

CITY OF ALBUQUERQUE



February 15th, 2013

Scott Steffen, P.E.
Bohannon Huston, Inc
7500 Jefferson St NE
Albuquerque, NM 87109

Re: Universe Street Capacity Analysis ~~X~~
Engineer's Stamp Date 2/14/13 (C09/D001B)

Dear Mr. Steffen,

Based upon the information provided in your submittal received 2/15/2013, the Universe Street Capacity Analysis is acceptable for approval of the Work Order.

PO Box 1293

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 $\frac{3}{4}$ of an acre or more

Albuquerque

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

NM 87103

Sincerely,

www.cabq.gov

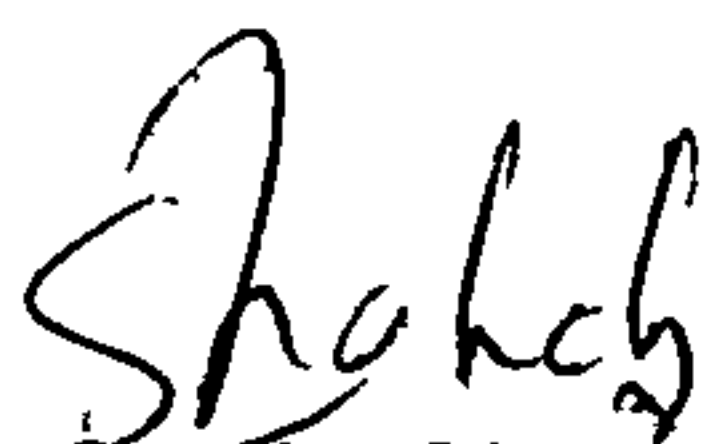
Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: e-mail

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: Curtis Cherne
Hydrology Review Division
Plaza del Sol - 2nd Floor
600 2nd St NW
Alb, NM 87120

Requested by: Scott Steffen

Date: 7/3/13

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

Phone: 924-3986

Job No.: 20130203.002.01.cdpabq

Job Name: Trails Universe Storm Drain

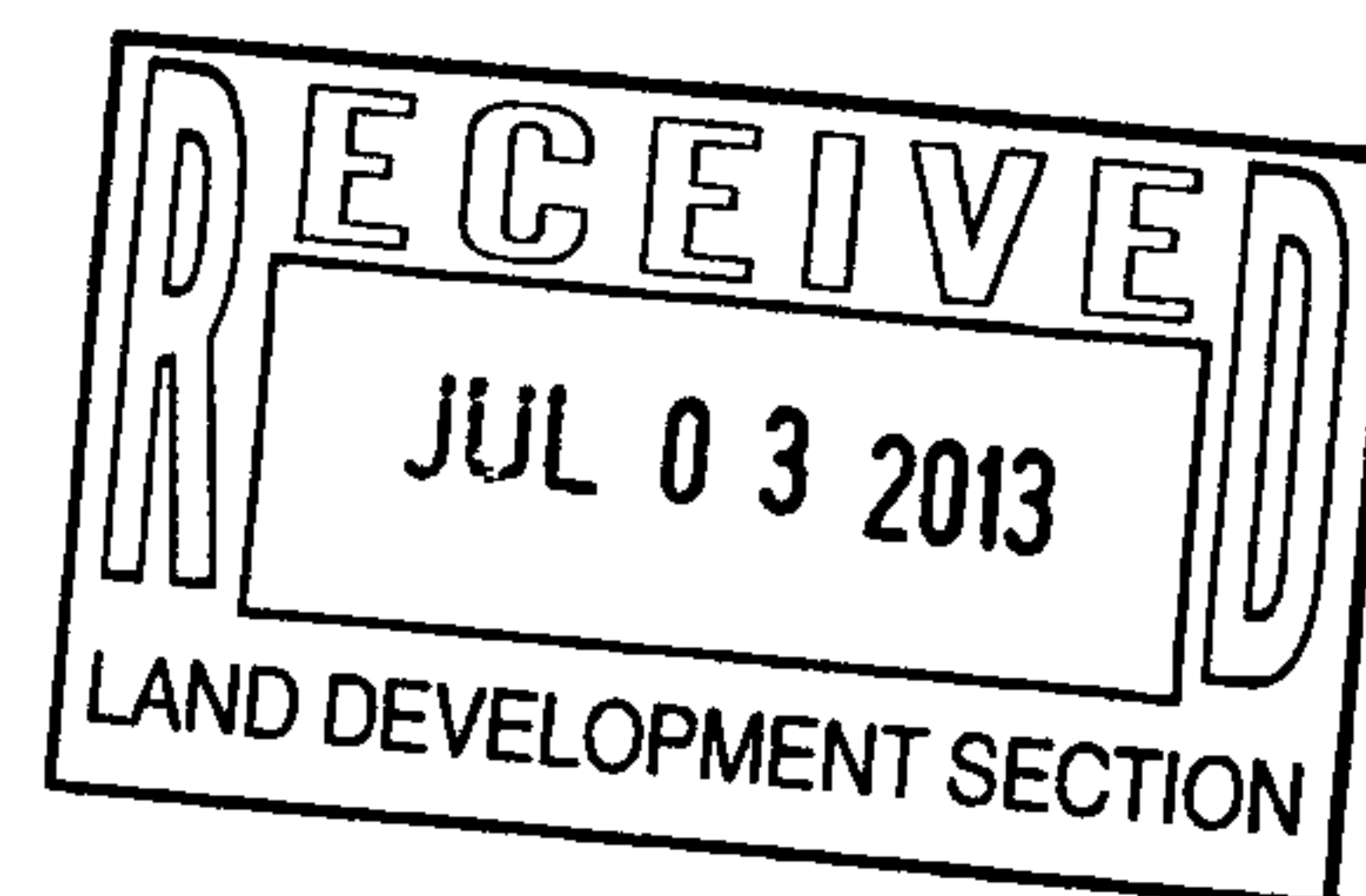
DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other

PICK UP

Item: _____

<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	1	Revised Universe storm drain plans



COMMENTS / INSTRUCTIONS

Curtis,

Attached are the revised sheets and detail sheet for connecting the existing storm drain inlet on Universe Blvd to the Trails Universe storm drain for your review and comment.

Thanks,
Scott

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



ALBUQUERQUE PUBLIC SCHOOLS

Real Estate Department

Expect Great Things!

Winston Brooks
SUPERINTENDENT

Martin W. Eckert, SR/WA
REAL ESTATE DIRECTOR
eckert_m@aps.edu

February 27, 2013
Via Hand Delivery and
e-mail to rdourte@cabq.gov

Mr. Richard Dourte, PE, City Engineer
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Universe Storm Drain – City Project # 761283

Dear Mr. Dourte:

On behalf of the Board of Education of the Albuquerque Municipal School District No. 12, Counties of Bernalillo and Sandoval, New Mexico, a political subdivision of the State of New Mexico, a.k.a. Albuquerque Public Schools ("APS"), this letter is being sent in order to **request/demand that the City of Albuquerque ("City") stop processing the plans for the above referenced project at this time.**

Please see the enclosed:

- HMCG February 26, 2013 Drainage Analysis – HMCG Job No. 2012.182.9
- E-mails from February 26th and 27th between HMCG and Curtis Cherne, PE
- E-mails from June 15, 2012 through January 14, 2013 between me and the City

Subsequent to my January 14th e-mail, the City provided me a copy of a Settlement Agreement between the City and the Trails, LLC ("Trails"), RCS - Cantada Residences I, LLC, RCS - Taos, LLC and RCS – Trails 9-A, LLC (collectively referred to as "RCS") and the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA"), the ("Settlement Agreement"). The Settlement Agreement is not dated, but was signed by the City on November 28, 2012, and the Settlement Agreement refers to other previous agreements between the parties which were also provided to me.

APS made it perfectly clear to the City in the above referenced e-mails that APS previously built all of the drainage improvements it was required to build based on APS's drainage plan that was approved by the City. It was understood when APS purchased the State Land Office property and when APS's drainage plans for Volcano Vista High School ("V V HS") were approved by the City that the Boca Negra Dam and the Universe Storm Drain ("Universe SD") would be built by others, at no expense to APS. In addition, it was made perfectly clear that APS believed the Universe SD outfall pipe needed to be built to allow the full 95.04 cfs to discharge from the V V HS site per the approved drainage plans. APS is very disappointed that the City chose to enter into agreements with these private entities after APS put the City on notice what APS expected, particularly without giving APS the courtesy of



knowing that the City was negotiating said agreements. We do not believe this is how one governmental agency should treat another governmental agency.

It is my understanding that the City is ready to approve plans for a 36 inch SD pipe in Universe Blvd. (originally was supposed to be a 60 inch SD pipe) that will have no pipe connection from the existing 48 inch lateral SD pipe that APS constructed in 2006 under City Project # 766981 in anticipation of a future connection to the proposed 60 inch SD pipe that was to have been built by others within the Universe Blvd. right-of-way. If the City allows the currently designed Universe SD project (City Project # 761283) to proceed as designed, **the City will be damaging APS tremendously** as APS will not be able to convert a major portion of its existing interim retention pond into a permanent detention pond, and thus APS will not be able to reclaim a major portion of the existing interim retention pond for future APS development on the V V HS site. Thus, **the entire existing interim retention pond on the APS V V HS site will in essence become a permanent retention pond which I understand is in violation of the City Drainage Ordinance.** This will cause a financial hardship to APS, and I believe will result in an Inverse Condemnation Action by the City against APS.

APS has also informed the City that APS was not interested in participating in the cost to construct the Universe SD which was supposed to be built by others long ago at no expense to APS. APS is still not interested in spending any of the Districts' tax payer's money to construct drainage improvements that should have been built by others long ago; however, APS may be willing to spend a limited amount of APS funds to make sure that a partial / interim solution is built at this time. That partial / interim solution would be for Bohannon Huston ("BHI") to revise as soon as possible the current project plans (City Project # 761283), prior to the plans being approved by the City, to include the recommended installation of the 18 inch connection and orifice plate, etc. (all per attached HMCG Job No. 2012.182.9) and for said 18 inch connection and orifice plate, etc. to be built with the current project.

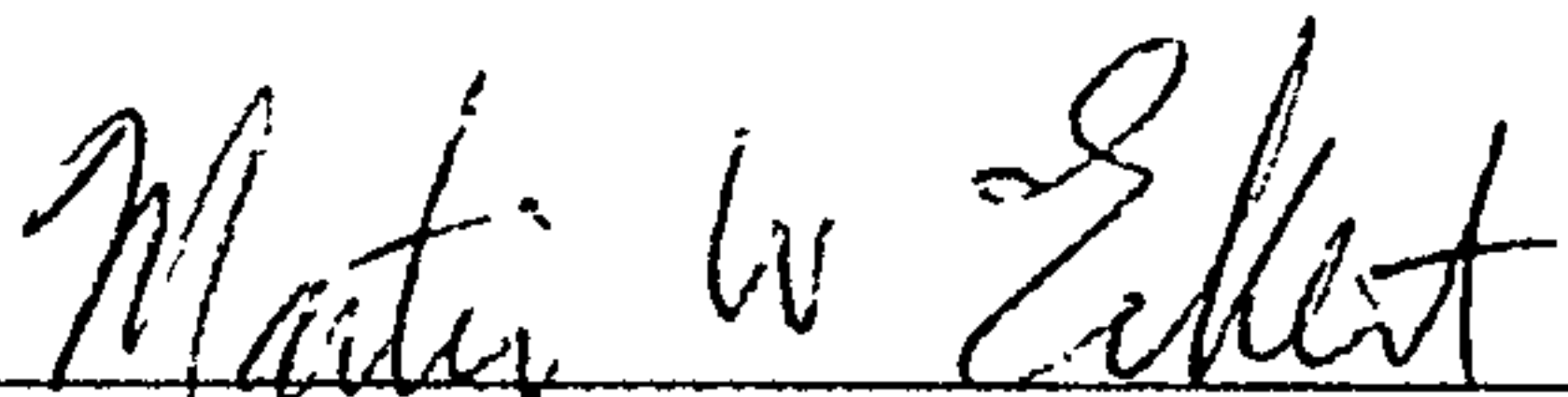
Please note, it is my understanding that these minor plan revisions, if constructed, will only allow APS to discharge approximately 26.2 +/- cfs, which is substantially less than the 95.04 +/- cfs that APS has been approved to discharge. The reason I have referred to this as a "partial / interim solution" is that **APS is willing to allow City Project # 761283 to move forward if these revisions to the project are made as a way to ameliorate the situation at this time**, as APS has been backed into a corner and has no other reasonable relief at this time. APS will be willing to agree to this partial / interim solution, but APS will not be 100% satisfied and APS will reserve its right to have the entire 95.04 +/- cfs drainage outfall constructed by others in the future, at no additional expense to APS.

APS believes this is a reasonable interim solution that all parties should and can agree to administratively at this time. However, if the City will not agree to delay the approval of the plans for City Project # 761283 at this time to include the requested APS plan revisions, APS will do everything it can to seek and obtain all legal relief in this matter, including but not limited to seeking a Court Order to stop City Project # 761283 until adequate relief can be provided to APS.

Universe SD Letter
February 27, 2013
Page 3

I have enjoyed working with you over the years, and I appreciate your assistance on this matter. I look forward to continuing our good working relationship into the future. Please let me know as soon as possible what the City intends to do with regard to this matter.

Sincerely,
Albuquerque Public Schools



Martin W. Eckert, Real Estate Director

Enclosures As Indicated

Xc: Kevin Curran, Esq. (via e-mail)
Blake Whitcomb, Esq. (via e-mail)
Jane Rael (via e-mail)
Stephen Woodall (via e-mail)
Curtis Cherne (via e-mail)
Ruth Schifani, Esq. (via e-mail)
Karen Alarid (via e-mail)
Jeff Mortensen (via e-mail)
Graeme Means (via e-mail)
Rick Beltramo (via e-mail)
Scott Steffen (via e-mail)
James Topmiller (via e-mail)
Harry Relkin, Esq. (via e-mail)
Don Britt (via e-mail)
Jerry Lovato (via e-mail)
Brad Bingham (via e-mail)

Cherne, Curtis

From: Dourte, Richard H.
Sent: Monday, March 18, 2013 10:57 AM
To: 'Eckert, Martin W'; Jeffrey Mortensen; Scott Steffen (ssteffen@bhinc.com)
Cc: Cherne, Curtis; Whitcomb, Blake; Graeme Means; Ruth M. Schifani (rschifani@modrall.com); Alarid, Karen; Darby, Annelle; Livingston, John
Subject: RE: Volcano Vista HS RE: APS and Universe Storm Drain
Attachments: Universe SD Manhole Surge Summary APS flow.xlsx

Martin,

I don't have a detailed analysis to provide. Mr. Steffen at BHI did an analysis as attached, showing that if we allow 6 cfs (3cfs from the street and 3 from APS) we will surcharge the manhole by .6ft. Normally, it is not allowed to have any surcharge, but I feel that something needs to be provided. We may be able to give 4 cfs but in either case we will need to tie the manhole down which is undesirable for many reasons. If you can provide an analysis that would allow for more discharge from your site we will be glad to take a look at it, sometimes the flow timing can make a difference. Although 3 to 4 cfs may not sound like alot, it does provide some relief to your pond.

Please let me know soon,

Richard

From: Eckert, Martin W [mailto:eckert_m@aps.edu]
Sent: Monday, March 18, 2013 10:44 AM
To: Dourte, Richard H.; Jeffrey Mortensen
Cc: Cherne, Curtis; Whitcomb, Blake; Graeme Means; Ruth M. Schifani (rschifani@modrall.com); Alarid, Karen; Darby, Annelle; Livingston, John
Subject: Volcano Vista HS RE: APS and Universe Storm Drain

Richard, you should have received an out of office reply from me last week as I was out of the office on vacation, and I see that Jeff also notified you I was out and that I would respond asap after my return to the office. Thank you for your patience and thank you for trying to make the best out of what I believe to be a bad situation.

Since it does not appear that the City or BHI provided either APS or HMCG a copy of the "detailed analysis" that is referenced in your below e-mail to Jeff, it is hard for me to understand the conclusion of 3 cfs discharge. My initial reaction is "**only 3 cfs?????**". 3 cfs is obviously better than 0 cfs, but substantially less than the 26 to 29 cfs that HMCG had calculated might be possible. I can't express enough how disappointed the School District is with this drastic restriction on its ability to drain this site, particularly in light of the APS Drainage Plan that was approved by the City to allow closer to 100 cfs to be drained.

I request that you please provide APS and HMCG a copy of the "detailed" analysis that demonstrates that APS would be limited to 3 cfs discharge for APS to review. We can't provide the City an answer until we have had adequate time to review this and discuss it internally.

Thanks again for trying to help APS, and the taxpayers of the School District. Marty

Martin W. Eckert, SR/WA
 Real Estate Director
 Albuquerque Public Schools
 Lincoln Complex Room 8
 915 Locust St. SE
 Albuquerque, NM 87106
 E-mail: eckert_m@aps.edu
 Phone: (505) 765-5950 ext 265
 Fax: (505) 768-1583

3/25/2013

From: Dourte, Richard H. [mailto:RDourte@cabq.gov]
Sent: Wednesday, March 13, 2013 10:18 AM
To: Jeffrey Mortensen
Cc: Cherne, Curtis; Whitcomb, Blake; Graeme Means; Eckert, Martin W
Subject: RE: APS and Universe Storm Drain

Thank you.

From: Jeffrey Mortensen [mailto:JMortensen@highmesacg.com]
Sent: Wednesday, March 13, 2013 9:29 AM
To: Dourte, Richard H.
Cc: Cherne, Curtis; Whitcomb, Blake; Graeme Means; 'Eckert, Martin W'
Subject: RE: APS and Universe Storm Drain

Richard,

I have forwarded this proposal to Mr. Eckert for his review, however, he is on Spring Break, returning to work the 18th.

I trust he will give this his full attention upon return. In the meantime, thank you for your continued interest in helping resolve this matter.

Regards,
 Jeff



Jeffrey G. Mortensen, P.E.
 President

6010-B Midway Park Blvd. NE Phone: 505.345.4250
 Albuquerque, NM 87109 Fax: 505.345.4254
 www.highmesacg.com jmortensen@highmesacg.com

-----Original Message-----

From: Dourte, Richard H. [mailto:RDourte@cabq.gov]
Sent: Wednesday, March 13, 2013 8:44 AM
To: Jeffrey Mortensen
Cc: Cherne, Curtis; Whitcomb, Blake
Subject: APS and Universe Storm Drain

Jeff,

After a detailed analysis regarding the storm drain in Universe Boulevard, it has been determined that the APS site adjacent to this may drain into the pipe at a rate of 3cfs. Although this is not the allowing free discharge for this site, it will allow the pond to change from a retention pond to a detention pond. This will provide benefit to APS.

I do want to point out that the City is allowing more storm water into this system than normally allowed. The addition of 3cfs will generate a hydraulic grade line above the top of a manhole in this system, this manhole will need to be secured.

3/25/2013

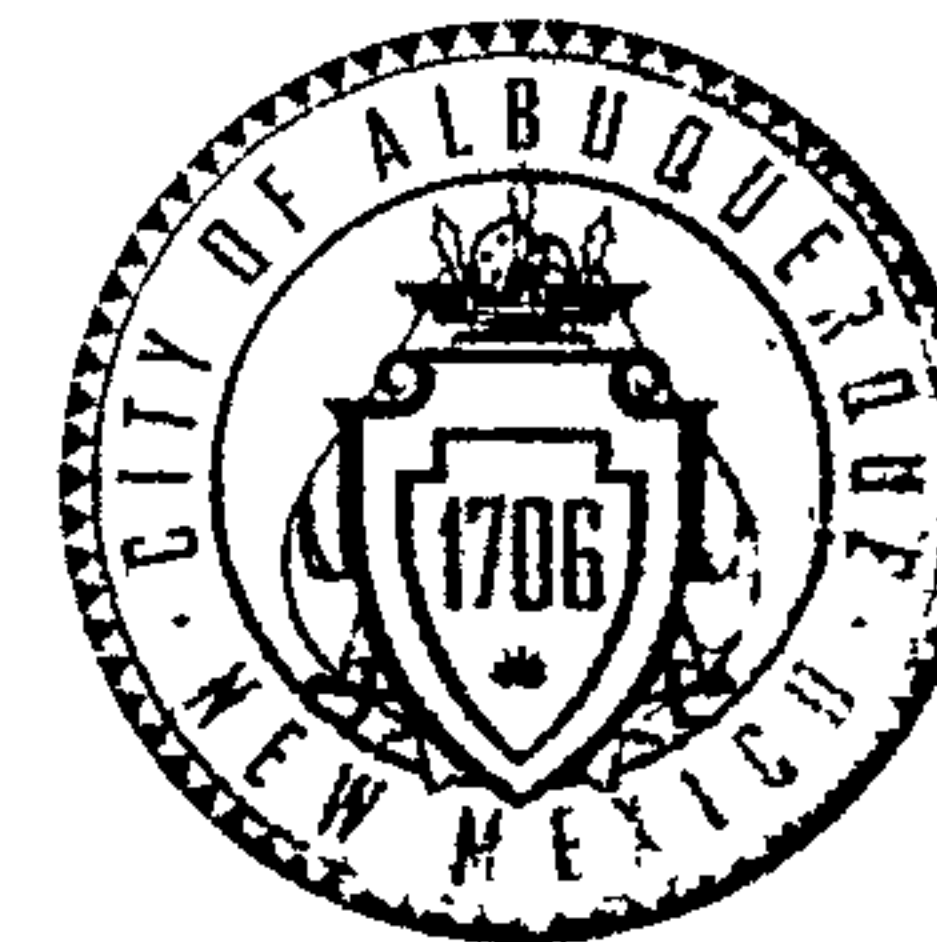
Since you have been an interacting agency between the City and APS, I am requesting that you contact APS to see if they wish to utilize this option. APS would need to coordinate with RCS/Trails with regards to a change order to the Universe Storm Drain construction plans and with regards to the associated costs, if they choose to proceed with this option.

Thank you for your help.

Richard

3/25/2013

CITY OF ALBUQUERQUE



March 14, 2013

Catherine F. Davis, Esq.
Hunt and Davis, PC
2632 Mesilla NE
Albuquerque, NM 87110

Re: City of Albuquerque Work Order for the Universe Storm Drain Project no. 761283

Dear Ms. Davis,

This letter is in response to your correspondence dated March 8, 2013, regarding the above referenced subject.

Prior to issuing a work order for the Universe Storm Drain (City project no. 761283) construction documentation (copy of contract between developer and contractor; contractor bonds, which include warranty/performance bond and labor/material bond; certification of insurance) needs to be submitted to the City. To date, the City has not yet received these documents from your client. Please contact Marilyn Maldonado at 924-3997 for more information.

PO Box 1293

In regard to the general allegations in your letter, as with most projects there are existing field conditions that need to be addressed. There is a storm drain lateral in Universe Boulevard that accepts runoff from this street via a catch basin. This lateral also accepts storm water from a pond on APS property. This issue will need to be resolved at this time or as a change order prior to the City accepting this project. There is no hold on your clients project.

NM 87103

Sincerely,

www.cabq.gov

Richard Dourte, PE
City Engineer

Cc: Suzanne Lubar, Acting Director, Planning Dept.
Matthew Conrad, Associate Director, Planning Dept.
Kevin Curran, Esq., Deputy City Attorney
Blake Whitcomb, Esq., Assistant City Attorney
Curtis Chérne, PE, City Hydrologist
Jane Rael, PhD, PE, Design Review Manager

Cherne, Curtis

From: Eckert, Martin W [eckert_m@aps.edu]
Sent: Monday, January 14, 2013 3:24 PM
To: Dourte, Richard H.
Cc: Alarid, Karen; Mason, Tyler M; Darby, Annelle; Livingston, John; Lovato, Jerry (jlovato@amafca.org); Cherne, Curtis ; Curran, Kevin J.; Bingham, Brad (bbingham@amafca.org); Jeffrey Mortensen (JMortensen@highmesacg.com); Graeme Means (GMeans@highmesacg.com)
Subject: Boca Negra Dam Agreement FW: Volcano Vista FW: Universe Blvd. Storm Drain
Importance: High
Attachments: Universe SD concept 6-12.pdf; Volcano Vista Legible approved MDP 061512.PDF; Volcano Vista approved MDP.PDF

Richard, please see the below e-mails from June of 2012 (I'm sending the same attachments since they were referenced in the below e-mail, but APS does not agree with the Concept that is shown in the first pdf "Universe ... 6-12"). I noticed that you were not copied to those e-mails, but Kevin Curran, Esq. and Curtis Cherne were involved from the City of Albuquerque ("City") at that time.

It is my understanding that the Boca Negra Dam (the "Dam") is now under construction. As I believe you are aware, the Dam is the programmed outfall for the Volcano Vista High School ("V V HS") site. I understand that the City recently entered into an Agreement with The Trails and/or Longford Homes and/or other entities that allowed the Dam construction project to move forward. It is my understanding that the Agreement may have included some provisions regarding the future design and construction of the Universe Storm Drain that will drain into the Dam. I would like to get a copy of the Agreement as soon as possible in order that the Albuquerque Public Schools ("APS") can assess what implications the Agreement may have regarding APS and the V V HS site.

As I stated in my below e-mail, APS has built all of the drainage improvements it was required to build based on APS's drainage plan that was approved by the City. It was understood when APS purchased the State Land Office property and when APS's drainage plans for V V HS were approved that the Boca Negra Dam and the Universe SD would be built by others, at no expense to APS. APS would like to see the Universe SD outfall pipe built to allow the full 95.04 cfs to discharge from the V V HS site per the approved drainage plans. APS does not have any money to fund the Universe SD and is not interested in participating in the cost to construct the Universe SD which was supposed to be built by others long ago at no expense to APS.

It is my understanding that if the Universe Storm Drain is constructed as it was designed many years ago, APS will be able to convert a portion of its existing interim retention pond into a permanent detention pond and that the construction of the Universe Storm Drain will allow a major portion of the existing interim retention pond to be reclaimed by APS for future development on the V V HS site, and this is what APS has envisioned for years and what APS wants to happen. It is my further understanding that if the Universe Storm Drain is not constructed, that the entire existing interim retention pond on the APS V V HS site will in essence become a permanent retention pond, which I believe is in violation of the City Drainage Ordinance. This will cause a financial hardship to APS.

I request that you please send me a copy the requested Agreement as soon as possible, or let me know where I can pick-up a copy for review.

Thanks, Marty

Martin W. Eckert, SR/WA
 Real Estate Director
 Albuquerque Public Schools
 Lincoln Complex Room 8
 915 Locust St. SE
 Albuquerque, NM 87106
 E-mail: eckert_m@aps.edu
 Phone: (505) 765-5950 ext 265
 Fax: (505) 768-1583

3/19/2013

From: Cherne, Curtis [mailto:CCherne@cabq.gov]
Sent: Thursday, June 21, 2012 9:42 AM
To: Eckert, Martin W; steven.metro@wilsonco.com; Curran, Kevin J.
Cc: Jeff Mulbery; Jeffrey Mortensen; Mason, Tyler M; Livingston, John; Bingham, Brad; Lovato, Jerry
Subject: RE: Volcano Vista FW: Universe Blvd. Storm Drain

Hydrology has no comment on this at this time.

Curtis

From: Eckert, Martin W
Sent: Friday, June 15, 2012 12:26 PM
To: 'steven.metro@wilsonco.com'; 'Curran, Kevin J.'
Cc: 'Jeff Mulbery'; Jeffrey Mortensen; Mason, Tyler M; Livingston, John; 'Cherne, Curtis '; 'Bingham, Brad'; 'Lovato, Jerry'
Subject: FW: Volcano Vista FW: Universe Blvd. Storm Drain
Importance: High

I have now talked to both Jeff Mulbery from BHI and Jeff Mortensen from HMCG. The 1st attachment is what Steve Metro sent me this morning – it is a conceptual plan that shows APS might be allowed a discharge of 10cfs under this scenario. The 2nd is a blow up of the BHI approved grading plan for V V HS which shows APS allowed 95.04 cfs discharge out of the 101 cfs allowed per the approved Master Drainage Plan, and the 3rd includes the BHI approved plans as well as portions of the previously approved Master Drainage Plan from HMCG.

APS has built the all of the drainage improvements it was required to build in its approved drainage plan. It was understood when APS purchased the State Land Office property and got its drainage plans for V V HS approved that the Boca Negra Dam and the Universe SD would be built by others, at no expense to APS. APS would like to see the Universe SD outfall pipe built to allow the full 95.04 cfs to discharge from the V V HS site. APS does not have any money to fund the Universe SD and is not interested in participating in the cost to construct the Universe SD which was supposed to be built by others long ago at no expense to APS. I apologize for my stupidity, but I have not been focusing as closely on this as I should have been because I'm trying to get another critical project wrapped up. I read the 1.44 cfs in the MDP, but failed to understand that it stated 1.44 cfs / acre (V V HS is 70 + acres).

Thanks, Marty

From: Jeff Mulbery [mailto:jmulbery@bhinc.com]
Sent: Friday, June 15, 2012 11:52 AM
To: Eckert, Martin W
Cc: Kevin Patton; Livingston, John
Subject: Re: Volcano Vista FW: Universe Blvd. Storm Drain

Marty, per our discussion the approved dmp for vvhs shows an outfall of approx. 95 cfs into the storm drain in universe to be built by others.

Thanks.

Jeff

Confidential/Proprietary Note:

The information in this email is confidential and may be legally privileged. Access to this email by anyone other than the intended addressee is unauthorized. If you are not the intended recipient of this message, any review,

3/19/2013

disclosure, copying, distribution, retention, or any action taken or omitted to be taken in reliance on it is prohibited and may be unlawful. If you are not the intended recipient, please reply to or forward a copy of this message to the sender and delete the message, any attachments, and any copies thereof from your system. Thank you.

3/19/2013

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: APS NW Mesa High School ZONE ATLAS/DRNG. FILE #: C9
 DRB #: 1004071 EPC #: _____ WORK ORDER #: 766981

LEGAL DESCRIPTION: Tracts A and B, Ancient Mesa (Plat recordation pending land acquisition)
 CITY ADDRESS: Universe Blvd NW

ENGINEERING FIRM: Jeff Mortensen & Assoc., Inc. CONTACT: J. Graeme Means
 ADDRESS: 6010-B Midway Park Blvd. NE PHONE: (505) 345-4250
 CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Albuquerque Public Schools (Purchaser) CONTACT: Tyler Mason
 ADDRESS: 915 Oak Street SE PHONE: 242-5865
 CITY, STATE: Albuquerque, NM ZIP CODE: 87106

ARCHITECT: SMPC CONTACT: Chris Willadsen
 ADDRESS: 115 Amherst SE PHONE: 255-8668
 CITY, STATE: Albuquerque, NM ZIP CODE: 87106

SURVEYOR: Jeff Mortensen and Associates CONTACT: Chuck Cala
 ADDRESS: _____ PHONE: 345-4250
 CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: Not Selected CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

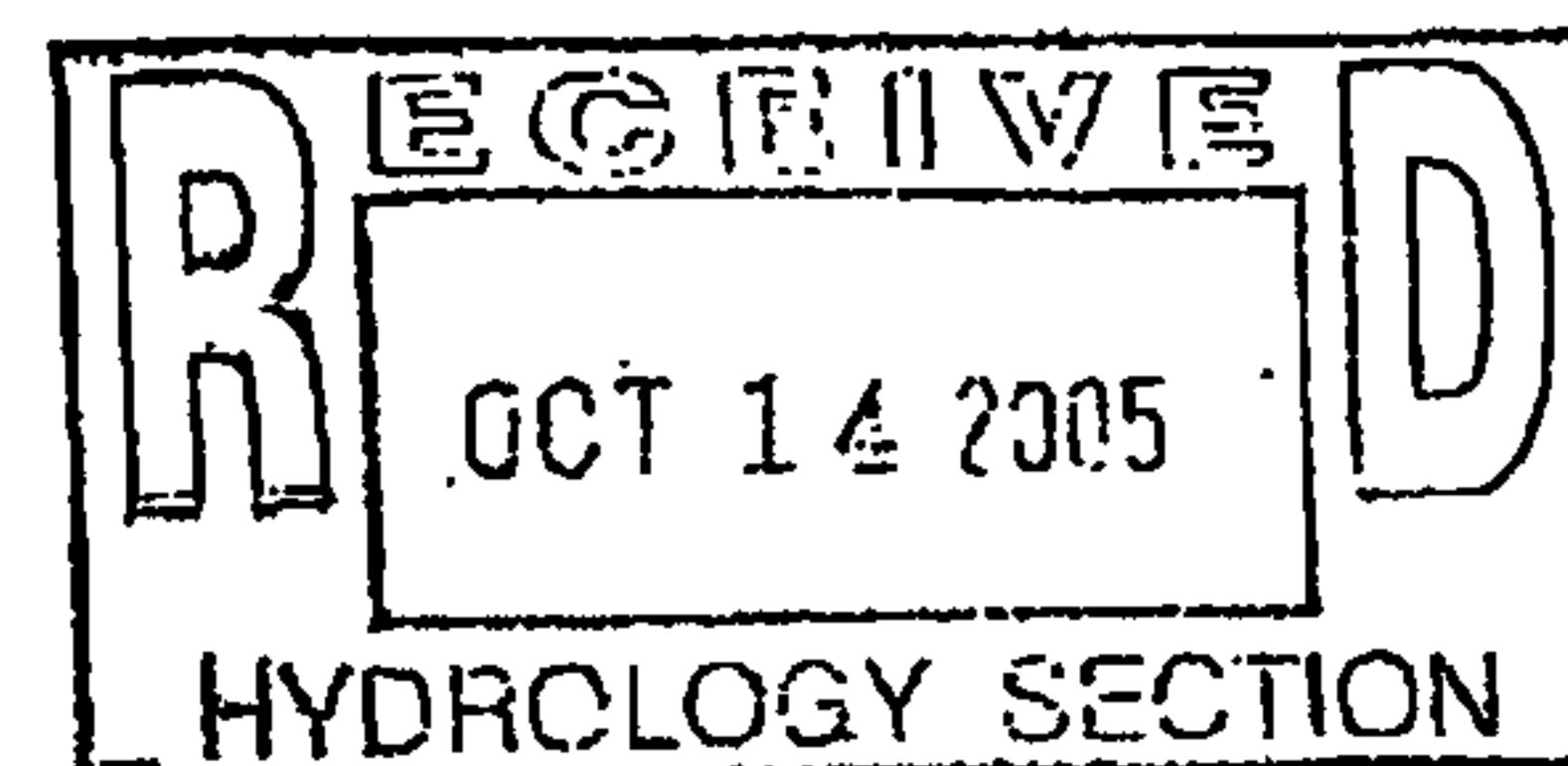
- ☒ DRAINAGE REPORT
☐ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal**
**DRB approved site plan will be TCL*
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEER'S CERTIFICATION (TCL)
☐ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM.)
☐ CERTIFICATE OF OCCUPANCY (TEMP.)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☒ WORK ORDER APPROVAL
☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
☐ NO
☒ COPY PROVIDED



DATE SUBMITTED: 10/14/2005 BY: J. Graeme Means

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

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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

cc: Roger Lujan, Gil Berry, Mary Kenney, Mike McGuire

CITY OF ALBUQUERQUE
DEVELOPMENT & BUILDING SERVICES CENTER
PLANNING DEPARTMENT/HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NUMBER: C9 DATE: 06-21-2005
CROSS REFERENCE NUMBERS: EPC DRB: 05DRB-00511 DRC
SUBJECT: ANCIENT MESA (FUTURE APS HIGH SCHOOL SITE- NW MESA
STREET ADDRESS: RAINBOW BLVD NW (FUTURE)
SUBDIVISION NAME: TRACTS A & B ANCIENT MESA (PROPOSED)

TYPE OF APPROVAL

<u> </u> PRELIMINARY PLAT	<u> </u> FINAL PLAT
<u> </u> SITE DEVELOPMENT PLAN	<u> </u> BUILDING PERMIT
<u> X </u> OTHER - FEASIBILITY STUDY	<u> </u> ROUGH GRADING

<u>ATTENDEE:</u>	<u>ORGANIZATION:</u>	<u>PHONE:</u>
BRAD BINGHAM	CITY HYDROLOGIST	924-3986
JEFF MORTENSEN	JMA (APS CONSULTANT)	345-4250

FINDINGS:

1. PRIOR TO DEVELOPMENT, A MASTER DRAINAGE PLAN SATISFYING DPM CRITERIA IS REQUIRED.
2. THE MASTER DRAINAGE PLAN SHOULD ADDRESS ALL PHASES OF PROPOSED DEVELOPMENT IN ORDER THAT DOWNSTREAM CAPACITY BE ADEQUATELY CALCULATED.
3. UNDER THE FULL BUILD-OUT SCENARIO, THE MASTER DRAINAGE PLAN SHALL CALCULATE THE ALLOWABLE DISCHARGE FROM THE SITE TAKING INTO ACCOUNT THE AVAILABLE DOWNSTREAM CAPACITY IN THE BOCA NEGRA DAM/UNIVERSE STORM DRAIN (CITY PROJECT NO. 761261).
4. SITE SPECIFIC GRADING & DRAINAGE SUBMITTALS WILL BE REQUIRED TO SUPPORT INDIVIDUAL ONSITE CONSTRUCTION PROJECTS (E.G. BUILDING PERMIT, GRADING PERMIT, PAVING PERMIT, ETC.).
5. WORK ORDER IS REQUIRED FOR ALL PUBLIC INFRASTRUCTURE IMPROVEMENTS (E.G. RAINBOW BLVD & UNIVERSE ROAD).
6. PUBLIC STORM DRAIN IMPROVEMENTS WILL BE REQUIRED IN UNIVERSE ROAD NE; SCOPE TO BE DETERMINED BASED UPON THE STATUS OF THE BOCA NEGRA DAM/UNIVERSE STORM DRAIN PROJECT COMPLETION.
7. THE DISCHARGE OF DEVELOPED RUNOFF FROM THE SITE TO UNIVERSE ROAD NW MUST INCORPORATE DIRECT CONNECTION TO THE BOCA NEGRA DAM/UNIVERSE STORM DRAIN.

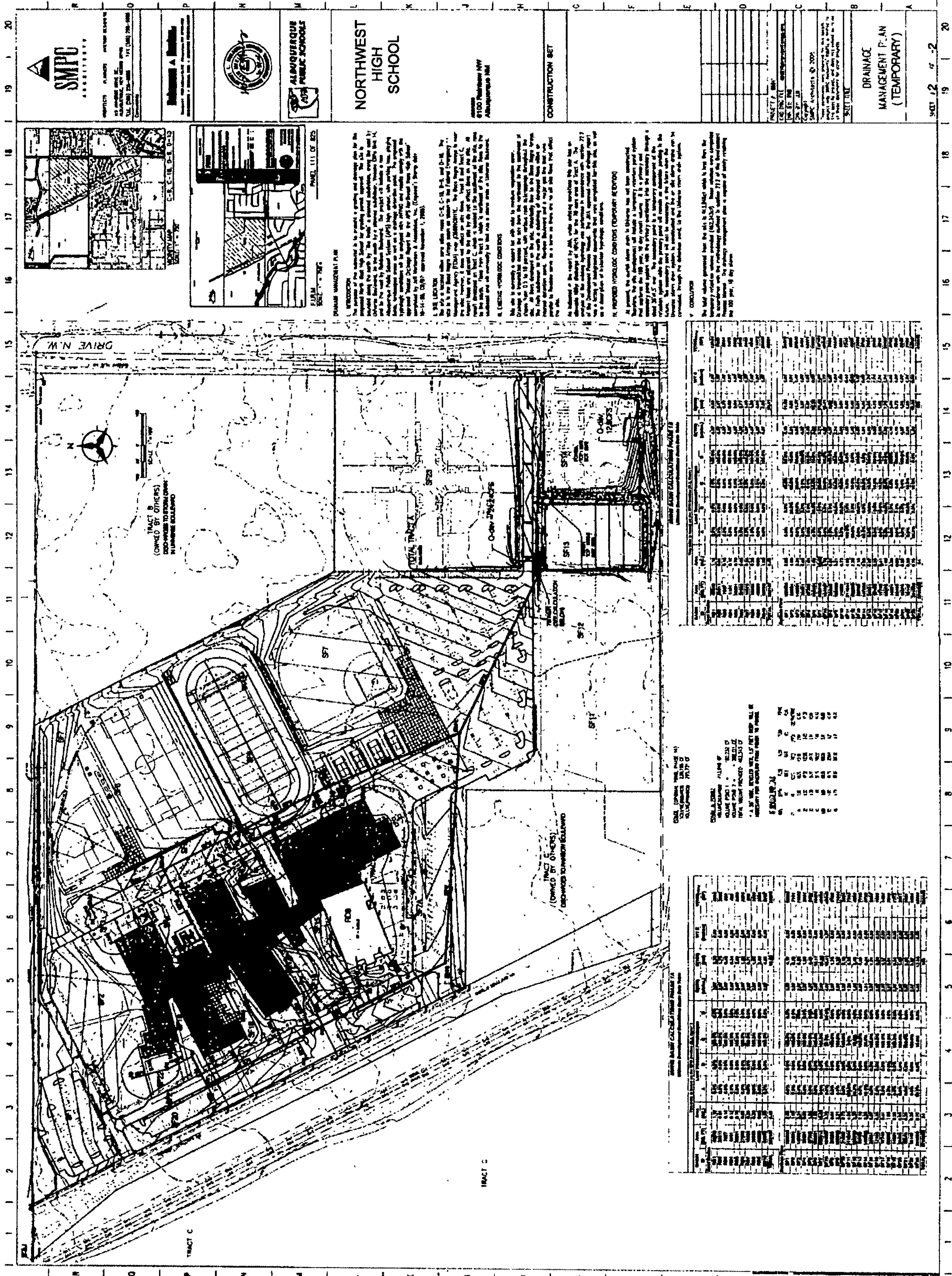
8. THE DISCHARGE OF DEVELOPED RUNOFF FROM THE SITE TO UNIVERSE ROAD NW IN ADVANCE OF THE BOCA NEGRA DAM/UNIVERSE STORM DRAIN MAY UTILIZE INTERIM RETENTION PONDING AS A TEMPORARY SOLUTION.
9. DETENTION PONDING PRIOR TO DISCHARGE TO THE BOCA NEGRA DAM/UNIVERSE STORM DRAIN MAY BE NECESSARY DEPENDING UPON AVAILABLE DOWNSTREAM CAPACITY AND THE MAGNITUDE OF ONSITE RUNOFF BEING GENERATED.
10. THE DISCHARGE OF DEVELOPED RUNOFF FROM THE SITE TO RAINBOW BLVD. NW MUST ADDRESS DOWNSTREAM CAPACITY; STORM DRAIN PROBABLY NOT REQUIRED DUE TO BEING THE UPPERMOST PORTION OF THE BASIN, FLOWS BEING CUT-OFF BY THE TRAILS DEVELOPMENT AND RAINBOW BEING UPHILL FROM THE SITE.
11. DEVELOPMENT ON THE SITE MUST COMPLY WITH NPDES REQUIREMENTS FOR STORM WATER POLLUTION PREVENTION.

THE UNDERSIGNED AGREE THAT THE ABOVE FINDINGS ARE SUMMARIZED ACCURATELY AND ARE ONLY SUBJECT TO CHANGE IF FURTHER INVESTIGATION REVEALS THAT THE FINDINGS ARE NOT REASONABLE OR THAT THEY ARE BASED UPON INACCURATE INFORMATION.

SIGNED: Bradley L. Bigham
TITLE: CITY HYDROLOGIST
DATE: 6/24/05

SIGNED: [Signature]
TITLE: CONSULTANT
DATE: 10/24/2005

NOTE: PROVIDE A COPY OF THIS RECAP WITH DRAINAGE SUBMITTAL



PROJECT: ALBUQUERQUE
OWNER: ALBUQUERQUE PUBLIC SCHOOLS
DATE: 11/11/03
SCALE: 1/8" = 1'-0"

DESIGNED BY: SMPC
CHECKED BY: SMPC
DATE: 11/11/03



ALBUQUERQUE
PUBLIC SCHOOLS

NORTHWEST
HIGH
SCHOOL

STUDY NUMBER: NW
ALBUQUERQUE, NM

CONSTRUCTION SET

DRAINAGE
MANAGEMENT PLAN
(TEMPORARY)

SHEET 12 OF 20

1. INTRODUCTION
The purpose of this report is to provide a drainage plan for the proposed Northwest High School. The site is located in the northwest corner of the intersection of Drive N.W. and Drive S.W. The site is approximately 100 feet wide and 200 feet deep. The site is currently undeveloped and is surrounded by residential areas. The proposed school building is located on the north side of the site. The drainage plan is based on the following assumptions:
1. The site is located in a drainage basin with a 1% slope to the south.
2. The site is located in a drainage basin with a 1% slope to the east.
3. The site is located in a drainage basin with a 1% slope to the west.
4. The site is located in a drainage basin with a 1% slope to the north.
5. The site is located in a drainage basin with a 1% slope to the south-east.
6. The site is located in a drainage basin with a 1% slope to the north-east.
7. The site is located in a drainage basin with a 1% slope to the south-west.
8. The site is located in a drainage basin with a 1% slope to the north-west.
9. The site is located in a drainage basin with a 1% slope to the south-east.
10. The site is located in a drainage basin with a 1% slope to the north-east.
11. The site is located in a drainage basin with a 1% slope to the south-west.
12. The site is located in a drainage basin with a 1% slope to the north-west.

2. SITE LOCATION
The site is located in the northwest corner of the intersection of Drive N.W. and Drive S.W. The site is approximately 100 feet wide and 200 feet deep. The site is currently undeveloped and is surrounded by residential areas. The proposed school building is located on the north side of the site. The drainage plan is based on the following assumptions:
1. The site is located in a drainage basin with a 1% slope to the south.
2. The site is located in a drainage basin with a 1% slope to the east.
3. The site is located in a drainage basin with a 1% slope to the west.
4. The site is located in a drainage basin with a 1% slope to the north.
5. The site is located in a drainage basin with a 1% slope to the south-east.
6. The site is located in a drainage basin with a 1% slope to the north-east.
7. The site is located in a drainage basin with a 1% slope to the south-west.
8. The site is located in a drainage basin with a 1% slope to the north-west.

3. EXISTING HYDROLOGIC CONDITIONS
The site is located in a drainage basin with a 1% slope to the south. The site is located in a drainage basin with a 1% slope to the east. The site is located in a drainage basin with a 1% slope to the west. The site is located in a drainage basin with a 1% slope to the north. The site is located in a drainage basin with a 1% slope to the south-east. The site is located in a drainage basin with a 1% slope to the north-east. The site is located in a drainage basin with a 1% slope to the south-west. The site is located in a drainage basin with a 1% slope to the north-west.

4. PROPOSED HYDROLOGIC CONDITIONS (TEMPORARY)
The site is located in a drainage basin with a 1% slope to the south. The site is located in a drainage basin with a 1% slope to the east. The site is located in a drainage basin with a 1% slope to the west. The site is located in a drainage basin with a 1% slope to the north. The site is located in a drainage basin with a 1% slope to the south-east. The site is located in a drainage basin with a 1% slope to the north-east. The site is located in a drainage basin with a 1% slope to the south-west. The site is located in a drainage basin with a 1% slope to the north-west.

Station	Flow (cfs)	Velocity (ft/sec)	Depth (ft)	Width (ft)	Area (sq ft)	Volume (cu ft)	Time (min)
1+00	100	1.0	1.0	10	100	100	10
2+00	200	2.0	2.0	20	400	400	20
3+00	300	3.0	3.0	30	900	900	30
4+00	400	4.0	4.0	40	1600	1600	40
5+00	500	5.0	5.0	50	2500	2500	50
6+00	600	6.0	6.0	60	3600	3600	60
7+00	700	7.0	7.0	70	4900	4900	70
8+00	800	8.0	8.0	80	6400	6400	80
9+00	900	9.0	9.0	90	8100	8100	90
10+00	1000	10.0	10.0	100	10000	10000	100

Station	Flow (cfs)	Velocity (ft/sec)	Depth (ft)	Width (ft)	Area (sq ft)	Volume (cu ft)	Time (min)
11+00	1100	11.0	11.0	110	12100	12100	110
12+00	1200	12.0	12.0	120	14400	14400	120
13+00	1300	13.0	13.0	130	16900	16900	130
14+00	1400	14.0	14.0	140	19600	19600	140
15+00	1500	15.0	15.0	150	22500	22500	150
16+00	1600	16.0	16.0	160	25600	25600	160
17+00	1700	17.0	17.0	170	28900	28900	170
18+00	1800	18.0	18.0	180	32400	32400	180
19+00	1900	19.0	19.0	190	36100	36100	190
20+00	2000	20.0	20.0	200	40000	40000	200

Station	Flow (cfs)	Velocity (ft/sec)	Depth (ft)	Width (ft)	Area (sq ft)	Volume (cu ft)	Time (min)
21+00	2100	21.0	21.0	210	44100	44100	210
22+00	2200	22.0	22.0	220	48400	48400	220
23+00	2300	23.0	23.0	230	52900	52900	230
24+00	2400	24.0	24.0	240	57600	57600	240
25+00	2500	25.0	25.0	250	62500	62500	250
26+00	2600	26.0	26.0	260	67600	67600	260
27+00	2700	27.0	27.0	270	72900	72900	270
28+00	2800	28.0	28.0	280	78400	78400	280
29+00	2900	29.0	29.0	290	84100	84100	290
30+00	3000	30.0	30.0	300	90000	90000	300

Station	Flow (cfs)	Velocity (ft/sec)	Depth (ft)	Width (ft)	Area (sq ft)	Volume (cu ft)	Time (min)
31+00	3100	31.0	31.0	310	96100	96100	310
32+00	3200	32.0	32.0	320	102400	102400	320
33+00	3300	33.0	33.0	330	108900	108900	330
34+00	3400	34.0	34.0	340	115600	115600	340
35+00	3500	35.0	35.0	350	122500	122500	350
36+00	3600	36.0	36.0	360	129600	129600	360
37+00	3700	37.0	37.0	370	136900	136900	370
38+00	3800	38.0	38.0	380	144400	144400	380
39+00	3900	39.0	39.0	390	152100	152100	390
40+00	4000	40.0	40.0	400	160000	160000	400

Cherne, Curtis

From: Dourte, Richard H.
Sent: Wednesday, March 13, 2013 8:44 AM
To: Jeffrey Mortensen
Cc: Cherne, Curtis; Whitcomb, Blake
Subject: APS and Universe Storm Drain

Jeff,

After a detailed analysis regarding the storm drain in Universe Boulevard, it has been determined that the APS site adjacent to this may drain into the pipe at a rate of 3cfs. Although this is not the allowing free discharge for this site, it will allow the pond to change from a retention pond to a detention pond. This will provide benefit to APS.

I do want to point out that the City is allowing more storm water into this system than normally allowed. The addition of 3cfs will generate a hydraulic grade line above the top of a manhole in this system, this manhole will need to be secured.

Since you have been an interacting agency between the City and APS, I am requesting that you contact APS to see if they wish to utilize this option. APS would need to coordinate with RCS/Trails with regards to a change order to the Universe Storm Drain construction plans and with regards to the associated costs, if they choose to proceed with this option.

Thank you for your help.

Richard

3/22/2013



6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109
Phone: 505.345.4250
Fax: 505.345.4254
www.highmesacg.com

TO:	Curtis Cherne, PE, City Hydrologist
FROM:	J. Graeme Means, PE
CC:	Martin Eckert, APS Real Estate Director, Annelle Darby, APS Staff Architect Jeff Mortensen, HMCG Principal Engineer
DATE:	02/26/2013
PROJECT:	APS Volcano Vista High School – City Hydrology File C7/D9
RE:	Summary Analysis of Connection to Proposed Storm Drain in Universe Blvd. NW
JOB NO:	HMCG 2012.182.9

Dear Curtis,

Thank you for meeting with me last Friday, February 22, 2013, to evaluate and coordinate implementation of a storm drain connection between an existing storm inlet and a proposed storm drain in Universe Blvd. NW. The inlet and a 48 inch lateral were constructed in 2006 under City Project # 766981 in anticipation of a future connection to a proposed 60 inch storm drain that was expected provide the programmed outfall from the temporary retention pond located on Volcano Vista High School, thereby allowing eventual conversion from retention to detention pond with controlled release.

As identified during our meeting, the proposed construction plans recently submitted to the City for approval of a public storm drain in Universe identify a 36 inch pipe at this location and do not provide any connection to the existing 48 inch lateral. Instead, the plans propose to trim the lateral back as it conflicts with the proposed storm drain.

Based on the following, we have determined that it would be feasible to construct an 18 inch connection (sleeved within the existing 48 inch lateral) between the existing inlet and the proposed storm drain with an orifice plate in the back of the inlet or in the upstream private APS storm drain:

- 1) Review of the Engineer's Certification for Volcano Vista HS Phase 2 shows that the invert out of the bottom of the Volcano Vista HS pond is at elevation 5375 (NGVD 1929) which is above the elevation of the storm inlet grate in Universe of 5373.6 (NGVD 1929). This ensures that flow from the Universe storm drain will not back up into the pond as it would overflow at the grate before reaching that elevation.
- 2) Review of the proposed construction plans show the existing storm inlet grate elevation of 5376.4 (NAVD 88) is 3.2 ft higher than the proposed hydraulic grade line (HGL) in the 36 inch Universe storm drain at the existing lateral location of approximately 5373.2 (NAVD 88), thereby resulting in 3.2 ft of elevation head for positive flow and drainage from the inlet to the storm drain without resulting in a backflow condition surging up at the grate.
- 3) Hydraulic calculations (attached) that demonstrate a potential flow rate of 29.6 cfs from the storm inlet to the storm drain through an 18 inch lateral under pressure with 3.2 feet of elevation head.

1.2% longitudinal slope in Universe SD 46250
43+50 156 1250 ft

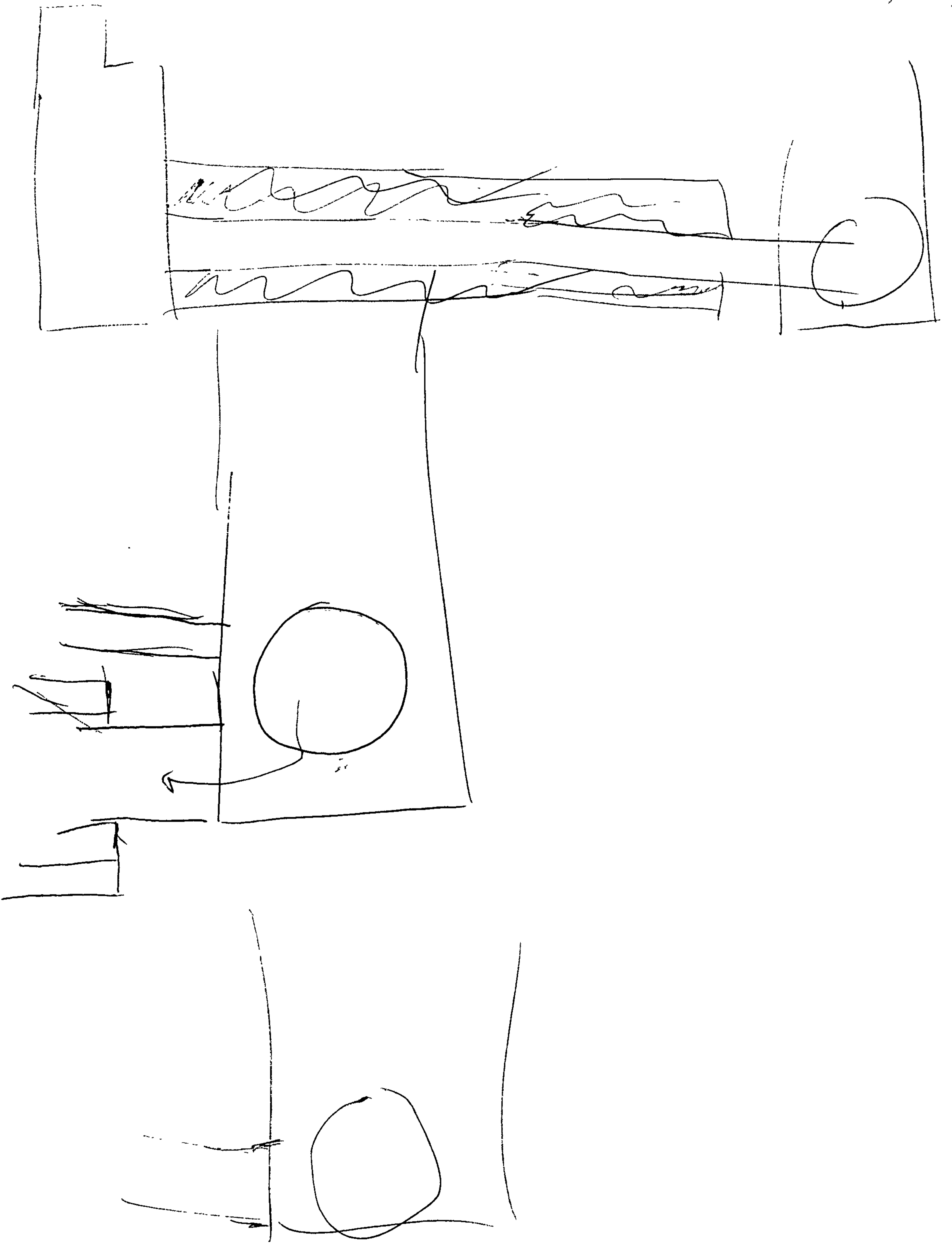
- 4) The 18 inch connection would be sleeved through the existing 48 inch lateral with the excess area grouted. This would avoid any disturbance to traffic and avoid cutting the street.
- 5) The orifice plate would be sized to limit outflow from the private storm drain to whatever rate is determined by the City based on a function of downstream capacity and design storm requirements for this storm drain.

A storm drain connection as analyzed and described by the preceding would not only provide an outfall for an existing retention pond located on public school property, but it would also accept street flows that currently bypass this inlet.

Please let us know if you have any questions or comments regarding this information.

J. Graeme Means, NMPE 13676

DRAFT



Worksheet

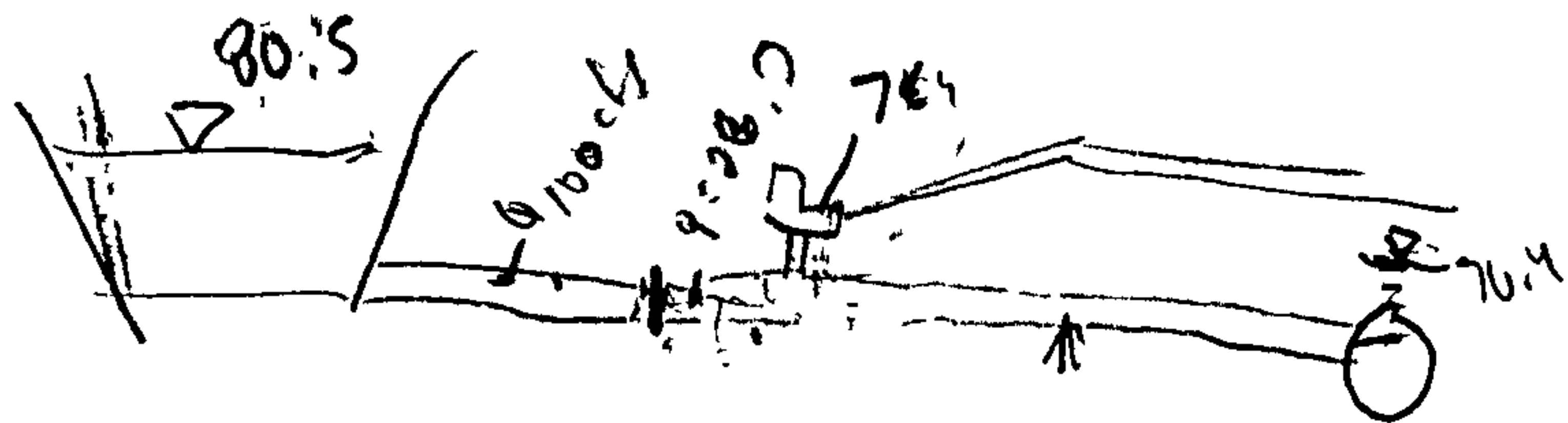
Worksheet for Pressure Pipe

Project Description	
Worksheet	Pressure Pipe
Flow Element	Pressure Pipe
Method	Manning's For
Solve For	Discharge

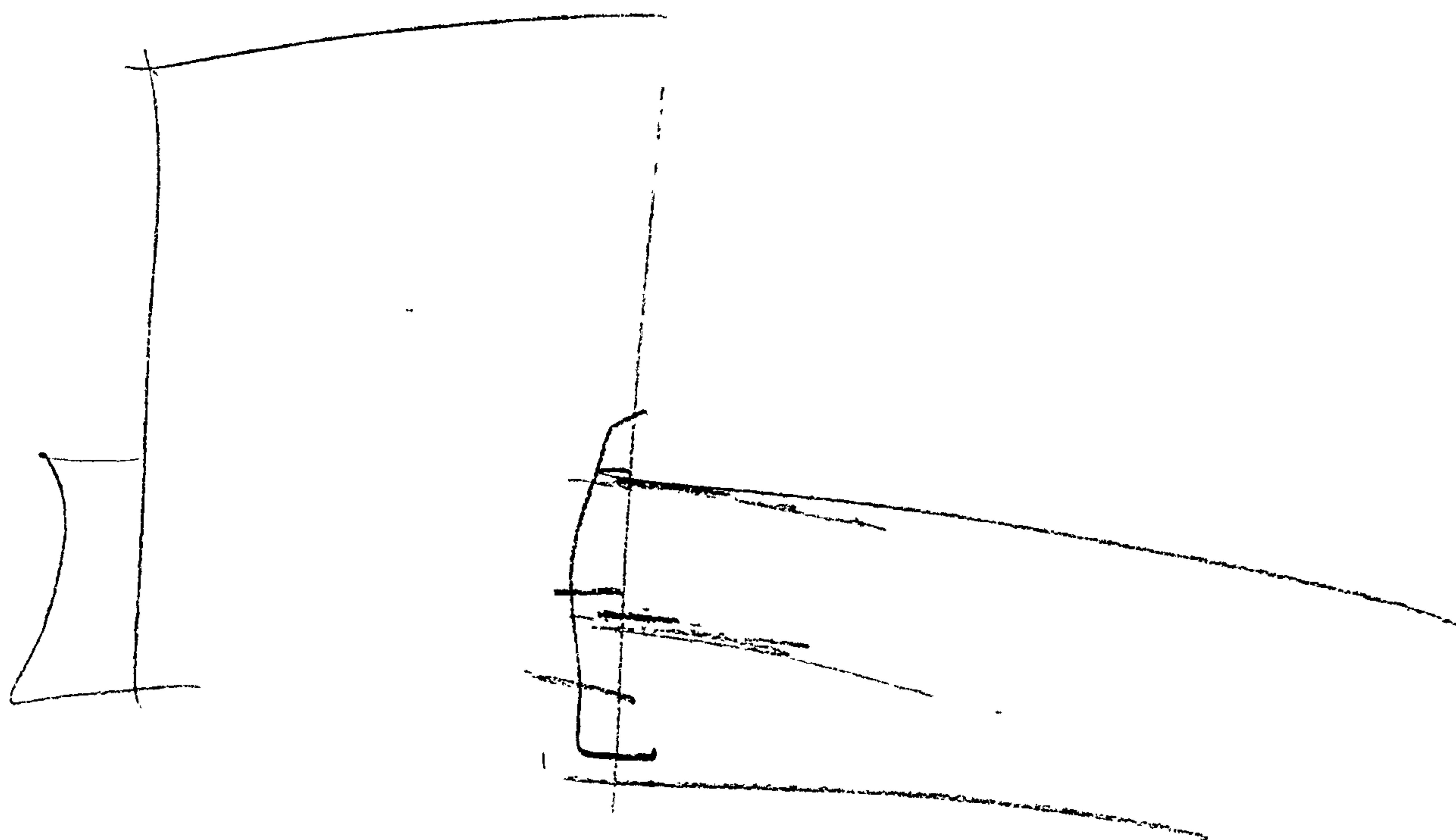
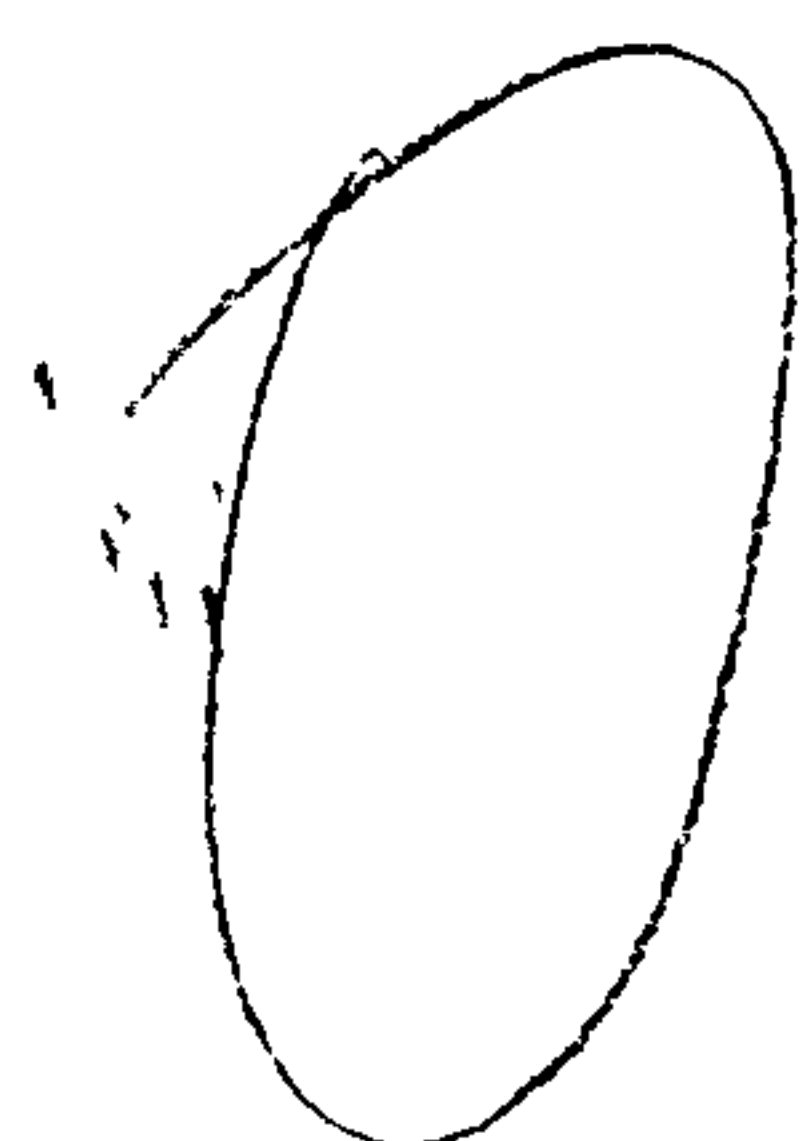
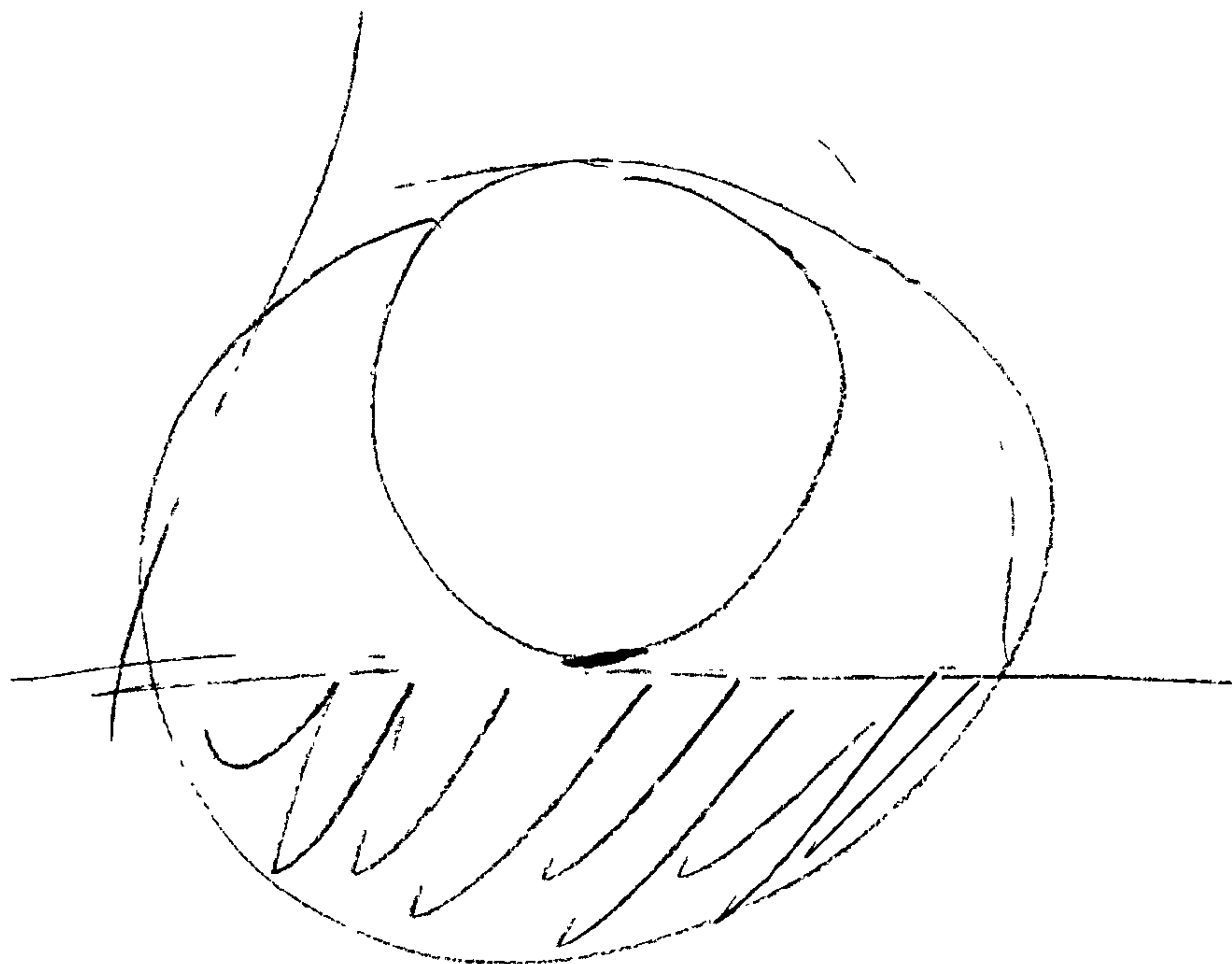
Input Data	
Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 1	76.37 ft
Elevation at 2	73.20 ft
Length	40.00 ft
Mannings Coeff	0.013
Diameter	18 in

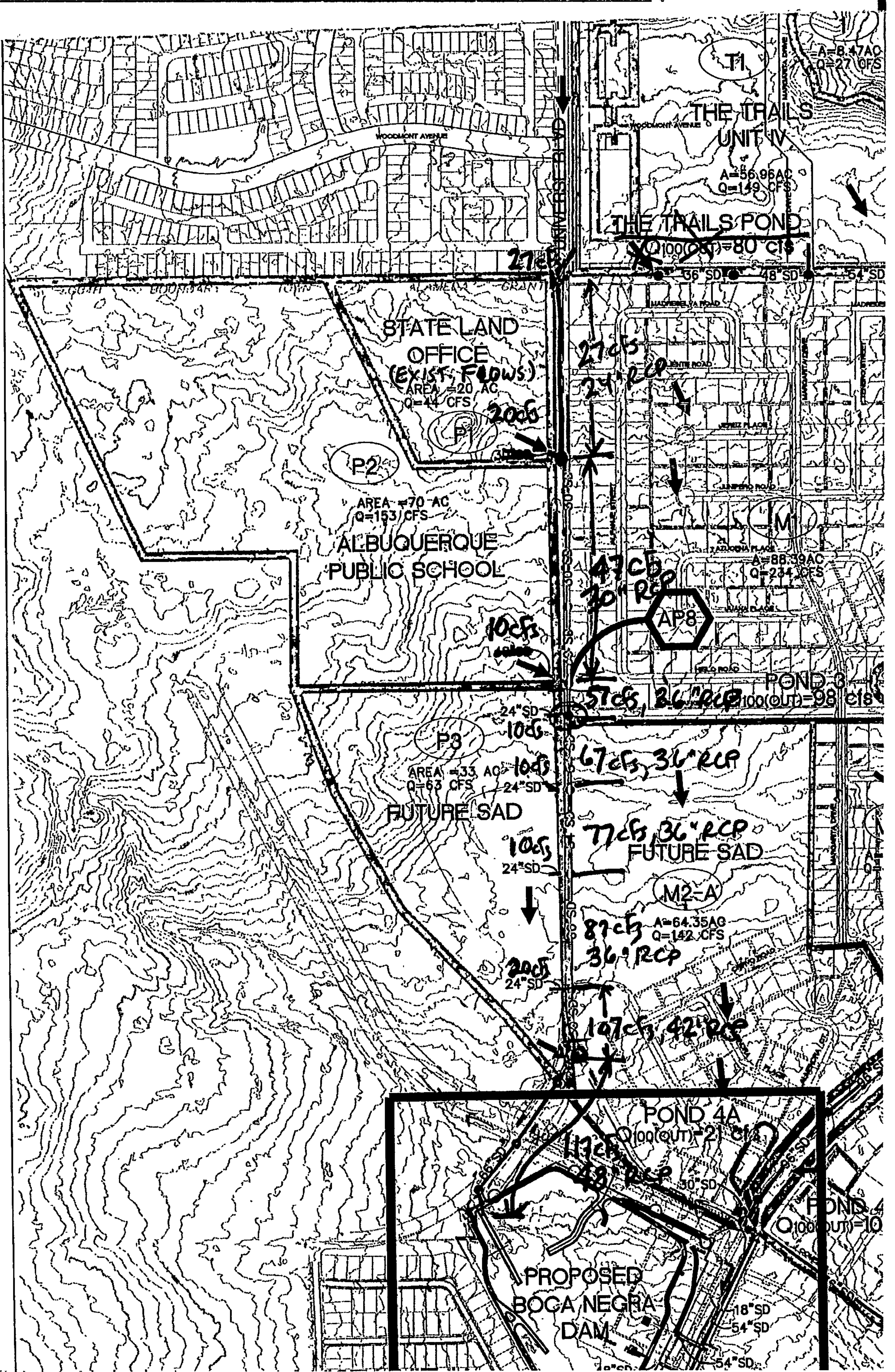
Results	
Discharge	29.57 cfs
Headloss	3.17 ft
Energy Grade at	80.72 ft
Energy Grade at	77.55 ft
Hydraulic Grade	76.37 ft
Hydraulic Grade	73.20 ft
Flow Area	1.8 ft ²
Wetted Perimeter	4.71 ft
Velocity	16.73 ft/s
Velocity Head	4.35 ft
Friction Slope	0.079250 ft/ft

> 29 cfs ok



Q
1.5
29.57 - Q_{out}
29.57 - 3.17 = 26.40 cfs





DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: The Trails Universe Storm Drain ZONE MAP PAGE: C-9/D1B
DRB#: 1002962 EPC#: _____ WORK ORDER#: 761283

LEGAL DESCRIPTION: Tract B, Cantata at the Trails Unit 2
CITY ADDRESS: Southwest Corner of Oakridge St. and Universe Blvd. NW

ENGINEERING FIRM: Bohannon Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson Street NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Galway Construction CONTACT: Rick Beltramo
ADDRESS: 6330 Riverside Plaza Lane #160 PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87120

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ EROSION CONTROL PLAN
____ ENGINEER'S CERT (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT
____ ENGINEER/ARCHITECT CERT (TCL)
____ ENGINEER/ARCHITECT CERT (DRB S.P.)
____ ENGINEER/ARCHITECT CERT (AA)
X OTHER (STREET CAPACITY ANALYSIS)

CHECK TYPE OF APPROVAL 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
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY (PERM)
____ CERTIFICATE OF OCCUPANCY (TEMP)
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
X WORK ORDER APPROVAL
____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
X YES
____ NO
____ COPY PROVIDED

SUBMITTED BY: Scott J. Steffen DATE: February 4, 2013

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 define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

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.

C1/D100

58' ROW
n=.017
s=0.01

POINT	DIST	ELEV
1.0	0.00	0.900
2.0	12.00	0.670
3.0	12.00	0.000

POINT	DIST	ELEV
4.0	14.00	0.125
5.0	29.00	0.425
6.0	44.00	0.125

POINT	DIST	ELEV
7.0	46.00	0.000
8.0	46.00	0.670
9.0	58.00	0.900

58' ROW
n=.017
s=0.02

POINT	DIST	ELEV
1.0	0.00	0.900
2.0	12.00	0.670
3.0	12.00	0.000

POINT	DIST	ELEV
4.0	14.00	0.125
5.0	29.00	0.425
6.0	44.00	0.125

POINT	DIST	ELEV
7.0	46.00	0.000
8.0	46.00	0.670
9.0	58.00	0.900

77' ROW
n=.017
s=0.022

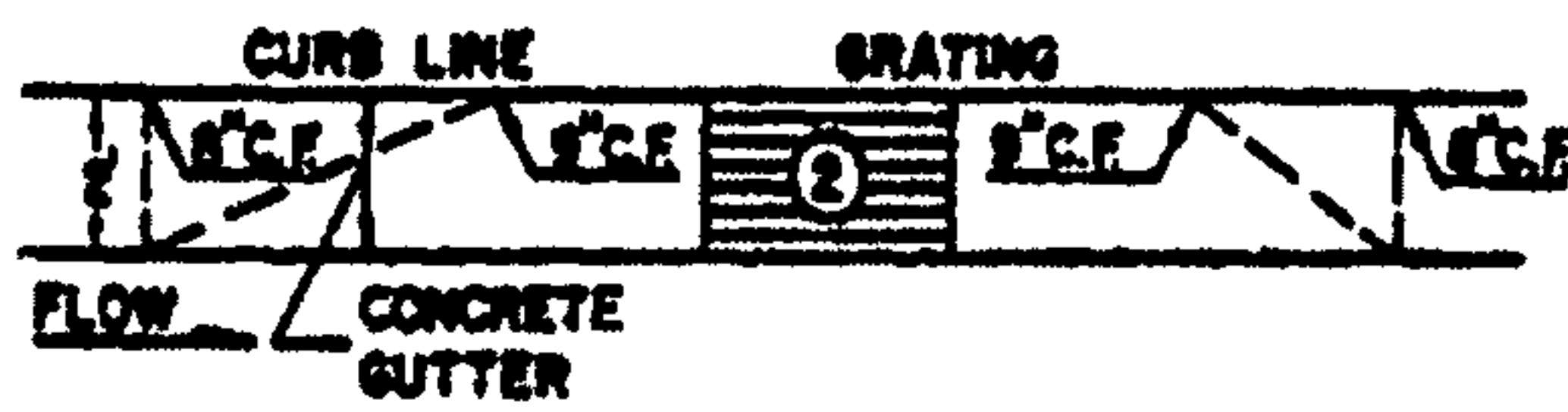
POINT	DIST	ELEV
1.0	0.00	0.900
2.0	12.50	0.670
3.0	12.50	0.000

POINT	DIST	ELEV
4.0	14.50	0.125
5.0	30.50	0.445
6.0	30.50	0.945

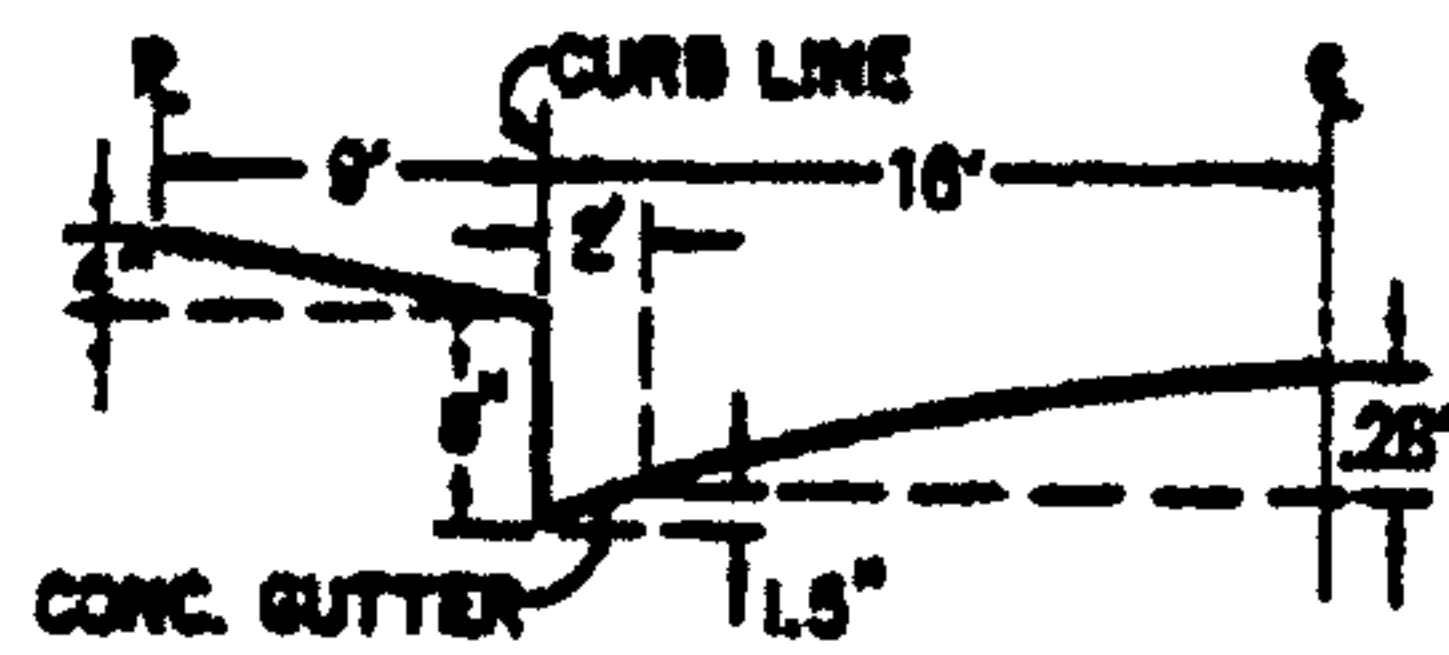
POINT	DIST	ELEV
7.0	46.50	0.945
8.0	46.50	0.445
9.0	62.50	0.125

POINT	DIST	ELEV
10.0	64.50	0.000
11.0	64.50	0.670
12.0	77.00	0.900

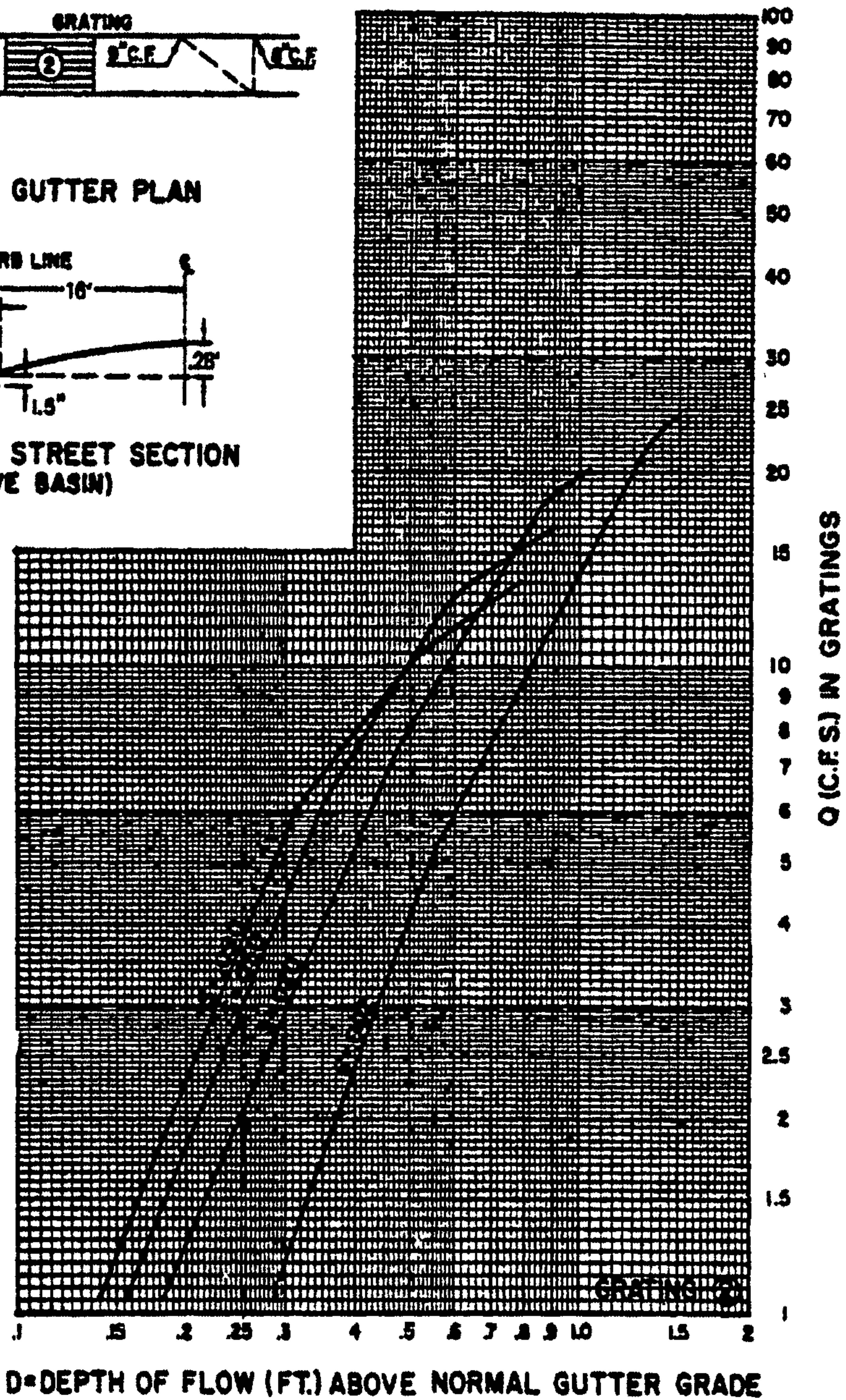
GRATING CAPACITIES FOR TYPE 'A' , 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



UNIVERSE BOULEVARD STREET CAPACITY ANALYSIS

C9-D100

10-YEAR STORM

Basin 1 - 77' R/W

Q= 10.3 cfs

Analysis Pt #1

79% Basin 1

Roadway slope, S= 2.2 %

Q= 8.1 cfs

depth of flow= 0.26 ft

water spread from flowline= 8.75 ft

drive lane clear from median= 9.25 ft

inlet capacity= 2.9 cfs

Analysis Pt #1

88% Basin 1

Q= 9.1 cfs

depth of flow= 0.27 ft

water spread from flowline= 9.25 ft

drive lane clear from median= 8.75 ft

inlet capacity= 3.0 cfs

Bypass flow to Basin 2= 4.4 cfs

Basin 2 - 58' R/W

Q= 7.7 cfs

Analysis Pt #3

11% Basin 1

Roadway slope, S= 2.0 %

Q= 5.2 cfs

depth of flow= 0.23 ft

water spread from flowline= 7.25 ft

drive lane clear from centerline= 9.25 ft

inlet capacity= 2.1 cfs

Bypass flow to AP#4= 1.05 cfs

Analysis Pt #4

46% Basin 2

Roadway slope, S= 1.0 %

Q= 4.6 cfs

depth of flow= 0.25 ft

water spread from flowline= 8.25 ft

drive lane clear from centerline= 8.25 ft

inlet capacity= 1.5 cfs

Bypass flow to Basin 2= 1.6 cfs

Analysis Pt #5

43% Basin 2

Roadway slope, S= 1.0 %

Q= 4.9 cfs

depth of flow= 0.25 ft

water spread from flowline= 8.25 ft

drive lane clear from centerline= 8.25 ft

inlet capacity= 1.5 cfs

Bypass flow to Rainbow= 1.9 cfs

100-YEAR STORM

Basin 1 - 77' R/W

Q= 15.9 cfs

Analysis Pt #1

79% Basin 1

Roadway slope, S= 2.2 %

Q= 12.6 cfs

depth of flow= 0.31 ft

water spread from flowline= 11.25 ft

drive lane clear from median= 6.75 ft

inlet capacity= 3.5 cfs

Analysis Pt #1

88% Basin 1

Q= 14.0 cfs

depth of flow= 0.31 ft

water spread from flowline= 11.25 ft

drive lane clear from median= 6.75 ft

inlet capacity= 3.5 cfs

Bypass flow to Basin 2= 8.9 cfs

Basin 2 - 58' R/W

Q= 11.8 cfs

Analysis Pt #3

11% Basin 1

Roadway slope, S= 2.0 %

Q= 10.2 cfs

depth of flow= 0.29 ft

water spread from flowline= 10.25 ft

drive lane clear from centerline= 6.25 ft

inlet capacity= 3.1 cfs

Bypass flow to AP#4= 4.00 cfs

Analysis Pt #4

46% Basin 2

Roadway slope, S= 1.0 %

Q= 9.4 cfs

depth of flow= 0.27 ft

water spread from flowline= 9.25 ft

drive lane clear from centerline= 7.25 ft

inlet capacity= 2 cfs

Bypass flow to Basin 2= 5.4 cfs

Analysis Pt #5

43% Basin 2

Roadway slope, S= 1.0 %

Q= 10.5 cfs

depth of flow= 0.29 ft

water spread from flowline= 10.25 ft

drive lane clear from centerline= 6.25 ft

inlet capacity= 3.1 cfs

Bypass flow to Rainbow= 4.3 cfs

CLIENT/COURIER TRANSMITTAL

To: Shahab Biazar
Hydrology Review Division
Plaza del Sol - 2nd Floor
600 2nd St NW
Alb, NM 87120

Requested by: Scott Steffen

Date: 2/4/13

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

Phone: 924-3695

Job No.: 20130203.002.01.cdpabq

Job Name: Trails Universe Storm Drain

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other

PICK UP

Item: _____

<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
-----------------	-----------------	--------------------

1	1	Universe Blvd street capacity analysis
---	---	--

RECEIVED
FEB - 4 2013

COMMENTS / INSTRUCTIONS

Shahab,

Attached is the street capacity analysis showing that a minimum 8' clear drive is maintained for the future Universe Blvd roadway sections. We will show storm stubs at Analysis Points #1, 3 and 4 on the Universe storm drain plans.

Let me know if you have any questions or comments.

Thanks,
Scott

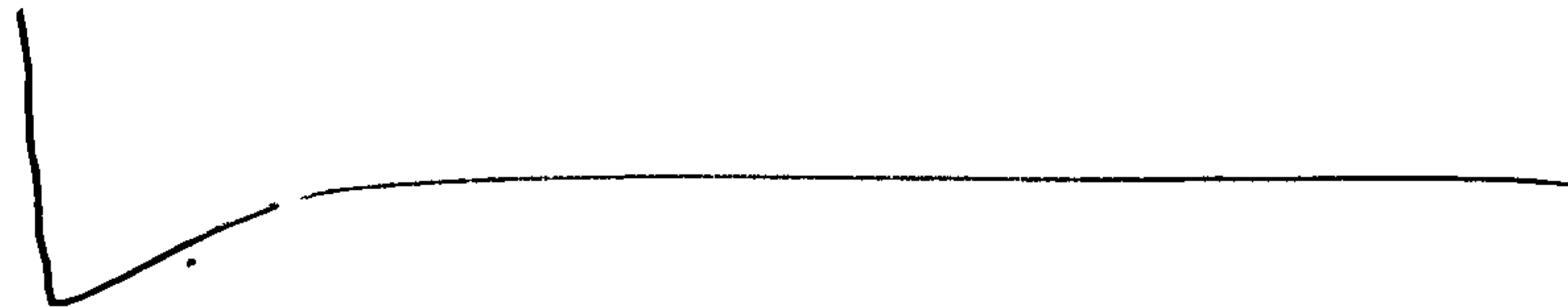
REC'D BY: _____ DATE: _____ TIME: _____

Universe Blvd 77' ROW 2.2% slope.txt

MANNING'S N = 0.02 SLOPE = 0.02

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	30.5	0.4	9.0	62.5	0.1
2.0	12.0	0.7	6.0	31.0	0.9	10.0	64.5	0.0
3.0	12.5	0.0	7.0	46.0	0.9	11.0	65.0	0.7
4.0	14.5	0.1	8.0	46.5	0.4	12.0	77.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ. FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.05	0.05	0.06	0.07	2.63	1.07	17.57	0.07
0.10	0.10	0.27	0.41	6.25	1.55	21.15	0.14
0.15	0.15	0.70	1.39	11.38	1.98	26.22	0.21
0.20	0.20	1.39	3.38	16.50	2.43	31.30	0.29
0.25	0.25	2.33	6.69	21.63	2.87	36.37	0.38
0.30	0.30	3.53	11.57	26.76	3.28	41.45	0.47
0.35	0.35	4.98	18.27	31.88	3.67	46.52	0.56
0.40	0.40	6.68	27.02	37.01	4.05	51.60	0.65
0.45	0.45	8.51	40.30	37.27	4.73	51.77	0.80
0.50	0.50	10.36	55.60	37.54	5.37	51.95	0.95
0.55	0.55	12.21	72.79	37.81	5.96	52.12	1.10
0.60	0.60	14.07	91.77	38.07	6.52	52.30	1.26
0.65	0.65	15.94	112.45	38.34	7.06	52.47	1.42
0.70	0.70	17.86	128.89	41.53	7.22	55.60	1.51
0.75	0.75	20.02	144.21	46.67	7.20	60.70	1.56
0.80	0.80	22.43	162.59	51.82	7.25	65.80	1.62
0.85	0.85	25.10	184.09	56.96	7.33	70.90	1.69
0.90	0.90	28.02	208.80	62.10	7.45	76.00	1.76

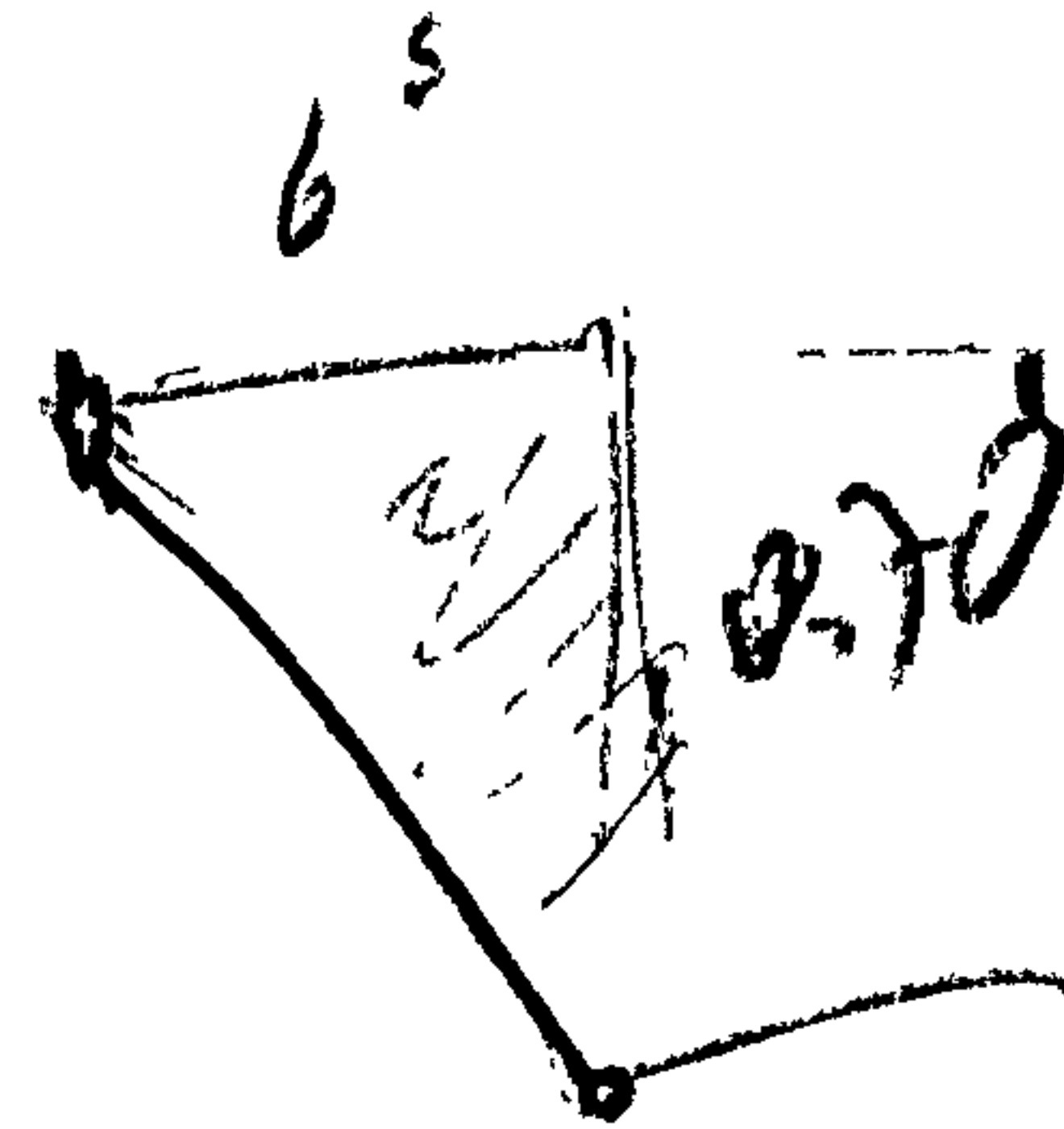
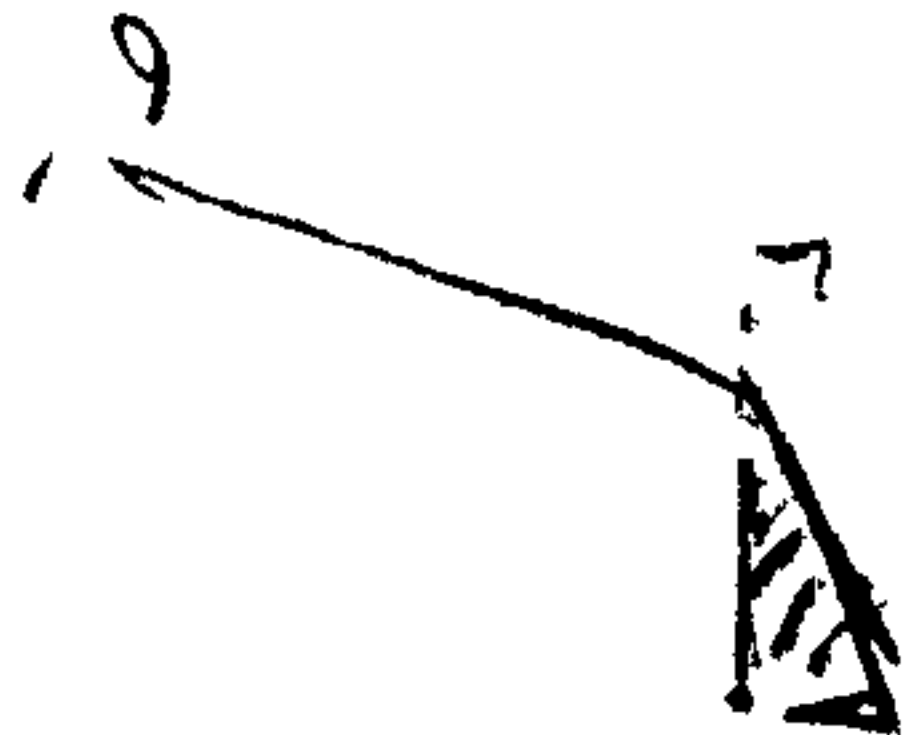


Universe Blvd 58' ROW 1% slope.txt

MANNING'S N = 0.02 SLOPE = 0.01

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.5	0.1	7.0	45.5	0.0
2.0	12.0	0.7	5.0	29.0	0.4	8.0	46.0	0.7
3.0	12.5	0.0	6.0	43.5	0.1	9.0	58.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ. FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.05	0.05	0.06	0.05	2.63	0.74	2.57	0.06
0.10	0.10	0.27	0.29	6.25	1.07	6.15	0.12
0.15	0.15	0.70	0.96	11.38	1.36	11.22	0.18
0.20	0.20	1.39	2.33	16.50	1.68	16.30	0.24
0.25	0.25	2.33	4.62	21.63	1.98	21.37	0.31
0.30	0.30	3.53	7.99	26.76	2.26	26.45	0.38
0.35	0.35	4.98	12.61	31.88	2.53	31.52	0.45
0.40	0.40	6.63	19.51	34.01	2.94	33.60	0.53
0.45	0.45	8.32	28.36	34.13	3.41	33.67	0.63
0.50	0.50	10.00	38.48	34.26	3.85	33.75	0.73
0.55	0.55	11.69	49.78	34.38	4.26	33.82	0.83
0.60	0.60	13.38	62.22	34.51	4.65	33.90	0.94
0.65	0.65	15.08	75.73	34.63	5.02	33.97	1.04
0.70	0.70	16.83	85.92	37.68	5.11	37.00	1.11
0.75	0.75	18.80	95.13	42.68	5.06	42.00	1.15
0.80	0.80	21.03	106.47	47.68	5.06	47.00	1.20
0.85	0.85	23.50	119.92	52.68	5.10	52.00	1.26
0.90	0.90	26.23	135.53	57.69	5.17	57.00	1.32



Universe Blvd 58' ROW 2% slope.txt

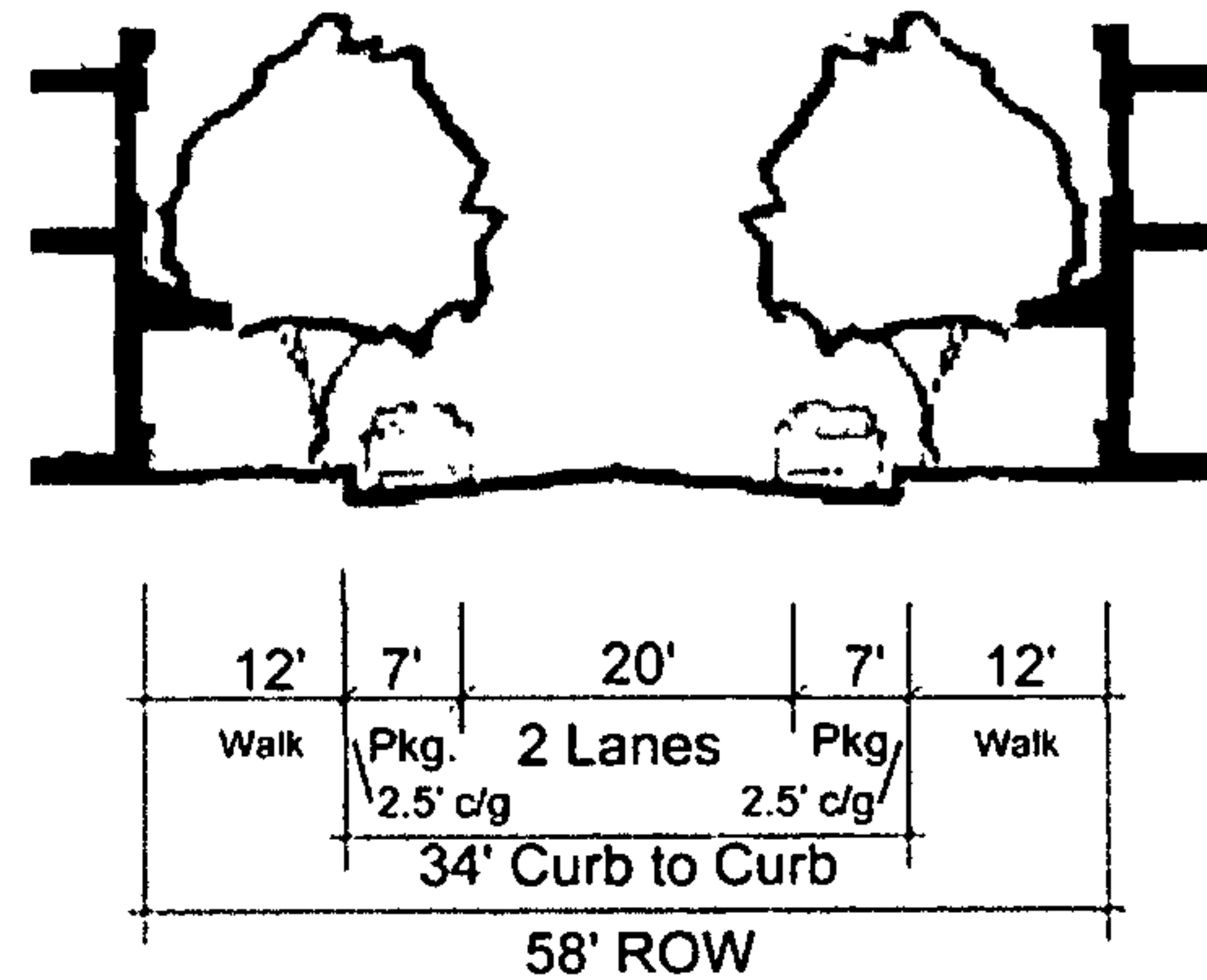
MANNING'S N = 0.02 SLOPE = 0.02

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.5	0.1	7.0	45.5	0.0
2.0	12.0	0.7	5.0	29.0	0.4	8.0	46.0	0.7
3.0	12.5	0.0	6.0	43.5	0.1	9.0	58.0	0.9

WSEL FT.	DEPTH INC	FLOW AREA SQ. FT.	FLOW RATE (CFS)	WETTED PER (FT)	FLOW VEL (FPS)	TOPWID PLUS OBSTRUCTIONS	TOTAL ENERGY (FT)
0.05	0.05	0.06	0.07	2.63	1.04	2.57	0.07
0.10	0.10	0.27	0.40	6.25	1.51	6.15	0.14
0.15	0.15	0.70	1.35	11.38	1.93	11.22	0.21
0.20	0.20	1.39	3.30	16.50	2.37	16.30	0.29
0.25	0.25	2.33	6.53	21.63	2.80	21.37	0.37
0.30	0.30	3.53	11.29	26.76	3.20	26.45	0.46
0.35	0.35	4.98	17.83	31.88	3.58	31.52	0.55
0.40	0.40	6.63	27.59	34.01	4.16	33.60	0.67
0.45	0.45	8.32	40.10	34.13	4.82	33.67	0.81
0.50	0.50	10.00	54.41	34.26	5.44	33.75	0.96
0.55	0.55	11.69	70.41	34.38	6.02	33.82	1.11
0.60	0.60	13.38	87.99	34.51	6.57	33.90	1.27
0.65	0.65	15.08	107.10	34.63	7.10	33.97	1.43
0.70	0.70	16.83	121.50	37.68	7.22	37.00	1.51
0.75	0.75	18.80	134.54	42.68	7.16	42.00	1.55
0.80	0.80	21.03	150.57	47.68	7.16	47.00	1.60
0.85	0.85	23.50	169.59	52.68	7.22	52.00	1.66
0.90	0.90	26.23	191.68	57.69	7.31	57.00	1.73

Chapter 3

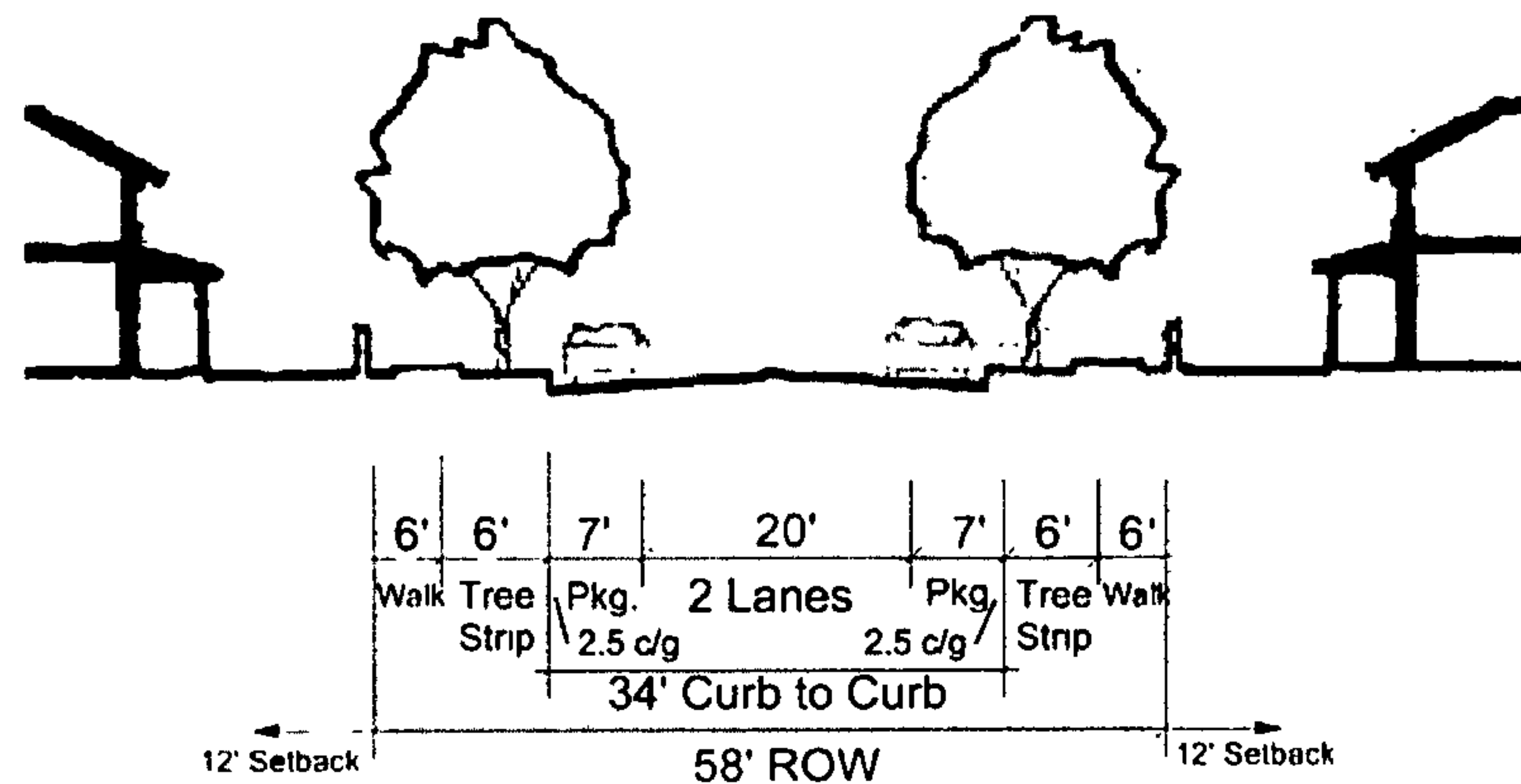
Transportation Regulations



Cross Section 8 – Typical Retail Collector (2 Lanes)

Where urban uses like retail, apartment or townhouses are anticipated, parking lanes should also be provided.

* Note: c/g stands for "curb and gutter"

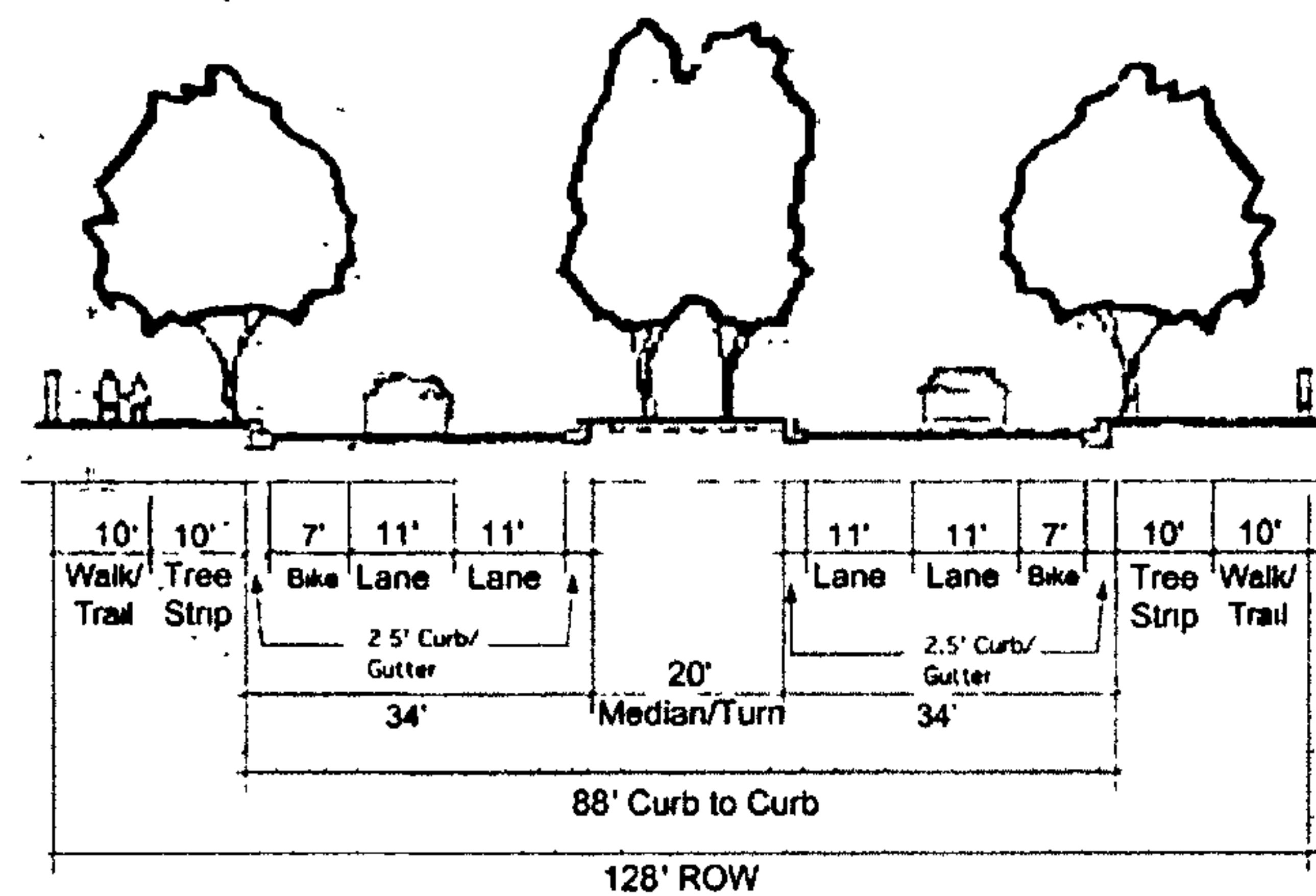


Cross Section 9 – Typical Residential Collector (2 Lanes)

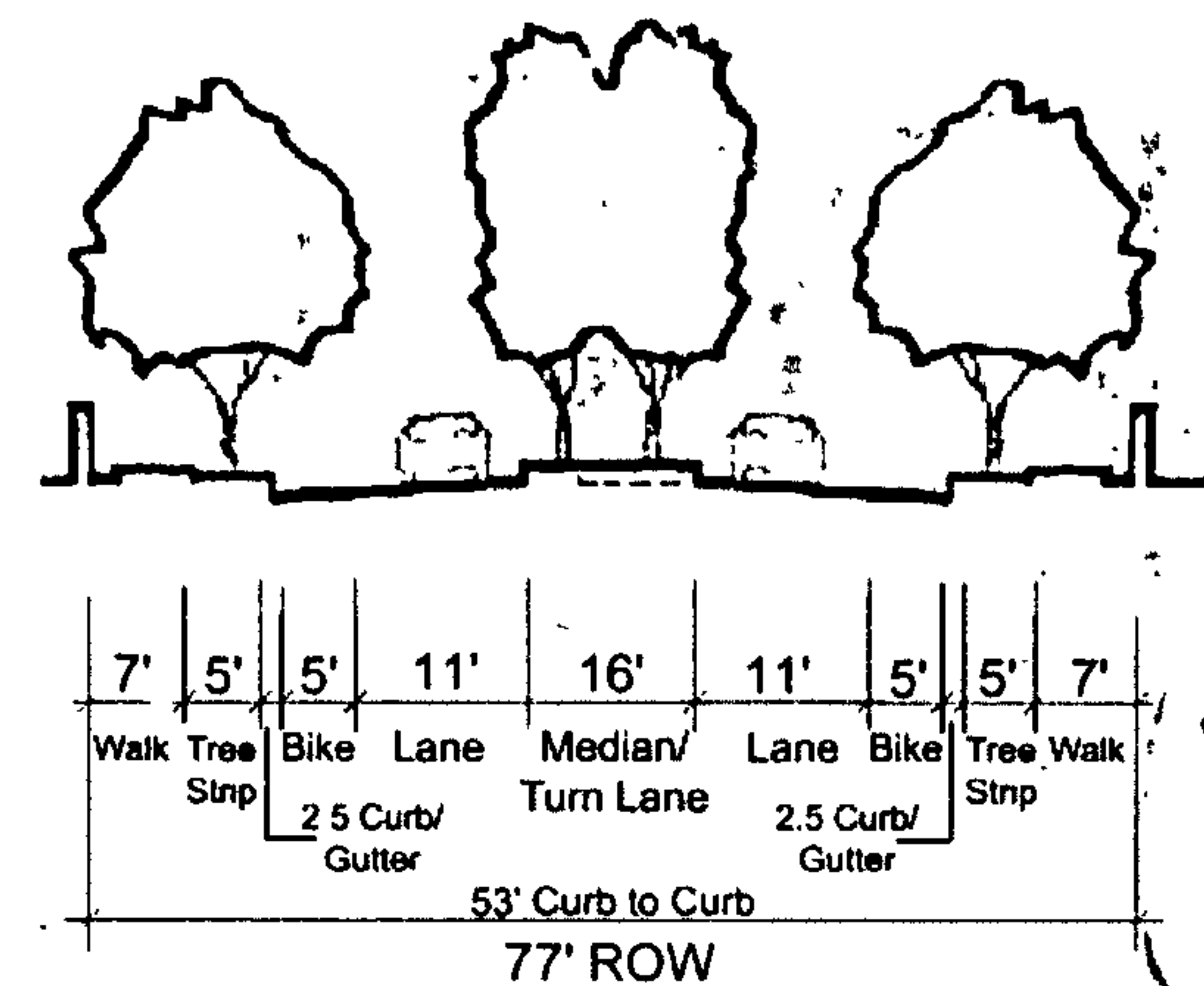
Collectors have two 10-foot travel lanes and parking lanes as shown in Cross Sections 8. Collectors are key to creating an outdoor room effect in the interior of pedestrian-oriented centers.

Chapter 3

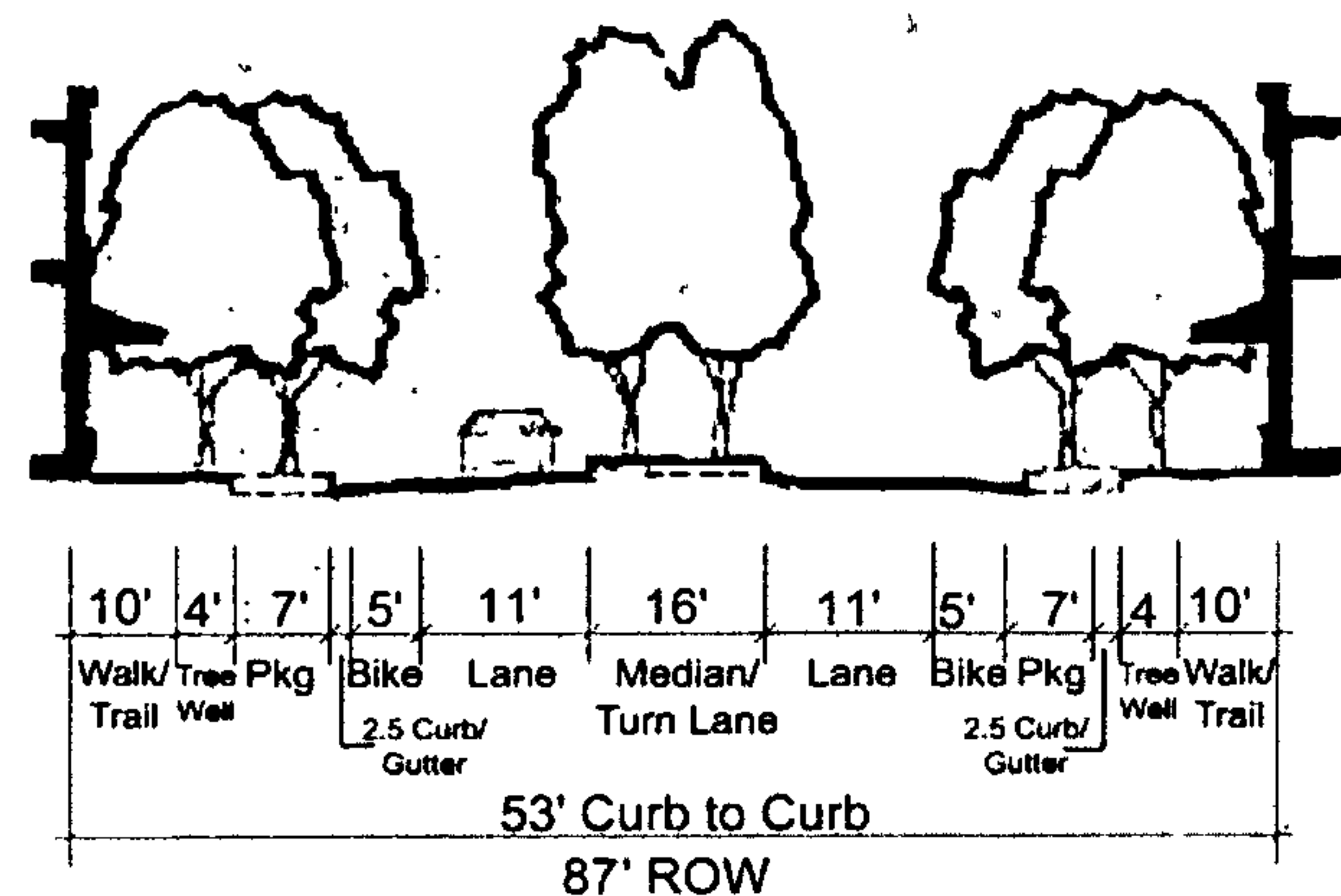
Transportation Regulations



Cross Section 5 – Unser Blvd. at Escarpment (4 Lanes) / Rainbow Principal Arterial



Cross Section 6 – Minor Arterial (1 drive lane in each direction and one median/turn lane.)



Cross Section 7, Minor Retail Arterial* (With parking lanes where urban uses like retail, apartment, or townhouses are anticipated.)

** Note: Cross Section 7 is not used within the Volcano Cliffs Plan area*

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: The Trails Universe Storm Drain ZONE MAP PAGE: C-9/D1B
DRB#: 1002962 EPC#: _____ WORK ORDER#: 761283

LEGAL DESCRIPTION: Tract B, Cantata at the Trails Unit 2
CITY ADDRESS: Southwest Corner of Oakridge St. and Universe Blvd. NW

ENGINEERING FIRM: Bohannon Huston Inc. CONTACT: Scott Steffen
ADDRESS: 7500 Jefferson Street NE PHONE: (505) 823-1000
CITY, STATE: Albuquerque, NM ZIP CODE: 87109

OWNER: Galway Construction CONTACT: Rick Beltramo
ADDRESS: 6330 Riverside Plaza Lane #160 PHONE: (505) 761-9911
CITY, STATE: Albuquerque, NM ZIP CODE: 87120

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

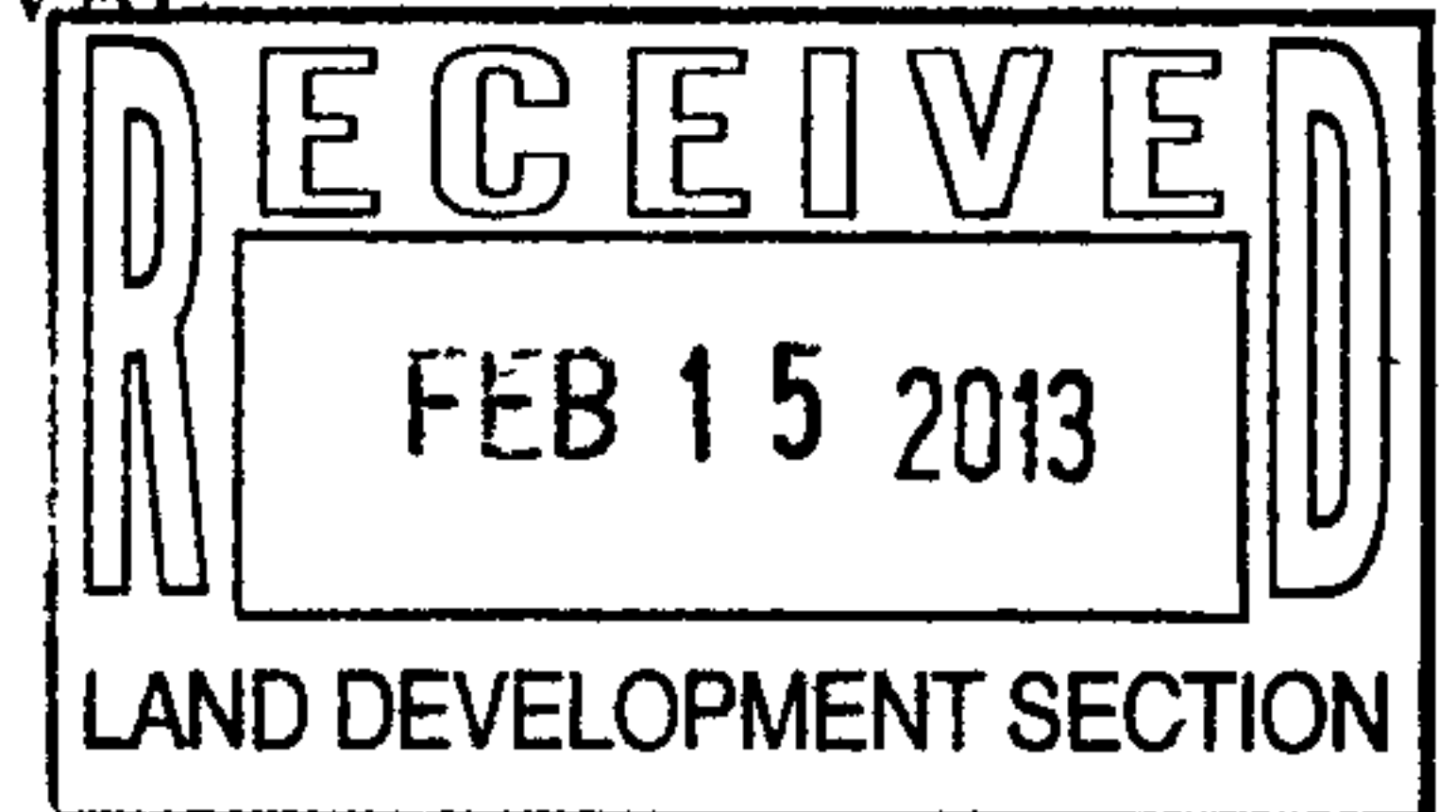
- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL
- ☐ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL G & D PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERT (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT
- ☐ ENGINEER/ARCHITECT CERT (TCL)
- ☐ ENGINEER/ARCHITECT CERT (DRB S.P.)
- ☐ ENGINEER/ARCHITECT CERT (AA)
- ☒ OTHER (STREET CAPACITY ANALYSIS)

CHECK TYPE OF APPROVAL 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
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP)
- ☐ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☒ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED



SUBMITTED BY: Scott J. Steffen DATE: February 14, 2013

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 define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

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.

UNIVERSE BLVD 58' ROW S=1.0%

MANNING'S N = 0.017 SLOPE = 0.010

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	46.0	0.0
2.0	12.0	0.7	5.0	29.0	0.4	8.0	46.0	0.7
3.0	12.0	0.0	6.0	44.0	0.1	9.0	58.0	0.9

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
		SQ. FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)
0.05	0.05	0.04	0.03	1.70	0.72	1.60	0.06
0.10	0.10	0.16	0.18	3.41	1.14	3.20	0.12
0.15	0.15	0.38	0.49	6.81	1.28	6.50	0.18
0.20	0.20	0.83	1.23	11.91	1.48	11.50	0.23
0.25	0.25	1.53	2.69	17.01	1.76	16.50	0.30
0.30	0.30	2.48	5.05	22.11	2.03	21.50	0.36
0.35	0.35	3.68	8.48	27.21	2.30	26.50	0.43
0.40	0.40	5.13	13.15	32.31	2.56	31.50	0.50
0.45	0.45	6.80	19.97	34.91	2.94	34.00	0.58
0.50	0.50	8.50	28.91	35.01	3.40	34.00	0.68
0.55	0.55	10.20	39.11	35.11	3.83	34.00	0.78
0.60	0.60	11.90	50.47	35.21	4.24	34.00	0.88
0.65	0.65	13.60	62.93	35.31	4.63	34.00	0.98
0.70	0.70	15.35	72.60	38.54	4.73	37.13	1.05
0.75	0.75	17.33	81.60	43.86	4.71	42.35	1.09
0.80	0.80	19.58	92.64	49.18	4.73	47.57	1.15
0.85	0.85	22.09	105.76	54.50	4.79	52.78	1.21

Universe Blvd 58' ROW S=2.0%.txt

UNIVERSE BLVD 58' ROW S=2.0%

MANNING'S N = 0.017 SLOPE = 0.020

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	4.0	14.0	0.1	7.0	46.0	0.0
2.0	12.0	0.7	5.0	29.0	0.4	8.0	46.0	0.7
3.0	12.0	0.0	6.0	44.0	0.1	9.0	58.0	0.9

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
		SQ. FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)
0.05	0.05	0.04	0.04	1.70	1.01	1.60	0.07
0.10	0.10	0.16	0.26	3.41	1.61	3.20	0.14
0.15	0.15	0.38	0.69	6.81	1.81	6.50	0.20
0.20	0.20	0.83	1.74	11.91	2.10	11.50	0.27
0.25	0.25	1.53	3.80	17.01	2.48	16.50	0.35
0.30	0.30	2.48	7.14	22.11	2.88	21.50	0.43
0.35	0.35	3.68	11.99	27.21	3.26	26.50	0.52
0.40	0.40	5.13	18.60	32.31	3.63	31.50	0.60
0.45	0.45	6.80	28.24	34.91	4.15	34.00	0.72
0.50	0.50	8.50	40.89	35.01	4.81	34.00	0.86
0.55	0.55	10.20	55.31	35.11	5.42	34.00	1.01
0.60	0.60	11.90	71.37	35.21	6.00	34.00	1.16
0.65	0.65	13.60	88.99	35.31	6.54	34.00	1.32
0.70	0.70	15.35	102.68	38.54	6.69	37.13	1.40
0.75	0.75	17.33	115.39	43.86	6.66	42.35	1.44
0.80	0.80	19.58	131.01	49.18	6.69	47.57	1.50
0.85	0.85	22.09	149.56	54.50	6.77	52.78	1.56

Universe Blvd 77' ROW 2.2% slope.txt

UNIVERSE BLVD 77' ROW S=2.2%

MANNING'S N = 0.02 SLOPE = 0.02

POINT	DIST	ELEV	POINT	DIST	ELEV	POINT	DIST	ELEV
1.0	0.0	0.9	5.0	30.5	0.4	9.0	62.5	0.1
2.0	12.0	0.7	6.0	31.0	0.9	10.0	64.5	0.0
3.0	12.5	0.0	7.0	46.0	0.9	11.0	65.0	0.7
4.0	14.5	0.1	8.0	46.5	0.4	12.0	77.0	0.9

WSEL	DEPTH	FLOW	FLOW	WETTED	FLOW	TOPWID	TOTAL
FT.	INC	AREA	RATE	PER	VEL	PLUS	ENERGY
		SQ. FT.	(CFS)	(FT)	(FPS)	OBSTRUCTIONS	(FT)
0.05	0.05	0.06	0.07	2.63	1.07	17.57	0.07
0.10	0.10	0.27	0.41	6.25	1.55	21.15	0.14
0.15	0.15	0.70	1.39	11.38	1.98	26.22	0.21
0.20	0.20	1.39	3.38	16.50	2.43	31.30	0.29
0.25	0.25	2.33	6.69	21.63	2.87	36.37	0.38
0.30	0.30	3.53	11.57	26.76	3.28	41.45	0.47
0.35	0.35	4.98	18.27	31.88	3.67	46.52	0.56
0.40	0.40	6.68	27.02	37.01	4.05	51.60	0.65
0.45	0.45	8.51	40.30	37.27	4.73	51.77	0.80
0.50	0.50	10.36	55.60	37.54	5.37	51.95	0.95
0.55	0.55	12.21	72.79	37.81	5.96	52.12	1.10
0.60	0.60	14.07	91.77	38.07	6.52	52.30	1.26
0.65	0.65	15.94	112.45	38.34	7.06	52.47	1.42
0.70	0.70	17.86	128.89	41.53	7.22	55.60	1.51
0.75	0.75	20.02	144.21	46.67	7.20	60.70	1.56
0.80	0.80	22.43	162.59	51.82	7.25	65.80	1.62
0.85	0.85	25.10	184.09	56.96	7.33	70.90	1.69
0.90	0.90	28.02	208.80	62.10	7.45	76.00	1.76

UNIVERSE BOULEVARD STREET CAPACITY ANALYSIS

10-YEAR STORM

Basin 1 - 77' R/W

Q= 10.3 cfs
Analysis Pt #1
 38% Basin 1
 Roadway slope, S= 2.2 %
 Q= 3.9 cfs
 depth of flow= 0.25 ft
 water spread from flowline= 8.25 ft
 drive lane clear from median= 9.75 ft
 inlet capacity= 2.1 cfs

Bypass flow to AP#2= 0 cfs

Analysis Pt #2

50% Basin 1
 Q= 5.2 cfs
 depth of flow= 0.27 ft
 water spread from flowline= 9.25 ft
 drive lane clear from median= 8.75 ft
 inlet capacity= 2.3 cfs

Bypass flow to AP#3= 2.9 cfs

Analysis Pt #3

12% Basin 1
 Q= 4.1 cfs
 depth of flow= 0.25 ft
 water spread from flowline= 8.25 ft
 drive lane clear from median= 9.75 ft
 inlet capacity= 2.1 cfs

Bypass flow to Basin 2= 0.0 cfs

Basin 2 - 58' R/W

Q= 7.7 cfs
Analysis Pt #4
 11% Basin 2
 Roadway slope, S= 2.0 %
 Q= 0.8 cfs
 depth of flow= 0.17 ft
 water spread from flowline= 4.25 ft
 drive lane clear from centerline= 12.25 ft
 inlet capacity= 1.0 cfs

Bypass flow to AP#5= 0.0 cfs

Analysis Pt #5

23% Basin 2
 Roadway slope, S= 1.0 %
 Q= 1.8 cfs
 depth of flow= 0.22 ft
 water spread from flowline= 6.75 ft
 drive lane clear from centerline= 9.75 ft
 inlet capacity= 1.1 cfs

Bypass flow to AP#6= 0.0 cfs

Analysis Pt #6

23% Basin 2
 Roadway slope, S= 1.0 %
 Q= 1.8 cfs
 depth of flow= 0.22 ft
 water spread from flowline= 6.75 ft
 drive lane clear from centerline= 9.75 ft
 inlet capacity= 1.1 cfs

Bypass flow to AP#7= 0.0 cfs

Analysis Pt #7

43% Basin 2
 Roadway slope, S= 1.0 %
 Q= 3.3 cfs
 depth of flow= 0.26 ft
 water spread from flowline= 8.75 ft
 drive lane clear from centerline= 7.75 ft
 inlet capacity= 1.5 cfs

Bypass flow to Rainbow= 0.3 cfs

100-YEAR STORM

Basin 1 - 77' R/W

Q= 15.9 cfs
Analysis Pt #1
 38% Basin 1
 Roadway slope, S= 2.2 %
 Q= 6.0 cfs
 depth of flow= 0.28 ft
 water spread from flowline= 9.75 ft
 drive lane clear from median= 8.25 ft
 inlet capacity= 2.7 cfs

Bypass flow to AP#2= 0.6 cfs

Analysis Pt #2

50% Basin 1
 Q= 8.6 cfs
 depth of flow= 0.31 ft
 water spread from flowline= 11.25 ft
 drive lane clear from median= 6.75 ft
 inlet capacity= 3.3 cfs

Bypass flow to AP#3= 5.3 cfs

Analysis Pt #3

12% Basin 1
 Q= 7.2 cfs
 depth of flow= 0.30 ft
 water spread from flowline= 10.75 ft
 drive lane clear from median= 7.25 ft
 inlet capacity= 3.1 cfs

Bypass flow to Basin 2= 1.0 cfs

Basin 2 - 58' R/W

Q= 11.8 cfs
Analysis Pt #4
 11% Basin 2
 Roadway slope, S= 2.0 %
 Q= 2.3 cfs
 depth of flow= 0.24 ft
 water spread from flowline= 7.75 ft
 drive lane clear from centerline= 8.75 ft
 inlet capacity= 1.5 cfs

Bypass flow to AP#5= 0.0 cfs

Analysis Pt #5

23% Basin 2
 Roadway slope, S= 1.0 %
 Q= 2.7 cfs
 depth of flow= 0.25 ft
 water spread from flowline= 8.25 ft
 drive lane clear from centerline= 8.25 ft
 inlet capacity= 1.5 cfs

Bypass flow to AP#6= 0.0 cfs

Analysis Pt #6

23% Basin 2
 Roadway slope, S= 1.0 %
 Q= 2.7 cfs
 depth of flow= 0.25 ft
 water spread from flowline= 8.25 ft
 drive lane clear from centerline= 8.25 ft
 inlet capacity= 1.5 cfs

Bypass flow to AP#7= 0.0 cfs

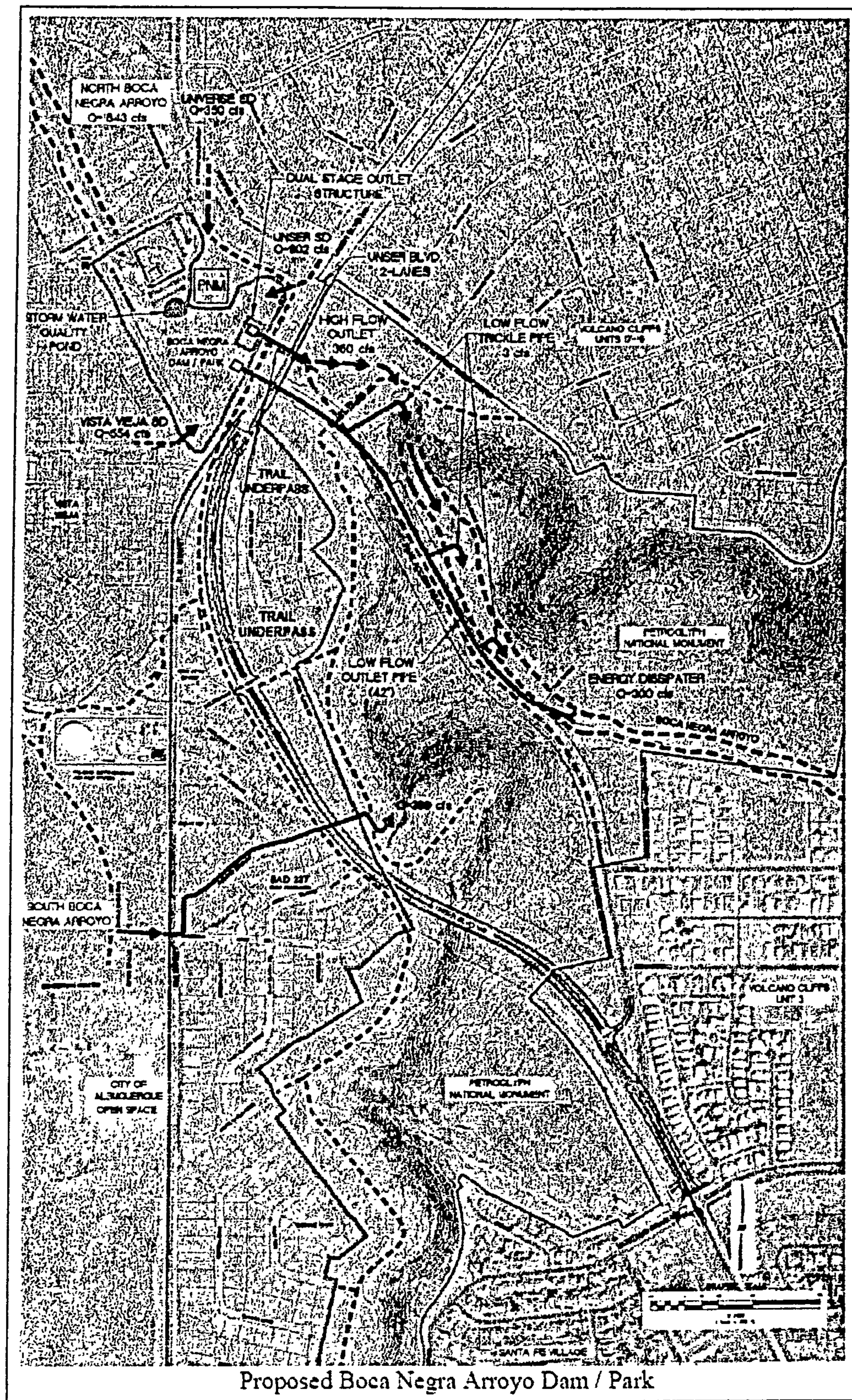
Analysis Pt #7

43% Basin 2
 Roadway slope, S= 1.0 %
 Q= 5.1 cfs
 depth of flow= 0.30 ft
 water spread from flowline= 10.75 ft
 drive lane clear from centerline= 5.75 ft
 inlet capacity= 2 cfs

Bypass flow to Rainbow= 1.1 cfs

Agreement to Provide Design, Construction and Maintenance for Boca Negra Detention Dam and Outfall Pipe and Adjacent Unser Blvd. Improvements

Exhibit A



Proposed Boca Negra Arroyo Dam / Park

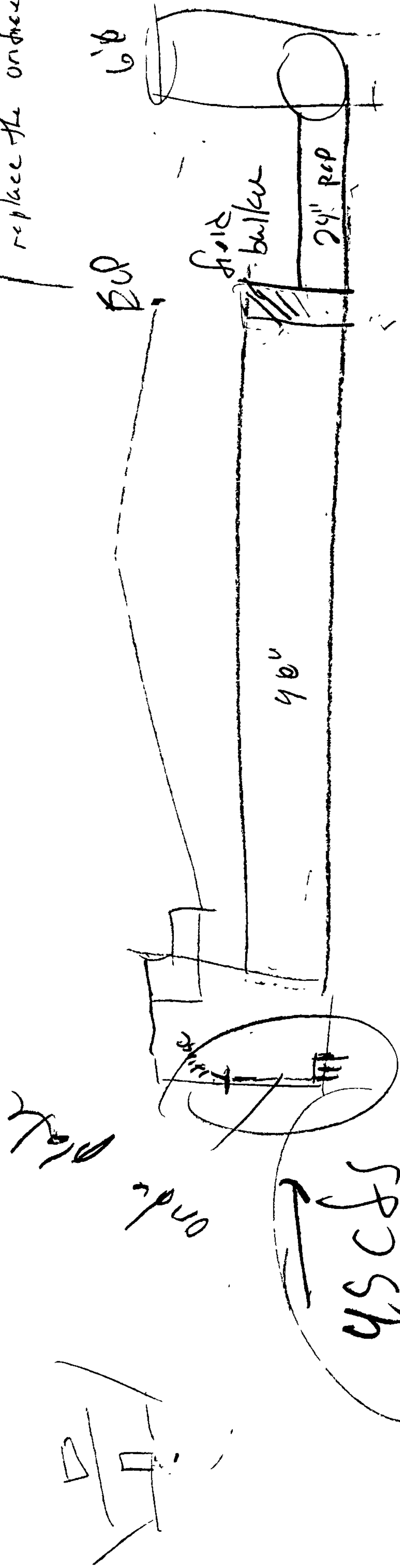
meeting:

Rick Beltramo
 Scott Steffen
 Curtis Cherne
 Shahab Biazar (portfolio)

- Plan to allow for
 4.5 cfs from APS
 to not require pressure
 manhole covers.

6-26-13
 CC

- if APS wants a higher
 flow, they can do the
 hydraulic analysis and
 replace the orifice plate.



trails to build orifice plate in back
 of inlet.

1. Scott Steffen will
 revise sheet in construction set

2. Hydrosy will initiate sheet
 when acceptable

3. City Engineer sign construction
 plans.

I agreed to a field or prefab bulkhead to
 connect the 24" to the 48"
 I agreed to the 468' spacing between manholes

want any improvements other than landscape rock in the easement along Sunport Blvd. This plan proposes a parking lot and a retaining wall in the easement.

Hydrology has not approved or reviewed the drainage report.

AMAFCA provided comments on the drainage report.

The infrastructure list(s) should be linked to phases of the development. Hydrology will need to review the drainage report before providing additional comments, if any, on the infrastructure list.

RESOLUTION/COMMENTS:

SIGNED:

Curtis Cherne
Hydrology Section
City Engineer Designee

DATE: 6-26-13

Cherne, Curtis

From: Eckert, Martin W [eckert_m@aps.edu]
Sent: Wednesday, February 27, 2013 1:06 PM
To: Dourte, Richard H.; Curran, Kevin J.; Whitcomb, Blake; Rael, Jane E.; Woodall, Stephen P.; Cherne, Curtis
Cc: Jeffrey Mortensen; Graeme Means (GMeans@highmesacg.com); Ruth M. Schifani (rschifani@modrall.com); Alarid, Karen; 'rbeltramo@gcinm.com'; 'James Topmiller' (Jtopmill@bhinc.com); hrelkin@slo.state.nm.us; Britt, Don (dbritt@slo.state.nm.us); Lovato, Jerry (jlovato@amafca.org); Bingham, Brad (bbingham@amafca.org); 'ssteffen@bhinc.com'; Livingston, John
Subject: Volcano Vista HS Storm Drain Connection in Universe
Importance: High

Attachments: V V HS Universe SD 022713 City Letter with Referenced Attachments.PDF

Richard, please see the attached which I believe is self-explanatory. As you can see, I've copied Ruth Schifani, Esq. from the Modrall Law Firm to this e-mail as APS takes this matter very seriously. Ruth would be happy to discuss this matter with Kevin or Blake if necessary, but I would hope we can resolve this at an Administrative Level before the attorney's need to spend any time on this matter. APS would be happy to meet to discuss this situation with you and all other interested parties at your earliest convenience. I have discussed this matter with representatives from AMAFCA and the New Mexico State Land Office (an adjacent owner that is also adversely impacted by this Project), and they are also copied this e-mail along with other interested parties.

Thanks for your consideration. I would appreciate knowing what the City intends to do, prior to the City signing off on the current plans. Thanks, Marty

Martin W. Eckert, SR/WA
 Real Estate Director
 Albuquerque Public Schools
 Lincoln Complex Room 8
 915 Locust St. SE
 Albuquerque, NM 87106
 E-mail: eckert_m@aps.edu
 Phone: (505) 765-5950 ext 265
 Fax: (505) 768-1583

From: Cherne, Curtis [mailto:CCherne@cabq.gov]
Sent: Tuesday, February 26, 2013 12:00 PM
To: Graeme Means
Cc: Jeffrey Mortensen; Eckert, Martin W
Subject: RE: Volcano Vista HS Storm Drain Connection in Universe

Graeme,
 Shahab and I have reviewed this draft and offer the following:
 The Q allowable for the APS site equals Q (pressure flow in lateral) minus Q (inlet)

Therefore, 29.5 cfs (from pressure flow analysis) minus 3.3 cfs (inlet), equals 26.2 cfs.

The Q Allowable for the APS site is 26.2 cfs.
 The orifice plate would need to be installed upstream (private side) of the inlet in Universe Blvd.

Hydrology reviewed the HGL in the Universe storm drain and the additional head would crawl up the pipe approx. 200 ft. There would be no adverse impact to the Trails system.
 Please submit to Hydrology for Work Order approval.

Incorporating this into the existing construction plans would be preferable to an additional set. Is this something

2/28/2013

that you and Scott Steffen can work out?

Curtis

From: Graeme Means [<mailto:GMeans@highmesacg.com>]
Sent: Tuesday, February 26, 2013 9:16 AM
To: Cherne, Curtis
Cc: Jeffrey Mortensen; Eckert, Martin W
Subject: Volcano Vista HS Storm Drain Connection in Universe

Curtis,

Jeff passed on your request for us to put together a summary report in a reviewable format that documents our discussions and findings from our informal meeting last Thursday regarding the hydraulic feasibility of a storm drain connection from Volcano Vista HS to the proposed storm drain in Universe.

Attached herewith is a draft version for your review and comment. Please review and let me know if this is what you're looking for. We can then finalize and I'll sign, stamp and date.

Thank you,

Graeme Means



J. Graeme Means, P.E.
Principal

6010-B Midway Park Blvd. NE
Albuquerque, NM 87109
www.highmesacg.com

Phone: 505.345.4250
Fax: 505.345.4254
gmeans@highmesacg.com

2/28/2013

HIGH MESA Consulting Group

6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109
Phone: 505.345.4250
Fax: 505.345.4254
www.highmesacg.com

TO:	Curtis Cherne, PE, City Hydrologist
FROM:	J. Graeme Means, PE
CC:	Martin Eckert, APS Real Estate Director, Annelle Darby, APS Staff Architect Jeff Mortensen, HMCG Principal Engineer
DATE:	02/26/2013
PROJECT:	APS Volcano Vista High School – City Hydrology File C7/D9
RE:	Summary Analysis of Connection to Proposed Storm Drain in Universe Blvd. NW
JOB NO:	HMCG 2012.182.9

Dear Curtis,

Thank you for meeting with me last Friday, February 22, 2013, to evaluate and coordinate implementation of a storm drain connection between an existing storm inlet and a proposed storm drain in Universe Blvd. NW. The inlet and a 48 inch lateral were constructed in 2006 under City Project # 766981 in anticipation of a future connection to a proposed 60 inch storm drain that was expected provide the programmed outfall from the temporary retention pond located on Volcano Vista High School, thereby allowing eventual conversion from retention to detention pond with controlled release.

As identified during our meeting, the proposed construction plans recently submitted to the City for approval of a public storm drain in Universe identify a 36 inch pipe at this location and do not provide any connection to the existing 48 inch lateral. Instead, the plans propose to trim the lateral back as it conflicts with the proposed storm drain.

Based on the following, we have determined that it would be feasible to construct an 18 inch connection (sleeved within the existing 48 inch lateral) between the existing inlet and the proposed storm drain with an orifice plate in the back of the inlet or in the upstream private APS storm drain:

- 1) Review of the Engineer's Certification for Volcano Vista HS Phase 2 shows that the invert out of the bottom of the Volcano Vista HS pond is at elevation 5375 (NGVD 1929) which is above the elevation of the storm inlet grate in Universe of 5373.6 (NGVD 1929). This ensures that flow from the Universe storm drain will not back up into the pond as it would overflow at the grate before reaching that elevation.
- 2) Review of the proposed construction plans show the existing storm inlet grate elevation of 5376.4 (NAVD 88) is 3.2 ft higher than the proposed hydraulic grade line (HGL) in the 36 inch Universe storm drain at the existing lateral location of approximately 5373.2 (NAVD 88), thereby resulting in 3.2 ft of elevation head for positive flow and drainage from the inlet to the storm drain without resulting in a backflow condition surging up at the grate.
- 3) Hydraulic calculations (attached) that demonstrate a potential flow rate of 29.6 cfs from the storm inlet to the storm drain through an 18 inch lateral under pressure with 3.2 feet of elevation head.

HIGH MESA Consulting Group

6010-B Midway Park Blvd. NE
Albuquerque, New Mexico 87109
Phone: 505.345.4250
Fax: 505.345.4254
www.highmesacg.com

- 4) The 18 inch connection would be sleeved through the existing 48 inch lateral with the excess area grouted. This would avoid any disturbance to traffic and avoid cutting the street.
- 5) The orifice plate would be sized to limit outflow from the private storm drain to whatever rate is determined by the City based on a function of downstream capacity and design storm requirements for this storm drain.

A storm drain connection as analyzed and described by the preceding would not only provide an outfall for an existing retention pond located on public school property, but it would also accept street flows that currently bypass this inlet.

Please let us know if you have any questions or comments regarding this information.

J. Graeme Means, NMPE 13676

DRAFT

Worksheet

Worksheet for Pressure Pipe

Project Description

Worksheet	Pressure Pipe
Flow Element	Pressure Pipe
Method	Manning's Form
Solve For	Discharge

Input Data

Pressure at 1	0.00 psi
Pressure at 2	0.00 psi
Elevation at 1	76.37 ft
Elevation at 2	73.20 ft
Length	10.00 ft
Mannings Coeff	0.013
Diameter	18 in

Results

Discharge	29.57 cfs
Headloss	3.17 ft
Energy Grade at	80.72 ft
Energy Grade at	77.55 ft
Hydraulic Grade :	76.37 ft
Hydraulic Grade :	73.20 ft
Flow Area	1.8 ft ²
Wetted Perimeter	4.71 ft
Velocity	16.73 ft/s
Velocity Head	4.35 ft
Friction Slope	0.79250 ft/ft

Eckert, Martin W

From: Graeme Means <GMeans@highmesacg.com>
Sent: Wednesday, February 27, 2013 8:32 AM
To: Cherne, Curtis
Cc: Jeffrey Mortensen; Eckert, Martin W
Subject: RE: Volcano Vista HS Storm Drain Connection in Universe
Attachments: AVG Certification.txt

As a follow-up to our conversation yesterday, we understand you were going to follow up with BHI to discuss the options to make this connection happen. At this point, we believe the easiest solution would be for BHI to add the connection to the plans prior to DRC approval. We ask that the City hold off on plan approval to allow APS time to coordinate.

Can you commit to the City not approving the current plan set at this time so APS can have adequate time to get this revision to the plans done as soon as possible?



J. Graeme Means, P.E.
Principal

6010-B Midway Park Blvd. NE Phone: 505.345.4250
Albuquerque, NM 87109 Fax: 505.345.4254
www.highmesacg.com gmeans@highmesacg.com

From: Cherne, Curtis [<mailto:CCherne@cabq.gov>]
Sent: Tuesday, February 26, 2013 12:00 PM
To: Graeme Means
Cc: Jeffrey Mortensen; Eckert, Martin W
Subject: RE: Volcano Vista HS Storm Drain Connection in Universe

Graeme,
Shahab and I have reviewed this draft and offer the following:
The Q allowable for the APS site equals Q (pressure flow in lateral) minus Q (inlet)

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Please submit to Hydrology for Work Order approval.

Incorporating this into the existing construction plans would be preferable to an additional set. Is this something that you and Scott Steffen can work out?

Curtis

From: Graeme Means [<mailto:GMeans@highmesacg.com>]
Sent: Tuesday, February 26, 2013 9:16 AM
To: Cherne, Curtis
Cc: Jeffrey Mortensen; Eckert, Martin W
Subject: Volcano Vista HS Storm Drain Connection in Universe

Curtis,

Jeff passed on your request for us to put together a summary report in a reviewable format that documents our discussions and findings from our informal meeting last Thursday regarding the hydraulic feasibility of a storm drain connection from Volcano Vista HS to the proposed storm drain in Universe.

Attached herewith is a draft version for your review and comment. Please review and let me know if this is what you're looking for. We can then finalize and I'll sign, stamp and date.

Thank you,

Graeme Means



J. Graeme Means, P.E.
Principal

6010-B Midway Park Blvd. NE
Albuquerque, NM 87109
www.highmesacg.com

Phone: 505.345.4250
Fax: 505.345.4254
gmeans@highmesacg.com

Eckert, Martin W

From: Eckert, Martin W
Sent: Monday, January 14, 2013 3:24 PM
To: 'Dourte, Richard H. (RDourte@cabq.gov)'
Cc: Alarid, Karen; Mason, Tyler M; Darby, Annelle; Livingston, John; 'Lovato, Jerry (jlovato@amafca.org)'; 'Cherne, Curtis (CCherne@cabq.gov)'; 'Curran, Kevin J.' (kcurran@cabq.gov); 'Bingham, Brad (bbingham@amafca.org)'; 'Jeffrey Mortensen (JMortensen@highmesacg.com)'; 'Graeme Means (GMeans@highmesacg.com)'
Subject: Boca Negra Dam Agreement FW: Volcano Vista FW: Universe Blvd. Storm Drain
Attachments: Universe SD concept 6-12.pdf; Volcano Vista Legible approved MDP 061512.PDF; Volcano Vista approved MDP.PDF

Importance: High

Tracking:	Recipient	Delivery
	'Dourte, Richard H. (RDourte@cabq.gov)'	
	Alarid, Karen	Delivered: 1/14/2013 3:24 PM
	Mason, Tyler M	Delivered: 1/14/2013 3:24 PM
	Darby, Annelle	Delivered: 1/14/2013 3:24 PM
	Livingston, John	Delivered: 1/14/2013 3:24 PM
	'Lovato, Jerry (jlovato@amafca.org)'	
	'Cherne, Curtis (CCherne@cabq.gov)'	
	'Curran, Kevin J.' (kcurran@cabq.gov)'	
	'Bingham, Brad (bbingham@amafca.org)'	
	'Jeffrey Mortensen (JMortensen@highmesacg.com)'	
	'Graeme Means (GMeans@highmesacg.com)'	

Richard, please see the below e-mails from June of 2012 (I'm sending the same attachments since they were referenced in the below e-mail, but APS does not agree with the Concept that is shown in the first pdf "Universe ... 6-12"). I noticed that you were not copied to those e-mails, but Kevin Curran, Esq. and Curtis Cherne were involved from the City of Albuquerque ("City") at that time.

It is my understanding that the Boca Negra Dam (the "Dam") is now under construction. As I believe you are aware, the Dam is the programmed outfall for the Volcano Vista High School ("V V HS") site. I understand that the City recently entered into an Agreement with The Trails and/or Longford Homes and/or other entities that allowed the Dam construction project to move forward. It is my understanding that the Agreement may have included some provisions regarding the future design and construction of the Universe Storm Drain that will drain into the Dam. I would like to get a copy of the Agreement as soon as possible in order that the Albuquerque Public Schools ("APS") can assess what implications the Agreement may have regarding APS and the V V HS site.

As I stated in my below e-mail, APS has built all of the drainage improvements it was required to build based on APS's drainage plan that was approved by the City. It was understood when APS purchased the State Land Office property and when APS's drainage plans for V V HS were approved that the Boca Negra Dam and the Universe SD would be built by others, at no expense to APS. APS would like to see the Universe SD outfall pipe built to allow the full 95.04 cfs to discharge from the V V HS site per the approved drainage plans. APS does not have any money to fund the Universe SD and is not interested in participating in the cost to construct the Universe SD which was supposed to be built by others long ago at no expense to APS.

It is my understanding that if the Universe Storm Drain is constructed as it was designed many years ago, APS will be able to convert a portion of its existing interim retention pond into a permanent detention pond and that the construction of the Universe Storm Drain will allow a major portion of the existing interim retention pond to be reclaimed by APS for future development on the V V HS site, and this is what APS has envisioned for years and what APS wants to happen. It is my further understanding that if the Universe Storm Drain is not constructed, that the entire existing interim retention pond on the APS V V HS site will in essence become a permanent retention pond, which I believe is in violation of the City Drainage Ordinance. This will cause a financial hardship to APS.

I request that you please send me a copy the requested Agreement as soon as possible, or let me know where I can pick-up a copy for review.

Thanks, Marty

Martin W. Eckert, SRWA
Real Estate Director
Albuquerque Public Schools
Lincoln Complex Room 8
915 Locust St. SE
Albuquerque, NM 87106
E-mail: eckert_m@aps.edu
Phone: (505) 765-5950 ext 265
Fax: (505) 768-1583

From: Cherne, Curtis [<mailto:CCherne@cabq.gov>]
Sent: Thursday, June 21, 2012 9:42 AM
To: Eckert, Martin W; steven.metro@wilsonco.com; Curran, Kevin J.
Cc: Jeff Mulbery; Jeffrey Mortensen; Mason, Tyler M; Livingston, John; Bingham, Brad; Lovato, Jerry
Subject: RE: Volcano Vista FW: Universe Blvd. Storm Drain

Hydrology has no comment on this at this time.

Curtis

From: Eckert, Martin W
Sent: Friday, June 15, 2012 12:26 PM
To: 'steven.metro@wilsonco.com'; 'Curran, Kevin J.'
Cc: 'Jeff Mulbery'; Jeffrey Mortensen; Mason, Tyler M; Livingston, John; 'Cherne, Curtis '; 'Bingham, Brad'; 'Lovato, Jerry'
Subject: FW: Volcano Vista FW: Universe Blvd. Storm Drain
Importance: High

I have now talked to both Jeff Mulbery from BHI and Jeff Mortensen from HMCG. The 1st attachment is what Steve Metro sent me this morning – it is a conceptual plan that shows APS might be allowed a discharge of 10cfs under this scenario. The 2nd is a blow up of the BHI approved grading plan for V V HS which shows APS allowed 95.04 cfs discharge out of the 101 cfs allowed per the approved Master Drainage Plan, and the 3rd includes the BHI approved plans as well as portions of the previously approved Master Drainage Plan from HMCG.

APS has built the all of the drainage improvements it was required to build in its approved drainage plan. It was understood when APS purchased the State Land Office property and got its drainage plans for V V HS approved that the Boca Negra Dam and the Universe SD would be built by others, at no expense to APS. APS would like to see the Universe SD outfall pipe built to allow the full 95.04 cfs to discharge from the V V HS site. APS does not have any money to fund the Universe SD and is not interested in participating in the cost to construct the Universe SD which was supposed to be built by others long ago at no expense to APS. I apologize for my stupidity, but I have not been focusing as closely on this as I should have been because I'm trying to get another critical project wrapped up. I read the 1.44 cfs in the MDP, but failed to understand that it stated 1.44 cfs / acre (V V HS is 70 + acres).

Thanks, Marty

From: Jeff Mulbery [<mailto:jmulbery@bhinc.com>]
Sent: Friday, June 15, 2012 11:52 AM
To: Eckert, Martin W
Cc: Kevin Patton; Livingston, John
Subject: Re: Volcano Vista FW: Universe Blvd. Storm Drain

Marty, per our discussion the approved dmp for vvhs shows an outfall of approx. 95 cfs into the storm drain in universe to be built by others.

Cherne, Curtis

From: Scott Steffen [ssteffen@bhinc.com]
Sent: Tuesday, March 12, 2013 12:33 PM
To: Cherne, Curtis
Cc: Dourte, Richard, H.

Subject: RE: Universe Storm Drain

Curtis,

The Q includes the street flow. So $4.5 \text{ cfs} = 1.5 \text{ cfs APS} + 3 \text{ cfs street}$.

Scott J. Steffen
Vice President
Community Development and Planning

Bohannon & 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

From: Cherne, Curtis [mailto:CCherne@cabq.gov]
Sent: Tuesday, March 12, 2013 12:33 PM
To: Scott Steffen
Cc: Dourte, Richard H.
Subject: RE: Universe Storm Drain

Scott,
Does these Q's include the street flows or are in addition to. E.g. 7 cfs is 7 cfs from APS plus 3 cfs from street flows= 10 cfs.

Curtis

From: Scott Steffen [mailto:ssteffen@bhinc.com]
Sent: Tuesday, March 12, 2013 11:02 AM
To: Dourte, Richard H.; Cherne, Curtis
Subject: Universe Storm Drain

Richard/Curtis,

Here is a summary of the hydraulic analysis of the Universe storm drain (as designed), showing the hydraulic surge at manholes that results from introducing flows from APS into the system.

Please call to discuss if you have questions.

Thanks,

Scott J. Steffen
Vice President
Community Development and Planning

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voice: 505.823.1000 facsimile: 505.798.7988 toll free: 800.877.5332

3/12/2013

Cherne, Curtis

From: Scott Steffen [ssteffen@bhinc.com]
Sent: Tuesday, March 12, 2013 11:02 AM
To: Dourte, Richard H.; Cherne, Curtis
Subject: Universe Storm Drain
Attachments: Universe SD Manhole Surge Summary APS flow.xlsx

Richard/Curtis,

Here is a summary of the hydraulic analysis of the Universe storm drain (as designed), showing the hydraulic surge at manholes that results from introducing flows from APS into the system.

Please call to discuss if you have questions.

Thanks,

Scott J. Steffen
Vice President
Community Development and Planning

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3/12/2013

APS Flowrate	Manhole #1	Manhole #2	Manhole #3
(cfs)	Surge (ft)	Surge (ft)	Surge (ft)
4.5	0		
5	0.18		
6	0.62		
7	1.08		
8	1.54	0.10	0.31
9	2.00	0.40	0.87

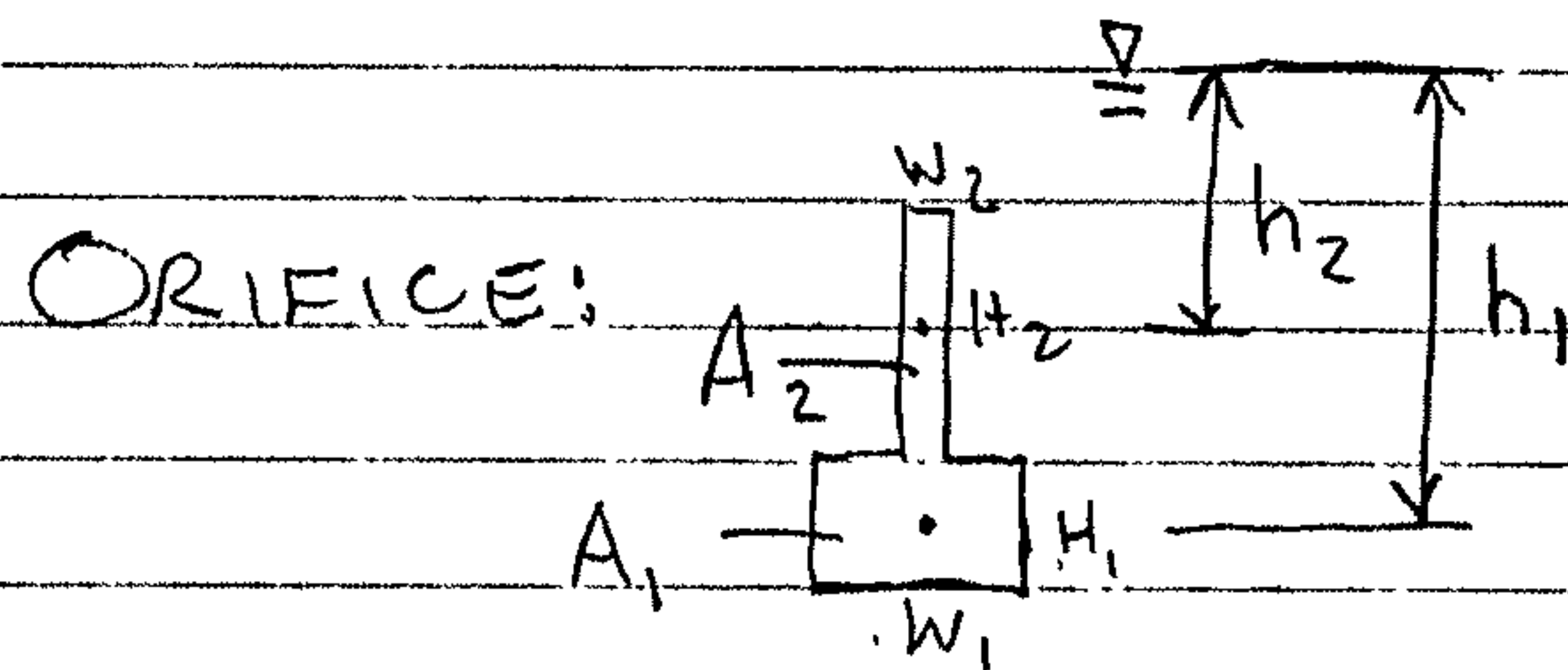
Subject: TRAILS UNIVERSE STORM DRAIN

Date: 7/1/13

Actions/Follow-Up

Notes:

ORIFICE PLATE CALCULATION:



$$Q = CA(2gh)^{1/2}$$

$$Q = CA_1(2gh_1)^{1/2} + CA_2(2gh_2)^{1/2}$$

$$Q = .6(H_1 \cdot W_1)(2gh_1)^{1/2} + .6(H_2 \cdot W_2)(2gh_2)^{1/2}$$

MAX WATER SURFACE VOLCANO VISTA POND = 5380

UNIVERSE BLVD INLET INVERT = 5373.4

$$\therefore h_1 = 5380 - 5373.4 - H_1/2$$

$$h_2 = 5380 - 5373.4 - H_1 - H_2/2$$

For $H_1 = 0.5'$, $W_1 = 0.5'$, $H_2 = 1.0'$ & $W_2 = 0.13'$

$$Q = .6(.5' \times .5')(2g(5380 - 5373.4 - .5'/2))^{1/2}$$

$$+ .6(1' \times .13')(2g(5380 - 5373.4 - .5' - 1'/2))^{1/2}$$

$$Q = 3.03 + 1.48$$

$$Q = 4.51 \text{ cfs}$$

Agreement to Provide Design, Construction and Maintenance for Boca Negra Detention Dam and Outfall Pipe and Adjacent Unser Blvd. Improvements

Exhibit B

Boca Negra Detention Dam and Outfall Pipe					
Cost Sharing Allocation Based on Project Elements May 18, 2005					
Project Elements					Total Cost
Boca Negra Detention Dam & Outlet Pipe					
25% 33.5% 31.5% 10% AMAFCA/Mesa/Longford/City					
Dam & Outlet Pipe		1	LS	1,900,000	1,900,000
Design, 7.22%					137,180
Construction Management, 8%					152,000
Right of Way					977,420
Subtotal					3,166,600
Bike Trail Underpass and Hi Flow Outlet					
50% 0.0% 0.0% 50% AMAFCA/Mesa/Longford/City					
Crossing Structure		1	LS	340,000	340,000
Design, 7%					23,800
Construction Management, 8%					27,200
Right of Way					14,123
Subtotal					405,123
Unser Blvd in Front of Dam - Full cross Section, two lanes paved					
0% 0.0% 0.0% 100% AMAFCA/Mesa/Longford/City					
Roadway and Trail		1	LS	370,000	370,000
Design, 7%					25,900
Construction Management, 8%					29,600
Right of Way					34,893
Subtotal					460,393
FEMA LOMR					
0% 50.0% 50.0% 0% AMAFCA/Mesa/Longford/City					
Engineering Design & Submittal for FEMA CLOMR/LOMR					20,000
FEMA Review Fees					7,400
					27,400
Total Project Costs					4,059,516

Agreement to Provide Design, Construction and Maintenance for
Boca Negra Detention Dam and Outfall Pipe
and Adjacent Unser Blvd. Improvements

Exhibit C, Page 1 of 2

**GRANT OF PERMANENT EASEMENT
FOR STORM DRAINAGE WORKS**

Grant of Permanent Easement, between the City of Albuquerque, a New Mexico municipal corporation ("Grantor"), whose address is P.O. Box 1293, Albuquerque, New Mexico, 87103 and the Albuquerque Metropolitan Arroyo Flood Control Authority, a political subdivision of the State of New Mexico ("AMAFCA"), whose address is 2600 Prospect Ave. NE, Albuquerque, New Mexico, 87107, collectively ("the Parties").

Grantor grants to AMAFCA, and its successors and assigns, an exclusive, permanent easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of storm drainage improvements associated with the Boca Negra Detention Dam Outfall Pipe, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if AMAFCA determines they interfere with the appropriate use of this Easement.

Grantor hereby reserves for itself and its successors and assigns the right to construct, operate and maintain roadway improvements and related appurtenances, including bicycle trails, within the Property subject to the review and written approval by AMAFCA, said approval not to be unreasonably withheld. In the event Grantor constructs any improvements ("Improvements") within the Property, AMAFCA has the right to enter upon the Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate.

The grant and other provisions of this Easement constitute covenants running with the Property for the benefit of the AMAFCA and its successors and assigns until terminated.

To have and to hold the said right and Easement for the uses and purposes aforesaid unto the AMAFCA, its successors and assigns, forever, as specifically provided herein. Any portion of the Easement granted herein shall revert to the Grantor, its successors or assigns, as and to the extent said portion of Easement is declared unnecessary for storm drainage purposes by AMAFCA, its successors and assigns. Any reversion shall be conveyed by Quitclaim Deed.

This Easement shall not be effective until approved by the City Engineer in the signature block below

Revised Exhibit C Acknowledged:

<u>Party Name</u>	<u>Initial</u>	<u>Date</u>
AMAFCA	<u>JPK</u>	<u>9-6-05</u>
CITY	<u>JRL</u>	<u>9/9/05</u>
VISTA	<u>TN</u>	<u>9-8-05</u>
TRAILS	<u>Dm</u>	<u>9/9/05</u>

7

—

WITNESS my hand and seal this _____ day of _____, 2005.

Approved:

City Engineer

Date _____

Approved As To Form

City Attorney

Date _____

Reviewed By:

John R. Castillo, Director, Department of
Municipal Development

Date _____

GRANTOR: City of Albuquerque

By: _____
James B. Lewis, Chief Administrative Officer

[illegible]

This instrument was acknowledged before me on _____ day of _____, 2005, by James B. Lewis as Chief Administrative Officer of the City Of Albuquerque, a municipal corporation, on behalf of said corporation.

Notary Public

My Commission Expires:



November 28, 2005

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY

Attention: John Kelly, P.E.

Executive Engineer

2066 Prospect Avenue, N.E.

Albuquerque, New Mexico 87107

Re: Agreement to Provide Design, Construction and
Maintenance for Boca Negra Detention Dam and Outfall
Pipe and Adjacent Unser Blvd., Improvements, dated
September 22, 2005 ("Agreement@")

Dear Mr. Kelly:

KB HOME New Mexico Inc. has signed an agreement to and is contemplating the purchase of certain real estate in the City of Albuquerque described as the Vista Vieja Subdivision, Tracts One through Four, which is owned by VISTA VIEJA INVESTMENTS, LLC ("VISTA VIEJA"), and which includes the interests of VISTA VIEJA in the above-referenced Agreement. The property will be acquired through two closings, of which the First Closing comprises Tracts One and Two. As of the First Closing, KB HOME will be the successor to VISTA VIEJA as to rights and obligations through a partial assignment as to Tracts One and Two.

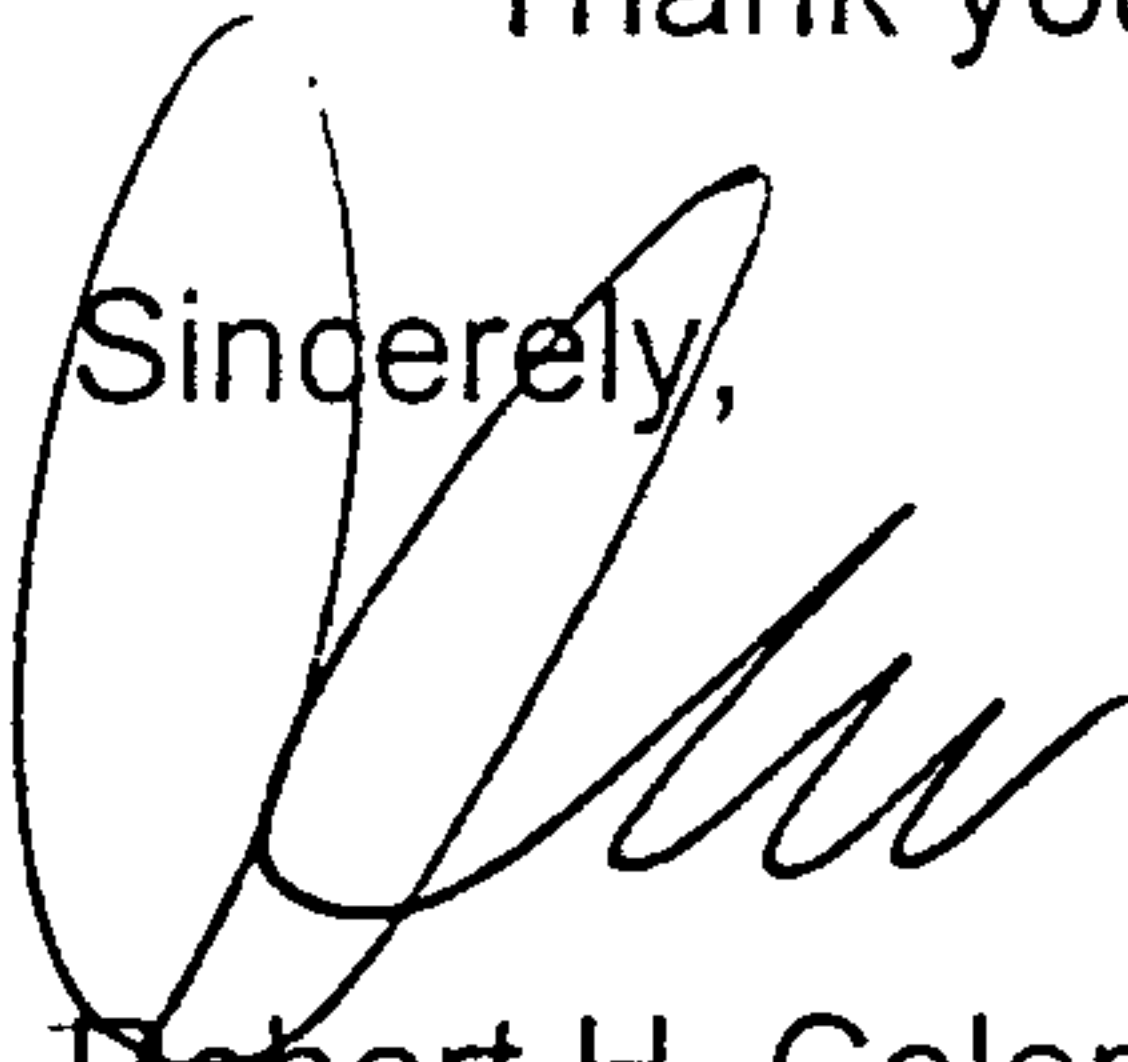
As a part of KB HOME's due diligence, we write to obtain your confirmation that the Agreement has not been amended, is current and in good standing insofar as the obligations of all parties thereunder are concerned, that no default has occurred on the part of VISTA VIEJA thereunder, and that AMAFCA is willing to accept KB HOME as VISTA VIEJA's successor under the partial assignment.

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY
John Kelly, P.E.
November 28, 2005
Page 2

If these facts are correct, we shall appreciate your signing the acknowledgment to that effect stated below and returning a copy of this letter to us.

Thank you for your cooperation in this matter.

Sincerely,



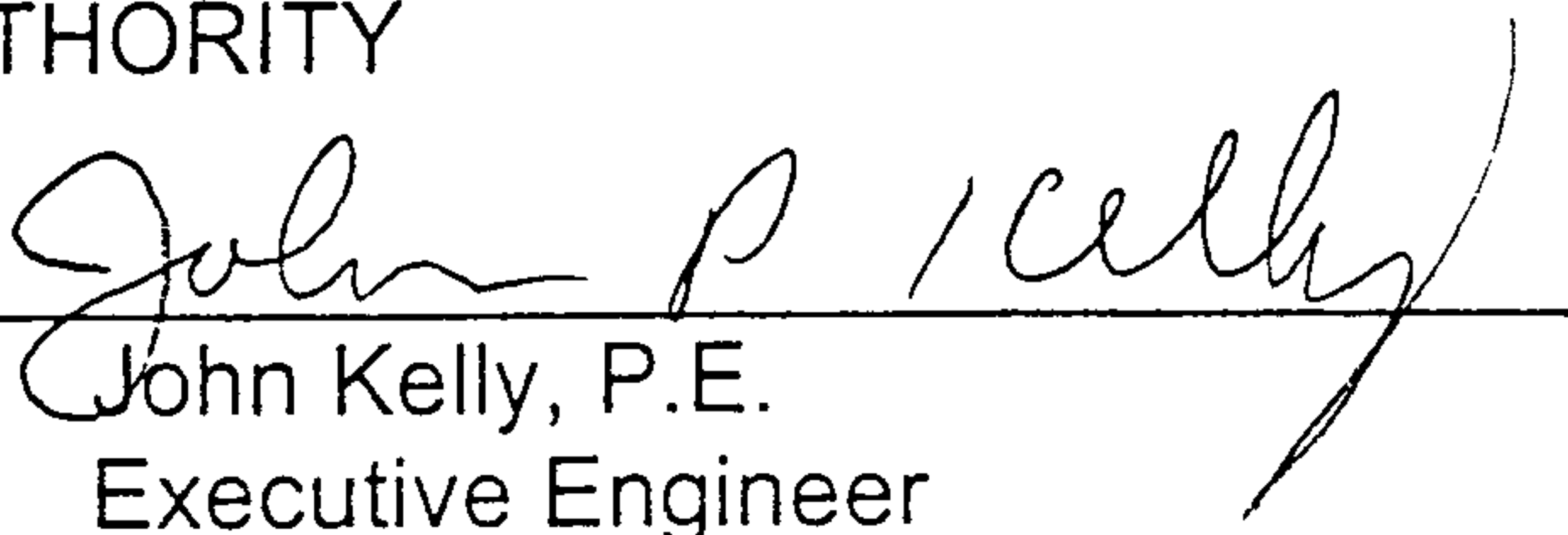
Robert H. Coleman, Ph.D.
Director of Land Development and Forward Planning

Acknowledgment:

The undersigned hereby acknowledges that the above-referenced Agreement has not been amended, is current and in good standing insofar as the obligations of all parties thereunder are concerned, that no default has occurred on the part of VISTA VIEJA INVESTMENTS, LLC thereunder, and AMAFCA accepts KB HOME New Mexico Inc. as the partial assignee of VISTA VIEJA INVESTMENTS, LLC.

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTRAL
AUTHORITY

By



John Kelly, P.E.
Executive Engineer

Date: 11-29-05

DIXON, SCHOLL & BAILEY, P.A.

A Professional Association of Lawyers and Counselors

Gerald G. Dixon

jdixon@dsblaw.com

November 30, 2006

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY

Attention: John Kelly, P.E.

Executive Engineer

2066 Prospect Avenue, N.E.

Albuquerque, New Mexico 87107

Re: Agreement to Provide Design, Construction and
Maintenance for Boca Negra Detention Dam and Outfall
Pipe and Adjacent Unser Blvd., Improvements, dated
September 22, 2005 ("Agreement")

Dear Mr. Kelly:

KB HOME New Mexico Inc. has signed an agreement to and is contemplating the purchase of certain real estate in the City of Albuquerque described in the Bulk Land Plat as Vista Vieja Subdivision, Tracts One through Four, which is owned by VISTA VIEJA INVESTMENTS, LLC ("VISTA VIEJA"), and which includes the interests of VISTA VIEJA in the above-referenced Agreement. The first of the two closings occurred on December 1, 2005. The second closing is contemplated to occur on December 1, 2006. The second closing comprises Tracts Three and Four. As of the second closing, KB HOME will be the successor to VISTA VIEJA of its rights and obligations under the referenced Agreement through the Complete Assignment of the above-referenced Agreement as to Tracts Three and Four. It should be noted that at the second closing, as a part of a "land bank" arrangement for the benefit of, and as an accommodation to KB HOME, Salls Brothers Construction, Inc., as assignee of KB HOME, will hold title to Tracts Three and Four, subject to an option agreement in favor of KB HOME. KB HOME will remain the assignee of all rights and obligations under the referenced Agreement.

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY

Attention: John Kelly, P.E.

November 30, 2006

Page 2

As a part of KB HOME's due diligence, we write to obtain your confirmation that the Agreement has not been amended, is current and is in good standing insofar as the obligations of all parties thereunder are concerned, that no default has occurred on the part of VISTA VIEJA thereunder, and that AMAFCA is willing to accept KB HOME as VISTA VIEJA's successor under the partial assignment.

If these facts are correct, we shall appreciate your signing the acknowledgment to that effect stated below and returning a copy of this letter to us.

Thank you for your cooperation in this matter.

Sincerely,



Gerald G. Dixon
Dixon Scholl & Bailey, P.A.

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY

Attention: John Kelly, P.E.

November 30, 2006

Page 3

Acknowledgment:

The undersigned hereby acknowledges that the above-referenced Agreement has not been amended, is current and in good standing insofar as the obligations of all parties thereunder are concerned, that no default has occurred on the part of VISTA VIEJA INVESTMENTS, LLC, thereunder and AMAFCA accepts KB HOME New Mexico Inc. as the assignee of all of the rights, obligations and interests of VISTA VIEJA INVESTMENTS, LLC, in and to the Agreement.

ALBUQUERQUE METROPOLITAN
ARROYO FLOOD CONTROL
AUTHORITY

By John P Kelly
John Kelly, P.E.
Executive Engineer

Date: 11-30-06

**COMPLETE ASSIGNMENT OF AGREEMENT
TO PROVIDE DESIGN, CONSTRUCTION AND MAINTENANCE FOR
BOCA NEGRA DETENTION DAM AND OUTFALL PIPE AND ADJACENT UNSER
BLVD. IMPROVEMENTS**

This Complete Assignment of Agreement to Provide Design, Construction and Maintenance for Boca Negra Detention Dam and Outfall Pipe and Adjacent Unser Blvd. Improvements ("Complete Assignment") is made and entered into by and between VISTA VIEJA INVESTMENTS, LLC ("VISTA"), and KB HOME NEW MEXICO INC. ("ASSIGNEE"), with reference to the following facts:

Recitals

WHEREAS, VISTA is one of the parties to that certain Agreement to Provide Design, Construction and Maintenance for Boca Negra Detention Dam and Outfall Pipe and Adjacent Unser Blvd. Improvements, dated September 22, 2005, by and among ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY, THE CITY OF ALBUQUERQUE, VISTA VIEJA INVESTMENTS, LLC, and THE TRAILS LLC. ("Agreement");

WHEREAS, VISTA, as Seller, has entered into that certain Purchase Agreement and Escrow Instructions (Vista Vieja), dated June 27, 2005 ("Purchase Agreement"), with KB HOME NEW MEXICO INC., a New Mexico corporation ("KB HOME"), as Buyer, for the purchase and sale of that certain property described in Exhibit A, which is attached hereto and made a part hereof; which purchase and sale will be accomplished in two separate purchase-and-sale transactions described in the Purchase Agreement as the "First Closing" and the "Second Closing," the First Closing describes the conveyance of fee title to Tract 1 and Tract 2, as shown on the Bulk Land Plat of Vista Vieja Subdivision, filed on April 21, 2005, and recorded in Book 2005C, at page 122, of the records of Bernalillo County, New Mexico, a copy of which is attached hereto, made a part hereof, and labeled "Exhibit B" ("Bulk Land Plat"), Tract 1 and Tract 2, as more specifically identified in the Preliminary Plats attached hereto, made a part hereof, and labeled "Exhibit B-1" and "Exhibit B-2," respectively, shall include approximately 142 Lots and 4 Open Space Parcels (described in the Preliminary Plat as Tract 1 and Parcels A, B, and C) to be dedicated to the Homeowners Association; Tract 2 shall comprise approximately 160 Lots and 5 parcels as shown in the Preliminary Plat; the Second Closing describes the conveyance of fee title to Tract 3 and Tract 4, as shown on the Bulk Land Plat; the First Closing comprised the acquisition of Tract 1 and Tract 2 by Assignee, and the Second Closing shall comprise the acquisition of Tract 3 and Tract 4 by Assignee;

WHEREAS, the First Closing was consummated without incident on December 1, 2005, and with each party paying and performing all obligations incumbent upon it through the date of the First Closing;

WHEREAS, VISTA warrants to KB HOME that, to the best of its knowledge, all of the terms of the Agreement are in full force and effect, there have been no amendments to the Agreement, no party thereto, including but not limited to VISTA, is in default thereunder, no event of default thereunder by any party thereto, has occurred, there is no reasonable expectation of the declaration of an event of default by any party thereto, all obligations on the part of VISTA thereunder have been timely performed, and VISTA has provided to KB HOME all financial data, correspondence, and any other documentation in its possession relating to the Agreement;

WHEREAS, VISTA desires to assign to Assignee all of the right, title, and interest of VISTA in the Agreement, and to delegate to Assignee all of its duties under the Agreement:

WHEREAS, Assignee assumes all of the obligations of VISTA under the Agreement, agrees to assume, pay, and perform the Agreement according to its terms, and to protect, defend, hold harmless, and indemnify VISTA from any further liability, including reasonable attorneys' fees and litigation expenses, in connection therewith:

WHEREAS, upon the completion of the Second Closing, presently scheduled for December 1, 2006, VISTA shall remit, convey, or assign in full to Assignee any and all credits theretofore received by VISTA from AMAFCA or Assignee prior to the Second Closing, and Assignee shall be entitled to receive and retain all subsequent credits to which it will be entitled under the Agreement; and

WHEREAS, Assignee intends to assign at the Second Closing all of its right, title, and interest in and to the Purchase Agreement to SALLS BROTHERS CONSTRUCTION, INC., a New Mexico corporation, solely as a part of a "land bank" arrangement for the benefit of, and as an accommodation to, Assignee. Assignee will hold an option to purchase the land comprising Tract 3 and Tract 4. Assignee will remain liable for the payment and performance in full as the Assignee in this Complete Assignment. Following Assignee's assignment to SALLS BROTHERS CONSTRUCTION, INC., Assignee shall be and remain liable for the payment and performance in full of the obligations of VISTA under the Agreement, and Assignee shall protect, defend, hold harmless, and indemnify VISTA from any further liability, including reasonable attorneys' fees and litigation expenses, in connection with the Agreement.

NOW, THEREFORE, in consideration of their mutual agreements herein set forth, it is agreed by and among the parties hereto as follows:

1. VISTA shall, and does hereby, assign to Assignee all of the right, title, and interest of VISTA in the Agreement, and VISTA shall, and does hereby, delegate to Assignee all of the obligations of VISTA under the Agreement.

2. Assignee hereby assumes all of the obligations of VISTA under the Agreement and agrees to assume, pay, and perform the Agreement according to its terms, and to protect, defend, hold harmless, and indemnify VISTA from any further liability, including reasonable attorneys' fees and litigation expenses, in connection therewith.

3. For all claims arising out of events relating to the Agreement occurring after the date of this Complete Assignment, Assignee hereby agrees to protect, defend, hold harmless, and indemnify VISTA from any further liability, including reasonable attorneys' fees and litigation expenses, in connection therewith. For all claims arising out of events on Tract 3 and Tract 4 of Vista Vieja Subdivision relating to the Agreement and occurring prior to the date of this Complete Assignment, VISTA agrees to protect, defend, hold harmless, and indemnify Assignee from any further liability, including reasonable attorneys' fees and litigation expenses, in connection therewith. Neither party shall be entitled to indemnity for its own acts or omissions.

4. VISTA has assigned, and does hereby assign, all of the credits to which it has been, is, or will be entitled under the Agreement completely assigned hereby, and which credits, if received by VISTA, VISTA agrees to promptly remit, convey, or assign in full to Assignee.

5. Upon the completion of the Second Closing, VISTA shall remit, convey, or assign in full to Assignee any and all credits theretofore received by VISTA from AMAFCA or Assignee prior to the Second Closing; and from and after the Second Closing Assignee shall be entitled to receive and retain all credits to which it will be entitled under the Agreement.

6. The Agreement shall extend to and be binding upon the successors and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties have executed this Complete Assignment on this 1st day of December, 2006.

VISTA VIEJA INVESTMENTS, LLC

KB HOME NEW MEXICO INC.

By



Robert G. Sahd
Manager

By



Viera
President

ACKNOWLEDGEMENTS

STATE OF NEW MEXICO)

(ss.

COUNTY OF BERNALILLO)

This instrument was acknowledged before me on Dec 1, 2006, by
 ROBERT G. SAHD, Manager of VISTA VIEJA INVESTMENTS, LLC, a New Mexico limited
 liability company.

(SEAL)

My commission expires:

7/24/10

Margaret L. Palmer
 Notary Public

STATE OF NEW MEXICO)

(ss.

COUNTY OF BERNALILLO)

This instrument was acknowledged before me on December 1, 2006, by
Robert Young, as VP of KB HOME NEW MEXICO INC., a
 New Mexico corporation.

(SEAL)

My commission expires:

12/17/08

Emily L. Palmer
 Notary Public

CONSENT AND APPROVAL

The undersigned, SALLS BROTHERS CONSTRUCTION, INC., hereby consents to and approves of the foregoing Complete Assignment.

SALLS BROTHERS CONSTRUCTION, INC.
a New Mexico corporation

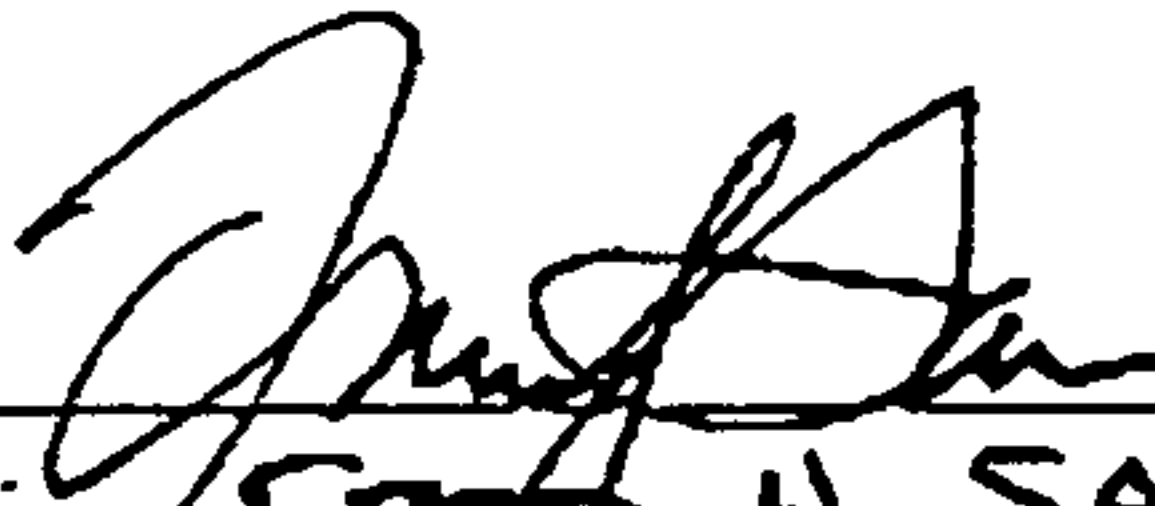
By: 
Name: FRED H. SALLS
Its: PRESIDENT

Exhibit A
To

**COMPLETE ASSIGNMENT OF AGREEMENT
TO PROVIDE DESIGN, CONSTRUCTION AND MAINTENANCE FOR
BOCA NEGRA DETENTION DAM AND OUTFALL PIPE AND ADJACENT UNSER
BLVD. IMPROVEMENTS**

Legal Description of the Property

158.8919 acres more or less, as shown on the Bulk Land Plat of Vista Vieja Subdivision
Recorded in Book 2005C, Page 122, Reception No. 2005055012 of the real estate records of the
Clerk of Bernalillo County, New Mexico, on April 21, 2005.

we called on FG w/ Longford in March

- discuss / figure out "Fair" cost as present
to CAD/DMD so discuss changes requirement

→ 60k to 70k budget owes to Wilson

- impact fee credits
- double cost of construction
- fines of Dam

impact mfg with of security

- sure letter to collect on EPA