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Accepted w/Comment
SEE EXHIBIT 2

City of Scottsdale
Water Resources Administration
9379 E. San Salvador
Scottsdale, AZ 85258

Doug Mann 4.1.15

Note: Comments on Water
Distribution Report dated
Sept 4, 2015 are still
outstanding. Doug 12.11.15

3-PP-2015
6/22/2015

WOOD/PATEL
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11-UP-2014

PRELIMINARY
**WATER BASIS OF DESIGN REPORT
FOR
SCOTTSDALE NATIONAL GOLF CLUB**

Revised June 16, 2015
Revised February 19, 2015
November 18, 2014
WP# 144147

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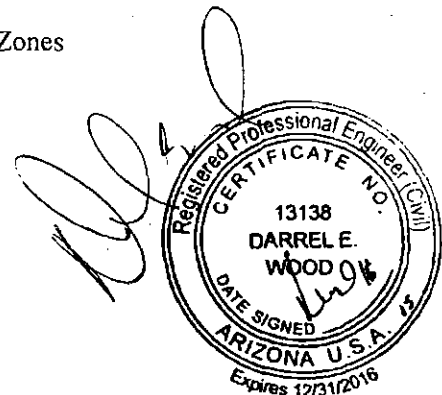
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1.0 INTRODUCTION

1.1 General Background and Project Location

Scottsdale National Golf Club is a proposed 367.6-acre resort/golf course development in the City of Scottsdale, located between Rio Verde Drive (Dynamite Road) on the south and Dixileta Road on the north, west of 122nd Street, and east of 116th Street (refer to Exhibit 1 – *Vicinity Map*). The property will be an extension of the previously-developed Scottsdale National Golf Club, and is located within Sections 26 and 27, Township 5 North, Range 5 East, of the Gila and Salt River Meridian. In total, with the existing golf course, the property will include 658.5 acres.

The Site is planned to include an 18-hole golf course, 9-hole golf course, clubhouse, comfort stations, maintenance building, cottages, and a private residence. This Water Basis of Design Report for the Site utilizes a site plan concurrently prepared by Wood, Patel & Associates, Inc. (Wood/Patel).

This Water Basis of Design Report has been prepared in accordance with Wood/Patel's understanding of the City of Scottsdale's technical requirements for water distribution systems, as applicable for the Site.

1.2 Scope of Water Basis of Design Report

The purpose of this Water Basis of Design Report is to determine water design flows, pipe sizes, and waterline locations as required to provide water service to the proposed development. The required infrastructure identified includes water distribution system mains and connection points.

1.3 Full Build-Out Condition

The design criteria utilized to determine water demands and pipe sizes for the Site are based on projected full build-out conditions. It is our understanding the golf courses will be irrigated by an existing non-potable waterline.

2.0 DESIGN DOCUMENTATION

2.1 Design Criteria

For the purpose of this report, water demand design flows and pipe-sizing criteria utilized are based on Wood/Patel's understanding of the applicable water system design criteria listed in the *City of Scottsdale Design Standards & Policies Manual*, dated January 2010. Refer to Table 1 – *Water Distribution System Design Criteria* for detailed information regarding design criteria.

2.2 Water Demand Design Flows

Water demand design flows for Scottsdale National Golf Club were calculated using design criteria listed in Section 2.1 – *Design Criteria* and are summarized below. For detailed calculations, refer to Table 2 – *Offsite Water Demands* and Table 3 – *Onsite Water Demands*.

ZONE 12			
Type	Average Daily Demand (gpm)	Maximum Daily Demand (gpm)	Peak Hour Demand (gpm)
Existing Clubhouse and Maintenance Building	10	21	36
Cottages	22	45	78
Proposed Clubhouse	24	49	85
Proposed Maintenance	3	6	11
TOTAL	59	121	210

ZONE 13			
Type	Average Daily Demand (gpm)	Maximum Daily Demand (gpm)	Peak Hour Demand (gpm)
Comfort Stations	3	7	12
Potential Residential Demand	1	3	5
TOTAL	4	10	17

TOTAL			
Type	Average Daily Demand (gpm)	Maximum Daily Demand (gpm)	Peak Hour Demand (gpm)
ZONE 12	59	121	210
ZONE 13	4	10	17
TOTAL	63	131	227

3.0 EXISTING CONDITIONS

3.1 Topographic Conditions

The proposed project lies in the northern planning section of the City of Scottsdale. The Site generally slopes from the northwest to the southeast at approximately 2 percent. Elevations range from 2,800 feet above mean sea level (MSL) in the north, to 2,645 feet MSL in the southeast. A portion of the Site that is located east of 118th Street alignment has previously been mass graded, while the remainder of the Site is covered with typical Sonoran Desert vegetation including mesquite trees, saguaro cactus, creosote, etc.

3.2 Existing Offsite Water Storage

According to the 2008 *City of Scottsdale Integrated Water Master Plan*, water is provided to the Site by Storage Facility T-143. Booster Pump Station #143 conveys water from T-143 to Zones 12 and 13 (refer to Appendix A for a diagram from the 2008 *Scottsdale Integrated Water Master Plan*). Storage facility locations are summarized below.

- Storage Facility T-143 located at 114th Street and Dixileta Drive, with a storage capacity of 3.0 million gallons.

3.3 Existing Pressure Zone Sources and Hydraulic Grade Lines

The Site falls within City of Scottsdale Water Pressure Zones 12 and 13. Pressure Zone properties are summarized below.

Zone 12:

- Ground Elevation Range = 2,570 feet to 2,700 feet
- Static Hydraulic Grade Line (HGL) = 2,845 feet
- Pressure Source(s):
 - BPS #147 – located at 114th Street and Dixileta Drive

Zone 13:

- Ground Elevation Range = 2,700 feet to 2,830 feet
- Static Hydraulic Grade Line (HGL) = 2,940 feet
- Pressure Source(s):
 - BPS #147 – located at 114th Street and Dixileta Drive

3.4 Existing Offsite Water Infrastructure

Relevant existing water infrastructure adjacent to the Site includes the following:

Zone 12:

- 24-inch waterline along Dynamite Boulevard/Rio Verde Drive between BPS#100 and 118th Street
- 20-inch waterline along Rio Verde Drive between 118th Street and 122nd Street
- 20-inch waterline along 114th Street between Dixileta Drive and Dynamite Boulevard/Rio Verde Drive (Tank Fill)
- 20-inch waterline along 114th Street between Tank #143 and Dynamite Boulevard (Distribution)
- 12-inch waterline along 122nd Street extending approximately 2,200 feet north from Rio Verde Drive
- 8-inch waterline loop serving the existing Scottsdale National Golf Club course

Zone 13:

- 16-inch waterline along 114th Street between Dixileta Drive and Morning Vista Road; then extending eastward along Morning Vista Road between 114th Street and 116th Street.

3.5 Existing Onsite Water Infrastructure

A portion of the Site is mass graded, with native desert located along the western, northern, and southern sides of the Site. It is Wood/Patel's understanding there is no existing pressurized onsite water infrastructure, except in accordance with The Reserve 51-lot improvement plans, where the water system improvements for 121st Street were

installed. This included an 8-inch waterline from 122nd Street along 121st Street, that transitions into a 6-inch waterline which nearly extends to Dynamite Boulevard.

4.0 HYDRAULIC MODEL

4.1 Methodology

WaterCAD Version 8.0, a potable water transmission and distribution system numerical modeling program by Haestad Methods, was utilized to analyze the proposed potable water system. The Site lies within two (2) existing pressure zones in the City of Scottsdale water system, Zone 12 and Zone 13. A hydraulic grade line (HGL) of 2,845 feet was used to simulate the water-supply pressure for Zone 12, and an HGL of 2,940 feet was used to simulate the water-supply pressure for Zone 13. Water demands and peaking factors, described in *Chapter 6 – 2010 City of Scottsdale Design Standards & Policies*, were applied to the hydraulic model. Pipes were sized to accommodate modeled conditions of flow.

The following primary modeling scenarios were selected to demonstrate compliance with City of Scottsdale requirements and analyze the proposed water system:

- Average Daily Demand
- Maximum Daily Demand
- Peak Hour Demand
- Maximum Daily Demand plus Fire Flow

The hydraulic model utilizes the Hazen-Williams equation to calculate the head losses throughout the system during the modeled scenarios. Fire flow demands were analyzed with automatic sprinkler systems installed on all buildings. Please refer to Table 1- *Water Distribution System Design Criteria* for additional information regarding hydraulic modeling parameters and specific fire flow demands for each building.

4.2 Piping Layout

Potable water service and fire protection will be provided through planned ductile iron public waterlines. Proposed waterlines surrounding the proposed clubhouse and cottages will consist of a Zone 12 8-inch looped waterline. Additionally, the existing Zone 12 6-inch waterline will need to be connected to the existing Zone 12 20-inch waterline within Rio Verde Drive in order to provide a looped system for the clubhouse and casitas.

4.3 Hydraulic Modeling Results

The hydraulic-modeling results indicate that the onsite system is capable of delivering Average Day, Maximum Day, and Peak Hour demands with the following pressure ranges.

Scenario	Full Build-Out Pressure (psi)	
	Low	High
Average Day Demand	61	103
Max Day Demand	61	103
Peak Hour Demand	60.9	103
Extreme Node	J-104	J-110

Fire-flow results from the model indicate that available fire hydrant flows approach or exceed the required fire flows at individual modeling nodes during Max Day Demand while maintaining residual pressures greater than 30 psi throughout the Site at full build-out. Results from these scenarios indicate that minimum and maximum residual pressures and head losses meet the design criteria presented herein. Hydraulic-modeling results, calculations and exhibits are provided in the attached appendices and exhibits.

5.0 CONCLUSIONS

The Scottsdale National Golf Club Water Basis of Design Report, as presented, meets City of Scottsdale standards and requirements, and serves as a guide for construction documents associated with the planned potable-water distribution system. No critical issues were identified that would preclude the anticipated development as presented in this Master Plan report. The following highlights primary conclusions:

1. Scottsdale National Golf Club will be served by Pressure Zones 12 and 13 due to an elevation difference across the site of approximately 155 feet.
2. The planned potable-water system is capable of being designed in accordance with the City of Scottsdale's current water-system design criteria.
3. The hydraulic modeling results presented indicate that flow velocities, head losses, and system pressures are within the allowable range of design criteria utilized for this Basis of Design Report.
4. *The Scottsdale National Golf Club Water Basis of Design* report demonstrates the sufficiency of the proposed water distribution system to serve the proposed Site in accordance with City of Scottsdale Water Standards.
5. The proposed golf course will be supplied by a non-potable water system through a separate agreement. No potable water will be used for the golf course irrigation.
6. *The Scottsdale National Golf Club Water Basis of Design* report demonstrates compliance with the City of Scottsdale's adopted *Integrated Master Water Plan*, dated March 2008.

6.0 REFERENCES

1. *Design Standards & Policies Manual*. City of Scottsdale, January 2010.
2. *Integrated Water Master Plan*. City of Scottsdale, March 2008.
3. *Bentley WaterCAD Version 8.11*, Bentley Systems Inc., December 2013.

TABLE 1

WATER DISTRIBUTION SYSTEM DESIGN CRITERIA

Project: Scottsdale National Golf Club
 Location: Scottsdale, AZ
 References: 2010 City of Scottsdale Design Standards & Policies Manual

Project Number: 144147
 Project Engineer: Ethan Boyle, P.E.

UNIT DAILY RESIDENTIAL WATER DEMANDS

LAND USE CATEGORY	LAND USE	AVERAGE DAY WATER DEMANDS		NOTES
		VALUE	UNITS	
Residential	Large Estate	10,000	GPD	3

UNIT DAILY NON-RESIDENTIAL WATER DEMANDS

LAND USE	AVERAGE DAY WATER DEMANDS		NOTES
	VALUE	UNITS	
Developed Open Space - Golf Course	4285	GPD/ACRE	Demand will be supplied with a separate non-potable system.
Comfort Stations	950	GPD/Comfort Station	Being used to model Comfort Stations (1225 SQ FT). ⁽⁴⁾
Resort (includes site Amenities)	446.3	GPD/ROOM	Being used to model Resort Style Casitas.
Clubhouse Existing and Proposed	70.0	GPD/Person	This demand was assumed to be 25% greater than the wastewater demand.
Office	0.6	GPD/SQ. FT	Being used to model the Maintenance Buildings.

HYDRAULIC MODELING CRITERIA

DESCRIPTION	VALUE	UNITS	NOTES
PEAKING FACTORS			
Maximum Day Demand (MOD)	2.00	x ADD	1
Peak Hour Demand (PHD)	3.50	x ADD	1
MODELED FIRE HYDRANT FLOW (MINIMUMS)			
Cottages (Assuming 50% reduction with sprinklers installed)	1,625	gpm	2
Maintenance Building (Assuming 50% reduction with sprinklers installed)	1,500	gpm	6.8
Assumed Residential Estate (Assuming 50% reduction with sprinklers installed)	2,750	gpm	5.6
Existing Clubhouse (Assuming 50% reduction with sprinklers installed)	2,250	gpm	6.7
Future Clubhouse (Assuming 50% reduction with sprinklers installed)	2,500	gpm	5
HYDRAULICS (ON SITE)			
Minimum Residual Pressure	50	psi	1
Maximum Residual Pressure	120	psi	1
Minimum Residual Pressure, Max Day Demand + Fire Flow	30	psi	1
Maximum Pipe Headloss (Distribution Lines)	10 ft/1000 ft	-	1
Maximum Pipe Headloss (Transmission Lines)	8 ft/1000 ft	-	1
Minimum Pipe Diameter (within City of Scottsdale's county service area)	8	in	1
Maximum Dead End Length (Pipes with 8 to 12 inch diameters)	1200	ft	1
Hazen-Williams C-value	130	-	

Notes:

1. City of Scottsdale Design Standards and Policy Manual
2. The square footage of each cottage is assumed to be approximately 3,850 SQ FT. Each building will be a fourplex for a total of 15,400 SQ FT per building. The assumption is made that the cottages will each have automatic sprinkler systems, which will allow for a 50% reduction in the required fire flow.
3. The water demand of the future residential estate is unknown at this time. Therefore, the assumption was made that the average day demand will be 10,000 gallons per day. When this estate is developed an individual Basis of Design Report is required to ensure adequate waterline sizes to supply the Site.
4. The water demand was assumed to be equal to the sewer demand because the landscaping around the comfort stations will be supplied by a non-potable system.
5. The square footage of the residential estate is unknown at this time. Therefore, a conservative fire flow requirement of 5,500 GPM was utilized. With an automatic sprinkler system installed in the buildings, the fire flow can be reduced 50%, which is equal to a 2,750 GPM fire flow demand.
6. 2012 International Fire Code, *Minimum Required Fire Flow and Flow Duration for Buildings*
7. The size of the existing clubhouse is 26,284 square feet. This results in a fire flow requirement of 4,500 GPM. However, with an automatic sprinkler system, the fire flow can be reduced 50%, which is equal to 2,250 GPM.
8. The size of the maintenance building is unknown at this time. Therefore, a fire flow of 1,625 GPM was modeled and it is assumed the facility will be sprinklered.

TABLE 2

OFFSITE WATER DEMANDS

WOOD/PATEL

TABLE 2 -Offsite Water Demands

Project: Scottsdale National Golf Course
 Location: Scottsdale, Arizona

Proj. Number: 144147
 Proj. Engineer: Ethan Boyle, P.E.

PRELIMINARY LAND USE AND DWELLING UNIT BREAKDOWN

Type	No. of Dws	Residential Acres	Density (DU/AC)	Non-Residential Acres	Population Density (persons/DU or Acre, patrons/day)		Commercial/ Industrial/ Retail S.F.	GPD/1000 SF	Land Use	Unit Daily Water Demand (GPD/DU, AC, or S.F.)		Avg Day (GPD)	Total Avg Day (GPD)	
Existing SNGC Clubhouse and Maintenance Building				0.69	150	Patrons/Day	26,284	-	Clubhouse	70	GPD/Person.	10,500	15,000	
				0.14	-	-	7,500	4.5	Maintenance Building	0.6	GPD/SQ FT	4,500		
Offsite Totals				33,784										15,000

TABLE 3

ONSITE WATER DEMANDS

Project: Scottsdale National Golf Course
 Location: Scottsdale, Arizona

Proj. Number: 144147
 Proj. Engineer: Ethan Boyle, P.E.

PRELIMINARY LAND USE AND DWELLING UNIT BREAKDOWN

Type	No. of Dus/Casitas/ Comfort Stations	Residential Acres	Non- Residential Acres	Population Density (persons/DU or Acre, patrons/day, person/DU)		Commercial/ Industrial/ Retail S.F.	GPD/1000 SF	Land Use	Unit Daily Water Demand (GPD/DU, AC, or S.F.)		Avg Day (GPD)	Total Avg Day (GPD)
Comfort Stations	5	-	0.14	-		6125	-	Comfort Station	950.0	GPD/Comfort Station	4,750	4,750
Future Clubhouse	-	-	2.87	500	Patrons/Day	34,200	-	Clubhouse	70	GPD/Person	35,000	35,000
Future Maintenance Building	-	-	0.17	-	-	7,500	-	Maintenance Building	0.6	GPD/SQ FT	4,500	4,500
Casitas	72	6.4	-	-	-	277,344	-	Resort with Ammenities	446.3	GPD/ROOM	32,134	32,134
Future North Residence	1	-	-	-	-	-	-	Residential	2,000	GPD/DU	2,000	2,000

Onsite Totals

325,169

78,384

Notes: 1) The water demand needed for the golf course will be served by a non-potable system. A future basis of design report will need to be completed to determine the available capacity of the non-potable system in comparison with the water demands from the proposed 18-hole and 9-hole golf courses.

TABLE 4

WATER DEMAND DESIGN FLOWS BY JUNCTION NODE

WOOD/PATEL

TABLE 4 - WATER DEMAND DESIGN FLOWS BY JUNCTION NODE

CIVIL ENGINEERS * HYDROLOGISTS * LAND SURVEYORS * CONSTRUCTION MANAGERS

Project: Scottsdale National Golf Club
 Location: Scottsdale, AZ
 References: 2010 City of Scottsdale Design Standards & Policies Manual

Project Number: 144147
 Project Engineer: Ethan Boyle, P.E.

Scottsdale National Golf Club

HYDRAULIC MODEL NODE	Water Demand Type	Zone	Units	Unit Flow (GPD/Unit)	ADD (GPD)	ADD (GPM)	MDD (GPM)	PHD (GPM)	Fire Flow (GPM)	Note
J-1EX	None	Zone - 13	-	-	-	-	-	-	-	
J-2EX	None	Zone - 13	-	-	-	-	-	-	-	
J-3EX	None	Zone - 12	-	-	-	-	-	-	-	
J-4EX	None	Zone - 12	-	-	-	-	-	-	-	
J-5EX	None	Zone - 12	-	-	-	-	-	-	-	
J-7EX	None	Zone - 12	-	-	-	-	-	-	1,500	
J-8EX	None	Zone - 12	-	-	-	-	-	-	1,500	
J-9EX	None	Zone - 12	-	-	-	-	-	-	1,500	
J-10EX	Clubhouse/Maintenance Building	Zone - 12	-	-	15,000	10.42	20.84	36.47	2,250	
J-11EX	Cottages	Zone - 12	16	446.3	7,141	4.96	9.92	17.36	1,625	
J-12EX	Cottages	Zone - 12	16	446.3	7,141	4.96	9.92	17.36	1,625	
J-13EX	None	Zone - 12	-	-	-	-	-	-	-	
J-14EX	None	Zone - 12	-	-	-	-	-	-	-	
J-100	Proposed Clubhouse	Zone - 12	-	-	35,000	24.31	48.62	85.09	2,500	
J-102	None	Zone - 12	-	-	-	-	-	-	-	
J-103	Cottages	Zone - 12	20	446.3	8,926	6.20	12.40	21.70	1,625	
J-104	Cottages	Zone - 12	20	446.3	8,926	6.20	12.40	21.70	1,625	
J-109	None	Zone - 13	-	-	-	-	-	-	-	
J-110	Proposed Maintenance Building	Zone - 13	-	-	4,500	3.13	6.26	10.96	1,625	
J-111	Comfort Stations	Zone - 13	5	950	4,750	3.30	6.60	11.55	0	1
J-112	None	Zone - 13	-	-	-	-	-	-	-	
J-113	Future North Residence	Zone - 13	1	10,000	10,000	6.94	13.88	24.29	2,750	
Total			78		101,384	70.42	140.84	246.48		

1) The City of Scottsdale will require no fire flow for the comfort stations per information received from the City's fire marshal.

APPENDIX A.

PRESSURE ZONE SCHEMATIC OF NORTHERN SERVICE ZONES



APPENDIX B

HYDRAULIC MODELING RESULTS – FULL BUILD-OUT

Scottsdale National Golf Club
Active Scenario: Average Day Demand
FlexTable: Junction Table

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-1EX	2,781	Zone - 13	0.00	68.8	2,940
J-2EX	2,777	Zone - 13	0.00	70.5	2,940
J-3EX	2,687	Zone - 12	0.00	68.4	2,845
J-4EX	2,700	Zone - 12	0.00	62.7	2,845
J-5EX	2,685	Zone - 12	0.00	69.2	2,845
J-7EX	2,659	Zone - 12	0.00	80.5	2,845
J-8EX	2,645	Zone - 12	0.00	86.5	2,845
J-9EX	2,660	Zone - 12	0.00	80.0	2,845
J-10EX	2,658	Zone - 12	10.42	80.9	2,845
J-11EX	2,667	Zone - 12	4.96	77.0	2,845
J-12EX	2,670	Zone - 12	4.96	75.7	2,845
J-13EX	2,667	Zone - 12	0.00	77.0	2,845
J-14EX	2,662	Zone - 12	0.00	79.2	2,845
J-100	2,677	Zone - 12	24.31	72.7	2,845
J-102	2,683	Zone - 12	0.00	70.1	2,845
J-103	2,680	Zone - 12	6.20	71.4	2,845
J-104	2,704	Zone - 12	6.20	61.0	2,845
J-109	2,771	Zone - 13	0.00	73.1	2,940
J-110	2,702	Zone - 13	3.13	103.0	2,940
J-111	2,753	Zone - 13	3.30	80.9	2,940
J-112	2,730	Zone - 13	0.00	90.9	2,940
J-113	2,760	Zone - 13	6.94	77.9	2,940

Scottsdale National Golf Club
Active Scenario: Average Day Demand
FlexTable: Pipe Table

Current Time: 0.000 hours

Label	Diameter (in)	Length (ft)	Hazen- Williams C	Zone	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-1EX	16.0	1,330.00	130.0	Zone - 13	13.37	0.02	0.0
P-2EX	16.0	1,308.00	130.0	Zone - 13	13.37	0.02	0.0
P-3EX	20.0	5,182.00	130.0	Zone - 12	13.66	0.01	0.0
P-4EX	24.0	2,712.00	130.0	Zone - 12	57.05	0.04	0.0
P-5EX	20.0	610.00	130.0	Zone - 12	57.05	0.06	0.0
P-6EX	20.0	1,318.00	130.0	Zone - 12	57.05	0.06	0.0
P-7EX	20.0	635.00	130.0	Zone - 12	46.86	0.05	0.0
P-8EX	12.0	1,274.00	130.0	Zone - 12	46.86	0.13	0.0
P-9EX	12.0	867.00	130.0	Zone - 12	24.28	0.07	0.0
P-10EX	8.0	212.00	130.0	Zone - 12	-19.32	0.12	0.0
P-11EX	8.0	949.00	130.0	Zone - 12	2.92	0.02	0.0
P-12EX	8.0	2,446.00	130.0	Zone - 12	-7.50	0.05	0.0
P-13EX	8.0	290.00	130.0	Zone - 12	-15.08	0.10	0.0
P-14EX	8.0	701.00	130.0	Zone - 12	10.19	0.07	0.0
P-15EX	6.0	739.00	130.0	Zone - 12	-10.19	0.12	0.0
P-180	8.0	233.00	130.0	Zone - 12	25.27	0.16	0.0
P-188	8.0	674.00	130.0	Zone - 12	-0.51	0.00	0.0
P-192	16.0	338.00	130.0	Zone - 13	13.37	0.02	0.0
P-194	8.0	847.00	130.0	Zone - 12	-0.45	0.00	0.0
P-195	8.0	248.00	130.0	Zone - 12	11.44	0.07	0.0
P-196	8.0	916.00	130.0	Zone - 12	5.24	0.03	0.0
P-197	8.0	1,077.00	130.0	Zone - 12	-0.96	0.01	0.0
P-199	16.0	4,880.00	130.0	Zone - 13	3.13	0.00	0.0
P-200	6.0	848.00	130.0	Zone - 13	5.68	0.06	0.0
P-201	6.0	1,500.00	130.0	Zone - 13	2.38	0.03	0.0
P-202	6.0	1,691.00	130.0	Zone - 13	2.38	0.03	0.0
P-203	6.0	2,221.00	130.0	Zone - 13	-4.56	0.05	0.0
P-Z12	24.0	1,482.00	130.0	Zone - 12	43.39	0.03	0.0

Scottsdale National Golf Club
Active Scenario: Max Day Demand
FlexTable: Junction Table

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-1EX	2,781	Zone - 13	0.00	68.8	2,940
J-2EX	2,777	Zone - 13	0.00	70.5	2,940
J-3EX	2,687	Zone - 12	0.00	68.4	2,845
J-4EX	2,700	Zone - 12	0.00	62.7	2,845
J-5EX	2,685	Zone - 12	0.00	69.2	2,845
J-7EX	2,659	Zone - 12	0.00	80.5	2,845
J-8EX	2,645	Zone - 12	0.00	86.5	2,845
J-9EX	2,660	Zone - 12	0.00	80.0	2,845
J-10EX	2,658	Zone - 12	20.84	80.9	2,845
J-11EX	2,667	Zone - 12	9.92	77.0	2,845
J-12EX	2,670	Zone - 12	9.92	75.7	2,845
J-13EX	2,667	Zone - 12	0.00	77.0	2,845
J-14EX	2,662	Zone - 12	0.00	79.2	2,845
J-100	2,677	Zone - 12	48.62	72.7	2,845
J-102	2,683	Zone - 12	0.00	70.1	2,845
J-103	2,680	Zone - 12	12.40	71.4	2,845
J-104	2,704	Zone - 12	12.40	61.0	2,845
J-109	2,771	Zone - 13	0.00	73.1	2,940
J-110	2,702	Zone - 13	6.26	103.0	2,940
J-111	2,753	Zone - 13	6.60	80.9	2,940
J-112	2,730	Zone - 13	0.00	90.8	2,940
J-113	2,760	Zone - 13	13.88	77.9	2,940

Scottsdale National Golf Club
Active Scenario: Max Day Demand
FlexTable: Pipe Table

Current Time: 0.000 hours

Label	Diameter (in)	Length (ft)	Hazen- Williams C	Zone	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-1EX	16.0	1,330.00	130.0	Zone - 13	26.74	0.04	0.0
P-2EX	16.0	1,308.00	130.0	Zone - 13	26.74	0.04	0.0
P-3EX	20.0	5,182.00	130.0	Zone - 12	27.33	0.03	0.0
P-4EX	24.0	2,712.00	130.0	Zone - 12	114.10	0.08	0.0
P-5EX	20.0	610.00	130.0	Zone - 12	114.10	0.12	0.0
P-6EX	20.0	1,318.00	130.0	Zone - 12	114.10	0.12	0.0
P-7EX	20.0	635.00	130.0	Zone - 12	93.71	0.10	0.0
P-8EX	12.0	1,274.00	130.0	Zone - 12	93.71	0.27	0.0
P-9EX	12.0	867.00	130.0	Zone - 12	48.55	0.14	0.0
P-10EX	8.0	212.00	130.0	Zone - 12	-38.63	0.25	0.0
P-11EX	8.0	949.00	130.0	Zone - 12	5.84	0.04	0.0
P-12EX	8.0	2,446.00	130.0	Zone - 12	-15.00	0.10	0.0
P-13EX	8.0	290.00	130.0	Zone - 12	-30.15	0.19	0.0
P-14EX	8.0	701.00	130.0	Zone - 12	20.39	0.13	0.0
P-15EX	6.0	739.00	130.0	Zone - 12	-20.39	0.23	0.1
P-180	8.0	233.00	130.0	Zone - 12	50.54	0.32	0.1
P-188	8.0	674.00	130.0	Zone - 12	-1.02	0.01	0.0
P-192	16.0	338.00	130.0	Zone - 13	26.74	0.04	0.0
P-194	8.0	847.00	130.0	Zone - 12	-0.90	0.01	0.0
P-195	8.0	248.00	130.0	Zone - 12	22.88	0.15	0.0
P-196	8.0	916.00	130.0	Zone - 12	10.48	0.07	0.0
P-197	8.0	1,077.00	130.0	Zone - 12	-1.92	0.01	0.0
P-199	16.0	4,880.00	130.0	Zone - 13	6.26	0.01	0.0
P-200	6.0	848.00	130.0	Zone - 13	11.35	0.13	0.0
P-201	6.0	1,500.00	130.0	Zone - 13	4.75	0.05	0.0
P-202	6.0	1,691.00	130.0	Zone - 13	4.75	0.05	0.0
P-203	6.0	2,221.00	130.0	Zone - 13	-9.13	0.10	0.0
P-Z12	24.0	1,482.00	130.0	Zone - 12	86.77	0.06	0.0

Scottsdale National Golf Club
Active Scenario: Peak Hour Demand

FlexTable: Junction Table

Current Time: 0.000 hours

Label	Elevation (ft)	Zone	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
J-1EX	2,781	Zone - 13	0.00	68.8	2,940
J-2EX	2,777	Zone - 13	0.00	70.5	2,940
J-3EX	2,687	Zone - 12	0.00	68.4	2,845
J-4EX	2,700	Zone - 12	0.00	62.7	2,845
J-5EX	2,685	Zone - 12	0.00	69.2	2,845
J-7EX	2,659	Zone - 12	0.00	80.5	2,845
J-8EX	2,645	Zone - 12	0.00	86.5	2,845
J-9EX	2,660	Zone - 12	0.00	80.0	2,845
J-10EX	2,658	Zone - 12	36.47	80.8	2,845
J-11EX	2,667	Zone - 12	17.36	76.9	2,845
J-12EX	2,670	Zone - 12	17.36	75.6	2,845
J-13EX	2,667	Zone - 12	0.00	76.9	2,845
J-14EX	2,662	Zone - 12	0.00	79.1	2,845
J-100	2,677	Zone - 12	85.08	72.6	2,845
J-102	2,683	Zone - 12	0.00	70.0	2,845
J-103	2,680	Zone - 12	21.70	71.3	2,845
J-104	2,704	Zone - 12	21.70	60.9	2,845
J-109	2,771	Zone - 13	0.00	73.1	2,940
J-110	2,702	Zone - 13	10.95	103.0	2,940
J-111	2,753	Zone - 13	11.55	80.9	2,940
J-112	2,730	Zone - 13	0.00	90.8	2,940
J-113	2,760	Zone - 13	24.29	77.8	2,940

Scottsdale National Golf Club
Active Scenario: Peak Hour Demand

FlexTable: Pipe Table

Current Time: 0.000 hours

Label	Diameter (in)	Length (ft)	Hazen- Williams C	Zone	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/1000ft)
P-1EX	16.0	1,330.00	130.0	Zone - 13	46.80	0.07	0.0
P-2EX	16.0	1,308.00	130.0	Zone - 13	46.80	0.07	0.0
P-3EX	20.0	5,182.00	130.0	Zone - 12	47.82	0.05	0.0
P-4EX	24.0	2,712.00	130.0	Zone - 12	199.68	0.14	0.0
P-5EX	20.0	610.00	130.0	Zone - 12	199.68	0.20	0.0
P-6EX	20.0	1,318.00	130.0	Zone - 12	199.68	0.20	0.0
P-7EX	20.0	635.00	130.0	Zone - 12	163.99	0.17	0.0
P-8EX	12.0	1,274.00	130.0	Zone - 12	163.99	0.47	0.1
P-9EX	12.0	867.00	130.0	Zone - 12	84.97	0.24	0.0
P-10EX	8.0	212.00	130.0	Zone - 12	-67.61	0.43	0.1
P-11EX	8.0	949.00	130.0	Zone - 12	10.21	0.07	0.0
P-12EX	8.0	2,446.00	130.0	Zone - 12	-26.26	0.17	0.0
P-13EX	8.0	290.00	130.0	Zone - 12	-52.77	0.34	0.1
P-14EX	8.0	701.00	130.0	Zone - 12	35.68	0.23	0.0
P-15EX	6.0	739.00	130.0	Zone - 12	-35.68	0.40	0.2
P-180	8.0	233.00	130.0	Zone - 12	88.45	0.56	0.2
P-188	8.0	674.00	130.0	Zone - 12	-1.78	0.01	0.0
P-192	16.0	338.00	130.0	Zone - 13	46.80	0.07	0.0
P-194	8.0	847.00	130.0	Zone - 12	-1.58	0.01	0.0
P-195	8.0	248.00	130.0	Zone - 12	40.04	0.26	0.0
P-196	8.0	916.00	130.0	Zone - 12	18.34	0.12	0.0
P-197	8.0	1,077.00	130.0	Zone - 12	-3.36	0.02	0.0
P-199	16.0	4,880.00	130.0	Zone - 13	10.95	0.02	0.0
P-200	6.0	848.00	130.0	Zone - 13	19.86	0.23	0.1
P-201	6.0	1,500.00	130.0	Zone - 13	8.31	0.09	0.0
P-202	6.0	1,691.00	130.0	Zone - 13	8.31	0.09	0.0
P-203	6.0	2,221.00	130.0	Zone - 13	-15.98	0.18	0.0
P-Z12	24.0	1,482.00	130.0	Zone - 12	151.85	0.11	0.0

Scottsdale National Golf Club
Active Scenario: Max Day Demand + Fire Flow
Fire Flow Node FlexTable: Fire Flow Report

Current Time: 0.000 hours

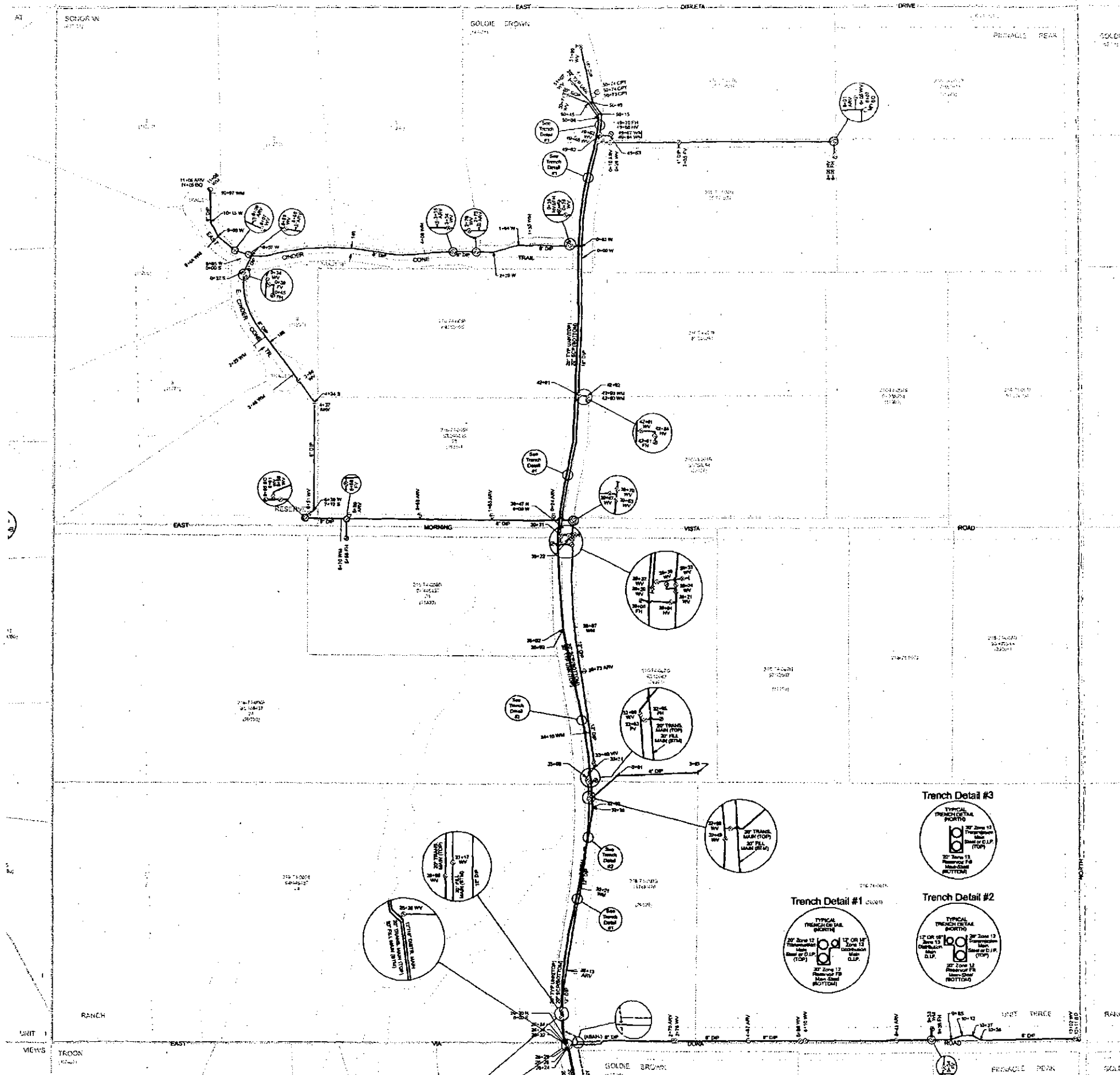
Label	Zone	Elevation (ft)	Satisfies FF?	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Press. (Calc Rsd) (psi)	Press. (Calc Zn Lw Lmt) (psi)	Junction w/ Minimum Pressure (Zone)
J-1EX	Zone - 13	2,781	True	1,500.00	5,000.00	61.6	63.4	J-2EX
J-2EX	Zone - 13	2,777	True	1,500.00	5,000.00	56.3	58.9	J-109
J-3EX	Zone - 12	2,687	True	1,500.00	5,000.00	67.7	60.3	J-104
J-4EX	Zone - 12	2,700	True	1,500.00	5,000.00	60.0	58.2	J-104
J-5EX	Zone - 12	2,685	True	1,500.00	5,000.00	65.3	57.1	J-104
J-7EX	Zone - 12	2,659	True	1,500.00	5,000.00	74.1	54.6	J-104
J-8EX	Zone - 12	2,645	True	1,500.00	5,000.00	79.0	53.5	J-104
J-9EX	Zone - 12	2,660	True	1,500.00	5,000.00	52.1	33.4	J-104
J-10EX	Zone - 12	2,658	True	2,270.84	3,516.43	30.0	42.7	J-104
J-11EX	Zone - 12	2,667	True	1,634.92	4,328.11	39.0	30.0	J-104
J-12EX	Zone - 12	2,670	True	1,634.92	4,825.23	39.0	30.0	J-104
J-13EX	Zone - 12	2,667	True	1,500.00	4,751.02	37.7	30.0	J-104
J-14EX	Zone - 12	2,662	True	1,500.00	3,862.43	30.0	44.8	J-104
J-100	Zone - 12	2,677	True	2,548.62	4,121.15	30.7	30.0	J-102
J-102	Zone - 12	2,683	True	1,500.00	3,621.34	30.0	31.9	J-104
J-103	Zone - 12	2,680	True	1,637.40	3,758.15	32.2	30.0	J-104
J-104	Zone - 12	2,704	True	1,637.40	2,762.06	30.0	53.2	J-102
J-109	Zone - 13	2,771	True	1,500.00	5,000.00	57.1	56.3	J-2EX
J-110	Zone - 13	2,702	True	1,631.26	5,006.26	61.0	56.3	J-2EX
J-111	Zone - 13	2,753	True	1,506.60	1,858.97	30.0	53.1	J-112
J-112	Zone - 13	2,730	True	1,500.00	1,531.39	30.0	42.0	J-113
J-113	Zone - 13	2,760	False	2,763.88	1,366.35	30.0	62.3	J-112

APPENDIX C

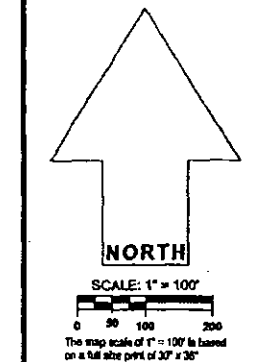
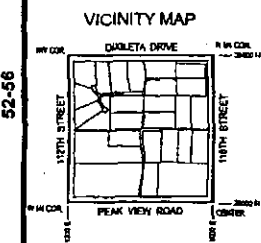
AS-BUILTS AND QUARTER SECTION MAPS

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16-NOV-14



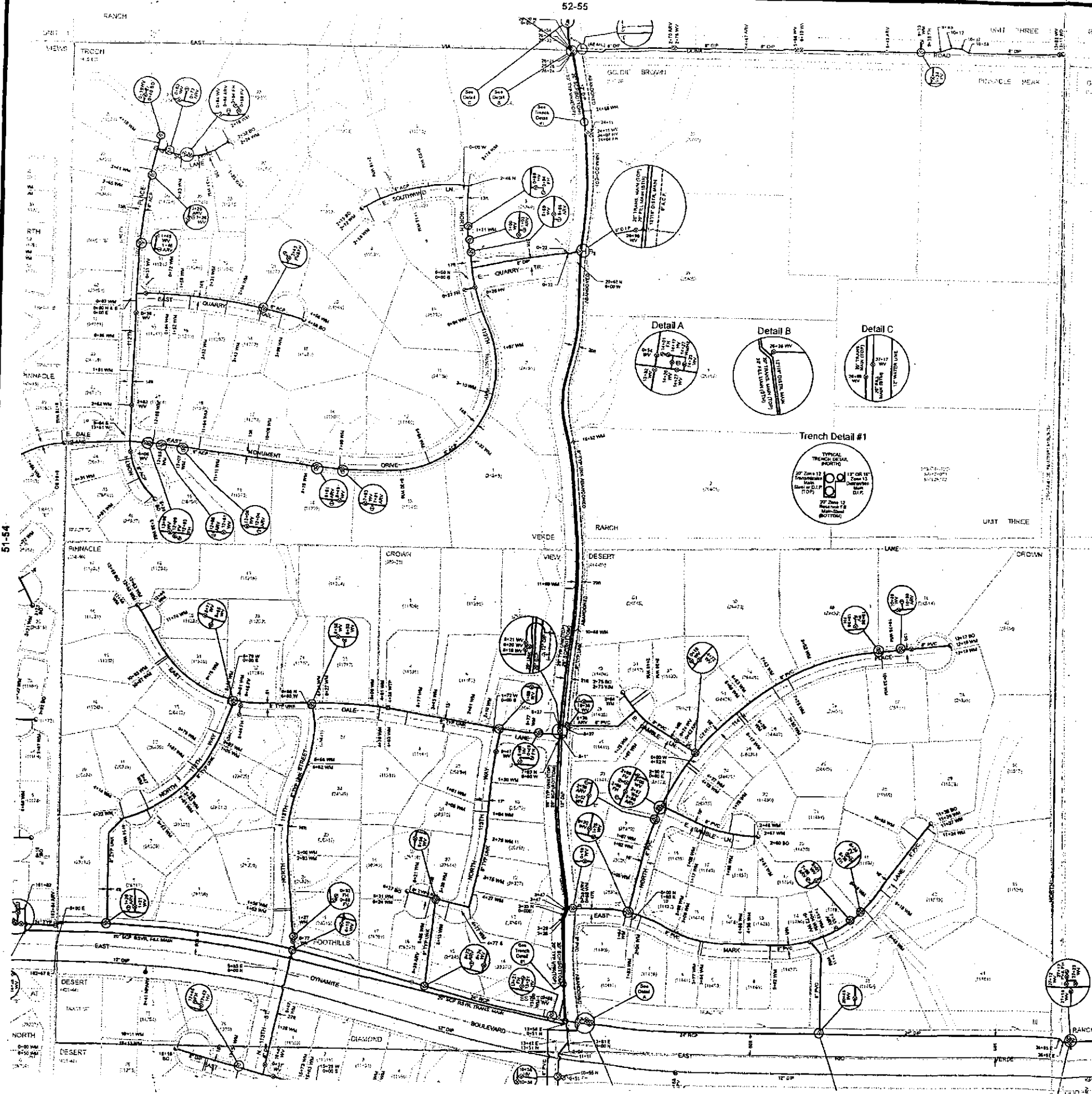
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 - THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF 2011. THE BEARINGS ARE TO THE CORNER AND DISTANCES ARE PLATTED TO CORNERS. WHERE NO CORNER WAS FOUND THE DISTANCES ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS CALCULATED ON THE MAP.
- LEGEND:
- Air Release Valve
 - Non-potable Air Release Valve
 - Blowoff
 - Cap
 - Cathodic Protection
 - Fill Drain
 - Fire Hydrant
 - Non-GPS Point
 - Pressure Reducing Valve
 - Pump
 - Reducer
 - Sample Station
 - Water Manhole
 - Non-Potable Manhole
 - Well
 - Valve
 - Non-potable Valve
 - Vault
 - Water Main
 - Non-Potable Main
 - Fire / Private Main
 - Non-Scottsdale Main
 - Not found per improvement plans
 - Not found per improvement plans and/or C.D. maps
 - Found in field no reference
 - Map Error Point



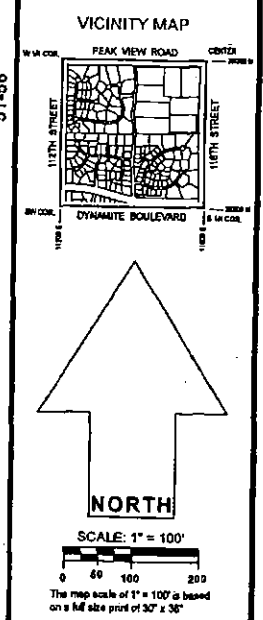
WATER
QUARTER SECTION MAP
52-55
NW 1/4 SEC. 27 T5N R5E

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
3121 North Dyer Avenue, Suite 100
Scottsdale, Arizona 85251

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THE CITY OF SCOTTSDALE
21 SEP-14



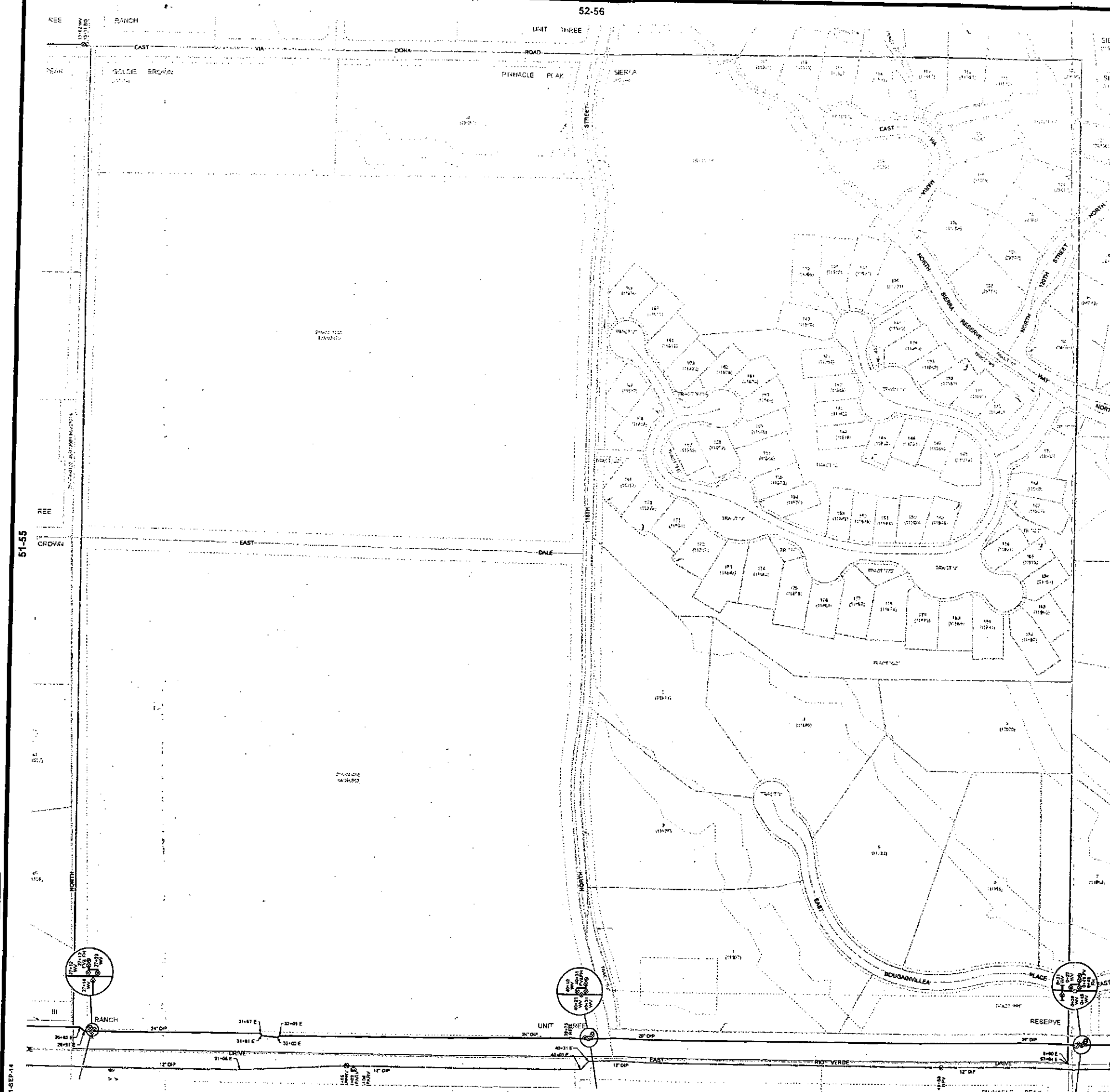
- GENERAL NOTES:**
THIS IS A COMPUTER GENERATED DRAWING FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT 1111 N. 11TH ST.
THE SECTION LINE BEARING AND DISTANCE ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF 1997. THE BEARINGS ARE HAD TO GRID AND DISTANCES ARE PLATTED TO GRID. WHERE NO CORNER WAS FOUND THE DISTANCES ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOT TO BE CALLED ON THE MAP.
- LEGEND:**
- Air Release Valve
 - Non-Portable Air Release Valve
 - Blowoff
 - Cap
 - Cathodic Protection
 - Fat Drain
 - Fire Hydrant
 - Non-GPS Point
 - Pressure Reducing Valve
 - Pump
 - Reducer
 - Sample Station
 - Water Manhole
 - Non-Portable Manhole
 - Well
 - Valve
 - Non-Portable Valve
 - Well
 - Water Main
 - Non-Portable Main
 - Fire / Private Main
 - Non-Scottsdale Main
 - Not found per improvement plans
 - Not found per improvement plans and/or O.S. maps
 - Found in field no reference
 - Map Error Point



WATER
QUARTER SECTION MAP
51-55
SW 1/4 SEC. 27 T5N R5E

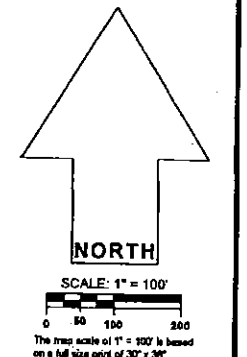
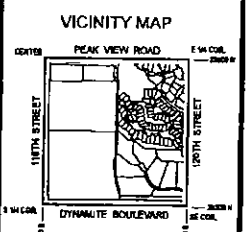
SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
3028 North Delaware Boulevard
Scottsdale, Arizona 85251

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THE CITY OF SCOTTSDALE
21-SEP-14



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THE SECTION LINE MEASUREMENTS AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE ONE SURVEY OF SEPTEMBER 1975. REVISIONS ARE MADE TO THE DISTANCES ARE PLATTED TO GROUND. WHERE NO CORRECTION WAS FOUND THE DISTANCES ARE GARY TO CALCULATED SECTION CORNERS AND ARE NOTED AS CALCULATED ON THE MAP.

- LEGEND:**
- Air Release Valve
 - Non-potable Air Release Valve
 - Blowoff
 - Cap
 - Cathodic Protection
 - Fire Drin
 - Fire Hydrant
 - Non-GPS Pole
 - Pressure Reducing Valve
 - Pump
 - Reducer
 - Sample Station
 - Water Manhole
 - Non-Potable Manhole
 - Well
 - Valve
 - Non-potable Valve
 - Vault
 - Water Main
 - Non-Potable Main
 - Fire / Private Main
 - Non-Scottsdale Main
 - Not found per improvement plans
 - Not found per improvement plans and/or Q.S. maps
 - Found in field no reference
 - Map Error Point



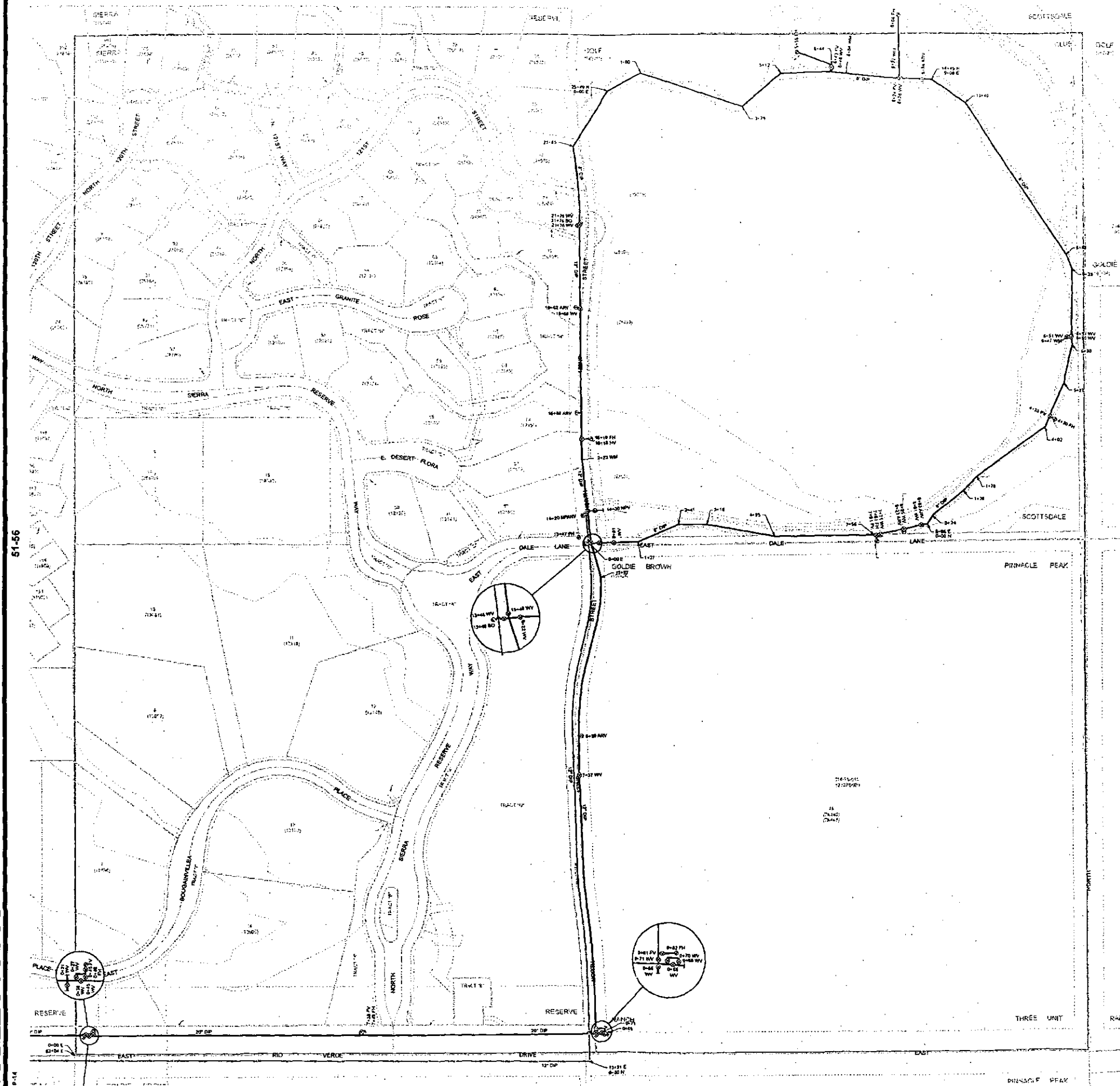
WATER
QUARTER SECTION MAP
51-56
SE 1/4 SEC. 27 T5N R5E

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
3623 North Drexler Boulevard
Scottsdale, Arizona 85251

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21-SEP-14

THE CITY OF SCOTTSDALE



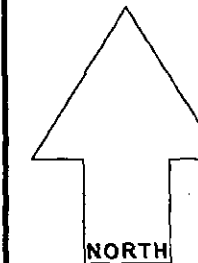
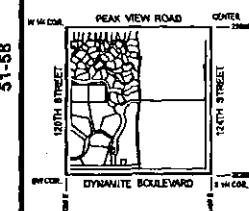
GENERAL NOTES:

THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7761.

THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER 2011. BEARINGS ARE HAD TO BE CORRECTED AND DISTANCES ARE PLATTED TO CORRESPOND WHERE NO CORRECTION WAS FOUND. THE DISTANCES ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS CALCULATED ON THE MAP.

LEGEND:	
Air Release Valve	⊙
Non-potable Air Release Valve	⊙
Blowoff	⊙
Cap	⊙
Cathode Protection	⊙
Fire Hydrant	⊙
Non-GPS Point	⊙
Pressure Reducing Valve	⊙
Pump	⊙
Reducer	⊙
Sample Station	⊙
Water Manhole	⊙
Non-Potable Manhole	⊙
Well	⊙
Valve	⊙
Non-potable Valve	⊙
Vault	⊙
Water Main	—
Non-Potable Main	—
Fire / Private Main	—
Non-Scottsdale Main	—
Not found per improvement plans	④
Not found per improvement plans under Q.S. maps	⑤
Found in best no reference	⑥
Map Error Point	⑦

VICINITY MAP



SCALE: 1" = 100'

0 60 120 240

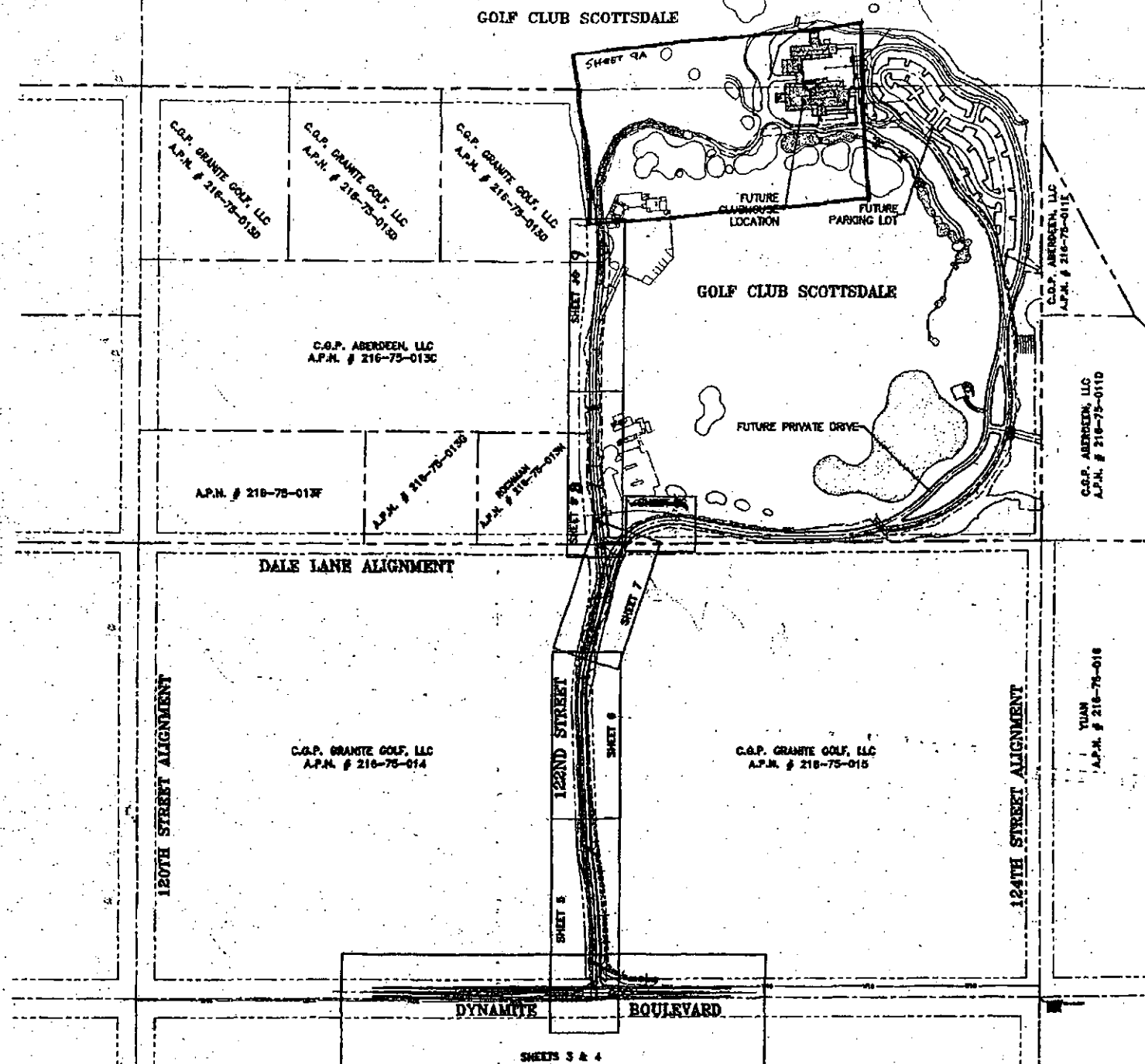
The map scale of 1" = 100' is based on a full size print of 30" x 36"

WATER
QUARTER SECTION MAP
51-57
 SW 1/4 SEC. 28 T5N R5E

SCOTTSDALE GEOGRAPHIC
 INFORMATION SYSTEMS
 3620 North Dinosaur Boulevard
 Scottsdale, Arizona 85251

OFF-SITE IMPROVEMENT PLANS FOR GOLF CLUB SCOTTSDALE SCOTTSDALE, AZ

BEING A PART OF SECTION 26, TOWNSHIP 5 NORTH, RANGE 5 EAST
OF THE G.S.R.B.&M
MARICOPA COUNTY, ARIZONA



ENGINEER

KIMLEY-HORN & ASSOCIATES
7600 N. 15TH STREET, SUITE 250
PHOENIX, ARIZONA 85020
TELEPHONE: (602) 944-5500
CONTACT: MICHAEL L. DELMARTER, P.E.

SURVEYOR

EXTREME LAND SURVEYING, INC.
P.O. BOX 31118
PHOENIX, AZ 85046
TELEPHONE: (602) 574-6171
CONTACT: MIKE JENNINGS

OWNER/DEVELOPER

C.G.P. - GRANITE GOLF, LLC
28445 N. 122ND STREET
SCOTTSDALE, ARIZONA 85262
TELEPHONE: (480) 443-8668
CONTACT: MARK ISAKSON

BENCHMARK

COS GPS# 6362
A 3/4" IRON PIN 0.3" UP
LOCATED AT THE INTERSECTION OF
136TH STREET AND RIO VERDE
ELEVATION = 2482.339
(NAD83 88 COS DATUM)

UTILITIES

WATER & SEWER CITY OF SCOTTSDALE
ELECTRIC APS
TELEPHONE QWEST
GAS SOUTHWEST GAS CO.
CABLE T.V. COX COMMUNICATIONS

SHEET INDEX:

SHEET NO.	DESCRIPTION
1	COVER SHEET W/ DRAWING INDEX
2	GENERAL NOTES SHEET
3	SIGNING AND MARKING PLAN FOR DYNAMITE BLVD.
4-10	OFF-SITE IMPROVEMENT PLANS
11-12	DETAILS

LEGEND

---	PROPERTY LINE
---	SECTION LINE
---	PROPOSED EASEMENT
---	EXISTING EASEMENT
---	PROPOSED SEWER LINE
---	EXISTING SEWER LINE
---	PROPOSED WATER LINE
---	EXISTING WATER LINE
---	PROPOSED CULVERT
---	PROPOSED LOT LINE
---	EXISTING RIGHT-OF-WAY
---	PROPOSED EDGE OF PAVEMENT
---	EXISTING EDGE OF PAVEMENT
---	EXISTING BACK OF CURB
---	PROPOSED SAWCUT
---	PROPOSED CENTERLINE
---	PROPOSED UNIT OF DISTURBANCE
---	PROPOSED GRADE BREAK
---	PROPOSED STREET SIGN AND BASE
---	PROPOSED SURVEY MONUMENT PER MAG STD DET 120-1, TYPE 'B'
---	PROPOSED MANHOLE
---	PROPOSED FIRE HYDRANT
---	EXISTING MANHOLE
---	EXISTING FIRE HYDRANT
---	PUBLIC UTILITY EASEMENT
---	RIGHT-OF-WAY
---	NON-VEHICULAR ACCESS EASEMENT
---	PROPERTY LINE
---	EDGE OF PAVEMENT
---	BACK OF CURB
---	FLOW LINE
---	PROPOSED SIDEWALK
---	CENTERLINE
---	DRAINAGE FLOW ARROW

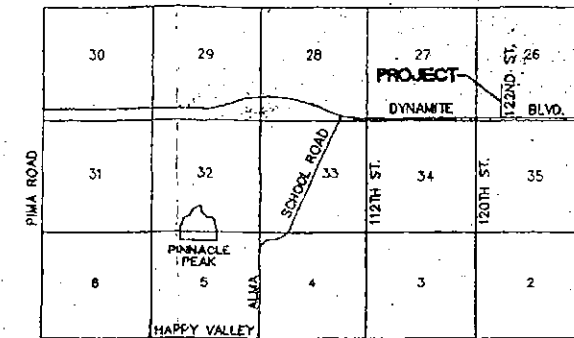
ENGINEER'S STATEMENT

THE ENGINEER OF RECORD ON THESE PLANS HAS
RECEIVED A COPY OF THE APPROVED STIPULATIONS
FOR THIS PROJECT AND HAS DESIGNED THESE PLANS
IN CONFORMANCE WITH THE APPROVED STIPULATIONS.

Michael L. Delmarter
REGISTERED CIVIL ENGINEER
9/17/03
DATE

ENGINEER'S CERTIFICATION

THE LOWEST FLOOR ELEVATIONS AND OR FLOODPROOFING ELEVATIONS 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 & FLOODPLAINS ORDINANCE.



VICINITY MAP N.T.S.

AS-BUILT CERTIFICATION:
WATER ON 122ND STREET ONLY, AND
SEWER MANHOLES 6, 7 & 8 WERE
BUILT ONLY.

Oxford Surveying, Inc.
2432 W. Peoria #110A
PHX, AZ 85029
602-876-3103



CITY OF SCOTTSDALE

REVIEW AND RECOMMENDED APPROVAL BY:

FIRE DEPT.	GRADING DRAINAGE
PLANNING	WATER & SEWER
TRAFFIC	PAVING
APPROVED BY:	
ENGINEERING COORDINATION MANAGER (OR DESIGNEE)	
DATE	

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REPRESENTATIVE	TELEPHONE NUMBER	DATE SIGNED
WATER	CITY OF SCOTTSDALE	N/A	N/A	-
SEWER	CITY OF SCOTTSDALE	N/A	N/A	-
ELECTRIC	ARIZONA PUBLIC SERVICE	MIKE CAGLIO	(602) 493-4403	06/20/03
TELEPHONE	QWEST	CHRIS LERTIQUE	(602) 630-0492	06/23/03
GAS	SOUTHWEST GAS	MARCUS WATANABE	(602) 484-5385	06/26/03
CABLE	COX COMMUNICATIONS	SUSAN HOLZER	(602) 322-7248	07/22/03

ENGINEER'S CERTIFICATION

I, MICHAEL L. DELMARTER, P.E., BEING THE PERSON RESPONSIBLE FOR DESIGNING THE
FACILITIES NECESSARY TO SERVE THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL OF THE
UTILITY COMPANIES LISTED ABOVE, HAVE REVIEWED THIS PROJECT PROPOSAL AND ALL
CONFLICTS HAVE BEEN RESOLVED AT THIS POINT. "NO CONFLICT" FORMS HAVE BEEN
OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL. I ALSO
CERTIFY THAT ALL ON-SITE TRANSFORMERS, CABLE BOXES AND ANY OTHER PUBLIC/PRIVATE
UTILITY APPURTENANCES ARE PLACED SUCH THAT THEY DO NOT NEGATIVELY IMPACT THE
USE OR INTENDED USE OF ANY DEDICATED EASEMENTS OR FACILITIES DEVELOPED WITH
THIS PROJECT, INCLUDING BUT NOT LIMITED TO, STORMWATER STORAGE BASINS, SIGHT
DISTANCE EASEMENTS AND MACS OR OTHER OPEN SPACE REQUIREMENTS.

Michael L. Delmarter
SIGNATURE
9/17/03
DATE

APPROVAL:

49214

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1255	F	JULY 19, 2001	X	N/A

KEY MAP



Kimley-Horn and Associates, Inc.
2003 KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning, and Environmental Consultants
7600 North 15th Street, Suite 250
Phoenix, Arizona 85020 (602) 944-5500

SCALE: 1/8"=1'-0"
SCALE: 1/4"=1'-0"
DESIGNED BY: SDB
DRAWN BY: SDB
CHECKED BY: MLD
DATE: 08/28/03

COVER SHEET

PROJECT NO. 59111-98-10
DRAWING NAME 35002CVO1

REVISION

DATE

APPROVED

GENERAL NOTES:

CITY OF SCOTTSDALE GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION

- ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE (C.O.S.) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE LATTER SHALL GOVERN.
- THE ENGINEERING DESIGNS ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
- APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS SHALL BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
- A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHTS-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO STARTING OF CONSTRUCTION (480-312-5750).
- WHENEVER EXCAVATION IS TO BE DONE, CALL THE "BLUE STAKE CENTER," 802-263-1100, TWO WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
- ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY UPON RECEIPT OF PAYMENT OF A BASE FEE PLUS A FEE FOR INSPECTION SERVICES TO BE PROVIDED BY THE CITY. COPIES OF ALL PERMITS SHALL BE RETAINED ON SITE AND SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE WORK STOPPAGE UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
- ALL EXCAVATION AND GRADING WHICH IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70 EXCAVATION AND GRADING OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.
- SIGNS REQUIRE SEPARATE APPROVAL AND PERMITS.

ADDITIONAL NOTES

- ALL RIP RAP SHALL BE NATIVE STONE, INDIGENOUS TO THIS SITE. RIP RAP SHALL BE PLACED SO THAT A DENSE, UNIFORM MASS OF DURABLE, ANGULAR STONES WITH NO APPARENT Voids OR POCKETS IS CONFIGURED.
- PATHS AND PUBLIC USE TRAILS SHALL BE CONSISTENT WITH SECTION 3.4 & 7.3 OF THE DESIGN STANDARDS AND POLICIES MANUAL FOR THE CITY OF SCOTTSDALE.
- ALL EXPOSED CUTS AND FILLS ALONG ROADWAYS SHALL BE ROUNDED AND CONTOURED TO BLEND WITH THE SURROUNDING NATURAL GRADE.
- ALL CONCRETE DRAINAGE STRUCTURES AND LANDSCAPE SHALL BE INTEGRALLY COLORED TO BLEND WITH THE SURROUNDING DESERT.
- ALL STORM WATER STORAGE BASINS SHALL BE CONSTRUCTED WITH THE ROADWAY IMPROVEMENTS. ACCEPTANCE OF ROADWAYS BY THE CITY SHALL BE CONTINGENT ON THE COMPLETION AND CERTIFICATION OF ALL STORM WATER STORAGE FACILITIES.
- ALL STREETS AND PRIVATE DRIVES SHALL CONFORM TO THE FIRE DEPARTMENT GUIDELINES FOR EMERGENCY VEHICLE ACCESS.
- PROVIDE A KNOX AND STROBE ACCESS SYSTEM FOR ALL GATES.
- ALL STREETS AND PRIVATE DRIVEWAYS SHALL BE DESIGNED TO A MINIMUM 100 YEAR STORM WASH CROSSING.

ENGINEERS NOTES

- A REASONABLE ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES AND MAKE THE ENGINEER AWARE, IN ADVANCE OF CONSTRUCTION.
- ALL CONCRETE EXPOSED AT GROUND SURFACE SHALL BE INTEGRALLY COLORED TO BLEND WITH THE SURROUNDING DESERT. CONTRACTOR TO SUBMIT COLOR CHARTS TO OWNER FOR APPROVAL PRIOR TO ANY COLORED CONCRETE CONSTRUCTION. NO CONCRETE SHALL BE USED IN DEDICATED N.A.O.S. AREAS.
- REFER TO THE GEOTECHNICAL EVALUATION PREPARED FOR THIS PROJECT BY WESTERN TECHNOLOGIES, INC. DATED JUNE, 2003 FOR PAVING DESIGNS, SPECIFICATIONS, SUB GRADE PREPARATION AND GEOTECHNICAL RECOMMENDATIONS.
- AREAS WITHIN THE SIGHT DISTANCE TRIANGLE ARE TO BE CLEAR OF LANDSCAPING, SIGNS, OR OTHER VISIBLE OBSTRUCTIONS BETWEEN 2 FEET AND 7 FEET IN HEIGHT AND 6 INCHES MAXIMUM WIDTH OR DIAMETER. TREES WITHIN THE SITE DISTANCE TRIANGLE SHALL HAVE A CANOPY THAT BEGINS AT 7' IN HEIGHT.
- SIGNS REQUIRE SEPARATE APPROVALS AND PERMITS.
- ALL GRADED LAND AND AREAS DISTURBED BY ROAD AND UTILITY CONSTRUCTION WILL BE REVEGETATED BY THE DEVELOPER USING NATIVE PLANT SPECIES IN APPROXIMATELY THE SAME DENSITY AS NATURAL DESERT. IRRIGATION WILL BE EITHER HAND-WATERING OR BY AN AUTOMATIC DRIP SYSTEM.
- FOR CHANNEL DISCHARGES AND DETENTION VOLUME CALCULATIONS, REFER TO "GOLF CLUB SCOTTSDALE OFFSITE FINAL DRAINAGE REPORT" PREPARED BY KIMLEY-HORN & ASSOCIATES, INC. AND "GOLF CLUB SCOTTSDALE ONSITE FINAL DRAINAGE REPORT" PREPARED BY PINNACLE ENGINEERING.

SEWER NOTES

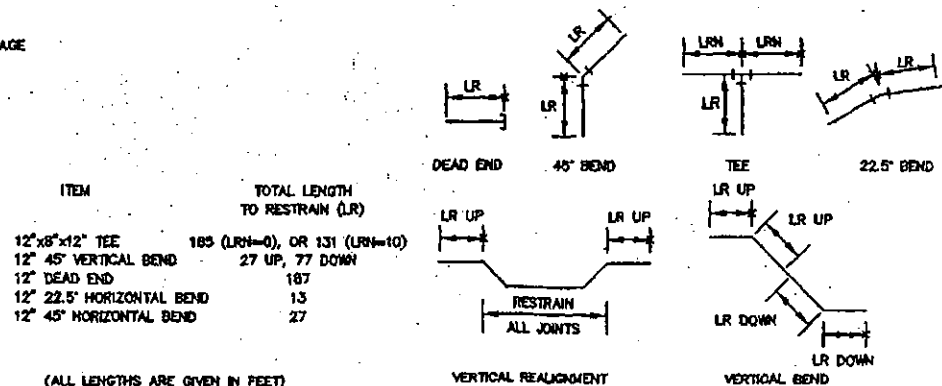
- SEWER LINE SOUTH OF THE GOLF COURSE PROPERTY IS TO BE OWNED AND MAINTAINED BY THE CITY OF SCOTTSDALE.

WATER NOTES:

- ALL TAPPING SLEEVES SHALL BE FLANGED JOINT.
- WATER METERS, WATER LINE BLOW-OFFS, MAIN LINE VALVES, AND FIRE HYDRANTS SHALL NOT BE CONSTRUCTED IN DRIVEWAYS, SIDEWALKS, WASHES, OR RETENTION AREAS.
- PACK JOINT METER STOPS OR CORP. STOPS SHALL BE USED EXCLUSIVELY.
- WATER LINES SHALL BE DISINFECTED IN STRICT CONFORMANCE WITH MAG STANDARD SPECIFICATION #611.9. MAG #611.9 IS HERETOBY AMENDED AS FOLLOWS:
"DRY POWDERED CALCIUM-HYPOCHLORITE COMPOUNDS SHALL NOT BE PLACED WITHIN PIPELINES DURING CONSTRUCTION."
- NOTIFY THE CITY'S FIELD ENGINEERING REPRESENTATIVE AT 480-312-5750 WHEN READY TO HAVE SAMPLES TAKEN TO DETERMINE WHETHER DISINFECTION HAS BEEN ADEQUATE. SAMPLES ARE COLLECTED BY THE WATER AND WASTEWATER OPERATIONS DIVISION ON MONDAYS AND WEDNESDAYS ONLY.
- WATER SERVICE LINE CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF SCOTTSDALE STANDARD DETAIL #2330.
- TRENCHING, BACKFILLING, AND COMPACTING SHALL BE IN ACCORDANCE WITH THE UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, MARICOPA ASSOCIATION OF GOVERNMENTS (MAG), SECTION 601 (LATEST REVISION). ALL BACK FILL WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE TYPE 1 UNLESS OTHERWISE NOTED. COMPACTION TESTING WILL BE AS REQUIRED BY THE CITY'S FIELD ENGINEERING MANAGER OR HIS/HER AUTHORIZED REPRESENTATIVE.
- FOR ALL DUCTILE IRON PIPE INSTALLATIONS, SOIL CORROSION TESTS SHALL BE CONDUCTED EVERY 1,000 FEET ALONG THE PROPOSED PIPELINE ROUTE. TESTING PROCEDURES SHALL BE CONDUCTED AND REPORTED IN ACCORDANCE WITH THE AMERICAN DUCTILE IRON PIPE RESEARCH ASSOCIATION. REPORTS SHALL BE FILED WITH THE CITY.
- THE INSIDE OF ALL GATE VALVES AND BUTTERFLY VALVES SHALL BE EPOXY COATED PER MAG SPECIFICATIONS FOR GATE VALVES.
- GATE VALVES SHALL BE PROVIDED WITH LOW-ZINC STEMS.
- ELECTRONIC LOCATORS SHALL BE A SELF-LEVELING TYPE, SHALL OPERATE AT A FREQUENCY OF 145.70KHz, AND SHALL BE CAPABLE OF DETECTION TO A DEPTH OF 4 FEET.
- ALL JOINT RESTRAINT FITTINGS FOR VALVES, FIRE HYDRANTS, TEES, CROSSES, CORP. STOPS, VERTICAL REALIGNMENTS, AND BENDS TO INCORPORATE "MEG-A-LUG" JOINT RESTRAINT OR C.O.S. APPROVED EQUIVALENT. SEE JOINT RESTRAINT TABLE ON THIS SHEET.
- DUCTILE IRON PIPE SHALL BE POLYETHYLENE WRAPPED.
- IN ACCORDANCE WITH AAC R18-4-119, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME IN CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.
- PROVIDE A LOOPED WATER MAIN SYSTEM FOR ALL PHASES OF DEVELOPMENT.

SIGNING AND STRIPING NOTES:

- ALL PAVEMENT MARKINGS, SIGNING, AND CONSTRUCTION SHALL CONFORM TO ARIZONA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS AND SPECIFICATIONS UNLESS OTHERWISE SPECIFIED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST EDITION.
- TRAFFIC CONTROL SHALL CONFORM TO THE CITY OF PHOENIX "TRAFFIC BARRICADE MANUAL" AND/OR AS DIRECTED BY THE CITY PUBLIC WORKS INSPECTOR.
- SIGNS SHALL BE INSTALLED ON TELESPAR POSTS PER COS STANDARD DETAIL NO. 2131.
- ALL SIGNS THAT ARE REMOVED AND NOT REINSTALLED SHALL BE SALVAGED AND DELIVERED TO THE CITY OF SCOTTSDALE CORPORATION YARD AT 9191 E. SAN SALVADOR (SCOTTSDALE).
- ALL LANE STRIPPING, CROSSWALKS, AND CHEVRONS SHALL BE 0.060" (60 ML) HOT-SPRAYED THERMOPLASTIC, UNLESS NOTED OTHERWISE ON THE PLANS.
- ALL PAVEMENT SYMBOLS, ARROWS AND LEGENDS SHALL BE TYPE-1 PREFORMED PAVEMENT MARKINGS.
- RAISED PAVEMENT MARKERS (RPM'S) SHALL BE USED ON ALL STRIPED STREETS. (RPM'S) SHALL BE INSTALLED PER COS STANDARD DETAIL NO. 2132 AND ADOT STANDARD DRAWING 4-M-2.02, WITH CITY APPROVED BITUMINOUS ADHESIVE.
- ALL EXISTING PAVEMENT MARKINGS WHICH CONFLICT WITH PROPOSED MARKINGS SHALL BE REMOVED BY SANDBLASTING, HYDROBLASTING, OR GRINDING PRIOR TO THE INSTALLATION OF NEW PAVEMENT MARKINGS. REMOVALS SHALL BE TO THE SATISFACTION OF THE CITY INSPECTOR.
- "NO PARKING" SIGNS (R5-3a) WITH DOUBLE ARROW (OR DOUBLE ARROW PLAQUE) SHALL BE INSTALLED OR REINSTALLED APPROXIMATELY EVERY 350-400 FEET ALONG THE LENGTH OF THE PROJECT, APPROXIMATELY 5 FEET FROM THE BACK OF CURB, ANGLED 45 DEGREES FROM THE ROADWAY. BAND TO STREET LIGHT POLES WHEN FEASIBLE.



JOINT RESTRAINT TABLE FOR DUCTILE IRON PIPE WITH POLYETHYLENE WRAP

TABLE OF QUANTITIES

OFF-SITE

PAVING QUANTITIES			
PREFORMED PAVEMENT LEGEND "ARROW"	1	EA	
PREFORMED PAVEMENT LEGEND "ONLY"	1	EA	
4" YELLOW STRIPE	1850	LF	
8" YELLOW STRIPE	285	LF	
6" WHITE STRIPE	2025	LF	
8" WHITE STRIPE	110	LF	
4" AC/4" ABC/6" SELECT	1372	SY	
2.5" AC/7" ABC	3479	SY	
2.5" AC/4" ABC	1869	SY	
18" RIBBON CURB	3050	LF	
VERTICAL CURB & GUTTER	80	LF	
SURVEY MONUMENTS	9	EA	
FIRE HYDRANT MARKERS	2	EA	
STOP/STREET SIGN & BASE	2	EA	
CUT	3150	CY	
FILL	6220	CY	
SAWCUT	2098	LF	
THICKENED EDGE PAVEMENT	2022	LF	

SANITARY SEWER QUANTITIES

8" PVC SANITARY SEWER	1513	LF
4" DIA. MANHOLES	7	EA

WATER LINE QUANTITIES

8" DIP PIPE	335	LF
8" GATE VALVES	4	EA
12" DIP PIPE	2120	EA
12" GATE VALVES	9	EA
2" AIR RELEASE VALVES	9	EA
CONNECT TO EXISTING WATER LINE	1	EA
12" x 8" TEE	3	EA
12" BENDS	4	EA
8" BENDS	4	EA
8" TAPPED CAP END	4	EA
FIRE HYDRANT COMPLETE W/ 6" DIP	2	EA

STORM SEWER QUANTITIES

36" ROROP CULVERT	244	LF
24" ROROP CULVERT	120	LF
HEADWALLS (U TYPE)	12	EA
RIP RAP D50 = 8"	40	SY
RIP RAP D50 = 9"	210	SY
RIP RAP D50 = 12"	130	SY

THE QUANTITIES SHOWN HEREON ARE AN ESTIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES BEFORE BIDDING.

ROAD CENTERLINE DATA

122ND STREET CENTERLINE STRAIGHT LINE DATA						
LINE	START NORTHING	START EASTING	END NORTHING	END EASTING	BEARING	LENGTH
L1	997290.68	730218.36	997448.13	730212.61	N 01°53'33" W	167.56'
L2	997772.97	730182.76	998115.73	730168.57	N 02°21'35" W	343.05'
L3	998285.01	730183.67	998447.08	730219.75	N 12°33'08" E	186.05'
L4	998347.82	730225.43	998598.18	730229.05	N 08°08'28" W	50.56'
MAINTENANCE ROAD CENTERLINE STRAIGHT LINE DATA						
L5	998598.18	730220.05	998550.60	730193.05	N 08°08'28" W	253.88'
L6	998574.59	730191.64	998450.59	730185.18	N 08°38'34" W	576.23'

122ND STREET CENTERLINE CURVE DATA				
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	1730.11'	199.78'	199.67'	N05°12'21" W
C2	1178.63'	126.62'	126.56'	S05°24'13" E
C3	884.85'	170.43'	169.95'	S05°05'45" E
C4	311.50'	101.44'	100.99'	N03°13'20" E
MAINTENANCE ROAD CENTERLINE CURVE DATA				
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C5	250.00'	23.84'	23.83'	S03°22'29" E
				Δ 52°27'51"

GOLF CLUB SCOTTSDALE OFF-SITE IMPROVEMENT PLANS

PROJECT NO.
091360002
DRAWING NAME
38002NT01

Kimley-Horn
and Associates, Inc.
7800 North 15th Street, Suite 250
Phoenix, Arizona 85020-1500
(602) 844-5500
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Engineering, Planning, and
Environmental Consultants

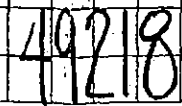
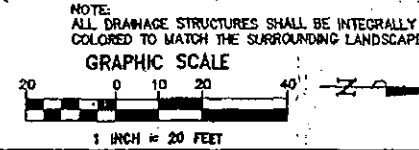
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DESIGNED BY: BJB
DRAWN BY: BJB
CHECKED BY: MLD
DATE: 12/02/2003

NOTE SHEET

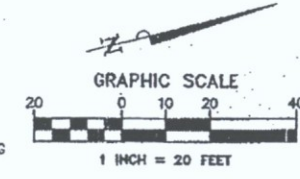
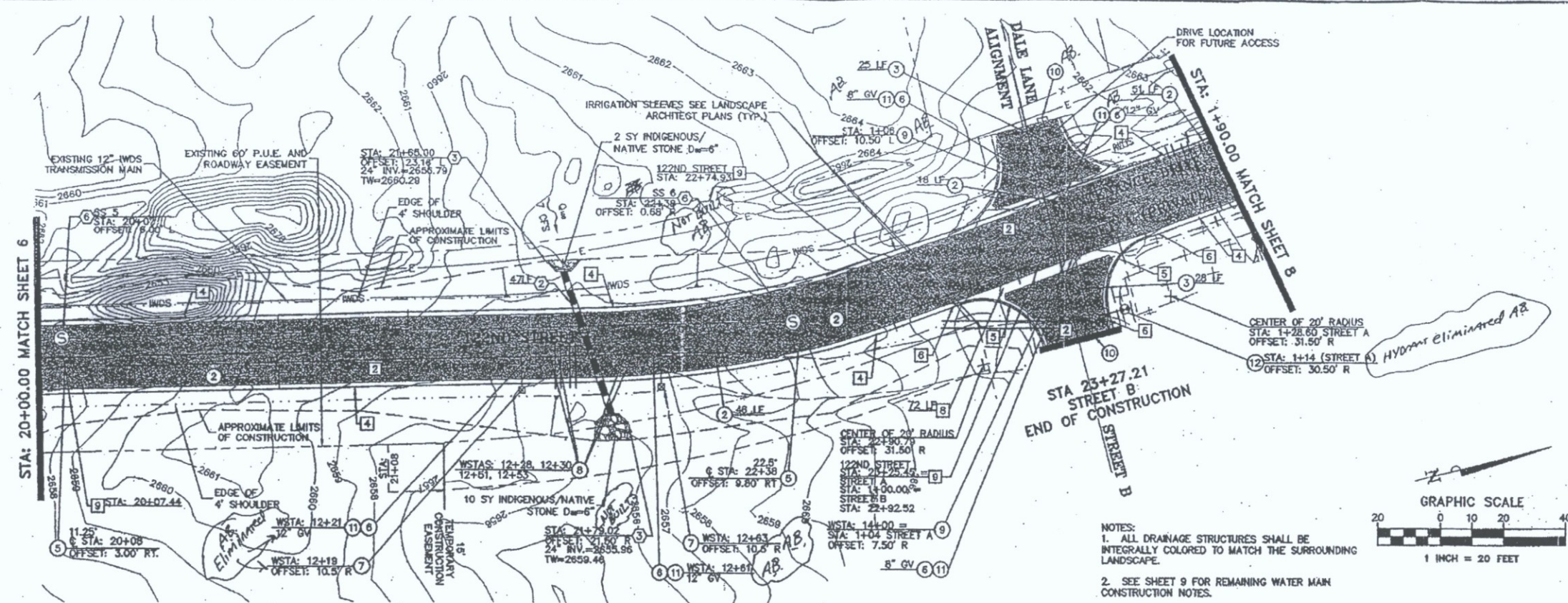
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ASE #: 23-DR-2003 PLAN CHECK NO. 5911-98-10 MASTER PLAN NO. 2-MP-1998 NATIVE PLANT #: 72980 & 27 NP 2002

49215



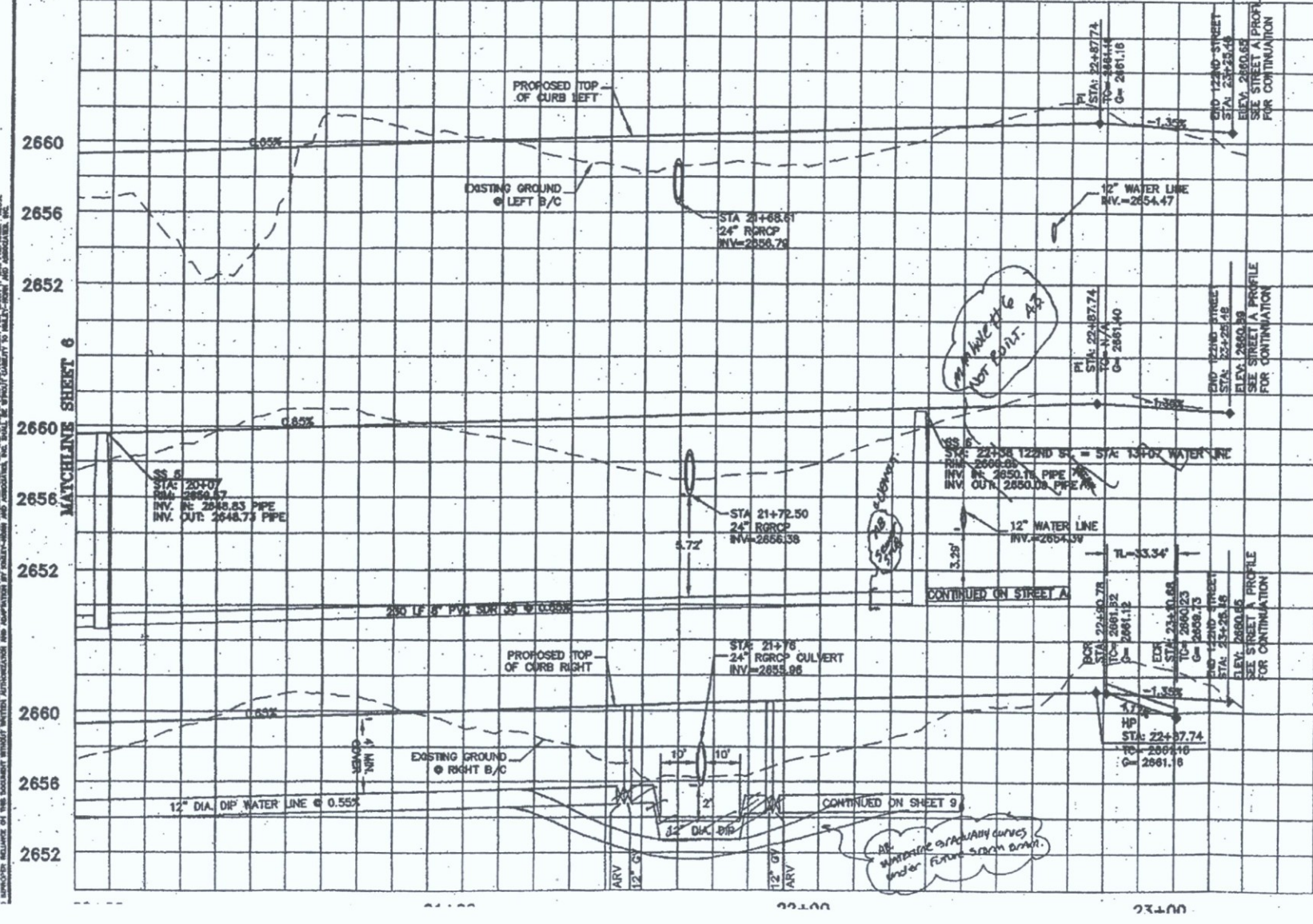
- 4 18" RIBBON CURB AND GUTTER PER MAG STD. DTL. 220 TYPE B.
- 6 VERTICAL CURB AND GUTTER PER MAG STD. DTL. 220 TYPE A.
- 8 CONSTRUCT CURB TRANSITION PER MAG STD. DTL. 221.
- 7 CONSTRUCT 8 FOOT WIDE CURB OPENING FOR DRAINAGE BY TRANSITIONING FROM VERTICAL CURB TO RIBBON CURB IN 2.5 FEET.
- 8 CONSTRUCT VERTICAL GUTTER PER MAG STD. DTL. 240 (L AS SHOWN ON PLANS).
- 9 INSTALL SURVEY MARKER PER MAG STD. DTL 120-2 TYPE D.
- 10 INSTALL STOP SIGN AND SIGN BASE PER C.O.S. STD. DTLS. 2131, 2134 AND 2135.
- 11 INSTALL THICKENED EDGE PAVEMENT PER MAG STD. DTL. 201 TYPE B (L F AS SHOWN ON PLANS).
- 12 SAW CUT, REMOVE AND REPLACE ASPHALT PAVEMENT PER C.O.S. STD. DTL. 220D.



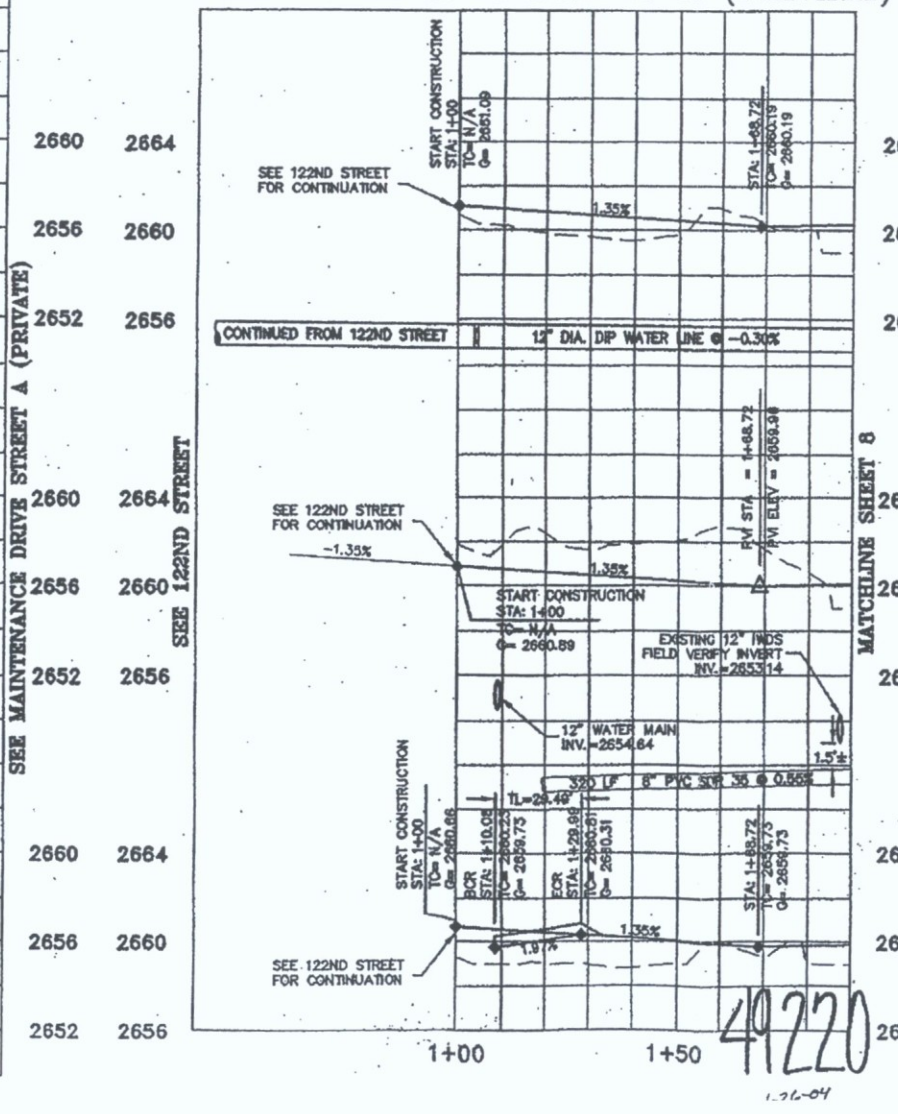
NOTES:
1. ALL DRAINAGE STRUCTURES SHALL BE INTEGRALLY COLORED TO MATCH THE SURROUNDING LANDSCAPE.
2. SEE SHEET 9 FOR REMAINING WATER MAIN CONSTRUCTION NOTES.

- ### WATER NOTES
- REMOVE EXISTING CAP AND CONNECT PROPOSED WATER LINE TO EXISTING 12" STUB.
 - INSTALL POLYWRAPPED 12" D.I.P. CLASS 350 WATER MAIN.
 - INSTALL POLYWRAPPED 8" D.I.P. CLASS 350 WATER MAIN.
 - INSTALL 45° OR 90° D.I.P. BEND AND PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1.2 AND BALL MARKER PER COS DTL. 2397.
 - INSTALL 11 1/2" OR 22" D.I.P. BEND AND PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1.2 AND BALL MARKER PER COS DTL. 2397.
 - INSTALL GATE VALVE, VALVE BOX, AND COVER PER MAG STD. DTL. 391-1, TYPE C WITH LOCKING LID. ALL VALVES SHALL BE INSTALLED WITH DEBRIS CAPS. (SIZE AS SHOWN ON PLAN)
 - 2" AIR RELEASE VALVE PER C.O.S. STANDARD DETAIL 2348.
 - INSTALL VERTICAL REALIGNMENT PER COS STD. DTL. 2370 WITH JOINT RESTRAINTS PER MAG SPEC. 750.3 AND MAG STANDARD DETAILS 303-1 AND 303-2.
 - INSTALL RESTRAINTS 7' MINIMUM BEYOND 45° BENDS. PROVIDE 2' MINIMUM CLEARANCE BETWEEN TOP OF WATER LINE AND BOTTOM OF CULVERTS. (SEE PROFILE)
 - INSTALL 12" X 8" D.I.P. TEE. PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1 AND 303-2.
 - INSTALL 8" X 2" TAPPED CAP END PER MAG STD. DTL. 390 TYPE B. PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1 AND 303-2.
 - ADJUST WATER VALVE BOX AND COVER TO GRADE PER COS DTL. 2270.
 - INSTALL FIRE HYDRANT ASSEMBLY PER MAG STD. DTL. 380 AND USE FLANGED JOINT BETWEEN VALVE AND TEE.
- ### DRAINAGE NOTES
- INSTALL 36" DIA. RGRCP CULVERT (LF AS SHOWN).
 - INSTALL 24" DIA. RGRCP CULVERT (LF AS SHOWN).
 - INSTALL TYPE U PIPE HEADWALL FOR 24" DIA. PIPE PER MAG STD. DTL. 501-1.
 - INSTALL TYPE U PIPE HEADWALL FOR 36" DIA. PIPE PER MAG STD. DTL. 501-1.
- ### SEWER NOTES
- 48" SANITARY SEWER MANHOLE PER MAG STD. DTL. 420 WITH TYPE A TOP AND WATER STOP GASKETS. ADJUST RM PER COS STD. DTL. 2270.
 - 60" SANITARY SEWER MANHOLE PER MAG STD. DTL. 420 WITH TYPE A TOP, WATER STOP GASKETS AND EXCLUDING STEPS. ADJUST RM PER COS STD. DTL. 2270.
 - INSTALL 8" PVC SDR 35 PER COS STD DTL. 2201.
- ### PAVING NOTES
- CONSTRUCT 4" AC ON 4" ABC ON 6" SELECT MATERIAL OR MATCH EXISTING PAVEMENT (WHICHEVER IS THICKER).
 - CONSTRUCT 2.5" AC ON 6" ABC.
 - CONSTRUCT 2.5" AC ON 6" ABC.
 - 18" RUBBER CURB AND GUTTER PER MAG STD. DTL. 220 TYPE B.
 - VERTICAL CURB AND GUTTER PER MAG STD. DTL. 220 TYPE A.
 - CONSTRUCT CURB TRANSITION PER MAG STD. DTL. 221.
 - CONSTRUCT 5 FOOT WIDE CURB OPENING FOR DRAINAGE BY TRANSITIONING FROM VERTICAL CURB TO RUBBER CURB IN 2.5 FEET.
 - CONSTRUCT VALLEY GUTTER PER MAG STD. DTL. 240 (LF AS SHOWN ON PLANS).
 - INSTALL SURVEY MARKER PER MAG STD. DTL. 120-2 TYPE D.
 - INSTALL STOP SIGN AND SIGN BASE PER C.O.S. STD. DTL. 2131, 2134 AND 2135.
 - INSTALL THICKENED EDGE PAVEMENT PER MAG STD. DTL. 201 TYPE B (LF AS SHOWN ON PLANS).
 - SAW CUT, REMOVE AND REPLACE ASPHALT PAVEMENT PER C.O.S. STD. DTL. 2200.

122ND STREET



MAINTENANCE DRIVE STREET A (PRIVATE)



GOLF CLUB SCOTTSDALE

122ND STREET / OFF-SITE IMPROVEMENT PLANS

602-263-1100
1-800-STREET-IT

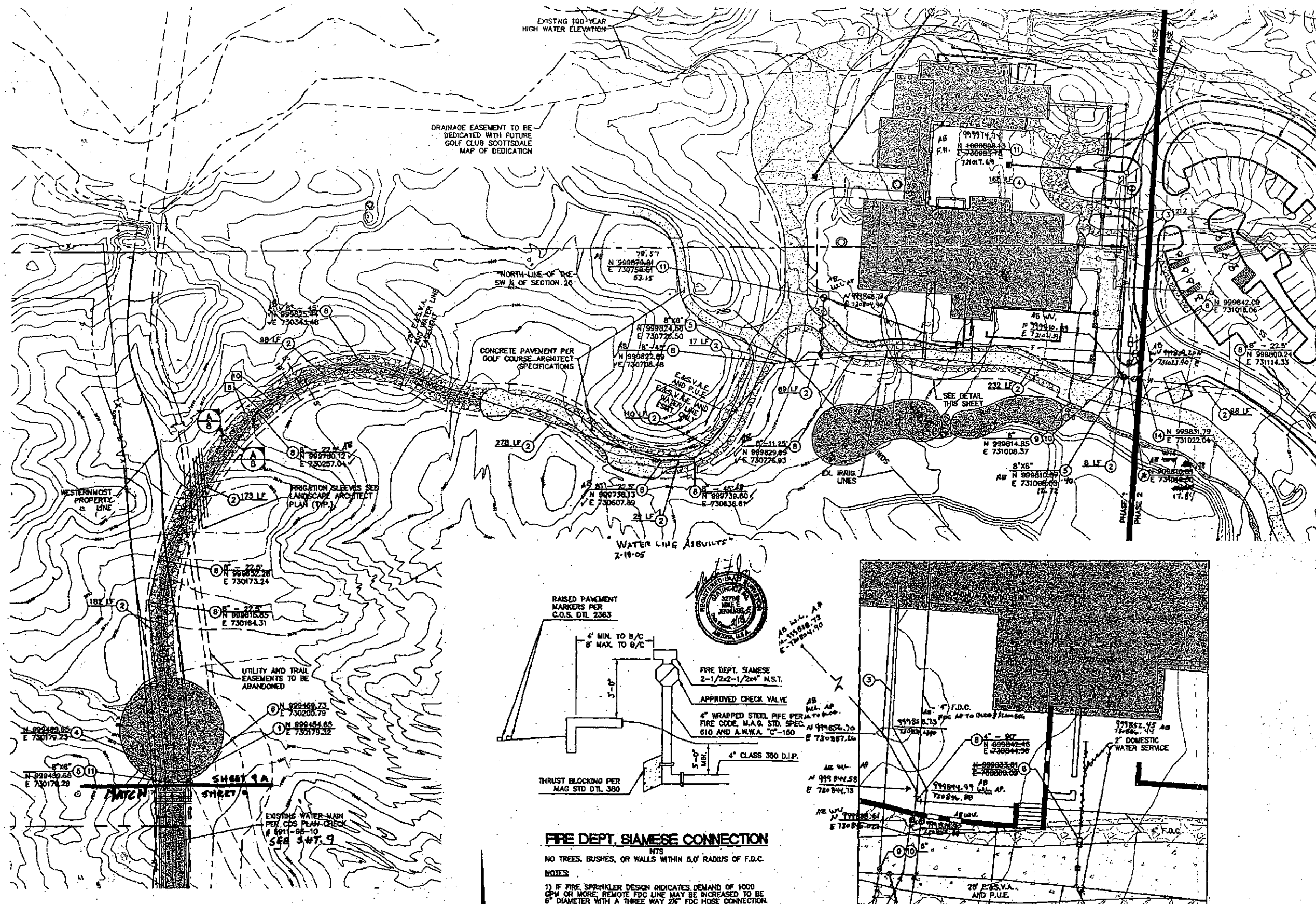
Kimley-Horn and Associates, Inc.
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Engineering, Planning, and Environmental Consultants
7600 North 15th Street, Suite 250
Phoenix, Arizona 85020 (602) 844-8900

DESIGNED B.B.	DRAWN B.B.	CHECKED M.D.
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SCALE (H): 1"=20'
SCALE (V): 1"=4'

DATE: 12/02/2003
PROJECT NO: 091360002
SHEET NO: 7

ASE # 23-DR-2003 PLAN CHECK NO. 5911-98-10 MASTER PLAN NO. 2-MP-1998 NATIVE PLANT # 72980 & 27 NP 2002



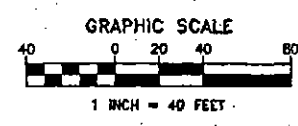
- WATER NOTES**
1. REMOVE EXISTING CAP AND CONNECT PROPOSED WATER LINE TO EXISTING 6" STUB.
 2. INSTALL 6" DIA. D.I.P. WATER LINE.
 3. INSTALL 6" DIA. D.I.P. -CL 350 FIRELINE. MIN. 3'-0" OF COVER.
 4. INSTALL 2" DOMESTIC WATER SERVICE AND METER PER COS STD. DTL. 2330.
 5. INSTALL TEE AND PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1 AND 303-2. (SIZE AS SHOWN)
 6. INSTALL 2" REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY PER COS STD. DTL. 2354.
 7. INSTALL 6" BACKFLOW PREVENTOR PER COS STD. DTL. 2351.
 8. INSTALL D.I.P. BEND (DEGREE AS SHOWN) AND PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1 AND 303-2.
 9. INSTALL GATE VALVE, VALVE BOX AND COVER PER MAG STD. DTL. 391-1. ALL VALVES SHALL BE INSTALLED WITH DEBRIS CAPS PER MAG STD. DTL. 382 AND HAVE APPROPRIATE BLOCKING PER MAG STD. DTL. 301. (SIZE AS SHOWN)
 10. ADJUST WATER VALVE BOX AND COVER TO GRADE PER MAG STD. DTL. 391-1 AND 391-2.
 11. INSTALL FIRE HYDRANT COMPLETE PER MAG STD. DTL. 380.
 12. INSTALL 2" AIR RELEASE VALVE PER C.O.S. STANDARD DETAIL 2348.
 13. INSTALL DIPPED SECTION D.I.P. WATER LINE WITH JOINT RESTRAINTS PER MAG SPEC. 750.3 AND MAG STANDARD DETAILS 303-1 AND 303-2. PROVIDE MINIMUM CLEARANCES BETWEEN WATER LINE AND SEWERS PER MAG STD. DTL. 404-1 AND 404-2.
 14. INSTALL 2 1/2" X 1/2" X 1/2" N.S.T. FIRE DEPARTMENT CONNECTION, WITH C.O.S. STD. DTL. 2363 MARKERS.
 15. INSTALL 6" X 2" TAPPED CAP END PER MAG STD. DTL. 380 TYPE B. PROVIDE RESTRAINED JOINTS PER MAG STD. DTL. 303-1 AND 303-2.
- STORM DRAIN NOTES**
- CONSTRUCT 8"x3" CONCRETE BOX CULVERT PER ADOT STD. DET. B-02.20 (IF AS SHOWN ON PLANS). HEADWALL AND WINGS PER ADOT STD. DET. B-04.70. INSTALL HANDRAIL PER COS STD. DET. 2508.
1. INSTALL ADS N-12 HDPE STORM DRAIN, OR EQUAL (SIZE AND LENGTH AS SHOWN).
 2. INSTALL 6" PVC SDR 35 PIPE (LF AS SHOWN).
 3. INSTALL CATCH BASIN TYPE "F" PER MAG STD. DTL. 535.
 4. INSTALL 12 LF TRENCH DRAIN PER HENKAM R-4888-A2 WITH GRATED COVER (OR EQUAL).
 5. INSTALL STORM DRAIN CLEANOUT PER MAG STD. DTL. 441 (MODIFIED TO STORM DRAIN SIZE).
 6. INSTALL "U" TYPE HEADWALL FOR SINGLE PIPE PER MAG STD. DTL. 601-1.
 7. INSTALL NATIVE INDIGENOUS STONE D50-9" PER DETAIL WITHIN THESE PLANS (SQUARE YARDAGE AS SHOWN).
- SEWER NOTES**
- INSTALL 6" VCP SANITARY SEWER AT A MINIMUM GRADE OF 2.08%.
- INSTALL CLEANOUT PER MAG STD. DTL. 441.
- PAVING NOTES**
1. CONSTRUCT 6" PCC CONCRETE PAVEMENT.
 2. CONSTRUCT 12" REBORN CURB AND GUTTER PER MAG STD. DTL. 220 TYPE B ONLY HALF AS WIDE (INTEGRALLY COLORED).
 3. CONSTRUCT 18" REBORN CURB AND GUTTER PER MAG STD. DTL. 220 TYPE B (INTEGRALLY COLORED).
 4. CONSTRUCT 24" ROLL CURB AND GUTTER PER MAG STD. DTL. 220 TYPE C (INTEGRALLY COLORED).
 5. CONSTRUCT 6" VERTICAL CURB AND GUTTER PER MAG STD. DTL. 222 TYPE A (INTEGRALLY COLORED).
 6. CONSTRUCT 5" CURB TRANSITION PER MAG STD. DTL. 221.
 7. CONSTRUCT VALLEY GUTTER PER MAG STD. DTL. 240 (IF AS SHOWN ON PLANS).
 8. CONSTRUCT 6" DECOMPOSED GRANITE.
 9. INSTALL FIRE HYDRANT PAVEMENT MARKER PER COS STD. DTL. 2363.
 10. CONSTRUCT 2.5" AC ON 8" ABC.
 11. CONSTRUCT 2.5" AC ON 6" ABC.
- GOLF CLUB SCOTTSDALE
122ND STREET / ON-SITE
IMPROVEMENT PLANS
CLUBHOUSE UTILITY PLAN**
- Kimley-Horn
and Associates, Inc.**
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Engineering, Planning, and
Environmental Consultants
7600 North 10th Street, Suite 250
Phoenix, Arizona 85020 (602) 844-5500
- DESIGNED: BJS
DRAWN: BJS
CHECKED: MLD
- SCALE (H):
SCALE (V):
DATE: 11/5/2004
PROJECT NO. 001360002
SHEET NO. 9A
- 49223
602-263-1100

FIRE DEPT. SIAMESE CONNECTION

NTS
NO TREES, BUSHES, OR WALLS WITHIN 5.0' RADIUS OF F.D.C.
NOTES:

- 1) IF FIRE SPRINKLER DESIGN INDICATES DEMAND OF 1000 GPM OR MORE, REMOVE FDC LINE MAY BE INCREASED TO BE 6" DIAMETER WITH A THREE WAY 2 1/2" FDC HOSE CONNECTION.
- 2) PROVIDE AN APPROVED VERTICAL CHECK BACKFLOW ASSEMBLY IN THE FIRE SPRINKLER RISER.
- 3) THE FIRE SPRINKLER RISER SHALL BE NO GREATER THAN 3 FEET INTO THE BUILDING.

NOTE:
SANITARY SEWER SYSTEM SHOWN IS FOR
REFERENCE ONLY. FINAL DESIGN OF GREASE TRAP,
HOLDING TANKS AND LEACH FIELD BY OTHERS.

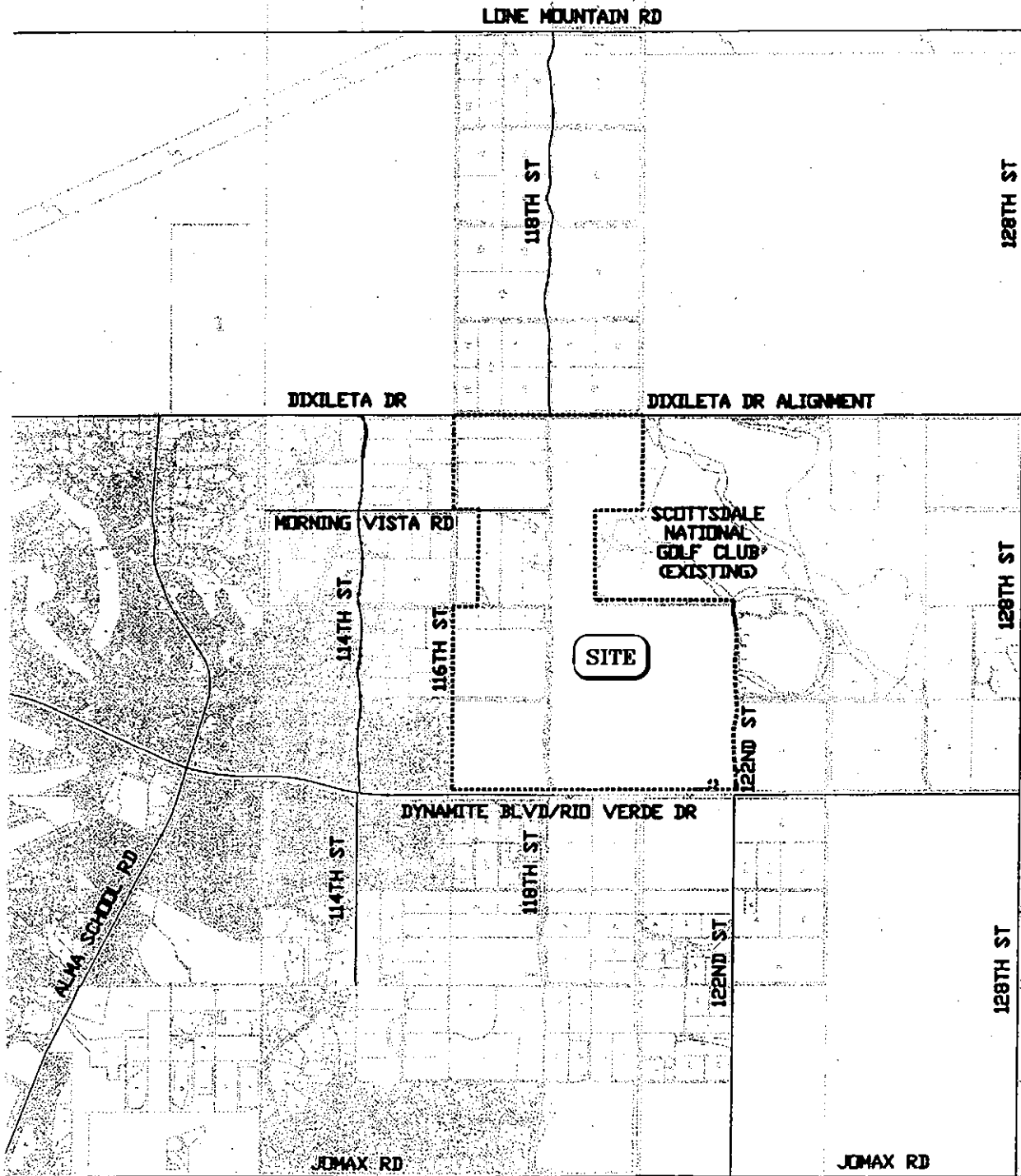


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MASTER PLAN NO. 2-MP-1998
PLAN CHECK NO. S811-98-14
23-DR-2003

EXHIBIT 1

VICINITY MAP



N.T.S.

----- Property Boundary

SCOTTSDALE NATIONAL
GOLF CLUB

PLATE 1
VICINITY MAP

WOOD/PATEL
2051 W. Northern Ave.
Phoenix, AZ 85021
(602) 315-8500
www.woodpatel.com
H0000 - 10/00 - 11/00
JOB NO. 144147

EXHIBIT 2

MASTER WATER EXHIBIT – FULL BUILD-OUT

Storage Tank T-143
BPS #143
ZONE 12 - 2 ZONE 13

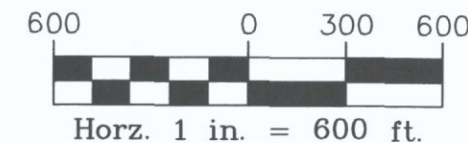
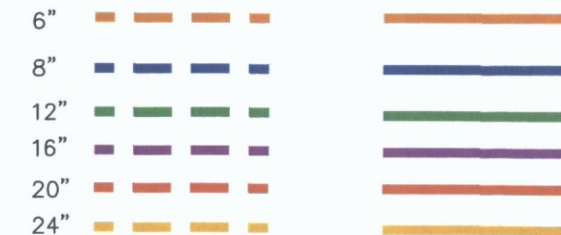
LEGEND

- J1 Hydraulic Model Junction Node
- P1 Hydraulic Model Pipe
- Pressure Zone Boundary = 2,700 Feet

Property Boundary

EXISTING

PROPOSED



NOT FOR
CONSTRUCTION

SCOTTSDALE NATIONAL GOLF CLUB

EXHIBIT 2
MASTER WATER EXHIBIT
FULL BUILDOUT

WOOD/PATEL
2051 W. Northern Ave.
Phoenix, AZ 85021
(602) 335-8500
www.woodpatel.com
PHOENIX - MESA - TUCSON

JOB NO. 144147