

APPENDIX G

PRELIMINARY DRAINAGE STUDY

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PRELIMINARY DRAINAGE STUDY

FOR
TRINITY CULTIVATION AND MANUFACTURING FACILITY
CALEXICO FACILITY



PREPARED FOR:

Trinity 341, LLC

825 S Barrington Ave.

Los Angeles, CA 90049

Development
DESIGN &
ENGINEERING
inc.



Revision 03-07-18

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1 INTRODUCTION

1.1 Purpose

The purpose of this drainage report is to present the drainage criteria, methodology and analysis of the on-site drainage conditions, for Trinity Cultivation and Manufacturing Facility Project. It is also to provide recommendations for drainage and grading concepts for development of the proposed site development. This report addresses the recommended on-site drainage facilities by:

- Establishing drainage design criteria and concepts.
- This drainage study establishes that the whole project area will drain to the existing retention basin located on the north side of the Portico Industrial Park Sub. Unit 1. Hydrology and hydraulic calculations determined that the existing retention basin has the capacity to retain 85% of the volume resulting from calculating a total of 3 inches of rain over the Portico Industrial Park Unit 1 Developed Area plus the Trinity 341 Cluster Project Area.
- The project drainage will be calculated in accordance with the County of Imperial's design criteria that establishes that 100% of the 100-year storm (3 inches of rain) will be stored on site and to the City of Calexico Standards that established that only 85% of the 3 inch storm will be stored on-site, and also established that drainage stored in the retention basin will be released into the IID drainage system using an existing drainage connection. The Portico Industrial Park Sub. Unit 1 was design in 1989 and according to the City of Calexico Standards the retention basin was sized using a "C" Factor of 0.85.

Calculations were performed according to the methodology and procedures outlined in the *County of Imperial Department of Public Works Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans with Imperial County, 2008*, and according to the *City of Calexico Engineering Department Design Procedures and Improvement Standards* dated August 19, 1991.

On-site drainage maps and retention calculations are included in the appendices of this report.

2 LOCATION

The proposed Trinity Cultivation and Manufacturing Facility is currently situated on approximately +/- 5.76 acres of vacant land currently located in the City of Calexico, CA located on the northeast corner of West Cole Road and Sunset Boulevard.

The Project site includes four lots within the Portico Industrial Park Subdivision Unit No. 2 (APNs 059-343-006, 059-343-016, 059-343-014 and 059-343-003). The site is bordered by and accessible from West Cole Road on the south and from Sunset Boulevard. on the west. The site is bordered on the north by Lot 15 of the Portico Industrial Park Subdivision Unit No. 1 and on the east by lots 3, 5, 7, 8 and 9 of the Portico Industrial Park Subdivision Unit No. 2

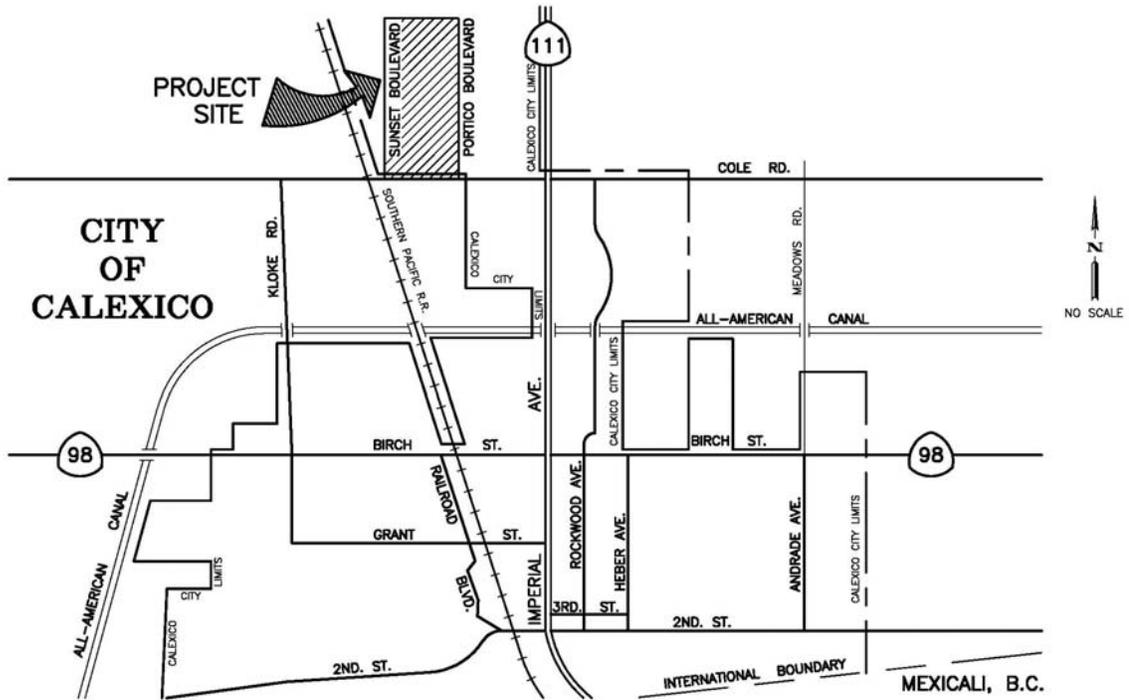


Figure 1:Project Vicinity Map

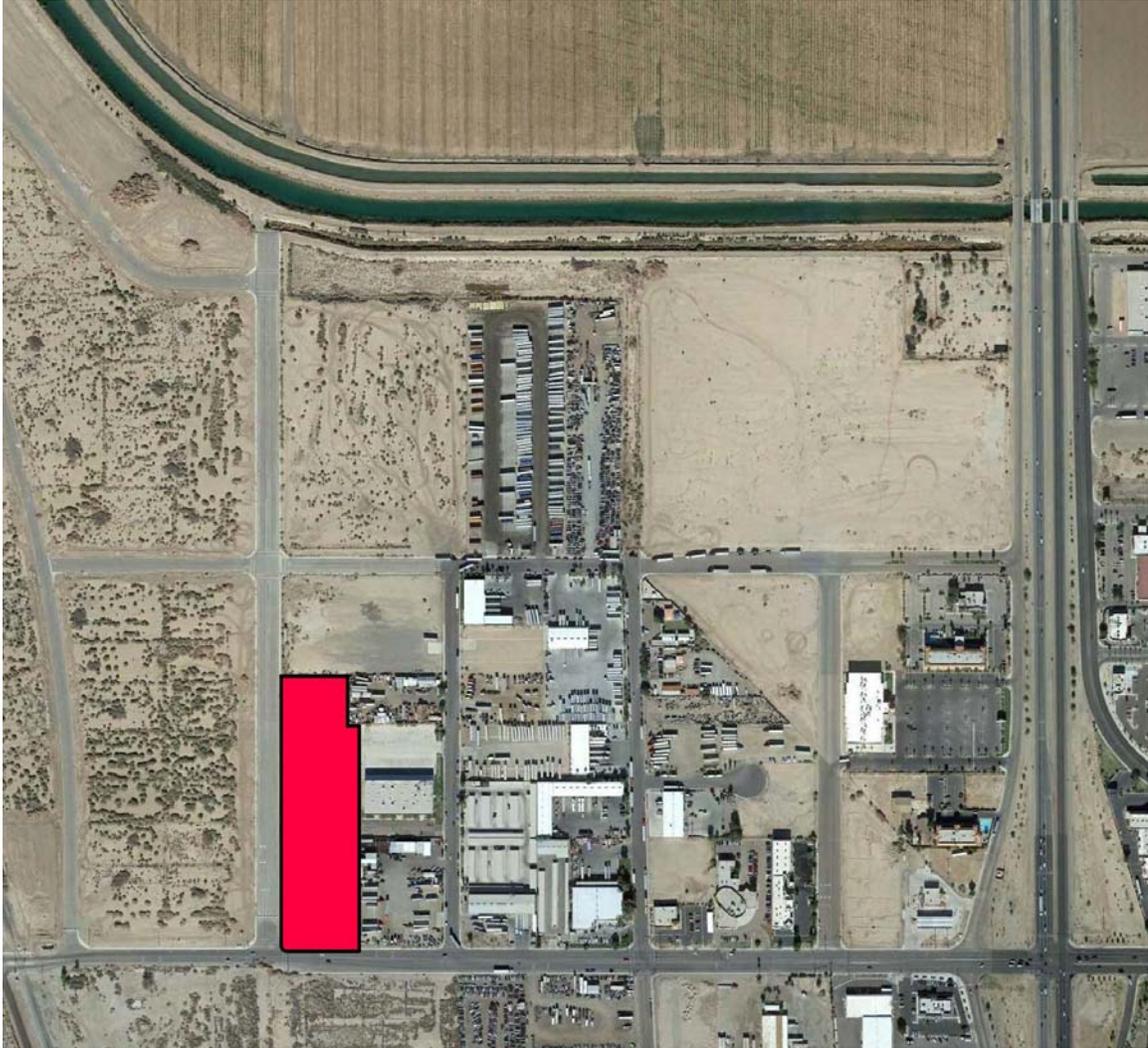


Figure 2: Project Site Map

3 SITE CONDITIONS AND PROPOSED DEVELOPMENT

Through independent permit applications, Trinity 341, LLC, Barrington Consulting, LLC, Calexico Distribution Company, LLC, Cole Boulevard Advisors, LLC and Desert Valley Partners, LLC are seeking cannabis activity permits in the City of Calexico, Cannabis Overlay Zone. The Applicants are applying for manufacturing, cultivation, transportation and distribution permits. The sites are being assessed together because they are adjacent to each another. Figure 2 graphically represents the Trinity Cultivation and Manufacturing Facility Project.

The main access to the proposed project will be located on West Cole Road on the south side of the Project site. Secondary access to each parcel will off of Sunset Boulevard. The proposed Project will have a total of 155 parking spaces.

In order to control stormwater runoff, the existing retention basin located at the north side of the Portico Industrial Park will be used to capture flows from the Project site. The retention basin was sited at that location due to the Project topographic nature, being the low point and next to the existing IID Strout Drain drainage connection . The existing retention basin was designed to retain the onsite stormwater from the entire Portico Industrial Park (full development – 99.62 acres) minus the area of the IID Strout Drain (5.24 acres) for a total project drainage area of 94.38 acres. The retention basin drainage discharged to a City’s approved drain outlet and from there to the IID Strout Drain. The retention basin is to drain-out in less than 72-hours otherwise a mosquito abatement Plan should be prepared and implemented.

4 FEMA FLOODPLAIN CLASSIFICATION

The proposed Project site is located on the FEMA FIRM Panel 2075 of 2300, Map number 06025C2075C effective September 26, 2008 in Zone X. The FEMA Un-shaded Zone X designation is an area determined to be outside the 0.2% annual chance floodplain. The FIRM panels are included in Exhibit A.

5 STORM WATER MANAGEMENT

5.1 Existing Drainage Conditions

The existing streets of the Project slope to the north and to the west at slope percentage rates between 0.16% to 0.22%. The very flat topography allows for the rain water to move slowly over the Project sites and promote absorption into the existing clay soils and/or landscaped areas.

Drainage from the site will run off north and west along the existing Portico Industrial Park streets to an existing retention basin located on the north side of the Portico Industrial Park area. The retention basin discharges into the IID Strout Drain.

Since the Project site is bounded by existing roads on the west and south side, by the Strout Drain on the north side and by an existing development on the east side and since the off-site flow patterns will be based on field inspections the off-site drainage has been determined to have minimal or no impacts on the Project site.

5.2 Proposed Drainage Conditions and Hydrology Calculations

Based on the current proposed development the drainage from the Trinity Cultivation and Manufacturing Facility site will run off to the west to Sunset Boulevard and then sheet flow north to the existing Portico Industrial Park retention basin.

The drainage analysis is based on the following assumptions:

- On-site drainage volumes including the amount of storm water generated by the 100-year storm (3 inches of rain in 24 hours) will be retained on the existing retention basin
- 100% of the 100-year storm (a “C” factor of 1-County Standard) will be retained on the existing retention basin
- 85% of the 100-year storm (a “C” factor of 0.85 – 1991 City of Calexico Standard) drainage will be retained on the existing retention basin

Retention basin calculations are provided in this section

All on-site storm water contributions will be managed within the limits of the project site and will be directed to the existing Sunset Boulevard curb and gutter and then to the existing retention basin (via surface run off) then discharging into the IID Strout Drain. No storm water contributions will be discharged to any neighboring property.

After a 100-year storm event, the retention basin should empty within 72 hours. If this does not occur the owner should prepare a mosquito abatement plan satisfying the requirements of the County Environmental Health Services Department.

HYDROLOGY CALCULATION:

The required capacity of the existing retention basin for the Portico Industrial Park at full development build-out (for the entire property area 94.38 acres) and for the actual developed area plus the new Trinity Cultivation and Manufacturing Facility was checked using the following formula, according to County and City of Calexico Standards:

REQUIRED STORAGE AT BUILD-OUT

$$V = R I A$$

County Standards

V = Required storage,

R = Runoff coefficient (1.0),

I = Rainfall intensity total (3 inches),

A = Area of basin in acres at build-out (94.38 acres)

$$V_{req'd} = 3/12 \times 1.0 \times 94.38 = 23.59 \text{ ac-ft}$$

City of Calexico Standards

V = Required storage,
 R = Runoff coefficient (0.85),
 I = Rainfall intensity total (3 inches),
 A = Area of basin in acres at build-out(94.38 acres)

$$V_{req'd} = 3/12 \times 0.85 \times 94.38 = 20.06 \text{ ac-ft}$$

STORAGE REQUIRED FOR DEVELOPED AREA (Includes Trinity Cultivation and Manufacturing Facility area)

County Standards

V = Required storage,
 R = Runoff coefficient (1.0),
 I = Rainfall intensity total (3 inches),
 A = Area of basin in acres for Dev. Area (70.12 acres)

$$V_{req'd} = 3/12 \times 1.0 \times 70.12 = 17.53 \text{ ac-ft}$$

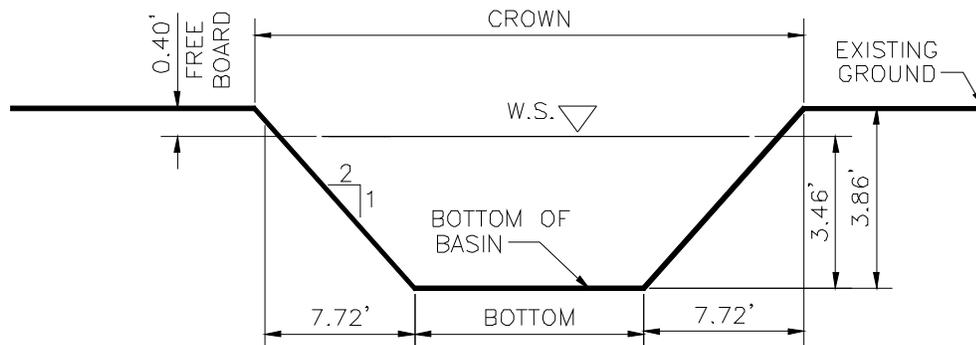
City of Calexico Standards

V = Required storage,
 R = Runoff coefficient (0.85),
 I = Rainfall intensity total (3 inches),
 A = Area of basin in acres for Dev. Area (70.12 acres)

$$V_{req'd} = 3/12 \times 0.85 \times 70.12 = 14.90 \text{ ac-ft}$$

EXISTING RETENTION CAPACITY

Average Crown Elevation	999.50
High Water Elevation	999.10
Proposed Bottom Elevation	995.64
Average Depth	3.86 ft
Average Storage Water Depth	3.46 ft



Water Level Area	4.50 ac
Bottom Area Provided	3.77 ac
Average Area (Storage)	4.13 ac

STORAGE PROVIDED

(4.13 ac) (3.46 ft) = 14.29 ac-ft

The existing retention basin can retain 96% of the required storage according to the City of Calexico Standards for the actual developed area including the Trinity Cultivation and Manufacturing Facility, therefore the existing retention basin is adequate to retain the drainage of the existing developed areas including the Trinity Cultivation and Manufacturing Facility.

The existing retention basin capacity is not adequate to retain 100% of the Portico Industrial Park Build-out area. Therefore the retention basin capacity may need to be increased when new areas within the Portico Industrial Park are developed.

RETENTION BASIN DRAIN-OUT TIME

The on-site runoff will flow to the City of Calexico Drainage gutters that extend north along the eastern side of Sunset Boulevard beginning at the southeast corner of West Cole Road and Sunset Boulevard. On-site runoff will flow to the existing retention basin located at the north side of the Portico Industrial Park Unit 1. The existing retention basin will discharge into the IID Strout Drain through the existing approved drainage connection.

The existing retention basin shall drain-out in less than 72 hrs. otherwise a mosquito abatement should be implemented

6 CONCLUSIONS

This drainage study report was prepared in accordance with the County of Imperial’s design criteria that establishes that 100% of the 100-year storm (3 inches of rain) will be stored on-site and the City of Calexico Engineering Department Design Procedures and Improvement Standards 1991 revision that establishes that 85% of 3 inches of rain will be stored on-site, and that the drainage stored in the retention basin to be released into the IID drainage system using an existing drainage connection. Additionally, the following facts were considered in the preparation of the drainage report:

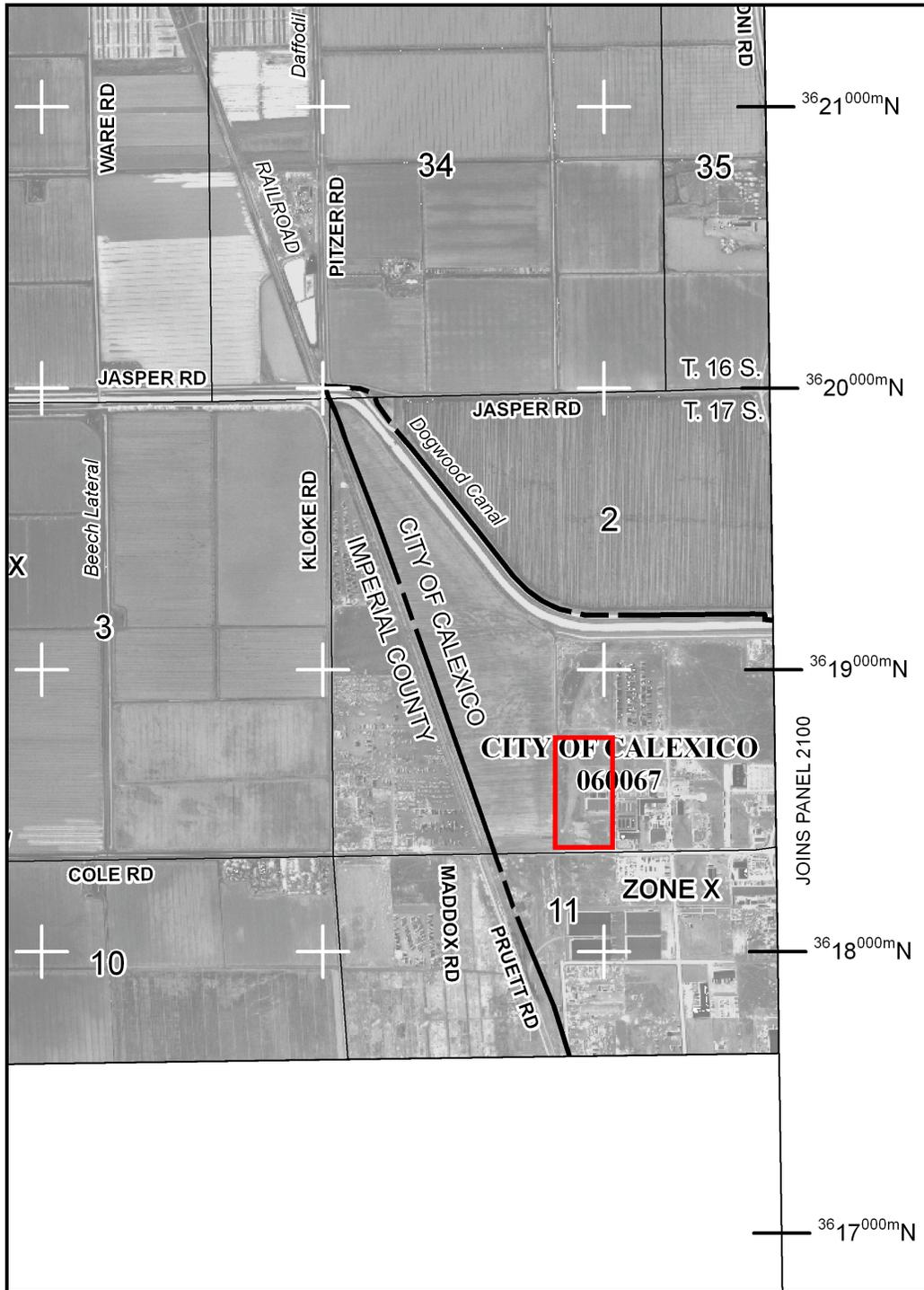
- According to the City of Calexico Standards the existing retention basin located on the north side of the Portico Industrial Park is adequate to retain 96% of the required storage.
- Based on the County of Imperial Standard, the existing retention basin located on the north side of the Portico Industrial Park is adequate to retain 82% of the required storage.
- The drainage stored in the existing retention must release in less than 72 hours. If the existing retention basin does not release in less than 72 hours, a Mosquito Abatement Plan must be prepared and implemented.
- Earthen berms (if required) will be provided to prevent cross drainage.
- Connections to existing City of Calexico drainage facilities will be done according to the City's standards and according to the encroachment documents conditions.
- It has been determined that off-site drainage from existing roads and adjacent developments have minimal or no impacts to the on-site drainage retention capacity.

7 REFERENCES

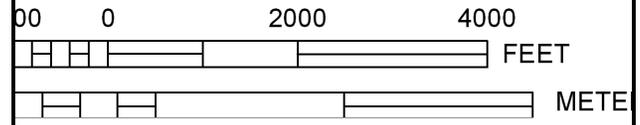
- County of Imperial Department of Public Works, Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans within Imperial County, September 2008.
- City of Calexico Engineering Department Design Procedures and Improvement Standards, August 19, 1991.

Exhibits

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MAP SCALE 1" = 2000'



PANEL 2075C

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
IMPERIAL COUNTY,
CALIFORNIA
AND INCORPORATED AREAS

PANEL 2075 OF 2300
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
IMPERIAL COUNTY UNINCORPORATED AREAS	060065	2075	C
CALEXICO, CITY OF	060067	2075	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject



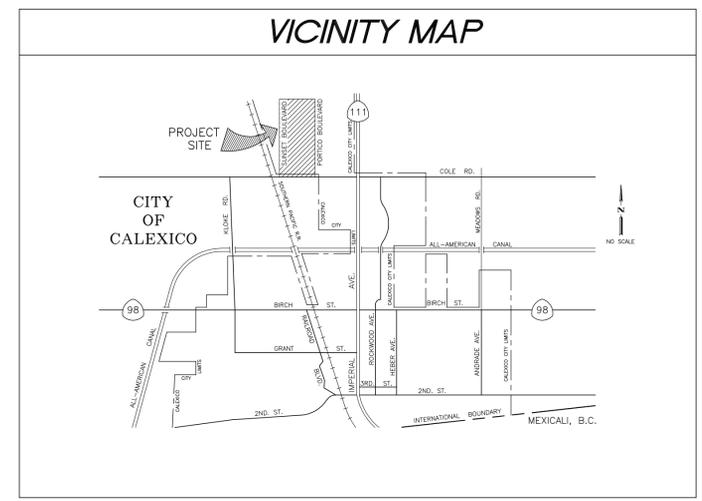
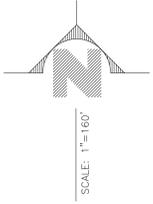
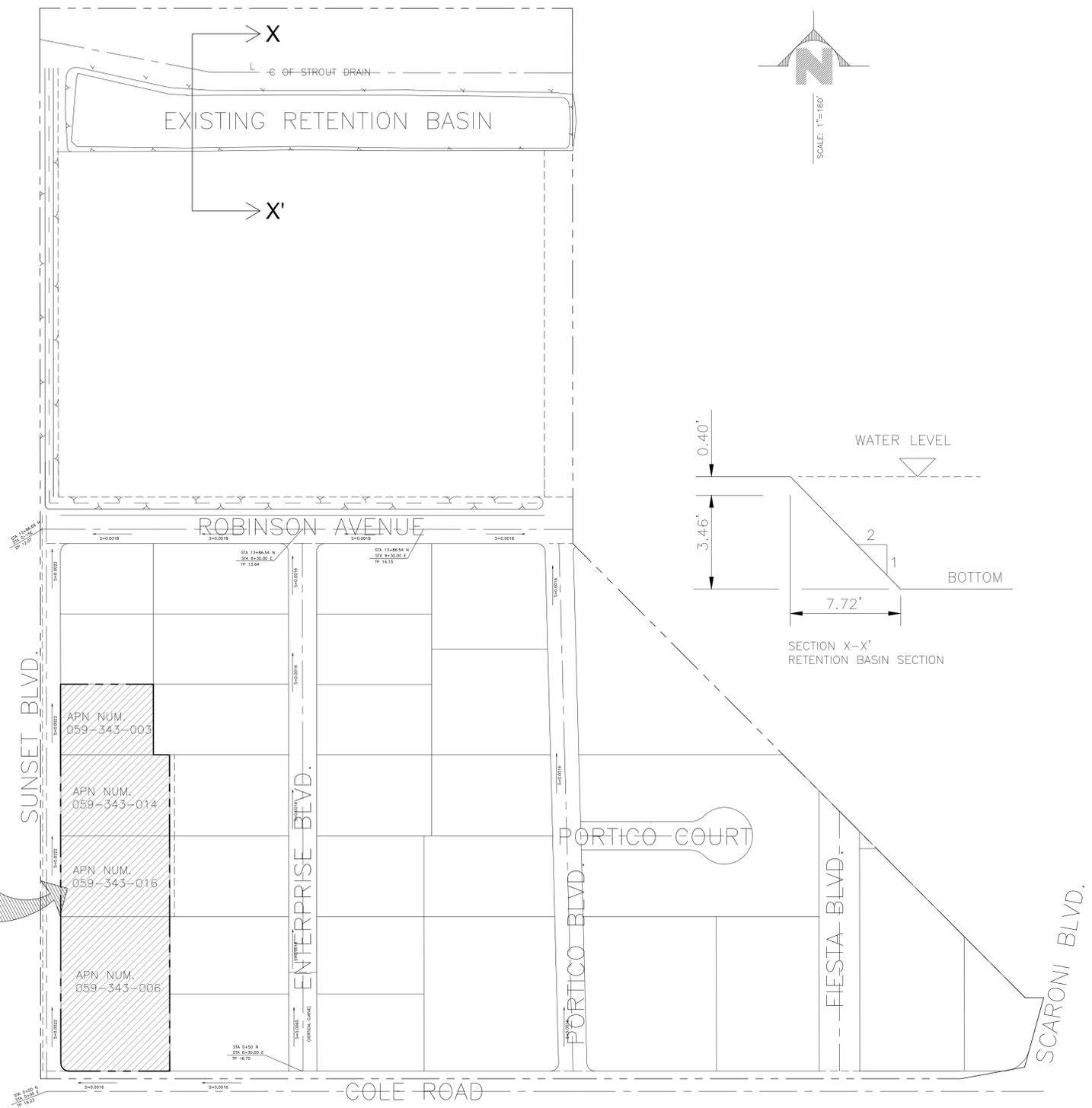
MAP NUMBER
06025C2075C

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

EXHIBIT A

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



DRAINAGE:

A) RETENTION BASIN (STORAGE REQUIRED)
 EXISTING RETENTION BASIN TO STORE 85% (CALEXICO STANDARD) AND 100% (COUNTY STANDARD) OF A 100 YEAR STORM (3 INCHES OF RAIN) FOR THE 94.38 AC. PROPERTY (FULL DEVELOPMENT)

V=CIA (COUNTY STANDARD)	V=CIA (CALEXICO STANDARD)
C=RUNOFF COEFFICIENT (1.0)	C=RUNOFF COEFFICIENT (.85)
I=RAINFALL INTENSITY (3.0)	I=RAINFALL INTENSITY (3.0)
A=BASIN AREA (94.38 AC)	A=BASIN AREA (94.38 AC)
$V=1 \times \frac{3}{12} \times 94.38 = 23.59 \text{ AC-FT}$	$V=1 \times \frac{3}{12} \times 94.38 = 20.06 \text{ AC-FT}$

B) RETENTION BASIN (STORAGE REQUIRED)
 EXISTING RETENTION BASIN TO STORE 85% (CALEXICO STANDARD) AND 100% (COUNTY STANDARD) OF A 100 YEAR STORM (3 INCHES OF RAIN) FOR THE 70.12 AC. PROPERTY (ACTUAL DEVELOPED AREA)

V=CIA (COUNTY STANDARD)	V=CIA (CALEXICO STANDARD)
C=RUNOFF COEFFICIENT (1.0)	C=RUNOFF COEFFICIENT (.85)
I=RAINFALL INTENSITY (3.0)	I=RAINFALL INTENSITY (3.0)
A=BASIN AREA (70.12 AC)	A=BASIN AREA (70.12 AC)
$V=1 \times \frac{3}{12} \times 70.12 = 17.53 \text{ AC-FT}$	$V=1 \times \frac{3}{12} \times 70.12 = 14.90 \text{ AC-FT}$

B) RETENTION BASIN (STORAGE PROVIDED)

TOP OF WATER AREA = 4.50 AC
 BOTTOM AREA = 3.77 AC
 AVERAGE = 4.13 AC
 AVE. DEPTH = 3.46 FEET
 $VOL = 4.13 \times 3.46 = 14.29 \text{ AC-FT}$

DRAINAGE NOTES:

1. THE TOTAL DRAINAGE AREA FOR THE PROJECT WILL BE THE PORTICO IND. PARK SUB. UNIT 1 MINUS THE STROUT DRAIN AREA 99.62 - 5.24 = 94.38 AC.
2. THE PORTICO INDUSTRIAL PARK DEVELOPED AREA IS 70.12 AC., THIS AREA INCLUDES THE TRINITY 341 CLUSTER PROJECT AREA (5.76 AC.)
3. RETENTION BASIN DRAINAGE TO DISCHARGE TO THE EXISTING IID STROUT DRAIN
4. RETENTION BASIN TO DRAIN-OUT IN LESS THAN 72 HRS. OTHERWISE A MOSQUITO ABATEMENT SHOULD BE IMPLEMENTED.

TRINITY 341 CLUSTER PROJECT AREA

No.	DESCRIPTION	BY	DATE	SEAL	FOR PLAN CHECK AND CONSIDERED PRELIMINARY UNTIL APPROVED BY:	SEAL	PREPARED UNDER THE DIRECTION OF:	BENCH MARK	Development DESIGN ENGINEERING	EXHIBIT B DRAINAGE PLAN	SHEET
							CARLOS CORRALES		1760.353.8110 1760.352.6408	TRINITY CULTIVATION AND MANUFACTURING FACILITY	1
					R.C.E. No.	REGISTERED PROFESSIONAL ENGINEER CARLOS CORRALES No. 55432 EXP. 12-31-18 CIVIL STATE OF CALIFORNIA	55432		planning • civil engineering • land surveying • project management	CALEXICO, CA	1
					EXP. DATE		12-31-18		1065 State Street El Centro, CA 92243	TRINITY 341, LLC	1
									www.dde-inc.net	DATE 01/31/18	STAFF
										JOB NUMBER C18008	