CITY OF
Albuquerque

Martin J. Chávez, Mayor

October 9,1997

Scott McGee
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, New Mexico 87108

RE: ENGINEER CERTIFICATION FOR TAYLOR RIDGE APARTMENTS PHASE I & II
(E12-D9) CERTIFICATION STATEMENT DATED 9/25/97

Dear Mr. McGee:

Based on the information provided on your September 24,1997 submittal, Engineer Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Associate Engineer

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 12, 1996

Scott McGee, PE
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, NM 87108

RE: DRAINAGE REPORT FOR TAYLOR RIDGE APARTMENTS (E-12/D9)
RECEIVED JANUARY 24, 1996 FOR BUILDING PERMIT
ENGINEER'S STAMP DATED 1/23/96

Dear Mr. McGee:

Based on the information included in the submittal referenced above, City Hydrology accepts the Drainage Report for Building Permit.

Include a copy of the Grading & Drainage Plan, dated 1-19-96, in the set of construction document that will be submitted to Code Administration for the Building Permit.

Engineer's Certification of grading & drainage per DPM checklist must be accepted by City Hydrology before any Certificate of Occupancy will be released. Certification must verify that there is at least a .87' water block at each entrance.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Ernest Cohen, American Real Corp, 2233 Martin St Suite 116, Irvine CA 90065

Memo + File

Building Permit Requested that ~~ZC~~ Engineer was required to restamp plans. Nothing has changed from the previous approved date 1-19-96

Copies of Engr Stamp 1-30-96 accepts

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 17, 1995

Scott McGee, PE
Isaacson & Arfman
128 Monroe Street NE
Albuquerque, NM 87108

RE: DRAINAGE REPORT FOR TAYLOR RIDGE APARTMENTS (E-12/D9)
RECEIVED AUGUST 15, 1995 FOR GRADING & BUILDING PERMIT
ENGINEER'S STAMP DATED 8-14-95

Dear Mr. McGee:

Based on the information included in the submittal referenced above, City Hydrology accepts the Drainage Report for Rough Grading Permit. The following comments must be addressed before the Report will be accepted for Building Permit:

Provide sufficient spot elevations at each entrance to verify the water block. The private storm drain needs inverts and a detail for the slotted drain. Label the Fire Access on Sheet C4. Check with Glenn Jurgensen to see what sort of access easement he will need to reach the detention pond. Any slopes steeper than 3H:1V require a gravel mulch per C.O.A. Spec Sect 1012.

Provide a final design for the private storm drain. Indicate how much each inlet intercepts and the slope and flow through each pipe. Calculate the hydraulic grade line. Check the existing storm drain for the additional flow proposed.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin

John P. Curtin, P.E.
Civil Engineer/Hydrology

c: Andrew Garcia
Larry Caudill, Environmental Health
Glenn Jurgensen, SD Maintenance
Ernest Cohen, American Real Corp, 2233 Martin St Suite 116, Irvine CA 90065

DRAINAGE REPORT

FOR

TAYLOR RIDGE APARTMENTS

SOUTHEAST CORNER OF

MONTANO PLAZA DRIVE AND TAYLOR RANCH DRIVE

ALBUQUERQUE NEW MEXICO
JANUARY 1996

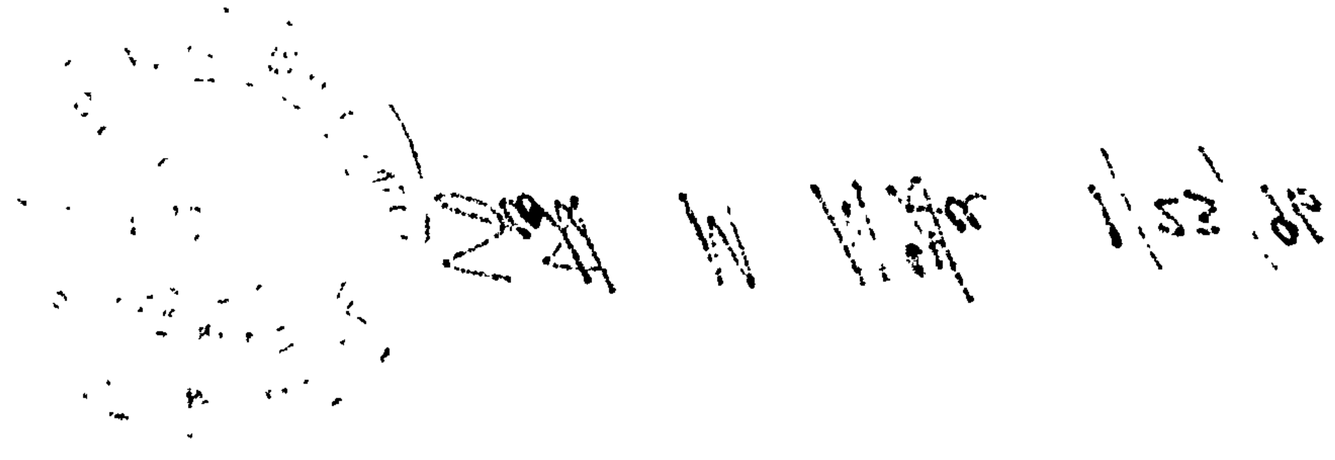
Prepared by:

ISAACSON & ARFMAN, P.A.
128 Monroe Street, NE
Albuquerque, NM 87108

SCOTT M. McGEE
NEW MEXICO
10519
REGISTERED PROFESSIONAL ENGINEER

Scott M McGee 1/23/96

Scott M. McGee, P.E. **Date**



$$Q = 11.12\left[.25(2.03)+.05(2.87)+.70(4.37)\right] = 41.8\ cfs$$

I. INTRODUCTION

The Taylor Ridge Apartment complex is a 200-unit multi-family project consisting of 25 apartment buildings and a community building. The proposed site is Tract D-2 of the Taylor Ridge Subdivision which is 11.266 acres (10.35 acres net usable area after deducting the 35-foot strip along Coors Road which is the landscape setback required per the Coors Corridor Sector Plan). See Vicinity Map in Appendix.

Drainage design criteria was established with the Taylor Ridge Drainage Masterplan which addressed both hydrology and sedimentation issues per the North Coors Drainage Management Plan. The Taylor Ridge Masterplan established a public stormwater detention and sedimentation facility on the adjacent Tract F. This dedicated facility was designed for free discharge of developed conditions relative to Tract D-2 as follows:

1) Developed conditions assumed the following land treatments: 0% A, 25% B, 5% C, 70% D, (3.71 cfs/ac) which equates to a 100-year Q = 41.2 cfs for the 11.12 acres.

2) Developed flows shall be carried to the existing storm drains in order for flows to enter at the ends of the sediment facility. This allows the sediment to be trapped within the public detention facility and prevents transport downstream.

II. EXISTING SITE CONDITIONS

A. Flood Hazard--This site is not within an established flood hazard area as shown on Panel 15 of the FEMA flood maps.

B. Soils--Site soils are Bluepoint and Bluepoint - Kokan association. This loamy fine sand is classified in the SCS Soil Survey of Bernalillo County as a Hydrologic Group 'A' soil. Some clay was also encountered during recent mass-grading operations, which should not impact surface hydrology, as it was covered with 3-4 feet of granular material where placed.

C. Topography--Present conditions are such that the site slopes to the southeast at four to seven percent. Slopes steepen to 15 percent as they approach the recently constructed adjacent streets. No drainage courses are present, all runoff is overland sheet flow due to mass grading done as part of the earlier development of Taylor Ridge.

D. Offsite Flows--This site is bounded on the upland (west and northwest) sides by recently constructed streets. Both Montano Plaza Drive and Taylor Ranch Drive include storm drain systems designed to intercept all offsite flows. To the south, a residential subdivision, The Village at Taylor Ridge, is under construction. All

runoff from abutting lots is directed toward internal streets and away from this site.

An undeveloped commercial tract (D-1) borders the site to the north. Both present and future developed runoff is intercepted at the tract's south corner where it is then conveyed to the public detention facility.

The site is bounded on the southeast by the public detention facility which receives all stormwaters previously mentioned. No offsite flows presently enter the site and this remains unchanged with the proposed apartment development.

III. PROPOSED CONDITIONS

In addition to the apartment buildings and community center, there are 13 4-car garages and approximately 25 carport structures proposed along with paved parking areas for 270 cars. Other impervious areas consist of sidewalks adjacent to parking areas and walkways between the parking areas and the buildings.

All runoff will flow to the southeast where it will be intercepted by private storm drain extensions and catch basins located in front of the garage buildings.

An interior driveway, running westerly from about the middle garage building (between buildings 2, 3 and 18-20) forms a dividing ridge. Flow from this driveway area, as well as the area to the north turns north at the garage buildings and is carried north. The area south of this interior drive drains toward the south end of the site.

The following area breakdown gives a comparison of peak runoff data for both developed and undeveloped conditions:

Area: 11.266 acres (gross) Precipitation Zone: 1
10.35 acres (net-excludes 35' landscape setback adjacent to Coors)

Development Condition	Land Treatment (%) A	B	C	D	Q_{100} (CFS)	Q_{10} (CFS)
Undeveloped	0	0	100	0	29.7	15.4
Developed:						
North Portion	0	12	35	53	21.9	13.2
South Portion	0	12	35	53	15.0	9.0
TOTAL DEVELOPED					36.9	22.2

The peak developed runoff rate of 36.9 cfs is less than the Q = 41.2 cfs for which the detention facility was designed. Therefore, free discharge from the site will not adversely impact the downstream drainage facilities.

Where did this come from? Page 1

The private onsite storm drain extensions are sized to intercept 100% of the peak runoff rate. In the event that catch basins clog with debris, overland flow paths are proposed for the runoff to enter the detention pond, (as well as provide vehicular access for storm drain maintenance personnel).

RUNOFF CALCULATIONS

PROJECT: TAYLOR RIDGE APTS TR D-2 TAYLOR RIDGE **Analysis Point #** UNDEVELOPED

DRAINAGE AREA:

Planimeter Rdg. _____ x .015

x Map Scale _____^{2} ÷ 43.560 A = 10.35 acres

TIME OF CONCENTRATION:

Drainage Basin Data:

L = 950 ft., fall = 47 ft., slope = 0.05 ft/ft

☒ Overland Flow:

v = 2.2 ft/sec (~~P1 22.2~~ Table B-1) K=1

Tc = 432 sec. = 7.2 min. Tc = 12 min.

☐ Street Flow:

v = _____ ft/sec (P1 22.2 B-2)

Tc = _____ sec. = _____ min. Tc = _____ min.

☐ Arroyo Flow:

Tc = 0.0078 $\frac{LO.77}{SO.385}$ = _____ min. Tc = _____ min.

LAND TREATMENT:

Land Use Type	Percentage	Acres
A		
B		
C	100	10.35
D		
	100%	10.35

Precipitation Zone: 1

PEAK DISCHARGE (Table 9):

Treatment	Area(acres)	Discharge (cfs/ac)	Q_{100} (cfs)
A			
B			
C	10.35	2.87	29.7
D			
TOTAL			

VOLUME OF RUNOFF:

Soil Group A B C D

CN (Previous) = _____ (P1 22.2 C-2)

Percent Impervious = _____%

CN (Composite) = _____ (P1 22.2 C-3)

Direct Runoff, q_{100} = _____" (P1 22.2 C-4)

$V_{100} = q A = \frac{\_\_\_\_\_}{12}$ x _____ ac x 43,560 = _____ cu. ft.

RUNOFF CALCULATIONS

PROJECT: TR APTS - NORTH PORTION **Analysis Point #** DEVELOPED

DRAINAGE AREA:

Planimeter Rdg. _____ x .015

x Map Scale _____ ^{2} ÷ 43,560 A = 6.14 acres

TIME OF CONCENTRATION:

Drainage Basin Data: $(S_1 = .082)$ $(S_2 = .007)$
(L_1) 550' grass + 300' pvmnt (L_2) 45'(H_1) + 2'(H_2)
L = 850 ft., fall = 47 ft., slope = 0.055 ft/ft

☒ Overland Flow: Table $K_1 = 0.7$
v = 2.0 ft/sec (~~P1 22.2~~ B-1)
Tc = 425 sec. = 7.1 min. Tc = _____ min.

☒ Street Flow: Table B-1 $K_2 = 3$ → 7.1 + 2.0 = 9.1
v = 2.5 ft/sec (~~P1 22.2 B-2~~)
Tc = 120 sec. = 2.0 min. Tc = 12 min.

☐ Arroyo Flow:
Tc = 0.0078 $\frac{LO.77}{SO.385}$ = _____ min. Tc = _____ min.

LAND TREATMENT:

Land Use Type	Percentage	Acres
A	0	
B	12	0.74
C	35	2.15
D	53	3.25
	100%	6.14

Precipitation Zone: 1

PEAK DISCHARGE (Table 9):

Treatment	Area(acres)	Discharge (cfs/ac)	Q_{100} (cfs)
A			
B	0.74	2.03	1.5
C	2.15	2.87	6.2
D	3.25	4.37	14.2
TOTAL			21.9 CFS

VOLUME OF RUNOFF:

Soil Group A B C D
CN (Previous) = _____ (P1 22.2 C-2)
Percent Impervious = _____%
CN (Composite) = _____ (P1 22.2 C-3)
Direct Runoff, q_{100} = _____" (P1 22.2 C-4)
$V_{100} = q\ A = \frac{\_\_\_\_}{12}$ x _____ ac x 43,560 = _____ cu. ft.

RUNOFF CALCULATIONS

PROJECT: TR APTS - SOUTH PORTION **Analysis Point #** DEVELOPED

DRAINAGE AREA:

Planimeter Rdg. _____ x .015

x Map Scale _____^{2} ÷ 43,560 A = 4.21 acres

TIME OF CONCENTRATION:

Drainage Basin Data:

L = _____ ft., fall = 30 ft., slope = _____ ft/ft

☐ Overland Flow:

v = _____ ft/sec (P1 22.2 B-1)

Tc = _____ sec. = _____ min. Tc = _____ min.

☐ Street Flow:

v = _____ ft/sec (P1 22.2 B-2)

Tc = _____ sec. = _____ min. Tc = _____ min.

☐ Arroyo Flow:

$Tc = 0.0078 \frac{LO.77}{SO.385} =$ _____ min. Tc = _____ min.

LAND TREATMENT:

Precipitation Zone: 1

Land Use Type	Percentage	Acres
A	0	
B	12	0.51
C	35	1.47
D	53	2.23
	100%	4.21

PEAK DISCHARGE (Table 9):

Treatment	Area(acres)	Discharge (cfs/ac)	Q_{100} (cfs)
A			
B	0.51	2.03	1.0
C	1.47	2.87	4.2
D	2.23	4.37	9.8
TOTAL			15.0 CFS

VOLUME OF RUNOFF:

Soil Group A B C D

CN (Previous) = _____ (P1 22.2 C-2)

Percent Impervious = _____%

CN (Composite) = _____ (P1 22.2 C-3)

Direct Runoff, q_{100} = _____" (P1 22.2 C-4)

$V_{100} = q\,A = \frac{\_\_\_\_\_}{12} \times$ _____ ac x 43,560 = _____ cu. ft.

CATCH BASIN HYDRAULICS

WEIR EQUATION $\Rightarrow Q = CLH^{1.5}$ $\quad C = 2.7$

SINGLE 'D' : $L = (35.5 + 18.5)2 \div 12 = 9.0$ FT

DOUBLE 'D' : $L = [(35.5)(4) + (18.5)(2)] \div 12 = 14.9$ FT

DISCHARGE BASED ON $H = 8" = 0.67'$

MAX { SINGLE 'D' $\rightarrow Q = (2.7)(9.0)(0.67)^{1.5} = 13.3$ CFS
DBL 'D' $\rightarrow Q = (2.7)(14.9)(0.67)^{1.5} = 22.0$ CFS

ASSUME GRATE AREA IS 50% BLOCKED

SINGLE 'D' $\rightarrow Q = 13.3(.5) = 6.7$ CFS ←

USE → DOUBLE 'D' $\rightarrow Q = 22.0(.5) = 11.0$ CFS ←

SLOTTED DRAIN HYDRAULICS

WEIR EQUATION $\Rightarrow$ $Q = cLH^{1.5}$ $\quad c = 2.7$

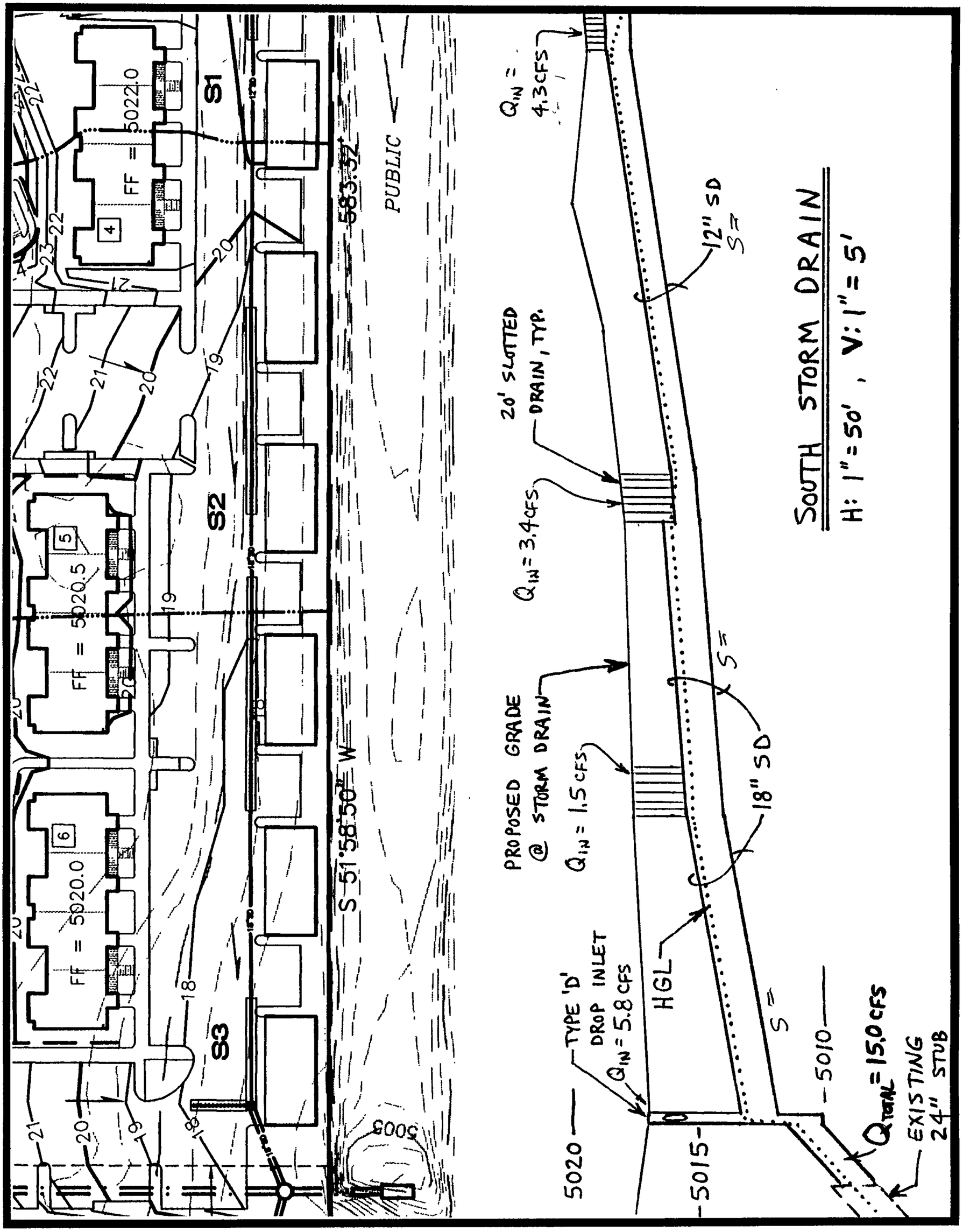
LENGTH (L) = 20' OR 40'

DISCHARGE BASED ON $H = 0.3'$

MAX $\begin{cases} L = 20' \rightarrow Q = (2.7)(20)(.30)^{1.5} = 8.8 \\ L = 40' \rightarrow Q = (2.7)(40)(.30)^{1.5} = 17.7 \end{cases}$

ASSUME WEIR LENGTH IS 50% BLOCKED

USE $\rightarrow$ $\begin{cases} L = 20' \quad Q = (8.8)(0.5) = 4.4 \text{ CFS} \\ L = 40' \quad Q = (17.7)(0.5) = 8.8 \text{ CFS} \end{cases}$



SOUTH STORM DRAIN

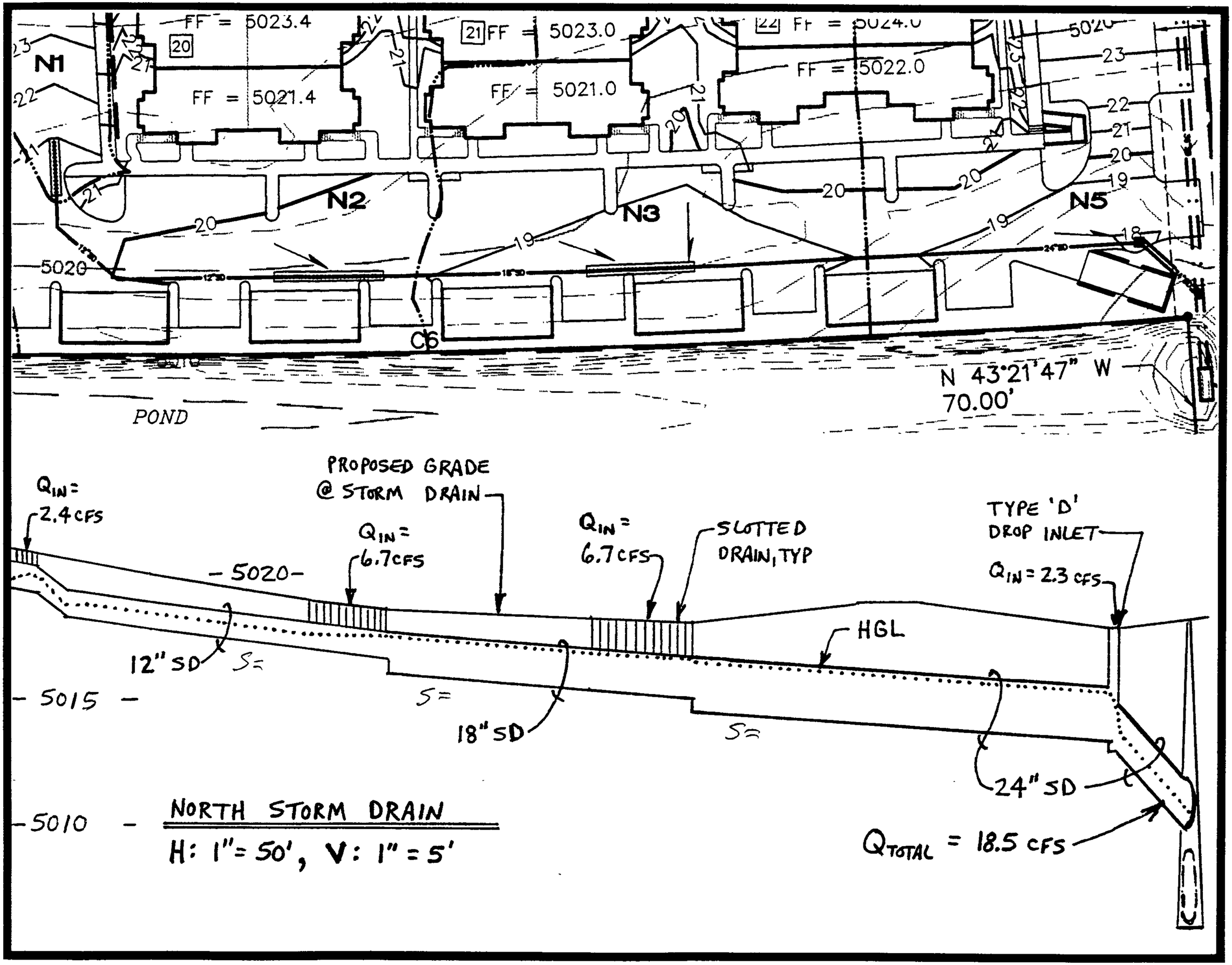
H: 1"=50', V: 1"=5'

ISAACSON & ARFMAN, P.A.

SUBJECT TAYLOR RIDGE APTS JOB NO. 0832

BY SMM DATE 1/96 SHEET NO. ___ OF ___

ISAACSON & ARFMAN, P.A.



NORTH STORM DRAIN

H: 1" = 50', V: 1" = 5'

SUBJECT TAYLOR RIDGE APTS JOB NO.

BY SMM DATE 1/96 SHEET NO. ___ OF ___