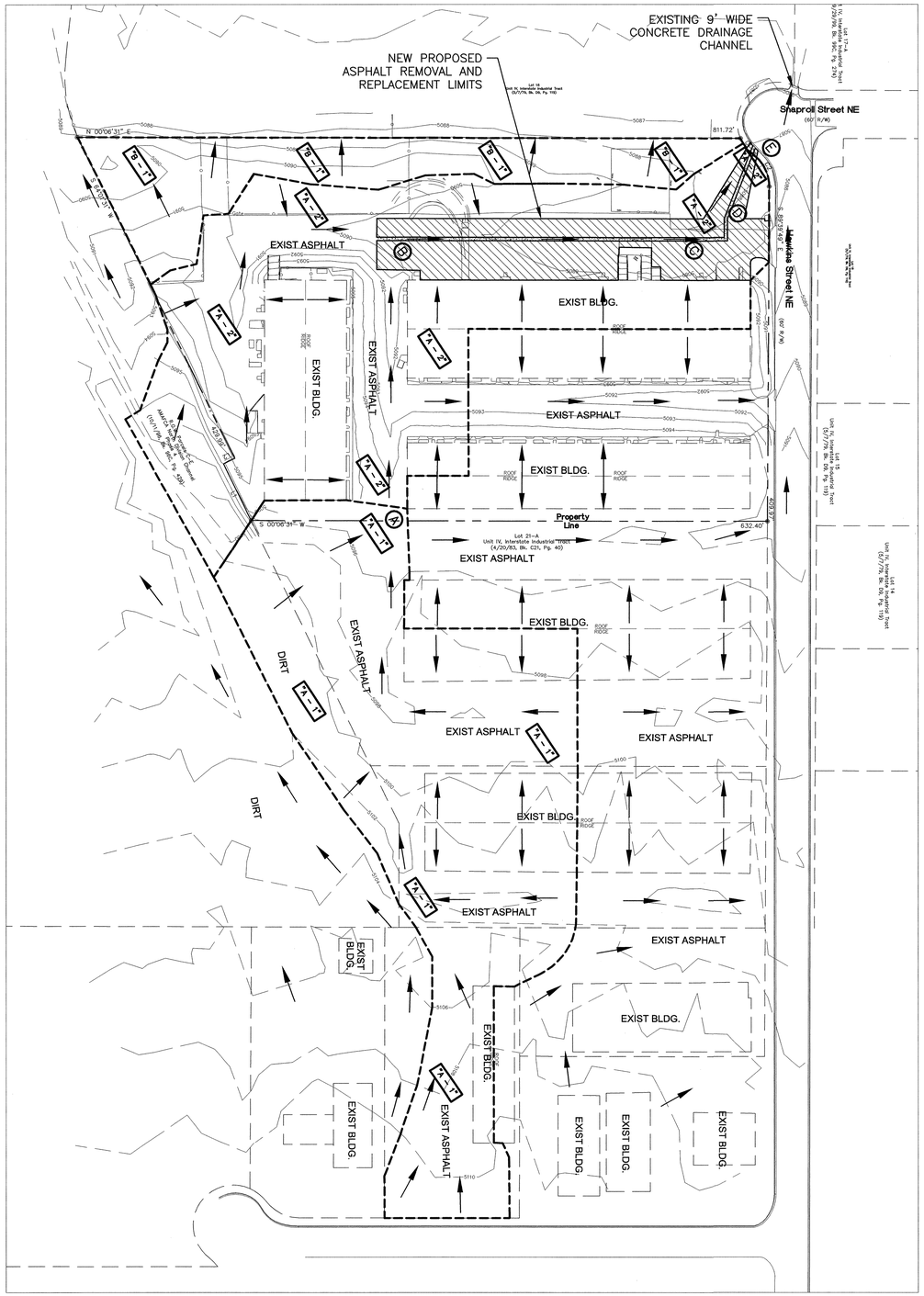

DRAINAGE BASIN BOUNDARY MAP

SCALE: 1" = 80'

DRAINAGE PLAN

THE FOLLOWING ITEMS ARE IN REFERENCE TO PROPOSED PAVING IMPROVEMENTS TO AN EXISTNG WAREHOUSE DEVELOPMENT LOCATED AT 3768 HAWKINS STREET NE IN A PORTION OF LOT 19, INTERSTATE INDUSTRIAL TRACT UNIT IV, ALBUQUERQUE, NEW MEXICO, GRADING AND DRAINAGE PLAN ARE CONTAINED HEREON:

1. DRAINAGE CALCULATIONS
2. VICINITY MAP (D-17)
3. FLOOD INSURANCE RATE MAP 35001C0136 G
4. GRADING PLAN

EXISTING CONDITIONS

AS SHOWN BY THE VICINITY MAP, THE SITE CONTAINS APPROXIMATELY 7.90 ACRES AND IS LOCATED AT THE SOUTHEAST CORNER OF SNAPROLL STREET NE AND HAWKINS STREET NE (SEE ATTACHED VICINITY MAP D-17). THIS DEVELOPMENT IS CLASSIFIED AS AN INFILL SITE, PER CITY CRITERIA, SINCE THE SURROUNDING AREA IS COMPLETELY DEVELOPED.

THE SITE'S EXISTING TOPOGRAPHY SLOPES FROM AN EAST TO WEST DIRECTION AT A SLOPE OF APPROXIMATELY 1.2%. THE SITE CURRENTLY HAS EXISTING BUILDINGS THAT CONTAINS ABOUT 2.56ACRES AND EXISTING ASPHALT PAVING CONTAINING ABOUT 3.20ACRES WITH THE REMAINDER OF THE SITE CONSISTING OF COMPACTED BASECOURSE CONTAINING 2.13ACRES. THE MAJORITY OF THE LOT DRAINS IN A WESTERLY DIRECTION TO THE WESTSIDE OF THE MOST WESTERLY BUILDING THAN MEANDERS IN A NORTHERLY DIRECTION AND EVENTUALLY OUTFALLS INTO THE CUL-DE SAC AT THE INTERSECTION OF SNAPROLL STREET NE AND HAWKINS STREET NE THROUGH A 5'-6" WIDE CURB OPENING IN THE EXISTING CURB. THIS FLOW THAN GOES WEST ACROSS THE CUL-DE-SAC INTO AN EXISTING 9' WIDE CONCRETE CHANNEL THAT OUTFALLS AND CONNECTS INTO THE EAST SIDE OF THE AMAFCA NORTH DIVERSION CHANNEL.

THE MOST WESTERLY PORTION OF LOT 19 SHEETFLOWS IN A WESTERLY DIRECTION ONTO LOT 18 AS SHOWN ON BASIN "B-1".

THE SITE IS LOCATED ON FIRM MAP 35001C0136 G AND IS NOT LOCATED WITHIN A 100-YEAR FLOODPLAIN.

PROPOSED CONDITIONS

AS SHOWN BY THE GRADING PLAN PREPARED FOR THIS SITE, THE INTENT IS TO REMOVE EXISTING ASPHALT PAVING AND REGRADE THE NEW ASPHALT PAVING ALONG THE WESTERLY BUIILDING IN ORDER TO FLOW IN THE SAME DIRECTION AS IT CURRENTLY EXIST TODAY. DUE TO MINIMAL SLOPES IN A SOUTH TO NORTH DIRECTION A CONCRETE VALLEY GUTTER WILL BE PROVIDED TO BETTER DIRECT THE ONSITE FLOWS FROM BASIN A-2 AND OFFSITE BASIN A-1 TO THE NORTHWEST END OF THE SITE AND DISCHARGE INTO THE EXISTING CURB CUT AT THE CUL-DE-SAC AT SNAPROLL STREET NE AND HAWKINS STREET NE.

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

THE OVERALL PROPOSED PEAK FLOW AND VOLUME IS EQUIVALENT TO THE EXISTING CONDITIONS AS THEY EXIST TODAY SINCE THIS PROJECT IS ONLY REPAVING AND REGRADING THE PROPOSED NEW PAVED AREA. OTHER EXISTING ASPHALT AREAS ON THE SITE WILL BE PATCHED ON AREAS THAT ARE ALLIGATOR CRACKED WITH NO CHANGES IN EXISTING GRADING AND RESEALING OF EXISTING ASPHALT. BASED ON THIS ANALYSIS THIS RE-PAVING DOES NOT AGGRAVATE THE EXISTING DOWNSTREAM CAPACITY SINCE THERE IS NO INCREASE IN FLOWS. ALSO THIS SITE IS ADJACENT TO THE AMAFCA NORTH DIVERSION CHANNEL.

OFFSITE FLOWS

BASED ON A FIELD VISIT AND TOPOGRAPHIC CONTOUR INFORMATION WE HAVE OFFSITE FLOWS THAT DRAIN FROM THE EAST ONTO THE REFERENCED LOT (SEE OFFSITE BASIN A-1). IT IS THE INTENT OF THIS DRAINAGE STUDY TO INCORPORATE ONSITE DRAINAGE IMPROVEMENTS TO ACCEPT THESE FLOWS AND ALLOW THESE FLOWS TO CONTINUE DRAINING TO THE AMAFCA NORTH DIVERSION CHANNEL AS THEY CURRENTLY DRAIN TODAY.

AT ANALYSIS POINT "A" SHOWN ON THE DRAINAGE BASIN MAP IT APPEARS THAT THE FLOWS SPLIT IN HALF AT THIS LOCATION BASED ON THE TOPOGRAPHIC INFORMATION AND FIELD VERIFICATION. FIFTY (50%) PERCENT OF OFFSITE BASIN "A-1" WILL BE ACCOMMODATED INTO BASIN "A-2". THE OTHER 50% FLOWS NORTH IN THE EXISTING ASPHALT SWALE TO THE NORTH AND DISCHARGES INTO HAWKINS STREET NE.

EROSION CONTROL

TEMPORARY EROSION CONTROL WILL BE REQUIRED DURING THE CONSTRUCTION PHASE TO PROTECT DOWNSTREAM DRAINAGE INFRASTRUCTURE FROM SEDIMENT AND UNCONTROLLED RUNOFF (SEE THE EROSION CONTROL PLAN). IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY MAINTAIN THE EROSION CONTROL RECOMMENDATIONS (BMP's) DURING THE ENTIRE CONSTRUCTION PHASE OF THE PROJECT UNTIL SUCH TIME OF CITY OR ENGINEER'S ACCEPTANCE.

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. EXCESS PRECIPITATION, E (INCHES), FOR 10-YEAR, 6 HOUR STORM, ZONE 2, TABLE A-8 :
   E = 0.13 INCHES SOIL UNCOMPACTED "A"
   E = 0.28 INCHES LANDSCAPED "B"
   E = 0.52 INCHES COMPACTED SOIL "C"
   E = 1.34 INCHES IMPERVIOUS AREA 'D"

6. EXISTING CONDITIONS FLOWS BASIN A-2 (ONSITE TO CUL-DE-SAC)
   TOTAL AREA = 4.90ACRES
   TYPE "D" TREATMENT = EXISTING ROOF AREAS (27,184SF + 29,744SF + 2,991SF) + EXISTING CONCRETE AND PAVED AREAS (101,058SF) = 160,977SF = 3.70AC
   TYPE "B" TREATMENT = LANDSCAPED AREAS (0SF) = 0.00AC
   TYPE "C" TREATMENT = REMAINING COMPACTED GRAVEL AND DISTURBED AREAS COMPACTED BY HUMAN ACTIVITY = 4.90AC - 3.70AC = 1.20AC

TREATMENT	AREA(ACRES)
A	0
B	0
C	1.20
D	3.70

   Q(EXISTING-6HR) = (3.14 X 1.20) + (4.70 X 3.70)
   = 21.16CFS (6HR) EXISTING ONSITE FLOW INTO CUL-DE-SAC
   V(EXISTING-6HR) = ((1.13 X 1.20) + (2.12 X 3.70))/ 12)
   = 0.77AC-FT = 33,396CF EXISTING VOLUME INTO CUL-DE-SAC

7. EXISTING CONDITIONS FLOWS BASIN "A-1" (OFFSITE)
   TOTAL AREA = 4.33ACRES
   TYPE "D" TREATMENT = EXISTING ROOF AREAS (13,535SF + 22,423SF + 5,103SF) + EXISTING CONCRETE AND PAVED AREAS (127,814SF) = 168,875SF = 3.88AC
   TYPE "B" TREATMENT = LANDSCAPED AREAS (0SF) = 0.00AC
   TYPE "C" TREATMENT = REMAINING COMPACTED GRAVEL AND DISTURBED AREAS COMPACTED BY HUMAN ACTIVITY = 4.33AC - 3.88AC = 0.45AC

TREATMENT	AREA(ACRES)
A	0
B	0
C	0.45
D	3.88

   Q(EXISTING-6HR) = (3.14 X 0.45) + (4.70 X 3.88)
   = 19.65CFS (6HR) EXISTING ONSITE FLOW
   50% INTO BASIN "A-2" = 0.50 X 19.65CFS = 9.82CFS ONTO BASIN "A-2"
   V(EXISTING-6HR) = ((1.13 X 0.45) + (2.12 X 3.88))/ 12)
   = 0.73AC-FT = 31,705CF EXISTING ONSITE VOLUME
   50% INTO BASIN "A-2" = 0.50 X 0.73AC-FT = 0.37AC-FT = 15,899CF

8. EXISTING CONDITIONS ONSITE FLOWS INTO CUL-DE-SAC AT HAWKINS STREET THAN INTO AMAFCA NORTH DIVERSION CHANNEL DRAINAGE BASIN A-2 (ONSITE) AND BASIN (A-1) OFFSITE; ANALYSIS POINT "C"
   Q = 21.16CFS + 9.82CFS = 30.98CFS
   V = 0.77AC-FT + 0.37AC-FT = 1.14AC-FT

9. EXISTING CONDITIONS FLOWS BASIN "B-1" (INTO ADJACENT LOT 18)
   TOTAL AREA = 1.26ACRES
   TYPE "C" TREATMENT = COMPACTED GRAVEL AND DISTURBED AREAS COMPACTED BY HUMAN ACTIVITY = 1.26AC

TREATMENT	AREA(ACRES)
A	0
B	0
C	1.26
D	0

   Q(EXISTING-6HR) = (3.14 X 1.26) = 3.97CFS (6HR) EXISTING ONSITE FLOW
   V(EXISTING-6HR) = ((1.13 X 1.26) / 12)
   = 0.12AC-FT = 5,227CF EXISTING ONSITE VOLUME

10. PROPOSED CONDITIONS FLOWS BASIN A-2 (ONSITE)
    TOTAL AREA = 4.90ACRES
    TYPE "D" TREATMENT = EXISTING ROOF AREAS (27,184SF + 29,744SF + 2,991SF) = 1.38AC
    PROPOSED CONCRETE AND PAVED AREAS (99,920SF) = 2.29AC
    TYPE "B" TREATMENT = LANDSCAPED AREAS (0SF) = 0.00AC
    TYPE "C" TREATMENT = REMAINING COMPACTED GRAVEL AND DISTURBED AREAS COMPACTED BY HUMAN ACTIVITY = 4.90AC - 1.38AC - 2.29AC = 1.23AC

TREATMENT	AREA(ACRES)
A	0
B	0
C	1.23
D	3.67

    Q(PROPOSED-6HR) = (3.14 X 1.23) + (4.70 X 3.67)
    = 21.11CFS (6HR) PROPOSED ONSITE FLOW INTO CUL-DE-SAC
    V(EXISTING-6HR) = ((1.13 X 1.23) + (2.12 X 3.67))/ 12)
    = 0.76AC-FT = 33,106CF EXISTING VOLUME INTO CUL-DE-SAC

11. PROPOSED CONDITIONS ONSITE FLOWS INTO CUL-DE-SAC AT HAWKINS STREET THAN INTO AMAFCA NORTH DIVERSION CHANNEL DRAINAGE BASIN A-2 (ONSITE) AND BASIN (A-1) OFFSITE; ANALYSIS POINT "C"
    Q = 21.11CFS + 9.82CFS = 30.93CFS
    V = 0.76AC-FT + 0.37AC-FT = 1.13AC-FT

12. IMPACT OF THIS PAVING ON DOWNSTREAM CAPACITY (100-YEAR, 6 HOUR STORM)
    Q (EXISTING-6HR) RELEASE RATE FOR SITE = 21.16CFS
    Q (PROPOSED-6HR) RELEASE RATE FOR SITE = 21.11CFS
    Q (DIFFERENCE-6HR) = 21.16CFS - 21.11CFS = **0.05CFS DECREASE TO DOWNSTREAM CAPACITY**

    V (EXISTING-6HR) RUNOFF VOLUME FOR SITE = 33,396CF
    V (PROPOSED-6HR) RUNOFF VOLUME FOR SITE = 33,106CF
    V (DIFFERENCE-6HR) = 33,396CF - 33,106CF = **290CF DECREASE TO DOWNSTREAM CAPACITY**

13. SEE HYDRAULIC ANALYSIS SHEET C102.

DRAINAGE LEGEND

"A – 1"	DRAINAGE BASIN ID NUMBER
----------	DRAINAGE BASIN BOUNDARY
(B)	DRAINAGE ANALYSIS POINT
→	DRAINAGE BASIN FLOW DIRECTION

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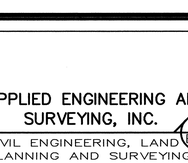

3768 HAWKINS PAVING IMPROVEMENTS

ALBUQUERQUE, NEW MEXICO

MARK	DATE	DESCRIPTION
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-	-	-
-	-	-
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PROJECT NUMBER:	140101 HAWKINS
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DATE:	APRIL 21, 2014

SHEET TITLE
PROPOSED DRAINAGE PLAN

SHEET NUMBER
C101