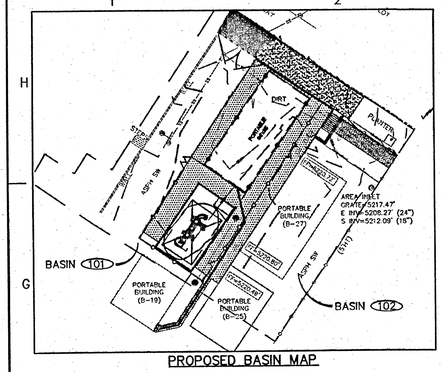
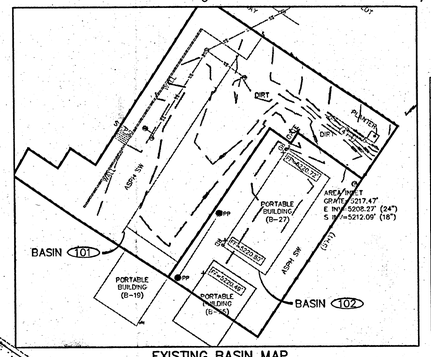
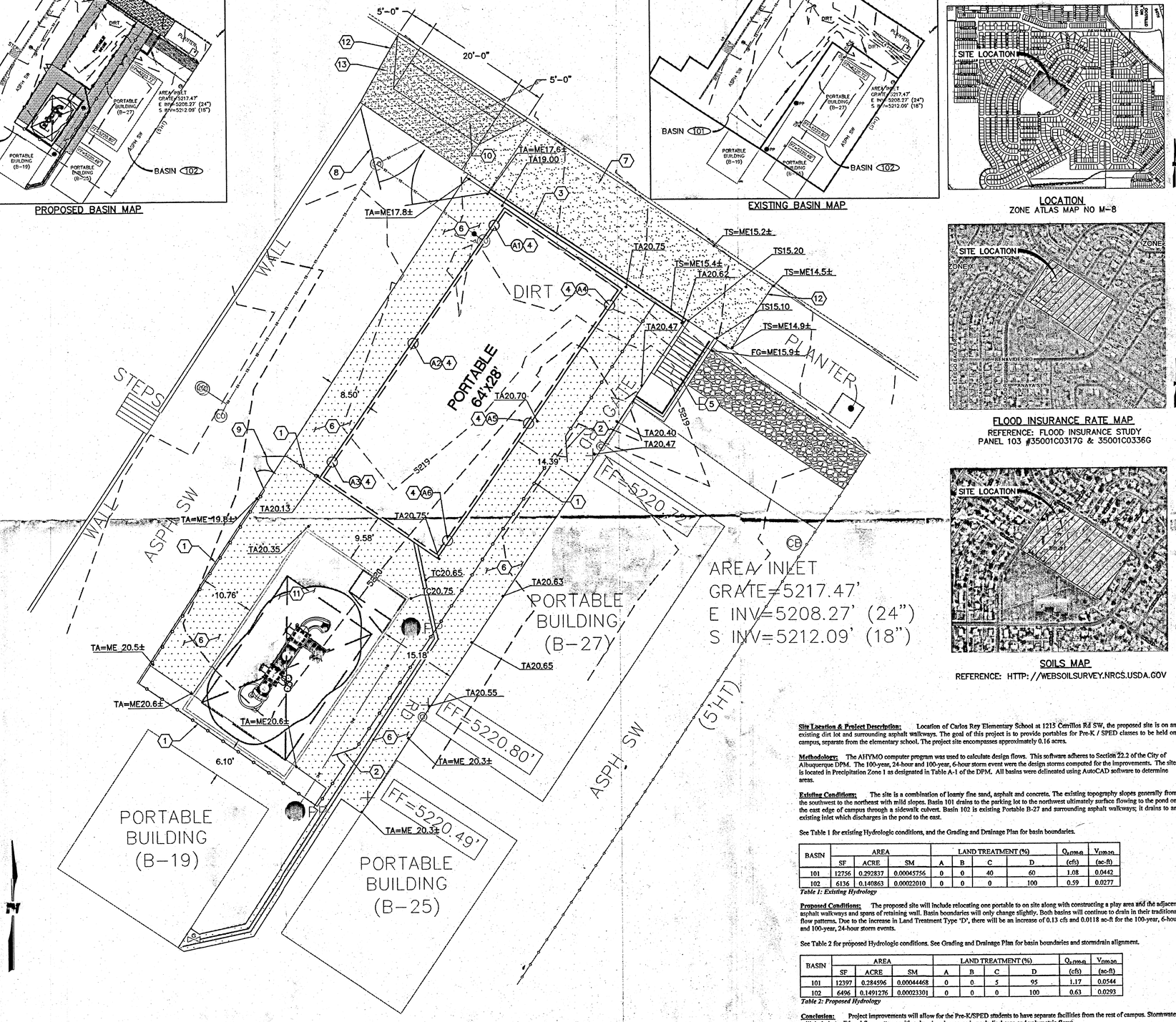


PROPOSED BASIN MAP



EXISTING BASIN MAP



A1 GRADING & DRAINAGE PLAN
SCALE: 1" = 10'

LOCATION
ZONE ATLAS MAP NO M-8

FLOOD INSURANCE RATE MAP
REFERENCE: FLOOD INSURANCE STUDY
PANEL 103 #35001C0317G & 35001C0336G

SOILS MAP
REFERENCE: HTTP://WEBSOILSURVEY.NRCS.USDA.GOV

Site Location & Project Description: Location of Carlos Rey Elementary School at 1215 Cerrillos Rd SW, the proposed site is on an existing dirt lot and surrounding asphalt walkways. The goal of this project is to provide portables for Pre-K / SPED classes to be held on campus, separate from the elementary school. The project site encompasses approximately 0.16 acres.

Methodology: The AHYMO computer program was used to calculate design flows. This software adheres to Section 22.2 of the City of Albuquerque DPM. The 100-year, 24-hour and 100-year, 6-hour storm event were the design storms computed for the improvements. The site is located in Precipitation Zone 1 as designated in Table A-1 of the DPM. All basins were delineated using AutoCAD software to determine areas.

Existing Conditions: The site is a combination of loamy fine sand, asphalt and concrete. The existing topography slopes generally from the southwest to the northeast with mild slopes. Basin 101 drains to the parking lot to the northwest ultimately surface flowing to the pond on the east edge of campus through a sidewalk culvert. Basin 102 is existing Portable B-27 and surrounding asphalt walkways; it drains to an existing inlet which discharges in the pond to the east.

See Table 1 for existing Hydrologic conditions, and the Grading and Drainage Plan for basin boundaries.

BASIN	AREA			LAND TREATMENT (%)				Q_{100-6}	V_{100-24}
	SF	ACRE	SM	A	B	C	D	(cfs)	(ac-ft)
101	12756	0.292837	0.00045756	0	0	40	60	1.08	0.0442
102	6136	0.140863	0.00022010	0	0	0	100	0.59	0.0277

Table 1: Existing Hydrology

Proposed Conditions: The proposed site will include relocating one portable to on site along with constructing a play area and the adjacent asphalt walkways and spans of retaining wall. Basin boundaries will only change slightly. Both basins will continue to drain in their traditional flow patterns. Due to the increase in Land Treatment Type 'D', there will be an increase of 0.13 cfs and 0.0118 ac-ft for the 100-year, 6-hour and 100-year, 24-hour storm events.

See Table 2 for proposed Hydrologic conditions. See Grading and Drainage Plan for basin boundaries and stormdrain alignment.

BASIN	AREA			LAND TREATMENT (%)				Q_{100-6}	V_{100-24}
	SF	ACRE	SM	A	B	C	D	(cfs)	(ac-ft)
101	12397	0.284596	0.00044468	0	0	5	95	1.17	0.0544
102	6496	0.1491276	0.00023301	0	0	0	100	0.63	0.0293

Table 2: Proposed Hydrology

Conclusion: Project improvements will allow for the Pre-K/SPED students to have separate facilities from the rest of campus. Stormwater will drain in traditional flow patterns with only minor increases in peak discharge and volumetric flows.

SHEET KEY NOTES

1. INSTALL 3'-0"H CHAINLINK FENCE. SEE DETAIL A1/C-501.
2. INSTALL 4'-0"W, 3'-0"H, CHAINLINK PEDESTRIAN GATE.
3. INSTALL RETAINING WALL. SEE SHEET C-401.
4. INSTALL PIER. SEE DETAIL F8/C-501.
5. INSTALL STAIRWELL. SEE SHEET C-402.
6. INSTALL 2" ASPHALT. SEE DETAIL A6/C-501.
7. INSTALL 4" PCC SIDEWALK. SEE DETAIL G8/C-501.
8. INSTALL 30'-0"W, 4'-0"H DOUBLE SWING GATE WITH LOCKABLE LATCH.
9. INSTALL 8'-0"W, 3'-0"H DOUBLE SWING GATE.
10. INSTALL DRIVE PAD, PER STD DWG 2425.
11. INSTALL PLAY AREA WITH OUTER DIMENSIONS OF 43.10'x24.50'. SEE DETAIL A6/C-502.
12. CONNECT TO EXISTING CONCRETE. SEE DETAIL G6/C-502
13. INSTALL 6" PCC. SEE DETAIL C6/C-501

PIER LOCATION TABLE

PIER LOCATION	NORTHING	EASTING	TOP OF PIER ELEVATION
A1	1474973.30	1491495.15	5219.27
A2	1474950.33	1491479.14	5219.27
A3	1474927.36	1491463.14	5219.27
A4	1474957.63	1491517.65	5219.27
A5	1474934.66	1491501.64	5219.27
A6	1474911.68	1491485.63	5219.27

LEGEND

- PP — ELECTRICAL, POWER POLE
- CO — UTILITY, SANITARY CLEANOUT
- CB — DRAINAGE, CATCH BASIN
- SITE, FENCE CHAINLINK
- 6835 — CONTOUR, INDEX
- CONTOUR, INTERMEDIATE
- +7000.00 — SITE, SPOT ELEVATION
- SITE, CONTROL POINTS
- 6" PCC
- 4" PCC
- PROPOSED ASPHALT
- PROPOSED ¾" GRAVEL
- PROPOSED FENCING

RECEIVED
JUL 02 2010
HYDROLOGY SECTION

WILSON & COMPANY
4900 LANG AVENUE N.E.
ALBUQUERQUE, NEW MEXICO 87109
PH (505) 348-4000
FAX (505) 348-4072
www.wilsonco.com

CONSULTANTS

SEAL — MARIO J. MARTINEZ, NEW MEXICO, 15340, REGISTERED PROFESSIONAL ENGINEER

PROJECT NAME: CARLOS REY ELEMENTARY SCHOOL PRE-K/SPED PORTABLES

MARK	DESCRIPTION	DATE

PROJECT NO:	1060001700
DESIGNED BY:	DNP
DRAWN BY:	JEM
CHECKED BY:	MJI
DATE:	

SHEET TITLE: GRADING & DRAINAGE PLAN

SHEET NO: C-102

M:\DS\10-600-017-00\CADD\SHEETS\02_GD\06017_GD.dwg 4/20/2010 4:27:52 PM MDT

CERRILLOS ROAD S.W.

Camelia Court S.W.

Catalina Court S.W.

Mariano Trail S.W.

DELGADO DRIVE S.W.

Apodaca Street S.W.

Clemente Place S.W.

NEW 30' CURB CUT

MATCH EXISTING

SEE FOR AS BUILTS
SEE 1/C3.3 FOR ENLARGED PLAN

SEE 2/C3.2 FOR ENLARGED PLAN
SEE FOR AS BUILTS

SEE 1/C3.2 FOR ENLARGED PLAN
SEE FOR AS BUILTS

EXISTING BUILDING

NEW BUILDING F.F.=99.00

NEW BUILDINGS F.F.=99.00

EXISTING BUILDINGS

CHAIN LINK FENCE

C.O.A. CONCRETE CURB

24" HDPE @ 0.50%

KEYED NOTES

1. 4" THICK, 4000 PSI, AIR-ENTRAINED CONCRETE PAVING OVER SUBGRADE COMPACTED TO 95% OF MAXIMUM DENSITY.
2. STORM DRAIN DROP INLET PER DETAIL 1/C3.4.
3. 1'-4" STEM WALL AS REQUIRED.
4. NEW ASPHALT PAVING PER DETAIL 2/C3.4. REMOVE EXISTING PAVING AS REQUIRED.
5. NEW SITE RETAINING WALL PER DETAIL 3/C3.4.
6. NEW CONCRETE CURB PER DETAIL 4/C3.4.
7. 8"~ PVC STORM DRAIN LINE.
8. 12"~ PVC STORM DRAIN LINE.
9. EXISTING DROP INLET. NEW STORM DRAIN TO MATCH EXISTING INVERT ELEVATION.
10. NEW CONCRETE DRIVE PAD PER C.O.A. STD. DRAWING #2425.
11. 3'-4" STEM WALL AS REQUIRED.
12. ZURN Z400 TYPE 'S' AREA DRAIN. -WITH HEEL TRAFFIC RATED GRATE.
13. CMU COURTYARD WALL. -SEE ARCH.
14. NEW CONCRETE STAIR. SEE DETAIL 6/S9.4.
15. HAND RAIL. SEE ARCH.
16. EXISTING STORM DRAIN. CONTRACTOR SHALL ASSURE THE PIPE IS FREE OF SEDIMENT AND THAT RUNOFF FLOWS PROPERLY IN THIS LINE.
17. MODIFY EXISTING DROP INLET TO LOWER THE GRATE AND FRAME FROM ELEV. 98.91 TO ELEV. 98.30 AS INDICATED.

LEGEND

- EXISTING BUILDING LINE
- NEW BUILDING LINE
- 97 EXISTING CONTOUR
- 79 NEW CONTOUR
- PROPERTY LINE
- X EXISTING FENCE LINE
- 13.00 PROPOSED SPOT ELEVATION
- 13.00 EXISTING SPOT ELEVATION
- SWALE
- NEW FLOW DIRECTION ARROW
- FF FINISHED FLOOR
- TC TOP OF CONCRETE
- FG FINISHED GRADE
- INV. INVERT
- TG TOP OF GRATE
- FL FLOWLINE
- TA TOP OF ASPHALT
- EXTENT OF NEW ASPHALT
- NEW CONCRETE PAVING
- AS BUILT SPOT ELEVATIONS

THIS AREA NOT IN CONTRACT

GRADING AND DRAINAGE PLAN
1"=30'

I, MIKE WALLA NMPE 11030, OF THE FIRM WALLA ENGINEERING, LTD. HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL CONFORMANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 8-14-08. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY THOMAS D. JOHNSTON NMPLS 14264. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 3-27-08 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR CERTIFICATION OF OCCUPANCY. THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THE PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

MIKE WALLA NMPE 11030

3/28/08
DATE

NO.	REVISION	DATE

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Walla Engineering
Structural Engineering
Civil Engineering
5100 Indian School Road NE, Suite 210
Albuquerque, New Mexico 87110
Phone (505) 881-3508 • Facsimile 881-4029

GRADING & DRAINAGE PLAN

CARLOS REY ELEMENTARY SCHOOL
NEW CLASSROOM, ADMINSTRATION AND
KINDERGARTEN ADDITION AND RENOVATION
1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

MIKE L. WALLA NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 3/28/08

RECEIVED
MAR 27 2008
HYDROLOGY SECTION

DATE: 08/14/08
DRAWN: KKG
DESIGNED: MJW
CHECKED: MJW
PROJ. NO:

SHEET: C3.1

KEYED NOTES

1 4" THICK, 4000 PSI, AIR-ENTRAINED CONCRETE PAVING OVER SUBGRADE COMPACTED TO 95% OF MAXIMUM DENSITY.

2 STORM DRAIN DROP INLET PER DETAIL 1/C3.4.

3 1'-4" STEM WALL AS REQUIRED.

4 NEW ASPHALT PAVING PER DETAIL 2/C3.4. REMOVE EXISTING PAVING AS REQUIRED.

5 NEW SITE RETAINING WALL PER DETAIL 3/C3.4.

6 NEW CONCRETE CURB PER DETAIL 4/C3.4.

7 8"~ PVC STORM DRAIN LINE.

8 12"~ PVC STORM DRAIN LINE.

9 EXISTING DROP INLET. NEW STORM DRAIN TO MATCH EXISTING INVERT ELEVATION.

10 NEW CONCRETE DRIVE PAD PER C.O.A. STD. DRAWING #2425.

11 3'-4" STEM WALL AS REQUIRED.

12 ZURN Z400 TYPE 'S' AREA DRAIN. -WITH HEEL TRAFFIC RATED GRATE.

13 CMU COURTYARD WALL. -SEE ARCH.

14 NEW CONCRETE STAIR. SEE DETAIL 6/S3.4.

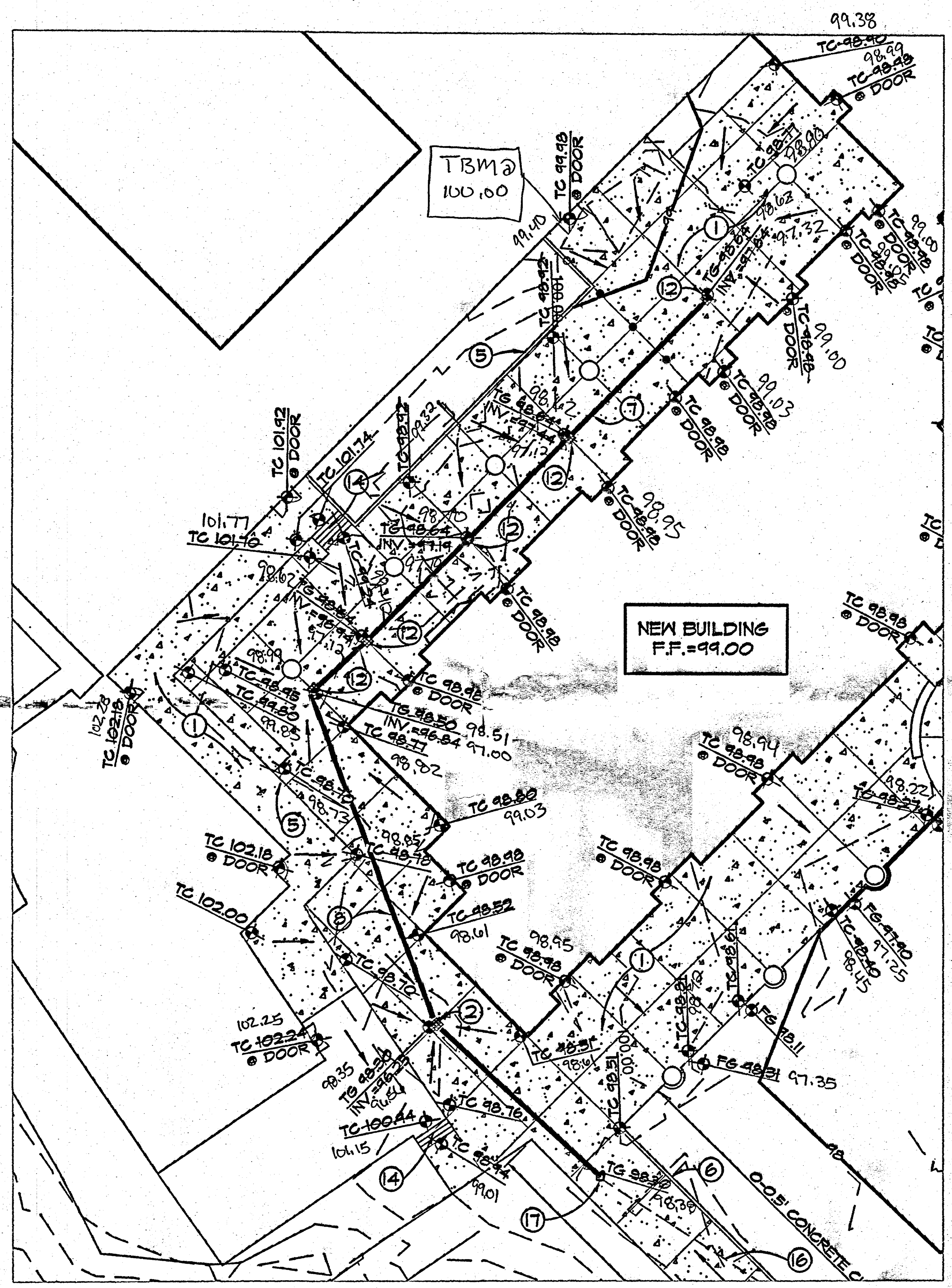
15 HAND RAIL. SEE ARCH.

16 EXISTING STORM DRAIN. CONTRACTOR SHALL ASSURE THE PIPE IS FREE OF SEDIMENT AND THAT RUNOFF FLOWS PROPERLY IN THIS LINE.

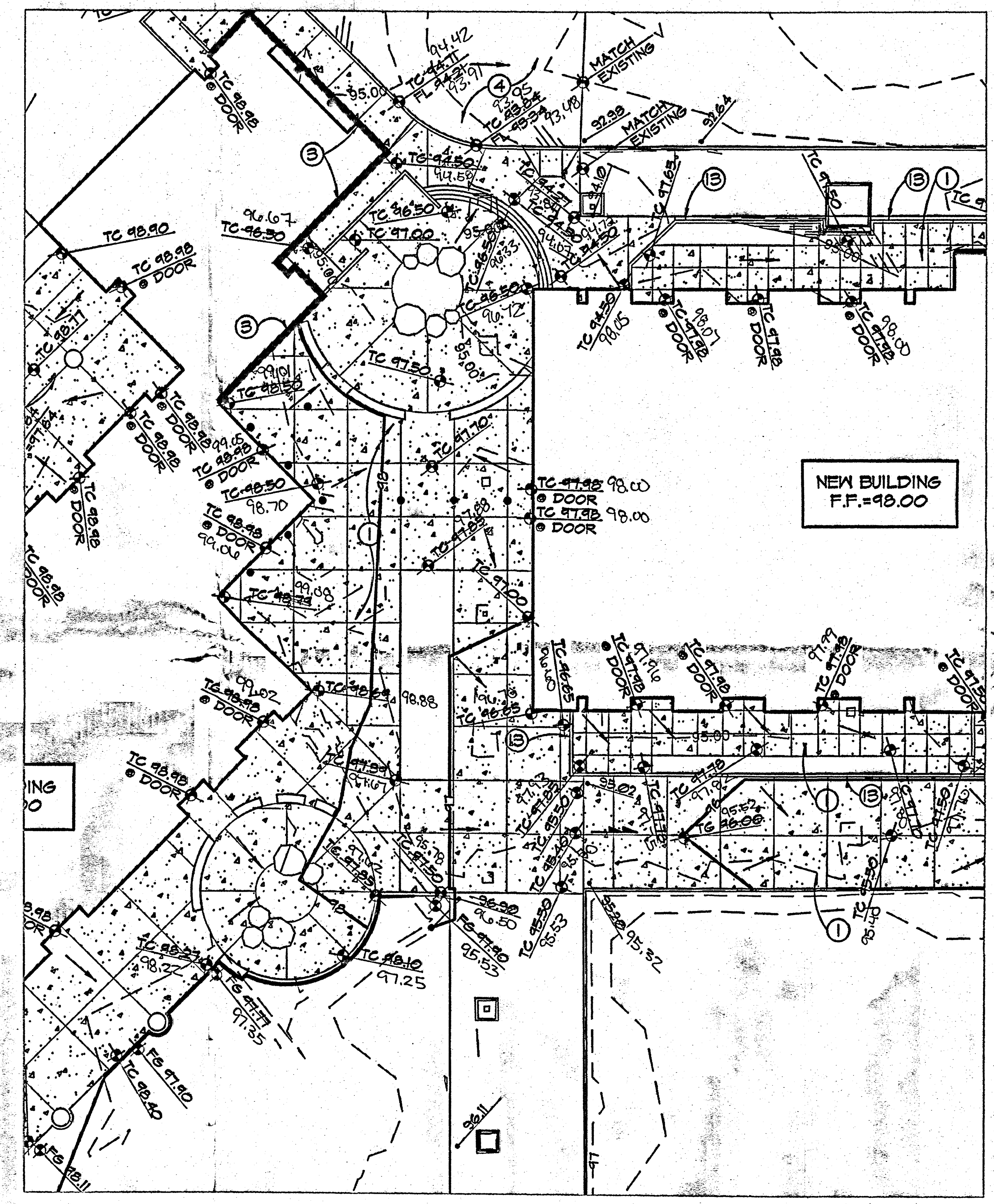
17 MODIFY EXISTING DROP INLET TO LOWER THE GRATE AND FRAME FROM ELEV. 98.91 TO ELEV. 98.30 AS INDICATED.

LEGEND

	EXISTING BUILDING LINE
	NEW BUILDING LINE
97	EXISTING CONTOUR
79	NEW CONTOUR
	PROPERTY LINE
X	EXISTING FENCE LINE
13.00	PROPOSED SPOT ELEVATION
13.00	EXISTING SPOT ELEVATION
	SWALE
	NEW FLOW DIRECTION ARROW
FF	FINISHED FLOOR
TC	TOP OF CONCRETE
FG	FINISHED GRADE
INV.	INVERT
TG	TOP OF GRATE
FL	FLOWLINE
TA	TOP OF ASPHALT
	EXTENT OF NEW ASPHALT
	NEW CONCRETE PAVING
13.01 / 13.00	AS BUILT ELEVATIONS



1 / C3.2 ENLARGED GRADING & DRAINAGE PLAN
1"=20'



2 / C3.2 ENLARGED GRADING & DRAINAGE PLAN
1"=20'

I, MIKE WALLA NMPE 11030, OF THE FIRM WALLA ENGINEERING,LTD., HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 8-14-06. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY THOMAS D. JOHNSTON NMPLS 14269. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 3-27-08 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR CERTIFICATION OF OCCUPANCY. THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THE PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

MIKE WALLA NMPE 11030 — 3/27/08
DATE

MIKE J. WALLA — NEW MEXICO — 11030 — REGISTERED PROFESSIONAL ENGINEER — 3/27/08

RECEIVED
MAR 27 2008
HYDROLOGY SECTION

NO.	REVISION	DATE

HUITT-ZOLLARS
Huitt-Zollars, Inc. Albuquerque
6501 Americas Parkway NE, Suite 550
Albuquerque, New Mexico 87110-5372
Phone (505) 883-8114 Fax (505) 883-5022

Walla ENGINEERING LTD
Structural Engineering
Civil Engineering
6100 Indian School Road NE • Suite 210
Albuquerque • New Mexico • 87110
881-3008 • Facsimile 881-4025

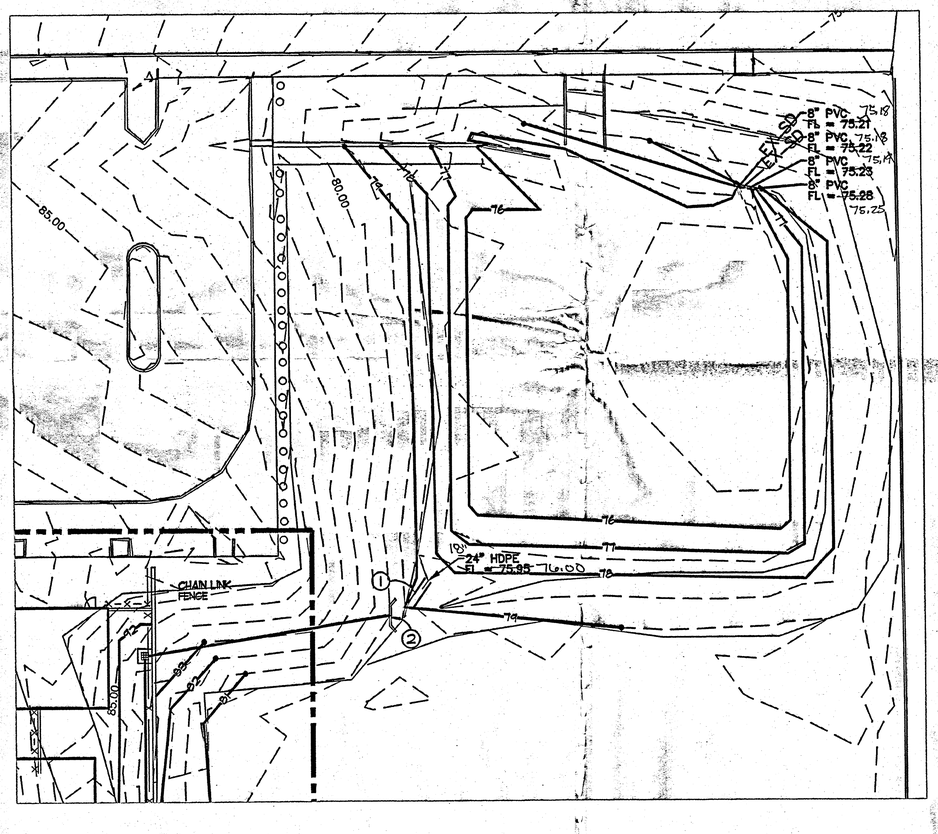
GRADING & DRAINAGE PLAN

CARLOS REY ELEMENTARY SCHOOL
NEW CLASSROOM, ADMINISTRATION AND KINDERGARTEN ADDITION AND RENOVATION
1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

MIKE J. WALLA — NEW MEXICO — 11030 — REGISTERED PROFESSIONAL ENGINEER — 8/14/06

DATE: 08/14/06
DRAWN: KKG
DESIGNED: MJW
CHECKED: MJW
PROJ. NO.:

SHEET: C3.2



1 / C3.3 ENLARGED GRADING & DRAINAGE PLAN

1"=20'

KEYED NOTES

1 REMOVE EXISTING STORM DRAIN LINE.

2 EXISTING DRAIN OUTLET-INVERT ELEVATION=79.25

LEGEND

- EXISTING BUILDING LINE
- NEW BUILDING LINE
- 97 EXISTING CONTOUR
- 79 NEW CONTOUR
- PROPERTY LINE
- X EXISTING FENCE LINE
- 13.00 PROPOSED SPOT ELEVATION
- 13.00 EXISTING SPOT ELEVATION
- NEW FLOW DIRECTION ARROW
- FF FINISHED FLOOR
- TC TOP OF CONCRETE
- FG FINISHED GRADE
- INV. INVERT
- TG TOP OF GRATE
- FL FLOWLINE
- TA TOP OF ASPHALT
- EXTENT OF NEW ASPHALT
- NEW CONCRETE PAVING
- 13.01 / 13.09 AS BUILT ELEVATIONS

I, MIKE MALLA NMPE 11030, OF THE FIRM MALLA ENGINEERING LTD., HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 8-14-06. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY THOMAS D. JOHNSTON NMPLS 14264. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 9-27-08 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR CERTIFICATION OF OCCUPANCY. THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THE PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

MIKE MALLA NMPE 11030 — DATE 3/27/08

MIKE J. MALLA NEW MEXICO 11030 REGISTERED PROFESSIONAL ENGINEER 3-27-08

RECEIVED
MAR 27 2008
HYDROLOGY SECTION

NO.	REVISION	DATE

HUITT-ZOLLARS
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GRADING & DRAINAGE PLAN

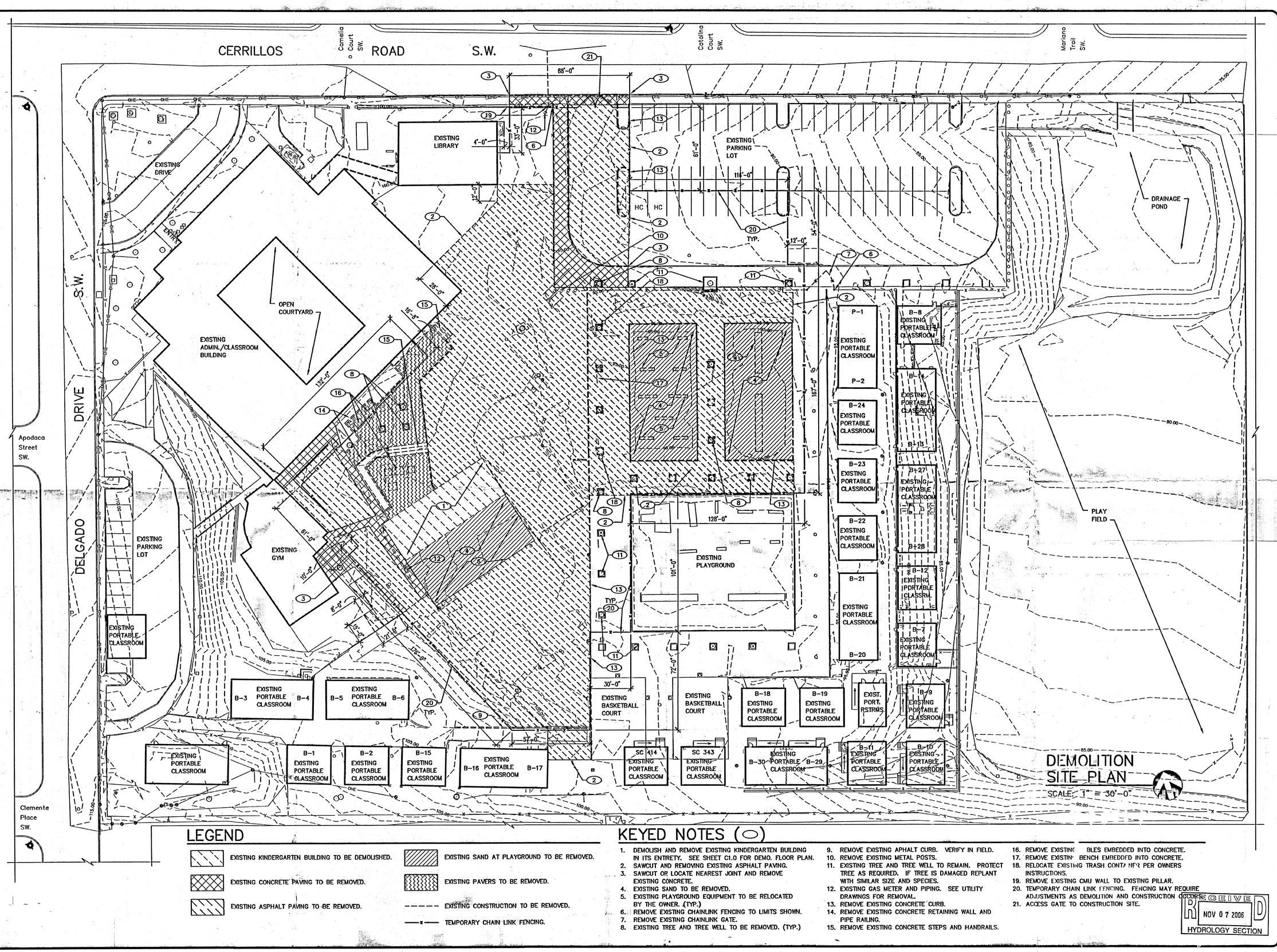
CARLOS REY ELEMENTARY SCHOOL
NEW CLASSROOM, ADMINSTRATION AND
KINDERGARTEN ADDITION AND RENOVATION

1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

MIKE J. MALLA NEW MEXICO 11030 REGISTERED PROFESSIONAL ENGINEER 8-14-06

DATE: 08/14/06
DRAWN: KKG
DESIGNED: MJW
CHECKED: MJW
PROJ. NO.:

SHEET: C3.3



LEGEND

- EXISTING KINDERGARTEN BUILDING TO BE DEMOLISHED.
- EXISTING CONCRETE PAVING TO BE REMOVED.
- EXISTING ASPHALT PAVING TO BE REMOVED.
- EXISTING SAND AT PLAYGROUND TO BE REMOVED.
- EXISTING PAVERS TO BE REMOVED.
- EXISTING CONSTRUCTION TO BE REMOVED.
- TEMPORARY CHAIN LINK FENCING.

KEYED NOTES (○)

1. DEMOLISH AND REMOVE EXISTING KINDERGARTEN BUILDING IN ITS ENTIRETY. SEE SHEET C1.0 FOR DEMO. FLOOR PLAN.
2. SAWCUT AND REMOVING EXISTING ASPHALT PAVING.
3. SAWCUT OR LOCATE NEAREST JOINT AND REMOVE EXISTING CONCRETE.
4. EXISTING SAND TO BE REMOVED.
5. EXISTING PLAYGROUND EQUIPMENT TO BE RELOCATED BY THE OWNER. (TYP.)
6. REMOVE EXISTING CHAINLINK FENCING TO LIMITS SHOWN.
7. REMOVE EXISTING CHAINLINK GATE.
8. EXISTING TREE AND TREE WELL TO BE REMOVED. (TYP.)
9. REMOVE EXISTING APHALT CURB. VERIFY IN FIELD.
10. REMOVE EXISTING METAL POSTS.
11. EXISTING TREE AND TREE WELL TO REMAIN. PROTECT TREE AS REQUIRED. IF TREE IS DAMAGED REPLANT WITH SIMILAR SIZE AND SPECIES.
12. EXISTING GAS METER AND PIPING. SEE UTILITY DRAWINGS FOR REMOVAL.
13. REMOVE EXISTING CONCRETE CURB.
14. REMOVE EXISTING CONCRETE RETAINING WALL AND PIPE RAILING.
15. REMOVE EXISTING CONCRETE STEPS AND HANDRAILS.
16. REMOVE EXISTING [illegible] BLES EMBEDDED INTO CONCRETE.
17. REMOVE EXISTING BENCH EMBEDDED INTO CONCRETE.
18. RELOCATE EXISTING TRASH CONTAINER PER OWNERS INSTRUCTIONS.
19. REMOVE EXISTING CMU WALL TO EXISTING PILLAR.
20. TEMPORARY CHAIN LINK FENCING. FENCING MAY REQUIRE ADJUSTMENTS AS DEMOLITION AND CONSTRUCTION OCCURS.
21. ACCESS GATE TO CONSTRUCTION SITE.

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NOV 07 2006
HYDROLOGY SECTION

NO.	REVISION	DATE
-	-	-
-	-	-
-	-	-

HUITT-ZOLLARS
Huitt-Zollars Inc.
6501 Americas Parkway NE, Suite 550
Albuquerque, New Mexico 87110-5372
Phone (505) 883-8114 Fax (505) 883-5022

DEMOLITION SITE PLAN

CARLOS REY ELEMENTARY SCHOOL
NEW CLASSROOM, ADMINISTRATION AND
KINDERGARTEN ADDITION AND RENOVATION
1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

STATE OF NEW MEXICO
JOHN L. HARRARD
16581
REGISTERED ARCHITECT

DATE: 08/14/06
DRAWN: DLS
DESIGNED: JJ
CHECKED: JJ
PROJ. NO.: 14023201

SHEET: C1.1

Aug 14, 2006 - 11:43:44am - User: dlsp
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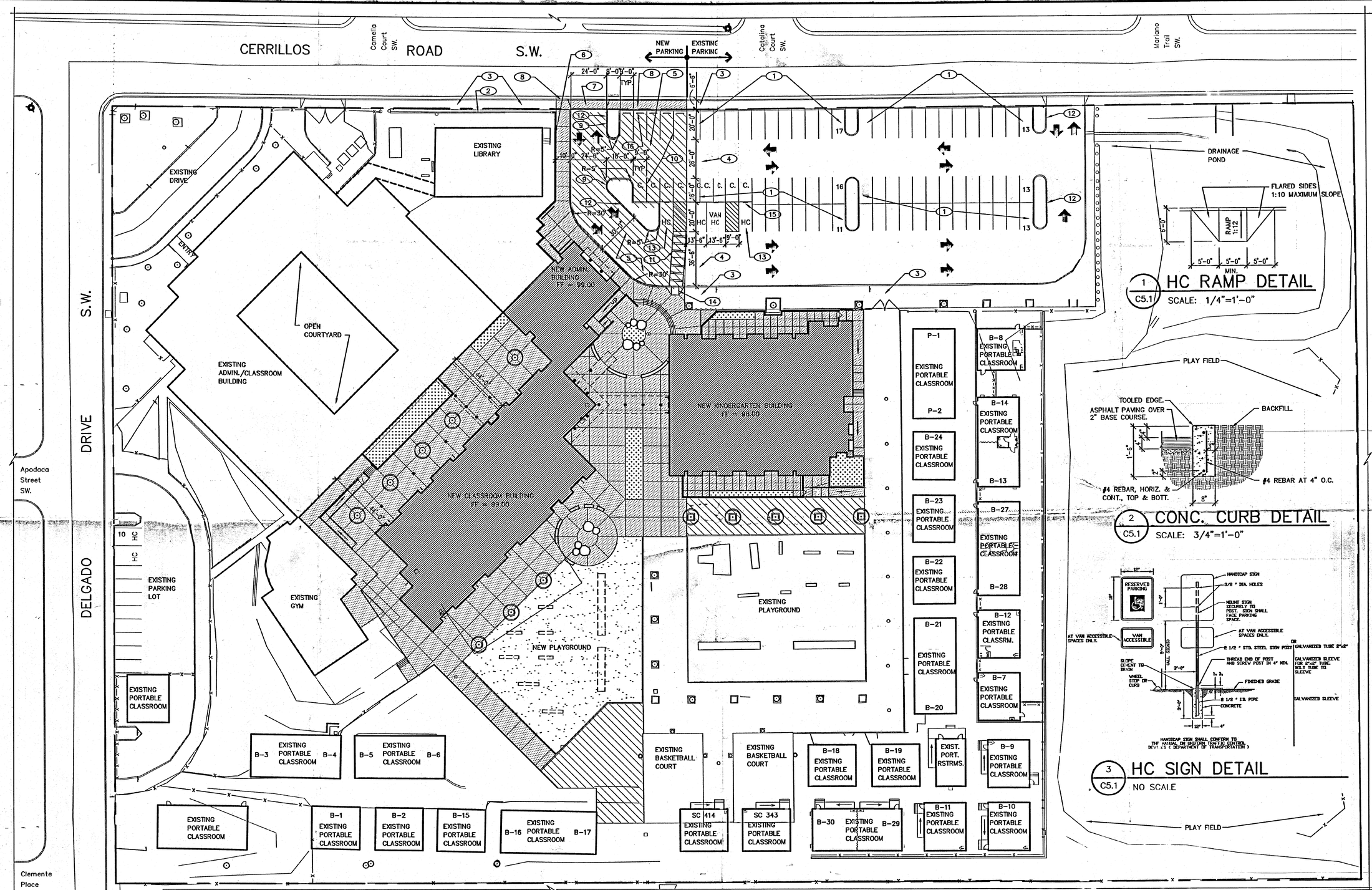

TRAFFIC CIRCULATION PLAN

SCALE: 1" = 30' - 0"

LEGEND

- NEW BUILDING
- NEW CONCRETE PAVING
- NEW ASPHALT PAVING
- NEW SAND (BY OWNER)
- DIRECTION OF TRAFFIC
- PROPERTY LINE
- C. COMPACT PARKING SPACE

KEYED NOTES (○)

1. EXISTING PARKING LOT, CONCRETE CURBS, AND STRIPING. (NO WORK)
2. EXISTING CMU WALL.
3. EXISTING SIDEWALK.
4. EXISTING ASPHALT PAVING.
5. NEW 4" ASPHALT PAVING OVER 6" SUBGRADE @ 95% (ASTM D-1557)
6. NEW 4'-0" HIGH CMU WALL. SEE STRUCTURAL.
7. NEW DRIVE PAD. SEE COA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, DWG. 2425.
8. NEW CURB, GUTTER, AND SIDEWALK TO MATCH EXISTING. SEE COA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, DWGS. 2415A AND 2430.
9. NEW CONCRETE CURB, SEE DETAIL 2/C5.1
10. NEW STRIPING.(PAINT)
11. NEW CROSSWALK STRIPING.(PAINT)
12. PAINT NEW/EXISTING CURB AT THIS LOCATION WITH FIRE LANE MARKINGS.
13. NEW 9'-0" WIDE HANDICAP PARKING SPACE.
14. NEW HANDICAP ACCESS RAMP. SEE DETAIL 1/C5.1
15. NEW HANDICAP PARKING SIGN.(TYPICAL OF 4) SEE DETAIL 3/C5.1
16. NEW CONCRETE BUMPERS. (TYPICAL OF 5)

PARKING CALCULATIONS		
DESCRIPTION	PARKING SPACES	HANDICAP SPACES
REQUIRED *	89	4
PROVIDED	93	6

* 1 SPACE PER SCHOOL EMPLOYEE REQUIRED

1 / C5.1 HC RAMP DETAIL

SCALE: 1/4"=1'-0"

2 / C5.1 CONC. CURB DETAIL

SCALE: 3/4"=1'-0"

3 / C5.1 HC SIGN DETAIL

NO SCALE

TRAFFIC CIRCULATION LAYOUT APPROVED

Signed 11/5/06 Date

RECEIVED NOV 07 2006 HYDROLOGY SECTION

NO.	REVISION	DATE
-	-	-
-	-	-

HUITT-ZOLLARS
Albuquerque
Huitt-Zollars, Inc.
6501 Americas Parkway NE, Suite 550
Albuquerque, New Mexico 87110-8372
Phone (505) 883-8181 Fax (505) 883-8022

NEW SITE PLAN

CARLOS REY ELEMENTARY SCHOOL
NEW CLASSROOM, ADMINSTRATION AND KINDERGARTEN ADDITION AND RENOVATION
1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

STATE OF NEW MEXICO JOHN J. GARRABRANT 1658 REGISTERED ARCHITECT 08/14/06

DATE: 08/14/06
DRAWN: DLS
DESIGNED: JJ
CHECKED: JJ
PROJ. NO.: 14023201

SHEET: C5.1

Nov 08, 2006 - 8:28:40am - User dlsp
Dwg: T:\ABQ\14023201\DWG\CLASSROOM-ADM\023201C5.DWG
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Drainage Plan

The following items concerning the Carlos Rey Elementary School Classroom Addition (Phase II) Grading and Drainage Plan are contained hereon:

1. Vicinity Map
2. Calculations
3. Grading Plan
4. Sections

As shown by the Vicinity Map, the site is located at the southeast corner of the intersection of Cerrillos Rd. S.W. and Delgado Dr. S.W. Cerrillos Rd. S.W. and Delgado Dr. S.W. are fully developed public residential streets with curb and gutter, sidewalks, waterline, and sanitary sewerline. A public storm drain system passes through Carlos Rey Park to the south of the site, however, it is topographically higher and hence not accessible to this site. This site lies within a predominantly residential developed (infill) area.

As shown by Panels 32 and 33 of 55 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the City of Albuquerque, New Mexico dated October 14, 1983, this site does not lie within, upstream of, or adjacent to a designated flood hazard zone.

The site is currently developed as an elementary school. The site contains paved parking areas, permanent buildings, portable classroom buildings, and various play areas. The site is bounded on the western and northern sides by Delgado Rd. S.W. and Cerrillos Rd. S.W., respectively. From the western most corner of the site, Delgado Rd. S.W. drains to the intersection of Cerrillos Rd. S.W., where it turns southeasterly to the easternmost corner of the site. The site falls approximately 40 feet between these property corners. A small area drains into Cerrillos Rd. S.W. by sheetflow (Basin "A"), at the northern corner of the site, where Cerrillos Rd. S.W. and Delgado Dr. S.W. intersect. Otherwise, runoff generally drains in an easterly direction across the site (Basin "B"). Once runoff reaches the eastern corner of the site, it discharges into an existing detention pond which is currently under construction per the Phase 1 Grading and Drainage Plan.

Phase II Development of this site outlined hereon is consistent with the scope outlined in the Master Drainage Plan previously submitted by this office with Engineer's stamp dated April 25, 1995. Phase II consists of a new Multipurpose Building with associated paving and drainage facilities. Due to the nature of the site, an inlet has been placed west of the proposed Multi-Purpose Building to insure that runoff is not retained in this area. This runoff is discharged via a bubbler located southeast of the proposed Building. The pipe has been designed to discharge two times the Q-s100-S. An overflow point located south of the proposed Building has been placed to insure that if the storm drain pipes or inlet get clogged that only a minimal amount of runoff would be retained. As shown on the Master Drainage Plan, Basin "B" will continue to drain in its historic pattern to the detention pond. The capacity of this pond is approximately 22,900 cf, which is greater than the required capacity of 21,479 cf for full development of the site, per MDP.

The Calculations which appear hereon analyze both the existing and developed conditions for the 100-year, 6-hour rainfall event. The procedure for the 40-acre and smaller basins, as set forth in the revisions 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 the volume of runoff generated. As shown by these calculations, a minor increase in runoff is expected which will be detained by the detention pond, which has been designed for the site's fully developed condition.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 1
2. $P_{6,100} = P_{360} = 2.20$ in.
3. Total Area (A_T) = 9.58 ac.
4. Existing Land Treatment

A. Basin A	36,840/0.85	100
Treatment	Area (sf/ac)	%
B	8,290/0.19	22.5
D	28,550/0.66	77.5
B. Basin B	380,570/8.73	100
Treatment	Area (sf/ac)	%
B	193,510/4.44	50.8
C	63,540/1.46	16.7
D	123,520/2.83	32.5

5. Developed Land Treatment

A. Basin A	36,840/0.85	100
Treatment	Area (sf/ac)	%
B	8,290/0.19	22.5
D	28,550/0.66	77.5
B. Basin B	380,570/8.73	100
Treatment	Area (sf/ac)	%
B	193,510/4.44	50.8
C	56,810/1.30	14.9
D	130,250/2.99	34.3
C. Sub-Basin B-1	25,590/0.59	100
Treatment	Area (sf/ac)	%
B	1,350/0.03	5.3
C	12,680/0.29	49.5
D	11,560/0.27	45.2

Existing Condition

A. Basin A

1. Volume

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.67)(0.19)+(1.97)(0.66)]/(0.85) = 1.68$ in.

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

$V_{100} = (1.68/12)(0.85) = 0.1190$ ac.ft.; 5,180 cf

2. Peak Discharge

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

$Q_p = Q_{100} = (2.03)(0.19)+(4.37)(0.66) = 3.3$ cfs

?B. Basin B

1. Volume

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.67)(4.44)+(0.99)(1.46)+(1.97)(2.83)]/(8.73) = 1.14$ in.

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

$V_{100} = (1.14/12)(8.73) = 0.8294$ ac.ft.; 36,130 cf

2. Peak Discharge

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

$Q_p = Q_{100} = (2.03)(4.44)+(2.87)(1.46)+(4.37)(2.83) = 25.6$ cfs

Developed Condition

A. Basin A

1. Volume

(No Change)

2. Peak Discharge

(No Change)

B. Basin B

1. Volume

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.67)(4.44)+(0.99)(1.30)+(1.97)(2.99)]/(8.73) = 1.16$ in

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

$V_{100} = (1.16/12)(8.73) = 0.8460$ ac.ft.; 36,850 cf

2. Peak Discharge

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

$Q_p = Q_{100} = (2.03)(4.44)+(2.87)(1.30)+(4.37)(2.99) = 25.8$ cfs

Basin 'B' Pond Volume (By Average End Area Method, Per Master Drainage Plan)

Elevation	Area (sf)	Volume (cf)	Σ Volume (cf)
99.0	0		
		4,410	4,410
100.0	8,820		
		11,325	15,735
101.0	13,830		
		7,165	22,900
101.5*	14,830		

*Spillway Elevation

Spillway Capacity (Basin 'B' Pond)

100 Year Storm (Fully Developed)

$Q = CLH^{1.5}$

Let: C = 2.70
L = 10.67 ft
H 1.0 ft

Therefore: Q = 28.8 cfs > Q = 28.4 cfs (Fully Developed from M.D.P.)

Existing Pipe Discharge Capacity (Pressure Condition)

$Q = CA\ (2gh)^{1/2}$ Using Four 8" Storm Drain Lines

Let: C = 0.6
A = 0.3491 sf (per line)
g = 32.2 ft/sec^2
h = 101.50 - 99.0 = 0.33 = 2.17 ft

Therefore: Q = 2.5 cfs/pipe

$Q_{total} = 10.0$ cfs

C. Basin B-1

1. Volume

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.67)(0.03)+(0.99)(0.29)+(1.97)(0.27)]/(0.59) = 1.42$ in

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

$V_{100} = (1.42/12)(0.59) = 0.0699$ ac.ft.; 3,045 cf

2. Peak Discharge

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

$Q_p = Q_{100} = (2.03)(0.03)+(2.87)(0.29)+(4.37)(0.27) = 2.1$ cfs

Pipe Capacity for 12" Storm Drain

$Q = 1.49/n\ AR^{2/3}S^{1/2}$
A = 0.7854
R = 0.25
S = 0.0150
n = 0.013
Q = 4.4 cfs

$Q > 2 \times Q_{100}$ (Sub-Basin B-1)

Point of Overflow Capacity

$Q = CLH^{3/2}$

$2.1 = 2.63(3)H^{3/2}$

H = 0.41'

Comparison

A. Basin A

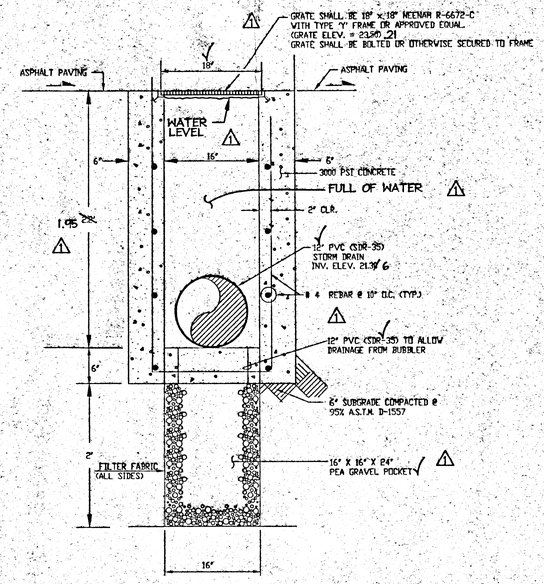
1. ΔV_{100} = No Change
2. ΔQ_{100} = No Change

B. Basin B

1. $\Delta V_{100} = 36,850 - 36,130 = 720$ cf (increase)
2. $\Delta Q_{100} = 10.0 - 10.0 = 0.0$ cfs (No Change)

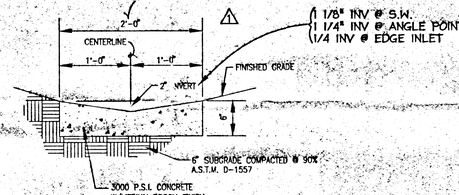
C. Overall

1. $\Delta V_{100} = 720 + 0 = 720$ cf (increase)
2. $\Delta Q_{100} = 10.0 - 10.0 = 0.0$ cfs (No Change)



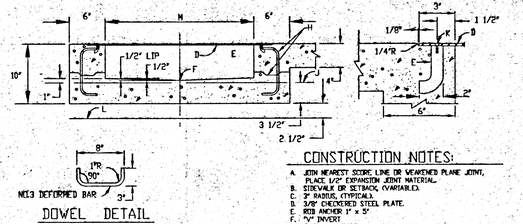
TYPICAL BUBBLER SECTION

SCALE: 1" = 1'-0"



TYPICAL TRICKLE CHANNEL SECTION

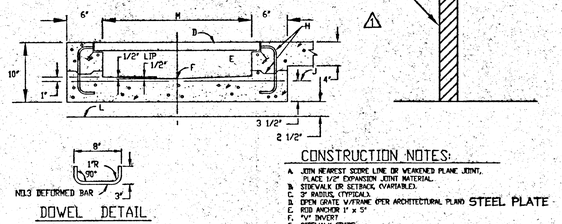
SCALE: 1" = 1'-0"



DOWEL DETAIL

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'SINK STAINLESS STEEL MACHINE SCREW.
L. BOTTOM OF GUTTER
M. DRAIN WIDTH, 24" MAX, 12" MIN.
N. SLOPE 1/4" PER FT. MIN.



DOWEL DETAIL

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. OPEN GRATE W/FRAME OVER ARCHITECTURAL PLANS STEEL PLATE
E. ROD ANCHOR 1' x 5"
F. "V" INVERT
G. SIDEWALK GRADE
H. DOWEL AND JOINT, (OPTIONAL).
K. 3/8" x 1" F.H. C'SINK STAINLESS STEEL MACHINE SCREW.
L. BOTTOM OF GUTTER
M. DRAIN WIDTH, 24" MAX, 12" MIN.
N. SLOPE 1/4" PER FT. MIN.

TYPICAL SIDEWALK CULVERT DETAILS

NOT TO SCALE

TYPICAL ROOF DRAIN CULVERT DETAILS

NOT TO SCALE

CERTIFICATION

As indicated by the as-built information shown hereon, the Carlos Rey Elementary School Multi-Purpose facility has been graded and drained in substantial compliance with the approved Grading and Drainage Plan. In lieu of erosion control blankets on the transitional slope between the parking lot and the building, the slope has been landscaped and stabilized with crusher fines (gravel). The as-built information shown hereon has been obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief.

Jeffrey G. Mortensen, NMPE 8547 — Date 9.09.96

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	BY	REVISIONS
1	9/96	JGM	AS-BUILT AND CERTIFY

JMA JOB # 931136

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

MULTI-PURPOSE FACILITY

CARLOS REY ELEMENTARY SCHOOL

1215 CERRILLOS RD, SW
ALBUQUERQUE
NEW MEXICO

ALBUQUERQUE PUBLIC SCHOOLS

PATRICK McCLERNON ARCHITECTS PLANNERS P.A.
1401 FIFTH ST NW
ALBUQUERQUE, NM
505 242 5219

CIVIL ENGINEERING
JEFF MORTENSEN AND ASSOCIATES
6010-B MIDWAY PARK
ALBUQUERQUE, NM
505 345 4250

LANDSCAPE ARCHITECTS
CONSENSUS PLANNING
718 CENTRAL SE
ALBUQUERQUE, NM
505 764 9801

STRUCTURAL ENGINEERING
BACCHUS CONSULTING ENGINEERS
630 MANZANO NE
ALBUQUERQUE, NM
505 262 2471

MECHANICAL ENGINEERING
COUPLAND MORAN ENGINEERS, INC
214 COAL SE
ALBUQUERQUE, NM
505 247 0500

ELECTRICAL ENGINEERING
TELCON ENGINEERING, INC
4800 JUAN TABO NE
ALBUQUERQUE, NM
505 292 3202

SHEET TITLE:

DRAINAGE PLAN, CALCULATIONS, AND SECTIONS

DATE:

12/19/95

RECEIVED
SEP 10 1996
HYDROLOGY DIVISION

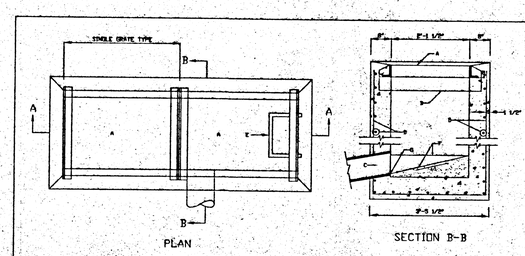
JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

12-21-95

SHEET NO.

C6

C:\DATA\ACADDWG\931136\93113609P Mon Sep 9 09:34:57 1996 -CJH



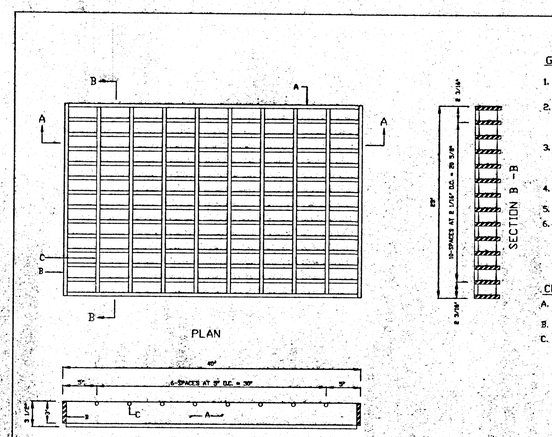
GENERAL NOTES:

1. FOR SINGLE GRATE TYPE, STORM INLET DELETE CENTER SUPPORT AND MOVE ONE END WALL TO FORM NEW SINGLE GRATE INLET.
2. STORM INLET GUTTER TRANSITION WILL BE SHOWN ON THE CONSTRUCTION PLANS.
3. OUTLET PIPE SIZE. PER DESIGN REQUIREMENT.
4. FOR FRAME & GRATING, SEE DWG 2216, 2220 & 2221.
5. FOR CENTER SUPPORT ASSEMBLY. SEE DWG 2215.

CONSTRUCTION NOTES:

A. FRAME & GRATE
B. CENTER SUPPORT ASSEMBLY.
C. CUT ONE HORIZONTAL AND ONE VERTICAL BAR MAX. AT PIPE OPENING.
D. NO. 4 BARS AT 6" O.C. EACH WAY.
E. USE STANDARD STEPS. SEE DWG 2229.
F. CONC. FILL. SEE NOTE C DWG 2201.
G. INVERT PER DESIGN.
H. INSTALL STEPS ON DOWNSTREAM FACE.

REVISIONS	CITY OF ALBUQUERQUE
12-17-90	DRAINAGE STORM INLET DOUBLE "D" DWG. 2206



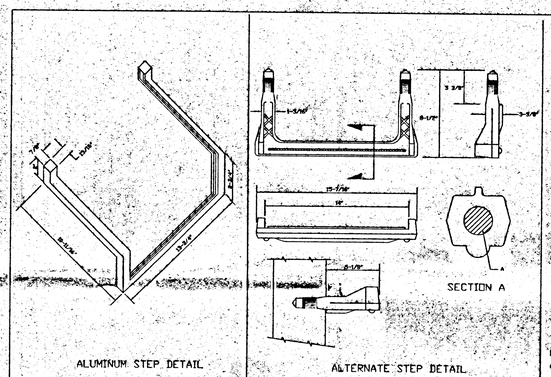
GENERAL NOTES:

1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS. 1/4" FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS OF ALUMINUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE. OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS WELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

CONSTRUCTION NOTES:

A. BEARING BARS, (13) 1/2" X 3 1/2" X 39".
B. END BARS (2) 1/2" X 3" X 25".
C. CROSS BARS, (7) 1/2" DIA. X 24.

REVISIONS	CITY OF ALBUQUERQUE
08-28-90	DRAINAGE STORM INLET DWG. 2220



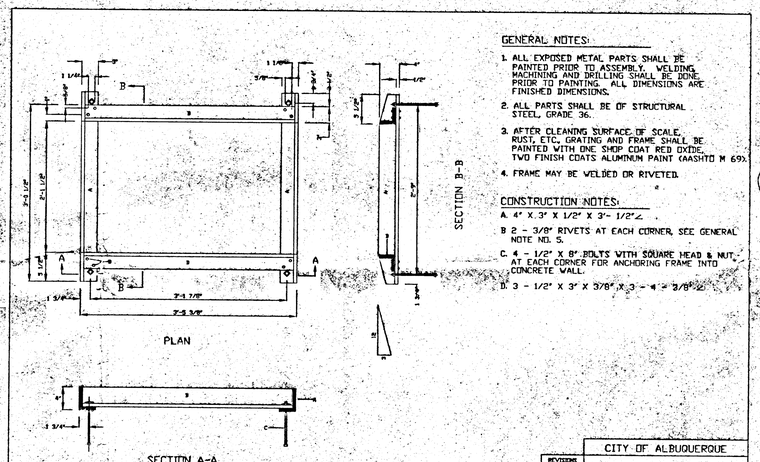
GENERAL NOTES:

1. ALUMINUM STEP, ALCOA NO 12653W OR APPROVED EQUAL.
2. ALTERNATE STEP SHALL BE POLYPROPOLENE - MOLDED OVER 1/2" STEEL REINFORCEMENT MODEL NO. PS-2-PF'S, M.A. INDUSTRIES IN, OR APPROVED EQUAL.
3. STORM INLETS: INLETS GREATER THAN 4' DEEP SHALL HAVE STEPS INSTALLED IN DOWNSTREAM FACE OR INLET WALLS. STEPS SHALL PROTRUDE 7" FROM THE WALL AND BE CENTERED 12" FROM FACE OF CURB. STEPS SHALL BE 12" APART, WITH THE TOP STEP +/- 18" FROM TOP OF FRATE AND THE BOTTOM STEP NO MORE THAN 16" ABOVE THE CONCRETE FILL IN THE BOTTOM OF THE INLET.
4. DRAINAGE CHANNELS: CHANNELS SHALL HAVE STEPS FOR ACCESS AND RESCUE INSTALLED ER DETAILS ON DWG. 2261. STEPS SHALL BE INSTALLED ON BOTH SIDES OF THE CHANNEL AND SHALL BE LOCATED IMMEDIATELY BEFORE THE INLET AND AFTER OUTLET TRANSITIONS FOR CROSSING STRUCTURES OR AS NOTES ON THE PLANS.

CONSTRUCTION NOTES:

A. 1/2" GRATE 60 STEEL REINFORCEMENT.

REVISIONS	CITY OF ALBUQUERQUE
08-28-90	DRAINAGE STEP DETAILS DWG. 2229



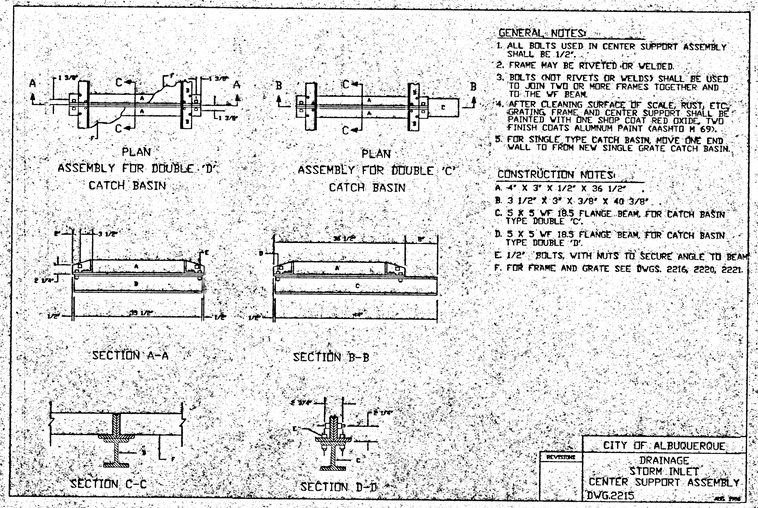
GENERAL NOTES:

1. ALL EXPOSED METAL PARTS SHALL BE PAINTED PRIOR TO ASSEMBLY. WELDING, MACHINING AND DRILLING SHALL BE DONE PRIOR TO PAINTING. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
2. ALL PARTS SHALL BE OF STRUCTURAL STEEL, GRADE 36.
3. AFTER CLEANING SURFACE OF SCALE, RUST, ETC., GRATING AND FRAME SHALL BE PAINTED WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
4. FRAME MAY BE WELDED OR RIVETED.

CONSTRUCTION NOTES:

A. 4" X 3" X 1/2" X 3'- 1/2"∠
B. 2 - 3/8" RIVETS AT EACH CORNER, SEE GENERAL NOTE NO. 5.
C. 4 - 1/2" X 8" BOLTS WITH SQUARE HEAD & NUT, AT EACH CORNER FOR ANCHORING FRAME INTO CONCRETE WALL.
D. 3 - 1/2" X 3" X 3/8" X 3 - 4 - 3/8"∠

REVISIONS	CITY OF ALBUQUERQUE
	DRAINAGE STORM INLET FRAME DWG.2216



GENERAL NOTES:

1. ALL BOLTS USED IN CENTER SUPPORT ASSEMBLY SHALL BE 1/2".
2. FRAME MAY BE RIVETED OR WELDED.
3. BOLTS (NOT RIVETS OR WELDS) SHALL BE USED TO JOIN TWO OR MORE FRAMES TOGETHER AND TO THE WF BEAM.
4. AFTER CLEANING SURFACE OF SCALE, RUST, ETC., GRATING FRAME AND CENTER SUPPORT SHALL BE PAINTED WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
5. FOR SINGLE TYPE CATCH BASIN, MOVE ONE END WALL TO FROM NEW SINGLE GRATE CATCH BASIN.

CONSTRUCTION NOTES:

A. 4" X 3" X 1/2" X 36 1/2"
B. 3 1/2" X 3" X 3/8" X 40 3/8"
C. S X 5 WF 18.5 FLANGE BEAM, FOR CATCH BASIN TYPE DOUBLE "C".
D. S X 5 WF 18.5 FLANGE BEAM, FOR CATCH BASIN TYPE DOUBLE "D".
E. 1/2" BOLTS, WITH NUTS TO SECURE ANGLE TO BEAM
F. FOR FRAME AND GRATE SEE DWGS. 2216, 2220, 2221.

REVISIONS	CITY OF ALBUQUERQUE
	DRAINAGE STORM INLET CENTER SUPPORT ASSEMBLY DWG.2215

CERTIFICATION:

As indicated by the as-built information shown hereon, the Carlos Rey Elementary School Multi-Purpose facility has been graded and drained in substantial compliance with the approved Grading and Drainage Plan. In lieu of erosion control blankets on the transitional slope between the parking lot and the building, the slope has been landscaped and stabilized with crusher fines (gravel). The as-built information shown hereon has been obtained by me or under my direct supervision and, is true and correct to the best of my knowledge and belief.

Jeffrey G. Mortensen, NMPE 8547 — 12-27-95 Date

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	BY	REVISIONS
1	9/98	JGM	AS-BUILT AND CERTIFY

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

JOB #931136

MULTI-PURPOSE FACILITY

CARLOS REY ELEMENTARY SCHOOL

1215 CERRILLOS RD. SW
ALBUQUERQUE
NEW MEXICO

ALBUQUERQUE PUBLIC SCHOOLS

PATRICK McCLERNON ARCHITECTS PLANNERS P.A.
1401 FIFTH ST NW
ALBUQUERQUE, NM
505 242 5219

CIVIL ENGINEERING
JEFF MORTENSEN AND ASSOCIATES
6010-B MIDWAY PARK
ALBUQUERQUE, NM
505 345 4250

LANDSCAPE ARCHITECTS
CONSENSUS PLANNING
718 CENTRAL SE
ALBUQUERQUE, NM
505 764 9801

STRUCTURAL ENGINEERING
BACCHUS CONSULTING ENGINEERS
630 MANZANO NE
ALBUQUERQUE, NM
505 262 2471

MECHANICAL ENGINEERING
COUPLAND MORAN ENGINEERS, INC
214 COAL SE
ALBUQUERQUE, NM
505 247 0500

ELECTRICAL ENGINEERING
TELCON ENGINEERING, INC
4800 JUAN TABO NE
ALBUQUERQUE, NM
505 292 3202

SHEET TITLE

SINGLE "D" INLET SECTIONS & DETAILS

DATE:
12/19/95

RECEIVED
SEP 10 1996
HYDROLOGY DIVISION

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
12-27-95

SHEET NO.
C7

C:\DATA\ACADW9\931136\931136SD Mon Sep 9 10:17:06 1996 CAM

VICINITY MAP M-8

SCALE: 1" = 750'±

LEGEND

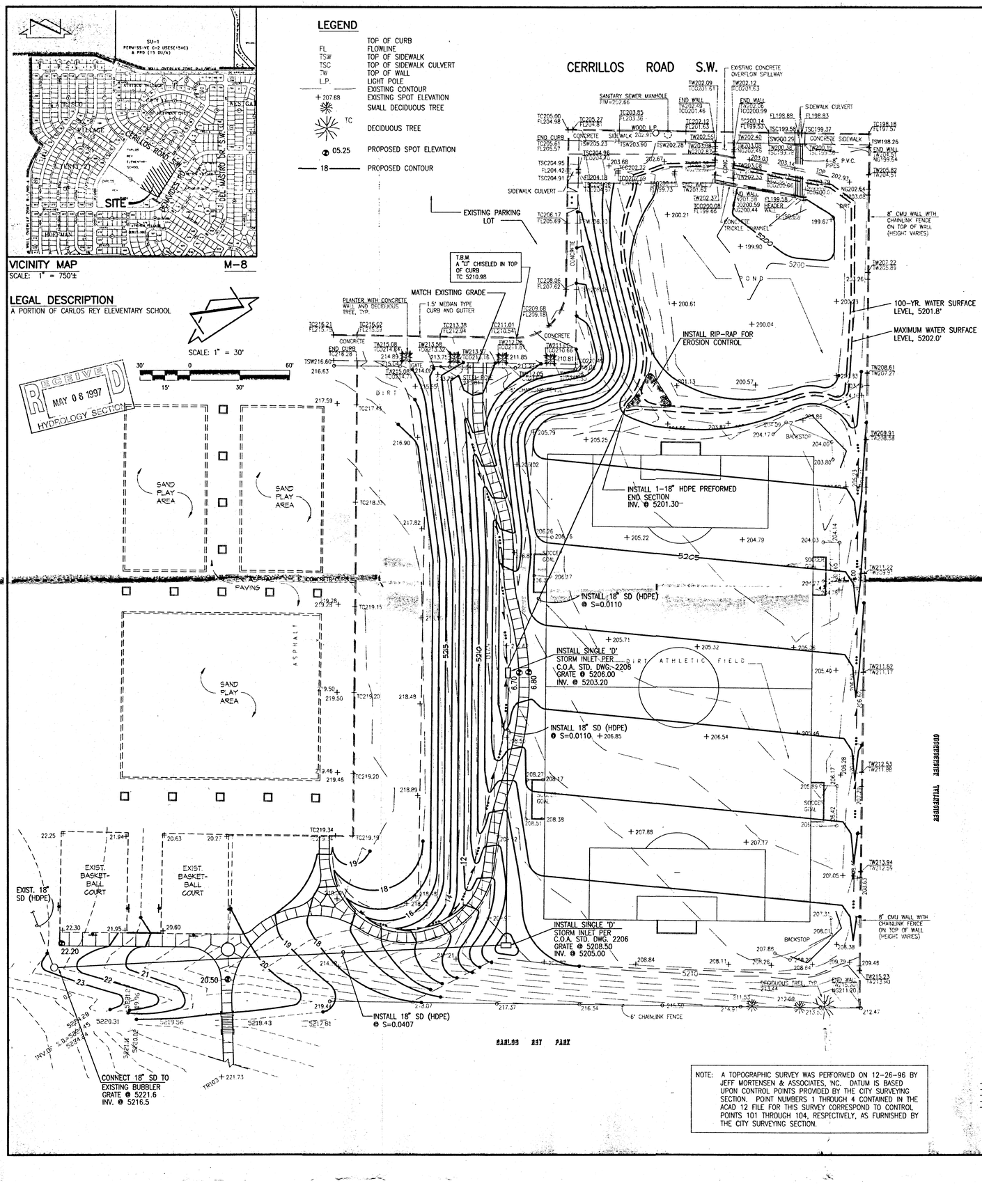
TC	TOP OF CURB
FL	FLOWLINE
TSW	TOP OF SIDEWALK
TSC	TOP OF SIDEWALK CULVERT
TW	TOP OF WALL
L.P.	LIGHT POLE
+ 207.69	EXISTING CONTOUR
	EXISTING SPOT ELEVATION
	SMALL DECIDUOUS TREE
TC	DECIDUOUS TREE
05.25	PROPOSED SPOT ELEVATION
18	PROPOSED CONTOUR

LEGAL DESCRIPTION

A PORTION OF CARLOS REY ELEMENTARY SCHOOL

SCALE: 1" = 30'

RECEIVED MAY 08 1997 HYDROLOGY SECTION



NOTE: A TOPOGRAPHIC SURVEY WAS PERFORMED ON 12-26-96 BY JEFF MORTENSEN & ASSOCIATES, INC. DATUM IS BASED UPON CONTROL POINTS PROVIDED BY THE CITY SURVEYING SECTION. POINT NUMBERS 1 THROUGH 4 CONTAINED IN THE ACAD 12 FILE FOR THIS SURVEY CORRESPOND TO CONTROL POINTS 101 THROUGH 104, RESPECTIVELY, AS FURNISHED BY THE CITY SURVEYING SECTION.

Drainage Plan

The following items concerning the Carlos Rey Elementary School Sports Field Drainage Plan are contained hereon:

1. Vicinity Map
2. Calculations
3. Grading Plan

As shown by the vicinity map, the site is located at the southeast corner of the intersection of Cerrillos Road S.W. and Delgado Drive S.W. Cerrillos Road S.W. and Delgado Drive S.W. are fully developed residential streets with curb and gutter, sidewalks, waterline, and sanitary sewerline. This site lies within a predominantly residential developed (infill) area.

As shown by Panel 317 of 825 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for Bernalillo County, New Mexico dated September 20, 1996, this site does not lie within, upstream of, or adjacent to a designated flood hazard zone.

The subject area is the eastern portion of the Carlos Rey Elementary School site. Current development is a dirt athletic field and a detention pond. A parking lot, sand play areas, and basketball courts bound the subject area to the West. The northern boundary is Cerrillos Road S.W., while the area is bounded on the East and South by residential neighborhoods and Carlos Rey Park respectively. The site drains to the North and East, as upstream flows discharge into the detention pond near the northeast property corner.

The grading plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1'-0" intervals, 2) the limit and character of existing improvements, 3) the limit and character of proposed improvements, and 4) continuity between existing and proposed grades.

The proposed development outlined hereon is consistent with the scope outlined in the Master Drainage Plan previously submitted by this office with Engineer's stamp dated April 25, 1995. It consists of re-grading and seeding to accommodate a sports field, and construction of drainage facilities to convey nuisance flows from upstream areas to the pond. The capacity of this pond is approximately 25,620 cf., which is greater than the required capacity of 21,479 cf. for full development of the site (refer to the previously submitted Master Drainage Plan). The proposed field development will decrease the volume of runoff from basin 'B' as outlined in the Master Drainage Plan from approximately 42,800 cf. to 40,450 cf., and decrease the peak discharge from 29.8 cfs. to 28.1 cfs. The adequacy of the spillway is demonstrated by the Master Drainage Plan and previous site improvement plans, and hence is not recalculated for this 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. The pond volume is evaluated by the Average End Area Method.

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.
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.

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.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 1
2. $P_{6,100} = P_{360} = 2.20$ in.
3. Total Area (A) = 8.73 ac
4. Existing Land Treatment

Basin B	380,570/8.73	
Treatment	Area (sf/ac)	%
B	3,550/0.08	0.9
C	235,680/5.41	62.0
D	141,100/3.24	37.1

5. Developed Land Treatment

Basin B	380,570/8.73	
Treatment	Area (sf/ac)	%
B	92,100/2.11	23.2
C	147,370/3.38	38.7
D	141,100/3.24	37.1

Existing Condition

1. Volume

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = [(0.67)(0.08)+(0.99)(5.41)+(1.97)(3.24)]/8.73 = 1.35$ in.

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

$V_{100} = (1.35/12)8.73 = 0.9825$ ac.ft.; 42,800 cf

2. Peak Discharge

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

$Q_p = Q_{100} = (2.03)(0.08)+(2.87)(5.41)+(4.37)(3.24) = 29.8$ cfs

Developed Condition

1. Volume

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W = (0.67)(2.11)+(0.99)(3.38)+(1.97)(3.24)/8.73 = 1.28$ in.

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

$V_{100} = (1.28/12)8.73 = 0.9285$ ac.ft.; 40,450 cf

2. Peak Discharge

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

$Q_p = Q_{100} = (2.03)(2.11)+(2.87)(3.38)+(4.37)(3.24) = 28.1$ cfs

Comparison

1. $\Delta V_{100} = 42,800 - 40,450 = 2,350$ cf (decrease)
2. $\Delta Q_{100} = 29.8 - 28.1 = 1.7$ cfs (decrease)

Pond Volume

1. Existing Conditions

Elevation (ft)	Area (sf)	Volume (cf)	Σ Volume (cf)
199.6	0		
		586	586
200.0	2,930		
		7,820	8,406
201.0	12,710		
		14,525	22,931
202.0	16,339		

$V_{required}$ (from M.D.P.) = 21,479 cf

$\Delta V_{pond} = 25,619 - 22,931 = 2,688$ cf (increase)

2. Proposed Conditions

Elevation (ft)	Area (sf)	Volume (cf)	Σ Volume (cf)
199.6	0		
		323	323
200.0	1,614		
		8,380	8,703
201.0	15,146		
		16,916	25,619
202.0	18,686		

$V_{required}$ (from M.D.P.) = 21,479 cf

PDS Southwest, Ltd.
Planning & Design Solutions
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4830 Juan Tabo Blvd. NE Suite J (505) 323-5001
Albuquerque, NM 87111 FAX (505) 323-5009

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE
N/A	JMA	12/96
	C.O.A.	

BENCHMARK

PROJECT BENCHMARK:
A.C.S. BENCHMARK 1-MB, A "D" CUT IN TOP OF THE CURB AT THE SSE CURB RETURN OF THE INTERSECTION OF BENEVIDES RD. & S.W. AND CATALINA PLACE S.W.
ELEVATION = 5225.42 FEET (M.S.L.D.)

T.B.M.:
A "D" CHISELED ON TOP OF THE CURB AT THE SOUTHEAST CORNER OF THE PARKING LOT, AS SHOWN ON THE DRAWING.
ELEVATION = 5210.98 FEET (M.S.L.D.)

AS BUILT INFORMATION

CONTRACTOR — DATE
BOARD BY — DATE
INSPECTOR'S ASSISTANCE BY — DATE
VERIFICATION BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION — RECORDED BY — DATE
NO.

SEAL

NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER JEFF G. MORTENSEN 05-09-97

REVISIONS / REMARKS

NO.	DATE	REMARKS	BY
		Revisions	
		DESIGN	K.D.C. Date 05-97
			S.G.H. Date 05-97
			J.G.M. Date 05-97

Designed By
Drawn By
Checked By

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

970381

CITY OF ALBUQUERQUE
PARKS/GENERAL SERVICES
DESIGN & DEVELOPMENT

TITLE: **CARLOS REY ELEM. SCHOOL** MARCH 5, 1997
SPORTSFIELD - SCHEMATIC DESIGN SUBMITTAL
GRADING AND DRAINAGE PLAN

Design Review Committee	City Engineer Approval	Last Design Update	

City Project No. **5309.91** | Zone Map No. **M-8** | Sheet **6** Of **7**

C:\DATA\ACADWG\970381 Thu May 8 10:22:31 1997 -SGH

DRAINAGE PLAN

The following items concerning the Carlos Rey Elementary School Master Drainage Plan are contained hereon:

1. Vicinity Map
2. Existing Conditions Plan
3. Developed Conditions Plan
4. Calculations

It is the intent of this plan to: 1) identify and quantify runoff volume and peak discharge rate under existing conditions, 2) calculate changes in runoff volume and peak discharge rate due to the proposed development, and 3) present measures to attain favorable drainage conditions under this development scenario.

As shown by the Vicinity Map, the site is located at the southeast corner of the intersection of Cerrillos Road S.W. and Delgado Drive S.W. Cerrillos Road S.W. and Delgado Drive S.W. are fully developed public residential roadways with curb and gutter, sidewalks, waterline, and sanitary sewerline. A public storm drain system passes through Carlos Rey Park to the south of the site, however, it is topographically higher than the site and hence not accessible to this site. This site lies within a predominantly residential developed (infill) area.

As shown by Panels 32 and 33 of 50 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the City of Albuquerque, New Mexico dated October 14, 1983, this site does not lie within, upstream of, or adjacent to a designated flood hazard zone.

Existing Conditions

Sheet 2 of 3 shows the existing site conditions. The site is currently developed as an elementary school. The site contains paved parking areas, permanent buildings, portable classroom buildings, and various play areas. The site is bounded on the western and northern sides by Delgado Road S.W. and Cerrillos Road S.W., respectively. From the west most corner of the site, Delgado Road S.W. drains to the intersection of Cerrillos Road S.W., where it turns southeasterly to the easternmost corner of the site. The site falls approximately 40 feet between these property corners. A small area drains into Cerrillos Road S.W. by sheetflow (Basin 'A'), at the northern corner of the site, where Cerrillos Road S.W. and Delgado Drive S.W. intersect. Otherwise, runoff generally drains in an easterly direction across the site (Basin 'B'). In several areas, small naturally occurring drainage channels have formed. Once runoff reaches the eastern corner of the site, it discharges into an existing parking area with concentrated flow. The existing volume of runoff is quantified to be 36,710 cf with a peak discharge rate of 26.5 cfs.

Developed Conditions

Proposed development of this site consists of large building additions, two reconstructed parking lots, a new playground area, and ballfields. Development for this site will be phased. Phase I development will consist of the construction of the new play areas, reconstruction of two parking areas, and construction of all necessary drainage facilities to accommodate all future development. The building additions will be constructed during future development plans. All Phase I and future development will require separate grading and drainage submittals conforming to this plan.

The development of this site will not alter existing drainage patterns. However, the reconstructed parking area on Delgado Drive S.W. will discharge freely into the roadway, which has been incorporated into Basin 'A'. Otherwise, the site will drain easterly in historic drainage patterns. The reconstructed parking lot along Cerrillos Road S.W. will discharge runoff directly into a new detention pond via a 12" sidewalk culvert. The new detention pond will restrict the maximum discharge rate to 10.0 cfs with the use of four 8" discharge pipes. The four 8" discharge pipes will release up to 10.0 cfs from the pond. the pond has been sized to accommodate a volume of approximately 22,600 cf. In the event that the discharge pipes are plugged or a statistically less frequent storm event occurs, a concrete overflow will be provided to discharge up to 28.4 cfs. Runoff entering Delgado Drive S.W. and Cerrillos Road S.W. from Basin 'A' has been quantified to have a peak discharge rate of 3.3 cfs, so the total peak discharge rate from the developed site would be reduced to 13.3 cfs, which is a reduction from the 27.4 cfs that is released from the site currently. It is based upon the fact that the peak discharge rate from the site will be reduced, the project is a modification to an existing site within an infill area, and that historic drainage patterns allow free discharge into Cerrillos Road S.W., that controlled discharge from the site is appropriate.

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. A minor increase of runoff volume at 4,600 cf and decrease of peak discharge rate of 13.2 cfs is anticipated with Phase I development. The ultimate development scenario shows an increase of 10,620 cf in runoff volume with a decrease of 13.2 cfs in peak discharge rate.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 1
2. $P_{6,100} = P_{360} =$ 2.20 in.
3. Total Area (A_T) = 9.58 ac.
4. Existing Land Treatment

A. Basin 'A' (A_A = 22,050 sf/0.51 ac)

Treatment	Area (sf/ac)	%
B	7,690/0.18	34.9
D	14,360/0.33	65.1

B. Basin 'B' (A_B = 365,360 sf/9.07 ac)

Treatment	Area (sf/ac)	%
B	228,500/5.25	57.8
C	77,740/1.78	19.7
D	89,120/2.04	22.6

5. Developed Land Treatment

A. Phase 1

1. Basin 'A' (A_A = 36,840 sf/0.85 ac)

Treatment	Area (sf/ac)	%
B	8,290/0.19	22.5
D	28,550/0.66	77.5

2. Basin 'B' (A_B = 380,570 sf/8.73 ac)

Treatment	Area (sf/ac)	%
B	193,510/4.44	50.8
C	63,540/1.46	16.7
D	123,520/2.83	32.5

B. Fully Developed

1. Basin 'A' (No Change)

2. Basin 'B' (A_B = 38,570 sf/8.73 ac)

Treatment	Area (sf/ac)	%
B	147,810/3.39	38.8
C	54,160/1.24	14.3
D	178,600/4.10	46.9

6. Existing Condition

A. Basin 'A'

1. Volume

$E_w = (E_aA_a+E_bA_b+E_cA_c+E_dA_d)/A_T$
$E_w = (0.67)(0.18)+1.97(0.33))/0.51 = 1.51$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.51/12)(0.51) = 0.0642$ ac.ft.; 2,800 cf

2. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = (2.03)(0.18)+(4.37)(0.33) = 1.8$ cfs

B. Basin 'B'

1. Volume

$E_w = (E_aA_a+E_bA_b+E_cA_c+E_dA_d)/A_T$
$E_w = (0.67(5.25)+0.99(1.78)+1.97(2.04))/9.07 = 1.03$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.03/12)9.07 = 0.7785$ ac.ft.; 33,910 cf

2. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(5.25)+2.87(1.78)+4.37(2.04) = 24.7$ cfs

7. Developed Condition

A. Phase 1

1. Basin 'A'

a. Volume

$E_w = (E_aA_a+E_bA_b+E_cA_c+E_dA_d)/A_T$
$E_w = (0.67(0.19)+1.97(0.66))/0.85 = 1.68$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.68/12)0.85 = 0.1190$ ac.ft.; 5,180 cf

b. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(0.19)+4.37(0.66) = 3.3$ cfs

2. Basin 'B'

a. Volume

$E_w = (E_aA_a+E_bA_b+E_cA_c+E_dA_d)/A_T$
$E_w = (0.67(4.44)+0.99(1.46)+1.97(2.83))/8.73 = 1.14$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.14/12)8.73 = 0.8294$ ac.ft.; 36,130 cf

b. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(4.44)+2.87(1.46)+4.37(2.83) = 25.6$ cfs

B. Fully Developed

1. Basin 'A' (No Change)
   a. V_{100} = 5,180 cf
   b. Q_{100} = 3.3 cfs

2. Basin 'B'

a. Volume

$E_w = (E_aA_a+E_bA_b+E_cA_c+E_dA_d)/A_T$
$E_w = (0.67(3.39)+0.99(1.24)+1.97(4.10))/8.73 = 1.33$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.33/12)8.73 = 0.9676$ ac.ft.; 42,150 cf

b. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(3.39)+2.87(1.24)+4.37(4.10) = 28.4$ cfs

8. Basin 'B' Pond Volume (By Average End Area Method)

Elevation	Area (sf)	Volume (cf)	Σ Volume (cf)
99.0	0		
		4,360	4,360
100.0	8,720		
		11,140	15,500
101.0	13,560		
		7,108	22,608
101.5*	14,870		

*Spillway Elevation

9. Spillway Capacity (Basin 'B' Pond)

100 Year Storm (Fully Developed)
$Q = CLH^{1.5}$
Let: C = 2.70
Q = 28.4 cfs
H = 1.0 ft

Therefore: L = 10.52 ft
Construct 10'- 8" wide spillway

10. Hydrograph Calculations

A. Time to Peak
$t_p = 0.7\ t_c + (1.5 - (A_b/A_T))/12$
t_c = 0.2 hr
A_b = 4.10 ac
A_T = 8.73 ac
t_p = 0.23 hr = 13.9 min

B. Duration of Peak
$t_b = 0.25(A_b/A_T)$
A_b = 4.10 ac
A_T = 8.73 ac
t_b = 0.12 hr = 7.5 min

C. Base Time
$t_B = 2.107\ E(A_T/Q_p) - 0.25(A_b/A_T)$
E = 1.33 in
A_b = 4.10 ac
A_T = 8.73 ac
Q_p = 28.4 cfs
t_B = 0.74 hr = 44.4 min

11. Pipe Discharge Capacity (Pressure Condition)

$Q = CA(2gh)^{1/2}$ Using Four 8" Storm Drain Lines

Let: C = 0.6
A = 0.3491 sf (per line)
g = 32.2 ft/sec²
h = 101.50 - 99.0 - 0.33 = 2.17 ft

Therefore: Q = 2.5 cfs/pipe
Q_{total} = 10.0 cfs

12. Time to Drain Detention Pond

Using Q = 5.0 cfs for Average Release Rate
Time = 22,600 cf*(#/5.0 cf)*(min/60s)*(hour/60 min)
= 1.26 hours << 24 hour limit

13. Comparison

A. Phase 1

1. Basin 'A'
ΔV_{100} = 5,180 - 2,800 = 2,380 cf (increase)
ΔQ_{100} = 3.3 - 1.8 = 1.5 cfs (increase)

2. Basin 'B'
ΔV_{100} = 36,130 - 33,910 = 2,220 cf (increase)
ΔQ_{100} = 24.7 - 10.0 = 14.7 cfs (decrease)

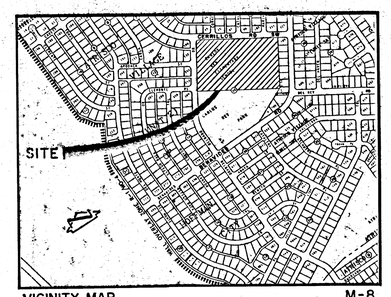
3. Overall
ΔV_{100} = 2,380 + 2,220 = 4,600 cf (increase)
ΔQ_{100} = 14.7 - 1.5 = 13.2 cfs (decrease)

B. Fully Developed

1. Basin 'A' (No Change)
ΔV_{100} = 2,380 (increase)
ΔQ_{100} = 1.5 cfs (increase)

2. Basin 'B'
ΔV_{100} = 42,150 - 33,910 = 8,240 cf (increase)
ΔQ_{100} = 24.7 - 10.0 = 14.7 cfs (decrease)

3. Overall
ΔV_{100} = 8,240 + 2380 = 10,620 cf (increase)
ΔQ_{100} = 14.7 - 1.5 = 13.2 cfs (decrease)



VICINITY MAP M-8
SCALE: 1"=750'

LEGAL DESCRIPTION:

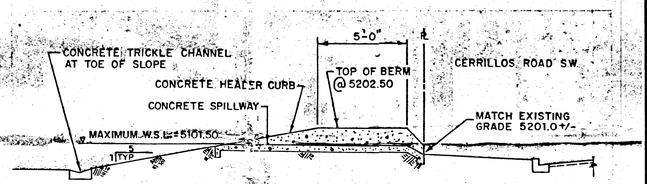
CARLOS REY ELEMENTARY SCHOOL - A.K.A. A PORTION OF BLOCK 42, ATRISCO VILLAGE (UNIT 2)

PROJECT BENCHMARK

A.C.S. BENCHMARK 1-MB, A "□" CUT IN TOP OF CURB AT THE SSE CURB RETURN OF THE INTERSECTION OF BENEVIDES ROAD S.W. AND CATALINA PLACE S.W.
ELEVATION = 5225.42 FEET (M.S.L.D.)

T.B.M.

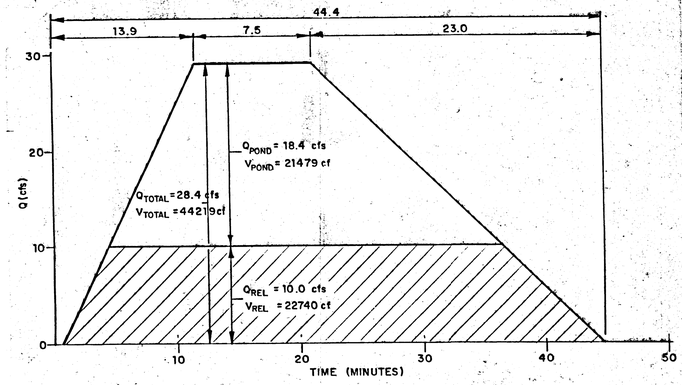
STORM DRAIN MANHOLE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF DELGADO DRIVE S.W. AND CLEMENTE PLACE S.W.
RIM ELEVATION = 5238.50 (M.S.L.D.)



SECTION A-A

TYPICAL SPILLWAY SECTION

SCALE: 1"= 4'-0"



HYDROGRAPH ANALYSIS

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JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

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

931133

D.M.P.

DENNIS C. WILKINSON & ASSOCIATES, P.C.
DCW
LANDSCAPE ARCHITECTURE & DEVELOPMENT PLANNING
P.O. Box 1542
Corrales, New Mexico 87048
505/897-7430

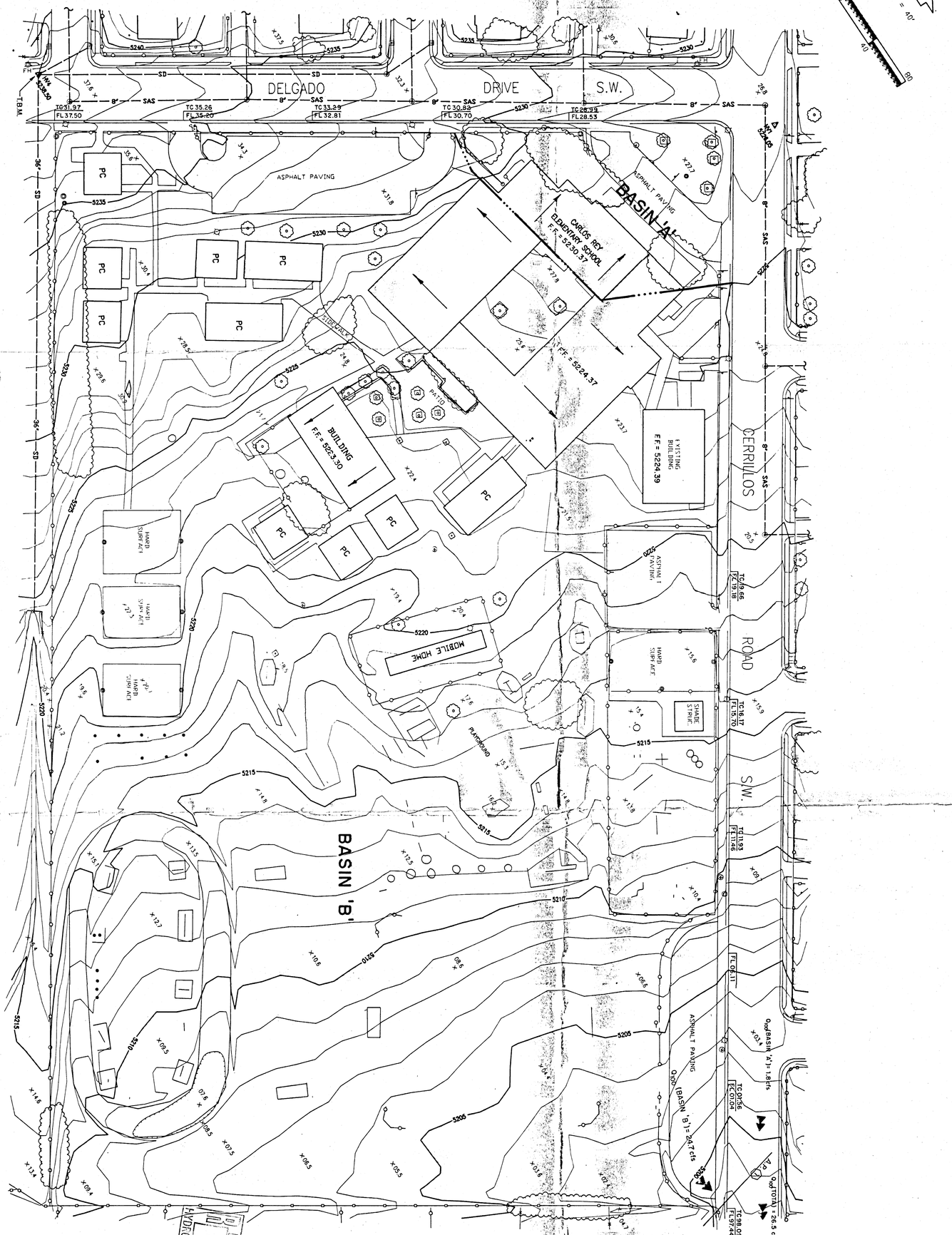
Albuquerque Public Schools

CARLOS REY ELEMENTARY SCHOOL
1215 Cerrillos Road SW
Albuquerque, New Mexico

MASTER DRAINAGE PLAN
DRAINAGE PLAN & CALCULATIONS

Date: 01/95
Drawn By: J.M.A.
Revisions:

Sheet 1 of 3



HYDROLOGY SECTION
APR 27 1995
RECEIVED

NOTES:
1. DATE OF PHOTOGRAPHY: FEBRUARY 15, 1994.
2. PROJECT BENCHMARK: ACS STA 1-M8
A "□" IN TOP OF CURB @ SSE CURB RETURN, INTERSECTION OF BENAVIDES ROAD S.W. AND CATALINA PLACE S.W. ELEV. = 5225.415 (M.S.L.D.)
3. LOCATION OF EXISTING SANITARY SEWER AND STORM DRAIN MANHOLES, WATER VALVES AND SIZES OBTAINED FROM CITY OF ALBUQUERQUE SECTIONAL MAPS.

JEFFREY E. MORTENSEN
NEW MEXICO
8547
REGISTERED
PROFESSIONAL ENGINEER

JEFF MORTENSEN & ASSOCIATES, INC.
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931133

CARLOS REY PARK

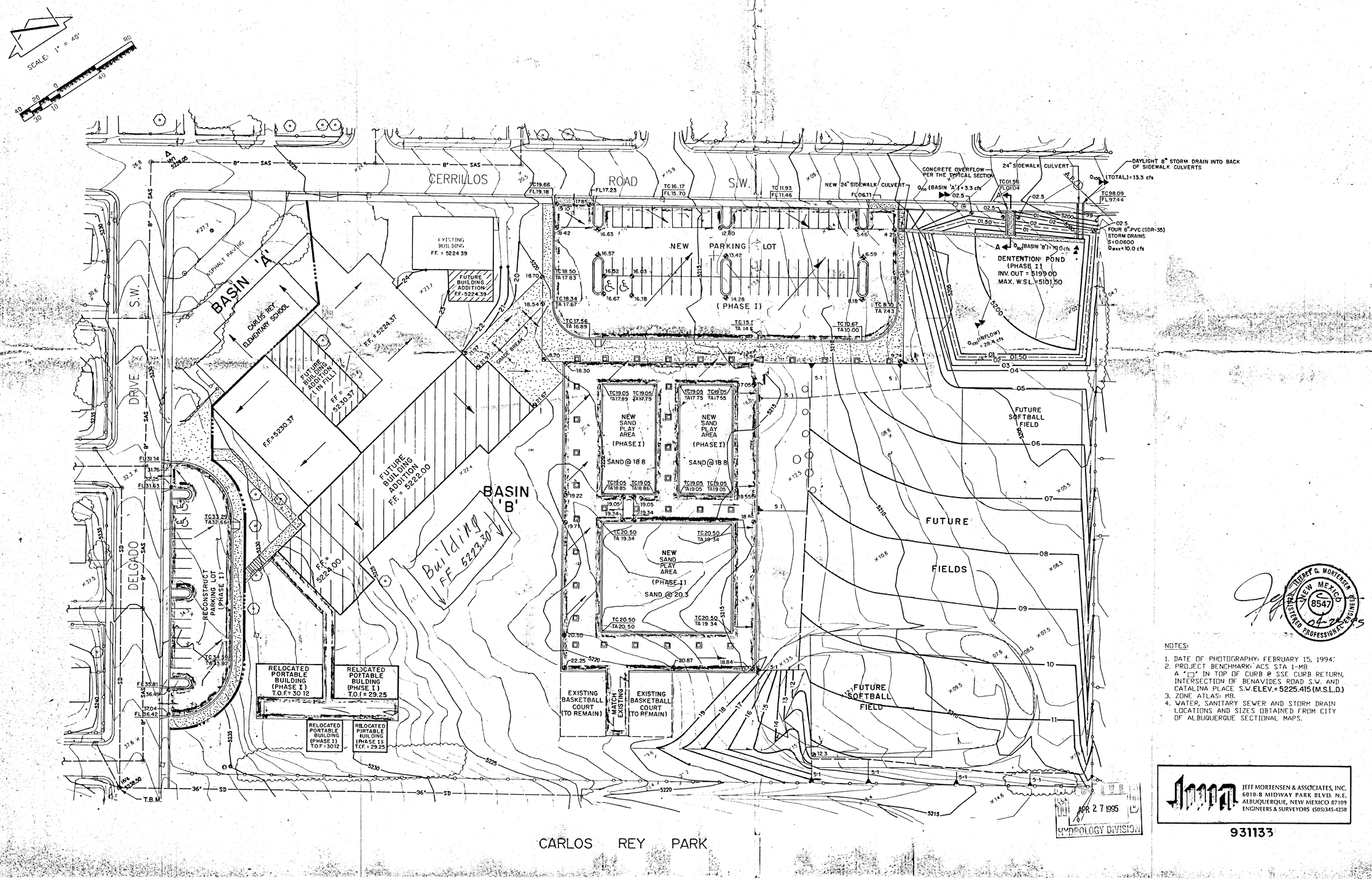
MASTER DRAINAGE PLAN
EXISTING CONDITIONS

Albuquerque Public Schools
CARLOS REY ELEMENTARY SCHOOL
1215 Cerrillos Road SW
Albuquerque, New Mexico

DENNIS C. WILKINSON & ASSOCIATES, P.C.
DCW
LANDSCAPE ARCHITECTURE & DEVELOPMENT PLANNING
P.O. Box 1542
Corrales, New Mexico 87048
505/897-7430

Date: 01/95
Drawn By: J.M.A.
Revisions:

Sheet 2 of 3



DENNIS C. WILKINSON & ASSOCIATES, P.C.

DCW

LANDSCAPE ARCHITECTURE & DEVELOPMENT PLANNING
P.O. Box 1542
Corrales, New Mexico 87048
505/897-7430

Albuquerque Public Schools

CARLOS REY ELEMENTARY SCHOOL
1215 Cerrillos Road SW
Albuquerque, New Mexico

MASTER DRAINAGE PLAN
DEVELOPED CONDITIONS

Date: 01/95
Drawn By: J.M.A.
Revisions:

Sheet 3 of 3

NOTES:

1. DATE OF PHOTOGRAPHY: FEBRUARY 15, 1994.
2. PROJECT BENCHMARK: ACS STA 1-M8 A "□" IN TOP OF CURB @ SSE CURB RETURN, INTERSECTION OF BENAVIDES ROAD S.W. AND CATALINA PLACE S.W. ELEV. = 5225.415 (M.S.L.D.)
3. ZONE ATLAS: M8.
4. WATER, SANITARY SEWER AND STORM DRAIN LOCATIONS AND SIZES OBTAINED FROM CITY OF ALBUQUERQUE SECTIONAL MAPS.

JEFFREY G. MORTENSEN
NEW MEXICO
8547
REGISTERED PROFESSIONAL ENGINEER
04-24-95

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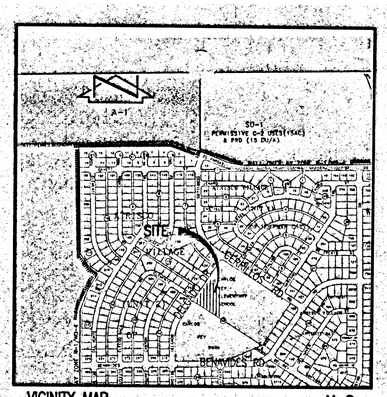
HYDROLOGY DIVISION

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

931133



VICINITY MAP M-8

SCALE: 1" = 750'

LEGAL DESCRIPTION

BLOCK 42, ATRISCO VILLAGE, ALSO KNOWN AS CARLOS REY ELEMENTARY SCHOOL, LANDS OF ALBUQUERQUE PUBLIC SCHOOLS.

PROJECT BENCHMARK

A.C.S. BENCHMARK "1-M8"; A "□" CUT IN TOP OF CURB AT THE SSE CURB RETURN OF THE INTERSECTION OF BENAVIDES ROAD S.W. AND CATALINA PLACE S.W.
ELEVATION = 5225.42 FEET (M.S.L.D.)

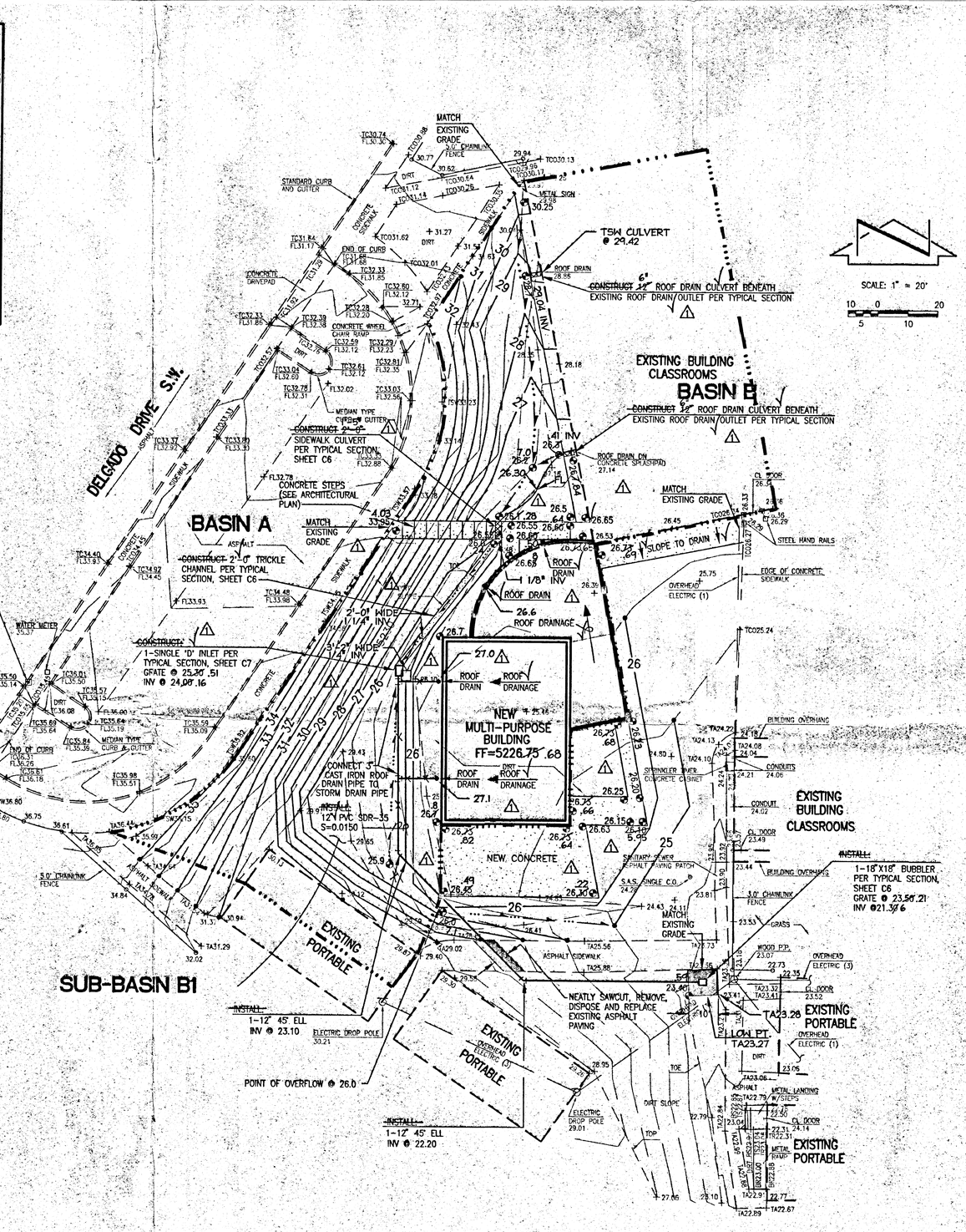
T.B.M.

"□" CHISELED T.B.C. AS SHOWN ON DRAWING.
ELEVATION = 5235.49 FEET (M.S.L.D.)

LEGEND

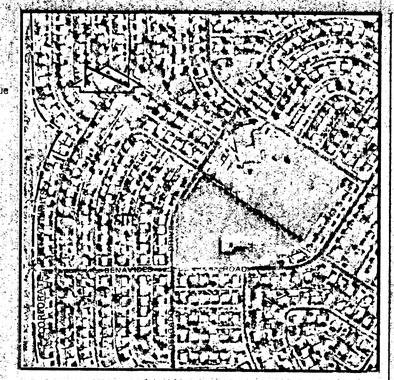
TA	TOP OF ASPHALT
TC	TOP OF CURB
FL	FLOW LINE
TCO	TOP OF CONCRETE
TSW	TOP OF SIDEWALK
TS	TOP OF STEP
BS	BOTTOM OF STEP
BR	BOTTOM OF RAMP
+ 35.51	EXISTING SPOT ELEVATION
	EXISTING CONTOUR
26	PROPOSED CONTOUR
26.10	PROPOSED SPOT ELEVATION
	PROPOSED CONCRETE WALL
	BASIN BOUNDARY LINE
	PROPOSED CONCRETE PAVING
	PROPOSED ASPHALT
25.8 .16	AS-BUILT ELEVATION
√	AS-BUILT = AS DESIGNED

T.B.M. "□" CHISELED T.B.C. ELEV.=5235.49'



SCALE: 1" = 20'

10 0 20
5 10



F.I.R.M. PANEL 32 & 33 OF 50

SCALE: 1" = 500' (APPROX.)

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.
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. Should a conflict exist between these plans and actual field conditions, the Contractor shall promptly notify the Engineer in writing so that the conflict can be resolved with a minimum amount of delay for all parties. The Contractor shall be responsible for all interpretations it makes without first contacting the Engineer as required above.
8. Caution: These drawings do not include necessary components for construction safety which shall remain the responsibility of the Contractor.

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.
4. Any areas of excess disturbance (traffic access, storage yard, excavated material, regraded area, etc.) shall be stabilized with erosion control blankets (Excelsior or approved substitute) and re-seeded according to C.O.A. Specification 1012 "Native Grass Seeding". This will be considered incidental to construction, therefore no separate payment will be made.

CERTIFICATION

As indicated by the as-built information shown hereon, the Carlos Rey Elementary School Multi-Purpose facility has been graded and drained in substantial compliance with the approved Grading and Drainage Plan. In lieu of erosion control blankets on the transitional slope between the parking lot and the building, the slope has been landscaped and stabilized with crusher fines (gravel). The as-built information shown hereon has been obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief.

Jeffrey G. Mortensen, NMPE 8547 — 9-07-96 Date

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	BY	REVISIONS
1	9/96	JGM	AS-BUILT AND CERTIFY

JMA JOB #931136

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

Phase 2, Cert

MULTI-PURPOSE FACILITY

CARLOS REY ELEMENTARY SCHOOL

1215 CERRILLOS RD, SW
ALBUQUERQUE
NEW MEXICO

ALBUQUERQUE PUBLIC SCHOOLS

PATRICK McCLERNON ARCHITECTS PLANNERS P.A.
1401 FIFTH ST NW
ALBUQUERQUE, NM
505 242 5219

CIVIL ENGINEERING
JEFF MORTENSEN AND ASSOCIATES
6010-B MIDWAY PARK
ALBUQUERQUE, NM
505 345 4250

LANDSCAPE ARCHITECTS
CONSENSUS PLANNING
718 CENTRAL SE
ALBUQUERQUE, NM
505 764 9801

STRUCTURAL ENGINEERING
BACCHUS CONSULTING ENGINEERS
630 MANZANO NE
ALBUQUERQUE, NM
505 262 2471

MECHANICAL ENGINEERING
COUPLAND MORAN ENGINEERS, INC
214 COAL SE
ALBUQUERQUE, NM
505 247 0500

ELECTRICAL ENGINEERING
TELCON ENGINEERING, INC
4800 JUAN TABO NE
ALBUQUERQUE, NM
505 292 3202

SHEET TITLE:

GRADING PLAN

DATE:
12/19/95

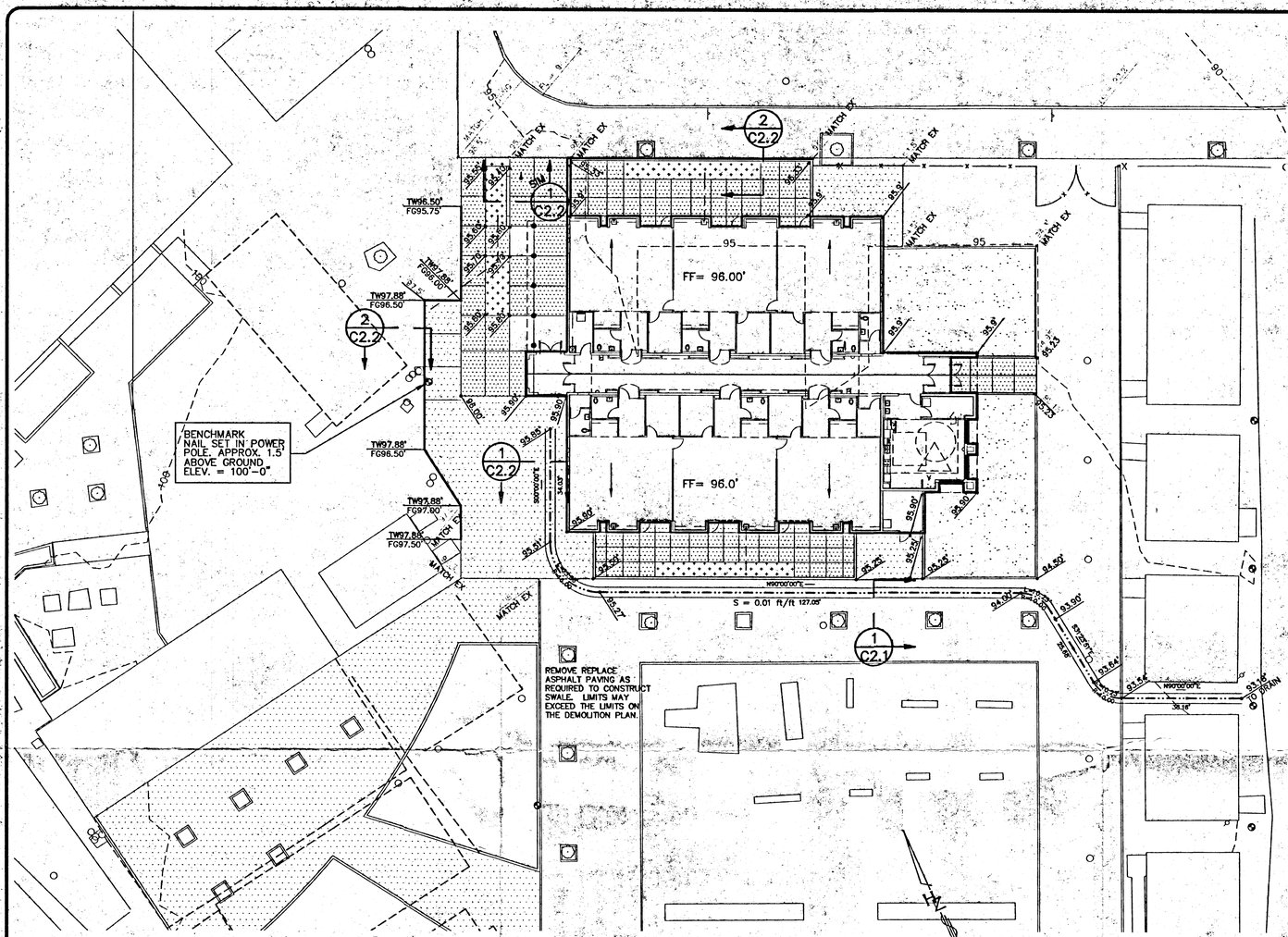
RECEIVED SEP 10 1996 HYDROLOGY DIVISION

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER
12-21-95

SHEET NO.

C5

C:\DATA\ACADDWG\931136\931366 Mon Sep 9 10:38:18 1996 -C.MT



CLASSROOM GRADING PLAN (1)

SCALE: NTS

SCALE: 1"=20'

DRAINAGE PLAN:

THE FOLLOWING ITEMS CONCERNING THE CARLOS REY ELEMENTARY SCHOOL ADDITION DRAINAGE PLAN ARE CONTAINED HEREON:
1. VICINITY MAP
2. CALCULATIONS
3. GRADING PLAN

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF CERRILLOS ROAD S.W. AND DELGADO DRIVE S.W. CERRILLOS ROAD S.W. AND DELGADO DRIVE S.W. ARE FULLY DEVELOPED RESIDENTIAL STREETS WITH CURB AND GUTTER, SIDEWALKS, WATERLINE, AND SANITARY SEWERLINE. THIS SITE LIES WITHIN A PREDOMINANTLY RESIDENTIAL DEVELOPED (INFILL) AREA.

AS SHOWN BY PANEL 317 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY F.E.M.A. FOR BERNALILLO COUNTY, NEW MEXICO DATED SEPTEMBER 20, 1996, THIS SITE DOES NOT LIE WITHIN, UPSTREAM OF, OR ADJACENT TO A DESIGNATED FLOOD HAZARD ZONE.

THE SUBJECT AREA IS THE EASTERN PORTION OF THE CARLOS REY ELEMENTARY SCHOOL SITE. CURRENT DEVELOPMENT IS A DIRT ATHLETIC FIELD AND A DETENTION POND. A PARKING LOT, SAND PLAY AREAS, AND BASKETBALL COURTS BOUND THE SUBJECT AREA TO THE WEST. THE NORTHERN BOUNDARY IS CERRILLOS ROAD S.W., WHILE THE AREA IS BOUNDED ON THE EAST AND SOUTH BY RESIDENTIAL NEIGHBORHOODS AND CARLOS REY PARK RESPECTIVELY. THE SITE DRAINS TO THE NORTH AND EAST, AS UPSTREAM FLOWS DISCHARGE INTO THE DETENTION POND NEAR THE NORTHEAST PROPERTY CORNER.

THE GRADING PLAN SHOWS 1) EXISTING AND PROPOSED GRADES INDICATED BY SPOT ELEVATIONS, 2) THE LIMIT AND CHARACTER OF EXISTING IMPROVEMENTS, 3) THE LIMIT AND CHARACTER OF PROPOSED IMPROVEMENTS, AND 4) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES.

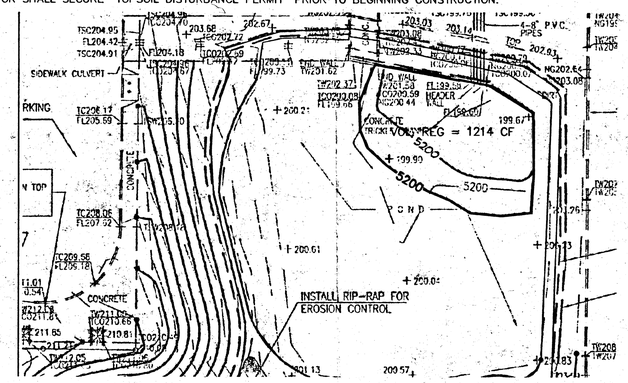
THE PROPOSED DEVELOPMENT OUTLINED HEREON IS CONSISTENT WITH THE SCOPE OUTLINED IN THE MASTER DRAINAGE PLAN PREVIOUSLY SUBMITTED BY JEFF MORTENSEN AND ASSOCIATES WITH ENGINEER'S STAMP DATED APRIL 25, 1995. A SPORTSFIELD WAS DESIGNED IN 1997 AND DEVELOPED IN ACCORDANCE WITH THE MASTER DRAINAGE PLAN. THIS PROJECT CONSISTS OF CONSTRUCTING AN APPROXIMATE 11,000 SF CLASSROOM ADDITION, AND ENLARGING THE POND TO ACCOMMODATE THE ADDED FLOWS. THE CAPACITY OF THIS POND PER THE D.M.P. IS APPROXIMATELY 25,620 CF., WHICH IS LESS THAN THE REQUIRED CAPACITY OF 26,833 CF. FOR FULL DEVELOPMENT OF THE SITE (REFER TO THE PREVIOUSLY SUBMITTED MASTER DRAINAGE PLAN AND SPORTSFIELD DRAINAGE PLAN). AS OUTLINED IN THE M.D.P. THE FULLY DEVELOPED CONDITION FOR BASIN "B" HAS AN APPROXIMEATE VOLUME OF RUNOFF VOLUME OF 42,150 CF. THE SUBSEQUENT SPORTSFIELD PROJECT LOWERED THE RUNOFF VOLUME OF BASIN "B" TO 40,450 CF. THE PROPOSED CLASSROOM FACILITY WILL RESULT IN THE RUNOFF VOLUME OF BASIN "B" TO APPROXIMATELY 41,500 STILL LESS THAN THE VOLUME DEFINED IN THE M.D.P. THE ADEQUACY OF THE SPILLWAY IS DEMONSTRATED BY THE MASTER DRAINAGE PLAN AND PREVIOUS SITE IMPROVEMENT PLANS, AND HENCE IS NOT RECALCULATED FOR THIS 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 QUALITY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. THE POND VOLUME IS EVALUATED BY THE AVERAGE END AREA METHOD.

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.
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 MY 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 THEREFORE. 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.

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.



PLAN - POND (2)

SCALE: NTS

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 1
2. $P_{6,100} = P_{360} = 2.20$ in.
3. Total Area (A_T) = 8.73 ac
4. Existing Land Treatment

Basin B 380,570 / 8.73

Treatment	Area (sf. / ac)	%
B	92,100 / 2.11	23.2
C	147,370 / 3.38	38.7
D	141,100 / 3.24	37.1

5. Developed Land treatment

Basin B 380,570 / 8.73

Treatment	Area (sf / ac)	%
B	82,387 / 1.89	21.7
C	147,370 / 3.38	38.7
D	150,813 / 3.46	39.6

Existing Condition

1. Volume

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

$E_w = [(0.67)(2.11)+(0.99)(3.38)+(1.97)(3.24)] / 8.73 = 1.28$ in

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

$V_{100} = (1.28 / 12) 8.73 = 0.9285$ ac. ft. ; 40,450 cf

2. Peak Discharge

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

$Q_P = Q_{100} = 0100 = (2.03)(2.11) + (2.87)(3.38) + (4.37)(3.24) = 28.1$

CALCULATIONS

Developed Condition

1. Volume

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

$E_w = [(0.67)(1.89)+(0.99)(3.38)+(1.97)(3.46)] / 8.73 = 1.31$ in

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

$V_{100} = (1.31 / 12) 8.73 = 0.9524$ ac. ft. ; 41,487 cf

2. Peak Discharge

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

$Q_P = Q_{100} = (2.03)(1.89) + (2.87)(3.38) + (4.37)(3.46) = 28.7$ cfs

Comparison

1. $\Delta V_{100} = 40{,}450 - 41{,}487 = -1{,}037$ cf (increase)
2. $\Delta Q_{100} = 28.1 - 28.7 = -0.6$ cfs (increase)

Pond Volume

1. Existing Conditions

Elevation (ft)	Area (sf)	Volume (cf)	ΔVolume (cf)
199.6	0		
		323	323
200.0	1,614		
		8,380	8,703
201.0	15,146		
		16,916	25,619
202.0	18,686		

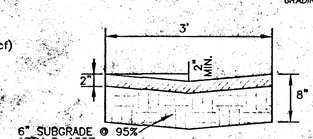
Vrequired (from M.D.P.) = 21,479 cf

ΔVpond = 26,833 - 25,619 = 1,214 cf (increase)

2. Proposed Conditions

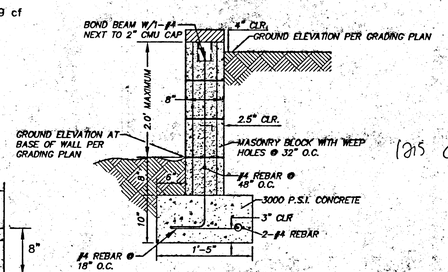
Elevation (ft)	Area (sf)	Volume (cf)	ΔVolume (cf)
199.6	0		
		695	695
200.0	3,377		
		9,278	9,932
201.0	15,146		
		16,901	26,833
202.0	18,686		

Vrequired (from M.D.P.) = 21,479 cf



ASPHALT SWALE (1)

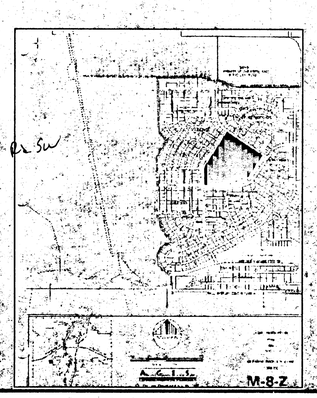
SCALE: NTS



RETAINING WALL (2)

SCALE: NTS

1215 Cerrillos Rd SW



SITE (3)

SCALE: NTS

RECEIVED
DEC 16 2004
HYDROLOGY SECTION

SCOTT A. EDDLEMAN
NEW MEXICO
12858
12/16/04
REGISTERED PROFESSIONAL ENGINEER

NO.	REVISION	DATE
1	-	-
2	-	-

HUITT-ZOLLARS
Huitt-Zollars, Inc.
8501 American Parkway NE Suite 550
Albuquerque, New Mexico 87113-2533
Phone (505) 883-8181 Fax (505) 883-3022

ALBUQUERQUE PUBLIC SCHOOLS

GRADING AND DRAINAGE PLAN

CARLOS REY KINDERGARTEN ADDITION
1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

DATE: 12/6/04
DRAWN: KG
DESIGNED: SAE
CHECKED: SAE
PROJ. NO.: 14-0232-01

SHEET: C2.2

G:\PROJECTS\14-0232-01\DWG\PLOT\14-0232-01 GRADING.DWG

DRAINAGE PLAN

The following items concerning the Carlos Rey Elementary School Phase I Drainage Plan are contained hereon:

1. Vicinity Map
2. Calculations
3. Grading Plan

As shown by the Vicinity Map, the site is located at the southeast corner of the intersection of Cerrillos Road S.W. and Delgado Drive S.W. Cerrillos Road S.W. and Delgado Drive S.W. are fully developed public residential streets with curb and gutter, sidewalks, waterline, and sanitary sewerline. A public storm drain system passes through Carlos Rey Park to the south of the site, however, it is topographically higher and hence not accessible to this site. This site lies within a predominantly residential developed (infill) area.

As shown by Panels 32 and 33 of 50 of the National Flood Insurance Program Flood Insurance Rate Maps published by F.E.M.A. for the City of Albuquerque, New Mexico dated October 14, 1983, this site does not lie within, upstream of, or adjacent to a designated flood hazard zone.

The site is currently developed as an elementary school. The site contains paved parking areas, permanent buildings, portable classroom buildings, and various play areas. The site is bounded on the western and northern sides by Delgado Road S.W. and Cerrillos Road S.W., respectively. From the west most corner of the site, Delgado Road S.W. drains to the intersection of Cerrillos Road S.W., where it turns southeasterly to the easternmost corner of the site. The site falls approximately 40 feet between these property corners. A small area drains into Cerrillos Road S.W. by sheetflow (Basin 'A'), at the northern corner of the site, where Cerrillos Road S.W. and Delgado Drive S.W. intersect. Otherwise, runoff generally drains in an easterly direction across the site (Basin 'B'). In several areas, small naturally occurring drainage channels have formed. Once runoff reaches the eastern corner of the site, it discharges into an existing parking area with concentrated flow. The existing volume of runoff is quantified to be 36,710 cf with a peak discharge rate of 26.5 cfs.

Phase I Development of this site outlined hereon is consistent with the scope outlined in the Master Drainage Plan previously submitted by this office with Engineer's stamp dated April 25, 1995. Phase I consists of a new playground area, reconstruction of two parking areas, and construction of drainage facilities to accommodate all proposed future development of this site. As identified by the Master Drainage Plan, Basin 'A' is being enlarged to include the parking area along Delgado Road S.W., which will freely discharge over a new drivepad. Basin 'B' will continue to drain in its historic pattern to the new detention pond. The capacity of this pond is approximately 22,900 cf, which is greater than the required capacity of 21,479 cf for full development of the site (refer to previously submitted Master Drainage Plan).

Construction of Phase I will increase the volume of runoff by 4,600 cf, however, the peak discharge rate will be reduced to 13.3 cfs due to the construction of the detention pond. This rate is significantly less than the 26.5 cfs which currently free discharges from the site. The controlled discharge of developed runoff from the site is consistent with the Master Drainage Plan for this site and appropriate so as not to cause adverse impact on downstream conditions.

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. A minor increase of runoff volume at 4,600 cf and decrease of peak discharge rate of 13.2 cfs is anticipated with Phase I development. The pond volume is evaluated by the Average End Area Method with pond release calculated using the Orifice Equation.

CALCULATIONS

Site Characteristics

1. Precipitation Zone = 1
2. $P_{6,100} = P_{360}$ = 2.20 in.
3. Total Area (A_T) = 9.58 ac.
4. Existing Land Treatment

A. Basin 'A' (A_{TA} = 22,050 sf/0.51 ac)

Treatment	Area (sf/ac)	%
B	7,690/0.18	34.9
D	14,360/0.33	65.1

B. Basin 'B' (A_{TB} = 365,360 sf/9.07 ac)

Treatment	Area (sf/ac)	%
B	228,500/5.25	57.8
C	77,740/1.78	19.7
D	89,120/2.04	22.5

5. Developed Land Treatment

A. Basin 'A' (A_{TA} = 36,840 sf/0.85 ac)

Treatment	Area (sf/ac)	%
B	8,290/0.19	22.5
D	28,550/0.66	77.5

B. Basin 'B' (A_{TB} = 380,570 sf/8.73 ac)

Treatment	Area (sf/ac)	%
B	193,510/4.44	50.8
C	63,540/1.46	16.7
D	123,520/2.83	32.5

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

931136

6. Existing Condition
A. Basin 'A'
1. Volume

$E_w = (E_1A_1+E_2A_2+E_3A_3+E_4A_4+E_5A_5)/A_T$
$E_w = (0.67)(0.18)+1.97(0.33))/0.51 = 1.51$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.51/12)(0.51) = 0.0642$ ac.ft.; 2,800 cf

2. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = (2.03)(0.18)+(4.37)(0.33) = 1.8$ cfs

B. Basin 'B'
1. Volume

$E_w = (E_1A_1+E_2A_2+E_3A_3+E_4A_4+E_5A_5)/A_T$
$E_w = (0.67(5.25)+0.99(1.78)+1.97(2.04))/9.07 = 1.03$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.03/12)9.07 = 0.7785$ ac.ft.; 33,910 cf

2. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(5.25)+2.87(1.78)+4.37(2.04) = 24.7$ cfs

7. Developed Condition

A. Basin 'A'
a. Volume
$E_w = (E_1A_1+E_2A_2+E_3A_3+E_4A_4+E_5A_5)/A_T$
$E_w = (0.67(0.19)+1.97(0.66))/0.85 = 1.68$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.68/12)0.85 = 0.1190$ ac.ft.; 5,180 cf

b. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(0.19)+4.37(0.66) = 3.3$ cfs

B. Basin 'B'
a. Volume
$E_w = (E_1A_1+E_2A_2+E_3A_3+E_4A_4+E_5A_5)/A_T$
$E_w = (0.67(4.44)+0.99(1.46)+1.97(2.83))/8.73 = 1.14$ in.
$V_{100} = (E_w/12)A_T$
$V_{100} = (1.14/12)8.73 = 0.8294$ ac.ft.; 36,130 cf

b. Peak Discharge

$Q_p = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
$Q_p = Q_{100} = 2.03(4.44)+2.87(1.46)+4.37(2.83) = 25.6$ cfs

⚠2 8. Basin 'B' Pond Volume (By Average End Area Method)

Elevation	Area (sf)	Volume (cf)	Σ Volume (cf)
99.5	0	1069	1069
100.0	4275	2,348	3,417
101.0	12,260	8,325	11,742
102.0	16,000	11,165	22,907

23,467 > 21,479 cf $V_{REQUIRED}$ (From M.D.P.)

*Spillway Elevation

⚠2 9. Spillway Capacity (Basin 'B' Pond)

100 Year Storm (Fully Developed)
$Q = CLH^{1.5}$
Let: C = 2.70
L = 10.67 ft ✓
H = 1.0 ft ✓

Therefore: ✓Q = 28.8 cfs > Q = 28.4 cfs (Fully Developed from M.D.P.)

⚠2 10. Pipe Discharge Capacity (Pressure Condition)

$Q = CA(2gh)^{\frac{1}{2}}$ Using Four 8" Storm Drain Lines

Let: C = 0.6
A = 0.3491 sf (per line)
g = 32.2 ft/sec²
h = 101.50 - 99.5 - 0.33 = 2.17 ft

Therefore: ✓Q = 2.5 cfs/pipe
✓Q_{total} = 10.0 cfs

11. Comparison

A. Basin 'A'
$\Delta V_{100} = 5,180 - 2,800 = 2,380$ cf (increase)
$\Delta Q_{100} = 3.3 - 1.8 = 1.5$ cfs (increase)

B. Basin 'B'
$\Delta V_{100} = 36,130 - 33,910 = 2,220$ cf (increase)
$\Delta Q_{100} = 24.7 - 10.0 = 14.7$ cfs (decrease)

C. Overall
$\Delta V_{100} = 2,380 + 2,220 = 4,600$ cf (increase)
$\Delta Q_{100} = 14.7 - 1.5 = 13.2$ cfs (decrease)

Construction Notes:

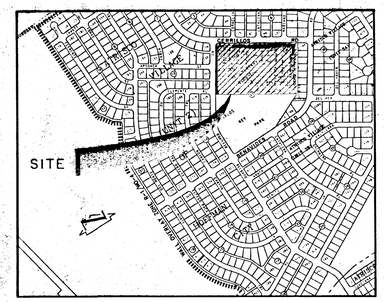
1. Two (2) working days prior to any excavation, contractor must contact New Mexico One Call System 260-1990, for location of existing utilities.
2. Prior to construction, the contractor shall excavate and verify the horizontal and vertical location of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer in writing so that the conflict can be resolved with a minimum amount of delay.
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. An Excavation/Construction Permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
7. Backfill compaction shall be according to RESIDENTIAL street use.
8. Maintenance of these facilities shall be the responsibility of the ownre of the property served.
9. 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.

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.
4. Any areas of excess disturbance (traffic access, storage yard excavated material, etc.) shall be re-seeded according to C.O.A. Specification 1012 "Native Grass Seeding". This will be considered incidental to construction, therefore, no separate payment will be made.

APPROVALS	NAME	DATE
A.C.E. / DESIGN	JPC	5-22-95
INSPECTOR		
A.C.E. / FIELD		

NO.	DATE	BY	REVISIONS
⚠2	03/96	GEB	AS-BUILT AND CERTIFY.



VICINITY MAP M-8
SCALE: 1" = 750'

LEGAL DESCRIPTION:

CARLOS REY ELEMENTARY SCHOOL - A.K.A. A PORTION OF BLOCK 42, ATRISCO VILLAGE (UNIT 2)

PROJECT BENCHMARK

A.C.S. BENCHMARK 1-MB, A "□" CUT IN TOP OF CURB AT THE SSE CURB RETURN OF THE INTERSECTION OF BENEVIDES ROAD S.W. AND CATALINA PLACE S.W.
ELEVATION = 5225.42 FEET (M.S.L.D.)

T.B.M.

STORM DRAIN MANHOLE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF DELGADO DRIVE S.W. AND CLEMENTE PLACE S.W.
RIM ELEVATION = 5238.50 (M.S.L.D.)

⚠2 **DRAINAGE CERTIFICATION**

As indicated by the as-built information shown hereon, the Carlos Rey Elementary School Playground and Site Improvements have been constructed in substantial compliance with the approved plan with the following exceptions:

1. The northern parking lot along Cerrillos Road N.W. was constructed topographically higher than the approved plan. The grades were uniformly raised, and do not adversely affect the drainage patterns of the lot as approved.
2. The invert elevations of the discharge pipes from the detention pond were constructed 0.55 feet higher than the approved plan. The contractor has constructed the berm and spillway elevation 0.5 feet higher to compensate for the raised invert elevation and therefore provide the required volume of ponding as approved. Consequently, these adjustments do not adversely affect the drainage patterns, capacity, nor performance of the detention pond.

The information presented hereon has been obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief. It is based upon this information that acceptance of this project by the City is hereby recommended.

Jeffrey G. Mortensen, NMPE 8547 — Date 03-11-96

DENNIS C. WILKINSON & ASSOCIATES, P.C.
DCW
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P.O. Box 1542
Corrales, New Mexico 87048
505/897-7430

Albuquerque Public Schools

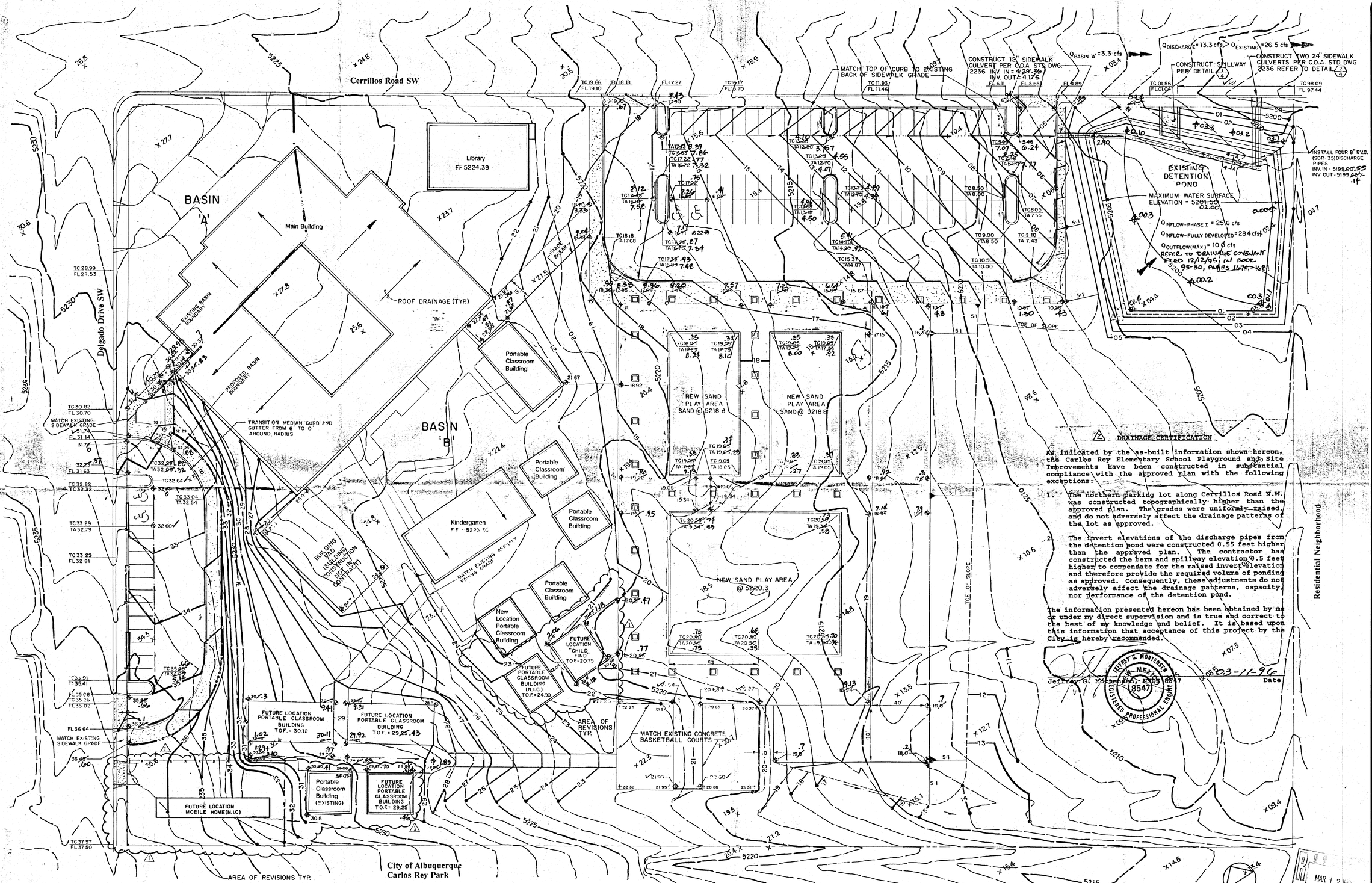
CARLOS REY ELEMENTARY SCHOOL
1215 Cerrillos Road SW
Albuquerque, New Mexico

PLAYGROUND AND SITE IMPROVEMENTS

DRAINAGE PLAN, CALCULATIONS, CONSTRUCTION & EROSION NOTES

Date: 05/1995
Drawn By: J.E.W.
Revisions:

Sheet 2 of



2 DRAINAGE CERTIFICATION

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JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

Jeffrey G. Mortensen, NMPE 8547 — Date 05-31-95

MAR 12 1996 HYDROLOGY DIVISION

MAR 2 1996 HYDROLOGY DIVISION

05-31-95 Cert Phase 1

Scale 1" = 30' - H

NO.	DATE	BY	REVISIONS
1	05/95	G.R.B.	SITE PLAN AND GRADING
2	03/96	GRB	AS-BUILT AND CERTIFY

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

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Albuquerque Public Schools

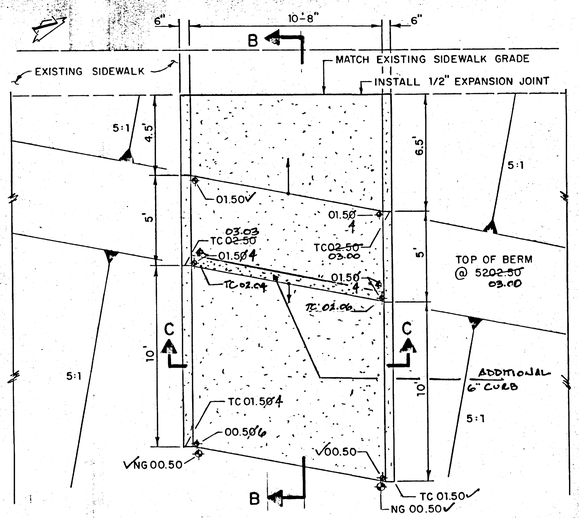
CARLOS REY ELEMENTARY SCHOOL
1215 Cerrillos Road SW
Albuquerque, New Mexico

PLAYGROUND AND SITE IMPROVEMENTS

GRADING PLAN

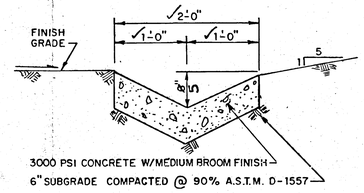
Date: 05/1995
Drawn By: J.E.W.
Revisions:

Sheet 3 of



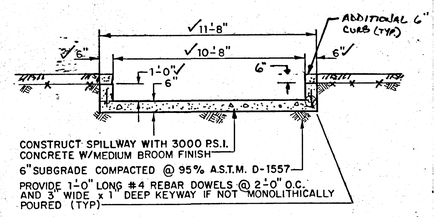
SPILLWAY DETAIL 1/3

SCALE: 1"= 4'-0"



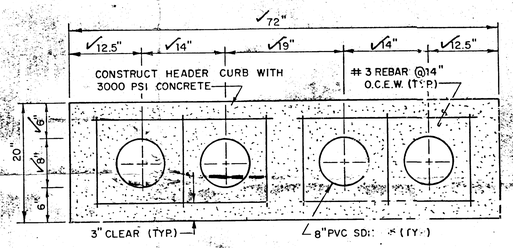
SECTION A-A

SCALE: 1"= 1'-0"



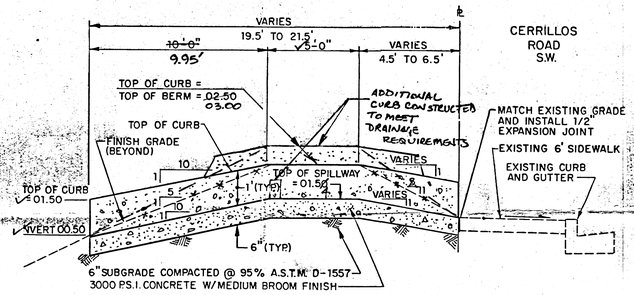
TRANSVERSE SPILLWAY SECTION B - B

SCALE: 1"= 4'-0"



HEADER CURB SECTION

SCALE: 1"= 1'-0"



LONGITUDINAL SPILLWAY SECTION C-C

SCALE: HORIZONTAL: 1"= 4'-0"
VERTICAL: 1"= 2'-0"

DRAINAGE CERTIFICATION

As indicated by the as-built information shown hereon, the Carlos Rey Elementary School Playground and Site Improvements have been constructed in substantial compliance with the approved plan with the following exceptions:

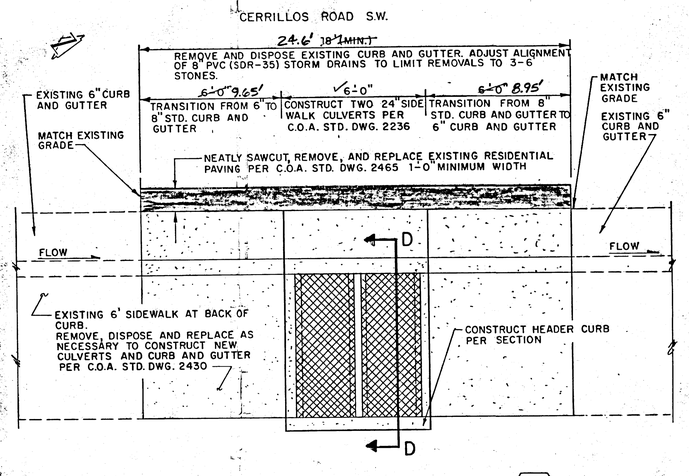
1. The northern parking lot along Cerrillos Road N.W. was constructed topographically higher than the approved plan. The grades were uniformly raised, and do not adversely affect the drainage patterns of the lot as approved.

2. The invert elevations of the discharge pipes from the detention pond were constructed 0.55 feet higher than the approved plan. The contractor has constructed the berm and spillway elevation 0.5 feet higher to compensate for the raised invert elevation and therefore provide the required volume of ponding as approved. Consequently, these adjustments do not adversely affect the drainage patterns, capacity, nor performance of the detention pond.

The information presented hereon has been obtained by me or under my direct supervision and is true and correct to the best of my knowledge and belief. It is based upon this information that acceptance of this project by the City is hereby recommended.

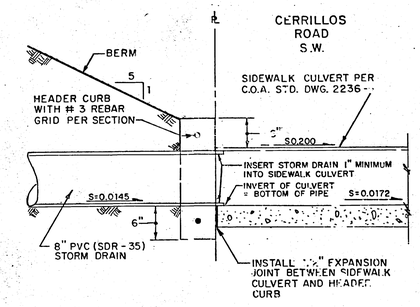
Jeffrey G. Mortensen, NMPE 8547 — 03-11-96
Date

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER



SIDEWALK CULVERT DETAIL 2/3

SCALE: 1"= 4'-0"



SECTION D-D

SCALE: 1"= 1'-0"

NO.	DATE	BY	REVISIONS
1	03/96	GRB	AS-BUILT AND CERTIFY

JEFFREY G. MORTENSEN NEW MEXICO 8547 REGISTERED PROFESSIONAL ENGINEER

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

931136

MAR 2 1996
HYDROLOGY DIVISION

DENNIS C. WILKINSON & ASSOCIATES, P.C.
DCW
LANDSCAPE ARCHITECTURE & DEVELOPMENT PLANNING
P.O. Box 1542
Corrales, New Mexico 87048
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Albuquerque Public Schools

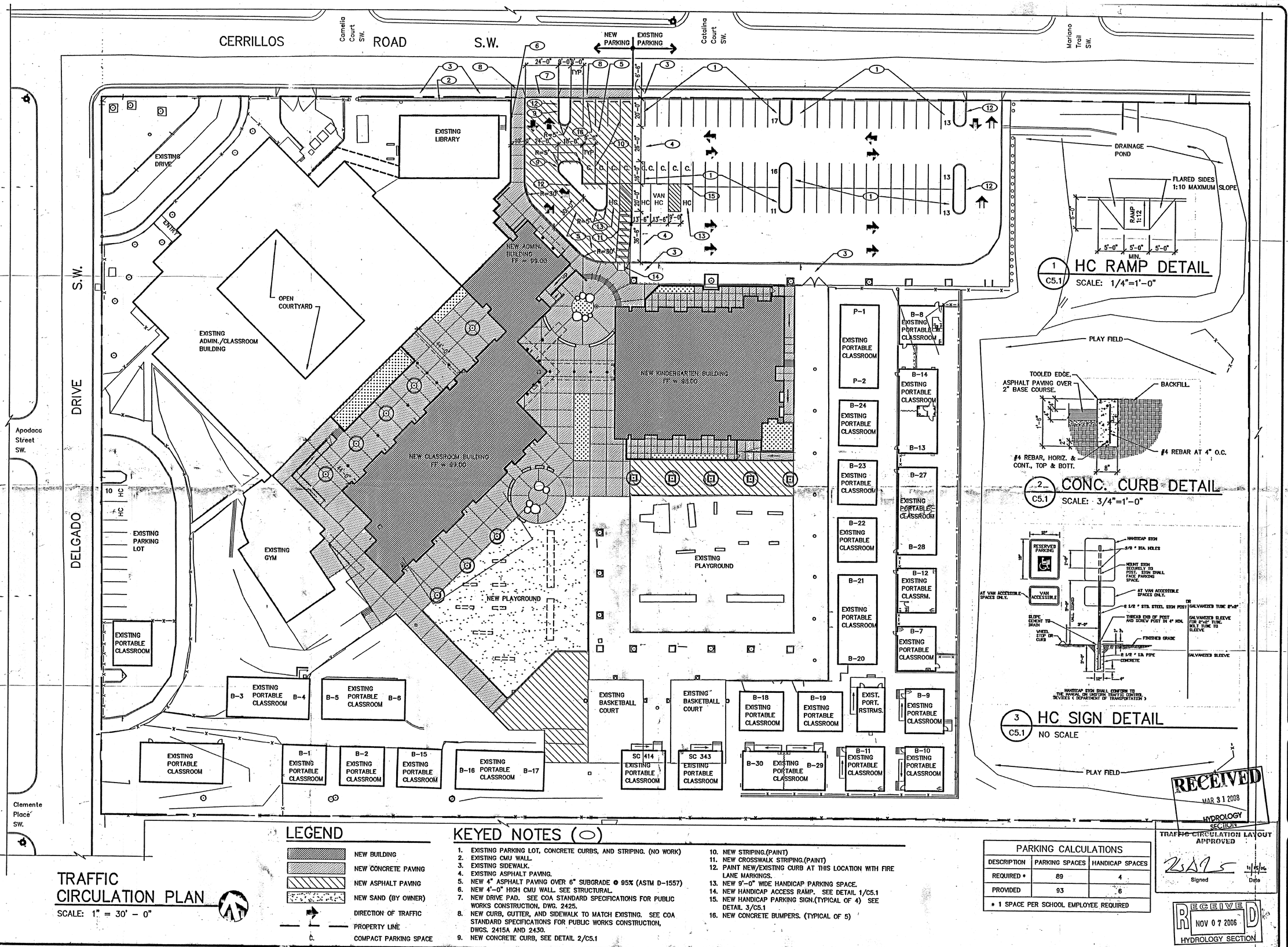
CARLOS REY ELEMENTARY SCHOOL
1215 Cerrillos Road SW
Albuquerque, New Mexico

PLAYGROUND AND SITE IMPROVEMENTS

DRAINAGE DETAILS AND SECTIONS

Date: 05/1995
Drawn By: J.E.W.
Revisions:

Sheet 4 of



TRAFFIC CIRCULATION PLAN

SCALE: 1" = 30' - 0"

LEGEND

- NEW BUILDING
- NEW CONCRETE PAVING
- NEW ASPHALT PAVING
- NEW SAND (BY OWNER)
- DIRECTION OF TRAFFIC
- PROPERTY LINE
- C. COMPACT PARKING SPACE

KEYED NOTES (○)

1. EXISTING PARKING LOT, CONCRETE CURBS, AND STRIPING. (NO WORK)
2. EXISTING CMU WALL.
3. EXISTING SIDEWALK.
4. EXISTING ASPHALT PAVING.
5. NEW 4" ASPHALT PAVING OVER 6" SUBGRADE @ 95% (ASTM D-1557)
6. NEW 4'-0" HIGH CMU WALL. SEE STRUCTURAL.
7. NEW DRIVE PAD. SEE COA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, DWG. 2425.
8. NEW CURB, GUTTER, AND SIDEWALK TO MATCH EXISTING. SEE COA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, DWGS. 2415A AND 2430.
9. NEW CONCRETE CURB, SEE DETAIL 2/C5.1
10. NEW STRIPING.(PAINT)
11. NEW CROSSWALK STRIPING.(PAINT)
12. PAINT NEW/EXISTING CURB AT THIS LOCATION WITH FIRE LANE MARKINGS.
13. NEW 9'-0" WIDE HANDICAP PARKING SPACE.
14. NEW HANDICAP ACCESS RAMP. SEE DETAIL 1/C5.1
15. NEW HANDICAP PARKING SIGN.(TYPICAL OF 4) SEE DETAIL 3/C5.1
16. NEW CONCRETE BUMPERS. (TYPICAL OF 5)

PARKING CALCULATIONS		
DESCRIPTION	PARKING SPACES	HANDICAP SPACES
REQUIRED *	89	4
PROVIDED	93	6
* 1 SPACE PER SCHOOL EMPLOYEE REQUIRED		

1 / C5.1 HC RAMP DETAIL

SCALE: 1/4"=1'-0"

2 / C5.1 CONC. CURB DETAIL

SCALE: 3/4"=1'-0"

3 / C5.1 HC SIGN DETAIL

NO SCALE

PLAY FIELD

RECEIVED
MAR 31 2008
HYDROLOGY SECTION

TRAFFIC CIRCULATION LAYOUT APPROVED

Signed — Date 11/05/06

RECEIVED
NOV 07 2006
HYDROLOGY SECTION

NO.	REVISION	DATE
1	- -	- -
2	- -	- -

HUITT-ZOLLARS
Huitt-Zollars, Inc.
6501 Americas Parkway NE, Suite 650
Albuquerque, New Mexico 87110-2372
Phone (505) 883-8181 Fax (505) 883-8022

NEW SITE PLAN

CARLOS REY ELEMENTARY SCHOOL NEW CLASSROOM, ADMINSTRATION AND KINDERGARTEN ADDITION AND RENOVATION

1215 CERRILLOS ROAD S.W.
ALBUQUERQUE, NEW MEXICO

STATE OF NEW MEXICO
JOHN J. JARRARD
16558
REGISTERED ARCHITECT
11/7/06

DATE: 08/14/06
DRAWN: DLS
DESIGNED: JJ
CHECKED: JJ
PROJ. NO: 14023201

SHEET: C5.1

Nov 06, 2006 8:28:48pm - User dlogs
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