



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Tiburon Heights Subdivision Building Permit #: _____ City Drainage #: D10 / D03A
DRB#: 1009178 EPC#: _____ Work Order#: 790681
Legal Description: Tiburon Heights
City Address: Petirrojo Road NW

Engineering Firm: MARK GOODWIN & ASSOCIATES PA Contact: DIANE HOELZER, PE
Address: PO BOX 90606, ABQ, NM 87199
Phone#: 828-2200 Fax#: _____ E-mail: diane@goodwinengineers.com

Owner: RW INVESTMENT COMPANY Contact: RHETT WATERMAN
Address: PO BOX 27560, ABQ, NM 87125
Phone#: 248-1688 Fax#: _____ E-mail: watermanrhett@comcast.net

Architect: N/A Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Other Contact: N/A Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION

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

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

☒ OTHER (SPECIFY) additional requested hydrology calcs

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

CHECK 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

☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

DATE SUBMITTED: 9-15-15 By: DIANE HOELZER, PE

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

Diane Hoelzer

From: Harmon Rita T. <rharmon@cabq.gov>
Sent: Monday, August 24, 2015 3:51 PM
To: Diane Hoelzer
Subject: RE: Tiburon Heights

No, for the entire subdivision. I am trying to get an idea of how much "actual" discharge is being generated by the subdivision, as compared to that determined by using the formula. Then we can compare it to that %D used to size Pond #5. Do you see where I am going with this? Checking to be sure Pond #5 has capacity for the increase in %D.

From: Diane Hoelzer [mailto:Diane@goodwinengineers.com]
Sent: Monday, August 24, 2015 3:45 PM
To: Harmon Rita T.
Subject: RE: Tiburon Heights

Are you going to have me do this for every single lot ?

Diane Hoelzer, PE
MARK GOODWIN & ASSOCIATES, PA
diane@goodwinengineers.com
(505) 828-2200

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Monday, August 24, 2015 3:37 PM
To: Diane Hoelzer
Subject: RE: Tiburon Heights

Hi Diane,

Please compare the impervious area calculated using the DPM formula from Table A-5, and the scaled impervious area using the proposed offsets.

Let me know what you get. And I will get with Shahab.

Rita

From: Diane Hoelzer [mailto:Diane@goodwinengineers.com]
Sent: Monday, August 24, 2015 3:03 PM
To: Harmon Rita T.
Cc: Rhett Waterman (watermanrhett@comcast.net)
Subject: FW: Tiburon Heights

Rita,

Can I get an answer to my last email below ?
Until I get an answer I am not sure how to proceed.

Thanks,



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT TIBURON HEIGHTS
SUBJECT Drainage Calculations
BY DLH DATE 9-14-15
CHECKED _____ DATE _____
SHEET 1 OF _____

COMPARE TABLE 5 (DPM) W/ TYPICAL PLOT PLAN LAYOUT

TABLE A-5

$$N = \frac{39 \text{ UNITS}}{7.9143 \text{ ACRES}} = 4.928$$

$$\text{Treatment D} = 7\sqrt{N^2 + (5N)} = 49\%$$

TYPICAL PLOT PLAN

$$\text{LOT AREA} = 0.1460 \text{ ACRES} = 6360 \text{ SF}$$

$$\text{IMPERVIOUS AREA} = 2656 \text{ SF (42\%)}$$

$$\text{PERVIOUS AREA} = 3704 \text{ SF (58\%)}$$

PROJECT SITE INCLUDING ALL LOTS AND ROADWAY

$$\text{TOTAL LOT AREA} = 262,279 \text{ SF (42\%)} = 110,157$$

$$\text{TOTAL R/W AREA} = 82,437 \text{ SF (81.25\%)} = 66,980$$

$$\text{TOTAL} = 344,716 \text{ SF} \quad 177,137 \text{ SF}$$

$$\text{Treatment D} = \frac{177,137 \text{ SF}}{344,716 \text{ SF}} = 51\%$$

∴ INCREASE FROM 49% TO 51%

RERUN ANALYSIS BASED ON

$$A = 0$$

$$B = 10$$

$$C = 41$$

$$D = 49$$

$$A = 0$$

$$B = 9$$

$$C = 40$$

$$D = 51$$

WILSON'S SAD 228

DRAINAGE REPORT

ASSUMED RESIDENTIAL:

$$A = 0$$

$$C = 40$$

$$B = 10$$

$$D = 50$$



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PROJECT TIBURON HEIGHTS
SUBJECT Drainage Calcs
BY D.M.G. DATE 9-14-15
CHECKED _____ DATE _____
SHEET 2 OF _____

Summary of Q's

Based on Table A-5 $Q = 26.97 \text{ cfs}$

Based on Typical Plot Plan $Q = 27.21 \text{ cfs}$

} SEE NOTE
Sheet 3

$$\text{North Basin} = \frac{3.14 \text{ ACRES}}{7.91 \text{ ACRES}} = .397 (27.21) = 10.80 \text{ cfs}$$

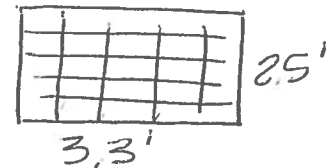
$$\text{OR } .397 (26.97 \text{ cfs}) = 10.7 \text{ cfs}$$

CALCULATE CAPACITY OF SINGLE "C" INLET.

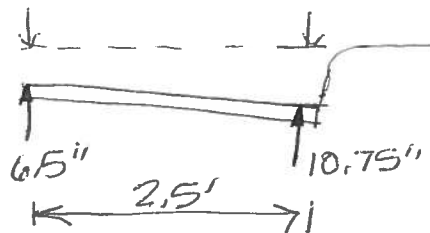
INLET CAPACITY \Rightarrow USE WEIR EQN. $Q = CLH^{3/2}$

C INLET 2.5' WIDE X 3.3' LONG

REFER TO STD DETL 2220 & 2205



SIDES



$$\text{AVG} = 8.625'' = 0.719'$$

$$Q = 3(5)(.719)^{1.5} = 9.14 \text{ cfs (SIDES)}$$

$$Q = 3(3.3)(.54)^{1.5} = 3.95 \text{ cfs (CROSS)}$$

$Q_{\text{TOTAL}} = 13.0 \text{ cfs}$ CAPACITY AT TOP OF CURB

$$Q_{\text{ACTUAL}} \approx 10.7 \text{ cfs}$$

$$\therefore Q_{\text{CAP}} > Q_{\text{ACTUAL}}$$

$$13.0 > 10.7$$



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PROJECT TIBORON HEIGHTS
SUBJECT Drainage Calcs.
BY DMA DATE 9-14-15
CHECKED _____ DATE _____
SHEET 3 OF _____

ASSUME: 50% clogging on Inlet
WSEL TO Property/ROW Line
Depth at Property Line = 0.89'
 $\Delta H = .89 - .67 = .22'$
P.L. - T.C. = ΔH

$$Q = 3(2.5)(0.939)^{1.5} = 6.82 \text{ cfs}$$

$$Q = 3(1.65)(.76)^{1.5} = 3.28 \text{ cfs}$$

$$\underline{10.1 \text{ cfs}}$$

$$10.1 \text{ cfs} \approx 10.7 \text{ cfs.}$$

THE INCREASE IN Q_{100} IS INSIGNIFICANT,
THE RISE IN POND 5 IS INSIGNIFICANT.

$$1.57 \text{ AF TO } 1.59 \text{ AF}$$

$$\Delta \text{VOLUME} = 0.02845 \text{ AF} \\ = 1,239 \text{ CF}$$

$$\text{POND 5 RAISED } \frac{1,239 \text{ CF}}{72,000 \text{ SF}} = .0172 \text{ Feet} \\ = 0.207 \text{ inches}$$

∴ Insignificant rise in Pond 100 & 2-24 hrs storm

GENERAL NOTES:

1. FOR SINGLE GRATE TYPE STORM INLET DELETE CENTER SUPPORT AND MOVE ONE END WALL TO FORM NEW SINGLE GRATE INLET.
2. FOR STORM INLET GUTTER TRANSITION, SEE DWG 2207.
3. OUTLET PIPE SIZE, PER DESIGN REQUIREMENT.
4. FOR FRAME & GRATING, SEE DWG 2216, 2220 & 2221.
5. FOR ANCHOR SEE DETAIL.
6. FOR CENTER SUPPORT ASSEMBLY, SEE DWG 2215.

CONSTRUCTION NOTES:

- A. GUTTER TRANSITION.
- B. TOP OF CURB.
- C. CENTER SUPPORT ASSEMBLY
- D. FLOWLINE.
- E. CONSTRUCTION JOINT.
- F. NORMAL GUTTER LINI.
- G. 1'-10" MIN, UNLESS OTHERWISE DIRECTED.
- H. FRAME AND GRATE.
- J. INVERT OF OUTLET PIPE.
- K. CONCRETE FILL, MINIMUM SLOPES AS SHOWN.
- L. FOR STORM INLET DEPTHS GREATER THAN 4' INSTALL STD STEPS, SEE DWG 2229, DOWNSTREAM FACE.
- M. EXTEND NO 4 REBARS 18" INTO CURB ON EACH SIDE OF STORM INLET.
- N. NO. 4 BARS AT 6" O C.
- P. 3 1/2" X 3 1/2" X 1/2" X 4' - 0" FOR SINGLE GRATE TYPE "C" STORM INLET.
- Q. 3 1/2" X 3 1/2" X 1/2" X 7' - 6" FOR DOUBLE GRATE TYPE "C" STORM INLET.
- R. ANCHOR.

CITY OF ALBUQUERQUE

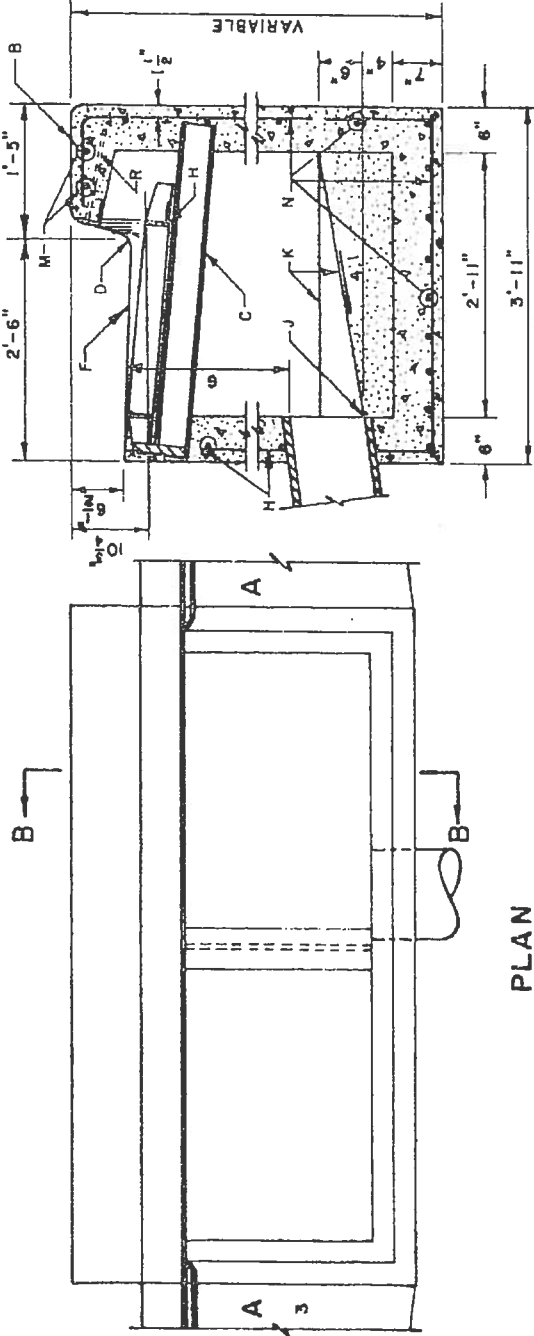
DRAINAGE

STORM INLET DOUBLE "C"

DWG. 2205

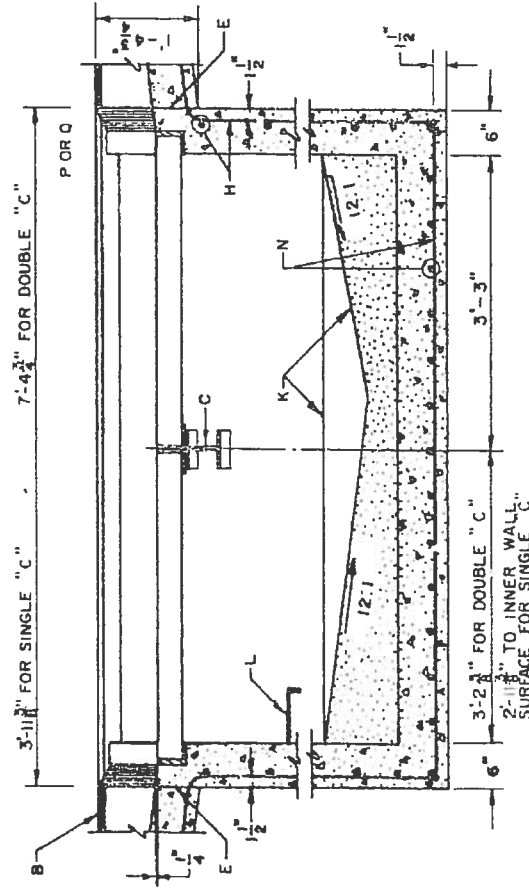
AUG. 1985

REVISIONS
12-21-92

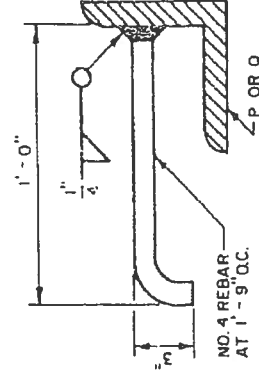


PLAN

SECTION B-B



SECTION A-A



ANCHOR DETAIL

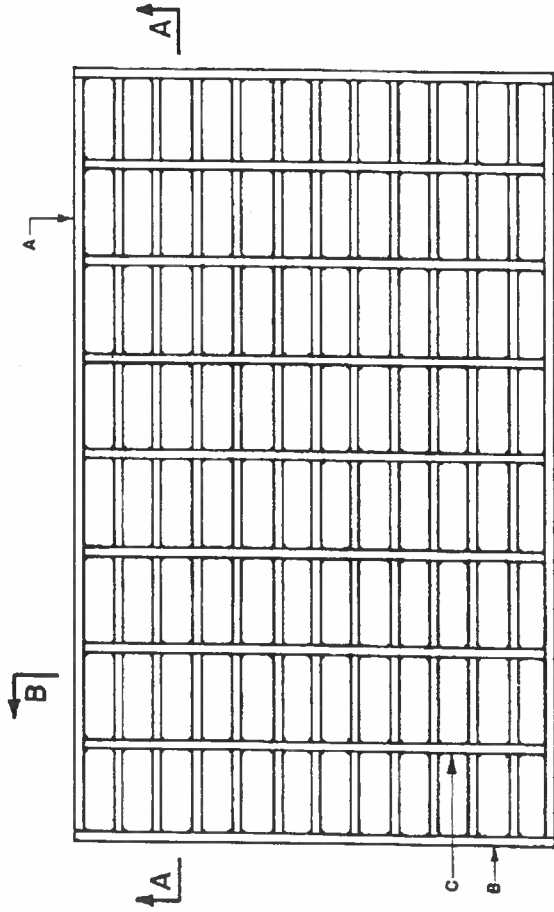
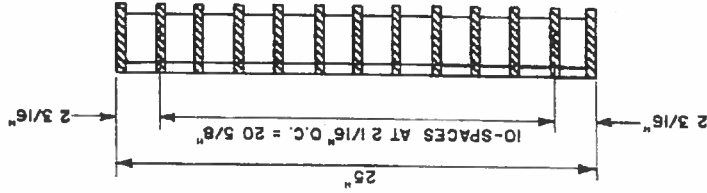
GENERAL NOTES:

1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS, 1/4". FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE, OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS WELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

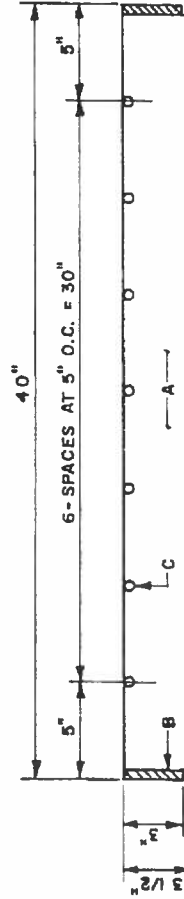
CONSTRUCTION NOTES:

- A. BEARING BARS, (13) 1/2" X 3 1/2" X 39".
- B. END BARS, (2) 1/2" X 3" X 25".
- C. CROSS BARS, (7) 1/2" DIA. X 24.

SECTION B-B



PLAN



SECTION A-A

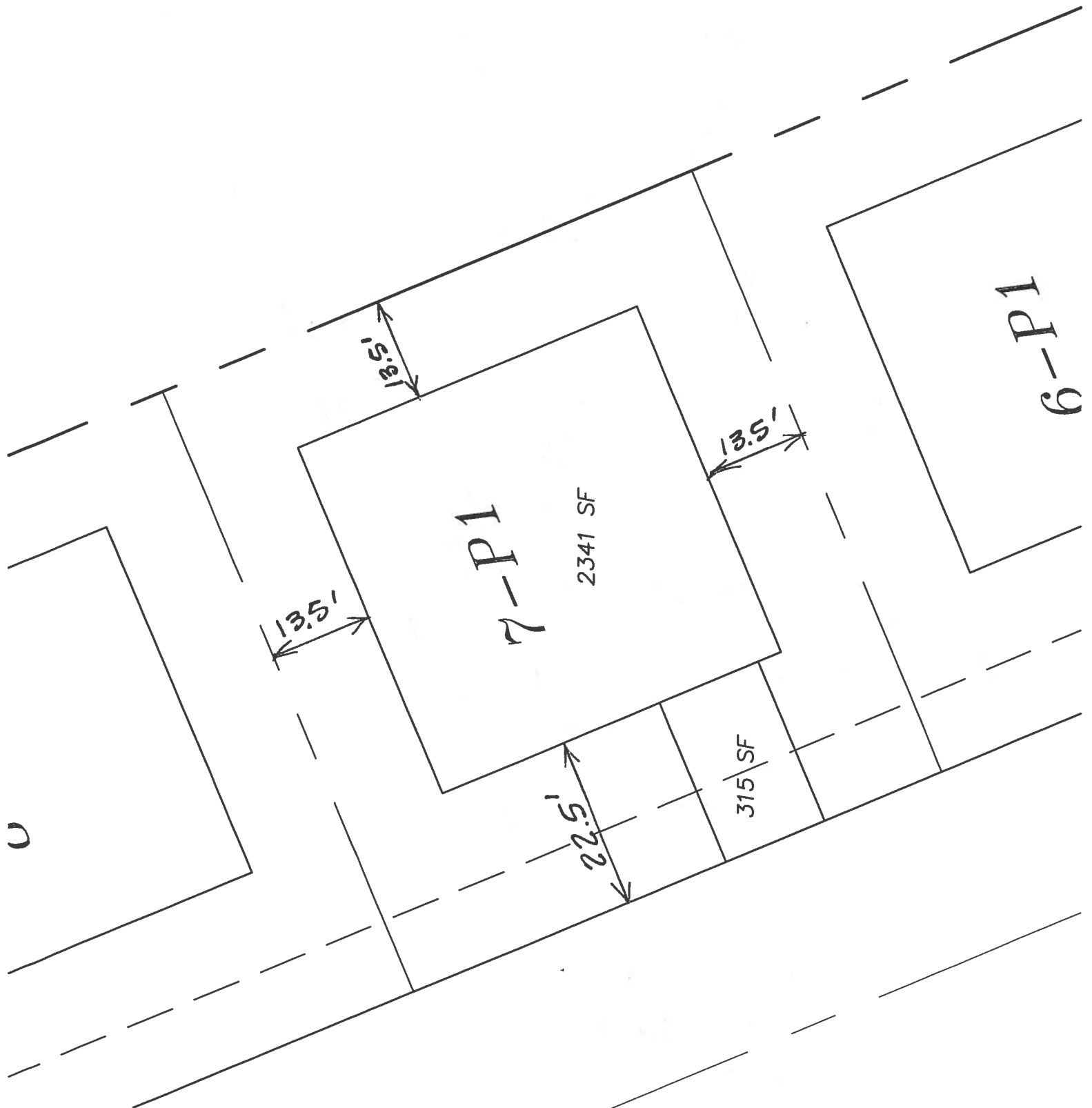
REVISIONS

CITY OF ALBUQUERQUE

**DRAINAGE
STORM INLET
ALBUQUERQUE GRATE**
DWG. 2220

AUG. 1986

TIBURON HEIGHT
Typical Lot Layout - 9-14-15
Typical Minimum Offsets



```

*S*****
*S
*S          TIBURON
*S          100 YEAR 24 HOUR STORM EVENT
*S
*S          FILE: TIBURON_1.DAT
*S          LAST REVISED: 9-14-15
*S          NOAA ATLAS 2, VOL IV ZONE D 10
START      TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION     NEW MEXICO
RAINFALL   TYPE=2 RAIN QUARTER=0.0
           RAIN ONE=1.70 IN RAIN SIX=2.16 IN
           RAIN DAY=2.51 IN DT=0.0333 HRS
*S*****
*S  TOTAL PROJECT SITE
*S  JMM ORIGIAL CALC
*** *****
*** AREA = 7.9143 ACRES
*** *****
COMPUTE NM HYD      ID=1  HYD NO=100 AREA= 0.0124 SQ MI
                   PER A=0  PER B=10  PER C=47.2  PER D=42.8
                   TP=-.1333 HR  MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*** *****
*S  TOTAL PROJECT SITE
*S  BASED ON DPM TABLE A-5  CALC
*** *****
*** AREA = 7.9143 ACRES
*** *****
COMPUTE NM HYD      ID=1  HYD NO=100 AREA= 0.0124 SQ MI
                   PER A=0  PER B=10  PER C=41.  PER D=49
                   TP=-.1333 HR  MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*** *****
*S  TOTAL PROJECT SITE
*S  BASED ON TYPICAL LOT PLOT PLAN AND OFFSETS
*** *****
*** AREA = 7.9143 ACRES
*** *****
COMPUTE NM HYD      ID=1  HYD NO=100 AREA= 0.0124 SQ MI
                   PER A=0  PER B=9  PER C=40  PER D=51
                   TP=-.1333 HR  MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*** *****
FINISH

```

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\TIBURON_1.DAT - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =09/14/2015
USER NO.= M-GoodwinMNSiteA90075759

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =

*S	*****									
*S	TIBURON									
*S	100 YEAR 24 HOUR STORM EVENT									
*S	*****									
*S	FILE: TIBURON_1.DAT									
*S	LAST REVISED: 9-14-15									
*S	NOAA ATLAS 2, VOL IV ZONE D 10									
START	*****									
LOCATION	NEW MEXICO									
RAINFALL	TYPE= 2 NOAA 14									
*S	*****									
*S	TOTAL PROJECT SITE									
*S	JMM ORIGINAL CALC									
COMPUTE NM HYD	100.00	-	1	0.01240	26.37	0.985	1.48974	1.532	3.322 PER IMP=	42.80
*S	TOTAL PROJECT SITE									
*S	BASED ON DPM TABLE A-5 CALC									
COMPUTE NM HYD	100.00	-	1	0.01240	26.96	1.038	1.57026	1.532	3.397 PER IMP=	49.00
*S	TOTAL PROJECT SITE									
*S	BASED ON TYPICAL LOT PLOT PLAN AND OFFSETS									
COMPUTE NM HYD	100.00	-	1	0.01240	27.21	1.057	1.59871	1.532	3.429 PER IMP=	51.00
FINISH	*****									

TIME= 0.00
RAIN24= 2.510

[illegible]

24-HOUR RAINFALL DIST. - BASED ON NORA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - DI									
DT = 0.033300 HOURS		END TIME =		24.009300 HOURS					
0.0000	0.0020	0.0041	0.0062	0.0085	0.0107	0.0132			
0.0158	0.0184	0.0213	0.0242	0.0305	0.0368	0.0435			
0.0505	0.0576	0.0653	0.0729	0.0808	0.0888	0.0968			
0.1053	0.1137	0.1225	0.1319	0.1412	0.1517	0.1623			
0.1756	0.1919	0.2093	0.2301	0.2520	0.2781	0.3088			
0.3395	0.3850	0.4311	0.4927	0.5723	0.6518	0.8585			
1.0705	1.2392	1.3567	1.4742	1.5359	1.5949	1.6441			
1.6813	1.7185	1.7448	1.7706	1.7933	1.8122	1.8310			
1.8456	1.8599	1.8722	1.8821	1.8920	1.9009	1.9098			
1.9180	1.9254	1.9327	1.9396	1.9464	1.9530	1.9596			
1.9662	1.9695	1.9725	1.9756	1.9785	1.9815	1.9843			
1.9870	1.9897	1.9924	1.9951	1.9977	2.0003	2.0028			
2.0053	2.0077	2.0101	2.0125	2.0148	2.0171	2.0194			
2.0217	2.0238	2.0260	2.0282	2.0303	2.0324	2.0345			
2.0365	2.0385	2.0405	2.0425	2.0444	2.0464	2.0483			
2.0502	2.0520	2.0539	2.0557	2.0576	2.0594	2.0612			
2.0630	2.0648	2.0665	2.0683	2.0700	2.0717	2.0734			
2.0751	2.0768	2.0785	2.0801	2.0818	2.0834	2.0850			
2.0866	2.0882	2.0898	2.0914	2.0929	2.0945	2.0960			
2.0975	2.0991	2.1006	2.1021	2.1036	2.1050	2.1065			
2.1080	2.1094	2.1109	2.1123	2.1137	2.1151	2.1165			
2.1179	2.1193	2.1207	2.1221	2.1234	2.1248	2.1261			
2.1275	2.1288	2.1301	2.1314	2.1327	2.1340	2.1353			
2.1366	2.1379	2.1392	2.1404	2.1417	2.1430	2.1442			

2.1454 2.1467 2.1479 2.1491 2.1503 2.1515 2.1527
2.1539 2.1551 2.1563 2.1575 2.1586 2.1598 2.1610
2.1621 2.1633 2.1644 2.1656 2.1667 2.1679 2.1690
2.1702 2.1713 2.1725 2.1736 2.1748 2.1759 2.1771
2.1782 2.1793 2.1805 2.1816 2.1827 2.1838 2.1850
2.1861 2.1872 2.1883 2.1894 2.1906 2.1917 2.1928
2.1939 2.1950 2.1961 2.1972 2.1983 2.1994 2.2005
2.2016 2.2027 2.2038 2.2049 2.2060 2.2071 2.2082
2.2092 2.2103 2.2114 2.2125 2.2136 2.2146 2.2157
2.2168 2.2178 2.2189 2.2200 2.2210 2.2221 2.2231
2.2242 2.2253 2.2263 2.2274 2.2284 2.2295 2.2305
2.2316 2.2326 2.2336 2.2347 2.2357 2.2367 2.2378
2.2388 2.2398 2.2409 2.2419 2.2429 2.2439 2.2450
2.2460 2.2470 2.2480 2.2490 2.2500 2.2510 2.2520
2.2530 2.2540 2.2550 2.2560 2.2570 2.2580 2.2590
2.2600 2.2610 2.2620 2.2630 2.2640 2.2649 2.2659
2.2669 2.2679 2.2688 2.2698 2.2708 2.2718 2.2727
2.2737 2.2746 2.2756 2.2766 2.2775 2.2785 2.2794
2.2804 2.2813 2.2823 2.2832 2.2842 2.2851 2.2860
2.2870 2.2879 2.2889 2.2898 2.2907 2.2916 2.2926
2.2935 2.2944 2.2953 2.2963 2.2972 2.2981 2.2990
2.2999 2.3008 2.3017 2.3026 2.3035 2.3044 2.3053
2.3062 2.3071 2.3080 2.3089 2.3098 2.3107 2.3116
2.3125 2.3133 2.3142 2.3151 2.3160 2.3168 2.3177
2.3186 2.3195 2.3203 2.3212 2.3221 2.3229 2.3238
2.3246 2.3255 2.3263 2.3272 2.3280 2.3289 2.3297
2.3306 2.3314 2.3323 2.3331 2.3339 2.3348 2.3356
2.3364 2.3373 2.3381 2.3389 2.3397 2.3405 2.3414
2.3422 2.3430 2.3438 2.3446 2.3454 2.3462 2.3470
2.3478 2.3486 2.3494 2.3502 2.3510 2.3518 2.3526
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2.3589 2.3597 2.3604 2.3612 2.3620 2.3627 2.3635
2.3643 2.3650 2.3658 2.3665 2.3673 2.3681 2.3688
2.3696 2.3703 2.3710 2.3718 2.3725 2.3733 2.3740
2.3747 2.3755 2.3762 2.3769 2.3777 2.3784 2.3791
2.3798 2.3806 2.3813 2.3820 2.3827 2.3834 2.3841
2.3848 2.3855 2.3863 2.3870 2.3877 2.3884 2.3891
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2.3946 2.3952 2.3959 2.3966 2.3973 2.3979 2.3986
2.3993 2.3999 2.4006 2.4013 2.4019 2.4026 2.4032
2.4039 2.4046 2.4052 2.4059 2.4065 2.4071 2.4078
2.4084 2.4091 2.4097 2.4103 2.4110 2.4116 2.4122
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2.4256 2.4262 2.4268 2.4273 2.4279 2.4285 2.4291
2.4297 2.4302 2.4308 2.4314 2.4319 2.4325 2.4331
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2.4449 2.4454 2.4460 2.4465 2.4470 2.4475 2.4480
2.4485 2.4490 2.4495 2.4500 2.4505 2.4510 2.4515
2.4520 2.4525 2.4530 2.4535 2.4539 2.4544 2.4549
2.4554 2.4559 2.4563 2.4568 2.4573 2.4577 2.4582
2.4587 2.4591 2.4596 2.4601 2.4605 2.4610 2.4614

2.4619 2.4623 2.4628 2.4632 2.4637 2.4641 2.4645
2.4650 2.4654 2.4658 2.4663 2.4667 2.4671 2.4676
2.4680 2.4684 2.4688 2.4692 2.4697 2.4701 2.4705
2.4709 2.4713 2.4717 2.4721 2.4725 2.4729 2.4733
2.4737 2.4741 2.4745 2.4749 2.4753 2.4757 2.4761
2.4764 2.4768 2.4772 2.4776 2.4779 2.4783 2.4787
2.4791 2.4794 2.4798 2.4802 2.4805 2.4809 2.4812
2.4816 2.4820 2.4823 2.4827 2.4830 2.4833 2.4837
2.4840 2.4844 2.4847 2.4850 2.4854 2.4857 2.4860
2.4864 2.4867 2.4870 2.4873 2.4877 2.4880 2.4883
2.4886 2.4889 2.4892 2.4896 2.4899 2.4902 2.4905
2.4908 2.4911 2.4914 2.4917 2.4920 2.4922 2.4925
2.4928 2.4931 2.4934 2.4937 2.4940 2.4942 2.4945
2.4948 2.4951 2.4953 2.4956 2.4959 2.4961 2.4964
2.4966 2.4969 2.4972 2.4974 2.4977 2.4979 2.4982
2.4984 2.4987 2.4989 2.4991 2.4994 2.4996 2.4999
2.5001 2.5003 2.5006 2.5008 2.5010 2.5012 2.5014
2.5017 2.5019 2.5021 2.5023 2.5025 2.5027 2.5029
2.5031 2.5034 2.5036 2.5038 2.5040 2.5041 2.5043
2.5045 2.5047 2.5049 2.5051 2.5053 2.5055 2.5056
2.5058 2.5060 2.5062 2.5064 2.5065 2.5067 2.5069
2.5070 2.5072 2.5073 2.5075 2.5077 2.5078 2.5080
2.5081 2.5083 2.5084 2.5086 2.5087 2.5088 2.5090
2.5091 2.5093 2.5094 2.5095 2.5097 2.5098 2.5099
2.5100

*S*****

*S TOTAL PROJECT SITE

*S JWM ORIGINAL CALC

*** *****

*** AREA = 7.9143 ACRES

*** *****

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.0124 SQ MI

PER A=0 PER B=10 PER C=47.2 PER D=42.8

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 20.953 CFS UNIT VOLUME = 0.9988 B = 526.28 P60 = 1.7000
AREA = 0.005307 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.109200HR TP = 0.133300HR K/TP RATIO = 0.819204 SHAPE CONSTANT, N = 4.361186
UNIT PEAK = 20.144 CFS UNIT VOLUME = 0.9998 B = 378.57 P60 = 1.7000
AREA = 0.007093 SQ MI IA = 0.37622 INCHES INF = 0.90343 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.48974 INCHES = 0.9852 ACRE-FEET
PEAK DISCHARGE RATE = 26.37 CFS AT 1.532 HOURS BASIN AREA = 0.0124 SQ. MI.

*** *****

*S TOTAL PROJECT SITE

*S BASED ON DPM TABLE A-5 CALC

*** *****

*** AREA = 7.9143 ACRES

*** *****

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.0124 SQ MI

PER A=0 PER B=10 PER C=41. PER D=49

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428

UNIT PEAK = 23.988 CFS UNIT VOLUME = 0.9989 B = 526.28 P60 = 1.7000

AREA = 0.006076 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.109838HR TP = 0.133300HR K/TP RATIO = 0.823993 SHAPE CONSTANT, N = 4.333148

UNIT PEAK = 17.876 CFS UNIT VOLUME = 0.9996 B = 376.80 P60 = 1.7000

AREA = 0.006324 SQ MI IA = 0.37941 INCHES INF = 0.91235 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.57026 INCHES = 1.0385 ACRE-FEET
PEAK DISCHARGE RATE = 26.96 CFS AT 1.532 HOURS BASIN AREA = 0.0124 SQ. MI.

*** *****

*S TOTAL PROJECT SITE

*S BASED ON TYPICAL LOT PLOT PLAN AND OFFSETS

*** *****

*** AREA = 7.9143 ACRES

*** *****

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.0124 SQ MI

PER A=0 PER B=9 PER C=40 PER D=51

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428

UNIT PEAK = 24.967 CFS UNIT VOLUME = 0.9989 B = 526.28 P60 = 1.7000

AREA = 0.006324 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.109466HR TP = 0.133300HR K/TP RATIO = 0.821198 SHAPE CONSTANT, N = 4.349463

UNIT PEAK = 17.222 CFS UNIT VOLUME = 0.9996 B = 377.83 P60 = 1.7000

AREA = 0.006076 SQ MI IA = 0.37755 INCHES INF = 0.90714 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD

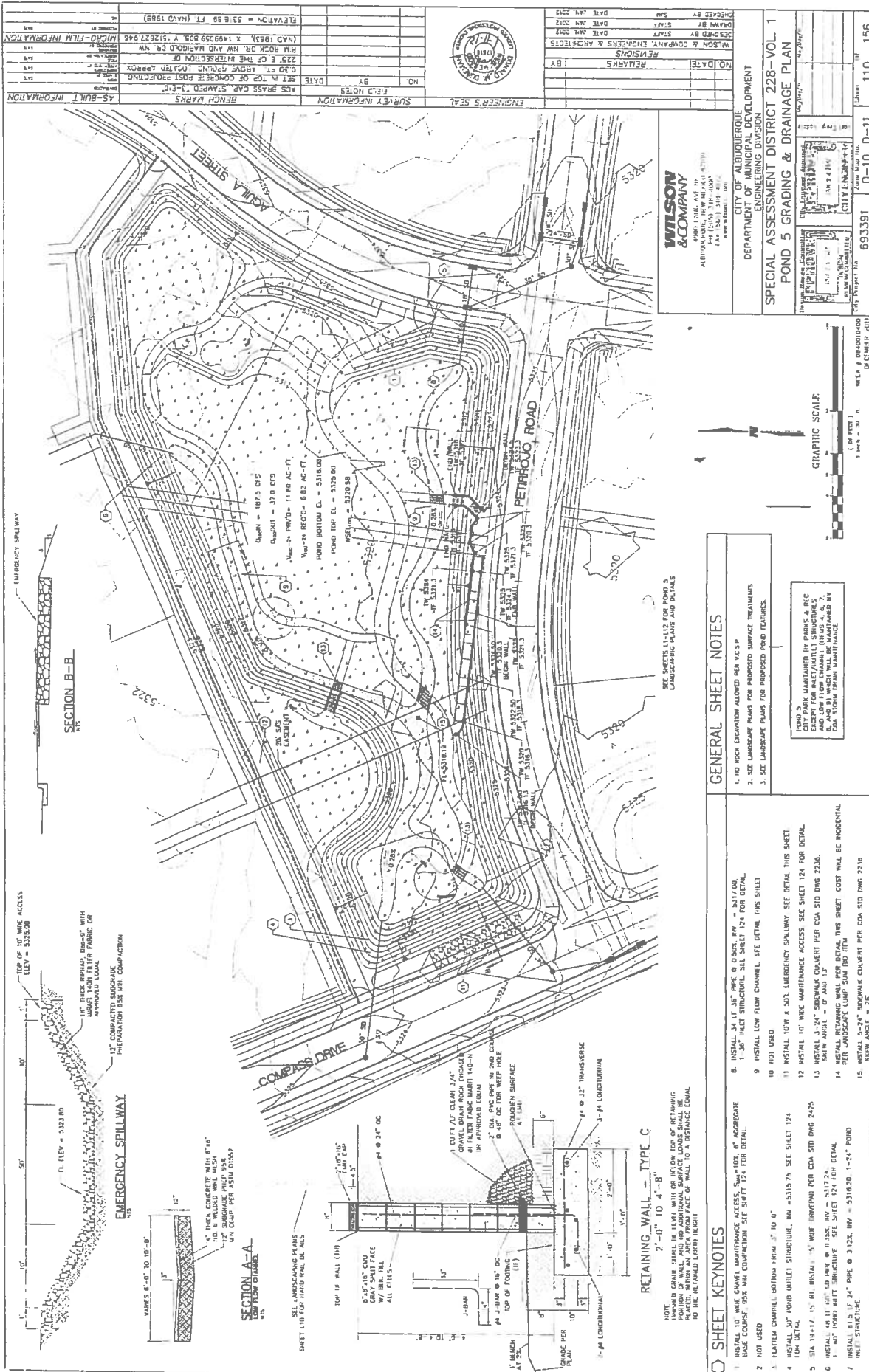
ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.59871 INCHES = 1.0573 ACRE-Feet
PEAK DISCHARGE RATE = 27.21 CFS AT 1.532 HOURS BASIN AREA = 0.0124 SQ. MI.

*** *****
FINISH

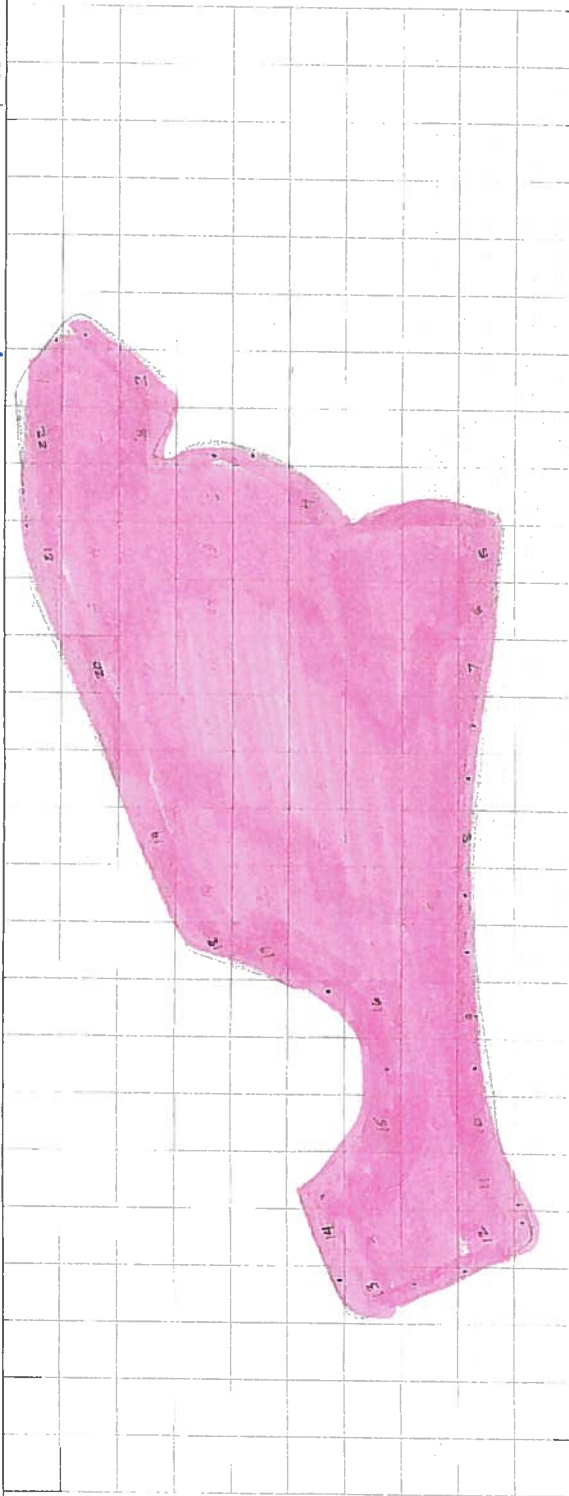
NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 09:47:20



ESTIMATED POND 5 AREA = 72,000 SF

1"=30'

1"=30' SCALE

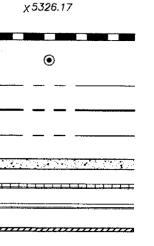


900 SF (58%) = 52,200 SF
 1100 SF (27%) = 19,800 SF
 TOTAL AREA
 POND @
 100.00 ELEV
 5220.58

Project Title

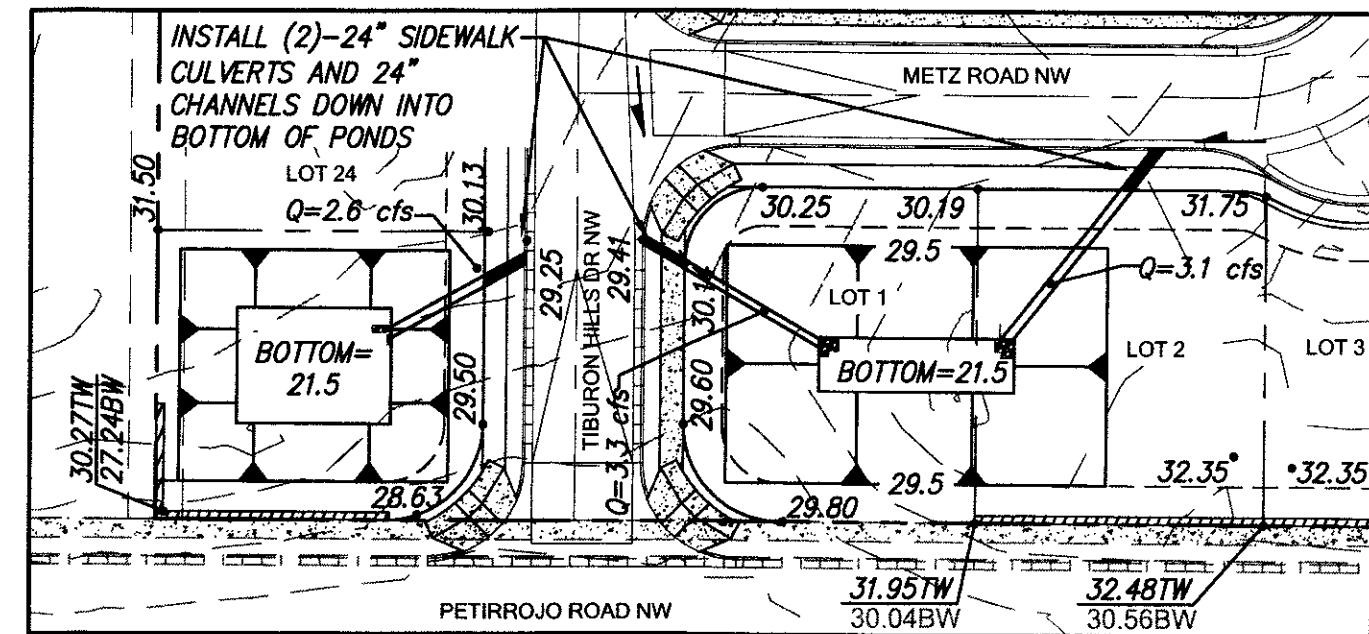
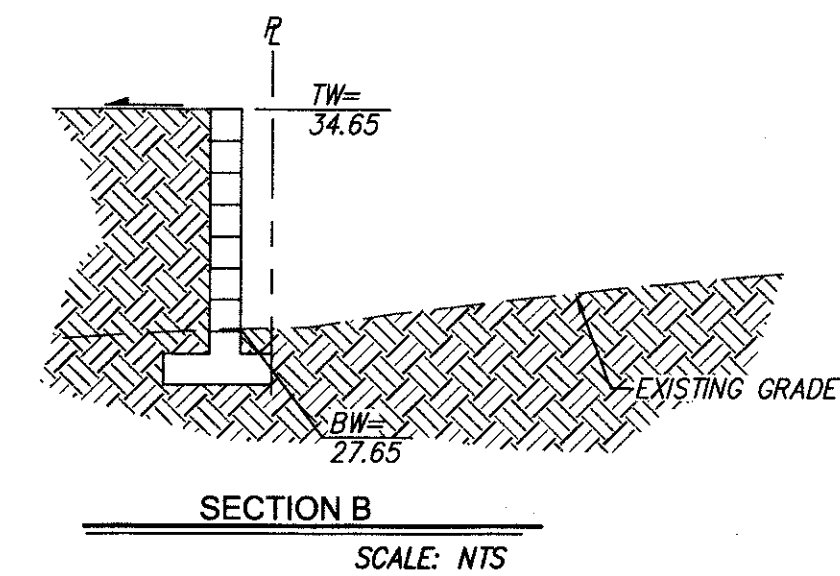
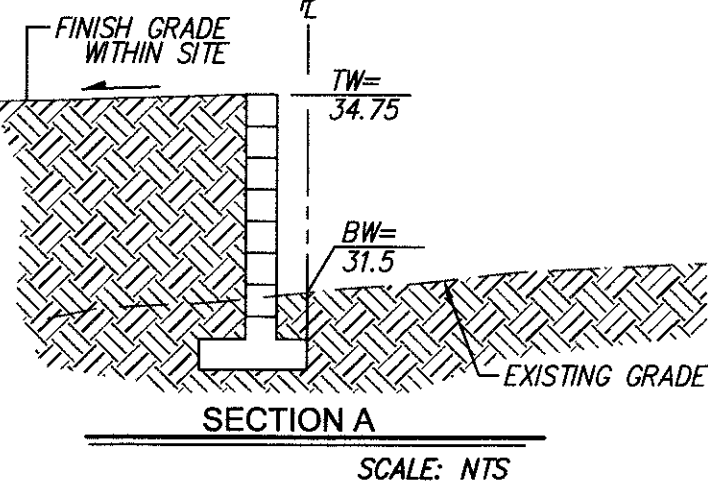
dhg MARK GOODWIN & ASSOCIATES, P.A.
 CONSULTING ENGINEERS
 P.O. BOX 90606
 ALBUQUERQUE, NEW MEXICO 87199
 (505) 263-2200, FAX (505) 797-9539

Drawn: HW	Check: RMO	Date: 1/25/03	Job: 400048	Sheet: Sheet 11 of 16
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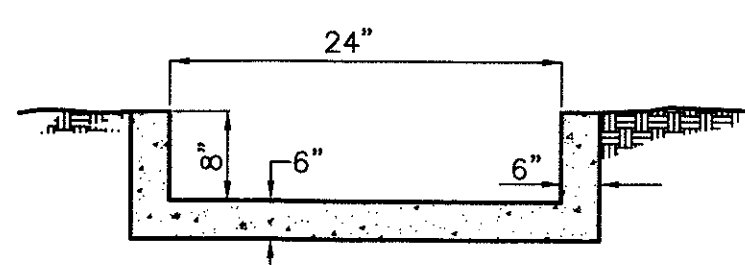


- 5.330 —
- 5.332 —
- x 5.326.17
- 
-
-
-
- 
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- 
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- 
- 
- 
- 
- $\begin{matrix} 19.50 \text{ TW} \\ 13.97 \text{ BW} \end{matrix}$
- $FP=34.15$
- 28.52
- 
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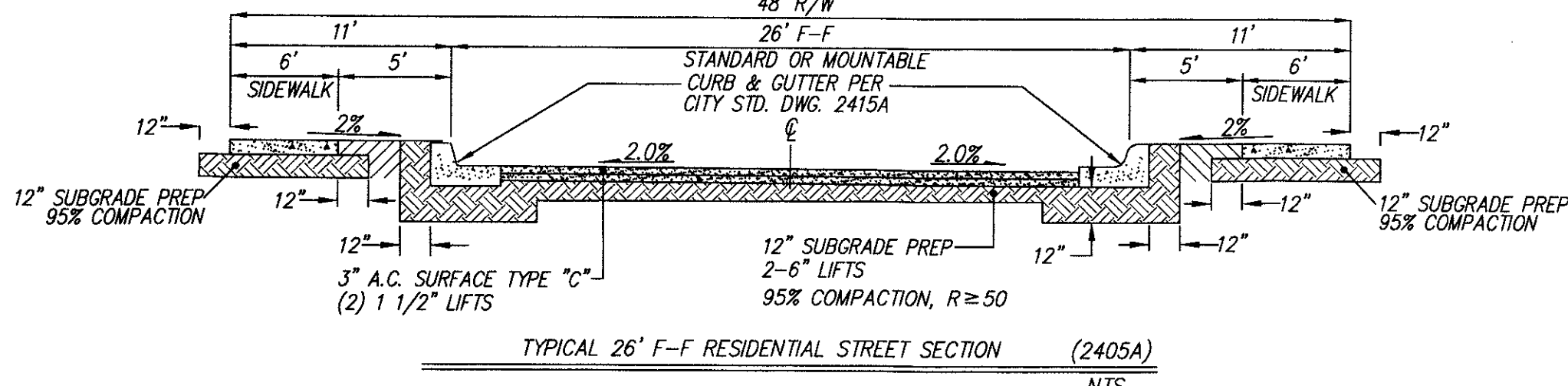
EXISTING CONTOUR — MAJOR
 EXISTING CONTOUR — MINOR
 EXISTING SPOT ELEVATION
 EXISTING STORM DRAIN
 EXISTING STORM DRAIN MAN HOLE
 EXISTING ADJOINER LINE
 NEW BOUNDARY LINE
 NEW LOT LINES
 NEW SIDEWALK
 NEW STANDARD CURB & GUTTER
 NEW MOUNTABLE CURB & GUTTER
 NEW RETAINING WALL — TO BE CONSTRU
 TIME OF ROUGH
 NEW 1:1 SLOPE
 FLOW DIRECTION ARROW
 NEW STORM DRAIN
 NEW STORM DRAIN INLET
 NEW SIDEWALK CULVERT
 FINISHED GRADE ELEVATIONS AT TOP AND
 BOTTOM OF RETAINING WALLS.
 FINISHED PAD ELEVATION
 EXISTING S&D 228 ELEVATIONS
 PROPOSED DRAINAGE BASIN BOUNDARY



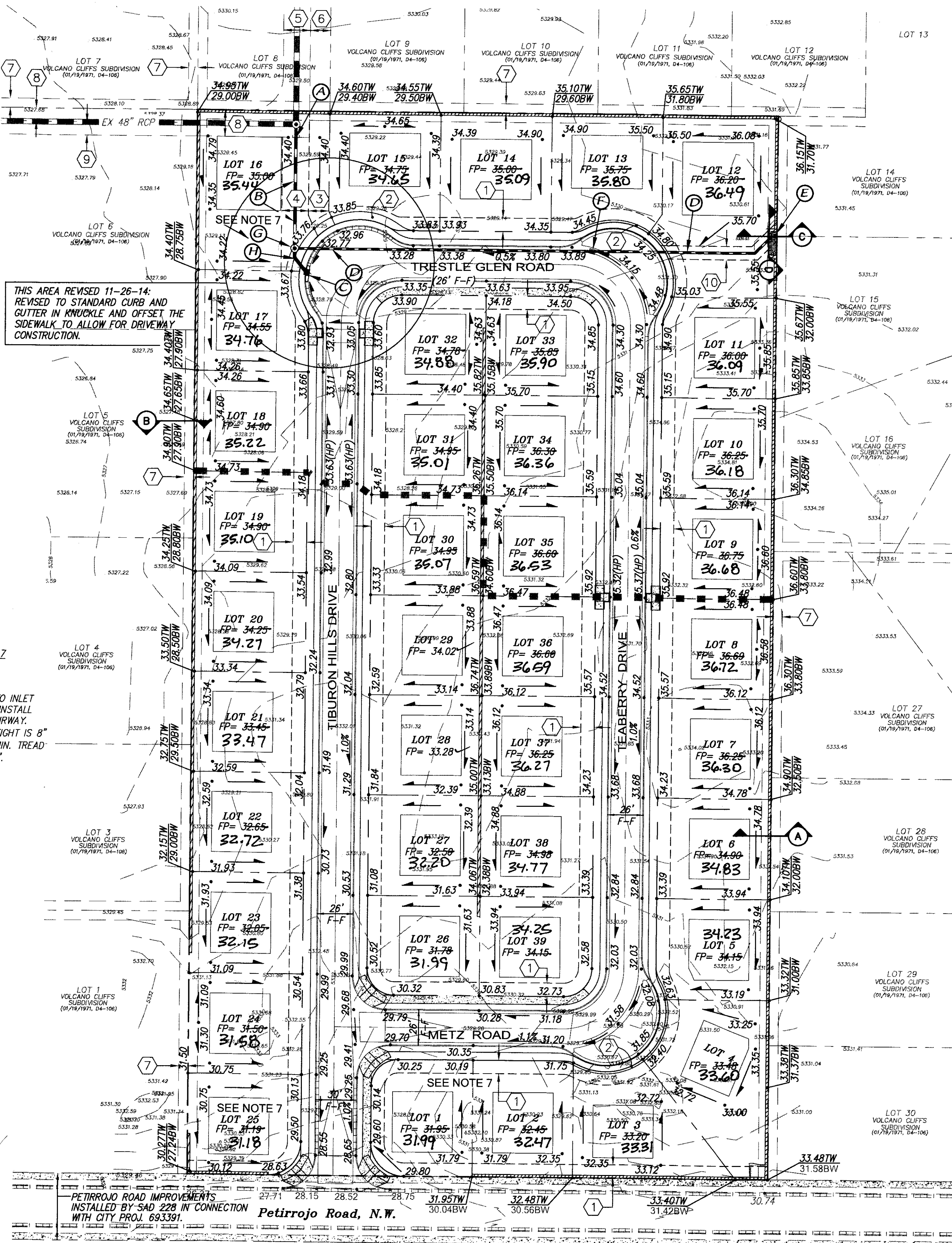
SCALE: 1"=50'
INTERIM PLAN FOR TEMPORARY
PONDING ON LOTS 1, 2 AND 25



SCALE: 1" = 1'



THIS AREA REVISED 11-26-14:
REVISED TO STANDARD CURB AND
GUTTER IN KNUCKLE AND OFFSET TH-
SIDEWALK TO ALLOW FOR DRIVEWAY
CONSTRUCTION.



- ① NEW 10' PUBLIC UTILITY EASEMENT
- ② NEW SIDEWALK EASEMENT
- ③ NEW 15' PUBLIC WATERLINE EASEMENT
- ④ NEW 20' PUBLIC STORM DRAIN EASEMENT
- ⑤ EXISTING 20' PUBLIC STORM DRAIN EASEMENT
(01-07-2013, DOC #2013001868).
- ⑥ EXISTING 15' PUBLIC WATERLINE EASEMENT
(12-18-2012, DOC #2012133305).
- ⑦ EXISTING 7' ELECTRIC POWER AND TELEPHONE LINE
EASEMENT (01/19/1971, 04-106)
- ⑧ EXISTING PUBLIC STORM DRAIN EASEMENT
(_____, _____).
- ⑨ EXISTING 10' PUBLIC STORM DRAIN EASEMENT
(01-07-2013, DOC #2013001870).
- ⑩ NEW 10' PRIVATE DRAINAGE EASEMENT GRANTED
TO LOTS 12-16, VOLCANO CLIFFS SUBDIVISION,
AND TO BE MAINTAINED BY THE TIBURON HEIGHTS
HOME OWNERS ASSOCIATION.

(A) EXISTING 24" ROP (INV.=+20)
REMOVE SD PLUG AND CONNECT
NEW 24" RCP

(B) 82.91 LF OF NEW 24" RCP
@ 1.0% SLOPE

(C) INSTALL NEW SINGLE, TYPE "C" INLET
PER STANDARD DWG #2205
NORMAL FL = 32.77
TG = 32.55
INV.(OUT) = 25.2
INV.(IN) = 25.3

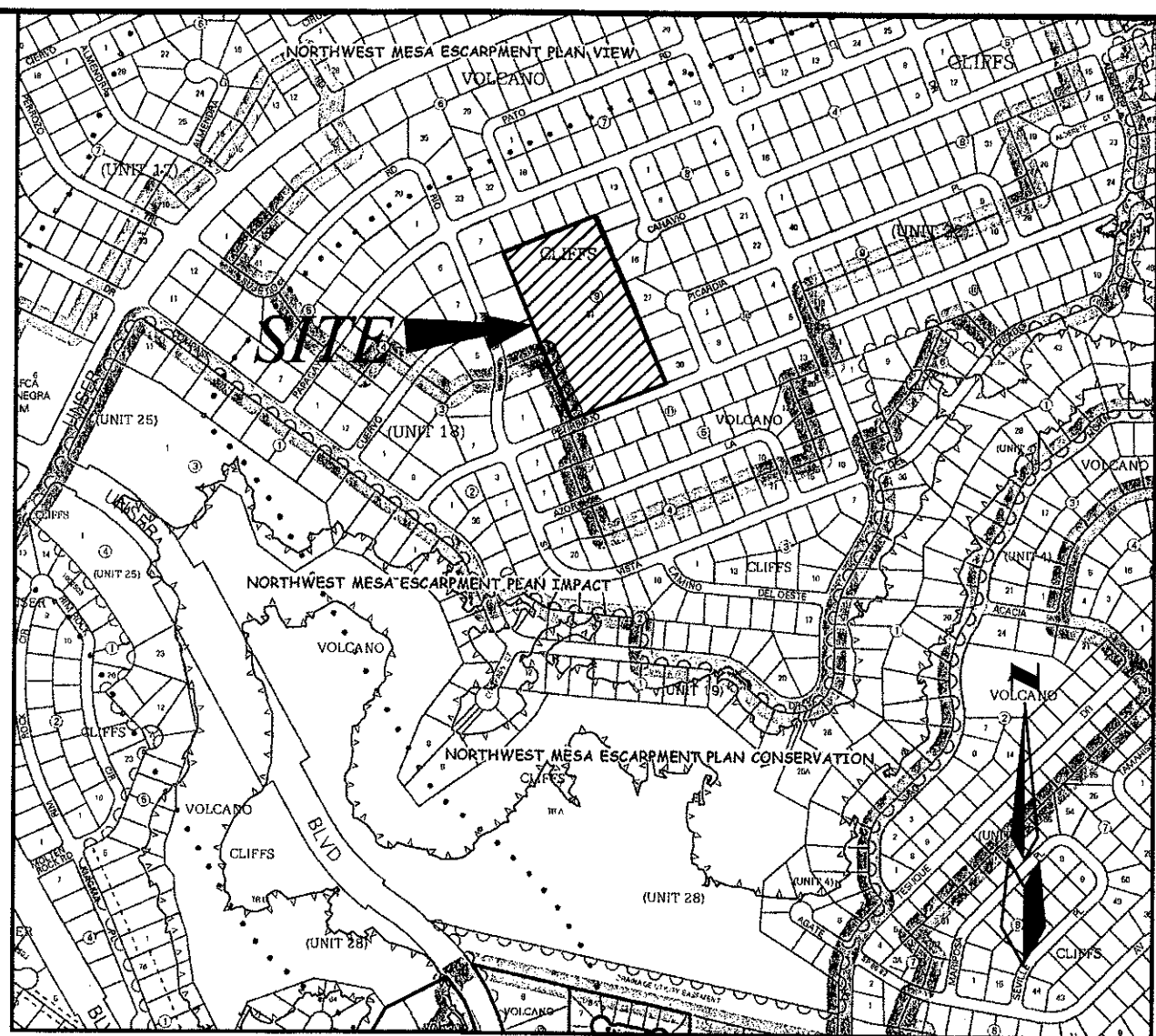
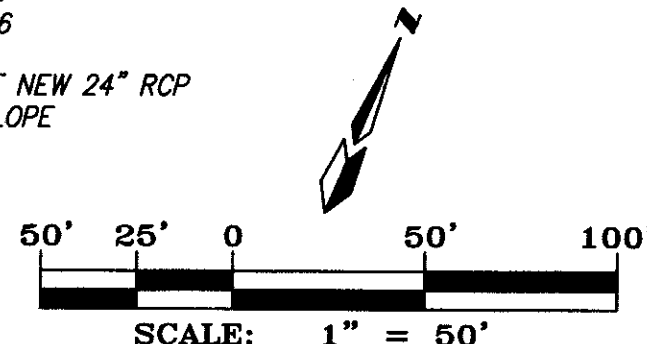
(D) 361.7 LF OF NEW 18" RCP
@ 0.9% SLOPE.

(E) INSTALL NEW SINGLE, TYPE "D" INLET
PER STANDARD DWG #2206. EAST SIDE
OF COLLAR TO BE FLUSH WITH
ADJOINING FINAL GRADE.
TG = 31.00
INV. = 28.29

(F) INSTALL NEW SINGLE, TYPE "D" INLET
PER STANDARD DWG #2206.
TG = 33.99
INV. = 27.08

(G) NEW 4' @ TYPE "E" STORM
DRAIN MANHOLE
RIM = 33.85
INV. = 25.06

(H) 20.7 LF OF NEW 24" RCP
@ 1.0% SLOPE



ZONE MAP: D-10-7

A TRACT OF LAND LYING AND SITUATE WITHIN SECTION 22, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, COMPRISING OF LOT 31-A, BLOCK 9, UNIT NO. 18 VOLCANO CLIFFS SUBDIVISION AS THE SAME IS SHOWN AND LINE DESIGNATED ON THE PLAT THEREOF FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON 0-27-13 RECORDED PLAT NO. 1023 PAGE 103, AND CONTAINING 7.9143 ACRES (344,746 SQUARE FEET) MORE OR LESS.

1. THE CONTRACTOR MUST OBTAIN A "TWO-SOIL DISTURBANCE" PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE EARTHWORK CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL ADJACENT TO RETAINING WALL LOCATIONS TO BE UTILIZED FOR WALL BACKFILL.
6. SITE DOES NOT LIE IN A 100 YEAR FLOOD ZONE.
7. IF SAD 228'S DOWNSTREAM STORM DRAIN AND STREET INFRASTRUCTURE HAS NOT BEEN BUILT AND ACCEPTED BY THE CITY, CONTRACTOR SHALL INSTALL TEMPORARY RETENTION PONDS ON LOTS 1, 2, 16 AND 25 AS SHOWN HEREIN.
8. SIDEWALK CULVERTS ARE PER C.O.A. STANDARD DWG #2236.

ALL SITE WALLS SHALL CONFORM TO THE
GENERAL HEIGHT AND DESIGN REGULATIONS
CONTAINED IN SECTION 14-16-3-19 OF THE
CITY ZONING CODE. TIBURON HEIGHTS

I, DIANE BOCHET, PE, NPS 1507 OF THE FIDELITY+BOON & ASSOCIATES, P.A. HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN AND NOTED ON THE 2014 RECORD INFORMATION. I HAVE EDITED ONTO THE ORIGINAL 2014 RECORD INFORMATION OBTAINED BY RUSS HUGG, NPS 9730, A FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 7/20/15 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR GRADING CERTIFICATION APPROVAL.


THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

Wane Hough 7/31/15

DIANE HOELZER NMPE 11967 DATE *7/31/15*

NEW ME. 11967

dmg MARK GOODWIN & ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
OFFICE (505) 828-2200, FAX (505) 797-9539



CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: *TIBURON HEIGHTS
GRADING AND DRAINAGE*

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	DATE

		LAST DESIGN
--	--	-------------

<div style="text-align: center;"> </div>						ENGINEER'S SEAL <i>[Signature]</i>							
						BENCH MARKS AOPS station is a USGLD section corner stamped "S 21, S22, S28, S27, T1N R2E, 1911" From the intersection of Montana Road NW and Unser Blvd NW go northwest on Unser Blvd 0.78 mile to Molten Rock Road NW, then Left on Molten Rock Road 320 feet to 81st Street. The station is located in the southeast quadrant of the intersection. Geographic Position (MAD083), In feet N.M. State Plane Coordinates (Central Zone) N=1513840.438, E=1497658.102, Elev. = 5330.151 (NAVD88), in feet							
SURVEY INFORMATION NO. BY DATE						CONTRACTOR DATED BY INSPECTOR'S ACCEPTANCE BY VERIFICATION BY DRAWINGS CORRECTED BY RECORDED BY NO.							
						A.S. BUILT INFORMATION DATE DATE DATE DATE DATE DATE							
REVISIONS NO. DATE REMARKS DESIGN						DESIGNED BY JMM DATE 07/13 DRAWN BY DER DATE 07/13 CHECKED BY DMG DATE 07/13							
MO./DAY/YR.						MO./DAY/YR.							
SHEET						OF							
3						10							

CITY OF ALBUQUERQUE



October 7, 2015

Diane Hoelzer, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, New Mexico 87199

**RE: Tiburon Heights
Grading and Drainage Plan
Engineers Stamp Date 11/26/14 (D10D03A)
Certification Date 7/31/15**

Dear Ms. Hoelzer,

Based upon the information provided in your submittal received 10/1/2015, the above referenced Certification for Tiburon Heights is acceptable for Release of Financial Guarantee.

PO Box 1293

If you have any questions, please contact me at 924-3999 or Rudy Rael at 924-3977.

Albuquerque

Sincerely,

New Mexico 87105

Shahab Biazar, P.E.
City Engineer, COA
Planning Department

www.cabq.gov

RR/SB
C: File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Tiburon Heights Subdivision ZONE MAP/DRG. FILE: D 10 / D03A
DRB# 1009178 EPC# _____ WORK ORDER#: 790681
LEGAL DESCRIPTION: Lot 31, Block 9 Volcano Heights Unit 18
CITY ADDRESS: Petirrojo Road NW

ENGINEERING FIRM: MARK GOODWIN & ASSOCIATES, PA CONTACT: Diane Hoelzer, PE
ADDRESS: PO Box 90606 PHONE: 828-2200
CITY, STATE: Albuquerque, NM ZIP CODE: 87199

OWNER: RTR LLC CONTACT: Rhett Waterman
ADDRESS: Box 27560 PHONE: 248-1688
CITY, STATE: _____ ZIP CODE: 87125

ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Surv-Tek, Inc. CONTACT: Russ Hugg
ADDRESS: 9384 Valley View Drive PHONE: 897-3366
CITY, STATE: ABQ, NM ZIP CODE: 87114

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

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
X **ENGINEER'S CERT (HYDROLOGY)**
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER/ARCHITECT CERT (TCL)
_____ ENGINEER/ARCHITECT (DRB SITE PLAN)
_____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

X **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
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: Diane Hoelzer, PE DATE: September 10, 2015

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 define 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.



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Tiburon Heights Subdivision Building Permit #: _____ City Drainage #: D10 / D03A
DRB#: 1009178 EPC#: _____ Work Order#: 790681
Legal Description: Tiburon Heights
City Address: Petirrojo Road NW

Engineering Firm: MARK GOODWIN & ASSOCIATES PA Contact: DIANE HOELZER, PE
Address: PO BOX 90606, ABQ, NM 87199
Phone#: 828-2200 Fax#: _____ E-mail: diane@goodwinengineers.com

Owner: RW INVESTMENT COMPANY Contact: RHETT WATERMAN
Address: PO BOX 27560, ABQ, NM 87125
Phone#: 248-1688 Fax#: _____ E-mail: watermanrhett@comcast.net

Architect: N/A Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Other Contact: N/A Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION

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

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

☒ OTHER (SPECIFY) additional requested hydrology calcs

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

CHECK 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

☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

DATE SUBMITTED: 9-15-15 By: DIANE HOELZER, PE

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: _____

Diane Hoelzer

From: Harmon Rita T. <rharmon@cabq.gov>
Sent: Monday, August 24, 2015 3:51 PM
To: Diane Hoelzer
Subject: RE: Tiburon Heights

No, for the entire subdivision. I am trying to get an idea of how much "actual" discharge is being generated by the subdivision, as compared to that determined by using the formula. Then we can compare it to that %D used to size Pond #5. Do you see where I am going with this? Checking to be sure Pond #5 has capacity for the increase in %D.

From: Diane Hoelzer [mailto:Diane@goodwinengineers.com]
Sent: Monday, August 24, 2015 3:45 PM
To: Harmon Rita T.
Subject: RE: Tiburon Heights

Are you going to have me do this for every single lot ?

Diane Hoelzer, PE
MARK GOODWIN & ASSOCIATES, PA
diane@goodwinengineers.com
(505) 828-2200

From: Harmon Rita T. [mailto:rharmon@cabq.gov]
Sent: Monday, August 24, 2015 3:37 PM
To: Diane Hoelzer
Subject: RE: Tiburon Heights

Hi Diane,

Please compare the impervious area calculated using the DPM formula from Table A-5, and the scaled impervious area using the proposed offsets.

Let me know what you get. And I will get with Shahab.

Rita

From: Diane Hoelzer [mailto:Diane@goodwinengineers.com]
Sent: Monday, August 24, 2015 3:03 PM
To: Harmon Rita T.
Cc: Rhett Waterman (watermanrhett@comcast.net)
Subject: FW: Tiburon Heights

Rita,

Can I get an answer to my last email below ?
Until I get an answer I am not sure how to proceed.

Thanks,



D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539

PROJECT TIBURON HEIGHTS
SUBJECT Drainage Calculations
BY DLH DATE 9-14-15
CHECKED _____ DATE _____
SHEET 1 OF _____

COMPARE TABLE 5 (DPM) W/ TYPICAL PLOT PLAN LAYOUT

TABLE A-5

$$N = \frac{39 \text{ UNITS}}{7.9143 \text{ ACRES}} = 4.928$$

$$\text{Treatment D} = 7\sqrt{N^2 + (5N)} = 49\%$$

TYPICAL PLOT PLAN

$$\text{LOT AREA} = 0.1460 \text{ ACRES} = 6360 \text{ SF}$$

$$\text{IMPERVIOUS AREA} = 2656 \text{ SF (42\%)}$$

$$\text{PERVIOUS AREA} = 3704 \text{ SF (58\%)}$$

PROJECT SITE INCLUDING ALL LOTS AND ROADWAY

$$\text{TOTAL LOT AREA} = 262,279 \text{ SF (42\%)} = 110,157$$

$$\text{TOTAL R/W AREA} = 82,437 \text{ SF (81.25\%)} = 66,980$$

$$\text{TOTAL} = 344,716 \text{ SF} \quad 177,137 \text{ SF}$$

$$\text{Treatment D} = \frac{177,137 \text{ SF}}{344,716 \text{ SF}} = 51\%$$

∴ INCREASE FROM 49% TO 51%

RERUN ANALYSIS BASED ON

$$A = 0$$

$$B = 10$$

$$C = 41$$

$$D = 49$$

$$A = 0$$

$$B = 9$$

$$C = 40$$

$$D = 51$$

WILSON'S SAD 228

DRAINAGE REPORT

ASSUMED RESIDENTIAL:

$$A = 0$$

$$C = 40$$

$$B = 10$$

$$D = 50$$



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PROJECT TIBURON HEIGHTS
SUBJECT Drainage Calcs
BY D.M.G. DATE 9-14-15
CHECKED _____ DATE _____
SHEET 2 OF _____

Summary of Q's

Based on Table A-5 $Q = 26.97 \text{ cfs}$

Based on Typical Plot Plan $Q = 27.21 \text{ cfs}$

} SEE NOTE
Sheet 3

$$\text{North Basin} = \frac{3.14 \text{ ACRES}}{7.91 \text{ ACRES}} = .397 (27.21) = 10.80 \text{ cfs}$$

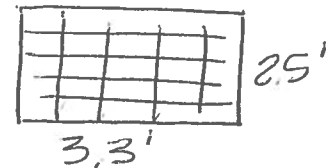
$$\text{OR } .397 (26.97 \text{ cfs}) = 10.7 \text{ cfs}$$

CALCULATE CAPACITY OF SINGLE "C" INLET.

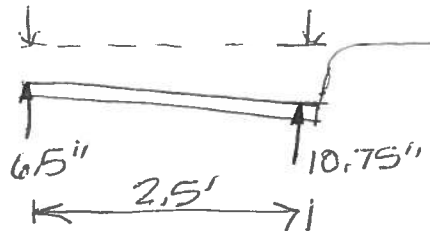
INLET CAPACITY \Rightarrow USE WEIR EQN. $Q = CLH^{3/2}$

C INLET 2.5' WIDE X 3.3' LONG

REFER TO STD DETL 2220 & 2205



SIDES



$$\text{AVG} = 8.625'' = 0.719'$$

$$Q = 3(5)(.719)^{1.5} = 9.14 \text{ cfs (SIDES)}$$

$$Q = 3(3.3)(.54)^{1.5} = 3.95 \text{ cfs (CROSS)}$$

$Q_{\text{TOTAL}} = 13.0 \text{ cfs}$ CAPACITY AT TOP OF CURB

$$Q_{\text{ACTUAL}} \approx 10.7 \text{ cfs}$$

$$\therefore Q_{\text{CAP}} > Q_{\text{ACTUAL}}$$

$$13.0 > 10.7$$



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PROJECT TIBORON HEIGHTS
SUBJECT Drainage Calcs.
BY DMA DATE 9-14-15
CHECKED _____ DATE _____
SHEET 3 OF _____

ASSUME: 50% clogging on Inlet
WSEL TO Property/ROW Line
Depth at Property Line = 0.89'
 $\Delta H = .89 - .67 = .22'$
P.L. - T.C. = ΔH

$$Q = 3(2.5)(0.939)^{1.5} = 6.82' \text{ cfs}$$

$$Q = 3(1.65)(.76)^{1.5} = 3.28' \text{ cfs}$$

$$\underline{10.1' \text{ cfs}}$$

$$10.1' \text{ cfs} \approx 10.7' \text{ cfs.}$$

THE INCREASE IN Q_{100} IS INSIGNIFICANT,
THE RISE IN POND 5 IS INSIGNIFICANT.

$$1.57 \text{ AF TO } 1.59 \text{ AF}$$

$$\Delta \text{VOLUME} = 0.02845 \text{ AF} \\ = 1,239 \text{ CF}$$

$$\text{POND 5 RAISED } \frac{1,239 \text{ CF}}{72,000 \text{ SF}} = .0172 \text{ Feet} \\ = 0.207 \text{ inches}$$

∴ Insignificant rise in Pond 100 & 2-24 hrs storm

GENERAL NOTES:

1. FOR SINGLE GRATE TYPE STORM INLET DELETE CENTER SUPPORT AND MOVE ONE END WALL TO FORM NEW SINGLE GRATE INLET.
2. FOR STORM INLET GUTTER TRANSITION, SEE DWG 2207.
3. OUTLET PIPE SIZE, PER DESIGN REQUIREMENT.
4. FOR FRAME & GRATING, SEE DWG 2216, 2220 & 2221.
5. FOR ANCHOR SEE DETAIL.
6. FOR CENTER SUPPORT ASSEMBLY, SEE DWG 2215.

CONSTRUCTION NOTES:

- A. GUTTER TRANSITION.
- B. TOP OF CURB.
- C. CENTER SUPPORT ASSEMBLY
- D. FLOWLINE.
- E. CONSTRUCTION JOINT.
- F. NORMAL GUTTER LINI.
- G. 1'-10" MIN, UNLESS OTHERWISE DIRECTED.
- H. FRAME AND GRATE.
- J. INVERT OF OUTLET PIPE.
- K. CONCRETE FILL, MINIMUM SLOPES AS SHOWN.
- L. FOR STORM INLET DEPTHS GREATER THAN 4' INSTALL STD STEPS, SEE DWG 2229, DOWNSTREAM FACE.
- M. EXTEND NO 4 REBARS 18" INTO CURB ON EACH SIDE OF STORM INLET.
- N. NO. 4 BARS AT 6" O C.
- P. 3 1/2" X 3 1/2" X 1/2" X 4' - 0" FOR SINGLE GRATE TYPE "C" STORM INLET.
- Q. 3 1/2" X 3 1/2" X 1/2" X 7' - 6" FOR DOUBLE GRATE TYPE "C" STORM INLET.
- R. ANCHOR.

CITY OF ALBUQUERQUE

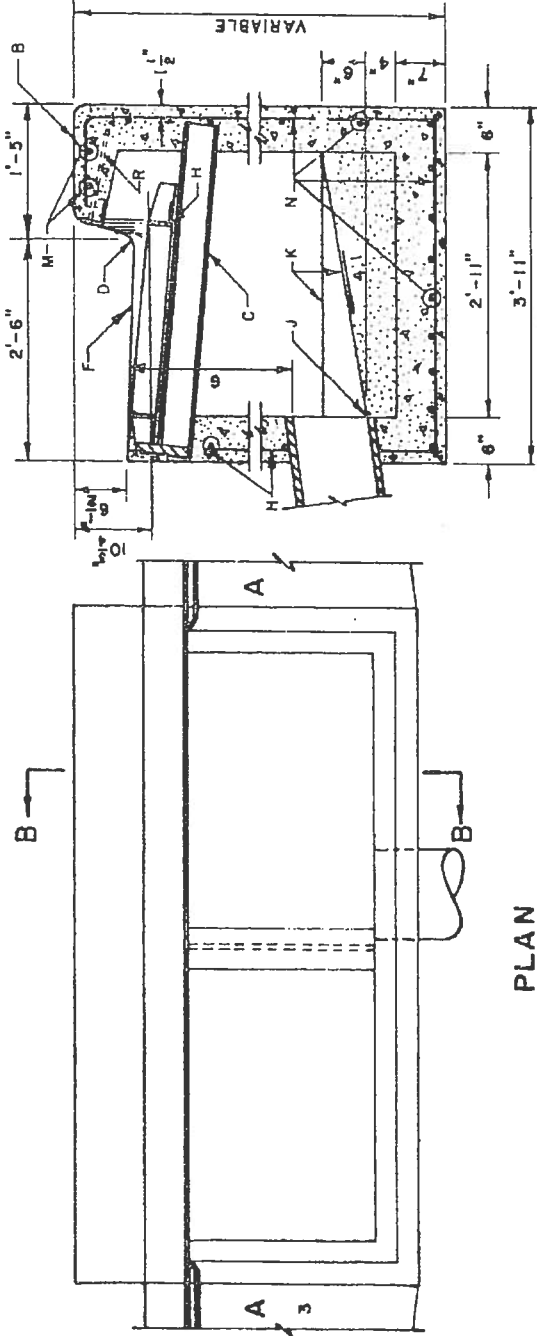
DRAINAGE

STORM INLET DOUBLE "C"

DWG. 2205

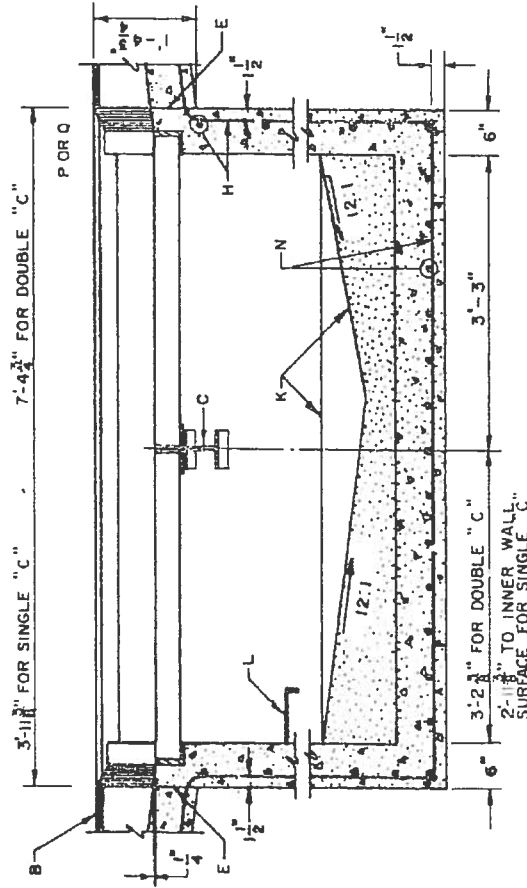
AUG. 1985

REVISIONS
12-21-92

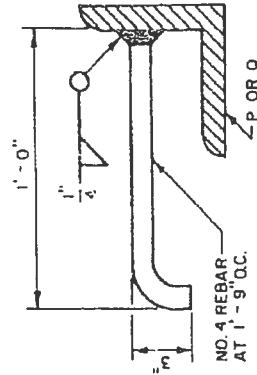


PLAN

SECTION B-B



SECTION A-A



ANCHOR DETAIL

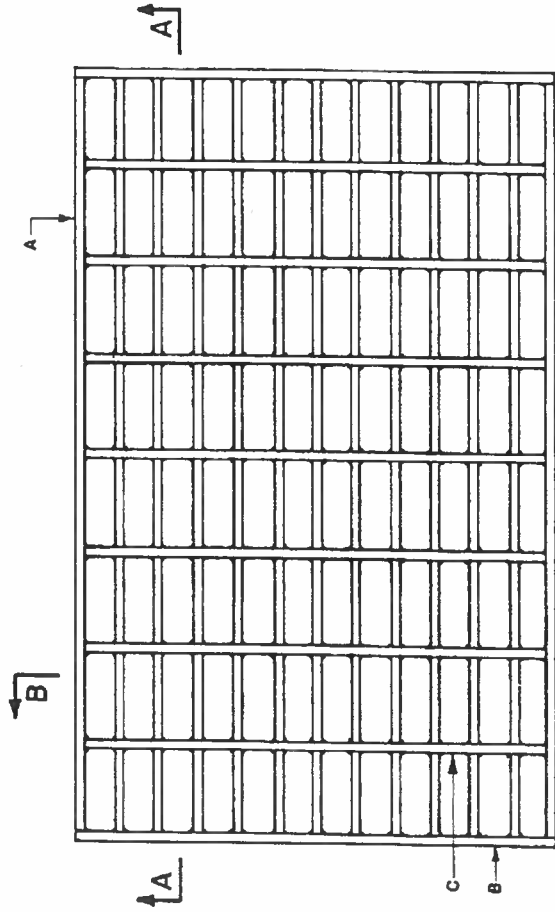
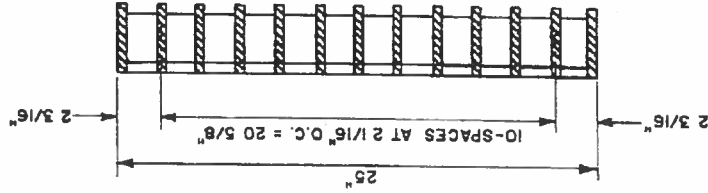
GENERAL NOTES:

1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS, 1/4". FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE, OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS WELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

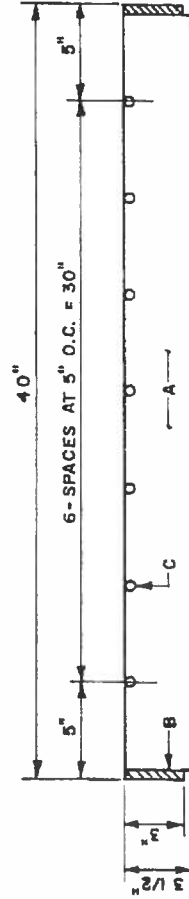
CONSTRUCTION NOTES:

- A. BEARING BARS, (13) 1/2" X 3 1/2" X 39".
- B. END BARS, (2) 1/2" X 3" X 25".
- C. CROSS BARS, (7) 1/2" DIA. X 24.

SECTION B-B



PLAN



SECTION A-A

REVISIONS

CITY OF ALBUQUERQUE

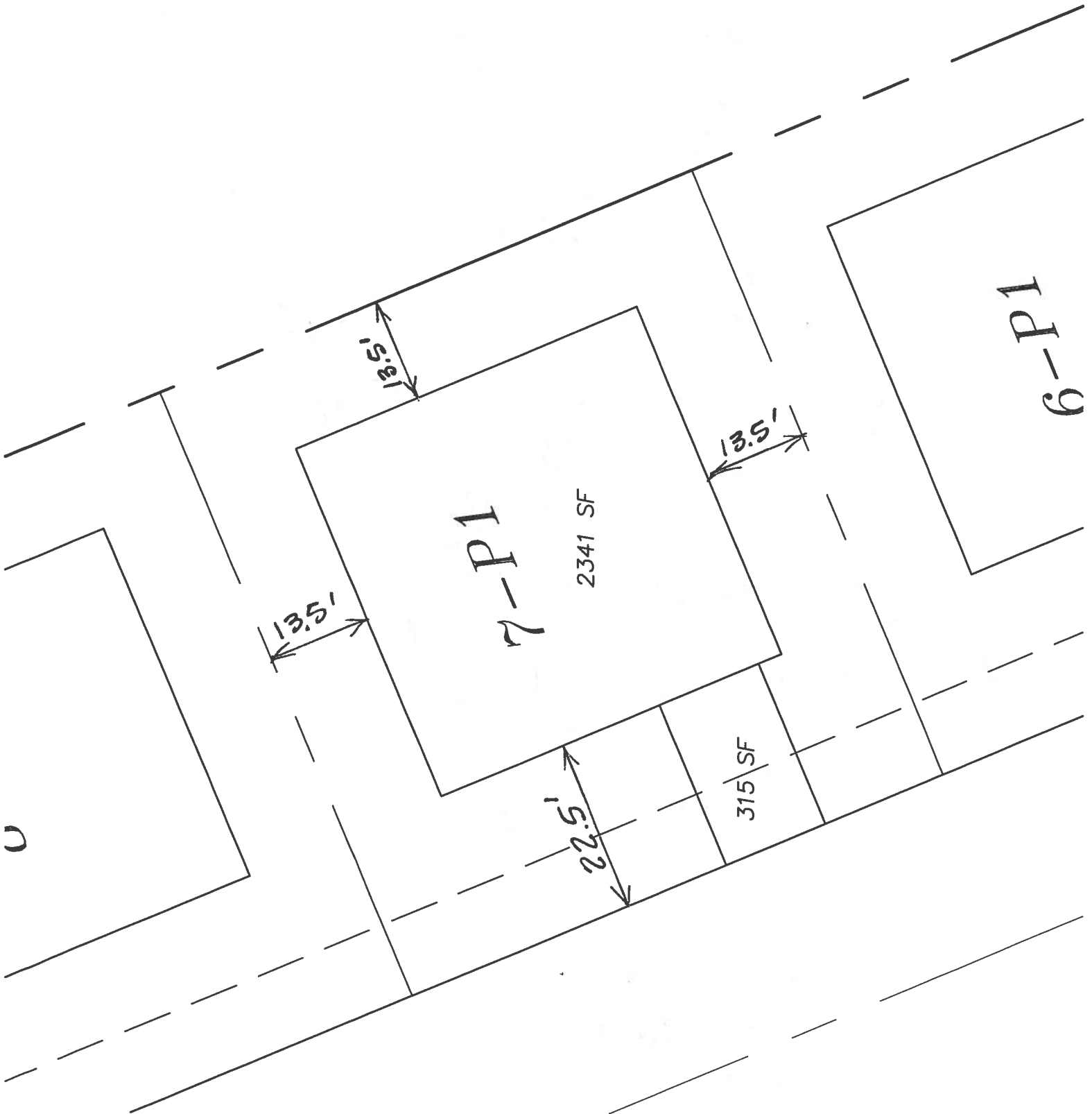
DRAINAGE
STORM INLET
ALBUQUERQUE GRATE
DWG. 2220

AUG. 1986

TIBURON HEIGHT

Typical Lot Layout - 9-14-15

Typical Minimum Offsets



```

*S*****
*S
*S          TIBURON
*S          100 YEAR 24 HOUR STORM EVENT
*S
*S          FILE: TIBURON_1.DAT
*S          LAST REVISED: 9-14-15
*S          NOAA ATLAS 2, VOL IV ZONE D 10
START      TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION     NEW MEXICO
RAINFALL   TYPE=2 RAIN QUARTER=0.0
           RAIN ONE=1.70 IN RAIN SIX=2.16 IN
           RAIN DAY=2.51 IN DT=0.0333 HRS
*S*****
*S  TOTAL PROJECT SITE
*S  JMM ORIGIAL CALC
*** *****
*** AREA = 7.9143 ACRES
*** *****
COMPUTE NM HYD      ID=1  HYD NO=100 AREA= 0.0124 SQ MI
                   PER A=0  PER B=10  PER C=47.2  PER D=42.8
                   TP=-.1333 HR  MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*** *****
*S  TOTAL PROJECT SITE
*S  BASED ON DPM TABLE A-5  CALC
*** *****
*** AREA = 7.9143 ACRES
*** *****
COMPUTE NM HYD      ID=1  HYD NO=100 AREA= 0.0124 SQ MI
                   PER A=0  PER B=10  PER C=41.  PER D=49
                   TP=-.1333 HR  MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*** *****
*S  TOTAL PROJECT SITE
*S  BASED ON TYPICAL LOT PLOT PLAN AND OFFSETS
*** *****
*** AREA = 7.9143 ACRES
*** *****
COMPUTE NM HYD      ID=1  HYD NO=100 AREA= 0.0124 SQ MI
                   PER A=0  PER B=9  PER C=40  PER D=51
                   TP=-.1333 HR  MASS RAIN=-1
PRINT HYD          ID=1 CODE=1
*** *****
FINISH

```

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\TIBURON_1.DAT - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =09/14/2015
USER NO.= M-GoodwinMNSiteA90075759

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =

*S	*****									
*S	TIBURON									
*S	100 YEAR 24 HOUR STORM EVENT									
*S	*****									
*S	FILE: TIBURON_1.DAT									
*S	LAST REVISED: 9-14-15									
*S	NOAA ATLAS 2, VOL IV ZONE D 10									
START	*****									
LOCATION	NEW MEXICO									
RAINFALL	TYPE= 2 NOAA 14									
*S	*****									
*S	TOTAL PROJECT SITE									
*S	JMM ORIGINAL CALC									
COMPUTE NM HYD	100.00	-	1	0.01240	26.37	0.985	1.48974	1.532	3.322 PER IMP=	42.80
*S	TOTAL PROJECT SITE									
*S	BASED ON DPM TABLE A-5 CALC									
COMPUTE NM HYD	100.00	-	1	0.01240	26.96	1.038	1.57026	1.532	3.397 PER IMP=	49.00
*S	TOTAL PROJECT SITE									
*S	BASED ON TYPICAL LOT PLOT PLAN AND OFFSETS									
COMPUTE NM HYD	100.00	-	1	0.01240	27.21	1.057	1.59871	1.532	3.429 PER IMP=	51.00
FINISH	*****									

TIME= 0.00

RAIN24= 2.510

```

AHYMO PROGRAM (AHYMO-S4)          - Version: S4.01a - Rel: 01a
RUN DATE (MON/DAY/YR) = 09/14/2015
START TIME (HR:MIN:SEC) = 09:47:20    USER NO.= M-GoodwinMNSiteA90075759
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\TIBURON_1.DAT

*****
**S****
**S      TIBURON
**S      100 YEAR 24 HOUR STORM EVENT
**S
**S      FILE: TIBURON_1.DAT
**S      LAST REVISED: 9-14-15
**S      NOAA ATLAS 2, VOL IV ZONE D 10
**S      TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
START
LOCATION   NEW MEXICO
State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
Land Treatment   Initial Abstr.(in)   Unif. Infiltr.(in/hour)
A                0.65              1.67
B                0.50              1.25
C                0.35              0.83
D                0.10              0.04

TYPE=2 RAIN QUARTER=0.0
RAIN ONE=1.70 IN RAIN SIX=2.16 IN
RAIN DAY=2.51 IN DT=0.0333 HRS
RAINFALL

```

TYPE=2 RAIN QUARTER=0.0			
RAIN ONE=1.70 IN RAIN SIX=2.16 IN			
RAIN DAY=2.51 IN DT=0.0333 HRS			
24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - DI			
DT = 0.033300 HOURS	END TIME =	24.009300 HOURS	
0.0000	0.0020	0.0041	0.0062
0.0158	0.0184	0.0213	0.0242
0.0505	0.0576	0.0653	0.0729
0.1053	0.1137	0.1225	0.1319
0.1756	0.1919	0.2083	0.2301
0.3395	0.3850	0.4311	0.4927
1.0705	1.2392	1.3567	1.4742
1.6813	1.7185	1.7448	1.7706
1.8456	1.8599	1.8722	1.8821
1.9180	1.9254	1.9327	1.9396
1.9662	1.9695	1.9725	1.9756
1.9870	1.9897	1.9924	1.9951
2.0053	2.0077	2.0101	2.0125
2.0217	2.0238	2.0260	2.0282
2.0365	2.0385	2.0405	2.0425
2.0502	2.0520	2.0539	2.0557
2.0630	2.0648	2.0665	2.0683
2.0751	2.0768	2.0785	2.0801
2.0866	2.0882	2.0898	2.0914
2.0975	2.0991	2.1006	2.1021
2.1080	2.1094	2.1109	2.1123
2.1179	2.1193	2.1207	2.1221
2.1275	2.1288	2.1301	2.1314
2.1366	2.1379	2.1392	2.1404
			2.1417
			2.1430
			2.1442

2.1454 2.1467 2.1479 2.1491 2.1503 2.1515 2.1527
2.1539 2.1551 2.1563 2.1575 2.1586 2.1598 2.1610
2.1621 2.1633 2.1644 2.1656 2.1667 2.1679 2.1690
2.1702 2.1713 2.1725 2.1736 2.1748 2.1759 2.1771
2.1782 2.1793 2.1805 2.1816 2.1827 2.1838 2.1850
2.1861 2.1872 2.1883 2.1894 2.1906 2.1917 2.1928
2.1939 2.1950 2.1961 2.1972 2.1983 2.1994 2.2005
2.2016 2.2027 2.2038 2.2049 2.2060 2.2071 2.2082
2.2092 2.2103 2.2114 2.2125 2.2136 2.2146 2.2157
2.2168 2.2178 2.2189 2.2200 2.2210 2.2221 2.2231
2.2242 2.2253 2.2263 2.2274 2.2284 2.2295 2.2305
2.2316 2.2326 2.2336 2.2347 2.2357 2.2367 2.2378
2.2388 2.2398 2.2409 2.2419 2.2429 2.2439 2.2450
2.2460 2.2470 2.2480 2.2490 2.2500 2.2510 2.2520
2.2530 2.2540 2.2550 2.2560 2.2570 2.2580 2.2590
2.2600 2.2610 2.2620 2.2630 2.2640 2.2649 2.2659
2.2669 2.2679 2.2688 2.2698 2.2708 2.2718 2.2727
2.2737 2.2746 2.2756 2.2766 2.2775 2.2785 2.2794
2.2804 2.2813 2.2823 2.2832 2.2842 2.2851 2.2860
2.2870 2.2879 2.2889 2.2898 2.2907 2.2916 2.2926
2.2935 2.2944 2.2953 2.2963 2.2972 2.2981 2.2990
2.2999 2.3008 2.3017 2.3026 2.3035 2.3044 2.3053
2.3062 2.3071 2.3080 2.3089 2.3098 2.3107 2.3116
2.3125 2.3133 2.3142 2.3151 2.3160 2.3168 2.3177
2.3186 2.3195 2.3203 2.3212 2.3221 2.3229 2.3238
2.3246 2.3255 2.3263 2.3272 2.3280 2.3289 2.3297
2.3306 2.3314 2.3323 2.3331 2.3339 2.3348 2.3356
2.3364 2.3373 2.3381 2.3389 2.3397 2.3405 2.3414
2.3422 2.3430 2.3438 2.3446 2.3454 2.3462 2.3470
2.3478 2.3486 2.3494 2.3502 2.3510 2.3518 2.3526
2.3534 2.3542 2.3550 2.3558 2.3566 2.3573 2.3581
2.3589 2.3597 2.3604 2.3612 2.3620 2.3627 2.3635
2.3643 2.3650 2.3658 2.3665 2.3673 2.3681 2.3688
2.3696 2.3703 2.3710 2.3718 2.3725 2.3733 2.3740
2.3747 2.3755 2.3762 2.3769 2.3777 2.3784 2.3791
2.3798 2.3806 2.3813 2.3820 2.3827 2.3834 2.3841
2.3848 2.3855 2.3863 2.3870 2.3877 2.3884 2.3891
2.3897 2.3904 2.3911 2.3918 2.3925 2.3932 2.3939
2.3946 2.3952 2.3959 2.3966 2.3973 2.3979 2.3986
2.3993 2.3999 2.4006 2.4013 2.4019 2.4026 2.4032
2.4039 2.4046 2.4052 2.4059 2.4065 2.4071 2.4078
2.4084 2.4091 2.4097 2.4103 2.4110 2.4116 2.4122
2.4129 2.4135 2.4141 2.4147 2.4154 2.4160 2.4166
2.4172 2.4178 2.4184 2.4190 2.4196 2.4202 2.4208
2.4214 2.4220 2.4226 2.4232 2.4238 2.4244 2.4250
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2.4336 2.4342 2.4347 2.4353 2.4358 2.4364 2.4369
2.4375 2.4380 2.4386 2.4391 2.4396 2.4402 2.4407
2.4412 2.4418 2.4423 2.4428 2.4434 2.4439 2.4444
2.4449 2.4454 2.4460 2.4465 2.4470 2.4475 2.4480
2.4485 2.4490 2.4495 2.4500 2.4505 2.4510 2.4515
2.4520 2.4525 2.4530 2.4535 2.4539 2.4544 2.4549
2.4554 2.4559 2.4563 2.4568 2.4573 2.4577 2.4582
2.4587 2.4591 2.4596 2.4601 2.4605 2.4610 2.4614

2.4619 2.4623 2.4628 2.4632 2.4637 2.4641 2.4645
2.4650 2.4654 2.4658 2.4663 2.4667 2.4671 2.4676
2.4680 2.4684 2.4688 2.4692 2.4697 2.4701 2.4705
2.4709 2.4713 2.4717 2.4721 2.4725 2.4729 2.4733
2.4737 2.4741 2.4745 2.4749 2.4753 2.4757 2.4761
2.4764 2.4768 2.4772 2.4776 2.4779 2.4783 2.4787
2.4791 2.4794 2.4798 2.4802 2.4805 2.4809 2.4812
2.4816 2.4820 2.4823 2.4827 2.4830 2.4833 2.4837
2.4840 2.4844 2.4847 2.4850 2.4854 2.4857 2.4860
2.4864 2.4867 2.4870 2.4873 2.4877 2.4880 2.4883
2.4886 2.4889 2.4892 2.4896 2.4899 2.4902 2.4905
2.4908 2.4911 2.4914 2.4917 2.4920 2.4922 2.4925
2.4928 2.4931 2.4934 2.4937 2.4940 2.4942 2.4945
2.4948 2.4951 2.4953 2.4956 2.4959 2.4961 2.4964
2.4966 2.4969 2.4972 2.4974 2.4977 2.4979 2.4982
2.4984 2.4987 2.4989 2.4991 2.4994 2.4996 2.4999
2.5001 2.5003 2.5006 2.5008 2.5010 2.5012 2.5014
2.5017 2.5019 2.5021 2.5023 2.5025 2.5027 2.5029
2.5031 2.5034 2.5036 2.5038 2.5040 2.5041 2.5043
2.5045 2.5047 2.5049 2.5051 2.5053 2.5055 2.5056
2.5058 2.5060 2.5062 2.5064 2.5065 2.5067 2.5069
2.5070 2.5072 2.5073 2.5075 2.5077 2.5078 2.5080
2.5081 2.5083 2.5084 2.5086 2.5087 2.5088 2.5090
2.5091 2.5093 2.5094 2.5095 2.5097 2.5098 2.5099
2.5100

*S*****

*S TOTAL PROJCT SITE

*S JWM ORIGIAL CALC

*** *****

*** AREA = 7.9143 ACRES

*** *****

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.0124 SQ MI

PER A=0 PER B=10 PER C=47.2 PER D=42.8

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 20.953 CFS UNIT VOLUME = 0.9988 B = 526.28 P60 = 1.7000
AREA = 0.005307 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.109200HR TP = 0.133300HR K/TP RATIO = 0.819204 SHAPE CONSTANT, N = 4.361186
UNIT PEAK = 20.144 CFS UNIT VOLUME = 0.9998 B = 378.57 P60 = 1.7000
AREA = 0.007093 SQ MI IA = 0.37622 INCHES INF = 0.90343 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.48974 INCHES = 0.9852 ACRE-FEET
PEAK DISCHARGE RATE = 26.37 CFS AT 1.532 HOURS BASIN AREA = 0.0124 SQ. MI.

*** *****

*S TOTAL PROJECT SITE

*S BASED ON DPM TABLE A-5 CALC

*** *****

*** AREA = 7.9143 ACRES

*** *****

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.0124 SQ MI

PER A=0 PER B=10 PER C=41. PER D=49

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428

UNIT PEAK = 23.988 CFS UNIT VOLUME = 0.9989 B = 526.28 P60 = 1.7000

AREA = 0.006076 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.109838HR TP = 0.133300HR K/TP RATIO = 0.823993 SHAPE CONSTANT, N = 4.333148

UNIT PEAK = 17.876 CFS UNIT VOLUME = 0.9996 B = 376.80 P60 = 1.7000

AREA = 0.006324 SQ MI IA = 0.37941 INCHES INF = 0.91235 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.57026 INCHES = 1.0385 ACRE-FEET
PEAK DISCHARGE RATE = 26.96 CFS AT 1.532 HOURS BASIN AREA = 0.0124 SQ. MI.

*** *****

*S TOTAL PROJECT SITE

*S BASED ON TYPICAL LOT PLOT PLAN AND OFFSETS

*** *****

*** AREA = 7.9143 ACRES

*** *****

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.0124 SQ MI

PER A=0 PER B=9 PER C=40 PER D=51

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428

UNIT PEAK = 24.967 CFS UNIT VOLUME = 0.9989 B = 526.28 P60 = 1.7000

AREA = 0.006324 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.109466HR TP = 0.133300HR K/TP RATIO = 0.821198 SHAPE CONSTANT, N = 4.349463

UNIT PEAK = 17.222 CFS UNIT VOLUME = 0.9996 B = 377.83 P60 = 1.7000

AREA = 0.006076 SQ MI IA = 0.37755 INCHES INF = 0.90714 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD

ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.59871 INCHES = 1.0573 ACRE-Feet
PEAK DISCHARGE RATE = 27.21 CFS AT 1.532 HOURS BASIN AREA = 0.0124 SQ. MI.

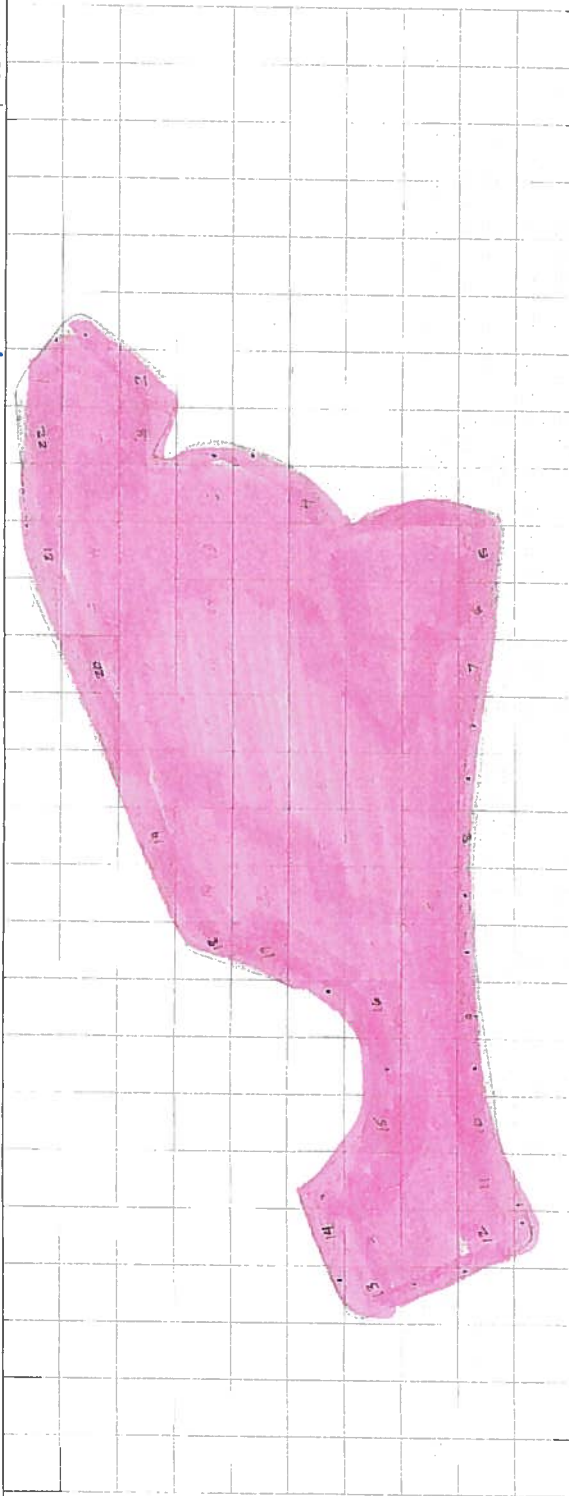
*** *****
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 09:47:20

ESTIMATED POND 5 AREA = 72,000 SF

1"=30'

1"=30' SCALE

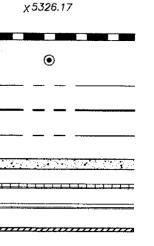


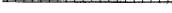
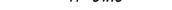
900 SF (58%) = 52,200 SF
 1100 SF (22%) = 19,800 SF
 TOTAL AREA
 POND @
 100.00 ELEV
 5220.58

Project Title

dhg MARK GOODWIN & ASSOCIATES, P.A.
 CONSULTING ENGINEERS
 P.O. BOX 90606
 ALBUQUERQUE, NEW MEXICO 87199
 (505) 263-2200, FAX (505) 797-9539

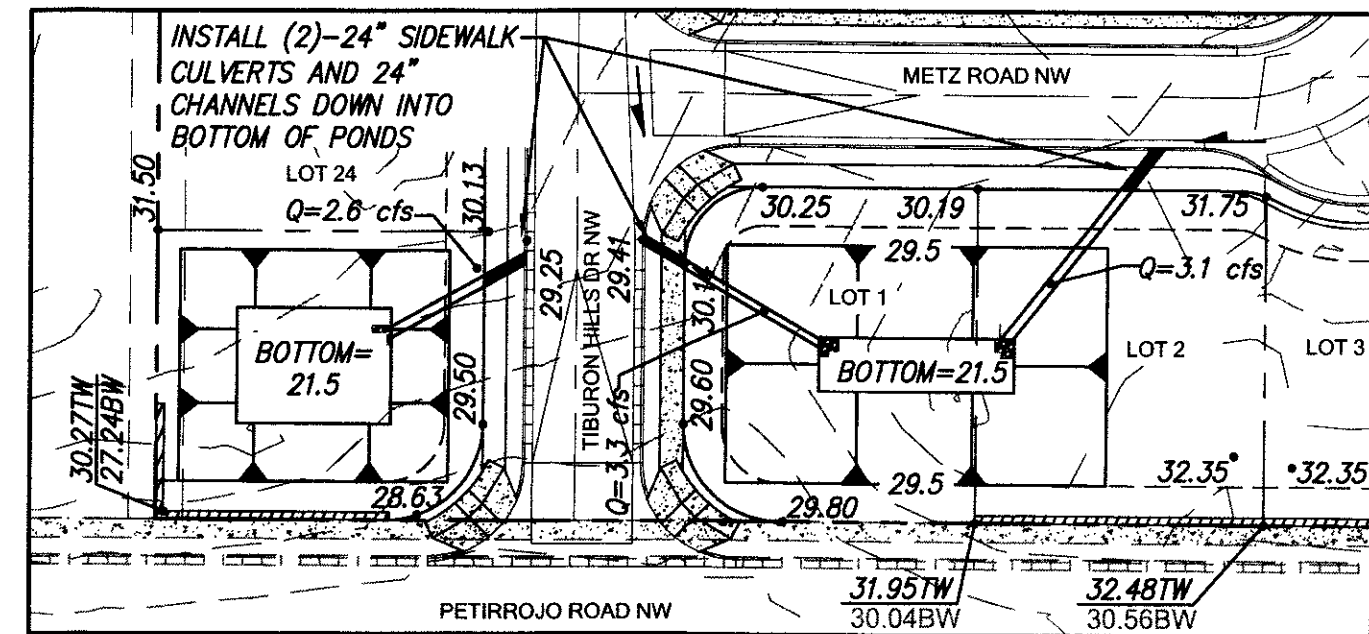
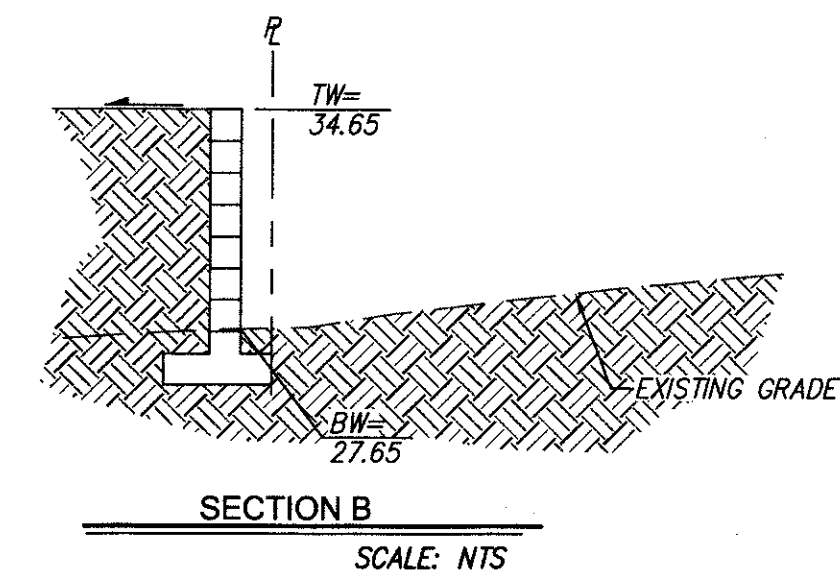
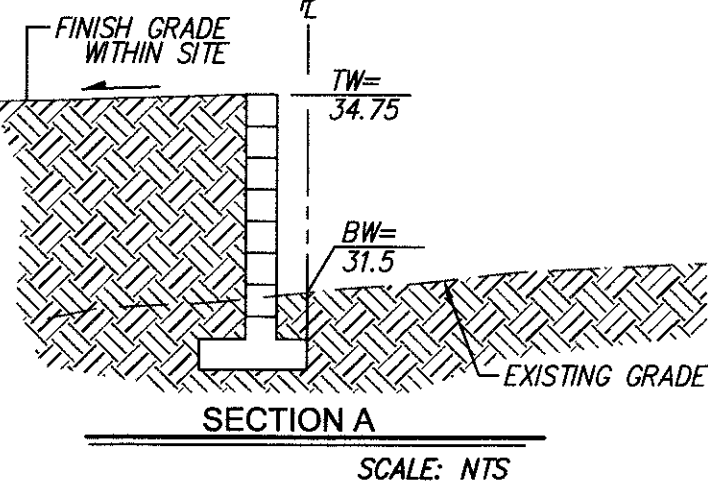
Drawn: HW	Check: RMO	Date: 1/25/03	Job: 400048	Sheet: Sheet 11 of 16
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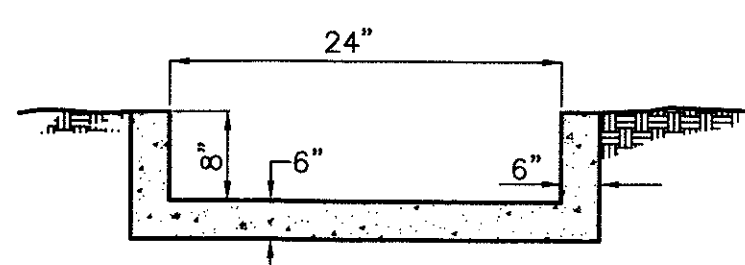
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19.50 TW
 13.97 BW
 FP=34.15
 28.52

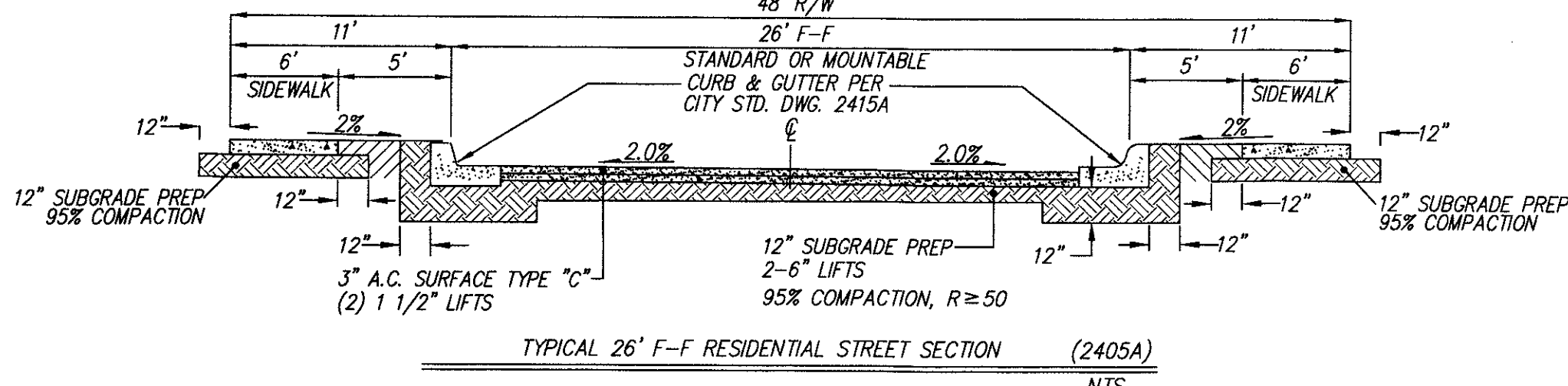
EXISTING CONTOUR — MAJOR
 EXISTING CONTOUR — MINOR
 EXISTING SPOT ELEVATION
 EXISTING STORM DRAIN
 EXISTING STORM DRAIN MAN HOLE
 EXISTING ADJOINER LINE
 NEW BOUNDARY LINE
 NEW LOT LINES
 NEW SIDEWALK
 NEW STANDARD CURB & GUTTER
 NEW MOUNTABLE CURB & GUTTER
 NEW RETAINING WALL — TO BE CONSTRU
 TIME OF ROUGH
 NEW 1:1 SLOPE
 FLOW DIRECTION ARROW
 NEW STORM DRAIN
 NEW STORM DRAIN INLET
 NEW SIDEWALK CULVERT
 FINISHED GRADE ELEVATIONS AT TOP AN
 BOTTOM OF RETAINING WALLS.
 FINISHED PAD ELEVATION
 EXISTING S&D 228 ELEVATIONS
 PROPOSED DRAINAGE BASIN BOUNDARY



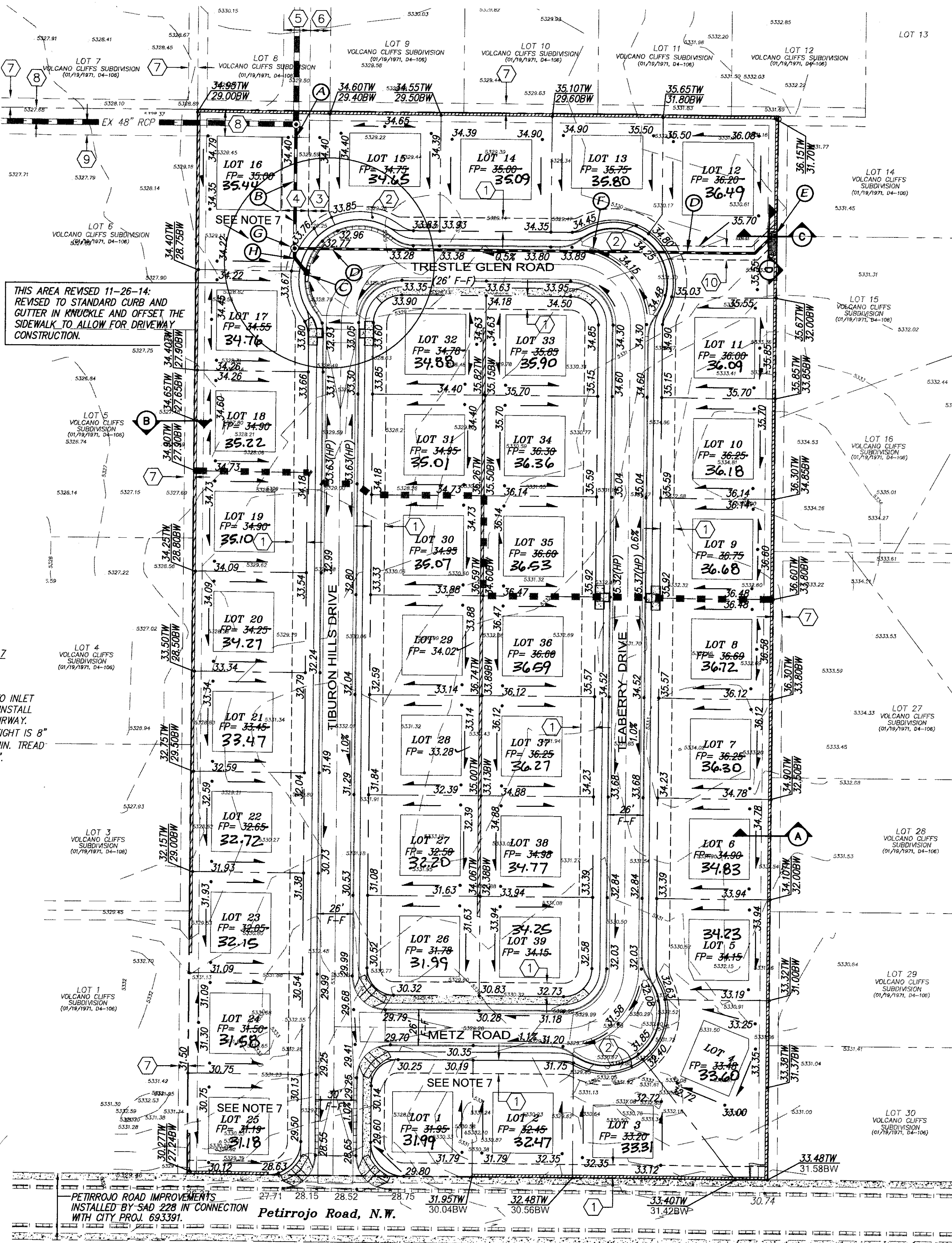
SCALE: 1"=50'
INTERIM PLAN FOR TEMPORARY
PONDING ON LOTS 1, 2 AND 25



SCALE: 1" = 1'



THIS AREA REVISED 11-26-14:
REVISED TO STANDARD CURB AND
GUTTER IN KNUCKLE AND OFFSET TH-
SIDEWALK TO ALLOW FOR DRIVEWAY
CONSTRUCTION.



- (1) NEW 10' PUBLIC UTILITY EASEMENT
- (2) NEW SIDEWALK EASEMENT
- (3) NEW 15' PUBLIC WATERLINE EASEMENT
- (4) NEW 20' PUBLIC STORM DRAIN EASEMENT
- (5) EXISTING 20' PUBLIC STORM DRAIN EASEMENT
(01-07-2013, DOC #2013001868).
- (6) EXISTING 15' PUBLIC WATERLINE EASEMENT
(12-18-2012, DOC #2012133305).
- (7) EXISTING 7' ELECTRIC POWER AND TELEPHONE LINE
EASEMENT (01/19/1971, 04-106)
- (8) EXISTING PUBLIC STORM DRAIN EASEMENT
(---'----', ---'----').
- (9) EXISTING 10' PUBLIC STORM DRAIN EASEMENT
(01-07-2013, DOC #2013001870).
- (10) NEW 10' PRIVATE DRAINAGE EASEMENT GRANTED
TO LOTS 12-16, VOLCANO CLIFFS SUBDIVISION,
AND TO BE MAINTAINED BY THE TIBURON HEIGHTS
HOME OWNERS ASSOCIATION.

(A) EXISTING 24" ROP (INV.=24.20)
REMOVE SD PLUG AND CONNECT
NEW 24" RCP

(B) 82.91 LF OF NEW 24" RCP
@ 1.0% SLOPE

(C) INSTALL NEW SINGLE, TYPE "C" INLET
PER STANDARD DWG #2205
NORMAL FL = 32.77
TO = 32.55
INV.(OUT) = 25.2
INV.(IN) = 25.3

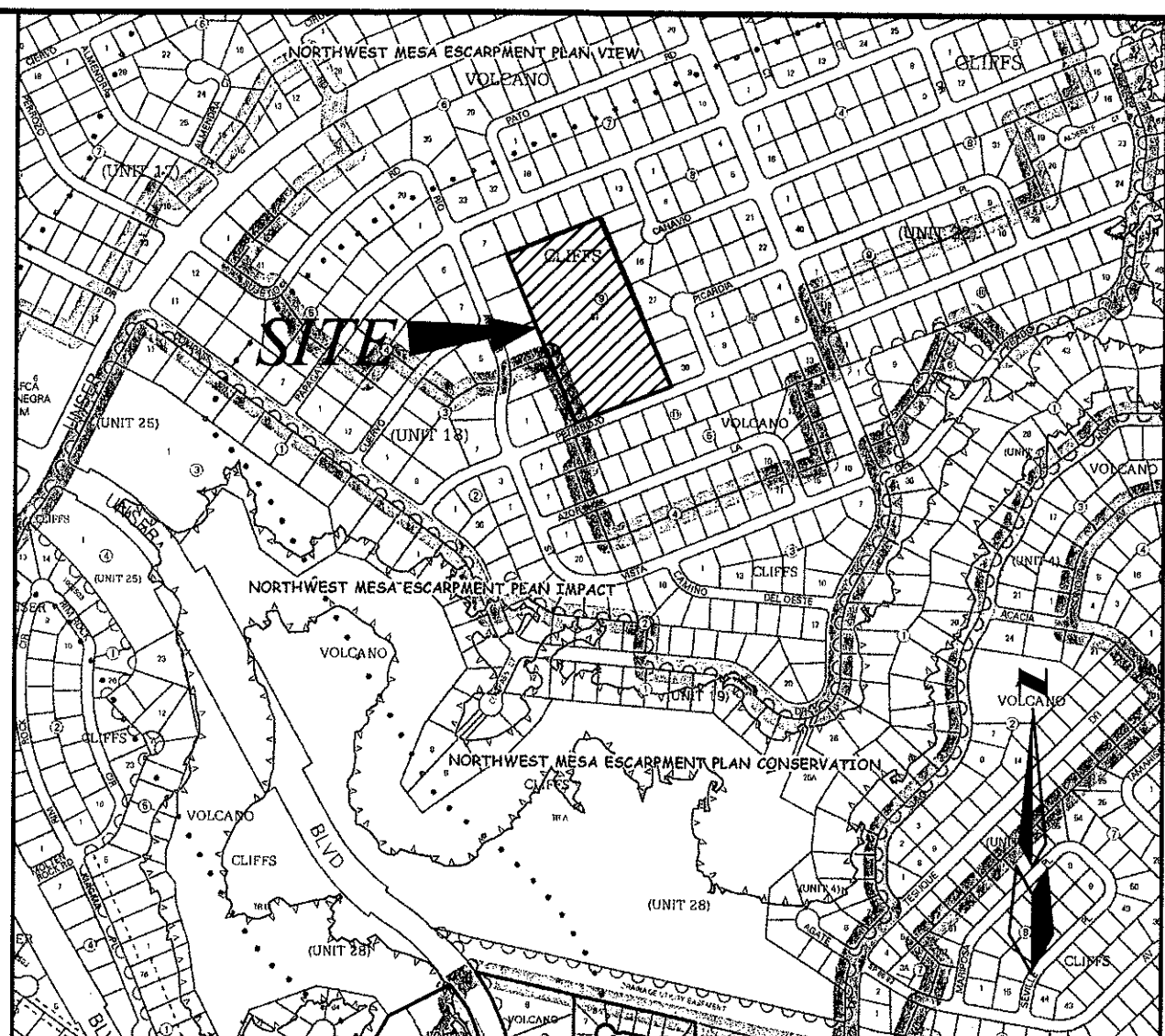
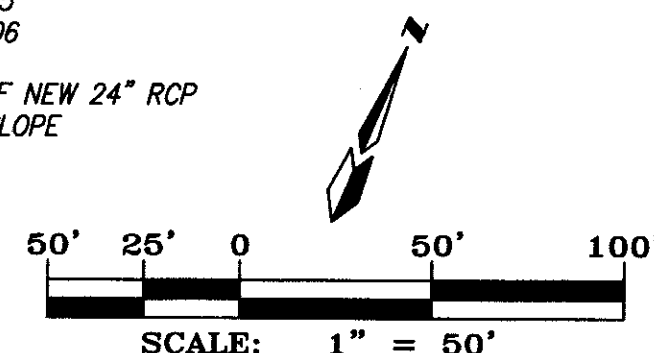
(D) 361.7 LF OF NEW 18" RCP
@ 0.9% SLOPE.

(E) INSTALL NEW SINGLE, TYPE "D" INLET
PER STANDARD DWG #2206. EAST SIDE
OF COLLAR TO BE FLUSH WITH
ADJOINING FINAL GRADE.
TO = 31.00
INV. = 28.29

(F) INSTALL NEW SINGLE, TYPE "D" INLET
PER STANDARD DWG #2206.
TG = 33.99
INV. = 27.08

(G) NEW 4' @ TYPE "E" STORAGE
DRAIN MANHOLE
RHW = 33.85
INV. = 25.06

(H) 20.7 LF OF NEW 24" RCP
@ 1.0% SLOPE



ZONE MAP: D-10-7

A TRACT OF LAND LYING AND SITUATE WITHIN SECTION 22, TOWNSHIP 11 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, COMPRISING OF LOT 31-A, BLOCK 9, UNIT NO. 18 VOLCANO CLIFFS SUBDIVISION AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON 6-27-13, RECORDED IN PLAT BOOK 203 PAGE 103, AND CONTAINING 7.9143 ACRES (344,746 SQUARE FEET) MORE OR LESS.

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE EARTHWORK CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL ADJACENT TO RETAINING WALL LOCATIONS TO BE UTILIZED FOR WALL BACKFILL.
6. SITE DOES NOT LIE IN A 100 YEAR FLOOD ZONE.
7. IF SAD 228'S DOWNSTREAM STORM DRAIN AND STREET INFRASTRUCTURE HAS NOT BEEN BUILT, AND ACCEPTED BY THE CITY, CONTRACTOR SHALL INSTALL TEMPORARY RETENTION PONDS ON LOTS 1, 2, 16 AND 25 AS SHOWN HEREON.
8. SIDEWALK CULVERTS ARE PER C.O.A. STANDARD DWG #22.36.

ALL SITE WALLS SHALL CONFORM TO THE
GENERAL HEIGHT AND DESIGN REGULATIONS
CONTAINED IN SECTION 14-16-3-19 OF THE
CITY ZONING CODE. TIBURON HEIGHTS

**DRAINAGE CERTIFICATION
(PADS CERTIFICATION ONLY)**

I, DIANE CORDELL, NIMPS 9750, OF THE FIRM RUSS HUGG AND ASSOCIATES, PA, HEREBY CERTIFY THAT THIS PROJECT HAS BEEN DESIGNED AND WILL BE CONSTRUCTED IN COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGNATED STATE AND FEDERAL PLAN DATED NOVEMBER 26, 2014. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY RUSS HUGG, NIMPS 9750. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 7/30/15, AND THAT I HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED TO ME REPRESENTS THE ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR GRADING CERTIFICATION APPROVAL.

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

Diane Hoelzer 7/31/15

DIANE HOELZER NMPE 11967 DATE *7/31/15*

dmg MARK GOODWIN & ASSOCIATES
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
OFFICE (505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: ***TIBURON HEIGHTS
GRADING AND DRAINAGE PLAN***

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.

REMARKS
REVISIONS
DESIGN
JMM
DER

[illegible]

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STAGE PLAN

MO./DAY/YR.	MO./DAY/YR.

CITY OF ALBUQUERQUE



October 7, 2015

Diane Hoelzer, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, New Mexico 87199

**RE: Tiburon Heights
Grading and Drainage Plan
Engineers Stamp Date 11/26/14 (D10D03A)
Certification Date 7/31/15**

Dear Ms. Hoelzer,

Based upon the information provided in your submittal received 10/1/2015, the above referenced Certification for Tiburon Heights is acceptable for Release of Financial Guarantee.

PO Box 1293

If you have any questions, please contact me at 924-3999 or Rudy Rael at 924-3977.

Albuquerque

Sincerely,

New Mexico 87105

Shahab Biazar, P.E.
City Engineer, COA
Planning Department

www.cabq.gov

RR/SB
C: File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Tiburon Heights Subdivision ZONE MAP/DRG. FILE: D 10 / D03A
DRB# 1009178 EPC# _____ WORK ORDER#: 790681
LEGAL DESCRIPTION: Lot 31, Block 9 Volcano Heights Unit 18
CITY ADDRESS: Petirrojo Road NW

ENGINEERING FIRM: MARK GOODWIN & ASSOCIATES, PA CONTACT: Diane Hoelzer, PE
ADDRESS: PO Box 90606 PHONE: 828-2200
CITY, STATE: Albuquerque, NM ZIP CODE: 87199

OWNER: RTR LLC CONTACT: Rhett Waterman
ADDRESS: Box 27560 PHONE: 248-1688
CITY, STATE: _____ ZIP CODE: 87125

ARCHITECT: N/A CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Surv-Tek, Inc. CONTACT: Russ Hugg
ADDRESS: 9384 Valley View Drive PHONE: 897-3366
CITY, STATE: ABQ, NM ZIP CODE: 87114

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

TYPE OF SUBMITTAL:

_____ DRAINAGE REPORT
_____ DRAINAGE PLAN 1st SUBMITTAL
_____ DRAINAGE PLAN RESUBMITTAL
_____ CONCEPTUAL G & D PLAN
_____ GRADING PLAN
_____ EROSION CONTROL PLAN
X **ENGINEER'S CERT (HYDROLOGY)**
_____ CLOMR/LOMR
_____ TRAFFIC CIRCULATION LAYOUT
_____ ENGINEER/ARCHITECT CERT (TCL)
_____ ENGINEER/ARCHITECT (DRB SITE PLAN)
_____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

X **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
_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY (PERM)
_____ CERTIFICATE OF OCCUPANCY (TEMP)
_____ GRADING PERMIT APPROVAL
_____ PAVING PERMIT APPROVAL
_____ WORK ORDER APPROVAL
_____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

_____ YES
_____ NO
_____ COPY PROVIDED

SUBMITTED BY: Diane Hoelzer, PE DATE: September 10, 2015

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 define 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.