CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

April 7, 2017

James D. Hughes, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, NM, 87199

RE: Juan Tabo Hills Estates
Drainage Report- Onsite Drainage Analysis, Volume 1 of 3, Addendum 1 (HGL)
Stamp Date: 3/8/2017
Hydrology File- M21D018; DRB# 1005278; CoA Project# 654887

Dear Mr. Hughes:

Based upon the information provided in your submittal received 3/16/17, the Drainage Report cannot be approved for Work Order for construction of the subdivision public improvements as shown in Project# 654887 until the following comments are addressed:

1. The outfall structure from the storm water quality pond into the Tijeras Arroyo needs to be designed and reflected in this report. This outfall will need to include a water quality feature to trap floatables in the pond and comply with AMAFCA's requirements to be protective of the shotcrete scour wall. The current design, as stated in section 4.1 does not explain how floatables are trapped. Plans for this structure may be included in the Work order Set for either Project# 654886 or 654887.

2. Include clarifying language that the berm for the storm water quality pond does not meet the NMOSE's minimum height and storage criteria to be considered a jurisdictional dam.

3. In Section 5, the HGL is stated to be belowground everywhere, however the plans appear to have two areas where the HGL daylights:
   a. The first is at the hammerhead at the south terminus of Cougar Run (SDMH-29). Surcharging here will require a pressure manhole and confirmation that the lowest adjacent house remains 1 foot above the HGL.
   b. The second area is in the open space between Blue Ribbon and Sandia Sunset. Several grates appear to surcharge (Inlets 68, 73, and 72). These should be tack welded to prevent theft; this will also resolve surcharging concerns.

   Please verify the HGL against the proposed grades as shown in plans and update Section 5 and the design accordingly.

4. The HGL's, velocities, and storm drain slopes (Appendixes 2-11) do not match those reported on the work order plans (Project# 654887). This was noted along the main trunk under Sandia Sunset, but is also apparent in other areas. Resolve these discrepancies to reflect the correct design.

Since the submittal of this Drainage Report on 3/16/17, the following actions have been taken:

- FEMA has approved the CLOMR
- The ESC has been submitted and approved
- The Floodplain Permit has been submitted and approved
- USACE has concurred that the project (within their jurisdiction) is allowed to proceed
- The Grading and Drainage Plan has been approved for Preliminary Plat and Grading Permit.
- Work Order Sets for the bank protection features (Project# 654886) and the subdivision public improvements (Project# 654887) are in DRC, but are not yet approved.

Please inform Mr. Rudy Rael at 924-3977 prior to commencing work in the floodplain. If you have any questions, you can contact me at 924-3695.

Sincerely,

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

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Orig: Drainage File

1706

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Juan Tabo Hills West Building Permit #: City Drainage #: M-21D018

DRB#: 1005278 EPC#: 1001370 Work Order#: 654885

Legal Description: Tract A Juan Tabo Hills West/Tract 1-A-1 Juan Tabo Hills Unit 2

City Address: Juan Tabo and Tijeras Arroyo

Engineering Firm: Mark Goodwin & Associates, PA Contact: Doug Hughes

Address: PO BOX 90606, Albuquerque, NM 87199

Phone#: 505-828-2200 Fax#: E-mail: doug@goodwinengineers.com

Owner: Eastland Development, Inc. Contact: Rex Wilson

Address: PO BOX 9470, Albuquerque, NM 87119

Phone#: 505-899-6768 Fax#: E-mail: rwr2d2@aol.com

Architect: Contact:

Address:

Phone#: Fax#: E-mail:

Other Contact: Aldrich Land Surveying Contact: Tim Aldrich

Address: PO BOX 30701, Albuquerque, NM 87190

Phone#: 505-328-3988 Fax#: E-mail: tim.aldrich@comcast.net

Check all that Apply:

DEPARTMENT:

x_____ 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)

X_____ OTHER (SPECIFY) Design Calcs for DRC Plans

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
X_____ OTHER (SPECIFY) DRC

IS THIS A RESUBMITTAL?: _____ Yes ______ No

DATE SUBMITTED: March 16, 2017 By: Doug Hughes, PE

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

Juan Tabo Hills Estates
Onsite Drainage Analysis Report
Volume 1 of 3
Addendum 1 (HGL)

JAMES D. HUGHES
11674

James D. Hughes

3-8-2017

Prepared For:

Eastside Development Inc.LC
P.O. Box 9470
Albuquerque, NM 87119
(505) 899-6768

Prepared By:

Mark Goodwin & Associates, PA
PO BOX 90606
Albuquerque, NM 87199
(505) 828-2200

Contents

Appendencies

1. Inlet Control Nomograph
2. Rocky Top Drive HGL
3. Galant Fox HGL
4. Blue Ribbon HGL
5. Silver Dollar HGL
6. Hubbard HGL
7. Duke City HGL (North of Sandia Sunset Ave)
8. Duke City HGL (South of Sandia Sunset Ave)
9. Tract K HGL (JB to SWQ Pond)
10. Running Bear Ave HGL
11. Manzano Vista HGL
12. Map - HGL Cross Section Plan
13. P&P Sheets
14. Rip Rap

1. Purpose & Scope of Report

The purpose of this addendum is to provide detailed hydraulic design calculations of the storm drain for the Infrastructure Plan approval of the Juan Tabo Hills Estates subdivision. The Juan Tabo Hills Estates Onsite Drainage Report Volume 1 of 3 with engineer's stamp dated 2-10-2016 was approved by City Hydrology in a letter written on Feb. 24, 2016. At that time the preliminary storm drain pipe sizes were based on Manning's equation and the pipe slope. The final storm drain pipe sizes as determined by the calculations in this addendum are based on detailed hydraulic analysis. The HGL is shown on the construction plan and profile sheets as it has been calculated using the WSPGW software. See Volume 1 for hydrology, street, and inlet design calculations. The capacities of streets and interception of inlets on grade were included in Volume 1 and have not changed. This addendum also provides the depth of ponding calculations for sump inlets.

2. Other Reports and Approvals

The Juan Tabo Hills Estates project site covers an area of 78 acres. The site was annexed into the City of Albuquerque (COA) in 2007. The Preliminary Plat was approved by the City of Albuquerque Development Review Board on Feb. 24, 2016 and was granted a one year extension by the DRB on Jan 25, 2017.The approved preliminary plat shows the proposed development of about 350 single family residential lots with all public streets and several HOA tracts for landscaping and trails. An Amended G&D plan with engineer's stamp dated Jan. 26, 2017 shows the same streets and storm drain but shows fewer lots. The city hydrology department approved the Amended G&D Plan in a letter that was written on Feb 23, 2017 with the condition that these detailed calculations be provided prior to construction plan approval.

Due to the nature of this site, the project also requires bank protection of the Tijeras Arroyo, a CLOMR and a 404 Permit. These are addressed in separate volumes of this Drainage Analysis Report as listed below:

- *Volume 2: Bank Protection.* This volume addresses the bank protection to prevent lateral migration of the Tijeras Arroyo. A one sheet Preliminary Tijeras Arroyo Bank Protection plan with engineer's stamp dated 3-24-2016 was distributed at the time of preliminary plat approval and contains the scour depth calculations and other design parameters used for the final design of the shotcrete bank protection.
- *Volume 3: CLOMR.* This volume addresses the fill to remove the FEMA floodplain from within the development. The CLOMR was written by FEMA on Nov. 14, 2016 Case No. 16-06-2447R.
- A Pre-Construction Notification was turned into the USACE and the NMED on June 21, 2016 for use of NWPs 7 and 13 (Outfall Structures and Bank Stabilization) as authorized under sections 404 and 401 of the Clean Water Act. The USACE letter dated July 22, 2016 verified that the activities are authorized and assigned Action No. SPA-2012-00299-ABQ.

3. Vicinity Map & Legal Description

Figure 1 below shows the location of the project site. The site is located on Zone Atlas Map M-21.

Legal Description: *Tract of land situated within Sections 33 and 34, Township 10 North, Range 4 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being all of TRACT A, JUAN TABO HILLS WEST, as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on June 14, 2007 in Book 2007C, Page 161 and TRACT 1-A-1, JUAN TABO HILLS, UNIT 2, as the same is shown and designated on said plat filed for record in the office of County Clerk of Bernalillo County, New Mexico on February 20, 2008 in Book 2008C, Page 30.*

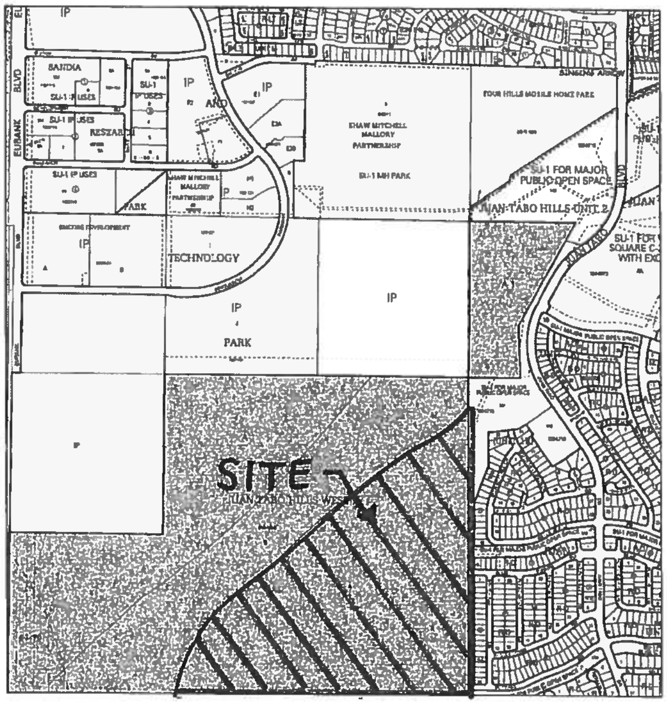

Figure 1: Vicinity Map

4. Storm Drain Changes

The storm drains were changed in three places because of these more detailed design considerations.

1. The outfall pipe from the SWQ pond at the south end of the project changed from 48" to 72" RCP.
2. The outfall pipe just north of Sandia Sunset Ave. changed from a single 96" to double 84" RCP.
3. The storm drain in Rocky Top Drive has been moved farther away from the trunk SAS in response to DRC comments from ABCWUA.

4.1 Cougar Run Outfall

Originally it looked like there was a lot of fall from Cougar Run to the Tijeras Arroyo so it had been anticipated that the first flush volume would be split at SD-MH 31 and discharged into the SWQ pond and then when the pond filled up the pond backwater would cause the peak 100-year flow to bypass the first flush diversion and continue in the 48" pipe to the Tijeras Arroyo outfall. There is not as much fall as originally thought so now all the flow, both first flush and 100-year peak flow rate, will go into the pond in the 48" storm drain from SD-MH 31 and it will pond to the SWQ elevation = 5391.25. A 10' x 10' outlet box will provide a 36' long weir with a crest elevation = 5391.30 and the peak 100-year stage in the pond is determined by the weir equation as follows.

$Q=3.0 \times 36' \times h^{3/2}$
Where $Q_{100}=198.21$ cfs
$H=1.50'$
So, the peak 100-year stage is 5392.80.

It is customary to provide an emergency overflow spillway sized to discharge the 100-year peak rate of flow entering the pond, and since this 10' x 10' box is sized for that flow rate, an additional spillway is not provided. The Dam top elevation is 5395.00 thus allowing 2.2' of freeboard.

The hydraulic capacity of the 72" pipe is checked using "Headwater Depth for Concrete Pipe Culverts with Inlet Control" nomograph (See Appendix 1) to make sure that it does not cause a headwater elevation higher than the weir equation above.

From the nomograph HW/D= 0.93 for "Groove end with headwall"
so HW= 6' x 0.93 = 5.58'

Where the invert of the pipe out of the box is 5385.0, the HGL at the upstream end of the 72" RCP is 5390.58, well below the weir crest. So, the 72" RCP is more than adequate to handle the 100-year peak rate of flow.

4.2 Sandia Sunset Outfall & Junction Box

The Junction Box on the 84" storm drain located north of Sandia Sunset is designed to divert the First Flush flow rate of 35.37 cfs south in the 30" RCP without overtopping the weir/wall inside the box. The top of wall elevation was set equal to the Headwater elevation as determined by the "Headwater Depth for Concrete Pipe Culverts with Inlet Control" nomograph (See Appendix 1)

From the nomograph HW/D= 1.4 for "Groove end with headwall"
so HW= 2.5' x 1.40 = 3.50'

Where the invert of the 30" RCP is 5405.50, the headwater elevation is 5409.00 and the top of the wall elevation is 5409.10. The wall is 30.5' long and forms a weir that is modeled in the WSPGW software. The reason that the outfall had to be changed to double 84" RCPs is that there is not enough fall through the Junction box to reaccelerate the flow after the incoming

velocity of 30 fps is slowed down by the weir to 7 fps. The pipe flow velocity of 1060.85 cfs is 21 fps in a 96" RCP and 14 fps in the double 84" RCP, a difference of about 4' velocity head, and there is not enough fall to accommodate that loss.
The 30" RCP diversion pipe cannot handle much more flow than the 35.37 cfs First Flush flow rate so that is the flow used in the HGL calculations for the storm drain between the Junction Box and the SWQ pond. The nomograph in appendix 1 was used to check the maximum flow that could be expected in the 30" RCP based on the 100-year HGL of the Sandia Sunset storm drain (5416.59) and inlet control at the 30" RCP the maximum flow would be 85 cfs, but the more limiting condition is backwater in the downstream pipe as given by manning's and the pipe slope as 72 cfs.

5. HGL Calculations

The hydraulic grade line is shown on profile view of the construction plan and profile sheets in Appendix 13, where it may be easily observed that the HGL is below finished grade everywhere. The WSPGW output files are in Appendixes 2 thru 11, and a map showing the stations used in the WSPGW models is in appendix 12.

6. Rip-Rap Design

Plate 3.18-3 in Appendix 13 is used to determine Rip-rap size. Two rip-rap stilling basins are to be constructed at the outlet of the two pipe penetrations. The length and width of the basins is typically equal to 4 times the pipe diameter and the depression of the basins is equal to half the pipe diameter.

Location	Q_{100} (cfs)	D (in)	W & L (ft)	B (ft)	D_{50} (ft)	Rip-rap Type
Sandia Sunset Ave	530 x 2	84	28	3.5	1.5	H
Cougar Run St	190	72	16	2	1.5	H

7. Sump Inlet Calculations

The following table summarizes the sump inlet calculations. All the sump inlets are provided with an emergency overflow, either by overtopping a street water block or by overtopping the curb and draining thru the HOA park to the arroyo. So, the inlets are sized to pass the peak 100-year flow rate while containing the ponding water in the right of way. Note that the lowest right of way elevation is typically 0.2' or more above the top of curb.

Inlet Summary Table

Inlet #	Street Name	Type	Grate Area (SF)	Grate Perimeter (FT)	Q100 (CFS)	Orifice depth(1) (FT)	Weir Depth(2) (FT)	Top of Curb Elevation	100-YR Water Surface Elev. at Sump(3)(4)	Overflow Crest Elevation	Emergency Overflow Depth	Emergency Overflow Elevation	Lowest Adjacent Pad Elevation
45	Rocky Top	Double 'A' DG, ST	17.38	14.80	26.13	0.10	0.70	5423.39	5423.55	5423.61	0.49	5424.10	5434.10
46	Rocky Top	Double 'A' DG, ST	17.38	14.80	26.13	0.10	0.70	5423.39	5423.55	5423.61			
13	Sandia Sunset	Single 'A'	8.69	11.50	0.48	0.00	0.06	5412.83	5412.35	5412.39	0.66	5413.05	5416.90
12	Sandia Sunset	Double 'A' DG, DT	17.38	18.50	26.50	0.10	0.61	5412.29	5412.36	5412.39			
S7	Rock Squirrel	Single 'A'	8.69	11.50	14.00	0.11	0.55	5409.49	5409.50	5409.70	0.40	5410.10	5412.60
S6	Rock Squirrel	5'x5' NMDOT	18.88	15.00	23.70	0.07	0.65	5409.38	5409.49	5409.70			
7	Lobo Trot	Single 'A'	8.69	11.50	6.58	0.02	0.33	5412.87	5412.66	5412.68	0.52	5413.20	5413.43
8	Lobo Trot	Single 'A'	8.69	11.50	6.58	0.02	0.33	5412.71	5412.50	5412.68			
68	Sandia Sunset	10'x5' NMDOT	37.76	25.00	17.05	0.01	0.37	5450.97	5450.80	5451.07	0.45	5451.52	5452.19
1	Silver Dollar	Single 'A'	8.69	11.50	12.62	0.09	0.51	5450.90	5450.87	5450.95	0.67	5451.62	5452.80
2	Silver Dollar	Single 'A'	8.69	11.50	13.00	0.10	0.52	5450.88	5450.86	5450.95			
3	Hubbard	Single 'A'	8.69	11.50	8.20	0.04	0.38	5444.11	5443.95	5444.15	0.59	5444.74	5445.80
4	Hubbard	Single 'A'	8.69	11.50	11.80	0.08	0.49	5444.01	5443.96	5444.15			
16a	Duke City	Single 'A'	8.69	11.50	0.00	0.00	0.00	5435.24	5434.70	5435.05	0.75	5435.80	5436.40
17	Duke City	Double 'A' DG, DT	17.38	18.50	27.22	0.11	0.62	5434.54	5434.62	5434.65			
18	Duke City	Double 'A' DG, DT	17.38	18.50	17.80	0.05	0.47	5433.04	5432.97	N/A	N/A	N/A	5434.40
19	Duke City	Double 'A' DG, DT	17.38	18.50	17.80	0.05	0.47	5433.05	5432.98	N/A	N/A	N/A	
23	Cougar Run	Double 'A' DG, DT	17.38	18.50	19.61	0.05	0.50	5396.82	5396.78	5396.82	0.53	5397.35	5499.40
23	Cougar Run	Double 'A' DG, DT	17.38	18.50	19.61	0.05	0.50	5396.82	5396.78	5396.82			
30	Cougar Run	5'x5' NMDOT	18.88	20.00	19.61	0.05	0.47	5396.82	5396.75	5396.82			

1) Orifice Equation $Q = 0.6\ A\ (2gh)^{0.5}$ so $h=(Q/.6/A)^2/2/g$

2) Weir Equation $Q = 3\ L\ h^{3/2}$ so $h= (Q/3/L)^{2/3}$

3) The orifice equation is used in accordance with FHA HEC-22, and the height is added to the center of the grate elevation which is 0.72' below the top of curb elevation.

4) The weir equation uses the length and height at the lip of gutter.The lip of gutter elevation is 0.54' below the top of curb and the effective length is = 2 x (Width of Grate) + (Length of curb opening)

5) The Area is calculated by "Hydraulic Tool Box 4.2" in accordance with Federal Highway Administration HEC-22 3rd eddition, Rev Aug., 2013 The effective length is more conservatively calculated.

6) Inlets 45, 46, S6, S7, 23, 24 & 30 have emergency overflow paths over the top of curb and thru the adjacent HOA Tract to the Tijeras Arroyo. Depth is calculated as a 50' wide weir with 3.0 coeficient.

7) The 100 year flow rate at inlets 18 and 19 is doubled because the inlets do not have an overflow path.

8) The rest of the sump inlets have emergency overflow path thru the waterblock at the adjacent intersection and contunue down the public street. Critical depth is assumed.

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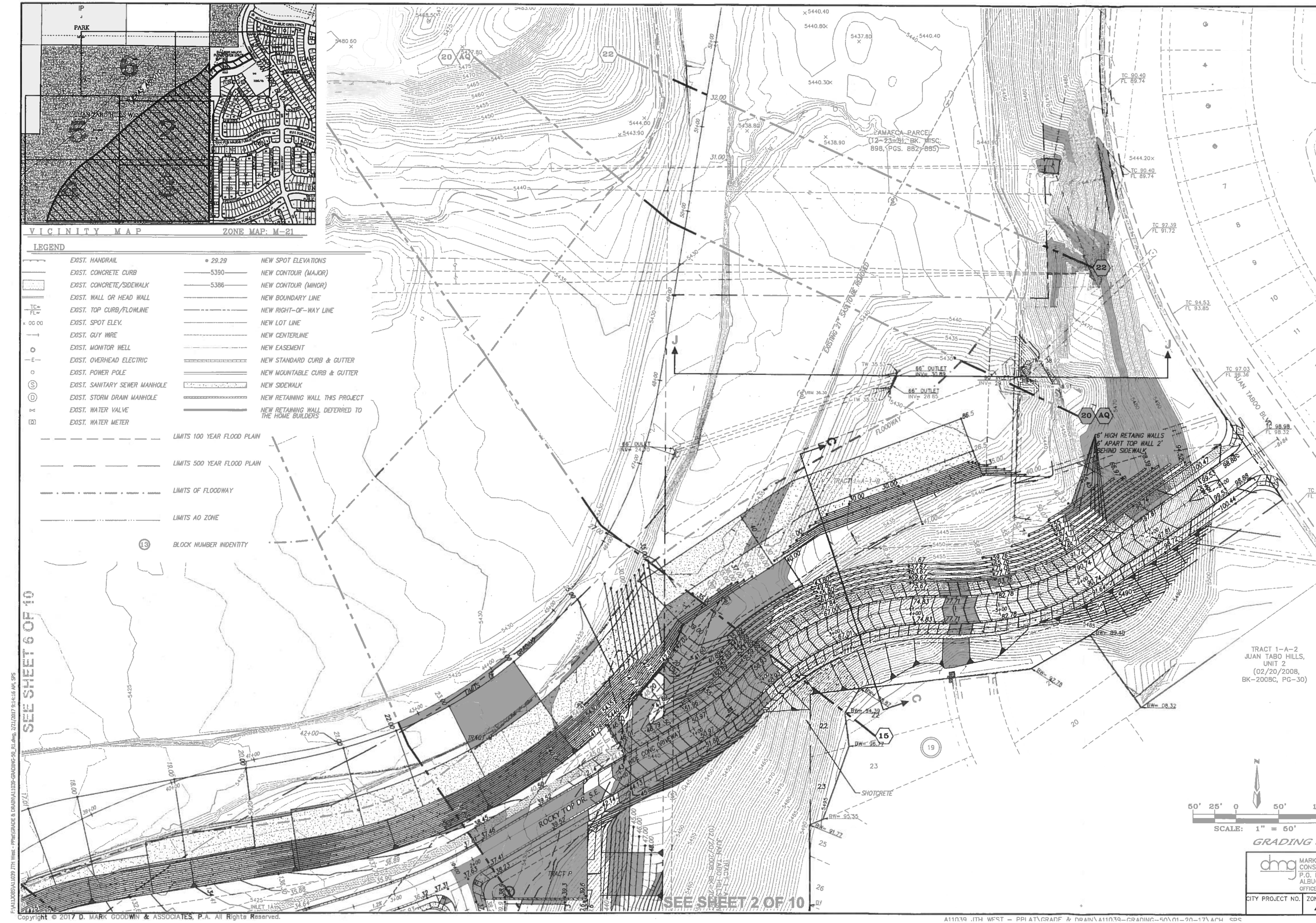


VICINITY MAP ZONE MAP: M-21

LEGEND

	EXIST. HANDRAIL	• 29.29	NEW SPOT ELEVATIONS
	EXIST. CONCRETE CURB	—5390—	NEW CONTOUR (MAJOR)
	EXIST. CONCRETE/SIDEWALK	—5386—	NEW CONTOUR (MINOR)
	EXIST. WALL OR HEAD WALL		NEW BOUNDARY LINE
TC= FL=	EXIST. TOP CURB/FLOWLINE		NEW RIGHT-OF-WAY LINE
× 00.00	EXIST. SPOT ELEV.		NEW LOT LINE
→	EXIST. GUY WIRE		NEW CENTERLINE
○	EXIST. MONITOR WELL		NEW EASEMENT
—E—	EXIST. OVERHEAD ELECTRIC		NEW STANDARD CURB & GUTTER
○	EXIST. POWER POLE		NEW MOUNTABLE CURB & GUTTER
Ⓢ	EXIST. SANITARY SEWER MANHOLE		NEW SIDEWALK
Ⓓ	EXIST. STORM DRAIN MANHOLE		NEW RETAINING WALL THIS PROJECT
⋈	EXIST. WATER VALVE		NEW RETAINING WALL DEFERRED TO THE HOME BUILDERS
	EXIST. WATER METER		

LIMITS 100 YEAR FLOOD PLAIN

LIMITS 500 YEAR FLOOD PLAIN

LIMITS OF FLOODWAY

LIMITS AO ZONE

⑬ BLOCK NUMBER INDENTITY

AS BUILT INFORMATION

CONTRACTOR
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

MICRO-FILM INFORMATION

RECORDED BY DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".

Y= 1,564,263.207 X= 1,475,762.595 (NAD 83) Z= 5597.219 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES NEW MEXICO 11574 REGISTERED PROFESSIONAL ENGINEER

2-21-2017

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

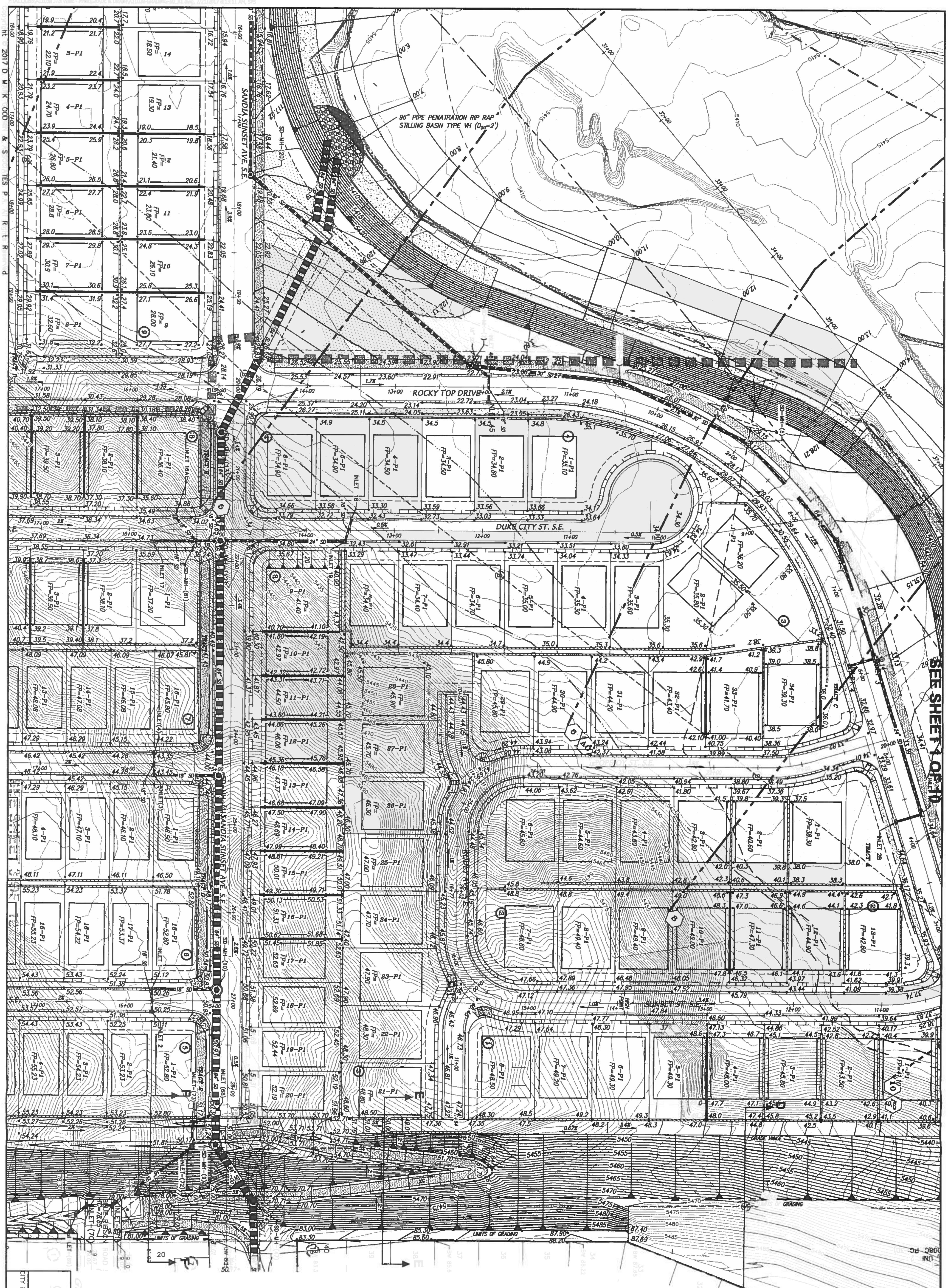
DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

GRADING & DRAINAGE PLAN

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	M-21-Z	1	10

A11039 JTH WEST - PPLAT\GRADE & DRAIN\A11039-GRADING-50\01-20-17\ACH SPS



CITY PROJECT NO.

ZONE MAP NO. M-21-Z

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

GRADING & DRAINAGE PLAN

SCALE: 1" = 50'

SHEET 2 OF 10

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

ENGINEER'S SEAL

JAMES D. HUGHES

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

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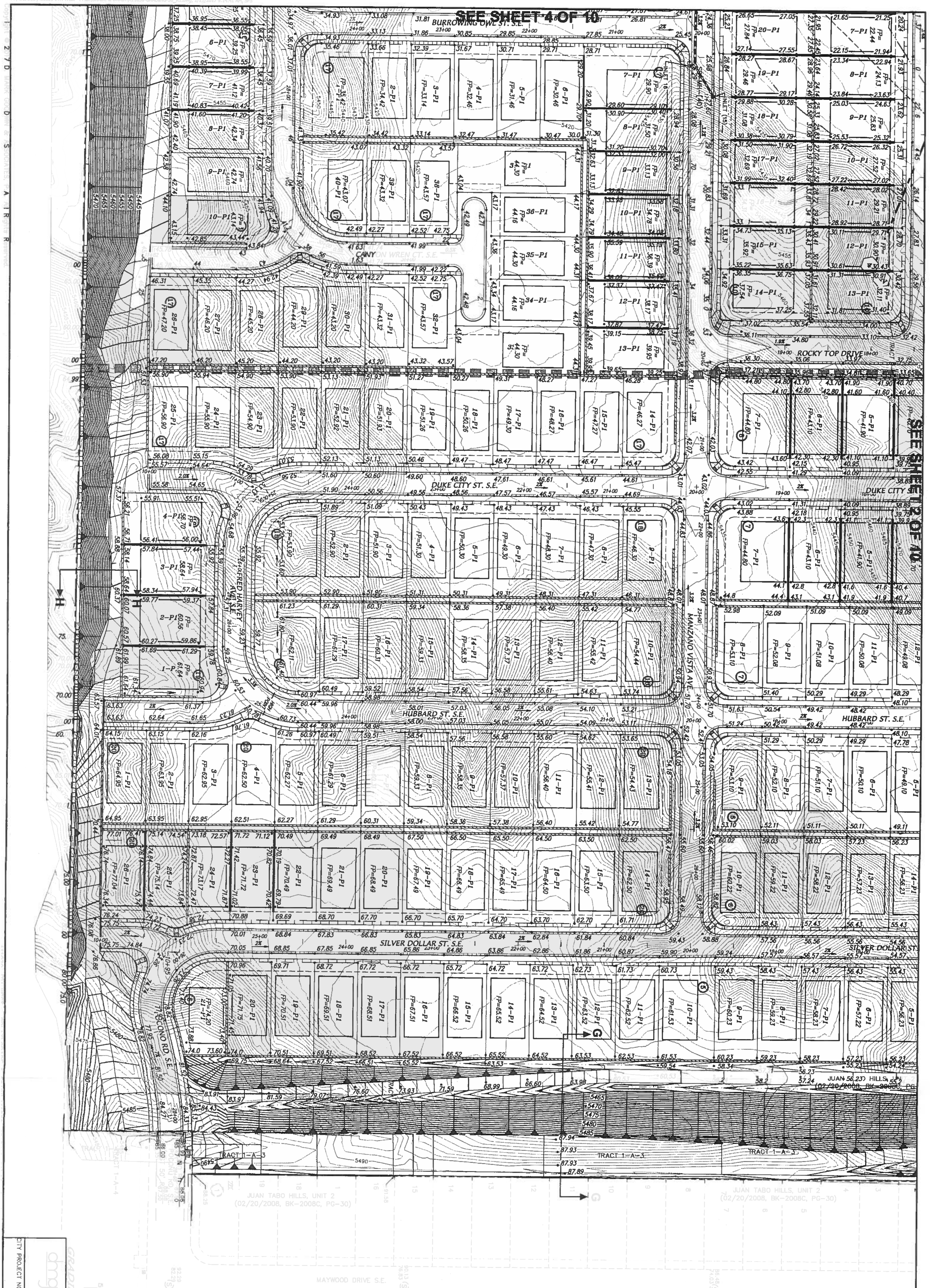
AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION



NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
2-21-2017

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

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AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

GRADING & DRAINAGE PLAN

SCALE: 1" = 50'

50' 25' 0 50' 100'

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

CITY PROJECT NO.

ZONE MAP NO. M-21-Z

SHEET 3 OF 10

F:\A11JOBS\A11039 JTH West - PPlat\GRADE & DRAIN\A11039-GRADING-50_R1.dwg, 2/21/2017 8:39:36 AM, SPS

A11 39 TH WEST PPLAT\GRADE & DRAIN\A11039-GRADING-50\01-20-17\ACH, SPS

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SCALE: 1" = 50'
50' 25' 0 50' 100'

GRADING & DRAINAGE PLAN

CITY PROJECT NO.
ZONE MAP NO. M-21-Z
SHEET 4 OF 10

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
19094
REGISTERED PROFESSIONAL ENGINEER

2-21-17

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".

X= 1,564,263.207 Y= 1,475,762.595 (NAD 83) Z= 5597.219 (NAVD 1988)

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY DATE

User ID: doug, Date/Time: 3/10/2017 3:21 PM, Document Name: 2017-02-21 Amended G&D.pdf

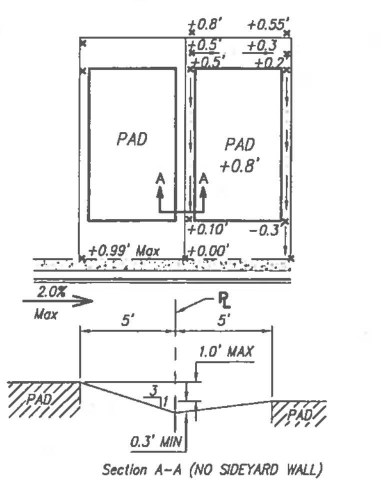
GRADING NOTES:

1. THE CONTRACTOR(S) MUST COMPLY WITH NPDES TEMPORARY CONSTRUCTION REQUIREMENTS AND OBTAIN A PERMIT. CONTRACTOR SHALL ALSO PROVIDE A COPY OF THE APPLICATION FOR PERMIT AND NOTICE OF TERMINATION TO THE OWNER.
2. THE CONTRACTOR(S) IS RESPONSIBLE FOR PREPARING AND MAINTAINING A SWPPP FOR THE DURATION OF INFRASTRUCTURE CONSTRUCTION AND UNTIL THE CITY OF ALBUQUERQUE ACCEPTS THE PUBLIC INFRASTRUCTURE. CONTRACTOR SHALL PROVIDE THE OWNER WITH A COPY OF THE SWPPP AT THE BEGINNING OF THE PROJECT AND AT THE TIME OF NOTICE OF TERMINATION.
3. THE CONTRACTOR(S) IS RESPONSIBLE FOR CONSTRUCTING AND MAINTAINING EROSION CONTROLS FOR THE DURATION OF THE CONSTRUCTION OF THE PUBLIC INFRASTRUCTURE AND FOR THE REMOVAL OF THE EROSION CONTROLS WHERE DIRECTED TO DO SO BY THE OWNER AT THE TIME OF NOTICE OF TERMINATION.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION STAKING AND IS TO PROVIDE AN AS-BUILT SURVEY CERTIFIED BY A REGISTERED PROFESSIONAL SURVEYOR TO THE OWNER UPON COMPLETION OF THE CONSTRUCTION. THE EARTHWORK CONTRACTOR IS TO PROVIDE EARTHWORK SURVEY, AND THE WALL BUILDER IS TO PROVIDE WALL SURVEY.
5. EARTHWORK CONTRACTOR SHALL PREPARE ROUGH SUBGRADE FOR THE RETAINING WALL CONSTRUCTION AND PROVIDE SUFFICIENT BACKFILL MATERIAL STOCKPILED ON THE HIGH SIDE OF EACH WALL FOR THE WALL BUILDER TO COMPLETELY BACKFILL THE WALLS.
6. RETAINING WALLS ARE SHOWN FOR GRADING PURPOSES ONLY. RETAINING WALL DESIGN IS TO BE PERFORMED BY OTHERS, AND SHALL BE SUBMITTED TO THE CITY OF ALBUQUERQUE FOR REVIEW, APPROVAL, PERMIT, AND INSPECTION
7. EARTHWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION BY GEOTEST, INC. DATED JUNE 29, 2012.
8. TOPOGRAPHIC AND BOUNDARY SURVEY ARE BY ALDRICH LAND SURVEYING NOVEMBER 2011.
9. BENCHMARK USED IS AGRS BRASS CAP STAMPED "7-M21" HAVING AN ELEVATION OF 5498.07 (NGVD29).
10. FEMA SPECIAL FLOOD HAZARD ZONE ON THIS PROPERTY AS SHOWN ON LOMR CASE NO. 13-06-1053P EFFECTIVE JUNE 17, 2013.

FLOOD PLAIN LEGEND

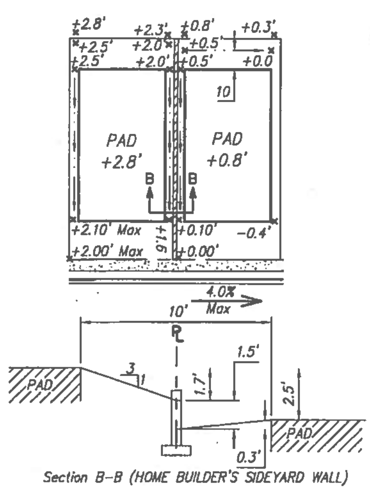
— — — — — — — —	LIMITS 100 YEAR FLOOD PLAIN
—— —— —— ——	LIMITS 500 YEAR FLOOD PLAIN
—·—·—·—·—	LIMITS OF FLOODWAY
————————	LIMITS AO ZONE

TYPICAL LOT GRADING W/O SIDEYARD WALL



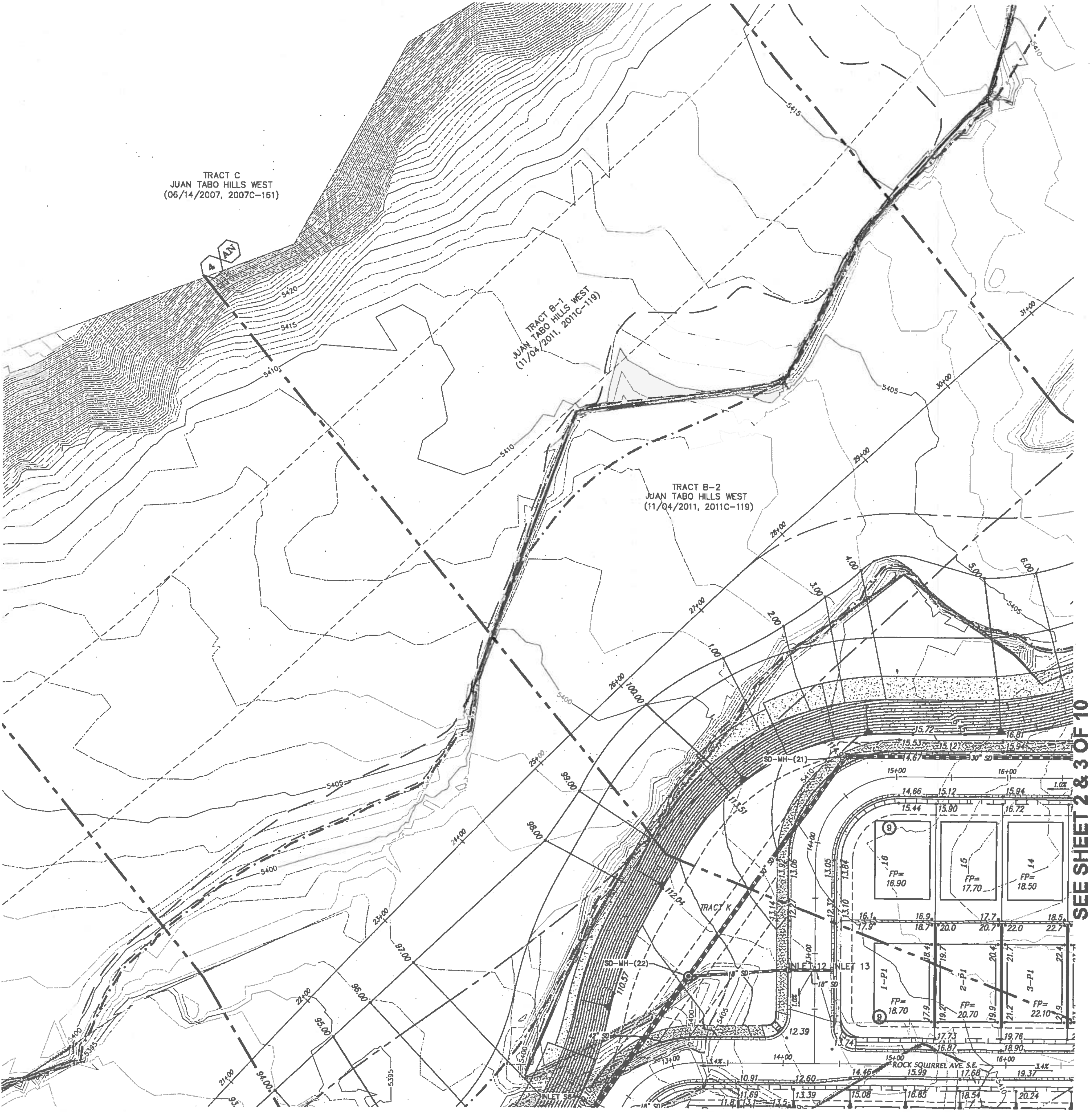
Section A-A (NO SIDEYARD WALL)

TYPICAL LOT GRADING WITH SIDEYARD WALL



Section B-B (HOME BUILDER'S SIDEYARD WALL)

SEE SHEET 6 OF 10



SEE SHEET 2 & 3 OF 10

SEE SHEET 4 OF 10

N

50' 25' 0 50' 100'

SCALE: 1" = 50'

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".

X= 1,564,263.207 Y= 1,475,762.595 (NAD 83) Z= 5597.210 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
10874
REGISTERED PROFESSIONAL ENGINEER

2-21-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

GRADING & DRAINAGE PLAN

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

CITY PROJECT NO	ZONE MAP NO.	SHEET OF
	M-21-Z	5 10

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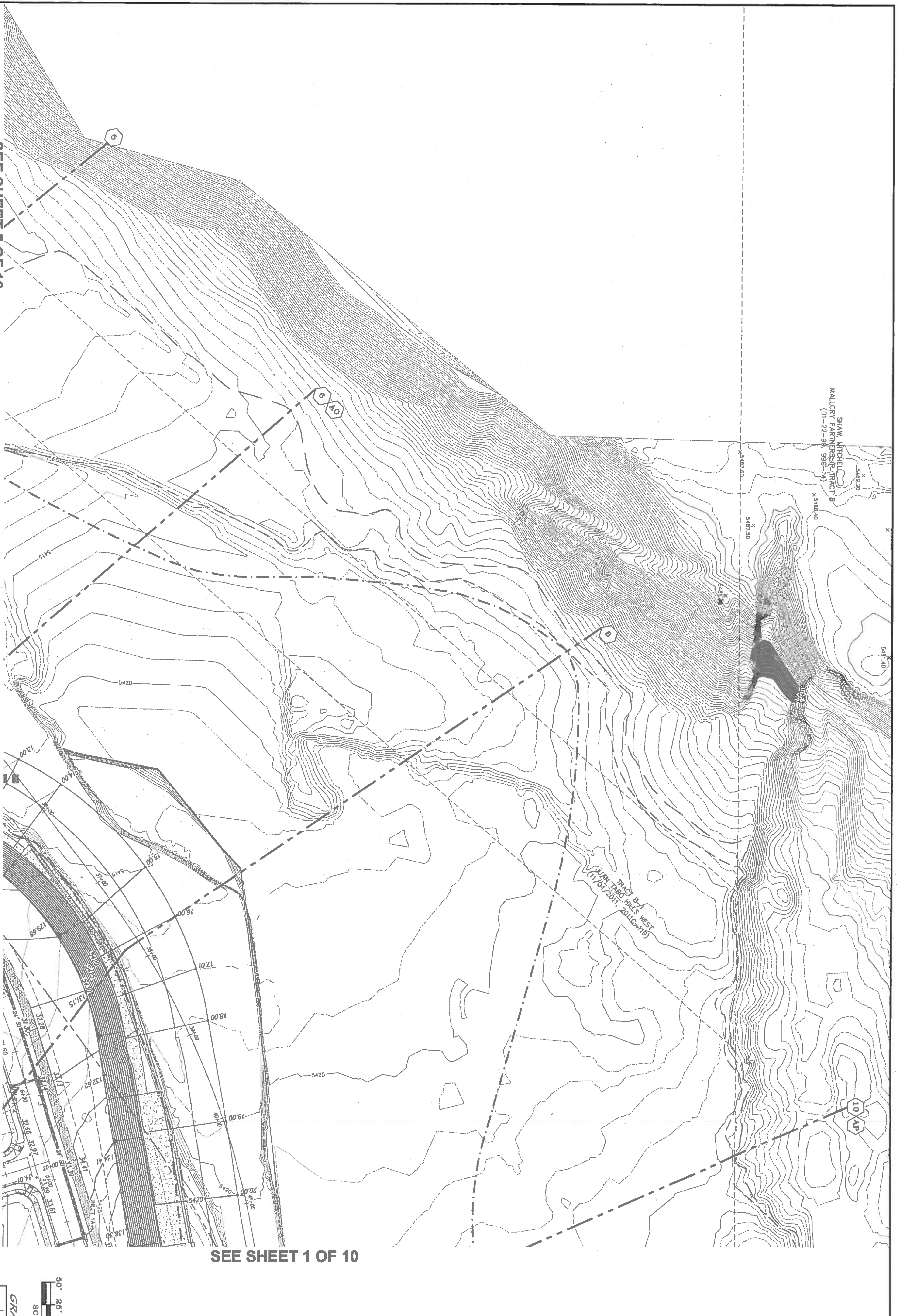

SCALE: 1" = 50'

50' 25' 0 50' 100'

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GRADING & DRAINAGE PLAN

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CITY PROJECT NO.	ZONE MAP NO.	SHEET OF
	M-21-Z	6 OF 10

NO.	DATE	REMARKS	BY
REVISIONS			
DESIGN			
DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
2-22-2017

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

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AS BUILT INFORMATION

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INSPECTOR'S ACCEPTANCE BY	DATE
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MICRO-FILM INFORMATION

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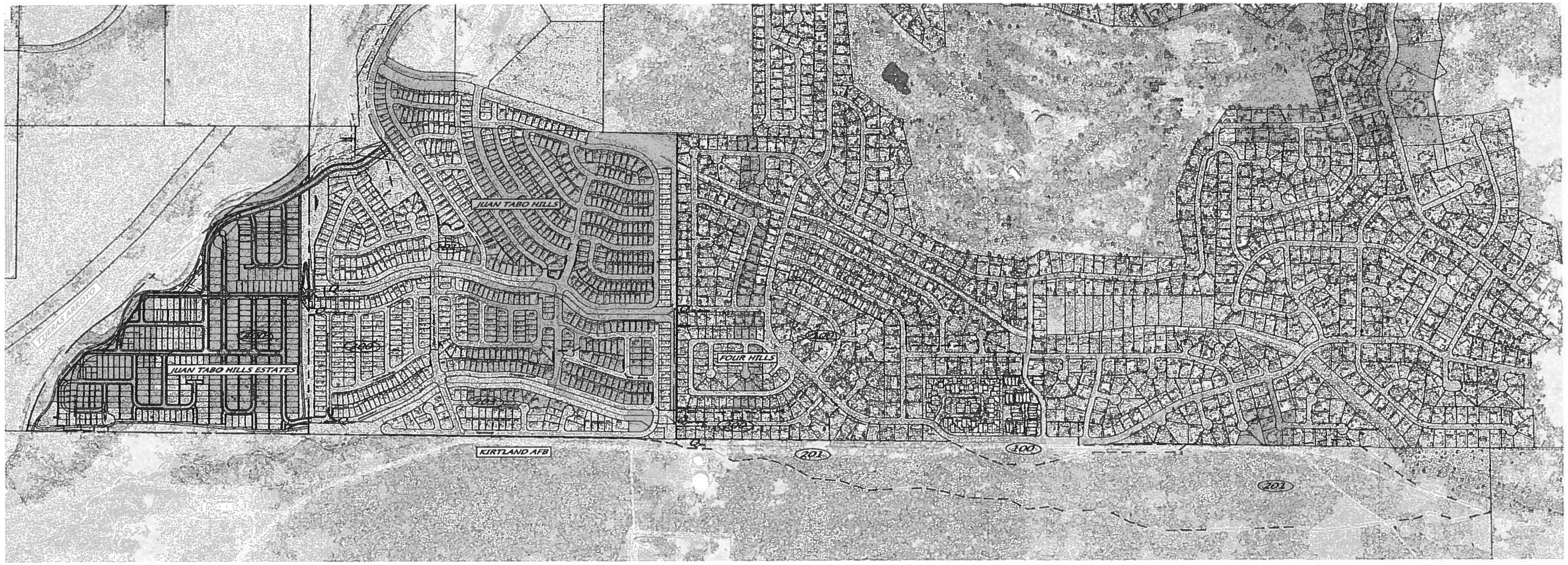

Table 1: HYDROLOGY SUMMARY TABLE

AHYMO BASIN ID	Location	AREA		Ground Cover (%)				Q_{100} (cfs)	Water Quality Volume (Ac-Ft)	
		(Ac)	(Sq mi)	A	B	C	D	Increment	Increment	Sub Total
100	Four Hills	89.10	0.13922	8	18	35	38.7	328.22	1.3218	1.3218
101	Juan Tabo Hills	66.80	0.10438	0	19	39	42	282.50	1.0755	1.0755
200	Four Hills	9.00	0.01406	0	20	40	40	37.61	0.1380	1.4598
201	Kirtland	78.30	0.01828	100	0	0	0	27.64	0.0000	0.0000
203	Juan Tabo Hills	42.50	0.06641	0	22	45	33	172.59	0.5376	1.6131
300	Juan Tabo Hills	22.30	0.03484	0	14	29	57	99.75	0.4873	2.1004
400	JTH Estates	77.70	0.12141	0	9	41	50	343.61	1.4893	1.4893
TOTALS:		383.70	0.50					1291.92		5.05

LEGEND

— — —	AHYMO BASIN BOUNDARY
——	SUB-BASIN BOUNDARY
	NEW RCP STORM DRAIN
(400)	AHYMO BASIN NUMBER

N

500' 250' 0 500' 1000'

SCALE: 1" = 500'

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
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MICRO-FILM INFORMATION

NO.

BENCH MARKS

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SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
1-26-2017

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17

JUAN TABO HILLS ESTATE

DRAINAGE BASIN MAP

dmg MARK GOODWIN & ASSOCIATES, P.A.
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OFFICE (505) 828-2200, FAX (505) 797-953

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	M-21-Z	7	1

HYDROLOGY SUMMARY TABLE

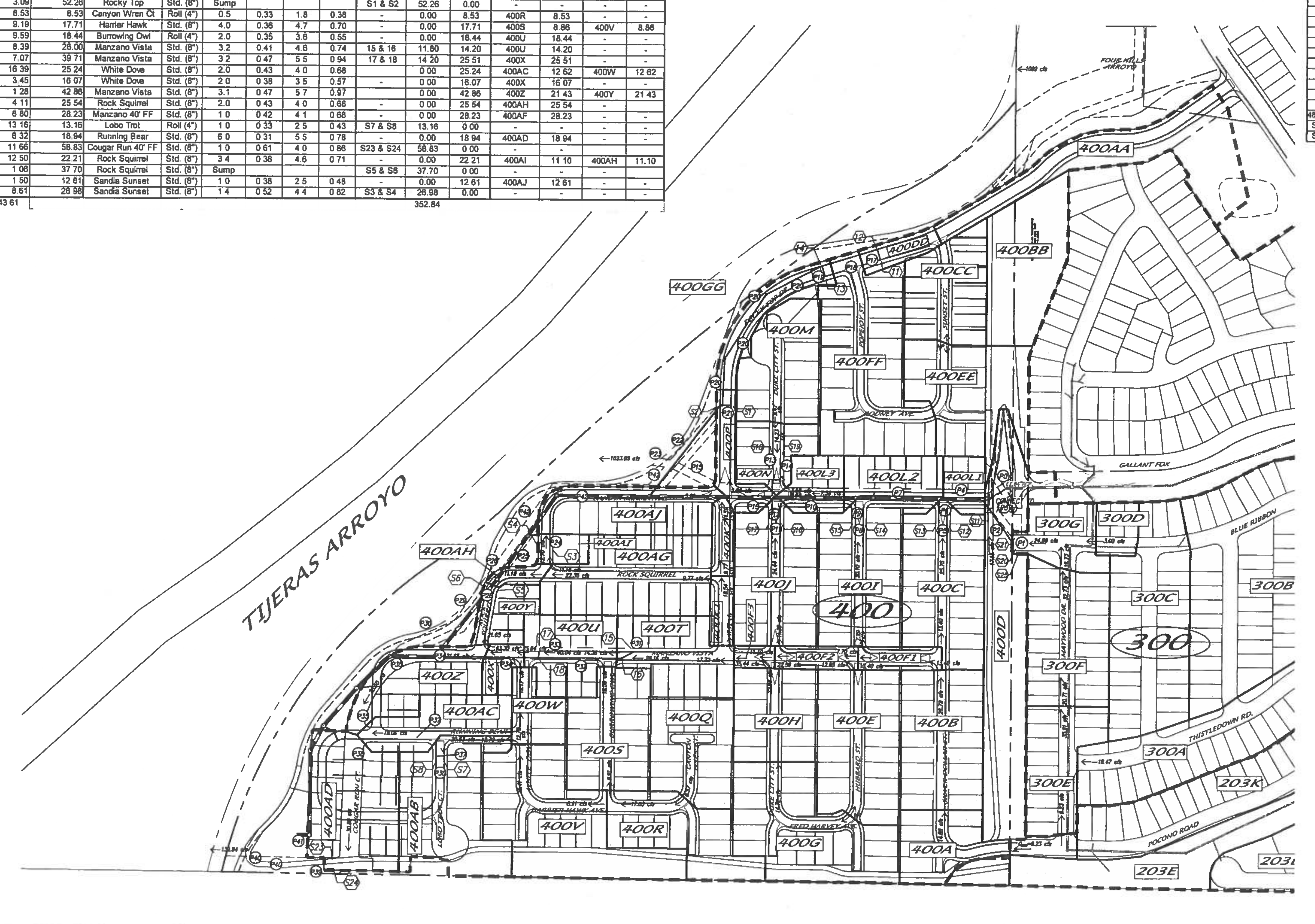
HYDROLOGY					Street flows						Inlet Calcs			Split Flows			
AHYMO BASIN ID	SUB-BASIN ID	AREA (Ac)	Peak 100-YR Flow Q_{100} (cfs) Incremental	Surface	Location	Curb Type	Slope (%)	Depth (ft)	Velocity (fps)	Energy (ft)	Inlet ID #	Intercepted (cfs)	By-pass (cfs)	Path 1 Downstrm ID	Flow (cfs)	Path 2 Downstrm ID	Flow (cfs)
400		77.70	343.61														
	400AA	3.18	14.05	14.05	Rocky Top	Std. (8")	8.0	0.29	5.5	0.76	-	0.00	14.05	400DD	14.05		
	400BB	2.45	10.82	10.82	trail	n/a	-	-	-	-	-	0.00	10.82	400DD	10.82	-	-
	400CC	1.89	8.35	8.35	Sunset St	Roll (4")	3.6	0.23	3.8	0.45	-	0.00	8.35	400DD	8.35	-	-
	400DD	0.44	1.94	35.16	Sunset St	Std. (8")	1.2	0.53	3.1	0.68	11 & 12	11.80	23.36	400FF	23.36	-	-
	400EE	2.87	12.68	12.68	Sunset St	Roll (4")	1.0	0.33	2.5	0.43	-	0.00	12.68	400FF	12.68	-	-
	400FF	4.13	18.24	30.92	Popejoy	Std. (8")	3.6	0.42	5.2	0.84	-	-	-	-	-	-	-
				54.28	Rocky Top	Std. (8")	1.2	0.60	4.1	0.86	13 & 14	16.00	38.28	400GG	38.28		
	400GG	1.16	5.12	43.40	Rocky Top	Std. (8")	2.1	0.49	4.9	0.86	-	0.00	43.40	400P	43.40	-	-
	400A	1.27	5.61	14.84	Silver Dollar St	Std. (8")	2.0	0.32	3.6	0.52	-	0.00	14.84	400B	14.84	-	-
	400B	2.68	11.84	26.68	Silver Dollar St	Std. (8")	2.0	0.43	4.0	0.68	-	0.00	26.68	400F1	13.34	400C	13.34
	400C	2.78	12.28	25.62	Silver Dollar St	Std. (8")	2.0/Sump	0.43	4.0	0.68	S12 & S13	25.62	0.00	400L1	0.00	-	-
	400D	3.86	17.05	17.05	Eastern Bndry	n/a	-	-	-	-	S11	17.05	0.00	400L1	0.00	-	-
	400L1	0.55	2.43	2.43	Sandia Sunset	Roll (4")	0.5	0.22	1.4	0.25	S22	2.43	0.00			-	-
	400L2	0.84	3.71	3.71	Sandia Sunset	Roll (4")	2.6	0.23	3.1	0.38	-	0.00	3.71	400L3	3.71	-	-
	400L3	0.82	3.62	7.33	Sandia Sunset	Roll (4")	3.4	0.28	4.1	0.54	-	0.00	7.33	400N	3.67	400J	3.67
	400E	2.89	12.77	12.77	Hubbard	Roll (4")	2.0	0.30	3.4	0.48	-	0.00	12.77	400F2	12.77	-	-
	400F1	0.45	1.99	15.33	Manzano Vista	Std. (8")	3.2	0.34	4.2	0.61	-	0.00	15.33	400F2	7.66	400I	7.66
	400F2	0.46	2.03	22.46	Manzano Vista	Std. (8")	3.2	0.39	4.3	0.68	-	0.00	22.46	400F3	11.23	400J	11.23
	400F3	0.26	1.15	35.22	Manzano Vista	Std. (8")	3.2	0.44	4.2	0.71	-	0.00	35.22	400K1	17.61	400T	17.61
	400G	3.31	14.62	14.62	Duke City	Roll (4")	2.0	0.33	3.4	0.51	-	0.00	14.62	400H	14.62	-	-
	400H	1.86	8.22	22.84	Duke City	Std. (8")	2.0	0.42	3.9	0.66	-	0.00	22.84	400F3	22.84	-	-
	400I	2.79	12.32	19.99	Hubbard	Std. (8")	2.0/Sump	0.40	3.8	0.62	S14 & S15	19.99	0.00	400L1	0.00	-	-
	400J	2.79	12.32	27.22	Duke City	Std. (8")	4.0	0.46	4.0	0.71	S16 & S17	27.22	0.00	-	-	-	-
	400K1	0.41	1.81	19.42	Rocky Top	Std. (8")	1.9	0.41	3.7	0.62	-	0.00	19.42	400K2	9.71	400AG	9.71
	400K2	0.41	1.81	11.52	Rocky Top	Std. (8")	1.9	0.35	3.1	0.50	-	0.00	11.52	400P	5.76	400AJ	5.76
	400M	2.13	9.41	9.41	Duke City	Roll (4")	0.5	0.33	1.8	0.38	-	0.00	9.41	400N	9.41	-	-
	400N	1.07	4.73	17.80	Duke City	Std. (8")	0.5	0.44	2.0	0.50	S18 & S19	17.80	0.00	-	-	-	-
	400P	0.70	3.09	52.26	Rocky Top	Std. (8")	Sump				S1 & S2	52.26	0.00	-	-	-	-
	400Q	1.93	8.53	8.53	Canyon Wren Ct	Roll (4")	0.5	0.33	1.8	0.38	-	0.00	8.53	400R	8.53	-	-
	400R	2.08	9.19	17.71	Harrier Hawk	Std. (8")	4.0	0.36	4.7	0.70	-	0.00	17.71	400S	8.86	400V	8.86
	400S	2.17	9.59	18.44	Burrowing Owl	Roll (4")	2.0	0.35	3.6	0.55	-	0.00	18.44	400U	18.44	-	-
	400T	1.90	8.39	26.00	Manzano Vista	Std. (8")	3.2	0.41	4.6	0.74	15 & 16	11.80	14.20	400U	14.20	-	-
	400U	1.60	7.07	39.71	Manzano Vista	Std. (8")	3.2	0.47	5.5	0.94	17 & 18	14.20	25.51	400X	25.51	-	-
	400V	3.71	16.39	25.24	White Dove	Std. (8")	2.0	0.43	4.0	0.68		0.00	25.24	400AC	12.62	400W	12.62
	400W	0.78	3.45	16.07	White Dove	Std. (8")	2.0	0.38	3.5	0.57	-	0.00	16.07	400X	16.07	-	-
	400X	0.29	1.28	42.86	Manzano Vista	Std. (8")	3.1	0.47	5.7	0.97		0.00	42.86	400Z	21.43	400Y	21.43
	400Y	0.93	4.11	25.54	Rock Squirrel	Std. (8")	2.0	0.43	4.0	0.68	-	0.00	25.54	400AH	25.54	-	
	400Z	1.54	6.80	28.23	Manzano 40' FF	Std. (8")	1.0	0.42	4.1	0.68	-	0.00	28.23	400AF	28.23	-	-
	400AB	2.98	13.16	13.16	Lobo Trot	Roll (4")	1.0	0.33	2.5	0.43	S7 & S8	13.16	0.00	-	-	-	-
	400AC	1.43	6.32	18.94	Running Bear	Std. (8")	6.0	0.31	5.5	0.78	-	0.00	18.94	400AD	18.94	-	-
	400AD	2.64	11.66	58.83	Cougar Run 40' FF	Std. (8")	1.0	0.61	4.0	0.86	S23 & S24	58.83	0.00	-	-		
	400AG	2.83	12.50	22.21	Rock Squirrel	Std. (8")	3.4	0.38	4.6	0.71	-	0.00	22.21	400AI	11.10	400AH	11.10
	400AH	0.24	1.06	37.70	Rock Squirrel	Std. (8")	Sump				S5 & S6	37.70	0.00	-	-	-	
	400AI	0.34	1.50	12.61	Sandia Sunset	Std. (8")	1.0	0.38	2.5	0.46	-	0.00	12.61	400AJ	12.61	-	-
	400AJ	1.95	8.61	26.98	Sandia Sunset	Std. (8")	1.4	0.52	4.4	0.82	S3 & S4	26.98	0.00	-	-	-	-
		77.70	343.61									352.84					

Storm Drain System Design

STREET NAME	INLET#	Q (cfs)	PIPE #	SLOPE %	Q_{100} (cfs)	PIPE CAPACITY	PIPE DIA (IN)	AREA of PIPE	VELOCITY (ft/sec)
Gallant Fox			Existing	2.12	848.57	930.11	84	38.48	22.05
Blue Ribbon	S20	12.44	P1		12.45				
Tract J	S21	12.45	P2	15.00	24.89	87.61	24	3.14	7.92
Tract J	S11	17.05	P3	1.00	41.94	66.69	36	7.07	5.93
Sandia Sunset			P4	2.00	890.51	903.40	84	38.48	23.14
Silver Dollar	S12	12.81	P5	2.00	12.81	14.85	18	1.77	7.25
Silver Dollar	S13	12.81	P6	2.00	25.62	31.99	18	1.77	14.50
Sandia Sunset			P7	2.20	916.13	947.49	84	38.48	23.81
Hubbard	S14	10.00	P8	2.00	10.00	14.85	18	1.77	5.66
Hubbard	S15	9.99	P9	2.00	19.99	31.99	18	1.77	11.31
Sandia Sunset			P10	7.00	936.12	1690.11	84	38.48	24.32
Duke City	S16	13.61	P11	1.50	12.22	12.86	18	1.77	6.92
Duke City	S17	13.61	P12	1.20	24.44	24.78	24	3.14	7.78
Duke City	S18	8.90	P13	1.00	8.90	10.50	18	1.77	5.04
Duke City	S19	8.90	P14	1.00	17.80	22.62	24	3.14	5.67
Sandia Sunset	10	6.60	P15	4.00	978.36	1277.60	84	38.48	25.42
Rocky Top	11	5.90	P17	1.50	5.90	12.86	18	1.77	3.34
Rocky Top	12	5.90	P18	2.00	11.80	14.85	24	3.14	3.76
Rocky Top	13	8.00	P19	2.00	8.00	14.85	18	1.77	4.53
Rocky Top	14	8.00	P20	1.50	27.80	27.70	24	3.14	8.85
Rocky Top	S1	26.13	P21	1.50	26.13	27.70	24	3.14	8.32
Rocky Top	S2	26.13	P22	0.50	80.06	101.54	48	12.57	6.37
Sandia Sunset		6.60	P23	1.50	1023.05	1119.91	96	50.27	20.35
Sandia Sunset	S3	13.49	P24	1.00	13.49	22.62	24	3.14	4.29
Sandia Sunset	S4	13.49	P25	1.00	26.98	22.62	24	3.14	8.59
Sandia Sunset			P26	1.00	62.35	66.69	36	7.07	8.82
Rock Squirrel	S5	18.85	P28	2.00	19.02	31.99	24	3.14	6.05
Rock Squirrel	S6	18.85	P29	1.00	100.22	100.60	42	9.62	10.42
Rock Squirrel			P30	1.00	100.22	100.60	42	9.62	10.42
Manzano Vista	15	5.90	P31	2.00	5.90	14.85	18	1.77	3.34
Manzano Vista	16	5.90	P32	3.14	11.80	16.61	18	1.77	6.68
Manzano Vista	17	7.10	P33	2.00	7.10	14.85	18	1.77	4.02
Manzano Vista	18	7.10	P34	3.14	26.00	40.08	24	3.14	8.28
Manzano Vista			P35	1.00	126.22	143.60	48	12.57	10.04
Lobo Trot	S7	6.58	P36	1.00	6.58	10.50	18	1.77	3.72
Lobo Trot	S8	6.58	P37	1.00	13.16	22.62	24	3.14	4.19
Manzano Vista			P38	1.00	139.38	143.60	48	12.57	11.09
Cougar Run St	S23 &S24	58.83	P39	1.10	196.21	206.30	54	15.90	12.46
48 RCP" Into Arroyo			P40	1.00	139.94	143.60	48	12.57	11.14
SWQ @ 48" RCP			P41	1.00	58.27	66.69	36	7.07	8.24
SWQ @ 96" RCP			P42	1.00	35.37	410.10	30	4.91	7.21

LEGEND

▬ ▬ ▬	AHYMO BASIN BOUNDARY
─ ─ ─	SUB-BASIN BOUNDARY
━━━	NEW RCP STORM DRAIN
400	AHYMO BASIN NUMBER
400Q	SUB-BASIN NUMBER
⑮	NEW INLET NUMBER
(51)	EXISTING INLET NUMBER
P18	NEW RCP PIPE NUMBER
✣	HIGH POINT (WATERBLOCK)



SEE SHEET 9 OF 11

200 100 0 200 400
SCALE: 1" = 200'

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22". X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988).

SURVEY INFORMATION

FIELD NOTES		
NO	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
1-26-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	JDH	DATE	01/17
DRAWN BY	ACH	DATE	01/17
CHECKED BY	DMG	DATE	01/17

JUAN TABO HILLS ESTATES
ONSITE DRAINAGE BASIN MAP

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

PROJECT NO	ZONE MAP NO	SHEET	OF
	M-21-Z	8	10

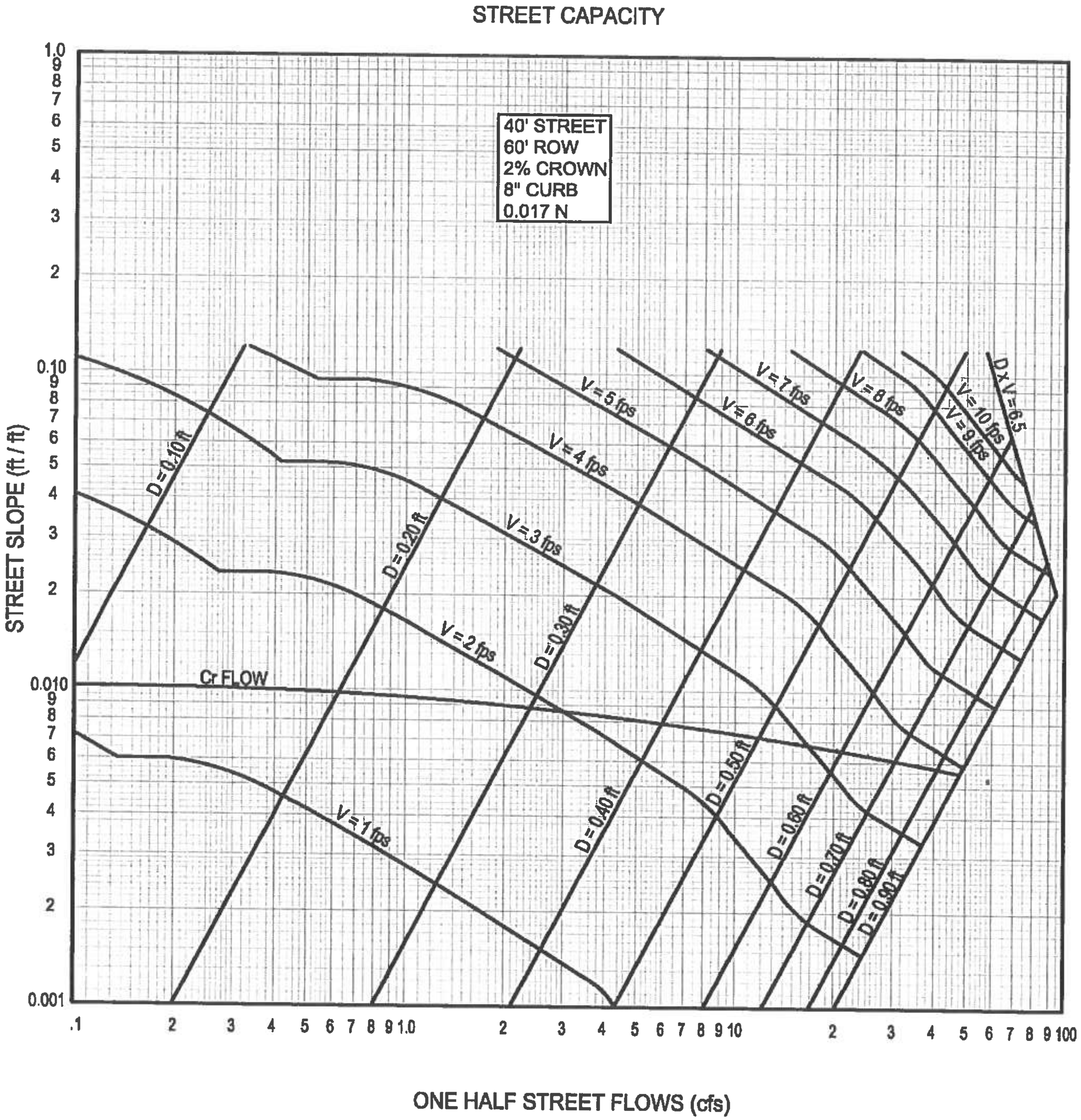
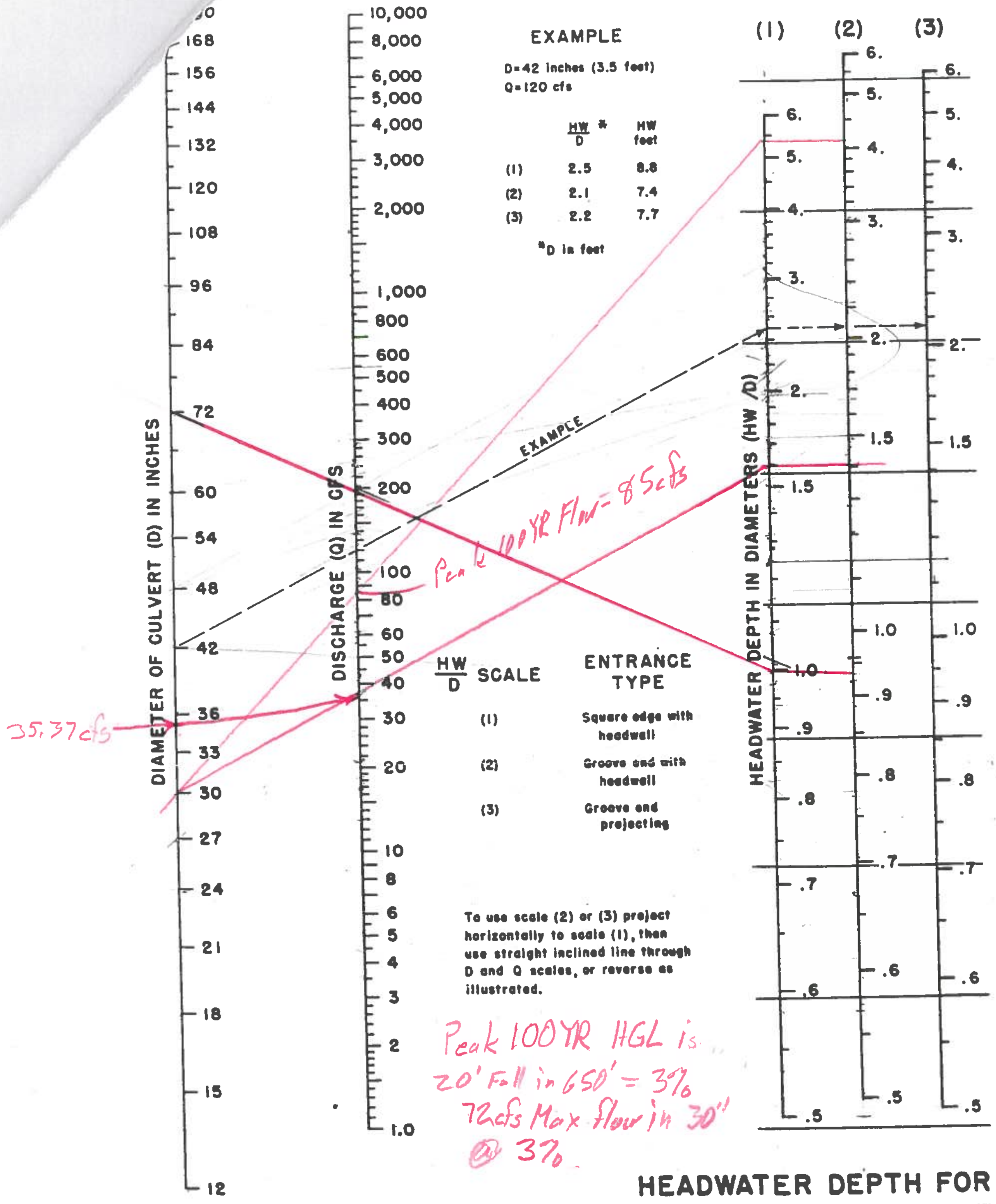

STREET CAPACITY
40' STREET
60' ROW
2% CROWN
8" CURB
0.017 N
STREET SLOPE (ft / ft)
1.0
0.10
0.010
0.001
ONE HALF STREET FLOWS (cfs)
.1
1.0
10
100
D = 0.10 ft
D = 0.20 ft
D = 0.30 ft
D = 0.40 ft
D = 0.50 ft
D = 0.60 ft
D = 0.70 ft
D = 0.80 ft
D = 0.90 ft
V = 1 fps
V = 2 fps
V = 3 fps
V = 4 fps
V = 5 fps
V = 6 fps
V = 7 fps
V = 8 fps
V = 9 fps
V = 10 fps
D x V = 6.5
Cr FLOW

PLATE 22.3 D-3

CHART 10



EXAMPLE

D=42 inches (3.5 feet)
Q=120 cfs

	HW/D *	HW feet
(1)	2.5	8.8
(2)	2.1	7.4
(3)	2.2	7.7

*D in feet

HW/D SCALE	ENTRANCE TYPE
(1)	Square edge with headwall
(2)	Groove end with headwall
(3)	Groove end projecting

To use scale (2) or (3) project horizontally to scale (1), then use straight inclined line through D and Q scales, or reverse as illustrated.

35.37cfs

Peak 100YR Flow = 85cfs

Peak 100YR HGL is
20' Fall in 650' = 3%
72cfs Max flow in 30"
@ 3%

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

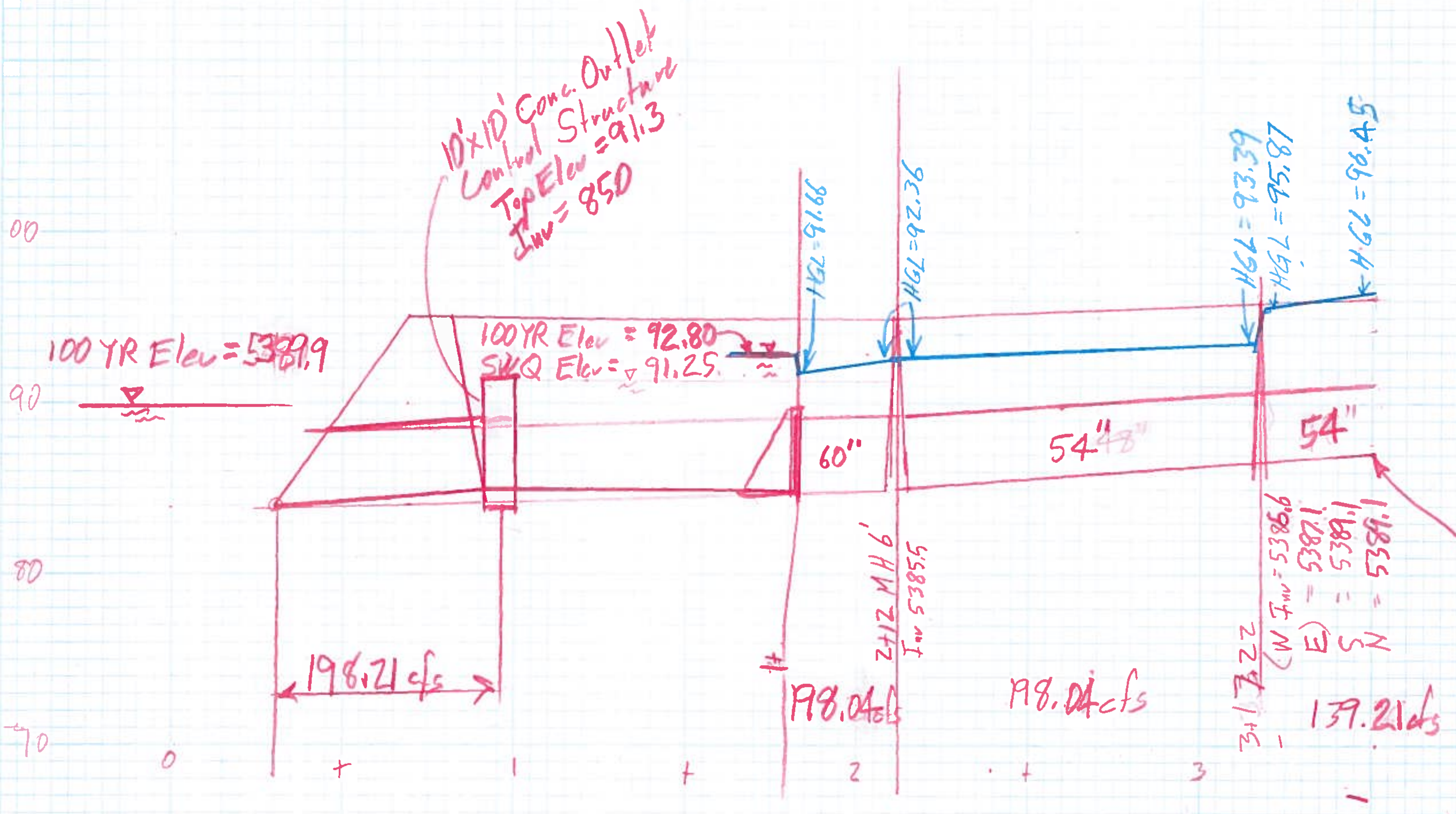
PROJECT ____
SUBJECT ____
BY ____ DATE ____
CHECKED ____ DATE ____
SHEET ____ OF ____

84	0	Rec
84	32	Pipe Rec
45	68	
95	213	MH Pond Bottom 85

198 cfs = ~~2.7~~ 3.0 × L × $h^{3/2}$

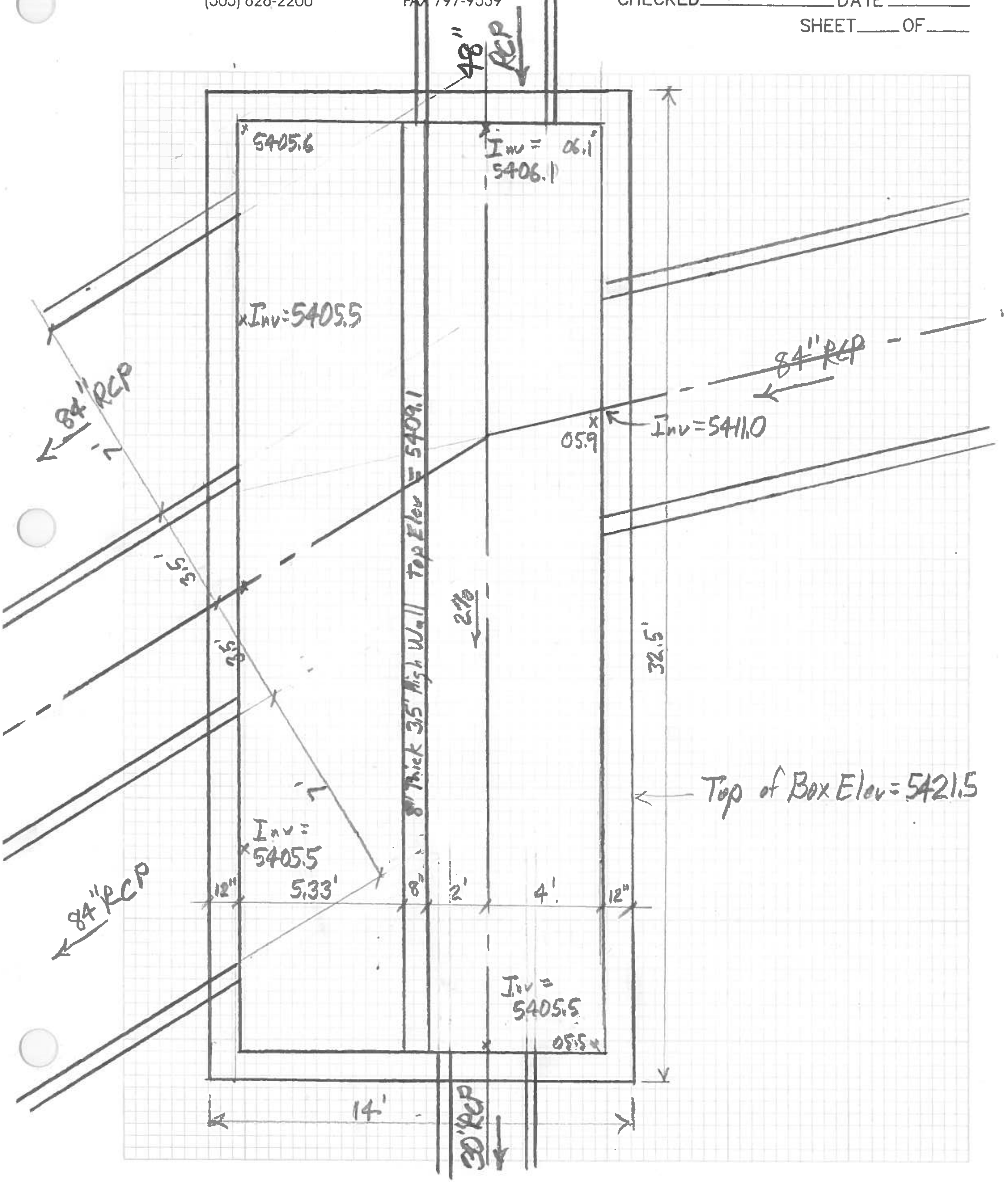
Use L = 36' so h = 1.50'

if H = 2' then L = 26'



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

PROJECT Juan Tabo Hills Estates
SUBJECT Junction / Water Quality Box
BY Doug Hughes DATE 5/18/2016
CHECKED ______ DATE ______
SHEET ____ OF ____



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FILE: rocky.WSW                     W S P G W - CIVILDESIGN Version 14.05                             PAGE    1
                            Program Package Serial Number: 1454
                                         WATER SURFACE PROFILE LISTING                Date: 3-13-2017  Time: 9:44:34
                       Rocky Top Drive

************************************************************************************************************************ ********
         | Invert  |  Depth  |  Water   |    Q     |  Vel  |  Vel   |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)   |  Elev    |  (CFS)   | (FPS) |  Head  | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |         |          |          |       | SF Ave |   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|*********|**********|**********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2254.000  5406.100  10.490   5416.590     80.06    11.33    1.99   5418.58     .00     2.77      .00    3.000    .000    .00    1   .0
 JB     -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  212.000    .0373                                          .0144     3.05   10.49      .00     1.71    .013      .00    .00  PIPE
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2466.000  5414.000   5.644   5419.645     80.06    11.33    1.99   5421.64     .00     2.77      .00    3.000    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .1250                                          .0095      .04     .00      .00             .013      .00    .00  PIPE
 MH-7    |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2470.000  5414.500   6.676   5421.176     27.80     5.66     .50   5421.67     .00     1.80      .00    2.500    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  156.214    .0314                                          .0046      .72    6.68      .00     1.07    .013      .00    .00  PIPE
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2626.214  5419.399   2.551   5421.949     27.80     5.66     .50   5422.45     .00     1.80      .00    2.500    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
HYDRAULIC JUMP
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2626.214  5419.399   1.224   5420.623     27.80    11.64    2.10   5422.73     .00     1.80     2.50    2.500    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    2.130    .0314                                          .0195      .04    1.22     2.10     1.07    .013      .00    .00  PIPE
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2628.344  5419.466   1.232   5420.698     27.80    11.54    2.07   5422.76     .00     1.80     2.50    2.500    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   10.656    .0314                                          .0181      .19    1.23     2.07     1.07    .013      .00    .00  PIPE
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2639.000  5419.800   1.279   5421.080     27.80    11.00    1.88   5422.96     .00     1.80     2.50    2.500    .000    .00    1   .0
 MH-6   -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   35.345    .0167                                          .0171      .61    1.28     1.93     1.29    .013      .00    .00  PIPE
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2674.345  5420.389   1.273   5421.662     27.80    11.06    1.90   5423.56     .00     1.80     2.50    2.500    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   81.862    .0167                                          .0184     1.51    1.27     1.94     1.29    .013      .00    .00  PIPE
         |         |         |          |          |       |        |         |       |        |        |       |       |      |
 2756.207  5421.753   1.226   5422.979     27.80    11.60    2.09   5425.07     .00     1.80     2.50    2.500    .000    .00    1   .0
        -|-       -|-       -|-        -|-        -|-     -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   38.793    .0167                                          .0209      .81    1.23     2.09     1.29    .013      .00    .00  PIPE
```

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FILE: rocky.WSW                         W S P G W - CIVILDESIGN Version 14.05                                         PAGE    2
                                  Program Package Serial Number: 1454
                                                WATER SURFACE PROFILE LISTING                 Date: 3-13-2017  Time: 9:44:34
                       Rocky Top Drive

****************************************************************************************************************************** ********
          | Invert  |  Depth  |  Water  |    Q    |  Vel    Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station  |  Elev   |  (FT)   |  Elev   |  (CFS)  |  (FPS)  Head  | Grd.El.  | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    -|
 L/Elem   |Ch Slope |         |         |         |        SF Ave|    HF    |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |         |         |         |              |          |        |        |        |       |       |      |
 2795.000  5422.400    1.182  5423.582     27.80   12.17   2.30   5425.88    1.00     1.80     2.50    2.500     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
TRANS STR    .1250                                        .0177      .07     2.18     2.24             .013      .00   .00   PIPE
MH-5      |         |         |         |         |              |          |        |        |        |       |       |      |
 2799.000  5422.900    1.824  5424.724     27.80    9.25   1.33   5426.05     .00     1.82     1.13    2.000     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   21.186    .0107                                        .0137      .29     1.82     1.00     2.00     .013      .00   .00   PIPE
          |         |         |         |         |              |          |        |        |        |       |       |      |
 2820.186  5423.126    2.000  5425.126     27.80    8.85   1.22   5426.34     .00     1.82      .00    2.000     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  128.814    .0107                                        .0147     1.89     2.00      .00     2.00     .013      .00   .00   PIPE
          |         |         |         |         |              |          |        |        |        |       |       |      |
 2949.000  5424.500    2.623  5427.124     27.80    8.85   1.22   5428.34     .00     1.82      .00    2.000     .000   .00    1   .0
MH-4     -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  139.000    .0029                                        .0151     2.10     2.62      .00     2.00     .013      .00   .00   PIPE
          |         |         |         |         |              |          |        |        |        |       |       |      |
 3088.000  5424.900    4.323  5429.223     27.80    8.85   1.22   5430.44     .00     1.82      .00    2.000     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .0200                                        .0089      .04      .00      .00              .013      .00   .00   PIPE
Inlet3    |         |         |         |         |              |          |        |        |        |       |       |      |
 3093.000  5425.000    6.261  5431.261     11.80    3.76    .22   5431.48     .00     1.23      .00    2.000     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  181.000    .0110                                        .0027      .49     6.26      .00     1.00     .013      .00   .00   PIPE
          |         |         |         |         |              |          |        |        |        |       |       |      |
 3274.000  5427.000    4.753  5431.753     11.80    3.76    .22   5431.97     .00     1.23      .00    2.000     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .0200                                        .0029      .01      .00      .00              .013      .00   .00   PIPE
Inlet1A   |         |         |         |         |              |          |        |        |        |       |       |      |
 3279.000  5427.100    4.979  5432.080      5.90    3.34    .17   5432.25     .00      .94      .00    1.500     .000   .00    1   .0
         -|-       -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   27.300    .0073                                        .0032      .09     4.98      .00      .89     .013      .00   .00   PIPE
          |         |         |         |         |              |          |        |        |        |       |       |      |
 3306.300  5427.300    4.917  5432.217      5.90    3.34    .17   5432.39     .00      .94      .00    1.500     .000   .00    1   .0
Inlet2B            -|-       -|-       -|-       -|-     -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
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FILE: galfox.WSW                               W S P G W - CIVILDESIGN Version 14.05                                  PAGE    1
                                       Program Package Serial Number: 1454
                                                       WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:46:43
                                 Juan Tabo Hills Estates
                                   Developed 100-YR Flow Rates
                                     Galent Fox Ave.
********************************************************************************************************************************* ********
         | Invert  | Depth  |  Water  |    Q    |  Vel  |  Vel  | Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS) | Head  | Grd.El. |  Elev |  Depth | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |       | SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1671.000  5403.000   7.500  5410.500   1060.85    3.21     .16  5410.66     .00     2.62    44.00   30.000  44.000   .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1000                                                             7.50     .21            .045      .00   .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1690.000  5404.900   2.126  5407.026   1060.85   20.79    6.71  5413.74     .00     3.93    24.00   30.000  24.000   .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1001                                              .0107      .01     2.13     2.51            .013      .00   .00 RECTANG
Outfall to Tijeras
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1691.000  5405.000   5.987  5410.987   1060.85   15.13    3.56  5414.54     .00     5.99     4.93    7.000    .000   .00  2    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   84.791    .0056                                             .0062      .53     5.99      .71     7.00     .013      .00   .00 PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1775.791  5405.471   6.367  5411.838   1060.85   14.43    3.23  5415.07     .00     5.99     4.01    7.000    .000   .00  2    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    5.209    .0056                                             .0060      .03     6.37      .59     7.00     .013      .00   .00 PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1781.000  5405.500   6.375  5411.875   1060.85   14.42    3.23  5415.10     .00     5.99     3.99    7.000    .000   .00  2    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .0000                                              .0031      .01     6.38      .59             .013      .00   .00 PIPE
JB out
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1785.000  5405.500  10.047  5415.547   1060.85    4.40     .30  5415.85     .00     3.93    24.00   30.000  24.000   .00  0    .0
Inv.    -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .125   3.5000                                             .0002      .00    10.05      .24      .39     .013      .00   .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1785.125  5405.938   9.579  5415.517   1060.85    4.61     .33  5415.85     .00     3.93    24.00   30.000  24.000   .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .118   3.5000                                             .0002      .00     9.58      .26      .39     .013      .00   .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1785.243  5406.350   9.134  5415.484   1060.85    4.84     .36  5415.85     .00     3.93    24.00   30.000  24.000   .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .111   3.5000                                             .0002      .00     9.13      .28      .39     .013      .00   .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1785.354  5406.739   8.709  5415.447   1060.85    5.08     .40  5415.85     .00     3.93    24.00   30.000  24.000   .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .104   3.5000                                             .0002      .00     8.71      .30      .39     .013      .00   .00 RECTANG
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FILE: galfox.WSW                          W S P G W - CIVILDESIGN Version 14.05                                  PAGE    2
                                   Program Package Serial Number: 1454
                                                 WATER SURFACE PROFILE LISTING                      Date: 2-24-2017  Time:10:46:43
                              Juan Tabo Hills Estates
                                Developed 100-YR Flow Rates
                                  Galent Fox Ave.
********************************************************************************************************************************** ********
         | Invert  | Depth  |  Water  |    Q    |  Vel    Vel   |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head  | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.458 5407.104   8.303  5415.407   1060.85    5.32     .44  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .098  3.5000                                         .0003      .00    8.30     .33      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.556 5407.446   7.917  5415.363   1060.85    5.58     .48  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .091  3.5000                                         .0003      .00    7.92     .35      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.648 5407.766   7.548  5415.314   1060.85    5.86     .53  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .085  3.5000                                         .0004      .00    7.55     .38      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.733 5408.064   7.197  5415.261   1060.85    6.14     .59  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .079  3.5000                                         .0004      .00    7.20     .40      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.812 5408.340   6.862  5415.203   1060.85    6.44     .64  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .073  3.5000                                         .0005      .00    6.86     .43      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.885 5408.595   6.543  5415.138   1060.85    6.76     .71  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .067  3.5000                                         .0005      .00    6.54     .47      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1785.951 5408.829   6.238  5415.067   1060.85    7.09     .78  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .049  3.5000                                         .0006      .00    6.24     .50      .39    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1786.000 5409.000   6.007  5415.007   1060.85    7.36     .84  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
 Weir   -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .065 -3.3999                                         .0006      .00    6.01     .53      .00    .013      .00    .00  RECTANG
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1786.065 5408.778   6.308  5415.085   1060.85    7.01     .76  5415.85     .00    3.93    24.00   30.000  24.000    .00    0    .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
     .072 -3.3999                                         .0005      .00    6.31     .49      .00    .013      .00    .00  RECTANG
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FILE: galfox.WSW                  W S P G W - CIVILDESIGN Version 14.05                                        PAGE    3
                           Program Package Serial Number: 1454
                                         WATER SURFACE PROFILE LISTING                    Date: 2-24-2017  Time:10:46:43
                       Juan Tabo Hills Estates
                        Developed 100-YR Flow Rates
                         Galent Fox Ave.
****************************************************************************************************************** ********
          | Invert  | Depth  |  Water  |    Q    |  Vel    Vel  |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head |  Grd.El. |  Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|
 L/Elem   |Ch Slope |        |         |         |       SF Ave|    HF    |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall| ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.137  5408.533    6.623  5415.156   1060.85    6.67      .69  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .078  -3.3999                                         .0005      .00    6.62      .46      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.216  5408.267    6.954  5415.221   1060.85    6.36      .63  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .085  -3.3999                                         .0004      .00    6.95      .42      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.301  5407.977    7.302  5415.279   1060.85    6.05      .57  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .092  -3.3999                                         .0003      .00    7.30      .39      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.393  5407.665    7.667  5415.332   1060.85    5.77      .52  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .099  -3.3999                                         .0003      .00    7.67      .37      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.491  5407.330    8.050  5415.380   1060.85    5.49      .47  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .105  -3.3999                                         .0003      .00    8.05      .34      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.597  5406.971    8.453  5415.424   1060.85    5.23      .42  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .113  -3.3999                                         .0002      .00    8.45      .32      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.710  5406.587    8.876  5415.463   1060.85    4.98      .39  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .120  -3.3999                                         .0002      .00    8.88      .29      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.830  5406.180    9.319  5415.499   1060.85    4.74      .35  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .127  -3.3999                                         .0002      .00    9.32      .27      .00    .013      .00   .00  RECTANG
          |         |        |         |         |             |          |        |        |        |       |       |     |
 1786.957  5405.746    9.785  5415.531   1060.85    4.52      .32  5415.85     .00     3.93    24.00   30.000  24.000   .00   0    .0
         -|-       -|-      -|-       -|-       -|-     -|-   -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|-
     .043  -3.3999                                         .0002      .00    9.79      .25      .00    .013      .00   .00  RECTANG
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FILE: galfox.WSW                              W S P G W - CIVILDESIGN Version 14.05                                    PAGE    4
                                        Program Package Serial Number: 1454
                                                      WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:46:43
                                  Juan Tabo Hills Estates
                                    Developed 100-YR Flow Rates
                                      Galent Fox Ave.
************************************************************************************************************************** ********
          | Invert  | Depth  |  Water  |    Q    |  Vel    Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  |  (FPS)  Head |  Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |         |       SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall| ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1787.000  5405.600   9.941  5415.542  1060.85    4.45     .31  5415.85    2.36    3.93    24.00   30.000  24.000   .00   0   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR  .0000                                         .0001      .00   12.30     .25             .013     .00   .00  RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1793.000  5405.600  10.197  5415.797   980.79    4.01     .25  5416.05     .00    3.73    24.00   30.000  24.000   .00   0   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
TRANS STR  5.3999                                                        10.20     .22              .013     .00   .00  RECTANG
JB pipe in
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1794.000  5411.000   5.503  5416.503   980.79   28.23   12.38  5428.88     .00    7.23     6.63    7.500    .000   .00   1   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   86.426    .0163                                       .0212     1.83    5.50    2.17     6.14     .013     .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1880.426  5412.411   5.395  5417.806   980.79   28.83   12.91  5430.71     .00    7.23     6.74    7.500    .000   .00   1   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  158.574    .0163                                       .0230     3.65    5.40    2.26     6.14     .013     .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2039.000  5415.000   5.164  5420.164   980.79   30.24   14.20  5434.36     .00    7.23     6.95    7.500    .000   .00   1   .0
MH 13
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  120.000    .0292                                       .0235     2.82    5.16    2.47     4.84     .013     .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2159.000  5418.500   5.307  5423.807   980.79   29.35   13.37  5437.18     .00    7.23     6.82    7.500    .000   .00   1   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR  .0625                                         .0244      .20    5.31    2.34             .013     .00   .00  PIPE
MH-12
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2167.000  5419.000   5.234  5424.234   938.55   30.41   14.36  5438.59     .00    6.85     6.08    7.000    .000   .00   1   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  143.183    .0310                                       .0251     3.59    5.23    2.38     4.89     .013     .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2310.183  5423.440   5.434  5428.874   938.55   29.28   13.31  5442.18     .00    6.85     5.83    7.000    .000   .00   1   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  114.817    .0310                                       .0229     2.63    5.43    2.20     4.89     .013     .00   .00  PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2425.000  5427.000   5.712  5432.712   938.55   27.91   12.10  5444.81     .00    6.85     5.42    7.000    .000   .00   1   .0
        -|-        -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR  .0250                                         .0226      .18    5.71    1.98             .013     .00   .00  PIPE
MH-11
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FILE: galfox.WSW                    W S P G W - CIVILDESIGN Version 14.05                              PAGE    5
                              Program Package Serial Number: 1454
                                        WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:46:43
                        Juan Tabo Hills Estates
                         Developed 100-YR Flow Rates
                          Galent Fox Ave.
******************************************************************************************************************** ********
          | Invert  | Depth  |  Water  |    Q    |  Vel  |  Vel  | Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS) |  Head | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem   |Ch Slope |        |         |         |       | SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2433.000  5427.200   5.395  5432.595    918.56   28.86   12.93  5445.53     .00    6.83     5.89    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
  237.000    .0224                                      .0238      5.64    5.39    2.19     5.51     .013     .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2670.000  5432.500   5.308  5437.808    918.56   29.34   13.37  5451.17     .00    6.83     5.99    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR    .0250                                      .0256       .20    5.31    2.26              .013     .00   .00  PIPE
MH-10     |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2678.000  5432.700   4.971  5437.671    892.94   30.55   14.49  5452.17     .00    6.81     6.35    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
  134.000    .0194                                      .0285      3.81    4.97    2.51     5.76     .013     .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2812.000  5435.300   4.764  5440.063    892.94   32.02   15.92  5455.98     .00    6.81     6.53    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR    .0250                                      .0328       .13    4.76    2.73              .013     .00   .00  PIPE
Inlet 68  |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2816.000  5435.400   4.330  5439.730    848.57   33.94   17.89  5457.62     .00    6.77     6.80    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   13.399    .0971                                      .0345       .46    4.33    3.12     3.19     .013     .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2829.399  5436.701   4.431  5441.132    848.57   33.04   16.95  5458.08     .00    6.77     6.75    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   20.601    .0971                                      .0314       .65    4.43    2.98     3.19     .013     .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2850.000  5438.701   4.619  5443.320    848.57   31.50   15.41  5458.73     .00    6.77     6.63    7.000    .000   .00  1   .0
MH 9     -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    5.381    .0936                                      .0291       .16    4.62    2.75     3.23     .013     .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2855.381  5439.204   4.673  5443.877    848.57   31.09   15.01  5458.88     .00    6.77     6.60    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   17.433    .0936                                      .0270       .47    4.67    2.69     3.23     .013     .00   .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2872.814  5440.835   4.877  5445.712    848.57   29.64   13.64  5459.35     .00    6.77     6.44    7.000    .000   .00  1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   14.670    .0936                                      .0241       .35    4.88    2.48     3.23     .013     .00   .00  PIPE
```

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FILE: galfox.WSW                          W S P G W - CIVILDESIGN Version 14.05                                      PAGE    6
                                  Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:46:43
                     Juan Tabo Hills Estates
                       Developed 100-YR Flow Rates
                         Galent Fox Ave.
**************************************************************************************************************************  ********
         | Invert  |  Depth  |  Water   |    Q     |  Vel     Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)   |  Elev    |  (CFS)   | (FPS)    Head  | Grd.El.  | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |         |          |          |         SF Ave |   HF     |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|*********|**********|**********|*******|*******|**********|********|********|********|*******|*******|*****|*******
         |         |         |          |          |               |          |        |        |        |       |       |      |
2887.484  5442.208    5.098  5447.307    848.57    28.26    12.40  5459.71     .00     6.77     6.23    7.000     .000    .00   1   .0
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  12.326     .0936                                           .0216      .27     5.10     2.27     3.23     .013      .00    .00  PIPE
         |         |         |          |          |               |          |        |        |        |       |       |      |
2899.810  5443.362    5.338  5448.700    848.57    26.94    11.27  5459.97     .00     6.77     5.96    7.000     .000    .00   1   .0
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  10.233     .0936                                           .0194      .20     5.34     2.07     3.23     .013      .00    .00  PIPE
         |         |         |          |          |               |          |        |        |        |       |       |      |
2910.043  5444.319    5.604  5449.923    848.57    25.69    10.25  5460.17     .00     6.77     5.59    7.000     .000    .00   1   .0
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   8.302     .0936                                           .0176      .15     5.60     1.86     3.23     .013      .00    .00  PIPE
         |         |         |          |          |               |          |        |        |        |       |       |      |
2918.345  5445.096    5.905  5451.001    848.57    24.50     9.32  5460.32     .00     6.77     5.09    7.000     .000    .00   1   .0
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   6.306     .0936                                           .0162      .10     5.91     1.65     3.23     .013      .00    .00  PIPE
         |         |         |          |          |               |          |        |        |        |       |       |      |
2924.652  5445.687    6.264  5451.951    848.57    23.36     8.47  5460.42     .00     6.77     4.29    7.000     .000    .00   1   .0
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   3.348     .0936                                           .0155      .05     6.26     1.41     3.23     .013      .00    .00  PIPE
         |         |         |          |          |               |          |        |        |        |       |       |      |
2928.000  5446.000    6.774  5452.774    848.57    22.27     7.70  5460.47     .00     6.77     2.48    7.000     .000    .00   1   .0
        -|-       -|-       -|-        -|-        -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
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MH-47

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FILE: blueribo.WSW                         W S P G W - CIVILDESIGN Version 14.05                                        PAGE    1
                                    Program Package Serial Number: 1454
                                                     WATER SURFACE PROFILE LISTING                       Date: 3- 7-2017  Time:11:36:38
                              Juan Tabo Hills Estates
                                Developed 100-YR Flow Rates
                                  Blue Ribbon
****************************************************************************************************************************** ********
        | Invert  |  Depth  |  Water  |    Q    |  Vel    Vel   |  Energy | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
Station |  Elev   |  (FT)   |  Elev   |  (CFS)  |  (FPS)  Head  | Grd.El. | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    -|
L/Elem  |Ch Slope |         |         |         |         SF Ave|   HF    |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
********|*********|*********|*********|*********|*******|*******|*********|********|********|********|*******|*******|*****|*******
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1671.000 5403.000    7.500  5410.500   1060.86     3.21     .16  5410.66     .00     2.62    44.00   30.000  44.000   .00    0   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
TRANS STR   .1000                                                            7.50      .21             .045     .00   .00  RECTANG
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1690.000 5404.900    2.126  5407.026   1060.86    20.79    6.71  5413.74     .00     3.93    24.00   30.000  24.000   .00    0   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
TRANS STR   .1001                                             .0107      .01     2.13     2.51             .013     .00   .00  RECTANG
Outfall to Tijeras
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1691.000 5405.000    5.986  5410.986   1060.86    15.14    3.56  5414.54     .00     5.99     4.93    7.000    .000   .00    2   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   84.126   .0056                                             .0062      .52     5.99      .71     7.00    .013     .00   .00  PIPE
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1775.126 5405.467    6.366  5411.833   1060.86    14.43    3.23  5415.07     .00     5.99     4.02    7.000    .000   .00    2   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
    5.874   .0056                                             .0060      .04     6.37      .59     7.00    .013     .00   .00  PIPE
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1781.000 5405.500    6.376  5411.875   1060.86    14.42    3.23  5415.10     .00     5.99     3.99    7.000    .000   .00    2   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
TRANS STR   .0000                                             .0031      .01     6.38      .59             .013     .00   .00  PIPE
JB-Outlet
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1785.000 5405.500   10.048  5415.548   1060.86     4.40     .30  5415.85     .00     3.93    24.00   30.000  24.000   .00    0   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
     .125   3.5000                                            .0002      .00    10.05      .24      .39    .013     .00   .00  RECTANG
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1785.125 5405.938    9.580  5415.518   1060.86     4.61     .33  5415.85     .00     3.93    24.00   30.000  24.000   .00    0   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
     .118   3.5000                                            .0002      .00     9.58      .26      .39    .013     .00   .00  RECTANG
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1785.243 5406.350    9.134  5415.484   1060.86     4.84     .36  5415.85     .00     3.93    24.00   30.000  24.000   .00    0   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
     .111   3.5000                                            .0002      .00     9.13      .28      .39    .013     .00   .00  RECTANG
        |         |         |         |         |               |         |        |        |        |       |       |      |
 1785.354 5406.739    8.709  5415.448   1060.86     5.08     .40  5415.85     .00     3.93    24.00   30.000  24.000   .00    0   .0
       -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
     .104   3.5000                                            .0002      .00     8.71      .30      .39    .013     .00   .00  RECTANG
```

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FILE: blueribo.WSW                             W S P G W - CIVILDESIGN Version 14.05                                      PAGE    2
                                       Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                     Date: 3- 7-2017  Time:11:36:38
                                 Juan Tabo Hills Estates
                                   Developed 100-YR Flow Rates
                                     Blue Ribbon
****************************************************************************************************************  ********
         | Invert  |  Depth  |  Water  |    Q    |  Vel      Vel   |  Energy | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
Station  |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)     Head  | Grd.El. |  Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-    -|
L/Elem   |Ch Slope |         |         |         |          SF Ave|    HF   |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.458  5407.104    8.304  5415.408   1060.86    5.32      .44  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .098   3.5000                                             .0003      .00    8.30     .33      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.556  5407.446    7.917  5415.364   1060.86    5.58      .48  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .091   3.5000                                             .0003      .00    7.92     .35      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.648  5407.767    7.549  5415.315   1060.86    5.86      .53  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .085   3.5000                                             .0004      .00    7.55     .38      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.733  5408.065    7.198  5415.263   1060.86    6.14      .59  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .079   3.5000                                             .0004      .00    7.20     .40      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.812  5408.341    6.863  5415.204   1060.86    6.44      .64  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .073   3.5000                                             .0005      .00    6.86     .43      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.885  5408.596    6.543  5415.140   1060.86    6.76      .71  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .067   3.5000                                             .0005      .00    6.54     .47      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1785.952  5408.830    6.239  5415.069   1060.86    7.09      .78  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .049   3.5000                                             .0006      .00    6.24     .50      .39    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1786.000  5409.000    6.008  5415.008   1060.86    7.36      .84  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
Weir    -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .065  -3.3999                                             .0006      .00    6.01     .53      .00    .013      .00    .00 RECTANG
         |         |         |         |         |               |         |        |        |        |       |       |      |
1786.065  5408.778    6.308  5415.086   1060.86    7.01      .76  5415.85     .00     3.93    24.00   30.000   24.000    .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-     |-
   .072  -3.3999                                             .0005      .00    6.31     .49      .00    .013      .00    .00 RECTANG
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FILE: blueribo.WSW                          W S P G W - CIVILDESIGN Version 14.05                                         PAGE    3
                               Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                    Date: 3- 7-2017  Time:11:36:38
                         Juan Tabo Hills Estates
                           Developed 100-YR Flow Rates
                             Blue Ribbon
************************************************************************************************************************** ********
         | Invert  |  Depth |  Water  |    Q    | Vel      Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |   Elev  |   (FT) |   Elev  |  (CFS)  | (FPS)    Head | Grd.El. |  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.137  5408.533    6.624  5415.157   1060.86    6.67     .69  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .078  -3.3999                                         .0005      .00     6.62    .46     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.216  5408.267    6.955  5415.222   1060.86    6.36     .63  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .085  -3.3999                                         .0004      .00     6.96    .42     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.301  5407.977    7.303  5415.280   1060.86    6.05     .57  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .092  -3.3999                                         .0003      .00     7.30    .39     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.393  5407.665    7.668  5415.333   1060.86    5.76     .52  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .099  -3.3999                                         .0003      .00     7.67    .37     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.491  5407.330    8.051  5415.381   1060.86    5.49     .47  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .106  -3.3999                                         .0003      .00     8.05    .34     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.597  5406.970    8.454  5415.424   1060.86    5.23     .42  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .113  -3.3999                                         .0002      .00     8.45    .32     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.710  5406.587    8.877  5415.463   1060.86    4.98     .39  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .120  -3.3999                                         .0002      .00     8.88    .29     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.830  5406.179    9.321  5415.500   1060.86    4.74     .35  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .127  -3.3999                                         .0002      .00     9.32    .27     .00     .013       .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |      |
 1786.957  5405.746    9.787  5415.532   1060.86    4.52     .32  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      |-
     .043  -3.3999                                         .0002      .00     9.79    .25     .00     .013       .00   .00  RECTANG
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FILE: blueribo.WSW                         W S P G W - CIVILDESIGN Version 14.05                                       PAGE    4
                                    Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                  Date: 3- 7-2017  Time:11:36:38
                              Juan Tabo Hills Estates
                                Developed 100-YR Flow Rates
                                  Blue Ribbon
*********************************************************************************************************************************  ********
          | Invert  | Depth  | Water   |   Q     |  Vel    Vel   |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)  |  Elev   | (CFS)   | (FPS)   Head  | Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem   |Ch Slope |        |         |         |        SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1787.000  5405.600    9.942  5415.542   1060.86    4.45     .31  5415.85    2.36    3.93    24.00   30.000   24.000    .00    0   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0000                                          .0001      .00   12.30     .25             .013      .00    .00  RECTANG
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1793.000  5405.600   10.198  5415.798    980.80    4.01     .25  5416.05     .00    3.73    24.00   30.000   24.000    .00    0   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
TRANS STR  5.3999                                                           10.20     .22             .013      .00    .00  RECTANG
JB Pipe In
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1794.000  5411.000    5.585  5416.585    980.80   27.80   12.00  5428.58     .00    7.23     6.54    7.500     .000    .00    1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
   62.641    .0163                                         .0202     1.27    5.59    2.11     6.14     .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 1856.641  5412.022    5.516  5417.539    980.80   28.16   12.31  5429.85     .00    7.23     6.62    7.500     .000    .00    1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
  182.359    .0163                                         .0218     3.97    5.52    2.16     6.14     .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 2039.000  5415.000    5.276  5420.276    980.80   29.53   13.54  5433.82     .00    7.23     6.85    7.500     .000    .00    1   .0
MH-13    -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
  120.000    .0292                                         .0219     2.63    5.28    2.36     4.84     .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 2159.000  5418.500    5.484  5423.983    980.80   28.34   12.47  5436.45     .00    7.23     6.65    7.500     .000    .00    1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0625                                          .0225      .18    5.48    2.19             .013      .00    .00  PIPE
MH-12     |         |        |         |         |       |       |         |       |        |        |       |       |       |
 2167.000  5419.000    5.429  5424.429    938.56   29.31   13.34  5437.77     .00    6.85     5.84    7.000     .000    .00    1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
   43.470    .0310                                         .0237     1.03    5.43    2.21     4.89     .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 2210.470  5420.348    5.514  5425.862    938.56   28.86   12.93  5438.79     .00    6.85     5.72    7.000     .000    .00    1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
  100.961    .0310                                         .0222     2.24    5.51    2.13     4.89     .013      .00    .00  PIPE
          |         |        |         |         |       |       |         |       |        |        |       |       |       |
 2311.431  5423.479    5.803  5429.282    938.56   27.52   11.76  5441.04     .00    6.85     5.27    7.000     .000    .00    1   .0
         -|-       -|-      -|-       -|-       -|-     -|-     -|-      -|-     -|-      -|-      -|-     -|-     -|-    |-
   68.594    .0310                                         .0203     1.39    5.80    1.91     4.89     .013      .00    .00  PIPE
```

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FILE: blueribo.WSW                       W S P G W - CIVILDESIGN Version 14.05                                       PAGE    5
                                     Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                     Date: 3- 7-2017  Time:11:36:38
                             Juan Tabo Hills Estates
                               Developed 100-YR Flow Rates
                                 Blue Ribbon
****************************************************************************************************************************** ********
         | Invert  | Depth  | Water   |   Q     |  Vel    Vel   | Energy  | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
Station  |  Elev   |  (FT)  |  Elev   | (CFS)   | (FPS)   Head  | Grd.El. | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    -|
L/Elem   |Ch Slope |        |         |         |        SF Ave|   HF    |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |              |         |        |        |        |       |       |      |
 2380.026  5425.605   6.139  5431.745    938.56   26.23   10.69  5442.43     .00     6.85     4.60    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   44.974    .0310                                        .0191      .86     6.14     1.66     4.89     .013     .00    .00  PIPE
         |         |        |         |         |              |         |        |        |        |       |       |      |
 2425.000  5427.000   6.574  5433.574    938.56   25.01    9.72  5443.29     .00     6.85     3.35    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .0250                                        .0190      .15     6.57     1.32              .013     .00    .00  PIPE
MH-11    |         |        |         |         |              |         |        |        |        |       |       |      |
 2433.000  5427.200   5.973  5433.173    918.57   26.26   10.71  5443.88     .00     6.83     4.95    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
  148.845    .0224                                        .0188     2.80     5.97     1.74     5.51     .013     .00    .00  PIPE
         |         |        |         |         |              |         |        |        |        |       |       |      |
 2581.845  5430.529   6.295  5436.824    918.57   25.19    9.85  5446.68     .00     6.83     4.21    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   88.155    .0224                                        .0183     1.61     6.30     1.51     5.51     .013     .00    .00  PIPE
         |         |        |         |         |              |         |        |        |        |       |       |      |
 2670.000  5432.500   6.833  5439.333    918.57   24.02    8.96  5448.29     .00     6.83     2.14    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .0250                                        .0190      .15     6.83     1.00              .013     .00    .00  PIPE
MH-10    |         |        |         |         |              |         |        |        |        |       |       |      |
 2678.000  5432.700   7.872  5440.572    892.95   23.20    8.36  5448.93     .00     6.81      .00    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
  134.000    .0194                                        .0195     2.62     7.87      .00     5.76     .013     .00    .00  PIPE
         |         |        |         |         |              |         |        |        |        |       |       |      |
 2812.000  5435.300   7.890  5443.190    892.95   23.20    8.36  5451.55     .00     6.81      .00    7.000    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .5250                                        .0150      .06      .00      .00              .013     .00    .00  PIPE
Inlet 68 |         |        |         |         |              |         |        |        |        |       |       |      |
 2816.000  5437.400  13.076  5450.476     41.95    8.55    1.13  5451.61     .00     2.17      .00    2.500    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   24.000    .0083                                        .0105      .25    13.08      .00     2.50     .013     .00    .00  PIPE
         |         |        |         |         |              |         |        |        |        |       |       |      |
 2840.000  5437.600  13.183  5450.783     41.95    8.55    1.13  5451.92     .00     2.17      .00    2.500    .000    .00   1    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .1500                                        .0100      .04      .00      .00              .013     .00    .00  PIPE
Inlet 73
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FILE: blueribo.WSW                         W S P G W - CIVILDESIGN Version 14.05                                    PAGE    6
                                    Program Package Serial Number: 1454
                                              WATER SURFACE PROFILE LISTING                      Date: 3- 7-2017  Time:11:36:38
                          Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                              Blue Ribbon
****************************************************************************************************************  ********
         | Invert  |  Depth  |  Water   |    Q     |  Vel    Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)   |  Elev    |  (CFS)   | (FPS)   Head  | Grd.El.  | Elev   | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |         |          |          |         SF Ave|    HF    |SE Dpth |Froude N|Norm Dp |  "N"  |X-Fall | ZR  |Type Ch
*********|*********|*********|**********|**********|*******|*******|**********|********|********|********|*******|*******|*****|*******
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2844.000  5438.200   12.834  5451.034      39.95     8.14    1.03  5452.06     .00     2.13      .00    2.500    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
   21.000    .2143                                          .0095       .20   12.83      .00      .78     .013     .00    .00 PIPE
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2865.000  5442.700    8.585  5451.285      39.95     8.14    1.03  5452.31     .00     2.13      .00    2.500    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR    .1250                                          .0118       .05     .00      .00              .013     .00    .00 PIPE
Inlet 72 |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2869.000  5443.200    8.857  5452.057      26.95     8.58    1.14  5453.20     .00     1.81      .00    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
    8.534    .2743                                          .0142       .12    8.86      .00      .65     .013     .00    .00 PIPE
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2877.534  5445.541    6.636  5452.177      26.95     8.58    1.14  5453.32     .00     1.81      .00    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
HYDRAULIC JUMP
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2877.534  5445.541     .666  5446.207      26.95    29.44   13.46  5459.67     .00     1.81     1.89    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
   26.932    .2743                                          .2353      6.34     .67     7.45      .65     .013     .00    .00 PIPE
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2904.465  5452.929     .684  5453.613      26.95    28.33   12.46  5466.08     .00     1.81     1.90    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
   16.961    .2743                                          .2090      3.54     .68     7.05      .65     .013     .00    .00 PIPE
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2921.427  5457.582     .709  5458.291      26.95    27.01   11.33  5469.62     .00     1.81     1.91    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
   11.035    .2743                                          .1832      2.02     .71     6.59      .65     .013     .00    .00 PIPE
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2932.462  5460.609     .734  5461.343      26.95    25.76   10.30  5471.64     .00     1.81     1.93    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
    8.004    .2743                                          .1607      1.29     .73     6.16      .65     .013     .00    .00 PIPE
         |         |         |          |          |       |       |          |        |        |        |       |       |     |
 2940.466  5462.805     .761  5463.566      26.95    24.56    9.36  5472.93     .00     1.81     1.94    2.000    .000    .00  1    .0
        -|-       -|-       -|-        -|-        -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   |-
    6.182    .2743                                          .1410       .87     .76     5.76      .65     .013     .00    .00 PIPE
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FILE: blueribo.WSW                              W S P G W - CIVILDESIGN Version 14.05                                  PAGE    7
                                         Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                     Date: 3- 7-2017  Time:11:36:38
                                 Juan Tabo Hills Estates
                                   Developed 100-YR Flow Rates
                                     Blue Ribbon
************************************************************************************************************************************  ********
         |  Invert  |  Depth  |  Water   |    Q     |  Vel     Vel    |  Energy  |  Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |   Elev   |  (FT)   |  Elev    |  (CFS)   | (FPS)    Head   | Grd.El.  |  Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope  |         |          |          |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2946.647  5464.500     .788  5465.289     26.95    23.41     8.51  5473.80     .00     1.81     1.95    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    4.946    .2743                                            .1237      .61     .79     5.38      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2951.593  5465.857     .817  5466.674     26.95    22.32     7.74  5474.41     .00     1.81     1.97    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    4.065    .2743                                            .1086      .44     .82     5.02      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2955.658  5466.972     .847  5467.819     26.95    21.29     7.04  5474.85     .00     1.81     1.98    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    3.401    .2743                                            .0954      .32     .85     4.69      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2959.059  5467.905     .878  5468.783     26.95    20.30     6.40  5475.18     .00     1.81     1.99    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    2.884    .2743                                            .0838      .24     .88     4.37      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2961.943  5468.696     .910  5469.606     26.95    19.35     5.81  5475.42     .00     1.81     1.99    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    2.465    .2743                                            .0736      .18     .91     4.08      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2964.408  5469.373     .944  5470.317     26.95    18.45     5.29  5475.60     .00     1.81     2.00    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    2.122    .2743                                            .0648      .14     .94     3.80      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2966.530  5469.955     .980  5470.935     26.95    17.59     4.81  5475.74     .00     1.81     2.00    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    1.840    .2743                                            .0570      .10     .98     3.54      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2968.370  5470.459    1.017  5471.477     26.95    16.77     4.37  5475.85     .00     1.81     2.00    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    1.594    .2743                                            .0503      .08    1.02     3.30      .65     .013      .00   .00  PIPE
         |          |         |          |          |       |         |         |        |        |       |       |      |
 2969.964  5470.896    1.057  5471.954     26.95    15.99     3.97  5475.92     .00     1.81     2.00    2.000     .000   .00   1   .0
        -|-        -|-       -|-        -|-        -|-      -|-      -|-        -|-       -|-      -|-      -|-     -|-     -|-    |-
    1.392    .2743                                            .0443      .06    1.06     3.07      .65     .013      .00   .00  PIPE
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FILE: blueribo.WSW                         W S P G W - CIVILDESIGN Version 14.05                               PAGE    8
                                 Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                Date: 3- 7-2017  Time:11:36:38
                            Juan Tabo Hills Estates
                              Developed 100-YR Flow Rates
                                Blue Ribbon
************************************************************************************************************************** ********
         | Invert  | Depth  | Water   |    Q    | Vel    Vel   | Energy  | Super |Critical|Flow Top|Height/|Base Wt|    |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)  Head  | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-  -|
 L/Elem  |Ch Slope |        |         |         |       SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall| ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2971.356 5471.278   1.098  5472.376    26.95   15.25    3.61  5475.99    .00    1.81     1.99    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   1.213    .2743                                       .0391      .05    1.10    2.85      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2972.569 5471.611   1.141  5472.752    26.95   14.54    3.28  5476.03    .00    1.81     1.98    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   1.053    .2743                                       .0346      .04    1.14    2.65      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2973.621 5471.899   1.187  5473.086    26.95   13.86    2.98  5476.07    .00    1.81     1.96    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .912    .2743                                       .0306      .03    1.19    2.46      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2974.533 5472.149   1.236  5473.386    26.95   13.22    2.71  5476.10    .00    1.81     1.94    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .791    .2743                                       .0271      .02    1.24    2.27      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2975.324 5472.366   1.287  5473.653    26.95   12.60    2.47  5476.12    .00    1.81     1.92    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .676    .2743                                       .0240      .02    1.29    2.10      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2976.000 5472.552   1.342  5473.894    26.95   12.02    2.24  5476.14    .00    1.81     1.88    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .573    .2743                                       .0214      .01    1.34    1.94      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2976.573 5472.709   1.401  5474.110    26.95   11.46    2.04  5476.15    .00    1.81     1.83    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .475    .2743                                       .0191      .01    1.40    1.78      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2977.048 5472.839   1.465  5474.305    26.95   10.92    1.85  5476.16    .00    1.81     1.77    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .383    .2743                                       .0171      .01    1.47    1.63      .65    .013      .00   .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |     |
 2977.431 5472.944   1.535  5474.479    26.95   10.41    1.68  5476.16    .00    1.81     1.69    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .294    .2743                                       .0154      .00    1.54    1.48      .65    .013      .00   .00  PIPE
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FILE: blueribo.WSW                    W S P G W - CIVILDESIGN Version 14.05                                PAGE    9
                               Program Package Serial Number: 1454
                                          WATER SURFACE PROFILE LISTING                 Date: 3- 7-2017  Time:11:36:38
                        Juan Tabo Hills Estates
                          Developed 100-YR Flow Rates
                            Blue Ribbon
************************************************************************************************************ ********
         | Invert  |  Depth  |  Water   |    Q     |   Vel     Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)   |  Elev    |  (CFS)   |  (FPS)    Head  | Grd.El.  | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-       -|-        -|-        -|-       -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |         |          |          |          SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |          |          |        |        |         |        |        |        |       |       |      |
 2977.725  5473.025   1.612  5474.637     26.95     9.93    1.53  5476.17     .00     1.81     1.58   2.000     .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
    .197    .2743                                               .0140      .00    1.61     1.34      .65    .013      .00   .00  PIPE
         |         |        |          |          |        |        |         |        |        |        |       |       |      |
 2977.921  5473.079   1.700  5474.779     26.95     9.47    1.39  5476.17     .00     1.81     1.43   2.000     .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
    .079    .2743                                               .0129      .00    1.70     1.18      .65    .013      .00   .00  PIPE
         |         |        |          |          |        |        |         |        |        |        |       |       |      |
 2978.000  5473.100   1.807  5474.907     26.95     9.02    1.26  5476.17    2.00     1.81     1.18   2.000     .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .1250                                               .0083      .03    2.00     1.00            .013      .00   .00  PIPE
Inlet 71 |         |        |          |          |        |        |         |        |        |        |       |       |      |
 2982.000  5473.600   3.127  5476.727     14.50     4.62     .33  5477.06     .00     1.37      .00   2.000     .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  27.000    .0111                                               .0041      .11    3.13      .00     1.13    .013      .00   .00  PIPE
         |         |        |          |          |        |        |         |        |        |        |       |       |      |
 3009.000  5473.900   2.955  5476.854     14.50     4.62     .33  5477.19     .00     1.37      .00   2.000     .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0250                                               .0022      .01     .00      .00            .013      .00   .00  PIPE
Inlet 70 |         |        |          |          |        |        |         |        |        |        |       |       |      |
 3013.000  5474.000   3.680  5477.680      2.05     1.16     .02  5477.70     .00      .54      .00   1.500     .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  13.000    .0154                                               .0004      .00    3.68      .00      .40    .013      .00   .00  PIPE
         |         |        |          |          |        |        |         |        |        |        |       |       |      |
 3026.000  5474.200   3.486  5477.686      2.05     1.16     .02  5477.71     .00      .54      .00   1.500     .000   .00   1   .0
Inlet 69 |-       -|-      -|-        -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
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FILE: silverd.WSW                          W S P G W - CIVILDESIGN Version 14.05                                   PAGE    1
                                    Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                     Date: 2-24-2017  Time: 2:20:13
                                 Juan Tabo Hills Estates
                                   Developed 100-YR Flow Rates
                                     Silver Dollar St.
************************************************************************************************************************ ********
         | Invert  |  Depth  |  Water  |    Q    |   Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)   |  Elev   |  (CFS)  |  (FPS)    Head |  Grd.El.|  Elev |  Depth |  Width |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |         |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1671.000| 5403.000    7.500  5410.500   1060.85     3.21     .16  5410.66     .00     2.62    44.00   30.000  44.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR    .1000                                                             7.50      .21            .045     .00   .00  RECTANG
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1690.000  5404.900    2.126  5407.026   1060.85    20.79    6.71  5413.74     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1001                                                     .0107      .01   2.13     2.51            .013     .00   .00  RECTANG
Outfall to Tijeras
 1691.000  5405.000    5.987  5410.987   1060.85    15.13    3.56  5414.54     .00     5.99     4.93    7.000    .000   .00   2   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   84.791    .0056                                                .0062      .53   5.99      .71     7.00    .013     .00   .00  PIPE
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1775.791  5405.471    6.367  5411.838   1060.85    14.43    3.23  5415.07     .00     5.99     4.01    7.000    .000   .00   2   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    5.209    .0056                                                .0060      .03   6.37      .59     7.00    .013     .00   .00  PIPE
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1781.000  5405.500    6.375  5411.875   1060.85    14.42    3.23  5415.10     .00     5.99     3.99    7.000    .000   .00   2   .0
JB out  -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR    .0000                                                .0031      .01   6.38      .59            .013     .00   .00  PIPE
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1785.000  5405.500   10.047  5415.547   1060.85     4.40     .30  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
Inv     -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .125   3.5000                                                .0002      .00  10.05      .24      .39    .013     .00   .00  RECTANG
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1785.125  5405.938    9.579  5415.517   1060.85     4.61     .33  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .118   3.5000                                                .0002      .00   9.58      .26      .39    .013     .00   .00  RECTANG
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1785.243  5406.350    9.134  5415.484   1060.85     4.84     .36  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .111   3.5000                                                .0002      .00   9.13      .28      .39    .013     .00   .00  RECTANG
         |         |         |         |         |                |         |       |        |        |       |       |     |
 1785.354  5406.739    8.709  5415.447   1060.85     5.08     .40  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .104   3.5000                                                .0002      .00   8.71      .30      .39    .013     .00   .00  RECTANG
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FILE: silverd.WSW                         W S P G W - CIVILDESIGN Version 14.05                                          PAGE    2
                                    Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                   Date: 2-24-2017  Time: 2:20:13
                               Juan Tabo Hills Estates
                                 Developed 100-YR Flow Rates
                                   Silver Dollar St.
******************************************************************************************************************** ********
         | Invert  | Depth  | Water   |    Q    |  Vel    Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head |  Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.458  5407.104   8.303  5415.407   1060.85    5.32     .44  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .098   3.5000                                          .0003      .00    8.30     .33      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.556  5407.446   7.917  5415.363   1060.85    5.58     .48  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .091   3.5000                                          .0003      .00    7.92     .35      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.648  5407.766   7.548  5415.314   1060.85    5.86     .53  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .085   3.5000                                          .0004      .00    7.55     .38      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.733  5408.064   7.197  5415.261   1060.85    6.14     .59  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .079   3.5000                                          .0004      .00    7.20     .40      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.812  5408.340   6.862  5415.203   1060.85    6.44     .64  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .073   3.5000                                          .0005      .00    6.86     .43      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.885  5408.595   6.543  5415.138   1060.85    6.76     .71  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .067   3.5000                                          .0005      .00    6.54     .47      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1785.951  5408.829   6.238  5415.067   1060.85    7.09     .78  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .049   3.5000                                          .0006      .00    6.24     .50      .39    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1786.000  5409.000   6.007  5415.007   1060.85    7.36     .84  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
   Weir-|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .065  -3.3999                                          .0006      .00    6.01     .53      .00    .013      .00   .00  RECTANG
         |         |        |         |         |               |          |       |        |        |       |       |      |
 1786.065  5408.778   6.308  5415.085   1060.85    7.01     .76  5415.85     .00     3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
     .072  -3.3999                                          .0005      .00    6.31     .49      .00    .013      .00   .00  RECTANG
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FILE: silverd.WSW                          W S P G W - CIVILDESIGN Version 14.05                                    PAGE    3
                                    Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                   Date: 2-24-2017  Time: 2:20:13
                            Juan Tabo Hills Estates
                              Developed 100-YR Flow Rates
                                Silver Dollar St.
************************************************************************************************************************* ********
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev |  Depth | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.137  5408.533   6.623  5415.156   1060.85     6.67     .69  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .078  -3.3999                                          .0005      .00    6.62     .46      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.216  5408.267   6.954  5415.221   1060.85     6.36     .63  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .085  -3.3999                                          .0004      .00    6.95     .42      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.301  5407.977   7.302  5415.279   1060.85     6.05     .57  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .092  -3.3999                                          .0003      .00    7.30     .39      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.393  5407.665   7.667  5415.332   1060.85     5.77     .52  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .099  -3.3999                                          .0003      .00    7.67     .37      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.491  5407.330   8.050  5415.380   1060.85     5.49     .47  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .105  -3.3999                                          .0003      .00    8.05     .34      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.597  5406.971   8.453  5415.424   1060.85     5.23     .42  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .113  -3.3999                                          .0002      .00    8.45     .32      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.710  5406.587   8.876  5415.463   1060.85     4.98     .39  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .120  -3.3999                                          .0002      .00    8.88     .29      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.830  5406.180   9.319  5415.499   1060.85     4.74     .35  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .127  -3.3999                                          .0002      .00    9.32     .27      .00     .013      .00   .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |     |
 1786.957  5405.746   9.785  5415.531   1060.85     4.52     .32  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .043  -3.3999                                          .0002      .00    9.79     .25      .00     .013      .00   .00  RECTANG
```

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FILE: silverd.WSW                           W S P G W - CIVILDESIGN Version 14.05                                      PAGE    4
                                     Program Package Serial Number: 1454
                                                         WATER SURFACE PROFILE LISTING                    Date: 2-24-2017  Time: 2:20:13
                                Juan Tabo Hills Estates
                                  Developed 100-YR Flow Rates
                                    Silver Dollar St.
************************************************************************************************************************* ********
         | Invert  |  Depth  |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |         |         |         |        SF Ave |   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |         |         |         |               |         |       |        |        |       |       |     |
 1787.000  5405.600    9.941  5415.542  1060.85     4.45      .31  5415.85    2.36    3.93    24.00   30.000  24.000   .00  0    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR   .0000                                           .0001      .00   12.30     .25             .013     .00   .00 RECTANG
         |         |         |         |         |               |         |       |        |        |       |       |     |
 1793.000  5405.600   10.197  5415.797   980.79     4.01      .25  5416.05     .00    3.73    24.00   30.000  24.000   .00  0    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR  5.3999                                                            10.20     .22             .013     .00   .00 RECTANG
JB Pipe In         |         |         |         |               |         |       |        |        |       |       |     |
 1794.000  5411.000    5.585  5416.585   980.79    27.80    12.00  5428.58     .00    7.23     6.54    7.500    .000   .00  1    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   62.622    .0163                                          .0202     1.27    5.59    2.11     6.14    .013     .00   .00 PIPE
         |         |         |         |         |               |         |       |        |        |       |       |     |
 1856.622  5412.022    5.516  5417.539   980.79    28.16    12.31  5429.85     .00    7.23     6.62    7.500    .000   .00  1    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
  182.378    .0163                                          .0218     3.97    5.52    2.16     6.14    .013     .00   .00 PIPE
         |         |         |         |         |               |         |       |        |        |       |       |     |
 2039.000  5415.000    5.276  5420.276   980.79    29.53    13.54  5433.82     .00    7.23     6.85    7.500    .000   .00  1    .0
MH-13   -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
  120.000    .0292                                          .0219     2.63    5.28    2.36     4.84    .013     .00   .00 PIPE
         |         |         |         |         |               |         |       |        |        |       |       |     |
 2159.000  5418.500    5.484  5423.984   980.79    28.34    12.47  5436.45     .00    7.23     6.65    7.500    .000   .00  1    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR   .0625                                           .0225      .18    5.48    2.19             .013     .00   .00 PIPE
MH-12    |         |         |         |         |               |         |       |        |        |       |       |     |
 2167.000  5419.000    5.429  5424.428   938.55    29.31    13.34  5437.76     .00    6.85     5.84    7.000    .000   .00  1    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   43.486    .0310                                          .0237     1.03    5.43    2.21     4.89    .013     .00   .00 PIPE
         |         |         |         |         |               |         |       |        |        |       |       |     |
 2210.486  5420.348    5.514  5425.862   938.55    28.86    12.93  5438.79     .00    6.85     5.72    7.000    .000   .00  1    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
  100.953    .0310                                          .0222     2.24    5.51    2.13     4.89    .013     .00   .00 PIPE
         |         |         |         |         |               |         |       |        |        |       |       |     |
 2311.439  5423.479    5.803  5429.282   938.55    27.51    11.76  5441.04     .00    6.85     5.27    7.000    .000   .00  1    .0
        -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   68.590    .0310                                          .0203     1.39    5.80    1.91     4.89    .013     .00   .00 PIPE
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                         Program Package Serial Number: 1454
                                    WATER SURFACE PROFILE LISTING              Date: 2-24-2017  Time: 2:20:13
                 Juan Tabo Hills Estates
                  Developed 100-YR Flow Rates
                   Silver Dollar St.
************************************************************************************************************************ ********
          | Invert  | Depth  | Water   |    Q    |  Vel    Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head |  Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem   |Ch Slope |        |         |         |         SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2380.029  5425.605   6.139  5431.745    938.55   26.23   10.69  5442.43     .00    6.85     4.60    7.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
   44.971    .0310                                        .0191      .86     6.14    1.66     4.89     .013     .00    .00  PIPE
          |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2425.000  5427.000   6.574  5433.574    938.55   25.01    9.72  5443.29     .00    6.85     3.35    7.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
JUNCT STR    .0250                                        .0190      .15     6.57    1.32              .013     .00    .00  PIPE
MH-11     |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2433.000  5427.200   5.973  5433.173    918.56   26.26   10.71  5443.88     .00    6.83     4.95    7.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
  148.858    .0224                                        .0188     2.80     5.97    1.74     5.51     .013     .00    .00  PIPE
          |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2581.858  5430.529   6.295  5436.824    918.56   25.19    9.85  5446.68     .00    6.83     4.21    7.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
   88.142    .0224                                        .0183     1.61     6.30    1.51     5.51     .013     .00    .00  PIPE
          |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2670.000  5432.500   6.833  5439.333    918.56   24.02    8.96  5448.29     7.00    6.83     2.14    7.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
JUNCT STR  1.2000                                                          7.00    1.00              .013     .00    .00  PIPE
MH-10     |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2678.000  5442.100   1.733  5443.833     25.62    8.86    1.22  5445.05     .00    1.78     1.36    2.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
   48.432    .0118                                        .0118      .57     1.73    1.07     1.73     .013     .00    .00  PIPE
          |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2726.432  5442.670   1.733  5444.402     25.62    8.86    1.22  5445.62     .00    1.78     1.36    2.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
   19.568    .0118                                        .0116      .23     1.73    1.07     1.73     .013     .00    .00  PIPE
          |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2746.000  5442.900   1.777  5444.677     25.62    8.69    1.17  5445.85     2.00    1.78     1.26    2.000    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
JUNCT STR    .1250                                        .0131      .05     2.00    1.00              .013     .00    .00  PIPE
Inlet 1   |         |        |         |         |       |       |          |       |        |        |       |       |     |
 2750.000  5443.400   3.037  5446.437     12.81    7.25     .82  5447.25     .00    1.34      .00    1.500    .000    .00   1   .0
         -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|-
   25.000    .0120                                        .0149      .37     3.04     .00     1.50     .013     .00    .00  PIPE
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FILE: silverd.WSW                         W S P G W - CIVILDESIGN Version 14.05                              PAGE    6
                                   Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                Date: 2-24-2017  Time: 2:20:13
                          Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                              Silver Dollar St.
************************************************************************************************************************* ********
         | Invert  |  Depth  |  Water  |    Q    |   Vel     Vel  |  Energy  |  Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)   |  Elev   |  (CFS)  |  (FPS)    Head |  Grd.El. |  Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-       -|-       -|-       -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |         |         |         |         SF Ave|    HF    |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2775.000 5443.700    3.109  5446.809     12.81    7.25     .82  5447.63     .00     1.34      .00    1.500    .000    .00   1    .0
                  -|-       -|-       -|-       -|-       -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
```

Inlet 2

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FILE: hubbard.WSW                        W S P G W - CIVILDESIGN Version 14.05                                    PAGE    1
                                   Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:12:15: 4
                            Juan Tabo Hills Estates
                             Developed 100-YR Flow Rates
                              Hubbard St.
************************************************************************************************************************  ********
          | Invert  |  Depth  |  Water  |    Q    |  Vel    Vel   |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)   Head  | Grd.El.  | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem   |Ch Slope |         |         |         |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  |X-Fall |  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1671.000  5403.000    7.500  5410.500   1060.85    3.21     .16  5410.66      .00     2.62    44.00   30.000  44.000   .00  0   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1000                                                            7.50      .21              .045     .00   .00 RECTANG
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1690.000  5404.900    2.126  5407.026   1060.85   20.79    6.71  5413.74      .00     3.93    24.00   30.000  24.000   .00  0   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1001                                                  .0107       .01    2.13     2.51              .013     .00   .00 RECTANG
Outfall to Tijeras
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1691.000  5405.000    5.987  5410.987   1060.85   15.13    3.56  5414.54      .00     5.99     4.93    7.000    .000   .00  2   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
   84.791   .0056                                                  .0062       .53    5.99      .71     7.00     .013     .00   .00 PIPE
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1775.791  5405.471    6.367  5411.838   1060.85   14.43    3.23  5415.07      .00     5.99     4.01    7.000    .000   .00  2   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
    5.209   .0056                                                  .0060       .03    6.37      .59     7.00     .013     .00   .00 PIPE
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1781.000  5405.500    6.375  5411.875   1060.85   14.42    3.23  5415.10      .00     5.99     3.99    7.000    .000   .00  2   .0
JB Pipe Out        -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .0000                                                  .0031       .01    6.38      .59              .013     .00   .00 PIPE
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1785.000  5405.500   10.047  5415.547   1060.85    4.40     .30  5415.85      .00     3.93    24.00   30.000  24.000   .00  0   .0
   Inv   -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .125  3.5000                                                  .0002       .00   10.05      .24      .39     .013     .00   .00 RECTANG
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1785.125  5405.938    9.579  5415.517   1060.85    4.61     .33  5415.85      .00     3.93    24.00   30.000  24.000   .00  0   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .118  3.5000                                                  .0002       .00    9.58      .26      .39     .013     .00   .00 RECTANG
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1785.243  5406.350    9.134  5415.484   1060.85    4.84     .36  5415.85      .00     3.93    24.00   30.000  24.000   .00  0   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .111  3.5000                                                  .0002       .00    9.13      .28      .39     .013     .00   .00 RECTANG
          |         |         |         |         |              |          |       |        |        |       |       |     |
 1785.354  5406.739    8.709  5415.447   1060.85    5.08     .40  5415.85      .00     3.93    24.00   30.000  24.000   .00  0   .0
         -|-       -|-       -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .104  3.5000                                                  .0002       .00    8.71      .30      .39     .013     .00   .00 RECTANG
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FILE: hubbard.WSW                         W S P G W - CIVILDESIGN Version 14.05                                    PAGE    2
                                   Program Package Serial Number: 1454
                                                  WATER SURFACE PROFILE LISTING                       Date: 2-24-2017  Time:12:15: 4
                          Juan Tabo Hills Estates
                           Developed 100-YR Flow Rates
                             Hubbard St.
****************************************************************************************************************** ********
         | Invert  |  Depth  |  Water  |    Q    |  Vel   Vel   |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)  Head  | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-       -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |         |         |         |        SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.458  5407.104    8.303  5415.407   1060.85    5.32    .44  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .098   3.5000                                              .0003       .00    8.30     .33      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.556  5407.446    7.917  5415.363   1060.85    5.58    .48  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .091   3.5000                                              .0003       .00    7.92     .35      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.648  5407.766    7.548  5415.314   1060.85    5.86    .53  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .085   3.5000                                              .0004       .00    7.55     .38      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.733  5408.064    7.197  5415.261   1060.85    6.14    .59  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .079   3.5000                                              .0004       .00    7.20     .40      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.812  5408.340    6.862  5415.203   1060.85    6.44    .64  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .073   3.5000                                              .0005       .00    6.86     .43      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.885  5408.595    6.543  5415.138   1060.85    6.76    .71  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .067   3.5000                                              .0005       .00    6.54     .47      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1785.951  5408.829    6.238  5415.067   1060.85    7.09    .78  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .049   3.5000                                              .0006       .00    6.24     .50      .39    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1786.000  5409.000    6.007  5415.007   1060.85    7.36    .84  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
 weir   -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .065  -3.3999                                              .0006       .00    6.01     .53      .00    .013      .00   .00 RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
 1786.065  5408.778    6.308  5415.085   1060.85    7.01    .76  5415.85     .00    3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .072  -3.3999                                              .0005       .00    6.31     .49      .00    .013      .00   .00 RECTANG
```

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FILE: hubbard.WSW                       W S P G W - CIVILDESIGN Version 14.05                                   PAGE    3
                                 Program Package Serial Number: 1454
                                                WATER SURFACE PROFILE LISTING                    Date: 2-24-2017  Time:12:15: 4
                          Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                              Hubbard St.
************************************************************************************************************************* ********
         | Invert  | Depth  | Water   |    Q    |  Vel    Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |       | SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.137  5408.533   6.623  5415.156   1060.85    6.67     .69  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .078  -3.3999                                        .0005      .00    6.62      .46      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.216  5408.267   6.954  5415.221   1060.85    6.36     .63  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .085  -3.3999                                        .0004      .00    6.95      .42      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.301  5407.977   7.302  5415.279   1060.85    6.05     .57  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .092  -3.3999                                        .0003      .00    7.30      .39      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.393  5407.665   7.667  5415.332   1060.85    5.77     .52  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .099  -3.3999                                        .0003      .00    7.67      .37      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.491  5407.330   8.050  5415.380   1060.85    5.49     .47  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .105  -3.3999                                        .0003      .00    8.05      .34      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.597  5406.971   8.453  5415.424   1060.85    5.23     .42  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .113  -3.3999                                        .0002      .00    8.45      .32      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.710  5406.587   8.876  5415.463   1060.85    4.98     .39  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .120  -3.3999                                        .0002      .00    8.88      .29      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.830  5406.180   9.319  5415.499   1060.85    4.74     .35  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .127  -3.3999                                        .0002      .00    9.32      .27      .00     .013     .00    .00 RECTANG
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 1786.957  5405.746   9.785  5415.531   1060.85    4.52     .32  5415.85     .00     3.93    24.00   30.000  24.000    .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .043  -3.3999                                        .0002      .00    9.79      .25      .00     .013     .00    .00 RECTANG
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FILE: hubbard.WSW                         W S P G W - CIVILDESIGN Version 14.05                                         PAGE    4
                                   Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                    Date: 2-24-2017  Time:12:15: 4
                          Juan Tabo Hills Estates
                           Developed 100-YR Flow Rates
                            Hubbard St.
********************************************************************************************************************** ********
          | Invert  | Depth  | Water   |    Q     |  Vel     Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)   | (FPS)    Head  | Grd.El.  |  Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |          |        SF Ave|   HF     |SE Dpth |Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|**********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |          |                |         |        |        |        |       |       |       |
 1787.000 5405.600    9.941 5415.542   1060.85     4.45      .31  5415.85    2.36    3.93    24.00   30.000  24.000    .00   0   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR  .0000                                          .0001      .00   12.30     .25             .013      .00    .00  RECTANG
         |         |        |         |          |                |         |        |        |        |       |       |       |
 1793.000 5405.600   10.197 5415.797    980.79     4.01      .25  5416.05     .00    3.73    24.00   30.000  24.000    .00   0   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
TRANS STR 5.3999                                                            10.20     .22             .013      .00    .00  RECTANG
JB Pipe In
         |         |        |         |          |                |         |        |        |        |       |       |       |
 1794.000 5411.000    5.592 5416.592    980.79    27.76    11.97  5428.56     .00    7.23     6.53    7.500    .000    .00   1   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   60.344   .0163                                         .0202     1.22    5.59    2.10     6.14     .013      .00    .00  PIPE
         |         |        |         |          |                |         |        |        |        |       |       |       |
 1854.344 5411.985    5.526 5417.511    980.79    28.11    12.27  5429.78     .00    7.23     6.61    7.500    .000    .00   1   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  184.656   .0163                                         .0217     4.00    5.53    2.15     6.14     .013      .00    .00  PIPE
         |         |        |         |          |                |         |        |        |        |       |       |       |
 2039.000 5415.000    5.285 5420.285    980.79    29.48    13.49  5433.78     .00    7.23     6.84    7.500    .000    .00   1   .0
MH-13   -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
  120.000   .0292                                         .0218     2.61    5.29    2.36     4.84     .013      .00    .00  PIPE
         |         |        |         |          |                |         |        |        |        |       |       |       |
 2159.000 5418.500    5.499 5423.999    980.79    28.25    12.39  5436.39     .00    7.23     6.63    7.500    .000    .00   1   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0625                                         .0223      .18    5.50    2.18              .013      .00    .00  PIPE
MH-12    |         |        |         |          |                |         |        |        |        |       |       |       |
 2167.000 5419.000    5.446 5424.446    938.55    29.22    13.25  5437.70     .00    6.85     5.82    7.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   81.165   .0310                                         .0231     1.88    5.45    2.19     4.89     .013      .00    .00  PIPE
         |         |        |         |          |                |         |        |        |        |       |       |       |
 2248.165 5421.517    5.629 5427.146    938.55    28.29    12.43  5439.58     .00    6.85     5.56    7.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   85.564   .0310                                         .0214     1.83    5.63    2.04     4.89     .013      .00    .00  PIPE
         |         |        |         |          |                |         |        |        |        |       |       |       |
 2333.729 5424.170    5.935 5430.105    938.55    26.98    11.30  5441.41     .00    6.85     5.03    7.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-        -|-      -|-      -|-        -|-      -|-      -|-      -|-     -|-     -|-    |-
   58.466   .0310                                         .0197     1.15    5.94    1.81     4.89     .013      .00    .00  PIPE
```

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                              Program Package Serial Number: 1454
                                        WATER SURFACE PROFILE LISTING              Date: 2-24-2017  Time:12:15: 4
                         Juan Tabo Hills Estates
                           Developed 100-YR Flow Rates
                             Hubbard St.
**************************************************************************************************************** ********
         | Invert  |  Depth  |  Water  |    Q    |  Vel    Vel   |  Energy | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)   Head  | Grd.El. | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem  |Ch Slope |         |         |         |       SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|******|*******
         |         |         |         |         |                 |       |        |        |       |       |      |
 2392.196  5425.983    6.301  5432.284    938.55   25.72   10.27  5442.56     .00    6.85     4.20    7.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   32.804     .0310                                      .0191      .63     6.30    1.54     4.89     .013     .00   .00  PIPE
         |         |         |         |         |                 |       |        |        |       |       |      |
 2425.000  5427.000    6.846  5433.846    938.55   24.52    9.34  5443.18    7.00    6.85     2.05    7.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
JUNCT STR  1.0625                                                           7.00    1.00              .013     .00   .00  PIPE
MH-11    |         |         |         |         |                 |       |        |        |       |       |      |
 2433.000  5435.500    1.441  5436.941     19.99    8.25    1.06  5438.00     .00    1.61     1.80    2.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   36.559     .0105                                      .0102      .37     1.44    1.25     1.44     .013     .00   .00  PIPE
         |         |         |         |         |                 |       |        |        |       |       |      |
 2469.559  5435.882    1.459  5437.341     19.99    8.14    1.03  5438.37     .00    1.61     1.78    2.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   26.019     .0105                                      .0095      .25     1.46    1.22     1.44     .013     .00   .00  PIPE
         |         |         |         |         |                 |       |        |        |       |       |      |
 2495.578  5436.154    1.528  5437.682     19.99    7.76     .93  5438.62     .00    1.61     1.70    2.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    4.422     .0105                                      .0086      .04     1.53    1.11     1.44     .013     .00   .00  PIPE
         |         |         |         |         |                 |       |        |        |       |       |      |
 2500.000  5436.200    1.606  5437.806     19.99    7.39     .85  5438.65    2.00    1.61     1.59    2.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
JUNCT STR   .1250                                        .0050      .02     2.00    1.00              .013     .00   .00  PIPE
Inlet 3  |         |         |         |         |                 |       |        |        |       |       |      |
 2504.000  5436.700    2.359  5439.059      9.99    3.18     .16  5439.22     .00    1.13      .00    2.000    .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   25.000     .0120                                      .0020      .05     2.36     .00      .88     .013     .00   .00  PIPE
         |         |         |         |         |                 |       |        |        |       |       |      |
 2529.000  5437.000    2.108  5439.108      9.99    3.18     .16  5439.26     .00    1.13      .00    2.000    .000   .00   1   .0
Inlet 4 -|-       -|-       -|-       -|-       -|-     -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
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FILE: duke.WSW                         W S P G W - CIVILDESIGN Version 14.05                               PAGE    1
                                 Program Package Serial Number: 1454
                                            WATER SURFACE PROFILE LISTING                 Date: 2-24-2017  Time:11:33:51
                        Juan Tabo Hills Estates
                          Developed 100-YR Flow Rates
                            Duke City north of Sandia Sunset Ave.
************************************************************************************************************** ********
          | Invert  |  Depth  |  Water  |    Q    |  Vel   |  Vel   |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station  |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)  |  Head  | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem   |Ch Slope |         |         |         |        | SF Ave |   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1671.000  5403.000    7.500  5410.500   1060.85     3.21      .16  5410.66     .00     2.62    44.00   30.000  44.000    .00  0   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
TRANS STR   .1000                                                           7.50      .21             .045      .00    .00 RECTANG
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1690.000  5404.900    2.126  5407.026   1060.85    20.79     6.71  5413.74     .00     3.93    24.00   30.000  24.000    .00  0   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
TRANS STR  .1001                                           .0107       .01    2.13     2.51             .013      .00    .00 RECTANG
Outfall to Tijeras
 1691.000  5405.000    5.987  5410.987   1060.85    15.13     3.56  5414.54     .00     5.99     4.93    7.000    .000    .00  2   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   84.791    .0056                                           .0062       .53    5.99      .71     7.00    .013      .00    .00 PIPE
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1775.791  5405.471    6.367  5411.838   1060.85    14.43     3.23  5415.07     .00     5.99     4.01    7.000    .000    .00  2   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    5.209    .0056                                           .0060       .03    6.37      .59     7.00    .013      .00    .00 PIPE
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1781.000  5405.500    6.375  5411.875   1060.85    14.42     3.23  5415.10     .00     5.99     3.99    7.000    .000    .00  2   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
TRANS STR  .0000                                           .0031       .01    6.38      .59             .013      .00    .00 PIPE
JB Pipe out
 1785.000  5405.500   10.047  5415.547   1060.85     4.40      .30  5415.85     .00     3.93    24.00   30.000  24.000    .00  0   .0
inv     -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
     .125   3.5000                                           .0002       .00   10.05      .24      .39    .013      .00    .00 RECTANG
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1785.125  5405.938    9.579  5415.517   1060.85     4.61      .33  5415.85     .00     3.93    24.00   30.000  24.000    .00  0   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
     .118   3.5000                                           .0002       .00    9.58      .26      .39    .013      .00    .00 RECTANG
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1785.243  5406.350    9.134  5415.484   1060.85     4.84      .36  5415.85     .00     3.93    24.00   30.000  24.000    .00  0   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
     .111   3.5000                                           .0002       .00    9.13      .28      .39    .013      .00    .00 RECTANG
          |         |         |         |         |        |        |         |       |        |        |       |       |      |
 1785.354  5406.739    8.709  5415.447   1060.85     5.08      .40  5415.85     .00     3.93    24.00   30.000  24.000    .00  0   .0
        -|-       -|-      -|-       -|-       -|-      -|-      -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
     .104   3.5000                                           .0002       .00    8.71      .30      .39    .013      .00    .00 RECTANG
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FILE: duke.WSW                          W S P G W - CIVILDESIGN Version 14.05                                          PAGE    2
                                  Program Package Serial Number: 1454
                                                  WATER SURFACE PROFILE LISTING                 Date: 2-24-2017  Time:11:33:51
                          Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                              Duke City north of Sandia Sunset Ave.
****************************************************************************************************************** ********
         | Invert  |  Depth  |  Water  |    Q    |  Vel     Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)   |  Elev   |  (CFS)  |  (FPS)   Head  | Grd.El.  |  Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |         |         |         |        SF Ave|   HF     |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.458  5407.104    8.303  5415.407   1060.85    5.32      .44  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .098   3.5000                                            .0003      .00     8.30      .33      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.556  5407.446    7.917  5415.363   1060.85    5.58      .48  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .091   3.5000                                            .0003      .00     7.92      .35      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.648  5407.766    7.548  5415.314   1060.85    5.86      .53  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .085   3.5000                                            .0004      .00     7.55      .38      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.733  5408.064    7.197  5415.261   1060.85    6.14      .59  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .079   3.5000                                            .0004      .00     7.20      .40      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.812  5408.340    6.862  5415.203   1060.85    6.44      .64  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .073   3.5000                                            .0005      .00     6.86      .43      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.885  5408.595    6.543  5415.138   1060.85    6.76      .71  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .067   3.5000                                            .0005      .00     6.54      .47      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1785.951  5408.829    6.238  5415.067   1060.85    7.09      .78  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .049   3.5000                                            .0006      .00     6.24      .50      .39    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1786.000  5409.000    6.007  5415.007   1060.85    7.36      .84  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
 weir   -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .065  -3.3999                                            .0006      .00     6.01      .53      .00    .013     .00   .00 RECTANG
         |         |         |         |         |               |          |        |        |        |       |       |     |
 1786.065  5408.778    6.308  5415.085   1060.85    7.01      .76  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-      -|-      -|-       -|-      -|-      -|-      -|-     -|-     -|-   |-
    .072  -3.3999                                            .0005      .00     6.31      .49      .00    .013     .00   .00 RECTANG
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FILE: duke.WSW                                W S P G W - CIVILDESIGN Version 14.05                                PAGE    3
                                   Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                        Date: 2-24-2017  Time:11:33:51
                             Juan Tabo Hills Estates
                               Developed 100-YR Flow Rates
                                 Duke City north of Sandia Sunset Ave.
****************************************************************************************************************************** ********
         | Invert  | Depth  |  Water  |    Q    |  Vel   Vel   |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)  Head  | Grd.El.  | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.137 5408.533   6.623  5415.156   1060.85    6.67     .69  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .078  -3.3999                                      .0005      .00    6.62     .46      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.216 5408.267   6.954  5415.221   1060.85    6.36     .63  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .085  -3.3999                                      .0004      .00    6.95     .42      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.301 5407.977   7.302  5415.279   1060.85    6.05     .57  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .092  -3.3999                                      .0003      .00    7.30     .39      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.393 5407.665   7.667  5415.332   1060.85    5.77     .52  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .099  -3.3999                                      .0003      .00    7.67     .37      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.491 5407.330   8.050  5415.380   1060.85    5.49     .47  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .105  -3.3999                                      .0003      .00    8.05     .34      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.597 5406.971   8.453  5415.424   1060.85    5.23     .42  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .113  -3.3999                                      .0002      .00    8.45     .32      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.710 5406.587   8.876  5415.463   1060.85    4.98     .39  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .120  -3.3999                                      .0002      .00    8.88     .29      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.830 5406.180   9.319  5415.499   1060.85    4.74     .35  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .127  -3.3999                                      .0002      .00    9.32     .27      .00    .013      .00    .00 RECTANG
         |         |        |         |         |              |          |       |        |        |       |       |     |
 1786.957 5405.746   9.785  5415.531   1060.85    4.52     .32  5415.85     .00    3.93    24.00   30.000  24.000    .00  0    .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
     .043  -3.3999                                      .0002      .00    9.79     .25      .00    .013      .00    .00 RECTANG
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FILE: duke.WSW                                        W S P G W - CIVILDESIGN Version 14.05                                     PAGE    4
                                                Program Package Serial Number: 1454
                                                            WATER SURFACE PROFILE LISTING                         Date: 2-24-2017  Time:11:33:51
                                    Juan Tabo Hills Estates
                                      Developed 100-YR Flow Rates
                                        Duke City north of Sandia Sunset Ave.
****************************************************************************************************************************** ********
         | Invert  | Depth  |  Water  |    Q    |  Vel    Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head |  Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-   -|-        -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |         |       SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |         |       |        |        |       |       |      |
 1787.000  5405.600    9.941  5415.542   1060.85    4.45     .31  5415.85    2.36    3.93    24.00  30.000  24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0000                                          .0001      .00   12.30     .25            .013      .00   .00  RECTANG
         |         |        |         |         |       |         |       |        |        |       |       |      |
 1793.000  5405.600   10.197  5415.797    980.79    4.01     .25  5416.05     .00    3.73    24.00  30.000  24.000   .00   0   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
TRANS STR  5.3999                                                           10.20     .22            .013      .00   .00  RECTANG
JB pipe in         |        |         |         |       |         |       |        |        |       |       |      |
 1794.000  5411.000    6.002  5417.002    980.79   25.88   10.40  5427.40     .00    7.23     6.00   7.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  245.000    .0163                                          .0174     4.26    6.00    1.81     6.14    .013      .00   .00  PIPE
         |         |        |         |         |       |         |       |        |        |       |       |      |
 2039.000  5415.000    5.896  5420.896    980.79   26.33   10.76  5431.66     .00    7.23     6.15   7.500    .000   .00   1   .0
MH-13   -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   20.340    .0292                                          .0174      .35    5.90    1.89     4.84    .013      .00   .00  PIPE
         |         |        |         |         |       |         |       |        |        |       |       |      |
 2059.340  5415.593    5.994  5421.587    980.79   25.91   10.42  5432.01     .00    7.23     6.01   7.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   48.874    .0292                                          .0163      .80    5.99    1.82     4.84    .013      .00   .00  PIPE
         |         |        |         |         |       |         |       |        |        |       |       |      |
 2108.213  5417.019    6.315  5423.333    980.79   24.70    9.48  5432.81     .00    7.23     5.47   7.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   33.897    .0292                                          .0150      .51    6.32    1.62     4.84    .013      .00   .00  PIPE
         |         |        |         |         |       |         |       |        |        |       |       |      |
 2142.111  5418.007    6.697  5424.705    980.79   23.55    8.61  5433.32     .00    7.23     4.64   7.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   16.889    .0292                                          .0144      .24    6.70    1.39     4.84    .013      .00   .00  PIPE
         |         |        |         |         |       |         |       |        |        |       |       |      |
 2159.000  5418.500    7.231  5425.731    980.79   22.46    7.83  5433.56    7.50    7.23     2.79   7.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .5625                                                            7.50    1.00            .013      .00   .00  PIPE
MH-12    |         |        |         |         |       |         |       |        |        |       |       |      |
 2167.000  5423.000    1.298  5424.297     17.80    8.25    1.06  5425.35     .00    1.52     1.91   2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   32.065    .0109                                          .0109      .35    1.30    1.37     1.30    .013      .00   .00  PIPE
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FILE: duke.WSW                          W S P G W - CIVILDESIGN Version 14.05                             PAGE    5
                                 Program Package Serial Number: 1454
                                               WATER SURFACE PROFILE LISTING                    Date: 2-24-2017  Time:11:33:51
                           Juan Tabo Hills Estates
                             Developed 100-YR Flow Rates
                               Duke City north of Sandia Sunset Ave.
******************************************************************************************************************** ********
         | Invert  | Depth  | Water   |    Q    | Vel     Vel  |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head |  Grd.El. |  Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-    -|-        -|-      -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |       |SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall| ZR  |Type Ch
*********|*********|********|*********|*********|*******|******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2199.065  5423.348   1.298  5424.646     17.80    8.25   1.06  5425.70     .00     1.52     1.91    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   69.387    .0109                                         .0105      .73    1.30     1.37     1.30    .013     .00   .00  PIPE
         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2268.452  5424.103   1.330  5425.433     17.80    8.02   1.00  5426.43     .00     1.52     1.89    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   25.669    .0109                                         .0096      .25    1.33     1.30     1.30    .013     .00   .00  PIPE
         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2294.121  5424.381   1.388  5425.770     17.80    7.65    .91  5426.68     .00     1.52     1.84    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    8.878    .0109                                         .0085      .08    1.39     1.20     1.30    .013     .00   .00  PIPE
         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2302.999  5424.478   1.450  5425.928     17.80    7.29    .83  5426.75     .00     1.52     1.79    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    2.001    .0109                                         .0076      .02    1.45     1.10     1.30    .013     .00   .00  PIPE
         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2305.000  5424.500   1.520  5426.020     17.80    6.95    .75  5426.77     .00     1.52     1.71    2.000    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR   .1250                                          .0072      .03    1.52     1.00             .013     .00   .00  PIPE
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Inlet 19

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         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2309.000  5425.000   2.180  5427.180      8.90    5.04    .39  5427.57     .00     1.15      .00    1.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   21.000    .0095                                         .0072      .15    2.18      .00     1.08    .013     .00   .00  PIPE
         |         |        |         |         |       |      |         |       |        |        |       |       |     |
 2330.000  5425.200   2.131  5427.331      8.90    5.04    .39  5427.72     .00     1.15      .00    1.500    .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
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Inlet 18

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FILE: dukes.WSW                       W S P G W - CIVILDESIGN Version 14.05                                   PAGE    1
                                  Program Package Serial Number: 1454
                                               WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:29:33
                           Juan Tabo Hills Estates
                             Developed 100-YR Flow Rates
                               Duke City south of Sandia Sunset Ave.
********************************************************************************************************************** ********
          | Invert  |  Depth  |  Water  |    Q    |  Vel   |  Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)  |  Head | Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem   |Ch Slope |         |         |         |        | SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1671.000  5403.000    7.500  5410.500   1060.85    3.21      .16  5410.66     .00     2.62    44.00   30.000  44.000   .00   0   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1000                                                              7.50     .21             .045     .00   .00  RECTANG
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1690.000  5404.900    2.126  5407.026   1060.85   20.79     6.71  5413.74     .00     3.93    24.00   30.000  24.000   .00   0   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .1001                                          .0107      .01     2.13     2.51             .013     .00   .00  RECTANG
Outfall to Tijeras    |         |         |        |       |         |       |        |        |       |       |     |
 1691.000  5405.000    5.987  5410.987   1060.85   15.13     3.56  5414.54     .00     5.99     4.93    7.000    .000   .00   2   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   84.791    .0056                                         .0062      .53     5.99      .71     7.00    .013     .00   .00  PIPE
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1775.791  5405.471    6.367  5411.838   1060.85   14.43     3.23  5415.07     .00     5.99     4.01    7.000    .000   .00   2   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    5.209    .0056                                         .0060      .03     6.37      .59     7.00    .013     .00   .00  PIPE
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1781.000  5405.500    6.375  5411.875   1060.85   14.42     3.23  5415.10     .00     5.99     3.99    7.000    .000   .00   2   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
TRANS STR   .0000                                          .0031      .01     6.38      .59             .013     .00   .00  PIPE
JB out    |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1785.000  5405.500   10.047  5415.547   1060.85    4.40      .30  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
 inv     -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .125   3.5000                                         .0002      .00    10.05      .24      .39    .013     .00   .00  RECTANG
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1785.125  5405.938    9.579  5415.517   1060.85    4.61      .33  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .118   3.5000                                         .0002      .00     9.58      .26      .39    .013     .00   .00  RECTANG
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1785.243  5406.350    9.134  5415.484   1060.85    4.84      .36  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .111   3.5000                                         .0002      .00     9.13      .28      .39    .013     .00   .00  RECTANG
          |         |         |         |         |        |       |         |       |        |        |       |       |     |
 1785.354  5406.739    8.709  5415.447   1060.85    5.08      .40  5415.85     .00     3.93    24.00   30.000  24.000   .00   0   .0
         -|-       -|-       -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
     .104   3.5000                                         .0002      .00     8.71      .30      .39    .013     .00   .00  RECTANG
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FILE: dukes.WSW                          W S P G W - CIVILDESIGN Version 14.05                                    PAGE    2
                                   Program Package Serial Number: 1454
                                                 WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:29:33
                          Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                              Duke City south of Sandia Sunset Ave.
************************************************************************************************************************ ********
         | Invert  | Depth  |  Water   |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev    |  (CFS)  |  (FPS)   Head |  Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |          |         |        SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall| ZR  |Type Ch
*********|*********|********|**********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.458 5407.104   8.303  5415.407   1060.85    5.32      .44  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .098  3.5000                                           .0003     .00    8.30     .33      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.556 5407.446   7.917  5415.363   1060.85    5.58      .48  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .091  3.5000                                           .0003     .00    7.92     .35      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.648 5407.766   7.548  5415.314   1060.85    5.86      .53  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .085  3.5000                                           .0004     .00    7.55     .38      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.733 5408.064   7.197  5415.261   1060.85    6.14      .59  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .079  3.5000                                           .0004     .00    7.20     .40      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.812 5408.340   6.862  5415.203   1060.85    6.44      .64  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .073  3.5000                                           .0005     .00    6.86     .43      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.885 5408.595   6.543  5415.138   1060.85    6.76      .71  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .067  3.5000                                           .0005     .00    6.54     .47      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1785.951 5408.829   6.238  5415.067   1060.85    7.09      .78  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .049  3.5000                                           .0006     .00    6.24     .50      .39    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1786.000 5409.000   6.007  5415.007   1060.85    7.36      .84  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
weir    -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .065 -3.3999                                           .0006     .00    6.01     .53      .00    .013      .00   .00  RECTANG
         |         |        |          |         |              |         |       |        |        |       |       |     |
 1786.065 5408.778   6.308  5415.085   1060.85    7.01      .76  5415.85     .00    3.93    24.00   30.000   24.000   .00   0   .0
        -|-       -|-      -|-        -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .072 -3.3999                                           .0005     .00    6.31     .49      .00    .013      .00   .00  RECTANG
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FILE: dukes.WSW                              W S P G W - CIVILDESIGN Version 14.05                                                PAGE    3
                                    Program Package Serial Number: 1454
                                                      WATER SURFACE PROFILE LISTING                      Date: 2-24-2017  Time:10:29:33
                              Juan Tabo Hills Estates
                                Developed 100-YR Flow Rates
                                  Duke City south of Sandia Sunset Ave.
**************************************************************************************************************************** ********
         | Invert  | Depth  | Water   |    Q    |  Vel    Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)   Head  | Grd.El.  | Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.137  5408.533   6.623  5415.156   1060.85    6.67     .69  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .078  -3.3999                                            .0005      .00     6.62     .46      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.216  5408.267   6.954  5415.221   1060.85    6.36     .63  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .085  -3.3999                                            .0004      .00     6.95     .42      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.301  5407.977   7.302  5415.279   1060.85    6.05     .57  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .092  -3.3999                                            .0003      .00     7.30     .39      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.393  5407.665   7.667  5415.332   1060.85    5.77     .52  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .099  -3.3999                                            .0003      .00     7.67     .37      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.491  5407.330   8.050  5415.380   1060.85    5.49     .47  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .105  -3.3999                                            .0003      .00     8.05     .34      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.597  5406.971   8.453  5415.424   1060.85    5.23     .42  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .113  -3.3999                                            .0002      .00     8.45     .32      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.710  5406.587   8.876  5415.463   1060.85    4.98     .39  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .120  -3.3999                                            .0002      .00     8.88     .29      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.830  5406.180   9.319  5415.499   1060.85    4.74     .35  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .127  -3.3999                                            .0002      .00     9.32     .27      .00    .013     .00   .00  RECTANG
         |         |        |         |         |              |          |        |        |        |       |       |      |
 1786.957  5405.746   9.785  5415.531   1060.85    4.52     .32  5415.85      .00     3.93    24.00   30.000  24.000   .00   0    .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-      -|-      -|-      -|-     -|-     -|-     |-
     .043  -3.3999                                            .0002      .00     9.79     .25      .00    .013     .00   .00  RECTANG
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FILE: dukes.WSW                    W S P G W - CIVILDESIGN Version 14.05                              PAGE    4
                            Program Package Serial Number: 1454
                                          WATER SURFACE PROFILE LISTING                 Date: 2-24-2017  Time:10:29:33
                   Juan Tabo Hills Estates
                     Developed 100-YR Flow Rates
                       Duke City south of Sandia Sunset Ave.
************************************************************************************************************ ********
         | Invert   | Depth  |  Water   |    Q     |  Vel   |  Vel   |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev    |  (FT)  |  Elev    |  (CFS)   | (FPS)  |  Head  | Grd.El.  | Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope  |        |          |          |        | SF Ave |   HF     |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 1787.000 5405.600    9.941  5415.542   1060.85     4.45      .31  5415.85     2.36    3.93    24.00   30.000  24.000   .00   0   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0000                                          .0001      .00    12.30     .25              .013     .00   .00 RECTANG
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 1793.000 5405.600   10.197  5415.797    980.79     4.01      .25  5416.05      .00    3.73    24.00   30.000  24.000   .00   0   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
TRANS STR  5.3999                                                            10.20     .22              .013     .00   .00 RECTANG
JB Pipe in
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 1794.000 5411.000    6.002  5417.002    980.79    25.88    10.40  5427.40      .00    7.23     6.00    7.500    .000   .00   1   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  245.000   .0163                                          .0174     4.26     6.00    1.81     6.14     .013     .00   .00 PIPE
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 2039.000 5415.000    5.896  5420.896    980.79    26.33    10.76  5431.66      .00    7.23     6.15    7.500    .000   .00   1   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   20.340   .0292                                          .0174      .35     5.90    1.89     4.84     .013     .00   .00 PIPE
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 2059.340 5415.593    5.994  5421.587    980.79    25.91    10.42  5432.01      .00    7.23     6.01    7.500    .000   .00   1   .0
MH-13
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   48.874   .0292                                          .0163      .80     5.99    1.82     4.84     .013     .00   .00 PIPE
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 2108.213 5417.019    6.315  5423.333    980.79    24.70     9.48  5432.81      .00    7.23     5.47    7.500    .000   .00   1   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   33.897   .0292                                          .0150      .51     6.32    1.62     4.84     .013     .00   .00 PIPE
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 2142.111 5418.007    6.697  5424.705    980.79    23.55     8.61  5433.32      .00    7.23     4.64    7.500    .000   .00   1   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
   16.889   .0292                                          .0144      .24     6.70    1.39     4.84     .013     .00   .00 PIPE
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 2159.000 5418.500    7.231  5425.731    980.79    22.46     7.83  5433.56     7.50    7.23     2.79    7.500    .000   .00   1   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .8750                                                             7.50    1.00              .013     .00   .00 PIPE
MH-12
         |          |        |          |          |        |        |          |       |        |        |       |       |      |
 2167.000 5425.500    1.713  5427.213     24.44     8.53     1.13  5428.34      .00    1.75     1.40    2.000    .000   .00   1   .0
        -|-        -|-      -|-        -|-        -|-      -|-      -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
  124.700   .0109                                          .0109     1.36     1.71    1.05     1.71     .013     .00   .00 PIPE
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FILE: dukes.WSW                          W S P G W - CIVILDESIGN Version 14.05                                  PAGE    5
                                   Program Package Serial Number: 1454
                                             WATER SURFACE PROFILE LISTING                  Date: 2-24-2017  Time:10:29:33
                        Juan Tabo Hills Estates
                          Developed 100-YR Flow Rates
                            Duke City south of Sandia Sunset Ave.
************************************************************************************************************************ ********
         | Invert  | Depth  |  Water  |    Q    |  Vel      Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)     Head |  Grd.El. | Elev  | Depth  | Width  |Dia.-FT|or I.D.| ZL  |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |      SF Ave|   HF       |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall| ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2291.700 5426.855    1.713  5428.568     24.44    8.53     1.13  5429.70     .00     1.75     1.40    2.000    .000   .00  1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
   13.300    .0109                                       .0107       .14    1.71     1.05     1.71     .013     .00   .00 PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2305.000 5427.000    1.747  5428.747     24.44    8.40     1.09  5429.84    2.00     1.75     1.33    2.000    .000   .00  1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
JUNCT STR   .1250                                        .0121       .05    2.00     1.00             .013     .00   .00 PIPE
MH-81    |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2309.000 5427.500    2.898  5430.398     12.22    6.92      .74  5431.14     .00     1.32      .00    1.500    .000   .00  1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
   21.000    .0095                                       .0135       .28    2.90      .00     1.50     .013     .00   .00 PIPE
         |         |        |         |         |       |       |         |       |        |        |       |       |     |
 2330.000 5427.700    2.982  5430.682     12.22    6.92      .74  5431.42     .00     1.32      .00    1.500    .000   .00  1   .0
Inlet 17          -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-   |-
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FILE: swqmh.WSW                                W S P G W - CIVILDESIGN Version 14.05                                 PAGE    1
                                    Program Package Serial Number: 1454
                                                      WATER SURFACE PROFILE LISTING                       Date: 6-10-2016  Time:12:32:19
                              Juan Tabo Hills Estates
                                Developed 100-YR Flow Rates
                                  SWQ MH thru Tract K to SWQ Pond
************************************************************************************************************************** ********
         | Invert  | Depth | Water  |    Q    |  Vel    Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   | (FT)  |  Elev  |  (CFS)  | (FPS)   Head |  Grd.El.|  Elev |  Depth |  Width |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |       |        |         |        SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|*******|********|*********|*******|******|*********|*******|********|********|*******|*******|***** |*******
         |         |       |        |         |              |         |       |        |        |       |       |      |
  150.000  5383.000   9.800 5392.800    198.04     .81     .01  5392.81     .00     1.25    25.00  30.000  25.000    .00   0   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
TRANS STR   .2222                                         .0053      .05    9.80      .05           .045     .00    .00  RECTANG
         |         |       |        |         |              |         |       |        |        |       |       |      |
  159.000  5385.000   7.645 5392.645    198.04    5.18     .42  5393.06     .00     3.65     5.00  30.000   5.000    .00   0   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
TRANS STR   .0000                                         .0055      .01    7.65      .33           .013     .00    .00  RECTANG
Pipe into SWQ Pond
         |         |       |        |         |              |         |       |        |        |       |       |      |
  160.000  5385.000   6.655 5391.655    198.04   12.45    2.41  5394.06     .00     4.02      .00   4.500    .000    .00   1   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   52.000    .0096                                        .0101      .53    6.66      .00     3.81    .013     .00    .00  PIPE
         |         |       |        |         |              |         |       |        |        |       |       |      |
  212.000  5385.500   6.857 5392.357    198.04   12.45    2.41  5394.77     .00     4.02      .00   4.500    .000    .00   1   .0
MH-31   -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  102.000    .0108                                        .0101     1.03    6.86      .00     3.57    .013     .00    .00  PIPE
         |         |       |        |         |              |         |       |        |        |       |       |      |
  314.000  5386.600   6.792 5393.392    198.04   12.45    2.41  5395.80     .00     4.02      .00   4.500    .000    .00   1   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0833                                         .0076      .05    6.79      .00           .013     .00    .00  PIPE
MH-30    |         |       |        |         |              |         |       |        |        |       |       |      |
  320.000  5387.100   8.773 5395.873    139.21    8.75    1.19  5397.06     .00     3.47      .00   4.500    .000    .00   1   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   33.000    .0091                                        .0050      .17    8.77      .00     2.89    .013     .00    .00  PIPE
         |         |       |        |         |              |         |       |        |        |       |       |      |
  353.000  5387.400   9.051 5396.451    139.21    8.75    1.19  5397.64     .00     3.47      .00   4.500    .000    .00   1   .0
MH-29   -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  399.000    .0090                                        .0050     2.00    9.05      .00     2.89    .013     .00    .00  PIPE
         |         |       |        |         |              |         |       |        |        |       |       |      |
  752.000  5391.000   7.451 5398.451    139.21    8.75    1.19  5399.64     .00     3.47      .00   4.500    .000    .00   1   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0125                                         .0046      .04    7.45      .00           .013     .00    .00  PIPE
MH-28    |         |       |        |         |              |         |       |        |        |       |       |      |
  760.000  5391.100   7.816 5398.916    126.05    7.93     .98  5399.89     .00     3.30      .00   4.500    .000    .00   1   .0
        -|-       -|-     -|-      -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   20.000    .0100                                        .0041      .08    7.82      .00     2.62    .013     .00    .00  PIPE
```

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FILE: swqmh.WSW                              W S P G W - CIVILDESIGN Version 14.05                                           PAGE    2
                                      Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                           Date: 6-10-2016  Time:12:32:19
                            Juan Tabo Hills Estates
                              Developed 100-YR Flow Rates
                                SWQ MH thru Tract K to SWQ Pond
************************************************************************************************************************************** ********
         | Invert  |  Depth |  Water   |     Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev    |   (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |          |          |        SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|**********|**********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |          |          |              |         |       |        |        |       |       |      |
  780.000  5391.300   7.795  5399.095     126.05    7.93      .98  5400.07     .00    3.30      .00    4.500    .000   .00   1   .0
MH-27   -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   97.000    .0113                                           .0041     .40    7.80     .00     2.52    .013     .00   .00  PIPE
         |         |        |          |          |              |         |       |        |        |       |       |      |
  877.000  5392.400   7.191  5399.591     126.05    7.93      .98  5400.57     .00    3.30      .00    4.500    .000   .00   1   .0
MH-26   -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   92.000    .0109                                           .0041     .38    7.19     .00     2.55    .013     .00   .00  PIPE
         |         |        |          |          |              |         |       |        |        |       |       |      |
  969.000  5393.400   6.666  5400.066     126.05    7.93      .98  5401.04     .00    3.30      .00    4.500    .000   .00   1   .0
MH 25   -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  128.000    .0047                                           .0041     .53    6.67     .00     3.45    .013     .00   .00  PIPE
         |         |        |          |          |              |         |       |        |        |       |       |      |
 1097.000  5394.000   6.592  5400.592     126.05    7.93      .98  5401.57     .00    3.30      .00    4.500    .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0833                                            .0045     .03     .00     .00             .013     .00   .00  PIPE
MH 24    |         |        |          |          |              |         |       |        |        |       |       |      |
 1103.000  5394.500   6.228  5400.729     100.05    7.96      .98  5401.71     .00    3.03      .00    4.000    .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  189.000    .0101                                           .0049     .92    6.23     .00     2.45    .013     .00   .00  PIPE
         |         |        |          |          |              |         |       |        |        |       |       |      |
 1292.000  5396.400   5.392  5401.792     100.05    7.96      .98  5402.78     .00    3.03      .00    4.000    .000   .00   1   .0
MH-23   -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  134.000    .0119                                           .0049     .65    5.39     .00     2.32    .013     .00   .00  PIPE
         |         |        |          |          |              |         |       |        |        |       |       |      |
 1426.000  5398.000   4.442  5402.442     100.05    7.96      .98  5403.43     .00    3.03      .00    4.000    .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .1250                                            .0043     .02    4.44     .00             .013     .00   .00  PIPE
Inlet S6 |         |        |          |          |              |         |       |        |        |       |       |      |
 1430.000  5398.500   4.781  5403.281      62.35    6.48      .65  5403.93     .00    2.47      .00    3.500    .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  149.000    .0093                                           .0038     .57    4.78     .00     2.04    .013     .00   .00  PIPE
         |         |        |          |          |              |         |       |        |        |       |       |      |
 1579.000  5399.880   3.974  5403.854      62.35    6.48      .65  5404.51     .00    2.47      .00    3.500    .000   .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .0833                                            .0056     .03    3.97     .00             .013     .00   .00  PIPE
MH 22
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FILE: swqmh.WSW                                      W S P G W - CIVILDESIGN Version 14.05                                   PAGE    3
                                        Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                        Date: 6-10-2016  Time:12:32:19
                                  Juan Tabo Hills Estates
                                    Developed 100-YR Flow Rates
                                      SWQ MH thru Tract K to SWQ Pond
*********************************************************************************************************************************** ********
         | Invert  |  Depth |  Water   |     Q    |  Vel     Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station |  Elev   |  (FT)  |  Elev    |   (CFS)  | (FPS)   Head |  Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem  |Ch Slope |        |          |          |       SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|**********|**********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |          |          |              |          |       |        |        |       |       |       |
 1585.000  5400.380   3.509  5403.889     35.37     7.21      .81  5404.69     .00    2.02      .00    2.500     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
  240.000    .0076                                          .0074     1.78    3.51     .00    2.03    .013      .00    .00  PIPE
         |         |        |          |          |              |          |       |        |        |       |       |       |
 1825.000  5402.200   3.673  5405.873     35.37     7.21      .81  5406.68     .00    2.02      .00    2.500     .000    .00   1   .0
MH-21   -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
  307.000    .0078                                          .0074     2.28    3.67     .00    1.99    .013      .00    .00  PIPE
         |         |        |          |          |              |          |       |        |        |       |       |       |
 2132.000  5404.610   3.719  5408.329     35.37     7.21      .81  5409.14     .00    2.02      .00    2.500     .000    .00   1   .0
MH 20   -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
   78.000    .0114                                          .0074      .58    3.72     .00    1.70    .013      .00    .00  PIPE
         |         |        |          |          |              |          |       |        |        |       |       |       |
 2210.000  5405.500   3.409  5408.909     35.37     7.21      .81  5409.72     .00    2.02      .00    2.500     .000    .00   1   .0
Junction Box      -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|-
```

Running Bear Ave to SWQ Pond

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FILE: bear.WSW                          W S P G W - CIVILDESIGN Version 14.05                               PAGE    1
                                  Program Package Serial Number: 1454
                                              WATER SURFACE PROFILE LISTING                  Date: 7-15-2016  Time: 2: 1:43
                             Juan Tabo Hills Estates
                               Developed 100-YR Flow Rates
                                 Running Bear Ave to SWQ Pond
****************************************************************************************************************** ********
         | Invert  | Depth | Water  |   Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station |  Elev   | (FT)  |  Elev  | (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem  |Ch Slope |       |        |        |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |               |         |       |        |        |       |       |       |
  150.000  5383.000   9.800  5392.800   198.04     .81      .01  5392.81     .00     1.25    25.00   30.000  25.000    .00    0    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
TRANS STR    .2222                                     .0053      .05    9.80     .05              .045     .00    .00  RECTANG
         |         |        |         |         |               |         |       |        |        |       |       |       |
  159.000  5385.000   7.645  5392.645   198.04    5.18      .42  5393.06     .00     3.65     5.00   30.000   5.000    .00    0    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
TRANS STR    .0000                                     .0055      .01    7.65     .33              .013     .00    .00  RECTANG
Pipe into SWQ Pond
         |         |        |         |         |               |         |       |        |        |       |       |       |
  160.000  5385.000   6.655  5391.655   198.04   12.45     2.41  5394.06     .00     4.02      .00    4.500    .000    .00    1    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   52.000    .0096                                     .0101      .53    6.66      .00     3.81     .013     .00    .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |       |
  212.000  5385.500   6.857  5392.357   198.04   12.45     2.41  5394.77     .00     4.02      .00    4.500    .000    .00    1    .0
MH-31   -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  102.000    .0108                                     .0101     1.03    6.86      .00     3.57     .013     .00    .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |       |
  314.000  5386.600   6.792  5393.392   198.04   12.45     2.41  5395.80     .00     4.02      .00    4.500    .000    .00    1    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
JUNCT STR    .0833                                     .0076      .05    6.79      .00              .013     .00    .00  PIPE
MH-30    |         |        |         |         |               |         |       |        |        |       |       |       |
  320.000  5387.100   8.773  5395.873   139.21    8.75     1.19  5397.06     .00     3.47      .00    4.500    .000    .00    1    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   33.000    .0091                                     .0050      .17    8.77      .00     2.89     .013     .00    .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |       |
  353.000  5387.400   9.051  5396.451   139.21    8.75     1.19  5397.64     .00     3.47      .00    4.500    .000    .00    1    .0
MH-29   -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  399.000    .0090                                     .0050     2.00    9.05      .00     2.89     .013     .00    .00  PIPE
         |         |        |         |         |               |         |       |        |        |       |       |       |
  752.000  5391.000   7.451  5398.451   139.21    8.75     1.19  5399.64     .00     3.47      .00    4.500    .000    .00    1    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
JUNCT STR    .0625                                     .0042      .03     .00      .00              .013     .00    .00  PIPE
MH-28    |         |        |         |         |               |         |       |        |        |       |       |       |
  760.000  5391.500   7.901  5399.401    13.16    4.19      .27  5399.67     .00     1.31      .00    2.000    .000    .00    1    .0
        -|-       -|-     -|-      -|-      -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  149.167    .0422                                     .0034      .50    7.90      .00      .73     .013     .00    .00  PIPE
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FILE: bear.WSW                         W S P G W - CIVILDESIGN Version 14.05                                      PAGE    2
                                Program Package Serial Number: 1454
                                                 WATER SURFACE PROFILE LISTING                         Date: 7-15-2016  Time: 2: 1:43
                           Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                             Running Bear Ave to SWQ Pond
************************************************************************************************************************* ********
         | Invert  |  Depth |  Water   |    Q     |  Vel     Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev    |  (CFS)   | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem  |Ch Slope |        |          |          |        SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|**********|**********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |          |          |               |         |       |        |        |       |       |      |
  909.167  5397.801   2.189  5399.990     13.16    4.19     .27  5400.26     .00    1.31      .00    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
HYDRAULIC JUMP
         |         |        |          |          |               |         |       |        |        |       |       |      |
  909.167  5397.801    .734  5398.535     13.16   12.59    2.46  5401.00     .00    1.31     1.93    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   39.625    .0422                                        .0400     1.59     .73    3.01      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
  948.792  5399.475    .743  5400.218     13.16   12.39    2.38  5402.60     .00    1.31     1.93    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   34.607    .0422                                        .0367     1.27     .74    2.94      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
  983.399  5400.937    .769  5401.706     13.16   11.81    2.17  5403.87     .00    1.31     1.95    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   16.845    .0422                                        .0322      .54     .77    2.75      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
 1000.245  5401.648    .797  5402.445     13.16   11.26    1.97  5404.41     .00    1.31     1.96    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   10.739    .0422                                        .0283      .30     .80    2.57      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
 1010.984  5402.102    .826  5402.928     13.16   10.74    1.79  5404.72     .00    1.31     1.97    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    7.619    .0422                                        .0248      .19     .83    2.40      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
 1018.602  5402.423    .856  5403.279     13.16   10.24    1.63  5404.91     .00    1.31     1.98    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    5.672    .0422                                        .0218      .12     .86    2.24      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
 1024.274  5402.663    .888  5403.551     13.16    9.76    1.48  5405.03     .00    1.31     1.99    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    4.397    .0422                                        .0192      .08     .89    2.09      .73    .013     .00    .00  PIPE
         |         |        |          |          |               |         |       |        |        |       |       |      |
 1028.672  5402.849    .921  5403.770     13.16    9.31    1.34  5405.11     .00    1.31     1.99    2.000    .000    .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    3.437    .0422                                        .0169      .06     .92    1.95      .73    .013     .00    .00  PIPE
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FILE: bear.WSW                               W S P G W - CIVILDESIGN Version 14.05                                       PAGE    3
                                     Program Package Serial Number: 1454
                                                WATER SURFACE PROFILE LISTING                          Date: 7-15-2016  Time: 2: 1:43
                          Juan Tabo Hills Estates
                           Developed 100-YR Flow Rates
                            Running Bear Ave to SWQ Pond
******************************************************************************************************************************** ********
         | Invert  |  Depth |  Water   |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev    |  (CFS)  | (FPS)   Head |  Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
L/Elem   |Ch Slope |        |          |         |        SF Ave|   HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1032.109  5402.994    .956  5403.950     13.16     8.87    1.22  5405.17     .00    1.31     2.00    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   2.741    .0422                                          .0148      .04     .96    1.81      .73    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1034.850  5403.109    .992  5404.102     13.16     8.46    1.11  5405.21     .00    1.31     2.00    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   2.150    .0422                                          .0131      .03     .99    1.69      .73    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1037.000  5403.201   1.030  5404.231     13.16     8.07    1.01  5405.24     .00    1.31     2.00    2.000    .000    .00   1   .0
MH-35   -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  38.785    .0129                                          .0115      .45    1.03    1.57     1.02    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1075.785  5403.700   1.069  5404.769     13.16     7.70     .92  5405.69     .00    1.31     2.00    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
  15.501    .0129                                          .0102      .16    1.07    1.47     1.02    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1091.286  5403.899   1.111  5405.010     13.16     7.34     .84  5405.85     .00    1.31     1.99    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   8.260    .0129                                          .0090      .07    1.11    1.36     1.02    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1099.546  5404.005   1.155  5405.160     13.16     7.00     .76  5405.92     .00    1.31     1.98    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   4.495    .0129                                          .0079      .04    1.16    1.26     1.02    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1104.041  5404.063   1.202  5405.265     13.16     6.67     .69  5405.96     .00    1.31     1.96    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   2.371    .0129                                          .0070      .02    1.20    1.17     1.02    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1106.412  5404.093   1.251  5405.344     13.16     6.36     .63  5405.97     .00    1.31     1.94    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .588    .0129                                          .0062      .00    1.25    1.08     1.02    .013     .00    .00  PIPE
         |         |        |          |         |              |         |       |        |        |       |       |      |
 1107.000  5404.100   1.305  5405.405     13.16     6.06     .57  5405.98    2.00    1.31     1.90    2.000    .000    .00   1   .0
        -|-       -|-      -|-        -|-       -|-     -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR   .1250                                          .0049      .02    2.00    1.00              .013     .00    .00  PIPE
Inlet 8
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FILE: bear.WSW                                W S P G W - CIVILDESIGN Version 14.05                                      PAGE    4
                                    Program Package Serial Number: 1454
                                                  WATER SURFACE PROFILE LISTING                        Date: 7-15-2016  Time: 2: 1:43
                               Juan Tabo Hills Estates
                                 Developed 100-YR Flow Rates
                                   Running Bear Ave to SWQ Pond
************************************************************************************************************************** ********
         | Invert  |  Depth |  Water   |    Q     |  Vel     Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|      |No Wth
 Station |  Elev   |  (FT)  |  Elev    |  (CFS)   | (FPS)    Head  | Grd.El.| Elev   | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
        -|-       -|-      -|-        -|-        -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-    -|
 L/Elem  |Ch Slope |        |          |          |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |          |          |               |          |        |        |        |       |       |      |
 1111.000  5404.600   1.696  5406.296      6.58     3.72      .22  5406.51     .00      .99      .00    1.500     .000   .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-      |-
   21.000    .0095                                         .0039      .08     1.70      .00      .87    .013       .00   .00  PIPE
         |         |        |          |          |               |          |        |        |        |       |       |      |
 1132.000  5404.800   1.603  5406.403      6.58     3.72      .22  5406.62     .00      .99      .00    1.500     .000   .00   1    .0
        -|-       -|-      -|-        -|-        -|-      -|-      -|-       -|-      -|-      -|-      -|-      -|-      -|-      |-
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Inlet#7

Manzano Vista to SWQ Pond

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FILE: Manzano.WSW                          W S P G W - CIVILDESIGN Version 14.05                                   PAGE    1
                                     Program Package Serial Number: 1454
                                                WATER SURFACE PROFILE LISTING                     Date: 7-15-2016  Time: 9:39:56
                               Juan Tabo Hills Estates
                                 Developed 100-YR Flow Rates
                                   Manzano Vista K to SWQ Pond
************************************************************************************************************************* ********
          | Invert  |  Depth  |  Water  |    Q    |  Vel      Vel    |  Energy  |  Super  |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)   |  Elev   |  (CFS)  | (FPS)    Head    | Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|
 L/Elem  |Ch Slope |         |         |         |          SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|*********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
  150.000  5383.000    9.800  5392.800    198.04     .81      .01  5392.81     .00    1.25     25.00   30.000   25.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
TRANS STR   .2222                                          .0053      .05     9.80     .05             .045      .00    .00  RECTANG
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
  159.000  5385.000    7.645  5392.645    198.04    5.18      .42  5393.06     .00    3.65      5.00   30.000    5.000   .00   0   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
TRANS STR   .0000                                          .0055      .01     7.65     .33             .013      .00    .00  RECTANG
Pipe into SWQ Pond |         |         |         |       |       |         |       |        |        |       |       |     |
  160.000  5385.000    6.655  5391.655    198.04   12.45     2.41  5394.06     .00    4.02       .00    4.500     .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
   52.000    .0096                                         .0101      .53     6.66     .00      3.81     .013      .00    .00  PIPE
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
  212.000  5385.500    6.857  5392.357    198.04   12.45     2.41  5394.77     .00    4.02       .00    4.500     .000   .00   1   .0
MH-31   -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
  102.000    .0108                                         .0101     1.03     6.86     .00      3.57     .013      .00    .00  PIPE
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
  314.000  5386.600    6.792  5393.392    198.04   12.45     2.41  5395.80     .00    4.02       .00    4.500     .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
JUNCT STR   .0833                                          .0076      .05     6.79     .00             .013      .00    .00  PIPE
MH-30    |         |         |         |         |       |       |         |       |        |        |       |       |     |
  320.000  5387.100    8.773  5395.873    139.21    8.75     1.19  5397.06     .00    3.47       .00    4.500     .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
   33.000    .0091                                         .0050      .17     8.77     .00      2.89     .013      .00    .00  PIPE
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
  353.000  5387.400    9.051  5396.451    139.21    8.75     1.19  5397.64     .00    3.47       .00    4.500     .000   .00   1   .0
MH-29   -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
  399.000    .0090                                         .0050     2.00     9.05     .00      2.89     .013      .00    .00  PIPE
         |         |         |         |         |       |       |         |       |        |        |       |       |     |
  752.000  5391.000    7.451  5398.451    139.21    8.75     1.19  5399.64     .00    3.47       .00    4.500     .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
JUNCT STR   .0125                                          .0046      .04     7.45     .00             .013      .00    .00  PIPE
MH-28    |         |         |         |         |       |       |         |       |        |        |       |       |     |
  760.000  5391.100    7.816  5398.916    126.05    7.93      .98  5399.89     .00    3.30       .00    4.500     .000   .00   1   .0
        -|-       -|-       -|-       -|-       -|-       -|-       -|-       -|-      -|-      -|-      -|-      -|-      -|-
   20.000    .0100                                         .0041      .08     7.82     .00      2.62     .013      .00    .00  PIPE
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FILE: Manzano.WSW                          W S P G W - CIVILDESIGN Version 14.05                                      PAGE    2
                                     Program Package Serial Number: 1454
                                                WATER SURFACE PROFILE LISTING                       Date: 7-15-2016  Time: 9:39:56
                                Juan Tabo Hills Estates
                                  Developed 100-YR Flow Rates
                                    Manzano Vista K to SWQ Pond
********************************************************************************************************************************  ********
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|        |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|   ZL   |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-      -|
 L/Elem  |Ch Slope |        |         |         |         SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|   ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |         |         |               |         |       |        |        |       |       |        |
  780.000  5391.300   7.795  5399.095    126.05    7.93      .98  5400.07     .00     3.30      .00    4.500    .000    .00    1   .0
MH 27-|-          -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
   97.000     .0113                                       .0041      .40    7.80      .00     2.52    .013      .00    .00   PIPE
         |         |        |         |         |               |         |       |        |        |       |       |        |
  877.000  5392.400   7.191  5399.591    126.05    7.93      .98  5400.57     .00     3.30      .00    4.500    .000    .00    1   .0
MH 26-|-          -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
   92.000     .0109                                       .0041      .38    7.19      .00     2.55    .013      .00    .00   PIPE
         |         |        |         |         |               |         |       |        |        |       |       |        |
  969.000  5393.400   6.666  5400.066    126.05    7.93      .98  5401.04     .00     3.30      .00    4.500    .000    .00    1   .0
MH 25-|-          -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
  128.000     .0047                                       .0041      .53    6.67      .00     3.45    .013      .00    .00   PIPE
         |         |        |         |         |               |         |       |        |        |       |       |        |
 1097.000  5394.000   6.592  5400.592    126.05    7.93      .98  5401.57     .00     3.30      .00    4.500    .000    .00    1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
JUNCT STR    .3333                                        .0087      .05     .00      .00             .013      .00    .00   PIPE
MH 24    |         |        |         |         |               |         |       |        |        |       |       |        |
 1103.000  5396.000   4.691  5400.691     26.00    8.28     1.06  5401.75     .00     1.79      .00    2.000    .000    .00    1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
   90.772     .0351                                       .0132     1.20    4.69      .00     1.13    .013      .00    .00   PIPE
         |         |        |         |         |               |         |       |        |        |       |       |        |
 1193.772  5399.187   2.773  5401.959     26.00    8.28     1.06  5403.02     .00     1.79      .00    2.000    .000    .00    1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
HYDRAULIC JUMP
         |         |        |         |         |               |         |       |        |        |       |       |        |
 1193.772  5399.187   1.142  5400.329     26.00   14.02     3.05  5403.38     .00     1.79     1.98    2.000    .000    .00    1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
   25.739     .0351                                       .0341      .88    1.14     2.55     1.13    .013      .00    .00   PIPE
         |         |        |         |         |               |         |       |        |        |       |       |        |
 1219.511  5400.091   1.142  5401.233     26.00   14.02     3.05  5404.29     .00     1.79     1.98    2.000    .000    .00    1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
   77.969     .0351                                       .0321     2.51    1.14     2.55     1.13    .013      .00    .00   PIPE
         |         |        |         |         |               |         |       |        |        |       |       |        |
 1297.480  5402.828   1.188  5404.016     26.00   13.37     2.77  5406.79     .00     1.79     1.96    2.000    .000    .00    1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-       |-
   30.520     .0351                                       .0284      .87    1.19     2.37     1.13    .013      .00    .00   PIPE
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FILE: Manzano.WSW                          W S P G W - CIVILDESIGN Version 14.05                                      PAGE    3
                                 Program Package Serial Number: 1454
                                             WATER SURFACE PROFILE LISTING                        Date: 7-15-2016  Time: 9:39:56
                           Juan Tabo Hills Estates
                            Developed 100-YR Flow Rates
                             Manzano Vista K to SWQ Pond
**************************************************************************************************************************** ********
          | Invert  |  Depth |  Water   |     Q     |  Vel     Vel   |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station  |  Elev   |  (FT)  |  Elev    |   (CFS)   | (FPS)    Head  |  Grd.El.|  Elev | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
         -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem   |Ch Slope |        |          |           |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1328.000  5403.900   1.237  5405.137     26.00    12.75    2.52  5407.66     .00    1.79     1.94    2.000     .000    .00   1    .0
MH 44    |-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   69.000    .0261                                         .0276     1.91    1.24    2.19     1.25    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1397.000  5405.700   1.210  5406.911     26.00    13.08    2.66  5409.57     .00    1.79     1.96    2.000     .000    .00   1    .0
MH 43    |-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   41.350    .0296                                         .0279     1.15    1.21    2.29     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1438.350  5406.924   1.227  5408.151     26.00    12.86    2.57  5410.72     .00    1.79     1.95    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   47.572    .0296                                         .0258     1.23    1.23    2.22     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1485.922  5408.333   1.278  5409.611     26.00    12.26    2.33  5411.95     .00    1.79     1.92    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   23.481    .0296                                         .0229      .54    1.28    2.06     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1509.403  5409.028   1.332  5410.360     26.00    11.69    2.12  5412.48     .00    1.79     1.89    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   14.456    .0296                                         .0203      .29    1.33    1.90     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1523.859  5409.456   1.391  5410.847     26.00    11.15    1.93  5412.78     .00    1.79     1.84    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    9.892    .0296                                         .0181      .18    1.39    1.75     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1533.751  5409.749   1.453  5411.202     26.00    10.63    1.75  5412.96     .00    1.79     1.78    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    6.766    .0296                                         .0162      .11    1.45    1.60     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1540.517  5409.949   1.522  5411.471     26.00    10.13    1.59  5413.07     .00    1.79     1.71    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    4.665    .0296                                         .0146      .07    1.52    1.46     1.20    .013      .00    .00  PIPE
         |         |        |          |           |              |          |       |        |        |       |       |       |
 1545.182  5410.087   1.597  5411.684     26.00     9.66    1.45  5413.13     .00    1.79     1.60    2.000     .000    .00   1    .0
        -|-       -|-      -|-        -|-         -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    2.798    .0296                                         .0132      .04    1.60    1.31     1.20    .013      .00    .00  PIPE
```

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FILE: Manzano.WSW                            W S P G W - CIVILDESIGN Version 14.05                                    PAGE    4
                                        Program Package Serial Number: 1454
                                                      WATER SURFACE PROFILE LISTING                       Date: 7-15-2016  Time: 9:39:56
                                 Juan Tabo Hills Estates
                                   Developed 100-YR Flow Rates
                                     Manzano Vista K to SWQ Pond
************************************************************************************************************************************ ********
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy | Super |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev |  Depth | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|    HF   |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR   |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****  |*******
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1547.980  5410.170   1.683  5411.853     26.00    9.21    1.32  5413.17     .00    1.79     1.46    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
   1.020     .0296                                            .0122      .01    1.68    1.17     1.20    .013     .00    .00  PIPE
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1549.000  5410.200   1.786  5411.986     26.00    8.78    1.20  5413.18     .00    1.79     1.24    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
JUNCT STR    .0249                                            .0072      .03    1.79    1.00             .013     .00    .00  PIPE
MH 42    |         |        |         |         |              |         |       |        |        |       |       |       |
 1553.000  5410.300   3.588  5413.888     11.80    3.76     .22  5414.11     .00    1.23      .00    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  51.017     .0338                                            .0027      .14    3.59     .00      .73    .013     .00    .00  PIPE
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1604.017  5412.026   2.000  5414.026     11.80    3.76     .22  5414.25     .00    1.23      .00    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
    .264     .0338                                            .0027      .00    2.00     .00      .73    .013     .00    .00  PIPE
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1604.281  5412.035   2.000  5414.035     11.80    3.76     .22  5414.25     .00    1.23      .00    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
HYDRAULIC JUMP
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1604.281  5412.035    .729  5412.764     11.80   11.40    2.02  5414.78     .00    1.23     1.92    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  14.075     .0338                                            .0339      .48     .73    2.74      .73    .013     .00    .00  PIPE
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1618.356  5412.511    .729  5413.240     11.80   11.40    2.02  5415.26     .00    1.23     1.92    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  77.119     .0338                                            .0335     2.58     .73    2.74      .73    .013     .00    .00  PIPE
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1695.475  5415.121    .732  5415.853     11.80   11.32    1.99  5417.84     .00    1.23     1.93    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  56.436     .0338                                            .0311     1.76     .73    2.71      .73    .013     .00    .00  PIPE
         |         |        |         |         |              |         |       |        |        |       |       |       |
 1751.911  5417.031    .758  5417.789     11.80   10.79    1.81  5419.60     .00    1.23     1.94    2.000    .000    .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-    -|-       -|-     -|-      -|-      -|-     -|-     -|-     |-
  20.791     .0338                                            .0273      .57     .76    2.53      .73    .013     .00    .00  PIPE
```

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FILE: Manzano.WSW                                W S P G W - CIVILDESIGN Version 14.05                                   PAGE    5
                                        Program Package Serial Number: 1454
                                                    WATER SURFACE PROFILE LISTING                    Date: 7-15-2016  Time: 9:39:56
                                  Juan Tabo Hills Estates
                                    Developed 100-YR Flow Rates
                                      Manzano Vista K to SWQ Pond
************************************************************************************************************************************ ********
         | Invert  |  Depth |  Water   |    Q     |  Vel     Vel   |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|       |No Wth
 Station |  Elev   |  (FT)  |  Elev    |  (CFS)   | (FPS)    Head  | Grd.El.|  Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL   |Prs/Pip
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-     -|
 L/Elem  |Ch Slope |        |          |          |        SF Ave|    HF  |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1772.702  5417.734     .786  5418.521     11.80   10.29     1.64  5420.16     .00    1.23     1.95    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
  12.266    .0338                                                .0239       .29     .79    2.37      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1784.969  5418.149     .814  5418.963     11.80    9.81     1.49  5420.46     .00    1.23     1.97    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   8.252    .0338                                                .0210       .17     .81    2.21      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1793.220  5418.429     .844  5419.273     11.80    9.35     1.36  5420.63     .00    1.23     1.98    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   6.013    .0338                                                .0185       .11     .84    2.06      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1799.233  5418.632     .875  5419.507     11.80    8.92     1.24  5420.74     .00    1.23     1.98    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   4.499    .0338                                                .0162       .07     .88    1.92      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1803.732  5418.785     .908  5419.693     11.80    8.50     1.12  5420.82     .00    1.23     1.99    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   3.477    .0338                                                .0143       .05     .91    1.80      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1807.209  5418.902     .942  5419.844     11.80    8.11     1.02  5420.87     .00    1.23     2.00    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   2.714    .0338                                                .0125       .03     .94    1.67      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1809.923  5418.994     .977  5419.971     11.80    7.73      .93  5420.90     .00    1.23     2.00    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   2.033    .0338                                                .0110       .02     .98    1.56      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1811.956  5419.063    1.015  5420.078     11.80    7.37      .84  5420.92     .00    1.23     2.00    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   1.563    .0338                                                .0097       .02    1.02    1.45      .73    .013      .00    .00  PIPE
         |         |        |          |          |              |          |        |        |        |       |       |       |
 1813.519  5419.116    1.054  5420.170     11.80    7.03      .77  5420.94     .00    1.23     2.00    2.000     .000    .00   1   .0
        -|-       -|-      -|-        -|-        -|-      -|-     -|-       -|-      -|-      -|-      -|-     -|-     -|-    |-
   1.137    .0338                                                .0086       .01    1.05    1.35      .73    .013      .00    .00  PIPE
```

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FILE: Manzano.WSW                    W S P G W - CIVILDESIGN Version 14.05                                          PAGE    6
                                 Program Package Serial Number: 1454
                                            WATER SURFACE PROFILE LISTING                           Date: 7-15-2016  Time: 9:39:56
                         Juan Tabo Hills Estates
                           Developed 100-YR Flow Rates
                             Manzano Vista K to SWQ Pond
********************************************************************************************************************************** ********
          | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy  | Super  |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station  |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.|  Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL  |Prs/Pip
         -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    -|
 L/Elem   |Ch Slope |        |         |         |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR  |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|*****|*******
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1814.656  5419.154   1.095  5420.250    11.80    6.70     .70  5420.95     .00    1.23     1.99    2.000     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .776    .0338                                       .0076       .01    1.10    1.26      .73    .013      .00   .00  PIPE
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1815.432  5419.181   1.138  5420.319    11.80    6.39     .63  5420.95     .00    1.23     1.98    2.000     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .428    .0338                                       .0067       .00    1.14    1.17      .73    .013      .00   .00  PIPE
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1815.860  5419.195   1.184  5420.379    11.80    6.09     .58  5420.96     .00    1.23     1.97    2.000     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
    .140    .0338                                       .0059       .00    1.18    1.08      .73    .013      .00   .00  PIPE
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1816.000  5419.200   1.234  5420.434    11.80    5.80     .52  5420.96     .00    1.23     1.94    2.000     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
JUNCT STR    .1250                                      .0043       .02    1.23    1.00             .013      .00   .00  PIPE
MH-40    |         |        |         |         |              |          |       |        |        |       |       |      |
 1820.000  5419.700   1.548  5421.248     5.90    3.34     .17  5421.42     .00     .94      .00    1.500     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   2.091    .0263                                       .0031       .01    1.55     .00      .61    .013      .00   .00  PIPE
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1822.091  5419.755   1.500  5421.255     5.90    3.34     .17  5421.43     .00     .94      .00    1.500     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   5.198    .0263                                       .0029       .02    1.50     .00      .61    .013      .00   .00  PIPE
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1827.288  5419.892   1.360  5421.252     5.90    3.50     .19  5421.44     .00     .94      .87    1.500     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   1.474    .0263                                       .0029       .00    1.36     .44      .61    .013      .00   .00  PIPE
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1828.762  5419.931   1.280  5421.211     5.90    3.67     .21  5421.42     .00     .94     1.06    1.500     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
HYDRAULIC JUMP
         |         |        |         |         |              |          |       |        |        |       |       |      |
 1828.762  5419.931    .641  5420.572     5.90    8.19    1.04  5421.61     .00     .94     1.48    1.500     .000   .00   1   .0
        -|-       -|-      -|-       -|-       -|-      -|-     -|-       -|-     -|-      -|-      -|-     -|-     -|-    |-
   6.038    .0263                                       .0205       .12     .64    2.07      .61    .013      .00   .00  PIPE
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                                             W S P G W - CIVILDESIGN Version 14.05
                                  Program Package Serial Number: 1454
                                                   WATER SURFACE PROFILE LISTING                     Date: 7-15-2016  Time: 9:39:56
                               Juan Tabo Hills Estates
                                 Developed 100-YR Flow Rates
                                   Manzano Vista K to SWQ Pond
************************************************************************************************************************************* ********
        | Invert  |  Depth |  Water   |    Q     | Vel     Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
Station |  Elev   |  (FT)  |  Elev    |  (CFS)   | (FPS)   Head |  Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   -|
L/Elem  |Ch Slope |        |          |          |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
        |         |        |          |          |              |          |       |        |        |       |       |     |
1834.800 5420.089    .664  5420.753      5.90    7.81      .95  5421.70     .00      .94     1.49    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   7.363    .0263                                         .0180      .13     .66    1.93     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1842.163 5420.283    .689  5420.972      5.90    7.44      .86  5421.83     .00      .94     1.50    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   4.990    .0263                                         .0159      .08     .69    1.80     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1847.154 5420.415    .715  5421.130      5.90    7.10      .78  5421.91     .00      .94     1.50    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   3.566    .0263                                         .0140      .05     .72    1.68     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1850.720 5420.508    .742  5421.250      5.90    6.77      .71  5421.96     .00      .94     1.50    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   2.609    .0263                                         .0123      .03     .74    1.56     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1853.329 5420.577    .770  5421.347      5.90    6.45      .65  5421.99     .00      .94     1.50    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   1.855    .0263                                         .0108      .02     .77    1.46     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1855.184 5420.626    .800  5421.426      5.90    6.15      .59  5422.01     .00      .94     1.50    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
   1.336    .0263                                         .0095      .01     .80    1.35     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1856.520 5420.661    .831  5421.492      5.90    5.86      .53  5422.03     .00      .94     1.49    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .869    .0263                                         .0084      .01     .83    1.26     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1857.389 5420.684    .864  5421.548      5.90    5.59      .49  5422.03     .00      .94     1.48    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .484    .0263                                         .0074      .00     .86    1.17     .61    .013      .00   .00 PIPE
        |         |        |          |          |              |          |       |        |        |       |       |     |
1857.873 5420.697    .899  5421.596      5.90    5.33      .44  5422.04     .00      .94     1.47    1.500    .000   .00  1   .0
       -|-       -|-      -|-        -|-        -|-      -|-   -|-       -|-     -|-      -|-      -|-     -|-     -|-   |-
    .127    .0263                                         .0066      .00     .90    1.08     .61    .013      .00   .00 PIPE
```

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FILE: Manzano.WSW                     W S P G W - CIVILDESIGN Version 14.05                           PAGE    8
                          Program Package Serial Number: 1454
                                      WATER SURFACE PROFILE LISTING                Date: 7-15-2016  Time: 9:39:56
                      Juan Tabo Hills Estates
                        Developed 100-YR Flow Rates
                          Manzano Vista K to SWQ Pond
************************************************************************************************************************ ********
         | Invert  |  Depth |  Water  |    Q    |  Vel     Vel  |  Energy  | Super |Critical|Flow Top|Height/|Base Wt|     |No Wth
 Station |  Elev   |  (FT)  |  Elev   |  (CFS)  | (FPS)    Head |  Grd.El.| Elev  | Depth  | Width  |Dia.-FT|or I.D.|  ZL |Prs/Pip
        -|-       -|-      -|-       -|-       -|-      -|-    -|-        -|-     -|-      -|-      -|-     -|-     -|-   -|
 L/Elem  |Ch Slope |        |         |         |        SF Ave|    HF    |SE Dpth|Froude N|Norm Dp |  "N"  | X-Fall|  ZR |Type Ch
*********|*********|********|*********|*********|*******|*******|*********|*******|********|********|*******|*******|***** |*******
         |         |        |         |         |               |          |       |        |        |       |       |     |
 1858.000  5420.700     .938  5421.638      5.90    5.08      .40  5422.04     .00      .94     1.45   1.500    .000    .00  1   .0
                  -|-      -|-       -|-       -|-      -|-     -|-        -|-     -|-      -|-      -|-     -|-     -|-    |-
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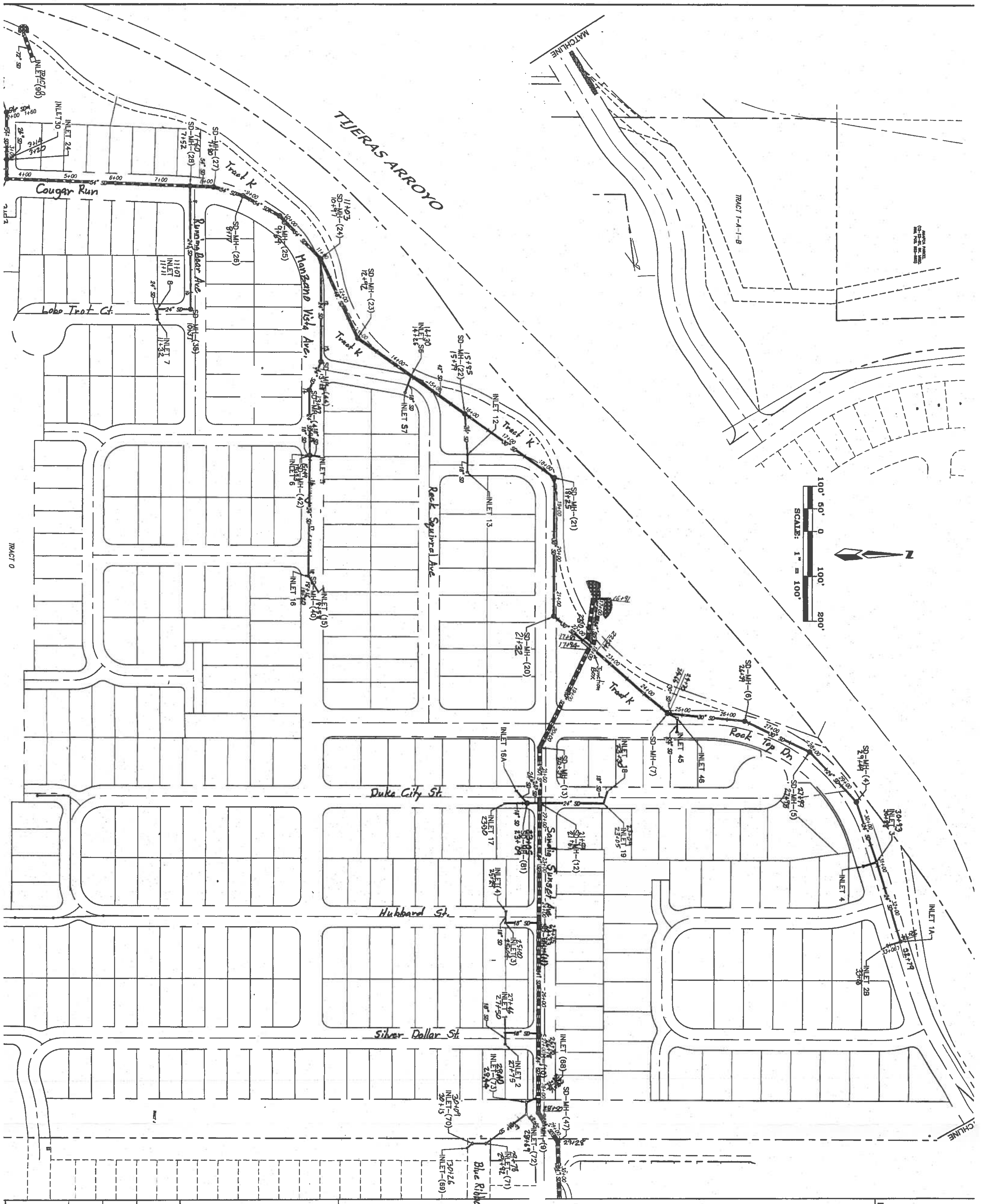
Inlet 15



CERTIFICATE OF SUBSTANTIAL COMPLIANCE

DMG
MARK GOODWIN & ASSOCIATES, P.A.
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:
JUAN TABO HILLS ESTATES
HGL CROSS SECTION PLAN

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

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY DMG DATE 02/15

ENGINEER'S SEAL

JAMES D. ... NEW MEXICO ... REGISTERED PROFESSIONAL ENGINEER

2-23-

SURVEY INFORMATION		
FIELD NOTES		
NO.	BY	DATE

BENCH MARKS
STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE
ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS
SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE,
77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60.
STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
RECORDED BY	DATE

User ID: doug, Date/Time: 3/13/2017 9:14 AM, Document Name: 2017-03-13 HGL stationing plan.pdf

CONSTRUCTION PLANS

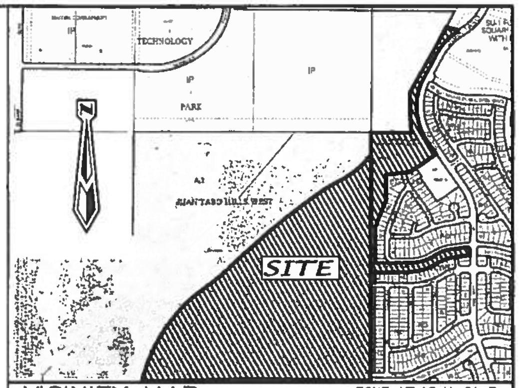
FOR

JUAN TABO
HILLS ESTATES
ALBUQUERQUE, NEW MEXICO

INDEX TO DRAWINGS

SHEET NO.

THE SUBJECT PROPERTY IS LOCATED NEAR A FORMER LANDFILL. DUE TO THE SUBJECT PROPERTY BEING NEAR A FORMER LANDFILL CERTAIN PRECAUTIONARY MEASURES MAY NEED TO BE TAKEN TO ENSURE THE HEALTH AND SAFETY OF THE PUBLIC. RECOMMENDATIONS MADE BY A PROFESSIONAL ENGINEER WITH EXPERTISE IN LANDFILLS AND LANDFILL GAS ISSUES (AS REQUIRED BY THE MOST CURRENT VERSION OF THE INTERIM GUIDELINES FOR DEVELOPMENT WITHIN CITY. DESIGNATED LANDFILL BUFFER ZONES) SHALL BE CONSULTED PRIOR TO DEVELOPMENT OF THE SITE.



VICINITY MAP — ZONE ATLAS M-21-Z

GENERAL NOTES

SCALE: NONE

NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED UNDER CONTRACT SHALL, EXCEPT AS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE 9.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM (260-1990) FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. SEVEN (7) WORKING DAYS PRIOR TO BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO CONSTRUCTION COORDINATION DIVISION A DETAILED CONSTRUCTION SCHEDULE. TWO (2) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADING PERMIT FROM THE CONSTRUCTION COORDINATION DIVISION. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION COORDINATION ENGINEER (924-3400) PRIOR TO OCCUPYING AN INTERSECTION. REFER TO SECTION 19 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS.
6. ALL WORK AFFECTING ARTERIAL ROADWAYS REQUIRES TWENTY-FOUR HOUR CONSTRUCTION.
7. ALL STREET STRIPING ALTERED OR DESTROYED SHALL BE REPLACED WITH PLASTIC REFLECTORIZED PAVEMENT MARKING BY CONTRACTOR TO THE SAME LOCATION AS WAS EXISTING, OR AS INDICATED BY THIS PLAN SET.
8. CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT THE CITY SURVEYOR MAY TAKE NECESSARY MEASURES TO ENSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE CITY SURVEYOR AND SHALL NOTIFY THE CITY SURVEYOR AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE CITY SURVEYOR. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATIONS OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 4.4 OF THE GENERAL CONDITIONS OF THE STANDARD SPECIFICATIONS.
9. CONTRACTOR SHALL RECORD DATA ON ALL UTILITY LINES AND ACCESSORIES AS REQUIRED BY THE CITY OF ALBUQUERQUE FOR THE PREPARATION OF "AS CONSTRUCTED" DRAWINGS. CONTRACTOR SHALL NOT COVER UTILITY LINES AND ACCESSORIES UNTIL ALL DATA HAVE BEEN RECORDED.
10. CONTRACTOR SHALL MAINTAIN A GRAFFITI-FREE WORK SITE. CONTRACTOR SHALL PROMPTLY REMOVE ANY GRAFFITI FROM ALL EQUIPMENT, WHETHER PERMANENT OR TEMPORARY.
11. THE CONTRACTOR SHALL COORDINATE WITH THE WATER AUTHORITY SEVEN (7) DAYS IN ADVANCE OF PERFORMING WORK THAT WILL AFFECT THE PUBLIC WATER OR SANITARY SEWER INFRASTRUCTURE. WORK REQUIRING SHUTOFF OF WELL COLLECTORS, TRANSMISSION LINES, OR FACILITIES DESIGNATED AS MASTER PLAN FACILITIES MUST BE COORDINATED WITH THE WATER AUTHORITY 14 DAYS IN ADVANCE OF PERFORMING SUCH WORK. ONLY WATER AUTHORITY CREWS ARE AUTHORIZED TO OPERATE PUBLIC VALVES. SHUTOFF REQUESTS MUST BE MADE ONLINE AT http://www.abcwua.org/Water_Shut_off_and_Turn_on_Procedures.aspx
12. RCP SHALL BE INSTALLED SO THAT THE JOINT GAP AT THE HOME POSITION SHALL CONFORM TO THE APPROVED MANUFACTURER'S RECOMMENDATIONS. MANUFACTURER'S RECOMMENDED JOINT GAP TOLERANCES FOR EACH PIPE SIZE AND TYPE SHALL BE SUBMITTED TO THE ENGINEER FOR FOR APPROVAL PRIOR TO PLACEMENT OF PIPE. RCP JOINTS SHALL NOT BE GROUTED UNLESS DIRECTED BY THE ENGINEER AFTER CITY APPROVAL.
13. ALL EXCAVATION, TRENCHING, AND SHORING ACTIVITIES MUST BE CARRIED-OUT IN ACCORDANCE WITH OSHA 29 CFR 1926.650 SUBPART P.
14. ELECTRONIC MARKER DEVICE (EMD) WILL BE PLACED ACCORDING TO SECTION 170 OF THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986 EDITION AS REVISED THROUGH UPDATE AMENDMENT #9.
15. PRIVATE STREETS REQUIRE STREET NAME SIGNS, STOP SIGNS, AND ANY NECESSARY STRIPING (DEVELOPER'S RESPOSIBILITY).
16. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DAMAGE TO EXISTING PAVEMENT, PAVEMENT MARKINGS, CURB & GUTTER, SIGNAGE, HANDICAP RAMPS AND SIDEWALK DURING CONSTRUCTION PART FROM THOSE SECTIONS INDICATED FOR REMOVAL ON THE PLANS AND SHALL REPAIR OR REPLACE, PER CITY OF ALBUQUERQUE STANDARDS, AT HIS OWN EXPENSE.

THE FOLLOWING NOTES ALSO APPLY WHEN CHECKED

- ☑ ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- ☑ BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
- ☐ TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER.
- ☑ SIDEWALK AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- ☐ IF CURB IS DEPRESSED FOR A DRIVEPAD, THE DRIVEPAD SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF CURB AND GUTTER.
- ☑ ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.

NOTE:
CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL CONSTRUCTION SIGNING UNTIL PROJECT HAS BEEN ACCEPTED BY THE CITY OF ALBUQUERQUE.

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. DISTURBANCE OF EXISTING UTILITIES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

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

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE

ENGINEERS STAMP & SIGNATURE	APPROVALS	ENGINEER	DATE	********************************
JAMES D. HUGHES NEW MEXICO 11674 REGISTERED PROFESSIONAL ENGINEER James D. Hughes 3-15-2017	DRC CHAIRMAN			APPROVED FOR CONSTRUCTION
	TRANSPORTATION			
	WATER/WASTEWATER			
	HYDROLOGY			
	CIP			
	CONSTR. MNGMT.			CITY ENGINEER DATE
	CONSTR. COORD.			
	CITY PROJECT NO. 654887			SHEET 1 OF 75

DRB NO. 1004073

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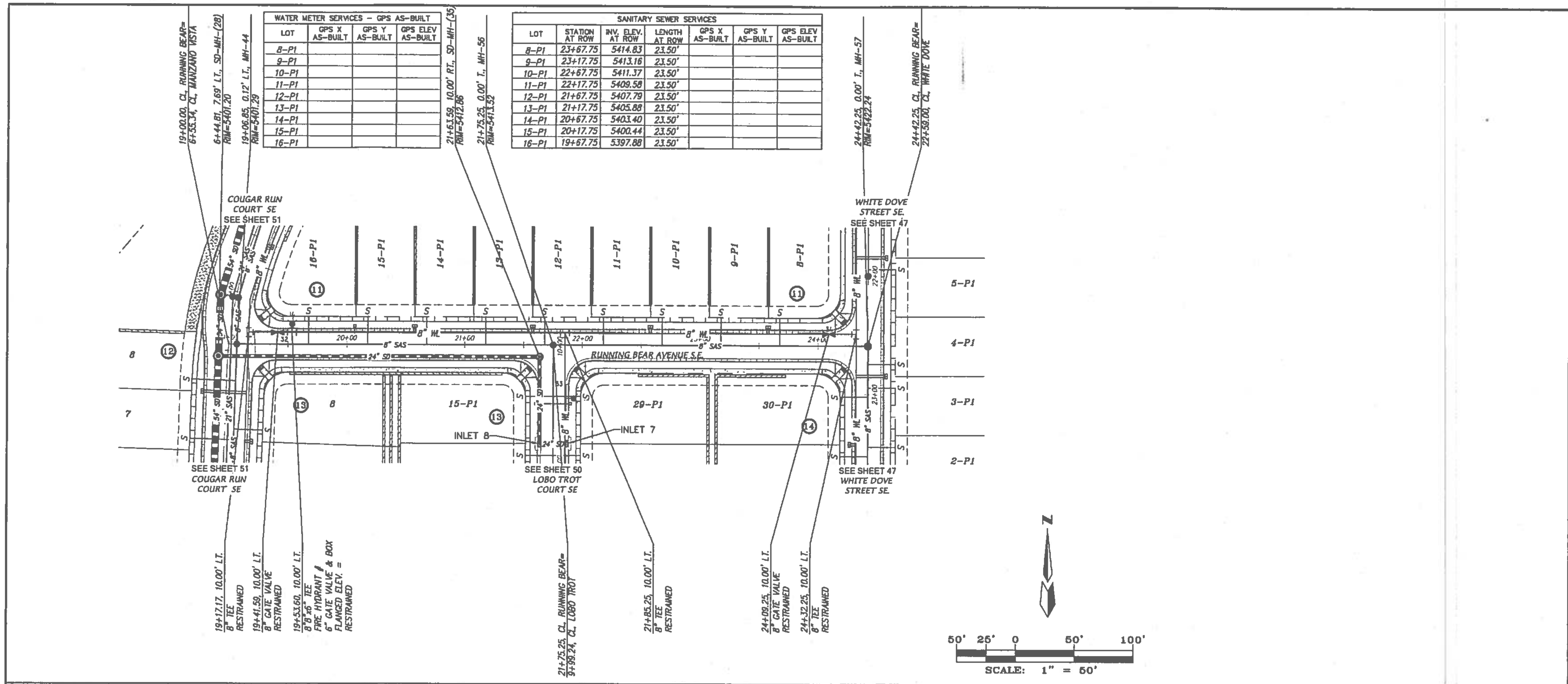
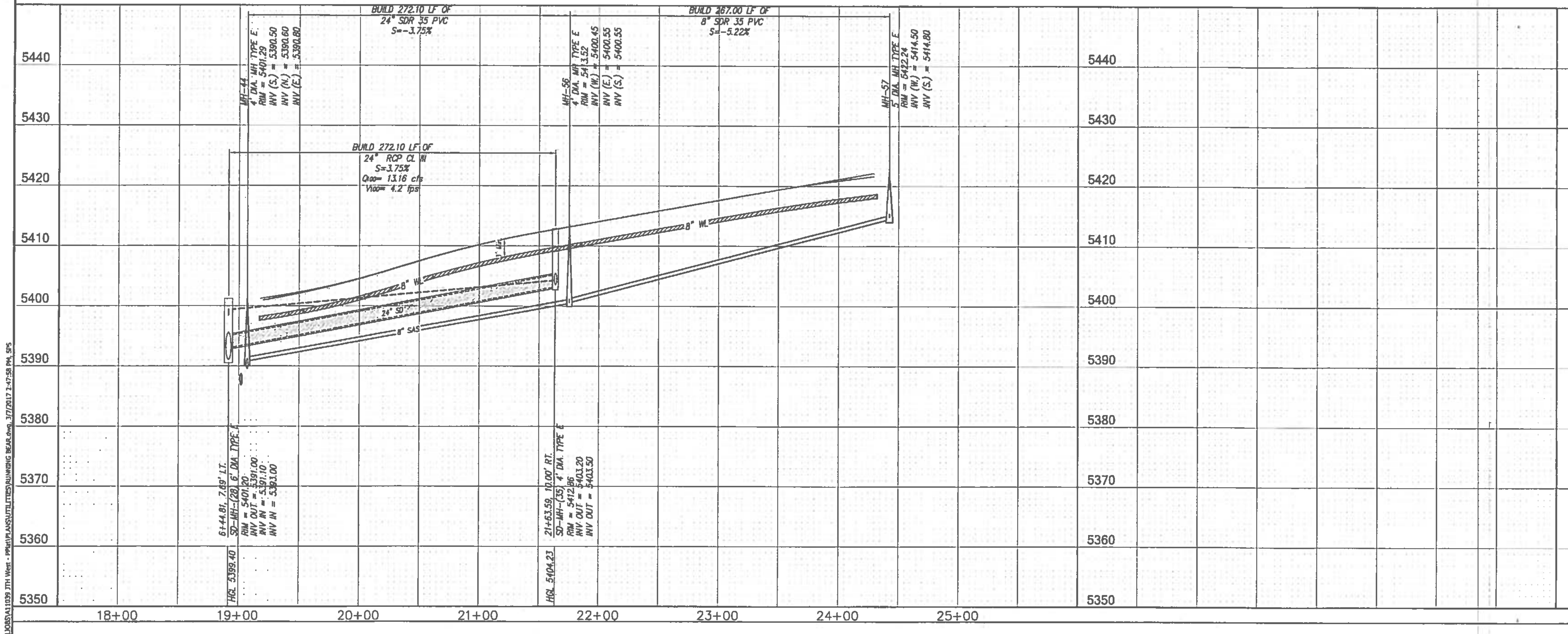


WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1			
9-P1			
10-P1			
11-P1			
12-P1			
13-P1			
14-P1			
15-P1			
16-P1			

SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1	23+67.75	5414.83	23.50'			
9-P1	23+17.75	5413.16	23.50'			
10-P1	22+67.75	5411.37	23.50'			
11-P1	22+17.75	5409.58	23.50'			
12-P1	21+67.75	5407.79	23.50'			
13-P1	21+17.75	5405.88	23.50'			
14-P1	20+67.75	5403.40	23.50'			
15-P1	20+17.75	5400.44	23.50'			
16-P1	19+67.75	5397.88	23.50'			



NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
3. ALL METER BOXES ADJACENT TO MOUNTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABCWUA STD. DWG 2368; WATER METER BOX PER ABCWUA STD. DWG #2366; WATER SERVICE PER ABCWUA STD. DWG #2362.
4. ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABCWUA STD. DWG #2326.
5. CONTRACTOR TO USE POLY COATED CMP FOR VALVE BOXES.
6. CONTRACTOR IS <u>NOT</u> TO INSTALL THE STEPS IN THE SAS MANHOLES.
7. ALL SANITARY SEWER MANHOLES PER ABCWUA STD. DWG #2101, #2107 AND #2109.
8. ALL WATER LINES SHALL BE C-900, DR-18, PVC.
9. ALL SEWER LINES SHALL BE SDR-35, PVC.
10. ALL GATE VALVES & VALVES BOXES PER DWG 2326.
11. ALL SEWER SERVICES PER DWG 2125.
12. ALL MAN HOLES SHALL BE PER DWG 2101 FOR TYPE C AND 2102 FOR TYPE E.
13. ALL WATER AND SEWER MAINS AND SERVICE LINES SHALL HAVE TRACER WIRE OVER THE TOP OF PIPE.

FIRE HYDRANT – GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10			
11			

GATE VALVE – GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
17			
18			
20			
22			
23			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES

3-15-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

MARK GOODWIN & ASSOCIATES, P.A.
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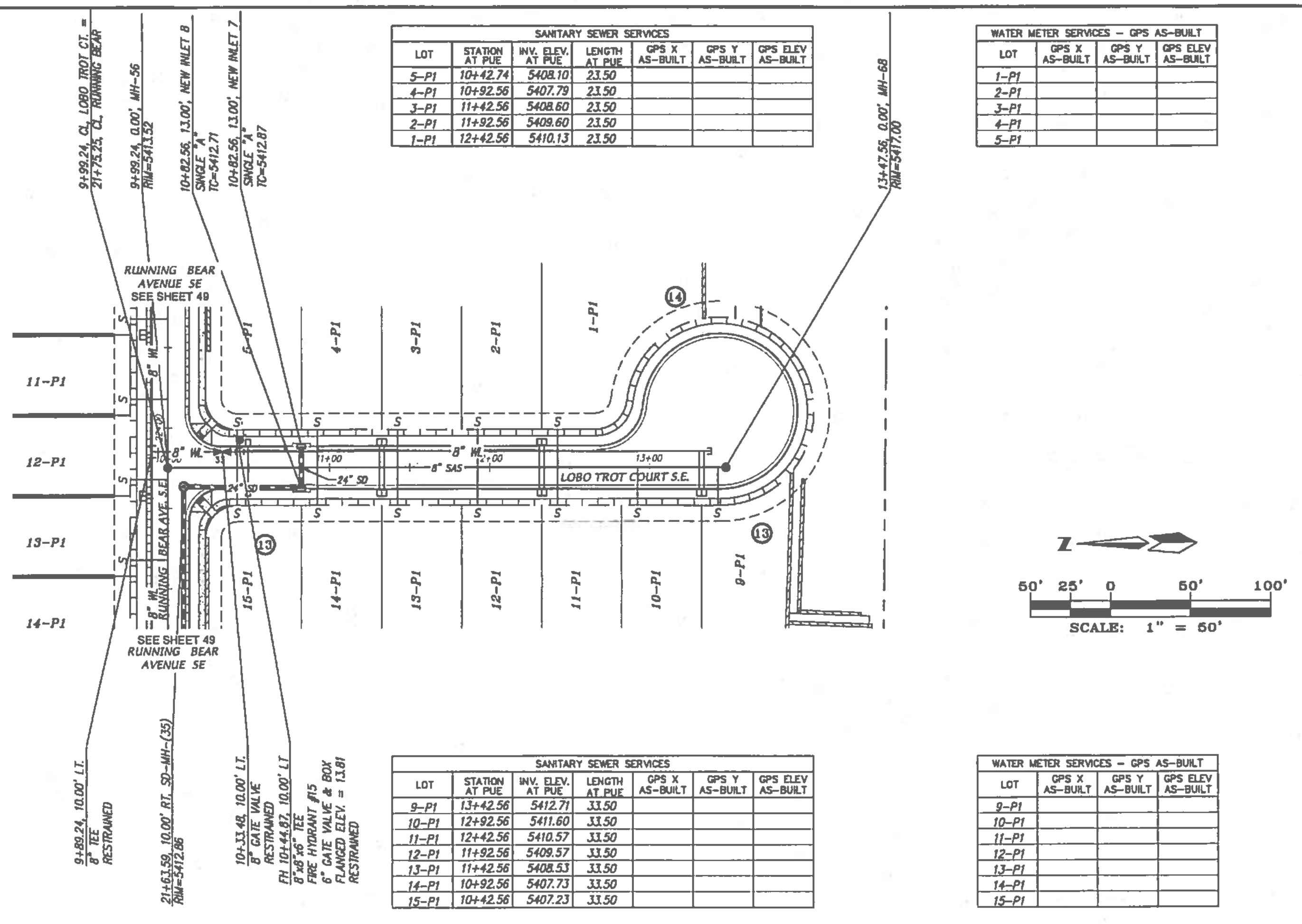
OFFICE (505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
JUAN TABO HILLS ESTATES
RUNNING BEAR
UYILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	49	75

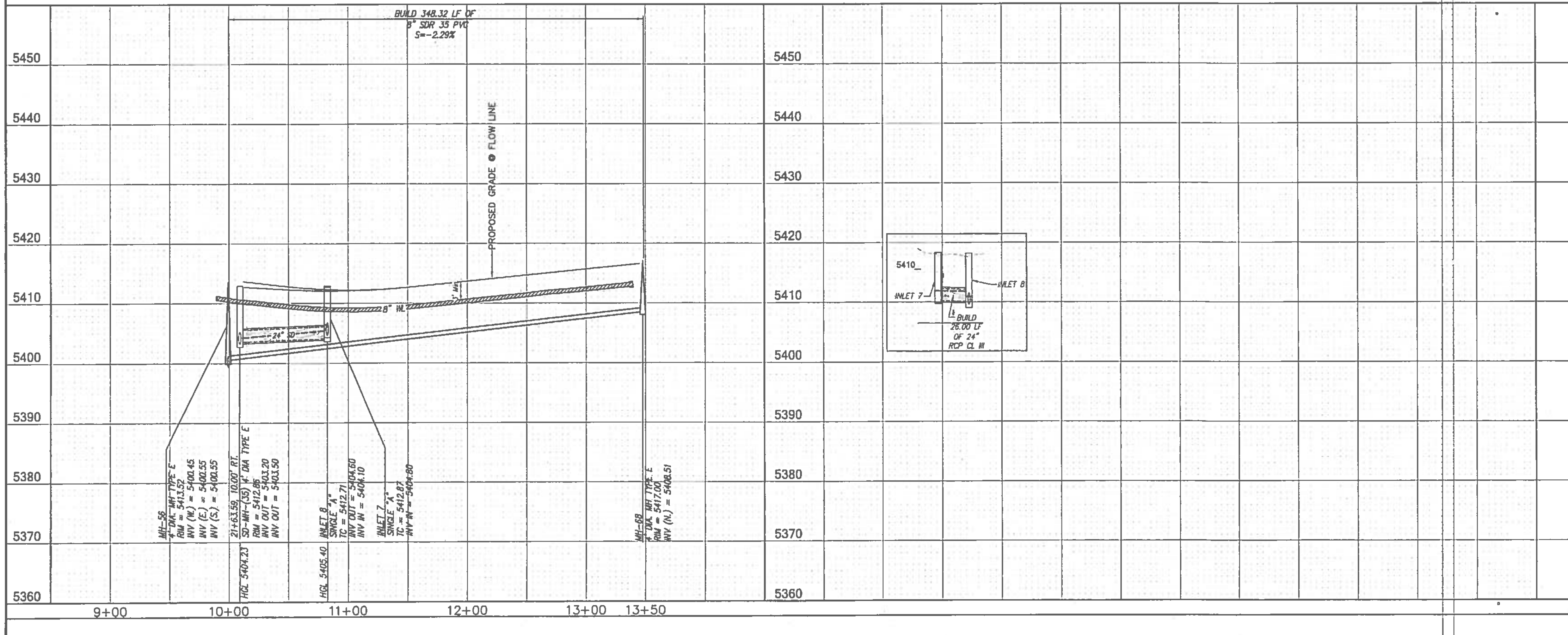


SANITARY SEWER SERVICES						
LOT	STATION AT PUE	INV. ELEV. AT PUE	LENGTH AT PUE	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
5-P1	10+42.74	5408.10	23.50			
4-P1	10+92.56	5407.79	23.50			
3-P1	11+42.56	5408.60	23.50			
2-P1	11+92.56	5409.60	23.50			
1-P1	12+42.56	5410.13	23.50			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			
4-P1			
5-P1			

SANITARY SEWER SERVICES						
LOT	STATION AT PUE	INV. ELEV. AT PUE	LENGTH AT PUE	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
9-P1	13+42.56	5412.71	33.50			
10-P1	12+92.56	5411.60	33.50			
11-P1	12+42.56	5410.57	33.50			
12-P1	11+92.56	5409.57	33.50			
13-P1	11+42.56	5408.53	33.50			
14-P1	10+92.56	5407.73	33.50			
15-P1	10+42.56	5407.23	33.50			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
9-P1			
10-P1			
11-P1			
12-P1			
13-P1			
14-P1			
15-P1			



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FIRE HYDRANT – GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
15			

GATE VALVE – GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
33			

ENGINEER'S SEAL

3-15-2017

SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

BENCH MARKS

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AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: JUAN TABO HILLS ESTATES
LOBO TROT ROAD S.E.
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	50	75

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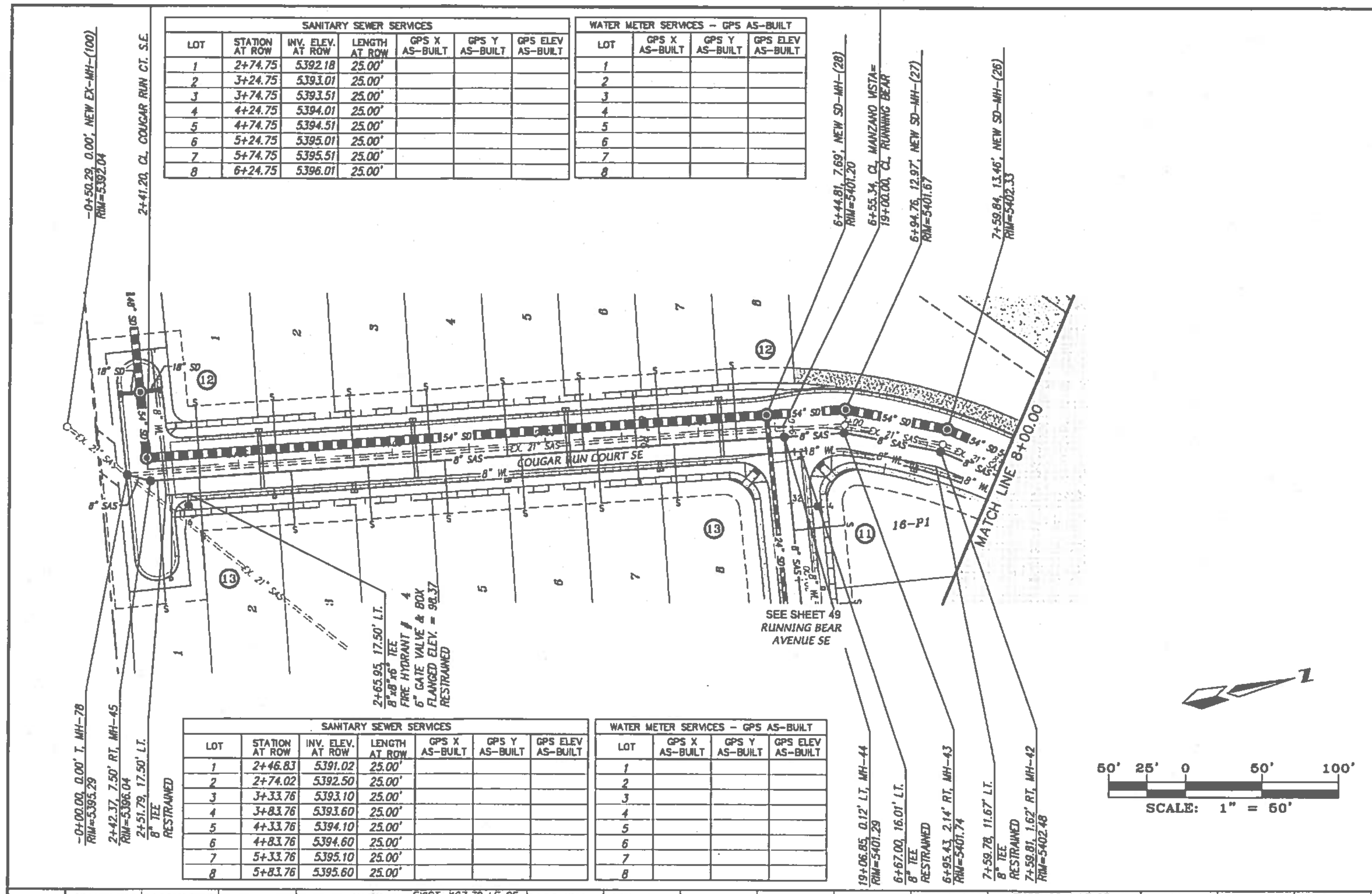
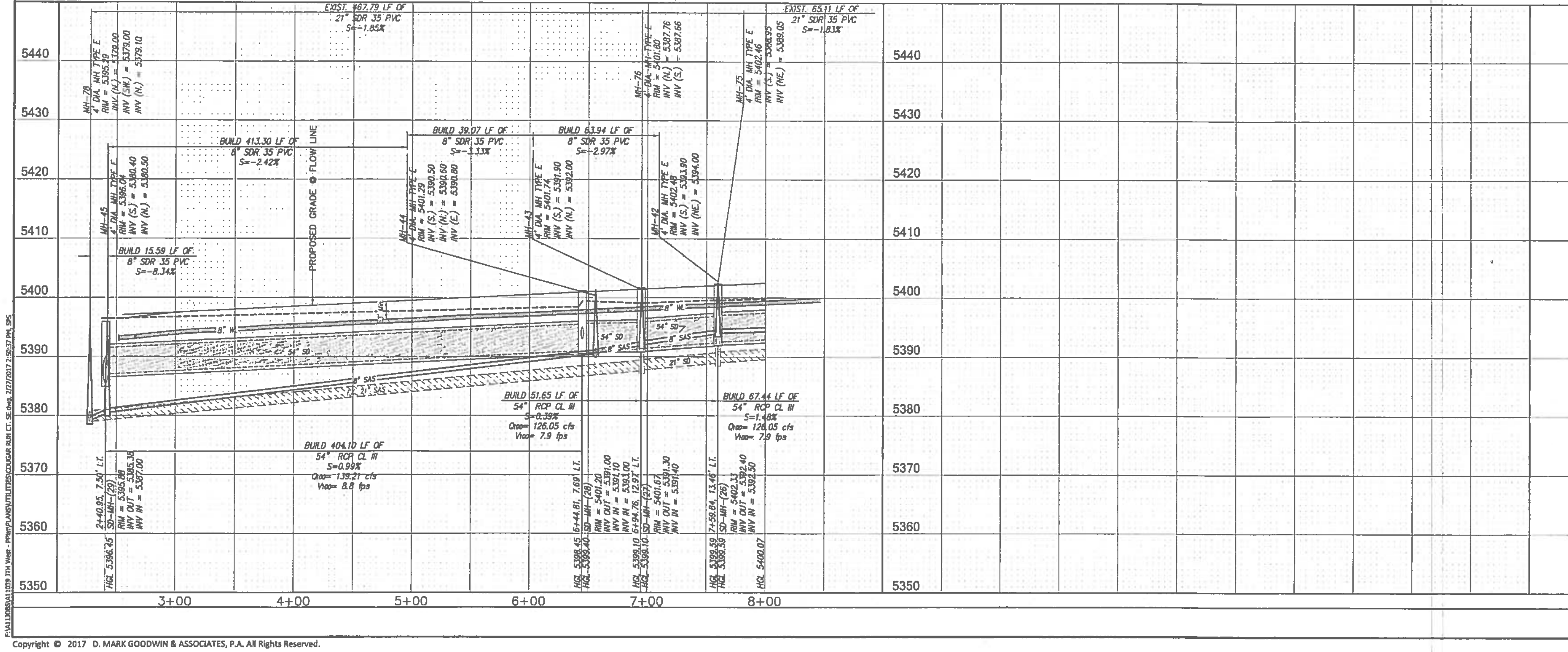


SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1	2+74.75	5392.18	25.00'			
2	3+24.75	5393.01	25.00'			
3	3+74.75	5393.51	25.00'			
4	4+24.75	5394.01	25.00'			
5	4+74.75	5394.51	25.00'			
6	5+24.75	5395.01	25.00'			
7	5+74.75	5395.51	25.00'			
8	6+24.75	5396.01	25.00'			

WATER METER SERVICES - GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1			
2			
3			
4			
5			
6			
7			
8			

SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1	2+46.83	5391.02	25.00'			
2	2+74.02	5392.50	25.00'			
3	3+33.76	5393.10	25.00'			
4	3+83.76	5393.60	25.00'			
5	4+33.76	5394.10	25.00'			
6	4+83.76	5394.60	25.00'			
7	5+33.76	5395.10	25.00'			
8	5+83.76	5395.60	25.00'			

WATER METER SERVICES - GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1			
2			
3			
4			
5			
6			
7			
8			



1. THE MAIN TRUNK SAS (21"-24") IS TO BE CONSTRUCTED BEFORE THIS PROJECT BEGINS. SEE SEPARATE WORK ORDER CITY PROJECT# 654885.

FIRE HYDRANT - GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10			
11			

GATE VALVE - GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
17			
18			
20			
22			
23			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
18694
PROFESSIONAL ENGINEER
3-15-2017

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22". X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg MARK GOODWIN & ASSOCIATES, P.A.
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: JUAN TABO HILLS ESTATES
COUGAR RUN COURT S.E.
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	51	75

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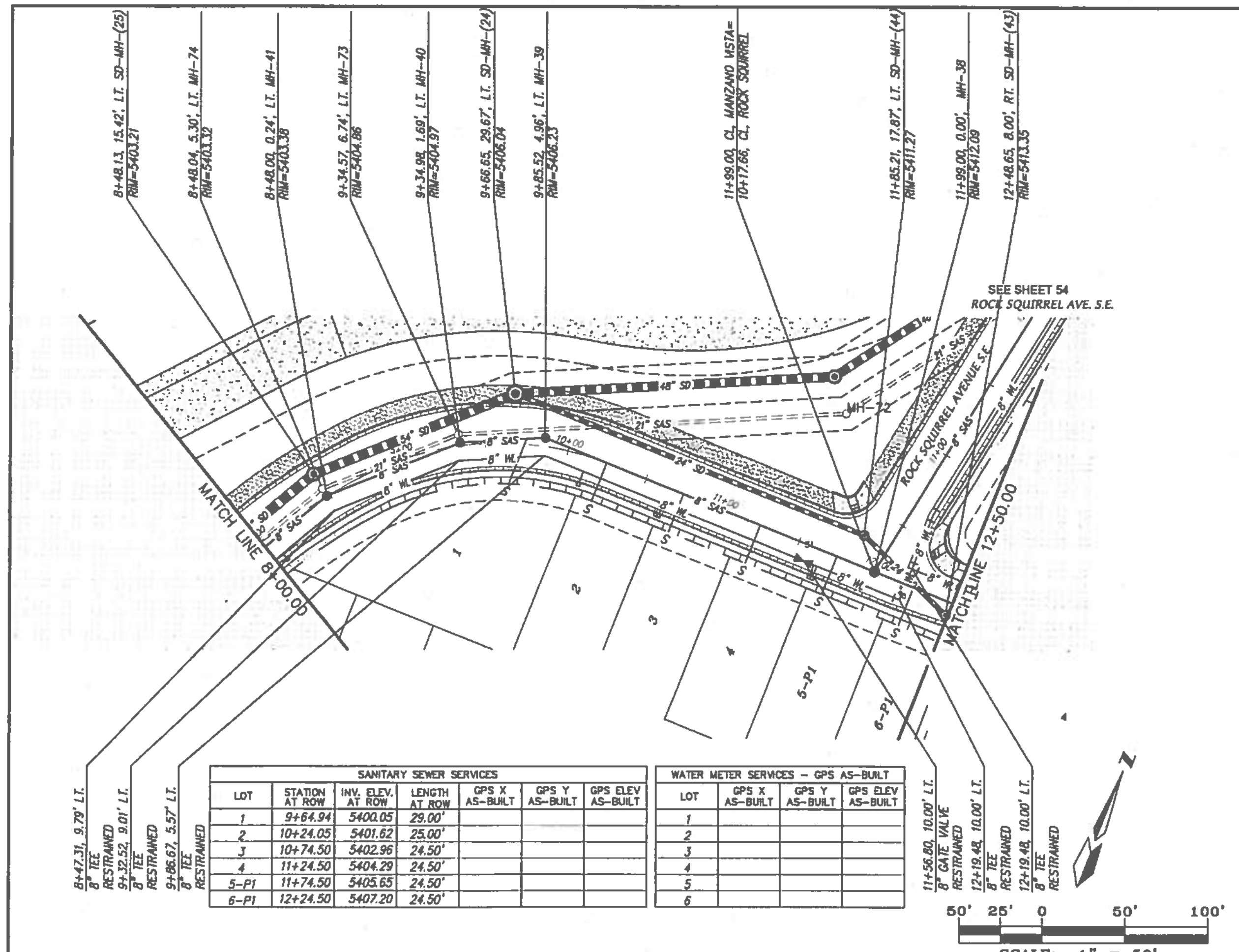
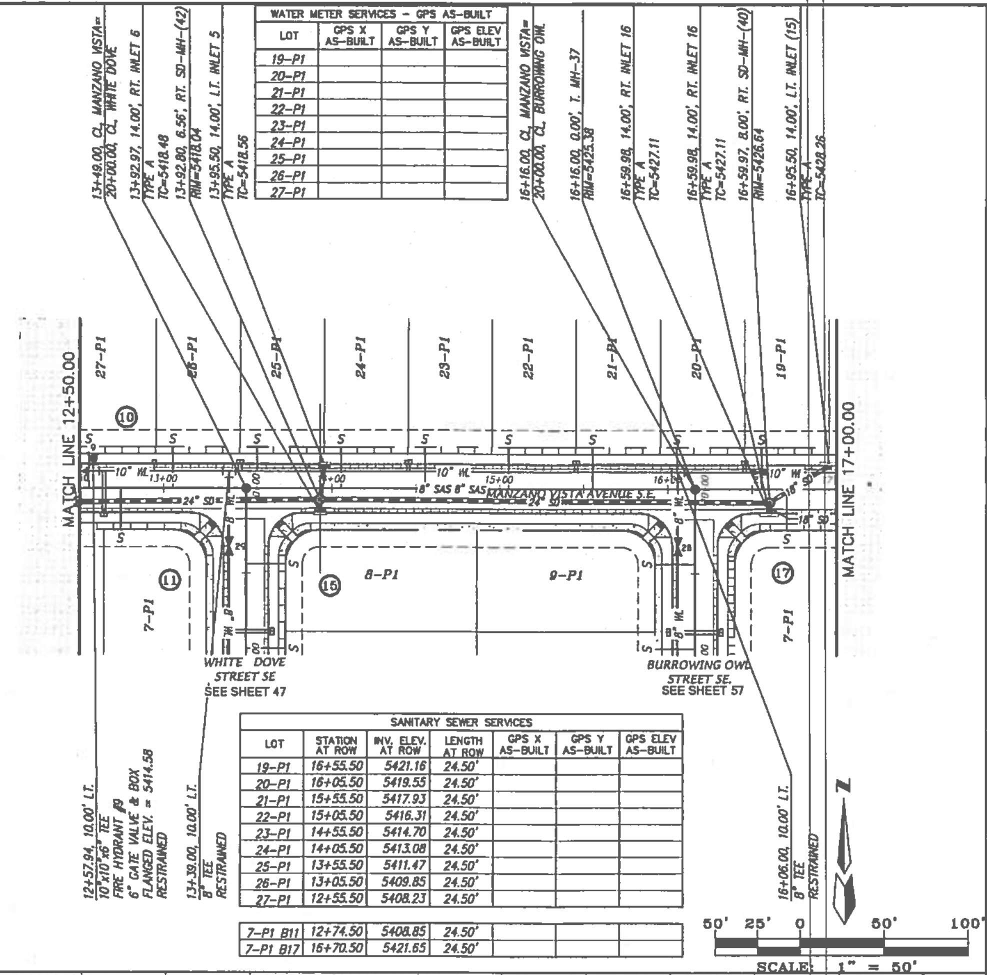


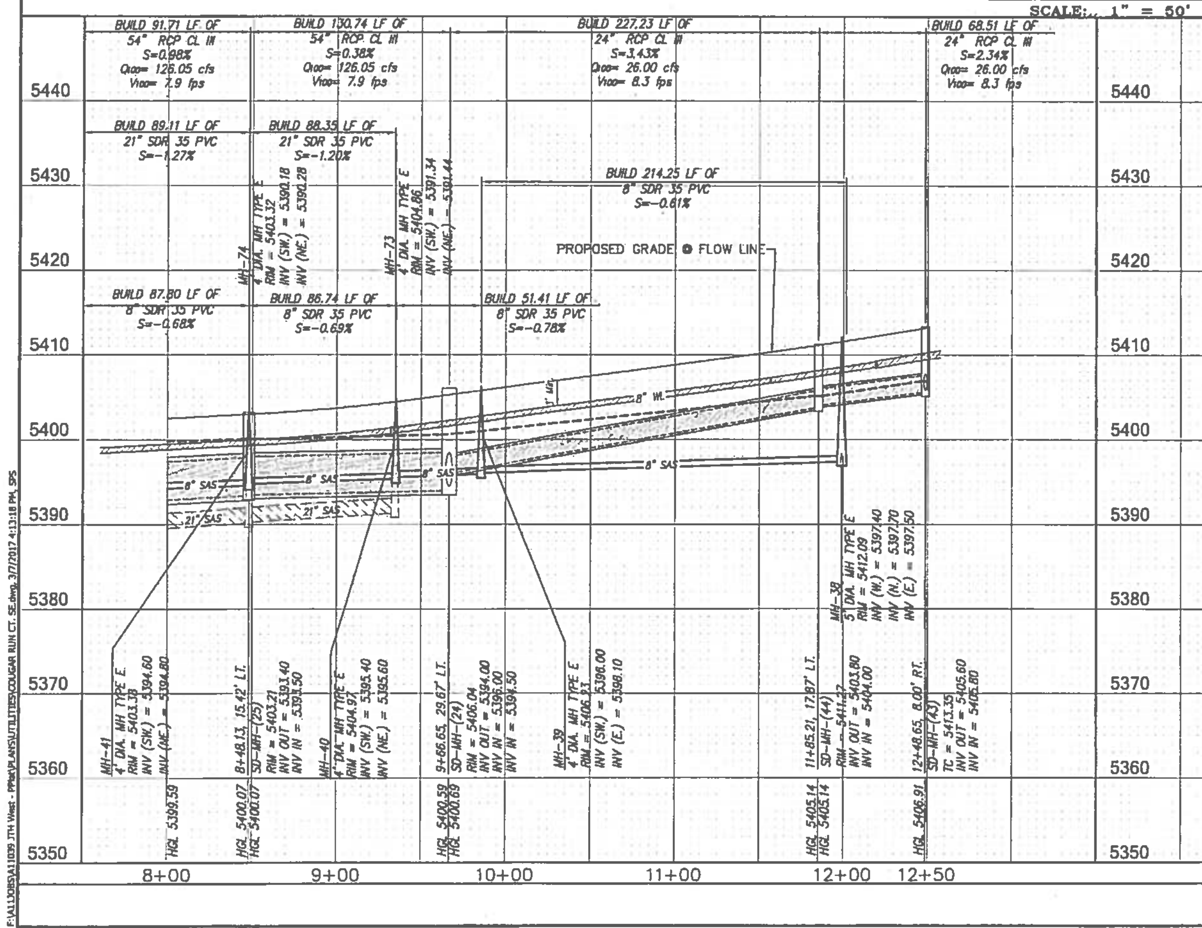
SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1	9+64.94	5400.05	29.00'			
2	10+24.05	5401.62	25.00'			
3	10+74.50	5402.96	24.50'			
4	11+24.50	5404.29	24.50'			
5-P1	11+74.50	5405.65	24.50'			
6-P1	12+24.50	5407.20	24.50'			

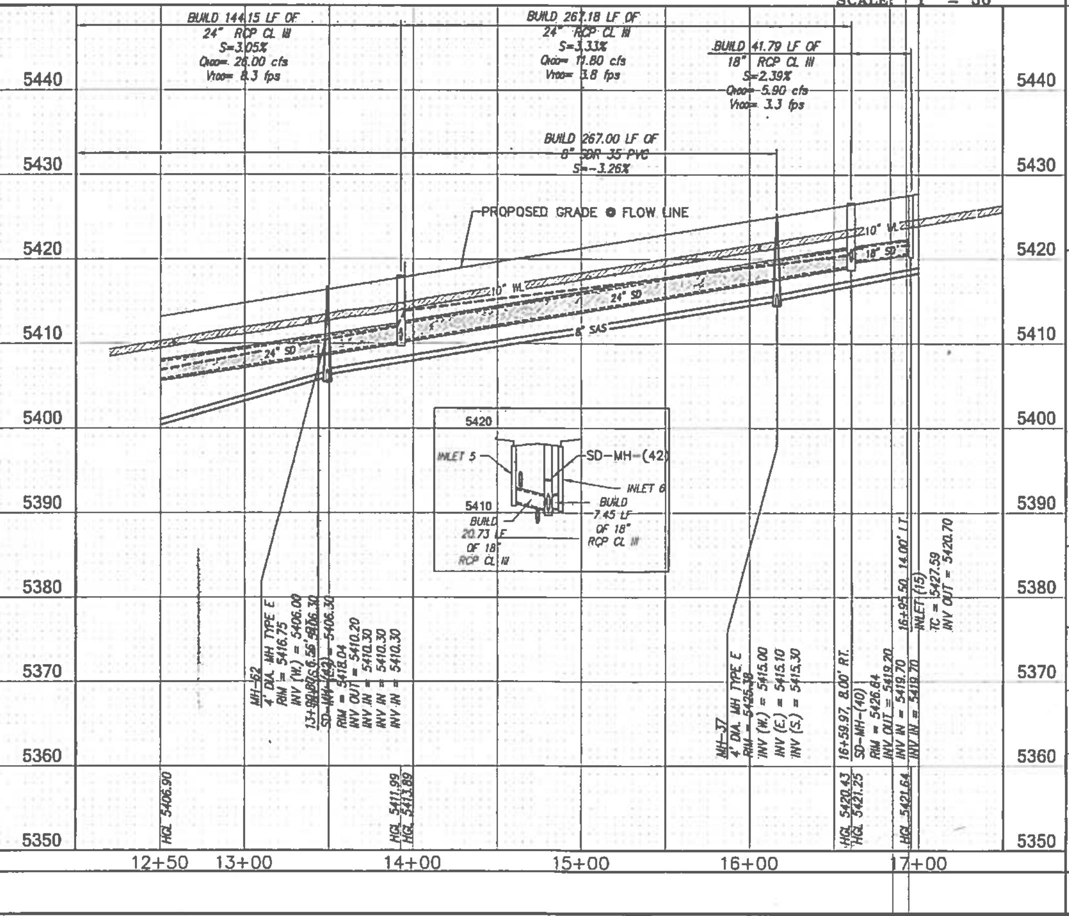
WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1			
2			
3			
4			
5			
6			



WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
19-P1			
20-P1			
21-P1			
22-P1			
23-P1			
24-P1			
25-P1			
26-P1			
27-P1			

SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
19-P1	16+55.50	5421.16	24.50'			
20-P1	16+05.50	5419.55	24.50'			
21-P1	15+55.50	5417.93	24.50'			
22-P1	15+05.50	5416.31	24.50'			
23-P1	14+55.50	5414.70	24.50'			
24-P1	14+05.50	5413.08	24.50'			
25-P1	13+55.50	5411.47	24.50'			
26-P1	13+05.50	5409.85	24.50'			
27-P1	12+55.50	5408.23	24.50'			
7-P1 B11	12+74.50	5408.85	24.50'			
7-P1 B17	16+70.50	5421.65	24.50'			





FIRE HYDRANT – GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
9			

GATE VALVE – GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
31			
30			
27			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

ENGINEER'S SEAL

JAMES D. HUGHES

3-15-2017

SURVEY INFORMATION		
FIELD NOTES		
NO.	BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".

X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

MARK GOODWIN & ASSOCIATES, P.A.
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:
JUAN TABO HILLS ESTATES
MANZANO VISTA
PAVING PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	52	75

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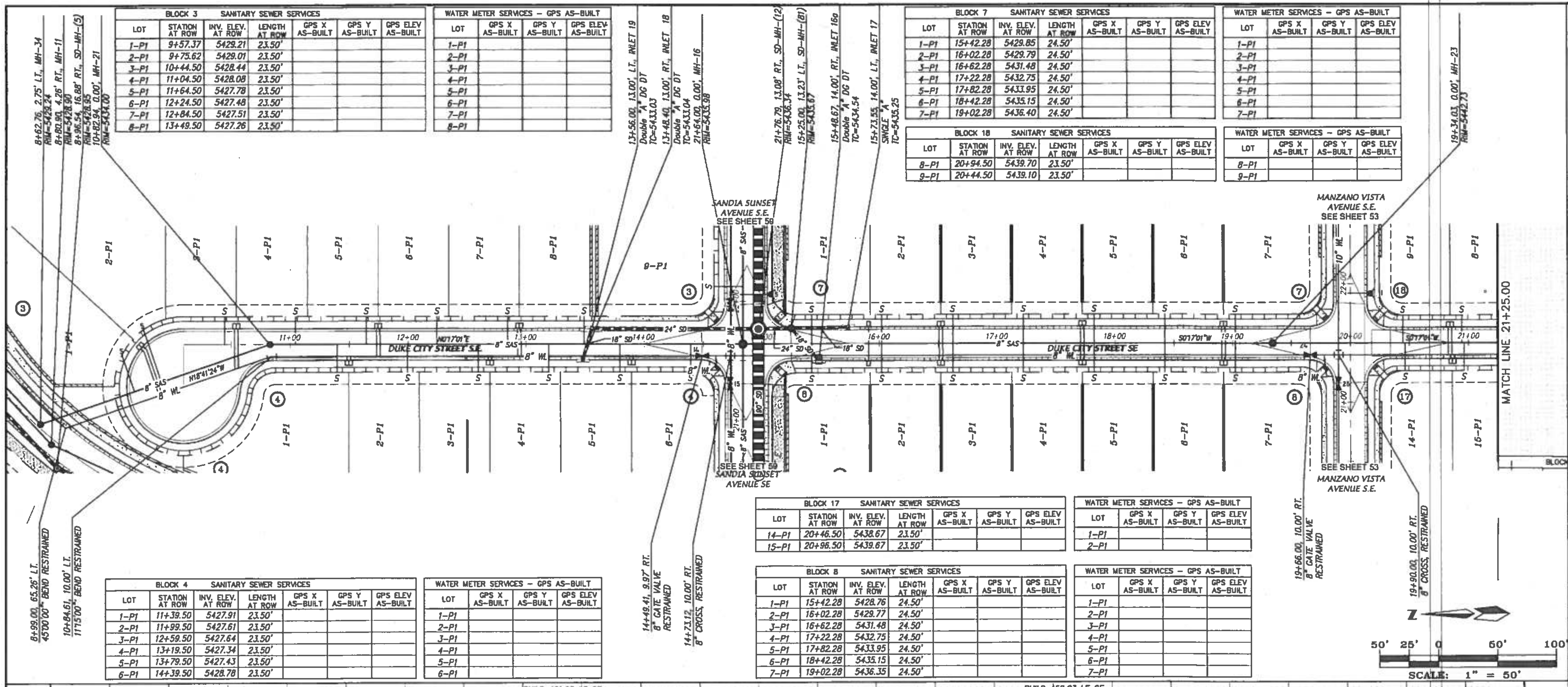


BLOCK 3 SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1	9+57.37	5429.21	23.50'			
2-P1	9+75.62	5429.01	23.50'			
3-P1	10+44.50	5428.44	23.50'			
4-P1	11+04.50	5428.08	23.50'			
5-P1	11+64.50	5427.78	23.50'			
6-P1	12+24.50	5427.48	23.50'			
7-P1	12+84.50	5427.51	23.50'			
8-P1	13+49.50	5427.26	23.50'			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			
4-P1			
5-P1			
6-P1			
7-P1			
8-P1			

BLOCK 7 SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1	15+42.28	5429.85	24.50'			
2-P1	16+02.28	5429.79	24.50'			
3-P1	16+62.28	5431.48	24.50'			
4-P1	17+22.28	5432.75	24.50'			
5-P1	17+82.28	5433.95	24.50'			
6-P1	18+42.28	5435.15	24.50'			
7-P1	19+02.28	5436.40	24.50'			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			
4-P1			
5-P1			
6-P1			
7-P1			

BLOCK 18 SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1	20+94.50	5439.70	23.50'			
9-P1	20+44.50	5439.10	23.50'			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1			
9-P1			

BLOCK 4 SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1	11+39.50	5427.91	23.50'			
2-P1	11+99.50	5427.61	23.50'			
3-P1	12+59.50	5427.64	23.50'			
4-P1	13+19.50	5427.34	23.50'			
5-P1	13+79.50	5427.43	23.50'			
6-P1	14+39.50	5428.78	23.50'			

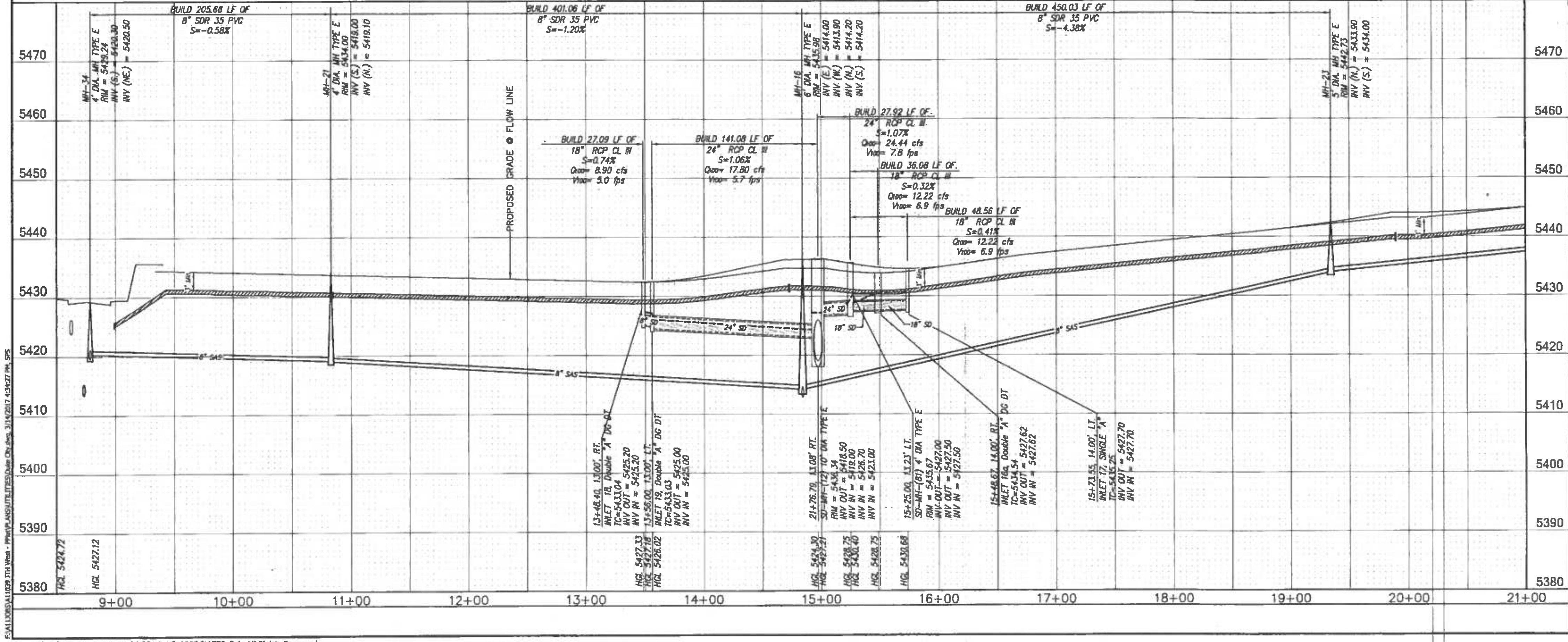
WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			
4-P1			
5-P1			
6-P1			

BLOCK 17 SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
14-P1	20+46.50	5438.67	23.50'			
15-P1	20+96.50	5439.67	23.50'			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			

BLOCK 8 SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1	15+42.28	5428.76	24.50'			
2-P1	16+02.28	5429.77	24.50'			
3-P1	16+62.28	5431.48	24.50'			
4-P1	17+22.28	5432.75	24.50'			
5-P1	17+82.28	5433.95	24.50'			
6-P1	18+42.28	5435.15	24.50'			
7-P1	19+02.28	5436.35	24.50'			

WATER METER SERVICES – GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			
4-P1			
5-P1			
6-P1			
7-P1			



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NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
3. ALL METER BOXES ADJACENT TO MOUNTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABCWUA STD. DWG 2368; WATER METER BOX PER ABCWUA STD. DWG #2366; WATER SERVICE PER ABCWUA STD. DWG #2362.
4. ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABCWUA STD. DWG #2326.
5. CONTRACTOR TO USE POLY COATED CMP FOR VALVE BOXES.
6. CONTRACTOR IS NOT TO INSTALL THE STEPS IN THE SAS MANHOLES.
7. ALL SANITARY SEWER MANHOLES PER ABCWUA STD. DWG #2101, #2107 AND #2109.
8. ALL WATER LINES SHALL BE C-900, DR-18, PVC.
9. ALL SEWER LINES SHALL BE SDR-35, PVC.
10. ALL GATE VALVES & VALVES BOXES PER DWG 2326.
11. ALL SEWER SERVICES PER DWG 2125.
12. ALL MAN HOLES SHALL BE PER DWG 2101 FOR TYPE C AND 2102 FOR TYPE E.
13. ALL WATER AND SEWER MAINS AND SERVICE LINES SHALL HAVE TRACER WIRE OVER THE TOP OF PIPE.

FIRE HYDRANT – GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT

GATE VALVE – GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
14			
24			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".

X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
3-17-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg MARK GOODWIN & ASSOCIATES, P.A.
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:
JUAN TABO HILLS ESTATES
DUKE CITY STREET S.E.
UTILITY PLAN & PROFILE

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

CITY PROJECT NO. 654887
ZONE MAP NO. M-21
SHEET 55 OF 75

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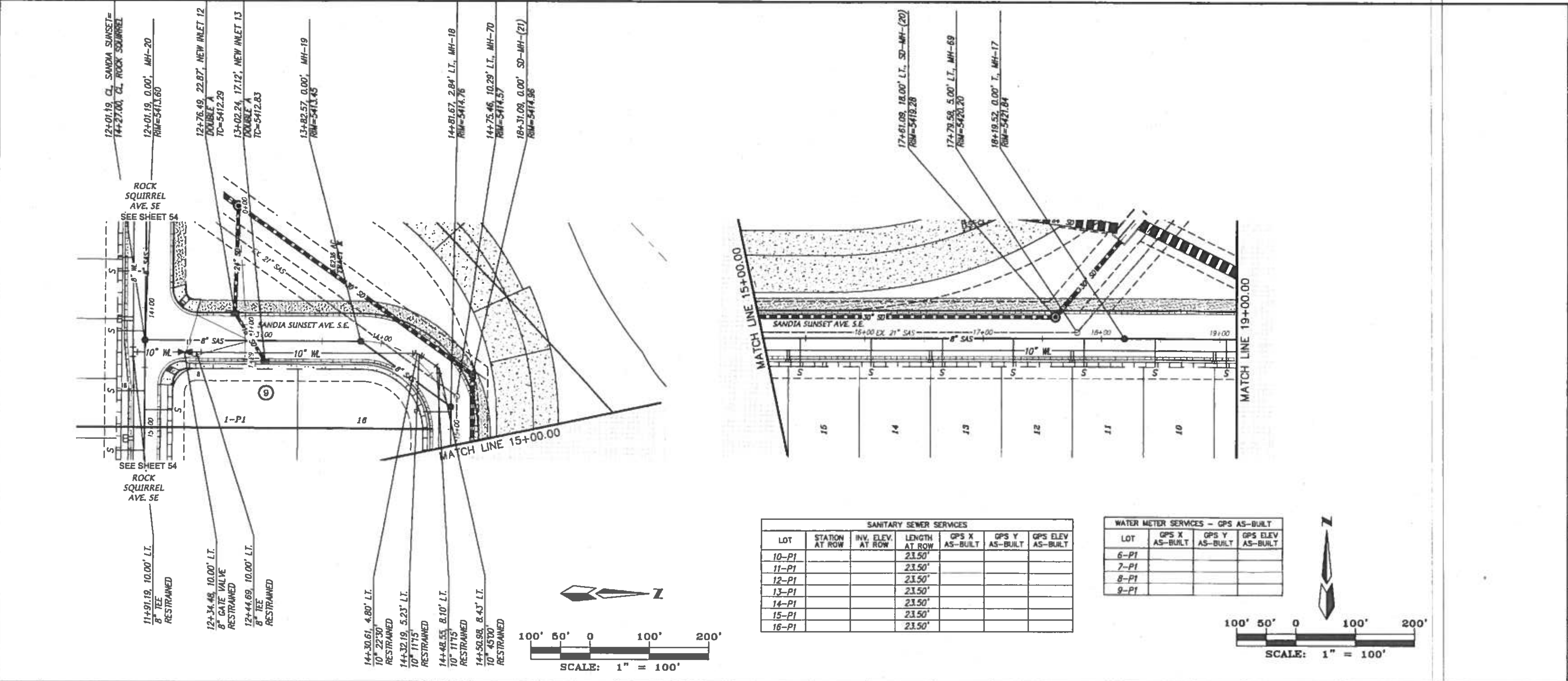
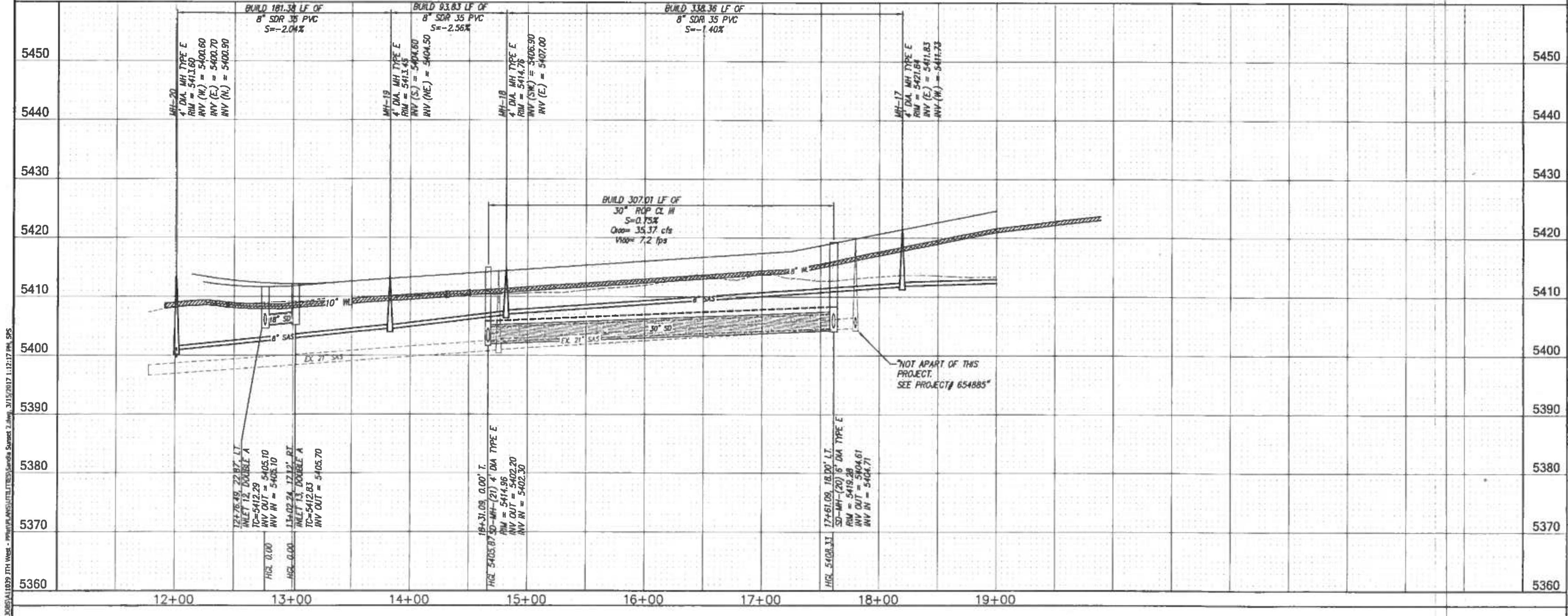


SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10-P1			23.50'			
11-P1			23.50'			
12-P1			23.50'			
13-P1			23.50'			
14-P1			23.50'			
15-P1			23.50'			
16-P1			23.50'			

WATER METER SERVICES - GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
6-P1			
7-P1			
8-P1			
9-P1			



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NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
3. ALL METER BOXES ADJACENT TO MOUNTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABCWUA STD. DWG 2368; WATER METER BOX PER ABCWUA STD. DWG #2366; WATER SERVICE PER ABCWUA STD. DWG #2362.
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FIRE HYDRANT - GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10			
11			

GATE VALVE - GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
17			
18			
20			
22			
23			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
15520
3-15-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg MARK GOODWIN & ASSOCIATES, P.A.
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: *JUAN TABO HILLS ESTATES*
SANDIA SUNSET AVE SE
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	58	75

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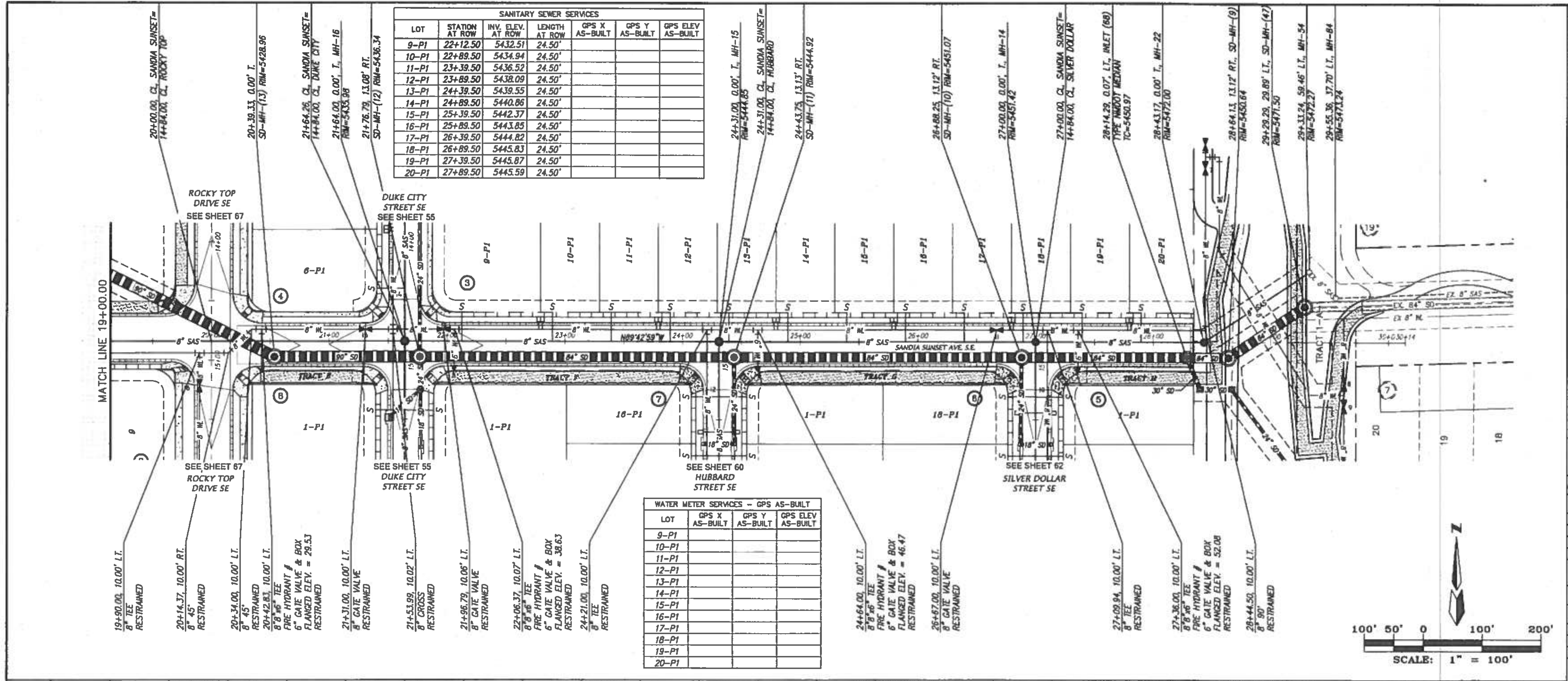
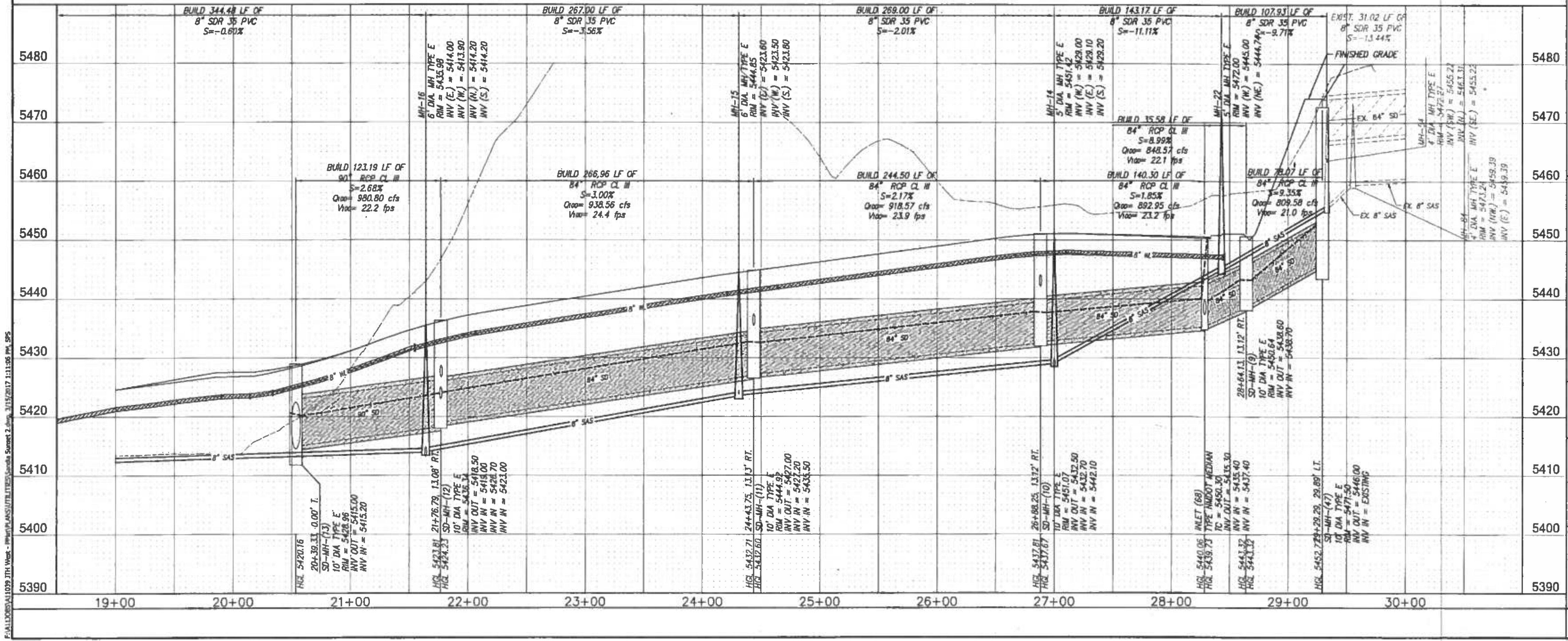


SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
9-P1	22+12.50	5432.51	24.50'			
10-P1	22+89.50	5434.94	24.50'			
11-P1	23+39.50	5436.52	24.50'			
12-P1	23+89.50	5438.09	24.50'			
13-P1	24+39.50	5439.55	24.50'			
14-P1	24+89.50	5440.86	24.50'			
15-P1	25+39.50	5442.37	24.50'			
16-P1	25+89.50	5443.85	24.50'			
17-P1	26+39.50	5444.82	24.50'			
18-P1	26+89.50	5445.83	24.50'			
19-P1	27+39.50	5445.87	24.50'			
20-P1	27+89.50	5445.59	24.50'			

WATER METER SERVICES - GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
9-P1			
10-P1			
11-P1			
12-P1			
13-P1			
14-P1			
15-P1			
16-P1			
17-P1			
18-P1			
19-P1			
20-P1			



NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
3. ALL METER BOXES ADJACENT TO MOUNTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABCWUA STD. DWG 2368; WATER METER BOX PER ABCWUA STD. DWG #2366; WATER SERVICE PER ABCWUA STD. DWG #2362.
4. ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABCWUA STD. DWG #2326.
5. CONTRACTOR TO USE POLY COATED CMP FOR VALVE BOXES.
6. CONTRACTOR IS NOT TO INSTALL THE STEPS IN THE SAS MANHOLES.
7. ALL SANITARY SEWER MANHOLES PER ABCWUA STD. DWG #2101, #2107 AND #2109.
8. ALL WATER LINES SHALL BE C-900, DR-18, PVC.
9. ALL SEWER LINES SHALL BE SDR-35, PVC.
10. ALL GATE VALVES & VALVES BOXES PER DWG 2326.
11. ALL SEWER SERVICES PER DWG 2125.
12. ALL MAN HOLES SHALL BE PER DWG 2101 FOR TYPE C AND 2102 FOR TYPE E.
13. ALL WATER AND SEWER MAINS AND SERVICE LINES SHALL HAVE TRACER WIRE OVER THE TOP OF PIPE.

FIRE HYDRANT - GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
4			
5			
6			
7			

GATE VALVE - GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
11			
13			
15			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

3-15-2017

REVISIONS

NO.	DATE	REMARKS	BY

DESIGN

DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg MARK GOODWIN & ASSOCIATES, P.A.
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:
JUAN TABO HILLS ESTATES
SANDIA SUNSET AVE SE
UTILITY PLAN & PROFILE

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

LAST DESIGN UPDATE

CITY PROJECT NO. 654887
ZONE MAP NO. M-21
SHEET 59 OF 75

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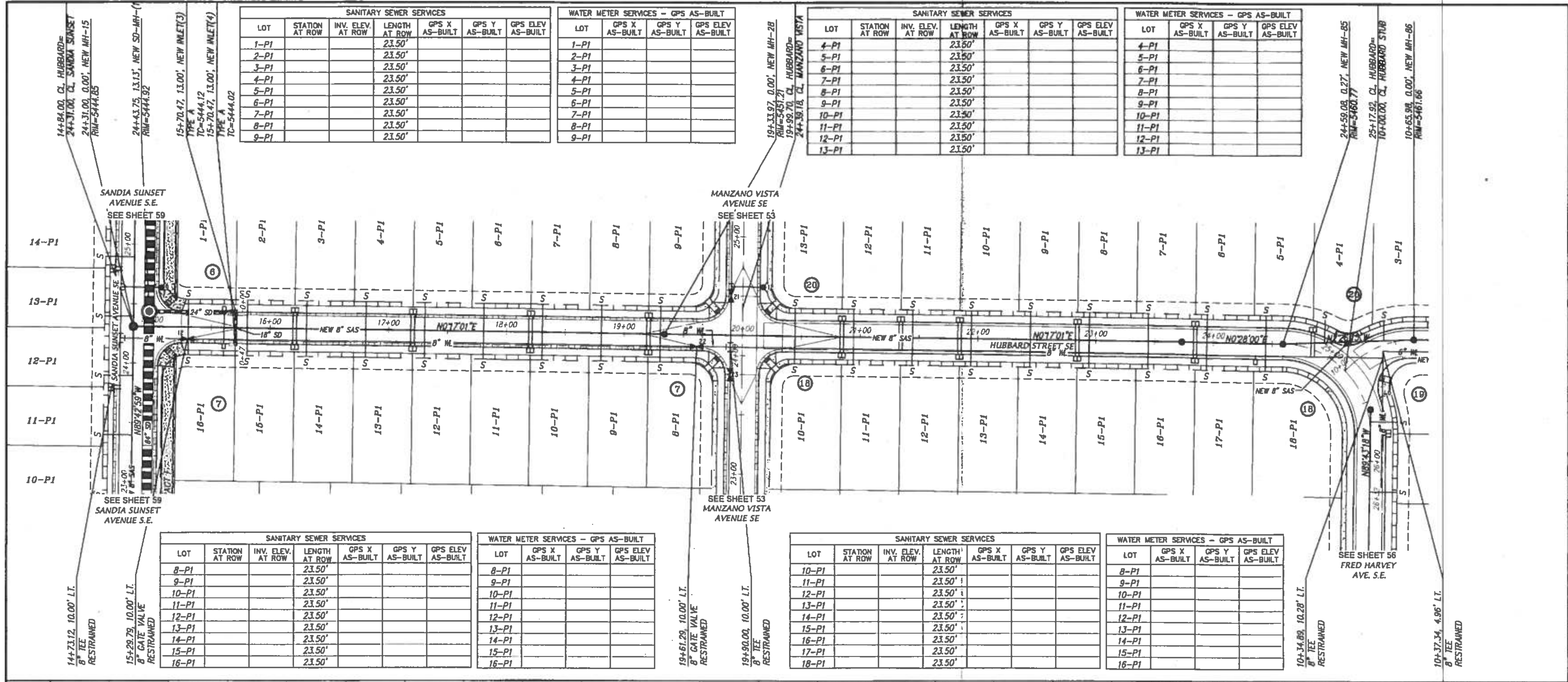


SANITARY SEWER SERVICES

LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			23.50'			
2-P1			23.50'			
3-P1			23.50'			
4-P1			23.50'			
5-P1			23.50'			
6-P1			23.50'			
7-P1			23.50'			
8-P1			23.50'			
9-P1			23.50'			

WATER METER SERVICES – GPS AS-BUILT

LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			
4-P1			
5-P1			
6-P1			
7-P1			
8-P1			
9-P1			

SANITARY SEWER SERVICES

LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
4-P1			23.50'			
5-P1			23.50'			
6-P1			23.50'			
7-P1			23.50'			
8-P1			23.50'			
9-P1			23.50'			
10-P1			23.50'			
11-P1			23.50'			
12-P1			23.50'			
13-P1			23.50'			

WATER METER SERVICES – GPS AS-BUILT

LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
4-P1			
5-P1			
6-P1			
7-P1			
8-P1			
9-P1			
10-P1			
11-P1			
12-P1			
13-P1			

SANITARY SEWER SERVICES

LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1			23.50'			
9-P1			23.50'			
10-P1			23.50'			
11-P1			23.50'			
12-P1			23.50'			
13-P1			23.50'			
14-P1			23.50'			
15-P1			23.50'			
16-P1			23.50'			

WATER METER SERVICES – GPS AS-BUILT

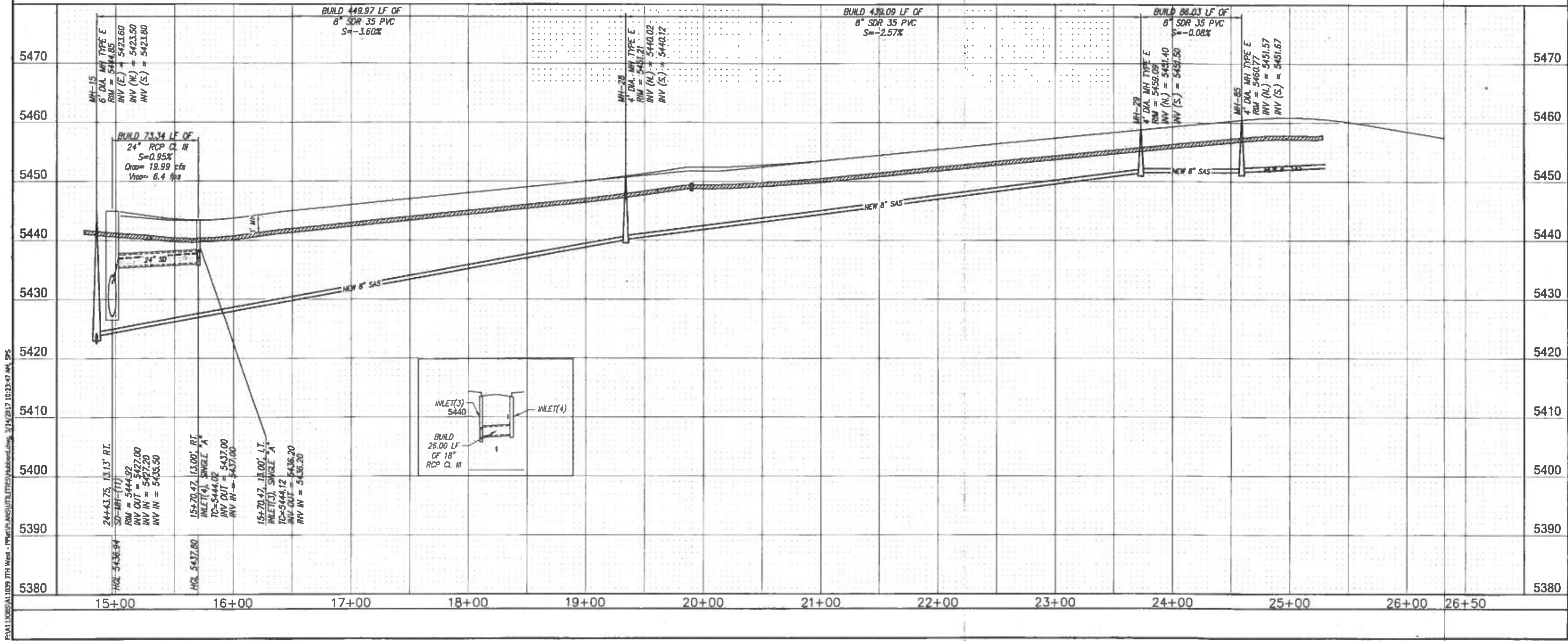
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1			
9-P1			
10-P1			
11-P1			
12-P1			
13-P1			
14-P1			
15-P1			
16-P1			

SANITARY SEWER SERVICES

LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10-P1			23.50'			
11-P1			23.50'			
12-P1			23.50'			
13-P1			23.50'			
14-P1			23.50'			
15-P1			23.50'			
16-P1			23.50'			
17-P1			23.50'			
18-P1			23.50'			

WATER METER SERVICES – GPS AS-BUILT

LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
8-P1			
9-P1			
10-P1			
11-P1			
12-P1			
13-P1			
14-P1			
15-P1			
16-P1			



NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
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4. ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABCWUA STD. DWG #2326.
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8. ALL WATER LINES SHALL BE C-900, DR-18, PVC.
9. ALL SEWER LINES SHALL BE SDR-35, PVC.
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11. ALL SEWER SERVICES PER DWG 2125.
12. ALL MAN HOLES SHALL BE PER DWG 2101 FOR TYPE C AND 2102 FOR TYPE E.
13. ALL WATER AND SEWER MAINS AND SERVICE LINES SHALL HAVE TRACER WIRE OVER THE TOP OF PIPE.

Z
50' 25' 0 50' 100'
SCALE: 1" = 50'

FIRE HYDRANT – GPS AS-BUILT

FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10			
11			

GATE VALVE – GPS AS-BUILT

GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
17			
18			
20			
22			
23			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

ENGINEER'S SEAL
JAMES D. HUGHES
3-17-2017

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #80. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: JUAN TABO HILLS ESTATES
HUBBARD STREET S.E.
UTILITY PLAN & PROFILE

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

LAST DESIGN UPDATE

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	60	75

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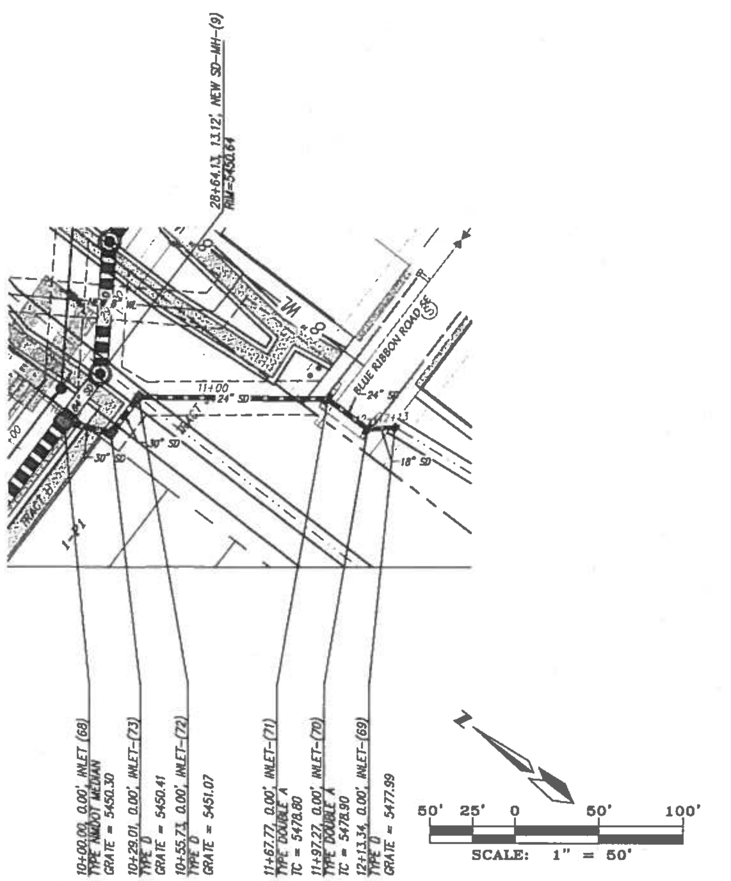
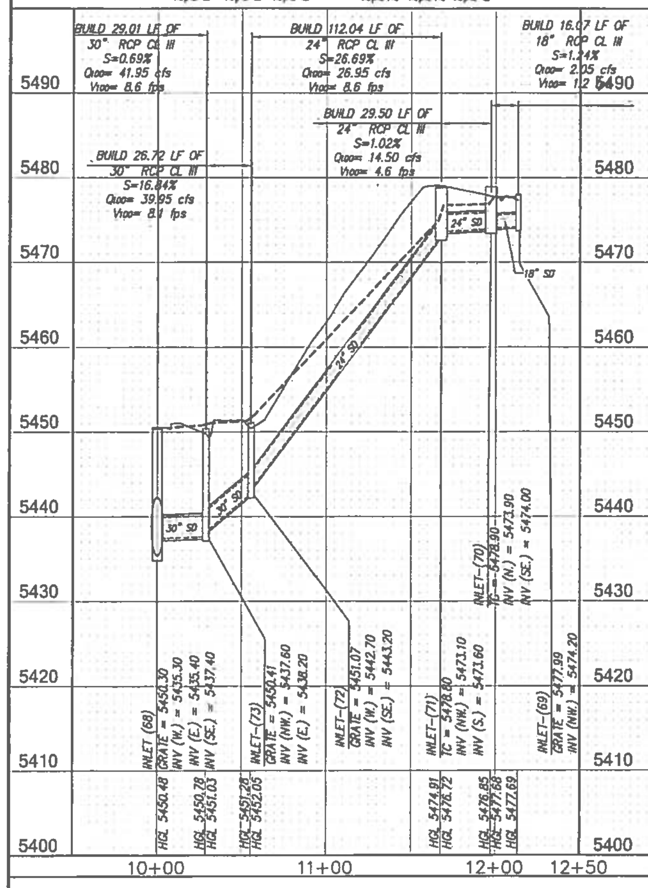
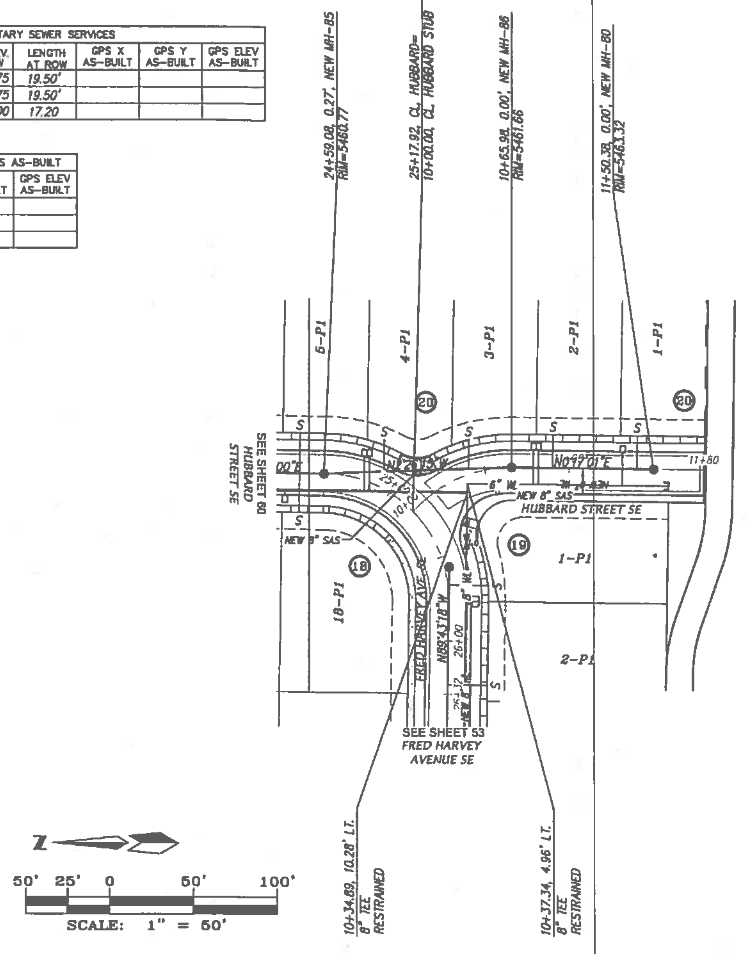
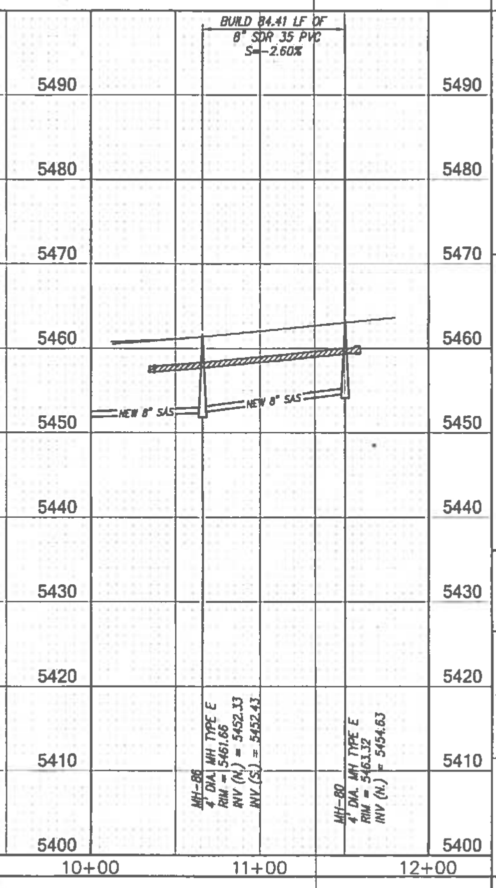




SANITARY SEWER SERVICES						
LOT	STATION AT ROW	INV. ELEV. AT ROW	LENGTH AT ROW	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1		5457.75	19.50'			
2-P1		5456.75	19.50'			
3-P1		5456.00	17.20			

WATER METER SERVICES - GPS AS-BUILT			
LOT	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
1-P1			
2-P1			
3-P1			





NOTES

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4. ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABCWUA STD. DWG #2326.
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FIRE HYDRANT - GPS AS-BUILT			
FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT

GATE VALVE - GPS AS-BUILT			
GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

ENGINEER'S SEAL

SURVEY INFORMATION

FIELD NOTES		
NO	BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1988)

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN			
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg MARK GOODWIN & ASSOCIATES, P.A.
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: JUAN TABO HILLS ESTATES
HUBBARD STREET S.E.
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET OF
654887	M-21	61 75

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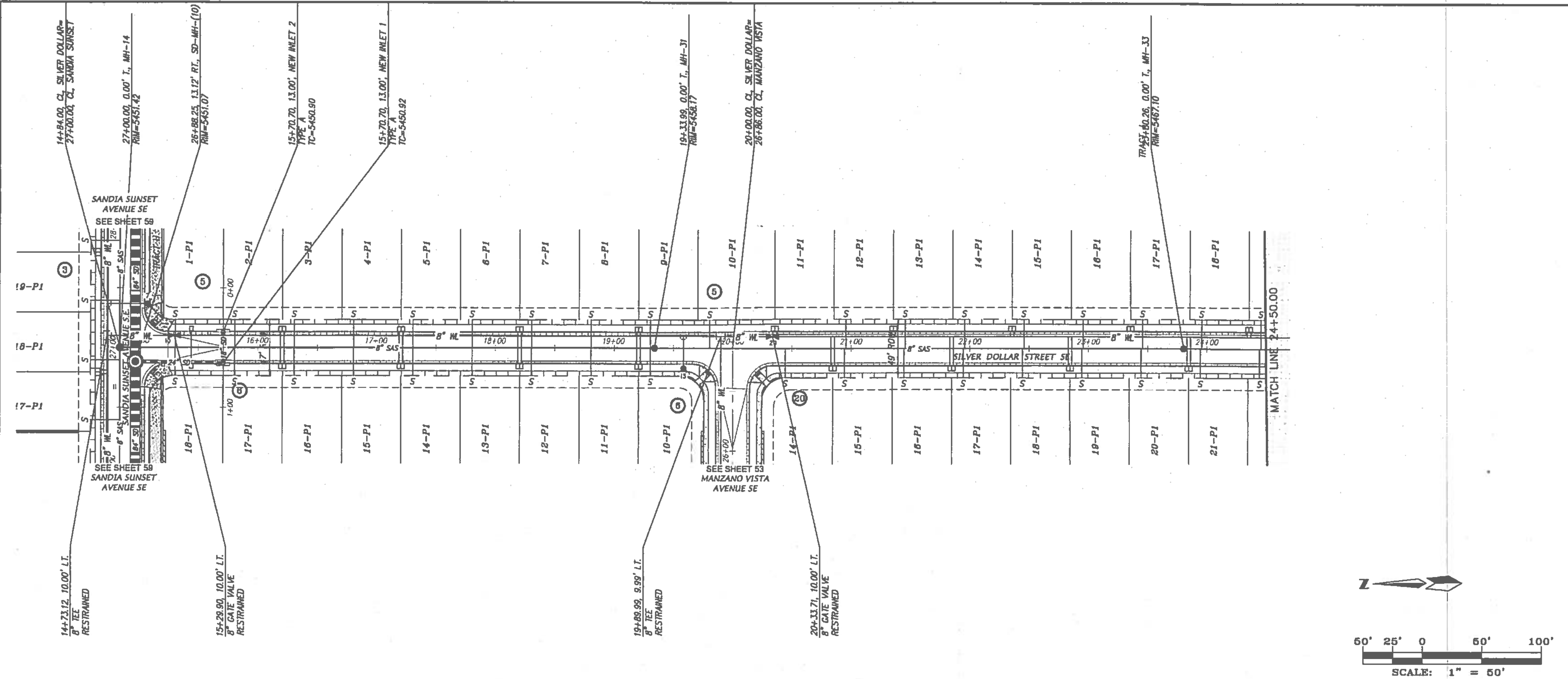

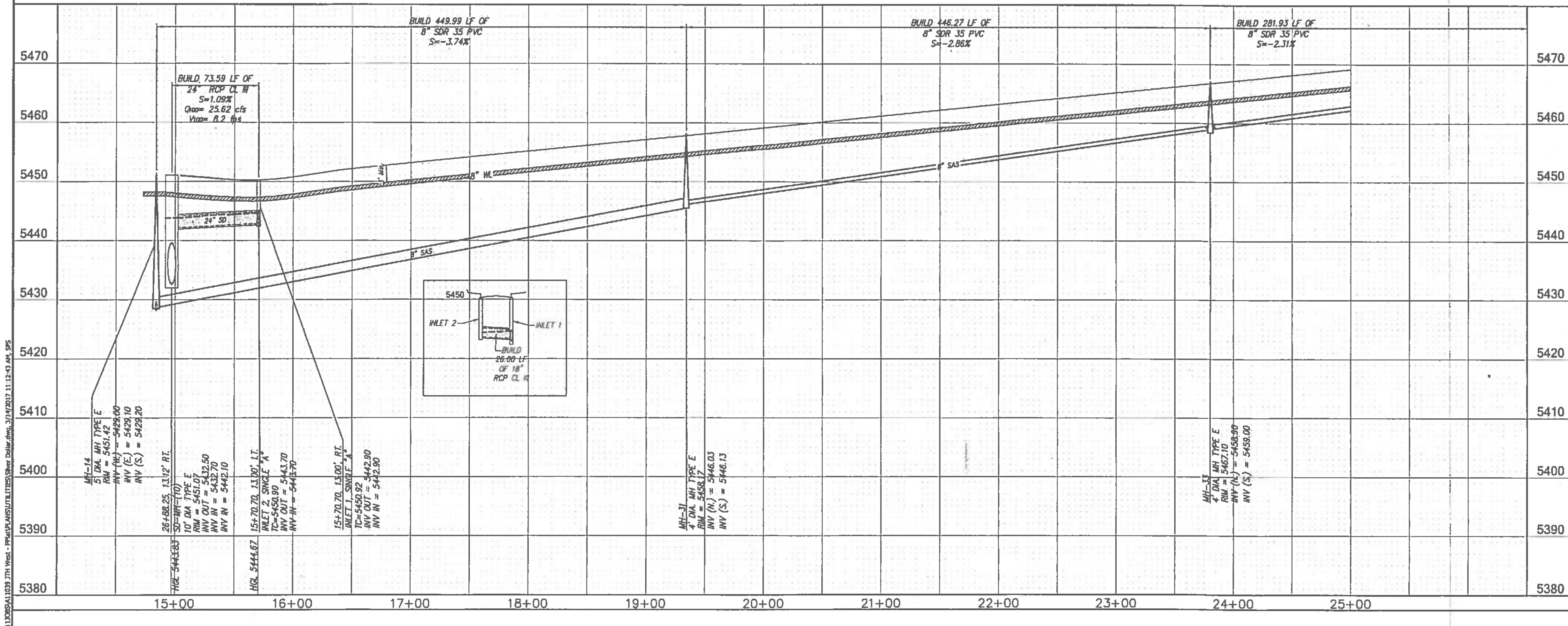

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CERTIFICATE OF SUBSTANTIAL COMPLIANCE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
PROFESSIONAL ENGINEER
3-17-2017

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".

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AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

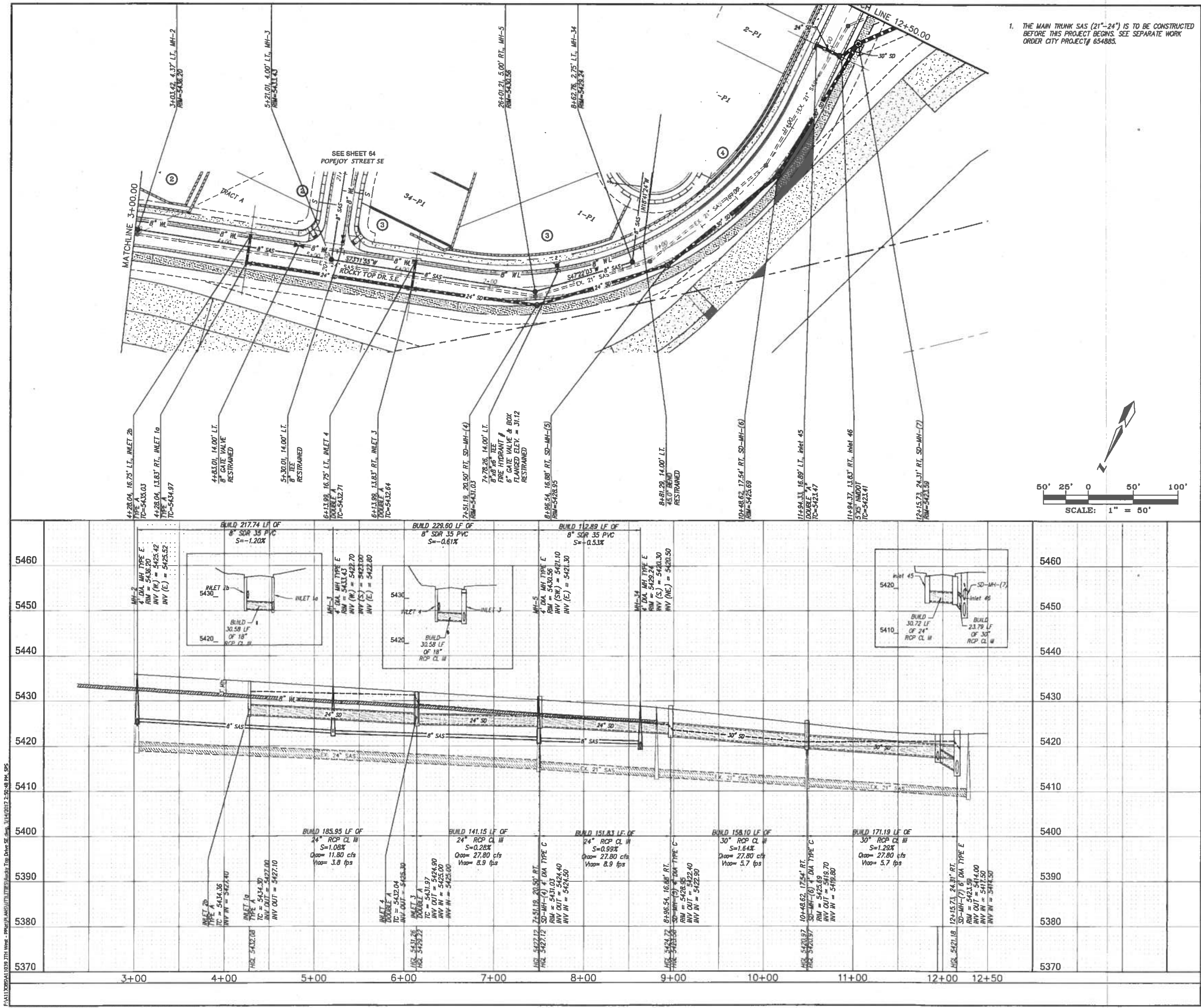
TITLE:

JUAN TABO HILLS ESTATES
SILVER DOLLAR STREET S.E.
UTILITY PLAN & PROFILE

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

LAST DESIGN UPDATE

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	62	75



1. THE MAIN TRUNK SAS (21"-24") IS TO BE CONSTRUCTED BEFORE THIS PROJECT BEGINS. SEE SEPARATE WORK ORDER CITY PROJECT# 654885.

NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
3. ALL METER BOXES ADJACENT TO MOUNTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABCWUA STD. DWG 2368; WATER METER BOX PER ABCWUA STD. DWG #2366; WATER SERVICE PER ABCWUA STD. DWG #2362.
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FIRE HYDRANT - GPS AS-BUILT

FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
2			

GATE VALVE - GPS AS-BUILT

GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
17			
18			
20			
22			
23			

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #SE37 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".
X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5587.219 (NAVD 1988)

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
PROFESSIONAL ENGINEER
3-17-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
JUAN TABO HILLS ESTATES
ROCKY TOP DRIVE SE
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	67	75

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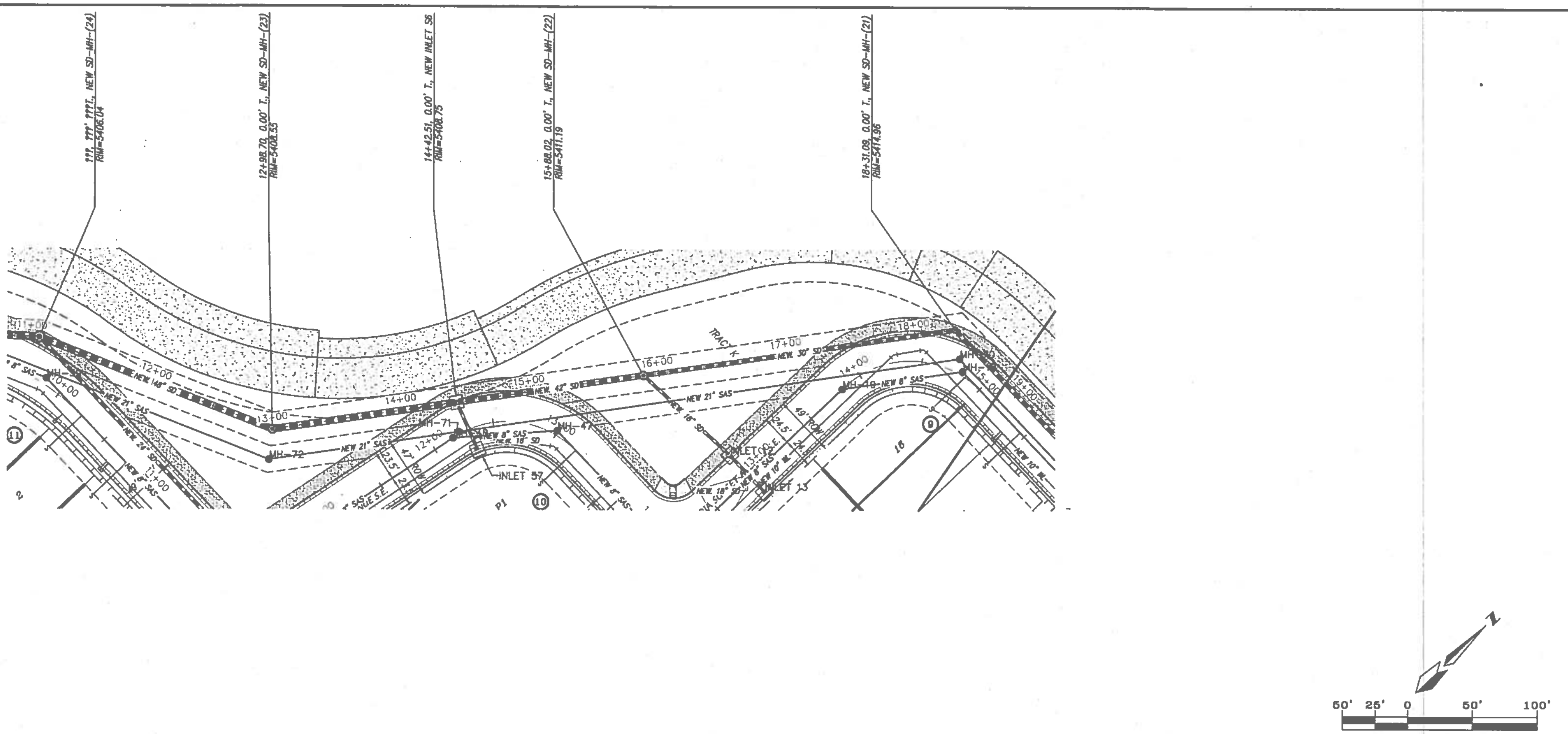

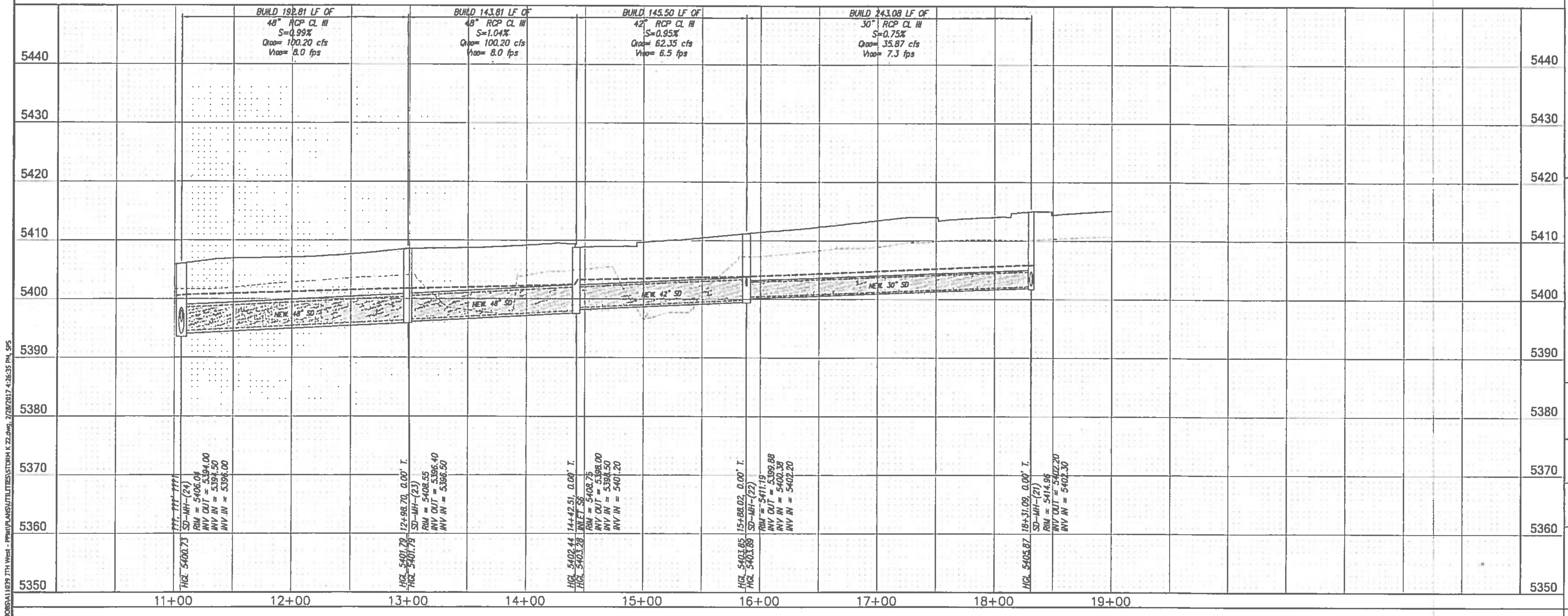

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	

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SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
3-17-2017

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

dmg
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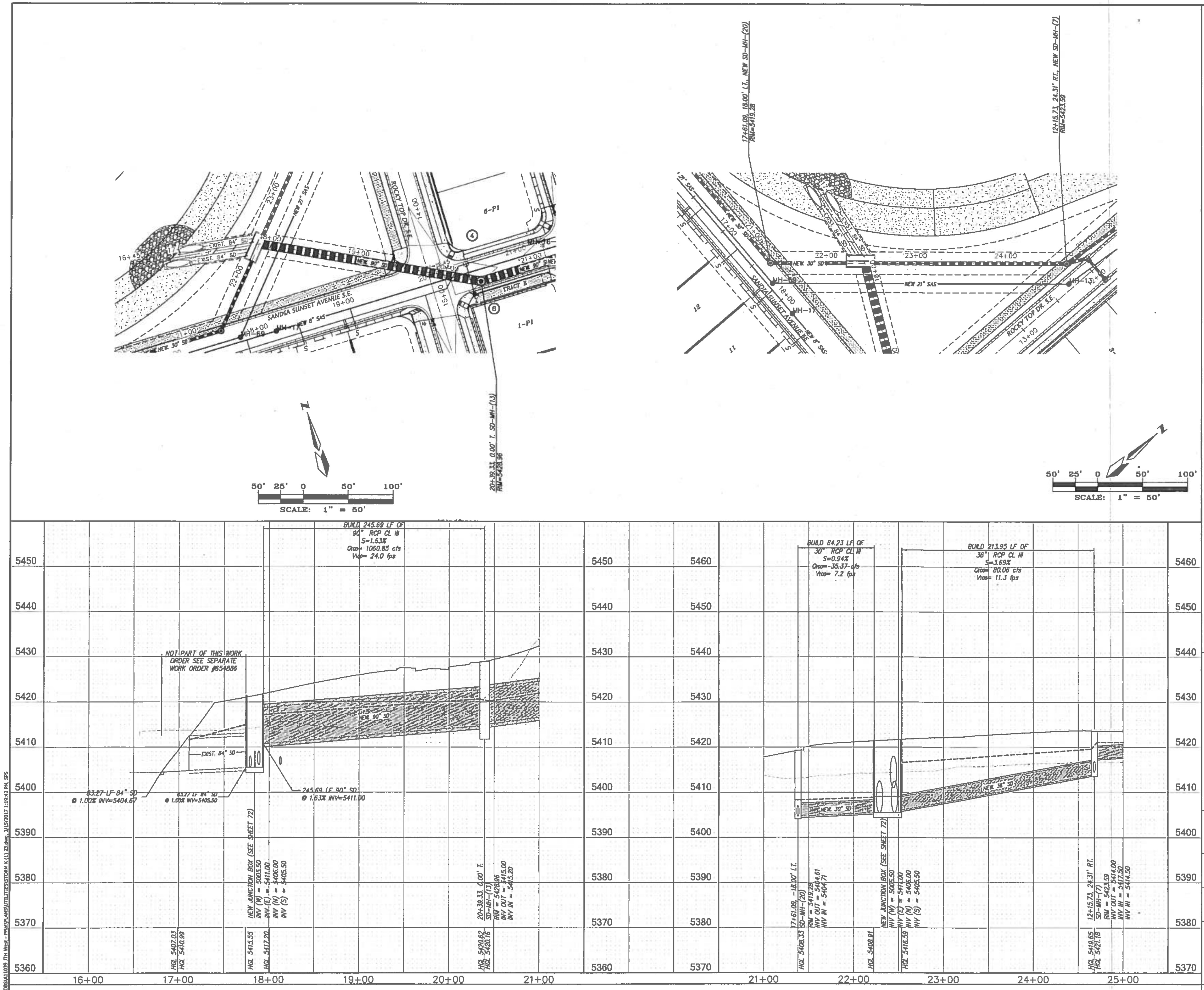
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: JUAN TABO HILLS ESTATES
PARK 1
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	69	75



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CERTIFICATE OF SUBSTANTIAL COMPLIANCE

AS BUILT INFORMATION	
CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE
MICRO-FILM INFORMATION	
RECORDED BY	DATE
NO.	

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SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
James D. Hughes
3-15-2017

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

MARK GOODWIN & ASSOCIATES, P.A.
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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
JUAN TABO HILLS ESTATES
PARK 2
UTILITY PLAN & PROFILE

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

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	70	75

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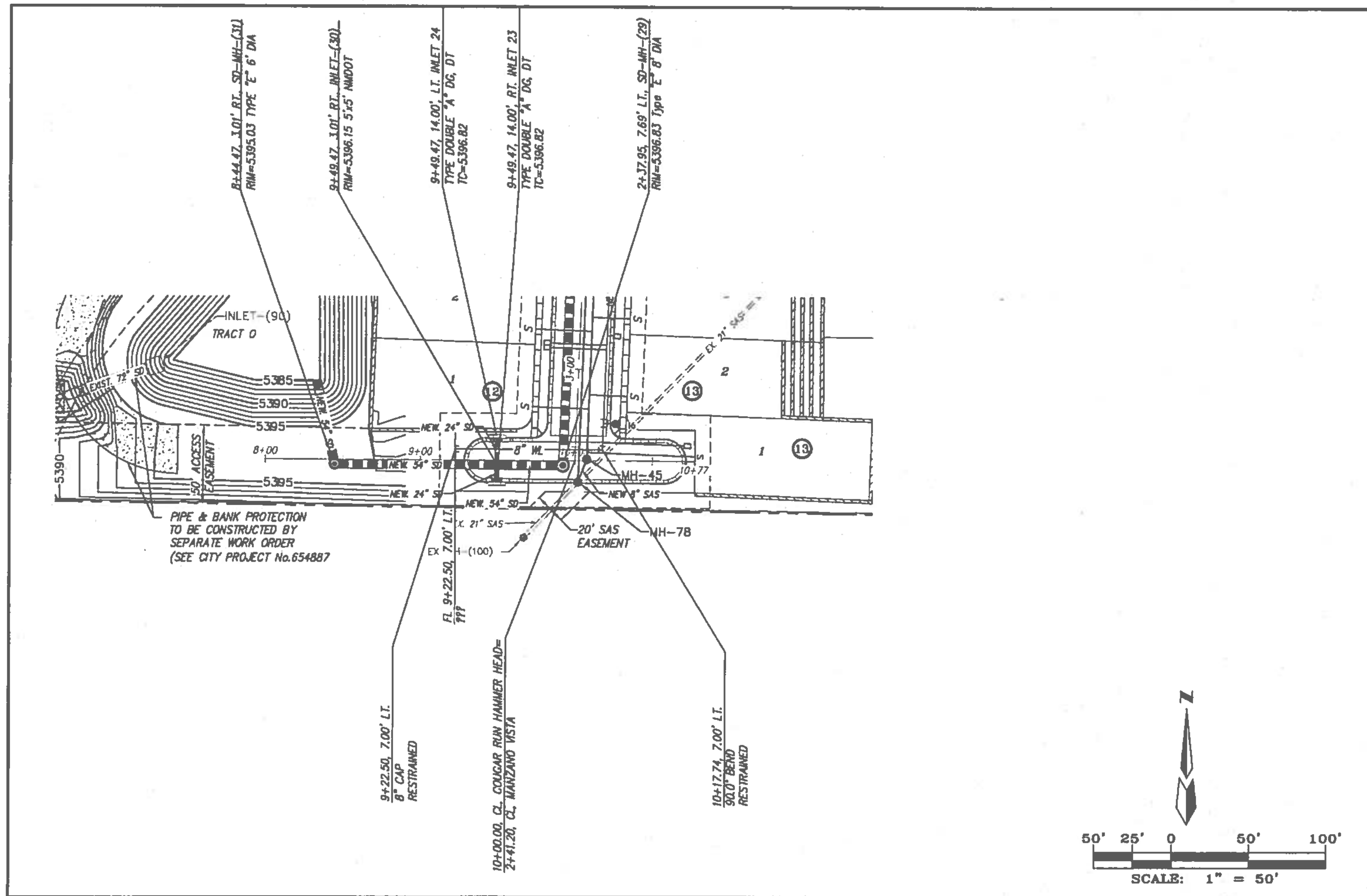

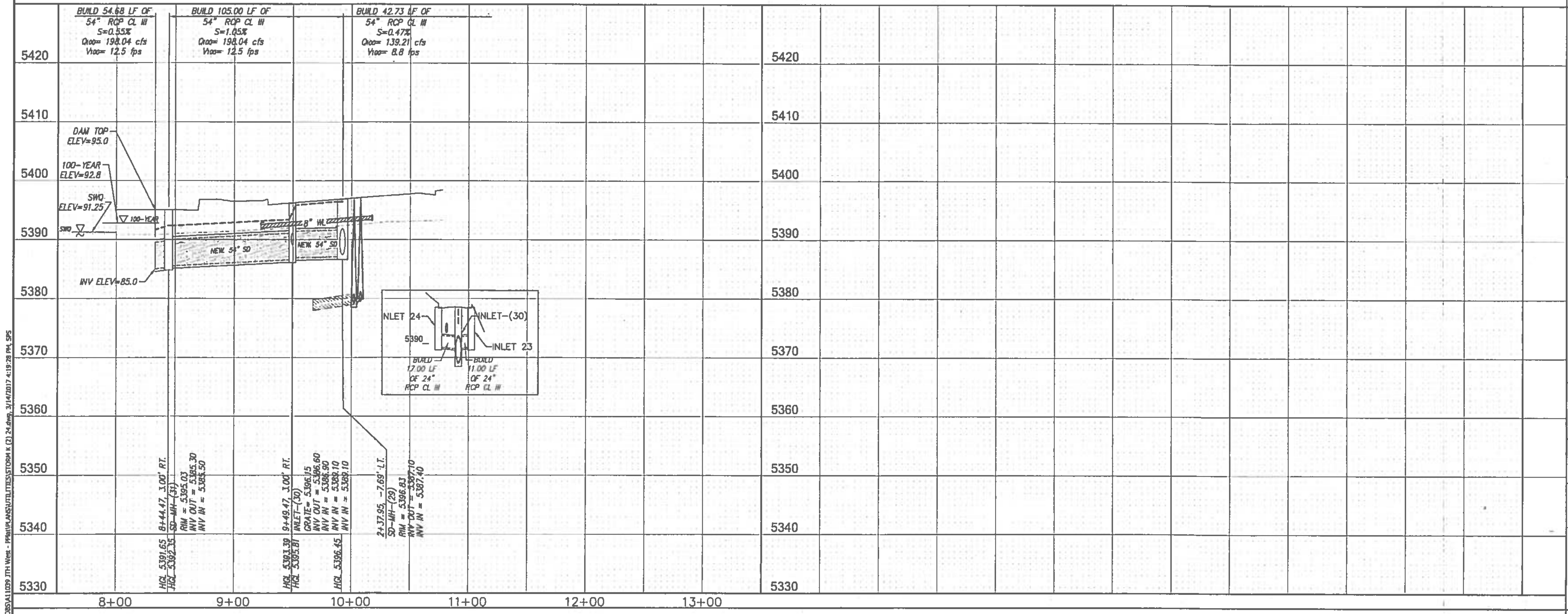

NOTES

1. THIS PROJECT SITE LIES WITHIN THE 2WR ZONE FOR PADS BETWEEN ELEVATIONS 5065.7 AND 5142.7
2. ALL FIRE HYDRANTS ARE ABCWUA STD. DWG 2340 AND 4' BURY UNLESS OTHERWISE SPECIFIED.
3. ALL METER BOXES ADJACENT TO MOUNTABLE CURB SHALL HAVE DUCTILE IRON METER BOX COVER & LID PER ABCWUA STD. DWG 2368; WATER METER BOX PER ABCWUA STD. DWG #2366; WATER SERVICE PER ABCWUA STD. DWG #2362.
4. ALL FIRE HYDRANTS TO HAVE A 6" GATE VALVE & BOX PER ABCWUA STD. DWG #2326.
5. CONTRACTOR TO USE POLY COATED CMP FOR VALVE BOXES.
6. CONTRACTOR IS <u>NOT</u> TO INSTALL THE STEPS IN THE SAS MANHOLES.
7. ALL SANITARY SEWER MANHOLES PER ABCWUA STD. DWG #2101, #2107 AND #2109.
8. ALL WATER LINES SHALL BE C-900, DR-18, PVC.
9. ALL SEWER LINES SHALL BE SDR-35, PVC.
10. ALL GATE VALVES & VALVES BOXES PER DWG 2326.
11. ALL SEWER SERVICES PER DWG 2125.
12. ALL MAN HOLES SHALL BE PER DWG 2101 FOR TYPE C AND 2102 FOR TYPE E.
13. ALL WATER AND SEWER MAINS AND SERVICE LINES SHALL HAVE TRACER WIRE OVER THE TOP OF PIPE.

FIRE HYDRANT – GPS AS-BUILT

FIRE HYDRANT #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
10			
11			

GATE VALVE – GPS AS-BUILT

GATE VALVE #	GPS X AS-BUILT	GPS Y AS-BUILT	GPS ELEV AS-BUILT
17			
18			
20			
22			
23			

AS BUILT INFORMATION

CONTRACTOR
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO.

BENCH MARKS

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SURVEY INFORMATION

FIELD NOTES		
NO.	BY	DATE

ENGINEER'S SEAL

JAMES D. HUGHES
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
3-17-2017

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	JDH	DATE	02/17
DRAWN BY	SPS	DATE	02/17
CHECKED BY	DMG	DATE	02/17

CERTIFICATE OF SUBSTANTIAL COMPLIANCE

dmg
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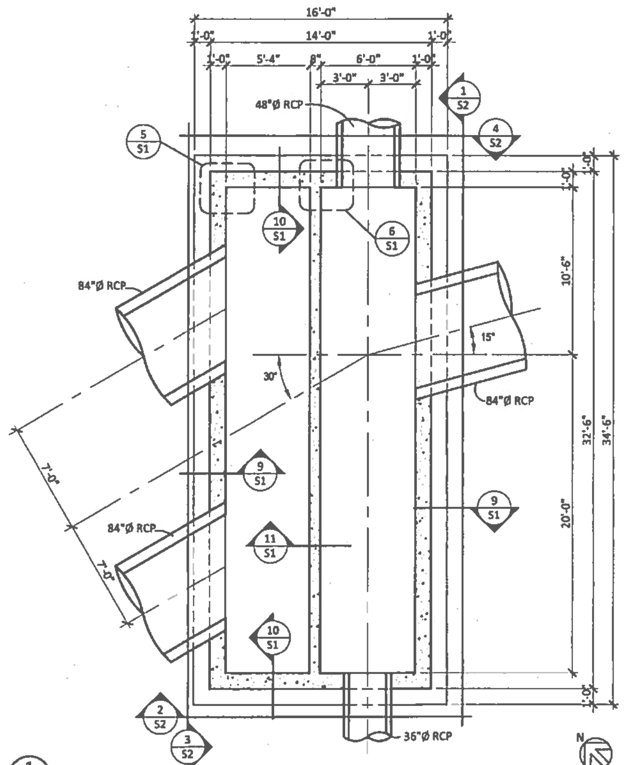
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:

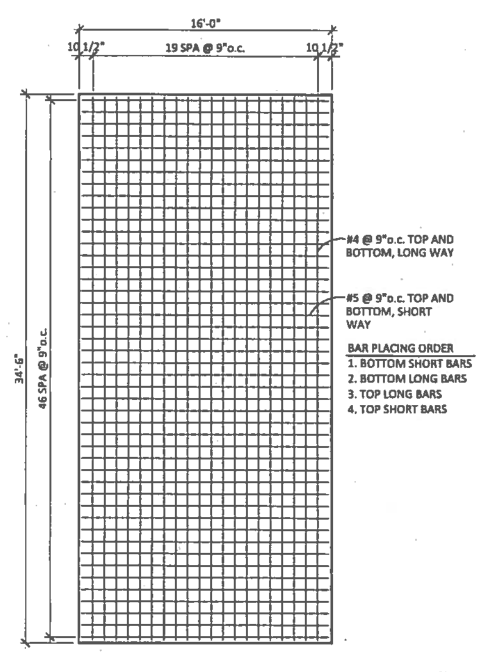
JUAN TABO HILLS ESTATES
COUGAR RUN
UTILITY PLAN & PROFILE

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

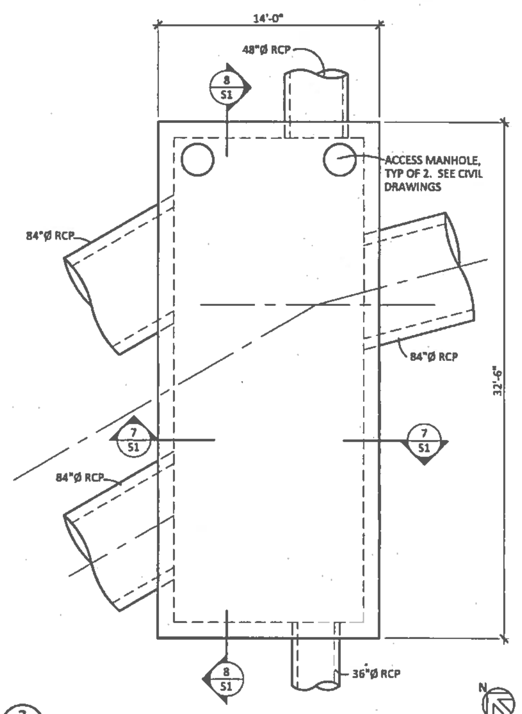
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
654887	M-21	71	75



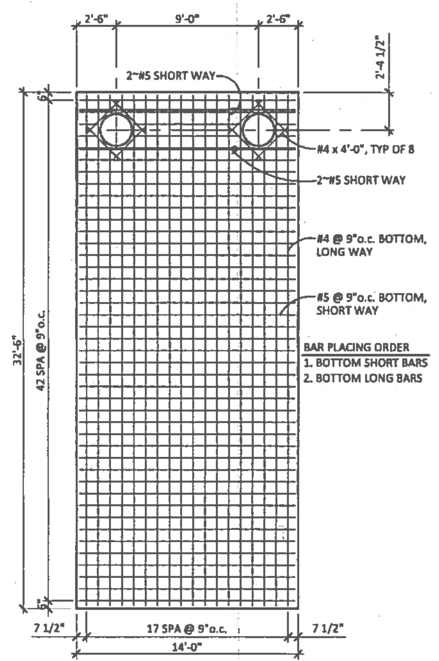
1 S1 3/16"=1'-0"



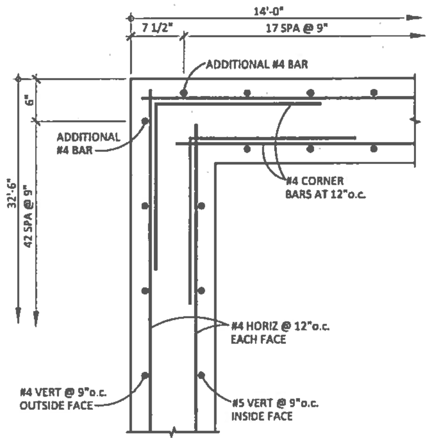
2 S1 BASE SLAB REINFORCING PLAN 3/16"=1'-0"



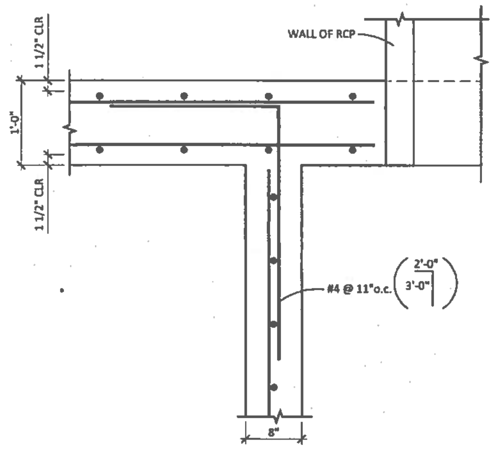
3 S1 3/16"=1'-0"



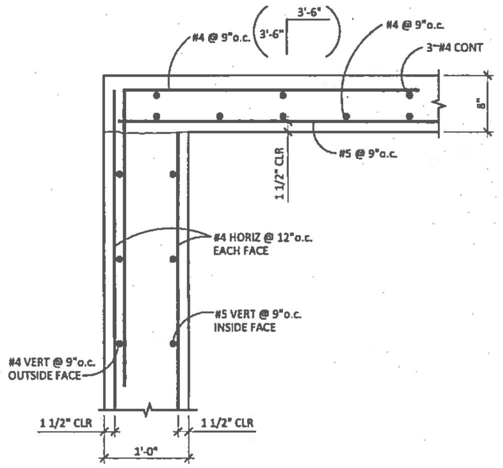
4 S1 UPPER SLAB REINFORCING PLAN 3/16"=1'-0"



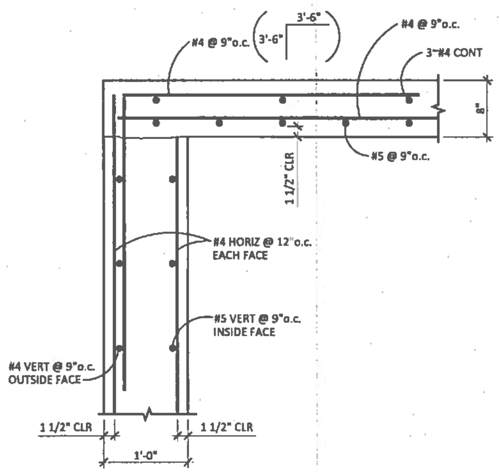
5 S1 1"=1'-0"



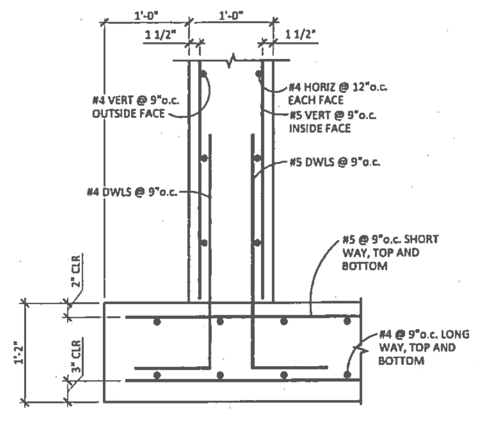
6 S1 1"=1'-0"



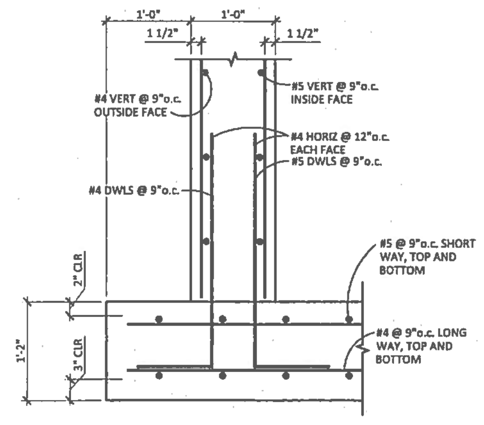
7 S1 1"=1'-0"



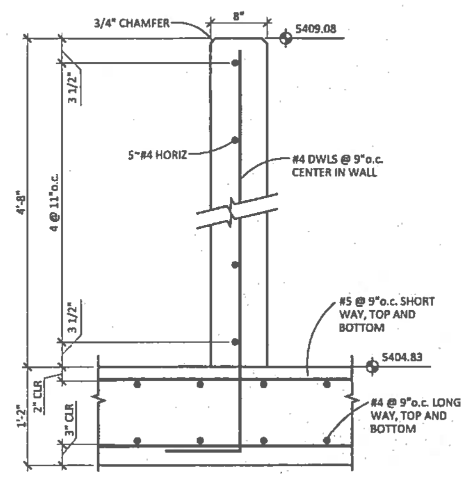
8 S1 1"=1'-0"



9 S1 1"=1'-0"



10 S1 1"=1'-0"



11 S1 1"=1'-0"

12 S1 1"=1'-0"

MacCornack Engineering: G17-021 February 15, 2017

GENERAL STRUCTURAL NOTES

1. CODES AND MANUALS:
   International Building Code, 2012 Edition
   ACI 318-05
2. DESIGN LOADS:
   A. Equivalent Fluid Pressure = 32 pcf
   B. Maximum allowable soil bearing pressure: 2,000 psf.
3. GENERAL:
   A. The Contractor shall verify all dimensions in the field.
   B. The Contractor shall be responsible for providing safe and adequate shoring for all parts of the structure during construction.
4. MATERIALS:
   A. Cast-in-place Concrete:
      1. Hardrock Concrete (Unit Wt.=150 pcf)
         a. 4,000 psi @ 28 days (air entrained)
      2. Provide 3/4" chamfer at all exposed edges.
   B. Reinforcing Steel:
      1. All reinforcing steel shall conform to ASTM A615 Grade 60.
      2. Reinforcing steel shall be fabricated and placed in accordance with the Building Code Requirements for Reinforced Concrete ACI 318 and the Standard Manual ACI 315.
      3. Where lapped splices in reinforcing occur, the minimum lap shall be made as follows:
         a. Vertical reinforcing: 30 bar dia. or 18" minimum.
         b. Horizontal reinforcing: 30 bar dia. or 18" minimum.
         c. Horizontal corner bars: 30 bar dia. or 18" minimum.
      4. Concrete cover for reinforcing shall be as follows:
         a. Concrete cast against and permanently exposed to earth .... 3"
         b. Concrete exposed to earth or weather
            1. Bars larger than No. 5 .... 2"
            2. Bars No. 5 or smaller .... 1 1/2"
      5. All horizontal reinforcing in footings, walls and beams shall be continuous around corners or have corner bars of the same size and spacing as the horizontal bars and lap a minimum of 30 bar diameters or 24" minimum.
5. SITE GRADING AND EARTHWORK
   A. Foundation Preparation:
   Building areas shall be completely stripped of vegetation, pavements, existing construction and debris, and soft or muddy areas.
   B. Foundations:
   Overexcavate beneath bottom elevation of all foundations a minimum of one foot. The excavation shall extend a minimum of two feet laterally beyond the edge of all foundations. The exposed bottoms of excavations shall be scarified to a depth of 8", moistened within optimum moisture +/-3%, and compacted to a minimum of 95% of maximum density as determined by ASTM D-1557. The structural fill shall be thoroughly mixed within optimum moisture +/-2%, placed in thin horizontal lifts, 8" max. loose depth, and compacted to a minimum of 95% of maximum density as determined by ASTM D-1557.
   C. Backfill:
   All backfill should be thoroughly mixed within optimum moisture +/-2%, placed in thin horizontal lifts, 8" max. loose depth, and compacted to a minimum of 95% of maximum density as determined by ASTM D-1557.
   D. Site Drainage:
   Provide positive surface drainage away from foundation excavations during construction.

AS BUILT INFORMATION

CONTRACTOR	
WORK STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY

REVISIONS

DESIGN

DESIGNED BY	DM	DATE
DRAWN BY	CB	DATE
CHECKED BY	DM	DATE

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: JUAN TABO HILLS ESTATES
SD-MH5 STRUCTURAL DRAWINGS

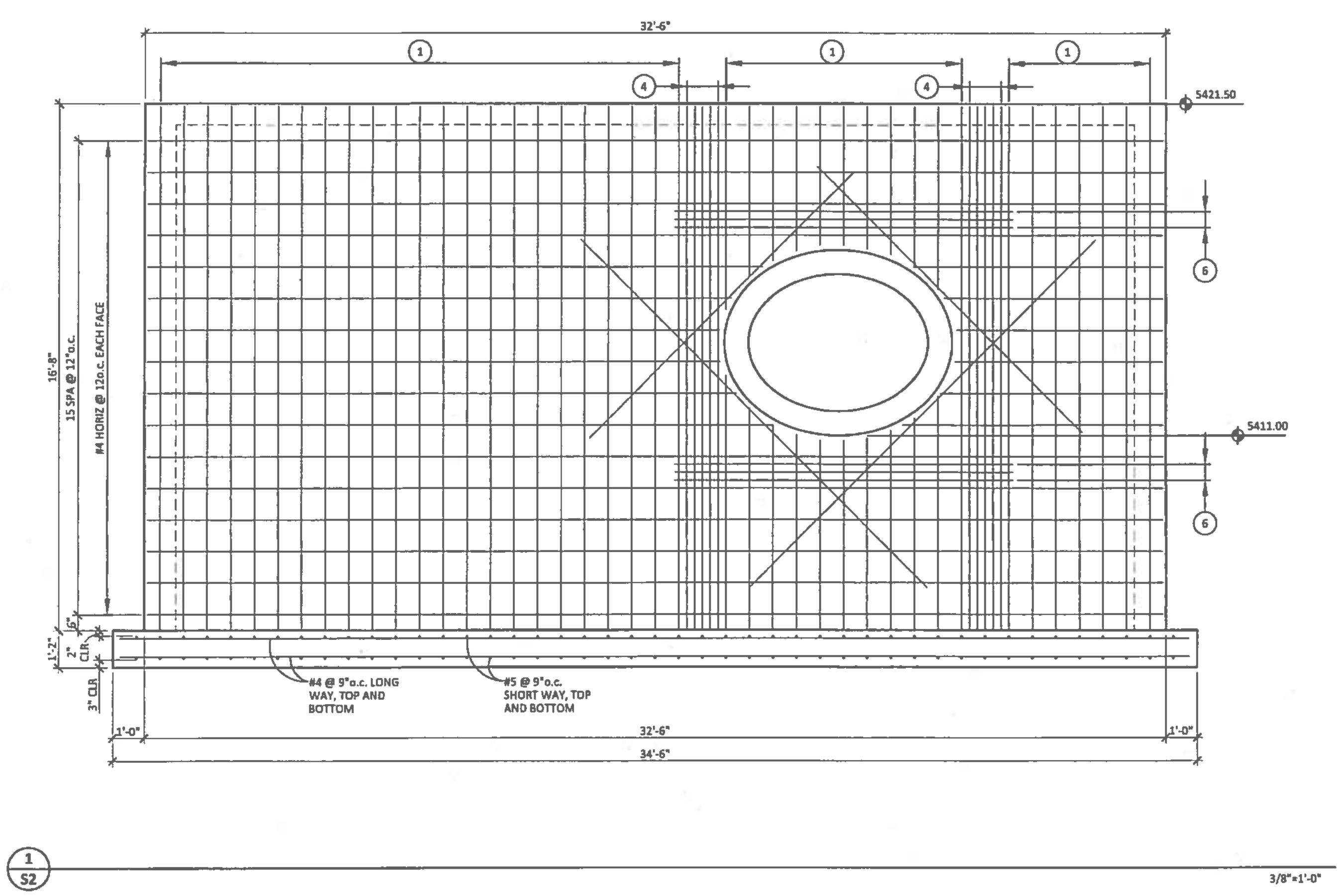
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

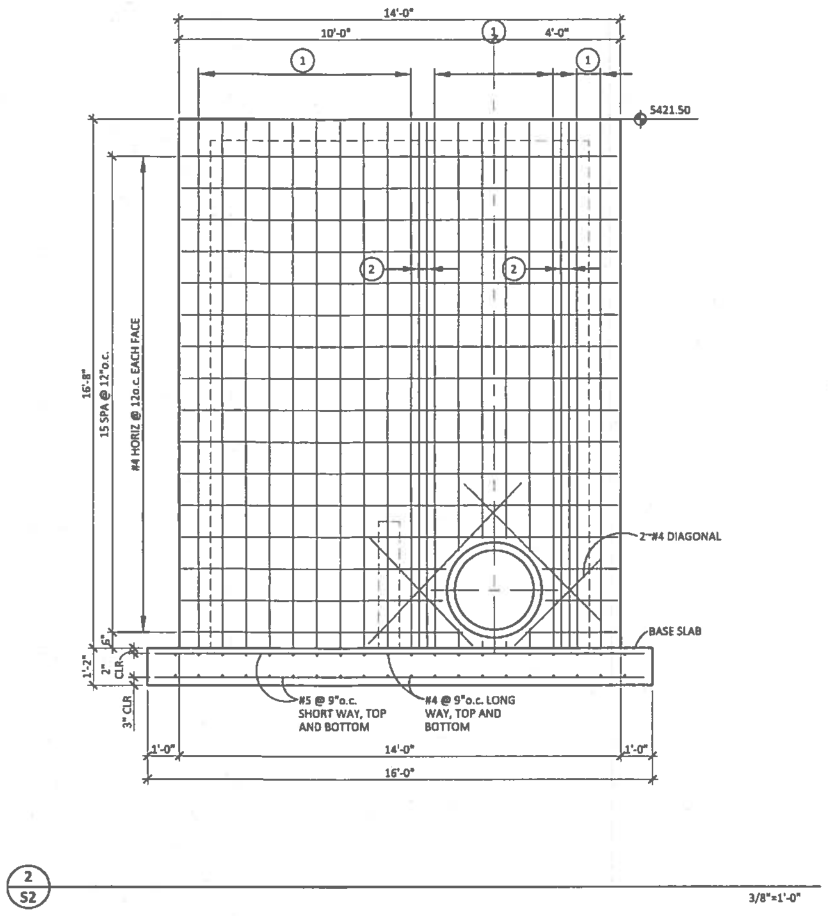
CITY PROJECT NO. 654887

ZONE MAP NO. M 21

SHEET 72 OF 75

MacCornack Engineering: G17-021 February 15, 2017





KEYED NOTES

① #5 VERT @ 9"o.c. INSIDE FACE,
#4 VERT @ 9"o.c. OUTSIDE FACE.

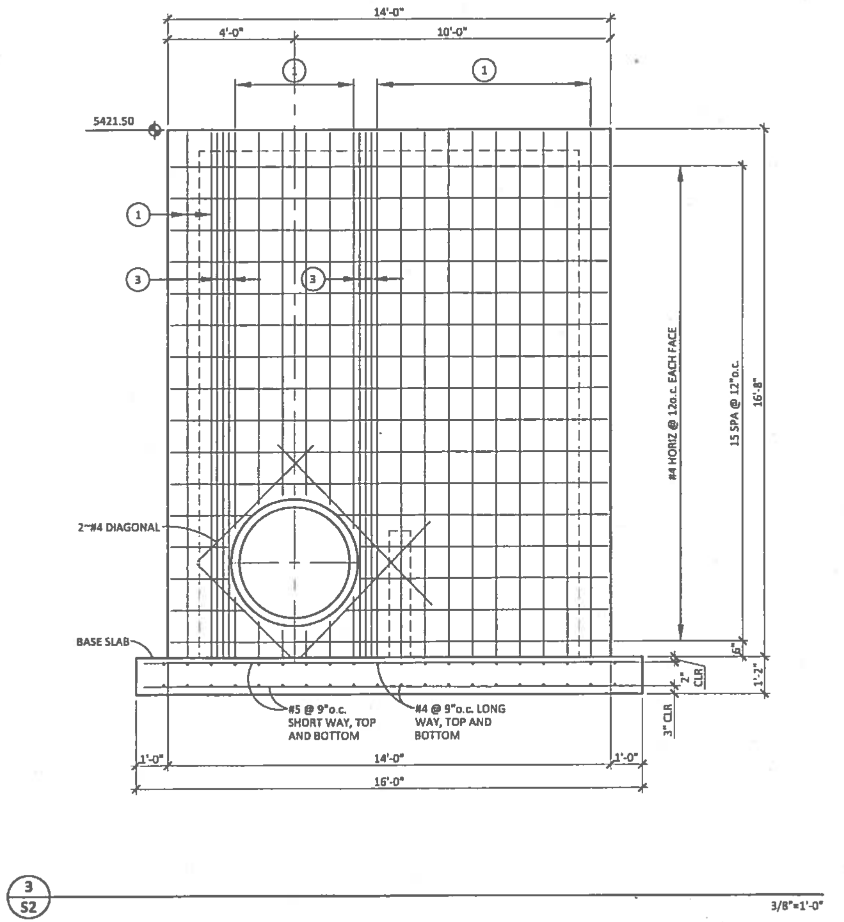
② 2 ADDITIONAL #5 VERT INSIDE FACE.

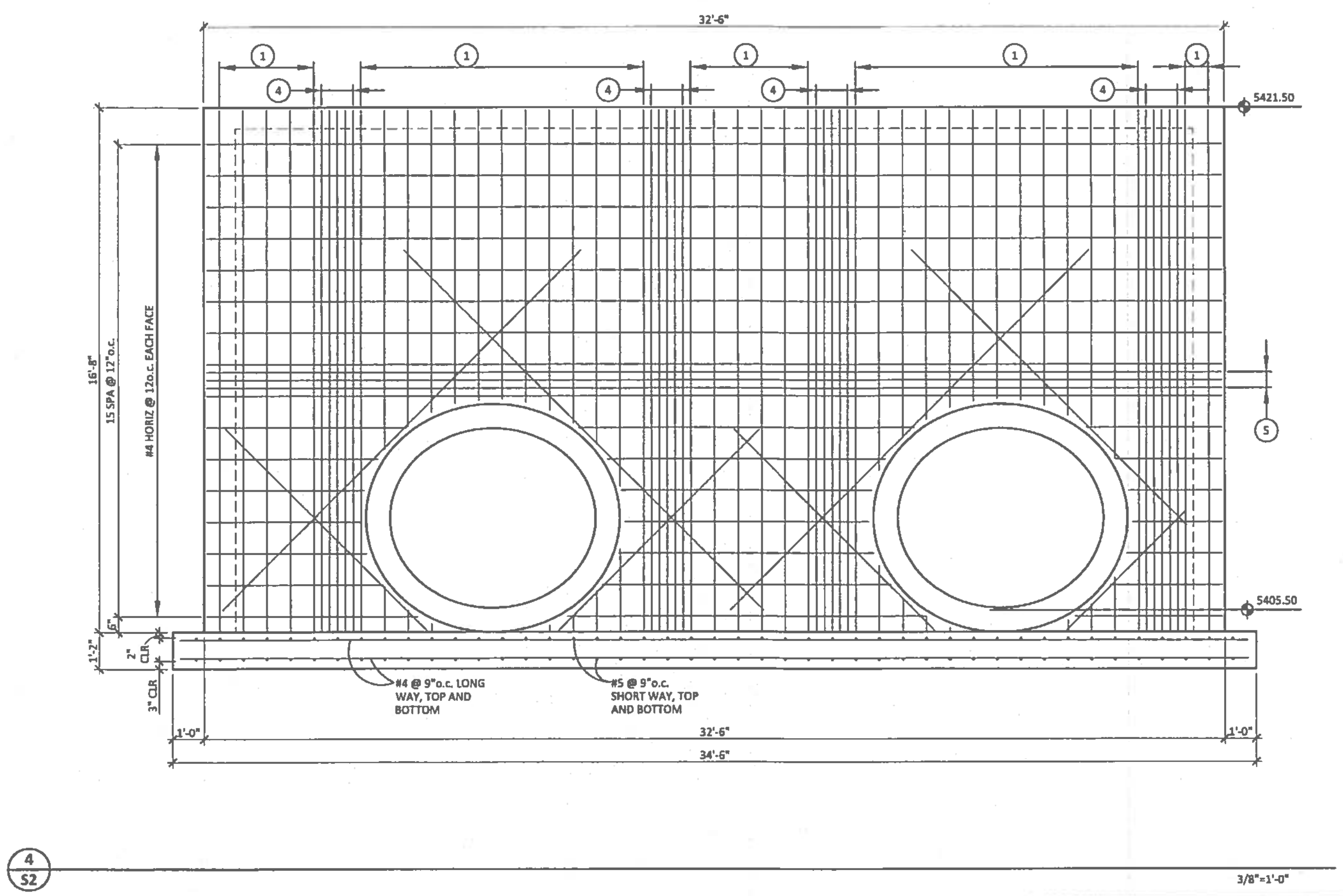
③ 3 ADDITIONAL #5 VERT INSIDE FACE.

④ 5 ADDITIONAL #5 VERT INSIDE FACE.

⑤ 3 ADDITIONAL #4 HORIZ EACH FACE.

⑥ 3 ADDITIONAL #4 HORIZ x 10'-0" EACH FACE.





AS BUILT INFORMATION
CONTRACTOR
WORK STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
DESIGNED BY	DM	DATE	
DRAWN BY	CB	DATE	
CHECKED BY	DM	DATE	

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CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

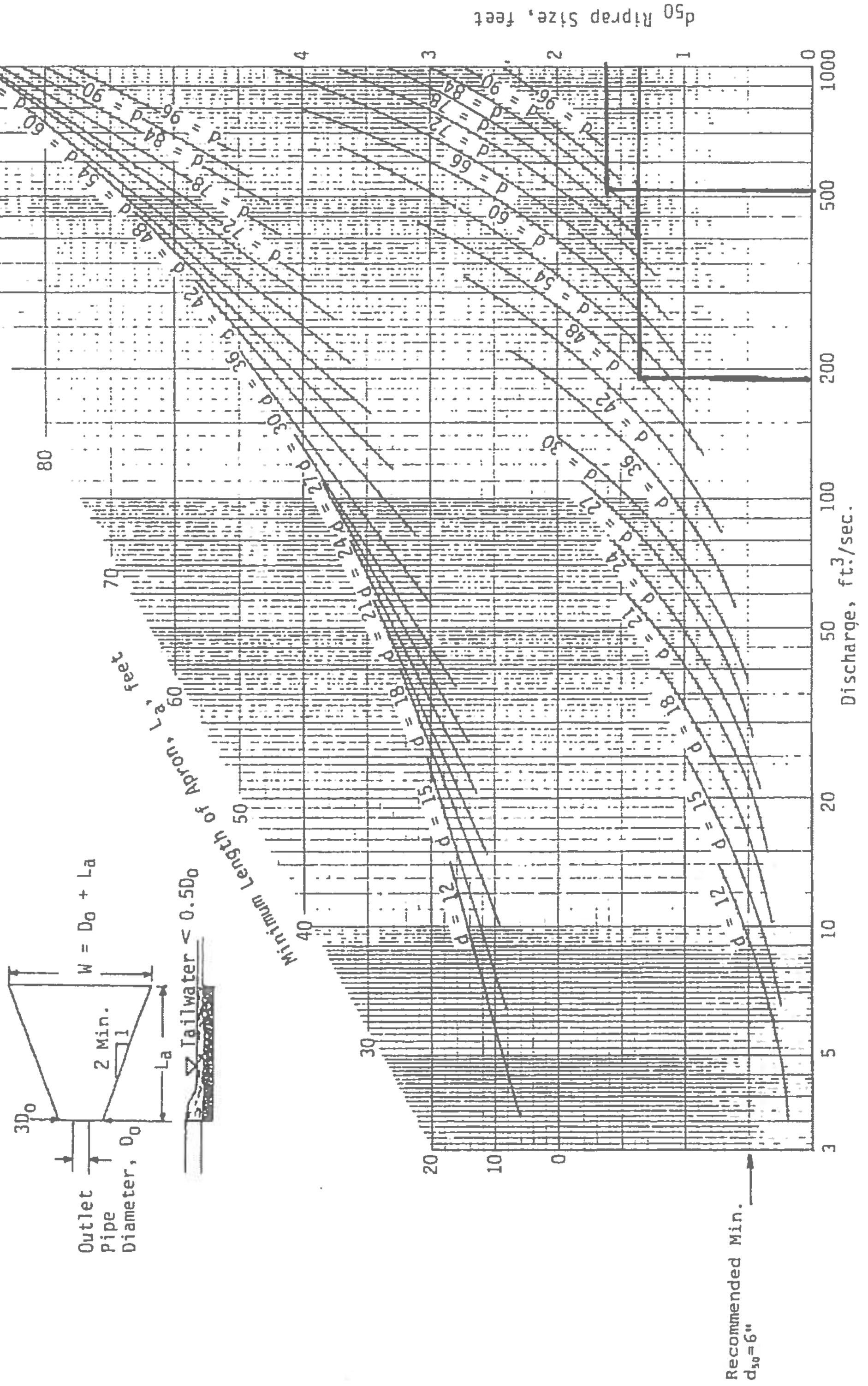
TITLE: **JUAN TABO HILLS ESTATES**
SD-MH5 STRUCTURAL DRAWINGS

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

CITY PROJECT NO. 654887
ZONE MAP NO. M-21
SHEET 73 OF 75

User ID: doug, Date/Time: 3/15/2017 4:37 PM, Document Name: 2017-03-15 HGL Profiles.pdf

DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL
MINIMUM TAILWATER CONDITION ($T_w < 0.5$ DIAMETER)



Source: USDA-SCS

Plate 3.18-3