

EXISTING CONDITIONS:

The site is located in Comanche Business Park (Hydrology Number G16/D82) on the north side of Vassar Court, the third tract east of Vassar Drive, N.E. A Master Drainage Plan has been prepared by Jeff Mortensen & Associates, Inc. This plan lists six items of criteria affecting future development. These are listed below. The Master Drainage Plan contains the following statement with regard to Flood Hazard Zones: "As shown by Panel 138 of 825 of the National Flood Insurance Program Insurance Rate Maps published by F.E.M.A. for Bernalillo County, New Mexico and incorporated areas dated September 20, 1996, this site does not lie within a designated Flood Hazard Zone, however is bounded on the north and south by branches of an A.O. (Depth 1 Foot) Flood Hazard Zone."

MASTER PLAN DRAINAGE CRITERIA:

A Master Drainage Plan for Comanche Business Park was approved January 7, 1997. Also, a Temporary Retention Pond Drainage Plan was approved by letter of June 10, 1997. The following criteria affecting subsequent development was listed on both plans:

1. A site-specific grading and drainage plan will be required for each tract prior to Permit Approval(s).
2. (This item is applicable only to Tracts B-1-F and B-1-G).
3. Retention ponding will be required as an interim condition on Tract B-1-J.
4. Each tract will be limited to a 3.61 cfs/acre discharge rate as a function of downstream capacity.
5. Upon satisfactory completion of SAD 216 storm drainage improvements, the retention pond must be eliminated. At that time, individual lot detention ponding may be required if the developed discharge exceeds 3.61 cfs/acre.
6. Until the SAD 216 Storm Drainage System is satisfactorily completed, the runoff generated by Vassar Place, NE shall be temporarily ponded on Tract B-1-J within a temporary easement to be granted by plat.

EXCESS PRECIP. / PEAK DISCH.

LAND TREATMENT	q(cfs/acre)	E (in)
A	1.56	0.38
B	2.28	0.95
C	3.14	1.71
D	4.70	3.14

WEIGHTED "E" AND "q":

TOTAL SITE: WEIGHTED "E":
 $E_{W-100} = (4,382 \times 0.78 + 13,434 \times 1.13 + 20,520 \times 2.12) / (38,336) = 1.62 \text{ IN.}$
 $E_{W-10} = (4,382 \times 0.28 + 13,434 \times 0.52 + 20,520 \times 1.34) / (38,336) = 0.93 \text{ IN.}$
WEIGHTED "q":
 $q_{W-100} = (4,382 \times 2.28 + 13,434 \times 3.14 + 20,520 \times 4.70) / (38,336) = 3.88 \text{ CFS/AC.}$
 $q_{W-10} = (4,382 \times 0.95 + 13,434 \times 1.71 + 20,520 \times 3.14) / (38,336) = 2.39 \text{ CFS/AC.}$
SUB-BASIN "A": 23,572 SF (0.5411 AC)
 $q_{W-100} = (3,182 \times 2.28 + 4,470 \times 3.14 + 15,920 \times 4.70) / (23,572) = 4.08 \text{ CFS/AC.}$
 $q_{W-10} = (3,182 \times 0.95 + 4,470 \times 1.71 + 15,920 \times 3.14) / (23,572) = 2.57 \text{ CFS/AC.}$
 $E_{W-100} = (3,182 \times 0.78 + 4,470 \times 1.13 + 15,920 \times 2.12) / (23,572) = 1.75 \text{ CFS/AC.}$
SUB-BASIN "B": 7,420 SF (0.1704 AC) ALL TREATMENT C.
SUB-BASIN "C": 7,344 SF (0.1686 AC)
 $q_{W-100} = (1,200 \times 2.28 + 1,544 \times 3.14 + 4,600 \times 4.70) / (7,344) = 3.97 \text{ CFS/AC.}$
 $E_{W-100} = (1,200 \times 0.78 + 1,544 \times 1.13 + 4,600 \times 2.12) / (7,344) = 1.69 \text{ CFS/AC.}$

LEGAL DESCRIPTION

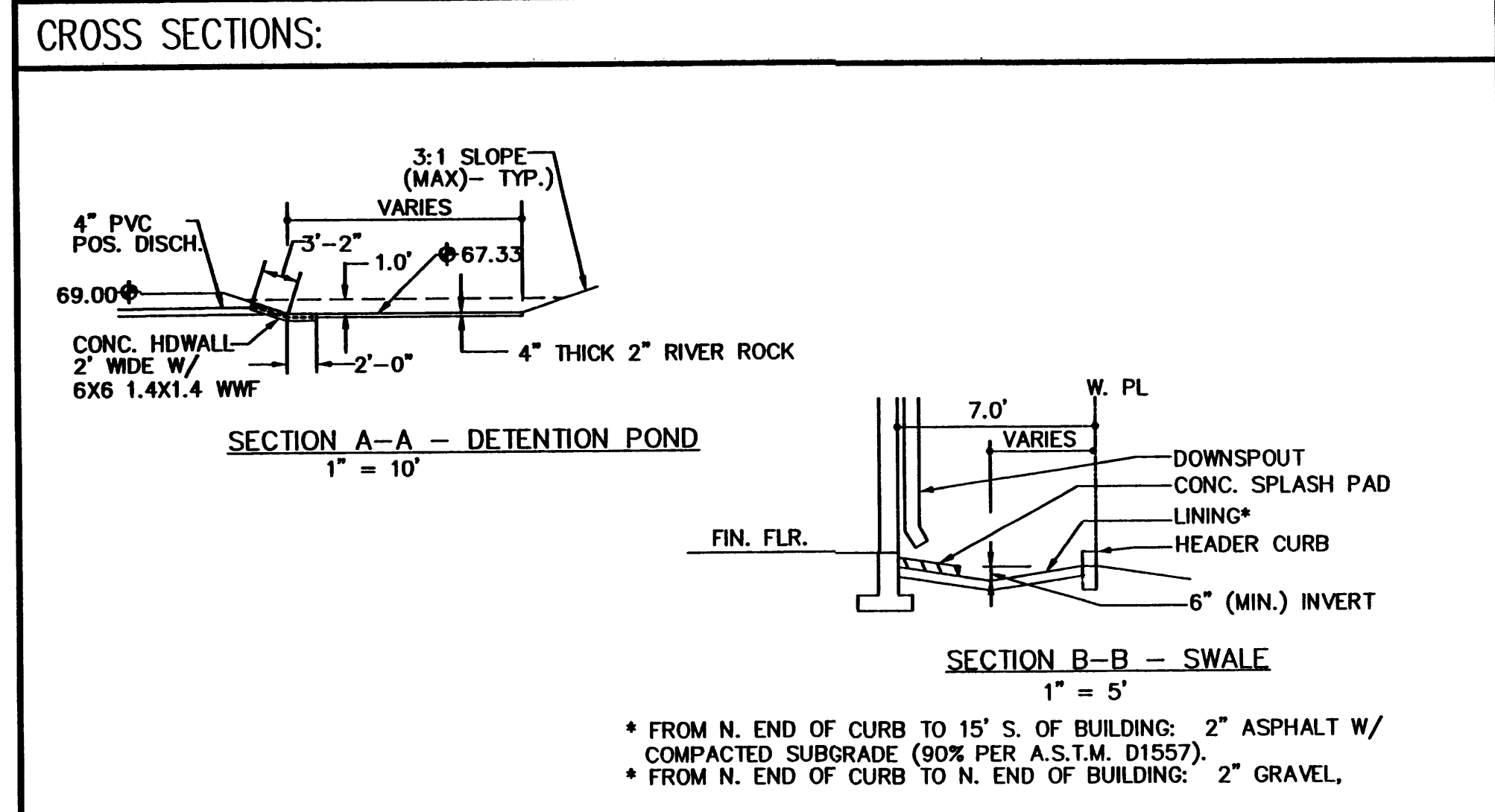
TRACT LETTERED B-ONE-C-ONE (B-1-C-1), PLAT OF TRACTS B-1-A-1 THROUGH B-1-K-1, COMANCHE BUSINESS PARK, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON MARCH 23, 1931, IN PLAT BOOK D, PAGE 130.

BENCH MARK & TBM

BENCH MARK AND ELEVATION NOTES:
1: ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION "NDC 16-18", HAVING AN ELEVATION OF 5111.10 FEET ABOVE SEA LEVEL.
2: ADD 5100 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.
3: CONTOUR INTERVAL IS ONE (1) FOOT.
TEMPORARY BENCH MARK:
1: TEMPORARY BENCH MARK (TBM) IS TOP OF NO. 5 CAPPED REBAR, AT S.E. CORNER OF SITE (SURVEYOR NO. PS 11184), ELEV. 5071.70

OTHER SURVEYING NOTES:

4: UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
5: THIS IS NOT A BOUNDARY SURVEY. BEARINGS AND DISTANCES SHOWN ARE FOR REFERENCE ONLY.



LEGEND:

- 70.00 EXISTING SPOT ELEVATION
- 70.00 NEW SPOT ELEVATION
- 5070 EXISTING CONTOUR
- 70 NEW CONTOUR
- SWALE
- SHEET FLOW
- New Chain Link Fence
- TC TOP OF CONCRETE
- TA TOP OF ASPHALT
- FL FLOWLINE
- TG TOP OF GRADE

SUMMARY OF SITE AREAS:

LAND TREAT.	DESCRIPTION	SF (ACRE)	TOTAL SF (ACRE)
TREAT. B	LANDSCAPING AREA	4,382 (0.1006)	4,382 (0.1006)
TREAT. C	UNPAVED AREAS,	13,434 (0.3084)	13,434 (0.3084)
TREAT. D	BUILDING AREA	9,250 (0.2124)	
TREAT. D	SIDEWALK AREA	570 (0.0131)	
TREAT. D	REFUSE ENCL.	204 (0.0047)	
TREAT. D	12' X 18' CONC. APRON	216 (0.0049)	
TREAT. D	ASPHALT PAVEMENT	10,280 (0.2360)	20,520 (0.4711)
TOTAL SITE AREA		38,336 (0.8801)	38,336 (0.8801)

OFF-SITE FLOW:

AREA = $1/2(300 \times 250) = 37,500 \text{ SF (TREAT. C)}$
 $Q_{100} = 0.8609 \times 3.14 = 2.70 \text{ CFS}$ $Q_{10} = 0.8609 \times 1.71 = 1.47 \text{ CFS}$
 $Q_{100} = 0.8609 \times 1.71 = 1.47 \text{ CFS}$ $Q_{10} = 0.8609 \times 1.71 = 1.47 \text{ CFS}$
 $V_{100} = (37,500)(1.13 / 12) = 3,531 \text{ CF}$

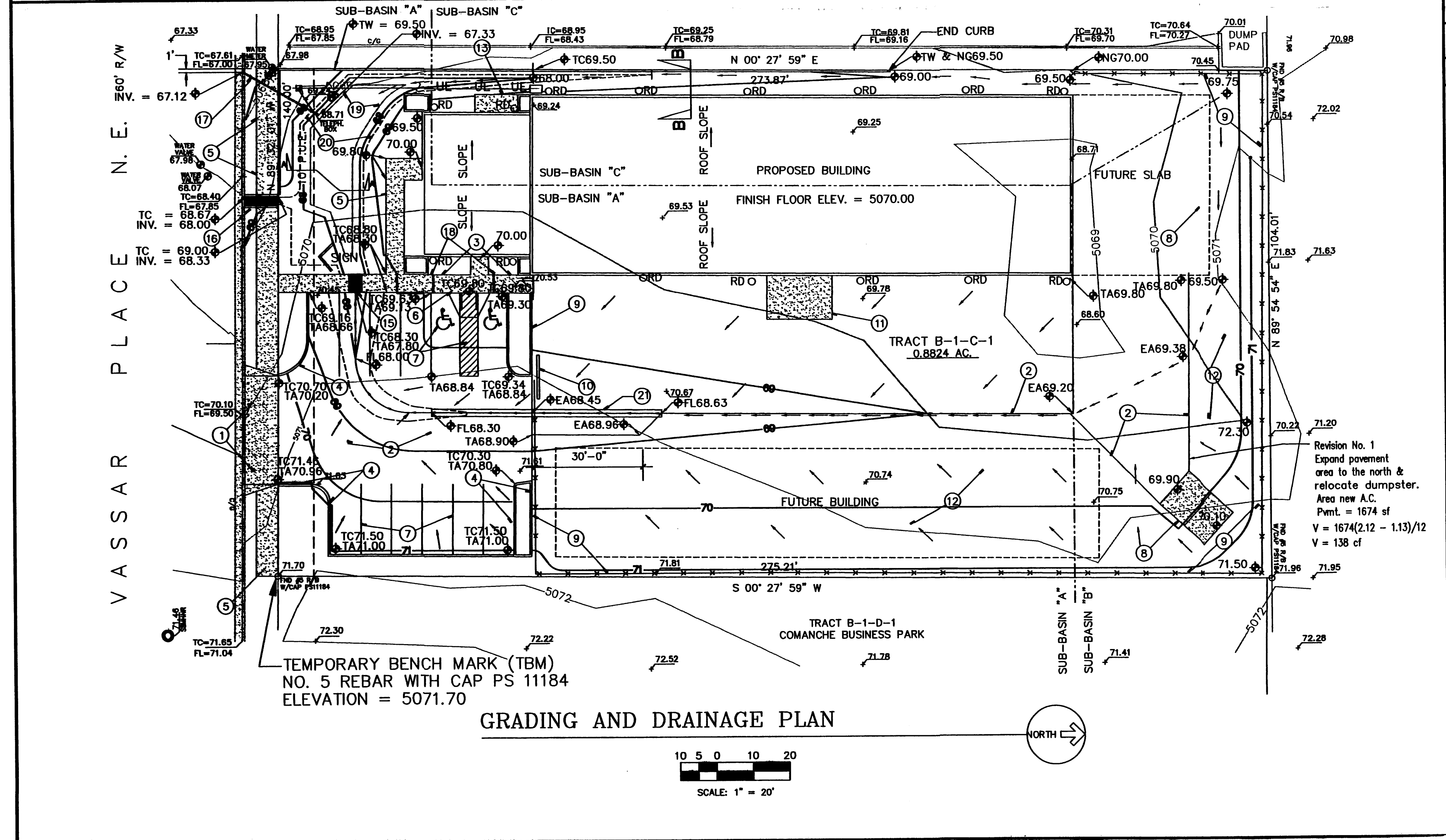
VOLUME, 100-YEAR, 6-YEAR:

EXISTING: $V_{360-100} = 38,336 \times (1.13 / 12) = 3,610 \text{ CF (ASSUME ALL TREAT. C)}$
 $V_{360-10} = 38,336 \times (0.52 / 12) = 1,661 \text{ CF (ASSUME ALL TREAT. C)}$
DEVELOPED: $V_{360-100} = 38,336 \times (1.62 / 12) = 5,175 \text{ CF}$
 $V_{360-10} = 38,336 \times (0.93 / 12) = 2,971 \text{ CF}$
SUB-BASIN A: $V_{360-100} = 23,572 \times (1.75 / 12) = 3,438 \text{ CF}$
SUB-BASIN B: $V_{360-100} = 7,420 \times (1.13 / 12) = 699 \text{ CF}$
SUB-BASIN C: $V_{360-100} = 7,344 \times (1.69 / 12) = 1,034 \text{ CF}$

PEAK DISCHARGE, 100-YR. AND 10-YR.:

EXISTING: $Q_{100} = 0.8801 \times 3.14 = 2.76 \text{ CFS (ASSUME ALL TREAT. C)}$
 $Q_{10} = 0.8801 \times 1.71 = 1.51 \text{ CFS (ASSUME ALL TREAT. C)}$
DEVELOPED: $Q_{100} = 0.8801 \times 3.88 = 3.41 \text{ CFS}$
 $Q_{10} = 0.8801 \times 2.39 = 2.10 \text{ CFS}$
SUB-BASIN A: $Q_{100} = 0.5411 \times 4.08 = 2.21 \text{ CFS}$ $Q_{10} = 0.5411 \times 2.57 = 1.39 \text{ CFS}$
SUB-BASIN B: $Q_{100} = 0.1704 \times 3.14 = 0.53 \text{ CFS}$
SUB-BASIN C: $Q_{100} = 0.1686 \times 3.97 = 0.67 \text{ CFS}$

- KEYED NOTES
1. NEW CONC. DRIVE.
 2. ASPHALT PAVING.
 3. POLE MOUNTED H.C. SIGN- SEE DETAIL 1/C-1.
 4. CONC. CURB AND GUTTER.
 5. CONC. SIDEWALK.
 6. H.C. ACCESSIBLE CONC. RAMP - SEE 2/C-1.
 7. 4" WIDE PARKING STRIPING, H.C. SYMBOLS & MARKINGS @ 36" O.C.
 8. 6" CONC. REFUSE PAD & ENCLOSURES, SEE DETAIL 3/C-1.
 9. NEW 6" H. CHAIN LINK FENCE. (PROVIDE SLATS @ ENTRY & SLIDING GATE ONLY)
 10. 16" WIDE ROLLING GATE.
 11. 6" CONC. SLAB.
 12. CRUSHED FINES GRAVEL IN UNDEVELOPED AREAS.
 13. 6" H. CEDAR FENCE.
 14. COMPANY SIGN - FURNISHED & INSTALLED BY OTHERS.
 15. 24" SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. INVERT IN = 67.80 INVERT OUT = 67.70
 16. 24" SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. INVERT IN = 68.33 INVERT OUT = 68.00
 17. 4" SCH. 40 PVC PIPE THROUGH CURB PER STD. DWG. 2235. INVERT IN = 67.33 INVERT OUT = 67.12
 18. 3" SCH. 40 PVC PIPE THROUGH SIDEWALK PER STD. DWG. 2235. TO DRAIN LANDSCAPE AREAS.
 19. BOTTOM OF DETENTION POND - ELEV. 67.33
 20. TOP OF DETENTION POND - ELEV. 68.33
 21. CONCRETE ALLEY GUTTER PER C.O.A. STD. DWG. 2415



ALLOWABLE SITE DISCHARGE:

ALLOWABLE SITE DISCHARGE IS 3.61 CFS PER ACRE. FOR THIS SITE, THE ALLOWABLE DISCHARGE IS $3.61 \times 0.8801 = 3.17 \text{ CFS}$

DETENTION POND CALCULATIONS:

Base Time $t_b = (2.107 \times E \times A_T / Q_p) - (0.25 \times A_D / A_T)$
 $E = 1.62$ $A_T = 0.8801$ $Q_p = 3.41$ $A_D = 0.4711$
 $t_b = (2.107 \times 1.62 \times 0.8801 / 3.41) - (0.25 \times 0.4711 / 0.8801) = 0.75 \text{ Hr.}$
 $t_p = (0.7 \times t_b) + [(1.6 - (A_D / A_T)) / 12]$
 $t_p = (0.7 \times 0.75) + [(1.6 - (0.4711 / 0.8801)) / 12] = 0.23 \text{ Hr.}$
Continue the Peak = $0.25 \times A_D / A_T = 0.25 \times 0.4711 / 0.8801 = 0.13 \text{ Hr.}$

Total Vol. = $\{1/2(0.23 \times 3.41) + (0.13 \times 3.41) + 1/2(0.39 \times 3.41)\}3600 = 5,401 \text{ cf}$
Release Vol. = $\{1/2(0.21 \times 3.17) + (0.13 \times 3.17) + 1/2(0.36 \times 3.17)\}3600 = 4,736 \text{ cf}$
5,401 cfs (Total Vol.) is 4.67% larger than V100 calculated previously. Adjust released volume by the same percentage. Adjusted release volume = $4,736 / 1.0467 = 4,525 \text{ cf}$
Pond Volume = $5,175 - 4,525 = 650 \text{ cf}$

ACTUAL POND SIZE:

AREA OF BOTTOM (ELEV 67.33) = 495.23
AREA OF CONTOUR 68 = 838.37
AREA OF TOP (ELEV. 68.33) = 1,227.35
TOTAL VOLUME = 788 CF > 650 CF
Note: 68.33 Contour (Area of Top of Pond) was adjusted slightly to increase pond volume to compensate for additional pavement by dumpster. (788 - 650 = 138 cf)

SIDEWALK CULVERT:

DESIGN Q = $2.10 + 1.47 = 3.57$ (ON-SITE + OFF-SITE, 10-YR)
USE WEIR EQ. $Q = C L H^{3/2}$
 $C = 2.65$ $L = 2.0$ $H = 0.67$ $Q = 3.00 \times 2.0 \times 0.67^{3/2} = 3.29 \text{ CFS}$
(Positive Discharge Pipe discharges 0.23 cfs - See below)
Total Discharge = $3.29 \text{ cfs} + 0.22 \text{ cfs} = 3.51 \text{ cfs}$
3.51 cfs is approximately equal to 3.57 cfs. One 2' sidewalk culvert is adequate.

POND POSITIVE DISCHARGE:

USE ORIFICE EQ. $Q = C(2gh)^{1/2}$ $C = 0.6$ USE 3" PVC.
 $H = 1.0 - 1/2(3/12) = 0.875'$ $A = (3^2)(\pi) / 4 / 144 = 0.0491 \text{ SF}$
 $Q = 0.6 \times 0.0491(2 \times 32.2 \times 0.875)^{1/2} = 0.22 \text{ CFS} < 0.24 \text{ CFS (OK)}$
USE AN ACTUAL 4" DIAMETER PIPE WITH A CAP AND DRILLED 3" ORIFICE.

EROSION CONTROL REQUIREMENTS:

The Contractor shall be responsible for compliance with the following:

1. No sediment-bearing water shall be allowed to discharge from the site during construction.
2. During grading operations and until the project has been completed, all adjacent property, rights-of-way, and easements shall be protected from flooding by runoff from the site.
3. Should the contractor fail to prevent sediment-bearing water from entering public right-of-way, he shall promptly remove from the public right-of-way any and all sedimentation originating from the site.
4. Control of sediment-bearing waters will be accomplished by use of a compacted earth berm of adequate height. The berm shall be located along the downstream perimeter of the property.

NOTICE TO CONTRACTORS

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19)

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 AS UPDATED THROUGH REVISION NO. 6.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, INC., 260-1990, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. THE ADDRESS OF THE PROPERTY SERVED IS 2715 VASSAR PLACE, N.E.

APPROVALS:

HYDROLOGY _____ NAME _____ DATE _____

ENGINEERING _____ NAME _____ DATE _____

CONSTRUCTION _____ NAME _____ DATE _____

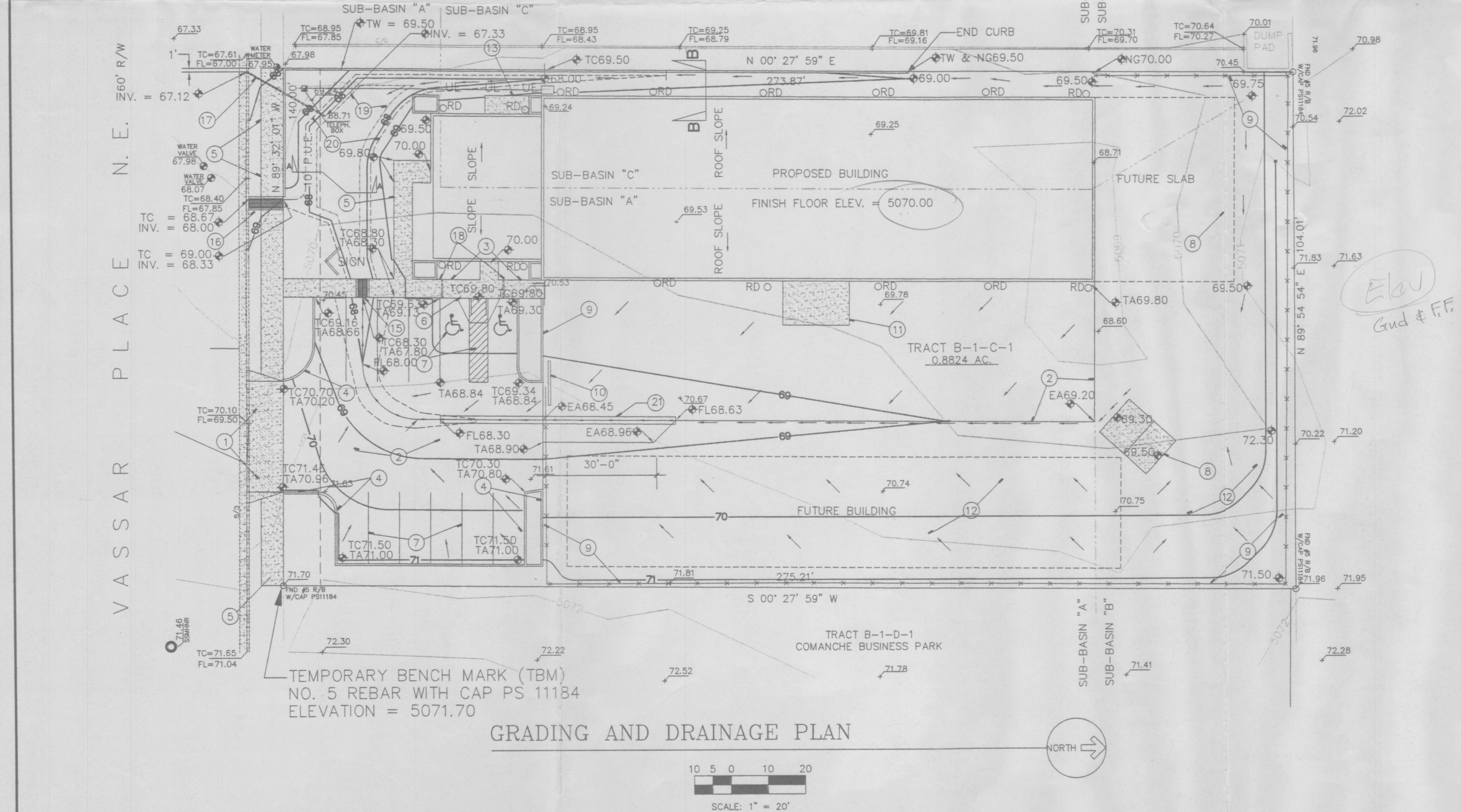
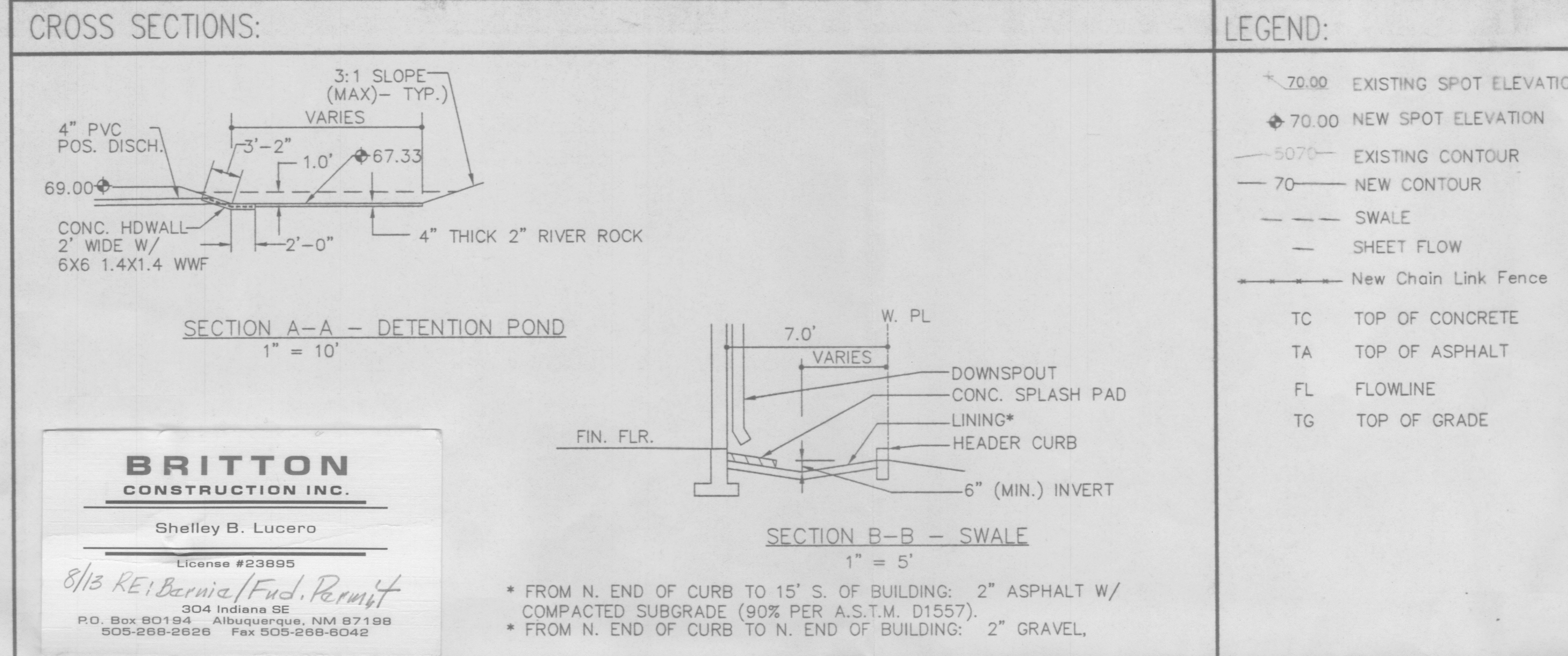
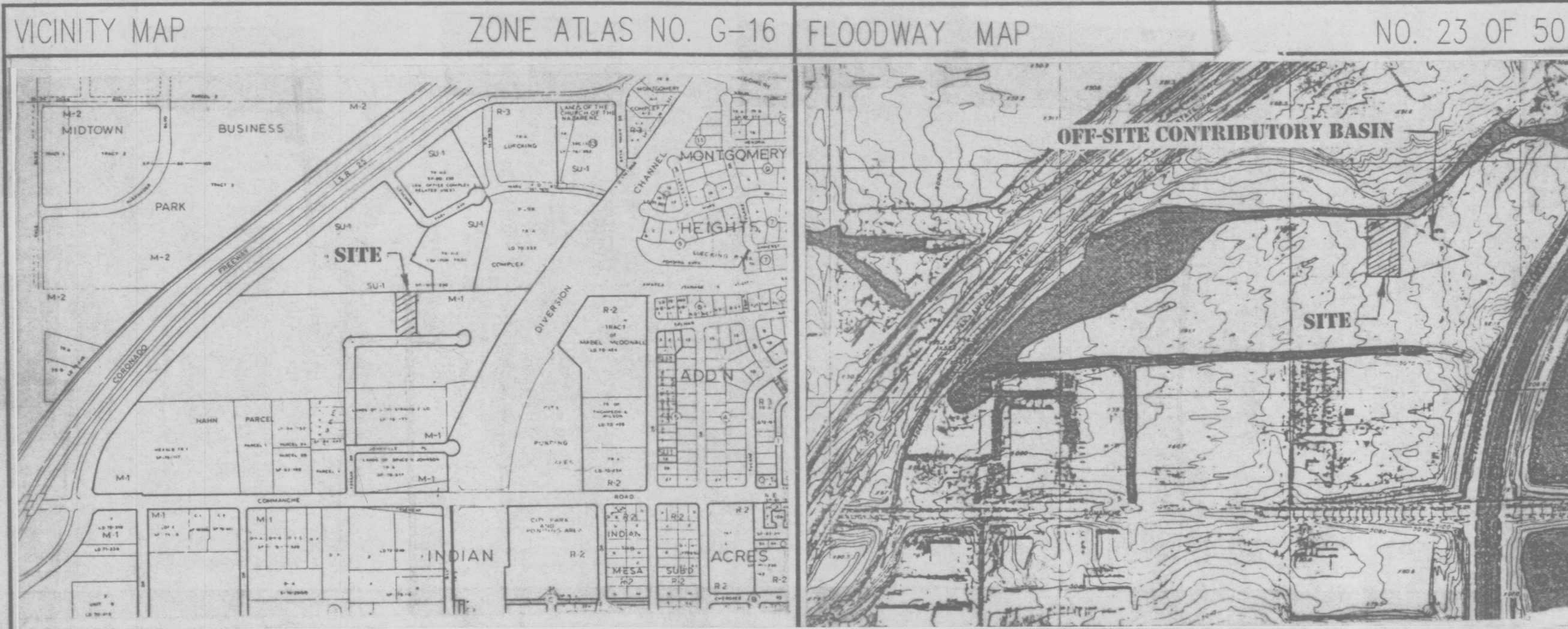
jack m. harris
ARCHITECTS
inc.
4706 Lomas, N.E.
Albuquerque,
New Mexico 87110
(505) 888-8887
Fax (505) 888-8815
108 Clark Street
Bulky
New Mexico 87301
(505) 868-8888

ALL - PRO, GLASS AND SCREEN, INC.
OWNER: MIKE TERRELL
2715 VASSAR PL.
ALBUQUERQUE, NEW MEXICO

RECEIVED
NOV 19 1998
HYDROLOGY SECTION

DATE:

SHEET NO.
C-2



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5. Upon satisfactory completion of SAD 216 storm drainage improvements, the retention pond must be eliminated. At that time, individual lot detention ponding may be required if the developed discharge exceeds 3.61 cfs/acre.
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TREAT. D	12' X 18' CONC. APRON	216 (0.0049)	
TREAT. D	ASPHALT PAVEMENT	10,280 (0.2360)	20,520 (0.4711)
TOTAL SITE AREA		38,336 (0.8801)	38,336 (0.8801)

OFF-SITE FLOW:

AREA = $1/2(300 \times 250) = 37,500$ SF (TREAT. C)

$Q_{100} = 0.8609 \times 3.14 = 2.70$ CFS $Q_{10} = 0.8609 \times 1.71 = 1.47$ CFS

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$V_{100} = (37,500)(1.13 / 12) = 3,531$ CF

EXCESS PRECIP. / PEAK DISCH.

LAND TREATMENT	q(cfs/ac)	E (in)
100-yr. 10-yr.	100-yr. 10-yr.	100-yr. 10-yr.
A	1.56 0.38	0.53 0.13
B	2.28 0.95	0.78 0.28
C	3.14 1.71	1.13 0.52
D	4.70 3.14	2.12 1.34

WEIGHTED "E" AND "q":

TOTAL SITE:

WEIGHTED "E": $E_{W-100} = (4,382 \times 0.78 + 13,434 \times 1.13 + 20,520 \times 2.12) / (38,336) = 1.62$ IN.

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WEIGHTED "q": $q_{W-100} = (4,382 \times 2.28 + 13,434 \times 3.14 + 20,520 \times 4.70) / (38,336) = 3.88$ CFS/AC.

$q_{W-10} = (4,382 \times 0.95 + 13,434 \times 1.71 + 20,520 \times 3.14) / (38,336) = 2.39$ CFS/AC.

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$q_{W-100} = (3,182 \times 2.28 + 4,470 \times 3.14 + 15,920 \times 4.70) / (23,572) = 4.08$ CFS/AC.

$q_{W-10} = (3,182 \times 0.95 + 4,470 \times 1.71 + 15,920 \times 3.14) / (23,572) = 2.57$ CFS/AC.

$E_{W-100} = (3,182 \times 0.78 + 4,470 \times 1.13 + 15,920 \times 2.12) / (23,572) = 1.75$ CFS/AC.

SUB-BASIN "B": 7,420 SF (0.1704 AC) ALL TREATMENT C.

SUB-BASIN "C": 7,344 SF (0.1686 AC)

$q_{W-100} = (1,200 \times 2.28 + 1,544 \times 3.14 + 4,600 \times 4.70) / (7,344) = 3.97$ CFS/AC.

$E_{W-100} = (1,200 \times 0.78 + 1,544 \times 1.13 + 4,600 \times 2.12) / (7,344) = 1.69$ CFS/AC.

VOLUME, 100-YEAR, 6-YEAR:

EXISTING: $V_{360-100} = 38,336 \times (1.13 / 12) = 3,610$ CF (ASSUME ALL TREAT. C)

$V_{360-10} = 38,336 \times (0.52 / 12) = 1,661$ CF (ASSUME ALL TREAT. C)

DEVELOPED: $V_{360-100} = 38,336 \times (1.62 / 12) = 5,175$ CF

$V_{360-10} = 38,336 \times (0.93 / 12) = 2,971$ CF

SUB-BASIN A: $V_{360-100} = 23,572 \times (1.13 / 12) = 2,138$ CF

SUB-BASIN B: $V_{360-100} = 7,420 \times (1.13 / 12) = 699$ CF

SUB-BASIN C: $V_{360-100} = 7,344 \times (1.69 / 12) = 1,034$ CF

PEAK DISCHARGE, 100-YR, AND 10-YR.:

EXISTING: $Q_{100} = 0.8801 \times 3.14 = 2.76$ CFS (ASSUME ALL TREAT. C)

$Q_{10} = 0.8801 \times 1.71 = 1.51$ CFS (ASSUME ALL TREAT. C)

DEVELOPED: $Q_{100} = 0.8801 \times 3.88 = 3.41$ CFS

$Q_{10} = 0.8801 \times 2.39 = 2.10$ CFS

SUB-BASIN A: $Q_{100} = 0.5411 \times 4.08 = 2.21$ CFS $Q_{10} = 0.5411 \times 2.57 = 1.39$ CFS

SUB-BASIN B: $Q_{100} = 0.1704 \times 3.14 = 0.53$ CFS

SUB-BASIN C: $Q_{100} = 0.1686 \times 3.97 = 0.67$ CFS

ALLOWABLE SITE DISCHARGE:

ALLOWABLE SITE DISCHARGE IS 3.61 CFS PER ACRE. FOR THIS SITE, THE ALLOWABLE DISCHARGE IS 3.61 X 0.8801 = 3.17 CFS

DETENTION POND CALCULATIONS:

Base Time $t_b = (2.107 \times E \times A_f / Q_p) - (0.25 \times A_d / A_f)$

$E = 1.62$ $A_f = 0.8801$ $Q_p = 3.41$ $A_d = 0.4711$

$t_b = (2.107 \times 1.62 \times 0.8801 / 3.41) - (0.25 \times 0.4711 / 0.8801) = 0.75$ Hr.

$t_p = (0.7 \times t_b) + [(1.6 - (A_d / A_f)) / 12]$

$t_p = (0.7 \times 0.75) + [(1.6 - (0.4711 / 0.8801)) / 12] = 0.23$ Hr.

Continue the Peak = $0.25 \times A_d / A_f = 0.25 \times 0.4711 / 0.8801 = 0.13$ Hr.

Total Vol. = $\{1/2(0.23 \times 3.41) + (0.13 \times 3.41) + 1/2(0.39 \times 3.41)\}3600 = 5,401$ cf

Release Vol. = $\{1/2(0.21 \times 3.17) + (0.13 \times 3.17) + 1/2(0.36 \times 3.17)\}3600 = 4,736$ cf

5,401 cfs (Total Vol.) is 4.67% larger than V100 calculated previously. Adjust released volume by the same percentage. Adjusted release volume = 4,736 / 1.0467 = 4,525 cf

Pond Volume = 5,175 - 4,525 = 650 cf

ACTUAL POND SIZE:

AREA OF BOTTOM (ELEV 67.33)	666.80 X 0.67 = 447 CF
AREA OF CONTOUR 68	838.37
AREA OF TOP (ELEV. 68.33)	1,082.53
TOTAL VOLUME	764 CF > 650 CF

SIDEWALK CULVERT:

DESIGN Q = 2.10 + 1.47 = 3.57 (ON-SITE + OFF-SITE, 10-YR)

USE WEIR EQ. $Q = C W H^{3/2}$

$C = 2.65$ $L = 2.0$ $H = 0.67$ $Q = 3.00 \times 2.0 \times 0.67^{3/2} = 3.29$ CFS

(Positive Discharge Pipe discharges 0.23 cfs - See below)

Total Discharge = 3.29 cfs + 0.22 cfs = 3.51 cfs

3.51 cfs is approximately equal to 3.57 cfs. One 2' sidewalk culvert is adequate.

POND POSITIVE DISCHARGE:

USE ORIFICE EQ. $Q = C A (2gh)^{1/2}$ $C = 0.6$ USE 3" PVC.

$H = 1.0 - 1/2(3/12) = 0.875'$ $A = (3)^2 (\pi) / 4 / 144 = 0.0491$ SF

$Q = 0.6 \times 0.0491 (2 \times 32.2 \times 0.875)^{1/2} = 0.22$ CFS < 0.24 CFS (OK)

USE AN ACTUAL 4" DIAMETER PIPE WITH A CAP AND DRILLED 3" ORIFICE.

LEGAL DESCRIPTION

TRACT LETTERED B-ONE-C-ONE (B-1-C-1), PLAT OF TRACTS B-1-A-1 THROUGH B-1-K-1, COMANCHE BUSINESS PARK, ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON MARCH 23, 1993, IN PLAT BOOK D, PAGE 130.

BENCH MARK & TBM

BENCH MARK AND ELEVATION NOTES:

1. ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION "NDC 16-16", HAVING AN ELEVATION OF 5111.10 FEET ABOVE SEA LEVEL.
2. ADD 5100 TO SPOT ELEVATIONS TO SHOW TRUE ELEVATION.
3. CONTOUR INTERVAL IS ONE (1) FOOT.

TEMPORARY BENCH MARK:

1. TEMPORARY BENCH MARK (TBM) IS TOP OF NO. 5 CAPPED REBAR, AT S.E. CORNER OF SITE (SURVEYOR NO. PS 11184), ELEV. 5071.70

OTHER SURVEYING NOTES:

4. UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
5. THIS IS NOT A BOUNDARY SURVEY. BEARINGS AND DISTANCES SHOWN ARE FOR REFERENCE ONLY.

KEYED NOTES

1. NEW CONC. DRIVE.
2. ASPHALT PAVING.
3. POLE MOUNTED H.C. SIGN- SEE DETAIL 1/C-1.
4. CONC. CURB AND GUTTER.
5. CONC. SIDEWALK.
6. H.C. ACCESSIBLE CONC. RAMP - SEE 2/C-1.
7. 4" WIDE PARKING STRIPING, H.C. SYMBOLS & MARKINGS @ 36" O.C.
8. 6" CONC. REFUSE PAD & ENCLOSURES, SEE DETAIL 3/C-1.
9. NEW 6" H. CHAIN LINK FENCE. (PROVIDE SLATS @ ENTRY & SLIDING GATE ONLY)
10. 16' WIDE ROLLING GATE.
11. 6" CONC. SLAB.
12. CRUSHED FINES GRAVEL IN UNDEVELOPED AREAS.
13. 6" H. CEDAR FENCE.
14. COMPANY SIGN - FURNISHED & INSTALLED BY OTHERS.
15. 24" SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. INVERT IN = 67.80 INVERT OUT = 67.70
16. 24" SIDEWALK CULVERT PER C.O.A. STD. DWG. 2236. INVERT IN = 68.33 INVERT OUT = 68.00
17. 4" SCH. 40 PVC PIPE THROUGH CURB PER STD. DWG. 2235. INVERT IN = 67.33 INVERT OUT = 67.12
18. 3" SCH. 40 PVC PIPE THROUGH SIDEWALK PER STD. DWG. 2235. TO DRAIN LANDSCAPE AREAS.
19. BOTTOM OF DETENTION POND - ELEV. 67.33
20. TOP OF DETENTION POND - ELEV. 68.33
21. CONCRETE ALLEY GUTTER PER C.O.A. STD. DWG. 2415

EROSION CONTROL REQUIREMENTS:

The Contractor shall be responsible for compliance with the following:

1. No sediment-bearing water shall be allowed to discharge from the site during construction.
2. During grading operations and until the project has been completed, all adjacent property, rights-of-way, and easements shall be protected from flooding by runoff from the site.
3. Should the contractor fail to prevent sediment-bearing water from entering public right-of-way, he shall promptly remove from the public right-of-way any and all sedimentation originating from the site.
4. Control of sediment-bearing waters will be accomplished by use of a compacted earth berm of adequate height. The berm shall be located along the downstream perimeter of the property.

NOTICE TO CONTRACTORS

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19)

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREIN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 AS UPDATED THROUGH REVISION NO. 6.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, INC., 260-1990, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. THE ADDRESS OF THE PROPERTY SERVED IS 2715 VASSAR PLACE, N.E.

APPROVALS:

HYDROLOGY: _____ NAME _____ DATE _____

ENGINEERING: _____ NAME _____ DATE _____

CONSTRUCTION: _____ NAME _____ DATE _____

DATE: _____

SHEET NO. C-2



jack m. harris

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