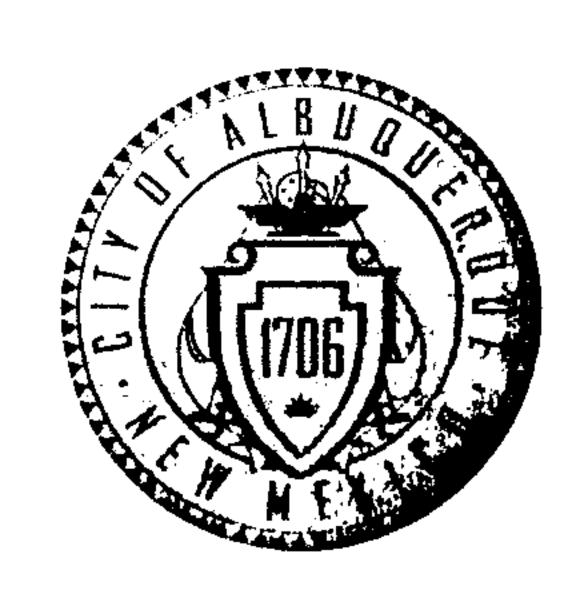
CITY OF ALBUQUERQUE



December 24, 2008

Patrick J. Conley, P.E. Smith Engineering Company 2201 San Pedro NE Albuquerque, NM 87110

Re: North Domingo Baca Park- Phase 5- Master Grading Plan Engineer's Stamp dated 5-30-07, Revised 12/08 (C19/D043)

Dear Mr. Conley,

file

Based upon the information provided in your submittal received 12-19-08, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

PO Box 1293

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3695.

Albuquerque

NM 87103

www.cabq.gov

Sincerely,

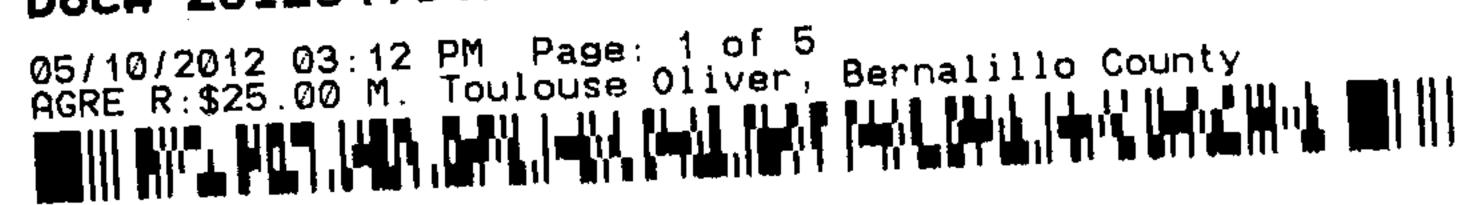
Curtis A. Cherne, P.E.

Senior Engineer, Planning Dept.

Development and Building Services



Doc# 2012047645



Parcel: <u>Kinney Dam – Tract A</u>
ZAP C-19

ENCROACHMENT LICENSE AGREEMENT FOR STORM DRAIN PIPE CONNECTION FROM NORTH DOMINGO BACA PARK TO KINNEY DAM PIPE

This License Agreement is entered into this 2nd day of Way, 2012, by and between the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA"), a political subdivision of the State of New Mexico, and the City of Albuquerque, ("CITY"), a municipal corporation of the State of New Mexico, its successors and assigns, hereinafter collectively referred to as the "Parties".

WHEREAS, AMAFCA owns the fee simple interest in Tract A, as shown of the Plat of AMAFCA Kinney Dam – Tract A, filed for public record in the Office of the County Clerk of Bernalillo County, New Mexico on April 20, 2006, in Book 2006C, Page126; and

WHEREAS, the CITY, as part of the North Domingo Baca Park – Phase 8 improvements, will construct parking and drainage improvements, including one thirty-six inch (36") Storm Drain Pipe Connection to the existing AMAFCA-maintained thirty-six inch (36") outfall pipe at the southeast corner of Kinney Dam, along with related grading and appurtenances, hereinafter collectively referred to as the "PROJECT"; and

WHEREAS, the CITY will construct the PROJECT in accordance with standards set forth by the CITY and approved by AMAFCA, and, upon completion of construction and acceptance by the CITY and AMAFCA, the CITY shall thereafter maintain the PROJECT.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the Parties agree as follows:

AMAFCA hereby grants to the CITY, its successors and assigns, a License to construct, operate, maintain, and repair the PROJECT, with related improvements, in Kinney Dam, as graphically shown on Exhibit "A", and being more specifically described in the approved construction drawings for the PROJECT, incorporated herein by reference, together with full and free ingress and egress thereto subject to the following terms and conditions:

- 1. The CITY shall obtain AMAFCA's written approval for the following:
 - a. All changes to the plans or specifications which affect the PROJECT or Kinney Dam.
 - b. Future repair, modification, removal or other activities affecting the completed PROJECT or Kinney Dam.
 - c. Future projects within or in the vicinity of Kinney Dam.
- 2. Workmanship and materials shall conform to the City of Albuquerque Standard Specifications for Public Works Construction, as currently modified.

- 3. All construction activities by the CITY and operation, maintenance, repair, relocation or removal of the PROJECT by the CITY shall be accomplished at the sole expense of the CITY and shall be done in such a manner as will not damage or interfere with the operation and maintenance of AMAFCA's flood control facilities.
- 4. The CITY shall be responsible for all damages caused by construction activities. To ensure repair of such damages, the CITY shall require its contractor to purchase Standard Form Owner's Protective Liability insurance naming AMAFCA as additional named insured in the amount of \$1,000,000.00. Evidence of said insurance shall be provided to AMAFCA prior to the start of construction.
- 5. The CITY or its contractor shall notify the AMAFCA Field Engineer by phone call to 884-2215 at least forty-eight (48) hours prior to beginning work on or in AMAFCA's right-of-way and also before final inspection.
- 6. Any and all excavations and storm drain trenches shall be backfilled with clean fill and compacted to 90% of modified proctor. Any other land alterations in Kinney Dam shall be returned to their original grade and condition if not shown in the plan set. Ground areas within Kinney Dam that are disturbed during construction shall be re-vegetated in accordance with the City of Albuquerque Standard Specifications for Public Works Construction, Section 1012 Native Grass Seeding, as currently updated. Any existing fencing that is removed or destroyed shall be replaced in kind at the expense of the CITY.
- 7. Any existing survey control or right-of-way monuments that are moved or destroyed as a result of the construction permitted by this License Agreement shall be replaced by a registered surveyor at the expense of the CITY.
- 8. Construction within the limits of Kinney Dam shall be subject to inspection by AMAFCA's Executive Engineer or his designated representative. AMAFCA's comments shall be directed to the CITY's Project Manager. The CITY shall respond to AMAFCA's comments in a timely manner.
- 9. All materials to be used in the construction within Kinney Dam shall be subject to inspection by AMAFCA, in coordination with the Project Manager.
- 10. Each Party acknowledges that it will be responsible for claims or damages arising from personal injury or damage to persons or tangible property to the extent they result from negligence of its employees. The liability of the CITY and AMAFCA in all cases is subject to the limitations and immunities of the New Mexico Tort Claims Act Section 41-4-1 et.seq., NMSA 1978, as amended.
- The CITY shall provide AMAFCA with one set of "Record Drawings" within thirty (30) days after completion of the PROJECT.
- Upon completion of construction and acceptance by the CITY and AMAFCA, the CITY shall be responsible for the operation, maintenance and repair of the PROJECT, at the sole

expense of the CITY, in such manner as will not damage or interfere with the operation, maintenance or reconstruction of AMAFCA's flood control facilities.

- 13. Should the CITY fail to comply with the provisions of this License Agreement, or should the CITY fail to properly maintain its portion of the PROJECT, this License Agreement and all rights and privileges herein granted may be terminated by AMAFCA. However, such termination shall be preceded by written notice, giving the CITY at least thirty (30) days to effect a cure. If the CITY fails to effect a cure within thirty (30) days, AMAFCA may perform the required repair, maintenance or removal and invoice the CITY for incurred costs. The CITY shall pay such costs within sixty (60) days of the date of said invoice.
- 14. If any AMAFCA action pursuant to this License Agreement is deemed unreasonable, the CITY shall have the right to appeal to the AMAFCA Board of Directors.
- 15. In the event of a dispute between the CITY and AMAFCA, each Party shall be responsible for its own costs and attorney's fees.
- 16. This License Agreement shall be construed according to the laws of the State of New Mexico.

The provisions hereof shall inure to the benefit of and bind the heirs, executors, administrators, successors, and assigns of the parties hereto.

Terms and Conditions of License Agreed to and Acknowledged:

LICENSOR: Albuquerque Metropolitan Arroyo Flood Control Authority

by: John M. Jovato, Executive Engineer Date

LICENSEE: City of Albuquerque

By: Robert J. Perry, Chief Administrative Officer Date

RECOMMENDED:

Michael Riordan, P.E., Director

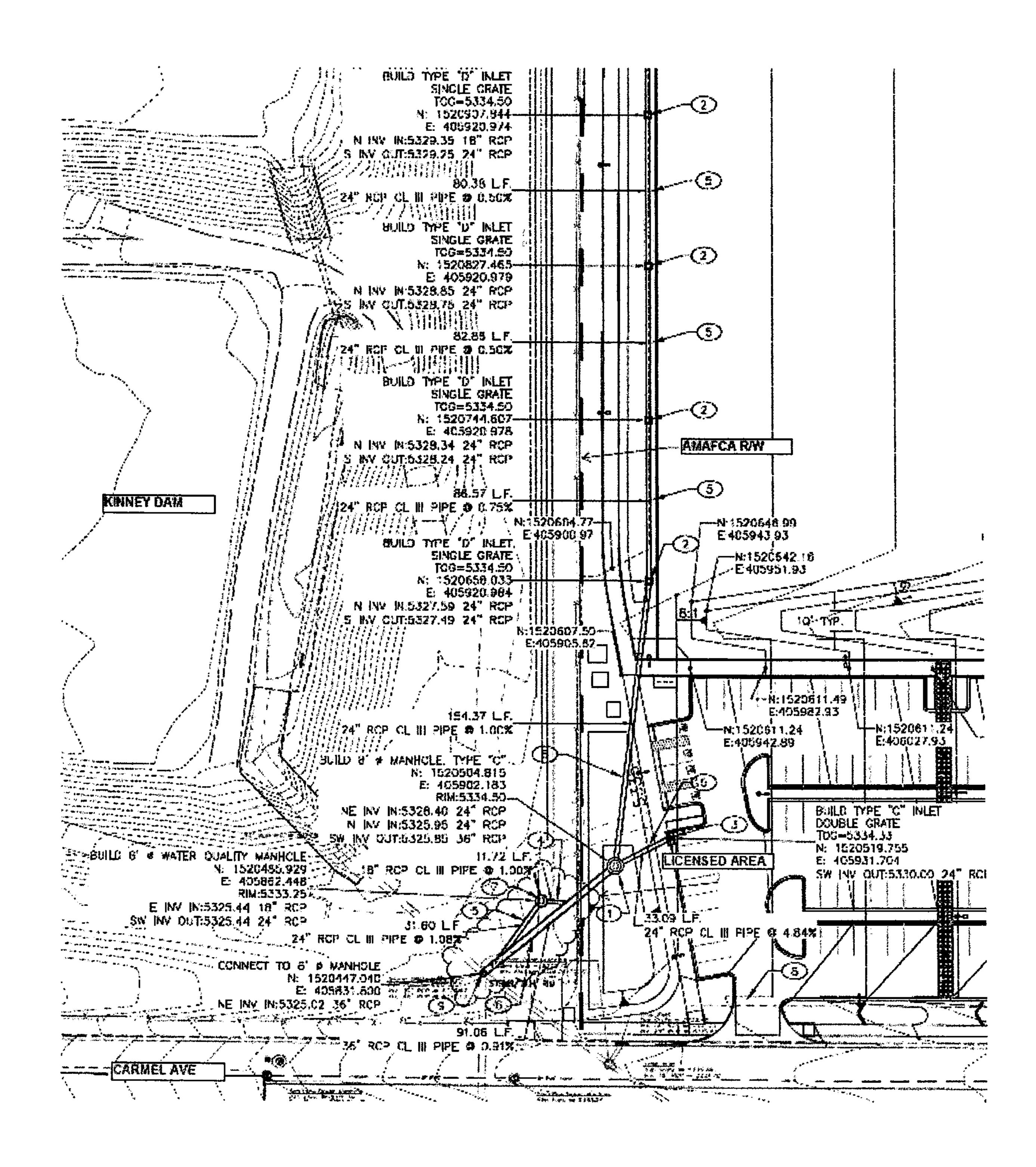
Department of Municipal Development

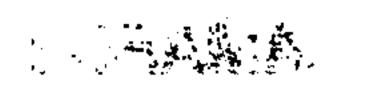
Date

ACKNOWLEDGMENTS

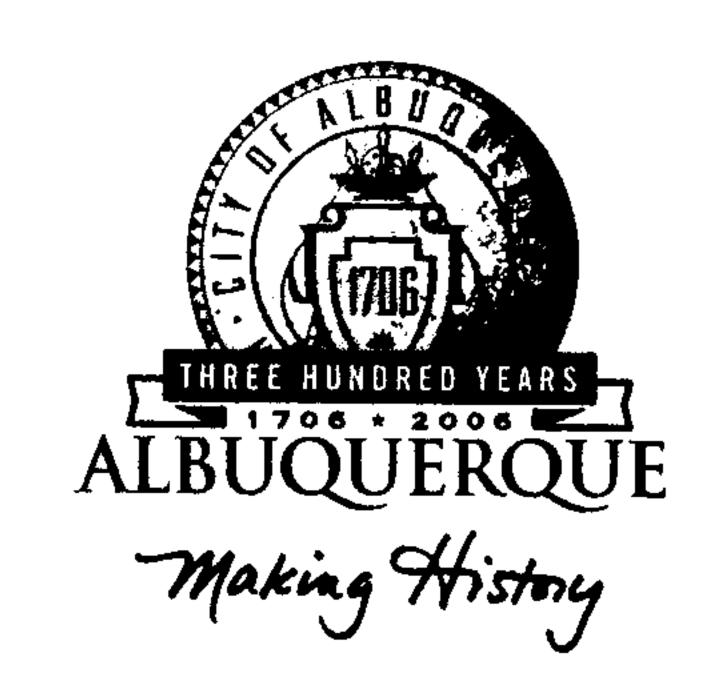
STATE OF NEW MEXICO))SS			
COUNTY OF BERNALILLO)			
This instrument was acknowledged be by Jerry M. Lovato, as Executive Eng Authority, a political subdivision of the	ineer of the Alb	ouquerque Meti	opolitan Arroyo Floo	
My commission expires:		Hemsel	a S. Modu	
PAMELA S Nota State of	CIAL SEAL S. WOODRUFF Try Public New Mexico Expires 10-2-12	Notary Public		
STATE OF NEW MEXICO COUNTY OF BERNALILLO))SS)			
This instrument was acknowledged be by Robert J. Perry, as Chief Admini Municipal Corporation, on behalf of	istrative Office	r of the City of		,2012 w Mexico
My commission expires: 21713		Notary Public	E. Chave	5
			Marc E. Chavez Notary Public Tate of New Mexico Expires: 2/17/1/3	

EXHIBIT "A"





CITY OF ALBUQUERQUE



January 6, 2005

George Nemeth, PE Smith Engineering Co. 6400 Uptown Blvd. Ste 500E Albuquerque, NM 87110

Re: North Domingo Baca Park Master Drainage Plan Engineer's Stamp dated 11-24-04, (C19/D43)

Dear Mr. Nemeth,

Based on the information contained in your submittal dated 11-24-04, the above referenced plan is approved for Work Order approval. Any minor comments can be addressed at DRC.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE

Principal Engineer, Planning Dept.

Development and Building Services

www.cabq.gov C: file

4.5

P.O. Box 1293

Albuquerque

New Mexico 87103

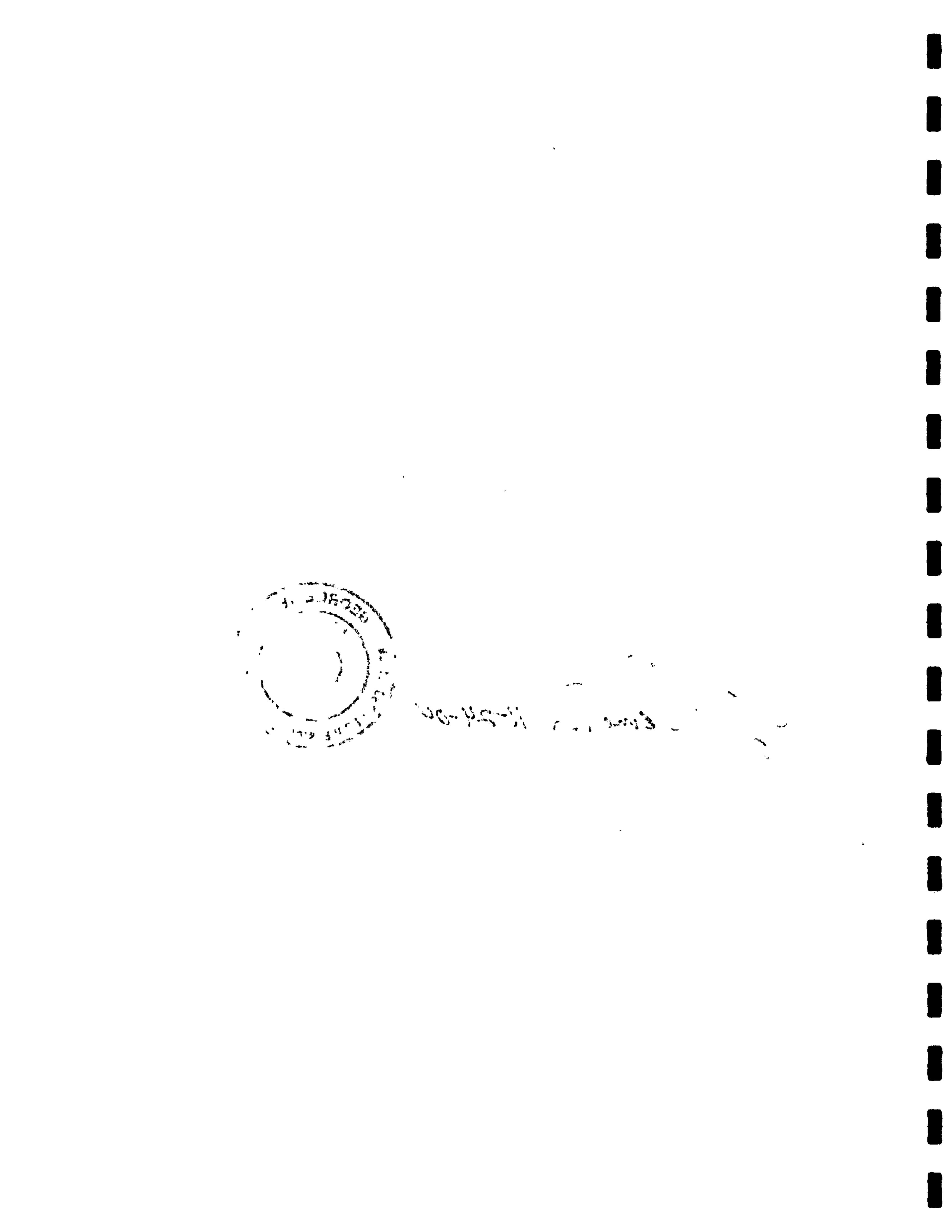
NORTH DOMINGO BACA PARK

MASTER PLAN DRAINAGE REPORT

NOVEMBER 2004

I, George Nemeth, being duly registered as a Professional Engineer under the laws of the State of New Mexico, do hereby certify that this document was prepared under my direction and is true and correct to the best of my knowledge and belief.

George Nemeth NM # 12284



NORTH DOMINGO BACA PARK

MASTER PLAN DRAINAGE REPORT

INTRODUCTION

The North Domingo Baca Park is located in the Northeast Heights of Albuquerque. It is bounded on the north by Corona Avenue, on the east by Wyoming Boulevard, on the south by Carmel Avenue and on the west by the Kinney Dam and Louisiana Boulevard. The total park area is approximately 38 acres. The Park location is indicated on **Figure 1**, **Location Map**.

According to the City of Albuquerque (COA) Development Process Manual (DPM), Section 22.2, Hydrology, Figure A-1, the project is located entirely within Precipitation Zone 3. The design storm is the 100-year, 6 hour storm event. The Peak Discharge per acre is found in Table A-9 of Section 22.2. The runoff volume is estimated using the excess precipitation found in Table A-8.

This drainage report investigates the design storm peak runoff rates and volumes for three conditions:

- the existing conditions
- Phase 1 development conditions
- full development conditions.

EXISTING CONDITIONS

The western 25 percent of the parcel is taken up by the Kinney Dam, which is owned by AMAFCA. This portion of the parcel is not included in the drainage analysis. The existing conditions drainage basins are shown on **Sheet 1 of 3**, which is included in the back pocket of this report.

The remaining 75 percent of the parcel is native soils and vegetation with some manmade disturbance. However, the observed existing manmade disturbances are not significant enough to affect the Land Treatment type. Therefore, the entire parcel under consideration is classified as Land Treatment A for the existing conditions computations.

The existing site is divided into three sub-basins. Basin X1 is the southern portion of the parcel and it drains directly into the dam's pool partially by sheet flow and partially by shallow concentrated flow. Basin X2 captures all runoff on the northern portion of the parcel and the existing dikes direct the flow to the existing soil cement rundown and into the dam's pool. Basin X3 is a portion of the parcel that is cut off from Basin X2 by the existing north dike. Runoff from Basin X3 flows directly into the dam's pool near the northeast corner of the pool.

The design storm runoff for the three existing conditions sub-basins is:

For X1,
$$Q_{100} = (17.4098 \text{ AC}) \times (1.87 \text{ cfs/AC}) = 32.56 \text{ cfs}$$

For X2, $Q_{100} = (20.1181 \text{ AC}) \times (1.87 \text{ cfs/AC}) = 37.62 \text{ cfs}$
For X3, $Q_{100} = (0.8055 \text{ AC}) \times (1.87 \text{ cfs/AC}) = 1.51 \text{ cfs}$.

A spreadsheet summarizing the above calculations is included as **Table 1**. The total existing conditions runoff from the park site is 71.68 cfs. However, adding in the off-site flows, which include the Window 'G' channel (2250 cfs) and the 66" RCP (237 cfs), the total flow to the dam, including the park site, is about 2559 cfs.

RUNOFF FROM EXISTING CONDITIONS DRAINAGE BASINS

BASIN	AREA	IMPERV.	LAND TR	EATMENT	(ACRES)	PEAK DISCH.
DESIGNATION	(ACRES)	(ACRES)	Α	В	С	(CFS)
X1	17.4098	0	17.4098	0	0	32.56
X2	20.1181	0	20.1181	0	0	37.62
Х3	0.8055	0	0.8055	0	0	1.51
TOTALS	38.3334	n	38.3334	A	<u> </u>	71.68

TABLE 1

The runoff volume can be found using the excess precipitation in Table A-8 of Section 22.2 The estimated runoff volume is $[(38.3334 \text{ AC}) \times (0.66 \text{ IN}.)] / 12 \text{ IN/FT} = 2.11 \text{ AC FT}$

PHASE 1 DEVELOPMENT

In Phase 1 of the Park's development, a concrete box culvert will be constructed to convey a major portion of the 100-year storm off-site flow through the park. The extent of Phase 1 development is shown on **Sheet 2 of 3**, which is included in the back pocket of this report. The box culvert will be constructed from the downstream end of the existing Window 'G' channel to the existing soil cement rundown in to the Kinney Dam pool. Ultimately, it will convey all the Window 'G' flow (2250 cfs), all flow from the 66" RCP (237 cfs) that drains the adjacent portion of Wyoming Blvd. and some additional flow from the park site by way of storm inlet connections into the box culvert. However, these storm inlet connections will be constructed later as the park develops but stub-outs will be provided in Phase 1 construction. The final design of the box culvert will be presented in a subsequent design analysis report that will be prepared by Smith Engineering Company for Phase 1 development. The culvert will be sized to convey the full development flows stated in the Full Development section of this report.

The majority of the Park will remain undisturbed during Phase 1 construction and after Phase 1 construction is complete. Therefore the majority of the Land Treatment will remain as type A. However, disturbance and subsequent compaction of the soil above and adjacent to the box culvert will change a portion of the site into Land Treatment C. The amount of change is indicated in the spreadsheet in **Table 2**.

The drainage basins resulting from the Phase 1 construction are shown on **Sheet 2 of 3**. The "mound" of dirt that will cover the box culvert upon completion of Phase 1 (P1) construction will create a new drainage divide between the north and south portions of the Park site. The new drainage basins are designated P1-1 and P1-2. The peak runoff from the 100-year storm is 56.10 cfs and 21.33 cfs,

respectively. Sub-basin P1-3 is the same as sub-basin X1 in the existing conditions. A spreadsheet summarizing the computation of the runoff is included as **Table 2**.

RUNOFF FROM PHASE 1 CONDITIONS DRAINAGE BASINS

BASIN	AREA	IMPERV.	LAND TR	EATMENT	(ACRES)	PEAK DISCH.
DESIGNATION	(ACRES)	(ACRES)	A	В	C	(CFS)
P1-1	28.1013	0	25.8532	0	2.2481	56.10
			92%		8%	
P1-2	9.4266	0	7.0600	0	2.3566	21.33
			75%		25%	
P1-3	0.8055	0	0.8055	0	0	1.51
TOTALS	38.3334	0	33.7187	0	4.6047	78.94

TABLE 2

Phase 1 construction will increase the Park site peak rate of runoff by approximately 7 cfs. The total peak flow rate to the dam will increase by approximately 0.3 %.

Runoff volume = $[(33.7187 \text{ AC}) \times (0.66 \text{ IN}) + (4.6047 \text{ AC}) \times (1.29 \text{ IN})] / 12 \text{ IN/FT} = 2.35 \text{ AC FT}$. The Phase 1 runoff volume will increase by 0.24 AC FT. The computed developed condition runoff volume to the Kinney Dam is 394 AC FT. Phase 1 will increase the runoff volume by 0.06%. The Lower North Domingo Baca Detention Dam Properties (Kinney Dam) is included as **Appendix A**.

FULL DEVELOPMENT

The North Domingo Baca Park Master Plan is shown on **Sheet 3 of 3**, which is included in the back pocket of this report. This shows the currently proposed, fully developed site conditions. The fully developed site will include buildings, hard surfaced playing courts and parking lots and turf grass fields. The land treatment types will change from nearly all A to nearly all B, C and D as indicated in **Table 3**. The exception is Basin B12, which includes the X1 and P1-3 basin and will remain undisturbed after full development.

The designated basins are established to coincide with proposed parcel development. For example, Basin B-1 and B-2 are the proposed Multi-Generation Center and its parking lot respectively.

A storm drain system will convey some of the Park runoff to the proposed box culvert and some directly to the dam's pool. The turf grass playing fields will sheet flow directly to the dam's pool as well.

A summary of the full development drainage calculations is included as **Table 3**. The full development runoff is approximately 134 cfs. This is an increase from the existing conditions runoff (72 cfs) of approximately 62 cfs.

As stated in the Existing Conditions section, the total flow to the dam is estimated to be 2559 cfs. The full development conditions runoff will increase this number to approximately 2621 cfs, which is an increase in peak discharge of approximately 1.02%.

The proposed, full development storm drain system is also shown on **Sheet 3 of 3**. A summary of this system is shown in Table 4 and Table 5, for the South and North sides of the Park, respectively. Phase 1 construction of the box culvert will include pipe stub-outs to accommodate the full development storm drain system.

RUNOFF FROM DEVELOPED CONDITIONS DRAINAGE BASINS

BASIN	AREA	IMPERV.	LAND TR	REATMENT	(ACRES)	PEAK DISCH.
DESIGNATION	(ACRES)	(ACRES)	Α	В	С	(CFS)
B1	2.4978	0.9016	0	0.7981	0.7981	9.35
		36%		32%	32%	
B2	0.9558	0.9080	0	0	0.0478	4.72
		95%			5%	
B3	5.0396	1.0079	0	3.2254	0.8063	16.23
		20%		64%	16%	
B4	1.3395	0.3493	0	0.4951	0.4951	4.75
		26%		37%	37%	
B5	1.7477	1.6603	0	0	0.0874	8.64
		95%			5%	
B6	1.2973	1.2324	0	0	0.0649	6.41
		95%			5%	
B7	2.7809	1.0451	0	0.8679	0.8679	10.50
		38%		31%	31%	
B8	1.4488	1.3764	0	0	0.0724	7.16
		95%			5%	
B9	2.0032	0.8906	0	0.8901	0.2225	7.55
		44%		44%	12%	
B10	2.8684	2.7250	0	0	0.1434	14.17
		95%			5%	
B11	13.2215	0.6611	0	12.5604	0	35.98
		5%		95%		
B12	3.1329	0.3133	0.4590	2.3606	0	8.57
		10%	15%	75%		
TOTALS	38.3334	13.0710	0.4590	21.1975	3.6059	134.03

TABLE 3

The estimated runoff volume for the proposed full development of the Park is as follows.

[(0.46 AC)x(0.66 IN)+(21.20 AC)x(0.92 IN)+(3.61 AC)x(1.29 IN)+(13.07 AC)x(2.36 IN)]/12 IN/FT= 4.61 AC FT or an increase of 2.5 AC FT from the existing conditions runoff volume of 2.11 AC FT.

The volume runoff increase is $(2.5 \text{ AC FT} / 394 \text{ AC FT}) \times 100 = 0.6\%$.

FULL DEVELOPMENT DRAINAGE SYSTEM - SOUTH SIDE

							PIPE
DRAIN INLET	Q100 TO	DOWNSTR'M	CUMULATIVE	PIPE SIZE	PIPE SLOPE	PIPE LENGTH	CAPACITY
(DI) DESIG.		DI	Q100 (cfs)	(IN)	(FT/FT)	(FEET)	(CFS)
B1-3	4.67	B4-2	4.67	18	0.0200	270	14.85
B4-1	2.37	B4-2	2.37	18	0.0075	100	9.10
B4-2	2.38	B6-2	7.04	18	0.0200	310	14.85
B6-1	3.20	B6-2	3.20	18	0.0075	100	9.10
B6-2	3.21	B9-2	10.24	18	0.0300	400	18.19
B9-1	3.77	B9-2	3.77	18	0.0075	170	9.10
B9-2	3.78	B10-2	14.01	18	0.0300	570	18.19
B10-2	7.08	B10-1	21.09	24	0.0100	100	22.62
B10-1	7.09	KINNEY DAM	28.18	24	0.0200	100	31.99

TABLE 4

FULL DEVELOPMENT DRAINAGE SYSTEM - NORTH SIDE

							PIPE
DRAIN INLET	Q100 TO	DOWNSTR'M	CUMULATIVE	PIPE SIZE	PIPE SLOPE	PIPE LENGTH	CAPACITY
(DI) DESIG.	DI	DI	Q100 (cfs)	(IN)	(FT/FT)	(FEET)	(CFS)
B1-1	2.34	B1-2	2.34	18	0.0075	100	9.10
B1-2	2.34	B2-1	4.68	18	0.0075	100	9.10
DO 4	4 70		0.40	40	0.0400		40.50
B2-1	4.72	BOX CULV	9.40	18	0.0100	20	10.50
B3-1	3.24	B3-2	3.24	18	0.0200	80	14.85
	J.24	DJ-2	J.ZT	10	0.0200		17.00
B3-2	3.25	B3-3	6.49	18	0.0200	100	14.85
B3-3	3.24	BOX CULV	9.73	18	0.0200	40	14.85
B3-4	3.25	B3-5	3.25	18	0.0075	200	9.10
	0.05		0.50	4.0	0.0075	40	
B3-5	3.25	BOX CULV	6.50	18	0.0075	40	9.10
B5-1	4.32	B5-2	4.32	18	0.0075	110	9.10
DQ-1	4.52	₽J-Z	4.52		0.0073	1 10	9. 10
B5-2	4.32	BOX CULV	8.64	18	0.0075	150	9.10
B7-1	5.25	B7-2	5.25	18	0.0075	190	9.10
							- · ·
B7-2	5.25	BOX CULV	10.50	18	0.0200	200	14.85
B8-1	3.58	B8-2	3.58	18	0.0075	100	9.10
D0 2	2.50		7 16	10	0.0075	100	0.40
B8-2	3.58	BOX CULV	7.16	18	0.0075	100	9.10
B12-1	8.57	KINNEY DAM	8.57	18	0.0250	120	16.61
	0.07		5.57		0.02.00		10.01
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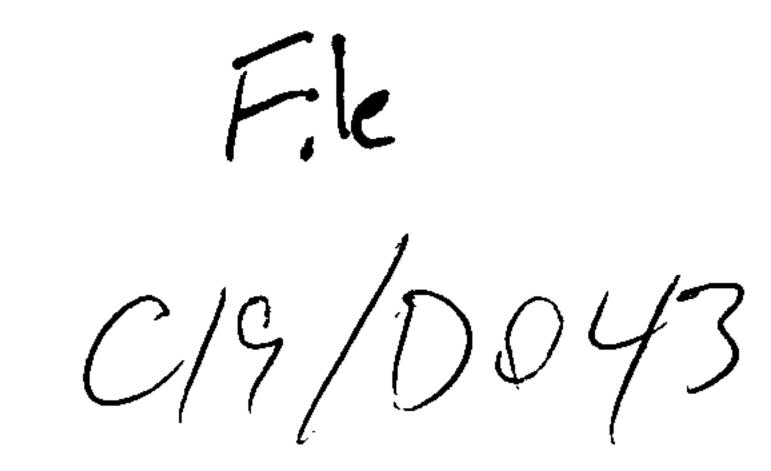
TABLE 5

Lower North Domingo Baca Detention Dam Properties

Hazard Classification "C"	
Drainage Basin Size 100-year, Existing 100-year, Future PMF, Future	4.257 sq.mi. 4220 sq. mi 4.287 sq.mi. 4256 sq. mi 3.826 sq.mi.
Peak Inflow to Dam 100-year, Existing 100-year, Future PMF, Future	879 ofs 957 cfs 2961 cfs 2930 cfs 30184 cfs
Peak Outflow from Dam 100-year, Existing 100-year, Future PMF, Future	177 cfs -202 ofs 203 cfs 1 30019 cfs
Maximum Fill Height Length Maximum Width at Base Crest Width Slope of Embankment Crest Elevation Emergency Spillway Elevation Principal Spillway, Dia. Principal Spillway Invert Orifice Plate, Dia. Width of Emergency Spillway Storage Capacity at 5929.5 5323.3 Discharge Capacity at 5929.5 5323.3 Discharge Capacity at 5331.5 100-Year Runoff Volume (Future) Reservoir Sediment Allowance Representative Annual Sed. Vol. 100-Year Sediment Volume Floodpool Evacuation Time	23-ft. 1900-ft. 175-ft. 20-ft. 3:1 5331.5-ft. 5323.3-fc. 48 in. 5298.0-ft. 40 in. 442-ft. 125 ac-ft 208.5 efs 31194 cfs 398 ao ft 14.6 ac-ft 1.80 ac-ft 7.09 ac-ft 30 hrs.

i, Donald S. Dixon (N.M. P.E. 11043); Certify that the drawing of the "As-Built Dimensions was 4080 under my supervision.

5/3/95





JEFF MORTENSEN + ASSOCIATES, INC.

| 6010-B MIDWAY PARK BLVD. N.E.

| ALBUQUEROUE | NEW MEXICO 87109

| ENGINEERS | SURVEYORS (505) 345-4250

| FAX: 505 345-4254 | ESTABLISHED 1977

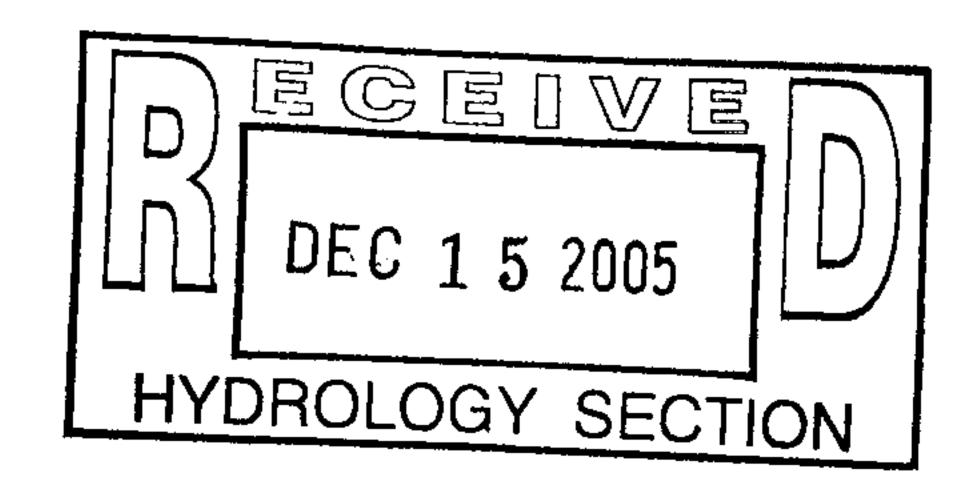
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TO: I	Bill Balch Brad Bingham Wilfred Gallegos	DATE:	December 14, 2005
•		PROJECT:	North Domingo Baca Park
		JMA JOB NO	: 2005.037.1
		xc:	
VIA:	☑ Delivery ☐ Pickup ☐ US Mail ☐ Federal Exp	ress Delivery	
WE A	ARE SENDING:		
OTY	. DESCRIPTION		FOR
1	Multi-Generational Center I	Pre-Design Recap	Your Info

REMARKS:

I conducted pre-design research and investigation of the site engineering aspects related to the North Domingo Baca Park to support the proposed Multi-Generational Center which will be the first building constructed at the site. Transmitted herewith is a copy of the report that I provided to Mahlman and Miles Architects. Included therein are my findings, analysis and summaries of Water, Sanitary Sewer, Storm Drainage and Transportation aspects of the site that I have transmitted for your information as they may also pertain to the proposed platting and vacation request for the subject site. If you have any questions or comments regarding this information or the project, please contact me..

Graeme Means



JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. NE
ALBUQUERQUE NEW MEXICO 87109

P: 505.345.4250
F: 505.345.4254

ESTABLISHED 1977

2005.037.1 November 29, 2005

Mr. David Mahlman Mahlman & Miles Architects 206 Broadway SE Albuquerque, NM 87102

Re: North Domingo Baca Multi-Generational Center Pre-Design Recap

Dear Mr. Mahlman,

We have completed the pre-design research and meetings for the subject project. Presented herein is a summary of our findings, opinions and recommendations for the following activities identified in our proposal dated September 29, 2005:

Review existing and/or under contract site surveys:

JMA issued a comprehensive boundary and topographic survey for the entire dam/park site dated December 30, 2003. The topographic data included therein is of limited value and accuracy today due to several improvements constructed by the City after that date such as paving and utility improvements within the frontages of Wyoming Blvd NE, Carmel Ave NE and Corona Ave NE, as well as site grading activities including the dumping of imported fill material.

JMA is under contract with Consensus Planning and AMAFCA to prepare and process the vacation request and subdivision plats that will vacate Anaheim Ave NE and create the two separate tracts of land for the AMAFCA dam and the City park. The Sketch Plat and Vacation request will be heard by the City Development Review Board (DRB) on Wednesday, December 14, 2005. The followup plating actions will dedicate additional public street right-of-way required for Wyoming (48 additional feet), Louisiana Blvd NE (33 additional feet) and Carmel (varies from 0-10 additional feet as a function of the median approach to Wyoming). The plats will also dedicate public right-of-way for curved returns at the intersections of Carmel and Corona with Wyoming and Louisiana. In support of our platting services, JMA has conducted limited topographic surveying to determine the locations of improvements constructed after the December, 2003 survey, but only to the extent necessary to verify the public right-of-way requirements and possible easement requirements. A new or updated topographic survey will not be issued and was not the intent of the supplemental surveying. In conjunction with our platting efforts, we obtained a digital file of the topographic survey conducted by Surveying Control, Inc. for the as-constructed west side of Wyoming. A field inspection determined that it appears consistent with current conditions. We are not aware of any other applicable surveys.

PRINCIPALS	JEFFREY G. MORTENSEN, P.E.	JUAN M. CALA	CHARLES G. CALA, JR., P.S.
GRADY E. BARRENS	J. GRAEME MEANS, P.E.	RICHARD C. WHITE	JOSEPH M. SOLOMON, JR., P.S.

Surveys (Continued)

A current topographic survey that accurately represents the existing conditions does not exist, but one will be required to support the design of construction documents for the Multi-Generational Center. Due to the upcoming box culvert drainage channel construction and associated grading modifications, we recommend that this survey not be conducted until after the completion of the box culvert project and any other currently planed activities that will change the site conditions.

Review Site Conditions, City Records and Master Development Plan re: Water and Sanitary Sewer Infrastructure:

As part of this phase, we reviewed 1) the City's water and sanitary sewer facilities maps, 2) numerous asbuilt record drawings that we obtained as part of our surveying services, 3) our aforementioned December 2003 survey, 4) the aforementioned City provided survey of the west side of Wyoming Blvd NE, 5) our aforementioned supplemental survey data to support the platting actions, 6) utility surface evidence determined by field inspection, 7) The North Domingo Baca park Master Development Plan, and 8) a pdf file of the design for the public City non-potable water line that was recently constructed along the west side of the Wyoming Blvd NW right-of-way. We also met with Jeremy Hoover with the Utility Development Section, Albuquerque / Bernalillo County Water Utility Authority

As depicted by the as-built drawings, the locations and depths of existing 8" sanitary sewer lines in Carmel and Corona should adequately serve the site buildings as depicted on the Master Development Plan. The as-built drawings show 8" sanitary sewer stubouts to the north from manholes in the Carmel line that should avoid the need for any new street cuts or sewer taps. There is a 21" sanitary sewer interceptor in Wyoming that will not serve this project because it lies upstream from the site and interceptor lines are not typically available for service connection.

An 8" non-potable water line was recently constructed on the site by the City parallel to the west boundary of Wyoming Blvd NW, approximately 35 ft to 40 ft west of the existing right-of-way, but within the limits of the future 48 ft dedication that will occur through the platting process. As determined by visual observation and our supplemental surveying efforts, the as-constructed facilities appear to correlate well with the design drawings with one exception: a non-potable water service and meter box has been constructed near the northeast corner of the Multi-Generational Center footprint as depicted on the Master Development Plan. The construction plans for the non-potable water line do not show a service connection at this location, and it appears that this beneficial feature may have been added during construction. The site therefore appears well served by non-potable water.

There are 8" public water lines fronting the site in Carmel and Corona, a 10" water line in Wyoming, and a 16" water line in Louisiana. A water pressure zone boundary divides the site. Approximately one third of the site lies east of the zone line within pressure zone 4ER. The western two thirds of the site lie within zone 3E. There is a gap in the 8" lines in Carmel and Corona where they are stubbed into the site at the approximate zone line to facilitate the future looping through the site with parallel, non-connected lines from each zone. In accordance with City policy, the two sections of the site divided by the pressure zone site must take service from the water lines within their respective zones and the lines from separate zones can not be cross-connected. It is unclear at this time what specific event will trigger the requirement to complete the

Water and Sanitary Sewer (Continued)

loops through the park site. The lines should be located within future public water line easements corresponding to their final locations which will be a function of final site design.

Ideally, the easements for the looped water lines would be granted with the forthcoming plat, however, the their final location has not been established at this time. If necessary, the easement can be granted at a later date as a separate document when the location and route is firmly established. The construction plans for the box culvert include 16" steel casings to be provided under the box culvert at the approximate zone line location to facilitate construction of the future loops without having to excavate or tunnel under the box culvert.

We did not find evidence of any domestic water services, meter boxes, or stubouts to the site other than the stubs for future water line looping. A formal request for a written Water and Sanitary Sewer Availability was made by our office on November 4, 2005. In that request, we specifically asked for information concerning the timing and requirements for water line looping through the site. As part of the Availability Statement request, we submitted a preliminary instantaneous fire flow requirement of 1,440 gallons per minute assuming a 40,000 SF sprinklered building with Type II construction. We discussed this requirement with Mr. Jeremy Hoover, and he indicated that the 8" water line in Carmel Avenue NE should be more than adequate to provide sufficient fire protection for the proposed Multi-Generational Facility. We anticipate that a new 8" fire line stubbed into the site will be necessary to supply the required hydrants and sprinkler line and if designed and coordinated properly, it could also serve the Library and the Pool Complex.

The information and requirements described in pages 8 and 9 of the Master Development Plan concerning water, non-potable water and sanitary sewer appear to be consistent with the existing conditions and typical City policies. The Plan indicates that the future zone line looping will be coordinated during detailed design of the park activities and building(s) in the area.

Information concerning serviceability, water line looping, and fire protection requirements will be confirmed upon receipt of the requested Availability Statement which we will forward to you promptly upon receipt.

Review Site Conditions, City Records and Master Development Plan re: Transportation Infrastructure:

As part of this phase, we reviewed 1) numerous as-built record drawings that we obtained as part of our surveying services, 2) our aforementioned December 2003 topographic survey, 3) the aforementioned City provided topographic survey of the west side of Wyoming Blvd NE, 4) our aforementioned supplemental topographic survey data to support the platting actions, 5) The proposed 95% construction plans for City construction of Louisiana, 6) Our record drawings for the 1996 construction of the east half of Wyoming, and 7) The North Domingo Baca park Master Development Plan. We also met with Wilfred Gallegos and Tony Loyd from Transportation Development.

Transportation Infrastructure (Continued)

Corona Avenue NE is a fully developed major local street with curb and gutter on both sides with 40 feet of width between curb faces. Except for the La Cueva Police Sub-Station/Fire Station frontage, there is no sidewalk on the south (Park) side of the street. The existing right-of-way width of 60 feet is consistent with the street classification, pavement width and use. No additional right-of-way dedication is anticipated or proposed at this time.

Carmel Avenue NE is a partially developed major local street with permanent curb and gutter on the entire length of the north (Park) side of the street. The south side of the street only has permanent curb and gutter improvements at the west end, extending approximately 600 feet east from Louisiana. The remainder of the south side up to Wyoming does not have curb and gutter, and is paved 24 feet wide and not constructed to the full width of 40 feet face-to-face that the westernmost 600 feet length is. There is no sidewalk on the north (Park) side of the street. A curbed median/turn lane was constructed by the City at the approach to Wyoming Boulvard NE, extending approximately 300 feet west of Wyoming. In conjunction with the median and turn lane, the street paving width increases at this area. The existing 60 feet right-of-way width contains the constructed improvements, but will not accommodate future sidewalk construction within the right-of-way. As such, a tapered right-of-way dedication to widen the north side of the street is proposed by our platting efforts that varies from 0 ft up to 10 feet width.

Wyoming Blvd NE was recently widened by the City to include two travel lanes in each direction with a median and turn lanes. There is a 4 ft bike lane on each side. There is permanent curb and gutter on both sides and a 6 ft sidewalk along the Park frontage. The current right-of-way width is 108 ft and the existingimprovements are contained within that width. As a principal arterial street, the required right-of-way width for Wyoming is 156 feet. To achieve the required width, the forthcoming platting action will dedicate an additional 48 feet of public right-of-way to the west of the existing sidewalk on the west side of Wyoming. The requirement for dedication of an additional 48 feet of public right-of-way on the west side of Wyoming was confirmed by Wilfred Gallegos, Section Head, Transportation Development. We specifically bring this requirement to your attention because although the Master Development Plan text indicates and recognizes that additional right-of-way dedications will be required for Wyoming and Louisiana, the Preferred Master Pan Concept contained within the Master Development Plan does not appear to anticipate the dedication of an additional 48 feet of right-of-way along Wyoming. I discussed this requirement with Mr. Chris Green from Consensus Planning who is the City's project manager for the Master Plan and he was aware of the it and indicated that there were a few items that still needed to be revised on the Master Plan prior to final DRB signoff. The development on the east side of Wyoming (for which JMA was the engineer and surveyor) dedicated their 48 feet of additional right-of-way when it developed in 1996.

As indicated in the Master Development Plan, access to the site from Wyoming will be limited to right-in/right-out with access being limited to the southbound lanes of Wyoming. This is due to the locations of the existing medians, turn lanes and intersections in Wyoming which were not designed to allow additional median cuts for access. It is now my understanding that left turn access out to Wyoming and possible left turn access in from Wyoming may be possible if the parking lot entrance is properly aligned with Anaheim Ave NE. This will require full the study and coordination with Transportation Development. Corona (unsignalized) and Carriel (signalized) will have full access from Wyoming and will provided additional vehicular access to the bark.

Transportation Infrastructure (Continued)

As indicated in the Master Development Plan, "Continued coordination with the Transit Department will be necessary to locate, or relocate and existing bus stop/shelter along Wyoming Boulevard, adjacent to the Park and Ride area. The Park and Ride area is identified as being in the parking lot north of the Multi-Generational Facility as shown on the Preferred Master Plan Concept. Improvements to the sidewalk and/or curb and gutter in Wyoming may be required along the frontage of the Multi-Generational Center depending on the location, configuration, timing and design requirements of this stop/shelter. Which could conveniently be located across the street from a bus stop located on the east side of Wyoming. The proximity to the signalized Carmel intersection could therefore allow Transit access to the park for northbound and southbound busses.

Anaheim Avenue NE is an undeveloped dirt road. As currently platted, the 60 ft right-of-way Anaheim Avenue NE passes through the site from east to west between Louisiana and Wyoming. In conjunction with the Sketch Plat hearing at the DRB on December 14, 2005, JMA has made a Vacation request on behalf of the City and AMAFCA for the public right-of-way to be officially vacated so it can subsequently be replatted into the Park and Dam parcels.

Louisiana Boulevard NE is a temporary paved road approximately 24 feet wide along the Kinney Dam frontage. There are no curb and gutter or sidewalk improvements. An upcoming City project will construct permanent street improvements in Louisiana. The aforementioned JMA platting action will dedicate 33 additional feet of public City right-of-way on the east side of Louisiana for permanent public street improvements. This will result in an ultimate width of 112 feet. There will be no park access from Louisiana.

We anticipate that development of the Multi-Generational Center will require new driveways cuts to Wyoming and Carmel, new sidewalk along Carmel, and improvements to Wyoming sidewalk and or curb and gutter for the bus stop/shelter. Left turn access to and from Wyoming will require coordination with Transportation Development and possible striping, signage and median modifications.

Review Site Conditions, City Records and Master Development Plan re: Drainage Related Infrastructure:

As part of this phase, we reviewed 1) the City's storm drainage facilities maps, 2) FEMA Flood Insurance Rate Maps, 3) numerous as-built record drawings that we obtained as part of our surveying services, 4) our aforementioned December 2003 topographic survey, 5) the aforementioned City provided topographic survey of the west side of Wyoming Blvd NE, 6) our aforementioned supplemental topographic survey data to support the platting actions, 7) Our record drawings for the 1996 construction of the east half of Wyoming, 8) The North Domingo Baca Park Master Drainage Plan prepared by Smith Engineering Company, 9) Construction Plans for the North Domingo Baca Arroyo Box Culvert prepared by Smith Engineering, and 10) The North Domingo Baca park Master Development Plan. We also met with Brad Bingham, City Hydrologist and Floodplain Administrator.

The undeveloped North Domingo Baca Arroyo runs through the site from east to west terminating at the existing AMAFCA Kinney Dam at the west end of the site. The arroyo receives developed flows from the AMAFCA maintained Window G Soil Cement channel to the east, from the La Cueva Police Sub-

Drainage Related Infrastructure (Continued)

Station/Fire Station and from public City storm drains discharging from Wyoming Blvd NE. To facilitate site development and reclaim useable Park land, the City plans to construct a large underground box culvert drainage channel from the bridge at Wyoming to the arroyo outfall at the Kinney Dam. This City project is expected to begin construction in December, 2005. As indicated in the Master Development Plan, building improvements will not be permitted over the drainage structure.

As indicated by the Master Drainage Plan and the Box Culvert construction plans prepared by Smith Engineering, the box culvert will have several storm drain stubouts designed to accommodate internal storm extensions that will drain serve different areas (drainage basins) of Park development. The plan also depicts a storm drain running along the south property line, parallel to Carmel that serves the southern 20% of the site. The Multi-Generational Center is identified as being within Basin B1 with an impervious land treatment assumption of 35%. A portion of Basin B1 is identified to drain to a box culvert branch line with the remaining portion of Basin B1 intended to drain to a lengthy southern storm drain line parallel to Carmel.

As indicated by Panels 137 and 141 of 825 of the National Flood Insurance Program Flood Insurance Rate Maps for Bernalillo County, New Mexico and Incorporated Areas revised 11/19/2003, much of the site lies within a designated flood hazard zone associated with the North Domingo Baca Arroyo and the Kinney Dam. As indicated in the Master Development Plan, the construction of the box culvert drainage channel will "remove property from the floodplain." A Letter of Map Revision (LOMR) request processed through FEMA will be required to officially eliminate the floodplain designation from FEMA's Flood Insurance Rate Maps. Bradley Bingham indicated that he will require a LOMR to be completed as a condition of platting approval, however, he did not know who would be the responsible party and source of funding. In our informal presentation meeting held November 29, 2005, Chris Green from Consensus Planning indicated that the map revision was part of Smith Engineering's scope of work for the box culvert project.

Historically, the final LOMR can take several months or even a year or more to be completed due to FEMA's complicated processes and requirements. Typically, the City will not permit construction of buildings within designated flood hazard zones, however, the box culvert construction will effectively eliminate the flooding hazard and the City Hydrologist indicated that he would allow building construction to proceed in advance of the LOMR if there are delays. The City Engineer, Richard Dourte, suggested that a simple FEMA Elevation Certificate could be prepared and submitted by the Engineer as an interim solution to justify building construction in advance of a LOMR.

The Smith Engineering Master Drainage Plan does not identify the timing or construction responsibilities for the southern storm drain parallel to Carmel or the individual box culvert branch lines. The southern storm drain Carmel extends from the Dam all the way up to the Multi-Generational Center and would represent significant "offsite" improvements if required as a condition of development for the Multi-Generational Center. Brad Bingham indicated that grade permitting, it would be permissible to drain all of the Multi-Generational Center to the north into a much shorter branch line from the box culvert. Alternately, Carmel Avenue NE may be able to carry some of the runoff if downstream inlets are added. These options can be explored as part of the design phase.

Because the existing site is mostly low-lowing arroyo and floodplain, development will require imported fill to raise the existing grades. The box culvert project will include the grading of a "mound" over the box

Drainage Related Infrastructure (Continued)

culvert to provide cover and splitting the site into two distinct halves on an interim basis. Subsequent site improvements will likely require additional grading and imported fill to blend in with the box culvert and to provide positive drainage. Based on our review of the approved Box Culvert plans, this design will result in relatively shallow depths for the storm drain stubs which may present challenges in storm drain design that will need to be examined more closely during the design phase and in conjunction with an as-built drawing and current topographic survey. As indicated by the Phasing Plan in the Master Development Plan, "grading may occur outside of the phase boundaries when necessary to balance the earthwork for a particular phase."

Preparation of a site-specific grading and drainage plan for the Multi-Generational Center will require a current topographic survey. It will need to address grading and drainage in the vicinity of the Multi-Generational Center and must generally conform to the Master Drainage Plan. The final configuration and extents of internal storm drainage improvements will be evaluated at the time the site-specific plan is prepared based upon the site plan and topography. No new offsite infrastructure is anticipated.

Review Master Plan, DMP Criteria and Zoning Code with Respect to Parking Requirements:

The Master Development Plan identified the following applicable items. When applicable, we have noted comments, recommendations or opinions:

- Parking area setbacks are identified as 30 feet and 15 feet, respectively from the right-of-way lines of Wyoming and Carmel. Please note that this is from the ultimate platted right-of-way, and not the existing right-of-way.
- The Plan encourages exploration for alternate pavement surfacing materials to encourage infiltration of stormwater runoff.
- Bicycle parking should be distributed through the park at a rate of 1 per 20 vehicle spaces.
- The Multi-Generational Center should include underground parking to blend in with the existing site topography and to preserve above ground space for other uses.
- Offsite parking is permitted on both sides of Carmel. Please note that this will not be possible for the easternmost 300 feet of Carmel where there is a concrete median/turn lane.
- Fifty (50) spaces in the parking lot between the Multi-Generational Center and the Skate Facility must be provided for park-and-ride. No specific spaces or signage is required, only general signage.
- The estimated number of parking spaces for the Multi-Generational Center is 250. Actual parking requirements for the building are to be detailed with the Site Plan for Bulding Permit submittal.
- Underground parking for 225 spaces is identified under the Multi-Generational Center and Library.

The following criteria from the City Development Process Manual apply to off-street parking:

- Regular parking spaces shall be 20 ft long x 8.5 ft wide. Up to 25% of site spaces may be designated for small cars and can be 15 ft long x 8 ft wide. When used, small car spaces should be distributed throughout the site and not concentrated.
- The minimum surfacing for parking spaces is 2" asphaltic concrete or equal. As identified in the Master Development Plan, exploration of alternate surfaces are recommended for this site. Historically, it has been very difficult to come up with an alternate surface that does not present additional maintenance challenges.

Parking Requirements (Continued):

- Parking areas shall have barriers to prevent vehicles from extending over sidewalks. Overhangs are allowed to be 2 ft long for regular spaces and 1.5 ft for small cars spaces. When used as barriers, we recommend that sidewalks be constructed wider than necessary to achieve this requirement. Alternately, narrow gravel strips can be provided between the sidewalk and the barrier curb. These strips often receive fluid leaks from vehicles and should not be planted.
- Parking lots need to have adequate turning radii and queuing areas to ensure there are no vehicle conflicts at access areas. This is part of any standard design. In this case, we will need to make sure there are no access limitations that will impact Wyoming which is a Principal Arterial Street.
- The minimum throat length measured from an arterial street is 50 feet. This should not present a problem for because the proposed right-of-way line will be 48 feet west of the existing back of sidewalk and the parking lot setback is 30 feet beyond that.
- The ends of parking aisles require end islands when the lot contains > 100 spaces.
- Entrance and internal radii need to accommodate the anticipated uses as well as emergency vehicles. Typical radii are 15 ft for passenger vehicles only and 25 ft for larger vehicles including fire, delivery and refuse. The Wyoming entrance should be 30 ft wide with a 30 ft radius for a SU-30 design vehicle accessing an arterial street such as Wyoming with no median (left turn) access. Busses and possible left turn access would increase this width.
- The maximum aisle length should not exceed 400 ft and desirable 300 ft.
- Angled parking is permitted in accordance with DPM sketches and appropriate 1-way striping and signage.
- Adequate striping and signage is required to convey proper use to the motorist.
- Maximum grades should not exceed 8%.
- Lane widths are typically 24 ft. They can be reduced to 22 ft or 20 ft if the parking spaces are widened to 9.5 ft or 10 ft, respectively.
- Lane width required is 20 ft for small car spaces.

The following criteria from the City Comprehensive Zoning Code apply to off-street parking:

- Parking requirements can be reduced by 10% when within 300 ft of a Transit Route and an additional 5% if a Transit Shelter is provided.
- Where parking areas abut the public roadway and are longer than 100 ft with more that 50 parking spaces, screening is require din the form of walls, earth berms, evergreen landscaping, or combination thereof. There is an exception to the screening requirement when the parking lot os three feet or more below the roadway grade which may apply here.
- Disabled spaces must be provided at the rate of 8 for 101-300 spaces, 12 for 301-500 spaces.

Other Misc. Observations and Information: Although they do not fall specifically under the categories identified in our scope of work, the following additional information pertinent to development of this site may be of interest or use to you:

• All phases of development will be subject to United States Environmental Protection Agency (US EPA) National Pollutant Discharge Elimination System (NPDES) construction permitting and water quality regulations and procedures to avoid sediment transport into the downstream dam.

Other Observations and Information (Continued):

- EPA compliance will require preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) to address construction related impacts to water quality.
- AMAFCA has indicated that inlets with grate only (no open throats) or water quality storm inlets and/or manholes to reduce floatable pollutants will be required for structures that drain to the Kinney Dam.
- Per the Master Development Plan, the site soils are not expected to create any major constraints for the recreational componants, however, it was noted that the La Cueva Police Substation / Fire Station required engineered fill land that the same should be anticipated for other site buildings. A geotechnical investigation should be conducted to support foundation and pavement designs for the Multi-Generational Center and the related site parking improvements.
- Development of individual phases will require Site Development Plan review through the Environmental Planning Commission.
- The Master Development Plan identifies building setbacks of 50 feet from the right-of-way line of Wyoming and 35 feet from the right-of-way line of Carmel. These right-of-way lines will be shifting "inward" as part of the upcoming site platting and will result in a building setback of 98 feet from the back of the exiting sidewalk at Wyoming. Chris Green indicated that a request to modify this setback could be made concurrent with the required EPC submittal.

The preceding represents a summary of applicable site information made available to us along with our analysis, opinions and recommendations where applicable. This information is provided with the intent of informing you of on-site and off-site water, sanitary sewer, street paving, parking, storm drainage, and surveying issues that will impact development of the Multi-Generational Center and the related parking lot. Please do not hesitate to contact us if you have any questions or comments regarding this transmittal or any other aspects of this project.

Sincerely,

JEFF MORTENSEN & ASSOCIATES, INC.

J. Graeme Means, P.E.,

Principal

DATE NOV 2004

DATE NOV 2004

DATE NOV 2004

DESIGNED BY CN

DRAWN BY KSH

CHECKED BY CN

RECORDED BY

DATE

