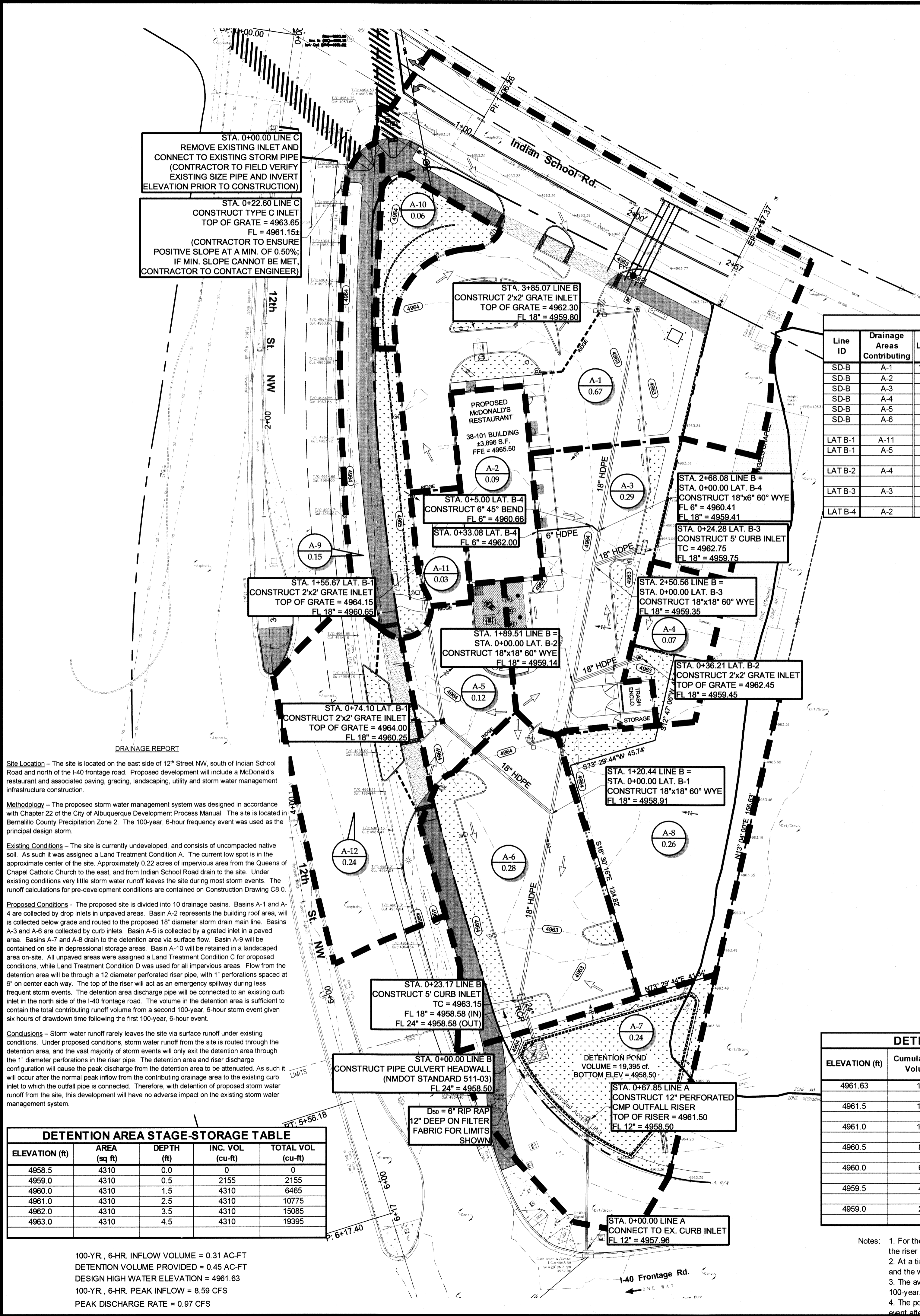


FILE NAME: D:\1 POST DEVELOPED DRAINAGE PLAN.dwg  
PLOT DATE: Thursday, October 23, 2013  
PLOT TIME: 8:28:51 AM  
PLOTTER: HP 5000 AutoPlot.pps

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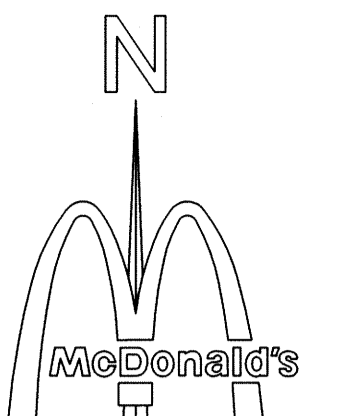
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OWNER INFORMATION  
MCDONALD'S USA, LLC  
GREATER SOUTHWEST REGION  
511 E. CARPENTER FRWY, STE. 375  
IRVING, TEXAS 75062  
(972) 869-5346  
CONTACT: LEE MORRIS



Know what's below.  
Call before you dig.



SCALE: 1" = 30'

THESE PLANS ARE SUBJECT TO REVIEW & APPROVAL BY JURISDICTIONAL ENTITIES.

100-YEAR, 6-HOUR STORM SEWER SUMMARY																
Line ID	Drainage Areas Contributing	Line Length (ft)	Line Size (in)	Line Slope (%)	Q <sub>design</sub> (cfs)	Q <sub>full</sub> (cfs)	Average Velocity (ft/s)	Upstream Elevations			Downstream Elevations			S <sub>i</sub> Ave (ft/ft)	Structure Losses (ft)	Loss Coeff.
								Invert (ft)	Ground/Rim (ft)	HGL (ft)	Invert (ft)	Ground/Rim (ft)	HGL (ft)			
SD-B	A-1	116.99	18	0.34	3.0	7.2	3.7	4959.80	4962.30	4962.64	4959.41	4963.70	4962.57	0.0006	0.21	1
SD-B	A-2	17.52	18	0.34	3.4	7.2	3.9	4959.41	4963.70	4962.49	4959.35	4963.70	4962.48	0.0008	0.08	0.75
SD-B	A-3	61.05	18	0.34	4.7	7.2	3.9	4959.35	4963.70	4962.42	4959.14	4963.70	4962.33	0.0014	0.06	0.75
SD-B	A-4	67.43	18	0.34	5.0	7.2	4.2	4959.14	4963.70	4962.23	4958.91	4963.60	4962.13	0.0016	0.10	0.75
SD-B	A-5	98.92	18	0.34	5.8	7.2	4.2	4958.95	4963.60	4962.06	4958.58	4962.65	4961.84	0.0022	0.07	0.75
SD-B	A-6	23.17	24	0.34	7.0	13.2	4.6	4958.58	4962.65	4961.65	4958.50	4963.00	4961.63	0.0008	0.19	0.5
LAT B-1	A-11	81.57	18	0.49	0.2	8.7	0.1	4930.65	4964.15	4962.15	4960.25	4963.75	4961.75	0.0001	0.00	1
LAT B-1	A-5	74.10	18	1.81	0.8	16.8	5.9	4960.25	4963.75	4961.75	4958.91	4963.60	4962.13	0.0001	0.00	1
LAT B-2	A-4	36.21	18	0.86	0.3	11.5	0.2	4959.45	4962.45	4962.34	4959.17	4963.70	4962.33	0.0000	0.00	1
LAT B-3	A-3	24.28	18	1.65	1.4	15.9	0.8	4959.75	4962.25	4962.49	4959.35	4963.70	4962.48	0.0001	0.01	1
LAT B-4	A-2	33.08	6	4.81	0.4	1.5	2.0	4962.00	4965.50	4962.69	4960.42	4963.70	4962.57	0.0036	0.07	1

POST-DEVELOPMENT 100-YEAR, 6-HOUR RUNOFF CALCULATIONS									
Drainage Area Number	Area (ac)	Land Treatment Condition				Excess Precipitation (in)	Volume (ac-ft)	Peak Discharge (cfs)	Remarks
A-1	0.67	0.00	0.00	0.06	0.61	2.03	0.11	3.06	TO GRATE INLET A-1
A-2	0.09	0.00	0.00	0.00	0.09	2.12	0.02	0.42	ROOF DRAINS
A-3	0.29	0.00	0.00	0.01	0.28	2.09	0.05	1.35	TO CURB INLET A-3
A-4	0.07	0.00	0.00	0.01	0.06	1.98	0.01	0.31	TO GRATE INLET A-4
A-5	0.12	0.00	0.00	0.00	0.12	2.12	0.02	0.56	TO GRATE INLET A-5
A-6	0.28	0.00	0.00	0.04	0.24	1.98	0.05	1.25	TO CURB INLET A-6
A-7	0.24	0.00	0.00	0.23	0.01	1.17	0.02	0.77	TO DETENTION AREA
A-8	0.26	0.14	0.00	0.12	0.00	0.81	0.02	0.60	TO DETENTION AREA
A-9	0.15	0.00	0.00	0.12	0.03	1.33	0.02	0.52	TO LANDSCAPE AREA
A-10	0.06	0.00	0.00	0.06	0.00	1.13	0.01	0.19	TO LANDSCAPE AREA
A-11	0.03	0.00	0.00	0.00	0.03	2.12	0.01	0.14	TO GRATE INLET A-11
A-12	0.24	0.00	0.00	0.00	0.24	2.12	0.04	1.13	FLOW DEPTH AT CURB = 0.18'
Total	2.26	0.14	0.00	0.65	1.47		0.33	9.17	

Note: Calculations in accordance with the City of Albuquerque Development Process Manual

DETENTION AREA STAGE-DISCHARGE TABLE						
ELEVATION (ft)	1st Row Perforations (Elev = 4959)	2nd Row Perforations (Elev = 4959.5)	3rd Row Perforations (Elev = 4960)	4th Row Perforations (Elev = 4960.5)	5th Row Perforations (Elev = 4961)	TOTAL OUTFLOW (cfs)
4958.5	0.00	0.00	0.00	0.00	0.00	0.00
4959.0	0.00	0.00	0.00	0.00	0.00	0.00
4959.5	0.11	0.00	0.00	0.00	0.00	0.11
4960.0	0.16	0.11	0.00	0.00	0.00	0.27
4960.5	0.19	0.16	0.11	0.00	0.00	0.46
4961.0	0.22	0.19	0.16	0.11	0.00	0.68
4961.5	0.25	0.22	0.16	0.11	0.00	0.93
4962.0	0.27	0.25	0.22	0.19	0.16	1.09
4962.5	0.30	0.27	0.25	0.22	0.19	1.23
4963.0	0.32	0.30	0.27	0.25	0.22	1.36

- Notes:
- Discharge is through a 12"-diameter CMP Riser with 1"-diameter perforations at 6" o.c.e.w.
  - There are 6 perforations per row, and 5 rows, with the invert of the top row at 4961
  - The top of riser is at an elevation of 4963.
  - Flow through the perforations is calculated using the Orifice Equation.

DETENTION AREA DRAIN TIME CALCULATIONS					
ELEVATION (ft)	Cumulative Pond Volume (cf)	Incremental Volume (cf)	Average Discharge Rate (cfs)	Incremental Drain Time (hrs)	Cumulative Drain Time (hrs)
4961.63	13504				0.00
4961.5	12930	574	0.95	0.17	0.17
4961.0	10775	2155	0.81	0.74	0.91
4960.5	8620	2155	0.57	1.05	1.96
4960.0	6465	2155	0.37	1.64	3.60
4959.5	4310	2155	0.19	3.15	6.75
4959.0	2155	2155	0.06	10.88	14.49

- Notes:
- For the purpose of this calculation, it is assumed that there is no drainage through the riser during the storm event.
  - At a time of 6 hours, the remaining storm water volume will equal approximately 4851 cf. and the water surface elevation will be approximately 4959.63
  - The available storage volume after 6 hours of drain time is 14,544 c.f., which is greater than the 100-year, 6-hour runoff volume of 13,504 c.f.
  - The pond has sufficient capacity to store the volume from a second 100-year, 6-hour storm event after draining for 6 hours.

LEGEND

- DRAINAGE AREA LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE AREA NUMBER
- PROPOSED DRAINAGE DIRECTION

910 S. Kimball Avenue ■ Southlake, Texas 76092 ■ (817) 328-3200

ADAMS ENGINEERING NO. 2009.056 MCDONALD'S L/C: 030-0230

CITY OF ALBUQUERQUE  
MUNICIPAL DEVELOPMENT DEPARTMENT  
ENGINEERING DIVISION

POST DEVELOPED DRAINAGE PLAN  
SEC OF 12TH ST. & INDIAN SCHOOL RD., ALBUQUERQUE, NM

Design Review Committee City Engineer Approval

City Project No. 719682 Zone Map No. H-13

Last Design Update

Mo./Day/Yr. Mo./Day/Yr.

Sheet 9 of 8