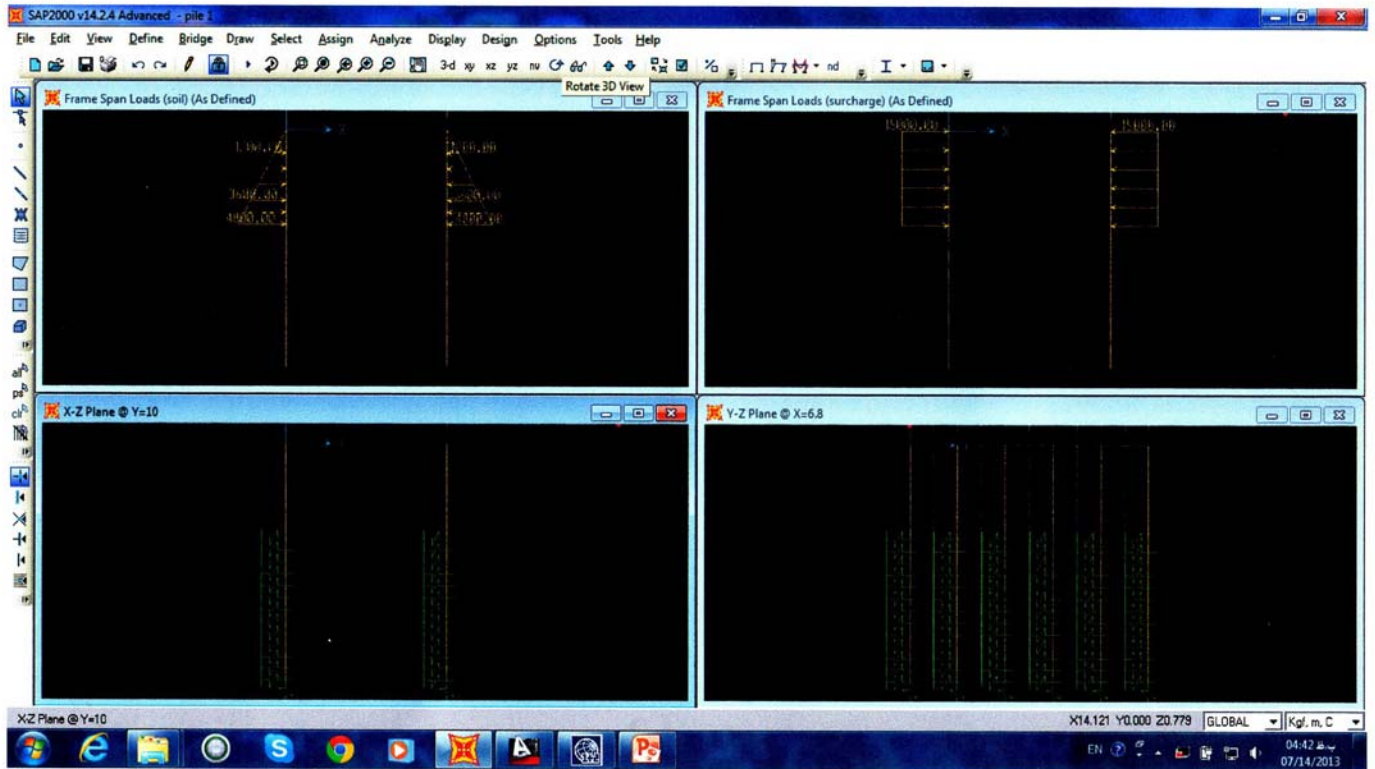


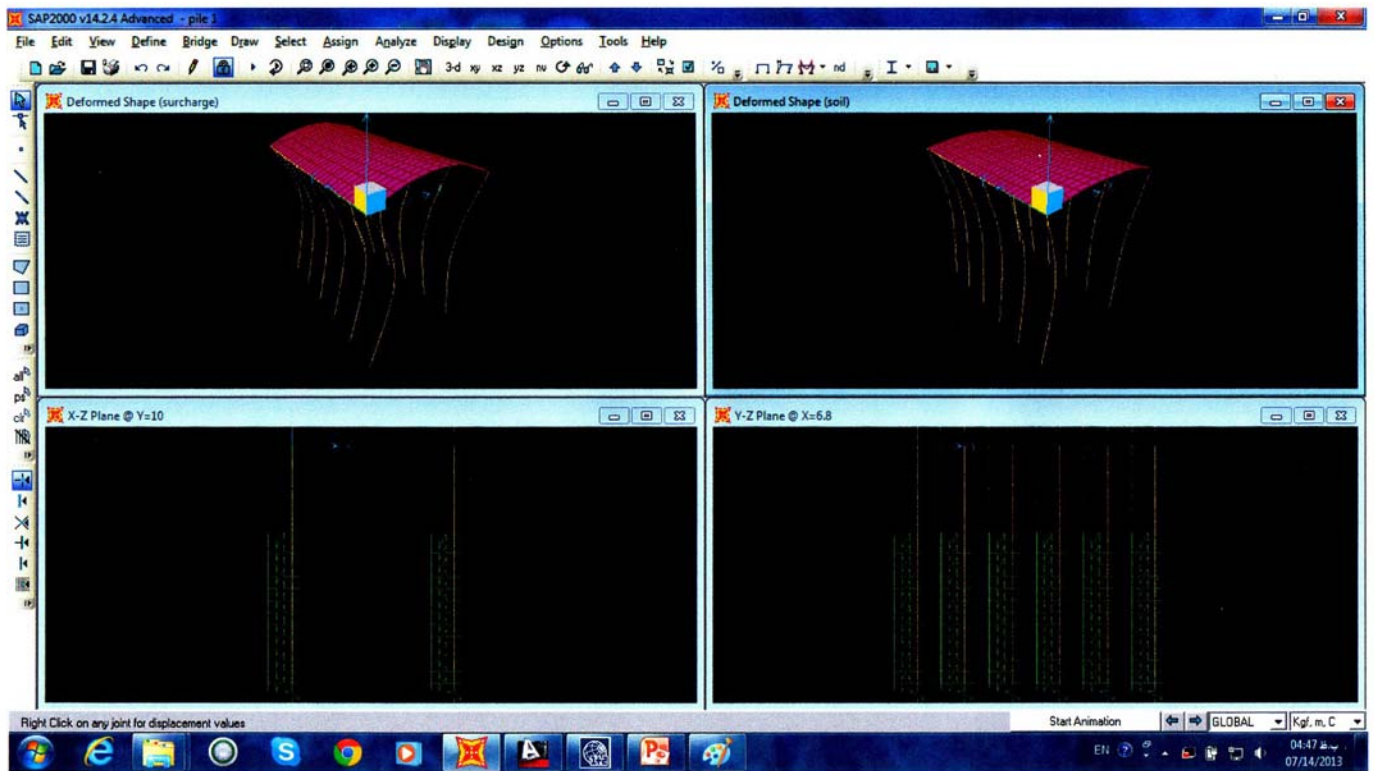
Throw the structural improvement we have to pass a water channel under the street that that pass under the bridge deck . The shape is as below :

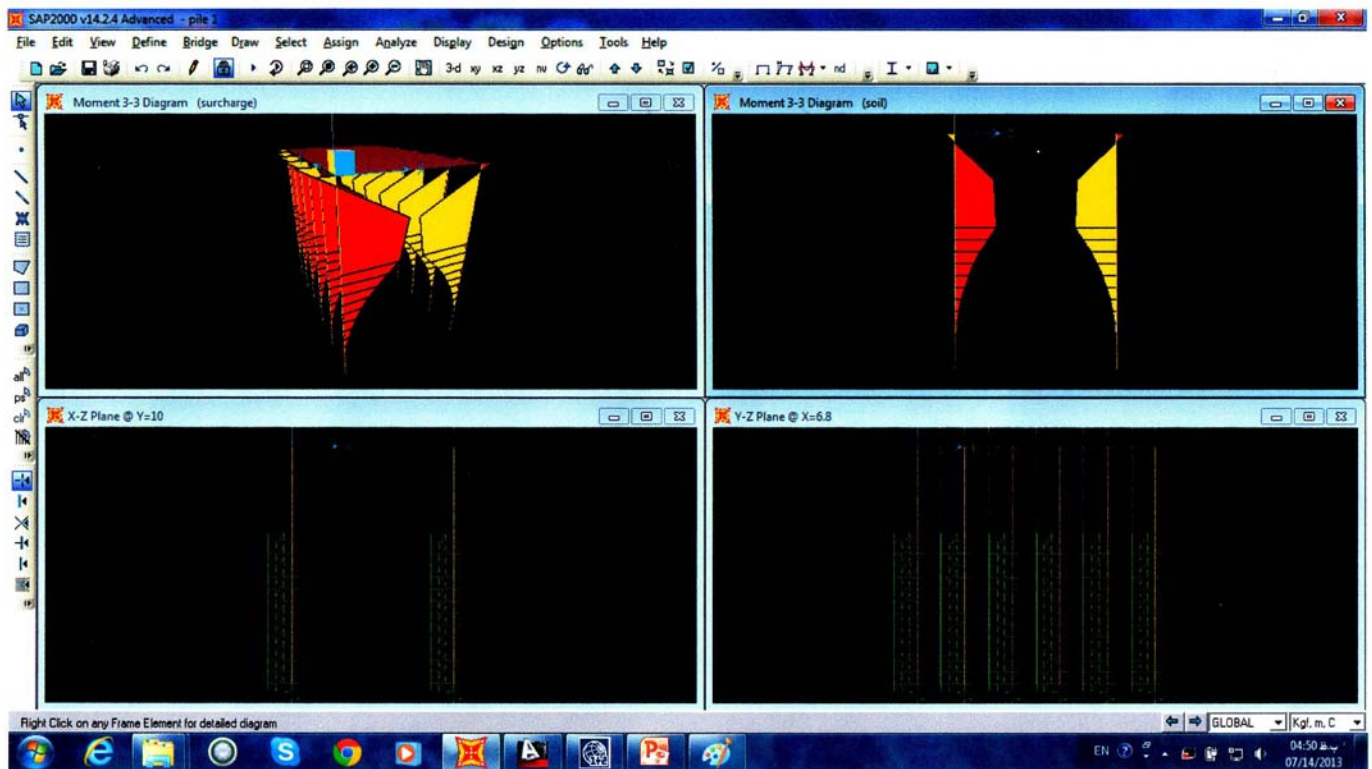


Sap model



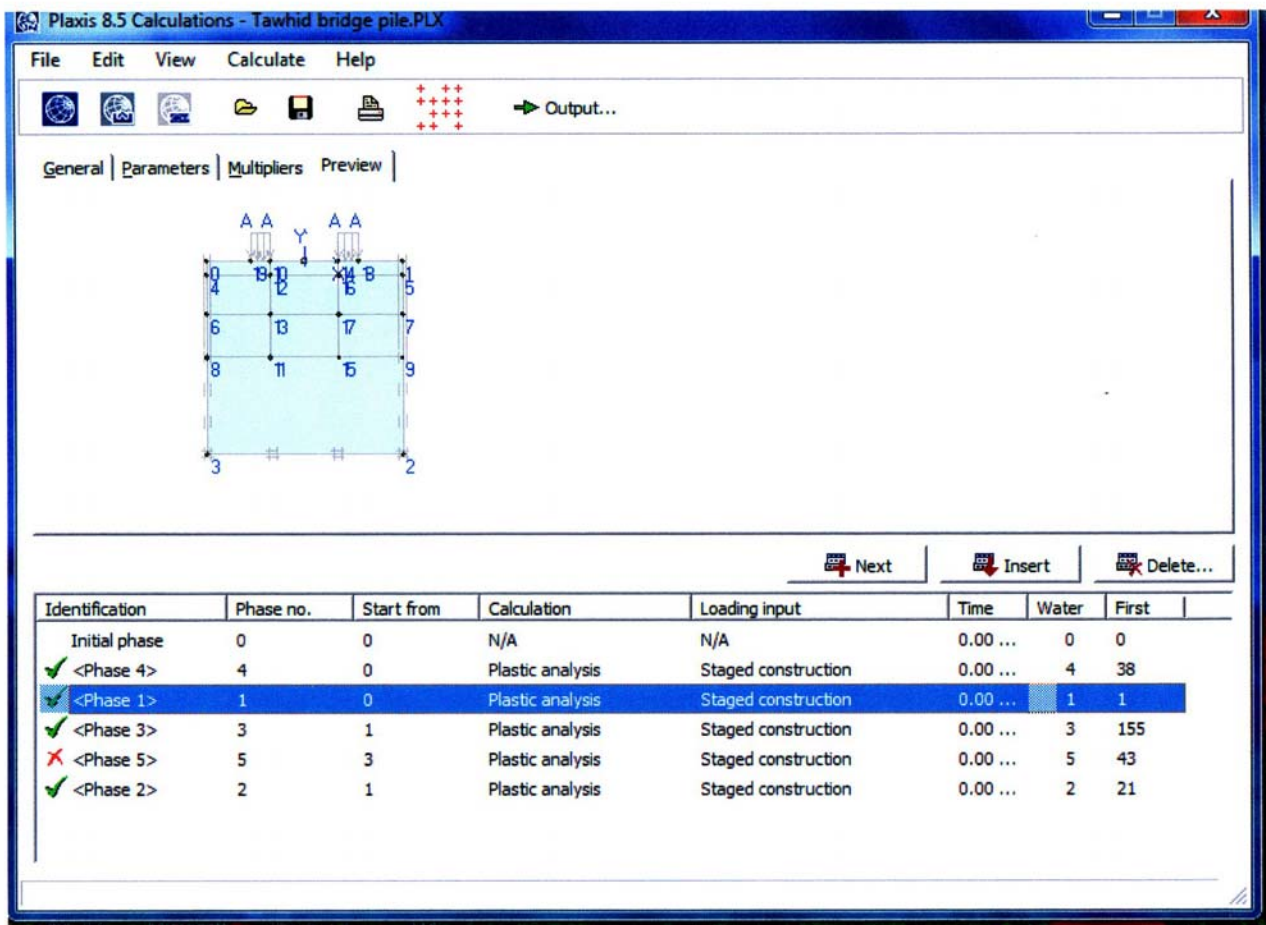


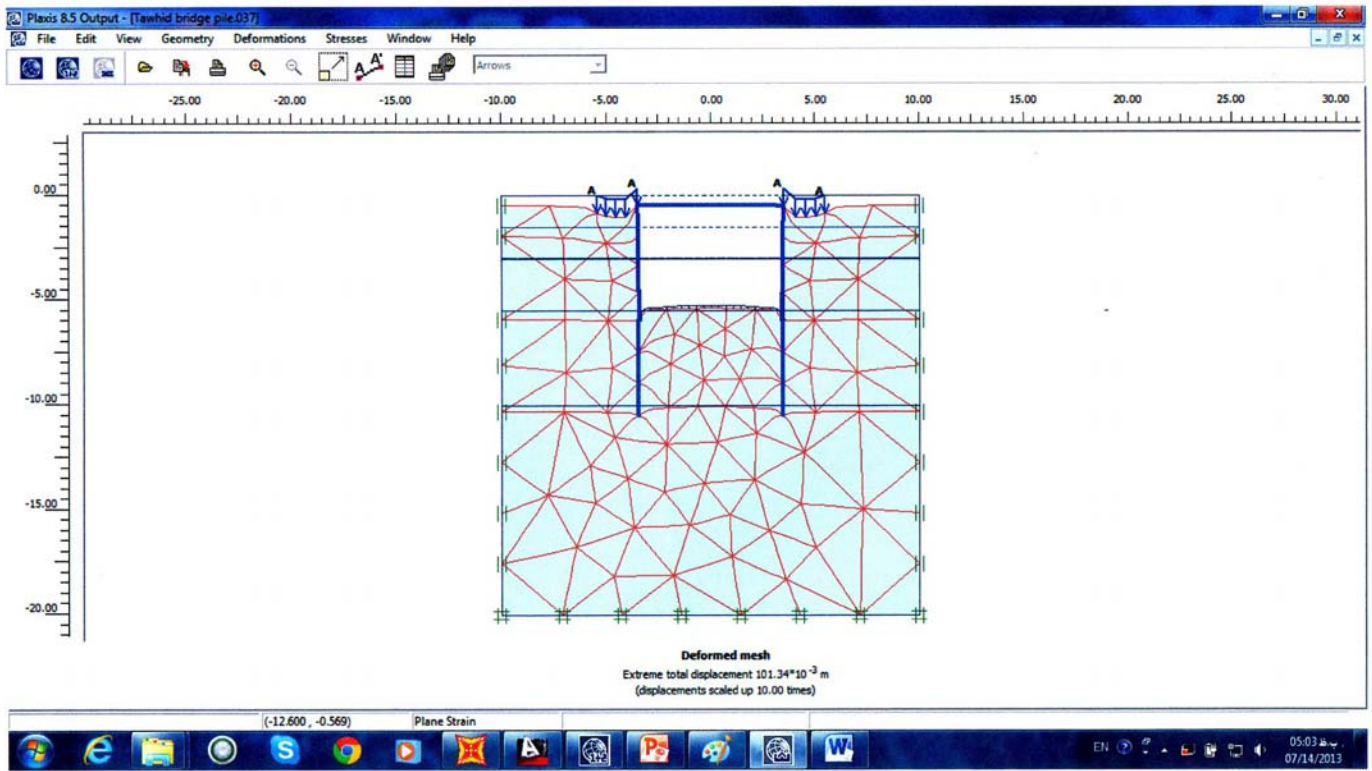


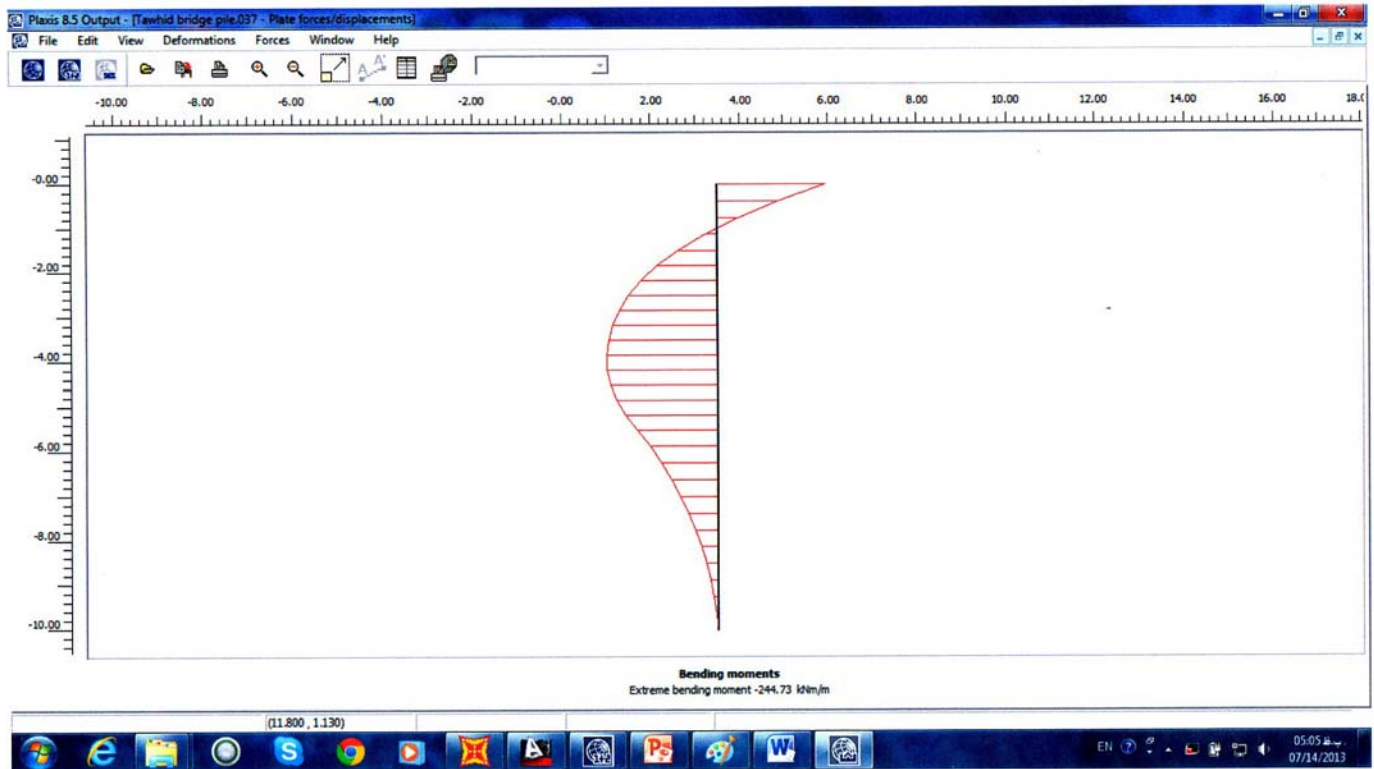


Book1 - Microsoft Excel														
File Home Insert Page Layout Formulas Data Review View														
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A129 49														
P O N M L K J I H G F E D C B A														
ElemStation FrameElem													TABLE: E	
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M3 M2 T V3 V2 P CaseType OutputCase													m	Text
Kgf-m Kgf-m Kgf-m Kgf Kgf Kgf														
0 49-1		15971.42	-5632.77	-7.29E-12	-940.08	48843.71	-8322.38	Combination	COMB1				0 49	127
2 49-1		-50115.99	-3752.61	-7.29E-12	-940.08	16443.71	-12092.29	Combination	COMB1				2 49	128
4 49-1		-46603.4	-1872.46	-7.29E-12	-940.08	-20756.29	-15862.2	Combination	COMB1				4 49	129
0 51-1		-22975.65	-4311.2	5.179E-13	-716.06	-50034.3	-8890.19	Combination	COMB1				0 51	130
2 51-1		45492.94	-2879.08	5.179E-13	-716.06	-17634.3	-12660.1	Combination	COMB1				2 51	131
4 51-1		44361.53	-1446.96	5.179E-13	-716.06	19565.7	-16430.01	Combination	COMB1				4 51	132
0 53-1		22975.65	-4311.2	-5.819E-13	-716.06	50034.3	-8890.19	Combination	COMB1				0 53	133
2 53-1		-45492.94	-2879.08	-5.819E-13	-716.06	17634.3	-12660.1	Combination	COMB1				2 53	134
4 53-1		-44361.53	-1446.96	-5.819E-13	-716.06	-19565.7	-16430.01	Combination	COMB1				4 53	135
0 55-1		-23950.82	-1447.82	5.623E-14	-240.1	-50197.76	-9187.44	Combination	COMB1				0 55	136
2 55-1		44844.69	-967.62	5.623E-14	-240.1	17797.76	-12957.35	Combination	COMB1				2 55	137
4 55-1		44040.2	-487.43	5.623E-14	-240.1	19402.24	-16727.26	Combination	COMB1				4 55	138
0 57-1		23950.82	-1447.82	-5.518E-14	-240.1	50197.76	-9187.44	Combination	COMB1				0 57	139
2 57-1		-44844.69	-967.62	-5.518E-14	-240.1	17797.76	-12957.35	Combination	COMB1				2 57	140
4 57-1		-44040.2	-487.43	-5.518E-14	-240.1	-19402.24	-16727.26	Combination	COMB1				4 57	141
0 59-1		-23950.82	1447.82	-9.559E-14	240.1	-50197.76	-9187.44	Combination	COMB1				0 59	142
2 59-1		44844.69	967.62	-9.559E-14	240.1	17797.76	-12957.35	Combination	COMB1				2 59	143
4 59-1		44040.2	487.43	-9.559E-14	240.1	19402.24	-16727.26	Combination	COMB1				4 59	144
0 61-1		23950.82	1447.82	8.771E-14	240.1	50197.76	-9187.44	Combination	COMB1				0 61	145
2 61-1		-44844.69	967.62	8.771E-14	240.1	17797.76	-12957.35	Combination	COMB1				2 61	146
4 61-1		-44040.2	487.43	8.771E-14	240.1	-19402.24	-16727.26	Combination	COMB1				4 61	147
0 63-1		-22975.65	4311.2	6.526E-13	716.06	-50034.3	-8890.19	Combination	COMB1				0 63	148
2 63-1		45492.94	2879.08	6.526E-13	716.06	-17634.3	-12660.1	Combination	COMB1				2 63	149
4 63-1		44361.53	1446.96	6.526E-13	716.06	19565.7	-16430.01	Combination	COMB1				4 63	150
Average: -10753.30375 Count: 12 Sum: -86026.43													Element Forces - Frames	

Plaxis model







Plaxis 8.5 Output - [Tawhid bridge pile.037 - Plate forces]							
File Edit Geometry Deformations Forces Window Help							
Plate	Element	Node	X [m]	Y [m]	N [kN/m]	Q [kN/m]	M [kNm/m]
	pile	1565	3.500	-3.167	-307.683	-35.554	-231.297
		1564	3.500	-3.500	-325.619	-20.167	-240.634
		1563	3.500	-3.833	-342.992	-4.665	-244.732
		1559	3.500	-4.167	-359.768	13.288	-243.429
	4 pile	1559	3.500	-4.167	-358.889	12.775	-243.429
		1461	3.500	-4.500	-371.708	30.988	-236.122
		1460	3.500	-4.833	-381.966	49.081	-222.790
		1459	3.500	-5.167	-389.983	67.484	-203.360
	5 pile	1455	3.500	-5.500	-396.077	86.624	-177.713
		1455	3.500	-5.500	-385.158	79.120	-177.713
		1328	3.500	-5.875	-374.222	72.240	-149.163
		1327	3.500	-6.250	-359.963	63.031	-123.894
	6 pile	1326	3.500	-6.625	-343.883	54.710	-101.768
		1325	3.500	-7.000	-327.484	50.493	-82.279
		1325	3.500	-7.000	-324.334	48.230	-82.279
		1254	3.500	-7.375	-303.224	42.111	-65.355
	7 pile	1253	3.500	-7.750	-279.359	36.710	-50.614
		1252	3.500	-8.125	-252.623	32.369	-37.684
		1251	3.500	-8.500	-222.901	29.432	-26.154
		1251	3.500	-8.500	-220.962	27.900	-26.154
	1054	1054	3.500	-8.875	-189.535	21.834	-16.825
		1053	3.500	-9.250	-157.310	16.446	-9.711
		1052	3.500	-9.625	-127.376	12.542	-4.303
		1052	3.500	-9.625	-127.376	12.542	-4.303

1 page(s)

According to the results, I see same quantities for moments in the piles. This show that "using springs and calculate accurate stiffness can be a good method to model soil special in soil-structure interaction "

Mohammad Farhadi

20/6/2013