TR-55 TABULAR DISCHARGE METHOD VERSION 1.11

Project : geneva bldg, drives genevabb User: dan Date: 01-31-94
County : butler State: oh Checked: ___ Date: _____
Subtitle:

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 25 years

---------- Subareas ----------

	bldg	drives	lawn
Area(sq mi)	0.00*	0.00*	0.00*
Rainfall(in)	4.8	4.8	4.8
Curve number	98*	98*	69*
Runoff(in)	4.56	4.56	1.81

TR-55 TABULAR HYDROGRAPH METHOD VERSION 1.11

SUBAREA CONTRIBUTIONS AND TOTAL DISCHARGE (CFS) AT OUTLET

	Time									
Subarea	11.0	11.3	11.6	11.9	12.0	12.1	12.2	12.3	12.4	12.5
bldg	0	0	0	3	6	9	6	2	1	1
drives	0	0	0	3	6	9	6	2	1	1
lawn	0	0	0	0	1	1	1	1	0	0
TOTAL	0	0	0	6	13	19	13	5	2	2

File GENEVABB

Esc exit compute process i s p l a y e a r l i e r
t i m e D i s p l a y
l a t e r t i m e

TR-55 TABULAR DISCHARGE METHOD VERSION 1.11

GENEVA 2C

Project : GENEVA ACCESS User: DAN Date: 01-19-94
County : Butler State: OH Checked: ____ Date: _____
Subtitle: Culvert Study

Total watershed area: 0.720 sq mi Rainfall type: II Frequency: 25 years

	Subareas				
	1	2	3	4	5
Area(sq mi)	0.13*	0.07*	0.12*	0.04*	0.07*
Rainfall(in)	4.8	4.8	4.8	4.8	4.8
	48*	70*	92*	48*	

TR-55 TABULAR HYDROGRAPH METHOD VERSION 1.11

SUBAREA CONTRIBUTIONS AND TOTAL DISCHARGE (CFS) AT OUTLET

	Time									
Subarea	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8
1	0	0	0	0	1	2	5	9	14	19
2	0	0	0	0	0	1	2	3	5	6
3	9	16	32	60	92	112	106	88	67	51
4	8	13	24	45	74	91	84	66	48	35
5	0	0	0	0	1	3	5	7	8	8
6	0	0	0	1	3	5	6	6	5	4
7	3	5	9	17	30	41	48	46	40	32
8	18	29	53	96	146	166	159	126	93	71
9	0	0	0	0	0	0	1	1	2	2
10	1	1	1	2	3	5	8	11	13	14
TOTAL	39	64	119	221	350	426	424	363	295	242

File GENEVA 2C

Esc exit compute process i s p l a y e a r l i e r t i m e l a t e r t i m e D i s p l a y

TR-55 Tc and Tt THRU SUBAREA COMPUTATION VERSION 1.11

Project : GENEVA ACCESS User: DAN Date: 01-19-94
County : Butler State: OH Checked: ____ Date: _____
Subtitle: Culvert Study

---------- Subarea #8 - 8 ----------

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	2.88	200	.05	f					0.303
Shallow Concent'd		1000	.05	p					0.061
Open Channel		1500	.02		.08	2	1		0.100
						Time of Concentration =			0.46*
									=====
Open Channel		1500	.02		.08	2	1		0.100
							Travel Time =		0.10*
									=====

---------- Subarea #9 - 9 ----------

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	2.88	300	.033	e					0.321
Shallow Concent'd		800	.005	u					0.195
Open Channel		2700	.0003		.08	2	1		1.465
						Time of Concentration =			1.98*
									=====

---------- Subarea #10 - 10 ----------

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	2.88	300	.1	i					0.831
Shallow Concent'd		800	.075	p					0.040
Open Channel		600	.0083		.08	2	1		0.062
						Time of Concentration =			0.93*
									=====
Open Channel		600	.0083		.08	2	1		0.062
							Travel Time =		0.06*
									=====

--- Sheet Flow Surface Codes ---

A Smooth Surface	F Grass, Dense	--- Shallow Concentrated ---
B Fallow (No Res.)	G Grass, Burmuda	--- Surface Codes ---
C Cultivated < 20 % Res.	H Woods, Light	P Paved
D Cultivated > 20 % Res.	I Woods, Dense	U Unpaved
E Grass-Range, Short		

* - Generated for use by TABULAR method

TR-55 Tc and Tt THRU SUBAREA COMPUTATION VERSION 1.11

Project : geneva bldg site dich genevabs User: dan Date: 01-31-94
County : butler State: oh Checked: ____ Date: _____
Subtitle: compare site runoff time to calculated hydrograph of geneva 2c

---------- Subarea #1 - hill ----------

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	2.88	75	0.13	i					0.247
Sheet		130	0.06	h					0.300
Shallow Concent'd		175	0.03	u					0.017

Time of Concentration = 0.56‡
=====

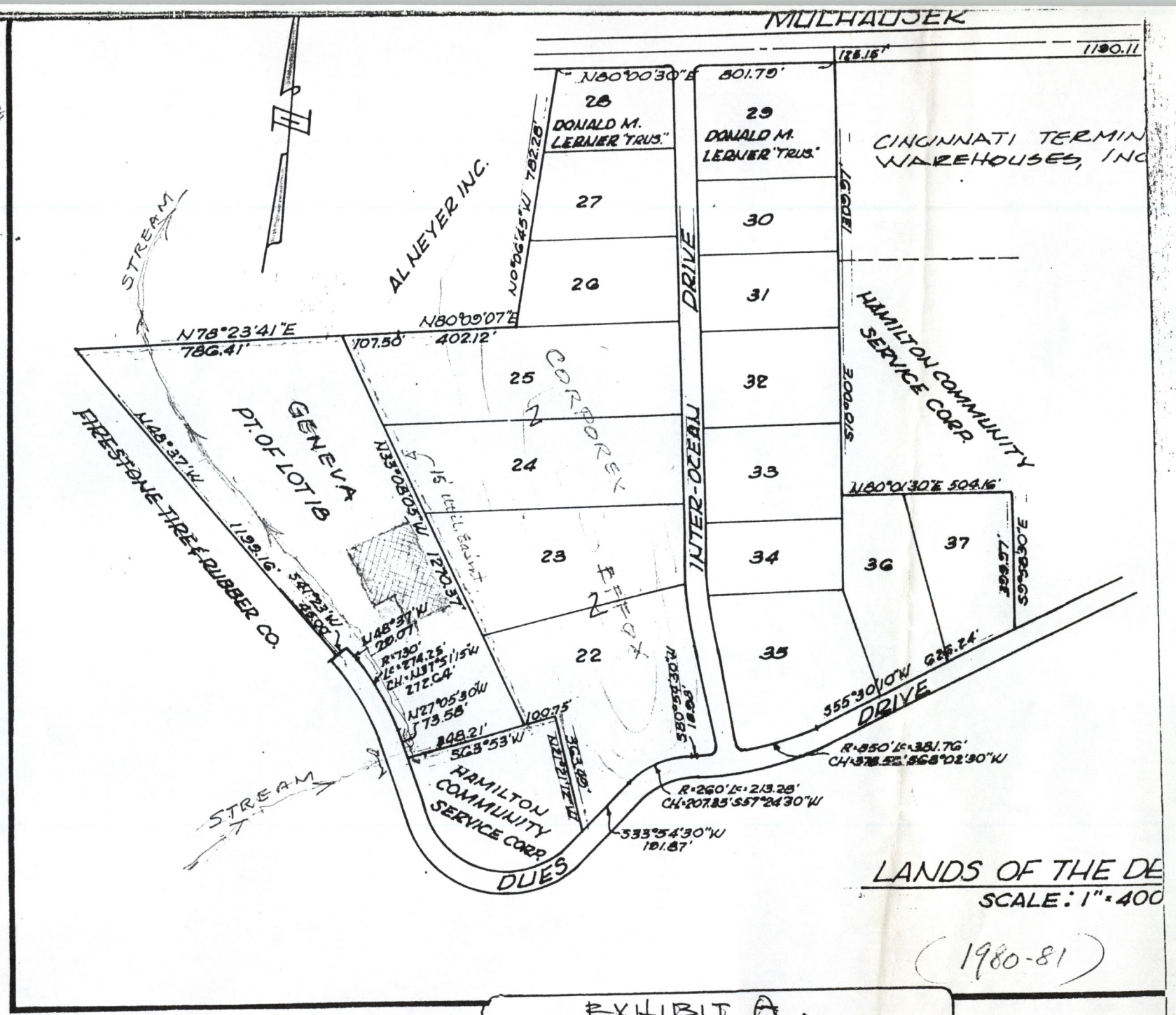
--- Sheet Flow Surface Codes ---

A Smooth Surface
B Fallow (No Res.)
C Cultivated < 20 % Res.
D Cultivated > 20 % Res.
E Grass-Range, Short
F Grass, Dense
G Grass, Burmuda
H Woods, Light
I Woods, Dense

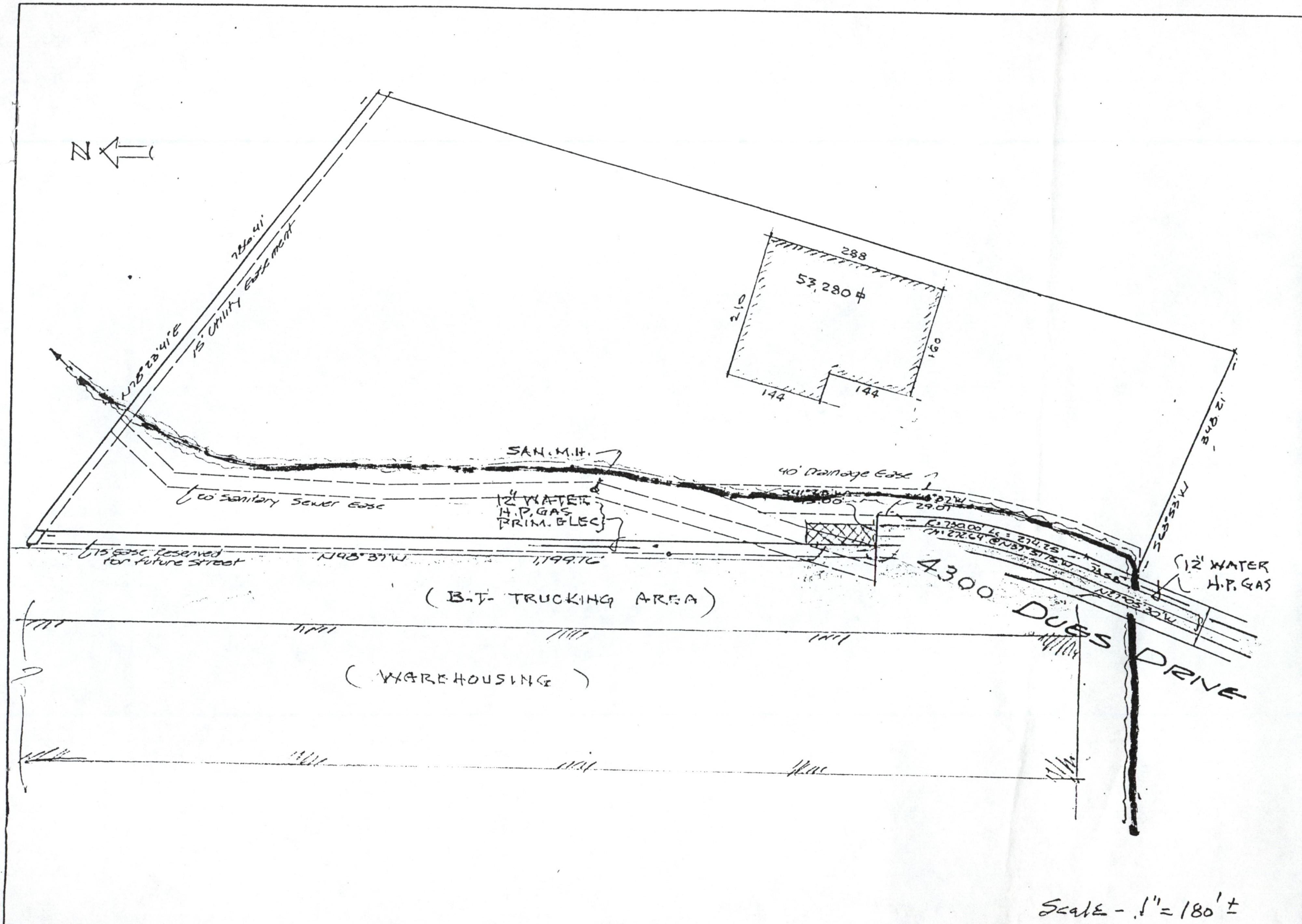
--- Shallow Concentrated ---
--- Surface Codes ---

P Paved
U Unpaved

‡ - Generated for use by TABULAR method



. EXHIBIT A .
PROPERTY LOCATION



GENEVA 2/10/94

TR-55 TABULAR DISCHARGE METHOD VERSION 1.11

Project : geneva bldg site ditch genevabs User: dan Date: 01-31-94
County : butler State: oh Checked: ___ Date: _____
Subtitle: compare site runoff time to calculated hydrograph of geneva 2c

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 25 years

	Subareas
	hill
Area(sq mi)	0.00*
Rainfall(in)	4.8
Curve number	57*
Runoff(in)	1.00

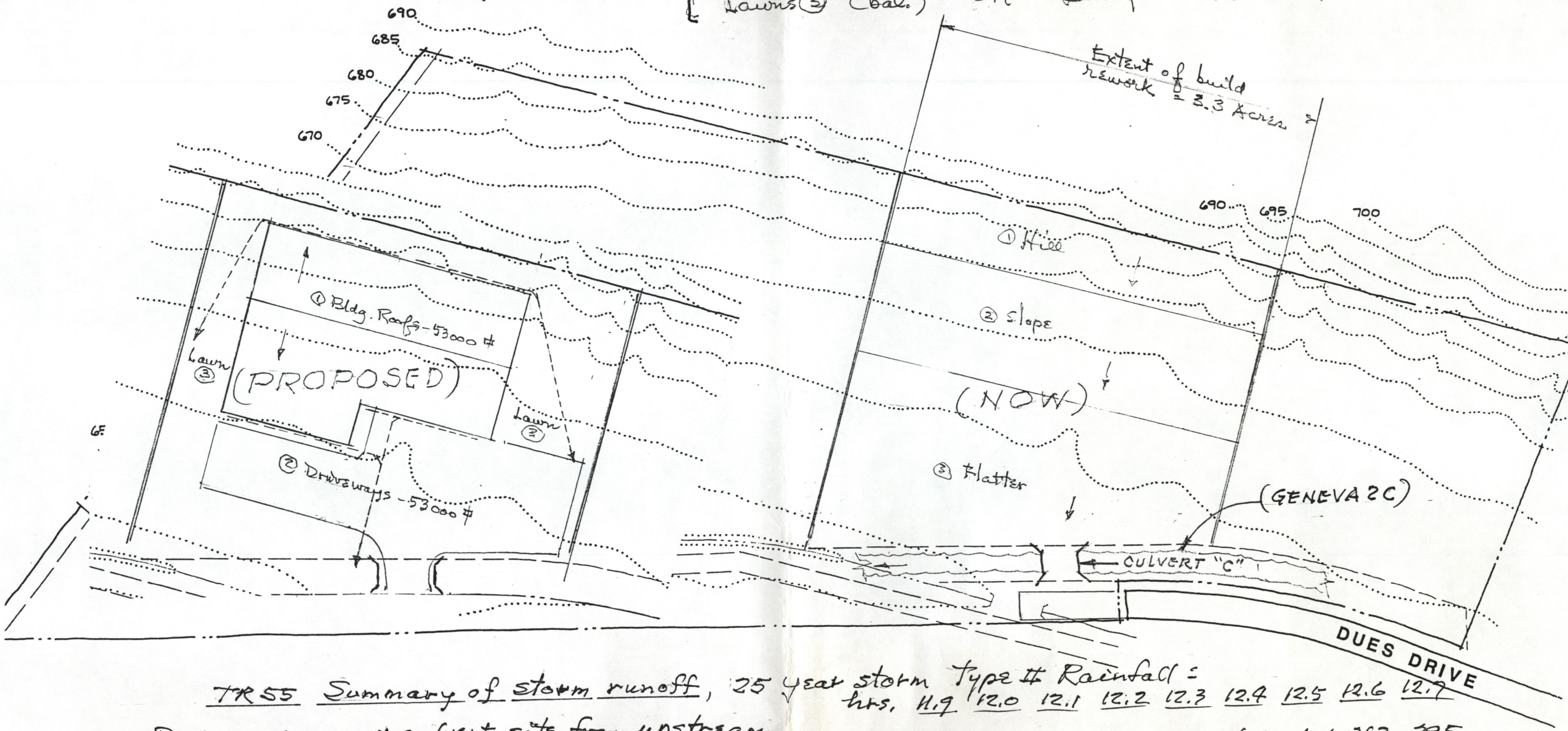
TR-55 TABULAR HYDROGRAPH METHOD VERSION 1.11

SUBAREA CONTRIBUTIONS AND TOTAL DISCHARGE (CFS) AT OUTLET

	Time									
Subarea	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8
hill	0	0	0	1	1	2	2	2	1	1

File GENEVABS

		Subarea	Diav.	Acres	Descr.	Slope	
SITE	BEFORE CONSTRUCTION	Hill ①	450×60	0.6	Wood, good	0.13	General building site discharge (GENEVABS)
		Slope ②	450×125	1.3	Wd. & Brush, good	0.06	
		Flatter ③	450×140	1.4	Dense grass	0.03	
	AFTER CONSTRUCTION	Bldg. ①	53000 ft	1.2	Imperv. {Roof ft/ft. piping}		As proposed: bldg, drives, lawn (GENEVABB)
		Drives ②	53000 ft	1.2	Imperv — .03 slopes		
		Lawns ③	(bal.)	0.7	Lawn, Fair — .03 slopes		



TR55 Summary of storm runoff, 25 year storm Type II Rainfall =

hrs.	11.9	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7
cfs.	39	64	119	221	359	426	424	363	295
cfs.	0	0	0	1	1	2	2	2	1
totals				222	360	428	426	365	296
cfs.	39	64	119	221	359	426	424	363	295
cfs	6	13	19	13	5	2			
totals				234	364	428			

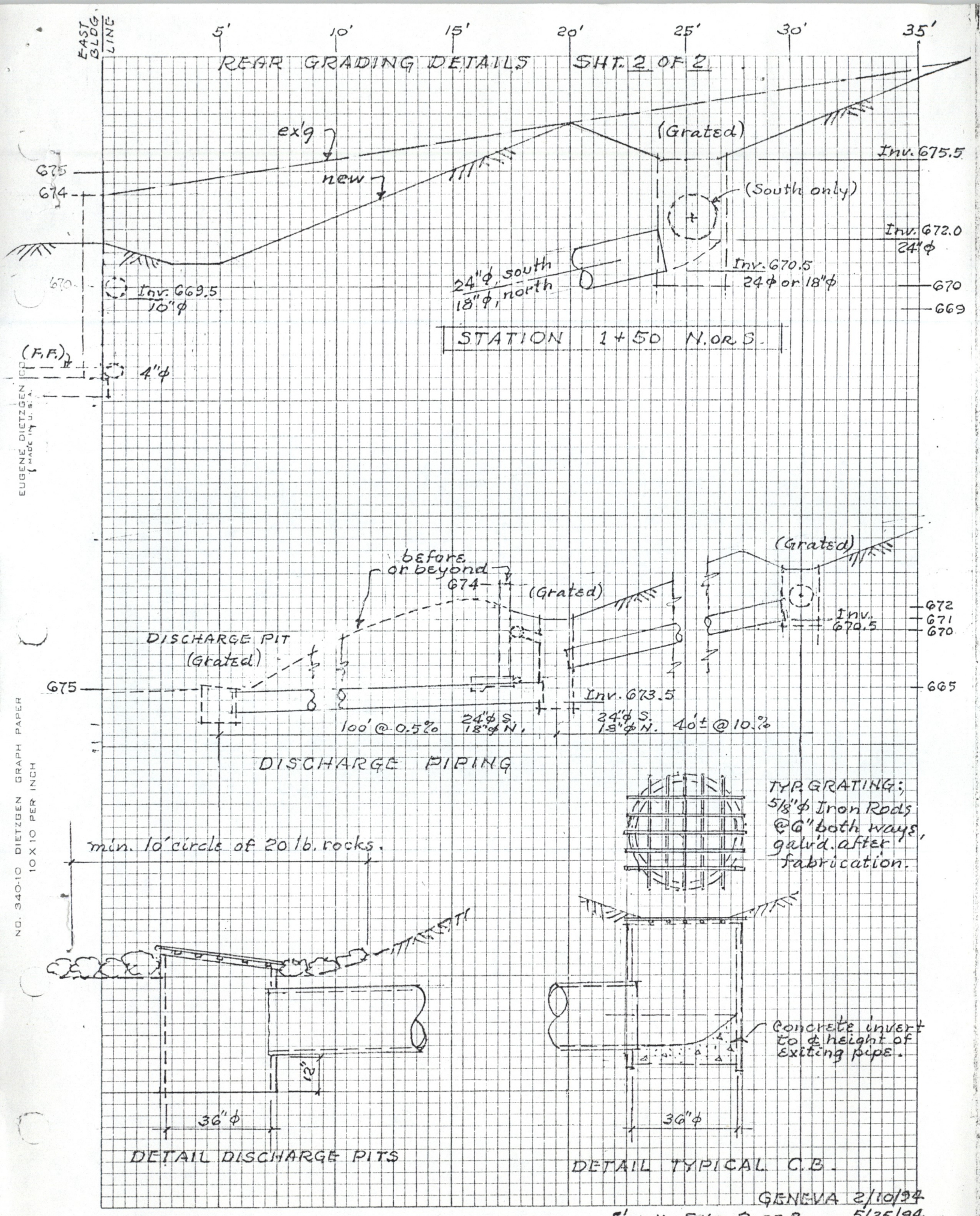
Peak discharge at culvert site from upstream
File GENEVA2C
Add Predevelopmt. site dischg. File GENEVABS

Repeat File GENEVA2C
Add Postdevelop. site dischg. File GENEVABB

Peak discharge is not increased.

CONCLUSION: NO RETENTION NECESSARY.

REAR GRADING DETAILS SHT. 2 OF 2



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5/25/94

8½ × 11 SHT. 2 OF 2

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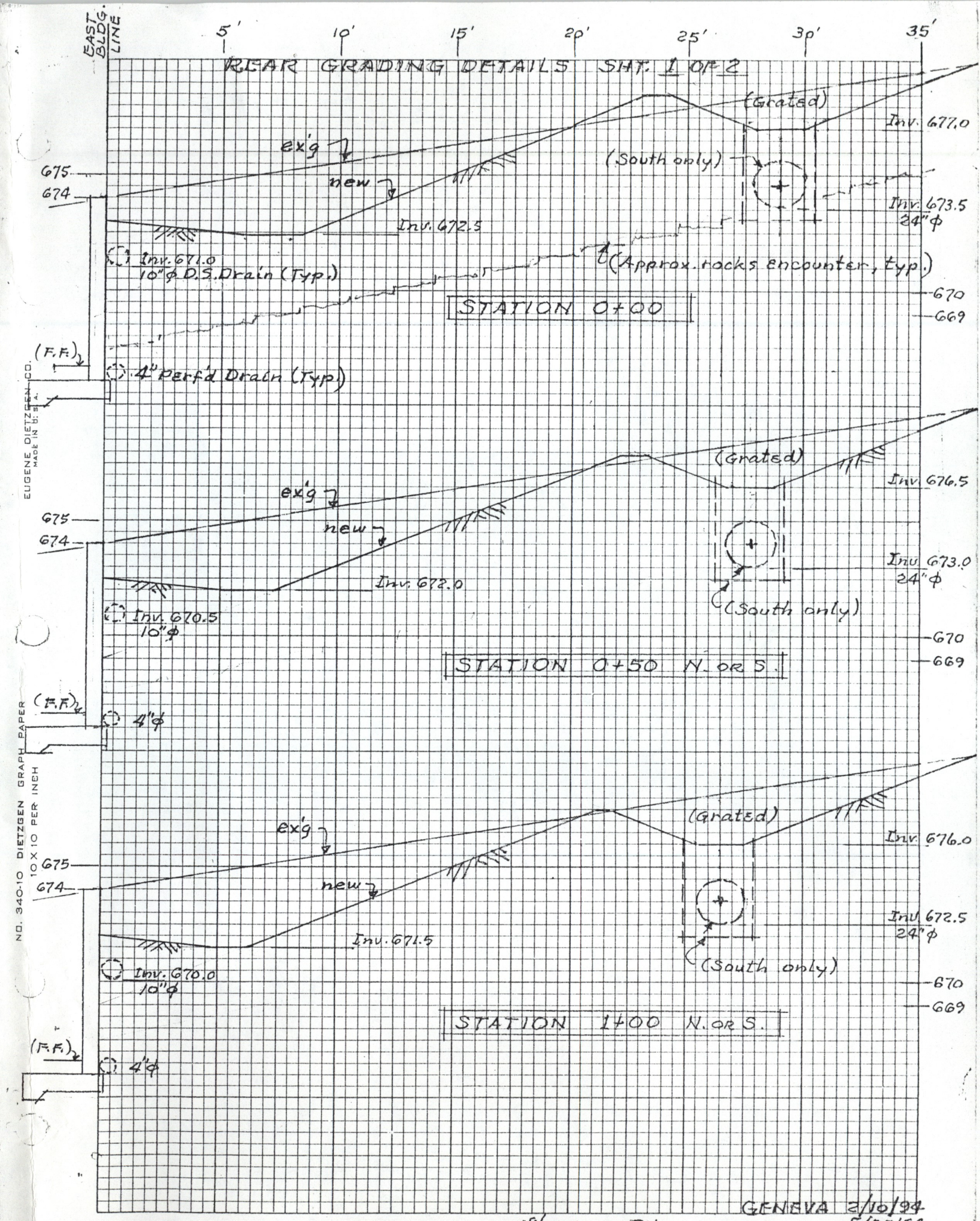
REAR GRADING DETAILS SHT. 1 OF 2



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8½ × 11 SHT. 1 OF 2

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