CITY OF ALBUQUERQUE

Hydrology Section Planning Department
David S. Campbell, Director

Timothy M. Keller, Mayor

June 7, 2018

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

RE: **Entertainment Facility**
3930 Pan-American NE
Grading and Drainage Plan
Engineers Stamp Date: 5/31/2018
Hydrology File: G16D145A

Dear Mr. Bohannan,

Based on the information provided in the submittal received on 6/04/2018 is approved for building permit. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

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

Prior to requesting C.O., the Agreement and Covenant will need to be recorded. An Agreement and Covenant is required for the stormwater quality pond on the public easement. The original notarized form, pond exhibit (legible on 8.5x11 paper), and recording fee ($25, payable to City of Albuquerque) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte LaBadie (clabadie@cabq.gov, 924-3996) or Madeline Carruthers (mtafoya@cabq.gov, 924-3997) regarding the routing and recording process for covenants. The exhibits must be revised to show the approved pond grading details before the Agreement and Covenant can be processed.

If you have any questions, you can contact me at 924-3686 or jhughes@cabq.gov .

Sincerely,

James D. Hughes, P.E.
Principal Engineer, Planning Dept.
Development and Review Services

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 10/2015)

Project Title: Entertainment Facility Building Permit #: _____ Hydrology File #: _____

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

Legal Description: _____

City Address: 3930 Pan American FWY NE Albuquerque, NM

Applicant: Tierra West, LLC Contact: Jonathan Niski

Address: 5571 Midway Park Place NE Albuquerque , NM 87109

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

Other Contact: ABC Comanche Retail, LLC Contact: Brendon Hollier

Address: 8350 N. Central Expy., Suite 1313 Dallas, TX 75206

Phone#: 214-561-6515 Fax#: _____ E-mail: hollier@paliopartners.com

Check all that Apply:

DEPARTMENT:

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

TYPE OF SUBMITTAL:

____ ENGINEER/ARCHITECT CERTIFICATION

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

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

____ OTHER (SPECIFY) _____

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

X BUILDING PERMIT APPROVAL
____ CERTIFICATE OF OCCUPANCY

____ PRELIMINARY PLAT APPROVAL
____ SITE PLAN FOR SUB'D APPROVAL
____ SITE PLAN FOR BLDG. PERMIT APPROVAL
____ FINAL PLAT APPROVAL

____ SIA/ RELEASE OF FINANCIAL GUARANTEE
____ FOUNDATION PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ SO-19 APPROVAL
____ PAVING PERMIT APPROVAL
____ GRADING/ PAD CERTIFICATION
____ WORK ORDER APPROVAL
____ CLOMR/LOMR

____ **PRE-DESIGN MEETING?**

____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: X Yes ____ No

DATE SUBMITTED: 6/4/2018 By: Jonathan Niski

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

TIERRA WEST, LLC

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

June 1, 2018

James D. Hughes, P.E.
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

RE: ENTERTAINMENT FACILITY
3930 PAN-AMERICAN NE
CONCEPTUAL GRADING AND DRIANAGE PLAN
ENGINEERS STAMP DATE: 5/3/18
HYDROLOGY FILE: G16D145A

Dear Mr. Hughes:

Please find the following responses addressing your comments listed below:

1. First Flush volume calculations are required for the volume provided by the onsite pond. They should be based on dimensioned details, so the slopes inside the pond should be labeled on Section AA and the proposed contours in the plan view should be located to agree with the slopes shown on the cross section. Labels are not legible on some of the contours.
   Additional information was provided on the Grading Plan and the cross-sections. Dimensions were added and labeling cleaned up.

2. Details of the existing and proposed drainage structures in the onsite pond need to be added to the plan along with capacity calculations. A detail of the existing primary pond outfall structure must include construction specifications for modifications to prevent floatables from leaving the pond during the 100 year peak flow without clogging and calculations must be included demonstrating that the 100 year flow depth at the primary outlet will remain below the crest elevation of the existing concrete dam.
   A second sheet was added to the set to detail a expanded metal barrier to be constructed around the existing inlet that would not allow floatables into the existing storm sewer system. The top of the grate will be at a higher elevation than the top of the existing concrete weir so that even during a large rain event no floatables will enter the inlet.

3. Prior to requesting C.O., the Agreement and Covenant will need to be recorded. An Agreement and Covenant is required for the stormwater quality pond on the public easement. The original notarized form, pond exhibit (legible on 805x11 paper), and recording fee ($25, payable to City of Albuquerque) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte Labadie (clabadie@cabq.gov, 924-3996) or Madeline Carruthers (mtafoya@cabq.gov, 924-3997) regarding the routing and recording process for covenants. The exhibits must be revised to show the approved pond grading details before the Agreement and Covenant can be processed. If you have any questions, you can contact me at 924-3686 or jhughes@cabq.gov.

A Pond Agreement and Covenant will be submitted upon approval of the Grading and Drainage Plan.

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

Sincerely,

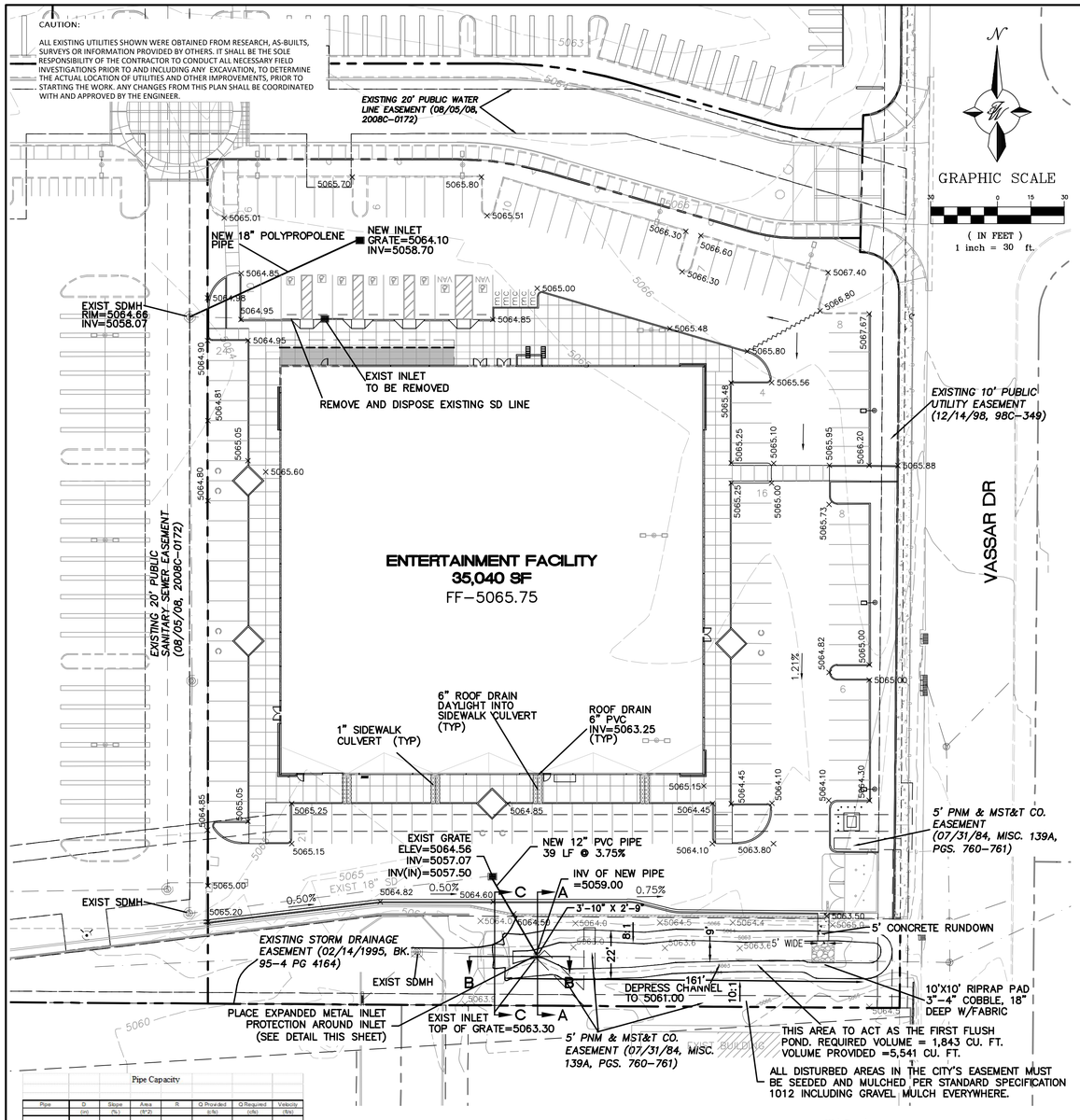
Ronald R. Bohannan, PE

JN: 2017042

RRB/jn/kw

CAUTION:

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.



EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) 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.

LEGEND

	CURB & GUTTER
	BOUNDARY LINE
	EASEMENT
	CENTERLINE
	RIGHT-OF-WAY
	BUILDING
	SIDEWALK
	RETAINING WALL
5010	CONTOUR MAJOR
5011	CONTOUR MINOR
x 5048.25	SPOT ELEVATION
	FLOW ARROW
	EXISTING CURB & GUTTER
	EXISTING BOUNDARY LINE
5010	EXISTING CONTOUR MAJOR
	EXISTING CONTOUR MINOR
x 5048.25	EXISTING SPOT ELEVATION

EXISTING SITE DRAINAGE:

THE 2.60 ACRE SITE IS LOCATED AT THE SOUTHEAST CORNER OF PAN AMERICAN FREEWAY AND VASSAR DRIVE NE. THE SITE IS BOUNDED ON THE NORTH AND WEST BY COMMERCIAL DEVELOPMENT, ON THE EAST BY VASSAR DRIVE NE AND ON THE SOUTH BY AN INDUSTRIAL/MANUFACTURING DEVELOPMENT.

THE SITE IS CURRENTLY VACANT DRAINS TO TWO EXISTING STORM SEWER INLETS WHERE THE WATER IS THEN CONVEYED BY STORM SEWER AND OPEN CHANNEL TO THE GRIEGOS POND THAT WAS CONSTRUCTED WITH SAD 216.

THERE ARE OFF-SITE FLOWS ENTERING A DRAINAGE EASEMENT ALONG THE SOUTH PROPERTY LINE WHERE A STORM SEWER AND OVERFLOW CHANNEL ARE LOCATED. THIS SITE IS LOCATED IN ZONE "X" AS SHOWN ON FIRM MAP #35001C0138H.

BASED ON THE APPROVED DRAINAGE REPORT FOR THE CARPENTERS TRAINING CENTER (G16/D145) THIS PROJECT MAY DISCHARGE A TOTAL OF 9.89 CFS. THE INFORMATION PERTAINING TO THE AMOUNT OF DISCHARGE ALLOWED FROM THIS PARCEL IS DETAILED ON PAGE 12 OF THE CARPENTERS TRAINING CENTER REPORT. ALL OF THE FLOWS PASS THROUGH AN EXISTING 48" RCP UNDER INTERSTATE 25 WHICH HAS A CAPACITY FOR 161 CFS. THIS PIPE DAYLIGHTS INTO A PONDING AREA WEST OF THE INTERSTATE AND EVENTUALLY DRAINS INTO THE GRIEGOS POND.

PROPOSED SITE DRAINAGE:

THIS SITE WILL BE DEVELOPED WITH A ENTERTAINMENT BUILDING ON THE PAD ALONG VASSAR DRIVE. THE SITE WILL UTILIZE LOW IMPACT DEVELOPMENT (LID) WHERE POSSIBLE ALLOWING SURFACE STORM WATER TO FLOW THROUGH LANDSCAPED AREAS PRIOR TO DISCHARGING TO THE STORM SEWER. THERE ARE THREE PROPOSED BASINS AS SHOWN ON THE PROPOSED BASIN MAP ON THIS SHEET.

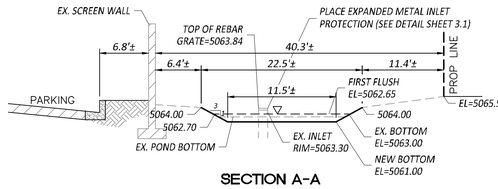
BASIN 1 CONSISTS OF THE FRONT PARKING LOT AND DRAINS TO AN EXISTING DROP INLET. THE CARPENTER'S DRAINAGE PLAN WAS DEVELOPED BEFORE THE FIRST FLUSH REQUIREMENT SO THIS BASIN WAS MINIMIZED AS MUCH AS POSSIBLE SO THE FLOWS COULD BE REDIRECTED TO A FIRST FLUSH POND. THE FLOWS THAT ENTER THE EXISTING INLET EVENTUALLY DRAIN TO THE GRIEGOS POND SO ARE ESSENTIALLY DISCONNECTED FROM THE RIO GRADE.

BASIN 2 CONSISTS OF THE BUILDING AND THE SOUTH AND WEST PARKING LOTS AND WILL SURFACE DRAIN TO THE EXISTING DRAINAGE CHANNEL ALONG THE SOUTH PROPERTY LINE. THE CHANNEL IS AN OVERFLOW AREA FOR AN EXISTING STORM SEWER. THE CHANNEL BOTTOM WILL BE DEPRESSED TWO FEET TO ACCOMMODATE THE FIRST FLUSH VOLUME OF 0.057 AC-FT. EXCESS FLOW CAN BLEED OFF INTO AN EXISTING INLET LOCATED AT THE WEST END OF THE CHANNEL AS IF THE STORM SEWER OVERFLOWED. THE EXISTING DROP INLET IN THE DRIVE AISLE WILL ONLY ACT AS AN OVERFLOW SHOULD THERE BE A LARGE AMOUNT OF WATER THAT FALLS ON THE PARKING LOT. A NEW PIPE WILL BE INSTALLED BETWEEN THE EXISTING INLET IN THE POND AND THE ONE IN THE PARKING LOT TO DIVERT THE 100 YR FLOW OF 8.05 CFS SHOULD THE STORM SEWER BACK UP AS DESIGNED.

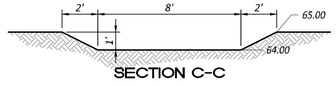
BASIN 3 CONSISTS OF THE EXISTING CHANNEL ITSELF AS WELL AS THE FIRST FLUSH POND. ALL OF THE FLOWS FROM THIS PROJECT ARE THE SAME AS APPROVED IN THE CARPENTER'S TRAINING CENTER REPORT OF 9.90 CFS AND ARE EVENTUALLY STORED IN THE GRIEGOS POND.

BASIN 4 WEST OF THE BUILDING IS LOCATED IN A DRAINAGE BASIN THAT WAS INCLUDED AS PART OF THE ORIGINAL CARPENTER'S DRAINAGE PLAN AND DRAINS TO AN EXISTING DROP INLET IN THE CARPENTER'S PARKING LOT.

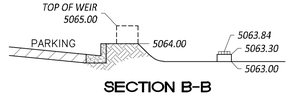
THE GRIEGOS POND (AKA EDITH BASIN #2, AKA SAD 216) IS A DETENTION POND AND DOES NOT PROVIDE ANY FIRST FLUSH RETENTION, NOR WAS ANY OTHER FIRST FLUSH RETENTION PROVIDED WITH THE PREVIOUS PHASES OF THE CARPENTER'S CENTER DEVELOPMENT AS THAT MASTER DRAINAGE PLAN WAS APPROVED PRIOR TO THE FIRST FLUSH REQUIREMENT.



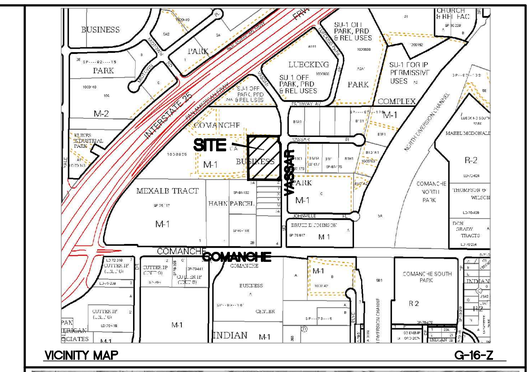
SECTION A-A



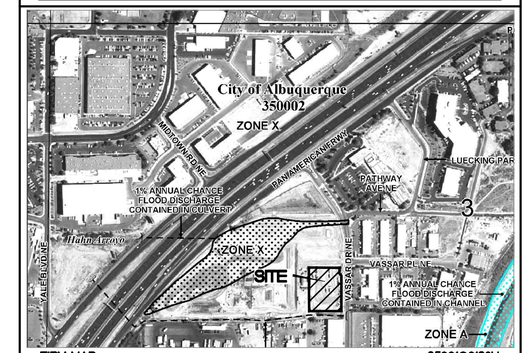
SECTION C-C



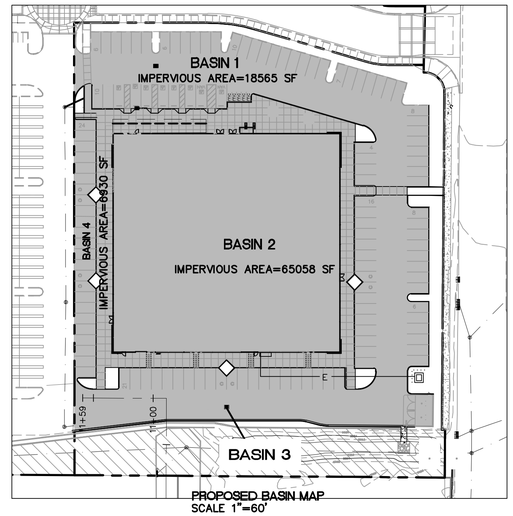
SECTION B-B



VICINITY MAP G-16-Z



FIRM MAP 35001C0138H



FIRST FLUSH CALCULATION
BASIN 1: 18385 SF X 0.34"/12"=521 CF=0.012 AC-FT
BASIN 2: 65058 SF X 0.34"/12"=1843 CF=0.042 AC-FT
BASIN 4: 6930 sf X 0.34"/12"=196 CF = 0.0045 AC-FT

BASINS 1 AND 4 ARE COVERED BY WAIVER FOR A TOTAL OF 25,305 SF.

BASIN 2 IS ONLY BASIN DIRECTED TO FIRST FLUSH POND: 65,058 SF FOR A TOTAL OF 1,843 CF OF STORAGE.

Pipe Capacity

Pipe	D (in)	Slope (%)	Area (ft^2)	R	Q Provided (cfs)	Q Required (cfs)	Velocity (fps)
1	12	375	0.79	0.250	8.18	8.02	10.21

Manning's Equation:
Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = Dril
S = Slope
n = 0.011

Weighted E Method

On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year Weighted E (in)	100-Year Volume (ac-ft)	100-Year Flow cfs	10-Year Weighted E (in)	10-Year Volume (ac-ft)	10-Year Flow cfs
1	22,168	0.51	0%	0	17%	0.09	0%	0.00	83%	0.42	1.892	0.080	2.18	1.160	0.049	1.41
2	71,405	1.64	0%	0	9%	0.15	0%	0.00	91%	1.49	1.999	0.273	7.35	1.245	0.170	4.82
3	12,748	0.29	0%	0	100%	0.29	0%	0.00	0%	0.00	0.780	0.019	0.67	0.280	0.007	0.28
4	6,930	0.16	0%	0	0%	0.00	0%	0.00	100%	0.16	2.120	0.028	0.75	1.340	0.018	0.50
		2.44								**1.91**		**0.372**	**10.20**			

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Excess Precipitation, E (inches)	Zone 2	100-Year	10 - Year
	E_a	0.53	0.13
	E_b	0.78	0.28
	E_c	1.13	0.52
	E_d	2.12	1.34

Peak Discharge (cfs/acre)	Zone 2	100-Year	10 - Year
	Q_a	1.56	0.38
	Q_b	2.28	0.95
	Q_c	3.14	1.71
	Q_d	4.70	3.14

Weir Equation:

$Q = CLH^{3/2}$

Q= Flow
C = 2.95
L= Length of weir
H = Height of Weir

New Rundown

$Q = 2.95*5*0.67^{3/2}$

Q = 8.08 cfs
8.08 cfs > 7.35 cfs
Run down has capacity

Existing Weir

$Q = 2.95*10*1.00^{3/2}$

Q = 29.50 cfs
29.50 cfs > 8.02 cfs
Weir has capacity

Existing Inlet Weir Calculations

$Q = 2.95*8.5*.70^{3/2}$

Q = 14.69 cfs
14.69 cfs > 8.02 cfs
Inlet has capacity

Capacity of a Single 'D' Storm Drop Inlet

Capacity of the grate:

L = 40" - 2(2" ends) - 7(½" middle bars)
= 32 1/2"
= 2.7083'

W = 25" - 13(½" middle bars)
= 18.5"
= 1.54'

Area = 2.7083' x 1.54'
= 4.18 ft²

Effective Area = 4.18*0.5 clogging factor
= 2.09 ft² at the grate

Orifice Equation

Q = CA sqrt(2gH)
Q = 0.6*2.09*sqrt(2*32.2*0.70)
Q = 8.42 cfs

VOLUME CALCULATIONS
First Flush Pond

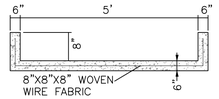
Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
Sa - Surface Area

Volume = ((Ab+Sa)/2) * D /43560

Ab = 289.00
At = 3,404.00
Dt = 3.00

ACTUAL ELEV.	DEPTH (FT)	SURFACE AREA (SF)	VOLUME (AC-FT)
5061.00	0.00	289	0.0000
5061.60	0.60	857	0.0079
5062.20	1.20	1447	0.0239
5062.80	1.80	2070	0.0487
5063.40	2.40	2723	0.0830
5064.00	3.00	3404	0.1272

0.0423 ac-ft for 1st flush



CONCRETE RUNDOWN DETAIL

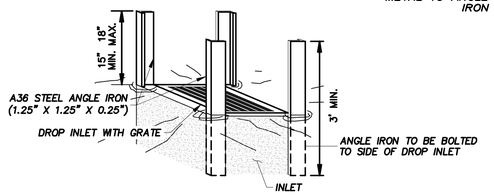
ENGINEER'S SEAL
RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER
5/31/2018
RONALD R. BOHANNAN P.E. #7868

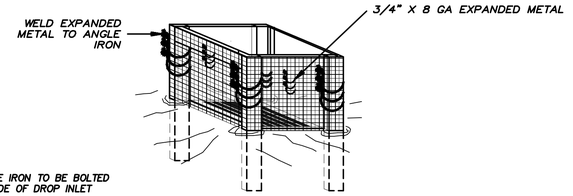
ENTERTAIMENT FACILITY 3930 PAN AMERICAN FRWY

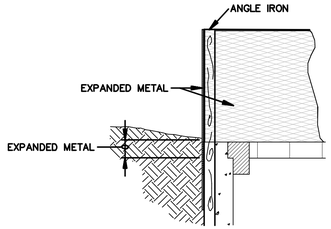
GRADING PLAN

DRAWN BY: pm
DATE: 5-14-18
DRAWING:
SHEET #: 3
JOB #: 2017042

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







POSTS: A36 ANGLE IRON (1.25" X 1.25" X 0.25")
FENCE: 3/4" X 8 GA EXPANDED METAL

EXPANDED METAL INLET PROTECTION

N.T.S.

ENGINEER'S SEAL

RONALD R. BOHANNAN NEW MEXICO 7868 PROFESSIONAL ENGINEER

5/31/2018

RONALD R. BOHANNAN
P.E. #7868

ENTERTAIMENT FACILITY
3930 PAN AMERICAN FRWY

GRADING DETAILS

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

DRAWN BY: pm
DATE: 5-14-18
DRAWING:
SHEET #: 3.1
JOB #: 2017042