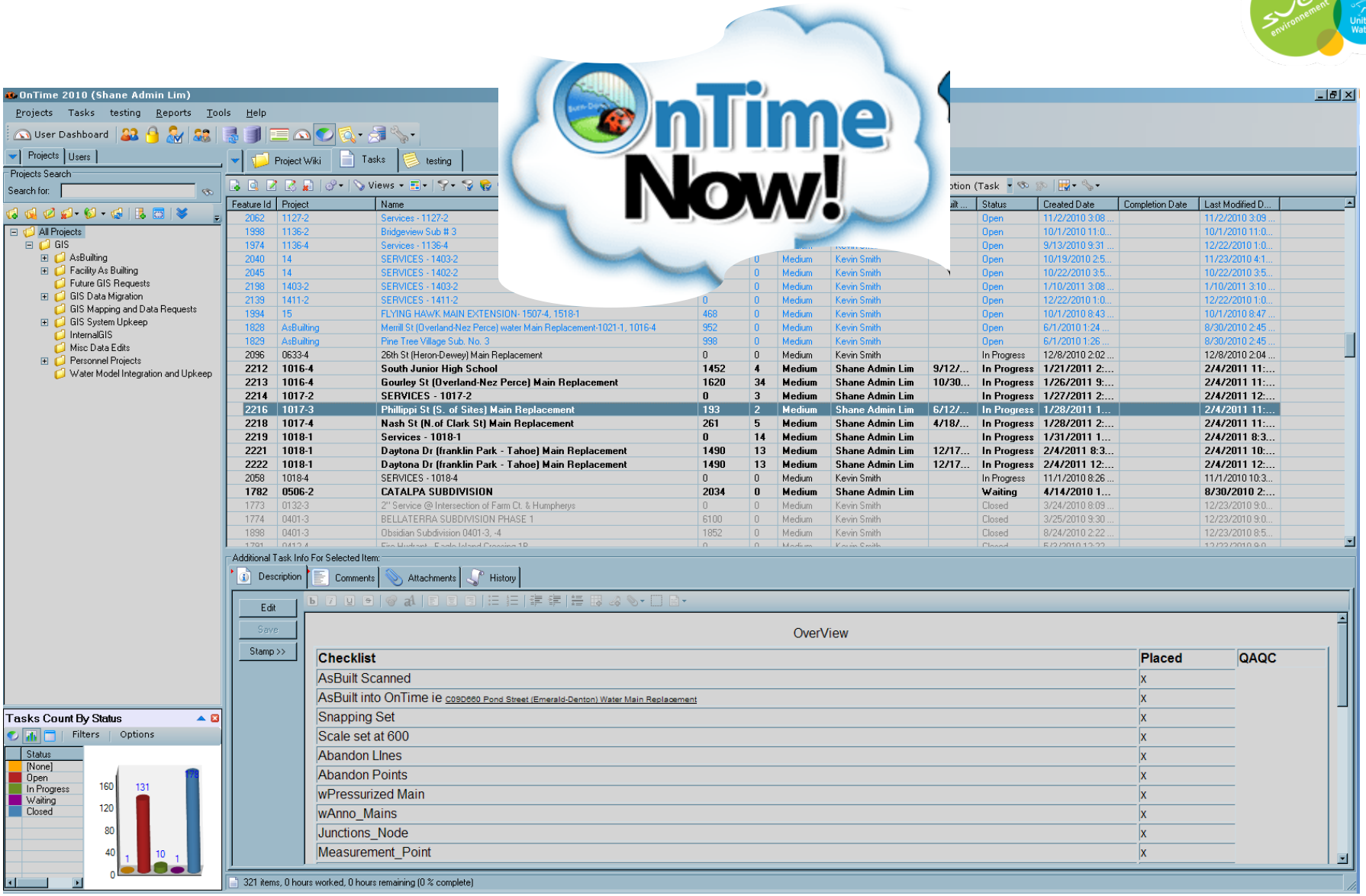
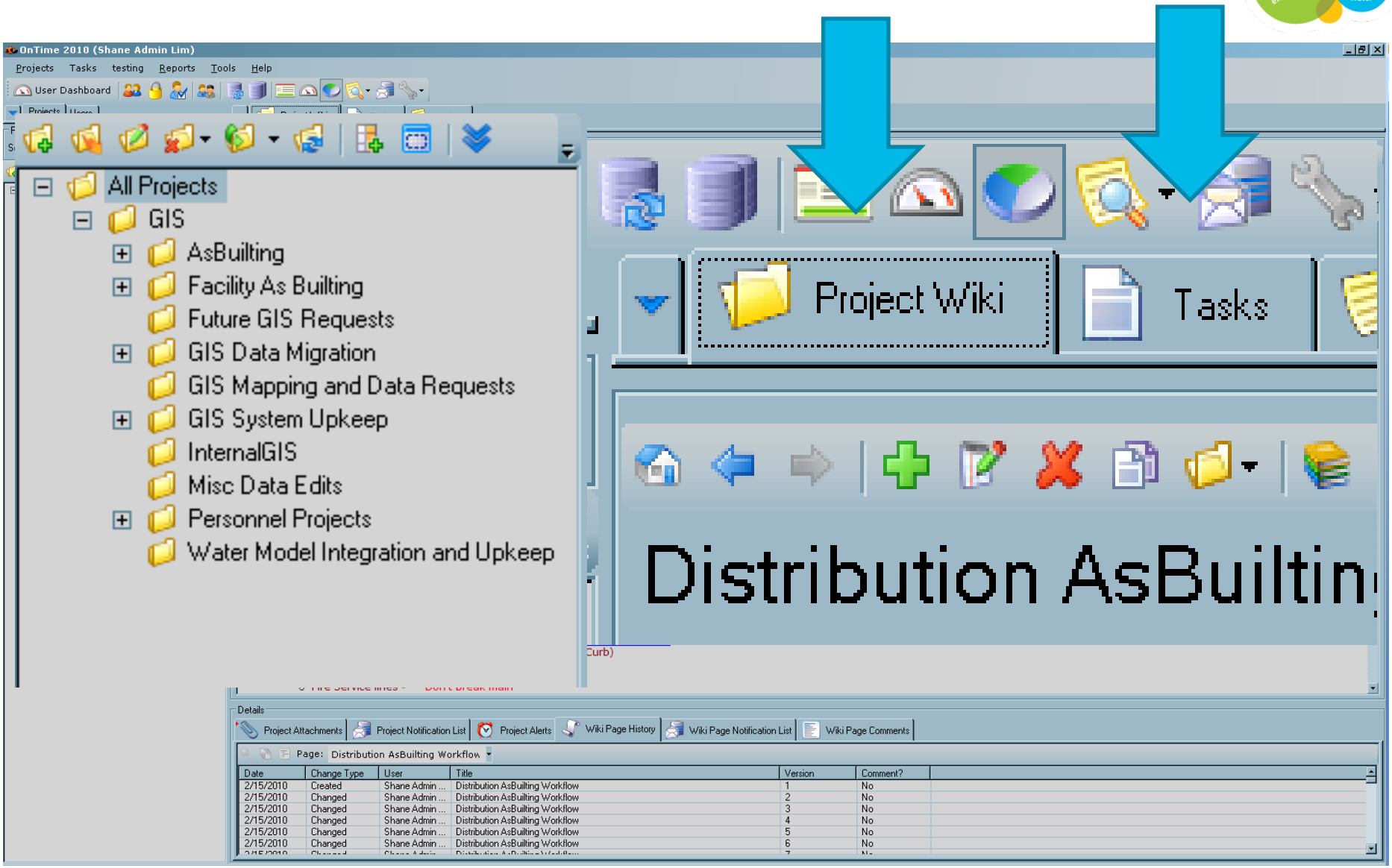
GIS and Water Modeling Working Together

Maintaining your GIS to support the model


OnTime 2010 (Shane Admin Lim)
Projects Tasks testing Reports Tools Help
User Dashboard
Projects Users
Projects Search
Search for:
All Projects
GIS
AsBuilting
Facility As Builting
Future GIS Requests
GIS Data Migration
GIS Mapping and Data Requests
GIS System Upkeep
InternalGIS
Misc Data Edits
Personnel Projects
Water Model Integration and Upkeep
Project Wiki
Tasks
testing
Views
Feature Id | Project | Name | Status | Created Date | Completion Date | Last Modified D...
2062 | 1127-2 | Services - 1127-2 | Open | 11/2/2010 3:08 ... | | 11/2/2010 3:09 ...
1998 | 1136-2 | Bridgeview Sub # 3 | Open | 10/1/2010 11:0... | | 10/1/2010 11:0...
1974 | 1136-4 | Services - 1136-4 | Open | 9/13/2010 9:31 ... | | 12/22/2010 1:0...
2040 | 14 | SERVICES - 1403-2 | 0 | Medium | Kevin Smith | Open | 10/19/2010 2:5... | | 11/23/2010 4:1...
2045 | 14 | SERVICES - 1402-2 | 0 | Medium | Kevin Smith | Open | 10/22/2010 3:5... | | 10/22/2010 3:5...
2198 | 1403-2 | SERVICES - 1403-2 | 0 | Medium | Kevin Smith | Open | 1/10/2011 3:08 ... | | 1/10/2011 3:10 ...
2139 | 1411-2 | SERVICES - 1411-2 | 0 | 0 | Medium | Kevin Smith | Open | 12/22/2010 1:0... | | 12/22/2010 1:0...
1994 | 15 | FLYING HAWK MAIN EXTENSION- 1507-4, 1518-1 | 468 | 0 | Medium | Kevin Smith | Open | 10/1/2010 8:43 ... | | 10/1/2010 8:47 ...
1828 | AsBuilting | Merrill St (Overland-Nez Perce) water Main Replacement-1021-1, 1016-4 | 952 | 0 | Medium | Kevin Smith | Open | 6/1/2010 1:24 ... | | 8/30/2010 2:45 ...
1829 | AsBuilting | Pine Tree Village Sub. No. 3 | 998 | 0 | Medium | Kevin Smith | Open | 6/1/2010 1:26 ... | | 8/30/2010 2:45 ...
2096 | 0633-4 | 26th St (Heron-Dewey) Main Replacement | 0 | 0 | Medium | Kevin Smith | In Progress | 12/8/2010 2:02 ... | | 12/8/2010 2:04 ...
2212 | 1016-4 | South Junior High School | 1452 | 4 | Medium | Shane Admin Lim | 9/12/... | In Progress | 1/21/2011 2:... | | 2/4/2011 11:...
2213 | 1016-4 | Gourley St (Overland-Nez Perce) Main Replacement | 1620 | 34 | Medium | Shane Admin Lim | 10/30... | In Progress | 1/26/2011 9:... | | 2/4/2011 11:...
2214 | 1017-2 | SERVICES - 1017-2 | 0 | 3 | Medium | Shane Admin Lim | | In Progress | 1/27/2011 2:... | | 2/4/2011 12:...
2216 | 1017-3 | Phillippi St (S. of Sites) Main Replacement | 193 | 2 | Medium | Shane Admin Lim | 6/12/... | In Progress | 1/28/2011 1... | | 2/4/2011 11:...
2218 | 1017-4 | Nash St (N.of Clark St) Main Replacement | 261 | 5 | Medium | Shane Admin Lim | 4/18/... | In Progress | 1/28/2011 2:... | | 2/4/2011 11:...
2219 | 1018-1 | Services - 1018-1 | 0 | 14 | Medium | Shane Admin Lim | | In Progress | 1/31/2011 1... | | 2/4/2011 8:3...
2221 | 1018-1 | Daytona Dr (franklin Park - Tahoe) Main Replacement | 1490 | 13 | Medium | Shane Admin Lim | 12/17... | In Progress | 2/4/2011 8:3... | | 2/4/2011 10:...
2222 | 1018-1 | Daytona Dr (franklin Park - Tahoe) Main Replacement | 1490 | 13 | Medium | Shane Admin Lim | 12/17... | In Progress | 2/4/2011 12:... | | 2/4/2011 12:...
2058 | 1018-4 | SERVICES - 1018-4 | 0 | 0 | Medium | Kevin Smith | In Progress | 11/1/2010 8:26 ... | | 11/1/2010 10:3...
1782 | 0506-2 | CATALPA SUBDIVISION | 2034 | 0 | Medium | Shane Admin Lim | Waiting | 4/14/2010 1... | | 8/30/2010 2:...
1773 | 0132-3 | 2" Service @ Intersection of Farm Ct. & Humpherys | 0 | 0 | Medium | Kevin Smith | Closed | 3/24/2010 8:09 ... | | 12/23/2010 9:0...
1774 | 0401-3 | BELLATERRA SUBDIVISION PHASE 1 | 6100 | 0 | Medium | Kevin Smith | Closed | 3/25/2010 9:30 ... | | 12/23/2010 9:0...
1898 | 0401-3 | Obsidian Subdivision 0401-3, -4 | 1852 | 0 | Medium | Kevin Smith | Closed | 8/24/2010 2:22 ... | | 12/23/2010 8:5...
Additional Task Info For Selected Item:
Description
Comments
Attachments
History
Edit
Save
Stamp >>
OverView
Checklist | Placed | QAQC
AsBuilt Scanned | x
AsBuilt into OnTime ie C09D660 Pond Street (Emerald-Denton) Water Main Replacement | x
Snapping Set | x
Scale set at 600 | x
Abandon LInes | x
Abandon Points | x
wPressurized Main | x
wAnno_Mains | x
Junctions_Node | x
Measurement_Point | x
Tasks Count By Status
Filters
Options
Status
[None]
Open
In Progress
Waiting
Closed
160
120
80
40
0
131
10
1
1
321 items, 0 hours worked, 0 hours remaining (0 % complete)


OnTime 2010 (Shane Admin Lim)
Projects Tasks testing Reports Tools Help
User Dashboard
All Projects
GIS
AsBuilting
Facility As Builting
Future GIS Requests
GIS Data Migration
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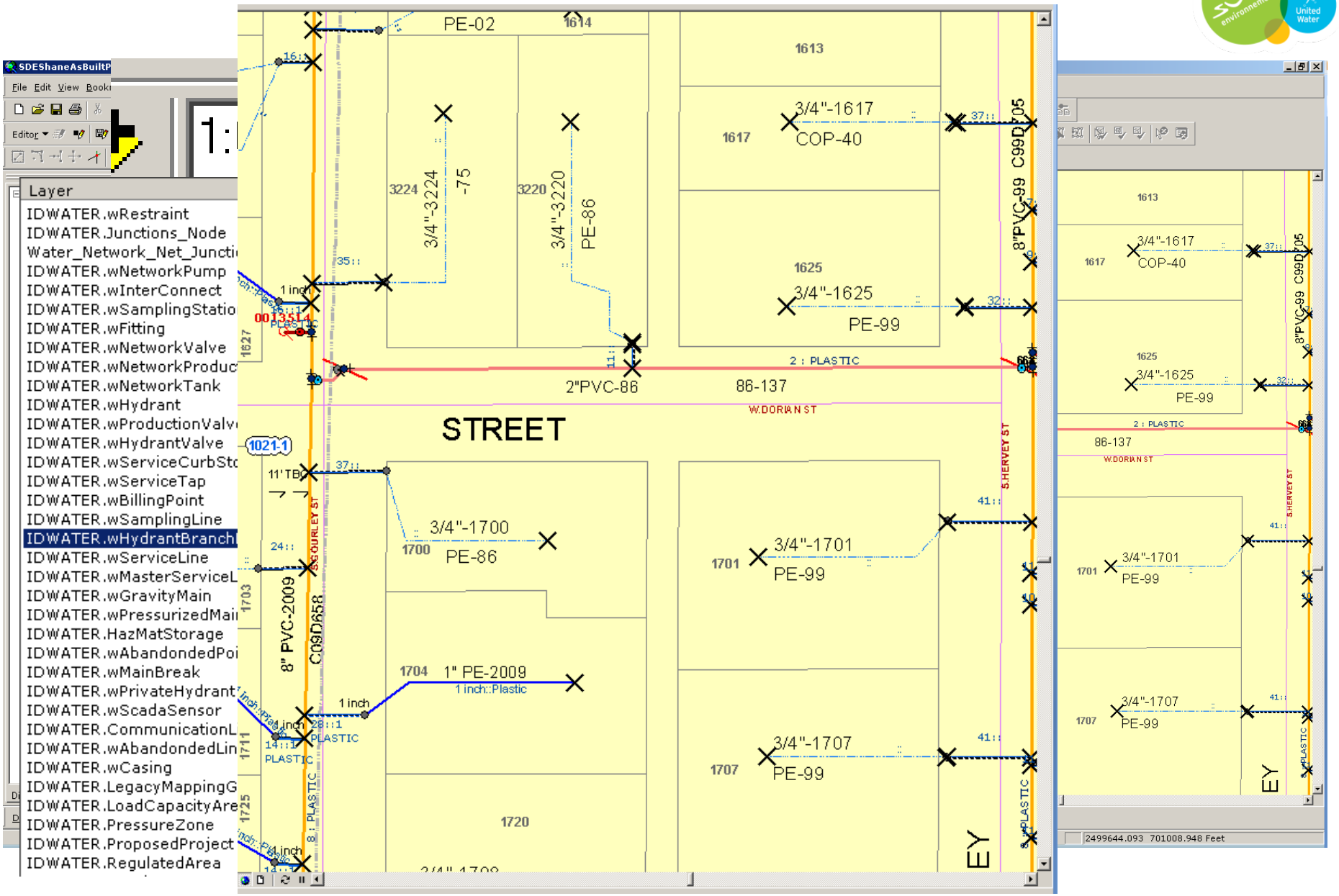
Water Model Integration and Upkeep
Project Wiki
Tasks
Distribution AsBuiltin
Details
Project Attachments
Project Notification List
Project Alerts
Wiki Page History
Wiki Page Notification List
Wiki Page Comments
Page: Distribution AsBuilting Workflow
Date | Change Type | User | Title | Version | Comment?
2/15/2010 | Created | Shane Admin ... | Distribution AsBuilting Workflow | 1 | No
2/15/2010 | Changed | Shane Admin ... | Distribution AsBuilting Workflow | 2 | No
2/15/2010 | Changed | Shane Admin ... | Distribution AsBuilting Workflow | 3 | No
2/15/2010 | Changed | Shane Admin ... | Distribution AsBuilting Workflow | 4 | No
2/15/2010 | Changed | Shane Admin ... | Distribution AsBuilting Workflow | 5 | No
2/15/2010 | Changed | Shane Admin ... | Distribution AsBuilting Workflow | 6 | No


SDEShaneAsBuiltP
File Edit View Book
Editor
Layer
IDWATER.wRestraint
IDWATER.Junctions_Node
Water_Network_Net_Junct
IDWATER.wNetworkPump
IDWATER.wInterConnect
IDWATER.wSamplingStatio
IDWATER.wFitting
IDWATER.wNetworkValve
IDWATER.wNetworkProduc
IDWATER.wNetworkTank
IDWATER.wHydrant
IDWATER.wProductionValv
IDWATER.wHydrantValve
IDWATER.wServiceCurbSto
IDWATER.wServiceTap
IDWATER.wBillingPoint
IDWATER.wSamplingLine
IDWATER.wHydrantBranch
IDWATER.wServiceLine
IDWATER.wMasterServiceL
IDWATER.wGravityMain
IDWATER.wPressurizedMai
IDWATER.HazMatStorage
IDWATER.wAbandondedPoi
IDWATER.wMainBreak
IDWATER.wPrivateHydrant
IDWATER.wScadaSensor
IDWATER.CommunicationL
IDWATER.wAbandondedLin
IDWATER.wCasing
IDWATER.LegacyMappingG
IDWATER.LoadCapacityAre
IDWATER.PressureZone
IDWATER.ProposedProject
IDWATER.RegulatedArea
PE-02
1614
1613
1617
3/4"-1617
COP-40
3224
3/4"-3224
-75
3220
3/4"-3220
PE-86
1625
3/4"-1625
PE-99
8"PVC-99
C99D105
2 : PLASTIC
2"PVC-86
86-137
W.DORIAN ST
STREET
1021-1
11'TB
3/4"-1700
1700
PE-86
1701
3/4"-1701
PE-99
1703
8" PVC-2009
C09D658
S.GURLEY ST
S.HERVEY ST
1704
1" PE-2009
1 inch::Plastic
1 inch
PLASTIC
1711
1707
3/4"-1707
PE-99
1720
1725
8 : PLASTIC
EY
2499644.093 701008.948 Feet

OnTime 2010 (Shane Admin Lim)

Projects Tasks testing Reports Tools Help

User Dashboard

Projects | Users

Projects Search

Search for:

- All Projects
  - GIS
    - AsBuilting
    - Facility As Builting
    - Future GIS Requests
    - GIS Data Migration

Project Wiki | Tasks | testing

Filter | AsBuilting Workflow | Search:

AsBuilting Workflow

- Facilities AsBuilting Scale 50 (1" =10')
- Snapping - Make sure your snapping environments and snapping tips are enabled
  - Set all line features to snap at end
  - Set wPressureized Main and wHydrantBranchLine to include edge
  - You may want to keep your snapping window open or docked so you can change you snapping layers frequently

Additional Task Info For Selected Item:

Description | Comments | Attachments | History

Edit

Save

Stamp >>

OverView

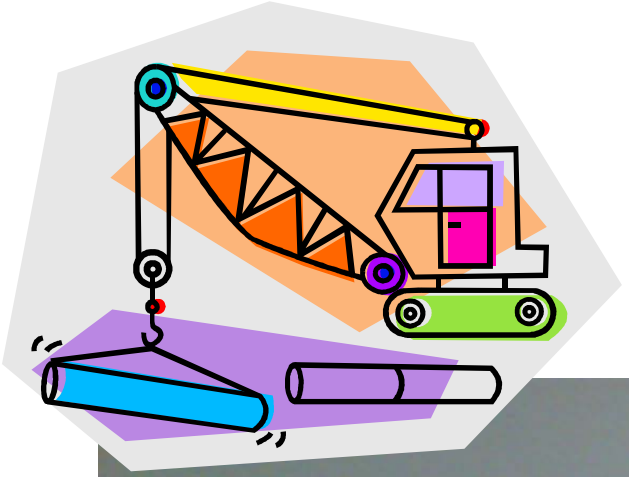
Checklist	Placed	QAQC
AsBuilt Scanned	x	
AsBuilt into OnTime ie C09D660 Pond Street (Emerald-Denton) Water Main Replacement	x	
Snapping Set	x	
Scale set at 600	x	
Abandon LInes	x	
Abandon Points	x	
wPressurized Main	x	
wAnno_Mains	x	
Junctions_Node	x	
Measurement_Point	x	

321 items, 0 hours worked, 0 hours remaining (0 % complete)

Project Attachments | Project Notification List | Project Alerts | Wiki Page History | Wiki Page Notification List | Wiki Page Comments

Page: AsBuilting Workflow

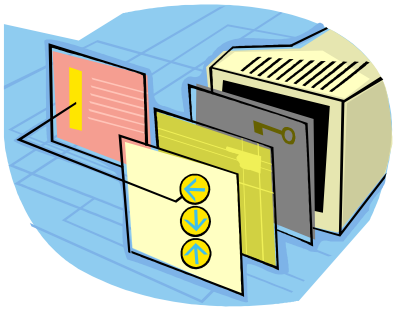
Date	Change Type	User	Title	Version	Comment?
2/8/2010	Created	Shane Admin ...	AsBuilting Workflow	1	No
2/10/2010	Changed	Shane Admin ...	AsBuilting Workflow	2	No
2/15/2010	Changed	Shane Admin ...	AsBuilting Workflow	3	No
2/15/2010	Changed	Shane Admin ...	AsBuilting Workflow	4	No
2/15/2010	Changed	Shane Admin ...	AsBuilting Workflow	5	No
2/15/2010	Changed	Shane Admin ...	AsBuilting Workflow	6	No



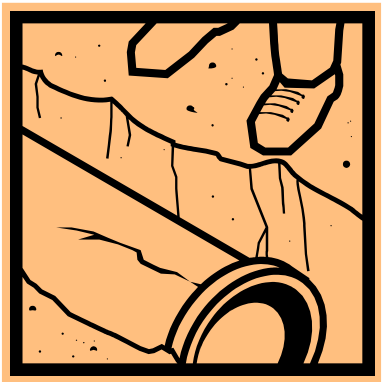
Map Edits
As-Builts
Tickets

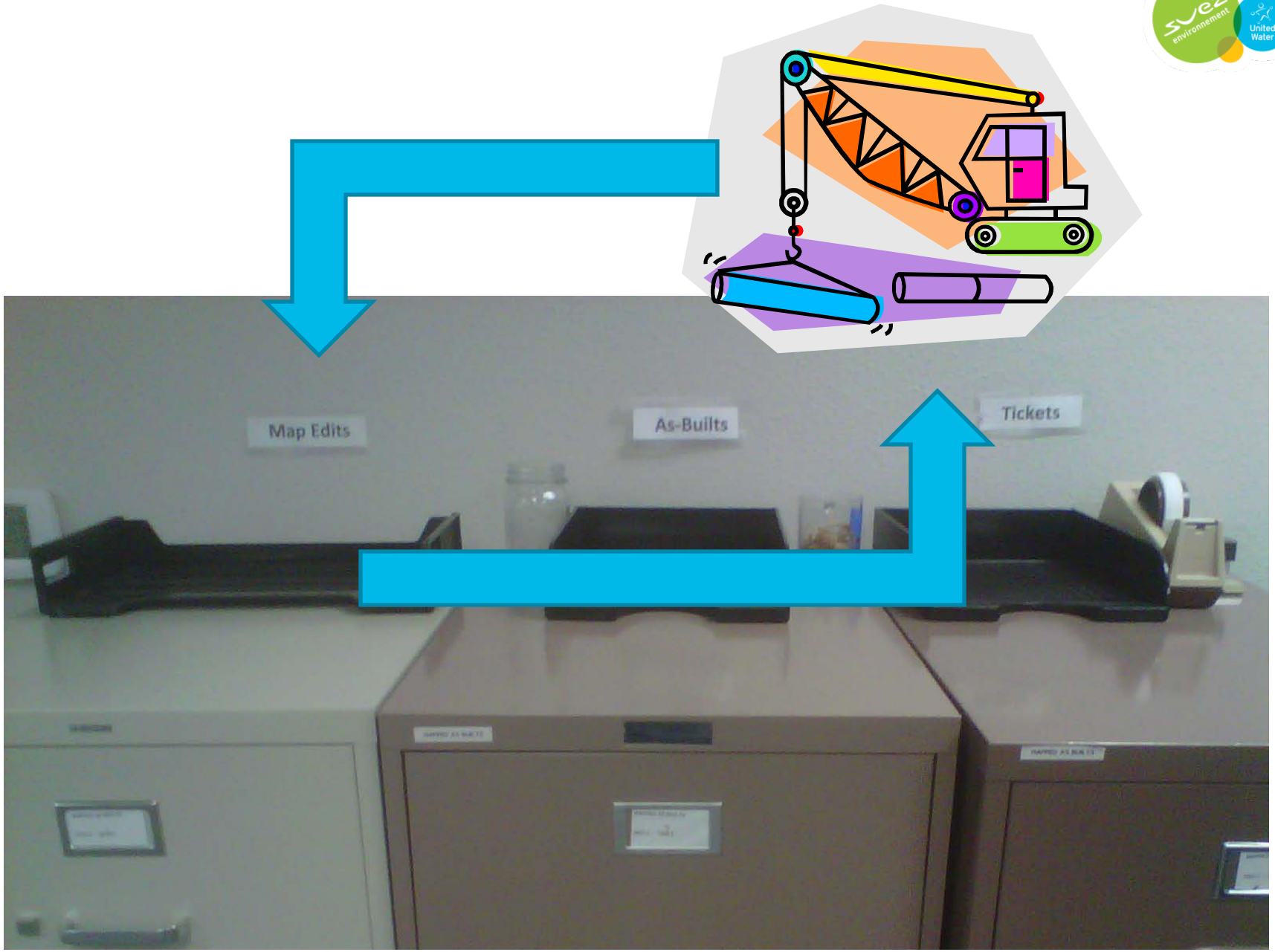
Editor

QAQC



Field Inspector

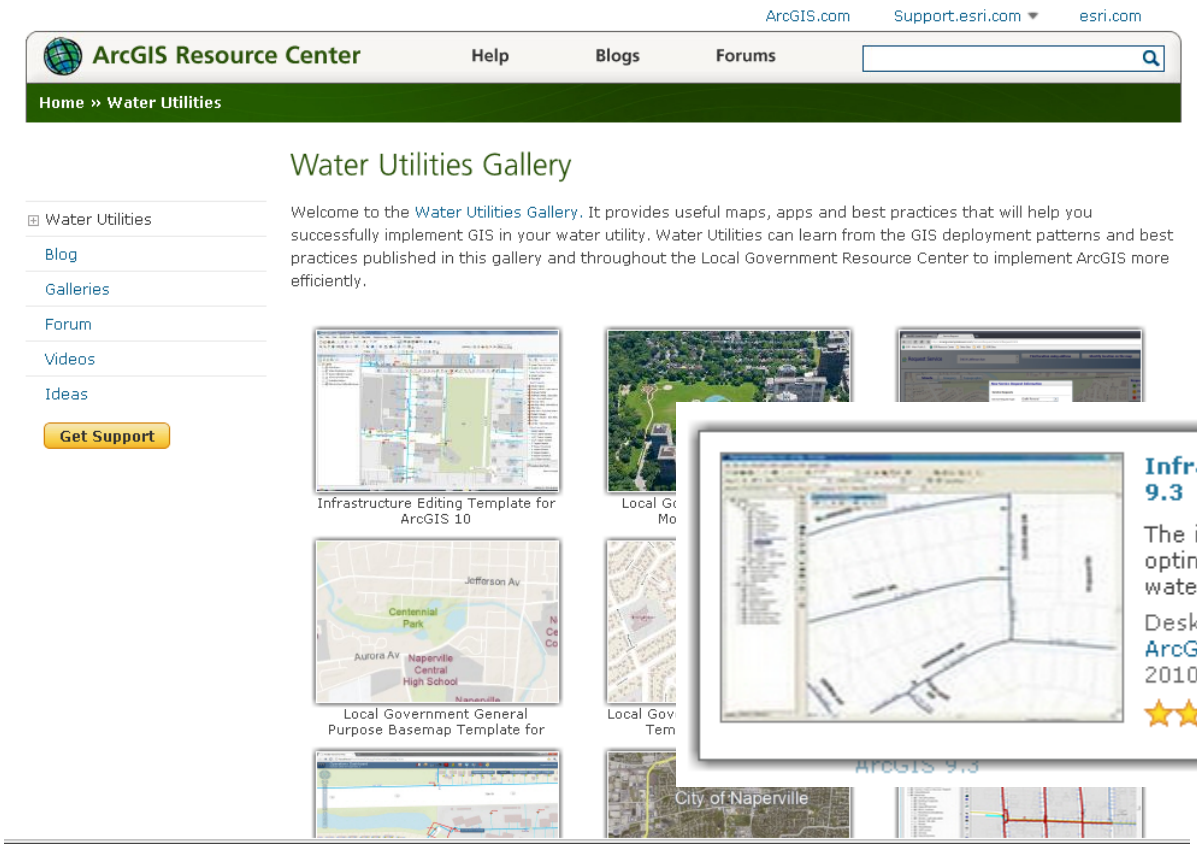


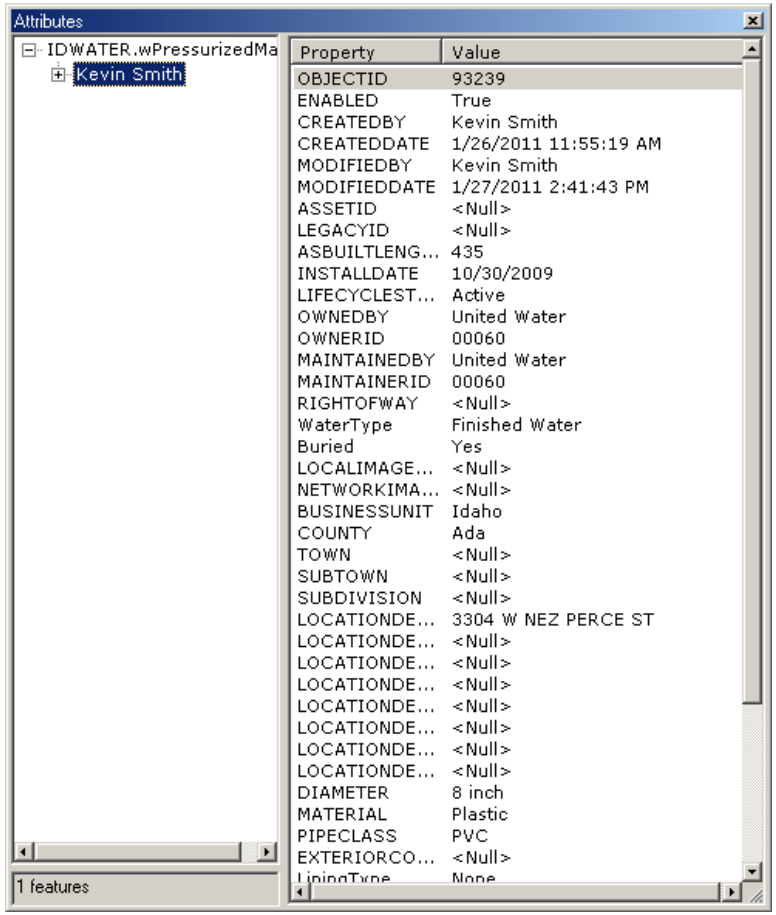

Map Edits
As-Builts
Tickets

Faster, More Accurate, More Data

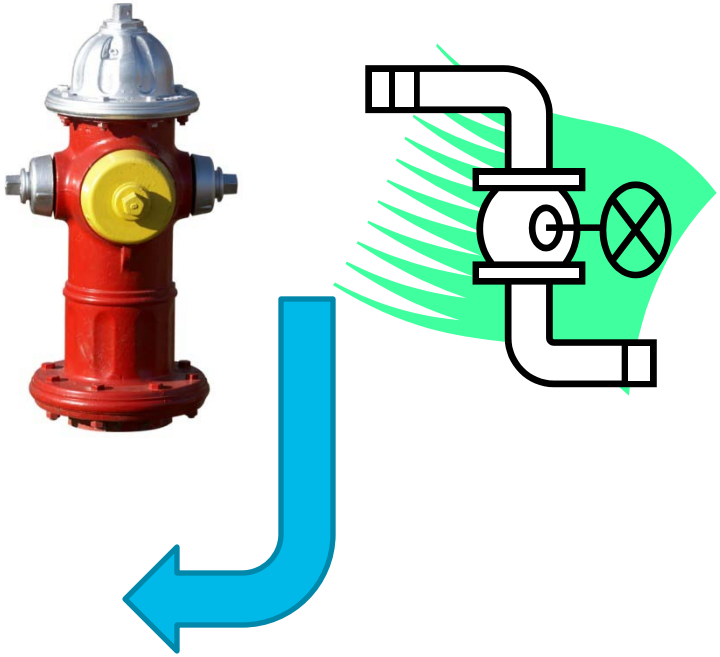
ArcGIS Resource Center
Home » Water Utilities

ArcGIS Resource Center
Water Utilities Blog

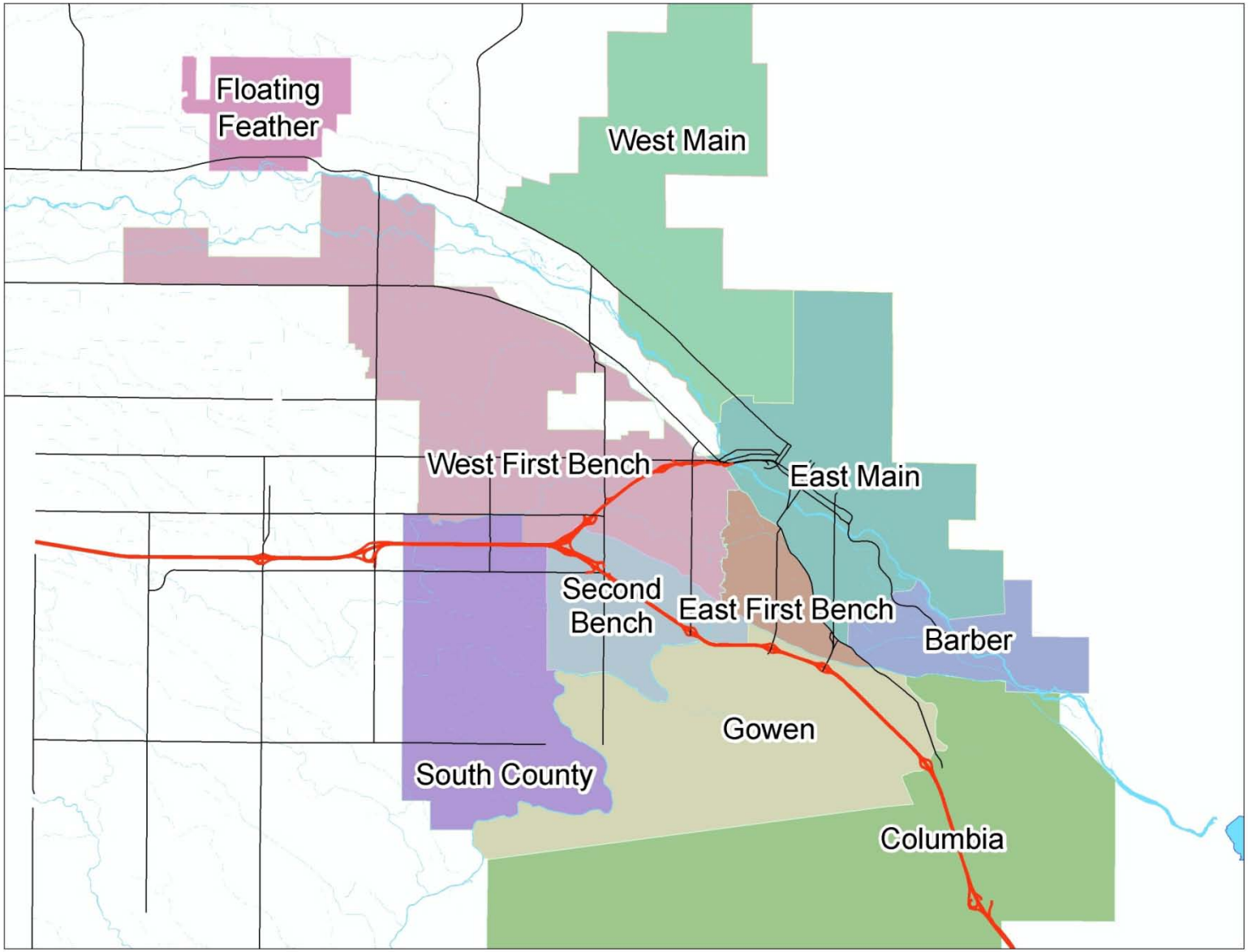

ArcGIS.com
Support.esri.com
esri.com
ArcGIS Resource Center
Help
Blogs
Forums
Home » Water Utilities
Water Utilities Gallery
Welcome to the Water Utilities Gallery. It provides useful maps, apps and best practices that will help you successfully implement GIS in your water utility. Water Utilities can learn from the GIS deployment patterns and best practices published in this gallery and throughout the Local Government Resource Center to implement ArcGIS more efficiently.
Water Utilities
Blog
Galleries
Forum
Videos
Ideas
Get Support
Infrastructure Editing Template for ArcGIS 10
Local Government General Purpose Basemap Template for
City of Naperville
Infrastructure Editing Template for ArcGIS 9.3
The infrastructure editing template has been optimized for infrastructure mappers that manage water, sewer and storm water information.
Desktop Application Template by ArcGISTeamLocalGov (last modified: July 8, 2010)
(1 rating, 0 comments)



Property	Value
OBJECTID	93239
ENABLED	True
CREATEDBY	Kevin Smith
CREATEDDATE	1/26/2011 11:55:19 AM
MODIFIEDBY	Kevin Smith
MODIFIEDDATE	1/27/2011 2:41:43 PM
ASSETID	<Null>
LEGACYID	<Null>
ASBUILTLENG...	435
INSTALLDATE	10/30/2009
LIFECYCLEST...	Active
OWNEDBY	United Water
OWNERID	00060
MAINTAINEDBY	United Water
MAINTAINERID	00060
RIGHTOFWAY	<Null>
WaterType	Finished Water
Buried	Yes
LOCALIMAGE...	<Null>
NETWORKIMA...	<Null>
BUSINESSUNIT	Idaho
COUNTY	Ada
TOWN	<Null>
SUBTOWN	<Null>
SUBDIVISION	<Null>
LOCATIONDE...	3304 W NEZ PERCE ST
LOCATIONDE...	<Null>
LOCATIONDE...	<Null>
LOCATIONDE...	<Null>
LOCATIONDE...	<Null>
LOCATIONDE...	<Null>
LOCATIONDE...	<Null>
LOCATIONDE...	<Null>
DIAMETER	8 inch
MATERIAL	Plastic
PIPECLASS	PVC
EXTERIORCO...	<Null>
LiningType	None

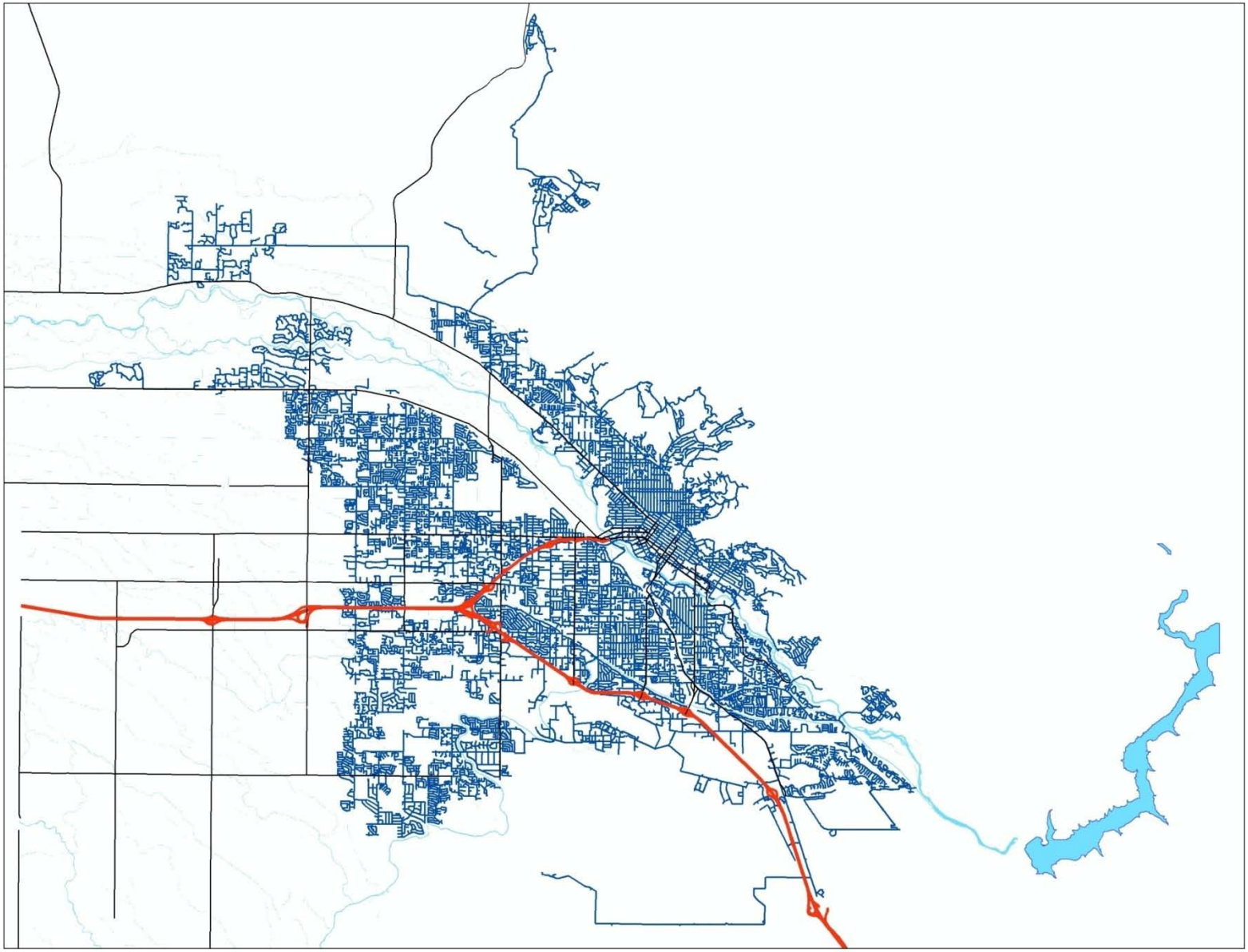


QAQC


Floating Feather
West Main
West First Bench
East Main
Second Bench
East First Bench
Barber
Gowen
South County
Columbia

QAQC

Model Specific



Questions?

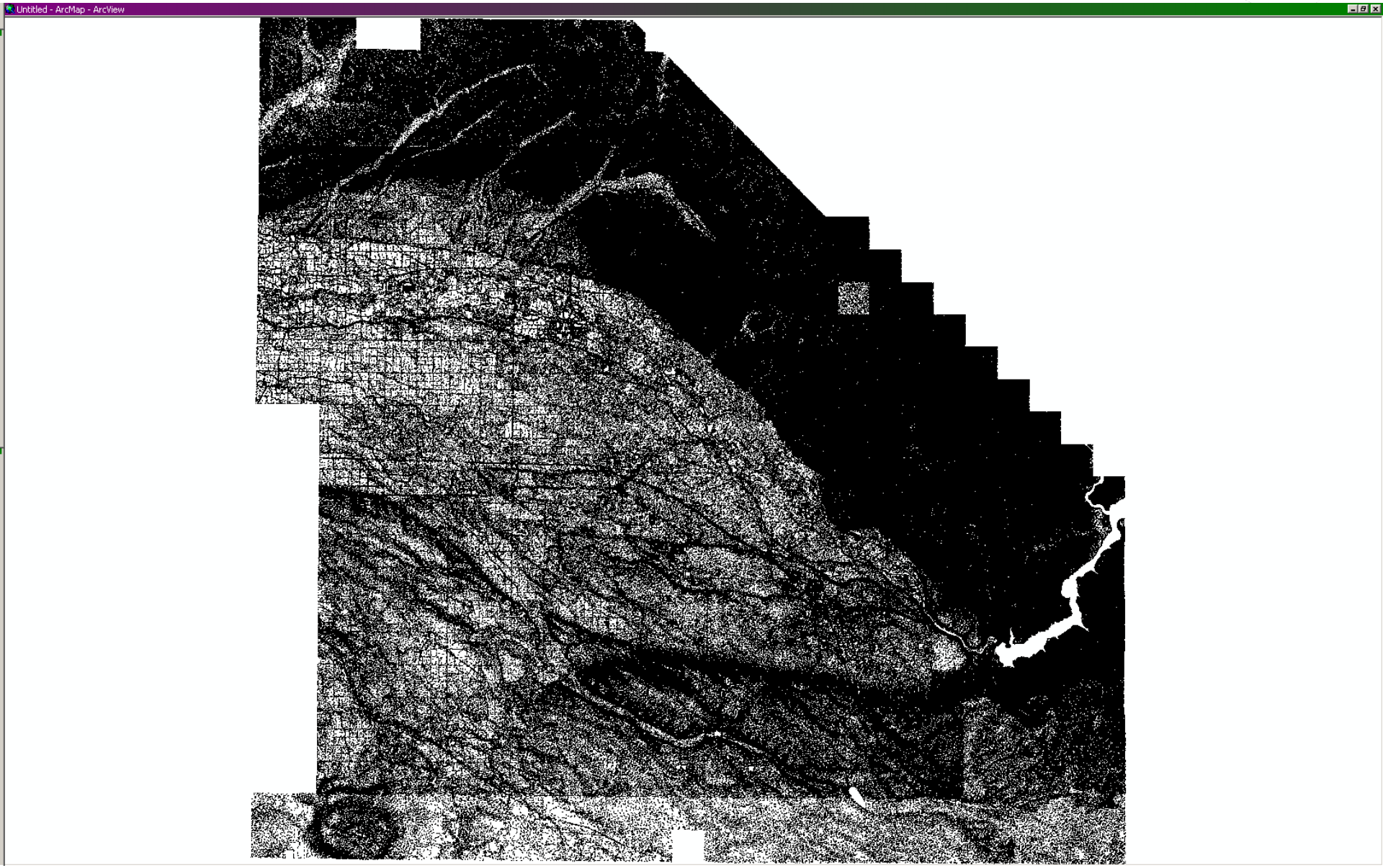
GIS and Water Modeling Working Together

Modeling Challenges & Accomplishments

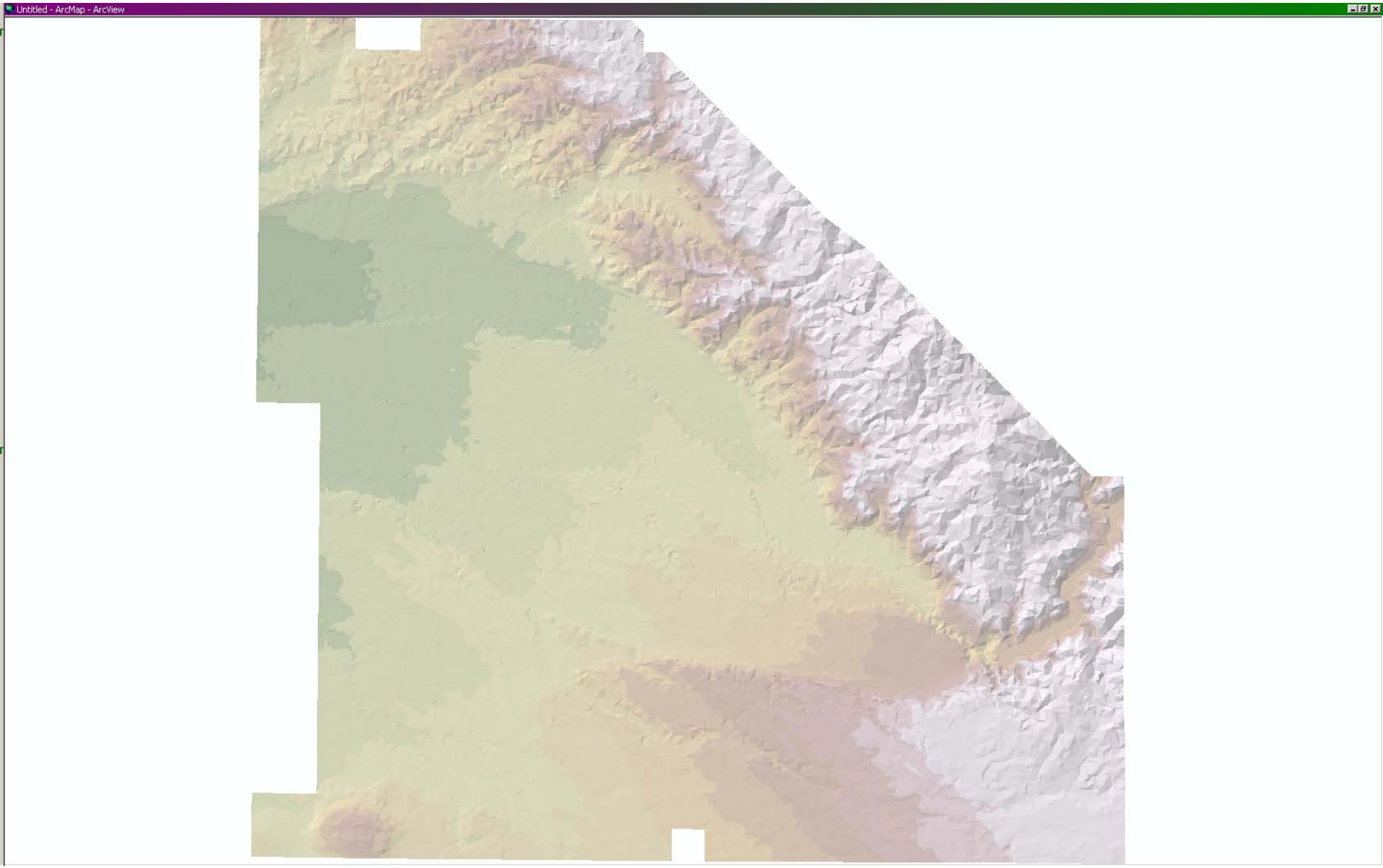
suez environnement

United Water

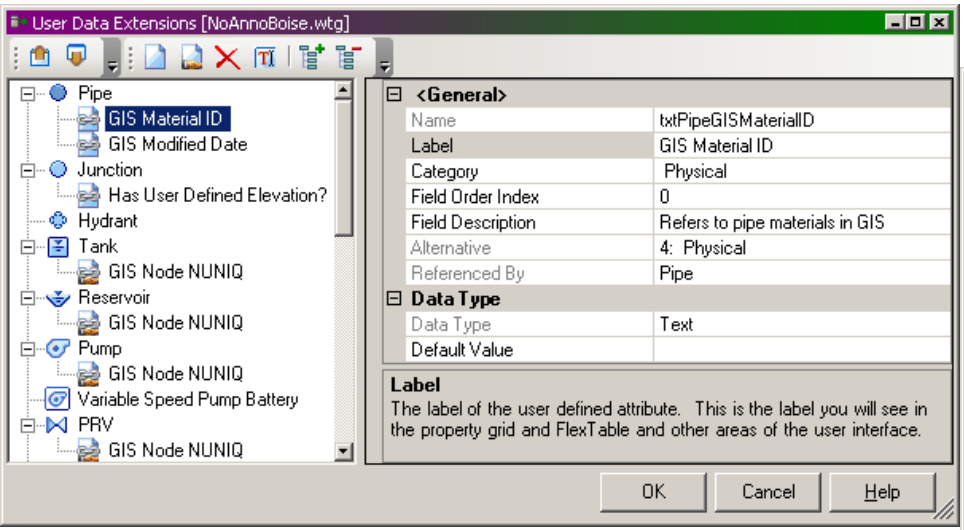
COMPASS SURFACE ELEVATION CONTOURS + / -2’: GIS Polylines…

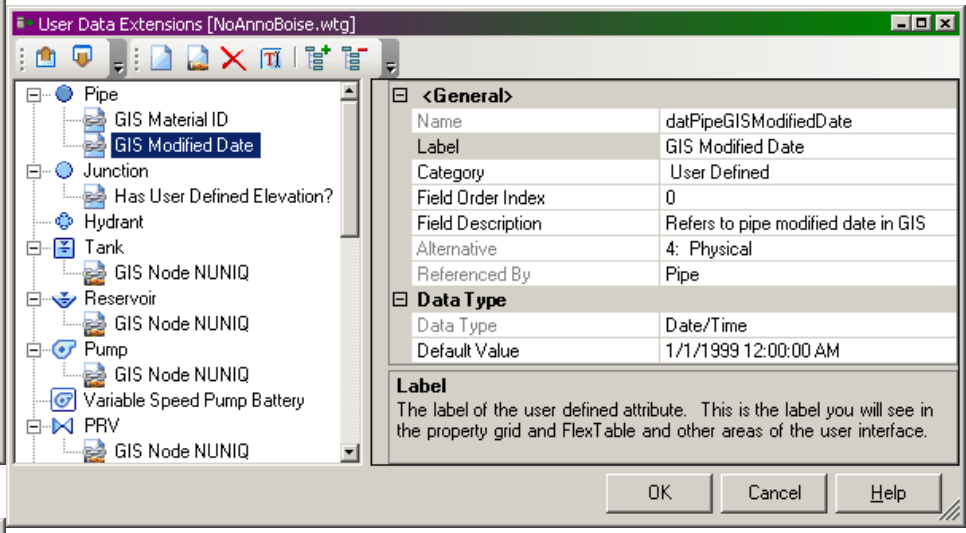


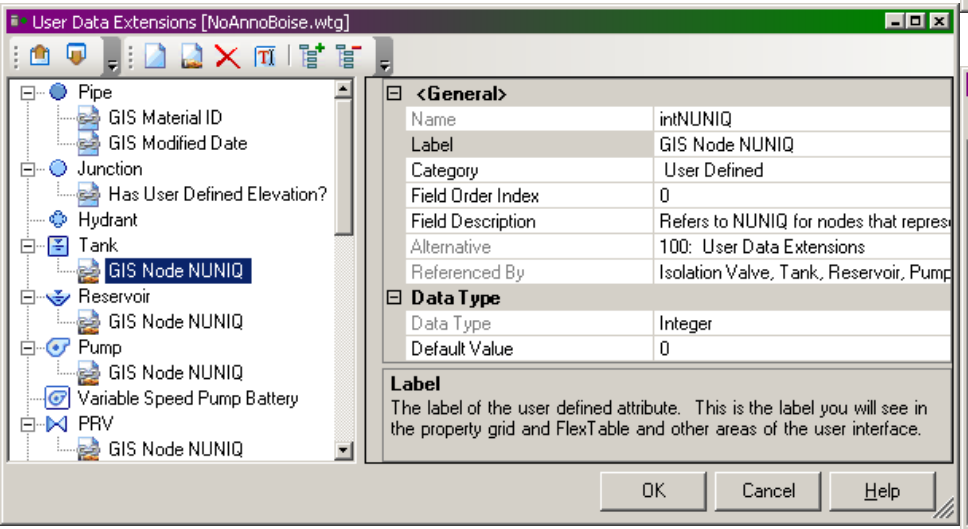
ArcGIS 3D ANALYST: ...Polylines > Terrain > Raster > Surface Spot

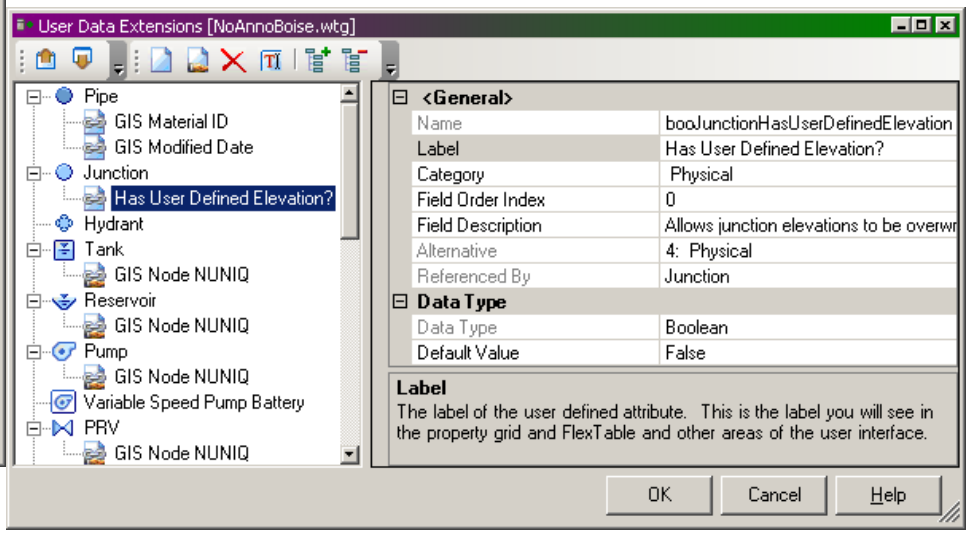


USER DATA EXTENSIONS: Survey & Transducer Elevations and GIS

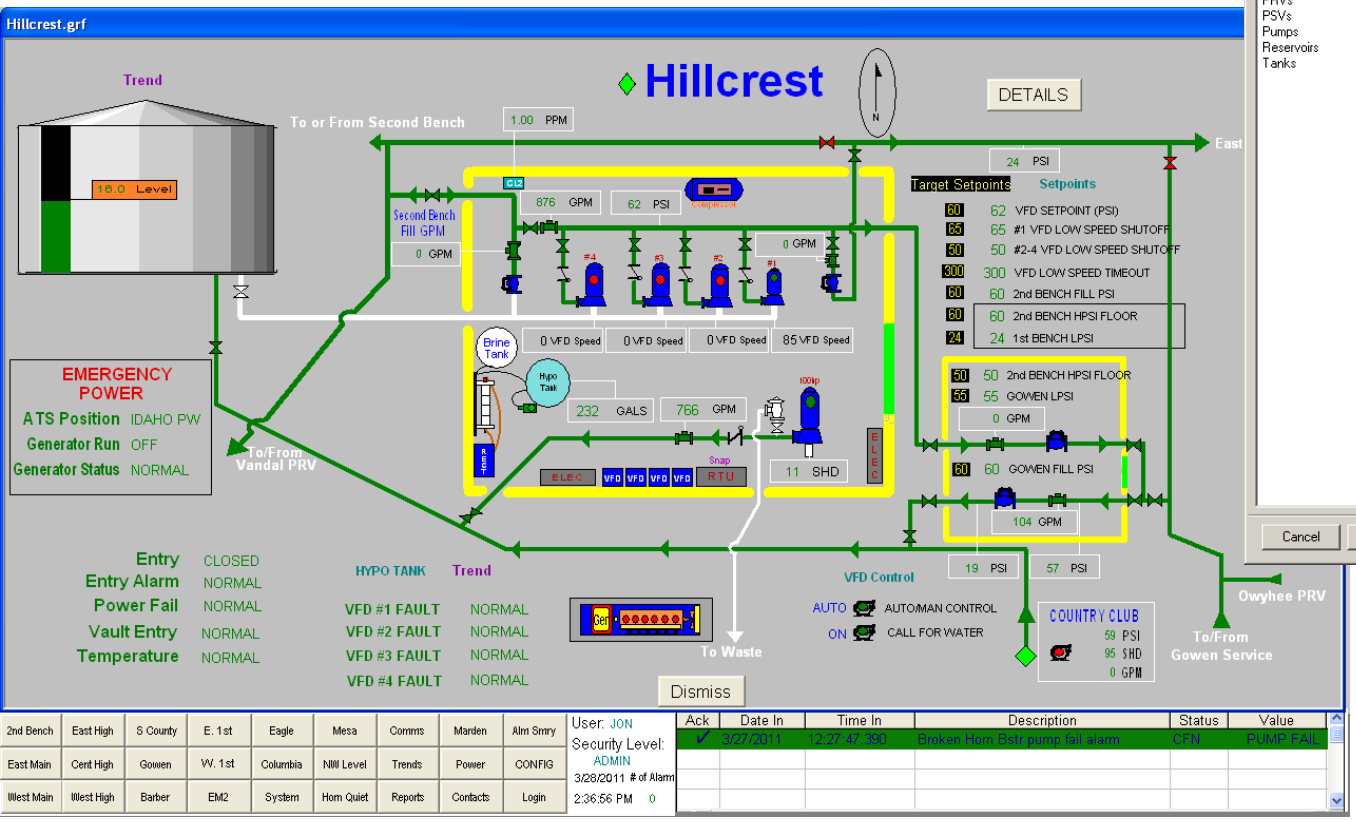


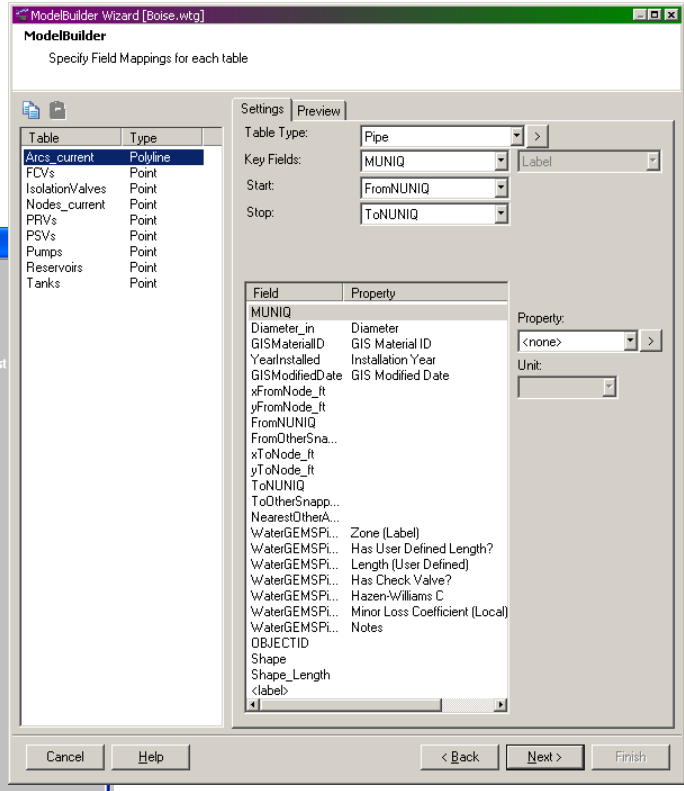




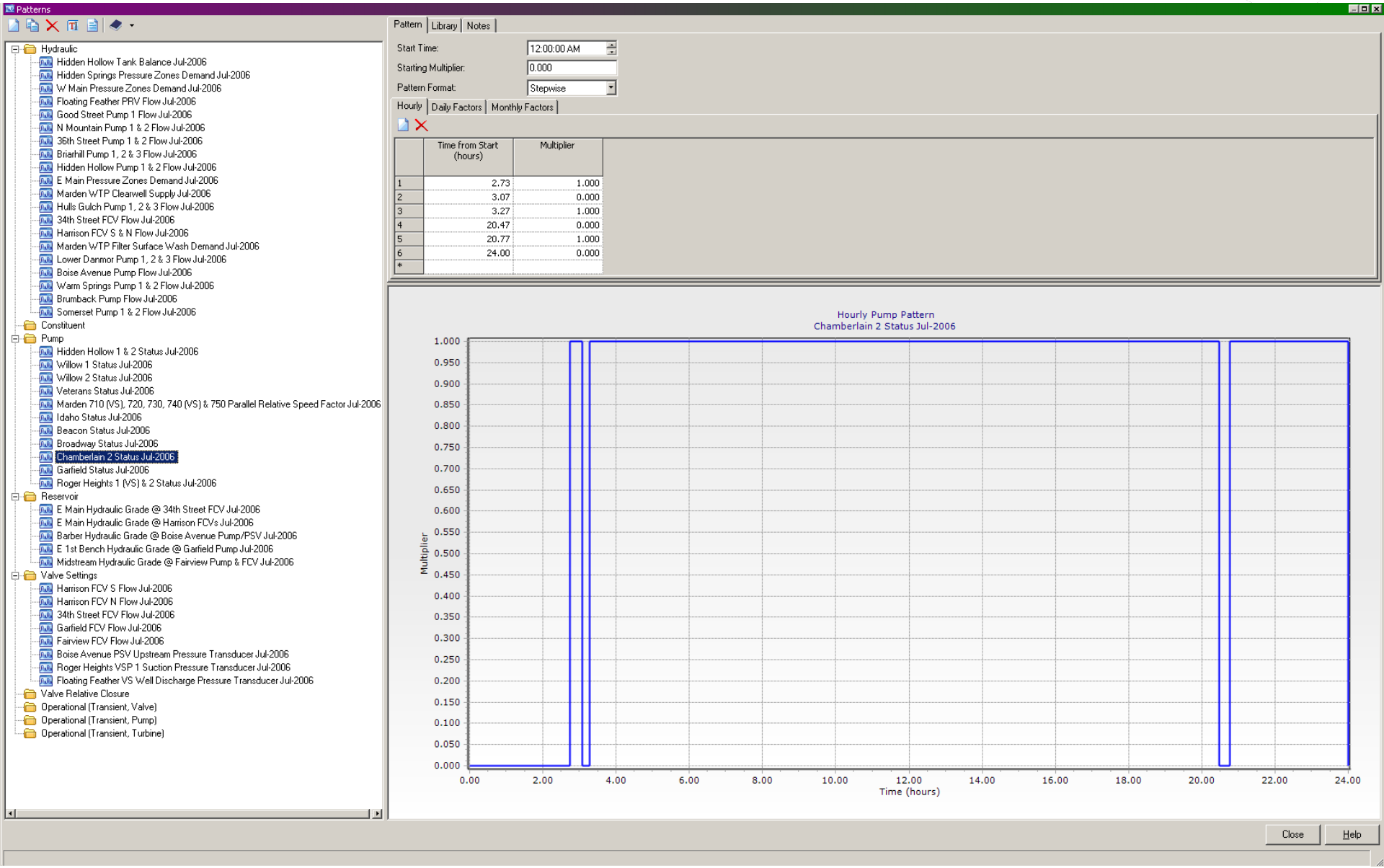


INTERFACING ArcGIS (WaterGEMS ModelBuilder) & SCADA





PATTERNS RATHER THAN CONTROLS



PATTERNS RATHER THAN CONTROLS

Controls (Boise.wtg)

Controls | Conditions | Actions | Control Sets

Control Set: <All>
Type: <All>
Priority: <All>
Condition Element: <All>
Action Element: <All>

ID	Type	Priority	Description
LC678...	Logical	<default>	IF {"Clock Time" >= 9:22 AM } And {"Clock Time" < 7:44 PM } THEN {"634400201" Pipe Status = Closed } ELSE {"634400201" Pipe Status = Open }

Control | Description

☐ Evaluate as "Simple" Control
☐ Priority: <default>
☑ Has Else?

IF: {"Clock Time" >= 9:22

	Operator	IF Condition
1	If	{"Clock Time" >= 9:22 AM }
2	And	{"Clock Time" < 7:44 PM }
*		

THEN: {"634400201" Pipe Sta
634400201
Pipe Status
=
Closed

ELSE: {"634400201" Pipe Sta
634400201
Pipe Status
=
Open

OPTIMIZING CALCULATION OPTIONS YIELDS…

Properties - Calculation Options - Base Calculation Options (manage reporting time steps collection in EpaNetEngine_ReportingTimeSteps in Boise....

Properties - Calculation Options - Base Calculation Options (manage reporting time steps collection

<Default View>

<General>	
ID	16
Label	Base Calculation Options (manage reporting time steps collection in EpaNetEngine_ReportingTimeSteps in Boise.wtg.mdb)
Notes	Jul-2006 Pressure Zones (PZ) Isolated For Calibrating-patterns > clock controls only scenario: 6/30/10 calculation summary load
Friction Method	Hazen-Williams
Output Selection Set	<All>
Calculation Type	Hydraulics Only
Adjustments	
Demand Adjustments	None
Unit Demand Adjustments	None
Roughness Adjustments	None
Calculation Flags	
Display Status Messages?	False
Display Calculation Flags?	True
Display Time Step Convergence Info?	False
Calculation Times	
Base Date	7/26/2006
Time Analysis Type	EPS
Start Time	12:00:00 AM
Duration (hours)	24.000
Hydraulic Time Step (hours)	0.033
Reporting Time Step	Variable
Reporting Time Steps	<Collection: 74 items>
Hydraulics	
Enable EPANET Compatible Results?	False
Use Linear Interpolation For Multipoint Pumps?	False
Trials	7000
Accuracy	0.001
Emitter Exponent	0.500
Liquid Label	Water at 20C(68F)
Liquid Kinematic Viscosity (ft^2/s)	1.1e-005
Liquid Specific Gravity	1.0
Use Pressure Dependent Demand?	False

Label
Descriptive label for this element.

...YIELDS GREAT CALCULATION RESULTS

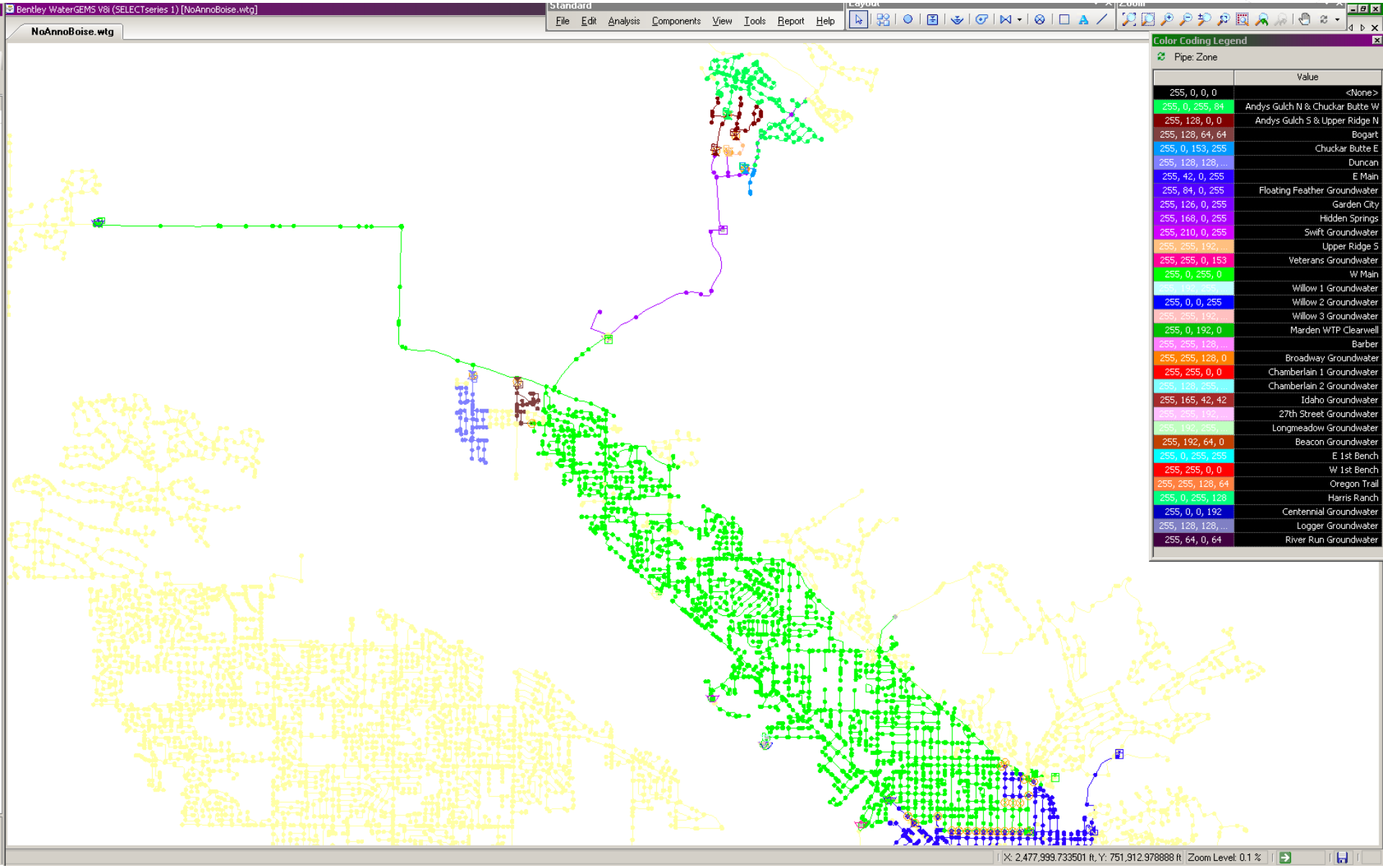
Calculation Summary (66068: Jul-2006 Pressure Zones (PZ) Isolated For Calibrating-patterns > clock controls only)

Time (hours)	Balanced?	Trials	Relative Flow Change	Flow Supplied (gpm)	Flow Demanded (gpm)	Flow Stored (gpm)
All Time Steps(...	True	6728	0.0009371	10,741.0	23,203.0	1,506.4

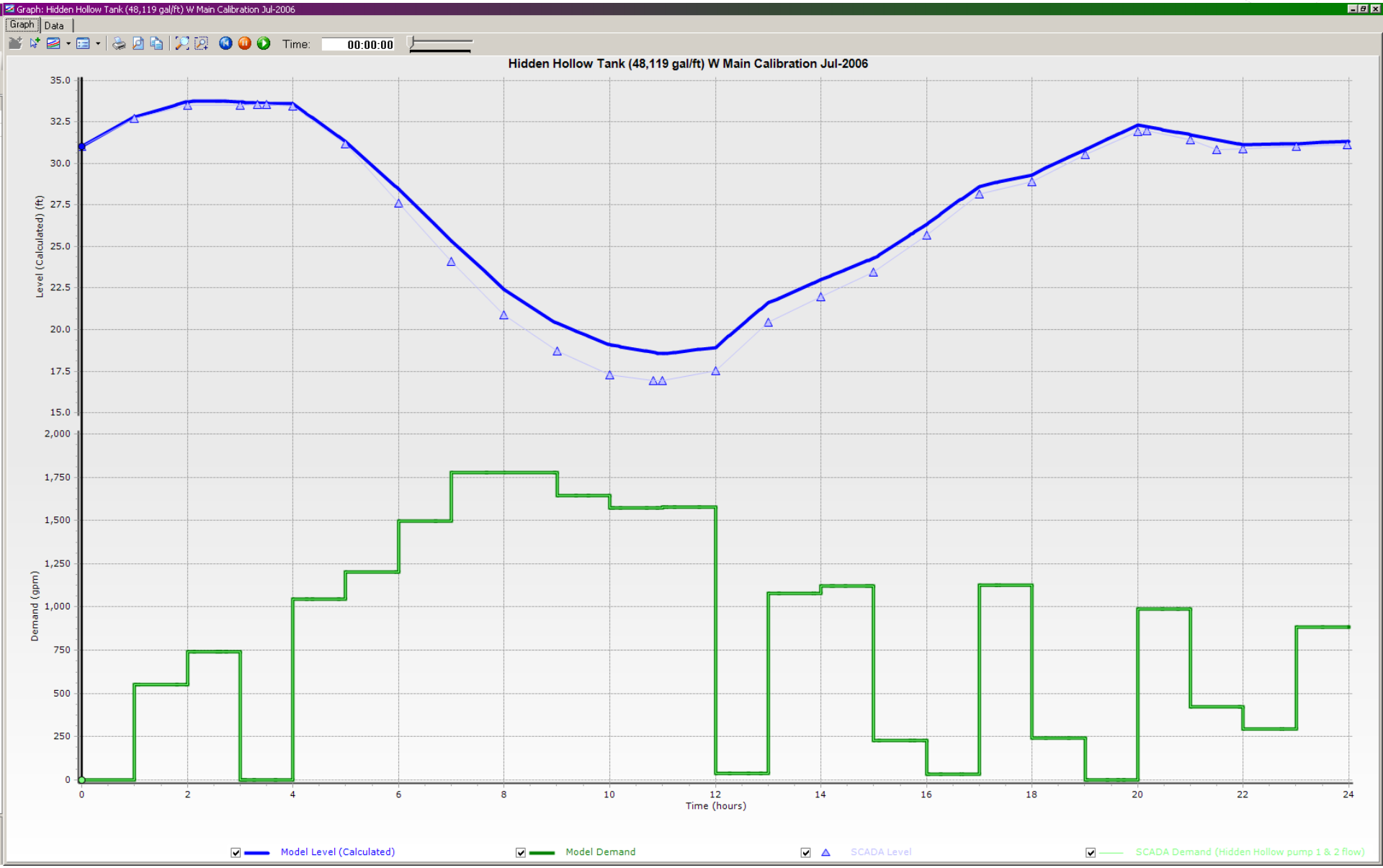
Run Statistics | Information | Status Messages | Trials

Item	Value
Time stamp	11/16/2010 7:47 AM
Time to load	00:00:05.81
Time to run	00:00:31.00
Time step count	128
Link count	8,035
Node count	7,340

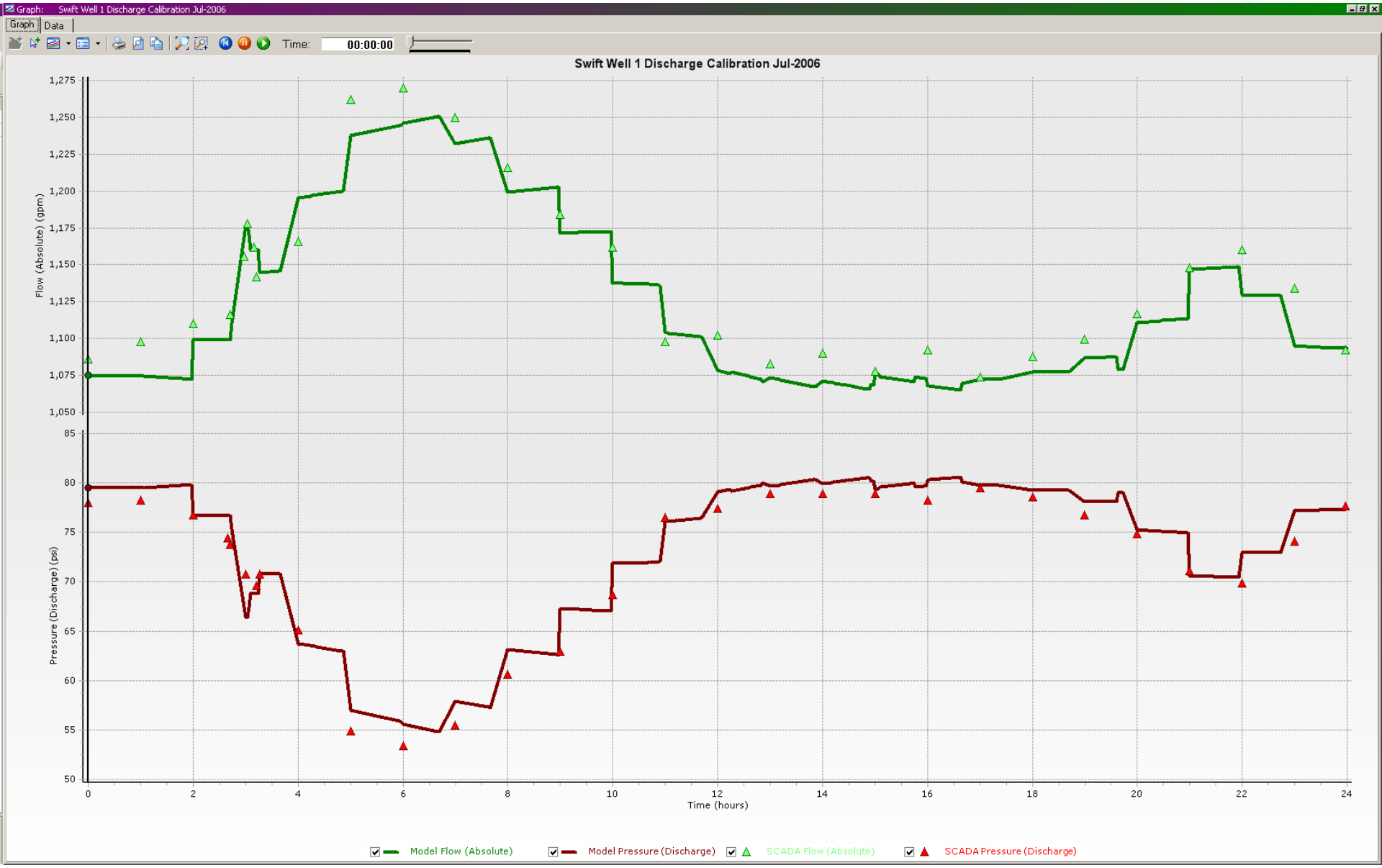
READING BETWEEN CALIBRATIONS…



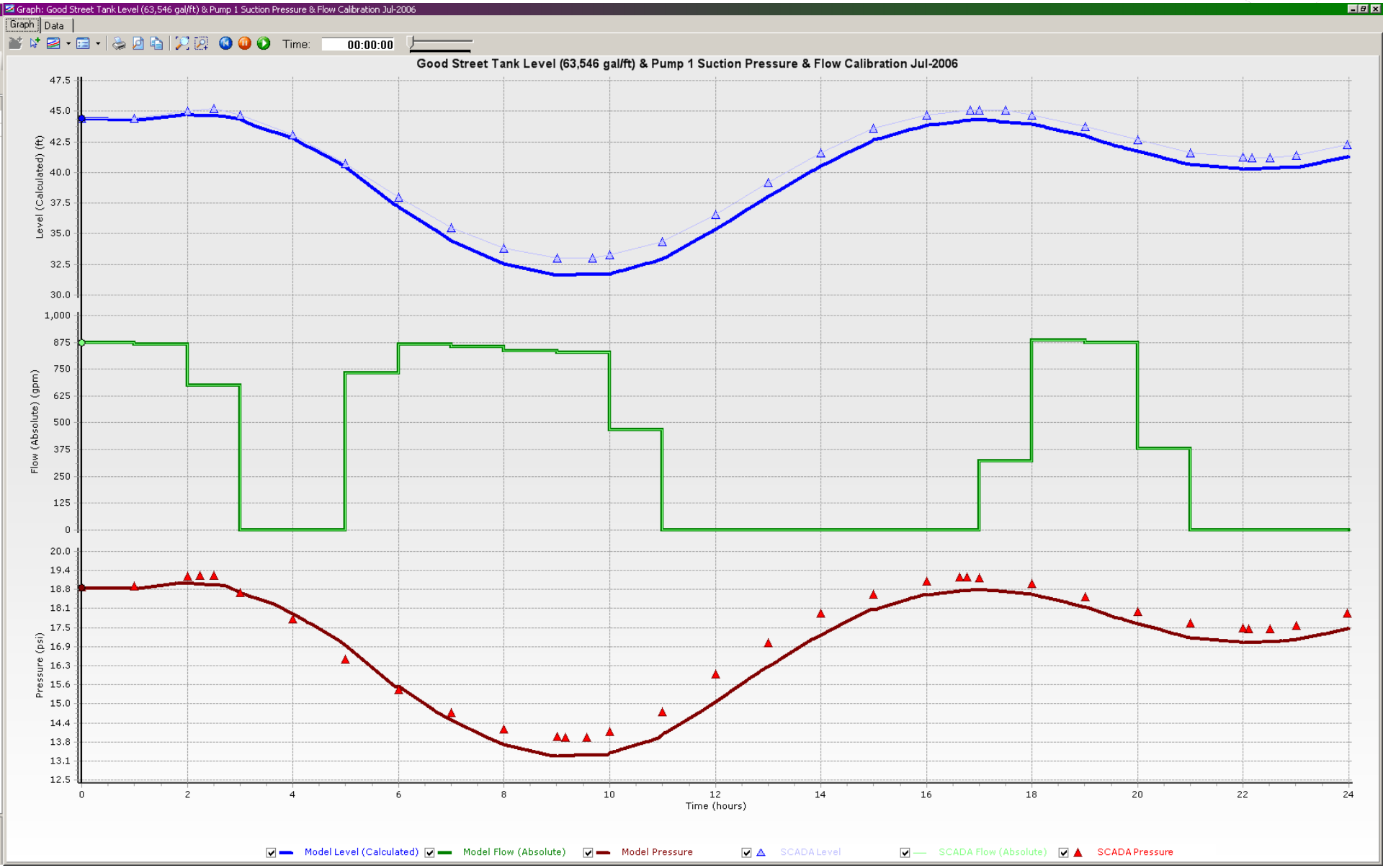
...CALIBRATIONS: West Tank Calibration



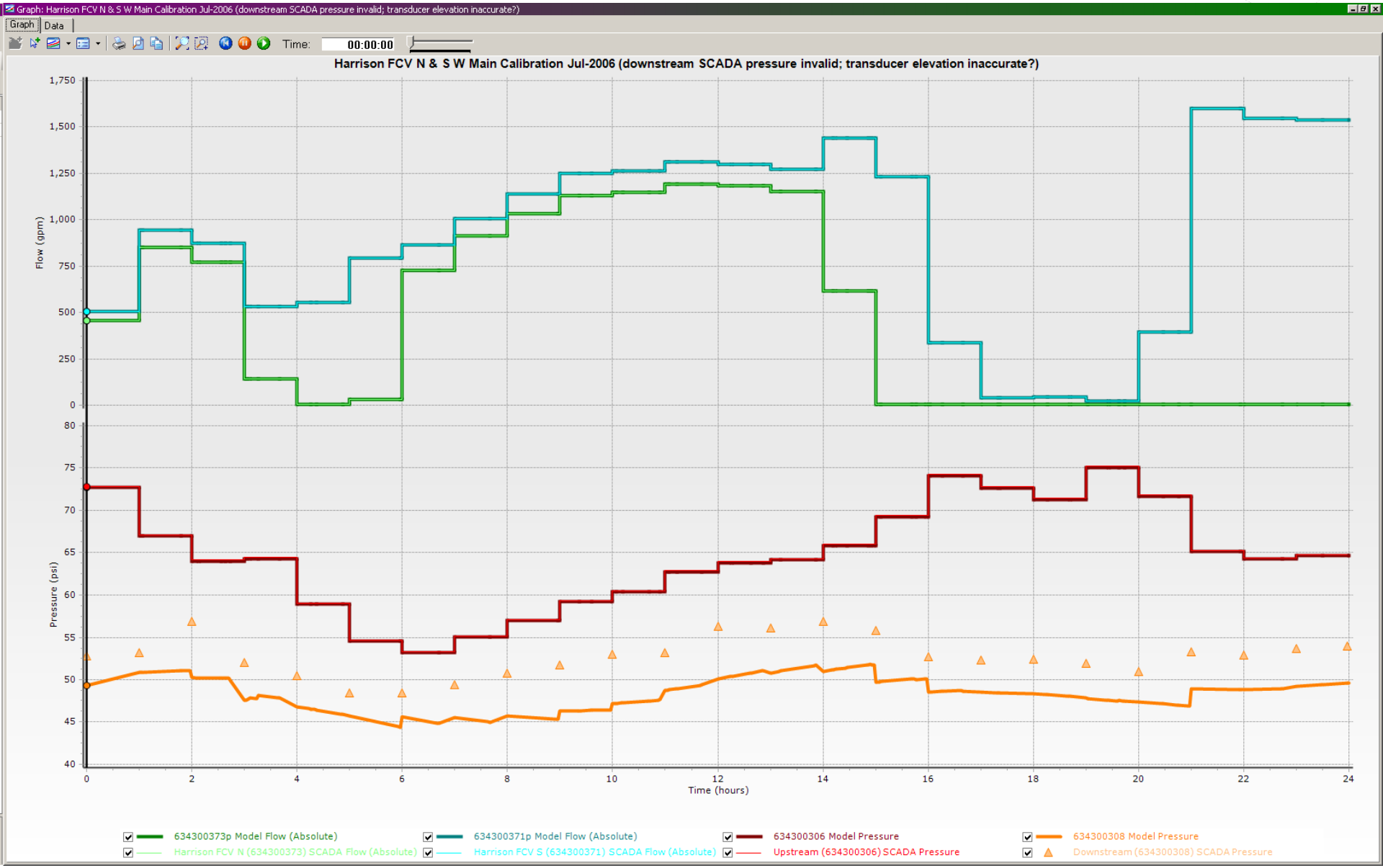
...CALIBRATIONS: Central Well Calibration



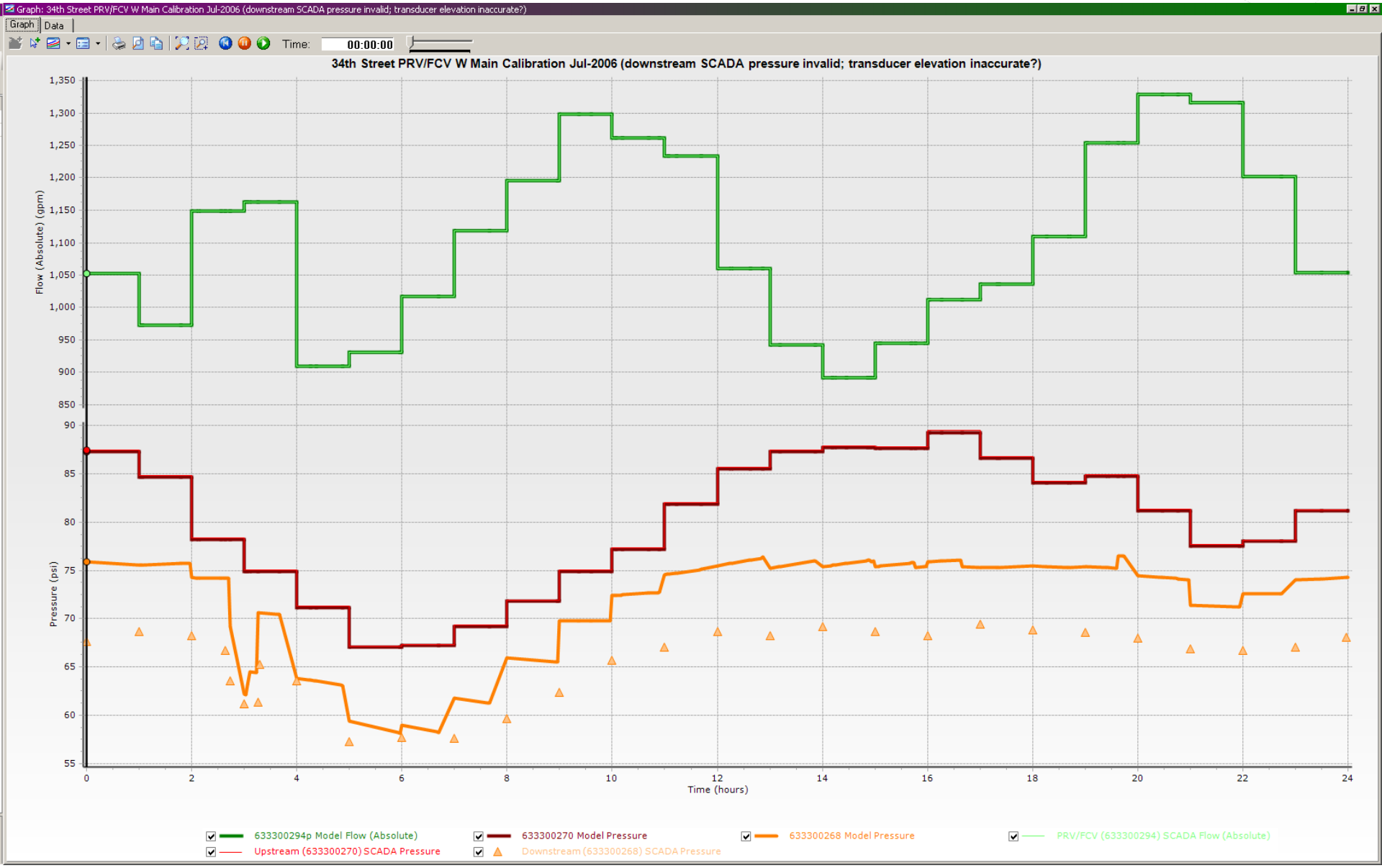
...CALIBRATIONS: East Tank Calibration



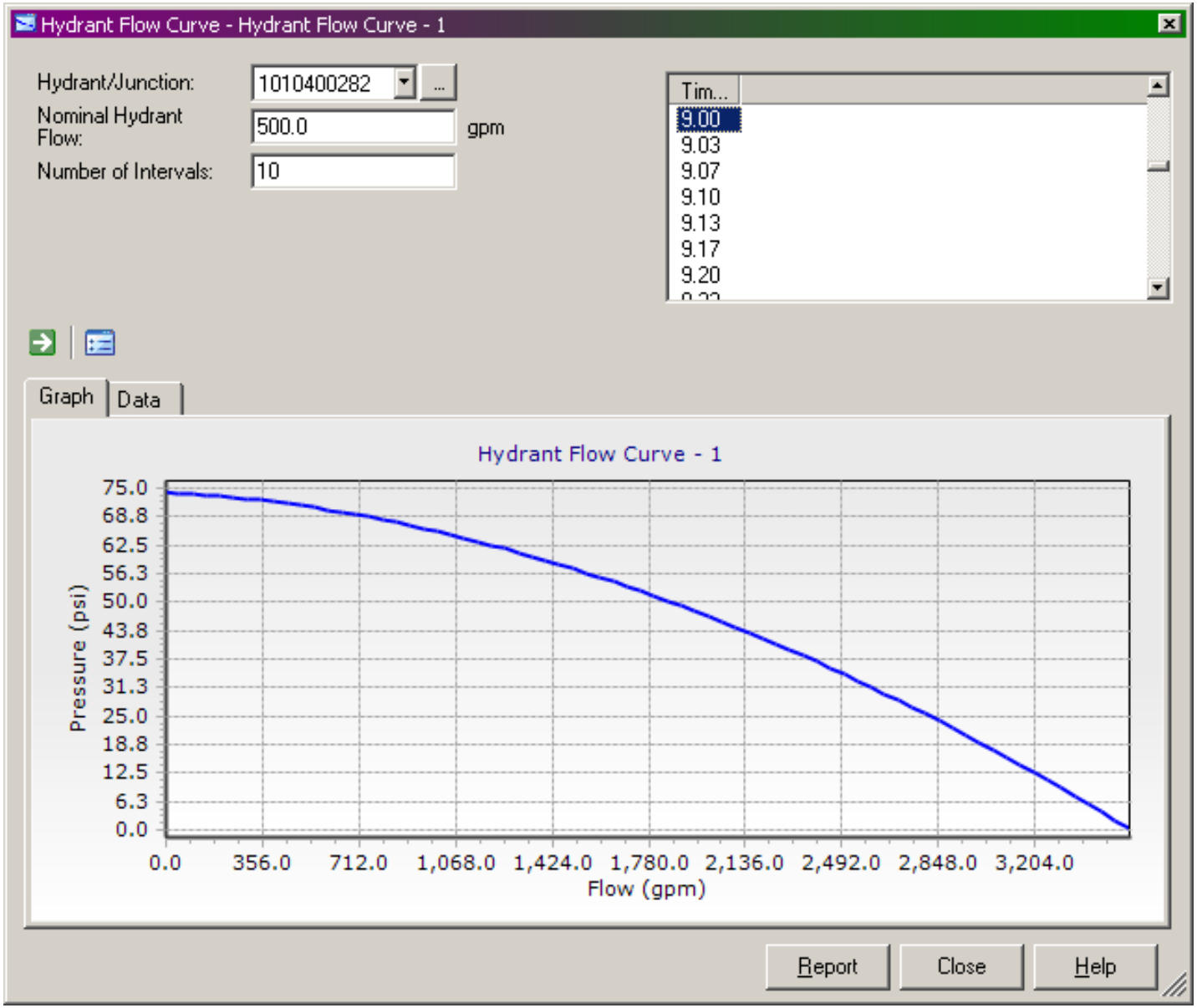
...CALIBRATIONS: East Intertie Result



...CALIBRATIONS: Southeast Intertie Result Opposite



HYDRANT FLOW CURVES



GIS & WATER MODELING WORKING TOGETHER

- **Software**
  - ESRI ArcGIS 9.3
  - GE Fanuc Proficy HMI/SCADA (including Historian)
  - Microsoft Office 2007 (including Visual Basic for Applications)
  - Bentley Systems, Inc. WaterGEMS V8i
- **Thank You**
- **Questions?**