HYDROLOGY

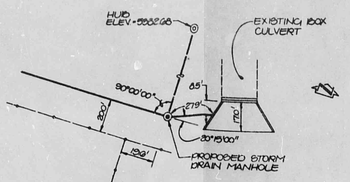
K20/D15

TWO PLANS

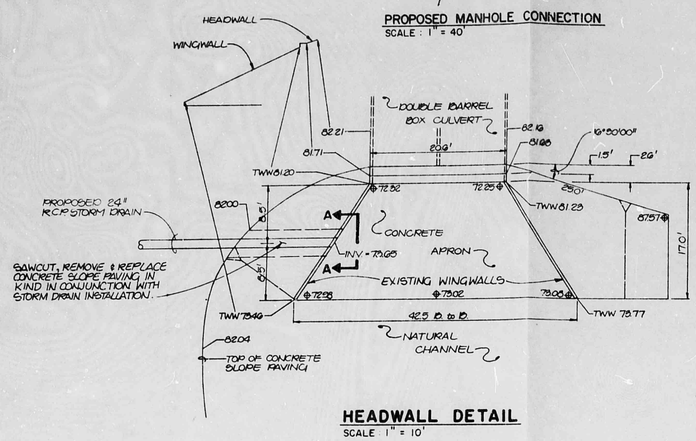
2 PLANS FOR

ANIMAL CONTROL CNTR.

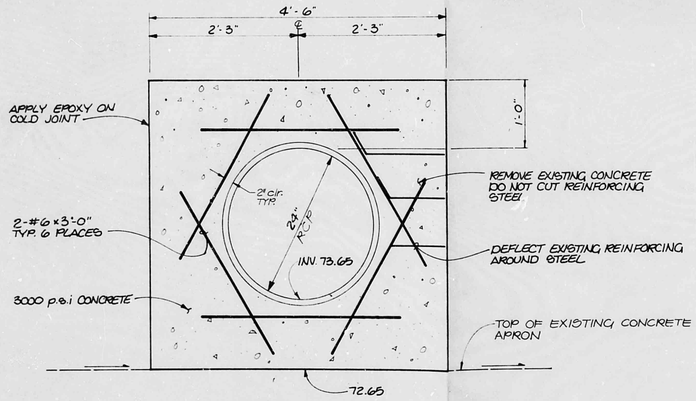
K-20—D15



PROPOSED MANHOLE CONNECTION
SCALE : 1" = 40'



HEADWALL DETAIL
SCALE 1" = 10'



SECTION A-A
SCALE : 1" = 1'-0"

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 765-1234, FOR LOCATION OF EXISTING UTILITIES.

2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.

3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.

4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

5. ALL STORM DRAIN CONSTRUCTION SHOWN ON THESE PLANS SHALL BE IN ACCORDANCE WITH CURRENT CITY OF ALBUQUERQUE STANDARD DRAWINGS FOR "DRAINAGE" AND "SEWER" AND SHALL INCLUDE CATCH BASINS, MANHOLES AND TRENCHING. THE GRATED INLET REFERRED TO ABOVE SHALL BE A NEENAH R-3485-A, OR APPROVED EQUAL, INLET FRAME AND GRATE IN LIEU OF THE FRAME AND GRATE SPECIFIED ON CITY STANDARD DRAWING S-5-2.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

2. THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.

3. THE CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" PRIOR TO BEGINNING CONSTRUCTION.

DRAINAGE PLAN

The following items concerning the City of Albuquerque Animal Control Center Expansion Drainage Plan are presented herewith:

1. Vicinity Map
2. Grading Plan
3. Calculations
4. Construction Details

The proposed improvements, as shown by the Vicinity Map, are located on the south side of Lomas Boulevard N.E. between Wyoming Boulevard N.E. and the Lomas Boulevard N.E. - Interstate 40 Overpass. At present, the site is developed as a City of Albuquerque Maintenance Yard and City of Albuquerque Animal Control Center. It is the intent of this plan to show the proposed improvements to the Animal Control Center (included on the base bid for this project), the proposed improvements to the Animal Control Center Parking Lot and the common entrance to the Animal Control Center and the City Maintenance Yard, and the proposed paving improvements to the City Maintenance Yard. The latter improvements will be alternate bid items and therefore may or may not be constructed at this time. These improvements have been shown on this plan, however, to permit their construction if funds are available, and/or to master plan these areas to permit their development at a later time.

As shown by Plate K-20 of the Albuquerque Master Drainage Study, this site does not lie within a designated Flood Hazard Zone. Further study of this plate indicates that downstream flooding does exist at the intersection of Lomas Boulevard N.E. and Wyoming Boulevard N.E. This site, however, discharges the majority of its runoff to an existing drainage channel and box culvert which are part of the interstate highway improvements. As stated by the conceptual drainage plan for this project, there are no appreciable offsite flows impacting this site.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) the limit and character of the existing improvements, 3) the limit and character of the proposed improvements, and 4) continuity between existing and proposed grades. As shown by this plan, the proposed improvements include a combination of paving, repaving, and building construction. As previously mentioned, several of these items will be issued as bid alternates and therefore may or may not be constructed under this permit. At present, the site discharges its runoff to the existing interstate highway improvements as previously mentioned, to a small existing ponding area at the northwest corner of the site, and to a vacant piece of property at the west side of the site. Under the proposed plan, the vast majority of the runoff generated by this site will be discharged directly to the interstate highway improvements. This will also entail a reduction in the amount of runoff discharged onto the vacant property to the west.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations which consider the total development of the site, the proposed improvements will result in a minor (3.9 cfs) increase in runoff from the site. This has been discussed as the "Internal Drainage" because that water is routed within the site and then discharged to the interstate highway improvements. These calculations also demonstrate that there is a minor reduction in the amount of runoff discharged offsite to the vacant land to the west. This has been referred to as "Drainage Directed Offsite". The capacity of the proposed storm drainage improvements have been determined by using the Feild's Hydraulics Calculator for Gravity Flow in Pipes. The pipe proposed is PVC, therefore and "n" value of 0.009 has been used. Slopes actual discharges of runoff anticipated and pipe capacities are enumerated in the keyed notes which appear on the grading plan sheet. It is based upon these calculations, that the storm drain system proposed will have adequate capacity to handle the entire anticipated runoff from the fully developed site.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 31:
TgB Tijeras gravelly fine sandy loam
Hydrologic Soil Group B

Rational Method

Discharge: $Q = CiA$
where C varies
$i = P_6 (6.84)\, T_c^{-0.51} = 5.28$ in/hr
$P_6 = 2.5$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (minimum)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.5$ in (DPM Plate 22.2D-1)
A = area, sf

Existing Condition

1. $A_{total} = 227{,}100$ sf = 5.2 Ac
   $A_{imp} = 156{,}500$ sf; % impervious = 69%
   'C' = 0.69 (DPM PLate 22.2C-1)

2. Internal Basin (211,100 sf = 4.8 Ac)
   $Q_{100} = CiA = 0.69\ (5.28)(4.8) = 17.5$ cfs
   $V_{100} = CP_6A = 0.69\ (2.5/12)(211{,}100) = 30{,}350$ cf

3. Offsite Basin (16,000 sf = 0.4 Ac)
   $Q_{100} = 0.69\ (5.28)(0.4) = 1.5$ cfs
   $V_{100} = 0.69\ (2.5/12)(16{,}000) = 2300$ cf

Developed Condition

1. $A_{total} = 227{,}100$ sf = 5.2 Ac
   $A_{imp} = 189{,}900$ sf; % impervious = 84%
   'C' = 0.80 (DPM Plate 22.2C-1)

2. Basin 1 (22,000 sf = 0.5 Ac)
   $Q_{100} = CiA = 0.80\ (5.28)(0.5) = 2.1$ cfs
   $V_{100} = CP_6A = 0.80\ (2.5/12)(22{,}000) = 3670$ cf

3. Basin 2 (142,400 sf = 3.3 Ac)
   $Q_{100} = 0.80\ (5.28)(3.3) = 13.9$ cfs
   $V_{100} = 0.80\ (2.5/12)(142{,}400) = 23{,}730$ cf

4. Basin 3 (51,500 sf = 1.2 Ac)
   $Q_{100} = 0.80\ (5.28)(1.2) = 5.1$ cfs
   $V_{100} = 0.80\ (2.5/12)(51{,}500) = 8580$ cf

5. Basin 4 (11,200 sf = 0.2 Ac)
   $Q_{100} = 0.80\ (5.28)(0.2) = 0.8$ cfs
   $V_{100} = 0.80\ (2.5/12)(11{,}200) = 1870$ cf

Comparison

1. Internal Drainage
   $\Delta Q_{100} = 13.9 + 5.1 + 2.1 - 17.5 = 3.6$ cfs (increase)
   $\Delta V_{100} = 23{,}730 + 8580 + 3670 - 30{,}350 = 5630$ (increase)

2. Drainage Directed Offsite
   $\Delta Q_{100} = 1.5 - 0.8 = 0.7$ cfs (decrease)
   $\Delta V_{100} = 2300 - 1870 = 430$ cf (decrease)

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HYDROLOGY SECTION

REGISTERED PROFESSIONAL ENGINEER
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2-22-85

K20/D15

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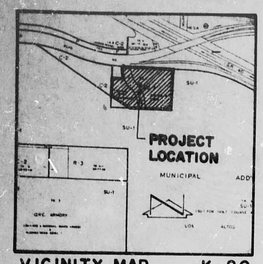
Albuquerque, New Mexico 87102 (505) 243-7492

CITY OF ALBUQUERQUE
ANIMAL CONTROL CENTER EXPANSION

C2
2-15-85



VICINITY MAP K·20
SCALE 1" = 800'

SCALE: 1" = 40'

PROJECT BENCHMARK:
A STANDARD ACS BRASS TABLET STAMPED '19-K20-A 1979' SET 0.1 FT. ABOVE THE GROUND LOCATED 0.3 MILES EAST OF THE INTERSECTION OF LOMAS BLVD. N.E. & WYOMING BLVD. N.E. APPROXIMATELY 37' SOUTH OF THE CENTERLINE OF LOMAS BLVD. N.E. 68' WEST OF THE WINGWALL ON THE SOUTH SIDE OF LOMAS.
ELEVATION = 5388.36 FT. (M.S.L.D.)

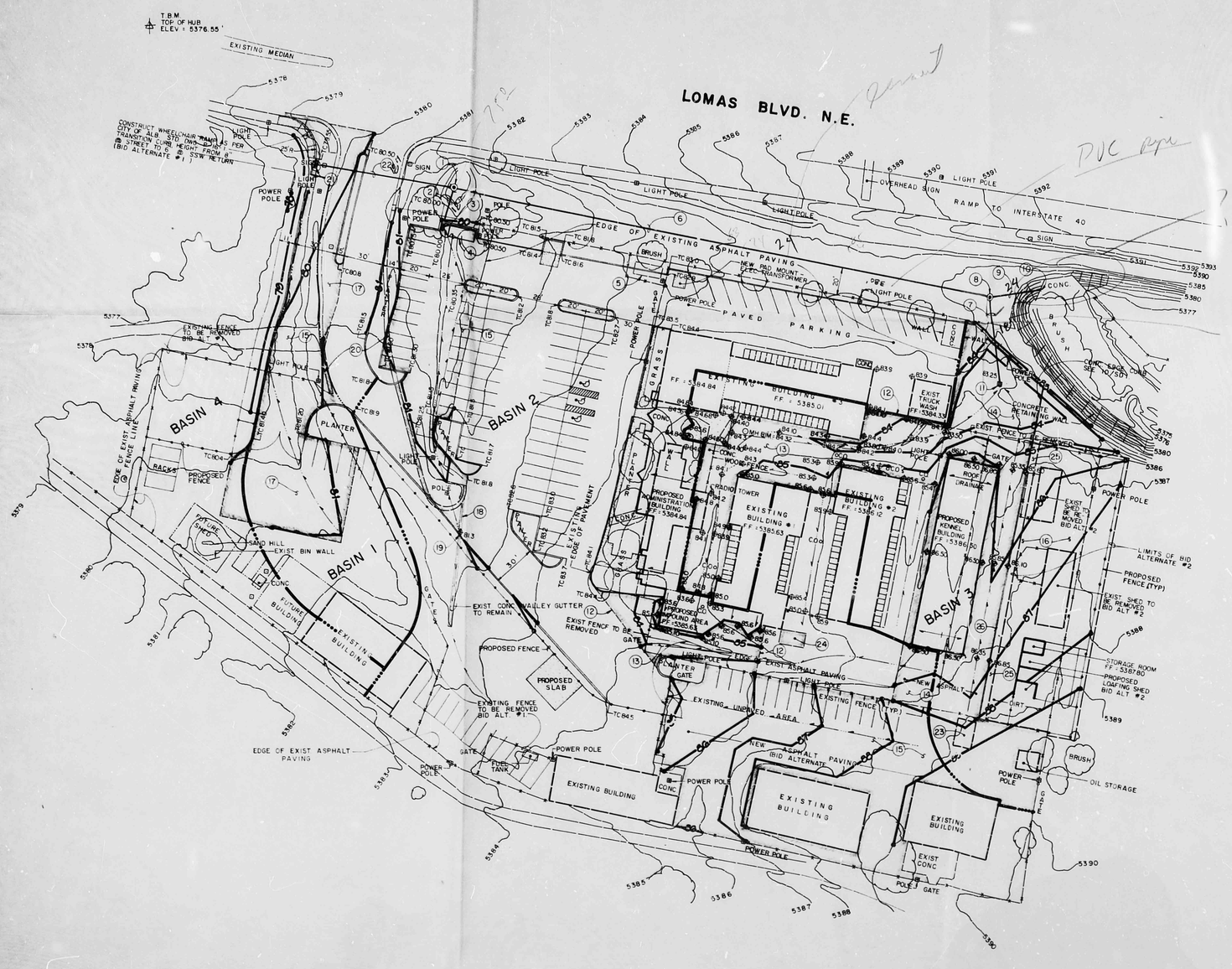
T.B.M.
TOP OF HUB FLUSH WITH GROUND LOCATED IN THE MEDIAN OF LOMAS BLVD. N.E. ON THE N.W. SIDE OF THE PROJECT.
ELEVATION = 5376.55 FT. (M.S.L.D.)

LEGAL DESCRIPTION:
TRACT 1, MUNICIPAL ADDITION #1

·LEGEND·

- FIELD CONTROL POINT
- ANALYTICAL CONTROL POINT
- POLE/LIGHT (LABELED)
- SIGNS/MANHOLES/VALVES/GUY WIRES (LABELED)
- POST
- VEGETATION
- 5210 DEPRESSION CONTOUR
- 5210 INTERPOLATED CONTOUR
- 5244 SPOT ELEVATION, EXISTING
- 5244 PROPOSED SPOT ELEVATION
- EXISTING SWALE
- NEW ASPHALT PAVING
- ROAD
- TRAIL
- FLOW LINE
- WALL
- RAILROAD
- BRIDGE
- EXIST. FENCE
- 5210 CONTOUR
- DIKE
- PROPOSED FENCE
- PROPOSED SWALE
- PROPOSED DRAINAGE BASIN BOUNDARY
- EXISTING DRAINAGE BASIN BOUNDARY

NOTE:
ALL P.V.C. STORM DRAIN SHALL BE SDR-35 EXCEPT THE LARGER PIPE SIZES (18" AND LARGER) CAN BE PERMA-LOC.



KEYED NOTES

1. Construct 1 - 4' dia. Type 'C' MH with grated inlet. Inv. in = 5375.25, Inv. out = 5374.95, Grate = 5379.50. Regrade area to drain positively to grate. Bid Alternate #1.
2. Install 18" PVC storm drain at S = 0.0100; capacity = 15.2 cfs, Q_{100} = 13.9 cfs
3. Construct 1 - single 'D' catch basin. Inv. = 5375.50, Grate = 5379.50.
4. Relocated trailer (See Note 5). Bid Alternate #1.
5. Relocate existing trailer. Bid Alternate #1.
6. Install 24" PVC storm drain at S = 0.0025; capacity = 16.6 cfs; Q_{100} = 16.0 cfs; Bid Alternate #1.
7. Install 12" PVC storm drain at S = 0.0480; capacity = 11.1 cfs, Q_{100} = 5.1 cfs; Base Bid.
8. Construct 1 - 4' dia. Type 'E' MH. Inv. W = 5374.00, Inv. S = 5375.00, Inv. E = 5373.73, Rim = 5383.0; Base Bid.
9. Install 27" PVC storm drain at S = 0.0025; capacity = 22.8 cfs; Q_{100} = 21.1 cfs; Base Bid.
10. Connect to existing concrete headwall per details, Sheet C-2.
11. Construct 1 - single 'D' catch basin. Inv. = 5378.0, Grate = 5383.0; Base Bid.
12. Match new paving to sawcut edge of existing paving. Base Bid.
13. New asphalt paving; remove and dispose of existing asphalt paving. Adjust existing manhole rims and clean out caps, etc., to grade. Base Bid.
14. New asphalt paving, base bid.
15. New asphalt paving, bid alternate #1.
16. Grade this area, bid alternate #2.
17. New asphalt paving; remove and dispose of existing asphalt paving; Bid Alternate #1.
18. Remove and dispose of existing concrete valley gutter within new paving limits; new paving shall match existing at point of removal; Bid Alternate #1.
19. Provide 2' - 0" curb opening for through drainage; Bid Alternate #1.
20. Remove and dispose of existing curb and gutter as necessary; Bid Alternate #1.
21. Install 1 - single 'C' catch basin Inv. = 5375.75; Grate = 5379.0; Bid Alternate #1.
22. Install 18" PVC storm drain at S = 0.0050; capacity = 11.0 cfs, Q_{100} = 2.1 cfs Bid Alternate #1.
23. This structure to be removed and the area paved. Bid Alternate #1.
24. Existing concrete down ramp to be removed and replaced with asphalt paving. Base Bid.
25. Grade this area at 3:1 maximum slope to daylight under Base Bid if Bid Alternate #2 is not selected.
26. Flush concrete curb (Base Bid), see Sheet 10/SD1.

Kent A. Salazar
Manager Animal Control
291-6257

Fred Malone
Project Manager CIP Project
766-7433

CONSTRUCTION NOTES:

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4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - 1979 EDITION (REFERRED TO HEREIN AS THE STANDARD SPECIFICATIONS) AND THE CONTRACT DOCUMENTS FOR PUBLIC WORKS CONTRACT NO. 84-3.

EROSION CONTROL MEASURES

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HYDROLOGY

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HYDROLOGY SECTION

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CITY OF ALBUQUERQUE
ANIMAL CONTROL CENTER EXPANSION

C1