Appendix A

Facility Worksheets

(Compact Disc)

Pressure Zones
Central
Airport
Southern
Western

Master Meters			
Name	**Inspected**	**Photos**	**As Builts**
Weston	Yes	Yes	-
Evans	Yes	Yes	-
Hwy 54	Yes	Yes	Yes
Lake Pine	No	No	-
Holiday Inn	Yes	Yes	-
National Guard	Yes	Yes	-
RDU Airport	Yes	Yes	-
Lake Crabtree	Yes	Yes	-
Penny Road	Yes	Yes	Yes
Hwy 55	NO	NO	-
McCrimmon	No	No	Yes
Green	No	No	-

Facility Worksheet
MASTER METER STATION

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Weston MM

Facility Address: Off Weston Parkway

Pressure Zone From: Central - Cary

Pressure Zone To: Central - Morrisville

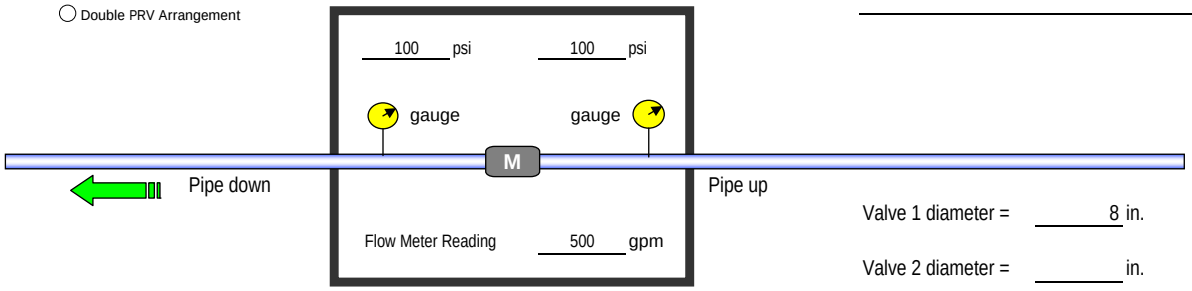
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Valve:

Additional Notes: Bi-directional

○ Pressure Reducing Valve
○ Single PRV Arrangement
○ Double PRV Arrangement
○ Flow Control Valve
○ Pressure Sustaining Valve



Valve 1 diameter = 8 in.

Valve 2 diameter = in.

Pipe up / down dia. = 16 in.

Indicate "N/A" if information not available.

Year Constructed: 1980s

Has Drawing Been Provided? No

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Meter use: 365 (days/yr) 24 (hrs/day) (sporadically)

Any parts needing replacement? Chart recorder motor needs replacement; Calibration occurs every 6 months

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA? N/A

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: Foxboro Mag Meter

Is historical flow data available at this station and in what form? Yes Chart recorders Meters read monthly

Can master meter be closed without negatively impacting pressure in zone? Yes

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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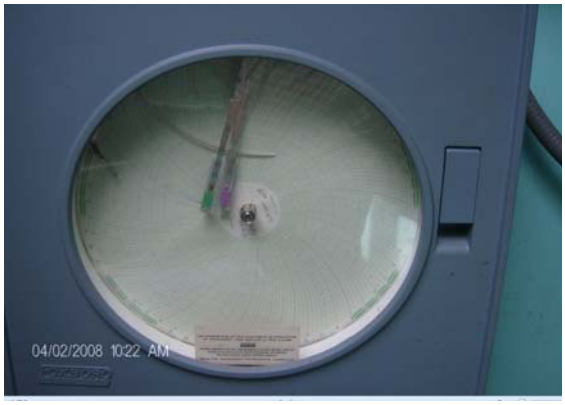
Facility Worksheet
MASTER METER STATION

Weston Mag Meter

Weston MM Flow Chart (Temporarily Broken)



Weston MM Flow Displays

Weston MM Pressure Gauge (1 of 2)

Weston MM Site

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Facility Worksheet
MASTER METER STATION

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Evans MM

Facility Address: Off Evans

Pressure Zone From: Central

Pressure Zone To: Central

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Valve: Check Valve, Strainer, and Turbine Meter

Additional Notes: Can use as a feed point

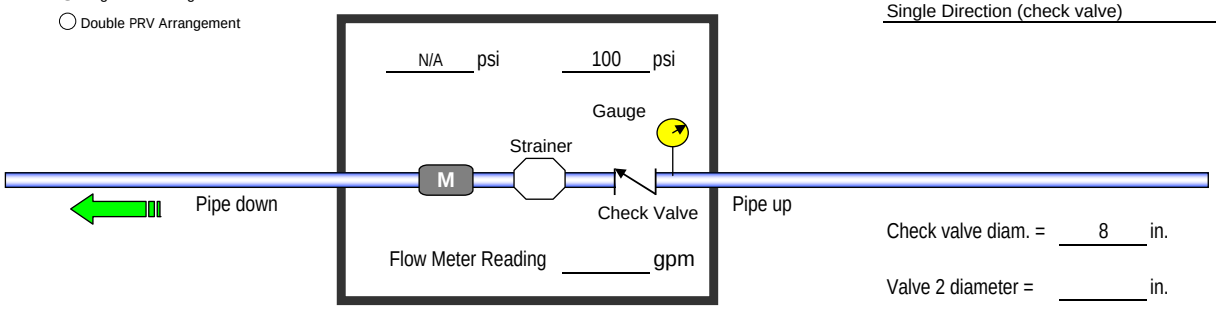
Bulk of water comes through here

Single Direction (check valve)

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Check valve diam. = 8 in.

Valve 2 diameter = in.

Pipe up / down dia. = 8 in.

Indicate "N/A" if information not available.

Year Constructed: 1980s

Has Drawing Been Provided? No

Overall Physical Condition: ○ Excellent ○ Good ○ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Meter use: 365 (days/yr) 24 (hrs/day) (sporadically)

Any parts needing replacement? Meter replaced February 2006; Calibrated every 6 months

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA? No SCADA

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: Neptune Turbine Meter (8 inch) Model # HPT 02063429

Is historical flow data available at this station and in what form? Meters read monthly

Can master meter be closed without negatively impacting pressure in zone? Must stay online

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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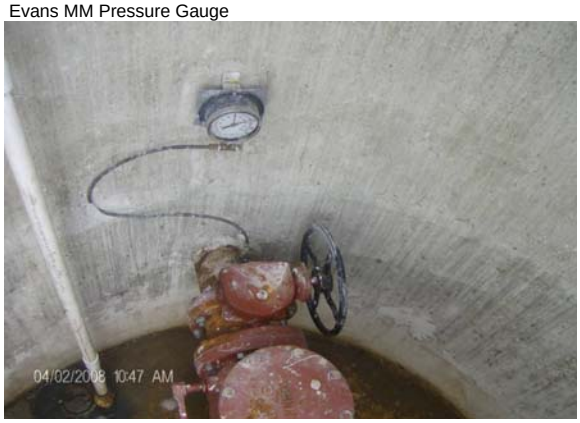
Facility Worksheet
MASTER METER STATION

Evans MM Pressure Gauge



Evans MM Site

Evans Turbine Meter and Check Valve

Evans Turbine Meter

Facility Worksheet
MASTER METER STATION

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Hwy 54 MM

Facility Address: Off Hwy 54

Pressure Zone From: Central

Pressure Zone To: Central

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Valve:

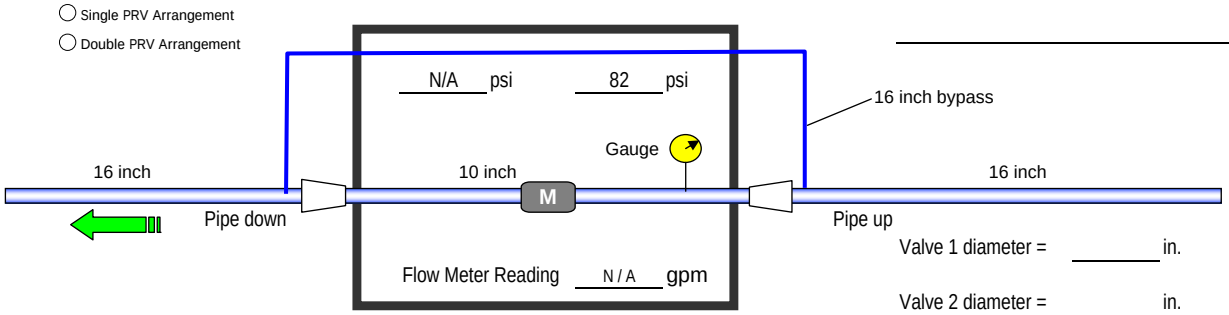
Additional Notes: Is Morrisville still monitoring via SCADA?

Local flow reading not available

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = in.

Valve 2 diameter = in.

Pipe up / down dia. = 10 in.

Indicate "N/A" if information not available.

Year Constructed: 3-4 yrs. ago

Has Drawing Been Provided? Yes

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Meter use: 365 (days/yr) 24 (hrs/day) (sporadically)

Any parts needing replacement? Potentially, telemetry status unknown. Meter calibration occurs every 6 months. Bolts and fittings need painting (wet vault).

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA? Signal not at WTP but set up for SCADA

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: Mag Meter

Is historical flow data available at this station and in what form? Yes, meter read monthly

Can master meter be closed without negatively impacting pressure in zone? Must stay online

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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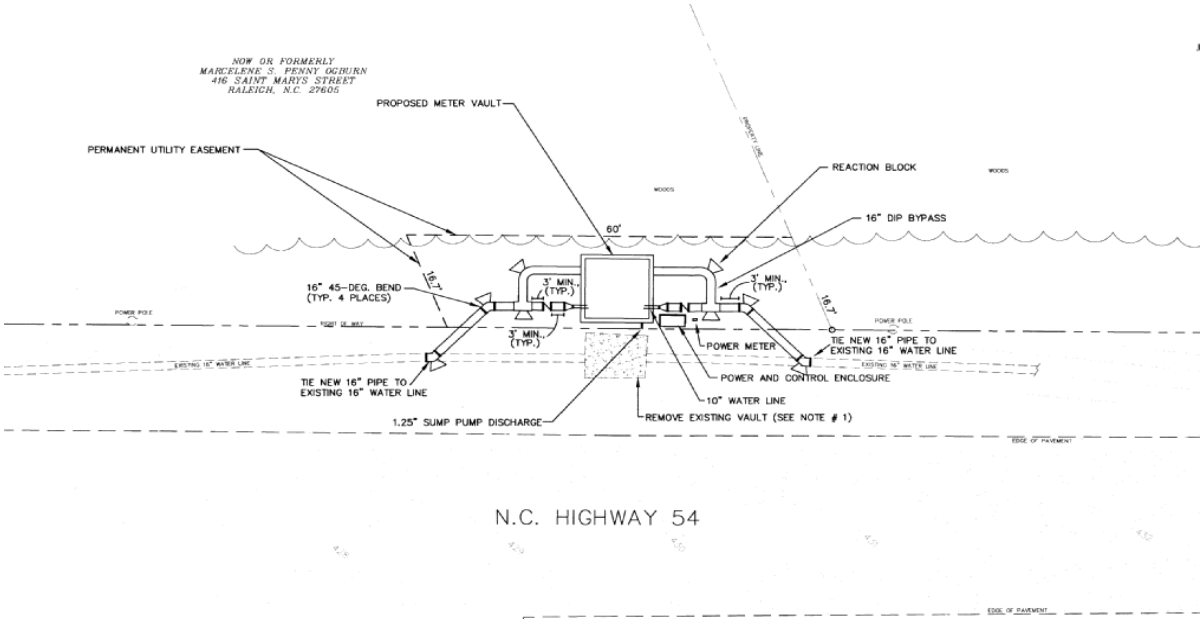
Facility Worksheet
MASTER METER STATION

Hwy 54 Mag Meter

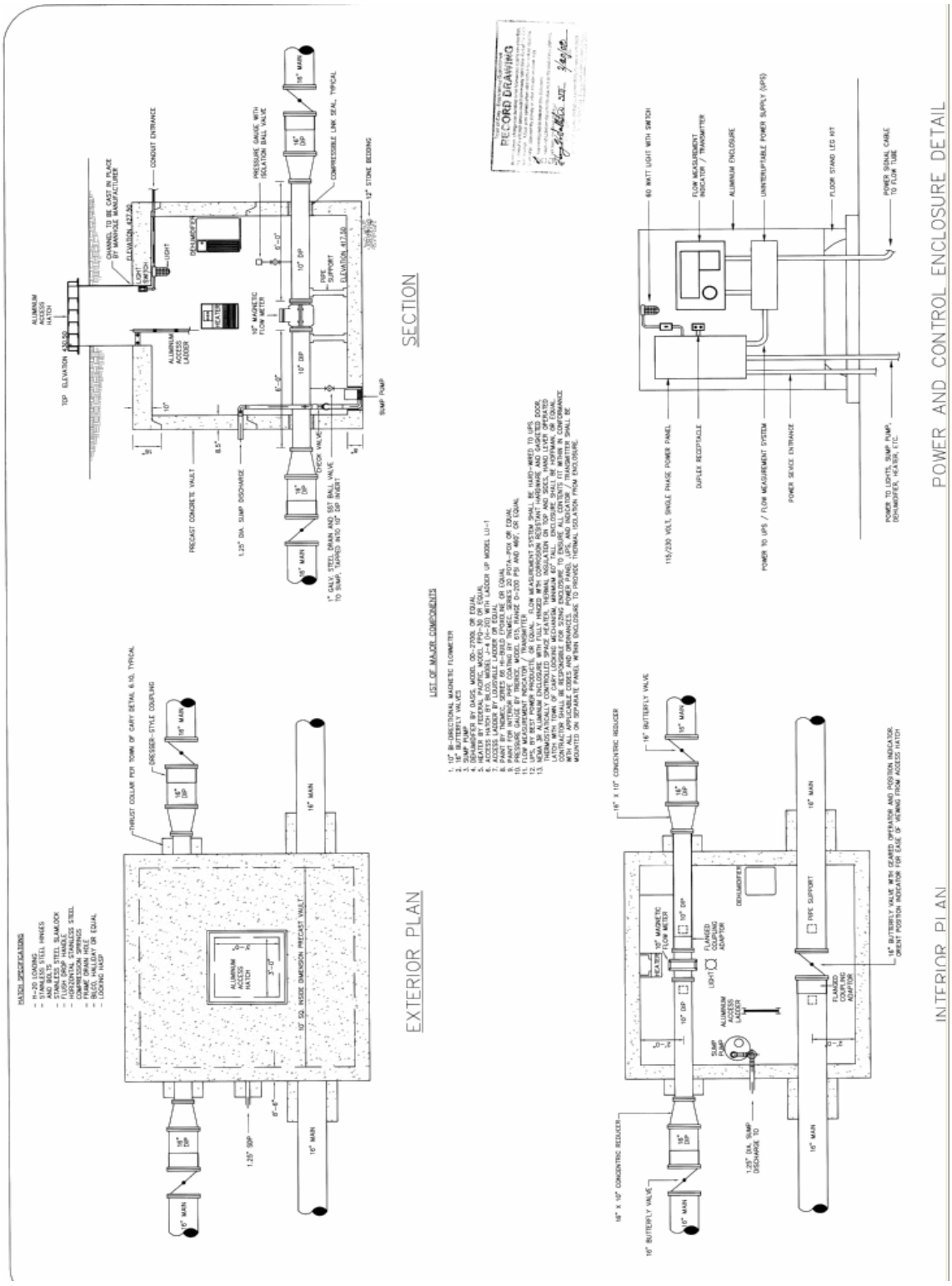
Hwy 54 MM Bypass Line

Hwy 54 MM Vault.

Facility Worksheet
MASTER METER STATION



Facility Worksheet
MASTER METER STATION



Facility Worksheet MASTER METER STATION

Inspection Date: DID NOT INSPECT

Utility Name: Town of Cary

Facility Name: Lake Pine MM

Facility Address: _____

Pressure Zone From: _____

Pressure Zone To: _____

Inspector Name: _____

Utility Operator Name: _____

Type of Valve: _____

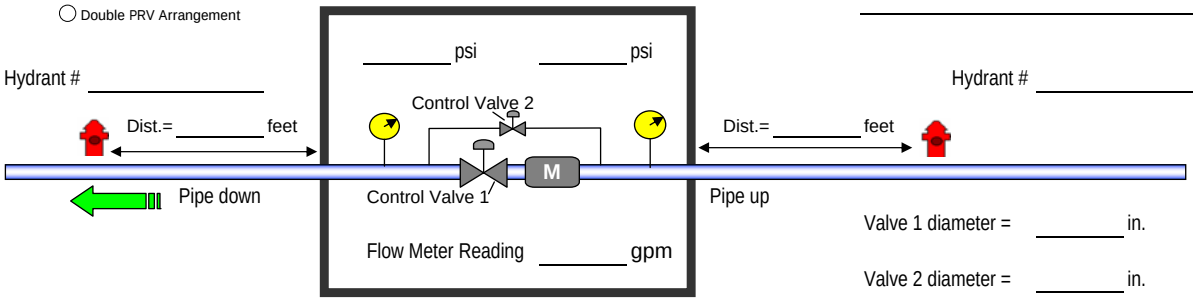
Additional Notes: Normally Closed

Emergency with Apex

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = _____ in.

Valve 2 diameter = _____ in.

Pipe up / down dia. = _____ in.

Indicate "N/A" if information not available.

Year Constructed: 1970s

Has Drawing Been Provided? _____

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) _____ (sporadically)

Any parts needing replacement? _____

Is pressure or flow setting adjusted annually or seasonally based on demands? _____

What are the pressure or flow settings for each season? _____

Is control valve active during domestic demand or only during fire flow? _____

Is control valve setting adjusted and / or monitored from SCADA? _____

Is control valve adjusted locally? _____

Control valve manufacturer / model #: _____

Flowmeter size / type / manufacturer / model #: _____

Is historical flow data available at this station and in what form? _____

Can control valve / master meter be closed without negatively impacting pressure in zone? _____

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet MASTER METER STATION

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Holiday Inn MM

Facility Address: Off Airport Blvd.

Pressure Zone From: Morrisville

Pressure Zone To: Airport

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

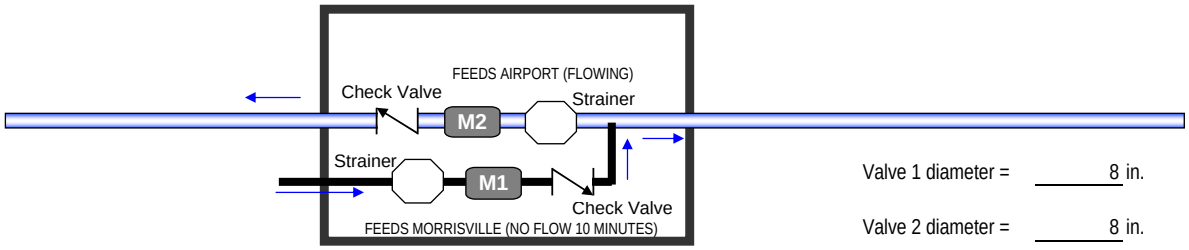
Type of Valve:

Additional Notes:

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = 8 in.

Valve 2 diameter = 8 in.

Pipe up / down dia. = 8 in.

Indicate "N/A" if information not available.

Year Constructed: Over 10 years ago

Has Drawing Been Provided? No - we need this as-built

Overall Physical Condition: ○ Excellent ◉ Good ○ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: 365 (days/yr) 24 (hrs/day) (sporadically)

Any parts needing replacement? Calibration occurs every 6 months

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA?

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: Meter #1 Neptune Turbine Flow Meter (8") HPT PRO EG5N (FEB. 2001)
Meter #2 Neptune Turbine Flow Meter (8") HPT AUTO F65N 3429 (DEC. 2002)

Is historical flow data available at this station and in what form? Don't know.

Can master meter be closed without negatively impacting pressure in zone? No

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet MASTER METER STATION

Holliday Inn MM Vault (Turbin Meters)

Holliday Inn MM Vault

Facility Worksheet
MASTER METER STATION

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: National Guard MM

Facility Address: By Sheetz At Airport

Pressure Zone From: Airport

Pressure Zone To: Airport

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Valve:

Additional Notes: Single User

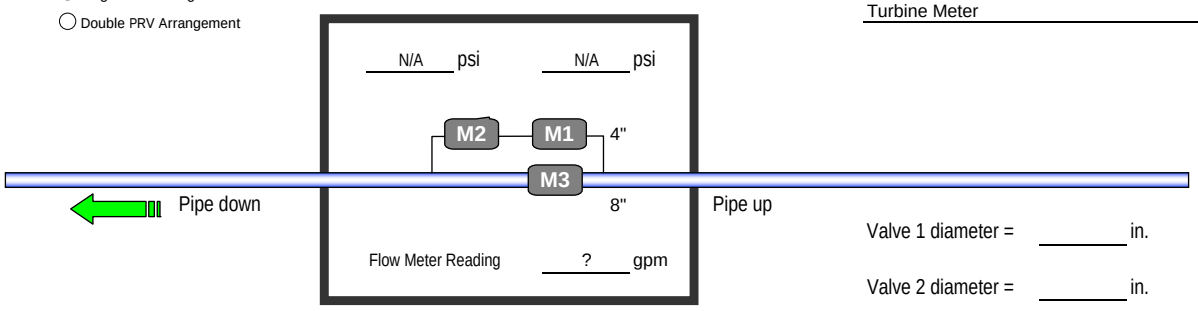
Major effort to capture flow

Turbine Meter

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = ____ in.

Valve 2 diameter = ____ in.

Pipe up / down dia. = 8 in.

Indicate "N/A" if information not available.

Year Constructed: 1 year ago

Has Drawing Been Provided? No

Overall Physical Condition: ◉ Excellent ○ Good ○ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: 365 (days/yr) 24 (hrs/day) ____ (sporadically)

Any parts needing replacement? No. Calibration occurs every 6 months.

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA? N/A

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: Meter#1 = 4MCT2 Hearsy (4") Meter #2 = 1MFM2 Hearsy (8")

Meter #3 / 4MCT2 Hearsy 4"

Is historical flow data available at this station and in what form? Yes, meters are read monthly

Can master meter be closed without negatively impacting pressure in zone? Can not close

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet
MASTER METER STATION

National Guard (Sheetz) Compound Turbine Meter

National Guard (Sheetz) MM Vault

CH2MHILL

Facility Worksheet
MASTER METER STATION

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: RDU Airport MM

Facility Address: Off Terminal Entrance

Pressure Zone From: Airport

Pressure Zone To: Airport

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Valve:

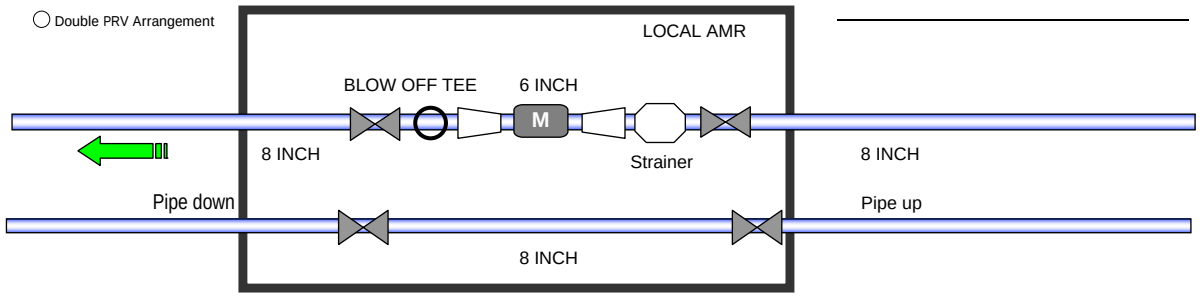
Additional Notes: No Users

Can not read hourly

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Indicate "N/A" if information not available.

Pipe up / down dia. = 8 in.

Year Constructed: 1970s

Has Drawing Been Provided? No

Overall Physical Condition: ○ Excellent ○ Good ○ Fair ○ Poor ○ Needs Immediate Repair ◉ Needs Replacement

Control valve / meter use: 365 (days/yr) 24 (hrs/day) (sporadically)

Any parts needing replacement? Needs new meter Calibration occurs every 6 months

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA? N/A

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: old meter (N/A) 6"

Is historical flow data available at this station and in what form? Yes, meters read monthly

Can master meter be closed without negatively impacting pressure in zone? No

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet
MASTER METER STATION

RDU Airport MM and Bypass Line

RDU Airport MM Vault

RDU Airport Turbine Meter

Facility Worksheet MASTER METER STATION

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Lake Crabtree MM

Facility Address:

Pressure Zone From: Airport

Pressure Zone To: Airport

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

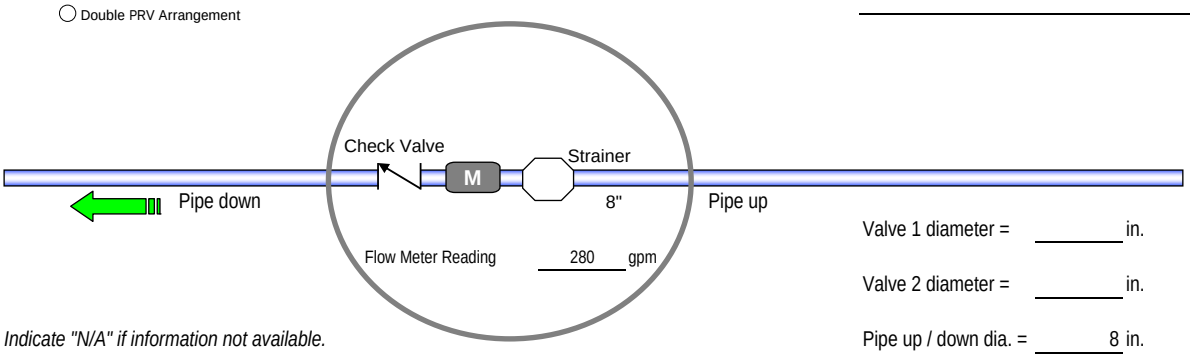
Type of Valve:

Additional Notes:

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = _____ in.

Valve 2 diameter = _____ in.

Pipe up / down dia. = 8 in.

Indicate "N/A" if information not available.

Year Constructed: Late 1970s

Has Drawing Been Provided? No

Overall Physical Condition: ○ Excellent ◉ Good ○ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: 365 (days/yr) 24 (hrs/day) _____ (sporadically)

Any parts needing replacement? Calibration occurs 6 months to 1 year

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A

Is control valve active during domestic demand or only during fire flow? N/A

Is control valve setting adjusted and / or monitored from SCADA? N/A

Is control valve adjusted locally? N/A

Control valve manufacturer / model #: N/A

Flowmeter size / type / manufacturer / model #: 8" Neptune HPT AUTO F65N 4438

Is historical flow data available at this station and in what form? Yes, read monthly

Can master meter be closed without negatively impacting pressure in zone? No

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

CH2MHILL

Facility Worksheet MASTER METER STATION

Lake Crabtree MM Site

Lake Crabtree Turbine Meter and Check Valve

Facility Worksheet MASTER METER STATION

Inspection Date: DID NOT INSPECT

Utility Name: Town of Cary

Facility Name: Hwy 55 MM

Facility Address: _____

Pressure Zone From: Western

Pressure Zone To: Western

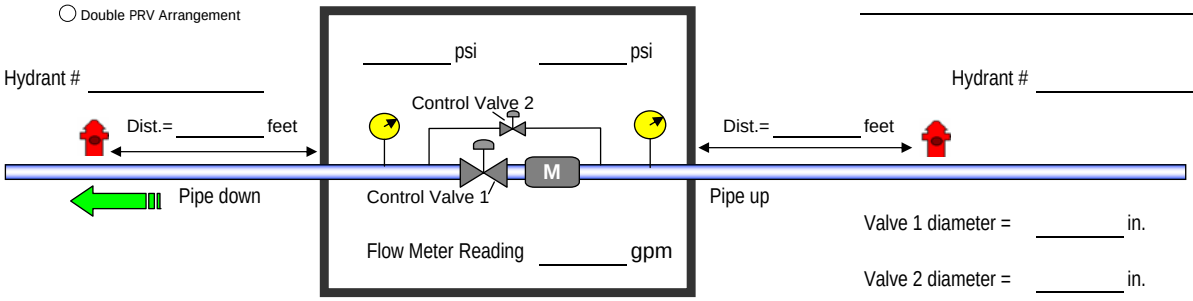
Inspector Name: _____

Utility Operator Name: _____

Type of Valve: Check box below, edit sketch as needed, and place circle where pressure gauges can be installed (1/2" NPT).

Additional Notes: _____

○ Pressure Reducing Valve
○ Single PRV Arrangement
○ Double PRV Arrangement
○ Flow Control Valve
○ Pressure Sustaining Valve



Valve 1 diameter = _____ in.

Valve 2 diameter = _____ in.

Pipe up / down dia. = _____ in.

Indicate "N/A" if information not available.

Year Constructed: 1970s

Has Drawing Been Provided? _____

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) _____ (sporadically)

Any parts needing replacement? _____

Is pressure or flow setting adjusted annually or seasonally based on demands? _____

What are the pressure or flow settings for each season? _____

Is control valve active during domestic demand or only during fire flow? _____

Is control valve setting adjusted and / or monitored from SCADA? _____

Is control valve adjusted locally? _____

Control valve manufacturer / model #: _____

Flowmeter size / type / manufacturer / model #: _____

Is historical flow data available at this station and in what form? _____

Can control valve / master meter be closed without negatively impacting pressure in zone? _____

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

CH2MHILL

Facility Worksheet
MASTER METER STATION

Inspection Date: DID NOT INSPECT

Utility Name: Town of Cary

Facility Name: McCrimmon MM

Facility Address: _____

Pressure Zone From: Western /Central Bidirectional

Pressure Zone To: Western Central Bidirectional

Inspector Name: _____

Utility Operator Name: _____

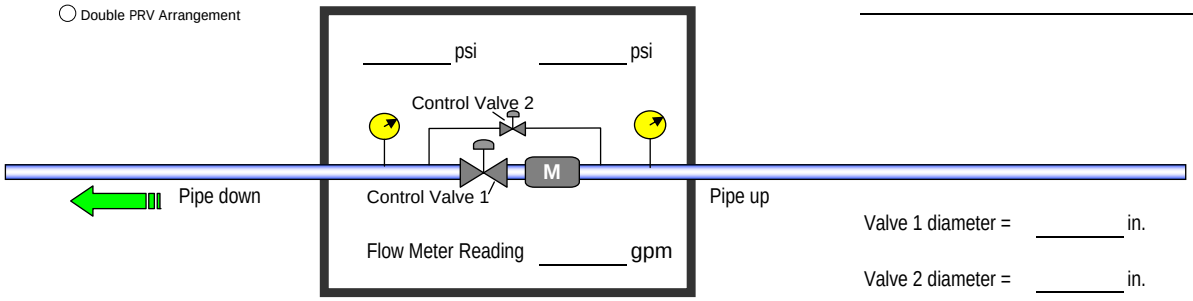
Type of Valve: _____

Additional Notes: Normally Closed

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = _____ in.

Valve 2 diameter = _____ in.

Pipe up / down dia. = _____ in.

Indicate "N/A" if information not available.

Year Constructed: 1970s

Has Drawing Been Provided? Yes

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) _____ (sporadically)

Any parts needing replacement? _____

Is pressure or flow setting adjusted annually or seasonally based on demands? _____

What are the pressure or flow settings for each season? _____

Is control valve active during domestic demand or only during fire flow? _____

Is control valve setting adjusted and / or monitored from SCADA? _____

Is control valve adjusted locally? _____

Control valve manufacturer / model #: _____

Flowmeter size / type / manufacturer / model #: _____

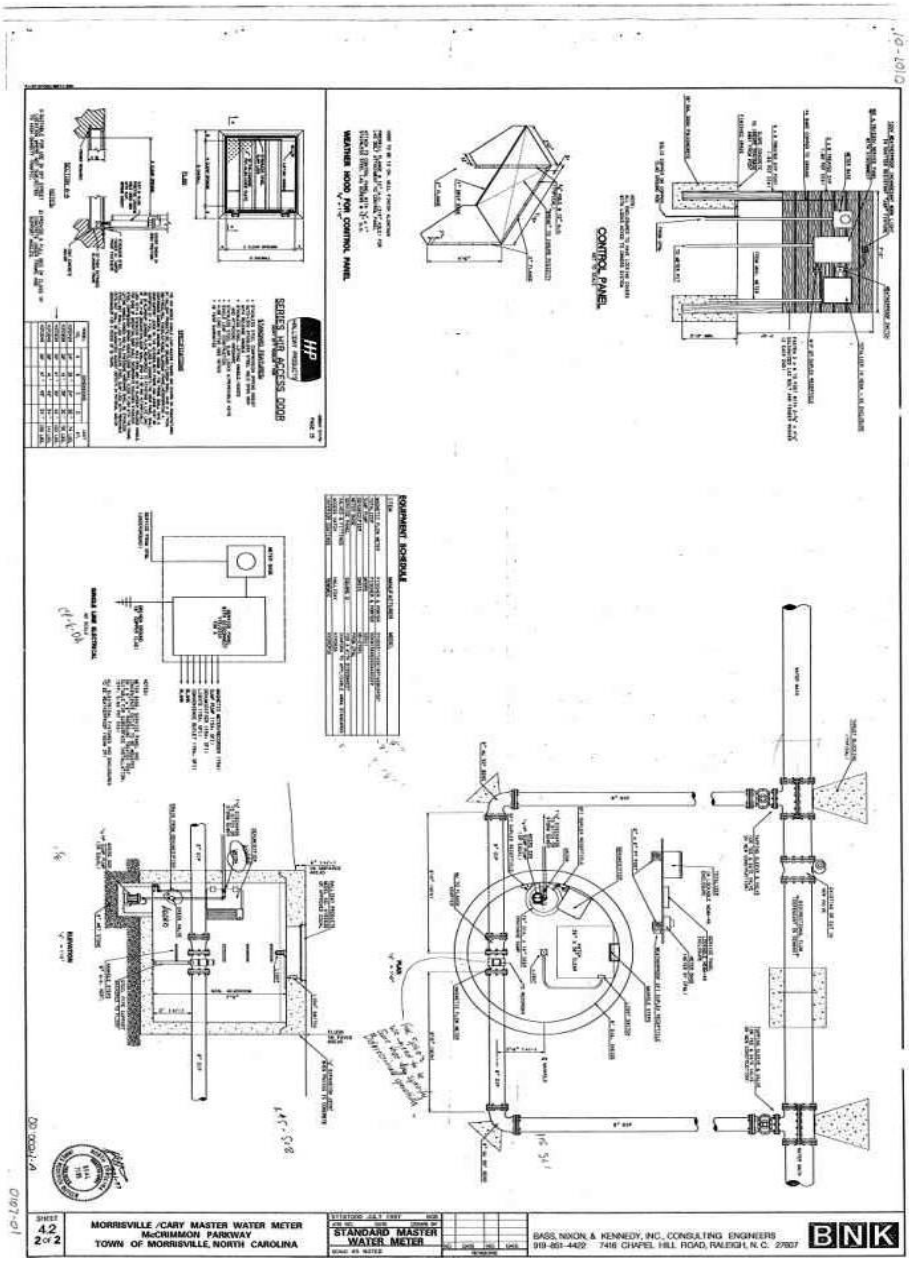
Is historical flow data available at this station and in what form? _____

Can control valve / master meter be closed without negatively impacting pressure in zone? _____

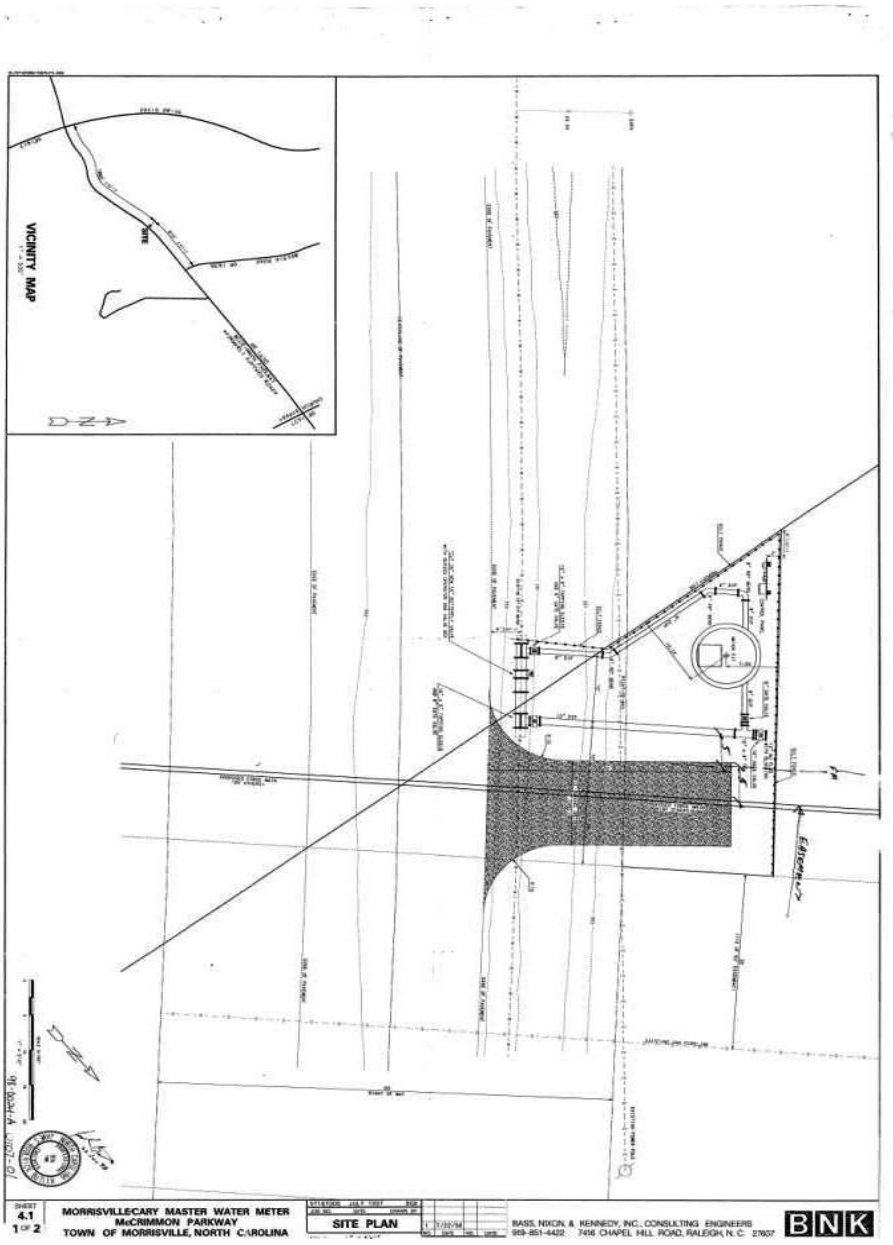
*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

CH2MHILL

Facility Worksheet
MASTER METER STATION



Facility Worksheet
MASTER METER STATION



Facility Worksheet
MASTER METER STATION

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Penny Road MM

Facility Address: Caterpillar & Ten Ten

Pressure Zone From: Cary

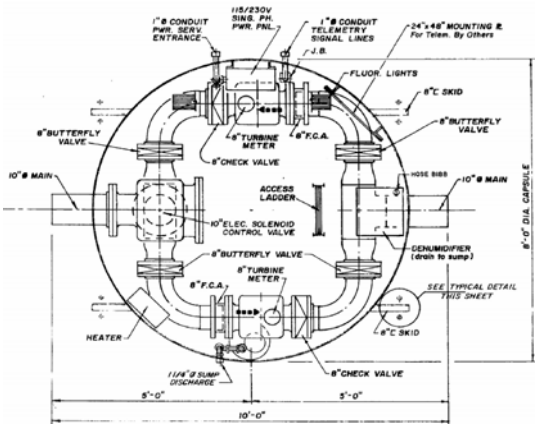
Pressure Zone To: Apex

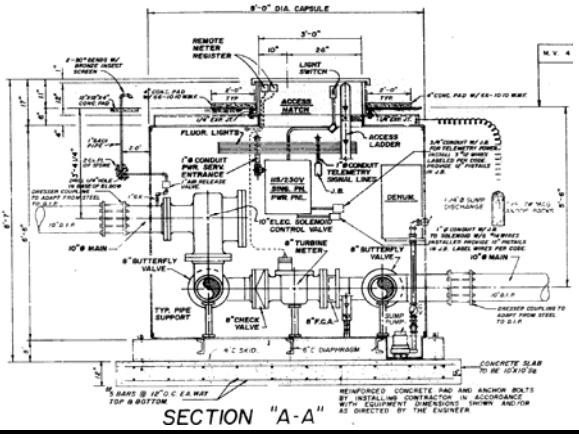
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Valve: Open/close solenoid control valve

Additional Notes: Apex to Cary Closed





Year Constructed: 1970s

Has Drawing Been Provided? Yes

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) _____ (sporadically)

Any parts needing replacement? No

Is pressure or flow setting adjusted annually or seasonally based on demands? demands

What are the pressure or flow settings for each season?

Is control valve active during domestic demand or only during fire flow? Domestic demands

Is control valve setting adjusted and / or monitored from SCADA? SCADA

Is control valve adjusted locally?

Control valve manufacturer / model #:

Flowmeter size / type / manufacturer / model #: Turbine Meter with Master Meter Recorder

Is historical flow data available at this station and in what form? Yes, SCADA

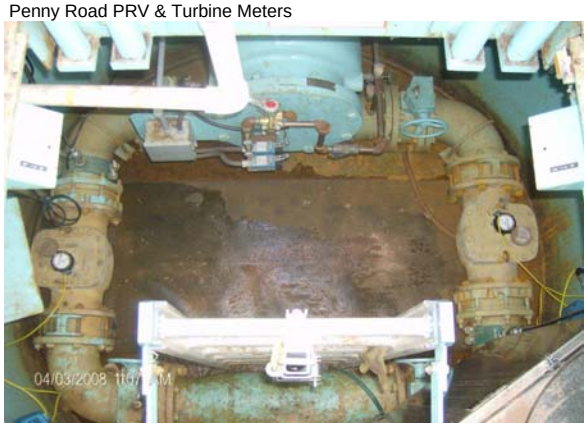
Can master meter be closed without negatively impacting pressure in zone? No

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

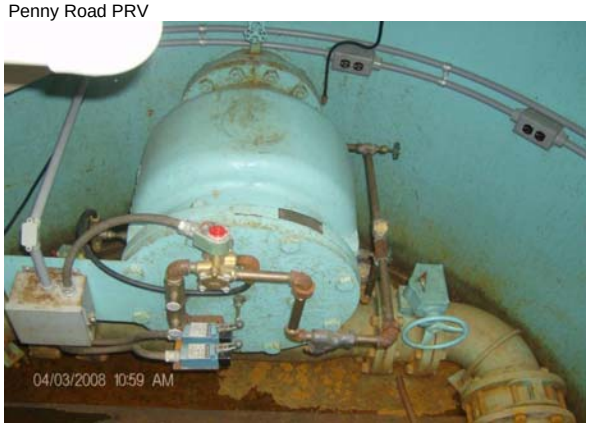
CH2MHILL

Facility Worksheet
MASTER METER STATION

Penny Road PRV & Turbine Meters



Penny Road PRV



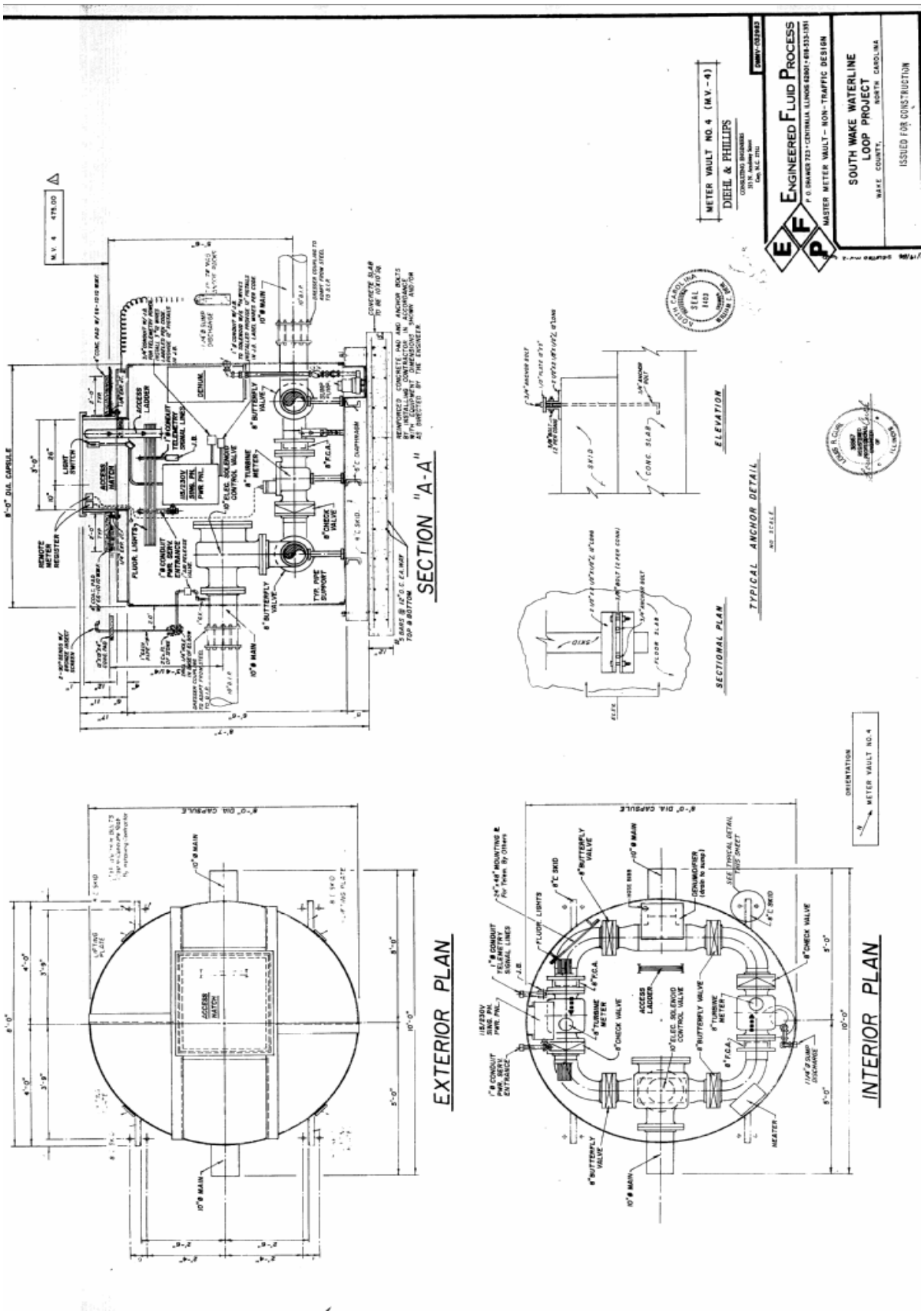
Penny Road PRV-MM Vault (Inside 1)

Penny Road PRV-MM Vault Nameplate

Penny Road PRV-MM Vault

Penny Road Turbine Meter with Master Meter Recorder

Facility Worksheet
MASTER METER STATION



Facility Worksheet
MASTER METER STATION

Inspection Date: DID NOT INSPECT

Utility Name: Town oF Cary

Facility Name: Green MM

Facility Address: _____

Pressure Zone From: _____

Pressure Zone To: _____

Inspector Name: _____

Utility Operator Name: _____

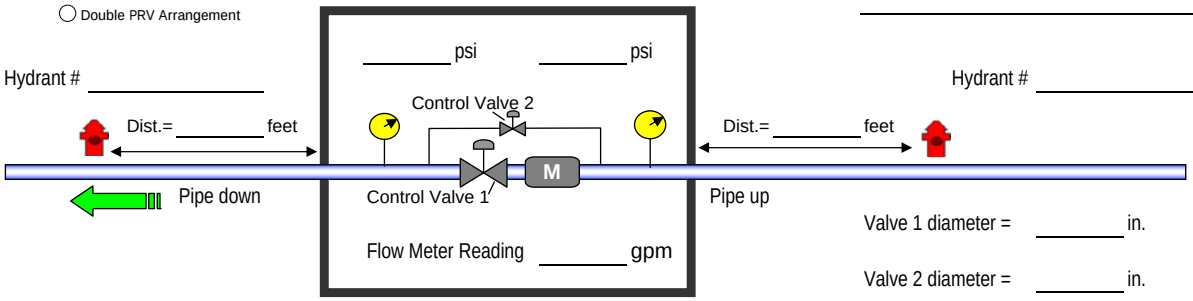
Type of Valve: _____

Additional Notes: DID NOT VISIT ON APEX SIDE

○ Pressure Reducing Valve ○ Flow Control Valve ○ Pressure Sustaining Valve

○ Single PRV Arrangement

○ Double PRV Arrangement



Valve 1 diameter = _____ in.

Valve 2 diameter = _____ in.

Pipe up / down dia. = _____ in.

Indicate "N/A" if information not available.

Year Constructed: _____

Has Drawing Been Provided? _____

Overall Physical Condition: ○ Excellent ○ Good ◉ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) _____ (sporadically)

Any parts needing replacement? _____

Is pressure or flow setting adjusted annually or seasonally based on demands? _____

What are the pressure or flow settings for each season? _____

Is control valve active during domestic demand or only during fire flow? _____

Is control valve setting adjusted and / or monitored from SCADA? _____

Is control valve adjusted locally? _____

Control valve manufacturer / model #: _____

Flowmeter size / type / manufacturer / model #: _____

Is historical flow data available at this station and in what form? _____

Can control valve / master meter be closed without negatively impacting pressure in zone? _____

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet
CONTROL VALVE STATION

Inspection Date: 4/2/2008

Utility Name: Town Of Cary

Facility Name: Davis Drive PRV

Facility Address: Intersection of Leonard Christian and Davis Drive

Pressure Zone From: Central

Pressure Zone To: Western

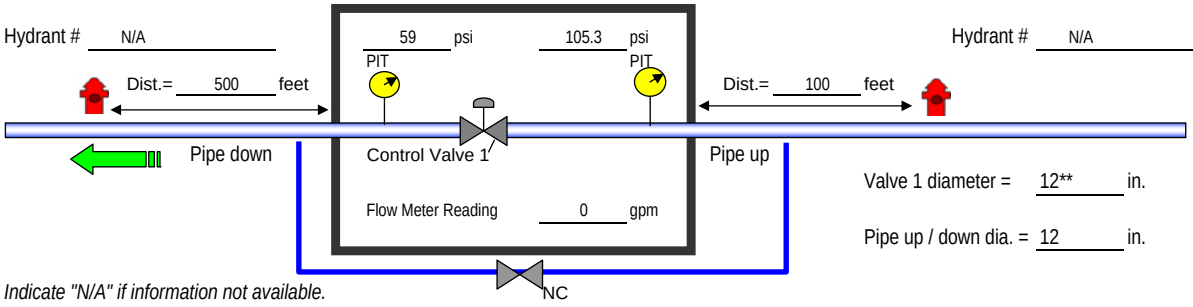
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Davis Reynolds Tom Elkins/ Doug Houghman

Type of Valve: See attached drawings

Additional Notes: PRV was closed

(●) Pressure Reducing Valve ( ) Flow Control Valve ( ) Pressure Sustaining Valve



Valve 1 diameter = 12** in.

Pipe up / down dia. = 12 in.

Indicate "N/A" if information not available.

Year Constructed: 2004

Has Drawing Been Provided? Yes

Overall Physical Condition: (●) Excellent ( ) Good ( ) Fair ( ) Poor ( ) Needs Immediate Repair ( ) Needs Replacement

Control valve use: _____ (days/yr) _____ (hrs/day) Summer- few weeks (sporadically)

Any parts needing replacement? No

Is pressure or flow setting adjusted annually or seasonally based on demands? Used in summer to meet peak demands

What are the pressure or flow settings for each season? N/A - Need pressure setting from Operations

Is control valve active during domestic demand or only during fire flow? Summer for domestic demand

Is control valve setting adjusted and / or monitored from SCADA? Adjusted/Monitored from SCADA - Pressure

Is control valve adjusted locally? Adjusted remotely at plant

Control valve manufacturer / model #: Golden Anderson / 12 inch

Flowmeter size / type / manufacturer / model #: N/A

Is historical flow data available at this station and in what form? N/A

Can control valve be closed without negatively impacting pressure in zone? Yes

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

CH2MHILL

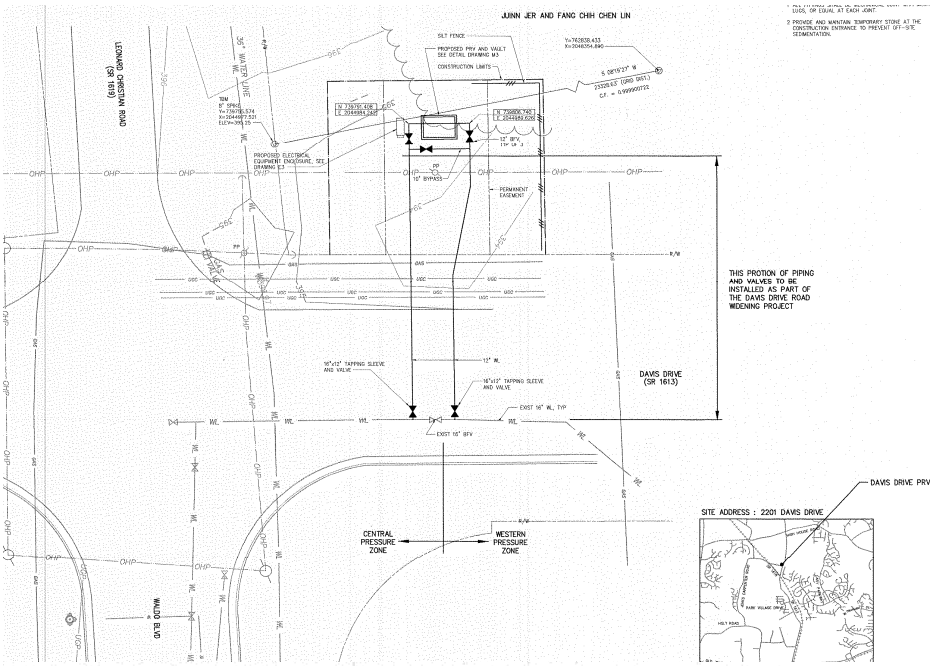
Facility Worksheet
CONTROL VALVE STATION

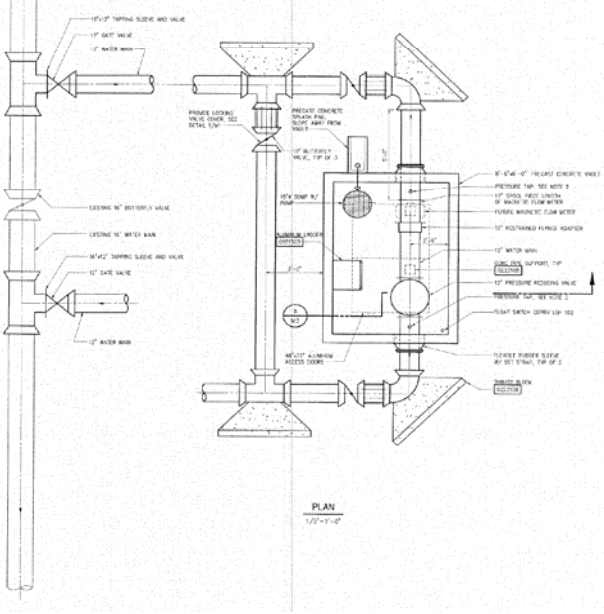
Davis Drive PRV PIT (1 of 2)

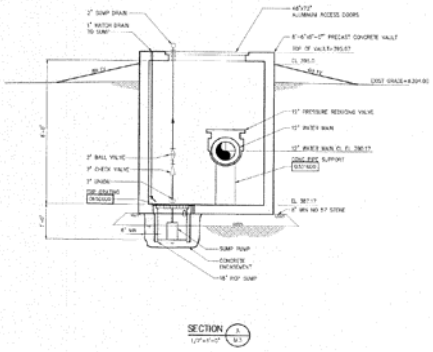
Davis Drive PRV PIT (2 of 2)

Davis Drive PRV Vault

Facility Worksheet
CONTROL VALVE STATION







Facility Worksheet
CONTROL VALVE STATION

Inspection Date: 4/3/2008

Utility Name: Town Of Cary

Facility Name: Cary Parkway Control Valve

Facility Address: Intersection of Cary Pkwy &Tryon Rd

Pressure Zone From: Central

Pressure Zone To: Southern

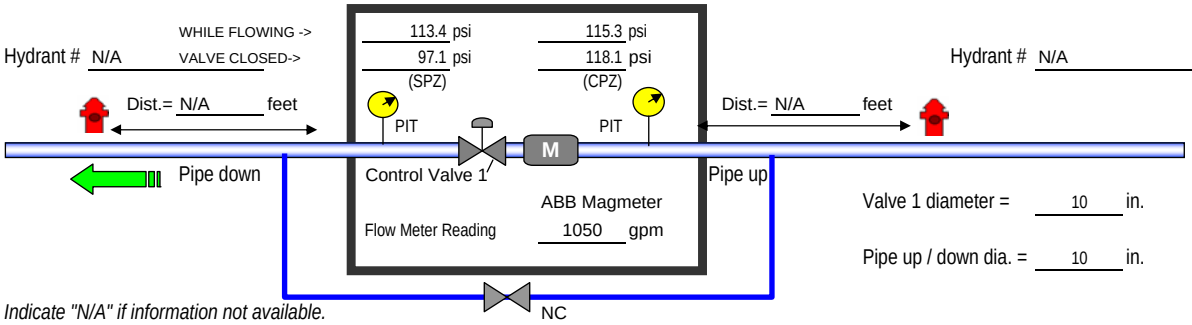
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Davis Reynolds/ Jay Melby

Type of Valve: Designed to be PRV, but operated as an open/close valve

Additional Notes: SCADA for pressures and flows
Operated in conjunction with KILDAIRE
CONTROL VALVE to manage
PLUMTREE TANK level

- ○ Pressure Reducing Valve
  - ○ Single PRV Arrangement
  - ○ Double PRV Arrangement
- ○ Flow Control Valve
- ○ Pressure Sustaining Valve
- ◉ Open / Close Valve



Valve 1 diameter = 10 in.

Pipe up / down dia. = 10 in.

Indicate "N/A" if information not available.

Year Constructed: 2004

Has Drawing Been Provided? Yes

Overall Physical Condition: ◉ Excellent ○ Good ○ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) Daily operation in conjunction w/ Kildaire Control Valve (sporadically)

Any parts needing replacement? No. However, PRV does not work as designed. So Cary operates valve as 100% OPEN or CLOSED.

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A - Need description of valve open/close times in relation to Plumtree level

Is control valve active during domestic demand or only during fire flow? Domestic demand

Is control valve setting adjusted and / or monitored from SCADA? SCADA - open / closed based on tank level

Is control valve adjusted locally? Remote Manual OPEN and CLOSE, but Automatic OPEN during low downstream pressure

Control valve manufacturer / model #: 10 inch - Golden Anderson (not verified)

Flowmeter size / type / manufacturer / model #: ABB MAGMETER

Is historical flow data available at this station and in what form? Yes, SCADA

Can control valve be closed without negatively impacting pressure in zone? No (Can close if KILDARE PRV is open)

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet
CONTROL VALVE STATION

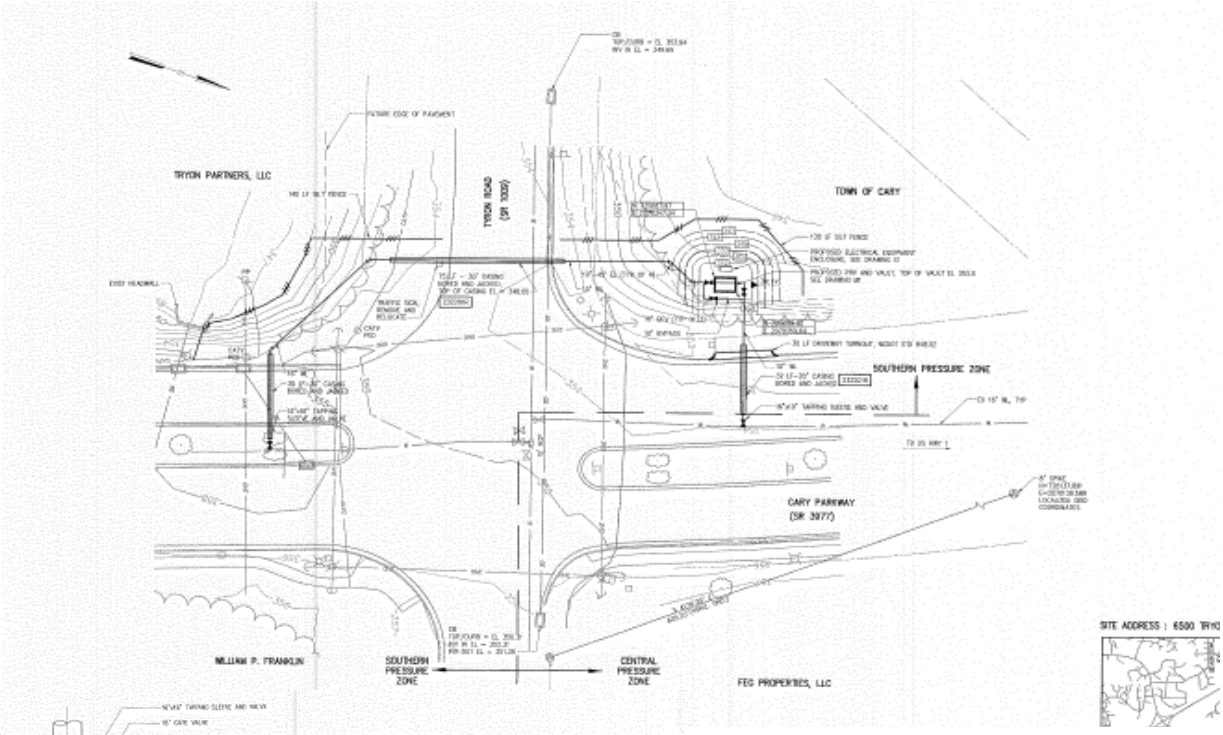
Cary Parkway Mag Meter

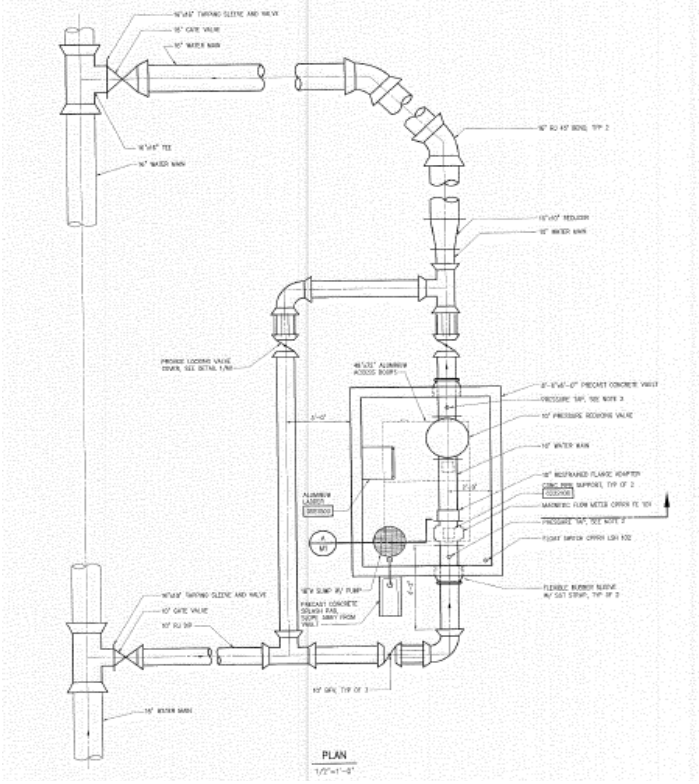
Cary Parkway Control Valve and Mag Meter

Cary Parkway Control Valve Vault

Cary Parkway Control Valve

Facility Worksheet
CONTROL VALVE STATION





Facility Worksheet
CONTROL VALVE STATION

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Kildare Farm Control Valve

Facility Address:

Pressure Zone From: Central

Pressure Zone To: Southern

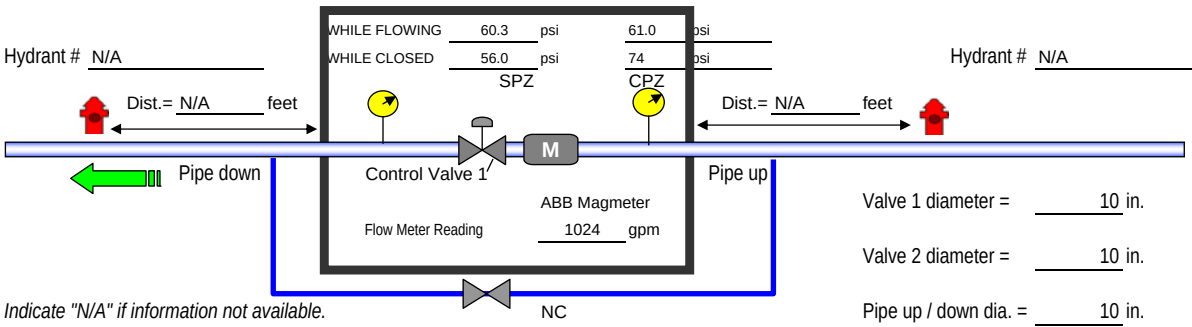
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Davis Reynolds/ Jay Melby

Type of Valve: Designed to be PRV, but operated as an open/close valve

Additional Notes: SCADA for pressures and flows
Operated in conjunction with CARY
PARKWAY CONTROL VALVE to manage PLUMTREE TANK level

- ○ Pressure Reducing Valve
  - ○ Single PRV Arrangement
  - ○ Double PRV Arrangement
- ○ Flow Control Valve
- ○ Pressure Sustaining Valve
- ◉ Open/Close Valve



Valve 1 diameter = 10 in.

Valve 2 diameter = 10 in.

Pipe up / down dia. = 10 in.

Indicate "N/A" if information not available.

Year Constructed: 2003

Has Drawing Been Provided? Yes

Overall Physical Condition:
◉ Excellent ○ Good ○ Fair ○ Poor ○ Needs Immediate Repair ○ Needs Replacement

Control valve / meter use: _____ (days/yr) _____ (hrs/day) Daily operation in conjunction w/ Cary Pkwy Control Valve (sporadically)

Any parts needing replacement? No. However, PRV does not work as designed. So Cary operates valve as 100% OPEN or CLOSED.

Is pressure or flow setting adjusted annually or seasonally based on demands? N/A

What are the pressure or flow settings for each season? N/A - Need description of valve open/close times in relation to Plumtree level

Is control valve active during domestic demand or only during fire flow? Domestic demand

Is control valve setting adjusted and / or monitored from SCADA? SCADA - open / closed based on tank level

Is control valve adjusted locally? Remote Manual OPEN and CLOSE, but Automatic OPEN during low downstream pressure

Control valve manufacturer / model #: 10 inch - Golden Anderson (not verified)

Flowmeter size / type / manufacturer / model #: ABB MAGMETER

Is historical flow data available at this station and in what form? Yes, SCADA

Can control valve be closed without negatively impacting pressure in zone? No (Can close if CARY PKWY PRV is open)

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet
CONTROL VALVE STATION

Kildair Control Valve and Mag Meter

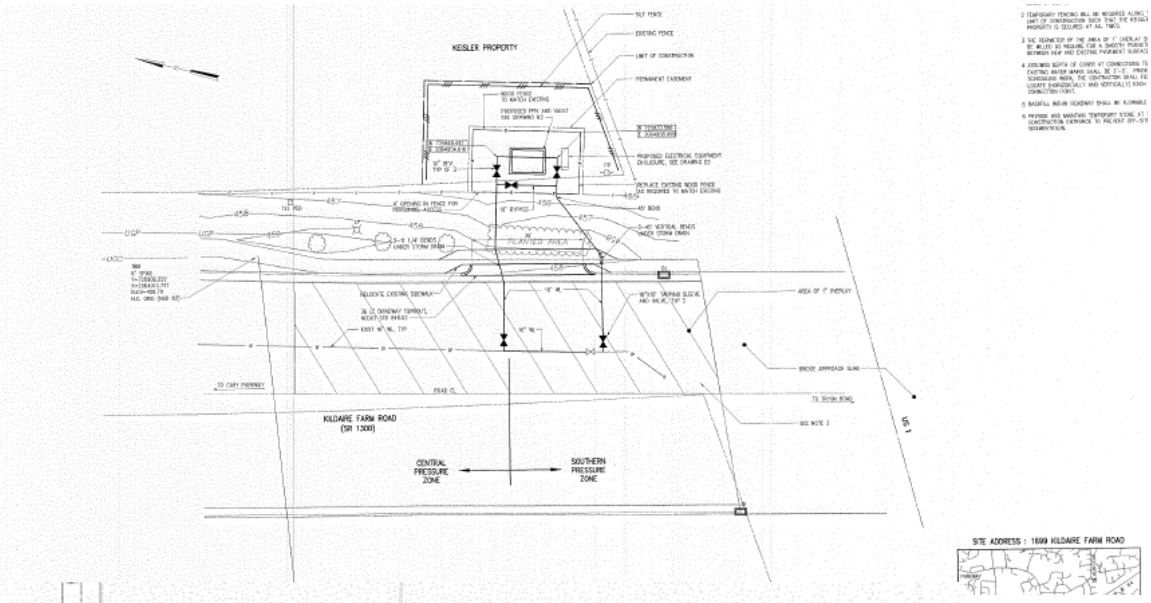
Kildair Control Valve Vault

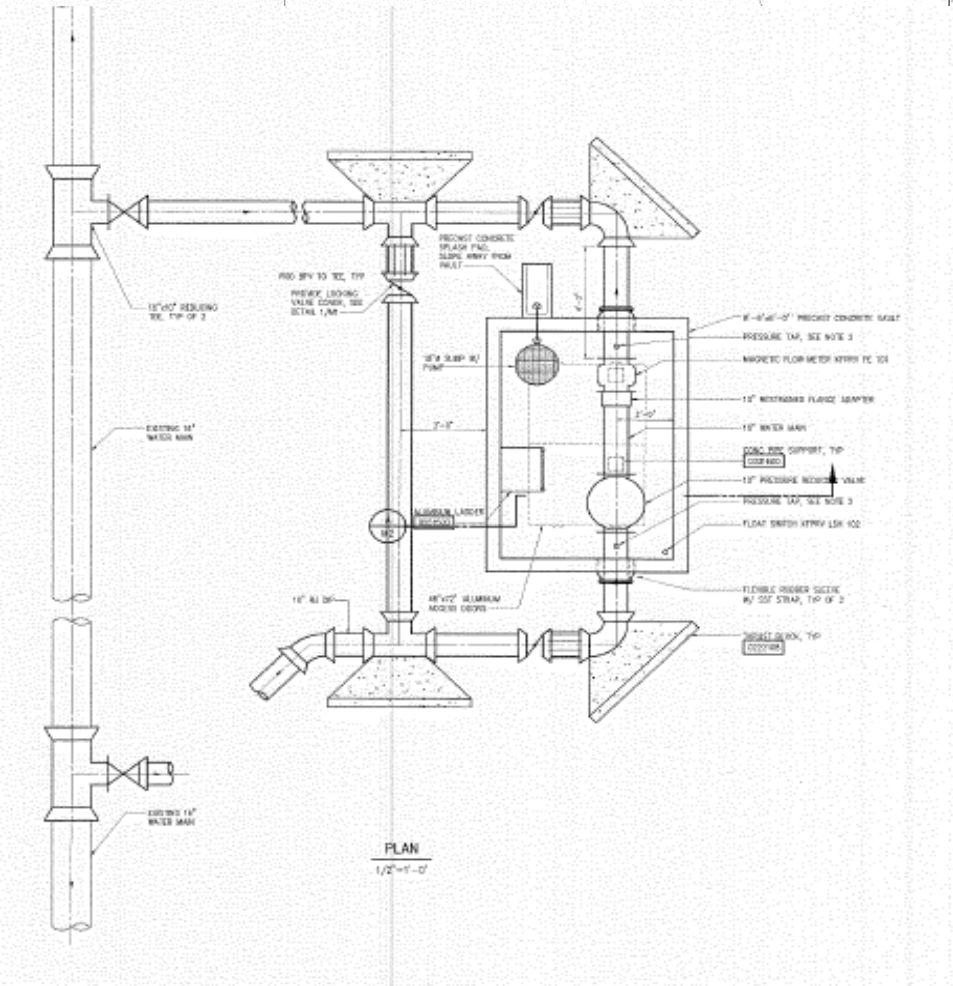
Kildair Control Valve

Kildair Mag Meter

CH2MHILL

Facility Worksheet
CONTROL VALVE STATION





Pressure Zones
Central
Airport
Southern
Western

Pumps			
Name	Inspected	Photos	As Builts
High Service PS			No
Trinity BPS			Yes
Apex BPS			Yes
Penny Road BPS			No
Davis BPS			No

Facility Worksheet
PUMPING STATIONS

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Cary / Apex WTP - High Service Pump Station

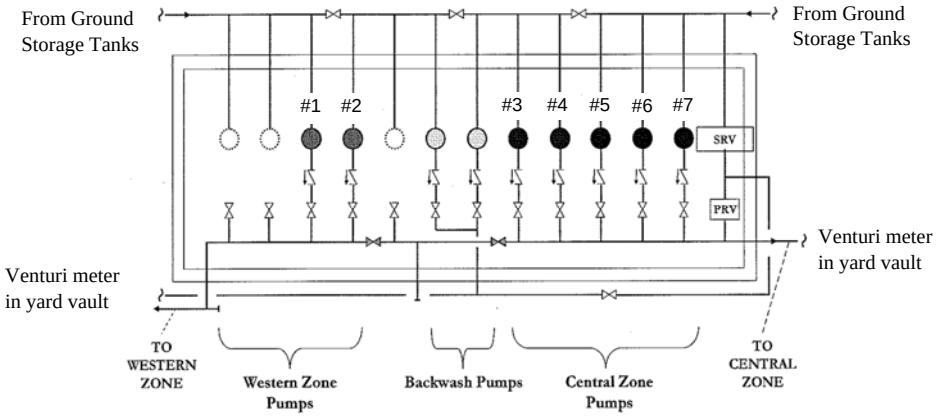
Pressure Zone Name: Supplies Western and Central Zones

Inspector Name: KSB / JPW

Utility Operator Name: Tom Elkins Doug Houghman Davis Retnouds /WQ

Pump Station Schematic: Figure by HDR Engineering, Inc.

Year Built / Drawing Provided? 19xx / No



Note: Pump #'s not confirmed

Pump Configuration: Horiz. split case centrifugal; (Vertical turbine can); Multi-stage centrifugal; In-line vertical turbine

Pump Curves Available? 1998 Pitometer Study (#2 & #4) - poor match to pump name plate data

Suction Supply: 2 ground storage tanks (3 MG each)

Pump Centerline Elevation: ? (asbuilts not received yet)

Pump Station Control: Discharge Pressure; (Tank Level)

Flow Meter Location: 42" (CPZ); 30" (WPZ); separate yard vaults

Controlling Tank(s): Maynard (CPZ); Carpenter (WPZ)

Meter Type / Model: Venturi; don't have model and manufacturer

PIT Location / Elevation: 4-ft above PS floor elev. (not confirmed)

Last Calibrated (Date): Plans to calibrate both meters in May 08

Overall Physical Condition: (Excellent); Good; Fair; Poor; Needs Immediate Repair; Needs Replacement

Detailed Pump Information: *** IG = Ingersoll Dresser

Pump #	Pressure Zone	Serial No.	Manuf./Model	HP	Design Q (gpm / mgd)		Design Head (ft)	RPM / Stages
1	Plant -->WPZ	0010MS001203-1	IG / 16ENL-4	450	3,825	5.5	305	1788 / ?
2	Plant -->WPZ	0010MS001203-2	IG / 16ENL-4	450	3,825	5.5	305	1788 / ?
3	Plant-->CPZ	0010MS001201-1	IG / 18EKL-4	450	2,800	4.0	450	1788 / ?
4	Plant-->CPZ	0010MS001201-2	IG / 18EKL-4	450	2,800	4.0	450	1788 / ?
5	Plant-->CPZ	0010MS001200-1	IG / 25KKL-4	1000	6,255	9.0	450	1185 / ?
6	Plant-->CPZ	0010MS001200-2	IG / 25KKL-4	1000	6,255	9.0	450	1185 / ?
7	Plant-->CPZ	0010MS001202-1	IG / 25KKL-4	1000	6,255	9.0	450	1185 / ?

Approximate Capacity of Pump Station:

Total Capacity (WPZ Pumps)	11.0	MGD
Firm Capacity (WPZ Pumps)	5.5	MGD
Total Capacity (CPZ Pumps)	35.1	MGD
Firm Capacity (CPZ Pumps)	26.1	MGD

Automatic or (Manual Control Set-points: (feet), psi, or time of day)

CPZ	Pump #	On Set-point	Off Set-point	Always On
Lead				
Lag 1				
Lag 2				
Lag 3				

WPZ	Pump #	On Set-point	Off Set-point	Always On
Lead				
Lag 1				

Legend:
*From model *; from as-built **;*
*visual inspection ***; word of mouth ****

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Facility Worksheet
PUMPING STATIONS

Cary / Apex WTP High Service Pumping Station and Ground Storage Tanks:

Cary / Apex WTP High Service Pumping Station:

Cary / Apex WTP HSPS (WPZ pumps and spare motors):

Cary / Apex WTP HSPS (backwash and CPZ pumps):

Facility Worksheet
PUMPING STATIONS

Cary / Apex WTP HSPS (electric check valve):

Cary / Apex WTP HSPS (pump and check valve):

Cary / Apex WTP HSPS (surge tank):

Cary / Apex WTP HSPS (ground storage tanks):

Cary / Apex WTP HSPS (CPZ Venturi Meter):

Cary / Apex WTP HSPS (WPZ Venturi Meter):

Facility Worksheet
PUMPING STATIONS

Cary / Apex WTP High Service Station Pumping Records - Figures by HDR Engineering, Inc. (TM #3 Jan 31, 2008)

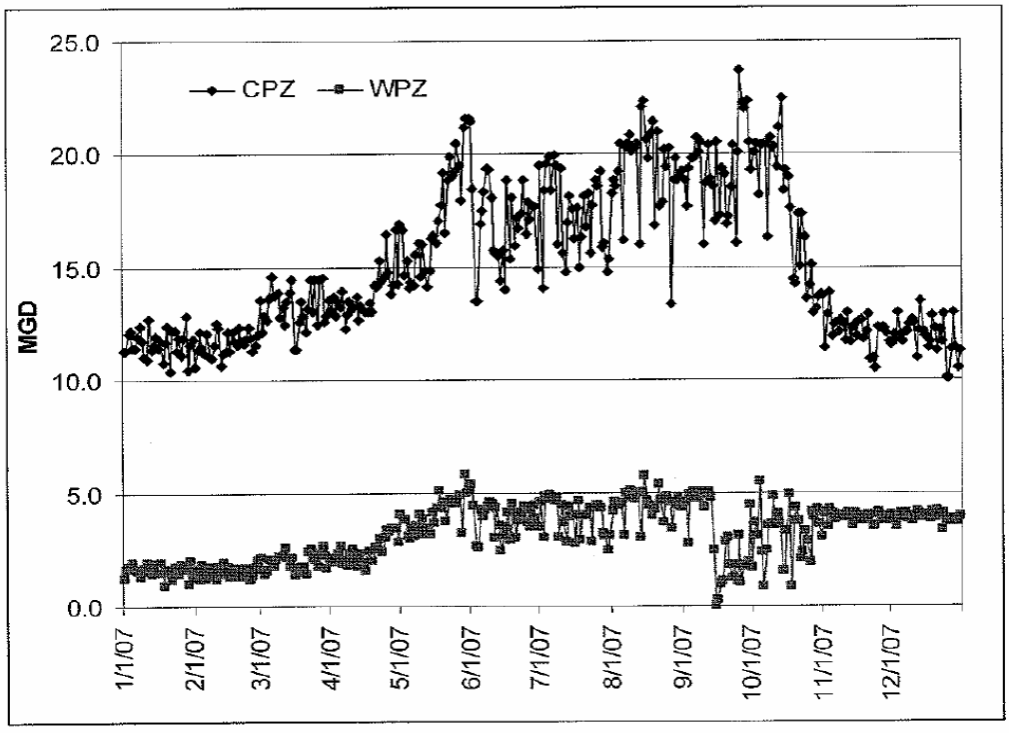

Figure 2. Western and Central Pressure Zone Pumping Rates for 2007

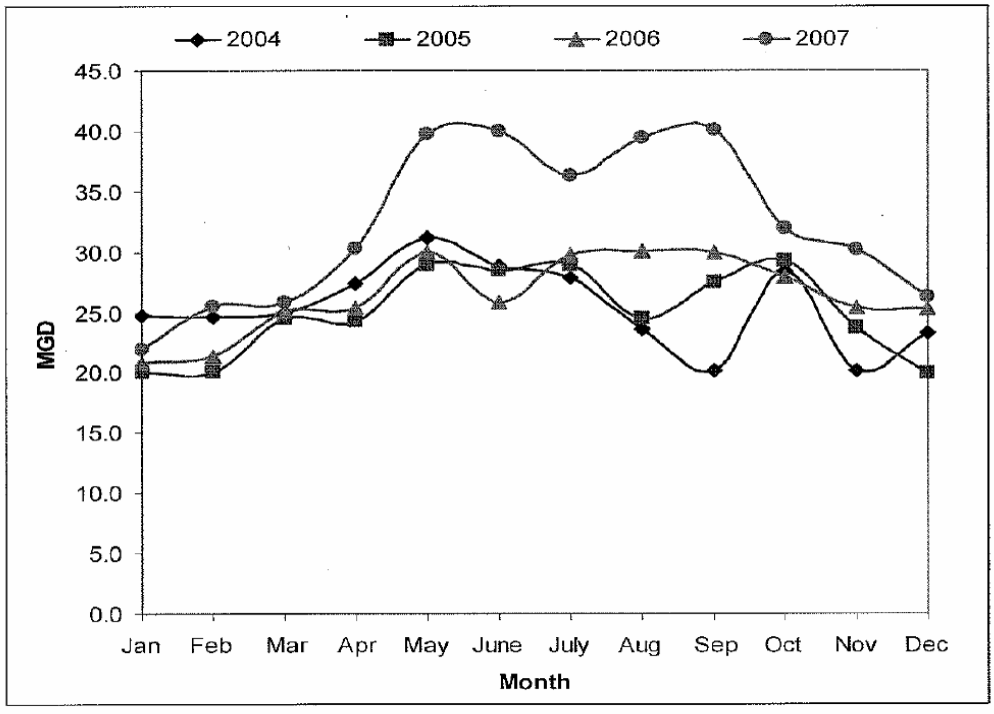

Figure 3. Maximum Peak Hourly Pumping Rates – 2004 to 2007

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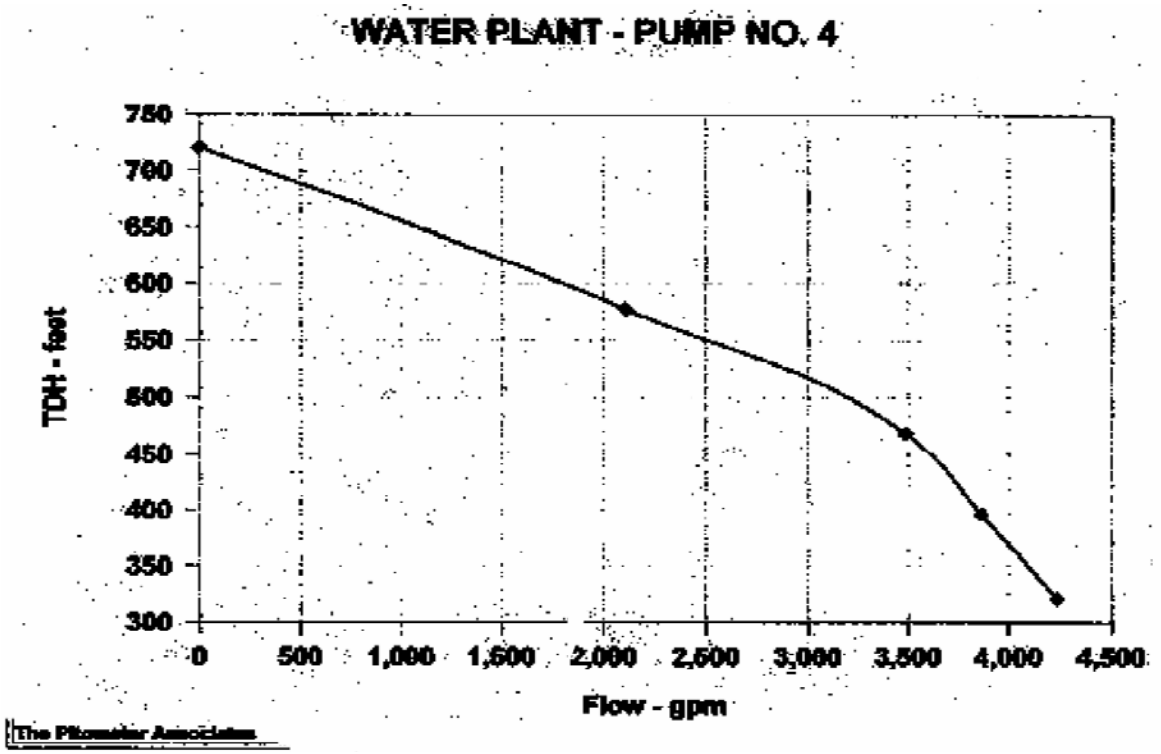
Facility Worksheet
PUMPING STATIONS

Pump Curves from 1998 Pitometer Study



PUMP TEST RESULTS

WATER PLANT

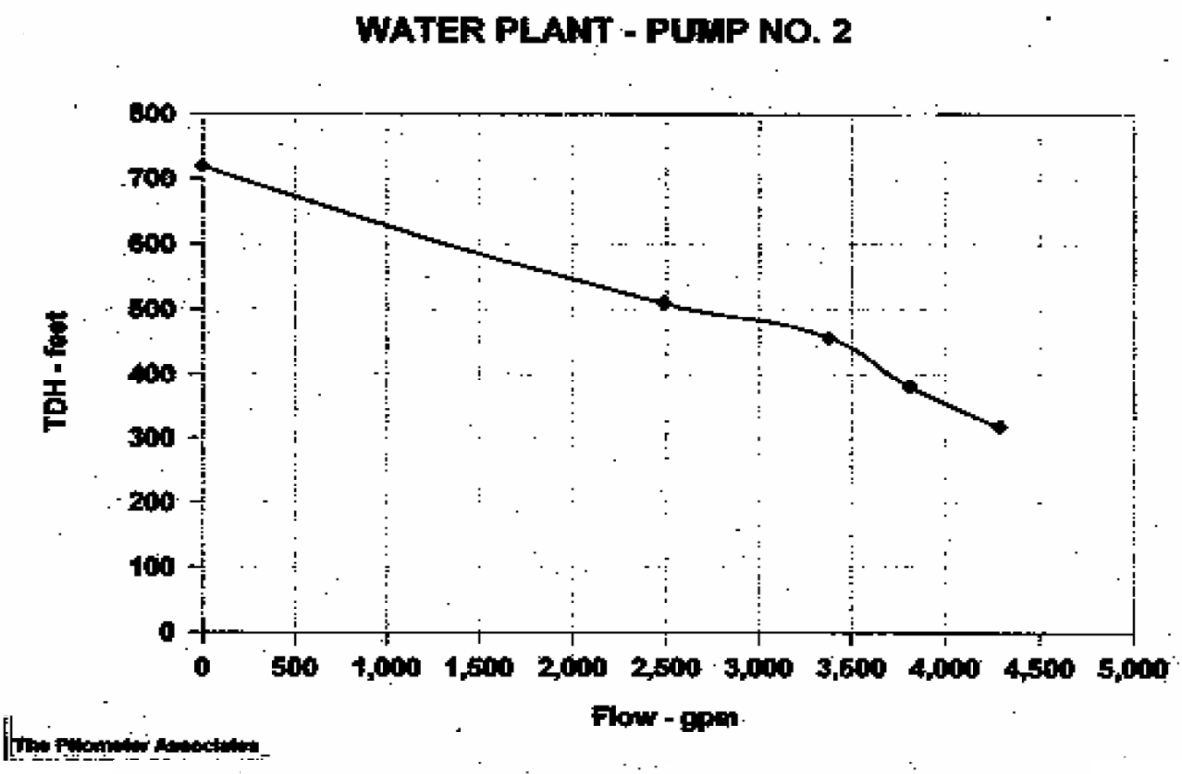
PUMP NO. 4

Pump Data		Motor Data	
Manufacturer	Fairbanks Morse	Manufacturer	U.S. Motors
Serial No.	K3X2-061471-3	Serial No.	EXN149-2016
GPM Rating	3,500	Amps	489
TDH Rating	522	Volts	460
Pipe Size - In	16-in.	RPM	1,780
Pipe Size - Out	12-in.	Horsepower	450

Test Data

Test Condition	Shutoff	Throttled	Throttled	Normal	Alone
Flow - mgd.	0.00	3.04	5.02	5.57	6.11
Flow - gpm.	0	2,110	3,490	3,870	4,240
Pressure Head - Out	720	574	463	392	317
Velocity Head - Out	0	1	2	2	2
Pressure Head - In	0	-3	-3	-3	-3
Velocity Head - In	0	0	0	1	1
TDH (Out-In) - ft.	720	578	468	396	321

Pump Curves from 1998 Pitometer Study



PUMP TEST RESULTS

WATER PLANT

PUMP NO. 2

Pump Data		Motor Data	
Manufacturer	Fairbanks Morse	Manufacturer	U.S. Motors
Serial No.	M3X2-061471-1	Serial No.	7228BAB-2
GPM Rating	3,500	Amps	492
TDH Rating	522	Volts	460
Pipe Size - In	16-in.	RPM	1,750
Pipe Size - Out	12-in.	Horsepower	450

Test Data

Test Condition	Shutoff	Throttled	Throttled	Normal	Alone
Flow - mgd.	0.00	3.58	4.87	5.49	6.18
Flow - gpm.	0	2,490	3,380	3,810	4,290
Pressure Head - Out	720	509	456	381	317
Velocity Head - Out	0	1	1	2	2
Pressure Head - In	0	-3	-3	-3	-3
Velocity Head - In	0	0	0	1	1
TDH (Out-In) - ft.	720	513	460	385	321

Facility Worksheet
PUMPING STATIONS

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Trinity Road Pump Station (flow from Raleigh)

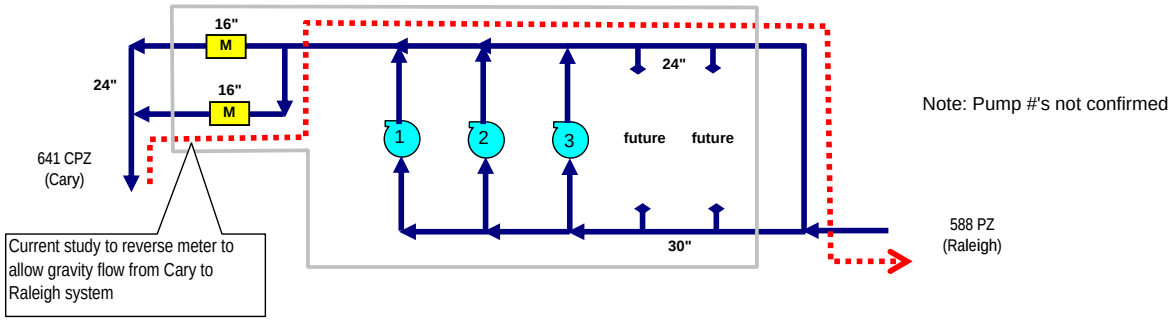
Pressure Zone Name: Raleigh System to Cary Central PZ

Inspector Name: KSB / JPW

Utility Operator Name: Tom Elkins Doug Houghman Davis Retnouds /WQ ??

Pump Station Schematic:

Year Built / Drawing Provided? 1972 / Yes (see as-builts below)



Note: Pump #'s not confirmed

Pump Configuration: Horiz. split case centrifugal; (Vertical turbine can); Multi-stage centrifugal; In-line vertical turbine

Pump Curves Available? 1998 Pitometer Study - pump #3 (see below); pumps reportedly installed in 1984

Suction Supply: Raleigh system (588 PZ)

Pump Centerline Elevation: ** 491.5-ft (finished floor elev.)

Pump Station Control: Discharge Pressure; (Tank Level)

Flow Meter Location: 16" turbines in basement of pump station

Controlling Tank(s): Harrison ET (CPZ)

Meter Type / Model: Turbine / Schlumberger model 97sku52118

PIT Location / Elevation: No PIT (only pressure gauge)

Last Calibrated (Date): Unknown (reportedly installed in 2003)

Overall Physical Condition: Excellent; Good; (Fair); Poor; Needs Immediate Repair; Needs Replacement

Detailed Pump Information: *** FM = Fairbanks Morse

Pump #	Pressure Zone	Serial No.	Manuf./Model	HP	Design Q (gpm / mgd)		Design Head (ft)	RPM / Stages
1	588-->641	see note	FM / 15H (7000W)	100	2,750	4.0	100	1778 / 2
2	588-->641	see note	FM / 15H (7000W)	100	2,750	4.0	100	1778 / 2
3	588-->641	see note	FM / 15H (7000W)	100	2,750	4.0	100	1778 / 2
4	empty space	--	--	--	--	--	--	--
5	empty space	--	--	--	--	--	--	--

Note: Only one of the pumps serial numbers was recorded as T3W2432158 and impeller diameter of 7.98-inches

Approximate Capacity of Pump Station:

Total Capacity	11.9	MGD
Firm Capacity	7.9	MGD

Automatic or (Manual) Control Set-points: (feet, psi, or time of day)

CPZ	Pump #	On Set-point	Off Set-point	Always On
Lead				
Lag 1				
Lag 2				

Legend:

*From model *; from as-built **;*
*visual inspection ***; word of mouth ******

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Facility Worksheet
PUMPING STATIONS

Trinity Road Booster Pump Station (Raleigh):

Trinity Road Booster Pump Station (all pumps same capacity and head):

Trinity Road Booster Pump Station - turbine meters(2):

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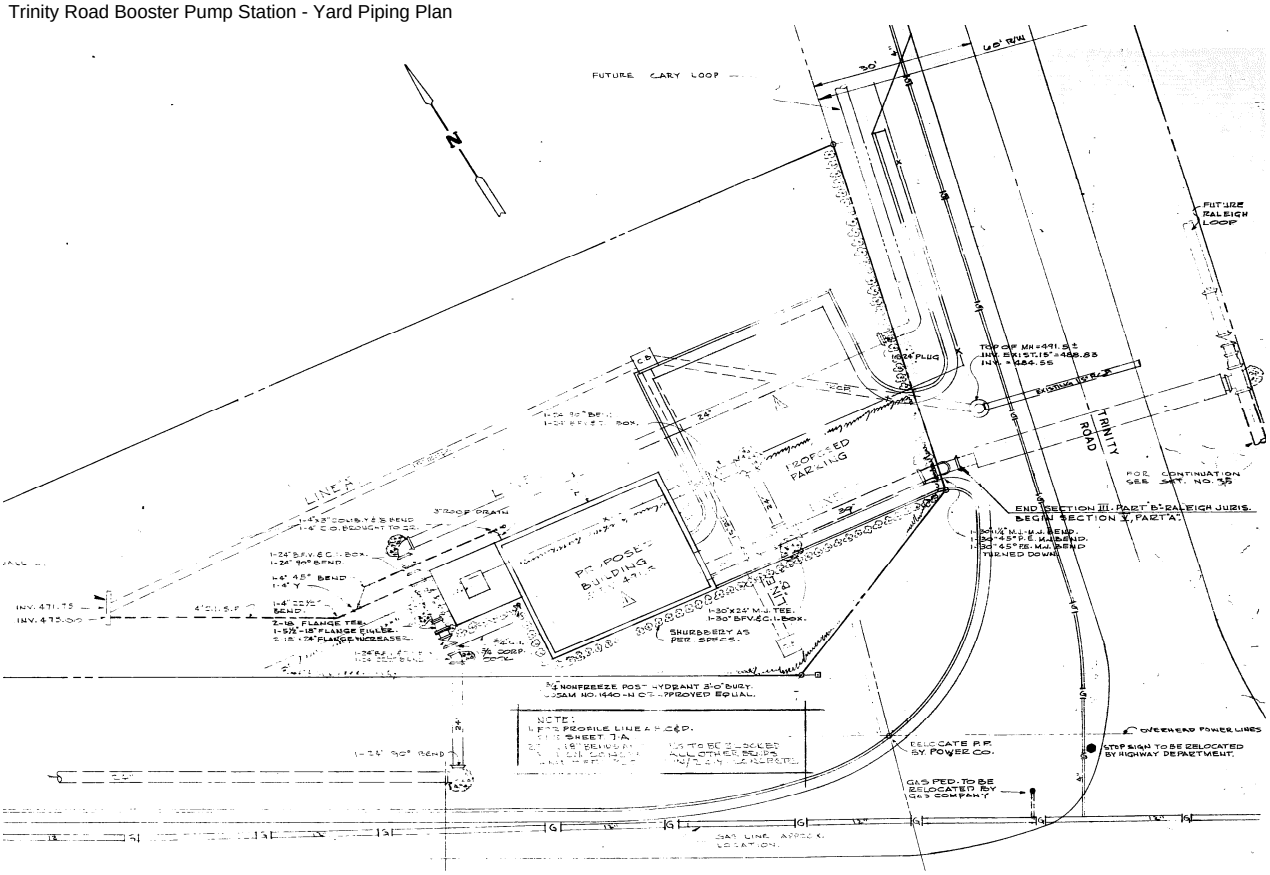
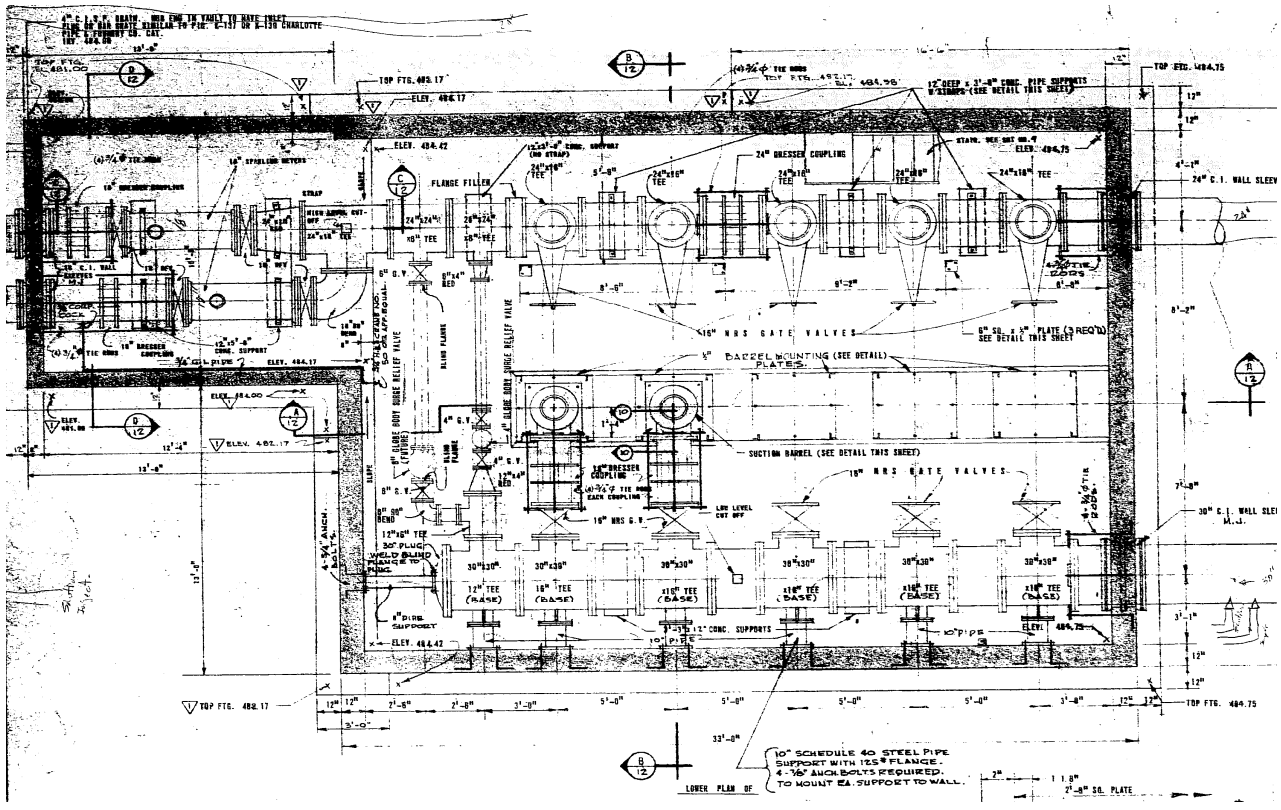
Facility Worksheet
PUMPING STATIONS

Trinity Road Booster Pump Station - Yard Piping Plan

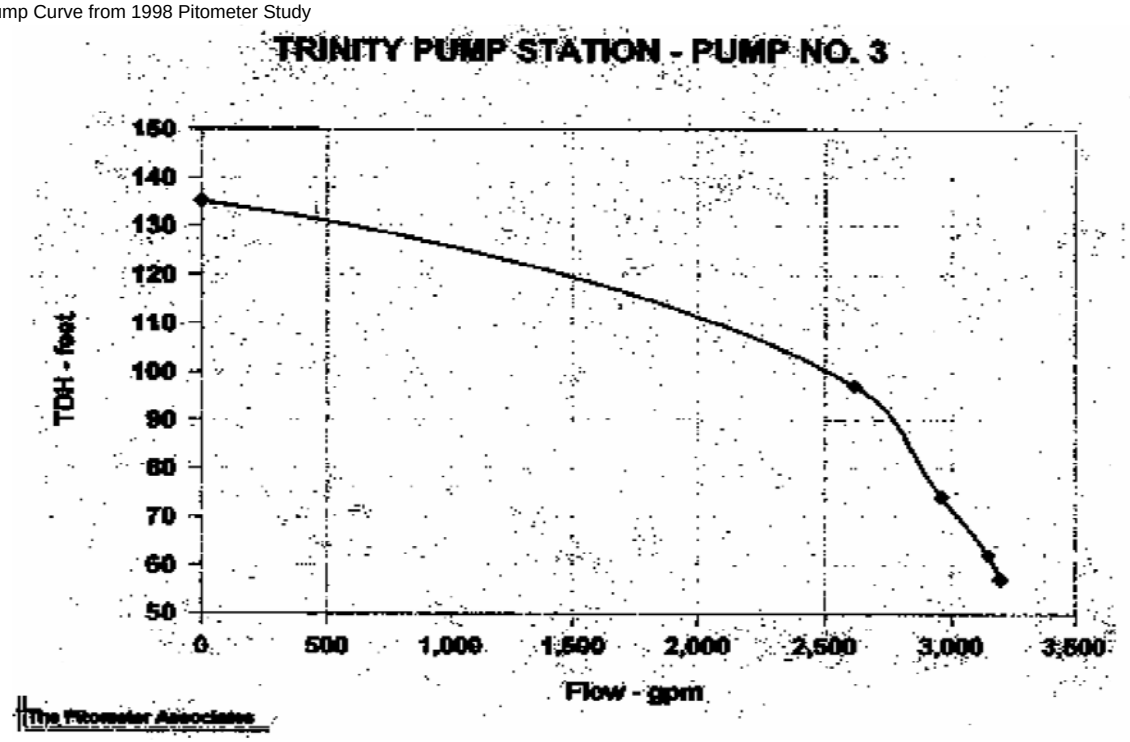


Trinity Road Booster Pump Station - Internal Mechanical Plan



Facility Worksheet
PUMPING STATIONS

Pump Curve from 1998 Pitometer Study



PUMP TEST RESULTS

TRINITY PUMP STATION

PUMP NO. 3

Pump Data		Motor Data	
Manufacturer	Fairbanks Morse	Manufacturer	U.S. Motors
Serial No.	T3W2432158	Serial No.	G347/TO6S270R089
GPM Rating	2,750	Amps	120.5
TDH Rating	50	Volts	460
Pipe Size - In	16-in.	RPM	1,775
Pipe Size - Out	10-in.	Horsepower	100

Test Data

Test Condition	Shutoff	Throttled	Throttled	Normal	Induced
Flow - mgd.	0.00	3.77	4.26	4.54	4.61
Flow - gpm.	0	2,620	2,960	3,150	3,200
Pressure Head - Out	135	189	162	151	144
Velocity Head - Out	0	2	2	3	3
Pressure Head - In	0	94	90	92	90
Velocity Head - In	0	0	0	0	0
TDH (Out-In) - ft.	135	97	74	62	57

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Facility Worksheet
PUMPING STATIONS

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Old Apex Re-Pump Station

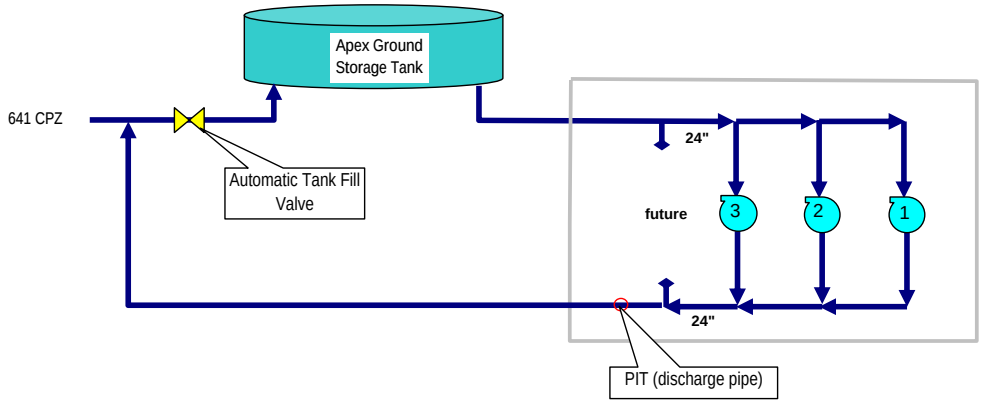
Pressure Zone Name: Central Pressure Zone

Inspector Name: KSB / JPW

Utility Operator Name: Tom Elkins Doug Houghman Davis Retnouds /WQ ??

Pump Station Schematic:

Year Built / Drawing Provided? 2000 / yes (see below)



Pump Configuration: Horiz. split case centrifugal; (Vertical turbine can); Multi-stage centrifugal; In-line vertical turbine

Pump Curves Available? No provided

Suction Supply: Cary 540 WPZ (Ground Tank)

Pump Centerline Elevation: ** pump (467.58'); pipe (461.75')

Pump Station Control: Discharge Pressure; (Tank Level); (Time)

Flow Meter Location: None

Controlling Tank(s): Apex Tank - pump on based on time; pump off based on low water level

Meter Type / Model: --

PIT Location / Elevation: No PIT (only pressure gauge)

Last Calibrated (Date): --

Overall Physical Condition: (Excellent); Good; Fair; Poor; Needs Immediate Repair; Needs Replacement

Detailed Pump Information: ***

Pump #	Pressure Zone	Serial No.	Manuf./Model	HP	Design Q (gpm / mgd)		Design Head (ft)	RPM / Stages
1	641-->641	204460-1	Fairbanks Morse	150	?	#VALUE!	?	1785 / ?
2	641-->641	204460-0	Fairbanks Morse	150	?	#VALUE!	?	1785 / ?
3	641-->641	204460-2	Fairbanks Morse	150	?	#VALUE!	?	1785 / ?

Approximate Capacity of Pump Station:

Total Capacity	0.0	MGD
Firm Capacity	0.0	MGD

(Automatic) or Manual Control Set-points: (feet, psi, or (time of day))

Sequence	Pump #	Pump ON Time Set-point	Emergency ON	Pump OFF
Lead	1, 2, or 3	6:00 a.m.	HWL Alarm 13.5-ft	LWL 5.5-ft Alar

Sequence of Tank and Re-Pump Station Operation:

Ground storage tank Inlet valve opens	*11:00 PM*
Reservoir filling	*11:00 PM - 6:00 AM*
Valve closes / Pump ON (reservoir level decreases)	*6:00 AM*
Approx. pump OFF time based on LWL set-point	*12:00 PM*

Legend:

*From model *; from as-built **;*

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Facility Worksheet
PUMPING STATIONS

*visual inspection ***; word of mouth ****** | *Tank at low water level and pumps are off* | *2:00 PM - 11:00 PM*

Old Apex Ground Tank and Re-Pump Station

Old Apex Re-Pump Station (Pumps Upper Level)

Old Apex Re-Pump Station (Pump and Electric Check Valve)

Old Apex Re-Pump Station (Pumps Lower Level)

Old Apex Re-Pump Station (PIT on Lower Level Discharge Pipe)

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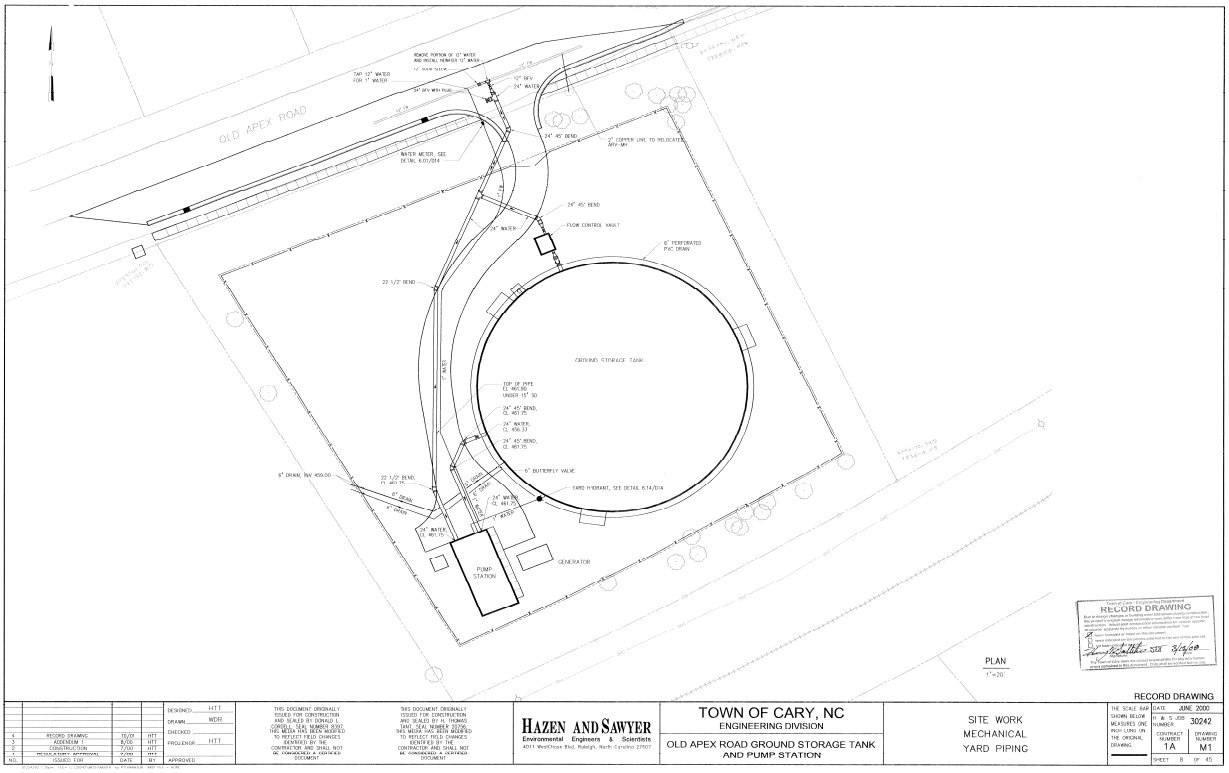
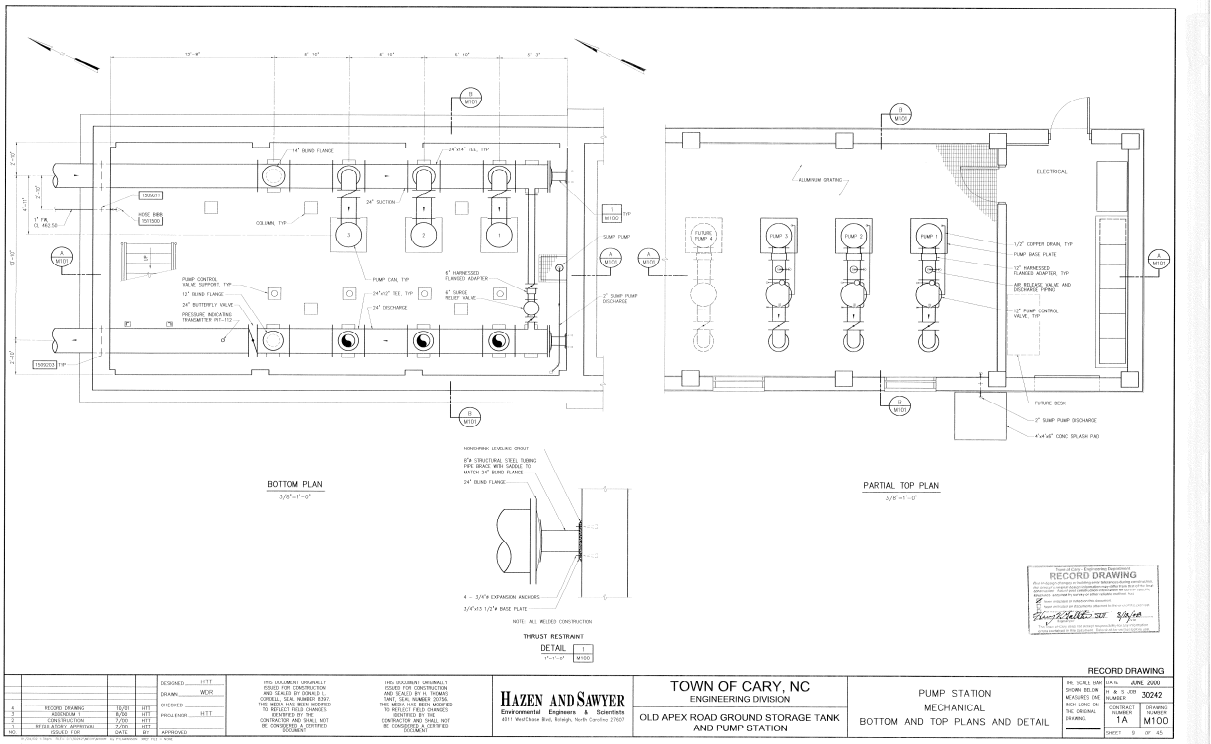
Facility Worksheet
PUMPING STATIONS

Old Apex Re-Pump Station - Yard Piping Plan

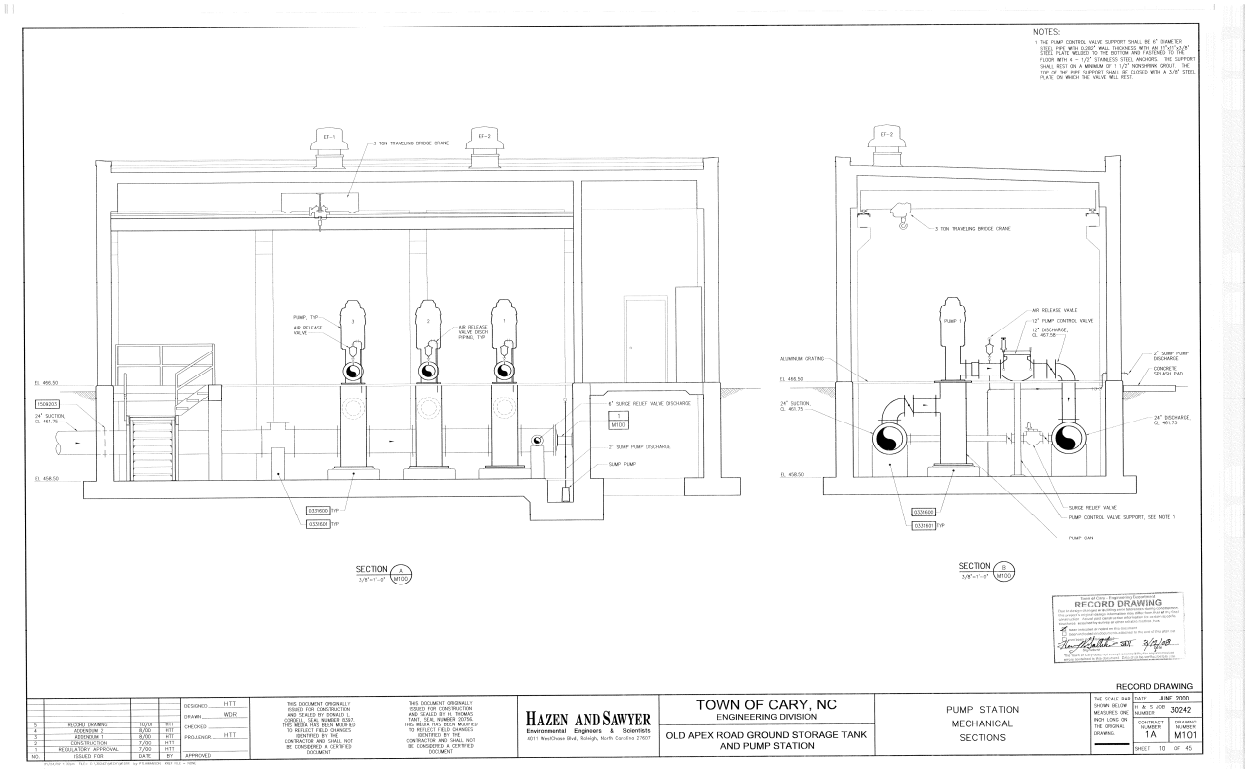


Old Apex Re-Pump Station - Mechanical (Upper and Lower Plan)



Facility Worksheet
PUMPING STATIONS

Old Apex Re-Pump Station - Mechanical (Section)



Facility Worksheet
PUMPING STATIONS

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Davis Drive Pump Station (flow to-from Durham)

Pressure Zone Name: Cary Western PZ to/from Durham

Inspector Name: KSB / JPW

Utility Operator Name: Tom Elkins Doug Houghman Davis Retnouds /WQ ??

Pump Station Schematic:

Year Built / Drawing Provided? ? / No

Waiting on As-built and paper copy of flow records

Pump Configuration: Horiz. split case centrifugal; (Vertical turbine can); Multi-stage centrifugal; In-line vertical turbine

Pump Curves Available? 1998 Pitometer Study - original pump curve (see below)

Suction Supply: Cary 540 WPZ

Pump Centerline Elevation: ** N/A (no as-built)

Pump Station Control: Discharge Pressure; Tank Level; (Time)

Flow Meter Location: Turbine flow meters (2) in yard vault

Controlling Tank(s): N/A

Meter Type / Model: Not collected

PIT Location / Elevation: No PIT (only pressure gauge)

Last Calibrated (Date): Unknown

Overall Physical Condition: Excellent; (Good); Fair; Poor; Needs Immediate Repair; Needs Replacement

Detailed Pump Information: ***

Pump #	Pressure Zone	Serial No.	Manuf./Model	HP	Design Q (gpm / mgd)		Design Head (ft)	RPM / Stages
1	Durham-->Cary[1]	23009-1-3	Floway / DOH size 14	200	1,050	1.5	290	1800 / 4
2	Cary-->Durham[2]	23009-1-2	Floway / DOH size 14	200	1,050	1.5	?	1800 / 1
3	Cary-->Durham[2]	23009-1-1	Floway / DOH size 14	200	1,050	1.5	?	1800 / 1

[1] Pump 1 has original 4 stages when Davis Drive BPS originally pumped from Durham to Cary 641 Zone

[2] Pump 2 and 3 had three stages removed so that Davis Drive BPS could pump from Cary 540 WPZ to Durham

Approximate Capacity of Pump Station:

Total Capacity	4.5	MGD
Firm Capacity	3.0	MGD

Automatic or (Manual) Control Set-points: (feet, psi, or (time of day))

CPZ	Pump #	On Set-point	Off Set-point	Always On
Lead				
Lag 1				
Lag 2				

Legend:

*From model *; from as-built **;*

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Facility Worksheet
PUMPING STATIONS

*visual inspection ***; word of mouth ******

Davis Drive Booster Pump Station Site (Durham):

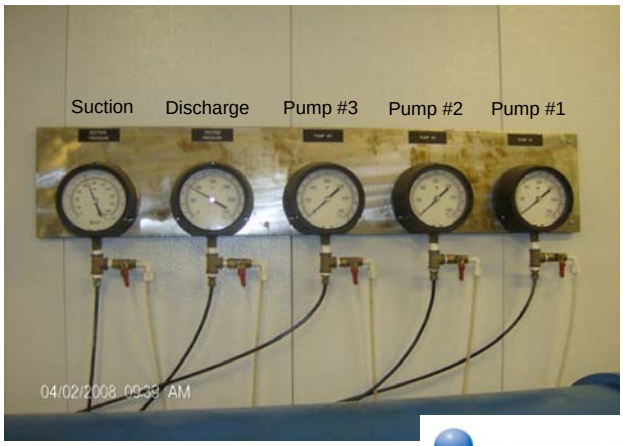
Davis Drive Booster Pump Station (pump #1 - original capacity and head):

Davis Drive BPS (Turbine meter 1 of 2):

Davis Drive Booster Pump Station (pump #2 and 3 - new capacity and hea

Davis Drive BPS (Internal Piping):

Davis Drive BPS (Pressure Gauges):



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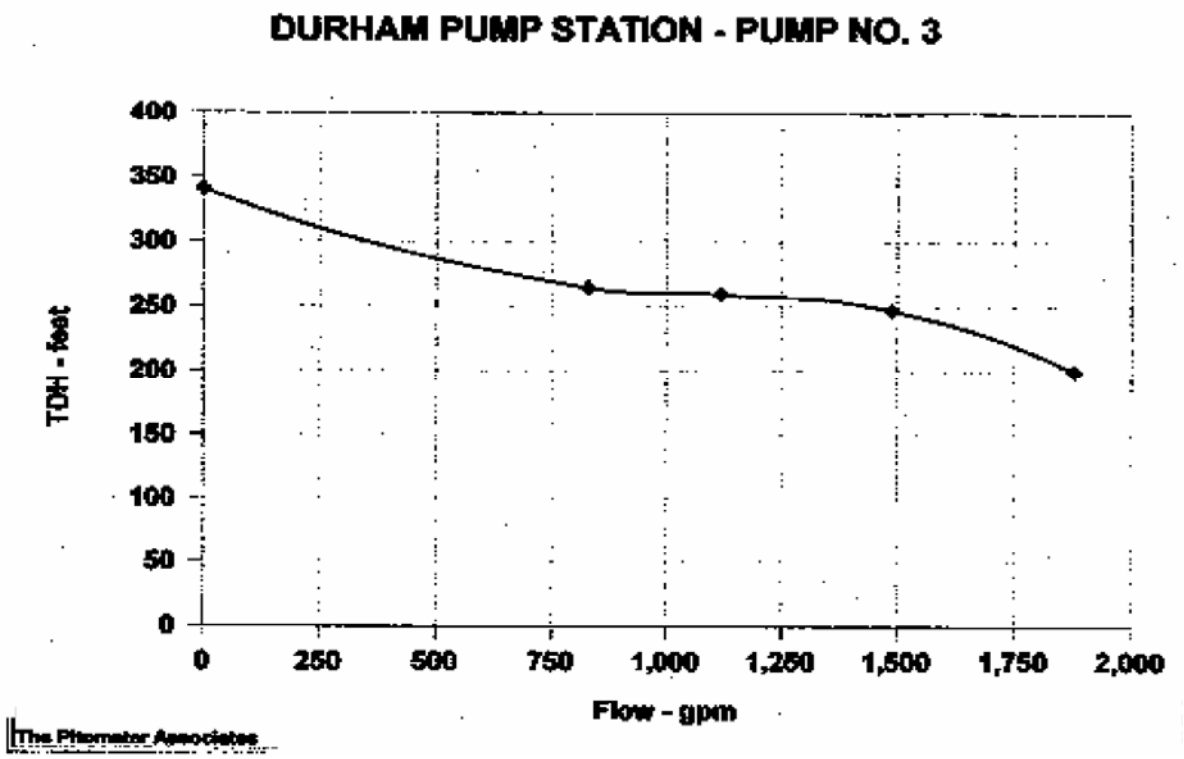
Pump Curve from 1998 Pitometer Study



PUMP TEST RESULTS

DURHAM PUMP STATION

PUMP NO. 3

Pump Data		Motor Data	
Manufacturer	Floway	Manufacturer	U.S. Motors
Serial No.	23009-1-1	Serial No.	H07438A01Z1590844R-3
GPM Rating	1,850	Amps	223
TDH Rating	290	Volts	460
Pipe Size - In	12-in.	RPM	1,780
Pipe Size - Out	12-in.	Horsepower	200

Test Data

Test Condition	Shutoff	Throttled	Throttled	Design	Normal
Flow - mgd.	0.00	1.19	1.61	2.15	2.70
Flow - gpm.	0	830	1,120	1,490	1,880
Pressure Head - Out	340	453	446	425	358
Velocity Head - Out	0	0	0	0	0
Pressure Head - In	0	189	187	178	159
Velocity Head - In	0	0	0	0	0
TDH (Out-In) - ft.	340	264	259	247	199

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Pressure Zones
Central
Airport
Southern
Western

Tanks			
Name	**Inspected**	**Photos**	**As Builts**
Carpenter NC55	Yes	Yes	Yes
Field Street	Yes	Yes	Yes
Maynard	Yes	Yes	Yes
Ridgeview	No	Yes	No
Harrison	Yes	Yes	Yes
Apex	Yes	Yes	Yes
Plumtree	Yes	Yes	Yes
Kildaire	Off line - Replaced by Field Street		

Facility Worksheet
WATER STORAGE TANK

Inspection Date:	4/2/2008	Pressure Zone Name:	126: WPZ
Utility Name:	Town of Cary	Overflow Elevation:	540
Facility Name:	Carpenter	Inspector Name:	Paul West/Kathryn Benson
Facility Address:	Off NC 55	Utility Operator Name:	Glen Harrell/Jay Melby/Davis Reynolds

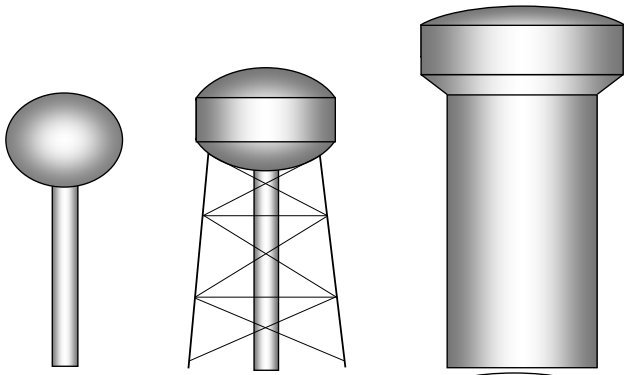
Type of Tank: Fluted Piller

Altitude Valve Vault: See attached drawing

24 " Feed Pipe 18" Valut

Written on Tank - OVERFLOW
152.7 on Rosemont
66.5 psi on Gauge

4 FT DIFFERENCE IN SCADA & GAUGE
**Contact JD ON SCADA programing



Spheroid | Double Ellipsoid | (Fluted Piller) | Standpipe | Ground Tank | N/A

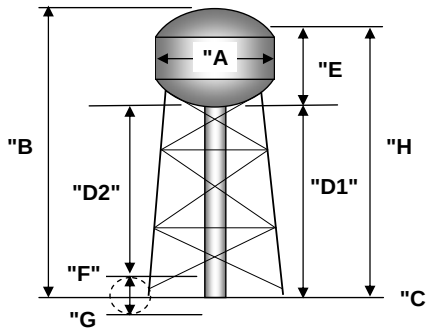
Year Constructed:	2001	Tank Material:	Steel
Manufacturer Name:	Pitt - Des Moines	Has Drawing Been Provided?	Yes

Overall Physical Condition: (Excellent) Good Fair Poor Needs Immediate Repairs Needs Replacement

Tank Diameter: "A"	100** feet	Ground Elevation in m.s.l: "C"	391** feet
Tank Height: "B"	167.333** feet	Ground to PIT Sensor Distance: (Below or Above Ground)	5*** feet (F) G
Head Range: "E"	40** feet		
Ground to Overflow: "H"	149** feet	Ground to Bottom of Bowl: "D1"	109** feet
Total Volume:	2 mgal	Sensor to Bottom of Bowl: "D2"	104*** feet

Field Measurement Time:	9:52 am		
Tank Level (SCADA):	34.34*** feet		
	Tank	CH2M HILL	
Portable Pressure Gauge:	64***	62***	psi
Pressure Gauge Elevation: *(Use nearby hydrant or PIT location)*	396*** feet m.s.l.		
Field Calculated Level:	43.84	39.22	feet

Note Davis's gauge read 68 psi



*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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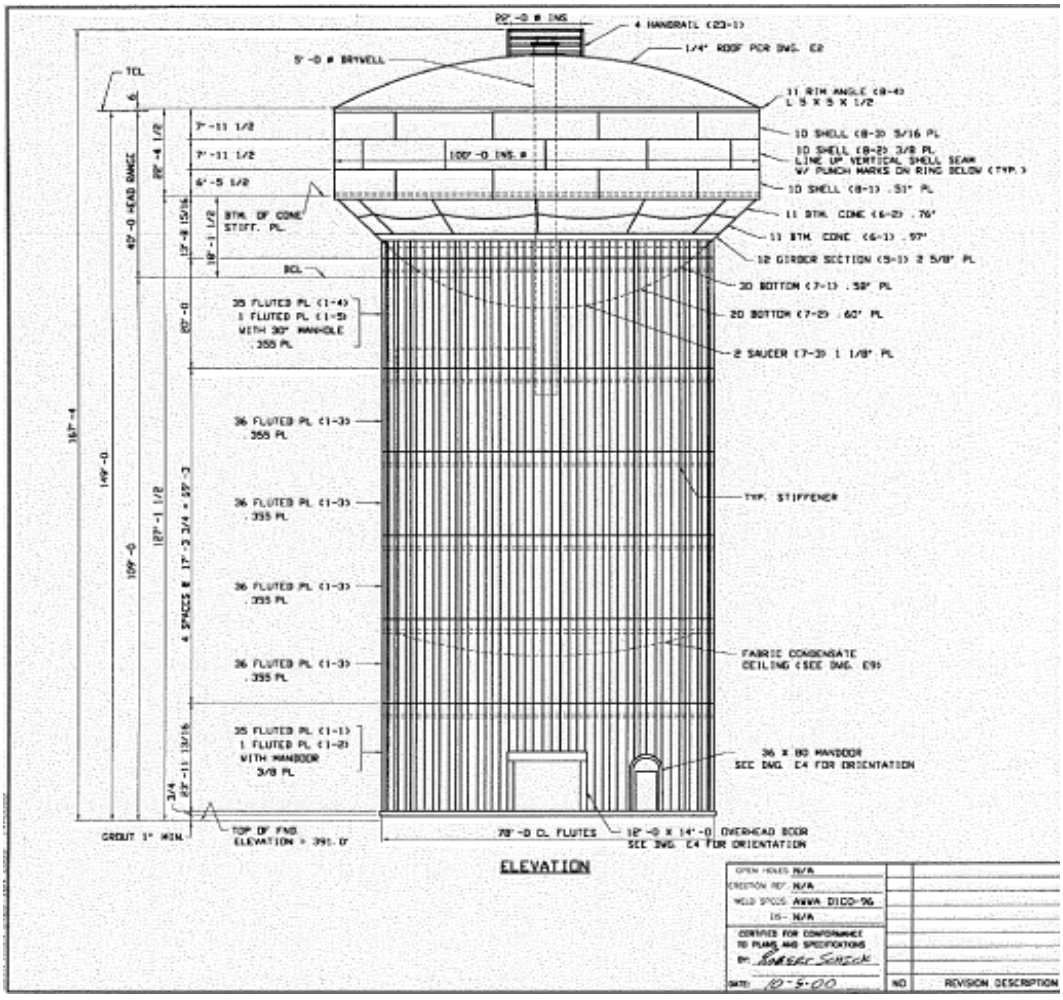
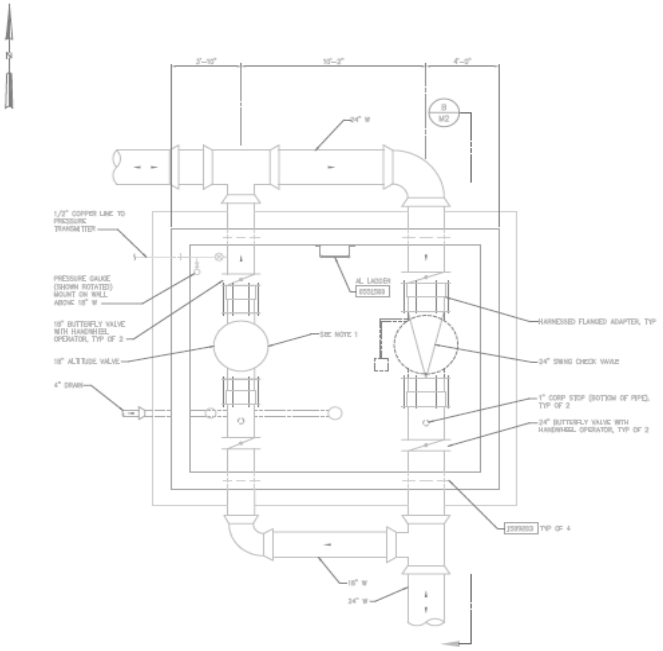
Facility Worksheet
WATER STORAGE TANK

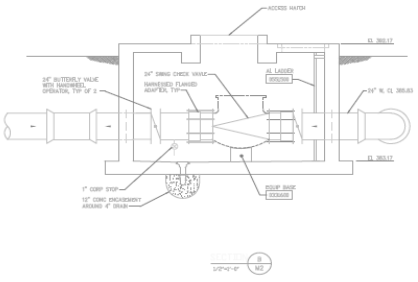
Carpenter ET PIT

Carpenter ET Aerial

Facility Worksheet
WATER STORAGE TANK







Facility Worksheet
WATER STORAGE TANK

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Plumtree

Facility Address: Off Plumtree Way

Pressure Zone Name: 125: SPZ

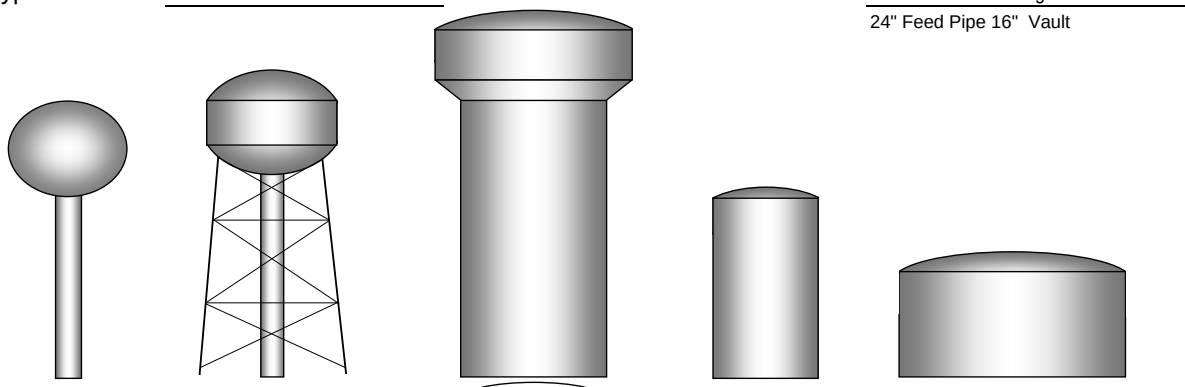
Overflow Elevation: 595***

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Tank: Fluted Piller

Altitude Valve Vault: See attached drawing
24" Feed Pipe 16" Vault



Spheroid | Double Ellipsoid | (Fluted Piller) | Standpipe | Ground Tank | N/A

Year Constructed: 2001

Tank Material: Steel

Manufacturer Name: Pitt - DesMoines

Has Drawing Been Provided? Yes

Overall Physical Condition: (Excellent) Good Fair Poor Needs Immediate Repairs Needs Replacement

Tank Diameter: "A" 74** feet

Tank Height: "B" 141-1 9/16' feet

Head Range: "E" 40** feet

Ground to Overflow: "H" 126.5** feet

Total Volume: 1 mgal

Ground Elevation in m.s.l: "C" 468.5** feet

Ground to PIT Sensor Distance: 5*** feet
(Below or Above Ground) (F) G

Ground to Bottom of Bowl: "D1" 86.5** feet

Sensor to Bottom of Bowl: "D2" 81.5*** feet

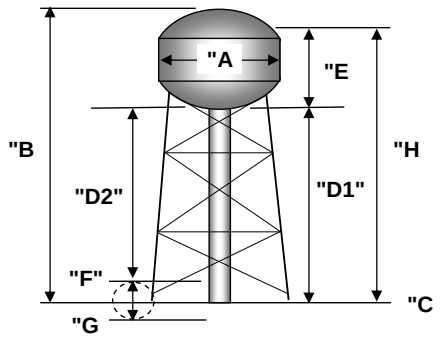
Field Measurement Time: 11:33 am

Tank Level (SCADA): 32.48*** feet

Portable Pressure Gauge: 49.2*** psi

Pressure Gauge Elevation: feet m.s.l.
(Use nearby hydrant or PIT location)

Field Calculated Level: 32.15 feet



CH2MHILL

Facility Worksheet
WATER STORAGE TANK

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

Plumtree ET

Plumtree ET Nameplate

Plumtree ET Altitude and Check Valve Vault

Plumtree ET Altitude Valve

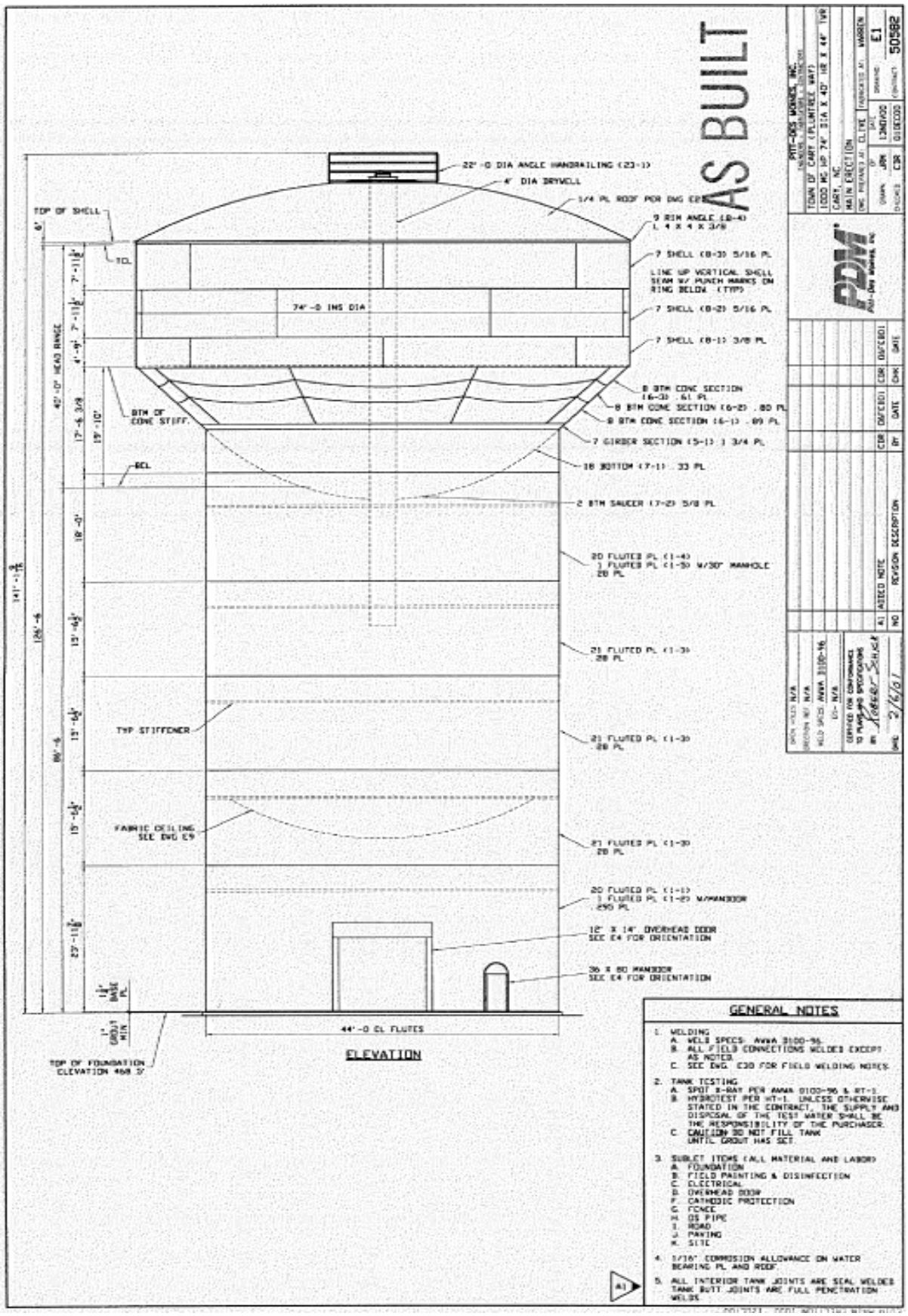
Plumtree ET Check Valve

Facility Worksheet
WATER STORAGE TANK

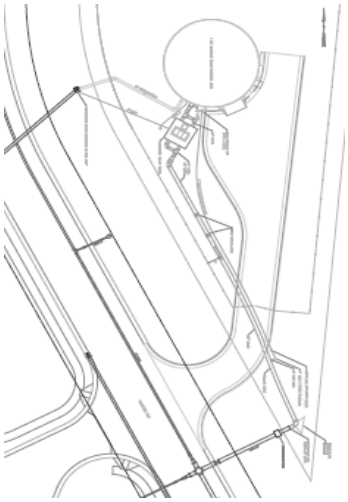
Plumtree ET dP Transmitter

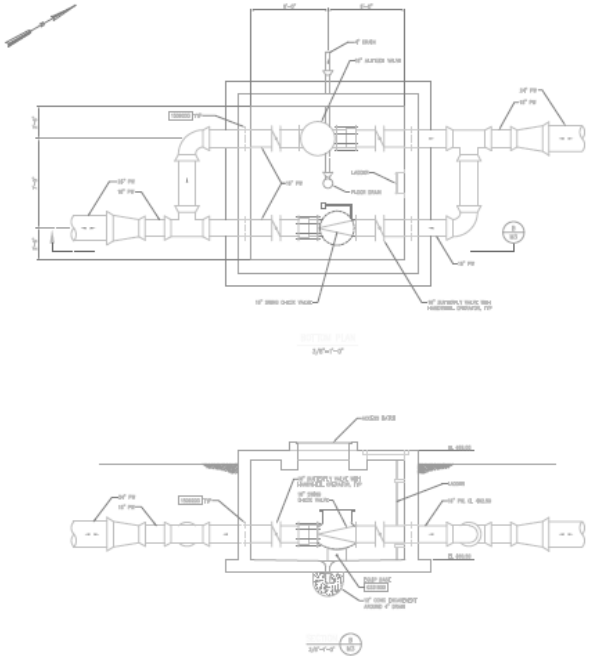
Plumtree ET Aerial

Facility Worksheet
WATER STORAGE TANK



Facility Worksheet
WATER STORAGE TANK





Facility Worksheet
WATER STORAGE TANK

Inspection Date: 4/2/2008

Utility Name: Town of Cary

Facility Name: Field Street

Facility Address: Off Field Street

Pressure Zone Name: CPZ

Overflow Elevation: 641

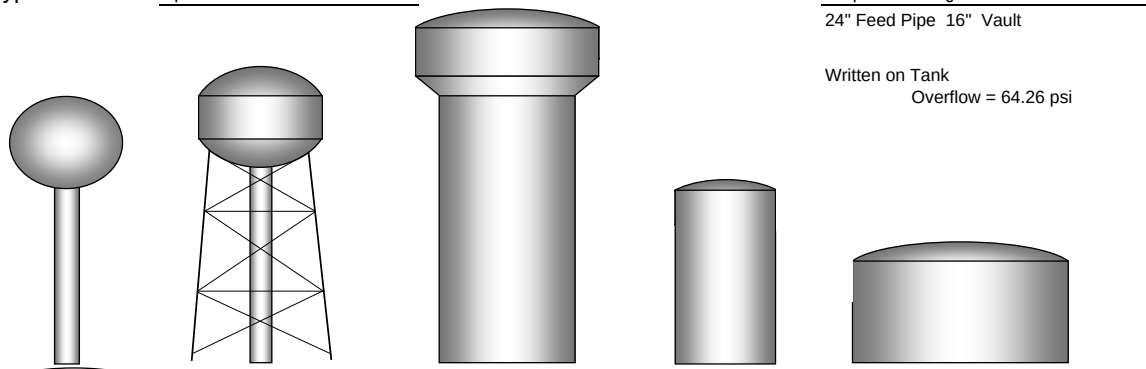
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Tank: Spheroid

Altitude Valve Vault: Request drawing
24" Feed Pipe 16" Vault

Written on Tank
Overflow = 64.26 psi



(Spheroid) Double Ellipsoid Fluted Piller Standpipe Ground Tank N/A

Year Constructed: 2007

Tank Material: Steel

Manufacturer Name: Chicago Bridge & Iron

Has Drawing Been Provided? Yes

Overall Physical Condition: (Excellent) Good Fair Poor Needs Immediate Repairs Needs Replacement

Tank Diameter: "A" varies - 30 feet

Tank Height: "B" 170.12 feet

Head Range: "E" 40*** feet

Ground to Overflow: "H" 152.25*** feet

Total Volume: 0.75 mgal

From Name Plate - Height to BCL = 112.25 feet

Ground Elevation in m.s.l: "C" 488.81*** feet

Ground to PIT Sensor Distance: 3.75*** feet
(Below or Above Ground) (F) G
Elevation = 485.06

Ground to Bottom of Bowl: "D1" 112.25*** feet

Sensor to Bottom of Bowl: "D2" 108.5 feet

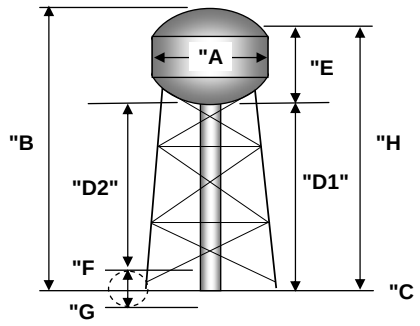
Field Measurement Time: 1:45 pm

Tank Level (SCADA): 19.22*** feet

Portable Pressure Gauge: 55.5*** psi

Pressure Gauge Elevation: feet m.s.l.
(Use nearby hydrant or PIT location)

Field Calculated Level: 19.7*** feet



*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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Facility Worksheet
WATER STORAGE TANK

Field Street ET Altitude and Check Valve

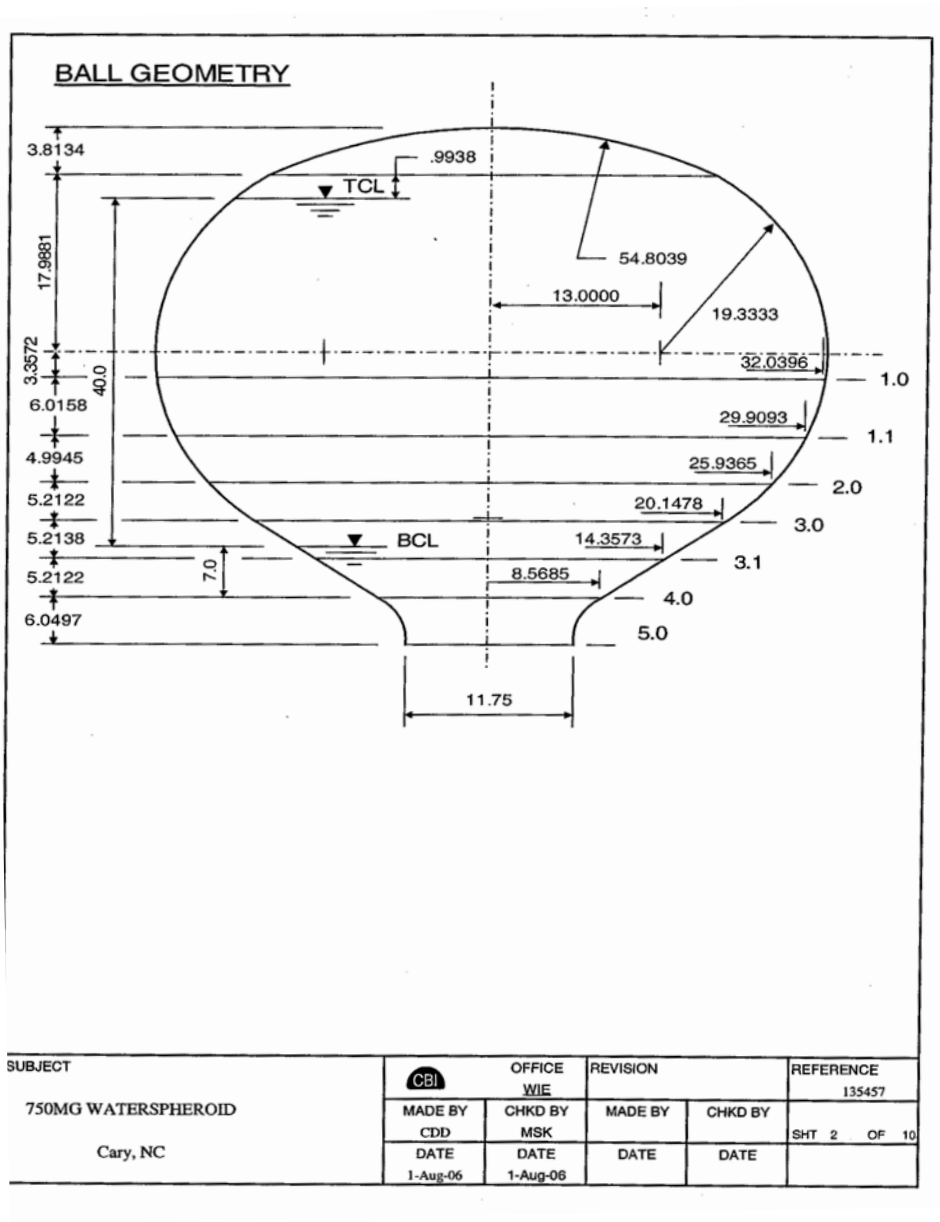
Field Street ET Aerial

Field Street ET

Field Street ET PIT

CH2MHILL

Facility Worksheet
WATER STORAGE TANK



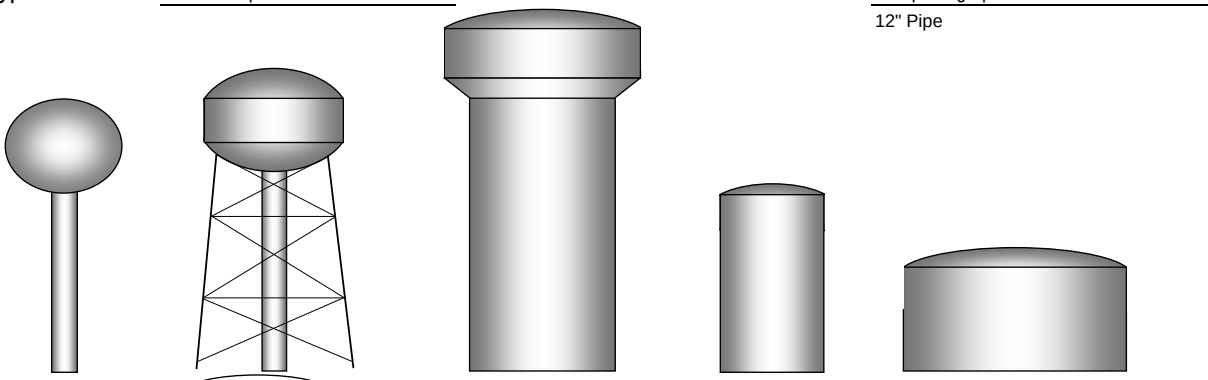
SUBJECT	CBI	OFFICE WIE	REVISION		REFERENCE 135457
750MG WATERSPHEROID	MADE BY CDD	CHKD BY MSK	MADE BY	CHKD BY	
Cary, NC	DATE 1-Aug-06	DATE 1-Aug-06	DATE	DATE	SHT 2 OF 10

Facility Worksheet
WATER STORAGE TANK

Inspection Date:	4/2/2008	Pressure Zone Name:	127: CPZ*
Utility Name:	Town of Cary	Overflow Elevation:	641
Facility Name:	Maynard	Inspector Name:	Paul West/Kathryn Benson
Facility Address:	Off Maynard Road	Utility Operator Name:	Glen Harrell/Jay Melby/Davis Reynolds

Type of Tank: Double Ellipsoid

Altitude Valve Vault: See photograph below
12" Pipe



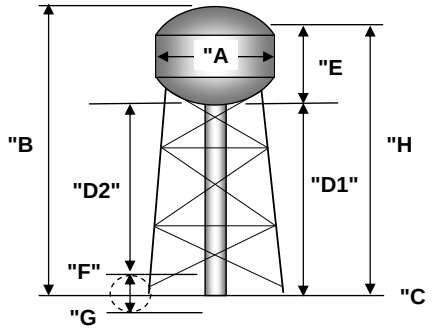
Spheroid | (Double Ellipsoid) | Fluted Piller | Standpipe | Ground Tank | N/A

Year Constructed:	1966	Tank Material:	Steel
Manufacturer Name:	Chicago Bridge & Iron	Has Drawing Been Provided?	Yes

Overall Physical Condition: Excellent (Good) Fair Poor Needs Immediate Repairs Needs Replacement

Tank Diameter: "A"	50** feet	Ground Elevation in m.s.l: "C"	480* feet
Tank Height: "B"	166 feet	Ground to PIT Sensor Distance: (Below or Above Ground)	5.75*** feet (F) G
Head Range: "E"	37.166** feet		
Ground to Overflow: "H"	166** feet	Ground to Bottom of Bowl: "D1"	128.833** feet
Total Volume:	0.5 mgal	Sensor to Bottom of Bowl: "D2"	123.08 feet

Field Measurement Time:	2:48 pm		
Tank Level (SCADA):	16.24*** feet		
	Tank	CH2M HILL	
Portable Pressure Gauge:	61.2***	63.2*** psi	
Pressure Gauge Elevation: *(Use nearby hydrant or PIT location)*	feet m.s.l.		
Field Calculated Level:	18.3***	20.4*** feet	



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Facility Worksheet
WATER STORAGE TANK

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

Maynard Road ET Altitude Valve Vault

Maynard Road ET Altitude Valve

Maynard Road ET Nameplate

Maynard Road ET PIT

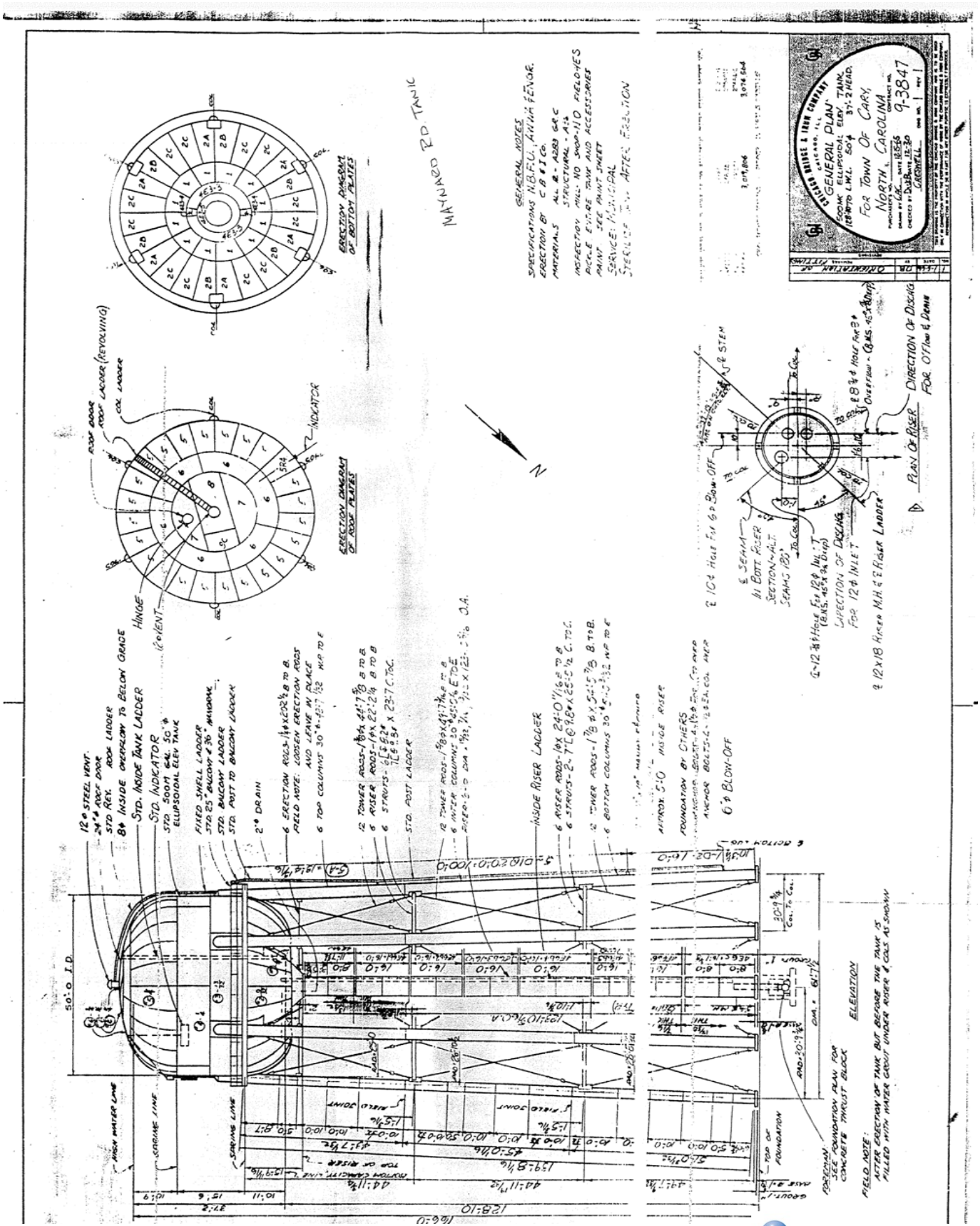
Maynard Road ET Pressure Monitoring Bldg

Maynard Road ET Pressure Monitoring Panel

Maynard Road ET Aerial

CH2MHILL

Facility Worksheet
WATER STORAGE TANK



Facility Worksheet
WATER STORAGE TANK

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Ridgeview

Facility Address: Off Baines Court

Pressure Zone Name: 127: CPZ*

Overflow Elevation: 641

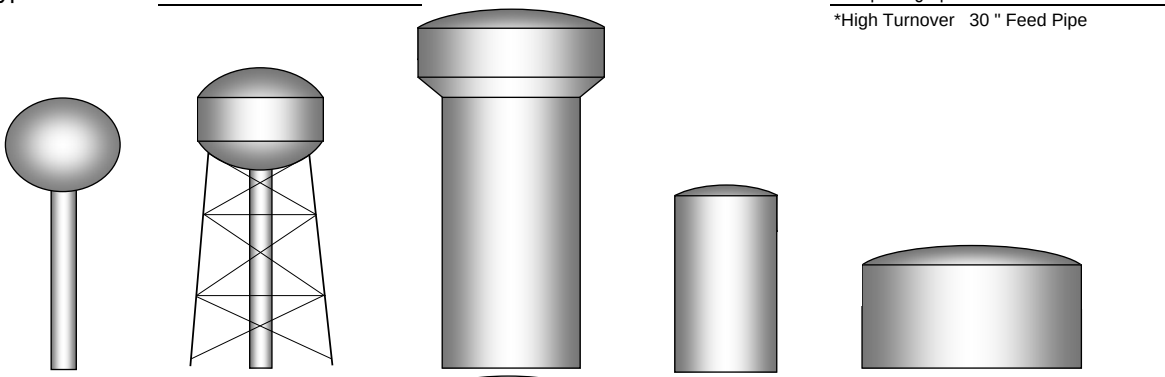
Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Tank: Fluted Piller

Altitude Valve Vault: See photograph below

*High Turnover 30 " Feed Pipe



Spheroid | Double Ellipsoid | (Fluted Piller) | Standpipe | Ground Tank | N/A

Year Constructed: 1994

Tank Material: Steel

Manufacturer Name: Pitt-Des Moines

Has Drawing Been Provided? No

Overall Physical Condition: (Excellent) Good Fair Poor Needs Immediate Repairs Needs Replacement

Tank Diameter: "A" 74*** feet

Tank Height: "B" feet

Head Range: "E" 40*** 36* feet

Ground to Overflow: "H" 167* feet

Total Volume: 1 mgal

Ground Elevation in m.s.l: "C" 474* feet

Ground to PIT Sensor Distance: (Below or Above Ground) 4*** feet (F) G

Ground to Bottom of Bowl: "D1" 131* feet

Sensor to Bottom of Bowl: "D2" 127 feet

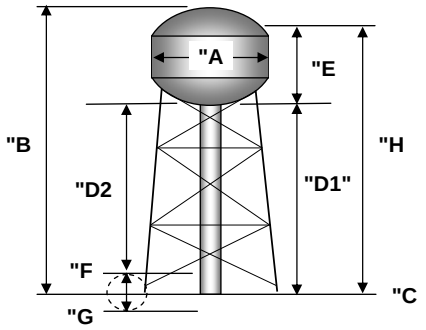
Field Measurement Time: 10:00 am

Tank Level (SCADA): 17.28*** feet

Portable Pressure Gauge: 62*** psi

Pressure Gauge Elevation: 4 feet
(Use nearby hydrant or PIT location)

Field Calculated Level: 16.22*** feet



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Facility Worksheet
WATER STORAGE TANK

*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

Ridgeview ET

Ridgeview ET Altitude and Check Valve Vault

Ridgeview ET (Internal Base)

Ridgeview ET dP Transmitter

Ridgeview ET Altitude and Check Valve

Ridgeview ET Aerial

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Facility Worksheet
WATER STORAGE TANK

Inspection Date: 4/3/2008

Pressure Zone Name: 127: CPZ

Utility Name: Town of Cary

Overflow Elevation: 641

Facility Name: Harrison

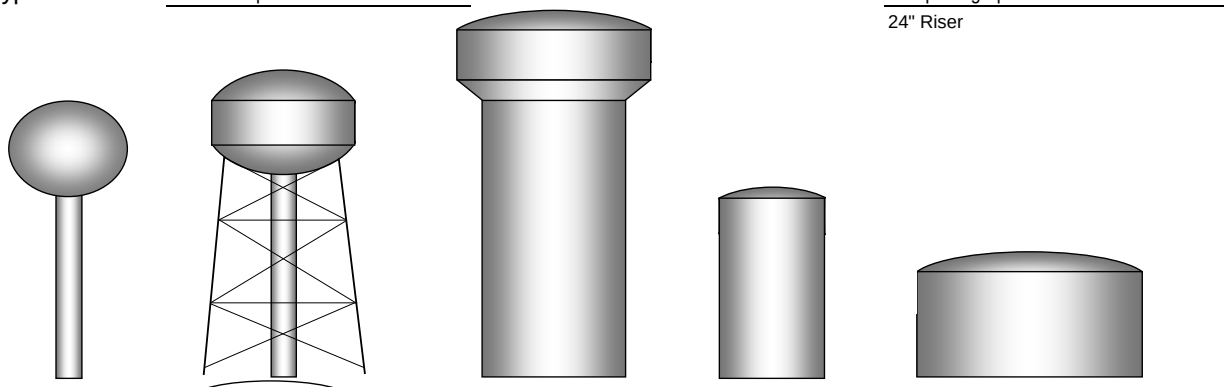
Inspector Name: Paul West/Kathryn Benson

Facility Address:

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

Type of Tank: Double Ellipsoid

Altitude Valve Vault: See photograph below
24" Riser



Spheroid | (Double Ellipsoid) | Fluted Piller | Standpipe | Ground Tank | N/A

Year Constructed: 1974

Tank Material: Steel

Manufacturer Name: Universal Tank Iron Works

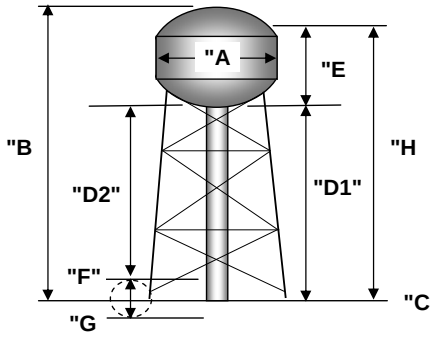
Has Drawing Been Provided? Yes

Overall Physical Condition: Excellent | (Good) | Fair | Poor | Needs Immediate Repairs | Needs Replacement

Note: Altitude rusting and needs repainting; rough operations

Tank Diameter: "A"	75**	feet	Ground Elevation in m.s.l: "C"	478**	feet
Tank Height: "B"	163	feet	Ground to PIT Sensor Distance: (Below or Above Ground)	5.5***	feet
				(F)	G
Head Range: "E"	35**	feet			
Ground to Overflow: "H"	163**	feet	Ground to Bottom of Bowl: "D1"	128**	feet
Total Volume:	1***	mgal	Sensor to Bottom of Bowl: "D2"	122.5***	feet

Field Measurement Time:	1:10		pm
Tank Level (SCADA):	18.78***		feet
	Tank	CH2M HILL	
Portable Pressure Gauge:	60***	63***	psi
Pressure Gauge Elevation: (Use nearby hydrant or PIT location)	5.5	3.25	feet
Field Calculated Level:	16.1***	20.78***	feet



*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

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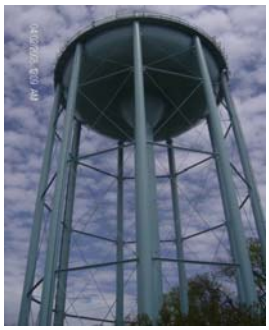
Facility Worksheet
WATER STORAGE TANK

Harrison ET



Harrison ET Pressure Monitoring Bldg

Harrison ET PIT

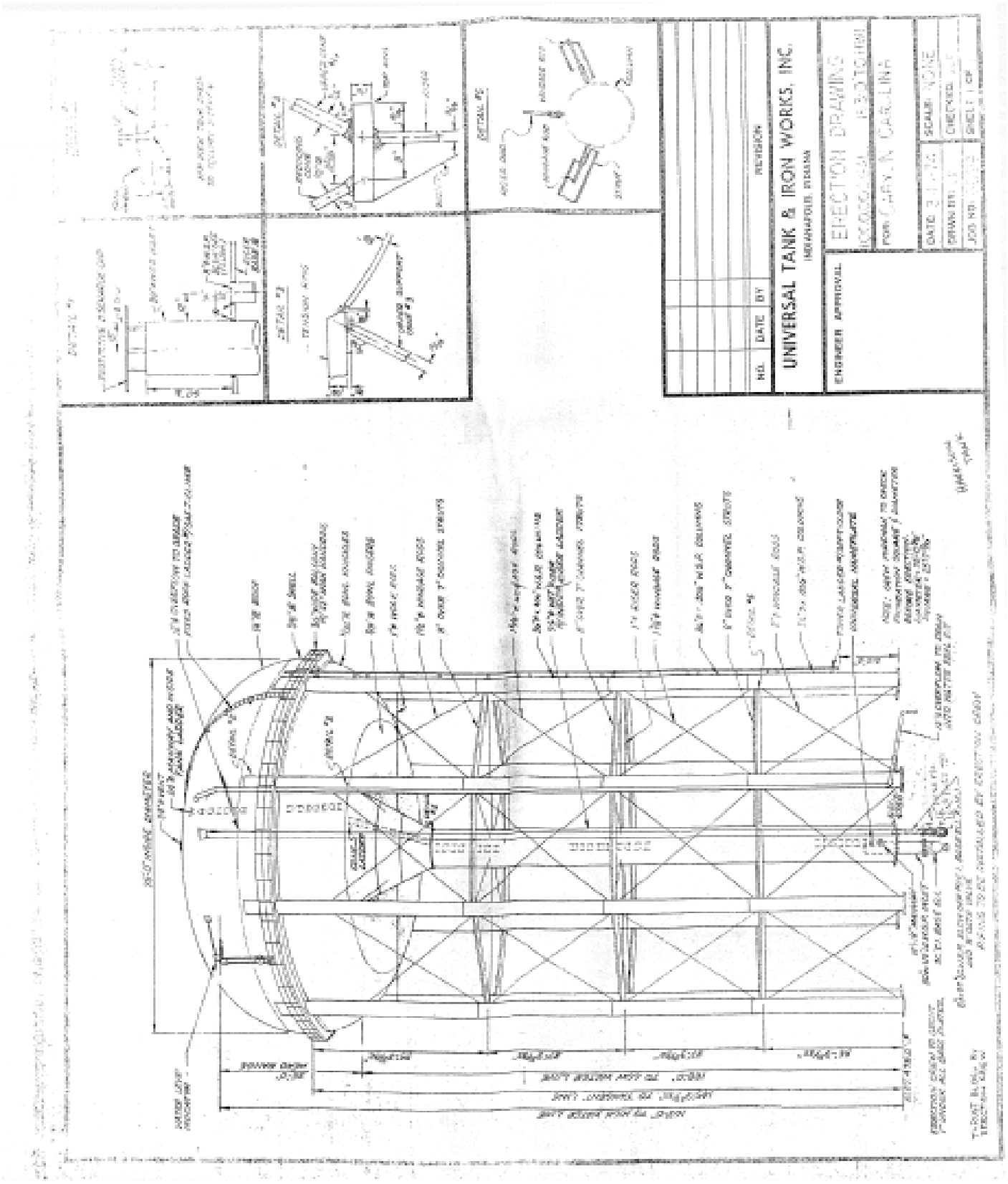
Harrison ET Nameplate

Harrison ET Pressure Monitoring Panel

Harrison ET Altitude and Check Valve

Harrison ET Supply and Overflow Pipes

Facility Worksheet
WATER STORAGE TANK



Facility Worksheet
WATER STORAGE TANK

Inspection Date: 4/3/2008

Utility Name: Town of Cary

Facility Name: Old Apex

Facility Address: Off Old Apex Road

Pressure Zone Name: 127: CPZ

Overflow Elevation: 641

Inspector Name: Paul West/Kathryn Benson

Utility Operator Name: Glen Harrell/Jay Melby/Davis Reynolds

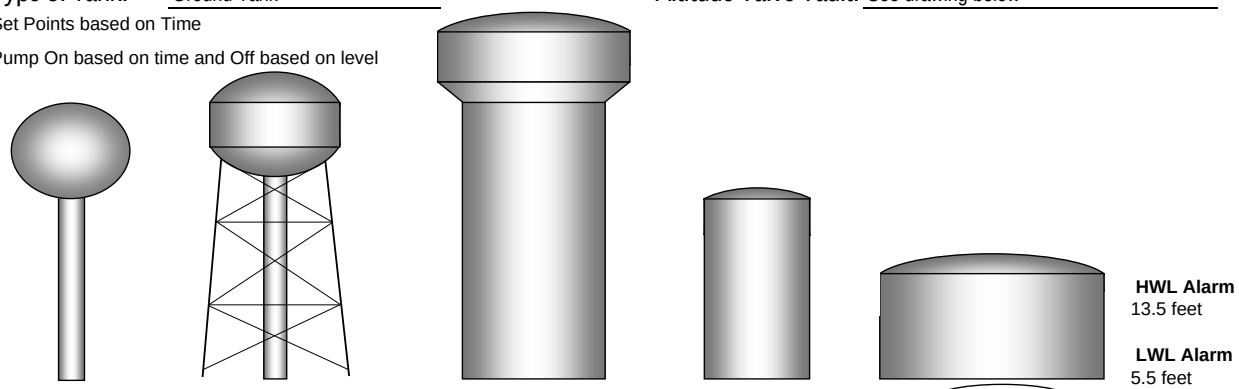
Used late March through November

Type of Tank: Ground Tank

Altitude Valve Vault: See drawing below

Set Points based on Time

Pump On based on time and Off based on level



Spheroid | Double Ellipsoid | Fluted Piller | Standpipe | (Ground Tank)

HWL Alarm
13.5 feet

LWL Alarm
5.5 feet
N/A

Year Constructed: 2000

Tank Material: Steel

Manufacturer Name:

Has Drawing Been Provided? Yes

Overall Physical Condition: (Excellent) Good Fair Poor Needs Immediate Repairs Needs Replacement

Tank Diameter: "A" 150* feet

Tank Height: "B" feet

Head Range: "E" 23* feet

Ground to Overflow: "H" 23* feet

Total Volume: 3** mgal

Ground Elevation in m.s.l: "C" 460 feet

Ground to PIT Sensor Distance: feet
(Below or Above Ground) (F) G

Ground to Bottom of Bowl: "D1" 0* feet

Sensor to Bottom of Bowl: "D2" feet

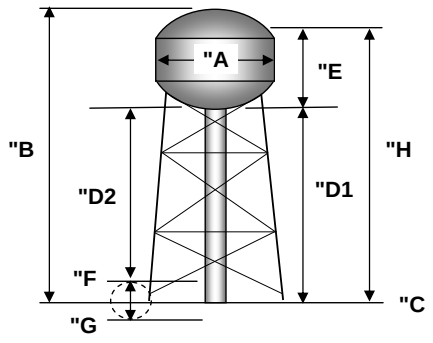
Field Measurement Time: am / pm

Tank Level (SCADA): feet

Portable Pressure Gauge: psi

Pressure Gauge Elevation: feet m.s.l.
(Use nearby hydrant or PIT location)

Field Calculated Level: feet



CH2MHILL

Facility Worksheet
WATER STORAGE TANK

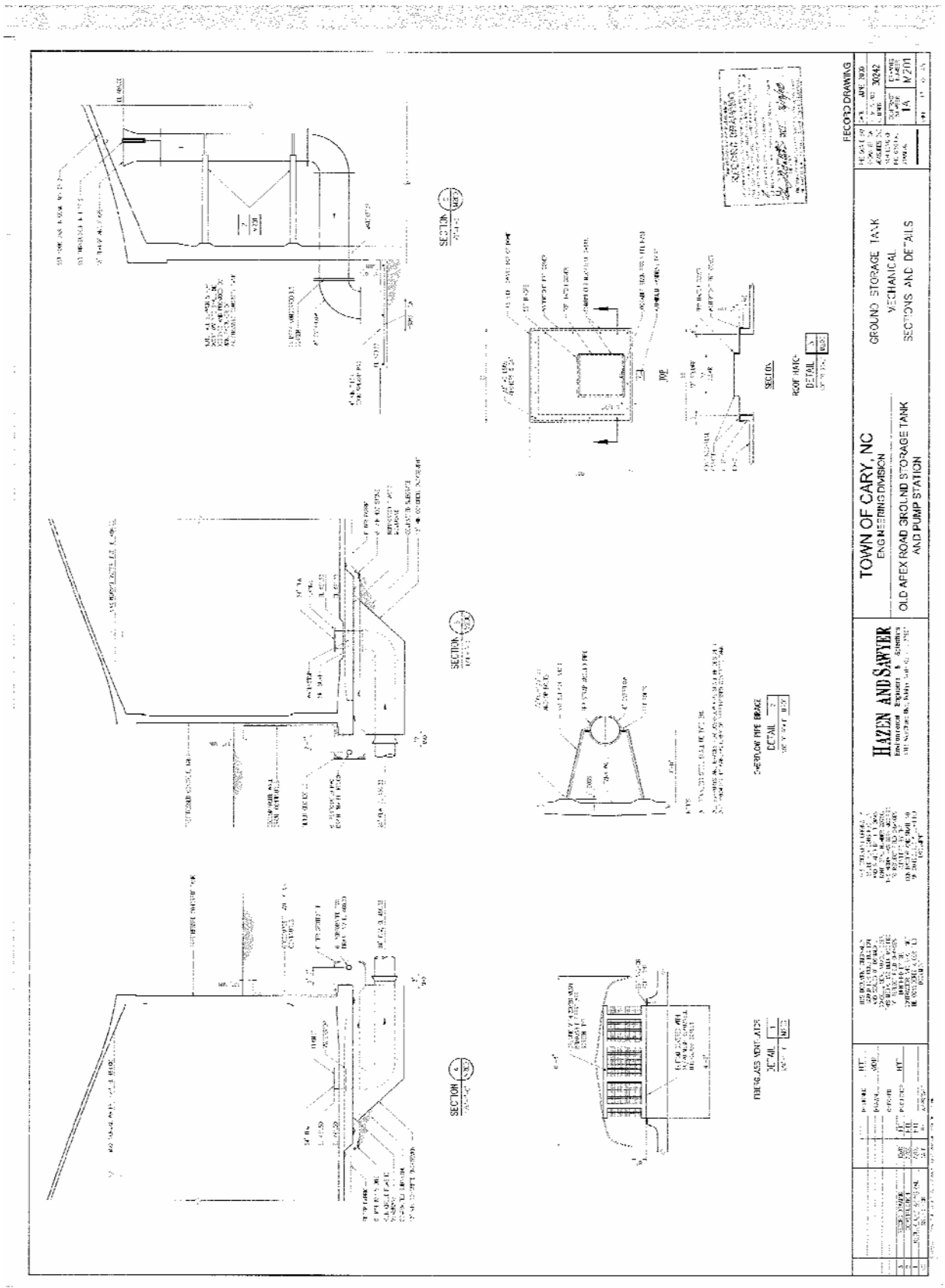
*Legend: from model *; from as-built **; visual inspection ***; word of mouth ****

Old Apex GST Control Valve & dP Transmitter

Old Apex Tank Aerial

Old Apex GST Control Valve Vault.

Facility Worksheet
WATER STORAGE TANK



Facility Worksheet
WATER STORAGE TANK