CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

February 10, 2017

Yolanda Padilla Moyer, P.E.
Bohannan Huston
7601 Jefferson NE, Suite 100
Albuquerque, NM, 87109

RE: Pulte @ Mirehaven Phase 2A
Release of Financial Guarantee
Engineer's Certification Date: 1/23/17
Hydrology File: H09D017E

Dear Ms. Padilla-Moyer:

Based upon the information provided in your submittal received 1/23/2017, the above-referenced plan is approved for Grading and Drainage Certification for Release of Financial Guarantee.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: PULTE @ MIREHAVEN PHASE 2A Building Permit #. _____ City Drainage #: H-9 D017E

DRB#. 10006864 EPC#: _____ Work Order#: 650387

Legal Description: PULTE @ MIREHAVEN PHASE 2A (A REPLAT OF TRACT N-2-D OF WATERSHED)

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: PULTE Contact: KEVIN PATTON

Address: 7601 JEFFERSON STREET NE SUITE 310 ALBUQ NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin patton@pultegroup com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE

_____ TRAFFIC/ TRANSPORTATION

_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN

_____ GRADING PLAN

_____ DRAINAGE MASTER PLAN

_____ DRAINAGE REPORT

_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)

_____ TRAFFIC IMPACT STUDY (TIS)

_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

RECEIVED JAN 23 2017 LAND DEVELOPMENT SECTION

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL

_____ CERTIFICATE OF OCCUPANCY

_____ PRELIMINARY PLAT APPROVAL

_____ SITE PLAN FOR SUB'D APPROVAL

_____ SITE PLAN FOR BLDG. PERMIT APPROVAL

_____ FINAL PLAT APPROVAL

x SIA/ RELEASE OF FINANCIAL GUARANTEE

_____ FOUNDATION PERMIT APPROVAL

_____ GRADING PERMIT APPROVAL

_____ SO-19 APPROVAL

_____ PAVING PERMIT APPROVAL

x GRADING/ PAD CERTIFICATION

_____ WORK ORDER APPROVAL

_____ CLOMR/LOMR

_____ PRE-DESIGN MEETING

_____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?. _____ Yes _____ No

DATE SUBMITTED: 01-23-17 By: YOLANDA PADILLA MOYER, P E.

COA STAFF ELECTRONIC SUBMITTAL RECEIVED ___

Yolanda Padilla Moyer

From: Yolanda Padilla Moyer
Sent: Monday, January 23, 2017 10:40 AM
To: PLNDRS@cabq.gov
Cc: Yolanda Padilla Moyer
Subject: 1006864 Pulte @ Mirehaven Phase 2A Final G&D Cert

Please find below a link to download the digital submittal for the above referenced project.

Use the following link to download files.
http://sfspublic.bhinc.com/EmailAccess.aspx?tk=TKypadillaD2312017103853

NOTE: These files will expire in 180 days(22-Jul-2017) from the time this email was generated.

RECEIVED
JAN 23 2017
LAND DEVELOPMENT SECTION

Bohannan ▲ Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

January 23, 2017

Mr. Shahab Biazar
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Final Grading and Drainage Certification Pulte @ Mirehaven
Phase 2A for Financial Guaranty Release - DRB Case No. 1006864

Dear Abiel:

We are submitting a partial grading and drainage certification for Pulte @ Mirehaven Phase 2A for Financial Guaranty Release. Enclosed for your review is the approved grading and drainage plan dated 01/15/16 and 01-28-16. These lots have been graded; retaining walls, curb and gutter, pavement and downstream infrastructure have been constructed.

After reviewing these as-built elevations and visiting the site on 01-20-17 it is my belief that the above lots have been graded in substantial compliance with the approved grading and drainage plan.

Your review and approval is requested for the above project. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

RECEIVED
JAN 23 2017
LAND DEVELOPMENT SECTION

Enclosure

cc: Kevin Patton, Pulte Homes
Peter Steen, Pulte Homes
Matt Dyer, Pulte Homes

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

CITY OF ALBUQUERQUE

October 7, 2016

Yolanda Padilla-Moyer, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Pulte @ Mirehaven Phase 2A
Request Pad Certification for lots 1-5, 37-39, 48-56, 77-89 - Accepted
Engineer's Stamp dated: 1-28-16 (H09D017E)
Certification dated: 10-4-16

Dear Ms. Padilla-Moyer,

Based on the Certification received 10/4/2016, the above referenced is acceptable for building permit by Hydrology.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

TE/SB
C: CO Clerk Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: PULTE @ MIREHAVEN PHASE 2A Building Permit #: _____ City Drainage #: H-9 DONE

DRB#: 10006864 EPC#: _____ Work Order#: 650387

Legal Description: PULTE @ MIREHAVEN PHASE 2A (A REPLAT OF TRACT N-2-D OF WATERSHED)

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: PULTE Contact: KEVIN PATTON

Address: 7601 JEFFERSON STREET NE SUITE 310 ALBUQ. NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin patton@pultegroup.com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
_____ TRAFFIC/ TRANSPORTATION
_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ DRAINAGE MASTER PLAN
_____ DRAINAGE REPORT
_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ TRAFFIC IMPACT STUDY (TIS)
_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

RECEIVED
OCT 04 2016
LAND DEVELOPMENT SECTION

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY

_____ PRELIMINARY PLAT APPROVAL
_____ SITE PLAN FOR SUB'D APPROVAL
_____ SITE PLAN FOR BLDG. PERMIT APPROVAL
_____ FINAL PLAT APPROVAL
_____ SIA/ RELEASE OF FINANCIAL GUARANTEE
_____ FOUNDATION PERMIT APPROVAL
_____ GRADING PERMIT APPROVAL
_____ SO-19 APPROVAL
_____ PAVING PERMIT APPROVAL
x GRADING/ PAD CERTIFICATION
_____ WORK ORDER APPROVAL
_____ CLOMR/LOMR

_____ PRE-DESIGN MEETING
_____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?. _____ Yes _____ No

DATE SUBMITTED: 10-04-16 By: YOLANDA PADILLA MOYER, P.E.

COA STAFF. ELECTRONIC SUBMITTAL RECEIVED ___

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

October 4, 2016

Mr. Abiel Carrillo
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Partial Grading and Drainage Certification (Remaining Lots 1-5,48-56,77-89) Pulte @ Mirehaven
Phase 2A - DRB Case No. 1006864

Dear Abiel:

We are submitting a partial grading and drainage certification for Pulte @ Mirehaven Phase 2A. The partial certification is for the remaining Lots 1-5, 37-39, 48-56, 77-89. Enclosed for your review is the approved grading and drainage plan dated 01/15/16 and 01-28-16. These lots have been graded; retaining walls, curb and gutter, pavement and downstream infrastructure have been constructed. A final certification for financial guaranty release will be submitted at a later date once verification of all improvements have been constructed.

During site inspection you might notice that there are depressions in the back yards. The purpose of the depressions is to provide a place to spoil dirt that is generated with the footing construction and they will be filled at the time of home construction. The depressions are not intended to serve as ponds.

After reviewing these as-built elevations and visiting the site on 10-03-16 it is my belief that the above lots have been graded in substantial compliance with the approved grading and drainage plan and that the interim drainage improvements allow runoff to be managed in the interim condition.

Your review and approval is requested for Building Permit Approval for the above listed buildings. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

RECEIVED
OCT 04 2016
LAND DEVELOPMENT SECTION

Enclosure

cc: Kevin Patton, Pulte Homes
Peter Steen, Pulte Homes
Matt Dyer, Pulte Homes

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CITY OF ALBUQUERQUE

September 1, 2016

Yolanda Padilla-Moyer, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Pulte @ Mirehaven 2A
Pad Certification for lots 6-10, 40-45, 66
Engineer's Stamp dated: 1-28-16 (H09D017E)
Certification dated: 8-31-16

Dear Ms. Padilla-Moyer,

Based on the Certification received 8/31/2016, the above referenced Certification for the above mentioned is acceptable for building permit by Hydrology.

If you have any questions, you can contact me at 924-3695 or Totten Elliott at 924-3982.

Sincerely,

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

TE/RH
C: email Miranda, Rachel; Cordova, Camille C.; Sandoval, Darlene M.; Blocker, Lois

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: PULTE @ MIREHAVEN PHASE 2A Building Permit #: _____ City Drainage #: H-9 D054E

DRB#. 10006864 EPC#: _____ Work Order#: 650387

Legal Description: PULTE @ MIREHAVEN PHASE 2A (A REPLAT OF TRACT N-2-D OF WATERSHED)

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#. 823-1000 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: PULTE Contact: KEVIN PATTON

Address: 7601 JEFFERSON STREET NE SUITE 310 ALBUQ NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin patton@pultegroup com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE

____ TRAFFIC/ TRANSPORTATION

____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN

____ GRADING PLAN

____ DRAINAGE MASTER PLAN

____ DRAINAGE REPORT

____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)

____ TRAFFIC IMPACT STUDY (TIS)

____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL

____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL

____ SITE PLAN FOR SUB'D APPROVAL

____ SITE PLAN FOR BLDG. PERMIT APPROVAL

____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE

____ FOUNDATION PERMIT APPROVAL

____ GRADING PERMIT APPROVAL

____ SO-19 APPROVAL

____ PAVING PERMIT APPROVAL

x GRADING/ PAD CERTIFICATION

____ WORK ORDER APPROVAL

____ CLOMR/LOMR

____ PRE-DESIGN MEETING

____ OTHER (SPECIFY) _____

RECEIVED AUG 31 2016 LAND DEVELOPMENT SECTION

Paid $50

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: 08-31-16 By: YOLANDA PADILLA MOYER, P.E

COA STAFF. ELECTRONIC SUBMITTAL RECEIVED ___

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

August 31, 2016

Mr. Abiel Carrillo
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Partial Grading and Drainage Certification (Lots 6-10, 40-45, 66) Pulte @ Mirehaven Phase 2A - DRB Case No. 1006864

Dear Abiel:

We are submitting a partial grading and drainage certification for Pulte @ Mirehaven Phase 2A. The partial certification includes Lots 6-10, 40-45, 66. Enclosed for your review is the approved grading and drainage plan dated 01/15/16 and 01-28-16. These lots have been graded; retaining walls, curb and gutter, pavement and downstream infrastructure have been constructed. The remaining lots have been graded, but the retaining walls have not been completed. The remaining lots will be certified once construction of all improvements has been completed.

During site inspection you might notice that there are depressions in the back yards. The purpose of the depressions is to provide a place to spoil dirt that is generated with the footing construction and they will be filled at the time of home construction. The depressions are not intended to serve as ponds.

After reviewing these as-built elevations and visiting the site on 08-31-16 it is my belief that the above lots have been graded in substantial compliance with the approved grading and drainage plan and that the interim drainage improvements allow runoff to be managed in the interim condition.

Your review and approval is requested for Building Permit Approval for the above listed buildings. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure

cc: Kevin Patton, Pulte Homes
Peter Steen, Pulte Homes
Matt Dyer, Pulte Homes

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CITY OF ALBUQUERQUE

August 25, 2016

Yolanda Padilla-Moyer, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Pulte @ Mirehaven 2A
Pad Certification for lots 24, 25, 61-65 and 67-76
Engineer's Stamp dated: 1-28-16 (H09D017E)
Certification dated: 8-23-16

Dear Ms. Padilla-Moyer,

Based on the Certification received 8/23/2016, the above referenced Certification for the above mentioned is acceptable for building permit by Hydrology.

If you have any questions, you can contact me at 924-3695 or Totten Elliott at 924-3982.

Sincerely,

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

TE/RH
C: email Miranda, Rachel; Cordova, Camille C.; Sandoval, Darlene M.; Blocker, Lois

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

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: PULTE @ MIREHAVEN PHASE 2A Building Permit #: _____ City Drainage #: H-9 D017E

DRB#. 10006864 EPC#. _____ Work Order#: 650387

Legal Description: PULTE @ MIREHAVEN PHASE 2A (A REPLAT OF TRACT N-2-D OF WATERSHED)

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: PULTE Contact: KEVIN PATTON

Address: 7601 JEFFERSON STREET NE SUITE 310 ALBUQ NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin patton@pultegroup.com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
_____ TRAFFIC/ TRANSPORTATION
_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ DRAINAGE MASTER PLAN
_____ DRAINAGE REPORT
_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ TRAFFIC IMPACT STUDY (TIS)
_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY

_____ PRELIMINARY PLAT APPROVAL
_____ SITE PLAN FOR SUB'D APPROVAL
_____ SITE PLAN FOR BLDG. PERMIT APPROVAL
_____ FINAL PLAT APPROVAL
_____ SIA/ RELEASE OF FINANCIAL GUARANTEE
_____ FOUNDATION PERMIT APPROVAL
_____ GRADING PERMIT APPROVAL
_____ SO-19 APPROVAL
_____ PAVING PERMIT APPROVAL
x GRADING/ PAD CERTIFICATION
_____ WORK ORDER APPROVAL
_____ CLOMR/LOMR

_____ PRE-DESIGN MEETING
_____ OTHER (SPECIFY) _____

RECEIVED
AUG 23 2016
LAND DEVELOPMENT SECTION

Paid ~~$100.00~~ $50.00

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DATE SUBMITTED: 08-23-16 By: YOLANDA PADILLA MOYER, P.E

COA STAFF ELECTRONIC SUBMITTAL RECEIVED ___

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

August 23, 2016

Mr. Abiel Carrillo
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Partial Grading and Drainage Certification (Lots 24, 25 61-65, 67-76) Pulte @ Mirehaven Phase 2A - DRB Case No. 1006864

Dear Abiel:

We are submitting a partial grading and drainage certification for Pulte @ Mirehaven Phase 2A. The partial certification includes Lots 24, 25 61-65, 67-76. Enclosed for your review is the approved grading and drainage plan dated 01/15/16 and 01-28-16. These lots have been graded; retaining walls, curb and gutter, pavement and downstream infrastructure have been constructed. The remaining lots have been graded, but the retaining walls have not been completed. The remaining lots will be certified once construction of all improvements has been completed.

During site inspection you might notice that there are depressions in the back yards. The purpose of the depressions is to provide a place to spoil dirt that is generated with the footing construction and they will be filled at the time of home construction. The depressions are not intended to serve as ponds.

After reviewing these as-built elevations and visiting the site on 08-22-16 it is my belief that the above lots have been graded in substantial compliance with the approved grading and drainage plan and that the interim drainage improvements allow runoff to be managed in the interim condition.

Your review and approval is requested for Building Permit Approval for the above listed buildings. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

RECEIVED
AUG 23 2016
LAND DEVELOPMENT SECTION

Enclosure

cc: Kevin Patton, Pulte Homes
Peter Steen, Pulte Homes
Matt Dyer, Pulte Homes

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

P \20160103\Correspondence\Submittals\Grading Cert\Lots 24, 25 61-65, 67-76\20160103 Partial Drainage Cert (Partial Lots Lots 24, 25 61-65, 67-76) docx

CITY OF ALBUQUERQUE

February 17, 2016

Yolanda Padilla-Moyer, PE
Christian Sholtis, PE
Bohannan Huston, Inc.
7500 Jefferson NE, Courtyard I
Albuquerque, NM 87109

Re: DMP for Pulte @ Mirehaven Phase 2
N-2-D of the Watershed Subdivision
Engineer's Stamp Date 1/28/2016 (H09D017E)

Dear Ms. Padilla-Moyer, P.E. & Mr. Sholtis, P.E.

Based upon the information provided in your submittal received 2-1-16, the DMP and the Grading and Drainage plans are approved for Preliminary Plat, Workorder, and Grading. Please include a copy of the approved Grading and Drainage Plan with the construction sets prior to sign-off by Hydrology.

An Erosion Sediment Control (ESC) plan was submitted by Superior Stormwater Services, LLC with engineering stamp date of 1/12/2016 and was approved on 1/14/2016. This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge for disturbing one acre or more and a Topsoil Disturbance Permit for disturbing ¾ of an acre or more. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Department
Development Review Services

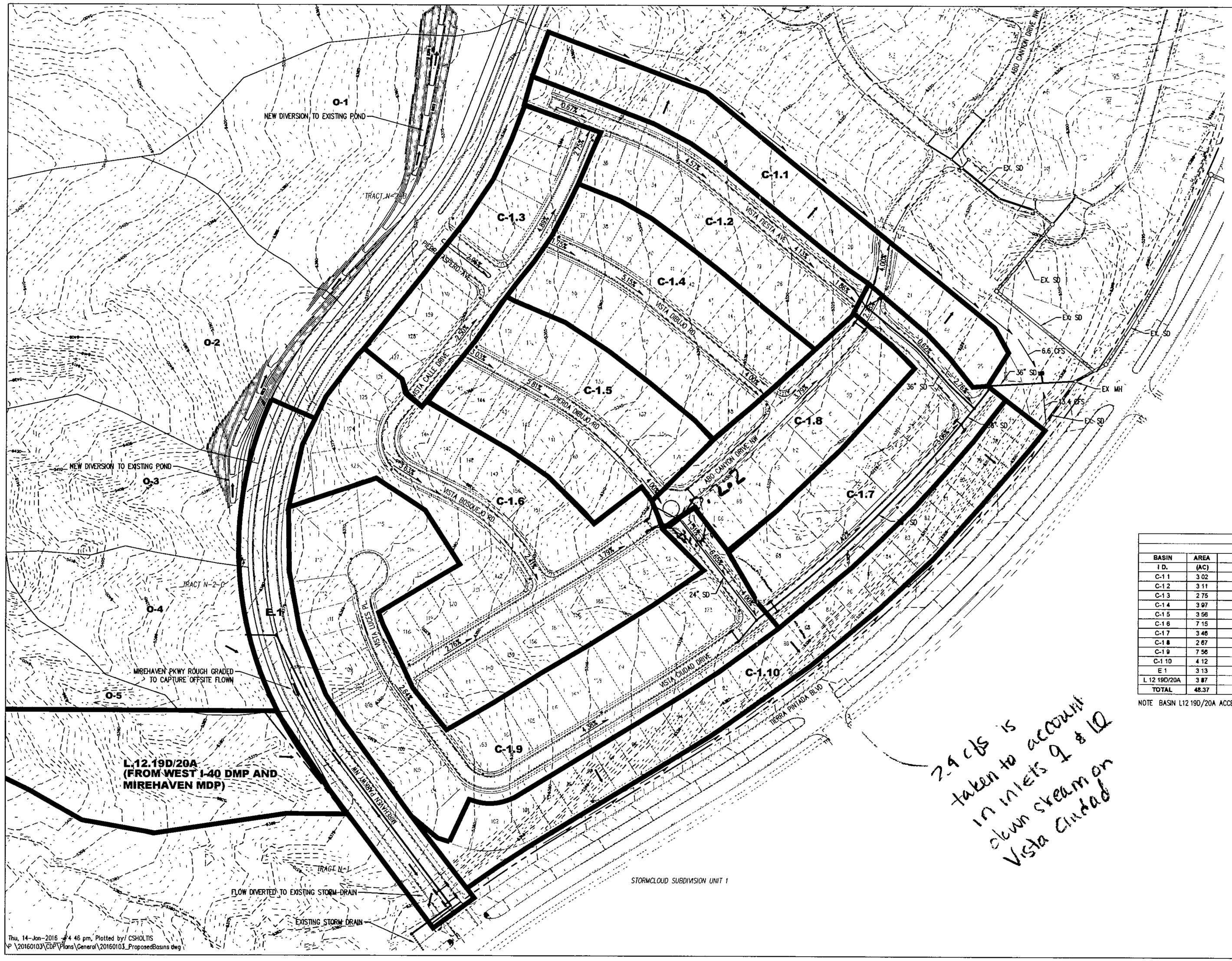
C: e-mail

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

PULTE PHASE 2 @ MIREHAVEN

PROPOSED BASINS MAP

JANUARY 2016


O-1
NEW DIVERSION TO EXISTING POND
TRACT N-2
O-2
NEW DIVERSION TO EXISTING POND
O-3
TRACT N-2-C
O-4
O-5
MIREHAVEN PKWY ROUGH GRADED TO CAPTURE OFFSITE FLOWN
L.12.19D/20A (FROM WEST I-40 DMP AND MIREHAVEN MDP)
TRACT N-1
FLOW DIVERTED TO EXISTING STORM DRAIN
EXISTING STORM DRAIN
E-1
C-1.1
C-1.2
C-1.3
C-1.4
C-1.5
C-1.6
C-1.7
C-1.8
C-1.9
C-1.10
L.12
VISTA FIESTA AVE
VISTA DIABLO RD
PIEDRA DIABLO RD
VISTA BOSQUE RD
VISTA CALLE DRIVE
VISTA CIUDAD DRIVE
TIERRA PINTADA BLVD
MIREHAVEN PKWY NW
ABO CANYON DRIVE NW
STORMCLOUD SUBDIVISION UNIT 1
EX. SD
6.6 CFS
36" SD
EX MH
13.4 CFS
24" SD
0.67%
2.70%
4.57%
4.13%
1.89%
1.00%
2.03%
3.15%
2.81%
3.03%
3.10%
2.78%
4.39%
2.78%
2.24%
2.24%
2.24

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: GRADING PLAN FOR THE PULTE @ MIREHAVEN PHASE 2 AND 2A Building Permit #: _____ City Drainage #: H09/D017E

DRB#: 1006864 EPC#: _____ Work Order#: 650387

Legal Description: N-2-D OF THE WATERSHED SUBDIVISION

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Padilla Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 798-7945 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: Pulte Group Contact: KEVIN PATTON

Address: 7601 JEFFERSON ST NE SUITE 320 ALBUQUERQUE NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin.patton@pultegroup com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact. _____

Address: _____

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

Check all that Apply

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
X GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

X OTHER (SPECIFY) GRADING PLAN REVISION (Overall and Phased

IS THIS A RESUBMITTAL?: X Yes ____ No

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
X OTHER (SPECIFY) GRADING REVISION APPROVAL

RECEIVED
FEB 01 2016
LAND DEVELOPMENT SECTION

DATE SUBMITTED: 01-29-16 By: Yolanda Padilla Moyer, P.E.

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: GRADING PLAN FOR THE PULTE @ MIREHAVEN PHASE 2 AND 2A Building Permit #: _____ City Drainage #: H09/D017E

DRB#: 1006864 EPC#: _____ Work Order#: 650387

Legal Description: N-2-D OF THE WATERSHED SUBDIVISION

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Padilla Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 798-7945 Fax#. _____ E-mail: ypadilla@bhinc.com

Owner: Pulte Group Contact: KEVIN PATTON

Address: 7601 JEFFERSON ST NE SUITE 320 ALBUQUERQUE NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin.patton@pultegroup.com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

X HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION

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____ CLOMR/LOMR

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____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

X OTHER (SPECIFY) GRADING PLAN REVISION (Overall and Phased

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RECEIVED
FEB 01 2016
LAND DEVELOPMENT SECTION

DATE SUBMITTED: 01-29-16 By: Yolanda Padilla Moyer, P.E.

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

Bohannan ▲ Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

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voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

January 29, 2016

Mr. John Ellis
Franklin's Earthmoving Inc
2425 Jefferson NE
Albuquerque, NM 87110

Re: Pulte @ Mirehaven Phase 2A Grading Plan Revision #1

Dear John:

Please find enclosed a Revision #1 for the above mentioned grading plan. A number of lot pads have increased from an 85' depth to a 90' depth with the adjustment being added to the back. Please find enclosed a revised grading plan and cad files for this change.

The lots affected are Lots 1-19, 22-32, 36, 48-52, 54-76, 79-89 and future pads, which are to be graded with this plan, 90, 130, 132-139, 152, and 173.

Please find enclosed the revised plan. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure

cc: Kevin Patton, Pulte Homes
Peter Steen, Pulte Homes
Abiel Carrillo, COA

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FEB 01 2016
LAND DEVELOPMENT SECTION

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CITY OF ALBUQUERQUE

January 26, 2016

Yolanda Padilla-Moyer, PE
Christian Sholtis, PE
Bohannan Huston, Inc.
7500 Jefferson NE, Courtyard I
Albuquerque, NM 87109

Re: DMP for Pulte @ Mirehaven Phase 2
N-2-D of the Watershed Subdivision
Engineer's Stamp Date 1/15/2016 (H09D017E)

Dear Ms. Padilla-Moyer, P.E. & Mr. Sholtis, P.E.

Based upon the information provided in your submittal received 1-15-16, the DMP and the Grading and Drainage plans are approved for Final Plat and workorder. Please include a copy of the approved Grading and Drainage Plan with the construction sets prior to sign-off by Hydrology.

An Erosion Sediment Control (ESC) plan was submitted by Superior Stormwater Services, LLC with engineering stamp date of 1/12/2016 and was approved on 1/14/2016. This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge for disturbing one acre or more and a Topsoil Disturbance Permit for disturbing ¾ of an acre or more. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Department
Development Review Services

C: e-mail

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

City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 02/2013)

Project Title: DMP FOR THE PULTE @ MIREHAVEN PHASE 2 Building Permit #: _____ City Drainage #: H09/D017E
DRB#: 1006864 EPC#: _____ Work Order#: _____
Legal Description: N-2-D OF THE WATERSHED SUBDIVISION
City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Christian Sholtis
Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109
Phone#: 823-1000 Fax#: _____ E-mail: csholtis@bhinc.com

Owner: WESTERN ALBUQUERQUE LAND HOLDINGS, LLC Contact: JEFF GARRETT
Address: 3131 CAMELBACJ=K RD SUITE 200 PHOENIX, AZ 85016
Phone#: 602-427-4064 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X GRADING PLAN (PHASED 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
___ 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
X WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
JAN 15 2016
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided
DATE SUBMITTED: 01-15-16 By: Yolanda Moyer, 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

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

January 15, 2016

Mr. Shahab Biazar, P.E.
City Engineer
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Grading and Drainage Plan Resubmittal, Pulte @ Mirehaven Phase 2
DRB Case No. 1006864

Dear Shahab:

Below are the responses to our comments provided on January 11, 2016 as a well as a new Drainage Report and Grading plan.

1. Update storm drain map to reflect all the latest changes. Include the type of inlets (A or C) for each inlet. Provide all pipe sizes and capacity.
    - A new Drainage Report with updates and Grading Plan have been included in this submittal with matching dates which include an updated storm drain map.
2. Lots 6-20 drain to the back of the lots, to a swale and then to Abo Canyon Drive. The swale appears to go through an existing retaining wall. How does runoff get to Abo Canyon Drive? Does it drain over the wall and then over the sidewalk? It might be better to drain the runoff to the north to the pond and then to Abo Canyon Drive. Will there be sidewalk culvert?
    - Additional spots have been included to indicate a separation of flow where 6 – 13 flows east to a highpoint and then flows north in the middle to the Linear Park and down the desiltation pond before entering Abo Canyon. Lot 14-19 which flow east and west to Lot 17/18 lot line where is will travel north and east between the two existing walls to an area drain where it will be collected and piped to the base of the wall and discharge into Abo Canyon. No sidewalk culvert is being proposed

3. Section A-A shows a dimension of 7'-12' for the upper wall. Will the 7' be adequate for the swale or should it be 8' minimum? Is the 1" rock adequate size for the amount of runoff? Will there be a need for drop structures/erosion protection?
    - The swale analysis was provided with the previous submittal which indicated that 7' was an adequate width. Cross-section A-A has been revised to reflect only a 7' swale even though the width between walls maybe greater. Also see note that was added to the grading plan for the construction of the swale which indicates the swale to be constructed at a 7' width. The note indicated 1"-2" gravel size which is adequate. See enclosed NMDOT Drainage Manual Volume II for Sedimentation and

Bohannan Huston

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7500 Jefferson St. NE
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87109-4335

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toll free: 800.877.5332

Erosion. Table 6-2 indicates that that Coarse Gravel is adequate for velocities up to 6 fps. The maximum velocity is our case being 4 fps. The cobble swale riprap has been taken to the bottom of the pond where there will be 5'·x 5' erosion control pad at the bottom of the pond. The pond will also be landscaped.

4. If updating plans please keep all the dates the same for all the plans and the report.
    - A new Drainage Report with updates and Grading Plan have been included in this submittal with matching dates
5. DMP shows that Vista Calle Drive is to drain to Vista Fiesta. Therefore, water block must be placed at the north end of Piedra Dibujo Road and Vista Dibujo Road to keep the runoff within Vista Calle Drive.
    - Developed flow entering Valle Calle Drive can be conveyed and contained on the north side of the street without spilling over the street crown. Therefore, the only flow that can turn and flow into Pierda Dibujo and Vista Dibujo is that which is generated by the street itself (Vista Calle) on the south side of the street crown. The flow which can turn out of Vista Calle is negligible with regards to the downstream inlet/street analysis (0.3 cfs and 0.2 cfs for Pierda Dibujo and Vista Dibujo respectively). Therefore, water blocks at these locations aren't necessary for this small amount of flow which can easily be accommodated by the proposed downstream inlets (see attached sketch for flow quantities).

Please find enclosed the revised plan; we are requesting your review and approval. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Chris Sholtis, P.E.
Senior Project Manager
Community Development & Planning

Enclosure

cc: Kevin Patton, Pulte Homes

New Mexico State Highway and Transportation Department

DRAINAGE MANUAL
Volume II, Hydraulics, Sedimentation and Erosion

Table 6-2 Permissible Velocities for Grass and Earth-Lined Channels

Grass Lining			
Channel Slope	Grass Lining	Permissible Velocity*	Highly Erodible Soils (=.75*)
5-10%	Small grains (temp)		
	Bermuda grass	1.5 m/s	1.125
	Reed canary grass	1.2 m/s	Ø.9
	Tall fescue	1.2 m/s	Ø.9
	Grass-legume mixture	0.9 m/s	Ø.675
>10%	Bermuda grass	1.2 m/s	Ø.9
	Reed canary grass	0.9 m/s	Ø.675
	Tall fescue	0.9 m/s	Ø.675

* For highly erodible soils, decrease permissible velocities by 25%

Earth Linings	
Earth Lining Soil Types	Permissible Velocity
Fine Sand (noncolloidal)	2.5 ft/s
Sandy Loam (noncolloidal)	2.5 ft/s
Silt Loam (noncolloidal)	3.0 ft/s
Ordinary Firm Loam	3.5 ft/s
Fine Gravel	5.0 ft/s
Stiff Clay (very colloidal)	5.0 ft/s
Graded, Loam to Cobbles (noncolloidal)	5.0 ft/s
Graded, Silt to Cobbles (colloidal)	5.5 ft/s
Alluvial Silts (noncolloidal)	3.5 ft/s
Alluvial Silts (colloidal)	5.0 ft/s
Coarse Gravel (noncolloidal)	6.0 ft/s
Cobbles and Shingles	5.5 ft/s
Shales and Hard Pans	6.0 ft/s

Source: HEC-15 (1988)

Analyzer Report

==========
Drainage Structure Analyzer

Channel Hydraulic Analysis

Date: Tuesday, December 15, 2015 4:29:49 PM
==========

Input Data

Shape	V-Shaped
Material	Gravel Riprap 1"
Roughness	0.033000
Left Slope	33.0000%
Right Slope	33.0000%
Bed Slope	1.9000%
Flow Rate	13.4000 cfs

Output Results

Flow Rate	13.4000 cfs
Depth	1.0608 ft
Velocity	3.9296 ft/s
Top Width	6.4291 ft
Critical Depth	1.0390 ft

Critical

Basin C-1.10

Q= 13.4 CFS

Analyzer Report

==========
Drainage Structure Analyzer

Channel Hydraulic Analysis

Date: Tuesday, December 15, 2015 4:39:24 PM
==========

Input Data

Shape	V-Shaped
Material	Gravel Riprap 1"
Roughness	0.033000
Left Slope	33.0000%
Right Slope	33.0000%
Bed Slope	3.0000%
Flow Rate	7.4000 cfs

Output Results

Flow Rate	7.4000 cfs
Depth	0.7794 ft
Velocity	4.0204 ft/s
Top Width	4.7234 ft
Critical Depth	0.8190 ft

Super Critical

Basin C-1.1 (North 3/4)

$Q = 0.75(9.8) = 7.4$ CFS

Analyzer Report

==========
Drainage Structure Analyzer

Channel Hydraulic Analysis

Date: Tuesday, December 15, 2015 4:39:57 PM
==========

Input Data

Shape	V-Shaped
Material	Gravel Riprap 1"
Roughness	0.033000
Left Slope	33.0000%
Right Slope	33.0000%
Bed Slope	1.0000%
Flow Rate	2.4000 cfs

Output Results

Flow Rate	2.4000 cfs
Depth	0.6278 ft
Velocity	2.0095 ft/s
Top Width	3.8048 ft
Critical Depth	0.5220 ft

Subcritical

Basin C-1.1 (South 1/4)

$Q = 0.25(9.8) = 2.4$ CFS

City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 02/2013)

Project Title: DMP FOR THE PULTE @ MIREHAVEN PHASE 2 Building Permit #: _____ City Drainage #: H09/D017E

DRB#: 1006864 EPC#: _____ Work Order#: _____

Legal Description: N-2-D OF THE WATERSHED SUBDIVISION

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Christian Sholtis

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: csholtis@bhinc com

Owner: WESTERN ALBUQUERQUE LAND HOLDINGS, LLC Contact: JEFF GARRETT

Address: 3131 CAMELBACJ=K RD SUITE 200 PHOENIX, AZ 85016

Phone#: 602-427-4064 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

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

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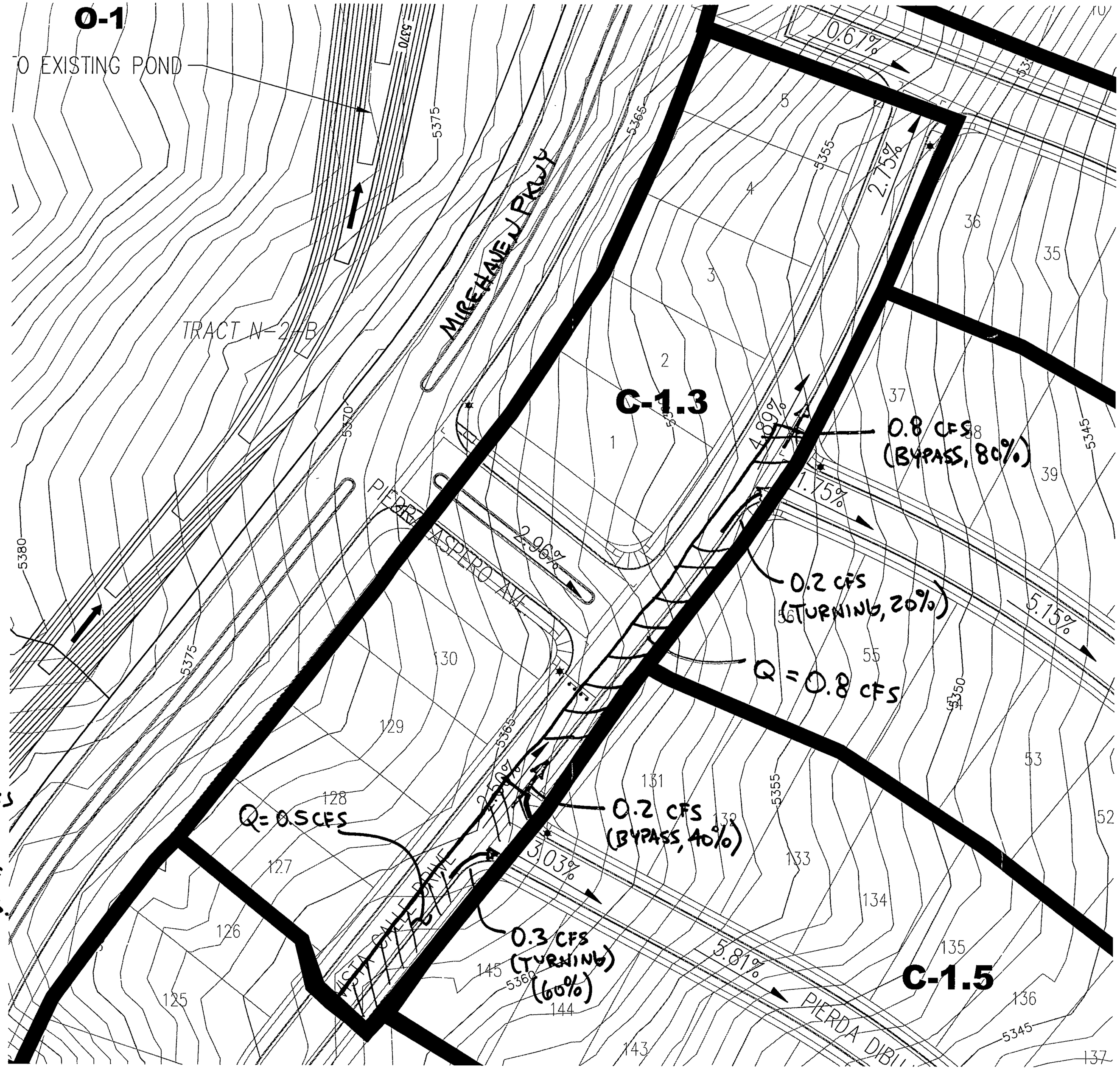
RECEIVED
JAN 15 2016
LAND DEVELOPMENT SECTION

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

DATE SUBMITTED: 1-15-16 By: Yolanda Moyer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, anc 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

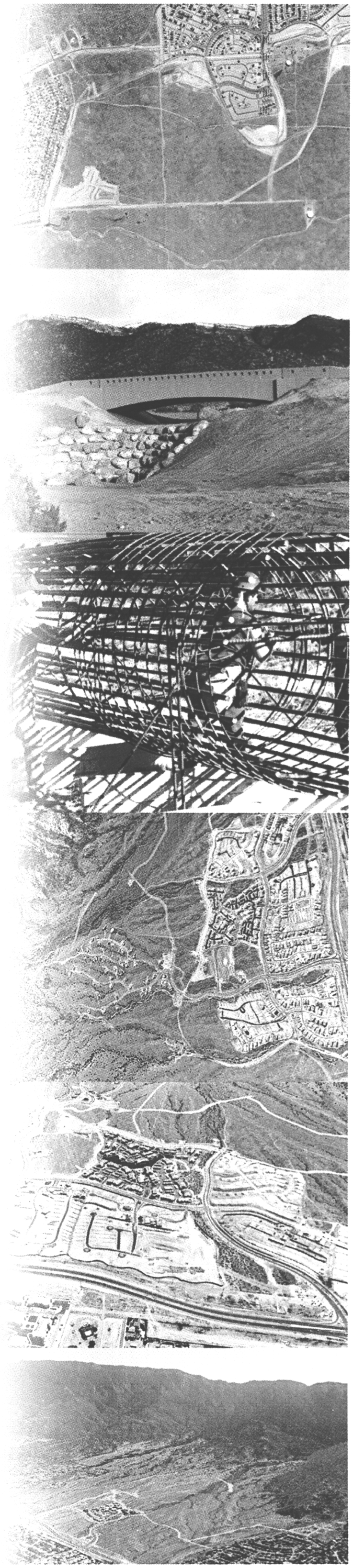
1. **Conceptual Grading and Drainage Plan**· Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans** Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report** Required for subdivision 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



NOTE: FLOW RATIOS FOR TURNING AND BYPASS DETERMINED WEIGHTING THE STREET GRADES OF THE INTERSECTING STREETS.

NTS

DRAINAGE MANAGEMENT PLAN FOR PULTE @ MIREHAVEN PHASE 2 (TRACTS N-2-D OF THE WATERSHED SUBDIVISION)



JANUARY 15, 2015

Prepared for:

Pulte Homes of New Mexico
7301 Jefferson Blvd. NE, Suite 320
Albuquerque, NM 87109

RECEIVED
JAN 15 2015
LAND DEVELOPMENT SECTION

Prepared by:

Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

DRAINAGE MANAGEMENT PLAN
FOR
PULTE @ MIREHAVEN PHASE 2
(TRACTS N-2-D OF THE WATERSHED SUBDIVISION)

JANUARY 15, 2016

Prepared for:

PULTE HOMES OF NEW MEXICO
7601 JEFFERSON BLVD. NE, SUITE 320
ALBUQUERQUE, NM 87109

Prepared by:

BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109

Prepared by:

1-15-16

Christian J. Sholtis, P.E. Date
Senior Project Manager

CHRISTIAN J. SHOLTIS
NEW MEXICO
16244
LICENSED PROFESSIONAL ENGINEER

Bohannan Huston

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APPENDICES

APPENDIX A STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS

EXHIBITS

EXHIBIT 1: PRELIMINARY PLAT
EXHIBIT 2: EXISTING BASINS MAP
EXHIBIT 3: PROPOSED BASINS MAP
EXHIBIT 4: STORM DRAIN NETWORK MAP
EXHIBIT 5: GRADING PLAN
EXHIBIT 6: PHASED GRADING PLAN

I. PURPOSE

The purpose of this report is to provide a Drainage Management Plan for Pulte @ Mirehaven Phase 2. Pulte @ Mirehaven Phase 2 encompasses Tract N-2-D of the Watershed Subdivision and will consist of 173 single family residential lots on approximately 47 acres. This report will provide drainage analysis to support proposed site specific drainage infrastructure in order to obtain approval of the preliminary/final plat and grading plan by the City of Albuquerque.

II. CONCEPTS AND METHODOLOGIES

Drainage conditions were analyzed utilizing the 100-year, 6-hour storm event in accordance with the City of Albuquerque Drainage Ordinance and the *Development Process Manual (DPM), Volume 2 Design Criteria, Section 22.2, Hydrology, The City of Albuquerque*, January 2002. The proposed project site is approximately 47 acres; however, sub-basins are broken down into areas mush less than 40 acres. Therefore, Part A of the DPM, Section 22.2, which provides a simplified procedure for projects with sub-basins smaller than 40 acres, was used. The project lies within Precipitation Zone 1.

The following document was referenced in the preparation of this report:

- *Drainage Master Plan for Pulte at Mirehaven Phase 1* prepared by Bohannan Huston, Inc., dated December 2013.

This drainage report outlines the developed drainage management concepts and parameters for the project site as well as surrounding areas. The hydrologic calculations for this project use a unit discharge of 3.25 cfs consistent with the Master Drainage Plan.

For street hydraulics, the maximum hydraulic capacity for this project is defined as the maximum flow that can be attained without the energy line exceeding the elevation at the street Right-of-Way, as allowed by the City of Albuquerque DPM.

Storm drain pipe hydraulics were analyzed using Manning's equation, with an "n" value of 0.013, and an HGL slope equal to the corresponding street grade.

III. SITE LOCATION AND CHARACTERISTICS

The Mirehaven Master Planned Community is comprised of approximately 285 acres, encompassing the project areas as well as other bulk tracts within the Watershed Subdivision area. The entire master plan area is bounded by the Petroglyph National Monument to the north and west, Tierra Pintada Blvd. to the east and Tract N-1 (future APS school site) to the south. The project site (Pulte @ Mirehaven Phase 2 (Tract N-2-D)) is

approximately 47 acres and is located just north of Tierra Pintada Blvd. on the south side of Mirehaven Parkway. The existing topography slopes from northwest to southeast across the site, with an average grade of about 6 percent. Native vegetation consists primarily of native grasses and bushes, with few trees within the site.

IV. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

The project site is currently undeveloped. As stated in the *Drainage Master Plan for the Mirehaven Master Planned Community,* existing flows drain into Tierra Pintada Blvd., where runoff enters the storm drain networks within improved streets that eventually discharge into the AMAFCA Ladera Dam System. Please refer to the *West I-40 Drainage Management Plan* and the *Drainage Report for Stormcloud Subdivision* for further information regarding the continuation of downstream analysis of the existing storm drain network and the Ladera Dam System.

V. DEVELOPED HYDRAULIC AND HYDROLOGIC CONDITIONS

A. OFFSITE FLOWS

Offsite flows impact the project site from the west and northwest with flows originating within the Petroglyph National Monument area. Offsite Basins O-1 and O-2 and O-3 will drain north to an existing pond via a new diversion (see *Proposed Basin Map*, **Exhibit 3**). The existing pond directs runoff into an existing storm drain system as per the MDP. Basins O-4 and O-5 will be diverted to the existing storm drain system at the northwest corner of Tierra Pintada Blvd. and Mirehaven Pkwy (MDP Outfall 'E'), also per the MDP. Flows south of Basin O-5 will drain to the existing storm drain system. The diversions of offsite undeveloped flows represent a temporary condition until development occurs on the opposite side of Mirehaven Pkwy, at which time, developed flows will be captured by future storm drain facilities, and offsite flows will no longer impact this project and the temporary diversions will no longer be needed.

B. ONSITE FLOWS

Developed flows were calculated based on du/ac as shown on Table A-5 in Chapter 22, Section 2 of the City of Albuquerque's Development Process Manual as per the previously approved Master Drainage Plan (MDP) for the site and surrounding areas. This project will discharge stormwater to Outfall 'C; as detailed in the MDP via an existing 48-inch RCP storm drain pipe just north of Tierra Pintada Blvd. The future developed portion of Mirehaven Parkway north of Tierra Pintada Blvd. will discharge to Outfall 'E' as detailed in

the MDP. While the proposed onsite streets are standard crowned streets, Mirehaven Parkway is an inverted crown street as previously approved (see **Appendix A** for Street Capacities).

As shown on the Developed Conditions Basin Map, all onsite sub-basins will discharge to the existing 48" storm drain line located just north of Tierra Pintada Blvd. at the far east corner of the site. Onsite flows will be conveyed to the existing storm drain system by constructed streets as well as a new storm drain system within the project. New storm inlets will be placed where street surface flows reach maximum hydraulic capacity. Due to the relative steepness of the site which results in high velocity flows and corresponding energy lines, maximum hydraulic capacity in the streets is generally far less than curb height (see **Developed Conditions Basin Map** and **Proposed Storm Drain Network Map** for basin flows and storm drain inlet and pipe sizes).

C. FIRST FLUSH REQUIREMENTS

This project is required to meet the first flush requirements of the new City Drainage Ordinance. The first flush requirement will be met with on lot ponding and is calculated as 0.34 in. (0.44 in. - 0.1 in. initial abstraction) times the roof area that can drain to the on lot pond (taken as one half the pad area). There are two pad sizes, 45 ft. x85 ft. and 50 ft. x 85 ft., in this project, with a first flush requirement of 54 and 60 cubic feet, respectively.

First flush will be accommodated by onsite ponding on each lot with a front yard pond typically located between the curb and the sidewalk. For lots within Basins C-1.1 and C-1.10, backyard ponds will be utilized as these lots drain toward the rear of the lot instead.

Additionally, multiple shallow ponds will be located within common landscape tracts (see **Grading Plan**) which will also capture flows in the first flush.

VI. CONCLUSION

This report provides the drainage concepts in support of the development of Pulte @ Mirehaven Phase 2, and is consistent with the previously approved Master Drainage Plan for the site. Developed flows generated by the project site will be discharged to an existing storm drain pipe system with maximum runoff meeting the parameters allowed by the Master Drainage Plan. Offsite flows will be ponded to the west of the site until such time that the offsite basins are developed, at which time, those offsite flows will be captured and conveyed to the Mirehaven Arroyo by future improvements as part of those projects. Additionally, this drainage report maintains the overall drainage pattern of the area and

allows for the safe management of storm runoff in the fully developed condition as well as interim conditions.

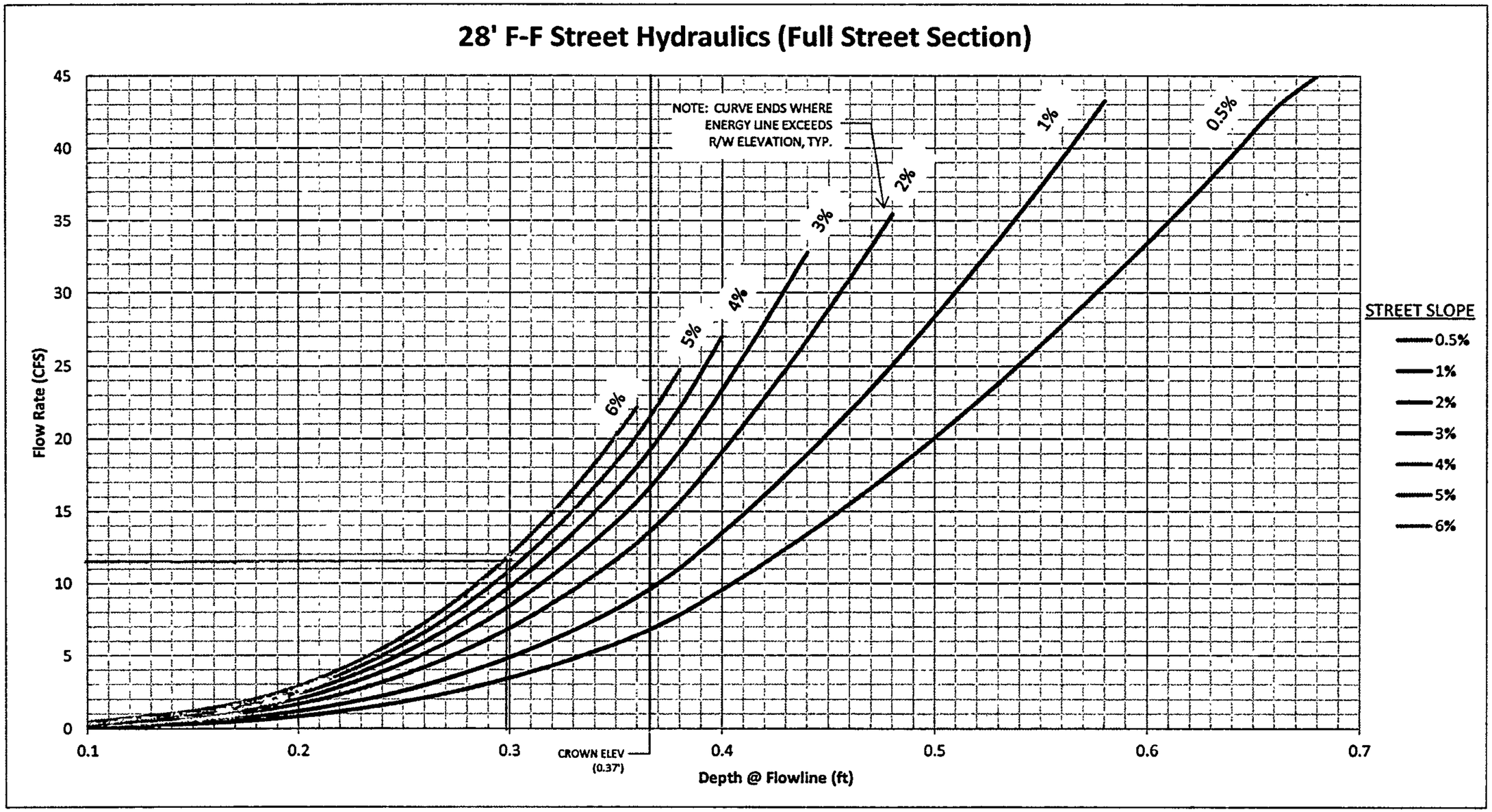
APPENDICES

APPENDIX A: STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS

APPENDIX A

STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS

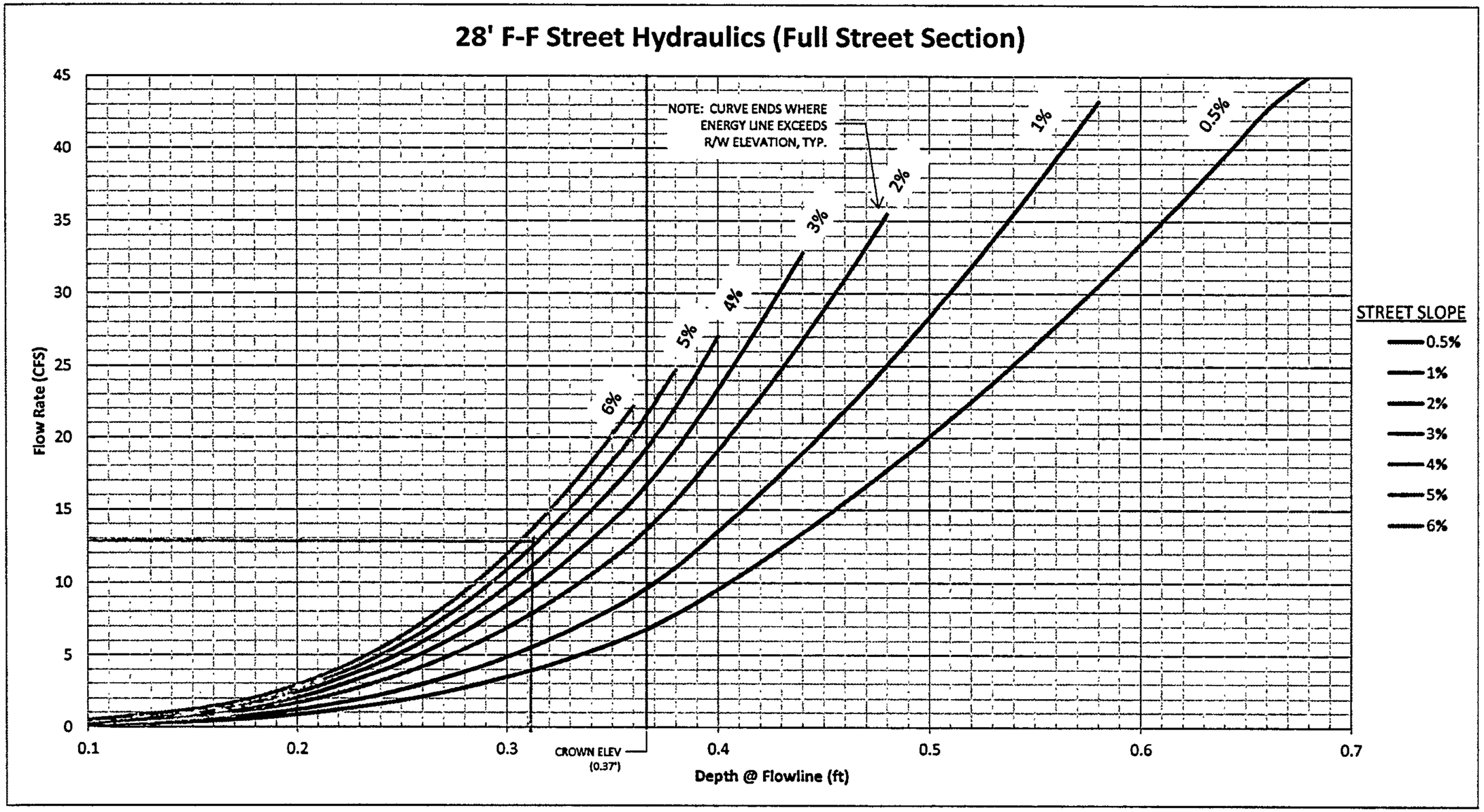
Bohannan Huston



Pierda Dibujo Rd

C-1.5 = 11.6 CFS ⇒ D = 0.30'

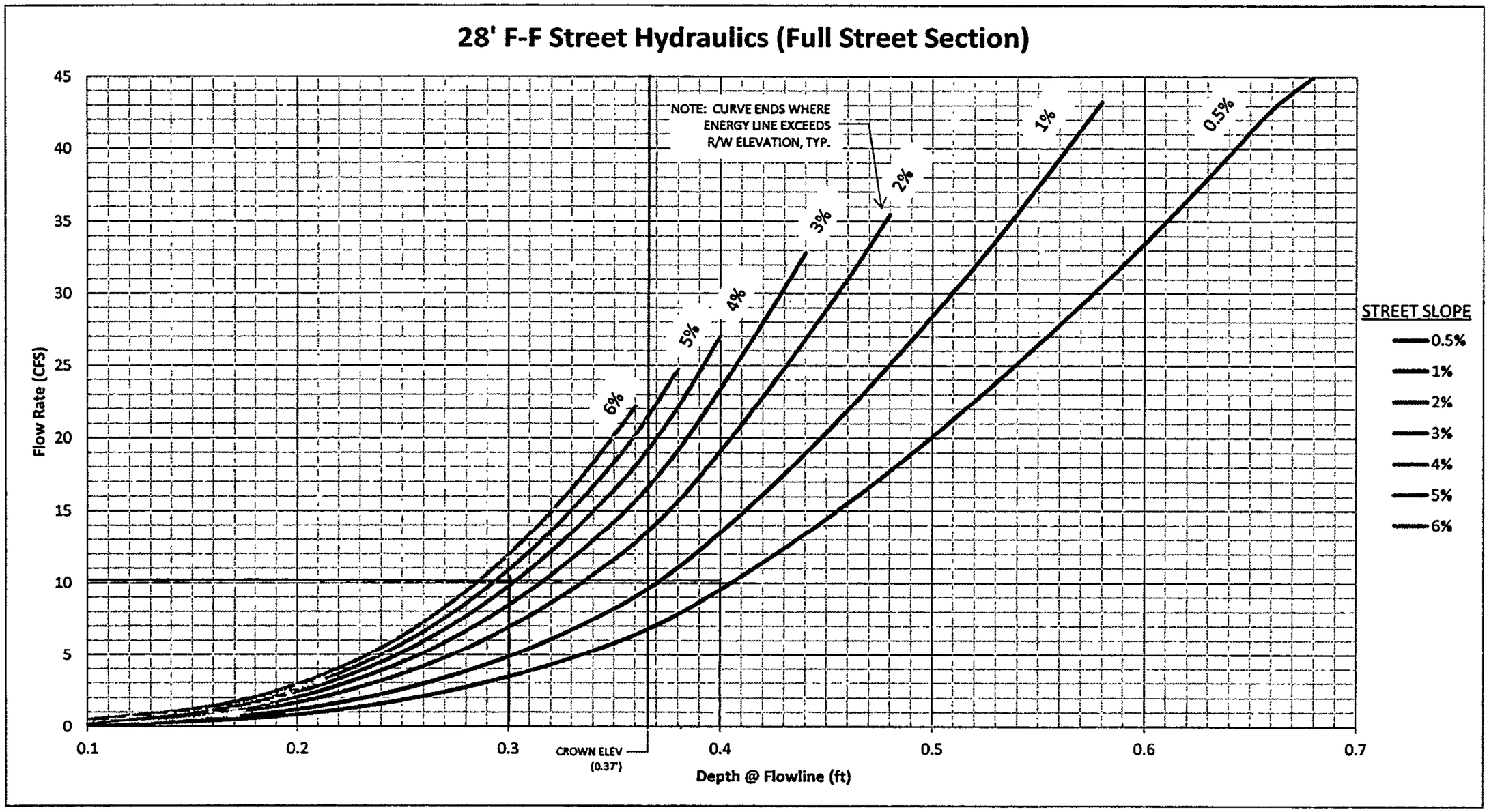
S = 5.8%



Vista Dibujo Rd

C-1.4 = 12.9 cfs ⇒ D = 0.31'

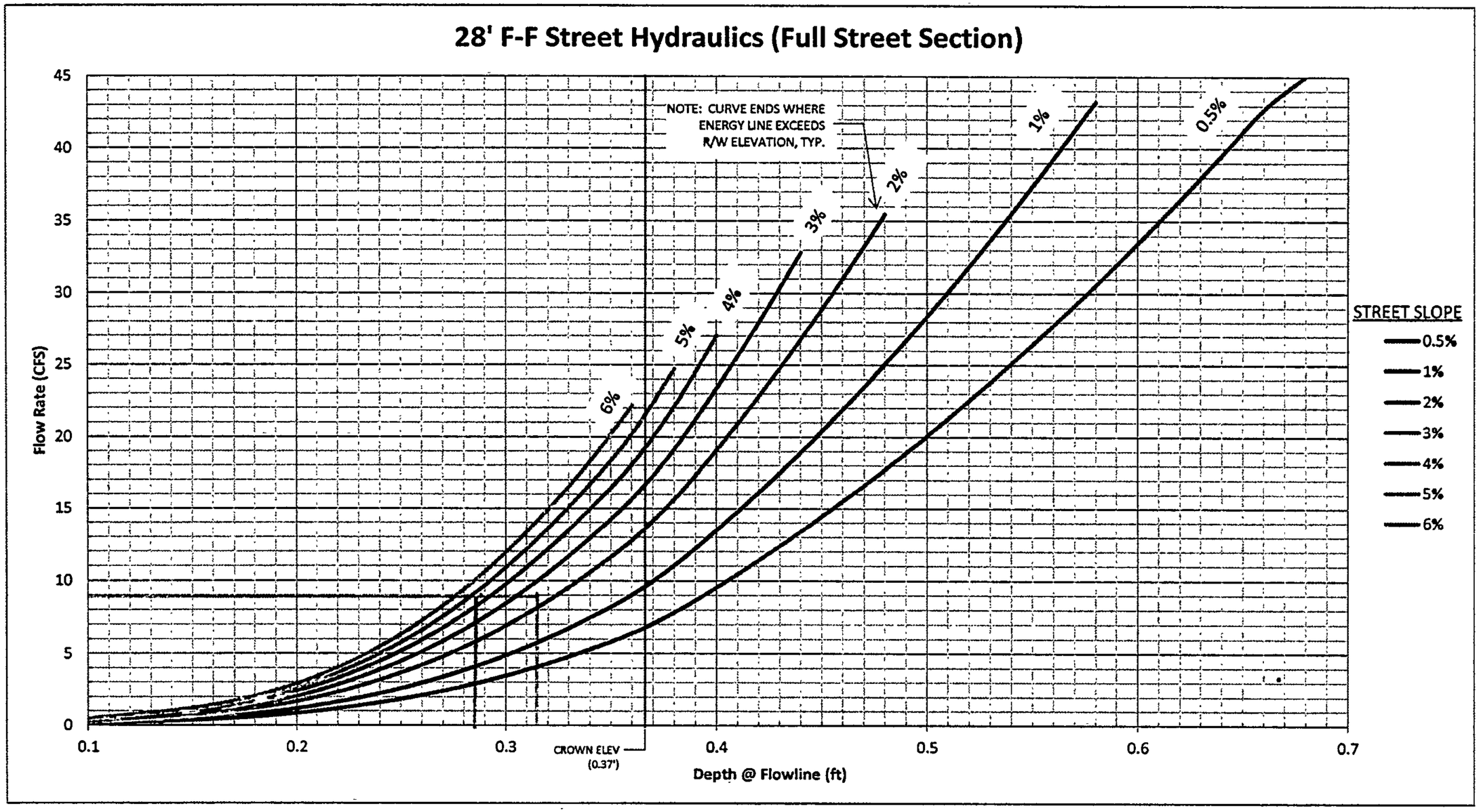
S = 5.2%



Vista Fiesta Ave

C-1.2 = 10.1 cfs ⇒ D = 0.30', 0.40'

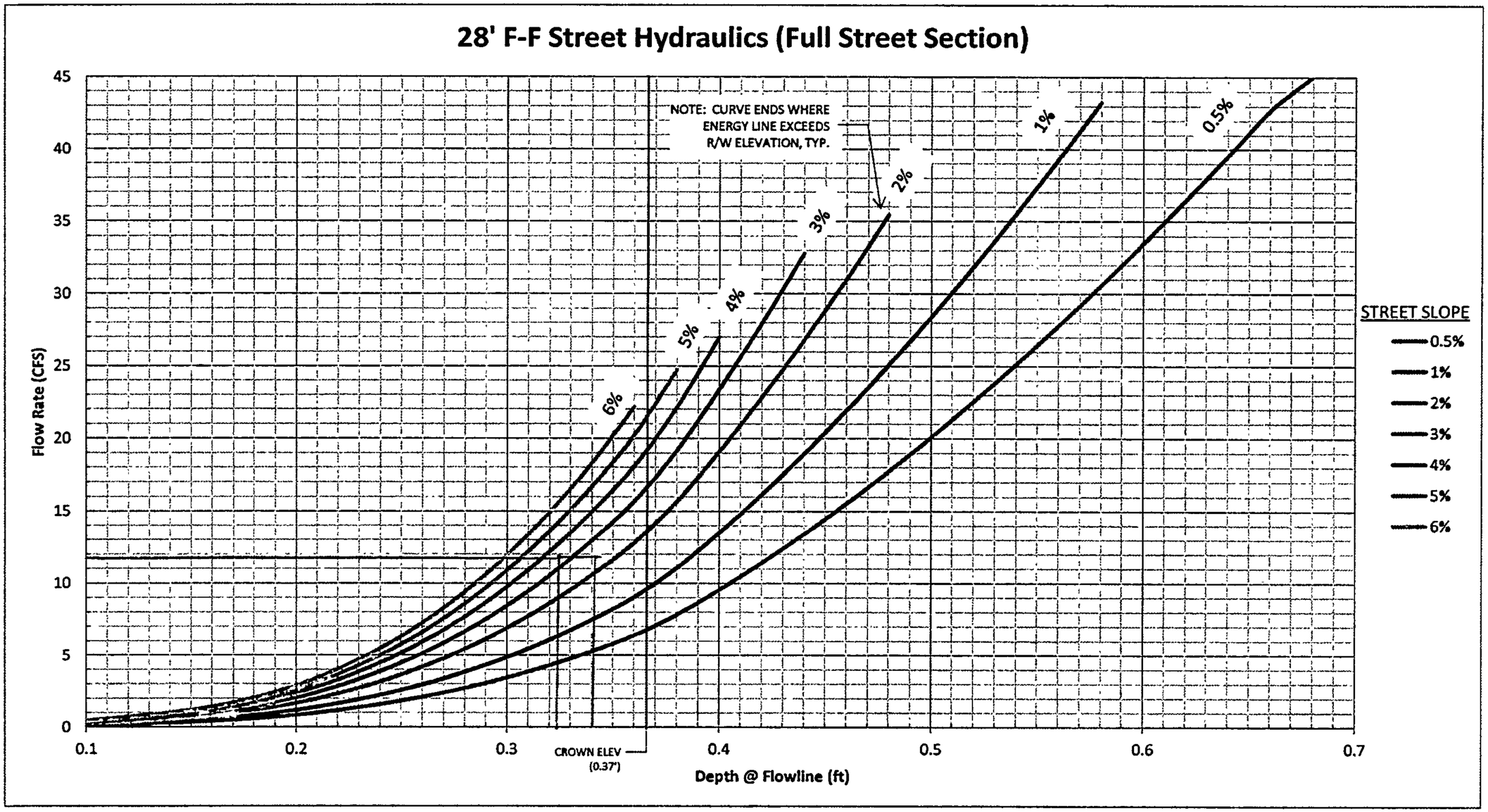
S = 4.1% 0.6%



Vista Calle Dr.

C-1.3 = 9.0 cfs ⇒ D = 0.28', 0.31'

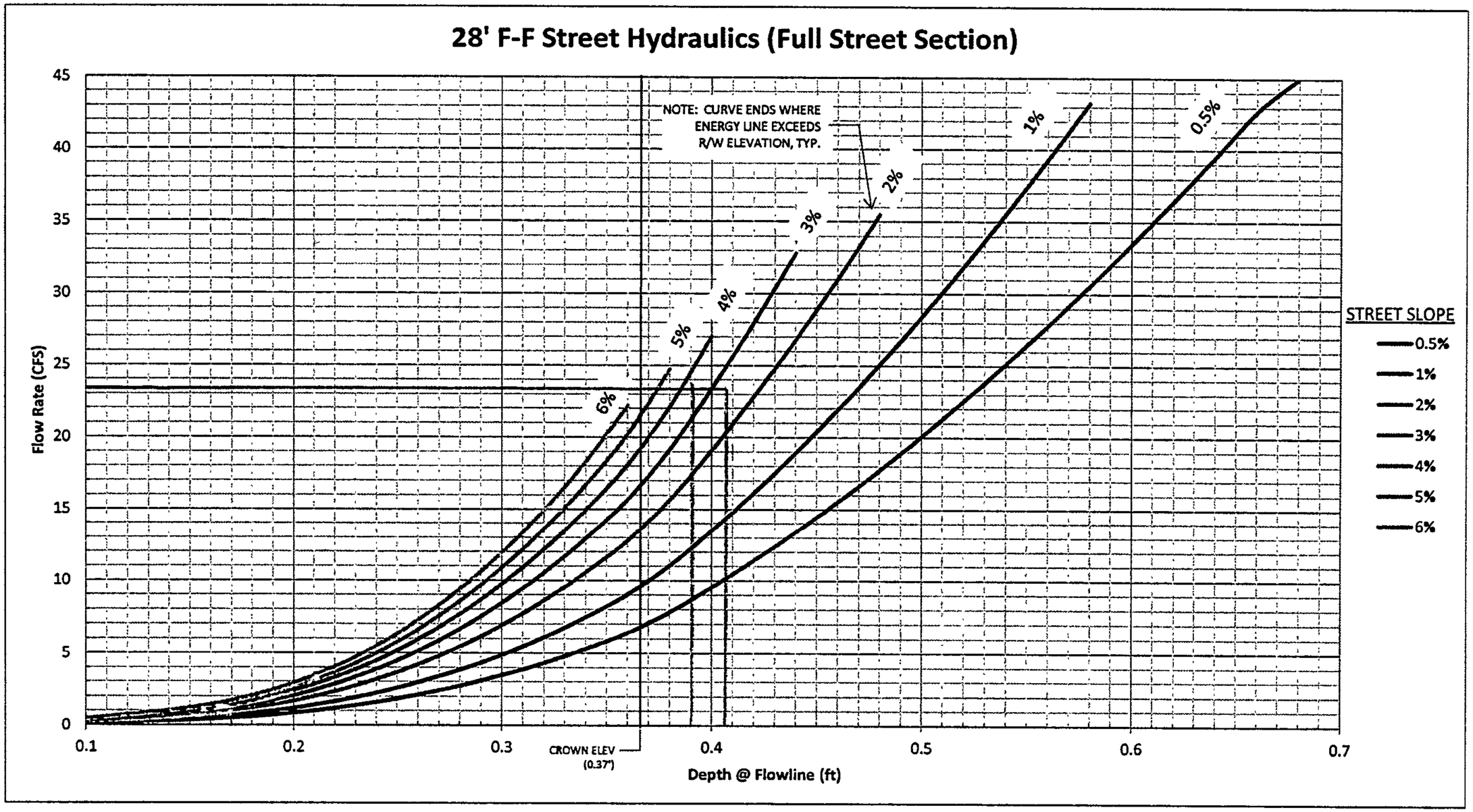
S = 2.5%, 4.9%



Vista Bosquejo Rd

~½ C-1.6 = 11.7 cfs ⇒ D = 0.32', 0.34'

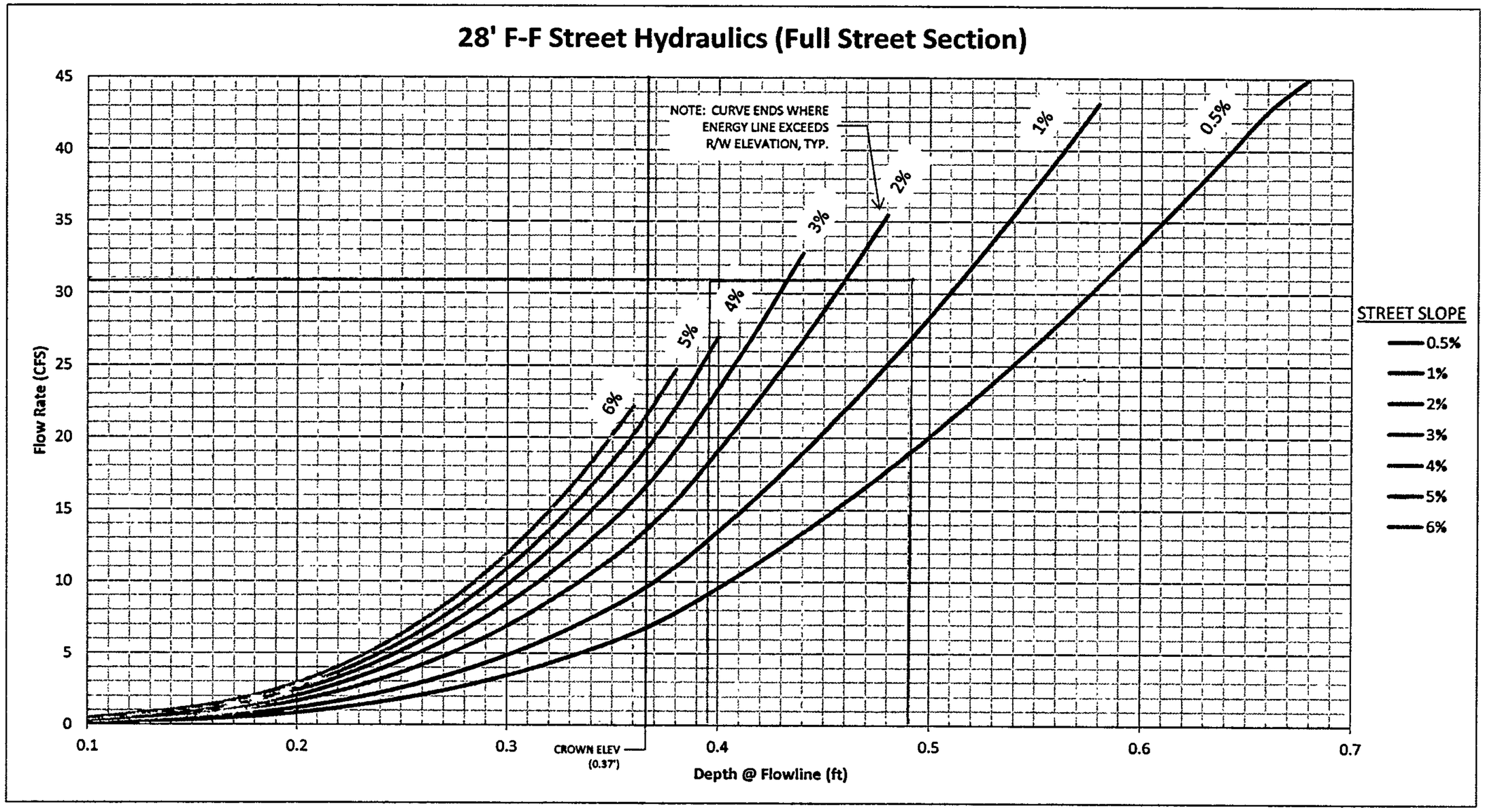
S = 3.6%, 2.4%



Abo Canyon Dr.

C-1.6 = 23.3 CFS ⇒ D = 0.39', 0.41'

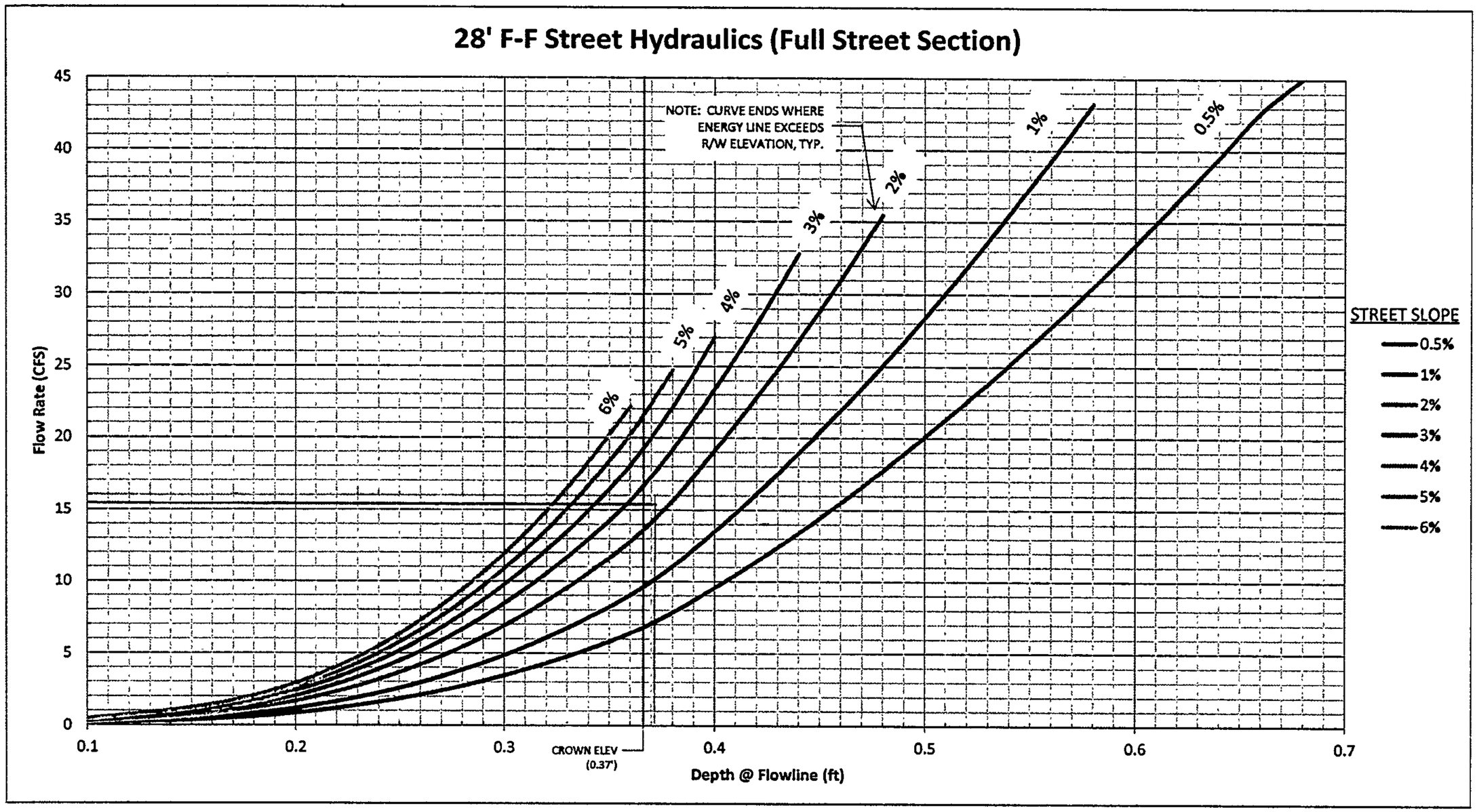
S = 2.8%, 3.8%



Vista Ciudad Dr

C-1.9 = 30.9 CFS ⇒ D = 0.39', 0.49'

S = 4.4%, 1.4%



Vista Luces P1

~ ½ C-1.9 = 15.5 cfs ⇒ D = 0.37'

S = 2.6%

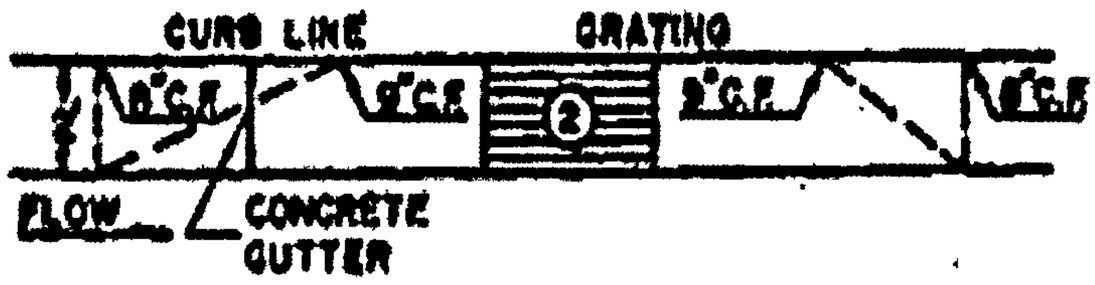
	S=0.5%		S=1.0%		S=2.0%	
Depth	Q	E	Q	E	Q	E
0.02	0.002	0.021	0.002	0.022	0.003	0.025
0.04	0.011	0.043	0.016	0.046	0.022	0.052
0.06	0.032	0.065	0.046	0.07	0.065	0.081
0.08	0.07	0.088	0.099	0.095	0.14	0.11
0.1	0.127	0.11	0.179	0.12	0.254	0.141
0.12	0.206	0.133	0.292	0.146	0.413	0.172
0.14	0.289	0.153	0.408	0.167	0.578	0.194
0.16	0.403	0.174	0.57	0.187	0.807	0.214
0.18	0.582	0.195	0.823	0.21	1.164	0.24
0.2	0.832	0.217	1.176	0.234	1.663	0.268
0.22	1.161	0.239	1.642	0.259	2.322	0.298
0.24	1.578	0.262	2.232	0.284	3.156	0.329
0.26	2.092	0.285	2.959	0.31	4.184	0.361
0.28	2.711	0.308	3.835	0.337	5.423	0.394
0.3	3.444	0.332	4.87	0.364	6.888	0.427
0.32	4.298	0.355	6.078	0.391	8.595	0.461
0.34	5.28	0.379	7.467	0.418	10.56	0.496
0.36	6.398	0.403	9.049	0.446	12.797	0.531
0.38	7.822	0.429	11.062	0.478	15.644	0.575
0.4	9.547	0.457	13.502	0.514	19.094	0.629
0.42	11.406	0.486	16.13	0.552	22.812	0.683
0.44	13.393	0.515	18.94	0.59	26.786	0.739
0.46	15.504	0.544	21.926	0.628	31.008	0.796
0.48	17.735	0.573	25.081	0.667	35.47	0.853
0.5	20.082	0.603	28.401	0.706	40.165	0.912
0.52	22.543	0.633	31.881	0.746	45.087	0.971
0.54	25.115	0.663	35.518	0.786	50.229	1.032
0.56	27.794	0.693	39.307	0.826	55.588	1.093
0.58	30.578	0.724	43.244	0.867	61.157	1.154
0.6	33.466	0.754	47.328	0.908	66.932	1.217
0.62	36.455	0.785	51.555	0.95	72.91	1.279
0.64	39.542	0.816	55.921	0.991	79.085	1.343
0.66	42.727	0.847	60.425	1.034	85.454	1.407
0.68	45.06	0.87	63.724	1.059	90.12	1.439
0.7	46.652	0.886	65.976	1.071	93.304	1.442
0.72	48.482	0.903	68.564	1.085	96.964	1.45
0.74	50.542	0.92	71.477	1.101	101.083	1.462
0.76	52.827	0.939	74.709	1.118	105.654	1.477
0.78	55.336	0.959	78.257	1.137	110.672	1.495
0.8	58.066	0.979	82.118	1.158	116.133	1.515
0.82	61.019	0.999	86.294	1.179	122.039	1.537
0.84	64.195	1.02	90.786	1.201	128.391	1.562

STREET FLOW INCREMENTAL DEPTH VS STREET SLOPE
OUTPUT (MANNING'S, N=0.017)

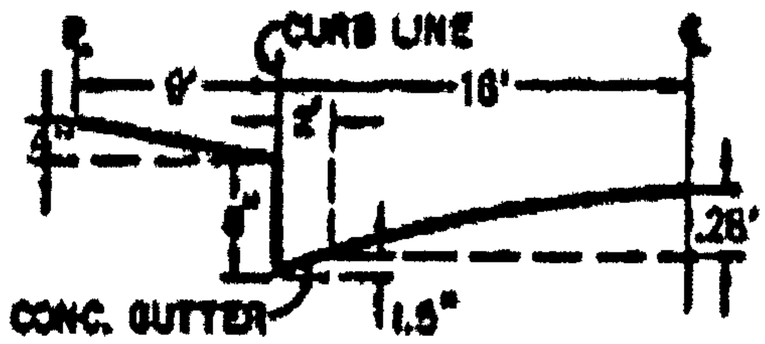
S=3.0%		S=4.0%		S=5.0%	
Q	E	Q	E	Q	E
0.004	0.027	0.005	0.03	0.005	0.032
0.027	0.058	0.031	0.064	0.035	0.07
0.08	0.091	0.092	0.101	0.103	0.112
0.171	0.126	0.198	0.141	0.221	0.156
0.311	0.161	0.359	0.182	0.401	0.202
0.505	0.198	0.583	0.224	0.652	0.25
0.707	0.221	0.817	0.248	0.913	0.275
0.988	0.242	1.141	0.269	1.275	0.296
1.426	0.27	1.646	0.3	1.84	0.33
2.037	0.302	2.352	0.336	2.63	0.37
2.843	0.337	3.283	0.376	3.671	0.415
3.866	0.373	4.464	0.418	4.99	0.462
5.125	0.411	5.918	0.462	6.616	0.512
6.642	0.451	7.669	0.508	8.574	0.564
8.436	0.491	9.741	0.555	10.891	0.618
10.527	0.532	12.155	0.603	13.59	0.673
12.933	0.574	14.934	0.652	16.696	0.73
15.673	0.617	18.097	0.702	20.233	0.788
19.159	0.673	22.123	0.77	24.735	0.868
23.386	0.743	27.003	0.857	30.191	0.972
27.939	0.815	32.261	0.947	36.069	1.078
32.806	0.889	37.881	1.038	42.352	1.188
37.977	0.964	43.852	1.132	49.028	1.299
43.442	1.04	50.162	1.227	56.083	1.414
49.192	1.118	56.802	1.324	63.506	1.53
55.22	1.197	63.762	1.423	71.288	1.649
61.518	1.277	71.035	1.523	79.42	1.769
68.081	1.359	78.613	1.625	87.892	1.891
74.902	1.441	86.489	1.728	96.698	2.016
81.975	1.525	94.656	1.833	105.829	2.141
89.296	1.609	103.11	1.939	115.28	2.269
96.859	1.694	111.843	2.046	125.044	2.397
104.66	1.781	120.851	2.154	135.115	2.528
110.373	1.818	127.448	2.198	142.491	2.577
114.274	1.813	131.952	2.184	147.527	2.555
118.756	1.815	137.127	2.18	153.313	2.545
123.801	1.823	142.953	2.184	159.827	2.545
129.4	1.835	149.418	2.194	167.054	2.552
135.544	1.852	156.513	2.21	174.987	2.567
142.233	1.873	164.237	2.23	183.622	2.588
149.466	1.896	172.589	2.255	192.96	2.613
157.246	1.922	181.572	2.283	203.004	2.644

S=6.0%

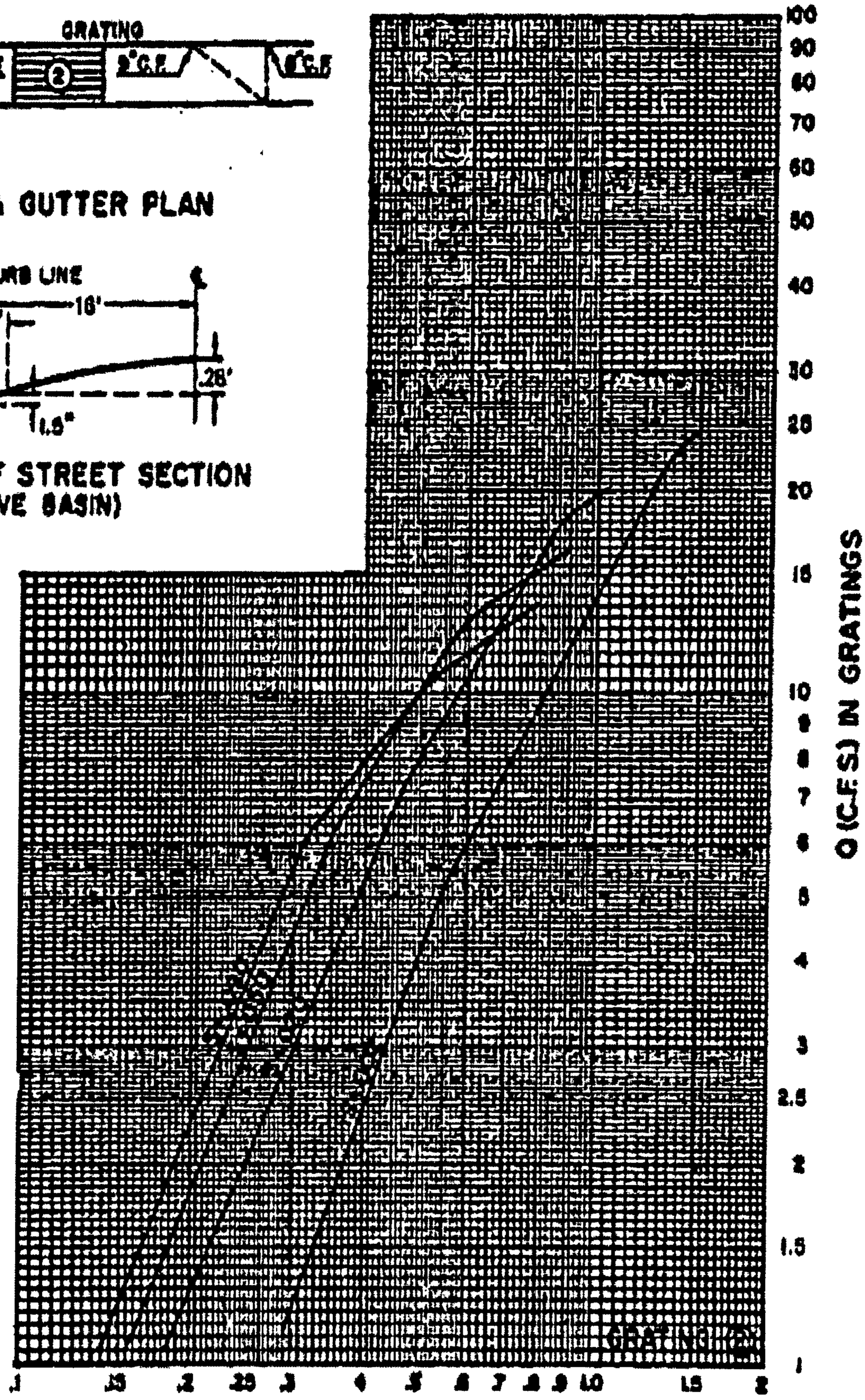
Q	E
0.006	0.034
0.038	0.076
0.113	0.122
0.242	0.171
0.439	0.223
0.715	0.277
1	0.302
1.397	0.323
2.016	0.36
2.881	0.404
4.021	0.454
5.467	0.507
7.248	0.563
9.393	0.621
11.93	0.682
14.887	0.744
18.29	0.808
22.164	0.873
27.096	0.965
33.072	1.086
39.511	1.21
46.395	1.337
53.707	1.467
61.436	1.6
69.568	1.736
78.093	1.874
87	2.015
96.281	2.158
105.927	2.303
115.93	2.45
126.283	2.598
136.979	2.749
148.012	2.901
156.092	2.957
161.608	2.926
167.946	2.91
175.081	2.905
182.999	2.911
191.689	2.924
201.148	2.945
211.377	2.972
222.379	3.005

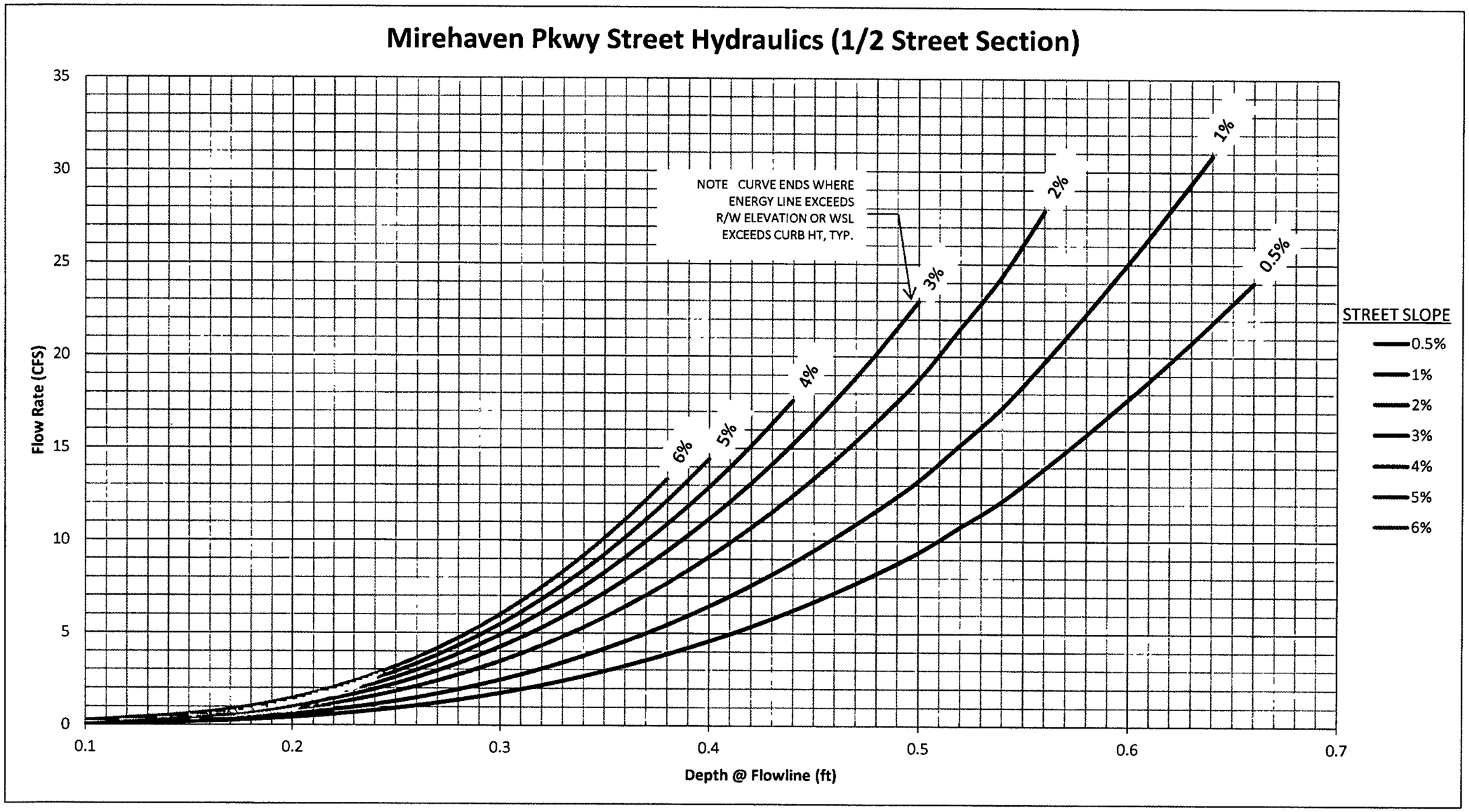


GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)




Mirehaven Pkwy Street Hydraulics (1/2 Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION OR WSL EXCEEDS CURB HT, TYP.
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%
0
5
10
15
20
25
30
35
0.1
0.2
0.3
0.4
0.5
0.6
0.7

Exhibits

EXHIBITS

EXHIBIT 1: PRELIMINARY PLAT

EXHIBIT 2: EXISTING BASINS MAP

EXHIBIT 3: PROPOSED BASINS MAP

EXHIBIT 4: STORM DRAIN NETWORK MAP

EXHIBIT 5: GRADING PLAN

EXHIBIT 6: PHASED GRADING PLAN

EXHIBIT 1

PRELIMINARY PLAT

Bohannan Huston

EXHIBIT 2

EXISTING BASINS MAP

Bohannan Huston

EXHIBIT 3

PROPOSED BASINS MAP

Bohannan Huston

EXHIBIT 4

PROPOSED STORM DRAIN NETWORK

Bohannan Huston

PULTE PHASE 2 @ MIREHAVEN

PROPOSED STORM DRAIN NETWORK

JANUARY 2016

STORM DRAIN PIPE SUMMARY				
SDP	SIZE (IN)	SLOPE (%)	FLOW (CFS)	MAX CAPACITY (CFS)
1	36"	4 0%	129 1	133 4
2	36"	3 0%	97 5	115 5
3	36"	1 4%	57 0	78 9
4	36"	1 4%	49 0	78 9
5	24"	4 0%	- 28.0	45 2
6	36"	0 6%	40 5	51 7
7	30"	1 0%	26 2	40 9
8	30"	1 0%	41 0	66 0
9	24"	5 0%	26 2	50 0

STORM INLET SUMMARY					
INLET	STREET GRADE (%)	UPSTREAM HALF ST FLOW (CFS)	UPSTREAM DEPTH (FT)	FLOW CAPTURED BY INLET (CFS)	BYPASS FLOW (CFS)
1	3.8%	11 6	0.39	7 0	4.6
2	3.8%	11 6	0.39	7.0	4.6
3	3.8%	11.6	0.37	5.5	6 1
4	N/A SUMP	20.0	1 25	20.0	0.0
5	3.8%	10.7	0 48	7.0	3.7
6		NOT	USED		
7	4.4%	12.3	0.39	7.0	5 3
8	4.4%	12.3	0.39	7.0	5.3
9	1.4%	6.5	0.38	3.5	3.0
10	1 4%	6.5	0.38	3.5	3.0
11	3 8%	13.8	0 40	6.5	7.3
12	3.8%	13.8	0 40	6.5	7.3
13	1 9%	19.1	0 49	8.0	11.1
14	1.9%	11.1	0 41	6.0	5.1
15	2.8%	12 4	0.39	6 0	6 4
16	2.8%	3.7	0.28	3 5	0 2
17	2.8%	6 4	0.32	4.0	2.4
18	3.1%	8.2	0.41	4.0	4 2
19	3.1%	8 2	0 41	4 0	4 2
20	N/A SUMP	8.3	N/A SUMP	11.6	0.0
21	2.0%	5 8	0.35	3.5	2.3
22	1 5%	12.1	0 46	4 5	7.6
23	2 0%	2.3	0 25	2.3	0 0
24	1.5%	7.6	0 41	4 5	3 1

NOTE: ALL INLETS SINGLE GRATE TYPE 'A' OR 'C', EXCEPT INLET 4 IS A SINGLE GRATE TYPE 'D'

LEGEND

- PROPOSED STORM DRAIN PIPE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- EXISTING STORM DRAIN

Put in Report

updated. Q were added wrong on previous version for SDP5 & downstream (they were off by 1.5 cfs)

Tue, 26-Jan-2016 - 3:18:pm, Plotted by AROMERO
P:\20160103\CDP\Plans\General\20160103_SD_Network.dwg

Bohannan Huston
www.bhinc.com 800 877 5332

EXHIBIT 5

GRADING PLAN

Bohannan Huston

EXHIBIT 6 -

PHASED GRADING PLAN

Bohannan Huston

Bohannan Huston

Albuquerque
Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

Las Cruces
425 S. Telshor Blvd.
Suite C-103
Las Cruces, NM
88011-8237

voice: 575.532.8670
facsimile: 575.532.8680

Denver
Meridian One
9785 Maroon Circle
Suite 140
Englewood, CO
80112-5928

voice: 303.799.5103
facsimile: 303.799.5104
toll free: 877.799.5103

www.bhinc.com

CITY OF ALBUQUERQUE

August 2, 2016

Yolanda Padilla-Moyer, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Pulte @ Mirehaven 2A
Pad Certification for lots 11-18 and 26-36
Engineer's Stamp dated: 1-28-16 (H09D017E)
Certification dated: 8-1-16

Dear Ms. Padilla-Moyer,

Based on the Certification received 8/1/2016, the above referenced Certification for the above mentioned is acceptable for building permit by Hydrology.

If you have any questions, you can contact me at 924-3999 or Totten Elliott at 924-3982.

Sincerely,

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Shahab Biazar, P.E.
City Engineer, Planning Dept.
Development Review Services

TE/SB
C: email Miranda, Rachel; Cordova, Camille C.; Sandoval, Darlene M.; Blocker, Lois

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: PULTE @ MIREHAVEN PHASE 2A Building Permit #: _____ City Drainage #: H-9 D017E

DRB#: 10006864 EPC#. _____ Work Order#: 650387

Legal Description: PULTE @ MIREHAVEN PHASE 2A (A REPLAT OF TRACT N-2-D OF WATERSHED)

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: PULTE Contact: KEVIN PATTON

Address: 7601 JEFFERSON STREET NE SUITE 310 ALBUQ NM 87109

Phone#: 505-341-8591 Fax#. _____ E-mail: kevin patton@pultegroup com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
____ TRAFFIC/ TRANSPORTATION
____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ DRAINAGE MASTER PLAN
____ DRAINAGE REPORT
____ CLOMR/LOMR

____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ TRAFFIC IMPACT STUDY (TIS)
____ EROSION & SEDIMENT CONTROL PLAN (ESC)

____ OTHER (SPECIFY) _____

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$50.00

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL
____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
x GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ PRE-DESIGN MEETING
____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: 08-01-16 By: YOLANDA PADILLA MOYER, P E

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED ___

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

August 1, 2016

Mr. Abiel Carrillo
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Partial Grading and Drainage Certification (Lots 11-18, 26-36), Pulte @ Mirehaven Phase 2A - DRB Case No. 1006864

Dear Abiel:

We are submitting a partial grading and drainage certification for Pulte @ Mirehaven Phase 2A. The partial certification includes Lots 11-18 and 26-36. Enclosed for your review is the approved grading and drainage plan dated 01/15/16 and 01-28-16. These lots have been graded; retaining walls, curb and gutter, pavement and downstream infrastructure have been constructed. The remaining lots have been graded, but the retaining walls have not been completed. The remaining lots will be certified once construction of all improvements has been completed.

During site inspection you might notice that there are depressions in the back yards. The purpose of the depressions is to provide a place to spoil dirt that is generated with the footing construction and they will be filled at the time of home construction. The depressions are not intended to serve as ponds.

After reviewing these as-built elevations and visiting the site on 08-01-16 it is my belief that the above lots have been graded in substantial compliance with the approved grading and drainage plan and that the interim drainage improvements allow runoff to be managed in the interim condition.

Your review and approval is requested for Building Permit Approval for the above listed buildings. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

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AUG 0 1 2016
LAND DEVELOPMENT SECTION

Enclosure

cc: Kevin Patton, Pulte Homes
Peter Steen, Pulte Homes
Matt Dyer, Pulte Homes

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

P \20160103\Correspondence\Submittals\Grading Cert\Lots 11-18, 26-36\20160103 Partial Drainage Cert (Partial Lots Lots 11-18, 26-36) docx

Biazar, Shahab

From: Biazar, Shahab
Sent: Monday, January 11, 2016 12:15 PM
To: Yolanda Padilla Moyer; Chris Sholtis
Cc: Harmon Rita T. (rharmon@cabq.gov); Abiel X. Carrillo (acarrillo@cabq.gov); Elliott, Stanice (staniceelliott@cabq.gov)
Subject: RE: DMP for Pulte @ Mirehaven Phase 2, N-2-D of the Watershed Subdivision (H09/D017E)

Sorry,

One additional comment:

- DMP shows that Vista Calle Drive is to drain to Vista Fiesta. Therefore, water block must be placed at the north end of Piedra Dibujo Road and Vista Dibujo Road to keep the runoff within Vista Calle Drive.

Thanks

Shahab Biazar, P.E.

City Engineer
Planning Department
Development Review Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
t 505-924-3999
f 505-924-3864

From: Biazar, Shahab
Sent: Monday, January 11, 2016 11:26 AM
To: Yolanda Padilla Moyer; Chris Sholtis
Cc: Harmon Rita T. (rharmon@cabq.gov); Abiel X. Carrillo (acarrillo@cabq.gov); Elliott, Stanice (staniceelliott@cabq.gov)
Subject: DMP for Pulte @ Mirehaven Phase 2, N-2-D of the Watershed Subdivision (H09/D017E)

Hi,

After reviewing the revised plans for the DMP for Pulte @ Mirehaven Phase 2, N-2-D of the Watershed Subdivision (H09/D017E) I have the following comments:

- Update storm drain map to reflect all the latest changes. Include the type of inlets (A or C) for each inlet. Provide all pipe sizes and capacity.
- Lots 6-20 drain to the back of the lots, to a swale and then to Abo Canyon Drive. The swale appear to go through an existing retaining wall. How does runoff get to Abo Canyon Drive? Does it drain over the wall and then over the sidewalk? It might be better to drain the runoff to the north to the pond and then to Abo Canyon Drive. Will there be sidewalk culvert?
- Section A-A shows a dimension of 7'-12' for the upper wall. Will the 7' be adequate for the swale or should it be 8' minimum? Is the 1" rock adequate size for the amount of runoff? Will there be a need for drop structures/erosion protection?

- If updating plans please keep all the dates the same for all the plans and the report.

Thanks

Shahab Biazar, P.E.

City Engineer
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Biazar, Shahab

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Sent: Monday, January 11, 2016 11:26 AM
To: Yolanda Padilla Moyer; Chris Sholtis
Cc: Harmon Rita T. (rharmon@cabq.gov); Abiel X. Carrillo (acarrillo@cabq.gov); Elliott, Stanice (staniceelliott@cabq.gov)
Subject: DMP for Pulte @ Mirehaven Phase 2, N-2-D of the Watershed Subdivision (H09/D017E)

Hi,

After reviewing the revised plans for the DMP for Pulte @ Mirehaven Phase 2, N-2-D of the Watershed Subdivision (H09/D017E) I have the following comments:

- Update storm drain map to reflect all the latest changes. Include the type of inlets (A or C) for each inlet. Provide all pipe sizes and capacity.
- Lots 6-20 drain to the back of the lots, to a swale and then to Abo Canyon Drive. The swale appear to go through an existing retaining wall. How does runoff get to Abo Canyon Drive? Does it drain over the wall and then over the sidewalk? It might be better to drain the runoff to the north to the pond and then to Abo Canyon Drive. Will there be sidewalk culvert?
- Section A-A shows a dimension of 7'-12' for the upper wall. Will the 7' be adequate for the swale or should it be 8' minimum? Is the 1" rock adequate size for the amount of runoff? Will there be a need for drop structures/erosion protection?
- If updating plans please keep all the dates the same for all the plans and the report.

Thanks

Shahab Biazar, P.E.

City Engineer
Planning Department
Development Review Services Division
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City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 02/2013)

Project Title: DMP FOR THE PULTE @ MIREHAVEN PHASE 2 Building Permit #: _____ City Drainage #: H09/D017E
DRB#: 1006864 EPC#: _____ Work Order#: _____
Legal Description: N-2-D OF THE WATERSHED SUBDIVISION
City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Christian Sholtis
Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109
Phone#: 823-1000 Fax#: _____ E-mail: csholtis@bhinc com

Owner: WESTERN ALBUQUERQUE LAND HOLDINGS, LLC Contact: JEFF GARRETT
Address: 3131 CAMELBACJ=K RD SUITE 200 PHOENIX, AZ 85016
Phone#: 602-427-4064 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X GRADING PLAN (PHASED 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
___ 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)

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LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided
DATE SUBMITTED: 12-18-15 By: Yolanda Moyer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, anc 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

Biazar, Shahab

From: Biazar, Shahab
Sent: Saturday, December 12, 2015 4:43 PM
To: Yolanda Padilla Moyer; Kevin G. Patton (kevin.patton@pultegroup.com)
Cc: Abiel X. Carrillo (acarrillo@cabq.gov); Elliott, Stanice (staniceelliott@cabq.gov); Harmon Rita T. (rharmon@cabq.gov)
Subject: Pulte @ Mirehaven Grading and Drainage Plan (H09D017E)

The following are my comments based on my review of the latest grading and drainage submittal for Pulte @ Mirehaven Phase 2 (overall and the phasing grading plan):

- Please provide drainage easement and maintenance responsibility over Tract N-2-E-3.
- Fix the grades around Lot 20.
- Additional runoff (6 cfs) will drain down Abo Canyon to exiting storm drain system. How this will impact the street flow capacity and the storm drain infrastructure?
- Provide drainage capacity calculations for the proposed swales shown on Sections A-A and B-B.
- Will the 20 cfs north of lot 86 drain to a first flush pond? How the downstream storm drain system will be impacted? Please provide first flush ponding calculations.
- Please provide first flush ponding solution/details/calculations for front part of the pads.
- Maintenance and covenant must be provided for all the storm structures maintained privately.
- An Erosion and Sediment Control Plan must be submitted and approved prior to grading of the site.

Thanks

Shahab Biazar, P.E.

City Engineer
Planning Department
Development Review Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
t 505-924-3999
f 505-924-3864

Bohannan Huston

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toll free: 800.877.5332

December 18, 2015

Mr. Shahab Biazar, P.E.
City Engineer
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Grading and Drainage Plan Resubmittal, Pulte @ Mirehaven Phase 2
DRB Case No. 1006864

Dear Shahab:

Below are the responses to our comments provided on December 12, 2015 as a well as a revised grading plan.

1. Please provide drainage easement and maintenance responsibility over Tract N-2-E-3
   - This will be reflected on the Final Plat. This Tract will be included to provide the necessary drainage easement.

2. Fix the grades around Lot 20.
   - A revised grading plan is included which reflects this.

3. Additional runoff (6 cfs) will drain down Abo Canyon to exiting storm drain system. How this will impact the street flow capacity and the storm drain infrastructure?
   - Please find enclosed analysis of the downstream infrastructure. The analysis used the exhibits from Drainage Master Plan for Pulte @ Mirehaven Phase 1 (Tracts N-2-E of the Watershed Subdivision) dated December 2013. This analysis shows that the EGL is above the Right-of-Way by .01 to .06 feet. The depth of flow is always below the top of curb at 0.56' and 0.45' respectively. This assumes all of the flow gets to the same location at the same time with no times to peak taken into account. This also doesn't take into account any upstream ponding which there is an existing retention pond which has a capacity of 500CF and then the backyards of the 15 lots upstream which accommodates approximately 74CF retention per lot for a total of 1110CF.

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4. Provide drainage capacity calculations for the proposed swales shown on Sections A-A and B-B.
   - Please see attached output for each.

Bohannan Huston

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toll free: 800.877.5332

5. Will the 20 cfs north of lot 86 drain to a first flush pond? How the downstream storm drain system will be impacted? Please provide first flush ponding calculations.
    - An inlet discharging to the proposed storm drain system within the proposed pond will be added to capture runoff from these areas preventing flows from entering Tierra Pintada via surface flows as allowed per the *Master Drainage Plan* for the area. Total flow to this inlet is 22.4 cfs which can be captured by a single 'D' inlet (H=1'). See Grading Plan for schematic
    - All lots which drain thru the lot backyards have backyard ponding due to the placement of the wall "turn block" 4 inches above finished grade. This provides 74 cu-ft of storage (as per the *Mirehaven Phase 1 Drainage Report* previously approved), while the required first flush storage per the previously submitted *Mirehaven Phase 2 Drainage Report* is 54 cu-ft and 60 cu-ft for each of the two lot sizes. Therefore, the first flush storage requirements are met by backyard ponding utilizing an elevated turn block.
6. Please provide first flush ponding solution/details/calculations for the front part of the pads.
    - As per the *Mirehaven Phase 1 Report*, 42 cu-ft per lot can be stored in the landscape strip between the sidewalk and curb within the right-of-way. As a result, a maximum of 18 cu-ft per lot of ponding (60 cu-ft required minus 42 cu-ft) is needed within the lot itself. This on-lot storage can be accomplished by a small bermed pond at the low side of each lot in front of the pad (for lots draining toward the street) per the detail added to the Grading Plan, and consists of either an 8" or 12" berm. This on-lot front yard pond will be constructed as part of the landscaping by the building contractor.
    -
7. Please provide first flush ponding solution/details/calculations for front part of the pads.
    - The Basin Map and Storm Drain Layout Exhibit have been modified and Mirehaven Parkway added. Pipe capacities and flows are shown in the summary table on the Storm Drain Network Map.

8. Maintenance and covenant must be provided for all the storm structures maintained privately.

    - The previous final plats indicate that all HOA Tracts will be maintained by the Homeowners Association which includes any drainage feature in said Tracts. This will be the case with this plat and the HOA Tracts.

Bohannan Huston

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toll free: 800.877.5332

9. An Erosion and Sediment Control Plan must be submitted and approved prior to grading of the site.
    - It is my understanding that it has been submitted.

Please find enclosed the revised plan; we are requesting your review and approval. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Chris Sholtis, P.E.
Senior Project Manager
Community Development & Planning

Enclosure

cc: Kevin Patton, Pulte Homes

Yolanda Padilla Moyer

From: Yolanda Padilla Moyer
Sent: Friday, December 18, 2015 9:32 AM
To: PLNDRS@cabq.gov
Cc: 'Biazar, Shahab'; 'acarrillo@cabq.gov'
Subject: 1006864 PT2 G&D Resubmittal 12-18-16

Please find enclosed to download the digital submittal for the above referenced project

Yolanda Padilla Moyer, P.E.

Bohannan Huston, Inc.

Use the following link to download files.

http://sfspublic.bhinc.com/EmailAccess.aspx?tk=TKypadillaD1812201593057

NOTE: These files will expire in 14 days from the time this email was generated.

Using Gmail and IE? Please right click on the link and select Open in new window.

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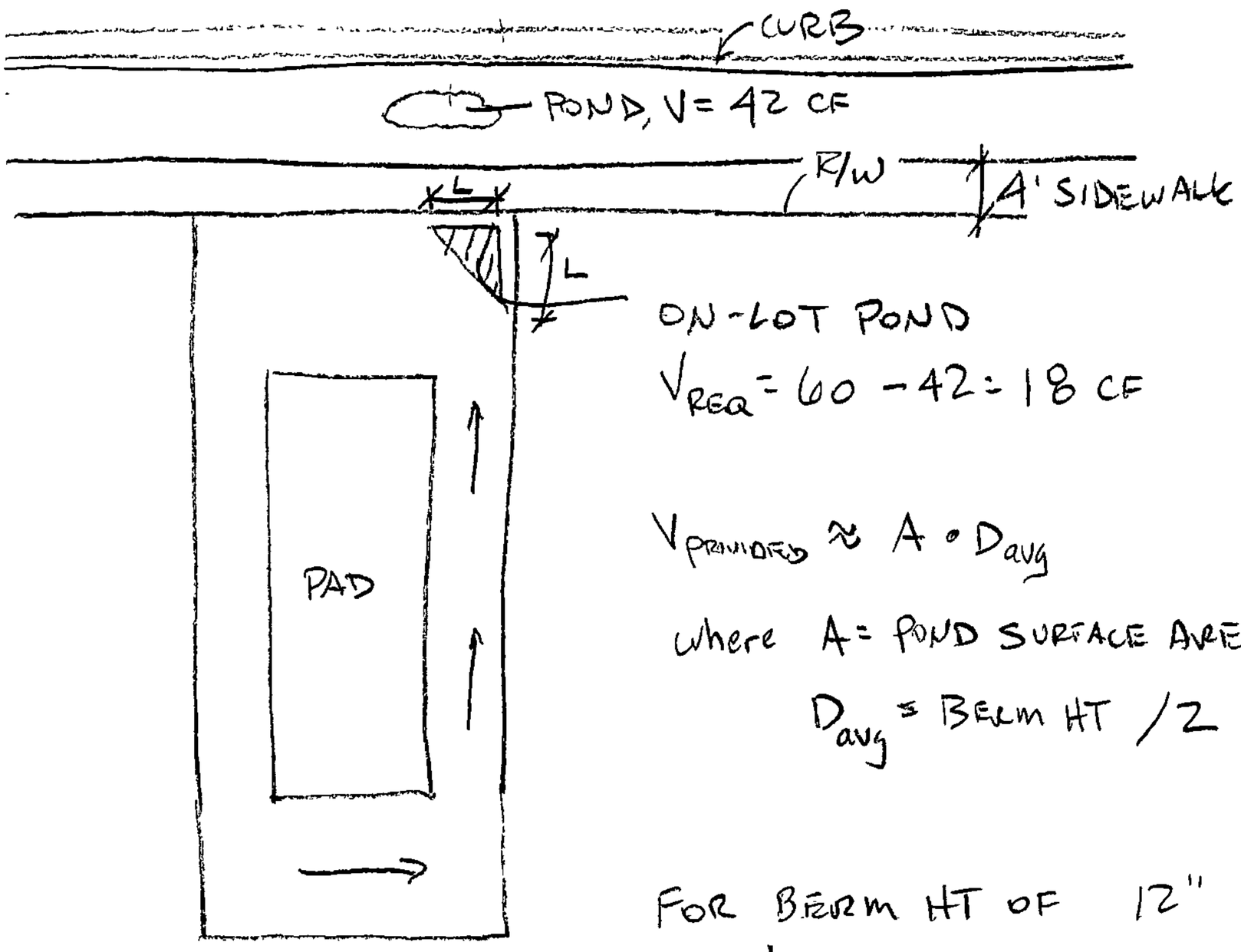
FRONT DRAINING LOTS POND CALC.



ON-LOT POND

$V_{REQ} = 60 - 42 = 18$ CF

$V_{PROVIDED} \approx A \cdot D_{avg}$

where A = POND SURFACE AREA

D_{avg} = BERM HT / 2

FOR BERM HT OF 12"
L = 9'

FOR BERM HT OF 8",
L = 12'

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Bohannan Huston INC.

PROJECT NAME _____ SHEET _____ OF _____
PROJECT NO. _____ BY _____ DATE _____
SUBJECT _____ CH'D _____ DATE _____

ENGINEERING
SPATIAL DATA
ADVANCED TECHNOLOGIES

Swale Calc

section A-A TP.txt

Analyzer Report

==========
Drainage Structure Analyzer

Channel Hydraulic Analysis

Date: Tuesday, December 15, 2015 4:29:49 PM
==========

Input Data

Shape	V-Shaped
Material	Gravel Riprap 1"
Roughness	0.033000
Left Slope	33.0000%
Right Slope	33.0000%
Bed Slope	1.9000%
Flow Rate	13.4000 cfs

Output Results

Flow Rate	13.4000 cfs
Depth	1.0608 ft
Velocity	3.9296 ft/s
Top Width	6.4291 ft
Critical Depth	1.0390 ft

Critical

Basin C-1.10

Q= 13.4 CFS

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Analyzer Report

==========
Drainage Structure Analyzer

Channel Hydraulic Analysis

Date: Tuesday, December 15, 2015 4:39:24 PM
==========

Input Data

Shape	V-Shaped
Material	Gravel Riprap 1"
Roughness	0.033000
Left Slope	33.0000%
Right Slope	33.0000%
Bed Slope	3.0000%
Flow Rate	7.4000 cfs

Output Results

Flow Rate	7.4000 cfs
Depth	0.7794 ft
Velocity	4.0204 ft/s
Top Width	4.7234 ft
Critical Depth	0.8190 ft

Super Critical

Basin C-1.1 (North 3/4)

$Q = 0.75(9.8) = 7.4$ CFS

Analyzer Report

==========
Drainage Structure Analyzer

Channel Hydraulic Analysis

Date: Tuesday, December 15, 2015 4:39:57 PM
==========

Input Data

Shape	V-Shaped
Material	Gravel Riprap 1"
Roughness	0.033000
Left Slope	33.0000%
Right Slope	33.0000%
Bed Slope	1.0000%
Flow Rate	2.4000 cfs

Output Results

Flow Rate	2.4000 cfs
Depth	0.6278 ft
Velocity	2.0095 ft/s
Top Width	3.8048 ft
Critical Depth	0.5220 ft

Subcritical

Basin C-1.1 (South 1/4)

$Q = 0.25(9.8) = 2.4$ CFS

SD analysis w/ Added flow (8.6 cfs)


```
Design Log

=================================================================
InRoads Storm & Sanitary Design Log

Drainage File:  P:\20160103\CDP\Control\Existing\20130375_Pulte1_SD.sdb

Design File:  C:\00-c-root\20160103 junk util.dgn

Display Log:  C:\00-c-root\design.log

Date:  Wednesday, December 16, 2015 3:01:23 PM
=================================================================

Designing inlet IN_8
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
        Gutter Flow:     6.8000 cfs              Flow From: Injected Storm

             Status:      Fixed
       Inlet Length:     6.5000 ft             Inlet Width:     2.0000 ft
    Flow Downstream:     6.8000 cfs               Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
             Spread:     2.2339 ft
    Depth in Gutter:     0.7739 ft         Assigned Bypass:        N/A


Designing pipe SDP_19
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:     6.8000 cfs              Flow From:   Upstream

             Status:      Fixed                      Slope:     0.0100 ft/ft
         Pipe Width:    18.0000 in             Pipe Height:    18.0000 in
      Depth of Flow:     0.8780 ft             Flow Status:    Partial
     Critical Depth:     1.0000 ft                Capacity:    10.5043 cfs
           Velocity:     6.3190 ft/s
      Froude Number:     1.3065                Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing inlet IN_7
   WARNING:  Spread is greater than maximum spread (2.5000 ft )
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
        Gutter Flow:     6.8000 cfs              Flow From: Injected Storm

             Status:      Fixed
       Inlet Length:     6.5000 ft             Inlet Width:     2.0000 ft
    Flow Downstream:    13.6000 cfs               Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
             Spread:    14.6269 ft
    Depth in Gutter:     0.2506 ft         Assigned Bypass:        N/A


Designing pipe SDP_18
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:    13.6000 cfs              Flow From:   Upstream

             Status:      Fixed                      Slope:     0.0229 ft/ft
         Pipe Width:    24.0000 in             Pipe Height:    24.0000 in
      Depth of Flow:     0.8750 ft             Flow Status:    Partial
     Critical Depth:     1.3200 ft                Capacity:    34.2649 cfs
           Velocity:    10.2763 ft/s
      Froude Number:     2.2201                Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing inlet IN_10
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.
```

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```
  Results:
        Gutter Flow:     6.8000 cfs                Flow From: Injected Storm

             Status:      Fixed
       Inlet Length:     6.5000 ft               Inlet Width:     2.0000 ft
    Flow Downstream:     6.8000 cfs                Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                   Capacity:     0.0000 cfs
             Spread:     2.1435 ft
    Depth in Gutter:     0.7933 ft           Assigned Bypass:        N/A


Designing pipe SDP_20
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:     6.8000 cfs                Flow From:   Upstream

             Status:      Fixed                        Slope:     0.0100 ft/ft
         Pipe Width:    18.0000 in               Pipe Height:    18.0000 in
      Depth of Flow:     0.8780 ft               Flow Status:    Partial
     Critical Depth:     1.0000 ft                  Capacity:    10.5043 cfs
           Velocity:     6.3190 ft/s
      Froude Number:     1.3065                  Flow Regime: SuperCritical

   WARNING:  Pipe Too large for valid connection to inlet.
Designing inlet IN_9
   WARNING:  Spread is greater than maximum spread (2.5000 ft )
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
        Gutter Flow:     6.8000 cfs                Flow From: Injected Storm

             Status:      Fixed
       Inlet Length:     6.5000 ft               Inlet Width:     2.0000 ft
    Flow Downstream:    13.6000 cfs                Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                   Capacity:     0.0000 cfs
             Spread:     8.5083 ft
    Depth in Gutter:     0.3469 ft           Assigned Bypass:        N/A


Designing pipe SDP_17
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:    13.6000 cfs                Flow From:   Upstream

             Status:      Fixed                        Slope:     0.0665 ft/ft
         Pipe Width:    24.0000 in               Pipe Height:    24.0000 in
      Depth of Flow:     0.6560 ft               Flow Status:    Partial
     Critical Depth:     1.3200 ft                  Capacity:    58.3564 cfs
           Velocity:    15.1364 ft/s
      Froude Number:     3.8620                  Flow Regime: SuperCritical

   WARNING:  Pipe Too large for valid connection to inlet.
Designing manhole MH8

  Results:
         Total Flow:    27.2000 cfs                Flow From:   Upstream

             Status:      Fixed
      Chamber Width:     4.0000 ft            Chamber Length:     4.0000 ft


Designing pipe SDP_16
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:    27.2000 cfs                Flow From:   Upstream

             Status:      Fixed                        Slope:     0.0396 ft/ft
         Pipe Width:    24.0000 in               Pipe Height:    24.0000 in
      Depth of Flow:     1.1210 ft               Flow Status:    Partial
     Critical Depth:     1.8100 ft                  Capacity:    45.0161 cfs
           Velocity:    14.9929 ft/s
      Froude Number:     2.7666                  Flow Regime: SuperCritical
```

```
Designing inlet IN_5
   WARNING:  Spread is greater than maximum spread (2.5000 ft )
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
        Gutter Flow:     8.3000 cfs                Flow From: Injected Storm

             Status:      Fixed
       Inlet Length:     6.5000 ft              Inlet Width:     2.0000 ft
    Flow Downstream:     8.3000 cfs                Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
             Spread:     9.8230 ft
    Depth in Gutter:     0.3587 ft          Assigned Bypass:        N/A


Designing pipe SDP_14
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:     8.3000 cfs                Flow From:   Upstream

             Status:      Fixed                       Slope:     0.2588 ft/ft
         Pipe Width:    18.0000 in              Pipe Height:    18.0000 in
      Depth of Flow:     0.3990 ft              Flow Status:    Partial
     Critical Depth:     1.1100 ft                 Capacity:    53.4409 cfs
           Velocity:    21.9400 ft/s
      Froude Number:     7.2532                 Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing inlet IN_6
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
        Gutter Flow:     8.3000 cfs                Flow From: Injected Storm

             Status:      Fixed
       Inlet Length:     6.5000 ft              Inlet Width:     2.0000 ft
    Flow Downstream:     8.3000 cfs                Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
             Spread:     2.3247 ft
    Depth in Gutter:     0.8516 ft          Assigned Bypass:        N/A


Designing pipe SDP_15
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:     8.3000 cfs                Flow From:   Upstream

             Status:      Fixed                       Slope:     0.0508 ft/ft
         Pipe Width:    18.0000 in              Pipe Height:    18.0000 in
      Depth of Flow:     0.6130 ft              Flow Status:    Partial
     Critical Depth:     1.1100 ft                 Capacity:    23.6744 cfs
           Velocity:    12.1934 ft/s
      Froude Number:     3.1676                 Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing manhole MH7

  Results:
         Total Flow:    43.8000 cfs                Flow From:   Upstream

             Status:      Fixed
      Chamber Width:     6.0000 ft           Chamber Length:     6.0000 ft


Designing pipe SDP_13
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
         Total Flow:    43.8000 cfs                Flow From:   Upstream

             Status:      Fixed                       Slope:     0.0212 ft/ft
```

```
        Pipe Width:    36.0000 in              Pipe Height:    36.0000 in
     Depth of Flow:     1.4120 ft              Flow Status:    Partial
    Critical Depth:     2.1500 ft                 Capacity:    97.1224 cfs
          Velocity:    13.3804 ft/s
     Froude Number:     2.2574                 Flow Regime: SuperCritical


Designing manhole MH9

  Results:
        Total Flow:    43.8000 cfs               Flow From:   Upstream

            Status:      Fixed
     Chamber Width:     4.0000 ft           Chamber Length:     4.0000 ft


Designing pipe SDP_12
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:    43.8000 cfs               Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0087 ft/ft
        Pipe Width:    36.0000 in              Pipe Height:    36.0000 in
     Depth of Flow:     1.8540 ft              Flow Status:    Partial
    Critical Depth:     2.1500 ft                 Capacity:    62.3094 cfs
          Velocity:     9.5440 ft/s
     Froude Number:     1.3415                 Flow Regime: SuperCritical


Designing inlet IN_3
   WARNING:  Spread is greater than maximum spread (2.5000 ft )
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
       Gutter Flow:    20.0000 cfs               Flow From: Injected Storm

            Status:      Fixed
      Inlet Length:     6.5000 ft              Inlet Width:     2.0000 ft
   Flow Downstream:    20.0000 cfs                Bypass To:     0.0000 cfs
       Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
            Spread:    17.6779 ft
   Depth in Gutter:     0.4273 ft          Assigned Bypass:        N/A


Designing pipe SDP_21B
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:    20.0000 cfs               Flow From:   Upstream

            Status:      Fixed                       Slope:     0.4245 ft/ft
        Pipe Width:    18.0000 in              Pipe Height:    18.0000 in
     Depth of Flow:     0.5550 ft              Flow Status:    Partial
    Critical Depth:     1.4600 ft                 Capacity:    68.4399 cfs
          Velocity:    33.5654 ft/s
     Froude Number:     9.2373                 Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing inlet IN_4
   WARNING:  Spread is greater than maximum spread (2.5000 ft )
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
       Gutter Flow:    20.0000 cfs               Flow From: Injected Storm

            Status:      Fixed
      Inlet Length:     6.5000 ft              Inlet Width:     2.0000 ft
   Flow Downstream:    20.0000 cfs                Bypass To:     0.0000 cfs
       Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
            Spread:     3.3306 ft
   Depth in Gutter:     1.1633 ft          Assigned Bypass:        N/A


Designing pipe SDP_21A
   WARNING:  Full flow velocity is greater than maximum (0.0000)
```

```
  Results:
        Total Flow:    20.0000 cfs                Flow From:   Upstream

            Status:      Fixed                        Slope:     0.0171 ft/ft
        Pipe Width:    18.0000 in               Pipe Height:    18.0000 in
     Depth of Flow:     1.5000 ft               Flow Status:       Full
    Critical Depth:     1.5000 ft                  Capacity:    13.7403 cfs
          Velocity:    11.3177 ft/s
     Froude Number:     0.0000                  Flow Regime: Subcritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing manhole SDMH1

  Results:
        Total Flow:    83.8000 cfs                Flow From:   Upstream

            Status:      Fixed
     Chamber Width:     6.0000 ft            Chamber Length:     6.0000 ft


Designing pipe SDP_11
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:    83.8000 cfs                Flow From:   Upstream

            Status:      Fixed                        Slope:     0.0100 ft/ft
        Pipe Width:    42.0000 in               Pipe Height:    42.0000 in
     Depth of Flow:     2.4400 ft               Flow Status:    Partial
    Critical Depth:     2.8500 ft                  Capacity:   100.6098 cfs
          Velocity:    11.6963 ft/s
     Froude Number:     1.3819                  Flow Regime: SuperCritical


Designing inlet IN_1
   WARNING:  Spread is greater than maximum spread (2.5000 ft )
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
       Gutter Flow:     7.4000 cfs                Flow From: Injected Storm

            Status:      Fixed
      Inlet Length:     6.5000 ft               Inlet Width:     2.0000 ft
    Flow Downstream:     7.4000 cfs               Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
            Spread:    10.4065 ft
    Depth in Gutter:     0.3234 ft           Assigned Bypass:        N/A


Designing pipe SDP_10
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:     7.4000 cfs                Flow From:   Upstream

            Status:      Fixed                        Slope:     0.0205 ft/ft
        Pipe Width:    18.0000 in               Pipe Height:    18.0000 in
     Depth of Flow:     0.7420 ft               Flow Status:    Partial
    Critical Depth:     1.0500 ft                  Capacity:    15.0408 cfs
          Velocity:     8.4758 ft/s
     Froude Number:     1.9602                  Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing inlet IN_2
   WARNING:  Inlet forced to capture all flow, ignoring capacity calculations.
   WARNING:  Pipe Too large for valid connection to inlet.

  Results:
       Gutter Flow:     7.4000 cfs                Flow From: Injected Storm

            Status:      Fixed
      Inlet Length:     6.5000 ft               Inlet Width:     2.0000 ft
    Flow Downstream:    14.8000 cfs               Bypass To:     0.0000 cfs
        Percent Cap:   100.0000 %                  Capacity:     0.0000 cfs
            Spread:     2.2607 ft
```

```
    Depth in Gutter:     0.8083 ft          Assigned Bypass:        N/A


Designing pipe SDP_9
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:    14.8000 cfs                Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0308 ft/ft
        Pipe Width:    24.0000 in               Pipe Height:    24.0000 in
     Depth of Flow:     0.8450 ft               Flow Status:    Partial
    Critical Depth:     1.3800 ft                  Capacity:    39.7301 cfs
          Velocity:    11.7087 ft/s
     Froude Number:     2.5828                  Flow Regime: SuperCritical


   WARNING:  Pipe Too large for valid connection to inlet.
Designing manhole MH6

  Results:
        Total Flow:    98.6000 cfs                Flow From:   Upstream

            Status:      Fixed
     Chamber Width:     8.0000 ft           Chamber Length:     8.0000 ft


Designing pipe SDP_8
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:    98.6000 cfs                Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0060 ft/ft
        Pipe Width:    54.0000 in               Pipe Height:    54.0000 in
     Depth of Flow:     2.6280 ft               Flow Status:    Partial
    Critical Depth:     2.9100 ft                  Capacity:   152.9444 cfs
          Velocity:    10.2181 ft/s
     Froude Number:     1.2217                  Flow Regime: SuperCritical


Designing manhole MH5

  Results:
        Total Flow:    98.6000 cfs                Flow From:   Upstream

            Status:      Fixed
     Chamber Width:     8.0000 ft           Chamber Length:     8.0000 ft


Designing pipe SDP_7
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:    98.6000 cfs                Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0073 ft/ft
        Pipe Width:    60.0000 in               Pipe Height:    60.0000 in
     Depth of Flow:     2.3340 ft               Flow Status:    Partial
    Critical Depth:     2.8200 ft                  Capacity:   221.8637 cfs
          Velocity:    10.9640 ft/s
     Froude Number:     1.4401                  Flow Regime: SuperCritical


Designing pipe SDP_6
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   138.4000 cfs                Flow From: Injected Storm

            Status:      Fixed                       Slope:     0.0313 ft/ft
        Pipe Width:    48.0000 in               Pipe Height:    48.0000 in
     Depth of Flow:     2.1040 ft               Flow Status:    Partial
    Critical Depth:     3.4900 ft                  Capacity:   254.1886 cfs
          Velocity:    20.6475 ft/s
     Froude Number:     2.8109                  Flow Regime: SuperCritical


Designing manhole MH4
```

```
  Results:
        Total Flow:   138.4000 cfs              Flow From:   Upstream

            Status:      Fixed
      Chamber Width:     6.0000 ft          Chamber Length:     6.0000 ft


Designing pipe SDP_5
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   138.4000 cfs              Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0300 ft/ft
        Pipe Width:    48.0000 in             Pipe Height:    48.0000 in
     Depth of Flow:     2.1310 ft             Flow Status:    Partial
    Critical Depth:     3.4900 ft                Capacity:   248.7975 cfs
          Velocity:    20.3207 ft/s
      Froude Number:     2.7433                Flow Regime: SuperCritical


Designing pipe SDP_4
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   237.0000 cfs              Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0339 ft/ft
        Pipe Width:    60.0000 in             Pipe Height:    60.0000 in
     Depth of Flow:     2.4830 ft             Flow Status:    Partial
    Critical Depth:     4.3300 ft                Capacity:   479.4666 cfs
          Velocity:    24.3390 ft/s
      Froude Number:     3.0755                Flow Regime: SuperCritical


Designing manhole MH3

  Results:
        Total Flow:   237.0000 cfs              Flow From:   Upstream

            Status:      Fixed
      Chamber Width:     8.0000 ft          Chamber Length:     8.0000 ft


Designing pipe SDP_3
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   237.0000 cfs              Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0177 ft/ft
        Pipe Width:    60.0000 in             Pipe Height:    60.0000 in
     Depth of Flow:     3.0330 ft             Flow Status:    Partial
    Critical Depth:     4.3300 ft                Capacity:   346.9057 cfs
          Velocity:    19.0101 ft/s
      Froude Number:     2.0983                Flow Regime: SuperCritical


Designing manhole MH2

  Results:
        Total Flow:   237.0000 cfs              Flow From:   Upstream

            Status:      Fixed
      Chamber Width:     6.0000 ft          Chamber Length:     6.0000 ft


Designing pipe SDP_2
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   237.0000 cfs              Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0060 ft/ft
        Pipe Width:    60.0000 in             Pipe Height:    60.0000 in
     Depth of Flow:     5.0000 ft             Flow Status:       Full
    Critical Depth:     5.0000 ft                Capacity:   201.7380 cfs
          Velocity:    12.0703 ft/s
```

```
      Froude Number:     0.0000                  Flow Regime: Subcritical


Designing manhole MH1

  Results:
        Total Flow:   237.0000 cfs                Flow From:   Upstream

            Status:      Fixed
      Chamber Width:    10.0000 ft            Chamber Length:    10.0000 ft


Designing pipe SDP19
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   237.0000 cfs                Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0050 ft/ft
        Pipe Width:    66.0000 in              Pipe Height:    66.0000 in
     Depth of Flow:     4.4980 ft              Flow Status:    Partial
    Critical Depth:     4.3000 ft                 Capacity:   237.4529 cfs
          Velocity:    11.3922 ft/s
      Froude Number:     0.9074                  Flow Regime: Subcritical


Designing manhole ex mh 2

  Results:
        Total Flow:   237.0000 cfs                Flow From:   Upstream

            Status:      Fixed
      Chamber Width:    10.0000 ft            Chamber Length:    10.0000 ft


Designing pipe SDP7
   WARNING:  Full flow velocity is greater than maximum (0.0000)

  Results:
        Total Flow:   237.0000 cfs                Flow From:   Upstream

            Status:      Fixed                       Slope:     0.0050 ft/ft
        Pipe Width:    66.0000 in              Pipe Height:    66.0000 in
     Depth of Flow:     4.4980 ft              Flow Status:    Partial
    Critical Depth:     4.3000 ft                 Capacity:   237.4529 cfs
          Velocity:    11.3922 ft/s
      Froude Number:     0.9074                  Flow Regime: Subcritical



HGL/EGL Computations:


  Table A:
  Struct_ID          D      Q      L      V      d      dc     V^2/2g   Sf   Dn_Soffit EGLdn  HGLdn  Tot_Loss EGLup
HGLup   Rim_Elev.
                   (in)   (cfs)   (ft)   (ft/s)  (ft)   (ft)    (ft)   (ft/ft)  (ft)    (ft)    (ft)     (ft)    (ft)
 (ft)     (ft)

  Outfall            -      -      -      -      -      -       -      -       -       -       -       -       -
 5287.89     -
    (Alternate HGL and EGL Used)
5289.84 5288.29
    SDP7            66    237.00  20.32   9.98   -      -      1.55   0.0050 5288.89 5289.84 5288.29   0.10
5289.94 5288.39     -
    ex mh 2         -      -      -      -      -      -       -      -       -    5289.94 5288.39   0.15
5290.09 5288.54 5292.95
    SDP19           66    237.00  35.22   9.98   -      -      1.55   0.0050 5289.07 5290.09 5288.54   0.18
5290.27 5288.72     -
    MH1             -      -      -      -      -      -       -      -       -    5290.27 5288.72   1.12
5291.39 5289.84 5293.28
    SDP_2           60    237.00 299.97  12.07   -      -      2.26   0.0083 5288.81 5291.39 5289.84   2.51
5293.90 5291.63     -
    MH2             -      -      -      -      -      -       -      -       -    5293.90 5291.63   0.15
5294.05 5291.79 5294.02
    SDP_3           60    237.00 179.03  12.07   -      -      2.26   0.0083 5290.66 5294.05 5291.79   1.50
```

```
5295.55 5293.28     -
    MH3                 -       -       -       -       -       -       -       -       -   5295.55 5293.28    0.84
5296.38 5294.12 5297.16
    SDP_4              60    237.00   29.42   12.07     -       -     2.26  0.0083 5293.81 5296.38 5294.12    0.24
5296.63 5294.36     -
    Junction            -       -       -       -       -       -       -       -       -   5296.63 5294.36    2.21
5298.83 5296.57     -
    SDP_5              48    138.40   47.29   11.01     -       -     1.89  0.0093 5293.68 5298.83 5296.57    0.44
5299.27 5297.39     -
    MH4                 -       -       -       -       -       -       -       -       -   5299.27 5297.39    0.91
5300.19 5298.30 5299.62
    SDP_6              48    138.40  127.49   11.01     -       -     1.89  0.0093 5295.10 5300.19 5298.30    1.18
5301.37 5299.48     -

  New Branch            -       -       -       -       -       -       -       -       -       -       -       -
5296.63 5294.36     -
    SDP_7              60     98.60  277.29    5.02     -       -     0.39  0.0014 5294.68 5296.63 5294.36    0.40
5297.03 5296.63     -
    MH5                 -       -       -       -       -       -       -       -       -   5297.03 5296.63    0.29
5297.32 5296.93 5306.00
    SDP_8              54     98.60  191.71    6.20     -       -     0.60  0.0025 5296.26 5297.32 5296.93    0.48
5297.80 5297.20     -
    MH6                 -       -       -       -       -       -       -       -       -   5297.80 5297.20    0.34
5298.14 5297.54 5299.87
    SDP_11             42     83.80   47.92    8.71     -       -     1.18  0.0069 5296.47 5298.14 5297.54    0.33
5298.47 5297.29     -
    SDMH1               -       -       -       -       -       -       -       -       -   5298.47 5297.29    0.48
5298.95 5297.77 5299.55
    SDP_12             36     43.80   83.54    6.20     -       -     0.60  0.0043 5296.48 5298.95 5297.77    0.36
5299.31 5298.72     -
    MH9                 -       -       -       -       -       -       -       -       -   5299.31 5298.72    0.23
5299.55 5298.95 5300.17
    SDP_13             36     43.80  107.14    6.20     -       -     0.60  0.0043 5297.26 5299.55 5298.95    0.46
5300.01 5299.41     -
    MH7                 -       -       -       -       -       -       -       -       -   5300.01 5299.41    0.09
5300.10 5299.50 5302.45
    SDP_16             24     27.20   30.04    8.66     -       -     1.16  0.0145 5298.59 5300.10 5299.50    0.43
5300.53 5299.36     -
    MH8                 -       -       -       -       -       -       -       -       -   5300.53 5299.36    0.34
5300.87 5299.71 5303.58
    SDP_18             24     13.60  111.20   10.28     -       -     1.64  0.0036 5299.68 5300.87 5299.71     -
5302.63 5300.98     -
    IN_7                -       -       -       -       -       -       -       -       -   5302.63 5300.98     -
5302.63 5300.98 5305.21
    SDP_19             18      6.80   32.00    6.32    0.88    1.00    0.62     -   5301.71 5301.71 5301.09     -
5302.00 5301.38     -
    IN_8                -       -       -       -       -       -       -       -       -   5302.00 5301.38     -
5302.00 5301.38 5305.21

  New Branch            -       -       -       -       -       -       -       -       -       -       -       -
5297.80 5297.20     -
    MH6                 -       -       -       -       -       -       -       -       -   5297.80 5297.20    0.10
5297.90 5297.31 5299.87
    SDP_9              24     14.80   79.45    4.71     -       -     0.34  0.0043 5296.39 5297.90 5297.31    0.34
5298.24 5297.90     -
    IN_2                -       -       -       -       -       -       -       -       -   5298.24 5297.90    0.22
5298.46 5298.11 5300.61
    SDP_10             18      7.40   42.91    4.19     -       -     0.27  0.0050 5298.21 5298.46 5298.11    0.21
5298.67 5298.40     -
    IN_1                -       -       -       -       -       -       -       -       -   5298.67 5298.40     -
5298.67 5298.40 5301.48

  New Branch            -       -       -       -       -       -       -       -       -       -       -       -
5298.47 5297.29     -
    SDMH1               -       -       -       -       -       -       -       -       -   5298.47 5297.29    0.18
5298.65 5297.47 5299.55
    SDP_21B            18     20.00   10.31   11.32     -       -     1.99  0.0363 5294.98 5298.65 5297.47    0.37
5299.02 5297.03     -
    IN_3                -       -       -       -       -       -       -       -       -   5299.02 5297.03     -
5299.02 5297.03 5299.34

  New Branch            -       -       -       -       -       -       -       -       -       -       -       -
5298.47 5297.29     -
    SDMH1               -       -       -       -       -       -       -       -       -   5298.47 5297.29    0.44
5298.91 5297.73 5299.55
    SDP_21A            18     20.00   24.34   11.32     -       -     1.99  0.0363 5296.50 5298.91 5297.73    0.88
5299.79 5297.80     -
    IN_4                -       -       -       -       -       -       -       -       -   5299.79 5297.80     -
5299.79 5297.80 5299.33
```

New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5300.01	5299.41
-														
MH7	-	-	-	-	-	-	-	-	-	5300.01	5299.41	0.07	5300.07	5299.48
5302.45														
SDP_14	18	8.30	8.09	4.70	-	-	0.34	0.0062	5298.31	5300.07	5299.48	0.05	5300.13	5299.78
-														
IN_5	-	-	-	-	-	-	-	-	-	5300.13	5299.78	-	5300.13	5299.78
5302.29														
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5300.01	5299.41
-														
MH7	-	-	-	-	-	-	-	-	-	5300.01	5299.41	0.07	5300.07	5299.48
5302.45														
SDP_15	18	8.30	24.20	4.70	-	-	0.34	0.0062	5298.10	5300.07	5299.48	0.15	5300.23	5299.88
-														
IN_6	-	-	-	-	-	-	-	-	-	5300.23	5299.88	-	5300.23	5299.88
5302.29														
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5300.53	5299.36
-														
MH8	-	-	-	-	-	-	-	-	-	5300.53	5299.36	0.30	5300.82	5299.66
5303.58														
SDP_17	24	13.60	62.66	15.14	-	-	3.56	0.0036	5299.68	5300.82	5299.66	-	5305.71	5302.15
-														
IN_9	-	-	-	-	-	-	-	-	-	5305.71	5302.15	-	5305.71	5302.15
5305.88														
SDP_20	18	6.80	32.34	6.32	0.88	1.00	0.62	-	5303.09	5303.09	5302.47	-	5303.37	5302.75
-														
IN_10	-	-	-	-	-	-	-	-	-	5303.37	5302.75	-	5303.37	5302.75
5305.88														

Table B:

LOSSES								-|LOSS_COEFFICENTS						
Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	|	Dstr	Ko	CD	Cd	Cq	Cp
Cb	K													
Outfall	-	-	-	-	-	-	-	|	-	-	-	-	-	-
-	-													
SDP7	0.10	-	-	-	-	-	0.10	|	-	-	-	-	-	-
-	-													
ex mh 2	-	-	0.15	-	-	-	0.15	|	4.92	0.205	1.000	0.468	1.000	1.000
1.000	0.096													
SDP19	0.18	-	-	-	-	-	0.18	|	-	-	-	-	-	-
-	-													
MH1	-	-	1.12	-	-	-	1.12	|	5.02	1.531	1.000	0.473	1.000	1.000
1.000	0.725													
SDP_2	2.48	0.03	-	-	-	-	2.51	|	-	-	-	-	-	-
-	-													
MH2	-	-	0.15	-	-	-	0.15	|	6.07	0.120	1.000	0.562	1.000	1.000
1.000	0.067													
SDP_3	1.48	0.02	-	-	-	-	1.50	|	-	-	-	-	-	-
-	-													
MH3	-	-	0.84	-	-	-	0.84	|	4.57	0.779	1.000	0.474	1.000	1.000
1.000	0.369													
SDP_4	0.24	-	-	-	-	-	0.24	|	-	-	-	-	-	-
-	-													
Junction	-	0.00	-	-	0.05	2.16	2.21	|	-	-	-	-	-	-
-	-													
SDP_5	0.44	-	-	-	-	-	0.44	|	-	-	-	-	-	-
-	-													
MH4	-	-	0.91	-	-	-	0.91	|	6.38	0.731	1.000	0.662	1.000	1.000
1.000	0.484													
SDP_6	1.18	-	-	-	-	-	1.18	|	-	-	-	-	-	-
-	-													
New Branch	-	-	-	-	-	-	-	|	-	-	-	-	-	-
-	-													
SDP_7	0.40	-	-	-	-	-	0.40	|	-	-	-	-	-	-
-	-													
MH5	-	-	0.29	-	-	-	0.29	|	4.97	1.502	1.000	0.498	1.000	1.000
1.000	0.749													
SDP_8	0.48	-	-	-	-	-	0.48	|	-	-	-	-	-	-
-	-													
MH6	-	-	0.34	-	-	-	0.34	|	4.33	1.526	1.000	0.489	0.759	1.000
1.000	0.566													

```
    SDP_11              0.33     -       -       -       -       -      0.33 |     -       -       -       -       -
-       -       -
    SDMH1               -        -      0.48     -       -       -      0.48 |    3.91   0.658   1.000   0.535   1.159
1.000   1.000   0.408
    SDP_12              0.36     -       -       -       -       -      0.36 |     -       -       -       -       -
-       -       -
    MH9                 -        -      0.23     -       -       -      0.23 |    4.55   0.609   1.000   0.642   1.000
1.000   1.000   0.391
    SDP_13              0.46     -       -       -       -       -      0.46 |     -       -       -       -       -
-       -       -
    MH7                 -        -      0.09     -       -       -      0.09 |    2.98   0.200   1.000   0.498   1.483
1.000   1.000   0.148
    SDP_16              0.43     -       -       -       -       -      0.43 |     -       -       -       -       -
-       -       -
    MH8                 -        -      0.34     -       -       -      0.34 |    1.78   1.553   1.000   0.467   0.405
1.000   1.000   0.294
    SDP_18              0.40     -       -       -       -       -      0.40 |     -       -       -       -       -
-       -       -
    IN_7                -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    SDP_19              -        -       -       -       -       -  SuperCrt |     -       -       -       -       -
-       -       -
    IN_8                -        -       -       -       -       -       -   |    0.88     -       -       -       -
-       -       -

  New Branch            -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    MH6                 -        -      0.10     -       -       -      0.10 |    4.33   0.187   1.000   0.489   1.873
1.000   1.000   0.171
    SDP_9               0.34     -       -       -       -       -      0.34 |     -       -       -       -       -
-       -       -
    IN_2                -        -      0.22     -       -       -      0.22 |    1.29   1.627   1.000   0.385   1.000
1.000   1.000   0.626
    SDP_10              0.21     -       -       -       -       -      0.21 |     -       -       -       -       -
-       -       -
    IN_1                -        -       -       -       -       -       -   |    0.92     -       -       -       -
-       -       -

  New Branch            -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    SDMH1               -        -      0.18     -       -       -      0.18 |    3.91   1.518   1.000   0.535   0.185
1.000   1.000   0.150
    SDP_21B             0.37     -       -       -       -       -      0.37 |     -       -       -       -       -
-       -       -
    IN_3                -        -       -       -       -       -       -   |    1.70     -       -       -       -
-       -       -

  New Branch            -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    SDMH1               -        -      0.44     -       -       -      0.44 |    3.91   1.182   1.000   0.535   0.592
1.000   1.000   0.374
    SDP_21A             0.88     -       -       -       -       -      0.88 |     -       -       -       -       -
-       -       -
    IN_4                -        -       -       -       -       -       -   |    2.47     -       -       -       -
-       -       -

  New Branch            -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    MH7                 -        -      0.07     -       -       -      0.07 |    2.98   1.553   1.000   0.498   0.146
1.000   1.000   0.113
    SDP_14              0.05     -       -       -       -       -      0.05 |     -       -       -       -       -
-       -       -
    IN_5                -        -       -       -       -       -       -   |    2.20     -       -       -       -
-       -       -

  New Branch            -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    MH7                 -        -      0.07     -       -       -      0.07 |    2.98   1.553   1.000   0.498   0.146
1.000   1.000   0.113
    SDP_15              0.15     -       -       -       -       -      0.15 |     -       -       -       -       -
-       -       -
    IN_6                -        -       -       -       -       -       -   |    2.30     -       -       -       -
-       -       -

  New Branch            -        -       -       -       -       -       -   |     -       -       -       -       -
-       -       -
    MH8                 -        -      0.30     -       -       -      0.30 |    1.78   0.377   1.000   0.467   1.439
1.000   1.000   0.253
    SDP_17              0.23     -       -       -       -       -      0.23 |     -       -       -       -       -
```

```
-       -       -
    IN_9            -       -       -       -       -       -       -   |       -       -       -       -       -
-       -       -
    SDP_20          -       -       -       -       -       -  SuperCrt |       -       -       -       -       -
-       -       -
    IN_10           -       -       -       -       -       -       -   |    0.88       -       -       -       -
-       -       -
```

RECEIVED
DEC 18 2015
LAND DEVELOPMENT SECTION

ABQ CANYON - PT 1 (Ex Subd) Roadway & Inlet calcs

RESIDUAL FLOW FROM INLETS 5 & 6 - 12.4 CFS
15% BASIN C-8 - 4.5 CFS
RESIDUAL FLOW FROM INLET 1 & 2 - 10.7 CFS
BASIN C-6 - 4.6 CFS
32.2 CFS

Double A inlet, in sump condition:

Open Area (for orifice calc in sq. ft.):	7.7977431
Length of Weir (feet):	7.9791667
Orifice Coeficient	0.6
Weir Coeficient	3

Head (ft)	Head (in)	1 Wing Weir Q (cfs)	Grate Weir Q (cfs)	Grate Orifice Q (cfs)	Control Q Sgl Wing (cfs)	Control Q Dbl Wing (cfs)
0.05	0.6	0.13	0.27	8.40	0.40	0.54
0.1	1.2	0.38	0.76	11.87	1.14	1.52
0.15	1.8	0.70	1.39	14.54	2.09	2.78
0.2	2.4	1.07	2.14	16.79	3.21	4.29
0.25	3	1.50	2.99	18.77	4.49	5.99
0.3	3.6	1.97	3.93	20.56	5.91	7.88
0.35	4.2	2.48	4.96	22.21	7.44	9.93
0.4	4.8	3.04	6.06	23.75	9.09	12.13
0.45	5.4	3.62	7.23	25.19	10.85	14.47
0.5	6	4.24	8.46	26.55	12.71	16.95
0.55	6.6	4.89	9.76	27.84	14.66	19.55
0.6	7.2	5.58	11.13	29.08	16.70	22.28
0.65	7.8	6.29	12.54	30.27	18.83	25.12
0.667	8.0	6.54	13.04	30.66	19.58	26.11
0.7	8.4	7.03	14.02	31.41	21.05	28.08
0.75	9	7.79	15.55	32.52	23.34	31.14
0.8	9.6	8.59	17.13	33.58	25.71	34.30
0.85	10.2	9.40	18.76	34.62	28.16	37.57
0.9	10.8	10.25	20.44	35.62	30.68	40.93
0.95	11.4	11.11	22.16	36.60	33.28	44.39
1	12	12.00	23.94	37.55	35.94	47.94
1.05	12.6	12.91	25.76	38.47	38.67	51.58
1.1	13.2	13.84	27.62	39.38	41.46	55.31
1.15	13.8	14.80	29.52	40.26	44.32	59.12
0.567	6.804	5.12	10.22	28.27	15.34	20.47

Q 100yr=20cfs
d=0.56

100-YR
Q=20cfs
100

Q (2x100yr)=40cfs
d=0.89

2X100-YR
Q=40
2x100

Calculation of open area:

Total Grate Area	2000	13.888889
Cross Bar Area	-732	-5.083333
Supports (ends)	-115.625	-0.802951
(middle)	-100	-0.694444
Areas Counted Twice	70.5	0.4895833
	1122.875	7.7977431

QR (Inlets 5 & 6) = 20.2
15% Basin C-8 = 4.5
QR (Inlets 1 & 2) = 10.7
Basin C-6 = 4.6
Q_T = 40 cfs

Q_T per inlet = 20 cfs
2 x 100 per inlet = 40 cfs

Calculation of Length of Weir:

Total Perimeter of Grate	130	10.833333
Short Cross Bars	-7	-0.583333
Bearing Bars	-13	-1.083333
End Supports	-9.25	-0.770833
Middle Supports	-5	-0.416667
	110	7.9791667

INLETS #3 & #4
Q_T = 32.2 CFS / 2 = 16.1 CFS/INLET
2 X'S 100-YEAR = 64.4 CFS / 2 = 32.2 CFS/INLET

B-2

REDINDO PEAK DR.

_sta 31+20.txt

MANNING'S N = 0.017 SLOPE = 0.035

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	12.5	0.1	9.0	42.7	0.7
2.0	9.8	0.7	6.0	26.5	0.4	10.0	43.2	0.7
3.0	10.3	0.7	7.0	40.5	0.1	11.0	53.0	0.9
4.0	10.5	0.0	8.0	42.5	0.0			

WSEL FT.	DEPTH INC	FLOW AREA SQ.FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.050	0.050	0.039	0.053	1.645	1.352	2.564	0.078
0.100	0.100	0.156	0.336	3.290	2.146	4.128	0.172
0.150	0.150	0.366	0.895	6.318	2.447	7.076	0.243
0.200	0.200	0.795	2.200	11.423	2.767	12.101	0.319
0.250	0.250	1.476	4.822	16.527	3.267	17.127	0.416
0.300	0.300	2.408	9.112	21.631	3.784	22.152	0.523
0.350	0.350	3.591	15.403	26.735	4.289	27.178	0.636
0.400	0.400	5.026	24.004	31.839	4.776	32.203	0.755
0.450	0.450	6.631	37.248	32.943	5.617	33.228	0.941
0.500	0.500	8.243	53.420	33.046	6.480	33.254	1.153
0.550	0.550	9.857	71.809	33.149	7.285	33.279	1.376
0.600	0.600	11.471	92.275	33.252	8.044	33.304	1.606
0.650	0.650	13.087	114.702	33.355	8.764	33.330	1.845
0.700	0.700	14.778	130.262	37.346	8.814	36.289	1.908
0.750	0.750	16.716	147.291	42.262	8.812	41.204	1.958
0.800	0.800	18.899	167.944	47.178	8.887	46.119	2.028
0.850	0.850	21.328	192.300	52.094	9.017	51.034	2.115

Q100=38cfs
d=0 45
EGL=0.94

INLETS #5 & #6

RESIDUAL INLETS 7 & 8 - 13.7 CFS

RESIDUAL INLETS 9 & 10 - 7.6 CFS

BASIN C-2 - 7.1 CFS

BASIN C-3 - 1.0 CFS

29.4 CFS

$Q_{T2} = 29.4$ CFS

STREET CAPACITY

$$\frac{37.248 - 24.004}{0.941 - 0.755} = \frac{37.248 - 29.4}{0.941 - x} \Rightarrow \frac{13.244}{0.186} = \frac{7.848}{0.941 - x} \Rightarrow 1.45973 = 12.4626 - 13.244x$$

$x = 0.83' < 0.87'$ ok

INLET CAPACITY

$$\frac{37.248 - 24.004}{0.45 - 0.40} = \frac{37.248 - 29.4}{0.45 - x} \Rightarrow \frac{13.244}{0.05} = \frac{7.848}{0.45 - x} \Rightarrow 0.3924 = 5.9598 - 13.244x$$

$d = 0.42'$

@ $S = 3.5\%$, $d = 0.42'$

2% - 7 CFS

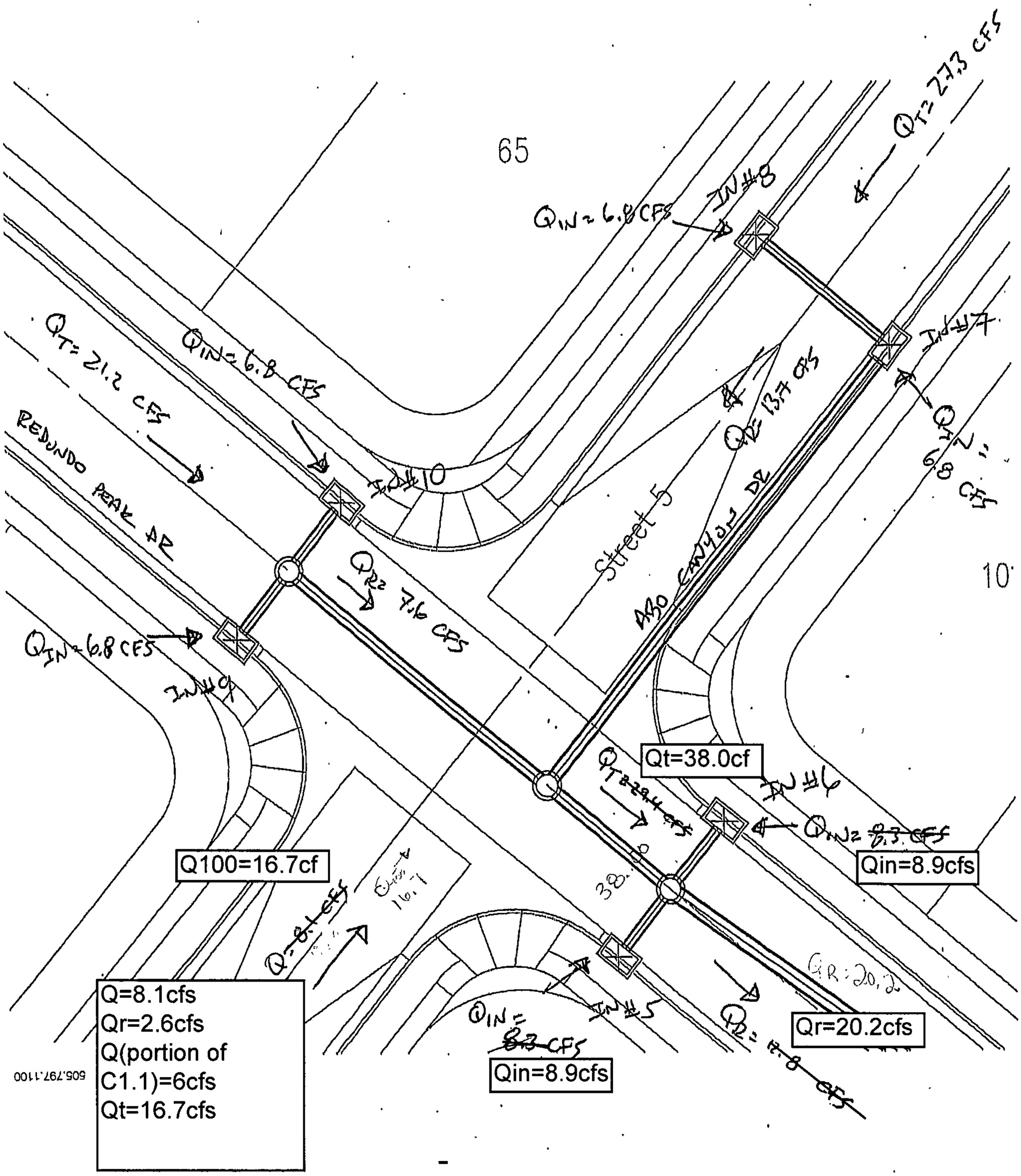
5% - 9.5 CFS

@ d = .45
2% = 7.8
5% = 10
S = 3.5 Qin = 9.9

$$\frac{5-2}{9.5-7} = \frac{5-3.5}{9.5-x} \Rightarrow \frac{3}{2.5} = \frac{1.5}{9.5-x} \Rightarrow 3.75 = 28.5 - 3x \Rightarrow x = 8.3 \text{ CFS}$$

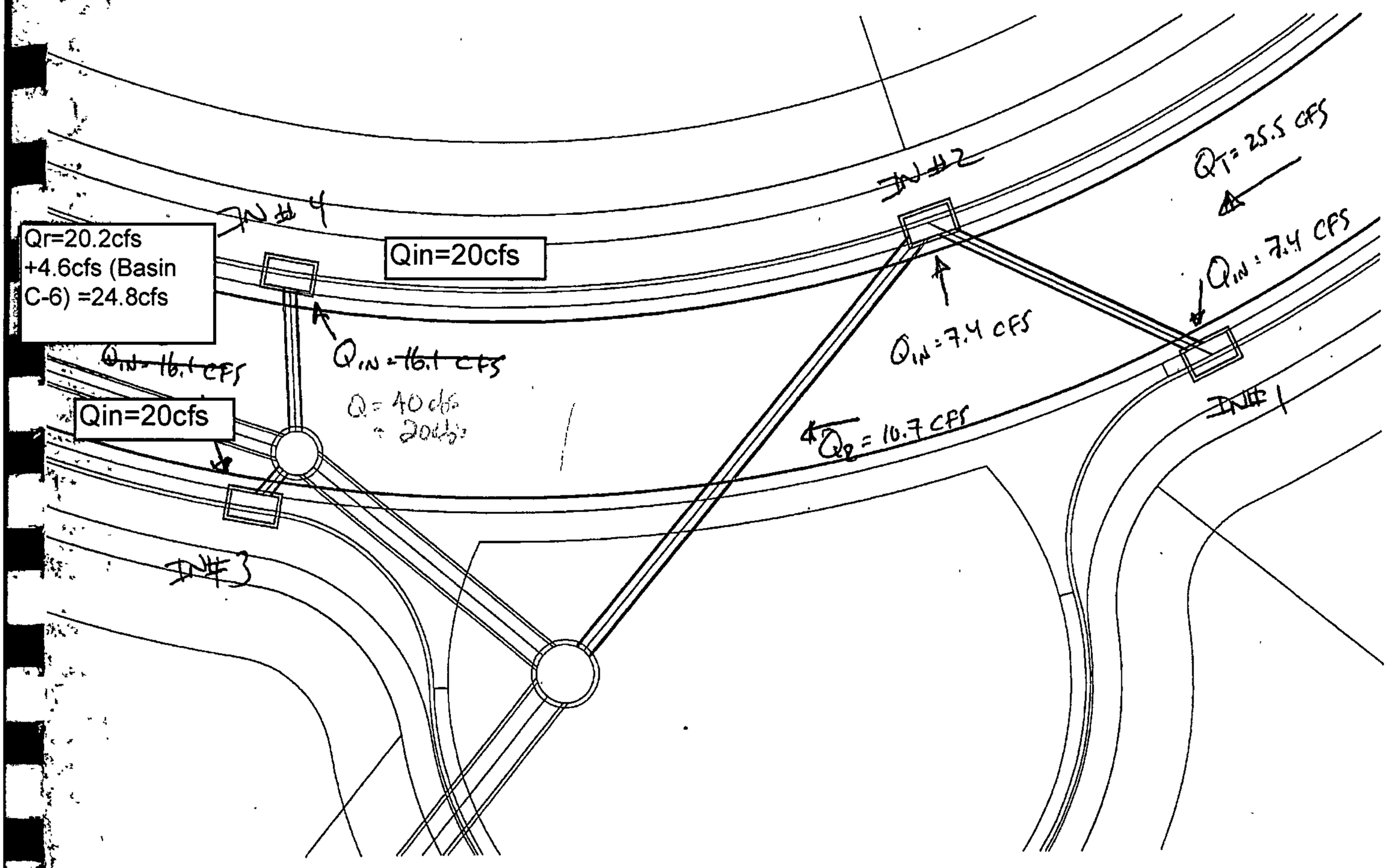
$\therefore$ 29.4 CFS - 2(8.3 CFS) $\Rightarrow$ RESIDUAL FLOW = 12.8 CFS

B-3



505.797.1100

The Vaugh



INLETS #3 & #4 ARE IN SUMP

Qtotal @ inlets = 40cfs
Qr(inlets 5&6) = 20.2cfs
15% Basinc C-8=4.5cfs
Basin C-6 = 4.6 cfs
Qr=(inlets 1&2) = 10.7
Qt= 20cfs per inlet
Q(2x100yr)=40cfs per inlet

City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 02/2013)

Project Title: DMP FOR THE PULTE @ MIREHAVEN PHASE 2 Building Permit #: _____ City Drainage #: H09/D017E
DRB#: 1006864 EPC#: _____ Work Order#: _____
Legal Description: N-2-D OF THE WATERSHED SUBDIVISION
City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Christian Sholtis
Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109
Phone#: 823-1000 Fax#: _____ E-mail: csholtis@bhinc com

Owner: WESTERN ALBUQUERQUE LAND HOLDINGS, LLC Contact: JEFF GARRETT
Address: 3131 CAMELBACJ=K RD SUITE 200 PHOENIX, AZ 85016
Phone#: 602-427-4064 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Surveyor: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
X 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
X 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: 11-13-15 By: Yolanda Moyer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, anc 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

Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Shahab Biazar
City Engineer

Requested by: Yolanda Moyer

Date: 11-13-15

Time Due:
- ☐ This A.M.
- ☒ This P.M.
- ☐ Rush _____
- ☐ By Tomorrow

Phone:
Job No.: 20160103

Job Name: Pulte @ Mirehaven Phase 2

DELIVERY VIA

- ☒ Courier
- ☐ Federal Express
- ☐ Mail
- ☐ UPS
- ☐ Other

PICK UP

Item: _____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Letter
2	1	Drainage Info Sheet
3	1	Revised Drainage Report

COMMENTS / INSTRUCTIONS

RECEIVED
NOV 13 2015
LAND DEVELOPMENT SECTION

REC'D BY:_____ **DATE:**_____ **TIME:**_____

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

November 12, 2015

Mr. Shahab Biazar, P.E.
City Engineer
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Grading and Drainage Plan Resubmittal, Pulte @ Mirehaven Phase 2
DRB Case No. 1006864

Dear Shahab:

We are submitting a revised grading and drainage plan for Preliminary Plat approval. We have address your comments below:

1. Check grades approaching intersections. Grades may be exceeding 4% on the lower side of the streets.
    - All intersections do not exceed 4%.
2. Proposed ponds intercepting offsite flows from basins O-1 to O-5 do not fully capture the runoffs. Good portion of basin O-2 drains to Mirehaven Parkway. How is the sediment/erosion being handled for the large slope/graded area to the west of Mirehaven Parkway? Please move the diversion channel closer to Mirehaven Parkway? Label proposed contours. Make sure that proposed contours tie to existing grades.
    - This scenario has been modified to be a diversion of all these basins, see revised report.
3. Diversion channel will drain offsite basins O-1 and O-2 to an existing pond. What is the total volume being captured and what is the capacity of this pond?
    - The existing pond directs flows into an existing storm drain.
4. Who will be maintaining the temporary drainage improvements? A Drainage Maintenance and Covenant may be required.
    - The temporary drainage improvements are BMPs which will be maintained continuously through the SWPPP process.
5. How is the offsite runoff south of Basin O-5 being handled?
    - This flow will be directed south to the existing storm drain.
6. Based on the Drainage Master Plan there are proposed storm drain pipes within Mirehaven Parkway. Please provide street capacity calculations. Are inlets required? Provide storm drain pipe calculations. All improvements within Mirehaven Parkway must be included on the infrastructure list.
    - The Basin Map and Storm Drain Layout Exhibit have been modified and Mirehaven Parkway added. Pipe capacities and flows are shown in the summary table on the Storm Drain Network Map.

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

7. How does Basin C4 (under the Drainage Master Plan) drain to the storm drain system?
    - Per the approved Pulte @ Mirehaven Phase 1 DMP dated 3-20-14," Basin C-4, which is the linear park between Phase 1 and Phase 2, is conveyed east to Tierra Pintada via swales and sidewalk culverts...this will be captured by existing storm drain inlets located in Tierra Pintada Blvd... Water harvesting ponds are located within the linear park". The volume for the existing pond located at the eastern end of the linear park has a volume of 1250CF. We will be adding a second harvesting pond south of this existing one just west of Tierra Pintada which will have a capacity of 4717cf.
8. Total proposed runoff from this subdivision is slightly higher than what is shown on the Drainage Master Plan. Would this cause any capacity issues for the constructed storm sewer infrastructure downstream?
    - The DMP lists 128.8 cfs captured by the storm drain. This project is directing about 110 cfs to the storm drain.
9. Provide an exhibit which clearly shows runoff, depth of water, and street slopes upstream and downstream of all the inlets. Double check on the flows being intercepted and bypassing the inlets.
    - See the Inlet Summary Table on the Storm Drain Network Map for street slope and flow upstream of each inlet.
10. Check grades west of lot 56. Retaining wall may be required.
    - The grades along the west end have been revised and retaining walls added.
11. Provide bottom and top wall elevations for all the proposed retaining walls. Please make sure all grades are clearly shown. Double check the height of the walls to make sure that does not exceed 8' in height.
    - TW/BW were added to clearly identify top of wall and bottom wall elevations where there is a slope between walls. If there is not a TW/BW designated, the elevation on either side of the wall is the top of wall or bottom of wall. If the elevation is between wall without a designation it means that the ground between the two walls is flat with minimal slope and the elevation is the bottom of the upper tier and top of the lower tiered wall or vice versa. Per the wall ordinance no wall shall exceed 8' from the private side or 14' from the private.
12. Provide the height of the garden wall on the sections shown on the plans. What is the spacing between the walls? Retaining walls are being proposed in the middle of the 10' PUE.
    - Wall height has been added to the plan along with the spacing of the walls. We acknowledge that the walls are located with the PUE. This is also the case with the existing Phase 1 to the north.

Bohannan ▲ Huston

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87109-4335

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toll free: 800.877.5332

13. Some lots are graded to drain to the back of the lots. Only the rear landscaping areas can drain to the back. The side yards and the house must drain to the front of the lots. Roof drains may be needed to assure that the runoff would drain to the front of the lots. There must be drainage easements on top of the tracts where rear lots drain to.
    - After discussions, it was decided the grading scheme will remain the same, however we will update the drainage basin to reflect this as well as provide additional swale and pond calculations for the runoff from this area.
14. What is the size of the pond located at the northwest corner of Tierra Pintada and Mirehaven Parkway? How much runoff enters this pond?
    - Flow entering this pond/storm drain is existing flow only and will not increase as a result of this project.
15. First flush pond details and calculations must be provided. Area between back of curb & gutter and sidewalk must be depressed. Ponding also must be provided behind the sidewalk within the front yard (low side) of lots. The pond must be at least 12" deep. Please include driveways areas as part of the first flush required volume calculations.
    - Report has been revised to speak to this. There are proposed permanent front yard ponds.

Berm

16. Can the street grades be modified so a maximum slope of 5% is maintained throughout the subdivision?
    - The DPM allows grades up to 8-12% for residential roads. The max slope is 6.65% and no lots from this street. A majority of the slopes are less than 5%
17. There are some overlapping texts throughout the grading plan. Please make sure all texts are legible.
    - These have been fixed.
18. Check grades west of Lot 6.
    - These grades have been fixed.
19. Since the site will be disturbing more than one acre An Erosion and Sediment Control plan will have to be approved prior to grading approval.
    - A ESC plan will be submitted for review and approval

Please find enclosed the revised plan; we are requesting your review and approval. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure

cc: Kevin Patton, Pulte Homes

Engineering ▲
Spatial Data ▲
Advanced Technologies ▲

CITY OF ALBUQUERQUE

November 11, 2015

Christian Sholtis, PE
Bohannan Huston, Inc.
7500 Jefferson NE, Courtyard I
Albuquerque, NM 87109

Re: DMP for Pulte @ Mirehaven Phase 2
N-2-D of the Watershed Subdivision
Engineer's Stamp Date 7/18/2015 (H09/D017E)

Dear Mr. Sholtis,

Based upon the information provided in your submittal received 10-12-15, the DMP can be approved based on the following comments:

1. Check grades approaching intersections. Grades may be exceeding 4% on the lower side of the streets.
2. Proposed ponds intercepting offsite flows from basins O-1 to O-5 do not fully capture the runoffs. Good portion of basin O-2 drains to Mirehaven Parkway. How is the sediment/erosion being handled for the large slope/graded area to the west of Mirehaven Parkway. Please move the diversion channel closer to Mirehaven Parkway? Label proposed contours. Make sure that proposed contours tie to existing grades.
3. Diversion channel will drain offsite basins O-1 and O-2 to an existing pond. What is the total volume being captured and what is the capacity of this pond?
4. Who will be maintaining the temporary drainage improvements? A Drainage Maintenance and Covenant may be required.
5. How is the offsite runoff south of Basin O-5 being handled?
6. Based on the Drainage Master Plan there are proposed storm drain pipes within Mirehaven Parkway. Please provide street capacity calculations. Are inlets required? Provide storm drain pipe calculations. All improvements within Mirehaven Parkway must be included on the infrastructure list.
7. How does Basin C4 (under the Drainage Master Plan) drain to the storm drain system?
8. Total proposed runoff from this subdivision is slightly higher than what is shown on the Drainage Master Plan. Would this cause any capacity issues for the constructed storm sewer infrastructure downstream?
9. Provide an exhibit which clearly shows runoff, depth of water, and street slopes upstream and downstream of all the inlets. Double check on the flows being intercepted and bypassing the inlets.
10. Check grades west of lot 56. Retaining wall may be required.

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

11. Provide bottom and top wall elevations for all the proposed retaining walls. Please make sure all grades are clearly shown. Double check the height of the walls to make sure that does not exceed 8' in height.
12. Provide the height of the garden wall on the sections shown on the plans. What is the spacing between the walls? Retaining walls are being proposed in the middle of the 10' PUE.
13. Some lots are graded to drain to the back of the lots. Only the rear landscaping areas can drain to the back. The side yards and the house must drain to the front of the lots. Roof drains may be needed to assure that the runoff would drain to the front of the lots. There must be drainage easements on top of the tracts where rear lots drain to.
14. What is the size of the pond located at the northwest corner of Tierra Pintada and Mirehaven Parkway? How much runoff enters this pond.
15. First flush pond details and calculations must be provided. Area between back of curb & gutter and sidewalk must be depressed. Ponding also must be provided behind the sidewalk within the front yard (low side) of lots. The pond must be at least 12" deep. Please include driveways areas as part of the first flush required volume calculations.
16. Can the street grades be modified so a maximum slope of 5% is maintained throughout the subdivision?
17. There are some overlapping texts throughout the grading plan. Please make sure all texts are legible.
18. Check grades west of Lot 6.
19. Since the site will be disturbing more than one acre An Erosion and Sediment Control plan will have to be approved prior to grading approval.

If you have any questions, you can contact me at 924-3999.

Sincerely,

Shahab Biazar, P.E.
City Engineer, Planning Department
Development Review Services

C: e-mail

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: DMP FOR THE PULTE @ MIREHAVEN PHASE 2 Building Permit #: _____ City Drainage #: H09/D017E

DRB#: 1006864 EPC#: _____ Work Order#: _____

Legal Description: N-2-D OF THE WATERSHED SUBDIVISION

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Christian Sholtis

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: csholtis@bhinc.com

Owner: WESTERN ALBUQUERQUE LAND HOLDINGS, LLC Contact: JEFF GARRETT

Address: 3131 CAMELBACJ=K RD SUITE 200 PHOENIX, AZ 85016

Phone#: 602-427-4064 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X GRADING PLAN (PHASED 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
___ 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)

RECEIVED
DEC 08 2015
LAND DEVELOPMENT SECTION

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

DATE SUBMITTED: 12-7-15 By: Yolanda Moyer, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal The particular nature, location, anc 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

Yolanda Padilla Moyer

From:	Yolanda Padilla Moyer
Sent:	Tuesday, December 08, 2015 9:41 AM
To:	'PLNDRS@cabq.gov'
Cc:	'Kevin Patton (Kevin.Patton@PulteGroup.com)'
Subject:	1006864 Pulte @ Mirehaven Phase 2A Grading and Drainage Submittal
Attachments:	1006864 Pulte @ Mirehaven Phase 2A G&D Digital Submittal.pdf

Please find enclosed the digital submittal for the above referenced project.

Yolanda Padilla Moyer, P.E.
Bohannan Huston, Inc

RECEIVED
DEC 0 8 2015
LAND DEVELOPMENT SECTION

CITY OF ALBUQUERQUE

July 8,.2016

Yolanda Padilla-Moyer, PE
Bohannan-Huston
7500 Jefferson St NE Courtyard I
Albuquerque, NM 87109

Re: Pulte @ Mirehaven Phase 2A
Request Pad Certification for lots 19-23, 26, 27, 46, 47 and 57-60 - Accepted
Engineer's Stamp dated: ~~1-22-15~~ (H09D017E)
Certification dated: 7-7-16 1-28-16

Dear Mr. Padilla-Moyer,

Based on the Certification received 7/7/2016, the above referenced Certification for Pulte @ Mirehaven Phase 2A is acceptable for building permit by Hydrology.

If you have any questions, you can contact me at 924-3986 or Totten Elliott at 924-3982.

PO Box 1293

Albuquerque

New Mexico 87103

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development and Review Services

www.cabq.gov

TE/AC
C: CO Clerk Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker, Lois

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

H09D017E

Project Title: PULTE @ MIREHAVEN PHASE 2A Building Permit #: _____ City Drainage #: H-9

DRB#: 10006864 EPC#: _____ Work Order#: 650387

Legal Description: PULTE @ MIREHAVEN PHASE 2A (A REPLAT OF TRACT N-2-D OF WATERSHED)

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: Yolanda Moyer

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: ypadilla@bhinc com

Owner: PULTE Contact: KEVIN PATTON

Address: 7601 JEFFERSON STREET NE SUITE 310 ALBUQ NM 87109

Phone#: 505-341-8591 Fax#: _____ E-mail: kevin patton@pultegroup.com

Architect: _____ Contact: _____

Address: _____

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

Other Contact: _____ Contact: _____

Address: _____

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

Check all that Apply:

DEPARTMENT:

x HYDROLOGY/ DRAINAGE
_____ TRAFFIC/ TRANSPORTATION
_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

x ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ DRAINAGE MASTER PLAN
_____ DRAINAGE REPORT
_____ CLOMR/LOMR

_____ TRAFFIC CIRCULATION LAYOUT (TCL)
_____ TRAFFIC IMPACT STUDY (TIS)
_____ EROSION & SEDIMENT CONTROL PLAN (ESC)

_____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY

_____ PRELIMINARY PLAT APPROVAL
_____ SITE PLAN FOR SUB'D APPROVAL
_____ SITE PLAN FOR BLDG PERMIT APPROVAL
_____ FINAL PLAT APPROVAL
_____ SIA/ RELEASE OF FINANCIAL GUARANTEE
_____ FOUNDATION PERMIT APPROVAL
_____ GRADING PERMIT APPROVAL
_____ SO-19 APPROVAL
_____ PAVING PERMIT APPROVAL
x GRADING/ PAD CERTIFICATION
_____ WORK ORDER APPROVAL
_____ CLOMR/LOMR

_____ PRE-DESIGN MEETING
_____ OTHER (SPECIFY) _____

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JUL 07 2016
LAND DEVELOPMENT SECTION

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DATE SUBMITTED: 07-07-16 By: YOLANDA PADILLA MOYER, P.E

COA STAFF ELECTRONIC SUBMITTAL RECEIVED ____

Bohannan Huston

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

July 7, 2016

Mr. Abiel Carrillo
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Partial Grading and Drainage Certification, Pulte @ Mirehaven Phase 2A
DRB Case No. 1006864

Dear Abiel:

We are submitting a partial grading and drainage certification for Pulte @ Mirehaven Phase 2A. The partial certification includes Lots 19-23, 26, 27, 46, 47 and 57-60. Enclosed for your review is the approved grading and drainage plan dated 01/15/16 and 01-28-16. These lots have been graded; retaining walls, curb and gutter, pavement and downstream infrastructure have been constructed. The remaining lots have been graded, but the retaining walls have not been completed. The remaining lots will be certified once construction of all improvements has been completed.

After reviewing these as-built elevations and visiting the site on 07-06-16 it is my belief that the above lots have been graded in substantial compliance with the approved grading and drainage plan and that the interim drainage improvements allow runoff to be managed in the interim condition.

Your review and approval is requested for Building Permit Approval for the above listed buildings. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Enclosure

cc: Peter Steen, Pulte Homes
Kevin Patton, Pulte Homes

RECEIVED
JUL 07 2016
LAND DEVELOPMENT SECTION

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

Yolanda Padilla Moyer

From: Yolanda Padilla Moyer
Sent: Thursday, July 07, 2016 3:14 PM
To: 'PLNDRS@cabq.gov'
Cc: 'Kevin Patton'; 'peter.steen@pultegroup.com'
Subject: 1006864 Pulte @ Mirehaven Phase 2 Partial Cert Lots 19 - 23, 26, 27, 46, 47, 57-60
Attachments: Partial Cert Lots 19 - 23, 26, 27, 46, 47, 57-60 Digital Submittal.pdf

Please find enclosed the digital submittal for the above mentioned project.

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Bohannan Huston, Inc.

Elliott, Stanice

From: Abiel X. Carrillo
Sent: Tuesday, March 22, 2016 10:41 AM
To: Biazar, Shahab; Cherne, Curtis; Elliott, Stanice; Harmon Rita T.
Cc: ypadilla@bhinc.com
Subject: H09D017E, Pulte @ Mirehaven Phase 2 - Tract N-2-D

Per Shahab's review/email below, the above-referenced project is approved for ESC/Grading Permit; I will place a copy of this email in the file for future reference.

Abiel Carrillo, P.E.

Principal Engineer - Hydrology
Planning Department
Development Review Services Division
City of Albuquerque
505-924-3986
acarrillo@cabq.gov
600 2nd Street NW
Albuquerque, NM 87102

From: Biazar, Shahab
Sent: Thursday, February 04, 2016 10:06 AM
To: Cherne, Curtis; Elliott, Stanice; Abiel X. Carrillo; Harmon Rita T.
Subject: H09D017E, Pulse @ Mirehaven Phase 2

This project was approved verbally for grading on their previous submittal.

Thanks

Sent from my Verizon 4G LTE Smartphone

DRAINAGE MASTER PLAN FOR THE MIREHAVEN MASTER PLANNED COMMUNITY

OVERALL BASIN MAP

11/2013

BASIN I.D.	AREA (AC)	Q (CFS) 100YR
Offsite Basin 1	12.8	19.8
Offsite Basin 2	3.5	5.9
Offsite Basin 3	7.6	16.3
Offsite Basin 4A	9.8	17.3
Offsite Basin 4B	1.1	1.9
12.18B	42.0	65.0
Basin A-1	12.4	40.3
Basin A-2	7.2	23.4
Basin A-3	4.4	14.3
Basin A-4	7.0	22.8
Basin 4-5	5.1	16.6
Basin B-1	5.0	16.3
Basin B-2	4.6	16.0
Basin B-3	1.4	5.6
Basin B-4	13.6	44.2
Basin B-5	4.0	13.0
Basin B-6	1.3	3.4
Basin B-7	16.2	52.7
Basin B-8	9.5	30.9
Basin B-9	3.8	12.4
Basin B-10	12.5	40.7
Basin B-11	5.9	21.4
Basin C-1	39.6	128.8
Basin C-2	2.7	7.1
Basin C-3	0.4	1.7
Basin C-4	2.5	6.6
Basin C-5	6.5	21.1
Basin C-6	1.4	4.6
Basin C-7	8.4	27.3
Basin C-8	9.2	29.9
Basin D-1	3.0	10.8
Basin D-2	2.2	8.0
Basin E	11.6	37.7
Basin F	21.5	69.9
Basin G	26.0	84.6
Basin 1	1.4	4.4
Basin 2	15.8	44.7
Basin 3	16.2	49.0
Basin 4	2.5	6.6
Basin 5	1.4	3.7

OUTFALL I.D.	SIZE (IN)	Q (CFS) 100YR
A	48	137.3
B	60	277.6
C	96	236.2
D	24	10.9
E	30	37.7
F	42	87.2
G	42	88.6

51+41+52= 93 cfs
C+D3 135.2 cfs

LEGEND

- BASIN BOUNDARY
- SUB BASIN BOUNDARY
- FUTURE / PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- DIVERSION CHANNEL

* BASIN FLOWS ARE FROM THE "WEST I-40 DPM". THE EXISTING, UNDEVELOPED PORTIONS OF BASIN 12.18 HAS BEEN SPLIT INTO TWO BASINS, 12.18A AND 12.18B. BASIN 12.18B WILL BE INTERCEPTED BY A DIVERSION SWALE THAT WILL BE LOCATED IN BASIN 1.

ANALYSIS POINT	Qallowable (CFS)
1	1373****
2	1495*****
3	375***
4	216**

** PER "DRAINAGE ANALYSIS REPORT FOR ARROYO VISTA BLVD & TIERRA PINTADA BLVD", APRIL 4, 2012

*** PER "DRAINAGE REPORT FOR STORMCLOUD SUBDIVISION", MAY 27, 2005

****UPSTREAM FLOWS ARE FROM "WEST I-40 DMP UPDATE 2011", DECEMBER 2011

***** PER TECHNICAL MEMORADANDUM "PRELIMINARY HYDRAULIC ANALYSIS FOR MIREHAVEN ARROYO CROSSING", JANUARY 10, 2012.

N

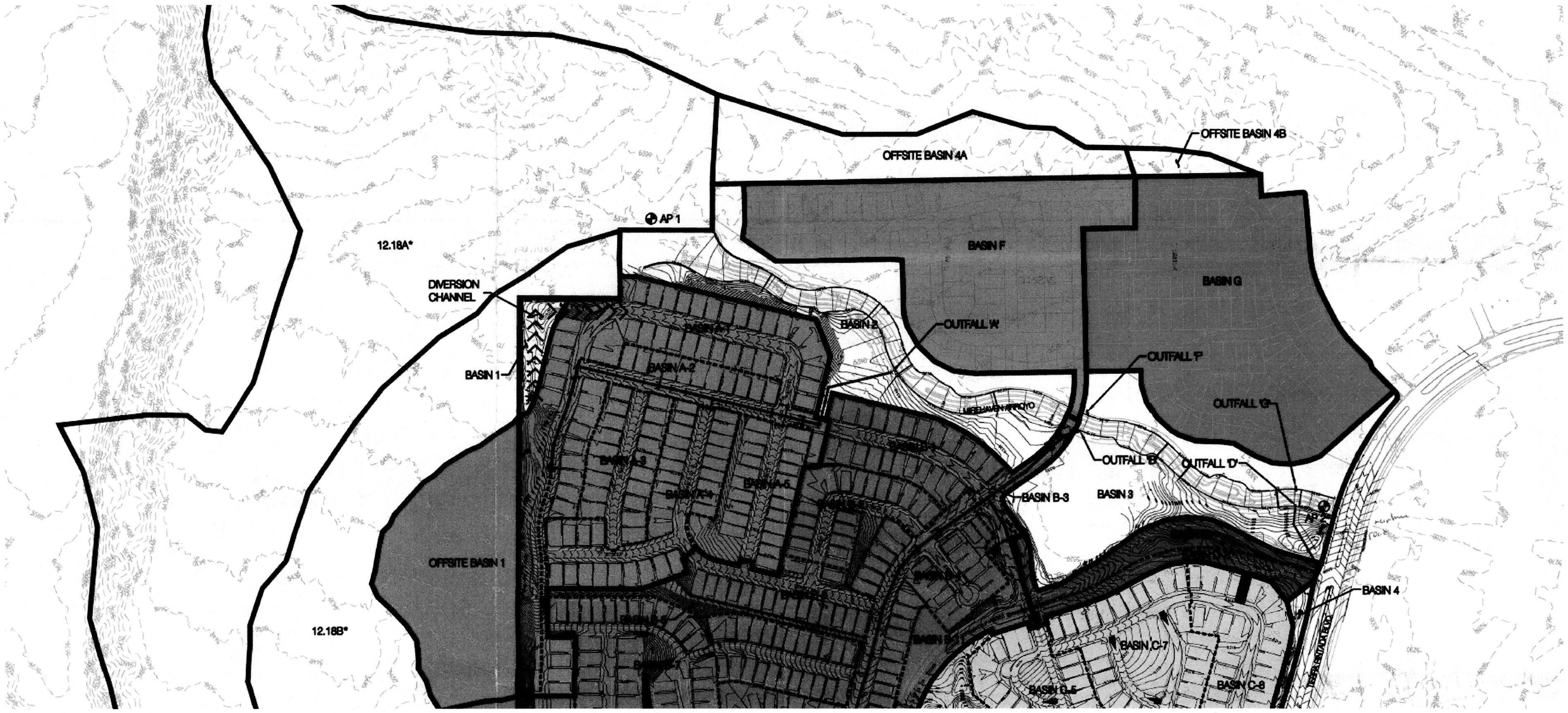
300 150 0 300

SCALE: 1"=300'

Bohannan Huston

www.bhinc.com 800.877.5332

Tue, 19-Nov-2013 - 11:11:am, Plotted by: AROMERO
P:\20130375\CDP\Plans\General\Drainage Master Plan\20130375OverallBasins.dwg


OFFSITE BASIN 4B
OFFSITE BASIN 4A
AP 1
12.18A*
BASIN F
BASIN G
DIVERSION CHANNEL
BASIN 2
OUTFALL W
BASIN 1
OUTFALL 'F'
OUTFALL 'G'
OUTFALL 'B'
OUTFALL 'D'
BASIN B-3
BASIN 3
AP 2
OFFSITE BASIN 1
BASIN 4
12.18B*
BASIN C-7
BASIN C-6
BASIN C-8

City of Albuquerque

Planning Department
Development & Building Services Division
DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(REV 02/2013)

Project Title: DMP FOR THE PULTE @ MIREHAVEN PHASE 2 Building Permit #: _____ City Drainage #: H09D017E

DRB#: 1006864 EPC#: _____ Work Order#: _____

Legal Description: N-2-D OF THE WATERSHED SUBDIVISION

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: BRIAN PATTERSON

Address: 7500 JEFFERSON ST NE COURTYARD 1 ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax#: _____ E-mail: BPATTERSON@BHINC.COM

Owner: WESTERN ALBUQUERQUE LAND HOLDINGS, LLC Contact: JEFF GARRETT

Address: 3131 CAMELBACJ=K RD SUITE 200 PHOENIX, AZ 85016

Phone#: 602-427-4064 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Surveyor: _____ Contact: _____

Address: _____

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

Contractor: _____ 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
X 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)

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LAND DEVELOPMENT SECTION

$1950.00

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

DATE SUBMITTED: 10-09-15 By: SCOTT STEFFEN

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

Per DRB
comment, –
need to capture
full Pad
by using space
betw. SW & B.O. curb

Yolanda Padilla Moyer

From: Yolanda Padilla Moyer
Sent: Tuesday, November 03, 2015 4:06 PM
To: PLNDRS@cabq.gov
Cc: Kevin Patton (Kevin.Patton@PulteGroup.com)
Subject: 1006864 Revised Grading Plan - Pulte @Mirehaven Phase 2
Attachments: DRAINAGE INFO SHEET.pdf; Grading Plan 11-3-15_ 11x17.pdf

Please find enclosed the digital file for the above mentioned project

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Bohannan Huston

Engineering
Spatial Data
Advanced Technologies

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335
www.bhinc.com
voice: 505.823.1000
facsimile: 505.798.7988
toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Rita Harmon
Hydrology Section
City of Albuquerque
600 2nd St NW

Requested by: Scott Steffen

Date: October 9, 2015

Time Due:
- ☒ This A.M.
- ☐ This P.M.
- ☐ Rush _____
- ☐ By Tomorrow

Phone: 924-3695
Job No.: 20160103.007.01.cdpabq

Job Name: Mirehaven Phase 2

DELIVERY VIA

- ☒ Courier
- ☐ Federal Express
- ☐ Mail
- ☐ UPS
- ☐ Other

PICK UP

Item: _____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Grading and Drainage Submittal

COMMENTS / INSTRUCTIONS

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REC'D BY:_____ **DATE:**_____ **TIME:**_____

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☒ **Courier** ☐ **Federal Express**
☐ **Mail** ☐ **UPS**
☐ **Other**

PICK UP

Item: _____

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Grading and Drainage Submittal

COMMENTS / INSTRUCTIONS

REC'D BY:_____ **DATE:**_____ **TIME:**_____

Bohannan ▲ Huston

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December 7, 2015

Mr. Shahab Biazar, P.E. - City Engineer
Abiel Carrillo, P.E. – City Hydrologist
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

Re: Interim Grading and Drainage Plan, Pulte @ Mirehaven Phase 2
DRB Case No. 1006864

Dear Shahab\ Abiel:

We are submitting an interim grading and drainage plan for Phase 2A of the above referenced project.

Enclosed is the interim grading plan which shows only grading Phase 2A (the 1st phase) of Pulte at Mirehaven Phase 2 which will consist of 89 lot. A temporary swale and pond will be in place to divert and collect runoff to the southeast corner of Phase 2A where the storm drain will be extended to collect the runoff and discharge to the internal storm drain system. Also included is relocation of the construction road off of Mirehaven Parkway and the borrow pit of this phase of the project.

The construction road currently ties to the end of the existing Mirehaven Parkway, due of the extension of the Mirehaven Parkway the construction road will have to be relocated. The road will basically sift south to the new Mirehaven Parkway temporary terminus and tie back to the original location adjacent to the temporary pond for Del Webb Phase 1.

The temporary borrow pit is located on the future Del Webb Phase 3. This future phase is in a mostly cut situation so it makes sense to take the cut off this site and place it on Pulte @ Mirehaven Phase 2. Contours have been provided for this area which amounts to the fill that is needed for Phase 2A; however, the exact grades will be asbuilted to determine the finished grade.

The undeveloped flows from future Phase 2B upstream of Phase 2A and Offsite Basins O-4 and O-5, as mentioned above, will be diverted and collected in a proposed pond at the southwest corner of Phase 2A temporarily until Phase 2B develops. This pond will empty into a 24" storm drain stub for future inlets to be built as part of Phase 2A. The proposed pond has a volume of 28,325 cu-ft and a required volume of 22,090 cu-ft.

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Offsite flows from basins O-1, O-2, and O-3 will be diverted toward the northeast to an existing pond with a storm drain outlet located north of the project site on the north side of Mirehaven Parkway. The grading for this diversion along with the proposed construction access road is shown on the revised grading plan.

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

Bohannan ▲ Huston

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toll free: 800.877.5332

Please find enclosed the revised plan; we are requesting your review and approval. I appreciate your time and consideration. If you have questions or require additional information, please contact me at 823-1000.

Sincerely,

Yolanda Padilla Moyer

Yolanda Padilla Moyer, P.E.
Senior Project Manager
Community Development & Planning

Chris Sholtis

Chris Sholtis, P.E
Senior Project Manager

Enclosure

cc: Kevin Patton, Pulte Homes

PULTE PHASE 2B @ MIREHAVEN

EXISTING BASINS MAP

DECEMBER 7, 2015

PHASE 2A EXISTING BASINS SUMMARY - INTERIM CONDITION

BASIN I.D.	AREA (AC)		% LAND TREATMENT A	B	C	D	DISCHARGE (CFS) 100YR	VOLUME (AC-FT)
C1-2A	22 67		100 00%	0 00%	0 00%	0 00%	29 2	0.83
C1-2B-1	18 21		100 00%	0 00%	0 00%	0 00%	23 5	0.67
C1-2B-2	6 23		100 00%	0 00%	0 00%	0 00%	8 0	0.23
O-1	4 31		90 00%	10 00%	0 00%	0 00%	5 9	0.17
O-2	24 30		20 00%	70 00%	10 00%	0 00%	47.8	1.33
O-3	4 48		20 00%	70 00%	10 00%	0 00%	8 8	0.24
O-4	3 34		50 00%	45 00%	5.00%	0 00%	5 7	0.16
O-5	9 09		40.00%	35 00%	25 00%	0 00%	17 7	0.50
TOTAL	92.63						146.6	4.12

LEGEND

- BASIN BOUNDARY
- FLOW ARROW
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN

N

200 100 0 200

SCALE: 1"=200'

Bohannan Huston

www bhinc com 800.877 5332

Mon, 7-Dec-2015 - 2.13:pm, Plotted by: CSHOLTIS
P:\20160103\CDP\Plans\General\20160103_ExistingBasins Phase 2A.dwg

Analyzer Report

==========
Drainage Structure Analyzer

Pipe Hydraulic Analysis

Date: Tuesday, December 08, 2015 9:28:45 AM
==========

Input Data

Shape	Circular
Material	RC C76-A
Roughness	0.013000
Method	Manning
Slope	1.1800%
Max d/D	1.0000
Size (W x T):	24.00 x 3.0000

Output Results

Flow Rate	24.5742 cfs
Slope	1.1800%
d/D	1.0000
Capacity	24.5742 cfs
Velocity	7.8222 ft/s
Depth	2.0000 ft
Critical Depth	1.7500 ft
Size (W x T):	24.00 x 3.0000

Successful completion

Detention Pond Volume Calculations

NOTE: Blue shaded cells require user input, all other cells should not be edited.
ASSUMPTIONS:
1. Area less than 40 acres (simplified hydrograph method).
2. 100-year, 6-hour storm event

Peak Flow per Acre - DPM Section 22.2 Table A-9

Zone	A	B	C	D
1	1.29	2.03	2.87	4.37
2	1.56	2.28	3.14	4.7
3	1.87	2.6	3.45	5.02
4	2.2	2.92	3.73	5.25

Basin Name :
Choose Zone (1 - 4) 1
Basin Area = (acres) 36.87

Exist Conditions				Proposed Conditions			
Treatment	Percentage	Area	Q (cfs)	Treatment	Percentage	Area	Q (cfs)
A	81.0%	29.86	38.53	A	81.0%	29.86	38.53
B	13.0%	4.79	9.73	B	13.0%	4.79	9.73
C	6.0%	2.21	6.35	C	6.0%	2.21	6.35
D	0.0%	0.00	0.00	D	0.0%	0.00	0.00
		Q Peak - exist.=	**54.60**			Peak Q Developed=	**54.60**

Use my calculated exist cond. flow as the peak controlled discharge (1 = yes, or N) ?? N
If No, what is the maximum allowable discharge ? 24

Excess Precipitation - DPM Section 22.2 Table A-8

Zone	A	B	C	D
1	0.44	0.67	0.99	1.97
2	0.53	0.78	1.13	2.12
3	0.66	0.92	1.29	2.36
4	0.8	1.08	1.46	2.64

Determine Developed E (avg excess precipitation for the developed basin)

%A x E = 0.36
%B x E = 0.09
%C x E = 0.06
%D x E = 0.00
Avg E(in) = 0.50

Determine Tb (hours)

Tb = 0.715

Determine Tc (Note: Tc is assumed to be 0.2 hours, this should be checked using DPM 22.2.B.2)

Tc = 0.2

Determine Tp and Duration of Peak (hours)

Tp = 0.273333
Peak Duration = 0

Compute the required retention volume using the simple hydrograph, Figure A-3 in DPM Section 22.2

Time to Control Q (hrs) = 0.120
Time to end of Control Q (hrs)= 0.52114
Duration of Control Q (hrs)= 0.401

Required Detention Volume (CF) = 22090.5

Convert from 100YR - 6HR to 100YR - 10DAY EQUATION A-9 from DPM Chapter 22

$V_{10days} = V_{360} + A_D * (P_{10DAYS} - P_{360}) / 12$ in/ft

V_{10days} = 22090.5 CF