

**RESOLUTION NO. 08/09-35  
CITY OF DAYTON, OREGON**

**Title:** *A Resolution Directing the City Manager to enter into a Contract with GSI Water Solutions, Inc.*

**WHEREAS,** The City of Dayton operates Well 3 as part of their water system; and

**WHEREAS,** Well 3 is critical to the City of Dayton's water supply during summer months; and

**WHEREAS,** a proposal for the coordination of Well 3 rehabilitation activities has been evaluated and is attached as Exhibit A;

**NOW, THEREFORE, IT IS HEREBY RESOLVED** by the City Council of Dayton, Oregon:

- 1) **THAT** the City Manager is directed to enter into a time and materials contract with GSI Water Solutions, Inc not to exceed \$9,000 for Well 3 rehabilitation coordination; and
- 2) **THAT** this resolution shall become effective immediately upon adoption.

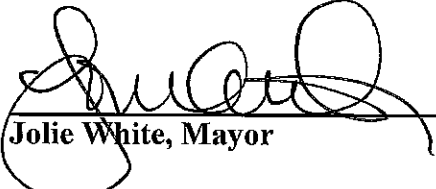
**ADOPTED** this 16th day of **March 2009**.

**In Favor** Dickson, Evers, Henry, Hensley, Wytoski, White

**Opposed** None

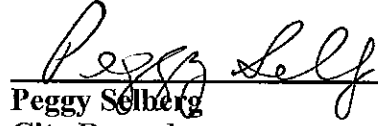
**Absent** Blackburn

**Abstained** None

  
\_\_\_\_\_  
Jolie White, Mayor

4/30/09  
\_\_\_\_\_  
Date of Signing

**ATTESTED BY:**

  
\_\_\_\_\_  
Peggy Selberg  
City Recorder

3/16/09  
\_\_\_\_\_  
Date of Enactment

Attachment - Exhibit A



**Water Solutions, Inc.**

March 2, 2009

Mr. Ross Schultz  
City of Dayton  
416 Ferry Street  
Dayton, OR

Subject: Proposal to Provide Services Relating to Well No. 3 Rehabilitation

Dear Mr. Shultz,

GSI Water Solutions, Inc., (GSI) is pleased to present this scope and budget estimate to diagnose the cause of decreased well capacity at City of Dayton Well No. 3, and to rehabilitate the well to restore lost capacity. Our role on the project will be to develop a plan to rehabilitate the well and to provide coordination of the rehabilitation contractor on the City's behalf.

## Project Summary

City of Dayton Well No. 3 (YAMH 53392) was drilled in 2002 to a depth of 275.5 feet below ground surface (bgs). Well No. 3 construction is shown in the attached diagram. When Well No. 3 was installed in 2002, production capacity was estimated at up to 285 gallons per minute (gpm) with a specific capacity of 5.1 gpm/foot of drawdown<sup>1</sup>. By October 2006, production capacity had decreased to 123 gpm with a specific capacity of 2.3 gpm/foot of drawdown<sup>2</sup>. Well No. 3 performance has continued to decline, and currently, City staff estimate that Well No. 3 pumps at about 70 gpm. The relatively rapid decline in Well No. 3 performance suggests biological fouling and/or clogging of the well screen; however, this has not been confirmed by a well video or chemical testing.

The objective of this work is to diagnose the reason for decreased well performance, and to restore lost capacity to the well by well rehabilitation techniques. It is unlikely that Well No. 3 capacity will be restored to initial 2002 conditions; however, the well rehabilitation techniques outlined in this scope should restore a significant amount of lost well capacity. Our scope of services generally includes:

- Developing an approach to rehabilitate the well.
- Obtaining cost estimates from well contractors who are qualified to perform the rehabilitation.
- Coordinating well rehabilitation activities with the contractor and City staff and diagnosing the cause of the loss in production using the downhole video and test results from samples collected from the well.

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<sup>1</sup> Based on a one hour specific capacity test

<sup>2</sup> Based on a 14 minute specific capacity test

- Providing periodic onsite review and documentation of field activities.
- Assessing the effectiveness of the well rehabilitation.
- Preparing a memorandum documenting the rehabilitation process and results.

The following scope of work describes in more detail the work that GSI and the selected contractor will perform on the project.

## Project Approach and Scope of Services

Our approach is divided into three tasks. Task 1 involves diagnosing the cause of decreased well production capacity. Task 2 involves well rehabilitation to restore lost capacity in the well. Task 3 involves preparation of a brief memorandum documenting rehabilitation activities.

### Task 1 - Diagnosis

The first step in addressing Well No. 3 production capacity loss is to analyze the reason(s) for production capacity loss. The diagnosis is used to customize a well rehabilitation program for the well. The analysis will include:

**Sampling.** Water samples will be collected from the aquifer and well casing, and will be submitted to Water Systems Engineering Laboratories (Ottawa, Kansas) for an inorganic chemistry and bacterial assessment. The sample results will be used to determine if the primary clogging agent is biological or mineral and if it is bacteriological, determine what bacteria are causing the problem and what chemical treatment method will be most effective. The existing pump in Well No. 3 will be used to collect the water samples. The well casing water sample will be collected by GSI personnel immediately after well startup, and will be representative of conditions in the well. The aquifer water sample will be collected after three casing volumes have been purged from Well No. 3, and will be representative of native groundwater. The water samples will be analyzed for the constituents shown in Table 1 below.

**Table 1**  
**Water Analysis Parameters**  
**City of Dayton Well Rehabilitation**

Inorganic Constituents		Bacterial Assessment
pH	manganese (total)	Heterotrophs plate count
alkalinity	phosphate	Cell count by ATP Method
bicarbonate	nitrate	Bacterial ID for two major populations
carbonates	silica	Assessment of aerobic growth
chloride	sulfate	Assessment of anaerobic growth
TDS	tamam	Sulfate reducing bacteria
conductivity	potassium	Iron oxidizing bacteria
total hardness	sodium	Microscopic evaluation
calcium	chloride	
magnesium	ORP	
copper	saturation index	
iron (total)		

**NOTES**

TDS = total dissolved solids

ORP = oxidation reduction potential

ATP = adenosine triphosphate

**Pump Inspection and Well Video.** The contractor will remove the pump from the well, inspect the pump impellers for signs of wear and corrosion, and video the entire length of screen and casing. GSI personnel will be onsite to review the well video.

Following the analysis of water samples, pump inspection, and well video, GSI will determine the likely reason for reduced capacity at Well No. 3, and adjust the rehabilitation plan described herein accordingly.

## Task 2 - Rehabilitation

The objective of the Well No. 3 well rehabilitation is to restore lost production capacity in the well with techniques that target the underlying causes of the lost capacity. The specific well rehabilitation program for Well No. 3 will be chosen based on results of well sampling and well videoing (Task 1), and consultation with the City. Potential options for well rehabilitation include:

- **Brushing, Surging and Airlifting, and Bailing.** At a minimum, Well No. 3 rehabilitation would involve brushing, surging and airlifting, and bailing.

Brushing is a mechanical method of well rehabilitation in which the well screen and production casing are brushed with a stiff nylon wire-brush to physically remove incrustations, organic material, etc. Rotational brushing is most effective for screens with horizontal slots, and up/down brushing is most effective for screens with vertical slots. Each section of the well would be brushed until sufficiently clean, taking care not to damage the casing or screen.

Surging involves moving a disc that is approximately the same diameter as the inner diameter of the well up and down in the well. Surging vigorously flushes water into and out of the well screen and filter pack. During surging, loose debris are removed from the well by airlifting. Surging will be conducted in intervals beginning from the top of the well to the bottom. A vented surge block will be used. GSI will monitor well performance during surging and airlifting (i.e., by estimating specific capacity) to evaluate effectiveness.

Bailing is the physical removal of debris from the well by airlifting and use of a bailer. Bailing will be conducted after brushing and surging have been completed.

- **Hydropuls and Airlifting.** Hydropuls™ is a proprietary method of impulse generation that creates high pressure pulses in the well water and loosens material from the screen and filter pack. During Hydropulsing, water and loose debris are removed from the well by airlifting. GSI will monitor well performance during the Hydropuls™ procedure (i.e., by estimating specific capacity) to evaluate effectiveness.
- **Chemical Treatment.** Chemical treatment involves dissolving or weakening encrusting minerals and bio slimes by lowering pH to 2 or less in the well. The specific method for chemical treatment would be developed based on well sampling and videoing. For cost estimating purposes, the contractor has assumed that water in Well No. 3 would be acidified with Cetco DPA, and that chemical treatment would be conducted concurrently with Hydropulsing.

Following completion of the above well rehabilitation procedures, well performance will be evaluated with a well video and one-hour specific capacity test. Based on the well video and one-hour specific capacity test, GSI will make a recommendation to the City on whether additional cycles of rehabilitation should be undertaken, or whether rehabilitation should be discontinued. If the City chooses to discontinue rehabilitation, the well will be disinfected and the pump will be reinstalled.

GSI recommends installing a non-vented pressure transducer and datalogger in Well No. 3 to measure and record water levels following well development. The pressure transducer and datalogger will be useful to evaluate water level declines in the wellfield that are potentially being caused by other wells in the area, and will assist the City with future operation of Well No. 3 (i.e., ensuring that the proper pumping water level is maintained). In addition, water levels from the transducer will provide early indication of changes in well performance, so that the City can be aggressive in addressing well performance problems in the future.

### **Task 3 - Reporting**

Following rehabilitation of Well No. 3, GSI will prepare a brief memorandum documenting rehabilitation activities, and providing recommendations for future well operation.

### **Budget**

We have developed a preliminary rehabilitation plan and requested cost estimates from three well rehabilitation contractors to perform the work. Two well rehabilitation contractors responded to the request for bids (see attached) at the time this proposal was prepared. Boart Longyear had the lowest bid for the project with a cost estimate of \$35,090. We have assumed that the City will contract directly with the selected well rehabilitation contractor and that GSI will provide coordination of the selected contractor on behalf of the City. Contractor costs for the well rehabilitation will depend on the specific rehabilitation program we choose following the well video, pump inspection, and water sampling (Task 1). GSI will make every effort to keep contractor costs equal to or less than the bid amount. In addition to well rehabilitation contractor bids, analysis of water samples at Water Systems Engineering Laboratories would cost \$895, and a pressure transducer and datalogger from Instrumentation Northwest would cost \$1,212.75. The total contractor costs for the project are \$37,197.75.

Table 2 provides a breakdown of GSI's budget estimate for the project. We propose to conduct our work on a time and materials basis for an amount not to exceed \$9,000. GSI work will be conducted in accordance with the attached 2009 GSI Fee Schedule (Attachment A).

**Table 2  
GSI Budget Estimate  
Well #3 Rehabilitation**

<b>Task</b>	<b>Budget</b>
Task 1 - Diagnosis	\$2,200
Task 2 - Rehabilitation	\$4,400
Task 3 - Reporting	\$2,400
<b>TOTAL</b>	<b>\$ 9,000</b>

This proposal is based on the following assumptions:


- City staff will assist GSI personnel with sampling (i.e., Task 1).
- City staff will coordinate with the well rehabilitation contractor during pump removal and mobilization to the well site.
- Subcontractor invoice will be submitted directly to the City for payment.

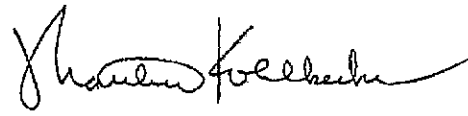
## Schedule

GSI will coordinate water sampling from the well as soon as notice to proceed is received from the City. Laboratory analysis of the samples requires approximately three weeks. Approximately one week after receipt of laboratory results, well videoing and rehabilitation of Well No. 3 can begin. We estimate that the well rehabilitation work can be completed within 1 week.

Please feel free to contact us at (503) 239-8799 if you have any questions.

Sincerely,  
GSI Water Solutions, Inc.

  
Jeff Barry, RG  
Principal

  
Matthew Kohlbecker  
Staff Hydrogeologist

### Attachments

*Well 3 As Built*  
*Boart Longyear Cost Estimate*  
*Instrumentation Northwest Sales Quote*

GSI Water Solutions, Inc.  
55 SW Yamhill, Suite 400  
Portland, Oregon 97204

## PROFESSIONAL SERVICES AGREEMENT

**Client:** City of Dayton, Oregon  
416 Ferry Street  
Dayton, Oregon 97114

**Name of Project:** Well No. 3 Rehabilitation

The City of Dayton (CLIENT) authorizes Groundwater Solutions, Inc, dba GSI Water Solutions, Inc. (GSI) to perform the following services on the City of Dayton Well No. 3 Rehabilitation Project:

### Scope of Services

- The attached proposal letter dated March 2, 2009, presents the scope of work for this project.

### Compensation

- The scope of work outlined in the proposal letter dated March 2, 2009, will be completed on a time and materials basis, billed as provided herein. GSI has provided you with a good faith estimate that the work should not exceed \$9,000. GSI reserves the right to adjust this amount in the event of encountering unforeseen issues relating to the project, which may arise during the time of the contract. In the event GSI must adjust price, it will contact the client at its earliest convenience to discuss adjustment of the total cost of the project. The total cost will then be subject to mutual Agreement of the parties.

### Schedule

- GSI will proceed with the work in a professional and expeditious manner, unless delayed by the unforeseen unavailability of necessary labor, restricted access to the work site, discovery in handling of toxic materials, delays in communications with the client, insufficient or unworkable drawings or specifications, changes in the work, or any other causes beyond GSI's control. While GSI shall, at all times, conscientiously proceed with the work, the estimated time to complete this project as outlined in the letter dated March 2, 2009, is only for the benefit of the client's general planning. The actual completion time is subject to

June 4, 2008

factors listed above. GSI will not be responsible for any financing costs or other consequential damages or costs incurred by the client due to delays in the completion of the project.

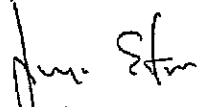
**Terms:**

Services covered by this Agreement will be performed in accordance with the attached provisions and schedules. This Agreement supersedes all prior Agreements and understandings and may only be changed by written amendment executed by both parties.

**GSI WATER SOLUTIONS, INC.**

**CLIENT**

Signature:



Signature:

Name (printed): Larry G. Eaton

Name (printed):

Title: CFO

Title:

Date: 2-Mar-09

Date:



**Provisions**

***Authorization to Proceed***

Execution of this Agreement by the CLIENT will be authorization for Groundwater Solutions, Inc. (GSI) to proceed with the services, unless otherwise provided for in this Agreement.

***Compensation Rates***

Compensation for services provided under this agreement will be on a time and materials basis in accordance with the rates contained in the Attachment A. The hourly labor rates shown in Attachment A are subject to annual adjustments effective each anniversary of the contract signing date.

***Subcontracts and Direct Expenses***

When services are performed on a cost reimbursement basis, a markup of 10 percent will be applied to subcontracts and outside services and a markup of 10 percent will be applied to Direct Expenses. For purposes of this Agreement, Direct Expenses are defined to include those necessary costs and charges incurred for the project including, but not limited to the direct costs of transportation, meals, lodging, mail, shipping, equipment, supplies, laboratory test and analysis, printing and reproduction services, and certain field equipment.

All sales, use, value added, business transfer, gross receipts, or other similar taxes will be added to GSI compensation when invoicing CLIENT.

***Ownership of Documents***

CLIENT agrees that all original documents produced by GSI in accordance with this agreement, except documents which are required to be filed with public agencies, shall remain the property of Consultant. CLIENT agrees to waive any claim against Consultant and to indemnify, defend and hold harmless Consultant for any and all claims arising out of any use, not authorized in writing by GSI, of these documents by third parties not related to this agreement.

***Cost Opinions***

Any cost opinions or project economic evaluations provided by GSI will be on a basis of experience and judgment, but, since GSI has no control over market conditions or bidding procedures, GSI cannot warrant that bids,

ultimate construction cost, or project economics will not vary from these opinions.

***Payment to GSI***

Monthly invoices will be issued by GSI for all services performed under this Agreement. CLIENT shall pay each invoice within 30 days.

In the event of a disputed billing, only that disputed portion will be withheld from payment, and the undisputed portion will be paid. CLIENT will exercise reasonableness in disputing any bill or portion thereof.

***Insurance***

GSI will maintain throughout this Agreement the following insurance:

- (a) Worker's compensation insurance in the statutory amount of not less than \$500,000 for all employees engaged in the work. Owners of GSI who are exempt from worker's compensation requirements shall maintain equivalent disability insurance.
- (b) Comprehensive automobile and vehicle liability insurance covering claims for injuries to members of the public and/or damages to property of others arising from use of motor vehicles, including onsite and offsite operations, and owned, non-owned, or hired vehicles, with \$1,000,000 combined single limits.
- (c) Commercial general liability insurance covering claims for injuries to members of the public or damage to property of others arising out of any covered negligent act or omission of GSI or of any of its employees, agents, or subcontractors, with \$1,000,000 per occurrence and \$2,000,000 in the aggregate.
- (d) Professional liability insurance of \$1,000,000 per occurrence and in the aggregate.

Insurance coverage in (b) and (c) above will name CLIENT and OWNER as additional insureds. Such insurance will be the primary coverage to GSI and CLIENT.

Before commencing work under this contract, GSI will furnish CLIENT with certificates of insurance verifying coverages and additional insureds. Certificates also

will state that the insurance carrier will give CLIENT thirty (30) days notice of any insurance cancellation or material alteration.

***Standard of Care***

GSI will complete its services with the standard of care and degree of skill and diligence normally employed by professionals performing the same or similar services in the locality in which the services are performed.

***Indemnification***

GSI agrees, to the fullest extent permitted by law, to indemnify and hold harmless CLIENT from damages, liabilities, and costs to the extent such liabilities, and costs are caused by GSI's negligent acts, errors, or omissions in the performance of professional services under this agreement, or anyone for whom GSI is legally liable.

CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold harmless GSI from damages, liabilities, and costs to the extent such liabilities, and costs are caused by Client's acts, errors, or omissions, or anyone for whom the CLIENT is legally liable.

In the event that damages, liabilities and costs are caused by the joint or concurrent negligence of CLIENT and GSI, they shall be borne by each party in proportion to its own negligence. This provision is intended to indemnify and hold harmless each other and each other's clients specifically in any situation in which employees, agents, and representatives commence a third party action for injuries or death otherwise covered by applicable workmen's compensation laws.

***Limitation of Liability***

GSI's liability will, in the aggregate, not exceed \$100,000. This Provision takes precedence over any conflicting Provision of this Agreement or any document incorporated into it or referenced by it.

This limitation of liability will apply whether GSI's liability arises under breach of contract or warranty; tort, including negligence; strict liability; statutory liability; or any other cause of action, and shall include GSI's officers, employees, and subcontractors.

***Severability and Survival***

If any of the provisions contained in this Agreement are held illegal, invalid or unenforceable, the other provisions shall remain

in full effect. Limitations of liability shall survive termination of this Agreement for any cause.

***No Third Party Beneficiaries***

This Agreement gives no rights or benefits to anyone other than CLIENT and GSI and has no third party beneficiaries except as provided in ***Limitation of Liability***.

***Materials and Samples***

Any items, substances, materials, or samples removed from the project site for testing, analysis, or other evaluation will be returned to the project site unless agreed to otherwise. CLIENT recognizes and agrees that GSI at no time assumes title to said items, substances, materials, or samples. CLIENT recognizes that GSI assumes no risk and/or liability for a waste or hazardous waste site originated by other than GSI.

***Assignments***

Neither party shall have the power to or will assign any of the duties or rights or any claim arising out of or related to this Agreement, whether arising in tort, contract or otherwise, without the written consent of the other party. Any unauthorized assignment is void and unenforceable.

***Integration***

This Agreement incorporates all previous communications and negotiations and constitutes the entire Agreement of the parties. If CLIENT issues a Purchase Order in conjunction with performance of the services, general or standard terms and conditions on the Purchase Order do not apply to this Agreement.

***Force Majeure***

If performance of the services is affected by causes beyond GSI's reasonable control, project schedule and compensation shall be equitably adjusted.

***Changes***

CLIENT may make or approve changes within the general Scope of Services in this Agreement, subject to GSI approval and with appropriate adjustment for costs and time for performance. If such changes affect GSI's cost of or time required for performance of the services, an equitable adjustment will be made through an amendment to this Agreement.

***Termination***

This Agreement may be terminated for convenience on 30 days' written notice or if either party fails substantially to perform through no fault of the other and does not commence correction of such nonperformance within 5 days of written notice and diligently complete the correction thereafter. The preceding sentence does not apply to a non-payment for services rendered, at which time, the client shall be deemed to be in default and GSI may suspend services. On termination, GSI will be paid for all authorized work performed up to the termination date plus termination expenses, such as, but not limited to, reassignment of personnel, subcontract termination costs, and related closeout costs.

***Attorney's Fees***

In case this Agreement is referred to an attorney for collection, suit, or action, including arbitration, by any of the parties to enforce any provision of this Agreement, the prevailing party shall be entitled to, in addition to any award of costs or disbursements provided by statute, such additional sums as the court may adjudge reasonable as attorney's fees and costs to be allowed in such suit or action, including sums allowed as reasonable attorney's fees and costs on any appeal of such suit or action.

***Governing Law***

This Agreement shall be governed by and construed in accordance with the laws of the State of Oregon and venue of any action shall be in Multnomah County, Oregon,



35 SW Yamhill Street, Suite 400 Portland, OR 97204  
P: 503.239.8779 F: 503.239.8940  
info@gsiwaterolutions.com www.gsiwaterolutions.com

## Attachment A

### 2009 Fee Schedule Water Supply Work (GSI's Fees will increase annually based on the CPI)

#### Labor

<u>Labor Category</u>	<u>Hourly Rate</u>
<u>Principal</u>	\$155 - \$145
<u>Senior</u>	\$140 - \$125
<u>Project</u>	\$125 - \$110
<u>Staff</u>	\$110 - \$90
<u>Junior</u>	\$90 - \$75
<u>GIS/Graphics</u>	\$90 - \$80
<u>Editor/Documents</u>	\$80 - \$75
<u>Administration</u>	\$80 - \$75

The hourly rate for trial preparation and expert witness testimony is 1.5 times the standard billing rate shown above.

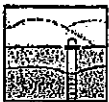
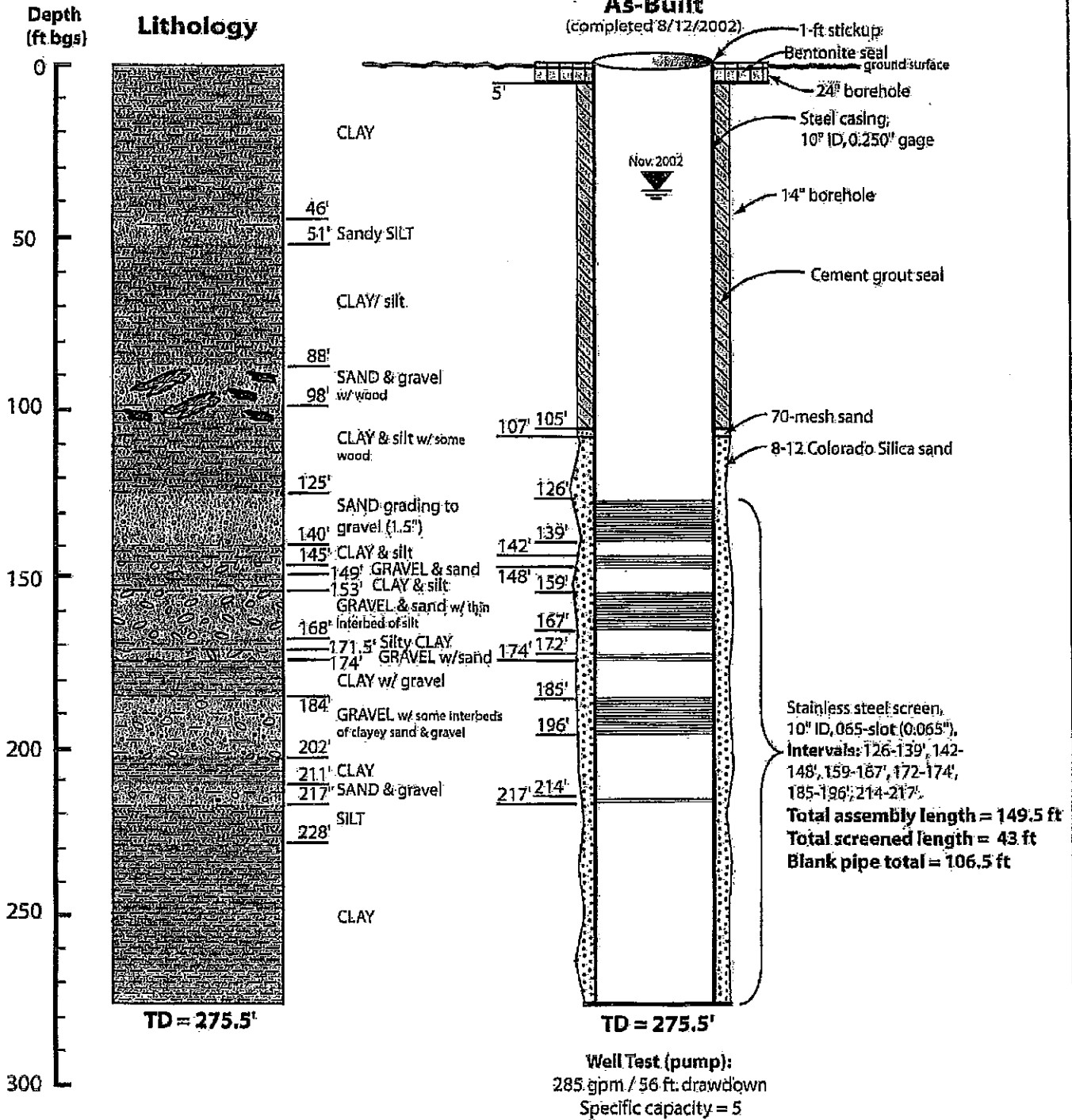
#### Expenses

- Mileage: IRS authorized rate/mile
- Direct Expenses: Cost
- Outside Services: Cost plus 10 percent markup

# Dayton / Lafayette Well 3 (YAMH 53392)

## As-Built

(completed 8/12/2002)



Groundwater Solutions, Inc.

Figure \_\_\_\_  
Well 3 As-Built  
City of Lafayette

RECEIVED

JUL 1 1 2003

STATE OF OREGON WATER SUPPLY WELL REPORT (as required by ORS 537.785) WATER RESOURCES DEPT. SALEM, OREGON

WELL ID # L 55481

START CARD # 141232

(1) OWNER: Well Number: 3 Name: Cities of Dayton and Lafayette Address: Dayton City Hall, 416 Ferry St. City: Dayton State: OR Zip: 97114

(2) TYPE OF WORK: [X] New Well [ ] Deepening [ ] Alteration (repair/recondition) [ ] Abandonment

(3) DRILL METHOD: [ ] Rotary Air [ ] Rotary Mud [X] Cable [ ] Auger [ ] Other

(4) PROPOSED USE: [ ] Domestic [X] Community [ ] Industrial [ ] Irrigation [ ] Thermal [ ] Injection [ ] Livestock [ ] Other

(5) BORE HOLE CONSTRUCTION: Special Construction approval [X] Yes [ ] No Depth of Completed Well 275.5 ft. Explosives used [ ] Yes [X] No Type Amount

Table with columns: HOLE Diameter, From, To, SEAL Material, From, To, Amount sacks or pounds. Includes entries for Bentonite and Cement.

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E [ ] Other Backfill placed from 105' ft. to 107' ft. Material 70 mesh sand Gravel placed from 107' ft. to 275.5 ft. Size of gravel 8-12CSSI

(6) CASING/LINER: Table with columns: Diameter, From, To, Gauge, Steel, Plastic, Welded, Threaded. Includes entries for Casing and Liner.

(7) PERFORATIONS/SCREENS: [ ] Perforations [X] Screens Method Type v-slot Material 304 SS

Table with columns: From, To, Slot size, Number, Diameter, Tele/pipe size, Casing, Liner. Lists perforation details.

(8) WELL TESTS: Minimum testing time is 1 hour [X] Pump [ ] Bailor [ ] Air [ ] Flowing Artesian

Table with columns: Yield gal/min, Drawdown, Drill stem at, Time. Shows test results: 285, 56.42', 1 hr.

Temperature of Water 57 deg Depth Artesian Flow found Was a water analysis done? [ ] Yes [ ] No By whom Did any strata contain water not suitable for intended use? [ ] Too little [ ] Bally [ ] Muddy [ ] Odor [ ] Colored [ ] Other Depth of strata:

(9) LOCATION OF WELL by legal description: County Yamhill Latitude Longitude Township 4S N or S. Range 4W E or W. of W.M. Section 25 NW 1/4 SW 1/4 Tax lot Lot Block Subdivision Street Address of Well (or nearest address) Across Airport Rd. from the McMinnville Airport

(10) STATIC WATER LEVEL: 37.58' ft. below land surface. Date 11/21/2002 Artesian pressure lb. per square inch. Date

(11) WATER BEARING ZONES: Table with columns: From, To, Estimated Flow Rate, SWL. Shows zones at 128', 155', 185' depths.

(12) WELL LOG: Table with columns: Material, From, To, SWL. Lists soil layers from 0' to 153.5'.

Date started 4/15/2002 Completed 8/12/2002

(unbonded) Water Well Constructor Certification: I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Material's used and information reported above are true to the best of my knowledge and belief. WWC Number Signed Date

(bonded) Water Well Constructor Certification: I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief. WWC Number 633 Signed Michael Waldrop Date 8/29/03

SLB 285-5 / 58

JUL 11 2003 YAMH 53392

STATE OF OREGON  
**WATER SUPPLY WELL REPORT**  
(as required by ORS 537.785)  
Instructions for completing this report are on the last page of this form

WELL ID # L **55491**  
 START CARD # **141232**  
 Page 2

(1) OWNER: Well Number: **3**  
 Name: **Cities of Dayton and Lafayette**  
 Address: **Dayton City Hall 416 Ferry St.**  
 City: **Dayton** State: **OR** Zip: **97114**

(2) TYPE OF WORK:  
 New Well  Deepening  Alteration (repair/recondition)  Abandonment

(3) DRILL METHOD:  
 Rotary Air  Rotary Mud  Cable  Auger  
 Other

(4) PROPOSED USE:  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Livestock  Other

(5) BORE HOLE CONSTRUCTION:  
 Special Construction approval  Yes  No Depth of Completed Well \_\_\_\_\_ ft.  
 Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_

Diameter	HOLE		Material	SEAL		Amount sacks or pounds
	From	To		From	To	

How was seal placed: Method:  A  B  C  D  E  
 Other \_\_\_\_\_  
 Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
 Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

(6) CASING/LINER:

Casing	Diameter	From To		Gauge	Steel	Plastic	Welded	Threaded
		196'	213'					
	10"			25	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	10"	217'	235'		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Liner: \_\_\_\_\_

Drive Shoe used:  Inside  Outside  None  
 Final location of shoe(s) \_\_\_\_\_

(7) PERFORATIONS/SCREENS:

From	To	Slot size	Number	Diameter	Tele/pipe size	Material	
						Casing	Liner
214'	217'	10/65		10"	P5	<input type="checkbox"/>	<input type="checkbox"/>
						<input type="checkbox"/>	<input type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour  
 Pump  Bailor  Air  Flowing Artesian

Yield gal/min.	Drawdown	Drill stem at	Time

Temperature of Water \_\_\_\_\_ Depth Artesian Flow found \_\_\_\_\_  
 Was a water analysis done?  Yes By whom \_\_\_\_\_  
 Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
 Depth of strata: \_\_\_\_\_

(9) LOCATION OF WELL by legal description:  
 County **Yamhill** Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
 Township **4S** N or S. Range **4W** E or W. of W.M.  
 Section **25** NW Block **1/4** Subdivision **1/4**  
 Tax lot \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
 Street Address of Well (or nearest address): **Across Airport Rd. from the McMinnville Airport**

(10) STATIC WATER LEVEL:  
 \_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_  
 Artesian pressure: \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

(11) WATER BEARING ZONES:

Depth at which water was first found: \_\_\_\_\_

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:

Material	Ground elevation		SWL
	From	To	
Gravel, pea to 2", w/fine-coarse black sand	159.5	169.5	
Gravel, sand w/ some pieces of sandstone bearing wood and some balls of silty clay	169.5	159'	
Gravel, sand, fine-coarse and black	159'	193'	37.5'
Silty gray clay w/ sand	168'	171.5'	
Gravel, sand w/ occasional clods of silty clay	174.5'	174'	
Gravel w/ clay binder	174'	175.5'	
Gray clay w/ gravel	175.5'	184'	
Gravel, small and loose, w/ some black sand	184'	185'	
Clayey gravel-sand	185'	189'	
Gravel, small-med. and loose, w/ some gray clay	189'	202'	37.5'
Silty sandy clay	202'	203'	
Gravel, small, w/ sand	203'	205'	
Silty sandy gray clay	205'	211.5'	
Gravelly, sandy silt	211.5'	214'	
Sand, fine-coarse and black, w/ some gravel	214'	217'	37.5'
Silt, gray, w/ some gravel	217'	228'	

Continued on next page

Date started **4/15/2002** Completed **8/12/2002**

(Unbonded) Water Well Constructor Certification:  
 I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed \_\_\_\_\_ WWC Number \_\_\_\_\_  
 Date \_\_\_\_\_

(bonded) Water Well Constructor Certification:  
 I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed **Michael Waldrup** WWC Number **633**  
 Date **8/29/03**

(1) OWNER: SALEM, OREGON  
Name: Cities of Dayton and Lafayette  
Address: Dayton City Hall, 416 Ferry St.  
City: Dayton State: OR Zip: 97114

(2) TYPE OF WORK:  
 New Well  Deepening  Alteration (repair/recondition)  Abandonment

(3) DRILL METHOD:  
 Rotary Air  Rotary Mud  Cable  Auger  
 Other

(4) PROPOSED USE:  
 Domestic  Community  Industrial  Irrigation  
 Thermal  Injection  Livestock  Other

(5) BORE HOLE CONSTRUCTION:  
Special Construction approval  Yes  No Depth of Completed Well \_\_\_\_\_ ft.  
Explosives used  Yes  No Type \_\_\_\_\_ Amount \_\_\_\_\_  
HOLE SEAL  
Diameter From To Material From To Amount  
sacks or pounds.  
How was seal placed: Method  A  B  C  D  E  
 Other  
Backfill placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Material \_\_\_\_\_  
Gravel placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Size of gravel \_\_\_\_\_

(6) CASING/LINER:  
Casing:  
Diameter From To Gauge Steel Plastic Welded Threaded  
Liner:  
Drive Shoes used:  Inside  Outside  None  
Final location of shoe(s) \_\_\_\_\_

(7) PERFORATIONS/SCREENS:  
 Perforations  Screens  
Method Type Material  
From To Slot Number Diameter Tele/type Casing Liner  
size size size

(8) WELL TESTS: Minimum testing time is 1 hour  
 Pump  Baller  Air  Flowing Artesian  
Yield gal/min Drawdown Drill stem at Time

Temperature of Water \_\_\_\_\_ Depth Artesian Flow found \_\_\_\_\_  
Was a water analysis done?  Yes By whom \_\_\_\_\_  
Did any strata contain water not suitable for intended use?  Too little  
 Salty  Muddy  Odor  Colored  Other \_\_\_\_\_  
Depth of strata: \_\_\_\_\_

(8) LOCATION OF WELL by legal description:  
County Yamhill Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
Township 4S N or S. Range 4W E or W. of W.M.  
Section 25 NW 1/4 SW 1/4  
Tax lot Lot Block Subdivision  
Street Address of Well (or nearest address) Across Airport Rd. from the McMinnville Airport

(10) STATIC WATER LEVEL:  
\_\_\_\_\_ ft. below land surface. Date \_\_\_\_\_  
Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

(11) WATER BEARING ZONES:

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:

Material	From	To	SWL
Clay, gray	228'	236'	
Gravelly clay, gray	238'	258'	
Sandy gray clay	256'	262'	
Clay, gray	262'	275'	

Date started 4/15/2002 Completed 8/12/02

(unbonded) Water Well Constructor Certification:  
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.  
Signed \_\_\_\_\_ WWC Number \_\_\_\_\_  
Date \_\_\_\_\_

(bonded) Water Well Constructor Certification:  
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.  
Signed Michael Maloney WWC Number 633  
Date 6/29/03



**Instrumentation Northwest Inc.**

8902 - 122ND Ave. N.E.  
KIRKLAND, WA 98033

(425) 822-4434 PH  
(425) 822-8384 FX

**Sales Quote**

Customer No.: GSIW00  
Quote No.: 4110

Quote To: **GSI WATER SOLUTIONS**  
55 SW Yamhill St, Ste 400  
Portland, OR 97204

Ship To: **GSI WATER SOLUTIONS**  
55 SW Yamhill St, Ste 400  
ATTN: MATT KOHLBECKER  
Portland, OR 97204

Date		Ship Via		F.O.B.		Terms	
01/14/09		TBD		Origin		Net 30	
Purchase Order Number			Sales Person			Required	
			NW Region (WA/OR/AK/ID)			01/14/09	
Quantity			Item Number	Description	Unit Price	Amount	
Required	Shipped	B.O.					
1			3C358T	100 PSIA PT2X Smart Sensor TWIST OPEN .....ZZZ	995.00		995.00
150.000			6E540	9 COND. PU CABLE	2.35		352.50
						Quote subtotal	1347.50
						Discount	-134.75
						Quote total	1212.75

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