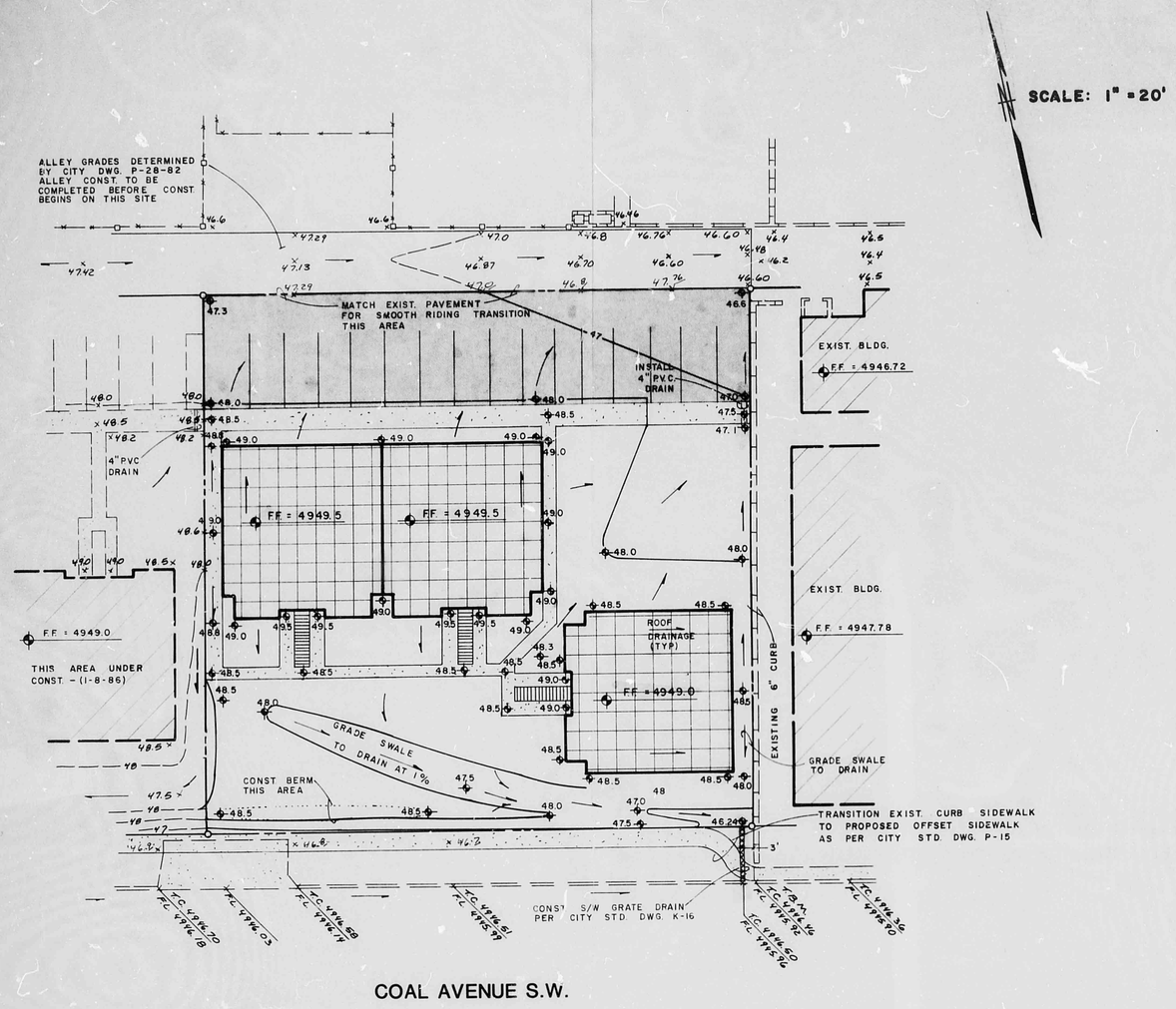
HYDROLOGY K13/D9 VILLA DIEGO

K13/D9

LLA DIEGO

PLANS

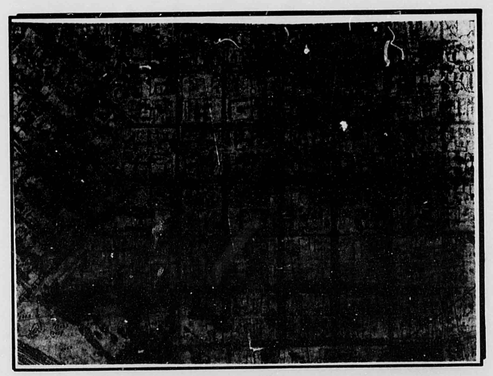



## LEGEND

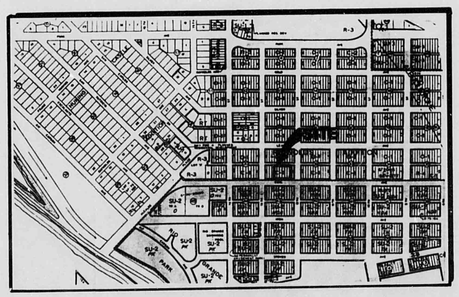
| | |
|---|---|
| | SIDEWALK, CURB & GUTTER (EXISTING, PROPOSED) |
| | PROPOSED ASPHALT |
| | BUILDING (EXISTING, PROPOSED) |
| | PROPERTY LINE |
| 12.7x | EXISTING SPOT ELEVATION |
| | EXISTING CONTOUR |
| 12.5 | PROPOSED SPOT ELEVATION |
| 10 | PROPOSED CONTOUR |
| | SURFACE FLOW DIRECTION (EXISTING, PROPOSED) |
| L.A. | LANDSCAPED AREA |
| T.G.W. | TOP OF GRADE WALL (LESS THAN 18" HIGH) |
| T.R.W. | TOP OF RETAINING WALL (MORE THAN 18" HIGH) |
| T.A. | TOP OF ASPHALT |
| T.C. | TOP OF CURB |
| F.L. | FLOW LINE |
| F.F. | FINISHED FLOOR |

**CONSTRUCTION NOTES:**

1. Before construction, the Contractor shall check and verify pertinent figures shown hereon and shall make all applicable field measurements. Should any conflict, error or discrepancy be discovered, the contractor shall notify the Engineer at once to resolve the problem. It is recommended that the Contractor meet with the Engineer for a pre-design conference to discuss the scope of work and critical areas involved.
2. The Contractor shall be responsible for following the plans using his best skill and attention. Any departure from the plans must be approved by the Engineer and the City Hydrology Department prior to construction.
3. The Contractor shall check the site plan for locations of existing utilities within or adjacent to streets and shall take all necessary precautions and efforts to locate and protect these utilities. He shall give 48 hours notice to Line Locating Service, 763-1234, for any work that may interfere with said utilities.



FLOOD HAZARD BOUNDARY MAP



VICINITY MAP K-13

**SCOPE:**

The proposed improvements are comprised of three 4-plex apartment buildings, asphalt parking, sidewalks and landscaping, with access through the alley along the north side of the tract.

The present site has been razed. There are existing buildings to the east. The alley on the north will be completed as per City Drawing No.P-28-82 before construction begins on this site. The area to the west is now under construction (1-8-86) and will also be completed as per approved drainage plan before construction begins on this site.

The intent of this plan is to show:

a) Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.

b) The extent of proposed site improvements, including buildings, walks and pavement.

c) The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City requirements for drainage management.

d) The relationship of onsite improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

**GENERAL NOTES:** Need Plat

**LEGAL:** Lot 20-A, Block 31, Raynolds Addition, Albuquerque, N.M.

**SURVEYOR:** Plat by Clausen & Associates, January, 1986. Topo from Grading/Drainage Plan prepared for Villa Diego Apartments, Andre Houle Surveyor, dated 9-83.

**B.M.:** City Bench Mark #3-K13. Square chiseled on top of curb at the WSW return of 12th and Stover SW. Elevation = 4945.01.

**T.B.M.:** Top of curb at SE corner of property line extension. Elevation = 4946.46.

**SOILS:** SCS Soils Map #30 - Soil Type 'Bs'; Soil Hydrologic Group 'A'.

**FLOOD HAZARD:** As shown on FEMA Map #28, site lies adjacent to 100-year flood hazard area and within 500-year flood hazard area. This requires finished floors to be 2' minimum above the highest flood point in the street.

**OFF-SITE DRAINAGE:** Off-Site flows from the east are blocked by the existing curb along the east property line. Flows along the north property line run east within the alley and do not flow across the site. Flows on the west drain north to the alley and west to 13th Street and do not run across the site.

**EROSION CONTROL:** Contractor shall be responsible for controlling sediment running off-site during construction.

**CALCULATIONS:**
Based on a pre-design meeting with City of Albuquerque Hydrology, on September 9, 1983, free discharge will be allowed due to improvements and expansion of Alcalde Pump Station System (AMDS System 125-02A).

Calculations are based on the City of Albuquerque D.P.M. Manual, Vol. II for the 100 year-6 hour storm, using the Rational Formula to compare the existing and proposed runoff rates.

**RATIONAL METHOD- Q = CIA**

Area of site: 20,591 sq.ft.= 0.4727 Ac.

Run-off Coefficient:

| Existing site: | Developed Site: |
|---|---|
| A imp. = 0.24 Ac | A imp. = 0.27 Ac |
| % imp. = 50% | % imp. = 58% |
| "C" = 0.43 (DPM 22.2 C-1) | "C" = 0.48 (DPM 22.2 C-1) |

Rainfall Intensity:

$I = P_6 (6.84)\, T_c^{-0.51} = 4.9"$ per hour
where $P_6 = 2.3"$ (DPM 22.2 D-1)
$T_c = 10$ minutes

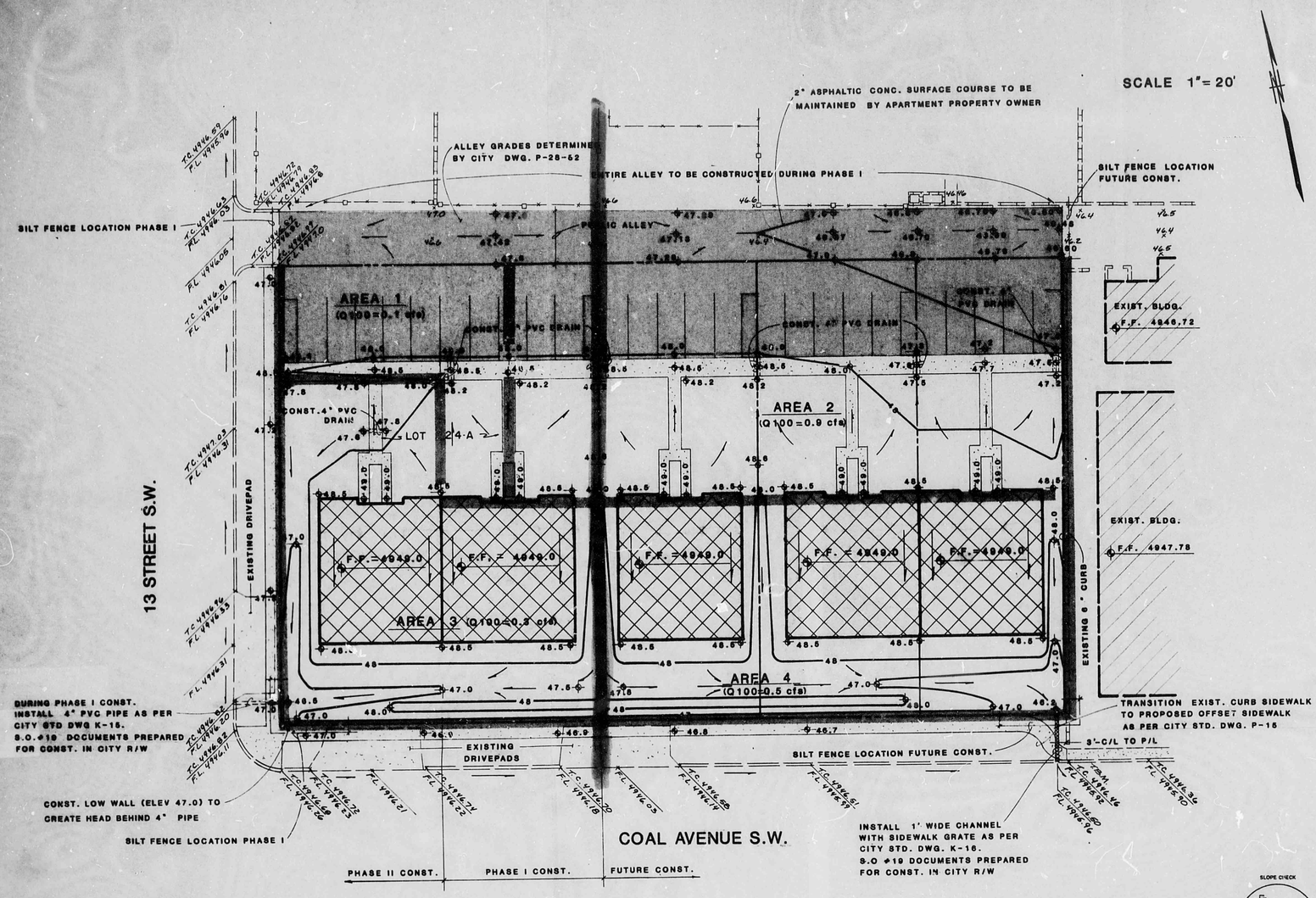
| Existing Condition: | Developed Condition: |
|---|---|
| $Q_{100} = (0.43)(4.9)(0.47) = 1$ cfs | $Q_{100} = (0.48)(4.9)(0.47) = 1.1$ cfs |
| $V_{100} = (1)(50T_c)(60 \text{ sec/min})/2 = 1{,}500$ cu. ft. | $V_{100} = (1.1)(50)(60)/2 = 1{,}650$ cu. ft. |

**SUMMARY:**

$Q_{100} = (1.1)-(1) = 0.1$ cfs (increase)
$V_{100} = (1650)-(1500) = 150$ cu. ft. (increase)

RECEIVED
JAN 15 1986
HYDROLOGY SECTION

K13/D9

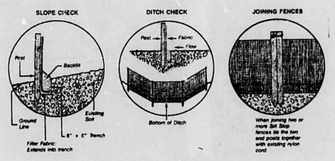



## LEGEND

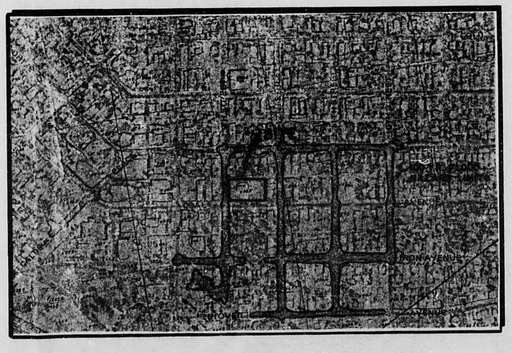
| | |
|---|---|
| | SIDEWALK, CURB & GUTTER (EXISTING, PROPOSED) |
| | PROPOSED ASPHALT |
| | BUILDING (EXISTING, PROPOSED) |
| | PROPERTY LINE |
| 12.7x | EXISTING SPOT ELEVATION |
| 10 | EXISTING CONTOUR |
| 12.5 | PROPOSED SPOT ELEVATION |
| 10 | PROPOSED CONTOUR |
| | SURFACE FLOW DIRECTION (EXISTING, PROPOSED) |
| L.A. | LANDSCAPED AREA |
| T.G.W. | TOP OF GRADE WALL (LESS THAN 18" HIGH) |
| T.R.W. | TOP OF RETAINING WALL (MORE THAN 18" HIGH) |
| T.A. | TOP OF ASPHALT |
| T.C. | TOP OF CURB |
| F.L. | FLOW LINE |
| F.F. | FINISHED FLOOR |

CONSTRUCTION NOTES:

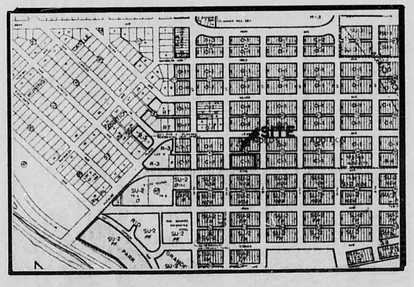
1. Before construction, the Contractor shall check and verify pertinent figures shown hereon and shall make all applicable field measurements. Should any conflict, error or discrepancy be discovered, the contractor shall notify the Engineer at once to resolve the problem. It is recommended that the Contractor meet with the Engineer for a pre-design conference to discuss the scope of work and critical areas involved.
2. The Contractor shall be responsible for following the plans using his best skill and attention. Any departure from the plans must be approved by the Engineer and the City Hydrology Department prior to construction.
3. The Contractor shall check the site plan for locations of existing utilities within or adjacent to streets and shall take all necessary precautions and efforts to locate and protect these utilities. He shall give 48 hours notice to Line Locating Service, 765-1234, for any work that may interfere with said utilities.




## SILT FENCE DETAIL



## FLOOD HAZARD BOUNDARY MAP




## VICINITY MAP K-13

SCOPE:

The proposed improvements, comprised of five four-plex apartment buildings, asphalt parking, sidewalks and landscaping, is located at the N.E. corner of Coal and 13th Street S.W. Access will be thru an alley along the north side of the tract. Existing structures have been demolished and removed from the site. There is existing development to the east and north of the site.

The intent of this plan is to show:

a) Grading relationships between the existing ground elevations and proposed finished elevations in order to facilitate positive drainage to designated discharge points.

b) The extent of proposed site improvements, including buildings, walks and pavement.

c) The flow rate/volume of rainfall runoff across or around these improvements and methods of handling these flows to meet City requirements for drainage management.

d) The relationship of onsite improvements with existing neighboring property to insure an orderly transition between proposed and surrounding grades.

GENERAL NOTES:

LEGAL: Lot 15-20 & 24A, Block 31 of Reynolds Addition, Albuquerque, N.M.

SURVEYOR: Existing topographic information is from Grading/Drainage plan prepared for Villa Diego apartments, dated 9-83, Andre Houle, surveyor.

B.M.: City Bench Mark #3-K13. Square chiseled on top of curb at the WSW return of 12th and Stover S.W. Elevation=4945.01

T.B.M.: Top of curb at S.E. corner of property line extension. Elevation=4946.46

SOILS: SCS soils map #30; soil type "Ba", soil/hydrologic group 'A'.

FLOOD HAZARD: As shown of FEMA Map #28, site lies adjacent to 100 yr flood hazard area & within 500 yr flood hazard area. This condition requires finished floors to be established a 2' minimum above the highest flood point in the street.

OFF-SITE DRAINAGE: Offsite flows from the east will be blocked by the existing curb on the east P/L. Flows from the north will run east along the alley and will not flow across the site.

EROSION CONTROL: Contractor should establish flow patterns on site to drain to one specific outflow point along the alley and another point at the Southeast corner of Phase I construction. A fabric silt fence should be temporarily erected across these points to control sediment from leaving the site.

CALCULATIONS:
Based on a pre-design meeting with City of Albuquerque Hydrology, on 9-9-83, the site will be allowed free discharge due to the improvements & expansion of Alcalde Pump Station System (AMDS system 125-02A)

Calculations are based on the City of Albuquerque D.P.M. Manual, Vol. II for the 100 year-6 hour storm, using the Rational Formula to compare the existing and proposed runoff rates.

RATIONAL METHOD- Q = CIA

Area of site: 34,790 sq.ft.= 0.8 Ac.

Run-off Coefficient:

| Existing site: | Developed Site: |
|---|---|
| A imp. = 0.4 Ac | A imp. = 0.43 Ac |
| % imp. = 50 % | % imp. = 54 % |
| "Cn" = 0.42 (DPM 22.2 C-1) | "Cn" = 0.45 (DPM 22.2 C-1) |

Rainfall Intensity:

$I = P_6 (6.84)\, Tc^{-(.51)} = 4.9"$ per hour
where $P_6$ = 2.3 "(DPM 22.2 D-1)
$T_c$ = 10 minutes

| Existing Condition: | Developed Condition: |
|---|---|
| $Q_{100}$ = (0.42)(4.9)(0.8) = 1.6 cfs | $Q_{100}$ = (0.45)(4.9)(0.8) = 1.8 cfs |
| $V_{100}$ = (1.6)(50Tc)(60 sec/in)/2 = 2400 cu. ft. | $V_{100}$ = (1.8)(50)(60)/2 = 2700 cu. ft. |

SUMMARY:

$Q_{100}$ = (1.8)-(1.6) = 0.2 cfs (increase)
$V_{100}$ = (2700)-(2400) = 300 cu. ft. (increase)

4" PVC PIPE CALCULATIONS

$Q_{100}$ thru Pipe = 0.3 c.f.s.

Calculate Pipe Capacity using $Q = CA\sqrt{2gh}$

$Q = 0.7\left(\frac{0.33^2}{4}\right) 3.14 \sqrt{2(32.2)(0.4)} = 0.3$ c.f.s. - O.K.

APPROVED FOR DRAINAGE
10-17-85
DATE
Roger A. Green P.E. Hydrology
SIGNATURE I.T.L.S.
ADVISE DRANAGE INSPECTOR WHEN GRADING EXECUTED

REVISED 10-15-85:
- PHASE I & II LOTS SHOWN AS ONE LOT ACCORDING TO REVISED PLAT.
- 4" P.V.C. DRAINS SHOWN ON EITHER SIDE OF LOT 24-A LOT LINE

Chris Weiss — 10-15-85
CHRIS WEISS — DATE

RECEIVED
OCT 16 1985
HYDROLOGY SECTION

K13 /D9