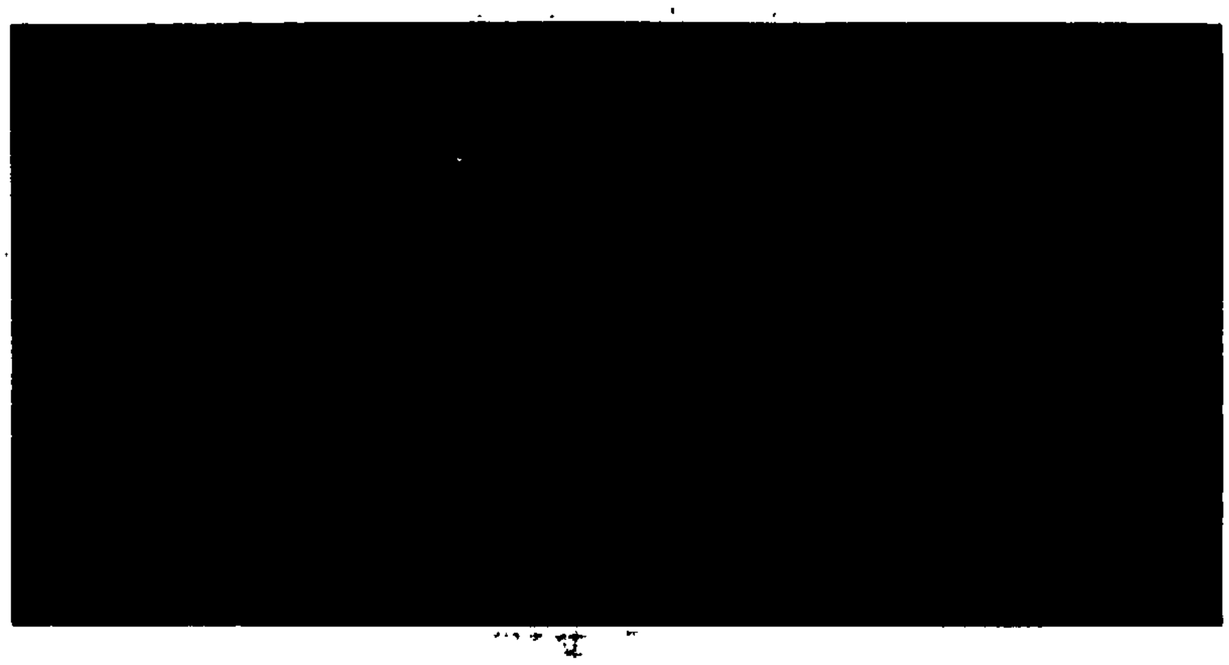
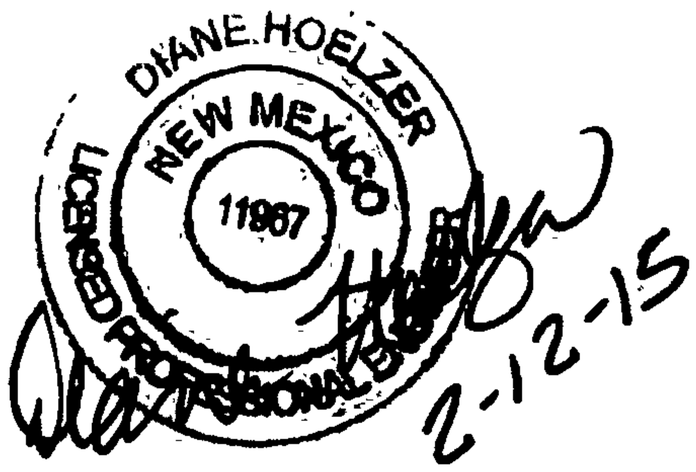


N8D0061

MARK GOODWIN
& ASSOCIATES
CONSULTING ENGINEERS

Anderson Heights Unit 4
(Residential Subdivision)

Drainage Management Plan



Prepared by
Mark Goodwin & Associates, P.A.

February 2015

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Anderson Heights Unit 4 (4A, 4B, 4C, 4D, 4E, 4F) Building Permit #: _____ City Drainage #: N-8/ D006F

DRB#: 1002739 EPC#: _____ Work Order#: _____

Legal Description: Parcels 4 and 6, Anderson Heights Unit 1 AND Anderson Heights Unit 9

City Address: between Colobel Avenue and Amole Mesa Road

Engineering Firm: Mark Goodwin & Associates, PA Contact: Diane Hoelzer

Address: PO Box 90606, ABQ, NM 87199

Phone#: 828-2200 Fax#: _____ E-mail: _____

Owner: KB Home Contact: _____

Address: 7807 E. Peakview Avenue, Ste. 300, Centennial, CO 80111

Phone#: 303-323-1102 Fax#: _____ E-mail: _____

Architect: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: ALS, Inc. Contact: Tim Aldrich

Address: PO Box 30701, ABQ, NM 87190

Phone#: 328-3988 Fax#: _____ E-mail: _____

Contractor: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

x DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
x GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
x PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
x GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: February 13, 2015 By: Diane Hoelzer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

Anderson Heights – Unit 4
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V. INTERIM DRAINAGE CONDITIONS FOR PHASED CONSTRUCTION

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POCKET 3 STREET CAPACITY EXHIBIT
PRELIMINARY STORM DRAIN LAYOUT

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

February 12, 2015

Mr. Rita Harmon, PE
Hydrology Division, Planning Dept.
Development and Building Services
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Anderson Heights Unit 4 Grading and Drainage Plan
Revised Engineers stamp date 2-12-15 (N08 / D006F)

Dear Ms. Harmon;

In response to your comment letter dated 9-5-14, your comments are addressed below:

1. *Tract T and U have been reconfigured to provide an exclusive 20' wide public drainage easement adjacent to a 25' public SAS/WL easement.*
2. *The drainage easement in Tract LL has been increased to 30 feet wide.*
3. *The first flush will be managed in the downstream 'regional' detention pond that was master planned 7-10 years ago for this site. The pond depth will be increased to accommodate the first flush volume from this project. The first flush calculations are in Appendix C.*
4. *The project site will be mass graded with temporary ponds located and sized as shown on the 'Phased' Grading and Drainage Plan.*
5. *After discussion with Aspen wall builders, it is my understanding that the existing retaining walls along the property boundary were initially constructed under the direction and design of the owners of the Arrowood subdivision. At a later date, the additional second retaining wall adjacent to the first one was designed and permitted by the City of Albuquerque under the supervision of Aspen. As you know the initial retaining wall along the boundary has been in place for probably 8-11 years. Since I cannot guaranty or verify the structural integrity of someone else's work, if the City insists on verification of the structural stability of these walls, I will suggest that they be completely removed and replaced with new retaining walls. The new top and bottom of wall elevations along the eastern boundary are as indicated. It is likely that the disruption caused by the removal and replacement of the existing retaining walls along the existing adjacent property owners will create considerable complaints to the City.*
6. *Details on the grading plan have been revised.*
7. *Clarification to be provided on the revised grading plan. All information from the surveyor is from the new datum.*
8. *Ok.*
9. *Ok.*
10. *The shading and the hatching and double hatching is shown in the legend on all three grading plan sheets. They indicate either single, double or triple retaining walls. Garden walls are not shown on the plan, only retaining walls. The wall between 58 and 59 is a single retaining wall. It may look a little odd because the property line shows through the shading. The wall along Tract TT is a single retaining wall.*
11. *There are retaining walls on either side of Tract U.*
12. *The waterblock was raised.*
13. *Ok.*
14. *This detail has been deleted.*
15. *Ok.*
16. *I use the city standard table from the DPM, Plate 22.3 D-5 and D-6. This plate is now included in the report.*
17. *Runoff from the Memorial Park has been added to the street capacity analysis.*

showing a DBL retaining wall or is legend wrong?

18. There is no retaining wall along this boundary that is greater than 8.0 feet, so a double retaining wall should not be necessary.
19. Why ? Street slopes are indicated on the Street Capacity Exhibit and in the Street Capacity Summary Table where this information is relevant for calculation and analysis.
20. The storm drain is designed in enough detail to be assured that it will work. Detail design for the storm drain will be provided during DRC. On the shorter segments, Mannings Equation and the road grade slopes were used to size the storm drain pipe. All storm drain analysis is provided in Appendix D.
21. A sub basin boundary exhibit, preliminary storm drain layout exhibit and street capacity exhibit have been provided to facilitate understanding the drainage system. The Street Capacity Summary table indicates how much flow is added to get to the next analysis point. The Street Capacity Exhibit also shows the sub basin ID and the associated discharge value.
22. Sump conditions have been more clearly indicated on the Street Capacity exhibit that follow more accurately what is also indicated on the Street Capacity Summary Table.
23. Banner/Board Sump condition has been added to the Street Capacity Summary Table.
24. Inlets have been added in Colobel Avenue that will intercept all the flow.
25. No.
26. The labels for sub basins 31 and 33 have been corrected.
27. The temporary ponds have been added to the infrastructure list. Did not find
28. The property line is at the high side of the tie slope.
29. Ok.

Because Contractors Do not look @ Tables

NOT Provided Should be on Storm drain layout

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

Diane Hoelzer

Diane Hoelzer, PE
Senior Engineer

DLH/dlh
f:\13034 \Anderson heights 4\ hydro_ltr_13034_2.docx

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

September 5, 2014

Diane Hoelzer, P.E.
Mark Goodwin & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

RE: **Anderson Height Unit 4**
Drainage Report, Grading & Drainage Plan
Engineer's Stamp Date 6-27-2014 (File: N08D006F)

Dear Ms. Hoelzer:

Based upon the information provided in your submittal received 8-4-14, the above referenced plan cannot be approved for Grading and Paving Permit until the following comments are addressed:

1. Hydrology would like exclusive drainage easements or provide a trench prism on Tract T and U.
2. Tract LL should be at least 30' wide based on formula in DPM pg. 22-172 assuming a depth of 10'.
3. Address how the first flush is to be managed on the site plan and Grading and Drainage plan.
4. If the subdivision is to be phased, provide a Grading and Drainage plan for each phase showing how drainage is to be managed in the interim stages and the order of phasing. The plan for each phase should how each phase will tie into the existing contours, and the size and location of the temporary ponds. Temporary ponds should show the WSEL, emergency overflow, and volume.
5. Per our conversation, I understand that the second retaining wall along the east property line which was installed for the interim conditions is to be removed in its entirety. However, there are concerns about the original retaining wall built with the Arrowwood subdivision, especially since a wall failure occurred sometime in the past. From my research, I found the following:

a. The *Arrowhead Hills G&D Plans* for the development to the east, by Wilson and Company (engr's stamp date 10-12-05 and certified 9-19-06, Drainage file N9D008A) has a note: RETAINING WALL BY OTHERS COA 753981. It is unknown if the retaining wall was designed to retain the grades from the *Anderson Heights Grading and Drainage Plan by Greg Krenik dated 4-14-05(Sht 6 &7) and 4-27-05(Sht 9)* or the existing grades. The existing grades were at or below the Arrowwood subdivision grades.

b. We do not have in our records calculations showing that the original retaining wall was checked for additional pressures from the second retaining wall (as requested in a letter by Brad Bingham dated 12-4-2008), and may be overloaded at the present. It is our opinion that a structural engineer needs to evaluate the integrity

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

of the original wall built with the Arrowwood Subdivision. If further information on the original wall is not obtained, a second wall will need to be designed and constructed parallel to the original wall. The footing will need to be deep enough (or further from the original wall) such that additional pressures are not placed on the original wall.

c. The TW Elevation needs to be clarified. If typically the TW Elevation is the top of the structurally designed retaining wall, then the TW Elevation should average about 50' according to the as-built plans. The proposed plans show the average TW to be about 60'. The 10' difference leads me to believe that about 3.5' is a datum correction and the other 6.5' is a screen wall (or garden wall) built above the retaining wall. From my field visit, there is no visible joint (or change in block size) in the masonry where a surveyor would be able to determine the elevation of the top of the retaining wall.

6. Indicate that there are two walls along the east property line. Indicate that the existing second wall is to be removed.
7. BW Elevations do not match up with the As-built BW elevations from the *Arrowhead Hills G&D Plans* nor the *Anderson Heights Unit 9 G&D plan*, stamped 9-10-07 in some areas. There is a 3.5' difference at one point. The existing contours along the wall do not match the TW elevations from *Anderson Heights Unit 9 G&D plan* stamped 9-10-07. For example, at 500' from the south property line the contour shows 57' along the wall, but the older plan says the TW is 53.55. As we have already discussed, the datum needs to be corrected. I am assuming the proposed contours are in the '88 datum. Are the existing contours in the '88 or the '29 datum? They should be the same datum. Further evidence that there are 2 different datums being used is at the west property line where some spot elevations do not match major existing contours.
8. Provide more elevation labels of the existing grade contours.
9. A retaining wall is needed on west side of Lot 23-P1, along Emerald Peak Street.
10. What is the meaning of the hatching used between lots (ie. Between lots 58-P1 and 59-P1)? It is not on the legend. It seems to be a retaining wall in some cases (lots along Tract TT) but it is also used where a retaining wall would not be necessary (ie. Lots 1-P1 and 2-P1). Clearly indicate what walls are retaining and what walls are screen walls/ garden walls.
11. What do solid lines on either side of Tract U indicate? retaining walls?
12. Water block should be raised at Barrow Road access from 118th Street.
13. Show proposed contours at the memorial park (Tract UU), the private park (Tract VV) and Tracts Z, A, and B.
14. The side yard detail on Sheet 2 has a High Pad and a High Pad 2. Where does this apply? What is the meaning of the "10' Interim Condition" note? It seems to be a detail carried from an older plan. Does it still apply?
15. On Subbasin Boundary Exhibit, remove the Zone Boundary line running N-S along Ironwood Hill St. as it makes it difficult to determine the basin boundaries.
16. Provide calculations of inlet capacities to support Table 2, Summary of Street Capacity Calculations ?
17. Table 2, Summary of Street Capacity Calculations indicate that inlets in Crag Peak are not picking up runoff from Tract UU (Memorial Park). Where is runoff from Memorial Park captured? If inadvertently left out, will EG in Pine Town Road pass the 0.87' at edge of ROW?

18. Double Retaining wall needed on Tract Y, between Lots 1-4 and Lots 5-8
19. Provide street slopes more often or where needed.
20. It is much too time consuming to review the storm drain pipes by trying to analyze the program output, trying to match the program output to the stationing, finding where and how much Q's are input, and the invert elevations (especially since the datum needs to be corrected). Please provide a graphical representation that will easily allow me to review the output, the pipe capacity, where and how much Q is being added, the invert elevations, and the HGL.
21. When reviewing the Summary of Street Capacity Calculations , it would be helpful if you indicated where each added Q is coming from, ie. What basins? What % of a basin is contributing?
22. Include in Table 2 inlets in Dundee St. near MH#8A. Sump Condition? SD Layout plan says 11.44 cfs but Street Capacity exhibit says 27.07cfs (or 13.53 cfs to each inlet). I agree with the 27.07 cfs , but 6.37cfs from Basin 31 may need to be included. If so the inlets in sump conditions should have a 16.72 cfs capacity . Provide inlet capacity calculations. Inlets in the sump condition should have double the capacity.
23. Include in Table 2, the inlets at intersection of Bord Peak Road and Banner Peak Road. Show Inlet Type and number.
24. Table 2, Summary of Street Capacity Calculations indicates that Colobel Avenue has a total of 4 Single-A inlets, without capturing the total flow (3.46 cfs not captured). Plans show 3 inlets. It appears that at least another inlet is needed along the South side of Corobel Road, near Gaunt. Also show how/where the bypass flow is being captured.
25. In Table 1, Summary of Street Capacity Calculations, is the second line item "Bord Peak" supposed to be "Deer Field" to correspond to the HEC-2 run?
26. Labels of Basin 31 and 33 are incorrectly labeled on the Basin Boundary Map, as noted from the corresponding calculations.
27. Volumes of the Temporary Ponds need to be shown on the Infrastructure List as well as Agreements and Covenants listed with the Pond.
28. Where is the property line along the tie slopes used in Unit 4F (between the rear yards). Verify that he property line is at the high end of the tie slope.
29. In the interest of time, I reviewed the grades in Units 4A and 4B thoroughly, and more generally for the remaining Units. I will review the grades in the remaining units in more detail in the next submittal.

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

I. PROJECT DESCRIPTION

The Anderson Heights Unit 4 project site covers an area of approximately 87 acres. It was formerly known as Anderson Heights Unit 4, 6 and 9, (drainage file N-8/P-8) and was part of a larger development also known as Anderson Heights. This project proposes to develop 474 single family residential lots with all private streets in 6 phases (A.K.A. Units 4A thru 4F). There is an internal 1.0 acre private park along with substantial community open space areas. There will also be a 2.0 acre parcel that will be dedicated to the city of Albuquerque that will be developed into a Memorial Park. The project will tie into existing roads and existing water, sanitary sewer and storm drain infrastructure located in Amole Mesa to the north, 118th street to the west and to Colobel Avenue to the south. There are existing subdivisions to the north, south and east of this project. On a larger scale, this project is located between Gibson Blvd. and Dennis Chavez Blvd. and west of 98th street in the southwest part of Albuquerque.

II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 6-hour storm event was analyzed to determine street capacities and sizing of the storm drain system using P(1 hr)=1.90", P(6 hr)=2.23". The onsite Land Treatment values used were based on Table A-5, in the DPM.

This project site was formerly known as Anderson Heights Unit 4 and 6 and Unit 9. Upon DRB approval of the grading and drainage plan and preliminary plat for Units 4, 6 and 9, the site was mass graded. At a later date the lot layout was changed for Unit 4 and 6 and a new G&D plan and preliminary was submitted and approved but the site was never regraded to this new layout configuration. The clients moved forward with Unit 9, completing construction plans, and filing the plat, but no construction was ever initiated beyond rough grading. When the economy tanked, development was suspended indefinately. In 2007-2008, an interim grading plan was approved with interim ponds to retain onsite flows. This grading plan was implemented and certified. The existing project site conditions reflect the original grading scheme as well as the interim ponds.

A LOMR was approved by FEMA for the 118th street ponds that ultimately took this project site out of the floodplain (refer to Figure 3 – FEMA panel 35001C0317).

Anderson Heights master drainage plan included drainage solutions for all the Units (1 thru 9) in Anderson Heights, which included detention ponds and storm drain systems. The drainage plan for this site involves collection of all the onsite runoff to the southeast corner where it is to be intercepted by an existing 72"-78" RCP storm drain and conveyed south through Gault Trail in the existing Anderson Heights Unit 3 subdivision to an existing regional detention pond. The construction plan for this existing storm drain can be found in Appendix C. There is also an existing storm drain in Colobel Avenue that was to intercept flows at several locations along the southern boundary of the project site. This storm drain will require some modification to accommodate the new layout configuration. The RECORD DRAWING as builts can be found in Appendix D.

III. EXISTING DRAINAGE CONDITIONS

Under existing conditions, onsite runoff is conveyed to the numerous onsite temporary retention ponds. The topography in the area is generally in an eastward direction. There are no offsite flows that enter the site. The 118th street ponds along the western boundary intercept offsite flows from the major arroyos to the west and convey runoff south to the existing concrete channel located along the north side of Dennis Chavez Blvd. There is an existing storm drain in Colobel Avenue and in Gault Trail that was designed to intercept all the runoff from this site and discharge into the existing Pond 10. The RECORD DRAWING as builts for these existing storm drains can be found in Appendix D.

IV. DEVELOPED DRAINAGE CONDITIONS

Under developed conditions, onsite runoff will be conveyed as surface flow in the street sections. At the point that runoff approached top of curb, inlets and an underground storm system will intercept and convey flow ultimately to the Regional Pond located in the existing Anderson Heights Unit 3 subdivision.

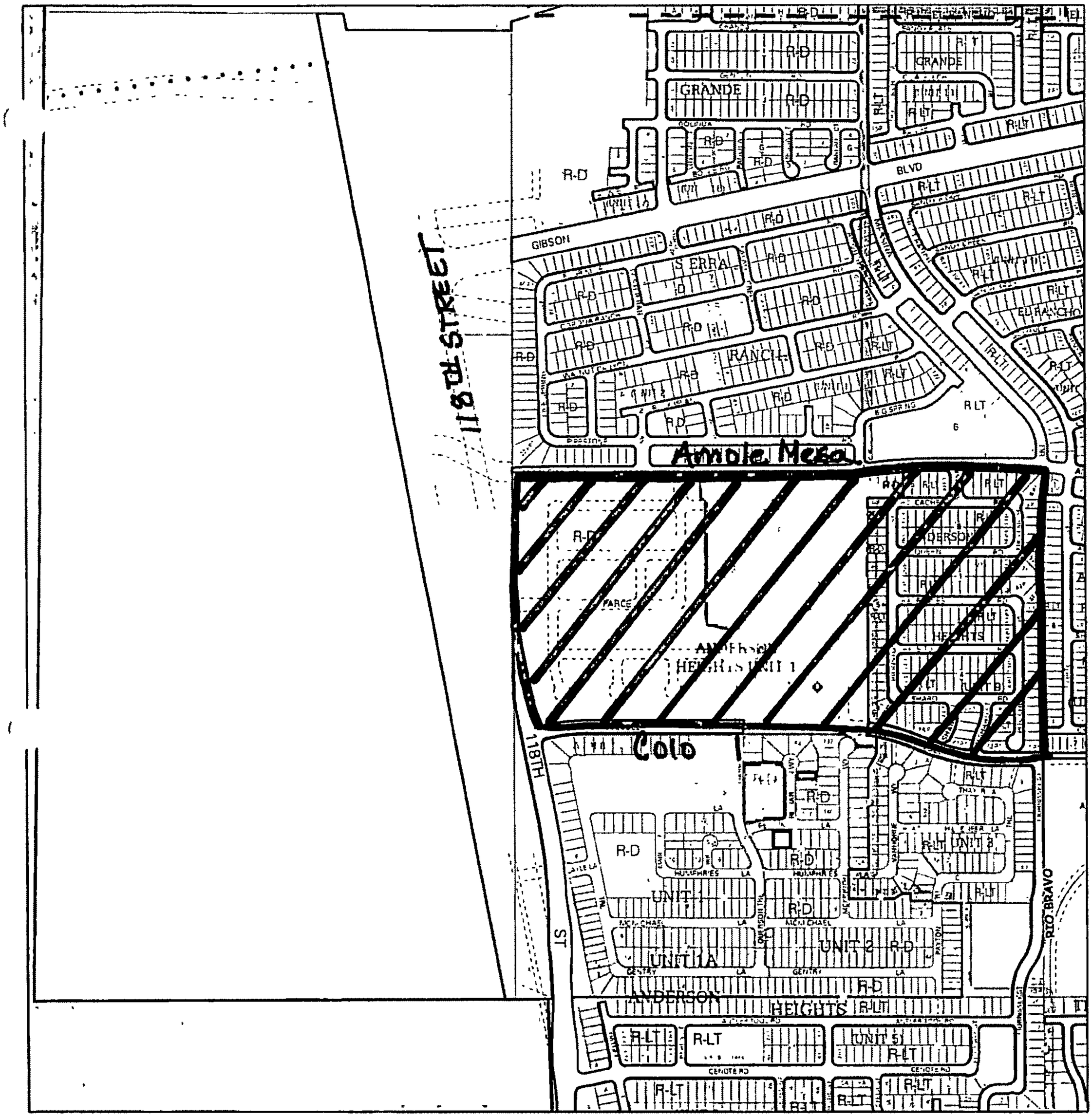
The first flush retention will be handled by deepening the regional pond by 10.5 inches.

The AHYMO hydrology analysis and summary table can be found in Appendix A.
The summary of the street capacity calculations and exhibit can be found in Appendix B.
The first flush calculations and design can be found in Appendix C.
The preliminary storm drain design analysis and preliminary layout can be found in Appendix D.

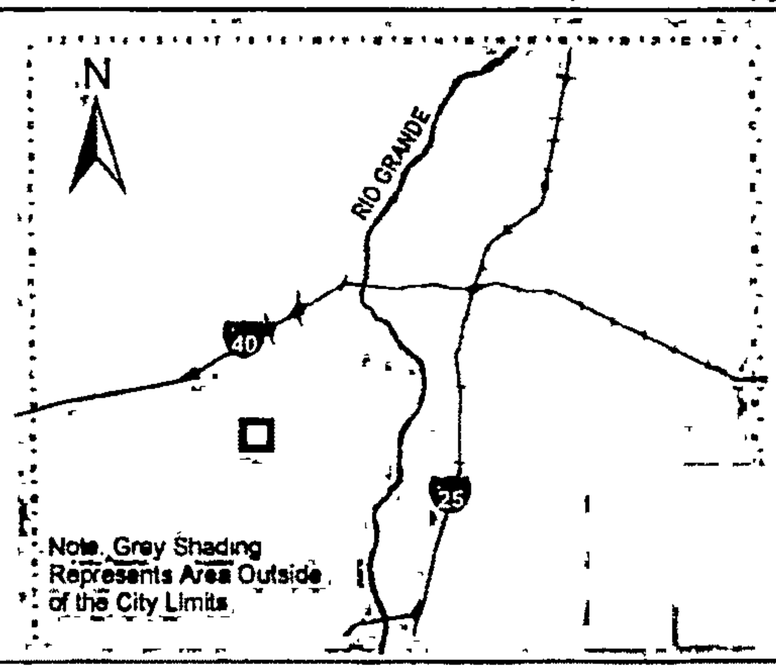
V. INTERIM DRAINAGE CONDITIONS FOR PHASED CONSTRUCTION

For the construction phase of Unit 4A, two interim ponds will be constructed at the end of Diamond Peak Road and Hawkins Peak Road as indicated in Figure 5.1. These ponds will be temporary until Unit 4B goes to work order. At that time the ponds will be filled in and the Infrastructure for Unit 4B will commence.

For Unit 4B through 4F, the existing interim retention ponds will be utilized and function in the same manner as they do now. One overflow into the other with any overflow runoff spilling into Colobel Avenue. At the time when Unit 3C is constructed, it is proposed that the entire storm drain (and sanitary sewer) in Pine Town and Dundee and Jacob be constructed and connected to the existing 72" storm drain in Colobel Avenue. When Unit 4D is ready to be constructed, the storm drain in Colobel Avenue will be upsized between the Unit 4D outfall to the connection to the 72" storm drain as required.



For more current information and details visit: http://www.cabq.gov/gis



Albuquerque Geographic Information System

Map amended through: 4 2 2012

Zone Atlas Page:

N-08-Z

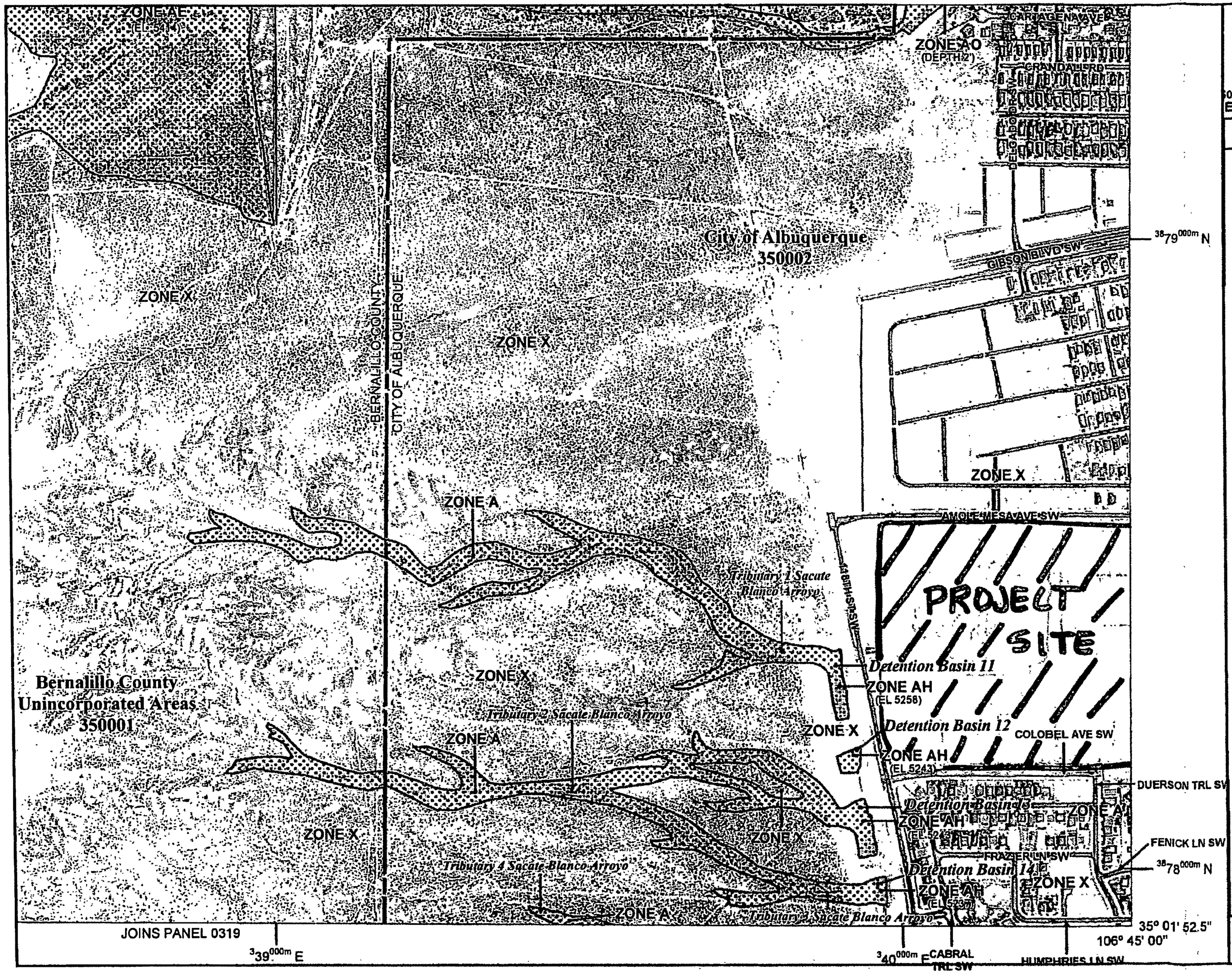
Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

FIGURE 1
Vicinity Map



FIGURE 2
Aerial Google Earth Map



MAP SCALE 1" = 500'

0 500 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0317H

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO
AND INCORPORATED AREAS

PANEL 317 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0317	H
BERNALILLO COUNTY UNINCORPORATED AREAS	350001	0317	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
35001C0317H

MAP REVISED
AUGUST 16, 2012

Federal Emergency Management Agency

FIGURE 3
FEMA Map

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

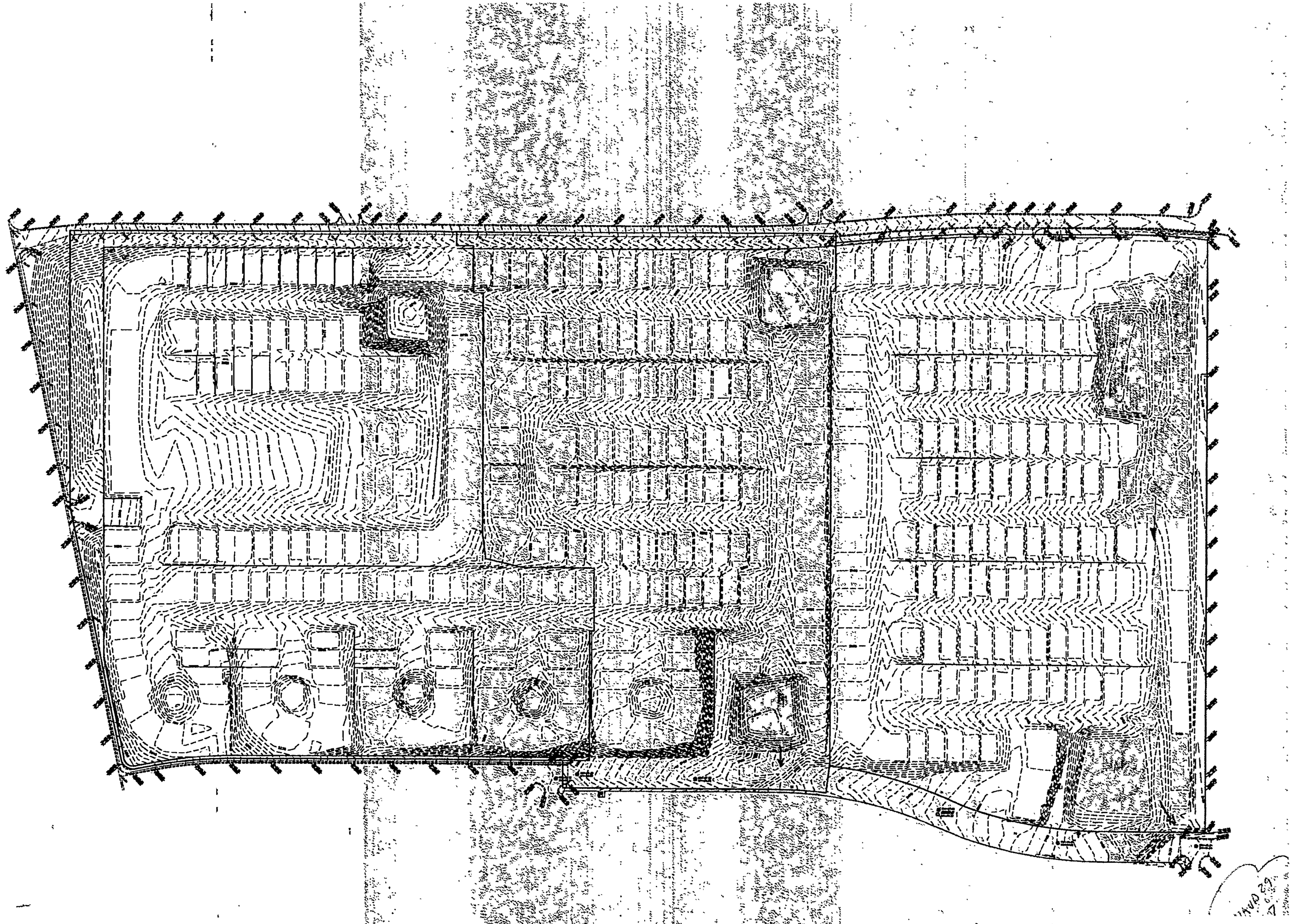
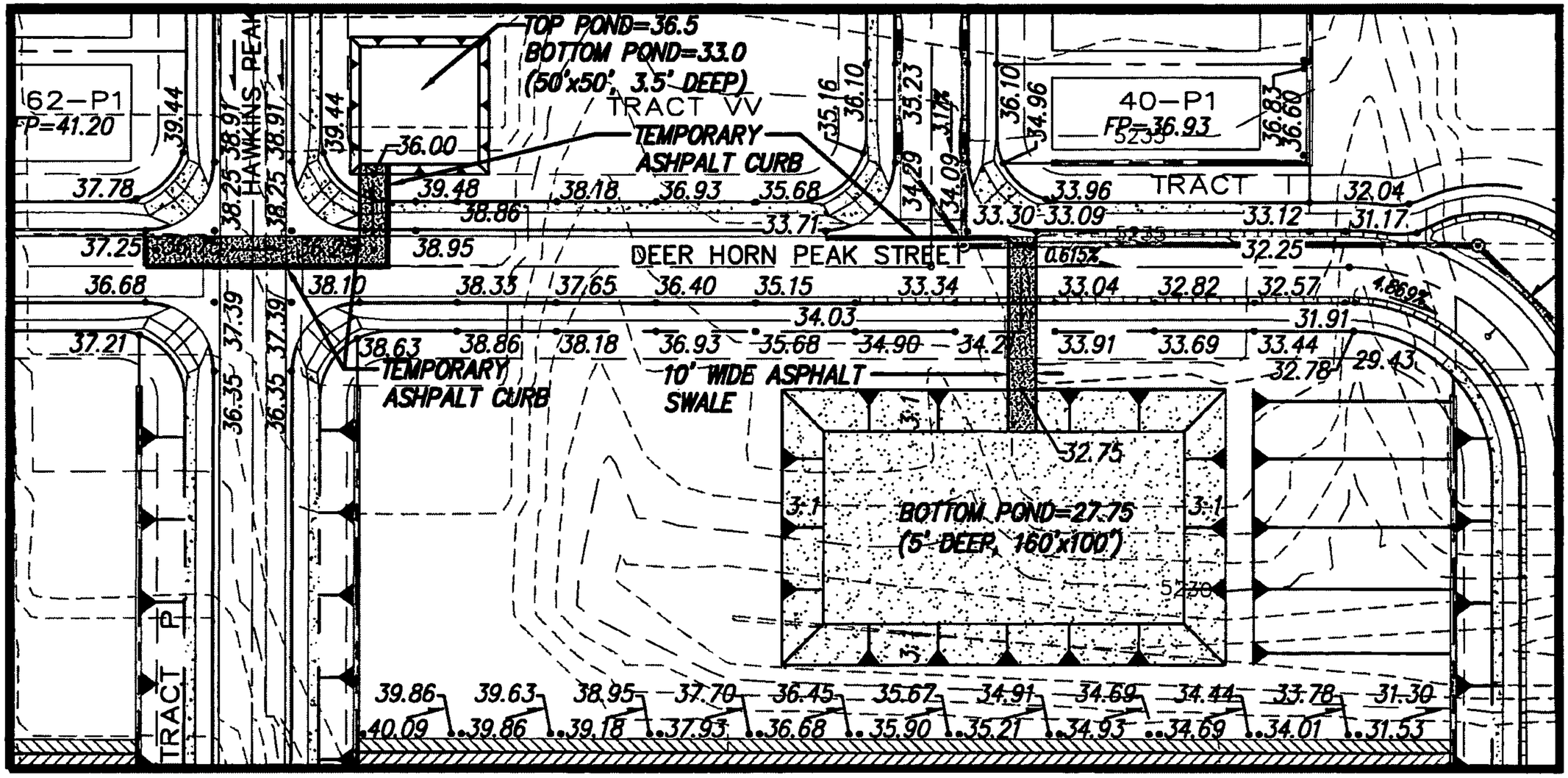


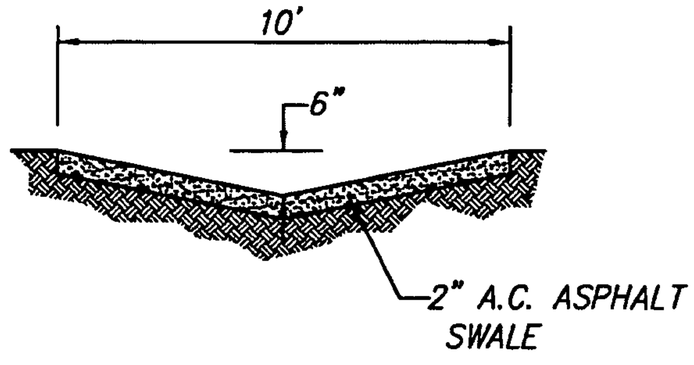
FIGURE 4
Existing topo with interim ponds

\GRADE & DRAIN\A13034_GD.dwg, 2/12/2015 4:01:53 PM,



ANDERSON HEIGHTS - UNIT 4A
TEMPORARY INTERIM CONDITION DRAINAGE POND

SCALE: 1"=60'



TYPICAL TEMPORARY ASPHALT SWALE

SCALE: 1"=10'

FIGURE 5.1
Proposed Interim Ponds for Phased Construction Unit 4A

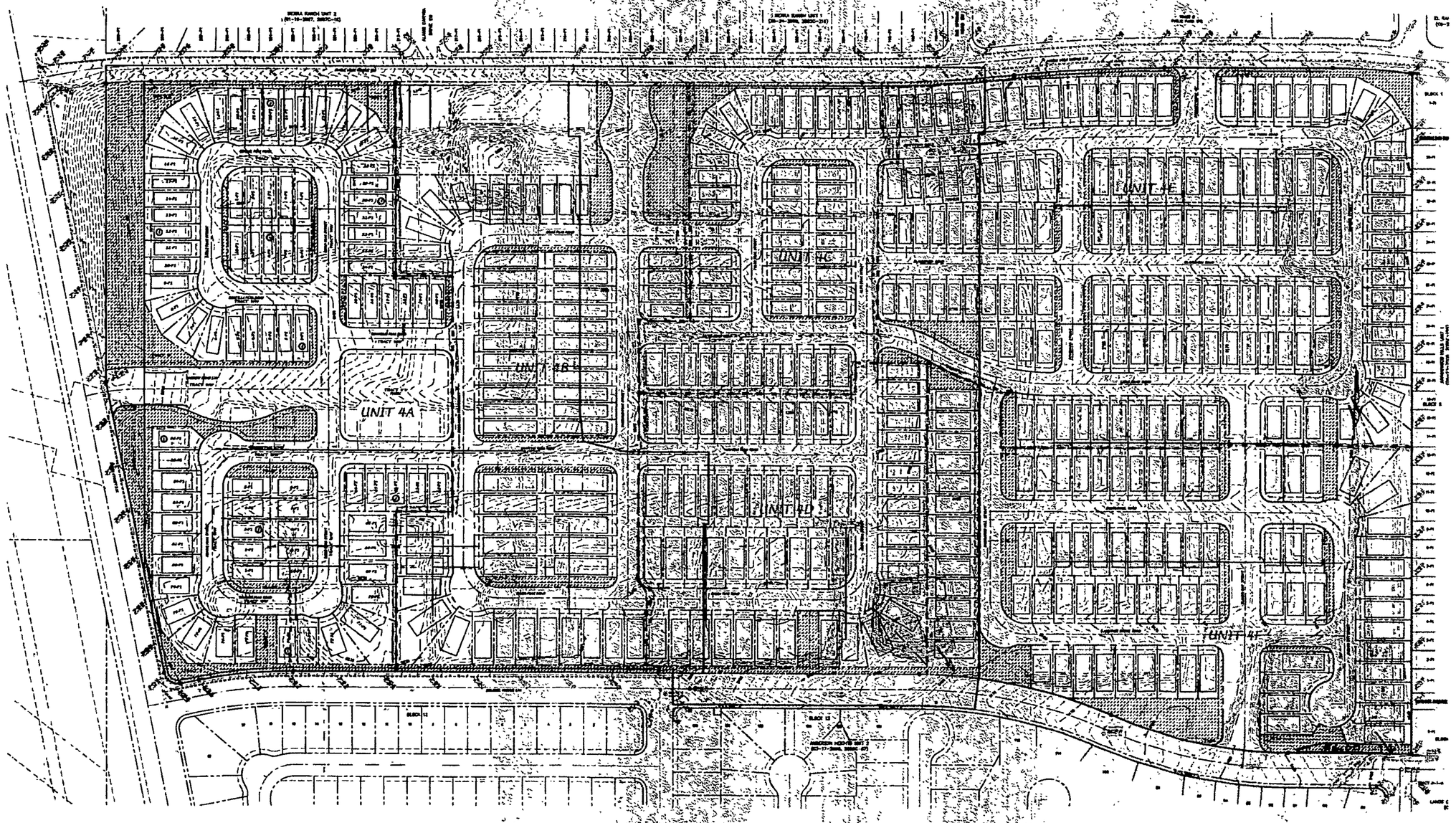


FIGURE 5.2
Proposed Interim Ponds for
Phased Construction **Unit 4B-4F**

PRELIMINARY PLAT

ANDERSON HEIGHTS UNIT 4

WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTIONS 5 AND 8
TOWNSHIP 9 NORTH, RANGE 2 EAST, NMPM
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
DECEMBER, 2014

CURVE TABLE				CHORD	CHORD
CURVE	LENGTH	RADIUS	DELTA	BEARING	LENGTH
C1	97.16'	968.00'	05°45'45"	S86°55'19"W	97.11'
C2	329.33'	3135.42'	06°58'48"	N86°48'47"E	329.18'
C3	322.44'	3087.42'	05°59'02"	S86°48'54"W	322.30'
C4	167.59'	1281.12'	07°29'42"	N86°26'44"W	167.47'
C5	396.84'	968.00'	23°32'15"	S78°11'58"E	394.05'
C6	424.77'	1034.00'	23°32'15"	N78°11'58"W	421.79'
C7	203.77'	1034.00'	11°17'29"	S84°23'10"W	203.44'
C8	47.12'	30.00'	90°00'00"	S56°15'35"E	42.43'

LINE TABLE		
LINE	BEARING	LENGTH
L1	S82°41'53"E	4.34'
L2	S78°44'25"W	40.72'

AREA TABLE			
TRACT ID	AREA (AC)	TRACT ID	AREA (AC)
TRACT A	0.4867 AC	TRACT AA	0.2794 AC
TRACT B	0.9600 AC	TRACT BB	0.0486AC
TRACT C	0.5331 AC	TRACT CC	0.0596 AC
TRACT D	0.2827 AC	TRACT DD	0.0811 AC
TRACT E	0.1490 AC	TRACT EE	0.0911 AC
TRACT F	0.0548 AC	TRACT FF	0.0634 AC
TRACT G	0.0601 AC	TRACT GG	0.0747 AC
TRACT H	0.03 28 AC	TRACT HH	0.0832 AC
TRACT I	0.0341 AC	TRACT JJ	0.1682 AC
TRACT L	0.2079 AC	TRACT KK	0.0978 AC
TRACT M	0.0850 AC	TRACT LL	0.1516 AC
TRACT N	0.0908 AC	TRACT MM	0.1239 AC
TRACT P	0.1118 AC	TRACT NN	0.0935 AC
TRACT Q	0.1481 AC	TRACT PP	0.0731 AC
TRACT R	0.1275 AC	TRACT QQ	0.0367 AC
TRACT S	0.0933 AC	TRACT RR	0.2577 AC
TRACT T	0.1100 AC	TRACT SS	0.2931 AC
TRACT U	0.1255 AC	TRACT TT	1.1322 AC
TRACT V	0.1514 AC	TRACT UU	2.0000 AC
TRACT W	0.1871 AC	TRACT VV	1.0914 AC
TRACT X	0.0541 AC	TRACT WW	21.4495 AC
TRACT Y	0.0474 AC		
TRACT Z	1.0767 AC		

EASEMENT KEYED NOTES:

- (A) NEW 25' PUBLIC SANITARY SEWER & WATERLINE EASEMENT
- (B) NEW 20' PUBLIC STORM DRAIN EASEMENT
- (C) NEW 30' PUBLIC STORM DRAIN EASEMENT
- (D) PRIVATE ACCESS & PUBLIC DRAINAGE, SANITARY SEWER & WATERLINE EASEMENT
- (E) EXISTING 10' UTILITY EASEMENT (07-23-03, BK 2003C, PG 223)

LEGEND

- 1-P1 — LOT NUMBER
- (1) — BLOCK NUMBER
- ▲ — CENTER LINE MONUMENT
- ROW — RIGHT-OF-WAY
- ZONE BOUNDARY
- PHASE LINE

PROPERTY CORNERS

- ● SET REBAR WITH CAP "ALS LS 7719" (TYP)
- ○ FOUND 5/8" REBAR WITH CAP "LS 7719" (TYP)

N

100' 50' 0 100' 200'

SCALE: 1" = 100'

VICINITY MAP

ZONE MAP: N-8-Z

SUBDIVISION DATA

GROSS ACREAGE	84.9311 AC
ZONE ATLAS NO	N 8 Z
NO OF LOTS CREATED	474 LOTS
NO OF TRACTS CREATED	44 TRACTS
AREA DEDICATED TO CITY OF ALBUQUERQUE	2.0000 AC
ATE OF SURVEY	MARCH, 2014

LEGAL DESCRIPTION

A TRACT OF LAND SITUATE, WITHIN THE TOWN OF ATRISCO GRANT, PROJECTED SECTIONS 5 AND 8, TOWNSHIP 9 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO BEING ALL OF PARCELS 4 AND 6, ANDERSON HEIGHTS UNIT 1 AND ANDERSON HEIGHTS UNIT 9, AND CONTAINING 87.4236 ACRES MORE OR LESS

PURPOSE OF PLAT

1. SUBDIVIDE PARCELS 4, 6A & 9, ANDERSON HEIGHTS INTO 474 RESIDENTIAL LOTS & 44 TRACTS AS SHOWN
2. DEDICATE 2.0 ACRE TRACT TO THE CITY OF ALBUQUERQUE FOR FUTURE MEMORIAL PARK AS SHOWN.
3. GRANT NEW EASEMENTS AS SHOWN.

NOTES

1. UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS ⊙ SHALL BE A SET #4 REBAR WITH YELLOW PLASTIC CAP "N.M.P.S. 7719"
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS, AND STREET INTERSECTIONS AND SHOWN THUS , ▲ WILL BE MARKED BY A FOUR INCH (4") ALUMINUM CAP STAMPED:
   "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION"
   "DO NOT DISTURB"
   N.M.P.S. 7719
3. BOUNDARY SHALL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN
4. BASIS OF BEARING SHALL BE NEW MEXICO STATE PLANE GRID BEARINGS.
5. ALL DISTANCES SHALL BE GROUND DISTANCES
6. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY, STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MONUMENTATION
7. TRACT WW IS A PRIVATE ACCESS & DRAINAGE EASEMENT AND PUBLIC WATERLINE & SANITARY SEWER EASEMENT. IT IS FOR THE BENEFIT OF ALL LOTS WITHIN UNIT 4 AND WILL BE MAINTAINED BY THE H.O.A.
8. TRACT UU WILL BE DEEDED TO THE CITY OF ALBUQUERQUE FOR THE PURPOSE OF A MEMORIAL PARK
9. TRACTS "A-TT" AND TRACT "VV" ARE PRIVATE COMMON AREAS FOR THE BENEFIT OF ALL LOTS WITHIN UNIT 4. TRACTS WILL BE DEEDED TO THE H.O.A. AND WILL BE MAINTAINED BY THE H.O.A

ABBREVIATIONS

10' PUE = PUBLIC UTILITY EASEMENTS GRANTED WITH THIS PLAT
ROW = RIGHT-OF-WAY
H.O.A = HOME OWNERS ASSOCIATION
C.O.A. = CITY OF ALBUQUERQUE
A.B.C.W.U.A = ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY

APPROVED

City Surveyor, City of Albuquerque, N.M. — Date

Owner: KB HOME Colorado Inc

Matt Mandina, Division President — Date

OWNERS

KB HOME COLORADO Inc
7807 PeakView Ave
Suite 300
CENTENNIAL, COLORADO 80111
(303) 323-1130

ENGINEERS

D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200

SITE BENCHMARK

AGRS MONUMENT
"1-N8"
ELEVATION=5307.250
(NAD83/NAVD88)

SURVEYOR

ALDRICH LAND SURVEY
P.O. BOX 30701
ALBUQUERQUE, NEW MEXICO 87190
(505) 884-1990

F:\A13JOBS\A13034 Anderson Heights, Unit 4\PLATS\PRELIMINARY PLATS\Revised Preliminary Plat Base (New Lots)\A13034_PrePlat-R5.dwg, dwayne, 2/10/15

CITY PROJECT No. 1002739

SHEET 1 OF 1

Current DRC
Project Number:_____

FIGURE 12

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

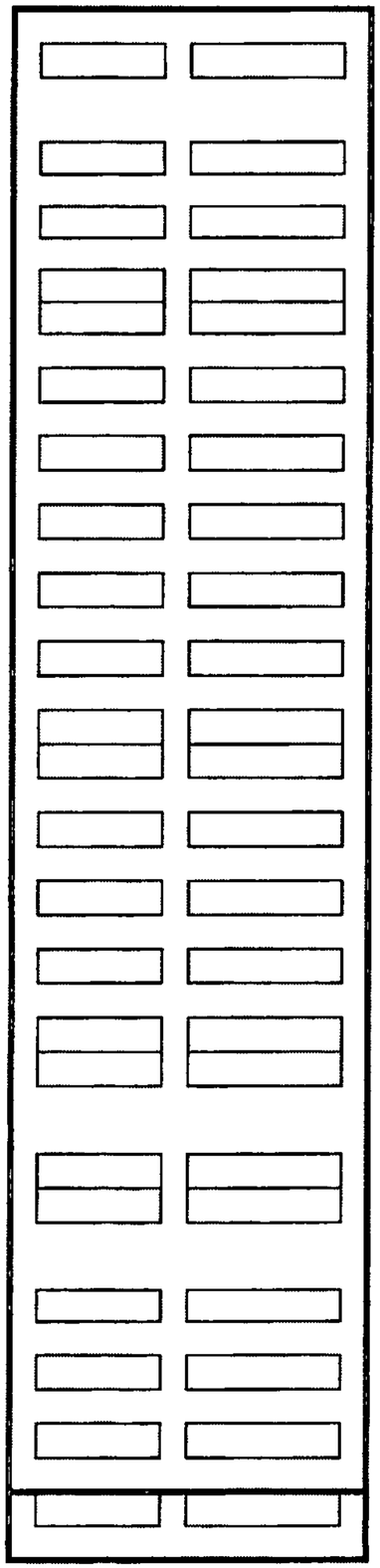
Date Submitted: September 5, 2014
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1002739
DRB Application No.:_____

Anderson Heights Unit 4A
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt (Access)	Cirque Peak Road (2)	Eagle Peak Street	Bord Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		26' FF	Perm Pvmt (Access)	Eagle Peak Street (2)	Costilla Peak Road	Cirque Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		26' FF	Perm Pvmt (Access)	Costilla Peak Road (2)	Eagle Peak Street	Bord Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		26' FF	Perm Pvmt (Access)	Bord Peak Street	Cirque Peak Road	Costilla Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (east side) (1)				/	/	/
		4'	Sidewalk (west side)	Tract G			/	/	/
		26' FF	Perm Pvmt (Access)	Diamond Peak Road	Bord Peak Street	Deer Horn Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (north side) (1)				/	/	/
		4'	Sidewalk (south side)				/	/	/



56 FF'	Perm Pvmt (Normal Local)	Barrow Road S.W.	118th Street	Bord Peak Street	
12'	Median (Varies)				
	C&G (both sides)				
6'	Sidewalk (both sides)				
28' FF	Perm Pvmt (Access)	Hawkins Peak Road	Bord Peak Street	Deer Horn Peak Street	
	C&G (both sides)				
4'	Sidewalk (north side)				
4'	Sidewalk (south side) (1)				
26' FF	Perm Pvmt (Access)	Hawkins Peak Road (2)	Adams Peak Street	Bord Peak Street	
	C&G (both sides)				
4'	Sidewalk (both sides)	Tract C, Tract R			
26' FF	Perm Pvmt (Access)	Adams Peak Street (2)	Hawkins Peak Road	Banner Peak Road	
	C&G (both sides)				
4'	Sidewalks (both sides) (1)				
28' FF	Perm Pvmt (Access)	Banner Peak Road (2)	Adams Peak Street	Bord Peak Street	
	C&G (both sides)				
4'	Sidewalk (south side) (1)				
4'	Sidewalk (north side)	Tract S			
26' FF	Perm Pvmt (Normal Local)	Bord Peak Street	Costilla Peak Road	Hawkins Peak Road	
	C&G both sides				
4'	Sidewalks (both sides)	Tract D, Tract H, Tract VV, Tract C			
26' FF	Perm Pvmt (Access)	Bord Peak Street	Hawkins Peak Road	Banner Peak Road	
	C&G both sides				
4'	Sidewalks (both sides) (1)				
4'	Sidewalks	Tract R, Tract S			

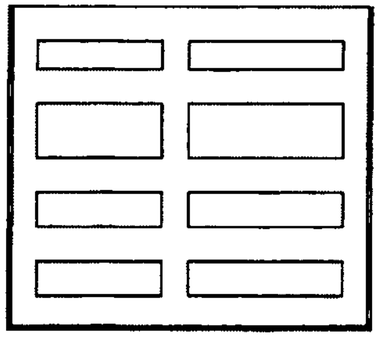
OFF-SITE PAVING

36' FF	Perm Pvmt (Collector)	Amole Mesa Ave.	118th Street	Tract L	
6'	Sidewalk (south side)				

WATER

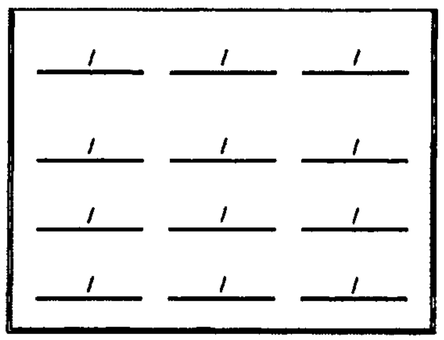
8"	Waterline	Cirque Peak Road	Eagle Peak Street	Bord Peak Street	
8"	Waterline	Eagle Peak Street	Costilla Peak Road	Cirque Peak Road	
8"	Waterline	Costilla Peak Road	Eagle Peak Street	Bord Peak Street	
8"	Waterline	Bord Peak Street	Cirque Peak Road	Banner Peak Road	

8"	Waterline	Diamond Peak Road	Bord Peak Street	Deer Horn Peak Street				
10"	Waterline	Barrow Road S W	118th Street Existing 18" WL	Bord Peak Street				
8"	Waterline	Hawkins Peak Road	Adams Peak Street	Deer Horn Peak Street				
8"	Waterline	Adams Peak Street	Hawkins Peak Road	Banner Peak Road				
8"	Waterline	Banner Peak Road	Adams Peak Street	Bord Peak Street				
8"	Waterline	Tract T	Banner Peak Road	Colobel Avenue Existing 10" WL				
	SANITARY SEWER							
8"	Sanitary Sewer	Cirque Peak Road	Eagle Peak Street	Bord Peak Street				
8"	Sanitary Sewer	Eagle Peak Street	Costilla Peak Road	Cirque Peak Road				
8"	Sanitary Sewer	Costilla Peak Road	Eagle Peak Street	Bord Peak Street				
8"	Sanitary Sewer	Bord Peak Street	Cirque Peak Road	Banner Peak Road				
8"	Sanitary Sewer	Diamond Peak Road	Bord Peak Street	Deer Horn Peak Street				
8"	Sanitary Sewer	Hawkins Peak Road	Bord Peak Street	Deer Horn Peak Street				
8"	Sanitary Sewer	Adams Peak Street	Hawkins Peak Road	Banner Peak Road				
8"	Sanitary Sewer	Banner Peak Road	Adams Peak Street	Bord Peak Street				
8"	Sanitary Sewer	Tract T	Banner Peak Road	Existing 8" SAS Colobel Ave.				
8"	Sanitary Sewer	Deer Horn Peak Street	Diamond Peak Road	Basin Peak Road				
8"	Sanitary Sewer	Basin Peak Road	Deer Horn Peak Street	Tract U				
8"	Sanitary Sewer	Tract U	Basin Peak Road	Existing 8" SAS Colobel Ave				



STORM DRAIN

18" - 24"	Storm Drain	Banner Peak Road	Tract T	Bord Peak Street	
24"	Storm Drain	Tract T	Banner Peak Road	Existing Storm Drain Colobel Ave	
18"	Storm Drain	Diamond Peak Road	Lot 40, Blk 3	Deer Horn Peak Street	
	Temporary Pond	Unit 4B			



The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items: _____ Impact Fee Admistrator Signature Date

Approval of Creditable Items: _____ City User Dept. Signature Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's. Financial Guaranty's are not required for grading.

AGENT / OWNER

Diane Hoelzer, P.E.
NAME (print)
MARK GOODWIN & ASSOCIATES
FIRM
Diane Hoelzer 8-19-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date
TRANSPORTATION DEVELOPMENT - date
UTILITY DEVELOPMENT - date
CITY ENGINEER - date
PARKS & GENERAL SERVICES - date
AMAFCA - date
_____ - date
_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Current DRC
Project Number:_____

FIGURE 12

Date Submitted: September 5, 2014
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1002739
DRB Application No.:_____

INFRASTRUCTURE LIST

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

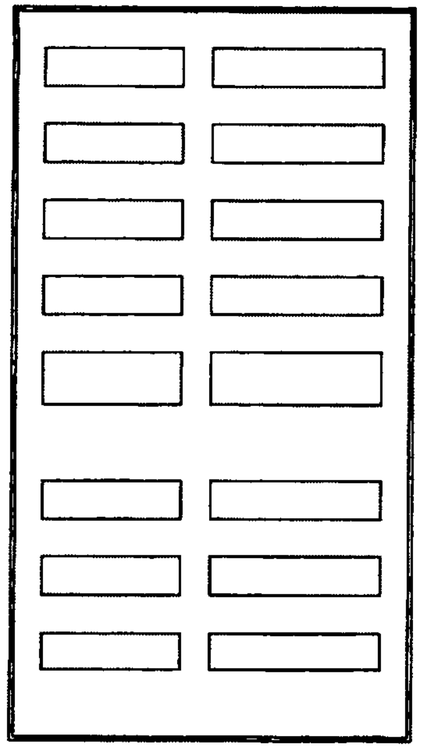
Anderson Heights Unit 4B
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26'	Perm Pvmt (Normal Local) C&G (both sides)	Crag Peak Road (2)	Deer Horn Peak Street	Emerald Peak Street	/	/	/
		4'	Sidewalk (both sides)	Tract M, Tract J			/	/	/
		28'	Perm Pvmt (Access) C & G (both sides)	Crag Peak Road	Emerald Peak Street	Lot 5, Block 9	/	/	/
		4'	Sidewalk (both sides)	Tract Z, Tract Y			/	/	/
		26'	Perm Pvmt (Access) C&G (both sides)	Deer Horn Peak Street (2)	Crag Peak Road	Basin Peak Road	/	/	/
		4'	Sidewalks (west side)	Tract VV, Tract I			/	/	/
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt (Access) C&G (both sides)	Basin Peak Road (2)	Deer Horn Peak Street	Emerald Peak Street Lot 47, Blk 1	/	/	/
		4'	Sidewalks (south sides) (1)						
		4'	Sidewalks (north side)	Tract Q			/	/	/
		28' FF	Perm Pvmt (Access/Normal Local) C&G (both sides)	Emerald Peak Street	Crag Peak Road	Basin Peak Road	/	/	/
		4'	Sidewalks (both sides) (1)				/	/	/

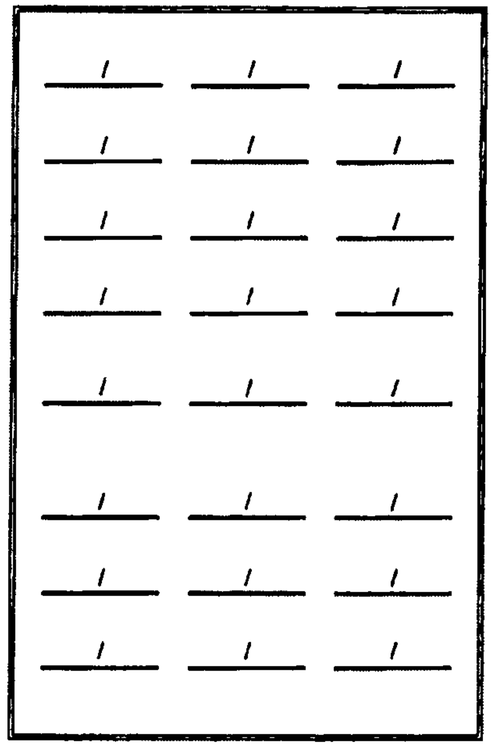
28' FF	Perm Pvmt (Access)	Hawkins Peak Street	Deer Horn Peak Street	Emeral Peak Street	/ / /
	C&G (both sides)				
4'	Sidewalks (both sides)	Tract N, Tract P			/ / /
42' - 54'	Perm Pvmt (Major Local)	Emerald Peak Street	Amole Mesa Ave.	Crag Peak Road	/ / /
10'	Median				
	C&G (both sides)				
6'	Sidewalks (both sides)				/ / /
	WATER				
8"	Waterline	Crag Peak Road	Deer Horn Peak Street	Lot 5, Block 9	/ / /
8"	Waterline	Deer Horn Peak Street	Crag Peak Road	Basin Peak Road	/ / /
8"	Waterline	Basin Peak Road	Deer Horn Peak Street	Emerald Peak Street	/ / /
8"	Waterline	Emerald Peak Street	Crag Peak Road	Basin Peak Road	/ / /
8"	Waterline	Emerald Peak Street	Amole Mesa Existing 12" WL	Crag Peak Road	/ / /
	SANITARY SEWER				
8"	Sanitary Sewer	Crag Peak Road	Deer Horn Peak Street	Tyler Peak Street	/ / /
8"	Sanitary Sewer	Deer Horn Peak Street	Crag Peak Road	Basin Peak Road	/ / /
8"	Sanitary Sewer	Basin Peak Road	Deer Horn Peak Street	Tract U	/ / /
8"	Sanitary Sewer	Emerald Peak Street	Crag Peak Road	Lot 22, Block 5	/ / /
8"	Sanitary Sewer	Emerald Peak Street	Lot 6, Block 6	Basin Peak Road	/ / /
8"	Sanitary Sewer	Hawkins Peak Street	Emerald Peak Street	Alta Peak Street	/ / /
8"	Sanitary Sewer	Tract U	Basin peak Road	Existing 8" SAS Colobel Ave	/ / /
8"	Sanitary Sewer	Tyler Peak Street	Crag Peak Road	Pine Town Road	/ / /
8"	Sanitary Sewer	Pine Town Road	Tyler Peak Street	Dundee Street	/ / /
8"	Sanitary Sewer	Dundee Street	Pine Town Road	Lions Head Road	/ / /



8"	Sanitary Sewer	Lions Head Road	Dundee Street	Elands Bay Street	
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	
8"	Sanitary Sewer	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	
8"	Sanitary Sewer	Jacobs Bay Cour	Cobblehill Road	Easement/Tract RR	
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay	Colobel Ave Existing 8" SAS	

STORM DRAIN

24"	Storm Drain	Deer Horn Peak Street	Diamond Peak Road	Crag Peak Road
18"-24"	Storm Drain	Crag Peak Road	Deer Hron Peak Street	Lot 5, Block 9
	Temporary Pond	Unit 4C	Crag Peak Street	To Temporary Pond



The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		City Cnst Engineer
							/	/	/
							/	/	/
					Approval of Creditable Items:		Approval of Creditable Items:		
					Impact Fee Admistrator Signature	Date	City User Dept. Signature		Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
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AGENT / OWNER

Diane Hoelzer, PE
NAME (print)
MARK GOODWIN & ASSOCIATES
FIRM
Diane Hoelzer 8-19-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

TRANSPORTATION DEVELOPMENT - date

UTILITY DEVELOPMENT - date

CITY ENGINEER - date

PARKS & GENERAL SERVICES - date

AMAFCA - date

_____ - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Current DRC
Project Number:_____

FIGURE 12

Date Submitted: September 5, 20
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1002739
DRB Application No.:_____

INFRASTRUCTURE LIST

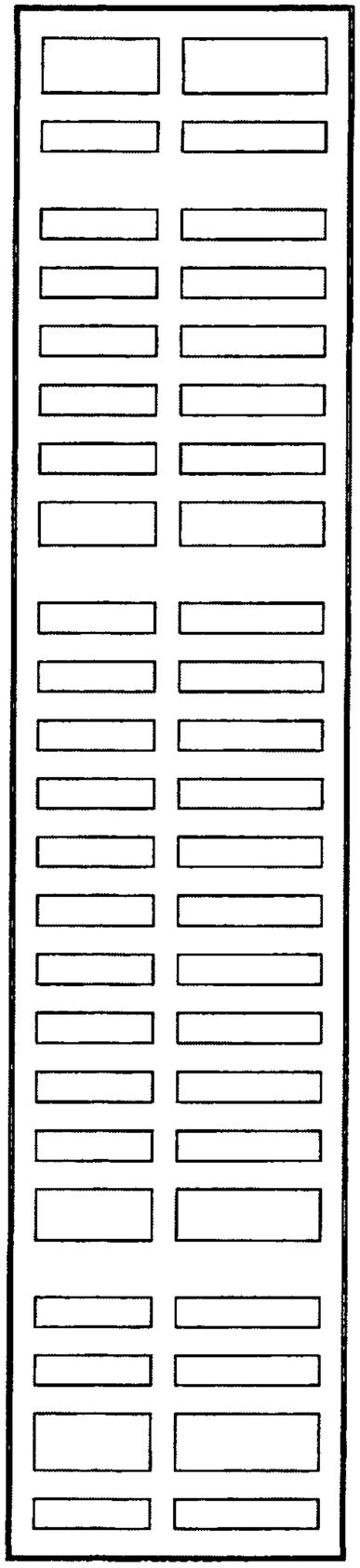
EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4C
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt (Access)	Pine Town Road (2)	Tyler Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)			Lot 15, Block 11			
		4'	Sidewalks (both sides) (1)						
		4'	Sidewalk (south side)	Tract BB			/	/	/
		26' FF	Perm Pvmt (Access)	Tyler Peak Street	Pine Town Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt (Access)	Alta Peak Street	Lions Head Road	Pine Town Road	/	/	/
			C&G (both sides)						
			4' Sidewalk (both sides) (1)						
		28' FF	Lions Head Way (Access)	Lions Head Road	Emerald Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		4'	Sidewalk (north side)	Tract X			/	/	/
		28' FF	Perm Pvmt (Access)	Crag Peak Road	Emerald Peak Street	Tyler Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)	Tract Z, Tract Y			/	/	/
		42' - 54' FF	Perm Pvmt (Major Local)	Emerald Peak Street	Amole Mesa Ave.	Crag Peak Road	/	/	/
			C&G (both sides)						
		10'	Median (Varies)						
		6'	Sidewalks (both sides)				/	/	/
		28' FF	Perm Pvmt (Normal Local)	Emerald Peak Street	Lions Head Road	Crag Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						



12'	Perm Pvmt (36' FF) (Collector)	Amole Mesa Ave.	Tract UU	Existing C&G near Lot 21, Block 11	/	/	/
	C&G (both sides)						
6'	Sidewalk (southside)				/	/	/
	WATER						
8"	Waterline	Pine Town Road	Tyler Peak Street	Alta Peak Street	/	/	/
8"	Waterline	Tyler Peak Street	Pine Town Road	Lot 15, Block 11 Lions Head Road	/	/	/
8"	Waterline	Alta Peak Street	Lions Head Road	Pine Town Road	/	/	/
8"	Waterline	Lions Head Road	Emerald Peak Street	Alta Peak Street	/	/	/
8"	Waterline	Emerald Peak Street	Lions Head Road	Crag Peak Street	/	/	/
8"	Waterline	Emerald Peak Street	Crag Peak Street	Existing 12" WL Amole Mesa Ave.	/	/	/
	SANITARY SEWER						
8"	Sanitary Sewer	Pine Town Road	Tyler Peak Street	Dundee Street	/	/	/
8"	Sanitary Sewer	Tyler Peak Street	Pine Town Road	Lions Head Road	/	/	/
8"	Sanitary Sewer	Alta Peak Street	Lions Head Road	Pine Town Road	/	/	/
8"	Sanitary Sewer	Lions Head Road	Emerald Peak Street	Alta Peak Street	/	/	/
8"	Sanitary Sewer	Crag Peak Street	Emerald Peak Street	Tyler Peak Road	/	/	/
8"	Sanitary Sewer	Dundee Street	Pine Town Road	Lions Head Road	/	/	/
8"	Sanitary Sewer	Lions Head Road	Dundee Street	Elands Bay Street	/	/	/
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	/	/	/
8"	Sanitary Sewer	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/	/	/
8"	Sanitary Sewer	Jacobs Bay Cour	Cobblehill Road	Easement/Tract RR	/	/	/
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay	Colobel Ave Existing 8" SAS	/	/	/
	STORM DRAIN						
18" - 24"	Storm Drain	Crag Peak Street	Emeral Peak Street	Tyler Peak Road	/	/	/
30"	Storm Drain	Tyler Peak Road	Crag Peak Street	Pine Town Road	/	/	/
30"	Storm Drain	Pine Town Road	Tyler Peak Road	Lot 15, Block 11 (Alta Peak Street)	/	/	/
	Temporary Pond	Unit 4E			/	/	/

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		Construction Certification: City Cnst Engineer
							/	/	/
							/	/	/
					Approval of Creditable Items:		Approval of Creditable Items:		
					Impact Fee Admistrator Signature	Date	City User Dept. Signature		Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's. Financial Guaranty not required for grading.

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 8-19-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Current DRC
Project Number:_____

FIGURE 12

Date Submitted: September 5, 2014
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1002739
DRB Application No.:_____

INFRASTRUCTURE LIST

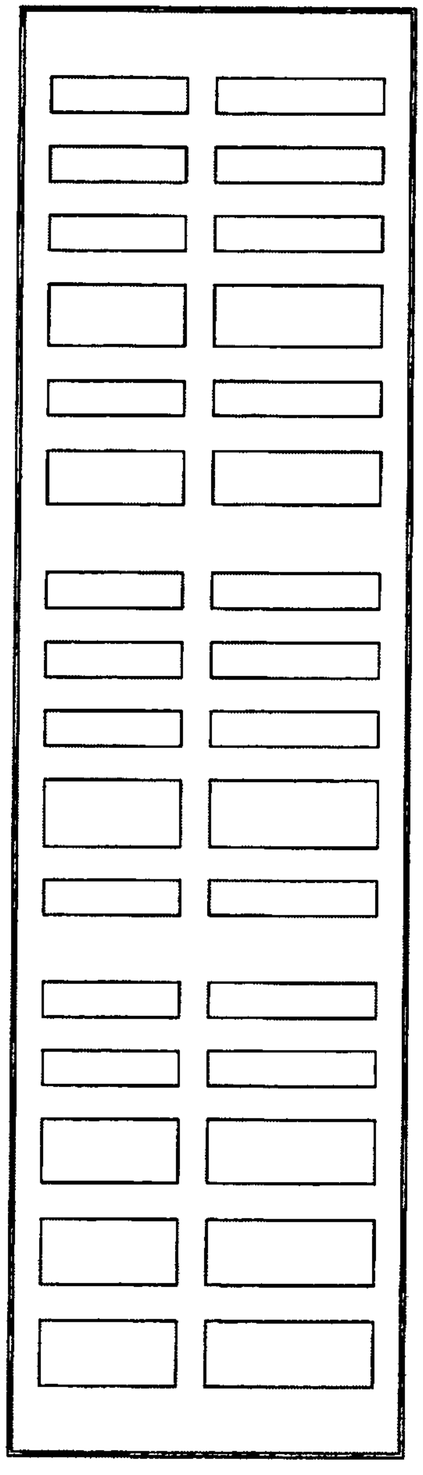
EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4D
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

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SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt (Access)	Hawkins Peak Road	Emerald Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt (Access)	Basin Peak Road (2)	Emerald Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt (Access/Normal Local)	Alta Peak Street (2)	Basin Peak Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		42' - 54' FF	Perm Pvmt (Major Local)	Emerald Peak Street	Amole Mesa Ave	Crag Peak Street	/	/	/
			C&G both sides						
		10'	Median (Varies)						
		6'	Sidewalks (both sides)	Tract K, Tract Z			/	/	/
		28'	Perm Pvmt (Normal Local)	Emerald Peak Street	Crag Peak Road	Hawkins Peak Road	/	/	/
			C&G both sides						
		4'	Sidewalks (both sides) (1)				/	/	/
		26' FF	Perm Pvmt (Access)	Emerald Peak Street	Hawkins Peak Road	Basin Peak Road	/	/	/
			C&G both sides						
		4'	Sidewalks (both sides) (1)				/	/	/
			OFFSITE PAVING						
		48' FF	Perm Pvmt (Collector)	Colobel Avenue	Duerson Trail Existing Pvmt	Lot 10 Block 1, Unit 4D/DF Boundary	/	/	/
			C&G (both sides)						
		6'	Sidewalk (north side)				/	/	/



WATER

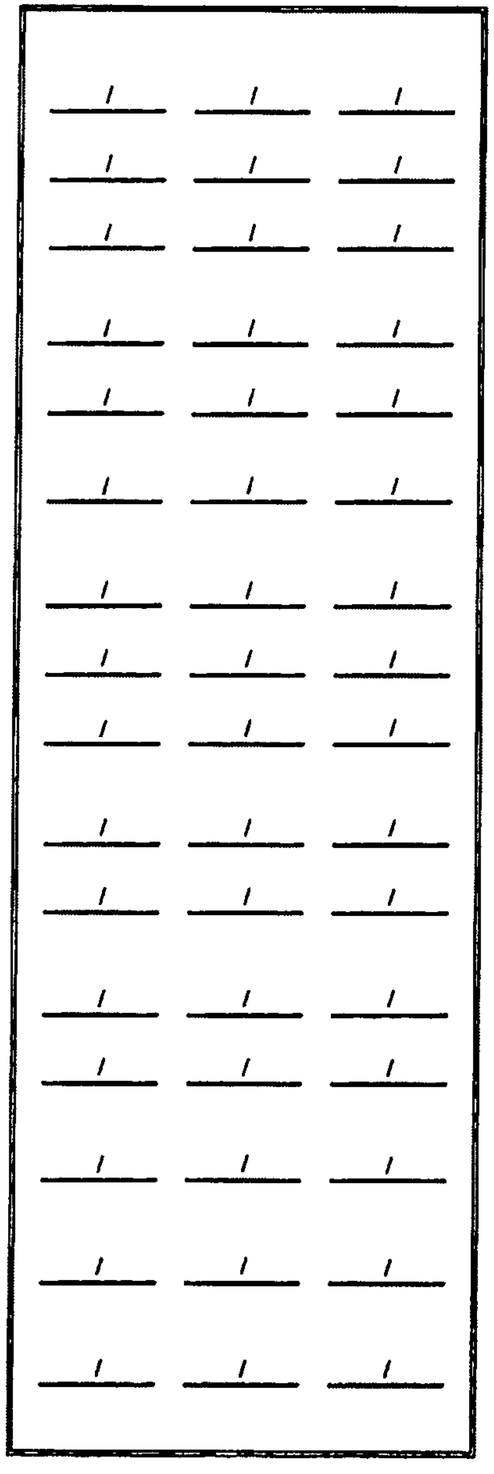
8"	Waterline	Hawkins Peak Road	Emerald Peak Street	Alta Peak Street
8"	Waterline	Basin Peak Road	Emerald Peak Street	Alta Peak Street
8"	Waterline	Alta Peak Street	Basin Peak Road	Lions head Road
8"	Waterline	Tract U	Colobel Ave. Existing 10" WL	Basin Peak Road
8"	Waterline	Emerald Peak Street	Basin Peak Road	Crag Peak Road
8"	Waterline	Emerald Peak Street	Crag Peak Road	Amole Mesa Existing 12" WL

SANITARY SEWER

8"	Sanitary Sewer	Hawkins Peak Road	Emerald Peak Street	Alta Peak Street
8"	Sanitary Sewer	Basin Peak Road	Emerald Peak Street	Alta Peak Street
8"	Sanitary Sewer	Alta Peak Street	Basin Peak Road	Lions Head Road
8"	Sanitary Sewer	Tract U	Basin Peak Road	Colobel Ave. Existing 8" SAS
8"	Sanitary Sewer	Emerald Peak Street	Basin Peak Road	Crag Peak Road

STORM DRAIN

18" - 30"	Storm Drain	Basin Peak Road	Lot 20 Block 7	Tract U
18" - 30"	Storm Drain	Alta Peak Street	Lot 34 Block 1	Tract U
30"	Storm Drain	Tract U	Basin Peak Road	Colobel Ave Existing Storm Drain
36"	Storm Drain	Colobel Avenue	Tract U (MH51)	Existing 36" RCP (MH 54)
42"	Storm Drain	Colobel Ave	Near Elands Bay Entrance (MH 55)	Existing 72" SD MH 57



The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		Construction Certification: City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature **Date**

Approval of Creditable Items:

City User Dept. Signature **Date**

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure Includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's. Financial Guaranty not required for grading

AGENT / OWNER

Diane Hoelzer
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 8-19-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

TRANSPORTATION DEVELOPMENT - date

UTILITY DEVELOPMENT - date

CITY ENGINEER - date

PARKS & GENERAL SERVICES - date

AMAFCA - date

_____ - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Current DRC
Project Number:_____

FIGURE 12

Date Submitted: September 5, 2014
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1002739
DRB Application No.:_____

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4E
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

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EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

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SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt (Normal Local)	Pine Town Road (2)	Lot 6, Block 12	Potshard Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)(1)						
		28' FF	Perm Pvmt (Normal Local)	Pine Town Road (2)	Potshard Street	Dundee Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		54'	Perm Pvmt (Major Local)	Brighton Bay Street	Amole Mesa Ave	Pine Town Road	/	/	/
			C&G (both sides)						
		10'	Median						
		6'	Sidewalks (both sides)				/	/	/
		28' FF	Perm Pvmt (Access/Normal Local)	Potshard Street	Lions Head Road	Pine Town Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides)				/	/	/
		26'	Perm Pvmt (Access)	Blackburn Road	Lot 6, Block 13	Dundee Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt (Access)	Dundee Street	Pine Town Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (east side) (1)						
		4'	Sidewalks	Tract EE, Tract HH			/	/	/
		28'	Perm Pvmt (Access/Normal Local)	Lions Head Road	Tract W	Dundee Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		6'	Sidewalks (south side)	Amole Mesa Ave.	Lot 14 Block 11	East Property Line	/	/	/

	WATER							
8"	Waterline	Pine Town Road	Lot 20 Block 11	Dundee Street	/	/	/	
8"	Waterline	Brighton Bay Street	Amole Mesa Ave. Existing 12" WL	Pine Town Road	/	/	/	
8"	Waterline	Potshard Street	Lions Head Road	Pine Town Road	/	/	/	
8"	Waterline	Blackburn Road	Lot 15, Block 12	Dundee Street	/	/	/	
8"	Waterline	Dundee Street	Pine Town Road	Lions Head Road	/	/	/	
8"	Waterline	Lions Head Road	Tract W	Dundee Street	/	/	/	
	SANITARY SEWER							
8"	Sanitary Sewer	Pine Town Road	Lot 20 Block 11	Dundee Street	/	/	/	
8"	Sanitary Sewer	Blackburn Road	Lot 15, Block 12	Dundee Street	/	/	/	
8"	Sanitary Sewer	Dundee Street	Pine Town Road	Lions Head Road	/	/	/	
8"	Sanitary Sewer	Lions Head Road	Lot 14, Block 13	Dundee Street	/	/	/	
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	/	/	/	
8"	Sanitary Sewer	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/	/	/	
8"	Sanitary Sewer	Jacobs Bay Court	Cobblehill Road	Tract RR/Easement	/	/	/	
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay Court	Colobel Ave Existing SAS	/	/	/	
	STORM DRAIN							
30" - 42"	Storm Drain	Pine Town Road	Lot 20 Block 11	Dundee Street	/	/	/	
42" - 54"	Storm Drain	Dunee Street	Pine Town Road	Lions Head Road	/	/	/	
54"	Storm Drain	Tract LL	Lions Head Road	Cobblehill Road	/	/	/	
	OFF-SITE STORM DRAIN							
54" - 72"	Storm Drain	Jacobs Bay Court	Tract LL	End Jacobs Bay Court	/	/	/	
72"	Storm Drain	Easement/Tract RR	End Jacobs Bay Court	Colobel Ave Existing SD MH 57	/	/	/	

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Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		Construction Certification: City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature **Date**

Approval of Creditable Items:

City User Dept. Signature **Date**

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
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7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's. Financial Guaranty not required for grading.

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)
MARK GOODWIN & ASSOCIATES
FIRM
Diane Hoelzer 8-19-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date
TRANSPORTATION DEVELOPMENT - date
UTILITY DEVELOPMENT - date
CITY ENGINEER - date
PARKS & GENERAL SERVICES - date
AMAFCA - date
_____ - date
_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Current DRC
Project Number:_____

FIGURE 12

Date Submitted: September 5, 2014
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1002739
DRB Application No.:_____

INFRASTRUCTURE LIST

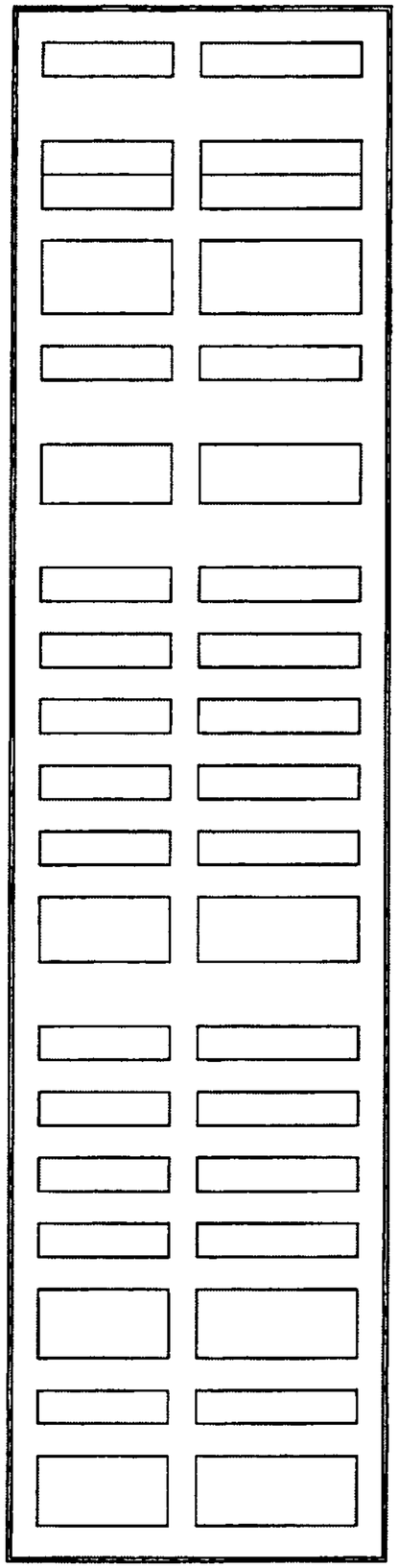
EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4F
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

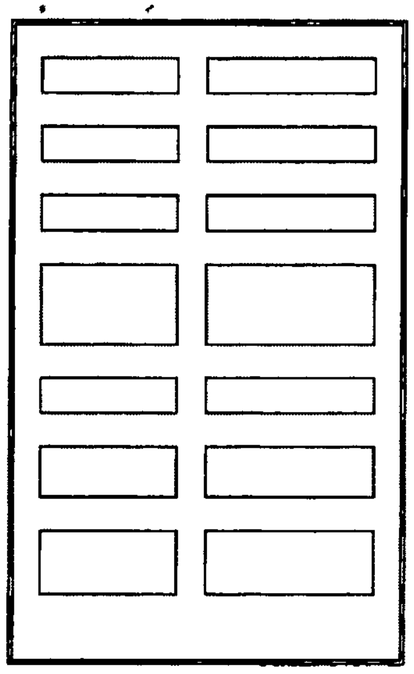
Parcels Unit 4 and 6, Anderson Heights Unit 1 and Unit 9
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SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		28' FF	Perm Pvmt (Access/Normal Local)	Cobblehill Road	Ironwood Hill Street	Elands Bay Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)(1)						
		26' FF	Perm Pvmt (Access)	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		26' FF	Perm Pvmt (Access)	Ironwood Hill Street (2)	Orange Grove Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (west side) (1)						
		4'	Sidewalk (east side)	Tract MM, Tract JJ			/	/	/
		26' FF	Perm Pvmt (Access)	Orange Grove Road (2)	Ironwood Hills Street	Jacobs Bay Court	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		4'	Sidewalk (eastside)	Tract OO			/	/	/
		26' FF	Perm Pvmt (Access)	Jacobs Bay Court	Cobblehill Road	End Culdesac	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		4'	Sidewalk	Tract PP			/	/	/
		42' FF	Perm Pvmt (Normal/Major Local)	Elands Bay Street	Lions Head Road	Orange Grove Road	/	/	/
		10'	Median						
			C&G (both sides)						
		5'	Sidewalks (east side) (1)				/	/	/
		6'	Sidewalks (west side)	Tract KK, Tract NN			/	/	/



54' FF	Perm Pvmt (Major Local)	Elands Bay Street	Orange Grove Road	Colobel Ave.	/	/	/
10'	Median						
	C&G (both sides)						
6'	Sidewalks (east side) (1)						
6'	Sidewalks (west side)	Tract A			/	/	/
48' FF	Perm Pvmt (Collector)	Colobel Ave	Existing Pvmt (East Boundary	Lot 10, Block 1, Unit 4F/4D Boundary	/	/	/
	C&G (both sides)						
6'	Sidewalks (north side)				/	/	/
	OFFSITE PAVING						
48' FF		Colobel Ave.	Existing Pvmt Duerson Trail	Existing Pvmt Morrissey Street	/	/	/
	Water						
8"	Waterline	Cobblehill Road	Ironwood Hill Street	Jacobs Bay Court	/	/	/
8"	Waterline	Ironwood Hill Street	Orange Grove Road	Lions Head Road	/	/	/
8"	Waterline	Orange Grove Road	Ironwood Hills Street	Jacobs Bay Court	/	/	/
8"	Waterline	Elands Bay Street	Lions Head Road	Cobblehill Road	/	/	/
10"	Waterline	Jacobs Bay Court	Cobble Hill Road	End Culdesac	/	/	/
10"	Waterline	Tract RR	Jacobs Bay Court	Colobel Ave Exiting 10" WL	/	/	/
	SANITARY SEWER						
8"	Sanitary Sewer	Cobblehill Road	Lot 22, Block 16	Jacobs Bay Court	/	/	/
8"	Sanitary Sewer	Ironwood Hill Street	Orange Grove Road	Lions Head Road	/	/	/
8"	Sanitary Sewer	Orange Grove Road	Ironwood Hills Street	Lot 4, Block 8	/	/	/
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	/	/	/
8"	Sanitary Sewer	Elands Bay Street	Colobel Ave Existing 8" SAS	Orange Grove Road	/	/	/
8"	Sanitary Sewer	Jacobs Bay Court	Cobblehill Road	End Culdesac	/	/	/
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay Court	Colobel Ave Existing 8" SAS	/	/	/



STORM DRAIN

54"	Storm Drain	Tract LL	Lions Head Road	Cobblehill Road	/	/	/
54"-72"	Storm Drain	Jacobs Bay Court	Cobblehill Road	End Jacobs Bay Court	/	/	/
18" - 24"	Storm Drain	Jacobs Bay Court	Cobblehill Road	End Jacobs Bay Court	/	/	/
72"	Storm Drain	Easement/Tract RR	Jacobs Bay Court	Colobel Ave. Existing 78" SD & MH	/	/	/
18"	Storm Drain	Orange Grove Road	Lot 4, Block 18	Jacobs Bay Court	/	/	/
36"	Storm Drain	Colobel Avenue	Tract U (MH51)	Existing 36" RCP (MH 54)	/	/	/
42"	Storm Drain	Colobel Ave	Near Elands Bay Entrance (MH 55)	Existing 72" SD MH 57	/	/	/

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		Construction Certification: City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items: _____
Impact Fee Admistrator Signature **Date**

Approval of Creditable Items: _____
City User Dept. Signature **Date**

1 Sidewalks to be Deferred
2 Includes Knuckles
3.00 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's. Financial Guaranty not required for grading.

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)
MARK GOODWIN & ASSOCIATES
FIRM
Diane Hoelzer 8-19-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date
TRANSPORTATION DEVELOPMENT - date
UTILITY DEVELOPMENT - date
CITY ENGINEER - date
PARKS & GENERAL SERVICES - date
AMAFCA - date
_____ - date
_____ - date

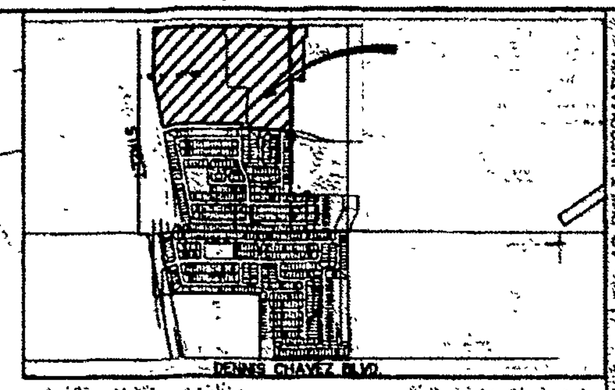
DESIGN REVIEW COMMITTEE REVISIONS

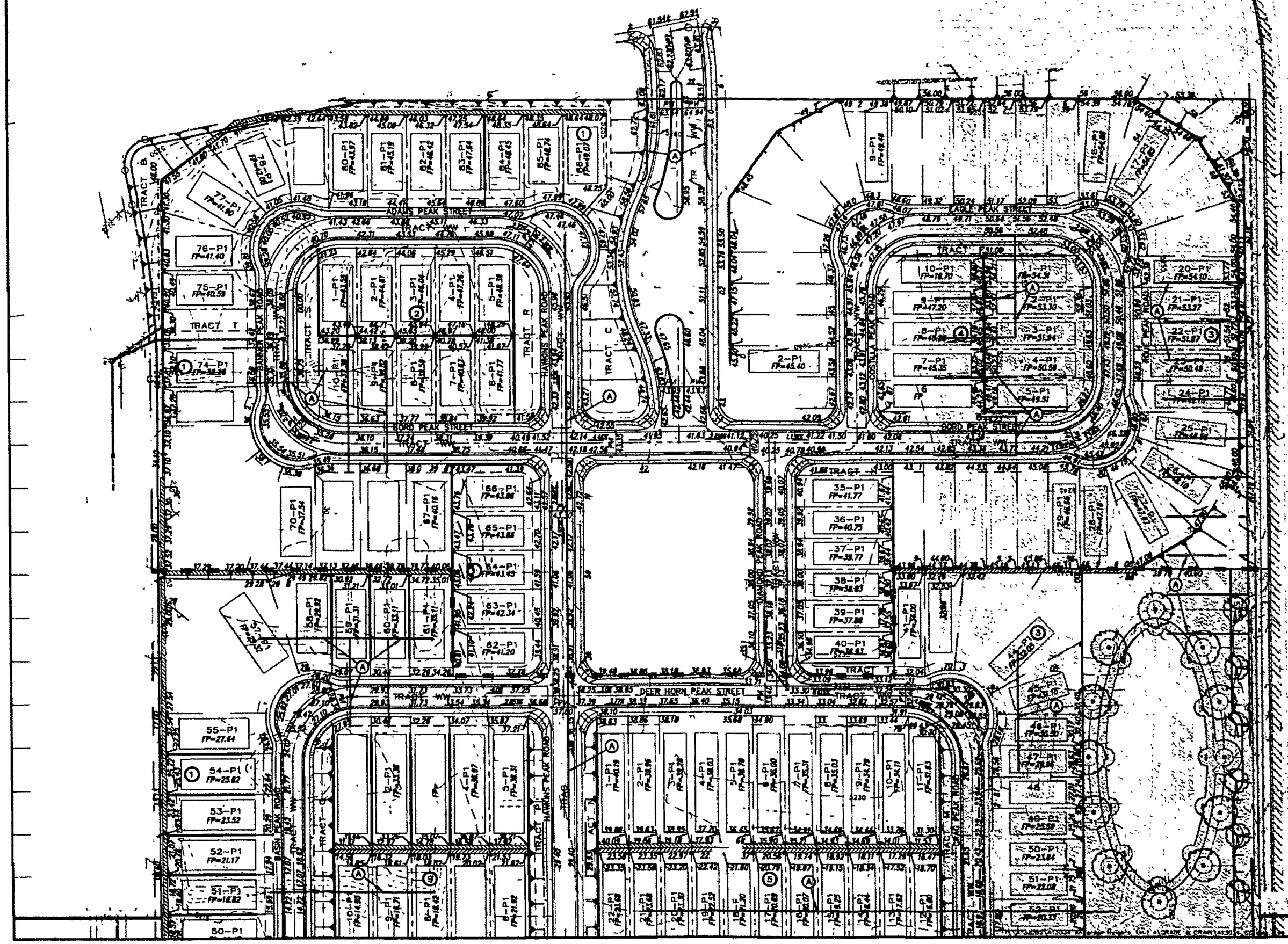
REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

ES

SHEET 2 FOR RETAINING WALL DETAILS
SEE SHEET 3 FOR EAST BOUNDARY
AINING WALL DETAIL.

SHEET 2 FOR TYPICAL LOT LAYOUT DETAIL.





SURVEY INFORMATION

BENCH MARKS

AS-BUILT INFORMATION

FIELD NOTES

MICRO-FILM INFORMATION

NO.	DATE	REVISIONS	BY

DESIGNED BY: DLM — DESIGN — DATE 04/14
DRAWN BY: DEPK — CHECK — DATE 04/14
CHECKED BY: DMG

mg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 80606
ALBUQUERQUE, NEW MEXICO 87189
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS - UNIT 4
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	NO./DATE	NO./DATE

CITY PROJECT NO. | ZONE MAP NO. N-8/P-8 | SHEET 1 OF 4

MATCHLINE A

MATCHLINE B

TRACT U

TRACT L

TRACT Z

EMERALD PEAK STREET

ALTA PEAK STREET

ANDERSON HEIGHTS UNIT 2 (03-17-2006, BK 2006, PG 87)

SIERRA RANCH UNIT 1 (08-24-2005, 2005C-216)

ANDERSON TRAIL

COLONIAL AVENUE S.W.

ANDOVER HILLS AVENUE S.W.

TYPICAL RETAINING WALL DETAIL
NTS

NOTE: RETAINING WALL REQUIRED WHEN THE DIFFERENCE BETWEEN PAD ELEVATIONS IS GREATER THAN 1.5

TYPICAL DOUBLE RETAINING WALL DETAIL
NTS

TYPICAL TRIPLE RETAINING WALL DETAIL
NTS

NOTES

1. SEE SHEET 3 FOR EAST BOUNDARY RETAINING WALL DETAIL.

KEYED NOTES:

(A) EXISTING RETAINING WALL TO BE REMOVED & DISPOSED (TYPICAL).

SCALE: 1" = 60'

LEGEND

- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING SPOT ELEVATION
- EXISTING TOP CURB/FLOWLINE ELEVATION
- EXISTING TOP WEST RETAINING WALL ELEV.
- EXISTING TOP WEST GROUND ELEVATION
- EXISTING TOP EAST RETAINING WALL ELEV.
- EXISTING BOTTOM WALL EAST GROUND ELEV.
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FENCE
- EXISTING POWER POLE
- EXISTING GAS LINE
- EXISTING STORM DRAIN
- EXISTING SAS LINE
- EXISTING WATER LINE
- NEW MOUNTABLE CURB & GUTTER
- NEW STANDARD CURB & GUTTER
- NEW SIDEWALK (THIS PROJECT)
- NEW RIGHT-OF-WAY
- NEW CENTERLINE
- NEW LOT LINES
- NEW EASEMENTS
- +81.77 NEW SPOT ELEVATIONS
- NEW FLOW DIRECTION
- NEW SLOPE
- HIGH PT NEW HIGH POINT
- NEW STORM DRAIN INLET
- ZONE BOUNDARY LINE
- NEW SINGLE RETAINING WALL
- NEW DOUBLE RETAINING WALL
- NEW TRIPLE RETAINING WALL
- PVI 94.60 NEW POINT OF VERTICAL INTERSECTION
- 24" RCP NEW STORM DRAIN
- NEW STORM DRAIN MANHOLE
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE

TYPICAL LOT LAYOUT PLAN

LOW CORNER
VARIES
0.5%
15'
FP= 100.1
20'
0.5%
100.0
HIGH PT
0.5%
HIGH CORNER
FUTURE 4' SIDEWALK
CURB & GUTTER

NOTE:

USE RETAINING WALLS:
WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE ADJACENT PADS IS 3.0' OR MORE A RETAINING WALL MUST BE CONSTRUCTED BETWEEN THE LOTS AS SHOWN ON THE PLAN AND THERE WILL BE NO PRIVATE DRAINAGE EASEMENT.

USE STEM WALLS:
WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE ADJACENT PADS IS GREATER THAN 1.5' BUT LESS THAN 3.0', A STEM WALL SHALL BE CONSTRUCTED BY THE BUILDER ON THE "HIGH SIDE" OF LOT PAD.

FOR ALL SIDE YARDS:
EACH LOT OWNER MUST CONSTRUCT, OPERATE, AND MAINTAIN HIS OWN SEPARATE DRAINAGE SWALE ALL THE WAY TO THE STREET AND CROSS LOT DRAINAGE WILL BE PREVENTED BY SOME COMBINATION OF WALLS AND BERMS ON THE COMMON LOT LINE TO BE JOINTLY MAINTAINED BY BOTH LOT OWNERS.

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SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
ACRS Brass Cap stamped "1-M8" From the intersection of Unser Boulevard and Gibson Boulevard SW travel east on Gibson Boulevard 1.7 miles to a triangulation power flow marking north-south, turn left on a dirt road and travel south 50 feet to the station on the right under the power line.
Geographic Position - NAD83 (Central Zone)
N.M. State Plane Coordinates (Central Zone)
N=1,470,761.875 E=1,488,735.830 D-G-S=9997.648 Acc=.0017737.78"
Elevation - NAVD88 in feet = 5,307.280

AS BUILT INFORMATION
CONTRACTOR
WORK INSPECTED BY
INSPECTION DATE
ACCEPTANCE BY
ACCEPTANCE DATE
CERTIFICATION BY
CERTIFICATION DATE
CORRECTED BY
MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

ENGINEER'S SEAL
RONALD R. BOHANNAN
NEW MEXICO
9781
LICENSED PROFESSIONAL ENGINEER
3/12/14

NO.	BY	REMARKS / REVISIONS / DESIGN	DATE
		DESIGNED BY	04/14
		DRAWN BY	04/14
		CHECKED BY	04/14

dmg
MARK GOODWIN & ASSOCIATES, P.A
CONSULTING ENGINEERS
P.O. BOX 80606
ALBUQUERQUE, NEW MEXICO 87198
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
ANDERSON HEIGHTS - UNIT 4
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. .
ZONE MAP NO. N-8/P-8
SHEET 2 OF 4

MATCHLINE B

MATCHLINE B

TRACT A-1-A

TRACT MM

TRACT NN

TRACT OO

TRACT PP

TRACT QQ

TRACT RR

TRACT SS

TRACT TT

TRACT UU

TRACT VV

TRACT WW

TRACT XX

TRACT YY

TRACT ZZ

TRACT AAA

TRACT BBB

TRACT CCC

TRACT DDD

TRACT EEE

TRACT FFF

TRACT GGG

TRACT HHH

TRACT III

TRACT JJJ

TRACT KKK

TRACT LLL

TRACT MMM

TRACT NNN

TRACT OOO

TRACT PPP

TRACT QQQ

TRACT RRR

TRACT SSS

TRACT TTT

TRACT UUU

TRACT VVV

TRACT WWW

TRACT XXX

TRACT YYY

TRACT ZZZ

TRACT AAAA

TRACT BBBB

TRACT CCCC

TRACT DDDD

TRACT EEEE

TRACT FFFF

TRACT GGGG

TRACT HHHH

TRACT IIII

TRACT JJJJ

TRACT KKKK

TRACT LLLL

TRACT MMMM

TRACT NNNN

TRACT OOOO

TRACT PPPP

TRACT QQQQ

TRACT RRRR

TRACT SSSS

TRACT TTTT

TRACT UUUU

TRACT VVVV

TRACT WWWW

TRACT XXXX

TRACT YYYY

TRACT ZZZZ

POTSARD STREET

ILANOS BAY COURT

DOLORES AVENUE SW

DUNDEE STREET

ARROWWOOD HILLS UNIT 1
(06-23-2006, 2006C-199)

BLOCK 7

BLOCK 6

BLOCK 1

TRACT B
UNIT 1
PUBLIC PARK

ANGLE MESA AVENUE SW

EROSION BAY
TRACT WW

EROSION CONTROL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE EARTHWORK CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL ADJACENT TO RETAINING WALL LOCATIONS TO BE UTILIZED FOR WALL BACKFILL.

5'
WIDE PUBLIC ACCESS EASEMENT
5'

SECTION A-A EAST BOUNDARY
DOUBLE RETAINING WALL (TYP)
(*NOTE: REMOVE & DISPOSE EXISTING RETAINING WALLS) N.T.S.

NOTES

1. SEE SHEET 2 FOR RETAINING WALL DETAILS.

KEYED NOTES:

(A) EXISTING RETAINING WALL TO BE REMOVED & DISPOSED (TYPICAL).

60' 30' 0 60' 120'
SCALE: 1" = 60'

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
ANDERSON HEIGHTS - UNIT 4
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

CITY PROJECT NO.	ZONE MAP NO	SHEET	OF
	N-8/P-8	3	4

AS BUILT INFORMATION
CONTRACTOR
ENTERED BY
INSPECTED BY
FIELD
DRAWING BY
DATE

BENCH MARKS
ADES Brass Cap stamped "1-M8"
From the intersection of Unser Boulevard and Gibson Boulevard SW travel west on Gibson Boulevard 1.7 miles to a transmission power line marking north-south turn left on a dirt road and travel south 30 feet to the station on the right under the power line.
Geographic Position - NAD83 in feet
(N.M. State Plane Coordinates (Central Zone)
(N=1470101.879 E=1488701.620 G=0.9992996664 a=-0017731.787
Elevation - NAVD88 in feet = 5357.250

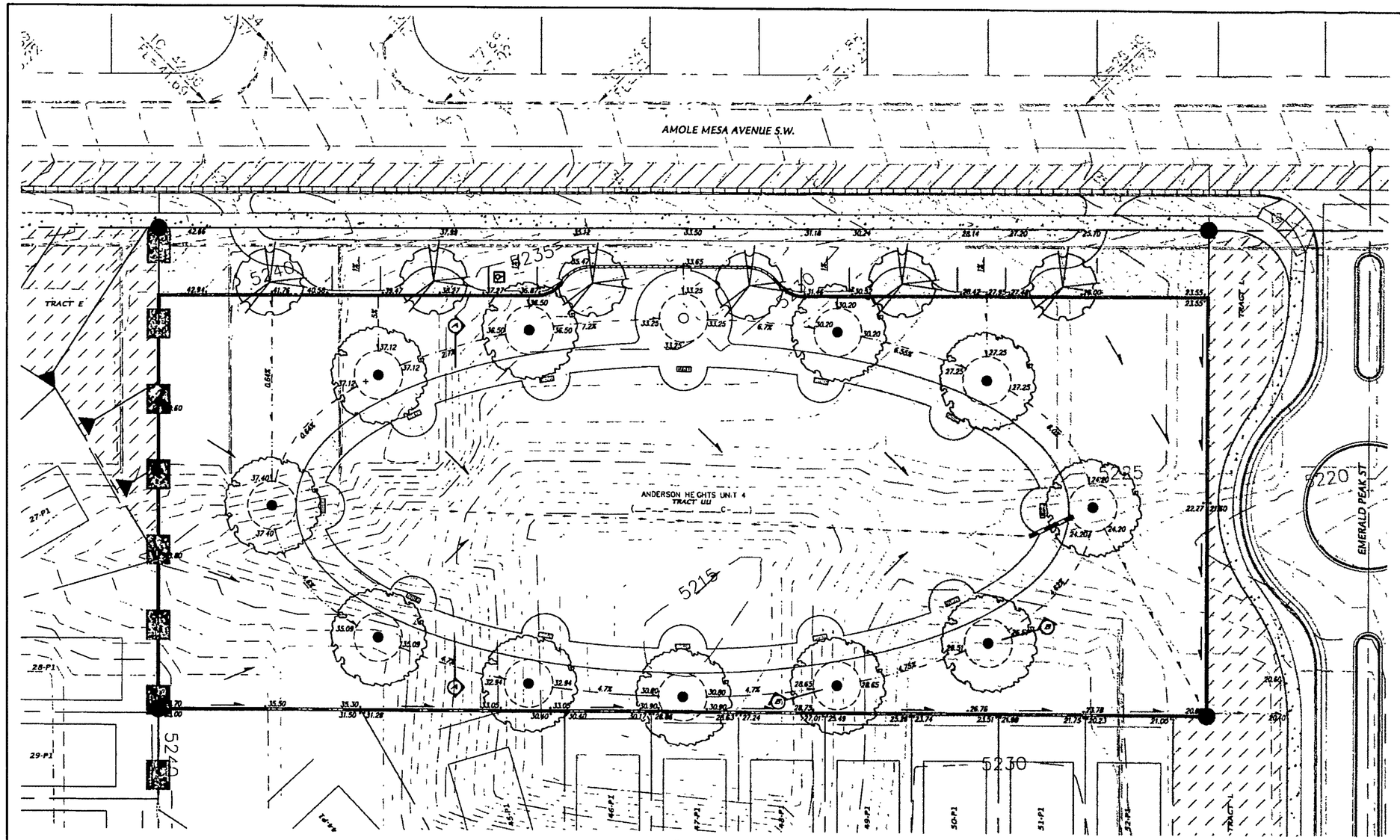
SURVEY INFORMATION
FIELD NOTES
BY
DATE
NO.

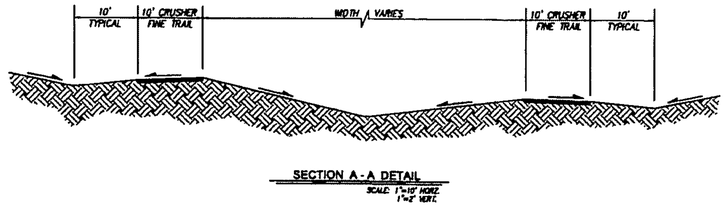
ENGINEER'S SEAL
STEVEN WESLEY MOSS
NEW MEXICO
11986
REGISTERED PROFESSIONAL ENGINEER
5/21/15

MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

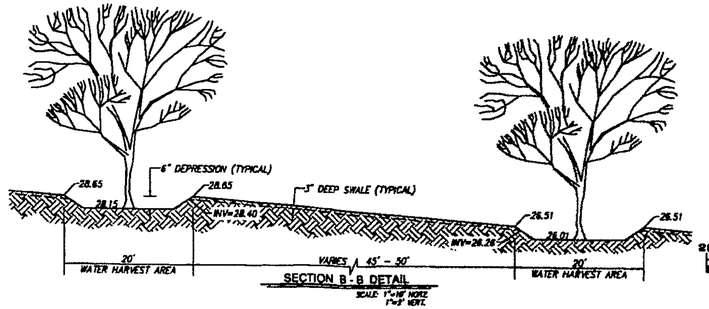
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY DLH	DATE 04/14
		DRAWN BY DER	DATE 04/14
		CHECKED BY DMG	DATE 04/14

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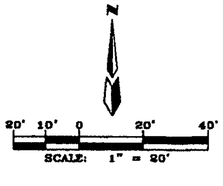




SECTION A-A DETAIL
SCALE: 1"=10' HORZ. 1"=5' VERT.



SECTION B-B DETAIL
SCALE: 1"=10' HORZ. 1"=5' VERT.



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AS BUILT INFORMATION
CONTRACTOR — DATE
ENGINEER — DATE
SURVEYOR — DATE
INSPECTOR — DATE
CONSTRUCTION BY — DATE

BENCH MARKS
ABCS Brass Cap stamped "1-M8" (From the intersection of Lomas Boulevard and Gibson Boulevard SW travel west on Gibson Boulevard 1.7 miles to a T-intersection power line running north-south, turn left on a dirt road and travel south 50 feet to the location on the right under the power line.)
Description — NGS83 in feet
N.A. State Plane Coordinates (Central Zone)
N=1470741.679 E=1488701.830 U=U=5289978.668 Ave=-0017767.70
Elevation — NAVD88 in feet = 5307.230

MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
JAIME HOBLES — NEW MEXICO — 12641 — REGISTERED PROFESSIONAL ENGINEER
51-2112

NO. | DATE | REMARKS
REVISIONS
DESIGNED BY DLH — DATE 04/14
DRAWN BY DER — DATE 04/14
CHECKED BY DMG — DATE 04/14

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS - UNIT 4
MEMORIAL PARK
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL | LAST DESIGN UPDATE: MO./DAY/YR. | MO./DAY/YR.

CITY PROJECT NO. | ZONE MAP NO. N-8/P-8 | SHEET 4 OF 4

APPENDIX A - HYDROLOGY

Table 1 Summary of Hydrologic Parameters
Sub Basin Boundary Exhibit

AHYMO Input file

AHYMO Summary files (100y-6h and 100y-24h)

TABLE 1

Anderson Heights Unit 4 Residential
Summary of Hydrology Parameters

Sub Basin	Area	Area	Area	Land Treatment Values				Runoff Volume	Discharge value	Discharge value
ID	sq.ft	acre	sq.mi.	A	B	C	D	acre-ft	cfs	cfs
								100yr 6 hr	100-yr 6-hr	Totals
1	132,915.4	3.05	0.004768		25.0	15.0	60.0	0.386	10.93	
2	118,153.5	2.71	0.004238		38.0	19.6	42.4	0.294	8.73	19.660
3	151,637.5	3.48	0.005439		33.0	16.2	50.8	0.407	11.76	
4	216,591.9	4.97	0.007769		32.5	16.3	51.2	0.583	16.84	
5	166,251.2	3.82	0.005963		25.0	15.0	60.0	0.483	13.67	
6	122,553.0	2.81	0.004396		25.0	15.0	60.0	0.356	10.08	52.350
7	66,471.1	1.53	0.002384		23.0	12.0	65.0	0.200	5.61	
8	136,969.3	3.14	0.004913		25.0	15.0	60.0	0.398	11.26	
9	139,598.4	3.20	0.005007		25.0	15.0	60.0	0.406	11.48	
10	36,117.3	0.83	0.001296		25.0	15.0	60.0	0.105	2.98	
11	47,552.3	1.09	0.001706		63.0	30.0	7.0	0.079	2.73	
12	159,563.7	3.66	0.005724		27.0	16.0	57.0	0.453	12.90	
13	80,646.1	1.85	0.002893		25.0	15.0	60.0	0.234	6.64	
14	82,702.0	1.90	0.002967		37.0	18.0	45.0	0.211	6.20	
15	49,704.2	1.14	0.001783		25.0	15.0	60.0	0.144	4.10	
16	82,271.3	1.89	0.002951		25.0	15.0	60.0	0.239	6.77	
17	45,640.2	1.05	0.001637		25.0	15.0	60.0	0.133	3.76	
18	168,124.1	3.86	0.006031		25.0	15.0	60.0	0.489	13.82	
19	150,924.4	3.46	0.005414		25.0	15.0	60.0	0.439	12.41	
20	97,795.7	2.25	0.003508		25.0	15.0	60.0	0.284	8.05	
21	167,721.1	3.85	0.006016		25.0	15.0	60.0	0.487	13.79	
22	65,557.9	1.51	0.002352		25.0	15.0	60.0	0.191	5.40	
23	81,612.0	1.87	0.002927		25.0	15.0	60.0	0.237	6.72	
24	260,439.7	5.98	0.009342		29.4	14.8	55.8	0.729	20.81	

TABLE 1

Anderson Heights Unit 4 Residential
Summary of Hydrology Parameters

Sub Basin ID	Area sq.ft	Area acre	Area sq.mi.	Land Treatment Values A	B	C	D	Runoff Volume acre-ft 100yr 6 hr	Discharge value cfs 100-yr 6-hr	Discharge value cfs Totals
25	194,397.5	4.46	0.006973		25.0	15.0	60.0	0.565	15.98	
26	129,723.6	2.98	0.004653		25.0	15.0	60.0	0.377	10.67	
27	25,155.5	0.58	0.000902		21.6	10.8	67.6	0.077	2.16	
28	24,336.5	0.56	0.000873		31.9	15.9	52.2	0.066	1.92	
29	183,585.4	4.21	0.006585		31.4	15.7	52.9	0.501	14.42	
30	22,132.3	0.51	0.000794		21.6	10.8	67.6	0.068	1.90	
31	134,668.0	3.09	0.004831		100.0	0.0	0.0	0.119	4.31	206.790
32	98,347.0	2.26	0.003528		0.0	40.0	60.0	0.286	8.11	
33	90,424.7	2.08	0.003244		0.0	36.0	64.0	0.497	13.95	22.060

F:/PROJECTS/13034 anderson heights -Summary Table 1 Hydrology (2-9-15)

SUB BASIN 1 (10.93 CFS)
SUB BASIN 2 (8.73 CFS)
SUB BASIN 3 (11.78 CFS)
SUB BASIN 4 (16.84 CFS)
SUB BASIN 5 (13.67 CFS)
SUB BASIN 6 (10.08 CFS)
SUB BASIN 7 (5.61 CFS)
SUB BASIN 8 (11.26 CFS)
SUB BASIN 9 (11.48 CFS)
SUB BASIN 10 (2.98 CFS)
SUB BASIN 11 (2.73 CFS)
SUB BASIN 12 (12.90 CFS)
SUB BASIN 13 (6.64 CFS)
SUB BASIN 14 (6.20 CFS)
SUB BASIN 15 (4.10 CFS)
SUB BASIN 16 (6.77 CFS)
SUB BASIN 17 (3.76 CFS)
SUB BASIN 18 (13.82 CFS)
SUB BASIN 19 (12.41 CFS)
SUB BASIN 20 (8.05 CFS)
SUB BASIN 21 (13.79 CFS)
SUB BASIN 22 (5.40 CFS)
SUB BASIN 23 (6.72 CFS)
SUB BASIN 24 (20.81 CFS)
SUB BASIN 25 (15.98 CFS)
SUB BASIN 26 (10.67 CFS)
SUB BASIN 27 (2.18 CFS)
SUB BASIN 28 (1.92 CFS)
SUB BASIN 29 (14.42 CFS)
SUB BASIN 30 (1.90 CFS)
SUB BASIN 31 (4.31 CFS)
SUB BASIN 32 (13.95 CFS)
SUB BASIN 33 (8.11 CFS)

UNIT 4A
UNIT 4B
UNIT 4C
UNIT 4D
UNIT 4E
UNIT 4F

EAGLE PEAK STREET
CASTILLA PEAK
BARROW ROAD
BOND PEAK STREET
BANNER BAT ROAD
OSO HORN PEAK STREET
EMERALD PEAK STREET
BASIN PEAK ROAD
LINDRAD PEAK STREET
ALTA PEAK STREET
LIGHT HEAD ROAD
PINE TOWN ROAD
BLACKBURN ROAD
NOTOMAD STREET
COBBLEHILL ROAD
ORANGE GROVE ROAD
EDARDS BAY STREET
MONTEREY HILLS DRIVE

SCALE: 1" = 100'

F:\A13JOBS\A13034 Anderson Heights, Unit 4\GRADE & DRAIN\A13034_GD_DLH_EXHIBIT_81.dwg, Last saved by: Dwayne, 2/11/2015

AS BUILT INFORMATION

CONTRACTOR
ISSUED BY
INSPECTED BY
ACCEPTANCE BY
CORRECTED BY

MICRO-FILM INFORMATION
MICROFILMED BY
NO

BENCH MARKS
AGRS Bronze Cap stamped "1-A8"
From the intersection of Unser Boulevard and Gibson Boulevard SW travel east on Gibson Boulevard 1.7 miles to a homemades power line corner, north-south, turn left on a dirt road and travel south 50 feet to the station on the right under the power line.
Geographic Position - NAD83 in feet
N.M. State Plane Coordinates (Combined Zone)
(N=1470741.879 E=1468701.820)
Elevation - NAVD88 in feet = 5307.280

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

REMARKS

REVISIONS

NO.	DATE	BY
DESIGN	04/14	
DESIGNED BY	DLH	
DRAWN BY	DER	
CHECKED BY	DMG	

ENGINEER'S SEAL
DWAYNE HOELSCHER
NEW MEXICO
LICENSED
2-12-15

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90828
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
ANDERSON HEIGHTS - UNIT 4
SUB BASIN BOUNDARY EXHIBIT

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

CITY PROJECT NO.

ZONE MAP NO
N-8/P-8

SHEET OF
1 1

```
START                TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION             NEW MEXICO
*s************************************************************
*S*******************  FILE: AH4_6.DAT  REV: 2-9-15  DLH
*S************************************************************
*S************************************************************
*S                    100 YEAR 6 HOUR STORM EVENT
*S************************************************************
*S************************************************************
RAINFALL             TYPE=1 RAIN QUARTER=0.0
                     RAIN ONE=1.90 IN RAIN SIX=2.23 IN
                     RAIN DAY=2.67 IN DT=0.05 HRS
*S************************************************************
*S       SUB BASIN 1
*S       (3.05 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.1 AREA= 0.004768 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 2
*S       (2.71 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.2 AREA= 0.004238 SQ MI
                     PER A=0   PER B=38   PER C=19.6   PER D=42.4
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 3
*S       (3.48 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.3 AREA= 0.005439 SQ MI
                     PER A=0   PER B=33   PER C=16.2   PER D=50.8
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 4
*S       (4.97 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.4 AREA= 0.007769 SQ MI
                     PER A=0   PER B=32.5   PER C=16.3   PER D=51.2
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 5
*S       (3.82 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.5 AREA= 0.005963 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 6
```

```
*S       (2.81 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.6 AREA= 0.004396 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S*************************************************************
*S       SUB BASIN 7
*S       (1.53 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.7 AREA= 0.002384 SQ MI
                      PER A=0   PER B=23   PER C=12   PER D=65
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S*************************************************************
*S       SUB BASIN 8
*S       (3.14 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.8 AREA= 0.004913 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S*************************************************************
*S       SUB BASIN 9
*S       (3.20 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.9 AREA= 0.005007 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S*************************************************************
*S       SUB BASIN 10
*S       (0.83 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.10 AREA= 0.001296 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S*************************************************************
*S       SUB BASIN 11
*S       (1.09 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.11 AREA= 0.001706 SQ MI
                      PER A=0   PER B=63   PER C=30   PER D=7
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S*************************************************************
*S       SUB BASIN 12
*S       (3.66 ACRES)
*S*************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.12 AREA= 0.005724 SQ MI
                      PER A=0   PER B=27   PER C=16   PER D=57
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
```

```
*S************************************************************
*S       SUB BASIN 13
*S       (1.85 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.13 AREA= 0.002893 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 14
*S       (1.90 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.14 AREA= 0.002967 SQ MI
                      PER A=0   PER B=37   PER C=18   PER D=45
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 15
*S       (1.14 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.15 AREA= 0.001783 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 16
*S       (1.89 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.16 AREA= 0.002951 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 17
*S       (1.05 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.17 AREA= 0.001637 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 18
*S       (3.86 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.18 AREA= 0.006031 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 19
*S       (3.46 ACRES)
*S************************************************************
COMPUTE NM HYD        ID=1  HYD NO=100.19 AREA= 0.005414 SQ MI
                      PER A=0   PER B=25   PER C=15   PER D=60
```

```
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 20
*S      (2.25 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.20 AREA= 0.003508 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 21
*S      (3.85 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.21 AREA= 0.006016 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 22
*S      (1.51 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.22 AREA= 0.002352 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 23
*S      (1.87 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.23 AREA= 0.002927 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 24
*S      (5.98 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.24 AREA= 0.009342 SQ MI
                    PER A=0  PER B=29.4  PER C=14.8 PER D=55.8
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 25
*S      (4.46 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.25 AREA= 0.006973 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 26
*S      (2.98 ACRES)
*S**********************************************************
```

```
COMPUTE NM HYD       ID=1  HYD NO=100.26 AREA= 0.004653 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 27
*S       (0.58 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.27 AREA= 0.000902 SQ MI
                     PER A=0   PER B=21.6   PER C=10.8   PER D=67.6
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 28
*S       (0.56 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.28 AREA= 0.000873 SQ MI
                     PER A=0   PER B=31.9   PER C=15.9   PER D=52.2
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 29
*S       (4.21 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.29 AREA= 0.006585 SQ MI
                     PER A=0   PER B=31.4   PER C=15.7   PER D=52.9
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 30
*S       (0.51 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.30 AREA= 0.000794 SQ MI
                     PER A=0   PER B=21.6   PER C=10.8   PER D=67.6
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1

*S************************************************************
*S       SUB BASIN 33
*S       COLOBEL EAST
*S       (2.2577 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.33 AREA= 0.0035 SQ MI
                     PER A=0   PER B=20   PER C=20   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1

*S************************************************************
*S       SUB BASIN 32
*S       COLOBEL WEST
*S       (3.771 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.32 AREA= 0.0059 SQ MI
                     PER A=0   PER B=18   PER C=18   PER D=64
```

```
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 31
*s      PARK
*S      (2.07 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.31 AREA= 0.003244 SQ MI
                    PER A=0  PER B=100  PER C=0  PER D=0
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
FINISH
```

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/09/2015
INPUT FILE = AH4_6.DAT USER NO.= AHYMO-I-9702dGoodwinM-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
LOCATION	NEW MEXICO									
*S********** FILE: AH4_6.DAT REV: 2-9-15 DLH										
*S 100 YEAR 6 HOUR STORM EVENT										
RAINFALL TYPE= 1										RAIN6= 2.230
*S SUB BASIN 1										
*S (3.05 ACRES)										
COMPUTE NM HYD	100.10	-	1	.00477	10.93	.386	1.51897	1.500	3.582	PER IMP= 60.00
*S SUB BASIN 2										
*S (2.71 ACRES)										
COMPUTE NM HYD	100.20	-	1	.00424	8.73	.294	1.30187	1.500	3.217	PER IMP= 42.40
*S SUB BASIN 3										
*S (3.48 ACRES)										
COMPUTE NM HYD	100.30	-	1	.00544	11.76	.407	1.40159	1.500	3.379	PER IMP= 50.80
*S SUB BASIN 4										
*S (4.97 ACRES)										
COMPUTE NM HYD	100.40	-	1	.00777	16.84	.583	1.40718	1.500	3.388	PER IMP= 51.20
*S SUB BASIN 5										
*S (3.82 ACRES)										
COMPUTE NM HYD	100.50	-	1	.00596	13.67	.483	1.51897	1.500	3.581	PER IMP= 60.00
*S SUB BASIN 6										
*S (2.81 ACRES)										
COMPUTE NM HYD	100.60	-	1	.00440	10.08	.356	1.51897	1.500	3.582	PER IMP= 60.00
*S SUB BASIN 7										
*S (1.53 ACRES)										
COMPUTE NM HYD	100.70	-	1	.00238	5.61	.200	1.57516	1.500	3.674	PER IMP= 65.00
*S SUB BASIN 8										
*S (3.14 ACRES)										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	100.80	-	1	.00491	11.26	.398	1.51897	1.500	3.582	PER IMP= 60.00
*S**********										
*S SUB BASIN 9										
*S (3.20 ACRES)										
*S**********										
COMPUTE NM HYD	100.90	-	1	.00501	11.48	.406	1.51897	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 10										
*S (0.83 ACRES)										
*S**********										
COMPUTE NM HYD	100.10	-	1	.00130	2.98	.105	1.51897	1.500	3.594	PER IMP= 60.00
*S**********										
*S SUB BASIN 11										
*S (1.09 ACRES)										
*S**********										
COMPUTE NM HYD	100.11	-	1	.00171	2.73	.079	.86893	1.500	2.500	PER IMP= 7.00
*S**********										
*S SUB BASIN 12										
*S (3.66 ACRES)										
*S**********										
COMPUTE NM HYD	100.12	-	1	.00572	12.90	.453	1.48267	1.500	3.520	PER IMP= 57.00
*S**********										
*S SUB BASIN 13										
*S (1.85 ACRES)										
*S**********										
COMPUTE NM HYD	100.13	-	1	.00289	6.64	.234	1.51897	1.500	3.585	PER IMP= 60.00
*S**********										
*S SUB BASIN 14										
*S (1.90 ACRES)										
*S**********										
COMPUTE NM HYD	100.14	-	1	.00297	6.20	.211	1.33096	1.500	3.265	PER IMP= 45.00
*S**********										
*S SUB BASIN 15										
*S (1.14 ACRES)										
*S**********										
COMPUTE NM HYD	100.15	-	1	.00178	4.10	.144	1.51897	1.500	3.590	PER IMP= 60.00
*S**********										
*S SUB BASIN 16										
*S (1.89 ACRES)										
*S**********										
COMPUTE NM HYD	100.16	-	1	.00295	6.77	.239	1.51897	1.500	3.585	PER IMP= 60.00
*S**********										
*S SUB BASIN 17										
*S (1.05 ACRES)										
*S**********										
COMPUTE NM HYD	100.17	-	1	.00164	3.76	.133	1.51897	1.500	3.590	PER IMP= 60.00
*S**********										
*S SUB BASIN 18										
*S (3.86 ACRES)										
*S**********										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	100.18	-	1	.00603	13.82	.489	1.51897	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 19										
*S (3.46 ACRES)										
*S**********										
COMPUTE NM HYD	100.19	-	1	.00541	12.41	.439	1.51897	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 20										
*S (2.25 ACRES)										
*S**********										
COMPUTE NM HYD	100.20	-	1	.00351	8.05	.284	1.51897	1.500	3.583	PER IMP= 60.00
*S**********										
*S SUB BASIN 21										
*S (3.85 ACRES)										
*S**********										
COMPUTE NM HYD	100.21	-	1	.00602	13.79	.487	1.51897	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 22										
*S (1.51 ACRES)										
*S**********										
COMPUTE NM HYD	100.22	-	1	.00235	5.40	.191	1.51897	1.500	3.587	PER IMP= 60.00
*S**********										
*S SUB BASIN 23										
*S (1.87 ACRES)										
*S**********										
COMPUTE NM HYD	100.23	-	1	.00293	6.72	.237	1.51897	1.500	3.585	PER IMP= 60.00
*S**********										
*S SUB BASIN 24										
*S (5.98 ACRES)										
*S**********										
COMPUTE NM HYD	100.24	-	1	.00934	20.81	.729	1.46296	1.500	3.480	PER IMP= 55.80
*S**********										
*S SUB BASIN 25										
*S (4.46 ACRES)										
*S**********										
COMPUTE NM HYD	100.25	-	1	.00697	15.98	.565	1.51897	1.500	3.580	PER IMP= 60.00
*S**********										
*S SUB BASIN 26										
*S (2.98 ACRES)										
*S**********										
COMPUTE NM HYD	100.26	-	1	.00465	10.67	.377	1.51897	1.500	3.582	PER IMP= 60.00
*S**********										
*S SUB BASIN 27										
*S (0.58 ACRES)										
*S**********										
COMPUTE NM HYD	100.27	-	1	.00090	2.16	.077	1.60555	1.500	3.740	PER IMP= 67.60
*S**********										
*S SUB BASIN 28										
*S (0.56 ACRES)										
*S**********										
COMPUTE NM HYD	100.28	-	1	.00087	1.92	.066	1.41907	1.500	3.432	PER IMP= 52.20
*S**********										
*S SUB BASIN 29										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
*S	(4.21 ACRES)									
*S**********										
COMPUTE NM HYD	100.29	-	1	.00659	14.42	.501	1.42765	1.500	3.423	PER IMP= 52.90
*S**********										
*S	SUB BASIN 30									
*S	(0.51 ACRES)									
*S**********										
COMPUTE NM HYD	100.30	-	1	.00079	1.90	.068	1.60555	1.500	3.745	PER IMP= 67.60
*S**********										
*S	SUB BASIN 33									
*S	COLOBEL EAST									
*S	(2.2577 ACRES)									
*S**********										
COMPUTE NM HYD	100.33	-	1	.00350	8.11	.286	1.53458	1.500	3.622	PER IMP= 60.00
*S**********										
*S	SUB BASIN 32									
*s	COLOBEL WEST									
*S	(3.771 ACRES)									
*S**********										
COMPUTE NM HYD	100.32	-	1	.00590	13.95	.497	1.58088	1.500	3.694	PER IMP= 64.00
*S**********										
*S	SUB BASIN 31									
*s	PARK									
*S	(2.07 ACRES)									
*S**********										
COMPUTE NM HYD	100.31	-	1	.00324	4.31	.119	.68902	1.500	2.076	PER IMP= .00

FINISH

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02d      RUN DATE (MON/DAY/YR) =02/09/2015
INPUT FILE = AH4_24.DAT                                                               USER NO.= AHYMO-I-9702dGoodwinM-AH

                                FROM  TO                    PEAK        RUNOFF                  TIME TO    CFS       PAGE =    1
                  HYDROGRAPH    ID    ID        AREA      DISCHARGE     VOLUME      RUNOFF      PEAK      PER
COMMAND       IDENTIFICATION    NO.   NO.      (SQ MI)     (CFS)       (AC-FT)     (INCHES)    (HOURS)   ACRE     NOTATION

START                                                                                                    TIME=        .00
LOCATION                        NEW MEXICO
*s*************************************************************
*S******************  FILE: AH4_24.DAT  REV: 2-9-15  DLH
*S*************************************************************
*S*************************************************************
*S                  100 YEAR 24 HOUR STORM EVENT
*S*************************************************************
*S*************************************************************
RAINFALL  TYPE= 2                                                                                        RAIN24=    2.670
*S*************************************************************
*S      SUB BASIN 1
*S      (3.05 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.10   -     1        .00477        10.93        .453      1.78276    1.500     3.582 PER IMP=  60.00
*S*************************************************************
*S      SUB BASIN 2
*S      (2.71 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.20   -     1        .00424         8.73        .336      1.48828    1.500     3.217 PER IMP=  42.40
*S*************************************************************
*S      SUB BASIN 3
*S      (3.48 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.30   -     1        .00544        11.76        .471      1.62492    1.500     3.379 PER IMP=  50.80
*S*************************************************************
*S      SUB BASIN 4
*S      (4.97 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.40   -     1        .00777        16.84        .676      1.63228    1.500     3.388 PER IMP=  51.20
*S*************************************************************
*S      SUB BASIN 5
*S      (3.82 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.50   -     1        .00596        13.67        .567      1.78276    1.500     3.581 PER IMP=  60.00
*S*************************************************************
*S      SUB BASIN 6
*S      (2.81 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.60   -     1        .00440        10.08        .418      1.78276    1.500     3.582 PER IMP=  60.00
*S*************************************************************
*S      SUB BASIN 7
*S      (1.53 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.70   -     1        .00238         5.61        .237      1.86093    1.500     3.674 PER IMP=  65.00
*S*************************************************************
*S      SUB BASIN 8
*S      (3.14 ACRES)
*S*************************************************************
COMPUTE NM HYD        100.80   -     1        .00491        11.26        .467      1.78276    1.500     3.582 PER IMP=  60.00
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
*S**********											
*S SUB BASIN 9											
*S (3.20 ACRES)											
*S**********											
COMPUTE NM HYD	100.90	-	1	.00501	11.48	.476	1.78276	1.500	3.581	PER IMP=	60.00
*S**********											
*S SUB BASIN 10											
*S (0.83 ACRES)											
*S**********											
COMPUTE NM HYD	100.10	-	1	.00130	2.98	.123	1.78276	1.500	3.594	PER IMP=	60.00
*S**********											
*S SUB BASIN 11											
*S (1.09 ACRES)											
*S**********											
COMPUTE NM HYD	100.11	-	1	.00171	2.73	.082	.89971	1.500	2.500	PER IMP=	7.00
*S**********											
*S SUB BASIN 12											
*S (3.66 ACRES)											
*S**********											
COMPUTE NM HYD	100.12	-	1	.00572	12.90	.529	1.73326	1.500	3.520	PER IMP=	57.00
*S**********											
*S SUB BASIN 13											
*S (1.85 ACRES)											
*S**********											
COMPUTE NM HYD	100.13	-	1	.00289	6.64	.275	1.78276	1.500	3.585	PER IMP=	60.00
*S**********											
*S SUB BASIN 14											
*S (1.90 ACRES)											
*S**********											
COMPUTE NM HYD	100.14	-	1	.00297	6.20	.242	1.52880	1.500	3.265	PER IMP=	45.00
*S**********											
*S SUB BASIN 15											
*S (1.14 ACRES)											
*S**********											
COMPUTE NM HYD	100.15	-	1	.00178	4.10	.170	1.78276	1.500	3.590	PER IMP=	60.00
*S**********											
*S SUB BASIN 16											
*S (1.89 ACRES)											
*S**********											
COMPUTE NM HYD	100.16	-	1	.00295	6.77	.281	1.78276	1.500	3.585	PER IMP=	60.00
*S**********											
*S SUB BASIN 17											
*S (1.05 ACRES)											
*S**********											
COMPUTE NM HYD	100.17	-	1	.00164	3.76	.156	1.78276	1.500	3.590	PER IMP=	60.00
*S**********											
*S SUB BASIN 18											
*S (3.86 ACRES)											
*S**********											
COMPUTE NM HYD	100.18	-	1	.00603	13.82	.573	1.78276	1.500	3.581	PER IMP=	60.00
*S**********											
*S SUB BASIN 19											
*S (3.46 ACRES)											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
COMPUTE NM HYD	100.19	-	1	.00541	12.41	.515	1.78276	1.500	3.581	PER IMP=	60.00
*S SUB BASIN 20 (2.25 ACRES)											
COMPUTE NM HYD	100.20	-	1	.00351	8.05	.334	1.78276	1.500	3.583	PER IMP=	60.00
*S SUB BASIN 21 (3.85 ACRES)											
COMPUTE NM HYD	100.21	-	1	.00602	13.79	.572	1.78276	1.500	3.581	PER IMP=	60.00
*S SUB BASIN 22 (1.51 ACRES)											
COMPUTE NM HYD	100.22	-	1	.00235	5.40	.224	1.78276	1.500	3.587	PER IMP=	60.00
*S SUB BASIN 23 (1.87 ACRES)											
COMPUTE NM HYD	100.23	-	1	.00293	6.72	.278	1.78276	1.500	3.585	PER IMP=	60.00
*S SUB BASIN 24 (5.98 ACRES)											
COMPUTE NM HYD	100.24	-	1	.00934	20.81	.851	1.70828	1.500	3.480	PER IMP=	55.80
*S SUB BASIN 25 (4.46 ACRES)											
COMPUTE NM HYD	100.25	-	1	.00697	15.98	.663	1.78276	1.500	3.580	PER IMP=	60.00
*S SUB BASIN 26 (2.98 ACRES)											
COMPUTE NM HYD	100.26	-	1	.00465	10.67	.442	1.78276	1.500	3.582	PER IMP=	60.00
*S SUB BASIN 27 (0.58 ACRES)											
COMPUTE NM HYD	100.27	-	1	.00090	2.16	.092	1.90274	1.500	3.740	PER IMP=	67.60
*S SUB BASIN 28 (0.56 ACRES)											
COMPUTE NM HYD	100.28	-	1	.00087	1.92	.077	1.64856	1.500	3.432	PER IMP=	52.20
*S SUB BASIN 29 (4.21 ACRES)											
COMPUTE NM HYD	100.29	-	1	.00659	14.42	.583	1.66022	1.500	3.423	PER IMP=	52.90
*S SUB BASIN 30											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
*S	(0.51 ACRES)									
*S**********										
COMPUTE NM HYD	100.30	-	1	.00079	1.90	.081	1.90274	1.500	3.745	PER IMP= 67.60
*S**********										
*S	SUB BASIN 33									
*S	COLOBEL EAST									
*S	(2.2577 ACRES)									
*S**********										
COMPUTE NM HYD	100.33	-	1	.00350	8.11	.336	1.79836	1.500	3.622	PER IMP= 60.00
*S**********										
*S	SUB BASIN 32									
*s	COLOBEL WEST									
*S	(3.771 ACRES)									
*S**********										
COMPUTE NM HYD	100.32	-	1	.00590	13.95	.586	1.86225	1.500	3.694	PER IMP= 64.00
*S**********										
*S	SUB BASIN 31									
*s	PARK									
*S	(2.07 ACRES)									
*S**********										
COMPUTE NM HYD	100.31	-	1	.00324	4.31	.119	.68902	1.500	2.076	PER IMP= .00
FINISH										

APPENDIX B - HYDRAULICS

Table 2 Summary of Street Capacity Calculations
Street Capacity Exhibit
Calculations for sump inlets
Inlet grate capacity Plate
HEC-2 Printouts

TABLE 2

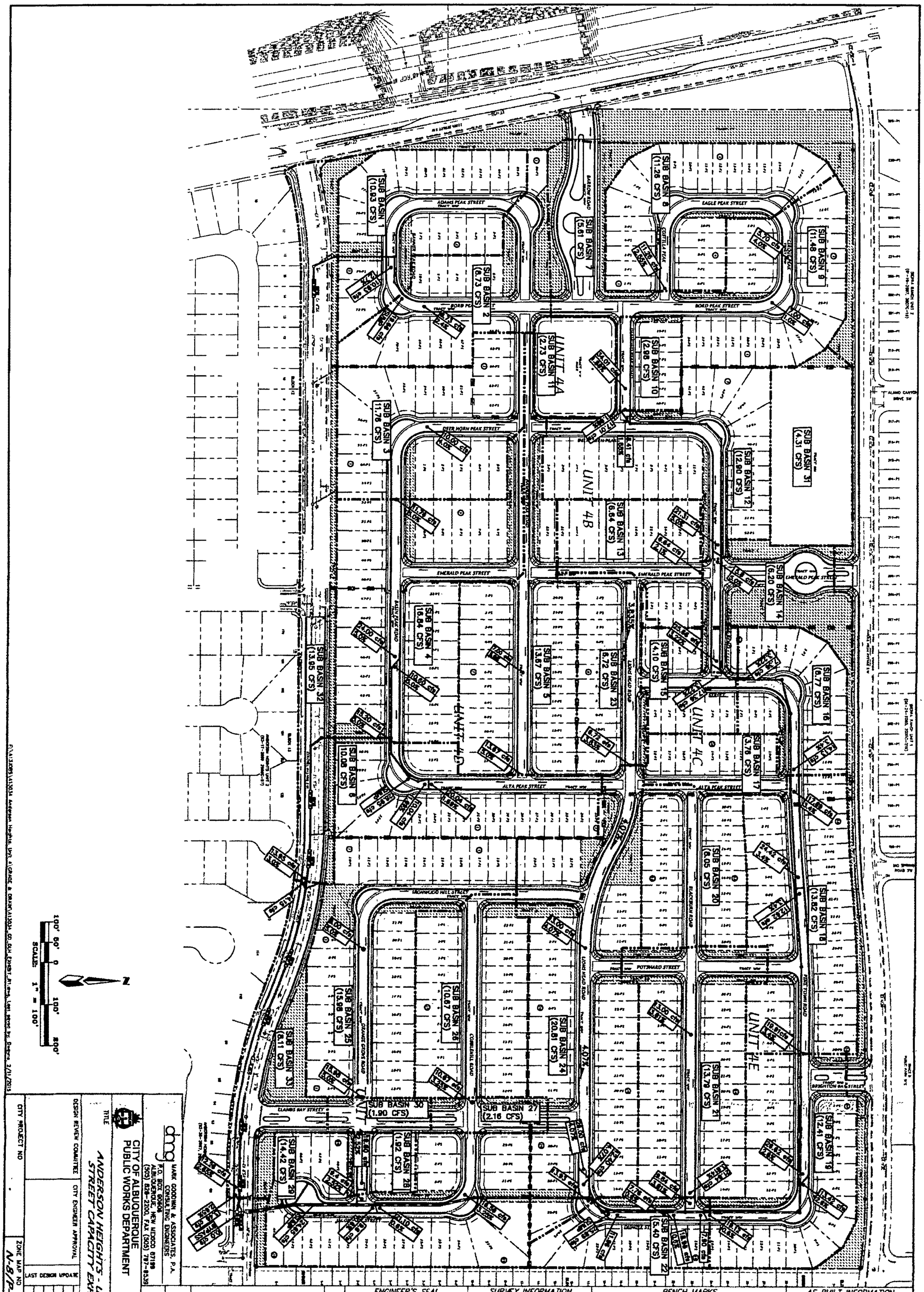
Summary of Street Capacity Calculations											
Anderson Heights Unit 4											
LOCATION	**WIDTH**	**CROWN**	**STD or MTB**	**SLOPE %**	**Q cfs**	**DEPTH ft.**	**EG (ft)**	**INLET Q cfs**	**TYPE INLET**	**INLET BYPASS**	**ADD Q cfs**
BANNER PEAK	26' FF	Y	MTB	2.70	10.93	0.33	0.52				
BORD PEAK	26' FF	Y	MTB	2.40	8.73	0.31	0.47				
CIRQUE PARK	26' FF	Y	MTB	4.00	5.70	0.26	0.47				
BORD PEAK	26' FF	Y	MTB	1.00	7.00	0.33	0.40				
COSTILLA PEAK	26' FF	Y	MTB	2.55	11.26	0.33	0.52				
DEER HORN PEAK	26' FF	Y	MTB	4.00	10.00	0.30	0.55				
HAWKINS PEAK	26' FF	Y	MTB	5.00	7.00	0.26	0.52				
EMERALD PEAK	26' FF	Y	MTB	2.10	6.64	0.29	0.42				
LIONS HEAD	26' FF	Y	MTB	3.84	6.72	0.27	0.47				
BLACKBURN RD.	26' FF	Y	MTB	3.81	13.00	0.33	0.6				
ORANGE GROVE	26' FF	Y	MTB	5.00	8.00	0.28	0.54				
LIONS HEAD	28' FF	Y	MTB	4.07	13.00	0.32	0.61				

TABLE 2

Summary of Street Capacity Calculations											
Anderson Heights Unit 4											
LOCATION	**WIDTH**	**CROWN**	**STD or MTB**	**SLOPE %**	**Q cfs**	**DEPTH ft.**	**EG (ft)**	**INLET Q cfs**	**TYPE INLET**	**INLET BYPASS**	**ADD Q cfs**
BANNER PEAK	26' FF	Y	STD	2.70	10.93	0.32	0.52				
BORD PEAK	26' FF	Y	STD	2.40	8.73	0.31	0.47				
BANNER/BORD	26'FF	Y	STD	SUMP	19.66			44.30	(2) DBL A	0	SUMP INLETS
DIAMOND PEAK	26' FF	Y	STD	1.88	28.30	0.45	0.76				
DIAMOND PEAK	26' FF	Y	STD	1.88	34.01	0.48	0.84	8.5(2)	DBL A	17.01	
DIAMOND PEAK	26' FF	Y	STD	1.88	17.01	0.38	0.60	4.3(2)	SGL C	8.41	+12.90
CRAG PEAK	26' FF	Y	STD	5.00	21.31	0.36	0.82	6.4(2)	SGL A	8.51	+6.64 +6.2 +4.31
CRAG PEAK	26' FF	Y	STD	3.22	25.66	0.40	0.81	6.7 (2)	SGL A	13.26	+4.10
TYLER PEAK	26' FF	Y	STD	3.22	17.36	0.36	0.66	5.5 (2)	SGL C	7.36	+6.77 +10.29
PINE TOWN ROAD	26' FF	Y	STD	3.40	24.42	0.39	0.79	5.9(2)	SGL A	12.6	+7.29
PINE TOWN ROAD	26' FF	Y	STD	3.40	19.91	0.37	0.71				
PINE TOWN ROAD	28' FF	Y	STD	2.60	26.62	0.42	0.77	6.6 (2)	SGL C	13.42	
DUNDEE	26' FF	Y	STD	0.60	19.12	0.48	0.59	5.6 (2)	SGL C	7.92	
BLACKBURN RD	26' FF	Y	STD	3.81	21.84	0.37	0.77	6.0 (2)	SGL C	9.84	7.92+1.2
DUNDEE	26' FF	Y	STD	0.60	18.96	0.47	0.59	5.6 (2)	SGL C	7.76	+4.2
DUNDEE	26'FF	Y	STD	0.60	11.96						
LIONS HEAD	28' FF	Y	STD	4.07	26.00	0.39	0.84	6.8 (2)	SGL A	12.4	+1.53
LIONS HEAD	28'FF	Y	STD	4.07	13.93						
LIONS/DUNDEE	26'FF	Y	STD	SUMP	25.89			51.78	DBL A+TRL A	0	SUMP INLETS

TABLE 2

Summary of Street Capacity Calculations											
Anderson Heights Unit 4											
LOCATION	**WIDTH**	**CROWN**	**STD or MTB**	**SLOPE %**	**Q cfs**	**DEPTH ft.**	**EG (ft)**	**INLET Q cfs**	**TYPE INLET**	**INLET BYPASS**	**ADD Q cfs**
COBBLE HILL RD	28' FF	Y	STD	5.84	10.67	0.29	0.64				
COBBLE HILL RD	26' FF	Y	STD	3.25	16.59	0.35	0.64				
ORANGE GROVE	26' FF	Y	STD	5.00	15.98	0.33	0.71				
ORANGE GROVE	26' FF	Y	STD	2.52	19.80	0.38	0.67	5.2 (2)	SGL A	9.40	
JACOBS BAY	26' FF	Y	STD	0.60	21.60	0.49	0.62	6.0 (2)	SGL A	9.60	
JACOBS BAY	26' FF	Y	STD	SUMP	24.65	0.51	0.66	49.30	DBL A +TRP A	0.00	SUMP INLETS
COLOBEL	48' FF	Y	STD	3.00	13.95	0.34	0.58	4.9 (2)	SGL A	4.15	8.11
COLOBEL	48' FF	Y	STD	2.65	12.26	0.34	0.54	4.4 (2)	SGL A	3.46	
COLOBEL	48' FF	Y	STD	2.65	3.46	0.23	0.35	1.75(2)	SGL C	0.00	
HAWKINS PEAK	26' FF	Y	STD	5	13.67	0.32	0.67				
BASIN PEAK	26' FF	Y	STD	5.00	24	0.37	0.87	6.7 (2)	SGL A	10.6	+4.6
BASIN PEAK	26'FF	Y	STD	5.00	15.2						
ALTA PEAK	26' FF	Y	STD	1.69	20.04	0.41	0.64	5.0 (2)	SGL A	10.04	+3.71
ALTA PEAK	26'FF	Y	STD	1.69	13.75						
BASIN/ALTA SUMP	26' FF	Y	STD	SUMP	28.95			57.9	(2) TRP A	0	SUMP INLETS



CITY PROJECT NO	.
ZONE MAP NO	N-8/P-8
SHEET	1 OF 1
LAST DESIGN UPDATE	MO./DAY/YR.
DESIGN REVIEW COMMITTEE	MO./DAY/YR.
CITY ENGINEER APPROVAL	

TITLE

ANDERSON HEIGHTS - UNIT 4 STREET CAPACITY EXHIBIT

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

mg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90604
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	DLH	DATE 04/14
DRAWN BY	DER	DATE 04/14
CHECKED BY	DMG	DATE 04/14

ENGINEER'S SEAL

DIANE HOELZER
NEW MEXICO
11987
REGISTERED PROFESSIONAL ENGINEER
2-12-15

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

AGRS Brass Cap stamped "1-M8"

From the intersection of Unser Boulevard and Gibson Boulevard SW travel west on Gibson Boulevard 1.7 miles to a transmission power line running north-south; turn left on a dirt road and travel south 50 feet to the station on the right under the power line.

Geographic Position – NAD83 in feet

N.M. State Plane Coordinates (Central Zone)

N=1470741.879 E=1488701.820

Elevation – NAVD88 in feet = 5387.250

AS BUILT INFORMATION

CONTRACTOR

WORK STAKED BY	DATE
INSPECTION'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

CALCULATIONS FOR INLETS AT SUMP
for
Anderson Heights Unit 4

Capacity is measured by the weir equation at the lip of the gutter assuming an allowable ponding elevation equal to the lowest adjacent right of way elevation. The length of the double grate facing the street is 6.5' and the maximum depth is 0.725' at the lip of the gutter. The sides are each 2' long and the average depth is 0.892'. These depths assume an 8" curb with right of way 9' behind the curb for an additional depth of 0.18' above the top of curb. From the weir equation:

FOR SINGLE 'C' INLET

*Front Q cap = (3.0) x (3.0') x (0.725) **1.5 = 5.56 cfs*

*Sides Q cap = (3.0) x (4.0') x (0.892) **1.5 = 10.11 cfs*

Total Q cap = 5.56 cfs + 10.11 cfs = 15.67 cfs

FOR DOUBLE 'C' INLET

*Front Q cap = (3.0) x (6.5') x (0.725) **1.5 = 12.04 cfs*

*Sides Q cap = (3.0) x (4.0') x (0.892) **1.5 = 10.11 cfs*

Total Q cap = 12.04 cfs + 10.11 cfs = 22.15 cfs

FOR TRIPLE 'C' INLET

*Front Q cap = (3.0) x (9.75') x (0.725) **1.5 = 18.06 cfs*

*Sides Q cap = (3.0) x (4.0') x (0.892) **1.5 = 10.11 cfs*

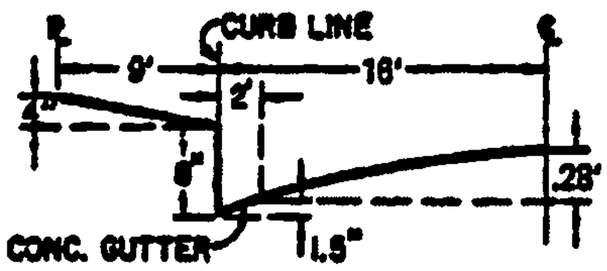
Total Q cap = 12.04 cfs + 10.11 cfs = 28.17 cfs

Sump Inlet conditions are designed for 2 times the 100 year discharge.

GRATING CAPACITIES FOR TYPE 'A' , 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

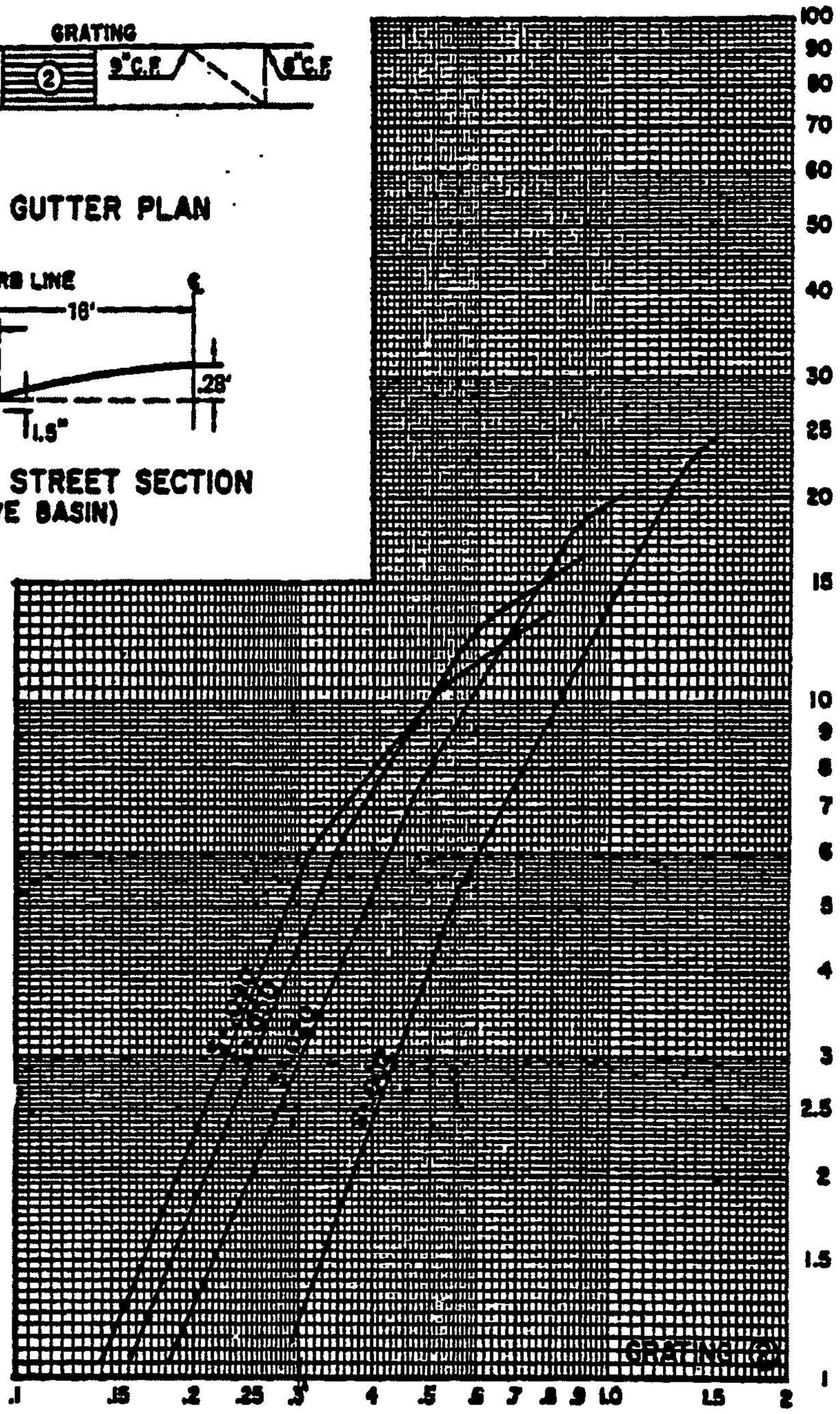
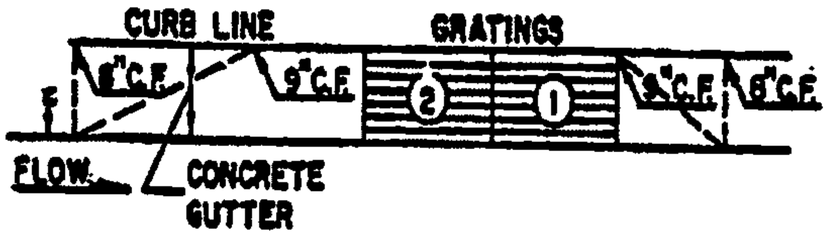
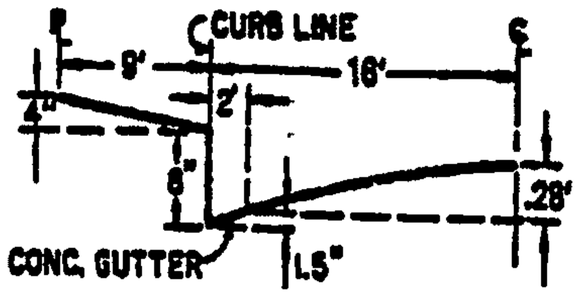


PLATE 22.3 D-5

GRATING CAPACITIES FOR TYPE DOUBLE "C," AND "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

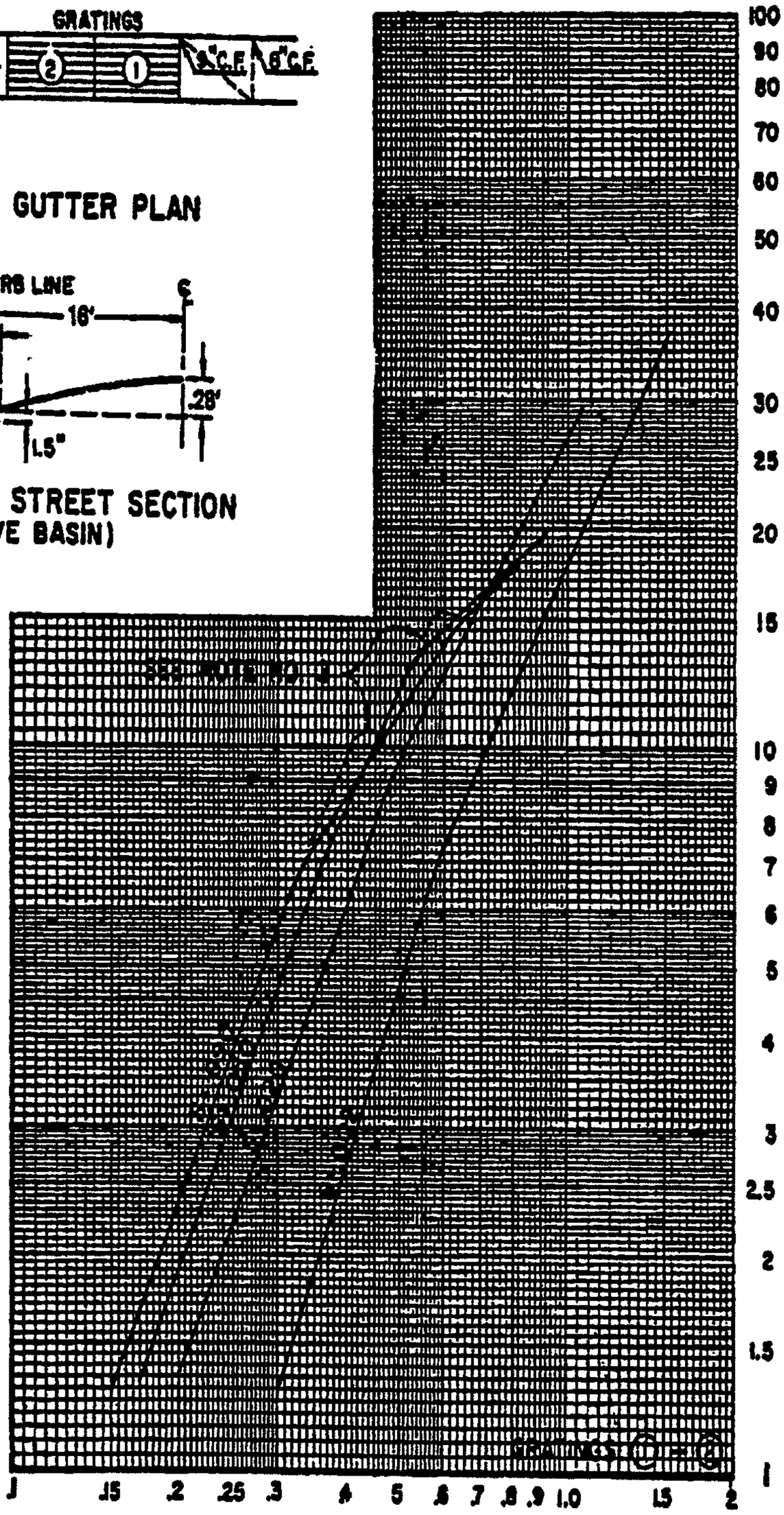


PLATE 22.3 D-6

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    05JUN14    TIME   10:12:06  *
 *****************************************
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104               *
*****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
```

```
THIS RUN EXECUTED 05JUN14    10:12:06
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          47'ROW 26'F-F MTB CURB AND GUTTER WITH CROWN
 T3          BANNER PEAK 26' FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         1      .027         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         2        26         4        68         3

 NC     .017      .017      .017        .1        .3
 QT       13     10.93      8.73      5.70      7.00     11.26     10.00      7.00      6.64      4.10
 QT     6.72     13.00     15.98      8.00
 X1        1         9         0        47         0         0         0         0         0         0
 GR      .53         0       .33      9.87         0     11.47      .125      12.5      .345      23.5
 GR      .125     34.5         0     35.53       .33     37.13       .53        47

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .33       .33       .39       .00       .52       .20       .00       .00       .53
      10.9        .0      10.9        .0        .0       3.1        .0        .0        .0       .53
       .00       .00      3.55       .00      .000      .017      .000      .000       .00      9.89
   .027441        0.        0.        0.         0        14         6       .00     25.34     37.11
```

```
T1
T2 DEER FIELD PEAK
T3 26' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         1       .024

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .31       .31       .36       .00       .47       .16       .00       .00       .53
       8.7        .0       8.7        .0        .0       2.7        .0        .0        .0       .53
       .00       .00      3.19       .00      .000      .017      .000      .000       .00      9.96
   .024020        0.        0.        0.         0        14         7       .00     23.78     37.04

T1
T2 CIRQUE PEAK
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         4         0         1       .04

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .26       .26       .32       .00       .45       .19       .00       .00       .53
```

```
      5.7        .0       5.7        .0        .0       1.6        .0        .0        .0        .53
      .00        .00      3.51       .00       .000     .017       .000      .000      .00       10.22
  .039864        0.       0.         0.        0        11         5         .00       17.95     36.78

T1
T2
T3 BORD PEAK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0          5         0         1         .01

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4          0         -1        0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW
     1.000      .33       .33       .34       .00       .40       .07       .00       .00       .53
      7.0        .0       7.0        .0        .0       3.2        .0        .0        .0        .53
      .00        .00      2.17       .00       .000     .017       .000      .000      .00       9.77
  .010026        0.       0.         0.        0        11         7         .00       26.15     37.23

T1
T2
T3 COSTILLA PEAK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0          6         0         1        .0255

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    5          0         -1        0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
```

```
3265 DIVIDED FLOW

     1.000       .33       .33       .39       .00       .52       .19       .00       .00       .53
      11.3        .0      11.3        .0        .0       3.3        .0        .0        .0       .53
       .00       .00      3.46       .00      .000      .017      .000      .000       .00      9.73
   .025592        0.        0.        0.         0        14         7       .00     26.31     37.27

T1
T2
T3 DEER HORN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         7         0         1        .04

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     6         0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .30       .30       .38       .00       .55       .25       .00       .00       .53
      10.0        .0      10.0        .0        .0       2.5        .0        .0        .0       .53
       .00       .00      4.03       .00      .000      .017      .000      .000       .00     10.01
   .040610        0.        0.        0.         0        14         6       .00     22.59     36.99

T1
T2
T3 HAWKINS PEAK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         8         0         1        .05

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7         0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF 7

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .26       .26       .34       .00       .52       .25       .00       .00       .53
       7.0        .0       7.0        .0        .0       1.7        .0        .0        .0       .53
       .00       .00      4.03       .00      .000      .017      .000      .000       .00     10.19
   .050446        0.        0.        0.         0        10         0       .00     18.63     36.81

T1
T2
T3 EMERALD PEAK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          9         0         1       .021

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      8          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .29       .29       .33       .00       .42       .13       .00       .00       .53
       6.6        .0       6.6        .0        .0       2.3        .0        .0        .0       .53
       .00       .00      2.85       .00      .000      .017      .000      .000       .00     10.04
   .021177        0.        0.        0.         0        11         6       .00     21.83     36.96

T1
T2
T3 TYLER PEAK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         10         0         1     .01606

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      9          0        -1         0         0         0         0         0         0         0
```

```
    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST

*PROF 9

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .27         .27         .29         .00         .35         .08         .00         .00         .53
       4.1         .0         4.1          .0          .0         1.8          .0          .0          .0         .53
       .00         .00        2.29         .00        .000        .017        .000        .000         .00       10.17
   .016048          0.          0.          0.           0           8           5         .00       18.93       36.83

T1
T2
T3 LIONS HEAD

J1  ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ

      0          11          0           1         .03835

J2  NPROF       IPLOT       PRFVS       XSECV       XSECH       FN          ALLDC       IBW         CHNIM       ITRACE
    10          0           -1          0           0           0           0           0           0           0

    SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
    Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
    TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
    SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST

*PROF10

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .27         .27         .34         .00         .47         .20         .00         .00         .53
       6.7         .0         6.7          .0          .0         1.9          .0          .0          .0         .53
       .00         .00        3.58         .00        .000        .017        .000        .000         .00       10.15
   .038160          0.          0.          0.           0          11           5         .00       19.42       36.85

T1
T2
T3 BLACKBURN ROAD

J1  ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ

      0          12          0           1         .03814
```

```
 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     11           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
*PROF11

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3265 DIVIDED FLOW

      1.000        .33        .33        .41        .00        .60        .28        .00        .00        .53
       13.0         .0       13.0         .0         .0        3.1         .0         .0         .0        .53
        .00        .00       4.22        .00       .000       .017       .000       .000        .00       9.89
    .038757         0.         0.         0.          0         14          6        .00      25.34      37.11

 T1
 T2
 T3 ORANGE GROVE ROAD

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0          13         0          1         .050

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     12           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF12

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

      1.000        .33        .33        .44        .00        .70        .37        .00        .00        .53
       16.0         .0       16.0         .0         .0        3.3         .0         .0         .0        .53
        .00        .00       4.86        .00       .000       .017       .000       .000        .00       9.66
    .050290         0.         0.         0.          0         17          7        .00      26.59      37.34

T1
T2
T3 ORANGE GROVE ROAD

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
```

```
      0         14         0         1       .050

J2  NPROF     IPLOT      PRFVS     XSECV     XSECH      FN        ALLDC     IBW       CHNIM     ITRACE

    13          0         -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .28       .28       .36       .00       .54       .26       .00       .00       .53
       8.0        .0       8.0        .0        .0       1.9        .0        .0        .0       .53
       .00       .00      4.12       .00      .000      .017      .000      .000       .00     10.13
   .049494        0.        0.        0.         0        11         5       .00     19.78     36.87

 THIS RUN EXECUTED 05JUN14    10:12:06
**********************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
**********************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

    BANNER PEAK 26' FF

SUMMARY PRINTOUT

      SECNO         Q        CWSEL      CRIWS       VCH       TOPWID      FRCH        EG

      1.000     10.93          .33        .39      3.55       25.34      1.86        .52
      1.000      8.73          .31        .36      3.19       23.78      1.77        .47
      1.000      5.70          .26        .32      3.51       17.95      2.50        .45
      1.000      7.00          .33        .34      2.17       26.15      1.11        .40
      1.000     11.26          .33        .39      3.46       26.31      1.78        .52
      1.000     10.00          .30        .38      4.03       22.59      2.34        .55
      1.000      7.00          .26        .34      4.03       18.63      2.78        .52
      1.000      6.64          .29        .33      2.85       21.83      1.71        .42
      1.000      4.10          .27        .29      2.29       18.93      1.56        .35
      1.000      6.72          .27        .34      3.58       19.42      2.38        .47
      1.000     13.00          .33        .41      4.22       25.34      2.21        .60
      1.000     15.98          .33        .44      4.86       26.59      2.48        .70
      1.000      8.00          .28        .36      4.12       19.78      2.70        .54

 SUMMARY OF ERRORS AND SPECIAL NOTES
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    25JUN14    TIME   14:40:51 *
 *****************************************
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```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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THIS RUN EXECUTED 25JUN14    14:40:51
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************
```

```
 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          49'ROW 28'F-F MTB CURB AND GUTTER WITH CROWN
 T3          LIONS HEAD

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0         2         0         1      .0407        0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC      .017      .017      .017       .1        .3
 QT         1       13.
 X1         1         9         0        49         0         0         0         0         0         0
 GR       .53         0       .33      9.87         0     11.47      .125      12.5      .365      24.5
 GR      .125      36.5         0     37.53       .33     39.13       .53        49

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
```

3265 DIVIDED FLOW

1.000	.32	.32	.41	.00	.61	.29	.00	.00	.53
13.0	.0	13.0	.0	.0	3.0	.0	.0	.0	.53
.00	.00	4.29	.00	.000	.017	.000	.000	.00	9.90
.040638	0.	0.	0.	0	14	7	.00	25.10	39.10

THIS RUN EXECUTED 25JUN14 14:40:51

****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LIONS HEAD

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	13.00	.32	.41	4.29	25.10	2.35	.61

SUMMARY OF ERRORS AND SPECIAL NOTES

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1*******************************************                    ****************************************
 *  HEC-2 WATER SURFACE PROFILES             *                   *  U.S. ARMY CORPS OF ENGINEERS        *
 *                                           *                   *  HYDROLOGIC ENGINEERING CENTER       *
 *  Version   4.6.2;  May 1991               *                   *  609 SECOND STREET, SUITE D          *
 *                                           *                   *  DAVIS, CALIFORNIA 95616-4687        *
 *  RUN DATE    10FEB15    TIME   08:29:36   *                   *          (916) 756-1104              *
 *******************************************                    ****************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                       X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                X
                                        X     X  X        X     X          X
THIS RUN EXECUTED 10FEB15    08:29:36
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          47'ROW 26'F-F STD CURB AND GUTTER WITH CROWN
 T3          BANNER PEAK 26' FF   2-9-15

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         1      .027         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         2        26         4        68         3

NC      .017      .017      .017        .1        .3
QT        15     10.93      8.73      28.3     34.01     17.01     21.31     25.66     17.36     24.42
QT     19.91     26.62     19.12     21.84     18.96     18.96
X1         1         9         0        47         0         0         0         0         0         0
GR       .87         0       .67     10.33         0      10.5      .125      12.5      .345      23.5
GR      .125      34.5         0      36.5       .67     36.67       .87        47

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .32       .32       .39       .00       .52       .20       .00       .00       .87
      10.9        .0      10.9        .0        .0       3.1        .0        .0        .0       .87
       .00       .00      3.58       .00      .000      .017      .000      .000       .00     10.42
   .026979         0.        0.        0.         0        10         7       .00     24.08     36.58
```

```
T1
T2 BORD PEAK
T3 26' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         1       .024

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2         0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .31       .31       .36       .00       .47       .16       .00       .00       .87
       8.7        .0       8.7        .0        .0       2.7        .0        .0        .0       .87
       .00       .00      3.24       .00      .000      .017      .000      .000       .00     10.42
   .023952         0.        0.        0.         0        10         7       .00     22.52     36.58

T1
T2 DIAMOND PEAK
T3  26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         4         0         1      .0188

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3         0        -1         0         0         0         0         0         0         0


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .45       .45       .54       .00       .76       .32       .00       .00       .87
      28.3        .0      28.3        .0        .0       6.3        .0        .0        .0       .87
       .00       .00      4.52       .00      .000      .017      .000      .000       .00     10.39
```

```
   .018777        0.        0.        0.        0        11         5       .00     26.23     36.61

T1
T2 DIAMOND PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         5         0         1      .0188

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .48       .48       .58       .00       .84       .37       .00       .00       .87
      34.0        .0      34.0        .0        .0       7.0        .0        .0        .0       .87
       .00       .00      4.85       .00      .000      .017      .000      .000       .00     10.38
   .018587        0.        0.        0.         0        11         5       .00     26.24     36.62

T1
T2 DIAMOND PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         6         0         1      .0188

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     5          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .38       .38       .44       .00       .60       .21       .00       .00       .87
      17.0        .0      17.0        .0        .0       4.6        .0        .0        .0       .87
       .00       .00      3.69       .00      .000      .017      .000      .000       .00     10.40
   .018667        0.        0.        0.         0         5         5       .00     26.19     36.60

T1
```

```
T2 CRAG PEAK
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          7          0          1         .05

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     6           0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 6

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .36        .36        .48        .00        .82        .46        .00        .00        .87
      21.3         .0       21.3         .0         .0        3.9         .0         .0         .0        .87
       .00        .00       5.43        .00       .000       .017       .000       .000        .00      10.41
   .049956         0.         0.         0.          0          8          6        .00      26.18      36.59

T1
T2 CRAG PEAK
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          8          0          1       .0322

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     7           0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 7

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .40        .40        .52        .00        .81        .41        .00        .00        .87
      25.7         .0       25.7         .0         .0        5.0         .0         .0         .0        .87
       .00        .00       5.12        .00       .000       .017       .000       .000        .00      10.40
   .032115         0.         0.         0.          0         11          5        .00      26.20      36.60

T1
T2 CRAG PEAK
T3 26'FF
```

```
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          9          0          1       .0322

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      8          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 8

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .36        .36        .44        .00        .66        .30        .00        .00        .87
      17.4         .0       17.4         .0         .0        4.0         .0         .0         .0        .87
       .00        .00       4.39        .00       .000       .017       .000       .000        .00      10.41
   .032174         0.         0.         0.          0          8          6        .00      26.18      36.59

T1
T2 PINE TOWN PEAK
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0         10          0          1       .034

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      9          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 9
   .
CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .39        .39        .51        .00        .79        .40        .00        .00        .87
      24.4         .0       24.4         .0         .0        4.8         .0         .0         .0        .87
       .00        .00       5.10        .00       .000       .017       .000       .000        .00      10.40
   .033841         0.         0.         0.          0         11          5        .00      26.20      36.60

T1
T2 PINE TOWN PEAK
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0         11          0          1       .034
```

```
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .37       .37       .47       .00       .71       .34       .00       .00       .87
      19.9        .0      19.9        .0        .0       4.2        .0        .0        .0       .87
       .00       .00      4.69       .00      .000      .017      .000      .000       .00     10.41
   .033507        0.        0.        0.         0         8         5       .00     26.19     36.59

T1
T2 PINE TOWN PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         12         0         1      .026

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .42       .42       .52       .00       .79       .37       .00       .00       .87
      26.6        .0      26.6        .0        .0       5.5        .0        .0        .0       .87
       .00       .00      4.87       .00      .000      .017      .000      .000       .00     10.39
   .025986        0.        0.        0.         0        11         5       .00     26.21     36.61

T1
T2 DUNDEE PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         13         0         0      .006

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
```

```
    12          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF12

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .48        .48        .00        .00        .59        .12        .00        .00        .87
      19.1        .0       19.1         .0         .0        7.0         .0         .0         .0        .87
       .00        .00       2.74        .00       .000       .017       .000       .000        .00      10.38
   .005934         0.         0.         0.          0          0          5        .00      26.24      36.62

T1
T2 BLACKBURN
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          14         0          1         .0381

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    13          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF13

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .37        .37        .49        .00        .77        .39        .00        .00        .87
      21.8        .0       21.8         .0         .0        4.3         .0         .0         .0        .87
       .00        .00       5.04        .00       .000       .017       .000       .000        .00      10.41
   .037633         0.         0.         0.          0          8          5        .00      26.19      36.59

T1
T2 DUNDEE PEAK
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          15         0          0         .006

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    14          0         -1          0          0          0          0          0          0          0
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF14

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.000	.47	.47	.00	.00	.59	.12	.00	.00	.87
19.0	.0	19.0	.0	.0	7.0	.0	.0	.0	.87
.00	.00	2.73	.00	.000	.017	.000	.000	.00	10.38
.005938	0.	0.	0.	0	0	5	.00	26.24	36.62

T1
T2 BLACKBURN ROAD
T3 26'FF

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	16	0	1	.0381					

THIS RUN EXECUTED 10FEB15 08:29:36
****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BANNER PEAK 26' FF

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	10.93	.32	.39	3.58	24.08	1.84	.52
1.000	8.73	.31	.36	3.24	22.52	1.78	.47
1.000	28.30	.45	.54	4.52	26.23	1.63	.76
1.000	34.01	.48	.58	4.85	26.24	1.65	.84
1.000	17.01	.38	.44	3.69	26.19	1.55	.60
1.000	21.31	.36	.48	5.43	26.18	2.47	.82
1.000	25.66	.40	.52	5.12	26.20	2.06	.81
1.000	17.36	.36	.44	4.39	26.18	1.99	.66
1.000	24.42	.39	.51	5.10	26.20	2.10	.79
1.000	19.91	.37	.47	4.69	26.19	2.05	.71
1.000	26.62	.42	.52	4.87	26.21	1.88	.79
1.000	19.12	.48	.00	2.74	26.24	.93	.59
1.000	21.84	.37	.49	5.04	26.19	2.18	.77
1.000	18.96	.47	.00	2.73	26.24	.93	.59

SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*******************************************                    ****************************************
 *  HEC-2 WATER SURFACE PROFILES             *                   *  U.S. ARMY CORPS OF ENGINEERS        *
 *                                           *                   *  HYDROLOGIC ENGINEERING CENTER       *
 *  Version   4.6.2;  May 1991               *                   *  609 SECOND STREET, SUITE D          *
 *                                           *                   *  DAVIS, CALIFORNIA 95616-4687        *
 *  RUN DATE    10FEB15    TIME   11:02:20   *                   *          (916) 756-1104              *
 *******************************************                    ****************************************

                                          X     X  XXXXXXX   XXXXX              XXXXX
                                          X     X  X        X     X           X     X
                                          X     X  X        X                       X
                                          XXXXXXX  XXXX     X         XXXXX    XXXXX
                                          X     X  X        X                 X
                                          X     X  X        X     X           X
                                          X     X  XXXXXXX   XXXXX           XXXXXXX
THIS RUN EXECUTED 10FEB15    11:02:20
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          49'ROW 28'F-F STD CURB AND GUTTER WITH CROWN
 T3          PINE TOWN  28' FF 2-10-15

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0        2         0         1      .026         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017        .1        .3
 QT        3     26.62      26.     10.67
 X1        1         9         0        49         0         0         0         0         0         0
 GR      .87         0       .67     10.33         0      10.5      .125      12.5      .365      24.5
 GR     .125      36.5         0      38.5       .67     38.67       .87        49

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .42       .42       .52       .00       .77       .35       .00       .00       .87
      26.6        .0      26.6        .0        .0       5.6        .0        .0        .0       .87
       .00       .00      4.73       .00      .000      .017      .000      .000       .00     10.39
   .025986        0.        0.        0.         0        11         5       .00     28.21     38.61
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T1
T2 LIONS HEAD ROAD
T3 28' FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          3          0          1       .0407

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2           0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .39        .39        .51        .00        .84        .45        .00        .00        .87
      26.0         .0       26.0         .0         .0        4.9         .0         .0         .0        .87
       .00        .00       5.36        .00       .000       .017       .000       .000        .00      10.40
   .040460         0.         0.         0.          0         11          5        .00      28.20      38.60

T1
T2 COBBLEHILL ROAD
T3  28'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          4          0          1      .05835

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     3           0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .29        .29        .39        .00        .64        .35        .00        .00        .87
      10.7         .0       10.7         .0         .0        2.2         .0         .0         .0        .87
```

.00	.00	4.76	.00	.000	.017	.000	.000	.00	10.43
.058033	0.	0.	0.	0	10	7	.00	20.40	38.57

THIS RUN EXECUTED 10FEB15 11:02:20

****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PINE TOWN 28' FF 2-

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	26.62	.42	.52	4.73	28.21	1.87	.77
1.000	26.00	.39	.51	5.36	28.20	2.28	.84
1.000	10.67	.29	.39	4.76	20.40	2.97	.64

SUMMARY OF ERRORS AND SPECIAL NOTES

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1*******************************************                    ***************************************
 *  HEC-2 WATER SURFACE PROFILES             *                   *  U.S. ARMY CORPS OF ENGINEERS       *
 *                                           *                   *  HYDROLOGIC ENGINEERING CENTER      *
 *  Version   4.6.2;  May 1991               *                   *  609 SECOND STREET, SUITE D         *
 *                                           *                   *  DAVIS, CALIFORNIA 95616-4687       *
 *  RUN DATE    13JUN14    TIME   15:06:35   *                   *          (916) 756-1104             *
 *******************************************                    ***************************************

                                        X     X  XXXXXXX   XXXXX             XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                       X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                X
                                        X     X  X        X     X          X
                                        X     X  XXXXXXX   XXXXX           XXXXXXX
                                                                  THIS RUN EXECUTED 13JUN14    15:06:35

 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
T2          47'ROW 26'F-F STD CURB AND GUTTER WITH CROWN
T3          DUNDEE 26' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0       .006        0         0         0         0         0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         2        26         4        68         3

NC     .017      .017      .017       .1        .3
QT       12     20.54     16.59     15.98     19.80     21.6      29.4       9.4     24.65     13.67
QT    11.76     24.00     20.04         1         1
X1        1         9         0        47         0         0         0         0         0         0
GR      .87         0       .67     10.33         0      10.5      .125      12.5      .345      23.5
GR      .125     34.5         0      36.5       .67     36.67      .87        47

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=      .100 CEHV=      .300
*SECNO 1.000
```

```
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .49       .49       .00       .00       .61       .12       .00       .00       .87
      20.5        .0      20.5        .0        .0       7.3        .0        .0        .0       .87
       .00       .00      2.81       .00      .000      .017      .000      .000       .00     10.38
   .005898        0.        0.        0.         0         0         5       .00     26.25     36.62

T1
T2 COBBLEHILL ROAD
T3 26' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         1       .0325

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2         0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .35       .35       .44       .00       .64       .29       .00       .00       .87
      16.6        .0      16.6        .0        .0       3.8        .0        .0        .0       .87
       .00       .00      4.32       .00      .000      .017      .000      .000       .00     10.41
   .032465        0.        0.        0.         0         5         6       .00     26.18     36.59

T1
T2 ORANGE GROVE ROAD
T3  26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         4         0         1       .05

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3         0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF 3

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .33       .33       .43       .00       .71       .38       .00       .00       .87
      16.0        .0      16.0        .0        .0       3.2        .0        .0        .0       .87
       .00       .00      4.95       .00      .000      .017      .000      .000       .00     10.42
   .049979        0.        0.        0.         0         5         7       .00     24.78     36.58

T1
T2 ORANGE GROVE ROAD
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          5         0         1      .0252

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .38       .38       .47       .00       .67       .28       .00       .00       .87
      19.8        .0      19.8        .0        .0       4.6        .0        .0        .0       .87
       .00       .00      4.28       .00      .000      .017      .000      .000       .00     10.40
   .025027        0.        0.        0.         0         8         5       .00     26.20     36.60

T1
T2 JACOBS BAY STREET
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          6         0         0      .006

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
```

```
     5          0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH     CWSEL     CRIWS      WSELK      EG         HV         HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB       ALOB       ACH        AROB       VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB       XNL        XNCH       XNR        WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR      ITRIAL     IDC        ICONT      CORAR     TOPWID    ENDST

 *PROF 5

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000       .49        .49        .00        .00        .62        .13        .00        .00        .87
       21.6        .0       21.6         .0         .0        7.5         .0         .0         .0        .87
        .00        .00       2.88        .00       .000       .017       .000       .000        .00      10.37
    .006005         0.         0.         0.          0          0          6        .00      26.25      36.63

T1
 T2 JACOBS BAY STREET
 T3 26'FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0          7         0         0       .006

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      6          0         -1         0         0         0         0         0         0         0

     SECNO      DEPTH     CWSEL     CRIWS      WSELK      EG         HV         HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB       ALOB       ACH        AROB       VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB       XNL        XNCH       XNR        WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR      ITRIAL     IDC        ICONT      CORAR     TOPWID    ENDST

 *PROF 6

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000       .55        .55        .54        .00        .72        .16        .00        .00        .87
       29.4        .0       29.4         .0         .0        9.0         .0         .0         .0        .87
        .00        .00       3.26        .00       .000       .017       .000       .000        .00      10.36
    .006023         0.         0.         0.          0         11          0        .00      26.28      36.64

T1
 T2 ORANGE GROVE ROAD
 T3 26'FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
      0          8          0          1      .0252

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      7          0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 7

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .31        .31        .37        .00        .49        .18        .00        .00        .87
       9.4         .0        9.4         .0         .0        2.8         .0         .0         .0        .87
       .00        .00       3.36        .00       .000       .017       .000       .000        .00      10.42
   .025161         0.         0.         0.          0         10          7        .00      22.98      36.58

T1
T2 JACOBS BAY
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          9          0          0       .006

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      8          0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 8

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .52        .52        .00        .00        .66        .14        .00        .00        .87
      24.6         .0       24.6         .0         .0        8.1         .0         .0         .0        .87
```

```
      .00       .00      3.04       .00      .000      .017      .000      .000       .00     10.37
  .006011        0.        0.        0.         0         0         6       .00     26.26     36.63

T1
T2 HAWKINS PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         10        0         1        .05

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     9          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3265 DIVIDED FLOW

     1.000       .32       .32       .41       .00       .67       .35       .00       .00       .87
      13.7        .0      13.7        .0        .0       2.9        .0        .0        .0       .87
       .00       .00      4.77       .00      .000      .017      .000      .000       .00     10.42
   .049934        0.        0.        0.         0        12         7       .00     23.28     36.58

T1
T2 BASIN PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         11        0         1        .05

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF10

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .30       .30       .39       .00       .63       .33       .00       .00       .87
      11.8        .0      11.8        .0        .0       2.6        .0        .0        .0       .87
       .00       .00      4.60       .00      .000      .017      .000      .000       .00     10.42
   .049863        0.        0.        0.         0        15         7       .00     21.90     36.58

T1
T2 BASIN PEAK
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         12         0         1        .05

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .37       .37       .50       .00       .87       .50       .00       .00       .87
      24.0        .0      24.0        .0        .0       4.2        .0        .0        .0       .87
       .00       .00      5.67       .00      .000      .017      .000      .000       .00     10.41
   .049254        0.        0.        0.         0        11         5       .00     26.19     36.59

T1
T2 ALTA PEAK
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         13         0         1       .0169

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
```

12	0	-1	0	0	0	0	0	0	0
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF12

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.000	.41	.41	.47	.00	.64	.23	.00	.00	.87
20.0	.0	20.0	.0	.0	5.2	.0	.0	.0	.87
.00	.00	3.82	.00	.000	.017	.000	.000	.00	10.40
.016878	0.	0.	0.	0	8	5	.00	26.21	36.60

THIS RUN EXECUTED 13JUN14 15:06:35

****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DUNDEE 26' FF
SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	20.54	.49	.00	2.81	26.25	.94	.61
1.000	16.59	.35	.44	4.32	26.18	1.99	.64
1.000	15.98	.33	.43	4.95	24.78	2.48	.71
1.000	19.80	.38	.47	4.28	26.20	1.80	.67
1.000	21.60	.49	.00	2.88	26.25	.95	.62
1.000	29.40	.55	.54	3.26	26.28	.98	.72
1.000	9.40	.31	.37	3.36	22.98	1.81	.49
1.000	24.65	.52	.00	3.04	26.26	.96	.66
1.000	13.67	.32	.41	4.77	23.28	2.54	.67
1.000	11.76	.30	.39	4.60	21.90	2.59	.63
1.000	24.00	.37	.50	5.67	26.19	2.49	.87
1.000	20.04	.41	.47	3.82	26.21	1.51	.64

SUMMARY OF ERRORS AND SPECIAL NOTES

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    10FEB15    TIME   11:42:51  *
 *****************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104               *
*****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
```

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THIS RUN EXECUTED 10FEB15    11:42:51
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          68'ROW 48'F-F STD CURB AND GUTTER WITH CROWN
 T3          COLOBEL  48' FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0         2         0         1       .03         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017       .1        .3
 QT        3     13.95     12.26     3.46
 X1        1         9         0        68         0         0         0         0         0         0
 GR      .87         0       .67     10.33         0      10.5      .125      12.5       .55        34
 GR     .125      55.5         0      57.5       .67     57.67       .87        68

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW
```

```
     1.000       .34       .34       .42       .00       .58       .24       .00       .00       .87
      13.9        .0      13.9        .0        .0       3.6        .0        .0        .0       .87
       .00       .00      3.91       .00      .000      .017      .000      .000       .00     10.41
   .029419        0.        0.        0.         0        11         6       .00     26.28     57.59

T1
T2 COLOBEL
T3 48' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         1      .0265

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .34       .34       .40       .00       .54       .21       .00       .00       .87
      12.3        .0      12.3        .0        .0       3.4        .0        .0        .0       .87
       .00       .00      3.64       .00      .000      .017      .000      .000       .00     10.41
   .026480        0.        0.        0.         0        15         7       .00     25.49     57.59

T1
T2 COLOBEL
T3 48' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         4         0         1      .0265

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.23	.23	.27	.00	.35	.11	.00	.00	.87
3.5	.0	3.5	.0	.0	1.3	.0	.0	.0	.87
.00	.00	2.70	.00	.000	.017	.000	.000	.00	10.44
.026176	0.	0.	0.	0	14	8	.00	15.02	57.56

THIS RUN EXECUTED 10FEB15 11:42:51
****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

COLOBEL 48' FF

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	13.95	.34	.42	3.91	26.28	2.50	.58
1.000	12.26	.34	.40	3.64	25.49	2.40	.54
1.000	3.46	.23	.27	2.70	15.02	2.88	.35

SUMMARY OF ERRORS AND SPECIAL NOTES

APPENDIX C – FIRST FLUSH CALCULATIONS

Revisions to Regional Detention Pond

FIRST FLUSH VOLUME CALCULATION
Anderson Heights Unit 4 Residential
Summary of Hydrology Parameters

Sub Basin ID	Area sq.ft	Land Treatment D	Volume cu.ft.
1	132,915.40	60	2259.6
2	118,153.50	42.4	1419.4
3	151,637.50	50.8	2182.6
4	216,591.90	51.2	3142.0
5	166,251.20	60	2826.3
6	122,553.00	60	2083.4
7	66,471.10	65	1224.2
8	136,969.30	60	2328.5
9	139,598.40	60	2373.2
10	36,117.30	60	614.0
11	47,552.30	7	94.3
12	118,787.10	50.5	1699.6
13	80,646.10	60	1371.0
14	79,834.70	45	1017.9
15	49,704.20	60	845.0
16	82,271.30	60	1398.6
17	45,640.20	60	775.9
18	168,124.10	60	2858.1
19	150,924.40	60	2565.7
20	97,795.70	60	1662.5
21	167,721.10	60	2851.3
22	65,557.90	60	1114.5
23	81,612.00	60	1387.4
24	260,439.70	55.8	4117.6
25	194,397.50	60	3304.8
26	129,723.60	60	2205.3
27	25,155.50	67.6	481.8
28	24,336.50	52.2	359.9
29	183,585.40	52.9	2751.6
30	22,132.30	67.6	423.9
31	134,668.00	0	0.0
32	98,347.00	60	1671.9
33	164,264.00	64	2978.7
First Flush Volume Required:			58,390

First Flush Calc. = (Area) x(Tr.D)x(.34/12)

F:/PROJECTS/13034 Anderson Heights /
First Flush Calc

POND BOTTOM = 34.00

Retention Pond?
WSE?
Emergency overflow?

FIRST FLUSH VOLUME = 58,390 CU.FT.
POND BOTTOM ELEVATION = 33.12
DEPTH 10.50 INCHES, 5:1 SIDE SLOPE

OUTFALL DETENTION POND FOR
ANDERSON HEIGHTS UNIT 4

5' OFFSET

5:1 SLOPE

GRADING CHANGES ON
LOTS 58 THRU 60.
DLH 1-17-06

EXISTING LOW
FLOW CHANNELS

MORRISSEY STREET S.W.

DBL "A" INLE

24"RCP

DBL "A" DBL THROAT INLET

36"RCP

36

48"RCP

24"RCP

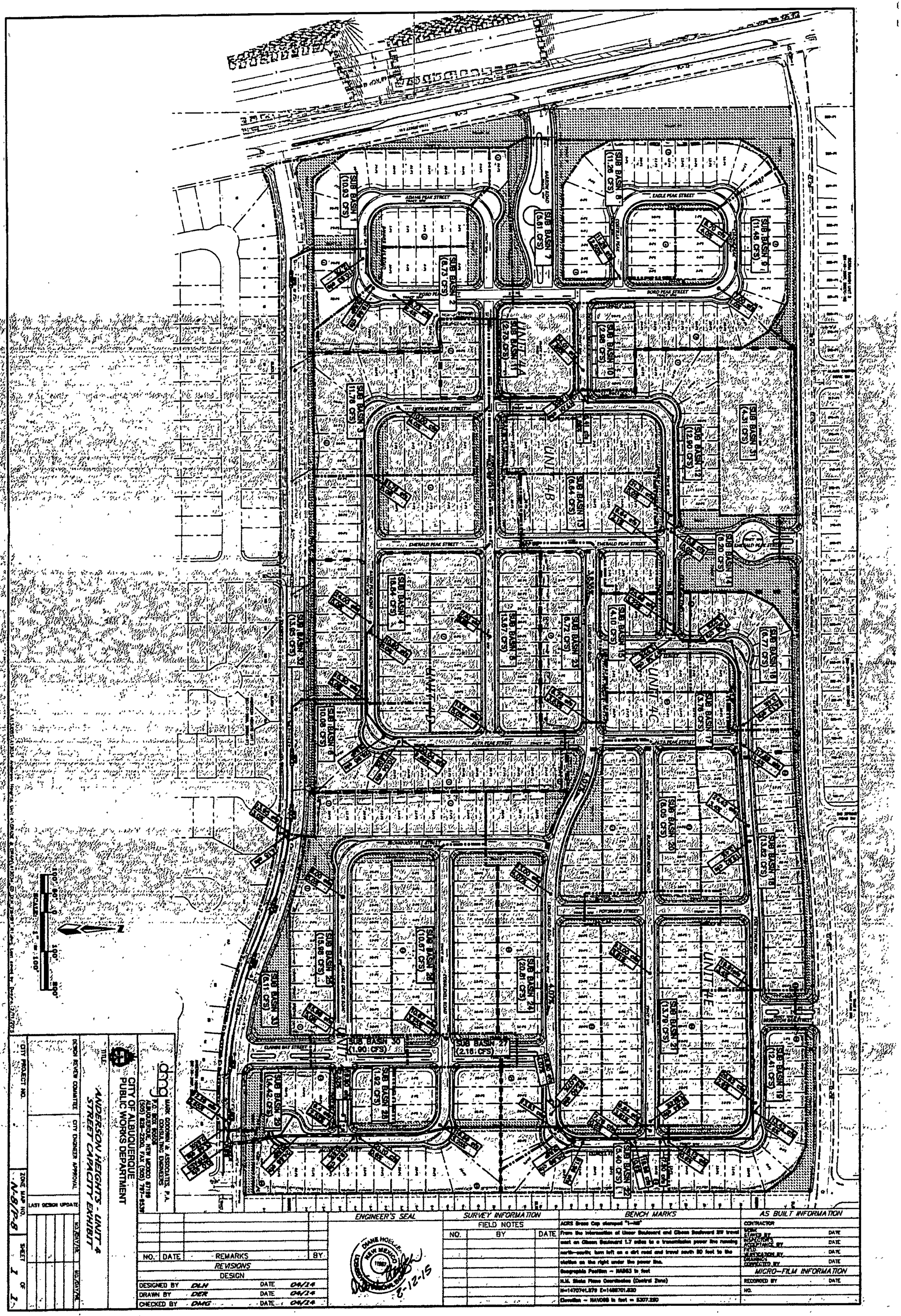
101-P1
FP= 42.17

198-P1 197-P1 196-P1 195-P1 194-P1 193-P1 192-P1

APPENDIX D – STORM DRAIN DESIGN

Preliminary Storm Drain Layout Exhibit
WSPGW Civil design storm analysis
- *Jacob-Dundee-Pine Town Storm drain*
- *Colobel Storm drain*

Miscellaneous storm exhibits



CITY PROJECT NO.

ZONE MAP NO. N-8/P-8

SHEET 1 OF 1

LAST DESIGN UPDATE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY DLN	DATE 04/14
		DRAWN BY DER	DATE 04/14
		CHECKED BY DMG	DATE 04/14

DESIGN REVIEW COMMITTEE

CITY ENGINEER APPROVAL

M.D. DRAINAGE

M.D. DRAINAGE

TITLE: ANDERSON HEIGHTS - UNIT 4 STREET CAPACITY EXHIBIT

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS
P.O. BOX 90720
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-6338

ENGINEER'S SEAL

DIANE HOELLE NEW MEXICO 11987 PROFESSIONAL ENGINEER
6-12-15

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

ACRS Brass Cap stamped "1-M8"

From the intersection of Unser Boulevard and Gibson Boulevard SW travel west on Gibson Boulevard 1.7 miles to a transmission power line running north-south; turn left on a dirt road and travel south 80 feet to the station on the right under the power line.

Geographic Position – NAD83 in feet

N.M. State Plane Coordinates (Central Zone)

N=1470741.879 E=1488701.820

Elevation – NAVD88 in feet = 5307.280

AS BUILT INFORMATION

CONTRACTOR

WORK STARTED BY DATE

INSPECTION ACCEPTANCE BY DATE

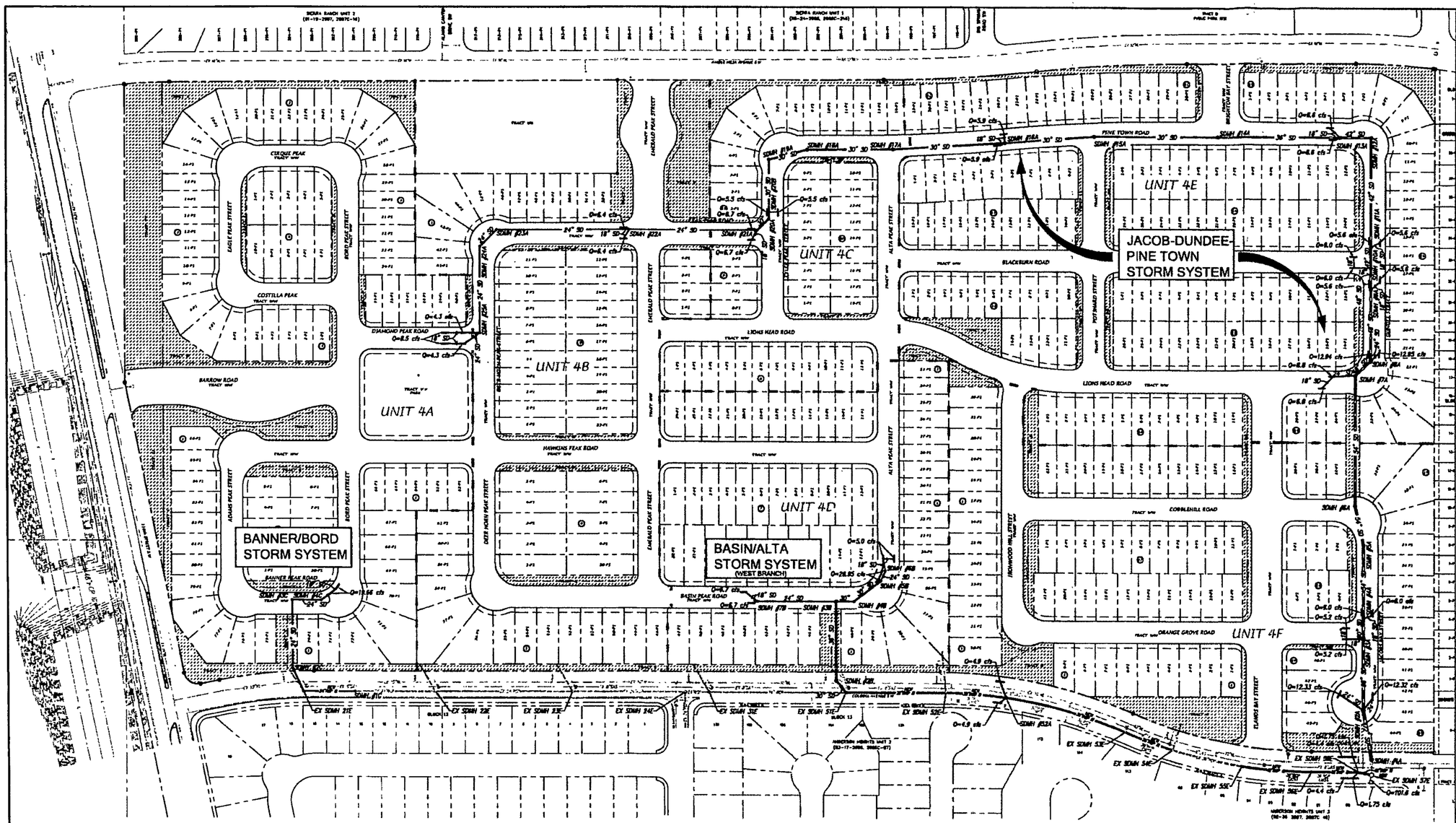
FIELD VERIFICATION BY DATE

DRAWING CORRECTED BY DATE

MICRO-FILM INFORMATION

RECORDED BY DATE

NO.


UNIT 4A
UNIT 4B
UNIT 4C
UNIT 4D
UNIT 4E
UNIT 4F
BANNER/BORD STORM SYSTEM
BASIN/ALTA STORM SYSTEM (WEST BRANCH)
JACOB-DUNDEE-PINE TOWN STORM SYSTEM
CERRO PEAK
EAGLE PEAK STREET
BORD PEAK STREET
COSTILLA PEAK
DIAMOND PEAK ROAD
BARROW ROAD
ADAMS PEAK STREET
BANNER PEAK ROAD
DEER HORN PEAK STREET
HAWKINS PEAK ROAD
EMERALD PEAK STREET
ALTA PEAK STREET
BASIN PEAK ROAD
LIONS HEAD ROAD
BLACKBURN ROAD
PINE TOWN ROAD
TOTEMARD PEAK STREET
IRONWOOD HILL STREET
COBBLEHILL ROAD
ORANGE GROVE ROAD
ELANDS BAY STREET
BRIGHTON BAY STREET
SIERRA RANCH UNIT 3 (91-19-2997, 2007C-16)
SIERRA RANCH UNIT 1 (98-24-3986, 2000C-245)
ANDERSON HEIGHTS UNIT 3 (93-17-3988, 3988C-97)
ANDERSON HEIGHTS UNIT 2 (93-17-3988, 3988C-97)
EX SDMH 21E
EX SDMH 22E
EX SDMH 23E
EX SDMH 24E
EX SDMH 30E
EX SDMH 31E
EX SDMH 32E
EX SDMH 53E
EX SDMH 54E
EX SDMH 55E
EX SDMH 56E
EX SDMH 57E
EX SDMH 58E
SDMH #17A
SDMH #18A
SDMH #19A
SDMH #20A
SDMH #21A
SDMH #22A
SDMH #23A
SDMH #24A
SDMH #25A
SDMH #26A
SDMH #27A
SDMH #28A
SDMH #29A
SDMH #30A
SDMH #31A
SDMH #32A
SDMH #33A
SDMH #34A
SDMH #35A
SDMH #36A
SDMH

RECORD DRAWINGS

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Diane Hoskins, NMPE 11987, of the firm Mark Goodwin & Associates, PA, a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This certification is based on site inspections by me or personnel under my supervision and survey information provided by WG Pierce Jr, NMPS number 14271.

Diane Hoskins 1-2-06
Diane Hoskins NMPE 11987

I, Diane Hoskins, certify that this electronic media is identical to the original reproducible APPROVED FOR CONSTRUCTION drawings signed and sealed on August 23, 2006

NOTE: STORM DRAIN, SANITARY SEWER AND WATERLINE CROSSINGS BUILT WITH ANDERSON HEIGHTS UNIT 5 (CPN: 753983) AS A WORK ORDER CHANGE.

NOTES

1. ALL STATIONING IS BASED ON GAULT TRAIL CENTERLINE.
2. ALL STORM DRAIN PIPE LENGTHS ARE BASED ON CENTERLINE OF MANHOLES.

AS BUILT INFORMATION

CONSTRUCTION CONTRACTOR: Canadian Builders Inc. DATE
AS-BUILTED BY: Canadian Surveys Inc. DATE
INSPECTED BY: ROSE CONSTRUCTION, INC. DATE
DRAWINGS REVIEWED BY: DATE
CENTERLINE OF COORS BLVD. INC. STORM AS A STANDARD AIS MICRO-FILM INFORMATION
1 1/4" ALUMINUM CAP STAMPED "LS 12121" ABOVE THE GROUND RECORDED BY DATE
AND IS STAMPED "S-P15 1986". N=1607213.56, E=1454727.48 (NAD 27). ELEV=4935.735 (GLO 29)

BENCH MARKS

STATION "S-P15" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE AT THE INTERSECTION OF COORS AND ICONIC CHASE BLVD.
TO REACH STATION FROM INT. OF COORS AND ICONIC CHASE BLVD., TRAVEL NW ON COORS BLVD. 0.82 MI. TO INT. OF ETERNALLY RD. BRANCH, TURN LEFT (SW) ON ETERNALLY RD. BRANCH 0.2 MI. TO INT. OF ETERNALLY RD. BRANCH AND ETERNALLY RD., TURN RIGHT (NW) ON ETERNALLY RD. 0.2 MI. TO INT. OF ETERNALLY RD. AND ICONIC BLVD., TURN LEFT (SW) ON ICONIC BLVD. 0.2 MI. TO INT. OF ICONIC BLVD. AND COORS BLVD., THE STATION IS ON AN CAP ON TOP OF A CURB INLET ON THE NORTH SIDE OF THE INTERSECTION, BEING 162.5 FEET NORTHWEST OF THE CENTERLINE OF COORS BLVD., THE STATION IS A STANDARD AIS MONUMENT AND IS STAMPED "S-P15 1986".

SURVEY INFORMATION

FIELD NOTES BY DATE

NO.	BY	DATE

Certification
THE CHANGES SHOWN HEREON ARE BASED UPON A FIELD SURVEY CONDUCTED BY ME OR UNDER MY SUPERVISION AND REFLECT THE LOCATIONS (VERTICALLY AND HORIZONTALLY) TO THE BEST OF MY KNOWLEDGE AND BELIEF.

GAULT TRAIL S.W. – ANDERSON HEIGHTS UNIT 3

STORM DRAIN SUMMARY TABLE

LOCATION		Q100	VELOCITY	UPSTREAM		DOWNSTREAM	
UPSTRM	DNSTRM	(cfs)	(fps)	CRO	HGL	CRO	HGL
MH17A	OUTFALL	452	15-17	45.58	41.62	41.0	37.31
MH21A	MH17A	415	12.5	46.80	44.40	43.50	42.08
MH23A	MH21A	313	8.4	48.45	47.33	46.80	46.45
MH25A	MH23A	313	9.2	48.60	48.14	48.45	47.33

EXISTING SANITARY SEWER SERVICES

BLOCK	LOT	STATION AT PUE	INV. ELEV. AT PUE	LENGTH AT PUE
13	78-P1	18+29.25	40.77	42.02'
13	79-P1	18+80.97	40.66	35.03'
13	80-P1	18+76.21	38.62	35.00'
13	81-P1	19+13.34	38.67	35.00'
13	82-P1	19+50.34	40.88	35.00'
13	83-P1	19+85.34	41.23	35.00'
13	84-P1	20+35.34	41.51	35.00'
13	85-P1	20+75.34	41.79	35.00'
13	86-P1	21+25.34	42.14	35.00'
13	87-P1	21+75.34	42.49	35.00'
13	88-P1	22+17.72	42.80	34.89'
13	89-P1	22+56.35	43.14	74.46'

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)

PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
6"	17'	7'	3'	2'	48'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND. RESTRAIN BRANCH AT FITTING ONLY MINIMUM ATTACHED PIPE LENGTH, RUN SIDE OF TEE: 10.00 FEET.

RESTRAINED JOINT LENGTH FOR TEES (FT.)

PIPE SIZE	RUN	BRANCH
6"x6"x6"	10'	2'

ENGINEER'S SEAL
DIANE HOSKINS NEW MEXICO 11987 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY DLH 05/06
DRAWN BY DER 05/06
CHECKED BY DMG 05/06

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS UNIT 3
GAULT TRAIL S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE: REVIEWED
CITY ENGINEER APPROVAL: NOV 2 1 2006 CITY ENGINEER
LAST DESIGN UPDATE: MO /DAY/YR. | MO /DAY/YR.

CITY PROJECT NO. 753983 | ZONE MAP NO N-8/P-8 | SHEET 16 OF 18

A3080AH/PLANS/UNIT- 3/UTILITIES/UP-SD1.dwg/07-07-06/DER

FOR CONTINUATION SEE SHEET 9

FOR CONTINUATION SEE SHEET 10

FOR CONTINUATION SEE SHEET 13

FENCIK LANE S.W.

HILGENBERG LANE S.W.

McMURRAY TRAIL S.W.

McMURRAY PLACE S.W.

HAMMONDALE PLACE S.W.

McMURRAY TRAIL S.W.

McMURRAY PLACE S.W.

McHUMPHRIES LANE S.W.

COVERT LANE S.W.

MORRISSEY STREET S.W.

PAYTON TRAIL S.W.

McMICHAEL LANE S.W

GENTRY LANE S.W.

BLOCK 8

BLOCK 9

BLOCK 10

BLOCK 11

BLOCK 12

BLOCK 13

BLOCK 14

BLOCK 15

BLOCK 16

BENCH MARKS

STATION "3-PIC" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE AT THE INTERSECTION OF COORS AND DENNIS CHAVEZ BLVD. TO REACH STATION FROM INT. OF COORS BLVD. AND DENNIS CHAVEZ BLVD. GO SOUTHERLY ON COORS BLVD. 0.5 MI. TO THE INTERSECTION OF COORS BLVD. AND ARTESIAN ROAD. STATION MARK IS ON AN EARTHEN BERM 1412.2 FEET WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD AGS 3 1/4" ALUMINUM CAP INVITED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-PIC 1985".

N=1507733.56, E=1462437.48 (NAD 27) ELEV=6135.725 (NGVD 29)

AS BUILT INFORMATION

CONTRACTOR

SURVEYED BY

INSPECTED BY

FIELD BOOK

DATE

DATE

DATE

DATE

SURVEY INFORMATION

FIELD NOTES

NO	BY	DATE

ENGINEER'S SEAL

GAYLE MALCOLM GOODWIN NEW MEXICO 7899 LICENSED PROFESSIONAL ENGINEER

MICRO-FILM INFORMATION

RECORDED BY

DATE

NO

NO.	DATE	REMARKS REVISIONS	BY
		DESIGN DATE 02/04	
		DESIGNED BY GJK DATE 02/04	
		DRAWN BY MJR DATE 02/04	
		CHECKED BY DMG	

NOTE: REVISED UNIT 2 GRADING PLAN FOR LOT SIZE CHANGES TO 50' WIDE (4-20-06)

NOTE: REVISED UNIT 3 GRADING PLAN FOR LOT SIZE CHANGES TO 50' WIDE (4-20-06)

NOTE: ADDED LOW FLOW CHANNELS AND MAINTENANCE ROAD TO POND #10 (10-22-07)

(THIS G&D PLAN REPLACES SHEET 11 AND 11R WITH 11R1)

LOW FLOW CHANNEL

4" 3000 PSI CONCRETE

COMPACTED SUBGRADE TO 95%

SCALE: 1" = 50'

LOW FLOW CHANNEL

PUBLIC DRAINAGE EASEMENT
POND BOTTOM = 34.00

ACCESS MAINTENANCE ROAD
12' WIDE, 12:1 SLOPE (MAX.)

GRADING CHANGES ON LOTS 58 THRU 60, DUE 1-17-06

12' WIDE DRIVEWAY PAD (PER COA DWG. 2425) & POND WILL BECOME A WALL OR FENCE AROUND ENTIRE PERIMETER WITH A 15' WIDE GATE OPENING AT MAINTENANCE ROAD ACCESS.

CURB "A" INLET

CURB "A" GRL THROAT INLET

30' PUBLIC SANITARY SEWER AND DRAINAGE EASEMENT

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE

ANDERSON HEIGHTS UNITS GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	US /DAY/YR	US /DAY/YR

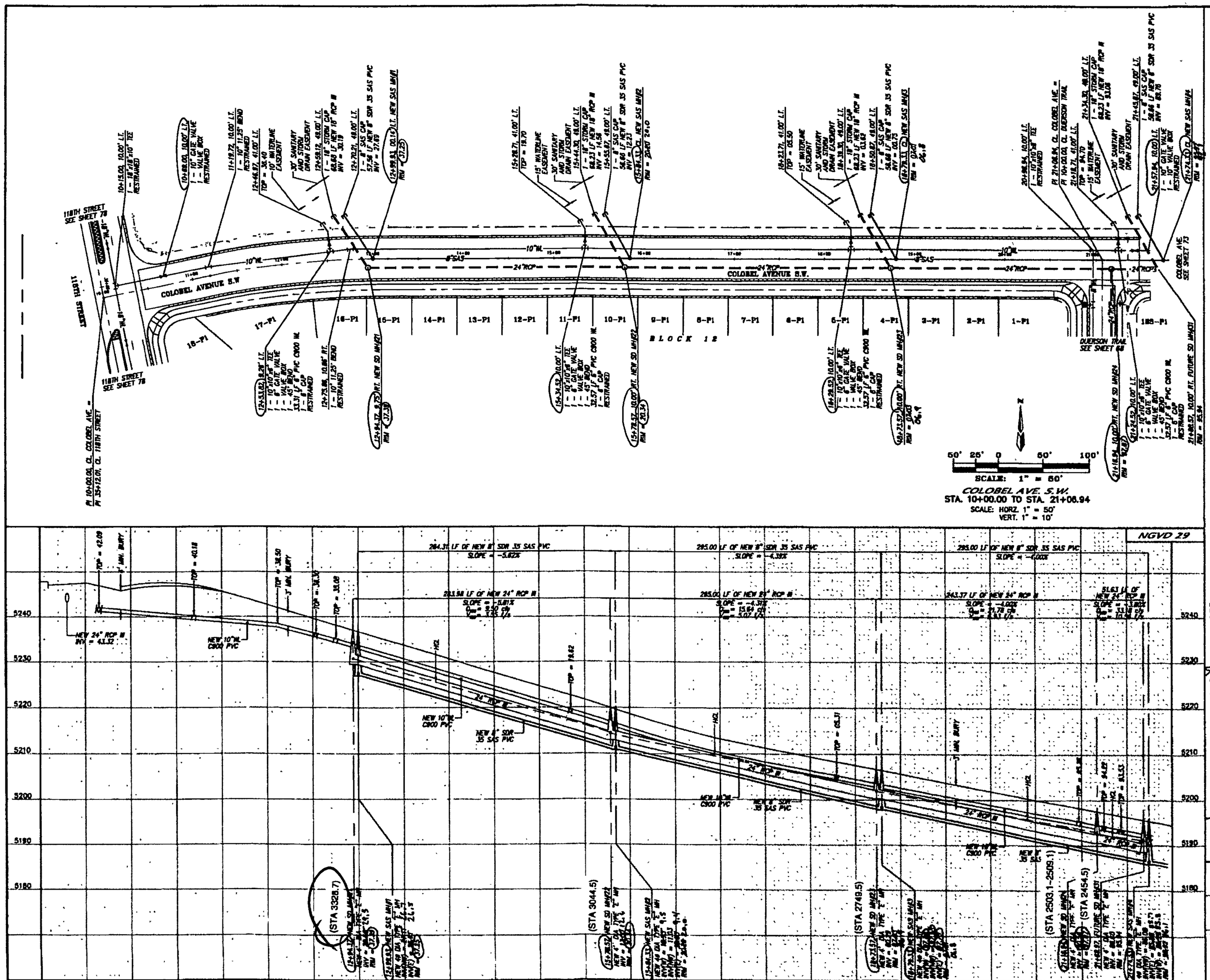
CITY PROJECT NO.	ZONE MAP NO	SHEET	OF
753983	N-8/P-8	39.1	39

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 80600
ALBUQUERQUE, NEW MEXICO 87198
(505) 828-2200, FAX (505) 797-9539

A03080AH\grade n drain\3080GD-50-REVA3\SHEET 7\10-22-07\ MJR ACH CAR DLH

11R1

RECORD DRAWINGS



NOTES

1. ALL STATIONING IS CENTERLINE STATIONING.

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)					
PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
6"	17'	7'	–	–	46'
10"	–	11'	5'	3'	72'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND. RESTRAIN BRANCH AT FITTING ONLY MINIMUM ATTACHED PIPE LENGTH, RUN SIDE OF TEE: 10.00 FEET.

RESTRAINED JOINT LENGTHS FOR REDUCERS (FT.)		
PIPE SIZE	LARGE SIDE	SMALL SIDE
10" X 6"	44'	–

RESTRAINED JOINT LENGTH FOR TEES (FT.)		
PIPE SIZE	RUN	BRANCH
10"x10"x10"	15'	5'
10"x10"x6"	6'	1'
6"x6"x6"	10'	2'

SURVEY INFORMATION
FIELD NOTES BY: DATE:

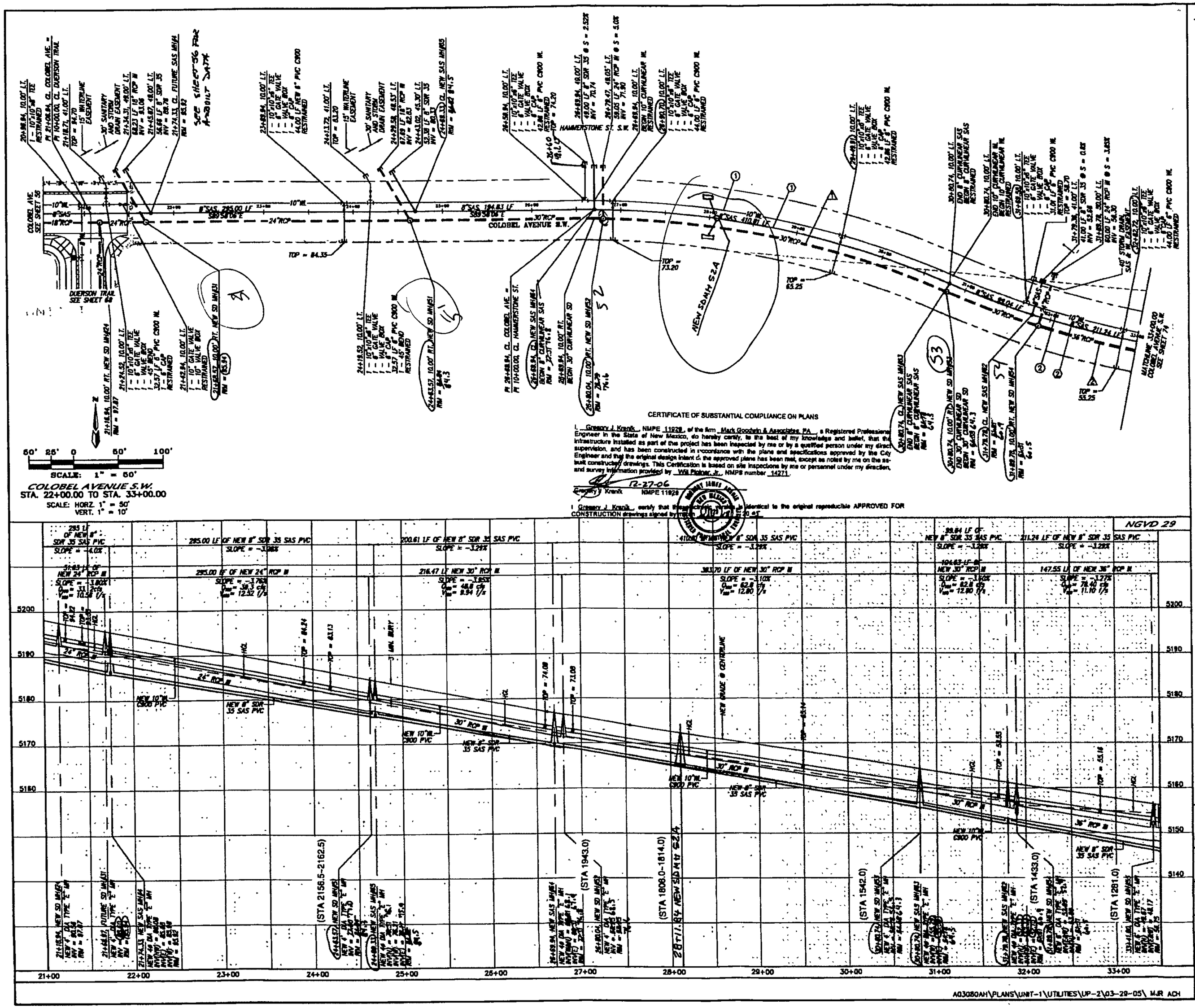
BENCH MARKS
STATION "3-P11" IS LOCATED 5.9' W., 5' N. OF DOWNTOWN ALBUQUERQUE CONTROL MONUMENT "3-P11" AT THE INTERSECTION OF COLOBEL & DENNIS CHAVEZ BLVD.
ELEV. = 4933.735 (NAD 27)
STATION "3-P11" IS ON AN ENTRANCE TO A CONCRETE BOX CULVERT, 10.0' E. OF THE CENTERLINE OF COORS BLVD., 1.6' S. OF THE CENTERLINE OF COLOBEL AVE., 0.2' W. OF THE CENTERLINE OF A 1 1/4" ALUMINUM CAP IMPRINTED "3-P11, 1995".
N=1507114.58, E=1492457.48 (NAD 27)

AS BUILT INFORMATION
CONSTRUCTION FINISHED: 4-05-05
BY: Cardinal Surveys Inc. DATE: 4-26-05
INSPECTOR: M.G. DATE: 5-16-05
PROJECT ENGINEER: A.C.H. DATE: 5-16-05
VERIFICATION: Cardinal Surveys Inc. DATE: 5-16-05
CORRECTION PER CHANGE ORDER #1 DATE: 7-26-05
MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Gregory J. Knock, NMPE 11539, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the below-shown, recorded as-built plans of this project have been inspected by me or by a qualified person under my direct supervision, and have been constructed in accordance with the plans and specifications approved by the City Engineer, and that the original design intent of the approved plans has been met, except as noted by me on the record construction drawings. This Certification is based on site inspections by me on the project construction drawings. This Certification is based on site inspections by me on the project construction drawings. This Certification is based on site inspections by me on the project

RECORD DRAWINGS



RECORD DRAWINGS

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Gregory J. Kranik, NMPE 11928, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certificate is based on site inspections by me or personnel under my direction, and survey information provided by Wil Plotner, Jr., NMPS number 14271.

Gregory J. Kranik NMPE 11928 — 12-27-06

I, Gregory J. Kranik, certify that this set of drawings is identical to the original reproducible APPROVED FOR CONSTRUCTION drawings signed by the City Engineer on the 20th day of ____, 20__.

NOTES

1. ALL STATIONING IS CENTERLINE STATIONING.
2. EXISTING 10" WATERLINE STUB BUILT WITH PROJECT #678581.

STORMDRAIN MANHOLE #1 DETAIL
SCALE: 1"=20'

DROP INLET DETAIL DBL "A"
N.T.S.

	1	2	3	4	5
CB #38	49.54	49.18	49.06	48.84	48.68
CB #39	49.54	49.18	49.06	48.84	48.68
CB #40	56.83	56.25	56.14	55.92	56.06

LONGFORD AT ARROWWOOD SUBDIVISION

COLOBEL AVENUE S.W.
STA. 33+00.00 TO STA. 21+00.00
SCALE: HORZ. 1" = 50'
VERT. 1" = 10'

SCALE: 1" = 50'

NGVD 29

Certification
THE CHANGES SHOWN HEREON ARE BASED UPON A FIELD SURVEY CONDUCTED BY ME OR UNDER MY SUPERVISION AND REFLECT THE LOCATIONS (VERTICALLY AND HORIZONTALLY) TO THE BEST OF MY KNOWLEDGE AND BELIEF.

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON-HEIGHTS - UNIT 1
(COLOBEL) AVENUE S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL | MO./DAY/YR. | MO./DAY/YR.
MAY 16 2005
CITY ENGINEER
LAST DESIGN UPDATE

CITY PROJECT NO. 753981 | ZONE MAP NO. N-8/P-8 | SHEET 74 OF 83

AS-BUILT INFORMATION
CONTRACTOR F.B.No./PAGE No.
STAKED BY DATE
FIELD VERIFIED BY DATE
CONSTRUCTION OF COLOBEL AVE. S.W. FROM 33+00 TO 44+00 COMPLETED BY MARK GOODWIN & ASSOCIATES, P.A. DATE
MICRO-FILM INFORMATION
RECORDED BY DATE

BENCH MARKS
STATION "3-M10" IS LOCATED 5.9 W. & 39' S. OF DOWNTOWN ALBUQUERQUE CONTROL MONUMENT (FORMERLY BIG BRAVO, 02 S. ON COORS BLVD.-0.6 E. MI. TO INT. OF COORS BLVD. & COLOBEL AVE. S.W.) ELEV. = 5,116.87 (NGVD 29)
STATION "M10" IS ON AN EASTING WITH "M3" & WEST OF INT. OF COORS BLVD. & COLOBEL AVE. S.W. STATION IS A STANDARD ALBUQUERQUE BRASS CAP SET IN A 3 1/4" ALUMINUM CAP WELDED TO A PIPE 0.95' ABOVE THE GROUND AND IS STAMPED "3-PK0, 1994". N=1,487,233.56, E=1,485,937.48 (NAD 83) ELEV.=5,053.735 (NGVD 29).

SURVEY INFORMATION
FIELD NOTES

NO.	DATE	BY

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DATE 03/05
			DRAWN BY ACH DATE 03/05
			CHECKED BY GMG DATE 03/05

ENGINEER'S SEAL

A03080AH\PLANS\UNIT-1\UTILITIES\UP-2A\05-18-05\ MJR ACH GJK

F:\AOJOBS\A3080AH\PLANS\UNIT-1\UTILITIES\UP-2A dwg, 5/18/2005 2:40:44 PM, chris,
HP DesignJet 1050C by HP (temporary)#276 pc3

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T1 ANDERSON HEIGHTS UNIT 4                                                                                                0
T2 JACOB-DUNDEE-PINE TOWN STORM DRAIN
T3 FILE: JACOB     REVISED: FEB 11, 2015   DLH
SO   1000.000  34.000  2                                                    37.310
TS   1008.000  34.100  3       .014                                                                  .000
JX   1008.100  34.150  4       .013
R    1207.100  35.100  4       .013                                                                  .000    .000 1
JX   1217.100  35.200  7  5  6.013   18.380   18.380   41.100   39.300 45.0 90.0     .000
R    1407.400  36.500  7       .013                                                                  .000    .000 1
JX   1417.400  36.600  9  8    .013  102.400            40.370           90.0           .000
R    1594.400  37.000  9       .013                                                                  .000  17.000 1
R    1778.900  38.080  9       .013                                                                  .000 -17.000 1
JX   1786.900  39.580 11 10    .013   94.110            39.600           90.0           .000
R    1816.300  39.750 11       .013                                                                  .000 -10.000 1
R    1919.300  40.530 11       .013                                                                  .000   9.000 1
JX   1927.300  41.090 14 12 13.013   12.330   12.330   48.000   48.000 47.0 47.0     .000
R    2072.300  42.250 14       .013                                                                  .000    .000 1
JX   2080.300  42.810 16 15    .013   10.400            48.800           90.0           .000
R    2117.000  43.100 16       .013                                                                  .000    .000 1
JX   2125.000  43.660 19 17 18.013    6.000    6.000   50.000   50.000 25.0 73.0     .000
R    2278.000  44.890 19       .013                                                                  000 -12.000 1
R    2364.000  45.570 19       .013                                                                  .000  12.000 1
R    2641.500  47.800 19       .013                                                                  .000  46.000 1
JX   2647.500  48.360 21 20    .013   13.600            53.000           90.0           .000
R    2687.300  48.680 21       .013                                                                  .000 -46.000 1
JX   2693.300  48.730 24 22 23.013   12.940   12.950   53.500   53.500-65.0    .0     .000
R    2841.000  49.910 24       .013                                                                  .000    .000 1
JX   2847.000  49.970 27 25 26.013    5.600    5.600   54.500   54.500-25.0 50.0     .000
R    2887.700  50.300 27       .013                                                                  .000    .000 1
JX   2893.700  50.860 29 28    .013   12.000            55.000           -90.0          .000
R    2932.400  51.170 29       .013                                                                  .000    .000 1
JX   2938.400  51.230 32 30 31.013    5.600    5.600   55.500   55.500-25.0 50.0     .000
R    3170.400  53.090 32       .013                                                                  .000 -90.000 1
R    3234.400  53.800 32       .013                                                                  .000    .000 1
JX   3240.400  54.360 35 33 34.013    6.600    6.600   58.360   58.360-22.0 43.0     .000
R    3502.400  61.500 35       .013                                                                  .000    .000 1
JX   3505.400  62.090 36       .013
R    3764.400  70.900 36       .013                                                                  .000   -4.000 1
JX   3768.400  70.960 37       .013
R    3957.400  77.390 37       .013                                                                  .000    .000 1
JX   3961.400  77 450 40 38 39.013    5 900    5 900   80.450   80.450-18.0 90.0     .000
R    4200.400  85.530 40       .013                                                                  .000    .000 1
R    4385.400  91.770 40       .013                                                                  .000 -14.000 1
R    4470.400  94.630 40       .013                                                                  .000 -75.000 1
R    4573.100  97.200 40       .013                                                                  .000    .000 1
JX   4577.100  97.300 40 38 39.013    5.500    5.500   98.300   98.300-90.0 90.0     .000
R    4597.100  97.800 40       .013                                                                  .000  45.000 1
R    4630.100  98.630 40       .013                                                                  .000  45.000 1
JX   4634.100  99.190 43 41 42.013    6.700    6 700 102.700 102.700-14.0 64.0     .000
R    4905.600 108.150 43       .013                                                                  .000    .000 1
JX   4909.600 108.250 46 44 45.013    6.400    6.400 111.250 111 250-58.0 26.0     .000
R    5192.600 120.600 46       .013                                                                  000 -45.000 1
R    5244.300 123.090 46       .013                                                                  .000 -45.000 1
R    5428.000 129.860 46       .013                                                                  .000  90.000 1
SH   5428.000 129.860 46                                                    131.860
CD   1  2   0     .000    7.500    13.160   .000   .000   -.01
CD   2  2   0     .000    7.500    13.160   .000   .000   -.01
CD   3  2   0     .000    7.500     7.000   .000   .000   -.01
CD   4  4   1     .000    6 500      .000   .000    000    .00
CD   5  4   1     .000    2.000      .000   .000    000    .00
CD   6  4   1      000    2.000      .000   .000   .000    .00
CD   7  4   1     .000    6 500      .000   .000   .000    .00
CD   8  4   1     .000    3.000      .000   .000   .000    .00
CD   9  4   1     .000    6.500      .000   .000    000    .00
CD  10  4   1     .000    3 500      .000   .000   .000    .00
CD  11  4   1     .000    6.000      .000   .000   .000    .00
CD  12  4   1     .000    2.000      .000   .000   .000    .00
CD  13  4   1     .000    2.000      .000   .000   .000    .00
CD  14  4   1     .000    5.500      .000   .000   .000    .00
CD  15  4   1     .000    2.000      .000   .000   .000    .00
CD  16  4   1     .000    5.000      .000   .000   .000    .00
```

POND 10 OUTFALL
MH 1A
MH 2A
MH 3A
MH 57
MH 1A
MH 2A
MH 3A
MH 4A
MH 5A
MH 6A
MH 7A
MH 8A
MH 9A
MH 10A
MH 11A
MH 12A
MH 13A
MH 14A
MH 15A
MH 16A
MH 17A
MH 18A
MH 19A
MH 20B
MH 20A
MH 21A
MH 22A
MH 23A
MH 24A
MH 25A

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CD  17  4   1     .000    1.500      .000   .000    000    .00
CD  18  4   1     .000    1.500      .000   .000   .000    .00
CD  19  4   1     .000    4.500      .000   .000   .000    .00
CD  20  4   1     .000    2.000      .000   .000   .000    .00
CD  21  4   1     .000    4.000      .000   .000   .000    .00
CD  22  4   1     .000    2.500      .000   .000   .000    .00
CD  23  4   1     .000    2.500      .000   .000   .000    .00
CD  24  4   1     .000    4.000      .000   .000   .000    .00
CD  25  4   1     .000    1.500      .000   .000   .000    .00
CD  26  4   1     .000    1 500      .000   .000   .000    .00
CD  27  4   1      000    4.000      .000   .000   .000    .00
CD  28  4   1     .000    1.800      .000   .000   .000    .00
CD  29  4   1     .000    3.500      .000   .000   .000    .00
CD  30  4   1     .000    1.500      .000   .000   .000    .00
CD  31  4   1     .000    1.500      .000   .000   .000    .00
CD  32  4   1     .000    3.500       000   .000   .000    .00
CD  33  4   1     .000    1.500      .000   .000   .000    .00
CD  34  4   1     .000    1.500      .000   .000   .000    .00
CD  35  4   1     .000    3.000      .000   .000   .000    .00
CD  36  4   1     .000    2 500      .000   .000   .000    .00
CD  37  4   1     .000    2.500      .000   .000   .000    .00
CD  38  4   1     .000    1.500      .000   .000   .000    .00
CD  39  4   1     .000    1.500      .000   .000   .000    .00
CD  40  4   1     .000    2.500      .000   .000   .000    .00
CD  41  4   1      000    1.500      .000   .000   .000    .00
CD  42  4   1     .000    1.500      .000   .000    000    .00
CD  43  4   1     .000    2.000       000   .000   .000    .00
CD  44  4   1     .000    1.500      .000   .000   .000    .00
CD  45  4   1     .000    1.500       000   .000   .000    .00
CD  46  4   1     .000    2.000      .000   .000   .000    .00
Q               25.600    .0
```

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-11-2015 Time: 8:58:44

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	34.000	1.585	35 585	442.02	21.19	6.97	42.56	.00	3.27	13.16	7 500	13.160	.00	0 .0
TRANS STR	.0125					.0224	.18	1.59	2 97		.014	-.01	.00	RECTANG
1008.000	34.100	3.306	37.406	442.02	19.10	5.67	43.07	.00	4.99	7.00	7.500	7.000	.00	0 .0
JUNCT STR	.5002					.0102	.00	3 31	1.85		.013	.00	.00	RECTANG

---------- WARNING - Junction Analysis - Change in Channel Type ----------

1008.100	34.150	5.566	39.716	442.02	14 61	3.31	43.03	.00	5.57	4.56	6.500	.000	.00	1 .0
32.530	.0048					.0064	.21	5.57	1.00	6.50	.013	.00	.00	PIPE
1040.630	34.305	5.921	40.226	442.02	13.93	3.01	43.24	.00	5.57	3.70	6.500	.000	.00	1 .0
166 470	.0048					.0064	1.06	5.92	.84	6.50	.013	.00	.00	PIPE
1207.100	35.100	6.440	41.540	442.02	13.34	2.76	44.30	.00	5.57	1.25	6.500	.000	.00	1 .0
JUNCT STR	.0100					.0063	.06	6.44	.46		.013	.00	.00	PIPE
1217.100	35.200	6.850	42.050	405.26	12.21	2.32	44.37	.00	5.37	.00	6.500	.000	.00	1 .0
190.300	.0068					.0060	1.14	6.85	.00	4.98	.013	.00	.00	PIPE
1407.400	36 500	6.803	43.303	405.26	12 21	2.32	45.62	.00	5.37	.00	6.500	.000	.00	1 .0
JUNCT STR	.0100					.0047	.05	6.80	.00		.013	.00	.00	PIPE
1417.400	36.600	8.795	45.395	302.86	9.13	1.29	46.69	.00	4.67	.00	6.500	.000	.00	1 .0
177.000	.0023					.0033	.59	8.79	.00	6.50	.013	.00	.00	PIPE

OUTFALL
POND 10

MH 1A
RIM 48.82

MH 2A
RIM 50.12

↑ along Gault trail

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
MH3A	1594 400	37.000	9.123	46.123	302 86	9.13	1.29	47.42	.00	4.67	.00	6.500	.000	.00	1 .0
RIM 51.62	184.500	.0059					.0033	.62	9.12	.00	4.22	.013	.00	.00	PIPE
J	1778.900	38.080	8.795	46.875	302.86	9.13	1.29	48.17	.00	4.67	.00	6.500	.000	.00	1 .0
	JUNCT STR	.1875					.0029	.02	8.80	.00		.013	.00	.00	PIPE
MH57	1786.900	39.580	8.555	48.135	208.75	7.38	.85	48.98	.00	3.95	.00	6.000	.000	.00	1 0
RIM 51.52	29.400	.0058					.0024	.07	8.55	.00	3 52	.013	.00	.00	PIPE
MH1A	1816.300	39.750	8.526	48.276	208.75	7.38	.85	49.12	.00	3.95	.00	6 000	.000	.00	1 .0
RIM 52.0	103 000	.0076					.0024	.25	8.53	.00	3.23	.013	.00	.00	PIPE
	1919.300	40.530	8.064	48.594	208.75	7.38	.85	49.44	.00	3.95	.00	6.000	.000	.00	1 .0
	JUNCT STR	.0700					.0027	.02	8.06	.00		.013	.00	.00	PIPE
MH2A	1927.300	41 090	7.663	48.753	184 09	7.75	.93	49.68	.00	3.80	.00	5.500	.000	.00	1 .0
RIM 55.0	145.000	.0080					.0030	.44	7.66	.00	3.11	.013	.00	.00	PIPE
	2072.300	42.250	6.985	49.235	184.09	7.75	.93	50.17	.00	3.80	.00	5.500	.000	.00	1 .0
	JUNCT STR	.0700					.0037	.03	6.99	.00		.013	.00	.00	PIPE
MH3A	2080.300	42.810	6.297	49.107	173.69	8.85	1.22	50.32	.00	3.78	.00	5.000	.000	.00	1 .0
RIM 55.8	36.700	.0079					.0044	.16	6.30	.00	3.23	.013	.00	.00	PIPE
	2117.000	43.100	6.231	49.331	173.69	8.85	1.22	50.55	.00	3 78	.00	5.000	.000	.00	1 .0
	JUNCT STR	.0700					.0056	.04	6.23	.00		.013	.00	.00	PIPE

Inside subdivision

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
MH4A	2125.000	43.660	5.529	49.189	161.69	10.17	1.60	50.79	.00	3.72	.00	4.500	.000	.00	1 .0
RIM 56.8	153.000	.0080					.0068	1.03	5.53	.00	3.39	.013	.00	.00	PIPE
MH5A	2278.000	44.890	5.477	50.367	161.69	10 17	1.60	51.97	.00	3 72	.00	4.500	.000	.00	1 0
RIM 57.0	86.000	.0079					.0068	.58	5.48	.00	3.42	.013	.00	.00	PIPE
MH6A	2364.000	45.570	5.522	51.092	161.69	10.17	1.60	52.70	.00	3 72	.00	4.500	.000	.00	1 .0
RIM = 58.0	277.500	.0080					.0068	1.88	5.52	.00	3.39	.013	.00	.00	PIPE
	2641.500	47.800	5.492	53.292	161.69	10.17	1.60	54.90	.00	3 72	.00	4.500	.000	.00	1 .0
	JUNCT STR	.0933					.0087	.05	5.49	.00		.013	.00	.00	PIPE
MH7A	2647.500	48.360	4.763	53.123	148.09	11.78	2.16	55.28	.00	3.58	.00	4.000	.000	.00	1 .0
RIM 58.5	39.800	.0080					.0106	.42	4.76	.00	4.00	.013	.00	.00	PIPE
	2687.300	48.680	5.301	53.981	148.09	11.78	2.16	56.14	.00	3.58	.00	4.000	.000	.00	1 .0
	JUNCT STR	.0083					.0089	05	5.30	.00		.013	.00	.00	PIPE
MH8A	2693.300	48.730	6.681	55.411	122.20	9.72	1.47	56.88	.00	3.32	.00	4.000	.000	.00	1 .0
RIM 58.0	147.700	.0080					.0072	1.07	6.68	.00	3 12	.013	.00	.00	PIPE
	2841.000	49.910	6.643	56.553	122.20	9.72	1.47	58.02	.00	3.32	.00	4.000	.000	.00	1 .0
	JUNCT STR	.0100					.0066	.04	6.64	.00		.013	.00	.00	PIPE
MH9A	2847.000	49.970	7.069	57.039	111.00	8.83	1.21	58.25	.00	3.18	.00	4.000	.000	.00	1 .0
RIM 58.9	40.700	.0081					.0060	.24	7.07	.00	2.85	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2887.700	50.300	7.042	57.342	111.00	8.83	1.21	58.55	.00	3.18	.00	4.000	.000	.00	1 .0
JUNCT STR	.0933					.0078	.05	7.04	.00		.013	.00	.00	PIPE
2893.700	50.860	6.422	57.282	99.00	10.29	1.64	58.93	.00	3.06	.00	3.500	.000	.00	1 .0
38.700	0080					.0097	.37	6.42	00	3.50	013	.00	.00	PIPE
2932.400	51.170	6.569	57.739	99.00	10.29	1.64	59.38	.00	3.06	.00	3.500	.000	.00	1 .0
JUNCT STR	.0100					.0086	.05	6.57	.00		.013	.00	.00	PIPE
2938.400	51.230	7.174	58.404	87.80	9.13	1.29	59.70	.00	2.91	.00	3.500	.000	.00	1 .0
232.000	.0080					.0076	1.77	7.17	.00	2.79	.013	.00	.00	PIPE
3170.400	53.090	7.530	60.620	87.80	9.13	1.29	61.91	.00	2.91	.00	3.500	.000	.00	1 .0
64.000	.0111					.0076	.49	7.53	.00	2.43	.013	.00	.00	PIPE
3234.400	53.800	7.372	61.172	87.80	9.13	1.29	62.46	.00	2.91	.00	3.500	.000	.00	1 .0
JUNCT STR	.0933					.0101	.06	7.37	.00		.013	.00	.00	PIPE
3240.400	54.360	6.772	61.132	74.60	10.55	1.73	62.86	.00	2.71	.00	3.000	.000	.00	1 .0
170.286	.0273					.0125	2.13	6.77	.00	1.81	.013	.00	.00	PIPE
3410.686	59.001	4.317	63.317	74.60	10.55	1.73	65.05	.00	2.71	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
3410.686	59.001	1.715	60.715	74.60	17.86	4.96	65 67	.00	2.71	2.97	3.000	.000	.00	1 .0
41.242	.0273					.0331	1.36	1.71	2.65	1.81	.013	.00	.00	PIPE

MH10A
RIM 59.0

MH11A
RIM 59.3

MH12A
RIM 61.0

MH13A
RIM 62.0

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3451.928	60.125	1.687	61.812	74 60	18.22	5.16	66.97	.00	2.71	2.98	3.000	.000	.00	1 .0
50.472	.0273					.0362	1.83	1.69	2.74	1.81	.013	.00	.00	PIPE
3502.400	61.500	1.623	63.123	74.60	19.11	5.67	68.79	.00	2.71	2.99	3.000	.000	.00	1 .0
JUNCT STR	.1967					.0362	.11	1.62	2.95		.013	.00	.00	PIPE
3505.400	62.090	2.018	64 108	74.60	17.57	4.79	68.90	.00	2.45	1.97	2.500	.000	.00	1 .0
40 318	.0340					.0340	1.37	2.02	2.11	2.02	.013	.00	.00	PIPE
3545.718	63.461	2.018	65.480	74.60	17.57	4.79	70.27	.00	2.45	1.97	2.500	.000	.00	1 0
218.682	.0340					.0331	7.23	2.02	2 11	2.02	.013	.00	.00	PIPE
3764.400	70.900	2.084	72.984	74.60	17.06	4.52	77.51	.00	2.45	1.86	2.500	.000	.00	1 .0
JUNCT STR	.0150					.0324	.13	2.08	1.96		.013	.00	.00	PIPE
3768.400	70.960	2.060	73.020	74.60	17.24	4.61	77.64	.00	2.45	1.90	2.500	.000	.00	1 .0
85.342	.0340					.0320	2.73	2.06	2.02	2.02	.013	.00	.00	PIPE
3853 742	73 863	2.122	75.986	74.60	16.79	4.38	80.36	.00	2.45	1.79	2.500	.000	.00	1 .0
68.436	.0340					.0301	2.06	2.12	1.88	2.02	013	.00	.00	PIPE
3922.178	76.192	2.254	78 446	74.60	16.01	3.98	82.43	.00	2.45	1.49	2.500	.000	.00	1 .0
35.221	.0340					.0294	1.04	2.25	1.59	2.02	.013	.00	.00	PIPE
3957.400	77.390	2.454	79.844	74.60	15.26	3.62	83.46	.00	2.45	.68	2.500	.000	.00	1 .0
JUNCT STR	.0150					.0266	.11	2.45	1.00		.013	.00	.00	PIPE

MH14A
RIM 69.8

MH15A
RIM 78.0

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
MH16A RIM 84.5														
3961.400	77.450	4.625	82.075	62.80	12.79	2.54	84.62	.00	2.41	.00	2.500	.000	00	1 .0
108.425	.0338					.0234	2 54	4 62	.00	1.74	.013	.00	.00	PIPE
4069.824	81.116	3.558	84.674	62 80	12.79	2.54	87.22	.00	2.41	.00	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
4069.824	81.116	1.746	82.861	62.80	17.16	4 57	87.43	.00	2.41	2.29	2.500	.000	.00	1 .0
130.575	.0338					0335	4.37	1.75	2.39	1.74	.013	.00	.00	PIPE
MH17A RIM 92.3														
4200.400	85.530	1.752	87.282	62.80	17.09	4.53	91.82	.00	2.41	2.29	2.500	.000	.00	1 .0
54.266	.0337					.0331	1.80	1.75	2.38	1.74	.013	.00	.00	PIPE
4254.666	87.360	1.759	89.119	62.80	17.01	4.49	93.61	.00	2.41	2.28	2.500	.000	.00	1 .0
130.734	.0337					.0312	4.08	1.76	2.36	1.74	.013	.00	.00	PIPE
MH18A RIM 98.5														
4385.400	91.770	1.840	93.610	62.80	16.22	4.08	97.69	.00	2.41	2.20	2.500	.000	.00	1 .0
19.252	.0336					.0290	.56	1.84	2.16	1.75	013	.00	.00	PIPE
4404.652	92.418	1 865	94.283	62.80	15.98	3.97	98.25	.00	2.41	2.18	2.500	.000	.00	1 .0
41.072	.0336					.0271	1.11	1.87	2.10	1.75	.013	.00	.00	PIPE
4445.724	93.800	1.956	95.756	62.80	15.24	3.61	99.36	.00	2.41	2.06	2.500	.000	.00	1 .0
24.676	.0336					.0245	.60	1.96	1.90	1.75	.013	.00	.00	PIPE
MH19A RIM 101.6														
4470.400	94.630	2.057	96.687	62.80	14.53	3.28	99.97	.00	2.41	1.91	2.500	.000	.00	1 .0
37.479	.0250					.0228	.86	2.06	1.70	1.98	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
4507.878	95.568	2.104	97.672	62.80	14.24	3.15	100.82	.00	2.41	1.83	2.500	.000	.00	1 .0
46.371	0250					.0216	1.00	2.10	1.61	1.98	.013	.00	.00	PIPE
4554.250	96.728	2.231	98.959	62.80	13.58	2.86	101.82	.00	2.41	1.55	2.500	.000	.00	1 .0
18.851	.0250					.0206	.39	2.23	1.38	1.98	.013	.00	.00	PIPE
4573.100	97.200	2.410	99.610	62.80	12.94	2.60	102.21	00	2.41	.93	2.500	.000	.00	1 .0
JUNCT STR	.0250					0182	.07	2.41	1.00		.013	.00	.00	PIPE
MH 20B 4577.100	97.300	4.076	101.376	51.80	10.55	1.73	103.11	.00	2.32	.00	2.500	.000	.00	1 .0
RIM 104.5 20.000	.0250					.0159	.32	4.08	.00	1.69	.013	.00	.00	PIPE
MH 20A 4597.100	97.800	4.239	102.039	51.80	10.55	1 73	103.77	.00	2.32	.00	2.500	.000	.00	1 .0
RIM 104.8 33.000	.0252					.0159	.53	4.24	.00	1.69	.013	.00	.00	PIPE
4630.100	98.630	4.278	102.908	51.80	10.55	1.73	104.64	.00	2.32	.00	2.500	.000	.00	1 .0
JUNCT STR	.1400					.0224	.09	4.28	.00		.013	.00	.00	PIPE
MH 21A 4634.100	99.190	4.404	103.594	38.40	12.22	2.32	105.91	.00	1.94	.00	2.000	.000	.00	1 .0
RIM 106.8 271.500	.0330					0288	7.82	4.40	.00	1.53	.013	.00	.00	PIPE
4905.600	108.150	3.382	111.532	38.40	12.22	2.32	113.85	.00	1.94	.00	2.000	.000	.00	1 .0
JUNCT STR	.0250					.0208	.08	3.38	.00		.013	.00	.00	PIPE
MH 22A 4909.600	108.250	5.943	114.193	25.60	8.15	1 03	115.22	.00	1.78	.00	2.000	.000	.00	1 .0
RIM 115.9 97.781	.0436					.0128	1.25	5.94	.00	1.05	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
5007.381	112 517	3.057	115.574	25.60	8.15	1.03	116.61	.00	1.78	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
5007.381	112.517	1.049	113.566	25.60	15.34	3.66	117.22	.00	1.78	2.00	2.000	.000	.00	1 .0
70.402	.0436					.0436	3.07	1.05	2.96	1.05	.013	.00	.00	PIPE
5077.783	115.589	1.049	116.638	25.60	15.34	3.66	120.29	.00	1.78	2.00	2.000	.000	.00	1 .0
114.817	.0436					.0435	4.99	1.05	2.96	1.05	.013	.00	.00	PIPE
MH 23A														
RIM 128.4														
5192.600	120.600	1.051	121.651	25.60	15.31	3.64	125.29	.00	1.78	2.00	2.000	.000	.00	1 .0
23.661	.0482					.0421	1.00	1.05	2.95	1.02	.013	.00	.00	PIPE
5216.261	121.740	1.070	122.810	25.60	14.96	3.47	126.28	00	1.78	2.00	2.000	.000	.00	1 .0
28.039	.0482					.0384	1.08	1.07	2.85	1.02	.013	.00	.00	PIPE
MH 24A														
RIM 131.6														
5244.300	123.090	1.112	124.202	25.60	14.26	3.16	127.36	.00	1.78	1.99	2.000	.000	.00	1 .0
60.432	.0369					.0351	2.12	1.11	2.64	1.10	.013	.00	.00	PIPE
5304.731	125.317	1.130	126.447	25.60	13.99	3.04	129.48	.00	1.78	1.98	2.000	.000	.00	1 .0
49.943	.0369					.0322	1 61	1.13	2.57	1.10	.013	.00	.00	PIPE
5354.674	127.158	1.175	128.333	25.60	13.33	2.76	131.09	.00	1.78	1.97	2.000	.000	.00	1 .0
24.304	.0369					.0285	.69	1.18	2.38	1.10	.013	.00	.00	PIPE
5378.979	128.053	1.223	129.276	25.60	12.71	2.51	131.79	00	1.78	1.95	2.000	.000	.00	1 .0
15.342	.0369					.0252	.39	1.22	2.20	1.10	.013	00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: FEB 11, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
5394.320	128.619	1.273	129.892	25.60	12.12	2.28	132.17	.00	1.78	1.92	2.000	.000	.00	1 .0
10.607	.0369					.0224	.24	1.27	2.04	1.10	.013	.00	.00	PIPE
5404.927	129.010	1.327	130.337	25 60	11.56	2.07	132.41	.00	1.78	1.89	2.000	.000	.00	1 .0
7.706	.0369					.0199	.15	1 33	1.88	1.10	.013	.00	.00	PIPE
5412.633	129.294	1.385	130.679	25.60	11.02	1.89	132.56	.00	1.78	1.85	2.000	.000	.00	1 .0
5.678	.0369					.0178	.10	1.39	1.73	1.10	.013	.00	.00	PIPE
5418.311	129.503	1.448	130.951	25.60	10.51	1.71	132.67	.00	1.78	1.79	2.000	.000	.00	1 .0
4.191	.0369					.0159	.07	1.45	1.59	1.10	.013	.00	.00	PIPE
5422.502	129.657	1.516	131.173	25.60	10.02	1.56	132.73	.00	1.78	1.71	2.000	.000	.00	1 .0
2.956	.0369					.0143	.04	1.52	1.45	1.10	.013	.00	.00	PIPE
5425.458	129.766	1.591	131.357	25.60	9.55	1.42	132.77	.00	1.78	1.61	2.000	.000	.00	1 .0
1.874	.0369					.0129	.02	1.59	1.31	1.10	.013	.00	.00	PIPE
5427.332	129.835	1.675	131.510	25 60	9.11	1.29	132.80	.00	1.78	1.48	2.000	.000	.00	1 .0
.668	.0369					.0119	.01	1.68	1.16	1.10	.013	.00	.00	PIPE
5428.000	129.860	1.777	131.637	25.60	8.68	1.17	132.81	.00	1.78	1.26	2.000	.000	.00	1 .0

MH 25A
RIM 138.5

PRELIMINARY STORM DESIGN - COLOBEL AVENUE

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                T1 ANDERSON HEIGHTS UNIT 4                                                                                  0
                T2 COLOBEL STORM DRAIN
                T3 FILE: COLOBEL       REVISED FEB 10, 2015      DLH
#57             SO   1000.000 139.540  1                                  147.690
                R    1026.500 139.950  1      .013                                                .000     .000 1
#58             JX   1032.500 140.000  1  2  3.013     6.150     6.150 141.500 141.500 45.0-45.0     .000
#56             R    1131.300 143.000  1      .013                                                .000     .000 1
#55             R    1281.000 148.000  4      .013                                                .000     .000 1
#54             R    1433.000 152.700  4      .013                                                .000     .000 1
#53             R    1542.000 156.500  4      .013                                                .000     .000 1
                R    1808.000 164.320  4      .013                                                .000     .000 1
#52A            JX   1814.000 164.500  4  5  6.013     4.900     4.900 165.400 165.400 45.0-45.0     .000
#52             R    1943.000 168.500  4      .013                                                .000     .000 1
                R    2156.500 177.000  4      .013                                                .000     .000 1
#51             JX   2162.500 177.100  4  8   .013    52.350           177.200                     45.0          .000
#31             R    2454.500 188.600  9      .013                                                .000     .000 1
                R    2503.100 190.560  9      .013                                                .000     .000 1
#24             JX   2509.100 190.610  9 10   .013    11.400           190.560                    -90.0          .000
#23             R    2749.500 200.290 11      .013                                                .000     .000 1
#22             R    3044.500 212.600 11      .013                                                .000     .000 1
#21             R    3328.700 229.300 11      .013                                                .000   45.000 1
                SH   3328.700 229.300 11                                        231.300
                CD   1  4   1     .000    3.500      .000   .000   .000    .00
                CD   2  4   1     .000    1.500      .000   .000   .000    .00
                CD   3  4   1     .000    1.500      .000   .000   .000    .00
                CD   4  4   1     .000    3.000      .000   .000   .000    .00
                CD   5  4   1     .000    1.500      .000   .000   .000    .00
                CD   6  4   1     .000    1.500      .000   .000   .000    .00
                CD   7  4   1     .000    2.500      .000   .000   .000    .00
                CD   8  4   1     .000    2.500      .000   .000   .000    .00
                CD   9  4   1     .000    2.000      .000   .000   .000    .00
                CD  10  4   1     .000    2.000      .000   .000   .000    .00
                CD  11  4   1     .000    2.000      .000   .000   .000    .00
                Q              19.660    .0
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ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type Ch	Height/Dia.-FT / or I.D.	Base Wt / ZL	No Wth Prs/Pip
1000.000	139.540	8.150	147.690	105.51	10.97	1.87	149.56	.00	3.13	.00	3.500	.000	.00	1 .0
26.500	.0155					.0110	.29	8.15	.00	2.46	.013	.00	.00	PIPE
1026.500	139.950	8.125	148.075	105.51	10.97	1.87	149.94	.00	3.13	.00	3.500	.000	.00	1 .0
JUNCT STR	.0083					.0098	.06	8.12	.00		.013	.00	.00	PIPE
1032.500	140.000	8.856	148.856	93.21	9.69	1.46	150.31	.00	2.99	.00	3.500	.000	.00	1 .0
98.800	.0304					.0086	.85	8.86	.00	1.81	.013	.00	.00	PIPE
1131.300	143.000	6.777	149.777	93.21	13.19	2.70	152.48	.00	2.86	.00	3.000	.000	.00	1 .0
149.700	.0334					.0195	2.92	6.78	.00	1.96	.013	.00	.00	PIPE
1281.000	148.000	4.835	152.835	93.21	13.19	2.70	155.54	.00	2.86	.00	3.000	.000	.00	1 .0
47.419	.0309					.0195	.93	4.84	.00	2.02	.013	.00	.00	PIPE
1328.419	149.466	4.337	153.804	93.21	13.19	2.70	156.50	.00	2.86	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1328.419	149.466	2.000	151.466	93.21	18.62	5.38	156.85	.00	2.86	2.83	3.000	.000	.00	1 .0
104.581	.0309					.0322	3.37	2.00	2.47	2.02	.013	.00	.00	PIPE
1433.000	152.700	1.982	154.682	93.21	18.81	5.50	160.18	.00	2.86	2.84	3.000	.000	.00	1 .0
14.578	.0349					.0325	.47	1.98	2.51	1.94	.013	.00	.00	PIPE
1447.578	153.208	1.988	155.196	93.21	18.74	5.45	160.65	.00	2.86	2.84	3.000	.000	.00	1 .0
94.422	.0349					.0305	2.88	1.99	2.49	1.94	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1542.000	156.500	2.075	158.575	93.21	17.87	4.96	163.53	.00	2.86	2.77	3.000	.000	.00	1 .0
137.173	.0294					.0279	3.82	2.07	2.30	2.06	.013	.00	.00	PIPE
1679.173	160.533	2.126	162.659	93.21	17.40	4.70	167.36	.00	2.86	2.73	3.000	.000	.00	1 .0
85.447	.0294					.0255	2.18	2.13	2.19	2.06	.013	.00	.00	PIPE
1764.621	163.045	2.224	165.269	93.21	16.59	4.27	169.54	.00	2.86	2.63	3.000	.000	.00	1 .0
43.379	.0294					.0229	.99	2.22	2.00	2.06	.013	.00	.00	PIPE
1808.000	164.320	2.331	166.651	93.21	15.82	3.88	170.54	.00	2.86	2.50	3.000	.000	.00	1 .0
JUNCT STR	.0300					.0270	.16	2.33	1.81		.013	.00	.00	PIPE
1814.000	164.500	1.842	166.342	83.41	18.33	5.22	171.56	.00	2.80	2.92	3.000	.000	.00	1 .0
129.000	.0310					.0343	4.43	1.84	2.59	1.87	.013	.00	.00	PIPE
1943.000	168.500	1.772	170.272	83.41	19.19	5.72	175.99	.00	2.80	2.95	3.000	.000	.00	1 .0
57.438	.0398					.0351	2.01	1.77	2.79	1.72	.013	.00	.00	PIPE
2000.438	170.787	1.814	172.601	83.41	18.66	5.41	178.01	.00	2.80	2.93	3.000	.000	.00	1 .0
52.605	.0398					.0319	1.68	1.81	2.66	1.72	.013	.00	.00	PIPE
2053.044	172.881	1.889	174.770	83.41	17.79	4.91	179.69	.00	2.80	2.90	3.000	.000	.00	1 .0
31.900	.0398					.0283	.90	1.89	2.46	1.72	.013	.00	.00	PIPE
2084.943	174.151	1.968	176.119	83.41	16.96	4.47	180.59	.00	2.80	2.85	3.000	.000	.00	1 .0
21.872	.0398					.0251	.55	1.97	2.28	1.72	.013	.00	.00	PIPE

MH53

MH52A

MH52

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2106.815	175.022	2.053	177.075	83.41	16.17	4.06	181.14	.00	2.80	2.79	3.000	.000	.00	1 .0
15.912	.0398					.0224	.36	2.05	2.10	1.72	.013	.00	.00	PIPE
2122.727	175.655	2.145	177.800	83.41	15.42	3.69	181.49	.00	2.80	2.71	3.000	.000	.00	1 .0
11.953	.0398					.0200	.24	2.15	1.92	1.72	.013	.00	.00	PIPE
2134.680	176.131	2.244	178.375	83.41	14.70	3.36	181.73	.00	2.80	2.60	3.000	.000	.00	1 .0
8.979	.0398					.0180	.16	2.24	1.76	1.72	.013	.00	.00	PIPE
2143.659	176.489	2.353	178.842	83.41	14.02	3.05	181.89	.00	2.80	2.47	3.000	.000	.00	1 .0
6.550	.0398					.0162	.11	2.35	1.59	1.72	.013	.00	.00	PIPE
2150.208	176.750	2.476	179.226	83.41	13.37	2.77	182.00	.00	2.80	2.28	3.000	.000	.00	1 .0
4.412	.0398					.0148	.07	2.48	1.42	1.72	.013	.00	.00	PIPE
2154.620	176.925	2.618	179.543	83.41	12.74	2.52	182.07	.00	2.80	2.00	3.000	.000	.00	1 .0
1.880	.0398					.0139	.03	2.62	1.24	1.72	.013	.00	.00	PIPE
2156.500	177.000	2.800	179.800	83.41	12.15	2.29	182.09	.00	2.80	1.50	3.000	.000	.00	1 .0
JUNCT STR	.0167		84.3			.0078	.05	2.80	1.00		.013	.00	.00	PIPE
2162.500	177.100	4.896	181.996	31.06	9.89	1.52	183.51	.00	1.88	.00	2.000	.000	.00	1 .0
92.230	.0394					.0189	1.74	4.90	.00	1.22	.013	.00	.00	PIPE
2254.730	180.732	3.025	183.758	31.06	9.89	1.52	185.28	.00	1.88	.00	2.000	.000	.00	1 .0

HYDRAULIC JUMP

MH51

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2254.730	180.732	1.223	181.956	31.06	15.42	3.69	185.65	.00	1.88	1.95	2.000	.000	.00	1 .0
107.032	.0394					.0383	4.10	1.22	2.67	1.22	.013	.00	.00	PIPE
2361.762	184.948	1.246	186.194	31.06	15.09	3.54	189.73	.00	1.88	1.94	2.000	.000	.00	1 .0
63.783	.0394					.0352	2.24	1.25	2.58	1.22	.013	.00	.00	PIPE
2425.546	187.460	1.298	188.758	31.06	14.39	3.21	191.97	.00	1.88	1.91	2.000	.000	.00	1 .0
28.954	.0394					.0312	.90	1.30	2.38	1.22	.013	.00	.00	PIPE
2454.500	188.600	1.354	189.954	31.06	13.72	2.92	192.88	.00	1.88	1.87	2.000	.000	.00	1 .0
6.166	.0403					.0288	.18	1.35	2.20	1.21	.013	.00	.00	PIPE
2460.666	188.849	1.373	190.222	31.06	13.50	2.83	193.05	.00	1.88	1.86	2.000	.000	.00	1 .0
14.474	.0403					.0268	.39	1.37	2.14	1.21	.013	.00	.00	PIPE
2475.140	189.432	1.434	190.867	31.06	12.88	2.57	193.44	.00	1.88	1.80	2.000	.000	.00	1 .0
10.181	.0403					.0239	.24	1.43	1.96	1.21	.013	.00	.00	PIPE
2485.321	189.843	1.501	191.344	31.06	12.28	2.34	193.68	.00	1.88	1.73	2.000	.000	.00	1 .0
7.417	.0403					.0215	.16	1.50	1.79	1.21	.013	.00	.00	PIPE
2492.738	190.142	1.574	191.716	31.06	11.71	2.13	193.84	.00	1.88	1.64	2.000	.000	.00	1 .0
5.283	.0403					.0194	.10	1.57	1.62	1.21	.013	.00	.00	PIPE
2498.021	190.355	1.657	192.012	31.06	11.16	1.93	193.95	.00	1.88	1.51	2.000	.000	.00	1 .0
3.582	.0403					.0178	.06	1.66	1.45	1.21	.013	.00	.00	PIPE

MH31

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2501.603	190.500	1.752	192.252	31.06	10.64	1.76	194.01	.00	1.88	1.32	2.000	.000	.00	1 .0
1.497	.0403					.0167	.02	1.75	1.26	1.21	.013	.00	.00	PIPE
2503.100	190.560	1.878	192.438	31.06	10.14	1.60	194.03	.00	1.88	.96	2.000	.000	.00	1 .0
JUNCT STR	.0083					.0119	.07	1.88	1.00		.013	.00	.00	PIPE
2509.100	190.610	3.821	194.431	19.66	6.26	.61	195.04	.00	1.59	.00	2.000	.000	.00	1 .0
35.468	.0403					.0076	.27	3.82	.00	.92	.013	.00	.00	PIPE
2544.568	192.038	2.665	194.703	19.66	6.26	.61	195.31	.00	1.59	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
2544.568	192.038	.920	192.958	19.66	13.93	3.01	195.97	.00	1.59	1.99	2.000	.000	.00	1 .0
107.715	.0403					.0403	4.34	.92	2.92	.92	.013	.00	.00	PIPE
2652.283	196.375	.920	197.296	19.66	13.93	3.01	200.31	.00	1.59	1.99	2.000	.000	.00	1 .0
97.217	.0403					.0410	3.99	.92	2.92	.92	.013	.00	.00	PIPE
2749.500	200.290	.911	201.201	19.66	14.12	3.09	204.30	.00	1.59	1.99	2.000	.000	.00	1 .0
129.235	.0417					.0417	5.39	.91	2.98	.91	.013	.00	.00	PIPE
2878.735	205.683	.911	206.594	19.66	14.12	3.09	209.69	.00	1.59	1.99	2.000	.000	.00	1 .0
96.829	.0417					.0435	4.21	.91	2.98	.91	.013	.00	.00	PIPE
2975.564	209.723	.889	210.612	19.66	14.56	3.29	213.90	.00	1.59	1.99	2.000	.000	.00	1 .0
44.201	.0417					.0484	2.14	.89	3.11	.91	.013	.00	.00	PIPE

MH 24

MH23

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3019.765	211.568	.857	212.425	19.66	15.27	3.62	216.04	.00	1.59	1.98	2.000	.000	.00	1 .0
24.735	.0417					.0552	1.36	.86	3.34	.91	.013	.00	.00	PIPE
3044.500	212.600	.828	213.428	19.66	16 01	3.98	217.41	.00	1.59	1.97	2.000	.000	.00	1 .0
63.873	.0588					.0588	3.75	.83	3.57	.83	.013	.00	.00	PIPE
3108.374	216.353	.828	217.181	19.66	16.01	3.98	221.16	.00	1.59	1.97	2.000	.000	.00	1 .0
92.058	.0588					.0573	5.27	.83	3.57	.83	.013	.00	.00	PIPE
3200.432	221.763	.839	222.602	19.66	15.71	3.83	226.43	.00	1.59	1.97	2.000	.000	.00	1 .0
49.778	.0588					.0524	2.61	.84	3.48	.83	.013	.00	.00	PIPE
3250.210	224.688	.870	225.558	19.66	14.98	3.48	229.04	.00	1.59	1.98	2.000	.000	.00	1 .0
22.356	.0588					.0460	1.03	.87	3.24	.83	.013	.00	.00	PIPE
3272.566	226.001	.902	226.904	19.66	14.28	3.17	230.07	.00	1.59	1.99	2.000	.000	.00	1 .0
13.876	.0588					.0405	.56	.90	3.03	.83	.013	.00	.00	PIPE
3286.442	226.817	.936	227.753	19.66	13.62	2.88	230.63	.00	1.59	2.00	2.000	.000	.00	1 .0
9.787	.0588					.0356	.35	.94	2.82	.83	.013	.00	.00	PIPE
3296.229	227.392	.971	228.363	19.66	12.98	2.62	230.98	.00	1.59	2.00	2.000	.000	.00	1 .0
7.324	.0588					.0313	.23	.97	2.63	.83	.013	.00	.00	PIPE
3303.553	227.822	1.008	228.830	19.66	12.38	2.38	231.21	.00	1.59	2.00	2.000	.000	.00	1 .0
5.690	.0588					.0276	.16	1.01	2.45	.83	.013	.00	.00	PIPE

MH22

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3309.243	228.157	1.047	229.204	19.66	11.80	2.16	231.37	.00	1.59	2.00	2.000	.000	.00	1 .0
4.521	.0588					.0243	.11	1.05	2.28	.83	.013	.00	.00	PIPE
3313.764	228.422	1.088	229.510	19.66	11.25	1.97	231.48	.00	1.59	1.99	2.000	.000	.00	1 .0
3.642	.0588					.0215	.08	1.09	2.12	.83	.013	.00	.00	PIPE
3317.406	228.636	1.131	229.767	19.66	10.73	1.79	231.56	.00	1.59	1.98	2.000	.000	.00	1 .0
2.954	.0588					.0190	.06	1.13	1.97	.83	.013	.00	.00	PIPE
3320.359	228.810	1.176	229.986	19.66	10.23	1.63	231.61	.00	1.59	1.97	2.000	.000	.00	1 .0
2.376	.0588					.0168	.04	1.18	1.83	.83	.013	.00	.00	PIPE
3322.735	228.950	1.224	230.174	19.66	9.76	1.48	231.65	.00	1.59	1.95	2.000	.000	.00	1 .0
1.921	.0588					.0149	.03	1.22	1.69	.83	.013	.00	.00	PIPE
3324.656	229.062	1.274	230.336	19.66	9.30	1.34	231.68	.00	1.59	1.92	2.000	.000	.00	1 .0
1.473	.0588					.0132	.02	1.27	1.56	.83	.013	.00	.00	PIPE
3326.129	229.149	1.329	230.478	19.66	8.87	1.22	231.70	.00	1.59	1.89	2.000	.000	.00	1 .0
1.127	.0588					.0117	.01	1.33	1.44	.83	.013	.00	.00	PIPE
3327.256	229.215	1.387	230.602	19.66	8.46	1.11	231.71	.00	1.59	1.84	2.000	.000	.00	1 .0
.806	.0588					.0105	.01	1.39	1.33	.83	.013	.00	.00	PIPE
3328.062	229.262	1.449	230.712	19.66	8.06	1.01	231.72	.00	1.59	1.79	2.000	.000	.00	1 .0
.481	.0588					.0094	.00	1.45	1.22	.83	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS) / SF Ave	Vel Head / HF	Energy Grd.El. / SE Dpth	Super Elev	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3328.542	229.291	1.517	230.808	19.66	7.69	.92	231.73	.00	1.59	1.71	2.000	.000	.00	1 .0
.157	.0588					.0084	.00	1.52	1.11	.83	.013	.00	.00	PIPE
3328.700	229.300	1.594	230.894	19.66	7.32	.83	231.73	.00	1.59	1.61	2.000	.000	.00	1 .0

MH21

37.

3.

PRELIMINARY STORM DESIGN - COLOBEL AVENUE

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T1 ANDERSON HEIGHTS UNIT 4                                                    0
T2 COLOBEL STORM DRAIN
T3 FILE: COLOBEL      REVISED FEB 10, 2015      DLH
#57  SO   1000.000 139.540  1                          147.690
     R    1026.500 139.950  1       .013                          .000    .000 1
#58  JX   1032.500 140.000  1  2  3.013    6.150    6.150 141.500 141.500 45.0-45.0    .000
#56  R    1131.300 143.000  1       .013                          .000    .000 1
#55  R    1281.000 148.000  4       .013                          .000    .000 1
#54  R    1433.000 152.700  4       .013                          .000    .000 1
#53  R    1542.000 156.500  4       .013                          .000    .000 1
     R    1808.000 164.320  4       .013                          .000    .000 1
#52A JX   1814.000 164.500  4  5  6.013    4.900    4.900 165.400 165.400 45.0-45.0    .000
#52  R    1943.000 168.500  4       .013                          .000    .000 1
     R    2156.500 177.000  4       .013                          .000    .000 1
#51  JX   2162.500 177.100  4  8    .013   52.350          177.200          45.0          .000
#31  R    2454.500 188.600  9       .013                          .000    .000 1
     R    2503.100 190.560  9       .013                          .000    .000 1
#24  JX   2509.100 190.610  9 10    .013   11.400          190.560         -90.0          .000
#23  R    2749.500 200.290 11       .013                          .000    .000 1
#22  R    3044.500 212.600 11       .013                          .000    .000 1
#21  R    3328.700 229.300 11       .013                          .000  45.000 1
     SH   3328.700 229.300 11                              231.300
     CD   1  4   1     .000    3.500      .000  .000  .000   .00
     CD   2  4   1     .000    1.500      .000  .000  .000   .00
     CD   3  4   1     .000    1.500      .000  .000  .000   .00
     CD   4  4   1     .000    3.000      .000  .000  .000   .00
     CD   5  4   1     .000    1.500      .000  .000  .000   .00
     CD   6  4   1     .000    1.500      .000  .000  .000   .00
     CD   7  4   1     .000    2.500      .000  .000  .000   .00
     CD   8  4   1     .000    2.500      .000  .000  .000   .00
     CD   9  4   1     .000    2.000      .000  .000  .000   .00
     CD  10  4   1     .000    2.000      .000  .000  .000   .00
     CD  11  4   1     .000    2.000      .000  .000  .000   .00
     Q             19.660    .0
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Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	139.540	8.150	147.690	105.51	10.97	1.87	149.56	.00	3.13	.00	3.500	.000	.00	1 .0
26.500	.0155					.0110	.29	8.15	.00	2.46	.013	.00	.00	PIPE
1026.500	139.950	8.125	148.075	105.51	10.97	1.87	149.94	.00	3.13	.00	3.500	.000	.00	1 .0
JUNCT STR	.0083					.0098	.06	8.12	.00		.013	.00	.00	PIPE
1032.500	140.000	8.856	148.856	93.21	9.69	1.46	150.31	.00	2.99	.00	3.500	.000	.00	1 .0
98.800	.0304					.0086	.85	8.86	.00	1.81	.013	.00	.00	PIPE
1131.300	143.000	6.777	149.777	93.21	13.19	2.70	152.48	.00	2.86	.00	3.000	.000	.00	1 .0
149.700	.0334					.0195	2.92	6.78	.00	1.96	.013	.00	.00	PIPE
1281.000	148.000	4.835	152.835	93.21	13.19	2.70	155.54	.00	2.86	.00	3.000	.000	.00	1 .0
47.419	.0309					.0195	.93	4.84	.00	2.02	.013	.00	.00	PIPE
1328.419	149.466	4.337	153.804	93.21	13.19	2.70	156.50	.00	2.86	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1328.419	149.466	2.000	151.466	93.21	18.62	5.38	156.85	.00	2.86	2.83	3.000	.000	.00	1 .0
104.581	.0309					.0322	3.37	2.00	2.47	2.02	.013	.00	.00	PIPE
1433.000	152.700	1.982	154.682	93.21	18.81	5.50	160.18	.00	2.86	2.84	3.000	.000	.00	1 .0
14.578	.0349					.0325	.47	1.98	2.51	1.94	.013	.00	.00	PIPE
1447.578	153.208	1.988	155.196	93.21	18.74	5.45	160.65	.00	2.86	2.84	3.000	.000	.00	1 .0
94.422	.0349					.0305	2.88	1.99	2.49	1.94	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1542.000	156.500	2.075	158.575	93.21	17.87	4.96	163.53	.00	2.86	2.77	3.000	.000	.00	1 .0
137.173	.0294					.0279	3.82	2.07	2.30	2.06	.013	.00	.00	PIPE
1679.173	160.533	2.126	162.659	93.21	17.40	4.70	167.36	.00	2.86	2.73	3.000	.000	.00	1 .0
85.447	.0294					.0255	2.18	2.13	2.19	2.06	.013	.00	.00	PIPE
1764.621	163.045	2.224	165.269	93.21	16.59	4.27	169.54	.00	2.86	2.63	3.000	.000	.00	1 .0
43.379	.0294					.0229	.99	2.22	2.00	2.06	.013	.00	.00	PIPE
1808.000	164.320	2.331	166.651	93.21	15.82	3.88	170.54	.00	2.86	2.50	3.000	.000	.00	1 .0
JUNCT STR	.0300					.0270	.16	2.33	1.81		.013	.00	.00	PIPE
1814.000	164.500	1.842	166.342	83.41	18.33	5.22	171.56	.00	2.80	2.92	3.000	.000	.00	1 .0
129.000	.0310					.0343	4.43	1.84	2.59	1.87	.013	.00	.00	PIPE
1943.000	168.500	1.772	170.272	83.41	19.19	5.72	175.99	.00	2.80	2.95	3.000	.000	.00	1 .0
57.438	.0398					.0351	2.01	1.77	2.79	1.72	.013	.00	.00	PIPE
2000.438	170.787	1.814	172.601	83.41	18.66	5.41	178.01	.00	2.80	2.93	3.000	.000	.00	1 .0
52.605	.0398					.0319	1.68	1.81	2.66	1.72	.013	.00	.00	PIPE
2053.044	172.881	1.889	174.770	83.41	17.79	4.91	179.69	.00	2.80	2.90	3.000	.000	.00	1 .0
31.900	.0398					.0283	.90	1.89	2.46	1.72	.013	.00	.00	PIPE
2084.943	174.151	1.968	176.119	83.41	16.96	4.47	180.59	.00	2.80	2.85	3.000	.000	.00	1 .0
21.872	.0398					.0251	.55	1.97	2.28	1.72	.013	.00	.00	PIPE

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2106.815	175.022	2.053	177.075	83.41	16.17	4.06	181.14	.00	2.80	2.79	3.000	.000	.00	1 .0
15.912	.0398					.0224	.36	2.05	2.10	1.72	.013	.00	.00	PIPE
2122.727	175.655	2.145	177.800	83.41	15.42	3.69	181.49	.00	2.80	2.71	3.000	.000	.00	1 .0
11.953	.0398					.0200	.24	2.15	1.92	1.72	.013	.00	.00	PIPE
2134.680	176.131	2.244	178.375	83.41	14.70	3.36	181.73	.00	2.80	2.60	3.000	.000	.00	1 .0
8.979	.0398					.0180	.16	2.24	1.76	1.72	.013	.00	.00	PIPE
2143.659	176.489	2.353	178.842	83.41	14.02	3.05	181.89	.00	2.80	2.47	3.000	.000	.00	1 .0
6.550	.0398					.0162	.11	2.35	1.59	1.72	.013	.00	.00	PIPE
2150.208	176.750	2.476	179.226	83.41	13.37	2.77	182.00	.00	2.80	2.28	3.000	.000	.00	1 .0
4.412	.0398					.0148	.07	2.48	1.42	1.72	.013	.00	.00	PIPE
2154.620	176.925	2.618	179.543	83.41	12.74	2.52	182.07	.00	2.80	2.00	3.000	.000	.00	1 .0
1.880	.0398					.0139	.03	2.62	1.24	1.72	.013	.00	.00	PIPE
2156.500	177.000	2.800	179.800	83.41	12.15	2.29	182.09	.00	2.80	1.50	3.000	.000	.00	1 .0
JUNCT STR	.0167					.0078	.05	2.80	1.00		.013	.00	.00	PIPE
2162.500	177.100	4.896	181.996	31.06	9.89	1.52	183.51	.00	1.88	.00	2.000	.000	.00	1 .0
92.230	.0394					.0189	1.74	4.90	.00	1.22	.013	.00	.00	PIPE
2254.730	180.732	3.025	183.758	31.06	9.89	1.52	185.28	.00	1.88	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type	Height/Dia.-FT / Ch	Base Wt or I.D. /	ZL /	No Wth Prs/Pip /
2254.730	180.732	1.223	181.956	31.06	15.42	3.69	185.65	.00	1.88	1.95	2.000	.000	.00	1 .0
107.032	.0394					.0383	4.10	1.22	2.67	1.22	.013	.00	.00	PIPE
2361.762	184.948	1.246	186.194	31.06	15.09	3.54	189.73	.00	1.88	1.94	2.000	.000	.00	1 .0
63.783	.0394					.0352	2.24	1.25	2.58	1.22	.013	.00	.00	PIPE
2425.546	187.460	1.298	188.758	31.06	14.39	3.21	191.97	.00	1.88	1.91	2.000	.000	.00	1 .0
28.954	.0394					.0312	.90	1.30	2.38	1.22	.013	.00	.00	PIPE
2454.500	188.600	1.354	189.954	31.06	13.72	2.92	192.88	.00	1.88	1.87	2.000	.000	.00	1 .0
6.166	.0403					.0288	.18	1.35	2.20	1.21	.013	.00	.00	PIPE
2460.666	188.849	1.373	190.222	31.06	13.50	2.83	193.05	.00	1.88	1.86	2.000	.000	.00	1 .0
14.474	.0403					.0268	.39	1.37	2.14	1.21	.013	.00	.00	PIPE
2475.140	189.432	1.434	190.867	31.06	12.88	2.57	193.44	.00	1.88	1.80	2.000	.000	.00	1 .0
10.181	.0403					.0239	.24	1.43	1.96	1.21	.013	.00	.00	PIPE
2485.321	189.843	1.501	191.344	31.06	12.28	2.34	193.68	.00	1.88	1.73	2.000	.000	.00	1 .0
7.417	.0403					.0215	.16	1.50	1.79	1.21	.013	.00	.00	PIPE
2492.738	190.142	1.574	191.716	31.06	11.71	2.13	193.84	.00	1.88	1.64	2.000	.000	.00	1 .0
5.283	.0403					.0194	.10	1.57	1.62	1.21	.013	.00	.00	PIPE
2498.021	190.355	1.657	192.012	31.06	11.16	1.93	193.95	.00	1.88	1.51	2.000	.000	.00	1 .0
3.582	.0403					.0178	.06	1.66	1.45	1.21	.013	.00	.00	PIPE

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2501.603	190.500	1.752	192.252	31.06	10.64	1.76	194.01	.00	1.88	1.32	2.000	.000	.00	1 .0
1.497	.0403					.0167	.02	1.75	1.26	1.21	.013	.00	.00	PIPE
2503.100	190.560	1.878	192.438	31.06	10.14	1.60	194.03	.00	1.88	.96	2.000	.000	.00	1 .0
JUNCT STR	.0083					.0119	.07	1.88	1.00		.013	.00	.00	PIPE
2509.100	190.610	3.821	194.431	19.66	6.26	.61	195.04	.00	1.59	.00	2.000	.000	.00	1 .0
35.468	.0403					.0076	.27	3.82	.00	.92	.013	.00	.00	PIPE
2544.568	192.038	2.665	194.703	19.66	6.26	.61	195.31	.00	1.59	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
2544.568	192.038	.920	192.958	19.66	13.93	3.01	195.97	.00	1.59	1.99	2.000	.000	.00	1 .0
107.715	.0403					.0403	4.34	.92	2.92	.92	.013	.00	.00	PIPE
2652.283	196.375	.920	197.296	19.66	13.93	3.01	200.31	.00	1.59	1.99	2.000	.000	.00	1 .0
97.217	.0403					.0410	3.99	.92	2.92	.92	.013	.00	.00	PIPE
2749.500	200.290	.911	201.201	19.66	14.12	3.09	204.30	.00	1.59	1.99	2.000	.000	.00	1 .0
129.235	.0417					.0417	5.39	.91	2.98	.91	.013	.00	.00	PIPE
2878.735	205.683	.911	206.594	19.66	14.12	3.09	209.69	.00	1.59	1.99	2.000	.000	.00	1 .0
96.829	.0417					.0435	4.21	.91	2.98	.91	.013	.00	.00	PIPE
2975.564	209.723	.889	210.612	19.66	14.56	3.29	213.90	.00	1.59	1.99	2.000	.000	.00	1 .0
44.201	.0417					.0484	2.14	.89	3.11	.91	.013	.00	.00	PIPE

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3019.765	211.568	.857	212.425	19.66	15.27	3.62	216.04	.00	1.59	1.98	2.000	.000	.00	1 .0
24.735	.0417					.0552	1.36	.86	3.34	.91	.013	.00	.00	PIPE
3044.500	212.600	.828	213.428	19.66	16.01	3.98	217.41	.00	1.59	1.97	2.000	.000	.00	1 .0
63.873	.0588					.0588	3.75	.83	3.57	.83	.013	.00	.00	PIPE
3108.374	216.353	.828	217.181	19.66	16.01	3.98	221.16	.00	1.59	1.97	2.000	.000	.00	1 .0
92.058	.0588					.0573	5.27	.83	3.57	.83	.013	.00	.00	PIPE
3200.432	221.763	.839	222.602	19.66	15.71	3.83	226.43	.00	1.59	1.97	2.000	.000	.00	1 .0
49.778	.0588					.0524	2.61	.84	3.48	.83	.013	.00	.00	PIPE
3250.210	224.688	.870	225.558	19.66	14.98	3.48	229.04	.00	1.59	1.98	2.000	.000	.00	1 .0
22.356	.0588					.0460	1.03	.87	3.24	.83	.013	.00	.00	PIPE
3272.566	226.001	.902	226.904	19.66	14.28	3.17	230.07	.00	1.59	1.99	2.000	.000	.00	1 .0
13.876	.0588					.0405	.56	.90	3.03	.83	.013	.00	.00	PIPE
3286.442	226.817	.936	227.753	19.66	13.62	2.88	230.63	.00	1.59	2.00	2.000	.000	.00	1 .0
9.787	.0588					.0356	.35	.94	2.82	.83	.013	.00	.00	PIPE
3296.229	227.392	.971	228.363	19.66	12.98	2.62	230.98	.00	1.59	2.00	2.000	.000	.00	1 .0
7.324	.0588					.0313	.23	.97	2.63	.83	.013	.00	.00	PIPE
3303.553	227.822	1.008	228.830	19.66	12.38	2.38	231.21	.00	1.59	2.00	2.000	.000	.00	1 .0
5.690	.0588					.0276	.16	1.01	2.45	.83	.013	.00	.00	PIPE

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 2-10-2015 Time: 4:41:17

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3309.243	228.157	1.047	229.204	19.66	11.80	2.16	231.37	.00	1.59	2.00	2.000	.000	.00	1 .0
4.521	.0588					.0243	.11	1.05	2.28	.83	.013	.00	.00	PIPE
3313.764	228.422	1.088	229.510	19.66	11.25	1.97	231.48	.00	1.59	1.99	2.000	.000	.00	1 .0
3.642	.0588					.0215	.08	1.09	2.12	.83	.013	.00	.00	PIPE
3317.406	228.636	1.131	229.767	19.66	10.73	1.79	231.56	.00	1.59	1.98	2.000	.000	.00	1 .0
2.954	.0588					.0190	.06	1.13	1.97	.83	.013	.00	.00	PIPE
3320.359	228.810	1.176	229.986	19.66	10.23	1.63	231.61	.00	1.59	1.97	2.000	.000	.00	1 .0
2.376	.0588					.0168	.04	1.18	1.83	.83	.013	.00	.00	PIPE
3322.735	228.950	1.224	230.174	19.66	9.76	1.48	231.65	.00	1.59	1.95	2.000	.000	.00	1 .0
1.921	.0588					.0149	.03	1.22	1.69	.83	.013	.00	.00	PIPE
3324.656	229.062	1.274	230.336	19.66	9.30	1.34	231.68	.00	1.59	1.92	2.000	.000	.00	1 .0
1.473	.0588					.0132	.02	1.27	1.56	.83	.013	.00	.00	PIPE
3326.129	229.149	1.329	230.478	19.66	8.87	1.22	231.70	.00	1.59	1.89	2.000	.000	.00	1 .0
1.127	.0588					.0117	.01	1.33	1.44	.83	.013	.00	.00	PIPE
3327.256	229.215	1.387	230.602	19.66	8.46	1.11	231.71	.00	1.59	1.84	2.000	.000	.00	1 .0
.806	.0588					.0105	.01	1.39	1.33	.83	.013	.00	.00	PIPE
3328.062	229.262	1.449	230.712	19.66	8.06	1.01	231.72	.00	1.59	1.79	2.000	.000	.00	1 .0
.481	.0588					.0094	.00	1.45	1.22	.83	.013	.00	.00	PIPE

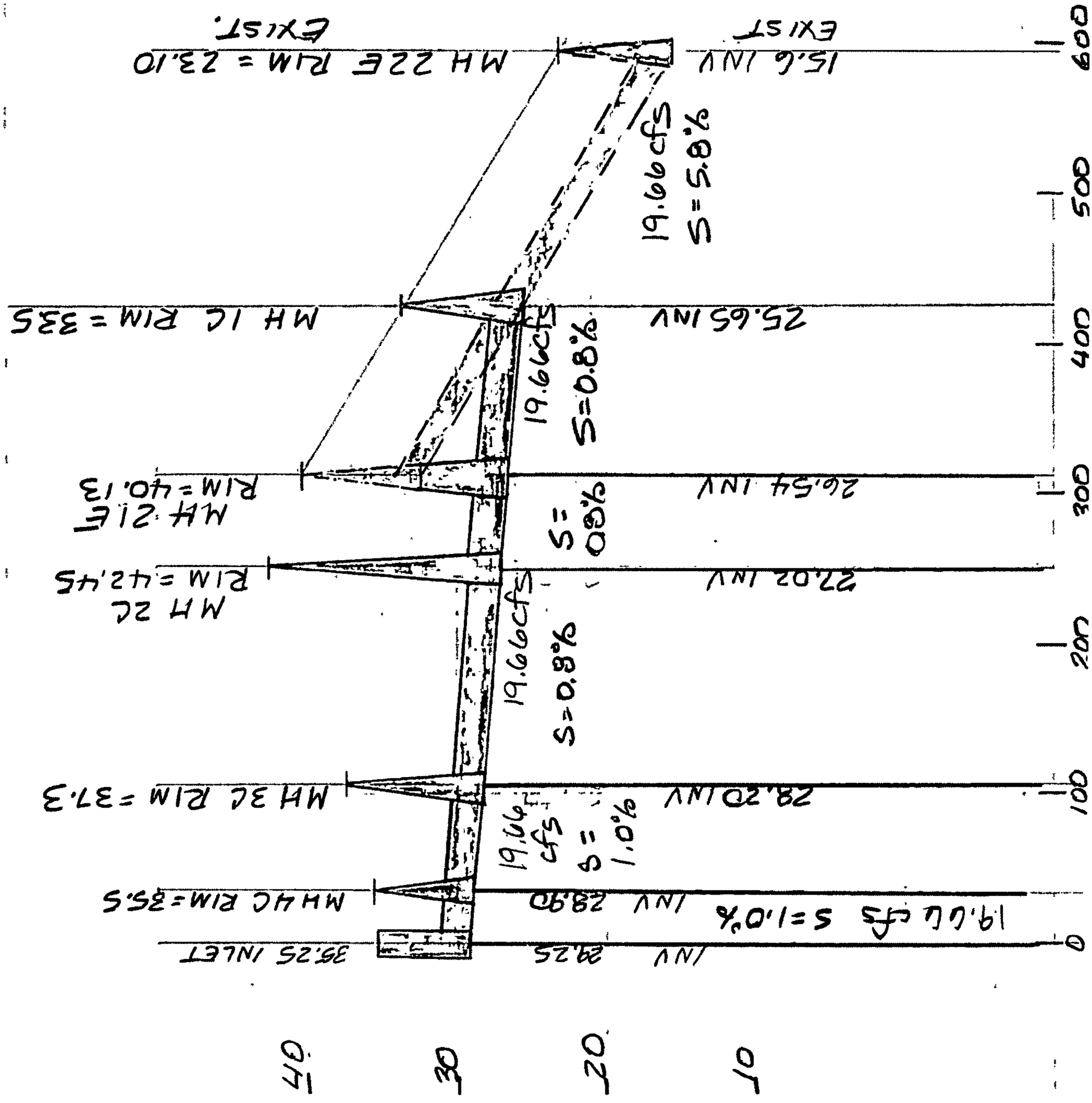
ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED FEB 10, 2015 DLH

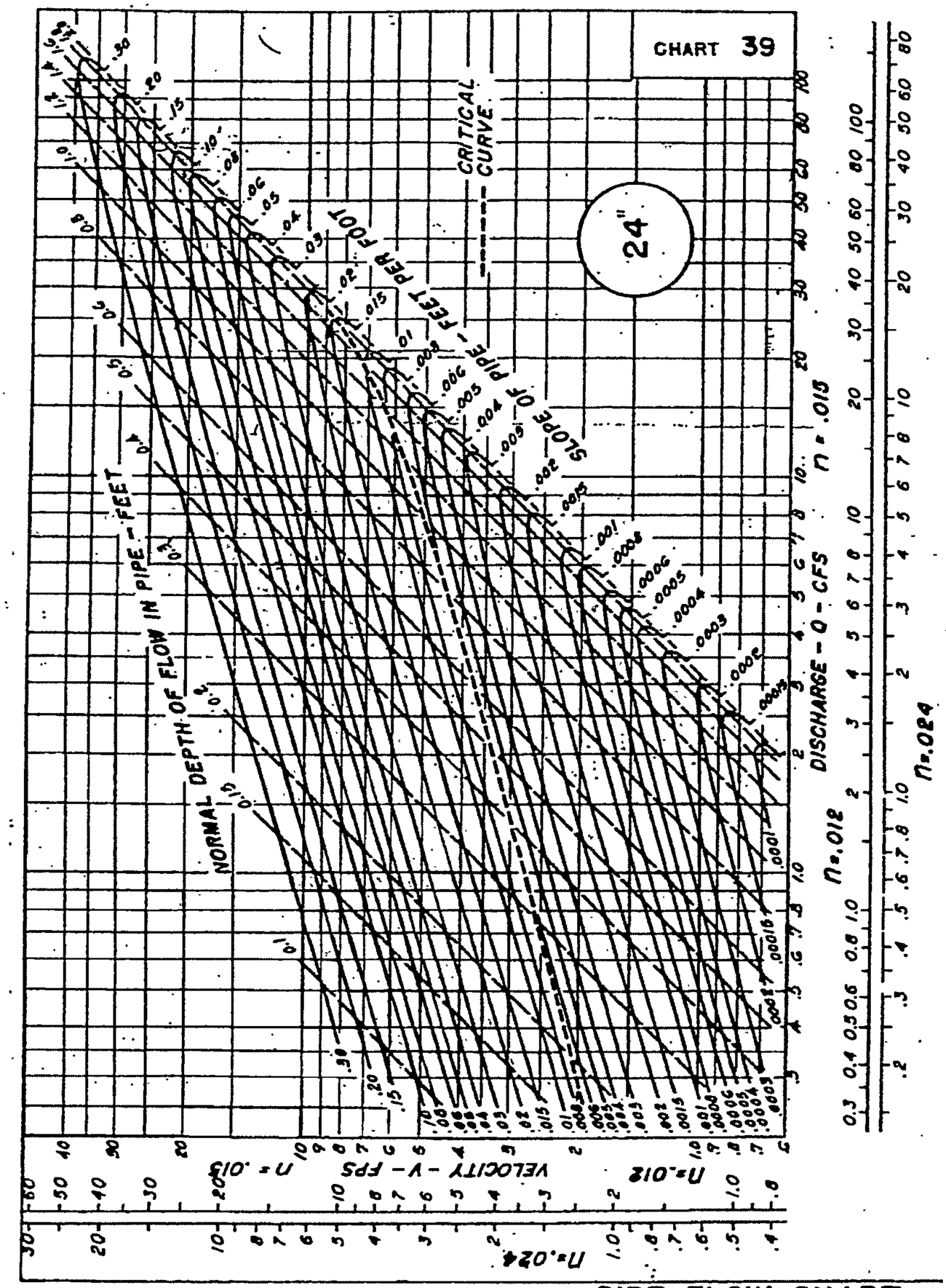
Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type	Height/ Dia.-FT / Ch	Base Wt or I.D. /	ZL /	No Wth Prs/Pip /
3328.542	229.291	1.517	230.808	19.66	7.69	.92	231.73	.00	1.59	1.71	2.000	.000	.00	1 .0
.157	.0588					.0084	.00	1.52	1.11	.83	.013	.00	.00	PIPE
3328.700	229.300	1.594	230.894	19.66	7.32	.83	231.73	.00	1.59	1.61	2.000	.000	.00	1 .0

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Anderso Heights 14
SUBJECT Banner/Bond Storm.
BY _____ DATE _____
CHECKED _____ DATE _____
SHEET ____ OF ____

PRELIMINARY STORM DRAIN ANALYSIS



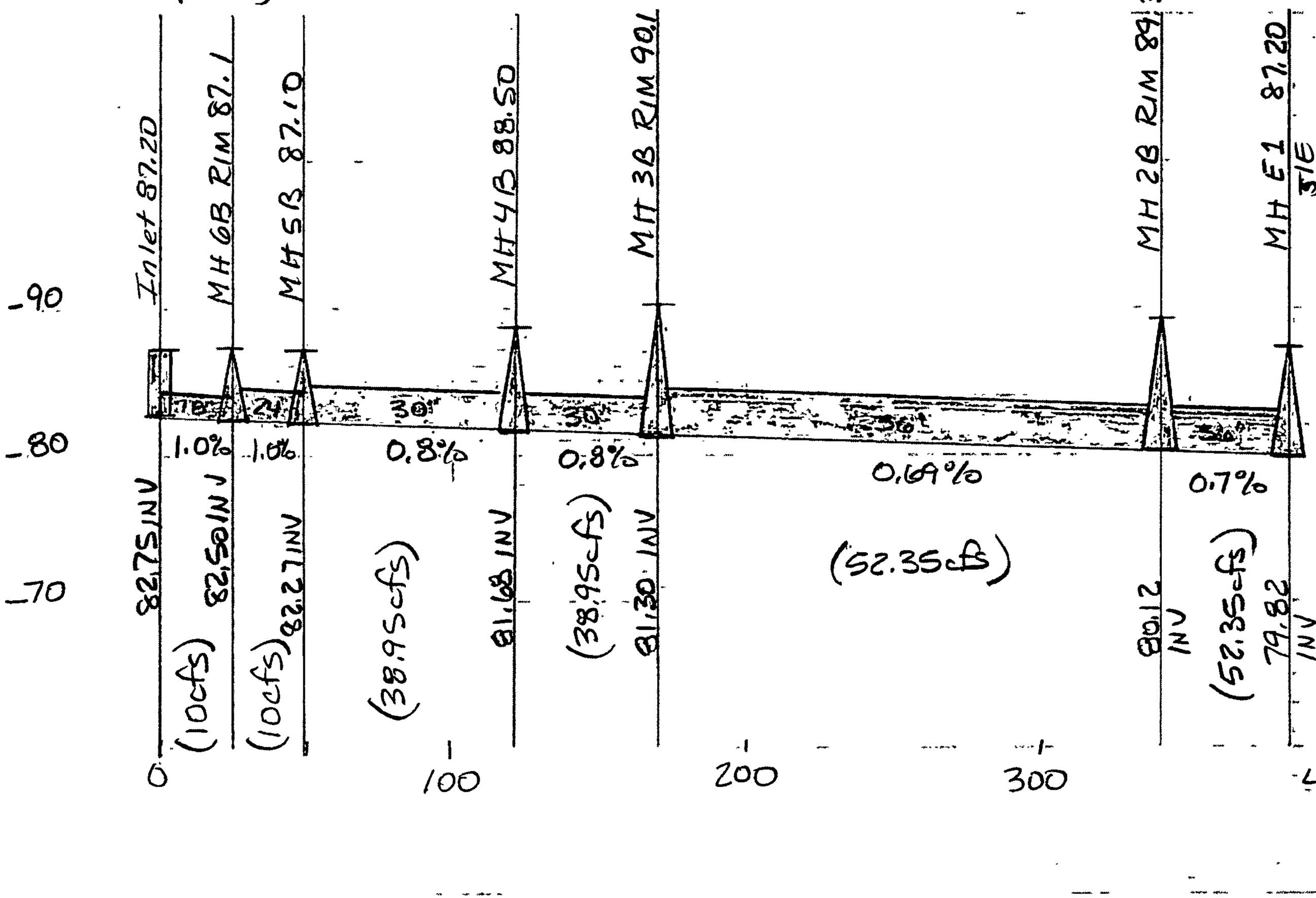


PIPE FLOW CHART
24-INCH DIAMETER

Basin Peak Rd.

PRELIMINARY STORM DRAIN DESIGN.

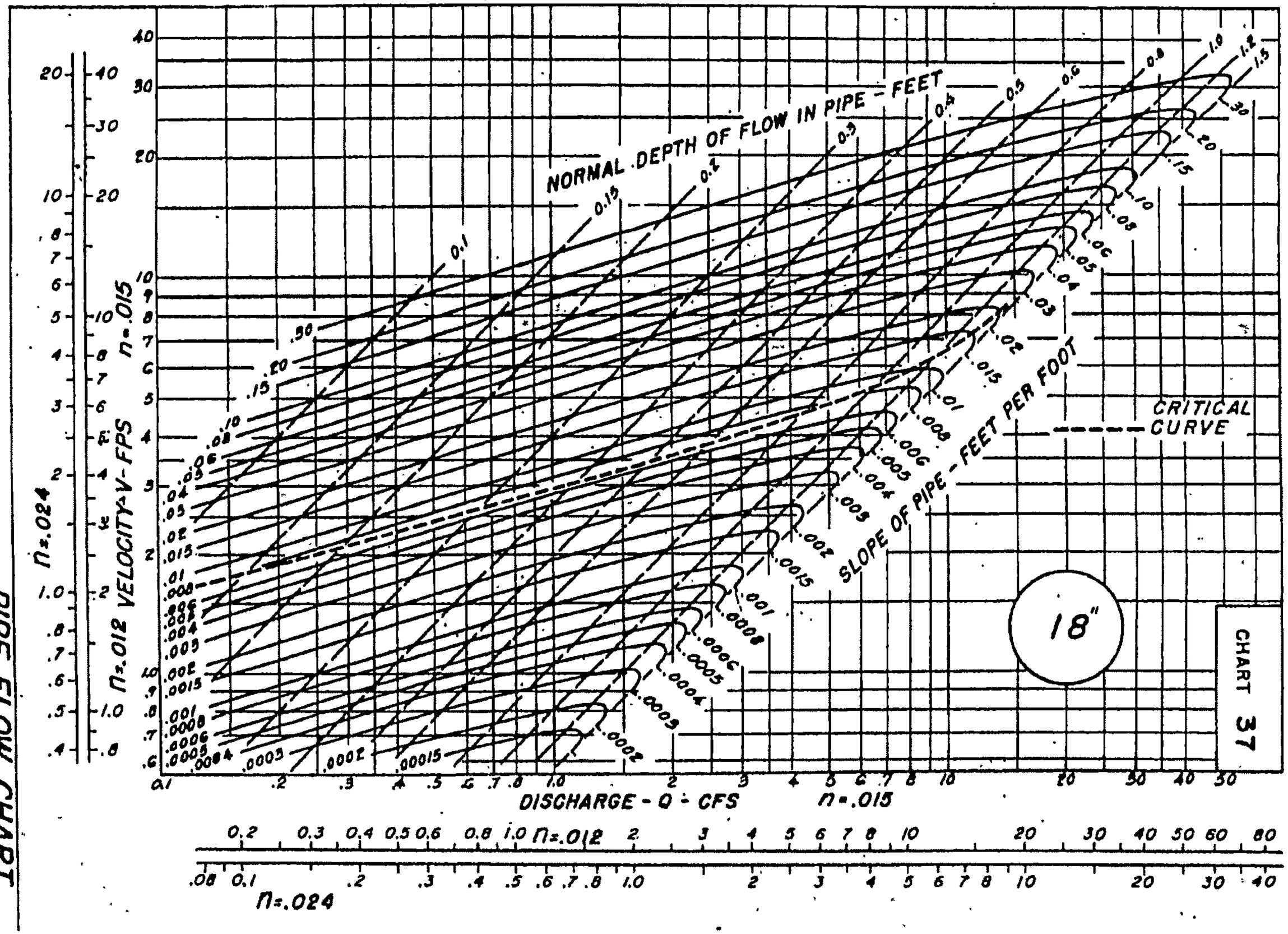
Note: West Storm MH 7B to 3B, Q = 13.4cfs S = 5% PIPE FLOW CHART INDICATES Capacity > 40cfs.

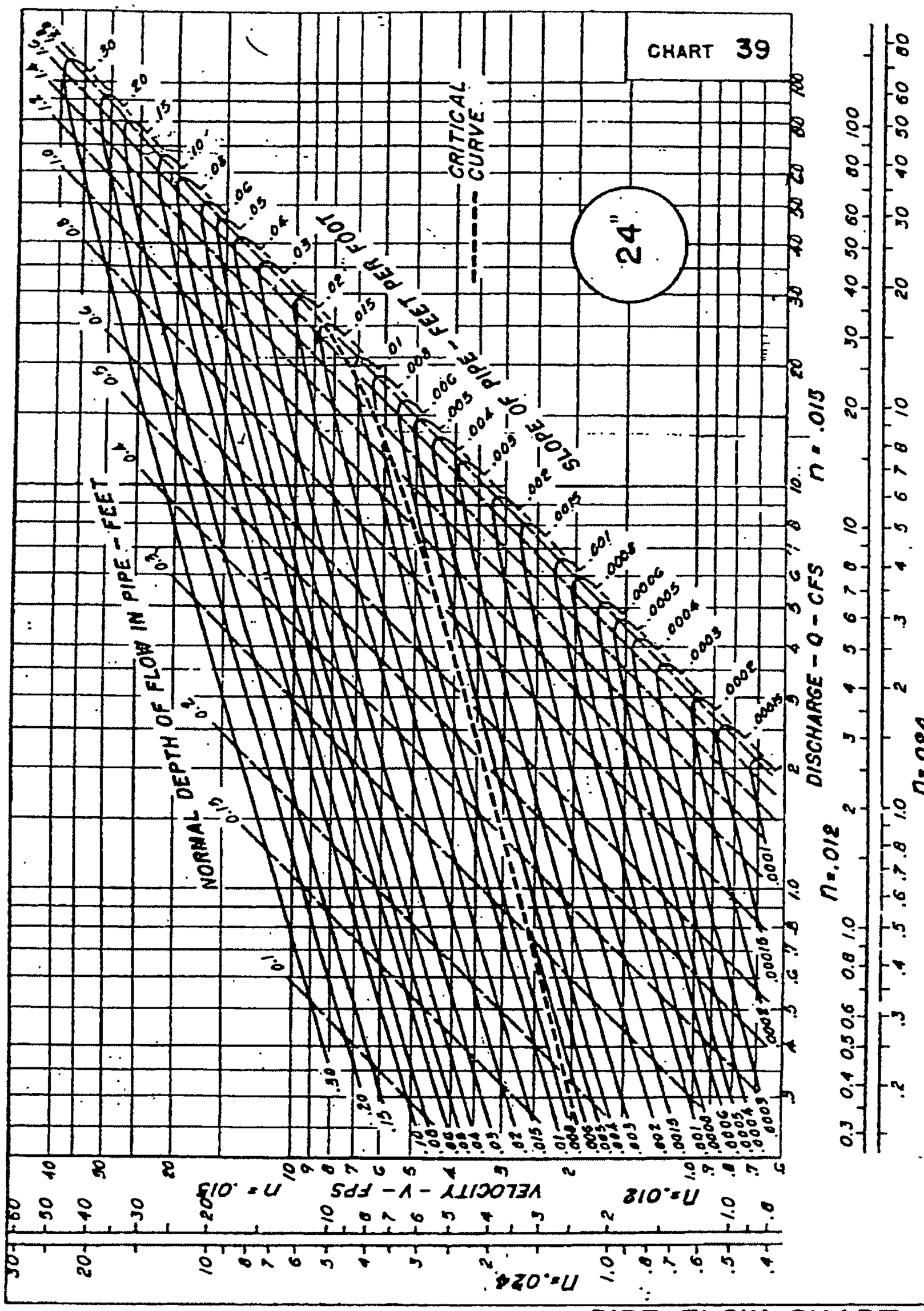


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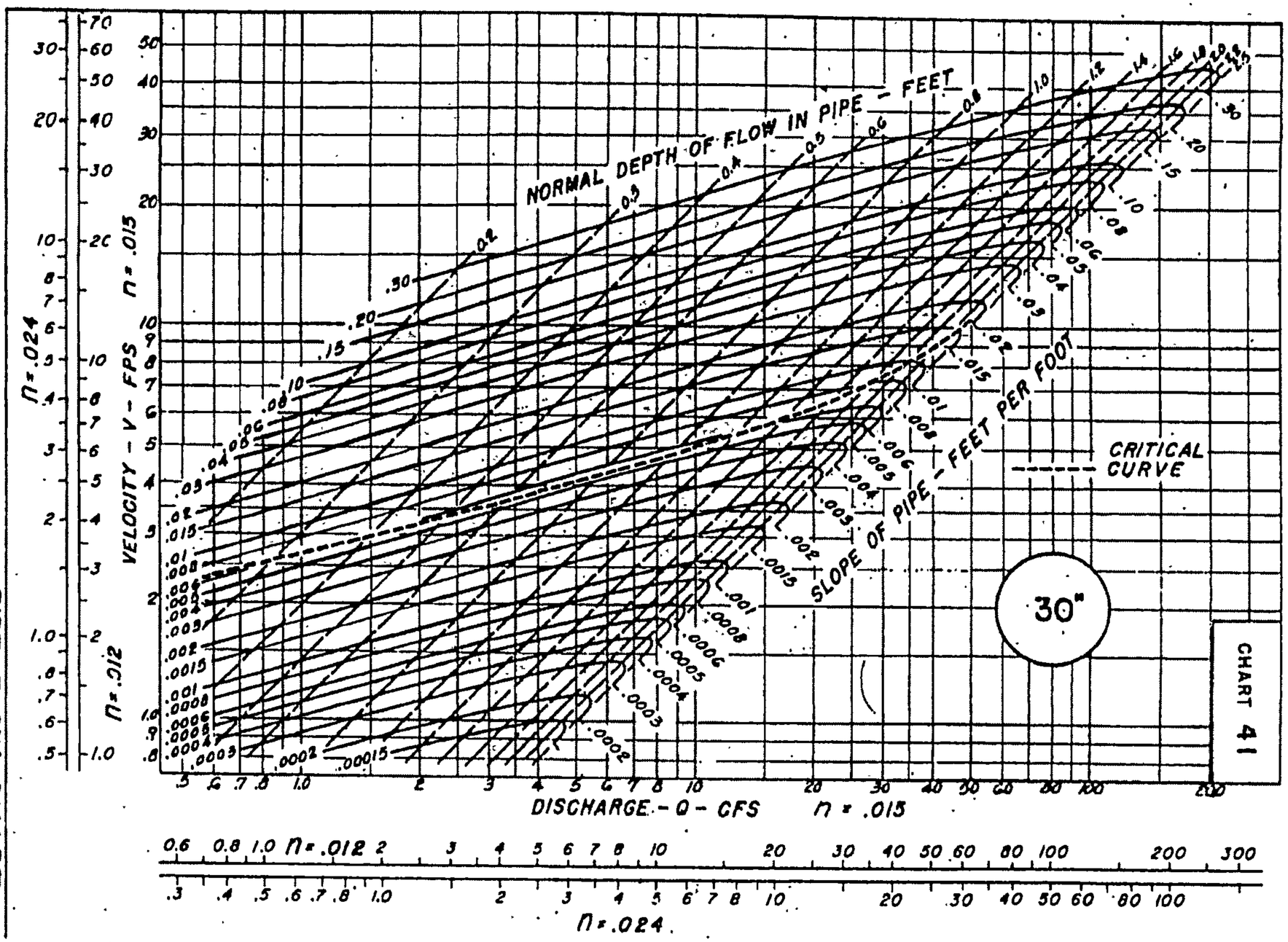
PROJECT Anderson Heights Unit H
SUBJECT Basin I Alta Storm.
BY _____ DATE _____
CHECKED _____ DATE _____
SHEET ____ OF ____

PIPE FLOW CHART
18-INCH DIAMETER



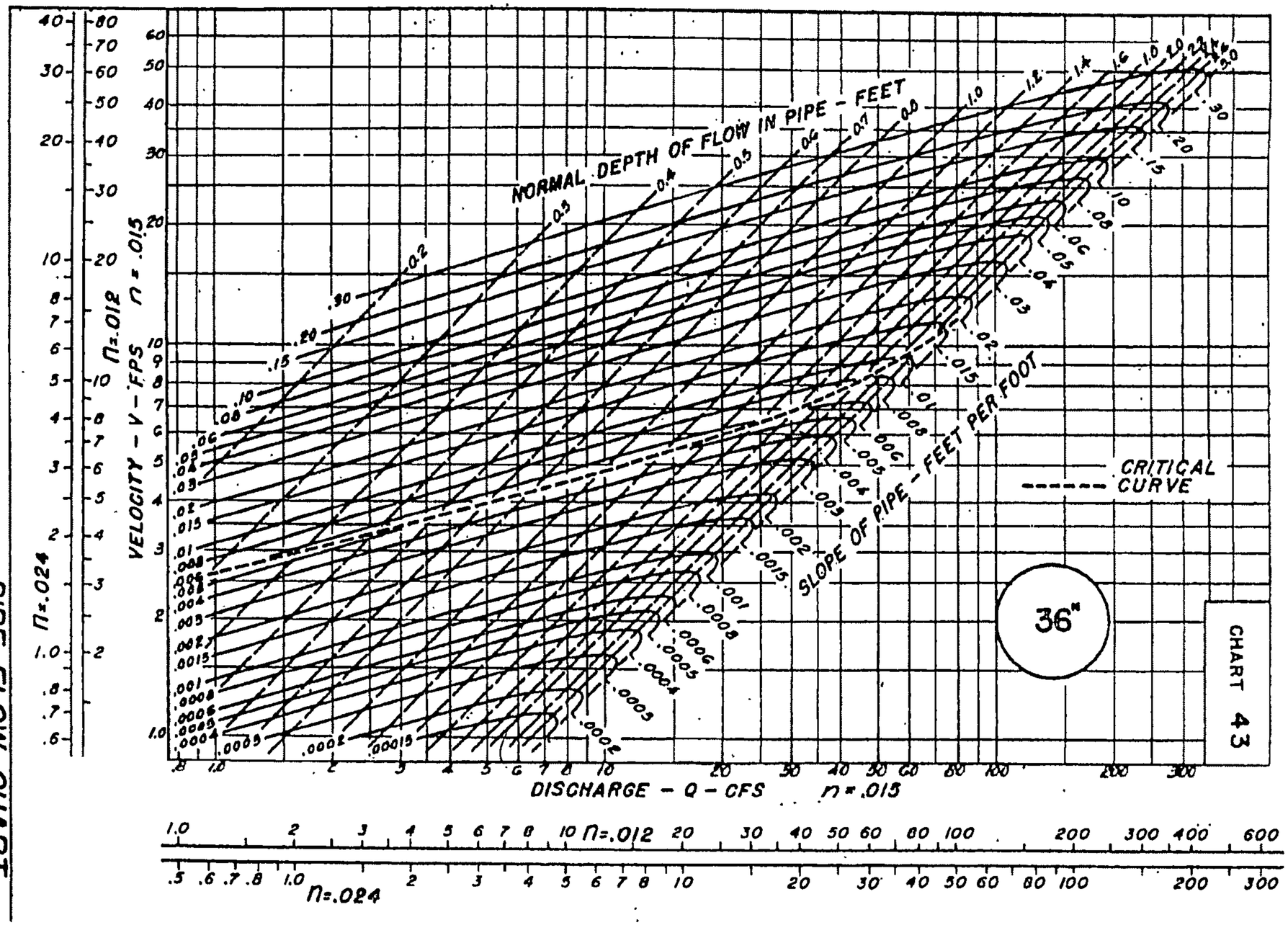


PIPE FLOW CHART
24-INCH DIAMETER



PIPE FLOW CHART
30-INCH DIAMETER

PIPE FLOW CHART
36-INCH DIAMETER



CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

May 5, 2015

Diane Hoelzer, P.E.
Mark Goodwin & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

RE: **Anderson Height Unit 4 (File: N08D006F)**
Drainage Report, Engineer's Stamp Date 2-12-2015
Grading & Drainage Plan Engineer's Stamp Date 5-1-2015

Dear Ms. Hoelzer:

Based upon the information provided in your latest submittal received 5-1-15 (and prior submittals), the above referenced plan cannot be approved for Grading Permit until the following comments are addressed:

1. Typical retaining wall details on Sheet 2 of 4 show a 9' wall height (garden wall ht. plus retained ht). Per zoning, the maximum allowed wall height is 8 ft. Adjust the retained height of the lower walls such that the highest wall is 8' max. ← SEE N08D006F1
2. The water quality pond in the Memorial Park is undesirable. Show tree wells have enough volume to capture the first flush. Indicate turned block in wall for overflow.
3. Retaining wall along the eastern boundary:
   - Show the existing retaining wall built with the Arrowwood Subdivision. Call out as existing, and to protect in place.
   - Show/note removal of the existing retaining wall that was built later (Unit 9 G&D, stamp date 9-10-07). The entire wall is to be removed as it was built too close to the previously existing wall and the existing wall is not designed for the additional pressures.
   - A new retaining wall is to be built some distance away from the existing wall (Arrowwood Subdivision). Show on the plan at the correctly scaled distance and provide section cuts .
   - There is sufficient reason to believe that the new walls need to have footings extend as far down as the existing walls built with Arrowwood subdivision. Please show this on the section cuts.
   - Your legend defines TGW as something other than Top of Garden Wall, please redefine.
   - In lieu of the above comments, a structural engineer may be contracted to determine another solution.

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

N08D006F_GP_Cmmt.doc

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Need electronic file
of everything

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

May 4, 2015

Diane Hoelzer, P.E.
Mark Goodwin & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

RE: **Anderson Height Unit 4 (File: N08D006F)**
Drainage Report, Engineer's Stamp Date 2-12-2015
Grading & Drainage Plan Engineer's Stamp Date 5-1-2015

Dear Ms. Hoelzer:

Based upon the information provided in your latest submittal received 5-1-15 (and prior submittals), the above referenced plan is approved for DRB action on the Preliminary Plat and Site Plan for Subdivision. Before Final Plat approval, show a drainage easement on Tract RR, and revise the Area Table on Tracts EE,HH, and PP.

The Grading and Drainage Plans cannot be approved for Grading Permit until DRB approval. A separate letter will be written with any exception or comment.

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Harmon Rita T.

From: Harmon Rita T.
Sent: Tuesday, May 05, 2015 10:13 AM
To: Diane Hoelzer (Diane@goodwinengineers.com)
Subject: FW: Anderson Hts GP Comment letter
Attachments: N08D006F_GP_Cmmt.pdf

Diane,

Please find attached a copy of the Hydrology Letter for the above referenced project.
At the time the Revised Grading Plan is submitted, please provide a CD of the updated Drainage Report and all final plans.

Sincerely,

Rita Harmon, P.E.
Senior Engineer
Planning Department
Development & Review Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
t 505-924-3695
f 505-924-3864

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Anderson Heights Unit 4 (4A, 4B, 4C, 4D, 4E, 4F) Building Permit #: _____ City Drainage #: N-8/

DRB#: 1002739 EPC#: _____ Work Order#: _____

Legal Description: Parcels 4 and 6, Anderson Heights Unit 1 AND Anderson Heights Unit 9

City Address: between Colobel Avenue and Amole Mesa Road

Engineering Firm: Mark Goodwin & Associates, PA Contact: Diane Hoelzer

Address: PO Box 90606, ABQ, NM 87199

Phone#: 828-2200 Fax#: _____ E-mail: _____

Owner: KB Home Contact: _____

Address: 7807 E Peakview Avenue, Ste. 300, Centennial, CO 80111

Phone#: 303-323-1102 Fax#: _____ E-mail: _____

Architect: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: ALS, Inc Contact: Tim Aldrich

Address: PO Box 30701, ABQ, NM 87190

Phone#: 328-3988 Fax#: _____ E-mail: _____

Contractor: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

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____ ENGINEER'S CERT (TCL)
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____ SO-19
x OTHER (SPECIFY) stormdrain analysis Print out - Marcup & Grad Prp marcup.

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MAY 04 2015
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: May 4, 2015 By: Diane Hoelzer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, and scope to the proposed development defines the degree of drainage detail One or more of the following levels of submittal may be required based on the followin

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MARK GOODWIN & ASSOCIATES, PA

LETTER OF TRANSMITTAL

TO: Hydrology
Rita Harmon
One Stop 1th Floor
Plaza del Sol

DATE: May 4, 2015

RE: Anderson Heights Unit 4
DRB 1002739

ITEMS BEING TRANSMITTED

1	Jacob-Dundee-Pine Town Storm Analysis WSPGW-mark up
1	Gault Avenue Storm Drain P&P marked up

X Manhole ID and Rim elevations have been added to the side of output file, as requested.

Thanks,

PROJECT ENGINEER: Diane Hoelzer, PE

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MAY 04 2015
LAND DEVELOPMENT SECTION

P.O. Box 90606 ♦ Albuquerque, NM 87199 ♦ (505) 828-2200 ♦ (505) 797-9539 fax

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

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Surveyor: ALS, Inc Contact: Tim Aldrich

Address: PO Box 30701, ABQ, NM 87190

Phone#: 328-3988 Fax#: _____ E-mail: _____

Contractor: NA Contact: _____

Address: _____

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LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: May 1, 2015 DHS By: Diane Hoelzer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, and scope to the proposed development defines the degree of drainage detail One or more of the following levels of submittal may be required based on the followin

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D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

April 23, 2015

Mr. Rita Harmon, PE
Hydrology Division, Planning Dept.
Development and Building Services
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Anderson Heights Unit 4 Grading and Drainage Plan
Revised Engineers stamp date 4-1-15 (N08 / D006F)
With revisions dates 4-22-15 (sht 3) and 4-14-15 (sht 4)

Dear Ms. Harmon;

In response to comments received at DRB from Open Space and from conversations regarding the retaining walls along the east property boundary:

1. *The Memorial Park was revised to add additional detail to the plan. The concept is unchanged just more detail.*
2. *The grades along the east property line were revisited. I have lowered the grades in Jacob Bay Court as much as possible while still maintaining minimum required cover over the storm drain. I have graded the backyards so that the grades are equal to or below the TWRW (top of west retaining wall).*
3. *The grades in Dundee Street remain unchanged. There is already minimum cover over the storm drain in this street. Consequently, the back yard grades, along Dundee Street, are higher than the TWRW. I have indicated proposed retaining walls along this area as shown on the revised plan. The maximum additional retainage is 2.0 feet.*

This is the revised plan that had been submitted to DRB for the April 29 hearing.

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

Diane Hoelzer, PE
Senior Engineer

DLH/dlh
f:\\13034 \Anderson heights 4\ hydro_ltr_13034_3.docx

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LAND DEVELOPMENT SECTION

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

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Phone#: 828-2200 Fax#: _____ E-mail: diane@goodwinengineers com

Owner: KB Home Contact: _____

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Phone#: 303-323-1102 Fax#: _____ E-mail: _____

Architect: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: ALS, Inc Contact: Tim Aldrich

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LAND DEVELOPMENT SECTION

AO varified

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: April 23, 2015 By: Diane Hoelzer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, and scope to the proposed development defines the degree of drainage detail One or more of the following levels of submittal may be required based on the followin

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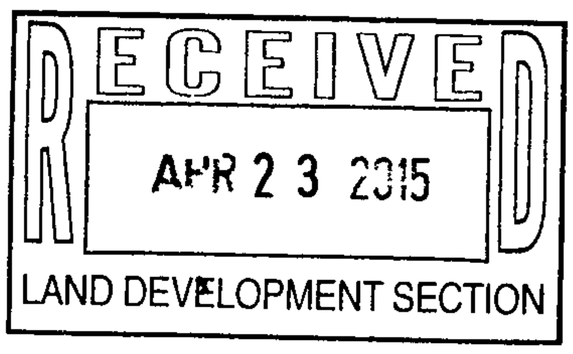
Kay Brashear

From: Kay Brashear
Sent: Thursday, April 23, 2015 10:29 AM
To: 'plndrs@cabq.gov'
Cc: Rita Harmon (rharmon@cabq.gov); Vanessa A. Segura (vsegura@cabq.gov); Diane Hoelzer
Subject: Anderson Heights Unit 4 - DRB # 1002739
Attachments: G&D Plan.pdf; Letter and Info Sheet.pdf

Attached is the G&D Plan, Letter, and Drainage Information Sheet. Hard copies will be delivered this morning.

Thank you,

Kay Brashear
Mark Goodwin & Associates, PA
Office Manager
PO BOX 90606
Albuquerque, NM 87119
(505) 828-2200



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Anderson Heights Unit 4 (4A, 4B, 4C, 4D, 4E, 4F) Building Permit #: _____ City Drainage #: N-8/ D006F

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Address: PO Box 30701, ABQ, NM 87190

Phone#: 328-3988 Fax#: _____ E-mail: _____

Contractor: NA Contact: _____

Address: _____

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APR 10 2015
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: April 10, 2015 By: Diane Hoelzer, PE

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MARK GOODWIN & ASSOCIATES, PA

LETTER OF TRANSMITTAL

To: Hydrology
Rita Harmon
One Stop 1st Floor
Plaza del Sol

DATE: April 10, 2015

RE: **Anderson Heights 4**
DRB # 1002739

ITEMS BEING TRANSMITTED

1	CD – PDF Copy of Submittal
1	Drainage Information Sheet
1	Infrastructure List - revised
1	Revised Grading and Drainage Plan (4/1/15)
1	Sub Basin Boundary Exhibit (4/1/15)
1	Street Capacity Exhibit (4/1/15)
1	Preliminary Storm Drain Layout (4/1/15)
1	Preliminary Plat (Owner signed 4/3/15)

Notes:

THE ONLY DIFFERENCE BETWEEN THIS PLAN AND THE PREVIOUS PLAN IS THE PHASE/UNIT LINE BOUNDARY HAS BEEN REMOVED.

If you have any questions, please call me.
Diane

Submitted by:
DLH/kb

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APR 10 2015
LAND DEVELOPMENT SECTION

Received By:

(Please Print)

Date

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1 1 2015
LAND DEVELOPMENT SECT

P.O. Box 90606 ♦ Albuquerque, NM 87199 ♦ (505) 828-2200 ♦ (505) 797-9539 fax
www.goodwinengineers.com

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

N08D006F

~~[illegible]~~

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LAND DEVELOPMENT SECTION

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DATE SUBMITTED: February 13, 2015 By: Diane Hoelzer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

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DMM

MARK GOODWIN & ASSOCIATES, PA

LETTER OF TRANSMITTAL

To: Rita Harmon
Hydrology, One Stop – 1st Floor

DATE: March 4, 2015

RE: **Anderson Heights 4**
Project # 1002739

ITEMS BEING TRANSMITTED

1	Drainage Report
1	CD – PDF version of Drainage Report

- ☐ FOR YOUR USE
- ☐ AS REQUESTED
- ☐ FOR YOUR RECORDS
- ☐ FOR YOUR COMMENTS

Notes:

Submitted by:
DLH/kb

Received By:

(Please Print)

Date

RECEIVED
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LAND DEVELOPMENT SECTION

P.O. Box 90606 ♦ Albuquerque, NM 87199 ♦ (505) 828-2200 ♦ (505) 797-9539 fax
www.goodwinengineers.com

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

September 5, 2014

Diane Hoelzer, P.E.
Mark Goodwin & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

RE: **Anderson Height Unit 4**
Drainage Report, Grading & Drainage Plan
Engineer's Stamp Date 6-27-2014 (File: N08D006F)

Dear Ms. Hoelzer:

Based upon the information provided in your submittal received 8-4-14, the above referenced plan cannot be approved for Grading and Paving Permit until the following comments are addressed:

1. Hydrology would like exclusive drainage easements or provide a trench prism on Tract T and U.
2. Tract LL should be at least 30' wide based on formula in DPM pg. 22-172 assuming a depth of 10'.
3. Address how the first flush is to be managed on the site plan and Grading and Drainage plan.
4. If the subdivision is to be phased, provide a Grading and Drainage plan for each phase showing how drainage is to be managed in the interim stages and the order of phasing. The plan for each phase should how each phase will tie into the existing contours, and the size and location of the temporary ponds. Temporary ponds should show the WSEL, emergency overflow, and volume.
5. Per our conversation, I understand that the second retaining wall along the east property line which was installed for the interim conditions is to be removed in its entirety. However, there are concerns about the original retaining wall built with the Arrowwood subdivision, especially since a wall failure occurred sometime in the past. From my research, I found the following:

a. The *Arrowhead Hills G&D Plans* for the development to the east, by Wilson and Company (engr's stamp date 10-12-05 and certified 9-19-06, Drainage file N9D008A) has a note: RETAINING WALL BY OTHERS COA 753981. It is unknown if the retaining wall was designed to retain the grades from the *Anderson Heights Grading and Drainage Plan by Greg Krenik dated 4-14-05(Sht 6 &7) and 4-27-05(Sht 9)* or the existing grades. The existing grades were at or below the Arrowwood subdivision grades.

b. We do not have in our records calculations showing that the original retaining wall was checked for additional pressures from the second retaining wall (as requested in a letter by Brad Bingham dated 12-4-2008), and may be overloaded at the present. It is our opinion that a structural engineer needs to evaluate the integrity

If private these don't apply

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

Albuquerque - Making History 1706-2006

of the original wall built with the Arrowwood Subdivision. If further information on the original wall is not obtained, a second wall will need to be designed and constructed parallel to the original wall. The footing will need to be deep enough (or further from the original wall) such that additional pressures are not placed on the original wall.

c. The TW Elevation needs to be clarified. If typically the TW Elevation is the top of the structurally designed retaining wall, then the TW Elevation should average about 50' according to the as-built plans. The proposed plans show the average TW to be about 60'. The 10' difference leads me to believe that about 3.5' is a datum correction and the other 6.5' is a screen wall (or garden wall) built above the retaining wall. From my field visit, there is no visible joint (or change in block size) in the masonry where a surveyor would be able to determine the elevation of the top of the retaining wall.

6. Indicate that there are two walls along the east property line. Indicate that the existing second wall is to be removed.

7. BW Elevations do not match up with the As-built BW elevations from the *Arrowhead Hills G&D Plans* nor the *Anderson Heights Unit 9 G&D plan*, stamped 9-10-07 in some areas. There is a 3.5' difference at one point. The existing contours along the wall do not match the TW elevations from *Anderson Heights Unit 9 G&D plan* stamped 9-10-07. For example, at 500' from the south property line the contour shows 57' along the wall, but the older plan says the TW is 53.55. As we have already discussed, the datum needs to be corrected. I am assuming the proposed contours are in the '88 datum. Are the existing contours in the '88 or the '29 datum? They should be the same datum. Further evidence that there are 2 different datums being used is at the west property line where some spot elevations do not match major existing contours.

8. Provide more elevation labels of the existing grade contours.

9. A retaining wall is needed on west side of Lot 23-P1, along Emerald Peak Street.

10. What is the meaning of the hatching used between lots (ie. Between lots 58-P1 and 59-P1)? It is not on the legend. It seems to be a retaining wall in some cases (lots along Tract TT) but it is also used where a retaining wall would not be necessary (ie. Lots 1-P1 and 2-P1). Clearly indicate what walls are retaining and what walls are screen walls/ garden walls.

11. What do solid lines on either side of Tract U indicate? retaining walls?

12. Water block should be raised at Barrow Road access from 118th Street.

13. Show proposed contours at the memorial park (Tract UU), the private park (Tract VV) and Tracts Z, A, and B.

14. The side yard detail on Sheet 2 has a High Pad and a High Pad 2. Where does this apply? What is the meaning of the "10' Interim Condition" note? It seems to be a detail carried from an older plan. Does it still apply?

15. On Subbasin Boundary Exhibit, remove the Zone Boundary line running N-S along Ironwood Hill St. as it makes it difficult to determine the basin boundaries.

16. Provide calculations of inlet capacities to support Table 2, Summary of Street Capacity Calculations ?

17. Table 2, Summary of Street Capacity Calculations indicate that inlets in Crag Peak are not picking up runoff from Tract UU (Memorial Park). Where is runoff from Memorial Park captured? If inadvertently left out, will EG in Pine Town Road pass the 0.87' at edge of ROW?

CITY OF ALBUQUERQUE

shows DBL ret. wall

18. Double Retaining wall needed on Tract Y, between Lots 1-4 and Lots 5-8

NOT Provided → 19. Provide street slopes more often or where needed.

20. It is much too time consuming to review the storm drain pipes by trying to analyze the program output, trying to match the program output to the stationing, finding where and how much Q's are input, and the invert elevations (especially since the datum needs to be corrected). Please provide a graphical representation that will easily allow me to review the output, the pipe capacity, where and how much Q is being added, the invert elevations, and the HGL.

21. When reviewing the Summary of Street Capacity Calculations , it would be helpful if you indicated where each added Q is coming from, ie. What basins? What % of a basin is contributing?

22. Include in Table 2 inlets in Dundee St. near MH#8A. Sump Condition? SD Layout plan says 11.44 cfs but Street Capacity exhibit says 27.07cfs (or 13.53 cfs to each inlet). I agree with the 27.07 cfs , but 6.37cfs from Basin 31 may need to be included. If so the inlets in sump conditions should have a 16.72 cfs capacity . Provide inlet capacity calculations. Inlets in the sump condition should have double the capacity.

23. Include in Table 2, the inlets at intersection of Bord Peak Road and Banner Peak Road. Show Inlet Type and number.

24. Table 2, Summary of Street Capacity Calculations indicates that Colobel Avenue has a total of 4 Single-A inlets, without capturing the total flow (3.46 cfs not captured). Plans show 3 inlets. It appears that at least another inlet is needed along the South side of Corobel Road, near Gaunt. Also show how/where the bypass flow is being captured.

25. In Table 1, Summary of Street Capacity Calculations, is the second line item "Bord Peak" supposed to be "Deer Field" to correspond to the HEC-2 run?

26. Labels of Basin 31 and 33 are incorrectly labeled on the Basin Boundary Map, as noted from the corresponding calculations.

Could not find on IF List

27. Volumes of the Temporary Ponds need to be shown on the Infrastructure List as well as Agreements and Covenants listed with the Pond.

28. Where is the property line along the tie slopes used in Unit 4F (between the rear yards). Verify that he property line is at the high end of the tie slope.

29. In the interest of time, I reviewed the grades in Units 4A and 4B thoroughly, and more generally for the remaining Units. I will review the grades in the remaining units in more detail in the next submittal.

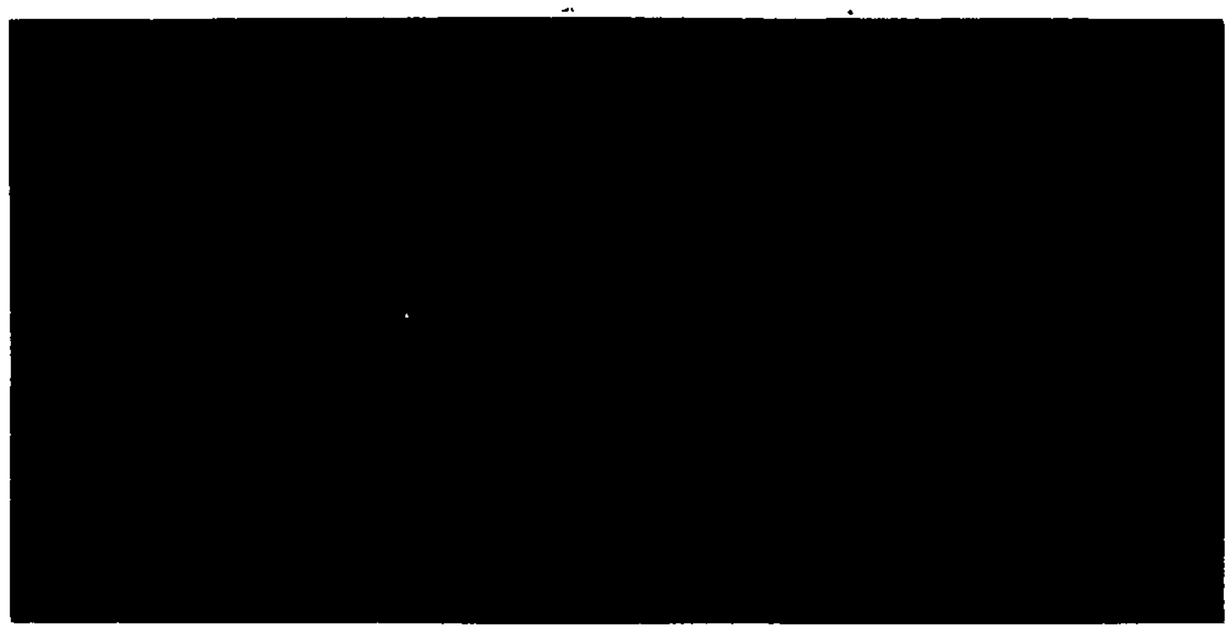
If you have any questions, you can contact me at 924-3695.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov



PROJECT: 1002739
DATE: 8-6-14 (SPS, TDS, PP)

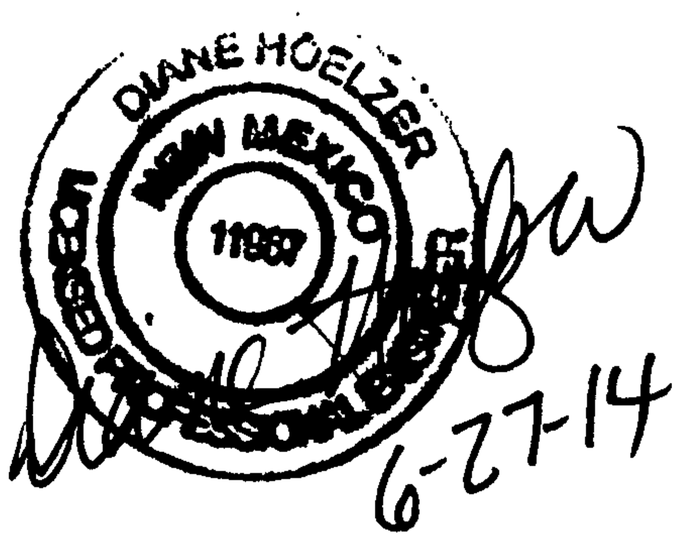
MARK GOODWIN

& ASSOCIATES
CONSULTING ENGINEERS

dmg

Anderson Heights Unit 4
(residential subdivision)

Drainage Management Plan



Prepared by
Mark Goodwin & Associates, P.A.

June 2014

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

N08D006F

Project Title: Anderson Heights Unit 4 (4A, 4B, 4C, 4D, 4E, 4F) Building Permit #: _____ City Drainage #: N-8/

DRB#: 1002739 EPC#. _____ Work Order#: _____

Legal Description. Parcels 4 and 6, Anderson Heights Unit 1 AND Anderson Heights Unit 9

City Address: between Colobel Avenue and Amole Mesa Road

Engineering Firm: Mark Goodwin & Associates, PA Contact: Diane Hoelzer

Address: PO Box 90606, ABQ, NM 87199

Phone#: 828-2200 Fax#: _____ E-mail: _____

Owner: KB Home Contact: _____

Address: 7807 E Peakview Avenue, Ste 300, Centennial, CO 80111

Phone#: 303-323-1102 Fax#. _____ E-mail. _____

Architect: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: ALS, Inc Contact: Tim Aldrich

Address: PO Box 30701, ABQ, NM 87190

Phone#: 328-3988 Fax#: _____ E-mail: _____

Contractor: NA Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail. _____

TYPE OF SUBMITTAL:

x DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
x GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
x PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
x GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: June 30, 2014 By: Diane Hoelzer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, and scope to the proposed development defines the degree of drainage detail One or more of the following levels of submittal may be required based on the followin

1 **Conceptual Grading and Drainage Plan** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2 **Drainage Plans** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3 **Drainage Report** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4 **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

Anderson Heights – Unit 4

Table of Contents

I. *PROJECT DESCRIPTION*

II *DESIGN CRITERIA AND PREVIOUS REPORTS*

III. *EXISTING DRAINAGE CONDITIONS*

IV. *DEVELOPED DRAINAGE CONDITIONS*

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FIGURE 2 *Aerial Google Earth Map*
FIGURE 3 *FEMA Map*
FIGURE 4 *Preliminary Plat*
FIGURE 5 *Infrastructure List*

APPENDIX A *HYDROLOGY*
Table 1 Summary of Hydrologic Parameters
Sub Basin Boundary Exhibit
AHYMO Input file
AHYMO Summary file

APPENDIX B *HYDRAULICS*
Table 2 Summary of Street Capacity Calculations
Street Capacity Exhibit
HEC-2 printouts

APPENDIX C *STORM DRAIN*
Preliminary onsite storm drain layout
WSPGW Civildesign storm analysis
Colobel Redesign
WSPGW Civildesign storm analysis

POCKET 1 *GRADING AND DRAINAGE PLAN*
POCKET 2 *PRELIMINARY PLAT*
POCKET 3 *PRELIMINARY STORM DRAIN LAYOUT*

I. PROJECT DESCRIPTION

The Anderson Heights Unit 4 project site covers an area of approximately 87 acres. It was formerly known as Anderson Heights Unit 4, 6 and 9, (drainage file N-8/P-8) and was part of a larger development also known as Anderson Heights. This project proposes to develop 482 single family residential lots with all private streets in 6 phases or units. There is to be an internal 1.0 acre private park along with substantial community open space areas. There will also be a 3.0 acre parcel that will be dedicated to the city of Albuquerque to be developed in the future by the city as a memorial park. The project will tie into existing roads and underground infrastructure located in Amole Mesa to the north, 118th street to the west and to Colobel Avenue to the south. There are existing subdivisions to the north, south and east of this project. On a larger scale, this project is located between Gibson Blvd. and Dennis Chavez Blvd. and west of 98th street in the southwest part of Albuquerque.

II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 6-hour storm event was analyzed to determine street capacities and sizing of the storm drain system using P(1 hr)=1.90", P(6 hr)=2.23". The onsite Land Treatment values used were based on Table A-5, in the DPM.

This project site was formerly known as Anderson Heights Unit 4 and 6 and Unit 9. Upon DRB approval of the grading and drainage plan and preliminary plat for Units 4, 6 and 9, the site was mass graded. At a later date the lot layout was changed for Unit 4 and 6 and a new G&D plan and preliminary was submitted and approved but the site was never regraded to this new layout configuration. The clients moved forward with Unit 9, completing construction plans, and filing the plat, but no construction was ever initiated beyond rough grading. When the economy tanked, development was suspended indefinately. In 2007-2008, an interim grading plan was approved with interim ponds to retain onsite flows. This grading plan was implemented and certified. The existing project site conditions reflect the original grading scheme as well as the interim ponds.

A LOMR was approved by FEMA for the 118th street ponds that ultimately took this project site out of the floodplain (refer to Figure 3 – FEMA panel 35001C0317).

Anderson Heights master drainage plan included drainage solutions for all the Units (1 thru 9) in Anderson Heights, which included detention ponds and storm drain systems. The drainage plan for this site involves collection of all the onsite runoff to the southeast corner where it is to be intercepted by an existing 72"-78" RCP storm drain and conveyed south through Gault Trail in the existing Anderson Heights Unit 3 subdivision to an existing detention pond. The construction plan for this existing storm drain can be found in Appendix C. There is also an existing storm drain in Colobel Avenue that was to intercept flows at several locations along the southern boundary of the project site. This storm drain will require some modification to accommodate the new layout configuration. Marked up details and the record drawing as builts can be found in Appendix C.

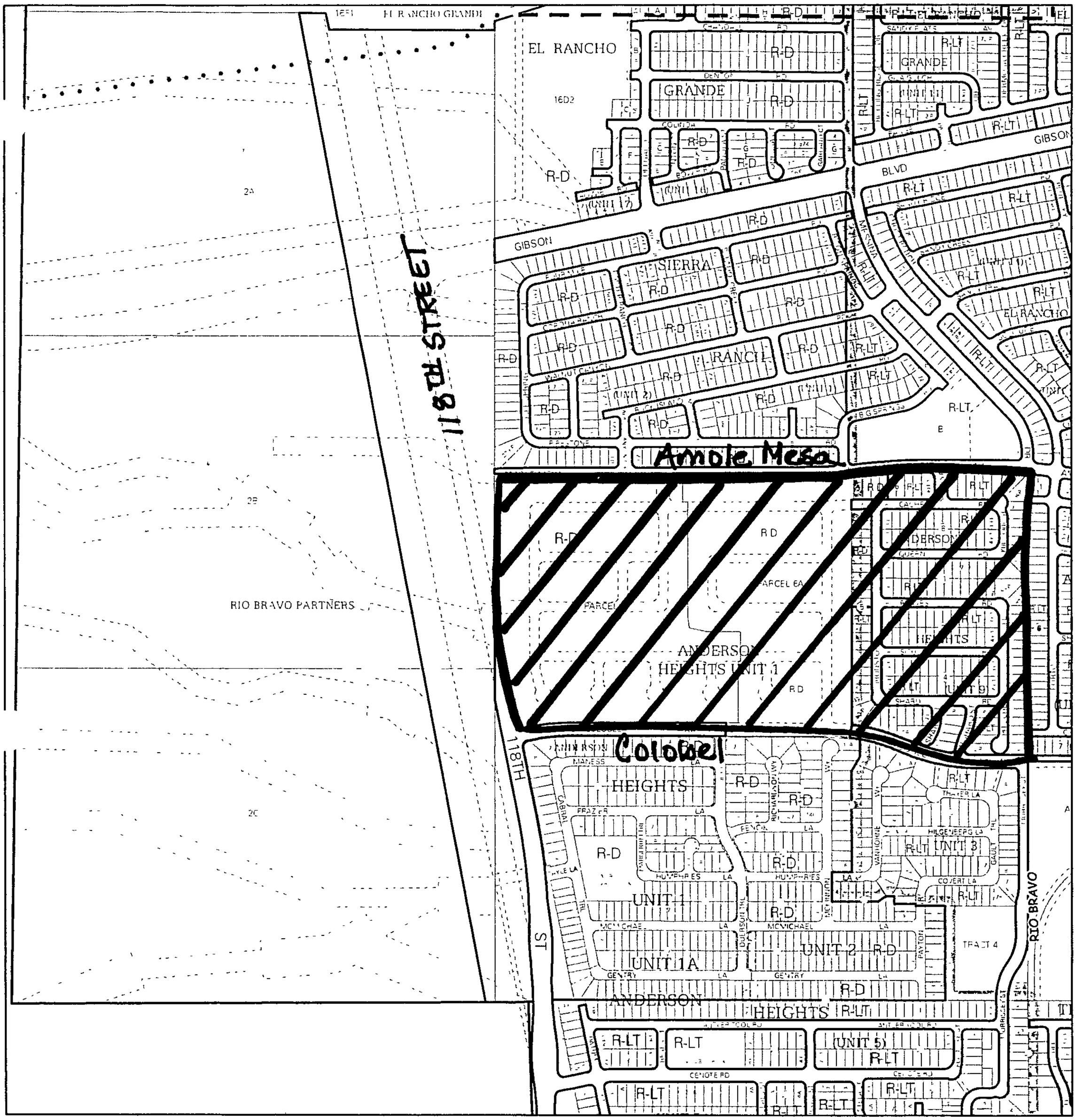
III. EXISTING DRAINAGE CONDITIONS

Under existing conditions, onsite runoff is conveyed to the numerous onsite temporary retention ponds. The topography in the area is generally in an eastward direction. There are no offsite flows that enter the site. The 118th street ponds along the western boundary intercept offsite flows from the major arroyos to the west and convey runoff south to the existing concrete channel located along the north side of Dennis Chavez Blvd. There is an existing storm drain in Colobel Avenue and in Gault Trail that was designed to intercept all the runoff from this site and discharge into the existing Pond 10. The as builts for these existing systems can be found in Appendix C.

IV. DEVELOPED DRAINAGE CONDITIONS

Under developed conditions, onsite runoff will be conveyed as surface flow in the street section until the runoff water surface depth elevation begins to approach the top of curb (8") or the energy grade elevation begins to exceed the elevation at the ROW boundary for the 100 yr 6 hr event. At that point inlets will be used and storm drain system designed to intercept flows in the street and convey runoff to the designated existing detention located in the eastern section of Anderson Heights Unit 3.

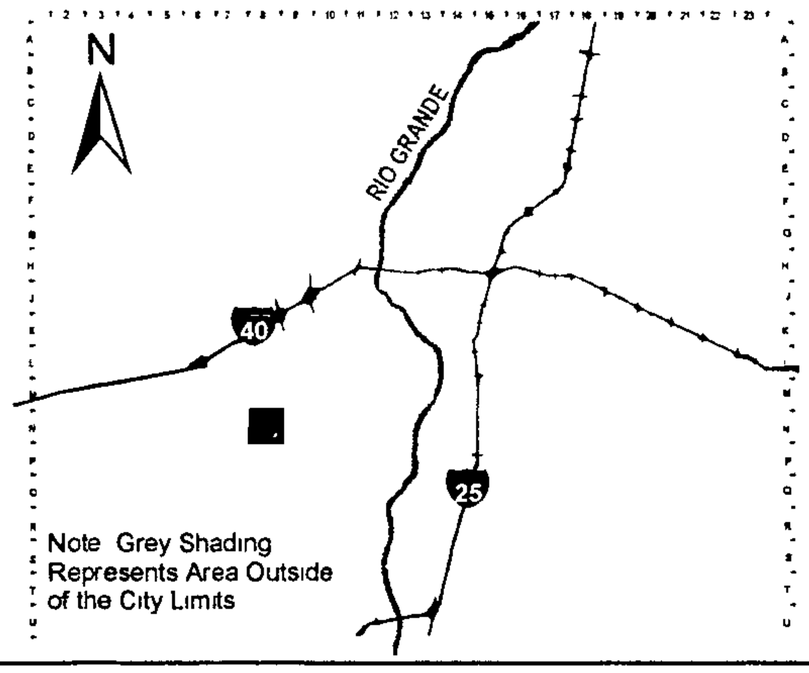
The AHYMO hydrology analysis and summary table can be found in Appendix A.
The summary of the street capacity calculations and exhibit can be found in Appendix B.
The preliminary storm drain design analysis and preliminary layout can be found in Appendix C.



For more current information and details visit http //www cabq gov/gis

Albuquerque Geographic Information System

Map amended through 4/2/2012



Zone Atlas Page.

N-08-Z

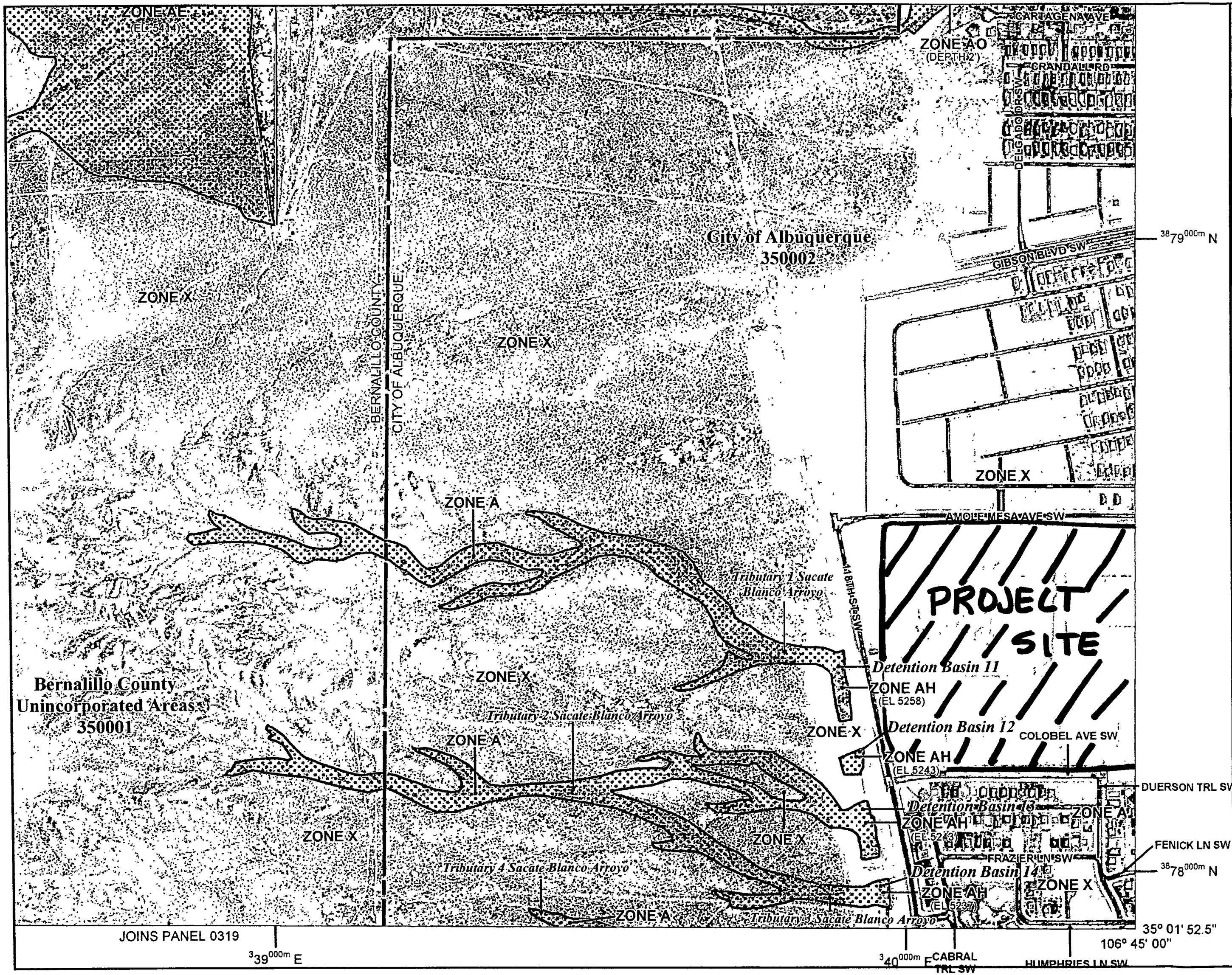
Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

VICINITY MAP

0 750 1,500 Feet


Sierra Ranch
Golinda Rd SW
Range Rd SW
Gibson Blvd SW
Corral Gate Ln SW
Sandy Ridge Rd SW
Sandy Creek Rd SW
Sandy Trail Rd SW
Four Mile Rd SW
Corona Ranch Rd SW
Walnut Canyon Rd SW
Buck Island Rd SW
Big Springs Rd SW
Pipestone Rd SW
Garden Gate Ln SW
Range Ave SW
Sun Canyon Ln SW
Sun Chaser Tr SW
Silver Star Dr SW
Blue Sky St SW
Sungate E
Canyon Gate Trail SW
Ample Mesa Ave SW
Marlborough Ave SW
Longford At Arrowwood
Arrowwood Hills
Merlot Dr SW
Tintara Ave SW
Inniskillin Ave SW
Colobel Ave SW
98th St SW
148th St SW
Maness Ln SW
Frazier Ln SW
Fencik Ln SW
Cabral Trail SW
Humphries Ln SW
Morrissey St SW
Anderson Heights
Gentry Ln SW
Antler Tool Rd SW
Datum St SW
Cenote Rd SW
Etrati St SW
Rio Corto Ave SW
Rio Clara Ave SW
Cricket Dr SW
© 2014 Google
Google earth
feet
3000
km
1



MAP SCALE 1" = 500'

0 500 1000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0317H

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 317 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE CITY OF	350002	0317	H
BERNALILLO COUNTY UNINCORPORATED AREAS	350001	0317	H

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

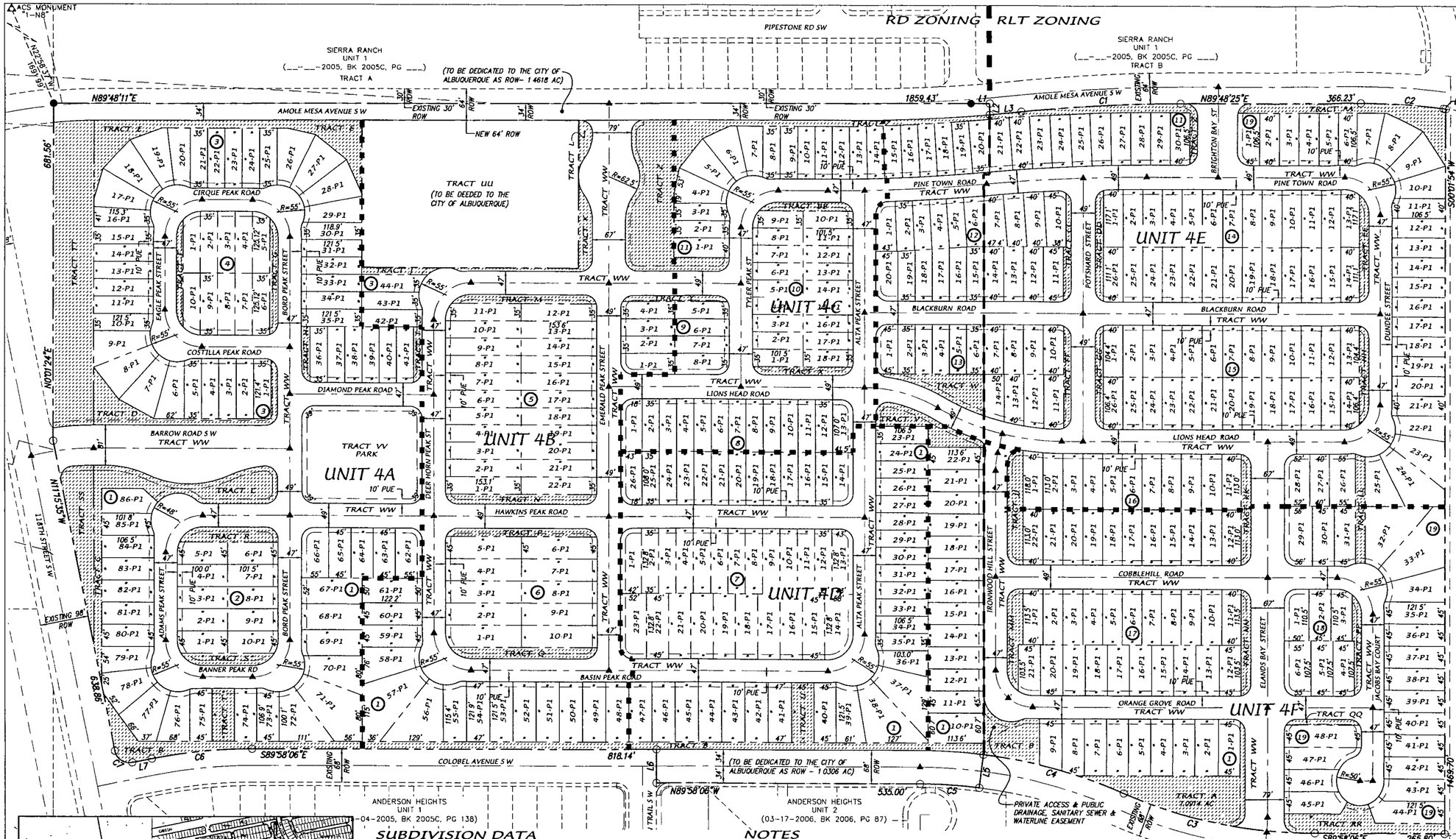
MAP NUMBER
35001C0317H

MAP REVISED
AUGUST 16, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

PRELIMINARY PLAT
ANDERSON HEIGHTS UNIT 4
WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTIONS 5 AND 8
TOWNSHIP 9 NORTH, RANGE 2 EAST, NMPM
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
MAY, 2014



LEGEND

1-P1	LOT NUMBER
(1)	BLOCK NUMBER
▲	CENTER LINE MONUMENT
ROW	RIGHT-OF-WAY
	ZONE BOUNDARY
	PHASE LINE

PROPERTY CORNERS

- ● FOUND 5/8" REBAR WITH CAP "LS 7719" (TYP)
- ○ SET BATHEY MARKER "LS 14271"

CURVE TABLE

CURVE	DELTA	RADIUS	TANGENT	LENGTH
C1	05°39'02"	1034.00'	161.37'	322.44'
C2	07°29'42"	1281.12'	83.91'	167.59'
C3	23°32'15"	966.00'	201.26'	396.84'
C4	16°21'49"	1034.00'	148.67'	295.31'
C5	7°10'26"	966.00'	60.55'	120.95'
C6	11°17'29"	1034.00'	102.22'	203.77'
C7	90°00'00"	30.00'	30.00'	47.12'

LINE TABLE

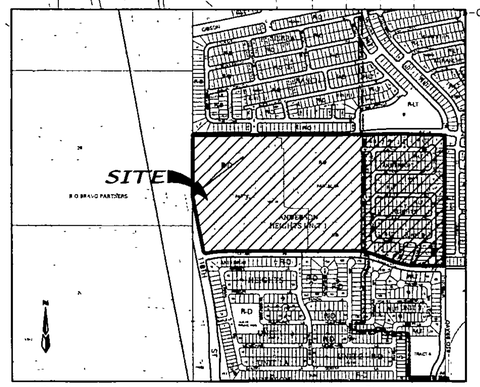
LINE	BEARING	LENGTH
L1	N89°48'25"E	37.61'
L2	S00°01'54"W	22.88'
L3	N84°24'25"E	64.32'
L4	S82°41'53"E	4.34'
L5	S7°12'20"W	68.00'
L6	N00°01'54"E	68.00'
L7	S78°44'25"W	40.72'

AREA TABLE

TRACT ID	AREA (AC)	TRACT ID	AREA (AC)
TRACT A	0.4867 AC	TRACT AA	0.2794 AC
TRACT B	0.9560 AC	TRACT BB	0.0692 AC
TRACT C	0.5331 AC	TRACT CC	0.0596 AC
TRACT D	0.2619 AC	TRACT DD	0.0811 AC
TRACT E	0.4644 AC	TRACT EE	0.0911 AC
TRACT F	0.0591 AC	TRACT FF	0.0634 AC
TRACT G	0.0822 AC	TRACT GG	0.0747 AC
TRACT H	0.0405 AC	TRACT HH	0.0832 AC
TRACT I	0.0417 AC	TRACT JJ	0.1662 AC
TRACT J	0.0456 AC	TRACT KK	0.0976 AC
TRACT K	0.1325 AC	TRACT LL	0.1001 AC
TRACT L	0.0439 AC	TRACT MM	0.1239 AC
TRACT M	0.1136 AC	TRACT NN	0.0935 AC
TRACT N	0.1376 AC	TRACT PP	0.0731 AC
TRACT P	0.1118 AC	TRACT QQ	0.0367 AC
TRACT Q	0.1481 AC	TRACT RR	0.2577 AC
TRACT R	0.1275 AC	TRACT SS	0.2931 AC
TRACT S	0.0933 AC	TRACT TT	1.1592 AC
TRACT T	0.1100 AC	TRACT UU	3.0113 AC
TRACT U	0.1255 AC	TRACT VV	1.0914 AC
TRACT V	0.1857 AC	TRACT WW	21.4495 AC
TRACT W	0.1871 AC		
TRACT X	0.0732 AC		
TRACT Y	0.0550 AC		
TRACT Z	1.1216 AC		

ABBREVIATIONS

10' PUE = PUBLIC UTILITY EASEMENTS GRANTED WITH THIS PLAT
ROW = RIGHT-OF-WAY
H.O.A.= HOME OWNERS ASSOCIATION
C.O.A.= CITY OF ALBUQUERQUE
A.B.C.W.U.A.= ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY



VICINITY MAP ZONE MAP N-8-Z

SUBDIVISION DATA

GROSS ACREAGE	87.4236 AC
ZONE ATLAS NO	N-8-Z
NO OF LOTS CREATED	482 LOTS
NO OF TRACTS CREATED	44 TRACTS
RIGHT-OF-WAY AREA DEDICATED TO CITY	2.4924 AC
ZONING	R-D/R-LT
DATE OF SURVEY	MARCH, 2014

LEGAL DESCRIPTION

A tract of land situate, within the Town of Atrisco Grant, projected Sections 5 and 8, Township 9 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being all of PARCELS 4 and 6, ANDERSON HEIGHTS UNIT 1 and ANDERSON HEIGHTS UNIT 9, and containing 87.4236 acres more or less.

PURPOSE OF PLAT

1. SUBDIVIDE PARCELS 4, 6 & 9, ANDERSON HEIGHTS INTO 482 RESIDENTIAL LOTS & 44 TRACTS AS SHOWN
2. DEDICATE RIGHT-OF-WAY AS SHOWN.
3. GRANT NEW EASEMENTS AS SHOWN.

NOTES

1. UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS ○ SHALL BE A SET #4 REBAR WITH YELLOW PLASTIC CAP "N.M.P.S. 7719"
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS, AND STREET INTERSECTIONS AND SHOWN THUS , ▲ WILL BE MARKED BY A FOUR INCH (4") ALUMINUM CAP STAMPED
   "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION"
   "DO NOT DISTURB"
   N.M.P.S. #7719
3. BOUNDARY SHALL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN
4. BASIS OF BEARING SHALL BE NEW MEXICO STATE PLANE GRID BEARINGS
5. ALL DISTANCES SHALL BE GROUND DISTANCES.
6. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY, STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MONUMENTATION
7. TRACT WW IS A PRIVATE ACCESS & DRAINAGE EASEMENT AND PUBLIC WATERLINE & SANITARY SEWER EASEMENT IT IS FOR THE BENEFIT OF ALL LOTS WITHIN UNIT 4 AND WILL BE MAINTAINED BY THE H.O.A
8. TRACT UU WILL BE DEEDED TO THE CITY OF ALBUQUERQUE FOR THE PURPOSE OF A MEMORIAL PARK
9. TRACTS "A-TT" AND TRACT "VV" ARE PRIVATE COMMON AREAS FOR THE BENEFIT OF ALL LOTS WITHIN UNIT 4. TRACTS WILL BE DEEDED TO THE H.O.A. AND WILL BE MAINTAINED BY THE H.O.A

APPROVED

City Surveyor, City of Albuquerque, N.M. — Date

Owner: KB HOME Colorado Inc

Matt Mandino, Division President — Date

OWNERS

KB HOME COLORADO Inc
7807 PeakView Ave
Suite 300
CENTENNIAL, COLORADO 80111
(303) 323-1130

ENGINEERS

D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200

SITE BENCHMARK

ACS MONUMENT
"3-P10"
ELEVATION=4935.735
(SLD 1929)

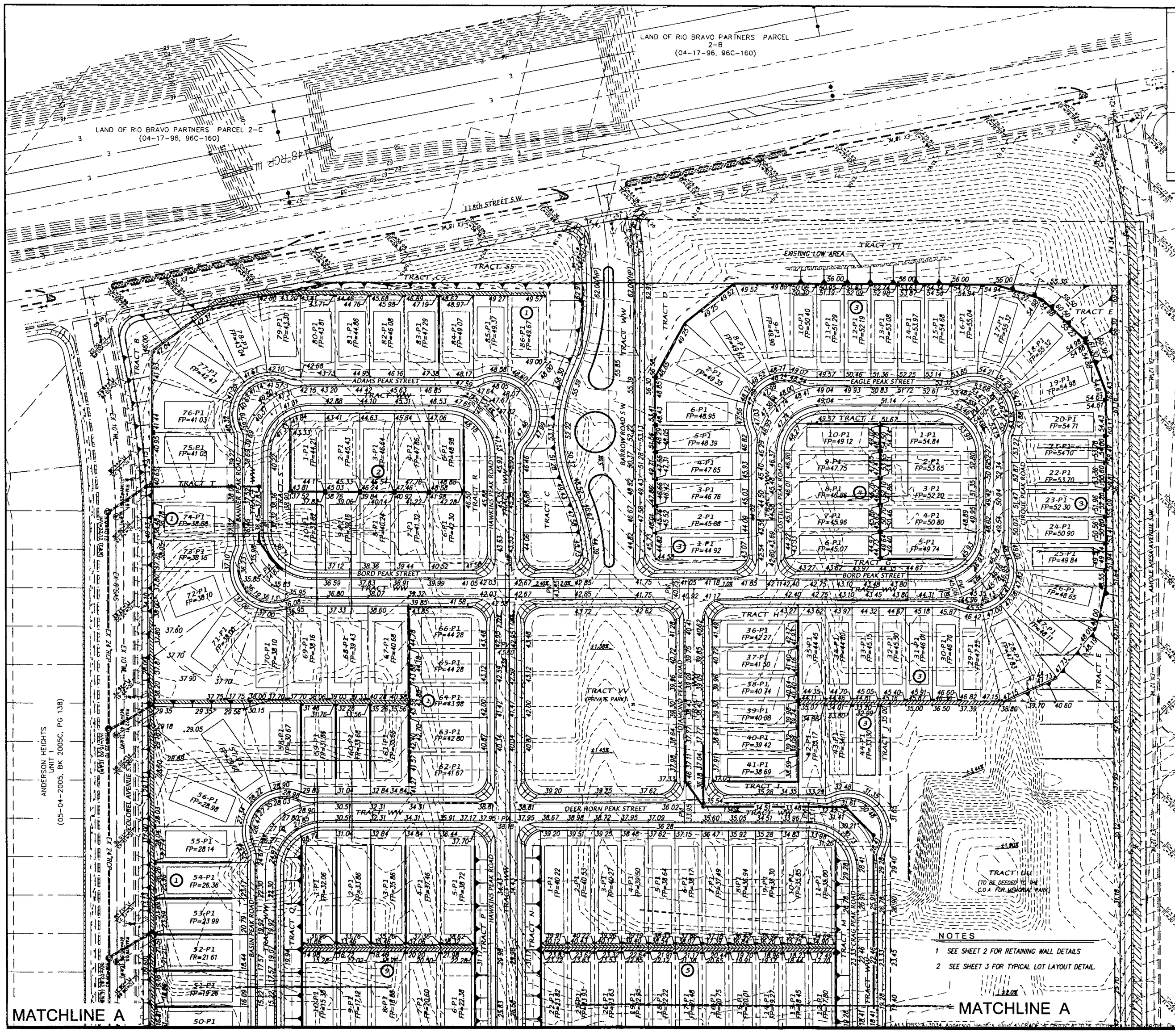
SURVEYOR

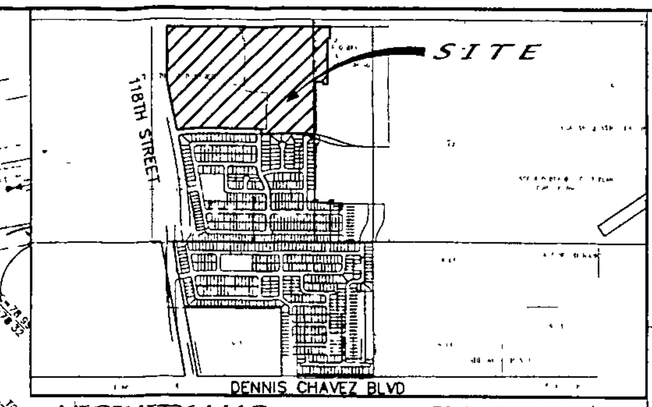
ALDRICH LAND SURVEY
P.O. BOX 30701
ALBUQUERQUE, NEW MEXICO 87190
(505) 884-1990

100' 50' 0 100' 200'
SCALE: 1" = 100'

CITY PROJECT No. 1002739

F:\A13JOBS\A13034 Anderson Heights, Unit 4\PLATS\PRELIMINARY PLATS\A13034_PrePlat.dwg, stephen, 5/28/14





VICINITY MAP — ZONE ATLAS #N-8/P-8

SCALE NONE

LEGEND

- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING SPOT ELEVATION
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FENCE
- EXISTING POWER POLE
- EXISTING GAS LINE
- EXISTING STORM DRAIN
- EXISTING SAS LINE
- EXISTING WATER LINE
- NEW MOUNTABLE CURB & GUTTER
- NEW STANDARD CURB & GUTTER
- NEW SIDEWALK (THIS PROJECT)
- NEW RIGHT-OF-WAY
- NEW CENTERLINE
- NEW LOT LINES
- NEW EASEMENTS
- NEW SPOT ELEVATIONS
- NEW FLOW DIRECTION
- NEW SLOPE
- NEW HIGH POINT
- NEW STORM DRAIN INLET
- ZONE BOUNDARY LINE
- NEW SINGLE RETAINING WALL
- NEW DOUBLE RETAINING WALL
- NEW TRIPLE RETAINING WALL
- NEW POINT OF VERTICAL INTERSECTIO
- NEW STORM DRAIN
- NEW STORM DRAIN MANHOLE
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE

NOTES

1 SEE SHEET 2 FOR RETAINING WALL DETAILS

2 SEE SHEET 3 FOR TYPICAL LOT LAYOUT DETAIL

APPROVED ROUGH GRADING ±18" _____
CITY HYDROLOGY DATE

60' 30' 0 60' 120'

SCALE: 1" = 60'

SURVEY INFORMATION

FIELD NOTES

NO	BY	DATE

BENCH MARKS

STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE, TO REACH STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2' WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIMTED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998". ELEV=4935.735 (SLD 29) X=360733.56, Y=1462437.48 (NAD 27).

AS BUILT INFORMATION

CONTRACTOR	DATE
STAKED BY	DATE
INSPECTOR'S (FORMERLY RIG BRAND)	DATE
FIELD CHANGES BY	DATE
DRAWING BY	DATE
CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY DATE

NO

ENGINEER'S SEAL

STEVEN HUELSKAMP
NEW MEXICO
6/26/14

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY DLH 04/14
DRAWN BY DER 04/14
CHECKED BY DMG 04/14

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

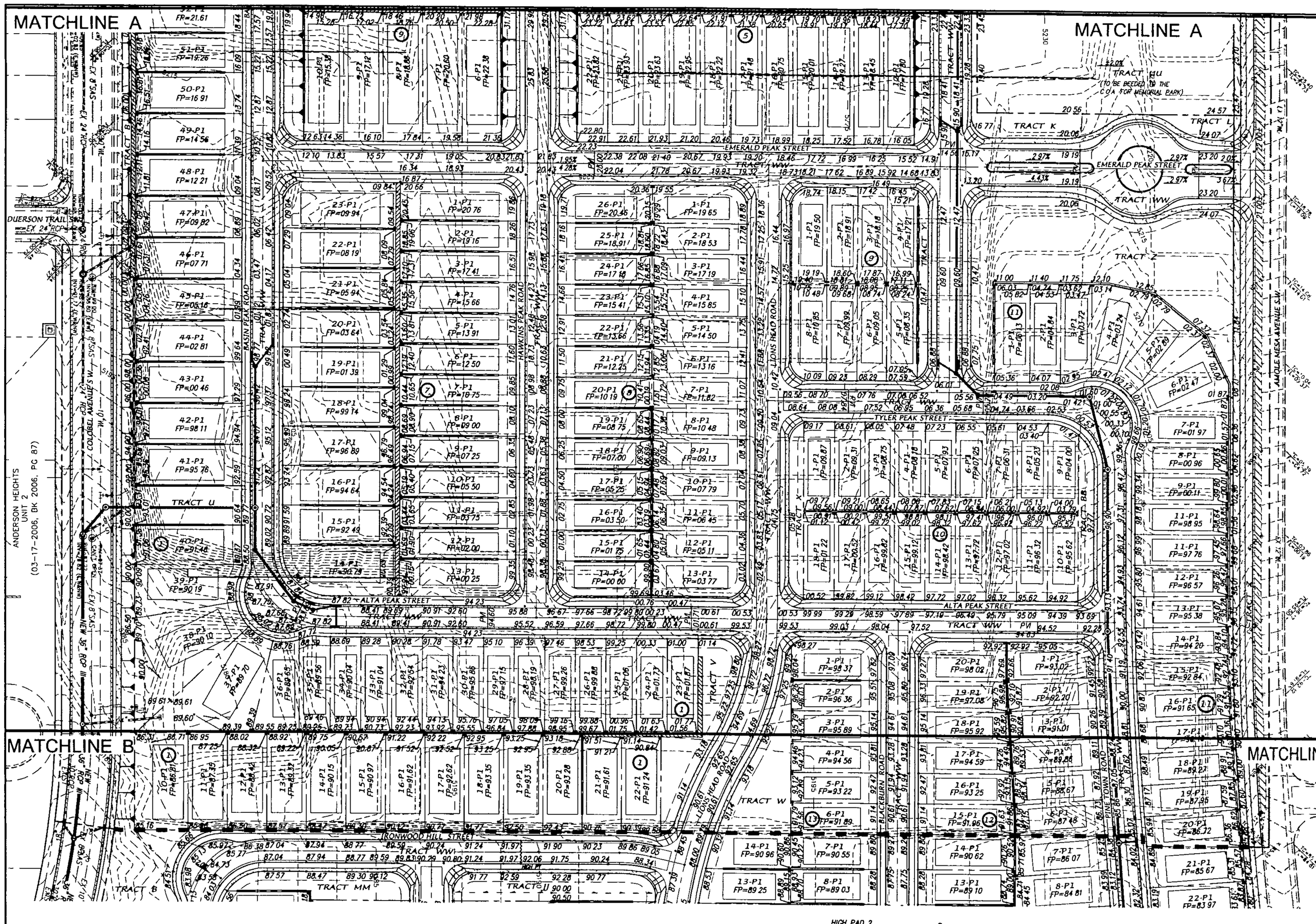
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

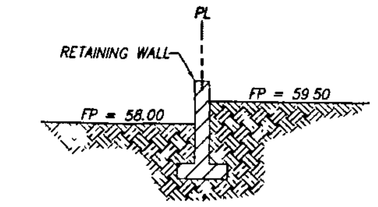
TITLE

ANDERSON HEIGHTS - UNIT 4 GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

CITY PROJECT NO	ZONE MAP NO	SHEET	OF
-	N-8/P-8	1	3

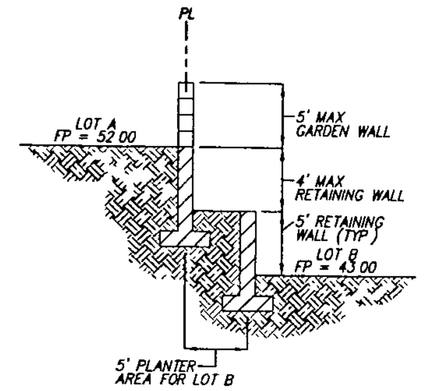




TYPICAL RETAINING WALL DETAIL

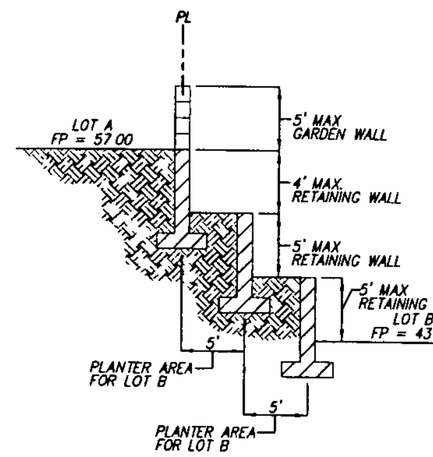
NTS

NOTE RETAINING WALL REQUIRED WHEN THE DIFFERENCE BETWEEN PAD ELEVATIONS IS GREATER THAN 1.5



TYPICAL DOUBLE RETAINING WALL DETAIL

NTS



TYPICAL TRIPLE RETAINING WALL DETAIL

NTS

NOTES

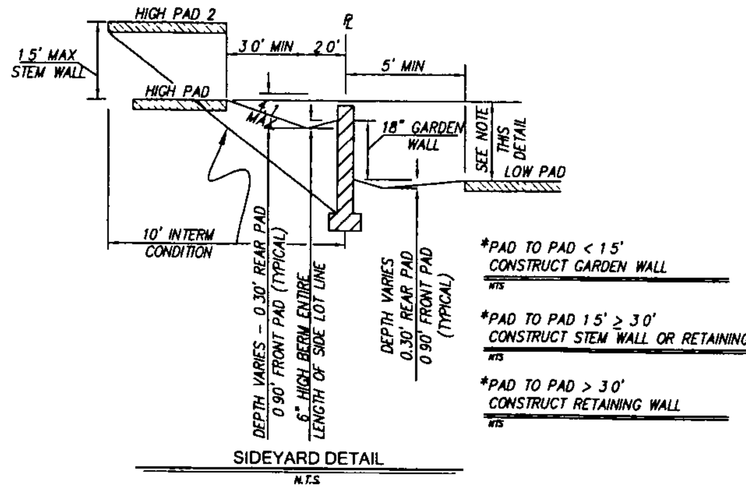
1. SEE SHEET 3 FOR TYPICAL LOT LAYOUT DETAIL

60' 30' 0 60' 120'

SCALE: 1" = 60'

LEGEND

EXISTING CONTOUR (MAJOR)	EXISTING WATER LINE	NEW STORM DRAIN INLET
EXISTING CONTOUR (MINOR)	NEW MOUNTABLE CURB & GUTTER	ZONE BOUNDARY LINE
TC= FL= x 00.0	EXISTING SPOT ELEVATION	NEW STANDARD CURB & GUTTER	NEW SINGLE RETAINING WALL
S	EXISTING SANITARY SEWER MANHOLE	NEW SIDEWALK (THIS PROJECT)	NEW DOUBLE RETAINING WALL
	EXISTING FIRE HYDRANT	NEW RIGHT-OF-WAY	NEW TRIPLE RETAINING WALL
E	EXISTING ELECTRIC TRANSFORMER	NEW CENTERLINE	PVI 94.60 NEW POINT OF VERTICAL INTERSECTION
x	EXISTING FENCE	NEW LOT LINES	24" RCP NEW STORM DRAIN
	EXISTING POWER POLE	NEW EASEMENTS	NEW STORM DRAIN MANHOLE
6"GAS	EXISTING GAS LINE	+81.77 NEW SPOT ELEVATIONS	EXISTING ASPHALT PAVEMENT
30"SD	EXISTING STORM DRAIN	NEW FLOW DIRECTION	EXISTING CONCRETE
8"SAS	EXISTING SAS LINE	NEW SLOPE	
10"W	EXISTING WATER LINE	HIGH PT NEW HIGH POINT	



SIDEYARD DETAIL

N.T.S.

*PAD TO PAD < 1.5' CONSTRUCT GARDEN WALL

*PAD TO PAD 1.5' ≥ 3.0' CONSTRUCT STEM WALL OR RETAINING WALL

*PAD TO PAD > 3.0' CONSTRUCT RETAINING WALL

NOTE

USE RETAINING WALLS:
WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE ADJACENT PADS IS 3.0' OR MORE A RETAINING WALL MUST BE CONSTRUCTED BETWEEN THE LOTS AS SHOWN ON THE PLAN AND THERE WILL BE NO PRIVATE DRAINAGE EASEMENT.

USE STEM WALLS:
WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE ADJACENT PADS IS GREATER THAN 1.5' BUT LESS THAN 3.0', A STEM WALL SHALL BE CONSTRUCTED BY THE BUILDER ON THE "HIGH SIDE" OF LOT PAD

FOR ALL SIDE YARDS:
EACH LOT OWNER MUST CONSTRUCT, OPERATE, AND MAINTAIN HIS OWN SEPARATE DRAINAGE SWALE ALL THE WAY TO THE STREET AND CROSS LOT DRAINAGE WILL BE PREVENTED BY SOME COMBINATION OF WALLS AND BERMS ON THE COMMON LOT LINE TO BE JOINTLY MAINTAINED BY BOTH LOT OWNERS.

SURVEY INFORMATION

FIELD NOTES

NO	BY	DATE

BENCH MARKS

STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE, TO REACH STATION, FROM INT. OF COORS AND DENNIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2' WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVETED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1994". Xs=360755.56, Ys=1462437.48 (NAD 27), ELEV=4935.735 (SLD 29)

AS BUILT INFORMATION

CONTRACTOR

WORK PERFORMED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY DATE

NO

ENGINEER'S SEAL

JAMES HUELVER NEW MEXICO 11990 REGISTERED PROFESSIONAL ENGINEER

6-27-14

NO	DATE	REMARKS	BY
		REVISIONS	

DESIGNED BY DLH DATE 04/14

DRAWN BY DER DATE 04/14

CHECKED BY DMG DATE 04/14

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE

ANDERSON HEIGHTS - UNIT 4
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

CITY PROJECT NO

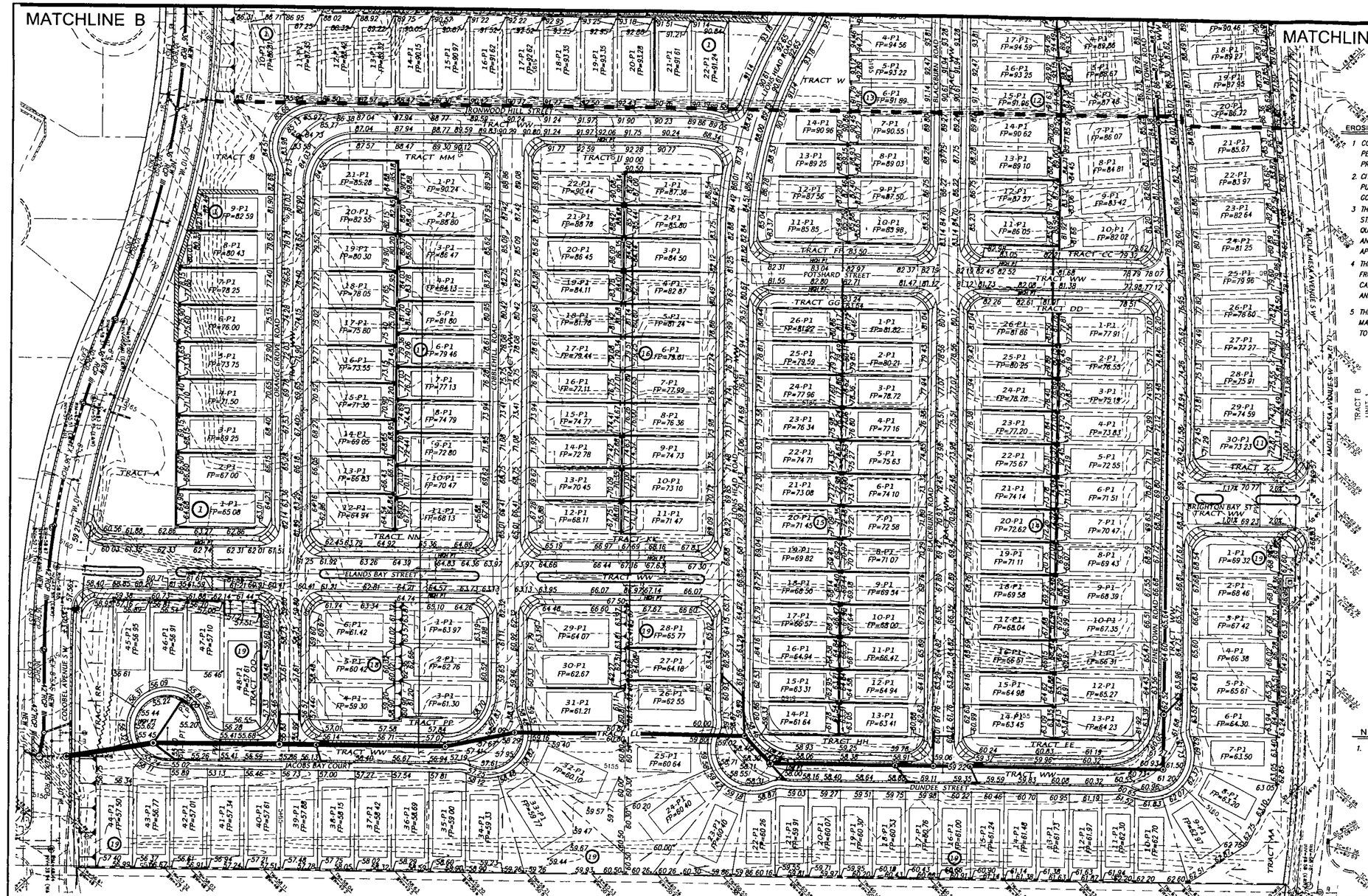
ZONE MAP NO N-8/P-8

SHEET 2 OF 3

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MATCHLINE B

MATCHLINE B



EROSION CONTROL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING
5. THE EARTHWORK CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL ADJACENT TO RETAINING WALL LOCATIONS TO BE UTILIZED FOR WALL BACKFILL

NOTES

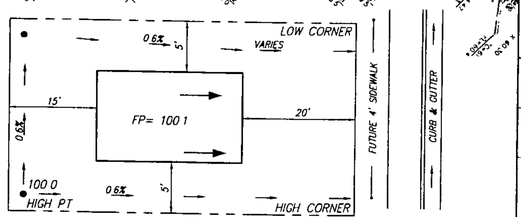
1. SEE SHEET 2 FOR RETAINING WALL DETAILS.

SCALE: 1" = 60'

LEGEND

- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- EXISTING SPOT ELEVATION
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FENCE
- EXISTING POWER POLE
- EXISTING GAS LINE
- EXISTING STORM DRAIN
- EXISTING SAS LINE
- EXISTING WATER LINE
- EXISTING WATER LINE
- NEW MOUNTABLE CURB & GUTTER
- NEW STANDARD CURB & GUTTER
- NEW SIDEWALK (THIS PROJECT)
- NEW RIGHT-OF-WAY
- NEW CENTERLINE
- NEW LOT LINES
- NEW EASEMENTS
- NEW SPOT ELEVATIONS
- NEW FLOW DIRECTION
- NEW SLOPE
- NEW HIGH POINT
- NEW STORM DRAIN INLET
- ZONE BOUNDARY LINE
- NEW SINGLE RETAINING WALL
- NEW DOUBLE RETAINING WALL
- NEW TRIPLE RETAINING WALL
- NEW POINT OF VERTICAL INTERSECTION
- NEW STORM DRAIN
- NEW STORM DRAIN MANHOLE
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE

ARROWWOOD HILLS UNIT 1
(06-23-2006, 2006C-199)



TYPICAL LOT LAYOUT PLAN
N.T.S.

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SURVEY INFORMATION
FIELD NOTES

NO	BY	DATE

BENCH MARKS
AS BUILT INFORMATION

	CONTRACTOR
WORK	BY
INSPECTORS	DATE
ACCEPTANCE	BY
	DATE
CERTIFICATION	BY
	DATE
REVISIONS	BY
CORRECTED	BY
	DATE
MICRO-FILM INFORMATION	
RECORDED	BY
	DATE
NO	

STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE
TO REACH STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 182.2' WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVETED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998".
X=350733.56, Y=1462437.44 (NAD 27), ELEV=4835.735 (SEA LEVEL)

ENGINEER'S SEAL
NEW MEXICO
14729
DUANE HENRY VICENTI
6/25/14

NO	DATE	REMARKS	BY
		DESIGN	
		DESIGNED BY	DLH
		DRAWN BY	DER
		CHECKED BY	DMG

DATE 06/14
DATE 06/14
DATE 06/14

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE

ANDERSON HEIGHTS - UNIT 4
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

CITY PROJECT NO	ZONE MAP NO	SHEET OF
-	N-8/P-8	3 3

Current DRC
Project Number _____

FIGURE 12

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Date Submitted June 30, 2014
Date Site Plan Approved._____
Date Preliminary Plat Approved _____
Date Preliminary Plat Expires _____
DRB Project No 1002739
DRB Application No _____

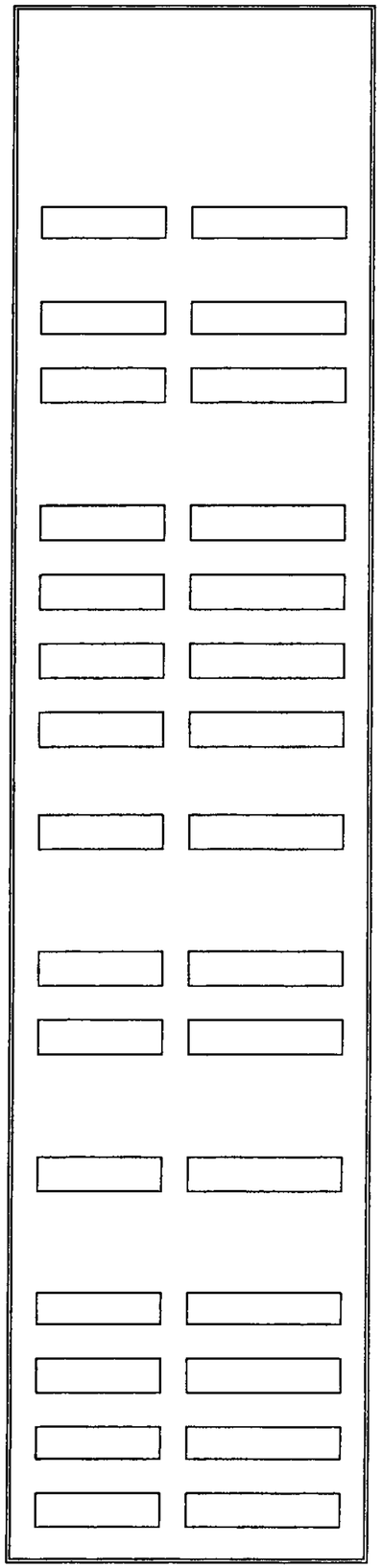
Anderson Heights Unit 4A
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development This Listing is not necessarily a complete listing During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees All such revisions require approval by the DRC Chair, the User Department and agent/owner If such approvals are obtained, these revisions to the listing will be incorporated administratively In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City

UNIT 4A

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt	Cirque Peak Road (2)	Eagle Peak Street	Bord Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
							/	/	/
		26' FF	Perm Pvmt	Eagle Peak Street (2)	Costilla Peak Road	Cirque Peak Road			
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Costilla Peak Road (2)	Eagle Peak Street	Bord Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Bord Peak Street	Cirque Peak Road	Costilla Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (east side) (1)				/	/	/
		4'	Sidewalk (west side)	Tract G					
		26' FF	Perm Pvmt	Diamond Peak Road	Bord Peak Street	Deer Horn Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (north side) (1)				/	/	/
		4'	Sidewalk (south side)						



56 FF'	Perm Pvmt	Barrow Road S W	118th Street	Bord Peak Street	/	/	/
12'	Median (Vanes)						
	C&G (both sides)						
6'	Sidewalk (both sides)						
28' FF	Perm Pvmt	Hawkins Peak Road	Bord Peak Street	Deer Horn Peak Street	/	/	/
	C&G (both sides)						
4'	Sidewalk (north side)						
4'	Sidewalk (south side) (1)				/	/	/
26' FF	Perm Pvmt	Hawkins Peak Road (2)	Adams Peak Street	Bord Peak Street	/	/	/
	C&G (both sides)						
4'	Sidewalk (both sides)	Tract C, Tract R					
26' FF	Perm Pvmt	Adams Peak Street (2)	Hawkins Peak Road	Banner Peak Road	/	/	/
	C&G (both sides)						
4'	Sidewalks (both sides) (1)				/	/	/
26' FF	Perm Pvmt	Banner Peak Road (2)	Adams Peak Street	Bord Peak Street	/	/	/
	C&G (both sides)						
4'	Sidewalk (south side) (1)				/	/	/
4'	Sidewalk (north side)	Tract S					
26' FF	Perm Pvmt	Bord Peak Street	Costilla Peak Road	Hawkins Peak Road	/	/	/
	C&G both sides						
4'	Sidewalks (both sides)	Tract D, Tract H, Tract VV, Tract C					
26' FF	Perm Pvmt	Bord Peak Street	Hawkins Peak Road	Banner Peak Road	/	/	/
	C&G both sides						
4'	Sidewalks (both sides) (1)				/	/	/
4'	Sidewalks	Tract R, Tract S					

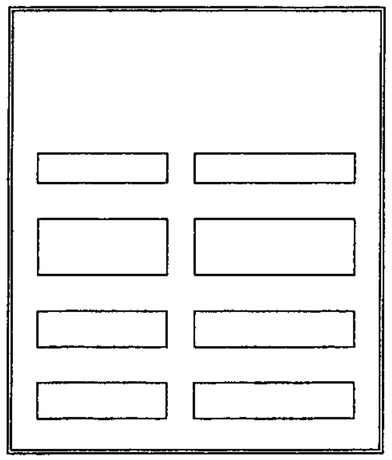
OFF-SITE PAVING

36' FF	Perm Pvmt	Amole Mesa Ave	118th Street	Tract L	/	/	/
6'	Sidewalk (south side)						

WATER

6"	Waterline	Cirque Peak Road	Eagle Peak Street	Bord Peak Street	/	/	/
6"	Waterline	Eagle Peak Street	Costilla Peak Road	Cirque Peak Road	/	/	/
6"	Waterline	Costilla Peak Road	Eagle Peak Street	Bord Peak Street	/	/	/
6"	Waterline	Bord Peak Street	Cirque Peak Road	Banner Peak Road	/	/	/

6"	Waterline	Diamond Peak Road	Bord Peak Street	Deer Horn Peak Street				
8"	Waterline	Barrow Road S W	118th Street Existing 18" WL	Bord Peak Street				
6"	Waterline	Hawkins Peak Road	Adams Peak Street	Deer Horn Peak Street				
6"	Waterline	Adams Peak Street	Hawkins Peak Road	Banner Peak Road				
6"	Waterline	Banner Peak Road	Adams Peak Street	Bord Peak Street				
6"	Waterline	Tract T	Banner Peak Road	Colobel Avenue Existing 10" WL				
	SANITARY SEWER							
8"	Sanitary Sewer	Cirque Peak Road	Eagle Peak Street	Bord Peak Street				
8"	Sanitary Sewer	Eagle Peak Street	Costilla Peak Road	Cirque Peak Road				
8"	Sanitary Sewer	Costilla Peak Road	Eagle Peak Street	Bord Peak Street				
8"	Sanitary Sewer	Bord Peak Street	Cirque Peak Road	Banner Peak Road				
8"	Sanitary Sewer	Diamond Peak Road	Bord Peak Street	Deer Horn Peak Street				
8"	Sanitary Sewer	Hawkins Peak Road	Bord Peak Street	Deer Horn Peak Street				
8"	Sanitary Sewer	Adams Peak Street	Hawkins Peak Road	Banner Peak Road				
8"	Sanitary Sewer	Banner Peak Road	Adams Peak Street	Bord Peak Street				
8"	Sanitary Sewer	Tract T	Banner Peak Road	Existing 8" SAS Colobel Ave				
8"	Sanitary Sewer	Deer Horn Peak Street	Diamond Peak Road	Basin Peak Road				
8"	Sanitary Sewer	Basin Peak Road	Deer Horn Peak Street	Tract U				
8"	Sanitary Sewer	Tract U	Basin Peak Road	Existing 8" SAS Colobel Ave				



STORM DRAIN

18" - 24"	Storm Drain	Banner Peak Road	Tract T	Bord Peak Street	/ / /
24"	Storm Drain	Tract T	Banner Peak Road	Existing Storm Drain Colobel Ave	/ / /
18"	Storm Drain	Diamond Peak Road	Lot 40, Blk 3	Deer Horn Peak Street	/ / /
	Temporary Pond	Unit 4B			/ / /

VOL.
A&C

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		Construction Certification: City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature **Date**

Approval of Creditable Items:

City User Dept. Signature **Date**

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's Financial Guaranty's are not required for grading

AGENT / OWNER

Diane Hoelzer, P.E.
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-30-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Cur C
IGUI

Project Number:_____

ubmi June 14

Date Site Plan Approved:_____

Date Preliminary Plat Approved:_____

Date Preliminary Plat Expires:_____

DRB Project No : 1002739

DRB Application No.:_____

INFRASTRUCTURE LIST

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4B

PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

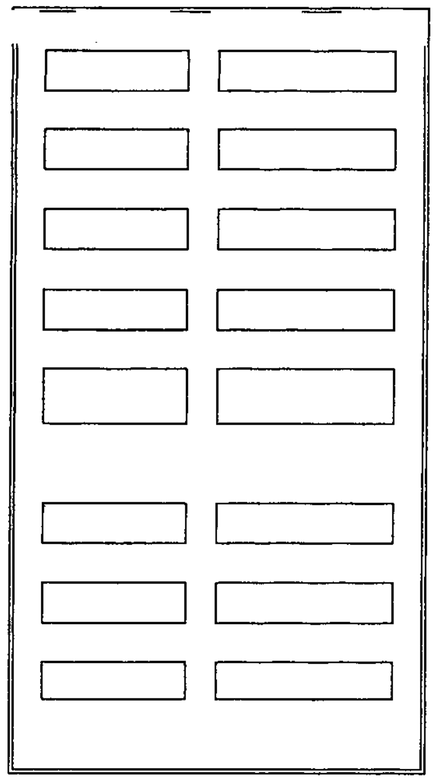
Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9

EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26'	Perm Pvmt	Crag Peak Road (2)	Deer Horn Peak Street	Emerald Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)	Tract M, Tract J					
		28'	Perm Pvmt	Crag Peak Road	Emerald Peak Street	Lot 5, Block 9	/	/	/
			C & G (both sides)						
		4'	Sidewalk (both sides)	Tract Z, Tract Y					
		26'	Perm Pvmt	Deer Horn Peak Street (2)	Crag Peak Road	Basin Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (west side)	Tract VV, Tract I					
		4'	Sidewalks (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Basin Peak Road (2)	Deer Horn Peak Street	Emerald Peak Street	/	/	/
			C&G (both sides)			Lot 47, Blk 1			
		4'	Sidewalks (south sides) (1)						
		4'	Sidewalks (north side)	Tract Q					
		28' FF	Perm Pvmt	Emerald Peak Street	Crag Peak Road	Basin Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)				/	/	/

28' FF	Perm Pvmt	Hawkins Peak Street	Deer Horn Peak Street	Emeral Peak Street				
	C&G (both sides)							
4'	Sidewalks (both sides)	Tract N, Tract P						
42' - 54'	Perm Pvmt	Emerald Peak Street	Amole Mesa Ave	Crag Peak Road				
10'	Meridian							
	C&G (both sides)							
6'	Sidewalks (both sides)							
	WATER							
6"	Waterline	Crag Peak Road	Deer Horn Peak Street	Lot 5, Block 9				
6"	Waterline	Deer Horn Peak Street	Crag Peak Road	Basin Peak Road				
6"	Waterline	Basin Peak Road	Deer Horn Peak Street	Emerald Peak Street				
6"	Waterline	Emerald Peak Street	Crag Peak Road	Basin Peak Road				
8"	Waterline	Emerald Peak Street	Amole Mesa Existing 12" WL	Crag Peak Road				
	SANITARY SEWER							
8"	Sanitary Sewer	Crag Peak Road	Deer Horn Peak Street	Tyler Peak Street				
8"	Sanitary Sewer	Deer Horn Peak Street	Crag Peak Road	Basin Peak Road				
8"	Sanitary Sewer	Basin Peak Road	Deer Horn Peak Street	Tract U				
8"	Sanitary Sewer	Emerald Peak Street	Crag Peak Road	Lot 22, Block 5				
8"	Sanitary Sewer	Emerald Peak Street	Lot 6, Block 6	Basin Peak Road				
8"	Sanitary Sewer	Hawkins Peak Street	Emerald Peak Street	Alta Peak Street				
8"	Sanitary Sewer	Tract U	Basin peak Road	Existing 8" SAS Colobel Ave				
8"	Sanitary Sewer	Tyler Peak Street	Crag Peak Road	Pine Town Road				
8"	Sanitary Sewer	Pine Town Road	Tyler Peak Street	Dundee Street				
8"	Sanitary Sewer	Dundee Street	Pine Town Road	Lions Head Road				



8"	Sanitary Sewer	Lions Head Road	Dundee Street	Elands Bay Street	/	/	/
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	/	/	/
8"	Sanitary Sewer	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/	/	/
8"	Sanitary Sewer	Jacobs Bay Cour	Cobblehill Road	Easement/Tract RR	/	/	/
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay	Colobel Ave Existing 8" SAS	/	/	/
	STORM DRAIN						
24"	Storm Drain	Deer Horn Peak Street	Diamond Peak Road	Crag Peak Road	/	/	/
18"-24"	Storm Drain	Crag Peak Road	Deer Hron Peak Street	Lot 5, Block 9	/	/	/
	Temorary Pond	Unit 4C	Crag Peak Street	To Temporary Pond	/	/	/

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To

Construction Certification

Private Inspector P.E.		City Cnst Engineer
/	/	/
/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's. Financial Guaranty not required for grading

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-30-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

TRANSPORTATION DEVELOPMENT - date

UTILITY DEVELOPMENT - date

CITY ENGINEER - date

PARKS & GENERAL SERVICES - date

AMAFCA - date

_____ - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

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Project Number _____

Date Site Plan Approved: _____
Date Preliminary Plat Approved _____
Date Preliminary Plat Expires: _____
DRB Project No 1002739
DRB Application No . _____

INFRASTRUCTURE LIST

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4C

PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

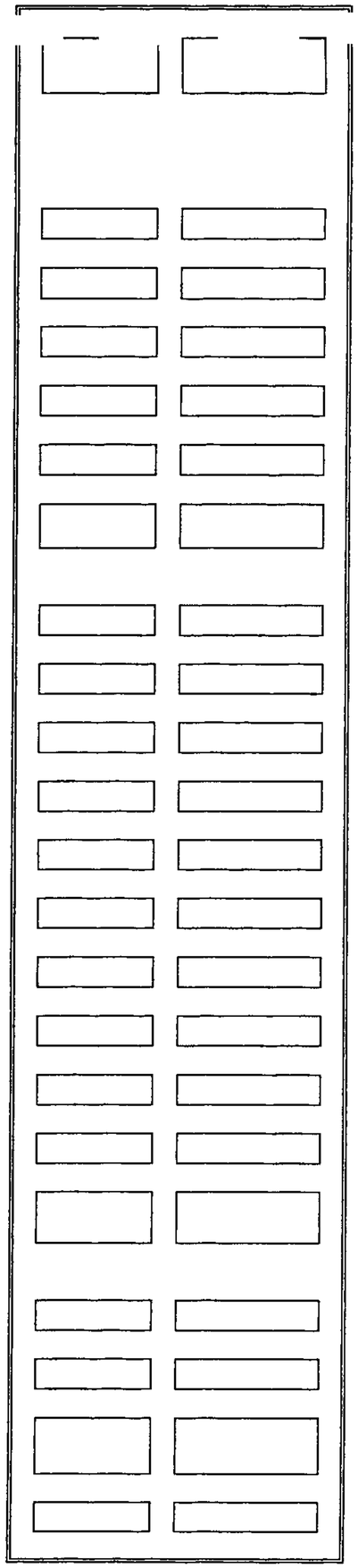
Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9

EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development This Listing is not necessarily a complete listing During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City

UNIT 4A

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt	Pine Town Road (2)	Tyler Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)			Lot 15, Block 11			
		4'	Sidewalks (both sides) (1)						
		4'	Sidewalk (south side)	Tract BB					
		26' FF	Perm Pvmt	Tyler Peak Street	Pine Town Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt	Alta Peak Street	Lions Head Road	Pine Town Road	/	/	/
			C&G (both sides)						
			4' Sidewalk (both sides) (1)						
		28' FF	Lions Head Way	Lions Head Road	Emerald Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		4'	Sidewalk (north side)	Tract X					
		28' FF	Perm Pvmt	Crag Peak Road	Emerald Peak Street	Tyler Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)	Tract Z, Tract Y					
		42' - 54' FF	Perm Pvmt	Emerald Peak Street	Amole Mesa Ave	Crag Peak Road	/	/	/
			C&G (both sides)						
		10'	Meridian (Varies)						
		6'	Sidewalks (both sides)						
		28' FF	Perm Pvmt	Emerald Peak Street	Lions Head Road	Crag Peak Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/



12'	Perm Pvmt (36' FF) C&G (both sides) 6' Sidewalk (southside)	Amole Mesa Ave	Tract UU	Existing C&G near Lot 21, Block 11	/	/	/
	WATER						
6"	Waterline	Pine Town Road	Tyler Peak Street	Alta Peak Street	/	/	/
6"	Waterline	Tyler Peak Street	Pine Town Road	Lot 15, Block 11 Lions Head Road	/	/	/
6"	Waterline	Alta Peak Street	Lions Head Road	Pine Town Road	/	/	/
6"	Waterline	Lions Head Road	Emerald Peak Street	Alta Peak Street	/	/	/
6"	Waterline	Emerald Peak Street	Lions Head Road	Crag Peak Street	/	/	/
8"	Waterline	Emerald Peak Street	Crag Peak Street	Existing 12" WL Amole Mesa Ave	/	/	/
	SANITARY SEWER						
8"	Sanitary Sewer	Pine Town Road	Tyler Peak Street	Dundee Street	/	/	/
8"	Sanitary Sewer	Tyler Peak Street	Pine Town Road	Lions Head Road	/	/	/
8"	Sanitary Sewer	Alta Peak Street	Lions Head Road	Pine Town Road	/	/	/
8"	Sanitary Sewer	Lions Head Road	Emerald Peak Street	Alta Peak Street	/	/	/
8"	Sanitary Sewer	Crag Peak Street	Emerald Peak Street	Tyler Peak Road	/	/	/
8"	Sanitary Sewer	Dundee Street	Pine Town Road	Lions Head Road	/	/	/
8"	Sanitary Sewer	Lions Head Road	Dundee Street	Elands Bay Street	/	/	/
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	/	/	/
8"	Sanitary Sewer	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/	/	/
8"	Sanitary Sewer	Jacobs Bay Cour	Cobblehill Road	Easement/Tract RR	/	/	/
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay	Colobel Ave Existing 8" SAS	/	/	/
	STORM DRAIN						
18" - 24"	Storm Drain	Crag Peak Street	Emeral Peak Street	Tyler Peak Road	/	/	/
30"	Storm Drain	Tyler Peak Road	Crag Peak Street	Pine Town Road	/	/	/
30"	Storm Drain	Pine Town Road	Tyler Peak Road	Lot 15, Block 11 (Alta Peak Street)	/	/	/
	Temporary Pond	Unit 4E			/	/	/

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Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.	City Cnst Engineer
							/	/ /
							/	/ /

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's Financial Guaranty not required for grading

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-30-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION. N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

FIGURE 12

Current DRC
Project Number _____

D mitte e 30, ____
Date Site Plan Approved: _____
Date Preliminary Plat Approved: _____
Date Preliminary Plat Expires _____
DRB Project No.: 1002739
DRB Application No : _____

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4D
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

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SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt	Hawkins Peak Road	Emerald Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Basin Peak Road (2)	Emerald Peak Street	Alta Peak Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Alta Peak Street (2)	Basin Peak Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)				/	/	/
		42' - 54' FF	Perm Pvmt	Emerald Peak Street	Amole Mesa Ave	Crag Peak Street	/	/	/
			C&G both sides						
		10'	Median (Varies)						
		6'	Sidewalks (both sides)	Tract K, Tract Z					
		28'	Perm Pvmt	Emerald Peak Street	Crag Peak Road	Hawkins Peak Road	/	/	/
			C&G both sides						
		4'	Sidewalks (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Emerald Peak Street	Hawkins Peak Road	Basin Peak Road	/	/	/
			C&G both sides						
		4'	Sidewalks (both sides) (1)				/	/	/
			OFFSITE PAVING						
		48' FF	Perm Pvmt	Colobel Avenue	Duerson Trail Existing Pvmt	Lot 10 Block 1, Unit 4D/DF Boundary	/	/	/
			C&G (both sides)						
		6'	Sidewalk (north side)						

WATER

6"	Waterline	Hawkins Peak Road	Emerald Peak Street	Alta Peak Street	/ / /
6"	Waterline	Basin Peak Road	Emerald Peak Street	Alta Peak Street	/ / /
6"	Waterline	Alta Peak Street	Basin Peak Road	Lions head Road	/ / /
8"	Waterline	Tract U	Colobel Ave Existing 10" WL	Basin Peak Road	/ / /
6"	Waterline	Emerald Peak Street	Basin Peak Road	Crag Peak Road	/ / /
8"	Waterline	Emerald Peak Street	Crag Peak Road	Amole Mesa Existing 12" WL	/ / /

SANITARY SEWER

8"	Sanitary Sewer	Hawkins Peak Road	Emerald Peak Street	Alta Peak Street	/ / /
8"	Sanitary Sewer	Basin Peak Road	Emerald Peak Street	Alta Peak Street	/ / /
8"	Sanitary Sewer	Alta Peak Street	Basin Peak Road	Lions Head Road	/ / /
8"	Sanitary Sewer	Tract U	Basin Peak Road	Colobel Ave Existing 8" SAS	/ / /
8"	Sanitary Sewer	Emerald Peak Street	Basin Peak Road	Crag Peak Road	/ / /

STORM DRAIN

18" - 30"	Storm Drain	Basin Peak Road	Lot 20 Block 7	Tract U	/ / /
18" - 30"	Storm Drain	Alta Peak Street	Lot 34 Block 1	Tract U	/ / /
30"	Storm Drain	Tract U	Basin Peak Road	Colobel Ave Existing Storm Drain	/ / /
36"	Storm Drain	Colobel Avenue	Tract U (MH51)	Existing 36" RCP (MH 54)	/ / /
42"	Storm Drain	Colobel Ave	Near Elands Bay Entrance (MH 55)	Existing 72" SD MH 57	/ / /

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To

Construction Certification		
Private Inspector P.E.		City Cnst Engineer
/	/	/
/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.
5 Sanitary Sewer includes manholes and service connection to propoerty line
6 Storm Drain includes manholes & inlets
7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's Financial Guaranty not required for grading

AGENT / OWNER

Diane Hoelzer
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-30-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

DRC
Project Number _____

IGU

bmit ne 3
Date Site Plan Approved _____
Date Preliminary Plat Approved _____
Date Preliminary Plat Expires _____
DRB Project No 1002739
DRB Application No _____

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4E
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Parcels 4 and 6, Anderson Heights Unit 1 and Unit 9
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development This Listing is not necessarily a complete listing During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt	Pine Town Road (2)	Lot 6, Block 12	Potshard Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)(1)						
		28' FF	Perm Pvmt	Pine Town Road (2)	Potshard Street	Dundee Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)						
		54'	Perm Pvmt	Brighton Bay Street	Amole Mesa Ave	Pine Town Road	/	/	/
			C&G (both sides)						
		10'	Median						
		6'	Sidewalks (both sides)						
		28' FF	Perm Pvmt	Potshard Street	Lions Head Road	Pine Town Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides)						
		26'	Perm Pvmt	Blackburn Road	Lot 6, Block 13	Dundee Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		26' FF	Perm Pvmt	Dundee Street	Pine Town Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalks (east side) (1)						
		4'	Sidewalks	Tract EE, Tract HH					
		28'	Perm Pvmt	Lions Head Road	Tract W	Dundee Street	/	/	/
			C&G (both sides)						
		4'	Sidewalks (both sides) (1)						
		6'	Sidewalks (south side)	Amole Mesa Ave	Lot 14 Block 11	East Property Line	/	/	/

WATER					
6"	Waterline	Pine Town Road	Lot 20 Block 11	Dundee Street	/ / /
8"	Waterline	Brighton Bay Street	Amole Mesa Ave Existing 12" WL	Pine Town Road	/ / /
6"	Waterline	Potshard Street	Lions Head Road	Pine Town Road	/ / /
6"	Waterline	Blackburn Road	Lot 15, Block 12	Dundee Street	/ / /
6"	Waterline	Dundee Street	Pine Town Road	Lions Head Road	/ / /
6"	Waterline	Lions Head Road	Tract W	Dundee Street	/ / /
SANITARY SEWER					
8"	Sanitary Sewer	Pine Town Road	Lot 20 Block 11	Dundee Street	/ / /
8"	Sanitary Sewer	Blackburn Road	Lot 15, Block 12	Dundee Street	/ / /
8"	Sanitary Sewer	Dundee Street	Pine Town Road	Lions Head Road	/ / /
8"	Sanitary Sewer	Lions Head Road	Lot 14, Block 13	Dundee Street	/ / /
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road	/ / /
8"	Sanitary Sewer	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/ / /
8"	Sanitary Sewer	Jacobs Bay Court	Cobblehill Road	Tract RR/Easement	/ / /
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay Court	Colobel Ave Existing SAS	/ / /
STORM DRAIN					
30" - 42"	Storm Drain	Pine Town Road	Lot 20 Block 11	Dundee Street	/ / /
42" - 54"	Storm Drain	Dunee Street	Pine Town Road	Lions Head Road	/ / /
54"	Storm Drain	Tract LL	Lions Head Road	Cobblehill Road	/ / /
OFF-SITE STORM DRAIN					
54" - 72"	Storm Drain	Jacobs Bay Court	Tract LL	End Jacobs Bay Court	/ / /
72"	Storm Drain	Easement/Tract RR	End Jacobs Bay Court	Colobel Ave Existing SD MH 57	/ / /

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Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To	Construction Certification: Private Inspector P.E.		City Cnst Engineer
							/	/	/
							/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

1 Sidewalks to be Deferred
2 Includes Knuckles
3 Street Lights Per DPM
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AGENT / OWNER

Diane Hoelzer, PE
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-30-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

C RC IGUI Dat itted 30

Project Number._____

Date Site Plan Approved:_____

Date Preliminary Plat Approved _____

Date Preliminary Plat Expires:_____

DRB Project No : 1002739

DRB Application No :_____

INFRASTRUCTURE LIST

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Anderson Heights Unit 4F

PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

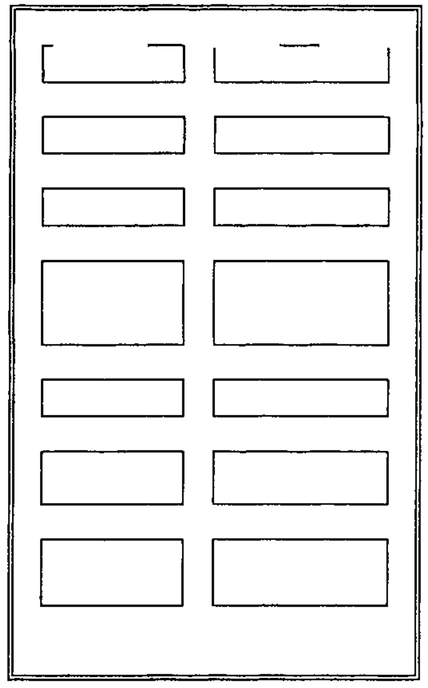
Parcels Unit 4 and 6, Anderson Heights Unit 1 and Unit 9

EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

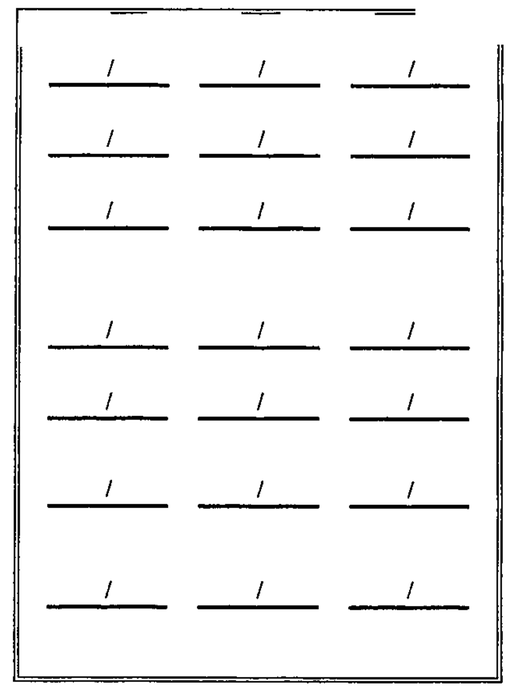
SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		28' FF	Perm Pvmt	Cobblehill Road	Ironwood Hill Street	Elands Bay Street	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides)(1)				/	/	/
		26' FF	Perm Pvmt	Cobblehill Road	Elands Bay Street	Jacobs Bay Court	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		26' FF	Perm Pvmt	Ironwood Hill Street (2)	Orange Grove Road	Lions Head Road	/	/	/
			C&G (both sides)						
		4'	Sidewalk (west side) (1)				/	/	/
		4'	Sidewalk (east side)	Tract MM, Tract JJ					
		26' FF	Perm Pvmt	Orange Grove Road (2)	Ironwood Hills Street	Jacobs Bay Court	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		4'	Sidewalk (eastside)	Tract OO					
		26' FF	Perm Pvmt	Jacobs Bay Court	Cobblehill Road	End Culdesac	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		4'	Sidewalk	Tract PP					
		42' FF	Perm Pvmt	Elands Bay Street	Lions Head Road	Orange Grove Road	/	/	/
		10'	Median						
			C&G (both sides)						
		6'	Sidewalks (east side) (1)				/	/	/
		6'	Sidewalks (west side)	Tract KK, Tract NN					

54' FF	Perm Pvmt	Elands Bay Street	Orange Grove Road	Colobel Ave			
10'	Median						
	C&G (both sides)						
6'	Sidewalks (east side) (1)						
6'	Sidewalks (west side)	Tract A					
48' FF	Perm Pvmt	Colobel Ave	Existing Pvmt (East Boundary	Lot 10, Block 1, Unit 4F/4D Boundary			
	C&G (both sides)						
6'	Sidewalks (north side)						
	OFFSITE PAVING						
48' FF		Colobel Ave	Existing Pvmt Duerson Trail	Existing Pvmt Morrissey Street			
	Water						
6"	Waterline	Cobblehill Road	Ironwood Hill Street	Jacobs Bay Court			
6"	Waterline	Ironwood Hill Street	Orange Grove Road	Lions Head Road			
6"	Waterline	Orange Grove Road	Ironwood Hills Street	Jacobs Bay Court			
6"	Waterline	Elands Bay Street	Lions Head Road	Cobblehill Road			
6"	Waterline	Jacobs Bay Court	Cobble Hill Road	End Culdesac			
6"	Waterline	Tract RR	Jacobs Bay Court	Colobel Ave Exiting 10" WL			
	SANITARY SEWER						
8"	Sanitary Sewer	Cobblehill Road	Lot 22, Block 16	Jacobs Bay Court			
8"	Sanitary Sewer	Ironwood Hill Street	Orange Grove Road	Lions Head Road			
8"	Sanitary Sewer	Orange Grove Road	Ironwood Hills Street	Lot 4, Block 8			
8"	Sanitary Sewer	Elands Bay Street	Lions Head Road	Cobblehill Road			
8"	Sanitary Sewer	Elands Bay Street	Colobel Ave Existing 8" SAS	Orange Grove Road			
8"	Sanitary Sewer	Jacobs Bay Court	Cobblehill Road	End Culdesac			
8"	Sanitary Sewer	Easement/Tract RR	Jacobs Bay Court	Colobel Ave Existing 8" SAS			



M I

54"	STORM DRAIN	Tract LL	Lions Head Road	Cobblehill Road	
54"-72"	Storm Drain	Jacobs Bay Court	Cobblehill Road	End Jacobs Bay Court	
18" - 24"	Storm Drain	Jacobs Bay Court	Cobblehill Road	End Jacobs Bay Court	
72"	Storm Drain	Easement/Tract RR	Jacobs Bay Court	Colobel Ave Existing 78" SD & MH	
18"	Storm Drain	Orange Grove Road	Lot 4, Block 18	Jacobs Bay Court	
36"	Storm Drain	Colobel Avenue	Tract U (MH51)	Existing 36" RCP (MH 54)	
42"	Storm Drain	Colobel Ave	Near Elands Bay Entrance (MH 55)	Existing 72" SD MH 57	



The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To

Construction Certification

Private Inspector P.E.		City Cnst Engineer
/	/	/
/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

1 Sidewalks to be Deferred

2 Includes Knuckles

3.00 Street Lights Per DPM

4 Water Infrastructure includes Valves, Fittings, Valve Boxes, Fire Hydrants, and Appurtenances.

5 Sanitary Sewer includes manholes and service connection to propoerty line

6 Storm Drain includes manholes & inlets

7 Grading & Drianage certification per DPM for releast of SIA & Financial Guaranty's Financial Guaranty not required for grading

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-30-14
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: N/A

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

TRANSPORTATION DEVELOPMENT - date

UTILITY DEVELOPMENT - date

CITY ENGINEER - date

PARKS & GENERAL SERVICES - date

AMAFCA - date

_____ - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

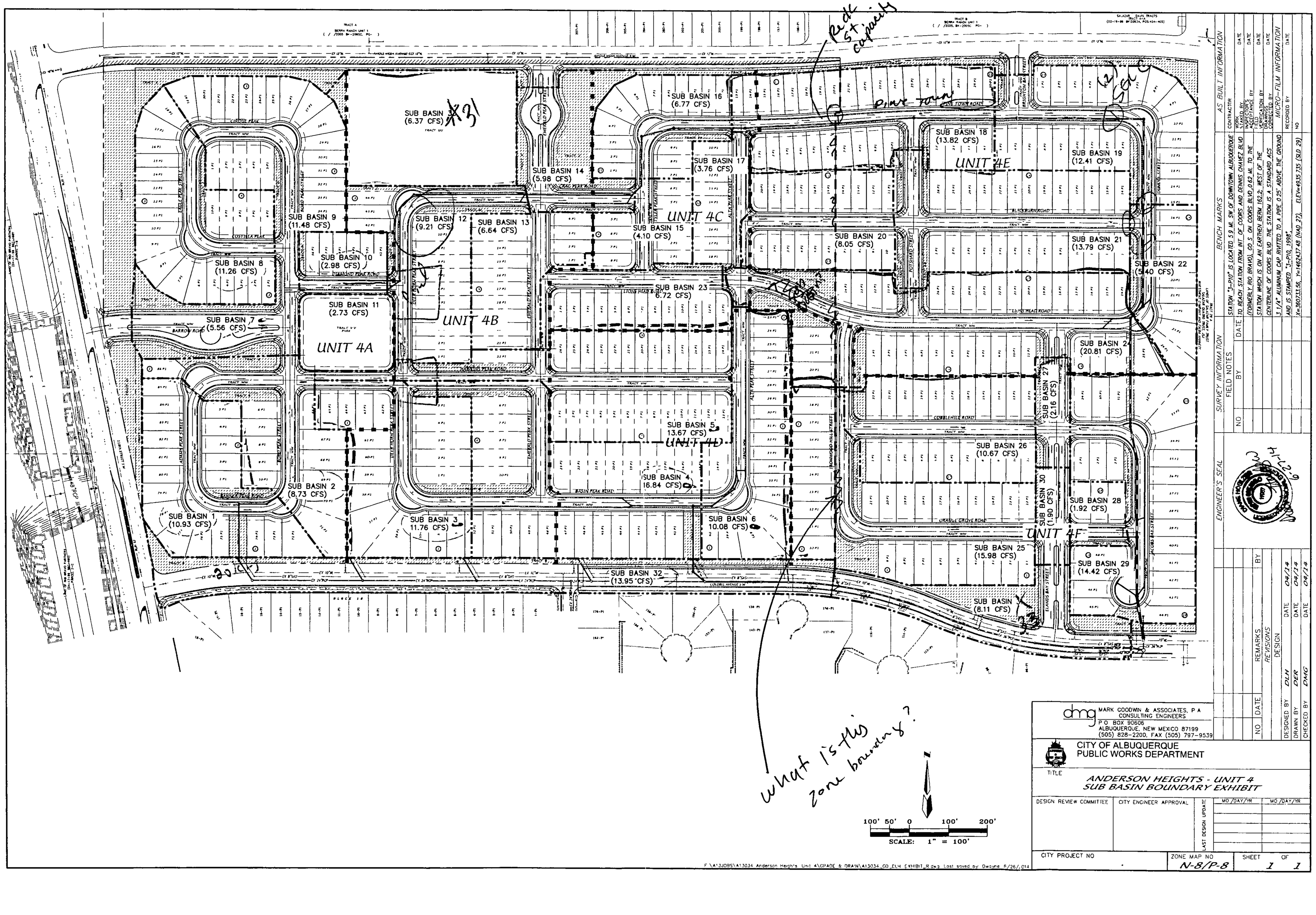
APPENDIX A - HYDROLOGY

Sub Basin Boundary Exhibit

Table 1 Summary of Hydrologic Parameters

AHYMO Input

AHYMO Summary



F:\A13JOBS\A13034 Anderson Height's Unit 4\GRADE & DRAIN\A13034_GD_DLH EXHIBIT_R.dwg Last saved by Dwayne 6/26/2014

SURVEY INFORMATION

FIELD NOTES

NO	BY	DATE

AS BUILT INFORMATION

BENCH MARKS

CONTRACTOR

	DATE
WORK STAKED BY:	
INSPECTOR'S ACCEPTANCE BY	
VERIFICATION BY	
CORRECTED BY:	

STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN, ALBUQUERQUE, TO REACH, STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM. 162.2' WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD AGS 3 1/4" ALUMINUM CAP RIVITED TO A PIPE, 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998". Xe:360733.56, Ye:1462437.48 (NAD 27), ELEV=4935.735 (SD 29)

MICRO-FILM INFORMATION

RECORDED BY — DATE

NO

ENGINEER'S SEAL

6-27-14

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGNED BY DLH	DATE 04/14
		DRAWN BY DER	DATE 04/14
		CHECKED BY DMG	DATE 04/14

dmg MARK GOODWIN & ASSOCIATES, P A
CONSULTING ENGINEERS
P O BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE

ANDERSON HEIGHTS - UNIT 4
SUB BASIN BOUNDARY EXHIBIT

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO /DAY/YR	MO /DAY/YR

CITY PROJECT NO .

ZONE MAP NO N-8/P-8

SHEET 1 OF 1

TABLE 1

Anderson Heights Unit 4 Residential
Summary of Hydrology Parameters

Sub Basin	Area	Area	Area	Land Treatment Values				Runoff Volume	Discharge value	Discharge value
ID	sq.ft	acre	sq.mi.	A	B	C	D	acre-ft	cfs	cfs
								100yr 6 hr	100-yr 6-hr	Totals
1	132,915.4	3.05	0.004768		25.0	15.0	60.0	0.453	10.93	
2	118,153.5	2.71	0.004238		38.0	19.6	42.4	0.336	8.73	19.660
3	151,637.5	3.48	0.005439		33.0	16.2	50.8	0.471	11.76	
4	216,591.9	4.97	0.007769		32.5	16.3	51.2	0.676	16.84	
5	166,251.2	3.82	0.005963		25.0	15.0	60.0	0.567	13.67	
6	122,553.0	2.81	0.004396		25.0	15.0	60.0	0.418	10.08	52.350
7	66,471.1	1.53	0.002384		23.0	12.0	65.0	0.237	5.61 5.56	
8	136,969.3	3.14	0.004913		25.0	15.0	60.0	0.467	11.26	
9	139,598.4	3.20	0.005007		25.0	15.0	60.0	0.476	11.48	
10	36,117.3	0.83	0.001296		25.0	15.0	60.0	0.123	2.98	34.06
11	47,552.3	1.09	0.001706		63.0	30.0	7.0	0.082	2.73	
12	118,787.1	2.73	0.004261		33.0	16.5	50.5	0.368	9.21	
13	80,646.1	1.85	0.002893		25.0	15.0	60.0	0.275	6.64	
14	79,834.7	1.83	0.002864		37.0	18.0	45.0	0.234	5.98	
15	49,704.2	1.14	0.001783		25.0	15.0	60.0	0.170	4.10	
16	82,271.3	1.89	0.002951		25.0	15.0	60.0	0.281	6.77	
17	45,640.2	1.05	0.001637		25.0	15.0	60.0	0.156	3.76	
18	168,124.1	3.86	0.006031		25.0	15.0	60.0	0.573	13.82	
19	150,924.4	3.46	0.005414		25.0	15.0	60.0	0.515	12.41	
20	97,795.7	2.25	0.003508		25.0	15.0	60.0	0.334	8.05	
21	167,721.1	3.85	0.006016		25.0	15.0	60.0	0.572	13.79	
22	65,557.9	1.51	0.002352		25.0	15.0	60.0	0.224	5.40	
23	81,612.0	1.87	0.002927		25.0	15.0	60.0	0.278	6.72	
24	260,439.7	5.98	0.009342		29.4	14.8	55.8	0.850	20.81	

TABLE 1

Anderson Heights Unit 4 Residential Summary of Hydrology Parameters										
Sub Basin	Area	Area	Area	Land Treatment Values				Runoff Volume	Discharge value	Discharge value
ID	sq.ft	acre	sq.mi.	A	B	C	D	acre-ft	cfs	cfs
								100yr 6 hr	100-yr 6-hr	Totals
25	194,397.5	4.46	0.006973		25.0	15.0	60.0	0.663	15.98	
26	129,723.6	2.98	0.004653		25.0	15.0	60.0	0.442	10.67	
27	25,155.5	0.58	0.000902		21.6	10.8	67.6	0.920	2.16	
28	24,336.5	0.56	0.000873		31.9	15.9	52.2	0.077	1.92	
29	183,585.4	4.21	0.006585		31.4	15.7	52.9	0.583	14.42	
30	22,132.3	0.51	0.000794		21.6	10.8	67.6	0.081	1.90	
31	134,668.0	3.09	0.004831		100.0	0.0	0.0	0.176	6.37	204.940
32	98,347.0	2.26	0.003528		0.0	40.0	60.0	0.336	8.11	
33	164,264.0	3.77	0.005892		0.0	36.0	64.0	0.586	13.95	22.060

F:/PROJECTS/13034 anderson heights -Summary Table 1 Hydrology

```
START                TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION             NEW MEXICO
*S************************************************************
*S******************  FILE: AH4.DAT  REV: 6-24-14  DLH
*S************************************************************
*S************************************************************
*S                    100 YEAR 6 HOUR STORM EVENT
*S************************************************************
*S************************************************************
RAINFALL             TYPE=2 RAIN QUARTER=0.0
                     RAIN ONE=1.90 IN RAIN SIX=2.23 IN
                     RAIN DAY=2.67 IN DT=0.05 HRS
*S************************************************************
*S       SUB BASIN 1
*S       (3.05 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.1 AREA= 0.004768 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 2
*S       (2.71 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.2 AREA= 0.004238 SQ MI
                     PER A=0  PER B=38  PER C=19.6  PER D=42.4
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 3
*S       (3.48 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.3 AREA= 0.005439 SQ MI
                     PER A=0  PER B=33  PER C=16.2  PER D=50.8
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 4
*S       (4.97 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.4 AREA= 0.007769 SQ MI
                     PER A=0  PER B=32.5  PER C=16.3  PER D=51.2
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S       SUB BASIN 5
*S       (3.82 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.5 AREA= 0.005963 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
```

```
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 6
*S      (2.81 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.6 AREA= 0.004396 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 7
*S      (1.53 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.7 AREA= 0.002384 SQ MI
                    PER A=0  PER B=23  PER C=12  PER D=65
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 8
*S      (3.14 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.8 AREA= 0.004913 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 9
*S      (3.20 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.9 AREA= 0.005007 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 10
*S      (0.83 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.10 AREA= 0.001296 SQ MI
                    PER A=0  PER B=25  PER C=15  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 11
*S      (1.09 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.11 AREA= 0.001706 SQ MI
                    PER A=0  PER B=63  PER C=30  PER D=7
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
```

```
*S************************************************************
*S      SUB BASIN 12
*S      (2.73 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.12 AREA= 0.004261 SQ MI
                     PER A=0   PER B=33   PER C=16.5   PER D=50.5
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S      SUB BASIN 13
*S      (1.85 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.13 AREA= 0.002893 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S      SUB BASIN 14
*S      (1.83 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.14 AREA= 0.002864 SQ MI
                     PER A=0   PER B=37   PER C=18   PER D=45
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S      SUB BASIN 15
*S      (1.14 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.15 AREA= 0.001783 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S      SUB BASIN 16
*S      (1.89 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.16 AREA= 0.002951 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S      SUB BASIN 17
*S      (1.05 ACRES)
*S************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.17 AREA= 0.001637 SQ MI
                     PER A=0   PER B=25   PER C=15   PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S************************************************************
*S      SUB BASIN 18
```

```
*S      (3.86 ACRES)
*S*************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.18 AREA= 0.006031 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S*************************************************************
*S      SUB BASIN 19
*S      (3.46 ACRES)
*S*************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.19 AREA= 0.005414 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S*************************************************************
*S      SUB BASIN 20
*S      (2.25 ACRES)
*S*************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.20 AREA= 0.003508 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S*************************************************************
*S      SUB BASIN 21
*S      (3.85 ACRES)
*S*************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.21 AREA= 0.006016 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S*************************************************************
*S      SUB BASIN 22
*S      (1.51 ACRES)
*S*************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.22 AREA= 0.002352 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S*************************************************************
*S      SUB BASIN 23
*S      (1.87 ACRES)
*S*************************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.23 AREA= 0.002927 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S*************************************************************
*S      SUB BASIN 24
*S      (5.98 ACRES)
*S*************************************************************
```

```
COMPUTE NM HYD       ID=1  HYD NO=100.24 AREA= 0.009342 SQ MI
                     PER A=0  PER B=29.4  PER C=14.8 PER D=55.8
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 25
*S      (4.46 ACRES)
*S**********************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.25 AREA= 0.006973 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 26
*S      (2.98 ACRES)
*S**********************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.26 AREA= 0.004653 SQ MI
                     PER A=0  PER B=25  PER C=15  PER D=60
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 27
*S      (0.58 ACRES)
*S**********************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.27 AREA= 0.000902 SQ MI
                     PER A=0  PER B=21.6  PER C=10.8  PER D=67.6
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 28
*S      (0.56 ACRES)
*S**********************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.28 AREA= 0.000873 SQ MI
                     PER A=0  PER B=31.9  PER C=15.9  PER D=52.2
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 29
*S      (4.21 ACRES)
*S**********************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.29 AREA= 0.006585 SQ MI
                     PER A=0  PER B=31.4  PER C=15.7  PER D=52.9
                     TP=-.1333 HR  MASS RAIN=-1
PRINT HYD            ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 30
*S      (0.51 ACRES)
*S**********************************************************
COMPUTE NM HYD       ID=1  HYD NO=100.30 AREA= 0.000794 SQ MI
                     PER A=0  PER B=21.6  PER C=10.8  PER D=67.6
```

```
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1

*S**********************************************************
*S      SUB BASIN 31
*S      COLOBEL EAST
*S      (2.2577 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.31 AREA= 0.0035 SQ MI
                    PER A=0  PER B=20  PER C=20  PER D=60
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1

*S**********************************************************
*S      SUB BASIN 32
*s      COLOBEL WEST
*S      (3.771 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.32 AREA= 0.0059 SQ MI
                    PER A=0  PER B=18  PER C=18  PER D=64
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
*S**********************************************************
*S      SUB BASIN 33
*s      PARK
*S      (3.09 ACRES)
*S**********************************************************
COMPUTE NM HYD      ID=1  HYD NO=100.33 AREA= 0.0048 SQ MI
                    PER A=0  PER B=100  PER C=0  PER D=0
                    TP=-.1333 HR  MASS RAIN=-1
PRINT HYD           ID=1 CODE=1
FINISH
```

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =06/24/2014
INPUT FILE = AH4.DAT USER NO.= AHYMO-I-9702dGoodwinM-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
LOCATION	NEW MEXICO									
*S										
*S	FILE: AH4.DAT REV: 6-24-14 DLH									
*S										
*S										
*S	100 YEAR 6 HOUR STORM EVENT									
*S										
*S										
RAINFALL	TYPE= 2									RAIN24= 2.670
*S										
*S	SUB BASIN 1									
*S	(3.05 ACRES)									
*S										
COMPUTE NM HYD	100.10	-	1	.00477	10.93	.453	1.78276	1.500	3.582	PER IMP= 60.00
*S										
*S	SUB BASIN 2									
*S	(2.71 ACRES)									
*S										
COMPUTE NM HYD	100.20	-	1	.00424	8.73	.336	1.48828	1.500	3.217	PER IMP= 42.40
*S										
*S	SUB BASIN 3									
*S	(3.48 ACRES)									
*S										
COMPUTE NM HYD	100.30	-	1	.00544	11.76	.471	1.62492	1.500	3.379	PER IMP= 50.80
*S										
*S	SUB BASIN 4									
*S	(4.97 ACRES)									
*S										
COMPUTE NM HYD	100.40	-	1	.00777	16.84	.676	1.63228	1.500	3.388	PER IMP= 51.20
*S										
*S	SUB BASIN 5									
*S	(3.82 ACRES)									
*S										
COMPUTE NM HYD	100.50	-	1	.00596	13.67	.567	1.78276	1.500	3.581	PER IMP= 60.00
*S										
*S	SUB BASIN 6									
*S	(2.81 ACRES)									
*S										
COMPUTE NM HYD	100.60	-	1	.00440	10.08	.418	1.78276	1.500	3.582	PER IMP= 60.00
*S										
*S	SUB BASIN 7									
*S	(1.53 ACRES)									
*S										
COMPUTE NM HYD	100.70	-	1	.00238	5.61	.237	1.86093	1.500	3.674	PER IMP= 65.00
*S										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
*S	SUB BASIN 8									
*S	(3.14 ACRES)									
COMPUTE NM HYD	100.80	-	1	.00491	11.26	.467	1.78276	1.500	3.582	PER IMP= 60.00
*S	SUB BASIN 9									
*S	(3.20 ACRES)									
COMPUTE NM HYD	100.90	-	1	.00501	11.48	.476	1.78276	1.500	3.581	PER IMP= 60.00
*S	SUB BASIN 10									
*S	(0.83 ACRES)									
COMPUTE NM HYD	100.10	-	1	.00130	2.98	.123	1.78276	1.500	3.594	PER IMP= 60.00
*S	SUB BASIN 11									
*S	(1.09 ACRES)									
COMPUTE NM HYD	100.11	-	1	.00171	2.73	.082	.89971	1.500	2.500	PER IMP= 7.00
*S	SUB BASIN 12									
*S	(2.73 ACRES)									
COMPUTE NM HYD	100.12	-	1	.00426	9.21	.368	1.62062	1.500	3.376	PER IMP= 50.50
*S	SUB BASIN 13									
*S	(1.85 ACRES)									
COMPUTE NM HYD	100.13	-	1	.00289	6.64	.275	1.78276	1.500	3.585	PER IMP= 60.00
*S	SUB BASIN 14									
*S	(1.83 ACRES)									
COMPUTE NM HYD	100.14	-	1	.00286	5.98	.234	1.52880	1.500	3.265	PER IMP= 45.00
*S	SUB BASIN 15									
*S	(1.14 ACRES)									
COMPUTE NM HYD	100.15	-	1	.00178	4.10	.170	1.78276	1.500	3.590	PER IMP= 60.00
*S	SUB BASIN 16									
*S	(1.89 ACRES)									
COMPUTE NM HYD	100.16	-	1	.00295	6.77	.281	1.78276	1.500	3.585	PER IMP= 60.00
*S	SUB BASIN 17									
*S	(1.05 ACRES)									

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	100.17	-	1	.00164	3.76	.156	1.78276	1.500	3.590	PER IMP= 60.00
*S**********										
*S SUB BASIN 18										
*S (3.86 ACRES)										
*S**********										
COMPUTE NM HYD	100.18	-	1	.00603	13.82	.573	1.78276	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 19										
*S (3.46 ACRES)										
*S**********										
COMPUTE NM HYD	100.19	-	1	.00541	12.41	.515	1.78276	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 20										
*S (2.25 ACRES)										
*S**********										
COMPUTE NM HYD	100.20	-	1	.00351	8.05	.334	1.78276	1.500	3.583	PER IMP= 60.00
*S**********										
*S SUB BASIN 21										
*S (3.85 ACRES)										
*S**********										
COMPUTE NM HYD	100.21	-	1	.00602	13.79	.572	1.78276	1.500	3.581	PER IMP= 60.00
*S**********										
*S SUB BASIN 22										
*S (1.51 ACRES)										
*S**********										
COMPUTE NM HYD	100.22	-	1	.00235	5.40	.224	1.78276	1.500	3.587	PER IMP= 60.00
*S**********										
*S SUB BASIN 23										
*S (1.87 ACRES)										
*S**********										
COMPUTE NM HYD	100.23	-	1	.00293	6.72	.278	1.78276	1.500	3.585	PER IMP= 60.00
*S**********										
*S SUB BASIN 24										
*S (5.98 ACRES)										
*S**********										
COMPUTE NM HYD	100.24	-	1	.00934	20.81	.851	1.70828	1.500	3.480	PER IMP= 55.80
*S**********										
*S SUB BASIN 25										
*S (4.46 ACRES)										
*S**********										
COMPUTE NM HYD	100.25	-	1	.00697	15.98	.663	1.78276	1.500	3.580	PER IMP= 60.00
*S**********										
*S SUB BASIN 26										
*S (2.98 ACRES)										
*S**********										
COMPUTE NM HYD	100.26	-	1	.00465	10.67	.442	1.78276	1.500	3.582	PER IMP= 60.00
*S**********										
*S SUB BASIN 27										
*S (0.58 ACRES)										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	100.27	-	1	.00090	2.16	.092	1.90274	1.500	3.740	PER IMP= 67.60
*S SUB BASIN 28										
*S (0.56 ACRES)										
COMPUTE NM HYD	100.28	-	1	.00087	1.92	.077	1.64856	1.500	3.432	PER IMP= 52.20
*S SUB BASIN 29										
*S (4.21 ACRES)										
COMPUTE NM HYD	100.29	-	1	.00659	14.42	.583	1.66022	1.500	3.423	PER IMP= 52.90
*S SUB BASIN 30										
*S (0.51 ACRES)										
COMPUTE NM HYD	100.30	-	1	.00079	1.90	.081	1.90274	1.500	3.745	PER IMP= 67.60
*S SUB BASIN 31										
*S COLOBEL EAST										
*S (2.2577 ACRES)										
COMPUTE NM HYD	100.31	-	1	.00350	8.11	.336	1.79836	1.500	3.622	PER IMP= 60.00
*S SUB BASIN 32										
*s COLOBEL WEST										
*S (3.771 ACRES)										
COMPUTE NM HYD	100.32	-	1	.00590	13.95	.586	1.86225	1.500	3.694	PER IMP= 64.00
*S SUB BASIN 33										
*s PARK										
*S (3.09 ACRES)										
COMPUTE NM HYD	100.33	-	1	.00480	6.37	.176	.68902	1.500	2.075	PER IMP= .00
FINISH										

APPENDIX B - HYDRAULICS

Table 2 Summary of Street Capacity Calculations

Street Capacity Exhibit

HEC-2 Printouts

TABLE 2

Summary of Street Capacity Calculations

Anderson Heights Unit 4

LOCATION	WIDTH	CROWN	STD or MTB	SLOPE %	Q cfs	DEPTH ft.	EG (ft)	INLET Q cfs	TYPE INLET	INLET BYPASS	ADD Q cfs
BANNER PEAK	26' FF	Y	MTB	2.70	10.93	0.33	0.52				
BORD PEAK	26' FF	Y	MTB	2.40	8.73	0.31	0.47				
CIRQUE PARK	26' FF	Y	MTB	4.00	5.70	0.26	0.47				
BORD PEAK	26' FF	Y	MTB	1.00	7.00	0.33	0.40				
COSTILLA PEAK	26' FF	Y	MTB	2.55	11.26	0.33	0.52				
DEER HORN PEAK	26' FF	Y	MTB	4.00	10.00	0.30	0.55				
HAWKINS PEAK	26' FF	Y	MTB	5.00	7.00	0.26	0.52				
EMERALD PEAK	26' FF	Y	MTB	2.10	6.64	0.29	0.42				
TYLER PEAK	26' FF	Y	MTB	1.61	4.10	0.27	0.35				
LIONS HEAD	26' FF	Y	MTB	3.84	6.72	0.27	0.47				
BLACKBURN RD.	26' FF	Y	MTB	3.81	13.00	0.33	0.6				
ORANGE GROVE	26' FF	Y	MTB	5.00	8.00	0.28	0.54				
LIONS HEAD	28' FF	Y	MTB	4.07	13.00	0.32	0.61	.79			

TABLE 2

Summary of Street Capacity Calculations

Anderson Heights Unit 4

LOCATION	WIDTH	CROWN	STD or MTB	SLOPE %	Q cfs	DEPTH ft.	EG (ft)	INLET Q cfs	TYPE INLET	INLET BYPASS	ADD Q cfs
BANNER PEAK	26' FF	Y	STD	2.70	10.93	0.32	0.52				
BORD PEAK	26' FF	Y	STD	2.40	8.73	0.31	0.47				
DIAMOND PEAK	26' FF	Y	STD	1.88	28.30	0.45	0.76				
DIAMOND PEAK	26' FF	Y	STD	1.88	34.01	0.48	0.84	8.5(2)	DBL A	17.01	
DIAMOND PEAK	26' FF	Y	STD	1.88	17.01	0.38	0.60	4.3(2)	SGL C	8.41	+9.21
CRAG PEAK	26' FF	Y	STD	5.00	17.62	0.34	0.74	5.9(2)	SGL A	5.82	+6.64 + 5.98
CRAG PEAK	26' FF	Y	STD	3.22	18.84	0.37	0.68	5.5 (2)	SGL A	7.84	+4.10
TYLER PEAK	26' FF	Y	STD	3.22	11.94	0.32	0.56				+6.77 +10.29
PINE TOWN ROAD	26' FF	Y	STD	3.40	29.00	0.41	0.87	7.0 (2)	SGL A	15.0	+7.29
PINE TOWN ROAD	26' FF	Y	STD	3.40	22.29	0.38	0.76				
PINE TOWN ROAD	28' FF	Y	STD	2.60	29.00	0.43	0.8	6.8 (2)	SGL C	15.4	
DUNDEE	26' FF	Y	STD	0.60	21.10	0.49	0.62	5.8 (2)	SGL C	9.5	
BLACKBURN RD	26' FF	Y	STD	3.81	21.84	0.37	0.77	6.0 (2)	SGL C	9.84	
DUNDEE	26' FF	Y	STD	0.60	20.54	0.49	0.61	5.8 (2)	SGL C	8.94	+9.5+9.84+1.2
LIONS HEAD	28' FF	Y	STD	4.07	26.00	0.39	0.84	6.8 (20	SGL A	12.4	
HAWKINS PEAK	26' FF	Y	STD	5	13.67	0.32	0.67				
BASIN PEAK	26' FF	Y	STD	5.00	24	0.37	0.87	6.7 (2)	SGL A	10.6	
ALTA PEAK	26' FF	Y	STD	1.69	20.04	0.41	0.64	5.0 (2)	SGL A	10.04	
BASIN/ALTA SUMP	26' FF	Y	STD					14.47(2)	DBL C	28.95	

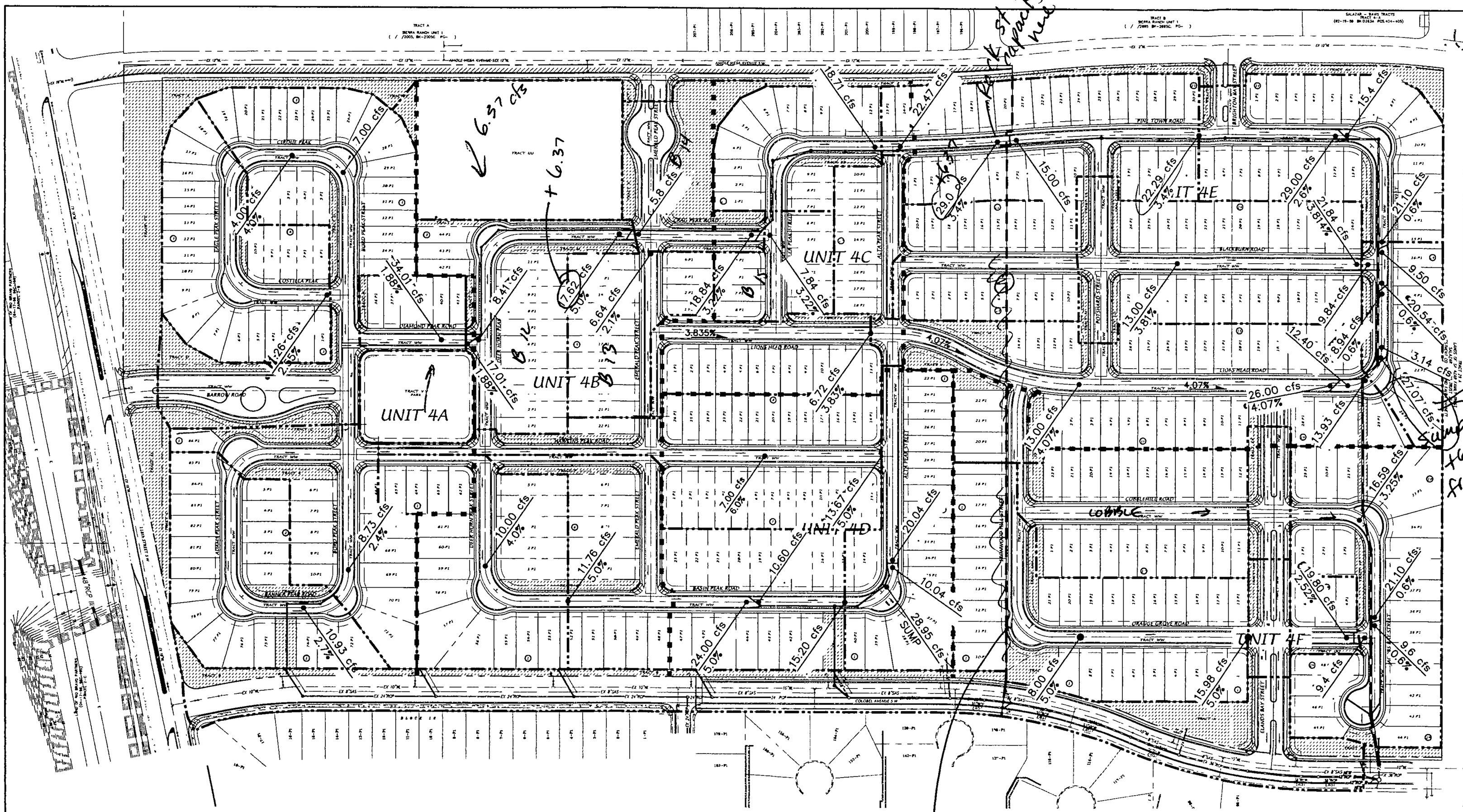
TABLE 2 3

Summary of Street Capacity Calculations

Anderson Heights Unit 4

LOCATION	WIDTH	CROWN	STD or MTB	SLOPE %	Q cfs	DEPTH ft.	EG (ft)	INLET Q cfs	TYPE INLET	INLET BYPASS	ADD Q cfs
COBBLE HILL RD	28' FF	Y	STD	5.84	10.67	0.29	0.64				
COBBLE HILL RD	26' FF	Y	STD	3.25	16.59	0.35	0.64				
ORANGE GROVE	26' FF	Y	STD	5.00	15.98	0.33	0.71				
ORANGE GROVE	26' FF	Y	STD	2.52	19.80	0.38	0.67	5.2 (2)	SGL A	9.40	
JACOBS BAY	26' FF	Y	STD	0.60	21.60	0.49	0.62	6.0 (2)	SGL A	9.60	
JACOBS BAY	26' FF	Y	STD	0.60	24.65	0.51	0.66	22.5 (2)	DBL C SUMP		
COLOBEL	48' FF	Y	STD	3.00	13.95	0.34	0.58	4.9 (2)	SGL A	4.15	8.11
COLOBEL	48' FF	Y	STD	2.65	12.26	0.34	0.54	4.4 (2)	SGL A	3.46	

Inlet


UNIT 4A
UNIT 4B
UNIT 4C
UNIT 4D
UNIT 4E
UNIT 4F
TRACT GU
6.37 cfs
+ 6.37
18.71 cfs
22.47 cfs
15.4 cfs
7.00 cfs
4.0%
4.01 cfs
34.01 cfs
1.88%
11.26 cfs
2.5%
8.41 cfs
7.62 cfs
5.0%
6.64 cfs
2.1%
18.84 cfs
3.22%
7.84 cfs
3.22%
29.0 cfs
3.4%
15.00 cfs
22.29 cfs
3.4%
29.00 cfs
2.67%
21.84 cfs
3.81%
21.10 cfs
0.6%
9.50 cfs
0.6%
20.54 cfs
0.6%
3.14 cfs
0.6%
17.07 cfs
0.6%
3.835%
4.07%
6.72 cfs
3.81%
13.00 cfs
3.81%
9.84 cfs
12.40 cfs
8.94 cfs
26.00 cfs
4.07%
13.00 cfs
4.07%
13.93 cfs
8.73 cfs
2.4%
10.00 cfs
4.0%
11.76 cfs
5.0%
7.00 cfs
6.0%
13.67 cfs
5.0%
10.60 cfs
5.0%
20.04 cfs
10.04 cfs
24.00 cfs
5.0%
15.20 cfs
28.95 cfs
SUMP
16.59 cfs
3.25%
19.80 cfs
2.52%
8.00 cfs
5.0%
15.98 cfs
5.0%
9.4 cfs
9.6 cfs
10.93 cfs
2.7%
TRACT WW
TRACT PARK
TRACT N
TRACT M
TRACT L
TRACT K
TRACT J
TRACT H
TRACT G
TRACT F
TRACT E
TRACT D
TRACT C
TRACT B
TRACT A
CIRCLE PEAK
EAGLE PEAK STREET
COSTILLA PEAK
DIAMOND PEAK STREET
EMERALD PEAK STREET
ADOLA PEAK STREET
DEER HORN PEAK
BARROW ROAD
DIAMOND PEAK ROAD
LYONS MEAD ROAD
BASIN PEAK ROAD
PINE TOWN ROAD
BRIGHTON VALLEY STREET
BLACKBURN ROAD
POTOMAC STREET
CORNELIUS ROAD
ELKANDS BAY STREET
ORANGE GROVE ROAD
COLORADO AVENUE S.W.
ARROYO MEDIA AVENUE SW
BLOCK 18
EX 8"SAS
EX 24"RCP
EX 10"W
EX 12"W
EX 16"W
EX 20"W
EX 6"W
EX 8"W
EX 4"W
EX 2"W
EX 1"W
EX 3"W
EX 5"W
EX 7"W
EX 9"W
EX 11"W
EX 13"W
EX 14"W
EX 15"W
EX 17"W
EX 18"W
EX 19"W
EX 21"W
EX 22"W
EX 23"W
EX 25"W
EX 26"W
EX 27"W
EX 28"W
EX 29"W
EX 30"W
EX 31"W
EX 32"W
EX 33"W
EX 34"W
EX 35"W
EX 36"W
EX 37"W
EX 38"W
EX 39"W
EX 40"W
EX 41"W
EX 42"W
EX 43"W
EX 44"W
EX

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    05JUN14    TIME   10:12:06  *
 *****************************************
```

```
**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  HYDROLOGIC ENGINEERING CENTER     *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616-4687      *
*          (916) 756-1104            *
**************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
```

STREet Capacity

```
THIS RUN EXECUTED 05JUN14    10:12:06
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          47'ROW 26'F-F MTB CURB AND GUTTER WITH CROWN
 T3          BANNER PEAK 26'-FF

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0         2          0         1      .027           0        0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017       .1       .3
 QT       13     10.93      8.73     5.70     7.00     11.26    10.00     7.00     6.64     4.10
 QT     6.72     13.00     15.98     8.00
 X1        1         9         0       47        0         0        0         0        0        0
 GR      .53         0       .33     9.87        0     11.47     .125     12.5     .345     23.5
 GR     .125      34.5         0    35.53      .33     37.13      .53       47

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .33       .33       .39       .00       .52       .20       .00       .00       .53
      10.9        .0      10.9        .0        .0       3.1        .0        .0        .0       .53
       .00       .00      3.55       .00      .000      .017      .000      .000       .00      9.89
   .027441         0.        0.        0.         0        14         6       .00     25.34     37.11
```



Table 1 — Sample Bard Peak

```
T1
T2 DEER FIELD PEAK
T3 26' FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0           3          0          1       .024

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       2           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

      1.000        .31        .31        .36        .00        .47        .16        .00        .00        .53
        8.7         .0        8.7         .0         .0        2.7         .0         .0         .0        .53
        .00        .00       3.19        .00       .000       .017       .000       .000        .00       9.96
    .024020         0.         0.         0.          0         14          7        .00      23.78      37.04

T1
T2 CIRQUE PEAK
T3

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0           4          0          1        .04

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       3           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

      1.000        .26        .26        .32        .00        .45        .19        .00        .00        .53
```

```
      5.7         .0        5.7         .0         .0        1.6         .0         .0         .0         .53
      .00         .00       3.51        .00        .000      .017        .000       .000       .00       10.22
   .039864         0.         0.         0.          0         11          5         .00      17.95      36.78

T1
T2
T3-BORD-PEAK

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          5          0          1         .01

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     4           0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .33        .33        .34        .00        .40        .07        .00        .00        .53
      7.0         .0        7.0         .0         .0        3.2         .0         .0         .0         .53
      .00         .00       2.17        .00        .000      .017        .000       .000       .00        9.77
   .010026         0.         0.         0.          0         11          7         .00      26.15      37.23

T1
T2
T3-COSTILLA PEAK

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          6          0          1        .0255

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     5           0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 5

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
```

3265 DIVIDED FLOW

1.000	.33	.33	.39	.00	.52	.19	.00	.00	.53
11.3	.0	11.3	.0	.0	3.3	.0	.0	.0	.53
.00	.00	3.46	.00	.000	.017	.000	.000	.00	9.73
.025592	0.	0.	0.	0	14	7	.00	26.31	37.27

T1
T2
T3 DEER HORN ==>

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	7	0	1	.04					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	6	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 6

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.30	.30	.38	.00	.55	.25	.00	.00	.53
10.0	.0	10.0	.0	.0	2.5	.0	.0	.0	.53
.00	.00	4.03	.00	.000	.017	.000	.000	.00	10.01
.040610	0.	0.	0.	0	14	6	.00	22.59	36.99

T1
T2
T3 HAWKINS PEAK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	8	0	1	.05					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	7	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 7

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .26        .26        .34        .00        .52        .25        .00        .00        .53
       7.0         .0        7.0         .0         .0        1.7         .0         .0         .0        .53
       .00        .00       4.03        .00       .000       .017       .000       .000        .00      10.19
   .050446         0.         0.         0.          0         10          0        .00      18.63      36.81

T1
T2
T3 EMERALD PEAK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          9         0         1        .021

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8          0         -1        0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .29        .29        .33        .00        .42        .13        .00        .00        .53
       6.6         .0        6.6         .0         .0        2.3         .0         .0         .0        .53
       .00        .00       2.85        .00       .000       .017       .000       .000        .00      10.04
   .021177         0.         0.         0.          0         11          6        .00      21.83      36.96

T1
T2
T3 TYLER PEAK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         10         0         1      .01606

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     9          0         -1        0         0         0         0         0         0         0
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 9

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.27	.27	.29	.00	.35	.08	.00	.00	.53
4.1	.0	4.1	.0	.0	1.8	.0	.0	.0	.53
.00	.00	2.29	.00	.000	.017	.000	.000	.00	10.17
.016048	0.	0.	0.	0	8	5	.00	18.93	36.83

T1
T2
T3 LIONS HEAD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	11	0	1	.03835					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	10	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF10

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.27	.27	.34	.00	.47	.20	.00	.00	.53
6.7	.0	6.7	.0	.0	1.9	.0	.0	.0	.53
.00	.00	3.58	.00	.000	.017	.000	.000	.00	10.15
.038160	0.	0.	0.	0	11	5	.00	19.42	36.85

T1
T2
T3 BLACKBURN ROAD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	12	0	1	.03814					

```
 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     11           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
*PROF11

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3265 DIVIDED FLOW

      1.000        .33        .33        .41        .00        .60        .28        .00        .00        .53
       13.0         .0       13.0         .0         .0        3.1         .0         .0         .0        .53
        .00        .00       4.22        .00       .000       .017       .000       .000        .00       9.89
    .038757         0.         0.         0.          0         14          6        .00      25.34      37.11

 T1
 T2
 T3 ORANGE GROVE ROAD

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0          13         0          1         .050

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     12           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF12

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

      1.000        .33        .33        .44        .00        .70        .37        .00        .00        .53
       16.0         .0       16.0         .0         .0        3.3         .0         .0         .0        .53
        .00        .00       4.86        .00       .000       .017       .000       .000        .00       9.66
    .050290         0.         0.         0.          0         17          7        .00      26.59      37.34

T1
T2
T3 ORANGE GROVE ROAD

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
```

Summary Saup Licrshead

	0	14	0	1	.050				
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	13	0	-1	0	0	0	0	0	0	0
	SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
	TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
	SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF13

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.28	.28	.36	.00	.54	.26	.00	.00	.53
8.0	.0	8.0	.0	.0	1.9	.0	.0	.0	.53
.00	.00	4.12	.00	.000	.017	.000	.000	.00	10.13
.049494	0.	0.	0.	0	11	5	.00	19.78	36.87

THIS RUN EXECUTED 05JUN14 10:12:06
****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BANNER PEAK 26' FF

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	10.93	.33	.39	3.55	25.34	1.86	.52
1.000	8.73	.31	.36	3.19	23.78	1.77	.47
1.000	5.70	.26	.32	3.51	17.95	2.50	.45
1.000	7.00	.33	.34	2.17	26.15	1.11	.40
1.000	11.26	.33	.39	3.46	26.31	1.78	.52
1.000	10.00	.30	.38	4.03	22.59	2.34	.55
1.000	7.00	.26	.34	4.03	18.63	2.78	.52
1.000	6.64	.29	.33	2.85	21.83	1.71	.42
1.000	4.10	.27	.29	2.29	18.93	1.56	.35
1.000	6.72	.27	.34	3.58	19.42	2.38	.47
1.000	13.00	.33	.41	4.22	25.34	2.21	.60
1.000	15.98	.33	.44	4.86	26.59	2.48	.70
1.000	8.00	.28	.36	4.12	19.78	2.70	.54

SUMMARY OF ERRORS AND SPECIAL NOTES

1**********
* HEC-2 WATER SURFACE PROFILES *
*
* Version 4.6.2; May 1991 *
*
* RUN DATE 25JUN14 TIME 14:40:51 *
****

****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D *
* DAVIS, CALIFORNIA 95616-4687 *
* (916) 756-1104 *
****

```
X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

THIS RUN EXECUTED 25JUN14 14:40:51

****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

```
T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
T2          49'ROW 28'F-F MTB CURB AND GUTTER WITH CROWN
T3          LIONS HEAD
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.0407	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	38	43	1	2	26	4	68	3	

NC	.017	.017	.017	.1	.3					
QT	1	13.								
X1	1	9	0	49	0	0	0	0	0	0
GR	.53	0	.33	9.87	0	11.47	.125	12.5	.365	24.5
GR	.125	36.5	0	37.53	.33	39.13	.53	49		

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.32	.32	.41	.00	.61	.29	.00	.00	.53
13.0	.0	13.0	.0	.0	3.0	.0	.0	.0	.53
.00	.00	4.29	.00	.000	.017	.000	.000	.00	9.90
.040638	0.	0.	0.	0	14	7	.00	25.10	39.10

THIS RUN EXECUTED 25JUN14 14:40:51

****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LIONS HEAD

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	13.00	.32	.41	4.29	25.10	2.35	.61

SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    12JUN14    TIME   12:33:09  *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X      X  XXXXXXX   XXXXX              XXXXX
X      X  X         X     X           X     X
X      X  X         X                       X
XXXXXXX   XXXX      X          XXXXX    XXXXX
X      X  X         X                  X
X      X  X         X     X            X
X      X  XXXXXXX   XXXXX              XXXXXXX
```

```
12JUN14      12:33:
THIS RUN EXECUTED 12JUN14    12:33:09
************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
************************************
T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
T2          47'ROW 26'F-F STD CURB AND GUTTER WITH CROWN
T3          BANNER PEAK 26' F-F
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.027	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	2	26	4	68	3	

NC	.017	.017	.017	.1	.3					
QT	14	10.93	8.73	28.3	34.01	17.01	17.62	18.84	11.94	18.71
QT	29.	22.29	29.	21.1	21.84					
X1	1	9	0	47	0	0	0	0	0	0
GR	.87	0	.67	10.33	0	10.5	.125	12.5	.345	23.5
GR	.125	34.5	0	36.5	.67	36.67	.87	47		

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3265 DIVIDED FLOW

1.000	.32	.32	.39	.00	.52	.20	.00	.00	.87
10.9	.0	10.9	.0	.0	3.1	.0	.0	.0	.87
.00	.00	3.58	.00	.000	.017	.000	.000	.00	10.42
.026979	0.	0.	0.	0	10	7	.00	24.08	36.58

```
T1
T2 BORD-PEAK
T3 26' FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          3          0          1        .024

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .31        .31        .36        .00        .47        .16        .00        .00        .87
       8.7         .0        8.7         .0         .0        2.7         .0         .0         .0        .87
       .00        .00       3.24        .00       .000       .017       .000       .000        .00      10.42
   .023952         0.         0.         0.          0         10          7        .00      22.52      36.58

T1
T2 DIAMOND PEAK
T3  26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          4          0          1       .0188

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     3          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .45        .45        .54        .00        .76        .32        .00        .00        .87
      28.3         .0       28.3         .0         .0        6.3         .0         .0         .0        .87
```

```
      .00        .00       4.52        .00       .000       .017       .000       .000        .00      10.39
   .018777         0.         0.         0.          0         11          5        .00      26.23      36.61

T1
T2 DIAMOND PEAK
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          5         0         1       .0188

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .48        .48        .58        .00        .84        .37        .00        .00        .87
      34.0        .0       34.0        .0         .0        7.0         .0         .0         .0        .87
       .00        .00       4.85        .00       .000       .017       .000       .000        .00      10.38
   .018587         0.         0.         0.          0         11          5        .00      26.24      36.62

T1
T2 DIAMOND PEAK
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          6         0         1       .0188

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     5          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .38        .38        .44        .00        .60        .21        .00        .00        .87
      17.0        .0       17.0        .0         .0        4.6         .0         .0         .0        .87
       .00        .00       3.69        .00       .000       .017       .000       .000        .00      10.40
   .018667         0.         0.         0.          0          5          5        .00      26.19      36.60
```

6

```
T1
T2 CRAG PEAK
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          7         0         1        .05

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      6          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .34       .34       .45       .00       .74       .39       .00       .00       .87
      17.6         .0      17.6        .0        .0       3.5        .0        .0        .0       .87
       .00        .00      5.04       .00      .000      .017      .000      .000       .00     10.41
    .049344         0.        0.        0.         0         8         6       .00     25.84     36.59
```

7

```
T1
T2 CRAG PEAK
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          8         0         1       .0322

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      7          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .37       .37       .46       .00       .68       .32       .00       .00       .87
      18.8         .0      18.8        .0        .0       4.2        .0        .0        .0       .87
       .00        .00      4.51       .00      .000      .017      .000      .000       .00     10.41
```

.031670	0.	0.	0.	0	8	5	.00	26.19	36.59

8

```
T1
T2=TYLER PEAK
T3 26'FF
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	9	0	1	.0322					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	8	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 8

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW
```

1.000	.32	.32	.39	.00	.56	.24	.00	.00	.87
11.9	.0	11.9	.0	.0	3.1	.0	.0	.0	.87
.00	.00	3.90	.00	.000	.017	.000	.000	.00	10.42
.032175	0.	0.	0.	0	15	7	.00	24.08	36.58

9

```
T1
T2 PINE_TOWN PEAK
T3 26'FF
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	10	0	1	.034					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	9	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 9

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
```

1.000	.36	.36	.46	.00	.69	.32	.00	.00	.87
18.7	.0	18.7	.0	.0	4.1	.0	.0	.0	.87

```
      .00       .00      4.57       .00      .000      .017      .000      .000       .00     10.41
   .033352       0.       0.       0.          0         8         5       .00     26.19     36.59
```

10

```
T1
T2 PINE TOWN PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         11        0         1       .034

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .41       .41       .54       .00       .87       .46       .00       .00       .87
      29.0        .0      29.0        .0        .0       5.3        .0        .0        .0       .87
       .00       .00      5.46       .00      .000      .017      .000      .000       .00     10.40
   .033965       0.       0.       0.          0        11         5       .00     26.21     36.60
```

11

```
T1
T2 PINE TOWN PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         12        0         1       .034

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .38       .38       .49       .00       .76       .37       .00       .00       .87
      22.3        .0      22.3        .0        .0       4.5        .0        .0        .0       .87
       .00       .00      4.91       .00      .000      .017      .000      .000       .00     10.40
   .033721       0.       0.       0.          0         8         5       .00     26.19     36.60
```

```
T1
T2 PINE TOWN PEAK
T3 26'FF

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0          13          0          1        .026

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     12           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF12

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .43        .43        .54        .00        .82        .39        .00        .00        .87
      29.0         .0       29.0         .0         .0        5.8         .0         .0         .0        .87
       .00        .00       5.02        .00       .000       .017       .000       .000        .00      10.39
   .025579         0.         0.         0.          0         11          4        .00      26.22      36.61
T1
T2 DUNDEE PEAK
T3 26'FF

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0          14          0          0        .006

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     13           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF13

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .49        .49        .00        .00        .62        .12        .00        .00        .87
      21.1         .0       21.1         .0         .0        7.4         .0         .0         .0        .87
       .00        .00       2.84        .00       .000       .017       .000       .000        .00      10.38
   .005883         0.         0.         0.          0          0          5        .00      26.25      36.62

T1
```

T2 BLACKBURN ROAD
T3 26'FF

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	15	0	1	.0381					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	14	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF14

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.000	.37	.37	.49	.00	.77	.39	.00	.00	.87
21.8	.0	21.8	.0	.0	4.3	.0	.0	.0	.87
.00	.00	5.04	.00	.000	.017	.000	.000	.00	10.41
.037633	0.	0.	0.	0	8	5	.00	26.19	36.59

THIS RUN EXECUTED 12JUN14 12:33:09
****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****
NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST
BANNER PEAK 26' FF
SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	10.93 1	.32	.39	3.58	24.08	1.84	.52
1.000	8.73 2	.31	.36	3.24	22.52	1.78	.47
1.000	28.30 3	.45	.54	4.52	26.23	1.63	.76
1.000	34.01 4	.48	.58	4.85	26.24	1.65	.84
1.000	17.01 5	.38	.44	3.69	26.19	1.55	.60
1.000	17.62 6	.34	.45	5.04	25.84	2.43	.74
1.000	18.84 7	.37	.46	4.51	26.19	1.99	.68
1.000	11.94 8	.32	.39	3.90	24.08	2.01	.56
1.000	18.71	.36	.46	4.57	26.19	2.03	.69
1.000	29.00	.41	.54	5.46	26.21	2.14	.87
1.000	22.29	.38	.49	4.91	26.19	2.08	.76
1.000	29.00	.43	.54	5.02	26.22	1.88	.82
1.000	21.10	.49	.00	2.84	26.25	.94	.62
1.000	21.84 14	.37	.49	5.04	26.19	2.18	.77

not on table

SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*****************************************                    ***************************************
 *  HEC-2 WATER SURFACE PROFILES             *                *  U.S. ARMY CORPS OF ENGINEERS         *
 *                                           *                *  HYDROLOGIC ENGINEERING CENTER        *
 *  Version   4.6.2;  May 1991               *                *  609 SECOND STREET, SUITE D           *
 *                                           *                *  DAVIS, CALIFORNIA 95616-4687         *
 *  RUN DATE    13JUN14    TIME   15:06:35   *                *           (916) 756-1104              *
 *****************************************                    ***************************************

                                      X     X  XXXXXXX   XXXXX             XXXXX
                                      X     X  X        X     X           X     X
                                      X     X  X        X                       X
                                      XXXXXXX  XXXX     X          XXXXX    XXXXX
                                      X     X  X        X                X
                                      X     X  X        X     X          X
                                      X     X  XXXXXXX   XXXXX           XXXXXXX
                                                                  THIS RUN EXECUTED 13JUN14    15:06:35

 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
T2          47'ROW 26'F-F STD CURB AND GUTTER WITH CROWN,
T3          DUNDEE 26' FF

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0         2         0         0      .006         0         0         0         0         0

J3   VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

NC      .017      .017      .017       .1        .3
QT        12     20.54     16.59     15.98     19.80      21.6      29.4       9.4     24.65     13.67
QT     11.76     24.00     20.04         1         1
X1         1         9         0        47         0         0         0         0         0         0
GR       .87         0       .67     10.33         0      10.5      .125      12.5      .345      23.5
GR      .125      34.5         0      36.5       .67     36.67       .87        47

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=      .100 CEHV=      .300
*SECNO 1.000
```



```
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .49        .49        .00        .00        .61        .12        .00        .00        .87
      20.5         .0       20.5         .0         .0        7.3         .0         .0         .0        .87
       .00        .00       2.81        .00       .000       .017       .000       .000        .00      10.38
   .005898         0.         0.         0.          0          0          5        .00      26.25      36.62

T1
T2 COBBLEHILL ROAD
T3 26' FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0         3          0          1       .0325

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       2         0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .35        .35        .44        .00        .64        .29        .00        .00        .87
      16.6         .0       16.6         .0         .0        3.8         .0         .0         .0        .87
       .00        .00       4.32        .00       .000       .017       .000       .000        .00      10.41
   .032465         0.         0.         0.          0          5          6        .00      26.18      36.59

T1
T2 ORANGE GROVE ROAD
T3  26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0         4          0          1        .05

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       3         0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
*PROF 3

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .33       .33       .43       .00       .71       .38       .00       .00       .87
      16.0        .0      16.0        .0        .0       3.2        .0        .0        .0       .87
       .00       .00      4.95       .00      .000      .017      .000      .000       .00     10.42
   .049979        0.        0.        0.         0         5         7       .00     24.78     36.58

T1
T2 ORANGE GROVE ROAD
T3 26'FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          5         0         1      .0252

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4          0        -1         0         0         0         0         0         0         0

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .38       .38       .47       .00       .67       .28       .00       .00       .87
      19.8        .0      19.8        .0        .0       4.6        .0        .0        .0       .87
       .00       .00      4.28       .00      .000      .017      .000      .000       .00     10.40
   .025027        0.        0.        0.         0         8         5       .00     26.20     36.60

T1
T2 JACOBS BAY STREET
T3 26' FF

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0          6         0         0      .006

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
```

```
     5          0        -1         0         0         0         0         0         0         0

     SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000       .49       .49       .00       .00       .62       .13       .00       .00       .87
       21.6        .0      21.6        .0        .0       7.5        .0        .0        .0       .87
        .00       .00      2.88       .00      .000      .017      .000      .000       .00     10.37
    .006005         0.        0.        0.         0         0         6       .00     26.25     36.63

T1
 T2-JACOBS BAY STREET
 T3 26'FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         7         0         0      .006

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      6          0        -1         0         0         0         0         0         0         0

     SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 6

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000       .55       .55       .54       .00       .72       .16       .00       .00       .87
       29.4        .0      29.4        .0        .0       9.0        .0        .0        .0       .87
        .00       .00      3.26       .00      .000      .017      .000      .000       .00     10.36
    .006023         0.        0.        0.         0        11         0       .00     26.28     36.64

T1
 T2-ORANGE GROVE ROAD
 T3 26'FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
      0          8          0          1      .0252

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      7          0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 7

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000        .31        .31        .37        .00        .49        .18        .00        .00        .87
       9.4         .0        9.4         .0         .0        2.8         .0         .0         .0        .87
       .00        .00       3.36        .00       .000       .017       .000       .000        .00      10.42
   .025161         0.         0.         0.          0         10          7        .00      22.98      36.58
```

```
T1
T2 JACOBS BAY
T3 26'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          9          0          0       .006

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      8          0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 8

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .52        .52        .00        .00        .66        .14        .00        .00        .87
      24.6         .0       24.6         .0         .0        8.1         .0         .0         .0        .87
```

```
      .00       .00      3.04       .00      .000      .017      .000      .000       .00     10.37
   .006011       0.        0.        0.         0         0         6       .00     26.26     36.63

T1
T2 HAWKINS PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         10         0         1       .05

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     9          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3265 DIVIDED FLOW

     1.000       .32       .32       .41       .00       .67       .35       .00       .00       .87
      13.7        .0      13.7        .0        .0       2.9        .0        .0        .0       .87
       .00       .00      4.77       .00      .000      .017      .000      .000       .00     10.42
   .049934       0.        0.        0.         0        12         7       .00     23.28     36.58

T1
T2 BASIN PEAK
T3 26'FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         11         0         1       .05

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

*PROF10

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.30	.30	.39	.00	.63	.33	.00	.00	.87
11.8	.0	11.8	.0	.0	2.6	.0	.0	.0	.87
.00	.00	4.60	.00	.000	.017	.000	.000	.00	10.42
.049863	0.	0.	0.	0	15	7	.00	21.90	36.58

T1
T2 BASIN-PEAK
T3 26'FF

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	12	0	1	.05					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	11	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF11

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.000	.37	.37	.50	.00	.87	.50	.00	.00	.87
24.0	.0	24.0	.0	.0	4.2	.0	.0	.0	.87
.00	.00	5.67	.00	.000	.017	.000	.000	.00	10.41
.049254	0.	0.	0.	0	11	5	.00	26.19	36.59

T1
T2-ALTA PEAK
T3 26'FF

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	13	0	1	.0169					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE

12	0	-1	0	0	0	0	0	0	0
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF12

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.000	.41	.41	.47	.00	.64	.23	.00	.00	.87
20.0	.0	20.0	.0	.0	5.2	.0	.0	.0	.87
.00	.00	3.82	.00	.000	.017	.000	.000	.00	10.40
.016878	0.	0.	0.	0	8	5	.00	26.21	36.60

THIS RUN EXECUTED 13JUN14 15:06:35

****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DUNDEE 26' FF
SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	20.54	.49	.00	2.81	26.25	.94	.61
1.000	16.59	.35	.44	4.32	26.18	1.99	.64
1.000	15.98	.33	.43	4.95	24.78	2.48	.71
1.000	19.80	.38	.47	4.28	26.20	1.80	.67
1.000	21.60	.49	.00	2.88	26.25	.95	.62
1.000	29.40	.55	.54	3.26	26.28	.98	.72
1.000	9.40	.31	.37	3.36	22.98	1.81	.49
1.000	24.65	.52	.00	3.04	26.26	.96	.66
1.000	13.67	.32	.41	4.77	23.28	2.54	.67
1.000	11.76	.30	.39	4.60	21.90	2.59	.63
1.000	24.00	.37	.50	5.67	26.19	2.49	.87
1.000	20.04	.41	.47	3.82	26.21	1.51	.64

SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    25JUN14    TIME   15:02:12  *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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THIS RUN EXECUTED 25JUN14    15:02:12
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************
 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          49'ROW 28'F-F STD CURB AND GUTTER WITH CROWN
 T3          PINE TOWN - 28' FF

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0         2         0         1      .026         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017        .1        .3
 QT        3       29.       26.     10.67
 X1        1         9         0        49         0         0         0         0         0         0
 GR      .87         0       .67     10.33         0      10.5      .125      12.5      .365      24.5
 GR      .125     36.5         0      38.5       .67     38.67      .87        49

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000      .43       .43       .54       .00       .80       .37       .00       .00       .87
       29.0       .0      29.0        .0        .0       5.9        .0        .0        .0       .87
```

```
      .00        .00       4.87        .00       .000       .017       .000       .000        .00      10.39
   .025585         0.         0.         0.          0         11          4        .00      28.22      38.61

T1
T2-LIONS-HEAD-ROAD
T3 28' FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          3          0          1       .0407

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000        .39        .39        .51        .00        .84        .45        .00        .00        .87
      26.0         .0       26.0         .0         .0        4.9         .0         .0         .0        .87
       .00        .00       5.36        .00       .000       .017       .000       .000        .00      10.40
   .040460         0.         0.         0.          0         11          5        .00      28.20      38.60

T1
T2 COBBLEHILL-ROAD
T3  28'FF

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0          4          0          1      .05835

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     3          0         -1          0          0          0          0          0          0          0

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3

CCHV=      .100 CEHV=      .300
```

*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.000	.29	.29	.39	.00	.64	.35	.00	.00	.87
10.7	.0	10.7	.0	.0	2.2	.0	.0	.0	.87
.00	.00	4.76	.00	.000	.017	.000	.000	.00	10.43
.058033	0.	0.	0.	0	10	7	.00	20.40	38.57

THIS RUN EXECUTED 25JUN14 15:02:12
****
HEC-2 WATER SURFACE PROFILES
Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST
PINE TOWN 28' FF
SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	29.00	.43	.54	4.87	28.22	1.87	.80
1.000	26.00	.39	.51	5.36	28.20	2.28	.84
1.000	10.67	.29	.39	4.76	20.40	2.97	.64

TBL 2 Lionshead
TBL 3 - Cobble Hill

SUMMARY OF ERRORS AND SPECIAL NOTES

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    24JUN14    TIME   14:34:37  *
 *****************************************
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```
 X     X  XXXXXXX   XXXXX              XXXXX
 X     X  X        X     X            X     X
 X     X  X        X                        X
 XXXXXXX  XXXX     X          XXXXX    XXXXX
 X     X  X        X                  X
 X     X  X        X     X            X
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*           (916) 756-1104          *
*************************************
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THIS RUN EXECUTED 24JUN14    14:34:37
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          ANDERSON HEIGHTS 4 - STREET CAPACITY CALCULATIONS
 T2          68'ROW 48'F-F STD CURB-AND GUTTER WITH CROWN
 T3          COLOBEL  48' FF

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0         2          0         1       .03           0        0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017        .1        .3
 QT        2     13.95     12.26
 X1        1         9         0        68         0         0         0         0         0         0
 GR      .87         0       .67     10.33         0      10.5      .125      12.5       .55        34
 GR     .125      55.5         0      57.5       .67     57.67       .87        68

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=      .100 CEHV=      .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3265 DIVIDED FLOW
```



```
     1.000        .34        .34        .42        .00        .58        .24        .00        .00        .87
      13.9         .0       13.9         .0         .0        3.6         .0         .0         .0        .87
       .00        .00       3.91        .00       .000       .017       .000       .000        .00      10.41
   .029419         0.         0.         0.          0         11          6        .00      26.28      57.59

T1
T2 COLOBEL
T3 48' FF

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0          3          0          1       .0265

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2           0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3265 DIVIDED FLOW
      1.000        .34        .34        .40        .00        .54        .21        .00        .00        .87
       12.3         .0       12.3         .0         .0        3.4         .0         .0         .0        .87
        .00        .00       3.64        .00       .000       .017       .000       .000        .00      10.41
    .026480         0.         0.         0.          0         15          7        .00      25.49      57.59
THIS RUN EXECUTED 24JUN14    14:34:37
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST
     COLOBEL  48' FF
 SUMMARY PRINTOUT

       SECNO        Q        CWSEL      CRIWS      VCH      TOPWID      FRCH       EG

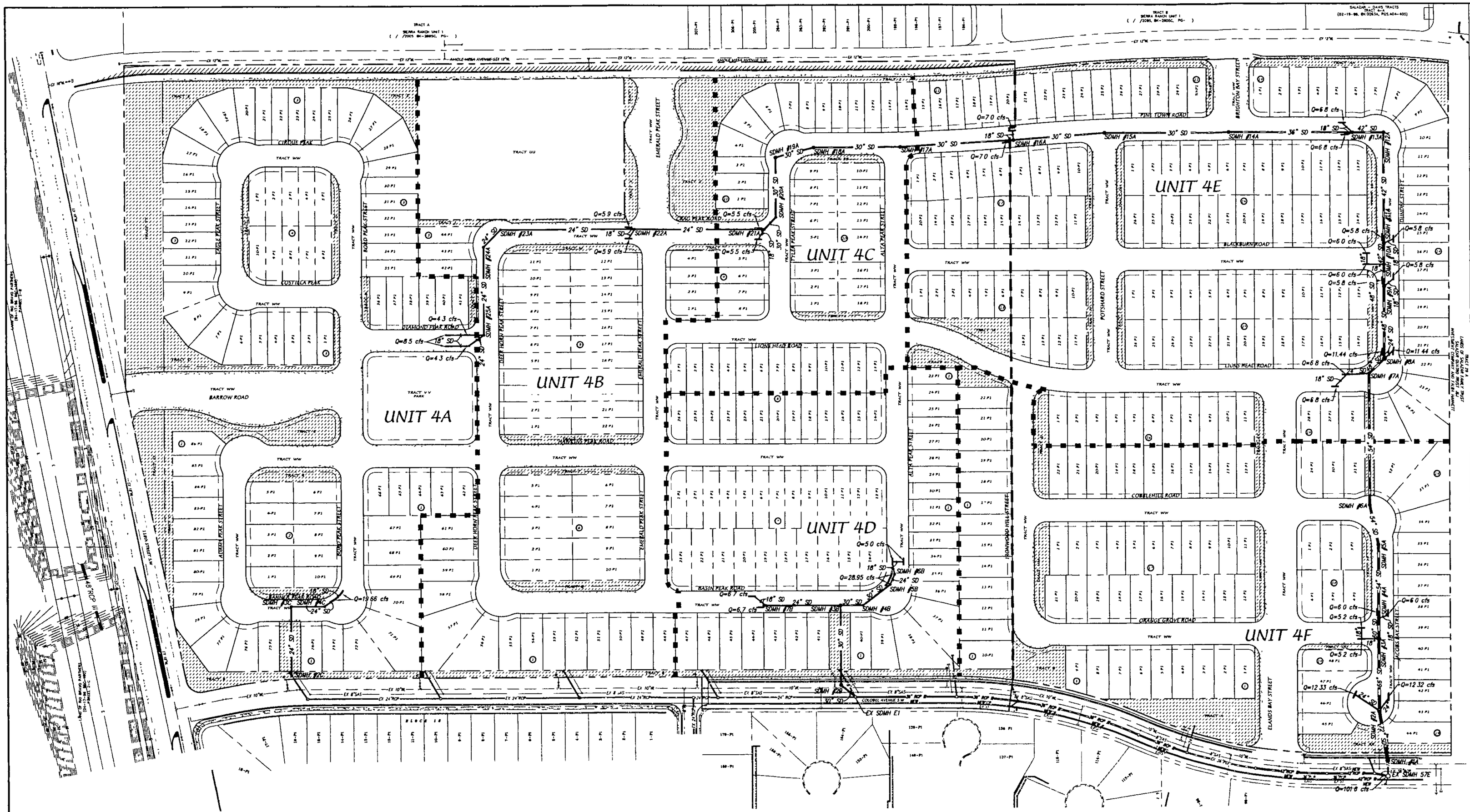
        1.000      13.95        .34        .42      3.91      26.28      2.50        .58
        1.000      12.26        .34        .40      3.64      25.49      2.40        .54

    24JUN14       14:34:37                                                                    PAGE     6
  SUMMARY OF ERRORS AND SPECIAL NOTES
```

APPENDIX C – STORM DRAIN DESIGN

Preliminary Storm Drain Layout (onsite)
Gault Trail Storm Drain
WSPGW Civil design storm analysis

Colobel Avenue Layout
WSPGW Civil design storm analysis


UNIT 4A
UNIT 4B
UNIT 4C
UNIT 4D
UNIT 4E
UNIT 4F
TRACT WW
TRACT VV PARK
TRACT UU
TRACT A
TRACT B
BARROW ROAD
CIRQUE PEAK
EAGLE PEAK STREET
COSTILLA PEAK
ROAD PEAK STREET
DIAMOND PEAK ROAD
DEER HORN PEAK STREET
HARNEY PEAK ROAD
EMERALD PEAK STREET
LONG PEAK ROAD
ALTA PEAK STREET
TYEE PEAK STREET
LYONS HEAD ROAD
BASIN PEAK ROAD
MARINER PEAK ROAD
ALDEN PEAK STREET
RONDO HILLS STREET
POTSHARD STREET
BLACKBURN ROAD
CORBELHEAD ROAD
ORANGEGROVE ROAD
ELANDS BAY STREET
PINE TOWN ROAD
BRIGHTON BAY STREET
COLONEL AVENUE S.W.
EX SDMH E1
EX SDMH 57E
SDMH #1A
SDMH #2A
SDMH #3A
SDMH #4A
SDMH #5A
SDMH #6A
SDMH #7A
SDMH #8A
SDMH #9A
SDMH #10A
SDMH #11A
SDMH #12A
SDMH #13A
SDMH #14A
SDMH #15A
SDMH #16A
SDMH #17A
SDMH #18A
SDMH #19A
SDMH #20A
SDMH

RECORD DRAWINGS

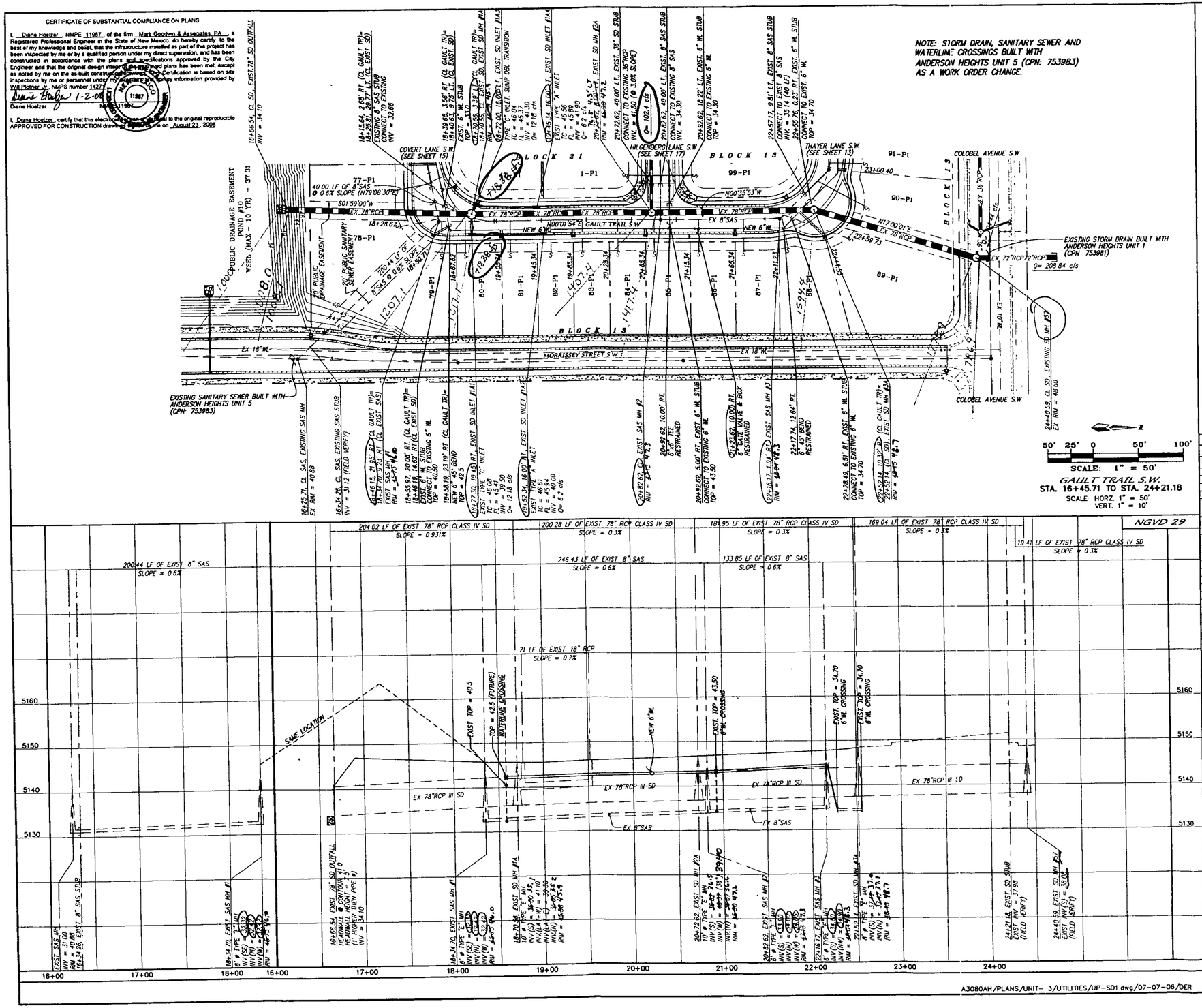
CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Diane Hoelzer, NMPE 11967, of the firm Mark Goodwin & Associates, PA, a Registered Professional Engineer in the State of New Mexico do hereby certify to the best of my knowledge and belief, that the infrastructure installed as part of the project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction and survey information provided by Will Plotner, Jr., NMPS number 14271.

Diane Hoelzer 1-2-06
Diane Hoelzer — NMPE 11967

I, Diane Hoelzer, certify that this electronic media is identical to the original reproducible APPROVED FOR CONSTRUCTION drawings signed by me on August 23, 2006

NOTE: STORM DRAIN, SANITARY SEWER AND WATERLINE CROSSINGS BUILT WITH ANDERSON HEIGHTS UNIT 5 (CPN: 753983) AS A WORK ORDER CHANGE.



NOTES

1. ALL STATIONING IS BASED ON GAULT TRAIL CENTERLINE.
2. ALL STORM DRAIN PIPE LENGTHS ARE BASED ON CENTERLINE OF MANHOLES.

Certificaton
THE CHANGES SHOWN HEREON ARE BASED UPON A FIELD SURVEY CONDUCTED BY ME OR UNDER MY SUPERVISION AND REFLECT THE LOCATIONS (VERTICALLY AND HORIZONTALLY) TO THE BEST OF MY KNOWLEDGE AND BELIEF

GAULT TRAIL S.W. – ANDERSON HEIGHTS UNIT 3

STORM DRAIN SUMMARY TABLE

LOCATION		Q100	VELOCITY	UPSTREAM		DOWNSTREAM	
UPSTRM	DNSTRM	(cfs)	(fps)	GRD	HGL	GRD	HGL
MH#1A	OUTFALL	452	15-21	45.58	41.62	47.0	37.31
MH#2A	MH#1A	415	12.5	46.90	44.40	45.58	43.08
MH#3A	MH#2A	313	9.4	48.45	47.33	46.90	46.55
MH#57	MH#3A	313	9.4	48.60	48.14	48.45	47.33

EXISTING SANITARY SEWER SERVICES

BLOCK	LOT	STATION AT PUE	INV ELEV. AT PUE	LENGTH AT PUE
13	78-P1	18+29.25	40.77	42.02'
13	79-P1	18+60.97	40.66	35.03'
13	80-P1	19+76.21	38.62	35.00'
13	81-P1	19+15.34	38.67	35.00'
13	82-P1	19+60.34	40.98	35.00'
13	83-P1	19+95.34	41.23	35.00'
13	84-P1	20+35.34	41.51	35.00'
13	85-P1	20+75.34	41.79	35.00'
13	86-P1	21+25.34	42.14	35.00'
13	87-P1	21+75.34	42.49	35.00'
13	88-P1	22+17.22	42.80	34.69'
13	89-P1	22+56.25	43.44	75.46

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)

PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
6"	17'	7'	3'	2'	46'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND. RESTRAIN BRANCH AT FITTING ONLY MINIMUM ATTACHED PIPE LENGTH, RUN SIDE OF TEE: 10.00 FEET.

RESTRAINED JOINT LENGTH FOR TEES (FT.)

PIPE SIZE	RUN	BRANCH
6"x6"x6"	10'	2'

AS BUILT INFORMATION — CONTRACTOR — DATE
SURVEY INFORMATION — BENCH MARKS — STATION "3-P10" IS LOCATED 3.9 W. SW OF DOORS AND DENNIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), 60 S. ON COORS BLVD, 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 193.2 WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIMTIED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998". X=1607335.56, Y=1462437.48 (NAD 27) ELEV=4835.735 (SDD 29)
FIELD NOTES — NO / BY / DATE

DESIGNED BY DLH 05/06
DRAWN BY DER 05/06
CHECKED BY DMG 05/06

ENGINEER'S SEAL — DIANE HOELZER — NEW MEXICO — 11967 — LICENSED PROFESSIONAL ENGINEER

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS UNIT 3
GAULT TRAIL S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE — REVIEWED FOR CONFORMANCE WITH DRAINAGE MASTER PLAN
CITY ENGINEER APPROVAL — NOV 2 1 2006 — CITY ENGINEER
LAST DESIGN UPDATE — MO /DAY/YR

CITY PROJECT NO 753983 | ZONE MAP NO N-8/P-8 | SHEET 16 OF 18

A3080AH/PLANS/UNIT- 3/UTILITIES/UP-SD1.dwg/07-07-06/DER

FOR CONTINUATION SEE SHEET 9

FOR CONTINUATION SEE SHEET 10

FOR CONTINUATION SEE SHEET 13

FENCIK LANE S.W.

SHILGENBERG LANE S.W.

MEMPHRIES LANE S.W.

COVERT LANE S.W.

MORRISSEY STREET S.W.

McMICHAEL LANE S.W.

GENTRY LANE S.W.

McCINNON PLACE S.W.

VANHORNE PLACE S.W.

PAYTON TRAIL S.W.

GAULT TRAIL S.W.

BLOCK 20

BLOCK 19

BLOCK 21

BLOCK 18

BLOCK 13

DBL "A" INLET

DBL "A" DBL THROAT INLET

LOW FLOW CHANNEL

PUBLIC DRAINAGE EASEMENT
POND BOTTOM = 34.00

ACCESS MAINTENANCE ROAD
12' WIDE, 10:1 SLOPE (MAX.)

12' WIDE DRIVEWAY RAD.
(PER COA DWG. 2425) &
POND WILL REQUIRE A WALL
OR FENCE AROUND ENTIRE PERIMETER
WITH A 15' WIDE GATE OPENING AT
MAINTENANCE ROAD ACCESS.

GRADING CHANGES ON
LOTS 58 THRU 60.
DLH 1-17-06

30' PUBLIC
SANITARY SEWER AND
DRAINAGE EASEMENT

4" 3000 PSI CONCRETE
COMPACTED SUBGRADE TO 95%
LOW FLOW CHANNEL

SCALE: 1" = 50'

NOTE: REVISED UNIT 2 GRADING PLAN FOR LOT SIZE CHANGES TO 50' WIDE (4-20-06)
NOTE: REVISED UNIT 3 GRADING PLAN FOR LOT SIZE CHANGES TO 50' WIDE (4-20-06)
NOTE: ADDED LOW FLOW CHANNELS AND MAINTENANCE ROAD TO POND #10 (10-22-07)

(THIS G&D PLAN REPLACES SHEET 11 AND 11R WITH 11R1)

A03080AH\grade n drain\3080GD-50-REVA3\SHEET 7\10-22-07\ MJR ACH CAR DLH

SURVEY INFORMATION

FIELD NOTES

NO	BY	DATE

BENCH MARKS

STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE (FORMERLY RIO BRAVO), 0.0 S. ON COORS BLVD.-0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2 WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD A&S 3 1/4" ALUMINUM CAP RIVETED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998". X=1507336.56, Y=1462437.48 (NAD 27). ELEV=4935.735 (SLD 29)

AS BUILT INFORMATION

CONTRACTOR — DATE
STAKED BY
INSPECTIONS BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS
CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO

ENGINEER'S SEAL

DAVID MORELLI
NEW MEXICO
11987
REGISTERED PROFESSIONAL ENGINEER

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	GJK
		DRAWN BY	MJR
		CHECKED BY	DMG

DATE 02/04
DATE 02/04
DATE 02/04

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE
ANDERSON HEIGHTS UNITS
GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY PROJECT NO	ZONE MAP NO	SHEET	OF
753983	N-8/P-8	39.1	39

11R1

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 6-24-2014 Time: 4: 2:43

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip / Type Ch
1000.000	34.000	1.540	35.540	435.50	21.50	7.18	42.72	.00	3.24	13.16	7.500	13.160	.00	0 .0
TRANS STR	.0125					.0239	.19	1.54	3.05		.014	-.01	.00	RECTANG
1008.000	34.100	3.180	37.280	435.50	19.56	5.94	43.22	.00	4.94	7.00	7.500	7.000	.00	0 .0
JUNCT STR	.5002					.0117	.00	3.18	1.93		.013	.00	.00	RECTANG
				WARNING - Junction Analysis - Change in Channel Type										
1008.100	34.150	4.805	38.955	435.50	16.56	4.26	43.21	.00	5.53	5.71	6.500	.000	.00	1 .0
124.853	.0093					.0082	1.03	4.80	1.36	4.65	.013	.00	.00	PIPE
1132.953	35.311	4.993	40.304	435.50	15.92	3.94	44.24	.00	5.53	5.49	6.500	.000	.00	1 .0
58.808	.0093					.0075	.44	4.99	1.26	4.65	.013	.00	.00	PIPE
1191.761	35.857	5.244	41.102	435.50	15.18	3.58	44.68	.00	5.53	5.13	6.500	.000	.00	1 .0
15.339	.0093					.0068	.10	5.24	1.13	4.65	.013	.00	.00	PIPE
1207.100	36.000	5.532	41.532	435.50	14.47	3.25	44.78	.00	5.53	4.63	6.500	.000	.00	1 .0
JUNCT STR	.0050					.0061	.06	5.53	1.00		.013	.00	.00	PIPE
1217.100	36.050	6.952	43.002	398.74	12.02	2.24	45.24	.00	5.33	.00	6.500	.000	.00	1 .0
190.300	.0040					.0058	1.10	6.95	.00	6.50	.013	.00	.00	PIPE
1407.400	36.820	7.395	44.215	398.74	12.02	2.24	46.46	.00	5.33	.00	6.500	.000	.00	1 .0
JUNCT STR	.0050					.0045	.04	7.39	.00		.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1417.400	36.870	9.397	46.267	296.34	8.93	1.24	47.51	.00	4.62	.00	6.500	.000	.00	1 .0
177.000	.0032					.0032	.57	9.40	.00	5.30	.013	.00	.00	PIPE
1594.400	37.440	9.524	46.964	296.34	8.93	1.24	48.20	.00	4.62	.00	6.500	.000	.00	1 .0
184.500	.0035					.0032	.59	9.52	.00	5.11	.013	.00	.00	PIPE
1778.900	38.080	9.605	47.685	296.34	8.93	1.24	48.92	.00	4.62	.00	6.500	.000	.00	1 .0
JUNCT STR	.1875					.0027	.02	9.60	.00		.013	.00	.00	PIPE
1786.900	39.580	9.445	49.025	194.74	6.89	.74	49.76	.00	3.81	.00	6.000	.000	.00	1 .0
29.400	.0058					.0021	.06	9.44	.00	3.37	.013	.00	.00	PIPE
1816.300	39.750	9.398	49.148	194.74	6.89	.74	49.88	.00	3.81	.00	6.000	.000	.00	1 .0
103.000	.0076					.0021	.22	9.40	.00	3.10	.013	.00	.00	PIPE
1919.300	40.530	8.895	49.425	194.74	6.89	.74	50.16	.00	3.81	.00	6.000	.000	.00	1 .0
JUNCT STR	.0700					.0023	.02	8.89	.00		.013	.00	.00	PIPE
1927.300	41.090	8.501	49.591	170.08	7.16	.80	50.39	.00	3.65	.00	5.500	.000	.00	1 .0
145.000	.0080					.0026	.37	8.50	.00	2.96	.013	.00	.00	PIPE
2072.300	42.250	7.753	50.003	170.08	7.16	.80	50.80	.00	3.65	.00	5.500	.000	.00	1 .0
JUNCT STR	.0700					.0032	.03	7.75	.00		.013	.00	.00	PIPE
2080.300	42.810	7.102	49.912	159.68	8.13	1.03	50.94	.00	3.62	.00	5.000	.000	.00	1 .0
36.700	.0079					.0038	.14	7.10	.00	3.05	.013	.00	.00	PIPE

MH in Corbitt
FIR AS BUILT

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type Ch	Height/ Dia.-FT / No Prs	Base Wt or I.D. / Wth/Pip	ZL / Crit
2117.000	43.100	7.002	50.102	159.68	8.13	1.03	51.13	.00	3.62	.00	5.000	.000	.00
JUNCT STR	.0700					.0047	.04	7.00	.00		.013	.00	.00
2125.000	43.660	6.352	50.012	147.68	9.29	1.34	51.35	.00	3.57	.00	4.500	.000	.00
153.000	.0080					.0056	.86	6.35	.00	3.15	.013	.00	.00
2278.000	44.890	6.105	50.995	147.68	9.29	1.34	52.33	.00	3.57	.00	4.500	.000	.00
86.000	.0079					.0056	.49	6.10	.00	3.17	.013	.00	.00
2364.000	45.570	6.030	51.600	147.68	9.29	1.34	52.94	.00	3.57	.00	4.500	.000	.00
277.500	.0080					.0056	1.57	6.03	.00	3.15	.013	.00	.00
2641.500	47.800	5.635	53.435	147.68	9.29	1.34	54.77	.00	3.57	.00	4.500	.000	.00
JUNCT STR	.0933					.0072	.04	5.64	.00		.013	.00	.00
2647.500	48.360	4.989	53.349	134.08	10.67	1.77	55.12	.00	3.45	.00	4.000	.000	.00
39.800	.0080					.0087	.35	4.99	.00	3.45	.013	.00	.00
2687.300	48.680	5.372	54.052	134.08	10.67	1.77	55.82	.00	3.45	.00	4.000	.000	.00
JUNCT STR	.0083					.0074	.04	5.37	.00		.013	.00	.00
2693.300	48.730	6.470	55.200	111.20	8.85	1.22	56.42	.00	3.19	.00	4.000	.000	.00
147.700	.0080					.0060	.89	6.47	.00	2.88	.013	.00	.00
2841.000	49.910	6.236	56.146	111.20	8.85	1.22	57.36	.00	3.19	.00	4.000	.000	.00
JUNCT STR	.0100					.0054	.03	6.24	.00		.013	.00	.00

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 6-24-2014 Time: 4: 2:43

ANDERSON HEIGHTS UNIT 4

JACOB-DUNDEE-PINE TOWN STORM DRAIN

FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2847.000	49.970	6.616	56.586	99.60	7.93	.98	57.56	.00	3.02	.00	4.000	.000	.00	1 .0
40.700	.0081					.0048	.20	6.62	.00	2.63	.013	.00	.00	PIPE
2887.700	50.300	6.531	56.831	99.60	7.93	.98	57.81	.00	3.02	.00	4.000	.000	.00	1 .0
JUNCT STR	.0933					.0062	.04	6.53	.00		.013	.00	.00	PIPE
2893.700	50.860	5.985	56.845	87.60	9.10	1.29	58.13	.00	2.91	.00	3.500	.000	.00	1 .0
38.700	.0080					.0076	.29	5.99	.00	2.79	.013	.00	.00	PIPE
2932.400	51.170	6.033	57.203	87.60	9.10	1.29	58.49	.00	2.91	.00	3.500	.000	.00	1 .0
JUNCT STR	.0100					.0066	.04	6.03	.00		.013	.00	.00	PIPE
2938.400	51.230	6.554	57.784	76.00	7.90	.97	58.75	.00	2.73	.00	3.500	.000	.00	1 .0
232.000	.0080					.0057	1.32	6.55	.00	2.46	.013	.00	.00	PIPE
3170.400	53.090	6.354	59.444	76.00	7.90	.97	60.41	.00	2.73	.00	3.500	.000	.00	1 .0
64.000	.0111					.0057	.37	6.35	.00	2.19	.013	.00	.00	PIPE
3234.400	53.800	6.058	59.858	76.00	7.90	.97	60.83	.00	2.73	.00	3.500	.000	.00	1 .0
JUNCT STR	.0933					.0072	.04	6.06	.00		.013	.00	.00	PIPE
3240.400	54.360	5.635	59.995	62.40	8.83	1.21	61.21	.00	2.54	.00	3.000	.000	.00	1 .0
90.307	.0273					.0088	.79	5.64	.00	1.62	.013	.00	.00	PIPE
3330.707	56.821	3.983	60.804	62.40	8.83	1.21	62.01	.00	2.54	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT) / SF Ave	Water Elev / HF	Q (CFS) / SE Dpth	Vel (FPS) / Froude N	Vel Head / Norm Dp	Energy Grd.El. / "N"	Super Elev / X-Fall	Critical Depth / ZR	Flow Top Width / Type Ch	Height/Dia.-FT /	Base Wt or I.D. /	ZL /	No Wth Prs/Pip /
3330.707	56.821	1.576	58.397	62.40	16.59	4.27	62.67	.00	2.54	3.00	3.000	.000	.00	1 .0
66.827	.0273					.0304	2.03	1.58	2.61	1.62	.013	.00	.00	PIPE
3397.534	58.642	1.551	60.193	62.40	16.91	4.44	64.63	.00	2.54	3.00	3.000	.000	.00	1 .0
63.840	.0273					.0333	2.13	1.55	2.69	1.62	.013	.00	.00	PIPE
3461.374	60.382	1.494	61.876	62.40	17.74	4.88	66.76	.00	2.54	3.00	3.000	.000	.00	1 .0
41.026	.0273					.0378	1.55	1.49	2.89	1.62	.013	.00	.00	PIPE
3502.400	61.500	1.440	62.940	62.40	18.60	5.37	68.31	.00	2.54	3.00	3.000	.000	.00	1 .0
JUNCT STR	.1967					.0371	.11	1.44	3.10		.013	.00	.00	PIPE
3505.400	62.090	1.730	63.820	62.40	17.21	4.60	68.42	.00	2.41	2.31	2.500	.000	.00	1 .0
72.188	.0340					.0340	2.46	1.73	2.42	1.73	.013	.00	.00	PIPE
3577.588	64.546	1.730	66.276	62.40	17.21	4.60	70.88	.00	2.41	2.31	2.500	.000	.00	1 .0
186.812	.0340					.0327	6.12	1.73	2.42	1.73	.013	.00	.00	PIPE
3764.400	70.900	1.783	72.683	62.40	16.66	4.31	76.99	.00	2.41	2.26	2.500	.000	.00	1 .0
JUNCT STR	.0150					.0318	.13	1.78	2.28		.013	.00	.00	PIPE
3768.400	70.960	1.767	72.727	62.40	16.82	4.39	77.12	.00	2.41	2.28	2.500	.000	.00	1 .0
70.102	.0340					.0311	2.18	1.77	2.32	1.73	.013	.00	.00	PIPE
3838.502	73.345	1.816	75.161	62.40	16.33	4.14	79.30	.00	2.41	2.23	2.500	.000	.00	1 .0
52.308	.0340					.0285	1.49	1.82	2.20	1.73	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3890.810	75.125	1.902	77.027	62.40	15.57	3.76	80.79	.00	2.41	2.13	2.500	.000	.00	1 .0
29.516	.0340					.0256	.76	1.90	2.00	1.73	.013	.00	.00	PIPE
3920.326	76.129	1.996	78.125	62.40	14.85	3.42	81.55	.00	2.41	2.01	2.500	.000	.00	1 .0
18.886	.0340					.0232	.44	2.00	1.81	1.73	.013	.00	.00	PIPE
3939.212	76.771	2.103	78.874	62.40	14.15	3.11	81.99	.00	2.41	1.83	2.500	.000	.00	1 .0
12.278	.0340					.0213	.26	2.10	1.61	1.73	.013	.00	.00	PIPE
3951.490	77.189	2.230	79.419	62.40	13.50	2.83	82.25	.00	2.41	1.55	2.500	.000	.00	1 .0
5.909	.0340					.0204	.12	2.23	1.38	1.73	.013	.00	.00	PIPE
3957.400	77.390	2.408	79.798	62.40	12.87	2.57	82.37	.00	2.41	.94	2.500	.000	.00	1 .0
JUNCT STR	.0150					.0171	.07	2.41	1.00		.013	.00	.00	PIPE
3961.400	77.450	4.488	81.938	48.40	9.86	1.51	83.45	.00	2.28	.00	2.500	.000	.00	1 .0
45.177	.0338					.0139	.63	4.49	.00	1.46	.013	.00	.00	PIPE
4006.577	78.977	3.604	82.581	48.40	9.86	1.51	84.09	.00	2.28	.00	2.500	.000	.00	1 .0
HYDRAULIC JUMP														
4006.577	78.977	1.456	80.434	48.40	16.31	4.13	84.56	.00	2.28	2.47	2.500	.000	.00	1 .0
29.176	.0338					.0338	.99	1.46	2.62	1.46	.013	.00	.00	PIPE
4035.753	79.964	1.456	81.420	48.40	16.31	4.13	85.55	.00	2.28	2.47	2.500	.000	.00	1 .0
164.647	.0338					.0338	5.56	1.46	2.62	1.46	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
4200.400	85.530	1.457	86.987	48.40	16.29	4.12	91.11	.00	2.28	2.47	2.500	.000	.00	1 .0
22.626	.0337					.0337	.76	1.46	2.62	1.46	.013	.00	.00	PIPE
4223.026	86.293	1.457	87.750	48.40	16.29	4.12	91.87	.00	2.28	2.47	2.500	.000	.00	1 .0
162.374	.0337					.0320	5.19	1.46	2.62	1.46	.013	.00	.00	PIPE
4385.400	91.770	1.510	93.280	48.40	15.62	3.79	97.07	.00	2.28	2.45	2.500	.000	.00	1 .0
3.556	.0336					.0301	.11	1.51	2.44	1.46	.013	.00	.00	PIPE
4388.956	91.890	1.512	93.402	48.40	15.58	3.77	97.17	.00	2.28	2.44	2.500	.000	.00	1 .0
52.664	.0336					.0283	1.49	1.51	2.44	1.46	.013	.00	.00	PIPE
4441.620	93.662	1.575	95.237	48.40	14.85	3.43	98.66	.00	2.28	2.41	2.500	.000	.00	1 .0
28.780	.0336					.0251	.72	1.58	2.25	1.46	.013	.00	.00	PIPE
4470.400	94.630	1.642	96.272	48.40	14.16	3.12	99.39	.00	2.28	2.37	2.500	.000	.00	1 .0
40.511	.0250					.0232	.94	1.64	2.08	1.61	.013	.00	.00	PIPE
4510.911	95.644	1.664	97.308	48.40	13.94	3.02	100.33	.00	2.28	2.36	2.500	.000	.00	1 .0
57.010	.0250					.0215	1.23	1.66	2.03	1.61	.013	.00	.00	PIPE
4567.921	97.070	1.737	98.807	48.40	13.29	2.74	101.55	.00	2.28	2.30	2.500	.000	.00	1 .0
29.179	.0250					.0192	.56	1.74	1.86	1.61	.013	.00	.00	PIPE
4597.100	97.800	1.816	99.616	48.40	12.67	2.49	102.11	.00	2.28	2.23	2.500	.000	.00	1 .0
9.210	.0252					.0176	.16	1.82	1.71	1.61	.013	.00	.00	PIPE

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 6-24-2014 Time: 4: 2:43

ANDERSON HEIGHTS UNIT 4

JACOB-DUNDEE-PINE TOWN STORM DRAIN

FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
4606.310	98.032	1.854	99.886	48.40	12.40	2.39	102.27	.00	2.28	2.19	2.500	.000	.00	1 .0
14.477	.0252					.0163	.24	1.85	1.64	1.61	.013	.00	.00	PIPE
4620.787	98.396	1.943	100.339	48.40	11.82	2.17	102.51	.00	2.28	2.08	2.500	.000	.00	1 .0
9.313	.0252					.0147	.14	1.94	1.48	1.61	.013	.00	.00	PIPE
4630.100	98.630	2.043	100.673	48.40	11.27	1.97	102.65	.00	2.28	1.93	2.500	.000	.00	1 .0
JUNCT STR	.1400					.0235	.09	2.04	1.33		.013	.00	.00	PIPE
4634.101	99.190	1.498	100.688	37.40	14.82	3.41	104.10	.00	1.94	1.73	2.000	.000	.00	1 .0
136.904	.0330					.0323	4.42	1.50	2.16	1.50	.013	.00	.00	PIPE
4771.005	103.708	1.525	105.233	37.40	14.54	3.28	108.52	.00	1.94	1.70	2.000	.000	.00	1 .0
75.489	.0330					.0301	2.27	1.53	2.08	1.50	.013	.00	.00	PIPE
4846.494	106.199	1.601	107.800	37.40	13.86	2.99	110.79	.00	1.94	1.60	2.000	.000	.00	1 .0
32.143	.0330					.0273	.88	1.60	1.88	1.50	.013	.00	.00	PIPE
4878.637	107.260	1.688	108.948	37.40	13.22	2.71	111.66	.00	1.94	1.45	2.000	.000	.00	1 .0
18.162	.0330					.0251	.46	1.69	1.67	1.50	.013	.00	.00	PIPE
4896.798	107.860	1.791	109.651	37.40	12.60	2.47	112.12	.00	1.94	1.22	2.000	.000	.00	1 .0
8.802	.0330					.0241	.21	1.79	1.43	1.50	.013	.00	.00	PIPE
4905.600	108.150	1.938	110.088	37.40	12.02	2.24	112.33	.00	1.94	.69	2.000	.000	.00	1 .0
JUNCT STR	.0250					.0184	.07	1.94	1.00		.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
4909.600	108.250	4.303	112.553	25.60	8.15	1.03	113.58	.00	1.78	.00	2.000	.000	.00	1 .0
43.298	.0436					.0128	.55	4.30	.00	1.05	.013	.00	.00	PIPE
4952.898	110.139	3.057	113.197	25.60	8.15	1.03	114.23	.00	1.78	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
4952.898	110.139	1.049	111.188	25.60	15.34	3.66	114.84	.00	1.78	2.00	2.000	.000	.00	1 .0
124.885	.0436					.0436	5.45	1.05	2.96	1.05	.013	.00	.00	PIPE
5077.783	115.589	1.049	116.638	25.60	15.34	3.66	120.29	.00	1.78	2.00	2.000	.000	.00	1 .0
114.817	.0436					.0435	4.99	1.05	2.96	1.05	.013	.00	.00	PIPE
5192.600	120.600	1.051	121.651	25.60	15.31	3.64	125.29	.00	1.78	2.00	2.000	.000	.00	1 .0
23.661	.0482					.0421	1.00	1.05	2.95	1.02	.013	.00	.00	PIPE
5216.261	121.740	1.070	122.810	25.60	14.96	3.47	126.28	.00	1.78	2.00	2.000	.000	.00	1 .0
28.039	.0482					.0384	1.08	1.07	2.85	1.02	.013	.00	.00	PIPE
5244.300	123.090	1.112	124.202	25.60	14.26	3.16	127.36	.00	1.78	1.99	2.000	.000	.00	1 .0
60.432	.0369					.0351	2.12	1.11	2.64	1.10	.013	.00	.00	PIPE
5304.731	125.317	1.130	126.447	25.60	13.99	3.04	129.48	.00	1.78	1.98	2.000	.000	.00	1 .0
49.943	.0369					.0322	1.61	1.13	2.57	1.10	.013	.00	.00	PIPE
5354.674	127.158	1.175	128.333	25.60	13.33	2.76	131.09	.00	1.78	1.97	2.000	.000	.00	1 .0
24.304	.0369					.0285	.69	1.18	2.38	1.10	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
JACOB-DUNDEE-PINE TOWN STORM DRAIN
FILE: JACOB REVISED: JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
5378.979	128.053	1.223	129.276	25.60	12.71	2.51	131.79	.00	1.78	1.95	2.000	.000	.00	1 .0
15.342	.0369					.0252	.39	1.22	2.20	1.10	.013	.00	.00	PIPE
5394.320	128.619	1.273	129.892	25.60	12.12	2.28	132.17	.00	1.78	1.92	2.000	.000	.00	1 .0
10.607	.0369					.0224	.24	1.27	2.04	1.10	.013	.00	.00	PIPE
5404.927	129.010	1.327	130.337	25.60	11.56	2.07	132.41	.00	1.78	1.89	2.000	.000	.00	1 .0
7.706	.0369					.0199	.15	1.33	1.88	1.10	.013	.00	.00	PIPE
5412.633	129.294	1.385	130.679	25.60	11.02	1.89	132.56	.00	1.78	1.85	2.000	.000	.00	1 .0
5.678	.0369					.0178	.10	1.39	1.73	1.10	.013	.00	.00	PIPE
5418.311	129.503	1.448	130.951	25.60	10.51	1.71	132.67	.00	1.78	1.79	2.000	.000	.00	1 .0
4.191	.0369					.0159	.07	1.45	1.59	1.10	.013	.00	.00	PIPE
5422.502	129.657	1.516	131.173	25.60	10.02	1.56	132.73	.00	1.78	1.71	2.000	.000	.00	1 .0
2.956	.0369					.0143	.04	1.52	1.45	1.10	.013	.00	.00	PIPE
5425.458	129.766	1.591	131.357	25.60	9.55	1.42	132.77	.00	1.78	1.61	2.000	.000	.00	1 .0
1.874	.0369					.0129	.02	1.59	1.31	1.10	.013	.00	.00	PIPE
5427.332	129.835	1.675	131.510	25.60	9.11	1.29	132.80	.00	1.78	1.48	2.000	.000	.00	1 .0
.668	.0369					.0119	.01	1.68	1.16	1.10	.013	.00	.00	PIPE
5428.000	129.860	1.777	131.637	25.60	8.68	1.17	132.81	.00	1.78	1.26	2.000	.000	.00	1 .0

FILE: jacob.WSW W S P G W - EDIT LISTING - Version 14.05 Date: 6-24-2014 Time: 4: 2:20

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	2	0	.000	7.500	13.160			-.01										
CD	2	2	0	.000	7.500	13.160			-.01										
CD	3	2	0	.000	7.500	7.000			-.01										
CD	4	4	1		6.500														
CD	5	4	1		2.000														
CD	6	4	1		2.000														
CD	7	4	1		6.500														
CD	8	4	1		3.000														
CD	9	4	1		6.500														
CD	10	4	1		3.500														
CD	11	4	1		6.000														
CD	12	4	1		2.000														
CD	13	4	1		2.000														
CD	14	4	1		5.500														
CD	15	4	1		2.000														
CD	16	4	1		5.000														
CD	17	4	1		1.500														
CD	18	4	1		1.500														
CD	19	4	1		4.500														
CD	20	4	1		2.000														
CD	21	4	1		4.000														
CD	22	4	1		2.500														
CD	23	4	1		2.500														
CD	24	4	1		4.000														
CD	25	4	1		1.500														
CD	26	4	1		1.500														
CD	27	4	1		4.000														
CD	28	4	1		1.800														
CD	29	4	1	42	3.500														
CD	30	4	1		1.500														
CD	31	4	1		1.500														
CD	32	4	1	42	3.500														
CD	33	4	1		1.500														
CD	34	4	1		1.500														
CD	35	4	1	30	3.000														
CD	36	4	1		2.500														
CD	37	4	1		2.500														
CD	38	4	1		1.500														
CD	39	4	1		1.500														
CD	40	4	1		2.500														
CD	41	4	1		1.500														
CD	42	4	1		1.500														
CD	43	4	1		2.000														
CD	44	4	1		1.500														
CD	45	4	1		1.500														
CD	46	4	1		2.000														

fr. Colobel

1.5'

MH

MH

2.0

MH

MH

1.5'

MH #12A

MH #13A

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ANDERSON HEIGHTS UNIT 4

HEADING LINE NO 2 IS -

JACOB-DUNDEE-PINE TOWN STORM DRAIN

HEADING LINE NO 3 IS -

FILE: JACOB REVISED: JUNE 24, 2014 DLH

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	34.000	2	37.310

ELEMENT NO 2 IS A TRANSITION * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE
	1008.000	34.100	3	.014	.000	.000

ELEMENT NO 3 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1008.100	34.150	4	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1207.100	36.000	4	.013	.000	.000	.000	1

ELEMENT NO 5 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1217.100	36.050	7	5	6	.013	18.380	18.380	41.100	39.300	45.000	90.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1407.400	36.820	7	.013	.000	.000	.000	1

ELEMENT NO 7 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1417.400	36.870	9	8	0	.013	102.400	.000	40.370	.000	90.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 8 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1594.400	37.440	9	.013	.000	.000	17.000	1

W S P G W

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 9 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1778.900	38.080	9	.013	.000	.000	-17.000	1

ELEMENT NO 10 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1786.900	39.580	11	10	0	.013	101.600	.000	39.600	.000	90.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 11 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1816.300	39.750	11	.013	.000	.000	-10.000	1

ELEMENT NO 12 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1919.300	40.530	11	.013	.000	.000	9.000	1

ELEMENT NO 13 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1927.300	41.090	14	12	13	.013	12.330	12.330	48.000	48.000	47.000	47.000

RADIUS ANGLE
.000 .000

ELEMENT NO 14 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2072.300	42.250	14	.013	.000	.000	.000	1

ELEMENT NO 15 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2080.300	42.810	16	15	0	.013	10.400	.000	48.800	.000	90.000	.000

RADIUS ANGLE
.000 .000

ELEMENT NO 16 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2117.000	43.100	16	.013	.000	.000	.000	1

W S P G W PAGE NO 4

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 17 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2125.000	43.660	19	17	18	.013	6.000	6.000	50.000	50.000	25.000	73.000

RADIUS ANGLE
.000 .000

ELEMENT NO 18 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2278.000	44.890	19	.013	.000	.000	-12.000	1

ELEMENT NO 19 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2364.000	45.570	19	.013	.000	.000	12.000	1

ELEMENT NO 20 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2641.500	47.800	19	.013	.000	.000	46.000	1

ELEMENT NO 21 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2647.500	48.360	21	20	0	.013	13.600	.000	53.000	.000	90.000	.000

RADIUS ANGLE
.000 .000

ELEMENT NO 22 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2687.300	48.680	21	.013	.000	.000	-46.000	1

ELEMENT NO 23 IS A JUNCTION * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2693.300	48.730	24	22	23	.013	11.440	11.440	53.500	53.500	-65.000	.000

RADIUS ANGLE
.000 .000

ELEMENT NO 24 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2841.000	49.910	24	.013	.000	.000	.000	1

W S P G W PAGE NO 5

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 25 IS A JUNCTION * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2847.000	49.970	27	25	26	.013	5.800	5.800	54.500	54.500	-25.000	50.000

RADIUS ANGLE
.000 .000

ELEMENT NO 26 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2887.700	50.300	27	.013	.000	.000	.000	1

ELEMENT NO 27 IS A JUNCTION

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	2893.700	50.860	29	28	0	.013	12.000	.000	55.000	.000	-90.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 28 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2932.400	51.170	29	.013	.000	.000	.000	1

ELEMENT NO 29 IS A JUNCTION

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	2938.400	51.230	32	30	31	.013	5.800	5.800	55.500	55.500	-25.000	50.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 30 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3170.400	53.090	32	.013	.000	.000	-90.000	1

ELEMENT NO 31 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3234.400	53.800	32	.013	.000	.000	.000	1

ELEMENT NO 32 IS A JUNCTION

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	3240.400	54.360	35	33	34	.013	6.800	6.800	58.360	58.360	-22.000	43.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 33 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3502.400	61.500	35	.013	.000	.000	.000	1

ELEMENT NO 34 IS A JUNCTION

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	3505.400	62.090	36	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 35 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3764.400	70.900	36	.013	.000	.000	-4.000	1

ELEMENT NO 36 IS A JUNCTION

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	3768.400	70.960	37	0	0	.013	.000	.000	.000	.000	.000	.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 37 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3957.400	77.390	37	.013	.000	.000	.000	1

ELEMENT NO 38 IS A JUNCTION

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	3961.400	77.450	40	38	39	.013	7.000	7.000	80.450	80.450	-18.000	90.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 39 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	4200.400	85.530	40	.013	.000	.000	.000	1

ELEMENT NO 40 IS A REACH

	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
U/S DATA								

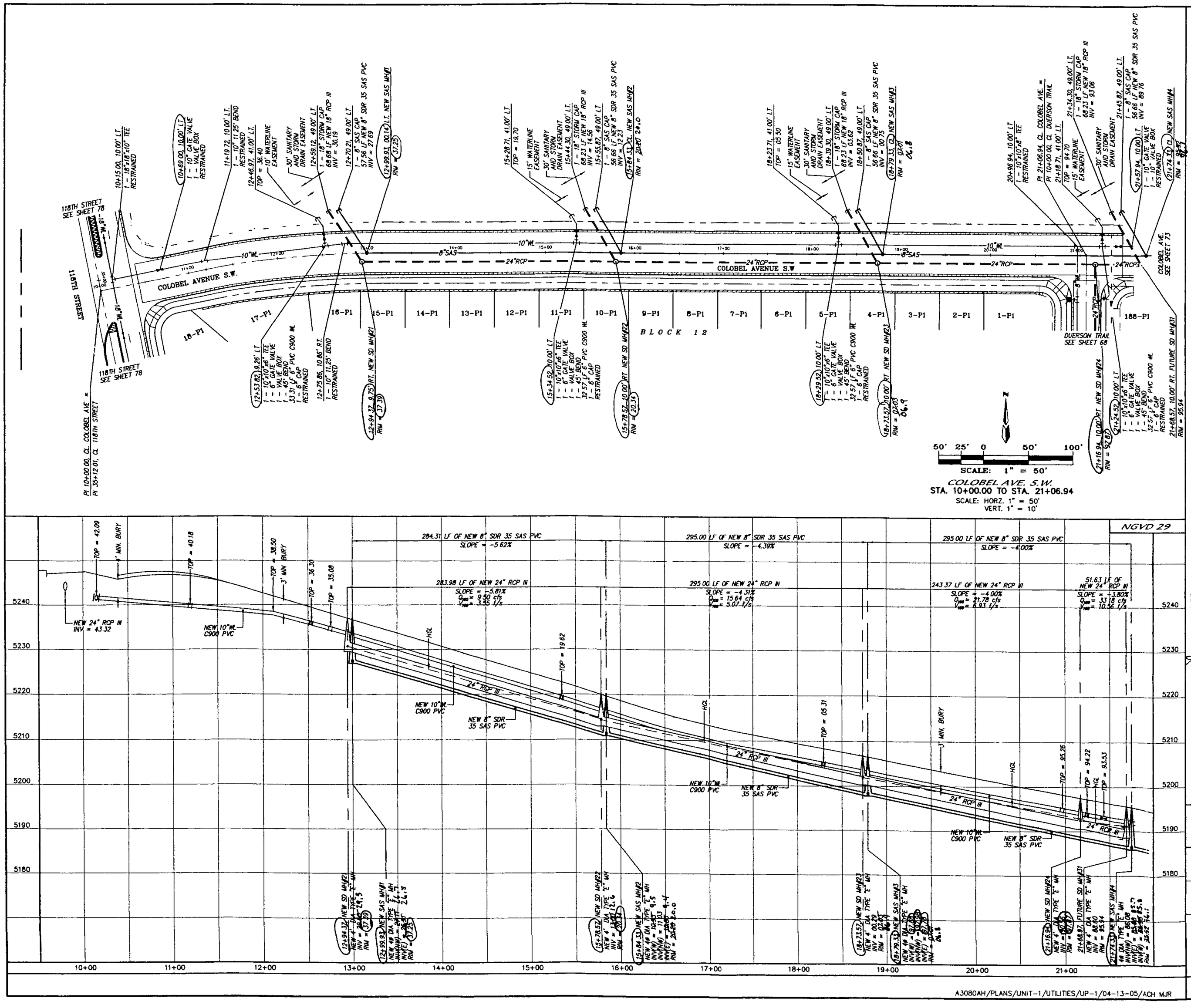
		4385.400	91.770	40		.013				.000	.000	-14.000	1

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 41 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		4470.400	94.630	40		.013				.000	.000	-75.000	1
ELEMENT NO 42 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		4597.100	97.800	40		.013				.000	.000	45.000	1
ELEMENT NO 43 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		4630.100	98.630	40		.013				.000	.000	45.000	1
ELEMENT NO 44 IS A JUNCTION		*	*	*	*		*			*		*	
	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
		4634.100	99.190	43	41	42	.013	5.500	5.500	102.700	102.700	-14.000	64.000
										RADIUS	ANGLE		
										.000	.000		
ELEMENT NO 45 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		4905.600	108.150	43		.013				.000	.000	.000	1
ELEMENT NO 46 IS A JUNCTION		*	*	*	*		*			*		*	
	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
		4909.600	108.250	46	44	45	.013	5.900	5.900	111.250	111.250	-58.000	26.000
										RADIUS	ANGLE		
										.000	.000		
ELEMENT NO 47 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		5192.600	120.600	46		.013				.000	.000	-45.000	1
ELEMENT NO 48 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		5244.300	123.090	46		.013				.000	.000	-45.000	1
ELEMENT NO 49 IS A REACH		*	*	*									
	U/S DATA	STATION	INVERT	SECT		N				RADIUS	ANGLE	ANG PT	MAN H
		5428.000	129.860	46		.013				.000	.000	90.000	1
ELEMENT NO 50 IS A SYSTEM HEADWORKS				*			*						
	U/S DATA	STATION	INVERT	SECT						W S ELEV			
		5428.000	129.860	46						131.860			

WATER SURFACE PROFILE - ELEMENT CARD LISTING

RECORD DRAWINGS



NOTES

1 ALL STATIONING IS CENTERLINE STATIONING

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)					
PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
6"	17'	7'	–	–	46'
10"	–	11'	5'	3'	72'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND RESTRAIN BRANCH AT FITTING ONLY MINIMUM ATTACHED PIPE LENGTH, RUN SIDE OF TEE: 10.00 FEET

RESTRAINED JOINT LENGTHS FOR REDUCERS (FT.)		
PIPE SIZE	LARGE SIDE	SMALL SIDE
10" X 6"	44'	–

RESTRAINED JOINT LENGTH FOR TEES (FT.)		
PIPE SIZE	RUN	BRANCH
10"x10"x10"	15'	5'
10"x10"x6"	6'	1'
6"x6"x6"	10'	2'

SURVEY INFORMATION

FIELD NOTES

NO	BY	DATE
–		

BENCH MARKS

STATION "3-P10" IS LOCATED 5.9 MI. SW. OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD. GO S. ON COORS BLVD. 10.62 MI. TO THE (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 10.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2' WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVITED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998". X=360733.56', Y=1492437.48 (NAD. 27), ELEV=4935.735 (SEA LEVEL DATUM)

AS BUILT INFORMATION

CONTRACTOR Flatirons DATE 11-06

WORK STAKED BY Clarkson Surveys Inc DATE 7-06

ACCEPTANCE BY: AMAFCA DATE 11-06

VERIFICATION BY Clarkson Surveys Inc DATE 11-06

DRAWINGS REVISED BY CARTESIAN DATE 7-06

MICRO-FILM INFORMATION

RECORDED BY: DATE

NO

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Gregory J Krenk, NMPE 11928, of the firm Mark Goodwin & Associates, P.A., a Registered Professional Engineer in the State of New Mexico, do hereby certify to the best of my knowledge and belief that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction and survey information provided by Will Plotner, P.S., NMPS number 14271.

12-27-06
Gregory J Krenk NMPE 11928

I, Gregory J Krenk, certify that the engineering record is identical to the original reproducible APPROVED FOR CONSTRUCTION drawings stamped by me on 5-7-8 2005.

Certification
THE CHANGES SHOWN HEREON ARE BASED UPON A FIELD SURVEY CONDUCTED BY ME OR UNDER MY SUPERVISION AND REFLECT THE LOCATIONS (VERTICALLY AND HORIZONTALLY) TO THE BEST OF MY KNOWLEDGE AND BELIEF.

ENGINEER'S SEAL

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	GJK 06/04
		DRAWN BY	ACH 06/04
		CHECKED BY	DMG 06/04

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS - UNIT 1
COLOBEL AVE. S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE

CITY ENGINEER APPROVAL
MAY 26 2005
CITY ENGINEER

LAST DESIGN UPDATE: MO./DAY/YR

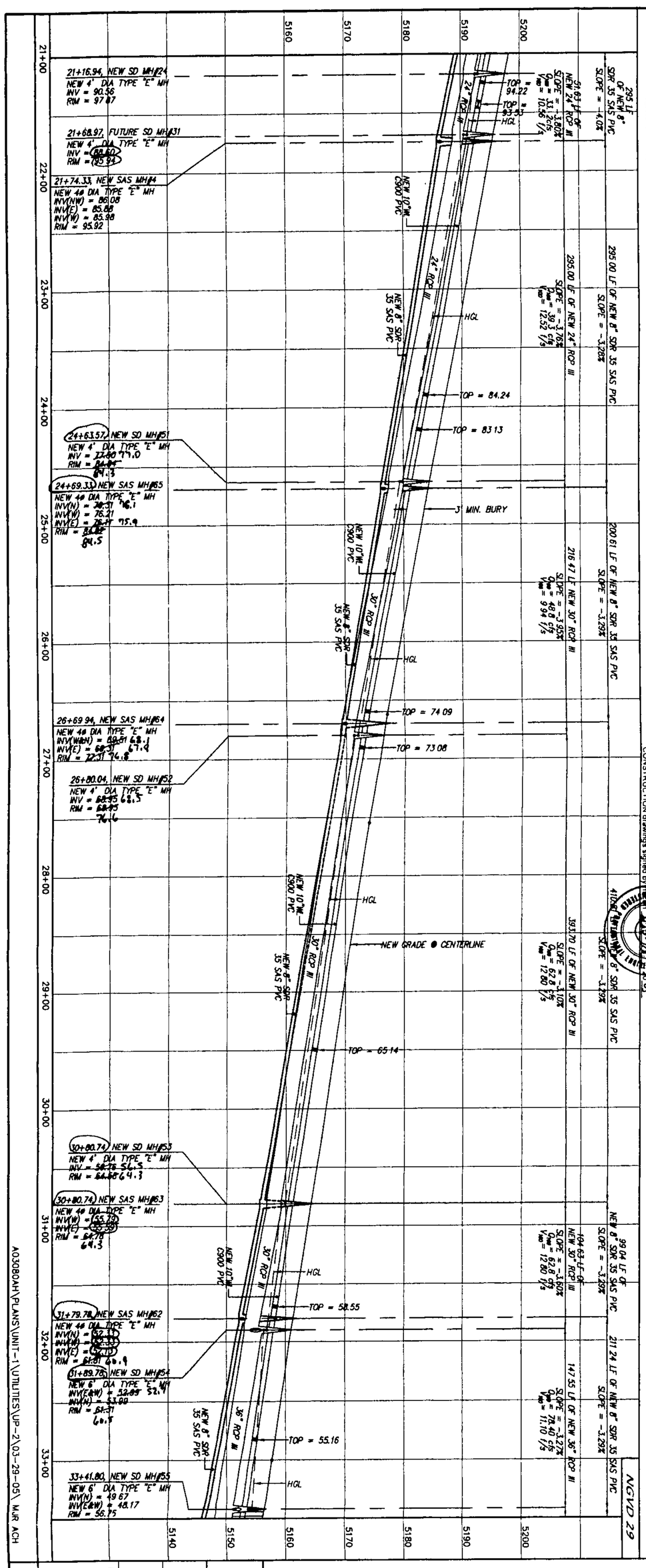
CITY PROJECT NO. 753981

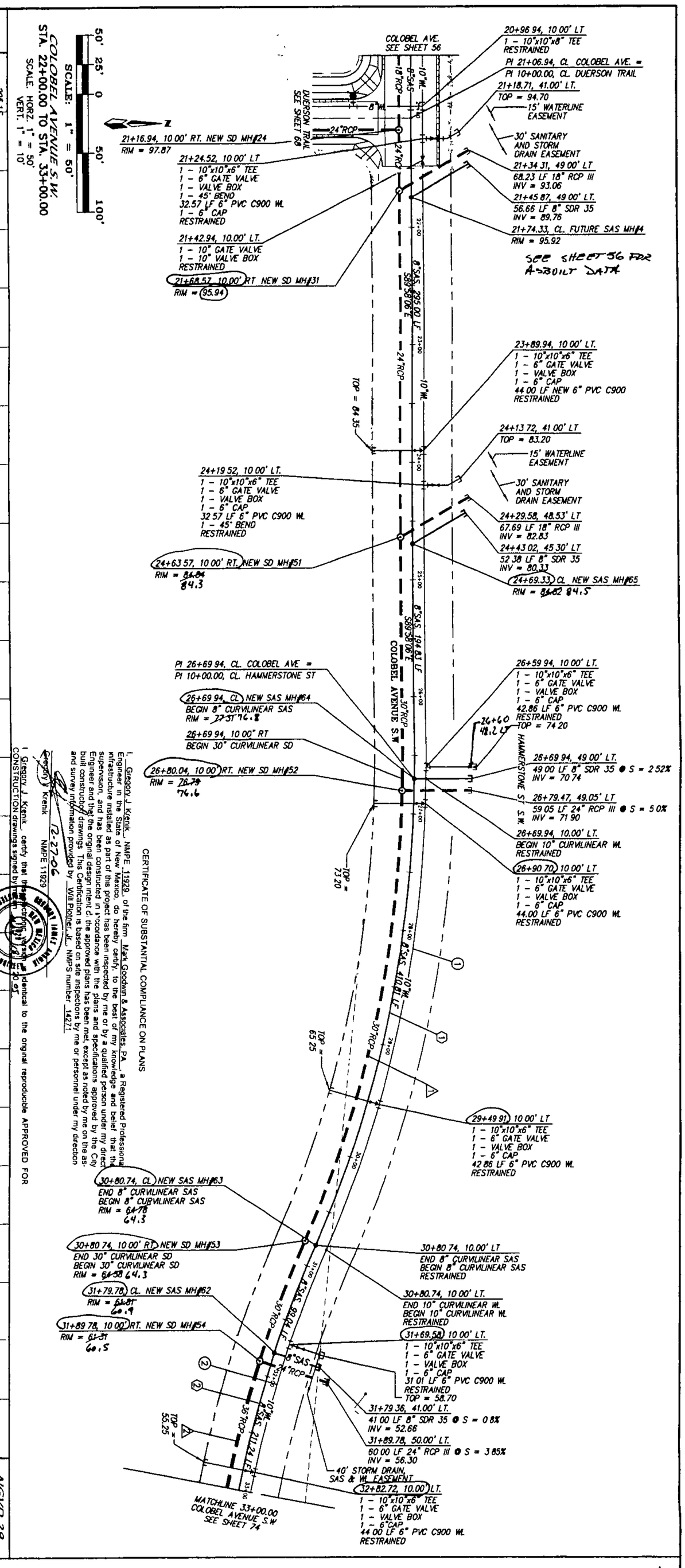
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SHEET OF 56 83

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CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Gregory J. Krenik, NMPE 11929, of the firm Mark Goodwin & Associates, PA, a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief that this infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction and survey information provided by Will Plotner, Jr., NMPS number 14271.

Gregory J. Krenik 12-27-06
NMPE 11929

I, Gregory J. Krenik, certify that the original reproducible APPROVED FOR CONSTRUCTION drawings signed by me are identical to the original reproducible APPROVED FOR CONSTRUCTION drawings.

Gregory J. Krenik 12-27-06
NMPE 11929

RECORD DRAWINGS

NOTES

1. ALL STATIONING IS CENTERLINE STATIONING

CURVE DATA - DESCRIBES SANITARY SEWER

① Δ = 23°32'15" R = 1000.00' L = 410.81' T = 208.34'
② Δ = 17°46'40" R = 1000.00' L = 310.28' T = 156.40'

CURVE DATA - DESCRIBES WATERLINE

① Δ = 23°32'15" R = 1010.00' L = 414.91' T = 210.42'
② Δ = 23°32'15" R = 990.00' L = 406.70' T = 206.26'

CURVE DATA - DESCRIBES STORM DRAIN

⚠ Δ = 22°36'41" R = 990.00' L = 390.70' T = 197.92'
⚠ Δ = 23°32'15" R = 1010.00' L = 414.91' T = 210.42'

RESTRAINED JOINT LENGTH FOR BENDS, VALVES, DEAD ENDS (FT.)

PIPE SIZE	90°	45°	22.5°	11.25°	VALVE
6"	17'	7'	–	–	46'
10"	–	11'	5'	3'	72'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND. RESTRAIN BRANCH AT FITTING ONLY MINIMUM ATTACHED PIPE LENGTH; RUN SIDE OF TEE: 10.00 FEET

RESTRAINED JOINT LENGTHS FOR REDUCERS (FT.)

PIPE SIZE	LARGE SIDE	SMALL SIDE
10" X 6"	44'	–

RESTRAINED JOINT LENGTH FOR TEES (FT.)

PIPE SIZE	RUN	BRANCH
10"x10"x10"	15'	5'
10"x10"x6"	6'	1'
6"x6"x6"	10'	2'

Certification
THE CHANGES SHOWN HEREON ARE BASED UPON A FIELD SURVEY CONDUCTED BY ME OR UNDER MY SUPERVISION AND REFLECT THE LOCATIONS (VERTICALLY AND HORIZONTALLY) TO THE BEST OF MY KNOWLEDGE AND BELIEF.

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS
P.O. BOX 90606 ALBUQUERQUE, NEW MEXICO 87199 (505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS - UNIT 1
COLOBEL AVENUE S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL | LAST DESIGN UPDATE | NO | DATE | REMARKS | BY

CITY ENGINEER — MAY 26 2005

REVISIONS

DESIGN

DESIGNED BY	GJK	DATE	03/05
DRAWN BY	ACH	DATE	03/05
CHECKED BY	DMG	DATE	03/05

ENGINEER'S SEAL — GREGORY JAMES KRENIK 11929 REGISTERED PROFESSIONAL ENGINEER 4-14-05

SURVEY INFORMATION — FIELD NOTES

NO	BY	DATE

BENCH MARKS

STATION "J-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2, WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVITTED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "J-P10, 1998", X=360733.56, Y=1462437.48 (NAD 27), ELEV=4935.735 (SLD 29)

AS BUILT INFORMATION

CONTRACTOR FRANKLIN
WORK STAKED BY Cartesian Surveys Inc DATE 10-5-05 10-12-05
INSPECTOR'S ACCEPTANCE BY MGA DATE 12/06
FIELD VERIFICATION BY Cartesian Surveys Inc DATE 11/05
DRAWINGS CORRECTED BY CARTESIAN DATE 12/06

MICRO--FILM INFORMATION

RECORDED BY DATE
NO

CITY PROJECT NO 753981 | ZONE MAP NO N-8/P-8 | SHEET 73 OF 83

A03080AH\PLANS\UNIT-1\UTILITIES\UP-2\03-29-05\ MJR ACH

RECORD DRAWINGS

CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS

I, Gregory J Krenik, NMPE 11929 of the firm Mark Goodwin & Associates, PA, a Registered Professional Engineer in the State of New Mexico, do hereby certify, to the best of my knowledge and belief, that the infrastructure installed as part of this project has been inspected by me or by a qualified person under my direct supervision, and has been constructed in accordance with the plans and specifications approved by the City Engineer and that the original design intent of the approved plans has been met, except as noted by me on the as-built construction drawings. This Certification is based on site inspections by me or personnel under my direction, and survey information provided by Will Plotner, Jr., NMPS number 14271

12-27-06
Gregory J Krenik NMPE 11929

I, Gregory J Krenik, certify that this [illegible] is identical to the original reproducible APPROVED FOR CONSTRUCTION drawings signed by [illegible] on [illegible] 20 05

NOTES
1. ALL STATIONING IS CENTERLINE STATIONING.
2. EXISTING 10" WATERLINE STUB BUILT WITH PROJECT #679581

STORMDRAIN MANHOLE #1 DETAIL
SCALE 1"=20'

DROP INLET DETAIL DBL "A"
N.T.S.

	1	2	3	4	5
CB #38	49.54	49.16	49.06	48.84	48.98
CB #39	49.54	49.16	49.06	48.84	48.98
CB #40	56.63	56.25	56.14	55.92	56.06

LONGFORD AT ARROWWOOD SUBDIVISION

SCALE: 1" = 50'

COLOBEL AVENUE S.W.
STA. 33+00.00 TO STA. 21+00.00
SCALE HORZ 1" = 50'
VERT. 1" = 10'

NGVD 29

Certification
THE CHANGES SHOWN HEREON ARE BASED UPON A FIELD SURVEY CONDUCTED BY ME OR UNDER MY SUPERVISION AND REFLECT THE LOCATIONS (VERTICALLY AND HORIZONTALLY) TO THE BEST OF MY KNOWLEDGE AND BELIEF.

dmg MARK GOODWIN & ASSOCIATES, P A
CONSULTING ENGINEERS
P O BOX 90606 5110
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE ANDERSON HEIGHTS - UNIT 1
COLOBEL AVENUE S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL: MAY 26 2005 CITY ENGINEER | LAST DESIGN UPDATE | MO /DAY/YR | MO /DAY/YR

CITY PROJECT NO 753981 | ZONE MAP NO N-8/P-8 | SHEET OF 74 83

AS BUILT INFORMATION
CONTRACTOR Pavmarks
BENCH MARKS
STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE
TO REACH STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD
(FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE
STATION WHICH IS ON AN EASTBEN BERM 162.2' WEST OF THE
CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD AGS
3 1/4" ALUMINUM CAP RIVETED TO A PIPE 0.25' ABOVE THE GROUND
AND IS STAMPED "3-P10, 1998".
X=360733.56, Y=1462437.48 (NAD 27), ELEV=4935.735 (SLD 29)

NO	BY	DATE	WORK PERFORMED BY	DATE
			INSPECTOR'S FIELD BOOK	
			VERIFICATION BY	
			CORRECTED BY	
			RECORDED BY	
			NO	

Cantwell-Sanders Inc. DATE 12-14-06
Cantwell-Sanders Inc. DATE 12-14-06
Cantwell-Sanders Inc. DATE 12-14-06
Cantwell-Sanders Inc. DATE 12-14-06
MICRO-FILM INFORMATION

SURVEY INFORMATION
FIELD NOTES

NO	BY	DATE

ENGINEER'S SEAL

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

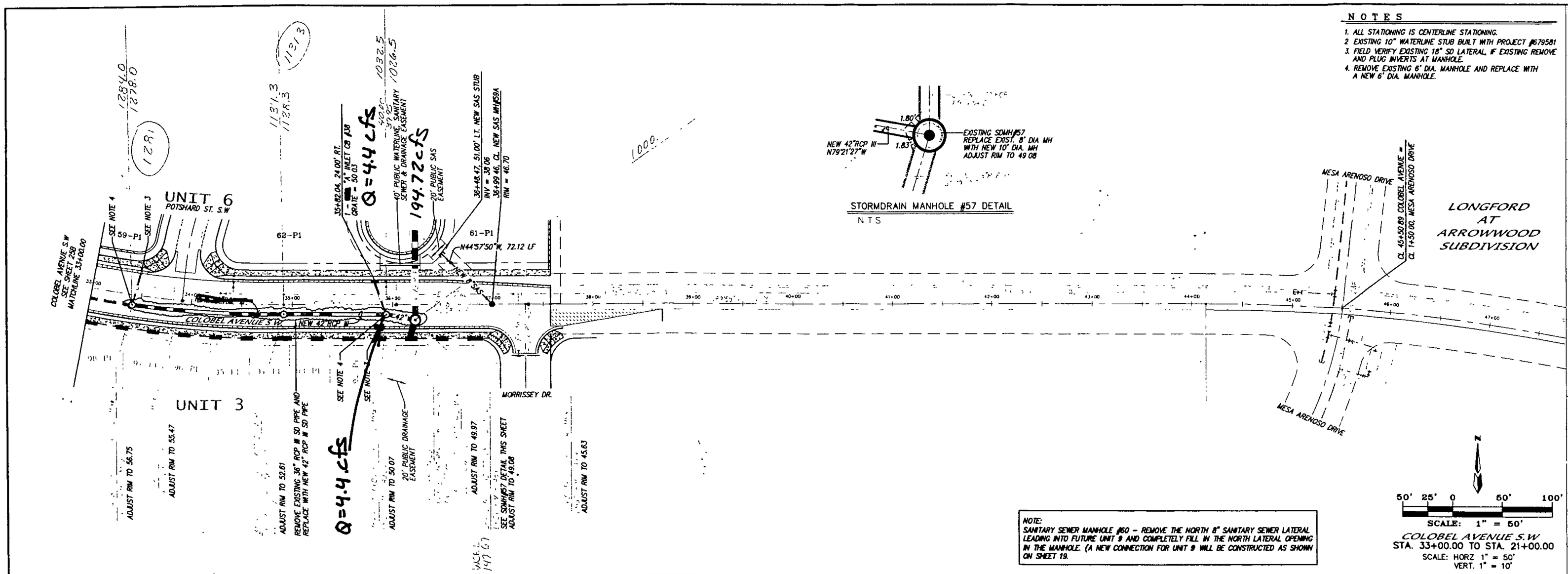
DESIGNED BY GJK 03/05
DRAWN BY ACH 03/05
CHECKED BY DMG 03/05

A03080AH\PLANS\UNIT-1\UTILITIES\UP-2A\05-18-05\ MJR ACH GJK

F:\AGJOBS\13080AH\PLANS\UNIT-1\UTILITIES\UP-2A.dwg, 5/19/2005 2:40:44 PM, chris
HP Designjet 1050C by HP (temporary).PC3

NOTES

1. ALL STATIONING IS CENTERLINE STATIONING.
2. EXISTING 10" WATERLINE STUB BUILT WITH PROJECT #679581
3. FIELD VERIFY EXISTING 18" SD LATERAL, IF EXISTING REMOVE AND PLUG INVERTS AT MANHOLE.
4. REMOVE EXISTING 6" DIA. MANHOLE AND REPLACE WITH A NEW 8" DIA. MANHOLE.

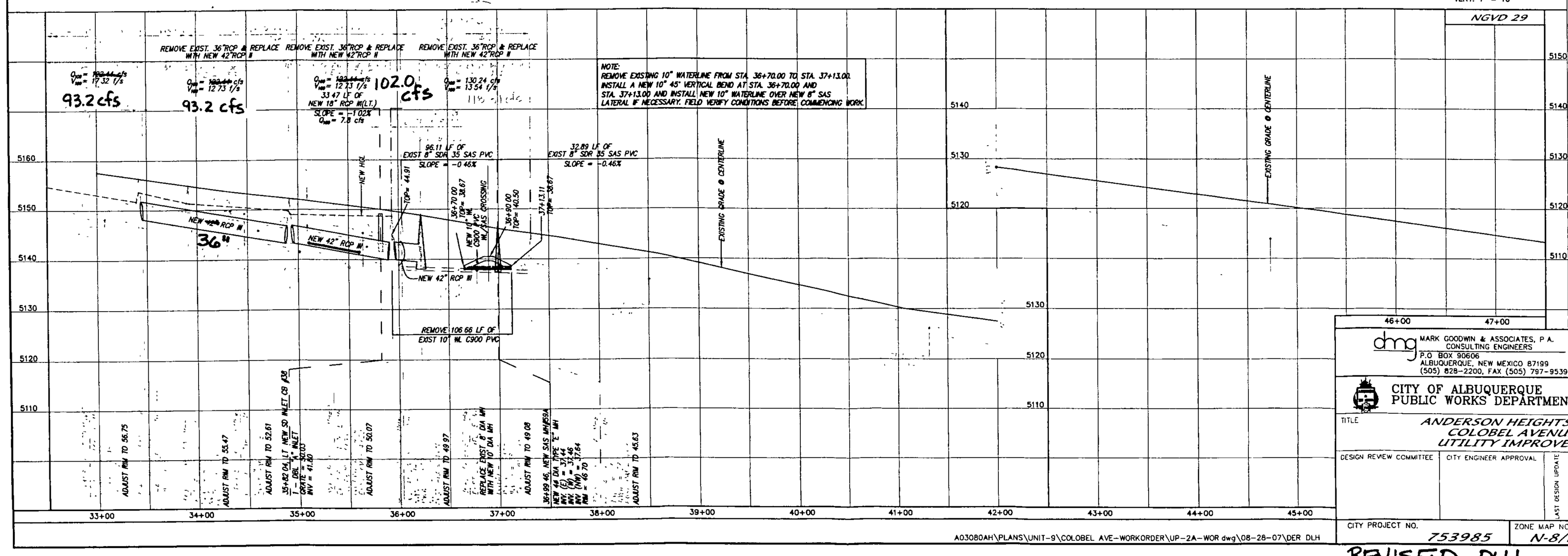


STORMDRAIN MANHOLE #57 DETAIL
NTS

NOTE:
SANITARY SEWER MANHOLE #60 – REMOVE THE NORTH 8" SANITARY SEWER LATERAL LEADING INTO FUTURE UNIT 9 AND COMPLETELY FILL IN THE NORTH LATERAL OPENING IN THE MANHOLE. (A NEW CONNECTION FOR UNIT 9 WILL BE CONSTRUCTED AS SHOWN ON SHEET 19.

50' 25' 0 50' 100'
SCALE: 1" = 50'

COLOBEL AVENUE S.W.
STA. 33+00.00 TO STA. 21+00.00
SCALE: HORZ 1" = 50'
VERT. 1" = 10'



NOTE:
REMOVE EXISTING 10" WATERLINE FROM STA. 36+70.00 TO STA. 37+13.00. INSTALL A NEW 10" 45° VERTICAL BEND AT STA. 36+70.00 AND STA. 37+13.00 AND INSTALL NEW 10" WATERLINE OVER NEW 8" SAS LATERAL IF NECESSARY. FIELD VERIFY CONDITIONS BEFORE COMMENCING WORK

A03080AH\PLANS\UNIT-9\COLOBEL AVE-WORKORDER\UP-2A-WOR dwg\08-28-07\DER DLH

REVISED DLH.

SURVEY INFORMATION
FIELD NOTES

NO	BY	DATE

BENCH MARKS
STATION "3-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT. OF COORS AND DENNIS CHAVEZ BLVD. (FORMERLY RIO BRAVO), GO S. ON COORS BLVD. 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2' WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVETED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998".
X=360733.56, Y=1462437.48 (NAD 27), ELEV=4935.735 (SID 29)

AS BUILT INFORMATION
CONTRACTOR
STAKED BY — DATE
INSPECTION BY — DATE
FIELD CHANGES BY — DATE
DRAWINGS BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO

ENGINEER'S SEAL

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY GJK 07/07
DRAWN BY ACH/DER 07/07
CHECKED BY DMG 07/07

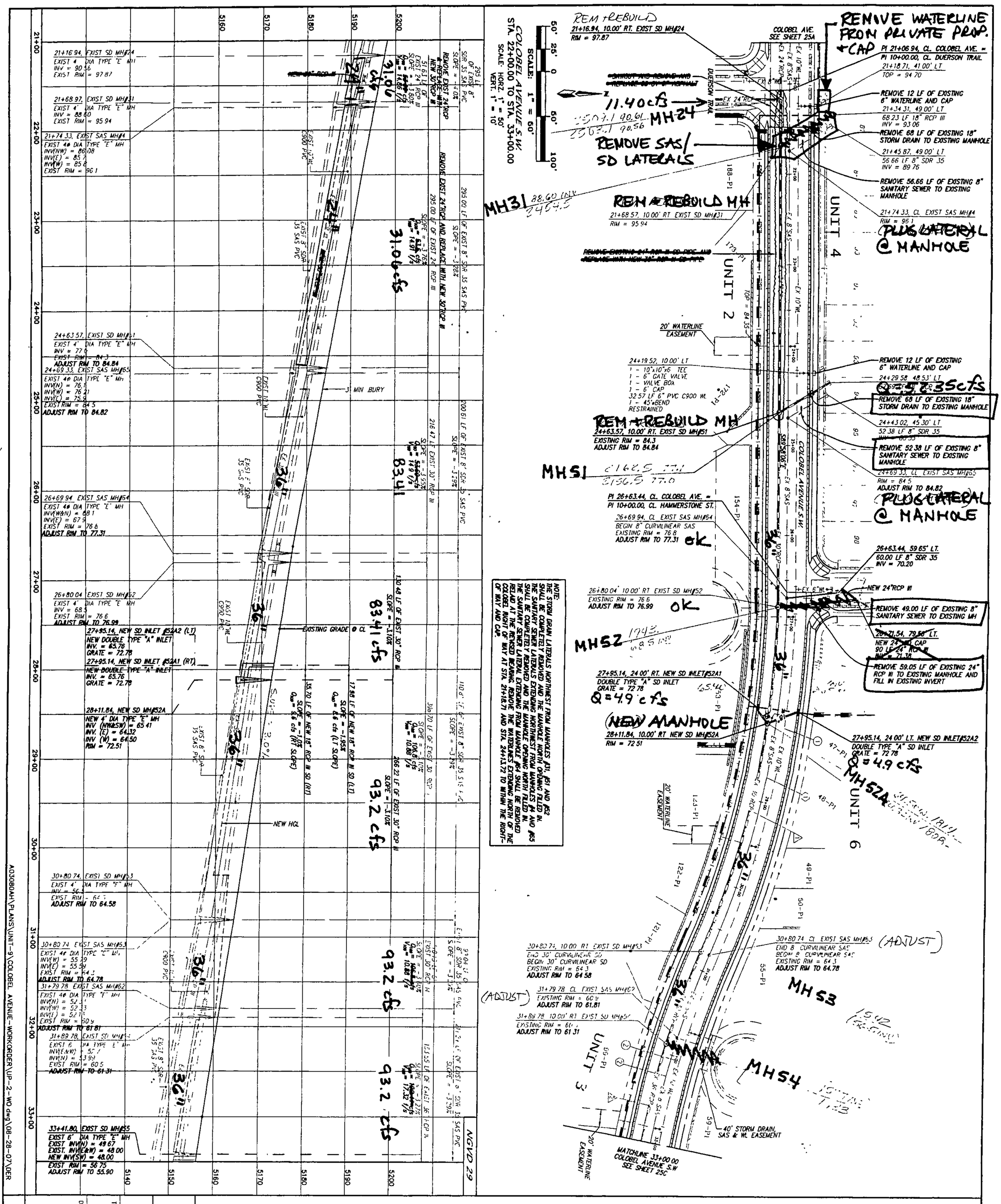
dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE
ANDERSON HEIGHTS - UNIT 9
COLOBEL AVENUE S.W.
UTILITY IMPROVEMENTS

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR	MO./DAY/YR

CITY PROJECT NO. 753985
ZONE MAP NO N-8/P-8
SHEET 25C OF 25



NOTE: THE STORM DRAIN LATERALS NORTHWEST FROM MANHOLES #31, #51 AND #52 SHALL BE COMPLETELY REMOVED AND THE MANHOLE NORTH OPENING FILLED IN. THE SANITARY SEWER LATERALS EXTENDING NORTHWEST FROM MANHOLES #4 AND #65 SHALL BE COMPLETELY REMOVED AND THE MANHOLE OPENING NORTH FILLED IN. THE SANITARY SEWER LATERAL EXTENDING FROM MANHOLE #64 SHALL BE REMOVED AND RELAID AT THE REVISED BEARING. REMOVE THE WATERLINES EXTENDING NORTH OF THE COLOBEL RIGHT OF WAY AT STA. 21+18.71 AND STA. 24+13.72 TO WITHIN THE RIGHT-OF-WAY AND CAP.

NOTES

1. ALL STATIONING IS CENTERLINE STATIONING.

CURVE DATA - DESCRIBES SANITARY SEWER

① Δ = 23.32'15" R = 1000.00' L = 410.81' T = 209.34'
② Δ = 17.46'40" R = 1000.00' L = 310.28' T = 156.40'

CURVE DATA - DESCRIBES WATERLINE

① Δ = 23.32'15" R = 1010.00' L = 414.91' T = 210.42'
③ Δ = 23.32'15" R = 999.00' L = 406.70' T = 206.26'

CURVE DATA - DESCRIBES STORM DRAIN

⚠ Δ = 22.36'41" R = 999.00' L = 390.75' T = 197.93'
⚠ Δ = 23.32'15" R = 1013.00' L = 411.91' T = 210.42'

RESTRAINED JOINT LENGTH FOR BENDS. VALVES DEAD-ENDS (FT)

PIPE SIZE	90	45	22½	11.25	VALVE
6"	12'	7'	4'	2'	46'
8"	16'	9'	5'	3'	61'
12"	24'	13'	7'	4'	72'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND, RESTRAINED UNDER 1 FITTING ONLY (SEE 10.00 FEET RUN SIDE

RESTRAINED JOINT LENGTHS FOR HYDRANTS (FT)

PIPE SIZE	RUN SIDE	SMALL SIDE
6" x 6"	46'	-
8" x 6"	46'	-

RESTRAINED JOINT LENGTHS (FT)

PIPE SIZE	BRANCH
6" x 6"	5'
8" x 6"	5'
12" x 6"	5'
16" x 6"	5'
24" x 6"	5'
30" x 6"	5'
36" x 6"	5'
42" x 6"	5'
48" x 6"	5'
54" x 6"	5'
60" x 6"	5'
16" x 8"	1'
24" x 8"	1'
30" x 8"	1'
36" x 8"	1'
42" x 8"	1'
48" x 8"	1'
54" x 8"	1'
60" x 8"	2'

dmg MARK GOODWIN & ASSOCIATES, P.A. CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ANDERSON HEIGHTS - UNIT 9 COLOBEL AVENUE S.W. UTILITY IMPROVEMENTS

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	GJK	DATE	07/07
DRAWN BY	ACH/DER	DATE	07/07
CHECKED BY	DMG	DATE	07/07

ENGINEER'S SEAL — GREGORY JAMES KNOWN — NEW MEXICO — 11929 — REGISTERED PROFESSIONAL ENGINEER — 9-21-07

SURVEY INFORMATION — FIELD NOTES

NO	BY	DATE

BENCH MARKS

STATION "3-P10" IS LOCATED 5.9 MI SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT OF COORS AND DENNIS CHAVEZ BLVD (FORMERLY RIO BRAVO), GO S ON COORS BLVD, 0.62 MI TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2, WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVITTED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "3-P10, 1998", X=360733.56, Y=1462437.48 (NAD 27), ELEV=4935.735 (SLD 29)

AS BUILT INFORMATION

CONTRACTOR
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

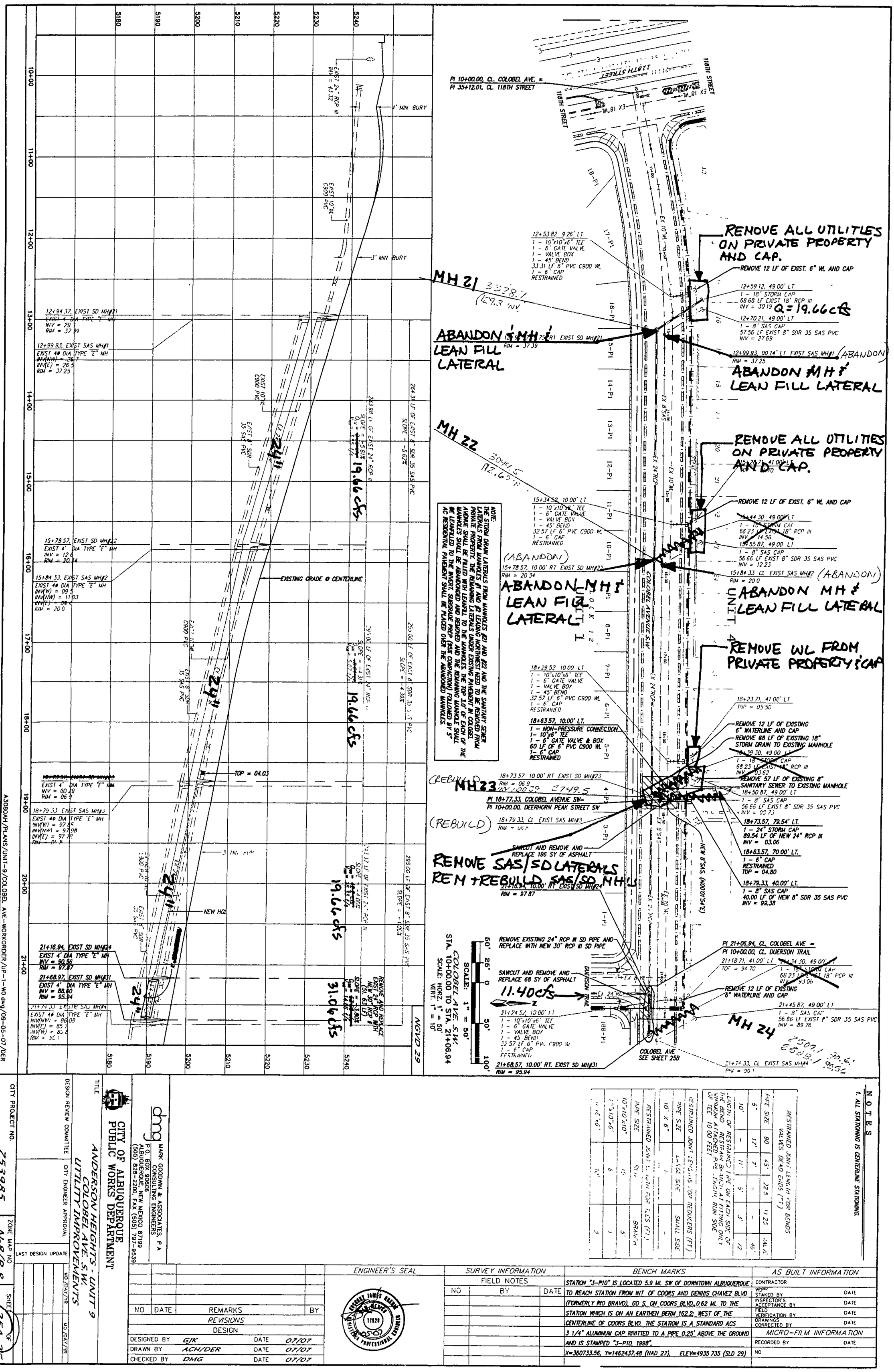
RECORDED BY — DATE
NO

CITY PROJECT NO: 753985
ZONE MAP NO: N-8/P-8
SHEET: 25B OF 25
LAST DESIGN UPDATE — MO./DAY/YR
DESIGN REVIEW COMMITTEE
CITY ENGINEER APPROVAL

EXPLANATION

A03080AH\PLANS\UNIT-9\COLOBEL AVENUE-WORKORDER\UP-2-WO.dwg\08-28-07\DER

F:\A03JOBS\A3080AH\PLANS\UNIT-9\Colobel Ave- workorder\UP-1-WO.dwg 9/5/2007 10:26:42 AM Ocr_Rain2_mytr.pc3



NOTE:
THE STORM DRAIN LATERALS FROM MANHOLES #21 AND #22 AND THE SANITARY SEWER LATERALS FROM MANHOLES #1 AND #2 LEADING NORTHWEST NEED TO BE REMOVED FROM PRIVATE PROPERTY. THE REMAINING LATERALS UNDER EXISTING PAVEMENT IN COLOBEL AVENUE SHALL BE FILLED WITH LEANFILL TO THE MANHOLES. THE TOP 3.0' OF EACH OF THE MANHOLES SHALL BE ABANDONED AND REMOVED AND THE REMAINING MANHOLE SHALL BE LEANFILLED TO THE INVERT. SUBGRADE PREP (ASSC COMPACTION) FOLLOWED BY 5" AC RESIDENTIAL PAVEMENT SHALL BE PLACED OVER THE ABANDONED MANHOLES.

RESTRAINED JOINT LENGTHS FOR BENDS VALVES DEAD ENDS (FT)

PIPE SIZE	90	45	22.5	11.25	VALVE
6"	17'	7'	-	-	18'
8"	22'	9'	5'	3'	18'
10"	28'	11'	6'	3'	18'
12"	33'	13'	7'	4'	18'
16"	44'	18'	9'	5'	18'
18"	50'	20'	10'	5'	18'
24"	67'	27'	13'	6'	18'

LENGTH OF RESTRAINED PIPE ON EACH SIDE OF THE BEND. RESTRAIN BRANCH AT FITTING ONLY IF MINIMUM ATTACHED PIPE LENGTH, RUN SIDE OF TEE, 10.00 FEET

RESTRAINED JOINT LENGTHS FOR REDUCERS (FT)

PIPE SIZE	LARGE SIDE	SMALL SIDE
10" X 6"	18'	18'
12" X 8"	18'	18'

RESTRAINED JOINT LENGTHS FOR TEES (FT)

PIPE SIZE	RUN	BRANCH
10"x10"x10"	18'	5'
10"x10"x6"	6'	1'
12"x12"x8"	10'	2'

NOTES

1. ALL STATIONING IS CENTERLINE STATIONING.

CITY PROJECT NO. 753985
ZONE MAP NO N-8/P-8
SHEET 25A OF 25
EXPLANATION

DESIGN REVIEW COMMITTEE
CITY ENGINEER APPROVAL
LAST DESIGN UPDATE
MO./DAY/YR

TITLE
ANDERSON HEIGHTS - UNIT 9
COLOBEL AVE. S.W.
UTILITY IMPROVEMENTS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

NO	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	GJK	DATE	07/07
DRAWN BY	ACH/DER	DATE	07/07
CHECKED BY	DMG	DATE	07/07

ENGINEER'S SEAL
GREGORY JAMES KRAUSS
NEW MEXICO
11929
REGISTERED PROFESSIONAL ENGINEER
05-07

SURVEY INFORMATION
FIELD NOTES

NO	BY	DATE

BENCH MARKS

STATION "J-P10" IS LOCATED 5.9 MI. SW OF DOWNTOWN ALBUQUERQUE TO REACH STATION FROM INT OF COORS AND DENNIS CHAVEZ BLVD (FORMERLY RIO BRAVO), GO S. ON COORS BLVD., 0.62 MI. TO THE STATION WHICH IS ON AN EARTHEN BERM 162.2; WEST OF THE CENTERLINE OF COORS BLVD. THE STATION IS A STANDARD ACS 3 1/4" ALUMINUM CAP RIVITTED TO A PIPE 0.25' ABOVE THE GROUND AND IS STAMPED "J-P10, 1998".
X=360733.56, Y=1462437.48 (NAD 27), ELEV=4935.735 (SLD 29)

AS BUILT INFORMATION

CONTRACTOR
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO

A3080AH/PLANS/UNIT-9/COLOBEL AVE-WORKORDER/UP-1-WO dwg/09-05-07/DER

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 6-25-2014 Time: 8:18:41

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	139.540	8.150	147.690	102.01	10.60	1.75	149.44	.00	3.09	.00	3.500	.000	.00	1 .0
26.500	.0155					.0103	.27	8.15	.00	2.40	.013	.00	.00	PIPE
1026.500	139.950	8.100	148.050	102.01	10.60	1.75	149.80	.00	3.09	.00	3.500	.000	.00	1 .0
JUNCT STR	.0083					.0094	.06	8.10	.00		.013	.00	.00	PIPE
1032.500	140.000	8.633	148.633	93.21	9.69	1.46	150.09	.00	2.99	.00	3.500	.000	.00	1 .0
98.800	.0304					.0086	.85	8.63	.00	1.81	.013	.00	.00	PIPE
1131.300	143.000	6.554	149.554	93.21	13.19	2.70	152.25	.00	2.86	.00	3.000	.000	.00	1 .0
149.700	.0334					.0195	2.92	6.55	.00	1.96	.013	.00	.00	PIPE
1281.000	148.000	4.612	152.612	93.21	13.19	2.70	155.31	.00	2.86	.00	3.000	.000	.00	1 .0
27.522	.0309					.0195	.54	4.61	.00	2.02	.013	.00	.00	PIPE
1308.522	148.851	4.322	153.173	93.21	13.19	2.70	155.87	.00	2.86	.00	3.000	.000	.00	1 .0
HYDRAULIC JUMP														
1308.522	148.851	2.006	150.857	93.21	18.55	5.35	156.20	.00	2.86	2.82	3.000	.000	.00	1 .0
124.478	.0309					.0321	3.99	2.01	2.45	2.02	.013	.00	.00	PIPE
1433.000	152.700	1.982	154.682	93.21	18.81	5.50	160.18	.00	2.86	2.84	3.000	.000	.00	1 .0
14.578	.0349					.0325	.47	1.98	2.51	1.94	.013	.00	.00	PIPE
1447.578	153.208	1.988	155.196	93.21	18.74	5.45	160.65	.00	2.86	2.84	3.000	.000	.00	1 .0
94.422	.0349					.0305	2.88	1.99	2.49	1.94	.013	.00	.00	PIPE

Program Package Serial Number: 1454

WATER SURFACE PROFILE LISTING Date: 6-25-2014 Time: 8:18:41

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1542.000	156.500	2.075	158.575	93.21	17.87	4.96	163.53	.00	2.86	2.77	3.000	.000	.00	1 .0
137.173	.0294					.0279	3.82	2.07	2.30	2.06	.013	.00	.00	PIPE
1679.173	160.533	2.126	162.659	93.21	17.40	4.70	167.36	.00	2.86	2.73	3.000	.000	.00	1 .0
85.447	.0294					.0255	2.18	2.13	2.19	2.06	.013	.00	.00	PIPE
1764.621	163.045	2.224	165.269	93.21	16.59	4.27	169.54	.00	2.86	2.63	3.000	.000	.00	1 .0
43.379	.0294					.0229	.99	2.22	2.00	2.06	.013	.00	.00	PIPE
1808.000	164.320	2.331	166.651	93.21	15.82	3.88	170.54	.00	2.86	2.50	3.000	.000	.00	1 .0
JUNCT STR	.0300					.0270	.16	2.33	1.81		.013	.00	.00	PIPE
1814.000	164.500	1.842	166.342	83.41	18.33	5.22	171.56	.00	2.80	2.92	3.000	.000	.00	1 .0
129.000	.0310					.0343	4.43	1.84	2.59	1.87	.013	.00	.00	PIPE
1943.000	168.500	1.772	170.272	83.41	19.19	5.72	175.99	.00	2.80	2.95	3.000	.000	.00	1 .0
57.438	.0398					.0351	2.01	1.77	2.79	1.72	.013	.00	.00	PIPE
2000.438	170.787	1.814	172.601	83.41	18.66	5.41	178.01	.00	2.80	2.93	3.000	.000	.00	1 .0
52.605	.0398					.0319	1.68	1.81	2.66	1.72	.013	.00	.00	PIPE
2053.044	172.881	1.889	174.770	83.41	17.79	4.91	179.69	.00	2.80	2.90	3.000	.000	.00	1 .0
31.900	.0398					.0283	.90	1.89	2.46	1.72	.013	.00	.00	PIPE
2084.943	174.151	1.968	176.119	83.41	16.96	4.47	180.59	.00	2.80	2.85	3.000	.000	.00	1 .0
21.872	.0398					.0251	.55	1.97	2.28	1.72	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2106.815	175.022	2.053	177.075	83.41	16.17	4.06	181.14	.00	2.80	2.79	3.000	.000	.00	1 .0
15.912	.0398					.0224	.36	2.05	2.10	1.72	.013	.00	.00	PIPE
2122.727	175.655	2.145	177.800	83.41	15.42	3.69	181.49	.00	2.80	2.71	3.000	.000	.00	1 .0
11.953	.0398					.0200	.24	2.15	1.92	1.72	.013	.00	.00	PIPE
2134.680	176.131	2.244	178.375	83.41	14.70	3.36	181.73	.00	2.80	2.60	3.000	.000	.00	1 .0
8.979	.0398					.0180	.16	2.24	1.76	1.72	.013	.00	.00	PIPE
2143.659	176.489	2.353	178.842	83.41	14.02	3.05	181.89	.00	2.80	2.47	3.000	.000	.00	1 .0
6.550	.0398					.0162	.11	2.35	1.59	1.72	.013	.00	.00	PIPE
2150.208	176.750	2.476	179.226	83.41	13.37	2.77	182.00	.00	2.80	2.28	3.000	.000	.00	1 .0
4.412	.0398					.0148	.07	2.48	1.42	1.72	.013	.00	.00	PIPE
2154.620	176.925	2.618	179.543	83.41	12.74	2.52	182.07	.00	2.80	2.00	3.000	.000	.00	1 .0
1.880	.0398					.0139	.03	2.62	1.24	1.72	.013	.00	.00	PIPE
2156.500	177.000	2.800	179.800	83.41	12.15	2.29	182.09	.00	2.80	1.50	3.000	.000	.00	1 .0
JUNCT STR	.0167					.0078	.05	2.80	1.00		.013	.00	.00	PIPE
2162.500	177.100	4.896	181.996	31.06	9.89	1.52	183.51	.00	1.88	.00	2.000	.000	.00	1 .0
92.230	.0394					.0189	1.74	4.90	.00	1.22	.013	.00	.00	PIPE
2254.730	180.732	3.025	183.758	31.06	9.89	1.52	185.28	.00	1.88	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2254.730	180.732	1.223	181.956	31.06	15.42	3.69	185.65	.00	1.88	1.95	2.000	.000	.00	1 .0
107.032	.0394					.0383	4.10	1.22	2.67	1.22	.013	.00	.00	PIPE
2361.762	184.948	1.246	186.194	31.06	15.09	3.54	189.73	.00	1.88	1.94	2.000	.000	.00	1 .0
63.783	.0394					.0352	2.24	1.25	2.58	1.22	.013	.00	.00	PIPE
2425.546	187.460	1.298	188.758	31.06	14.39	3.21	191.97	.00	1.88	1.91	2.000	.000	.00	1 .0
28.954	.0394					.0312	.90	1.30	2.38	1.22	.013	.00	.00	PIPE
2454.500	188.600	1.354	189.954	31.06	13.72	2.92	192.88	.00	1.88	1.87	2.000	.000	.00	1 .0
6.166	.0403					.0288	.18	1.35	2.20	1.21	.013	.00	.00	PIPE
2460.666	188.849	1.373	190.222	31.06	13.50	2.83	193.05	.00	1.88	1.86	2.000	.000	.00	1 .0
14.474	.0403					.0268	.39	1.37	2.14	1.21	.013	.00	.00	PIPE
2475.140	189.432	1.434	190.867	31.06	12.88	2.57	193.44	.00	1.88	1.80	2.000	.000	.00	1 .0
10.181	.0403					.0239	.24	1.43	1.96	1.21	.013	.00	.00	PIPE
2485.321	189.843	1.501	191.344	31.06	12.28	2.34	193.68	.00	1.88	1.73	2.000	.000	.00	1 .0
7.417	.0403					.0215	.16	1.50	1.79	1.21	.013	.00	.00	PIPE
2492.738	190.142	1.574	191.716	31.06	11.71	2.13	193.84	.00	1.88	1.64	2.000	.000	.00	1 .0
5.283	.0403					.0194	.10	1.57	1.62	1.21	.013	.00	.00	PIPE
2498.021	190.355	1.657	192.012	31.06	11.16	1.93	193.95	.00	1.88	1.51	2.000	.000	.00	1 .0
3.582	.0403					.0178	.06	1.66	1.45	1.21	.013	.00	.00	PIPE

WATER SURFACE PROFILE LISTING

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
2501.603	190.500	1.752	192.252	31.06	10.64	1.76	194.01	.00	1.88	1.32	2.000	.000	.00	1 .0
1.497	.0403					.0167	.02	1.75	1.26	1.21	.013	.00	.00	PIPE
2503.100	190.560	1.878	192.438	31.06	10.14	1.60	194.03	.00	1.88	.96	2.000	.000	.00	1 .0
JUNCT STR	.0083					.0119	.07	1.88	1.00		.013	.00	.00	PIPE
2509.100	190.610	3.821	194.431	19.66	6.26	.61	195.04	.00	1.59	.00	2.000	.000	.00	1 .0
35.468	.0403					.0076	.27	3.82	.00	.92	.013	.00	.00	PIPE
2544.568	192.038	2.665	194.703	19.66	6.26	.61	195.31	.00	1.59	.00	2.000	.000	.00	1 .0
HYDRAULIC JUMP														
2544.568	192.038	.920	192.958	19.66	13.93	3.01	195.97	.00	1.59	1.99	2.000	.000	.00	1 .0
107.715	.0403					.0403	4.34	.92	2.92	.92	.013	.00	.00	PIPE
2652.283	196.375	.920	197.296	19.66	13.93	3.01	200.31	.00	1.59	1.99	2.000	.000	.00	1 .0
97.217	.0403					.0410	3.99	.92	2.92	.92	.013	.00	.00	PIPE
2749.500	200.290	.911	201.201	19.66	14.12	3.09	204.30	.00	1.59	1.99	2.000	.000	.00	1 .0
129.235	.0417					.0417	5.39	.91	2.98	.91	.013	.00	.00	PIPE
2878.735	205.683	.911	206.594	19.66	14.12	3.09	209.69	.00	1.59	1.99	2.000	.000	.00	1 .0
96.829	.0417					.0435	4.21	.91	2.98	.91	.013	.00	.00	PIPE
2975.564	209.723	.889	210.612	19.66	14.56	3.29	213.90	.00	1.59	1.99	2.000	.000	.00	1 .0
44.201	.0417					.0484	2.14	.89	3.11	.91	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/ Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
3019.765	211.568	.857	212.425	19.66	15.27	3.62	216.04	.00	1.59	1.98	2.000	.000	.00	1 .0
24.735	.0417					.0552	1.36	.86	3.34	.91	.013	.00	.00	PIPE
3044.500	212.600	.828	213.428	19.66	16.01	3.98	217.41	.00	1.59	1.97	2.000	.000	.00	1 .0
63.873	.0588					.0588	3.75	.83	3.57	.83	.013	.00	.00	PIPE
3108.374	216.353	.828	217.181	19.66	16.01	3.98	221.16	.00	1.59	1.97	2.000	.000	.00	1 .0
92.058	.0588					.0573	5.27	.83	3.57	.83	.013	.00	.00	PIPE
3200.432	221.763	.839	222.602	19.66	15.71	3.83	226.43	.00	1.59	1.97	2.000	.000	.00	1 .0
49.778	.0588					.0524	2.61	.84	3.48	.83	.013	.00	.00	PIPE
3250.210	224.688	.870	225.558	19.66	14.98	3.48	229.04	.00	1.59	1.98	2.000	.000	.00	1 .0
22.356	.0588					.0460	1.03	.87	3.24	.83	.013	.00	.00	PIPE
3272.566	226.001	.902	226.904	19.66	14.28	3.17	230.07	.00	1.59	1.99	2.000	.000	.00	1 .0
13.876	.0588					.0405	.56	.90	3.03	.83	.013	.00	.00	PIPE
3286.442	226.817	.936	227.753	19.66	13.62	2.88	230.63	.00	1.59	2.00	2.000	.000	.00	1 .0
9.787	.0588					.0356	.35	.94	2.82	.83	.013	.00	.00	PIPE
3296.229	227.392	.971	228.363	19.66	12.98	2.62	230.98	.00	1.59	2.00	2.000	.000	.00	1 .0
7.324	.0588					.0313	.23	.97	2.63	.83	.013	.00	.00	PIPE
3303.553	227.822	1.008	228.830	19.66	12.38	2.38	231.21	.00	1.59	2.00	2.000	.000	.00	1 .0
5.690	.0588					.0276	.16	1.01	2.45	.83	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3309.243	228.157	1.047	229.204	19.66	11.80	2.16	231.37	.00	1.59	2.00	2.000	.000	.00	1 .0
4.521	.0588					.0243	.11	1.05	2.28	.83	.013	.00	.00	PIPE
3313.764	228.422	1.088	229.510	19.66	11.25	1.97	231.48	.00	1.59	1.99	2.000	.000	.00	1 .0
3.642	.0588					.0215	.08	1.09	2.12	.83	.013	.00	.00	PIPE
3317.406	228.636	1.131	229.767	19.66	10.73	1.79	231.56	.00	1.59	1.98	2.000	.000	.00	1 .0
2.954	.0588					.0190	.06	1.13	1.97	.83	.013	.00	.00	PIPE
3320.359	228.810	1.176	229.986	19.66	10.23	1.63	231.61	.00	1.59	1.97	2.000	.000	.00	1 .0
2.376	.0588					.0168	.04	1.18	1.83	.83	.013	.00	.00	PIPE
3322.735	228.950	1.224	230.174	19.66	9.76	1.48	231.65	.00	1.59	1.95	2.000	.000	.00	1 .0
1.921	.0588					.0149	.03	1.22	1.69	.83	.013	.00	.00	PIPE
3324.656	229.062	1.274	230.336	19.66	9.30	1.34	231.68	.00	1.59	1.92	2.000	.000	.00	1 .0
1.473	.0588					.0132	.02	1.27	1.56	.83	.013	.00	.00	PIPE
3326.129	229.149	1.329	230.478	19.66	8.87	1.22	231.70	.00	1.59	1.89	2.000	.000	.00	1 .0
1.127	.0588					.0117	.01	1.33	1.44	.83	.013	.00	.00	PIPE
3327.256	229.215	1.387	230.602	19.66	8.46	1.11	231.71	.00	1.59	1.84	2.000	.000	.00	1 .0
.806	.0588					.0105	.01	1.39	1.33	.83	.013	.00	.00	PIPE
3328.062	229.262	1.449	230.712	19.66	8.06	1.01	231.72	.00	1.59	1.79	2.000	.000	.00	1 .0
.481	.0588					.0094	.00	1.45	1.22	.83	.013	.00	.00	PIPE

ANDERSON HEIGHTS UNIT 4
COLOBEL STORM DRAIN
FILE: COLOBEL REVISED JUNE 24, 2014 DLH

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
3328.542	229.291	1.517	230.808	19.66	7.69	.92	231.73	.00	1.59	1.71	2.000	.000	.00	1 .0
.157	.0588					.0084	.00	1.52	1.11	.83	.013	.00	.00	PIPE
3328.700	229.300	1.594	230.894	19.66	7.32	.83	231.73	.00	1.59	1.61	2.000	.000	.00	1 .0

FILE: COLOBEL.WSW W S P G W - EDIT LISTING - Version 14.05 Date: 6-25-2014 Time: 8:18:31

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING PAGE 1

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		3.500														
CD	2	4	1		1.500														
CD	3	4	1		1.500														
CD	4	4	1		3.000														
CD	5	4	1		1.500														
CD	6	4	1		1.500														
CD	7	4	1		2.500														
CD	8	4	1		2.500														
CD	9	4	1		2.000														
CD	10	4	1		2.000														
CD	11	4	1		2.000														

W S P G W PAGE NO 1

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ANDERSON HEIGHTS UNIT 4

HEADING LINE NO 2 IS -

COLOBEL STORM DRAIN

HEADING LINE NO 3 IS -

FILE: COLOBEL REVISED JUNE 24, 2014 DLH

W S P G W PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	139.540	1	147.690

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1026.500	139.950	1	.013	.000	.000	.000	1

ELEMENT NO 3 IS A JUNCTION * * * * * * * *

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4	RADIUS	ANGLE
	1032.500	140.000	1	2	3	.013	4.400	4.400	141.500	141.500	45.000	-45.000	.000	.000

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1131.300	143.000	1	.013	.000	.000	.000	1

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1281.000	148.000	4	.013	.000	.000	.000	1

ELEMENT NO 6 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1433.000	152.700	4	.013	.000	.000	.000	1

ELEMENT NO 7 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1542.000	156.500	4	.013	.000	.000	.000	1

ELEMENT NO 8 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1808.000	164.320	4			.013			.000	.000	.000	1

ELEMENT NO 9 IS A JUNCTION * * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	1814.000	164.500	4	5	6	.013	4.900	4.900	165.400	165.400	45.000	-45.000

RADIUS	ANGLE
.000	.000

ELEMENT NO 10 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	1943.000	168.500	4			.013			.000	.000	.000	1

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 11 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2156.500	177.000	4			.013			.000	.000	.000	1

ELEMENT NO 12 IS A JUNCTION * * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	2162.500	177.100	4	8	0	.013	52.350	.000	177.200	.000	45.000	.000

RADIUS	ANGLE
.000	.000

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 13 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2454.500	188.600	9			.013			.000	.000	.000	1

ELEMENT NO 14 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2503.100	190.560	9			.013			.000	.000	.000	1

ELEMENT NO 15 IS A JUNCTION * * * * * * *

	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
U/S DATA	2509.100	190.610	9	10	0	.013	11.400	.000	190.560	.000	-90.000	.000

RADIUS	ANGLE
.000	.000

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO 16 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	2749.500	200.290	11			.013			.000	.000	.000	1

ELEMENT NO 17 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3044.500	212.600	11			.013			.000	.000	.000	1

ELEMENT NO 18 IS A REACH * * *

	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
U/S DATA	3328.700	229.300	11			.013			.000	.000	45.000	1

ELEMENT NO 19 IS A SYSTEM HEADWORKS * *

	STATION	INVERT	SECT						W S ELEV
U/S DATA	3328.700	229.300	11						231.300

KEEP !

6-24-14 Storm Drain Analysis Worksheet

KEEP !

Jacobs-Dundee-Pinetown Storm

TBL 2

Summary of Street Capacity Calculations

Anderson Heights Unit 4

LOCATION	WIDTH	CROWN	STD or MTB	SLOPE %	Q cfs	DEPTH ft.	EG (ft)	INLET Q cfs	TYPE INLET	INLET BYPASS	ADD Q cfs
BANNER PEAK	26' FF	Y	STD	2.70	10.93	0.32	0.52				
BORD PEAK	26' FF	Y	STD	2.40	8.73	0.31	0.47				
DIAMOND PEAK	26' FF	Y	STD	1.88	28.30	0.45	0.76				
DIAMOND PEAK	26' FF	Y	STD	1.88	34.01	0.48	0.84	8.5(2)	DBL A	17.01	
DIAMOND PEAK	26' FF	Y	STD	1.88	17.01	0.38	0.60	4.3(2)	SGL C	8.41	+0.37 +9.21
CRAG PEAK	26' FF	Y	STD	5.00	17.62	0.34	0.74	5.9(2)	SGL A	5.82	+6.64 + 5.98
CRAG PEAK	26' FF	Y	STD	3.22	18.84	0.37	0.68	5.5 (2)	SGL A	7.84	+4.10
TYLER PEAK	26' FF	Y	STD	3.22	11.94	0.32	0.56				+6.77 +10.29
PINE TOWN ROAD	26' FF	Y	STD	3.40	29.00	0.41	0.87	7.0 (2)	SGL A	15.0	+7.29
PINE TOWN ROAD	26' FF	Y	STD	3.40	22.29	0.38	0.76				+6.78
PINE TOWN ROAD	28' FF	Y	STD	2.60	29.00	0.43	0.8	6.8 (2)	SGL C (1)	15.4	+5.7
DUNDEE	26' FF	Y	STD	0.60	21.10	0.49	0.62	5.8 (2)	SGL C (2)	9.5	
BLACKBURN RD	26' FF	Y	STD	3.81	21.84	0.37	0.77	6.0 (2)	SGL C (3)	9.84	+ 1.2
DUNDEE	26' FF	Y	STD	0.60	20.54	0.49	0.61	5.8 (2)	SGL C (4)	8.94	+9.5+9.84+1.2 = 20.54
LIONS HEAD	28' FF	Y	STD	4.07	26.00	0.39	0.84	6.8 (2)	SGL A (5)	12.4	TO (6)
HAWKINS PEAK	26' FF	Y	STD	5	13.67	0.32	0.67				
BASIN PEAK	26' FF	Y	STD	5.00	24	0.37	0.87	6.7 (2)	SGL A (7)	10.6 (8)	+4.6 = 15.2
ALTA PEAK	26' FF	Y	STD	1.69	20.04	0.41	0.64	5.0 (2)	SGL A (8)	10.04	+ 3.71
BASIN/ALTA SUMP	26' FF	Y	STD					14.47(2)	DBL C (9)	28.95	28.95

B1 & B2

Stopped review here

DUNDEE

(6) Inlets N. of Lions Head Rd. & Dund St. Near MH #8A

8.94 + 12.4 + 4.2 = 25.54 / 2 = 12.77 (27.07)

+ 1.53 (over)

(7) 24 − 11.76 (B3 & B4) = 12.24

16.84 − 12.24 = 4.6 cfs (Bypass of (7))

+10.6 = 15.2

Actual Basin 31 B12 Basin B13 B14 B15 B16 B17 B18 B22

10.29 − 3.76 B17 = 6.53 (fr. B18?)

13.82 (TOTAL for B18) − 6.53 = 7.29

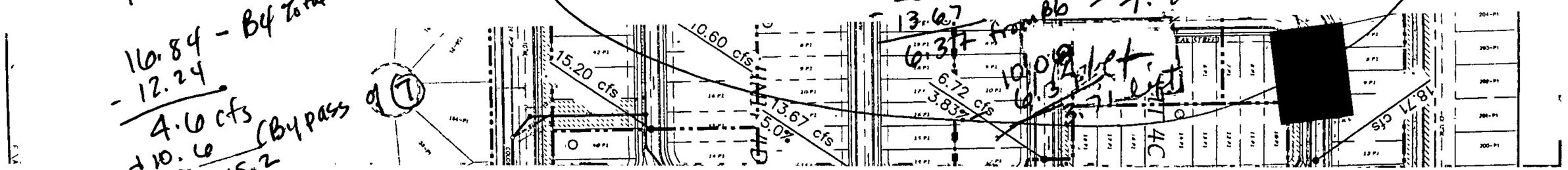
20.04 − 13.67 from B6 = 6.37

10.04 − 6.37 = 3.71 left

5.40 − 1.2 = 4.2 B22

Missing inlets in sump

(typ)



Lions head: ~~6.72~~ 26 cfs (from Table
- 6.72 (B23)

19.28 (Part of B24 (Total = 20.81)

20.81 (B24 Total
- 19.28

1.53 cfs @ sump

TABLE 2 3

Summary of Street Capacity Calculations

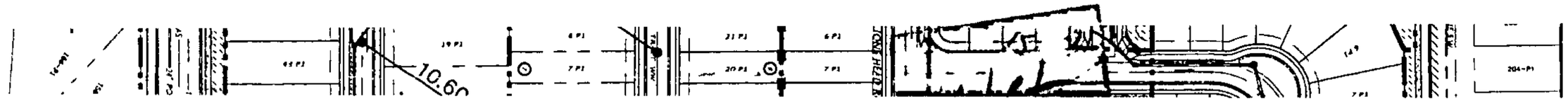
Anderson Heights Unit 4

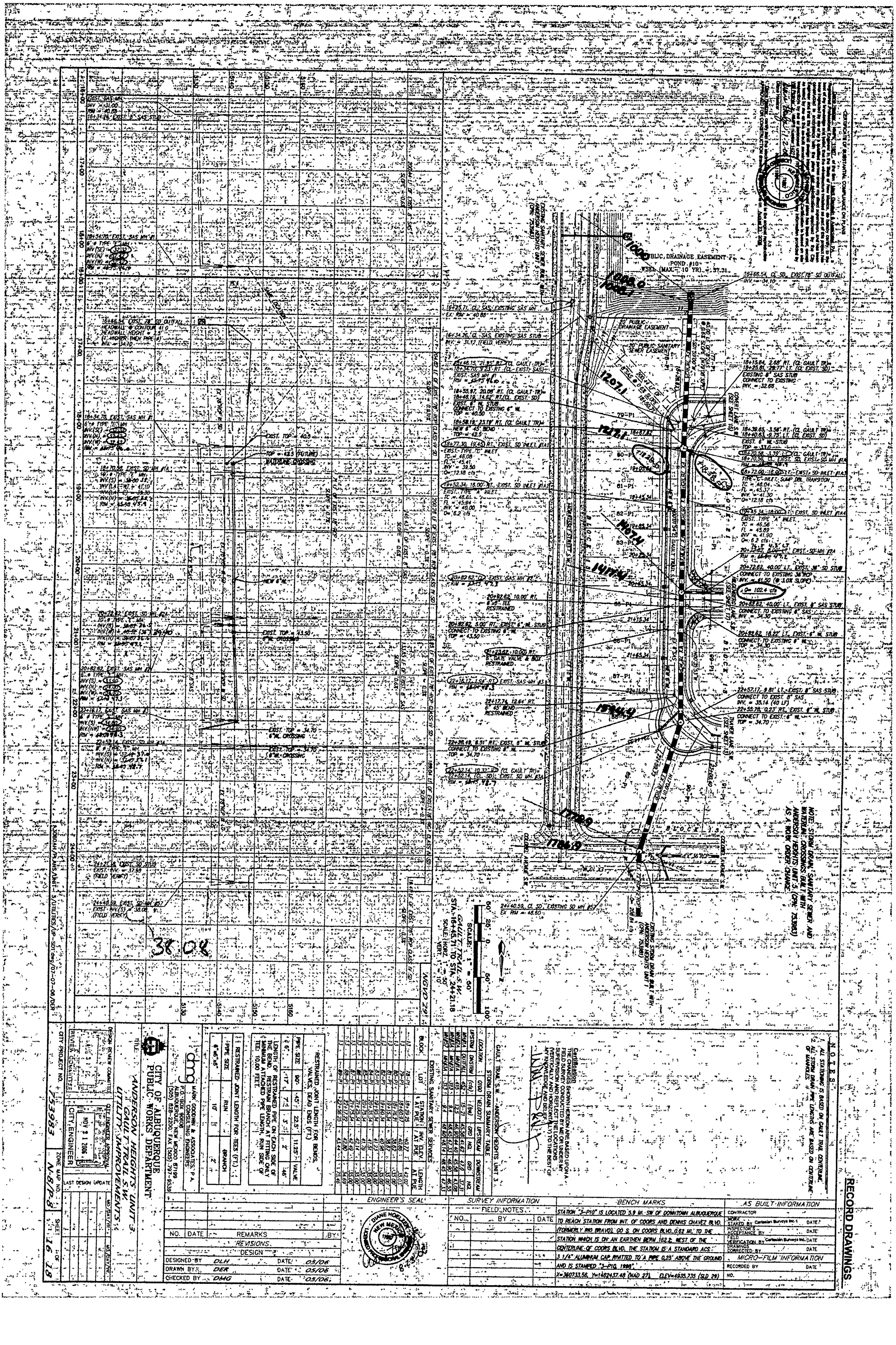
LOCATION	WIDTH	CROWN	STD or MTB	SLOPE %	Q cfs	DEPTH ft.	EG (ft)	INLET Q cfs	TYPE INLET	INLET BYPASS	ADD Q cfs
COBBLE HILL RD	28' FF	Y	STD	5.84	10.67 B26	0.29	0.64				B27 +2.16 + 3.76 (Partial for B29)
COBBLE HILL RD	26' FF	Y	STD	3.25	16.59	0.35	0.64				
ORANGE GROVE	26' FF	Y	STD	5.00	15.98 B28	0.33	0.71				B30 B31 +1.9 + 1.92
ORANGE GROVE	26' FF	Y	STD	2.52	19.80	0.38	0.67	5.2 (2)	SGL A (10)	9.40	
JACOBS BAY	26' FF	Y	STD	0.60	21.60	0.49	0.62	6.0 (2)	SGL A (9)	9.60	
JACOBS BAY	26' FF	Y	STD	0.60	24.65	0.51	0.66	22.5 (2)	DBL C SUMP (12)		
COLOBEL	48' FF	Y	STD	3.00	13.95	0.34	0.58	4.9 (2)	SGL A (13)	4.15	8.11
COLOBEL	48' FF	Y	STD	2.65	12.26	0.34	0.54	4.4 (2)	SGL A (14)	3.46	

21.66
16.59
5.01 (Partial for B 29)

remaining B29 = 14.42
- 3.76
- 5.01
5.65

9.4 (10) Bypass
9.6 (11) Bypass
5.65 Remaining
24.65




EXIST. SAS MH
INV. = 31.00
RIM = 40.88
16+34.26, EXIST. 8" SAS STUB
6'ø TYPE 'A' MH
INV.(SE) = 32.19
INV.(N) = 32.19
INV.(W) = 32.19
RIM = 45.75
16+66.54, EXIST. 78" SD OUTFALL
HEADWALL @ CONTOUR 41.0
HEADWALL HEIGHT = 7.5'
(1' HIGHER THEN PIPE ø)
INV. = 34.10
18+34.78, EXIST. SAS MH #1
6'ø TYPE 'A' MH
INV.(SE) = 32.19
INV.(N) = 32.19
INV.(W) = 32.19
RIM = 45.75
18+70.56, EXIST. SD MH #1A
10'ø TYPE 'A' MH
INV.(S) = 38.00
INV.(LAT. W) = 41.10
INV.(LAT. E) = 39.30
INV.(N) = 36.05
RIM = 45.56
20+72.62, EXIST. SD MH #2A
10'ø TYPE 'A' MH
INV.(S) = 38.07
INV.(W) = 40.31
INV.(N) = 38.07
RIM = 48.90
20+82.62, EXIST. SAS MH #2
6'ø TYPE 'A' MH
INV.(S) = 41.40
INV.(N) = 41.40
INV.(W) = 41.40
RIM = 47.73
22+16.17, EXIST. SAS MH #3
6'ø TYPE 'A' MH
INV.(S) = 34.60
INV.(NW) = 34.60
RIM = 49.09
22+52.14, EXIST. SD MH #3A
8'ø TYPE 'A' MH
INV.(S) = 37.45
INV.(N) = 37.71
RIM = 48.45
24+21.18, EXIST. SD STUB
EXIST. INV. = 37.98
(FIELD VERIFY)
24+40.59, EXIST. SD MH #5
EXIST. INV.(S) = 38.08
(FIELD VERIFY)
16+66.54, EXIST. 78" SD OUTFALL
INV. = 34.10
16+25.71, CL SAS, EXISTING SAS MH
EX. RIM = 40.88
16+34.26, CL SAS, EXISTING SAS STUB
INV. = 31.12 (FIELD VERIFY)
EXIST. SAS MH
RIM = 45.75
EXIST. TOP = 40.3
TOP = 42.5 (FUTURE)
WATERLINE CROSSING
NEW 6" WL
EXIST. TOP = 33.50
6" WL CROSSING
EXIST. TOP = 34.70
6" WL CROSSING
EXIST. TOP = 34.70
6" WL CROSSING
EXISTING SANITARY SEWER AND WATERLINE CROSSINGS
EXISTING SANITARY SEWER AND WATERLINE CROSSINGS (BUILT WITH ANDERSON HEIGHTS UNIT 5)
(CPN: 753963)
EXISTING STORM DRAIN BUILT WITH ANDERSON HEIGHTS UNIT 1 (CPN: 753981)
EXISTING STORM DRAIN, SANITARY SEWER AND WATERLINE CROSSINGS (BUILT WITH ANDERSON HEIGHTS UNIT 5 (CPN: 753963) AS A WORK ORDER CHANGE)
CERTIFICATE OF SUBSTANTIAL COMPLIANCE ON PLANS
PROVIDED FOR CONSTRUCTION
AUG 22, 2006
PUBLIC DRAINAGE EASEMENT
POND #10
WSEL (MAX. 10 YR) = 37.31
20' PUBLIC DRAINAGE EASEMENT
20' PUBLIC SANITARY SEWER EASEMENT
16+66.54, CL SD, EXIST. 78" SD OUTFALL
INV. = 34.10
18+15.84, 2.68' RT. (CL GAULT TR)=
18+25.81, 28.77' LT. (CL EXIST. SD)
EXISTING 8" SAS STUB
CONNECT TO EXISTING
INV. = 32.68
18+39.65, 3.56' RT. (CL GAULT TR)=
18+40.63, 9.75' LT. (CL EXIST. SD)
EXIST. 6" WL STUB
TOP = 33.0
18+70.56, 3.39' LT. (CL GAULT TR)=
18+70.56, CL EXIST. SD, EXIST. SD MH #1A
RIM = 45.56
68+72.00, 16.00' LT., EXIST. SD INLET #1A3
TYPE 'C' INLET, SUMP DBL TRANSITION
TC = 46.04
FL = 45.37
INV. = 41.30
Q= 12.18 cfs
19+35.34, 16.00' LT., EXIST. SD INLET #1A4
EXIST. TYPE 'A' INLET
TC = 46.56
FL = 45.89
INV. = 41.90
Q= 6.2 cfs
20+72.62, 8.00' LT., EXIST. SD MH #2A
RIM = 48.90
20+72.62, 40.00' LT., EXIST. 36" SD STUB
CONNECT TO EXISTING 36" RCP
INV. = 31.50 (@ 3.0% SLOPE)
Q= 102.4 cfs
20+82.62, 40.00' LT., EXIST. 8" SAS STUB
CONNECT TO EXISTING 8" SAS
INV. = 34.30
20+92.62, 18.22' LT., EXIST. 6" WL STUB
CONNECT TO EXISTING 6" WL
TOP = 34.30
22+57.17, 9.81' LT., EXIST. 8" SAS STUB
CONNECT TO EXIST. 8" SAS
INV. = 35.14 (40 LF)
22+55.76, 0.23' RT., EXIST. 6" WL STUB
CONNECT TO EXIST. 6" WL
TOP = 34.70
20+92.62, 10.00' RT.
6" GATE VALVE & BOX
RESTRAINED
22+16.17, 1.94' RT. EXIST. SAS MH #3
RIM = 49.09
22+17.74, 12.64' RT.
6" 45° BEND
RESTRAINED
22+28.49, 8.51' RT., EXIST. 6" WL STUB
CONNECT TO EXISTING 6" WL
TOP = 34.70
22+52.14, 10.32' RT. (CL GAULT TR)=
22+52.14, (CL SD), EXIST. SD MH #3A
RIM = 48.45
18+77.30, 19.45' RT., EXIST. SD INLET #1A1
EXIST. TYPE 'C' INLET
TC = 46.08
FL = 45.41
INV. = 39.50
Q= 12.18 cfs
19+52.34, 16.00' RT., EXIST. SD INLET #1A2
EXIST. TYPE 'A' INLET
TC = 46.61
FL = 45.94
INV. = 40.00
Q= 6.2 cfs
18+43.15, 21.95' RT. (CL GAULT TR)=
18+34.70, 9.23' RT. (CL EXIST. SAS)
EXIST. SAS MH
RIM = 45.75
18+55.97, 20.05' RT. (CL GAULT TR)=
18+46.19, 14.62' RT. (CL EXIST. SD)
EXIST. 6" WL STUB
CONNECT TO EXISTING 6" WL
TOP = 40.50
18+58.19, 23.19' RT. (CL GAULT TR)=
NEW 6" 45° BEND
TOP = 42.5
GAULT TRAIL S.W.
COLORED AVENUE S.W.
BLOCK 13
BLOCK 14
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19
LOT 20
LOT