MINUTES OF THE
OPERATIONS COMMITTEE MEETING

3:00 P.M. June 2, 2017

Councilman William Mulvaney brought the meeting to order with the following committee members present: Dolores Slatcher, City Manager; Charles Anderson, Asst. City Manager; Berley Mears, Director of Public Works; Frank Raskauskas and Judy Schwartz P.E. George, Miles and Buhr. Mr. Hans Medlarz, P.E. Sussex County Engineer was also in attendance.

Councilman Mulvaney led those present in the pledge of allegiance.

Councilman Mulvaney presented New Business # 1, presentation related to a potential Western Sussex Sewer District to the City of Seaford's Wastewater Infrastructure. Committee Member, Judy Schwartz, came forward to present the information. Mrs. Schwartz stated that the Town of Bridgeville is under a consent decree to upgrade their waste water treatment plant, and they are requesting to pump the wastewater from Bridgeville/ Greenwood to Seaford for treatment and disposal. Greenwood currently sends their wastewater to Bridgeville for treatment. The City of Seaford has worked with Sussex County and GMB, as well as Davis Bowen & Friedel, Bridgeville's engineers, to put together cost estimates of the proposed Sewer extension. Mrs. Schwartz presented the first document, flow allocations. The document is prepared to show the projects that are in progress or planned for the City of Seaford, and the estimated flow projection and available flow for these projects. The plant upgrade is proposed to take place in 2025. The initial flow projection for the Bridgeville/ Greenwood Sanitary Sewer District is estimated at 250,000 gallons per day (GPD) with the potential future growth as an estimated additional 300,000 GPD, totaling 550,000 gallons per day over the planning period to 2045. The existing Seaford WWTP flow is 1,069,500 gallons per day and the projected flow is 1,888,252 GPD totaling 2,957,752 gallons per day. The initial flow can be maintained with the current treatment plant. These numbers are based on the assumption that the City of Seaford and the Invista Nutrient Trade Agreement remains in effect. The trade agreement with Invista, allows them to transfer loads of nitrogen to Seaford, which then allows Seaford, to discharge more nitrogen into the River. The agreement between Invista and the City is 5 years, which will expire in 2019, with an automatic renewal for an additional five years unless either party cancels.

Mrs. Schwartz solicited any questions in regards to the flow allocations.

Mr. Cannon stated that the Residences at River Place- Phase 1, is listed as a project in progress. It is either in existence or not.

Mrs. Schwartz stated that it has recently opened, and she was basing the existing flow figures from the end of 2016, and it was not in operation during that time.

Mr. Cannon also stated that the Planned Project, Melanie's Ridge (second listed), had a flow projection of 12,000 gpd, but the 40 EDU's multiplied by the 225 gallon per day EDU's, was not equal to that amount.

Mrs. Schwartz, stated that she would have to take a look at it. The project includes a commercial area, and sometimes flows are calculated on area.

Mr. Cannon asked where the figures for the reserved projects listed derive from.

Mrs. Schwartz stated that the counted lots in the City and the allocated amount of gallons per day for the Ross Business Park are all estimates. The Blades Sanitary Sewer District estimate is projected from the County and the Town of Blades.

Mrs. Schwartz then discussed the WWTF load allocations. The load allocations examines the restrictions that would be effected if the Invista Trade Agreement was not in place, they did not opt to renew or in the case that they sold Invista and the new buyers did not want to extend the contract. The interim links to the City's NPDES Permit. This allows for the tapering back of nutrient loads to the River, based upon the Phase II Water Shed Implementation plan adopted by DNREC, which allows interim goals of nutrient reduction between 2015 (year permit was adopted) and 2025. There is a certain load in terms of pounds of nitrogen that Seaford can discharge in the River. That number reduces after 2025, causing a need for the Treatment Plant upgrade. The Load Allocation Limitations Summary, includes:

Interim	Flow Based Limit(MGD)	Load Based Limit(MGD)	Growth Limitation 2017-2025
Seaford +Bridgeville (w/Invista Trade, no Leachate)	2.00		5.6% per yr.
Seaford +Bridgeville (w/Invista Trade, w/ Leachate)	1.58		2.3% per yr.
Seaford +Bridgeville (no Leachate)		1.81	4.4% per yr.
Seaford +Bridgeville (w/Leachate)		1.39	0.6% per yr.
Seaford only (w/Leachate)		0.99	0
Seaford only (no Leachate)		1.41	3.9% per yr.

Final	Flow Based Limit(MGD)	Load Based Limit(MGD)	Growth Limitation 2017-2025
Seaford +Bridgeville (w/Invista Trade, no Leachate)	3.00		3.1%
Seaford +Bridgeville (w/Invista Trade, w/ Leachate)	3.00		3.0%
Seaford +Bridgeville (no Leachate)	3.00		3.1%
Seaford +Bridgeville (w/Leachate)	3.00		3.0%
Seaford only (w/Leachate)		2.25	2.7%
Seaford only (no Leachate)		2.67	3.4%

Mrs. Schwartz explained that the Leachate is a waste stream of water that has been percolated through the landfill that the City of Seaford accepts from the Delaware Solid Waste Authority. It helps with the processing of the Treatment Plant, and is a source of revenue to the City. The current agreement between Seaford and the DSWA is good through 2019.

Mr. Anderson stated that with the City of Seaford accepting the agreement, it will help not only Seaford, but Bridgeville and/or Greenwood grow beyond what it otherwise would have been able to.

Mrs. Schwartz presented the maps with the outline of the proposed force main, the existing main, the pump stations, and WWTP's for both Seaford and Bridgeville to show the evaluation of the current sewer layout and the proposed layout.

Mr. Raskauskas asked if the pipe capacity of the existing lines coming from the Bridgeville plant, to Seaford are large enough for the flow reversal.

Mrs. Schwartz stated yes.

Mr. Medlarz stated that the pipe capacity is actually too large, and is more than sufficient. It was originally installed to handle more from future pump stations, but with it only being Bridgeville and Greenwood's flow, which is a lesser flow number than anticipated and that the current line will not have to be replaced.

Councilman Mulvaney asked if there would be all new pump stations.

Mrs. Schwartz stated no. There would be upgrades to the Bridgeville WWTP, Heritage Shores Pump Station, and an upgrade to the North Ross Pump Station. There will be only one new proposed Pump Station.

Mrs. Slatcher stated that it will not be a complete re-do for the North Ross Pump Station, it will be a pump upgrade.

Mrs. Schwartz asked if there were any further questions in regards to the proposed layout. There were none.

Mrs. Schwartz discussed the preliminary cost estimate for the following:

Schedule A: Lift Station 16
Schedule B: North Ross Lift Station
Schedule C: Gravity Sewer Upgrades
Schedule D: Interceptor Sewer Replacement
Schedule D1: Interceptor Sewer Replacement
Schedule E: WWTP Upgrade and Expansion
Schedule F: WWTP & Pump Station Improvements
Schedule F1: WWTP & Pump Station Improvements

These figures can be found on the attached documents and are from a combination of work by GMB and DBF, with careful review and input from the Sussex County Engineer, Hans Medlarz, and attendees of past meetings in regards to the sewer expansion. The estimated costs of the expansion can change due to bidding, design, etc.

Mr. Cannon asked if the City was building a 3,000,000 gallons per day plant for compliance.

Mrs. Schwartz stated it is for both compliance and growth.

Mr. Cannon stated that a 2,000,000 gallons per day upgrade is required for compliance.

Mr. Mears, Director of Public Works, stated it is not about gallons. The City needs the E & R plant, so it is more economical to build the 3,000,000 gallons per day plant.

Councilman Mulvaney called for a motion from the committee to recommend moving forward. Mrs. Slatcher made a motion that the Operations Committee recommends moving forward and continuing the work with Bridgeville/ Greenwood and Sussex County as a newly formed sewer district to accept the treatment of their waste stream into the Seaford WWTF with a buy in of $979,020 (construction estimate that may be subject to change) in lieu of assessing a number for impact fees. Mr. Raskauskas seconded the motion. Motion so passed with all present voting in favor.

Councilman Mulvaney stated that the recommendation will go to Council on June 13th, and the committee will meet again after the Council meeting.

With no further questions or comments, Councilman Mulvaney adjourned the Operations Committee Meeting at 4:10 p.m.

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Shannon Elliott, Secretary

Bridgeville/Greenwood Regional Sewer Evaluation
City of Seaford/ Sussex County Engineering/ Town of Bridgeville/ Town of Greenwood
Preliminary Cost Estimate

Item No.	Description	Size or Depth	Unit	Quantity	Unit Price	Total Price ($)	Seaford Cost Share		Bridgeville/Greenwood Consortium Cost Share		Remarks
SCHEDULE A: LIFT STATION 16							Percentage (%)	Total ($)	Percentage (%)	Total ($)	
A1	Mobilization	-	LS	1		$ 209,179					
A2	Lift Station, Complete in Place	-	LS	1	750,000	$ 750,000					Incl. Wet Well, Duplex Pumps w/ VFDs, Generator, Site Work
A3	Flow Equalization Tank	-	LS	1	150,000	$ 150,000					
A4	Influent Valve and Flow Meter	-	EA	1	20,000	$ 20,000					
A5	C900 PVC Forcemain (Open Cut)	10"	LF	12,187	76	$ 926,212					In median and shoulders
A6	Highway Crossings (jack and bore)	10"/20"	LF	235	1,200	$ 282,000					Rt 13, Bridgeville Hwy, Herring Run Rd
A7	Stream Crossing (directional drill)	10"	LF	170	200	$ 34,000					Clear Brook
A8	Air Release Valve	2"	EA	6	12,000	$ 72,000					
A9	Misc. Restoration	-	LS	1	40,000	$ 40,000					
A10	Erosion and Sediment Control Measures	-	LS	1	50,000	$ 50,000					
A11	Contingency	-	%	20		$ 464,842					
SUBTOTAL SCHEDULE A: LIFT STATION 16						**$ 2,998,233**					
A16	Engineering - Design and Construction Phase Services	-	%	15		$ 449,735					
TOTAL SCHEDULE A: LIFT STATION 16						**$ 3,447,969**	20.0%	**$ 689,594**	80.0%	**$ 2,758,375**	Cost share percentage is EDU- proportional (Seaford-600/3045 EDU)
SCHEDULE B: NORTH ROSS LS							Percentage (%)	Total ($)	Percentage (%)	Total ($)	
B1	Mobilization	-	LS	1		$ 71,847		$ 4,896		$ 66,951	7.5% of each respective groups cost
B2	Addition of Flow Equalization Tank	-	LS	1	200,000	$ 200,000	17%	$ 34,000.00	83%	$ 166,000	
B3	Replacement Pumps w/ VFDs	-	EA	2	60,000	$ 120,000	17%	$ 20,400.00	83%	$ 99,600	Upsized for future condition
B4	C900 PVC Forcemain (Open cut)	8"	LF	5,090	70	$ 356,300			100%	$ 356,300	Outside of pavement
A6	Stream Crossing (directional drill)	8"	LF	200	180	$ 36,000			100%	$ 36,000	Herring Run
B5	Air Release Valve	2"	EA	3	12,000	$ 36,000			100%	$ 36,000	
B6	Clearing & Grubbing	-	LS	1	15,000	$ 15,000			100%	$ 15,000	
B7	Pavement Restoration	-	LS	1	5,000	$ 5,000			100%	$ 5,000	Xings at Venture Drive & Public Works
B8	Erosion and Sediment Control Measures	-	LS	1	30,000	$ 30,000			100%	$ 30,000	
B9	Contingency	-	%	20		$ 159,660		$ 10,880		$ 148,780	20% of each respective groups cost
SUBTOTAL SCHEDULE B: NORTH ROSS LS						**$ 1,029,807**					
B11	Engineering - Design and Construction Phase Services	-	%	15		$ 154,471		$ 10,526		$ 143,945	15% of each respective groups cost
TOTAL SCHEDULE B: NORTH ROSS LS						**$ 1,184,278**		**$ 80,702**		**$ 1,103,676**	Cost share percentage is EDU- proportional
SCHEDULE C: SEAFORD GRAVITY SEWER UPSIZING							Seaford Cost Share		Bridgeville/Greenwood Consortium Cost Share		
Item No.	Description	Size or Depth	Unit	Quantity	Unit Price	Total Price	Percentage (%)	Total ($)	Percentage (%)	Total ($)	
C1	Mobilization	-	LS	1		$ 75,060					
C2	Replacement Gravity Sewer PVC (in pavement)	15"	LF	2,600	210	$ 546,000					
C3	Furnish and Install Manholes	4'	VF	90	800	$ 72,000					
C4	Furnish and Install Manhole Frame and Cover	-	EA	10	900	$ 9,000					
C5	Wye Branches	-	EA	10	200	$ 2,000					
C6	Sewer Lateral Replacements	-	LF	300	50	$ 15,000					
C7	Full Width Mill & Overlay	1.5"	SY	10,000	15	$ 150,000					
C8	Removal and Disposal	-	LS	1	25,000	$ 25,000					
C9	Erosion & Sediment Control Measures	-	LS	1	15,000	$ 15,000					
C10	Contingency	-	%	20		$ 166,800					
SUBTOTAL SCHEDULE C: SEAFORD GRAVITY SEWER UPGRADES						**$ 1,075,860**					
C14	Engineering - Design and Construction Phase Services	-	%	15		$ 161,379					
TOTAL SCHEDULE C: SEAFORD GRAVITY SEWER UPGRADES						**$ 1,237,239**	10%	**$ 123,724**	90%	**$ 1,113,515**	Seaford assigned "betterment" cost share of 10%

Bridgeville/Greenwood Regional Sewer Evaluation
City of Seaford/ Sussex County Engineering/ Town of Bridgeville/ Town of Greenwood
Preliminary Cost Estimate

							Seaford Cost Share		Bridgeville/Greenwood Consortium Cost Share		Remarks			
SCHEDULE D: SEAFORD INTERCEPTOR SEWER REPLACEMENT/UPSIZING							Percentage (%)	Total ($)	Percentage (%)	Total ($)				
D1	Mobilization	-	LS	1		$ 135,884								
D2	Replacement Gravity Sewer DI (open cut)	24"	LF	2,233	325.00	$ 725,725					Follow existing alignment along shoreline			
D3	Replacement Gravity Sewer (jack and bore)	24"/36"	LF	360	1,500.00	$ 540,000					Realignment Pearl St to Arcadia St			
D4	Railroad Crossing (jack and bore)	24"/36"	LF	30	1,500.00	$ 45,000								
D5	Furnish and Install Manholes	-	VF	136	800.00	$ 108,800								
D6	Furnish Manhole Frame and Cover	-	EA	17	900.00	$ 15,300								
D7	Erosion and Sediment Control Measures	-	LS	1	50,000.00	$ 50,000								
D8	Miscellaneous Restoration/Stabilization	-	LS	1	25,000.00	$ 25,000								
D9	Contingency	-	%	20		$ 301,965								
	SUBTOTAL SCHEDULE D: SEAFORD INTERCEPTOR SEWER REPLACEMENT					**$ 1,947,674**								
D10	Engineering - Design and Construction Phase Services	-	%	15		$ 292,151								
D11	I/I Study w/ Flow Monitoring and Smoke Testing	-	LS	1		$ 85,000								
	TOTAL SCHEDULE D: SEAFORD INTERCEPTOR SEWER REPLACEMENT					**$ 2,324,825**	70.0%	$ 1,627,378	30.0%	$ 697,448	Cost share percentage is EDU- proportional			
ALT SCHEDULE D1: SEAFORD INTERCEPTOR SEWER REPLACEMENT (PUMP STATION)														
D1	Mobilization	-	LS	1		$ 172,998								
D2	Pump Station	-	LS	1	900,000	$ 900,000								
D3	Forcemain (Directional Drill)	18"	LF	800	280	$ 224,000								
D4	Replacement Gravity Sewer DI (open cut)	24"	LF	1,804	325	$ 586,300								
D5	Railroad Crossing (jack and bore)	18"/30"	LF	30	1,400	$ 42,000								
D6	Furnish and Install Manholes	-	VF	104	800	$ 83,200								
D7	Furnish Manhole Frame and Cover	-	EA	13	900	$ 11,700								
D8	Erosion and Sediment Control Measures	-	LS	1	50,000	$ 50,000								
D9	Miscellaneous Restoration/Stabilization	-	LS	1	25,000	$ 25,000								
D10	Contingency	-	%	20		$ 384,440								
	SUBTOTAL ALT SCHEDULE D1: SEAFORD INTERCEPTOR SEWER REPLACEMENT					**$ 2,479,638**								
D11	Engineering - Design and Construction Phase Services	-	%	15		$ 371,946								
D12	I/I Study w/ Flow Monitoring and Smoke Testing	-	LS	1		$ 85,000								
	TOTAL ALT SCHEDULE D1: SEAFORD INTERCEPTOR SEWER REPLACEMENT					**$ 2,936,584**	70.0%	$ 2,055,609	30.0%	$ 880,975	Cost share percentage is EDU- proportional			
SCHEDULE E: SEAFORD WASTEWATER TREATMENT PLANT UPGRADE AND EXPANSION							Percentage (%)	Total ($)	Percentage (%)	Total ($)	Blades Share		Sussex County Unannexed Share	
E1	Liquid Stream Alt 2L- Membrane Bioreactor		LS	1		$ 19,692,499	72.1%	$ 14,198,292	18.7%	$ 3,682,497	7.6%	$ 1,496,630	1.6%	$ 315,080
E2	Biosolids Alt 3S - Off-Site Processing		LS	1		$ 2,883,770	74.3%	$ 2,142,641	16.4%	$ 472,938	7.4%	$ 213,399	1.9%	$ 54,792
E3	Hooper's Landing Golf Course Effluent Irrigation		LS	1		$ 2,894,397	100.0%	$ 2,894,397	0.0%		0.0%		0.0%	
	TOTAL SCHEDULE E: SEAFORD WWTP UPGRADE AND EXPANSION					**$ 25,470,666**	75.5%	$ 19,235,330	16.3%	$ 4,155,436	6.7%	$ 1,710,029	1.5%	$ 369,872
SCHEDULE F: BRIDGEVILLE WWTP & PUMP STATION IMPROVEMENTS														
F1	Bridgeville Wastewater Treatment Plant		LS	1		$ 2,643,975								
F2	Heritage Shores Pump Station Improvements and Conveyance via West DelDOT ROW		LS	1		$ 3,795,323								
F3	Bridgeville Branch Re-Naturalization		LS	1		$ 200,000								
	TOTAL SCHEDULE F: BRIDGEVILLE WWTP & PUMP STATION IMPROVEMENTS					**$ 6,639,298**		$ -	100.0%	$ 6,639,298	As provided by DBF			
ALT SCHEDULE F1: BRIDGEVILLE WWTP & PUMP STATION IMPROVEMENTS														
F1	Bridgeville Wastewater Treatment Plant		LS	1		$ 2,643,975								
F2	Heritage Shores Pump Station Improvements and Conveyance via Rt. 13 Median		LS	1		$ 3,545,100								
F3	Bridgeville Branch Re-Naturalization		LS	1		$ 200,000								
	TOTAL ALT SCHEDULE F1: BRIDGEVILLE WWTP & PUMP STATION IMPROVEMENTS					**$ 6,389,075**		$ -	100.0%	$ 6,389,075	As provided by DBF			

Bridgeville/Greenwood Regional Sewer Evaluation
City of Seaford/ Sussex County Engineering/ Town of Bridgeville/ Town of Greenwood
Preliminary Cost Estimate

		Total Project Cost	Seaford Cost Share		Bridgeville/Greenwood Consortium Cost Share		Blades Cost Share		Sussex County Unannexed Cost Share	
TOTAL PRELIMINARY COST ESTIMATE (SCHEDULES A + B + C + D + E + F)		$40,304,274		$21,756,728		$16,467,646		$ 1,710,029		$ 369,872
TOTAL PRELIMINARY COST ESTIMATE (SCHEDULES A + B + C + D1 + E + F)		$40,916,033		$22,184,958		$16,651,174		$ 1,710,029		$ 369,872
TOTAL PRELIMINARY COST ESTIMATE (SCHEDULES A + B + C + D + E + F1)		$40,054,062		$21,756,728		$16,217,424		$ 1,710,029		$ 369,872
TOTAL PRELIMINARY COST ESTIMATE (SCHEDULES A + B + C + D1 + E + F1)		$40,665,810		$22,184,958		$16,400,951		$ 1,710,029		$ 369,872
COST SHARE ADJUSTMENT AS PROPOSED FOR INITIAL BUY-IN (SCHEDULES A + B + C + I/I STUDY COST)				-$979,020		$979,020				

PS North Ross Pump Station

PS Proposed Pump Station

PS Heritage Shores Pump Station

Seaford WWTP

Bridgeville WWTP

Existing Gravity Sewer (Interception Sewer) - To Be Replaced

Existing Gravity Sewer (Old Combined Sewer)

Existing 10" Gravity Sewer

Existing Force Main

Proposed Force Main

Seaford Municipal Boundary

Bridgeville Municipal Boundary

N

0 1,500 3,000 Feet

PRINTS ISSUED FOR:

NO.	REVISIONS	DATE

GMB
GEORGE, MILES, & BUHR, LLC
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SALISBURY • BALTIMORE • SEAFORD
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BRIDGEVILLE/GREENWOOD REGIONAL SEWER EVALUATION

SUSSEX COUNTY, DELAWARE

SEWER LAYOUT

SCALE	1" = 3000'
DESIGN BY:	
DRAWN BY:	SSK
CHECKED BY:	
GMB FILE	160157.A
DATE	4/10/2017

SHEET NO.
EX. 1

Sewer Layout

EX. 2

BRIDGEVILLE/GREENWOOD
REGIONAL SEWER EVALUATION
SEAFORD, DELAWARE

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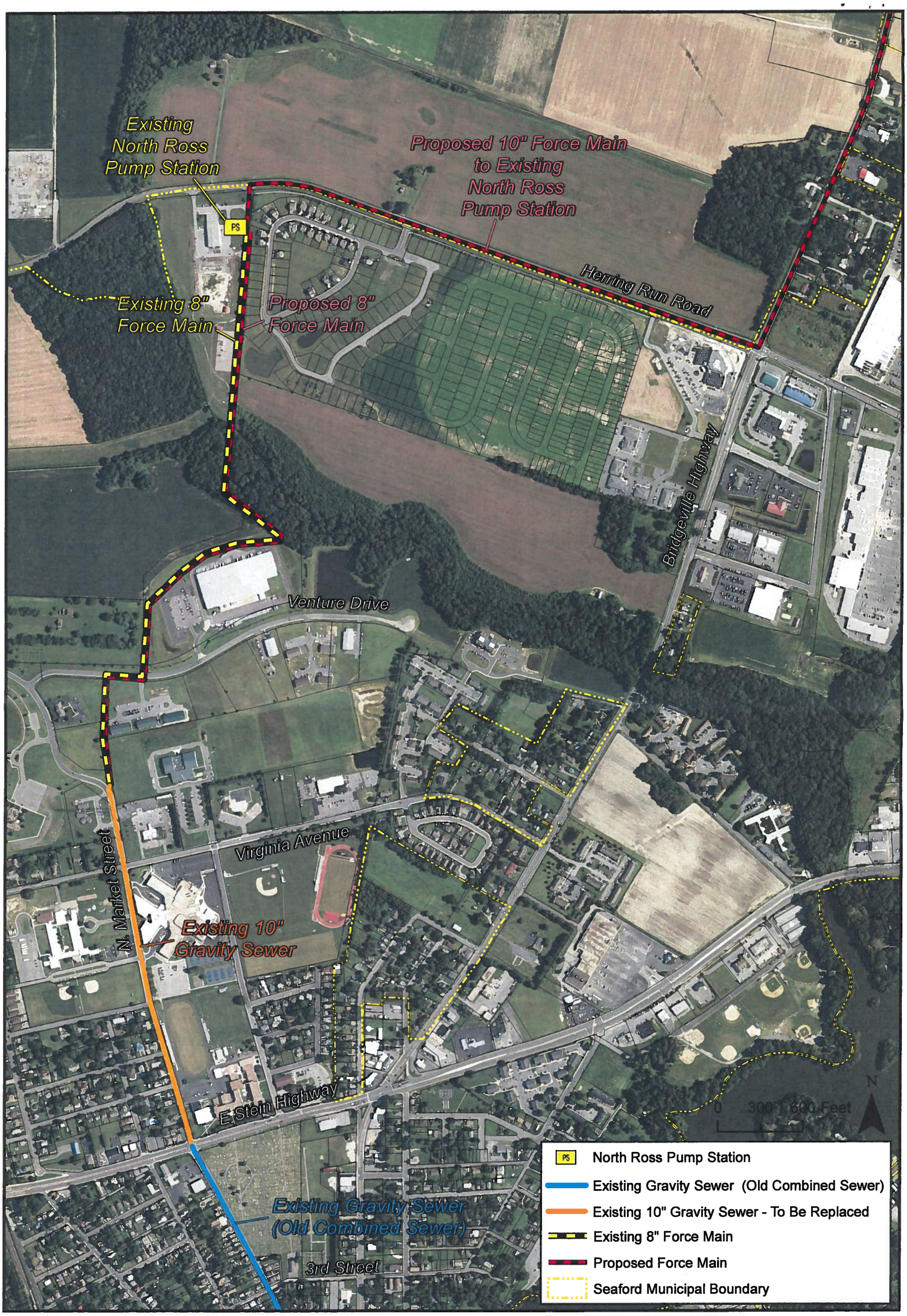
NO.	REVISIONS	DATE

PRINTS ISSUED FOR:



SEWER LAYOUT

SCALE: 1" = 600'
DESIGN BY:
DRAWN BY: SMK
CHECKED BY:
GMB FILE: W01624
DATE: 3/1/2016
SHEET NO. EX. 3

BRIDGEVILLE/GREENWOOD
REGIONAL SEWER EVALUATION
SEAFORD, DELAWARE

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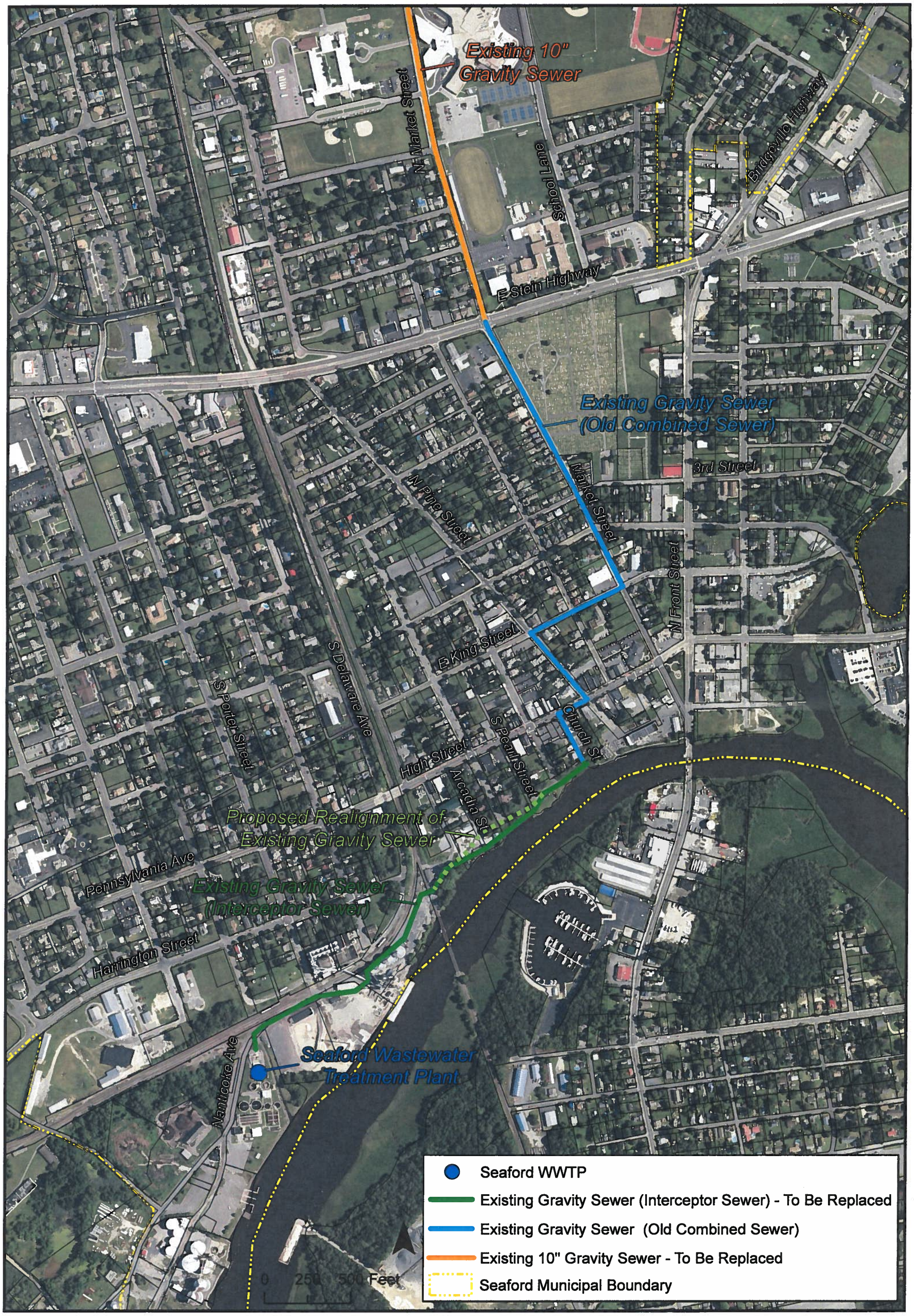
NO.	REVISIONS	DATE

PRINTS ISSUED FOR:



SEWER LAYOUT

SCALE: 1" = 500'
DESIGN BY:
DRAWN BY: MRK
CHECKED BY:
GMB FILE: 16167-A
DATE: 8/15/2018

SHEET NO. EX. 4

BRIDGEVILLE/GREENWOOD
REGIONAL SEWER EVALUATION
SEAFORD, DELAWARE

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NO.	REVISIONS	DATE

PRINTS ISSUED FOR:

Seaford WWTF - **Interim** Load Allocations

Parameter	WWTF Design Performance @ 2.0 MGD Concentration (mg/l)
Influent TN	40
Effluent TN	8
Influent TP	6
Effluent TP	2

Service Area	Current Flows (MGD)
Seaford/Blades	1.07
Bridgeville/Greewood	0.25
	1.32

Load Allocations				Load Based WWTP Treatment Capacity (MGD)					
Facility	Parameter	Load (lbs/yr)	Flow @ Design Conc. (MGD)	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Seaford **Interim**	TN	34,253	1.41	1.41	1.41	1.41	1.41	1.41	1.41
Bridgeville **WIP**	TN	9,764	0.40	0.40	0.40	0.40	0.40		
Invista Trade	TN	27,431	1.13	1.13	1.13				
Septage/Leachate (140 lb/d) Raw	TN	N/A	-0.42		-0.42		-0.42	-0.42	
				2.93	2.51	1.81	1.39	0.99	1.41

Load Allocations									
Facility	Parameter	Load (lbs/yr)	Flow @ Design Conc. (MGD)	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
Seaford **Interim**	TP	8,619	1.42	1.42	1.42	1.42	1.42	1.42	1.42
Bridgeville **WIP**	TP	2,436	0.40	0.40	0.40	0.40	0.40		
Invista Trade	TP	-1,460	-0.24	-0.24	-0.24				
Septage/Leachate (7 lb/d) Raw	TP	N/A	-0.14		-0.14		-0.14	-0.14	
				1.58	1.44	1.82	1.68	1.28	1.42

Note-TP load limit is non-controlling since it is adjustable with chemical addition

WWTF Limitations Summary - **Interim**	Flow Based Limit (MGD)	Load Based Limit (MGD)	Growth Limitation (2017-2025)
Option 1 - Allocation for Seaford + Bridgeville (w/Invista Trade, no Leachate)	2.00		5.6% per year
Option 2 - Allocation for Seaford + Bridgeville (w/Invista Trade, w/Leachate)	1.58		2.3% per year
Option 3 - Allocation for Seaford + Bridgeville (no Leachate)		1.81	4.4% per year
Option 4 - Allocation for Seaford + Bridgeville (w/Leachate))		1.39	0.6% per year
Option 5 - Allocation for Seaford only (w/Leachate)		0.99	0
Option 6 - Allocation for Seaford only (no Leachate)		1.41	3.9% per year

Seaford WWTF-**Final** Load Allocations

Parameter	WWTF Design Performance @ 3.0 MGD Concentration (mg/l)
Influent TN	40
Effluent TN	3
Influent TP	6
Effluent TP	0.3

Service Area	Current Flows (MGD)
Seaford/Blades	1.07
Bridgeville/Greewood	0.25
	1.32

Load Allocations

Facility	Parameter	Load (lbs/yr)	Flow @ Design Conc. (MGD)
Seaford **Final**	TN	24,364	2.67
Bridgeville **WIP**	TN	9,764	1.07
Invista Trade	TN	27,431	3.00
Septage/Leachate (140 lb/d) Raw	TN	N/A	-0.42

Load Based WWTP Treatment Capacity (MGD)

Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
2.67	2.67	2.67	2.67	2.67	2.67
1.07	1.07	1.07	1.07		
3.00	3.00				
	-0.42		-0.42	-0.42	
6.74	6.32	3.74	3.32	2.25	2.67

Load Allocations

Facility	Parameter	Load (lbs/yr)	Flow @ Design Conc. (MGD)
Seaford **Final**	TP	6,091	6.67
Bridgeville **WIP**	TP	2,436	2.67
Invista Trade	TP	-1,460	-1.60
Septage/Leachate (7 lb/d) Raw	TP	N/A	-0.14

Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
6.67	6.67	6.67	6.67	6.67	6.67
2.67	2.67	2.67	2.67		
-1.60	-1.60				
	-0.14		-0.14	-0.14	
7.74	7.60	9.34	9.20	6.53	6.67

WWTF Limitations Summary - **Final**

	Flow Based Limit (MGD)	Load Based Limit (MGD)	Growth Limitation (2017-2045)
Option 1 - Allocation for Seaford + Bridgeville (w/Invista Trade, no Leachate)	3.00		3.1%
Option 2 - Allocation for Seaford + Bridgeville (w/Invista Trade, w/Leachate)	3.00		3.0%
Option 3 - Allocation for Seaford + Bridgeville (no Leachate)	3.00		3.1%
Option 4 - Allocation for Seaford + Bridgeville (w/ Leachate)	3.00		3.0%
Option 5 - Allocation for Seaford only (w/Leachate)		2.25	2.7%
Option 6 - Allocation for Seaford only (no Leachate)		2.67	3.4%

Note-Options 5 and 6 will require alternate disposal method, i.e. off-site land disposal, to reach a capacity of 3.0 mgd without Bridgeville load transfer and/or Invista trade