



Oregon Water Resources Department

RM-206  
Registration No.  
(Dept. Use Only)

Registration of Reclaimed Municipal Water Use

"Reclaimed water" means water that has been used for municipal purposes and after such use has been treated in a sewage treatment system and that, as a result of treatment, is suitable for a direct beneficial purpose or a controlled use that could not otherwise occur. (ORS 537.131 and 537.132)

NOTE: Please type or print in dark ink. If your registration is found to be incomplete or inaccurate, we will return it to you. If any requested information does not apply to your registration, insert "n/a."

Registrant(s) City of Durham  
(owner of the land, where reclaimed water is to be used)  
Mailing Address 17160 SW Upper Boones Ferry Road  
Durham OR 97224 503-639-6851  
City State Zip Daytime Telephone No.

- 1. Municipal Discharge Permit

NPDES Permit No. 101141 Effective Date \_\_\_\_\_ Expiration Date \_\_\_\_\_  
WPCF Permit No. \_\_\_\_\_ Effective Date \_\_\_\_\_ Expiration Date \_\_\_\_\_  
Date use of Reclaimed Water began, or is scheduled to begin 8/1/15  
Annual Period of Use: from May 1st to Oct 31st

- 2. Supplier of the Municipal Water which produces the Reclaimed Water

If more than one supplier is used, please provide a list in the Remarks section on page 4.  
Name of Supplier City of Tigard  
Address \_\_\_\_\_  
Telephone No. \_\_\_\_\_ Fax No. \_\_\_\_\_  
Original Source of Municipal Supply \_\_\_\_\_

- 3. Supplier of Reclaimed Water

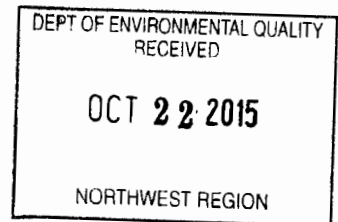
Name of Supplier Clean Water Services  
Name of Facility Durham  
Street Address of Facility 16060 SW 85th Ave Tigard, OR  
Name of Facility Owner Clean Water Services  
Address of Facility Owner 2550 SW Hillsboro Hwy  
Telephone No. of Supplier 503-681-3600 Telephone No. of Facility 503-547-8150  
Fax No. \_\_\_\_\_

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OCT 29 2015

SALEM, OR

Reclaimed Water/ 1



**- 4. User of Reclaimed Water**

Name of Water User City of Durham  
Address 17160 SW Upper Beams Ferry Road  
Telephone No. 503-639-6851 Fax No. \_\_\_\_\_

**- 5. Agreement/Contract**

Period of Agreement and Contract May 1, 2015 5 years with renewal  
Term of Agreement May 1st 2015 to Oct 31st 2019 of 5 years  
Special Limitations Can be renewed for another 5 year period!

**- 6. Total Amount of Reclaimed Water**

Enter the amount to be applied to beneficial use: 280 CCF  
\_\_\_\_\_ cubic feet per second, OR \_\_\_\_\_ gallons per minute 280 CCF =  
If reclaimed water is to be used from more than one treatment facility, give

**- 7. Intended Use(s) of Reclaimed Water**

0.042 AF  
Irrigation  
(If for more than one use, give the quantity of reclaimed water from each treatment facility for each use.)

If for **IRRIGATION**, or other land application, state the **TOTAL** number of acres to receive reclaimed water under each use;

Irrigation 2 acres RECEIVED BY OWRD  
Other (describe) \_\_\_\_\_ OCT 29 2015  
(Temperature Control, Mitigation, Wetland, etc.)

**- 8. Description of Delivery System**

SALEM, OR  
Include dimensions and type of construction of diversion works, length and dimensions of supply ditches or pipelines, size and type of pump and motor. If for irrigation, describe the type of system (i.e., flood, wheel line, hand line, drip, other).

Recycled water is supplied via a 2 inch PVC Line, pop up sprinklers

**- 9. Existing Water Rights**

Please provide a description of all the existing water rights appurtenant to the lands where the reclaimed water will be applied. NA

Application No. \_\_\_\_\_ Permit No. \_\_\_\_\_  
Certificate No. \_\_\_\_\_ Decree vol & pg \_\_\_\_\_

(Only one number needs to be provided. Attach a separate list if more than one water right is involved.)

OCT 29 2015

SALEM, OR

**- 10. Property Ownership**

Do you own all the land where you propose to divert, transport and use water?

- Yes (Skip to section no. 11 "Historic Disposal Method")
- No (Please check the appropriate box below and, in the **Remarks** section, list the names and addresses of all affected landowners.\*\*)  
  - I have a recorded easement or written authorization permitting access.
  - I do not currently have written authorization or an easement permitting access.

\*\*If more than 25 landowners are involved, a list is not required. Contact WRD for instructions.

**- 11. Historic Disposal Method**

Has the reclaimed water being registered in this process been discharged into a natural watercourse for 5 or more years?

- No (Skip to section no. 12 "Signature")
- Yes (Please answer the following questions)
  - a) Name of the receiving natural watercourse: \_\_\_\_\_
  - b) Description of the location where the discharge historically entered the natural watercourse: \_\_\_\_\_
  - c) Does the amount of reclaimed water proposed for use under this registration represent 50% or more of the total average daily flow of the natural watercourse?  Yes  No

**- 12. Signature**

I/We certify that the information provided in this application is an accurate representation of the proposed reclaimed water use and is true and correct to the best of my knowledge:

<i>Linda J. Tate</i>	10-16-15	<i>Dave Aguella</i>	10/7/15
<small>Signature of Registrant</small>	<small>Date</small>	<small>Supplier's Signature</small>	<small>Date</small>
<i>[Signature]</i>	10/23/15	<i>Reuse Program Manager</i>	<small>Date</small>
<small>DEQ Signature</small>	<small>Date</small>	<small>Title</small>	

**NOTE:** This registration must be accompanied by a map which shows the location of the treatment plant, approximate location of conveyance system (pipelines, canals, etc.) and place of use. The map must be drawn to scale with the scale stated on the map. The land area where the reclaimed water is to be applied shall be identified on the map. Topographic maps with the facilities and place of use shown will meet the map requirement.

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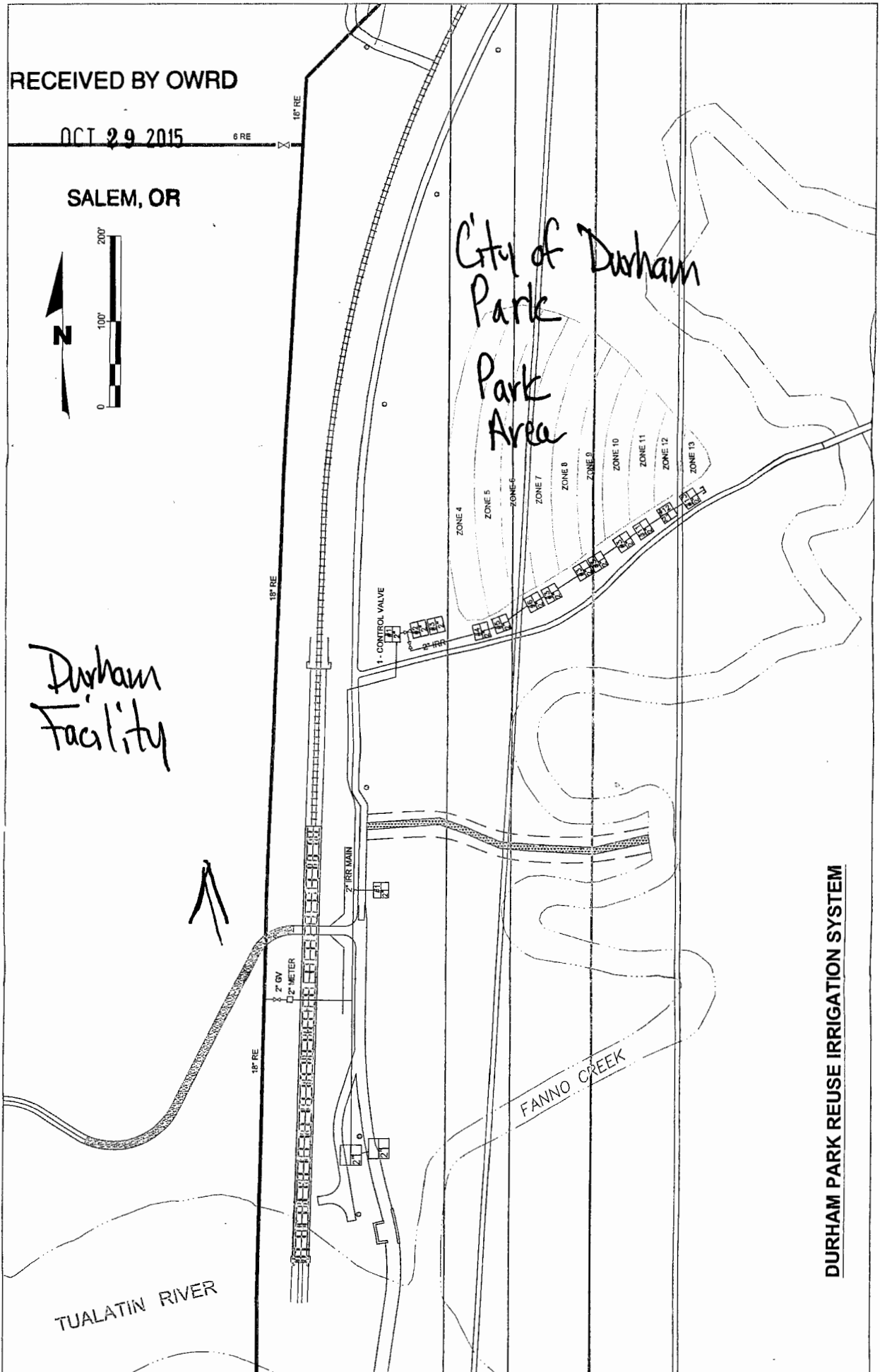
OCT 29 2015

SALEM, OR



Durham Facility

City of Durham  
Park  
Park Area



DURHAM PARK REUSE IRRIGATION SYSTEM

AGREEMENT FOR PROVISION OF RECYCLED WATER  
CLEAN WATER SERVICES AND CITY OF DURHAM

This Agreement, dated effective August 1, 2015 is between Clean Water Services (District) and the City of Durham (City).

RECITALS

- A. District owns and operates the Durham Wastewater Treatment Plant, which generates Class A recycled water (RW), as defined in OAR Chapter 340, Division 55. District desires to sell a portion of the RW to the City pursuant to District's water pollution control efforts.
- B. City owns Durham Park and City desires to buy a portion of District's RW for use in irrigating the real property.

TERMS AND CONDITIONS

District agrees to provide RW and the City agrees to pay District for the use of the RW, according to the following terms and conditions:

1. Term

The term of this Agreement is for a period commencing August 1, 2015 and ending October 31, 2020, unless otherwise terminated or extended as allowed herein. This Agreement will automatically renew for five years unless terminated as allowed herein. This Agreement shall not be renewed more than one time.

2. Delivery of Recycled Water

District shall deliver the RW to City's irrigation meter, the delivery point (Delivery Point). District shall be responsible for the pipeline from the Durham Facility to the Delivery Point. The RW shall be available for use to City system on demand subject to availability and subject to all the terms and conditions of this Agreement.

3. Land to Receive Recycled Water

City shall use the RW only to irrigate Durham Park. City's use of the RW must be in compliance with OAR Chapter 340, Division 55.

4. Quantity and Quality of Recycled Water Available

During the term of this Agreement, District will have two million gallons per day of Class A quality RW available for irrigation use.

5. Quantity of Recycled Water to be Used

City agrees to use not more than 10,000 gallons of RW per day and the maximum quantity of RW to be used on an annual basis shall not exceed 1.8 million gallons without written approval from District.

6. Price of Recycled Water

The price of water from Tualatin Valley Water District (TVWD) and the City of Tigard is \$2.65 per hundred cubic feet (CCF) or \$3,543 per million gallons of water. The price of RW under this Agreement is \$1.00 per CCF or \$1,337 per million gallons. Beginning May 1, 2016 and each year thereafter, District will establish a new price for RW based on the percentage increase of TVWD's annual increase in the price of water. District shall notify City of any price increase prior to the beginning of the irrigation season. District will maintain and repair the RW supply pipeline at no cost to City for the term of this Agreement.

7. District's Right of Entry/Inspection

City hereby grants District, its employees, agents, representatives and contractors, reasonable access to City's Durham Park to install ground water quality monitoring equipment and to make any necessary inspection, including, but not limited to, meter reading and verifying RW use. In the course of making said inspection, District shall interfere as little as possible with City's use and enjoyment of Durham Park.

8. Soil/Water Testing

District may collect soil and/or water samples from those portions of Durham Park which are to be irrigated with RW. District will test any for compliance with applicable regulations. District shall perform the tests as often as required by the regulations. A copy of the soil and /or water analysis report will be given to City upon request.

9. City to Maintain Fertilizer/Pesticide Records

City agrees to keep and maintain written records of all fertilizers and pesticides applied to the Durham Park which is to receive RW. The records shall contain the name of the substance applied, the date, method and amount of the application, and the name of the applicator. The records shall be made available to District upon request.

10. Conditions Suspending Duty to Deliver Recycled Water

District may suspend delivery of RW if delivery is prevented by a cause outside of District's control, including, but not limited to, Acts of God, shortage of RW, malfunction or upset of District's system, actions of a third party, order of a governmental regulatory authority, or if District determines that the RW poses a significant risk of harm to public health or safety, or if District determines, in good faith,

based upon the advice of counsel, that any aspect of the parties' performance hereunder may be contrary to law. District may cease providing RW if the Oregon Department of Environmental Quality or District determines that the requirements of OAR Chapter 340, Division 55 are not being met.

11. Restrictions Governing Use of Recycled Water

City understands that RW is not potable. Accordingly, City shall use RW for irrigation purposes only, and shall not sell, transfer or convey RW to any other user. City shall at all times comply with the use restrictions concerning buffer zones, crop selection, harvesting, and methods of application contained in OAR Chapter 340, Division 55 and special conditions, included in the Irrigation Operation Plan. City shall not directly release RW to any surface waters of the State of Oregon, including the Tualatin River or any of its tributaries. City shall prevent RW from flowing into depressions or drainage ways that lead away from Durham Park, and shall not allow RW to accumulate excessively in ponds, thereby resulting in vector control problems. City shall not sell, assign, give or transfer any RW furnished under this Agreement to any person. The Irrigation Operation Plan is attached hereto as Exhibit A and incorporated herein.

12. Public Safety/Warnings

City shall inform all of the Durham Park employees and agents who may be exposed to RW of any hazards associated with such exposure, and shall comply with the provisions of OAR Chapter 340, Division 55 concerning public access and warnings.

13. Termination

If either party breaches any of the terms and conditions of this Agreement, the other party may send written notice of the breach to the breaching party. The breaching party shall have 5 days from the date of receipt of the notice in which to take significant corrective action. If significant corrective action is not taken within 5 days, or if the corrective action has been taken previously but has not resulted in an elimination of the breach within a reasonable time as determined by the non-breaching party, the non-breaching party may, in addition to any other remedies provided by law, terminate this Agreement. Either party may terminate this Agreement for convenience upon 90 days advance written notice.

14. Recycled Water Quality

District shall provide Class A RW from the Durham Facility, as defined in OAR Chapter 340, Division 55. The District makes no other representation concerning the quality of the RW and makes no express or implied warranties whatsoever.

15. Disclaimer/Indemnity/Hold Harmless

District shall be not be liable to City for any loss, including, but not limited to, damages paid to third parties, incurred by City arising out of the use or transportation of the RW which is the subject of this Agreement. City shall defend, indemnify, and hold harmless District, its officers, employees, agents and representatives from and against all claims,

demands, penalties and causes of action of any kind or character, including the cost of defense thereof, including attorney fees, arising in favor of any person on account of personal injury, death, breach of contract or damage to property arising out of City's use of RW, and not caused by a wrongful act of District.

16. Water Rights

No water right is created by this Agreement. RW furnished under this Agreement shall be subject to Oregon Revised Statutes regarding "reclaimed water." City shall file a "Reclaimed Water Registration Form" as set forth in ORS 537.132(2), covering the use of RW under this Agreement. City shall provide District with evidence of such filing, and shall renew or update such filings as required for the duration of this Agreement.

17. Compliance with Oregon Administrative Rules

City represents that City has read and understands OAR Chapter 340, Division 55. City shall report any and all violations of this Agreement or the rules to District immediately upon discovery.

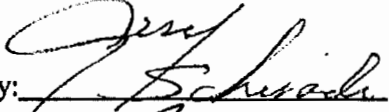
18. Miscellaneous Provisions

- a. This Agreement shall be construed and interpreted in accordance with the laws of the State of Oregon.
- b. This document contains the entire agreement of the parties. Any waiver or modification of the terms of this Agreement must be in writing.
- c. If any legal authority having the proper jurisdiction deems any portion of this Agreement not to be enforceable, invalid or illegal, all portions of this Agreement not so identified shall remain in full force and effect.
- d. The captions of this Agreement shall have no effect on the interpretation of this Agreement.
- e. This Agreement shall be binding on the successors, lessees, subleases, and assigns of the parties. City shall not sell, assign or transfer City's interest in this Agreement, or assign, sell, or transfer RW identified hereunder without District's written approval.
- f. This Agreement and any subsequent amendments shall not be effective until approved by District's General Manager or designee and City's authorized representative.



- g. Except as otherwise provided by law and this Agreement, District shall be solely responsible for meeting the requirements of OAR Chapter 340, Division 55 and District's NPDES permit for the Durham Wastewater Treatment Plant.

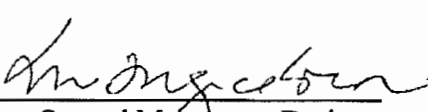
CITY OF DURHAM

By: 

Title: Mayor

Date: 9/11/15

CLEAN WATER SERVICES

By:   
General Manager or Designee

Date: 10/1/15

APPROVED AS TO FORM:

  
District Counsel

**Exhibit A**

**IRRIGATION OPERATION PLAN**

**CLEAN WATER SERVICES**

**RECYCLED WATER USE PLAN:**

**DURHAM FACILITY – DURHAM CITY PARK**

**Prepared for**

**Durham City Park  
17095 SW Arkenstone Drive  
Durham, Oregon**

**Notification Procedure for Recycled Water Users**

**PLEASE POST AS NEEDED.**

Please utilize the following notification procedure whenever there is need for contacting District staff for the Recycled Water program. This would include, but not be limited to, failure of the Recycled Water to meet the requirements for distribution, equipment failures, construction schedules, or any other event which forces an interruption in water supply. Notification should also be given when receiving calls from the DEQ, the media, the general public, etc., on issues related to Recycled Water distribution. **PLEASE CALL IN THE FOLLOWING ORDER:**

**A.                    During Regular Business Hours**  
7:00 A.M. - 3:30 P.M. Monday to Friday

1) Dave Arguello      503-547-8026 office  
                                 503-784-6227 mobile

2) Jared Kinnear      503-681-4470 office  
                                 971-506-9775 mobile

3) The following contacts for each treatment plant:

Durham: Noah Harvey, plant operations, 503-547-8153

**B.                    During all other hours:**

**Durham Lead Operator: 503-329-1647**

**SITE SPECIFIC INFORMATION**

Irrigation System Description

The Recycled Water will be delivered into transmission pipelines and the distribution system. The irrigation equipment is basically underground PVC mainlines and underground sprinkler systems. The Recycled Water from the Durham Treatment facility is conveyed through a 2-inch pressurized pipeline. Metering of the water occurs at the property line of Durham Elementary School.

System Design and Calculation

The Irrigation System design is based on the following parameters:

Peak Pumping Capacity	2 inch Main line
System Pressure	60 psi
Crop Type	Turf
Total Acreage	4 acres
Irrigated Acres	2.6 acres
Effective root zone depth	1.0 to 1.5 feet
Moisture Replaced each irrigation	1.0 to 1.5 inches
Peak moisture use rate	0.30 in./day
Irrigation Frequency	Daily

Cross-connection Control System

This site has no facilities to provide potable water.

Employee Notification

Signs will be posted around the perimeter of the irrigated areas advising the employees and general public of the use of reclaimed water. The signs will state "Irrigation water is unfit for drinking".

Construction Marking

The piping was installed prior to the reclaimed water rules and was not constructed with piping identifying the water as non-potable. Valve box covers will be replaced with purple covers and all exposed pipe will be marked in purple along with posting of signs.

Specific Uses

This operation will irrigate Park Grass.

Location Maps

**Exhibit A**

The location of the irrigation site is shown in Attachment A1.  
The street address and legal description are as follows:

Name: Durham City Park  
Address: 17095 SW Arkenstone Drive  
Durham, Oregon 97224

Telephone: (503) 639-6851  
Contact: Linda Tate, City Administrator.

Topographic Characteristics

The topographic characteristics of the site are displayed in Attachment A1. The site is a relatively flat area.

Soils Description

Attachment A2 includes a Soils Survey map for the site and soils interpretation records for the majority of the soils.

Climatic Data

The following table shows the average monthly temperatures and precipitation for Hillsboro. This data represents the climatic conditions for this site.

Month	Temperature (F)	Precipitation (Inches)
January	39.3	6.31
February	42.8	4.49
March	46.2	3.93
April	50.6	2.29
May	56.3	1.76
June	61.6	1.46
July	66.6	0.48
August	66.3	0.83
September	61.9	1.39
October	52.9	2.95
November	45.1	5.78
December	40.2	6.62
Total		38.3

## Exhibit A

### Estimated Consumptive Use

The estimated consumptive use for the farming operation was established by using the "Oregon Crop Water Use and Irrigation Requirements" OSU Extension Service Bulletin No. 8530 - October 1992. The region is the Tualatin Valley and the crop is Pasture. This crop was chosen because the consumptive use rate is similar to the turf grown at the site. These criteria establish the most extreme conditions (very dry season) for the operation.

### Consumptive Use and Net Irrigation Requirement\*\*

Region: Tualatin Valley Crop: Pasture

Probability level: 9 out of 10 years

Month	ET crop (inches)	Net Irrigation (inches)
March	1.61	0.12
April	3.43	2.44
May	4.65	3.66
June	5.08	4.72
July	5.59	5.59
August	5.00	4.84
September	3.78	3.50
October	2.28	1.02
November	0.39	0.00
Season	31.81	25.89

\*\* "Oregon Crop Water Use and Irrigation Requirements" OSU Extension Service Bulletin No. 8530, page 37, October 1992.

A lower application rate would more closely represent the average consumptive use for the site. The average consumptive use rate of 13 inches per acre used by the Tualatin Valley Irrigation District takes into account the weather and crop rotation variables. Using this consumptive use rate would require 4.4 acre-feet (1.4 MG) for this property.

## Exhibit A

### Monthly Water Balance and Net Irrigation Requirement

The net irrigation requirement for the pasture is shown in the following table.  
(Acreage = 2 acres)

Month	Net Irrigation Req'd. (feet)	MG
May	0.6	0.2
June	0.8	0.25
July	0.9	0.6
August	0.8	0.25
September	0.6	0.2
October	0.2	0.1
Total	3.9	1.3

The table was calculated using the information from OSU Extension Service Bulletin No. 8530, "Oregon Crop Water Use and Irrigation Requirements. The probabilities level is 9 out of 10 years. The months of March and April are not included, because no reclaimed water is available during those months.

### Net and Gross Site Acreage

The gross acreage of the site for Durham City Park is 4 acres. The net acreage that will receive recycled water from the Durham Facility is approximately 2 acres. This area will be irrigated with Durham's Class A.

### Fertilizer Requirements

The nitrogen contribution from the recycled water is approximately 17.5 pounds per acre, given an average concentration of total nitrogen of 6.9 mg/l. Using the nitrogen removal rate for grass of 150 pounds per acre, this site will have a nitrogen deficit.

### Site Buffers

The DEQ Recycled Water rules do not require buffers for Class A Recycled Water.

### Description of Irrigation Operations

The irrigation operation is monitored by User. Irrigation is to occur during hours when the Park is not in use. User checks irrigation blocks daily to determine the current irrigation usage. User will be responsible for operation of the irrigation equipment. The soil moisture is monitored by feel method which is used to determine the soil moisture and need for irrigation. No Recycled Water shall be applied to areas where food is prepared or served or onto drinking fountains.

## **Exhibit A**

### **Monitoring System**

Monitoring of the Recycled Water from the Durham Facility is the responsibility of the District. Sampling frequencies are identified in the facility's NPDES Permit and comply with the requirements of Table 1 of OAR Chapter 340 Division 55 for Class A Recycled Water.

User will visually inspect the site on a weekly basis. Notification of operational problems will be reported to District upon discovery.

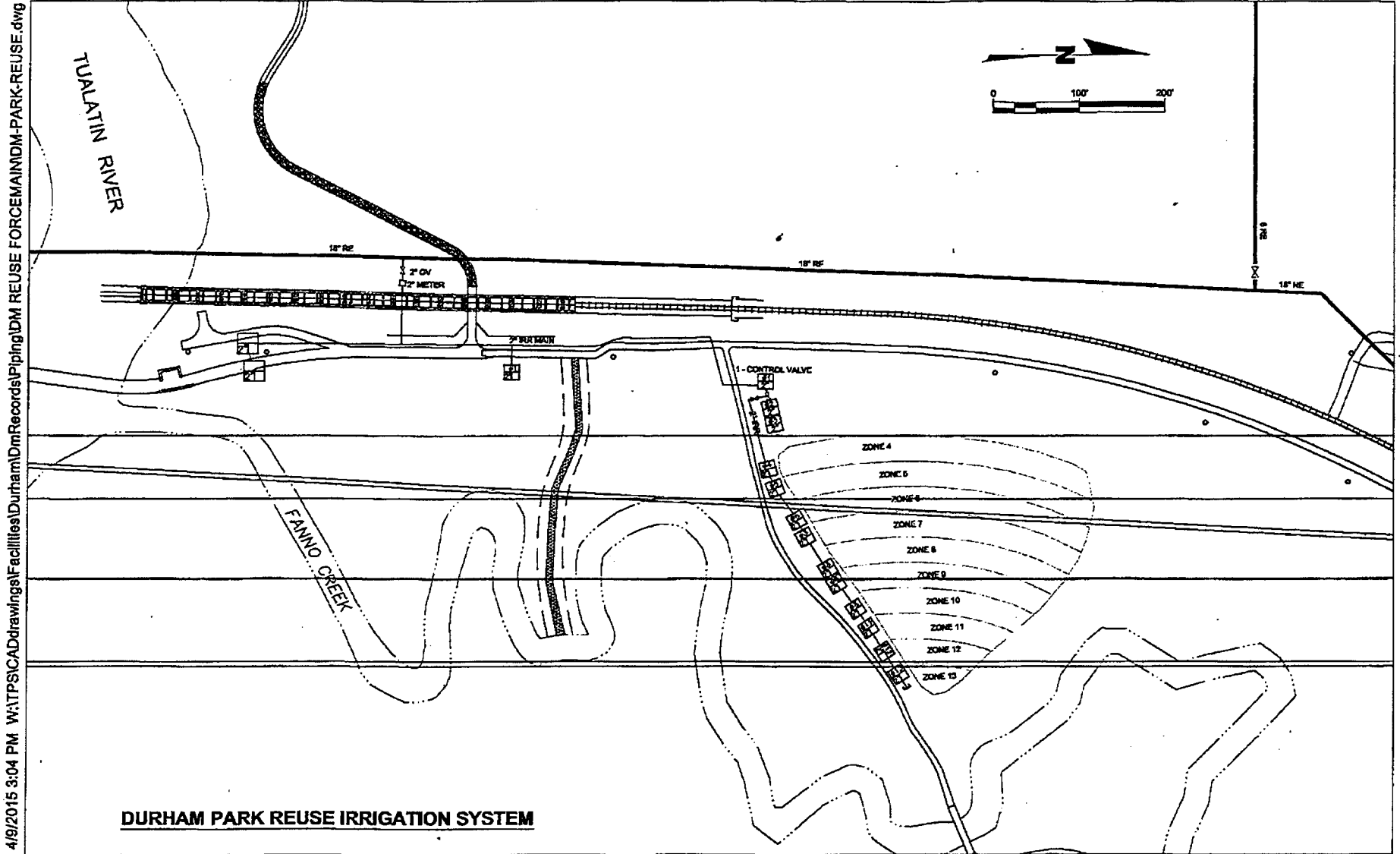


**Exhibit A**

**ATTACHMENT A1**

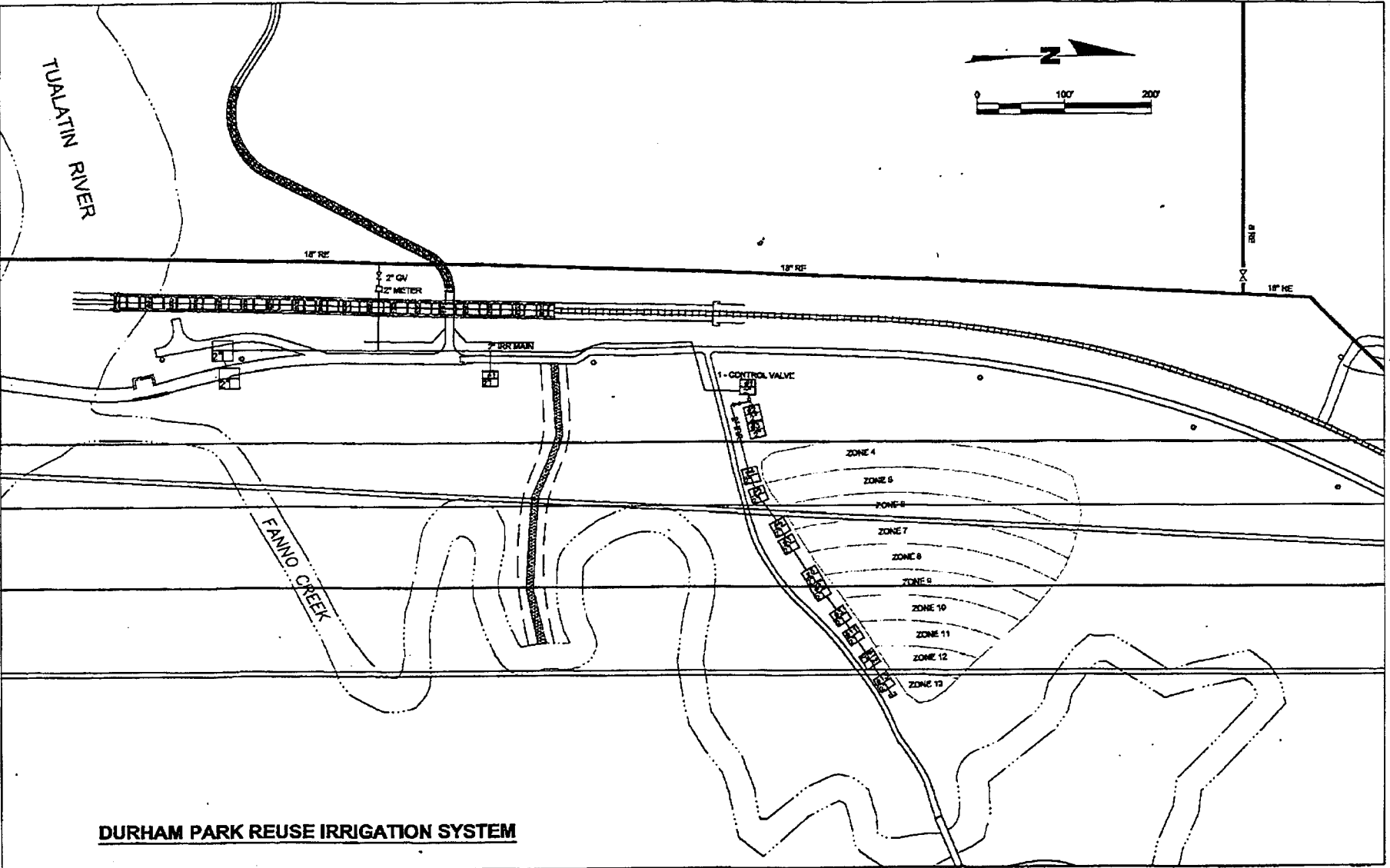
**Location and Site Characteristics Maps**

Attachment 1



Attachment 1

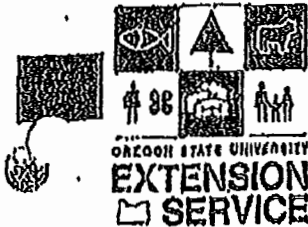
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**Exhibit A**

**ATTACHMENT A2**

**Fertilizer Guide**



# Oregon State University Fertilizer Guide for

Extension Service, Oregon State University, Henry A. Wedgworth, director. This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties. Extension invites participation in its programs and offers them equally to all people.

PG 47  
Revised June 1979

## TURF GRASS (Oregon)

Grasses require adequate fertilization to provide color, promote good root development, and to stimulate new leaf and crown formation. Nutrients removed by clippings and leaching must be replaced. Fertilizer requirements are modified by temperature, moisture, grass variety, use being made of turf, clipping disposal, and the general level of maintenance.

### NITROGEN (N)

Grasses require large amounts of N for desirable growth. This element is leached by rainfall and is often difficult to store in the soil.

Soluble N fertilizers may cause grass burning if used at rates above 1 lb N/lb (1,000 sq. ft.). Rates as high as 2 lb N/lb may be used on dormant turf or during cooler periods. Applications should be made to dry turf and grass should be immediately irrigated to prevent foliar damage from the higher rates of soluble fertilizers.

Changes in color of the grass from blue green to yellow green can be the best guide for timing of N applications. Intensively managed grasses may require applications as frequent as once every 30 days or even more frequently during the peak growing season. Avoid heavy applications prior to anticipated heavy traffic on athletic areas. Turf receiving only minimal care may require only one late summer and one spring application.

Nitrate-containing fertilizers such as calcium nitrate or ammonium nitrate give the fastest response when soils are cold.

Organic fertilizers release N more slowly and provide more uniform grass growth. They are also useful for summer applications because of less likelihood of burning damage during high temperature compared to chemical fertilizers. They should be used at rates of 2 to 4 lb N/lb. Their response during cold weather is very poor because their conversion to readily available N is slow at low temperatures.

Urea formaldehyde or Isobutylidene Diaurea (IBDU) fertilizers will release N over a 6 month period, but because of slow N release, these fertilizers must be applied at higher rates to provide an adequate amount of available N. Initial rates of 6 lb N/lb followed by twice yearly rates of 4 lb N/lb are required for effective long-lasting response.

### PHOSPHORUS (P)

P is important for root growth and is especially important for young turf. Annual applications of 2 lb P<sub>2</sub>O<sub>5</sub>/lb are sufficient. The relationship between P<sub>2</sub>O<sub>5</sub> and P is explained under the section on "New Plantings". P moves very slowly in soil and should be applied before heavy rains or irrigations for maximum response. P is not readily leached from soils. No response on established turf is expected on sites having OSU soil test values above 45 ppm P in Western Oregon or 30 ppm in Eastern Oregon. For suppression of annual bluegrass, P<sub>2</sub>O<sub>5</sub> application should not exceed 2 lb/lb.

### POTASSIUM (K)

Turf grasses require large amounts of K, especially when clippings are removed. K fertilizer is similar to N fertilizer with respect to danger of foliage burning. It is also adsorbed on clay and organic matter and thus not readily leached from soils containing these constituents. One lb of K<sub>2</sub>O/lb is the maximum single application. The relationship between K<sub>2</sub>O and K is explained under the section on "New Plantings". The total of N plus K<sub>2</sub>O should not exceed 2 lb/lb for any one application. No response to K on established turf is expected on sites having OSU soil test values above 250 ppm K.

### SULFUR (S)

Small amounts of S are required by turf. Exact requirements are not known. Many mixed fertilizers provide ample S. One lb S/lb per year should be sufficient. Annual bluegrass can be suppressed with a total annual application of 3 lb S/lb.

### IRON (Fe)

Fe deficiency may develop during high temperatures. The symptoms are pale yellow leaf discoloration which cannot be corrected by N applications. Foliar applications of chelated Fe or ferrous ammonium sulfate applied according to manufacturers' directions are the best sources of Fe. Some turf fertilizer mixtures contain trace amounts of Fe.

### LIME

Grasses grow over a wide range of soil pH. Adjustments in pH often improve availability of other nutrients, alter grass reaction to disease, and reduce the development of thatch. Elemental S, iron sulfate, and aluminum sulfate can be used to lower alkalinity in soils.

## Attachment 2

Liming of soils with pH lower than 5.8 may be desirable. For bluegrass turf, lime should be applied to soils with pH below 6.3.

The desirable range of calcium:magnesium ratio by OSU soil test is from 2:1 to 12:1. Dolomitic limestone should be applied when there is more than 12 times as much calcium than magnesium. In all other cases, ground limestone should be used to increase the soil pH.

Lime is most effective when incorporated into the soil prior to seeding. The rate of application of lime will depend on the type of soil and the extent to which the pH is to be increased.

### MIXED FERTILIZERS

Many types and grades of fertilizers are available for turf grass purposes. Requirements of the grass are often most nearly met by formulations supplying annual N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ratios of 5-1-2, 4-1-2, 3-1-2 or multiples thereof.

### APPLICATION TECHNIQUES

Uniform application is absolutely necessary to avoid foliar or tissue burn from the high rates suggested. Hand-spreading is usually unsatisfactory. Small spreaders should be adjusted so that two or three coverages are required to spread the material over the area. By going in different directions with each coverage, skips and overlaps will not be apparent.

Always make sure the spreader is moving when any fertilizer is falling from it. Rotary spreaders are best adapted to odd shaped turf areas but may throw material onto adjacent walks and flower beds. Apply fertilizer only when turf is dry.

When using higher rates of soluble nitrogen and potassium, foliar burn can be alleviated by immediate watering of the turf. Soluble materials can be applied through the irrigation system to minimize burning. The fertilizer response will follow the pattern of water dispersal.

### NEW PLANTINGS

Obtain an OSU soil test through the County Extension Office. Incorporate the following materials to a depth of 2 to 6 inches during seedbed preparation prior to seeding.

The P, K, Mg, S, and lime recommendations are based on soil test values from the Soil-Testing Laboratory, OSU, Corvallis, Oregon.

Prepared by Herson Goetsch, Wilbur Dluha, and Hugh Gardner, Cooperative Extension Service, Oregon State University, Corvallis, Oregon. Reviewed by a committee of Oregon County Extension Agents.

If OSU soil test reads:	Apply this amount lb/H (1,000 sq. ft.)	
pH	above 7.8	S 10 <sup>1</sup>
	7.2 to 7.8	5 <sup>2</sup>
	6.3 to 7.2	none
	5.8 to 6.3	Lime 100 <sup>2</sup>
	5.3 to 5.8	150
	below 5.3	200
K (ppm):	200 to 300	K <sub>2</sub> O 1
	150 to 200	2
	below 150	3
P (ppm):	<u>For Western Oregon</u>	
	below 45	P <sub>2</sub> O <sub>5</sub> 1
P (ppm):	<u>For Eastern Oregon</u>	
	below 30	P <sub>2</sub> O <sub>5</sub> 1

Note: The P content of fertilizer is expressed as the oxide (P<sub>2</sub>O<sub>5</sub>) on fertilizer labels. Multiply P<sub>2</sub>O<sub>5</sub> by 0.44 to convert to P.

Note: The K content of fertilizer is expressed as the oxide (K<sub>2</sub>O) on fertilizer labels. Multiply K<sub>2</sub>O by 0.83 to convert to K.

<sup>1</sup>Not required for blue grass.

<sup>2</sup>For blue grass only.

1 to 2 lb N/H should be incorporated with the above materials. Additional broadcast applications of N at 1 lb/H should be made as shown by poor grass color.

Where S is not applied in the above treatments; 1 lb S/H should be applied.

### CONVERSION TO METRIC UNITS

In this FU, rates of fertilizer application are expressed in pounds per 1000 square feet (lb/H). In order to convert lb/H to kilograms per 100 square meters (kg/100 m<sup>2</sup>), multiply lb/H by 0.5. Thus 2 lb/H = 1 kg/100 m<sup>2</sup>.



# Oregon

Kate Brown, Governor

Department of Environmental Quality  
Northwest Region Portland Office/Water Quality  
700 NE Multnomah Street, Suite 600  
Portland, OR 97232  
(503) 229-5347  
FAX (503) 229-6957  
TTY 711

October 23, 2015

Steve Parrett  
Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, OR 97301

**Subject: City of Durham Registration of Reclaimed Municipal Water Use**

Steve,

Please find the City of Durham's Registration of Reclaimed Municipal Water Use form attached. Their NPDES Permit is administratively extended which means they cannot change their recycled water use plan or add additional sites for recycled water use at this time. However, their new permit is currently out for public comment and we anticipate having their new permit issued by the end of this year. This is why the permit has no "Effective Date" or "Expiration Date" indicated on this form.

I am sending this to you now so it can go through your team's review in parallel with our work in issuing a new permit. That way, if this passes your approval, the City of Durham can incorporate this new site in their recycled water use plan with their new permit.

Please let me know if you have any questions.

Thank you,

A handwritten signature in black ink, appearing to read "Pat Heins".

Pat Heins

RECEIVED BY OWRD

OCT 29 2015

SALEM, OR

# Reclaimed Water Registration Checklist

RM (assigned by Kerri) - 206 County Washington Registrant (User of Water) City of Durham  
Durham City Park  
Place of Use: Township 2S Range 1W Section 13 QQ's NWSW  
Amount 0.642 AF Use Irrigation Acres (if for IR) 2 AC WM Dist. # 18  
Supplier Clean Water Serv. DEQ Muni WW Permit # (Source) NPDES# 101141  
Point of Diversion: Township 2S Range 1W Section 13 QQ NWNW  
Contract Length in Years 5 yrs.  
Agent (if any) N/A

Property ownership: Does the Registrant own all the land for the proposed project? (Y) / N

If No:

The affected landowner's name and mailing address must be listed

The **map** must meet the following minimum requirements.

- Township, Range, Section
- Streams and road identified is they cross through the map
- Place of use, 1/4-1/4's and tax lot clearly identified
- Even map scale not less than 4" = 1 mile (1" = 1320 ft.)
- Location of *each* diversion point (WW Treatment Plant)
- North Directional Symbol
- Number of acres per 1/4-1/4 if for irrigation, nursery, or agriculture
- Legend

N/A

*\*A map showing the wastewater treatment facility, transmission system, and place of use at a scale of 4" = >1 mile is fine only if a second map is provided showing the place of use at not less than 4" = 1 mile.*

Signature of *all* Registrants and Reclaimed Water Supplier

DEQ section (17) is completely filled out and signed.


Existing Water Rights Now

**\*Do not send registration back to applicant if it is not complete, ALL registrations go to Kerri Cope.**

Reviewed by: KJC Date: 4/12/14

**\*Remember there is no fee for Reclaimed Water Registrations**





**Oregon Water Resources Department**  
**Water Rights Mapping Tool**

**OWRD Only**  
[Main](#)  
[Return](#)

Search: 17095 SW Arkenstone D  
[Contact Us](#)

Search

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**Identify Non-Water Right Features**

Distance:  Feet

General
Rules
Hydrography

TRSQQ:	WM1.00S1.00W5NESE
DLC:	-
Latitude:	45.5116213416
Longitude:	-122.8289421402
Buffer (ft):	1
Elevation (ft):	218
Basin Name:	Willamette
County:	Washington
WM District:	18
WM Region:	NORTHWEST
ODFW Region, District:	Northwest Region, NWWD-Coast Range Unit
Irrigation District - AOI:	-
Irrigation District, Other:	-
Dams (Permit):	-
Water Rights:	<a href="#">Platcard for WM1.00S1.00W5</a>
Well Logs:	<a href="#">Logs for WM1.00S1.00W5</a>

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Tax Lots

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Tools

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Layers

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Bookmarks

SW Waverly Dr

SENE Wetlands At Durham Wastewater

SENESE Wetlands At Durham Wastewater

2S1W

NWSW

NESW

SWSW

SESE

202 ft

204 ft

87748

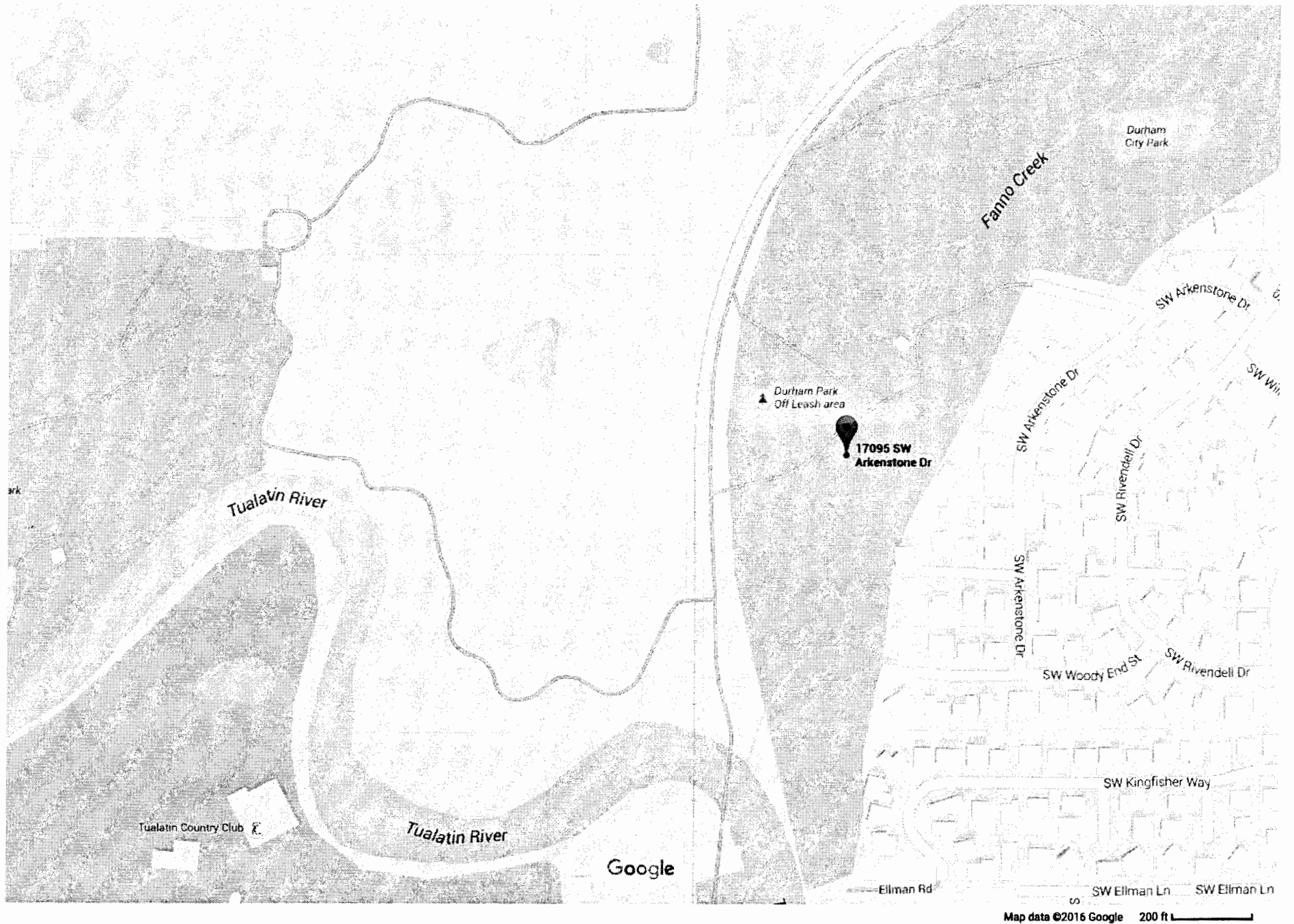
87301S 54476

54475

54475

0 300 600ft

POD	POU	Irrigation Districts AOI	WR By Time



Google Maps 17095 SW Arkenstone Dr