

**GLADSTONE CITY COUNCIL
SPECIAL MEETING/WORK SESSION
CITY HALL COUNCIL CHAMBERS
May 26, 2015**

6:00 p.m.

EXECUTIVE SESSION – 192.660 (2)(f) To consider information or records that are exempt by law from public inspection. (no attachments)

SPECIAL MEETING

6:30 p.m. CALL TO ORDER

ROLL CALL

FLAG SALUTE

BUSINESS FROM THE AUDIENCE

Visitors: Presentations not scheduled on the Agenda are limited to three (3) minutes. Longer presentations should be submitted to the Assistant City Administrator two weeks prior to the Tuesday City Council meeting.

CONSENT AGENDA - None

CORRESPONDENCE - None

REGULAR AGENDA

Citizens will be allowed to address City Council regarding an item listed below for up to three (3) minutes. The Mayor will have discretion to further limit testimony in order to ensure all items on the agenda are addressed during the meeting.

- 1. Authorization to Hire Additional Staffing to Assist in Transition to New City Administrator.**
- 2. Request to Purchase 2 Solar-powered Driver Feedback Signs.**
- 3. Request to Purchase 2015 Ford F-550 Water Service Truck.**

ADJOURN SPECIAL MEETING

WORK SESSION

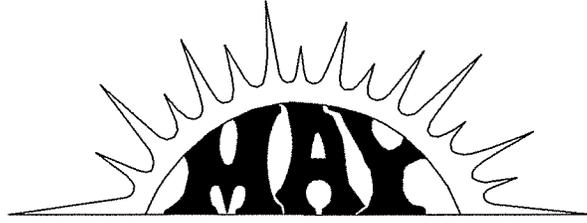
There is no public testimony accepted at work sessions. City Council does not take action on Work Session agenda items. Any action required will take place at a subsequent meeting.

REGULAR AGENDA

- 4. Development Agreement Request from HT Properties – Transue Property, 18121 Webster Road**

BUSINESS FROM THE COUNCIL

ADJOURN



REGULAR AGENDA

City of Gladstone Staff Report

Report Date: May 19, 2015,
Meeting Date: May 26, 2015
To: City Council
From: Pete Boyce

AGENDA ITEM

Authorization to hire additional staffing to assist in transition to new City Administrator

History/Background

Mayor Jacobellis requested this agenda item. City Council took action at its May 12, 2015 council meeting to not renew the current City Administrator's contract.

Proposal

Authorize staff to hire an executive assistant from a temporary agency to cover some of the work load.

Options

1. Authorize hire from a temporary agency
2. Do not authorize the hire. Current staff would need to continue on without additional assistance.

Cost Impact

Kelly Services, a temporary agency who specializes in placing clerical workers, has provided an hourly cost range of \$26.19-32.40 to the City of Gladstone. This price includes the fee charged by Kelly Services. Any overtime charges would be in addition to this rate.

Recommended Staff Action

Staff recommends Council authorize the hire of a temporary person through a contract agency.

Department Head
Signature

Date

City Administrator
Signature



Date

City of Gladstone Staff Report

Report Date: May 14, 2015
Meeting Date: May 26, 2015
To: Pete Boyce
From: Scott Tabor

AGENDA ITEM

Request to purchase two solar-powered Driver Feedback Signs.

History/Background

Because of speed-related complaints and concerns reported to the Gladstone Traffic Safety Committee, the committee has been discussing ways to more visibly remind drivers of their responsibility to drive within the posted speed limits. After discussion about various options, the committee determined that Driver Feedback Signs would be an effective method to implement.

Proposal

It is proposed the city purchase two solar-powered Driver Feedback Signs with flashing capability. The poles would be placed around the city at locations determined by the Traffic Safety Committee. It is estimated they would be installed about 60 days from the date of purchase.

Options

1. These signs were quoted by Traffic Safety Supply Co., Inc. and the pricing meets government purchasing requirements (see details on quote, page 2). The State of Washington went through a competitive bidding process and Traffic Safety Supply Co. won the bid. Staff has determined that seeking additional quotes is not necessary. This is also the only vendor that provides these signs in the Northwest. Please note there are two quotes provided, with the difference being that quote # 996628 includes the flashing capability.

The signs are solar-powered and mobile. The poles they mount to would be located around the city in key locations, starting with school zones, and the signs rotated around to the various poles. The recommended signs would be programmed to flash the vehicle speed based on what is programmed into the software. For example, if the posted speed limit is 20mph, the sign could be programmed to begin flashing at 22mph, with the intent of reminding the driver they have exceeded the posted speed limit. In the future, additional poles could be installed around the community to wherever a speed reminder would be helpful and additional signs could be purchased if a need for additional units is identified.

2. Council could elect to not approve the purchase or to defer the purchase, perhaps to the coming fiscal year. It is anticipated that if no action is taken, people will continue to voice their concerns over speeding issues in the community.

Cost Impact

Based on quote # 996628 (which includes the flashing capability) two signs would cost \$11,186.65 and would be allocated across line items 005-005-508000 & -508500 in the street department budget. The poles are included and would be installed by public works staff during regular work hours at an estimated cost of \$400.

Recommended Staff Action

Based on the unanimous recommendation of the Traffic Safety Committee, it is recommended that council approves purchase of two solar-powered Driver Feedback Signs with flashing capability as listed in quote # 996628. By adding these signs the citizens would see a proactive approach to traffic safety on a regular basis.

2-1

Scott T. ...

Department Head Signature Date

AB

City Administrator Signature Date

da



TRAFFIC SAFETY SUPPLY CO., INC

2324 SE UMATILLA ST.
PORTLAND OR 97202-7495
503 235-8531
800-547-8518
FAX# 503-235-5112

QUOTATION

QUOTE#: 996628

DATE: 04/15/2015

TERMS: NET 30 DAYS

FREIGHT: DELIVERED

QUOTE ENDS: 30 DAYS

PHONE # (503) 656-7957

FAX #503 722-9078

email: sales@tssco.com

CONTACT NAME SCOTT

745

Billed To: CITY OF GLADSTONE
525 PORTLAND AVE
GLADSTONE OR 97027

Ship To: TSSCO
CHAD TO DELIVER

<u>PART#</u>	<u>QTY</u>	<u>SIZE</u>	<u>ITEM</u>	<u>BID</u>	<u>U/M</u>
14205020	2.000	EACH	SC-15 SPEEDCHECK SIGN, SOLAR POWERED INCLUDES 15" AMBER LED'S APPROACH ONLY RADAR, SOLAR 30"x42" YOUR SPEED FACEPLATE, HIP SHEETING (*SPECIFY BLK/WHT, BLK/YEL, OR BLK/FYG SHEETING FOR YOUR SPEED FACEPLATE WHEN ORDERING) MOUNTING HARDWARE	\$3,662.34	EACH
14205040	2.000	EACH	S-120 WATT SOLAR SYSTEM INLCUDES: MOUNTING HARDWARE, SOLAR PANEL, WIRING, POLE-MOUNTED ENCLOSURE (CHARGE CONTROLLER AND 55AH BATTERY)	\$1,450.10	EACH
14205046	2.000	EACH	PKG-01, SLOW DOWN MSG, DEVICE MANAGER ONSITE- ADDS WIRELESS COMMUNICATION TO SET SPEED SETTINGS, DIAGNOSTICS & UPGRADES, WITH ONE USB BLUETHOOOTH MODULE PER AGENCY	\$439.80	EACH

All material used in this contract is guaranteed to be as specified, and the entire job is to be done in a neat and workmanlike manner. Any deviation or alteration from the specification herein agreed upon involving extra cost of labor and/or materials will be accepted only upon a written order or instructions, and will become an extra charge over costs as mentioned in this contract.

TRAFFIC SAFETY SUPPLY CO., INC.

JEREMIAH

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Service Quote
Continued...

Invoice#: 996628
Date: 04/15/2015

<u>PART#</u>	<u>QTY</u>	<u>SIZE</u>	<u>ITEM</u>	<u>BID</u>	<u>U/M</u>
			SUBTOTAL	\$11,104.48	
	1.000		DES MANAGEMENT FEE (0.74%)	\$82.17	
			QUOTE TOTAL	\$11,186.65	

*PRICING REFLECTS DISCOUNT ALLOWED ON
WA STATE CONTRACT #02612 FOR INTELLIGENT
TRANSPORTATION SYSTEM EQUIPMENT 2. FOR MEMBERS OF
THE STATE OF OREGON COOPERATIVE PUCHASING PROGRAM
THIS IS DELIVERED PRICE TO GLADSTONE, OR.

2-4



TRAFFIC SAFETY SUPPLY CO., INC

2324 SE UMATILLA ST.
PORTLAND OR 97202-7495
503 235-8531
800-547-8518
FAX# 503-235-5112

QUOTATION

QUOTE#: 996630

DATE: 04/15/2015

TERMS: NET 30 DAYS

FREIGHT: DELIVERED

QUOTE ENDS: 30 DAYS

PHONE # (503) 656-7957

FAX #503 722-9078

email: sales@tssco.com

CONTACT NAME SCOTT

745

Billed To: CITY OF GLADSTONE
525 PORTLAND AVE
GLADSTONE OR 97027

Ship To: TSSCO
CHAD TO DELIVER

<u>PART #</u>	<u>QTY</u>	<u>SIZE</u>	<u>ITEM</u>	<u>BID</u>	<u>U/M</u>
14205020	2.000	EACH	SC-15 SPEEDCHECK SIGN, SOLAR POWERED INCLUDES 15" AMBER LED'S APPROACH ONLY RADAR, SOLAR 30"x42" YOUR SPEED FACEPLATE, HIP SHEETING (*SPECIFY BLK/WHT, BLK/YEL, OR BLK/FYG SHEETING FOR YOUR SPEED FACEPLATE WHEN ORDERING) MOUNTING HARDWARE	\$3,662.34	EACH
14205040	2.000	EACH	S-120 WATT SOLAR SYSTEM INLCUDES: MOUNTING HARDWARE, SOLAR PANEL, WIRING, POLE-MOUNTED ENCLOSURE (CHARGE CONTROLLER AND 55AH BATTERY)	\$1,450.10	EACH
14205045	2.000	EACH	PKG-02, SCH PRO, TRAFFIC ANALYZER, DEVICE MGR ONSITE- ADDS WIRELESS COMMUNICATION TO SET SPEED SETTINGS, DIAGNOSTICS & UPGRADES, WITH ONE USB BLUETHOOH MODULE PER AGENCY	\$351.60	EACH

All material used in this contract is guaranteed to be as specified, and the entire job is to be done in a neat and workmanlike manner. Any deviation or alteration from the specification herein agreed upon involving extra cost of labor and/or materials will be accepted only upon a written order or instructions, and will become an extra charge over costs as mentioned in this contract.

TRAFFIC SAFETY SUPPLY CO., INC.

JEREMIAH

2-5

Service Quote
Continued...

Invoice#: 996630
Date: 04/15/2015

<u>PART #</u>	<u>QTY</u>	<u>SIZE</u>	<u>ITEM</u>	<u>BID</u>	<u>U/M</u>
			SUBTOTAL	\$10,928.08	
	1.000		DES MANAGEMENT FEE (0.74%)	\$80.86	
			QUOTE TOTAL	\$11,008.94	

*PRICING REFLECTS DISCOUNT ALLOWED ON
WA STATE CONTRACT #02612 FOR INTELLIGENT
TRANSPORTATION SYSTEM EQUIPMENT 2. FOR MEMBERS OF
THE STATE OF OREGON COOPERATIVE PUCHASING PROGRAM
THIS IS DELIVERED PRICE TO GLADSTONE, OR.

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City of Gladstone
Staff Report

Report Date: May 14, 2015
Meeting Date: May 26, 2015
To: Pete Boyce
From: Scott Tabor

AGENDA ITEM

Purchase of vehicle to replace the 2001 Ford F-550 service truck (vehicle #44) in the public works fleet for use only in the water division.

History/Background

Vehicle 44 is the most frequently used service vehicle in the public works fleet. The truck is used daily for water repairs and inspections, construction and emergency repairs for both water and sewer issues. It was purchased new in 2001 and currently has approximately 115,000 miles on it, most of which are from in-town "stop and go" travel. The expected service life of this type of vehicle is approximately 100,000 miles. By making the purchase the City will have a reliable vehicle to respond to water related emergencies. If the vehicle is not purchased the risk of prompt response to water infrastructure repairs may be diminished.

Proposal

It is proposed the city purchase a Ford 2015 F-550 Chassis XL 4x4 Super Cab 186 WB DRW and a Knapheide 11-foot crane body with Stellar 7621 crane. Four wheel drive is recommended by staff in order to be able to access all areas of the City during icy conditions. The quote for the replacement vehicle is from Northside Ford Trucks Sales, Inc. and meets the requirements of the state contract # 5549 and purchasing requirements of the Oregon Procurement Information Network (ORPIN). The contract has been through a competitive bid process with the State of Oregon. It is also proposed that vehicle 44 be retained and used as a back-up support vehicle in the sewer department. Not mixing vehicles between the sewer and water divisions is prudent due to sanitation concerns and this new vehicle would allow that separation to take place.

Options

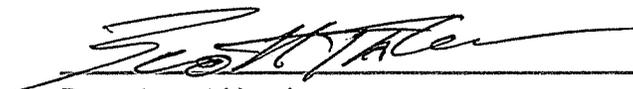
The city can purchase the new vehicle at this time or it can decide to purchase it at some time in the future. Since the current truck is at the end of its useful life for daily operations, there is serious risk involved if it fails and the city has to respond to a vehicle failure on top of a water or sewer emergency.

Cost Impact

The purchase price of the new vehicle and associated equipment would be \$104,708.50 per the quote. This purchase was included in the FY 2014/2015 budget on line 004-004-415000. The complete quote and cut sheets about this vehicle and equipment are included in the packet for your reference.

Recommended Staff Action

Staff recommendation is for council to approve purchase of the recommended service vehicle at this time as budgeted.



Department Head
Signature

Date



City Administrator
Signature

Date

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KNAPHEIDE®

SINCE 1848

Mechanic Trucks



KMT1-11



KMT2-11

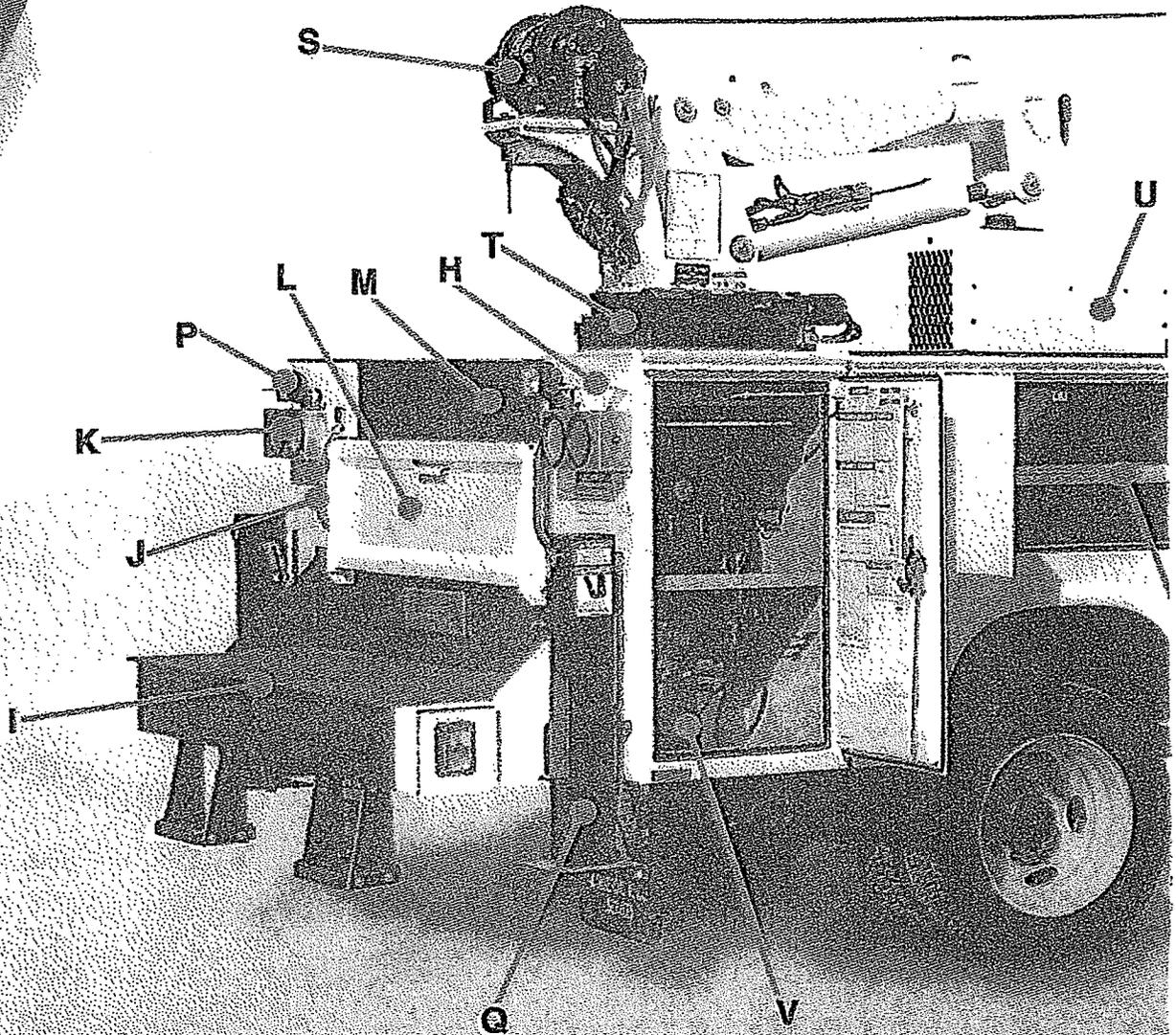
KMT2-14

KMT3-14

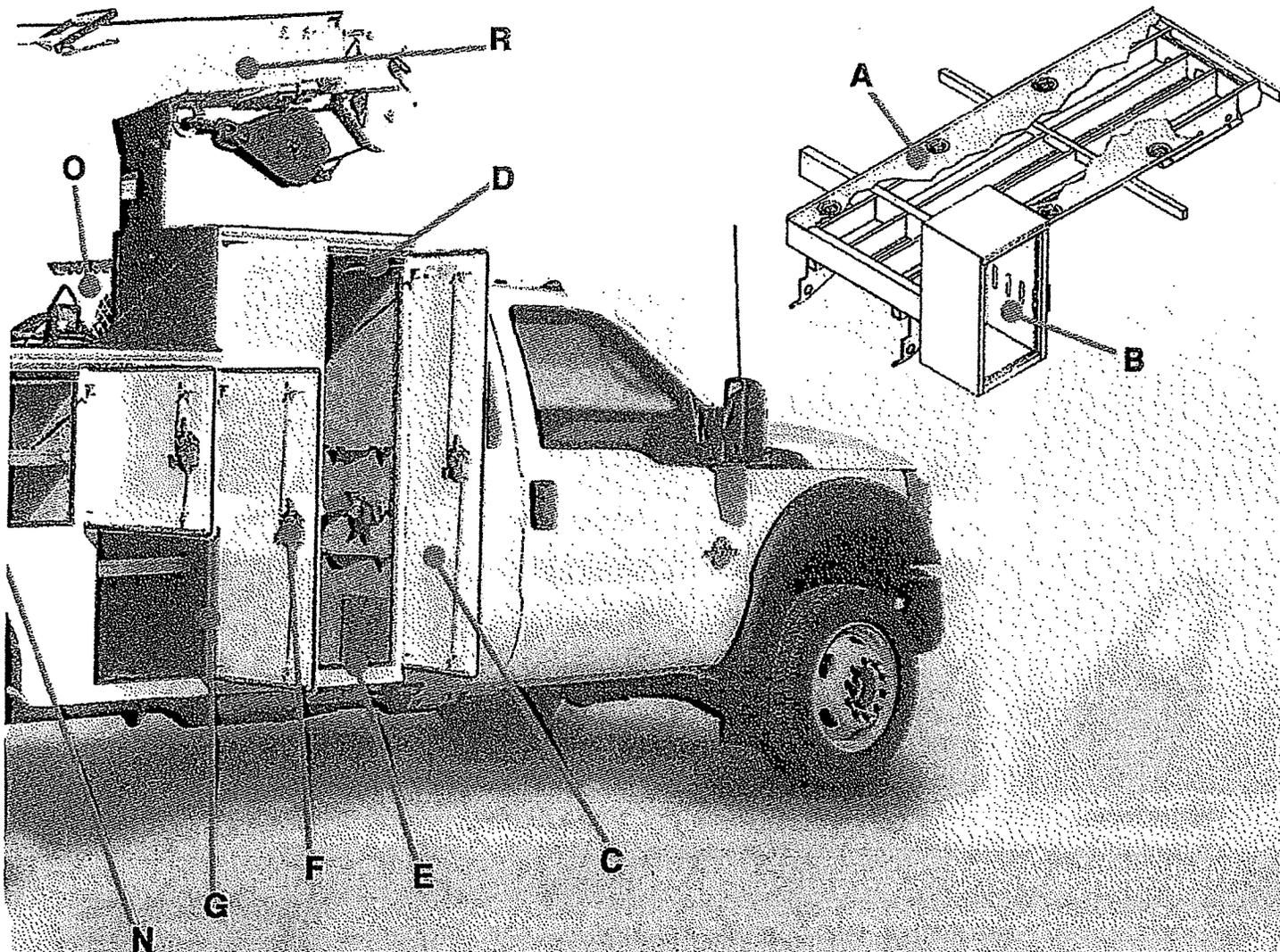
* Bodies shown with optional equipment

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Standard Features



- A) Unique torq-isolator crane support system transfers lift forces into the full length torsion box subframe and outriggers and not the side compartments
- B) Reinforced rear vertical curb side compartment is independent of all other side compartments, eliminating flexing and twisting of the side packs
- C) Double paneled doors are reinforced with internal braces for durability
- D) Vertical compartment doors employ double spring-loaded, over center retainers for elimination of involuntary swing
- E) Thick automotive bulb-type neoprene door seals protect your compartments from the outside elements
- F) Stainless steel, T-handle twist latch for easy opening and closing of compartments doors
- G) All stainless steel continuous hinges for unmatched security
- H) Master Locking System locks down all compartments on one side with one motion for an extra layer of security
- I) Knapliner work surface bumper with lockable through compartment and two grip strut flex steps
- J) 2 heavy duty aluminum grab handles installed on both sides at rear of the body for easy cargo area access
- K) Recessed LED S/T/T and B/U light located at the rear of body



- L) 16" high double panel slam tailgate with center latch and flat space for displaying company graphics
- M) Knapliner applied to cargo floor, sides, compartment tops, bulkhead, and tailgate for durability
- N) Adjustable divider shelves with a 250lb. maximum load capacity for increased organization
- O) Bolt on cab protector with fully punched window for visibility
- B) 4 halogen work lights installed for improved working conditions in low light conditions (2 at rear, 1 each side)
- C) Hydraulic out and hydraulic down outriggers for crane stability during lifting operations
- R) Crane with 20'9" hydraulic reach provided by a two stage hydraulic extension
- S) Planetary winch provides a 60ft/minute single line speed
- T) Hexagonal boom eliminates boom flex and lateral movement for ultimate stability
- U) 36 CFM reciprocating hydraulic compressor (KMT2 & KMT3 have 35 CFM rotary screw)
- V) 50x 1/2" compressor hose reel and roller fairlead through curb side rear vertical compartment

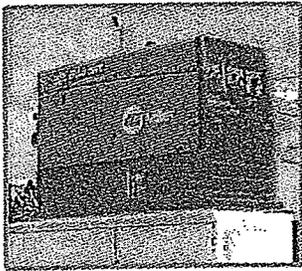
And other features not shown including:

- Multi-function radio remote control provides convenient complete control of the crane
- 6 D-ring cargo tie downs installed in the cargo floor with a 6,000lb. maximum capacity
- Bodies are fully protected with Knapheide's water based undercoating
- Complete immersion in Knapheide's electrodeposition prime paint system for superior corrosion protection

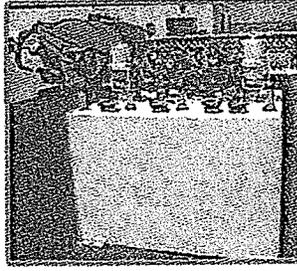
Available Models

Model	Recommended Chassis	Axle	Crane	Compressor	Body Length
KMT1-11	Class 5	Single	44,000 ft-lb Hydraulic Crane	36 CFM Hydraulically Driven	11'
KMT2-11	Class 7	Single	60,000 ft-lb Hydraulic Crane	35 CFM Hydraulically Driven	11'
KMT2-13	Class 7	Single	60,000 ft-lb Hydraulic Crane	35 CFM Hydraulically Driven	13'
KMT2-14	Class 7	Single	60,000 ft-lb Hydraulic Crane	35 CFM Hydraulically Driven	14'
KMT3-14	Class 7/8	Single	70,000 ft-lb Hydraulic Crane	35 CFM Hydraulically Driven	14'

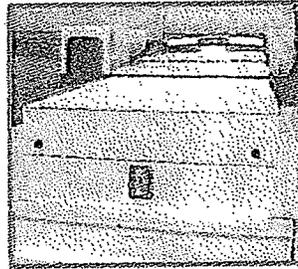
Popular Options



Welder



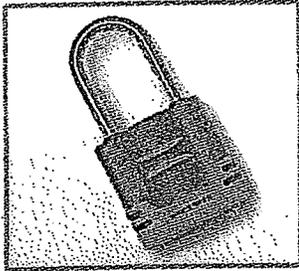
Lube Package



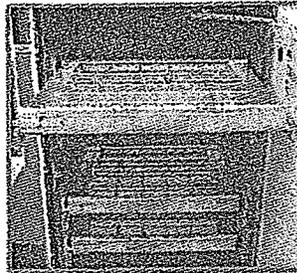
Telescopic Sliding Roof



Tarp



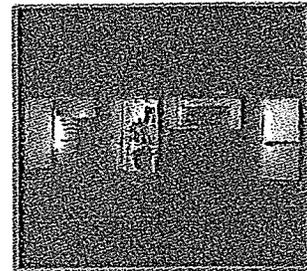
Codeable Padlock



Pull Out Shelves



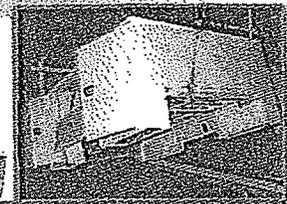
Auxiliary Lighting



LED Compartment Lighting

Because Rust Never Sleeps

Rust shouldn't be a concern when you buy quality Knapheide products. To give you the best protection from rust and corrosion, we installed our state of the art, custom-designed electrodeposition prime paint system. Our E-coat system bonds paint to steel by an electroplating process, to give you a superior coat of primer resulting in better corrosion protection compared to spraying methods. Complete immersion in our E-coat results in a prime coat that provides the best chemical and solvent resistance. Rust never sleeps, and neither does our E-coat protection so you should never worry about the quality of your Knapheide products.



Crane Body

6 Year Limited Warranty

- No rust through
- Door hinges will not fail or come off body
- Latches and lock cylinders will not fail to operate
- Shelves will not bend under max. load of 250 lbs.

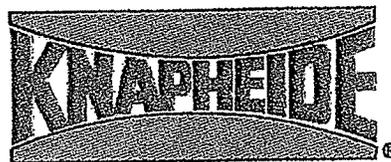
The Knapheide Manufacturing Company
1848 Westphalia Strasse
Quincy, Illinois 62305

(217) 222-7131

www.knapheide.com

knapheide@knapheide.com

L78 5M 0112



Copyright © 2011 The Knapheide Manufacturing Company

For more information:



Specifications subject to change without notice.
Some models shown with optional equipment.

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Northside Ford Trucks Sales, Inc.
6221 N E Columbia Blvd., Portland,
Oregon, 97218
Office: 503-282-7773

Customer Proposal

Prepared For:
Scott Tabor
City of Gladstone

Prepared By:
SHARON TUCKER
Office: 503-282-7773
Email: stucker@northsidetrucks.com

Date: 04/10/2015
Vehicle: 2015 F-550 Chassis XL
4x4 SD Super Cab 186" WB DRW



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Northside Ford Trucks Sales, Inc.
 6221 N E Columbia Blvd., Portland,
 Oregon, 97218
 Office: 503-282-7773

2015 F-550 Chassis
 4x4 SD Super Cab 186" WB DRW XL(X5H)

Selected Options

Description	MSRP
Base Vehicle	
Base Vehicle Price (X5H)	43,070.00
Packages	
Order Code 660A	N/C
<i>Includes:</i>	
- Wheels: 19.5" Argent Painted Steel	
- Hub covers/center ornaments not included.	
- HD Vinyl 40/20/40 Split Bench Seat	
- Includes driver side manual lumbar support, center armrest, cupholder and storage.	
Powertrain	
Engine: 6.7L 4V OHV Power Stroke V8 Turbo Diesel B20	8,130.00
<i>Includes clean idle decal and intelligent oil life minder.</i>	
<i>Includes:</i>	
- 200 Amp Extra Heavy Duty Alternator	
- Dual 78 AH Batteries	
Transmission: TorqShift 6-Speed Automatic	190.00
<i>Includes SelectShift.</i>	
Limited Slip w/4.88 Axle Ratio	360.00
GVWR: 19,500 lb Payload Plus Upgrade Package	1,155.00
<i>Includes upgraded frame, upgraded springs and low deflection/high capacity. Increases max RGAWR to 14,706. NOTE: See Order Guide Supplemental Reference for further details on GVWR.</i>	
Wheels & Tires	
Tires: 225/70Rx19.5G BSW Max Traction	215.00
<i>Includes 4 traction tires on the rear and 2 traction tires on the front. Not recommended for over the road applications; could incur irregular front tire wear and/or NVH. Optional spare is 225/70Fx19.5G BSW traction.</i>	
Wheels: 19.5" Argent Painted Steel	N/A
<i>Hub covers/center ornaments not included.</i>	
Spare Tire & Wheel Delete (Regional)	(85.00)
Seats & Seat Trim	
HD Vinyl 40/20/40 Split Bench Seat	Included
<i>Includes driver side manual lumbar support, center armrest, cupholder and storage.</i>	
Other Options	
Monotone Paint Application	N/A

Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.

Prepared For: Scott Tabor, City of Gladstone Prepared By: SHARON TUCKER Date: 04/10/2015 | Price Level: 530 Quote ID: F550wKMT

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Northside Ford Trucks Sales, Inc.
6221 N E Columbia Blvd., Portland,
Oregon, 97218
Office: 503-282-7773

2015 F-550 Chassis
4x4 SD Super Cab 186" WB DRW XL(X5H)

Selected Options (cont'd)

Description	MSRP
186" Wheelbase	N/A
XL Value Package	595.00
	<i>Includes:</i> - Radio: AM/FM Stereo/Single CD/MP3 - Includes digital clock, 4 speakers and auxiliary audio input jack. - Steering Wheel-Mounted Cruise Control - XL Decor Group - Chrome Front Bumper
Steering Wheel-Mounted Cruise Control	Included
XL Decor Group	0.00
	<i>Includes:</i> - Chrome Front Bumper
Power Equipment Group	895.00
	<i>Deletes passenger-side lock cylinder. Includes upgraded door-trim panel.</i> <i>Includes:</i> - Accessory Delay - Power Locks - Remote Keyless Entry - Perimeter Anti-Theft Alarm - Power Front Side Windows - Includes 1-touch up and down power driver and passenger window. - MyKey - Includes owner controls feature. - Manual Telescoping 2-Way Fold Trailer Tow Mirrors - Includes power heated glass, heated convex spotter mirror and integrated clearance lamps/turn signals. - SecuriLock Passive Anti-Theft System (PATS)
Snow Plow Prep Package	85.00
	<i>Includes pre-selected springs (see Order Guide Supplemental Reference for springs/FGAWR of specific vehicle configurations). NOTE 1: Restrictions apply; see Supplemental Reference or Body Builders Layout Book for details. NOTE 2: Also allows for the attachment of a winch.</i>
Engine Block Heater	75.00
Transmission Power Take-Off Provision	280.00
Trailer Brake Controller	270.00
	<i>Verified to be compatible with electronic actuated drum brakes only.</i>
Rapid-Heat Supplemental Cab Heater	250.00
Radio: AM/FM Stereo/Single CD/MP3	Included
	<i>Includes digital clock, 4 speakers and auxiliary audio input jack.</i>
SYNC w/MyFord Communications & Entertainment System	295.00
	<i>Includes voice-activated with 911 Assist, USB port, AppLink and compass.</i>
Steering Wheel Audio Controls	70.00

Fleet Options

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Prepared For: Scott Tabor, City of Gladstone Prepared By: SHARON TUCKER Date: 04/10/2015 | Price Level: 530 Quote ID: F550wX5HMT

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Northside Ford Trucks Sales, Inc.
 6221 N E Columbia Blvd., Portland,
 Oregon, 97218
 Office: 503-282-7773

2015 F-550 Chassis
 4x4 SD Super Cab 186" WB DRW XL(X5H)

Selected Options (cont'd)

Description	MSRP
Daytime Running Lamps (DRL) (LPO)	45.00
Emissions	
50 State Emissions System	N/C
Interior Colors	
Steel	N/C
Primary Colors	
Oxford White	N/C
SUBTOTAL	\$55,895.00
Destination Charge	\$1,195.00
TOTAL	\$57,090.00

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Northside Ford Trucks Sales, Inc.
 6221 N E Columbia Blvd., Portland,
 Oregon, 97218
 Office: 503-282-7773

2015 F-550 Chassis
 4x4 SD Super Cab 186" WB DRW XL(X5H)

Pricing

SUBTOTAL	MSRP
Vehicle Price	43,070.00
Options	12,825.00
Upfitting	0.00
Fuel Charge	0.00
FDAF Assessment	0.00
Destination Charge	1,195.00
<hr/>	
Total	57,090.00
Pre-Tax Adjustments	
E-plates license, title, doc for government agencies in Oregon Light duty vehicles only	179.50
As per state contract #5549.	0.00
Government price concession for the State of Oregon Available only to government agencies in Oregon or agencies authorized by Oregon Cooperative Purchasing Agreement.	0.00
Government discount	(9,831.00)
Knapheide 11ft crane body with Stellar 7621 Crane	57,270.00
<hr/>	
Total Pre-Tax Adjustments	47,618.50
Pre-Tax Total	104,708.50
Single Vehicle Total 1 (Number of Vehicles)	104,708.50
Grand Total	104,708.50

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Prices and content availability as shown are subject to change and should be treated as estimates only. Actual base vehicle, package and option pricing may vary from this estimate because of special local pricing, availability or pricing adjustments not reflected in the dealer's computer system. See salesperson for the most current information.

Prepared For: Scott Tabor, City of Gladstone Prepared By: SHARON TUCKER Date: 04/10/2015 | Price Level: 530 Quote ID: F550wKMT

WORK SESSION

City of Gladstone Staff Report

Report Date: May 19, 2015,
Meeting Date: May 26, 2015
To: Pete Boyce
From: Scott Tabor

AGENDA ITEM

Development Agreement Request from HT Properties

History/Background

HT Properties attended the City Council work session on March 24, 2015 in order to discuss a potential development agreement to develop a market-rate multi family housing project at the Transue property, 18121 Webster Road. March 24, 2015 minutes and council packet information are enclosed. The developer has included in this packet a letter answering City Council questions from the previous discussion.

Proposal

No action may occur at this work session. However, staff would like direction from council to pursue the proposed development agreement or not.

Options

1. Allow staff to work with developer on an agreement. Staff time will be reimbursed by developer. If the project then passes the planning commission design review. Infrastructure issues would then come back to city council for approval.
2. Do not allow staff to work with developer on an agreement. Developer would go to Planning Commission without a development agreement. If the project then passes the planning commission design review the infrastructure issues would then come back to city council for consideration.

The City Attorney Doughman has indicated that "Any approval would not affect the planning commission's authority relative to the design review criteria."

Cost Impact

Staff time would be reimbursed by developer. City infrastructure costs have been proposed by developer to be covered with system development charge credits. Will not know totals until final negotiation.

Recommended Staff Action

Staff recommends Council consider HT Properties' request and provide direction to staff and City Attorney.

Department Head
Signature

Date

City Administrator
Signature



Date 5.19.15

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May 18, 2015

Michael C. Robinson
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D. (503) 727-2264
F. (503) 346-2264

VIA EMAIL

Dominick Jacobellis, Mayor
City of Gladstone City Council
Gladstone City Hall
525 Portland Avenue
Gladstone, OR 97027

Re: Work Session Discussion of Proposed Development Agreement between City of Gladstone and HT Properties, LLC Concerning Public Water and Sanitary Lines

Dear Mayor Jacobellis and Members of the Gladstone City Council:

This office represents Hans Thygeson and HT Properties, LLC ("HT Properties"). This letter continues the discussion that began with the City Council on March 24, 2015 for the purpose of asking that the City Council direct City staff to work with HT Properties to prepare a development agreement with the City concerning public water and sanitary sewer line improvements.

At the conclusion of the March 24 work session, the City Council directed staff to continue discussions with HT Properties and to return the matter to a future City Council work session. HT Properties also agreed to pay for staff costs for the discussion on the proposed development agreement.

This request will be before you again at your May 28, 2015 work session. HT Properties requests that, following the work session, the City Council direct staff to work with HT Properties to prepare a development agreement to return to the City Council for approval at a public hearing.

The City Council asked a number of questions about the proposed development agreement and the public water and sanitary sewer lines improvements at the March 24 work session. This letter answers those questions. If the City Council has an opportunity to review this letter prior to the work session and has additional questions, HT Properties would appreciate receiving any other questions in advance so it can be prepared to answer them on May 28.

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1. **Under the proposed development agreement, will the City be assured that HT Properties is responsible for any and all changes discovered or required when the City's Sanitary Sewer Master Plan is finalized and that HT Properties will be responsible for any cost increases?**

ANSWER:

HT Properties proposes to make two (2) kinds of public improvements:

- Install a new, upsized 12-inch public water line on the adjacent City-owned property to replace the old, 8-inch water line on the HT Properties site; and
- Replace certain existing clay sanitary sewer lines, improve manhole geometry, and install a new sanitary sewer line segment to improve sanitary sewer service.

HT Properties told the City Council at the March 24 work session that it expected the cost of installing the public water line on the adjacent City property to be about \$180,000. HT Properties said that it expected the City's share of the cost of the 12-inch public water line on the City property to be about \$90,000. Mr. Thygeson, President of HT Properties, told the City Council at that work session that the development agreement will include a cap on the City's cost at \$90,000. In other words, HT Properties will construct the public water line and be responsible for any cost overruns; the City will not be responsible under the proposed development agreement for more than \$90,000 in costs.

In return for the City granting permission to HT Properties to construct the 12-inch public water line on the adjacent City owned property to replace the existing 8-inch line on the HT Properties site, HT Properties would construct the water line and be responsible for any cost overruns. HT Properties proposes that the development agreement provide for the City's contribution of its cost to be in the form of system development charge ("SDC") credits and not cash.

The benefit to HT Properties in moving the water line to the City-owned property is not that it acquires greater development potential but that the water line is moved from the middle of its property.

2. **Can HT Properties develop its site without installing the 12-inch public water line on the City property?**

ANSWER:

Yes. The existing 8-inch water line on the HT Properties site is very near the surface, is undersized and is not constructed to current standards. **Exhibit 1** shows that HT Properties can

accommodate the existing line on its site and would grant an easement in favor of the City for the line's future maintenance.

However, the easement for the water line would be in the middle of the multiple-family development and would be difficult for the City to maintain. By abandoning the existing public water line on the HT Properties site and constructing a new 12-inch water line on the City-owned property, the public will benefit because it will receive a new water line which, because of its location, will be better able to be maintained by the City. Additionally, the larger 12-inch public water line on the City property will provide better water pressure for firefighting purposes.

3. Will the City lose development square footage on its property if it allows the 12-inch public water line to be constructed on its property?

ANSWER:

No. Exhibit 2 is a conceptual drawing showing how the City-owned property might be developed. Regardless of whether the City allows the public water line to be constructed on the rear of the City owned property, any development on the City property will require access to the rear of the buildings for firefighting and delivery purposes. Notwithstanding that the C-2, "Community Commercial" zoning district, does not require a building setback on the rear property line, development of the site for retail purposes will nevertheless require a setback.

Exhibit 3 is a letter from Michael M. Diamond of the Real Estate Investment Group. Mr. Diamond has reviewed the City-owned property and, based on his substantial experience in commercial development in the Portland Metropolitan area, has determined that providing the public water line on the site will add value to the City property. Mr. Diamond also offered the opinion, as noted above, that a building setback adjacent to the HT Properties site will be required.

While a small amount of land will be committed to the public water line, the City will enhance the value of its property by providing the water line without losing developable area.

Finally, as Exhibit 1 demonstrates, the HT Properties site can be developed even if the water line is left in the middle of its property. However, HT Properties cannot be required to either upgrade or move the line. Instead, the City will retain an outdated, undersized, and difficult to maintain water line.

4. How can the City be sure that the sanitary sewer improvements would not have to be removed to accommodate an upsized project?

ANSWER:

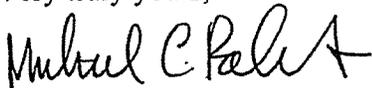
Dominick Jacobellis, Mayor
May 18, 2015
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As HT Properties said at the March 24 work session, it used the same analysis and methodologies as will the City for the Sanitary Sewer Master Plan. HT Properties engineer has coordinated with the City Public Works Director and the City Engineer and is confident that the proposed sanitary sewer improvements will comply with the future Sanitary Sewer Master Plan. There is no disagreement between the City Engineer and HT Properties engineer about either the scope of the proposed sanitary sewer improvements, or the fact they are highly likely to be consistent with the adopted Sanitary Sewer Master Plan.

If the City Council remains uncomfortable about entering into the development agreement to include sanitary sewer improvements prior to the adoption of the City's Sanitary Sewer Master Plan, the City Council can consider adding a provision to the proposed development agreement requiring HT Properties to be responsible for any required improvements in the adopted Sanitary Sewer Master Plan that differ from those provided for in the development agreement as they relate to the HT Properties site only.

We look forward to our continued discussion with the City Council and staff on May 28. At the conclusion of the work session, HT Properties respectfully requests that the City Council direct staff to work with HT Properties to prepare a draft development agreement consistent with its representatives to return to the City Council for adoption in a public hearing.

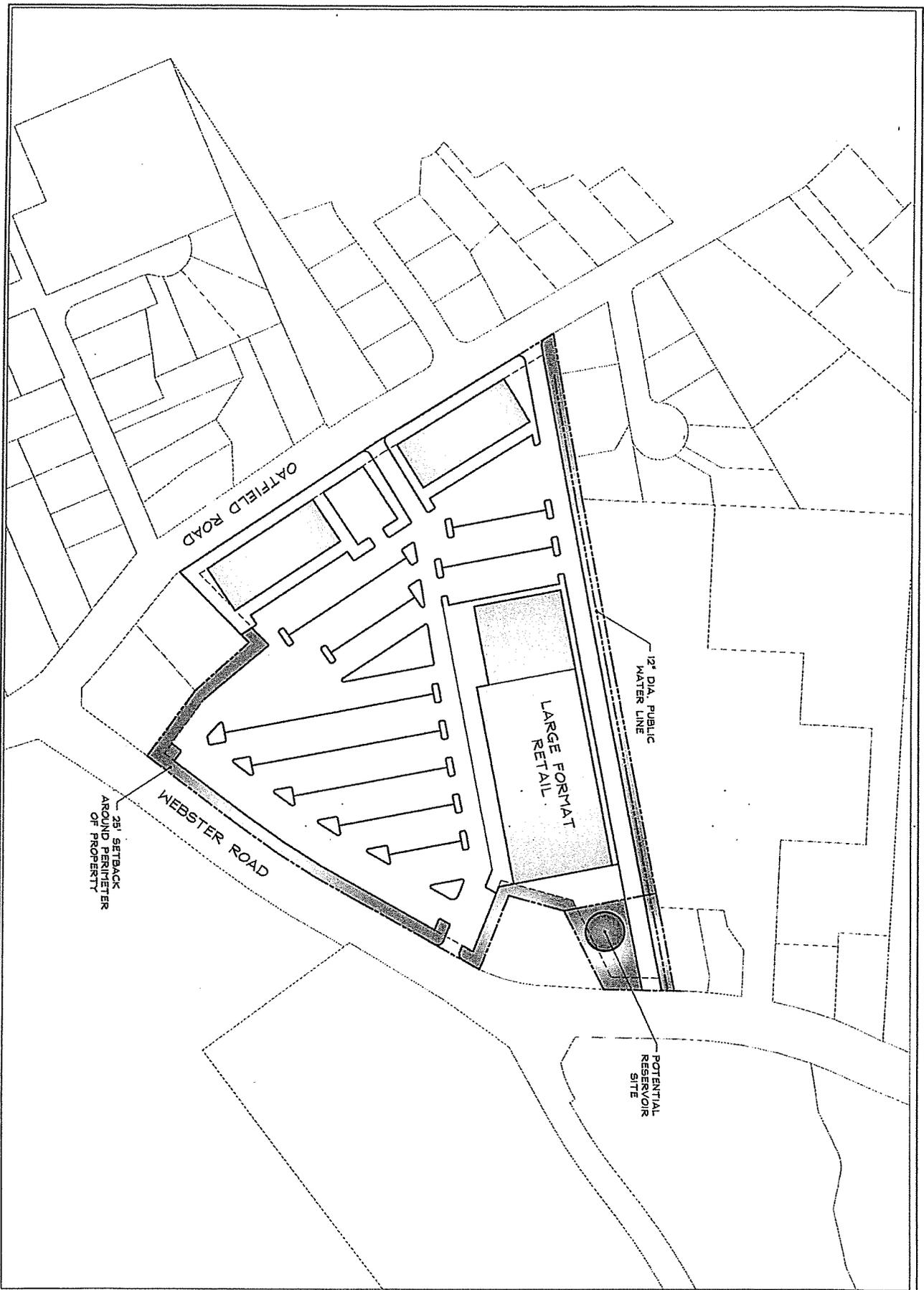
Very truly yours,



Michael C. Robinson

MCR:rsr
Enclosures

- cc: Mr. Pete Boyce (via email) (w/ encls.)
- Mr. David Doughman (via email) (w/ encls.)
- Mr. Hans Thygeson (via email) (w/ encls.)
- Mr. Andrew Tull (via email) (w/ encls.)
- Ms. Kathleen Freeman (via email) (w/ encls.)
- Mr. John Lewis (via email) (w/ encls.)



S1.1
SHEET NO.

PROJECT NAME:
RETAIL CONCEPT PLAN
WEBSTER ROAD SITE DEVELOPMENT
18121 WEBSTER ROAD
GLADSTONE, OR 97027

DRAWN FOR:
CREATIONS NORTHWEST, LLC
REAL ESTATE DEVELOPMENT &
GENERAL CONTRACTING
825 HARRITT DR NW
SALEM, OR 97304



ERLER DESIGN & GRAPHICS
5650 SANDYCREST TERRACE
PORTLAND OR
CELL: 1503 975-7373
E-MAIL: erlerdesign@yahoo.com

REVISIONS:	BY:

4-7



THE
REAL ESTATE
INVESTMENT
GROUP

Dear Hans

I have reviewed the various options for location of the water lines and the site plan for the apartments and the retail site.

In general providing utilities to an adjacent site adds substantial value to that property. The time saved by a property owner not having to go through the process of having the utilities designed, entitled and built definitely adds monetary value to the adjacent site and reduces the time it would take to develop the site.

The options 2 and 3 that show all or a portion of the water line on the adjacent commercial site in my opinion are not a negative, depending on how the retail site is developed. Either of these options will require a building setback along the north property line which can be construed as a positive feature. It is not atypical for a big box store to be set back from the property line to provide truck access for loading merchandise, recycling, trash removal and employee parking. The setback also allows for fire life safety access.

I believe that the site can be designed in such a way as to work with the setback for the water line and should not hinder commercial/retail development of the site. In addition to the added value that having a water line stubbed to the site provides there is also added economic value of having a new apartment project adjacent to a retail site. The synergy of housing and retail service is positive for both developments.

I wish you success with your proposed housing development and let me know what the plans are for the city owned retail property.

Sincerely

Michael N Diamond

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Meeting was called to order at 7:30 pm.

Roll Call:

The following city officials answered roll call: Councilor Nelson; Councilor Mersereau; Councilor Johnson; Councilor Sieckmann; Councilor McMahon; Councilor Reisner; and Mayor Jacobellis

Absent:

None

Staff:

David Doughman, City Attorney; Jolene Morishita, Assistant City Administrator; Pete Boyce, City Administrator; Stan Monte, Fire Chief; Scott Tabor, Public Works Supervisor; Rhonda Bremmeyer, Senior Center Director

Pledge of Allegiance:

Led by Mayor Jacobellis

Business from the Audience:

None

Consent Agenda:

None

Correspondence:

1. Letter of Resignation from Park & Recreation Board - Jessica Veazey
2. Letter of Resignation from Planning Commission, Budget Committee & Police Station/City Hall Advisory Committee - Elliot Veazey

Regular Agenda:

3. Item Removed for Legal Review

ADJOURNED SPECIAL MEETING

None

WORK SESSION

Regular Agenda:

4. **RH Development Agreement – Transue Property, 18121 Webster Road**
City Attorney Doughman brought a request between Scott Tabor, Public Works Supervisor, and the contract city engineer and the developer who proposes to develop the Transue property, which is behind city-owned property on Webster Road.

There have been some issues and they have taken a very, very close look at the site and as part of that discussion with city staff there are some concerns that HT Properties, the developer, looked into, particularly with respect to water and sewer service on the property. So they have had discussions over the last few months and the consensus was they were going to be looking to do some fairly significant upgrades to the sewer service in that area in order to serve their property. And based on some requests from some city staff to look at the potential of moving an existing waterline and upsizing it, the discussion became that in doing this there are going to be some financing issues and would there be a path forward that would allow some potential cost-sharing of some of those improvements. He wanted to be very clear that they are not looking at the development tonight; that has a separate process that would have to go through the planning commission and it could be appealed and then the city council would see it.

City Attorney Doughman said that he and Mike Robinson, attorney for HT Properties, who he has worked with a lot over the course of his career, thought that with these infrastructure issues being as prevalent as they are, they need to ask how would that be handled with the design review process. And taking a look at the city's code there really isn't a lot of clarity, especially with respect to infrastructure issues; they're not really addressed in the city's design review criteria. Actually, with respect to the city's design review, the planning commission is in the process of looking at it and will likely be considering an update to make some of those standards more robust. He said that he will let Mike Robinson and HT speak to this issue and much of what they want to talk to the council about tonight is to get some of that stuff done. Some of it would affect their property and needs to get done if they were ever to develop that site and some of it would not. It wouldn't be triggered by the development of their site, it would be improvements that might benefit the city in a larger context rather than just that development. So the idea here is to gauge council interest and potentially have a development agreement that would spell out how those improvements would be made that would be contingent upon a successful design review.

City Attorney Doughman said that this is a very discretionary decision as he stated in his memo; there is nothing you are required or impelled to do and the better way to look at it would be does it makes sense to do this. He turned it over to HT to spell out what they see the issues as being.

Councilor Sieckmann asked City Attorney Doughman, since this is a work session and council can't make any decisions tonight, what is he asking the council to do tonight. City Attorney Doughman said they would be looking for direction from council, basically if they think it is wise to go forward and draft some sort of development agreement that they can then bring back for their approval, amendment or rejection. The prohibition on any decision in a work session would be a decision you are required by law to make, and certainly tonight there is nothing required to be done, so it is perfectly appropriate and they do that with a lot with clients in context of a work session that the council would give some direction for the next step, if any.

4-10

Hans Tagus, Principle with HT Investment Properties, introduced himself and his team members Mike Robinson with Perkins Coie LLP, Andrew Toll and Kathleen Freeman, PE, Water Resource Project Manager, 3J Consulting, Inc., John Lewis of HT Investment Properties, Project Manager and construction department.

He stated that this has been going on for some time now and they started down this path fourteen months ago. He will present some information to them that comes from the city's water and sewer master plan and handed out copies to the council and they have highlighted some points on the plan. He stated that there are two items on this property that HT Properties needs to address. One is the city water main and the other is the sewer services, in which they did a sewer scope on the service property.

Hans said there is a 6" asbestos concrete (AC) water line that runs through the property and where this property is there are some pressure issues as noted in the water and sewer master plan. This property is at 18121 Webster Road and there is a water line that goes from Webster Road down to Oatfield Road and the AC line runs through this property. Initially they thought they would look at developing around that and try not to impact that line, especially after our pre-app meeting with Sisul Engineering and the public works department. We realized the issues are definitely significant and that line would be easily fractured. There are a lot of issues with that AC water line and we thought we would come onboard with the city and just move that water line and our proposal is to move that water line directly to the south and put it in a 20-foot easement along the north property line that was proposed for the city library.

Hans Tagus, HT Investment Properties said they've highlighted some things. There are seventeen miles of AC water line that the city is proposing to replace over the next thirty years and that proposal has a budget of 24 million dollars, spending about \$820,000 per year. Based on that budget, HT Investment Properties feels they can help the city out and help address some of their issues and take an area with low pressure and increase that water line to a 12-inch line, increase the pressure on it and get rid of some of the 6-inch that is AC for significantly less money. So what they proposed is to split the cost of replacing that water line with the city and they are estimating the replacement of that water line to be \$180,000. There is a lot of rock on site and elevation change too. HT Investment Properties will install it and help solve some of those issues. He asked for questions from the council.

Councilor Sieckmann asked if the 20-foot easement he mentioned was on city property or the property they are developing. Hans Tagus, HT Investment Properties, said they are proposing putting it on the city property. He said that the property they are developing doesn't go the whole distance from Webster Road to Oatfield Road. They feel it would be a plus for a developer that they wouldn't have to put in utilities and they could provide step-ups. They are proposing on doing the same with the sanitary and sewer and putting step-ups for the sanitary out to Oatfield as well. That property would become a lot more turn-key for whatever develops at that property because those services would be readily available and right on the property line.

Councilor Johnson asked that when they find out they are in the hard rock mining business to put pipe in and the costs go through the roof, whose costs are they going to be? Hans Tagus, HT Investment Properties, said that is where they are looking for the joint venture and shared cost. The city had estimated \$300,000 to do it; there is quite a bit of rock out there and HT Investment Properties has done some testing and some potholing out there on their property and they are willing to bear a significant amount of that cost. Councilor Johnson said he is concerned about the project going way over budget because of what's there. Hans Tagus said he understands and his initial thought was they put a cap on it and said the city participation is up to this level. They bid the project and they are pretty confident their bid is solid. The city participation of \$90,000 is one of the proposals they talked about and the city participation would be in the form of a system development fee credit.

Mayor Jacobellis asked if, as a developer, they run the water line and sewer line easement on their side of the property and jogged it over and down to Oatfield Road, as a developer coming in cold, would that be an issue for you? Hans Tagus said that unfortunately they can run it on their property, they just can't get it all the way to Oatfield and it doesn't solve all of the pressure issues.

Scott Tabor, Public Works Supervisor, stated that there is an eight-inch AC line that is currently on the property to be developed and it was installed in the late 1960's and it is the sole feeder line for the city's intermediate zone. He said that it isn't so much a pressure difficulty as it is a capacity issue in that area. The city is sustaining good pressure, it's the volume of water they need to supply to that area to provide good firefighting capacities on that. They are inner tied on the intermediate zone up at Caldwell with a six-inch inner tie to Oatfield Road pressure reducing/pressure sustaining valve and that has helped. A benefit of replacing that main with a larger size diameter engineered design, probably at least a 12-inch if not more, from getting it off the Transue property is during construction you would be able to put that line in and keep that system viable during construction of that 12-inch or whatever the engineer suggests to put in, and then make one connection and abandon that eight-inch. That eight-inch not only runs through the Transue property, it runs between houses down to Stoneoaks Court and out to Oatfield Road. He stated he has often had nightmares about what's going to happen if he had to go in there and replace it or fix a leak or if the city would buy a house that floated away that was demolished by a large water main break and those things are notorious for breaking.

Scott Tabor feels they have an opportunity to look at utilizing their 27-inch water main that is on Webster Road, which is their main feeder line. Back when they put that in they had a blind flange put in for a 24-inch valve to go across Webster Road to a site that was a proposed site for a reservoir at that time. He said they could utilize that by putting the right size piping in there for a future reservoir and necking it down for the sizing of pipe to go to Oatfield Road and our intermediate zone. They could utilize the existing pressure in that main, which is a static of about 62, and more if there are more pumps at the NCCWC site or pumping station during the summer. Pressure regulating valves can certainly keep that pressure fluctuation at the right area because they want 55 psi (pounds

per square inch), so they could certainly utilize the possibilities of this venture and be prepared for the possibility of a reservoir site there and get it off and out of the way. That AC pipe was a poor installation back then and our intermediate system is undersized; he is sure they didn't imagine the development they would have down the road. Pressure is ok, the capacity isn't.

He stated the other benefit of going to the 27-inch main is they could take and utilize the Kirkwood reservoir and still supply water to other areas that are affected in the intermediate zone away from Oatfield Road and increase firefighting capacities. He asked for questions from the council.

Councilor Mersereau asked if the sewer line needed to be moved. Scott Tabor, Public Works Supervisor, said that on his request whatever development was put on that property would not adversely affect the existing infrastructure. So they did a sewer study and it came up with some recommendations for that, which would allow them to complete the development as desired and make sure there are no adverse effects as requested. He wanted that out in the open because there are some problems with that system right now; they've come up with a plan that was reviewed by Sisul Engineering and they have agreed that it is a good plan and they won't have any surprises down the line in the future caused by the increased capacities on those pipes. He said that Hans will address that also.

Councilor Sieckmann asked if it would have an effect on their high pressure zone. Scott Tabor said it won't.

Mayor Jacobellis asked they assume the Transue property went all the way from Webster Road to Oatfield Road. If you went and looked at that property and the 20-foot easement was there, would it have a negative impact on your decision to purchase and develop the property? Hans Tagus said that as a multi-family site they would run their water through the parking lot and feed it from the building straight out. If the city doesn't join the venture, then one option is to work around it, which is a big concern because the pipe is only two feet from the surface and after they scrape the site and take off the soil they will have about a foot of cover, so that is definitely a concern there. If they do move the line they would be connecting in someone's yard. Hans Tagus said the study shows that in connecting to the AC line there is a high propensity to leak. He said they can connect to it if they have to, but with the line going through someone's back yard and close to a house, it could be bad if they do leak.

Hans Tagus, HT Investment Properties, said they spent a lot of time and money just trying to locate the lines. When whoever built it got to the rock, they just moved it over and went around it. As Scott Tabor, Public Works, said the best solution is to move it and it solves a multitude of other problems. He said they can set a cap of \$90,000 for the city's participation. He said that for 1,150 feet of line, that's about a \$300,000 proposal and you know it's at the top of the hill and that's where the rock is. He asked for questions from the council.

Councilor Reisner asked Scott Tabor, Public Works, what utilities they have at Webster Road in regards to water and sewer. Scott Tabor said they have sanitary sewer, but that line takes in a huge area and is at capacity, which goes down Oatfield Road and turns to E. Hereford Street. They have a 12-inch cast iron line that is the primary feeder line for their low pressure zone that goes down out of their reservoirs and gravity feeds via their low pressure system. Bordering that from Case on up there is their 27-inch transmission main. They have a six-inch line that was extended down a number of years ago off of that eight-inch AC line and by the Transue property by their driveway. There is also a gas line out there and on the other side of that there are some fiber optic phone lines. There's a lot in those areas.

Scott Tabor said that over the years working in public works he's tried to eliminate the large infrastructure on private property. It's just not good practice. First of all there are accessibility issues, since accessibility is paramount when you need to fix something quickly and it's difficult to get in where you don't have roads or other access to use. Going into someone's back yard is extremely difficult just to get the equipment there. He told the developer from the get-go that he doesn't want that line on that property because of the high potential of it breaking and the accessibility issue of it when it does.

Hans Tagus, HT Investment Properties said they see the proposal as a win because they are going to be paying significant dollars in system development fees to bring this project into the city of Gladstone, plus it will raise the tax base. So, it's a chance for the city to have 1,150 feet of water line replaced for basically no money out-of-budget because they are asking for that \$90,000 to be in the form of a systems development credit. It solves a lot of problems, gets a piece of property that as a developer they have to have infrastructure in place on a piece of property, especially a piece of property that has a lot of rock on it. He feels it's a win for the city, they are stepping up to the plate and are going to solve a lot of problems for the city, and it's a great way to kick off the city's new master plan.

Mayor Jacobellis asked Scott Tabor if they have a sewer master plan yet. Scott Tabor said they don't have the sanitary sewer master plan yet. Mayor Jacobellis asked about this project being done prior to the master plan being completed. Scott Tabor stated that it is his job to deal with the existing infrastructure they have in place now. The first thing that came to his mind was what is the impact further downstream and that is why he wanted an engineered study showing it wouldn't be adversely affecting or figure out what they could do to change that if it would have an adverse effect downstream. He said he almost went all the way to Portland Avenue with that because he wanted to make sure they weren't going to have surcharges coming out of manhole covers.

Scott Tabor said the sanitary master plan is needed and may elude to some of these other things that would probably be taken care of if this was put into place off Webster Road and Oatfield Road; they would probably recommend something similar to what the developers have come up with. So yes, we still need a sanitary master plan.

Mayor Jacobellis clarified his question, this could take care of it but until the sewer master plan is done we really don't know, it could be bigger than that. Scott Tabor said that is true, the master plan could be completely different. He also said that is why he wanted an engineering study to be done and they had one done; their engineers and the city engineers looked at it and said it is a good plan.

Councilor Mersereau said that Scott Tabor brought up the high pressure system at the last meeting and said it was a high priority project that needed to be addressed and this one isn't as high of a priority, but said that in his mind this is also a high priority project. Scott Tabor answered that they are both high priority in his mind. Councilor Mersereau asked what other high priority projects there are. Scott Tabor said that those two are number one and two and he could flip a coin for them. He stated there are other areas off their intermediate zone -- Collins Crest Street, Stonehill Street, Ridgeway Drive -- every area they have that has the AC pipes to him is a priority. At some point, because of the problems they've had flowing hydrants in the high level system on Devonshire Drive and Sherwood Forest, those places come to mind because we have had the most breaks there. Scott Tabor said that if they lose the eight-inch pipe there, they lose a whole bunch of things, not only the possibility of houses, but we lose firefighting capacities. To him they are both number ones. He said it's all high priority because at some point the cost of replacing the AC pipe and the requirements that are coming down the pike on how you address it because some people are saying that you must replace it and dispose of it. He doesn't know if that is truly coming and he hopes it doesn't, but then your costs go exponentially higher. His policy is that when they fix a main, they try to leave it in the ground, but there are times when they have to bring it above ground and then they have to treat it as hazardous waste material. The rules and regulations on how you replace existing pipe change and may cost a lot more or they may say don't touch it. There is no way of knowing. He said they need to keep in mind that the longer we wait it could be much more expensive and they need to keep abreast of what the current rules and regulations are.

Mayor Jacobellis asked if Scott Tabor had a ballpark figure on the high pressure zone on fixing it or making it workable, and asked if it had to be taken out of the ground. Scott Tabor said that the good news about that is that he feels it could be engineered to replace those existing pipes up there without putting a new main in the street like it should be and leaving the old pipe where it is. He's not sure what the master plan calls for, but it's not going to be cheap, but at least they have the benefit of going out into the street and leaving the old pipe in the ground and once you transfer services you're done. He believes the cost will be several million. Mayor Jacobellis asked if there were no development occurring on the Transue property, would the number one priority be the high pressure zone. Scott Tabor said it would be; however, he said the AC lines are something that need to be taken care of soon because the firefighting capacities are very much at risk.

Councilor Reisner asked if the development wasn't going in and the eight-inch line was being replaced, where would that line go when it was replaced. Scott Tabor said he would put it exactly where the developer is proposing it goes. It does two things -- you can

upsized the pipe and you have a future piping in case you want to build that reservoir on that site which was picked years ago for that, long before the talk about the library. So you have two biggies right there, you have accessibility to supply water to a reservoir and also to our intermediate zone at a higher capacity and at the proper pressures.

Councilor Reisner said there has been a train of thought about selling that property. Scott Tabor said then that would be a boon for the people who bought it because, if this was to go through and if they had that water line in there, he would have a meter for that development right there off that line and say there you go and he doesn't have to worry about going on to private property. Fire protection, everything is covered with that larger main in our property. If someone developed that property you have another area with sustainable firefighting capacities and more capacity for them to use. That is where the engineering comes in, if you put in the right size of main for existing and future infrastructure in that area, either on the city property or on the Transue property.

Councilor Reisner asked if they would have the same thing going down Webster Road. Scott Tabor, Public Works, stated that the 12-inch line on Webster Road just doesn't have the pressure there; at that area, coming off their reservoirs, they probably have 30 psi because of elevation and the reservoirs. He said they still have the 27-inch line and that is where they would feed off for that property, going across with the 12-inch to Oatfield Road.

Councilor Reisner asked about going around instead of going across the northern border of what is now city property. Scott Tabor said it would be extremely expensive and they would be adding 1,000 feet or more. He said he prefers straight lines and they pen out nicely on paper. He said that with the technology of today, the rock excavation can go pretty fast. They have hydraulic hammers and they can always go back to the shooting with dynamite, but that's up to the engineer and how they see it. That's what they did for the SDA property. On Forest Lane in Clackamas County they had to shoot it and once they did that, away it goes. You can shoot it and be on your way or you can spend hours hammering on rock, that's the engineers call.

Councilor McMahon asked if the city had right-of-ways or easements for the water line there right now and who's responsible. Scott Tabor said he believes they had easements all the way through the Transue property, but he's not sure if they stayed to the easements when they put those lines in. Councilor McMahon asked if even though it's on private property, is it still the city's responsibility. Scott Tabor said yes, absolutely.

Hans Tagus, HT Investment Properties, said that they can come back to the water line but their main objective for tonight is to find out what they are up against and what issues the city has. He said the study that Brown and Caldwell did has it all laid out and the information on what they are dealing with. There are additional issues, they were able to solve a lot of issues for the drainage basin for sewer by some simple proposals of some fixes in a few locations on Webster Road, and there is surcharging and some flow issues. He said they spent a lot of money studying the city's sewer line in this area and came up with four solutions that readily serve this property.

Councilor McMahon asked about the system development charges he keeps talking about and asked how much they anticipate them being for this potential development that they are going to knock \$90,000 off. Hans Tagus answered just over \$500,000 for the SDC's. He asked Kathleen to talk about the sanitary issues and the solutions. He said that she did a very extensive study that he has been involved in and they got a lot of things covered here.

Kathleen Freeman, PE, Water Resource Project Manager, said that they had talked with Scott Tabor, Public Works Supervisor, about some possible surcharge issues and some downhill and downstream flooding issues. Through their modeling and their discussions with Scott Tabor there are some existing issues on Hereford Street and once the Transue property is developed it would be exacerbated. She looked at what they could do to improve that downstream system so the Transue property could get developed for future flows and also any other future developments in the entire sanitary sewer basin that could go down Hereford Street. She came up with a few recommendations and discussed them with Sisul Engineering and they gave further recommendations on that. One of their recommendations would be to replace an existing 48-inch manhole at Hereford Street and Oatfield Road with a 60-inch manhole and that would increase the capacity through that manhole down Hereford Street. Keeping all of the storm line in Hereford Street, not changing that, but adding an eight-inch bypass line down Oatfield Road to Gloucester Street with a six-inch orifice plate could be used to monitor flows or cut off flows as needed. Also recommended was adding another manhole to get rid of a 90-degree bend on Oatfield Road, making two 45-degree bends so the head loss in that system would be less. So by adding the bypass line it would eliminate the surcharging in Hereford Street altogether and capacity in Hereford Street is still well above the future flows for the entire sub-basin development. She asked for questions from council.

Councilor Mersereau asked if there is an issue with the sewer line. Kathleen Freeman, PE, answered yes, in the existing line. Councilor Mersereau asked for confirmation that the Transue project wants to move the sewer line. Kathleen said that as the line sits today there are issues; there is surcharging, there is adverse slope downstream on Hereford Street, and she believes the pipes go down in diameter and then go back up so it is causing surcharging. So today there is an issue. If future development occurs in the upstream basin there will be a bigger issue if there aren't any improvements to the downstream system.

Councilor Mersereau asked if the Transue project does or doesn't want to move the sewer line. Kathleen Freeman, PE, said the pipes go down and then back up so it is causing surcharging, so today there is an issue. If future development occurs in the upstream system it will be a bigger issue if there aren't any improvements made to the downstream system.

Councilor Mersereau asked if they want to replace the line or not. Hans Tagus, HT Investment Properties, said there isn't a sewer line on the Transue property and this is because of capacity issues. There are insufficient capacity issues for sewer downstream.

So the basin that this property is in flows down Webster Road and Oatfield Road and down Oatfield Road and Hereford Street and down Gloucester Street. There are some significant issues that by solving those issues we solve a lot of other issues down the road. And then today, talking to people in the neighborhood, they said these issues exist, so we can solve these capacity issues, greatly increase capacity and solve issues that will definitely be brought up on the master plan.

Hans Tagus said we've identified through this extensive study of these drainage basin issues that your city master plan for the sewer service will also bring up these glaring issues I would expect. These were also issues that Sisul Engineering proposed, so by solving these we can greatly increase the capacity there.

Scott Tabor, Public Works, has made marking on the map he put up on the board and said they have lines coming from Oatfield Road and Webster Road and they combine into a main line down Oatfield Road south making a right angle turn down to Hereford Street. There is a lot of area from this sanitary line coming down along with Hereford Street and when it hits this existing manhole, if there is enough water in there, it will come up through the manhole at certain times. What they have suggested was to come in here and put in a larger manhole, along with another manhole to angle this so it's not such a sharp 90-degree turn, to run two 45-degree turns along with extending another line out of one of these down to Gloucester Street with another manhole and have an orifice in there that will monitor the flow rate, so if there is enough flow rate it will go down this street and go down to Gloucester Street and not have surcharging.

Councilor McMahon thought the two 45-degree manholes were on Gloucester Street, but they're on Hereford Street. Scott Tabor said they are on Hereford Street and they would be using primary line for the Hereford Street line and the bigger flow would be coming down to the Gloucester Street line. So they would have to install a new sanitary line down Oatfield Road to Gloucester Street and back down.

Councilor McMahon said he had mentioned INI and he asked what that was. Scott Tabor, Public Works, said it is infiltration from groundwater sources; if we have a lot of rain, we have this problem throughout town. And with our overflow it goes into the river. We do get a lot of INI from existing sanitary laterals from houses or our own sanitary lines; that's why we need a sanitary master plan so we can review, just like we did on the east side of town to solve our overflow conditions on the Clackamas lowlands. We need that so we can go through the rest of this area and look at where that water is coming from and eliminate that source, which will take a lot of pressure off of our existing infrastructure, at least on this one. But throughout the town, this is why we need that sanitary master plan to look at that, because a lot of our capacity issues are from infiltration from groundwater, either into property owner's laterals or into our own sewer mains. If we do it on this side and clean it up, that doesn't mean they don't have issues, that's stuff we can discuss later on.

Scott Tabor said that Sisul Engineering reviewed the plan and determined it is a fairly good plan that they don't have to worry about surcharges coming down and affecting our

homeowners that have been on it for years. That is his main concern, he doesn't want people having to suffer if people up here flush all at once. That is why he asked for the engineering study to prove that it wouldn't have an adverse impact downstream.

Councilor McMahon said just for clarification it does say Oatfield and Gloucester for the two 45's on the proposed upgrade here. Scott Tabor said for clarity it is Hereford and Gloucester. He asked for confirmation. Kathleen Freeman, PE, said she also has Oatfield and Gloucester for the two 45's. Scott Tabor said either way it benefits us.

Councilor Johnson asked on just the sewer component, what is the expected cost and what are you looking for from the city on that.

Hans Tagus, HT Investment Properties, said they would be working with the county on the sewer so they would be looking for some type of proposal, but they don't have any engineering plans on that yet. There's currently a 48-inch manhole on the upstream side that will be replaced with a 60-inch and they'll be correcting the flow pattern. Where the two manholes are they are going to flip and put those down at the bottom and put the big one at the top and change that to a 45-degree. The biggest issue is that they can't interrupt the flow during the development so they have to pump the sewer around and it will be a big cost to do so. Councilor Johnson asked if he was talking \$100,000 or \$999,000. Hans Tagus said they don't have the engineered plans yet, but it has been estimated, with all that's involved, at just under \$100,000. There are 260 feet of eight-inch pipe and the manholes aren't real deep so less than \$100,000 of work. Councilor Johnson reiterated that the sewer component of this would be at \$100,000. Hans Tagus said yes, that's correct.

Councilor Johnson said that in the Sisul Engineering report it says "The city wants to make sure that if an improvement is made to the sewer system that it will be capable of accommodating buildout of Basins 8 and 12" and he doesn't understand Miss Freeman's answer in her letter. Hans Tagus stated that Sisul Engineering has looked at this extensively and said that with the conversations he has had with Sisul Engineering they feel that these are a onetime fix.

Kathleen Freeman, PE, said that all of the city zoning maps were looked at so the future flows were taken into account to determine basin flows. Hans Tagus stated that they took the study and wanted to see what those flows would be if everything was built out, and capacities were maxed-out, to make sure that what they were proposing would handle the maxed-out flow capacity. He said that Sisul Engineering saw and spent a significant amount of time reviewing it to make sure this is a onetime fix and it will handle it.

Councilor Johnson said that he is assuming that the other basins they are talking about are the Seventh Day Adventist (SDA) properties or something close by there, if they were to be developed in some future date are they going to come before council and say, "you know what, you need to spend half again and do this to the sewer system because the Transue guys caused us problems down here."

Kathleen Freeman, PE, said that they have looked at maximum capacity for current zoning maps and the proposed changes will take care of it. This was not designed as a throw-away system. There is no way to know what possible zoning changes could take place in 25 years and it is impossible to design for unknown zoning changes. Everything has been designed for future flow with increased densities.

Scott Tabor, Public Works, said where the SDA enters the system at the end of Clarendon Street up by Stocker Park they currently have a 12-inch line that runs into that. There's one that comes across at Dartmouth Street at Oatfield Road and he believes the next one is at Fairfield Street. Councilor Johnson asked about if the SDA were to develop. Scott Tabor said the "if" should be if SDA develops that property, then maybe they should pay for any further changes that need to be made and they would likely be tying into the county's system. And even when they have 14,000 people there the city doesn't have issues with it and they are on the sanitary sewer now.

Councilor Johnson said so in the future, if there is high density residential development or if an office complex went in there, in all likelihood they would have to upgrade the system anyway. Scott Tabor said absolutely.

Councilor Sieckmann said he had a couple of questions. He started with saying thank you to Scott Tabor; he has learned more about sewer systems than he thought he would ever need to know. Scott Tabor said he was just getting started. Councilor Sieckmann said that was the problem, he still didn't know enough. He said he had talked about increasing the size of the manhole and he's having a hard time wrapping his head around it because you have this size of pipe coming in here and this size pipe going out there, what difference does it make on the size of the manhole? Scott Tabor said if you have the flow and it has to make a high speed 90-degree turn it tries to go places it shouldn't, including the street, so by making it a 45-degree turn, it will go where it's supposed to go. Councilor Sieckmann summarized and said it's not really about the size of the cover, it's about what's underneath, the radius of the piping. That makes sense. He said so right now there is nothing going from Hereford Street to Gloucester Street. Scott Tabor said no, there isn't. Councilor Sieckmann asked so they are planning on going all the way down to Gloucester Street? He is a little confused. Scott Tabor said yes and they will be doing the double manhole down there, and that will alleviate a lot of the problems on Hereford Street.

Councilor Sieckmann asked if all of those lines continue down to Portland Avenue. Scott Tabor answered yes, they do. Councilor Sieckmann asked how that affects Portland Avenue. Scott Tabor said it doesn't affect Portland Avenue. He said it is possible it may affect Clackamas Blvd. at their little manhole down there; again, it's INI they have to look at. Kathleen Freeman, PE, said they looked at that too and it was factored in.

Councilor Sieckmann said so even if this was all done and built out, the incident they had the last two weekends would have still occurred. Scott Tabor said that under normal conditions without groundwater infiltrating into their collection system he still believes it would be an issue; however, they still need to look at that issue in the long term and

that's where the master plan comes into play again to tell them which way they can go with that. Under regular flows they don't see that, but under lots of rain it happens and sometimes it won't be flow from residential usage, it could be flow from INI. Councilor Sieckmann said but would this likely increase the problem? Scott Tabor said it may be something they want to look at to alleviate your concerns over that, yes. He said they still have INI and they still have to deal with that, but we are having less frequency with it. Councilor Sieckmann said that with this being built out it would likely just add to the problem. Scott Tabor said he can't say, that is where they need the engineer. Councilor Sieckmann asked if there is any reason it wouldn't. Scott Tabor said no.

Kathleen Freeman, PE, said she doesn't have enough information to be able to answer. Councilor Sieckmann said that to be fair to them, this is a Gladstone issue and that is why he directed his questions to Scott Tabor.

Andrew Toll said he helped scope the sewer study and at some point they are grasping for a master plan when they started into this; they had to find a starting and finishing point for their study and couldn't analyze the system all the way down to the bottom. So what they are doing is prove that there is capacity added to the system to take on any new contributions that they make to it, but that doesn't mean that they can solve every problem all the way down the line and that's probably what their SDCs go towards. Councilor McMahan said he is fairly new to SDCs. The sewer work would be something the city would pay for in its entirety, on Oatfield, is that correct that comes out of the SDCs, or is that something HT is going to cover? Hans Tagus said they offered to cover the construction of this. That does two things, it alleviates the issues you have right now with the existing problems you have on Hereford Street with the surcharges. They aren't asking the city to bear any of the cost of this. The sewer credits are with the county, they don't affect the city budget, city cost or anything. That would be something they would take up with the county, not the city of Gladstone. They are only asking for participation on the water line. The sewer is a separate issue and will not be a cost to the city. This is what a master plan does, they look at the zoning, stress the system and max development and ask what are the proposed flows and where are the problems. We've looked from Oatfield Road, just below this property and Webster right in front of this property and stressed it all the way to Portland Road, and they've surveyed every manhole, gotten the slopes and looked at the surcharging. Cities want gravity systems, so with their proposal by putting the utilities to the south out to Webster Road, the whole property will gravity feed out to Webster Road. So that is significant to have a gravity system. He hasn't looked at their code, but every other city he has worked with has wanted to eliminate pump stations and go with gravity feed.

Hans Tagus said they aren't looking for a decision tonight, what they are asking for is to have staff consider and work with them on this development agreement. There are a lot of infrastructure issues, as you are aware, and they are saying here's a chance for a developer in the industry and working with cities, to come in and prove themselves as a developer; they've done other public works improvement projects, they put in 1,400 feet of sewer line before, and they can joint venture instead of continuing to kick the can down the road, they can solve these issues for a fraction of the money that will have to be

solved later. Or with the water line they can route the pipes around and connect to that point and in the future increase the likelihood of a major event. As far as the water line, those are the options we are looking at. These are solutions that will come up in the master plan and this has no cost to the city and it solves a lot of problems for the city according to conversations he's had with people in the city. He said that in working with Sisul Engineering he was impressed with their knowledge and that is why the city has them on contract. He suggested that if they have any further questions they should contact Sisul Engineering to get their feedback.

Councilor Johnson asked City Attorney Doughman what their responsibility is in this situation, when a developer comes in and wants to develop a piece of property, what is the city's base responsibility. City Attorney Doughman said that in legal responsibility, he's not sure they have much. To be candid, in the normal course this would go through a public hearing process, there would be engineering worked up as to you're going to be putting X number of units on a piece of property, what affect is that going to have on existing infrastructure. Legally then they are able to require that property developer to mitigate those impacts and do what it needs to do to basically keep the status quo going. He thinks that whether it is this or any other development, the developer with take a look at that and say well, is that going to pencil out, is it going to make sense or not.

City Attorney Doughman said that from his understanding, as rudimentary as it might be, the waterline issue isn't something that would affect the development itself; they could, albeit with a little more effort, serve their property with the existing waterline. I believe the sewer presents another question and he thinks there are likely impacts to the existing infrastructure that this development would have, it would have to mitigate it somehow. Whether they would have to go to the lengths that they have seen and talked about tonight, he doesn't know. His thought is that there could be lesser improvement that mitigates what they would be contributing, the additional amount that they would be contributing they could mitigate this way. He thinks that if the city wants to go down this path, that from what he has been hearing the city could get more bang for its buck.

Councilor McMahan asked Attorney Doughman about the SDCs, who gets that money potentially, does it all go to the county for the sewer or would the city also reap some of those SDCs. David Doughman said he was under the impression that there was one sewer charge, but it was split; most goes to the county, but there is some residual that goes to the city. He defers to staff on that. Pete Boyce, City Administrator, said that the Assistant City Administrator calculates the SDCs for the city. So he believes the SDC goes to Tri-City. Assistant City Administrator Jolene Morishita said part of it does. She said there are sewer SDCs that go to Water Environment Services (WES) and there are sewer and water SDCs that stay in the city, then there are transportation SDCs that stay in the city as well.

Councilor McMahan asked if she had a guess as to how much of the sewer and water \$500,000 SDCs, that was the number they threw out, would stay in the city. Jolene Morishita said she would not want to give a wrong number.

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Mike Robinson introduced himself and said he is a land use attorney. In land use in Oregon it often ends up in fights about who's responsible for doing what. He's had the privilege of practicing land use law for almost 20 years. He likes it and likes working with citizens. The real reason he enjoys it is because he enjoys finding solutions and that is why they went to city staff and suggested a development agreement. The benefit of a development agreement is it lets them develop a public process on how to share obligations. As City Attorney Doughman said, they don't have a legal obligation to do very much with that water line; it's apparently not constructed on the easement on the Transue property so they may want to work out an easement for it. What Hans Tagus, HT Investment Properties, is proposing is to upsize the water line, and he said Scott Tabor must have done a great job explaining it, because he understood it, and it sounds like there are some benefits to the community in upsizing it, which they wouldn't be obligated to do. So they thought a development agreement that specifies moving that water line on to city-owned property, upsizing it from eight-inch to 12-inch, and by moving it, it is also more accessible to city crews and he also agrees with Scott Tabor, just based on what he knows about property development. The city's property benefits by having that water line there with the ability for future development to tap into it, if you chose to sell it. So Councilor Johnson, you don't have a legal obligation to authorize staff to work with us on a development agreement and they know that. But they thought the benefits of a development agreement made sense because they are trying to move the waterline to an appropriate location; it's not all of their responsibility, so that's why they are proposing a shared cost, and that's why Hans Tagus said they would cap the city's cost at \$90,000. So if it turns out that Hans Tagus isn't very good at moving rock, they will bear that responsibility. What they were hoping for tonight is just asking staff to work on the development agreement. They would work with City Administrator Boyce, City Attorney Doughman, and Public Works Supervisor Scott Tabor and develop a development agreement and answer all of the good questions you asked tonight in the development agreement and bring it back to you in a public process for your approval.

Mike Robinson said all of it is ultimately contingent on the planning commission approving the land use application, and if it were appealed, then council doing it. A development agreement doesn't make any commitments on the part of the city as to the outcome of the land use application. It simply does what I said at the outset, it really helps them solve an engineering problem at the outset, and he has to tell you, and he's not always right about this, but most of the times he's been involved in a land use application, planning commission hearings are a lousy place to decide technical issues. People are all worked up about the land use and it's difficult to have a conversation about engineering and that is why they were trying to separate the two issues. I hope that's helpful to you; you don't have a legal obligation to approve this, or to direct staff to work with them on it, but they are hoping council would do so so they can come back with a full blown development agreement and council could take a look it and if they like it they can approve it, and if they don't, they don't. It's their risk, not the councils.

Councilor Johnson said but there is a legal obligation not to break the existing system, is that correct. You can't build a system that is going to have raw sewage coming up through a manhole in other parts of the city. Mike Robinson said yes, that's correct. He

said that City Attorney Doughman can truly give him the explanation of what the legal obligations are, but from Mike Robinson's perspective he would like best to be able to work with the city to find out what their obligations are, how they are going to meet them, and identify what the city's role in meeting their obligations might be. Frankly, that's the beauty of a development agreement. It lets you have a reasonable discussion about who does what, separate from the emotion of a land use application.

Councilor Johnson said his greatest concern is the nebulous nature of the cost. He's heard that several different ways just this evening, he's not sure where they are going to land and he's not sure what it will cost to have the staff involved. Mike Robinson said that Hans Tagus, HT Investment Properties, set a cap of \$90,000 for the city's involvement on the waterlines. On the sewer, Hans said he doesn't have an engineered study yet but he said it is right at \$100,000. That is the information they would develop more fully and put in the development agreement and bring back to them. He stated that their proposal is that HT Investment Properties would draft a development agreement and then give it to the city staff for them to review, so the labor of working up the agreement would be mostly their expense. His hope is that they would be helpful to staff so there wouldn't be much staff time involved. There would be some time. He said that his view may not be the prevailing view and they certainly don't have to agree with him on it, but he has been doing this long enough to know that issues like this that are better resolved working with the engineering staff. When you try to resolve it in the heat of the planning commission hearing, you can often resolve it, but when you look at it the next morning, sometimes you wonder how you got to the resolution you did. Frankly, even though he is a land use lawyer, he said he doesn't necessarily enjoy fighting about what the city's rights or obligations are, he'd rather find a solution and help everybody reach it so at the end of the day we're going to get a good project out of this and they feel like they have been fairly treated.

Councilor Johnson said he wants more details, especially along the lines of cost, and he would need to see that before he can get all excited about this. He understands the benefits as Scott Tabor laid them out, but he needs to see a lot more detail before he could get terribly excited about it. Mike Robinson said he feels that is what they would be doing in the course of a development agreement and bring it back to council for review. Councilor Johnson thanked him. Mike Robinson thanked council for their time.

Councilor McMahon confirmed that this is all contingent upon the planning review passing and they want to get this down and then they will go through the land use application process planning commission hearing. Mike Robinson said yes, it is absolutely contingent on approval by the planning commission for the design review. He said that neither council nor staff would make any approval for that, they have their burden of proof; hopefully they would make a good application that would address the approval criteria and be approved. He said these will be fairly expensive projects and Hans Tagus wants to know what they can expect. It's difficult in a land use application to address a moving target, yet the beauty of a development agreement is that both the city and the developer know what's expected of them; then you're not fighting so much over money, and frankly if you think back over land use hearings, that's what a lot of the

fighters are about. From a developer's perspective you know upfront what the obligations and costs are and then it's up to the planning commission to decide if they have met the land use criteria.

Scott Tabor, Public Works, said that everything they have done in working with Hans Tagus, HT Investment Properties, and going over things with Sisul Engineering, he tries to give them common sense things that are best for the city at all times when he speaks to the council and this development has the potential for winning on both sides for improving the city's system. He just wanted the council to keep that in mind. He thinks it's a good common sense approach to take it off private property and run it to where they need it and to improve their capacities and he looks at that in a very point blank way.

Mayor Jacobellis asked how the council felt, are they ready to move forward and give staff the go ahead or do they want to mull it over and reconvene to go over it?

Councilor McMahan said they have already offered, for the most part, and he would like to move forward. He would like to have them do a final presentation on this memorandum and come back to city council after working with Scott Tabor and city staff and come back to council. And if they are willing to do most of the work for them and answer the questions that council has asked tonight, and especially keying in on what are maximum amounts the city would be responsible for - \$90,000 is the number he heard - if everything else is picked up by them, he thinks it's great.

Councilor Sieckmann feels they need more discussion amongst themselves first because he has a few things he would like to bring up. So he wants to talk about it before they give direction to the staff. He said a lot of the things that were said made good sense. Some of the things he thinks about make it look like it doesn't make good sense, just some rough numbers and trying to scale things off of maps. He said it looks like the waterline itself is moved off of their property onto city property it will be a \$200,000 property gain for them because it will then be buildable property, and probably a \$400,000 loss for the city. He said 20-foot wide doesn't sound like much but when you figure 20 feet, 1,150 feet long, all of the sudden that's the size of three or four of their residential lots, it may be real narrow but it's about the same square footage. Most of their residential lots are 5,000 or 7,200 square feet. This is 2,300 square feet. So when he looks at it and thinks well they are willing to do this and it's only going to cost the city \$90,000. That is the city's hard costs, but they are giving up about \$400,000 of real property. That makes it not look quite so good to him.

He continued with Scott Tabor's, well then it's on city property, there has been discussion about that not being city property. At that point there would be an advantage of having a waterline through there, but would they then take and withhold that, keep it as city property and not sell that property and leave it as a right-of-way or something like that. City Attorney Doughman said they would reserve it. If you sold it you would have to reserve an easement in order to access it Councilor Sieckmann or you could divide it as its own tract in the city and the city could keep ownership of that, but that would be that

much less property that they would have to sell. He said they would bear more than the \$90,000 of it.

Councilor Sieckmann said the second portion of it is, whatever they are spending on their side, they want to reduce from the SDC, but some of the SDC comes to the city. John Lewis, HT Investment Properties, said they didn't ask to have the SDCs to be reduced, the \$90,000 is the city's contribution. Councilor Sieckmann said he had misunderstood. There is no reduction in the SDCs from what they spend on the waterline. Mayor Jacobellis said that was on the sewer line. John Lewis said not on the sewer side either. Councilor Sieckmann said he thought there was something in there where they were asking. He said the only thing is that the \$90,000, instead of the city funding it, it would be a reduction in the SDCs, the credit. City Attorney Doughman said it is money you would normally be entitled to that you are forgoing. John Lewis said they aren't asking for additional funds above the original \$90,000, just removed from SDCs their portion of it. Councilor Sieckmann said he misunderstood that part. He said those are his big points; he said they appear to be reasonable and fair but he feels they will be losing a lot more money based on property alone.

Councilor McMahon asked if he could disagree. Councilor Sieckmann said yes he can. Councilor McMahon said he disagrees. He doesn't feel they could build anything on that property line anyway, so it would be an easement where they would put a parking lot either way. If it was on their property they would put a parking lot on it that they could easily dig up, if the city ever had to. He asked City Attorney Doughman if they could put a parking lot there anyway if they wanted -- they just can't build a structure on it, correct? City Attorney Doughman answered yes, that's the general rule. He doesn't feel the city would be losing out because along that property line you couldn't build a building there unless you went to a zoning variance, you couldn't put it on a property line. Councilor Sieckmann said they can on commercial. Councilor McMahon said you can also put a parking lot there so he doesn't see it as a loss.

Councilor Mersereau said the one thing he sees is a heck of a lot larger, the \$90,000, \$180,000 is a drop in the bucket. They've got 100-plus million dollars to consider to spend and where the priorities are, spend it first. So he's a little concerned about, they talked a few times about a master plan being completed in a while, in approximately ten months. At that time they will have a whole lot more information, they can match with the water and sewer master plan to determine what the best course of action is. It could be a great deal, but they don't know that until they see the overall picture, and he's not sure they will even know then, but hopefully there will be a whole lot more engineering at that time so they can make a better decision. He's struggling with the urgency of this question as far as looking at a proposal so they can look at it sometime, as long as City Administrator Boyce tells him there isn't going to be a heck of a lot of cost in staff helping, a minimal amount of staff time then he sees no reason not to keep talking about it. But he is concerned on 100 million dollars they have to make a decision on.

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Councilor McMahon doesn't think that has anything to do with the proposal in front of them, though yes they do have that huge amount hanging over their head, but that has nothing to do with what they are bringing to us right now.

Mayor Jacobellis said his question originally was about the sewer master plan and the issue was that this is good, they're upgrading it, on paper have no issues with it. But what if the sewer master plan comes in and says you should put a 14- or 18-inch pipe with two 45's on each intersection. Then we have to go to voters, dig it up and redo it; we've spent time, energy and money, no matter how you slice it or dice it, that's what's going to happen. So that's his only concern. The master plans aren't back yet and who's to say it's not going to say it should have been completely different. Councilor Johnson said he agrees with him.

John Lewis, Project Manager for HT Investment Properties, asked to speak to that. He said that the study they did is exactly the same type of study that will be done in the master plan. They take the zoning and the area and they max it to absolutely what's allowed there and then use those calculations to stress the system at a max. So when they come in and do this sewer master plan study for your system, they will do the same exact thing and they will come up with the same calculations on the flow, because they are basing it all on existing, on the acreage and the zoning that's there. This isn't theoretical, it's based on absolutes. That won't change when they come in and do the exact same study, they are going to take the same zoning, they are going to take the same acreage, and they're going to come up with the same calculations when they stress the system and they're going to basically come up with this fix here. Further down the line, what takes place past where their study is, is what is really covered by their SDCs to the county for the sewer development fees; that's why they pay those, so they are taking care of the system covering the cost of their capacity input into the system. When they add that capacity they are paying development fees to develop that system further down the line to handle that. Now there are some issues here that they went above and they did the study and like he said, when you do your study they are going to come up with the same thing because they are going to base it on exactly what they based it on. They used the zoning master plan the city has, the acreage that's there, they come up with the maximum number of occupants that could possibly be at any point, and then they calculate that and that's what is going to come out of the master plan. He understands their concern wondering if the master plan will come out with something different, but it won't; they already did the work and calculations and there are no variables. They have come up with the absolute maximum that the system is going to need, based on what the city is zoned right now. The only way the zoning will change is if you make that change.

He said the other thing is they are proposing to pay for all of this. So there is no cost to the city to do this section. It relieves the surcharging problem that you have currently and gives it capacity for all future development in the basin and it's their cost. So even if you came back with a master plan that came back and said it should have been a 14-inch, that is something you would have to do, but you wouldn't have paid for any of this so it's not money you would have spent and now have to redo, there is no cost to you.

Councilor Johnson said that all of that may be 100% true, but whoever they hire to do the sewer master plan will work for the city and the development company doesn't. It may come out apples and apples what you say will be 100%, but he would much rather hear that from somebody that works for the city and they don't.

John Lewis said true, but it's not going to be fair for the city to ask us to wait ten months for a study to be done before they can even look at starting to build on their property. They have time constraints they would be up against, so that is why they went ahead and did this study so they could move forward on their project. And again, this is something they propose to pay all of the costs for and still pay their SDCs which should be covering those costs. The last thing he wanted to address was there was some discussion about the waterline. HT Investment Properties are gaining a \$200,000 benefit while the city is realizing a \$400,000 loss and that's really not true because they're not obligated to upsize that water line, the current size will fully handle their development. The only reason they are offering to move it to the property line is to get it out of the middle of their development because if something in the future happens we don't have the city in there tearing up their parking lot, replacing a line that they aren't very comfortable with because it's a 60 year old AC line running through the center of the development. But they can build around it and still utilize it; it's a huge benefit for the city for them to replace it because it is part of the water master plan to replace that AC pipe and it really needs to be upsized to give the capacity of that intermediate zone that is necessary. So there's a huge upsize to the city to move it. And as you said, there are setback requirements on the property lines that you put the easement there, there's already a setback there you can't build within so you really don't devalue the property by running an easement there. Councilor Sieckmann said the property you would be moving it to would have no setback. John Lewis said there would have to be some sort of setback there because they would be on the property line with their building and you wouldn't be able to be right up against their building. They just want the city to know that there is no cost to the city for this and in the master plan they were talking about a \$300,000 pipe that they are offering to install for \$90,000.

Mike Robinson asked if he could make a suggestion that the council might find helpful. He said he understands Councilor Sieckmann's concerns and said if he were in his seat he would ask the same questions. He also told Councilor Johnson that he is right and it's not the first time he has heard that and it's a fair way to proceed. He asked if they could ask staff to work with them to develop a draft development agreement and at the same time do a briefing paper that tries to answer some of the questions and then they can come back to you for another work session. If you like what you see and you think they are getting close to answering their questions, maybe you'll have more and we'd be able to answer them, then you could direct staff to work with them to finish the development agreement. If you don't like what you see, if you think there are things you simply get around, for example Councilor Sieckmann's concern, then you say that's enough, they'll go off and do the development and use the eight-inch line, and if and when the city sells the property, then that development will have to improve and build the new waterline. But maybe that's a way to proceed and they meet you halfway. Just give staff direction with them, they'll come back with something in draft, try and answer the questions, have

another work session and see if council is comfortable moving forward with it. So just a suggestion maybe about how you would want to proceed.

Councilor Reisner asked if the city property to the south was owned by ABC Inc., where would that new waterline go. Mike Robinson said that he is not an engineer but if he understood what was said tonight, you need to deal with that eight-inch waterline because of capacity, not because of pressure. So if they develop and leave that eight-inch waterline in place, he thinks Scott Tabor's concern is the access; it'll be in the middle of a development and have it somewhere else where city crews will have access to it more easily. Putting that aside, if it's adequate for them, and if ABC, Inc. buys city-owned property in the future, there would have to be more capacity in the intermediate water district, so it might not be unexpected for ABC to have to install a line, either on their property or out on the road and listening to Scott Tabor's list of utilities that are already in the road, he's not sure you've got room for it. Mike Robinson said that he's not sure if the right answer is to have Hans Tagus install a 12-inch line, or in the future if the city decides to sell the property and it's developed by a developer, they will probably have to dedicate some of that area for a new waterline. Councilor Reisner said that bottom line is they don't have to do anything. They could just build around and then they take care of the sewer like they mentioned and life goes on. Mike Robinson said that is correct. Perhaps foolishly, they thought it made sense to try and solve the problems that Scott Tabor identified for them, get the waterline off of their property and get it into a better location.

Mike Robinson told Councilor Sieckmann that they could give him good evidence that shows in fact that the city's property value won't be harmed, and it sounds like that might be what he's looking for. He also said that the reason he is suggesting that the council might be comfortable with them coming back with a draft development agreement with more answers to your questions. It's hard to answer all of them with nothing other than speculation. He thinks they could come back with some good evidence that you might want to hear before you decide on it.

Councilor McMahon said so if you were to buy ABC properties that already had that nice waterline in, that would probably be a bonus to you. Mike Robinson said he's not a developer, but maybe he should have been as he might have made more money than being a lawyer. When he works with clients, they look for commercial sites that are served by utilities. They want to buy sites they can build on. Most people aren't interested in upgrading municipal systems. So if ABC looked at that site and they knew, even though there is an easement in the rear as City Attorney Doughman said, you could put landscaping or parking over it, but knowing that they've got an intermediate pressure zone with the appropriate line to serve their property, based on his long experience in Oregon, it would be an added value. Mike Robinson told Councilor Sieckmann he feels he owes him more than his option, that's what he thinks the correct answer would be. Mike Robinson thanked the council for their time.

Mayor Jacobellis asked each Councilor what they want to do.
Councilor Nelson – Don't even have staff look at it.

Councilor Mersereau – Said he is concerned with the staff cost because there is a bunch of other stuff to do too. He's also concerned that the overall master plan may match exactly what's here; if they are doing it for nothing, then if they have to do it again later, then they aren't out any money. He feels that if staff cost is minimal he sees no reason not to direct staff to work on the development agreement and see what they come up with. He would like to see the sewer master plan complete before they give final go-ahead.

Councilor Johnson asked City Administrator Boyce for an estimated amount that staff time would be needed to do the development agreement. City Administrator Boyce said that may be hard to guess, depending on what they come up with. They may need the attorney to review it and that would cost. They may need Sisul Engineering to review some items; his impression is that his time wouldn't be over the top, he would get updates from the attorney, Sisul and Scott Tabor. Scott Tabor may have a few hours in it, but the group said they would be doing the heavy lifting on that and developing the agreement, so staff would only be reviewing it and that would keep cost down and makes a big difference. Hans Tagus said that Sisul has been involved with this for a long time and they have gone back and forth a lot on this and he is so confident that their time will be minimal that Hans Tagus will pick up the city's cost for Sisul Engineering for their review. He said that they will be saving the city \$300,000 for the waterline and the value of the development and the property that the city owns adjacent to it will increase a lot having all the infrastructure in place.

Councilor Johnson asked City Administrator Boyce if there was a mechanism in place to accommodate that. City Administrator Boyce said yes, they can track that and invoice them for it. Councilor Johnson asked if they need a letter of intent on that to do it. City Attorney Doughman said no they don't, they have representation there tonight, and technically he would argue that they have a contract already. Yes, technically speaking he would want to have a contract if they move forward on that. In the abstract you always want something in writing but in this case no, he doesn't feel it's necessary. Councilor Johnson said as long as it's a zero cost to the city, he is fine moving forward.

Councilor Sieckmann said he really doesn't want to make a decision on it and they don't have to make a decision on it and they can move forward as they need to do. They said they have been working on this for ten months or so and they have done their homework. Council doesn't have that luxury right now. As Councilor Mersereau mentioned, it is going to take the city ten months to get the master plan and that's how long they have been working on it so he's really leaning towards doing nothing, but he doesn't want to shut them out and not continue having the discussion. If they aren't looking at cost to the city and if city staff feels that they have the time to put forward on this, because he knows that they are overwhelmed in all of the sectors that will be looking at it, he would be OK with moving forward on it and discussion and see if there is an agreement that could be made.

Councilor McMahon he would move that the city spends some money and get this done, not that that is going to happen. The master plan has already been held up for three months because when it went out the first time there weren't any bids on it, so in the best light they are looking at ten months and they may again not get any RFP's so this ten months could stretch out a lot longer than I think is fair for these folks to have to do. He thinks it's a phenomenal development, he thinks it's a win for the city, and if they cap the city's cost at the \$90,000 that they said they are willing to do, and the other improvements, he thinks they should move forward on it.

Councilor Reisner wanted clarification on what "moving forward" meant. He asked if it was the development agreement that they talked about putting together. Mayor Jacobellis said it was Hans Tagus putting the development agreement together, coming up with more concrete numbers and coming back to us with answers to the questions we have asked tonight. City Attorney Doughman said that by giving staff direction to review the development agreement doesn't give any kind of commitment or agreement other than just working with them on drafting the development agreement. They will still come back, present the agreement, answer council's questions and see if they can come to an agreement to work on. Councilor Reisner said he is on board with that.

Mayor Jacobellis said they have their marching orders and they can continue working on it. Just a couple of things for the developer on his end of it – maybe addressing in that proposal what it means for you to run that line on their side of the property line to the point where it has to cross back over to city's property, what it does for them and what it does for the city. Do what you can and we'll go from there.

5. City Council Training

City Attorney Doughman said he is going to keep his portion of this rather broad and overview-ish. There is a lot here and he will do his best to answer any and all questions. They do this with all of their clients when there has been a significant turnover in council and go through it as it is laid out in the council packet. He's going to talk briefly about authority. Federal government has a constitution and state government has a constitution and in many ways the city has its constitution as well, and that's the city charter. Not every part of the country works the way Oregon does, or the way Gladstone or the other 242 cities in Oregon do. You hear a term thrown around sometimes and that is "home rule authority." It is similar to a concept they talked about in law school called Dillan's rule. The difference is that home rule authority, which you have, as do all Oregon cities, says as long as there is no state law saying you can't do something, then you can do it. Dillan's rule is the exact opposite in a way. Dillan's rule says that unless the state has a law that says they can do something, then they can't do it.

As you go west and farther west the home rule gets much stronger. And the way this often comes up, and you'll be looking at this next month in an ordinance dealing with medical marijuana facilities, you have these situations that come up and medical marijuana is a really good example, where you are trying to figure out does the city under its own rule and power have the authority to ban them or regulate them in a particular way or is that something that state law says no, you don't, you can't touch that, we're



MEMORANDUM

TO: Honorable Dominick Jacobellis
Gladstone City Councilors

FROM: David Doughman, City Attorney's Office

SUBJECT: Development Agreement Request from HT Properties

DATE: March 16, 2015

HT Properties is intending to develop the "Transue" property behind the Webster Road property the city owns. HT Properties would construct market-rate multi-family housing on the property, which the city's code permits outright. HT Properties would need to apply for design review approval for the apartments, which the Gladstone Planning Commission would consider in a public hearing.

The site presents some challenges, particularly with respect to sewer service. City staff would also like to relocate and upsize an existing water line between the city's property and the Transue property. HT Properties is proposing to make some considerable improvements to sewer service in the area and is willing to split the cost of moving and upsizing the water line.

In the packet for the March 24 meeting, the council will find a request from HT Properties' attorney Mike Robinson, asking the city to enter into a development agreement with HT Properties. Because the council will ultimately need to approve how HT Properties proposes to finance the sewer and water improvements, HT Properties is seeking an agreement with the city on these points prior to applying for design review. Generally speaking, HT Properties is proposing to evenly split the cost of the water improvements, and seek system development charge credits for a portion of the sewer improvements that will benefit properties other than the Transue property.

HT Properties will attend the March 24 meeting to discuss these issues with the council and staff in a worksession. Legally speaking, the council may approve or deny HT Properties' request in its sole discretion. From a policy point of view, the council should consider how the city will benefit from the improvements HT Properties is proposing and whether the city could afford those improvements in the absence of HT Properties' proposal. Any approval would not affect the planning commission's authority relative to the design review criteria.

RECOMMENDATION: consider approval of HT Properties' request and provide direction to staff and our office on next steps.

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PERKINS COIE

March 16, 2015

VIA EMAIL

TO: Pete Boyce
FROM: Michael C. Robinson
RE: Request for Consideration of Development Agreement for Public Utility Improvements at Gladstone City Council Work Session on March 24, 2015

Dear Pete,

I am writing on behalf of my client, HT Properties, LLC ("HT"). HT has entered into an agreement to purchase the Transue property in the City of Gladstone (the "City"). Exhibit 1 to this memorandum is a map showing the Transue property and the adjacent City-owned property.

The purpose of this memorandum is to ask that the Gladstone City Council consider directing staff to work with HT on a Development Agreement between HT and the City for the construction of public utilities serving the Transue property that will also benefit the City. The Development Agreement would not obligate the City Planning Commission or the City Council to approve a land use application for development of the Transue property but would address only the public improvements and each party's obligations under the Development Agreement.

1. What Public Improvements are Proposed?

A. Water Line.

The Development Agreement will provide for construction of a new municipal water line on the City property that will be increased in size from 8 inches to 12 inches in order to increase water pressure in the intermediate pressure zone. The existing water line is on the Transue property but is partly outside of an easement. Relocating the water line to the City-owned property will make it easier for the City to maintain the water line. The benefits of increased water pressure include enhanced fire protection. Development of the Transue property does not require the upsized water line.

HT estimates that it can install the water line for about \$180,000 based on prevailing wage.

B. Sanitary Sewer Line.

At the same time HT is installing the water line, HT will also improve an existing municipal sanitary sewer line. The sanitary sewer line improvements will consist of the following:

- Replace the existing 48-inch sanitary sewer manhole at the intersection of Hereford Street and Oatfield Road (#22900) with a 60-inch manhole,
- Construct an 8-inch overflow line between manholes #22900 and #21380 with a 6-inch removable orifice to allow metered flow to Gloucester Street, and
- Construct two (2) manholes for the overflow connection at Oatfield Road and Gloucester Street intersection creating two (2) approximate 45-degree bends.

2. Why is a Development Agreement Proposed?

The reason that HT and the City staff believe that a Development Agreement makes sense is that it defines each party's obligations and assures the City that if the Planning Commission, after a public hearing process, approves development of the Transue property, the public utilities have been resolved in advance and the City and its citizens will be assured of what benefits they will receive, while HT is assured of what its obligations and costs will be for the construction of the public utilities.

3. What would the City's Obligations Be Under a Development Agreement?

In consideration for HT's construction of the upsized water line and the sanitary sewer line improvements, the City would allow construction of the two (2) utility lines on the City-owned property adjacent to the Transue property, share equally with HT the cost of the water line construction, and agree to fixed system development charge fees and credits for HT as of the date of the Development Agreement. The City will share the costs of the sanitary sewer line improvements. The City will need to reserve a 20 foot wide area for the water and sanitary sewer lines.

4. Conclusion.

We look forward to discussing this issue with City staff and the Gladstone City Council at the City Council work session on March 24, 2015.

MCR:rsr

Enclosure

cc: David Doughman (via email) (w/ encl.)
 Hans Thygeson (via email) (w/ encl.)
 Andrew Tull (via email) (w/ encl.)

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MEMORANDUM OF UNDERSTANDING

This non-binding Memorandum of Understanding ("MOU") is made and entered into this 27 day of July, 2014, by and between HT PROPERTIES, LLC ("HT Properties") and the CITY OF GLADSTONE, a political subdivision of the State of Oregon (the "City") (collectively, "the Parties"), for the purpose of forming a Home Rule Development Agreement, not subject to ORS 94.504 – 94.528, that will govern water and sanitary sewer service improvements necessary for a multi-family residential development (the "Proposed Development").

RECITALS

1. HT Properties proposes to develop property generally located at 18121 Webster Road for multi-family housing (the "Site"). **Exhibit A.** The Site is zoned Multi-Family Residential ("MR"). Any future multifamily development on the Site is subject to a Design Review process pursuant to Gladstone Zoning Code ("GZC") 17.80.021.
2. The Site is proposed to be developed for multi-family residential uses. Multi-family residential uses are permitted outright in the MR zone, pursuant to GZC 17.14.020.
3. GZC 17.80.061 sets forth the submittal requirements for a Design Review application. The application must include an explanation of planned utilities but the GZC does not provide a process for reviewing the adequacy of public utilities. Therefore, the Parties believe a Development Agreement is a proper mechanism to establish what public facility improvements, if any, may be required to serve the Proposed Development.
4. An existing water line crosses the Site and must be relocated to accommodate the Proposed Development, while also providing for adequate public service and maintenance access.
5. The Parties have agreed that a study of the adequacy of the existing sanitary sewer service to the subject property is required. HT Properties understands that there are several parts of the current sanitary sewer system that are or may be deficient. The City wishes HT Properties to investigate the downstream sanitary sewer system in order to determine what improvements are needed to serve the Proposed Development, if any, and HT Properties has agreed to do so.

HT Properties: HT PROPERTIES, an Oregon limited liability company

By: Hans Hegger
Signature

Hans Hegger
Printed Name

Managing member
Title

8/21/2014
Date

City: CITY OF GLADSTONE, an Oregon municipal corporation

By: Pete Boyce
Signature

Pete Boyce
Printed Name

City Administrator
Title

8/6/2014
Date

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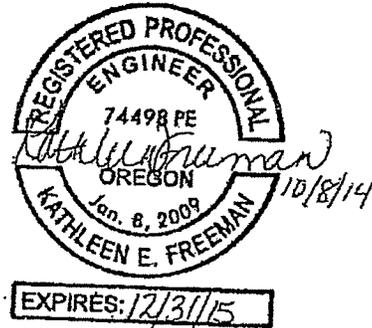


MEMORANDUM

To: Patrick Sisul, PE
Sisul Engineering

From: Kathleen Freeman, PE
Water Resources Project Manager

Date: October 8, 2014



Project Name: Transue Property
Project No: 14208
RE: Sanitary Sewer Report for Transue Property – Response to Comments

This memorandum is intended to supplement the revised sanitary sewer report for the Transue Property at 18121 Webster Road in Gladstone, Oregon. The revisions are based on comments provided by Sisul Engineering on September 25, 2014 and the email correspondence dated October 7, 2014. We have provided responses to each comment noted below. Please do not hesitate to contact us if there are any questions.

Basin Related Comments

1. Basin 1 on your map extends quite a bit farther north than the area that actually drains back this direction. Check your map versus the City of Gladstone Sanitary Sewer Map that we sent you earlier. Or if you need us to resend the city sewer map to you, let us know. Your Basin 1 currently includes about 50 homes do not drain into Hereford Street system.
 - Basin 1 has been revised per the comments above.
2. Your zoning for Basin 10 is listed as Office Park. This should be Open Space.
 - Basin 10 has been revised to be Open Space instead of Office Park.
3. For your Future Flows calculation, you assume that Basin 12 will not be developed any further than it currently is. Basin 12 should be assumed to be developed. The City does not want an improvement completed that will have to be upgraded when the next development in line is constructed. The City wants to make sure that if an improvement is made to the sewer system that it will be capable of accommodating buildout of Basins 8 and 12. Further clarification from the email dated 10/7/2014:
 - o Basin 8 – It appears that you assumed full buildout and applied a 1.25 contingency factor, so the Basin 8 calculation should be fine.
 - Per the email, modifications to Basin 8 calculations have not been made.
 - o Basin 12 – The future flow calculations should assume full buildout for commercial zoning. Per the Portland Manual, the net acreage can be determined by multiplying the total area by a factor of 0.85. I believe that you were assuming a unit flow rate of 3000, which is consistent with the Portland

Manual. Additionally, the email states that the existing commercial development at the south end of the basin should be used for the net acreage.

- *For existing and future conditions, the calculations for Basin 12 has used commercial zoning. Additionally, per the email dated October 7, 2014, the net acreage for the existing flow calculation has used the area of existing commercial development at the south end of the basin (approximately 0.87 acres). Additionally, the future flow conditions used the multiplier of 0.85 times the total acres to calculate the net acres.*
4. Basin 20 is designated R-7.2, but the south portion of this basin is R-5 according to the City Zoning Map.
 - *Basin 20 has been revised to eliminate the portion that was shown as R-7.2. Basin 23 now includes that area.*

Calculation Comments

1. On Page 4, in your discussion of XPSTORM Input, the n value is referred to as 0.13 instead of the 0.013 used in the calculations.
 - *The text is been modified to read 0.013 for the n value.*
2. The existing schools, parks, churches and commercial sites were assumed to remain unchanged. A contingency factor of 1.25 was applied to the future flows to account for future changes. With the exception of Basins 8 & 12 we believe that this is a valid assumption. Please calculate Future Flows assuming buildout of Basins 8 & 12.
 - *Future conditions were modeled for Basin 8 at 41.6 dwelling units/net acre with a contingency factor of 1.25.*
 - *Per email dated October 7, 2014, the contingency factor for Basin 12 of 1.25 has been eliminated. The total area has been multiplied by 0.85 to determine the Net Acres and future flow conditions.*
3. Please explain how the Gallons/Day figures were arrived at for the Commercial, Industrial and Office Park zoned basins, as we cannot determine whether these figures were based on actual water usage or on the developed site and a unit flow rate.
 - *Following discussions with Scott Tabor (Public Works Director) at the City of Gladstone, the City of Portland's Sewer and Drainage Facilities Design Manual, Chapter 5 was utilized to calculate the existing and future design flows. The estimated design flows were based on population and zoning data, flow allocations, contingency and peaking factors. The Gallons/Day figures were based on Section 5.2.5 Unit Wastewater Flow Rates from the City of Portland's Design Manual which stipulates gallons/net acre per day for different land uses. The values used were not based on actual water usage.*
4. Kraxberger Middle School calculations were based on 500 students. This is a valid assumption as 2013-14 enrollment summary identifies 505 students.

Additional Comments

1. The City will require replacement of the manhole at Hereford Street and Oatfield Road. The new manhole will have to be oversized in order to permit a broader sweep of the channel from Oatfield to Hereford Street than is permitted with a 48-inch diameter manhole.
 - *The Client agrees to construct a new 60" manhole at Hereford Street and Oatfield Road to permit a broader sweep of the channel.*

2. In order to allow for easier cleaning and for flexibility, the new pipe in between Hereford Street and Gloucester Street should be 8-inch diameter with a six-inch removable orifice used to meter the flow to Gloucester.
 - *The Client agrees to install an 8-inch diameter pipe with a 6-inch removable orifice between the manhole at Hereford Street and Gloucester Street.*

3. The City will require two manholes at the Oatfield Road / Gloucester Street intersection that create two approximate 45 degree bends, rather than one 90 degree bend.
 - *The Client agrees to construct two manholes at the Oatfield Road/Gloucester street intersection that creates two approximate 45 degree bends.*

Summary

With the revisions discussed above, we feel the proposed upgrades will meet the City's expectations for future development to the Transue Property. If there are further questions, please do not hesitate to ask.

PROPOSED SANITARY SEWER AND WATER LINE UPGRADES

**TRANSUE PROPERTY
Gladstone, OR**

October 8, 2014
Revised from August 29, 2014

Prepared For:

HT Investment Properties, LLC
1962 Wallace Road, NW
Salem, Oregon 97304



EXPIRES: 12/31/15

Prepared By:
3J Consulting, Inc.
5075 Griffith Drive, Suite 150
Beaverton, Oregon 97005
Project No: 14208
kef

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EXECUTIVE SUMMARY

The purpose of this report is to provide revisions to our original report dated August 29, 2014, per comments from Sisul Engineering dated September 25, 2014. Additionally, this report will describe our findings regarding the extent of any necessary sanitary sewer system upgrades which may be required to facilitate the development of the Transue property. The Transue property is located at 18121 Webster Road in Gladstone. This report was prepared in order to examine the effects of the proposed development on the sanitary sewer system within the immediate downstream vicinity of the project. This report also discusses the need for the relocation of the existing AC water transmission line traversing the site and proposes a possible alignment for the new water line. The following improvements are being proposed and will be discussed further in this report:

- Replace the existing 48-inch sanitary sewer manhole at the intersection of Hereford Street and Oatfield Road (#22900) with a 60-inch manhole,
- Construct an 8-inch overflow line between manholes #22900 and #21380 with a 6-inch removable orifice to allow metered flow to Gloucester Street,
- Construct two manholes for the overflow connection at the Oatfield Road and Gloucester Street intersection creating two approximate 45 degree bends, and
- Relocate the existing 8-inch AC water transmission line.

Sanitary Sewer Analysis and Upgrades

The proposed Transue Property project will construct an apartment complex or some other multi-family dwelling facility on the property at the intersection of Webster Road and Oatfield Road within the City of Gladstone, Oregon. In order for the property to be developed, the City has required an analysis of the existing sanitary sewer (SS) system, downstream of the property. 3J has prepared this report to analyze the existing conditions of the system and to determine the extent of any required SS upgrades for the downstream system using the calculated future flow from the proposed development of the Transue site and surrounding properties. Additionally, this revised report addresses the comments raised by Sisul Engineering in the memorandum dated September 25, 2014 and email correspondence dated October 7, 2014 (See Technical Appendix: Exhibits – Sanitary Sewer Report for Transue Property-Response to Comments Memorandum).

Following discussions with Scott Tabor (Public Works Director) at the City of Gladstone, the City of Portland's Sewer and Drainage Facilities Design Manual, Chapter 5 was utilized to calculate the existing and future design flows. The estimated design flows were based on population and zoning data, flow allocations, contingency and peaking factors. The existing SS in E Gloucester and E Herford Streets and upstream on Oatfield and Webster Roads were surveyed. The surveyed data was input into the computer software program XPSTORM along with the calculated flow rates (modeled as constant flow) to determine capacity issues in the existing pipes.

Based on the XPSTORM model (and discussions with the City), the manhole at Oatfield Road and E Herford Street (#22900) experiences surcharge conditions. Additionally, approximately 1,500 feet downstream of this manhole on E Herford Street, a 20.7 foot long pipe is at a negative 0.24% slope which creates surcharge conditions as well (between manholes #22200 and 22100).

The XPSTORM model shows that the peak flows in the 10-inch diameter existing SS line within E Gloucester Street is well below capacity. Additionally, the City has not voiced concerns regarding capacity issues within the system within Gloucester. The SS line connects with the line from E Herford Street at the intersection of E Gloucester Street and Portland Avenue.

This report concludes that the least expensive and least intrusive solution to the existing surcharge problems on E Herford Street, as well as future development upstream is to install an overflow line between the two eastern most manholes on E Herford Street and E Gloucester Street (#22900 and 21380, respectively). This line would need to be a 6-inch diameter line 260 feet long. The installation of this line would alleviate all existing surcharge conditions on E Herford Street without creating any capacity issues on E Gloucester Street, even with the future flows from the Transue property apartments.

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Water Line Upgrades

There is an existing 8-inch asbestos cement (AC) water transmission line currently traversing the Transue property from Webster Road through to Oatfield Road via a series of utility easements (the exact location of the line and associated easement has not been determined). Construction of the proposed site will almost certainly require the relocation of the transmission line in order to avoid conflicts with new structures and to allow for continued access for maintenance.

After discussing the options available to the Applicant and the City, all parties are in agreement that the newly relocated line would be best located along the edges of properties where the line would not be a restriction on future building(s). The placement of the utility would typically require a 15 foot wide easement to allow for future access and maintenance activities.

Both the Applicant and the City's public works department are aware that the City owns approximately 11.5 acres of commercially zoned land immediately to the south of the Transue property. This property presents an ideal opportunity for the relocation of the water line as the property has access to both Oatfield and Webster Roads via a linear alignment, rather than a meandering route through a private development. The property is also an ideal candidate for the pipe's relocation because the property is under one ownership and is currently undeveloped.

PROJECT LOCATION

The proposed Transue Property is located on the property at the intersection of Webster Road and Oatfield Road within the City of Gladstone, Oregon (See Figures 1 and 2).

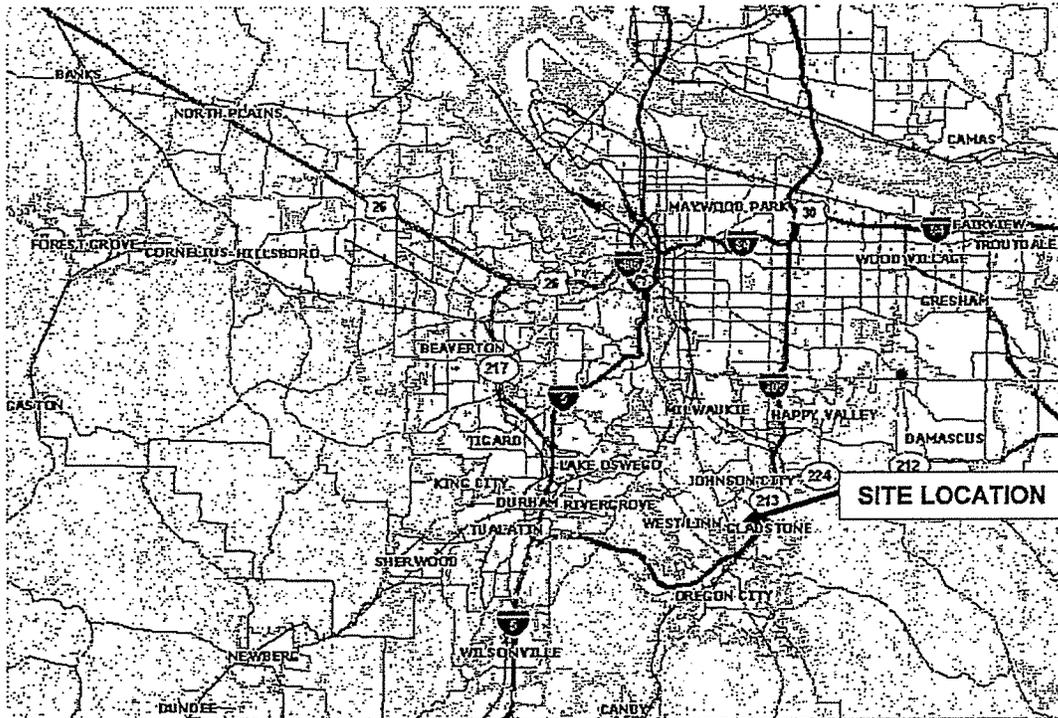


Figure 1 - Vicinity Map

4-43

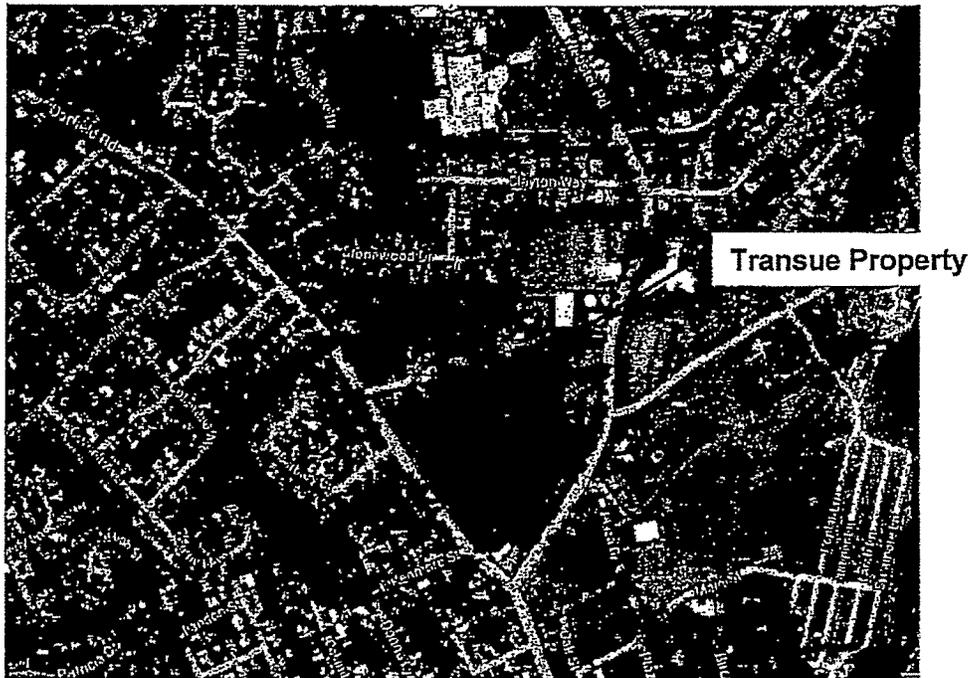


Figure 2 - Site Location

SANITARY SEWER ANALYSIS

EXISTING CONDITIONS

SS Basin

The City's zoning maps and contour information from Metro's RLIS GIS database were used to determine the basin areas for the SS flows draining to both E Herford Street and E Gloucester Street (See Technical Appendix: Exhibits – SS Basin Delineation). Additionally, an exhibit provided by Sisul Engineering showing the sanitary sewer map for the area was utilized (See Technical Appendix: Exhibits – Preliminary Sanitary Sewer Map).

The Transue property is located in Basin 8 as shown on the SS Basin Delineation exhibit. For the existing flow conditions the site was assumed to have 0.2 dwellings per net acre.

SS Survey

Portions of the SS system downstream of the Transue property were surveyed. The following includes the surveyed lines:

- Up to manhole #28200 on SE Cason Road,
- Up to manhole #28110 on Webster Road,
- Up to manhole #23100 and down to manhole #22900 on Oatfield Road,
- Down to manhole #22100 on E Herford Street, and
- All of E Gloucester Street down to manhole #21300 at the intersection of Portland Avenue and E Gloucester Street.

SS Flow Calculations

As previously mentioned, the existing and future flows for each basin flowing to the SS system were calculated using Chapter 5 of the City of Portland's Sewer and Drainage Facilities Design Manual. The estimated design flows were based on population and zoning data, flow allocations, contingency and peaking factors. The following assumptions were made for the flow calculations:

- City of Gladstone's Community Commercial (C2) zoning is equivalent to the City of Portland's Neighborhood Commercial (CN2) Zoning
- Existing schools, parks, churches and developed commercial sites will remain unchanged in the future design flows.
- Assumed schools have an average daily sanitary sewer flow of 15 gallons/day/student with Kraxberger Middle School having 500 students. This is a common factor.
- Assumed the Churches (2) as commercial Low Density (3,000 gallons per net acre per day)
- Assumed Northwest Behavioral Healthcare as industrial (5,000 gallons per net acre per day)
- The Contingency Factor that the City of Portland was not utilized for existing conditions. During future conditions, a factor of 1.25 was used for basins upstream of node 22900, excluding fully built out residential zones (R-7.2 and R-5):

See the Technical Appendix: Calculations – Existing and Future Flow Calculations (2 Pages).

Existing SS System Condition

Prior to modeling the existing SS system, the City expressed concerns that there has been sewage overflows at the manhole in the intersection of E Herford and Oatfield Road (#22900). They have stated that this could be an I/I issue with the upstream system; however, the line just upstream of this manhole is at a 4.8 percent slope when it enters the manhole. It abruptly changes to just 0.58 percent exiting the manhole (at a 90 degree angle). Additionally, approximately 1,500 feet downstream of this manhole on E Herford Street, a 20.7 foot long pipe is at a negative 0.24% slope which creates surcharge conditions as well (between manholes #22200 and 22100). The flooding is likely due to a combination of I/I issues and the configuration of the SS line. The SS line on E Herford Street begins as an 8-inch CSP, followed by a 12-inch tile and finally a 15-inch tile before entering a 15-inch tile on Portland Avenue.

The existing SS on E Gloucester is a 10-inch line. The XPSTORM model shows that in every pipe segment, the maximum depth of flow is 27% of capacity (assuming at capacity the pipe flows at 94% full).

HYDROLOGIC ANALYSIS

XPSTORM Input

To model the existing and future flows for each basin, the calculated flow rates were input into XPSTORM using a constant flow at each manhole designated on the flow calculation sheets. A manning's coefficient of 0.013 was used in each pipe segment. At each 90 degree bend at a manhole, an entrance and exit loss of 1 was used.

System Characteristics

Maximum flow in a pipe occurs at approximately $0.94d_o$ (Depth of flow section (d_o) – depth of flow normal to the direction of flow). At $0.94d_o$ the section factor of uniform flow has a maximum value which results in optimum flow for a section without surcharge conditions. Additionally, the capacity of a pipe is measured by the ratio of maximum flow to design flow (Q_{max}/Q_{design}). When this ratio is greater than 1, surcharge conditions will occur.

System Performance – Existing SS Systems

As the XPSTORM output data shows, several segments within Herford Street experience surcharge conditions when modeled with existing flow rates (See the Technical Appendix: XPSTORM Output – Existing Sanitary Sewer Conveyance Data with Existing Flow-Herford Street and Upstream). Additionally, the existing SS on Herford Street was modeled using the future flows which produced out of system flooding

at manhole 22900 (See Technical Appendix: XPSTORM Output – Existing Sanitary Sewer Conveyance Data with Future Flow-Herford Street and Upstream). In three pipe segments the system was surcharging with 0.94do greater than 0.94 and one segment greater than 1 for Q_{max}/Q_{design} .

As previously discussed, the Gloucester Street SS is performing at or below 0.27do and all pipe segments are well below 1 for Q_{max}/Q_{design} (See the Technical Appendix: XPSTORM Output – Existing Sanitary Sewer Conveyance Data with Existing Flow-Gloucester Street).

PROPOSED UPGRADE

To alleviate the capacity issues in Herford Street, an 8-inch diameter overflow pipe with a 6-inch removable orifice (used to meter the flow to Gloucester) from manhole 22900 to 21380 is being proposed (per the request of the City). This solution will adequately convey overflow from the upstream SS system (using future flow calculations) to the existing SS on Portland Avenue without surcharge conditions in Gloucester Street (See Technical Appendix: XPSTORM Output – Overflow to Manhole 21380 on Gloucester Sanitary Sewer Conveyance Data with Future Flow-Herford Street and Upstream and Gloucester Street). The proposed improvement will provide adequate capacity for the impacts of anticipated development of the Transue Property because it will not only improve the downstream conditions on Herford Street but adequately convey the future flows from the future development.

In addition to the proposed upgrade noted above, Sisul Engineering and the City has requested the following to be completed as part of the upgrades:

- Replace the manhole at Hereford Street and Oatfield Road with a 60" manhole to permit a broader sweep of the channel from Oatfield Road to Hereford Street;
- Install two (2) manholes at the Oatfield Road/Gloucester Street intersection creating two approximate 45 degree bends, rather than one 90 degree ben.

WATER LINE UPGRADE

Existing Water Transmission Line

The City has indicated that an 8" transmission line currently traverses the Transue property from Webster Road through to Oatfield Road via a series of utility easements. Figure 3 below shows only an approximate location as the water line was not as-built when constructed. Construction of the site will almost certainly require the relocation of the transmission line in order to avoid conflicts with new structures and to allow for continued access for maintenance.

4-46

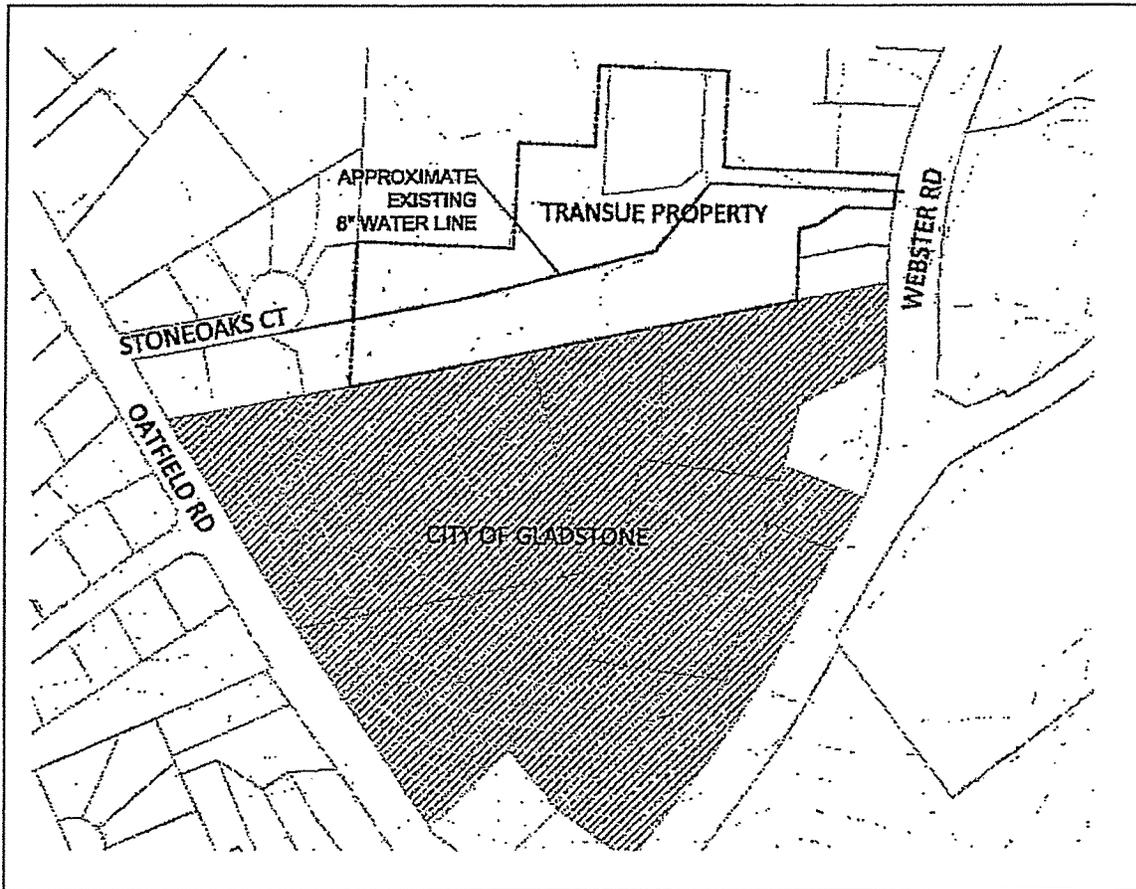


Figure 3 – Approximate Location of Existing 8" AC Water Line

Proposed Water Transmission Line Relocation

After discussing the options available to the Applicant and the City, all parties are in agreement that the newly relocated line would be best located within a building setback, rather than under infrastructure or pavement. The placement of the utility would typically require a 15 foot wide easement to allow for access for future access and maintenance activities.

Both the Applicant and the City's public works department are aware that the City owns approximately 11.5 acres of commercially zoned land immediately to the south of the Transue property. This property presents an ideal opportunity for the relocation of the water line as the property has access to both Oatfield and Webster Roads via a linear pathway, rather than through a meandering route. The property is also an ideal candidate for the pipe's relocation because the site is under one ownership and it is undeveloped.

Figure 4 shown below proposes a new alignment for the water transmission line over the City's property. The proposed width of the easement for the transmission line and maintenance access will be 15 feet.

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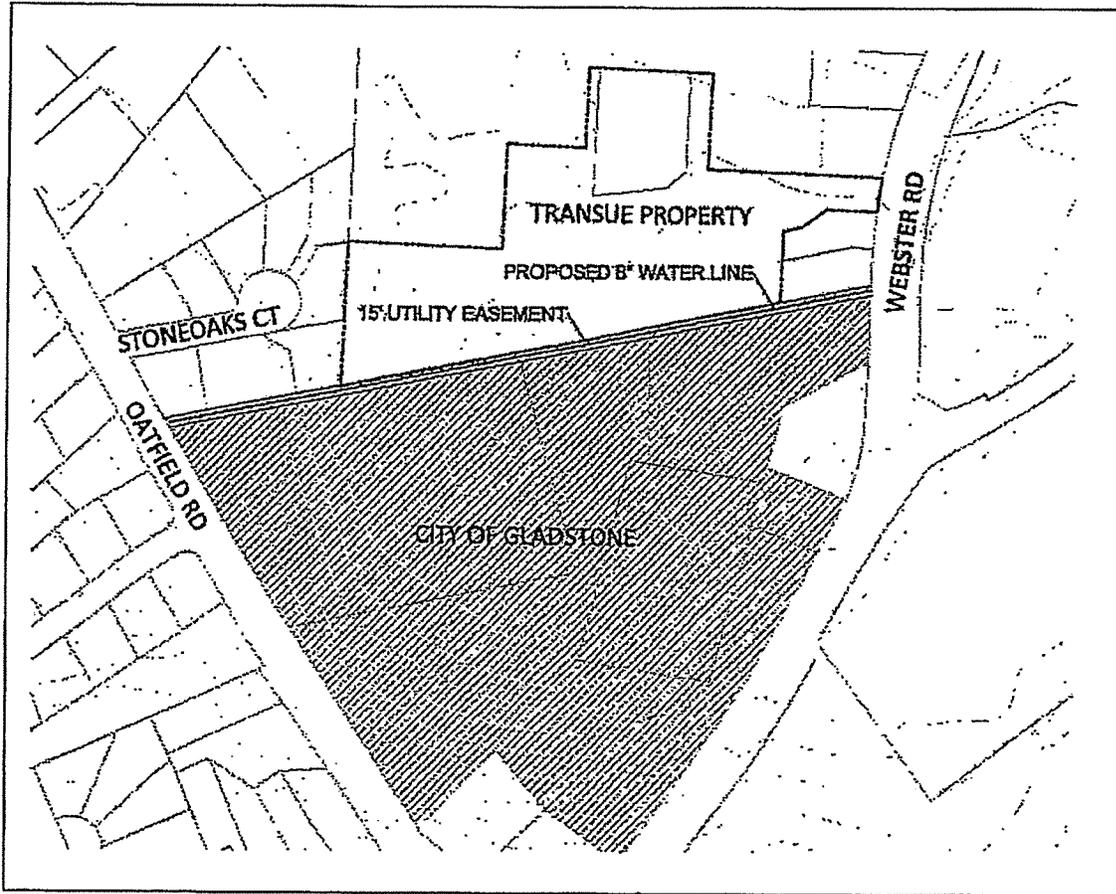


Figure 4 – Proposed Relocation of Water Line

SUMMARY

The proposed upgrade to the existing sanitary sewer system will alleviate flooding in E Herford and accommodate the addition of future flows with relatively little disturbance to the area. The proposed 8-inch AC water line relocation will provide a linear pathway around the Transue property while avoiding all future structures.

TECHNICAL APPENDIX

Exhibits

- Sanitary Sewer Report for Transue Property-Response to Comments Memorandum & Email Correspondence
- SS Basin Delineation – Exhibit 1.0
- SS Basin Delineation – Exhibit 1.1
- SS Basin Delineation – Exhibit 1.2
- Preliminary Sewer Map

Calculations

- Existing Flow Calculations
- Future Flow Calculations

XPSTORM Output

- XPSTORM Schematic Layout
- Existing Sanitary Sewer Conveyance Data With Existing Flow-Herford Street and Upstream
- Existing Sanitary Sewer Conveyance Data With Future Flow-Herford Street and Upstream
- Overflow to Manhole 21380 on Gloucester Sanitary Sewer Conveyance Data with Future Flow-Herford Street and Upstream
- Existing Sanitary Sewer Conveyance Data With Existing Flow-Gloucester Street
- Overflow to Manhole 21380 on Gloucester Sanitary Sewer Conveyance Data with Future Flow-Gloucester Street

REFERENCES

1. Sewer and Drainage Facilities Design Manual, City of Portland, July 2011

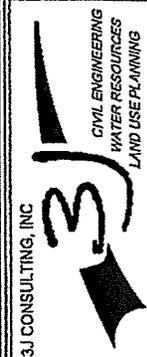
EXHIBITS



SEE EXHIBIT 1.1 FOR CONTINUATION

LEGEND

- EXISTING 8S LINE WITH FLOW DIRECTION
- EXISTING 8S MANHOLE WITH STRUCTURE IDENTIFIER
- 8 DU/ACRE
- SINGLE-FAMILY RESIDENTIAL R-7.2
- 8.7 DU/ACRE
- SINGLE-FAMILY RESIDENTIAL R-6
- 8.7 DU/ACRE
- MULTI-FAMILY RESIDENTIAL MR
- 41.5 DU/ACRE
- COMMUNITY COMMERCIAL C2
- OFFICE PARK - OP
- SCHOOL (ZONED SINGLE FAMILY R-7.2)
- TRANSUE PROPERTY



3J CONSULTING, INC.

SS BASIN DELINEATION TRANSUE PROPERTY

SS Analysis

Exhibit 1.0

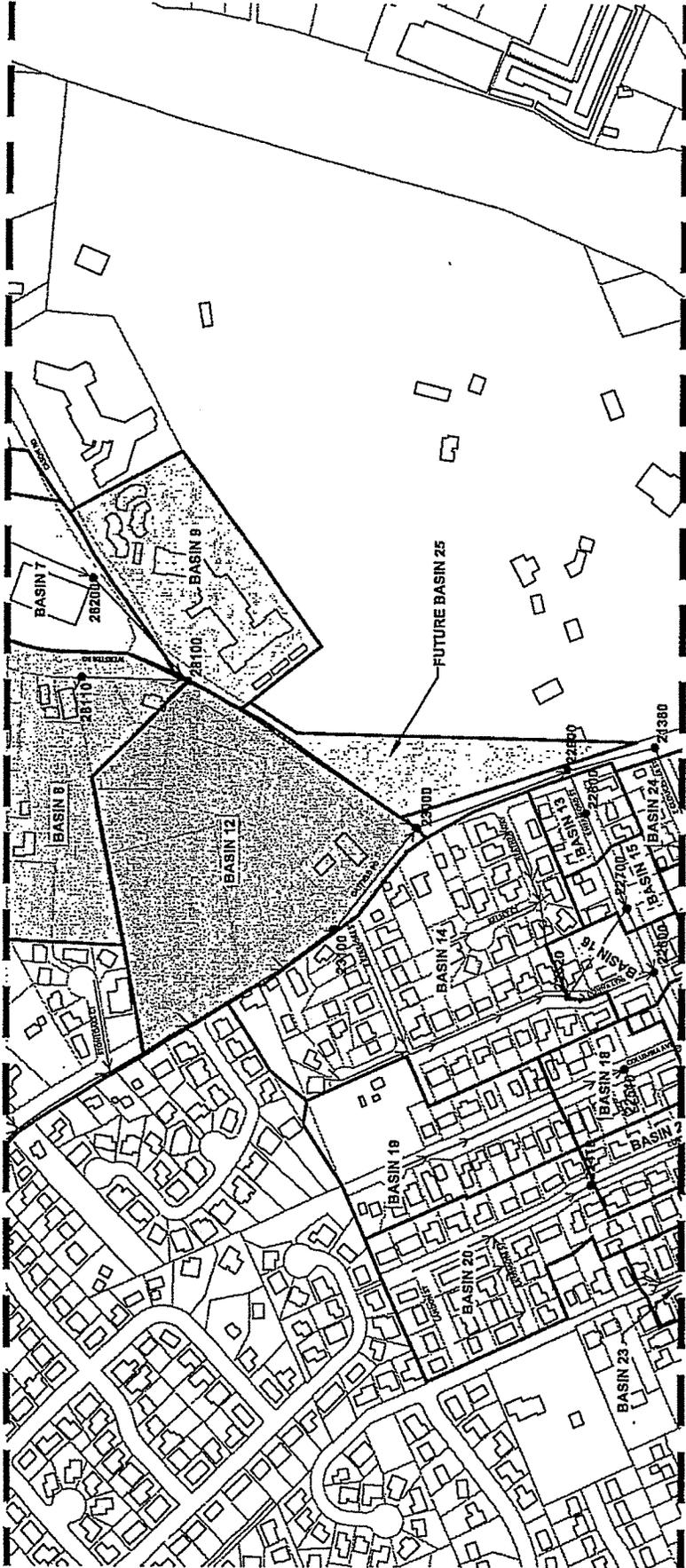
Date: 10/08/14

By: KEF

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SEE EXHIBIT 1.0 FOR CONTINUATION



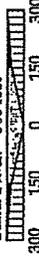
SEE EXHIBIT 1.2 FOR CONTINUATION

LEGEND

- ← 28200 ← EXISTING SS LINE WITH FLOW DIRECTION
- ▭ 28200 EXISTING SS MANHOLE WITH STRUCTURE IDENTIFIER
- ▭ SINGLE-FAMILY RESIDENTIAL R-7.2 8 DU/ACRE
- ▭ SINGLE-FAMILY RESIDENTIAL R-5 8.7 DU/ACRE
- ▭ MULT-FAMILY RESIDENTIAL MR 41.8 DU/ACRE
- ▭ COMMUNITY COMMERCIAL C2
- ▭ OFFICE PARK - OP
- ▭ SCHOOL (ZONED SINGLE FAMILY R-7.2)
- ▭ TRANSUE PROPERTY



Scale: 1 inch = 300 feet



3I CONSULTING, INC



SS BASIN DELINEATION TRANSUE PROPERTY

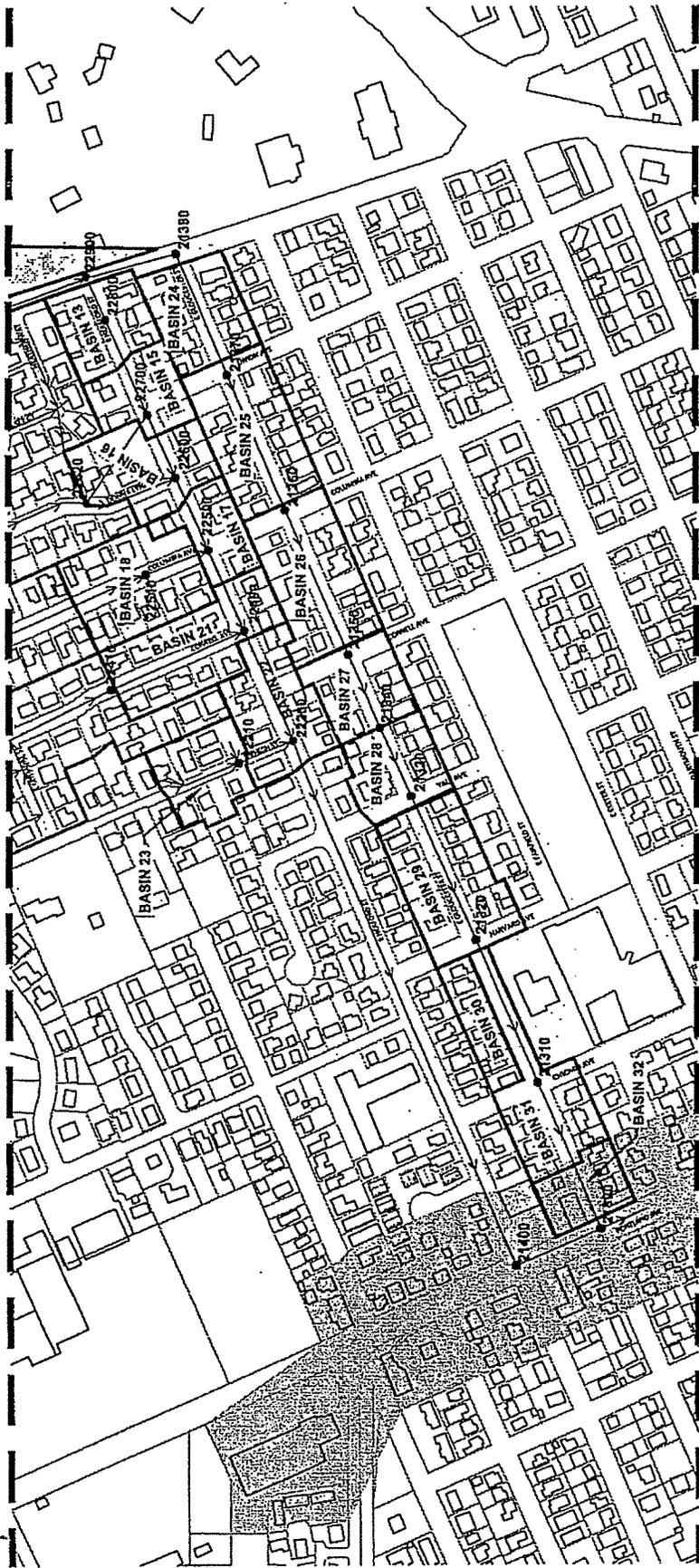
SS Analysis

Exhibit 1.1

Date: 08/26/14

By: KEF

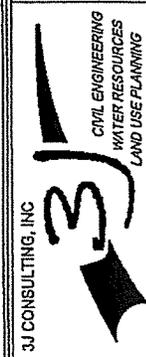
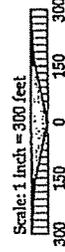
SEE EXHIBIT 1.0 FOR CONTINUATION



SEE EXHIBIT 1.2 FOR CONTINUATION

LEGEND

- EXISTING SS LINE WITH FLOW DIRECTION
- EXISTING SS MANHOLE WITH STRUCTURE IDENTIFIER
- SINGLE-FAMILY RESIDENTIAL R-7.2 6 DU/ACRE
- SINGLE-FAMILY RESIDENTIAL R-5 8.7 DU/ACRE
- MULTI-FAMILY RESIDENTIAL MR 41.6 DU/ACRE
- COMMUNITY COMMERCIAL C2
- OFFICE PARK - OP
- SCHOOL (ZONED SINGLE FAMILY R-7.2)



SS BASIN DELINEATION TRANSUE PROPERTY

SS Analysis

Exhibit 1.2

Date: 08/28/14

By: KEF

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CALCULATIONS

EXISTING FLOW CALCULATIONS

BASIN	Drains To	Zoning	Total Area (acres)	Non-Developable Area (acres)	Net Acre	Dwelling Units/Net Acre	*Occupants/Dwelling Unit	†Gallons/Occupants	‡Contingency Factor	§Unit Flow Rate/Net Acre/Day (gpcd)	¶Gallons/Day	‡Conversion to cfs	‡Basin Flow (cfs)	‡Total Average Flow with /I (cfs)	‡Peak Factor	‡Peak Design Flow (cfs)
1	28200	R-7.2	27.447	6.721	20.726	6	2.5	80	N/A	N/A	N/A	1.547E-06	0.040	0.072	3.460	0.249
2	28200	R-7.2	1.903	0.195	1.708	6	2.5	80	N/A	N/A	N/A	1.547E-06	0.002	0.004	4.657	0.018
3	28200	Open Space	7.664	0.000	7.664	N/A	N/A	N/A	N/A	750	98	1.547E-06	1.514E-04	1.514E-04	6.465	0.001
4	28200	School	12.235	2.000	10.235	N/A	N/A	N/A	N/A	7500	7500	1.547E-06	0.012	0.027	3.816	0.105
5	28200	Commercial	2.199	1.000	1.199	N/A	N/A	N/A	N/A	3000	2502	1.547E-06	0.004	0.006	4.473	0.026
6	28200	Commercial	2.764	0.529	2.235	N/A	N/A	N/A	N/A	3000	5671	1.547E-06	0.009	0.010	4.245	0.041
7	28200	Industrial	4.284	3.684	0.6	N/A	N/A	N/A	N/A	5000	8933	1.547E-06	0.013	0.014	4.091	0.057
Total To 28200																
8	28110	Multi-Family	10.532	0.450	9.882	0.2	2.2	80	N/A	N/A	N/A	1.547E-06	0.001	0.016	4.095	0.064
9	28100	Office Park	6.591	5.089	1.442	41.6	2.2	80	N/A	N/A	N/A	1.547E-06	0.015	0.019	3.970	0.074
10	23100	Open Space	1.886	0	1.886	N/A	N/A	N/A	N/A	750	598	1.547E-06	6.152E-04	6.152E-04	5.608	0.003
11	23100	R-7.2	56.735	13.245	43.49	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.088	0.158	3.195	0.505
Total To 23100																
12	23000	Commercial	14.003	13.138	0.865	N/A	N/A	N/A	N/A	3000	3468	1.547E-06	0.005	0.007	4.402	0.080
13	22800	R-5	1.568	0.448	1.12	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.005	4.547	0.022
14	22620	R-7.2	15.203	1.993	13.21	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.022	0.039	3.682	0.144
15	22700	R-5	1.9	0.464	0.838	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.002	0.004	4.684	0.017
16	22600	R-5	2.023	0.488	1.535	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.004	0.007	4.404	0.029
17	22500	R-5	1.155	0.512	0.643	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.002	0.003	4.810	0.013
18	22510	R-5	2.462	0.593	1.929	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.005	0.008	4.303	0.036
19	22510	R-7.2	5.819	0.818	5.001	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.010	0.017	3.996	0.070
Total To 22510																
20	22410	R-7.2	6.146	1.485	4.661	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.009	0.016	4.023	0.065
21	22400	R-5	2.603	0.685	1.918	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.008	4.306	0.036
22	22200	R-5	2.201	0.755	1.446	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.004	0.006	4.481	0.028
23	22210	R-5	3.217	0.204	3.013	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.008	0.013	4.113	0.054
24	21960	R-5	1.847	0.426	1.421	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.004	0.006	4.439	0.027
25	21360	R-5	2.746	0.909	1.837	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.005	0.008	4.325	0.035
26	21350	R-5	2.806	0.909	1.897	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.008	4.311	0.036
27	21340	R-5	1.618	0.7	0.918	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.004	4.640	0.019
28	21950	R-5	1.636	0.659	0.967	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.004	4.615	0.019
29	21320	R-5	2.857	0.944	1.913	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.004	4.615	0.019
30	21310	R-5	0.918	0	0.918	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.005	0.008	4.307	0.036
31	21310	R-5	2.206	1.224	0.982	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.004	4.640	0.019
32	21300	Commercial	1.084	0.234	0.85	N/A	N/A	N/A	N/A	3000	3529	1.547E-06	0.003	0.007	4.997	0.030

Table 5.2 from City of Portland's Sanitary and Drainage Design Manual

*Section 5.2.2 from City of Portland's S&S DD Manual: Single Family = 2.8 Occupants, Multi-Family = 2.2 Occupants

†Page 5-7 from City of Portland's S&S DD Manual: Domestic per capita flow = 80 gal/capita day (gpcd)

‡Flow Calculation assumed 15 gallons/day/student with 500 students

§Proposed location of Webster Road Apartments. Area shown above is existing conditions.

¶Property is an assisted living development. Considered as Multi-Family with 41.6 DU/AC.

**Not used.

††Contingency Factor is only used for future design conditions as it's a factor used for changing land uses within the drainage basin. This factor will be used for all basins upstream of node 23000 in the future flow calculations.

‡‡Assumed 1,000 gallons per net acre per day for /I. Open space is assumed to have zero /I.

‡‡‡Peak Factor (PF) is used to convert Average Daily Flow (ADF) to Peak Design Flow (PDF): PF = 2.65 (Total Average Flow)^{0.324}

‡‡‡PDF = ADF X PF

EXISTING FLOW CALCULATIONS

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FUTURE FLOW CALCULATIONS

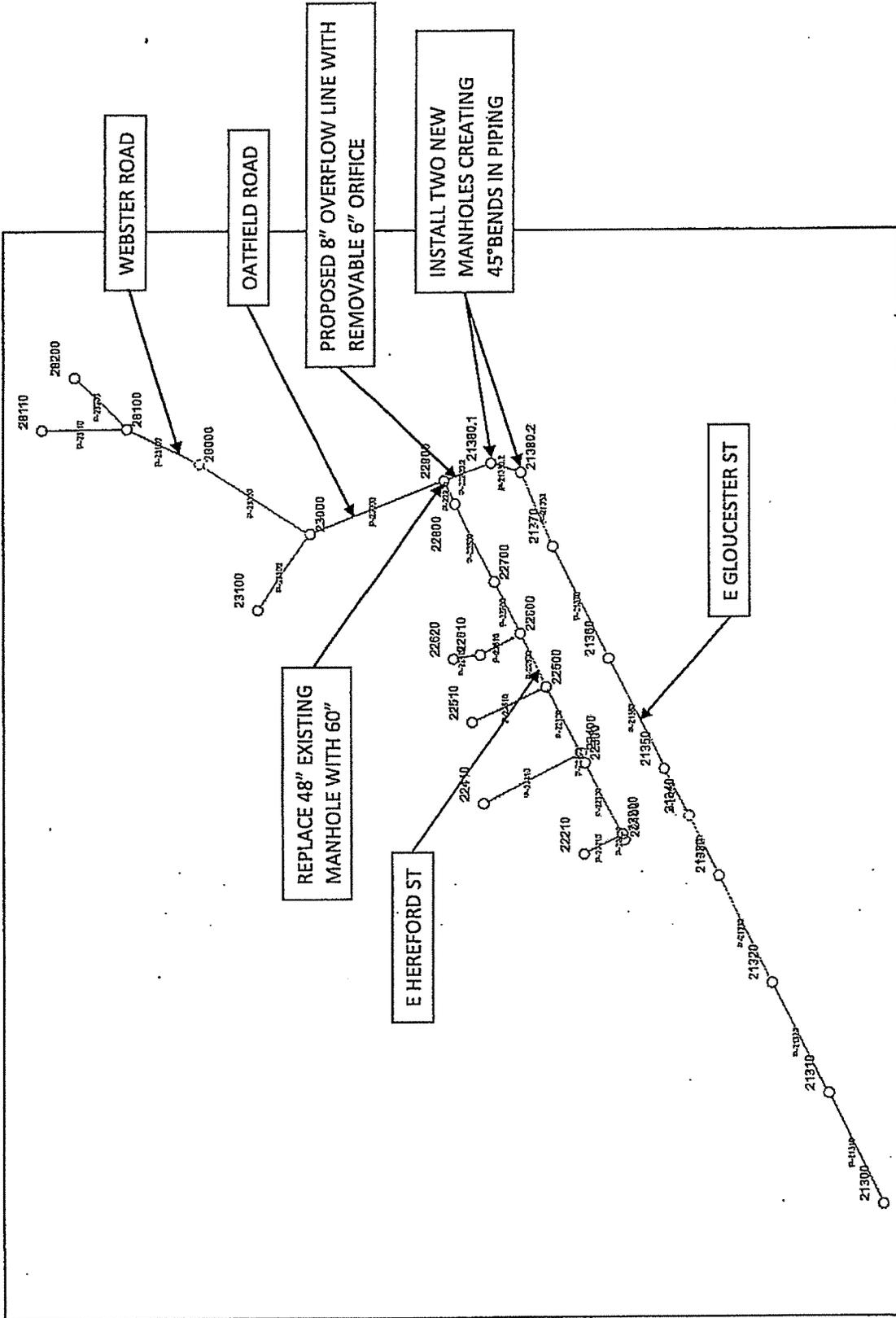
BASIN	Drains To	Zoning	Total Area (acres)	Non-Developable Area (acres)	Net Acre	Dwelling Units/Net Acre	Occupants /Dwelling Unit	Gallons/ Occupants	Contingency Factor	Unit Flow Rate/Net Acre/Day (gpcd)	Gallons/Day	Conversion to cfs	Basin Flow (cfs)	Total Average Flow with I/ (cfs)	Peak Factor	Peak Design Flow (cfs)
1	28200	R-7.2	27,447	6,731	20,716	6	2.6	80	1.25	N/A	N/A	1.547E-06	0.050	0.082	3,415	0.280
2	28200	R-7.2	1,303	0,195	1,107.55	6	2.6	80	1.25	N/A	N/A	1.547E-06	0.003	0.004	4,596	0.020
3	28200	Open Space	7,664	0,000	7,664	N/A	N/A	N/A	1.25	750	98	1.892E-04	1.892E-04	3.892E-04	6,321	0.001
4	28200	School	12,235	2,000	10,235	N/A	N/A	N/A	1.25	3000	2302	1.547E-06	0.005	0.007	3,777	0.115
5	28200	Commercial	2,199	1,199	1,000	N/A	N/A	N/A	1.25	3000	5671	1.547E-06	0.011	0.012	4,457	0.049
6	28200	Commercial	2,764	2,235	529	N/A	N/A	N/A	1.25	5000	8333	1.547E-06	0.016	0.017	4,005	0.068
7	28200	Industrial	4,264	3,684	580	N/A	N/A	N/A	1.25	5000	8333	1.547E-06	0.016	0.017	4,005	0.068
Total To 28200																
8	28110	Multi-Family	10,332	0,450	9,882	41.6	2.2	80	1.25	N/A	N/A	1.547E-06	0.140	0.155	3,201	0.497
9	28100	Office Park	6,591	5,089	1,442	41.6	2.2	80	1.25	N/A	N/A	1.547E-06	0.020	0.023	3,891	0.088
10	23100	Open Space	1,886	0	1,886	N/A	N/A	N/A	N/A	750	398	1.547E-06	6.152E-04	6.152E-04	5,608	0.003
11	23100	R-7.2	58,795	13,245	45,49	6	2.6	80	1.25	N/A	N/A	1.547E-06	0.110	0.180	3,153	0.568
Total To 23100																
12	23000	Commercial	14,003	2,100	11,902.55	N/A	N/A	N/A	N/A	3000	252	1.547E-06	0.000	0.019	3,965	0.075
13	22600	R-5	1,568	0,448	1,120	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.003	0.005	4,547	0.022
14	22620	R-7.2	13,203	1,993	11,210	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.022	0.039	3,682	0.144
15	22700	R-5	1.3	0,464	0,836	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.002	0.004	4,684	0.017
16	22600	R-5	2,023	0,488	1,535	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.004	0.007	4,404	0.029
17	22300	R-5	1,155	0,512	0,643	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.002	0.003	4,810	0.013
18	22510	R-5	2,462	0,533	1,929	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.005	0.008	4,305	0.036
19	22510	R-7.2	5,819	0,818	5,001	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.010	0.017	3,996	0.070
Total To 22510																
20	22410	R-7.2	6,146	1,465	4,681	6	2.6	80	N/A	N/A	N/A	1.547E-06	0.009	0.016	4,023	0.065
21	22400	R-5	2,603	0,685	1,918	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.005	0.008	4,306	0.036
22	22200	R-5	2,201	0,755	1,446	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.004	0.006	4,431	0.028
23	22210	R-5	3,217	0,204	3,013	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.008	0.013	4,113	0.054
24	21380	R-5	1,847	0,420	1,427	8.7	2.6	80	N/A	N/A	N/A	1.547E-06	0.004	0.006	4,439	0.027
Future 25	22900	Office Park	3,051	0,6102	2,4408	N/A	N/A	N/A	1.25	750	307	1.547E-06	0.001	0.004	4,597	0.020

¹Table 5.2 from City of Portland's Sanitary and Drainage Design Manual
²Section 5.2.2 from City of Portland's S&S DD Manual: Single Family = 2.6 Occupants, Multi-Family = 2.2 Occupants
³Page 5-7 from City of Portland's S&S DD Manual: Domestic per capita flow = 80 gal/capita day (gpcd)
⁴Flow Calculation assumed 15 gallons/day/student with 500 students
⁵Proposed location of Webster Road Apartments. Assumed 41.6 DU/AC plus 1.25 contingency factor.
⁶Property is an assisted living development. Considered as Multi-Family with 41.6 DU/AC
⁷Net increase of future buildout was calculated by multiplying the total area by a factor of 0.85, per the City of Portland's guidelines.
⁸Contingency Factor is only used for future design conditions as it's a factor used for changing land uses within the drainage basin. This factor will be used for all basins upstream of node 23000 in the future flow calculations.
⁹Assumed 1,000 gallons per net acre per day for I/1. Open space is assumed to have zero I/1.
¹⁰Peak Factor (PF) is used to convert Average Daily Flow (ADF) to Peak Design Flow (PDF): PF = 2.65 (Total Average Flow)^{0.104}
¹¹PDF = ADF X PF
¹²Basin is zoned office park and is currently undeveloped. This basin was not considered in the existing conditions.

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XPSTORM OUTPUT

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XPSTORM Schematic Layout

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**EXISTING SANITARY SEWER CONVEYANCE DATA WITH EXISTING FLOW
HERFORD STREET AND UPSTREAM**

Link	Location Station		Conduit Properties				Conduit Results				Conduit Profile									
	From	To	Diameter	Length	Slope	Design Capacity	C _{ms} /Q _{design}	Max Flow	Max Velocity	Max Depth	1/400	US Elev.	DS Elev.	US IE	DS IE	1/2 US Freeboard	1/4 US Freeboard	DB HGL	US HGL	DB HGL
P-28110	28110	28100	0.67	313.89	5.70	2.92	0.02	0.06	3.33	0.07	0.10	219.22	207.53	215.72	199.01	189.01	3.43	10.28	215.72	187.25
P-28200	28200	28150	0.67	278.40	0.43	0.80	0.61	0.65	2.43	0.48	0.72	202.41	207.53	195.21	188.91	186.69	3.72	10.28	195.21	187.25
P-28100	28100	28000	0.67	300.25	1.59	1.54	0.51	0.78	4.38	0.34	0.51	195.71	195.71	195.81	192.08	187.25	3.41	10.28	195.71	187.25
P-28000	28000	23000	0.67	497.82	5.75	2.94	0.27	0.78	7.05	0.24	0.35	195.71	197.90	192.08	183.25	183.59	3.41	10.28	195.71	183.59
P-23100	23100	23000	0.67	848.61	4.85	2.70	0.61	1.28	7.02	1.19	1.00	167.80	140.43	163.26	138.48	137.98	2.17	10.28	163.26	137.98
P-23000	23000	22000	0.67	347.05	3.13	2.17	0.24	0.52	5.05	0.22	0.33	161.24	167.60	175.84	155.76	155.76	2.17	10.28	175.84	155.76
P-22900	22900	22800	0.67	100.09	0.68	0.93	1.48	1.38	3.92	1.48	1.00	140.13	139.60	135.78	128.68	128.68	3.65	10.28	135.78	128.68
P-22800	22800	22700	0.67	324.93	2.11	2.01	0.70	1.42	5.59	0.45	0.67	133.14	126.63	128.68	122.18	122.18	3.85	4.33	128.68	122.18
P-22700	22700	22600	0.67	214.77	2.74	2.01	0.70	1.42	5.59	0.45	0.67	133.14	126.63	128.68	122.18	122.18	3.85	4.33	128.68	122.18
P-22600	22600	22500	0.67	101.45	0.28	0.62	0.23	0.14	1.39	0.23	0.34	140.43	142.17	133.65	122.18	122.18	4.42	4.33	133.65	122.18
P-22500	22500	22400	0.67	221.00	5.12	2.17	0.95	0.14	4.07	0.27	0.41	142.17	129.93	133.65	122.18	122.18	4.42	4.33	133.65	122.18
P-22400	22400	22300	0.67	222.31	4.14	2.49	0.84	1.29	5.82	0.42	0.63	128.63	117.43	122.18	112.08	112.08	4.33	4.00	122.18	112.08
P-22300	22300	22200	0.67	308.59	5.14	2.27	0.95	0.11	3.92	0.10	0.20	135.38	105.70	122.18	112.08	112.08	4.90	4.00	122.18	112.08
P-22200	22200	22100	0.67	429.83	3.30	1.85	0.74	0.71	3.95	0.45	0.60	117.43	105.70	112.08	101.80	101.80	3.55	3.55	112.08	101.80
P-22100	22100	22000	0.67	305.76	3.02	1.87	0.74	0.71	3.95	0.45	0.60	117.43	105.70	112.08	101.80	101.80	3.55	3.55	112.08	101.80
P-22000	22000	21900	0.67	305.76	3.02	1.87	0.74	0.71	3.95	0.45	0.60	117.43	105.70	112.08	101.80	101.80	3.55	3.55	112.08	101.80
P-21900	21900	21800	0.67	172.35	2.93	2.09	0.91	0.03	2.78	0.83	0.83	105.39	105.39	105.39	98.29	98.29	4.28	4.28	105.39	98.29
P-21800	21800	21700	0.67	172.35	2.93	2.09	0.91	0.03	2.78	0.83	0.83	105.39	105.39	105.39	98.29	98.29	4.28	4.28	105.39	98.29
P-21700	21700	21600	0.67	20.68	-0.24	1.75	1.37	-1.87	-3.85	0.88	0.98	106.08	106.08	99.28	99.28	99.28	6.85	6.85	106.08	99.28

**EXISTING SANITARY SEWER CONVEYANCE DATA WITH FUTURE FLOW
HERFORD STREET AND UPSTREAM**

Link	Location Station		Conduit Properties				Conduit Results				Conduit Profile									
	From	To	Diameter	Length	Slope	Design Capacity	C _{ms} /Q _{design}	Max Flow	Max Velocity	Max Depth	1/400	US Elev.	DS Elev.	US IE	DS IE	1/2 US Freeboard	1/4 US Freeboard	DB HGL	US HGL	DB HGL
P-28110	28110	28100	0.67	313.89	5.70	2.92	0.02	0.06	3.33	0.07	0.10	219.22	207.53	215.72	199.01	189.01	3.43	10.14	215.72	187.25
P-28200	28200	28150	0.67	278.40	0.43	0.80	0.61	0.65	2.43	0.48	0.72	202.41	207.53	195.21	188.91	186.69	3.72	10.14	195.21	187.25
P-28100	28100	28000	0.67	300.25	1.59	1.54	0.51	0.78	4.38	0.34	0.51	195.71	195.71	195.81	192.08	187.25	3.41	10.14	195.71	187.25
P-28000	28000	23000	0.67	497.82	5.75	2.94	0.27	0.78	7.05	0.24	0.35	195.71	197.90	192.08	183.25	183.59	3.41	10.14	195.71	183.59
P-23100	23100	23000	0.67	848.61	4.85	2.70	0.61	1.28	7.02	1.19	1.00	167.80	140.43	163.26	138.48	137.98	2.17	10.14	163.26	137.98
P-23000	23000	22000	0.67	347.05	3.13	2.17	0.24	0.52	5.05	0.22	0.33	161.24	167.60	175.84	155.76	155.76	2.17	10.14	175.84	155.76
P-22900	22900	22800	0.67	100.09	0.68	0.93	1.48	1.38	3.92	1.48	1.00	140.13	139.60	135.78	128.68	128.68	3.65	10.14	135.78	128.68
P-22800	22800	22700	0.67	324.93	2.11	2.01	0.70	1.42	5.59	0.45	0.67	133.14	126.63	128.68	122.18	122.18	3.85	4.33	128.68	122.18
P-22700	22700	22600	0.67	214.77	2.74	2.01	0.70	1.42	5.59	0.45	0.67	133.14	126.63	128.68	122.18	122.18	3.85	4.33	128.68	122.18
P-22600	22600	22500	0.67	101.45	0.28	0.62	0.23	0.14	1.39	0.23	0.34	140.43	142.17	133.65	122.18	122.18	4.42	4.33	133.65	122.18
P-22500	22500	22400	0.67	221.00	5.12	2.17	0.95	0.14	4.07	0.27	0.41	142.17	129.93	133.65	122.18	122.18	4.42	4.33	133.65	122.18
P-22400	22400	22300	0.67	222.31	4.14	2.49	0.84	1.29	5.82	0.42	0.63	128.63	117.43	122.18	112.08	112.08	4.33	4.00	122.18	112.08
P-22300	22300	22200	0.67	308.59	5.14	2.27	0.95	0.11	3.92	0.10	0.20	135.38	105.70	122.18	112.08	112.08	4.90	4.00	122.18	112.08
P-22200	22200	22100	0.67	429.83	3.30	1.85	0.74	0.71	3.95	0.45	0.60	117.43	105.70	112.08	101.80	101.80	3.55	3.55	112.08	101.80
P-22100	22100	22000	0.67	305.76	3.02	1.87	0.74	0.71	3.95	0.45	0.60	117.43	105.70	112.08	101.80	101.80	3.55	3.55	112.08	101.80
P-22000	22000	21900	0.67	305.76	3.02	1.87	0.74	0.71	3.95	0.45	0.60	117.43	105.70	112.08	101.80	101.80	3.55	3.55	112.08	101.80
P-21900	21900	21800	0.67	172.35	2.93	2.09	0.91	0.03	2.78	0.83	0.83	105.39	105.39	105.39	98.29	98.29	4.28	4.28	105.39	98.29
P-21800	21800	21700	0.67	172.35	2.93	2.09	0.91	0.03	2.78	0.83	0.83	105.39	105.39	105.39	98.29	98.29	4.28	4.28	105.39	98.29
P-21700	21700	21600	0.67	20.68	-0.24	1.75	1.37	-1.87	-3.85	0.88	0.98	106.08	106.08	99.28	99.28	99.28	6.85	6.85	106.08	99.28

1) C_{ms}/Q_{design} is greater than 1, the capacity of the pipe has been reached which will cause surcharging.
 2) 1/400 is equal to 1, the pipe is surcharging. This may happen even if there is capacity in the pipe due to the slope of the pipe.
 3) If the freeboard is equal to zero, the manhole is experiencing out of system flooding.

**OVERFLOW TO MANHOLE 21300 ON GLOUCESTER SANITARY BEWER CONVEYANCE DATA WITH FUTURE FLOW
HERFORD STREET AND UPSTREAM**

Link	Location		Conduit Properties										Conduit Results										Conduit Profile									
	From	To	Diameter	Length	Slope	Design Capacity	Qmax/ Qdesign	Max Flow	Max Velocity	Max Depth	Y40	US Elev.	DB Elev.	US IE	DB IE	US Elev.	DB Elev.	US IE	DB IE	US IE	DB IE	US Elev.	DB Elev.									
P-28110	28110	28100	0.67	313.89	5.70	2.82	0.17	0.50	6.16	0.19	0.28	219.22	207.53	215.72	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	215.81	187.38	186.91	186.91	186.91	186.91	186.91	186.91		
P-28200	28200	28100	0.67	276.48	0.43	0.60	0.61	0.73	2.48	0.54	0.80	202.41	207.53	196.21	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91	186.91		
P-28100	28100	28000	0.67	300.25	1.58	1.54	0.68	1.32	4.80	0.48	0.71	207.53	185.71	184.91	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08	182.08		
P-23000	23000	23000	0.67	487.82	6.75	2.94	0.45	1.32	6.10	0.31	0.47	195.71	187.00	182.08	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25		
P-23100	23100	23000	0.67	546.51	4.85	2.70	0.73	1.97	6.00	0.44	0.65	187.00	140.33	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25		
P-23100	23100	23000	0.67	347.06	3.13	2.17	0.27	0.59	5.22	0.24	0.36	181.24	187.80	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25		
P-23100	23100	23000	0.67	100.09	0.88	0.93	0.37	0.81	2.87	0.72	1.00	140.73	184.00	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25	183.25		
P-23100	23100	22700	0.67	324.83	2.11	1.78	0.52	0.93	5.09	0.34	0.51	138.60	135.14	135.78	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08		
P-22700	22700	22600	0.67	214.77	2.74	2.03	0.47	0.94	5.85	0.32	0.48	103.14	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08	128.08		
P-23200	23200	22600	0.67	101.45	0.29	0.52	0.23	0.74	1.39	0.23	0.34	104.43	142.17	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18		
P-23610	23610	22600	0.67	222.31	4.14	2.49	0.98	1.12	6.39	0.34	0.50	142.17	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18	134.18		
P-23610	23610	22500	0.50	330.30	6.14	1.27	0.08	0.11	3.97	0.10	0.20	135.68	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43		
P-23500	23500	22400	0.67	280.68	3.70	2.35	0.52	1.23	6.32	0.37	0.55	135.68	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43	117.43		
P-22410	22410	22400	0.67	428.82	2.30	1.88	0.94	0.00	2.47	0.28	0.42	128.08	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70		
P-22400	22400	22300	0.83	36.76	3.02	3.77	0.39	7.35	4.88	0.92	0.82	128.08	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70		
P-22400	22400	22300	1.00	302.84	0.31	1.07	0.88	1.35	2.63	0.82	0.82	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70	105.70		
P-22510	22510	22300	0.87	176.35	2.83	2.09	0.01	0.03	2.02	0.95	0.61	110.72	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88	105.88		
P-22200	22200	22100	1.00	20.85	-0.24	1.75	0.00	-1.40	-2.18	0.74	0.74	105.88	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20	105.20		

*If Qmax/Design is greater than 1, the capacity of the pipe has been reached which will cause surcharging.
 †If Y40 is equal to 1, the pipe is surcharging. This may happen even if there is capacity in the pipe due to the slope of the pipe.
 ‡If the freeboard is equal to zero, the manhole is expanding out of system flooding.

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EXISTING SANITARY SEWER CONVEYANCE DATA WITH EXISTING FLOW

Location		Conduit Properties				Conduit Results				Conduit Profile								
Link	Station	Diameter	Length	Slope	Design Capacity	Q _{max} /Q _{design}	Max Flow	Max Velocity	Max Flow Depth	1/400	US Ground Elev.	DS Ground Elev.	US IE	DS IE	1/US Freeboard	1/DS Freeboard	US HGL	DS HGL
P-21380	21370	0.83	370.16	0.48	1.49	0.02	0.03	1.00	0.08	0.10	127.85	125.80	116.89	116.82	8.18	8.93	118.77	116.87
P-21370	21380	0.83	459.52	3.32	3.95	0.01	0.03	2.01	0.05	0.06	126.80	110.63	116.82	101.63	8.93	9.02	118.87	101.61
P-21360	21380	0.83	459.53	2.84	3.65	0.02	0.08	2.51	0.08	0.08	110.63	97.63	101.63	88.38	9.02	9.15	101.61	88.48
P-21350	21340	0.83	207.58	2.02	3.08	0.10	0.10	2.69	0.10	0.12	87.63	84.88	88.38	84.04	8.15	10.85	88.48	84.13
P-21340	21340	0.83	253.43	4.58	4.84	0.09	0.12	3.81	0.09	0.11	84.88	80.72	84.04	71.30	10.86	9.29	84.13	71.43
P-21330	21320	0.83	448.67	1.82	2.76	0.05	0.14	2.83	0.13	0.19	80.72	72.23	71.30	63.93	8.29	8.09	71.43	64.14
P-21320	21310	0.83	460.28	0.99	1.38	0.13	0.17	1.63	0.21	0.25	72.23	68.88	63.93	62.08	8.09	6.08	64.14	62.30
P-21310	21300	0.83	469.51	0.44	1.43	0.15	0.21	1.82	0.22	0.27	68.88	66.88	62.08	56.73	6.08	6.95	62.30	56.93

OVERFLOW TO MANHOLE 21380 ON GLOUCESTER SANITARY SEWER CONVEYANCE DATA WITH FUTURE FLOW

Location		Conduit Properties				Conduit Results				Conduit Profile								
Link	Station	Diameter	Length	Slope	Design Capacity	Q _{max} /Q _{design}	Max Flow	Max Velocity	Max Flow Depth	1/400	US Ground Elev.	DS Ground Elev.	US IE	DS IE	1/US Freeboard	1/DS Freeboard	US HGL	DS HGL
P-22900.2	21380	0.50	263.15	6.85	1.47	0.71	1.05	7.78	0.38	0.73	140.13	127.85	136.48	118.69	2.88	8.70	137.25	118.25
P-21380	21380	0.83	370.16	0.48	1.49	0.02	0.03	1.00	0.08	0.10	127.85	125.80	116.89	116.82	8.18	8.70	118.77	116.87
P-21370	21360	0.83	459.52	3.32	3.95	0.01	0.03	2.01	0.05	0.06	126.80	110.63	116.82	101.63	8.93	9.02	118.87	101.61
P-21360	21350	0.83	459.53	2.84	3.65	0.02	0.08	2.51	0.08	0.08	110.63	97.63	101.63	88.38	9.02	9.15	101.61	88.48
P-21350	21340	0.83	207.58	2.02	3.08	0.10	0.10	2.69	0.10	0.12	87.63	84.88	88.38	84.04	8.15	10.85	88.48	84.13
P-21340	21340	0.83	253.43	4.58	4.84	0.09	0.12	3.81	0.09	0.11	84.88	80.72	84.04	71.30	10.86	9.29	84.13	71.43
P-21330	21320	0.83	448.67	1.82	2.76	0.05	0.14	2.83	0.13	0.19	80.72	72.23	71.30	63.93	8.29	8.09	71.43	64.14
P-21320	21310	0.83	460.28	0.99	1.38	0.13	0.17	1.63	0.21	0.25	72.23	68.88	63.93	62.08	8.09	6.08	64.14	62.30
P-21310	21300	0.83	469.51	0.44	1.43	0.15	0.21	1.82	0.22	0.27	68.88	66.88	62.08	56.73	6.08	6.95	62.30	56.93

1/ If Q_{max}/Q_{design} is greater than 1, the capacity of the pipe has been reached which will cause surcharging.
 2/ If 1/400 is equal to 1, the pipe is surcharging. This may happen even if there is capacity in the pipe due to the slope of the pipe.
 3/ If the freeboard is equal to zero, the manhole is exporting out of system flooding.
 4/ 6-inch overflow pipe from manhole 22900 to 21380

