



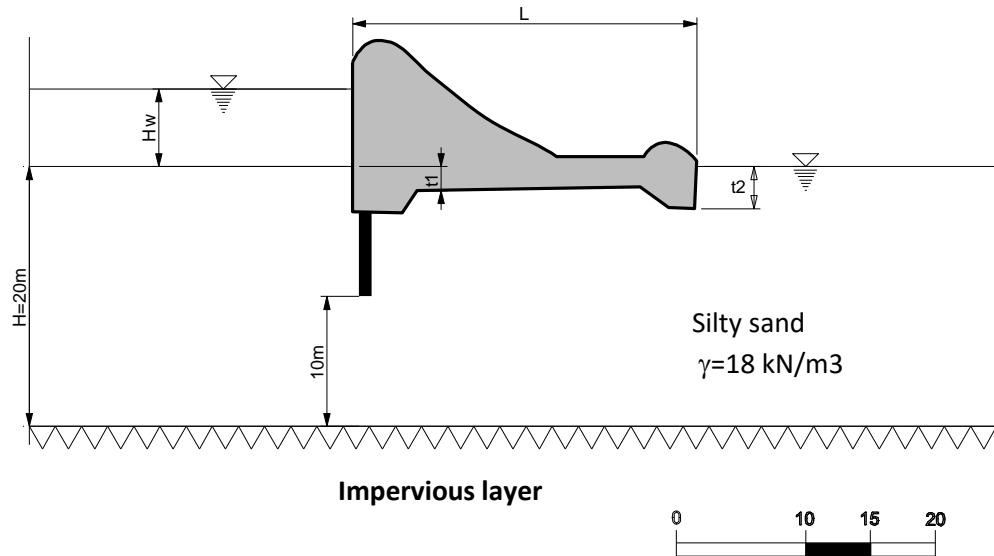
2020-2021 ACADEMIC YEAR FALL SEMESTER

INS3121 SOIL MECHANICS

HOMEWORK II

A weir with a 40 m width shown in the following figure will be constructed in a stream. The dimensions of the weir section and hydraulic conductivity of silty-sand soil are given in Table 1 for each student. In order to perform a ground water flow analysis for the weir,

1. Draw a flow net.
2. Calculate the seepage loss underneath the weir.
3. Calculate the hydraulic uplift pressures acting at the base of the weir.
4. Considering the flow under the weir, estimate the factor of safety against piping (quick condition) at the exit of the weir.





Instructions:

- 1) The weir section should be drawn with scale before drawing the flow net. The weir section can be drawn with aCAD software and the flow net will be hand drawn by taking into consideration the rules for plotting flow lines and equipotential lines.
- 2) Calculations will be handwritten.
- 3) Homework will be mailed to tohumcu@yildiz.edu.tr in PDF form until December 7th, 2020.



YILDIZ TECHNICAL UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING GEOTECHNICS DIVISION

Table 1. Student parameter list

#	No	Name	Surname	k	L	Hw	t1	t2
				m/s	m	m	m	m
1	10042031	YUNUS	MERAL	3.31E-05	26	6.2	1.5	3
2	11042085	AHMET	ADİL	1.88E-05	39	9.4	1.2	2.4
3	11043126	CENGİZ	BENLİÇOBAN	1.06E-05	30	7.2	1.2	2.4
4	12043099	İLYAS	GÜL	3.04E-05	35	8.4	1.75	3.5
5	14049017	SERTAÇ	SÖNMEZ	1.65E-05	21	5	1.5	3
6	14049903	MOHAMAD	ABOŞARFO	3.38E-05	31	7.4	1.75	3.5
7	15042098	RIDVAN	ÇAYIR	2.60E-05	25	6	1.25	2.5
8	15049017	TALHA	MERCAN	2.85E-05	20	4.8	1.75	3.5
9	15049028	MUHAMMET BARAN	ABBASIOĞLU	1.10E-05	35	8.4	1.2	2.4
10	15049036	MEHMET BURAK	AKTAŞ	1.03E-05	36	8.6	1.2	2.4
11	15049039	KUDRET	ÇAVDAR	4.95E-05	27	6.5	1.75	3.5
12	16042915	MEHMET SELİM	DOĞAN	1.84E-05	38	9.1	1.25	2.5
13	16049005	VELAT	YAŞAR	2.16E-05	25	6	1.75	3.5
14	16049012	RIDVAN	GÖKGÖZ	3.56E-05	37	8.9	1.75	3.5
15	16049016	FURKAN	MURATDAĞI	2.76E-05	37	8.9	1.75	3.5
16	16049018	FURKAN	ÖZÇELEBİ	2.44E-05	33	7.9	1.5	3
17	16049021	SADRI	TEKİN	4.37E-05	23	5.5	1.5	3
18	16049022	HAMZA	ESKİN	4.26E-05	29	7	1.25	2.5
19	16049029	DOĞUŞ	AKBIYIK	3.28E-05	23	5.5	1.5	3
20	16049030	AHMET	SARIBEKİROĞLU	2.56E-05	39	9.4	1.5	3
21	16049031	MUSTAFA GÖRKEM	KÜÇÜKÖMEROĞLU	1.35E-05	34	8.2	1.75	3.5
22	16049034	NAZİFE	AYDIN	4.08E-05	29	7	1.2	2.4
23	16049035	TAMER	CECELOĞLU	3.56E-05	34	8.2	1.75	3.5
24	16049039	VEYSEL	GÜRER	3.21E-05	39	9.4	1.25	2.5
25	16049040	ENES	TOPCU	2.79E-05	38	9.1	1.2	2.4
26	17042109	MUHSİN CAN	MEHTER	4.99E-05	22	5.3	1.75	3.5
27	17042133	ALİ BARIŞ	KATRANCI	2.68E-05	39	9.4	1.75	3.5
28	17042913	AMMAR	KHALBOUS	1.12E-05	22	5.3	1.5	3
29	17049001	BERKE	TANGÖR	1.12E-05	38	9.1	1.5	3
30	17049002	OKAN	ÖZDEMİR	4.10E-05	27	6.5	1.2	2.4
31	17049003	SAADET	YİĞİT	3.99E-05	23	5.5	1.2	2.4
32	17049006	MEHMET	YÜKSEL	3.12E-05	37	8.9	1.25	2.5
33	17049010	YUNUS EMRE	DERECİ	4.90E-05	31	7.4	1.25	2.5
34	17049011	BERKE	AYAYDIN	3.01E-05	31	7.4	1.25	2.5
35	17049013	HALİL	YAVUZ	3.96E-05	30	7.2	1.5	3
36	17049015	ENES	HIRDAR	2.45E-05	21	5	1.5	3



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37	17049016	MEHMET ALİ	ÖZTEKİN	1.53E-05	21	5	1.75	3.5
38	17049018	FURKAN	KÜLKÖYLÜOĞLU	2.09E-05	40	9.6	1.5	3
39	17049019	ÇAĞRI EMİR	AÇIKKAPI	4.05E-05	29	7	1.5	3
40	17049022	ENES BURAK	DEMİRCİ	3.75E-05	34	8.2	1.5	3
41	17049029	REFİK	YAZICI	1.32E-05	27	6.5	1.25	2.5
42	17049030	EMİN	BÖLÜK	4.76E-05	35	8.4	1.25	2.5
43	17049031	MUSTAFA BERK	BAYRAKTAR	3.16E-05	31	7.4	1.2	2.4
44	17049038	GİZEM NUR	TOPALOĞLU	3.00E-05	21	5	1.25	2.5
45	17049040	ÖMER	IŞKIN	1.75E-05	27	6.5	1.5	3
46	17049041	FURKAN SAMET	YİĞİT	3.15E-05	31	7.4	1.75	3.5
47	17049044	YAKUP EREN	ERCAN	4.06E-05	31	7.4	1.5	3
48	17049046	HARUN	KORKMAZ	3.54E-05	39	9.4	1.25	2.5
49	17049047	FURKAN	ÇETİN	2.47E-05	36	8.6	1.2	2.4
50	17049048	BARAN	POLAT	2.50E-05	24	5.8	1.5	3
51	17049049	MEHMET	ACAR	3.22E-05	33	7.9	1.75	3.5
52	17049051	ADEM	TURAK	3.58E-05	35	8.4	1.5	3
53	17049903	MOHAMED TAWFIK	ALI ZABADY	2.85E-05	23	5.5	1.2	2.4
54	18042909	MAAMOUN	Haidar	2.71E-05	21	5	1.5	3
55	18049016	ŞERAFETTİN	ALTUNBAŞ	2.30E-05	22	5.3	1.5	3
56	18049036	BORA ERKİN	KOÇ	2.47E-05	35	8.4	1.75	3.5
57	18049901	MUHAMMED	KAPLAN	2.54E-05	21	5	1.25	2.5
58	18049906	MUHAMAD	SHARFO	4.47E-05	31	7.4	1.5	3
59	18049908	HUMAM	SHİKH SULAİMAN	2.09E-05	39	9.4	1.25	2.5
60	18049909	ABDULLAH	DARWICH FOTI	4.67E-05	38	9.1	1.5	3
61	18049917	MAHAMUDU	DADI	4.58E-05	26	6.2	1.5	3
62	19049601	SÜLEYMAN	SELEK	1.15E-05	24	5.8	1.2	2.4
63	19049602	DANYAL	DAL	3.97E-05	32	7.7	1.5	3
64	19049603	MİNA	METE	3.92E-05	35	8.4	1.75	3.5
65	19049604	MÜCAHİD	YABAN	4.81E-05	24	5.8	1.25	2.5
66	19049917	YAMAN	KHALBOUS	2.45E-05	22	5.3	1.5	3
67	19049918	ABDUALHADI	BARMU	3.56E-05	37	8.9	1.2	2.4
68	19049922	ASHRAF	ASHRAF	4.01E-05	32	7.7	1.5	3
69	19049926	SULTAN	HEZAM	3.49E-05	33	7.9	1.5	3
70	20049602	AYRİS İREM	TURAN	4.73E-05	20	4.8	1.2	2.4
71	20049604	BURAK İDRİS	ZERENÜZ	3.14E-05	33	7.9	1.75	3.5
72	20049605	GÖRKEM	AYDIN	3.68E-05	28	6.7	1.5	3