



# Sewer & Water Report For National Gypsum Co Date Street Eloy, Arizona

Project No. 07-012

Revised August 2007  
June 2007  
April 2007



APPROVED

CITY OF ELOY ENGINEER

Sept 20, 2007  
DATE

THE CITY APPROVES THIS REPORT FOR CONCEPT ONLY AND ACCEPTS NO  
LIABILITY FOR ERRORS OR OMISSIONS.

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Mesa, AZ 85210  
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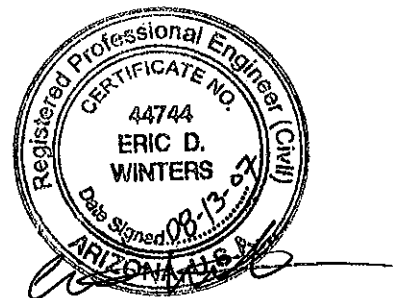
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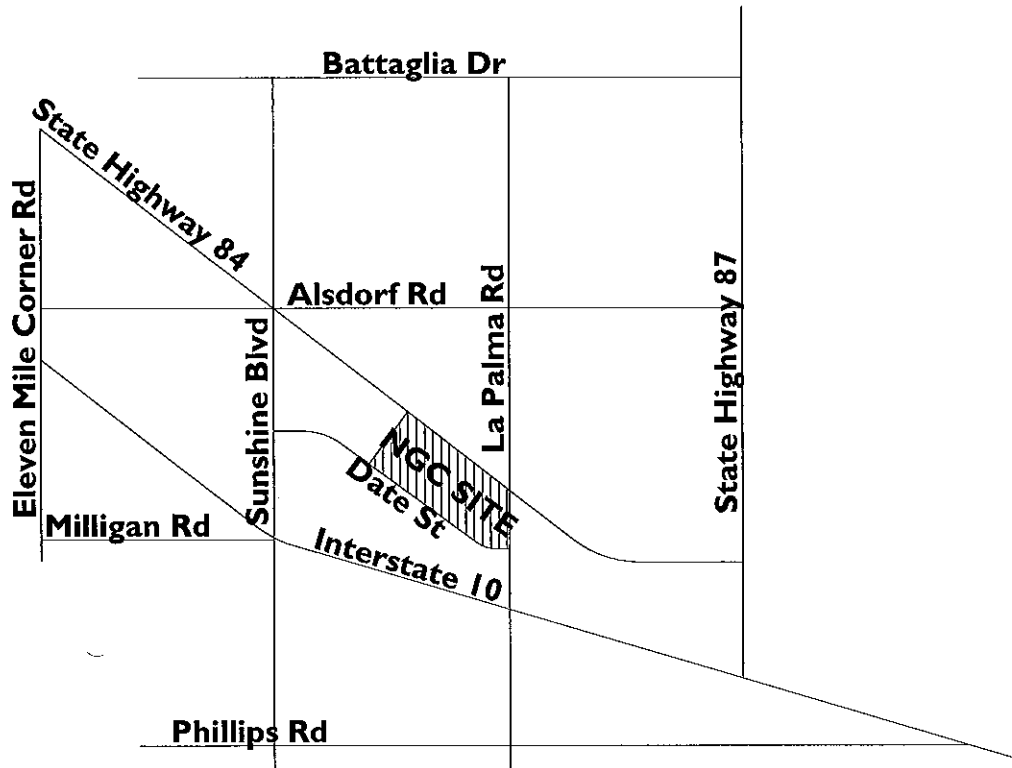


## **I. INTRODUCTION**

The Date Street alignment is an approximate 1.2 mile stretch of new roadway between Sunshine Blvd. and the La Palma Road alignment in the City of Eloy. A proposed sewer line within this new road will serve 4 industrial parcels between Interstate-10 Freeway and State Highway 84; one of which is the Wallboard Facility for National Gypsum Company. Date Street is located in Section 8, Township 8 South, Range 8 East of the Gila and Salt River Base and Meridian in Pinal County, Arizona. See the vicinity map on the following page.

This report will provide water and sewer service analysis as part of the proposed improvements associated with Date Street for the National Gypsum Company site. Design parameters from the City of Eloy and Arizona Department of Environmental Quality (ADEQ) will be applied to this proposed project to insure adherence to regulations.

## VICINITY MAP



## II. PROPOSED SEWER DESIGN

Sanitary sewer service for Date Street will be provided by the City of Eloy. The City of Eloy is responsible for the maintenance of all sanitary sewer facilities, including treatment plants, lift stations and mains which will receive the wastewater from this development. This sewer report addresses offsite sewer design for National Gypsum Company's site as well as the adjacent parcels as shown on the Estimated Acreage Sewer Flows Exhibit in the appendix.

It is determined that this project can gravity sewer by using 12" and 15" lines. The proposed line will outlet into an existing manhole located just east of the intersection of Sunshine Blvd. and Date Street. This will serve the National Gypsum Co. site of approximately 103 acres and the remaining 477 acres of future industrial/commercial development.

Per the DNA Engineering Sewer As-Built drawings with a seal date 07-19-01, it has been determined that the existing downstream sewer past the National Gypsum's connection point has a capacity of 2.41 cfs (Refer to Appendix for City of Eloy Existing Sewer Calculations). As calculated for the post developed National Gypsum project, the inflow generated from their site into the sewer system will be 0.247 mgd (0.38 cfs). This inflow plus the flow generated from the existing Travelcenter which will combine at the said NGC connection point is calculated to be 0.319 mgd (0.49 cfs). Thus, the remaining sewer capacity in the existing downstream sewer line will be 1.241 mgd (1.92 cfs) in the post NGC post developed condition. See NGC Post Developed Sewer Flows Exhibit in the Appendix.

National Gypsum will not incorporate any industrial processes that would require pre-treatment prior to discharging into the Date Street sewer line. The expected NGC inflow is from drinking fountains, toilets, showers, and compressor condensate (containing biodegradable lubricants).

This study of the proposed offsite sewer design was performed using the calculations and criteria described below.

### Criteria for Calculation of Flows

- 1) Industrial flows will be calculated at 1200 gallons per acre per day of average flow (As requested by property owners within service area; City of Eloy standard is 1000 gallons per acre per day).
- 2) A peaking factor of 2.0 was used for all sewer lines analyzed, based on the following:

|                                |                            |
|--------------------------------|----------------------------|
| Total Sewer Service Area:      | 580 acres                  |
| Average Flow:                  | 696,000 gallons per day    |
| Average Flow per Person:       | 100 gallons per capita day |
| Total Population for Area (p): | 6960 person                |
| Population density:            | 12 persons per acre        |

Peak Factor per AA R 18-9-E301, Section D (i):

$$PF = (6.33 \times p^{-0.231}) + 1.094$$

$$PF = (6.33 \times 6960^{-0.231}) + 1.094$$

$$PF = 1.91 \approx \underline{2.0}$$

Criteria for Calculation of Line Capacities

- 1) 12" minimum line size = 0.19%
- 2) 15" minimum line size = 0.19%
- 3) Pipe flow calculated per Manning's Equation:  
Where "n"=0.013

Cumulative Flow (Q):

$$Q = (\# \text{ of acres}) * (\text{Demand per acres}) * (\text{Peaking factor})$$

Line Capacity (Q):

$$Q = (1.486/n) A R^{2/3} S^{1/2}$$

$$n = 0.013$$

A= Cross Sectional Area

R = Wetted Perimeter

S = Slope

See the appendix for detailed calculations for flow, pipe sizing, and depth as well as the Sewer Exhibits.

### III. PROPOSED WATER DESIGN

The City of Eloy operates and maintains all water supplies, wells, and pumping facilities which will serve the supply lines to the National Gypsum Company site. Improvements associated with this new project will require the installation of a new 12" water main to be connected and looped to the existing City lines in order to provide water to this site and other adjacent parcels.

The Water Exhibit in the appendix delineates the new lines required to serve the parcels surrounding the new Date Street improvements. The layout of the water system is looped to provide adequate pressures throughout the system. The new water line will connect to the existing system at two points: at the existing twelve-inch waterline in Sunshine Blvd. at Date Street and also on the north side of the I-10 freeway just before it crosses under the freeway and runs over to Sunshine Blvd along the west side of the Flying J service station.

The proposed twelve-inch waterline will be installed in Date Street between Sunshine Boulevard and the La Palma Road alignment. It will then run south along the west edge of the La Palma Road alignment within the existing right-of-way down to the north side of the I-10 freeway. From this point it will continue along the north edge of the I-10 outside the existing ADOT right-of-way and within a new dedicated waterline easement to where the existing line crosses I-10.

Per City of Eloy standards, all 12" water lines under pavement will have a minimum of 44-inches of cover while all other 12" waterlines will have a minimum of 60-inches of cover. All water lines must have at least six feet of horizontal and two feet of vertical separation from sewer lines and other appurtenances, without additional protection. Maximum allowable fire hydrant spacing is 500 feet.

#### Calculations

Average Demand/Day/Acre (commercial/industrial) = 2000 GPD (1.39 GPM)

Existing pressure at intersection of Sunshine Blvd. and Date Street:  $P = 48.67$  psi (Provided by Eloy Fire District. – flow test performed on 11/28/06, See Appendix for Pressure & Flow Data)

Elevation = 1564.6

Pressure Head at Reservoir 1:

$$\begin{aligned} &= P/\gamma \\ &= [(48.67/62.4) * 144] \\ &= 112.31 \text{ feet} \end{aligned}$$

Total Head at Reservoir 1:

$$\begin{aligned} &= \text{Elevation Head} + \text{Pressure Head} \\ &= 1564.60 + 112.31 \\ &= 1676.91 \text{ feet} \end{aligned}$$

Existing pressure at Flying J service station (south of I-10 Freeway at Sunshine Blvd.):

P = 41.33 psi (Provided by Eloy Fire District. – flow test performed on 11/28/06, See Appendix for Pressure & Flow Data)

Assumed Elevation = 1575.0

Pressure Head at Reservoir 2:

$$\begin{aligned} &= P/\gamma \\ &= [(41.33/62.4) * 144] \\ &= 95.38 \text{ feet} \end{aligned}$$

Total Head at Reservoir 2:

$$\begin{aligned} &= \text{Elevation Head} + \text{Pressure Head} \\ &= 1575.0 + 95.38 \\ &= \mathbf{1670.38 \text{ feet}} \end{aligned}$$

### Pressure Analysis

The water system was modeled using EPANet 2.0. The system was evaluated for a total of four water system scenarios, they are as follows: 1) Average Daily Demand 2) Maximum Day Demand 3) Maximum Day + Fire Flow and 4) Peak Hour Demand. The water system scenarios evaluated were found to have adequate pressures ranging from +/- 28 psi to +/- 48 psi within the various four water models. A fire flow analysis was also performed on the system by applying a demand of 2500 GPM on the node with the lowest pressure in the ADD model (node 7). This fire flow demand was supplied by Factory Mutual Insurance Company as a minimum that National Gypsum Company has to meet. Water pressures for the non fire flow scenarios never dipped below 39 psi and for the fire flow case, the water pressure was +/- 28 psi at node 7. See the appendix for complete results.

### Conclusions

- A 12" line will be installed in Date Street, along the west side of La Palma Road, alignment and along the north side of Interstate-10 in order to create a loop with the existing 12" line in Sunshine Boulevard.
- All adjacent parcels will be stubbed 8" waterlines from the line in Date Street.
- System is looped and will have at least two sources of feed.
- Pressures will be maintained between 28 and 48 psi for all demand requirements.
- Model meets City of Eloy design standards.

#### **IV. REFERENCES**

1-Factory Mutual Insurance Company

2-City of Eloy Water System Development Standards

3-Arizona Department of Environmental Quality, AA R 18-9-E301, Section D (i)

# APPENDIX

# SEWER

SEAL

| REV | DATE | DRAWN | DESCRIPTION |
|-----|------|-------|-------------|
|-----|------|-------|-------------|

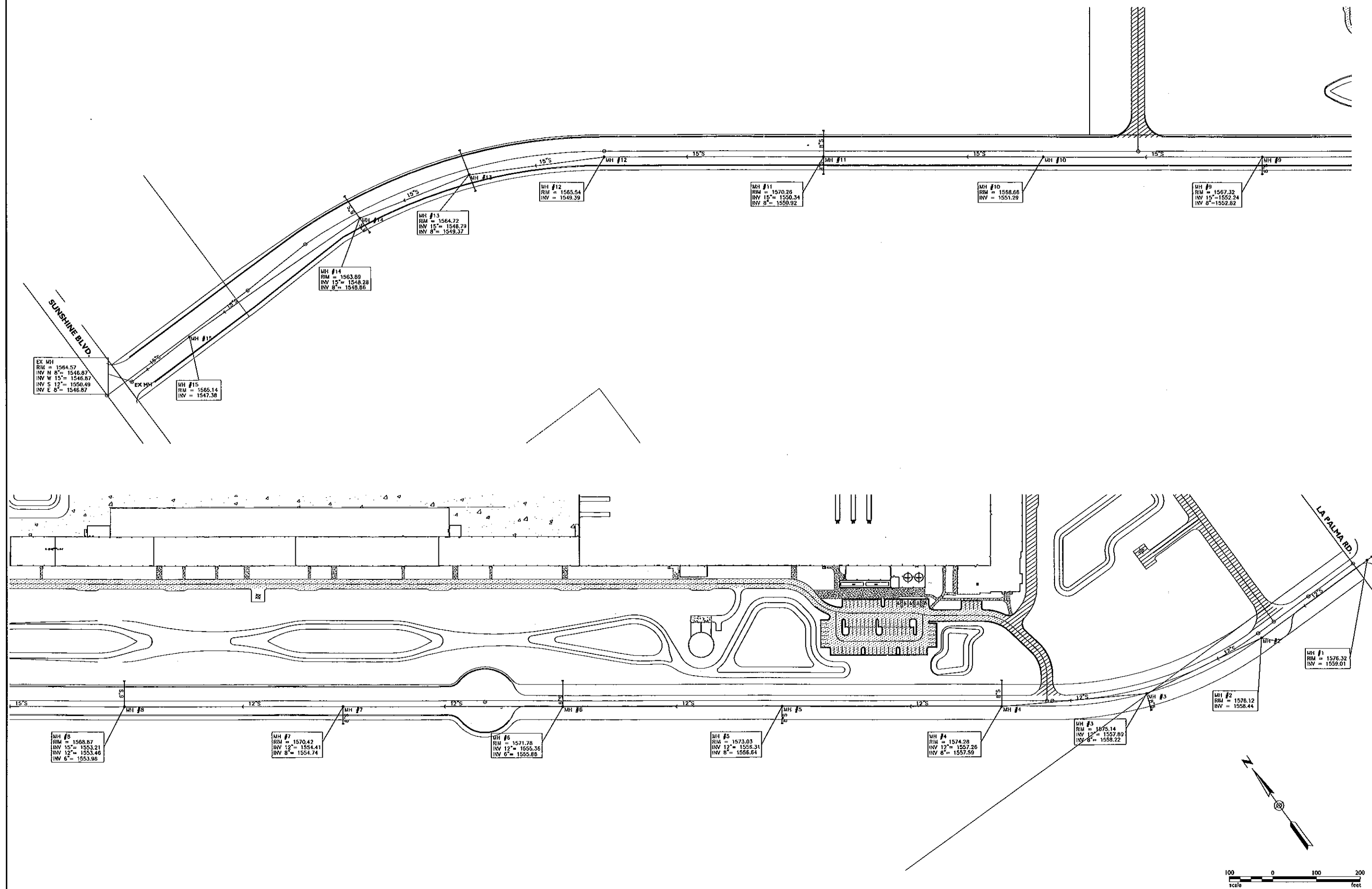
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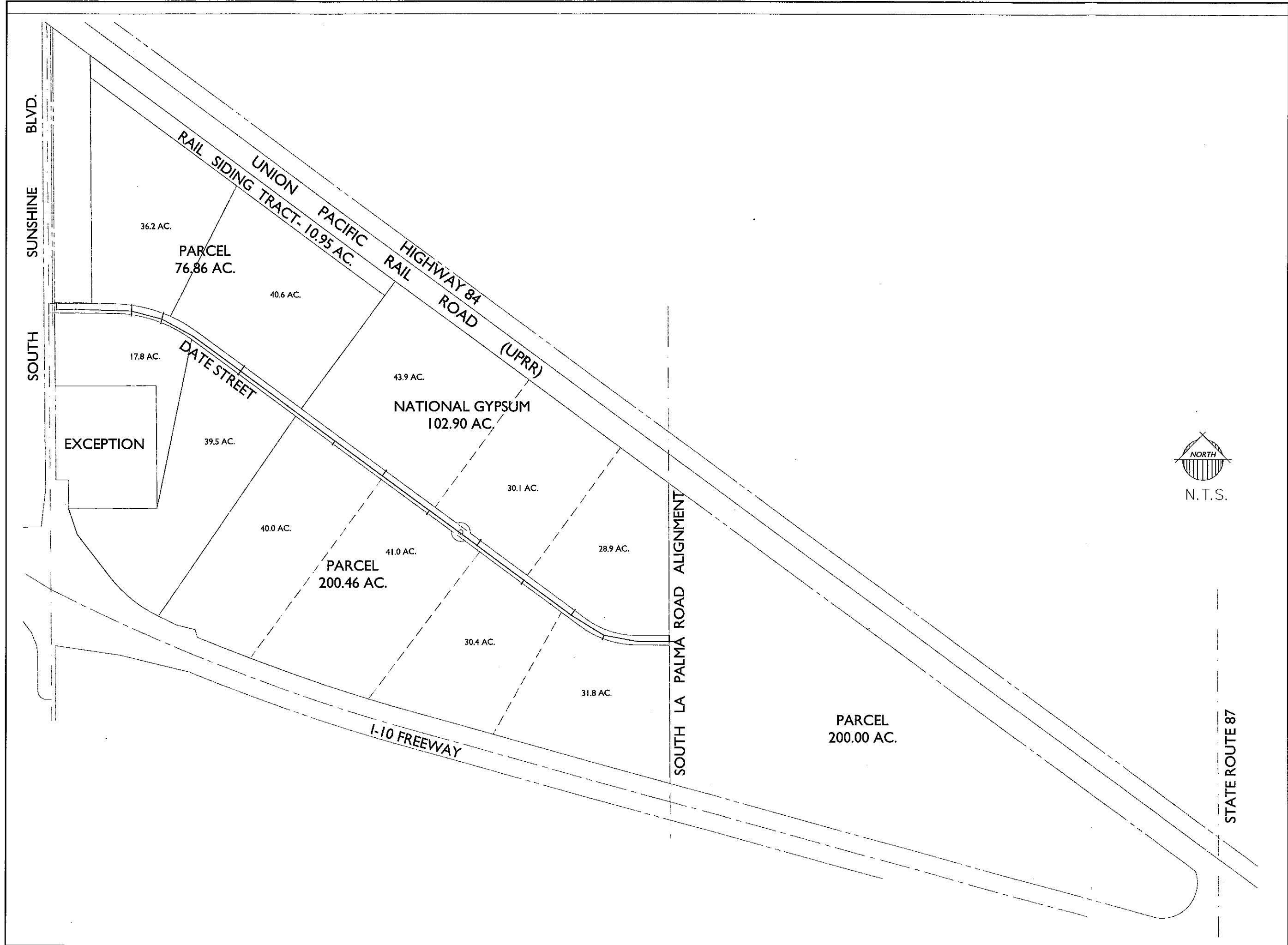
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SHEET TITLE  
SEWER EXHIBIT

|                 |                    |
|-----------------|--------------------|
| DRAWN: MPZ      |                    |
| CHECKED: AMT    | SHEET SIZE: 24x36  |
| APPROVED: EDW   | PLOT FACTOR: PAPER |
| PROJECT: 07-012 | DATE: 04-27-07     |
| CAD NAME:       | SCALE: 1"=100'     |

DRAWING NUMBER  
07-012 1 of 1





NEW WALLBOARD FACILITY  
FOR  
**National Gypsum**  
COMPANY  
ELOY, ARIZONA

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SHEET TITLE  
**ESTIMATED ACREAGE  
SEWER FLOWS EXHIBIT**

|                 |                    |
|-----------------|--------------------|
| DRAWN: MPZ      | SHEET SIZE: 24x36  |
| CHECKED: AMT    | PLOT FACTOR: PAPER |
| APPROVED: EDW   | DATE: 04-27-07     |
| PROJECT: 07-012 | SCALE: NTS         |
| CAD NAME:       |                    |

DRAWING NUMBER  
07-012 1 of 1

| REV | DATE | DRAWN | DESCRIPTION |
|-----|------|-------|-------------|
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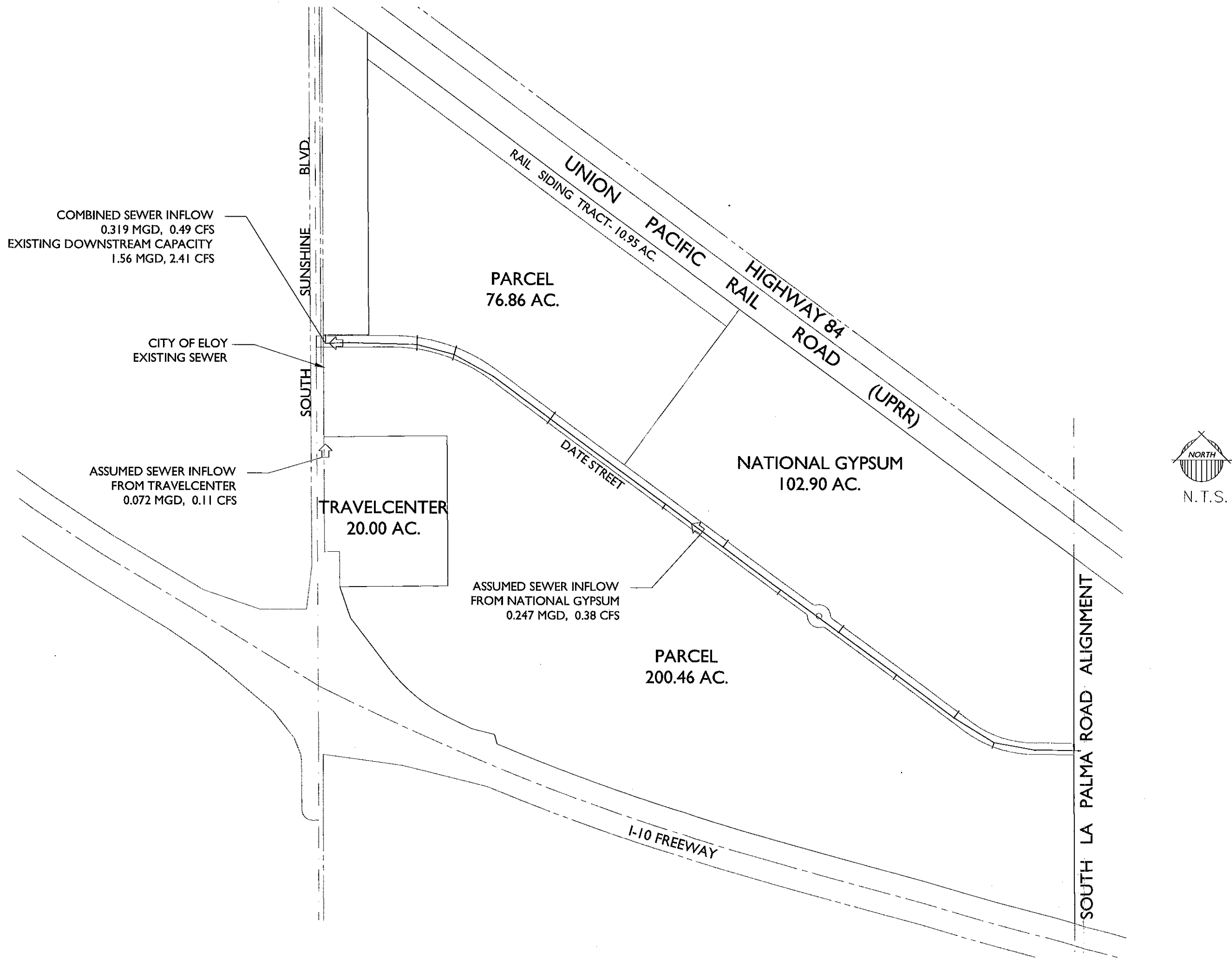
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SHEET TITLE

NGC POST DEVELOPED  
SEWER FLOWS EXHIBIT

|                 |                    |
|-----------------|--------------------|
| DRAWN: MPZ      |                    |
| CHECKED: AMT    | SHEET SIZE: 24x36  |
| APPROVED: EDW   | PLOT FACTOR: PAPER |
| PROJECT: 07-012 | DATE: 04-27-07     |
| CAD NAME:       | SCALE: NTS         |



Project: Date Street Sewer  
 Job #: 07-012  
 Date: 6/18/2007  
 Initials: EM

## Date Street Sewer Design Calculations

Demand per acre: 1200 gal/acre/day  
 Peaking factor: 2.0  
 Manning's "n": 0.013

| Up MH | Down MH | Pipe length<br>(ft) | Pipe dia.<br>(in) | # of<br>Acres | Cum. Flow<br>(MGD) | Cum. Flow<br>(cfs) | Line cap.<br>(cfs) | Capacity<br>Usage (%) | Up<br>inv. elev | Down<br>inv. elev | Pipe<br>slope % | Up MH<br>rim elev | Down MH<br>rim elev | Up MH<br>depth (ft) | Down MH<br>depth (ft) |
|-------|---------|---------------------|-------------------|---------------|--------------------|--------------------|--------------------|-----------------------|-----------------|-------------------|-----------------|-------------------|---------------------|---------------------|-----------------------|
| 1     | 2       | 301                 | 12                | 200.0         | 0.480              | 0.74               | 1.54               | 48.1%                 | 1559.01         | 1558.44           | 0.19            | 1576.32           | 1576.12             | 17.31               | 17.68                 |
| 2     | 3       | 292                 | 12                | 200.0         | 0.480              | 0.74               | 1.55               | 47.9%                 | 1558.44         | 1557.89           | 0.19            | 1576.12           | 1575.14             | 17.68               | 17.25                 |
| 3     | 4       | 331                 | 12                | 231.8         | 0.556              | 0.86               | 1.55               | 55.4%                 | 1557.89         | 1557.26           | 0.19            | 1575.14           | 1574.28             | 17.25               | 17.02                 |
| 4     | 5       | 500                 | 12                | 260.7         | 0.626              | 0.97               | 1.55               | 62.3%                 | 1557.26         | 1556.31           | 0.19            | 1574.28           | 1573.03             | 17.02               | 16.72                 |
| 5     | 6       | 500                 | 12                | 291.1         | 0.699              | 1.08               | 1.55               | 69.6%                 | 1556.31         | 1555.36           | 0.19            | 1573.03           | 1571.78             | 16.72               | 16.42                 |
| 6     | 7       | 500                 | 12                | 321.2         | 0.771              | 1.19               | 1.55               | 76.8%                 | 1555.36         | 1554.41           | 0.19            | 1571.78           | 1570.42             | 16.42               | 16.01                 |
| 7     | 8       | 500                 | 12                | 362.2         | 0.869              | 1.35               | 1.55               | 86.6%                 | 1554.41         | 1553.46           | 0.19            | 1570.42           | 1568.87             | 16.01               | 15.41                 |
| 8     | 9       | 500                 | 15                | 406.1         | 0.975              | 1.51               | 2.85               | 53.0%                 | 1553.21         | 1552.24           | 0.19            | 1568.87           | 1567.32             | 15.66               | 15.08                 |
| 9     | 10      | 500                 | 15                | 446.1         | 1.071              | 1.66               | 2.82               | 58.8%                 | 1552.24         | 1551.29           | 0.19            | 1567.32           | 1566.66             | 15.08               | 17.37                 |
| 10    | 11      | 500                 | 15                | 446.1         | 1.071              | 1.66               | 2.82               | 58.8%                 | 1551.29         | 1550.34           | 0.19            | 1566.66           | 1570.26             | 17.37               | 19.92                 |
| 11    | 12      | 500                 | 15                | 526.2         | 1.263              | 1.95               | 2.82               | 69.4%                 | 1550.34         | 1549.39           | 0.19            | 1570.26           | 1565.54             | 19.92               | 16.15                 |
| 12    | 13      | 311                 | 15                | 526.2         | 1.263              | 1.95               | 2.84               | 68.9%                 | 1549.39         | 1548.79           | 0.19            | 1565.54           | 1564.72             | 16.15               | 15.93                 |
| 13    | 14      | 267                 | 15                | 526.2         | 1.263              | 1.95               | 2.82               | 69.2%                 | 1548.79         | 1548.28           | 0.19            | 1564.72           | 1563.89             | 15.93               | 15.61                 |
| 14    | 15      | 474                 | 15                | 580.2         | 1.392              | 2.15               | 2.81               | 76.5%                 | 1548.28         | 1547.38           | 0.19            | 1563.89           | 1565.14             | 15.61               | 17.76                 |
| 15    | EX MH   | 166                 | 15                | 580.2         | 1.392              | 2.15               | 3.29               | 65.5%                 | 1547.38         | 1546.95           | 0.26            | 1565.14           | 1564.57             | 17.76               | 17.62                 |

NOTES:  
 Date Street Sewer Line is based on service area which includes National Gypsum Company (NGC) site & other parcels between Sunshine Blvd, Interstate-10, & State Highway 84.  
 NGC site is approximately 103 acres with an estimated flow of  $(103 \times 1200 \times 2.0) / 1,000,000 = 0.247$  MGD.  
 Parcel between Sunshine Blvd, Date Street, State Highway 84, & NGC is approximately 76.8 acres.  
 Parcel between Sunshine Blvd, Date Street, Interstate-10, & La Palma Road is approximately 200.5 acres.  
 Parcel between La Palma Road, State Highway 84, & Interstate-10 is approximately 200 acres.  
 Per the NGC developer, its site will generate less than 1200 gal/acre/day, which will create additional capacity for parcels within this service area.

**Project:** Date Street Sewer  
**Job #:** 07-012  
**Date:** 6/19/2007  
**Initials:** EM

## City of Eloy Existing Sewer Calculations

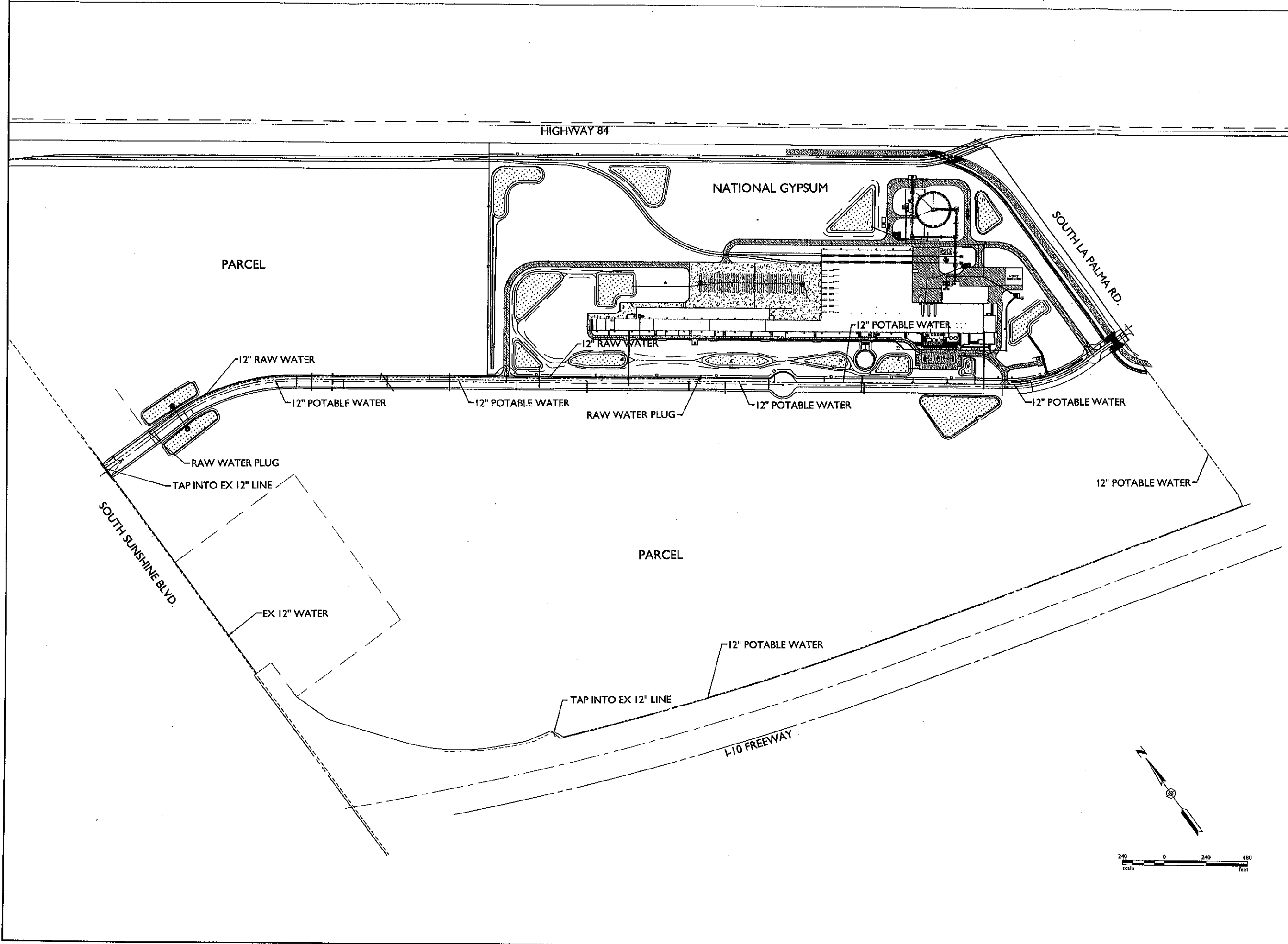
Demand per acre: 1200 gal/acre/day  
 Peaking factor Travelcenter: 3.0  
 Peaking factor NGC: 2.0  
 Manning's "n": 0.013

| Up MH | Down MH | Pipe length<br>(ft) | Pipe dia.<br>(in) | # of<br>Acres | Cum. Flow<br>(MGD) | Cum. Flow<br>(cfs) | Line cap.<br>(cfs) | Capacity<br>Usage (%) | Up<br>inv. elev | Down<br>inv. elev | Pipe<br>slope % | Up MH<br>rim elev | Down MH<br>rim elev | Up MH<br>depth (ft) | Down MH<br>depth (ft) |
|-------|---------|---------------------|-------------------|---------------|--------------------|--------------------|--------------------|-----------------------|-----------------|-------------------|-----------------|-------------------|---------------------|---------------------|-----------------------|
| Ex 22 | Ex 21   | 203.46              | 8                 | 20.0          | 0.072              | 0.11               | 1.01               | 11.0%                 | 1562.65         | 1561.23           | 0.70            | 1570.55           | 1569.28             | 7.90                | 8.05                  |
| Ex 21 | Ex 20   | 276.61              | 12                | 20.0          | 0.072              | 0.11               | 1.56               | 7.1%                  | 1555.48         | 1554.95           | 0.19            | 1569.28           | 1568.46             | 13.80               | 13.51                 |
| Ex 20 | Ex 19   | 369.00              | 12                | 20.0          | 0.072              | 0.11               | 1.92               | 5.8%                  | 1554.95         | 1553.88           | 0.29            | 1568.46           | 1568.03             | 13.51               | 14.15                 |
| Ex 19 | Ex 18   | 322.26              | 15                | 123.0         | 0.319              | 0.49               | 2.76               | 17.9%                 | 1550.00         | 1549.41           | 0.18            | 1568.03           | 1567.34             | 18.03               | 17.93                 |
| Ex 18 | Ex 17   | 501.16              | 15                | 123.0         | 0.319              | 0.49               | 2.41               | 20.4%                 | 1549.41         | 1548.71           | 0.14            | 1567.34           | 1566.14             | 17.93               | 17.43                 |
| Ex 17 | Ex 16   | 41.78               | 15                | 123.0         | 0.319              | 0.49               | 2.45               | 20.2%                 | 1548.71         | 1548.65           | 0.14            | 1566.14           | 1566.35             | 17.43               | 17.70                 |

### NOTES:

Calculations are based on the case of having only NGC's post developed flows entering the City of Eloy's existing sewer system at Sunshine Blvd.  
 Date Street Sewer Line is based on service area which includes National Gypsum Company (NGC) site & other parcels between Sunshine Blvd, Interstate-10, & State Highway 84.  
 NGC site is approximately 103 acres with an estimated flow of  $(103 \times 1200 \times 2.0) / 1,000,000 = 0.247$  MGD.  
 Travelcenter site is approximately 20 acres with an estimated flow of  $(20 \times 1200 \times 3.0) / 1,000,000 = 0.072$  MGD.  
 Existing manhole data was provided per DNA Sewer As-built drawings dated 07-19-01

**WATER**



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SEAL

| REV | DATE | DRAWN | DESCRIPTION |
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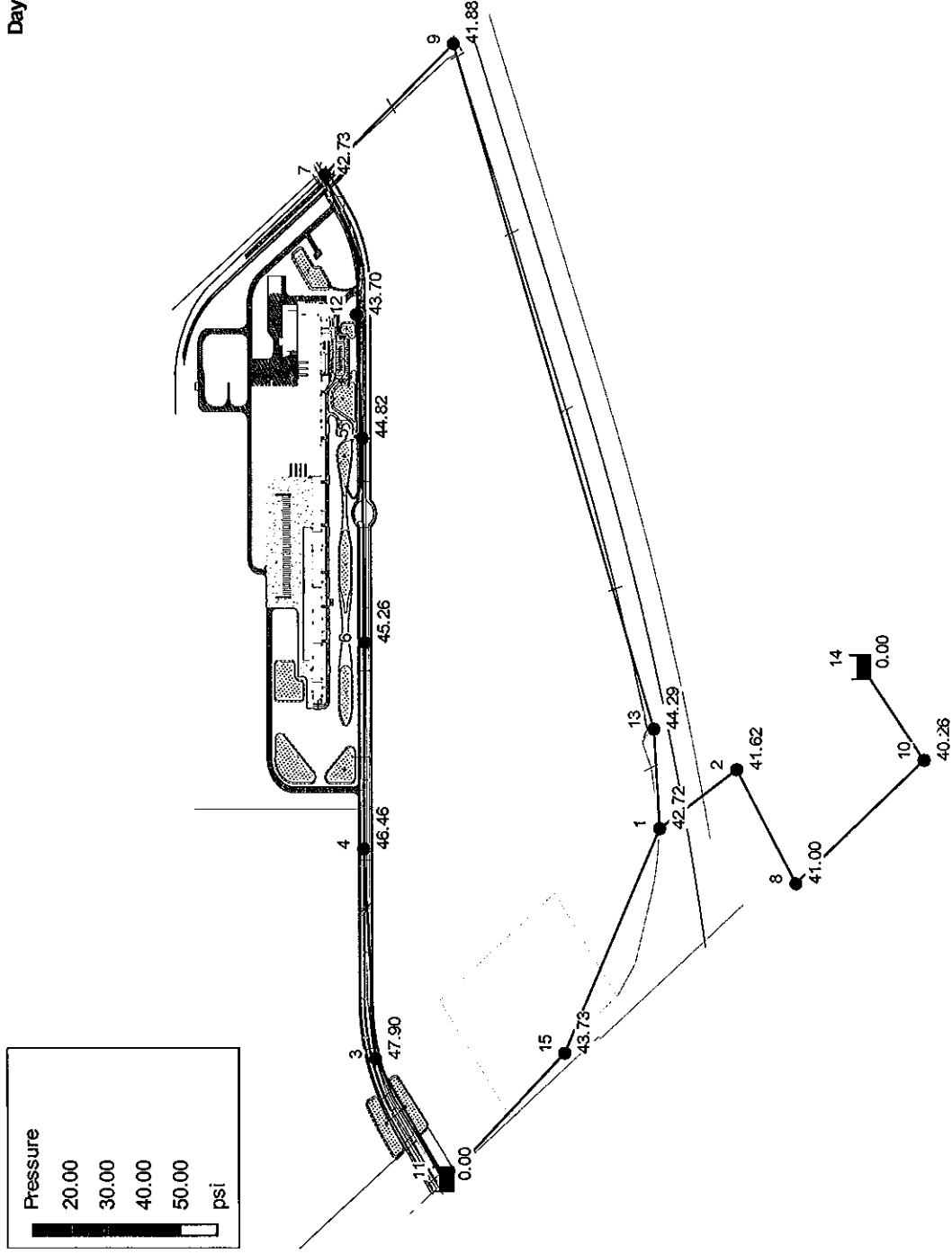
SHEET TITLE  
**WATER EXHIBIT**

|                 |                    |
|-----------------|--------------------|
| DRAWN: JP2      | SHEET SIZE: 24x36  |
| CHECKED: AMT    | PLOT FACTOR: PAPER |
| APPROVED: EDW   | DATE: 04-27-07     |
| PROJECT: 07-012 | SCALE: 1"=240'     |
| CAD NAME:       |                    |

## **WATER MODEL – AVERAGE DAY DEMAND**

# AVERAGE DAY DEMAND

Day 1, 12:01



# AVERAGE DAILY DEMAND

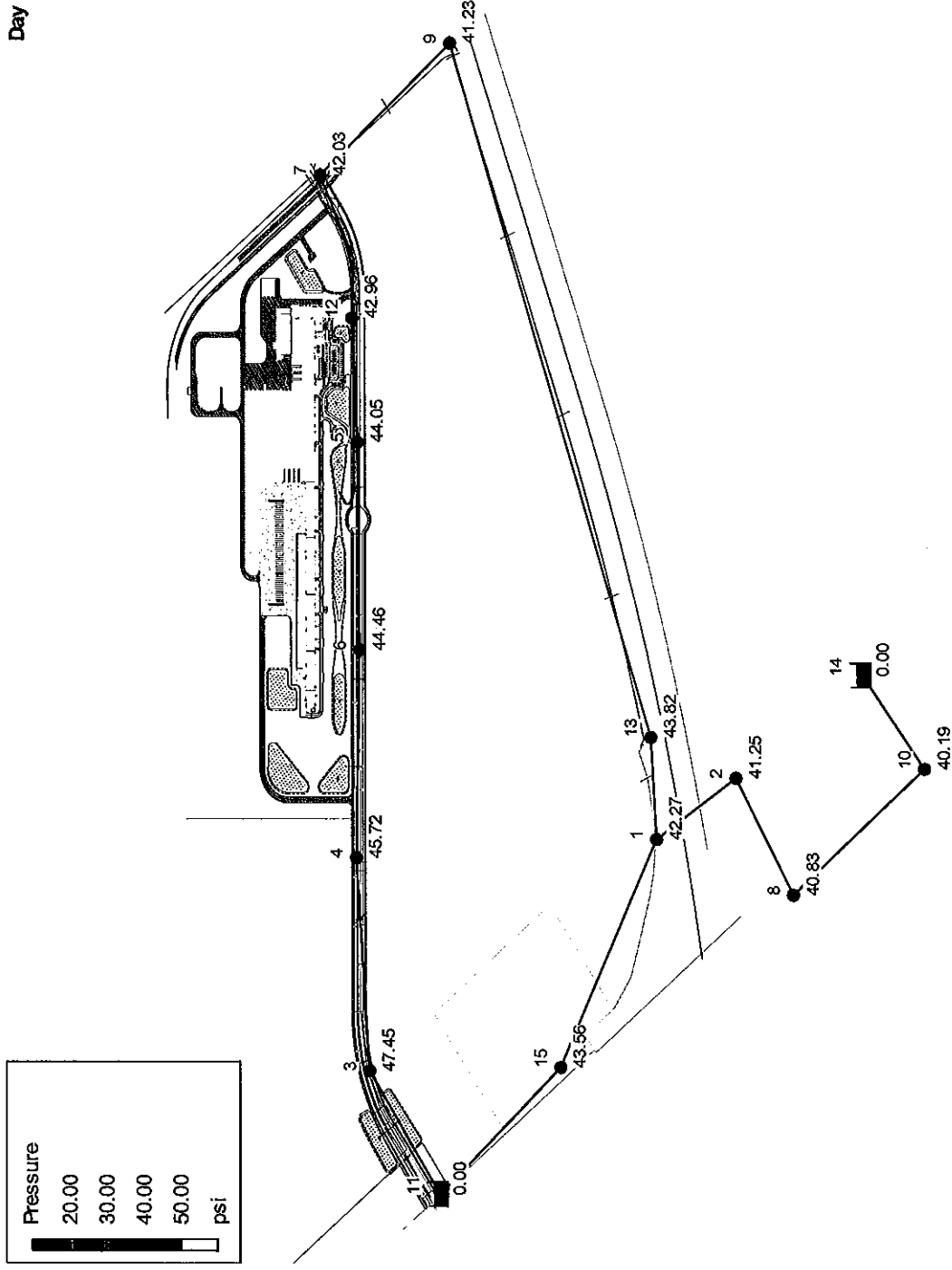
Network Calculation Table

| <b>Node ID</b> | <b>Elevation<br/>ft</b> | <b>Base Demand<br/>GPM</b> | <b>Head<br/>ft</b> | <b>Pressure<br/>psi</b> |
|----------------|-------------------------|----------------------------|--------------------|-------------------------|
| Junction 3     | 1565.4                  | 124                        | 1675.95            | 47.90                   |
| Junction 4     | 1567.8                  | 124                        | 1675.01            | 46.46                   |
| Junction 5     | 1570.6                  | 141                        | 1674.04            | 44.82                   |
| Junction 6     | 1570.0                  | 69                         | 1674.44            | 45.26                   |
| Junction 7     | 1575.3                  | 0                          | 1673.91            | 42.73                   |
| Junction 9     | 1577.2                  | 0                          | 1673.84            | 41.88                   |
| Junction 12    | 1573.1                  | 72                         | 1673.96            | 43.70                   |
| Junction 13    | 1571.4                  | 0                          | 1673.62            | 44.29                   |
| Junction 1     | 1575.0                  | 0                          | 1673.59            | 42.72                   |
| Junction 2     | 1577.0                  | 0                          | 1673.06            | 41.62                   |
| Junction 8     | 1577.0                  | 0                          | 1671.63            | 41.00                   |
| Junction 10    | 1578.0                  | 17                         | 1670.92            | 40.26                   |
| Junction 15    | 1575.0                  | 28                         | 1675.92            | 43.73                   |
| Reservoir 11   | 1677.0                  | #N/A                       | 1677.00            | 0.00                    |
| Reservoir 14   | 1670.5                  | #N/A                       | 1670.50            | 0.00                    |

## **WATER – MAXIMUM DAY DEMAND**

# MAXIMUM DAY DEMAND

Day 1, 12:01



# MAXIMUM DAILY DEMAND

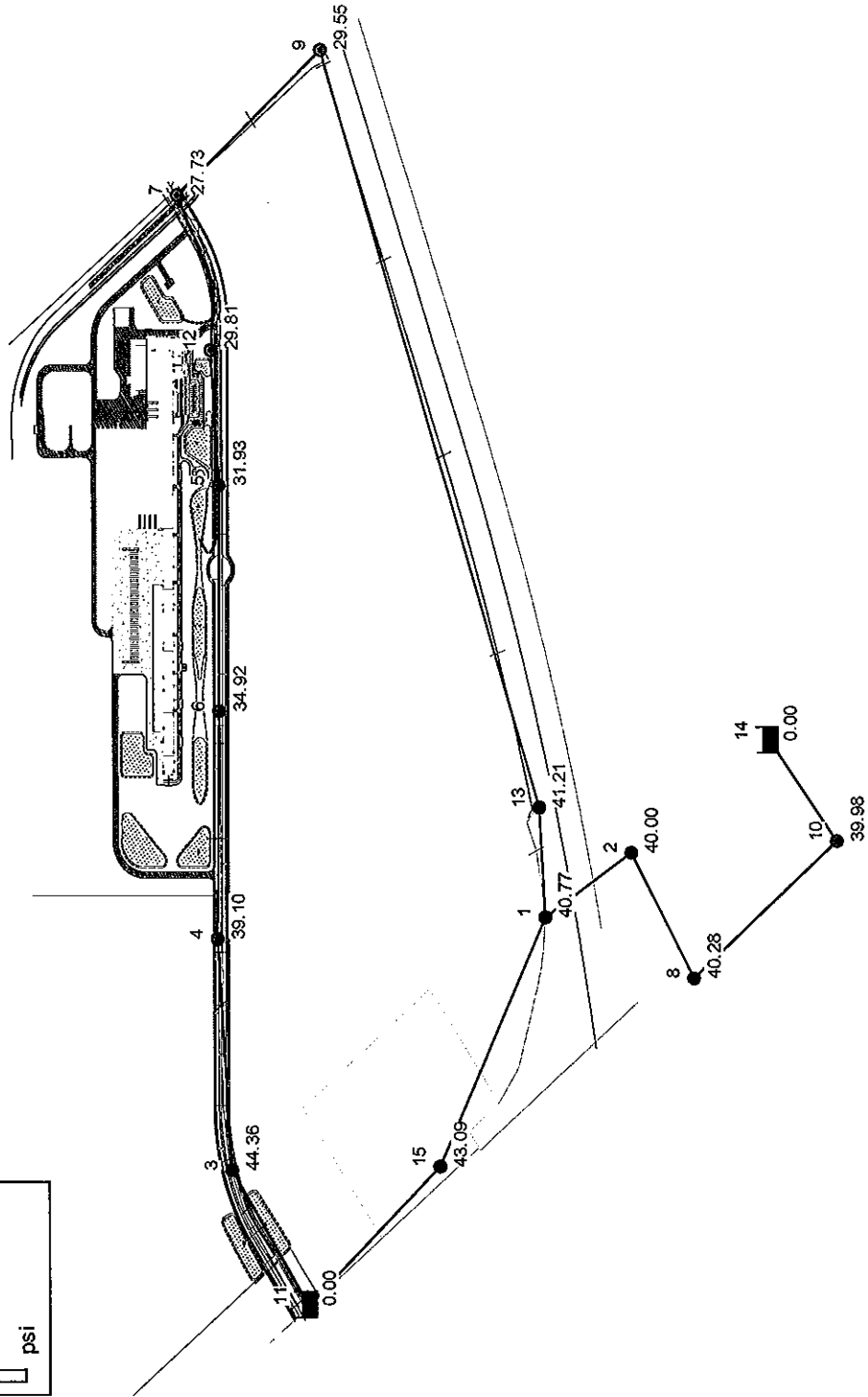
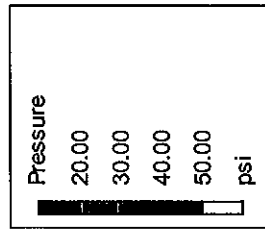
## Network Calculation Table

| <b>Node ID</b> | <b>Elevation<br/>ft</b> | <b>Base Demand<br/>GPM</b> | <b>Head<br/>ft</b> | <b>Pressure<br/>psi</b> |
|----------------|-------------------------|----------------------------|--------------------|-------------------------|
| Junction 3     | 1565.4                  | 248                        | 1674.91            | 47.45                   |
| Junction 4     | 1567.8                  | 248                        | 1673.32            | 45.72                   |
| Junction 5     | 1570.6                  | 282                        | 1672.26            | 44.05                   |
| Junction 6     | 1570.0                  | 138                        | 1672.62            | 44.46                   |
| Junction 7     | 1575.3                  | 0                          | 1672.29            | 42.03                   |
| Junction 9     | 1577.2                  | 0                          | 1672.35            | 41.23                   |
| Junction 12    | 1573.1                  | 144                        | 1672.25            | 42.96                   |
| Junction 13    | 1571.4                  | 0                          | 1672.52            | 43.82                   |
| Junction 1     | 1575.0                  | 0                          | 1672.55            | 42.27                   |
| Junction 2     | 1577.0                  | 0                          | 1672.19            | 41.25                   |
| Junction 8     | 1577.0                  | 0                          | 1671.24            | 40.83                   |
| Junction 10    | 1578.0                  | 34                         | 1670.76            | 40.19                   |
| Junction 15    | 1575.0                  | 56                         | 1675.53            | 43.56                   |
| Reservoir 11   | 1677.0                  | #N/A                       | 1677.00            | 0.00                    |
| Reservoir 14   | 1670.5                  | #N/A                       | 1670.50            | 0.00                    |

## **WATER – MAXIMUM DAY + FIRE FLOW DEMAND**

# MAX DAY DEMAND & FIRE FLOW @ JUNCTION 7

Day 1, 12:01



# MAXIMUM AND FIRE FLOW DEMAND

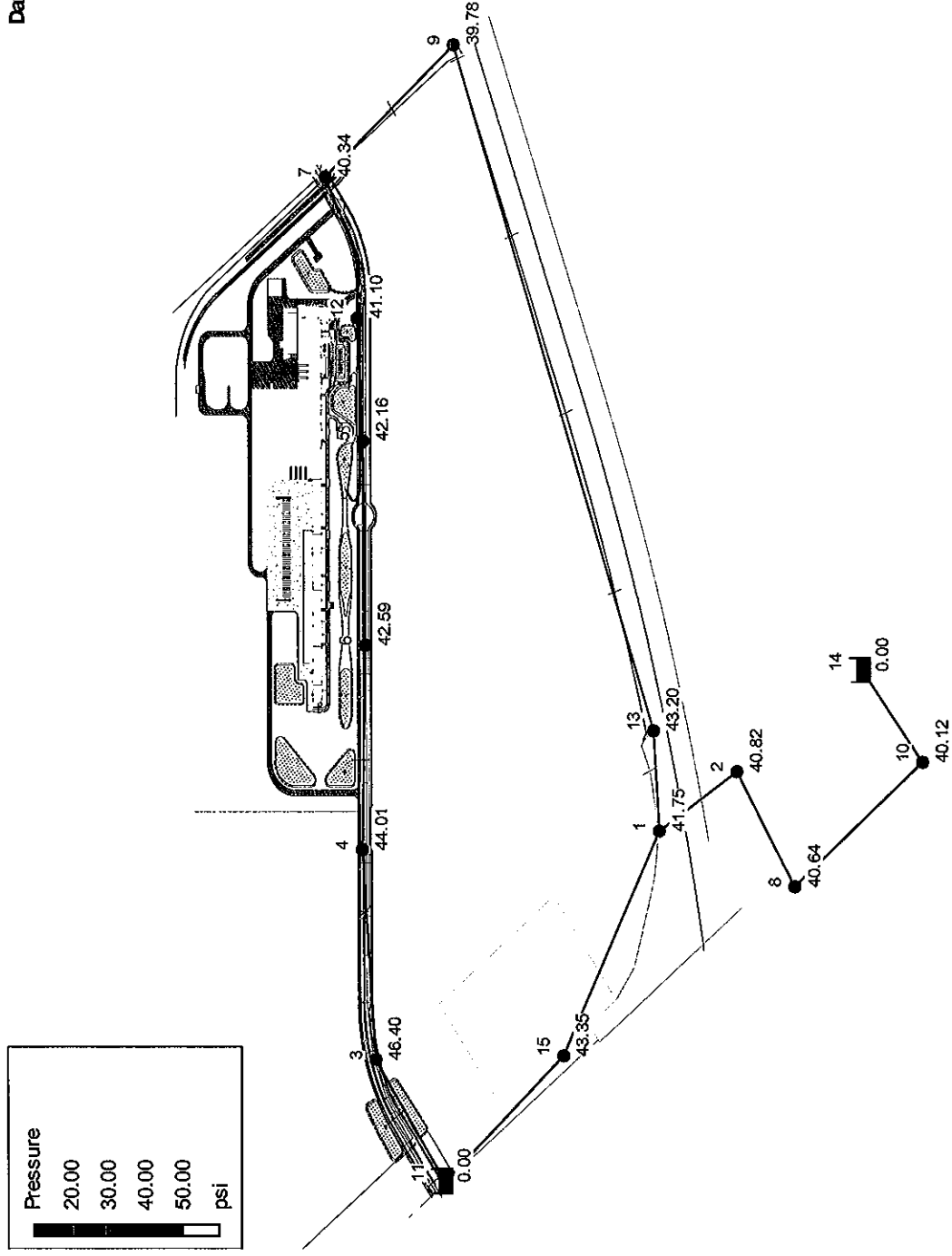
Network Calculation Table

| <b>Node ID</b> | <b>Elevation<br/>ft</b> | <b>Base Demand<br/>GPM</b> | <b>Head<br/>ft</b> | <b>Pressure<br/>psi</b> |
|----------------|-------------------------|----------------------------|--------------------|-------------------------|
| Junction 3     | 1565.4                  | 248                        | 1667.78            | 44.36                   |
| Junction 4     | 1567.8                  | 248                        | 1658.04            | 39.10                   |
| Junction 5     | 1570.6                  | 282                        | 1644.28            | 31.93                   |
| Junction 6     | 1570.0                  | 138                        | 1650.60            | 34.92                   |
| Junction 7     | 1575.3                  | 2500                       | 1639.30            | 27.73                   |
| Junction 9     | 1577.2                  | 0                          | 1645.41            | 29.55                   |
| Junction 12    | 1573.1                  | 144                        | 1641.90            | 29.81                   |
| Junction 13    | 1571.4                  | 0                          | 1666.51            | 41.21                   |
| Junction 1     | 1575.0                  | 0                          | 1669.08            | 40.77                   |
| Junction 2     | 1577.0                  | 0                          | 1669.32            | 40.00                   |
| Junction 8     | 1577.0                  | 0                          | 1669.96            | 40.28                   |
| Junction 10    | 1578.0                  | 34                         | 1670.28            | 39.98                   |
| Junction 15    | 1575.0                  | 56                         | 1674.45            | 43.09                   |
| Reservoir 11   | 1677.0                  | #N/A                       | 1677.00            | 0.00                    |
| Reservoir 14   | 1670.5                  | #N/A                       | 1670.50            | 0.00                    |

## **WATER – PEAK HOUR DEMAND**

# PEAH HOUR DEMAND

Day 1, 12:01



# PEAK HOUR DEMAND

Network Calculation Table

| <b>Node ID</b> | <b>Elevation<br/>ft</b> | <b>Base Demand<br/>GPM</b> | <b>Head<br/>ft</b> | <b>Pressure<br/>psi</b> |
|----------------|-------------------------|----------------------------|--------------------|-------------------------|
| Junction 3     | 1565.4                  | 434                        | 1672.47            | 46.40                   |
| Junction 4     | 1567.8                  | 434                        | 1669.38            | 44.01                   |
| Junction 5     | 1570.6                  | 493.5                      | 1667.90            | 42.16                   |
| Junction 6     | 1570.0                  | 241.5                      | 1668.29            | 42.59                   |
| Junction 7     | 1575.3                  | 0                          | 1668.41            | 40.34                   |
| Junction 9     | 1577.2                  | 0                          | 1669.01            | 39.78                   |
| Junction 12    | 1573.1                  | 252                        | 1667.95            | 41.10                   |
| Junction 13    | 1571.4                  | 0                          | 1671.10            | 43.20                   |
| Junction 1     | 1575.0                  | 0                          | 1671.35            | 41.75                   |
| Junction 2     | 1577.0                  | 0                          | 1671.20            | 40.82                   |
| Junction 8     | 1577.0                  | 0                          | 1670.79            | 40.64                   |
| Junction 10    | 1578.0                  | 59.5                       | 1670.59            | 40.12                   |
| Junction 15    | 1575.0                  | 98                         | 1675.04            | 43.35                   |
| Reservoir 11   | 1677.0                  | #N/A                       | 1677.00            | 0.00                    |
| Reservoir 14   | 1670.5                  | #N/A                       | 1670.50            | 0.00                    |

## **CITY OF ELOY – FLOW TEST DATA**

## Eloy Fire District

## Hydrant Flow Test By Hydrant

Hydrant Number = "123011" and Date  
Between {04/10/2004} And {04/10/2007}

| 123011               | east Flying J            |          |       |         |     |        |        |       |
|----------------------|--------------------------|----------|-------|---------|-----|--------|--------|-------|
| Date                 | Static                   | Residual | Pitot | Pitot 2 | GPM | 20 PSI | 10 PSI | 0 PSI |
| 01/18/2005           | 64                       | 54       | 26.00 | 0.00    | 856 | 1905   | 2128   | 2332  |
|                      | <No Staff Member Listed> |          |       |         |     |        |        |       |
| 11/20/2005           | 62                       | 40       | 33.00 | 0.00    | 964 | 1367   | 1534   | 1687  |
| 1252                 | Espinoza, Coe            |          |       |         |     |        |        |       |
| 11/28/2006           | 50                       | 30       | 16.00 | 0.00    | 671 | 835    | 976    | 1101  |
| 1650                 | McKinney, Michael E      |          |       |         |     |        |        |       |
| Subtotal Flow Tests: |                          |          |       | Min:    | 671 | 835    | 976    | 1101  |
|                      |                          |          |       | Max:    | 964 | 1905   | 2128   | 2332  |
|                      |                          |          |       | Avg:    | 830 | 1369   | 1546   | 1706  |
| Total Flow Tests:    |                          |          |       |         |     |        |        |       |
|                      |                          |          |       |         |     |        |        |       |

RESERVOIR #1

Eloy Fire District

Hydrant Flow Test By Hydrant

Hydrant Number = "123063" and Date  
Between {04/10/2004} And {04/10/2007}

| 123063               | S Sunshine Blue Beacon   |          |       |         |     |        |        |       |
|----------------------|--------------------------|----------|-------|---------|-----|--------|--------|-------|
| Date                 | Static                   | Residual | Pitot | Pitot 2 | GPM | 20 PSI | 10 PSI | 0 PSI |
| 04/23/2004           | 64                       | 44       | 20.00 | 0.00    | 750 | 1148   | 1282   | 1406  |
| 5072                 | Poindexter, Robert E     |          |       |         |     |        |        |       |
| 01/18/2005           | 60                       | 53       | 24.00 | 0.00    | 822 | 2107   | 2377   | 2623  |
|                      | <No Staff Member Listed> |          |       |         |     |        |        |       |
| 11/20/2005           | 62                       | 40       | 12.00 | 0.00    | 581 | 824    | 925    | 1017  |
| 1252                 | Espinoza, Joe            |          |       |         |     |        |        |       |
| 11/28/2006           | 50                       | 12       | 8.00  | 0.00    | 475 | 418    | 488    | 551   |
| 1650                 | McKinney, Michael E      |          |       |         |     |        |        |       |
| Subtotal Flow Tests: |                          | 4        | Min:  |         | 475 | 418    | 488    | 551   |
|                      |                          |          | Max:  |         | 822 | 2107   | 2377   | 2623  |
|                      |                          |          | Avg:  |         | 657 | 1124   | 1268   | 1399  |
| Total Flow Tests:    |                          | 4        |       |         |     |        |        |       |

RESERVOIR #2