PRELIMINARY DRAINAGE REPORT

WEST WING
RECYCLING AND TRANSFER STATION
MARICOPA COUNTY, AZ

Prepared For:
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WILLIAMSPORT, PA

Prepared By:
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PHOENIX, ARIZONA

CEC Project 312-017

JUNE 2021

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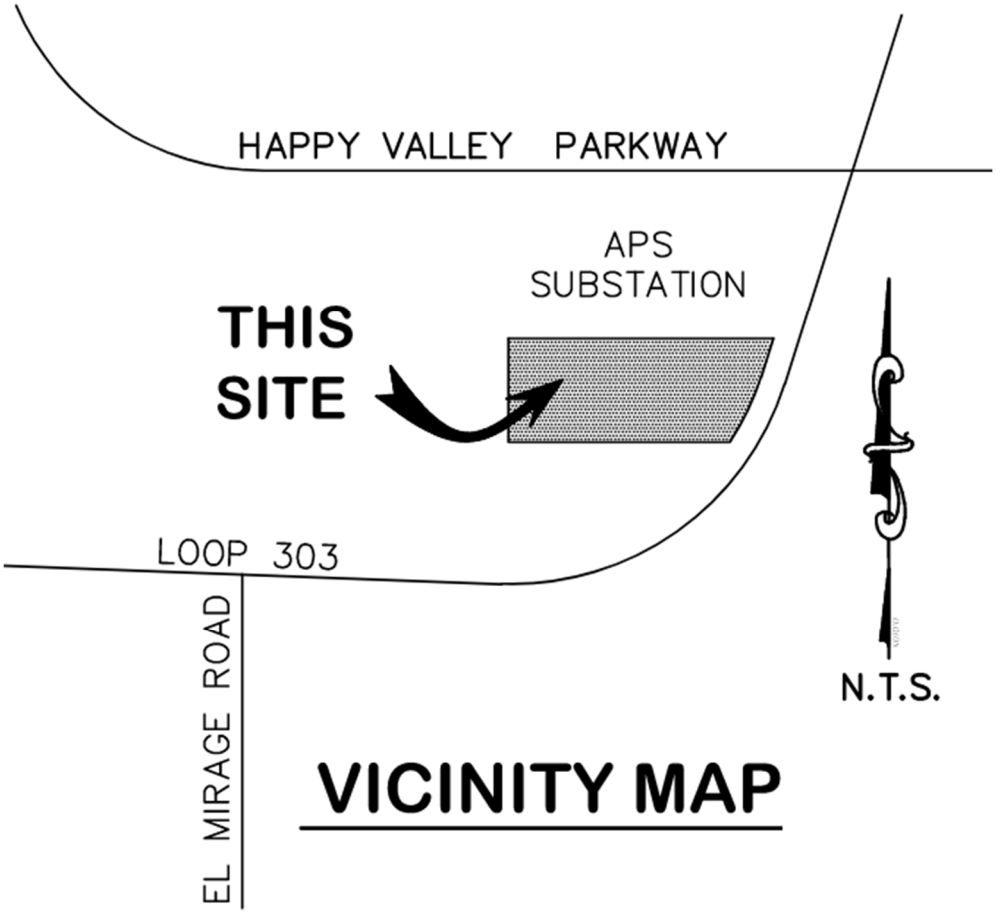
1.0 INTRODUCTION

The purpose of this preliminary drainage report is to provide the conceptual drainage analysis for the proposed recycling and transfer facility. The West Wing Recycling and Transfer Station (Site) is located southwest of the southwest corner of the intersection of Happy Valley Parkway and Loop 303, Maricopa County, Arizona. It is further described as a portion of the southwest quarter of Section 12, Township 4 North, Range 1 East of the Gila and Salt River Meridian. Refer to the vicinity map on the following page.

The site encompasses approximately 10.01 acres of Parcel No.1 (+/- 75.22 acres); APN: 503-53-025U. The proposed commercial development consists of a transfer station, scale house, designated parking area, and onsite retention. Site development improvements include the construction of driveway entrances to provided ingress and egress off the existing road located south of the proposed site. Refer to **Appendix D- Figure 3** for the proposed site layout.

This preliminary drainage report consists of discussions and calculations defining the onsite and offsite storm water management concepts to comply with the drainage requirements established by Maricopa County. The preparation of this report has been done in accordance with the Drainage Design Manual for Maricopa County, Volumes I and II, Hydrology and Hydraulics.

VICINITY MAP



2.0 EXISTING CONDITIONS AND OFFSITE DRAINAGE

The proposed Site is located on approximately 10.01 acres of net land designated as IND-2 IUPD zoning per Maricopa County. The Site is currently undeveloped and drains north to south onto a temporary retention basin at an average slope of 1%. The site contains two manmade channels that convey offsite runoff along the south and east boundaries to the site ultimate outfall at the southeast corner.

According to the Flood Insurance Rate Map (FIRM) #04013C1230 L, dated October 16, 2013, this property is located in flood zone "X". This area is defined as "Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1-square mile; and areas protected by levees from 1% chance annual flood."

Refer to the **Appendix A** for a copy of the FIRM map for this area.

Offsite drainage from the northern parcel, APN: 503-53-024H, discharges on-site through existing culvert, EXCV-1. The previous Final Drainage Report for WestWing Business Park-Onsite, dated April 2021, quantified an offsite flow of 277 cubic feet per second (cfs) at EXCV-1 to be diverted along the northeast and east boundary of the proposed site through existing channel, EXCH-1. Existing channel EXCH-1 conveys the runoff to existing culvert EXCV-2 located at the southeast corner of the site.

Refer to **Appendix D- Figure** 1 for Existing Conditions Drainage Area Map.

The proposed site is also affected by offsite flows from the west parcel identified as State Trust Land. A portion of the State Trust Land, depicted as Drainage Area DA-1, drains north to south onto an existing channel, EXCH-2,that conveys the captured flow west to east along the site's south boundary and outfalls at the existing culvert, EXCV-2. The 100-year peak flow entering the site at the southwest corner is approximately 37.55 cfs.

Refer to **Appendix B** for Hydrology Calculations.

3.0 PROPOSED DRAINAGE AND INFRASTRUCTURE IMPROVEMENTS

Offsite Drainage

The existing drainage facilities along the northeast and east boundaries will remain in place and will continue to discharge the 277 cfs at EXCV-2. The southwest offsite flow will be mitigated through four 24-inch storm drains conveying the 40 cfs under the proposed driveway, and will continue to be conveyed through EXCH-2 to the historical outfall at EXCV-2. Inlet headwalls and riprap will be incorporated for erosion protection.

The preliminary sizing of the storm drains were calculated using Hydraflow Hydrographs Extension for Autodesk ® with a normal depth calculation. Calculations are presented in **Appendix C**. The final drainage report will provide a hydraulic grade analysis to ensure storm drains are sized appropriately.

Onsite Drainage and Stormwater Retention

Onsite drainage in paved areas will be handled through catch basins and curb openings conveying onsite runoff to their respective retention systems. Onsite retention will be designed to retain the required 100-year, 2-hour storm event for the proposed Site and will drain within the required 36-hours.

Refer to **Appendix D,** Figure 2- Proposed Conditions Drainage Area Map for drainage areas and proposed basin locations.

Retention volume requirements for the development are calculated as follows:

Retention Volume - V = P/12*C*A

Where V = Volume, cubic feet
P = Rainfall Depth, 2.28 inches (NOAA 14 Atlas)
C = runoff coefficient, Industrial - 0.95; Landscape - 0.50
A = Area, Sq. Ft.

The following tables represent calculations for required retention for each drainage area for the Site.

Retention Calculations

DRAINAGE AREA I.D.	AREA (sf)	AREA (Ac)	VOLUME REQUIRED (cf)	VOLUME PROVIDED (cf)	EXCESS/ SHORT (cf)
DA1	69,013	1.58	12,457	12,605	148
DA2A	90,995	2.90	22,796	24,263	1,467
DA2B	35,299				
DA3	26,321	0.60	4,751	4,784	33
DA4	178,913	4.11	16,997	41,817	24,820
TOTAL	**400,541**	**9.19**	**57,001**	**83,468**	**26,468**

Retention Basin Volume Calculations

Onsite retention will consist of surface basins with maximum side slopes of 4:1 with a maximum depth of 3-feet. The volume for open basins is calculated using the conical method based on design contours.

RETENTION VOLUME PROVIDED CALCULATIONS: CONICAL METHOD

RETENTION PROVIDED = (ELEV1-ELEV2)/3*((A1+A2+(A1*A2)^0.5))

RETENTION BASIN ID	ELEV.	AREA (SF)	DEPTH DIFF. (FT)	AVG VOLUME (CF)	CUM VOLUME (CF)
1	1301	2,386	0.00		
	1302	3,533	1.00	2,941	2,941
	1303	4,806	1.00	4,153	7,094
	1304	6,247	1.00	5,511	**12,605**
2	1299	5,645	0.00		
	1300	7,205	1.00	6,409	6,409
	1301	8,908	1.00	8,041	14,450
	1302	10,746	1.00	9,813	**24,263**
3	1299	687	0.00		
	1300	1,230	1.00	945	945
	1301	1,900	1.00	1,553	2,498
	1302	2,695	1.00	2,286	**4,784**
4	1299	39,735	0.00		
	1300	43,934	1.00	41,817	**41,817**
TOTAL					**83,468**

Onsite Hydrology

The hydrology analysis for the proposed Site was performed based on procedures dictated in the Drainage Design Manual for Maricopa County, Volumes I Hydrology. The rational method was used to compute the onsite peak discharges for the 10-year and 100-year storm event, assuming a 5-minute time of concentration. The rational method equation is as follows:

$$Q=CiA$$

Where Q = peak discharge, cfs
C = runoff coefficient, Industrial - 0.95; Landscape - 0.50
i = average rainfall intensity, inches/hour (NOAA 14 Atlas)
A = Area, Sq. Ft.

ONSITE PEAK RUNOFF CALCULATIONS								
AREA	**AREA**	**Tc**	**I_{10}**	**I_{100}**	**C_{10}**	**C_{100}**	**Q_{10}**	**Q_{100}**
I.D.	(ac)	(min.)	(in/hr)	(in/hr)			(cfs)	(cfs)
EX1	12.89	11	3.62	5.72	0.40	0.51	18.66	37.55
DA1	1.58	5	4.93	7.81	0.80	0.95	6.23	11.72
DA2A	2.09	5	4.93	7.81	0.80	0.95	8.24	15.51
DA2B	0.81	5	4.93	7.81	0.80	0.95	3.19	6.01
DA3	0.60	5	4.93	7.81	0.80	0.95	2.37	4.45
DA4	4.11	5	4.93	7.81	0.40	0.50	8.10	16.05

Onsite Hydraulics and Drainage Infrastructure

Curb openings and grouted riprap spillways will be utilized to collect and convey stormwater flow into the onsite retention basins. Break over elevations for retention basins will be a minimum of 14-inches below finished floor elevations. Calculations for the curb opening widths are shown on the following table and in Appendix C.

CURB OPENING CALCULATIONS				
Curb Opening	**Area**	**Q_{100}**	**Width**	**Curb Opening Capacity**
I.D.	**I.D.**	(cfs)	(ft)	(cfs)
CO#1	DA1	11.72	4.00	12.41
CO#2A	DA2A	15.51	6.00	19.49
CO#2B	DA2B	6.01	4.00	12.41
CO#3	DA3	4.45	4.00	12.41

Percolation Calculations

Percolation tests have not be performed for the Site in association with this Preliminary Drainage Report. Once these tests have been performed, final calculation will be utilized to compute percolation rates and dewatering times for the retention basins within the 36-hour Maricopa County criteria. The following is an estimated rate based on a minimum percolation rate of a drywell, 0.1 cfs.

Volume to be drained in 36 hours = 0.1 cfs * 36 hours * 3600 sec/hour = 12,960 cf

RETENTION	**VOLUME**	**DRYWELLS**
BASIN	**PROVIDED**	**REQUIRED**
ID	**(cf)**	**(SF)**
1	12,605	1
2	24,263	2
3	4,784	1
TOTAL	**41,651**	**4**

Existing Basin 4 is a one-foot temporary basin and will not need a drywell.

4.0 CONCLUSIONS

The proposed Happy Valley Recycling and Transfer Facility project will adhere to Maricopa County onsite drainage criteria to retain the 100-year, 2-hour storm onsite within the proposed retention basins. Retention basins are to have a maximum ponding depth of 3-feet and 4:1 side slopes unless otherwise approved by the County Engineer.

The low outfall elevation for the Site is located on the southwest side of the property at an elevation of 1296.49. The finished floor for the development is 1307.00 and the bottom of the transfer station pit is 1304.00. Offsite flows will be conveyed through the Site through a four 24-inch storm drains and will exit the property at existing outfall locations.

APPENDIX A – FEMA FIRM MAP

NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

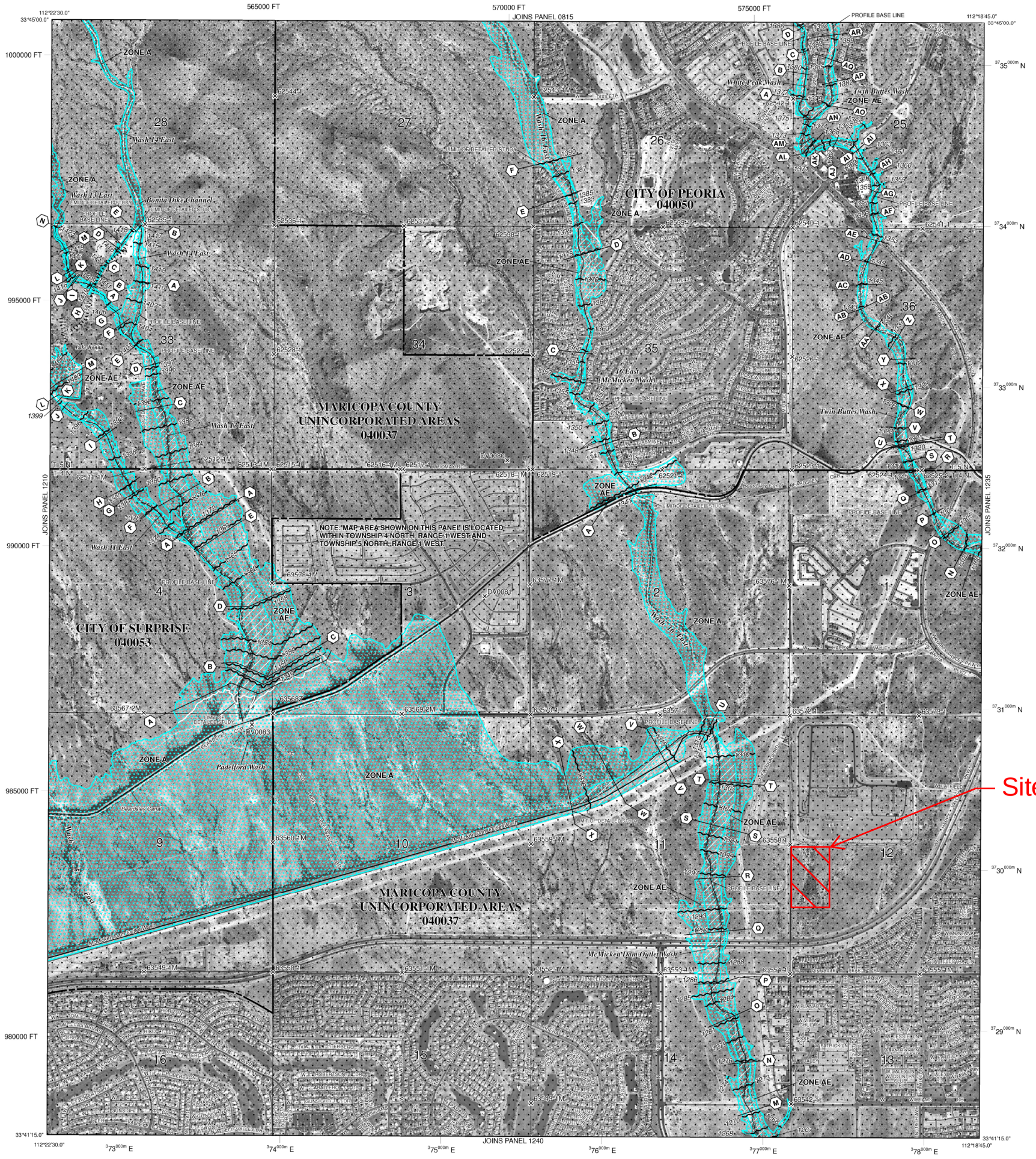
The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For Information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 — 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 12
6000000 M	5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 4, 1991 December 3, 1993 July 19, 2001 September 30, 2005
October 16, 2013 -to advance suffix, to add roads and road names, to update corporate limits, to add special flood hazard areas, to change base flood elevations, to change floodway, to incorporate previously issued letters of map revision, to add floodway, and to add base flood elevation.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1230L

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1230 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1230	L
PEORIA, CITY OF	040050	1230	L
SURPRISE, CITY OF	040053	1230	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
04013C1230L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

APPENDIX B – HYDROLOGY CALCULATIONS

Project Name: West Wing Recycling and Transfer Station
CEC JOB: 312-017
DATE: 06/16/2021
PREPARED BY: KA
CHECKED BY:

EXISTING CONDITIONS RUNOFF CALCULATIONS

Empirical Equation Papadakis and Kazan:

$$T_c = 11.4L^{0.5}K_b^{0.52}S^{-0.31}i^{-0.38}$$

Tc=11.4L^0.5*Kb^0.52*S^(-0.31)*i^(-0.38)

Time of Concentration	Tc	hours
Length of the hydraulically longest flow path	L	miles
Watershed resistance coefficient (Table 5.3, DDMMC, Vol. I Hydrology)	Kb	
Watercourse slope	S	ft/mi
The average rainfall excess intensity	i	inches/ hr

Tc Drainage Area : EX1	
A (ac)	12.89
L (mi)	0.16
m	-0.01375
b	0.08
Kb=mlogA+b	0.065
S (ft/mi)	35.45787546
i (in/hr)	5.72
Tc (min)	11.06

Rational Equation:

Q = C*I*A

C = weighted

I= Intensity, in/hr A = Area, Acre

EXISTING CONDITIONS PEAK FLOW					
AREA	**AREA**	**Tc**	**I_{100}**	**C_{100}**	**Q_{100}**
I.D.	(ac)	(min.)	(in/hr)		(cfs)
EX1	12.89	11.06	5.72	0.51	37.55

APPENDIX C – HYDRAULIC CALCULATIONS

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 16 2021

24-inch Storm Drains

Invert Elev Dn (ft)	=	1299.62
Pipe Length (ft)	=	50.00
Slope (%)	=	0.30
Invert Elev Up (ft)	=	1299.77
Rise (in)	=	24.0
Shape	=	Circular
Span (in)	=	24.0
No. Barrels	=	4
n-Value	=	0.013
Culvert Type	=	Circular Corrugate Metal Pipe
Culvert Entrance	=	Headwall
Coeff. K,M,c,Y,k	=	0.0078, 2, 0.0379, 0.69, 0.5

Embankment

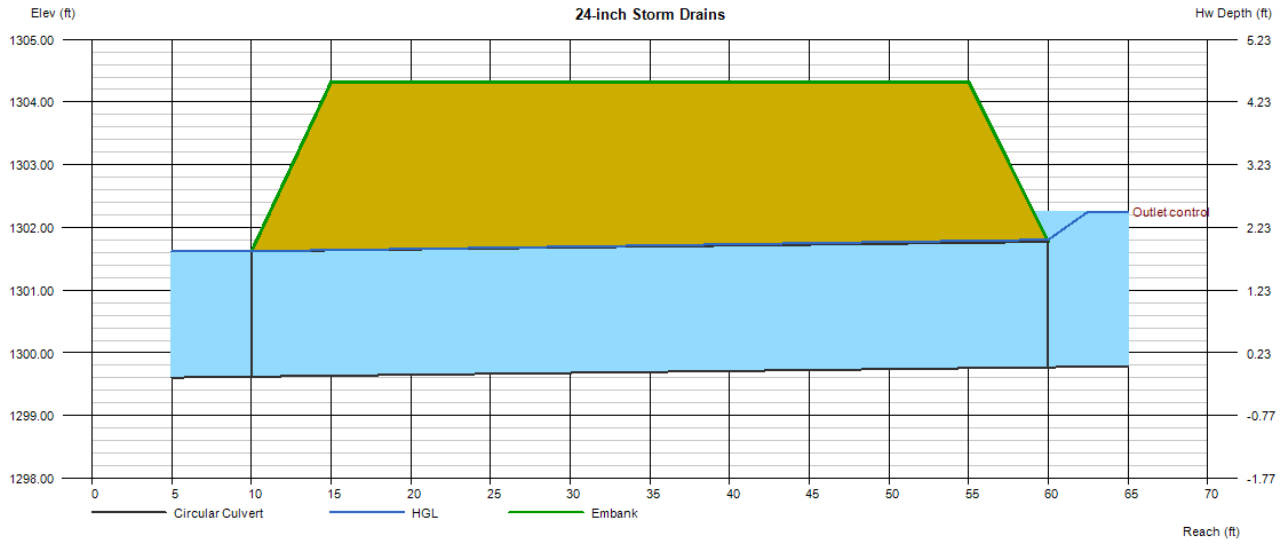
Top Elevation (ft)	=	1304.32
Top Width (ft)	=	40.00
Crest Width (ft)	=	50.00

Calculations

Qmin (cfs)	=	55.00
Qmax (cfs)	=	55.00
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	55.00
Qpipe (cfs)	=	55.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	4.38
Veloc Up (ft/s)	=	4.38
HGL Dn (ft)	=	1301.62
HGL Up (ft)	=	1301.81
Hw Elev (ft)	=	1302.25
Hw/D (ft)	=	1.24
Flow Regime	=	Outlet Control



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 16 2021

4' Wide Curb Opening

Rectangular

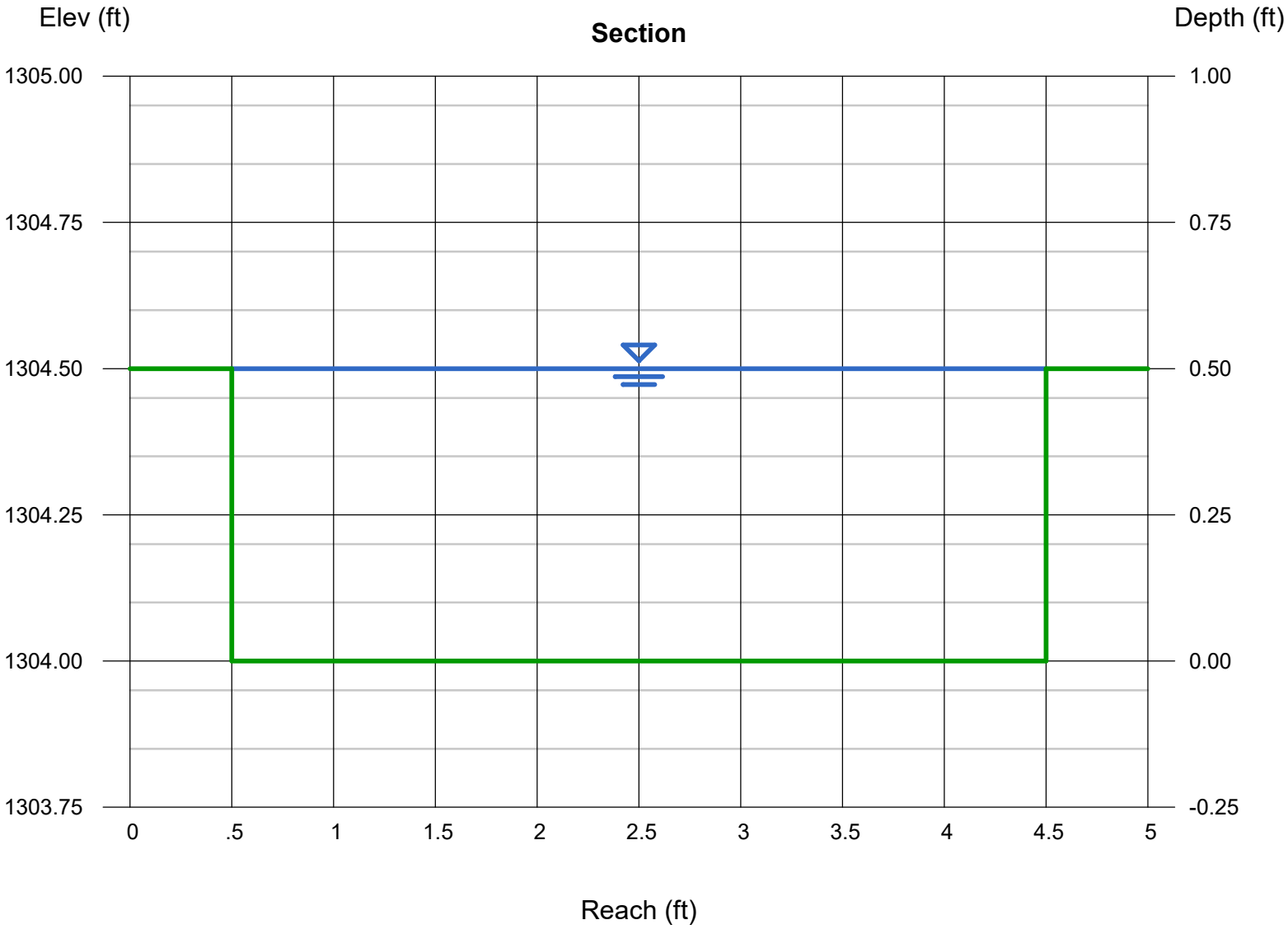
Bottom Width (ft)	= 4.00
Total Depth (ft)	= 0.50
Invert Elev (ft)	= 1304.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Depth
Known Depth (ft)	= 0.50

Highlighted

Depth (ft)	= 0.50
Q (cfs)	= 12.41
Area (sqft)	= 2.00
Velocity (ft/s)	= 6.20
Wetted Perim (ft)	= 5.00
Crit Depth, Yc (ft)	= 0.50
Top Width (ft)	= 4.00
EGL (ft)	= 1.10



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jun 16 2021

6' Wide Curb Opening

Rectangular

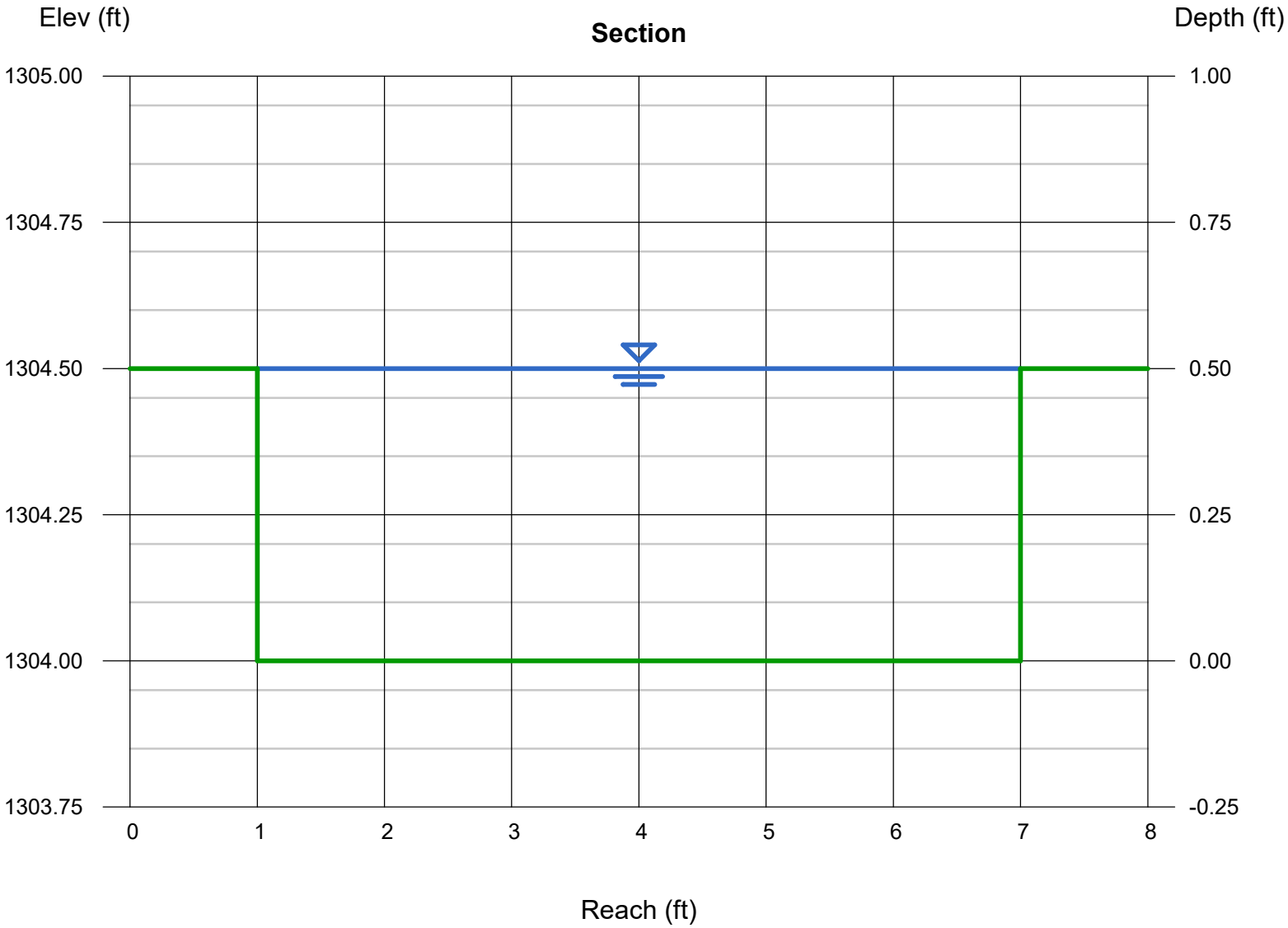
Bottom Width (ft)	= 6.00
Total Depth (ft)	= 0.50
Invert Elev (ft)	= 1304.00
Slope (%)	= 1.00
N-Value	= 0.013

Calculations

Compute by:	Known Depth
Known Depth (ft)	= 0.50

Highlighted

Depth (ft)	= 0.50
Q (cfs)	= 19.49
Area (sqft)	= 3.00
Velocity (ft/s)	= 6.50
Wetted Perim (ft)	= 7.00
Crit Depth, Yc (ft)	= 0.50
Top Width (ft)	= 6.00
EGL (ft)	= 1.16



APPENDIX D – DRAINAGE EXHIBITS

EXISTING CONDITIONS WEIGHTED RUNOFF COEFFICIENT (Cw)

AREA	DESERT LANDSCAPING	BLDG OR PAVEMENT	COMMERCIAL	TOTAL AREA		Cw
				(SF)	(AC)	
I.D.	0.5	0.95	0.85			
EX1	549,962	11,644	0	561,606	12.89	**0.51**
EX2	368,338	0	0	368,338	8.46	**0.50**

EX1
DRAINAGE AREA #1
A=12.89 AC
C=0.51

EX2
DRAINAGE AREA #1
A=8.44 AC
C=0.50

Q_{100}= 37.55 CFS

Q_{100}= 277 CFS

EXISTING CHANNEL EXCH-2

EXISTING CHANNEL EXCH-1

EXISTING CULVERT EXCV-1

EXISTING CULVERT EXCV-2

EXISTING TEMPORARY BASIN

ULTIMATE OUTFALL 1296.49

EX. DRAINAGE EASEMENT 50.00'

STATE TRUST LAND

69 KV STN

LEGEND

PROPERTY LINE

DRAINAGE AREA

FLOW LINE

FLOW ARROW

EL MIRAGE ROAD

LOOP 303

THIS SITE

APS SUBSTATION

HAPPY VALLEY PARKWAY

SECTION 12, T4N, R1W
VICINITY MAP
N.T.S.

NORTH

SCALE IN FEET
0 60 120

NORTH

Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

SHEET 1 OF 3

DRAWING NO.:
FIGURE 1

WEST WING TRANSFER STATION
EXISTING CONDITIONS DRAINAGE AREA MAP

DATE:	JUNE. 2021	DRAWN BY:	DRAFT
DWG SCALE:	AS SHOWN	CHECKED BY:	DRAFT
PROJECT NO:			000-000.AW00
APPROVED BY:			DRAFT

WESTWING BUSINESS PARK
LOOP-303 AND N. EL MIRAGE ROAD
MARICOPA COUNTY, ARIZONA

Civil & Environmental Consultants, Inc.
11811 N. Tatum Blvd., Suite 3057 - Phoenix, AZ 85028
Ph: 602.760.2324 · 877.231.2324 · Fax: 602.760.2330
www.cecinc.com

REVISION RECORD

NO	DATE	DESCRIPTION

EX1
DRAINAGE AREA #1
A=12.89 AC
C=0.51

DA1
DRAINAGE AREA #1
A=1.58 AC
C=0.85

DA2A
DRAINAGE AREA #2A
A=2.09 AC
C=0.95

DA2B
DRAINAGE AREA #2B
A=0.81 AC
C=0.95

DA3
DRAINAGE AREA #3
A=0.60 AC
C=0.85

DA4
DRAINAGE AREA #4
A=4.11 AC
C=0.50

BASIN 1
TOP=1304
BOT=1301
V_R=12,457 CF
V_P=12,605 CF

BASIN 2
BOT=1299
TOP=1302
V_R=22,796 CF
V_P=24,263 CF

BASIN 3
BOT=1299
TOP=1302
V_R=4,751 CF
V_P=4,376 CF

BASIN 4
(EXISTING BASIN)
BOT=1300
TOP=1301
V_R=24,820 CF
V_P=41,817 CF

CO#1
Q_{100}=10.49 CFS

CO#2A
Q_{100}=15.51 CFS

CO#2B
Q_{100}=6.01 CFS

CO#3
Q_{100}=3.98 CFS

Q_{100}= 37.55 CFS

Q_{100}= 277 CFS

EXISTING CULVERT EXCV-1

EXISTING CULVERT EXCV-2

EXISTING CHANNEL EXCH-1

ULTIMATE OUTFALL 1296.49

EX. DRAINAGE EASEMENT 50.00'

STATE TRUST LAND

OHE

12"W

12"S

LEGEND

PROPERTY LINE

DRAINAGE AREA

FLOW LINE

FLOW ARROW

EL MIRAGE ROAD

LOOP 303

HAPPY VALLEY PARKWAY

THIS SITE

APS SUBSTATION

SECTION 12, T4N, R1W
VICINITY MAP
N.T.S.

NORTH

0 60 120
SCALE IN FEET

NORTH

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DRAWING NO.: FIGURE 2
SHEET 2 OF 3

WEST WING TRANSFER STATION
PROPOSED CONDITIONS
DRAINAGE AREA MAP

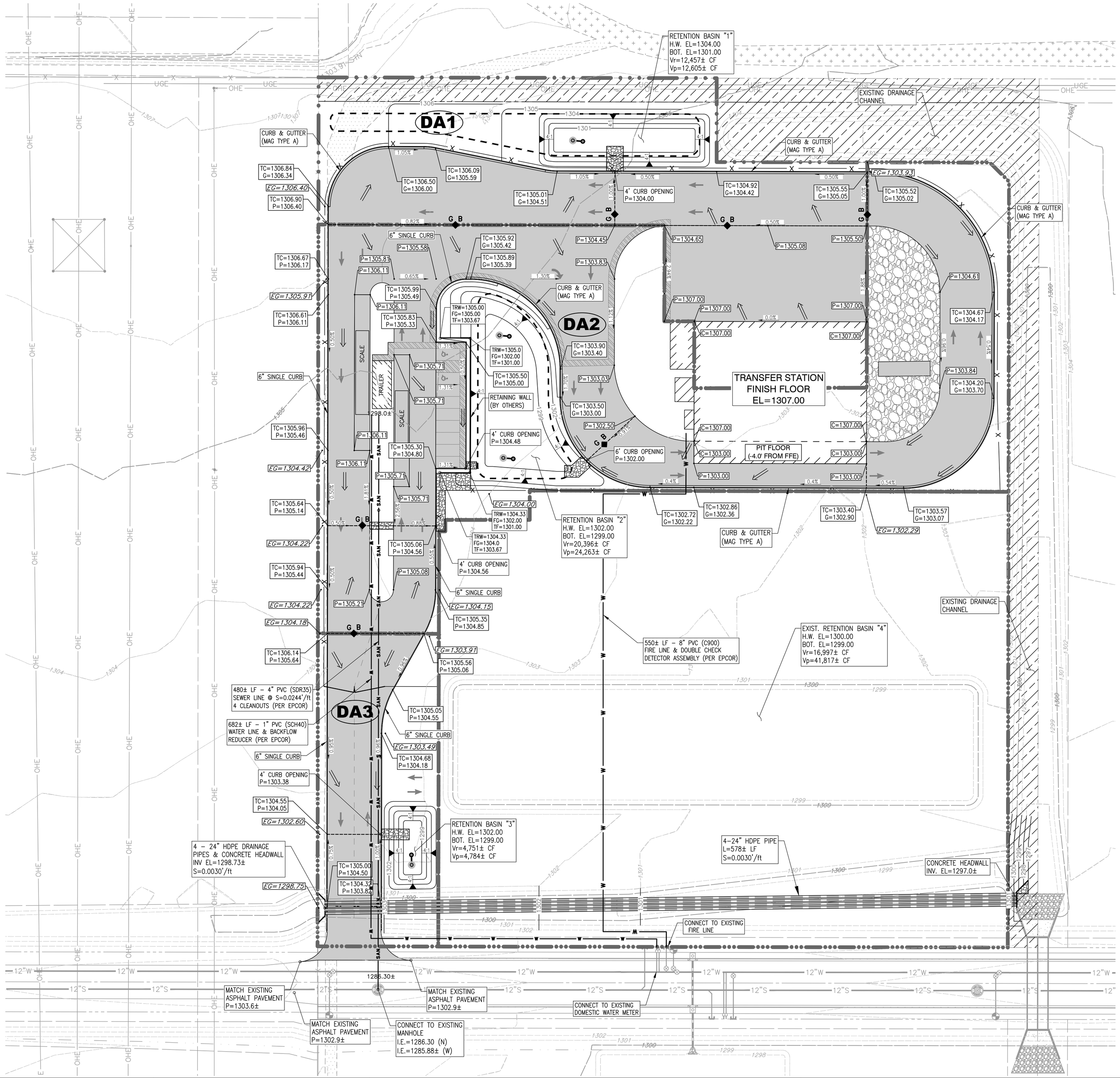
DATE:	JUNE. 2021	DRAWN BY:	DRS
DWG SCALE:	AS SHOWN	CHECKED BY:	MAJ
PROJECT NO:			312-017
APPROVED BY:			MAJ

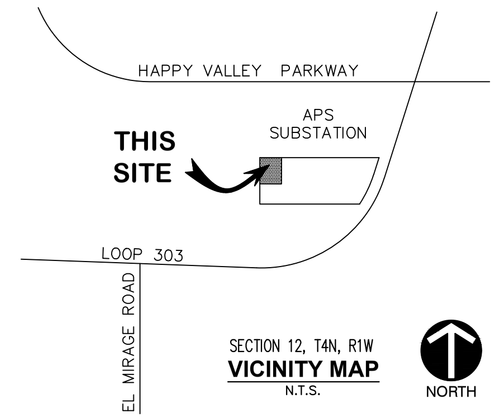
REPUBLIC SERVICES
WESTWING
RECYCLING AND TRANSFER STATION
MARICOPA COUNTY, ARIZONA

Civil & Environmental Consultants, Inc.
11811 N. Tatum Blvd., Suite 3057 - Phoenix, AZ 85028
Ph: 602.760.2324 · 877.231.2324 · Fax: 602.760.2330
www.cecinc.com

REVISION RECORD

NO	DATE	DESCRIPTION





OWNER / DEVELOPER

WESTWING BUSINESS PARK, LLC.
P.O. BOX 7670
SURPRISE, AZ 85374
PH: 208–514–4441
CONTACT: SILAS ECK

ARCHITECT

LARSON DESIGN GROUP, INC.
1000 COMMERCE PARK DRIVE, SUITE 201
WILLIAMSPORT, PA 17701
PH: 570–600–9025
CONTACT: CHRIS SHEAFFER

CIVIL ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
11811 N. TATUM BLVD. STE. 3057
PHOENIX, AZ 85028
PH: 602–760–2324
CONTACT: MIKE JACKSON

PROJECT DESCRIPTION

THE PROJECT IS A PROPOSED 5.1 ACRE REFUSE & RECYCLING TRANSFER STATION LOCATED WEST OF THE 303 OFF OF HAPPY VALLEY ROAD.

LEGAL DESCRIPTION

PARCEL NO. 1
TITLE REPORT OP–6–609365

A PARCEL OF LAND BEING A PORTION OF THE SOUTH HALF OF SECTION 12, TOWNSHIP 4 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA. SAID PORTION RECORDED IN DOCUMENT NUMBER 2004–0020286, AND "RECORD OF SURVEY", BOOK 994 OF MAPS, PAGE 17, M.C.R.

PARCEL NO. 2
(TITLE REPORT 00019686–006–KR)

THE WEST 125 FEET OF THE SOUTH 125 FEET OF THE WEST HALF OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 4 NORTH, RANGE 1 WEST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

SITE DATA

APN: 503–53–025U
NET AREA:
PARCEL NO. 1 75.215 AC ±
PARCEL NO. 2 0.359 AC ±

BASIS OF BEARING

BASIS OF BEARING FOR THIS SURVEY IS A BEARING OF SOUTH 89°55'48" EAST, ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 4 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

BENCHMARK

EAST QUARTER CORNER SEC 11, T4N, R1W, FOUND STONE 0.2' UP MARKED 'X' ON TOP ¼ ON WEST.

ELEVATION = 1307.674' (NAVD 88 DATUM)

FLOOD ZONE

THE CURRENT FEMA FLOOD INSURANCE RATE MAP (FIRM) FOR THIS AREA, MAP NUMBER 04013C 1230L (EFFECTIVE REVISED DATE OCTOBER 16, 2013), DESIGNATES THE PROPERTY WITHIN FLOOD HAZARD ZONE X (SHADED).

ZONE X (SHADED) IS DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT, OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

PROPOSED LEGEND

- DRAINAGE AREA BOUNDARY
- P=78.00 — PAVEMENT ELEVATION
- FLOW ARROW
- CURB OPENING
- DA2 — DRAINAGE AREA LABEL
- G. B. — GRADE BREAK
- DRYWELL – TORRENT MAXWELL PLUS
- RETENTION BASIN
- RIPRAP
- CATCH BASIN
- STORM DRAIN PIPE

NORTH
SCALE IN FEET
0 40 80

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In Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 38775 MIKE A. JACKSON Date Signed 6/23/21 ARIZONA U.S.A.

REVISION RECORD

NO	DESCRIPTION	DATE

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REPUBLIC SERVICES WESTWING RECYCLING AND TRANSFER STATION MARICOPA COUNTY, ARIZONA

CONCEPTUAL GRADING PLAN

DATE:	JUNE, 2021
DWG SCALE:	AS SHOWN
PROJECT NO:	312-017
DRAWN BY:	DRS
CHECKED BY:	MAJ
APPROVED BY:	MAJ

DRAWING NO.:
FIGURE 3
SHEET 3 OF 3

P:\310-005\312-017\1-CAD\Dwg\CIVIL\312017-C101-C300-GradingPlan.dwg(C300) LS(6/23/2021 - dstuelle) - LP: 6/23/2021 4:15 PM