DRAINAGE PLAN

THE FOLLOWING ITEMS CONCERN A PROPOSED 56 UNIT SENIOR HOUSING PROJECT KNOWN AS THE CUATRO SENIOR APARTMENTS WHICH IS LOCATED ON FOURTH STREET, ALBUQUERQUE, NEW MEXICO, THE FOLLOWING GRADING AND DRAINAGE PLAN ARE CONTAINED HEREON:

1. DRAINAGE CALCULATIONS
2. VICINITY MAP (J-14)
3. FLOOD INSURANCE RATE MAP 35001C0332G - SEPT 26, 2008

EXISTING CONDITIONS

AS SHOWN BY THE VICINITY MAP, THE SITE IS BOUNDED ON THE SOUTH BY SUMMER AVENUE NW, ON THE WEST By AN ALLEY, ON THE NORTH BY KINLEY AVENUE AND ON THE EAST BY FOURTH STREET NW (SEE ATTACHED VICINITY MAP J-14). THE PARCEL'S LEGAL DESCRIPTION IS WITH A LEGAL DESCRIPTION OF LOTS 1 THRU 12, BLOCK 2, PARIS ADDITION WITHIN THE TOWN OF ALBUQUERQUE GRANT, PROJECTED SECTION 17 TOWNSHIPE 10 NORTH, RANGE 3 EAST, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. THIS SITE CONTAINS APPROXIMATELY 0.98 ACRES.

PER A RECENT SITE VISIT DONE AS PART OF PREPARING THIS DRAINAGE PLAN THE EXISTING SITE HAS THE ENTIRE AREA PAVED WITH EXISTING ASPHALT AND CURRENTLY IS BOUNDED AND SECURED BY A CHAINLINK FENCE. PER HISTORICAL RECORDS AND THE TOPOGRAPHIC SURVEY THE SITE WAS ONCE USED AS A LOT FOR VEHICLE SALES WITH SOME EXISTING FOUNDATIONS THAT SERVED SMALL BUILDINGS. THE AREA CURRENTLY DRAINS FROM THE CENTER OF THE LOT TOWARDS FOURTH STREET NW AND TO THE WEST ALLEY. THE AREA IS RELATIVELY FLAT WITH SLOPES AVERAGING 0.5 PERCENT IN EACH DIRECTION.

THERE IS AN EXISTING 24" STORM DRAIN SYSTEM ALONG FOURTH STREET NW WITH TWO DROP INLETS ADJACENT TO THE SITE CURB FLOWLINE. THE SIDE STREETS KINLEY AVENUE NW AND SUMMER AVENUE NW CURRENTLY DRAIN TO FOURTH STREET NW AND DISCHARGE INTO THESE TWO DROP INLETS. THERE IS ALSO A 24" STORM DRAIN ON SUMMER AVENUE NW AND A 15" STORM DRAIN ON KINLEY AVENUE NW THAT DISCHARGE INTO THIS EXISTING STORM DRAIN ON FOURTH STREET NW.

THE SITE DOES NOT LIE WITHIN A DESIGNATED 100 YEAR FLOODPLAIN ACCORDING TO FLOOD INSURANCE RATE 35001C0332G; HOWEVER, A FLOODPLAIN ZONE AO (DEPTH 1) EXIST AT THE NORTHEAST CORNER ON THE STREET SECTION OF FOURTH STREET NW AND KINLEY AVENUE NW. THE THE FINISH FLOOR FOR THE BUILDING HAS BEEN SET AT AN ELEVATION OF 1.0 FOOT ABOVE THE FLOWLINE OF THE CURB AT THE NORTHEAST CORNER OF THE SITE RELATIVE TO FOURTH STREET NW AND KINLEY AVENUE NW.

PROPOSED CONDITIONS

THE PROPOSAL FOR REPLATTING OF THIS SITE CONSIST OF VACATING ALL THE EXISTING LOT LINES REFERENCED ABOVE INTO ONE LEGAL TRACT FOR THIS APARTMENT COMPLEX.

AS SHOWN BY THE PLAN, THE PROJECT CONSISTS OF 3 MAIN BUILDINGS THAT ARE ADJACENT TO FOURTH STREET NW. ALL THE BUILDINGS ROOF WILL DISCHARGE IN A WESTERLY DIRECTION AND OUTFALL INTO A STORM DRAIN PIPE SYSTEM THAT WILL BE CONNECTED INTO WATER HARVESTING TANKS ALONG THE WEST END OF THE SITE. AN ASPHALT PAVED DRIVEWAY AND PARKING SPACES WILL BE CONSTRUCTED ALONG ON THE WEST SIDE OF THE BUILDINGS AND AT THE MOST WESTERN END PARKING SPACES WILL BE PROVIDED THAT CONSIST OF A PERMEABLE PAVEMENT SECTION TO HELP REDUCE RUNOFF.

ALONG THE MOST WESTERN BOUNDARY A 5 FOOT SECTION OF LANDSCAPING AND WATER HARVESTING AREA WILL BE PROVIDED TO CAPTURE RUNOFF FROM THE PARKING LOT. ADJACENT TO THIS LANDSCAPING AREA WATER HARVESTING TANKS WILL BE PROVIDED BELOW GRADE THAT WILL HAVE INLETS TO CAPTURE ANY REMAINING FIRST FLUSH DISCHARGE FROM THE PARKING AREA IN ADDITION TO THE ROOF DRAINAGE AREAS.

THE PLAN SHOWS PROPOSED ELEVATIONS AND GRADES WITH PROPOSED FINISH FLOOR ELEVATIONS IN ORDER TO PROPERLY DRAIN THE SITE. THE INTENT OF THE DRAINAGE PLAN WILL BE TO CAPTURE THE FIRST 0.5 INCHES OF RUNOFF FROM THE SITE AND ANY REMAINING FLOW BEYOND THE 0.5 INCHES WILL OVERFLOW ON THE SPILLWAY AT THE SOUTHERN DRIVEWAY LOCATED ALONG SUMMER AVENUE NW AND WILL DISCHARGE INTO THE INLETS ON FOURTH STREET NW.

THE CALCULATIONS WHICH APPEAR HEREON, ANALYZE BOTH THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6 HOUR RAINFALL RUNOFF FOR PEAK FLOWS AND STORM DURATION FOR VOLUME REQUIREMENTS. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS AS SET FORTH IN THE REVISION OF SECTION 22.7 HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993. THIS D.P.M. PROCEDURE IS USED FOR ANALYZING ONSITE FLOWS.

DOWNSTREAM CAPACITY

BASED ON THE 100-YEAR FLOOD PLAIN MAP THE STORM DRAIN SYSTEM WITHIN FOURTH STREET THAT IS ADJACENT TO THIS SITE DOES NOT SHOW WITHIN THE FLOODZONE AO (DEPTH 1); HOWEVER IT COULD BE THAT THERE IS LIMITED CAPACITY SINCE THERE IS A FLOODZONE AO (DEPTH 1) UPSTREAM OF THIS SITE AT THE NORTHEAST CORNER OF KINLEY AVENUE NW AND SUMMER AVENUE NW. SINCE THIS SITE WILL ACTUALLY BE REDUCING THE FLOW DUE TO THE DETAINAGE OF 0.5 INCHES OF RUNOFF ALONG WITH REDUCED IMPERVIOUS AREA THAN EXISTING CONDITIONS THIS SITE WILL ACTUALLY REDUCE THE RUNOFF TO DOWNSTREAM CAPACITY.

OFFSITE FLOWS

BASED ON THE TOPOGRAPHIC SURVEY IT APPEARS NO OFFSITE FLOW ENTERS THIS PROPERTY FROM THE STREET RIGHT-OFWAY OR ADJACENT PRIVATE PROPERTIES.

EROSION CONTROL

THE CONTRACTOR WILL BE REQUIRED TO PREPARE A STORM WATER POLLUTION PREVENTION PLAN FOR THE SITE PRIOR TO ROUGH GRADING OF THE SITE. THE CONTRACTOR WILL ALSO BE REQUIRED TO SECURE A TOP SOIL DISTRURBANCE PERMIT ALONG WITH A STORM WATER POLLUTION PREVENTION PLAN FROM THE EPA PRIOR TO ROUGH GRADING OF THE SITE.

THE CONTRACTOR WILL ALSO BE REQUIRED TO PROTECT EXISTING INLETS ADJACENT TO THE SITE WITH SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ORDER TO MINIMIZE SEDIMENT FROM ENTERING THESE INLETS.

DRAINAGE CALCULATIONS:

1. PRECIPITATION ZONE = 2

2. DESIGN STORM = DEPTH (INCHES) AT 100-YEAR STORM
   6-HOUR = 2.35 INCHES
   24-HOUR = 2.75 INCHES
   10 DAY = 3.95 INCHES

3. PEAK DISCHARGE (CFS/ACRE) FOR 100-YEAR, ZONE 2, TABLE A-9:
   Q = 1.56 CFS/ACRE SOIL UNCOMPACTED "A"
   Q = 2.28 CFS/ACRE LANDSCAPED "B"
   Q = 3.14 CFS/AC COMPACTED SOIL "C"
   Q = 4.70 CFS/ACRE IMPERVIOUS AREA "D"
   FOR WATERSHEDS LESS THAN OR EQUAL TO 40 ACRES

4. EXCESS PRECIPITATION, E (INCHES), FOR 100-YEAR, 6 HOUR STORM, ZONE 2, TABLE A-8:
   E = 0.53 INCHES SOIL UNCOMPACTED "A"
   E = 0.78 INCHES LANDSCAPED "B"
   E = 1.13 INCHES COMPACTED SOIL "C"
   E = 2.12 INCHES IMPERVIOUS AREA 'D"

5. EXISTING CONDITIONS ONSISTE FLOWS
   TOTAL AREA OF SITE = 0.98ACRES
   IMPERVIOUS AREA "D" = 0.98ACRES
   Q(EXISTING-6HR) = (4.70 X 0.98) = 4.61CFS (6HR) EXISTING 100-YEAR ONSITE FLOW RATE INTO EXISTING STORM DRAINS ADJACENT TO THE SITE ON FOURTH STREET NW
   V(PROPOSED-6HR) = ((2.12 X 0.98)/ 12)
   = 0.17AC-FT = 7,542CF EXISTING 100-YEAR ONSITE FLOW VOLUME INTO EXISTING STORM DRAINS ADJACENT TO THE SITE ON FOURTH STREET NW

6. PROPOSED CONDITIONS ONSITE FLOWS TO SAD STORM DRAIN
   DRAINAGE BASIN A-1
   TOTAL AREA = 42,602SF = 0.978ACRES
   ROOF AREA, TYPE "D" = 24,572SF = 0.564ACRES
   ASPHALT/CONCRETE/PUTTING GREEN AREA, TYPE "D" = 12,807SF = 0.294AC
   IMPERMEABLE PAVING, TYPE "B+/C-" = 3,496SF = 0.080
   LANDSCAPING AREA TREATMENT "B" = 1748SF = 0.040AC

TREATMENT	AREA(ACRES)
A	0
B	0.04
B+,C-	0.08
D	0.86

   Q(PROPOSED-6HR) = (2.28 X 0.04) + ((2.28 + 3.14)/2) X 0.08) + (4.70 X 0.86)
   = 4.35CFS (6HR) PROPOSED 100-YEAR ONSITE FLOW VOLUME INTO EXISTING STORM DRAINS ADJACENT TO THE SITE ON FOURTH STREET NW

   V(PROPOSED-6HR) = ((0.78 X 0.04) + ((0.78 + 1.13)/2 X 0.08) + (2.12 X 0.86))/ 12)
   = 0.16AC-FT = 7,009CF PROPOSED 100 YEAR ONSITE VOLUME INTO ONSITE INLET AND STORM DRAIN THEN INTO SAD STORM DRAIN

7. IMPACT OF THIS DEVELOPMENT ON DOWNSTREAM CAPACITY (100-YEAR, 6 HOUR STORM)
   Q(DELTA) = Q(PROPOSED) - Q(EXISTING) = 4.35CFS - 4.61CFS = **0.26CFS REDUCTION IN DOWNSTREAM FLOW FROM THIS DEVELOPMENT**

   V(DELTA) = V(PROPOSED) - V(EXISTING) = 7,009CF - 7,542CF = **533CF REDUCTION IN DOWNSTREAM FLOW VOLUME FROM THIS DEVELOPMENT**

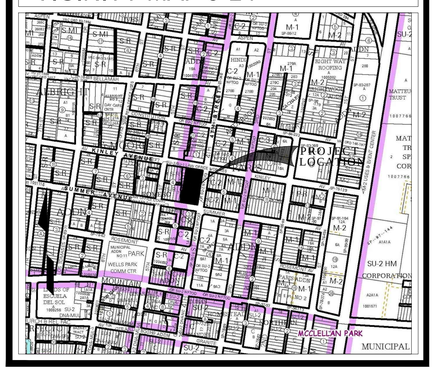
8. FIRST FLUSH STORM WATER CONTROL MEASURES PER ORDINANCE O-2013016
   FOR THE PURPOSED OF THE ORDINANCE THE 90TH PERCENTILE STORM EVENT IS 0.44INCHES FROM IMPERVIOUS ARES.
   V(FIRST FLUSH) = 0.44" X TREATMENT "D" = (0.44"/12"/') X 37,379SF = 1,371CF REQUIRED TO BE DETAINED FOR FIRST FLUSH

9. PER CITY ENGINEER SINCE THIS SITE IS IN VALLEY DETAIN 0.50" RUNOFF FOR IMPERVIOUS AREA REQUIREMENT
   V(0.50") = 0.50" X TREATMENT "D" = (0.50"/12"/') X 37,379SF = 1,557CF REQUIRED TO BE DETAINED FOR VALLEY REQUIREMENT

10. DETERMINE VOLUME PROVIDED AT ELEVATION 4960.15
    BASED ON COMPUTER COMPARISON VOLUME ANALYSIS OF ELEVATION 4960.15 RELATIVE TO NEW GRADES VOLUME PROVIDED = 2441CF > 1,557CF OK
    PROPOSED ONSITE VOLUME MEETS 0.5" RUNOFF AND FIRST FLUSH REQUIREMENTS

FLOOD INSURANCE RATE MAP

VICINITY MAP J-14



AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
ACCEPTANCE BY — DATE
VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
BENCHMARK IS AN A.C.S. MONUMENT "17-J14", ELEVATION = 4957.484, (NAVD 1988) THE STATION MARK IS A C.L.A. SURVEY CONTROL 3-1/4" ALUMINUM DISC STAMPED 17-J14 1983", SET FLUSH WITH THE TOP OF THE CONCRETE AT THE WEST SIDE OF THE INTERSECTION IN THE MEDIAN OF EIGHTH STREET N.W. AND LOMAS AVENUE N.W.

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
ALBERT W. DEE
10848
06-12-14
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

REMARKS | NO. | DATE | BY
REVISIONS
DESIGN — DATE
DESIGNED BY — DATE
DRAWN BY — DATE
CHECKED BY — DATE

APPLIED ENGINEERING AND SURVEYING, INC.
ENGINEERS AND PLANNERS
1605 Blair Drive NE, Albuquerque, New Mexico 87112
Office: (505) 237-1406 Facsimile: (505) 237-1406

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING DEVELOPMENT GROUP

TITLE: DRAINAGE ANALYSIS
CUATRO DEVELOPMENT

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.
FOR INFORMATION ONLY				

City Project No. TBD | Zone Map No. TBD | Sheet 1 Of 5