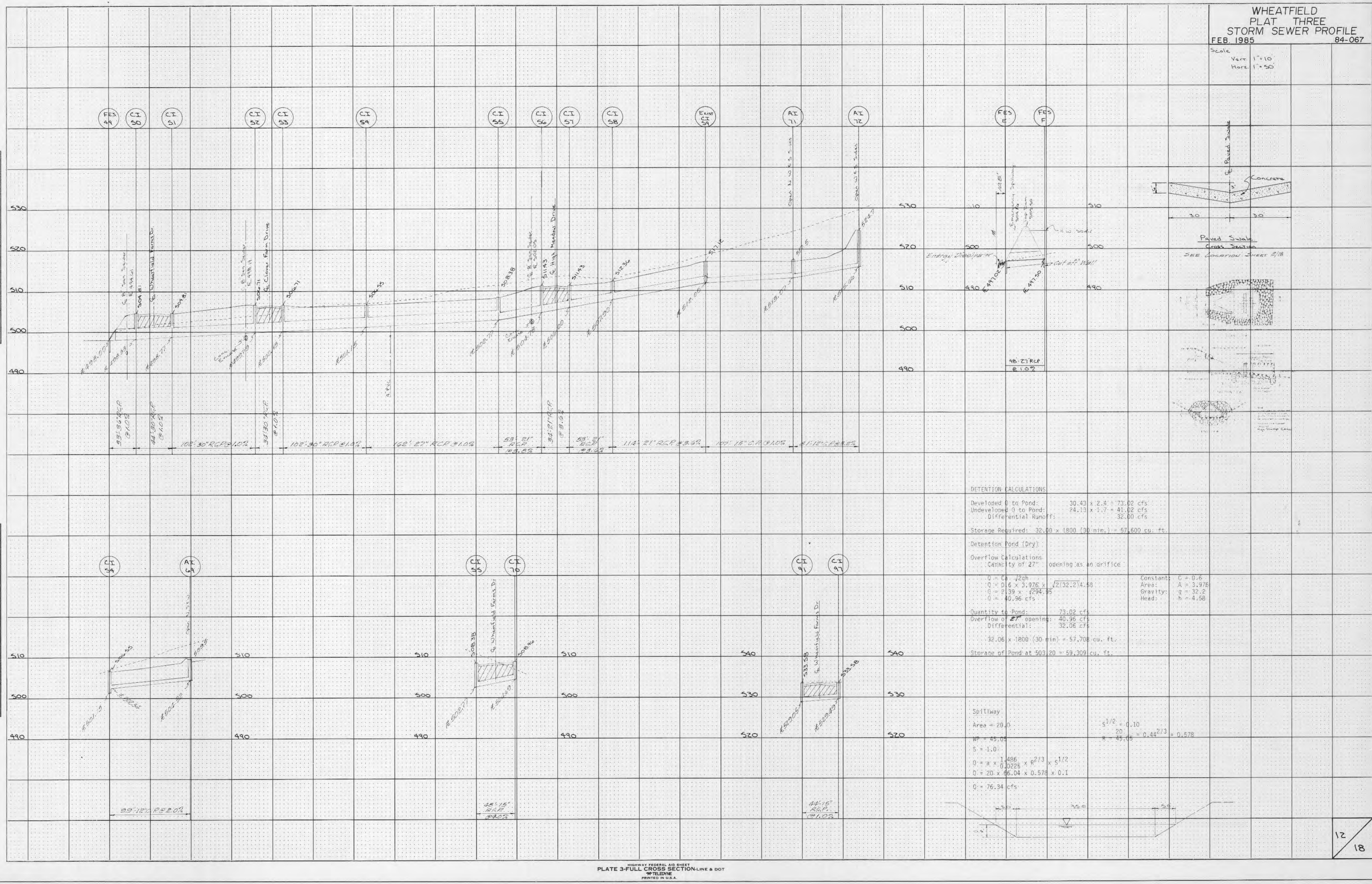
WHEATFIELD
PLAT THREE
STORM SEWER PROFILE

FEB. 1985 84-067

Scale
Vert. 1" = 10'
Horz. 1" = 50'

FINAL SURVEY
SURVEYED
PLOTTED
TRACED
NOTE BOOK
NO.
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
SURVEYED
PLOTTED
TRACED
NOTE BOOK
NO.
AREAS CHECKED
BY
DATE



DETENTION CALCULATIONS

Developed Q to Pond: 30.43 x 2.4 = 73.02 cfs
Undeveloped Q to Pond: 24.13 x 1.7 = 41.02 cfs
Differential Runoff: 32.00 cfs

Storage Required: 32.00 x 1800 (30 min.) = 57,600 cu. ft.

Detention Pond (Dry)

Overflow Calculations
Capacity of 27" opening as an orifice

$Q = CA\sqrt{2gh}$
$Q = 0.6 \times 3.976 \times \sqrt{2(32.2)4.58}$
$Q = 2.39 \times 294.95$
$Q = 40.96$ cfs

Constant: C = 0.6
Area: A = 3.976
Gravity: g = 32.2
Head: h = 4.58

Quantity to Pond: 73.02 cfs
Overflow of 27" opening: 40.96 cfs
Differential: 32.06 cfs

32.06 x 1800 (30 min) = 57,708 cu. ft.

Storage of Pond at 503.20 = 59,309 cu. ft.

Spillway

Area = 20.0 $S^{1/2} = 0.10$
WP = 45.05 $R = 45.05^{2/3} = 0.578$
S = 1.0

$Q = a \times 1.486 \times R^{2/3} \times S^{1/2}$
$Q = 20 \times 86.04 \times 0.578 \times 0.1$

Q = 76.34 cfs

HIGHWAY FEDERAL AID SHEET
PLATE 3-FULL CROSS SECTION-LINE & DOT
TELEDYNE
PRINTED IN U.S.A.