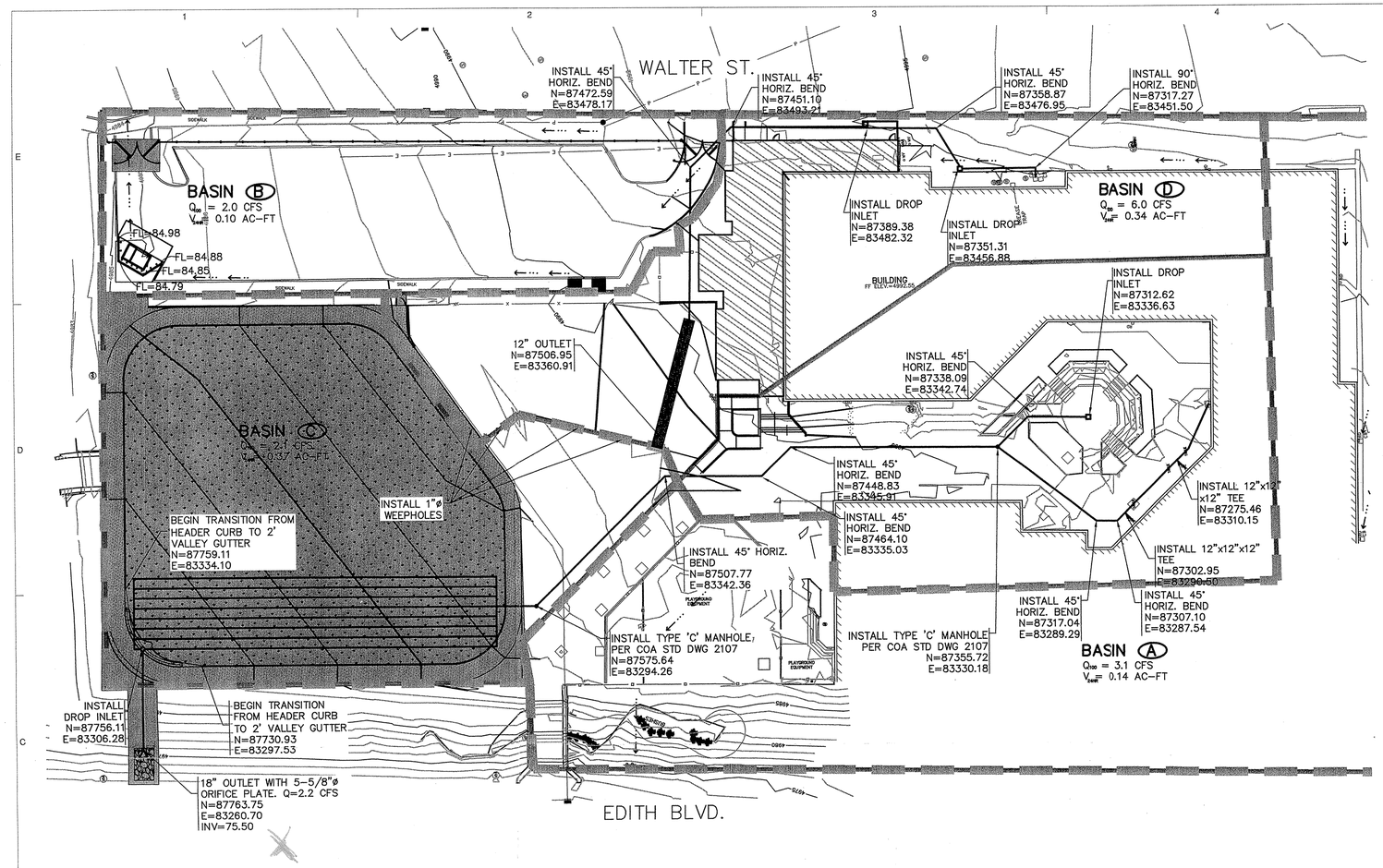
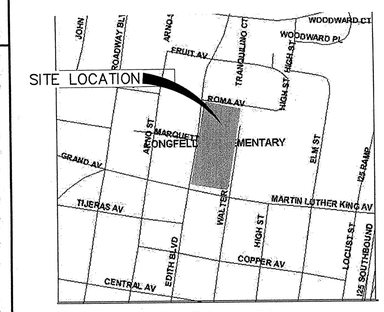


LEGEND

5070	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	FLOWLINE
	NOT PART OF THIS CONTRACT
	PROPOSED BUILDING
SD	PROPOSED STORM DRAIN
	EXISTING BASIN BOUNDARY
	PROPOSED BASIN BOUNDARY
BASIN (A)	BASIN DESIGNATOR
	LIMITS OF WORK PERFORMED BY OTHERS
N	NORTHING COORDINATE
E	EASTING COORDINATE

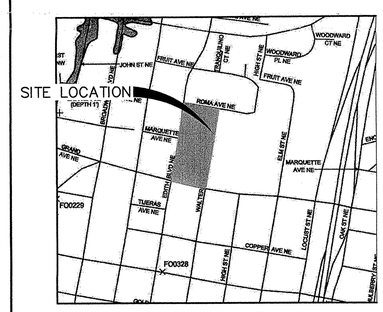


LOCATION MAP

ZONE ATLAS MAP NO. K-14

SOILS MAP

REFERENCE: SCS BERNALILLO COUNTY SOIL SURVEY



FLOOD INSURANCE MAP

REFERENCE: FLOOD INSURANCE STUDY
FIRM 35001C0334E, PANEL 0334E

RECEIVED MAY 19 2006 HYDROLOGY SECTION

LEGAL DESCRIPTION

7/LONGFELLOW ELEMENTARY SCHOOL, 7, BELVIDIRE ADDITION

BENCH MARK

BENCHMARK USED IS A STANDARD CITY OF ALBUQUERQUE DISK SET IN A DRILLED HOLE IN THE SIDEWALK AT THE SOUTHWEST CORNER OF THE INTERSECTION OF BROADWAY BLVD. & LEAD AVENUE. ELEVATION = 4955.312 NAVD 1929.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

Summary of Proposed Drainage Improvements
Longfellow Elementary School

Site Location & Project Description: Longfellow Elementary School is an approximately 3.4 acre site located in downtown Albuquerque, bordered by Martin Luther King, Jr. Blvd to the south, Edith Blvd. to the west, Walter Street to the East, and Martineztown Park to the north. Tributary area to Longfellow Elementary School is divided into four sub-basins, A through D, and no offsite basins contribute to existing nor proposed flows. The rational method, as described in COA DPM was used to compute proposed and existing flows. Basin areas and land treatments will remain unchanged from the existing condition*, and the maximum discharge for the entire site will remain as in the undeveloped condition, 7.3 cfs (from COA archive K14-D10). Basin "A" at the southwest corner of the site is comprised of landscaping and concrete sitework and will surface drain (Q_A = 3.1 cfs) to existing drainage infrastructure along Edith Blvd. and Martin Luther King Blvd. Basin "B" at the northeast corner of the site is comprised of asphalt paving and some landscaping and will surface drain (Q_B = 2.0 cfs) to the COA park to the north of the site via sidewalk culvert. Both Basins "A" and "B" maintain drainage patterns as in the existing condition.
*NOTE: Basin D is subdivided into D1 and D2 for the proposed condition.

Basin "C" at the northwest corner of the site contains playing fields, which will be regraded and replanted per the proposed improvements. The existing ponding area will be removed and runoff will surface drain (Q_C=2.1 cfs) to a grate inlet at the northwest corner of the basin. The inlet will discharge to a battery of approximately 1380 LF of 30" perforated CMPs located under the playing field. The infiltration battery will discharge via 18" ADS pipe to the west edge of the site, where it will surface drain to existing COA drainage infrastructure in Edith Blvd. Discharge will be limited by a 5-5/8" dia. orifice plate at the 18" outlet. See computations below.

$$Q_{18''} = C_d A\sqrt{2gh} = 0.667 \cdot \frac{\pi\left(\frac{5.625''}{12}\right)^2}{4} \cdot \sqrt{2 \cdot 32.2 \cdot 5.5} = 2.166^{\text{cfs}}$$

Basin "D" at the southeast corner of the site is comprised of school buildings and concrete sitework. Drainage improvements to Basin "D" will be completed in phases. In the first phase, a new grate inlet and 12" CMP from an existing grate inlet on the east side of the building will replace the swale that currently collects drainage from the roof drains (Basin "D1"). This storm drain will convey runoff (Q_D=2.cfs; V = 6,100 ft^3) to the playground storage area (S_{100} = 7,900 ft^3). This improvement maintains the existing condition in which Basin "D" flows (V = 5,454 ft^3)* are routed through the playground storage area and 1.3 cfs is discharged to a catch basin in Edith Blvd via 3" PVC pipe.
*NOTE: Approved COA calculation for drainage criteria applicable in 1981.

In the second phase of improvements, a new grate inlet in the courtyard area will convey Basin "D2" runoff (Q = 3.7 cfs) to the infiltration battery in Basin "C". The 3" PVC pipe from the playground storage area will be removed and plugged, and a series of 4-1"Ø geotextile-lined weepholes will be cut into the retaining wall allowing runoff to discharge slowly (Q = 0.4 cfs)** from the playground storage area to the field in Basin "C" where runoff will be collected in the grate inlet at the northwest corner of the field. Thus, all runoff from Basin "D" ($V_{100\text{-}yr,\ 24\text{-}hr}$ = 16,117 ft^3) will be routed through the 30" perforated CMPs in Basin "C". The required storage volume ($S_{100\text{-}yr,\ 24\text{-}hr}$ = 6,709) is based on TR-50 calculations for a triangular hydrograph. Note that no credit is taken for any infiltration in required storage volume calculations. Minimum pipe size will be 12", and all pipes will maintain a minimum slope of 0.0075 ft/ft.
**Flow through geotextile-lined weepholes is based on 4gpm/ft^2 from product literature, plus a 50% clogging factor.

$$Q_{12''} = \frac{1.486}{n} \cdot \frac{\pi D^2}{4} \cdot \sqrt{\left(\frac{\pi D^2}{4\pi D}\right)^2} \cdot \sqrt{S} = \frac{1.486}{0.012} \cdot \frac{\pi 1^2}{4} \cdot \sqrt{\left(\frac{\pi 1^2}{4\pi 1}\right)^2} \cdot \sqrt{0.0075} = 3.34^{\text{cfs}}$$

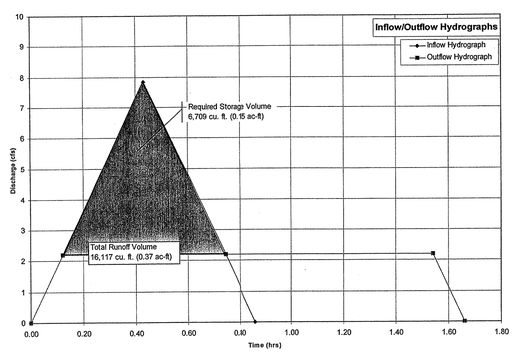
See attached for routing computations.

Precipitation Zone:	2														
Design Event:	100														
	A		B		C		D								
Basin ID	Total Area	%	Acre	%	Acre	%	Acre	%	Acre	CN1	I	Q100 (cfs)	EW1	V100 (ac-ft)	V1440 (ac-ft)
A	0.75	0.0%	0.00	0.0%	0.00	33.8%	0.25	66.2%	0.50	0.83	5.05	3.12	1.78	0.11	0.14
B	0.45	0.0%	0.00	0.0%	0.00	14.9%	0.07	85.1%	0.38	0.88	5.05	2.01	1.97	0.07	0.10
C	0.65	25.5%	0.17	42.0%	0.27	30.0%	0.20	2.5%	0.15	0.49	5.05	2.12	0.95	0.07	0.10
D	1.35	0.0%	0.00	0.0%	0.00	17.6%	0.24	82.4%	1.11	0.88	5.05	5.97	1.95	0.22	0.25
D1	0.94	0.0%	0.00	0.0%	0.00	17.6%	0.15	82.4%	0.69	0.88	5.05	3.73	1.55	0.14	0.17
D2	0.51	0.0%	0.00	0.0%	0.00	17.6%	0.09	82.4%	0.42	0.88	5.05	2.24	1.55	0.08	0.11

Peak Discharge	6.2	cfs	(Basins C &D)
Volume of Runoff	0.37	ac-ft	(from DPM calculations)
Hydrograph Duration	1.4442	hrs	
Time to Peak	0.7221	hrs	
Masimum Allowable Discharge	2.2	cfs	
Slope of Ascending Limb of Hyd	8.586	cfs/hr	
Slope of fescending Limb of Hyd	-8.586	cfs/hr	
Y-intercept for Data Points (5 & 6)	12.4	(cfs)	
Volume of Storage	6709	ft^3	
Volume of Storage	0.1540	ac-ft	

Time Step		Inflow Hydrograph	Comment
(min)	(hr)	(cfs)	--
0.0	0.00	0	Begin Storm
15.4	0.26	2.2	Inflow > Max Allowable Outflow
43.3	0.72	6.2	Time to Peak
71.3	1.19	2.2	Inflow < Max Allowable Outflow
86.7	1.44	0	End Storm Inflow
122.1	2.04	0	End Max Allowable Outflow
137.5	2.29	0	End Outflow

Time Step		Outflow Hydrograph	Comment
(min)	(hr)	(cfs)	--
0.0	0.00	0	Begin Storm
15.4	0.26	2.2	Inflow > Max Allowable Outflow
43.3	0.72	2.2	Time to Peak
71.3	1.19	2.2	Inflow < Max Allowable Outflow
122.1	2.04	2.2	Outflow > Max Allowable Outflow
137.5	2.29	0	End Outflow



DESIGN PLUS LLC
2415 PRINCETON DR. NE, SUITE G-2
ALBUQUERQUE, NM 87107
505.843.7587 505.843.6773 (F)
www.designplusabq.com

WILSON & COMPANY
4900 LANG AVENUE N.E.
ALBUQUERQUE, NM 87109
(505) 348-4000
FAX (505) 348-4072
WWW.WILSONCO.COM

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LONGFELLOW ELEMENTARY SCHOOL
PERFORMANCE AREA & CLASSROOM ADDITION
400 EDITH BLVD. NE
ALBUQUERQUE, NEW MEXICO 87102

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