# CITY OF ALBUQUERQUE

August 19, 2016

Ron Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

**Re: Freddy's**
**131 Coors Blvd NW**
**Requested for ~~60-Day~~ Permanent C. O. - Accepted**
**Engineers Stamp Date 7/7/15 (K10D001B)**

Dear Mr. Bohannan,

Based on the Certification received 8/16/2016, the site is acceptable for release of Certificate of Occupancy by Hydrology.

- The Emergency Spillway appears to flow back into the pond. Per the drawings the flow was towards the NE corner of the spillway. Should the ponds every completely fill up the water may back flow into the site.

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

Sincerely,

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

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

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

# City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's HART. City Drainage #: K10D001B

DRB#: 1004095 EPC#: Work Order#:

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: Michael Bushell

Address: 5975 S Quebec Street, Suite 141 Greenwood Village, CO 80111

Phone#: 303-318-0100 Fax#: E-mail:

**Architect:** Contact:

Address:

Phone#: Fax#: E-mail:

**Surveyor:** Contact:

Address:

Phone#: Fax#: E-mail:

**Contractor:** Contact:

Address:

Phone#: Fax#: E-mail:

**TYPE OF SUBMITTAL:**

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

**CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

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

RECEIVED
AUG 16 2016
LAND DEVELOPMENT SECTION
Paid $50.00

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

DATE SUBMITTED: 8/15/16 By: BF for RRB

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
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4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

# CITY OF ALBUQUERQUE

*Planning Department*
Suzanne Lubar, Director

*Mayor Richard J. Berry*

August 4, 2016

Ron Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

RE: **Freddy's**
**131 Coors Blvd NW**
**Requested for 60 Day Temporary C. O. - Accepted**
**Engineers Stamp Date 7/7/15 (K10D001B)**

Dear Mr. Bohannan,

Based on the certification provided in your submittal received 8/3/2016, the above referenced is approved for a 60-day Temporary Release of Occupancy by Hydrology. However, before a permanent CO can be accepted the following comments must be addressed.

- The concrete spillway must be constructed

An inspection by our office will need to take place after these corrects are made.

If you have any questions, you can contact me at 924-3686 or Totten Elliott at 924-3982.

Sincerely,

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

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

PO Box 1293
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New Mexico 87103
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# City of Albuquerque

## Planning Department

## Development & Building Services Division

## RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's City Drainage #: K10 D001B

DRB#: 1004095 EPC#: Work Order#:

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: ~~111~~ 131 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: Michael Bushell

Address: 5975 S Quebec Street, Suite 141 Greenwood Village, CO 80111

Phone#: 303-318-0100 Fax#: E-mail:

**Architect:** Contact:

Address:

Phone#: Fax#: E-mail:

**Surveyor:** Contact:

Address:

Phone#: Fax#: E-mail:

**Contractor:** Contact:

Address:

Phone#: Fax#: E-mail:

**TYPE OF SUBMITTAL:**

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___ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
X ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
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___ ENGINEER'S CERT (ESC)
___ SO-19
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X CERTIFICATE OF OCCUPANCY (~~TCL~~ TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION

___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
AUG 03 2016
LAND DEVELOPMENT SECTION

DRC01 $50.00

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

DATE SUBMITTED: 8/03/16 By: BF for RRB

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

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# CITY OF ALBUQUERQUE

July 29, 2016 2016

Ronald Bohannan
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

**Re: Freddy's; 111 Coors Blvd NW**
**Request for Certificate of Occupancy- Transportation Development**
Engineer's dated 7-30-15 (K10D001B)
Certification dated 07-29-16

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 07-29-16, Transportation Development has no objection to the issuance of a Permanent Certificate of Occupancy. This letter serves as a "green tag" from Transportation Development for a Permanent Certificate of Occupancy to be issued by the Building and Safety Division.

If you have any questions, please contact Monica Ortiz at (505) 924-3981 or me at (505)924-3991.

Sincerely,

Racquel M. Michel, P.E.
Traffic Engineer, Planning Dept.
Development Review Services

mao via: email
C: CO Clerk, File

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

# City of Albuquerque

## Planning Department

## Development & Building Services Division

## RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's City Drainage #: K10D001B

DRB#: 1004095 EPC#: Work Order#:

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: Michael Bushell

Address: 5975 S Quebec Street, Suite 141 Greenwood Village, CO 80111

Phone#: 303-318-0100 Fax#: E-mail:

**Architect:** Contact:

Address:

Phone#: Fax#: E-mail:

**Surveyor:** Contact:

Address:

Phone#: Fax#: E-mail:

**Contractor:** Contact:

Address:

Phone#: Fax#: E-mail:

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___ CLOMR/LOMR
✔ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
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___ SO-19
___ OTHER (SPECIFY)

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___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
JUL 29 2016
LAND DEVELOPMENT SECTION

Paid $50.00

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

DATE SUBMITTED: 7/29/16 By: BF for RRB

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

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# TIERRA WEST, LLC

5571 Midway Park Place NE Albuquerque, NM 87109
(505) 858-3100 Fax (505) 858-1118 1-800-245-3102
tierrawestllc.com


July 29, 2016

Ms. Racquel Michel, P.E.
Development and Building Services
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

**RE: SITE PLAN FOR BUILDING PERMIT CERTIFICATION**
**CERTIFICATION FOR PERMENANT CERTIFICATE OF OCCUPANCY**
**FREDDY'S, 111 COORS BLVD NW 87121**

Dear Ms. Michel:

I, Ronald R. Bohannan, NMPE #7868, of the firm Tierra West LLC, hereby request approval of the Approved Site Plan for Building Permit for issuance of the Permanent Certificate of Occupancy for the project referenced above. This project is in substantial compliance as inspected on July 28, 2016 and is in accordance with the design intent of the Approved Site Plan for Building Permit dated 5/21/15. This certification is submitted in support of the request for Permanent Certificate of Occupancy for the completed building.

The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the traffic aspects of this project. Those relying on the record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

Enclosed, please find the information sheet and the as-built Site Plan for Building Permit. Therefore, we request approval of the as-built Site Plan for Building Permit for a Permenant Certificate of Occupancy for the completed buildings.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

Ronald R. Bohannan, P.E.

Enclosure/s

JN: 2015036
RRB/VP/bf

Z:\2015\2015036 - Freddy's\Site Plan Cert\2015036 Racquel Michel Perm CO Letter 7-29-16.doc

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JUL 29 2016
LAND DEVELOPMENT SECTION

# CITY OF ALBUQUERQUE

August 6, 2015

Ronald R. Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

**Re: Freddy's, Tract D-1 Plat Of Hubbell Plaza**
**Grading and Drainage Plan**
**Engineer's Stamp Date 7-7-2015 (K10-D001B)**

Dear Mr. Bohannan,

Based upon the information provided in your submittal July 27, 2015, the above referenced plan is approved for Building Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge for disturbing one acre or more and a Topsoil Disturbance Permit for disturbing ¾ of an acre or more. Since more than one acre will be disturbed an Erosion and Sediment Control plan will also have to be approved prior to building permit approval.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

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

Sincerely,

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

C: e-mail

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

# City of Albuquerque

## Planning Department

## Development & Building Services Division

## RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's City Drainage #: K10D001B

DRB#: 1004095 EPC#: Work Order#:

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: Michael Bushell

Address: 5975 S Quebec Street, Suite 141 Greenwood Village, CO 80111

Phone#: 303-318-0100 Fax#: E-mail:

**Architect:** Contact:

Address:

Phone#: Fax#: E-mail:

**Surveyor:** Contact:

Address:

Phone#: Fax#: E-mail:

**Contractor:** Contact:

Address:

Phone#: Fax#: E-mail:

**TYPE OF SUBMITTAL:**

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___ SO-19
___ OTHER (SPECIFY)

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___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
✓ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION

Aovarified email

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JUL 27 2015
LAND DEVELOPMENT SECTION

___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

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

DATE SUBMITTED: 7/24/15 By: Vinny Perea

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
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# CITY OF ALBUQUERQUE

July 9, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Freddy's (Formerly Whataburger)**
**Grading and Drainage Plan**
**Engineer's Stamp Date 7-07-2015 (File: K10-D001B)**

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 7-07-15, the above referenced plan is approved for action by DRB on the Site Plan for Building Permit.

Prior to Building Permit approval, DRB approval is required. If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

K10D001B_SD_BP_Appr2

# City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's (Previously Whataburger) City Drainage #: K10D001B

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

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

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**Contractor:** _____ Contact: _____

Address: _____

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___ PAVING PERMIT APPROVAL ___ ESC PERMIT APPROVAL
___ WORK ORDER APPROVAL ___ ESC CERT. ACCEPTANCE
___ GRADING CERTIFICATION ___ OTHER (SPECIFY)

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JUL 08 2015
LAND DEVELOPMENT SECTION

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

DATE SUBMITTED: 7/7/2015 By: Vinny Perea

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# CITY OF ALBUQUERQUE

June 16, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Freddy's (Formerly "Whataburger"), 111 Coors Blvd. NW**
**Grading and Drainage Plan**
**Engineer's Stamp Date 6-03-2015 (File: K10-D001B)**

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 6-03-15, the above referenced Grading Plan cannot be approved for Building Permit until the following comments are addressed:

1) A new grading and drainage plan must be submitted based on the updated site plan which addresses EPC Comments. Ensure that the new site layout incorporates the same detention pond sizing as the old site layout.

2) The electronic submittal (Engineer's stamp date - 6/03/15) does not match the hard copy submittal (Engineer's stamp date - 5/18/15). The 6/03/15 plan addresses the latest and greatest comments (e-mail dated 6/01/15) that ask for additional existing spot elevations at the accessways from the shopping center parking lot and the grease trap for the trash dumpster.

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

RECEIVED
JUL 08 2015
LAND DEVELOPMENT SECTION

Orig: Drainage file
c.pdf Addressee via Email

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

# TIERRA WEST, LLC

5571 Midway Park Place NE Albuquerque, NM 87109
(505) 858-3100 Fax (505) 858-1118 1-800-245-3102
tierrawestllc.com


July 7, 2015

Ms. Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

**RE: FREDDY'S, 111 COORS BLVD. NW**
**GRADING AND DRAINAGE PLAN**
**ENGINEER'S STAMP DATE 5-18-2015 (K10-D001B)**

Dear Ms. Wolfenbarger:

Per your correspondence dated June 16, 2015, please find the following responses addressing the comments listed below:

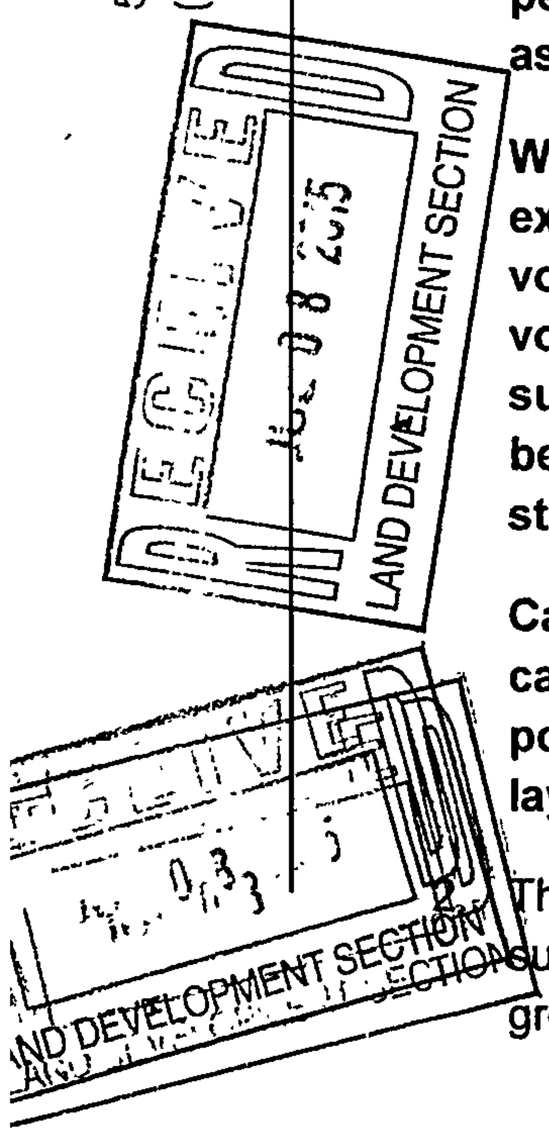
1. A new grading and drainage plan must be submitted based on the updated site plan which addresses EPC Comments. Ensure that the new site layout incorporates the same detention pond sizing as the old site layout.
   **Response: The north detention pond of the original layout was split into two detentions ponds, one in the NE corner of the site and the other on the landscaping area directly north of the drive-thru lanes. Both detention ponds are interconnected with an equalizing HDPE pipe to act as a singular detention pond. A 4-inch cut in the retaining wall on the NE corner of Detention Pond 1, spanning 32-feet, will act as an emergency overflow to Coors Boulevard. This spillway will assure that the MWSE will not reach the finished floor elevation of the building.**

   **The grading was updated to account for the new layout and ensure positive drainage towards all drainage structures. Speed tables were added for the two pedestrian access routes onsite and the grading was taken into account for this to assure that the tables don't act as a water block in the parking lot.**

   **With the updated grading plan, the hydrology concepts have not changed with the exception of a sixth basin delineated from the original five basins. The required volume to store runoff onsite has remained the same at 0.81 ac-ft. The storage volume of the two new detention ponds will hold 0.37 ac-ft, the volume of the surface ponding will be 0.22 ac-ft, and the volume of the underground storage will be 0.22 ac-ft. This gives a total storage volume of 0.81 ac-ft, which is the required storage capacity.**

   **Capacity calculations, drainage basin map, and first flush volume retention calculations were updated on sheet C2 to account for the new layout. Details for pond outlet and cross sections of each pond were updated to account for the new layout as well.**

   The electronic submittal (Engineer's stamp date – 6/03/15) does not match the hard copy submittal (Engineer's stamp date – 5/18/15). The 6/03/15 plan addresses the latest and greatest comments (e-mail dated 6/01/15) that ask for additional existing spot elevations



at the access ways from the shopping center parking lot and the grease trap for the trash dumpster.

**Response: The electronic submittal for this current stamped grading and drainage plan will be submitted simultaneously with the updated hard copy plans.**

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannan, PE

JN: 2015036
RRB/vp

Z:\2015\2015036 Freddy's at Coors and Central\Drainage\2015036 15-06-03 Response to JW Hydology Comments.docx

# CITY OF ALBUQUERQUE

June 16, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Freddy's (Formerly "Whataburger"), 111 Coors Blvd. NW**
**Grading and Drainage Plan**
**Engineer's Stamp Date 6-03-2015 (File: K10-D001B)**

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 6-03-15, the above referenced Grading Plan cannot be approved for Building Permit until the following comments are addressed:

1) A new grading and drainage plan must be submitted based on the updated site plan which addresses EPC Comments. Ensure that the new site layout incorporates the same detention pond sizing as the old site layout.

2) The electronic submittal (Engineer's stamp date - 6/03/15) does not match the hard copy submittal (Engineer's stamp date - 5/18/15). The 6/03/15 plan addresses the latest and greatest comments (e-mail dated 6/01/15) that ask for additional existing spot elevations at the accessways from the shopping center parking lot and the grease trap for the trash dumpster.

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

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

# City of Albuquerque

## Planning Department

## Development & Building Services Division

## RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's (Previously Whataburger) City Drainage #: K10D001B

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

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: Michael Bushell

Address: 5975 S Quebec Street, Suite 141 Greenwood Village, CO 80111

Phone#: 303-318-0100 Fax#: _____ E-mail: _____

**Architect:** _____ Contact: _____

Address: _____

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

**Surveyor:** _____ Contact: _____

Address: _____

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

**Contractor:** _____ Contact: _____

Address: _____

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

**TYPE OF SUBMITTAL:**

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

**CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

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

RECEIVED
JUN 03 2015
LAND DEVELOPMENT SECTION

As verified

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

DATE SUBMITTED: 6/3/15 By: Vinny Perea

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

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

gw

# TIERRA WEST, LLC

5571 Midway Park Place NE
Albuquerque, NM 87109
(505) 858-3100 Fax (505) 858-1118 1-800-245-3102
tierrawestllc.com

June 3, 2015

Ms. Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

**RE: FREDDY'S, 111 COORS BLVD. NW**
**GRADING AND DRAINAGE PLAN**
**ENGINEER'S STAMP DATE 5-18-2015 (K10-D001B)**

Dear Ms. Wolfenbarger:

Per your correspondence dated June 1, 2015, please find the following responses addressing the comments listed below:

1. An agreement from adjacent property owner to the west is required to acknowledge the increase in 100-year water surface elevation to what is shown on the plan at a distance of "x" above existing ground.
   **Response: Included with this submittal is a signed agreement letter from the property owner of Tract A1-A-2A to the west stating that they acknowledge the change of the maximum water surface elevation in the parking lot of said tract.**

2. Put back the spot elevations that were originally on the conceptual plan showing the relationship between top of water surface elevation and top of existing ground. Ensure that the added water surface depth does not adversely affect the property to the north or south and that drainage is still being directed toward the double "D" inlet.
   **Response: Spot elevations along the curb on the western property line have been added along with flow arrows to assure that positive drainage is still directed towards the Double D inlet.**

3. Add a grease trap connection for the dumpster with a couple of added spot elevations showing drainage to the grease trap.
   **Response: The grease trap drain for the dumpster has been added to the grading plan and labeled. Spot elevations for the drain and dumpster area have been added to assure drainage is directed towards the drain. The connection to the grease trap has been accounted for in the utility plan.**

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

RECEIVED
JUN 03 2015
LAND DEVELOPMENT SECTION

Sincerely,

Ronald R. Bohannan, P.E.
JN: 2015036
RRB/vp

Z:\2015\2015036 Freddy's at Coors and Central\Drainage\2015036 15-06-03 Response to JW Hydology Comments.docx

## Vinny Perea

**From:** Wolfenbarger, Jeanne <jwolfenbarger@cabq.gov>
**Sent:** Monday, June 01, 2015 4:37 PM
**To:** Vinny Perea
**Subject:** Freddy's (Formerly Whataburger)

**Follow Up Flag:** Follow up
**Flag Status:** Completed

Vinny,

As discussed, prior to approval, we will need:

A. An agreement from adjacent property owner to the west acknowledging the increase in 100-year water surface elevation to what is shown on the plan at a distance of "X" above existing ground.
B. Put back the spot elevations that you had on the conceptual plan showing the relationship between top of water surface elevation and top of existing ground. Ensure that the added water surface depth does not adversely affect the property to the north or south and that drainage is still being directed toward the double "D" inlet.
C. Add a grease trap connection for the dumpster with a couple of added spot elevation showing drainage to the grease trap.

Thanks!

Jeanne

Oak Realty Partners, Inc.

5975 S. Quebec Street, Suite 141
Greenwood Village, CO 80111

June 2, 2015

Ms. Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

**RE: FREDDY'S AT COORS AND CENTRAL**
**AGREEMENT OF CHANGE IN CROSS LOT DRAINAGE**

Dear Ms. Wolfenbarger:

As property owner of Tract A-1A-2A of the Hubbell Plaza, this letter acknowledges the increase in water surface profile on the tract and is accepting of that increase. Shown on the Hubbell Plaza plat recorded on September 29, 1987 is the drainage agreement showing and providing for the existing cross-lot drainage on the development of Tract D-1 of the Hubbell Plaza. I acknowledge that the maximum water surface elevation of the ponding in the parking lot of Tract A-1A-2A will rise to a depth of twelve (12) inches from the existing six (6) inches during the 100-year, 6-hour storm event and will continue to outfall through Tract D-1.

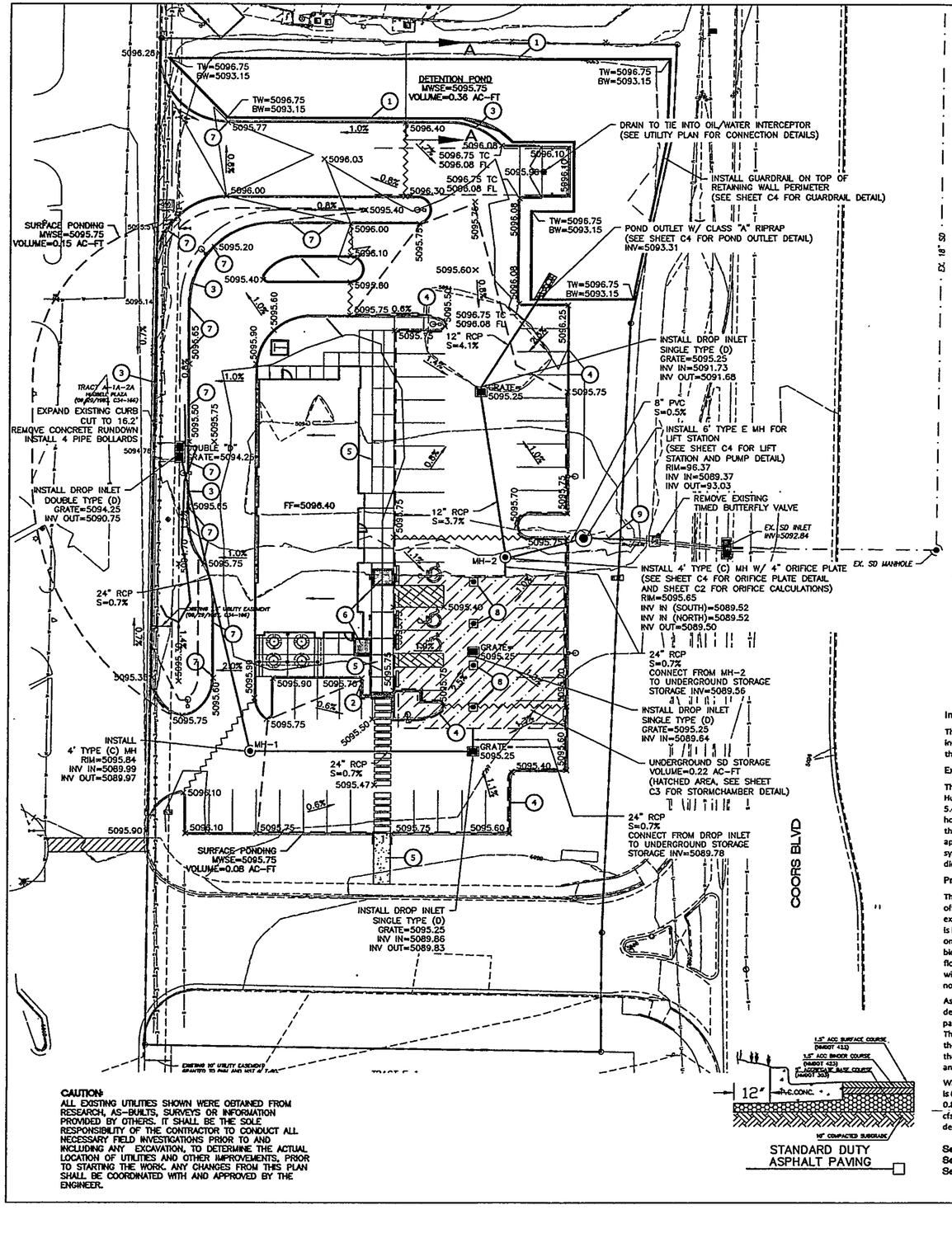
Michael Bushell
Print Name

Signature

Authorized Agent
Title

6-2-15
Date

Phone/Fax: 303-318-0100



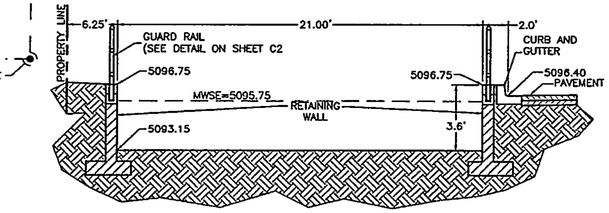


## LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- BUILDING
- SIDEWALK
- PEDESTRAIN CROSSWALK
- RETAINING WALL
- 5010 CONTOUR MAJOR
- 5011 CONTOUR MINOR
- x 5048.25 SPOT ELEVATION
- WATER BLOCK
- FLOW ARROW
- EXISTING SIDEWALK
- EXISTING CURB & GUTTER
- 5010 EXISTING CONTOUR MAJOR
- 5011 EXISTING CONTOUR MINOR
- x 5048.25 EXISTING SPOT ELEVATION
- EXISTING POND
- UNDERGROUND STORAGE

## SITE LEGEND

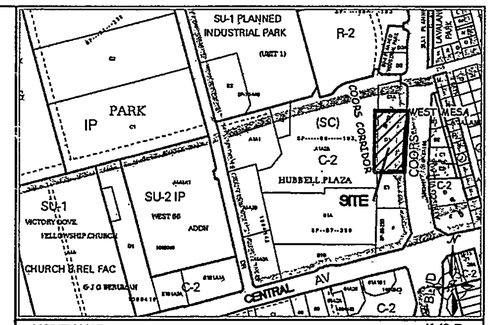
1. RETAINING WALL
2. TURN DOWN CURB
3. CURB AND GUTTER
4. HEADER CURB
5. CONCRETE SIDEWALK
6. HC RAMP
7. 1 FT. CURB CUT
8. 10" PVC RISER
9. 4"x6" REDUCER



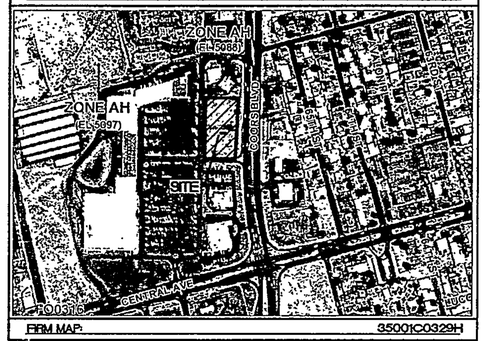

## SECTION A-A




STANDARD DUTY
ASPHALT PAVING




VICINITY MAP: K-10-Z




FIRM MAP: 35001C0329H

### EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
3. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.

### NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED. 7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

| APPROVAL | NAME | DATE |
|---|---|---|
| INSPECTOR | | |

### Introduction

The purpose of this submittal is to provide a drainage management plan for the proposed Freddy's restaurant located near the intersection of Coors Blvd. and Central Ave. in Albuquerque, New Mexico. The site contains approximately 1.45 acres and located within the Hubbell Plaza Shopping Center. The site lies outside of any flood plains (FIRM Map 35001C0329H).

### Existing Conditions

The site is part of an approved drainage plan titled "Coors & Central Shopping Center" (K10-D018). The location is tract D-1 within the Hubbell Plaza Shopping Center and is currently a detention pond for 5.4 acres of the shopping center. The site collects all flows from the 5.4 acres via surface flow through a concrete channel located on the west side of the site. The pond holds all flows for a minimum of 2 hours before being discharged through an 8-inch connecting pipe on the east side of the site. A delay timer is used to discharge the pond through the 8-inch pipe towards the back of a catch basin located on Coors Blvd. and into the street storm drain system. Per the approved drainage plan calculations, the pond is designed to hold 30,068 cubic feet of runoff and discharge to the Coors storm drain system at a rate of 1.08 cfs. Flows from the tract directly north are not directed towards the existing pond onsite, these flows are directed north and away from the subject site and have no impact on the drainage.

### Proposed Conditions

The subject site will continue to collect all flows from the offsite area of the shopping center and detain in a subsurface system. The offsite flows will drain via surface flow through both driveway aisles and through a curb cut on the west side of the site where the existing concrete channel lies. The offsite flows through the south driveway and curb cut will be collected into a Double D Drop Inlet that is located in a bio swale on the western side of site. The offsite flows through the north driveway will be collected in the detention pond on the north side of the site. All flows from the west side of the building and directly north of the building will be directed towards the bio swale and into the Double D Drop Inlet. Flows from the north driveway aisle will be directed towards the detention pond. All other flows from the site will be directed to three Single D drop inlets in the parking lot. The Double D inlet will interconnect via storm drain with the southern Single D inlet and an underground storage system. The detention pond will interconnect via storm drain with the northernmost Single D inlet and the underground storage system.

As runoff volume increases and fills up the underground storage system completely, the interconnecting storm drains, drop inlets and detention pond will act as an equalizing system and allow runoff to be stored in both the detention pond and on the surface of the parking lot and bio swale. During the 100 year-6 hour storm, the maximum water surface elevation for the detention system is 5095.75. This water surface elevation allows 6 inches of ponding depth in the parking lot and 18 inches of ponding in the bio swale and is below the elevation of the finished floor of the building (5096.40). Emergency overflow of the water surface elevation would send flows over the southeast part of the parking lot and onto Coors Blvd. The detention system will outflow through a 4" orifice plate located at MH-2 and will be sent to a Grindex pump system to outfall towards the existing catch basin on Coors.

When the maximum water surface elevation is reached; the volume of the detention pond is 0.36 ac-ft, volume of underground storage is 0.22 ac-ft, and the volume of surface ponding is 0.23 ac-ft. This gives a total storage volume of 0.81 ac-ft equivalent to the required 0.81 ac-ft of storage required for developed runoff. The orifice plate at MH-2 will control the outflow to the required discharge of 1.08 cfs. The detention pond and underground storage system will capture sediment within the bottom of each respective area, the detention pond outlet will be raised 0.16ft above the pond bottom to retain the first flush volume of the site.

**See sheet C2 for DPM calulations, Grate capacity, Pipe capacity, Orifice Calcs, and Basin Map**
**See sheet C3 for Underground StormChamber configuration and details**
**See sheet C4 for Pump Details and Site Details**

ENGINEER'S SEAL
RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

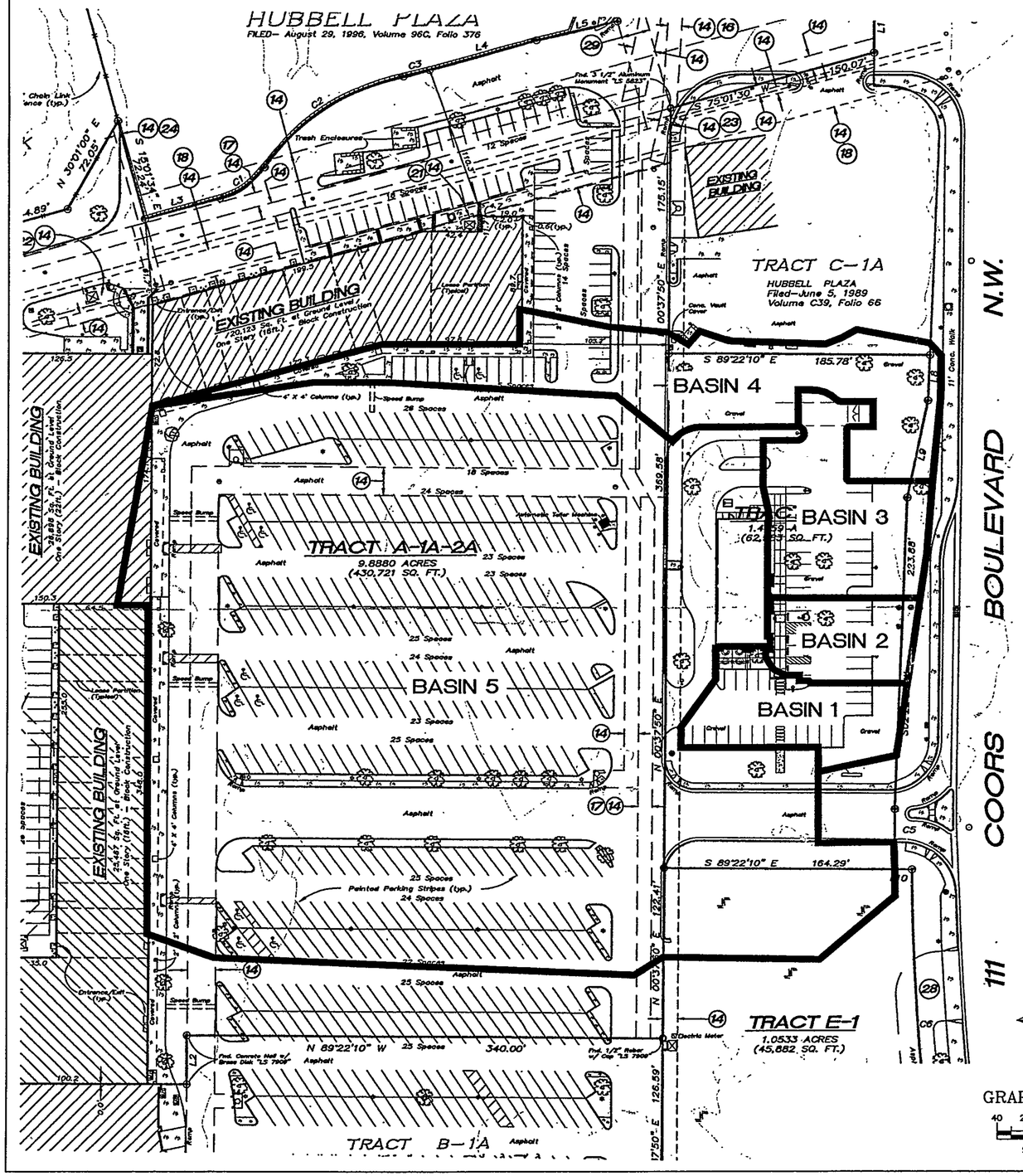
RONALD R. BOHANNAN
P.E. #7868

# FREDDY'S AT
## COORS AND CENTRAL

## GRADING AND DRAINAGE PLAN

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

DRAWN BY: DY
DATE: 05/11/15
2015036-GRE
SHEET # C1
JOB # 2015036




GRAPHIC SCALE

40 20 0 20 40

SCALE: 1" = 40'

## DPM Weighted E Method

**Existing Conditions**

| Basin ID | Area (sf) | Area (acres) | Area (sq miles) | Treatment A % | Treatment A (acres) | Treatment B % | Treatment B (acres) | Treatment C % | Treatment C (acres) | Treatment D % | Treatment D (acres) | 100-Year, 6-Hr Weighted E (ac-ft) | 100-Year, 6-Hr Volume (ac-ft) | 100-Year, 6-Hr Flow cfs | 10-Year, 6-Hr Weighted E (ac-ft) | 10-Year, 6-Hr Volume (ac-ft) | 10-Year, 6-Hr Flow cfs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 235,224.00 | 5.400 | 0.00844 | 0% | 0.000 | 30% | 1.620 | 0% | 0.000 | 70% | 3.780 | 1.580 | 0.711 | 19.81 | 0.934 | 0.420 | 12.16 |
| Total | 235,224.00 | 5.400 | 0.00844 | | | | | | | | | | 0.711 | 19.81 | | 0.420 | 12.16 |

**Proposed Conditions**

| Basin ID | Area (sf) | Area (acres) | Area (sq miles) | Treatment A % | Treatment A (acres) | Treatment B % | Treatment B (acres) | Treatment C % | Treatment C (acres) | Treatment D % | Treatment D (acres) | 100-Year, 6-Hr Weighted E (ac-ft) | 100-Year, 6-Hr Volume (ac-ft) | 100-Year, 6-Hr Flow cfs | 10-Year, 6-Hr Weighted E (ac-ft) | 10-Year, 6-Hr Volume (ac-ft) | 10-Year, 6-Hr Flow cfs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 8,908.63 | 0.205 | 0.00032 | 0% | 0.000 | 20% | 0.041 | 0% | 0.000 | 80% | 0.164 | 1.710 | 0.029 | 0.80 | 1.036 | 0.018 | 0.50 |
| 2 | 6,297.83 | 0.145 | 0.00023 | 0% | 0.000 | 15% | 0.022 | 0% | 0.000 | 85% | 0.123 | 1.775 | 0.021 | 0.58 | 1.067 | 0.013 | 0.37 |
| 3 | 13,033.50 | 0.299 | 0.00047 | 0% | 0.000 | 15% | 0.045 | 0% | 0.000 | 85% | 0.254 | 1.775 | 0.044 | 1.20 | 1.067 | 0.027 | 0.77 |
| 4 | 24,898.85 | 0.572 | 0.00089 | 0% | 0.000 | 40% | 0.229 | 0% | 0.000 | 60% | 0.343 | 1.450 | 0.069 | 1.96 | 0.832 | 0.040 | 1.16 |
| 5 | 182,085.40 | 4.180 | 0.00653 | 0% | 0.000 | 10% | 0.418 | 0% | 0.000 | 90% | 3.762 | 1.840 | 0.641 | 17.29 | 1.138 | 0.396 | 11.19 |
| Total | 235,224.21 | 5.400 | 0.00844 | | | | | | | | | | 0.805 | 21.83 | | 0.494 | 0.00 |

**Grate Capacity (Based On Orifice Equation)**

| Basin ID | Q Required (CFS) | Grate Type | Q Allow (CFS) | Result |
|---|---|---|---|---|
| 1 | 0.8 | Single D | 7.12 | Capacity OK |
| 2 | 0.58 | Single D | 7.12 | Capacity OK |
| 3 | 1.2 | Single D | 7.12 | Capacity OK |
| 5 | 17.29 | Double D | 19.45 | Capacity OK |

**Pipe Capacity (Based on Manning's Equation)**

| Invert ID | Q Required (CFS) | Pipe Size | Q Allow (CFS) | Result |
|---|---|---|---|---|
| Basin 5 Double D Grate | 17.29 | 24" RCP @ 0.7% | 20.94 | Capacity OK |
| MH-1 | 17.29 | 24" RCP @ 0.7% | 20.94 | Capacity OK |
| Basin 1 Single D Grate | 18.09 | 24" RCP @ 0.7% | 20.94 | Capacity OK |
| Basin 2 Underground Storage Outlet | 18.67 | 24" RCP @ 0.7% | 20.94 | Capacity OK |
| Basin 4 Pond Inlet | 1.96 | 12" RCP @ 4.1% | 7.98 | Capacity OK |
| Basin 3 Single D Grate | 3.16 | 12" RCP @ 3.7% | 7.58 | Capacity OK |

**CAPACITY OF SINGLE D GRATES**

L = 40" - 2(2"ends) - 7(5" middle bars)
= 32 1/2"
= 2.7083'

W = 25" - 13(5" middle bars)
= 18.5"
= 1.54'

Area = 2.7083' x 1.54'
= 18 ft^2

Effective Area = 4.18- 4.18 (0.5 clogging factor)
=2.09 ft^2 at the grate

Orifice Equation:
Q = CA sqrt(2gH)
Q = 0.6*2.09*sqrt(2*32.2*0.5)
Q = 7.12 cfs

**CAPACITY OF DOUBLE D GRATE**

L = 80" - 2(2"ends) - 14(5" middle bars) - 6" (center piece)
= 63"
= 5.25'

W = 25" - 13(5" middle bars)
= 18.5"
= 1.54'

Area = 5.25' x 1.54'
=8.09 ft^2

Effective Area = 8.09- 8.09 (0.5 clogging factor)
=4.04 ft^2 at the grate

Orifice Equation:
Q = CA sqrt(2gH)
Q = 0.6*4.04*sqrt(2*32.2*1.0)
Q = 15.45 cfs

**MAXIMUM CAPACITY OF 24" RCP @ 0.7%**

Manning Equation:
Q = (1.49/n)AR^(⅔)*sqrt(S)
Q = Discharge
n = Manning's roughness coefficient (0.013)
A = Pipe area (3.14 ft2)
R = Hydraulic Radius (0.58 ft)
S = Pipe slope (0.007 ft/ft)

Q = (1.49/0.013) * 3.14 * (0.58)^2/3*sqrt(0.007)
Maximum Q = 20.94 cfs

**MAXIMUM CAPACITY OF 12" RCP @ 4.1%**

Manning Equation:
Q = (1.49/n)AR^(⅔)*sqrt(S)
Q = Discharge
n = Manning's roughness coefficient (0.013)
A = Pipe area (0.785 ft2)
R = Hydraulic Radius (0.29 ft)
S = Pipe slope (0.041 ft/ft)

Q = (1.49/0.013) * 0.785 * (0.29)^2/3*sqrt(0.041)
Maximum Q = 7.98 cfs

**MAXIMUM CAPACITY OF 12" RCP @ 3.7%**

Manning Equation:
Q = (1.49/n)AR^(⅔)*sqrt(S)
Q = Discharge
n = Manning's roughness coefficient (0.013)
A = Pipe area (0.785 ft2)
R = Hydraulic Radius (0.29 ft)
S = Pipe slope (0.037 ft/ft)

Q = (1.49/0.013) * 0.785 * (0.29)^2/3*sqrt(0.037)
Maximum Q = 7.58 cfs

**CURB CUT CAPACITY CALCULATIONS**
**OFFSITE FLOWS FROM SHOPPING CENTER TO DOUBLE D INLET**

Use weir equation:
Q = CL(H)^3/2
Q = discharge (16.77 cfs for offsite flows of Basin 5)
C = coefficient of discharge (2.95)
L = Length of curb cut
H = Height of curb cut (0.5 ft)

16.77 = 2.95 * L * (0.5)^3/2
16.77 = 1.04 * L
L = 16.13 ft, minimum curb cut length

**CURB CUT CAPACITY CALCULATIONS**
**ONSITE FLOWS FROM WEST SIDE OF SITE TO DOUBLE D INLET**

Use weir equation:
Q = CL(H)^3/2
Q = discharge (0.85 cfs for onsite flows of Basin 5)
C = coefficient of discharge (2.95)
L = Length of curb cut
H = Height of curb cut (0.5 ft)

0.85 = 2.95 * L * (0.5)^3/2
0.85 = 1.04 * L
L = 0.82 ft, minimum curb cut length

**CURB CUT CAPACITY CALCULATIONS**
**ONSITE/OFFSITE FLOWS TO CURB CUT ENTERING NORTH DETENTION POND**

Use weir equation:
Q = CL(H)^3/2
Q = discharge (1.40 cfs for flows from Basin 4, not including pond area)
C = coefficient of discharge (2.95)
L = Length of curb cut
H = Height of curb cut (0.58 ft)

1.40 = 2.95 * L * (0.58)^3/2
1.40 = 2.86 * L
L = 0.49 ft, minimum curb cut length

**FIRST FLUSH VOLUME RETENTION**

Depth to be retained = 0.44" per city ordinance
Initial abstractions = 0.1"
Total depth = 0.44" - 0.1" = 0.34" = 0.02833 ft
Total impervious area = 33156.97 ft^2

Total volume = 33156.97 * 0.02833 = 939.34 ft^3

Retain first flush in north detention pond:
Pond Area = 6152 ft^2
Depth to retain = 939.34/6152 = 0.16 ft

**STORMCHAMBER VOLUME CALCULATION**

Total storage volume required = 0.22 ac-ft
Total # of chambers = 69
Volume per chamber = 0.00172 ac-ft
Volume inside chambers = 0.00172 * 69 = 0.11 ac-ft

Area of chambers and surrounding stone = 0.076 ac
Volume of chambers and surrounding stone = 0.076*6.33 =0.48 ac-ft
Volume of only surrounding stone = 0.48 - 0.11 = 0.37 ac-ft
Volume of 30% voids in stone = 0.37*0.3 = 0.11 ac-ft

Total storage of volume of Stormchamber system = 0.11 + 0.11 = 0.22 ac-ft

**ORIFICE PLATE IN MANHOLE 2 CALCULATIONS**

Orifice Equation: Q = CA sqrt(2gH)
C = 0.6
A = Orifice Area (ft2)
g = 32.2
H = Depth of water above center of orifice (ft)
Q = Flow (cfs)

Q = CA sqrt(2gH)
1.08 = 0.6 * A * sqrt(2 * 32.2 * 6.25)
1.08 = 12.037 A
A = 0.0897 ft^2

A = pi * r^2
0.0897 = pi * r^2
0.02855 = r^2
r = 0.169 ft
r = 2"
Use 4" dia. orifice plate

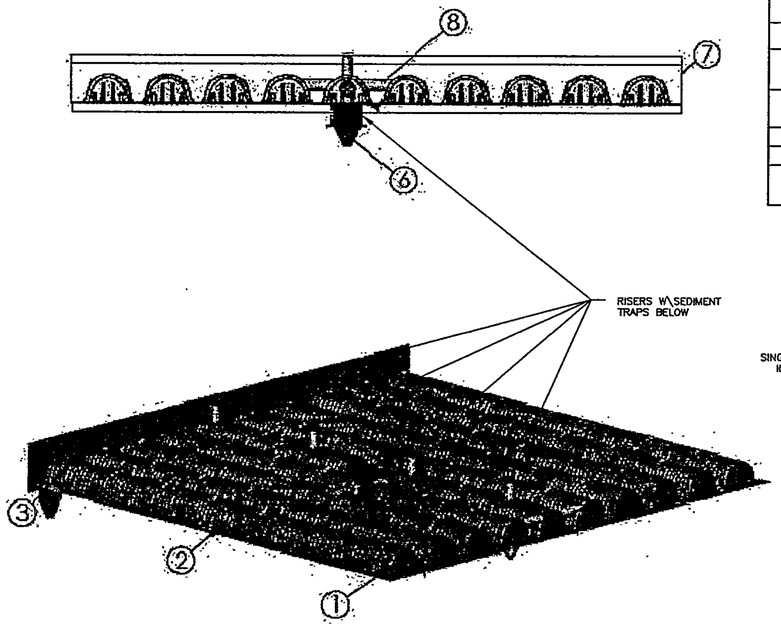
ENGINEER'S SEAL
RONALD R. BOHANNAN — NEW MEXICO — 7868 — PROFESSIONAL ENGINEER
RONALD R. BOHANNAN P.E. #7868

# FREDDY'S AT COORS AND CENTRAL

## BASIN MAP AND CALCULATIONS

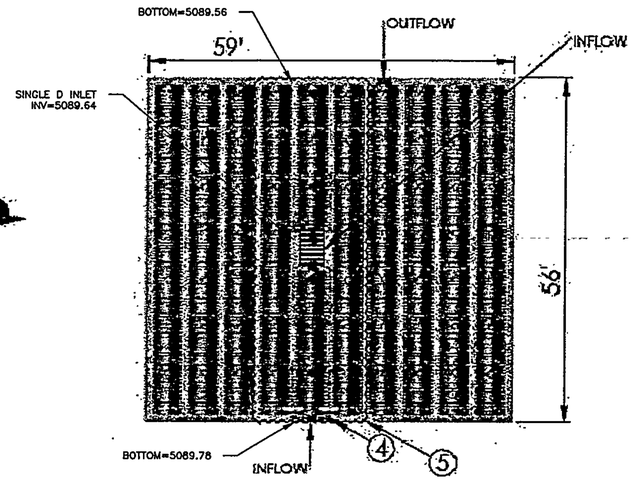
TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

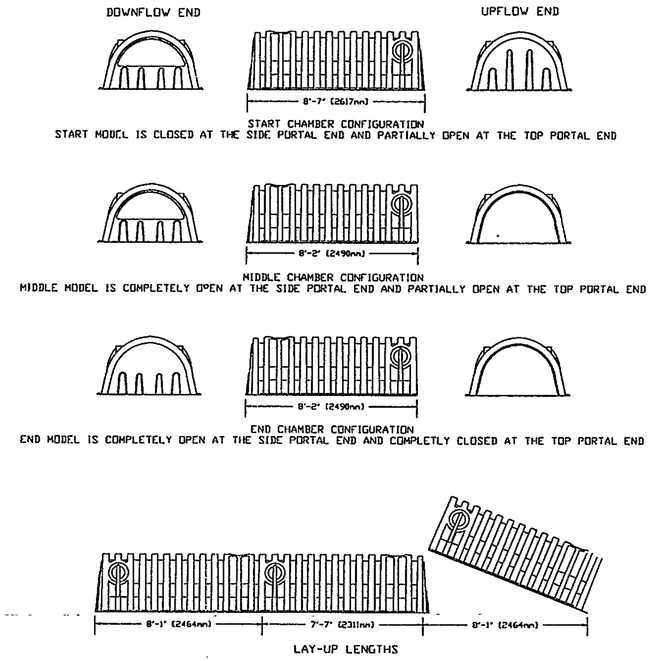
DRAWN BY: BJF
DATE: 05/11/15
2015036-GRB-DETAILS
SHEET # C2
JOB # 2015036




| ITEM NO. | STORMCHAMBER PROPOSED LAYOUT DESCRIPTION | QTY |
|---|---|---|
| 1 | START UNITS | 11 |
| 2 | MIDDLE UNITS | 47 |
| 3 | END UNITS | 11 |
| 4 | 7'X10' HEAVY DUTY NETTING (SUPPLIED) | 3 |
| 5 | LIGHTWEIGHTS STABILIZATION NETTING (INFLOW AND ADJACENT ROWS) (SUPPLIED) | 1 |
| 6 | 10" PVC INSPECTION / CLEAN OUT RISER - (SUPPLIED BY OTHERS) W / FRAME AND LID AND SEDIMENTRAP (SUPPLIED) | 4 |
| 7 | 4oz NON WOVEN STORMCHAMBER GEOTEXTILE FILTER FABRIC (SUPPLIED) | 2 |
| 8 | ROW CONNECTING 10" PVC (SUPPLIED BY OTHERS) | 2 |
| *INSTALLED WITH 12" COVER STONE, 30" BASE STONE, 30% STONE VOID. INSTALLED SYSTEM VOLUME (PERIMETER STONE INCLUDED) = 9583 CF.* | | |

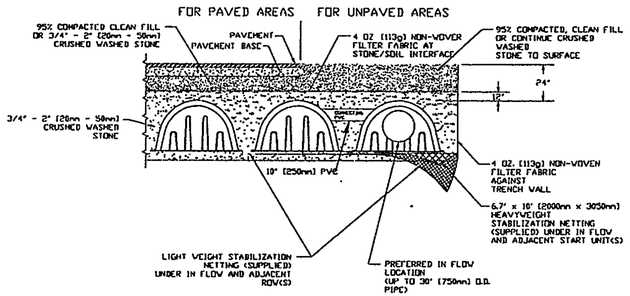
TOTAL # OF CHAMBERS (START, MIDDLE, AND END UNITS) = 69



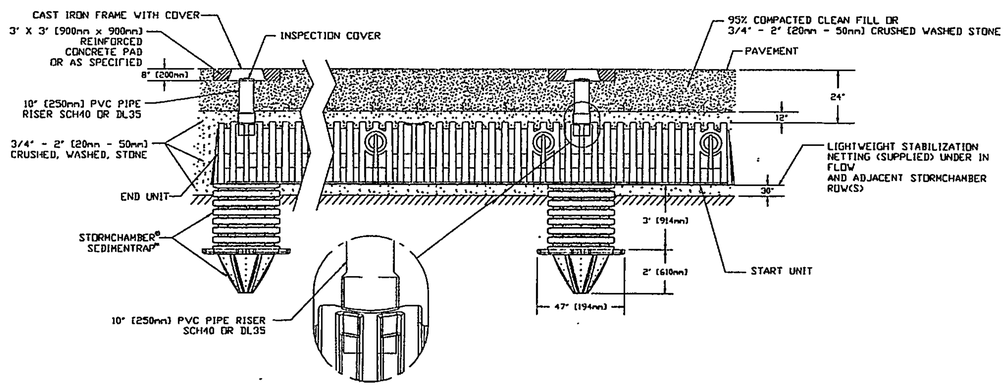



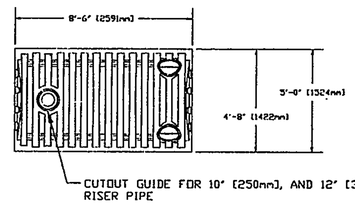

NOTE: 1. Start chambers (closed at the side portal end) are placed at the inflow end of the rows.
2. Begin placements with Start chambers and end rows with End chambers.
3. Place first rib of next chamber in the row over last rib of previous chamber.

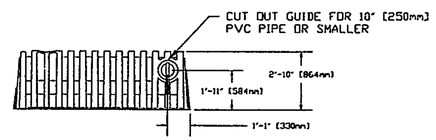
STORMCHAMBER® TYPICAL CROSS-SECTION INSTALLATION




STORMCHAMBER® WITH SEDIMENTRAP™



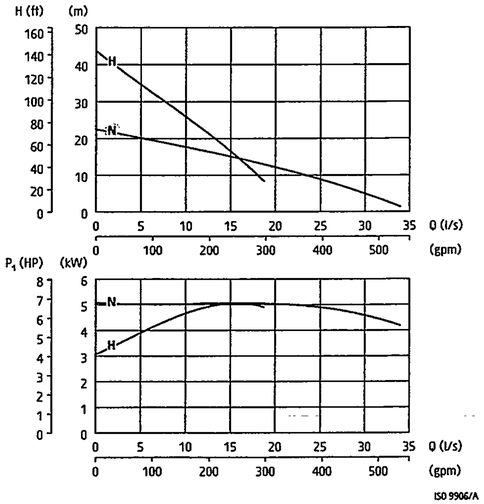

| | | |
|---|---|---|
| ENGINEER'S SEAL — RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER — RONALD R. BOHANNAN P.E. #7868 | FREDDY'S AT COORS AND CENTRAL<br>STORMCHAMBER STORAGE SYSTEM | DRAWN BY: BJF<br>DATE: 05/11/15<br>2015036-GRB-DETAILS<br>SHEET #: C3<br>JOB #: 2015036 |
| | TIERRA WEST, LLC<br>5571 MIDWAY PARK PLACE NE<br>ALBUQUERQUE, NM 87109<br>(505) 858-3100<br>www.tierrawestllc.com | |

No: PD603181-INT | Revision 0 2014.02 | 60 Hz 8103.181

## Minor

*Electrical submersible drainage pump*

grindex


ISO 9906/A

| 60 Hz | N | H |
|---|---|---|
| Discharge connection | 4" | 4" |
| Rated power $P_2$ [kW/HP] | 4.4 / 6.0 | 4.4 / 6.0 |
| Max. power consumption $P_1$ [kW] | 5.0 | 5.0 |
| Shaft speed [r.p.m.] | 3480 | 3480 |
| Rated current at 230V | 15.5 A | 15.5 A |
| Rated current at 460V | 7.1 A | 7.1 A |
| Rated current at 575V | 5.5 A | 5.5 A |
| Solids passage [mm/inch] | 10 / 0.39 | 10 / 0.39 |
| Inlet [mm/inch] | 64 / 2½" | 64 / 2½" |
| Diameter [mm/inch] | 286 / 11¼" | 286 / 11¼" |
| Weight [kg/lbs] | 50 / 110 | 50 / 110 |

*Other voltages on request*

**Pump types**
N: normal pressure
H: high pressure

**Classification**
Electrical submersible drainage pump
Protection class: IP 68

**Electrical motor**
Squirrel cage induction motor, insulation class: H (IEC 85)

**Motor protection**
Phase sequence control, phase failure guard, temperature guard with thermal contacts in the stator opening temperature 140°C (284°F) (= SMART system), air valve

**Cable - SubCab**
4G2,5mm², length 20 m or 14AWG/4, length 53 ft

**Limitations**
Max. submersion depth: 20 m (66 ft)
Max. liquid temperature: 40 °C (104 °F)
Allowed pH range: 5 - 8
Maximum liquid density: 1100 kg/m³ (68 lbs/ft³)

**Shaft seals**
Cartridge seal: pre-assembled double mechnical seal running in an oil compartment
Material lower seal: *silicon carbide - silicon carbide*
Material upper seal: *tungsten carbide - aluminium oxide*

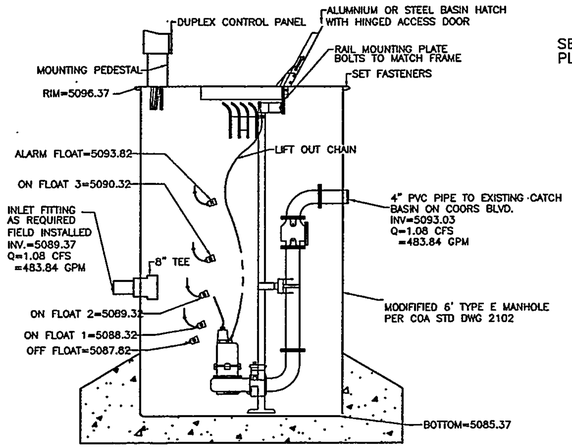
**Bearings**
Ball bearings with C3 clearance

**Discharge connection**
3-4" hose, ISO-G or NPT

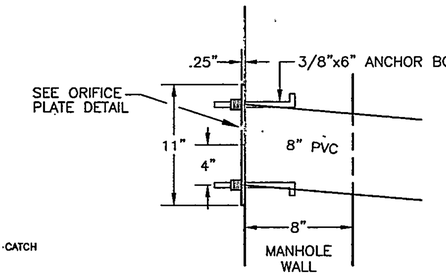
**Materials**
Casted parts: *Aluminium*
Outer casing: *Stainless steel*
Motor shaft: *Stainless steel*
Impeller and suction cover: *Hard-Iron™*
Diffusers: *Nitrile rubber*
Screws and nuts: *Stainless steel*
O-rings: *Nitrile rubber*

**Accessories**
Level regulator
Zinc anodes
Tandem connection
Low suction collar
Pump raft

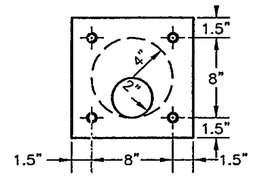
## GRINDEX PUMP DETAIL
NTS



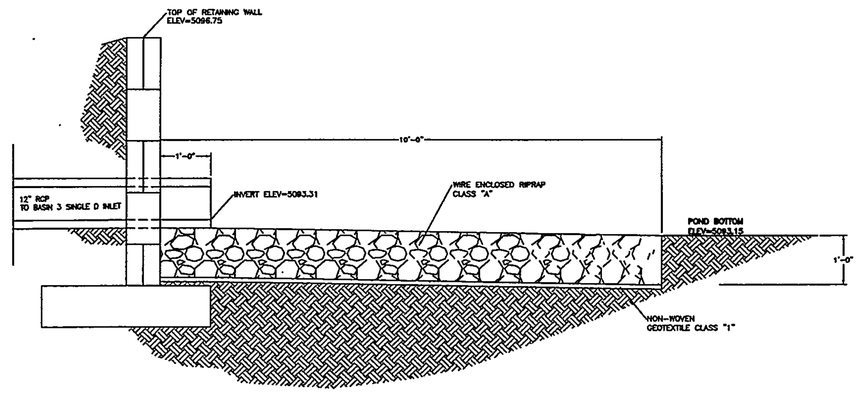

## LIFT STATION DETAIL
NTS



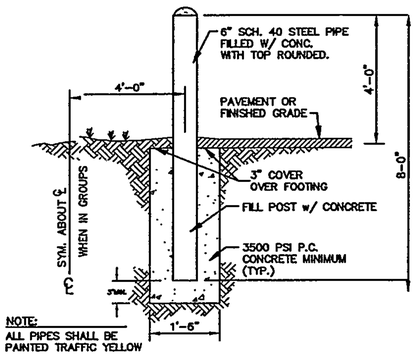

TO BE INSTALLED @ THE OUTFLOW OF MANHOLE 2



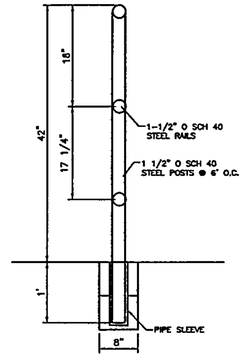

## TYP. ORIFICE PLATE DETAIL
NTS




## POND OUTLET DETAIL
NTS




## PIPE BOLLARD DETAIL
NTS




## GUARD RAIL DETAIL
NTS

ENGINEER'S SEAL
RONALD R. BOHANNAN NEW MEXICO PROFESSIONAL ENGINEER
RONALD R. BOHANNAN P.E. #7868

FREDDY'S AT COORS AND CENTRAL

PUMP AND DETAIL SHEET

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

DRAWN BY: BJF
DATE: 05/11/15
2015036-GRB-DETAILS
SHEET #: C4
JOB #: 2015036

## Wolfenbarger, Jeanne

**From:** Wolfenbarger, Jeanne
**Sent:** Monday, June 01, 2015 4:37 PM
**To:** 'Vinny Perea'
**Subject:** Freddy's (Formerly Whataburger)

Vinny,

As discussed, prior to approval, we will need:

A. An agreement from adjacent property owner to the west acknowledging the increase in 100-year water surface elevation to what is shown on the plan at a distance of "X" above existing ground.
B. Put back the spot elevations that you had on the conceptual plan showing the relationship between top of water surface elevation and top of existing ground. Ensure that the added water surface depth does not adversely affect the property to the north or south and that drainage is still being directed toward the double "D" inlet.
C. Add a grease trap connection for the dumpster with a couple of added spot elevation showing drainage to the grease trap.

Thanks!

Jeanne

# City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Freddy's (Previously Whataburger) City Drainage #: K10D001B

DRB#: EPC#: Work Order#:

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: Michael Bushell

Address: 5975 S Quebec Street, Suite 141 Greenwood Village, CO 80111

Phone#: 303-318-0100 Fax#: E-mail:

**Architect:** Contact:

Address:

Phone#: Fax#: E-mail:

**Surveyor:** Contact:

Address:

Phone#: Fax#: E-mail:

**Contractor:** Contact:

Address:

Phone#: Fax#: E-mail:

**TYPE OF SUBMITTAL:**

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

**CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

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

RECEIVED
MAY 19 2015
LAND DEVELOPMENT SECTION

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

DATE SUBMITTED: 5/18/2015 By: Vinny Perea

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

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

May 18, 2015

Ms. Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

**RE: FREDDY'S (PREVIOUSLY WHATABURGER), 111 COORS BLVD. NW**
**GRADING AND DRAINAGE PLAN**
**ENGINEER'S STAMP DATE 2-18-2015 (K10-D001B)**

Dear Ms. Wolfenbarger:

Per your correspondence dated March 6, 2015, please find the following responses addressing the comments listed below:

1. The volume of on-site storage detention is shown to be based on the 100-year 6-hour storm event. Provide a hydrograph which shows that 90% of the storage volume will be discharged from the site within 6 hours, as per Drainage Ordinance.
   **Response: An AHYMO hydrograph was provided to your office with the COA at an earlier date showing the amount of time to discharge the runoff from the site. A letter from you, dated 3/24/2015, shows approval for action by EPC, this letter is approval for addressing the hydrograph request.**

2. On the plan view for the "Grading and Drainage Plan", label all of the different detention volumes that correspond to the "Proposed Conditions" discussion which include the 0.43 ac-ft. detention pond, the 0.16 ac-ft surface pond, and underground storage of 0.22 ac-ft. Show the underground storage system area on the plan view for the "Grading and Drainage Plan", and label the connections from the new 24-inch storm drain two this underground storage system.
   **Response: The detention volumes for surface ponding and the detention pond have changed slightly and were accounted for in the narrative discussion and calculations, still equating to the total 0.81 ac-ft of total storage. Detention volumes were added to each label calling out the maximum water surface elevations for the surface and detention ponding areas. The two surface ponding areas show ponding areas show 0.08 ac-ft and 0.15 ac-ft volumes for each, equating to the total 0.23 ac-ft for surface ponding. The north detention pond shows the volume to be 0.36 ac-ft. The underground storage system was hatched and called out on the "Grading and Drainage Plan" Sheet, the detention volume was added to this label as well (0.22 ac-ft). The two 24-inch storm drains that connect to the underground storage were labeled and show the invert elevations of where each connects.**

3. There is a Section A-A on the "Grading and Drainage Plan" which shows pond elevations within the detention pond in the north area of the site. Provide more spot elevations within this area at the corners of the pond to ensure that there will be enough volume provided for the detention pond.
   **Response: Top of Wall and Bottom of Wall spot elevations are called out at the corners of the north area detention pond on the "Grading and Drainage Plan" sheet.**

4. Eliminate the existing timed butterfly valve as discussed. If there are issues with the valve not operating properly, it will pose a risk to the site. The pipe discharging from the site to Coors Boulevard is at the upstream end of the existing storm drainage system, and it is discharging to a fairly steep 18-inch pipe in Coors Boulevard to convey the required 1.08 cfs. Therefore, due to the amount of existing pipe capacity to handle such a small amount of flow, there is no concern regarding elimination of the timed valve.
   **Response: The relocation of the existing timed butterfly valve was removed from the plan set on the "Grading and Drainage Plan" sheet, showing the valve to be removed completely from the site.**

5. How is storm drainage getting to the Double-D inlet on the west side of the site? Provide capacity calculations for the 5.6-foot wide curb cut that is accepting the offsite flow from the west and adjust as necessary.
   **Response: Storm drainage on the west side of the building/site is directed towards the landscaped area, away from the building. This drainage is directed towards the Double D inlet through a series of 1 foot curb cuts along the east curb of this landscaped area, the locations of the cuts are marked on the Grading and Drainage Plan" sheet as keyed note 7. Capacity calculations for the curb cut accepting offsite flows from the west were added to the "Basin Map and Calculations" sheet. For the given offsite flows, the curb cut width needs to be 16.2 feet wide. The grading plan was modified for this change and concrete bollards were added within the curb cut to prevent vehicles from entering.**

6. Provide capacity calculations for all of the curb cuts shown on the plan.
   **Response: All curb cut calculations were added to the "Basin Map and Calculation's" sheet. These calculations are for 3 different curb cut areas: the length of cut accepting the offsite flows, the length of cut accepting flows from west side of site, and the cut accepting flows from Basin 4 into the detention pond.**
   **The length of cut needed for the entire flows on the west side of site is 0.49 ft. The slope of the curb where this drainage would cross is relatively flat; therefore the series of 1-ft curb cuts are added to ensure that all drainage from this area can reach the double D inlet.**

7. A summary table is provided for grate capacities and pipe capacities on the "Basin Map and Calculations" sheet. Please provide the calculations for these capacities.
   **Response: The calculations for the grate capacities and pipe capacities were added to the "Basin Map and Calculations "sheet.**

8. It is not clear if the subject site is accepting off-site flows from the site or how the site to the north will be impacted. Include discussion of off-site flows from the site or how the site to the north will be impacted. Include discussion of off-site flows from the site to the north to ensure that grading of the Whataburger site does not adversely impact this site.
**Response: Flows from the site to the north are not affected by the development of our site. The curb along the southern end of the north site acts as a basin boundary between Basin 4 (onsite) and the northern tract basin (offsite). Flows south of this curb will be directed towards the onsite detention pond and is included in the drainage volume calculations. Flows north of this curb are directed west towards the shopping center access road and then flow north away from our site. Discussion of this was added to the "Existing Conditions" of the narrative on the "Grading and Drainage Plan" sheet.**

9. The number of chambers shown on the "Basin Map and Calculations" sheet is 75. This needs to be called out on the plan view detail on the "Stormchamber Storage System" sheet to make sure right number of stormchambers will be installed. Also, please provide a legible table showing the dimensions for the stormchambers.
**Response: The number of chambers was reduced from 75 to 69. This was modified in the Stormchamber volume calculations and is called out on the plan view detail on the "Stormchamber Storage System" sheet. The table showing the material quantities and the cross sections of the chambers was modified to be more legible.**

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannan, P.E.

JN: 2015036 Z:\2015\2015036 Freddy's at Coors and Central\Working Documents\2015036 15-05-12 Freddy's Coors and Central Draft Letter.docx
RRB/vp/cwg

# CITY OF ALBUQUERQUE

March 24, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Whataburger**
**Grading and Drainage Plan**
**Engineer's Stamp Date 2-18-2015 (File: K10-D001B)**

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 2-20-15, the above referenced plan is approved for action by EPC and for action by DRB on the Site Plan for Building Permit.

Prior to Building Permit approval, the comments from the letter dated March 6, 2015 still need to be addressed. Comment 1 from this letter has already been satisfied based on the AHYMO data provided on March 17, 2015.

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

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

## Wolfenbarger, Jeanne

**From:** Vinny Perea <vperea@tierrawestllc.com>
**Sent:** Tuesday, March 17, 2015 2:28 PM
**To:** Wolfenbarger, Jeanne
**Subject:** RE: K10D001B - Whataburger
**Attachments:** AHYMO.OUT

Jeanne,

Here's an updated AHYMO run for yours and Curtis' review. 100% of the volume leaves at 10.35 hours and 90% of the volume leaves at 9.4 hours. Let me know if you need anything else.

Thank you,
Vinny

-----Original Message-----
From: Wolfenbarger, Jeanne [mailto:jwolfenbarger@cabq.gov]
Sent: Tuesday, March 17, 2015 2:16 PM
To: Vinny Perea
Subject: RE: K10D001B - Whataburger

Vinny, in looking over this AHYMO Run that you provided, Curtis asked that the time versus outflow table be run until the outflow is shown to be 0 cfs. When does 100% of the volume leave? (Could you provide another AHYMO run to show this?)

Jeanne

-----Original Message-----
From: Vinny Perea [mailto:vperea@tierrawestllc.com]
Sent: Tuesday, March 17, 2015 8:58 AM
To: Wolfenbarger, Jeanne
Cc: Cherne, Curtis
Subject: RE: K10D001B - Whataburger

Jeanne,

Attached is the AHYMO output file for the pond. 90% of the volume leaves 0.08 ac-ft that can be left behind, from looking at the output file this means that this amount of volume would leave the site in about 9.4 hours. The 8.17 value was looking from running the model at a slightly higher discharge rate, which was my mistake. Let me know your thoughts or if you have any questions.

Thanks,
Vinny

-----Original Message-----
From: Wolfenbarger, Jeanne [mailto:jwolfenbarger@cabq.gov]
Sent: Tuesday, March 17, 2015 8:28 AM

To: Vinny Perea
Cc: Cherne, Curtis
Subject: RE: K10D001B - Whataburger

We would not want to consider discharging the extra flow over the allowable discharge.
Since you know it discharges 90% of the volume in 8.17 hours, could you send the drain time table from AHYMO or the stage discharge table?

Thanks!

Jeanne

-----Original Message-----
From: Vinny Perea [mailto:vperea@tierrawestllc.com]
Sent: Monday, March 16, 2015 4:20 PM
To: Wolfenbarger, Jeanne
Cc: Cherne, Curtis
Subject: RE: K10D001B - Whataburger

Jeanne,

For the discharge to be 1.08 cfs, 90% of the volume would discharge in 8.17 hours

Vinny

-----Original Message-----
From: Wolfenbarger, Jeanne [mailto:jwolfenbarger@cabq.gov]
Sent: Monday, March 16, 2015 4:09 PM
To: Vinny Perea
Cc: Cherne, Curtis
Subject: RE: K10D001B - Whataburger

Vinny, do you know exactly how many hours it would take to discharge 90% of the volume?

Jeanne

-----Original Message-----
From: Vinny Perea [mailto:vperea@tierrawestllc.com]
Sent: Monday, March 16, 2015 2:11 PM
To: Wolfenbarger, Jeanne
Subject: RE: K10D001B - Whataburger

Hi Jeanne,

After running the model for the ponding on the Whataburger site, the 1.08 cfs outfall would discharge 90% of the volume in over 6 hours. In order to discharge 90% of the volume in 6 hours, the outfall would have to be 1.83 cfs. Would

this discharge value be allowable? I know you mentioned that we are at the upstream end of the Coors storm drain system and that the pipe capacity is far greater than what we are trying to discharge from the site. Please let me know your thoughts.

Thank you,

Vinny Perea
Engineer Intern, EIT

Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109
Office: (505) 858-3100
Fax: (505) 858-1118
1-800-245-3102
www.tierrawestllc.com



-----Original Message-----
From: Wolfenbarger, Jeanne [mailto:jwolfenbarger@cabq.gov]
Sent: Friday, March 06, 2015 2:37 PM
To: Vinny Perea
Subject: K10D001B - Whataburger

Vinny,

Please see attached comment letter for Whataburger. As discussed yesterday, this drainage layout is fine for a conceptual layout as long as Comment 1 on the hydrograph is addressed. The other comments can be addressed post-EPC prior to getting a building permit.

Jeanne

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If this email is spam, report it to
https://support.onlymyemail.com/view/report_spam/MTkzNTI4OjE3NDk4ODQyNTk6dnBlcmVhQHRpZXJyYXdlc3RsbGMuY29tOmRlbGl2ZXJlZA

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```
        AHYMO PROGRAM (AHYMO-S4)                        - Version: S4.01a - Rel: 01a
             RUN DATE (MON/DAY/YR) = 03/17/2015
             START TIME (HR:MIN:SEC) = 14:22:43     USER NO.=
AHYMO_Temp_User:20122010
             INPUT FILE = Z:\2014\2014075 Whataburger Coors & Central\Working
Documents\2014075 Hymo.txt

    ************************************************************************
    *  WHATABURGER TRACT D-1 AT COORS AND CENTRAL, ALBUQUERQUE, NM  *
    ************************************************************************
    *  100-YEAR 6-HR STORM (UNDER PROPOSED CONDITIONS) W/ ROUTING   *
    ************************************************************************
    START                TIME=0.0
    *
    *
    RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                         RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                         RAIN DAY=2.66 IN DT=0.05 HR

                      6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
AREAS (NM & AZ) - D1
                      DT =   0.050000 HOURS       END TIME =     6.000000 HOURS
                        0.0000  0.0022  0.0045  0.0069  0.0096  0.0123  0.0154
                        0.0197  0.0264  0.0336  0.0412  0.0494  0.0578  0.0664
                        0.0753  0.0844  0.0946  0.1052  0.1168  0.1387  0.1657
                        0.2020  0.2430  0.2937  0.3614  0.4375  0.5689  0.7733
                        1.1234  1.3695  1.5635  1.6610  1.7465  1.8079  1.8568
                        1.8994  1.9306  1.9592  1.9828  1.9979  2.0087  2.0183
                        2.0273  2.0352  2.0426  2.0499  2.0568  2.0625  2.0659
                        2.0692  2.0724  2.0754  2.0784  2.0813  2.0842  2.0870
                        2.0896  2.0923  2.0949  2.0974  2.0999  2.1023  2.1046
                        2.1069  2.1092  2.1115  2.1136  2.1158  2.1179  2.1199
                        2.1220  2.1240  2.1260  2.1280  2.1299  2.1318  2.1337
                        2.1356  2.1374  2.1392  2.1411  2.1428  2.1446  2.1463
                        2.1481  2.1498  2.1514  2.1531  2.1548  2.1564  2.1580
                        2.1596  2.1612  2.1628  2.1643  2.1658  2.1674  2.1689
                        2.1704  2.1718  2.1733  2.1747  2.1762  2.1776  2.1790
                        2.1804  2.1818  2.1832  2.1845  2.1859  2.1872  2.1885
                        2.1899  2.1912  2.1925  2.1937  2.1950  2.1963  2.1975
                        2.1988  2.2000

    *
    *OVERALL BASIN FOR SITE
    *
    COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=.00873 SQ MI
                         PER A=0.00 PER B=14.00 PER C=0.00 PER D=86.00
                         TP=-0.1333 HR MASS RAINFALL=-1

          K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE
CONSTANT, N =  7.106428
          UNIT PEAK =   29.641    CFS   UNIT VOLUME =   0.9988       B =   526.28
 P60 = 1.8700
          AREA =     0.007508 SQ MI    IA =   0.10000 INCHES    INF =   0.04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000


          K =  0.130992HR    TP =  0.133300HR    K/TP RATIO =  0.982685     SHAPE
CONSTANT, N =  3.593298
          UNIT PEAK =   2.9989    CFS   UNIT VOLUME =   0.9966       B =   327.08
 P60 = 1.8700
```

AREA = 0.001222 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 1.79960 INCHES = 0.8379 ACRE-FEET
PEAK DISCHARGE RATE = 23.40 CFS AT 1.500 HOURS BASIN AREA = 0.0087 SQ. MI.

*
*
*ROUTE OVERALL BASIN THROUGH OVERALL DETENTION SYSTEM
*
ROUTE RESERVOIR ID=11 HYD NO=101.1 INFLOW ID=1 CODE=1

| OUTFLOW(CFS) | STORAGE(AC-FT) | ELEVATION(FT) |
|---|---|---|
| 0.0000 | 0.0000 | 5084.47 |
| 1.0801 | 0.0003 | 5084.93 |
| 1.0802 | 0.0006 | 5085.43 |
| 1.0803 | 0.0009 | 5085.93 |
| 1.0804 | 0.0013 | 5086.43 |
| 1.0805 | 0.0016 | 5086.93 |
| 1.0806 | 0.0019 | 5087.43 |
| 1.0807 | 0.0216 | 5087.93 |
| 1.0808 | 0.0427 | 5088.43 |
| 1.0809 | 0.0636 | 5088.93 |
| 1.0810 | 0.0846 | 5089.43 |
| 1.0811 | 0.1057 | 5089.93 |
| 1.0812 | 0.1267 | 5090.43 |
| 1.0813 | 0.1479 | 5090.93 |
| 1.0814 | 0.1690 | 5091.43 |
| 1.0815 | 0.1901 | 5091.93 |
| 1.0816 | 0.2593 | 5092.43 |
| 1.0817 | 0.3451 | 5092.93 |
| 1.0818 | 0.4163 | 5093.43 |
| 1.0819 | 0.4873 | 5093.93 |
| 1.0820 | 0.5274 | 5094.18 |
| 1.0821 | 0.5784 | 5094.43 |
| 1.0822 | 0.6587 | 5094.68 |
| 1.0823 | 0.8102 | 5094.93 |

* * * * * * * * * * * * * * * * *

| TIME (HRS) | INFLOW (CFS) | ELEV (FEET) | VOLUME (AC-FT) | OUTFLOW (CFS) |
|---|---|---|---|---|
| 0.00 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.05 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.10 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.15 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.20 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.25 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.30 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.35 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.40 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.45 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.50 | 0.00 | 5084.47 | 0.000 | 0.00 |

| | | | | |
|---|---|---|---|---|
| 0.55 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.60 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.65 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.70 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.75 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.80 | 0.00 | 5084.47 | 0.000 | 0.00 |
| 0.85 | 0.01 | 5084.48 | 0.000 | 0.01 |
| 0.90 | 0.13 | 5084.52 | 0.000 | 0.12 |
| 0.95 | 0.41 | 5084.64 | 0.000 | 0.39 |
| 1.00 | 0.90 | 5084.84 | 0.000 | 0.86 |
| 1.05 | 1.47 | 5086.20 | 0.001 | 1.08 |
| 1.10 | 2.08 | 5087.48 | 0.004 | 1.08 |
| 1.15 | 2.70 | 5087.62 | 0.009 | 1.08 |
| 1.20 | 3.38 | 5087.83 | 0.017 | 1.08 |
| 1.25 | 4.31 | 5088.10 | 0.029 | 1.08 |
| 1.30 | 5.51 | 5088.48 | 0.045 | 1.08 |
| 1.35 | 7.97 | 5089.04 | 0.068 | 1.08 |
| 1.40 | 12.71 | 5089.95 | 0.106 | 1.08 |
| 1.45 | 19.68 | 5091.42 | 0.169 | 1.08 |
| 1.50 | 23.40 | 5092.39 | 0.253 | 1.08 |
| 1.55 | 22.27 | 5092.92 | 0.343 | 1.08 |
| 1.60 | 18.19 | 5093.47 | 0.422 | 1.08 |
| 1.65 | 13.93 | 5093.91 | 0.484 | 1.08 |
| 1.70 | 10.78 | 5094.20 | 0.531 | 1.08 |
| 1.75 | 8.54 | 5094.37 | 0.566 | 1.08 |
| 1.80 | 6.97 | 5094.48 | 0.594 | 1.08 |
| 1.85 | 5.75 | 5094.55 | 0.616 | 1.08 |
| 1.90 | 4.79 | 5094.60 | 0.633 | 1.08 |
| 1.95 | 4.03 | 5094.64 | 0.647 | 1.08 |
| 2.00 | 3.29 | 5094.68 | 0.657 | 1.08 |
| 2.05 | 2.60 | 5094.69 | 0.665 | 1.08 |
| 2.10 | 2.08 | 5094.70 | 0.670 | 1.08 |
| 2.15 | 1.71 | 5094.70 | 0.674 | 1.08 |
| 2.20 | 1.44 | 5094.71 | 0.676 | 1.08 |
| 2.25 | 1.23 | 5094.71 | 0.677 | 1.08 |
| 2.30 | 1.07 | 5094.71 | 0.677 | 1.08 |
| 2.35 | 0.94 | 5094.71 | 0.677 | 1.08 |
| 2.40 | 0.80 | 5094.71 | 0.676 | 1.08 |
| 2.45 | 0.64 | 5094.71 | 0.674 | 1.08 |
| 2.50 | 0.50 | 5094.70 | 0.672 | 1.08 |
| 2.55 | 0.40 | 5094.70 | 0.669 | 1.08 |
| 2.60 | 0.33 | 5094.69 | 0.666 | 1.08 |
| 2.65 | 0.28 | 5094.69 | 0.663 | 1.08 |
| 2.70 | 0.24 | 5094.68 | 0.660 | 1.08 |
| 2.75 | 0.21 | 5094.67 | 0.656 | 1.08 |

| TIME (HRS) | INFLOW (CFS) | ELEV (FEET) | VOLUME (AC-FT) | OUTFLOW (CFS) |
|---|---|---|---|---|
| 2.80 | 0.18 | 5094.66 | 0.653 | 1.08 |
| 2.85 | 0.15 | 5094.65 | 0.649 | 1.08 |
| 2.90 | 0.13 | 5094.64 | 0.645 | 1.08 |
| 2.95 | 0.12 | 5094.62 | 0.641 | 1.08 |
| 3.00 | 0.10 | 5094.61 | 0.637 | 1.08 |
| 3.05 | 0.09 | 5094.60 | 0.633 | 1.08 |
| 3.10 | 0.08 | 5094.59 | 0.629 | 1.08 |
| 3.15 | 0.07 | 5094.57 | 0.625 | 1.08 |
| 3.20 | 0.06 | 5094.56 | 0.620 | 1.08 |
| 3.25 | 0.05 | 5094.55 | 0.616 | 1.08 |
| 3.30 | 0.05 | 5094.53 | 0.612 | 1.08 |
| 3.35 | 0.05 | 5094.52 | 0.608 | 1.08 |
| 3.40 | 0.05 | 5094.51 | 0.603 | 1.08 |
| 3.45 | 0.04 | 5094.49 | 0.599 | 1.08 |

| | | | | |
|---|---|---|---|---|
| 3.50 | 0.04 | 5094.48 | 0.595 | 1.08 |
| 3.55 | 0.04 | 5094.47 | 0.590 | 1.08 |
| 3.60 | 0.04 | 5094.45 | 0.586 | 1.08 |
| 3.65 | 0.04 | 5094.44 | 0.582 | 1.08 |
| 3.70 | 0.04 | 5094.43 | 0.578 | 1.08 |
| 3.75 | 0.04 | 5094.40 | 0.573 | 1.08 |
| 3.80 | 0.04 | 5094.38 | 0.569 | 1.08 |
| 3.85 | 0.04 | 5094.36 | 0.565 | 1.08 |
| 3.90 | 0.04 | 5094.34 | 0.560 | 1.08 |
| 3.95 | 0.04 | 5094.32 | 0.556 | 1.08 |
| 4.00 | 0.04 | 5094.30 | 0.552 | 1.08 |
| 4.05 | 0.05 | 5094.28 | 0.547 | 1.08 |
| 4.10 | 0.05 | 5094.26 | 0.543 | 1.08 |
| 4.15 | 0.05 | 5094.24 | 0.539 | 1.08 |
| 4.20 | 0.05 | 5094.22 | 0.535 | 1.08 |
| 4.25 | 0.05 | 5094.20 | 0.530 | 1.08 |
| 4.30 | 0.05 | 5094.17 | 0.526 | 1.08 |
| 4.35 | 0.05 | 5094.15 | 0.522 | 1.08 |
| 4.40 | 0.05 | 5094.12 | 0.518 | 1.08 |
| 4.45 | 0.06 | 5094.09 | 0.513 | 1.08 |
| 4.50 | 0.06 | 5094.07 | 0.509 | 1.08 |
| 4.55 | 0.06 | 5094.04 | 0.505 | 1.08 |
| 4.60 | 0.06 | 5094.01 | 0.501 | 1.08 |
| 4.65 | 0.06 | 5093.99 | 0.497 | 1.08 |
| 4.70 | 0.07 | 5093.96 | 0.492 | 1.08 |
| 4.75 | 0.07 | 5093.94 | 0.488 | 1.08 |
| 4.80 | 0.07 | 5093.91 | 0.484 | 1.08 |
| 4.85 | 0.07 | 5093.88 | 0.480 | 1.08 |
| 4.90 | 0.07 | 5093.85 | 0.476 | 1.08 |
| 4.95 | 0.07 | 5093.82 | 0.471 | 1.08 |
| 5.00 | 0.07 | 5093.79 | 0.467 | 1.08 |
| 5.05 | 0.08 | 5093.76 | 0.463 | 1.08 |
| 5.10 | 0.08 | 5093.73 | 0.459 | 1.08 |
| 5.15 | 0.08 | 5093.70 | 0.455 | 1.08 |
| 5.20 | 0.08 | 5093.67 | 0.451 | 1.08 |
| 5.25 | 0.08 | 5093.64 | 0.447 | 1.08 |
| 5.30 | 0.09 | 5093.61 | 0.442 | 1.08 |
| 5.35 | 0.09 | 5093.58 | 0.438 | 1.08 |
| 5.40 | 0.09 | 5093.56 | 0.434 | 1.08 |
| 5.45 | 0.09 | 5093.53 | 0.430 | 1.08 |
| 5.50 | 0.09 | 5093.50 | 0.426 | 1.08 |
| 5.55 | 0.10 | 5093.47 | 0.422 | 1.08 |

| TIME (HRS) | INFLOW (CFS) | ELEV (FEET) | VOLUME (AC-FT) | OUTFLOW (CFS) |
|---|---|---|---|---|
| 5.60 | 0.10 | 5093.44 | 0.418 | 1.08 |
| 5.65 | 0.10 | 5093.41 | 0.414 | 1.08 |
| 5.70 | 0.10 | 5093.38 | 0.410 | 1.08 |
| 5.75 | 0.11 | 5093.36 | 0.406 | 1.08 |
| 5.80 | 0.11 | 5093.33 | 0.402 | 1.08 |
| 5.85 | 0.11 | 5093.30 | 0.398 | 1.08 |
| 5.90 | 0.11 | 5093.27 | 0.394 | 1.08 |
| 5.95 | 0.11 | 5093.24 | 0.390 | 1.08 |
| 6.00 | 0.12 | 5093.21 | 0.386 | 1.08 |
| 6.05 | 0.11 | 5093.19 | 0.382 | 1.08 |
| 6.10 | 0.08 | 5093.16 | 0.378 | 1.08 |
| 6.15 | 0.05 | 5093.13 | 0.373 | 1.08 |
| 6.20 | 0.03 | 5093.10 | 0.369 | 1.08 |
| 6.25 | 0.02 | 5093.07 | 0.365 | 1.08 |
| 6.30 | 0.01 | 5093.04 | 0.360 | 1.08 |
| 6.35 | 0.01 | 5093.01 | 0.356 | 1.08 |
| 6.40 | 0.01 | 5092.98 | 0.351 | 1.08 |

| | | | | |
|---|---|---|---|---|
| 6.45 | 0.01 | 5092.94 | 0.347 | 1.08 |
| 6.50 | 0.01 | 5092.92 | 0.343 | 1.08 |
| 6.55 | 0.00 | 5092.89 | 0.338 | 1.08 |
| 6.60 | 0.00 | 5092.86 | 0.334 | 1.08 |
| 6.65 | 0.00 | 5092.84 | 0.329 | 1.08 |
| 6.70 | 0.00 | 5092.81 | 0.325 | 1.08 |
| 6.75 | 0.00 | 5092.79 | 0.320 | 1.08 |
| 6.80 | 0.00 | 5092.76 | 0.316 | 1.08 |
| 6.85 | 0.00 | 5092.73 | 0.311 | 1.08 |
| 6.90 | 0.00 | 5092.71 | 0.307 | 1.08 |
| 6.95 | 0.00 | 5092.68 | 0.302 | 1.08 |
| 7.00 | 0.00 | 5092.66 | 0.298 | 1.08 |
| 7.05 | 0.00 | 5092.63 | 0.293 | 1.08 |
| 7.10 | 0.00 | 5092.60 | 0.289 | 1.08 |
| 7.15 | 0.00 | 5092.58 | 0.285 | 1.08 |
| 7.20 | 0.00 | 5092.55 | 0.280 | 1.08 |
| 7.25 | 0.00 | 5092.52 | 0.276 | 1.08 |
| 7.30 | 0.00 | 5092.50 | 0.271 | 1.08 |
| 7.35 | 0.00 | 5092.47 | 0.267 | 1.08 |
| 7.40 | 0.00 | 5092.45 | 0.262 | 1.08 |
| 7.45 | 0.00 | 5092.42 | 0.258 | 1.08 |
| 7.50 | 0.00 | 5092.39 | 0.253 | 1.08 |
| 7.55 | 0.00 | 5092.35 | 0.249 | 1.08 |
| 7.60 | 0.00 | 5092.32 | 0.244 | 1.08 |
| 7.65 | 0.00 | 5092.29 | 0.240 | 1.08 |
| 7.70 | 0.00 | 5092.26 | 0.235 | 1.08 |
| 7.75 | 0.00 | 5092.23 | 0.231 | 1.08 |
| 7.80 | 0.00 | 5092.19 | 0.226 | 1.08 |
| 7.85 | 0.00 | 5092.16 | 0.222 | 1.08 |
| 7.90 | 0.00 | 5092.13 | 0.218 | 1.08 |
| 7.95 | 0.00 | 5092.10 | 0.213 | 1.08 |
| 8.00 | 0.00 | 5092.06 | 0.209 | 1.08 |
| 8.05 | 0.00 | 5092.03 | 0.204 | 1.08 |
| 8.10 | 0.00 | 5092.00 | 0.200 | 1.08 |
| 8.15 | 0.00 | 5091.97 | 0.195 | 1.08 |
| 8.20 | 0.00 | 5091.93 | 0.191 | 1.08 |
| 8.25 | 0.00 | 5091.84 | 0.186 | 1.08 |
| 8.30 | 0.00 | 5091.73 | 0.182 | 1.08 |
| 8.35 | 0.00 | 5091.63 | 0.177 | 1.08 |

| TIME (HRS) | INFLOW (CFS) | ELEV (FEET) | VOLUME (AC-FT) | OUTFLOW (CFS) |
|---|---|---|---|---|
| 8.40 | 0.00 | 5091.52 | 0.173 | 1.08 |
| 8.45 | 0.00 | 5091.41 | 0.168 | 1.08 |
| 8.50 | 0.00 | 5091.31 | 0.164 | 1.08 |
| 8.55 | 0.00 | 5091.20 | 0.159 | 1.08 |
| 8.60 | 0.00 | 5091.10 | 0.155 | 1.08 |
| 8.65 | 0.00 | 5090.99 | 0.150 | 1.08 |
| 8.70 | 0.00 | 5090.89 | 0.146 | 1.08 |
| 8.75 | 0.00 | 5090.78 | 0.142 | 1.08 |
| 8.80 | 0.00 | 5090.67 | 0.137 | 1.08 |
| 8.85 | 0.00 | 5090.57 | 0.133 | 1.08 |
| 8.90 | 0.00 | 5090.46 | 0.128 | 1.08 |
| 8.95 | 0.00 | 5090.36 | 0.124 | 1.08 |
| 9.00 | 0.00 | 5090.25 | 0.119 | 1.08 |
| 9.05 | 0.00 | 5090.14 | 0.115 | 1.08 |
| 9.10 | 0.00 | 5090.04 | 0.110 | 1.08 |
| 9.15 | 0.00 | 5089.93 | 0.106 | 1.08 |
| 9.20 | 0.00 | 5089.83 | 0.101 | 1.08 |
| 9.25 | 0.00 | 5089.72 | 0.097 | 1.08 |
| 9.30 | 0.00 | 5089.61 | 0.092 | 1.08 |
| 9.35 | 0.00 | 5089.51 | 0.088 | 1.08 |

| | | | | |
|---|---|---|---|---|
| 9.40 | 0.00 | 5089.40 | 0.083 | 1.08 |
| 9.45 | 0.00 | 5089.30 | 0.079 | 1.08 |
| 9.50 | 0.00 | 5089.19 | 0.075 | 1.08 |
| 9.55 | 0.00 | 5089.08 | 0.070 | 1.08 |
| 9.60 | 0.00 | 5088.98 | 0.066 | 1.08 |
| 9.65 | 0.00 | 5088.87 | 0.061 | 1.08 |
| 9.70 | 0.00 | 5088.76 | 0.057 | 1.08 |
| 9.75 | 0.00 | 5088.66 | 0.052 | 1.08 |
| 9.80 | 0.00 | 5088.55 | 0.048 | 1.08 |
| 9.85 | 0.00 | 5088.44 | 0.043 | 1.08 |
| 9.90 | 0.00 | 5088.34 | 0.039 | 1.08 |
| 9.95 | 0.00 | 5088.23 | 0.034 | 1.08 |
| 10.00 | 0.00 | 5088.13 | 0.030 | 1.08 |
| 10.05 | 0.00 | 5088.02 | 0.025 | 1.08 |
| 10.10 | 0.00 | 5087.91 | 0.021 | 1.08 |
| 10.15 | 0.00 | 5087.80 | 0.016 | 1.08 |
| 10.20 | 0.00 | 5087.69 | 0.012 | 1.08 |
| 10.25 | 0.00 | 5087.57 | 0.008 | 1.08 |
| 10.30 | 0.00 | 5087.46 | 0.003 | 1.08 |
| 10.35 | 0.00 | 5084.62 | 0.000 | 0.35 |

PEAK DISCHARGE = 1.082 CFS - PEAK OCCURS AT HOUR 2.30
MAXIMUM WATER SURFACE ELEVATION = 5094.710
MAXIMUM STORAGE = 0.6770 AC-FT INCREMENTAL TIME= 0.050000HRS

*
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.80092 INCHES = 0.8385 ACRE-FEET
PEAK DISCHARGE RATE = 1.08 CFS AT 2.300 HOURS BASIN AREA =
0.0087 SQ. MI.

*
*
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 14:22:43

# CITY OF ALBUQUERQUE

March 6, 2015

Ronald Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

RE: **Whataburger**
**Grading Plan**
**Engineer's Stamp Date 2-18-2015 (File: K10-D001B)**

Dear Mr. Bohannan:

Based upon the information provided in your submittal received 2-20-15, the above referenced Grading Plan cannot be approved for Building Permit until the following comments are addressed:

1) The volume of on-site storage detention is shown to be based on the 100-year 6-hour storm event. Provide a hydrograph which shows that 90% of the storage volume will be discharged from the site within 6 hours, as per the Drainage Ordinance.

2) On the plan view for the "Grading and Drainage Plan", label all of the different detention volumes that correspond to the "Proposed Conditions" discussion which include the 0.43 ac-ft detention pond, the 0.16 ac-ft surface pond, and the underground storage of 0.22 ac-ft. Show the underground storage system area on the plan view for the "Grading and Drainage Plan", and label the connections from the new 24-inch storm drain to this underground storage system.

3) There is a Section A-A on the "Grading and Drainage Plan" which shows pond elevations within the detention pond in the north area of the site. Provide more spot elevations within this area at the corners of the pond to ensure that there will be enough volume provided for the detention pond.

4) Eliminate the existing timed butterfly valve as discussed. If there are issues with the valve not operating properly, it will pose a risk to the site. The pipe discharging from the site to Coors Boulevard is at the upstream end of the existing storm drainage system, and it is discharging to a fairly steep 18-inch pipe in Coors Boulevard to convey the required 1.08 cfs. Therefore, due to the amount of existing

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pipe capacity to handle such a small amount of flow, there is no concern regarding elimination of the timed valve.

5) How is storm drainage getting to the Double-D inlet on the west side of the site? Provide capacity calculations for the 5.6-foot wide curb cut that is accepting the off-site flow from the west and adjust as necessary.

6) Provide capacity calculations for all of the curb cuts shown on the plan.

7) A summary table is provided for grate capacities and pipe capacities on the "Basin Map and Calculations" sheet. Please provide the calculations for these capacities.

8) It is not clear if the subject site is accepting off-site flows from the site or how the site to the north will be impacted. Include discussion of off-site flows from the site to the north to ensure that grading of the Whataburger site does not adversely impact this site.

9) The number of chambers shown on the "Basin Map and Calculations" sheet is 75. This needs to be called out on the plan view detail on the "Stormchamber Storage System" sheet to make sure the right number of stormchambers will be installed. Also, please provide a legible table showing the layout dimensions for the stormchambers.

If you have any questions, you can contact me at 924-3924.

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

# City of Albuquerque

## Planning Department

## Development & Building Services Division

## RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Whataburger City Drainage #: K10D001B

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

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW Albuquerque, NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact: _____

Address: 5975 S Quebec Street, Suite 141 Greenwood Village Colorado 80111

Phone#: 303-318-0100 Fax#: _____ E-mail: _____

**Architect:** _____ Contact: _____

Address: _____

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

**Surveyor:** _____ Contact: _____

Address: _____

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

**Contractor:** _____ Contact: _____

Address: _____

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

**TYPE OF SUBMITTAL:**

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

DRB-X
cc

**CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

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

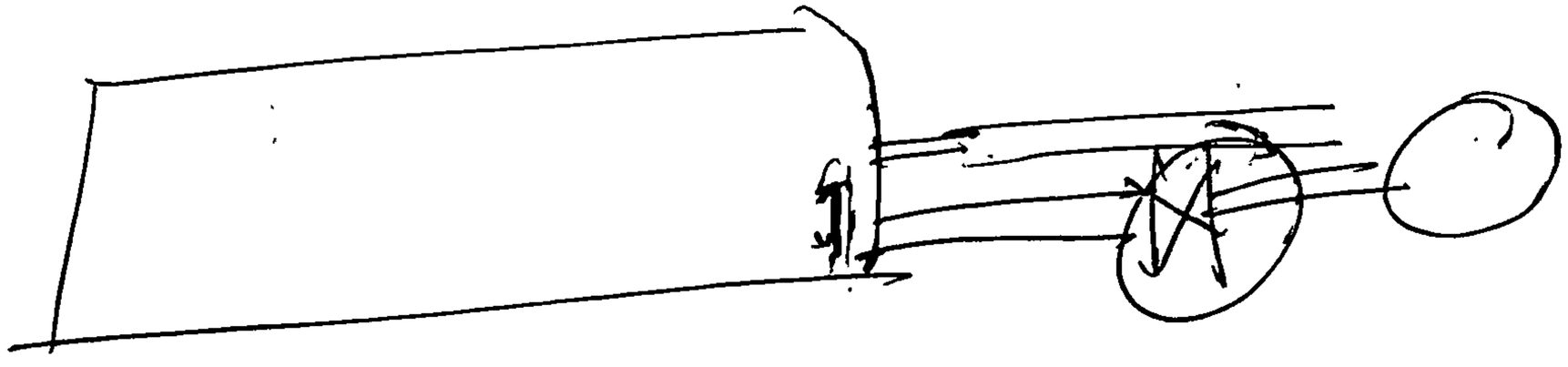
RECEIVED
FEB 18 2015
LAND DEVELOPMENT SECTION

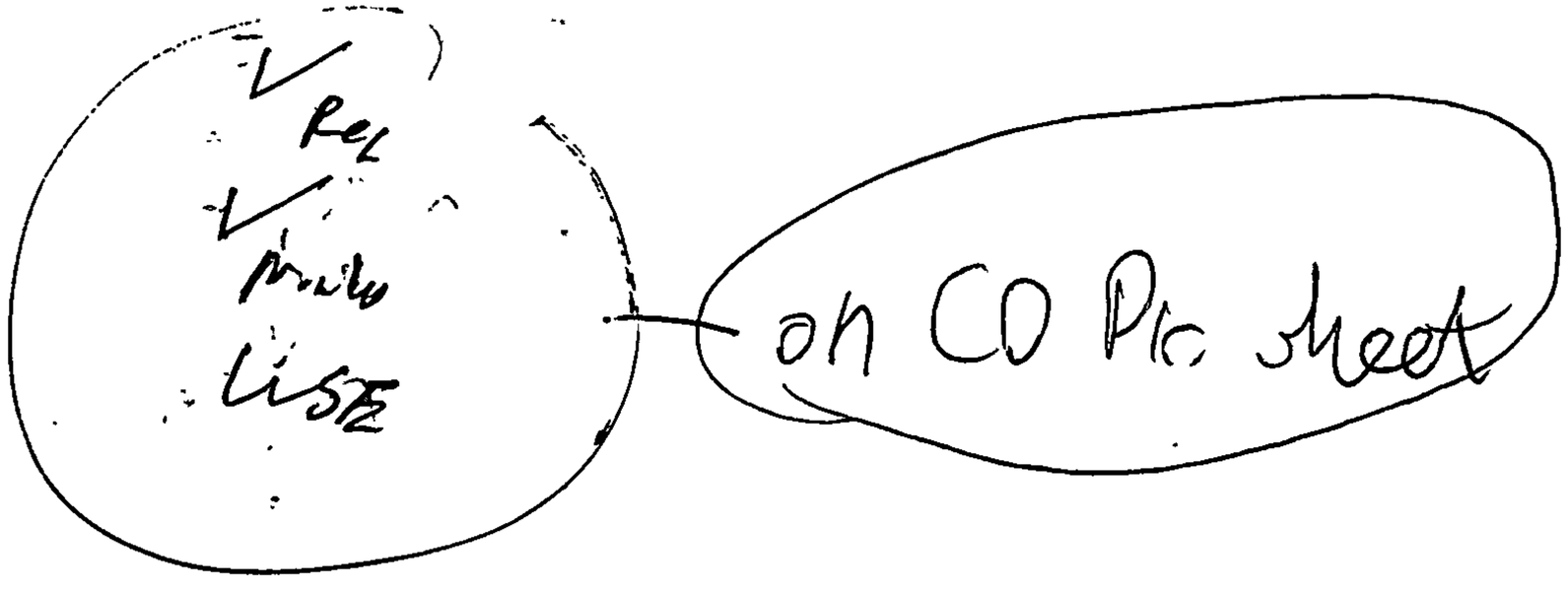
WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 02/18/2015 By: Vinny Perea (vperea@tierrawestllc.com)

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

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




$V_{Rel}$
$V_{Mult}$
Size
on CO Pic sheet

# CITY OF ALBUQUERQUE

December 30, 2014

Ron Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Pl NE
Albuquerque, NM 87109

**Re: Whataburger, 111 Coors Boulevard NW**
**Grading Plan and Drainage Plan**
**Engineer's Stamp Date 12-2-14 (K10D001B)**

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 12-5-14, the above referenced report and plan cannot be approved for Building Permit approval until the following comments are addressed:

1. Identify the full extent of basins 4 and 5. Is the gas station to the north contributing flows? The basins on-site are defined by property lines instead of contour lines or spot elevations. Provide a basin map that includes the off-site basin and that contains sufficient information showing the basins defined by contour lines and spot elevations.
2. Is the two foot curb cut adequate for the off-site flows for Basin 5?
3. The First Flush is to be retained and discussed. Per the City Drainage ordinance, the 90th Percentile Storm Event, which is 44 inches, is to be managed. Reduce 0.44 inch by the 0.1 inch for the initial impervious abstraction in Table A-6 of Section 22 of the DPM. Multiply the remaining 0.34 inch by your impervious area. This is the portion to retain. Provide the amount that is necessary to be retained and how much is actually being retained. The Stormchamber could be utilized for retention if the invert out is raised to retain the First Flush. The north pond can also be used by raising the invert of the 10 inch hole in the water quality manhole. The landscaping on the west side can be utilized for retention by raising the inlet invert above the bottom of the pond.
4. How was the Stormchamber sizing determined? How many risers will be with this system? Is the only riser the inlet in the middle of the system? If more than one, where will they be located exactly? On the Stormchamber detail sheet, optional items are called out on the lower left cross-section detail. Will those options be utilized with this system?
5. For the water quality manhole are the inverts of the 24 inch RCP, 10 inch hole, and bottom of pond all at 91.93? If so, call out the inverts and show them that way. Show the top of the rack and the top of the retaining wall at the same elevation of 93.43 as they have been indicated. Is a water quality manhole really needed if a Stormchamber system being utilized? They seem redundant. Provide freeboard and a guardrail for the pond.
6. What elevations are the alarms at in the lift station? What type of pump is being utilized? What is the Total Dynamic Head? Where is the pump on the pump curve? Provide the design for the lift station. Is a 2 hour delay being maintained as with the original design of detention pond?

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7. rovide orifice calculations for 4 inch orifice in manhole 2.
8. Is the current lift station being removed? The proposed lift station seems very close to where the old one should have been.

Please contact me at 924-3994 if you have any questions.

Sincerely,

Amy L. D. Niese, P.E.
Senior Engineer, Hydrology
Planning Department

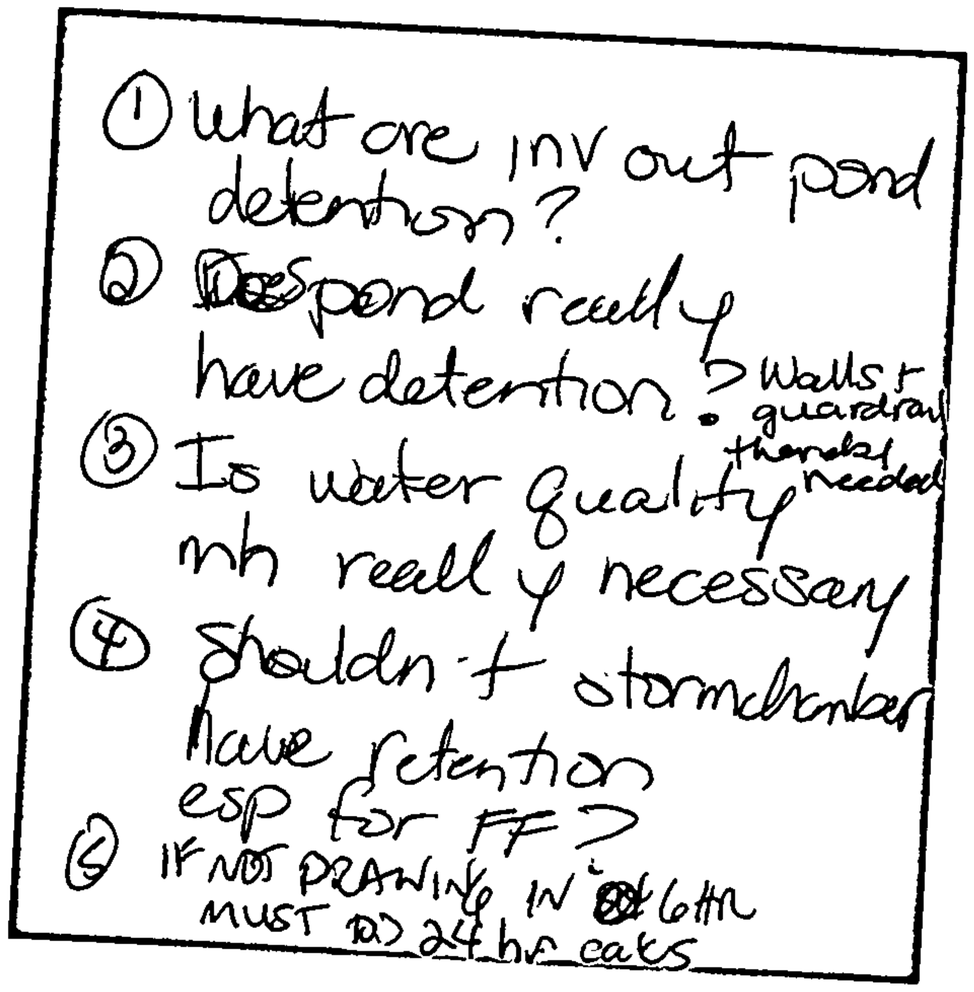
C: e-mail

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov



## Niese, Amy

**From:** Niese, Amy
**Sent:** Wednesday, January 14, 2015 1:01 PM
**To:** Ron Bohannan (rrb@tierrawestllc.com)
**Cc:** Vinny Perea
**Subject:** Whataburger on Coors K10D001B

Recently we have had many submittals proposing designs with Stormtech/StormChamber units. Since the comment letter for Whataburger was sent out, we have established design standards for these systems which include but are not limited to the following:

1. Only 30% porosity for storage volume in the surrounding stone will be accepted. (Some systems base volume on 40%.)
2. Historically, the City has not allowed infiltration as a credit for detention ponding. The City will consider infiltration for this type of detention system if the percolation rate for the installation location is provided by a geotechnical engineer. The design should adhere to the percolation rate.

Please make sure these items are taken into account when addressing the comments for Whataburger that were sent to you on December 30, 2014.

Amy L. D. Niese, P.E.
Senior Engineer, Hydrology
Planning Department
Development & Building Services Division
(505) 924-3994

# City of Albuquerque

Planning Department

Development & Building Services Division

vperea@cabq.gov
jdhernandez@cabq.gov

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Whataburger on Coors City Drainage #: K10D001B

DRB#: EPC#: Work Order#:

Legal Description: TR D-1 Plat of Hubbell Plaza

City Address: 111 Coors Blvd. NW, Albuquerque NM 87121

**Engineering Firm:** Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestllc.com

**Owner:** Oak Realty Partners, Inc. Contact:

Address: 5975 S. Quebec Street, Suite 141 Greenwood Village Colorado 80111

Phone#: 303-318-0100 Fax#: E-mail:

**Architect:** Contact:

Address:

Phone#: Fax#: E-mail:

**Surveyor:** Contact:

Address:

Phone#: Fax#: E-mail:

**Contractor:** Contact:

Address:

Phone#: Fax#: E-mail:

**TYPE OF SUBMITTAL:**

___ DRAINAGE REPORT
X DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
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___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

**CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

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___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
DEC - 5 2014
LAND DEVELOPMENT SECTION

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

DATE SUBMITTED: 12/02/2014 By: Vinny Perea

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

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4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

$A_D = 4.69$ $Q_{act} = 1.80$ cfs

K10 D018

5019

Whataburger - TW K10D01B 12/23/14

GOOLST CENTRAL STORAGE CTR

WSAC w Hubbell Playa Stopping Ctr

Core channel on the west side

Currently det pond for 5.4 acres K-10 D018

$V_{hdbs}$ = 30,068 cf Q = 1.08 cfs thru 8" to Cor

Confirm this 24 hr DRAIN

Where is this from

Work in channel on west side of site

Replace channel w/ 2' curb cut

From K10 D18 on disc MWBR 92.32 ✓ FOR A = 5.4 AC

Pond B 100 yr 16.5 = Q (Q = CIA) V = ~~23,855~~ 23,855

Drainage note 0.25/AC A = 5.4 AC + 0.87 = 6.3 AC

AREA 2 PART AREA 6

$V_{req}$ = 04,909 cf. $V_{prov}$ = 41,898 cf

Butterfly valve to actuate after 2 hr/water level

0.87 AC ADDN TO N if flows later

ducted to Pond B

L Is silt from roads contributing?

✓ Not in flood zone - Nearby ADJ but not in it.

X Some storm drains not showing?

✓ Are inlets + storm drain sized appropriately?

TDH

NO DOT App — Learn anything

OK to Cons if before

FF Access rev in Stormchamber

Pop up island

Guardrail

Cert all Sheets MWSE

Road really necessary?

Stormchamber for retention

Fedex, easements + letter

GIS SITE N K10 A001

retention? stormchamber + water quality mh

L C First Flush 4.690 AC 43,560 SF/AC .34 IN/12 IN = 5788 CF REQ = .13 AC-FT

Stormchamber must have retention

call out

C MSUE 100 YR 6HR 94.93 Freeboard? TOP STM PIPE 93.43

w/ 6" ponding in parking lot

95.63 FF

94.93 MSUE

0.70

SHOULD THAT BE 94.93 (1.5' BLW MSUE)

50-19 wanted? Have language.

√ identify height of header and

C x Emergency overflow) to Coors — no only if learning something

At MSUE $V_{DET}$ = 0.43 AC-FT = 18731 CF

$V_{parking}$ = 0.16 AC-FT = 6970

$V_{under}$ = 0.22 AC-FT = 9583

35,284 CF = 0.81 AC-FT

$V_{req}$

> 4" ORIFICE PLATE @ MH2

$Q_{out}$ = 1.08 CFS

L Calling out area of 2.3 AC Exist det pond for 5.4 ac. I get 1.13 acres for on-site when he stated. Beam don't give

Need offsite basin map, more off-site, not spot. Extents of basins 4/5 Basins cancel 4 pl not clear.

SITE 49,300 = 1.13 AC 290x176

C | Any boxes discharging to Coors?
As long as done before

L | How was capacity for Stormtech det? chamber
What is wt of Stormtech

L | Is existing left station being removed?

L | Pump Sta - what type of pump
Provide calcs design
Elev & alarms

✓ | 483.84 GPM cfs = 1.08 cfs
~~448.83~~ gpm
448.83

L | Is mo of water quality MH for 24" & 10" rcp 91.93
91.93 is on MH called out which is same as pond bottom but not shown that way. Rim & top net wall at 93.43
but not shown that way.

24" CMP 3' deep $\pi D^2/4(3) = 9.42$ cf

C | Is 2 hour delay being maintained?

✓ | What is SC element trap & how maintained?
How is manifold system set up?
Extended dimp on ST left bot detail - using?

L | Just 1 run of element trap at inlet in middle?
How far apart are they?

100 Ram Event for site

Rams starts

BOP @ 91.93

STORM TECH @ 89.01? (88.70 on N SIDE)
SURFACE NLET TO ST AT GR 94.43
IN 88.82

Next

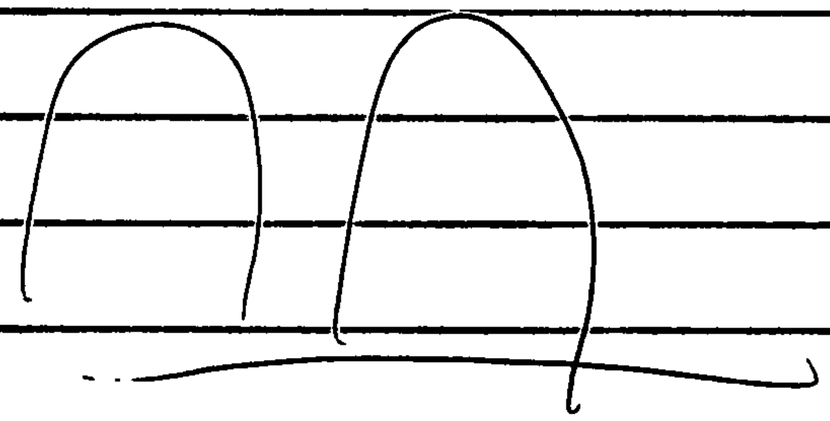
Water quality MH starts to fill at 91.93?
when it fills 9.42CF, discharge to 12" RCP
also at 91.93

Inv out = 88.68 ± for MH2,
has 4" orifice in 8" outlet
goes to left side

Alarms go off at —
INV in 88.55 pump to 93.03 INV out

Pond flow goes over grate at 93.43
MAWS reached at 94.93 (1.5' higher)

5.4 acre x 0.2cfs/acre = 1.08 cfs/ac



L Flows called for 4" orifice in MH2

X On pipe capacity chart
is pond inlet actually outlet

X Flows "as" out of pond 1.68 cfs (1.52 for the barn
but can take as much as 7.37 cfs
Only 10" capacity for a whole

C Not utilizing SC for retention
No routing occurring - too small for routing

L C Did not delineate off-site basin very well
Needs to do that. Provide off-site basin map.

Vinny Perez 12/30/14