

# CITY OF ALBUQUERQUE

Planning Department  
David Campbell, Director



Mayor Timothy M. Keller

July 24, 2018

Hugh W. Floyd, P.E.  
Respec  
5971 Jefferson St. NE  
Albuquerque, NM 87109

**RE: Legacy NAA Apartments 2  
Conceptual Grading and Drainage Plan  
Engineer's Stamp Date: 7/16/18  
Hydrology File: C18D083**

Dear Mr. Floyd:

Based on the resubmittal received 7/16/2018, the Conceptual Grading and Drainage Plan is approved for action by the DRB on the Site Plan for Building Permit.

PO Box 1293

Prior to Building Permit (For Information):

Albuquerque

1. Please provide a Private Facility Drainage Covenant per Chapter 17 of the DPM for the first flush ponds and the retention ponds prior to Building Permit approval.
2. Correct the orifice plate size (0.80") and provide its supporting calculations.
3. Additional comments may be provided at Building Permit, based on the outcome of the above remarks and level of detail shown on plans.

NM 87103

www.cabq.gov

If you have any questions, please contact me at 924-3695 or [dpeterson@cabq.gov](mailto:dpeterson@cabq.gov).

Sincerely,

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

C: Email: Brissette, René

# Hydrology

## Hydrology Calculations

The following calculations are based on Albuquerque's Development Process Manual, Section 22.2

### Runoff Rate:

Treatment Type Areas	Subbasin	Area <sub>1</sub> (ac)	Area <sub>2</sub> (ac)	Area <sub>3</sub> (ac)	Area <sub>4</sub> (ac)	Total (ac)
Subbasin North	0	0.11	0.11	1.62	1.84	1.84
Subbasin South	0	0.05	0.05	1.62	1.72	1.72
Subbasin West	0	0.23	0.09	0.54	0.85	0.85
NAA Allowable	0	1.50	0.71	2.21	4.4100	

Peak Discharge values based on Zone 3 from Table A.9

$$Q_A = 1.87 \text{ cfs/ac} \quad Q_B = 2.60 \text{ cfs/ac} \quad Q_C = 3.45 \text{ cfs/ac} \quad Q_D = 5.02 \text{ cfs/ac}$$

Peak Discharge calculation for a 100-yr, 24-hr storm event from equation A-10

Subbasin	Discharge (cfs)
Subbasin North	8.8
Subbasin South	8.4
Subbasin West	3.6
Total	20.8
NAA Allowable	17.4

## A-HYMO - Input

```

24-HR, 100 YEAR STORM EVENT
RAINFALL TYPE=13 RAIN QUARTER=0.0 RAIN ONE=2.14
RAIN SIX=2.60 RAIN DAY=3.10 DF=0.05 HRS
***** COMPUTE SAN PEDRO STORM DRAIN PROJECT (THOMPSON REPORT)
***** BASIN 117.20-NORTH
COMPUTE NM HYD ID=1 HYD NO=SPSDP.BASIN.117.2 DA=0.00348 SQ MI
PER A=0 PER B=34 PER C=16 PER D=50
TP=0.1333 HR MASS RAIN=1
ID=1 CODE=20
PRINT HYD
***** BASIN 117.30-SOUTH
COMPUTE NM HYD ID=2 HYD NO=SPSDP.BASIN.117.3 DA=0.00346 SQ MI
PER A=0 PER B=34 PER C=16 PER D=50
TP=0.1333 HR MASS RAIN=1
ID=2 CODE=20
PRINT HYD
***** SUBBASIN NORTH
COMPUTE NM HYD ID=3 HYD NO=BasinNorth DA=0.00288 SQ MI
PER A=0 PER B=6 PER C=6 PER D=90
TP=0.1333 HR MASS RAIN=1
ID=3 CODE=20
PRINT HYD
***** SUBBASIN SOUTH
COMPUTE NM HYD ID=4 HYD NO=BasinSouth DA=0.00270 SQ MI
PER A=0 PER B=3 PER C=3 PER D=94
TP=0.1333 HR MASS RAIN=1
ID=4 CODE=20
PRINT HYD
***** SUBBASIN WEST
COMPUTE NM HYD ID=5 HYD NO=BasinWest DA=0.00134 SQ MI
PER A=0 PER B=27 PER C=10 PER D=63
TP=0.1333 HR MASS RAIN=1
ID=5 CODE=20
PRINT HYD
***** NORTH POND ROUTING - POND RATING CURV
ROUTE RESERVOIR ID=7 HYD=POND1 INFLOW ID=3 CODE=1
ROUTE RESERVOIR ID=7 HYD=POND1 INFLOW ID=3 CODE=1
OUTFLOW (CFS) STORAGE (AC FT) ELEV (FT)
0 0 5222
0.01 0.0097 5223
0.01 0.0263 5224
0.01 0.0460 5225
2.5 0.0668 5226
3.5 0.0871 5227
4.3 0.1055 5228
4.9 0.1195 5229
5.2 0.1232 5229.5
PRINT HYD ID=7 CODE=20
  
```

LEGEND	DESCRIPTION
---	PROPERTY LINE
---	EXISTING RETAINING WALL
---	EXIST SD
○	EXIST SD MANHOLE
---	EXIST SD INLET
---	FLOW LINE
---	PROPOSED RETAINING WALL
---	PROPOSED SUBBASIN BOUNDARY
---	PROPOSED SD
○	PROPOSED SD INLET
○	PROPOSED SD MANHOLE

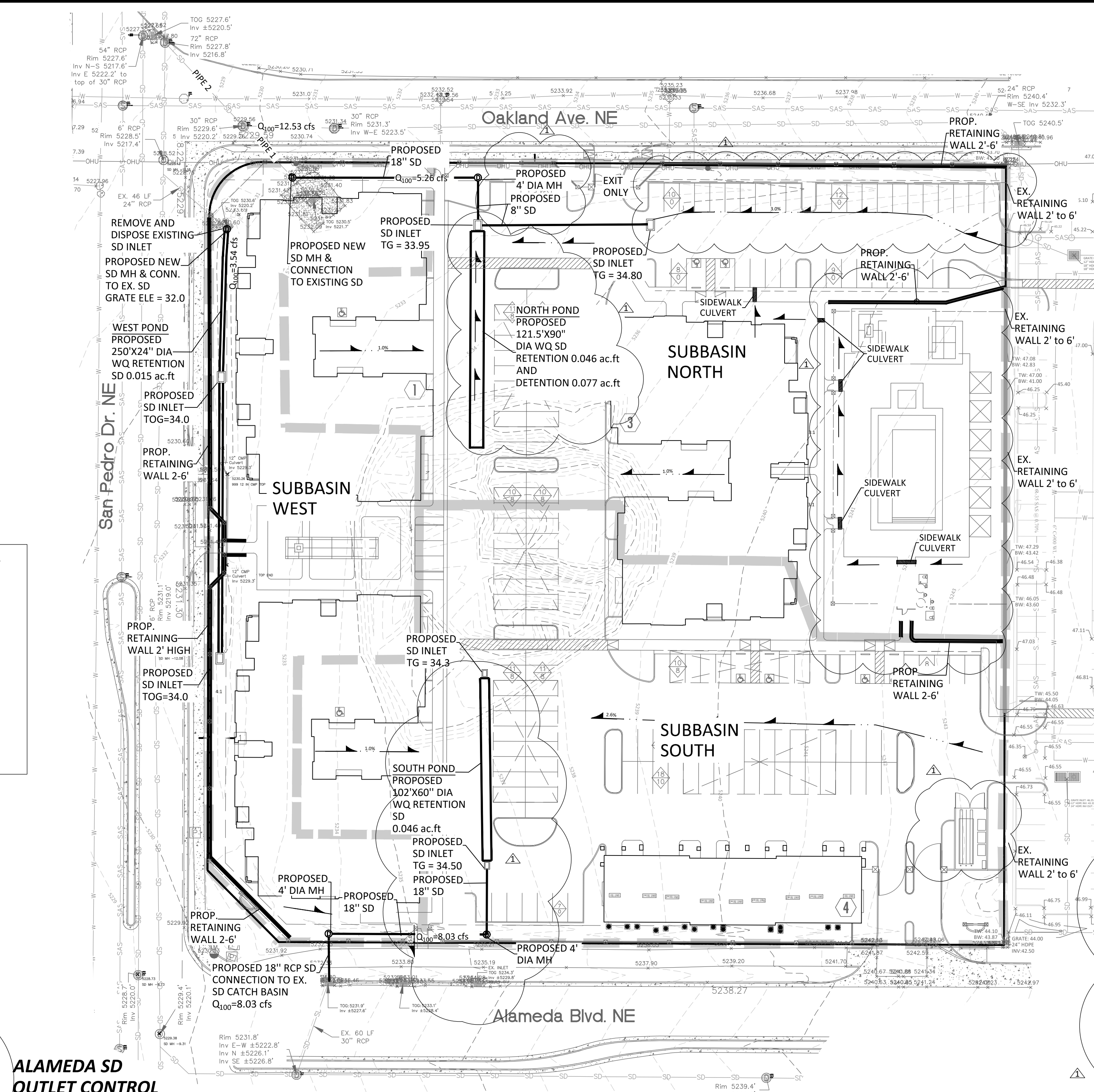
## A-HYMO - Output

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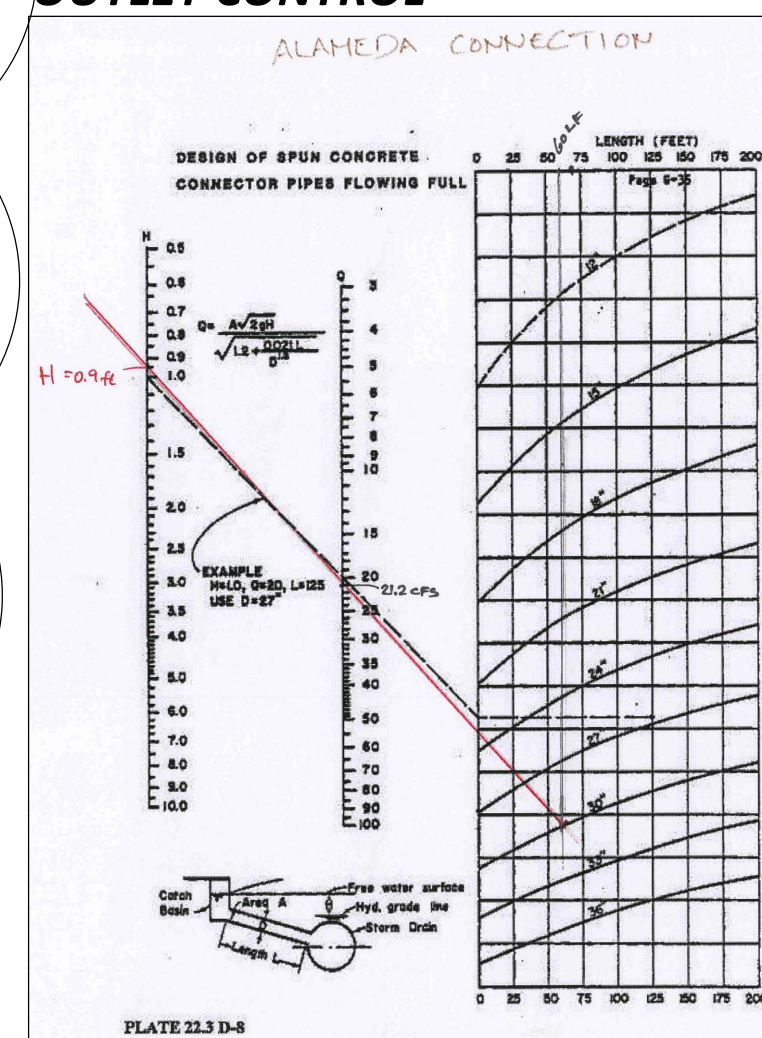
A-HYMO PROGRAM SUMMARY TABLE (A-HYMO-S4)
INPUT FILE = lameda Louis Apt#4. ENG\H&M Calca\A-HYMO\A-HYMO 7.10.18\NANF - 90' pipe.txt USER NO. = A-HYMO-S4TempUser05901704
- Ver. 84.02a, Rel: 02a RIN DATE (MON/DAY/YR) = 07/16/2018
COMMAND HYDROGRAPH ID ID AREA DISCHARGE RINOFF VOLUME RUNOFF PEAK CFS PAGE = 1
IDENTIFICATION NO. NO. (SQ MI) (CFS) (AC-FT) (INCHES) (HOURS) PER ACRE NOTATION
***** PROJECT NAME: LEGACY NAA APARTMENTS PHASE 2
***** JOB NO. = 03231
***** DATE: July 16 2018
***** INPUT FILE NAME: NANF.hym
***** OUTPUT FILE NAME: NANF.out
*****
RAINFALL TYPE=13 RAIN24= 3.100
***** COMPUTE SAN PEDRO STORM DRAIN PROJECT (THOMPSON REPORT)
***** BASIN 117.20-NORTH
COMPUTE NM HYD SPSPD.BASIN. 1 0.00348 8.67 0.360 1.94076 1.500 3.894 PER IMP= 50.00
***** BASIN 117.30-SOUTH
COMPUTE NM HYD SPSPD.BASIN. 2 0.00346 8.62 0.358 1.94076 1.500 3.894 PER IMP= 50.00
***** SUBBASIN NORTH
COMPUTE NM HYD BasinNorth 3 0.00288 8.69 0.407 2.64914 1.500 4.715 PER IMP= 88.24
***** SUBBASIN SOUTH
COMPUTE NM HYD BasinSouth 4 0.00270 8.34 0.396 2.75109 1.500 4.827 PER IMP= 94.00
***** SUBBASIN WEST
COMPUTE NM HYD BasinWest 5 0.00134 3.57 0.155 2.17270 1.500 4.164 PER IMP= 63.00
***** NORTH POND ROUTING - POND RATING CURV
ROUTE RESERVOIR POND1 3 7 0.00288 4.77 0.407 2.64902 1.650 2.588 AC-FT= 0.116
  
```

## Water Quality

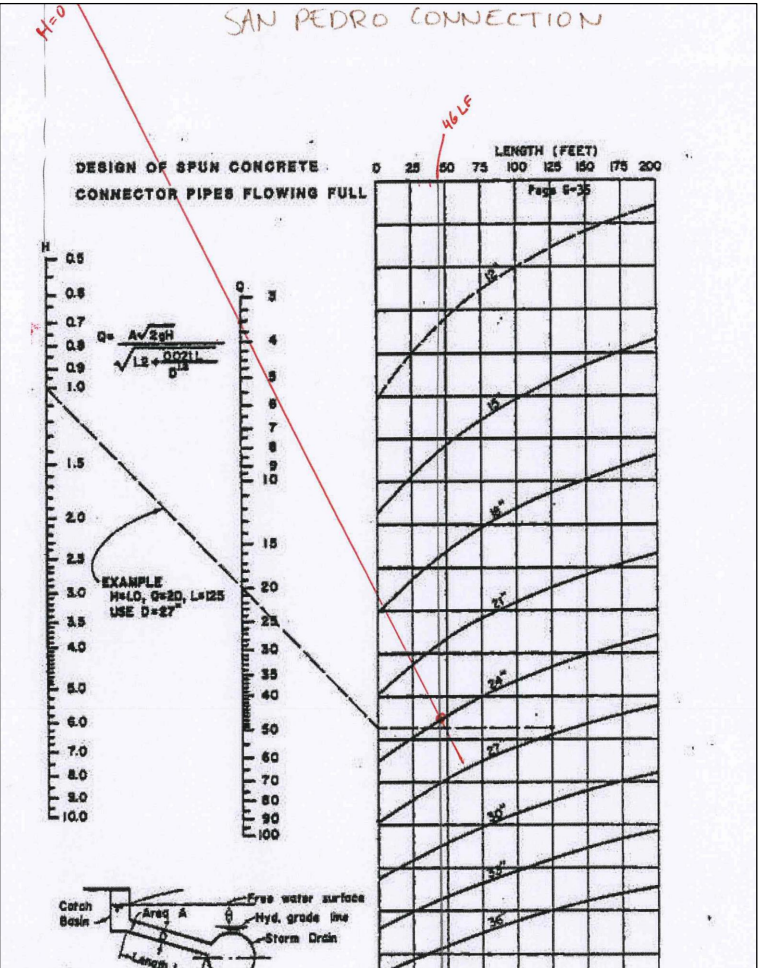
Subbasin	Required Volume (cu. ft.)	Drains to	Volume Provided (Cu.Ft)
Subbasin North	1,998	North Underground Pond	5,367 (2,004 Retained)
Subbasin South	1,995	South Underground Pond	2,003
Subbasin West	661	West Underground Pond	785
Total	3,994	WQ Ponding TOTAL	4,792



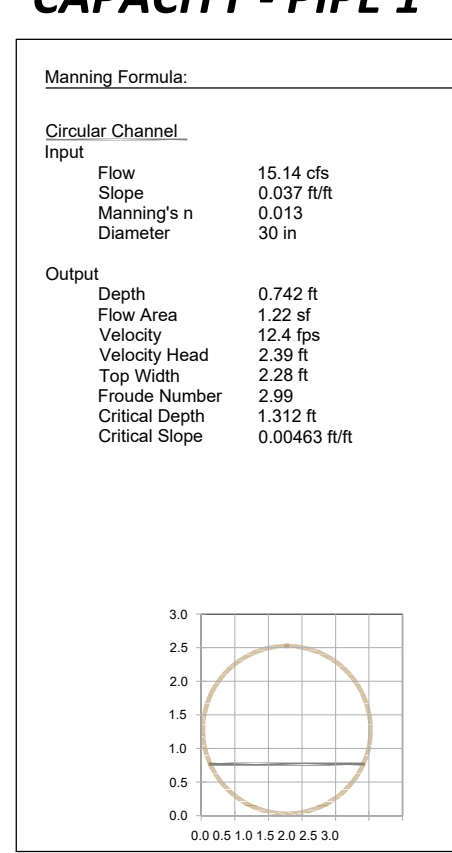
### ALAMEDA SD OUTLET CONTROL



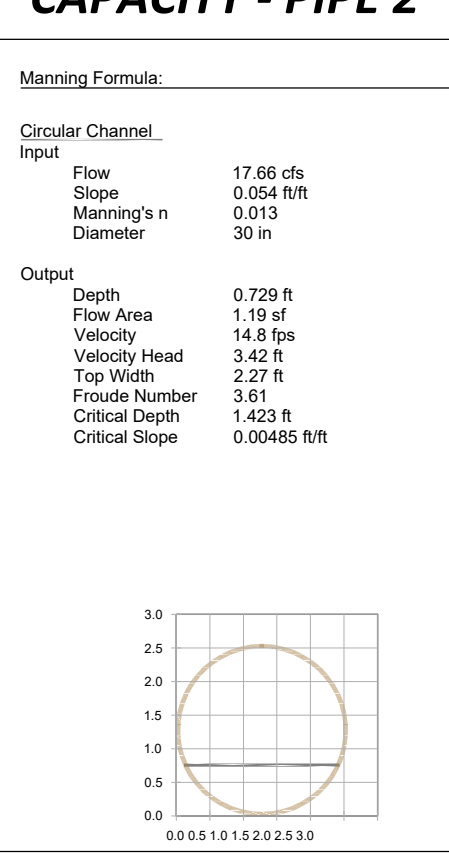
### SAN PEDRO SD OUTLET CONTROL



### OAKLAND PIPE'S CAPACITY - PIPE 1



### OAKLAND PIPE'S CAPACITY - PIPE 2



## Background

Phase 2 of the Legacy NAA Apartments account for 4.44 acres within the City of Albuquerque, Bernalillo County, New Mexico. This property is located east of San Pedro Drive between Alameda Boulevard and Oakland Avenue. There is a shaded Zone X floodplain that affects a small part of the northern portion of the site.

The site does not currently receive any offsite flows but has previously received flows from the adjacent properties to the east. The adjacent site is currently under construction and no longer discharges onto the project area (C18D064B). This area is included in the North Albuquerque Acres Master Drainage Plan (NAAMPD). The northern half of the property is allowed to discharge to the San Pedro storm drain and the southern half is allowed to discharge to the Alameda storm drain per the modified Design Analysis Report "Alameda Blvd. - San Pedro to Wyoming" (DARASPW) by Thompson Engineering Consultants (#7663.91, January 2012)

## Methodology

Hydrology Calculations for the site are performed in accordance with the Albuquerque Development Process Manual (DPM) Section 22 using AHYMO to calculate peak flow rates in order to ensure all flow paths are sufficient to carry flows effectively throughout the site. The water quality pond volume was calculated by multiplying the first flush runoff value of 0.34" by the impervious area of each sub basin. All hydrologic and hydraulic calculations can be found on this sheet.

## Existing Conditions

The existing property slopes from east to west at approximately 3%. The site is currently developed and was previously used as a parking space for the Toyota dealership across San Pedro Drive (C18D083). The site runoff is currently free discharging to the northwest into an existing storm drain in San Pedro.

## Proposed Conditions

The DARASPW uses a developed impervious area of 50%, which is consistent with the assumption in the NAAMPD. One subbasin was created to model the allowable flow rate for the northern half of the property. Subbasin 117.20-NORTH is 2.23 acres and generates 8.67 cfs. The 8.67 cfs represents the allowable flow rate to the San Pedro storm drain - See A-HYMO calcs. The DARASPW revises the NAAMPD allowable discharge for the southern half of the property to 3.82 cfs per acre. The southern portion of the site is 2.21 acres. Therefore, the allowable flow rate to the Alameda storm drain is 8.62 cfs.

Three proposed subbasins were created to model the developed flow rate for the proposed site. Subbasin North is 1.84 acres and was routed through an underground storage, using an 0.80" diameter orifice plate to reduce the peak flow. This subbasin is now generates 4.77 cfs and discharges to the San Pedro storm drain. Subbasin West is 0.85 acres and generates 3.57 cfs. Subbasin West discharges to the San Pedro storm drain. Therefore, there is a total developed flow rate to the San Pedro storm drain of 8.34 cfs. Subbasin South is 1.72 acres and generates 8.34 cfs. Subbasin South discharges to the Alameda storm drain. The total developed flow rate that enters the San Pedro storm drain is 16.68 cfs per AHYMO, which is below the allowable, 17.29 cfs per AHYMO.

It is proposed to install three underground ponds - North, South and West. The North and South ponds to be located under the west proposed drive aisle and the third would be located between the west property line and the buildings. The north pond will function as both retention and detention pond. The retention portion will account for the required water quality volume of 1,998 cu.ft. and the detention part will reduce the North subbasin peak flows from 8.69 cfs to 4.77 cfs, by storing 2,004 cu.ft. The South and West ponds will function only as retention ponds to account for the water quality volume of 1,995 cu.ft. coming from the South subbasin and 661 cu.ft coming from the West subbasin.

Alameda SD HGL shows elevation of 5230 ft (COA 7663.91). According to outlet control analysis, the developed site addition will be 0.9 ft to HGL (See graph). Total HGL=5230.95, lower than grate elevation, 5231.90. San Pedro SD HGL shows elevation of 5230 ft (COA 5304.91). the developed site has no effect on the HGL (See graph). Oakland SD HGL shows elevation of 5234.5 ft (COA 742484), pipe is at inlet control. See Manning's calcs for pipe's capacity.

5971 JEFFERSON ST NE  
ALBUQUERQUE, NM 87109  
PHONE: 505.566.4187

**RESPEC**  
WATER & NATURAL RESOURCES

DESIGNED: NF  
DRAWN: NF  
CHECKED: RB  
DATE: 7/16/18

REVISION

7/16/18 SITE PLAN REVISIONS

NOT FOR CONSTRUCTION

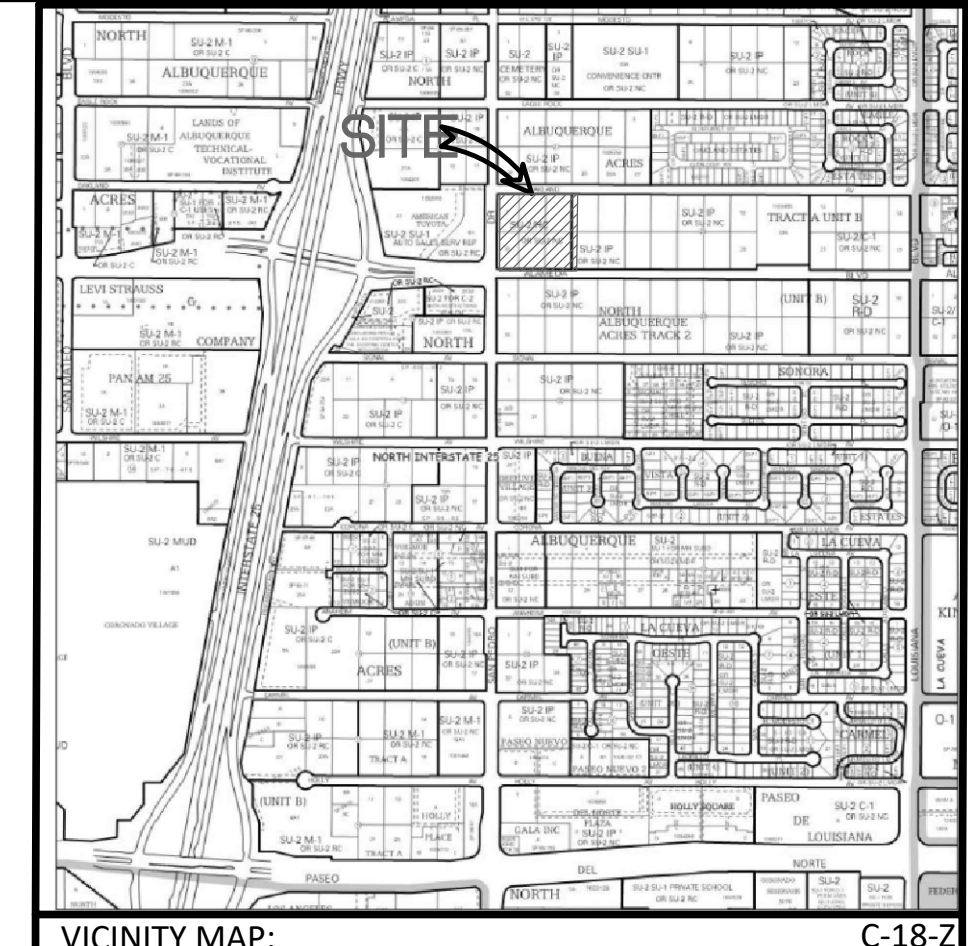
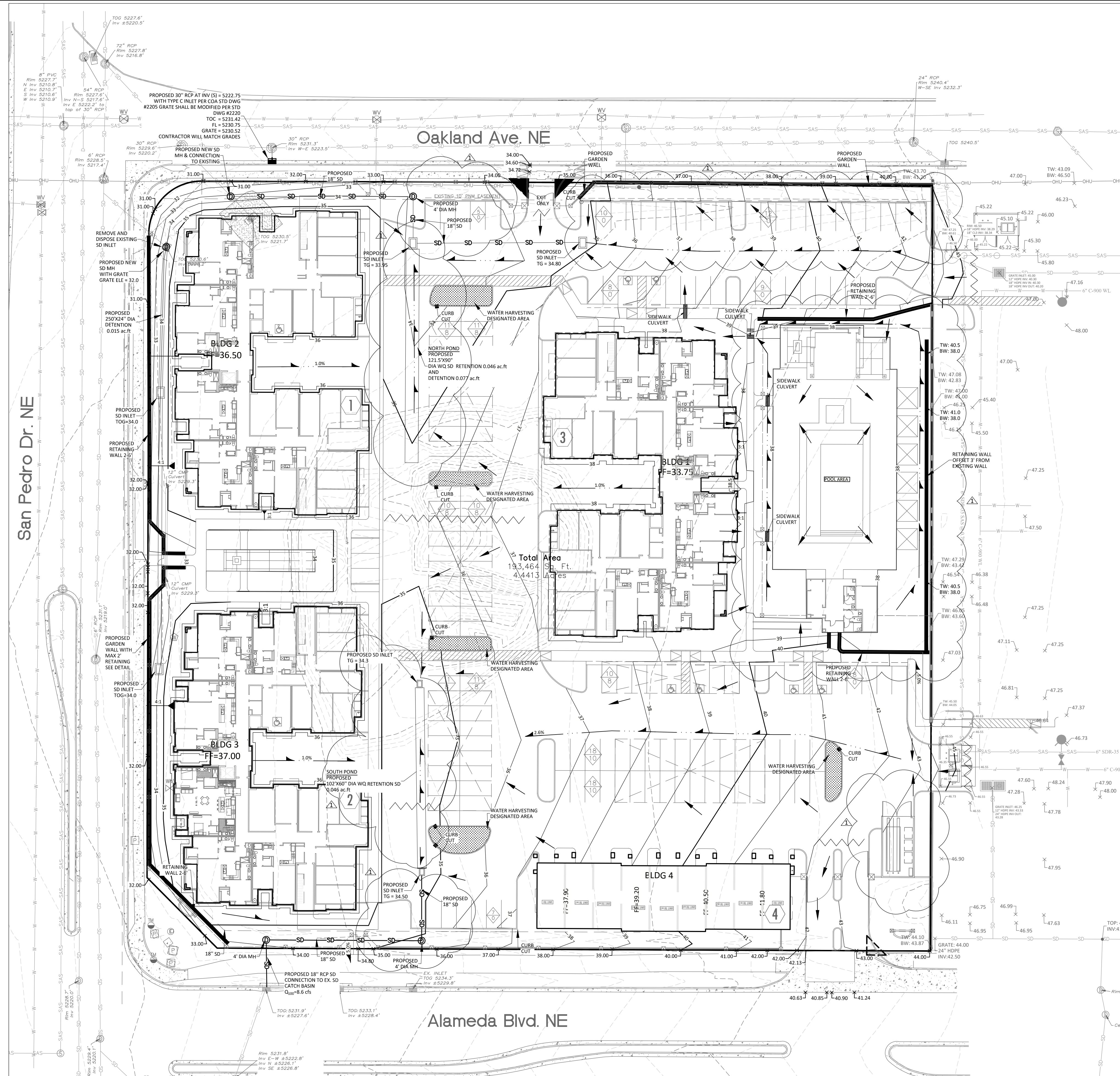
LEGAL DESCRIPTION:  
 LOTS 1, 2, 3, & 30, 31 & 32,  
 TRACT A UNIT 8 NORTH  
 ALBUQUERQUE ACERS

LEGACY NAA  
 APARTMENTS II  
 CONCEPTUAL DRAINAGE PLAN

STAMP  
  
 HUGH W. FLOYD  
 PROFESSIONAL ENGINEER

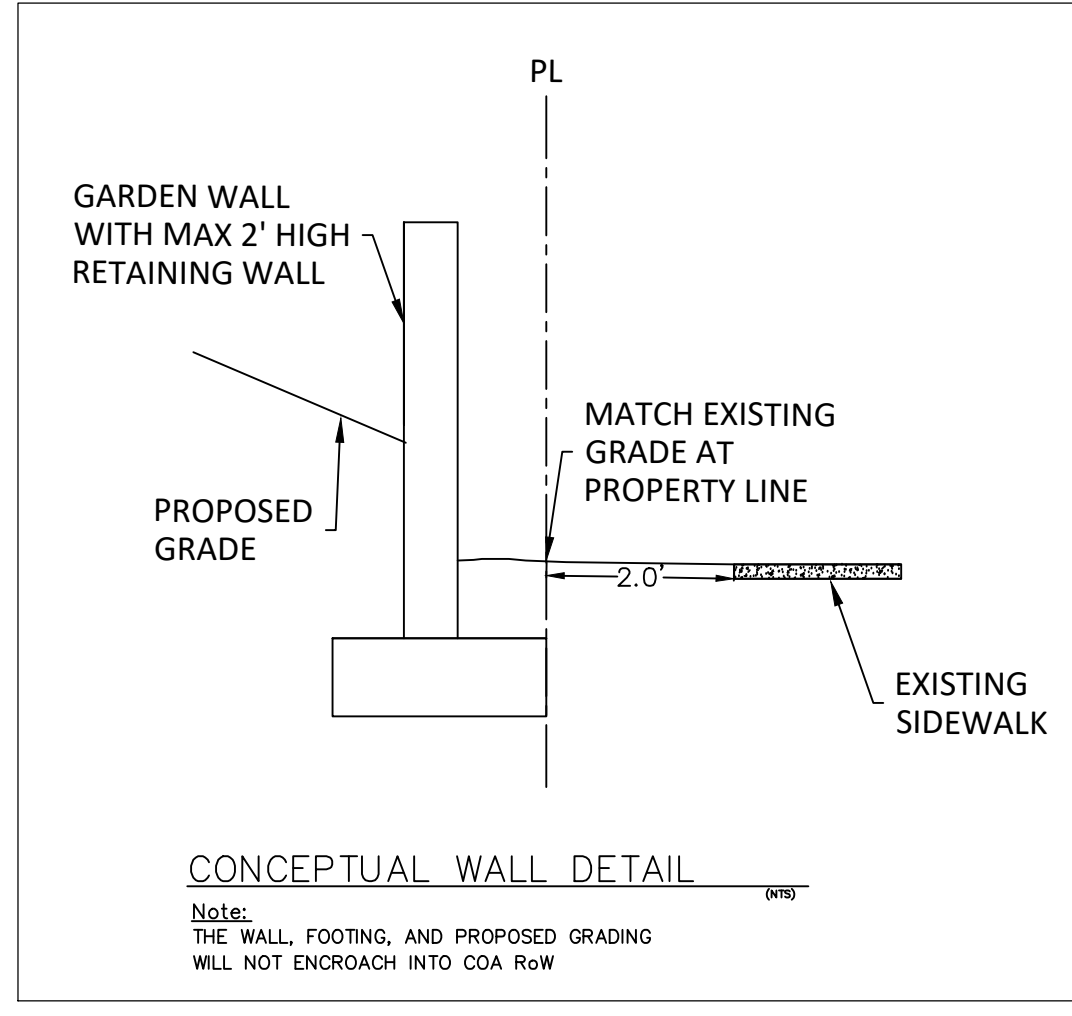
GRAPHIC SCALE  
 ( IN FEET )  
 1 inch = 40 ft.

SHEET NUMBER:  
**C-1**



**LEGEND**

---	PROPERTY LINE
---	EXIST ELE.
---	EXISTING RETAINING WALL
---	PROPOSED RETAINING WALL
---	PROPOSED HIGH POINT
---	PROPOSED FLOW LINE
SD	PROPOSED SD
○	PROPOSED SD INLET
○	PROPOSED SD MANHOLE
FF-00.00	PROPOSED FINISHED FLOOR ELE.
▨	PROPOSED WATER HARVESTING AREA
○	EXIST SD
○	EXIST SD MANHOLE
○	EXIST SD INLET



5971 JEFFERSON ST NE  
ALBUQUERQUE, NM 87109  
PHONE: 505.366.4187

**RESPEC**  
WATER & NATURAL RESOURCES

7/16/18 SITE PLAN REVISIONS

DESIGNED	NF
DRAWN	NF
CHECKED	RB
DATE	7/16/2018

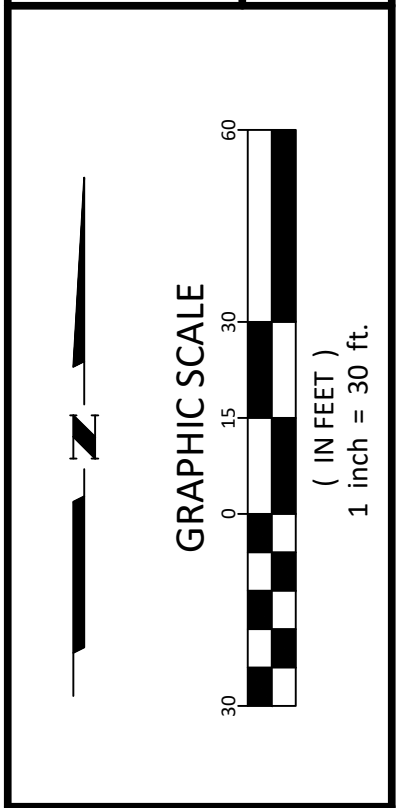
REVISION

STAMP

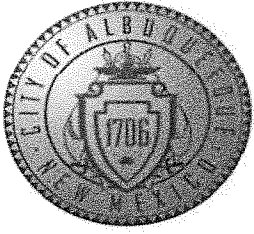
NOT FOR CONSTRUCTION

**LEGAL DESCRIPTION:**  
LOTS 1, 2, 3, & 3031 & 32,  
TRACT A, UNIT B NORTH  
ALBUQUERQUE ACERS

**LEGACY NAA  
APARTMENTS II  
CONCEPTUAL GRADING PLAN**



SHEET NUMBER:  
**C-2**



# City of Albuquerque

Planning Department  
Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

**Project Title:** Legacy NAA Apartments 2 Building Permit #: \_\_\_\_\_ Hydrology File #: C18D083

DRB#: \_\_\_\_\_ EPC#: \_\_\_\_\_ Work Order#: \_\_\_\_\_

Legal Description: TS 1, 2, 3, & 30,31 &32, TRACT A UNIT B NORTH ALBUQUERQUE ACERS

City Address: San Pedro and Alameda, Albuquerque, NM

**Applicant:** RESPEC Contact: Jeremy Shell

Address: 5971 Jefferson St. NE, Suite 101, Albuquerque, NM 87109

Phone#: (505)253-9811 Fax#: \_\_\_\_\_ E-mail: jeremy.shell@respec.com

**Other Contact:** Consensus Planning, inc. Contact: Jacqueline Fishman

Address: 302 Eighth St. NW, Albuquerque, NM 87102

Phone#: (505) 764-9801 Fax#: \_\_\_\_\_ E-mail: fishman@consensusplanning.com

**TYPE OF DEVELOPMENT:** \_\_\_\_\_ PLAT (# of lots) \_\_\_\_\_ RESIDENCE  DRB SITE \_\_\_\_\_ ADMIN SITE

IS THIS A RESUBMITTAL?  Yes \_\_\_\_\_ No

**DEPARTMENT** \_\_\_\_\_ TRANSPORTATION  HYDROLOGY/DRAINAGE

Check all that Apply:

**TYPE OF SUBMITTAL:**

- \_\_\_\_\_ ENGINEER/ARCHITECT CERTIFICATION
- \_\_\_\_\_ PAD CERTIFICATION
- CONCEPTUAL G & D PLAN
- \_\_\_\_\_ GRADING PLAN
- \_\_\_\_\_ DRAINAGE REPORT
- \_\_\_\_\_ DRAINAGE MASTER PLAN
- \_\_\_\_\_ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- \_\_\_\_\_ ELEVATION CERTIFICATE
- \_\_\_\_\_ CLOMR/LOMR
- \_\_\_\_\_ TRAFFIC CIRCULATION LAYOUT (TCL)
- \_\_\_\_\_ TRAFFIC IMPACT STUDY (TIS)
- \_\_\_\_\_ STREET LIGHT LAYOUT
- \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_
- \_\_\_\_\_ PRE-DESIGN MEETING?

**TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

- \_\_\_\_\_ BUILDING PERMIT APPROVAL
- \_\_\_\_\_ CERTIFICATE OF OCCUPANCY
- \_\_\_\_\_ PRELIMINARY PLAT APPROVAL
- \_\_\_\_\_ SITE PLAN FOR SUB'D APPROVAL
- SITE PLAN FOR BLDG. PERMIT APPROVAL
- \_\_\_\_\_ FINAL PLAT APPROVAL
- \_\_\_\_\_ SIA/ RELEASE OF FINANCIAL GUARANTEE
- \_\_\_\_\_ FOUNDATION PERMIT APPROVAL
- \_\_\_\_\_ GRADING PERMIT APPROVAL
- \_\_\_\_\_ SO-19 APPROVAL
- \_\_\_\_\_ PAVING PERMIT APPROVAL
- \_\_\_\_\_ GRADING/ PAD CERTIFICATION
- \_\_\_\_\_ WORK ORDER APPROVAL
- \_\_\_\_\_ CLOMR/LOMR
- \_\_\_\_\_ FLOODPLAIN DEVELOPMENT PERMIT
- \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_

DATE SUBMITTED: 7/17/18 By: Jeremy Shell

COA STAFF: \_\_\_\_\_

ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_

FEE PAID: \_\_\_\_\_