

MASTER DRAINAGE PLAN REPORT

I. EXECUTIVE SUMMARY AND INTRODUCTION

THE PROPOSED JEFFERSON POINT DEVELOPMENT IS LOCATED IN ALBUQUERQUE'S MID-HEIGHTS AREA. THIS PROJECT WILL ELIMINATE AN EXISTING ON-SITE PRIVATE DETENTION POND AND ALLOW THE SITE TO DISCHARGE FREELY TO EXISTING DOWNSTREAM PUBLIC DRAINAGE IMPROVEMENTS WITH SUFFICIENT DOWNSTREAM CAPACITY. OFFSITE FLOWS WILL BE CONVEYED IN EXISTING AND PROPOSED STORM DRAINS AND PAVED ROADWAYS AND PARKING LOTS. THE PROPOSED DEVELOPMENT WILL REQUIRE THE CONSTRUCTION OF A NEW PRIVATE STORM DRAIN AND STREET IMPROVEMENTS. THIS MASTER PLAN IS SUBMITTED FOR SITE DEVELOPMENT PLAN AND PRELIMINARY PLAT APPROVALS. IT ALSO SUPPORTS THE PROPOSED VACATION OF A PRIVATE DRAINAGE EASEMENT ASSOCIATED WITH THE EXISTING DETENTION POND THAT WILL BE ELIMINATED BY THIS PROPOSED DEVELOPMENT.

II. PROJECT DESCRIPTION:

AS SHOWN BY VICINITY MAP F-17 AT FAR RIGHT, THE SITE IS LOCATED BETWEEN McLEOD RD NE, JEFFERSON STREET NE, AND INTERSTATE 25. THE SITE IS CURRENTLY DEVELOPED AS A COMMERCIAL AND RETAIL CENTER. THE SITE IS ZONED C-3 AND THE PROPOSED DEVELOPMENT WILL REQUIRE EPC SITE PLAN REVIEW AND APPROVAL. AS SHOWN BY PANELS 138 AND 139 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS, BERNALILLO COUNTY, NEW MEXICO, AND INCORPORATED AREAS, DATED NOVEMBER 19, 2003, A LONG NARROW FLOODPLAIN RUNS ALONG THE I-25 FRONTAGE OF THE SITE. THIS FLOODPLAIN IS ASSOCIATED WITH THE NMDOT DRAINAGE DITCH THAT RUNS ALONG THE NORTHBORND FRONTAGE ROAD. AMAFCA RECENTLY COMPLETED DOWNSTREAM VINEYARD CHANNEL PUBLIC DRAINAGE IMPROVEMENTS THAT INDIRECTLY BENEFIT THIS SITE AND THE FLOODPLAIN ASSOCIATED WITH THE NMDOT DITCH BY ELIMINATING CONSTRAINTS TO DOWNSTREAM PROPERTIES.

III. BACKGROUND DOCUMENTS

THE FOLLOWING IS A LIST OF DOCUMENTS RELATED TO THE SITE AND SURROUNDING AREA. THIS LIST MAY NOT BE INCLUSIVE, HOWEVER, REPRESENTS A SUMMARY OF RELEVANT PLANS AND DOCUMENTS THAT ARE KNOWN TO THE ENGINEER AT THE TIME OF PLAN PREPARATION.

A. McLEOD BUSINESS PARK ACCESS ROAD DRAINAGE PLAN BY JEFF MORTENSEN & ASSOCIATES, INC. (JMA) DATED 08-30-1996 (HYDROLOGY FILE F17/D69). THIS PLAN SUPPORTED THE CONSTRUCTION OF THE PRIVATE ACCESS ROAD CUL-DE-SAC SERVING TRACTS 2-A-3-B AND 2-A-3-D FROM JEFFERSON. THIS PLAN INCLUDED A COMPREHENSIVE ANALYSIS OF BASINS A, B AND C AND THE CONDITIONS PROPOSED THEREIN ARE TAKEN AS THE CURRENT EXISTING CONDITIONS.

B. PRE-DESIGN CONFERENCE RECAP WITH THE CITY HYDROLOGIST DATED 08-08-2005 (COPY OF RECAP SUBMITTED HERewith). THE SIGNIFICANT FINDINGS FROM THIS MEETING WERE 1) THAT AN OFFSITE BASIN ANALYSIS WAS REQUIRED, AND 2) THAT DOWNSTREAM CAPACITY WAS ASSUMED TO EXIST ON THE FAR (NORTHWEST) SIDE OF I-25 DUE TO RECENT AMAFCA BOX CULVERT CONSTRUCTION.

C. NUMEROUS GRADING AND DRAINAGE PLANS FOR THE SITE INCLUDING MASTER DRAINAGE PLAN BY GREINER ENGINEERING (1985, F17/D44A), A GRADING PLAN BY G.W. WALKER & COMPANY DATED 10-23-85, A GRADING PLAN BY EASTERLING & ASSOCIATES DATED 5-8-87, THE GRADING FOR THE OUTBACK STEAKHOUSE BY TIERRA WEST (1996, F17/D68), AND THE GRADING PLAN FOR LANDRY'S SEAFOOD RESTAURANT (F17, D44C). ALL OF THESE PLANS FOLLOWED THE GREINER ORIGINAL MASTER PLAN CONCEPT THAT REQUIRED DUE TO A LACK OF DOWNSTREAM CAPACITY. NOW THAT DOWNSTREAM CAPACITY IS AVAILABLE, THE DISCHARGE REQUIREMENTS ESTABLISHED IN THESE PLANS ARE NO LONGER NECESSARY.

IV. EXISTING CONDITIONS (REFER TO SHEET 2):

TRACT 2-A-3-C (BASIN A) IS DEVELOPED AS LANDRY'S SEAFOOD RESTAURANT WITH ONSITE DETENTION TO RESTRICT RUNOFF DRAINING TO TRACT 2-A-3-B.

TRACT 2-A-3-B (BASIN B) IS DEVELOPED WITH AN OUTBACK STEAKHOUSE AND CARRABA'S ITALIAN RESTAURANT. THE OUTBACK/CARRABA'S SITE ACCEPTS THE DETAINED RUNOFF FROM BASIN A AND THE COMBINED RUNOFF FROM BASINS A AND B IS ROUTED THROUGH AN ONSITE PARKING LOT DETENTION POND WITH AN ASSOCIATED PRIVATE DRAINAGE EASEMENT (SEE KEYED NOTE 22, SHEET 2).

THE TRACT 2-A-3-B POND DISCHARGES VIA 8 INCH PRIVATE STORM DRAIN TO A LARGE DETENTION POND LOCATED ON TRACT 2-A-3-A THAT SERVES TRACTS 2-A-3-A, 2-A-3-B, 2-A-3-C AND 2-A-3-D (SEE KEYED NOTE 17).

TRACT 2-A-3-D IS THE ONLY UNDEVELOPED PARCEL IN THE BUSINESS PARK.

BASIN C INCLUDES ALL OF THE UNDEVELOPED TRACT 2-A-3-D, APPROXIMATELY HALF OF TRACT 2-A-3-A, AND THE MAJORITY OF TRACT 2-A-2. THE BASIN C POND RECEIVES ALL OF THE RUNOFF FROM BASINS A AND B, AND THE MAJORITY OF THE RUNOFF FROM BASIN C.

THE REMAINING HALF OF TRACT 2-A-3-A THAT LIES OUTSIDE OF BASIN C DRAINS FREELY TO McLEOD ROAD NE (BASIN D).

TRACT 2-A-2 IS DEVELOPED WITH COMMERCIAL BUILDINGS. A PORTION OF THIS TRACT LIES WITHIN BASIN D (FREE DISCHARGE TO McLEOD). SOME RUNOFF FROM THE PORTION OF TRACT 2-A-2 WITHIN BASIN C ENTERS THE AFOREMENTIONED DETENTION POND BUT IT APPEARS THAT A SIGNIFICANT AMOUNT BYPASSES THE EXISTING DETENTION POND AND DRAINS TO A PRIVATE ACCESS ROAD BETWEEN TRACTS 2-A-2 AND 2-A-1. A PRIVATE STORM INLET IS LOCATED AT A LOW POINT IN THE PRIVATE ACCESS ROAD BETWEEN TRACTS 2-A-1 AND 2-A-2. THIS INLET IS ALSO THE OUTFALL FOR THE 8 INCH PRIVATE STORM DRAIN DISCHARGING FROM THE DETENTION POND THAT SERVES MOST OF THE SITE. THE OUTLET FROM THIS INLET IS A PRIVATE 18 INCH RCP STORM DRAIN LOCATED WITHIN A PRIVATE EASEMENT (KEYED NOTE 8) ON TRACT 2-A-1 WHICH IS DEVELOPED AS THE AARON RENTS BUSINESS.

THE PRIVATE 18 INCH STORM DRAIN OUTFALLS TO AN EXISTING PUBLIC DETENTION/COLLECTION POND LOCATED WITHIN A PUBLIC DRAINAGE EASEMENT (KEYED NOTE 10) LOCATED AT THE NORTHWEST CORNER OF TRACT 2-A-1. THIS POND IS THE POINT OF CONCENTRATION FOR THE ENTIRE DRAINAGE BASIN EXTENDING TO SAN MATEO BLVD NE AND RECEIVES OFFSITE PUBLIC RUNOFF FROM McLEOD AS WELL AS THE 18 INCH STORM DRAIN DISCHARGE AND THE RUNOFF FROM TRACT 2-A-1.

THE OUTFALL FOR THE TRACT 2-A-1 PUBLIC POND IS THREE 42 INCH CONCRETE PIPES THAT RUN UNDER I-25 TO THE RECENTLY COMPLETED VINEYARD ARROYO BOX CULVERT WHICH IS SIZED FOR FREE DISCHARGE FROM UPSTREAM PROPERTIES (SEE REF. B).

THE PUBLIC STREET FLOWS THAT ENTER THE PUBLIC POND AT THE NW CORNER OF THE SITE ARE THE ONLY OFFSITE FLOWS THAT IMPACT THE SITE. THE SURROUNDING PUBLIC STREETS DO NOT ALLOW OFFSITE FLOWS TO ENTER THE SITE OTHERWISE.

V. DEVELOPED CONDITIONS (REFER TO SHEET 3)

TRACTS 2-A-3-A AND 2-A-3-D WILL BE REDEVELOPED AS PART OF A LARGE COMMERCIAL/RETAIL CENTER THAT WILL INCLUDE NEW BUILDINGS, PAVED PARKING, ACCESS ROADS, AND LANDSCAPING. THE EXISTING CUL-DE-SAC WILL BE REMOVED AND THE PRIVATE ACCESS ROAD FROM JEFFERSON WILL BE EXTENDED THROUGH TO CONNECT WITH THE DEAD END PRIVATE ACCESS ROAD FROM McLEOD RD NE. THE PRIVATE DETENTION POND WILL BE ELIMINATED AND REPLACED WITH A NEW 36 INCH PRIVATE STORM DRAIN DRAINING TO THE EXISTING PUBLIC DETENTION/COLLECTION POND AT THE NORTHWEST CORNER OF THE SITE.

BASIN C-3 WILL DRAIN FREELY TO THE ACCESS ROAD.

BASIN D WILL BE EXPANDED TO THE NORTH TO INCLUDE THE ROOF DRAINAGE FROM THE NEW DEVELOPMENT AND IT WILL CONTINUE TO DRAIN FREELY TO McLEOD RD NW.

BASIN C-2 WILL DRAIN TO A PRIVATE STORM INLET IN A NEW PARKING LOT THAT WILL CONNECT TO THE NEW 36 INCH PRIVATE STORM DRAIN.

BASIN C-1 WILL DRAIN FREELY TO THE ACCESS ROAD.

THE OUTLET PIPE FOR THE BASIN B POND WILL ALSO BE PICKED UP BY THE NEW 36 INCH PRIVATE STORM DRAIN. BASINS A AND B WILL CONTINUE TO DETAIN THEIR RUNOFF.

NEW STORM INLETS WILL BE CONSTRUCTED AT THE SUMP LOCATION IN THE ACCESS ROAD. THEY WILL DISCHARGE TO THE NEW 36 INCH PRIVATE STORM DRAIN.

THE NORTH-SOUTH REACH OF EXISTING 18 INCH STORM DRAIN WILL BE ABANDONED TO ELIMINATE THE POTENTIAL FOR BASIN C-4 TO BECOME A SURGE BASIN. THE REMAINDER OF THE LINE WILL REMAIN IN SERVICE AND WILL ONLY SERVE BASIN C-4. THE ASSOCIATED EASEMENT CAN BE VACATED.

STREET CAPACITY AND INLET SPACING AND SIZING WILL BE REQUIRED TO ACCOMPANY THE FORTHCOMING GRADING PLAN TO SUPPORT BUILDING PERMIT AND ROAD CONSTRUCTION.

VI. DRAINAGE SITE PLAN

THE CONCEPTUAL GRADING PLAN ON SHEET 3 SHOWS: 1) EXISTING GRADES INDICATED BY CONTOURS AT 1 FT, 0 IN INTERVALS FROM THE MAY, 2005 TOPOGRAPHIC SURVEY CONDUCTED BY THIS OFFICE, 2) BOUNDARY AND EASEMENT DATA FROM THE MAY, 2005 BOUNDARY SURVEY CONDUCTED BY THIS OFFICE, 3) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS AS SHOWN BY THE AFOREMENTIONED SURVEYS, 4) PROPOSED GRADES INDICATED BY SPOT ELEVATION AND CONTOURS AT 1 FT, 0 IN INTERVALS, 5) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS INCLUDING THE PROPOSED 36 INCH PUBLIC STORM DRAIN, AND 6) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES.

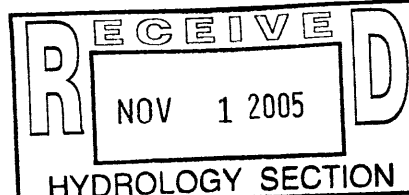
VII. CALCULATIONS

THE CALCULATIONS, WHICH APPEAR HEREON, ANALYZE THE FULLY DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE EXISTING CONDITIONS CALCULATIONS WERE NOT PERFORMED BECAUSE THE SITE IS ALREADY DEVELOPED AND THE PROPOSED IMPROVEMENTS ARE A REDEVELOPMENT WITH NO SIGNIFICANT CHANGES IN RUNOFF. EXISTING BASIN CALCULATIONS WERE TAKEN FROM THE 1996 PLAN PREPARED BY THIS OFFICE (REF. A). THE PROCEDURE FOR 40-ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL (DPM), VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. THE OVERALL DRAINAGE BASIN CALCULATIONS WERE PERFORMED USING THE RATIONAL EQUATION IN ACCORDANCE WITH THE PROCEDURES SET FORTH IN THE DPM FOR WATERSHEDS LARGER THAN 40 ACRES. CULVERT OUTLET CAPACITY WAS DETERMINED USING CULVERT NOMOGRAPHS. PRESSURE CALCULATIONS FOR THE 36 INCH PRIVATE STORM DRAIN WERE DONE WITH THE FLOWMASTER PE 6.0 PROGRAM BY HAESTAD METHODS AND ASSUMED A FULL CURB HEIGHT AT THE UPSTREAM END AND A FULL POND HEIGHT AT THE DOWNSTREAM OUTLET. COPIES OF THE CULVERT NOMOGRAPH AND HAESTAD OUTPUT ARE SUBMITTED HERewith.

VIII. CONCLUSIONS

- 1) THE PROPOSED SITE IMPROVEMENTS REPRESENT A REDEVELOPMENT OF AN EXISTING SITE WITHIN AN INFILL AREA.
- 2) THERE IS SUFFICIENT DOWNSTREAM CAPACITY FOR THE SITE TO DISCHARGE FREELY TO AN EXISTING ONSITE PUBLIC DRAINAGE EASEMENT.
- 3) DUE TO THE PRESENCE OF DOWNSTREAM CAPACITY, THE EXISTING ONSITE DETENTION POND WILL BE ELIMINATED AND REPLACED WITH A PRIVATE 36 INCH STORM DRAIN. THE STORM DRAIN WILL NOT SERVE TRACTS 2-A-3-B OR 2-A-3-C WHICH WILL CONTINUE TO DISCHARGE THROUGH THEIR EXISTING PARKING LOT PONDS. THE NEW STORM DRAIN WILL REQUIRE A PRIVATE EASEMENT TO BE GRANTED WITH THE FORTHCOMING REPEAT.
- 4) ELIMINATION OF THE ON-SITE DETENTION POND WILL ALLOW VACATION OF THE ASSOCIATED PRIVATE DRAINAGE EASEMENT.
- 5) THIS SUBMITTAL SUPPORTS THE FORTHCOMING WORK ORDER PLANS TO CONSTRUCT PUBLIC HALF-WIDTH STREET IMPROVEMENTS IN THE FRONTAGE OF TRACT A, ANCIENT MESA. A SEPARATE SUBMITTAL WILL BE REQUIRED TO SUPPORT PROPOSED BUILDING PERMIT, ROAD AND STORM DRAIN CONSTRUCTION. THE SEPARATE SUBMITTAL MUST ADDRESS STREET CAPACITY AND INLET DESIGN.
- 6) THE PROPOSED PRIVATE STREET CONNECTION AND PRIVATE STORM DRAIN WILL BE PRIVATELY OWNED, OPERATED AND MAINTAINED.
- 7) THERE ARE NO DPM DESIGN VARIANCES OR PUBLIC INFRASTRUCTURE PROPOSED BY THIS PROJECT. A PRIVATE STORM DRAIN EASEMENT WILL BE REQUIRED FOR THE 36 INCH STORM DRAIN.

JMA JOB NO. 2005.011.2



JEFF MORTENSEN & ASSOCIATES, INC.
 6010-B MIDWAY PARK BLVD. NE.
 ALBUQUERQUE, NEW MEXICO 87109
 ENGINEERS [] SURVEYORS (505) 345-4250
 FAX: 505 345-4254 [] ESTABLISHED 1977

Drainage Plan, Calculations, Vicinity Map, F.I.R.M. and Sections and Details

CALCULATIONS

SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 2

2. $P_{k,100} = P_{30} = 2.35$

3. TOTAL PROJECT AREA (A) = 1,055,935 SF
24.24 AC

4. DEVELOPED LAND TREATMENT

A. BASINS A & B
 TREATMENT AREA (SF/AC) %
 B 24,525 / 0.56 10
 D 220,720 / 5.07 90

B. BASIN C-1
 TREATMENT AREA (SF/AC) %
 B 14,335 / 0.33 10
 D 129,025 / 2.96 90

C. BASIN C-2
 TREATMENT AREA (SF/AC) %
 B 1,920 / 0.04 5
 D 36,075 / 0.83 95

D. BASIN C-3
 TREATMENT AREA (SF/AC) %
 D 260,220 / 5.97 100

E. BASIN C-4
 TREATMENT AREA (SF/AC) %
 B 10,230 / 0.23 10
 D 92,080 / 2.11 90

F. BASIN D
 TREATMENT AREA (SF/AC) %
 B 12,925 / 0.30 5
 D 206,560 / 4.74 95

G. BASIN E
 TREATMENT AREA (SF/AC) %
 B 17,155 / 0.39 35
 D 30,165 / 0.69 65

DEVELOPED CONDITIONS

A. BASINS A & B
 1. VOLUME
 $E_w = (E_{A1} + E_{A2} + E_{A3} + E_{A4})/A$
 $E_w = ((0.78 \times 0.56) + (2.12 \times 5.07))/5.63 = 1.99$ IN
 $V_{100} = (E_w/12)A = (1.99/12)5.63 = 0.9318$ AC-FT 40,588 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (2.28 \times 0.56) + (4.70 \times 5.07) = 25.10$ CFS

B. BASIN C-1
 1. VOLUME
 $E_w = (E_{B1} + E_{B2} + E_{B3} + E_{B4})/A$
 $E_w = ((0.78 \times 0.33) + (2.12 \times 2.96))/3.29 = 1.99$ IN
 $V_{100} = (E_w/12)A = (1.99/12)3.29 = 0.5447$ AC-FT 23,726 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (2.28 \times 0.33) + (4.70 \times 2.96) = 14.84$ CFS

C. BASIN C-2
 1. VOLUME
 $E_w = (E_{C1} + E_{C2} + E_{C3} + E_{C4})/A$
 $E_w = ((0.78 \times 0.04) + (2.12 \times 0.83))/0.87 = 2.05$ IN
 $V_{100} = (E_w/12)A = (2.05/12)0.87 = 0.1492$ AC-FT 6,498 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (2.28 \times 0.04) + (4.70 \times 0.83) = 3.99$ CFS

D. BASIN C-3

1. VOLUME
 $E_w = (E_{D1} + E_{D2} + E_{D3} + E_{D4})/A$
 $E_w = ((2.12 \times 5.97))/5.97 = 2.12$ IN
 $V_{100} = (E_w/12)A = (2.12/12)5.97 = 1.0544$ AC-FT 45,972 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (4.70 \times 5.97) = 28.08$ CFS

E. BASIN C-4

1. VOLUME
 $E_w = (E_{E1} + E_{E2} + E_{E3} + E_{E4})/A$
 $E_w = ((0.78 \times 0.23) + (2.12 \times 2.11))/2.35 = 1.99$ IN
 $V_{100} = (E_w/12)A = (1.99/12)2.35 = 0.3887$ AC-FT 16,932 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (2.28 \times 0.23) + (4.70 \times 2.11) = 10.47$ CFS

F. BASIN D

1. VOLUME
 $E_w = (E_{F1} + E_{F2} + E_{F3} + E_{F4})/A$
 $E_w = ((0.78 \times 0.30) + (2.12 \times 4.74))/5.04 = 2.04$ IN
 $V_{100} = (E_w/12)A = (2.04/12)5.04 = 0.8570$ AC-FT 37,332 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (2.28 \times 0.30) + (4.70 \times 4.74) = 22.96$ CFS

G. BASIN E

1. VOLUME
 $E_w = (E_{G1} + E_{G2} + E_{G3} + E_{G4})/A$
 $E_w = ((0.78 \times 0.39) + (2.12 \times 0.69))/1.09 = 1.63$ IN
 $V_{100} = (E_w/12)A = (1.63/12)1.09 = 0.1479$ AC-FT 6,444 CF

2. PEAK DISCHARGE
 $Q_p = Q_{pA} + Q_{pB} + Q_{pC} + Q_{pD}$
 $Q_p = Q_{100} = (2.28 \times 0.39) + (4.70 \times 0.69) = 4.15$ CFS

DOWNSTREAM OUTFALL ANALYSIS

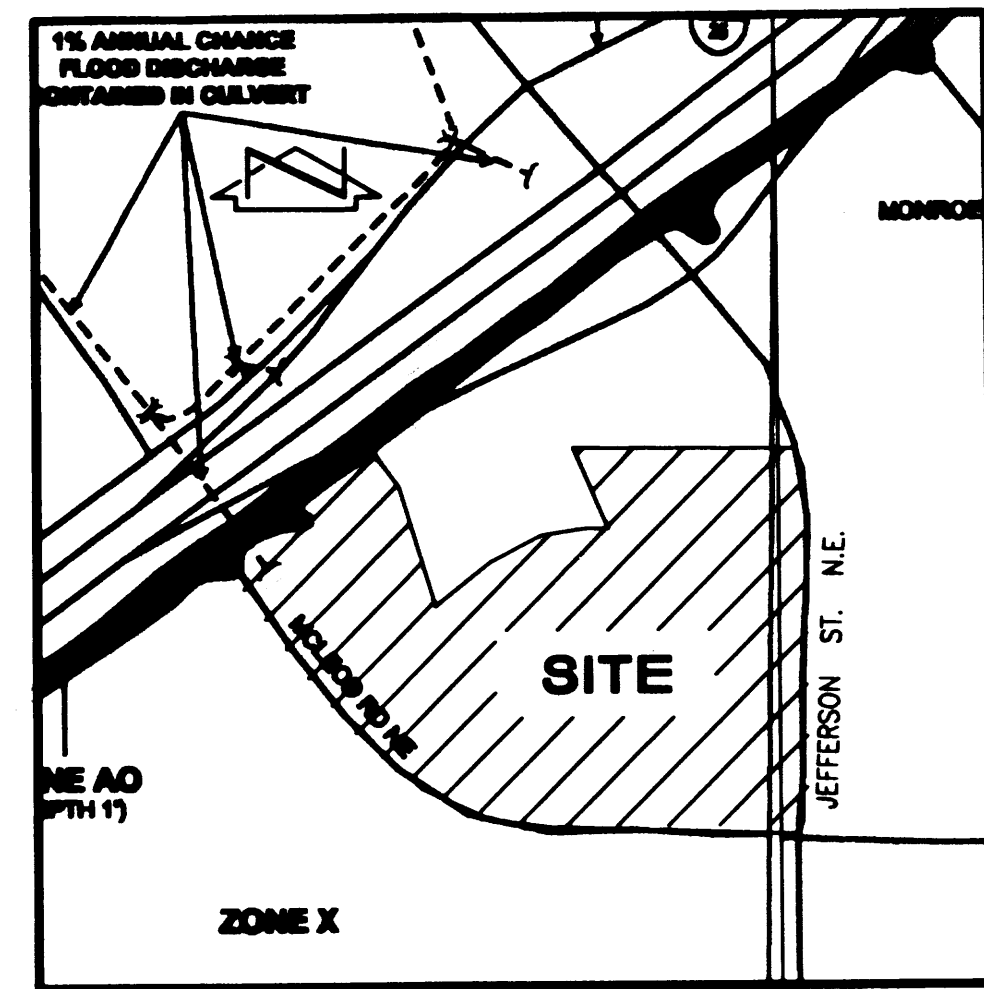
3-42" CONCRETE CULVERTS WITH HEADWALL @ AARON RENTS POND, INV. 25.6; POND MAX @ 32.0
 HW/D = (32.0-25.6)/3.5 = 1.83
 PER CULVERT NOMOGRAPH, $Q_{cap} = 110$ CFS/PIPE
 $Q_{cap} = 330$ CFS

BASIN ANALYSIS (OFFSITE AND ONSITE)

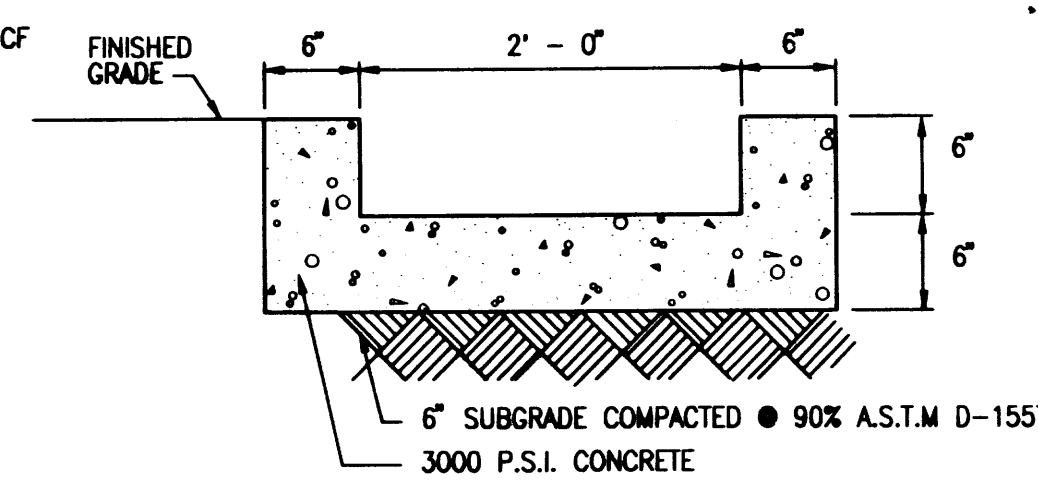
A = 89.3ac; COMMERCIAL USE 90SD, 10%
 S = (514-5134)/4000 = 0.0200
 $I = 0.726(\log(24.64)) \times (1/10) \times 100$ (DPM 9-12)
 $P_{30} = 2.01$ IN (ZONE 2)
 C = 0.45 FOR B, 0.93 FOR D
 $t_c = (L_1/V_1 + L_2/V_2) \times 3600$ sec/hr (DPM b-1)
 $L_1 = 400, K = 1, V_1 = 10K^{1/2} = 1.414$
 $L_2 = 3600, K = 3, V_2 = 10K^{1/2} = 4.24$
 $t_c = ((400/1.414) + (3600/4.24))/3600 = 0.314$ hrs
 $I = 4.126$
 $Q_{100} = CIA = (0.45)(4.126)(8.93) + (0.93)(4.126)(80.37) = 325$ CFS
 $Q_{100} < Q_{cap}$ FREE DISCHARGE APPROPRIATE
 $325 < 330$

36" PRIVATE STORM DRAIN ANALYSIS

CONTRIBUTING BASINS ARE C-1, C-2, C-3 AND THE DETAINED OUTFLOW FROM BASINS A AND B
 $Q_{100} = 14.8 + 4.0 + 28.1 + 2.4 = 49.3$ CFS
 Q_{cap} 36" RCP = 55.0 CFS PER PRESSURE ANALYSIS
 $Z_1 = 29.7$ FT (INV @ INLET); W.S.L. = 35.07(TC)
 $Z_2 = 27.0$ FT (INV @ OUTLET); W.S.L. = 32.0(POND MAX)
 L = 540 FT, n = 0.013 (CONCRETE)
 $Q_{cap} > Q_{100}$

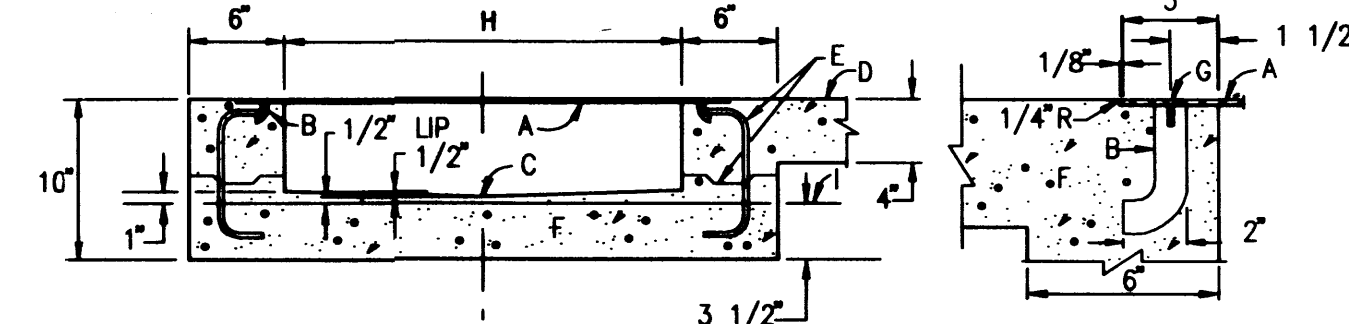


F.I.R.M. PANELS 138 & 139 OF 825
N.T.S.



TYPICAL RUNDOWN SECTION

SCALE: 1" = 1' - 0"



CONSTRUCTION NOTES:

- 3/8" CHECKED STEEL PLATE.
- ROD ANCHOR 1" x 5"
- 1/2" INVERT
- SIDEWALK GRADE
- DOWEL AND JOINT, (OPTIONAL).
- 3000 PSI CONCRETE
- 3/8" x 1" F.H. C/SUNK STAINLESS STEEL MACHINE SCREW.
- DRAIN WIDTH, 24" MAX. 12" MIN.
- GUTTER FLOWLINE ELEVATION

TYPICAL SIDEWALK CULVERT DETAILS

NOT TO SCALE

INDEX OF DRAWINGS

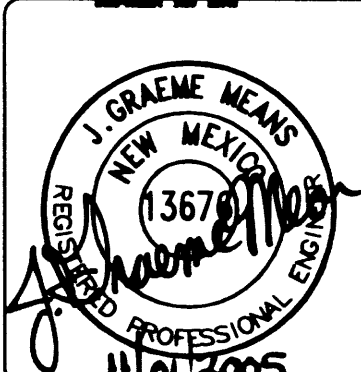
SHEET

DESCRIPTION

- | SHEET | DESCRIPTION |
|-------|--|
| 1 | DRAINAGE PLAN, CALCULATIONS, VICINITY MAP, F.I.R.M. AND SECTIONS AND DETAILS |
| 2 | EXISTING CONDITIONS BASIN MAP |
| 3 | CONCEPTUAL GRADING and CONCEPTUAL UTILITY PLAN/PROPOSED CONDITIONS |

03 November 2005

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Briscoe Architects, p.c.

ARCHITECTURAL SERVICES FOR THE COMMERCIAL DEVELOPMENT COMMUNITY

2001 CARLISLE BLVD. NE, SUITE A
 ALBUQUERQUE, NM 87110-4843
 V: 505.282.0199 F: 505.861.9114 E: briscoe@briscoe.com

Proposed Retail Buildings

Jefferson Point
 Jefferson and McLeod NE
 Albuquerque, NM

SHEET NO.

C-1

EASEMENTS

- ① 5' TELEPHONE EASEMENT GRANTED BY PLAT C16-154
- ② 10' PNM AND TELEPHONE EASEMENT GRANTED BY PLAT C31-17
- ③ 6' TELEPHONE EASEMENT GRANTED BY PLAT C16-154
- ④ 10' PNM AND MST&T EASEMENT GRANTED BY DOCUMENT FILED 04-02-1986, BOOK MISC. 337A, PAGE 723, DOC. #86 28509
- ⑤ 60' PUBLIC UTILITY AND PRIVATE INGRESS AND EGRESS EASEMENT GRANTED BY PLAT C28-45
- ⑥ 25' WATER AND SANITARY SEWER EASEMENT GRANTED BY PLAT C28-45
- ⑦ 10' PNM AND MST&T EASEMENT GRANTED BY DOCUMENT FILED 05-13-1985, BOOK MISC. 228A, PAGE 546, DOC. #85 37018
- ⑧ 10' PRIVATE STORM DRAINAGE EASEMENT GRANTED BY PLAT C31-17
- ⑨ 10'x12.5' WATER LINE EASEMENT GRANTED BY PLAT C31-17
- ⑩ STORM WATER DETENTION EASEMENT GRANTED BY DOCUMENT FILED 12-21-1984, BOOK MISC. 185A, PAGE 147, DOC. #84 97059

EASEMENTS - CONTINUED

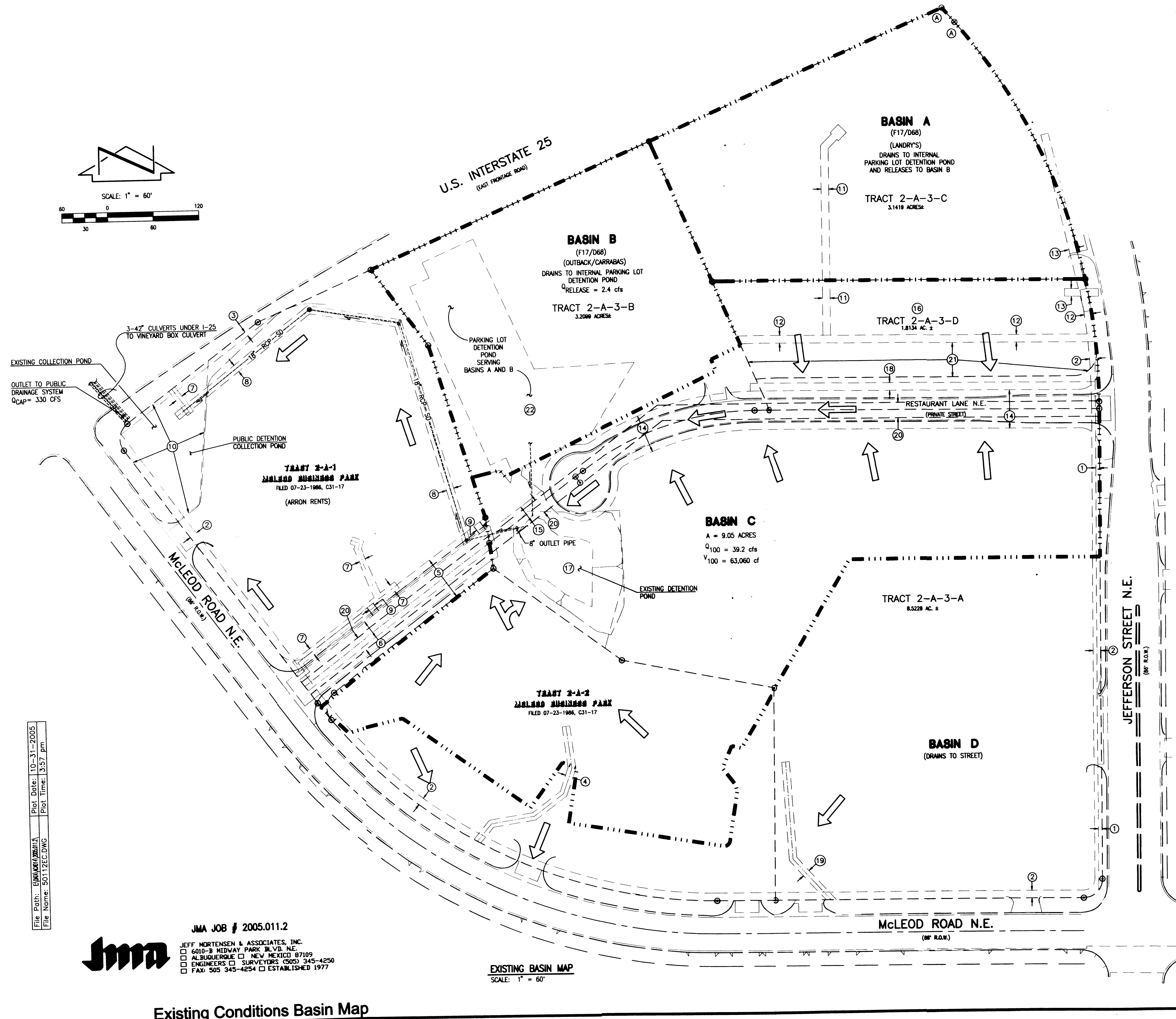
- ⑪ APPROXIMATE LOCATION OF NONSPECIFIC 10' PNM AND US WEST COMMUNICATIONS EASEMENT GRANTED BY DOCUMENT FILED 12-29-1995, BOOK 95-31, PAGE 6781, DOC. #95132626
- ⑫ 10' PNM AND US WEST COMMUNICATIONS EASEMENT GRANTED BY DOCUMENT FILED 12-29-1995, BOOK 95-31, PAGE 6781, DOC. #95132626
- ⑬ 10' PNM AND US WEST COMMUNICATIONS EASEMENT GRANTED BY DOCUMENT FILED 12-23-1985, BOOK 304A, PAGE 565, DOC. #85 8260
- ⑭ 50' PRIVATE ACCESS, PRIVATE DRAINAGE, PUBLIC WATER AND SANITARY SEWER AND PUBLIC UTILITY EASEMENT GRANTED BY PLAT 96C-448 SERVING TRACTS 2-A-3-A, 2-A-3-B AND 2-A-3-D
- ⑮ 25' PUBLIC WATER AND SANITARY SEWER EASEMENT GRANTED BY PLAT 96C-448
- ⑯ DIRECT VEHICULAR ACCESS BETWEEN TRACT 2-A-3-D AND JEFFERSON STREET N.E. IS PROHIBITED
- ⑰ PRIVATE DRAINAGE EASEMENT GRANTED BY PLAT 96C-448 SERVING TRACTS 2-A-3-A, 2-A-3-B AND 2-A-3-D
- ⑱ 10' PUBLIC UTILITY EASEMENT GRANTED BY PLAT 96C-448
- ⑲ 10' PNM AND MST&T EASEMENT GRANTED BY DOCUMENT FILED 03-31-1988, BOOK MISC. 604A, PAGE 624, DOC. #8827913

EASEMENTS - CONTINUED

- ⑳ APPROXIMATE LOCATION OF 20' SANITARY SEWER EASEMENT GRANTED BY DOCUMENT FILED 11-20-1985, BOOK MISC. 293A, PAGE 247, DOC. #85 98067
- ㉑ APPROXIMATE LOCATION OF ACCESS EASEMENT AGREEMENT GRANTED BY DOCUMENT FILED 08-10-1995, BOOK 95-19, PAGE 886, DOC. #95079346

EASEMENTS - OFFSITE

- ㉒ PRIVATE DRAINAGE EASEMENT GRANTED BY PLAT 96C-448 SERVING TRACTS 2-A-3-B AND 2-A-3-C



Existing Conditions Basin Map

1" = 60'

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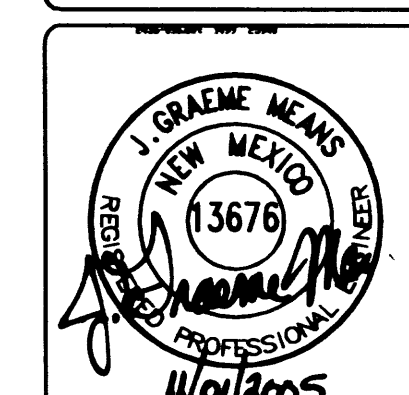
JMA JOB # 2005.011.2

JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NEW MEXICO 87109
ENGINEERS SURVEYORS (SOS) 345-4250
FAX: 505 345-4254 ESTABLISHED 1977

EXISTING BASIN MAP
SCALE: 1" = 60'

03 November 2005

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**Briscoe Architects, p.c.**ARCHITECTURAL SERVICES FOR THE
COMMERCIAL DEVELOPMENT COMMUNITY2001 CARLSLE BLVD. NE, SUITE A
ALBUQUERQUE, NM 87110-4943
V: 505.282.0193 F: 505.891.9114 E: briscoe@man.com

Proposed Retail Buildings

Jefferson Point
Jefferson and McLeod NE
Albuquerque, NM

SHEET NO.

C-2

NOTE:

THIS IS NOT A BOUNDARY SURVEY. APPARENT PROPERTY CORNERS ARE SHOWN FOR ORIENTATION ONLY. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS TAKEN FROM BOUNDARY AND TOPOGRAPHIC SURVEYS PREPARED BY THIS OFFICE IN MAY, 2005.

PROJECT BENCHMARK

STANDARD N.M.S.H.C. BRASS TABLET STAMPED "NMSHC 1-25-18" SET IN TOP OF A CONCRETE POST FLUSH WITH GROUND ON EAST SIDE OF EAST FRONTAGE ROAD OF U.S. INTERSTATE HIGHWAY 25 (I-25) AND IS 0.60 MILES TO "GREEN'S SANITARY SPECIALIST INC." (BLDG. #4900).
ELEVATION = 5125.7 FEET (NGVD 1929)

T.B.M.

T.B.M. #1
A PK NAIL LOCATED APPROXIMATELY 15.5 FEET WEST OF THE BACK OF THE CURB OF JEFFERSON ST. N.E. AND APPROXIMATELY 325 FEET NORTH OF THE NORTH BACK OF CURB OF McLEOD AVENUE N.E. AS SHOWN ON SHEET 3.
ELEVATION = 5159.15 FEET

T.B.M. #2
A REBAR WITH JMA CAP STAMPED "NMS 11184 CONTROL PT" LOCATED APPROXIMATELY 5 FEET BACK OF THE CURB ON THE SOUTH SIDE OF McLEOD ROAD N.E. AND APPROXIMATELY 800 FEET SOUTH OF THE INTERSECTION WITH JEFFERSON ST. N.E. AS SHOWN ON SHEET 2
ELEVATION = 5142.11 FEET

LEGEND

- EXISTING CONTOUR
--- PROPOSED CONTOUR
56.50 PROPOSED SPOT ELEVATION
--- RETAINING WALL
FF FINISHED FLOOR
SD STORM DRAIN
--- FLOW LINE
● STORM DRAIN MANHOLE
--- BASIN BOUNDARY

KEYED NOTES

EASEMENTS

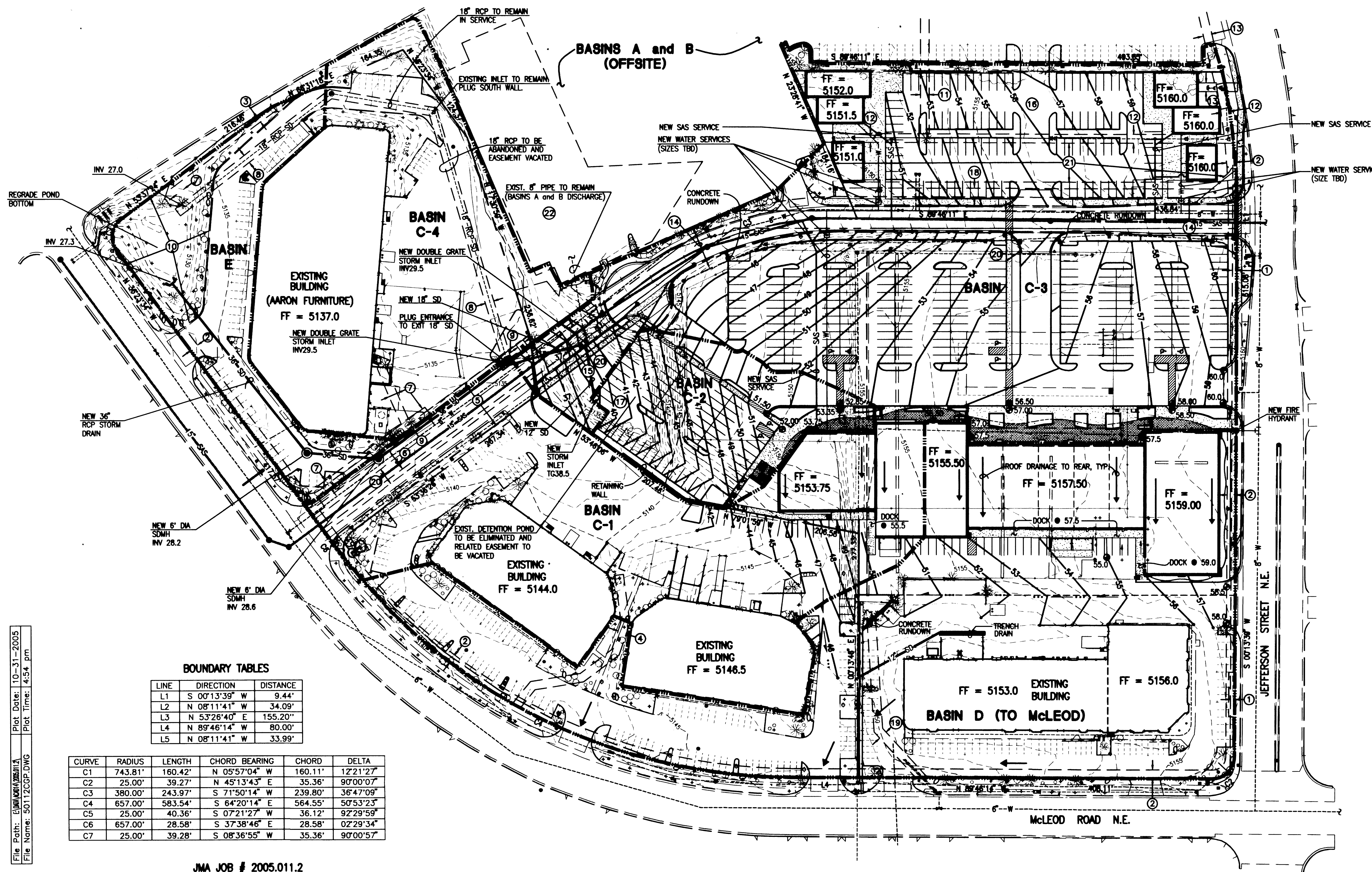
- ① 5' TELEPHONE EASEMENT GRANTED BY PLAT C16-154
- ② 10' PNM AND TELEPHONE EASEMENT GRANTED BY PLAT C31-17
- ③ 6' TELEPHONE EASEMENT GRANTED BY PLAT C16-154
- ④ 10' PNM AND MST&T EASEMENT GRANTED BY DOCUMENT FILED 04-02-1986, BOOK MISC. 337A, PAGE 723, DOC. #86 28509
- ⑤ 60' PUBLIC UTILITY AND PRIVATE INGRESS AND EGRESS EASEMENT GRANTED BY PLAT C28-45
- ⑥ 25' WATER AND SANITARY SEWER EASEMENT GRANTED BY PLAT C28-45
- ⑦ 10' PNM AND MST&T EASEMENT GRANTED BY DOCUMENT FILED 05-13-1985, BOOK MISC. 228A, PAGE 546, DOC. #85 37018
- ⑧ 10' PRIVATE STORM DRAINAGE EASEMENT GRANTED BY PLAT C31-17
- ⑨ 10'x12.5' WATER LINE EASEMENT GRANTED BY PLAT C31-17
- ⑩ STORM WATER DETENTION EASEMENT GRANTED BY DOCUMENT FILED 12-21-1984, BOOK MISC. 185A, PAGE 147, DOC. #84 97059
- ⑪ APPROXIMATE LOCATION OF NONSPECIFIC 10' PNM AND US WEST COMMUNICATIONS EASEMENT GRANTED BY DOCUMENT FILED 12-29-1995, BOOK 95-31, PAGE 6781, DOC. #95132626
- ⑫ 10' PNM AND US WEST COMMUNICATIONS EASEMENT GRANTED BY DOCUMENT FILED 12-29-1995, BOOK 95-31, PAGE 6781, DOC. #95132626
- ⑬ 10' PNM AND US WEST COMMUNICATIONS EASEMENT GRANTED BY DOCUMENT FILED 12-23-1985, BOOK 304A, PAGE 565, DOC. #85 8260
- ⑭ 50' PRIVATE ACCESS, PRIVATE DRAINAGE, PUBLIC WATER AND SANITARY SEWER AND PUBLIC UTILITY EASEMENT GRANTED BY PLAT 96C-448 SERVING TRACTS 2-A-3-A, 2-A-3-B AND 2-A-3-D
- ⑮ 25' PUBLIC WATER AND SANITARY SEWER EASEMENT GRANTED BY PLAT 96C-448
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- ㉑ APPROXIMATE LOCATION OF ACCESS EASEMENT AGREEMENT GRANTED BY DOCUMENT FILED 08-10-1995, BOOK 95-19, PAGE 886, DOC. #95079346

EASEMENTS - OFFSITE

- ㉒ PRIVATE DRAINAGE EASEMENT GRANTED BY PLAT 96C-448 SERVING TRACTS 2-A-3-B AND 2-A-3-C

DEVELOPED BASIN SUMMARY

BASIN	AREA	Q ₁₀₀ (cfs)	COMMENT
A	5.63 ac.	25.1	LIMITED TO 2.4 cfs BY EXISTING DETENTION
B	5.04 ac.	23.0	FREE OVERLAND DISCHARGE TO McLEOD
C-1	3.29 ac.	14.8	TO ACCESS ROAD & NEW 42" SD
C-2	0.87 ac.	4.0	TO NEW SD
C-3	5.97 ac.	28.1	TO ACCESS ROAD & NEW 42" SD
C-4	2.35 ac.	10.5	EXISTING BASIN TO EXISTING STORM DRAIN
D	1.09 ac.	4.2	EXISTING BASIN TO EXISTING POND



JMA JOB # 2005.011.2

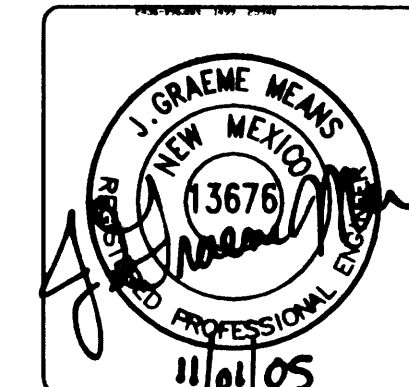


JEFF MORTENSEN & ASSOCIATES, INC.
6010-B MIDWAY PARK BLVD. N.E.
ALBUQUERQUE, NM 87110-9709
ENGINEERS & SURVEYORS (CSOS) 345-4250
FAX: 505 345-4254 ESTABLISHED 1977

03 November 2005

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Briscoe Architects, p.c.

ARCHITECTURAL SERVICES FOR THE
COMMERCIAL DEVELOPMENT COMMUNITY2001 CAVILL BLVD. N.E. SUITE A
ALBUQUERQUE, NM 87110-4843
V: 805.282.0189 F: 805.881.9114 E: briscoe@briscoe.com

Proposed Retail Buildings
Jefferson Point
Jefferson and McLeod NE
Albuquerque, NM

SHEET NO.

C-3

Conceptual Grading and Utility Service Plan / Proposed Conditions

1" = 60'