

**Preliminary Drainage Report
For
Asante' of Scottsdale
17490 North 93rd Street
Scottsdale, Arizona**

Stormwater Review By:

Richard Anderson

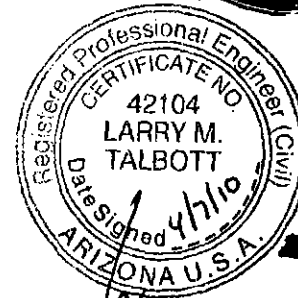
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Review Cycle _____ Date 4/22/10*Approved***April 2010**

Prepared by:
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10450 N 74th Street, Suite 200
Scottsdale, AZ 85258



Case Drainage 4/13
1078-10

PRELIMINARY DRAINAGE REPORT
FOR
ASANTE' OF SCOTTSDALE
17490 NORTH 93RD STREET
SCOTTSDALE, AZ.

PREPARED FOR

TODD & ASSOCIATES
4019 NORTH 44TH STREET
PHOENIX, AZ 85018

PREPARED BY

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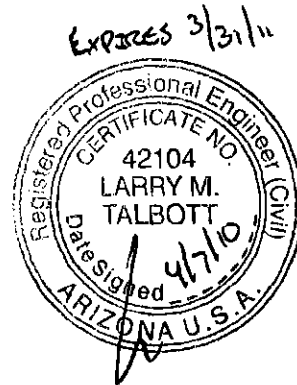
H.E. PROJECT NO. TODD001

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1.0 INTRODUCTION

This preliminary drainage report has been prepared under a contract from Todd & Associates architect of the Asante' of Scottsdale project. The purpose of this report is to provide a preliminary drainage analysis, required by the City of Scottsdale, to support this development. Preparation of this report has been done according to the procedures detailed in the City of Scottsdale's *Design Standards and Policy Manual*, (Reference 1).

This development project is located in the northwest corner of 93rd Street and East Hidden Spur Trail in the City of Scottsdale, Maricopa County, Arizona. It encompasses Lot 16 of the Corporate Center at DC Ranch. The site is more generally located in a portion of the north half of the south half of section 31, Township 4 North, Range 5 East of the Gila and Salt River Base and Meridian Maricopa County Arizona. Figure 1, in Appendix A, illustrates the location of the project site in relation to the City of Scottsdale street system. Access to the proposed lots is provided from the private 93rd Street, East Verde Grove View and East Hidden Spur Trail.

The subject development proposes improvements to lot 16 which is approximately 3.52 acres. The development will include a single building with associated parking, landscape and utility services. Exhibit A, located in the back pocket, illustrates the proposed improvements for the project.

2.0 EXISTING DRAINAGE CONDITIONS

In its current condition, the subject lot lies within an undeveloped parcel within the Corporate Center at DC Ranch. The existing terrain includes natural vegetation including cacti, shrubs and short grasses. The project site drains primarily from the northeast to the southwest at an average slope of 1.75%. See the Conceptual Grading and Drainage Plan within the pocket at the back of this report.

The site is included in the "*Master Drainage Plan for Corporate Center at DC Ranch*". Pursuant to the Corporate Center at DC Ranch report the majority of storm water runoff for Lot 16 shall be conveyed towards the existing channel along the west side of the property. Another portion of the site will overland flow into Hidden Spur Trail to the south. The remainder of the stormwater will outfall to an existing stub from the existing catch basin located at the southeast corner of the site. No on-site retention is required for this site. This project shall meet all of the requirements of the overall master drainage report.

The current FEMA Flood Insurance Rate Map (FIRM) for this area, map number 04013C1245H (Effective date Sept 30, 2005) shows the project site is in a flood hazard Zone AO. Zone AO is defined as, "*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*" (Depth = 1ft. Velocity = 4 ft/sec). A copy of the current FIRM panel is provided in Figure 2, Appendix A.

3.0 PROPOSED DRAINAGE CONCEPT

The proposed drainage concept is presented in three parts: on-site drainage conveyance, off-site drainage conveyance, and storm water retention. These three sections make up sections 3.1, 3.2, and 3.3 respectively.

3.1 On-site Drainage Conveyance

The majority of the on-site storm water runoff for this project will be conveyed via overland flow, curb openings and scuppers to the existing natural channel on the west side of the property. Per the master drainage report this channel will convey the stormwater to the south through the existing culvert under hidden spur trail then south to its historic overall site outfall.

This area resulted in 1.45 acres of land which is 0.3 acres less than the 1.75 acres shown on the overall drainage report. Further investigation of the overall drainage report found that the overall report contained a typo and that the combined areas for this property added up to more acreage than the parcel. The other drainage areas matched more closely.

Additional stormwater will be conveyed via overland flow to Hidden Spur Trail where it will continue within the roadway curb and gutter to the existing catch basin as originally intended. Per the master drainage report this stormwater will be further conveyed via storm drain and channels to its historic outfall.

The remaining stormwater will be conveyed via overland flow, catch basins and storm pipe to an existing stub from the existing catch basin in 93rd Street. This stub was provided by the overall infrastructure improvements for this site. Per the master drainage report this stormwater will be further conveyed via storm drain and channels to its historic outfall.

The established finish floor elevation of 1595.25 has been set at an elevation, which is a minimum of 12-inches above the existing high point elevation within the building envelope area. Due to the site characteristics and flood zone requirements the building finish floor is considerably higher than the existing grades along the south side of the building.

No retention will be required for this development since provisions for retention and runoff have been accommodated within the Corporate Center at D.C. Ranch. The master drainage report for the Corporate Center at D.C. Ranch has noted that the Q_{100} developed flow to the channel along the west to be 18.3 cfs. The Q_{100} developed flow to Hidden Spur Trail shall be 13.15 cfs and the Q_{100} developed flow to 93rd Street is 8.70 cfs.

As mentioned previously in this report the outfall to the existing wash on the west was called out incorrectly in the master drainage report, therefore the actual Q_{100} developed flow should be 14.8 cfs.

It has been requested by the city during previous reviews of other projects within the Corporate Center at DC Ranch that the master drainage report not be included as an appendix to the individual project reports. The master report is on file at the city and that copy would be used for the review of the individual projects.

3.2 Off-site Drainage Conveyance

No off-site drainage affects this site. East Verde Grove View to the north, 93rd Street to the east and the existing channel to the west of the subject development collect and convey water around the site per the master drainage report.

3.3 Storm Water Retention

Per the Corporate Center at DC Ranch master drainage report all storm water shall be conveyed to the outfall locations at the existing channel, 93rd Street and Hidden Spur Trail. From there it will be conveyed per the master drainage report. No on-site retention is required for this project.

4.0 CONCLUSIONS

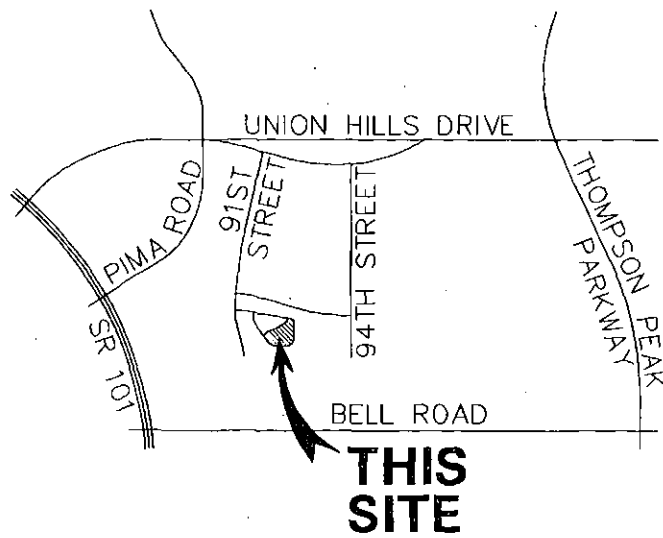
Based on the results of this study, it can be concluded that:

- The drainage improvements have been designed in accordance with requirements put forth in the Corporate Center at DC Ranch Drainage Report.
- The drainage improvements have been designed according to requirements put forth in the City of Scottsdale's *Design Standards and Policy Manual*.

5.0 REFERENCES

- 1) City of Scottsdale's *Design Standards and Policy Manual* as accessed from the City of Scottsdale website at <http://www.ci.scottsdale.az.us.dspm>.
- 2) Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, 1992.
- 3) Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, 1991.
- 4) Master Drainage Report for the Corporate Center at DC Ranch prepared by Hunter Engineering P.C. dated June 2007.

APPENDIX A FIGURES



**VICINITY MAP
FIGURE 1**

LEGEND



SPECIAL FLOOD HAZARD AREAS 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

MAP LEGEND

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1245H

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

PANEL 1245 OF 4350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---------------------|--------|-------|--------|
| MARICOPA COUNTY | 040037 | 1245 | H |
| PHOENIX, CITY OF | 040051 | 1245 | H |
| SCOTTSDALE, CITY OF | 045012 | 1245 | H |

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.

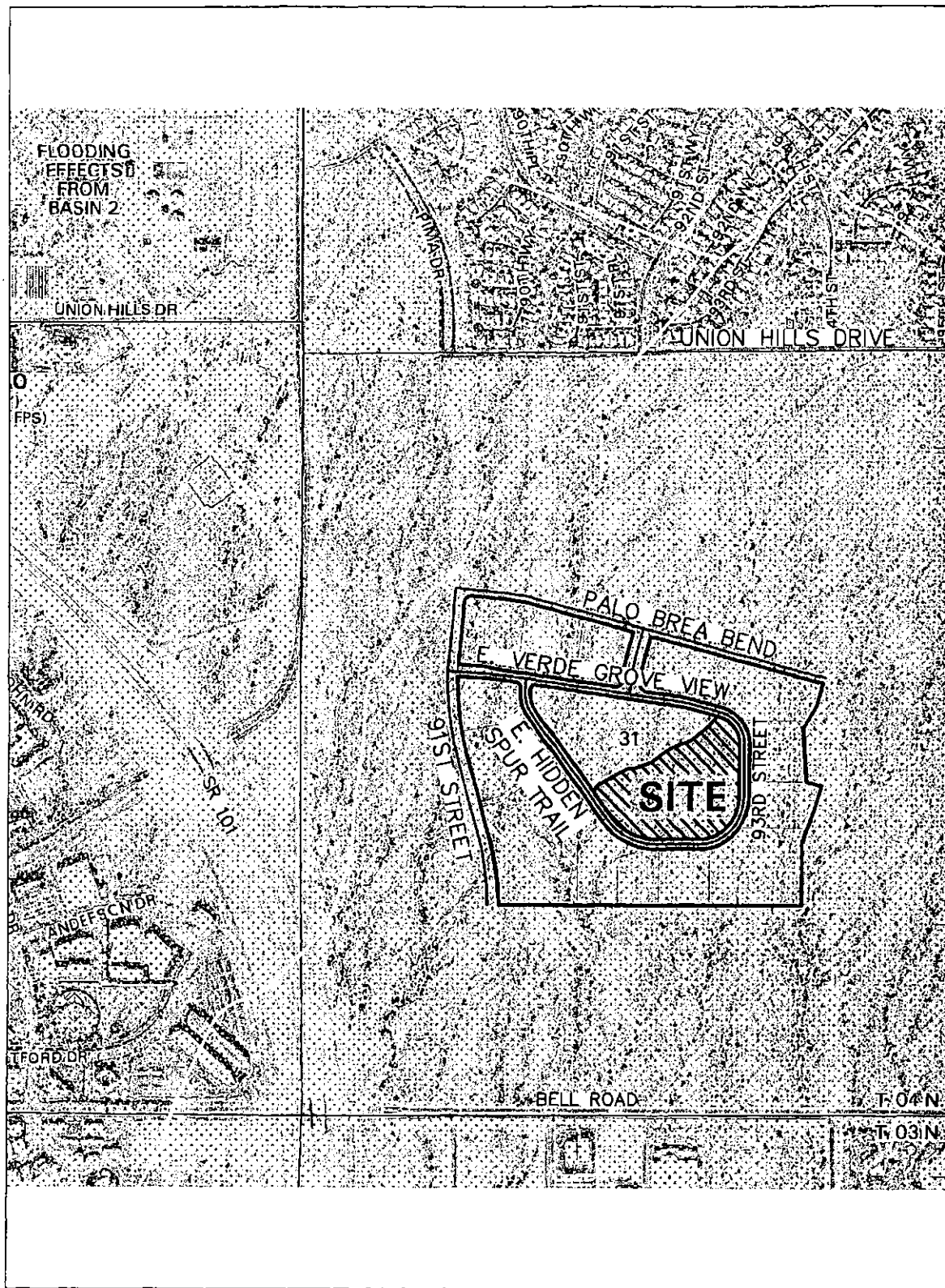


**MAP NUMBER
04013C1245H
MAP REVISED**

SEPTEMBER 30, 2005

Federal Emergency Management Agency

FIRM PANEL



PORTION OF PANEL SHOWING SITE
FIGURE 2

APPENDIX B
DRAINAGE CALCULATIONS



Section 404 Certification

Before the City issues development permits for a project, the developer's Engineer or the property owner must certify that it complies with, or is exempt from, Section 404 of the Clean Water Act of the United States. Section 404, administered by the U.S. Army Corps of Engineers (COE), regulates the discharge of dredged or fill material into a wetland, lake, (including dry lakes), river, stream (including intermittent streams, ephemeral washes, and arroyos), or other waters of the United States.

Prior to submittal of improvement plans to Project Review the form below must be completed (and submitted with the improvement plans) as evidence of compliance

Certification of Section 404 Permit Status

Owner's Name: SANTE PARTNERS, INC.

Phone No. 480-626-2272 x115

Project Name/Description: ASANTE OF SCOTTSDALE

Case No. 733-PA-2009

Project Location/Address: 17490 N. 93RD STREET, SCOTTSDALE AZ

A registered Engineer or the property Owner must check the applicable condition and certify by signing below that:

1. Section 404 does apply to the project because there will be a discharge of dredged or fill material to waters of the U.S., and:

☐ A Section 404 Permit has already been obtained for this project.

-or-

☐ This project qualifies for a "Nationwide Permit," and this project will meet all terms and conditions of the applicable nationwide permit.

2. Section 404 does not apply to the project because:

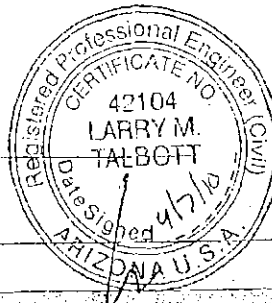
☐ No watercourses or other waters of the U.S. exist on the property.

☐ No jurisdictional waters of the U.S. exist on the property. Attached is a copy of the COE's Jurisdictional Determination.

☒ Watercourses or other waters of the U.S. do exist on the property, but the project will not involve the discharge of dredged or fill material into any of these waters.

I certify that the above statement is true.

L
Engineer's Signature and Seal, or Owner's Signature



Date

Title Company

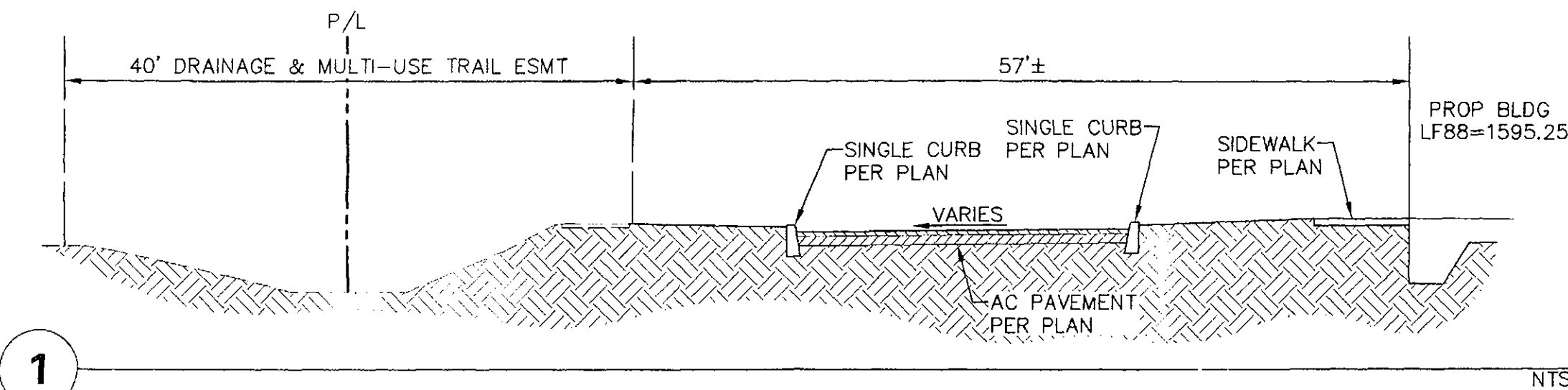
Planning & Development Services Department

7447 E Indian School Road, Suite 100, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7088

FLOOD PLAIN DESIGNATION

| COMMUNITY NUMBER | PANEL # | SUFFIX | DATE OF FIRM (INDEX DATE) | FIRM ZONE | BASE FLOOD ELEVATION |
|------------------|---------|--------|---------------------------|-----------|---|
| 04013C | 1245 | H | 9-30-05 | ZONE AO | FLOOD DEPTHS OF 1 TO 3 FEET (USUALLY FEET FLOW ON SLOPING TERRAIN); AVERAGE DEPTHS DETERMINED FOR AREAS OF ALLUVIAL FAN FLOODING, VELOCITIES ALSO DETERMINED. |

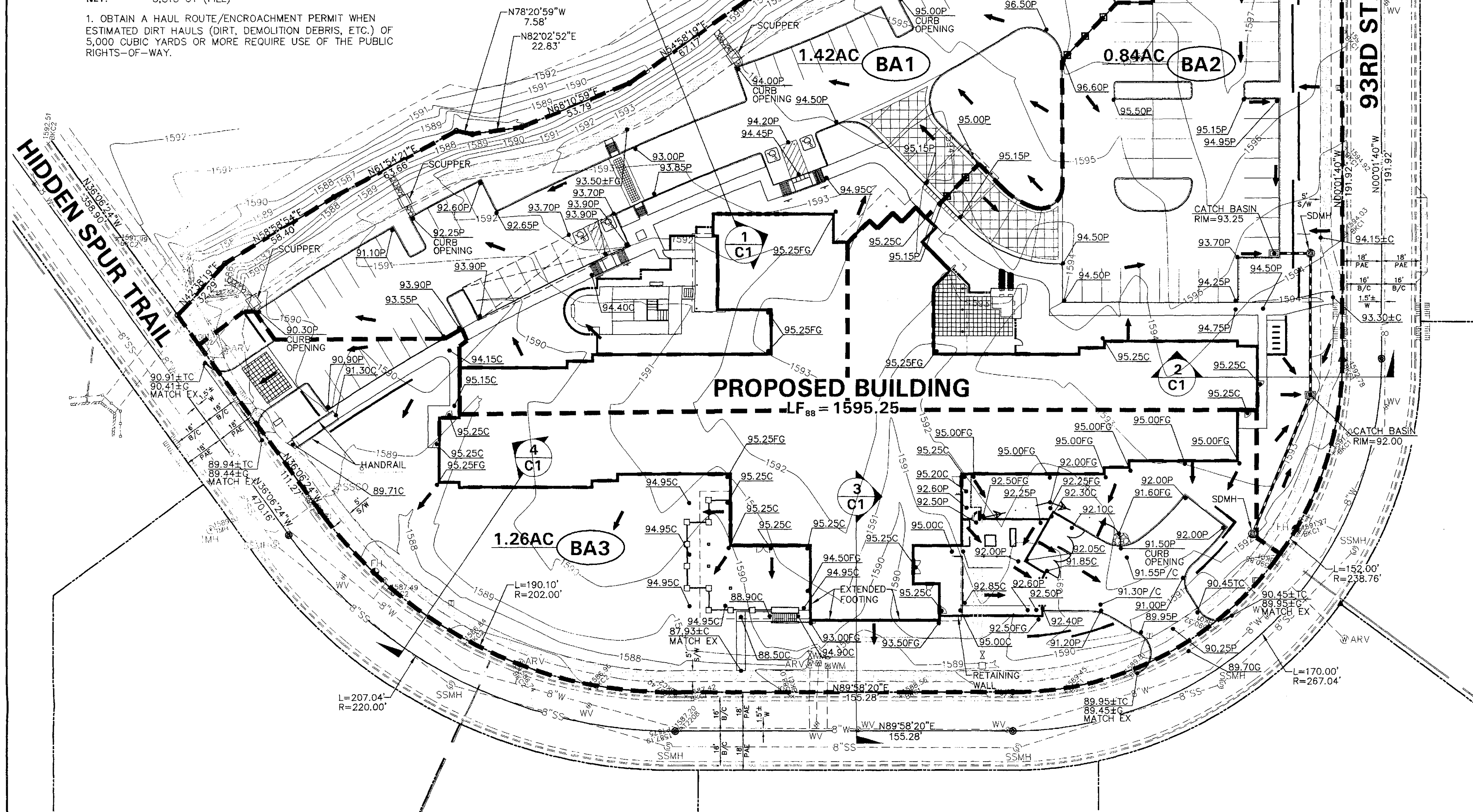
ENGINEER'S CERTIFICATION: THE LOWEST FLOOR ELEVATION(S) AND/OR FLOOD PROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A ONE-HUNDRED YEAR STORM, AND ARE IN ACCORDANCE WITH CITY OF SCOTTSDALE REVISED CODE, CHAPTER 37 - FLOODWAYS & FLOOD PLAINS ORDINANCE.



CUT & FILL QUANTITIES*

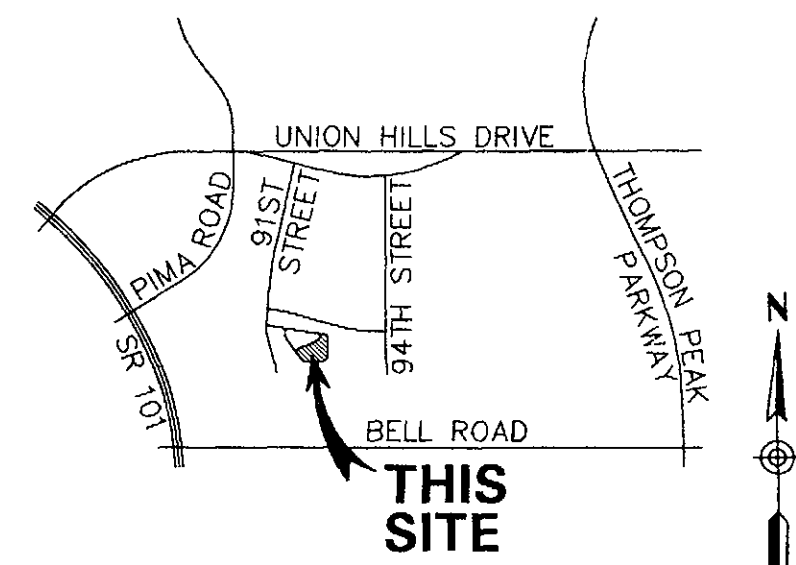
CUT: 1,941 CY
FILL: 5,455 CY
NET: 3,513 CY (FILL)

1. OBTAIN A HAUL ROUTE/ENCROACHMENT PERMIT WHEN ESTIMATED DIRT HAULS (DIRT, DEMOLITION DEBRIS, ETC.) OF 5,000 CUBIC YARDS OR MORE REQUIRE USE OF THE PUBLIC RIGHTS-OF-WAY.



CONCEPTUAL GRADING & DRAINAGE PLAN FOR ASANTE' OF SCOTTSDALE

17490 N. 93RD STREET
SCOTTSDALE, ARIZONA
PART OF THE SOUTHWEST QUARTER OF SECTION 31, TOWNSHIP 4 NORTH, RANGE 5 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN MARICOPA COUNTY, ARIZONA



VICINITY MAP

CIVIL ENGINEER
HUNTER ENGINEERING, INC.
10450 N. 74TH STREET, SUITE #200
SCOTTSDALE, ARIZONA 85258
PHONE: (480) 991-3985
FAX: (480) 991-3985
CONTACT: LARRY TALBOTT

SHEET INDEX

CONCEPT GRADING AND DRAINAGE PLANC1
CONCEPT UTILITY PLANC2

EXISTING LEGEND

| | |
|------------------------|-----|
| PROPERTY LINE | --- |
| RIGHT-OF-WAY | --- |
| MONUMENT LINE | --- |
| EASEMENT LINE | --- |
| MAJOR CONTOUR | --- |
| MINOR CONTOUR | --- |
| WATERLINE | --- |
| SEWER LINE | --- |
| STORM PIPE | --- |
| SANITARY SEWER MANHOLE | ⊗ |
| WATER VALVE | ⊗ |
| WATER METER | ⊗ |
| FIRE HYDRANT | ⊗ |
| TELEPHONE RISER | ⊗ |
| ELECTRICAL RISER | ⊗ |
| WATER METER | ⊗ |
| SIGN | ⊗ |
| TELEPHONE MANHOLE | ⊗ |
| WATER MANHOLE | ⊗ |
| PALOVERDE TREE | ⊗ |
| SAGUARO CACTUS | ⊗ |
| SPOT ELEVATION | ⊗ |
| RIPRAP | ⊗ |

PROPOSED LEGEND

| | |
|--------------------|-----|
| EASEMENT | --- |
| SEWER LINE | --- |
| WATER LINE | --- |
| FIRE LINE | --- |
| DRAINAGE BOUNDARY | --- |
| STORM LINE | --- |
| GRADE BREAK | --- |
| DIRECTION OF SLOPE | --- |
| CATCH BASIN | ⊗ |
| SPOT ELEVATION | ⊗ |
| CLEANOUT | ⊗ |
| STORM MANHOLE | ⊗ |
| BACKFLOW DEVICE | ⊗ |
| FDC | ⊗ |
| SECTION CALLOUT | ⊗ |

DRAINAGE NOTE

DRAINAGE IS IN ACCORDANCE WITH THE CORPORATE CENTER AT DC RANCH KIVA #04-2823 FINAL DRAINAGE REPORTS. STORMWATER FROM COVEY LANE WILL FLOW TO 7TH STREET AND 8TH WAY AND 9TH PLACE WILL FLOW TO THE EXISTING CONCRETE CHANNEL ALONG THE SOUTH PROPERTY BOUNDARY.

BENCHMARK

CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE (0.51' DOWN) AT THE INTERSECTION OF BELL ROAD & 104TH STREET
(COS GPS PT. 8052)
ELEVATION=1687.940 (NAVD 88' DATUM)

I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON THE ELEVATION DATUM FOR THE CITY OF SCOTTSDALE BENCHMARK PROVIDED ABOVE.

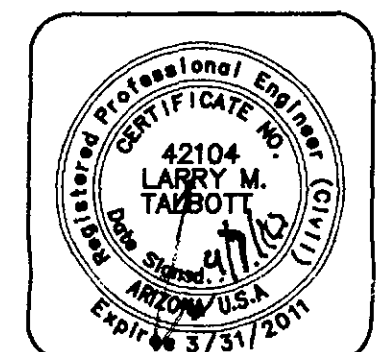
| NO. | DATE | REVISION | BY |
|-----|------|----------|----|
| | | | |

DESIGN BY: JMH
DRAWN BY: RJM
CHECKED BY: JMH

OWNER
SANTO PARTNERS, LLC
11811 N. TATUM BOULEVARD, SUITE #3031
PHOENIX, ARIZONA 85028
PHONE: (480) 626-2272 EXT 115
FAX: (480) 383-383-6777
CONTACT: JORDAN WINTERS

ARCHITECT
TODD & ASSOCIATES
4019 N. 44TH STREET
PHOENIX, ARIZONA 85018
PHONE: (602) 952-8280
FAX: (602) 952-8995
CONTACT: CRAIG GOLDSTONE

CIVIL AND SURVEY
HUNTER ENGINEERING
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
F 480 991 3985
F 480 991 3986



CONCEPTUAL GRADING & DRAINAGE PLAN
FOR
ASANTE' OF SCOTTSDALE
17490 N. 93RD STREET
SCOTTSDALE, ARIZONA

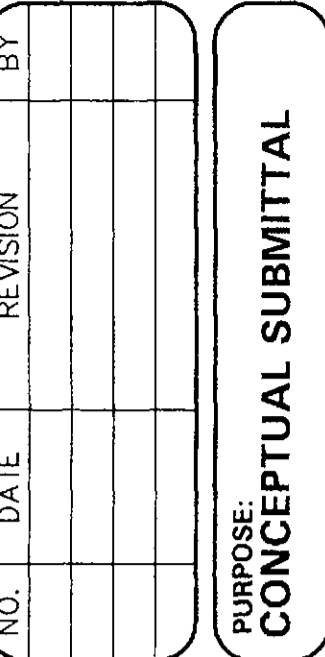
THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

HE JOB NO.: TODD001

SCALE 1"=30'

SHEET C1

PART OF THE SOUTHWEST QUARTER OF SECTION 31, TOWNSHIP 4 NORTH, RANGE 5 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN MARICOPA COUNTY, ARIZONA



HUNTER
ENGINEERING

CIVIL AND SURVEY

10450 NORTH 74TH STREET,
SUITE 200
SCOTTSDALE, AZ 85258
T 480 991 3985
F 480 991 3986



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FROM THE GOVERNING
MUNICIPALITY.

SHEET
C2

