
RECEIVED
STATE ENGINEER
SALEM, OREGON
PROFILE - HAINES FALLS INTAKE TO FOREST GROVE
18" O.D. STEEL PIPE
ELEVATION IN FEET
DISTANCE IN MILES
H.G. @ 11.1 MGD
H.G. @ 7.4 MGD
H.G. @ 12.1 MGD
HAINES FALLS INTAKE
PUMPING STATION. ELEV. 571.
GRAVITY FLOW H.G. @ 4.0 MGD.
H.G. ELEV. 505
EXISTING 5.0 MG
RESERVOIR ELEV. 368
GRAVITY FLOW
H.G. @ 8.4 MGD
SCOGGINS JUNCTION
BOOSTER PUMPING STATION.
S.E. FOREST GROVE
BOOSTER PUMPING STATION.
R 6 W
R 5 W
R 4 W
R 3 W
T 2 N
T 1 N
T 1 S
2400 ACRE-FEET STORAGE
RESERVOIR. PROPOSED BY
FOREST GROVE. (PLAN A)
INTAKE
ELEV. 464
INTAKE
ELEV. 466
TREATMENT PLANT &
5,000,000 GALLON
RESERVOIR ELEV. 368
TILLAMOOK
WASHINGTON
Saddle
Mountain
COAST
RANGE
DIVIDE
WILLAMETTE
BASELINE
GALES CREEK
S. E. FOREST
GROVE BOOSTER
PUMPING STATION
TO ALOHA HUBER
WATER DISTRICT
DILLEY
GASTON CANAL
1,000,000 GALLON
RESERVOIR
ELEV. 385
INTAKE
ELEV. 580
SCOGGIN
RESERVOIR
POSSIBLE
RELOCATION
FERN
HILL
SPRING
HILL
IOWA
HILL
HAINES FALLS
INTAKE-ELEV. 571.
& PUMPING STATION.
SCOGGINS JUNCTION
BOOSTER PUMPING STATION
CHERRY
GROVE
TRASK RIVER DAM
PROPOSED 12,600 ACRE FT.
ULTIMATE STORAGE
INITIAL
4000 ACRE-FEET
STORAGE RESERVOIR
WASHINGTON CO.
YAMHILL CO.
GASTON
Tualatin River
SCALE
4 MILES
LEGEND
EXISTING PIPELINE.
EXISTING RESERVOIR.
EXISTING PUMPING STATION.
DRAINAGE AREA DIVIDE.
PROPOSED PIPELINE.
PROPOSED PUMPING STATION.
PROPOSED DAM SITE.
FIGURE 6
DATE
NO.
REVISION
BY
STEVENS & THOMPSON Consulting Engineers
PORTLAND, OREGON
SEATTLE, WASHINGTON
MUNICIPAL WATER SUPPLY
FOREST GROVE - HILLSBORO
PLAN B
DESIGNED G.R.M.
DRAWN LEE MOS
CHECKED G.R.M.
APPROVED BY M. W. [signature]
SCALE As shown
DATE 4-3-61
FILE 1337-4666
SHEET 1 OF 1


PROFILE - HAINES FALLS INTAKE TO FOREST GROVE
18" O.D. STEEL PIPE
ELEVATION IN FEET
DISTANCE IN MILES
H.G. @ 11.1 MGD
H.G. @ 12.1 MGD
H.G. @ 7.4 MGD
1.0 MGD FROM SEINE CREEK
H.G. ELEV 505
GRAVITY FLOW H.G. @ 4.0 MGD.
HAINES FALLS INTAKE PUMPING STATION. ELEV. 571.
EXISTING 5.0 MG RESERVOIR ELEV 368
GRAVITY FLOW @ 5.0 MGD.
EXISTING 1.0 MG RESERVOIR ELEV 385
H.G. @ 8.4 MGD
SCOGGINS JUNCTION BOOSTER PUMPING STATION
S.E. FOREST GROVE BOOSTER PUMPING STATION
HILLSBORO
CORNELIUS
FOREST GROVE
DILLEY
GASTON
CHERRY GROVE
GASTON CANAL
GALES CREEK SIPHON
TREATMENT PLANT & 5,000,000 GALLON RESERVOIR ELEV. 368
1,000,000 GALLON RESERVOIR ELEV. 385
S.E. FOREST GROVE BOOSTER PUMPING STATION
TO ALOHA HUBER WATER DISTRICT
SCOGGIN RESERVOIR
POSSIBLE RELOCATION
INTAKE ELEV. 580
HAINES FALLS INTAKE-ELEV. 571 & PUMPING STATION
SCOGGINS JUNCTION BOOSTER PUMPING STATION
INTAKE ELEV 463
INTAKE ELEV 464
INTAKE ELEV 466
2400 ACRE-FEET STORAGE RESERVOIR PROPOSED BY FOREST GROVE (PLAN A)
4000 ACRE-FEET STORAGE RESERVOIR PROPOSED BY HILLSBORO (PLAN B)
COAST RANGE DIVIDE
10" STEEL
18" STEEL
20" C.I.
16" STEEL
12" WOOD
12" STEEL
30"
R3W
R4W
R5W
R6W
LEGEND
EXISTING PIPELINE.
EXISTING RESERVOIR.
EXISTING PUMPING STATION.
DRAINAGE AREA DIVIDE.
PROPOSED PIPELINE.
PROPOSED PUMPING STATION.
PROPOSED DAM SITE.
SCALE
4 MILES
STEVENS & THOMPSON
Consulting Engineers
PORTLAND, OREGON
SEATTLE, WASHINGTON
MUNICIPAL WATER SUPPLY
FOREST GROVE - HILLSBORO
PLAN B
DESIGNED G.R.M.
DRAWN LEE MOSS
CHECKED G.R.M.
SCALE As shown
DATE 4-3-61
FILE 1337-4666
SHEET 1 OF 1
FIGURE 6

Use $\tan\varphi = 0.32$

Random + Imp. — $\tan\varphi = 0.60 \Rightarrow \varphi = 31°$; $\gamma_{wet} = 108 \leftarrow G$; $\gamma_{sat} = 110$

$\varphi = 18°$, $c = 6$ psi $= 864$ psf; $G = 2.7$, $\gamma_d = 90$; $\gamma_{wet} = 120$, $G = 1.9$

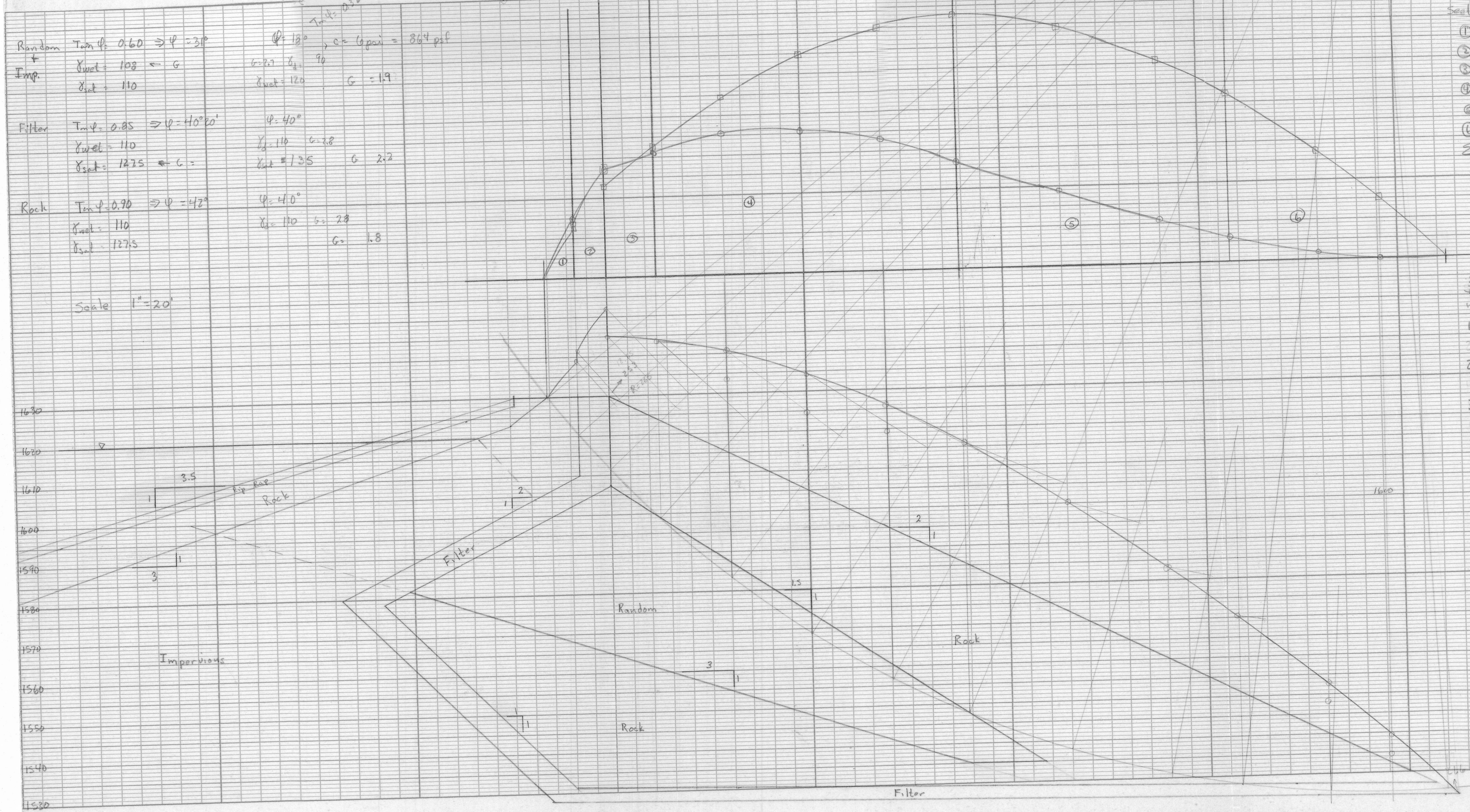
Filter — $\tan\varphi = 0.85 \Rightarrow \varphi = 40°20'$; $\gamma_{wet} = 110$; $\gamma_{sat} = 127.5 \leftarrow G =$

$\varphi = 40°$; $\gamma_d = 110$, $G = 2.8$; $\gamma_{sat} = 135$, G 2.2

Rock — $\tan\varphi = 0.90 \Rightarrow \varphi = 42°$; $\gamma_{wet} = 110$; $\gamma_{sat} = 127.5$

$\varphi = 40°$; $\gamma_d = 110$, $G = 2.8$; $G = 1.8$

Scale 1" = 20'



Area

Section	Tangential	Normal	Material
①		0.12	Imp
②		0.42	Filter
③		0.38	Rock
④		10.03	Random
⑤		9.41	Rock
⑥		3.03	Filter
Σ	10.95 sq in	23.89 sq in	
	274,000		

1 sq in = (20')(20')(1')(62.4) = 25,000

Resisting Force

Section	Normal Force N, lbs	Tan φ	θ	θ rad	c	COR	N Tan φ
1	3000	0.32	.044	12	864	10,400	1000
2	10,500	0.84	0				8800
3	22,000	0.84	0				18,500
4	251,000	0.32	0.35	93	864	(80,400)	(211,000) 80,300
5	235,000	0.84	0				197,000
6	75,800	0.84	0				63,700
						Σ 80,800 (10,400)	Σ 369,000 500,000

If Section 4 is Imp mat

$$SF = \frac{80,800 + 369,000}{274,000} = 1.64$$

If sect 4 is rock fill

$$SF = \frac{10,400 + 500,000}{274,000} = 1.86$$

JWE 12-14-62

CITY OF FOREST GROVE SERVICE AREA (PLACE OF USE) FOR ROARING CREEK AND CLEAR CREEK PORTION OF PERMIT NO. 40615

FOREST GROVE SERVICE AREA

HILLSBORO SERVICE AREA

HILLSBORO SERVICE AREA - WHOLESALE CUSTOMERS

HILLSBORO SERVICE AREA

TUALATIN VALLEY WATER DISTRICT SERVICE AREA

BEAVERTON SERVICE AREA

TUALATIN VALLEY WATER DISTRICT SERVICE AREA

TIGARD SERVICE AREA

LA Water Cooperative

Cornelius

Dilley

Cherry Grove

Gaston

Portland

King City

Durham

WILLAMETTE RIVER

N

6000 0 6000 12000

1 Inch = 6000 Feet

LEGEND

- CURRENT PLACE OF USE BOUNDARY
- METRO URBAN RESERVE AREA
- SERVICE AREA BOUNDARY

RECEIVED
MAY 21 2002
WATER RESOURCES DEPT
SALEM, OR

COBU MAP # 0100

PLACE OF USE FINAL PROOF FOR PERFECTION OF TUALATIN RIVER PERMITS FOR:

HILLSBORO	APPLICATION: 51643	PERMIT: 46423
BEAVERTON	APPLICATION: 60357	PERMIT: 45455
FOREST GROVE	APPLICATION: 54203	PERMIT: 40615

THIS MAP IS FOR THE PURPOSE OF IDENTIFYING THE LOCATION OF THE WATER RIGHT BOUNDARIES ONLY AND IS NOT INTENDED TO PROVIDE LEGAL DIMENSIONS OR LOCATIONS OF PROPERTY LINES.

Certified Water Right Examiner #121
Philip H. Smith
Nov. 9, 1987
STATE OF OREGON
Expires 6/30/2002

JOINT WATER COMMISSION
(Cities of Hillsboro, Forest Grove, Beaverton and the Tualatin Valley Water District)

PLACE OF USE MAP

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MAY 2002

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