

# DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 04/2009)

PROJECT TITLE: ABUNDANT LIFE GYMNASIUM ZONE MAP: M-10 D0006  
DRB#:                      EPC#: NA WORK ORDER#: NA

LEGAL DESCRIPTION: TRACT 2-A, SAN JOSE ARENAL

CITY ADDRESS: 2851 ARENAL ROAD SW

ENGINEERING FIRM: LORENZ DESIGN & CONSULTING CONTACT: DENNIS LORENZ  
ADDRESS: 2501 RIO GRANDE BLVD. NW SUITE A PHONE: 888-6088  
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87104

OWNER: ABUNDANT LIFE MINISTRIES CONTACT: LOREN MILLER  
ADDRESS: 2851 ARENAL ROAD SW PHONE: 401-2526  
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87121

ARCHITECT: RICK BENNETT ARCHITECTS CONTACT: R. BENNETT  
ADDRESS: 1104 PARK AVENUE SW PHONE: 242-1859  
CITY, STATE: ALBUQUERQUE, NEW MEXICO ZIP CODE: 87103

SURVEYOR: HARRIS SURVEYING CONTACT: G. MAPLES  
ADDRESS: 2815-A MONROE NE PHONE: 889-8056  
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87110

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

## TYPE OF SUBMITTAL:

           DRAINAGE REPORT  
           DRAINAGE PLAN 1<sup>st</sup> SUBMITTAL  
xx DRAINAGE PLAN RESUBMITTAL  
           CONCEPTUAL G & D PLAN  
           GRADING PLAN  
           EROSION CONTROL PLAN  
           ENGINEER'S CERT (HYDROLOGY)  
           CLOMR/LOMR  
           TRAFFIC CIRCULATION LAYOUT  
           ENGINEER'S CERT (TCL)  
           ENGINEER'S CERT (DRB SITE PLAN)  
           OTHER (SPECIFY)                     

## CHECK TYPE OF APPROVAL SOUGHT:

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

## WAS A PRE-DESIGN CONFERENCE ATTENDED:

xx YES  
           NO  
           COPY PROVIDED

DATE SUBMITTED: 08-19-2014 BY: DENNIS A. LORENZ

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 following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.



August 24, 2015

Rita Harmon, PE  
Senior Engineer, Hydrology  
Planning Department  
City of Albuquerque  
PO Box 1293  
Albuquerque, New Mexico 87103

**SUBJECT: ABUNDANT LIFE GYMNASIUM**  
**Grading and Drainage Plan (M10-D0006)**

Dear Rita:

Submitted herewith for review and approval are 2 copies of the Grading and Drainage Plan and Supplemental Calculations. The Plan and Calculations have been revised to address the comments issued by Amy Niese, PE, on December 2, 2014. Specifically, the comments have been address as follows:

1. The Plan has been submitted to Bernalillo County Public Works for review and approval. Comments issued by Don Briggs are attached. The plan now includes a Stormceptor inlet to remove oils and trash. The First Flush depth is also adjusted. Approval is pending.
2. Two (2) copies of the plan are provided for SO 19 purposes.
3. Detail J/C2.0 has been revised to include a stormceptor manhole that will capture oils and trash as required by Bernalillo County.
4. The sidewalk and ADA accessible areas have been revised per the updated site plan. All ADA areas are compliant.
5. The building and sidewalk in question are existing. Accessibility originates from the north and south sides of the building. This condition will not change. A note has been added to remove the existing sheds.
6. The overflow elevation of the spillway is 88.50 vs. 88.40 at the accepting asphalt.
7. The plan illustrates all spot elevations reported on the topographic survey. I have visited the site and verified that positive drainage exists in this area.
8. Landscaping areas were incorrectly labels as keyed note #13 instead of #12. This has been corrected.

I will forward the approval from Bernalillo County when available. If you have any questions, please call.

Sincerely,

**LORENZ DESIGN & CONSULTING, LLC**

Dennis A. Lorenz, PE

U\dennis\Lorenz Design\14-020\rh08182015



## Dennis Lorenz

---

**From:** Don R. Briggs <drbriggs@bernco.gov>  
**Sent:** Friday, December 26, 2014 1:58 PM  
**To:** Dennis Lorenz  
**Cc:** Amor Solano-Hood  
**Subject:** RE: Abundant Life Gymnasium

Hi Dennis,

I have not been able to obtain any design or as-built information on the public storm drain system in Arenal.

At this time, I will allow the discharge rate you are proposing. However, the first flush "retained" volume must be increased to that generated by 0.60" of rainfall with a total "retained + detained" volume equal to the 100yr. 6hr. runoff volume. We will also need a water quality outlet that will capture oils and trash onsite prior to discharging to the storm drain.

Please call if you have any questions.

-----  
  
Sincerely,

Don Briggs, PE, CFM  
Grading & Drainage Engineer  
Floodplain Administrator  
Bernalillo County Public Works Division  
2400 Broadway SE, Albuquerque, NM 87102  
Ph: (505) 848-1511; Fax: (505) 848-1510



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**From:** Dennis Lorenz [<mailto:DennisL@lorenznm.com>]  
**Sent:** Wednesday, December 03, 2014 2:34 PM

# SUPPLEMENTAL CALCULATIONS ABUNDANT LIFE GYMNASIUM

ALBUQUERQUE, NEW MEXICO

Prepared For:

Abundant Life Ministries  
2851 Arenal Road SW  
Albuquerque, New Mexico 87121

Prepared by:



August 2015





① POMS REQUIREMENT

- PROVIDE POMS FOR 1<sup>ST</sup> FLUSH OF NEW TYPE 'B' SURFACE.
- 1<sup>ST</sup> FLUSH VOL = 1416 CF

POMS VOL

ELEV	AREA SF	VOL CF
84	1970	0
87	2572	2271
88	3230	5172
88.4	3555	<u>6529 *</u>

\* ADDITIONAL VOLUME PROVIDED FOR FUTURE DEVELOPMENT

② POMS SPILLWAY

Q100 POMS A = 3.78 CFS



$$Q = CLH^{3/2}$$

$$C = 2.5$$

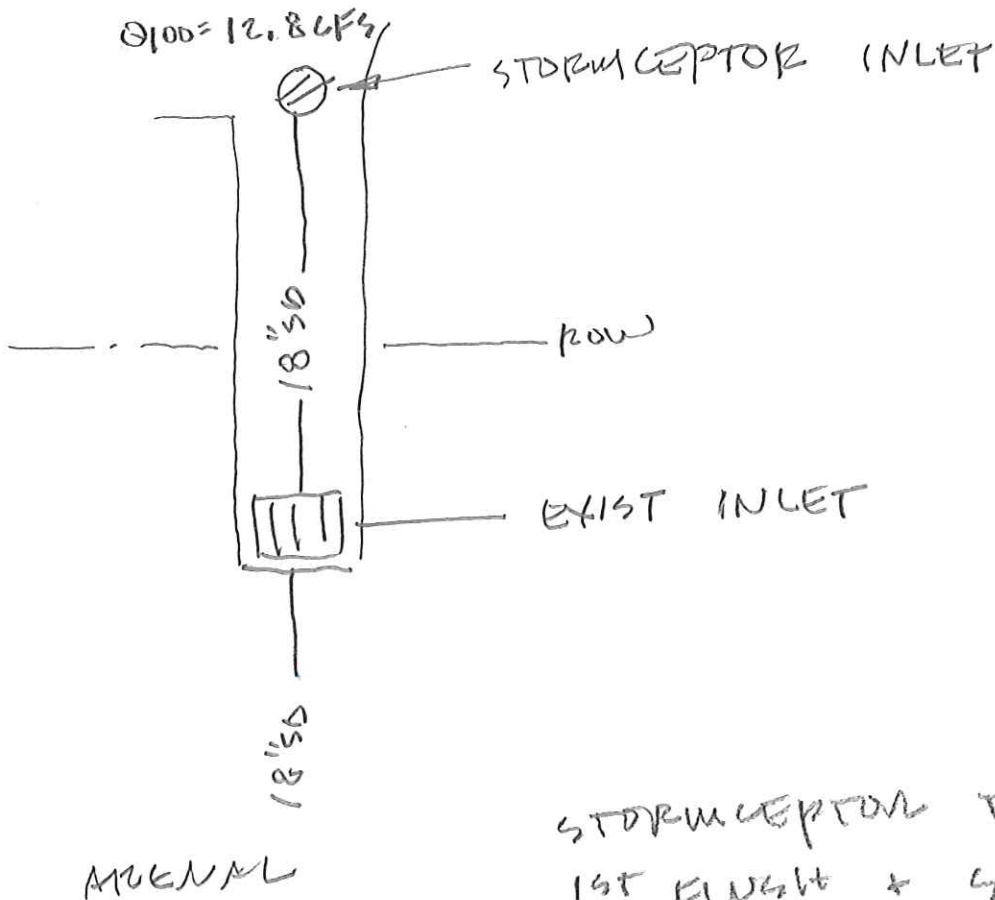
$$L = 5$$

$$H = 0.5$$

$$Q = 4.4 \text{ CFS} > Q100 \checkmark$$

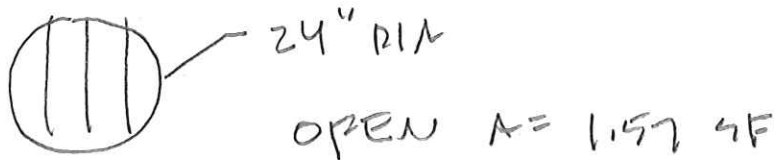
③ PROJECT OUTLET

- ① INSTALL OIL/TRANS INLET UPSTREAM OF PUBLIC INLET.



STORMCEPTOR TO COLLECT  
1ST FLUSH + SMALL STORMS  
TO REMOVE TRASH + OIL  
PUBLIC INLET TO COLLECT  
100 YR FLOW.

(A) STORMWATER CAPACITY



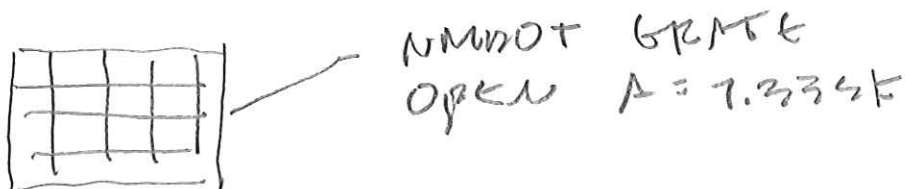
$$Q = CA \sqrt{2gh}$$

$$\begin{aligned} C &= 0.6 \\ A &= 1.57 \text{ SF} \\ q &= 32.2 \text{ F/s}^2 \\ h &= 6" \end{aligned}$$

$$\Rightarrow Q = 5.35 \text{ cfs}$$

APPROX 2-YR STORM

(B) PUBLIC INLET



$$Q = CA \sqrt{2gh}$$

$$\begin{aligned} C &= 0.6 \\ A &= 7.33 \text{ SF} \\ q &= 32.2 \text{ F/s}^2 \\ h &= 0" \end{aligned}$$

$$\Rightarrow Q = 28.9 \text{ cfs} > Q_{100}$$



# Free Online Manning Pipe Flow Calculator

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[Hydraulics](#)
[Language](#)

## Manning Formula Uniform Pipe Flow at Given Slope and Depth

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Printable Title

STORMWATER OUTLET  
Q = 5.35 cfs

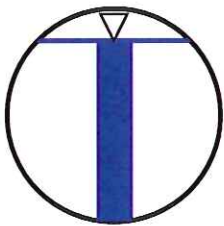
Printable Subtitle

Results:

Set units:

Pipe diameter, $d_0$	1.5 ft ▼
Manning roughness, $n$ ?	.013
Pressure slope (possibly ? equal to pipe slope), $S_0$	.01 rise/run ▼
Percent of (or ratio to) full depth (100% or 1 if flowing full)	.85 fraction ▼

Flow, $q$	10.8233	cfs ▼
Velocity, $v$	6.7607	ft/sec ▼
Velocity head, $h_v$	0.7104	ft ▼
Flow area	1.6010	ft <sup>2</sup> ▼
Wetted perimeter	3.5193	ft ▼
Hydraulic radius	0.4549	ft ▼
Top width, $T$	1.0712	ft ▼
Froude number, $F$	0.98	
Shear stress (tractive force), $\tau$	0.7961	psf ▼



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Last Modified 08/24/2015 09:50:31

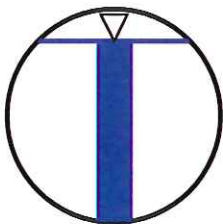
# Free Online Manning Pipe Flow Calculator

[List of Calculators](#)
[Hydraulics](#)
[Language](#)

## Manning Formula Uniform Pipe Flow at Given Slope and Depth

[Can you help me translate this calculator to your language or host this calculator at your web site?](#)

Printable Title		PUBLIC INLET OUTLET	
Printable Subtitle		24" = 12.8 cfs	
Set units: <input type="text" value="m"/> <input type="text" value="mm"/> <input type="text" value="ft"/> <input type="text" value="inches"/>		Results:	
Pipe diameter, $d_0$	1.5 ft ▼	Flow, $q$	15.3065 cfs ▼
Manning roughness, $n$ ?	.013	Velocity, $v$	9.5611 ft/sec ▼
Pressure slope (possibly ? equal to pipe slope), $S_0$	.02 rise/run ▼	Velocity head, $h_v$	1.4207 ft ▼
Percent of (or ratio to) full depth (100% or 1 if flowing full)	.85 fraction ▼	Flow area	1.6010 ft <sup>2</sup> ▼
		Wetted perimeter	3.5193 ft ▼
		Hydraulic radius	0.4549 ft ▼
		Top width, $T$	1.0712 ft ▼
		Froude number, $F$	1.38
		Shear stress (tractive force), $\tau$	1.5922 psf ▼



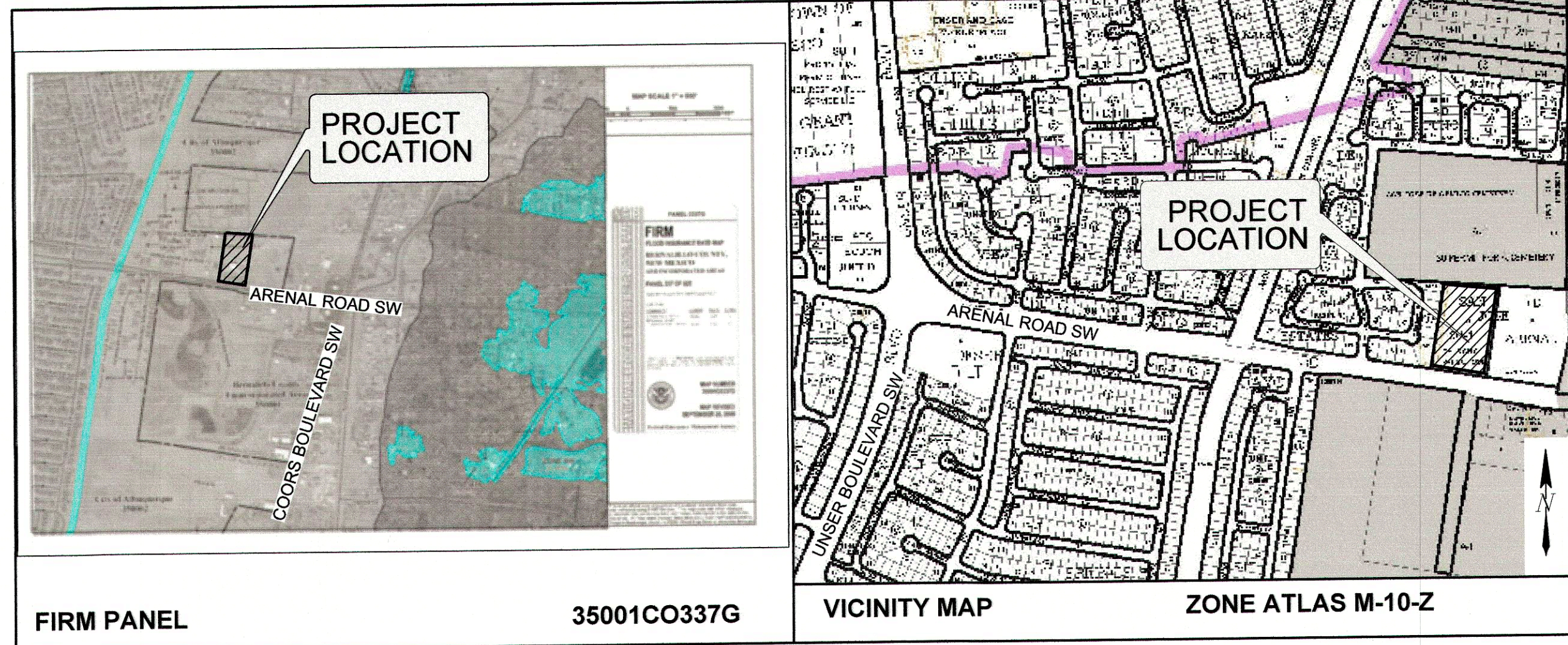
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Last Modified 08/24/2015 09:50:31



SAN JOSE DE ARMIJO CEMETARY  
QUICK CLAIM DEED  
FILED: 09/20/1986  
BK. 0230A, PG. 014



**LORENZ**  
DESIGN & CONSULTING, LLC  
Civil Engineering | Construction Management  
2501 Rio Grande Blvd NW, Suite A  
Albuquerque, NM 87104  
Ph: 505-263-6081 Fax: 505-242-6655

FIRM PANEL

35001CO337G

VICINITY MAP

ZONE ATLAS M-10-Z

#### KEYED NOTES

- EXISTING CONCRETE CURB.
- EXISTING ASPHALT PAVEMENT.
- EXISTING CONCRETE SIDEWALK.
- EXISTING STORM INLET.
- EXISTING HANDICAP RAMP.
- REMOVE AND REPLAC EXISTING CONCRETE CHANNEL PER DETAIL J/C-2.0.
- EXISTING CONCRETE PAD TO BE REMOVED AND DISPOSED.
- EXISTING RETAINING WALL.
- EXISTING SLOPE PAVEMENT.
- EXISTING BLOCK WALL.
- EXISTING WROUGHT IRON FENCE.
- EXISTING LANDSCAPING.
- EXISTING CMU RETAINING WALL - 2 COURSES HIGH.
- CONSTRUCT ASPHALT PAVEMENT.
- CONSTRUCT CONCRETE CURB.
- END CONCRETE CURB.
- CONSTRUCT TURNDOWN SIDEWALK.
- CONSTRUCT HANDICAP RAMP-TYPE I PER DETAIL E/C2.0.
- CONSTRUCT HANDICAP RAMP-TYPE II PER DETAIL F/C2.0.
- INSTALL HANDICAP PARKING STRIPING PER CODE.
- INSTALL HANDICAP PARKING SIGNAGE PER CODE.
- NO CURB ALONG SIDEWALK. TOP OF PAVEMENT AT TOP OF SIDEWALK.
- INSTALL CONCRETE TIRE STOP.
- PROPOSED EDGE OF ASPHALT - NO CURB.
- CONSTRUCT ACCESSIBLE RAMPS. SEE SHEET A-4.1.
- CONSTRUCT RETAINING WALL. DESIGN BY OTHERS.
- CONSTRUCT STORMWATER RETENTION POND.
- CONSTRUCT CONCRETE OVERFLOW SPILLWAY PER DETAIL H/C2.0.
- CONSTRUCT STORMCEPTOR INLET & 18-INCH STORM DRAIN. SEE DETAIL L/C-2.0.
- INSTALL 6-INCH PVC CULVET UNDER HANDICAP RAMP.
- INSTALL 12-INCH SIDEWALK CULVERT.

#### LEGEND

ITEM	EXISTING	PROPOSED
CURB AND GUTTER		
HEADER CURB		
CURB ELEVATIONS		
SPOT ELEV.		16.7
RIGHT OF WAY		
EASEMENT		
CENTERLINE		
TOP OF ASPHALT ELEV.	TA 16.2	TA 16.2
RETAINING WALL		
FLOWLINE ELEV	EX FL 16.2	FL 16.2
FUTURE CURB AND GUTTER (N.I.C.)		
NEW PAVING		
DRAINAGE SWALE		
DIRECTION OF FLOW		
DRAINAGE BASIN DIVIDE		

#### GRADING AND DRAINAGE PLAN

##### PURPOSE AND SCOPE

Pursuant to the Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Grading and Drainage Plan outlines the drainage management criteria for controlling development runoff from the project site. The project consists of the construction of a 9,000 square foot gymnasium with paving, landscaping, utility, grading, and drainage improvements to support the project. The purpose of this Plan is to support building permit approval. The scope of this plan is to present grading and drainage criteria for the safe management of excess runoff impacting the site from upstream drainage basins, and controlling excess runoff from the project site in a well-managed, non-erosive manner.

##### EXISTING CONDITIONS

The property is located at 2851 Arenal Road SW, between Unser Blvd and Coors Road SW. The site is presently developed as Abundant Life Ministries. The southerly portion of the site is fully developed. The northerly portion is planned for future development. All excess runoff flows south by yard swales and paving improvements to an existing storm inlet located near the south east corner of the property. The inlet drains all site flows to a public storm drain located in Arenal Road SW. The north and west property boundaries are sealed by solid perimeter walls. The property to the east drains away from the property. No off-site flows impact the site.

As shown by the attached FIRM Panel, the site does not lie within a mapped 100 year Flood Zone.

##### DRAINAGE MASTERPLANS

The drainage plan of record, entitled *Grading and Drainage Plan for Abundant Life Church*, prepared by Frank Lovelady, PE, 10-29-1990, recommended temporary retention ponding pending construction of public storm drainage improvements. After construction of the Amole-Hubbel improvements, which captured all flows west of the project site, and the widening of Arenal Road in 2007, the retention ponds were removed. The project has functioned as a free discharge property since construction of those public improvements.

##### PROPOSED IMPROVEMENTS

As stated above, the project consists of the construction of a 9,000 square foot gymnasium with paving, landscaping, utility, grading, and drainage improvements. All developed runoff will be routed through landscaping to a retention pond capture the first flush before release into the perimeter streets. All excess runoff will be collected by a new stormceptor inlet that will remove oils and trash before draining to the existing storm inlet and the public storm drain system located in Arenal Road SW. The inlet will be connected to the existing public storm inlet. SO-19 permitting will apply.

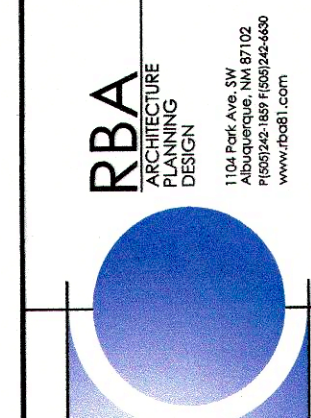
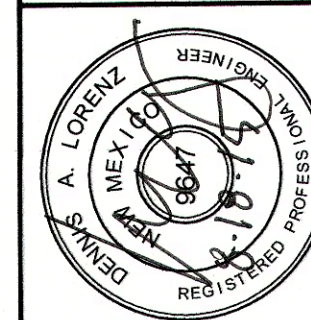
Construction will disturb an area of more than 1.0 acres; therefore a Storm Water Pollution Prevention Plan will be required.

##### CALCULATIONS

The calculations shown herein define the 100-year/6 hour design storm falling within the project area under existing and proposed conditions. The hydrology is per "Section 22.2, Part A, Development Process Manual, Vol 2", dated June 1997.

ABUNDANT LIFE GYMNASIUM  
GRADING & DRAINAGE PLAN  
ALBUQUERQUE, NM  
PROJECT #14-020

REVISION DATE

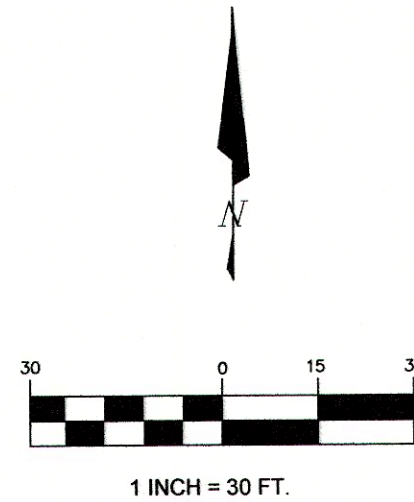


DATE  
08-18-2015

SHEET NUMBER  
C-1.0

TRACT 1-A  
SAN JOSE ARENAL  
FILED: 01/13/2000  
BK. 2000C, PG. 14

TRACT 3-A  
SAN JOSE ARENAL  
FILED: 01/13/2000  
BK. 2000C, PG. 14



PROJECT HYDROLOGY									
AHYMO									
ZONE:	1	<div>Abundant Life Gymnasium</div>							
P <sub>6HOUR</sub>	2.20								
P <sub>10 DAY</sub>	3.67								
90th PSE	0.44								
EXISTING CONDITIONS									
BASIN	AREA (ac)	A (ac)	B (ac)	C (ac)	D (ac)	E	Q (cfs)	VOL (ac ft)	
SITE	3.68	0.00	0.95	1.58	1.15	1.21	11.49	0.372	
PROPOSED CONDITIONS									
BASIN	AREA (ac)	A (ac)	B (ac)	C (ac)	D (ac)	E	Q (cfs)	VOL (ac ft)	
SITE	3.68	0.00	0.75	1.00	1.93	1.44	12.83	0.441	
A	1.20	0.00	0.22	0.63	0.35	1.22	3.78	0.122	
B	2.48	0.00	0.53	0.37	1.58	1.55	9.04	0.320	

#### FIRST FLUSH VOLUME:

NEW Ad = 0.78 ACRES  
90th % Depth = 60 in  
Less IA = 0.10  
First Flush depth = 0.50 in.

Pond Volume = 1,416 cf.

#### PROJECT DATA

##### SURVEY:

TOPOGRAPHIC SURVEY PERFORMED AND COMPILED BY HARRIS SURVEYING, INC., 2412-D MONROE STREET, NE, NEW MEXICO NOVEMBER 2014.

##### PROPERTY ADDRESS:

2851 ARENAL RD. SW, ALBUQUERQUE, NEW MEXICO

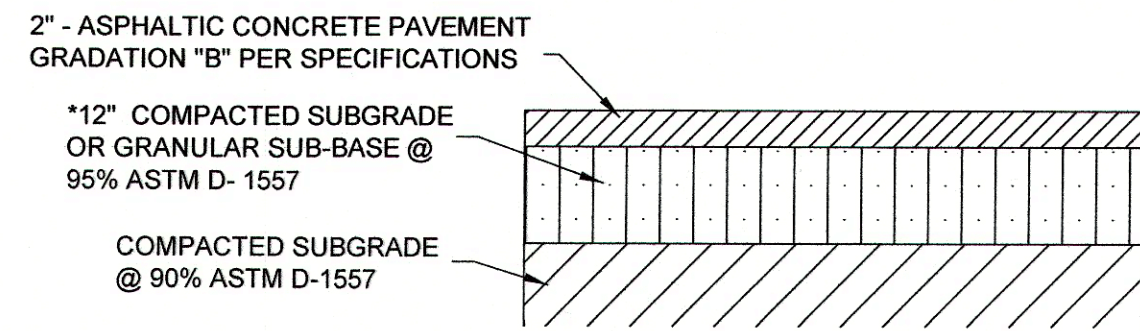
##### LEGAL DESCRIPTION:

TRACT 2-A, SAN JOSE ARENAL

##### PROJECT BENCHMARK

PROJECT BENCHMARK IS A FOUND CITY OF ALBUQUERQUE SURVEY CONTROL 3 1/4" ALUMINUM DISC STAMPED "4, M10 2002". TO REACH STATION FROM THE INTERSECTION OF COORS BOULEVARD AND ARENAL ROAD SW TRAVEL WEST ON ARENAL ROAD 0.48 MILES TO THE AMOLE DEL NORTE DIVERSION CHANNEL. THE STATION IS LOCATED ON THE SOUTH CURB ON CHANNEL CENTERLINE. ELEVATION = 5,011.16 FEET (NAVD 1988 VERTICAL DATUM).

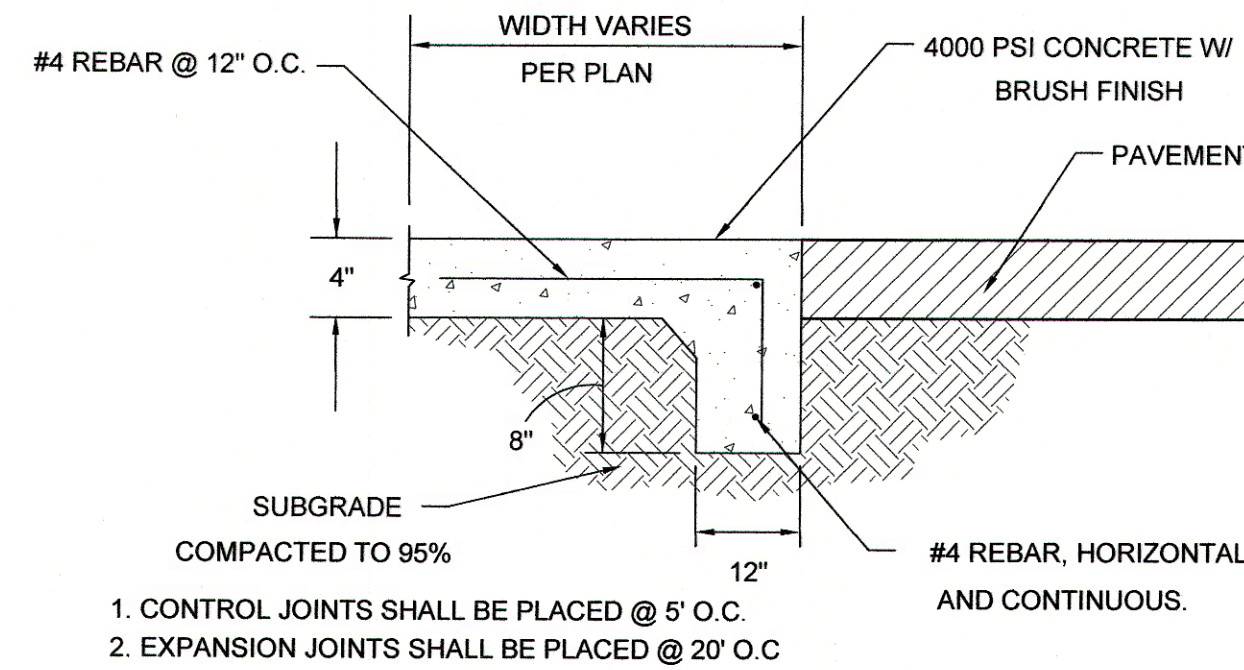




# ASPHALT PAVEMENT

NTS

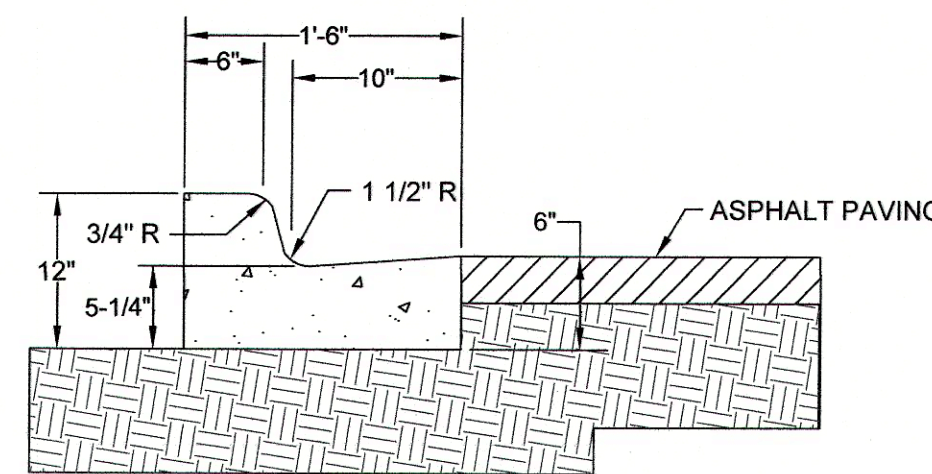
A  
C-2.0



# TURN DOWN SIDEWALK AT ACCESSIBLE ZONES

NTS

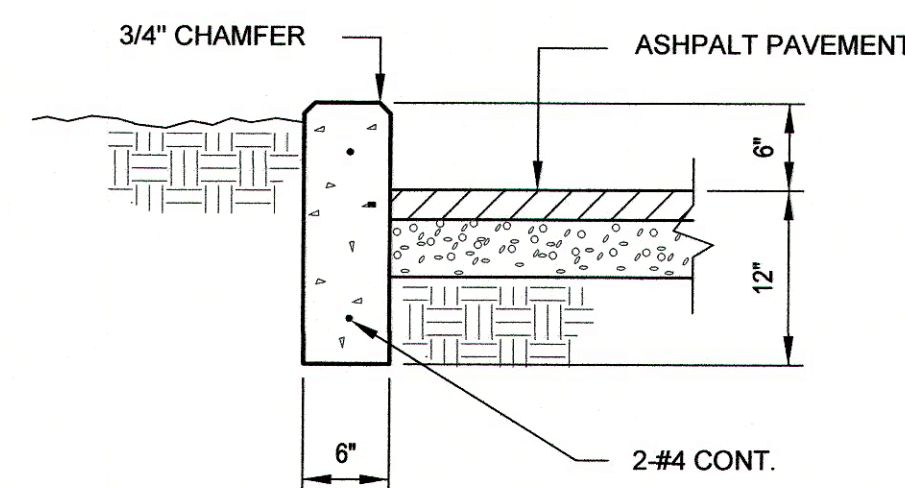
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C-2.0



# CONCRETE CURB AND GUTTER

NTS

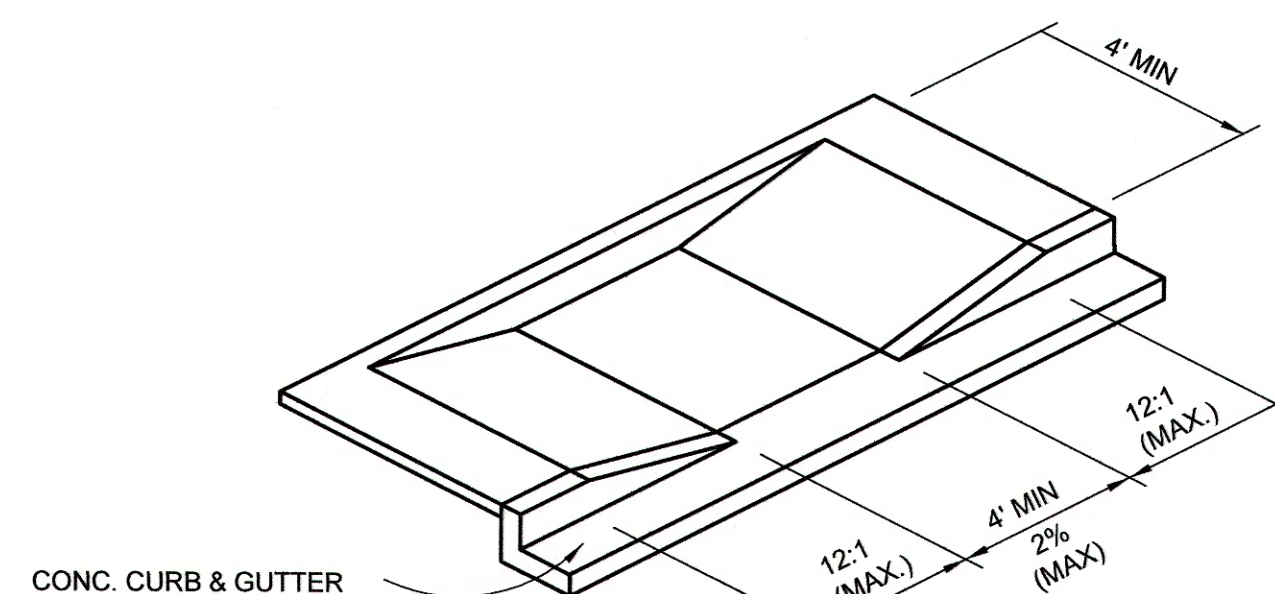
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C-2.0



# HEADER CURB DETAIL

NTS

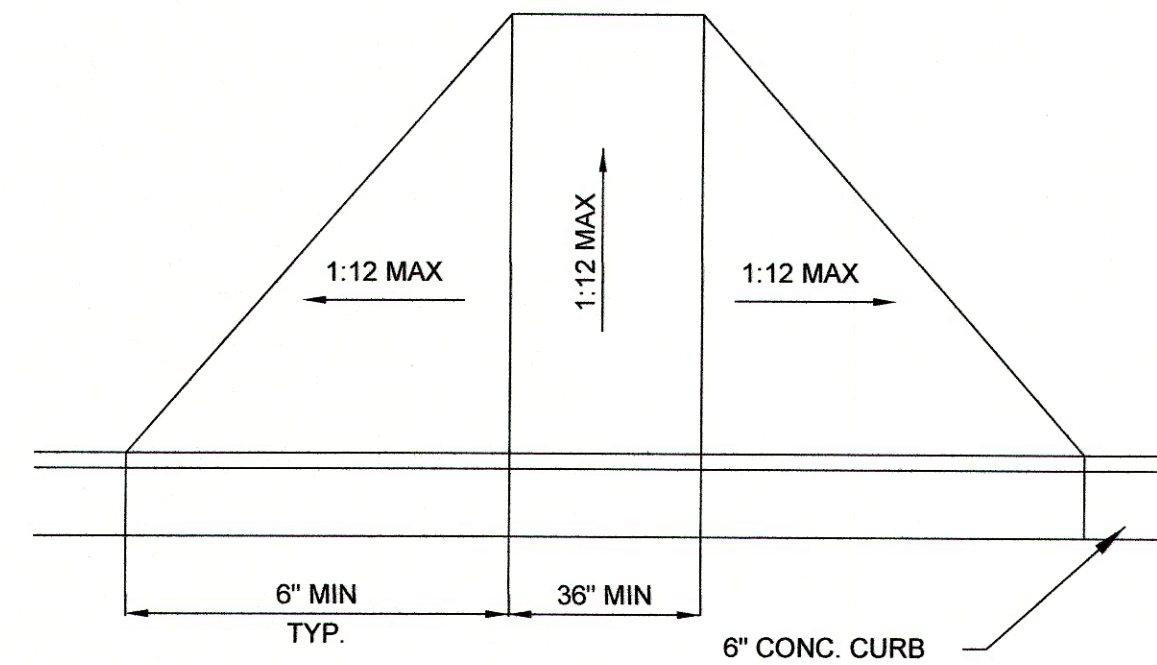
D  
C-2.0



# HANDICAP RAMP DETAIL - TYPE I

NTS

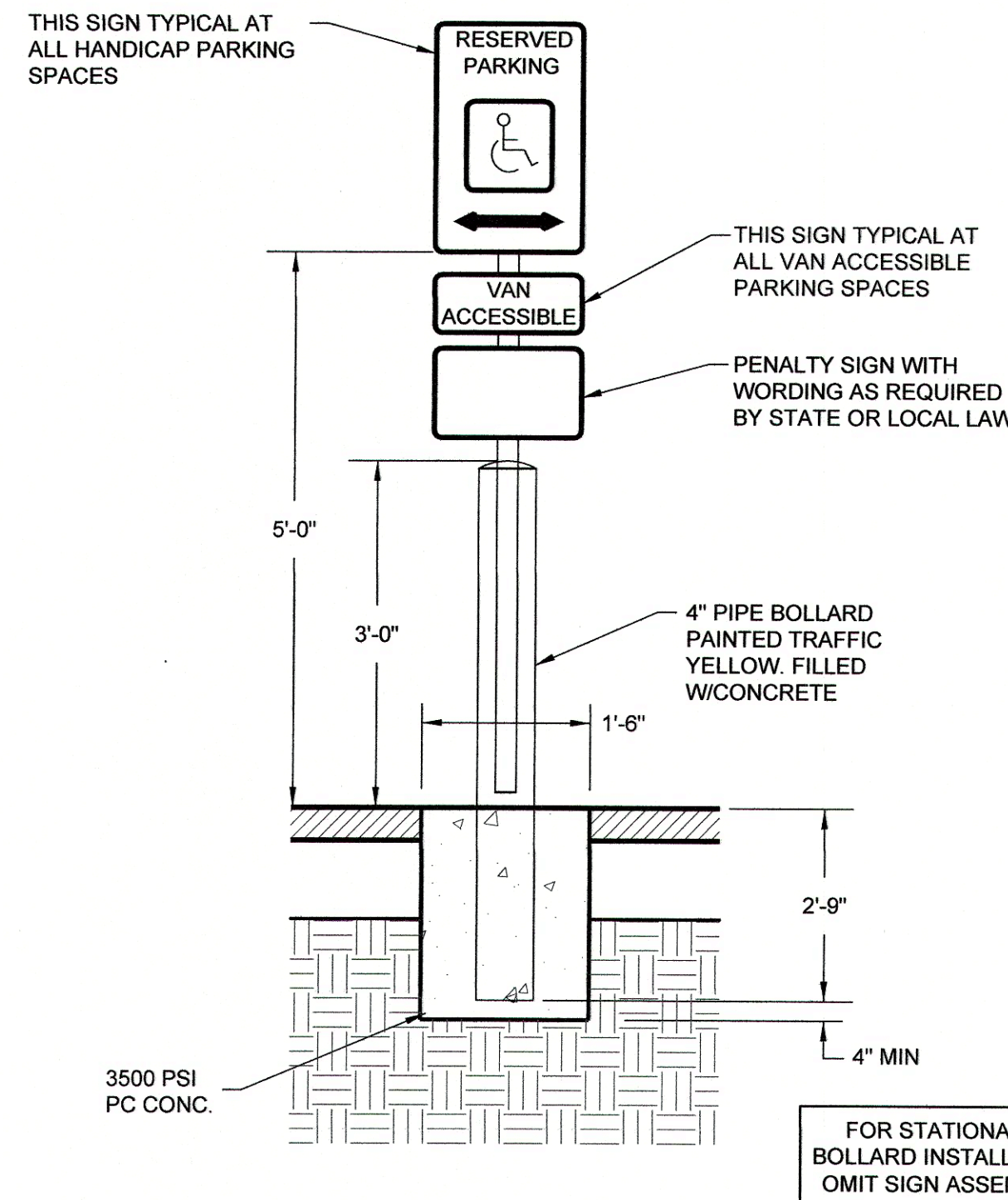
E  
C-2.0



# HANDICAP RAMP DETAIL - TYPE II

NTS

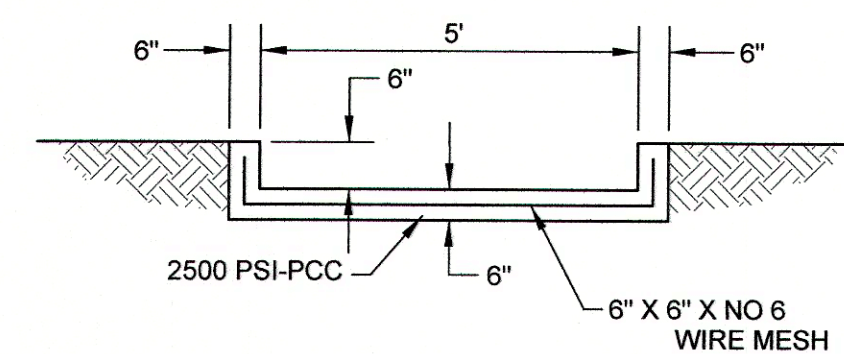
F  
C-2.0



# HC SIGN ASSEMBLY / BOLLARD DETAIL

NTS

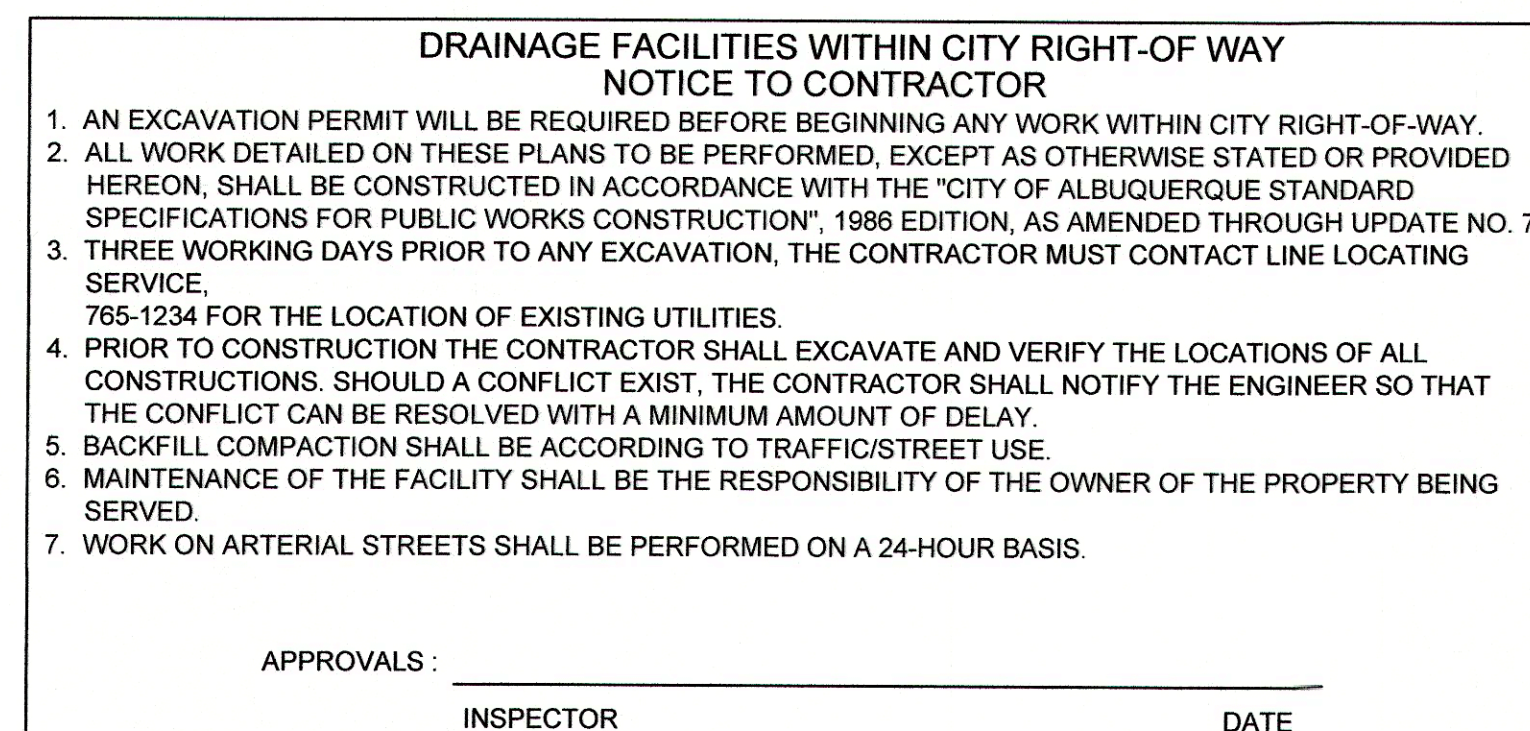
G  
C-2.0



# POND OVERFLOW SPILLWAY

NTS

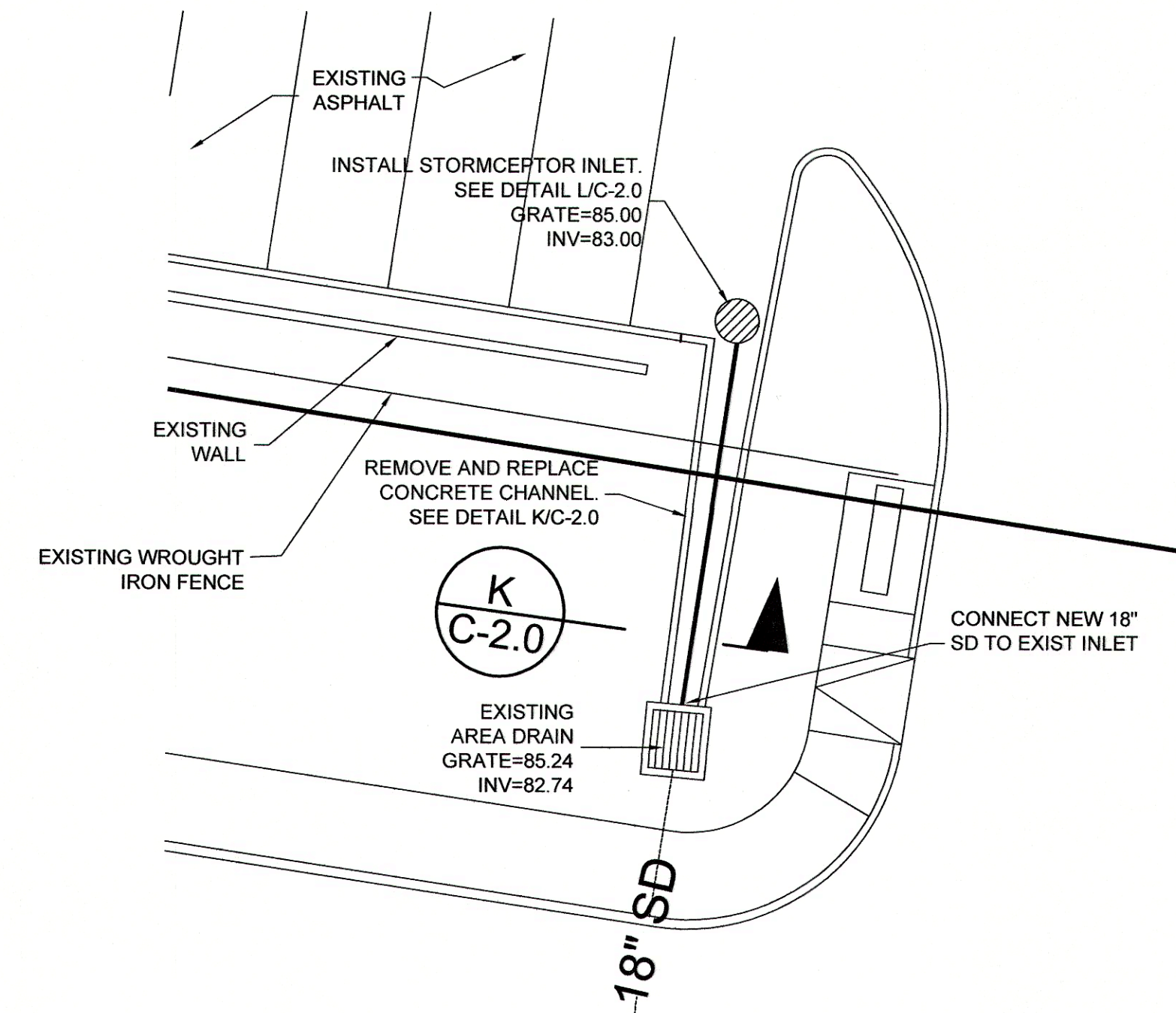
H  
C-2.0



APPROVALS:

INSPECTOR

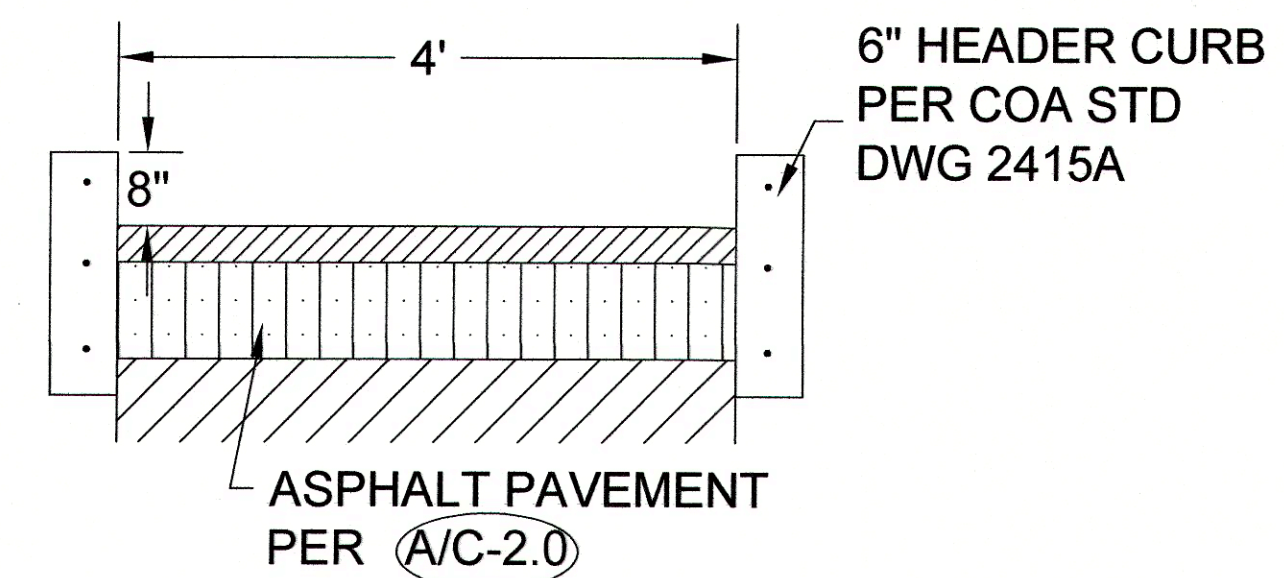
DATE



# DRAINAGE CHANNEL DETAIL

NTS

J  
C-2.0

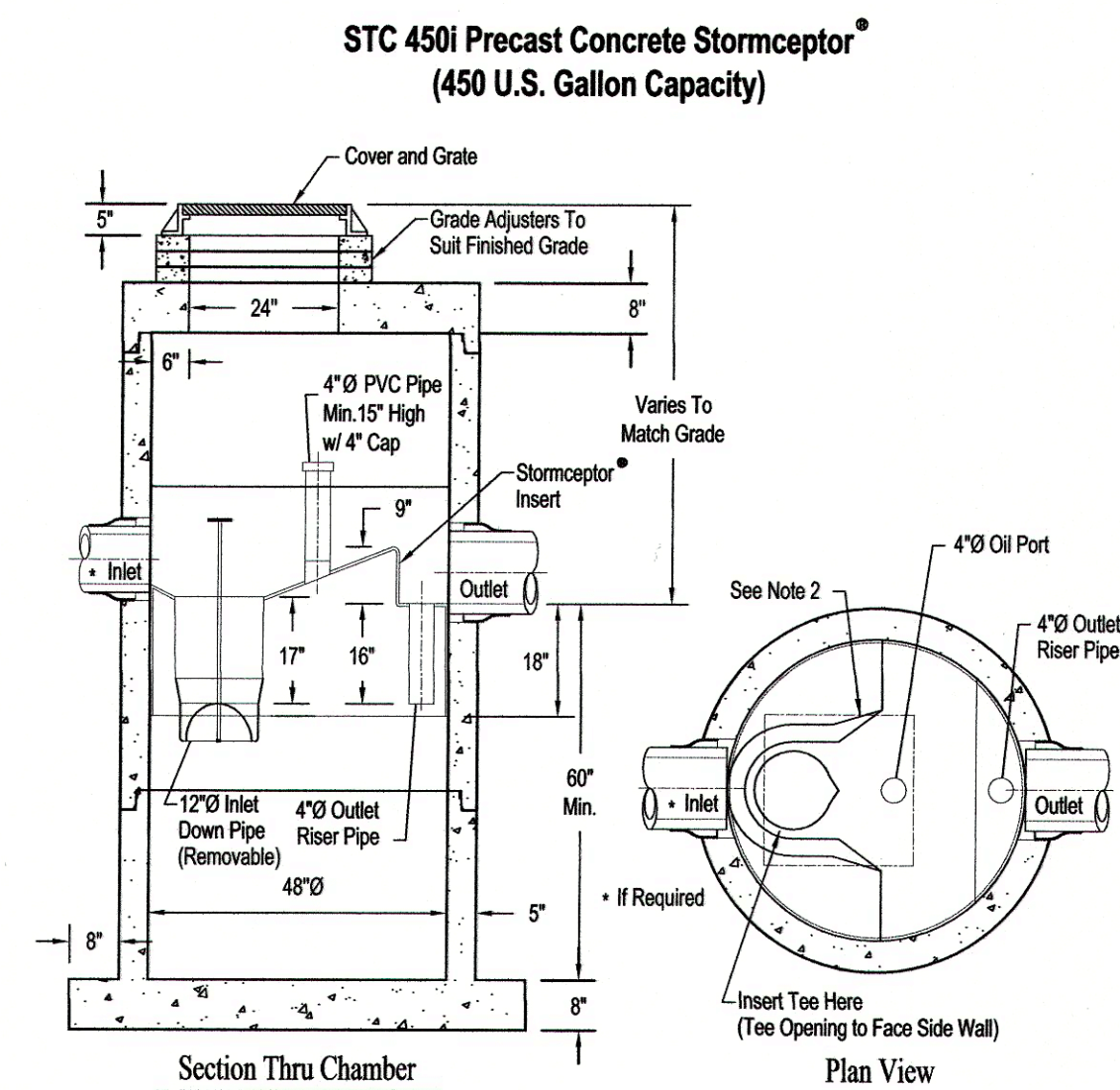


# DRAINAGE CHANNEL CROSS SECTION

NTS

K  
C-2.0

Rinker Concrete Pipe Division



Notes:

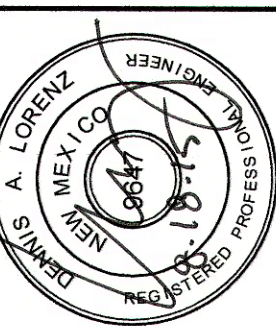
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

Rinker 027

# STORMCEPTOR INLET

L  
C-2.0

REVISION DATE



**RBA**  
ARCHITECTURE  
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DATE  
08-18-2015

SHEET NUMBER  
C-2.0



# CITY OF ALBUQUERQUE



September 11, 2015

Dennis Lorenz, P.E.  
Lorenz Design & Consulting  
2501 Rio Grande Blvd. NW Suite A  
Albuquerque, New Mexico 87107

**RE: Abundant Life Gymnasium  
2851 Arenal Rd SW  
Grading and Drainage Plan  
Engineers Stamp Date 8/18/15 (M10D006)**

Dear Mr. Lorenz,

Based upon the information provided in your submittal received 8/24/2015, the above referenced Grading and Drainage Plan is acceptable for Grading Permit and Building Permit. Attach a copy of this approved plan to the construction sets in the permitting process prior to sign-off by Hydrology. This plan is also approved for SO-19. Contact Jason Rodriguez at 235-8016 to schedule an inspection for the side walk culvert before and after concrete is placed. A separate Excavation/Barricading Permit is required for SO-19 construction within City ROW. A copy of this approval letter must be on hand when applying for the permit.

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 924-3986 or Rudy Rael at 924-3977.

Sincerely,

Rita Harmon, P.E.  
Senior Engineer, Hydrology  
Planning Department

RR/RH  
C: File