CITY OF SCOTTSDALE

Wastewater Study

FINAL Basis of Design Report

- ☐ APPROVED
- ☑ APPROVED AS NOTED
- ☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY rrahman **DATE** 3/5/2019

January 10, 2019

DIAMOND MOUNTAIN ESTATES

Scottsdale, Arizona

Wastewater Basis of Design Report

Prepared for:
Diamond Creek Family Partnership
6318 E. Sage Drive
Scottsdale, Arizona 85253
Attn: C/O Robert J Campo
Contact: 602.421.2047

Prepared by:
Coe & Van Loo Consultants, Inc.
4550 N. 12th Street
Phoenix, AZ 85014
Contact: Eric Laurin
602.264.6831

Registered Professional Engineer (Civil)
CERTIFICATE NO.
67062
CASSANDRA
ALEJANDRO
Date Signed 01/10/19
ARIZONA, U.S.A.
Expires 7-31-2021

Job 1.01.0248704

CVL CONSULTANTS

WASTEWATER BASIS OF DESIGN REPORT

Table of Contents

Tables

Appendices

1.0 INTRODUCTION

1.1 General Description

Diamond Mountain Estates is a community encompassing approximately 10 acres, located in Scottsdale, Arizona. This development consists of 2 single family residential lots, see Figure 1 and 2 in Appendix A. The system will follow the City of Scottsdale's *Design Standards & Policies Manual*, dated January 2018.

1.2 Project Location

Diamond Mountain Estates is located in of the southeast quarter of Section 33, Township 5 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

1.3 Land Use

Diamond Mountain Estates is a planned single family residential development consisting of 2 dwelling units. The existing zoning is R1-190 ESL.

Table 1 – Land Use and Population

Land Use	Area (acres)	DU's	Density (DU/acres)	Population[1] (capita)
Single-Family Residential	10	2	0.2	5

[1]Residential densities are to assume 2.5 persons per dwelling unit.

1.4 Topographic Conditions

This development consists of approximately 10 acres on vacant rolling terrain residential land. There is a small mountain located to the west of the site that will not be disturbed. Careful consideration will be made to blend organically with the rolling terrain of the site and no development will occur on the hillside area and protected ridgeline at the west side of the property. The total elevation change is approximately 59 feet, dropping from 2,684 above mean sea level (MSL) at the northwest of the mountain to 2,625 MSL at the southwestern border of the site. Currently, the site consists of desert vegetation.

2.0 WASTEWATER SYSTEM DESIGN CRITERIA

2.1 Design Criteria

This wastewater basis of design report is based on criteria from the City of Scottsdale's *Design Standards and Policies Manual,* dated January 2018. The following criteria were used in developing this plan:

Table 2 – Wastewater Demand Criteria

Land Use	Avg. Day Demand
Single-Family Residential	100 gpcd

Additional design criteria for demand design criteria include:

- Population Density Factor = 2.5 persons per dwelling unit, apartment or town home.
- Velocities
  - Minimum = 2.5 ft/s
  - Maximum = 10.0 ft/s
- Manning's Roughness Coefficient (n) = 0.013
- Collection lines shall have a minimum drop of 0.10 feet across manholes for sewers with intersecting pipe angles less than 90 degrees and 0.20 feet for pipe angles at 90 degrees.
- Maximum Manhole Spacing
  - 8 to 15-inches in diameter = 500 feet
- Changes in Pipe Size
  - When a smaller sewer joins a larger one, sewer crowns will be matched
- Peaking Factors
  - Sanitary sewer lines 8 to 12-inches in diameter will be designed using a peaking factor of 4.
- Flow Depth, d/D, peak flows
  - For pipes less than 12-inches in diameter: d/D = 0.65
- Minimum Cover
  - 4 feet of cover
- Pool backwash rate
  - City of Phoenix *Drain and Backwash Pools Legally* value of 12 gpm per pool

2.2 Design Calculations

Table 3 contains the wastewater collection calculations for the proposed development. The land use is single family residential for the development.

Table 3 – Wastewater Flow Generation

Land Use	DU	Population (capita)	Unit Flow (gpcd)	Unit Flow (gpm/du)	Average Flows (gpd)	Peaking Factor	Peak Flows (gpd)
Single-Family Residential	2	5	100	-	500	4.00	2,000
Pool Backwash	2	-	-	12	34,560	4.00	138,240

2.3 Wastewater System Analysis

The on-site collection system is designed to convey wastewater from Diamond Mountain Estates to an existing 8-inch sewer line in East Jomax Road, see Figure 3. Ultimately, wastewater flows produced will flow to the existing City of Scottsdale Water Campus at 8787 East Hualapai Drive, Scottsdale, Arizona.

2.4 Wastewater Collection System Description

The on-site wastewater collection system will flow by gravity and will be designed to take advantage of topographic conditions wherever possible. Sewer lines will be located in streets or in easements dedicated for that use and shall comply with the City's requirements.

The sewer mains will be sized according to the anticipated peak flows. The pipe size and minimum and maximum slope required will be determined based on the criteria established in Section 2.1.

3.0 EXISTING INFRASTRUCTURE

There is an existing 8-inch sewer line that extends from the edge of the site west where it heads south at the cul-de-sac of 110th Way in Windy Walk Estates, a housing development to the south of the proposed Diamond Mountain Estates Development. At the point where this 8-inch sewer line heads south, there is a recently constructed connection flowing west from North 110th Way to North 110th Place along Jomax Road. This section of sewer line is built at 0.2 feet higher than the invert flowing south.

4.0 PROPOSED INFRASTRUCTURE

A minimum 20-foot easement is required for the proposed sewer infrastructure.

4.1 Wastewater Collection System

The project is currently undeveloped desert and will tie into the existing sewer infrastructure in East Jomax Road. Diamond Mountain Estates will be tying into the 8-inch sewer at the southwest of the property, and the sewage will flow south through the existing development called Windy Walk Estates. Diamond Mountain Estates will be served by 8-inch proposed sewers onsite. See Appendix B for Sewer Capacity Analysis. Sewer inverts have been taken from the Jomax Road Parcel C at Troon Village Improvement Plans located in Appendix C. All upstream contributions to the sewer system have been accounted for in the Sewer Capacity Analysis.

4.2 Wastewater Treatment

Wastewater flows being generated by the Diamond Mountain Estates will be directed to the City of Scottsdale Water Campus, located at 8787 East Hualapai Drive, Scottsdale, Arizona.

Diamond Mountain Estates is estimated to generate an average day flow of 0.035 MGD.

5.0 SUMMARY

This wastewater basis of design report presents the collection system design criteria and proposed wastewater infrastructure for Diamond Mountain Estates. The wastewater system will be owned and operated by the City of Scottsdale. The sewer infrastructure meets the City of Scottsdale *Design Standards and Policies Manual*, dated January 2018.

- Wastewater from Scottsdale Mountain Estates will flow by gravity to the existing 8-inch sewer within East Jomax Road.

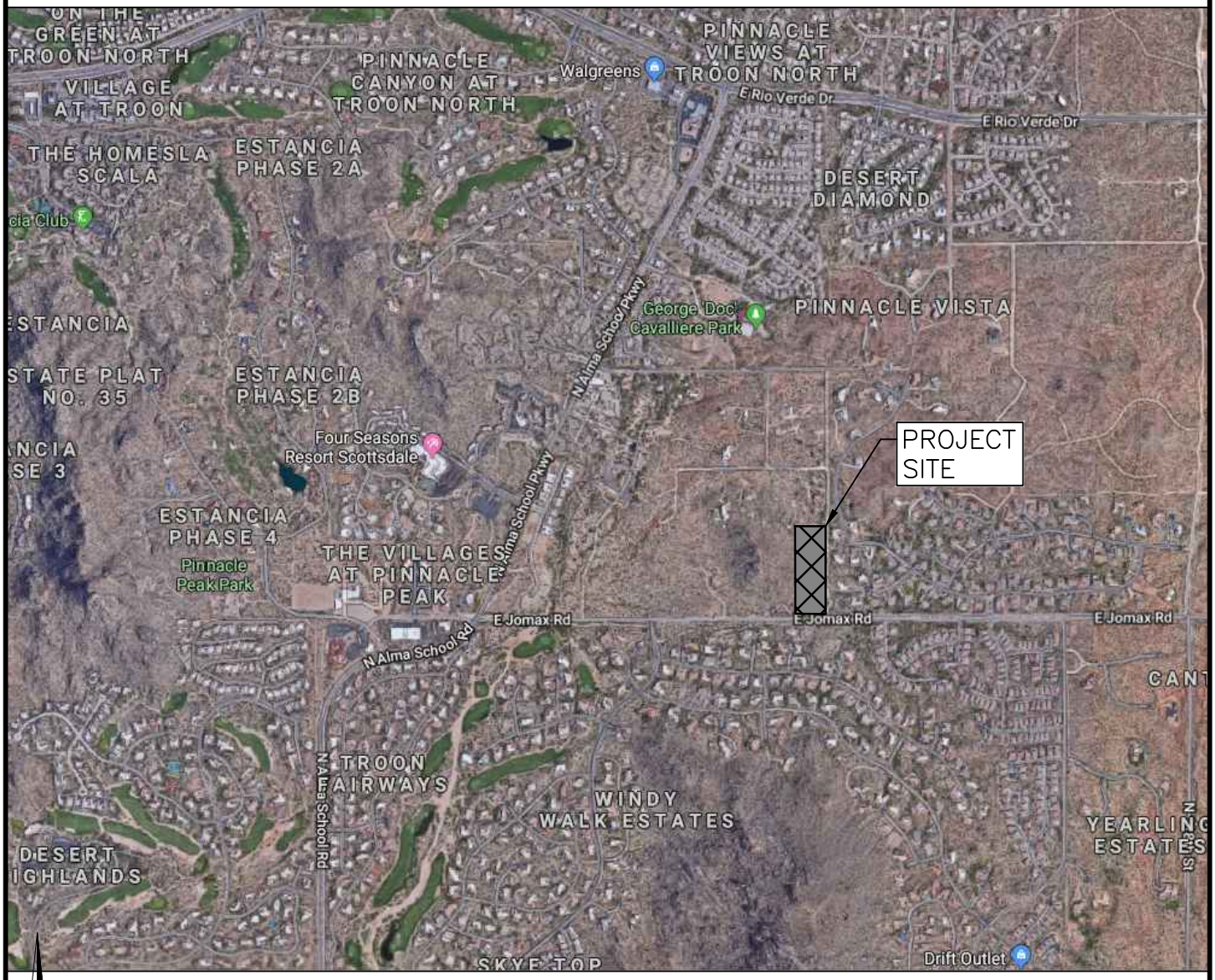
- The average day flow is estimated to be 0.035 MGD.

- The peak flow is estimated to be 0.140 MGD using a peaking factor of 4.00.

- Sanitary sewer lines are sized to accommodate design flow requirements for the project. Line sizes of 8-inches are proposed for the development.

APPENDIX A

Figures



SCALE 1" = 300'

1.01.0248704

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
http://www.cvlci.com

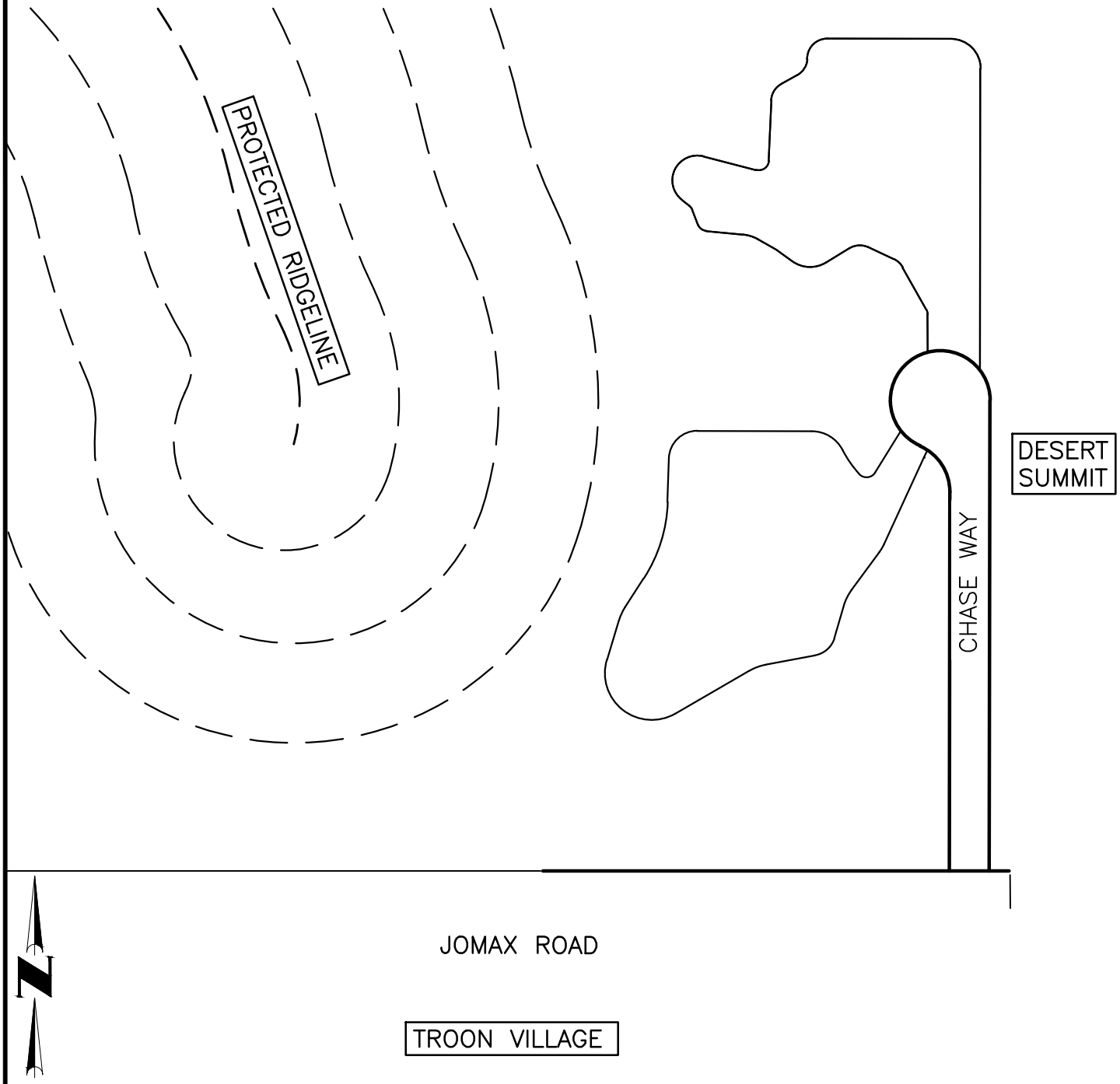
VICINITY MAP

DIAMOND MOUNTAIN ESTATES

CVL CONSULTANTS
CELEBRATING 60 YEARS

FIGURE 1

\\phx-cvlfile4\Engrdata\01\0248701\Environ\Two Lots\CAD\DME.dwg **NicoleW November 7, 2018**



SCALE 1" = 150'

1.01.0248704

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
http://www.cvlci.com

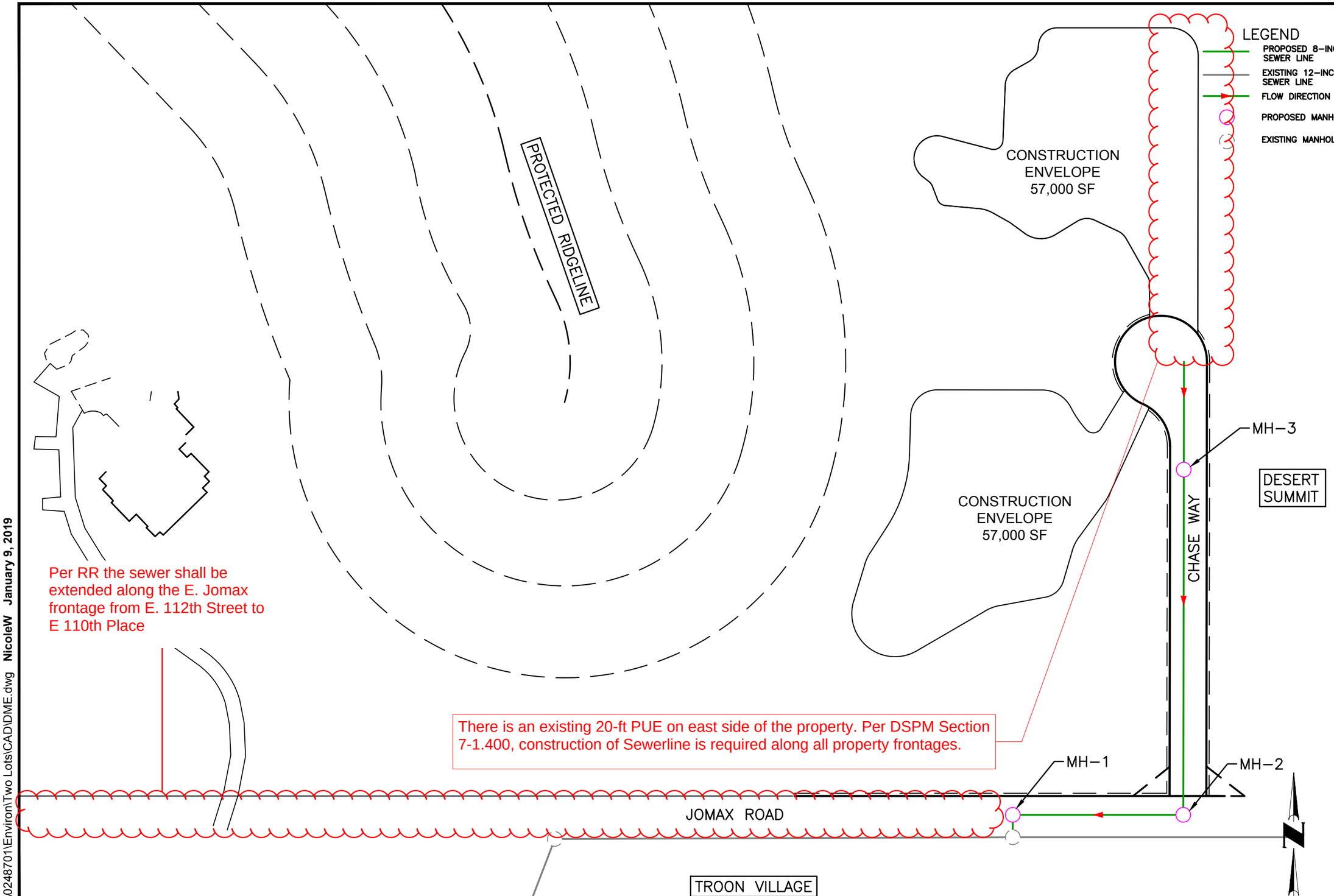
SITE MAP

DIAMOND MOUNTAIN ESTATES

CVL CONSULTANTS
CELEBRATING 60 YEARS

FIGURE 2

\\phx-cvlfile4\Engrdata\01\0248701\Environ\Two Lots\CAD\DME.dwg **NicoleW November 7, 2018**



CVL CONSULTANTS CELEBRATING 60 YEARS

FIGURE 3

SEWER SYSTEM LAYOUT

DIAMOND MOUNTAIN ESTATES

SCALE 1" = 100'

1.01.0248704

4550 North 12th Street
Phoenix, Arizona 85014
Phone 602-264-6831
http://www.cvlci.com

N:\01\0248701\Environ\Two Lots\CAD\DME.dwg NicoleW January 9, 2019

APPENDIX B

Sewer Capacity Analysis

Table B-1: Diamond Mountain Estates System Calculations

Upstream MH	Downstream MH	DU	Population	Average Day Flow (gpcd)	Average Day Flow (gpd)	Peaking Factor	Peak Flow Dry Weather (gpd)	Upstream Wet Weather (gpd)	Cumulative Wet Weather Peak Flow (gpd)	Total Estimated Wet Weather Peak Flow (gpd)	Estimated Ground Elevation¹ (feet)	Estimated Length (feet)	Line Diameter (inches)	Sewer Line Slope (ft/ft)	Estimated Upstream MH Depth (feet)	Estimated Upstream Invert Elevation (feet)	Drop Through Manhole (feet)	Estimated Downstream Invert Elevation (feet)	Sewer Line Capacity (gpd)	% Full (Q/Qf)	Velocity Flowing Full (fps)	Actual Peak Velocity (fps)	d/D
3	2	2	5.0	100	500	4	2,000	0	2,000	2,000.00	**2643**	400	8	0.0051	12.39	2629.45	0.2	2627.41	557,665	0%	2.5	0.58	0.04
2	1	0	0.0	100	0	4	0	2,000	2,000	2,000.00	**2645**	185	8	0.0051	17.13	2627.21	0.2	2626.26	557,665	0%	2.5	0.58	0.04
1	EX	283	707.5	100	70,750	4	283,000	2,000	285,000	285,000.00	**2633**	10	8	0.0051	5.97	2626.06	0.2	2626.01	557,665	51%	2.5	2.49	0.51

Invert* from Improvement Plans for Jomax Road Parcel C At Troon Village

*A conversion of +2.28 feet was used to allow for datumn shift from Plan Set to current Survey

Pool backwash of 138,240 gpd needs to be included in the analysis. With additional flow from pool backwash, total flow through existing MH and D/S 8" pipe is 423,240 gpd. This flow provides d/D=0.55 (<0.65) in 8" pipe with 0.51% slope (as provided in the document). Therefore, accepted.

APPENDIX C

Jomax Road Parcel C at Troon Village
Improvement Plans

OWNER
DESERT TROON VISTAS, INC.
8787 E. PINNACLE PEAK ROAD, #F207
SCOTTSDALE, ARIZONA 85255

DEVELOPER
TROON MANAGEMENT COMPANY
8711 E. PINNACLE PEAK ROAD, #F207
SCOTTSDALE, ARIZONA 85255

UTILITY PROVIDERS

WATER	CITY OF SCOTTSDALE
SEWER	CITY OF SCOTTSDALE
ELECTRICITY	ARIZONA PUBLIC SERVICE
TELEPHONE	USWEST COMMUNICATIONS
GAS	SOUTHWEST GAS
CABLE T.V.	T.C.I. CABLE OF SCOTTSDALE

PROJECT INFORMATION
EXISTING ZONING R1-18 HD/HC

BENCHMARK
SOUTH QUARTER CORNER SECTION 30, C.O.S. DATUM 2330.52, USGS DATUM 2329.98

SOUTH QUARTER CORNER SECTION 9, T.4N., R.5E., G.L.O. BRASS CAP, C.O.S. DATUM 2435.73 USGS DATUM 2435.21

INTERSECTION OF PINNACLE PEAK ROAD & ALMA SCHOOL ROAD, BRASS CAP FLUSH, C.O.S. DATUM 2300.11, USGS DATUM 2299.59

NOTE: EXISTING TOPOGRAPHY AS SHOWN IS BASED UPON USGS DATUM

THE WATER SYSTEM SHOWN HEREIN, HAS BEEN DESIGNED TO ADEQUATELY SUPPLY WATER IN SUFFICIENT QUANTITY AND PRESSURE TO MEET LOCAL FIRE PROTECTION REQUIREMENTS

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL # PANEL DATE	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (In AO Zone, Use Depth)
045012	1255 12-3-93	E	4-15-88	X	N/A

ENGINEER'S CERTIFICATION: The finish floor elevation(s) and/or floodproofing 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 & Floodplains Ordinance.

JOINT RESTAINT CALCULATIONS

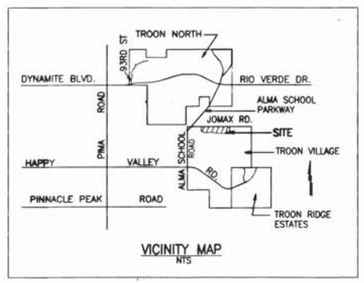
CALCULATIONS WERE GENERATED USING THE "THRUST RESTRAINT DESIGN PROGRAM", PREPARED BY EBAA IRON SALES, INC. GILBERTSON ASSOCIATES, INC. BY UTILIZING THIS PROGRAM MAKES NO GUARANTEES OR WARRANTIES TO THE ACCURACY OR VALIDITY OF THE PROGRAM RESULTS.

TABLE 1 – ASSUMPTIONS

JOINT RESTRAINT TYPE:	MEGALUG
SOIL TYPE:	SC
TRENCH TYPE:	3
TEST PRESSURE:	188 psi
DEPTH OF BURIAL:	4 FEET
PIPE MATERIAL:	PVC
SAFETY FACTOR:	1.5

TABEL 2 – RESULTS

PIPE SIZE (INCHES)	FITTING	RUN LENGTH (FT.)	RESTRAINED LENGTH (FT.)
12	HORIZONTAL 45° BEND	N/A	17
12	VERTICAL 45° BEND		
	-HIGH SIDE	N/A	48
	-LOW SIDE	N/A	11
12	VALVE OR DEAD END	N/A	95



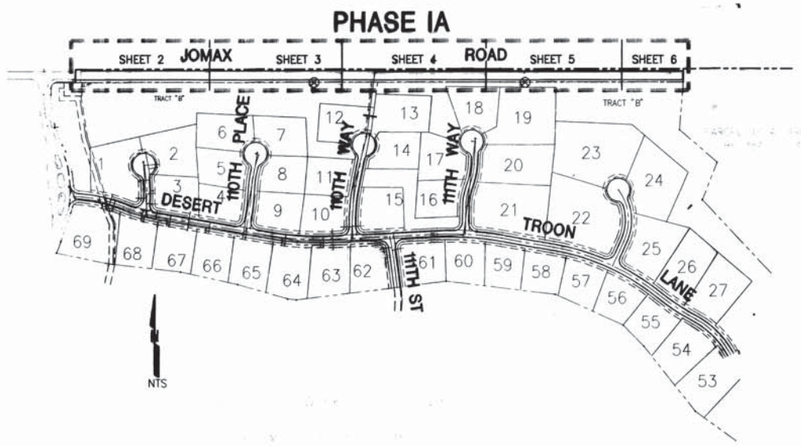
VICINITY MAP
NTS

LEGEND
- PROPERTY LINE
- A.C. PAVEMENT ON A.B.C. MATERIAL
- EXISTING EDGE OF PAVEMENT
- SLOPE BANK PROPOSED
- SLOPE BANK EXISTING
- G.B. GRADE BREAK
- FLOW LINE AND DIRECTION OF FLOW
- SHEET FLOW
- BENCHMARK
- 51.0 PROPOSED GROUND ELEVATION
- P. 5.00 PAVEMENT ELEVATION
- T.C. 5.00 TOP OF CURB ELEVATION
- G. 5.00 GUTTER ELEVATION
- C. 5.00 CONCRETE ELEVATION
- F.G. 5.1 FINISH GRADE ELEVATION
- T.B. 5.1 TOP OF BANK ELEVATION
- (5.1 FLOW LINE ELEVATION
- EXISTING UTILITY (SIZE & TYPE NOTED)
- PROP. W. PROPOSED UTILITY LINE (SIZE & TYPE AS NOTED)
- GATE VALVE & COVER
- EXISTING FIRE HYDRANT

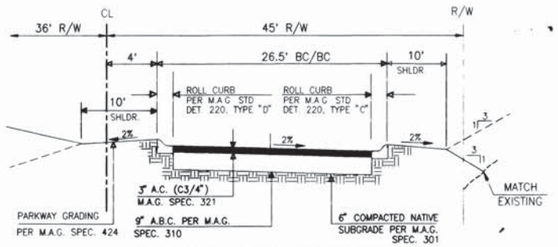
FILE NAME: D:\R01\07S1
DRAWING NAME:
DATE PLOTTED: 1-06-95

IMPROVEMENT PLANS FOR
JOMAX ROAD
PARCEL C AT TROON VILLAGE

A PORTION OF THE WEST HALF OF SECTION 3, AND THE EAST HALF OF SECTION 4, TOWNSHIP 4 NORTH, RANGE 5 EAST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



KEY MAP



JOMAX ROAD HALF STREET
NTS

ESTIMATED QUANTITIES

ENGINEER MAKES NO GUARANTEE OF ACCURACY AS RELATED TO EARTHWORK QUANTITIES. CONTRACTOR TO VERIFY QUANTITIES.

EXCAVATION	8300 CY
EMBANKMENT	5300 CY

ITEM	DESCRIPTION	QUANTITY	UNIT
	PAVING		
1	SUBGRADE PREPARATION	6217	SY
2	3" AC/9" ABC PAVEMENT	5263	SY
3	ROLL CURB & GUTTER, TYPE "C"	2056	LF
4	ROLL CURB & GUTTER, TYPE "D"	2096	LF
5	CURB TRANSITION	30	LF
6	SAWCUT & REMOVE AC PAVEMENT	71	SY
7	ADJUST WATER VALVE	1	EA
8	STRIPING	1	LS
9	ROLL CURB OPENING	20	LF
10	ADJUST MANHOLE FRAME	3	EA
11	10" x 3" RBC	54	LF
12	INLET WINGWALL	1	EA
13	OUTLET WINGWALL	1	EA
14	HANDRAIL	66	LF
15	8" GROUTED RIPRAP	21	SY
16	LOOSE RIPRAP W/FABRIC	311	SY
17	12" CONCRETE CUT-OFF WALL	8	SY
18	PNEUMATICALLY PLACED MORTAR	67	SY
19	SURVEY MARKER	2	SY
20	2" AC/6" ABC PAVEMENT	22	SY
	WATER		
1	12" WATER LINE	1328	LF
2	12" V., B. & C., TYPE "C"	2	EA
3	12" D.I.P.	26	LF
	SEWER		
1	8" SEWER LINE	1080	LF
2	48" DIA. MANHOLE	1	EA
3	60" DIA. MANHOLE	2	EA
4	8" PLUG	1	EA
5	DROP SEWER CONNECTION, TYPE "A"	1	EA

APPROVAL: Joseph E. Jason 1-9-95
MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT — DATE

GENERAL CONSTRUCTION NOTES
FOR PUBLIC WORKS CONSTRUCTION

REVISED JULY 1991

1 ALL CONSTRUCTION IN THE PUBLIC RIGHT-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 (COS) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS ANY CONFLICT, THE LATTER SHALL GOVERN.

2 THE ENGINEERING DESIGNS ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.

3 APPROVAL OF PLANS IS FOR SIX MONTHS' TIME ONLY. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS SHALL BE RESUBMITTED FOR REAPPROVAL.

4 A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHT-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO STARTING OF CONSTRUCTION (TELEPHONE 391-5751).

5 WHENEVER EXCAVATION IS TO BE DONE, CALL "BLUE STAKE CENTER", 263-1100, TWO WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES ARE IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.

6 ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN THE PUBLIC RIGHT-OF-WAY AND IN 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.

7 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.

GENERAL CONSTRUCTION NOTES

1. THE KNOWN EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM RECORDS AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UNDERGROUND PIPELINES, TELEPHONE AND ELECTRIC CONDUITS, AND STRUCTURES IN ADVANCE OF ANY CONSTRUCTION AND TO OBSERVE ALL POSSIBLE PRECAUTIONS TO AVOID ANY DAMAGE TO SUCH. THE CONSTRUCTOR SHALL FOLLOW THE GUIDELINES AND REGULATIONS AS SET FORTH BY O.S.H.A.
2. STORM DRAIN PIPES SHALL BE RGRCP, CLASS III, UNLESS OTHERWISE SPECIFIED ON PLANS. CONTRACTOR SHALL PROVIDE PROTECTION FOR STORM DRAIN PIPES DURING CONSTRUCTION.
3. ALL PNEUMATICALLY PLACED MORTAR, GROUTED RIPRAP, SOIL CEMENT AND CONCRETE FOR HEADWALLS SHALL BE COLORED BY THE ADDITION OF A COLORING AGENT SAN DIEGO BUFF PIGMENT #5237 AS MANUFACTURED BY DAVIS COLORS (OR APPROVED EQUAL), APPLIED AT A RATE OF TEN POUNDS PER CUBIC YARD OF CONCRETE.
4. EXACT LOCATIONS OF STORM DRAINS, HEADWALLS, AND GROUTED RIPRAP MAY BE ALTERED IN THE FIELD TO REFLECT EXISTING CONDITIONS.
5. EXISTING VEGETATION (PER CITY OF SCOTTSDALE NATIVE PLAN ORDINANCE) WITHIN THE RIGHT-OF-WAY AND SHOULDER SIDE SLOPES THAT MUST BE REMOVED DURING CONSTRUCTION SHALL BE SAVED AND TRANSPLANTED ON THE SITE PER THE REVEGETATION PROGRAM.
6. REVEGETATION IS TO TAKE PLACE WITH PLANT MATERIAL AND SEED INDIGENOUS TO THIS SITE. REVEGETATION OF CUT AND FILL SLOPES SHALL BE PER THE APPROVED REVEGETATION PROGRAM.
7. BOULDERS SHALL BE PLACED SO THAT THE BOTTOM ONE-THIRD OF THE BOULDER IS EMBEDDED IN THE COMPACTED FILL SLOPE.
8. ALL CUTS ARE TO BE ROUNDED TO MATCH EXISTING TERRAIN.
9. FILL SITUATIONS ARE TO UNDULATE THE TOE OF THE BANK WITH ADJACENT TERRAIN TO CREATE A NATURAL FORMATION WITH ROADWAY AND SHOULDER.
10. LIMITS OF CONSTRUCTION SHALL BE STAKED IN THE FIELD AND SHALL REMAIN STAKED THROUGHOUT CONSTRUCTION.
11. ALL SIGNING AND MARKING TO CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.).
12. PAINT AND REFLECTIVE MEDIA SHALL BE PER CITY OF SCOTTSDALE SPECIFICATIONS. APPLICATION TO BE PER CITY OF SCOTTSDALE REQUIREMENTS.

33804

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
BLUE STAKE CENTER

CITY OF SCOTTSDALE
REVIEW & RECOMMENDED APPROVAL BY:

FIRE DEPT	1-11-95	GRADING & DRAINAGE	1-11-95
LANDSCAPING & PLANNING	N/A	WATER & SEWER	1-11-95
TRAFFIC	N/A	PAVING	1-11-95

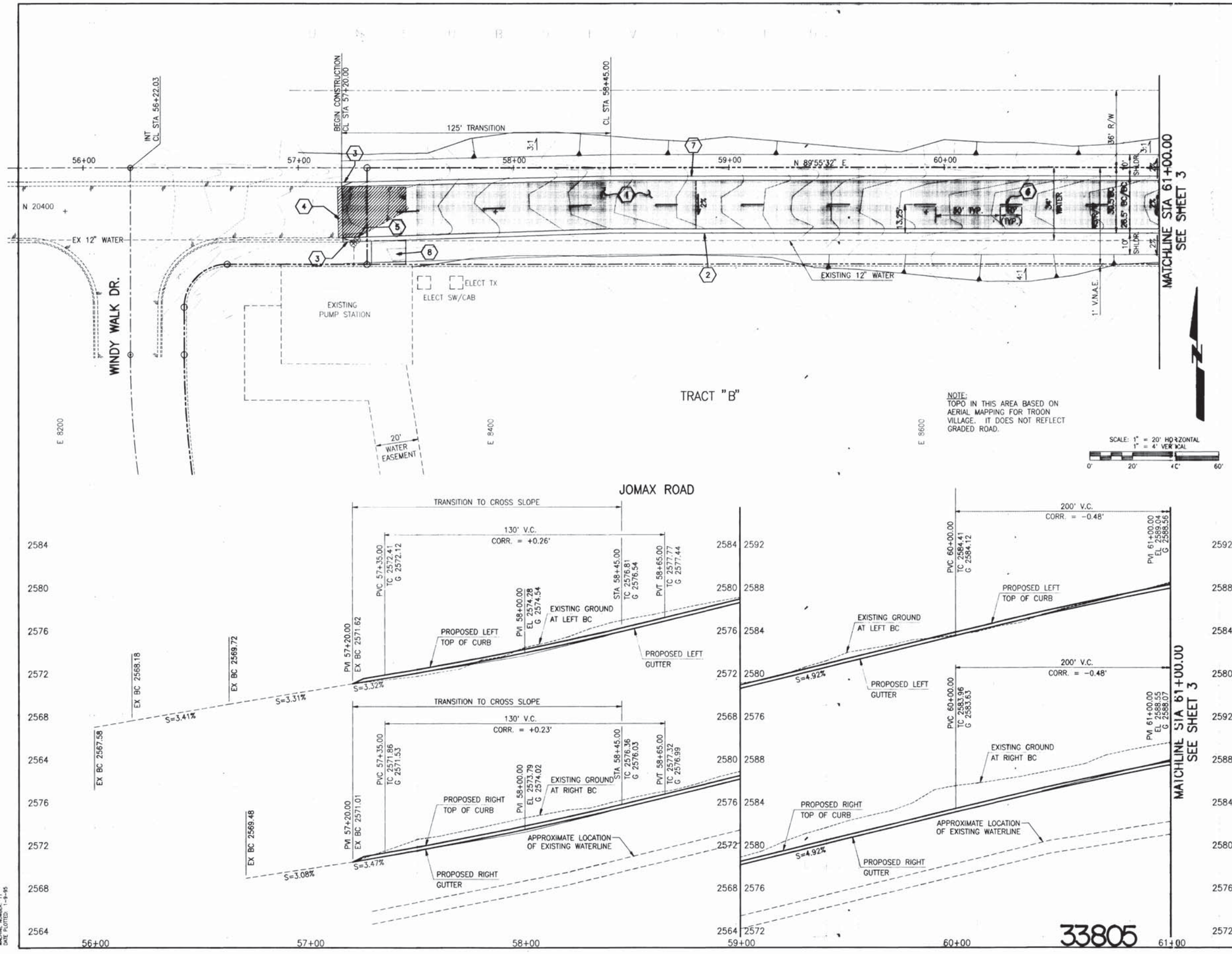
APPROVED BY: Joseph D. Morris — PROJECT REVIEW SR. ENGINEER — 1-11-95 DATE

GILBERTSON ASSOCIATES, INC.
CONSULTING CIVIL ENGINEERS AND SURVEYORS
23733 N. SCOTTSDALE RD., SUITE B
SCOTTSDALE, ARIZONA 85255
(602) 585-6464

IMPROVEMENT PLANS
JOMAX ROAD
PARCEL C
AT TROON VILLAGE

Date JANUARY 6, 1995 | Job No. 90107 | Sheet 1 of 7

498-PA-93 24-PP-94 1518-E-94



GILBERTSON ASSOCIATES, INC.
CONSULTING CIVIL ENGINEERS AND SURVEYORS
23733 N. SCOTTSDALE RD., SUITE B
SCOTTSDALE, ARIZONA 85255
(602) 585-6464

CONSTRUCTION NOTES

PAVING

1. CONSTRUCT A.C. PAVEMENT PER TYPICAL SECTION ON SHEET 1.
2. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "C".
3. CONSTRUCT CURB TRANSITION PER M.A.G. STD DETAIL 221.
4. SAWCUT MIN. 2' TO A NEAT CLEAN EDGE AND REMOVE AND REPLACE A.C. PAVEMENT.
5. ADJUST WATER VALVE TO FINISH GRADE PER M.A.G. STD. DETAIL 391-1.
6. INSTALL 4" YELLOW BROKEN LINE AS DIMENSIONED AND PER C.O.S. REQUIREMENTS.
7. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "D".
8. CONSTRUCT 16' WIDE ASPHALT DRIVEWAY 2"AC/ 6" ABC. MATCH EXISTING GATE FOR PUMP STATION.

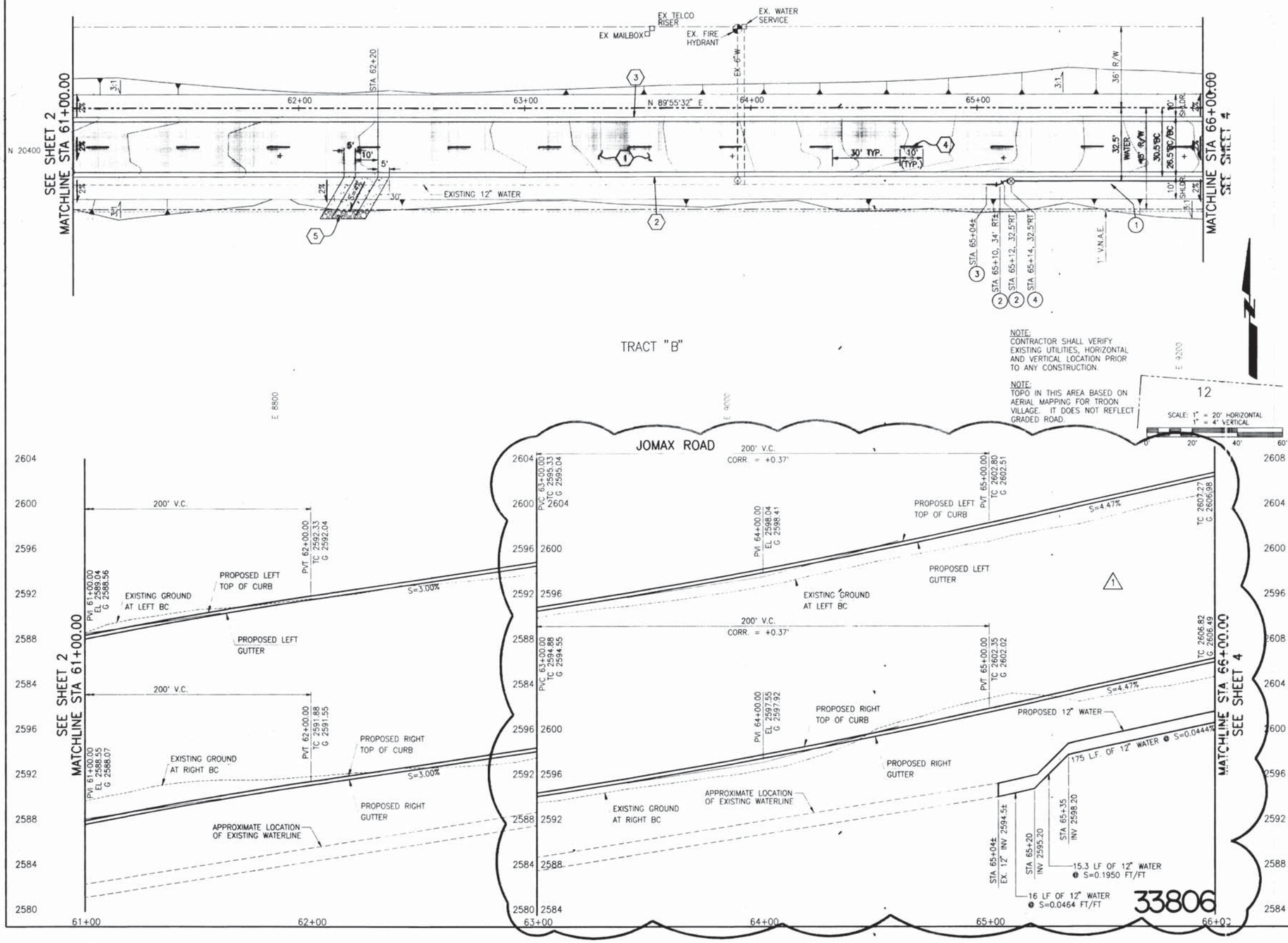
10277
DAVID A. GILBERTSON
Registered Professional Engineer (Civil)
STATE OF ARIZONA

498-PA-93 24-PP-94 1518-E-94

IMPROVEMENT PLANS
JOMAX ROAD
PARCEL C AT TROON VILLAGE

Date JANUARY 9, 1995 | Job No. 90107 | Sheet 2 of 7

FILE NAME: D:\90107\07S2.DWG
ORIGINAL SCALE: 1"=20'
DATE PLOTTED: 1-9-95



GILBERTSON ASSOCIATES, INC.
CONSULTING CIVIL ENGINEERS AND SURVEYORS
23733 N. SCOTTSDALE RD., SUITE B
SCOTTSDALE, ARIZONA 85255
(602) 585-6464

CONSTRUCTION NOTES

PAVING

1. CONSTRUCT A.C. PAVEMENT PER TYPICAL SECTION ON SHEET 1.
2. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "C".
3. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "D".
4. INSTALL 4" YELLOW BROKEN LINE AS DIMENSIONED AND PER C.O.S. REQUIREMENTS.
5. CONSTRUCT 10' CURB OPENING W/5' CURB TRANSITION PER M.A.G. STD. DETAIL 221 AND DETAIL ON SHEET 7.

WATER

1. INSTALL 12" WATER LINE.
2. INSTALL 12" 45° BEND W/RESTRAINED JOINTS AS ALLOWED BY CITY OF SCOTTSDALE AND 3M SCOTCHMARK MODEL 1403-4" ELECTRONIC BALL MARKER FOR WATER, OR APPROVED EQUAL.
3. REMOVE EXISTING CURB STOP AND CONNECT TO EXISTING WATERLINE.
4. INSTALL 12" V.B.&C., TYPE "C" PER M.A.G. STD. DETAIL 391-1 WITH RESTRAINED JOINTS AS ALLOWED BY CITY OF SCOTTSDALE.

1 4-11-95 REVISED STREET PROFILE STA 63+00 TO 66+00, & WATER PROFILE

498-PA-93 24-PP-94 1518-E-94

IMPROVEMENT PLANS

JOMAX ROAD
PARCEL C AT TROON VILLAGE

Date APRIL 11, 1995 | Job No. 90107 | Sheet 3 of 7

FILE NAME: D:\90107\07SUM.DWG
MACHINE NUMBER:
DATE PLOTTED: 4-11-95

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SCOTTSDALE, ARIZONA 85255
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CONSTRUCTION NOTES

PAVING

1. CONSTRUCT A.C. PAVEMENT PER TYPICAL SECTION ON SHEET 1.
2. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "C".
3. ADJUST MANHOLE FRAME TO GRADE PER M.A.G. STD. DETAIL 422.
4. CONSTRUCT 78.5 LF OF 10'x3' RBC AT SLOPE=1.52% PER A.D.O.T. STD. DWG B-02.10 AT 45° SKEW.
5. CONSTRUCT INLET WINGWALL PER A.D.O.T. STD. DWG. B-04.70, 4:1 SLOPE AND 45° SKEW. CONSTRUCT OUTLET WINGWALL PER A.D.O.T. STD. DWG. B-04.50, 4:1 SLOPE AND 45° SKEW.
6. CONSTRUCT 72 L.F. OF HANDRAIL, CENTERED ON HEADWALL, PER C.O.S. STD. DETAIL 2508 (33 L.F. ON EACH SIDE).
7. CONSTRUCT GROUTED RIPRAP PER DETAIL ON SHEET 7.
8. CONSTRUCT LOOSE RIP-RAP W/FABRIC PER DETAIL ON SHEET 7.
9. CONSTRUCT CONCRETE CUTOFF WALL PER DETAIL ON SHEET 7.
10. INSTALL 4" YELLOW BROKEN LINE AS DIMENSIONED AND PER C.O.S. REQUIREMENTS.
11. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "D".
12. CONSTRUCT LOOSE RIP-RAP W/FABRIC PER DETAIL ON SHEET 7 (MODIFIED: STONE MIN. SPECIFIC WEIGHT 150 PCF W/D50 = 1.0 FT).

WATER

1. INSTALL 12" WATER LINE.
2. CONSTRUCT WATERLINE VERTICAL REALIGNMENT PER C.O.S. STD. DETAIL 2370, MODIFIED PER PROFILE.

SEWER

1. INSTALL 8" SEWER LINE.
2. CONSTRUCT 60" DIA. MANHOLE W/30" RIM AND COVER PER M.A.G. STD. DETAIL 420.
3. INSTALL 30 LF OF 8" SEWERLINE @ S=0.0052 FT/FT.
4. INSTALL 8" PLUG PER M.A.G. STD. DETAIL 427.

1 4-11-95 REVISED BOX CULVERT LOCATION STREET PROFILE STA 66+00 TO 69+75 WATER AND SEWER PROFILES

Registered Professional Engineer's Certificate No. 22869 J. BRAD GRUVER 4-12-95

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IMPROVEMENT PLANS

JOMAX ROAD
PARCEL C AT TROON VILLAGE

Date APRIL 11, 1995 | Job No. 90107 | Sheet 4 of 7

FILE NAME: D:\90107\P75-4R.DWG
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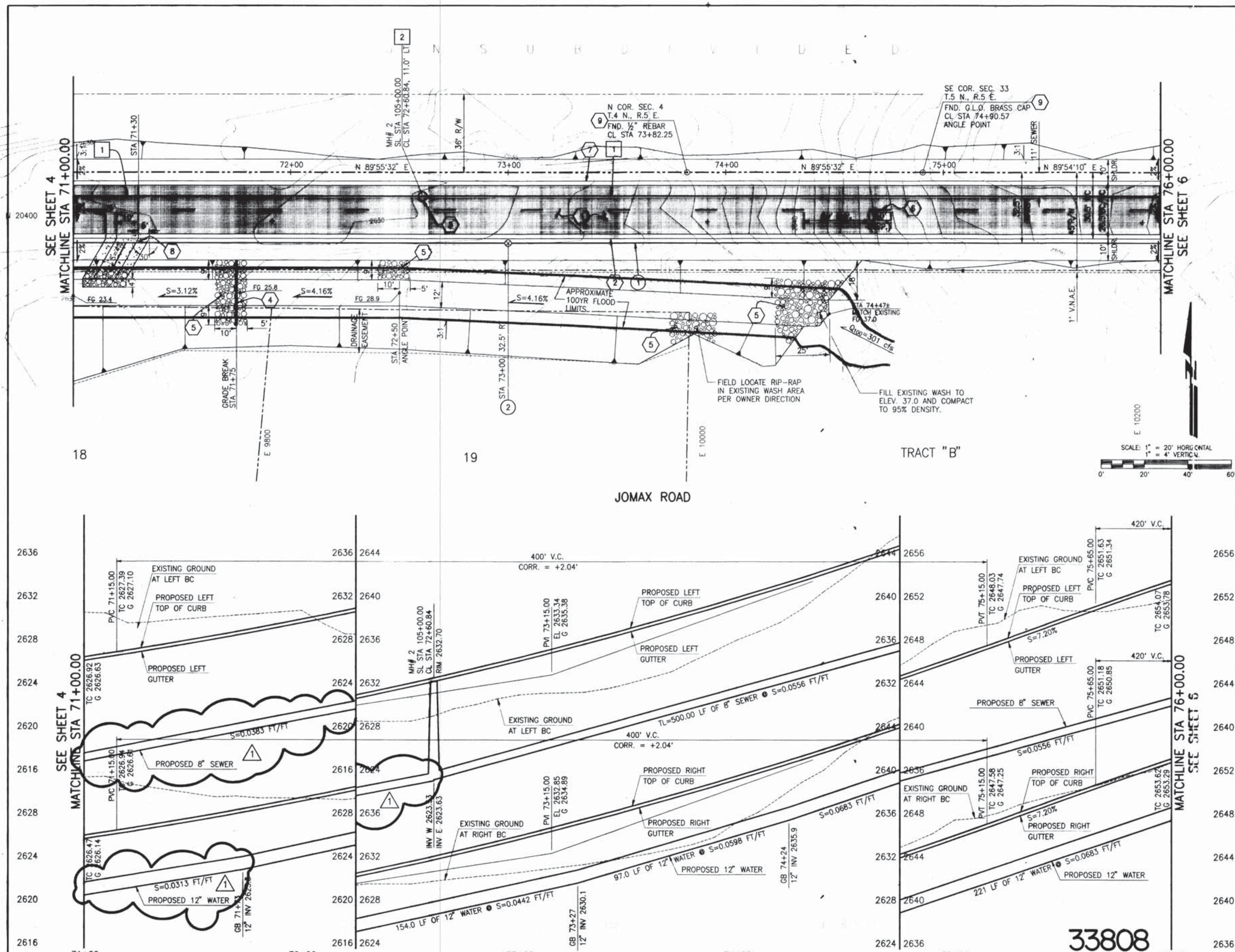
DATE PLOTTED: 4-11-95



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(602) 585-6464

CONSTRUCTION NOTES

PAVING

1. CONSTRUCT A.C. PAVEMENT PER TYPICAL SECTION ON SHEET 1.
2. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "C".
3. ADJUST MANHOLE FRAME TO GRADE PER M.A.G. STD. DETAIL 422.
4. CONSTRUCT CONCRETE CUTOFF WALL PER DETAIL ON SHEET 7.
5. CONSTRUCT LOOSE RIPRAP W/FABRIC PER DETAIL ON SHEET 7.
6. INSTALL 4" YELLOW BROKEN LINE AS DIMENSIONED AND PER C.O.S. REQUIREMENTS.
7. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "D".
8. CONSTRUCT 10' CURB OPENING W/5' CURB TRANSITION PER M.A.G. STD. DETAIL 221 AND DETAIL ON SHEET 7.
9. INSTALL SURVEY MARKER, PER M.A.G. STD. DETAIL 120-1, TYPE "A".

WATER

1. INSTALL 12" WATER LINE.
2. INSTALL 12" V.B.& C., TYPE "C" PER M.A.G. STD. DETAIL 391-1.

SEWER

1. INSTALL 8" SEWER LINE.
2. CONSTRUCT 48" DIA. MANHOLE PER M.A.G. STD. DETAIL 420.

10277 DAVID A. GILBERTSON

1 4-11-95 REVISED SEWER & WATER PROFILE

IMPROVEMENT PLANS
JOMAX ROAD
PARCEL C AT TROON VILLAGE

Date APRIL 11, 1995	Job No. 90107	Sheet 5 of 7

498-PA-93 24-PP-94 1518-E-94

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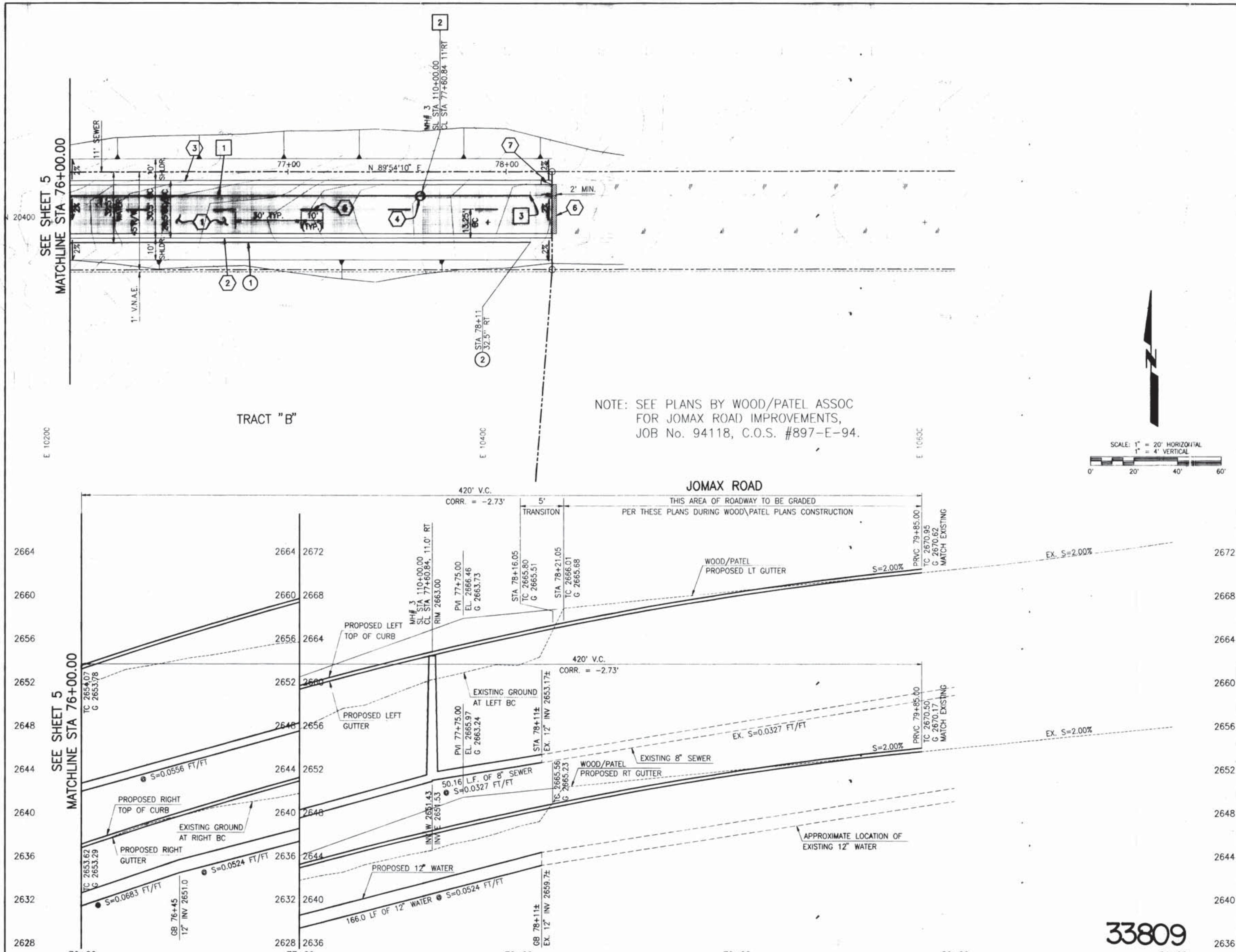


CONSTRUCTION NOTES

PAVING

1. CONSTRUCT A.C. PAVEMENT PER TYPICAL SECTION ON SHEET 1.
2. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "C".
3. CONSTRUCT ROLL CURB & GUTTER PER M.A.G. STD. DETAIL 220, TYPE "D".
4. ADJUST MANHOLE FRAME TO GRADE PER M.A.G. STD. DETAIL 422.
5. INSTALL 4" YELLOW BROKEN LINE AS DIMENSIONED AND PER C.O.S. REQUIREMENTS. TIE INTO EXISTING STRIPED PATTERN.
6. SAWCUT MIN. 2' TO A NEAT CLEAN EDGE AND REMOVE AND REPLACE EXISTING A.C. PAVEMENT, IF EXISTING AT TIME OF CONSTRUCTION.
7. CONSTRUCT 5' CURB TRANSITION PER M.A.G. STD. DETAIL 221.

WATER

1. INSTALL 12" WATER LINE.
2. REMOVE EXISTING CURB STOP AND CONNECT TO EXISTING WATERLINE.

SEWER

1. INSTALL 8" SEWER LINE.
2. CONSTRUCT 60" DIA. MANHOLE PER M.A.G. STD. DETAIL 420.
3. REMOVE EXISTING PLUG AND CONNECT TO SEWER LINE.

10277 DAVID A. GILBERTSON

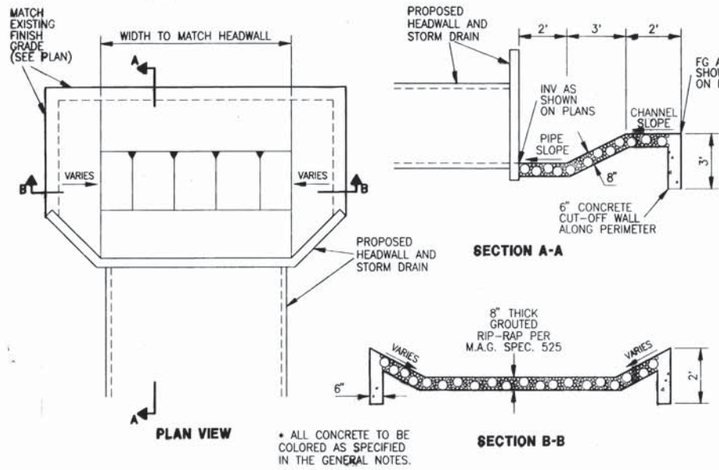
33809

498-PA-93 24-PP-94 1518-E-94

IMPROVEMENT PLANS

JOMAX ROAD
PARCEL C AT TROON VILLAGE

Date JANUARY 9, 1995	Job No. 90107	Sheet 6 of 7



DETAIL FOR STORM DRAIN INLET

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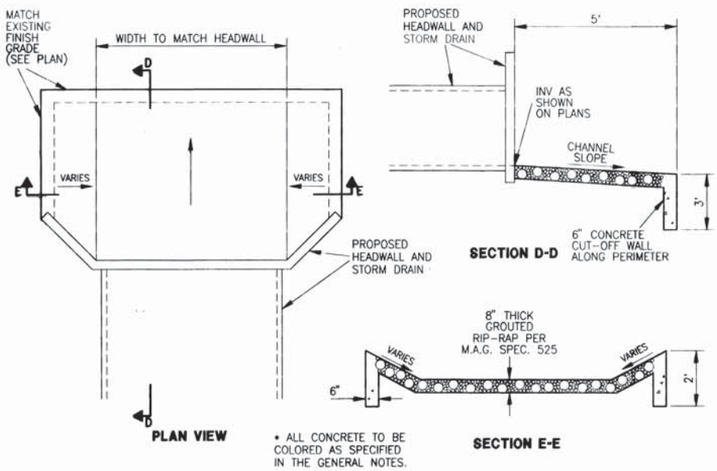

DETAIL FOR STORM DRAIN OUTLET

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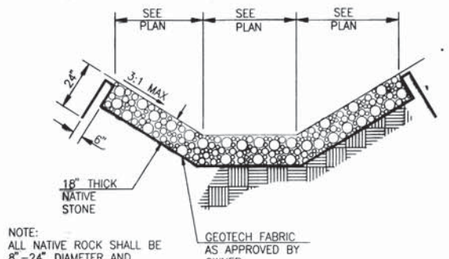

CHANNEL PROTECTION

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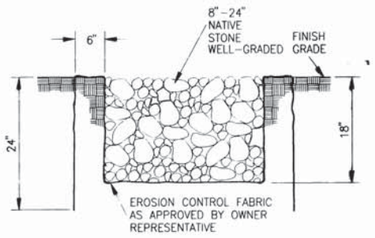
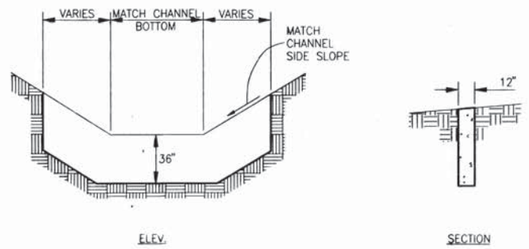


LOOSE STONE WITH FABRIC DETAIL

N.T.S.



CUT-OFF WALL

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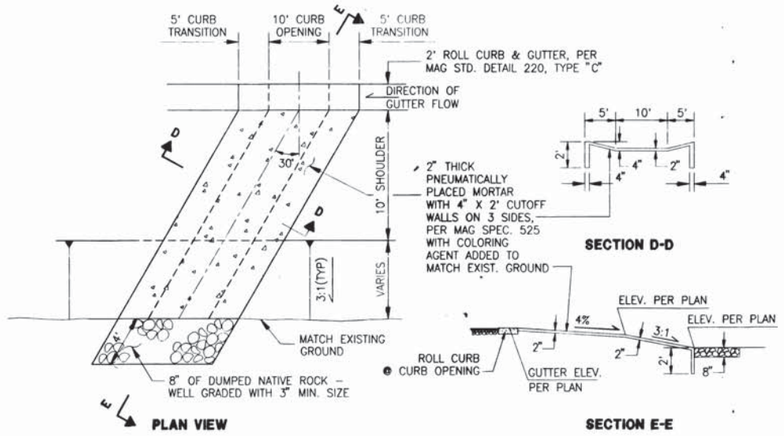

CURB OPENING DETAIL

N.T.S.

33810

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IMPROVEMENT PLANS

JOMAX ROAD
PARCEL C
AT TROON VILLAGE

Date JANUARY 9, 1995 | Job No. 90107 | Sheet 7 of 7

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FILE NAME: D:\MY\10757.DWG
MACHINE NUMBER: 1
DATE PLOTTED: 1-9-95