MODIFIED

PROPERTY LINE – NO DISCHARGE OF FLOWS

EXISTING RETAINING WALL

PROPERTY LINE

SAN PEDRO RD.

SIDEWALK

TC 45.67
FL 45.00

SW 46.0

EXISTING BUILDING

RELOCATED FENCE

5234
EXISTING FENCE

LOT 20

TW 32.0
BW 30.2

PROPOSED BLDG
FF = 5233.00

GRADE TO DRAIN

GRADE TO DRAIN

CONSTRUCT LINED SWALES
PER DETAIL B THIS SHEET

Property Boundary with Metal Panel Security Fence

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

EXISTING PARKING

SW 31.0

SW 34.0

SW 39.0

SW 41.0

SW 45.0

PROPERTY LINE

SIDEWALK

TC 30.67
FL 30.00

TC 33.67
FL 33.00

TC 38.67
FL 38.00

TC 40.67
FL 40.00

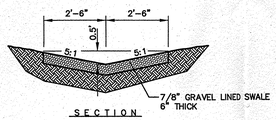
TC 44.67
FL 44.00

TBM
FOUND "+"
IN SIDEWALK
ELEV. = 5246.21

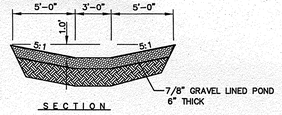
SAN FRANCISCO RD.

GENERAL NOTES

1. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
2. ALL WORK ON THIS PLAN SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
3. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE LOCATION ONLY, AND LINES MAY EXIST WHERE NONE ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OWNER OR FROM EXISTING PLANS, AND THIS INFORMATION MAY BE INCOMPLETE, OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE ENGINEER HAS NOT UNDERTAKEN ANY FIELD VERIFICATION OF THESE LOCATIONS, LINE SIZES OR MATERIAL TYPE, MAKES NO REPRESENTATION THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND INSTALLATION IN OR NEAR THE AREA IN ADVANCE OF AND DURING ANY EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND FACILITIES. IN PLANNING AND CONDUCTING EXCAVATIONS, THE CONTRACTOR SHALL COMPLY WITH ALL STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
4. THE CONTRACTOR SHALL INSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHTS-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND BY WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY CITY OF ALBUQUERQUE FOR THE COMPLETION OF THE WORK PRIOR TO BEGINNING CONSTRUCTION.
6. DISTURBED GROUND NOT INCLUDED IN THE PROPOSED DRIVEWAY OR SHOWN AS LANDSCAPING SHALL BE RESEEDED IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS (1101 & 1102). THE REQ'D "LOOSENING" OF THE SEEDBED AND RESEEDING SHALL BE COMPLETED AS SOON AS PRACTICAL FOLLOWING GRADING OPERATIONS.



GRAVEL LINED CHANNEL DETAIL (B)
N.T.S.



POND DETAIL (A)
N.T.S.

POND FOR SITE – SEE DETAIL A THIS SHEET
POND DEPTH = 1.0'
POND VOL = 1,032 CF
REQ VOL = 622 CF

LEGEND

5500	EXISTING (INDEX) CONTOUR
5500	EXISTING (INTERMEDIATE) CONTOUR
5500	FINISHED (INDEX) CONTOUR
5500	FINISHED (INTERMEDIATE) CONTOUR
←	FLOW DIRECTION ARROW
TC	TOP OF CURB ELEVATION
FL	CURB FLOWLINE ELEVATION
SW	BACK OF SIDEWALK ELEVATION
TW	TOP OF WALL ELEVATION
BW	BOTTOM OF WALL ELEVATION (GRADE)

RECEIVED
MAY 06 2013
LAND DEVELOPMENT SECTION

40 20 0 20 40
SCALE: 1"=20'

DRAINAGE CALCULATIONS

AREA = 3.38 ac. PROJECT: NW CORNER SAN PEDRO/SAN FRANCI

100 year PRECIPITATION: 10 days = 3.95 in.

RAINFALL INTENSITY = 5.05

RUNOFF COEFFICIENTS:

TREATMENT A 0.31
TREATMENT B 0.45
TREATMENT C 0.62
TREATMENT D 0.93

EXISTING CONDITION:	AREA	PROPOSED CONDITIONS:	AREA
TREATMENT A	0.00 ac.		0.00 ac.
TREATMENT B	0.00 ac.		0.00 ac.
TREATMENT C	2.79 ac.		2.65 ac.
TREATMENT D	0.59 ac.		0.73 ac.
	3.38		3.38

EXISTING RUNOFF VOLUME:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.79)+(0.93)x(0.59) / 3.38 ac. = 0.67

V100-360 = (0.67)x(3.95)x(3.38) / 12 = 0.7500 ac-ft = 32670 cf

EXISTING PEAK DISCHARGE:

Q100 = (0.67)x(5.05)x(3.38) = 11.51 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.65)+(0.93)x(0.73) / 3.38 ac. = 0.69

V100-360 = (0.69)x(3.95)x(3.38) / 12 = 0.7643 ac-ft = 33293 cf

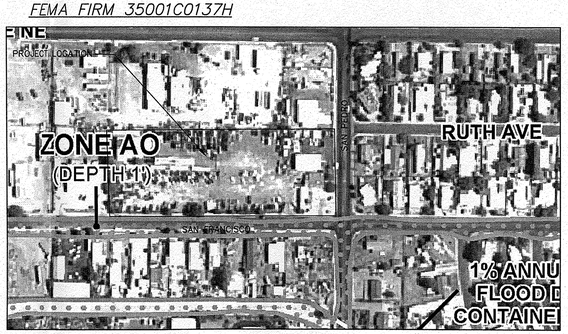
PROPOSED PEAK DISCHARGE:

Q100 = (0.69)x(5.05)x(3.38) = 11.73 cfs

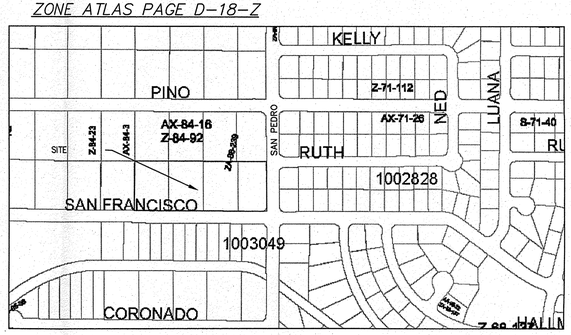
RESULTS:

33293 -	32670 =	622 cf	Increase in runoff volume
11.73 -	11.51 =	0.22 cfs	Increase in peak discharge

FEMA FIRM 35001C0137H



ZONE ATLAS PAGE D-18-Z



DRAINAGE NOTES

THE EXISTING SITE GENERALLY DRAINS FROM EAST TO WEST AND CURRENTLY HAS A FEW STRUCTURES ONSITE.

THE PROPOSED IMPROVEMENTS FOR THE SITE INCLUDE AN ADDITIONAL BUILDING FOR MAINTENANCE PURPOSES.

THE HYDROLOGY CALCULATION USED WERE TAKEN FROM THE CITY OF ALBUQUERQUE DESIGN PROCESS MANUAL. THE PRECIPITATION ZONE IS ZONE 2. SEE THE DRAINAGE CALCULATIONS (THIS SHEET) FOR MORE INFORMATION.

THE PROPOSED ON-SITE RETENTION POND IS REQUIRED TO CAPTURE THE 100-YR 10 DAY FLOOD EVENT (622 CF) AND THE POND DESIGN IS 1032 CF.

AS SHOWN ON THE FEMA FLOODPLAIN MAP (THIS SHEET) THERE IS NO FLOODPLAIN IMPACTING THE SITE. THERE IS A FLOODPLAIN, ZONE AO, ADJACENT TO THE SITE WITHIN SAN FRANCISCO RD.

LEGAL DESCRIPTION

LOTS 17, 18, 19 AND 20 IN BLOCK 5 OF TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES.

5-6-13
ROBERT J. DEMEULENAERE
NEW MEXICO
15014
REGISTERED PROFESSIONAL ENGINEER

GRADING & DRAINAGE PLAN

DUGGER'S NORTHWEST CORNER OF SAN PEDRO & SAN FRANCISCO

PROJECT NO.	XXXX
DESIGNED BY:	DPLW
DRAWN BY:	RA
CHECKED BY:	RA
DATE:	May 5, 2013
DEMEULE CONSULTING	
SHEET:	G1

MODIFIED

PROPERTY LINE

PROPERTY LINE – NO DISCHARGE OF FLOWS

EXISTING RETAINING WALL

EXISTING BUILDING

RELOCATED FENCE

EXISTING FENCE

LOT 20

TW 32.0
BW 30.2

PROPOSED BLDG
FF = 5233.00

GRADE TO DRAIN

GRADE TO DRAIN

CONSTRUCT LINED SWALES
PER DETAIL B THIS SHEET

Property Boundary with Metal Panel Security Fence

SW 31.0

SW 34.0

SW 39.0

SW 41.0

SW 45.0

PROPERTY LINE

SIDEWALK

SAN FRANCISCO RD.

TC 30.67
FL 30.00

TC 33.67
FL 33.00

TC 38.67
FL 38.00

TC 40.67
FL 40.00

TC 44.67
FL 44.00

SW 46.0

TC 45.67
FL 45.00

SIDEWALK

SAN PEDRO RD.

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

EXISTING PARKING

TBM
FOUND "+"
IN SIDEWALK
ELEV. = 5246.21

GENERAL NOTES

1. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
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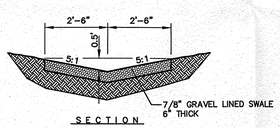
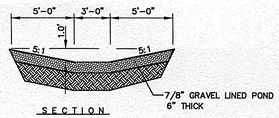


GRAVEL LINED CHANNEL DETAIL (B)
N.T.S.



POND DETAIL (A)
N.T.S.

POND FOR SITE – SEE DETAIL A THIS SHEET
POND DEPTH = 1.0'
POND VOL = 1,032 CF
REQ VOL = 622 CF

LEGEND

5500	EXISTING (INDEX) CONTOUR
5500	EXISTING (INTERMEDIATE) CONTOUR
5500	FINISHED (INDEX) CONTOUR
5500	FINISHED (INTERMEDIATE) CONTOUR
	FLOW DIRECTION ARROW
TC	TOP OF CURB ELEVATION
FL	CURB FLOWLINE ELEVATION
SW	BACK OF SIDWEWALK ELEVATION
TW	TOP OF WALL ELEVATION
BW	BOTTOM OF WALL ELEVATION (GRADE)

RECEIVED
MAY 06 2013
LAND DEVELOPMENT SECTION

ROBERT J. DEMEULE
NEW MEXICO
16014
PROFESSIONAL ENGINEER
5/6/13

40 20 0 20 40
SCALE: 1"=20'

DRAINAGE CALCULATIONS

AREA = 3.38 ac. PROJECT: NW CORNER SAN PEDRO/SAN FRANCI

100 year, 10 days PRECIPITATION: 3.95 in.

RAINFALL INTENSITY = 5.05

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TREATMENT A 0.31
TREATMENT B 0.45
TREATMENT C 0.62
TREATMENT D 0.93

EXISTING CONDITIONS: AREA
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TREATMENT C 2.79 ac.
TREATMENT D 0.59 ac.
3.38

PROPOSED CONDITIONS: AREA
TREATMENT A 0.00 ac.
TREATMENT B 0.00 ac.
TREATMENT C 2.65 ac.
TREATMENT D 0.73 ac.
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V100-360 = (0.67)x(3.95)x 3.38 / 12 = 0.7500 ac-ft = 32670 cf

EXISTING PEAK DISCHARGE:

Q100 = (0.67)x(5.05)x 3.38 = 11.51 cfs

PROPOSED EXCESS PRECIPITATION:

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PROPOSED PEAK DISCHARGE:

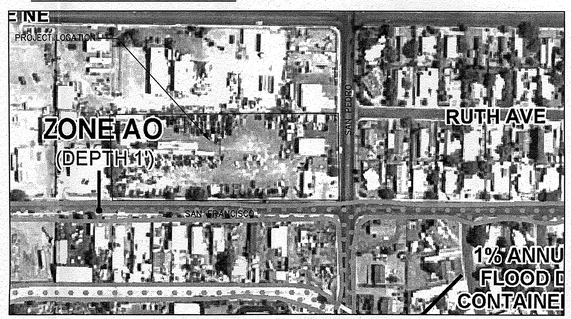
Q100 = (0.69)x(5.05)x 3.38 = 11.73 cfs

RESULTS:

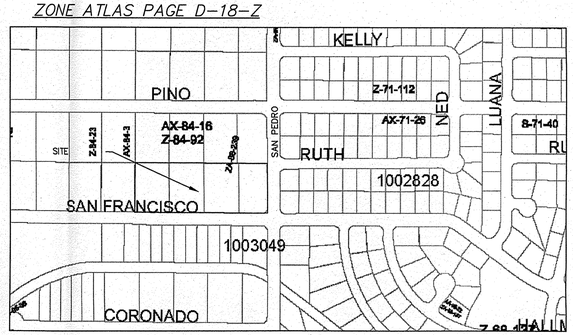
33293 - 32670 = 622 cf — increase in runoff volume

11.73 - 11.51 = 0.22 cfs — increase in peak discharge

FEMA FIRM 35001C0137H



ZONE ATLAS PAGE D-18-Z



DRAINAGE NOTES

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LEGAL DESCRIPTION

LOTS 17, 18, 19 AND 20 IN BLOCK 5 OF TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES.

GRADING & DRAINAGE PLAN

DUGGER'S NORTHWEST CORNER OF SAN PEDRO & SAN FRANCISCO

PROJECT NO.	XXXX
DESIGNED BY:	DPLW
DRAWN BY:	RA
CHECKED BY:	RA
DATE:	May 5, 2013
DEMEULE CONSULTING	
SHEET:	G1

MODIFIED

EXISTING RETAINING WALL PROPERTY LINE– NO DISCHARGE OF FLOWS

PROPERTY LINE

EXISTING BUILDING

RELOCATED FENCE

EXISTING FENCE

FG 31.00

FG 32.00

FG 33.00

FG 34.00

TW 32.0
BW 30.7

TW 32.0
BW 30.2

TW 32.0
BW 29.6

PROPOSED BLDG
FF = 5233.00

LOT 20

POND FOR SITE – SEE DETAIL A THIS SHEET
FULL POND DEPTH = 2.0'
RETENTION POND DEPTH = 1.2'
FULL POND VOL = 1953 CF
RETENTION POND VOL = 665 CF
REQ VOL = 622 CF
BOT POND = 29.00
FULL TOP POND = 31.00
FULL TOP RET. POND = 30.20

CONSTRUCT LINED SWALES PER DETAIL B THIS SHEET

FG 32.50

FG 33.00

FG 34.00

SW 31.0

SW 34.0

FG 31.00

FG 32.00

Property Boundary with Metal Panel Security Fence

PROPERTY LINE

SW 39.0

SW 41.0

SW 45.0

SW 46.0

SIDEWALK

EXISTING BUILDING

EXISTING BUILDING

EXISTING BUILDING

EXISTING PARKING

SAN PEDRO RD.

SIDEWALK

TC 45.67
FL 45.00

City of Albuquerque Brass Cap
9_c18
Ground coordinates:
1522007.433
1543018.274
Elev. 5232.47

N00°14'44"E
5217.16'

TBM
FOUND "+"
IN SIDEWALK
ELEV. = 5246.21

TC 30.67
FL 30.00

TC 33.67
FL 33.00

TC 38.67
FL 38.00

TC 40.67
FL 40.00

TC 44.67
FL 44.00

CONSTRUCT HEADWALL WITH TOP ELEV=31.00 AND BOT ELEV=30.20

CONSTRUCT 3 – 24" SIDEWALK CULVERTS PER CITY OF ALBUQUERQUE STD. DWG. #2236, TACK WELD THE BOLTS AT THE PLATE. UPSTREAM INVERT = 30.20, DOWNSTREAM = MATCH EXISTING FLOW LINE OF CURB.

SAN FRANCISCO RD.

GENERAL NOTES

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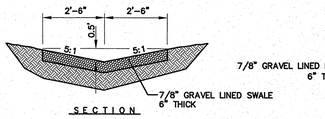
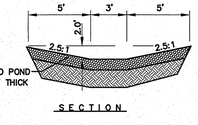


GRAVEL LINED CHANNEL DETAIL (B)
N.T.S.



POND DETAIL (A)
N.T.S.

Private Drainage Facilities within City Right–of–Way Notice to Contractor (Special Order 19 ~ "SO–19")

1. AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT–OF–WAY.
2. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL, DIAL "811" [OR (505) 260–1990] FOR THE LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. 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 THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24–HOUR BASIS.

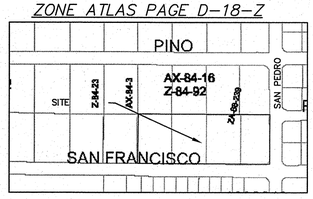
NOTE: SEE SHEET G2 FOR DRAINAGE CALCULATIONS

LEGEND

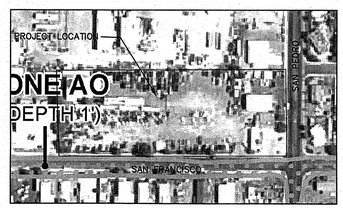
5500	EXISTING (INDEX) CONTOUR	TC	TOP OF CURB ELEVATION
5500	EXISTING (INTERMEDIATE) CONTOUR	FL	CURB FLOWLINE ELEVATION
	FINISHED (INDEX) CONTOUR	SW	BACK OF SIDEWALK ELEVATION
	FINISHED (INTERMEDIATE) CONTOUR	TW	TOP OF WALL ELEVATION
	FLOW DIRECTION ARROW	BW	BOTTOM OF WALL ELEVATION (GRADE)

40 20 0 20 40
SCALE: 1"=20'

ZONE ATLAS PAGE D–18–Z



FEMA FIRM 35001C0137H



LEGAL DESCRIPTION

LOTS 17, 18, 19 AND 20 IN BLOCK 5 OF TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES.

RECEIVED
MAY 30 2013
LAND DEVELOPMENT SECTION

ROBERT J. DEMEULE III
NEW MEXICO
16014
5-27-13
LICENSED PROFESSIONAL ENGINEER

GRADING & DRAINAGE PLAN

DUGGER'S NORTHWEST CORNER OF SAN PEDRO & SAN FRANCISCO

PROJECT NO.	XXXX
DESIGNED BY:	DPLW
DRAWN BY:	RA
CHECKED BY:	RA
DATE:	May 29, 2013
DEMEULE CONSULTING	
SHEET:	G1

MODIFI

DRAINAGE CALCULATIONS

AREA = 3.38 ac.

PROJECT:

NW CORNER SAN PEDRO/SAN FRANCI

100 year
PRECIPITATION: 10 days = 3.95 in.

RAINFALL INTENSITY = 5.05

RUNOFF COEFFICIENTS:

TREATMENT A	0.31
TREATMENT B	0.45
TREATMENT C	0.62
TREATMENT D	0.93

	EXISTING CONDITIONS: AREA	PROPOSED CONDITIONS: AREA
TREATMENT A	0.00 ac.	0.00 ac.
TREATMENT B	0.00 ac.	0.00 ac.
TREATMENT C	2.79 ac.	2.65 ac.
TREATMENT D	0.59 ac.	0.73 ac.
	3.38	3.38

EXISTING RUNOFF VOLUME:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.79)+(0.93)x(0.59)/ 3.38 ac. = 0.67

V100-360 = (0.67)x(3.95)x(3.38)/ 12 = 0.7500 ac-ft = 32670 cf

EXISTING PEAK DISCHARGE:

Q100 = (0.67)x(5.05)x(3.38)= 11.51 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.65)+(0.93)x(0.73)/ 3.38 ac. = 0.69

V100-360 = (0.69)x(3.95)x(3.38)/ 12 = 0.7643 ac-ft = 33293 cf

PROPOSED PEAK DISCHARGE:

Q100 = (0.69)x(5.05)x(3.38)= 11.73 cfs

RESULTS:

33293 - 32670 = 622 cf Increase in runoff volume

11.73 - 11.51 = 0.22 cfs Increase in peak discharge

SIDEWALK CULVERT CALCULATION:

$Q = CA\sqrt{2gh}$

C= 0.50
A= 1.34 FOR A SINGLE 24" SW CULVERT
h= 0.80
g= 32.20

Q for single 24" SW Culvert= 4.809 cfs

Required # of SW culverts based on Exist Peak Discharge= 2.39 Round to 3-24" SW Culverts

DRAINAGE NOTES

THE EXISTING SITE GENERALLY DRAINS FROM EAST TO WEST AND CURRENTLY HAS A FEW STRUCTURES ONSITE.

THE PROPOSED IMPROVEMENTS FOR THE SITE INCLUDE AN ADDITIONAL BUILDING FOR MAINTENANCE PURPOSES.

THE HYDROLOGY CALCULATION USED WERE TAKEN FROM THE CITY OF ALBUQUERQUE DESIGN PROCESS MANUAL. THE PRECIPITATION ZONE IS ZONE 2. SEE THE DRAINAGE CALCULATIONS (THIS SHEET) FOR MORE INFORMATION.

THE PROPOSED ON-SITE RETENTION/DETENTION POND IS REQUIRED TO CAPTURE THE 100-YR 10 DAY FLOOD EVENT (622 CF) AND THE POND DESIGN IS 826 CF. THE DETENTION PORTION OF THE POND DRAINS WITHIN 24 HOURS.

AS SHOWN ON THE FEMA FLOODPLAIN MAP (THIS SHEET) THERE IS NO FLOODPLAIN IMPACTING THE SITE. THERE IS A FLOODPLAIN, ZONE AO, ADJACENT TO THE SITE WITHIN SAN FRANCISCO RD.

THE 3-24" SIDEWALK CULVERTS WERE SIZED USING A FLOW OF 11.51 CFS (EXISTING FLOWRATE SINCE THERE IS A PROPOSED POND). CHAPTER 22 SECTION 3.A.2 (ORIFICES) WAS USED TO CALCULATE THE SIDEWALK CULVERT CAPACITY. THE C VALUE ASSUMED WAS 0.5.

AHYMO OUTPUT FILE

```
□(s16.67h8.5v0T□&18D

      AHYMO PROGRAM (AHYMO_97) -                        - Version:  1997.02c
            RUN DATE (MON/DAY/YR) = 05/24/2013
          START TIME (HR:MIN:SEC) = 11:06:11     USER NO.=
AHYMO-I-9702a01000150-SH
          INPUT FILE = G:\Proj\Sdvlcnty\2007CO-1\temp\SANPED-1\duggers.txt


    *S Data File: windev7.dat
    *S Compute 100-Year Flow
    *S Use 6 Hour Storm
    *S
    START                   TIME=0.0   CODE 0     LINES -6

*S**************************************************************************
    *S USE COA DPM ZONE 2 RAINFALL

*S**************************************************************************
    RAINFALL                TYPE=-1 RAIN ONE=2.01
                               RAIN SIX=2.35 RAIN DAY=2.75 DT=0.050

                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 -
PEAK AT 1.40 HR.
                    DT =    .033333 HOURS       END TIME =     5.999940 HOURS

*S**************************************************************************

*S**************************************************************************
*S--------------------------------------------------------------------------
    *S COMPUTE BASIN
    COMPUTE NM HYD          ID=1  HYD NO=BAS.1 DA=0.00528 SQ MI
                            PER A=0.00 PER B=0.00 PER C=78 PER D=22 TP=-.133
                            MASS RAINFALL=-1

          K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE
CONSTANT, N =  7.106420
          UNIT PEAK =   4.5964    CFS    UNIT VOLUME =    .9970       B =   526.28
P60 = 2.3500
          AREA =      .001162 SQ MI     IA =    .10000 INCHES    INF =    .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=   .033333

          K =   .111031HR    TP =   .133000HR    K/TP RATIO =   .834817     SHAPE
CONSTANT, N =  4.271263
          UNIT PEAK =   11.546    CFS    UNIT VOLUME =    .9992       B =   372.87
P60 = 2.3500
          AREA =      .004118 SQ MI     IA =    .35000 INCHES    INF =    .83000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=   .033333
    PRINT HYD               ID=1   CODE=1

                                        HYDROGRAPH FROM AREA BAS.1


       RUNOFF VOLUME =     1.69680 INCHES     =        .4778 ACRE-FEET
       PEAK DISCHARGE RATE =       14.11 CFS  AT   1.500 HOURS   BASIN AREA =
.0053 SQ. MI.


*S--------------------------------------------------------------------------
    *S ROUTE THROUGH ONSITE POND
    *S NEW RATING CURVE
    ROUTE RESERVOIR         ID=20 HYD=POND INFLOW=1 CODE=10
                                  OUTFLOW   STORAGE    ELEV
                                  0         0          5229.0
                                  0.010        0.004      5229.5
                                  0.020        0.013      5230.0
                                  8.835        0.027      5230.5
                                  14.427       0.045      5231.0

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

   TIME      INFLOW    ELEV      VOLUME    OUTFLOW
   (HRS)     (CFS)     (FEET)    (AC-FT)   (CFS)

     .00       .00   5229.00      .000       .00
     .33       .00   5229.00      .000       .00
     .67       .00   5229.00      .000       .00
    1.00       .00   5229.00      .000       .00
    1.33      2.62   5229.85      .010       .02
    1.67      7.70   5230.54      .028      9.25
    2.00      2.80   5230.17      .018      2.95
    2.33       .65   5230.04      .014       .69
    2.67       .24   5230.01      .013       .26
    3.00       .11   5230.01      .013       .11
    3.33       .06   5230.00      .013       .06
    3.67       .03   5230.00      .013       .03
    4.00       .03   5230.00      .013       .03
    4.33       .03   5230.00      .013       .03
    4.67       .03   5230.00      .013       .03
    5.00       .03   5230.00      .013       .03
    5.33       .03   5230.00      .013       .03
    5.67       .03   5230.00      .013       .03
    6.00       .03   5230.00      .013       .03
    6.33       .00   5229.99      .013       .02
    6.67       .00   5229.96      .012       .02
    7.00       .00   5229.93      .012       .02
    7.33       .00   5229.90      .011       .02
    7.67       .00   5229.88      .011       .02
    8.00       .00   5229.85      .010       .02
    8.33       .00   5229.82      .010       .02
    8.67       .00   5229.80      .009       .02
    9.00       .00   5229.78      .009       .02
    9.33       .00   5229.75      .009       .02
    9.67       .00   5229.73      .008       .01
   10.00       .00   5229.71      .008       .01
   10.33       .00   5229.69      .007       .01
   10.67       .00   5229.67      .007       .01
   11.00       .00   5229.65      .007       .01
   11.33       .00   5229.63      .006       .01
   11.67       .00   5229.61      .006       .01
   12.00       .00   5229.59      .006       .01
   12.33       .00   5229.57      .005       .01
   12.67       .00   5229.55      .005       .01
   13.00       .00   5229.54      .005       .01
   13.33       .00   5229.52      .004       .01
   13.67       .00   5229.51      .004       .01
   14.00       .00   5229.48      .004       .01
   14.33       .00   5229.45      .004       .01
   14.67       .00   5229.42      .003       .01
   15.00       .00   5229.39      .003       .01
   15.33       .00   5229.36      .003       .01
   15.67       .00   5229.34      .003       .01
   16.00       .00   5229.32      .003       .01
   16.33       .00   5229.29      .002       .01
   16.67       .00   5229.28      .002       .01
   17.00       .00   5229.26      .002       .01
   17.33       .00   5229.24      .002       .00
 PEAK DISCHARGE =     13.248 CFS - PEAK OCCURS AT HOUR    1.53
 MAXIMUM WATER SURFACE ELEVATION =     5230.895
 MAXIMUM STORAGE =        .0412 AC-FT        INCREMENTAL TIME=     .033333HRS

*S--------------------------------------------------------------------------
 FINISH

      NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 11:06:11
□(s0p10h4099T□&16D
```

RECEIVED
MAY 30 2013
LAND DEVELOPMENT SECTION

ROBERT J. DEMEULE III
NEW MEXICO
16014
5.27.13
LICENSED PROFESSIONAL ENGINEER

GRADING & DRAINAGE PLAN

DUGGER'S
NORTHWEST CORNER OF
SAN PEDRO & SAN FRANCISCO

PROJECT NO.	XXXX
DESIGNED BY:	DPLW
DRAWN BY:	RA
CHECKED BY:	RA
DATE:	May 29, 2013
DEMEULE CONSULTING	
SHEET:	G2

MODIFIED

GENERAL NOTES

1. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
2. ALL WORK ON THIS PLAN SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
3. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE LOCATION ONLY, AND LINES MAY EXIST WHERE NONE ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OWNER OR FROM EXISTING PLANS, AND THIS INFORMATION MAY BE INCOMPLETE, OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE ENGINEER HAS NOT UNDERTAKEN ANY FIELD VERIFICATION OF THESE LOCATIONS, LINE SIZES OR MATERIAL TYPE, MAKES NO REPRESENTATION THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND INSTALLATION IN OR NEAR THE AREA IN ADVANCE OF AND DURING ANY EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND FACILITIES. IN PLANNING AND CONDUCTING EXCAVATIONS, THE CONTRACTOR SHALL COMPLY WITH ALL STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
4. THE CONTRACTOR SHALL INSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHTS-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND BY WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY CITY OF ALBUQUERQUE FOR THE COMPLETION OF THE WORK PRIOR TO BEGINNING CONSTRUCTION.
6. DISTURBED GROUND NOT INCLUDED IN THE PROPOSED DRIVEWAY OR SHOWN AS LANDSCAPING SHALL BE RESEEDED IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS (1101 & 1102). THE REQ'D "LOOSENING" OF THE SEEDBED AND RESEEDING SHALL BE COMPLETED AS SOON AS PRACTICAL FOLLOWING GRADING OPERATIONS.

DRAINAGE CALCULATIONS

AREA = 3.38 ac. PROJECT: NW CORNER SAN PEDRO/SAN FRANCI

100 year
PRECIPITATION: 360 = 2.35 in.
1440 = 2.75 in.

RAINFALL INTENSITY = 5.1

RUNOFF COEFFICIENTS:

TREATMENT A	0.31
TREATMENT B	0.45
TREATMENT C	0.62
TREATMENT D	0.93

	EXISTING CONDITIONS: AREA	PROPOSED CONDITIONS: AREA
TREATMENT A	0.00 ac.	0.00 ac.
TREATMENT B	0.00 ac.	0.00 ac.
TREATMENT C	2.79 ac.	2.65 ac.
TREATMENT D	0.59 ac.	0.73 ac.
	3.38	3.38

EXISTING RUNOFF VOLUME:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.79)+(0.93)x(0.59)/ 3.38 ac. = 0.67

V100-360 = (0.67)x(2.35)x(3.38)/ 12 = 0.4462 ac-ft = 19437 cf

EXISTING PEAK DISCHARGE:

Q100 = (0.67)x(5.05)x(3.38)= 11.51 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.65)+(0.93)x(0.73)/ 3.38 ac. = 0.69

V100-360 = (0.69)x(2.35)x(3.38)/ 12 = 0.4547 ac-ft = 19807 cf

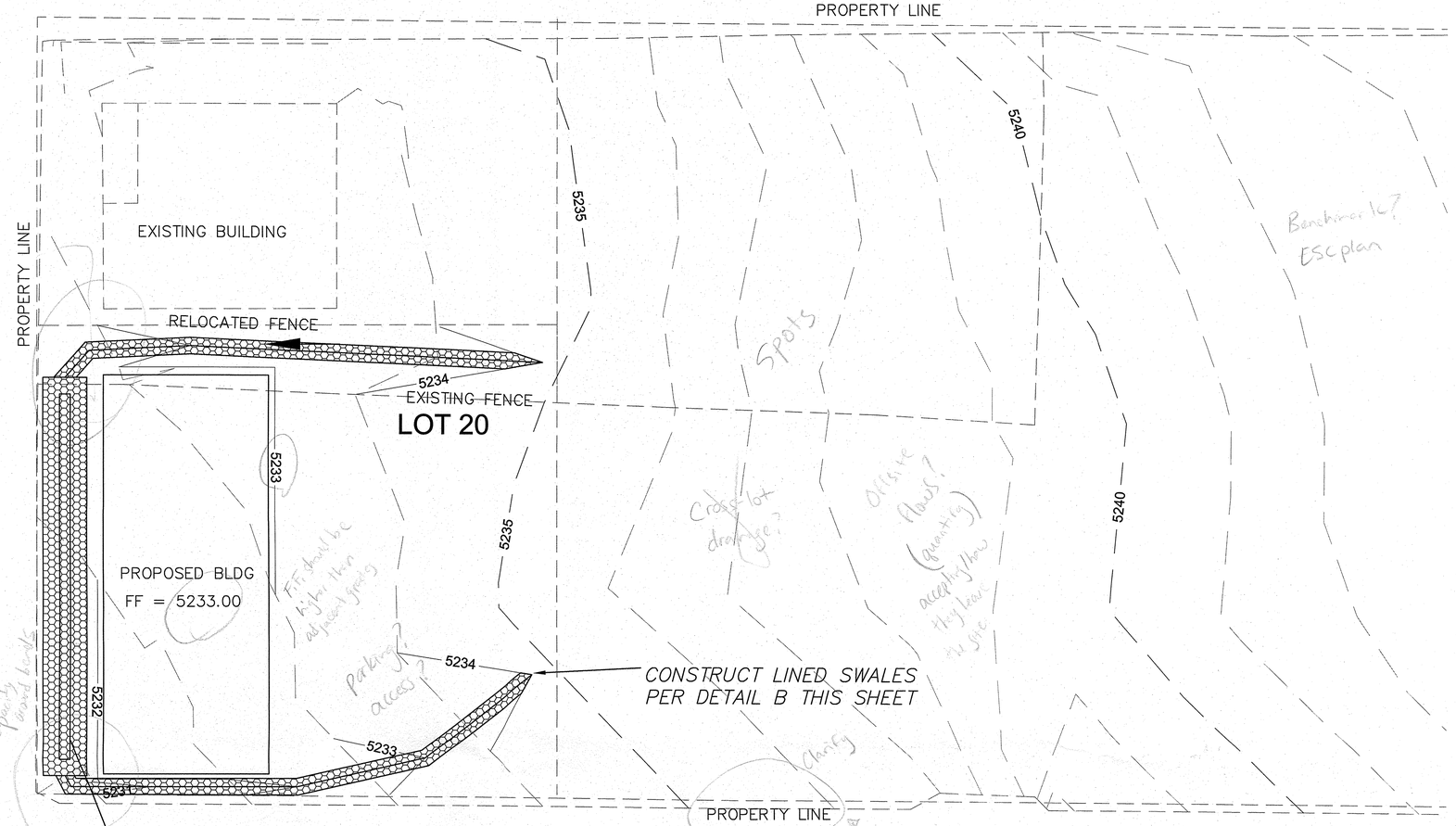
PROPOSED PEAK DISCHARGE:

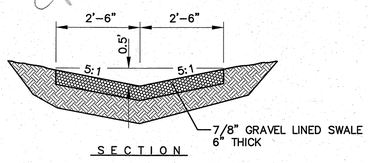
Q100 = (0.69)x(5.05)x(3.38)= 11.73 cfs

RESULTS:

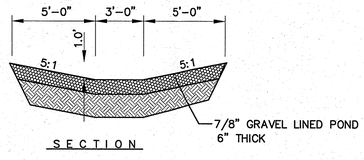
19807 - 19437 = 370 cf Increase in runoff volume

11.73 - 11.51 = 0.22 cfs Increase in peak discharge





GRAVEL LINED CHANNEL DETAIL (B)
N.T.S.



POND DETAIL (A)
N.T.S.

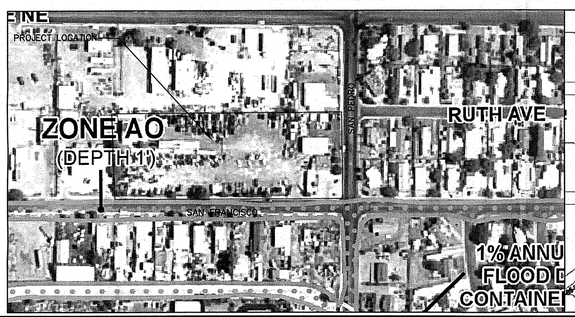
LEGEND

- EXISTING (INDEX) CONTOUR
- EXISTING (INTERMEDIATE) CONTOUR
- FINISHED (INDEX) CONTOUR
- FINISHED (INTERMEDIATE) CONTOUR
- FLOW DIRECTION ARROW

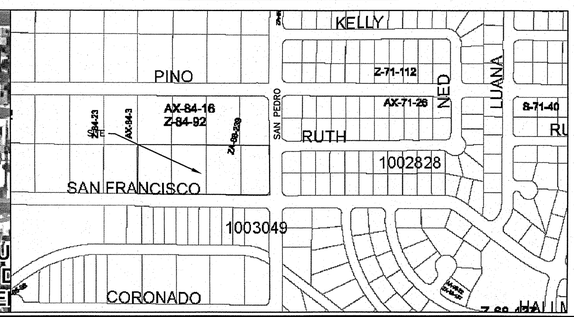
40 20 0 20 40
SCALE: 1"=20'

RECEIVED
APR 0 2 2013
LAND DEVELOPMENT SECTION

FEMA FIRM 35001C0137H



ZONE ATLAS PAGE D-18-Z



DRAINAGE NOTES

THE EXISTING SITE GENERALLY DRAINS FROM EAST TO WEST AND CURRENTLY HAS A FEW STRUCTURES ONSITE.

THE PROPOSED IMPROVEMENTS FOR THE SITE INCLUDE AN ADDITIONAL BUILDING FOR MAINTENANCE PURPOSES.

THE HYDROLOGY CALCULATION USED WERE TAKEN FROM THE CITY OF ALBUQUERQUE DESIGN PROCESS MANUAL. THE PRECIPITATION ZONE IS ZONE 2. SEE THE DRAINAGE CALCULATIONS (THIS SHEET) FOR MORE INFORMATION.

THE PROPOSED ON-SITE RETENTION POND IS REQUIRED TO CAPTURE DOUBLE THE 100-YR FLOOD (740 CF) AND THE POND DESIGN IS 1032 CF.

AS SHOWN ON THE FEMA FLOODPLAIN MAP (THIS SHEET) THERE IS NO FLOODPLAIN IMPACTING THE SITE. THERE IS A FLOODPLAIN, ZONE AO, ADJACENT TO THE SITE WITHIN SAN FRANCISCO RD.

LEGAL DESCRIPTION

LOTS 17, 18, 19 AND 20 IN BLOCK 5 OF TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES.

NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

Designed By: DPLW
Designed For: DUGGER'S

GRADING & DRAINAGE PLAN

DUGGER'S
NORTHWEST CORNER OF
SAN PEDRO & SAN FRANCISCO

ROBERT J. DEMEULLE III
NEW MEXICO
16014
LICENSED PROFESSIONAL ENGINEER
4-2-13

PROJECT NO.	XXXX
DESIGNED BY:	RA
DRAWN BY:	RA
CHECKED BY:	RA
DATE:	APR. 2, 2013
DPW CHK:	

SHEET: G1

MODIFIED

GENERAL NOTES

1. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.

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DRAINAGE CALCULATIONS

AREA = 3.38 ac. PROJECT:

NW CORNER SAN PEDRO/SAN FRANCI

100 year
PRECIPITATION: 360 = 2.35 in.
1440 = 2.75 in.

RAINFALL INTENSITY = 5.1

RUNOFF COEFFICIENTS:

TREATMENT A 0.31
TREATMENT B 0.45
TREATMENT C 0.62
TREATMENT D 0.93

	EXISTING CONDITIONS: AREA	PROPOSED CONDITIONS: AREA
TREATMENT A	0.00 ac.	0.00 ac.
TREATMENT B	0.00 ac.	0.00 ac.
TREATMENT C	2.79 ac.	2.65 ac.
TREATMENT D	0.59 ac.	0.73 ac.
	3.38	3.38

EXISTING RUNOFF VOLUME:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.79)+(0.93)x(0.59)/ 3.38 ac. = 0.67

V100-360 = (0.67)x(2.35)x(3.38)/ 12 = 0.4462 ac-ft = 19437 cf

EXISTING PEAK DISCHARGE:

Q100 = (0.67)x(5.05)x(3.38)= 11.51 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted C = (0.31)x(0.00)+(0.45)x(0.00)+(0.62)x(2.65)+(0.93)x(0.73)/ 3.38 ac. = 0.69

V100-360 = (0.69)x(2.35)x(3.38)/ 12 = 0.4547 ac-ft = 19807 cf

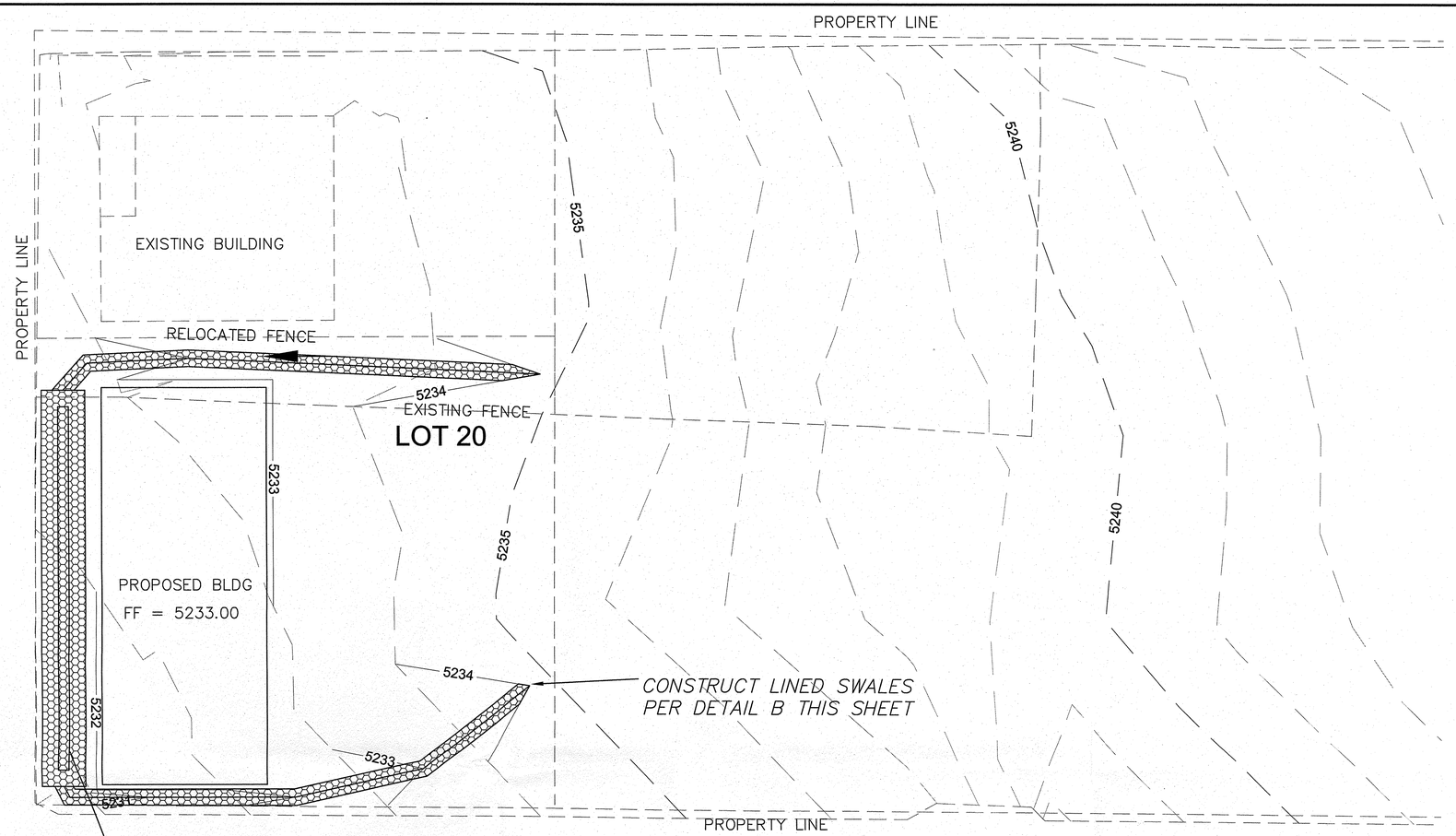
PROPOSED PEAK DISCHARGE:

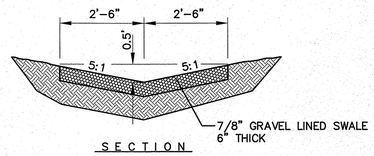
Q100 = (0.69)x(5.05)x(3.38)= 11.73 cfs

RESULTS:

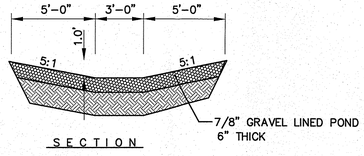
19807 - 19437 = 370 cf Increase in runoff volume

11.73 - 11.51 = 0.22 cfs Increase in peak discharge





GRAVEL LINED CHANNEL DETAIL B
N.T.S.



POND DETAIL A
N.T.S.

LEGEND

- EXISTING (INDEX) CONTOUR
- EXISTING (INTERMEDIATE) CONTOUR
- FINISHED (INDEX) CONTOUR
- FINISHED (INTERMEDIATE) CONTOUR
- FLOW DIRECTION ARROW

40 20 0 20 40
SCALE: 1"=20'

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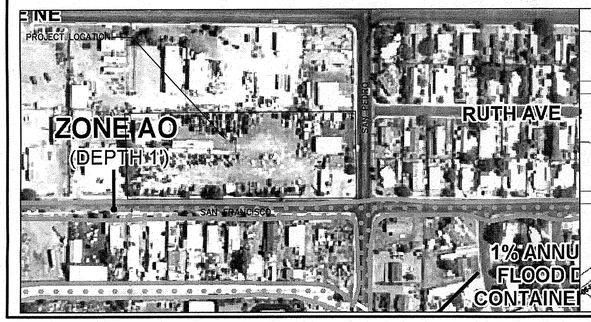
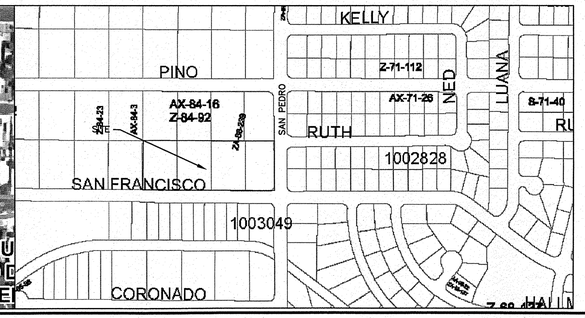
FEMA FIRM 35001C0137H



ZONE ATLAS PAGE D-18-Z



DRAINAGE NOTES

THE EXISTING SITE GENERALLY DRAINS FROM EAST TO WEST AND CURRENTLY HAS A FEW STRUCTURES ONSITE.

THE PROPOSED IMPROVEMENTS FOR THE SITE INCLUDE AN ADDITIONAL BUILDING FOR MAINTENANCE PURPOSES.

THE HYDROLOGY CALCULATION USED WERE TAKEN FROM THE CITY OF ALBUQUERQUE DESIGN PROCESS MANUAL. THE PRECIPITATION ZONE IS ZONE 2. SEE THE DRAINAGE CALCULATIONS (THIS SHEET) FOR MORE INFORMATION.

THE PROPOSED ON-SITE RETENTION POND IS REQUIRED TO CAPTURE DOUBLE THE 100-YR FLOOD (740 CF) AND THE POND DESIGN IS 1032 CF.

AS SHOWN ON THE FEMA FLOODPLAIN MAP (THIS SHEET) THERE IS NO FLOODPLAIN IMPACTING THE SITE. THERE IS A FLOODPLAIN, ZONE AO, ADJACENT TO THE SITE WITHIN SAN FRANCISCO RD.

LEGAL DESCRIPTION

LOTS 17, 18, 19 AND 20 IN BLOCK 5 OF TRACT A, UNIT A, NORTH ALBUQUERQUE ACRES.

NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

DPLW

Designed By:

Designed For

DUGGER'S

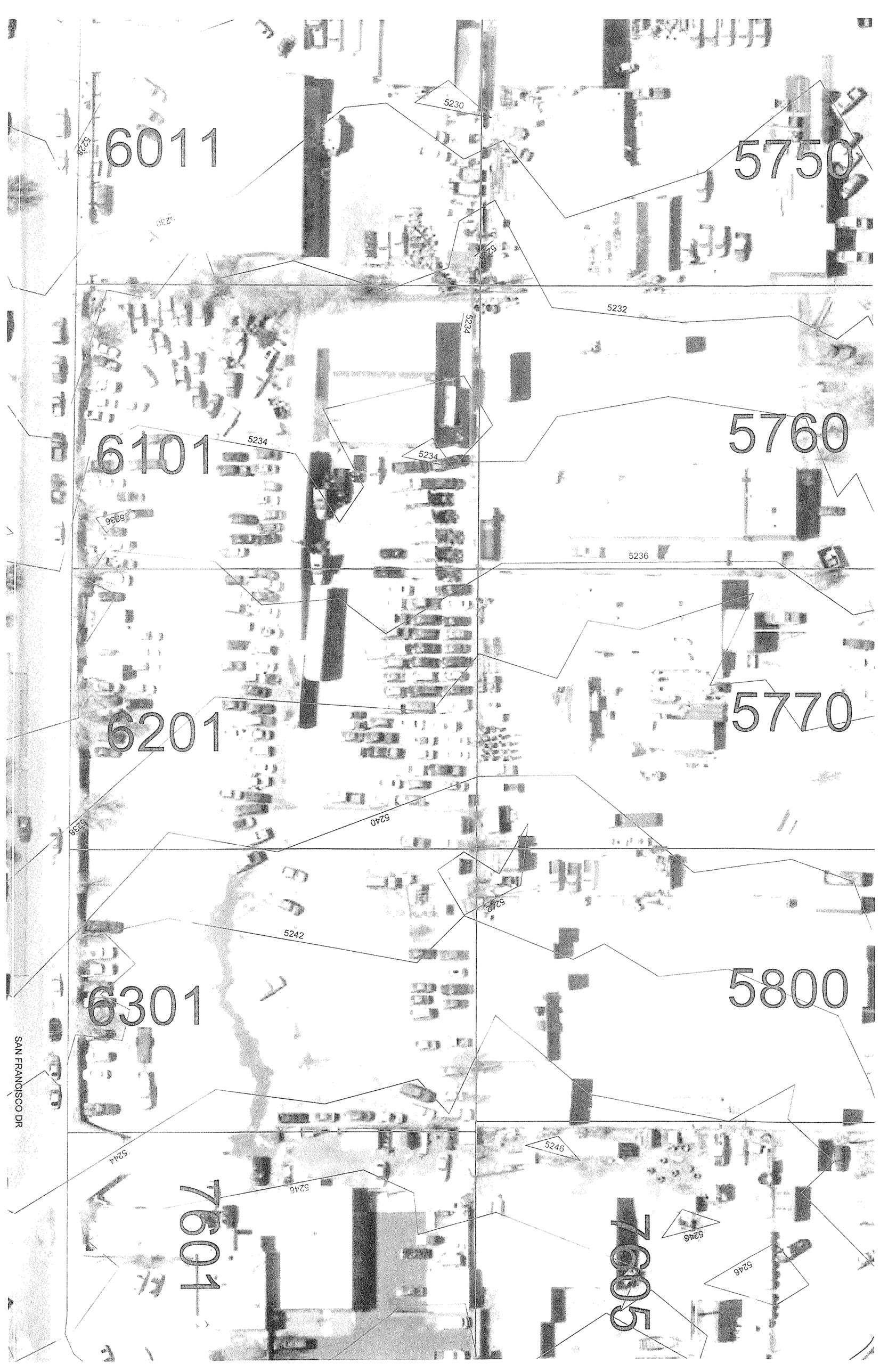
GRADING & DRAINAGE PLAN

DUGGER'S
NORTHWEST CORNER OF
SAN PEDRO & SAN FRANCISCO

ROBERT A. MEHELICH III
NEW MEXICO
16014
REGISTERED PROFESSIONAL ENGINEER
4-2-13

PROJECT NO.	XXXX
DESIGNED BY:	RA
DRAWN BY:	RA
CHECKED BY:	RA
DATE:	APR. 2, 2013
DPW CHK:	

SHEET:
G1


6011
5750
6101
5760
6201
5770
6301
5800
6401
5805
5230
5232
5234
5236
5238
5240
5242
5244
5246
SAN FRANCISCO DR

S11463 X I/P

N 89°51'04" E 495.03'

4.12' 165.03' 165.00' 24.83'

7' PUBLIC UTILITY EASEMENT
FILED: JUNE 5, 1972
Bk. Misc. 263, Pg. 298

24.98' 25.4'

60.70'

C.P. 30.00'

COMMERCIAL METAL BUILDING

10.00' 49.90'

29.90'

CHAINLINK FENCE

CONCRETE

234.01'

20.23' 56.20' 1.00' 15.30' 1.00' 11.00'

CONCRETE

CHAINLINK FENCE

GATE

CHAINLINK FENCE

27.09'

LOT 20

LOT 19

BLOCK 5
2.6575 Acres TOTAL

N 00°00'16" W

S 00°00'26" W 233.91'

S 00°00'26" W 233.80'

R/B S11463

164.98' S 89°48'58" W 165.00'

2.46' GATE 2.53'

494.98'

FIRE HYDRANT CONCRETE WALK TRANSFORMER BOX

CURB & GUTTER 2.08' DRIVECUT 2.28' DRIVECUT 2.52' 2.55' CURB

FENCE CORNER ENCROACHES PROPERTY CORNER BY 1.92'

SAN FRANCISCO DRIVE
60' R/W

ELECTRI

ELECTRICAL T

S 89°52'30" E 165.07'

BLDG.

CONC. BLK. WALL

MH

PP ANCH

CONC SHED CONC

135.07

2 PARK. SP.

HCP

30.00

71.4

ASPHALT PAVEMENT

CONC.

LOT 17-B
15794.75 sf

263.80

117.32

116.59

CHAIN LINK FENCE

CONC.

32.2

EXISTING COMMERCIAL BUILDING

32.3

5.0

4 PARKING SP.

N 89°48'47" E 135.03

TEL. RISER

PRV

PROPOSED INTERIOR LOT LINE

EXISTING COMMERCIAL BUILDING

20.6

22.08

44.9

LOT 17-A
15640.27 sf

MARKED HCP

CONCRETE PAVEMENT

5 PARKING SPACES

135.74 s.f. (Note 7)

MONITOR WELL

WV

FH

PRV

N 00°11'13" W 116.48

135.07

14.5

25.13

EXIST. DRIVEPAD 4' CONC. SIDEWALK EXIST. DRIVEPAD

30.00

30' RIGHT-OF-WAY TO BE DEDICATED TO SAN FRANCISCO AVENUE, NE BY THIS PLAT
11963.88 s.f. (Note 6)

2-WV

MH

L = 39.40
R = 25.00

N 89°52'30" W 164.99

SAN FRANCISCO AVENUE, NE

CONC. SIDEWALK (6.0' R. O. W.)

EXISTING WHEELCHAIR RAMPS, ALL CORNERS

30' RIGHT-OF-WAY TO BE DEDICATED TO SAN SAN PEDRO DRIVE, NE BY THIS PLAT (Note 6)

4' CONC. SIDEWALK EXIST. DR.PAD

S 00°10'11" E 263.80

SAN PEDRO DRIVE, NE (60' R. O. W.)

RUTH

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