

CONSTRUCTION PLANS
FOR
ALBUQUERQUE SIGN PRINT

PAVING AND UTILITY IMPROVEMENTS

CITY OF ALBUQUERQUE
NEW MEXICO
AUGUST 2004

INDEX TO DRAWINGS

1. TITLE SHEET
2. GRADING AND DRAINAGE PLAN
3. PAVING/STORM SEWER IMPROVEMENTS

TRAFFIC CONTROL PLAN

USE COA TRAFFIC CONTROL PLAN.

RECORD DRAWING

I, SHAHAB BIAZAR, OF THE FIRM OF ADVANCED ENGINEERING AND CONSULTING, LLC, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NEW MEXICO, DO HEREBY CERTIFY, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT THE INFRASTRUCTURE INSTALLED AS PART OF THIS PROJECT HAS BEEN INSPECTED BY ME OR BY A QUALIFIED PERSON UNDER MY DIRECT SUPERVISION AND HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS APPROVED BY THE CITY ENGINEER AND THAT THE ORIGINAL DESIGN INTENT OF THE APPROVED PLANS HAS BEEN MET, EXCEPT AS NOTED BY ME ON THE AS-BUILT CONSTRUCTION DRAWINGS. THIS CERTIFICATION IS BASED ON SITE INSPECTIONS BY ME OR PERSONNEL UNDER MY DIRECTION AND SURVEY INFORMATION PROVIDED BY LEONARD MARTINEZ OF ADVANCED ENGINEERING, NMPS NUMBER 1003550.

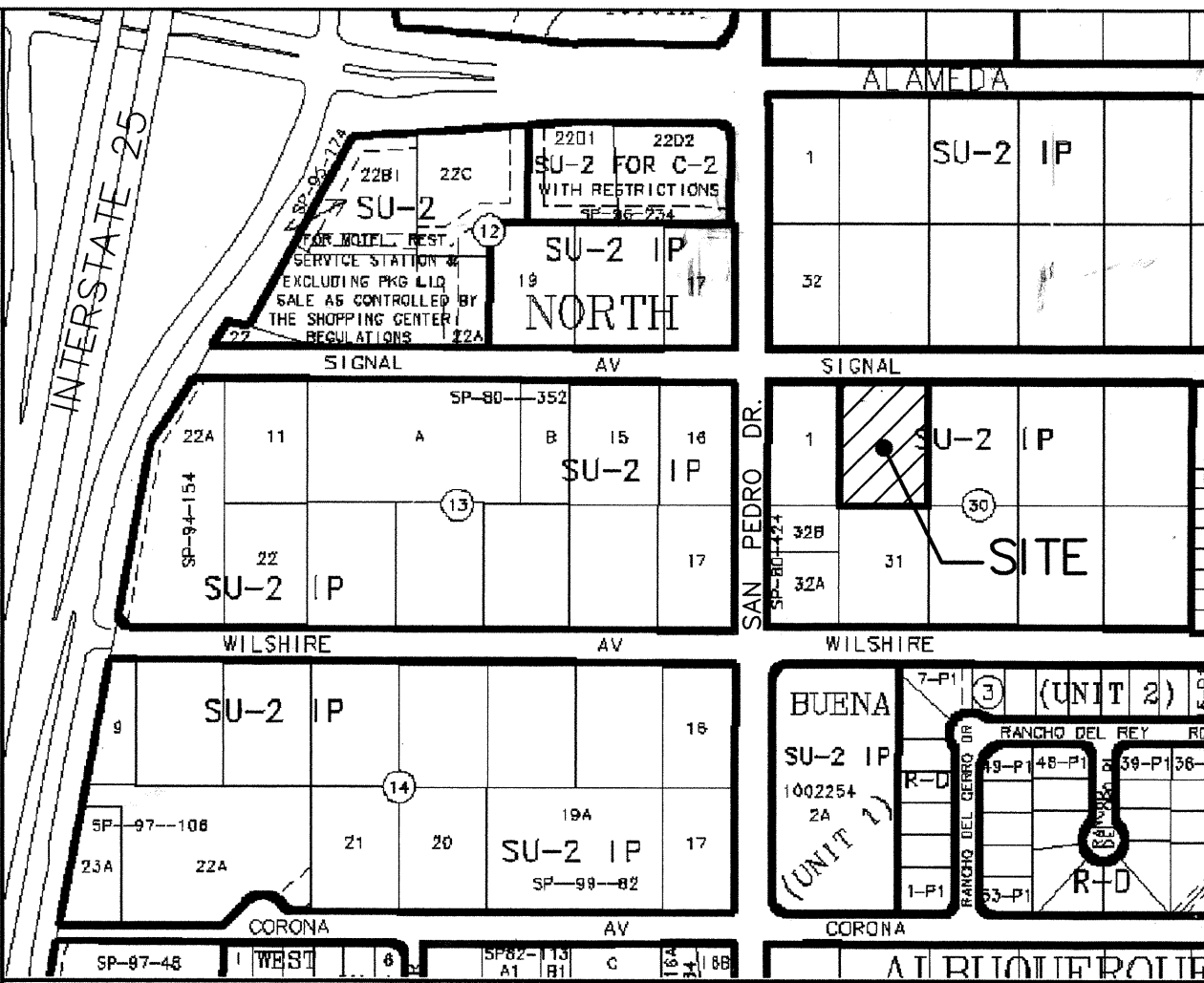
APPROVED AS RECORD DRAWINGS
DESIGN REVIEW SECTION
CITY CONSTRUCTION ENGINEER
DATE: 10/11/05
BRYAN WOLFE, P.E.

SHAHAB BIAZAR, PE
NMPE NO. 13479
DATE: 7-15-05
Advanced Eng. & Cons., LLC

DRB CASE NUMBER 1003550

ADVANCED
ENGINEERING
and CONSULTING, LLC
4416 ANAHEIM AVE., NE
ALBUQUERQUE, NEW MEXICO 87113
(505)899-5570

REV	SHEETS	CITY ENGINEER	DATE	USER DEPT.	DATE	USER DEPT.	DATE
ENGINEERS STAMP & SIGNATURE		APPROVALS	ENGINEER	DATE	*****		
		DRC Chairman	<i>[Signature]</i>	9-22-04	APPROVED FOR CONSTRUCTION		
		Transportation	<i>[Signature]</i>	9/8/04			
		Water/Wastewater	<i>[Signature]</i>	9/8/04			
		Hydrology	<i>[Signature]</i>	9/8/04			
		C.I.P.	<i>[Signature]</i>	9/22-04			
CITY PROJECT NO.		745881		SHEET		1 OF 3	



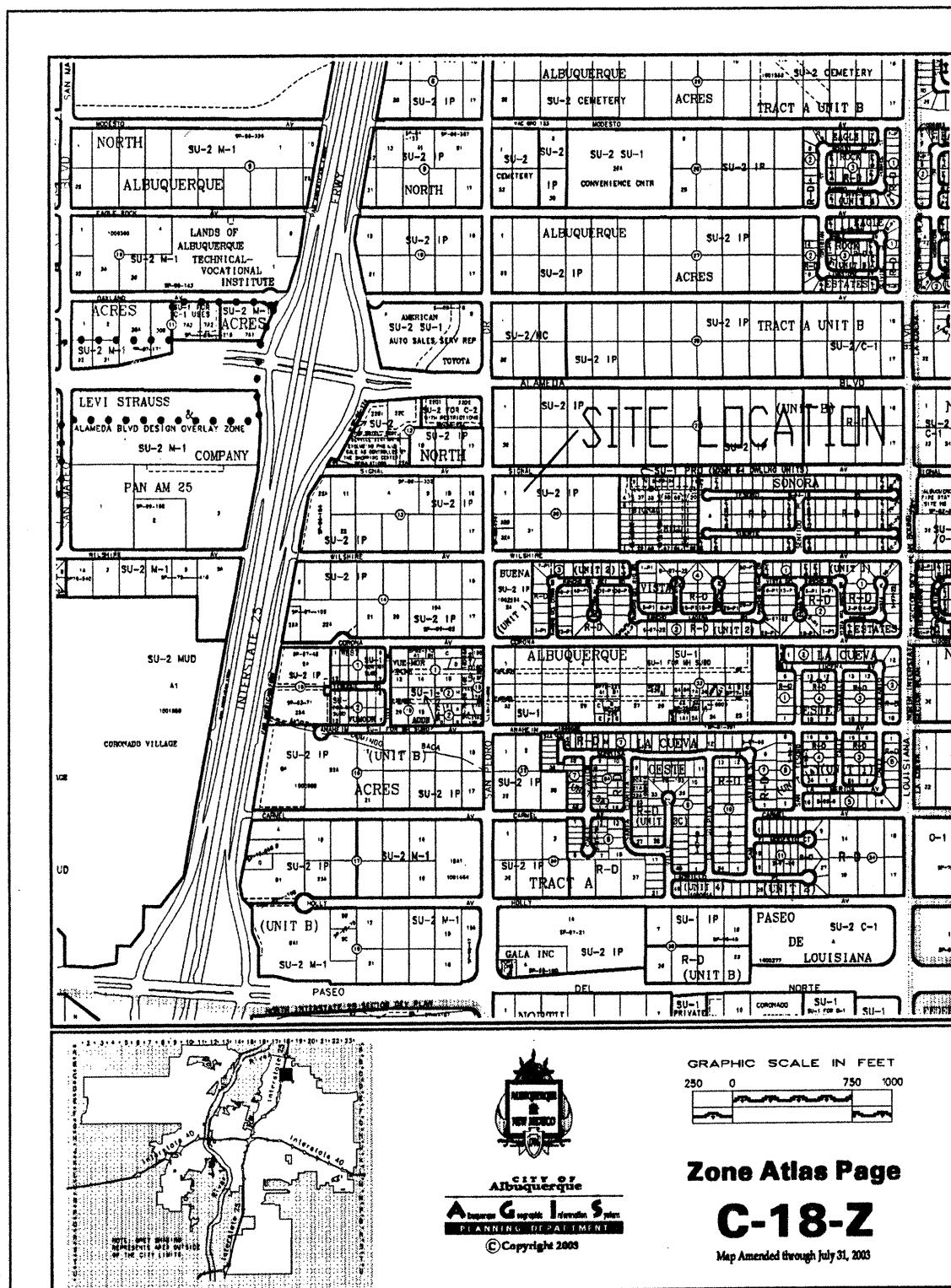
VICINITY MAP ZONE ATLAS C-18-Z

N.T.S. NOTICE TO CONTRACTORS

1. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION (UPDATE #7)
2. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (260-1990) FOR LOCATION OF EXISTING UTILITIES.
3. ANY WORK AFFECTING AN ARTERIAL ROADWAY REQUIRES 24-HOUR CONSTRUCTION.
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 OR SURVEYOR IMMEDIATELY SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. FIVE (5) WORKING DAYS PRIOR TO BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO CONSTRUCTION COORDINATION DIVISION A DETAILED CONSTRUCTION SCHEDULE. TWO(2) WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM THE CONST. COORDINATION DIVISION. CONTRACTOR SHALL NOTIFY BARRICADE ENGINEER (924-3400) PRIOR TO OCCUPYING AN INTERSECTION. REFER TO STANDARD SPECIFICATIONS.
6. ALL STREET STRIPING ALTERED OR DESTROYED SHALL BE REPLACED WITH PLASTIC REFLECTORIZED PAVEMENT MARKINGS BY THE CONTRACTOR TO LOCATION AS EXISTING OR AS INDICATED BY THIS PLAN SET.
7. CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT THE ENGINEER MAY TAKE NECESSARY MEASURES TO INSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE ENGINEER AND SHALL NOTIFY THE ENGINEER AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE CITY SURVEYOR. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATIONS OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 4.4 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS. ANY PERMANENT SURVEY MONUMENT LOCATED WITHIN 50' OF THIS PROJECT THAT IS NOT SHOWN ON THE PLAN AND IS DESTROYED DURING CONSTRUCTION WILL BE REPLACED AT THE DESIGNERS EXPENSE.
8. FOR STORM DRAIN CONSTRUCTION, RCP PIPE JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION WILL DETERMINE JOINTS TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.
9. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED-OUT IN ACCORDANCE WITH OSHA 29 CFR 1926.650 SUBPART P.

THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED

- ☐ ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- ☒ BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
- ☐ TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE DESIGN ENGINEER.
- ☐ SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- ☐ IF CURB IS DEPRESSED FOR A DRIVEPAD, THE DRIVEPAD SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB AND GUTTER.
- ☒ ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.



VICINITY MAP C-18 FIRM PANEL 0137D

GRADING/DRAINAGE PLAN

THE PURPOSE OF THIS GRADING/DRAINAGE PLAN IS TO OBTAIN A BUILDING PERMIT AND SO 19 APPROVALS FOR LOT 2, BLOCK 30, TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, CITY OF ALBUQUERQUE, BERNALILLO COUNTY.

EXISTING CONDITIONS

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED ON THE SOUTH SIDE OF SIGNAL AVENUE N.E. AND IS THE SECOND LOT EAST OF SAN PEDRO DRIVE N.E. THE SITE IS CURRENTLY ZONED SU-2 IP AND IS THEREFORE NOT SUBJECT TO SITE PLAN CONTROL. AT PRESENT, THE RUN-OFF GENERATED BY THIS SITE DRAINS FROM EAST TO WEST VIA SURFACE FLOW. THE SITE IS CURRENTLY UNDEVELOPED.

DEVELOPED CONDITIONS

AS SHOWN BY THE GRADING/DRAINAGE PLAN, THE PROJECT WILL CONSIST OF AN OFFICE/WAREHOUSE TYPE BUILDING ALONG WITH ASSOCIATED PAVED PARKING AND LANDSCAPED AREAS. THERE EXISTS NO PREVIOUSLY APPROVED DRAINAGE PLAN FOR THIS SITE. HOWEVER, REVIEW OF THE ADJACENT SITE TO THE EAST (GRADING/DRAINAGE PLAN FOR EARTHGRAIN BAKERY PARKING LOT) INDICATES THE ALLOWABLE DESIGN CRITERIA FOR THIS AREA AS SET FORTH IN THE DRAINAGE REPORT FOR SIGNAL HILLS SUBDIVISION (BY AVID ENGINEERING DATED 9/27/1996) OF 1.41 CFS/ACRE. FURTHERMORE, THE DISCHARGE RATE FOR SIGNAL AVENUE FRONTAGE SHOULD BE CALCULATED AND THEN SUBTRACTED FROM THE 1.41 CFS/ACRE IN ORDER TO DETERMINE THE NET ALLOWABLE DISCHARGE RATE FOR THIS SITE. THIS SITE WILL BE GRADED SO AS TO POND THE REQUIRED VOLUME AFTER THE ALLOWABLE RELEASE FLOWRATE HAS BEEN ACCOUNTED FOR. THE CALCULATIONS CONTAINED HEREIN, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40-ACRES AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUEL, VOLUME 2, DESIGN CRITERIA DATED 1997, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME GENERATED. ALSO CONTAINED HEREON ARE CALCULATIONS FOR THE HYDROGRAPH PER SECTION A-8, HYDROGRAPH FOR SMALL WATERSHEDS. AS DEMONSTRATED BY THESE CALCULATIONS AS WELL AS THOSE FOR INLET, GRATE AND DISCHARGE CAPACITY, THE INCREASE IN RUN-OFF GENERATED BY THE PROPOSED IMPROVEMENTS WILL BE HANDLED THROUGH THE USE OF AN ADEQUATELY SIZED PONDING AREA WITHIN THE PAVED PARKING AREA TO THE NORTH. IN ADDITION, THE FLOWS EXITING THE SITE WILL BE REGULATED THROUGH THE USE OF A 4" ORIFICE PLATE THAT RESULTS IN FLOWS WELL BELOW THE ALLOWABLE DISCHARGE RATE.

CONCLUSION

THIS PROPOSED GRADING/DRAINAGE PLAN IS CONSISTENT WITH OTHERS IN THE AREA AND HAS FOLLOWED REQUIREMENTS SET FORTH BY THE HYDROLOGY DEPARTMENT.

ALLOWABLE DISCHARGE

1.41 CFS/ACRE - ROAD FRONTAGE RUN-OFF

1.41 CFS/ACRE - 0.40 CFS X 0.88521 ACRES = 0.8941 CFS

DETENTION PONDING CALCULATIONS

A. INLET CONDITION (MAX W.S.L. = 5235.0)

$Q = CA(2gh)^{1/2}$

$C = 0.60$ $g = 32.2$ $h = 2.8'$ $A = 2.28$ (half clogged)

$Q = (.60)(2.28)(2 \times 32.2 \times 2.8)^{1/2}$

$Q = 15.71$ CFS >> $Q_{100} = 3.74$ CFS

B. ENTRANCE CONDITION (4" ORIFICE)

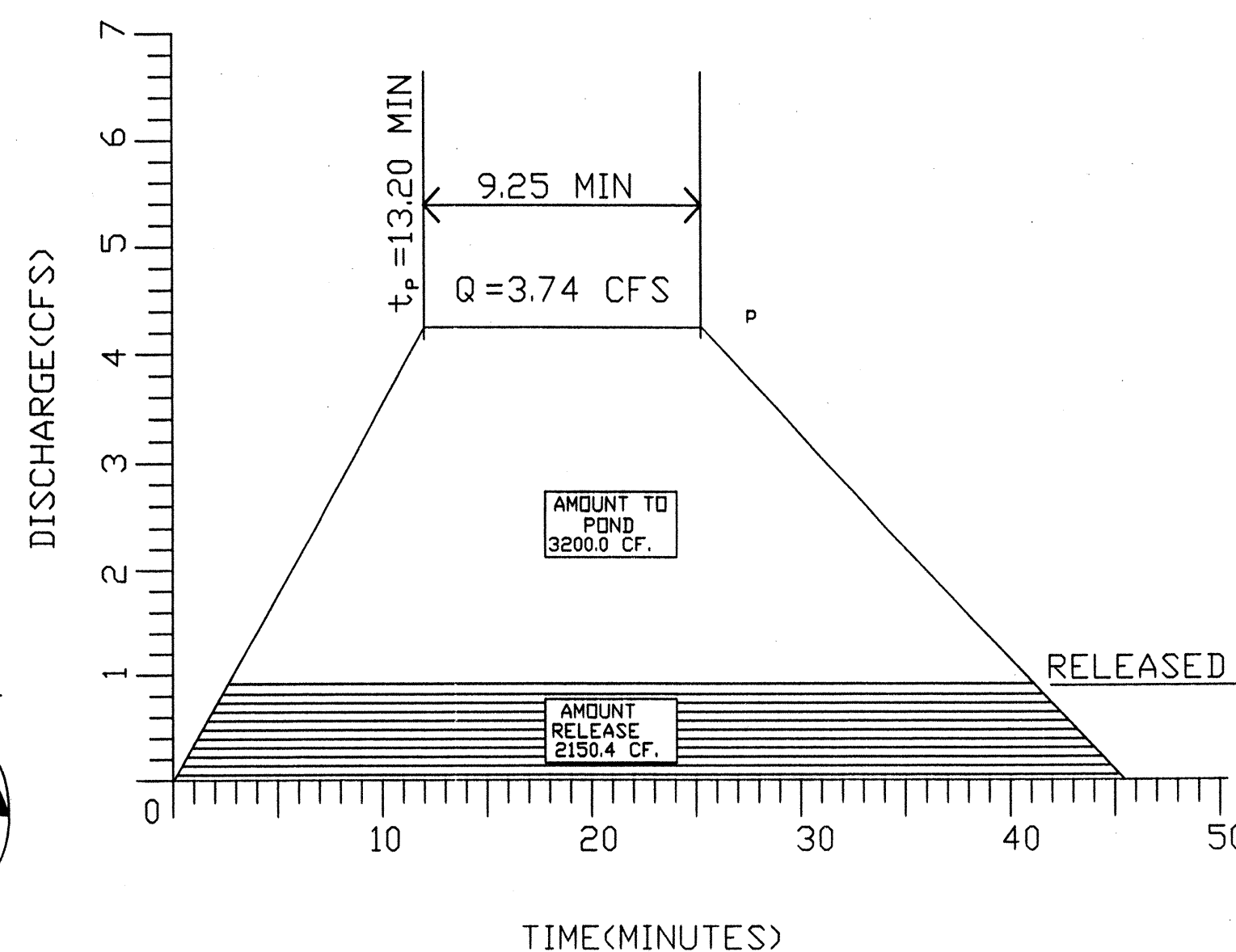
$Q = CA(2gh)^{1/2}$

$C = 0.60$ $g = 32.2$ $h = 2.75'$ $A = 0.09$ sf

$Q = (.60)(0.09)(2 \times 32.2 \times 2.75)^{1/2}$

$Q = 0.72$ CFS = $Q_{RELEASE} << Q_{ALLOWABLE}$ 0.8941 CFS

C. POND VOLUME = 3285.0 CF



PROJECT AREA = 0.88581 ac.

ALBUQUERQUE SIGN PRINT

ZONE 3

PRECIPITATION: 360 = 2.60 in.

1440 = 3.1 in.

10day = 4.9 in.

EXCESS PRECIPITATION:

TREATMENT A 0.66 in.

TREATMENT B 0.92 in.

TREATMENT C 1.29 in.

TREATMENT D 2.36 in.

EXISTING CONDITIONS:

TREATMENT A 0 ac.

TREATMENT B 0 ac.

TREATMENT C 0.88581 ac.

TREATMENT D 0 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = (0.66)(0.00) + (0.92)(0.00) + (1.29)(0.89) + (2.36)(0.00) / 0.89 ac.

$V_{100-360} = (1.29)(0.89) / 12 = 0.095225$ ac-ft = 4148 CF

EXISTING PEAK DISCHARGE:

$Q_{100} = (1.87)(0.00) + (2.60)(0.00) + (3.45)(0.89) + (5.02)(0.00) = 3.06$ CFS

PROPOSED EXCESS PRECIPITATION:

Weighted E = (0.66)(0.00) + (0.92)(0.05) + (1.29)(0.29) + (2.36)(0.55) / 0.89 ac.

$V_{100-360} = (1.93)(0.89) / 12.0 = 0.142318$ ac-ft = 6199 CF

$V_{100-1440} = (0.14) + (0.55)(3.10 - 2.60) / 12 = 0.165060$ ac-ft = 7190 CF

$V_{100-10day} = (0.14) + (0.55)(4.90 - 2.60) / 12 = 0.246930$ ac-ft = 10756 CF

PROPOSED PEAK DISCHARGE:

$Q_{100} = (1.87)(0.00) + (2.60)(0.05) + (3.45)(0.29) + (5.02)(0.55) = 3.74$ CFS

INCREASE 3.74 CFS - 3.06 CFS = 0.68 CFS

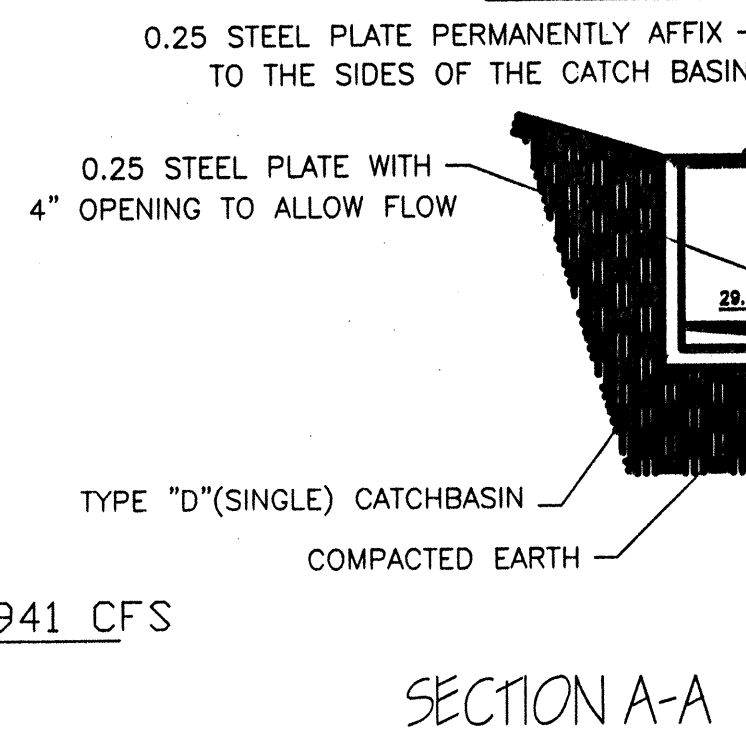
INCREASE 3.74 CFS - 3.06 CFS = 0.68 CFS

NOTE TO CONTRACTOR:

- An excavation/construction permit will be required before beginning any work within the City right-of-way. Approved copy of this plan must be submitted at the time of application for permit.
- All work detailed in this plan to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with City of Albuquerque Standard Specification for Public Works Construction.
- Two working days prior to any excavation, contractor must contact line locating Services (760-1990) for locating existing sub-surface utilities.
- Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential constructions; Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay to the subject project.
- Backfill compaction shall be according to commercial use or soils report(s) recommendations.
- 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.
- Maintenance of this facilities shall be the responsibility of the owner of the property it serves

POND CALCULATION

POND VOLUMES			
CONTOUR	AREA SQ.FT.	DEPTH FT.	VOLUME CU.FT.
5235	5,696		
5234	1,648	1.00	3,672
5233.75	12	0.25	207.5
TOTAL			3,879.5
POND VOLUME REQUIRED			3,200



HYDROGRAPH CALCULATIONS

GIVEN

$Q_p = 3.74$ CFS $E = 1.93$ IN

$A_p = 0.546$ AC $t_c = 0.2$ HRS

$A_T = 0.88521$ AC

TIME TO PEAK

$t_p = (0.7)(0.2) + 1.6 - (A_p / A_T) \times 12$

$t_p = (0.7)(0.2) + 1.6 - (0.546 / 0.88521) \times 12$

$t_p = (0.22)(60)$

$t_p = 13.20$ MIN

CONTINUE THE PEAK CALCULATION

$0.25 \times A_p / A_T$

$0.25 \times 0.546 / 0.88521$

$0.154(60)$

9.25 MIN

DURATION OF PEAK

$2.107 \times 1.93 \times 0.88521 / 3.74 - (0.25 \times 0.546 / 0.88521)$

$2.107 \times 1.93 \times 0.88521 / 3.74 - (0.154)$

48.54 MIN

SYMBOL LEGEND

EXISTING CONTOUR

PROPOSED CONTOUR

PROPOSED SPOT ELEVATION

EXISTING ELEVATION

FLOW DIRECTION

ABBREVIATION LEGEND

TA = TOP OF ASPHALT

TC = TOP OF CURB

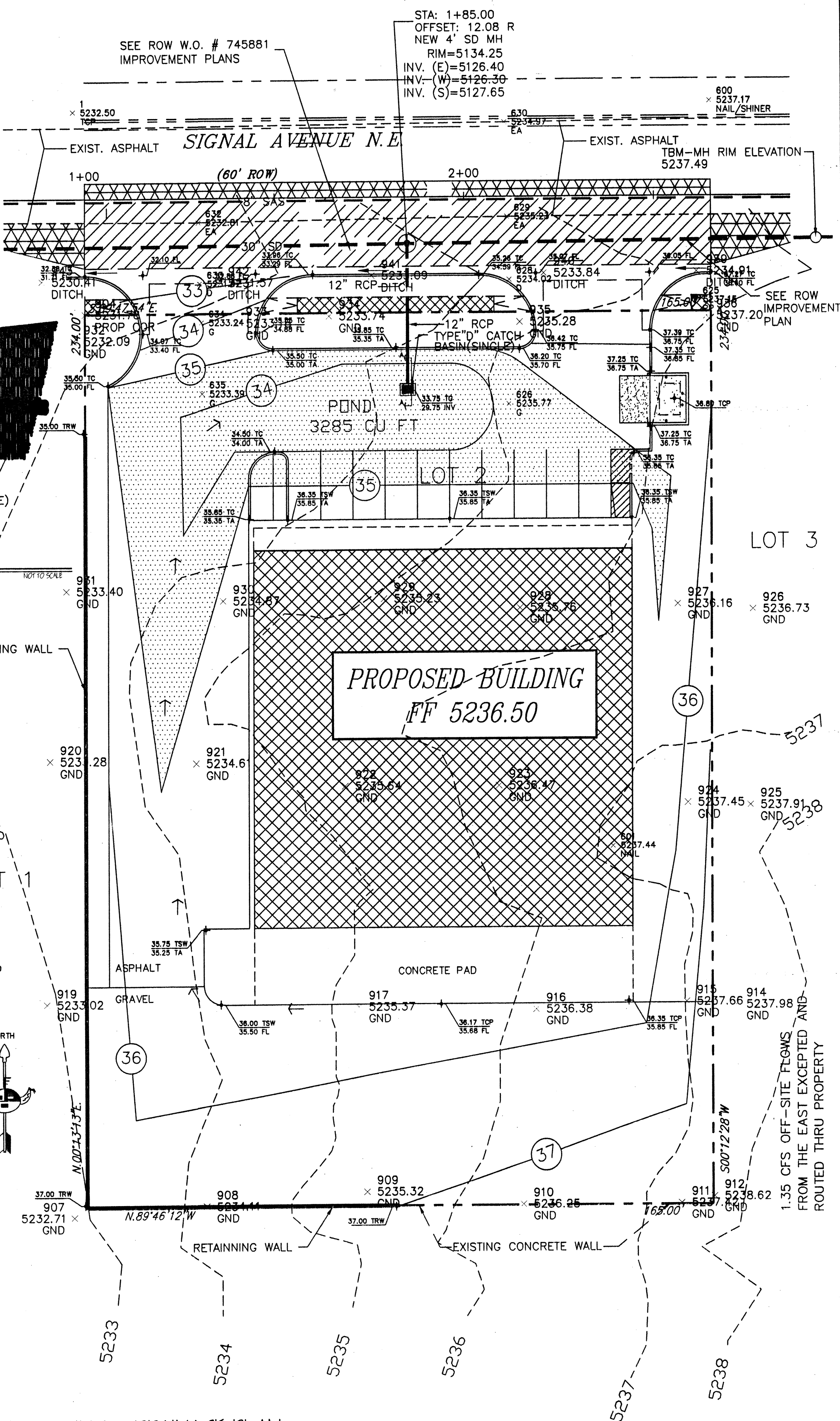
FL = FLOWLINE

TRW = TOP OF RETAINING WALL

TCP = TOP OF CONCRETE PAD

EROSION CONTROL MEASURES:

- THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR MANAGEMENT OF STORM RUN-OFF DURING CONSTRUCTION, HE SHALL ASSURE THAT THE FOLLOWING MEASURES ARE TAKEN:
 - ADJACENT PROPERTY SHALL BE PROTECTED AT ALL TIMES BY TEMPORARY BERMS, DIKES, SWALES, AND OTHER TEMPORARY GRADING AS REQUIRED TO PREVENT STORM RUN-OFF FROM LEAVING THE SITE AND ENTERING ADJACENT PROPERTIES.
 - ADJACENT PUBLIC RIGHT-OF-WAY SHALL BE PROTECTED AT ALL TIMES FROM STORM WATER RUN-OFF FROM THE SITE. NO SEDIMENT BEARING WATER SHALL BE PERMITTED TO ENTER THE PUBLIC STREETS.
- THE CONTRACTOR SHALL IMMEDIATELY AND THOROUGHLY REMOVE ANY OR ALL SEDIMENT WITHIN THE PUBLIC STREETS THAT HAVE BEEN ERODED FROM THE SITE AND DEPOSITED THEREON.



GRADING & DRAINAGE PLAN

LEGAL DESCRIPTION

LOT NUMBERED TWO (2) IN BLOCK NUMBERED THIRTY (30) OF TRACT A, UNIT B, NORTH ALBUQUERQUE ACRES, BERNALILLO COUNTY, ALBUQUERQUE, NEW MEXICO.

BENCHMARK:

AN ACS ALUMINUM CAP STAMPED "9-C18" LOCATED IN THE S.W. QUADRANT OF THE INTERSECTION OF WILSHIRE AVE. AND SAN PEDRO N.E. ELEVATION 5229.79
T.B.M.
MANHOLE RIM IN THE STREET SHOWN HEREON
BEARS ELEVATION 5237.49

CITY PROJECT NO.	745881	ZONE MAP NO.	C-18-Z	SHEET	2	OF	3
------------------	--------	--------------	--------	-------	---	----	---



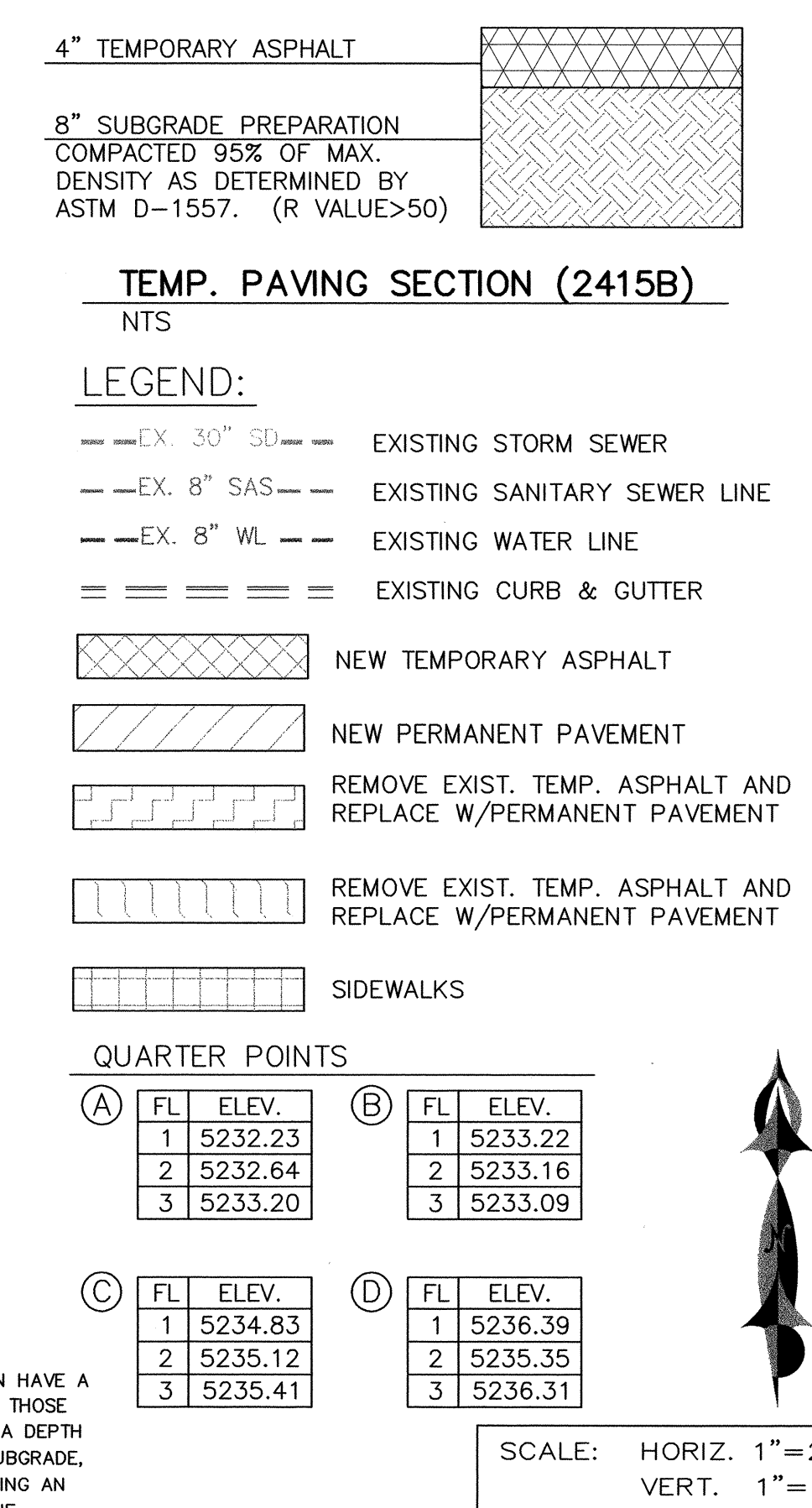
JOB NO.	
DATE:	AUGUST 2, 2004
REVISIONS	
	AUGUST 22, 2004

Sheet Title	GRADING/DRAINAGE PLAN
Drawn By:	BUM/HTH
Checked By:	

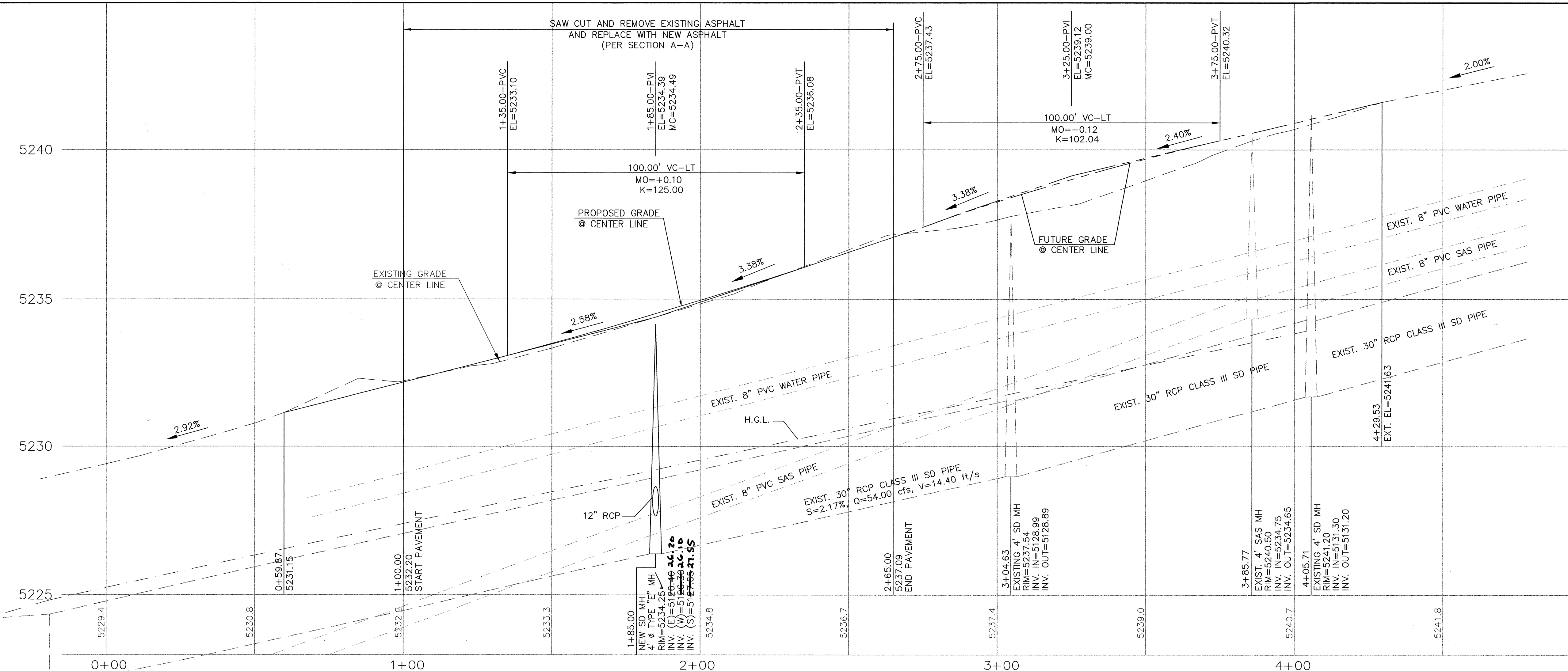
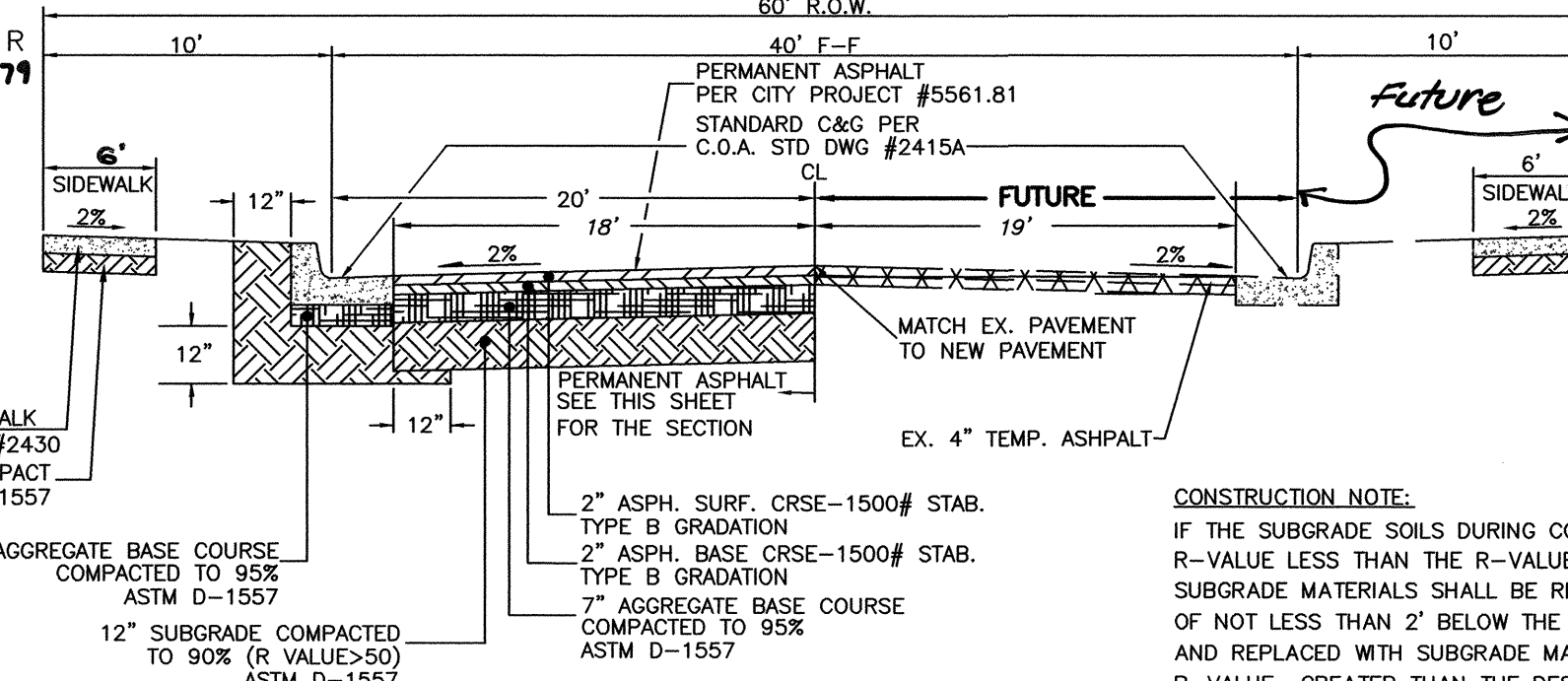
Project Name	ALBUQUERQUE SIGN PRINT SIGNAL AVENUE N.E.
Project No.	ALBUQUERQUE, NEW MEXICO 87111

Project Name	ALBUQUERQUE SIGN PRINT SIGNAL AVENUE N.E.
Project No.	ALBUQUERQUE, NEW MEXICO 87111

SHEET NO.	C2.1
-----------	------

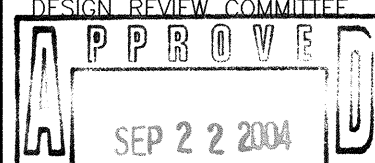



CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD	CHORD DIRECTION
A	40.95	15.00	156°25'19"	71.87	29.37	N11°47'21"W
B	23.56	15.00	90°00'00"	15.00	21.21	S45°00'00"W
C	23.56	15.00	90°00'00"	15.00	21.21	N45°00'00"W
D	23.56	15.00	90°00'00"	15.00	21.21	S45°00'00"W



ADVANCED
ENGINEERING
and CONSULTING, LLC

4416 ANAHEIM AVE., NE
ALBUQUERQUE, NEW MEXICO 87113
(505)899-5570

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP																							
TITLE: <i>LOT 2, BLOCK 30, TRACT A, UNIT B, NAA PAVING/STORM SEWER IMPROVEMENTS</i>																							
DESIGN REVIEW COMMITTEE  DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL  CITY ENGINEER	LAST DESIGN UPDATE <table border="1"> <tr><td>MO./DAY/YR.</td><td>MO./DAY/YR.</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	MO./DAY/YR.	MO./DAY/YR.									<table border="1"> <tr><td>MO./DAY/YR.</td><td>MO./DAY/YR.</td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	MO./DAY/YR.	MO./DAY/YR.								
MO./DAY/YR.	MO./DAY/YR.																						
MO./DAY/YR.	MO./DAY/YR.																						
CITY PROJECT NO. 745881		ZONE MAP NO. C-18-7	SHEET 3 OF 3																				