Kimley»Horn

Attachment A – Sundance Drainage Report References

FINAL DRAINAGE REPORT

for

SUNDANCE PARCEL 49A

July 25, 2005
Revised: April 3, 2006

Produced for:

Rick Hancock Homes
Attn: Mark Mesicko
7878 N. 16th Street, Suite 215
Phoenix, AZ 85020
Ph: (602) 861-2000
Fx: (602) 218-5599

APPROVED
4-26-06

Registered Professional Engineer (Civil)
CERTIFICATE NO.
39147
ERIC JOHN
FROBERG
Date Signed 4/3/06
ARIZONA, U.S.A.

Prepared by:
RBF Consulting
Eric J. Froberg, P.E. and R. Carson Nuttall, E.I.T
16605 N. 28th Avenue, Suite 100
Phoenix, Arizona 85053-7550
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RBF Job # 45-102604

SUBMITTAL # 2
REVIEW SET ☒
EXTRA SET ☐

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Section 2 - Offsite Drainage

2.1 Offsite Drainage

All data for offsite considerations was based on the information provided in *The Sundance Infrastructure Master Drainage Report and the Sundance Phase II Infrastructure Master Drainage Study.* Please refer to these reports for a detailed discussion of existing and post-development offsite drainage issues.

Under existing conditions, runoff approaches Parcel 49a from the north generally as overland flow or concentrated flow in shallow, meandering and braided washes. The majority of offsite runoff is produced within the Sundance master planned community, and will eventually be cut off. Ultimately, all offsite flows will be routed through the Sundance development through drainage tracts.

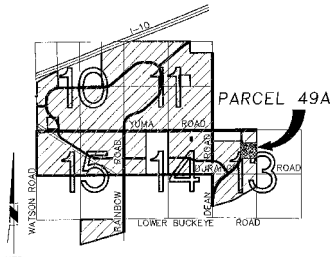
Sundance Parcel 49a will retain those portions of Dean Road contiguous to the site. The half street flow north of Sonora Street on Dean will be routed to, and retained by the Tract A retention basin. The half street flow south of Sonora on Dean (Drainage Area Off1) will be routed to, and retained by the Tract B retention basin. Runoff generated by Parcel 48 will not enter this site; however, the Tract A basin overlaps the boundary shared by Parcels 48 and 49a, and will be used by both parcels for retention purposes (See Final Drainage Report for Parcel 48 and Final Drainage Map).

A drainage channel is being installed with the Sundance Phase 2D Infrastructure to cut off all offsite runoff north of Yuma Road and route it around the Sundance Community. The channel will run along the north and east boundaries of the site preventing runoff from entering the site. The channel will eventually discharge into Tract D of Parcel 48. See Final Drainage Report for Parcel 48 for retention calculations.

All pads will be set a minimum of 1' above the base flood elevation to prevent flooding. (See Appendix for Hec-Ras output, final drainage map, and grading plans for the 100-yr water surface elevations.)

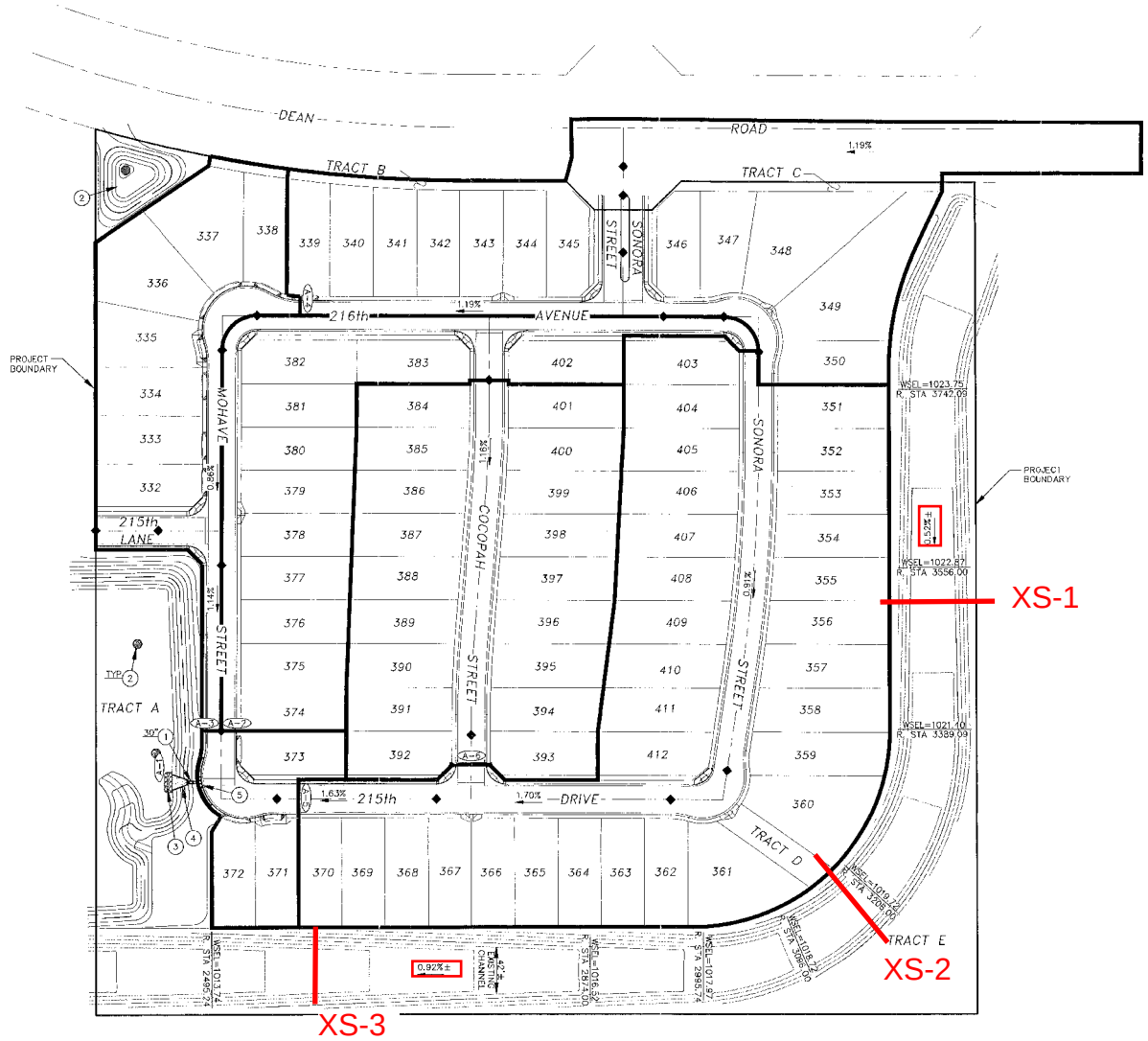
FINAL DRAINAGE MAP
FOR
SUNDANCE PARCEL 49A

A PORTION OF THE NORTHWEST QUARTER OF SECTION 13 TOWNSHIP 1 NORTH, RANGE 3 WEST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, TOWN OF BUCKEYE, MARICOPA COUNTY, ARIZONA



VICINITY MAP
NTS

SCALE: 1"=90'
SCALE: 1" = 60'
0 60 120 180



DRAINAGE AREAS

A6 – 2.55 AC
A5 – 7.39 AC
A4 – 3.15 AC
A3 – 4.59 AC
A2 – 1.84 AC
A1 – 14.32 AC

RETENTION

TRACT A
FB=1012.0
HW=1011.0
BTM=1008.0
VOL REQ= 151,048 cf
VOL PRO= 214,307 cf

TRACT B
FB=1020.3
HW=1019.5
BTM=1016.5
VOL REQ= 7,254 cf
VOL PRO= 9,457 cf

CONSTRUCTION NOTES

1. RCRCP (SIZE AS SHOWN)
2. MAXWELL IV DRYWELL
3. GROUTED RIPRAP
4. HEADWALL
5. CATCH BASIN

LEGEND

(A–1) DRAINAGE AREA NUMBER
DRAINAGE BOUNDARY
R. STA= HEC–RAS RIVER STATION

ENGINEER

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PHOENIX, ARIZONA 85053
PHONE (602) 467–2200
FAX (602) 467–2201

BENCH MARK

NGS–MONUMENT – P 264
SOUTHEAST OF THE INTERSECTION
OF YUMA ROAD AND RAINBOW ROAD
ELEVATION=1070.28

BENCH MARK

NGS–MONUMENT – P 264
SOUTHEAST OF THE INTERSECTION
OF YUMA ROAD AND RAINBOW ROAD
ELEVATION=1070.28

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Blue Stake Center CALL 0360351

PLANNING ■ DESIGN ■ CONSTRUCTION
RBF CONSULTING
16605 NORTH 28th AVENUE, SUITE 100
PHOENIX, ARIZONA 85053-2602
602.467.2200 • FAX 602.467.2201 • www.RBF.com

ENGINEER / PROJECT MANAGER	ERIC J. FROBERG, P.E.
PROJECT CONTACT / FIELD SURVEY	R. CARSON NUTTALL
DRAFTED	SJH
CHECKED	EJF
DESIGNED / CHECKED	RCN
SCALE	1" = 60'

OWNER/DEVELOPER: RLH DEVELOPMENT
PROJECT NAME: SUNDANCE PARCEL 49A
PLAN TYPE: FINAL DRAINAGE MAP

SEAL
39147
ERIC JOHN FROBERG
ARIZONA, U.S.A.

ORIGINAL PLAN DATE: APR/2006
LATEST REVISION DATE: –
SHEET NUMBER: 1 OF 1
PROJECT NUMBER: 45102604

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OK

FINAL DRAINAGE REPORT

for

SUNDANCE PARCEL 48

July 18, 2005
November 1, 2005

Produced for:

Rick Hancock Homes
Attn: Mark Mesicko
7878 N. 16th Street, Suite 215
Phoenix, AZ 85020
Ph: (602) 861-2000
Fx: (602) 218-5599

Registered Professional Engineer (Civil)
CERTIFICATE NO.
39147
ERIC JOHN
FROBERG
Date Signed 11/1/05
ARIZONA U.S.A.

Prepared by:
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Eric J. Froberg, P.E. and R. Carson Nuttall, E.I.T
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SUBMITTAL # 2

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EXTRA SET ☐

RBF Job # 45-102604

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Section 2 - Offsite Drainage

2.1 Offsite Drainage

All data for offsite considerations was based on the information provided in *The Sundance Infrastructure Master Drainage Report and the Sundance Phase II Infrastructure Master Drainage Study.* Please refer to these reports for a detailed discussion of existing and post-development offsite drainage issues.

Under existing conditions, runoff approaches Parcel 48 from the north generally as overland flow or concentrated flow in shallow, meandering and braided washes. The majority of offsite runoff is produced within the Sundance master planned community, and will eventually be cut off. Ultimately, all offsite flows will be routed through the Sundance development through drainage tracts.

Sundance Parcel 48 will retain those portions of Dean Road contiguous to the site. The half street flow north of Apache Street on Dean (Drainage Area Off1) will be routed to, and retained by the Tract B retention basin. The half street flow south of Apache on Dean (Drainage Areas Off1 and Off2) will be routed to, and retained by the Tract C retention basin. Both this site (Drainage Area G) and future residential Parcel 10 to the west will generate runoff associated with 217th Avenue that will be routed and retained in the Tract A retention basin in Parcel 10. See Final Drainage Report for Parcel 10 for retention provided calculations. Runoff generated by Parcel 49A will not enter this site; however, the Tract A basin overlaps the boundary shared by Parcels 48 and 49A, and will be used by both parcels for retention purposes (See Final Drainage Report for Parcel 49A and Final Drainage Map).

A drainage channel is being installed with the Sundance Phase 2D Infrastructure to cut off all offsite runoff north of Yuma Road and route it around the Sundance Community. The channel will run along the east boundary of the site and will discharge into Tract D (Q_{100}=1,087 cfs) where the flows will be detained and eventually spill out into the RID canal in its historical location. The south end of the channel will have to be realigned slightly as part of this project so that it ties directly into the Tract D basin. The realigned channel will continue the existing channel's 4:1 side slopes, 42' bottom, and Pyramat turf reinforcement mat lining.

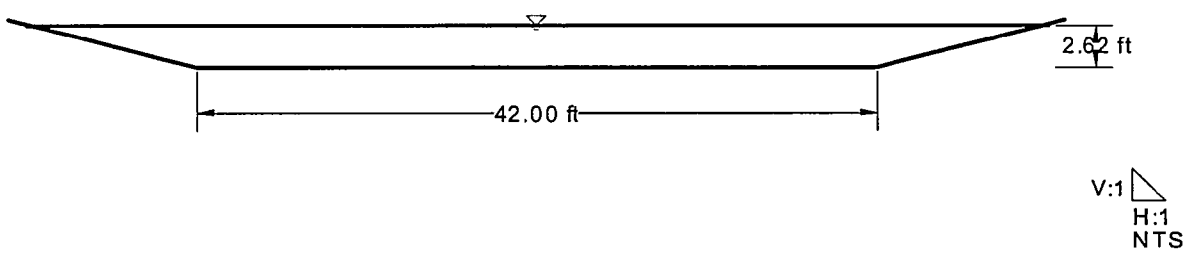
A compensatory volume of 359,877 cf will be provided in the Tract D retention basin because a portion of Parcel 48 is located within the floodplain. Finally, all pads will be set a minimum of 1' above the base flood elevation to prevent flooding. (See Appendix for Hec-Ras output, final drainage map, and grading plans for the 100-yr flood event water surface elevations.)

Cross Section
Cross Section for Trapezoidal Channel

Project Description	
Worksheet	Trapezoidal Channel - 1
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

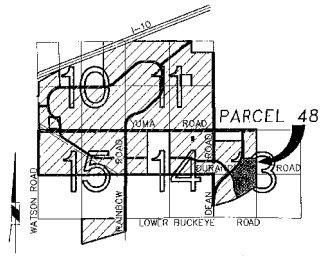
XS-5

Section Data		
Mannings Coefficient	0.030	
Slope	0.009100	ft/ft
Depth	2.62	ft
Left Side Slope	4.00	H : V
Right Side Slope	4.00	H : V
Bottom Width	42.00	ft
Discharge	1,087.00	cfs
VELOCITY	7.90	fps

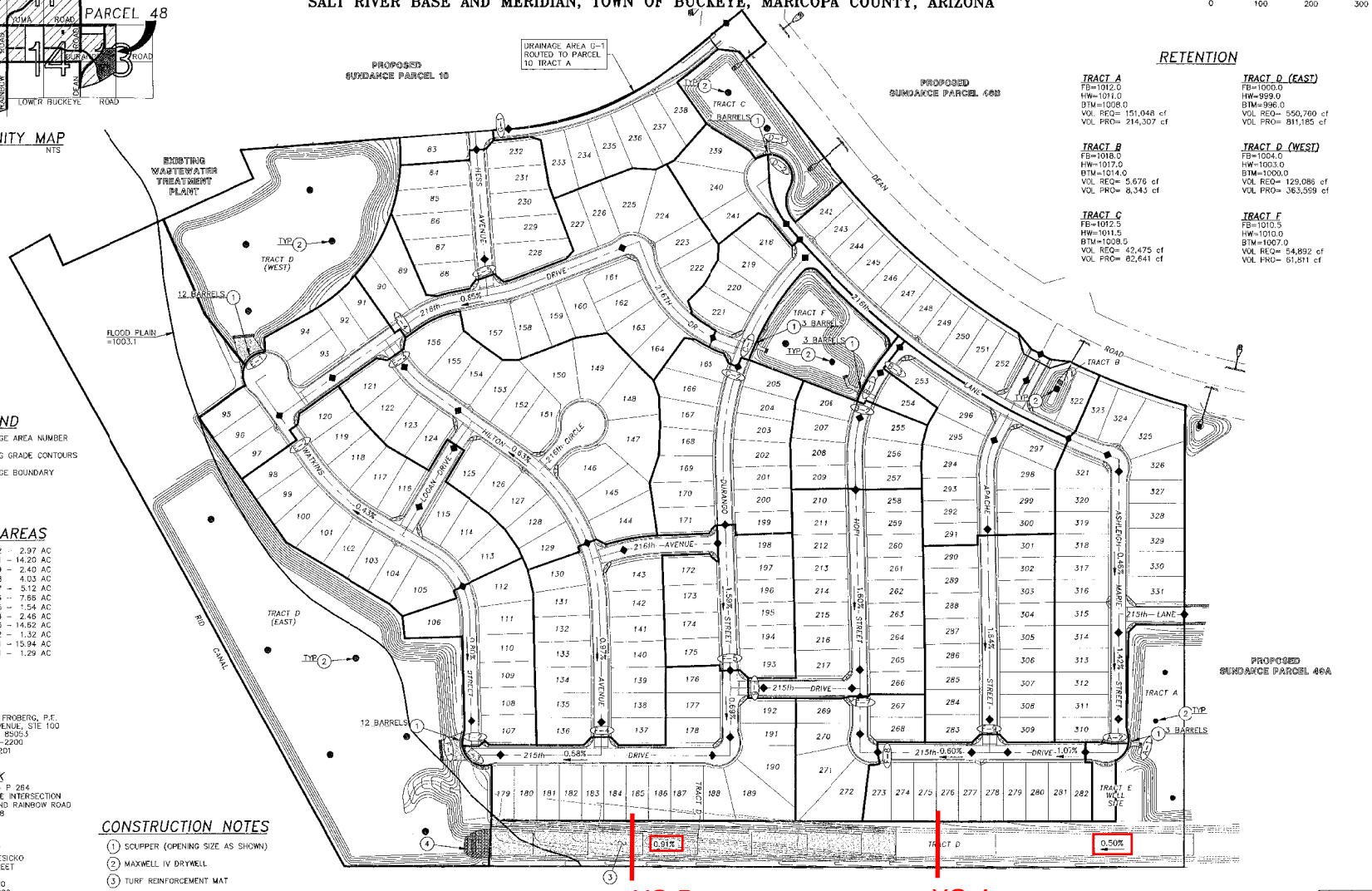


FINAL DRAINAGE MAP
FOR
SUNDANCE PARCEL 48

A PORTION OF THE WEST HALF OF SECTION 13 TOWNSHIP 1 NORTH, RANGE 3 WEST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, TOWN OF BUCKEYE, MARICOPA COUNTY, ARIZONA



VICINITY MAP
NTS



RETENTION

TRACT A
FB=1012.0
HW=1011.0
BTM=1008.0
VOL REQ= 151,048 cf
VOL PRO= 214,307 cf

TRACT B
FB=1018.0
HW=1017.0
BTM=1014.0
VOL REQ= 5,676 cf
VOL PRO= 8,343 cf

TRACT C
FB=1012.5
HW=1011.5
BTM=1008.5
VOL REQ= 42,475 cf
VOL PRO= 82,641 cf

TRACT D (EAST)
FB=1000.0
HW=999.0
BTM=996.0
VOL REQ= 550,760 cf
VOL PRO= 811,185 cf

TRACT D (WEST)
FB=1004.0
HW=1003.0
BTM=1000.0
VOL REQ= 129,086 cf
VOL PRO= 363,599 cf

TRACT F
FB=1010.5
HW=1010.0
BTM=1007.0
VOL REQ= 54,892 cf
VOL PRO= 61,811 cf

LEGEND

- A-1 DRAINAGE AREA NUMBER
- 1002 EXISTING GRADE CONTOURS
- DRAINAGE BOUNDARY

DRAINAGE AREAS

A2	3.43 AC	E2	2.97 AC
A1	3.63 AC	E1	14.20 AC
B3	1.85 AC	F9	2.40 AC
B2	1.06 AC	F8	4.03 AC
B1	3.15 AC	F7	5.12 AC
C2	2.20 AC	F6	7.66 AC
C1	3.17 AC	F5	1.54 AC
D2	2.29 AC	F4	2.46 AC
D1	3.01 AC	F3	14.62 AC
E5	1.84 AC	F2	1.32 AC
E4	5.19 AC	F1	15.94 AC
E3	4.53 AC	G1	1.29 AC

ENGINEER

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BENCH MARK

NGS-MONUMENT – P 264
SOUTHEAST OF THE INTERSECTION OF YUMA ROAD AND RAINBOW ROAD
ELEVATION=1070.28

DEVELOPER

RLH DEVELOPMENT
CONTACT: MARK MESICKO
7878 N. 16TH STREET
SUITE 215
PHOENIX, AZ 85020
PH: (602) 861-2000
FX: (602) 218-5599

CONSTRUCTION NOTES

1. SCUPPER (OPENING SIZE AS SHOWN)
2. MAXWELL IV DRYWELL
3. TURF REINFORCEMENT MAT
4. GROUTED RIPRAP

MANAGING ENGINEER/SUPERVISOR: ERIC J. FROBERG, P.E.
PROJECT COORDINATOR: R. CARSON NUTTALL
FIELD SURVEY | DRAFTED | CHECKED
DESIGN/LAYOUT: RCN | DRAFTED: SJH | CHECKED: EJF
DRAWING SCALE(S): 1" = 100'

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DEVELOPER: RLH DEVELOPMENT
PROJECT NAME: SUNDANCE PARCEL 48
PLAN TYPE: FINAL DRAINAGE MAP

39147 ERIC JOHN FROBERG ARIZONA, U.S.A.

ORIGINAL PLAN DATE: NOV/2005
LATEST REVISION DATE: –
SHEET NUMBER: 1 OF 1
PROJECT NUMBER: 45102604

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