3 2 FOR INFORMATION ONLY

1 ENGINEER'S DRAINAGE CERTIFICATION FOR TEMPORARY CERTIFICATE OF OCCUPANCY FOR BUILDINGS 4 AND 6

THE PURPOSE OF THIS SUBMITTAL IS TO CERTIFY THE AS-CONSTRUCTED GRADING AND DRAINAGE ELEMENTS FOR THE PURPOSES OF OBTAINING TEMPORARY CERTIFICATES OF OCCUPANCY FOR BUILDINGS 4 AND 6 WHICH ARE TWO OF THE SIX (6) BUILDINGS COMPRISING THE LA CUEVA OFFICE PARK. THE REMAINING AREAS OUTSIDE OF THE CERTIFICATION LIMITS ARE CURRENTLY UNDER CONSTRUCTION; ALL REMAINING SITE IMPROVEMENTS ARE SCHEDULED FOR COMPLETION BY THE END OF NOVEMBER, 2000, (PRIOR TO THE NEXT RAINY SEASON). AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THE AREA WITHIN THE LIMITS OF THIS CERTIFICATION HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN WITH THE FOLLOWING EXCEPTIONS:

1. THE CURB AT THE NORTH END OF THE PARKING LOT BETWEEN BUILDINGS 5 AND 6 HAS NOT YET BEEN CONSTRUCTED.
2. THE FINISHED GRADING, LANDSCAPING, AND DRAINAGE RELATED SITE IMPROVEMENTS AROUND THE BUILDINGS HAVE NOT YET BEEN COMPLETED; ONLY THE ROUGH GRADING IS COMPLETE.
3. THE SIDEWALK NEAR THE SOUTHEAST CORNER OF BUILDING OF BUILDING 6 HAS BEEN CONSTRUCTED 0.44' TO 0.61' HIGHER THAN THE DESIGN ELEVATION. THE AS-CONSTRUCTED GRADES CREATE A POTENTIAL PROBLEM AREA WHICH MAY PRECLUDE ADA COMPLIANCE FOR THE SUBJECT SIDEWALK, AND THE ADJACENT CONCRETE CROSSWALK WHICH HAS NOT YET BEEN CONSTRUCTED. THIS AREA MAY REQUIRE FURTHER ANALYSIS, AND POSSIBLE CORRECTIVE WORK PRIOR TO CERTIFICATION OF SUBSEQUENT PHASES.

IN ADDITION TO THE COMPLETION OF THE OUTSTANDING SITE PAVING, GRADING AND DRAINAGE WORK FOR THE REMAINDER OF THE SITE, THESE ABOVE LISTED SPECIFIC EXCEPTIONS MUST BE ADDRESSED PRIOR TO FINAL CERTIFICATION AND ISSUANCE OF A PERMANENT CERTIFICATE OF OCCUPANCY. THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. IT IS BASED UPON THIS EVALUATION OF AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF TEMPORARY CERTIFICATES OF OCCUPANCY FOR BUILDINGS 4 AND 6 IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION CONTAINED HEREIN HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS AS-CONSTRUCTED PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547 — JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER — 11-09-2000 DATE

3 2 FOR INFORMATION ONLY

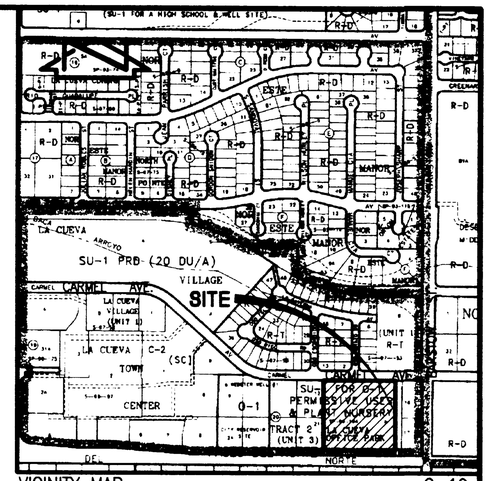
ENGINEER'S DRAINAGE CERTIFICATION FOR TEMPORARY CERTIFICATE OF OCCUPANCY FOR BUILDING 1

THE PURPOSE OF THIS SUBMITTAL IS TO CERTIFY THE AS-CONSTRUCTED GRADING AND DRAINAGE ELEMENTS TO OBTAIN A TEMPORARY CERTIFICATE OF OCCUPANCY FOR BUILDING 1 WHICH IS ONE OF THE SIX (6) BUILDINGS COMPRISING THE LA CUEVA OFFICE PARK. THE REMAINING AREAS OUTSIDE OF THE CERTIFICATION LIMITS ARE CURRENTLY UNDER CONSTRUCTION; ALL REMAINING SITE IMPROVEMENTS ARE SCHEDULED FOR COMPLETION BY THE END OF DECEMBER, 2000, (PRIOR TO THE NEXT RAINY SEASON). AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THE AREA WITHIN THE LIMITS OF THIS CERTIFICATION HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN WITH THE FOLLOWING EXCEPTIONS:

1. EXCEPTIONS 1, 2 AND 3 IDENTIFIED IN THE CERTIFICATION ABOVE FOR BUILDINGS 4 AND 6 HAVE NOT YET BEEN RECERTIFIED AND/OR CORRECTED.
2. THE PUBLIC SIDEWALK BETWEEN THE CARMEL ENTRANCE AND THE NORTHWEST CORNER OF THE SITE HAS NOT BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED GRADING PLAN AND ALSO VIOLATES CITY OF ALBUQUERQUE D.P.M. STANDARDS THAT REQUIRE a.) A 2% CROSS-SLOPE AND b.) THAT THE BACK OF SIDEWALK BE CONSTRUCTED A MINIMUM OF 0.87' ABOVE THE ADJACENT STREET FLOWLINE ELEVATION.
3. THE FINISHED GRADING AND LANDSCAPING AROUND BUILDING 1 IS IN PROGRESS AND MUST BE COMPLETED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN.
4. MODIFY ROOF DRAINAGE OF BUILDING 1 TO COMPLY WITH APPROVED PLAN AND AVOID DISCHARGING DEVELOPED RUNOFF TO THE WEST ONTO ADJACENT PROPERTIES.
5. COMPLETE CONSTRUCTION OF & CERTIFY DRAINAGE OUTFALL AT SOUTHWEST CORNER OF SITE.

THE ABOVE LISTED SPECIFIC EXCEPTIONS MUST BE CORRECTED AND RECERTIFIED PRIOR TO FINAL CERTIFICATION AND ISSUANCE OF A PERMANENT CERTIFICATE OF OCCUPANCY. THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. IT IS BASED UPON THIS EVALUATION OF AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF A TEMPORARY CERTIFICATE OF OCCUPANCY FOR BUILDING 1 IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION CONTAINED HEREIN HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS AS-CONSTRUCTED PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547 — JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER — 12-27-2000 DATE



VICINITY MAP — C-19
SCALE: 1" = 750'±

NOV 2001

3 ENGINEER'S CERTIFICATION FOR PERMANENT CERTIFICATES OF OCCUPANCY FOR BUILDINGS 1-6

AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THE PROJECT HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED GRADING AND DRAINAGE PLAN. IT IS BASED UPON THIS EVALUATION OF AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF PERMANENT CERTIFICATES OF OCCUPANCY FOR BUILDINGS 1-6 IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION CONTAINED HEREIN HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AND REPRESENTS THE "AS-BUILT" CONDITIONS OF THE SITE AS OF 04/02/2001, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

THE AS-CONSTRUCTED LOCATIONS OF THE PATIO FLOWLINES VARY FROM THOSE SHOWN ON THE APPROVED GRADING PLAN. WHILE SATISFYING THE INTENT OF THE APPROVED PLAN WITH RESPECT TO DRAINAGE, THIS VARIATION, MAY CAUSE INCREASED SITE MAINTENANCE. THE PROPERTY OWNER HAS ACKNOWLEDGED THIS CONDITION AND HAS ACCEPTED RESPONSIBILITY FOR THIS CONDITION (SEE OWNER'S CONSENT AND DISCLOSURE, SHEET 2).

THIS CERTIFICATION DOES NOT INCLUDE WORK CONTAINED WITHIN THE PUBLIC RIGHT-OF-WAY WHICH IS INSPECTED BY SEPARATE PROCESS. THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS AS-CONSTRUCTED PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547 — JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER — 04-06-2001 DATE

jma
JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250
FAX: 505 345-4254 Email: jmainc@swcp.com

ENGINEER'S CERTIFICATION OF GRADING AND DRAINAGE

LA CUEVA OFFICE PARK - BUILDINGS 1-6
8300 CARMEL AVE. N.E. - SUITES 101-601

DESIGNED BY G.M
DRAWN BY S.G.H.
APPROVED BY J.G.M.

NO.	DATE	BY	REVISIONS
1	10/00	G.M.	CERTIFICATION FOR TEMPORARY C.O. - BUILDINGS 4 AND 6
2	12/00	G.M.	CERTIFICATION FOR TEMPORARY C.O. - BUILDING 1
3	04/01	G.M.	CERTIFICATION FOR PERMANENT C.O. - BUILDINGS 1-6

JOB NO. 2000.092.3
DATE 04-2001
SHEET 1 OF 3

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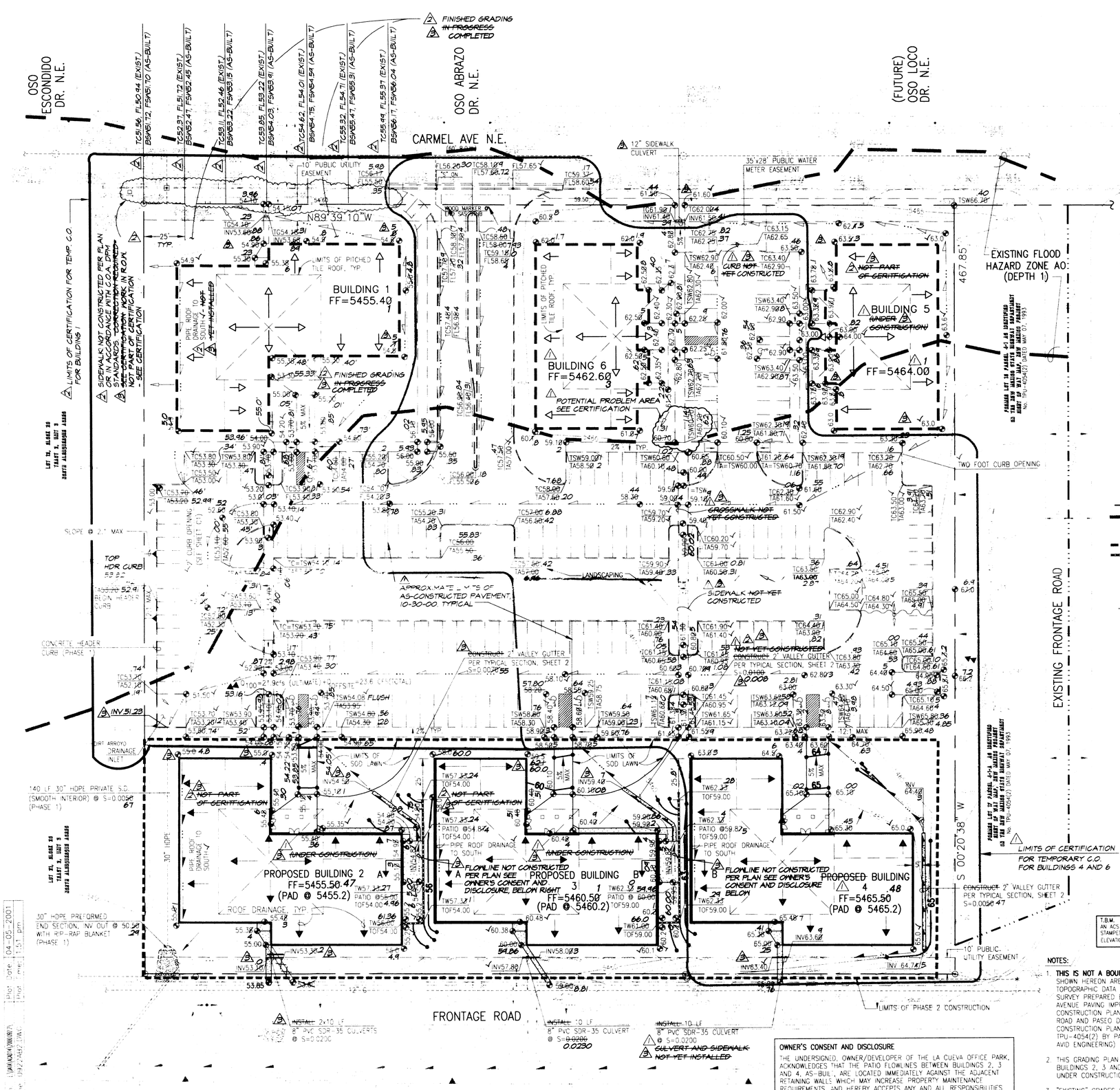
Plot Date: 04-05-2001
Plot Time: 1:39 pm



SCALE: 1" = 30'

PROJECT BENCHMARK

STATION MARK IS A STANDARD USC & GS BRASS TABLET STAMPED, "HEAVEN 1969", SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND. STATION IS LOCATED APPROXIMATELY 8 MILES NORTHEAST OF DOWNTOWN ALBUQUERQUE, AT THE ENTRANCE WAY TO THE "GATE HEAVEN" CEMETERY ELEVATION=5378.787 (M.S.L.D.)

T.B.M.

A STANDARD ACS ALUMINUM CAP STAMPED "6-C19 1985" SET ON AN ALUMINUM TUBE WITH THE CAP PROJECTING 0.15 FEET ABOVE THE GROUND, LOCATED AT THE N.W. CORNER OF THE INTERSECTION OF PASEO DEL NORTE & BARSTOW ELEVATION=5476.58 (PUBLISHED TRIG ELEVATION=5476.7)

LEGAL DESCRIPTION

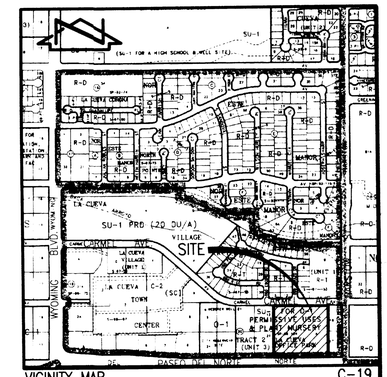
TRACT A, LA CUEVA OFFICE PARK

LEGEND

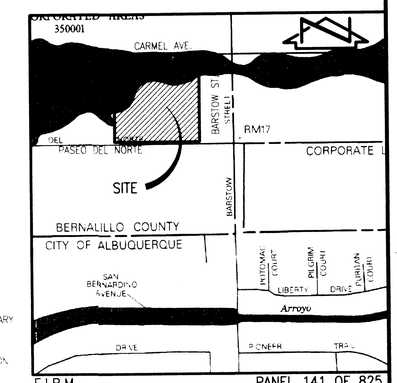
TOP OF CURB
TOP OF ASPHALT
FLOWLINE
EDGE OF ASPHALT
AT
WATERLINE
SANITARY SEWER LINE
CONCRETE
POWER POLE
OVERHEAD ELECTRIC LINE
OVERHEAD TELEPHONE LINE
FOUND
EXISTING CONTOUR
EXISTING SPOT ELEVATION
EXISTING FLOWLINE
DRAINAGE BASIN
EXISTING PASEO DEL NORTE CONSTRUCTION
DIRECTION OF FLOW
PROPOSED FLOWLINE
PROPOSED SPOT ELEVATION
PROPOSED CONCRETE
HIGH POINT
DESIGN GRADES FOR FRONTAGE ROAD AND PASEO DEL NORTE
66 — PROPOSED CONTOUR
EXISTING FLOOD PLAIN BOUNDARY
EXISTING SPOT ELEVATION (PHASE 1 CONSTRUCTION)
LIMITS OF PHASE CONSTRUCTION
PROPOSED RETAINING WALL
TW — TOP OF WALL
BW — BOTTOM OF WALL
TOF — TOP OF FOOTING

AS-BUILT LEGEND

√ AS-BUILT=AS-DESIGNED
13.84 AS-BUILT DISTANCE
67 / 62.96 AS-BUILT ELEVATION
FSW FRONT OF SIDEWALK
BSW BACK OF SIDEWALK



VICINITY MAP C-19
SCALE: 1" = 750'±



F.I.R.M. PANEL 141 OF 825
SCALE: 1" = 500'±

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
03-08-2000
ENGINEER

ENGINEER'S CERTIFICATION FOR PERMANENT CERTIFICATES OF OCCUPANCY FOR BUILDINGS 1-6

AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THE PROJECT HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED GRADING AND DRAINAGE PLAN. IT IS BASED UPON THIS EVALUATION, AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF PERMANENT CERTIFICATES OF OCCUPANCY FOR BUILDINGS 1-6 IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION CONTAINED HEREIN HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AND REPRESENTS THE "AS-BUILT" CONDITIONS OF THE SITE AS OF 04/02/2001, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

THE AS-CONSTRUCTED LOCATIONS OF THE PATIO FLOWLINES VARY FROM THOSE SHOWN ON THE APPROVED GRADING PLAN. WHILE ACHIEVING THE INTENT OF THE APPROVED PLAN WITH RESPECT TO DRAINAGE, THIS VARIATION, MAY CAUSE INCREASED SITE MAINTENANCE. THE PROPERTY OWNER HAS ACKNOWLEDGED THIS CONDITION AND HAS ACCEPTED RESPONSIBILITY FOR THIS CONDITION (SEE OWNER'S CONSENT AND DISCLOSURE, SHEET 2)

THIS CERTIFICATION DOES NOT INCLUDE WORK CONTAINED WITHIN THE PUBLIC RIGHT-OF-WAY WHICH IS INSPECTED BY SEPARATE PROCESS. THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS AS-CONSTRUCTED PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547 — DATE

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

T.B.M.
AN ACS ALUMINUM CAP STAMPED "6-C19 1985"
ELEVATION=5476.58

OWNER'S CONSENT AND DISCLOSURE

THE UNDERSIGNED, OWNER/DEVELOPER OF THE LA CUEVA OFFICE PARK, ACKNOWLEDGES THAT THE PATIO FLOWLINES BETWEEN BUILDINGS 2, 3 AND 4, AS-BUILT, ARE LOCATED IMMEDIATELY AGAINST THE ADJACENT RETAINING WALLS WHICH MAY INCREASE PROPERTY MAINTENANCE REQUIREMENTS, AND HEREBY ACCEPTS ANY AND ALL RESPONSIBILITIES ASSOCIATED WITH THIS DEVIATION FROM THE APPROVED PLAN.

DONALD G. HOECH, MANAGING PARTNER — DATE
LAND DEVELOPMENT IV, LTD. CO.

NOTES:

1. **THIS IS NOT A BOUNDARY SURVEY.** APPARENT PROPERTY CORNERS SHOWN HEREON ARE FOR ORIENTATION ONLY. BOUNDARY AND TOPOGRAPHIC DATA SHOWN HEREON IS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY JMA DATED SEPTEMBER 1998. CARMEL AVENUE PAVING IMPROVEMENTS SHOWN HEREON ARE TAKEN FROM CONSTRUCTION PLANS FOR C.O.A. PROJECT #572984. FRONTAGE ROAD AND PASEO DEL NORTE IMPROVEMENTS ARE TAKEN FROM CONSTRUCTION PLANS FOR PASEO DEL NORTE-N.M. PROJECT TPU-4054(2) BY PARSONS BRINCKERHOFF (FORMERLY AVID ENGINEERING)
2. THIS GRADING PLAN IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 2, 3 AND 4. BUILDINGS 1, 5 AND 6 ARE CURRENTLY UNDER CONSTRUCTION BY SEPARATE PERMIT.
3. "EXISTING" GRADES SHOWN HEREON FOR THE SITE ARE DESIGN GRADES FOR SITE WORK AND BUILDING 1, 5 AND 6 CONSTRUCTION CURRENTLY IN PROGRESS BY SEPARATE PERMIT. THIS PLAN SHOULD NOT BE USED FOR EARTHWORK ANALYSES.

2000.092.2 ~~2000.018.1~~

jma
JEFF MORTENSEN & ASSOCIATES, INC.
ENGINEERS ■ SURVEYORS
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS ☎ SURVEYORS (505) 345-4250
FAX: 505 345-4254 ☎ Email: jmainc@swcp.com

(GRADING AND DRAINAGE PLAN SHEET 1 OF 2)

(ENGINEER'S CERTIFICATION OF GRADING AND DRAINAGE FOR ~~TEMP.~~ C.O.)

La Cueva Office Park -- Phase 2
8300 Carmel Avenue N.E.
Albuquerque, New Mexico

EDITH CHERRY / D. JAMES SEE ARCHITECTS

220 A GOLD AVE. SW. ALBUQUERQUE, NEW MEXICO, 87102 505 842 1278

TITLE OF SHEET
GRADING PLAN

DATE
03-2000

REVISIONS
1 10/2000 AS-BUILT AND CERTIFY FOR TEMP. C.O. FOR BUILDINGS 4 AND 6
2 12/2000 AS-BUILT AND CERTIFY FOR TEMP. C.O. FOR BUILDING 1
3 04/2001 AS-BUILT AND CERTIFY FOR PERMANENT C.O. FOR BUILDINGS 1-6

SHEET NUMBER
C-7
OF
SHEET 2 OF 3

DRAINAGE PLAN

I. EXECUTIVE SUMMARY AND INTRODUCTION:

THIS DRAINAGE PLAN SUPPORTS PROPOSED PHASE 2 BUILDING CONSTRUCTION AT LA CUEVA OFFICE PARK, A PROFESSIONAL OFFICE COMPLEX LOCATED WEST OF BARSTOW STREET N.E. BETWEEN CARMEL AVENUE N.E. AND PASEO DEL NORTE N.E. WITHIN THE WINDOW 'G' SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES. DEVELOPMENT ON THIS SITE WILL BE CONSISTENT WITH THE CONCEPTS ESTABLISHED BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN, CONCEPTUAL GRADING AND DRAINAGE PLAN, ROUGH GRADING PLAN, AND PHASE 1 GRADING AND DRAINAGE PLAN. THIS PHASE 2 SUBMITTAL IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 2,3 AND 4. SUBSEQUENT SUBMITTAL(S) WILL BE REQUIRED FOR BUILDING PERMIT APPROVAL FOR THE REMAINING BUILDINGS (2, 3 AND 4). ALL SITE PAVING AND DRAINAGE IMPROVEMENTS ARE CURRENTLY UNDER CONSTRUCTION AS PART OF PHASE 1 WHICH INCLUDES BUILDINGS 1, 5 AND 6.

II. BACKGROUND DOCUMENTS:

THE FOLLOWING IS A LIST OF PLANS AND REPORTS RELATIVE TO THIS SITE AND/OR REFERENCED WITHIN THIS DRAINAGE PLAN. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF THOSE PLANS AND DOCUMENTS WHICH ARE KNOWN TO THIS PREPARER.

A. THE "NORTH AND SOUTH DOMINGO BACA ARROYO AND PASEO DEL NORTE CORRIDOR DRAINAGE MANAGEMENT PLAN" PREPARED FOR AMAFCA FOR RESOURCE TECHNOLOGY, INC. (RTI) DATED DECEMBER, 1991. THIS PLAN HAS BEEN ADOPTED BY AMAFCA AS A GUIDELINE FOR DRAINAGE MANAGEMENT WITHIN THIS AREA. AMAFCA RESOLUTION 1992-3 DATED JANUARY 03, 1992 ADOPTED THIS PLAN. THE HYDROLOGY AND HYDRAULICS FOR THE PASEO DEL NORTE AND BARSTOW STREET IMPROVEMENTS ARE BASED UPON THE FLOW RATES IDENTIFIED IN THIS PLAN.

B. WINDOW 'G' MASTER DRAINAGE PLAN PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. (JMA) DATED DECEMBER, 1996 AND REVISED JANUARY 09, 1997 (CITY OF ALBUQUERQUE HYDROLOGY FILE C-19/D11. THIS MASTER DRAINAGE PLAN IDENTIFIES EXISTING, PROPOSED AND ULTIMATE DRAINAGE REQUIREMENTS FOR DEVELOPMENT WITHIN WINDOW 'G'. THE DRAINAGE CONCEPTS CONTAINED HEREIN ARE CONSISTENT WITH THOSE ESTABLISHED BY THIS MASTER DRAINAGE PLAN.

C. CONDITIONAL LETTER OF MAP REVISION (CLOMR) FOR THE PASEO DEL NORTE STORM DRAIN IMPROVEMENTS (FEMA CASE NO. 97-06-141R) APPROVED AUGUST 01, 1997. THIS CLOMR, SUBMITTED BY AMAFCA, CONDITIONALLY REMOVES FLOODING ASSOCIATED WITH THE UNNAMED TRIBUTARY OF THE SOUTH BRANCH OF THE NORTH ARROYO DE DOMINGO BACA, ALSO REFERRED TO AS ARROYO 'C'.

D. CONCEPTUAL GRADING AND DRAINAGE PLAN FOR LA CUEVA OFFICE PARK PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. DATED 06/24/1999, (CITY HYDROLOGY FILE C-19/D11C). THIS PLAN WAS APPROVED FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT AND IS THE BASIS OF THE GRADING SHOWN HEREON. THIS PLAN ESTABLISHED DRAINAGE CONCEPTS FOR THIS SITE IN ACCORDANCE WITH THE PREVIOUSLY REFERENCED MASTER DRAINAGE PLAN.

E. SITE DEVELOPMENT PLAN FOR LA CUEVA OFFICE PARK (Z-98-91, DRB 99-268). THIS SITE DEVELOPMENT PLAN WAS APPROVED BY THE EPC ON AUGUST 20, 1998 WITH FINDINGS AND CONDITIONS. THE SITE DEVELOPMENT PLAN WAS APPROVED BY THE DRB ON OCTOBER 25, 1999.

F. LA CUEVA OFFICE PARK MASS GRADING PLAN DATED 10/04/99 PREPARED BY JEFF MORTENSEN & ASSOCIATES, APPROVED BY THE CITY OF ALBUQUERQUE 11/9/99 FOR ROUGH GRADING APPROVAL (C19/D11C). THIS PLAN WAS PREPARED FOR ROUGH GRADING OPERATIONS FOR SITE PREP WORK IN ADVANCE OF BUILDING CONSTRUCTION.

G. LA CUEVA OFFICE PARK PHASE 1 GRADING AND DRAINAGE PLAN DATED 01/28/00 PREPARED BY JEFF MORTENSEN AND ASSOCIATES, APPROVED BY THE CITY OF ALBUQUERQUE 02/17/00 FOR BUILDING PERMIT APPROVAL. (C19/D11C) THIS PLAN INCLUDES THE SITE PAVING AND CONSTRUCTION OF BUILDINGS 1, 5 AND 6.
THE PROPOSED GRADING AND DEVELOPMENT SHOWN ON THIS GRADING PLAN IS CONSISTENT WITH THE CONCEPTS AND PLANS ESTABLISHED BY THESE SEVEN PROJECT REFERENCES.

III. PROJECT DESCRIPTION:

THIS PLAN IS FOR THE FINAL PHASE OF CONSTRUCTION FOR THE LA CUEVA OFFICE PARK. PREVIOUS PLANS ADDRESSED THE CONSTRUCTION OF ROUGH GRADING AND PHASE 1 SITE AND BUILDING IMPROVEMENTS. THE SITE IS LOCATED WITHIN THE WINDOW 'G' SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES WEST OF BARSTOW STREET N.E. BETWEEN CARMEL AVENUE N.E. AND PASEO DEL NORTE N.E. THE SITE LIES EAST OF THE CITY OF ALBUQUERQUE RESERVOIR SITE FOR WEBSTER WELL NO. 1. THE SITE IS LOCATED ON CITY OF ALBUQUERQUE ZONE ATLAS MAP C-19, AND IS ZONED SU-1 FOR O-1 AS IDENTIFIED IN THE WINDOW 'G' SECTOR PLAN. THE LEGAL DESCRIPTION OF THE SITE IS TRACT A, LA CUEVA OFFICE PARK. PLEASE REFER TO THE AFOREMENTIONED BACKGROUND DOCUMENTS FOR MORE DETAILED INFORMATION CONCERNING THE DRAINAGE CHARACTERISTICS AND HISTORY OF THIS SITE.

IV. EXISTING CONDITIONS:

AT THE TIME OF THIS PHASE 2 PLAN PREPARATION, THE SITE WAS UNDER CONSTRUCTION WITH ROUGH GRADING AND PHASE 1 SITE AND BUILDING CONSTRUCTION.

V. DEVELOPED CONDITIONS:

DEVELOPED CONDITIONS INCLUDE FULL SITE BUILDOUT OF SIX OFFICE BUILDINGS WITH ASSOCIATED PAVING, PRIVATE DRAINAGE, AND LANDSCAPING IMPROVEMENTS. AS PREVIOUSLY INDICATED, THIS PLAN IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 2, 3 AND 4. BUILDINGS 1, 5 AND 6 ARE CURRENTLY UNDER CONSTRUCTION BY SEPARATE PERMIT. THIS PLAN ALSO ADDRESSES THE CONSTRUCTION OF RETAINING WALLS BETWEEN THE BUILDINGS TO FACILITATE CONSTRUCTION OF LANDSCAPED PATIOS. THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THE CONCEPTS IDENTIFIED IN THE AFOREMENTIONED PROJECT REFERENCES. ALL DEVELOPED RUNOFF WILL BE DIRECTED TO A RIP-RAP BLANKET AT THE SOUTHWEST CORNER OF THE SITE VIA OVERLAND SHEET FLOW, CONCENTRATED FLOW AND A PRIVATE STORM DRAIN CONSTRUCTED AS PART OF THE PHASE 1 IMPROVEMENTS. FROM THIS POINT, RUNOFF WILL ENTER THE AFOREMENTIONED PUBLIC CMP CULVERTS WHICH WERE SIZED AND PROVIDED FOR THIS PROJECT. THESE CULVERTS OUTFALL TO THE RECENTLY CONSTRUCTED PDN ROAD DITCH WHICH THEN INTRODUCES RUNOFF TO THE 78" PDN STORM DRAIN.

VI. GRADING PLAN:

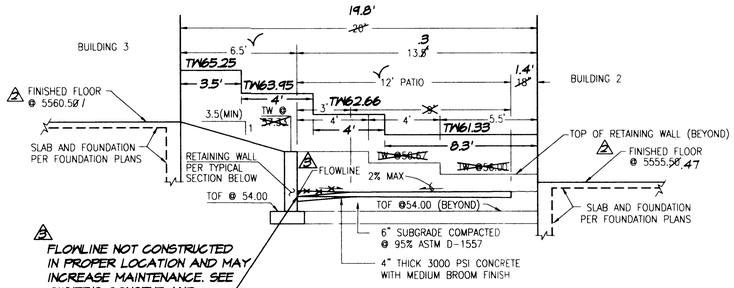
THE GRADING PLAN ON SHEET 1 SHOWS: 1) APPROVED DESIGN GRADES FOR PHASE 1 CONSTRUCTION CURRENTLY IN PROGRESS SHOWN THEREON AS EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 3) THE LIMIT AND CHARACTER OF THE EXISTING OFFSITE IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF PHASE 1 SITE AND BUILDING IMPROVEMENTS CURRENTLY UNDER CONSTRUCTION, 5) THE LIMIT AND CHARACTER OF THE PROPOSED (PHASE 2) IMPROVEMENTS, AND 6) CONTINUITY BETWEEN PROPOSED AND EXISTING GRADES.

VII. CALCULATIONS:

EXISTING AND DEVELOPED RUNOFF CALCULATIONS FOR THIS OVERALL PROJECT WERE PERFORMED AND PRESENTED AS PART OF THE PHASE 1 GRADING AND DRAINAGE PLAN AND HAVE NOT BEEN REPRODUCED HEREIN. HYDRAULIC CALCULATIONS FOR THE CULVERTS WERE PERFORMED USING THE ORIFICE EQUATION AND MANNING'S EQUATION. AS SHOWN BY THESE CALCULATIONS, THE CULVERTS HAVE SUFFICIENT CAPACITY TO PASS THE 10-YEAR STORM. AS DEMONSTRATED BY THE PREVIOUSLY REFERENCED PLANS, ALL DEVELOPED DISCHARGE WILL BE ACCEPTED AND CONVEYED BY PUBLIC AND PRIVATE STORM DRAIN IMPROVEMENTS TO EXISTING PUBLIC STORM DRAIN IMPROVEMENTS WHICH ARE SIZED FOR FREE DISCHARGE FROM THIS SITE. ALL PRIVATE STORM DRAIN IMPROVEMENTS WILL BE CONSTRUCTED AND MAINTAINED BY THE DEVELOPER OF THE OFFICE PARK.

VIII. CONCLUSION:

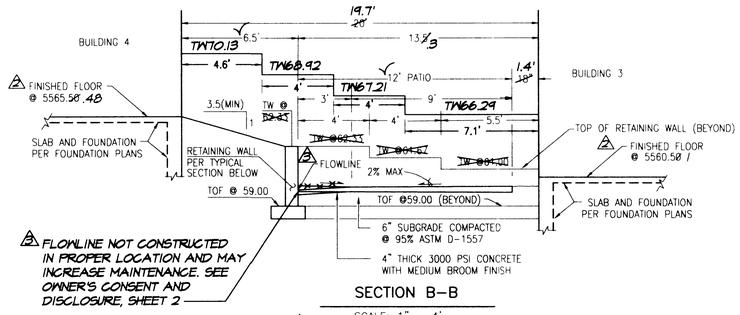
THIS SUBMITTAL IS FOR CONSTRUCTION OF THE PHASE 2 IMPROVEMENTS FOR THE LA CUEVA OFFICE PARK PURSUANT TO A MASTER DRAINAGE PLAN, A CONCEPTUAL GRADING AND DRAINAGE PLAN, AND A PHASE ONE GRADING AND DRAINAGE PLAN. AS IDENTIFIED IN THESE PREVIOUSLY APPROVED PLANS, THE PROPOSED CONSTRUCTION WILL CAUSE AN INCREASE IN THE PEAK RATE AND VOLUME OF RUNOFF GENERATED BY THIS SITE. DEVELOPED RUNOFF WILL DRAIN TO THE PASEO DEL NORTE RIGHT-OF-WAY AND INTO PUBLIC STORM DRAIN IMPROVEMENTS CONTAINED THEREIN WHICH ARE SIZED FOR THIS DISCHARGE. THERE IS NO NEW PUBLIC INFRASTRUCTURE REQUIRED FOR THIS PROJECT. THERE ARE NO DPM DESIGN VARIANCES REQUESTED BY THIS PROJECT. THERE ARE NO DRAINAGE EASEMENTS REQUIRED FOR THIS PROJECT. THE PRIVATE DRAINAGE IMPROVEMENTS WILL BE OWNED, OPERATED AND MAINTAINED BY THE PROPERTY OWNER.



SECTION A-A

SCALE: 1" = 4'

NOT YET CONSTRUCTED



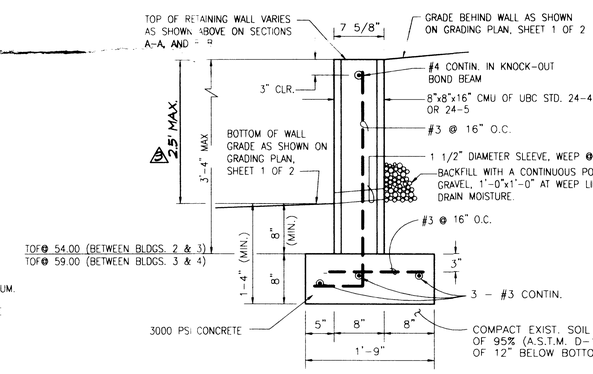
SECTION B-B

SCALE: 1" = 4'

NOT YET CONSTRUCTED

RETAINING WALL NOTES:

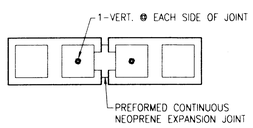
1. 8"X8"X16" CMU OF UBC STD. 24-4 OR 24-5.
2. USE KNOCK-OUT BOND BEAM BLOCK AT 4'-0" MAX C.C., VERTICALLY, AND 1 #4 CONTINUOUS.
3. FILL ALL BLOCK VOIDS WITH 3000 PSI CONCRETE.
4. REINFORCING TO BE INTERMEDIATE GRADE STEEL. fs=20,000 psi
5. IN LIEU OF CONTINUOUS KNOCK-OUT BOND BEAMS, CONTRACTOR MAY INSTALL DUR-O-WALL REINFORCING EVERY SECOND COURSE.
6. SPLICE SHALL BE 40 BAR DIA. MINIMUM FOR VERTICAL BARS. ALL OTHER SHALL BE 20 BAR DIA. MINIMUM.
7. CONCRETE FILL SHALL BE 21 DAYS OLD OR SHALL ACHIEVE ULTIMATE STRENGTH PRIOR TO BACKFILLING.
8. INSTALL MASONRY CONTROL JOINTS PER TYPICAL DETAIL AT UNIFORM SPACINGS OF 20' (MIN.) TO 24' (MAX.).



TYPICAL RETAINING WALL SECTION

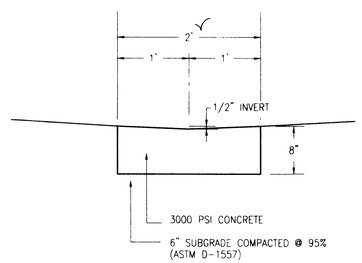
SCALE: 1" = 1'-0"

NOT YET CONSTRUCTED



TYPICAL MASONRY CONTROL JOINT DETAIL

SCALE: 1" = 1'- 0"



TYPICAL VALLEY GUTTER SECTION

SCALE: 1" = 1'-0"

CULVERT CALCULATIONS

1. BUILDING 4

A. RUNOFF
CONTRIBUTING AREA =0.14 AC.
Q_{10} = (0.14 AC)(3.39 CFS/AC) = 0.5 CFS (ASSUMES 100% IMPERVIOUS)

B. ENTRANCE CONDITION (8" PIPE)

$Q = CA\ (2gh)^{1/2}$
C = 0.6, A=0.35 SF, g=32.2, h=1.07 FT
Q =1.7 CFS > Q_{10}

C. CULVERT CAPACITY (S=0.0200)

$Q = (1.49/n)\ AR^{2/3}S^{1/2}$
n = 0.013
Q =1.78 CFS > Q_{10}

2. BUILDING 3

A. RUNOFF
CONTRIBUTING AREA =0.34 AC.
Q_{10} = (0.34 AC)(3.39 CFS/AC) = 1.15 CFS (ASSUMES 100% IMPERVIOUS)

B. ENTRANCE CONDITION (8" PIPE)

$Q = CA\ (2gh)^{1/2}$
C = 0.6, A=0.35 SF, g=32.2, h=0.7 FT
Q =1.41 CFS > Q_{10}

C. CULVERT CAPACITY (S=0.0200)

$Q = (1.49/n)\ AR^{2/3}S^{1/2}$
n = 0.013
Q =1.78 CFS > Q_{10}

3. BUILDING 2

A. RUNOFF
CONTRIBUTING AREA =0.54 AC. (ASSUMES 100% IMPERVIOUS)
Q_{10} = (0.54 AC)(3.39 CFS/AC) = 1.83 CFS

B. ENTRANCE CONDITION (2-8" PIPES)

$Q = CA\ (2gh)^{1/2}$
C = 0.6, A=0.35 SF, g=32.2, h=0.4 FT
Q =1.07 CFS/PIPE x 2 PIPES = 2.14 CFS > Q_{10}

C. CULVERT CAPACITY (S=0.0200)

$Q = (1.49/n)\ AR^{2/3}S^{1/2}$
n = 0.013
Q =1.78 CFS/PIPE x 2 PIPES = 3.56 CFS > Q_{10}

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), 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 IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.

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. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

7. **SLOPES WHICH EXCEED 3:1 (HORIZONTAL TO VERTICAL)** SHALL BE PROTECTED WITH GRAVEL, MULCH OR OTHERWISE STABILIZED WITH LANDSCAPING IMPROVEMENTS. THE MAXIMUM STABILIZED SLOPE ALLOWED BY THIS PLAN IS 2:1

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.

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.

ENGINEER'S CERTIFICATION FOR PERMANENT CERTIFICATES OF OCCUPANCY FOR BUILDINGS 1-6

AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THE PROJECT HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED GRADING AND DRAINAGE PLAN. IT IS BASED UPON THIS EVALUATION OF AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF PERMANENT CERTIFICATES OF OCCUPANCY FOR BUILDINGS 1-6 IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION CONTAINED HEREIN HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION AND REPRESENTS THE "AS-BUILT" CONDITIONS OF THE SITE AS OF 04/02/2001, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

THE AS-CONSTRUCTED LOCATIONS OF THE PATIO FLOWLINES VARY FROM THOSE SHOWN ON THE APPROVED GRADING PLAN. WHILE SATISFYING THE INTENT OF THE APPROVED PLAN WITH RESPECT TO DRAINAGE, THIS VARIATION, MAY CAUSE INCREASED SITE MAINTENANCE. THE PROPERTY OWNER HAS ACKNOWLEDGED THIS CONDITION AND HAS ACCEPTED RESPONSIBILITY FOR THIS CONDITION (SEE OWNER'S CONSENT AND DISCLOSURE, SHEET 2).

THIS CERTIFICATION DOES NOT INCLUDE WORK CONTAINED WITHIN THE PUBLIC RIGHT-OF-WAY WHICH IS INSPECTED BY SEPARATE PROCESS. THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS AS-CONSTRUCTED PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547 — DATE 04-06-2001

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

2000.0923 ~~2000.018.1~~

JEFF MORTENSEN & ASSOCIATES, INC.
☐ 6010-B MIDWAY PARK BLVD. N.E.
☐ ALBUQUERQUE ☐ NEW MEXICO 87109
☐ ENGINEERS ☐ SURVEYORS (505) 345-4250
☐ FAX: 505 345-4254 ☐ Email: jmainc@swcp.com

(GRADING AND DRAINGE PLAN SHEET 2 OF 2)

(ENGINEER'S CERTIFICATION OF GRADING AND DRAINAGE FOR ~~TEMP.~~ C.O.) PERM.

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER 03-08-2000

ENGINEER

La Cueva Office Park -- Phase 2
8300 Carmel Avenue N.E.
Albuquerque, New Mexico

EDITH CHERRY / D. JAMES SEE ARCHITECTS

220 A GOLD AVE SW. ALBUQUERQUE, NEW MEXICO, 87102 505 842 1278

TITLE OF SHEET

DRAINAGE PLAN, CALCULATIONS, SECTIONS AND DETAILS

DATE

03-2000

REVISIONS

1 10/2000 AS-BUILT AND CERTIFY FOR TEMP. C.O. FOR BUILDINGS 4 AND 6

2 12/2000 AS-BUILT AND CERTIFY FOR TEMP. C.O. FOR BUILDING 1

3 04/2001 AS-BUILT AND CERTIFY FOR PERMANENT C.O. FOR BUILDINGS 1-6

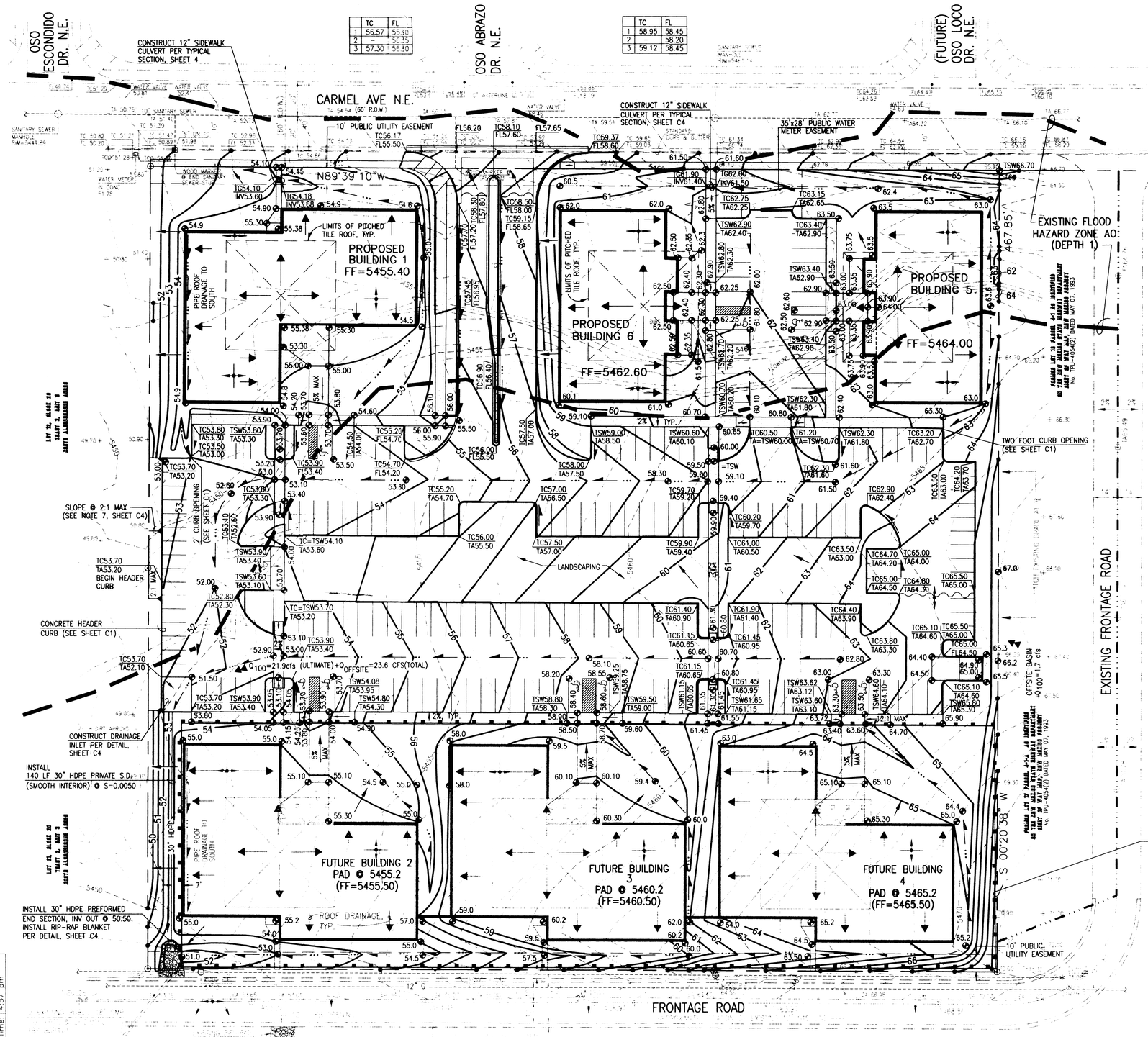
SHEET NUMBER

C-8

OF

SHEET 3 OF 3

File Path: [illegible] Plot Date: 04-05-2001
File Name: 09224B4.DWG Plot Time: 1:54 pm



	TC	FL
1	56.57	55.90
2		56.35
3	57.30	56.30

	TC	FL
1	58.95	58.45
2		58.20
3	59.12	58.45

PROJECT BENCHMARK

STATION MARK IS A STANDARD USC & GS BRASS TABLET STAMPED, "HEAVEN 1969". SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND. STATION IS LOCATED APPROXIMATELY 8 MILES NORTHEAST OF DOWNTOWN ALBUQUERQUE, AT THE ENTRANCE WAY TO THE "GATE HEAVEN" CEMETERY. ELEVATION=5378.787 (M.S.L.D.)

T.B.M.

A STANDARD ACS ALUMINUM CAP STAMPED "6-C19 1985" SET ON AN ALUMINUM TUBE WITH THE CAP PROJECTING 0.15 FEET ABOVE THE GROUND. LOCATED AT THE N.W. CORNER OF THE INTERSECTION OF PASEO DEL NORTE & BARSTOW. ELEVATION=5476.58 (PUBLISHED TRG ELEVATION=5476.7)

LEGAL DESCRIPTION

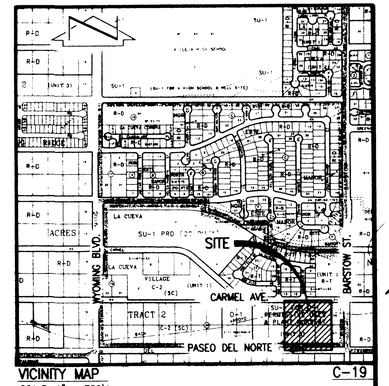
TRACT A, LA CUEVA OFFICE PARK

LEGEND

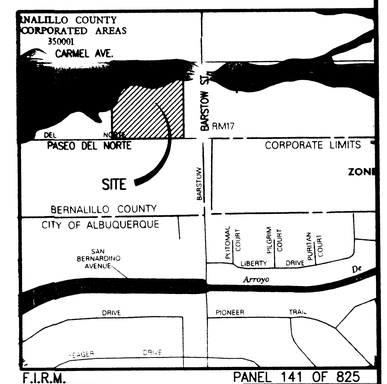
TC	TOP OF CURB
TA	TOP OF ASPHALT
FL	FLOWLINE
EA; E/A	EDGE OF ASPHALT
@	AT
W	WATERLINE
SAS	SANITARY SEWER LINE
CONC.	CONCRETE
P.P.	POWER POLE
OV/H E (4)	OVERHEAD ELECTRIC LINE
OV/H T (1)	OVERHEAD TELEPHONE LINE
FND	FOUND
5465	EXISTING CONTOUR
5465	EXISTING SPOT ELEVATION
	EXISTING FLOWLINE
	DRAINAGE BASIN
	EXISTING PASEO DEL NORTE CONSTRUCTION
	DIRECTION OF FLOW
	PROPOSED FLOWLINE
	PROPOSED SPOT ELEVATION
	FUTURE CONCRETE
	TEMPORARY ASPHALT PAVING
	HIGH POINT
	DESIGN GRADES FOR FRONTAGE ROAD AND PASEO DEL NORTE
66	PROPOSED CONTOUR
	EXISTING FLOOD PLAIN BOUNDARY
	PROPOSED SILT FENCE
	FUTURE BUILDING CONSTRUCTION (BY SEPARATE CONTRACT)

NOTES:

1. **THIS IS NOT A BOUNDARY SURVEY.** APPARENT PROPERTY CORNERS SHOWN HEREON ARE FOR ORIENTATION ONLY. BOUNDARY AND TOPOGRAPHIC DATA SHOWN HEREON IS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY JMA DATED SEPTEMBER 1998. CARMEL AVENUE PAVING IMPROVEMENTS SHOWN HEREON ARE TAKEN FROM CONSTRUCTION PLANS FOR C.O.A. PROJECT #572984. FRONTAGE ROAD AND PASEO DEL NORTE IMPROVEMENTS ARE TAKEN FROM CONSTRUCTION PLANS FOR PASEO DEL NORTE-N.M. PROJECT TPU-4054(2) BY PARSONS BRINCKERHOFF (FORMERLY AVID ENGINEERING)
2. THIS GRADING PLAN IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 1, 5 AND 6. BUILDINGS 2, 3 AND 4 ARE FUTURE CONSTRUCTION REQUIRING SEPARATE PERMITS.
3. EXISTING GRADES SHOWN HEREON FOR THE SITE ARE PRE-EXISTING CONTOURS WHICH PREDATE ROUGH GRADING OPERATIONS CURRENTLY IN PROGRESS. THIS PLAN SHOULD NOT BE USED FOR EARTHWORK ANALYSES.



VICINITY MAP C-19
SCALE: 1" = 750'±



F.I.R.M. PANEL 141 OF 825
SCALE: 1" = 500'±

PROFESSIONAL ENGINEER JEFFREY G. MORTENSEN NEW MEXICO 8547 01-28-2000

980076

JMA JEFF MORTENSEN & ASSOCIATES, INC.
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Albuquerque, New Mexico

EDITH CHERRY / D. JAMES SEE ARCHITECTS

220 A GOLD AVE. SW. ALBUQUERQUE, NEW MEXICO, 87102 505 842 1278

TITLE OF SHEET
GRADING PLAN

DATE
02-2000

REVISIONS

SHEET NUMBER
C3
OF

File Path: E:\JMA\ACAD\14\980076\
File Name: 980076G2.DWG
Plot Date: 01-26-2000
Plot Time: 4:57 pm

DRAINAGE PLAN

I. EXECUTIVE SUMMARY AND INTRODUCTION:

THIS DRAINAGE PLAN SUPPORTS PROPOSED BUILDING CONSTRUCTION AT LA CUEVA OFFICE PARK. A PROPOSED PROFESSIONAL OFFICE COMPLEX LOCATED WEST OF BARSTOW STREET N.E. BETWEEN CARMEL AVENUE N.E. AND PASEO DEL NORTE N.E. THE SITE IS WITHIN THE WINDOW 'G' SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES. DEVELOPMENT ON THIS SITE WILL BE CONSISTENT WITH THE CONCEPTS ESTABLISHED IN THE APPROVED CONCEPTUAL GRADING AND DRAINAGE PLAN AND ROUGH GRADING PLAN. THE RECENT CONSTRUCTION OF PAVING AND STORM DRAINAGE IMPROVEMENTS BY BERNALILLO COUNTY INTERCEPT OFFSITE FLOWS WHICH PREVIOUSLY ENTERED THE SITE. ONSITE FLOWS WILL BE DISCHARGED DIRECTLY TO PASEO DEL NORTE RIGHT-OF-WAY. THIS PROJECT WILL BE CONSTRUCTED IN PHASES. THIS SUBMITTAL IS FOR BUILDING PERMIT APPROVAL FOR THREE BUILDINGS (1, 5 AND 6). SUBSEQUENT SUBMITTAL(S) WILL BE REQUIRED FOR BUILDING PERMIT APPROVAL FOR THE REMAINING BUILDINGS (2, 3 AND 4). ALL SITE PAVING AND DRAINAGE IMPROVEMENTS WILL BE CONSTRUCTED AS PART OF THIS FIRST PHASE.

II. BACKGROUND DOCUMENTS:

THE FOLLOWING IS A LIST OF PLANS AND REPORTS RELATIVE TO THIS SITE AND/OR REFERENCED WITHIN THIS DRAINAGE PLAN. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF THOSE PLANS AND DOCUMENTS WHICH ARE KNOWN TO THIS PREPARER.

A. THE "NORTH AND SOUTH DOMINGO BACA ARROYO AND PASEO DEL NORTE CORRIDOR DRAINAGE MANAGEMENT PLAN" PREPARED FOR AMAFCA FOR RESOURCE TECHNOLOGY, INC. (RTI) DATED DECEMBER, 1991. THIS PLAN HAS BEEN ADOPTED BY AMAFCA AS A GUIDELINE FOR DRAINAGE MANAGEMENT WITHIN THIS AREA. AMAFCA RESOLUTION 1992-3 DATED JANUARY 03, 1992 ADOPTED THIS PLAN. THE HYDROLOGY AND HYDRAULICS FOR THE PASEO DEL NORTE AND BARSTOW STREET IMPROVEMENTS ARE BASED UPON THE FLOW RATES IDENTIFIED IN THIS PLAN.

B. WINDOW 'G' MASTER DRAINAGE PLAN PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. (JMA) DATED DECEMBER, 1996 AND REVISED JANUARY 09, 1997 (CITY OF ALBUQUERQUE HYDROLOGY FILE C-19/D11. THIS MASTER DRAINAGE PLAN IDENTIFIES EXISTING, PROPOSED AND ULTIMATE DRAINAGE REQUIREMENTS FOR DEVELOPMENT WITHIN WINDOW 'G'. THE DRAINAGE CONCEPTS CONTAINED HEREIN ARE CONSISTENT WITH THOSE ESTABLISHED BY THIS MASTER DRANAGE PLAN.

C. CONDITIONAL LETTER OF MAP REVISION (CLOMR) FOR THE PASEO DEL NORTE STORM DRAIN IMPROVEMENTS (FEMA CASE NO. 97-06-141R) APPROVED AUGUST 01, 1997. THIS CLOMR, SUBMITTED BY AMAFCA, CONDITIONALLY REMOVES FLOODING ASSOCIATED WITH THE UNNAMED TRIBUTARY OF THE SOUTH BRANCH OF THE NORTH ARROYO DE DOMINGO BACA, ALSO REFERRED TO AS ARROYO 'C'.

D. CONCEPTUAL GRADING AND DRAINAGE PLAN FOR LA CUEVA OFFICE PARK PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. DATED 06/24/1999, (CITY HYDROLOGY FILE C-19/D11C). THIS PLAN WAS APPROVED FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT AND IS THE BASIS OF THE GRADING SHOWN HEREON. THIS PLAN ESTABLISHES DRAINAGE CONCEPTS FOR THIS SITE, IS IN ACCORDANCE WITH THE PREVIOUSLY REFERENCED MASTER DRAINAGE PLAN, AND WILL GOVERN ALL FUTURE DEVELOPMENT ON THIS SITE.

E. SITE DEVELOPMENT PLAN FOR LA CUEVA OFFICE PARK (Z-98-91, DRB 99-268). THIS SITE DEVELOPMENT PLAN WAS APPROVED BY THE EPC ON AUGUST 20, 1998 WITH FINDINGS AND CONDITIONS. THE SITE DEVELOPMENT PLAN WAS APPROVED BY THE DRB ON OCTOBER 25, 1999.

F. LA CUEVA OFFICE PARK MASS GRADING PLAN DATED 10/04/99 PREPARED BY JEFF MORTENSEN & ASSOCIATES, APPROVED BY THE CITY OF ALBUQUERQUE 11/9/99 FOR ROUGH GRADING APPROVAL (C19/D11C). THIS PLAN WAS PREPARED FOR ROUGH GRADING OPERATIONS FOR SITE PREP WORK IN ADVANCE OF BUILDING CONSTRUCTION. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE PREVIOUSLY APPROVED MASTER DRAINAGE AND CONCEPTUAL PLANS.
THE PROPOSED GRADING AND DEVELOPMENT SHOWN ON THIS GRADING PLAN IS CONSISTENT WITH THE CONCEPTS AND PLANS ESTABLISHED BY THESE SIX PROJECT REFERENCES.

III. PROJECT DESCRIPTION:

THE SITE IS LOCATED WITHIN THE WINDOW 'G' SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES. THE SITE IS MORE SPECIFICALLY LOCATED WEST OF BARSTOW STREET N.E. BETWEEN CARMEL AVENUE N.E. AND PASEO DEL NORTE N.E. THE SITE LIES EAST OF THE CITY OF ALBUQUERQUE RESERVOIR SITE FOR WEBSTER WELL NO.

1. THE SITE IS LOCATED ON CITY OF ALBUQUERQUE ZONE ATLAS MAP C-19, AND IS ZONED SU-1 FOR O-1 AS IDENTIFIED IN THE WINDOW 'G' SECTOR PLAN. THE LEGAL DESCRIPTION OF THE SITE IS TRACT A, LA CUEVA OFFICE PARK.

AS SHOWN BY PANEL 141 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNALILLO COUNTY, NEW MEXICO, AND INCORPORATED AREAS, DATED SEPTEMBER 20, 1996, A PORTION OF THIS SITE IS ENCUMBERED BY A FLOOD HAZARD ZONE DESIGNATED AO WITH A DEPTH OF ONE FOOT. THIS FLOODING IS ASSOCIATED WITH AN UNNAMED TRIBUTARY OF THE NORTH DOMINGO BACA ARROYO WHICH PREVIOUSLY CROSSED BARSTOW STREET N.E. SOUTH OF CARMEL AVENUE N.E. THESE FLOWS HAVE BEEN INTERCEPTED EAST OF BARSTOW STREET BY A SEDIMENT POND, INLET STRUCTURE AND STORM DRAIN RECENTLY CONSTRUCTED AS PART OF THE BERNALILLO COUNTY/PASEO DEL NORTE IMPROVEMENTS. AMAFCA HAS RECEIVED A CONDITIONAL LETTER OF MAP REVISION (CLOMR) WHICH WILL REMOVE THIS FLOODING PENDING A FOLLOW-UP LOMR SUBMITTAL WHICH DEMONSTRATES SATISFACTORY COMPLETION OF THE PASEO DEL NORTE IMPROVEMENTS WHICH ARE CURRENTLY UNDER CONSTRUCTION. IT IS BASED UPON THIS CONDITIONAL LETTER OF MAP REVISION AND THE RECENTLY CONSTRUCTED IMPROVEMENTS THAT CONSTRUCTION ON THIS SITE WITHIN THE EXISTING FLOODPLAIN IS JUSTIFIED. IT IS RECOGNIZED THAT ANY PERMANENT BUILDING CONSTRUCTION WITHIN THE FLOODPLAIN MAY BE SUBJECT TO FLOOD INSURANCE UNTIL SUCH TIME AS A LOMR IS ISSUED.

IV. EXISTING CONDITIONS:

THE SITE IS PRESENTLY UNDEVELOPED. ROUGH GRADING CONSTRUCTION WAS IN PROGRESS AT THE TIME OF PLAN PREPARATION. ONSITE DRAINAGE IS FROM EAST TO WEST, CONCENTRATING WITHIN AN EXISTING TRIBUTARY OF THE NORTH ARROYO DE DOMINGO BACA. CARMEL AVENUE N.E. IS AN EXISTING 40' FACE-TO-FACE PAVED PUBLIC CITY STREET DEVELOPED WITH CURB AND GUTTER. BARSTOW STREET N.E. AND PASEO DEL NORTE HAVE BEEN RECONSTRUCTED WITH NEW PAVING AND STORM DRAINAGE IMPROVEMENTS RECENTLY CONSTRUCTED BY BERNALILLO COUNTY. THE PASEO DEL NORTE IMPROVEMENTS ARE SHOWN ON THE GRADING PLAN. NOW THAT THE ARROYO IS INTERCEPTED AT BARSTOW STREET, OFFSITE FLOWS ARE REDUCED TO THE AMOUNT OF 1.7 CFS FROM THE UNDEVELOPED BERNALILLO COUNTY OWNED PROPERTY TO THE EAST. NO OTHER OFFSITE FLOWS ENTER THE SITE. THE BCPWD IMPROVEMENTS ALSO INTERCEPT UPSTREAM ARROYO FLOWS AT VENTURA STREET. AS SHOWN ON THE BCPWD CONSTRUCTION PLANS, (SHEET 3-29), THE REMAINING FLOW RATE OF 99 CFS IS INTERCEPTED BY A SEDIMENT POND ON THE EAST SIDE OF BARSTOW STREET AND CONVEYED TO PASEO DEL NORTE WITHIN A 60" RCP STORM DRAIN IN BARSTOW STREET. THE EXISTING OFFSITE FLOW AND CONTRIBUTING BASIN IS IDENTIFIED ON THE GRADING PLAN. THE BCPWD CONSTRUCTION ALSO INCLUDES A FRONTAGE ROAD WHICH IS SHOWN ON THE GRADING PLAN. TO ALLOW DEVELOPED RUNOFF FROM LA CUEVA OFFICE PARK TO REACH ITS OUTFALL WITHIN THE PDN ROAD DITCH, TWO 18" CMP CULVERTS HAVE BEEN CONSTRUCTED UNDER THE FRONTAGE ROAD. THESE CULVERTS WERE SIZED TO ACCEPTED DEVELOPED RUNOFF FROM LA CUEVA OFFICE PARK. THE DESIGN AND CONSTRUCTION OF THESE CULVERTS WAS PAID FOR BY THE DEVELOPER OF LA CUEVA OFFICE PARK.

V. DEVELOPED CONDITIONS:

THE FULLY DEVELOPED CONDITIONS INCLUDE CONSTRUCTION OF SIX OFFICE BUILDINGS WITH ASSOCIATED PAVING, PRIVATE DRAINAGE, AND LANDSCAPING IMPROVEMENTS. AS PREVIOUSLY INDICATED, THIS PLAN IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 1, 5 AND 6. BUILDINGS 2, 3 AND 4 WILL BE CONSTRUCTED BY SEPARATE PERMIT WHICH WILL REQUIRE A SEPARATE SUBMITTAL. THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THE CONCEPTS IDENTIFIED IN THE AFOREMENTIONED MASTER DRAINAGE PLAN AND CONCEPTUAL GRADING PLAN. ALL DEVELOPED RUNOFF WILL BE DIRECTED TO A RIP-RAP BLANKET AT THE SOUTHWEST CORNER OF THE SITE VIA OVERLAND SHEET FLOW, CONCENTRATED FLOW AND A PRIVATE STORM DRAIN. FROM THIS POINT, RUNOFF WILL ENTER THE AFOREMENTIONED PUBLIC CMP CULVERTS WHICH WERE SIZED AND PROVIDED FOR THIS PROJECT. THESE CULVERTS OUTFALL TO THE RECENTLY CONSTRUCTED PDN ROAD DITCH WHICH THEN INTRODUCES RUNOFF TO THE 78" PDN STORM DRAIN.
ALL SITE PAVING AND STORM DRAIN IMPROVEMENTS WILL BE CONSTRUCTED AS PART OF THIS PHASE. THE PADS AND AREAS SURROUNDING BUILDINGS 2, 3 AND 4 ARE CURRENTLY BEING GRADED IN ACCORDANCE WITH THE MASS GRADING PLAN. SILT FENCING WILL BE CONSTRUCTED AS INTERIM SEDIMENT AND EROSION CONTROL MEASURES UNTIL FULL SITE BUILDOUT IS COMPLETE. THIS SILT FENCING SHALL BE CONSTRUCTED AND MAINTAINED BY THE DEVELOPER, DON HOECH. THE LOCATIONS OF SILT FENCE ARE SHOWN ON THE GRADING PLAN. SUBSEQUENT GRADING AND DRAINAGE PLAN SUBMITTAL(S) WILL UPDATE AND AMEND THIS SUBMITTAL TO INCLUDE SUBSEQUENT BUILDINGS UNTIL FULL BUILD-OUT OF THE OFFICE PARK IS COMPLETED. THESE SUBSEQUENT INDIVIDUAL GRADING AND DRAINAGE PLAN SUBMITTALS WILL BE REQUIRED TO SEPARATELY PERMIT AND CERTIFY THESE BUILDINGS.

VI. GRADING PLAN:

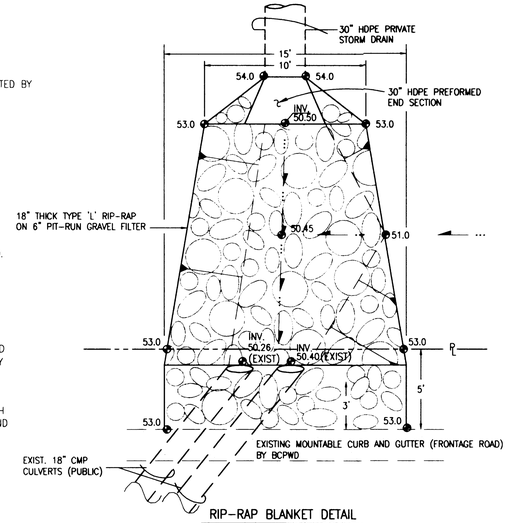
THE GRADING PLAN ON SHEET 1 SHOWS: 1) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS BASED ON A TOPOGRAPHIC SURVEY BY JEFF MORTENSEN & ASSOCIATES DATED SEPTEMBER, 1998, AND WHICH NOW REPRESENT PRE-EXISTING GRADES, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS WHICH ARE SHOWN AS "SCREENED" WITH A DASHED LINETYPE, 4) THE LIMIT AND CHARACTER OF THE PROPOSED SITE AND BUILDING IMPROVEMENTS, 5) THE LIMIT OF THE RECENTLY CONSTRUCTED PASEO DEL NORTE IMPROVEMENTS, 6) THE LIMIT AND CHARACTER OF FUTURE BUILDING IMPROVEMENTS WHICH ARE SHOWN AS "SCREENED" WITH A CONTINUOUS SOLID LINETYPE, AND 7) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. ROUGH GRADING IS CURRENTLY IN PROGRESS MAKING ALL "EXISTING" GRADES PRE-EXISTING.

VII. CALCULATIONS:

EXISTING AND DEVELOPED CALCULATIONS FOR THIS PROJECT WERE PERFORMED AS PART OF THE CONCEPTUAL GRADING AND DRAINAGE PLAN AND HAVE BEEN REPRODUCED HEREIN. THE RUNOFF CALCULATIONS HAVE BEEN REVISED TO REFLECT THE FINAL SITE PLAN WHICH INCLUDES MORE LANDSCAPING AND LESS IMPERVIOUS AREA THAN THAT SHOWN AND CALCULATED FOR THE CONCEPTUAL PLAN. THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. STORM DRAIN AND HYDRAULIC CALCULATIONS WERE PERFORMED USING MANNING'S EQUATION, THE HAZEN-WILLIAMS EQUATION, THE ORIFICE EQUATION, AND THE WEIR EQUATION. AS SHOWN BY THESE CALCULATIONS, THERE WILL BE AN INCREASE IN VOLUME AND PEAK RATE OF DISCHARGE GENERATED BY THE SITE. THIS DEVELOPED DISCHARGE WILL BE ACCEPTED AND CONVEYED BY PUBLIC AND PRIVATE STORM DRAIN IMPROVEMENTS TO AN OUTFALL TO PUBLIC STORM DRAIN IMPROVEMENTS WHICH ARE SIZED FOR FREE DISCHARGE. THE PRIVATE STORM DRAIN IMPROVEMENTS WILL BE CONSTRUCTED AND MAINTAINED BY THE DEVELOPER OF THE OFFICE PARK. THE 18" CMP CULVERTS HAVE BEEN CONSTRUCTED BY THE COUNTY'S CONTRACTOR UNDER SEPARATE CONTRACT TO THE PROJECT DEVELOPER, AND WILL BE MAINTAINED BY THE NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT. THIS DRAINAGE CONCEPT IS CONSISTENT WITH THE APPROVED MASTER DRAINAGE PLAN FOR WINDOW G (C19/D11).

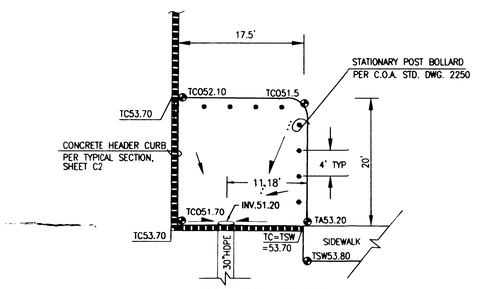
VIII. CONCLUSION:

THIS SUBMITTAL IS FOR CONSTRUCTION OF THE LA CUEVA OFFICE PARK PURSUANT TO A MASTER DRAINAGE PLAN, AND A PREVIOUSLY APPROVED CONCEPTUAL GRADING AND DRAINAGE PLAN. AS IDENTIFIED IN THE PREVIOUSLY MENTIONED PLANS, THE PROPOSED CONSTRUCTION WILL CAUSE AN INCREASE IN THE PEAK RATE AND VOLUME OF RUNOFF GENERATED BY THIS SITE. DEVELOPED RUNOFF WILL DRAIN TO THE PASEO DEL NORTE RIGHT-OF-WAY AND INTO PUBLIC STORM DRAIN IMPROVEMENTS CONTAINED THEREIN. THESE PUBLIC IMPROVEMENTS HAVE BEEN RECENTLY CONSTRUCTED BY BERNALILLO COUNTY. UPSTREAM OFFSITE FLOWS ASSOCIATED WITH THE UNNAMED TRIBUTARY OF THE NORTH DOMINGO BACA ARROYO HAVE BEEN INTERCEPTED BY THE BARSTOW STREET PAVING AND STORM DRAINAGE IMPROVEMENTS. THERE IS NO NEW PUBLIC INFRASTRUCTURE REQUIRED FOR THIS PROJECT. THERE ARE NO DPM DESIGN VARIANCES REQUESTED BY THIS PROJECT. THERE ARE NO DRAINAGE EASEMENTS REQUIRED FOR THIS PROJECT. THE PRIVATE DRAINAGE IMPROVEMENTS AND TEMPORARY EROSION CONTROL MEASURES WILL BE OWNED, OPERATED AND MAINTAINED BY THE PROPERTY OWNER.



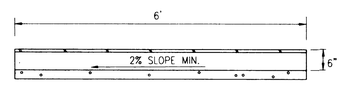
RIP-RAP BLANKET DETAIL

SCALE: 1"=4'



DRAINAGE INLET DETAIL

SCALE: 1"=10'



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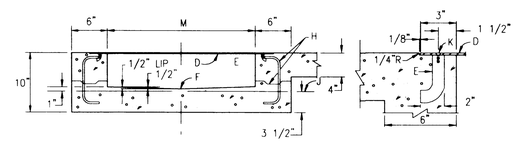
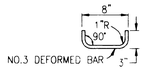




DOWEL DETAIL

TYPICAL SIDEWALK CULVERT DETAILS

NOT TO SCALE

CONSTRUCTION NOTES:

A. JOIN NEAREST SCORE LINE OR WEAKENED PLANE JOINT, PLACE 1/2" EXPANSION JOINT MATERIAL.
B. SIDEWALK OR SETBACK, (VARIABLE).
C. 3" RADIUS, (TYPICAL).
D. 3/8" CHECKERED STEEL PLATE.
E. ROD ANCHOR 1" x 5"
F. "V" INVERT
G. SIDEWALK GRADE
H. DOWEL AND JOINT, (OPTIONAL).
J. GUTTER FLOWLINE ELEV.
K. 3/8" x 1" F.H. C'SUNK STAINLESS STEEL MACHINE SCREW.
L. NOT USED
M. DRAIN WIDTH, 24" MAX. 12" MIN.
N. SLOPE 1/4" PER FT. MIN.

CALCULATIONS

SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 3
2. $P_{6,100} = P_{360} = 2.60$ IN.
3. TOTAL AREA (A_T) = 231,660 SF/5.32 AC
4. EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
A	231,660/5.32	100

5. DEVELOPED LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
B	85,900/1.97	37
D	145,760/3.35	63

EXISTING CONDITION (UNDEVELOPED)

A. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W = 0.66$ IN.

$V_{100} = (E_W/12)A_T$

$V_{100} = (0.66/12)(231,660) = 12,740$ CF

B. PEAK DISCHARGE

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} = (1.87)(5.32) = 9.9$ CF

DEVELOPED CONDITION (FULL DEVELOPMENT)

A. VOLUME

$E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$

$E_W = [(0.92)(1.97)+(2.36)(3.35)]/(5.32) = 1.83$ IN.

$V_{100} = (E_W/12)A_T$

$V_{100} = (1.83/12)(231,660) = 35,330$ CF

B. PEAK DISCHARGE

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_p = Q_{100} = (2.60)(1.97)+(5.02)(3.35)=21.9$ CFS= 4.12 CFS/AC

6. OFFSITE BASIN CALCULATIONS

A=0.53 ac

TREATMENT B=0.40 ac
TREATMENT D=0.13ac
Q_{100}=(2.6)(0.40)+(5.02)(0.13)=1.7 cfs

COMPARISON

A. $\Delta V_{100} = 35,330 - 12,740 = 22,590$ CF (INCREASE)

B. $\Delta Q_{100} = 21.9 - 9.9 = 12.0$ CFS (INCREASE)

STORM DRAIN CALCULATIONS

1. CHANNEL ENTRANCE CONDITION (WEIR EQUATION)

$Q_{100} = CLH^{3/2}$.
H = 0.5 FT
C = 2.6
$Q_{100} = 21.9$ CFS $+ Q_{OFFSITE} = 23.6$ CFS
$L_{REQUIRED} = 25.7$FT
$L_{PROVIDED} = 26.5$ FT $> L_{REQUIRED}$

2. STORM DRAIN HYDRAULICS (MANNING'S EQUATION)

A. 30" HDPE; n = 0.013, S = 0.0050 (PRIVATE)
$Q_{CAP} = 29$ CFS $> Q_{100}$

B. ENTRANCE CONDITIONS - 18" CMP
HEADWALL CONDITION
$Q_{REQUIRED} = Q_{100}/2$=11.8 CFS PER PIPE
USING CULVERT NOMOGRAPH, HW/D = 1.8
TOP OF HEADWALL = INV +(1.8)(18") =50.2+2.7 =52.9

C. CULVERT FLOW (PRESSURE PIPE)
P_1=0.87 PSI
P_2=0 PSI (FREE OUTLET)
E_1=0.7
E_2=0.0
L=70'
C=0.80
D=18"
Q=17 CFS PER PIPE $> Q_{REQUIRED}$

3. 30" ENTRANCE CONDITIONS (ORIFICE)
$Q= CA(2gh)^{1/2}$, C=0.6, A=4.91 sf, g=32.2
@ h= 1.25' : Q = 26.4cfs $> Q_{100}$

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), 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 IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.

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. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

7. SLOPES WHICH EXCEED 3:1 (HORIZONTAL TO VERTICAL) SHALL BE TREATED WITH GRAVEL MULCH OR OTHERWISE STABILIZED WITH LANDSCAPING IMPROVEMENTS. THE MAXIMUM STABILIZED SLOPE ALLOWED BY THIS PLAN IS 2:1

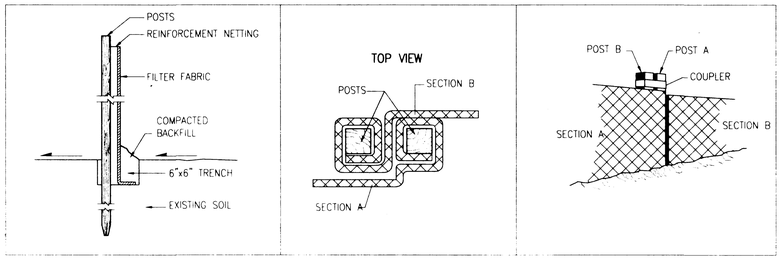
EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.

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.

TOE-IN METHOD | JOINING SECTIONS



PREFABRICATED SILT FENCE DETAILS

NOT TO SCALE

980076

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250

File Point* 1:\JMA\980\980071\ | Plot Date: 01-26-2000
File Name: 980071DT.DWG | Plot Time: 1:35 pm

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
01-28-2000
ENGINEER

La Cueva Office Park -- Phase I
8300 Carmel Avenue N.E.
Albuquerque, New Mexico

EDITH CHERRY / D. JAMES SEE ARCHITECTS
220 A GOLD AVE. SW. ALBUQUERQUE, NEW MEXICO, 87102 505 842 1278

TITLE OF SHEET
DRAINAGE PLAN, CALCULATIONS, SECTIONS AND DETAILS

DATE
02-2000

REVISIONS

SHEET NUMBER
C-4

OF

ENGINEER'S DRAINAGE CERTIFICATION FOR TEMPORARY CERTIFICATE OF OCCUPANCY FOR BUILDINGS 4 AND 6

THE PURPOSE OF THIS SUBMITTAL IS TO CERTIFY THE AS-CONSTRUCTED GRADING AND DRAINAGE ELEMENTS FOR THE PURPOSES OF OBTAINING TEMPORARY CERTIFICATES OF OCCUPANCY FOR BUILDINGS 4 AND 6 WHICH ARE TWO OF THE SIX (6) BUILDINGS COMPRISING THE LA CUEVA OFFICE PARK. THE REMAINING AREAS OUTSIDE OF THE CERTIFICATION LIMITS ARE CURRENTLY UNDER CONSTRUCTION; ALL REMAINING SITE IMPROVEMENTS ARE SCHEDULED FOR COMPLETION BY THE END OF NOVEMBER, 2000, (PRIOR TO THE NEXT RAINY SEASON). AS INDICATED BY THE AS-BUILT INFORMATION SHOWN HEREON, THE AREA WITHIN THE LIMITS OF THIS CERTIFICATION HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN WITH THE FOLLOWING EXCEPTIONS:

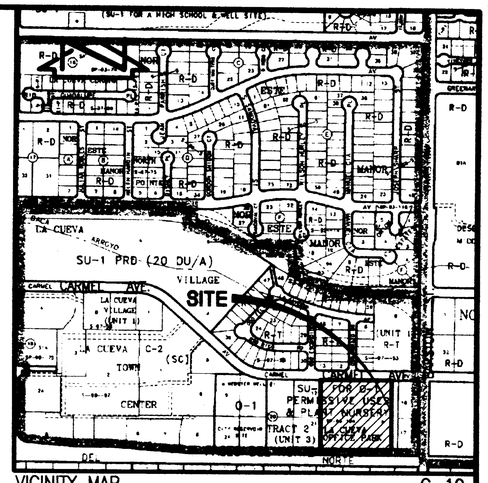
1. THE CURB AT THE NORTH END OF THE PARKING LOT BETWEEN BUILDINGS 5 AND 6 HAS NOT YET BEEN CONSTRUCTED.
2. THE FINISHED GRADING, LANDSCAPING, AND DRAINAGE RELATED SITE IMPROVEMENTS AROUND THE BUILDINGS HAVE NOT YET BEEN COMPLETED; ONLY THE ROUGH GRADING IS COMPLETE.
3. THE SIDEWALK NEAR THE SOUTHEAST CORNER OF BUILDING OF BUILDING 6 HAS BEEN CONSTRUCTED 0.44' TO 0.61' HIGHER THAN THE DESIGN ELEVATION. THE AS-CONSTRUCTED GRADES CREATE A POTENTIAL PROBLEM AREA WHICH MAY PRECLUDE ADA COMPLIANCE FOR THE SUBJECT SIDEWALK, AND THE ADJACENT CONCRETE CROSSWALK WHICH HAS NOT YET BEEN CONSTRUCTED. THIS AREA MAY REQUIRE FURTHER ANALYSIS, AND POSSIBLE CORRECTIVE WORK PRIOR TO CERTIFICATION OF SUBSEQUENT PHASES.

IN ADDITION TO THE COMPLETION OF THE OUTSTANDING SITE PAVING, GRADING AND DRAINAGE WORK FOR THE REMAINDER OF THE SITE, THESE ABOVE LISTED SPECIFIC EXCEPTIONS MUST BE ADDRESSED PRIOR TO FINAL CERTIFICATION AND ISSUANCE OF A PERMANENT CERTIFICATE OF OCCUPANCY. THIS CERTIFICATION EVALUATES GRADING AND DRAINAGE ISSUES ONLY AND DOES NOT ADDRESS COMPLIANCE WITH A.D.A. GUIDELINES. IT IS BASED UPON THIS EVALUATION OF AS-CONSTRUCTED CONDITIONS THAT ISSUANCE OF TEMPORARY CERTIFICATES OF OCCUPANCY FOR BUILDINGS 4 AND 6 IS HEREBY RECOMMENDED. THE AS-BUILT INFORMATION CONTAINED HEREIN HAS BEEN OBTAINED BY ME OR UNDER MY DIRECT SUPERVISION, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE AS-BUILT INFORMATION IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PLAN. THOSE RELYING ON THIS AS-CONSTRUCTED PLAN ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

JEFFREY G. MORTENSEN, NMPE 8547

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

11-09-2000
DATE



VICINITY MAP
SCALE: 1" = 750'±

C-19

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Plot Date: 11-09-2000
Plot Time: 09:25 am

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE NEW MEXICO 87109
ENGINEERS SURVEYORS (505) 345-4250
FAX 505 345-4254 Email jmainc@swcp.com

ENGINEER'S CERTIFICATION OF GRADING AND DRAINAGE

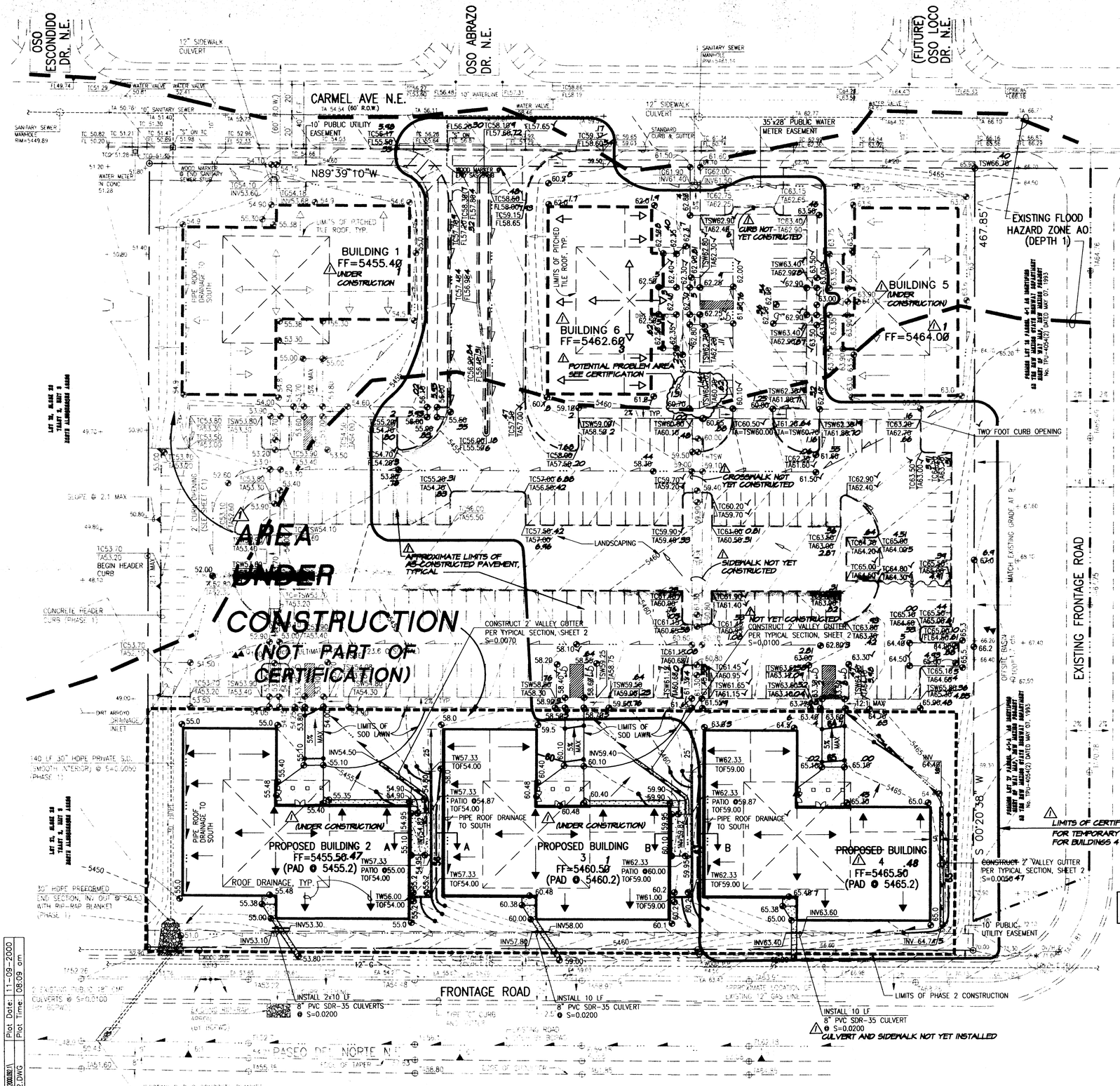
LA CUEVA OFFICE PARK - BUILDINGS 4 AND 6

8300 CARMEL AVE. N.E. - SUITES 401 AND 601

DESIGNED BY G.M
DRAWN BY S.G.H
APPROVED BY J.G.M

NO	DATE	BY	REVISIONS
1	10/00	G.M.	CERTIFICATION FOR TEMPORARY C.O. - BUILDINGS 4 AND 6

JOB NO 2000.092.1
DATE 10-2000
SHEET 1 OF 3



PROJECT BENCHMARK

STATION MARK IS A STANDARD USC & GS BRASS TABLET STAMPED, "HEAVEN 1969", SET IN TOP OF A CONCRETE POST FLUSH WITH THE GROUND; STATION IS LOCATED APPROXIMATELY 8 MILES NORTHEAST OF DOWNTOWN ALBUQUERQUE, AT THE ENTRANCE WAY TO THE "GATE HEAVEN" CEMETERY. ELEVATION=5378.787 (M.S.L.D.)

T.B.M.

A STANDARD ACS ALUMINUM CAP STAMPED "6-C19 1985" SET ON AN ALUMINUM TUBE WITH THE CAP PROJECTING 0.15 FEET ABOVE THE GROUND. LOCATED AT THE N.W. CORNER OF THE INTERSECTION OF PASEO DEL NORTE & BARSTOW. ELEVATION=5476.58 (PUBLISHED TRIC ELEVATION=5476.7)

LEGAL DESCRIPTION

TRACT A, LA CUEVA OFFICE PARK

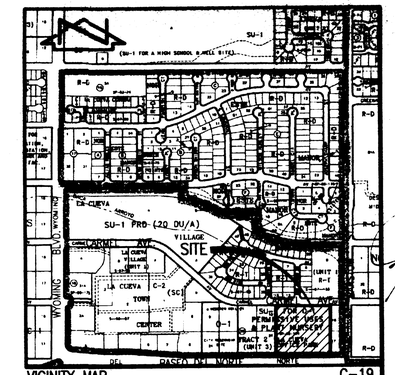
LEGEND

TC	TOP OF CURB
TA	TOP OF ASPHALT
FL	FLOWLINE
EA	EDGE OF ASPHALT
@	AT
WL	WATERLINE
SAS	SANITARY SEWER LINE
CONC	CONCRETE
P.P.	POWER POLE
OVHP (E)	OVERHEAD ELECTRIC LINE
OVHT (E)	OVERHEAD TELEPHONE LINE
FND	FOUND
5465	EXISTING CONTOUR
5460	EXISTING SPOT ELEVATION
	EXISTING FLOWLINE
	DRAINAGE BASIN
	EXISTING PASEO DEL NORTE CONSTRUCTION
	DIRECTION OF FLOW
	PROPOSED FLOWLINE
	PROPOSED SPOT ELEVATION
	PROPOSED CONCRETE
	HIGH POINT
68.86	DESIGN GRADES FOR FRONTAGE ROAD AND PASEO DEL NORTE
66	PROPOSED CONTOUR
	EXISTING FLOOD PLAIN BOUNDARY
	EXISTING SPOT ELEVATION (PHASE 1 CONSTRUCTION)
	LIMITS OF PHASE CONSTRUCTION
	PROPOSED RETAINING WALL
TW	TOP OF WALL
BW	BOTTOM OF WALL
TOF	TOP OF FOOTING

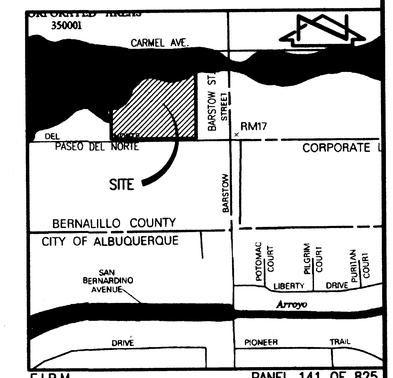
AS-BUILT LEGEND

✓	AS-BUILT=AS-DESIGNED
18.84	AS-BUILT DISTANCE
87 62.90	AS-BUILT ELEVATION

T.B.M.
AN ACS ALUMINUM CAP STAMPED "6-C19 1985"
ELEVATION=5476.58



VICINITY MAP C-19
SCALE: 1" = 750'±



F.I.R.M.
SCALE: 1" = 500'±
PANEL 141 OF 825

NOTES:

1. **THIS IS NOT A BOUNDARY SURVEY.** APPARENT PROPERTY CORNERS SHOWN HEREON ARE FOR ORIENTATION ONLY. BOUNDARY AND TOPOGRAPHIC DATA SHOWN HEREON IS TAKEN FROM A TOPOGRAPHIC SURVEY PREPARED BY JMA DATED SEPTEMBER 1998. CARMEL AVENUE PAVING IMPROVEMENTS SHOWN HEREON ARE TAKEN FROM CONSTRUCTION PLANS FOR C.O.A. PROJECT #572984. FRONTAGE ROAD AND PASEO DEL NORTE IMPROVEMENTS ARE TAKEN FROM CONSTRUCTION PLANS FOR PASEO DEL NORTE-N.M. PROJECT TPU-4054(2) BY PARSONS BRINCKERHOFF (FORMERLY AVID ENGINEERING)
2. THIS GRADING PLAN IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 2, 3 AND 4. BUILDINGS 1, 5 AND 6 ARE CURRENTLY UNDER CONSTRUCTION BY SEPARATE PERMIT.
3. "EXISTING" GRADES SHOWN HEREON FOR THE SITE ARE DESIGN GRADES FOR SITE WORK AND BUILDING 1, 5 AND 6 CONSTRUCTION CURRENTLY IN PROGRESS BY SEPARATE PERMIT. THIS PLAN SHOULD NOT BE USED FOR EARTHWORK ANALYSES.

ENGINEER'S CERTIFICATION

I, JEFFREY G. MORTENSEN, A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THIS "AS-BUILT" INFORMATION WAS OBTAINED BY ME OR UNDER MY SUPERVISION AND REPRESENTS THE "AS-BUILT" CONDITIONS OF THIS PROJECT AS OF OCTOBER 30, 2000, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. ALL VERTICAL AND HORIZONTAL DIMENSIONS SHOULD BE FIELD VERIFIED PRIOR TO USE ON FUTURE PROJECTS.

JEFFREY G. MORTENSEN
NMPE NO. 8547

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
11-09-2000
DATE

2000.092.1 ~~2000.018.1~~

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DEC - 4 2000
HYDROLOGY SECTION

JEFF MORTENSEN & ASSOCIATES, INC.
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(GRADING AND DRAINAGE PLAN SHEET 1 OF 2)
(ENGINEER'S CERTIFICATION OF GRADING AND DRAINAGE FOR TEMP. C.O.)

La Cueva Office Park -- Phase 2
8300 Carmel Avenue N.E.
Albuquerque, New Mexico

EDITH CHERRY / D. JAMES SEE ARCHITECTS

220 A GOLD AVE. SW. ALBUQUERQUE, NEW MEXICO, 87102 505 842 1278

TITLE OF SHEET
GRADING PLAN

DATE
03-2000

REVISIONS
10/2000 AS-BUILT AND CERTIFY FOR TEMP. C.O. FOR BUILDINGS 4 AND 6

SHEET NUMBER
C-7
OF
SHEET 2 OF 3

File Path: D:\MWD\0914\000002\
File Name: 0921A82.DWG
Plot Date: 11-09-2000
Plot Time: 08:09 am

DRAINAGE PLAN

I. EXECUTIVE SUMMARY AND INTRODUCTION:

THIS DRAINAGE PLAN SUPPORTS PROPOSED PHASE 2 BUILDING CONSTRUCTION AT LA CUEVA OFFICE PARK, A PROFESSIONAL OFFICE COMPLEX LOCATED WEST OF BARSTOW STREET N.E. BETWEEN CARMEL AVENUE N.E. AND PASEO DEL NORTE N.E. WITHIN THE WINDOW 'G' SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES. DEVELOPMENT ON THIS SITE WILL BE CONSISTENT WITH THE CONCEPTS ESTABLISHED BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN, CONCEPTUAL GRADING AND DRAINAGE PLAN, ROUGH GRADING PLAN, AND PHASE 1 GRADING AND DRAINAGE PLAN. THIS PHASE 2 SUBMITTAL IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 2,3 AND 4. SUBSEQUENT SUBMITTAL(S) WILL BE REQUIRED FOR BUILDING PERMIT APPROVAL FOR THE REMAINING BUILDINGS (2, 3 AND 4). ALL SITE PAVING AND DRAINAGE IMPROVEMENTS ARE CURRENTLY UNDER CONSTRUCTION AS PART OF PHASE 1 WHICH INCLUDES BUILDINGS 1, 5 AND 6.

II. BACKGROUND DOCUMENTS:

THE FOLLOWING IS A LIST OF PLANS AND REPORTS RELATIVE TO THIS SITE AND/OR REFERENCED WITHIN THIS DRAINAGE PLAN. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF THOSE PLANS AND DOCUMENTS WHICH ARE KNOWN TO THIS PREPARER.

A. THE "NORTH AND SOUTH DOMINGO BACA ARROYO AND PASEO DEL NORTE CORRIDOR DRAINAGE MANAGEMENT PLAN" PREPARED FOR AMAFCA FOR RESOURCE TECHNOLOGY, INC. (RTI) DATED DECEMBER, 1991. THIS PLAN HAS BEEN ADOPTED BY AMAFCA AS A GUIDELINE FOR DRAINAGE MANAGEMENT WITHIN THIS AREA. AMAFCA RESOLUTION 1992-3 DATED JANUARY 03, 1992 ADOPTED THIS PLAN. THE HYDROLOGY AND HYDRAULICS FOR THE PASEO DEL NORTE AND BARSTOW STREET IMPROVEMENTS ARE BASED UPON THE FLOW RATES IDENTIFIED IN THIS PLAN.

B. WINDOW 'G' MASTER DRAINAGE PLAN PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. (JMA) DATED DECEMBER, 1996 AND REVISED JANUARY 09, 1997 (CITY OF ALBUQUERQUE HYDROLOGY FILE C-19/D11. THIS MASTER DRAINAGE PLAN IDENTIFIES EXISTING, PROPOSED AND ULTIMATE DRAINAGE REQUIREMENTS FOR DEVELOPMENT WITHIN WINDOW 'G'. THE DRAINAGE CONCEPTS CONTAINED HEREIN ARE CONSISTENT WITH THOSE ESTABLISHED BY THIS MASTER DRAINAGE PLAN.

C. CONDITIONAL LETTER OF MAP REVISION (CLOMR) FOR THE PASEO DEL NORTE STORM DRAIN IMPROVEMENTS (FEMA CASE NO. 97-06-141R) APPROVED AUGUST 01, 1997. THIS CLOMR, SUBMITTED BY AMAFCA, CONDITIONALLY REMOVES FLOODING ASSOCIATED WITH THE UNNAMED TRIBUTARY OF THE SOUTH BRANCH OF THE NORTH ARROYO DE DOMINGO BACA, ALSO REFERRED TO AS ARROYO 'C'.

D. CONCEPTUAL GRADING AND DRAINAGE PLAN FOR LA CUEVA OFFICE PARK PREPARED BY JEFF MORTENSEN & ASSOCIATES, INC. DATED 06/24/1999, (CITY HYDROLOGY FILE C-19/D11C). THIS PLAN WAS APPROVED FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT AND IS THE BASIS OF THE GRADING SHOWN HEREON. THIS PLAN ESTABLISHED DRAINAGE CONCEPTS FOR THIS SITE IN ACCORDANCE WITH THE PREVIOUSLY REFERENCED MASTER DRAINAGE PLAN.

E. SITE DEVELOPMENT PLAN FOR LA CUEVA OFFICE PARK (Z-98-91, DRB 99-268). THIS SITE DEVELOPMENT PLAN WAS APPROVED BY THE EPC ON AUGUST 20, 1998 WITH FINDINGS AND CONDITIONS. THE SITE DEVELOPMENT PLAN WAS APPROVED BY THE DRB ON OCTOBER 25, 1999.

F. LA CUEVA OFFICE PARK MASS GRADING PLAN DATED 10/04/99 PREPARED BY JEFF MORTENSEN & ASSOCIATES, APPROVED BY THE CITY OF ALBUQUERQUE 11/9/99 FOR ROUGH GRADING APPROVAL (C19/D11C). THIS PLAN WAS PREPARED FOR ROUGH GRADING OPERATIONS FOR SITE PREP WORK IN ADVANCE OF BUILDING CONSTRUCTION.

G. LA CUEVA OFFICE PARK PHASE 1 GRADING AND DRAINAGE PLAN DATED 01/28/00 PREPARED BY JEFF MORTENSEN AND ASSOCIATES, APPROVED BY THE CITY OF ALBUQUERQUE 02/17/00 FOR BUILDING PERMIT APPROVAL. (C19/D11C) THIS PLAN INCLUDES THE SITE PAVING AND CONSTRUCTION OF BUILDINGS 1, 5 AND 6.
THE PROPOSED GRADING AND DEVELOPMENT SHOWN ON THIS GRADING PLAN IS CONSISTENT WITH THE CONCEPTS AND PLANS ESTABLISHED BY [redacted]ENCES.

III. PROJECT DESCRIPTION:

THIS PLAN IS FOR THE FINAL PHASE OF CONSTRUCTION FOR THE LA CUEVA OFFICE PARK. PREVIOUS PLANS ADDRESSED THE CONSTRUCTION OF ROUGH GRADING AND PHASE 1 SITE AND BUILDING IMPROVEMENTS. THE SITE IS LOCATED WITHIN THE WINDOW 'G' SECTOR PLAN AREA OF NORTH ALBUQUERQUE ACRES WEST OF BARSTOW STREET N.E. BETWEEN CARMEL AVENUE N.E. AND PASEO DEL NORTE N.E. THE SITE LIES EAST OF THE CITY OF ALBUQUERQUE RESERVOIR SITE FOR WEBSTER WELL NO. 1. THE SITE IS LOCATED ON CITY OF ALBUQUERQUE ZONE ATLAS MAP C-19, AND IS ZONED SU-1 FOR O-1 AS IDENTIFIED IN THE WINDOW 'G' SECTOR PLAN. THE LEGAL DESCRIPTION OF THE SITE IS TRACT A, LA CUEVA OFFICE PARK. PLEASE REFER TO THE AFOREMENTIONED BACKGROUND DOCUMENTS FOR MORE DETAILED INFORMATION CONCERNING THE DRAINAGE CHARACTERISTICS AND HISTORY OF THIS SITE.

IV. EXISTING CONDITIONS:

AT THE TIME OF THIS PHASE 2 PLAN PREPARATION, THE SITE WAS UNDER CONSTRUCTION WITH ROUGH GRADING AND PHASE 1 SITE AND BUILDING CONSTRUCTION.

V. DEVELOPED CONDITIONS:

DEVELOPED CONDITIONS INCLUDE FULL SITE BUILDOUT OF SIX OFFICE BUILDINGS WITH ASSOCIATED PAVING, PRIVATE DRAINAGE, AND LANDSCAPING IMPROVEMENTS. AS PREVIOUSLY INDICATED, THIS PLAN IS FOR BUILDING PERMIT APPROVAL FOR BUILDINGS 2, 3 AND 4. BUILDINGS 1, 5 AND 6 ARE CURRENTLY UNDER CONSTRUCTION BY SEPARATE PERMIT. THIS PLAN ALSO ADDRESSES THE CONSTRUCTION OF RETAINING WALLS BETWEEN THE BUILDINGS TO FACILITATE CONSTRUCTION OF LANDSCAPED PATIOS. THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THE CONCEPTS IDENTIFIED IN THE AFOREMENTIONED PROJECT REFERENCES. ALL DEVELOPED RUNOFF WILL BE DIRECTED TO A RIP-RAP BLANKET AT THE SOUTHWEST CORNER OF THE SITE VIA OVERLAND SHEET FLOW, CONCENTRATED FLOW AND A PRIVATE STORM DRAIN CONSTRUCTED AS PART OF THE PHASE 1 IMPROVEMENTS. FROM THIS POINT, RUNOFF WILL ENTER THE AFOREMENTIONED PUBLIC CMP CULVERTS WHICH WERE SIZED AND PROVIDED FOR THIS PROJECT. THESE CULVERTS OUTFALL TO THE RECENTLY CONSTRUCTED PDN ROAD DITCH WHICH THEN INTRODUCES RUNOFF TO THE 78" PDN STORM DRAIN.

VI. GRADING PLAN:

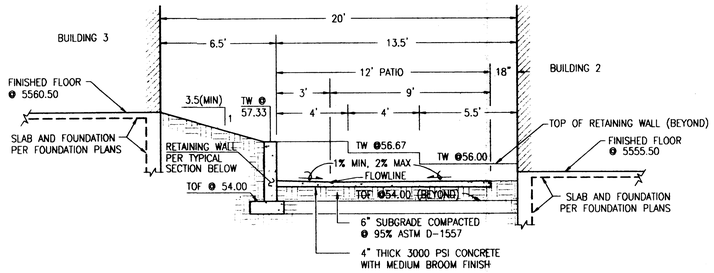
THE GRADING PLAN ON SHEET 1 SHOWS: 1) APPROVED DESIGN GRADES FOR PHASE 1 CONSTRUCTION CURRENTLY IN PROGRESS SHOWN THEREON AS EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS, 3) THE LIMIT AND CHARACTER OF THE EXISTING OFFSITE IMPROVEMENTS, 4) THE LIMIT AND CHARACTER OF PHASE 1 SITE AND BUILDING IMPROVEMENTS CURRENTLY UNDER CONSTRUCTION, 5) THE LIMIT AND CHARACTER OF THE PROPOSED (PHASE 2) IMPROVEMENTS, AND 6) CONTINUITY BETWEEN PROPOSED AND EXISTING GRADES.

VII. CALCULATIONS:

EXISTING AND DEVELOPED RUNOFF CALCULATIONS FOR THIS OVERALL PROJECT WERE PERFORMED AND PRESENTED AS PART OF THE PHASE 1 GRADING AND DRAINAGE PLAN AND HAVE NOT BEEN REPRODUCED HEREIN. HYDRAULIC CALCULATIONS FOR THE CULVERTS WERE PERFORMED USING THE ORIFICE EQUATION AND MANNING'S EQUATION. AS SHOWN BY THESE CALCULATIONS, THE CULVERTS HAVE SUFFICIENT CAPACITY TO PASS THE 10-YEAR STORM AS DEMONSTRATED BY THE PREVIOUSLY REFERENCED PLANS. ALL DEVELOPED DISCHARGE WILL BE ACCEPTED AND CONVEYED BY PUBLIC AND PRIVATE STORM DRAIN IMPROVEMENTS TO EXISTING PUBLIC STORM DRAIN IMPROVEMENTS WHICH ARE SIZED FOR FREE DISCHARGE FROM THIS SITE. ALL PRIVATE STORM DRAIN IMPROVEMENTS WILL BE CONSTRUCTED AND MAINTAINED BY THE DEVELOPER OF THE OFFICE PARK.

VIII. CONCLUSION:

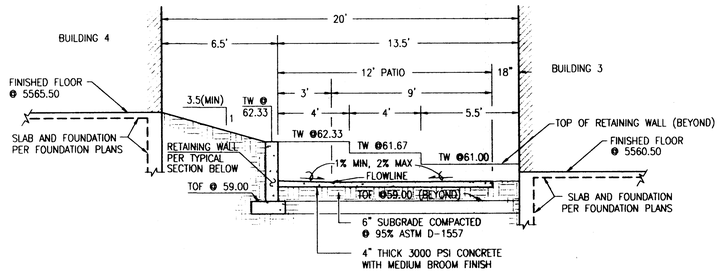
THIS SUBMITTAL IS FOR CONSTRUCTION OF THE PHASE 2 IMPROVEMENTS FOR THE LA CUEVA OFFICE PARK PURSUANT TO A MASTER DRAINAGE PLAN, A CONCEPTUAL GRADING AND DRAINAGE PLAN, AND A PHASE ONE GRADING AND DRAINAGE PLAN. AS IDENTIFIED IN THESE PREVIOUSLY APPROVED PLANS, THE PROPOSED CONSTRUCTION WILL CAUSE AN INCREASE IN THE PEAK RATE AND VOLUME OF RUNOFF GENERATED BY THIS SITE. DEVELOPED RUNOFF WILL DRAIN TO THE PASEO DEL NORTE RIGHT-OF-WAY AND INTO PUBLIC STORM DRAIN IMPROVEMENTS CONTAINED THEREIN WHICH ARE SIZED FOR THIS DISCHARGE. THERE IS NO NEW PUBLIC INFRASTRUCTURE REQUIRED FOR THIS PROJECT. THERE ARE NO DPM DESIGN VARIANCES REQUESTED BY THIS PROJECT. THERE ARE NO DRAINAGE EASEMENTS REQUIRED FOR THIS PROJECT. THE PRIVATE DRAINAGE IMPROVEMENTS WILL BE OWNED, OPERATED AND MAINTAINED BY THE PROPERTY OWNER.



SECTION A–A

SCALE: 1" = 4'

⚠ NOT YET CONSTRUCTED



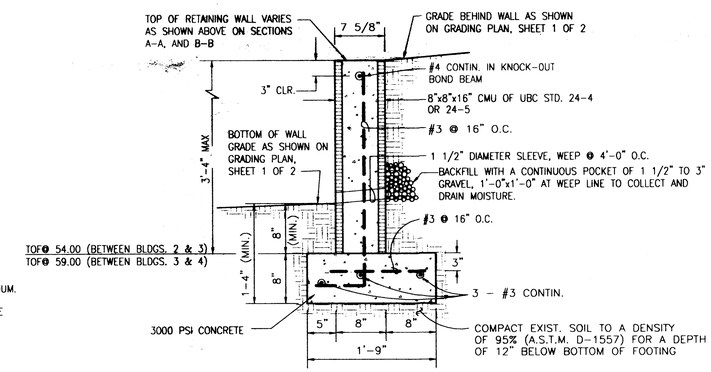
SECTION B–B

SCALE: 1" = 4'

⚠ NOT YET CONSTRUCTED

RETAINING WALL NOTES:

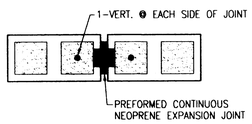
1. 8"x8"x16" CMU OF UBC STD. 24-4 OR 24-5.
2. USE KNOCK-OUT BOND BEAM BLOCK AT 4'-0" MAX C.C., VERTICALLY, AND 1 #4 CONTINUOUS.
3. FILL ALL BLOCK VOIDS WITH 3000 PSI CONCRETE.
4. REINFORCING TO BE INTERMEDIATE GRADE STEEL. fs=20,000 psi
5. IN LIEU OF CONTINUOUS KNOCK-OUT BOND BEAMS, CONTRACTOR MAY INSTALL DUR-O-WALL REINFORCING EVERY SECOND COURSE.
6. SPLICE SHALL BE 40 BAR DIA. MINIMUM FOR VERTICAL BARS. ALL OTHER SHALL BE 20 BAR DIA. MINIMUM.
7. CONCRETE FILL SHALL BE 21 DAYS OLD OR SHALL ACHIEVE ULTIMATE STRENGTH PRIOR TO BACKFILLING.
8. INSTALL MASONRY CONTROL JOINTS PER TYPICAL DETAIL AT UNIFORM SPACINGS OF 20' (MIN.) TO 24' (MAX.).



TYPICAL RETAINING WALL SECTION

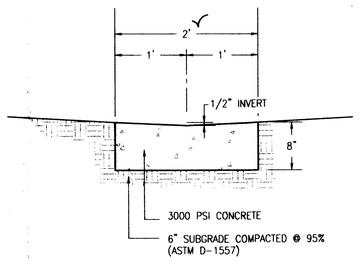
SCALE: 1" = 1'-0"

⚠ NOT YET CONSTRUCTED



TYPICAL MASONRY CONTROL JOINT DETAIL

SCALE: 1" = 1'- 0"



⚠ TYPICAL VALLEY GUTTER SECTION

SCALE: 1" = 1'-0"

CULVERT CALCULATIONS

1. BUILDING 4

A. RUNOFF
CONTRIBUTING AREA =0.14 AC.
Q_{10} = (0.14 AC)(3.39 CFS/AC) = 0.5 CFS (ASSUMES 100% IMPERVIOUS)

B. ENTRANCE CONDITION (8" PIPE)
$Q = CA\,(2gh)^{1/2}$
C = 0.6, A=0.35 SF, g=32.2, h=1.07 FT
Q =1.7 CFS > Q_{10}

C. CULVERT CAPACITY (S=0.0200)
$Q = (1.49/n)\,AR^{2/3}S^{1/2}$
n = 0.013
Q =1.78 CFS > Q_{10}

2. BUILDING 3

A. RUNOFF
CONTRIBUTING AREA =0.34 AC.
Q_{10} = (0.34 AC)(3.39 CFS/AC) = 1.15 CFS (ASSUMES 100% IMPERVIOUS)

B. ENTRANCE CONDITION (8" PIPE)
$Q = CA\,(2gh)^{1/2}$
C = 0.6, A=0.35 SF, g=32.2, h=0.7 FT
Q =1.41 CFS > Q_{10}

C. CULVERT CAPACITY (S=0.0200)
$Q = (1.49/n)\,AR^{2/3}S^{1/2}$
n = 0.013
Q =1.78 CFS > Q_{10}

3. BUILDING 2

A. RUNOFF
CONTRIBUTING AREA =0.54 AC. (ASSUMES 100% IMPERVIOUS)
Q_{10} = (0.54 AC)(3.39 CFS/AC) = 1.83 CFS

B. ENTRANCE CONDITION (2-8" PIPES)
$Q = CA\,(2gh)^{1/2}$
C = 0.6, A=0.35 SF, g=32.2, h=0.4 FT
Q =1.07 CFS/PIPE x 2 PIPES = 2.14 CFS > Q_{10}

C. CULVERT CAPACITY (S=0.0200)
$Q = (1.49/n)\,AR^{2/3}S^{1/2}$
n = 0.013
Q =1.78 CFS/PIPE x 2 PIPES = 3.56 CFS > Q_{10}

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 (ALBUQUERQUE AREA), 1-800-321-ALERT(2537) (STATEWIDE), 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 IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.

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. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.

6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

7. SLOPES WHICH EXCEED 3:1 (HORIZONTAL TO VERTICAL) SHALL BE TREATED WITH GRAVEL MULCH OR OTHERWISE STABILIZED WITH LANDSCAPING IMPROVEMENTS. THE MAXIMUM STABILIZED SLOPE ALLOWED BY THIS PLAN IS 2:1

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.

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.

⚠ ENGINEER'S CERTIFICATION

I, JEFFREY G. MORTENSEN, A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THIS "AS-BUILT" INFORMATION WAS OBTAINED BY ME OR UNDER MY SUPERVISION AND REPRESENTS THE "AS-BUILT" CONDITIONS OF THIS PROJECT AS OF OCTOBER 30, 2000, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. ALL VERTICAL AND HORIZONTAL DIMENSIONS SHOULD BE FIELD VERIFIED PRIOR TO USE ON FUTURE PROJECTS.

JEFFREY G. MORTENSEN, NMPE NO. 8547

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

DATE 11-09-2000

⚠ 2000.092.1 ~~2000.018.1~~

RECEIVED DEC - 4 2000 HYDROLOGY SECTION

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ALBUQUERQUE ☐ NEW MEXICO 87109
ENGINEERS ☐ SURVEYORS (505) 345-4250
FAX: 505 345-4254 ☐ Email: jmainc@swcp.com

(GRADING AND DRAINGE PLAN SHEET 2 OF 2)

⚠ (ENGINEER'S CERTIFICATION OF GRADING AND DRAINAGE FOR TEMP. C.O.)

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER 03-08-2000 ENGINEER

La Cueva Office Park -- Phase 2
8300 Carmel Avenue N.E.
Albuquerque, New Mexico

EDITH CHERRY / D. JAMES SEE ARCHITECTS

220 A GOLD AVE. SW. ALBUQUERQUE, NEW MEXICO, 87102 505 842 1278

TITLE OF SHEET

DRAINAGE PLAN, CALCULATIONS, SECTIONS AND DETAILS

DATE

03-2000

REVISIONS

⚠ 10/2000 AS-BUILT AND CERTIFY FOR TEMP. C.O. FOR BUILDINGS 4 AND 6

SHEET NUMBER

C-8

OF

SHEET 3 OF 3

File Path: L:\DWG\ACN\14000.092\ | Plot Date: 11-09-2000
File Name: 09214B4.DWG | Plot Time: 09:20 am