

CITY OF ALBUQUERQUE



Richard J. Berry, Mayor

April 17, 2017

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

**RE: TLC Plumbing Office/Warehouse
Grading Plan and Drainage Report
Stamp Date: 4/14/17
Hydrology File: G15D032**

Dear Ms. Hoelzer:

PO Box 1293

Based upon the information provided in your re-submittal received 4/14/2017, the Grading Plan and Drainage Report is approved for Building Permit and Site Plan for Building Permit.

Albuquerque

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

New Mexico 87103

Sincerely,

Renee C. Brissette

www.cabq.gov

Reneé C. Brissette, P.E.
Senior Engineer, Hydrology
Planning Department

*TLC Warehouse & Building
Drainage Management Plan*

*Prepared by
Mark Goodwin & Associates, P.A.*

April 2017





City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: TLC PLUMBING OFFICE/WAREHOUSE **Building Permit #:** BP-2017-06255 **City Drainage #:** G15D032
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: TR 1-A PLAT OF TRACT 1-A LANDS OF LAFARGE CONT
City Address: 500 EDITH BLVD NE

Engineering Firm: Mark Goodwin and Assoc, PA **Contact:** Diane Hoelzer, PE
Address: 8916 Adams NE, ABQ, NM 87113
Phone#: 505-828-2200 **Fax#:** _____ **E-mail:** diane@goodwinengineers.com

Owner: TLC **Contact:** Hal Whitacre
Address: 5000 EDITH BLVD NE
Phone#: 505-362-3493 **Fax#:** 505-761-9875 **E-mail:** hwhitacre@tlcplumbing.com

Architect: Scott C. Anderson **Contact:** _____
Address: 7604 RIO PENASCO NW, ABQ, NM 87120
Phone#: 505-401-7575 **Fax#:** _____ **E-mail:** andersonscottc.com

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) _____

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: April 14, 2017 **By:** Diane Hoelzer, PE

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____

TLC Warehouse and Building

Table of Contents

City Comment Letter and Engineers Response

- I. PROJECT DESCRIPTION*
- II DESIGN CRITERIA AND PREVIOUS REPORTS*
- III. EXISTING DRAINAGE CONDITIONS*
- IV. DEVELOPED DRAINAGE CONDITIONS*
- V. FIRST FLUSH PONDS*

- FIGURE 1 Vicinity Map*
- FIGURE 2 Aerial Google Earth Map*
- FIGURE 3 FIRM Panel 35001C0119G (September 26, 2008)*
- FIGURE 4 Sub Basin Boundary Exhibit*
- FIGURE 5 First Flush Ponds Calculations and Exhibit*

APPENDIX A

First Flush Pond Calculations
Pond Outfall Structure Calculations
Hydrology calculations
AHYMO Printouts
Channel capacity calculation

- POCKET 1 GRADING AND DRAINAGE PLAN*



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

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

April 14, 2017
Renee' C. Brissette, PE
Hydrology Division, Planning Dept.
Development and Building Services
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

**Re: TLC Plumbing Office / Warehouse
Engineers stamp date 4-14-17 (G15 /D032)**

Attention Renee':

This letter is in response to your comment letter dated 3-27-17 and our subsequent phone conversation:

1. As a follow up to our phone conversation, I sent you the as-built for the SAD storm drain in Edith Blvd. All the drawings I could find lack information on what the SAD identification number is. The SAD drainage criteria was taken from a prior approved and as-built grading and drainage plan for this site done by our office. This should also be in the hydrology files under the same name.
2. Refer to Figure 4 for a summary of all the hydrology for this site.
3. The maximum allowable discharge was calculated to be 71.7 cfs based on the 20% Treatment B and 80% Treatment D criteria. The peak developed flow from the entire site was calculated to be 47.5 cfs. This is stated in the report text now.
4. Done.
5. Please refer to Figure 4 and the AHYMO printouts in the appendix.
6. A cross section of the swale that has been shifted to the north boundary is now show on the plan.

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

Diane Hoelzer, PE
Senior Engineer

DLH/dlh

f:\17001\TLC Warehouse / hydro_ltr_17001.docx



Richard J. Berry, Mayor

March 27, 2017

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

**RE: TLC Plumbing Office/Warehouse
Grading Plan and Drainage Report
Stamp Date: 2/24/17
Hydrology File: G15D032**

Dear Ms. Hoelzer:

Based upon the information provided in your submittal received 2/27/2017, the Grading Plan and Drainage Report is **not** approved for Building Permit and Site Plan for Building Permit. The following comments need to be addressed for approval of the above referenced project:

Drainage Repot:

1. Under Existing Drainage Conditions, you state a SAD, however you do not mention which SAD was used in the 2004-2005 construction. You can just add an excerpt from the SAD that shows your claim of a 100 yr-6 hr peak discharge of 71.7 cfs.
2. Under Existing Drainage Conditions, please show what the 100 yr-6 hr peak discharge for the current development.
3. Under Developed Drainage Conditions, you do not state anywhere what the new 100 yr-6 hr peak discharge for the whole 17.145 acre site with the proposed development. This cannot be more than the existing peak discharge of 71.7 cfs.
4. Figure 3, please show where the site is on the exhibit.
5. Appendix A, As noted in comment 3 above, please show the calculations for the new 100 yr-6 hr peak discharge for the whole 17.145 acre site with the proposed development.

CITY OF ALBUQUERQUE



Richard J. Berry, Mayor

Grading Plan:

1. Please show a cross section for Sub Basin 100 and label the size and depth of the rock for the drainage swale.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renee C. Brissette

Reneé C. Brissette, P.E.
Senior Engineer, Hydrology
Planning Department

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Diane Hoelzer

From: Brissette, Renee C. <rbrissette@cabq.gov>
Sent: Friday, March 31, 2017 2:20 PM
To: Diane Hoelzer
Subject: RE: TLC Plumbing Drainage Report BP-02017-06255

Diane,

This is fine for the storm in Edith, I will add this to the file. If you can show that the peak discharge for the whole 17.145 ac site with the proposed development is under the existing peak discharge of 71.7 cfs and the minor change on the grading plan (showing the section for the rock swale). I can approve the project.

If you have any other questions, please contact me.

Reneé C. Brissette

Senior Engineer, Hydrology
Planning Department
Development Review Services Division
600 2nd St. NW
Albuquerque, NM 87102
(505)924-3995

From: Diane Hoelzer [mailto:diane@goodwinengineers.com]
Sent: Friday, March 31, 2017 2:09 PM
To: Brissette, Renee C.
Subject: RE: TLC Plumbing Drainage Report BP-02017-06255

Hi Renee,

Please find attached the as built for the SAD for the storm drain in Edith. As you can see there is no SAD number indicated. If you need this number referenced, who in hydrology do I need to contact to receive the number you are requesting ? Who is in charge of as built for storm drain.

All calculations and allowable discharges are based on a previous APPROVED and AS BUILT grading plan for TLC office that our office did 12 years ago. This as built grading plan refers to the "SAD" but again there is no number associated with it.

Please advise

Thank you,

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

I. PROJECT DESCRIPTION

The TLC project site covers an area of approximately 17.145 acres (Figure 1). The first phase of development for this site was completed in 2004-2005 and included the construction of two buildings, a parking lot and some underground storm pipe as shown on the google earth map (Figure 2). In this second phase, two additional buildings, a parking lot and some asphalt driveways are proposed as shown on the sub basin boundary exhibits (Figure 4) and the grading plan.

II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 100-year 6-hour storm event was analyzed to determine flow conveyed in swales and the internal roads using $P(1 \text{ hr})=1.92"$, $P(6\text{-hr})=2.28"$. The onsite Land Treatment values used were determined by measuring the total impervious area. First Flush volumes were calculated using 0.34 inches of precipitation over the new impervious areas, including roof and asphalt roads as has been the latest "design criteria" used by the City of Albuquerque.

The project site is in FEMA flood zone X as shown on FIRM Panel 119 of 825, map number 35001C0119G, September 26, 2008 (Figure 3).

III. EXISTING DRAINAGE CONDITIONS

Under existing drainage conditions, onsite runoff is conveyed in a westerly direction and is intercepted by three existing drop inlets and a cattle guard inlet that spans the entrance road at Edith Blvd. There is an existing 24" and 36" RCP storm pipe that connects the three drop inlets and cattle inlet to an existing 48" storm pipe in Edith Blvd. as shown on the grading plan. The Edith Blvd. storm pipe was constructed as part of an SAD. Per the SAD, the maximum runoff from the site is calculated using 80% D and 20% B. Using these Land Treatment percentages in AHYMO results in a 100 yr-6 hr peak discharge of 71.7 cfs.

IV. DEVELOPED DRAINAGE CONDITIONS

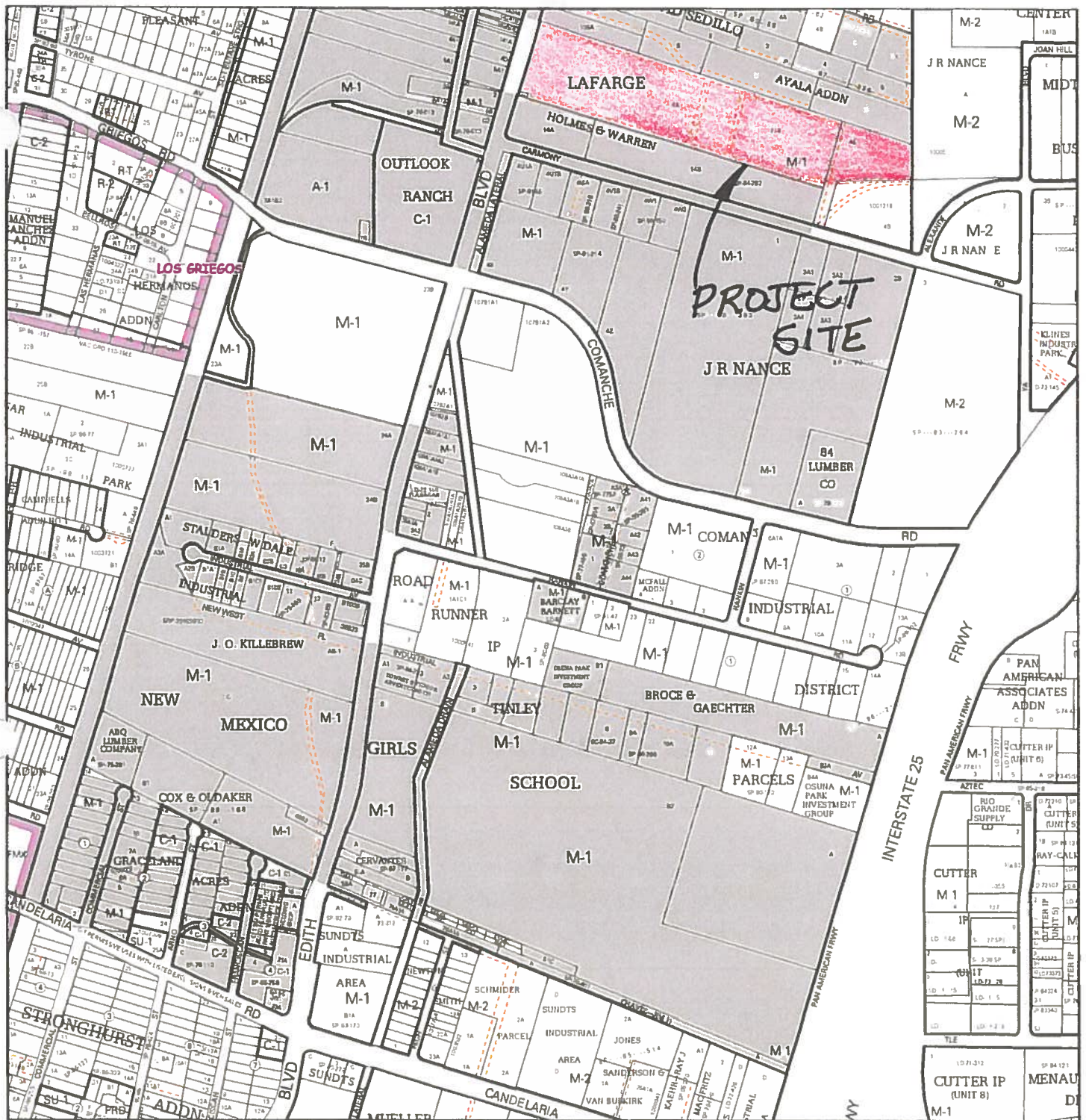
The total peak 100 year 6 hour discharge under developed conditions from this project site is 47.5 cfs (as shown on Figure 4). Under proposed developed conditions, runoff from the new warehouse building is conveyed into either the first flush pond to the north or the landscaped depression area B. Each pond includes an outfall structure that connects to a proposed onsite 24" storm pipe that then connects to an existing onsite 36" RCP storm drain. The existing storm pipe along the south boundary will be extended north in a 24" pipe to the "north" first flush pond. The 100 year peak discharge into the north first flush pond is 7.33 cfs and the middle depression landscape area B is 7.71 cfs. Both outfall structures and storm pipe are designed to convey this discharge.

The peak discharge for the new proposed building and parking lot at the NW corner of the property is 1.84 cfs. The first flush volumes for this area will be captured in retention swales that will spillover into

each other as indicated on the grading plan and then overflow at the entrance road curb-cut and be intercepted by the existing cattle grate inlet located across the entrance road.

V. FIRST FLUSH PONDS

For first flush volume refer to Figure 5 as well as calculation in the Appendix.



For more current information and details visit: <http://www.cabq.gov/gis>

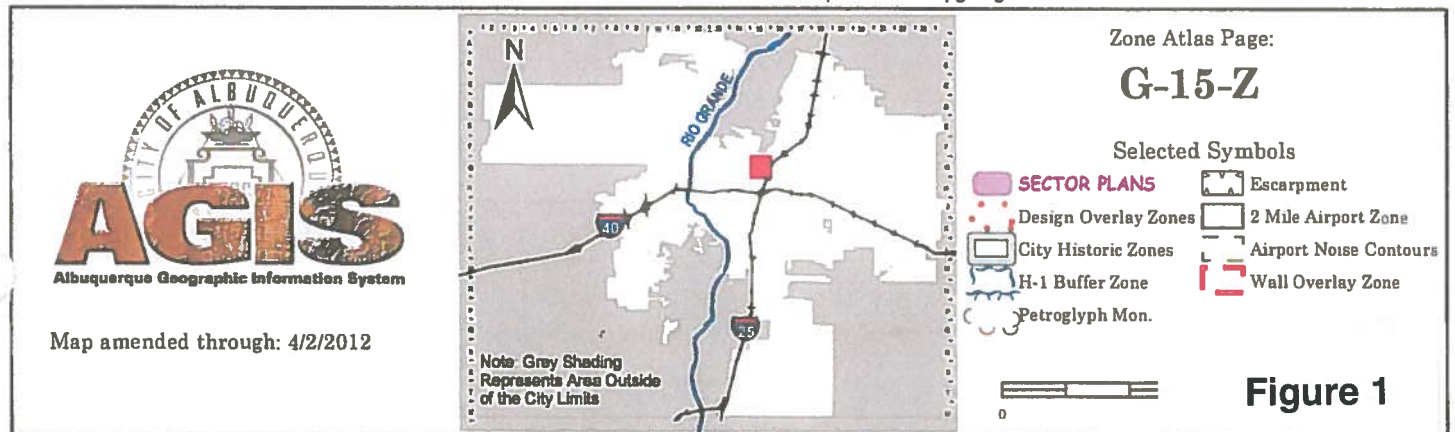
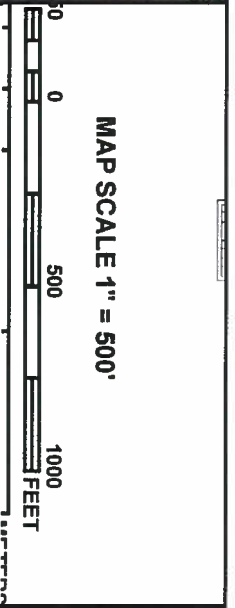




Figure 2



NFIP

PANEL 0119G

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY,
NEW MEXICO

AND INCORPORATED AREAS

PANEL 119 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

NATIONAL FLOOD INSURANCE PROGRAM

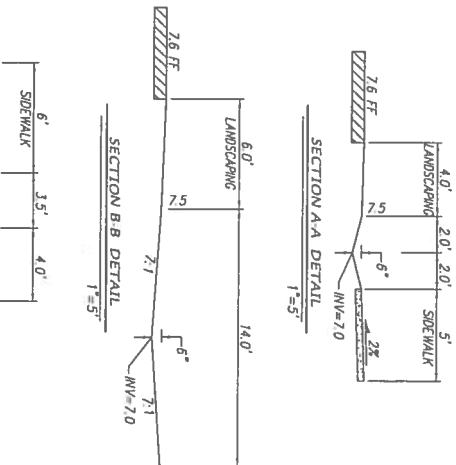
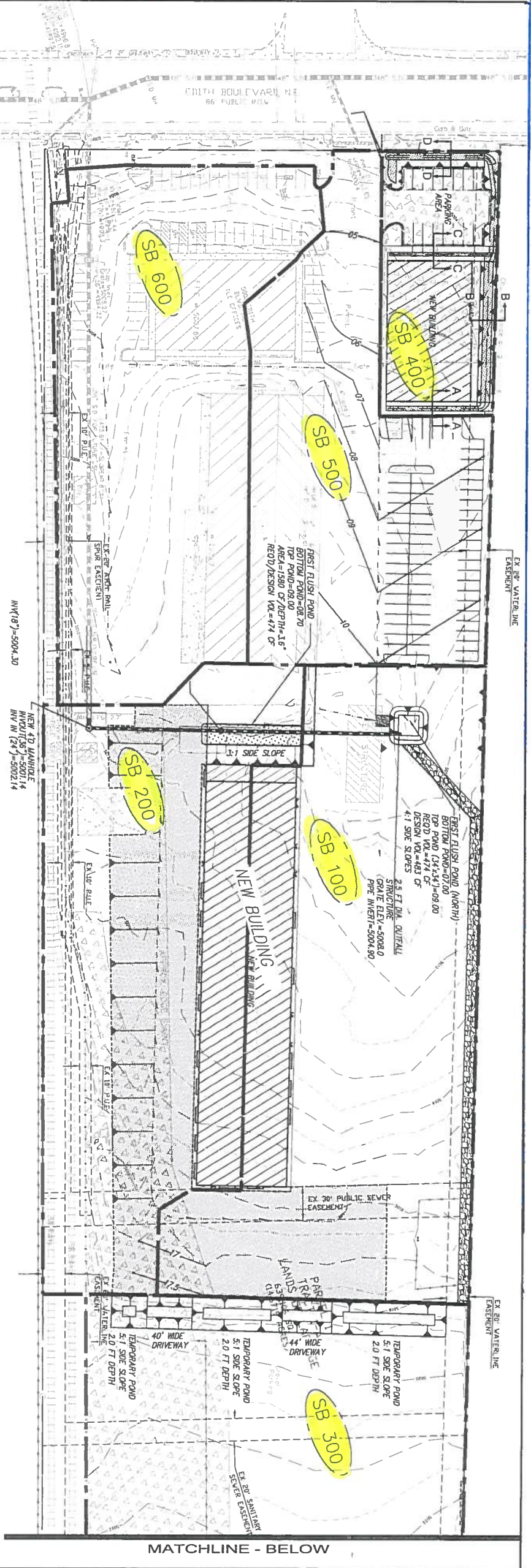
CONTAINS:	NUMBER	PANEL	SUFFIX
COMMUNITY			
ALBUQUERQUE, CITY OF	350002	0119	G
BERNALILLO COUNTY	350001	0119	G
LOS RANCHOS DE			
ALBUQUERQUE, CITY OF	350123	0119	G

Notice is hereby given that the map number shown below should be used when placing map orders. The map number shown below should be used on insurance applications for the subject community.

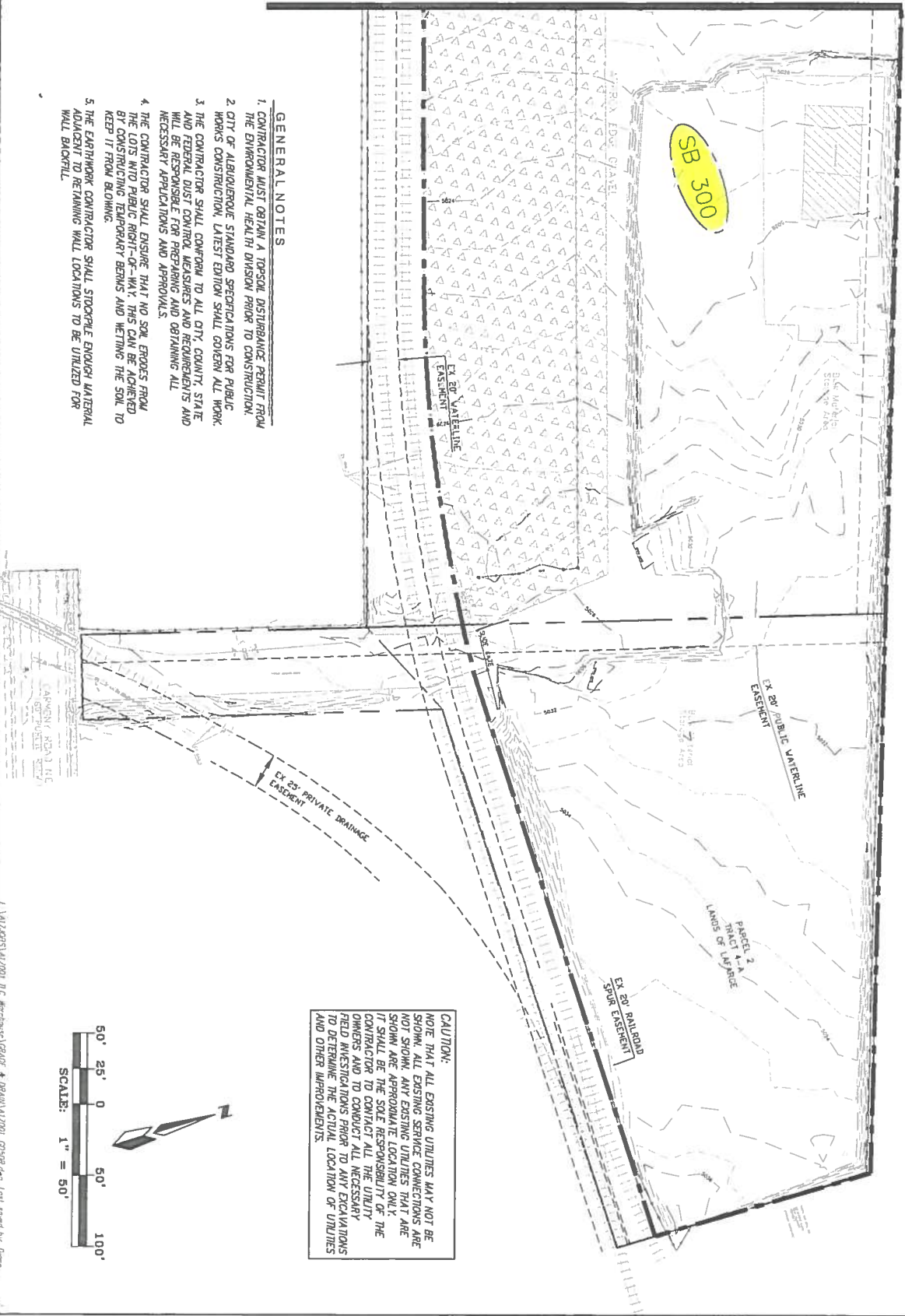

MAP NUMBER
35001C0119G
MAP REVISED
SEPTEMBER 26, 2008
Federal Emergency Management Agency

Figure 3

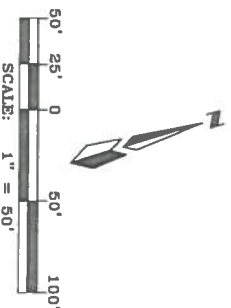
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program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



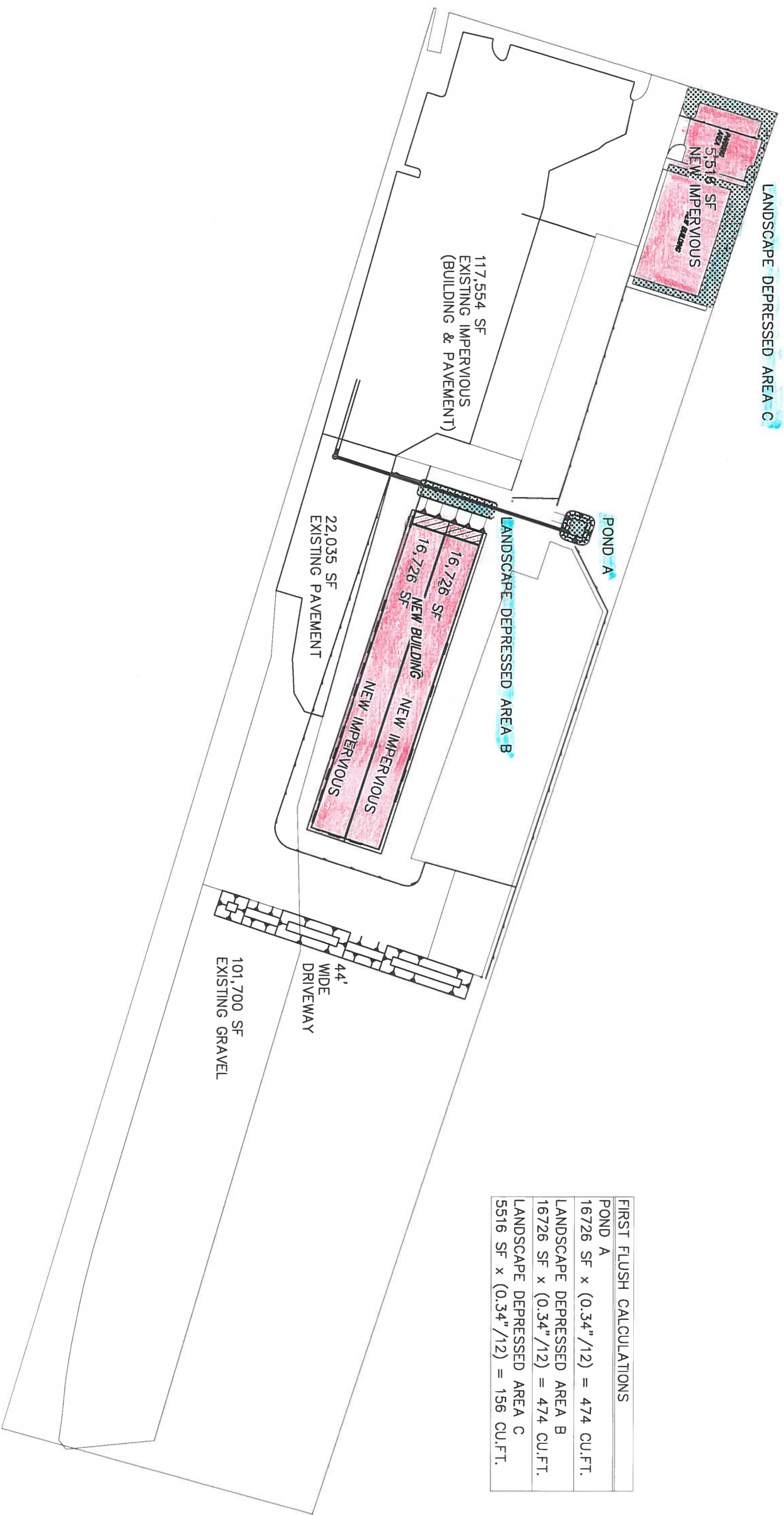
Summary of Hydrology			
Developed Conditions			
SUB BASIN ID	AREA	Q (100YR)	V(100YR)
	ACRES	(cfs)	acre-ft
SB 100	2.75	7.33	0.23
SB 200	2.17	7.71	0.255
SB 300	7.01	16	0.479
SB 400	0.55	1.84	0.057
SB 500	1.57	5.8	0.194
SB 600	1.97	8.8	0.322
Existing Conditions - Entire Site			
SB 700.EX	17.15	43.35	1.263
Developed Conditions- Maximum Allowable (per SAD)			
SB 700DV	17.15	71.7	2.578

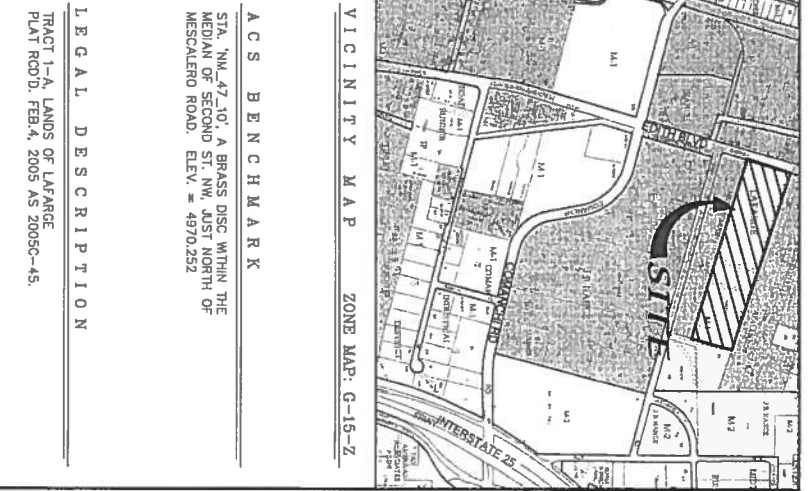
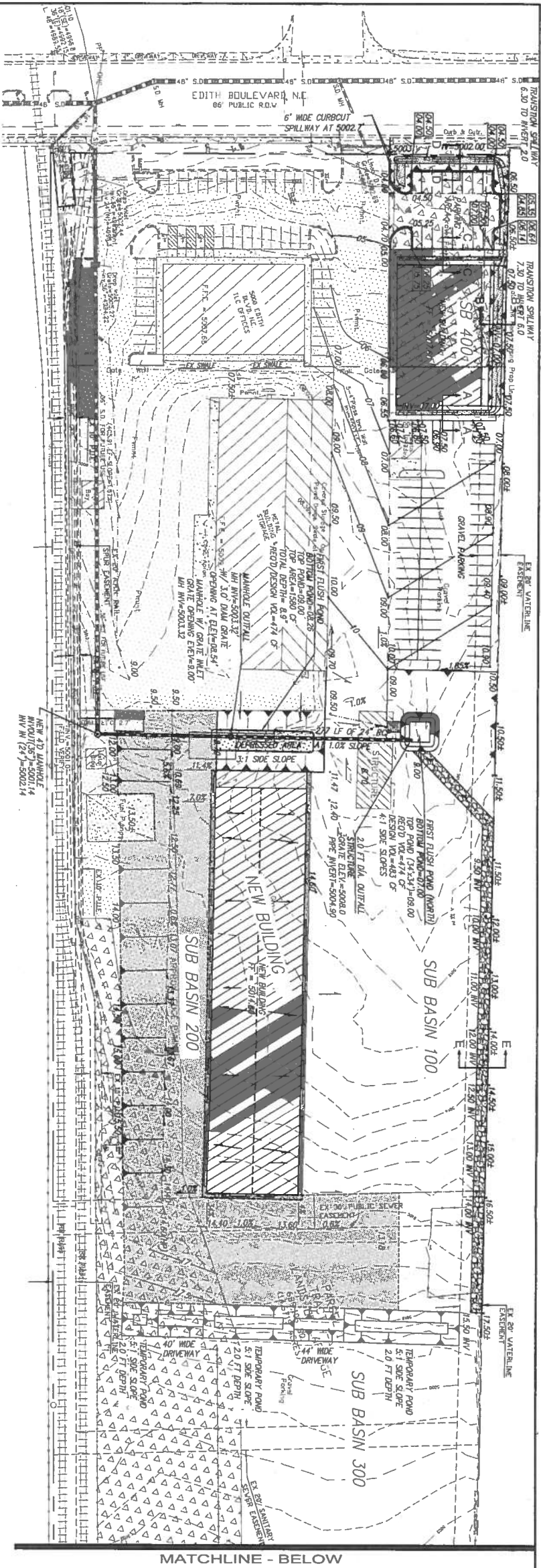


CAUTION: MORE THAT ALL EXISTING UTILITIES MAY NOT BE SHOWN. ALL EXISTING SERVICE CONNECTIONS ARE NOT SHOWN. ANY EXISTING UTILITIES THAT ARE SHOWN ARE APPROXIMATE LOCATION ONLY. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL THE UTILITY OWNERS AND TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATIONS TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS.



Sub Basin Boundary Exhibit
Figure 4





ACS BENCHMARK
STA. 1N+47.10' A BRASS DISC WITHIN THE
MEDIAN OF SECOND ST. NW, JUST NORTH OF
MESQUERO ROAD. ELEV. = 4970.252

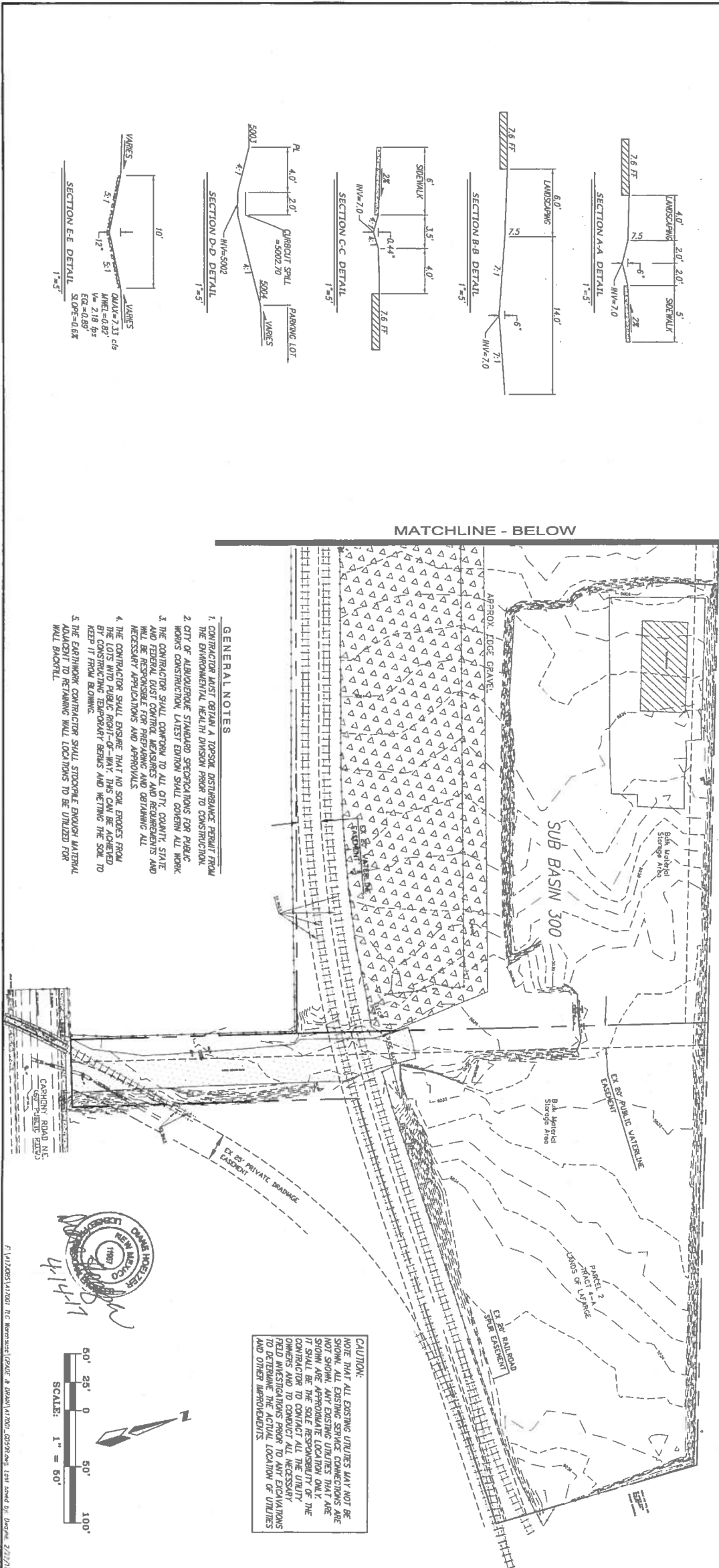
LEGAL DESCRIPTION
TRACT 1-A, LANDS OF LAFARGE
PLAT RCD#1, FEB. 4, 2005 AS 2005C-45.

LEGEND
--- SB --- EXISTING CONTOUR (MAJOR)
--- SB --- EXISTING CONTOUR (MINOR)
x 0.0 0 EXISTING SPOT ELEVATION
--- TC --- EXISTING TOP CURB/TOPLINE ELEVATION
--- FL --- EXISTING ASPHALT PAVEMENT
--- GR --- EXISTING GRAVEL
--- ELEC --- EXISTING ELECTRIC TRANSFORMER
--- ELEC --- EXISTING OVERHEAD ELECTRIC LINE
--- E --- EXISTING POWER POLE
--- E --- EXISTING LIGHT POLE
--- TRAF --- EXISTING TRAFFIC SIGNAL, PULLBOX
--- M --- EXISTING TELEPHONE MANHOLE
--- P --- EXISTING CITY PEDESTAL
--- D --- EXISTING STEEP DRAIN MANHOLE
--- S --- NEW STANDARD CURB & GUTTER
--- R --- NEW MOUNTABLE CURB & GUTTER
--- W --- NEW RIGHT-OF-WAY
--- L --- NEW CENTERLINE
--- L --- NEW LOT LINES
--- E --- NEW EASEMENTS
--- W --- NEW TOP OF WALL ELEVATION
--- B --- NEW BOTTOM OF WALL ELEVATION
--- S --- NEW SPOT ELEVATIONS
--- F --- NEW FLOW DIRECTION
--- W --- NEW WATER BLOCK
--- W --- NEW RETAINING WALL (SEE NOTE 9)
--- W --- NEW STORM DRAIN

TLC WAREHOUSE
GRADING DRAINAGE PLAN

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90806
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Designed: DER Drawn: DER Checked: DMG Sheet C101
Scale: 1" = 1' Date: 01/26/17 Job: A17001



GENERAL NOTES
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 MUST CONTROL MEASURES AND REQUIREMENTS AND NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE CUTS AND PUBLIC RIGHT-OF-WAY THIS CAN BE ACHIEVED BY CONSTRUCTING EROSION CONTROL BARRIERS AND NETTING THE SOIL TO KEEP IT FROM BLOWING.
5. THE EXISTING CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL AND EQUIPMENT TO REMAINING WALL LOCATIONS TO BE UTILIZED FOR WALL EROSION.

CAUTION:
NOTE THAT ALL EXISTING UTILITIES MAY NOT BE SHOWN. ALL EXISTING SERVICE CONNECTIONS ARE NOT SHOWN. ANY EXISTING UTILITIES THAT ARE SHOWN ARE APPROXIMATE LOCATIONS ONLY. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL THE UTILITY OWNERS AND TO OBTAIN ALL NECESSARY INFORMATION AND APPROVALS PRIOR TO CONSTRUCTION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS.

APPENDIX A

First Flush Pond Calculations
First Flush Swale Calculations
Pond Outfall Structure Calculations
Misc. hydrology calculations
Channel capacity calculation
AHYMO printouts

First Flush Pond Calculations

TLC WAREHOUSE BUILDING

FIRST FLUSH POND NORTH

Sub basin 100 - (new asphalt and building roof)

Total impervious area= 16,726 SF x (0.34"/12) = 474 CF (required retention volume)

POND DESIGN: 34 feet x 34 feet (at contour 5009.')

4:1 side slopes, 2.0 feet deep

2.0 foot diameter outfall at elevation 5008.' Q(100)= 7.33 cfs

Design volume = 483 CF

Connected to 24" RCP Storm drain

DEPRESSED LANDSCAPE AREA B

Sub basin 200 - (new asphalt and building roof)

Total impervious area= 16.726 SF x (0.34"/12) = 474 CF (required retention volume)

POND DESIGN: 18 feet x 88 feet (at contour 5009.')

3.6" deep (Bottom at 5408.7)

3.0 foot diameter outfall at elevation 5009.' Q(100)= 7.71 cfs

Design volume = 475 CF

Connected to 24" RCP Storm drain



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

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

PROJECT TLC Warehouse
SUBJECT First Flush calcs
BY DLT DATE 2-21-17
CHECKED _____ DATE _____
SHEET _____ OF _____

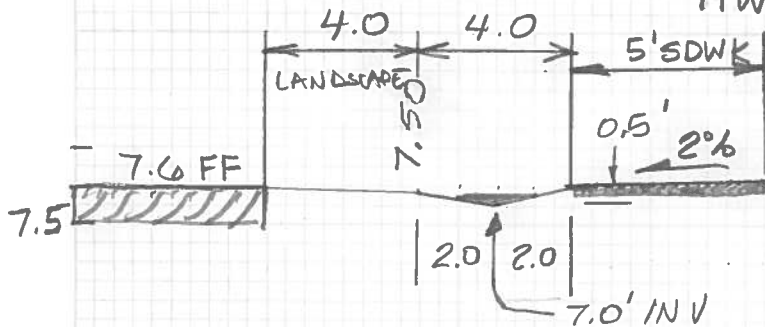
Landscape Depressed Area C

SECTION A-A

$$\text{SIDEWALK } 519 \text{ SF } \left(\frac{.34}{12} \right) = 14.4 \text{ CF}$$

$$80 \text{ LF} \Rightarrow 0.1834 \text{ SF}$$

$$\text{MWSEL} \leq 3" \text{ (100 YR)}$$

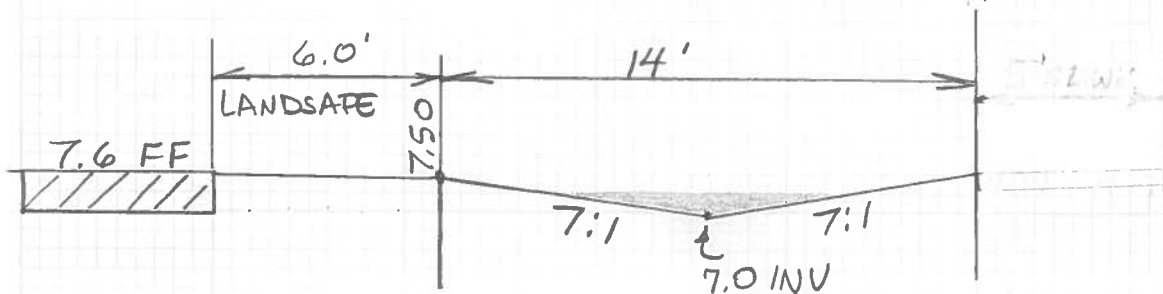


SECTION B-B (BUILDING-ROOF)

$$9380 \text{ SF } \left(\frac{.34}{12} \right) = 265 \text{ CF}$$

$$120 \text{ LF SWALE}$$

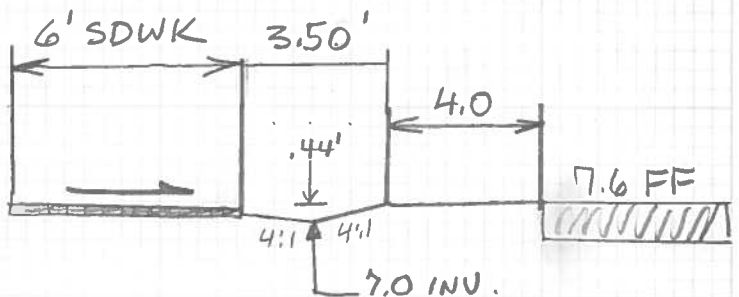
$$\text{MWSEL} = 0.56' \text{ (100 YR)}$$



SECTION C-C

$$\text{SIDEWALK } 620 \text{ SF } \left(\frac{.34}{12} \right) = 17.56 \text{ CF}$$

$$90 \text{ LF} = 0.195 \text{ SF}$$

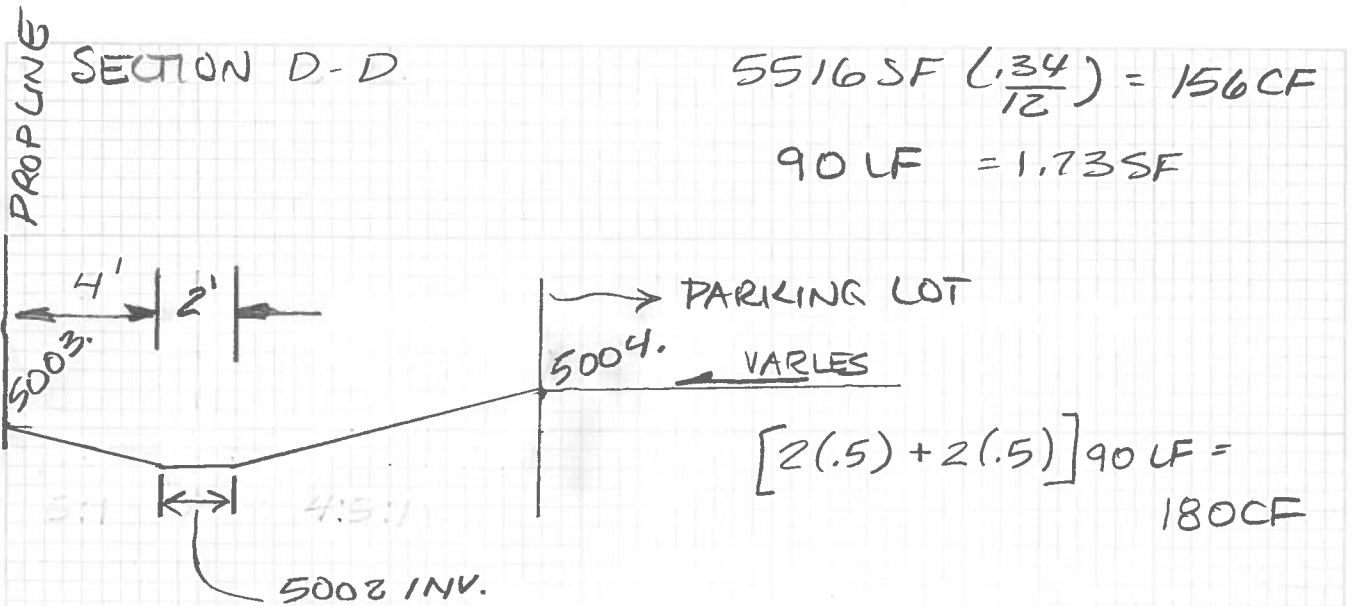




D. Mark Goodwin & Associates, P.A.
Consulting Engineers

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

PROJECT TLC Warehouse
SUBJECT First Flush Calcs
BY DMG DATE 2-21-17
CHECKED _____ DATE _____
SHEET _____ OF _____





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

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

PROJECT TLC Warehouse
SUBJECT Outfall Calcs
BY DLH DATE 4-13-17
CHECKED _____ DATE _____
SHEET _____ OF _____

FIRST FLUSH POND - NORTH OUTFALL STRUCTURE

$$Q = 7.33 \text{ cfs}$$

$$\text{WEIR EQUATION: } Q = CLH^{3/2}$$

$$\text{USE } 2.0' \text{ diameter opening } L = 2\pi R = 6.28'$$

$$7.33 \text{ cfs} = 2.8(6.28)(H)^{3/2}$$

$$\Delta H = 0.56' = 6.7''$$

FIRST FLUSH DEPRESSION AREA B

OUTFALL STRUCTURE

$$Q = 7.71 \text{ cfs}$$

$$\text{WEIR EQUATION: } Q = CLH^{3/2}$$

$$\text{USE } 3.0' \text{ diameter opening } L = 2\pi(1.5) = 9.42'$$

$$7.71 \text{ cfs} = 2.8(9.42)(H)^{3/2}$$

$$\Delta H = 0.44' = 5.3''$$



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

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

PROJECT TLC Warehouse
SUBJECT Hydrology Calcs
BY DUT DATE 4-13-17
CHECKED _____ DATE _____
SHEET _____ OF _____

SB 100 119148 SF

Tr A 47933 40.2%
Tr B 27244 22.9%
Tr C 27245 22.9%
Tr D 16726 14.0%

SB 200 94507 SF

Tr A 0
34.9% Tr B 32991
24.1% Tr C 22755
41.0% Tr D 38761

SB 300 305543 SF

Tr A 169949 55.7%
Tr B 56650 18.5%
Tr C 78944 25.8%
Tr D

SB 400 24225 SF

Tr A 0
Tr B 9353.5 38.6%
Tr C 9353.5 38.6%
Tr D 5518 22.8%

SB 500 68219 SF

Tr A 0
Tr B 17968.5 26.3%
Tr C 17968.5 26.4%
Tr D 32282 47.3%

SB 500 85757 SF

Tr A 0
Tr B 5464 6.4%
Tr C 0
Tr D 80293 93.6%

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =
START LOCATION	NEW MEXICO								
*S*****	*****								
*S*****	*****								
*S*****	FILE: TLCBLG6.DAT REV: 4-13-17 DLH								
*S*****	ZONE ATLAS G-15								
*S*****	*****								
*S*****	*****								
*S*****	100 YEAR 6 HOUR STORM EVENT								
*S*****	*****								
*S*****	*****								
*S*****	RAINFALL TYPE= 1 NOAA 14								
*S*****	*****								
*S*****	DEVELOPED NEW TLC BUILDING NORTH HALF								
*S*****	SUB BASIN 100								
*S*****	AREA= 2.7523 ACRES								
*S*****	*****								
*S*****	COMPUTE NM HYD 100.00 - 1 0.00427 7.33								
*S*****	*****								
*S*****	DEVELOPED NEW TLC BUILDING SOUTH HALF								
*S*****	SUB BASIN 200								
*S*****	AREA=2.1696 ACRES								
*S*****	*****								
*S*****	COMPUTE NM HYD 200.00 - 1 0.00339 7.71								
*S*****	*****								
*S*****	UNDEVELOPED AREA								
*S*****	SUB BASIN 300								
*S*****	AREA= 7.0143 ACRES								
*S*****	*****								
*S*****	COMPUTE NM HYD 300.00 - 1 0.01096 16.08								
*S*****	*****								
*S*****	DEVELOPED NW BUILDING AND PARKING								
*S*****	SUB BASIN 400								
*S*****	AREA= 0.5561 ACRES								
*S*****	*****								
*S*****	COMPUTE NM HYD 400.00 - 1 0.00087 1.84								
*S*****	*****								
*S*****	DEVELOPED EXISTING BUILDING AND PARKING								
*S*****	SUB BASIN 500								
*S*****	AREA= 1.5661 ACRES								
*S*****	*****								
*S*****	COMPUTE NM HYD 500.00 - 1 0.00245 5.80								
*S*****	*****								
*S*****	DEVELOPED EXSTING BUILDING AND PARKING								
*S*****	SUB BASIN 600								
*S*****	AREA= 1.9687 ACRES								
*S*****	*****								
*S*****	COMPUTE NM HYD 600.00 - 1 0.00308 8.80								
*S*****	*****								

```

*S      ENTIRE PROJECT SITE
*S      EXISTING CONDITIONS SB 700.EX
*S      AREA= 17.145 ACRES
*S*****
COMPUTE NM HYD      700.EX      -      1      0.02679      43.35      1.263      0.88395      1.500      2.528 PER IMP=      0.00
*S*****
*S      ENTIRE PROJECT SITE
*S      DEVELOPED CONDITIONS SB 700.DV
*S      AREA=17.145 ACRES
*S*****
COMPUTE NM HYD      700.DV      -      1      0.02679      71.70      2.578      1.80433      1.500      4.182 PER IMP=      80.00
FINISH
~(s0p10h4099T~&l6D

```

AHYMO PROGRAM (AHYMO-S4)
 RUN DATE (MON/DAY/YR) = 04/13/2017
 START TIME (HR:MIN:SEC) = 15:07:50
 INPUT FILE = C:\Program Files (x86)\AHYMO-S4\TLCBLG6.DAT
 - Version: S4.01a - Rel: 01a
 USER NO. = M-Goodwin\NMSiteA90075759
 TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
 LOCATION
 NEW MEXICO
 State of New Mexico soil infiltration values (LAND FACTORS) used for computations.
 Land Treatment Initial Abstr.(in) Unif. Infilt.(in/hour)
 A 0.65 1.67
 B 0.50 1.25
 C 0.35 0.83
 D 0.10 0.04

*S*****
 *S***** FILE: TLCBLG6.DAT REV: 4-13-17 DLH
 *S***** ZONE ATLAS G-15
 *S*****
 *S*****
 *S*****
 *S***** 100 YEAR 6 HOUR STORM EVENT
 *S*****
 *S*****
 *S***** TYPE=1 RAIN QUARTER=0.0
 *S***** RAIN ONE=1.92 IN RAIN SIX=2.28 IN
 *S***** RAIN DAY=2.60 IN DT=0.05 HRS
 RAINFALL

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - DI
 DT = 0.050000 HOURS END TIME = 6.000000 HOURS
 0.0000 0.0024 0.0049 0.0076 0.0104 0.0134 0.0168
 0.0215 0.0288 0.0367 0.0449 0.0539 0.0630 0.0725
 0.0822 0.0921 0.1032 0.1148 0.1274 0.1501 0.1779
 0.2151 0.2572 0.3093 0.3788 0.4569 0.5919 0.8016
 1.1611 1.4138 1.6130 1.7132 1.8009 1.8640 1.9142
 1.9579 1.9899 2.0193 2.0435 2.0595 2.0713 2.0817
 2.0916 2.1002 2.1083 2.1162 2.1237 2.1300 2.1337
 2.1372 2.1408 2.1440 2.1473 2.1505 2.1536 2.1567
 2.1595 2.1624 2.1652 2.1680 2.1707 2.1733 2.1759
 2.1784 2.1809 2.1833 2.1857 2.1880 2.1903 2.1926
 2.1948 2.1970 2.1992 2.2013 2.2034 2.2055 2.2076
 2.2096 2.2116 2.2136 2.2156 2.2175 2.2195 2.2214
 2.2233 2.2251 2.2270 2.2288 2.2306 2.2324 2.2341
 2.2359 2.2376 2.2393 2.2410 2.2427 2.2443 2.2460
 2.2476 2.2492 2.2508 2.2524 2.2540 2.2555 2.2571
 2.2586 2.2601 2.2616 2.2631 2.2646 2.2660 2.2675
 2.2689 2.2703 2.2717 2.2732 2.2745 2.2759 2.2773
 2.2786 2.2800

*S*****
 *S DEVELOPED NEW TLC BUILDING NORTH HALF
 *S SUB BASIN 100
 *S AREA= 2.7523 ACRES
 *S*****
 COMPUTE NM HYD ID=1 HYD NO=100. AREA= 0.004274 SQ MI
 PER A=40.2 PER B=22.9 PER C=22.9 PER D=14.0
 TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 2.3624 CFS UNIT VOLUME = 0.9951 B = 526.28 P60 = 1.9200
AREA = 0.000598 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.139147HR TP = 0.133300HR K/TP RATIO = 1.043862 SHAPE CONSTANT, N = 3.381834
UNIT PEAK = 8.5924 CFS UNIT VOLUME = 0.9986 B = 311.61 P60 = 1.9200
AREA = 0.003676 SQ MI IA = 0.53017 INCHES INF = 1.33449 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.00711 INCHES = 0.2296 ACRE-FEET
PEAK DISCHARGE RATE = 7.33 CFS AT 1.500 HOURS BASIN AREA = 0.0043 SQ. MI.

*S*****

*S DEVELOPED NEW TLC BUILDING SOUTH HALF

*S SUB BASIN 200

*S AREA=2.1696 ACRES

*S*****

COMPUTE NM HYD

ID=1 HYD NO=200. AREA= 0.00339 SQ MI

PER A=0 PER B=34.9 PER C=24.1 PER D=41.0

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 5.4874 CFS UNIT VOLUME = 0.9971 B = 526.28 P60 = 1.9200
AREA = 0.001390 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 200.00

RUNOFF VOLUME = 1.41311 INCHES = 0.2555 ACRE-FEET
PEAK DISCHARGE RATE = 7.71 CFS AT 1.500 HOURS BASIN AREA = 0.0034 SQ. MI.

*S*****

*S UNDEVELOPED AREA

*S SUB BASIN 300

*S AREA= 7.0143 ACRES

*S*****

COMPUTE NM HYD

ID=1 HYD NO=300. AREA= 0.01096 SQ MI

PER A=55.7 PER B=18.5 PER C=25.8 PER D=0
TP=-.1333 HR MASS RAIN=-1

K = 0.142164HR TP = 0.133300HR K/TP RATIO = 1.066499 SHAPE CONSTANT, N = 3.311225
UNIT PEAK = 25.183 CFS UNIT VOLUME = 0.9995 B = 306.29 P60 = 1.9200
AREA = 0.010960 SQ MI IA = 0.54485 INCHES INF = 1.37558 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 300.00

RUNOFF VOLUME = 0.81941 INCHES = 0.4790 ACRE-FEET
PEAK DISCHARGE RATE = 16.08 CFS AT 1.500 HOURS BASIN AREA = 0.0110 SQ. MI.

*S*****

*S DEVELOPED NW BUILDING AND PARKING

*S SUB BASIN 400

*S AREA= 0.5561 ACRES

*S*****

COMPUTE NM HYD ID=1 HYD NO=400. AREA= 0.000869 SQ MI

PER A=0 PER B=38.6 PER C=38.6 PER D=22.8

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.78224 CFS UNIT VOLUME = 0.9865 B = 526.28 P60 = 1.9200
AREA = 0.000198 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 400.00

RUNOFF VOLUME = 1.23721 INCHES = 0.0573 ACRE-FEET
PEAK DISCHARGE RATE = 1.84 CFS AT 1.500 HOURS BASIN AREA = 0.0009 SQ. MI.

*S*****

*S DEVELOPED EXISTING BUILDING AND PARKING

*S SUB BASIN 500

*S AREA= 1.5661 ACRES

*S*****

COMPUTE NM HYD ID=1 HYD NO=500. AREA= 0.002447 SQ MI

PER A=0 PER B=26.3 PER C=26.4 PER D=47.3

TP=-.1333 HR MASS RAIN=-1

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

UNIT PEAK = 4.5696 CFS UNIT VOLUME = 0.9966 B = 526.28 P60 = 1.9200
AREA = 0.001157 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.118693HR TP = 0.133300HR K/TP RATIO = 0.890420 SHAPE CONSTANT, N = 3.982866
UNIT PEAK = 3.4250 CFS UNIT VOLUME = 0.9974 B = 354.03 P60 = 1.9200
AREA = 0.001290 SQ MI IA = 0.42486 INCHES INF = 1.03960 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 500.00

RUNOFF VOLUME = 1.49032 INCHES = 0.1945 ACRE-FEET
PEAK DISCHARGE RATE = 5.80 CFS AT 1.500 HOURS BASIN AREA = 0.0024 SQ. MI.

*S*****

*S DEVELOPED EXSTING BUILDING AND PARKING

*S SUB BASIN 600

*S AREA= 1.9687 ACRES

*S*****

COMPUTE NM HYD

ID=1 HYD NO=600. AREA= 0.003076 SQ MI

PER A=0 PER B=6.4 PER C=0 PER D=93.6

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 11.367 CFS UNIT VOLUME = 0.9981 B = 526.28 P60 = 1.9200
AREA = 0.002879 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 600.00

RUNOFF VOLUME = 1.96079 INCHES = 0.3217 ACRE-FEET
PEAK DISCHARGE RATE = 8.80 CFS AT 1.500 HOURS BASIN AREA = 0.0031 SQ. MI.

*S*****

*S ENTIRE PROJECT SITE

*S EXISTING CONDITIONS SB 700.EX

*S AREA= 17.145 ACRES

*S*****

COMPUTE NM HYD

ID=1 HYD NO=700.EX AREA= 0.02679 SQ MI

PER A=0 PER B=100 PER C=0 PER D=0

TP=-.1333 HR MASS RAIN=-1

K = 0.131002HR TP = 0.133300HR K/TP RATIO = 0.982760 SHAPE CONSTANT, N = 3.593019
UNIT PEAK = 65.731 CFS UNIT VOLUME = 1.001 B = 327.06 P60 = 1.9200
AREA = 0.026790 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 700.EX

RUNOFF VOLUME = 0.88395 INCHES = 1.2630 ACRE-FEET
PEAK DISCHARGE RATE = 43.35 CFS AT 1.500 HOURS BASIN AREA = 0.0268 SQ. MI.

*S*****
*S ENTIRE PROJECT SITE
*S DEVELOPED CONDITIONS SB 700.DV
*S AREA=17.145 ACRES
*S*****
COMPUTE NM HYD ID=1 HYD NO=700.DV AREA= 0.026789 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 84.612 CFS UNIT VOLUME = 0.9990 B = 526.28 P60 = 1.9200
AREA = 0.021431 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.131002HR TP = 0.133300HR K/TP RATIO = 0.982760 SHAPE CONSTANT, N = 3.593019
UNIT PEAK = 13.146 CFS UNIT VOLUME = 1.000 B = 327.06 P60 = 1.9200
AREA = 0.005358 SQ MI IA = 0.50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 700.DV

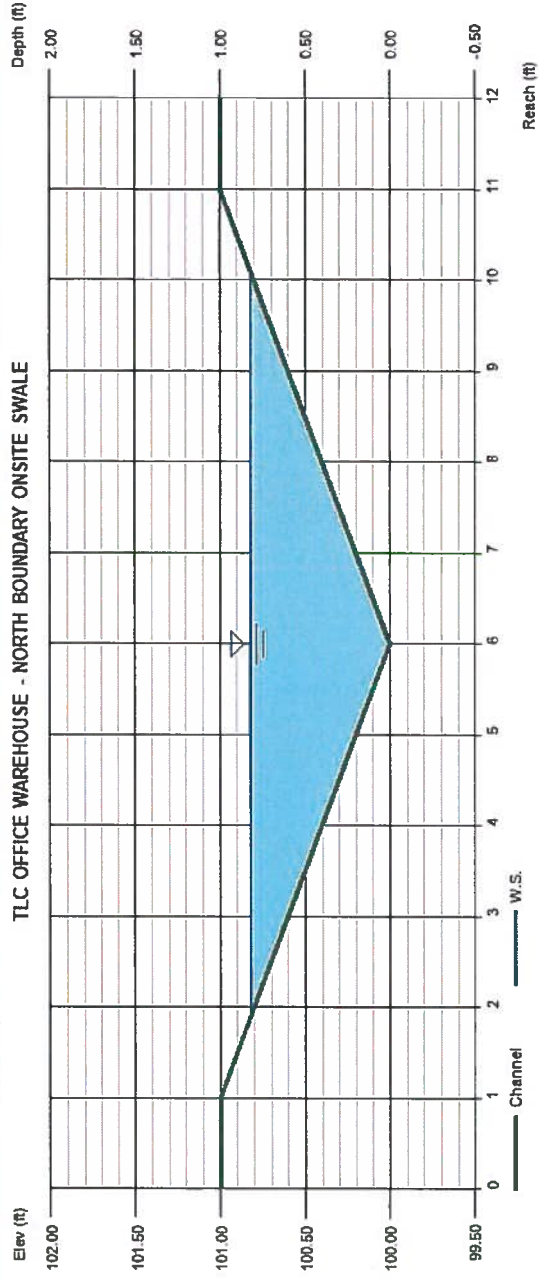
RUNOFF VOLUME = 1.80433 INCHES = 2.5779 ACRE-FEET
PEAK DISCHARGE RATE = 71.70 CFS AT 1.500 HOURS BASIN AREA = 0.0268 SQ. MI.

FINISH

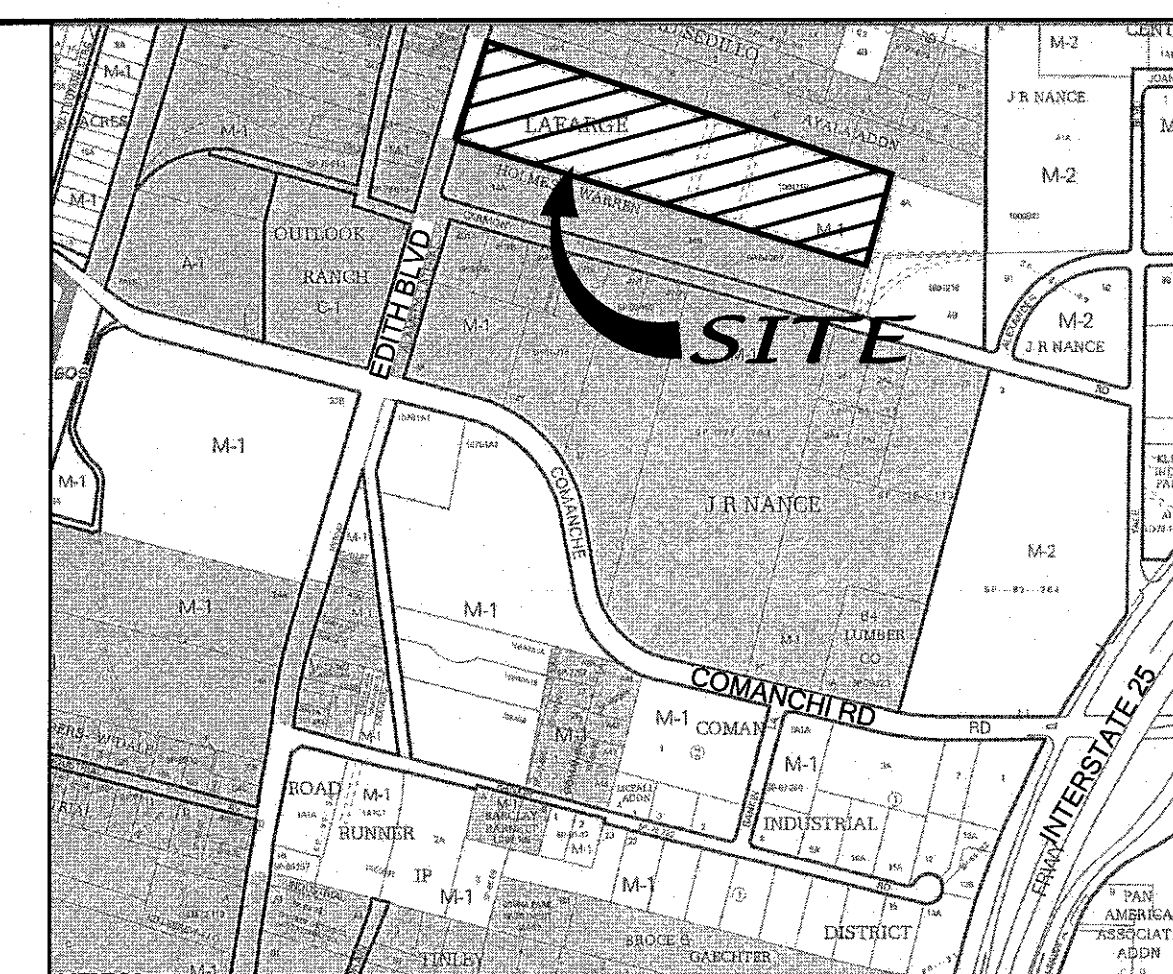
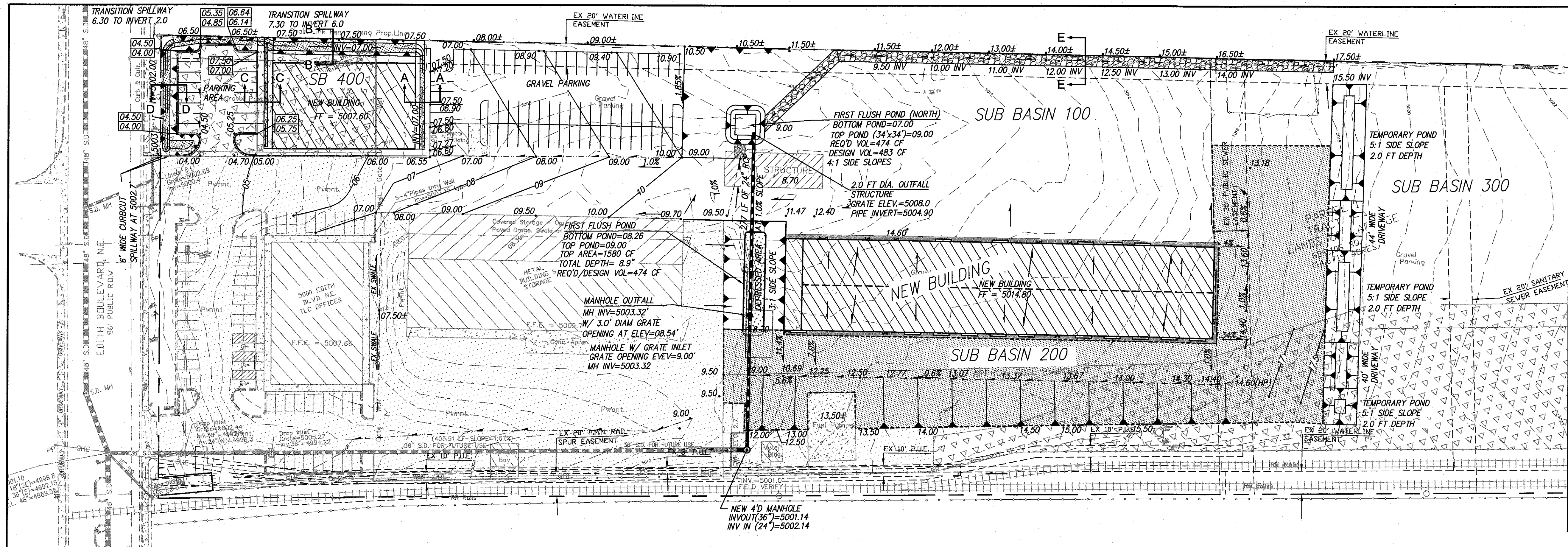
NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:07:50

Section	Item	Input
Channel	Section Type =	Triangular
	Btm Width (ft)	-0-
	Side Slope, z1 =	5.00; 5.00
	Tot Depth (ft) =	1.00
	Inv Elev(ft) =	100.00
	Slope (%) =	0.60
Calcs	n-value =	0.028
	Compute by =	Known Q
	Q (cfs) =	7.33
Clear		Run

TLC OFFICE WAREHOUSE - NORTH BOUNDARY ONSITE SWALE



Depth (ft)	Q (cfs)	Area (sqft)	Veloc (ft/s)	Wp (ft)	Yc (ft)	TopWidth (ft)	Energy (ft)
0.82	7.330	3.362	2.18	8.36	0.67	8.20	0.89



VICINITY MAP ZONE MAP: G-15-Z

ACS BENCHMARK

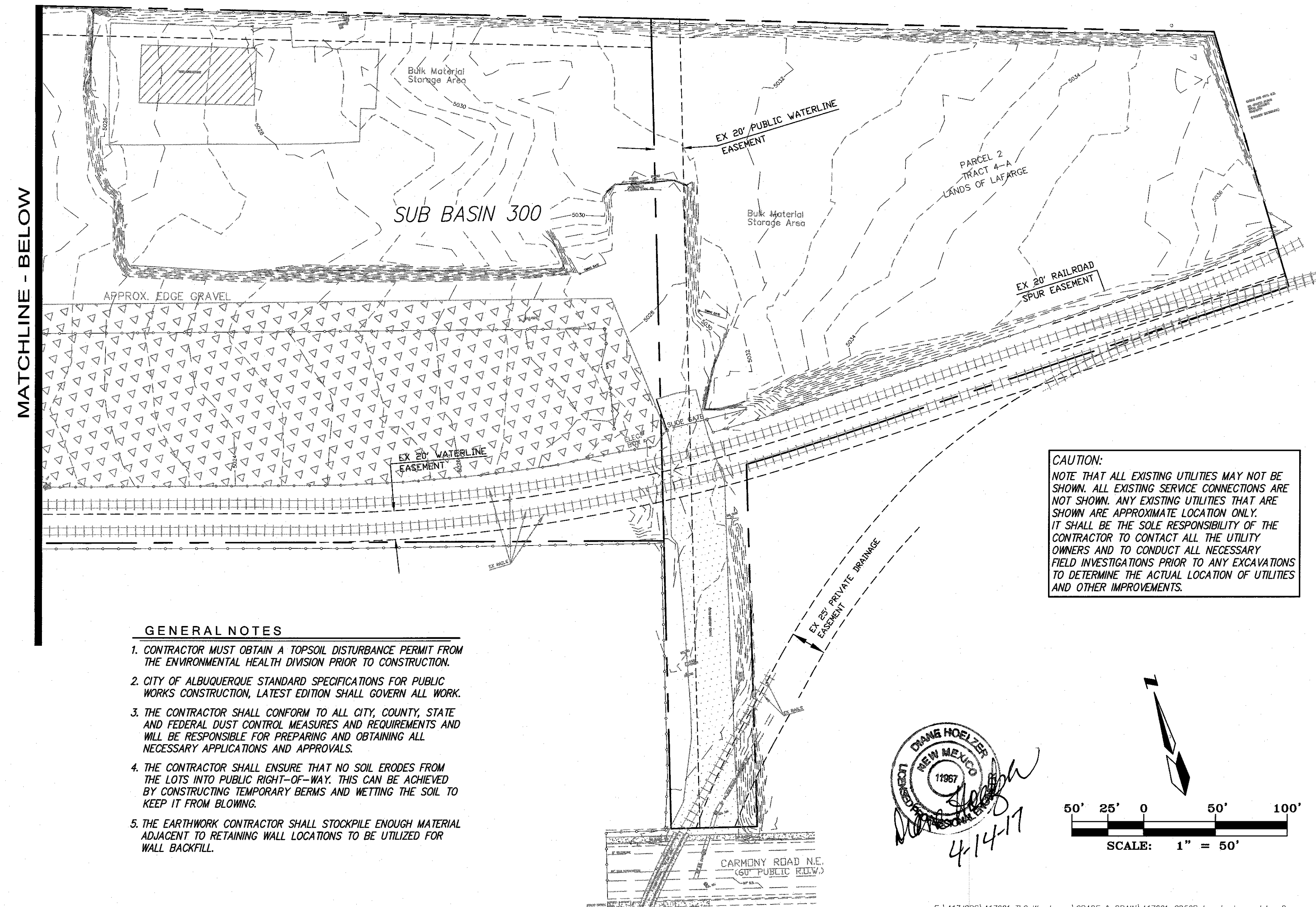
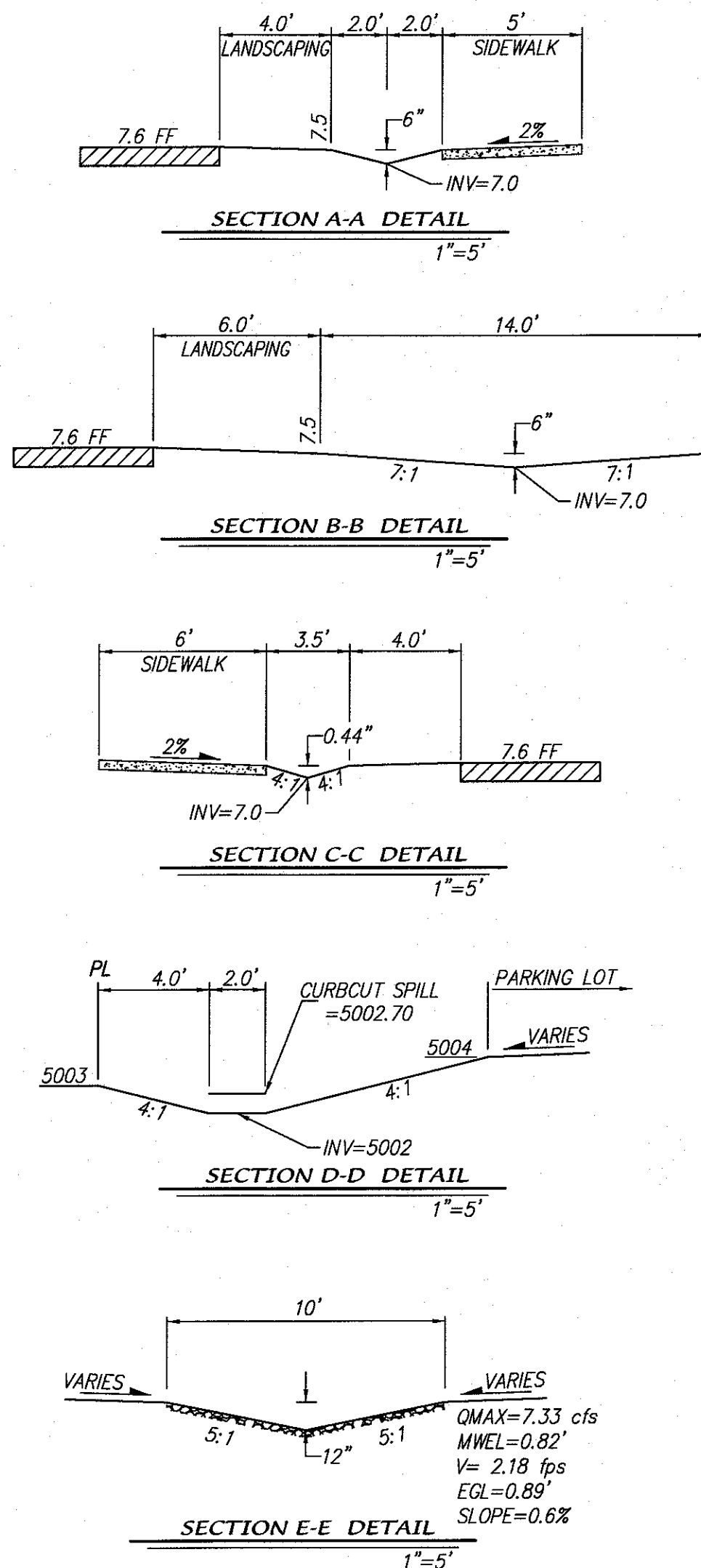
STA. 'NM_47_10', A BRASS DISC WITHIN THE MEDIAN OF SECOND ST. NW, JUST NORTH OF MESCALERO ROAD. ELEV. = 4970.252

LEGAL DESCRIPTION

TRACT 1-A, LANDS OF LAFARGE
PLAT RCD'D. FEB.4, 2005 AS 2005C-45.

LEGEND

— 60 —	EXISTING CONTOUR (MAJOR)
— 58 —	EXISTING CONTOUR (MINOR)
x 00.0	EXISTING SPOT ELEVATION
— TC —	EXISTING TOP CURB/FLOWLINE ELEVATION
— FL —	EXISTING ASPHALT PAVEMENT
— G —	EXISTING GRAVEL
— E —	EXISTING ELECTRIC TRANSFORMER
— E —	EXISTING OVERHEAD ELECTRIC LINE
— P —	EXISTING POWER POLE
— L —	EXISTING LIGHT POLE
— T —	EXISTING TRAFFIC SIGNAL PULLBOX
— M —	EXISTING TELEPHONE MANHOLE
— C —	EXISTING CATV PEDESTAL
— S —	EXISTING STORM DRAIN MANHOLE
— C —	NEW STANDARD CURB & GUTTER
— C —	NEW MOUNTABLE CURB & GUTTER
— R —	NEW RIGHT-OF-WAY
— C —	NEW CENTERLINE
— L —	NEW LOT LINES
— E —	NEW EASEMENTS
69.53TW	NEW TOP OF WALL ELEVATION
68.25BW	NEW BOTTOM OF WALL ELEVATION
.81.77	NEW SPOT ELEVATIONS
— F —	NEW FLOW DIRECTION
— W —	NEW WATER BLOCK
— R —	NEW RETAINING WALL (SEE NOTE 9)
— G —	NEW GARDEN WALL
— S —	NEW STORM DRAIN

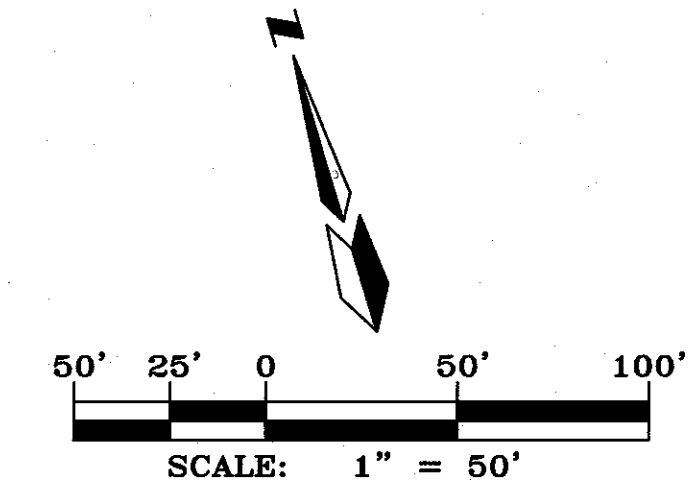


CAUTION:
NOTE THAT ALL EXISTING UTILITIES MAY NOT BE SHOWN. ALL EXISTING SERVICE CONNECTIONS ARE NOT SHOWN. ANY EXISTING UTILITIES THAT ARE SHOWN ARE APPROXIMATE LOCATION ONLY. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL THE UTILITY OWNERS AND TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATIONS TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS.

GENERAL NOTES

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.

DRONE HOELTER
NEW MEXICO
11967
4-14-17



TLC WAREHOUSE GRADING DRAINAGE PLAN

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

Designed: DER Drawn: DER Checked: DMG Sheet: C101
Scale: 1" = 1' Date: 01/26/17 Job: A17001