CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director

Mayor Timothy M. Keller

October 23, 2018

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

RE: **Tierra Serena (Glendesto) Subdivision**
Drainage Supplement Stamp Date: 10/15/18
Hydrology File: B18D020

Dear Ms. Hoelzer:

Based on the submittal received on 10/15/18, the above referenced submittal is re-approved for Work Order.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Supplemental Information
to
Approved Drainage Management Plan
Glendesto Subdivision
(A.K.A. Tierra Serena Subdivision)
(27 lots)

Prepared by
Mark Goodwin & Associates, P.A.

October 2018

I. Revisions to Stormwater Management Plan on Glendale Avenue

After plans were approved and construction had commenced, City Engineers requested that the developer consider a redesign to replace the roadside shotcrete swale with a curb and gutter and pavement section to carry the runoff to two new inlets placed at the end of Glendale Avenue near San Pedro.

Subsequent to this redesign, City Hydrology stated that they wanted all of the storm runoff to be intercepted into the Double D inlet, not allowing any bypass runofff into San Pedro Avenue. In addition, transportation wanted a minimum pavement section of 12 feet F-E.

It was then decided that a curb opening / spillway into a short section of concrete channel would be the best solution for intercepting the runoff in Glendale into the existing double D inlet. A velocity vector analysis indicates that a 30 foot wide opening should intercept the 100 year (25.47 cfs) flow in Glendale Avenue into the roadside concrete channel. The plans have been revised and the accompanying calculations are being submitted with this report.

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Tierra Serena
SUBJECT Glendale Ave Drainage
BY DLH DATE 10-11-95
CHECKED _____ DATE _____
SHEET ____ OF ____

VELOCITY VECTOR (100 YEAR)

$d = \sqrt{(2.13)^2 + (2.0)^2} = 2.92$

$V_{100} = 4.70$ fps

$\frac{4.70}{2.92}(2.13x + 2.00y) = 3.428x + 3.219y$

TOP WIDTH = 23.14 ft.

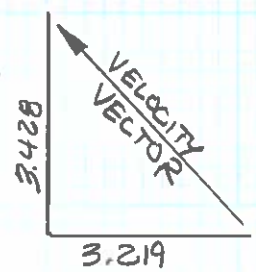
VELOCITY VECTOR (10 YEAR)

$d = 2.92$

$V_{10} = 4.24$ fps

$\frac{4.24}{2.92}(2.13x + 2.00y) = 3.093x + 2.904y$

TOP WIDTH = 17.61 ft.



Channel Report

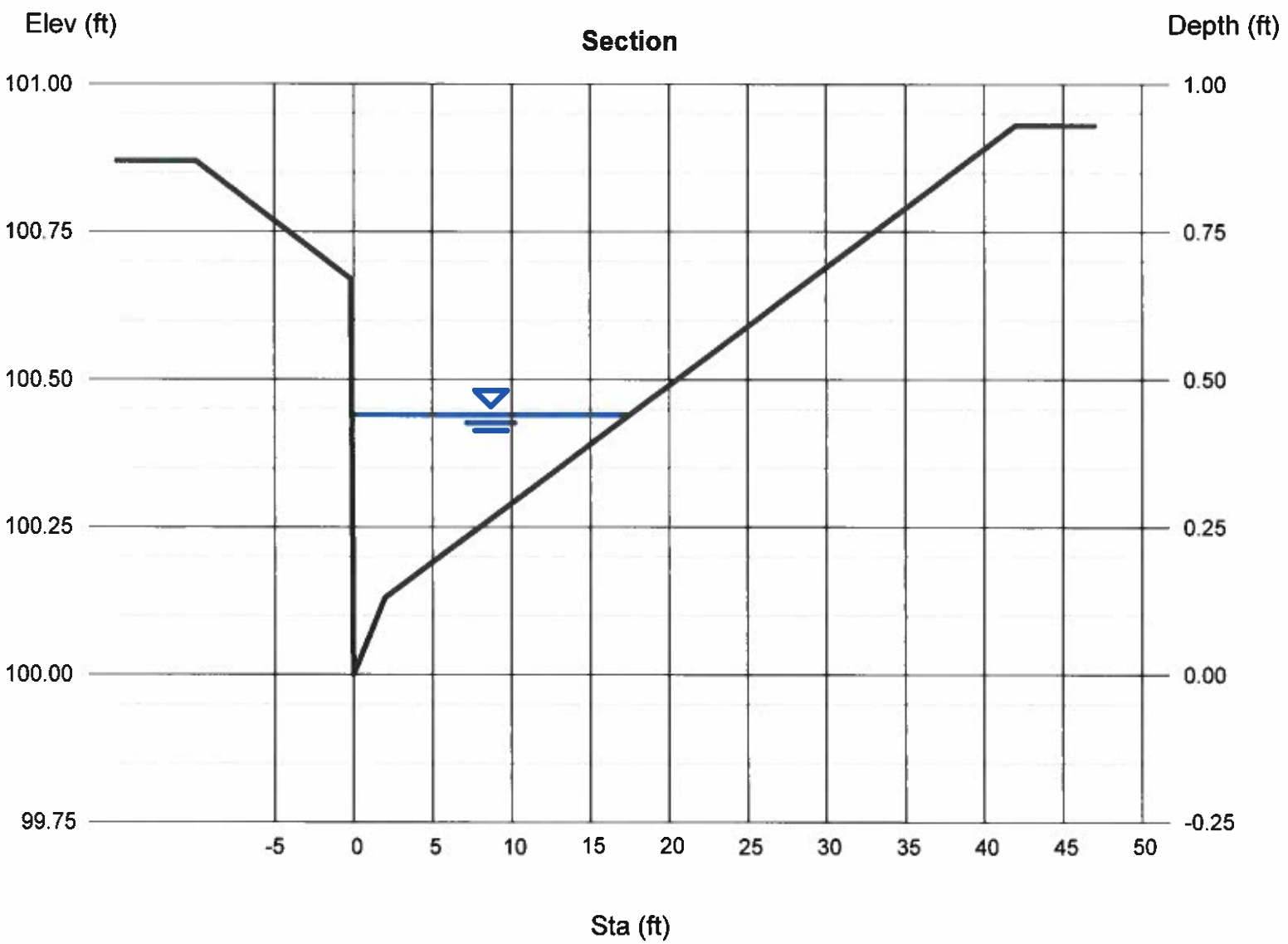
Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Oct 18 2018

Glendale Avenue @ Rundown 10 YEAR

User-defined		**Highlighted**	
Invert Elev (ft)	= 100.00	Depth (ft)	= 0.44
Slope (%)	= 2.13	Q (cfs)	= 13.46
N-Value	= 0.016	Area (sqft)	= 3.18
		Velocity (ft/s)	= 4.24
Calculations		Wetted Perim (ft)	= 17.96
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.54
Known Q (cfs)	= 13.46	Top Width (ft)	= 17.61
		EGL (ft)	= 0.72

(Sta, El, n)-(Sta, El, n)...

(-10.00, 100.87)-(2.00, 100.13, 0.013)-(10.00, 100.29, 0.013)-(32.00, 100.73, 0.020)-(42.00, 100.93, 0.020)



Channel Report

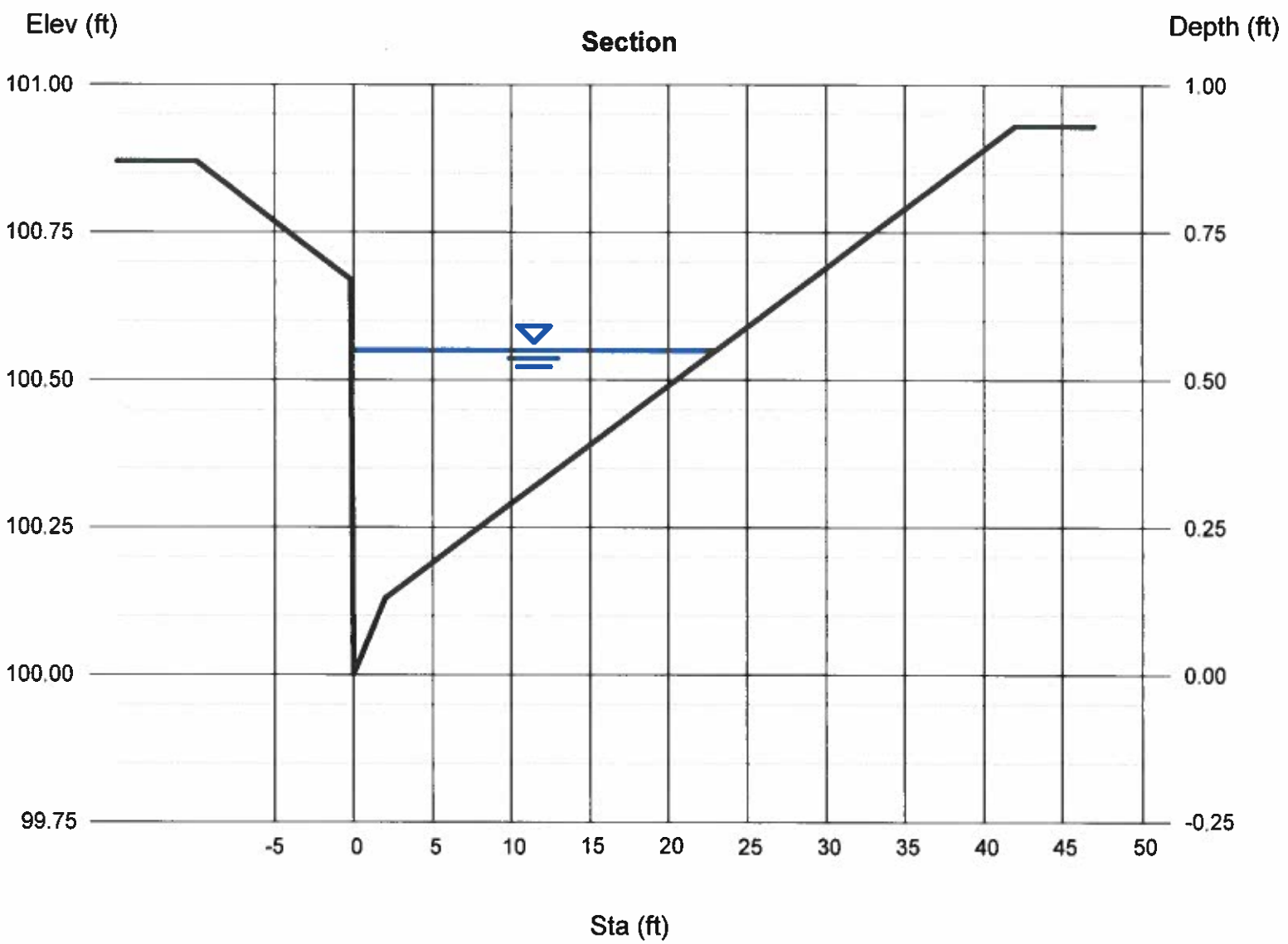
Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Oct 18 2018

Glendale Avenue @ Rundown (100 YEAR)

User-defined		Highlighted	
Invert Elev (ft)	= 100.00	Depth (ft)	= 0.55
Slope (%)	= 2.13	Q (cfs)	= 25.47
N-Value	= 0.017	Area (sqft)	= 5.42
		Velocity (ft/s)	= 4.70
Calculations		Wetted Perim (ft)	= 23.58
Compute by:	Known Q	Crit Depth, Yc (ft)	= 0.67
Known Q (cfs)	= 25.47	Top Width (ft)	= 23.14
		EGL (ft)	= 0.89

(Sta, El, n)-(Sta, El, n)...

(-10.00, 100.87)-(2.00, 100.13, 0.013)-(10.00, 100.29, 0.013)-(32.00, 100.73, 0.020)-(42.00, 100.93, 0.020)



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Friday, Oct 19 2018

Glendale Avenue-Spillway Channel

Trapezoidal

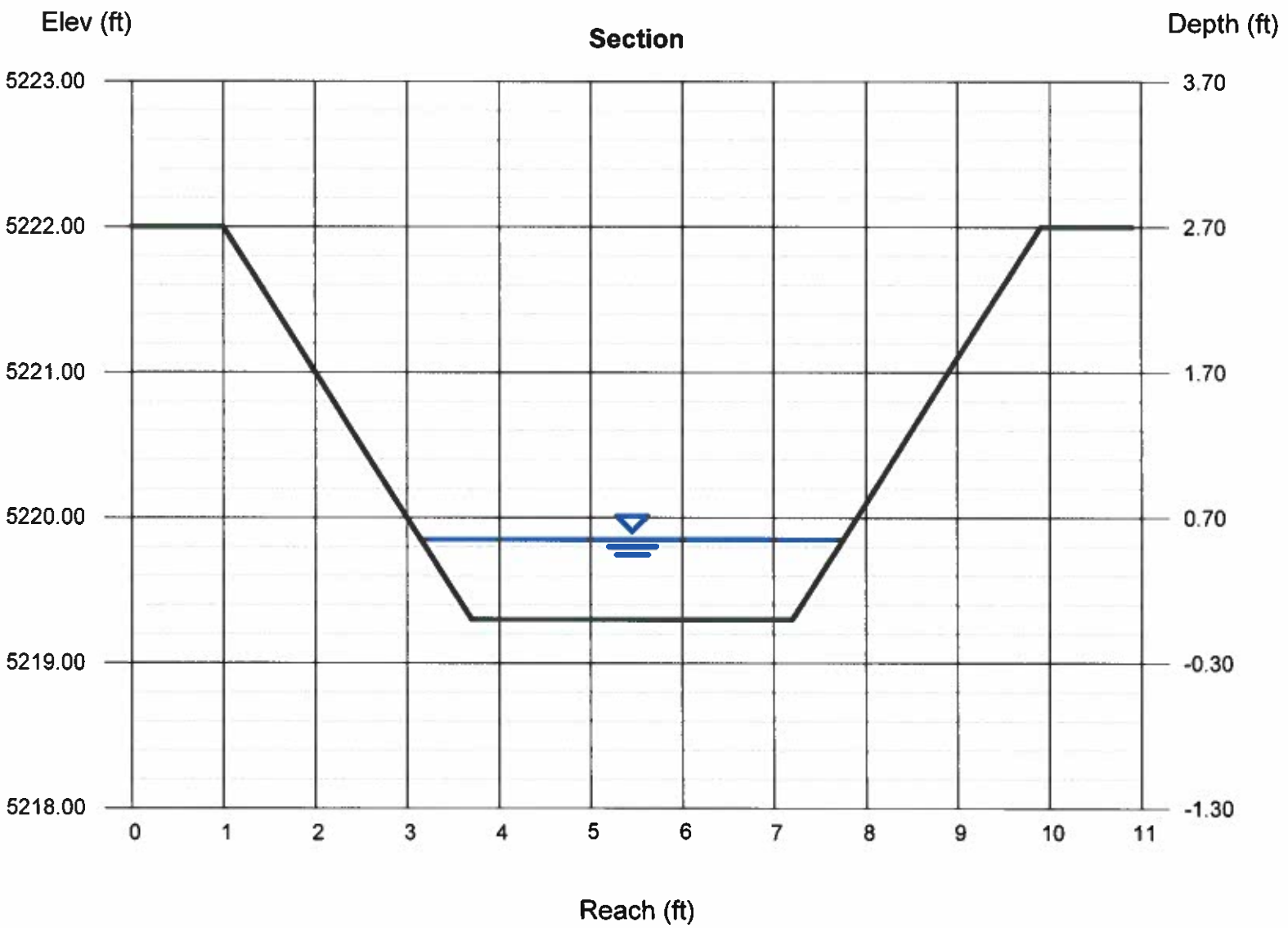
Bottom Width (ft)	= 3.50
Side Slopes (z:1)	= 1.00, 1.00
Total Depth (ft)	= 2.70
Invert Elev (ft)	= 5219.30
Slope (%)	= 5.20
N-Value	= 0.017

Calculations

Compute by:	Known Q
Known Q (cfs)	= 25.47

Highlighted

Depth (ft)	= 0.55
Q (cfs)	= 25.47
Area (sqft)	= 2.23
Velocity (ft/s)	= 11.43
Wetted Perim (ft)	= 5.06
Crit Depth, Yc (ft)	= 1.07
Top Width (ft)	= 4.60
EGL (ft)	= 2.58



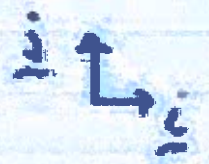
A boat travels at 7 km h^{-1} in the direction of the vector $-6\underset{\sim}{i}+8\underset{\sim}{j}$. Find the velocity of the boat.

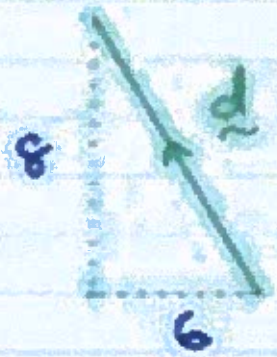
Let $\underset{\sim}{d} = -6\underset{\sim}{i} + 8\underset{\sim}{j}$

$\therefore |\underset{\sim}{d}| = \sqrt{6^2 + 8^2}$

$= \sqrt{100}$

$= 10$





$\therefore$ velocity $\underset{\sim}{v} = \frac{7}{10}(-6\underset{\sim}{i} + 8\underset{\sim}{j})$

$= -4.2\underset{\sim}{i} + 5.6\underset{\sim}{j}$

$$\text{velocity} = \frac{\text{speed}}{\text{magnitude of the direction vector}} \times \text{direction vector}$$

5:04 / 5:17

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4) - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =10/18/2018
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\TSEREN10R.DAT USER NO.= M-GoodwinNMSiteA90075759

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 = 1 NOTATION

*S**********
*S GLENDESTO SUBDIVISION
*S PROPOSED DRAINAGE CONDITIONS
*S 10 YEAR 6 HOUR STORM EVENT
*S FILE: TSERENA.DAT
*S LAST REVISED: 10-1-18
*S NOAA ATLAS 14, VOL IV ZONE B-18
START TIME= 0.00
LOCATION NEW MEXICO
RAINFALL TYPE= 1 NOAA 14 RAIN6= 1.550
*S**********
*S PROPOSED DRAINAGE CONDITIONS

13.46

COMPUTE NM HYD	201.00	-	1	0.00244	1.36	0.037	0.28291	1.532	0.870	PER IMP= 0.00
COMPUTE NM HYD	201.10	-	1	0.00071	1.01	0.039	1.02393	1.532	2.227	PER IMP= 72.00
COMPUTE NM HYD	201.20	-	1	0.00744	9.93	0.362	0.91073	1.532	2.085	PER IMP= 57.00
COMPUTE NM HYD	201.30	-	1	0.00162	0.57	0.017	0.19213	1.532	0.556	PER IMP= 0.00
COMPUTE NM HYD	201.40	-	1	0.00044	0.25	0.007	0.28291	1.532	0.880	PER IMP= 0.00
COMPUTE NM HYD	201.50	-	1	0.00041	0.59	0.022	1.02393	1.532	2.243	PER IMP= 72.00
COMPUTE NM HYD	201.60	-	1	0.00055	0.16	0.005	0.16008	1.532	0.453	PER IMP= 0.00
COMPUTE NM HYD	201.70	-	1	0.00091	1.02	0.035	0.72764	1.532	1.753	PER IMP= 40.00

FINISH

AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4) - Ver. S4.01a, Rel: 01a RUN DATE (MON/DAY/YR) =10/18/2018
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\TSERENAR.DAT USER NO.= M-GoodwinNMSiteA90075759

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 = 1 NOTATION

*S**********
*S GLENDESTO SUBDIVISION
*S PROPOSED DRAINAGE CONDITIONS
*S 100 YEAR 6 HOUR STORM EVENT
*S FILE: TSERENA.DAT
*S LAST REVISED: 10-18-18
*S NOAA ATLAS 14, VOL IV ZONE B-18
START TIME= 0.00
LOCATION NEW MEXICO
RAINFALL TYPE= 1 NOAA 14 RAIN6= 2.390
*S**********
*S PROPOSED DRAINAGE CONDITIONS

25.47

COMPUTE NM HYD	201.00	-	1	0.00244	3.52	0.101	0.77780	1.532	2.253	PER IMP= 0.00
COMPUTE NM HYD	201.10	-	1	0.00071	1.73	0.067	1.76552	1.532	3.805	PER IMP= 72.00
COMPUTE NM HYD	201.20	-	1	0.00744	17.27	0.641	1.61433	1.532	3.624	PER IMP= 57.00
COMPUTE NM HYD	201.30	-	1	0.00162	1.95	0.058	0.66685	1.532	1.881	PER IMP= 0.00
COMPUTE NM HYD	201.40	-	1	0.00044	0.64	0.018	0.77780	1.532	2.278	PER IMP= 0.00
COMPUTE NM HYD	201.50	-	1	0.00041	1.00	0.039	1.76552	1.532	3.832	PER IMP= 72.00
COMPUTE NM HYD	201.60	-	1	0.00055	0.62	0.018	0.63013	1.532	1.769	PER IMP= 0.00
COMPUTE NM HYD	201.70	-	1	0.00091	1.88	0.066	1.36298	1.532	3.231	PER IMP= 40.00

FINISH

```
*S************************************************************
*S                    GLENDESTO SUBDIVISION
*S                    PROPOSED DRAINAGE CONDITIONS
*S                    10 YEAR 6 HOUR STORM EVENT
*S                    FILE: TSERENA.DAT
*S                    LAST REVISED: 10-1-18
*S                    NOAA ATLAS 2, VOL IV ZONE B-18
START                 TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION              NEW MEXICO
RAINFALL              TYPE=1 RAIN QUARTER=0.0
                      RAIN ONE=1.12 IN RAIN SIX=1.55 IN
                      RAIN DAY=1.83 IN DT=0.0333 HRS
*S************************************************************
*S  PROPOSED DRAINAGE CONDITIONS
*** ********************
*** SUB BASINS 201.0
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.0 AREA= 0.002442 SQ MI
                      PER A=20  PER B=80  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.1
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.1 AREA= 0.000712 SQ MI
                      PER A=0  PER B=28  PER C=0  PER D=72
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.2
*** ONSITE SUB BASIN
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.2 AREA= 0.007444 SQ MI
                      PER A=0  PER B=21.5  PER C=21.5  PER D=57
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.3
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.3 AREA= 0.001617 SQ MI
                      PER A=78  PER B=22  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.4
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.4 AREA= 0.000439 SQ MI
                      PER A=20  PER B=80  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.5
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.5 AREA= 0.000409 SQ MI
                      PER A=0  PER B=28 PER C=0  PER D=72
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.6
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.6 AREA= 0.000545 SQ MI
                      PER A=100  PER B=0  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.7
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.7 AREA= 0.000909 SQ MI
                      PER A=25  PER B=0  PER C=35  PER D=40
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
FINISH
```

```
*S************************************************************
*S                    GLENDESTO SUBDIVISION
*S                    PROPOSED DRAINAGE CONDITIONS
*S                    100 YEAR 6 HOUR STORM EVENT
*S                    FILE: TSERENA.DAT
*S                    LAST REVISED: 10-18-18
*S                    NOAA ATLAS 2, VOL IV ZONE B-18
START                 TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION              NEW MEXICO
RAINFALL              TYPE=1 RAIN QUARTER=0.0
                      RAIN ONE=1.79 IN RAIN SIX=2.39 IN
                      RAIN DAY=2.72 IN DT=0.0333 HRS
*S************************************************************
*S  PROPOSED DRAINAGE CONDITIONS
*** ********************
*** SUB BASINS 201.0
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.0 AREA= 0.002442 SQ MI
                      PER A=20  PER B=80  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.1
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.1 AREA= 0.000712 SQ MI
                      PER A=0  PER B=28  PER C=0  PER D=72
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.2
*** ONSITE SUB BASIN
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.2 AREA= 0.007444 SQ MI
                      PER A=0  PER B=21.5  PER C=21.5  PER D=57
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.3
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.3 AREA= 0.001617 SQ MI
                      PER A=78  PER B=22  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.4
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.4 AREA= 0.000439 SQ MI
                      PER A=20  PER B=80  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.5
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.5 AREA= 0.000409 SQ MI
                      PER A=0  PER B=28 PER C=0  PER D=72
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.6
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.6 AREA= 0.000545 SQ MI
                      PER A=100  PER B=0  PER C=0  PER D=0
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
*** ********************
*** SUB BASINS 201.7
*** ********************
COMPUTE NM HYD        ID=1  HYD NO=201.7 AREA= 0.000909 SQ MI
                      PER A=25  PER B=0  PER C=35  PER D=40
                      TP=-.1333 HR  MASS RAIN=-1
PRINT HYD             ID=1 CODE=1
FINISH
```

TIERRA SERENA 10-18-18

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.170 (0.144-0.202)	0.221 (0.186-0.261)	0.296 (0.250-0.351)	0.355 (0.298-0.420)	0.437 (0.365-0.516)	0.501 (0.416-0.592)	0.569 (0.469-0.671)	0.640 (0.524-0.754)	0.737 (0.598-0.869)	0.814 (0.657-0.959)
10-min	0.259 (0.219-0.307)	0.335 (0.283-0.397)	0.451 (0.380-0.535)	0.541 (0.454-0.639)	0.664 (0.556-0.785)	0.762 (0.634-0.901)	0.865 (0.714-1.02)	0.974 (0.798-1.15)	1.12 (0.911-1.32)	1.24 (1.00-1.46)
15-min	0.321 (0.272-0.380)	0.416 (0.350-0.493)	0.559 (0.471-0.663)	0.670 (0.562-0.792)	0.823 (0.688-0.973)	0.945 (0.786-1.12)	1.07 (0.885-1.26)	1.21 (0.989-1.42)	1.39 (1.13-1.64)	1.54 (1.24-1.81)
30-min	0.432 (0.366-0.512)	0.560 (0.472-0.664)	0.753 (0.634-0.892)	0.902 (0.758-1.07)	1.11 (0.927-1.31)	1.27 (1.06-1.50)	1.44 (1.19-1.70)	1.63 (1.33-1.92)	1.87 (1.52-2.21)	2.07 (1.67-2.44)
60-min	0.534 (0.453-0.634)	0.693 (0.584-0.821)	0.932 (0.785-1.11)	1.12 (0.937-1.32)	1.37 (1.15-1.62)	1.57 (1.31-1.86)	1.79 (1.47-2.11)	2.01 (1.65-2.37)	2.32 (1.88-2.73)	2.56 (2.07-3.02)
2-hr	0.645 (0.533-0.800)	0.828 (0.683-1.03)	1.10 (0.903-1.36)	1.31 (1.08-1.61)	1.61 (1.31-1.98)	1.85 (1.50-2.27)	2.11 (1.70-2.58)	2.38 (1.90-2.90)	2.76 (2.18-3.37)	3.06 (2.40-3.74)
3-hr	0.690 (0.575-0.849)	0.877 (0.728-1.08)	1.15 (0.956-1.41)	1.37 (1.13-1.67)	1.67 (1.37-2.04)	1.92 (1.57-2.34)	2.18 (1.77-2.65)	2.46 (1.98-2.99)	2.84 (2.27-3.45)	3.16 (2.50-3.84)
6-hr	0.808 (0.679-0.987)	1.02 (0.858-1.25)	1.32 (1.11-1.60)	1.55 (1.30-1.88)	1.87 (1.56-2.27)	2.12 (1.76-2.57)	2.39 (1.97-2.89)	2.66 (2.18-3.21)	3.05 (2.47-3.67)	3.36 (2.70-4.05)
12-hr	0.894 (0.765-1.05)	1.13 (0.962-1.33)	1.43 (1.22-1.69)	1.67 (1.42-1.97)	1.99 (1.69-2.34)	2.24 (1.89-2.63)	2.51 (2.10-2.94)	2.77 (2.31-3.25)	3.14 (2.59-3.69)	3.44 (2.81-4.09)
24-hr	1.00 (0.870-1.17)	1.25 (1.09-1.46)	1.58 (1.37-1.83)	1.83 (1.59-2.13)	2.18 (1.87-2.52)	2.44 (2.09-2.83)	2.72 (2.32-3.14)	3.00 (2.55-3.47)	3.37 (2.85-3.90)	3.67 (3.09-4.25)
2-day	1.05 (0.917-1.21)	1.32 (1.15-1.51)	1.66 (1.44-1.90)	1.92 (1.67-2.19)	2.27 (1.97-2.60)	2.54 (2.19-2.91)	2.83 (2.43-3.23)	3.11 (2.66-3.56)	3.49 (2.97-4.01)	3.79 (3.20-4.35)
3-day	1.17 (1.05-1.30)	1.46 (1.31-1.63)	1.81 (1.62-2.01)	2.08 (1.86-2.31)	2.44 (2.18-2.72)	2.72 (2.42-3.03)	3.01 (2.67-3.34)	3.29 (2.91-3.66)	3.67 (3.23-4.09)	3.96 (3.46-4.42)
4-day	1.29 (1.15-1.44)	1.60 (1.47-1.74)	1.96 (1.80-2.13)	2.24 (2.05-2.43)	2.61 (2.40-2.84)	2.90 (2.65-3.15)	3.19 (2.91-3.46)	3.47 (3.16-3.76)	3.84 (3.48-4.18)	4.13 (3.72-4.49)
7-day	1.48 (1.36-1.60)	1.83 (1.68-1.98)	2.22 (2.05-2.40)	2.52 (2.33-2.73)	2.92 (2.70-3.15)	3.22 (2.96-3.46)	3.51 (3.23-3.78)	3.79 (3.48-4.08)	4.14 (3.80-4.47)	4.40 (4.03-4.75)
10-day	1.63 (1.50-1.76)	2.02 (1.86-2.18)	2.46 (2.28-2.66)	2.81 (2.60-3.03)	3.27 (3.02-3.52)	3.61 (3.33-3.89)	3.95 (3.64-4.25)	4.29 (3.94-4.61)	4.72 (4.32-5.06)	5.03 (4.59-5.42)
20-day	2.04 (1.88-2.21)	2.53 (2.33-2.74)	3.06 (2.83-3.31)	3.47 (3.20-3.74)	3.98 (3.67-4.29)	4.34 (4.00-4.68)	4.70 (4.32-5.05)	5.03 (4.62-5.40)	5.43 (4.99-5.85)	5.72 (5.25-6.16)
30-day	2.42 (2.24-2.62)	3.00 (2.77-3.24)	3.61 (3.33-3.88)	4.05 (3.74-4.35)	4.60 (4.24-4.93)	4.98 (4.60-5.34)	5.34 (4.93-5.73)	5.68 (5.23-6.08)	6.07 (5.59-6.51)	6.34 (5.84-6.80)
45-day	2.96 (2.74-3.19)	3.66 (3.39-3.94)	4.35 (4.03-4.67)	4.83 (4.48-5.18)	5.42 (5.03-5.80)	5.81 (5.39-6.22)	6.16 (5.72-6.58)	6.45 (6.00-6.89)	6.77 (6.31-7.22)	6.94 (6.50-7.39)
60-day	3.41 (3.16-3.68)	4.21 (3.91-4.54)	5.01 (4.66-5.39)	5.57 (5.18-5.99)	6.25 (5.81-6.71)	6.70 (6.24-7.19)	7.11 (6.63-7.63)	7.47 (6.97-8.01)	7.86 (7.35-8.43)	8.09 (7.58-8.66)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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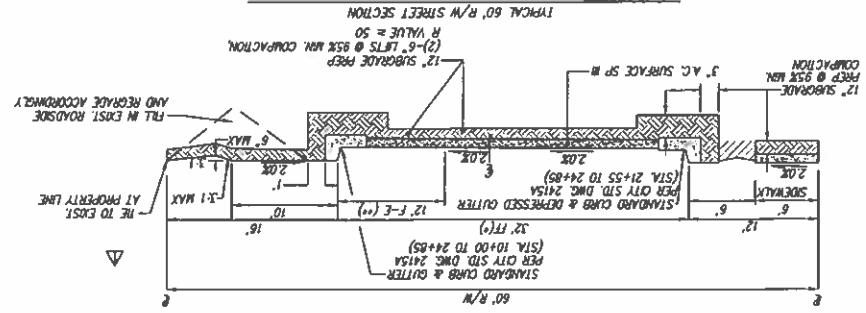
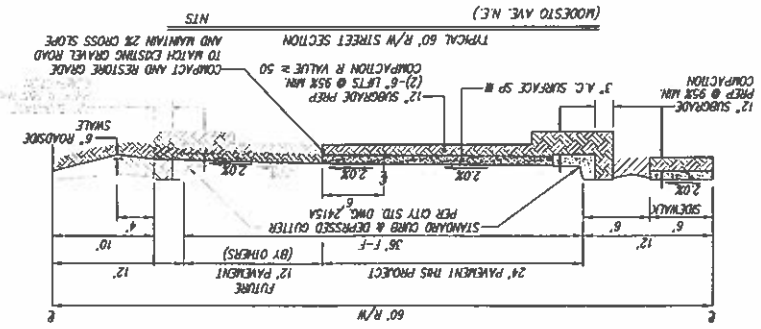
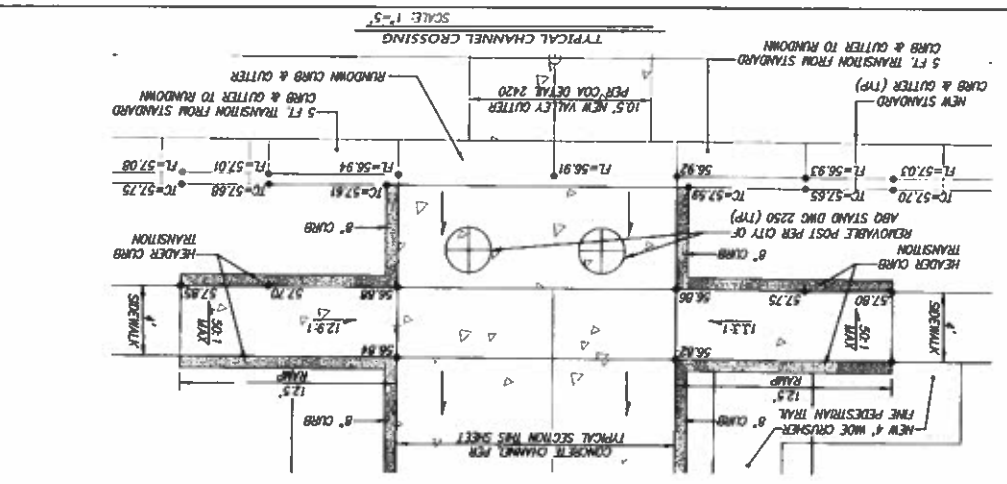
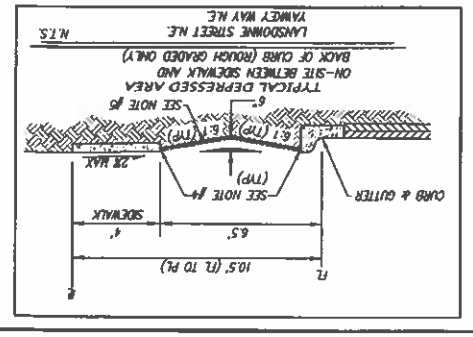


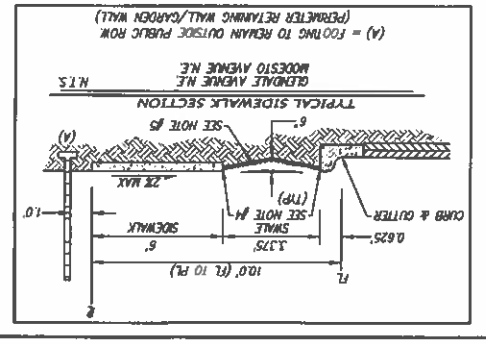


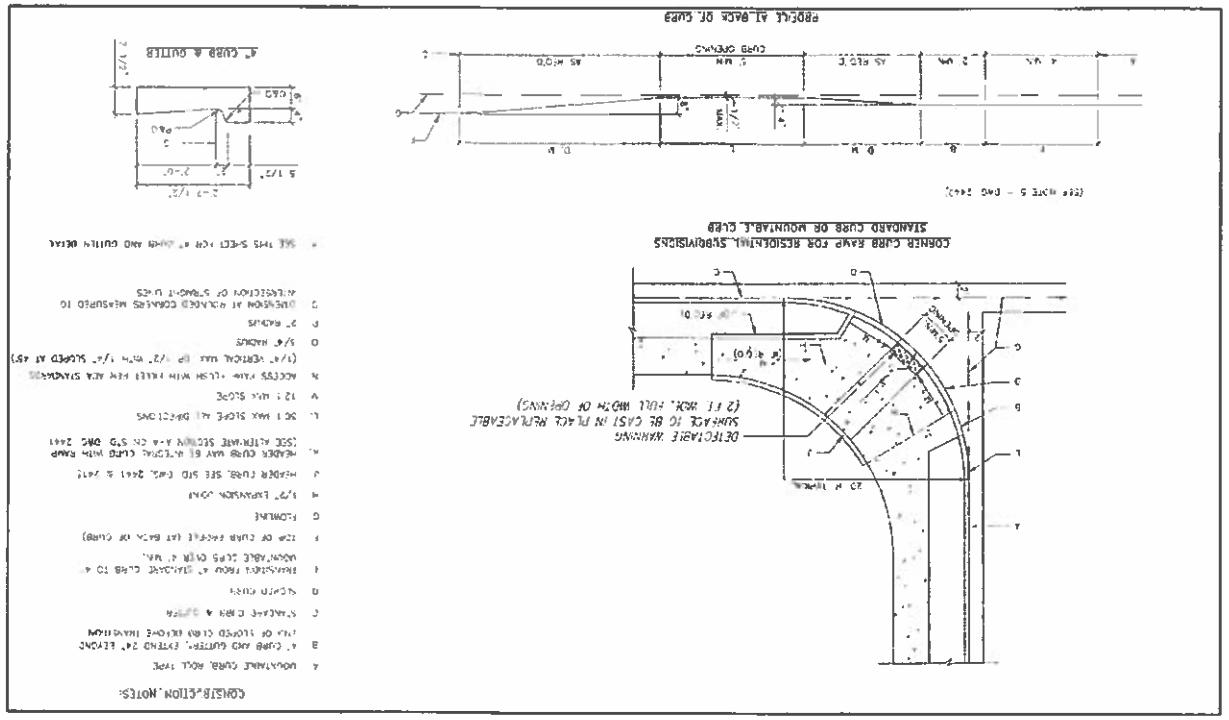


LANDSCAPE BUFFER NOTES:

1. Swale to be 6" deep when the distance between back of curb and the sidewalk is 5 feet.
2. Swale to be 1" deeper than the distance in feet between the back of curb and the sidewalk for landscape buffers different than 5 feet wide.
3. For wide landscape buffers, greater than 10 feet, the maximum depth is 10 inches.
4. Final grade of dirt is 1 to 2 inches below top of curb and top of sidewalk grade.
5. Surface between back of curb and sidewalk to be covered with gravel mulch (minimum ½"), cobbles or rip-rap. Do not fill entire swale.
6. A check dam will be required for swales on steeper longitudinal slopes and longer reaches. The engineer will determine the location.
7. Landscape fabric is recommended, but not required. Between the dirt and the stone. If landscape fabric is to be used it is to be permeable.
8. Detail 13 is to be built for all new construction. In the case where the sidewalk is existing and the landscape buffer is improved with landscaping and/or some form of erosion protection, this requirement does not apply.






PROFILE ALONG OF CURB
CURB OPENING
4" CURB & GUTTER
5 1/2"
2'-7 1/2"
2'-0"
6"
6" CURB
CONCRETE CURB RAMP FOR RESIDENTIAL SUBDIVISIONS
STANDARD CURB OR MOUNTABLE CURB
20' R. MIN.
R=10'
R=40'
DETECTABLE WARNING
SURFACE TO BE CAST IN PLACE REPLACEABLE
(2 FT. MIN. FULL WIDTH OF OPENING)
CONSIDERATIONS:
1. ALL THIS SHEET FOR 6" CURB AND GUTTER AND
4" CURB AND GUTTER OPTIONS.
2. ALL CURB RADII ARE 2' UNLESS OTHERWISE NOTED.
3. ALL CURB RADII ARE TO BE MEASURED TO THE
BACK OF CURB.
4. ALL CURB RADII ARE TO BE MEASURED TO THE
FACE OF CURB.
5. ALL CURB RADII ARE TO BE MEASURED TO THE
FLOWLINE OF CURB.
6. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP BACK OF CURB.
7. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP FACE OF CURB.
8. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP FLOWLINE OF CURB.
9. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP OF CURB.
10. ALL CURB RADII ARE TO BE MEASURED TO THE
BOTTOM OF CURB.
11. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP OF CURB.
12. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP OF CURB.
13. ALL CURB RADII ARE TO BE MEASURED TO THE
TOP OF CURB.

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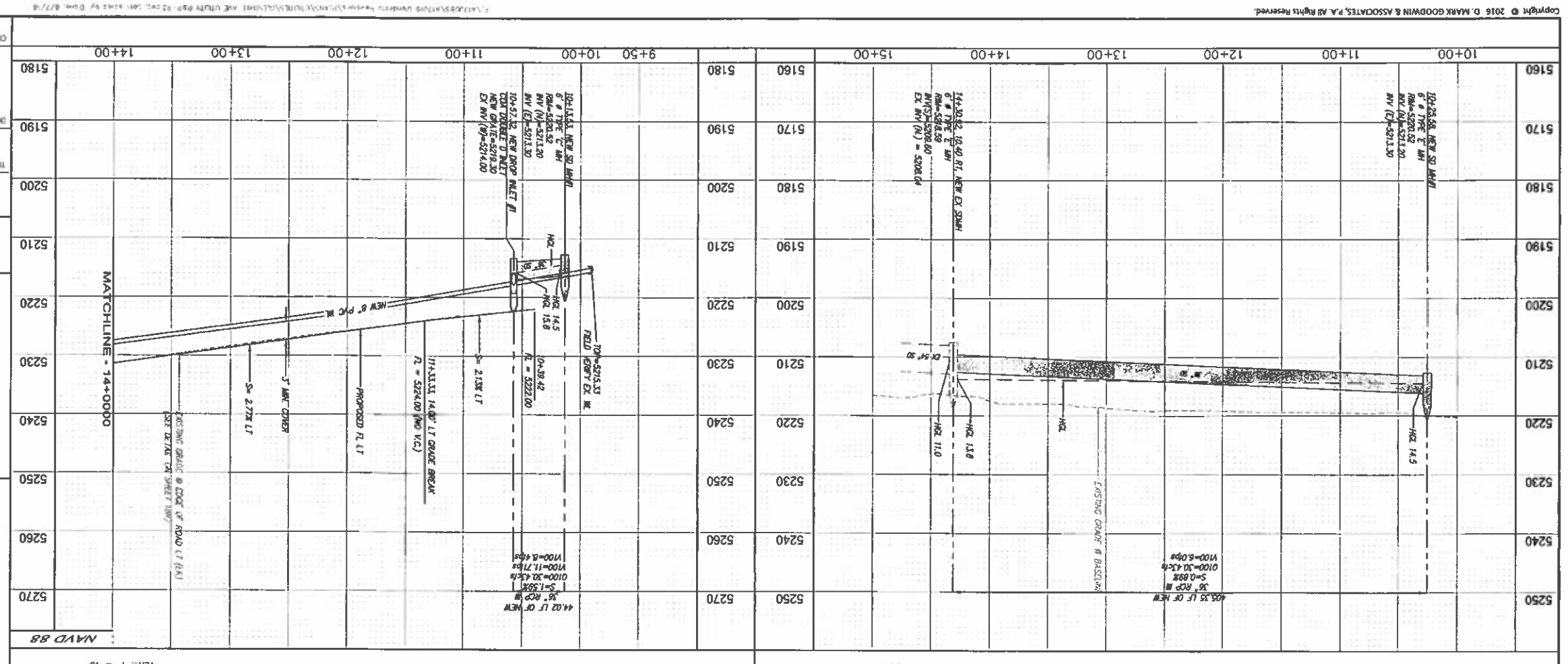

NOTES

1. ALL STATIONING IS BASED ON THE CENTERLINE OF RIGHT OF WAY.
2. INSTALL (MEDICHAR) CURB ACCESS RAMPS PER C.O.A. STD. DWG #2441 (CASE II).
3. THE BASIS FOR THE CENTERLINE OF THE ROADWAY IS THE FINAL PLAT, FOR THE SUBDIVISION.

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: GLENDESTO SUBDIVISION
SAN PEDRO & GLENDALE AVENUE NE.
UTILITY PLAN AND PROFILE

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN SUBMITTAL
NO. DATE/YR	NO. DATE/YR	

CITY PROJECT NO	ZONE MAP NO.	SHEET
671783	B-18-Z	17R 19

NO.	DATE	REVISIONS	BY
1	8/7/18	REVISED PAVING & STORM IN GLENDALE AVE	

DESIGNED BY WTB
DRAWN BY WTB
CHECKED BY DMG
DATE 07-17

ENGINEER'S SEAL
DIANE HOLLIZA ELLIOTT
NEW MEXICO 11987
10-15-18

SURVEY INFORMATION

FIELD NOTES BY	DATE	BENCH MARKS
		AGRS MONUMENT "10-C18"
		N=1524123.885
		E=1542955.263
		G=Do0.999695042
		Δα=-00°11'18.43"
		ELEVATION=5222.09
		CENTRAL ZONE
		(NAD83/NAVD88)

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
ACCEPTANCE BY	DATE
VERTICAL DATUM	DATE
HORIZONTAL DATUM	DATE
CORRECTED BY	DATE
MICRO-FILM INFORMATION	
MG CHANGE BY	DATE
MAP	

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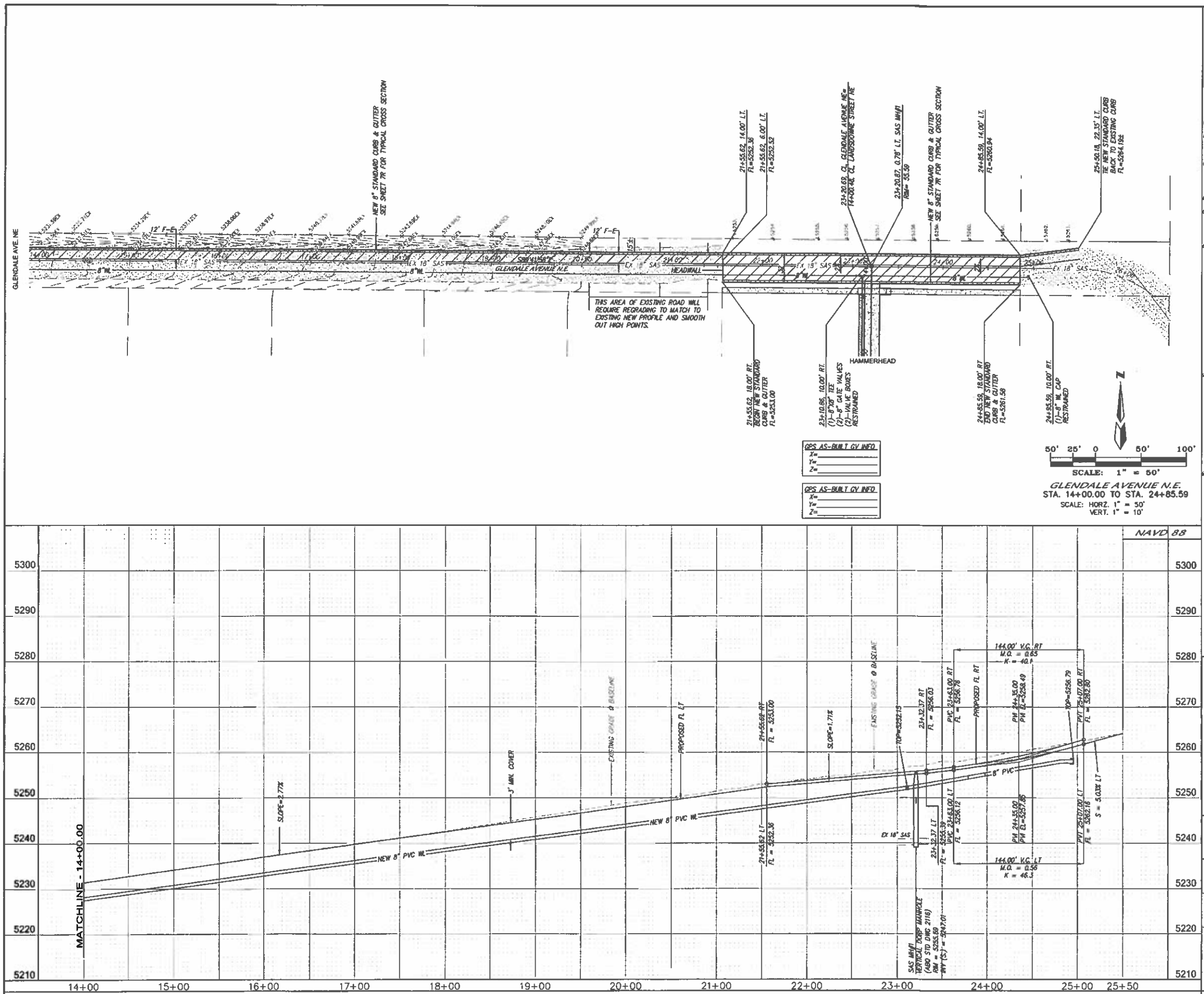

NOTES

1. ALL STATIONING IS BASED ON THE CENTERLINE OF RIGHT OF WAY.
2. INSTALL (WHEELCHAIR) CURB ACCESS RAMPS PER C.O.A. STD. DWG #2441 (CASE II).
3. THE BASIS FOR THE CENTERLINE OF THE ROADWAY IS THE FINAL PLAT, FOR THE SUBDIVISION.

SECTION 625 SHOTCRETE

625.1 GENERAL.

625.11 This work shall consist of construction of the shotcrete lining utilizing the shotcrete process, including mixing, placing, finishing, testing and curing as shown in the contract in compliance with these specifications.

625.12 The requirements of Section 510 - Portland Cement Concrete and Section 511 - Concrete Structures, of NMDOT Std specs for Highway & Bridge Construction, 2007 Edition, shall apply where appropriate and not expressly modified by these specifications. Fly Ash shall be used in all concrete and shotcrete per section 510.

625.2 MATERIALS

625.21 All requirements of Section 510 - Portland Cement Concrete shall apply except as modified herein. Shotcrete shall have a minimum compressive strength of 4,000 PSI at 28 days, 5-8% air content at the pump and a slump of 1-1/2" to 3" at the pump.

625.211 Shotcrete shall be tinted prior to placement. Tinted concrete will be made by the addition of an approved concrete coloring agent to the concrete mix. The coloring agent will be added in addition to other concrete ingredients and no reductions to other ingredients will be made.

The concrete coloring for use on this project shall be:

Davis Color or Approved Equal

	lbs/sack of cement	Color number
San Diego Buff	1 lb	

The design mixes must be submitted by the Contractor for approval by the Project Manager prior to placement.

Coordination with the General contractor, shotcrete subcontractor, AMAFCA Project Manager will be required prior to any shotcrete placement.

625.13 Coarse Aggregate. Coarse aggregate shall meet the following gradation requirements.

Sieve Size	Percent Passing
½ inch	100
3/8 inch	85-100
No. 4	10-30
No. 8	0-10
No. 16	0-5

625.16 Quality Acceptance Tests:

A minimum of three cores shall be taken for each 500 linear feet of channel. Cores shall be obtained and tested in accordance with ASTM C-42-90. One core shall be removed and tested at 7 days, one at 14 days, and one at 28 days. Minimum compression strengths shall be as follows:

7 day	14 day	28 day
2,400 PSI	3,000 PSI	4,000 PSI

If shotcrete cores at 28 days show deficient strength additional cores shall be taken at the contractor's expense from adjacent areas. Two cores shall be required for each deficient core. Should either additional core prove deficient, the deficient shotcrete shall be removed and replaced at the Contractor's expense. No additional shotcreting shall be done until the shotcrete mixture is revised and approved by the Project Manager.

Should a strength deficiency be evident in 7-day or 14-day cores, no approval of Project Manager, the Contractor may proceed with the work on his own responsibility until the 28 day cores are tested. These cores shall also be used for determining shotcrete thickness.

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

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

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY: DATE
WORK ACCEPTANCE BY: DATE
FIELD REVISIONS BY: DATE
DRAWINGS CORRECTED BY: DATE

MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

BENCH MARKS
AGRS MONUMENT "10-C16" N=1524123.885 E=1542565.263 C-O=0.999655042 Bgs=-07°11'19.43" ELEVATION=5222.09 CENTRAL ZONE (NAD83/NAVD88)

SURVEY INFORMATION
FIELD NOTES BY DATE NO.

ENGINEER'S SEAL
DUANE HOELLER NEW MEXICO 11867 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
1	8/7/18	REVISED PAVING & STORM IN GLENDALE AVE	

DESIGNED BY WTB DATE 7/17
DRAWN BY WTB DATE 07/17
CHECKED BY DMG DATE 07/17

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: GLENDESTO SUBDIVISION
GLENDALE AVENUE N.E.
UTILITY PLAN AND PROFILE

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

CITY PROJECT NO. 677183 | ZONE MAP NO. B-18-Z | SHEET 18R OF 19

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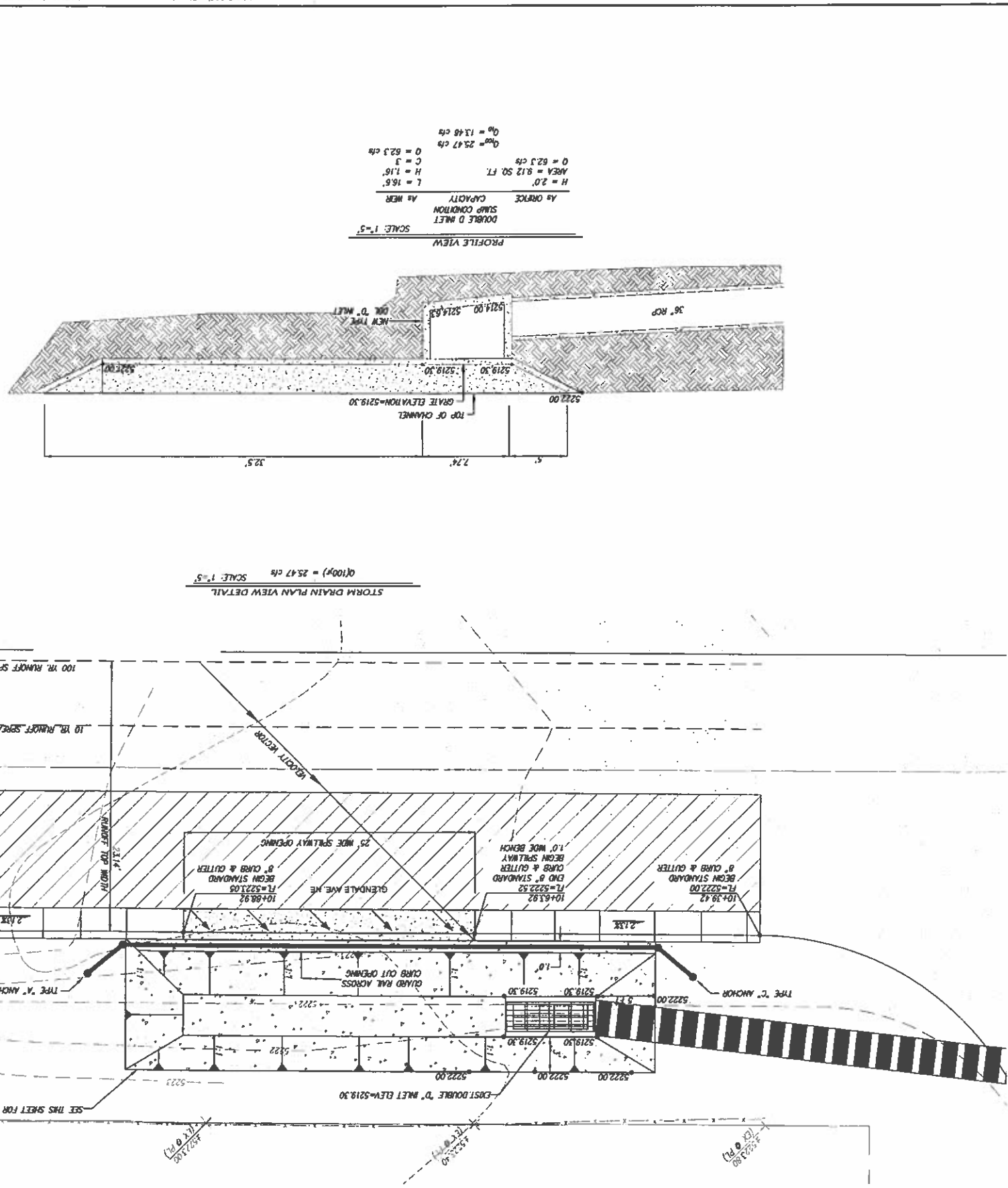

NOTES

1. ALL STATIONING IS BASED ON THE CENTERLINE OF ROADWAY.
2. INSTALL (WHEELCHAIR) CURB ACCESS RAMPS PER C.O.A. STD. DWG #2441 (CASE B).
3. CONCRETE CHANNEL PER COA STD DTS 2260 AND 2261.

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

NO	DATE	REVISIONS / REMARKS	BY
1	8/7/18	REVISED PAVING & STORM IN GLENDALE AVE	

DESIGNED BY: WTB — DATE: 7/17
DRAWN BY: WTB — DATE: 07/17
CHECKED BY: DMG — DATE: 07/17

ENGINEER'S SEAL
DIANE HOLLERAN
NEW MEXICO
10-5-18

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

GLENDALE SUBDIVISION
GLENDALE AVENUE NE
UTILITY PLAN AND PROFILE

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

CITY PROJECT NO. 671783 — ZONE MAP NO. B-18-Z — SHEET 19R OF 19

SURVEY INFORMATION

FIELD NOTES BY: — DATE: "10-C18"

BENCH MARKS

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E=1542563.263	
(FIELD ELEVATION)	DATE
G=GeoID99665042	
(GRAVITY CORRECTED)	DATE
Δαz=-0°11'18.43"	
ELEVATION=5222.09	
CENTRAL ZONE (NAD83/NAVD88)	

MICRO-FILM INFORMATION

RECORDED BY — DATE — NO

AS BUILT INFORMATION

CONTRACTOR — DATE
WORK STAKED BY — DATE
ACCEPTANCE BY — DATE
FIELD ELEVATION BY — DATE
DRAWINGS CORRECTED BY — DATE