GINEER
2 2
3
tacte

NAME	DATE	
	DAIL	-

COURSE \_\_\_\_\_SHEET OF

'As Y	SHEET OF
4.12 Given: Trapezoidal channel 4	1=3.75 m3/2 1 1 1 1
Class & Retardence	5=0.004 b= 20 == 3
4.12 Given: Trapezoidal channel & Class & Returdence Find: Depth of design flow.	te channel stale ?
OVRC #C => Table 4.4 -> 7	= LOS pof = 18 N/m2 /11
@ Estimate from depth 5=20	m, n=3
aves 4 = 10 m	
A = 40, (5+m90,) = 1 m (2 n	7 3(In)) = 50m2 137
P= b+ 270. VI+m= = 2m	planting of the state forming which are the state of the
R= A1 = 5.012 = 0.60	L- 1114 3- L- 2- L
8.32m	
3) Table 4.4 - OMET - DIS Nom2, L	15 = 0,2m
6 = 8 RS = (9810 M2) (0.60m	)(0.004) - CT, N/n=
K GIL (MEI/E) 927	[ (0.5 N m 2/24 N/m2)
hs = L hs J	= 0.1+ [ (0.5 Nm2/24 M/m2) 0.45] 1.89
- n 7a = 1 1 - n 36/n	2-2
= 0.39 => k = 0.39(b.	1 = 0.018 =
4 = (3 RS) = (9.819/82) (0.60m	-) (0.0x1) = 0.65 m/s
4= = mi [0.028 + 6.35 ME]2	0-23 METO1067
= m= [0.028+6.33 (0.5 Nn2) -	0.23 (0.50-2) 2106] [12]
= m= [ 0.08+ 6.33 (0.5 Nn2) = = m= [ N+C1, 0.21] = 0.	ri mili
Uxe = 0.21 - Bue = 011 -	> table 4.3 4=0.15, 6=1.85
n Kn (Rtie)"	(0.60m/0.00s/s
The state of the s	
K 138 (a+ 508 (4)	(BG. 51760) 1/2 (0.18+1.55 lo (B.078m))
=0.089	
N = 0.089 (0.018) = 0.0	53
	The second secon
D Q = Km A, R 26, 5, 14 = 2058 7	2,43
2 x = 1 (102 L2m+ 340] P/3	1/2 000/2 13
3,75-7= 0.058 (2m+340) 18/3 (2m+2702 1/0) 1/3	V- V-
Good Sect 40, 20,984 m	
Sec spread sheet for west i	tenetra-s
Mo= 0.987m In- 0.08	
7) Zun = 74-5-(4B10N/23)(0,98	2-) (000+) = 38.84/12 /2p=48/42
	) (4504) - 36.0 M/m 2 Cp = 40 m
Stable	

First trial from first yo guess

b =	2	m	MEI =	0.5	N m
m =	3		$h_s =$	0.2	m .
$S_o =$	0.004		γ =	9810	N/m <sup>3</sup>
n =	0.058		g =	9.81	
Q (m <sup>3</sup> /s)	y <sub>o</sub> (m)	A (m <sup>2</sup> )	P (m)	RHS (m³/s)	by Goal Seek
3.75	0.984	4.87	8.22	3.75	

## Next trial

0.007 4.00 0.04 0.504 0.001 0.001 0.001 0.001		y <sub>o</sub> (m)	A (m <sup>2</sup> )	P (m)	R (m)	$\tau_o$ (N/m <sup>2</sup> )	k/h <sub>s</sub>	k (m)	u₊ (m/s)	u <sub>∗c</sub> (m/s)	u₊/u <sub>*c</sub>	а	b	n/k <sup>1/6</sup>	n	Q (m <sup>3</sup> /s)
0.987 4.89 8.24 0.594 23.3 0.393 0.08 0.1527 0.214 0.714 0.15 1.85 0.0891 0.0583 3.75					0.593	23.3	0.393	0.08	0.1525	0.214	0.714	0.15	1.85	0.0892	0.0584	3.73
	L	0.987	4.89	8.24	0.594	23.3	0.393	0.08	0.1527	0.214	0.714	0.15	1.85	0.0891	0.0583	3.75

Last by Goal Seek



NAME	DATE	

COURSE \_\_\_\_

\_ SHEET \_ 3\_\_ OF \_ 3\_

	715
	1.19 Given: Repreplied channel Q = 1000 cfs So = 0.0005 Cristed rock 5 = 15 ft
	Find Ripropsier, m, 40 design depte
	1 Choose dio = 100mm = 10cm (1ft 3005m) = 0.33ft
1	5 Fodis Ø=41.8°, A=23°, m=(2.3)
	(1) (vitied bed & wall shearstresses  Toe (4sf) = 4dso(4t) = 4 (0.32ft) = 1.32 psf
	$\begin{cases} X_{+} = \frac{700}{100} = \left[1 - \frac{\sin^{2}\theta}{5\pi^{2}\theta}\right]^{\frac{1}{2}} = \left[1 - \frac{\sin^{2}(23^{\circ})}{5\pi^{2}(418^{\circ})}\right]^{\frac{1}{2}} = 0.84 \end{cases}$
	Zw = Kr Toe = 0.86 (1.32 psf) = 1.07 psf
(2)	3) $n = 0.04 ds^6 = 0.04 (0.33 + c)^2 = 0.033$
	D Find yo for given 5, Q, S. I'll choose [5=12ft m= 2,3]
A	Q = Km AR 3/3 & 1/2  AR 3/3 = A 5/3 = On  P3/3 = Km S/2
	[\(\frac{1}{2}\)\(\fr
	[b+240(1+m)2]12 [12++240(1+232)2]3/2 (1+9)(0.0005)/2 = 990
	using 600 Seele 40=95 ft 17=54ft
	5) (to)max = 158RS = 15 (62+16/4) (5.44) (0.0005) = 0.25 psf
A	(20) max = 12 8 RS = 12 (62.4 16443) (44t) (00005) = 0.20 pt
	(24) = 0.28 pst 2 [ = 1.32 psf V Channel
	(26) mm= 0.20 pst < Top = 1.07 pst - stable stable
	You, answers may vary but
	procedure smold agree
1	그는 그



TEXAS TECH UNIVERSITY
J. H. MURDOUGH
ASCE STUDENT CHAPTER



NAME	DATE	
	~	3

ASCE STUDENT CHAPTER TO SEE TO	COURSE	SHEET	OF
4.19/ Gives: Restrugular channel. b= 10 fe	4 1=0.020		
Finds Slope such that uniform flo	as will clua	ys have Fr	€ 0.5
Limit Slope 5 = 2.679 112 6/3			
$S_{1} = \frac{2.67(32.2fc/c^{2})}{1.49^{2}}$	(10ft) 1/3		
$S_{c} = 0.0072$			
	***************************************		
IE. 2 = 50			esternoste non mora de manda estado aparamente. Estado estado estado Estado estado est
$S_0 = F_{v_{max}}^2 S_1 = (0.5)^2 (0.5)^2$			
			ner referent edit i mene. Here recent in them to sever our subsect of transact
			The state of the s
			i j
			*
			(mm) 

(10)



30 total

SINEED
5
を に 日本 別日 ゆ
2/200
6

NAMEDATE	
----------	--

TEXAS TECH UN	
J. H. MURDOUGI ASCE STUDENT	

GINEER
ZG TOO TO
0
多個個公司目令
7/200
the Te

ASCE STUDENT CHAPTER	COURSE	SHEET	OF
4.13 Given: Compound channel shown	below		
50 = 0.001, 40 = 3.7 m			
Rand. Q for uniform from			
(i) vertical interface w/	1 W/o P form	an channe	
(i) Verteral interface of	d en en te	ls li	that the second and second second the second
C. n=0.03		this on	•
The state of the s	RF		
N=0,06 13 G25m d1	n = 0. 4		
1 100 m - 3 1 10 m 1 1 - 1	00m		
(i) Withvertical interface included			
ZQ = QL+Qe + QR = ZQL	+0	Q_= QL	
			in and the first of
QL = 0.06 AL RL 73 50 12			
AL = (100m) (1,2m) = 120m2			
P= 100m + 2(1.2m) = 102.+ n			
RL= 120m2 = 1,17m			
QL = 102.40 (120m2) (1617m) 3/3 (0.	001		
QL \$ 0.0L		10.24.3	
Q = 70.2 m /sec = QR		10+2(2.5)(15)-	
		11.20	
B = 10m + 2 (2.5m) (15) = 17.	5-	\$25m	
Ac= (1.2m) (17.5m) + 10m+17.5m (	2:54)	10	The amendation of the control and compression control
= 21 m² + 34. + m² = 55. + m²			
		0 + 2 5 =	21 d
Pc = 10m+ 2(25n)(1+152)/2+	20,24)		CIVIO
Re = Ac = SSI + m2 = 2.59m			
in the state of th			
Qc = 0.03 (55 Am2) (2.59m)3(0	001)2		
= 110 milsee			The second secon
ZQ = 2(70.2n3/sec)+ 110n3/sec			
ZU = Z(70.2n3/sec)+ 110~3/sec			
702 250 m3/fec			
	The first part of the first pa		



TEXAS TECH UNIVERSITY
J. H. MURDOUGH
ASCE STUDENT CHAPTER

GINEER	
- 15 Oc 14	
W 16/10 10	
5. 15/18 D 3/18 . 2.	
S. 66 10 10 12	
- Y/V	
the rec	

NAMEDATE
----------

ASCE STUDENT CHAPTER	COURSE	SHEET	OF
A Stays same, Pchanges			
Pl = 100m + 1,2m = 101.2m Rl = AL = 120m <sup>2</sup> = 1.19m			
Q_= 006 (120m3) (1.19m) 3/3 (0.001)	(2		
Pc = 214m - 2(1,2m) = 19,0m			
Re = Ac = 55.4m2 = 2.92m		1	
Qc = 0,03 (58,42)(2,92m) 3/3 (0,00)	<i>D</i> '4		
20 = 261 m3/sec 119 m3/sec			*
ii) Dagon l'utetaces w/o P for mo	in channel	4空1	
Ac=(100m)(1.2m)+{2(175m)(1.2m)		Tran C	
PL = 1.2m + 100m = 101.2m		E-1qu	
$R_{1} = \frac{4}{R_{1}} = \frac{124.3m^{2}}{101.2m} = 1.24m$	<b>%</b>		infrantis (annua a la cala partere escala da la calagia da da da la calagia da da da la calagia da da da la cal
Qu = aa (125.3m²)(1.24m) (0.001)			
$A_c = 34.4 m^2 + \frac{1}{2} (125m)(1.2m) = 34$ = $44.5m^2$	utu=+ 10,5~=		enterone et friedrich en
Pc = 19.0m as in Lil w/o chan.	nel up face P		
Pc = 4+50 - 236m	<b>y</b>		
Qc = 839 miller			
ZQ=2(16.2 m/sec) + 83.9 m/sec			er i von hammanen elektriste kantalassianskalassianskalassianskalassianskalassi
29=236 milsec		of the state of th	

10