

City of Rehoboth Beach Wastewater Treatment Plant Ocean Outfall Project
Attachment Table of Contents

- 1) Hearing Officer's Report dated February 27, 2017
- 2) Technical Response Memorandums and Department Staff Draft Approvals
 - a) Division of Water, Wetlands and Subaqueous Lands Section, dated February 27, 2017, on the Subaqueous Lands Act permit and the water quality certification applications and recommending issuance of a final permit and certification.
 - b) Division of Water, Surface Water Discharge Section, dated February 7, 2017, on the NPDES permit application and recommending issuance of a final permit and Fact Sheet.
 - c) Office of the Secretary, Delaware Coastal Programs, dated February 16, 2017, and supplemented on May 24, 2017, on the federal consistency determination application that concurs by operation of laws based upon DCP's review.
 - d) Division of Water, Surface Water Discharges Section, and Office of the Secretary, Environmental Finance Branch, on the wastewater facility construction application and recommending issuance of a final permit.
 - e) Division of Watershed Stewardship, Watershed Assessment and Management Section, dated February 21, 2017, verifying that the Ocean Outfall discharge will meet the Inland Bays TMDLs and Water Quality Standards.
 - f) Division of Watershed Stewardship, dated February 2, 2017, on the Coastal Construction Permit Application BP5263 recommending issuance of a final permit.
 - g) Division of Fish & Wildlife, dated February 9, 2017, that reviewed the applications submitted to the Delaware Coastal Programs and the Wetlands and Subaqueous Lands Section and the public comments and recommended no change from the January 26, 2017 review for rare, threatened and endangered species, unique natural communities, and other significant natural resources.

HEARING OFFICER'S REPORT

To: The Honorable David S. Small
Secretary, Department of Natural Resources and Environmental Control

From: Robert P. Haynes, Esquire
Senior Hearing Officer, Office of the Secretary
Department of Natural Resources and Environmental Control

Re: The City of Rehoboth Beach's Consolidated Applications Seeking Regulatory Approvals for the Construction and Operation of a Treated Effluent Pumping Station, a Force Main, and an Ocean Outfall in Rehoboth Beach, Sussex County

Date: February 27, 2017

I. PROCEDURAL HISTORY AND BACKGROUND

A. Introduction.

This Report provides recommendations to the Secretary of the Department of Natural Resources and Environmental Control ("Department") on six City of Rehoboth Beach's ("Applicant" or "City") applications for regulatory approvals to construct and operate wastewater facilities¹ ("Ocean Outfall") for its wastewater treatment plant ("WWTP") at Bay Road, Rehoboth Beach. The Ocean Outfall would discharge the WWTP's treated effluent into the Atlantic Ocean approximately one mile offshore of the Deauville Beach recreation area in Rehoboth Beach. The Ocean Outfall would allow the WWTP to stop discharging treated effluent into the adjacent Lewes-Rehoboth Canal, as required by the June 1, 2018 deadline imposed by a court-approved consent decree entered because of the City's appeal of the Department's regulations. The Department received the City's six applications for the Department's regulatory approvals necessary to build and

¹ Described in more detail infra in the Findings of Fact.

operate the Ocean Outfall. The Department consolidated the applications for purposes of public participation and final decision.

B. Ocean Outfall Applications

1. National Pollutant Discharge Elimination System Permit ("NPDES") Application

By a September 28, 2010 cover letter to the Department's Division of Water, Surface Water Discharges Section ("SWDS"), the City submitted its application to renew and amend the WWTP's NPDES Permit DE0020028. Pursuant to Section 9.0 of the Department's *Regulations Governing the Control of Water Pollution, 7 DE Admin. Code 7201* ("NPDES Regulation"), the City's filing administratively extended the current NPDES permit until the Department's final decision on the renewal application.

The Applicant's NPDES permit application proposed the Ocean Outfall as an amendment to its NPDES permit based upon a phased permit that would allow continued use of the Lewes-Rehoboth discharge location until the Ocean Outfall's completion. As required by the NPDES Regulation, the Department prepared a draft permit and fact sheet, which completed the application process. The draft permit also represents a tentative Department decision, which was to issue NPDES No. DE0020028. The draft permit recommended phasing of the NPDES permit to allow continued use of the current discharge location until the Ocean Outfall's completion.

On October 9, 2016, the Department published in the *The News Journal, Delaware State News*, and the *Cape Gazette*, a public notice of the NPDES permit application, including the draft permit and fact sheet. This public notice announced that the public comment period for written comments on the Ocean Outfall applications would commence October 14, 2016 and end December 2, 2016, and that the Department would hold an

October 19, 2016 public workshop and November 15, 2016 public hearing. This public notice also provided public notice of the other five Ocean Outfall applications, and the consolidation of the applications for public participation and final decision.

By a July 29, 2016 letter, the Applicant submitted the Ocean Outfall's plans and specifications as part of its wastewater facility construction permit application to the Department's Office of the Secretary's Environmental Finance Branch ("EFB") to determine if they meet accepted building and engineering standards.

By a June 17, 2016 cover letter to the Department's Division of Watershed Stewardship, Shoreline and Waterway Management Section ("SWMS"), the Applicant submitted its coastal construction application for approval of the Ocean Outfall's construction activities pursuant to the *Beach Preservation Act* ("BPA"), 7 Del. C. Chap. 68.

By a June 17, 2016 cover letter, the Applicant submitted its application for a Subaqueous Lands Act ("SLA")² permit to the Department's Division of Water, Wetlands and Subaqueous Lands Section ("WSLS"), which reviews the Ocean Outfall's proposed use of public subaqueous lands extending seaward from Deauville Beach's mean high water line. In addition, the WSLS application included an application for a water quality certification ("WQC") based upon the City's associated dredging permit application submitted to the United States Army Corps of Engineers ("ACE").

By a June 13, 2016 cover letter, the Applicant submitted its application for a federal consistency determination to the Office of the Secretary, Delaware Coastal Programs ("DCP"), for review pursuant to the Department's *Delaware Coastal Management*

² 7 Del. C. Chap. 72.

Program Federal Consistency Policies and Procedures, 7 DE Admin. Code 108 ("CMP Regulations").

The Department received comments from the City, the United States Environmental Protection Agency ("EPA"), and the National Oceanic and Atmospheric Agency ("NOAA").

The Department's October 19, 2016 public workshop provided the public with the opportunity to learn about the applications in a more informal forum than a public hearing. The public workshops are not part of the Record established for the Secretary, but I attended as a spectator. At the public workshops, the Applicant's and the Department's representatives made presentations at the public workshop and answered questions for approximately 2.5 hours. The Department posted the presentations on its web page. Approximately 50 persons attended the public workshop.

I presided over the November 15, 2016 public hearing; 19 persons presented comments and approximately 50 persons attended. In addition, the Department received 63 written comments by the close of the public comment period on December 2, 2016. Many of the public comments referred to the City's and the Department's prior actions that resulted in the City submitting the consolidated applications this Report considers. Thus, while not directly part of the procedural history of the pending applications, I provide as background the prior actions that resulted in the City's decision to seek the regulatory approvals this Report considers.

B. Background on the Consolidated Applications

The City's decision to propose the Ocean Outfall originates with the Department's 1998 regulation, *TMDLs for Nutrients for the Indian River, Indian River Bay and Rehoboth*

Bay ("TMDLs"), 7 DE Admin. Code 7407, which required the systematic elimination of NPDES regulated point sources that discharge nutrients into Rehoboth Bay. The TMDLs applied to the WWTP's current discharge into the Lewes Rehoboth Canal with its tidal flow into nearby Rehoboth Bay. The Department also issued *Regulations Governing the Pollution Control Strategy for the Indian River, Indian River Bay, Rehoboth Bay and the Little Assawoman Bay Watersheds*, 7 DE Admin. Code 7402, ("Inland Bays PSC"), which further required the City to eliminate the WWTP's current discharge location.

The City appealed the TMDLs, but also began to select a replacement discharge location by engaging its engineers to study alternatives. The Department and the City settled the City's appeal by a court-approved Consent Decree, which currently allows the City to use the current discharge location until the earlier of its replacement or June 1, 2018.

The City, based on its engineers' expert opinion, selected the Ocean Outfall as the replacement discharge location. The City also sought financing for the Ocean Outfall's cost from the Water Pollution Control Revolving Fund ("WPCRF"), which the Department administers.

The Department WPCRF's procedures required the City to prepare an Environmental Impact Statement ("EIS") following procedures similar to federal agencies' EIS procedures required by the National Environmental Policies Act ("NEPA"). Pursuant to the WPCRF's "NEPA-like" procedures, the City prepared a draft EIS that considered six alternatives, including the Ocean Outfall and land application of the treated effluent using existing or proposed wastewater treatment and disposal facilities. The City's draft EIS

justified the selection of the Ocean Outfall based upon the review of financial and environmental considerations.

The City provided the public with the opportunity to comment on the draft EIS, including in writing and at a public hearing before the City's presiding hearing officer. The City's presiding hearing officer issued a June 2012 Hearing Officer's Report, which recommended approval the Ocean Outfall alternative. He also recommended changes to the draft EIS based upon public comments. The City revised the draft EIS as recommended by the hearing officer's report and submitted it to the Department for its review and approval as part of the WPCRF financing application.

The Department reviewed the City's draft EIS and requested revisions to satisfy public comments on the possible alternatives. The Department approved a final EIS in a January 5, 2015 "Record of Decision on the Final Environmental Impact Statement on Wastewater Disposal Options Including a Proposed Ocean Outfall for the City of Rehoboth Beach Wastewater Treatment Facility" ("ROD"). The ROD supported the Applicant's selection of the Ocean Outfall as part of the WPCRF's financing.

The Delaware Surfriders ("Surfriders") appealed the Department's ROD to the Environmental Appeals Board ("EAB"), which determined that the appeal was filed late and that the EAB lacked statutory jurisdiction to review the ROD.

C. Department Staff Recommendations

On February 2, 2017, I requested technical assistance and recommendations from the Department's experts in the various regulatory programs that reviewed the applications. In addition, if the experts recommended approval, I requested that they provide draft approvals; i.e., draft permits, etc. I also requested assistance from the Division of

Watershed Stewardship, Watershed Assessment and Management Section ("WAMS") because of its overall leadership and oversight of the Department's efforts to improve water quality in Rehoboth Bay, and its knowledge of the City's steps undertaken to comply with the TMDLs. I requested assistance from the Division of Fish and Wildlife ("DFW") based upon the public comments claiming that the Ocean Outfall would harm wildlife and marine species and would violate federal laws and regulations that protect the marine species. The Department's experts provided their advice and recommendations in Technical Response Memoranda attached to this Report and discussed *infra*.

II. SUMMARY OF THE RECORD³

This Report establishes the following Record: 1) the verbatim transcript of the public hearing; and 2) the documents identified as exhibits at the public hearing and in this Report, and 3) this Report and the attached TRMs and any document referenced in this Report or the TRMs.

A. The Public Hearing Record

I opened the public hearing with introductory remarks that identified the applicable Department experts who were present. I provided a slide presentation overview of the applications and the public hearing process. I marked the applications as the following exhibits:⁴

DNREC Ex. 1-the NPDES Permit Application and draft NPDES permit and Fact Sheet,
DNREC Ex. 2-the SLA and WQC application,
DNREC Ex. 3- the wastewater construction application,

³ This summary does not determine any facts, and summarizes public comments set forth in full in the transcript.

⁴ The Department provides certain document for the record at the public hearing to assist the public in making their comments, but the Department has no legal obligation or burden of proof to provide the documents at the public hearing. The Applicant met its initial burden of proof based upon the submission of a complete application and any additional information the Staff requests as part of the Department's review.

DNREC Ex. 4- the BPA application, and
DNREC Ex. 5-the Delaware Coastal Program's application.

I then received public comments based on the public speakers' advance registration and the public hearing's sign-in sheet. The following is a summary⁵ of each public speaker's comments:

1. John Weber indicated he works for the Surfriders . He provided history of the Surfriders' opposition to the Ocean Outfall. He mentioned the Blue Water Task Force that began using volunteers for its water quality testing program beginning in the late 1990s in the Atlantic Ocean and Rehoboth Bay. The testing program noted fishkills, which he said were reported to the Department. He said that the Surfriders sent water samples to a lab in Wilmington, North Carolina, which reported the presence of a harmful phytoplankton called Chattonella, algae that produces brevetoxins hazardous to human health. He said that DNREC asked the Surfriders to stop its water testing.
2. Gregg Rosner commented that Delaware's ocean habitat should be preserved based upon the federal and state laws, which he said required denial of the proposed Ocean Outfall. He stated that the EIS lacks a discussion of either federal or state law, as required by NEPA. He mentioned the NEPA process for the ACE has a best-practice policy, citing 40 CFR 1506.2(b) for support of a joint planning and environmental assessment, and he said joint planning was not done. He commented on the standard of proof in this public hearing was based upon the preponderance of the evidence. He commented that the EIS and the ROD found that the Ocean Outfall would not impact species, which he considered incorrect based on his assessment that the Ocean Outfall would violate the Mammal Protection Act and the Endangered Species Act. He cited

⁵ The transcript provides the complete comments.

the NPDES Regulations 5.3.1.3, 5.3.1.4, 5.3.1.11, and 5.11.3.2, which he claimed supported denial of the Ocean Outfall. He commented that the discharge will be at a depth of 40' and one mile offshore and will cause turbidity plume that will be harmful to fish and he mentioned the Atlantic Sturgeon. He reminded the Department that the Applicant has the burden to show its compliance with all regulatory programs.

3. Tom McGlone spoke and identified himself as a full-time resident of the City after moving to it about 12 years ago. He opposed the Ocean Outfall and mentioned the City's referendum on it. He said he and 150 others voted against the Ocean Outfall. He stated that the City in 2003 decided that land application was not possible and too expensive and decided on the Ocean Outfall. He mentioned the Department's January 2007 decision to grant a permit for land outside of Milton for a wastewater treatment plant, which he said was large enough to handle the City's wastewater.
4. Laura Hansen Reynolds spoke of growing up in South Florida and that she was appalled that the Applicant had selected the Ocean Outfall. She said Florida had banned the use of ocean outfalls years ago. She indicated that the Department has a preferred method of treated wastewater disposal, namely, land application. She challenged the Department to review the City's Ocean Outfall decision. She said the City based its decision on a 2005 study that narrowed the options to the Ocean Outfall or land application and a two-month search for available land in 2009. She said the Department should review the 2011 draft EIS and the final EIS with fresh eyes based upon tourism and the ocean as the City's prime industry. She said that the City is asking the Department to issue permits based on 7-11 year old studies. She stated that prior Department Secretary, Colin O'Mara, expressed his concerns with the EIS and that he

wanted spray irrigation for economic and environmental reasons, particularly because of the risk to the City's tourism. She noted that Tidewater Utilities and Artesian Resources provided the City with options for land application that cost less and would not send nutrients into the Rehoboth Bay. She said if the current discharge pollutes Rehoboth Bay, then the Ocean Outfall discharge will pollute the Atlantic Ocean. She stated in 2008 Florida banned ocean outfalls based upon a research that indicated the heavy metals, bacteria, personal care products, pharmaceuticals, hormones, plasticizers, home care products and thousands of chemicals that do not get monitored. She mentioned a study that found that Florida's treated effluent contained medicines that were destroying the reproductive cycle of Florida's marine life. She indicated that Delaware also had experienced a drought and the treated effluent's land application would benefit Sussex County's farmers. She noted that Delaware has ocean reefs and 14 artificial reefs established by the Delaware Reef Program, with two established near the proposed Ocean Outfall. These reefs had blue mussel communities. She indicated that the Ocean Outfall would be near the Hen and Chicken Shoals, a breeding ground for the Atlantic Sturgeon, which she said was listed in 2012 as an endangered species, which meant that the 2011 draft EIS did not consider this event. She cited National Oceanic and Atmospheric Administration ("NOAA") as stating that the Ocean Outfall will adversely impact essential fish habitat. She commented that the treated effluent will be monitored only for one bacteria, enterococcus, and nitrogen and phosphorous. She said that there is no treatment or monitoring for viruses, heavy metals or other stuff. She mentioned the Washington Post article on Hampton Roads, Virginia's proposed wastewater injection system, which was a technology the City rejected in 2005. She

requested that the Department order a new EIS with 2016 cost estimates. She also mentioned that the Department should consider new technology such as electrocoagulation.

5. John Doerfler spoke as the chairperson of the Delaware Surfriders. He reminded the Department, the City and elected officials that the City is asking permission to change the ecology and health of Delaware's most prized asset, namely, its ocean health. He said the request to change the ocean's health did not receive public's permission at the 2009 hearing. He said that the City and the Department have not done their due diligence in exploring effective alternatives. He mentioned the dismissal of Tidewater's and Artesian's proposed land application alternatives.
6. Hans Medlarz, P.E., Sussex County Engineer, spoke on behalf of Sussex County in support of the Ocean Outfall location east of Deauville Beach. He said that Sussex County reviewed the specific calibration data used in the modeling and determined it to be appropriate based on its use of Doppler current profiles, conductivity, temperature, and density. He considered the two-stage near field and far field element ocean modeling to be the best available technology. He said that the calibrated model correctly reflects the plume's anticipated dispersion in the Atlantic Ocean. He indicated that if a highly unlikely worst-case scenario occurred with the failure of the WWTP's disinfection system, then the Ocean Outfall's initial mixing zone would still achieve the required dilution for enterococcus bacteria. He concluded that Sussex County supported the Ocean Outfall alternative as the only economic and environmental alternative to ending nutrient discharges into the Inland Bays.

7. Frank Monteferrante spoke as a property owner and questioned the discharge location selection process that steered the selection to the short-term least cost alternative of the Ocean Outfall. He said that the EIS supported the approach that "dilution is the solution to pollution." He said that the City did not consider long-term consequences of such an obsolete way of thinking. He mentioned the beach replenishment funding to support keeping the beaches in prime condition for the tourists. He said that the millions spent on beach replenishment support keeping the water quality clean. He mentioned that the ROD's reference to spray irrigation as the Department's preferred disposal method. He said that the EIS also did not cite Sussex County's Comprehensive planning document that prefers rapid infiltration basin systems. He said the EIS does not meet NEPA standards. He recommended directing revisions to the EIS because of recent events. He cited the referendum and climate change and the Council of Environmental Quality's August 1, 2016 guidance. He also raised the public health issue from an uncontrolled release that he claimed that the EIS did not address. He also mentioned that the EIS did not include the alternative of closed loop system for recycling and reusing wastewater.
8. William Moore spoke as a long time Rehoboth Beach resident. He asked about the Ocean Outfall's impact on the Hen and Chicken Shoals, which he said is located off the southern end of Dewey Beach and is a designated marine sanctuary. He mentioned his sailing in the Ocean Outfall's area and observing porpoises and other marine life and sturgeon. He discussed what he considered problems with the Department's enforcement, and cited Allen Harim. He wondered how the Department would enforce problems with the Ocean Outfall. He commented on the pipeline's construction along

the Lewes-Rehoboth Canal saying that it would cause the canal to fill with silt. He wondered who would pay to remove it.

9. Walter Brittingham spoke in support of the Ocean Outfall location and thanked the Department for the thoroughness of its work. He cited the recent problems at the Wolfe Neck spray irrigation fields as a reason not to rely on spray irrigation.
10. Susan Gay spoke and said that it has been 7 years since the first public hearing on the WWTP's discharge alternatives. She commented on the short-term impacts from the construction activity and appreciated the seasonal restrictions that would protect habitat. She commented on the long-term impact from pharmaceuticals, which she said were not subject to any federal or state criteria. She cited that the Bethany ocean outfall as an example of an outfall that does not harm tourism. She mentioned what she described as "the elephant in the room," which she claimed was the City's stormwater discharges and that the ROD required a stormwater study of them. She also commented that the public should not use the wastewater system to dispose of pharmaceuticals.
11. Ed O'Connor spoke in opposition to the Ocean Outfall and cited the former Department Secretary O' Mara's comment that it was not a good idea. He asked how Secretary Small could come to a different conclusion than Secretary O'Mara. He commented on the proposed expansion of the Allen Harim plant despite its WWTP's violations. He cited the Delaware Code for the Department's responsibilities to protect the coastal environment. He commented that the disposal of pharmaceuticals in treated wastewater includes chemicals in the human waste and not just the flushing of chemicals down the toilet. He mentioned that the state purchased Deauville Beach with federal funds and the state currently leases it to the City. He asked if closing the beach for almost a year

and installing a pump was consistent with the purchase and lease. He commented on how the City and the Department considered the current discharge location a good idea at one time. He questioned the current estimated cost. He indicated that Millsboro just installed a spray irrigation system. He asked about studies of the Bethany and Ocean City outfalls and why the EIS did not consider them. Instead, the EIS cited a California discharge in water that was 240' deep. He concluded by asking that the stormwater plan be implemented.

12. Suzanne Thurman, the Executive Director of Marine Education, Research and Rehabilitation Institute ("MERR"), spoke in opposition to the Ocean Outfall. She said MERR rescues and assists stranded marine mammals and sea turtles. She said that since 2009, MERR has commented on the Ocean Outfall as the most environmentally harmful method due to its impacts on the ocean and marine mammal health. She said that Delaware waters provide an essential foraging ground and migratory pathway for over 32 species of marine mammals and sea turtles. She claimed that the effluent plume would constitute a level B harassment under the Marine Mammal Protection Act that protects these species from such harassment. She expressed concern for the discharge of heavy metals, pharmaceuticals, caffeine, endocrine inhibitors, and other toxic substances. She also objected to the high concentrations of chlorine in the treated effluent. She noted the close proximity to the Hen and Chicken Shoals and the long shore current that runs up to the mouth of the Delaware Bay. She indicated that the North Atlantic Right whale, an endangered species, and the Humpback whale use the habitat. She commented that human impacts cause 90% of the harm to rescued mammals and she cited problems with the toxins. She suggested updating the EIS to

consider wetlands and electrocoagulation. Her written comments were marked as MERR Ex. 1.

13. Charlie Garlow spoke as a representative of the Citizens Climate Lobby, Delaware Chapter and as a Rehoboth Beach homeowner. He commented on the prior comments in favor and against the Ocean Outfall and said the comments against were more persuasive. He stated that he wanted a monitoring system for pharmaceuticals. He noted the lack of any regulations on these.

14. Jacqueline Reed spoke in opposition to the Ocean Outfall and on behalf of wildlife that does not have a voice.

15. Frank Cooper spoke in favor of the permits and stated that the land application would negatively affect the groundwater, and that the Ocean Outfall was the lesser of two evils in getting rid of nasty chemicals. He said the years of haggling over what to do with the treated wastewater has allowed dumping of pollutants into Rehoboth Bay. He said the Ocean Outfall is not a perfect solution, but it is the best available and most expedient.

16. Chris Bason spoke in support of the Ocean Outfall as Executive Director of the Center for the Inland Bays. His comments addressed the Inland Bays, which he described as long-suffering from pollution from excessive nutrients that caused the complete loss of bay grass habitat, low dissolved oxygen that harm fish and shellfish, and murky waters. He indicated the Center released the 2016 State of the Bays report that was encouraging in that short-term and long-term levels of pollution reduced. He said that the Ocean Outfall will be the next to the last of the 13 outfalls that were to stop discharging into the Inland Bays. The end of the City's discharges would eliminate 17,000 lbs. of

nitrogen and 1,000 lbs. of phosphorous. He said that Rehoboth Bay takes 90 days to flush which means that the pollution that enters it stays a long time and adversely impact water quality. He said that residents and tourists heavily use Rehoboth Bay for boating, fishing, swimming, kayaking, and crabbing. He said the Ocean Outfall would reduce by a third the total phosphorous loads that now discharge into Rehoboth Bay. He said that the City has done its due diligence in reviewing the environmental impact of the Ocean Outfall. He noted that the Delaware Bay's waterflow entering the Atlantic Ocean contains 15,000 to 22,000 times more nutrients than the Ocean Outfall will discharge. He noted that the City's historic discharges showed little or no bacteria and that heavy metals were below detection limits. His comments were marked as Center for Inland Bays Ex. 1.

17. Tim Meyers expressed his concern about problems at the WTP and the pumping to push the treated effluent to the Ocean Outfall;
18. Rich King runs a fishing web page and he opposes the Ocean Outfall. He said the WWTP uses an outdated treatment process. He asked how many fished and noted that 325,000 fishing licenses were issued last year. He asked about business owners who are against the Ocean Outfall;
19. Donna Mabrey stated that there had been enough study of the options and asked the Department approve the Ocean Outfall. She commented on land application and said that eventually the pollutants would reach the ocean or aquifers.

B. Post-Public Hearing Written Comments

The post-hearing public comments in the Record include the 63 timely received written comments, including some comments from persons who provided comments at the

public hearing. I summarize to the comments in a separate memorandum that identifies each comment. The many of the comments briefly state the position in support or opposition to the Ocean Outfall. The Surfriders and Tidewater Utilities ("Tidewater") submitted extensive comments in opposition. Several of the public comments in opposition requested that the Department deny the application and direct the City to submit applications for alternative wastewater treatment and land application disposal facilities as alternatives to the Ocean Outfall.

In addition, the Record includes the attached TRMs, which set forth the expert opinions and recommendations of the Department's regulatory programs that I requested to provide technical assistance and recommendations on the pending applications.

The SWDS TRM reviews the public comments that apply to the NPDES permit. The SWDS recommends issuance of a NPDES permit attached to the TRM, which reflects some comments as explained in the accompanying Fact Sheet. The SWDS TRM recommends the Ocean Outfall and a phased NPDES permit to allow continued use of the current discharge until the Ocean Outfall is completed.

The WSLS' TRM recommends approval of the use of the public subaqueous lands and accepted the offer to mitigate in the SLA application based upon benthic sampling. The WSLS also recommended issuance of the water quality certification.

The SWMS TRM recommended issuance of the coastal construction permit to allow the construction activity that is subject to the BPA's regulation. Similarly, the EFB TRM recommended issuance of the wastewater facilities construction permit.

The DCP's TRM recommends that the Department issue a consistency determination because the Ocean Outfall did not violate any of the Coastal Program's policies and that it would improve water quality in Rehoboth Bay.

The WAMS TRM reviews the history of the Department's actions that required the City to find a replacement outfall location and the steps the City undertook to reach its decision to construct the Ocean Outfall.

The DFW TRM provides its position on the Ocean Outfall's impact on marine life and finds that the Ocean Outfall can be constructed and operated consistent with the protection of the marine life based upon seasonal restrictions during the Ocean Outfall's construction. The DFW also proposed benthic monitoring as a permit condition based on the Applicant's offer in the SLA application.

I consider the Record supports a Department final decision to issue the approvals considered in this Report for the regulatory permissions to construct and operate the Ocean Outfall.

III. FINDINGS OF FACT

A. The Proposed Ocean Outfall Construction

The Applicant's wastewater facility construction permit application provides detailed plans and specifications prepared by the Applicant's well qualified and Delaware-licensed professional engineers, GHD. The Department's experts reviewed the plans and determined that the construction met engineering standards, as set forth in the EFB's TRM.

The plans include constructing 1) a 3.5 million gallon per day ("mgd") pumping station at the WWTP, 2) installing by trenching approximately 11,300' force main to carry the WWTP's treated wastewater to the Deauville parking lot, and 3) installing by horizontal

direction drilling and open cut dredging a 6,000' force main from the parking lot to the offshore outfall discharge location where it is dispersed using a diffuser structure.

The 11,300' force main pipeline would be 24" diameter ductile iron pipe that would go from the WWTP along the eastern side of the Lewes-Rehoboth Canal north to Grove Park, where it would go northeast along Henlopen Avenue to the Deauville Beach parking lot. From the Deauville Beach parking lot, the pipeline would extend seaward perpendicular to the shoreline 6,000' using a 24" diameter pipe made of either high-density polyethylene ("HDPE") or polyvinyl chloride ("PVC"). The installation will be at least 8' below the ocean strata using horizontal directional drilling for at least the first 3,000' seaward and thereafter using mechanical or hydraulic dredging. Concrete collars would anchor the pipeline in the trench, which would be backfilled with 2.5' of soil, 4' feet of ballast stone, and 1.5' of the native substrate.

The Ocean Outfall structure would be located in the Atlantic Ocean at the proposed North Location, at coordinates N 38 degree 43.787', W 75 degree 03.505'. The Ocean Outfall structure will use a 120' long diffuser, which would discharge the treated effluent 40' below the water surface. The diffuser would sit on pilings to discharge at 1.5' above the ocean floor and would discharge through 8 risers, with 4 openings per riser based upon 2005 Stearns & Wheeler engineering study following best practices. The studies and computer modeling show that the discharge of treated effluent will rapidly dilute to background levels within 1,000' south of the diffuser based upon the ocean currents.

No public comments questioned the proposed Ocean Outfall's engineering, but one comment raised a concern with the silt entering the Lewes-Rehoboth Canal during construction.

The Applicant proposed, and the draft NPDES permit reflects, the WWTP's current wastewater treatment process. The draft NPDES permit eliminates volumetric limits and other changes to reflect updates to NPDES permits issued since 2005, when the Department issued the current NPDES permit. The WWTP treatment process will use bar screens, a grit collector, emergency off-line diversion tanks, two total barrier oxidation ditches, chemical addition for phosphorus removal, two secondary clarifiers, two microscreens, chlorination and de-chlorination tanks, and post aeration to attain advanced secondary treatment of the wastewater. The WWTP's bio-solids are aerobically digested, thickened, and either applied to land as a liquid or dewatered by a belt press and taken to a sanitary landfill for disposal. No public comments addressed the treatment process, but one comment questioned the City's ability to operate the WWTP in light of a recent spill. The Department's experience indicates that the City has operated the WWTP in a professional manner with no major problems. A recent Department inspection found no problems with the WWTP's operations.

I find that the Record supports approving the EFB's TRM, which recommends issuing the draft wastewater construction permit attached to the TRM. In addition, I adopt the SWMS TRM insofar as it approves the construction activity that will use an area subject to the BPA regulation. The WSLs TRM also approves the use of the public subaqueous lands for the Ocean Outfall's construction and operation.

B. NPDES Permit

The NPDES draft permit was the subject of most of the public comments because it approves the Ocean Outfall as the Department's tentative decision, subject to any revision in the final decision. The SWDS TRM recommends certain changes to the draft NPDES

permit, as explained in the revised Fact Sheet and reflected in the revised draft NPDES permit attached to the SWDS TRM. I find that the Record, as established above, supports adopting SWDS' recommendation to issue a renewed and amended NPDES permit consistent with the SWDS's recommendations in its TRM. No public comment questioned the draft NPDES permit's effluent limits other than those general comments that claimed that any discharge of the treated effluent in the Atlantic Ocean would harm marine life.

The public comments that opposed the City's selection of the Ocean Outfall, as set forth in the summary of the Record, claimed that proposed discharges of treated effluent into the Atlantic Ocean would harm the Ocean's water quality, which, in turn, would adversely impact marine life and Rehoboth Beach's beach related tourism. The Record also includes public comments in support of the Ocean Outfall location. Finally, the Record includes support for the Ocean Outfall from the Applicant's, the Department's experts, and public comments that all conclude that the Ocean Outfall will meet all applicable water quality and other environmental requirements. I find convincing the Department experts' conclusions that the Ocean Outfall will not unduly impact the Atlantic Ocean's water quality, and, accordingly, would not adversely impact marine life or beach tourism.

The public comments in opposition seek to have the Department deny the NPDES permit application and the draft NPDES permit because they would authorize the Ocean Outfall and that such a discharge would harm marine life, such as the Atlantic Sturgeon. These comments, such as by MERR and Surfriders, seek the Department's disapproval of the Ocean Outfall applications in order that the City will use other methods to dispose of the WWTP's treated wastewater.

I recommend rejecting the positions that the Department should deny the NPDES permit application and require the City to select an alternative other than the Ocean Outfall. First, rejecting the Ocean Outfall would continue the discharges into the Lewes-Rehoboth Canal for a longer time than the Ocean Outfall's projected June 1, 2018 completion date. The Tidewater offer is based upon a completion date within the same time period, but first the City and Tidewater would have to agree to that alternative, which I consider unlikely if it has not already occurred. Second, the Department has no authority to interfere in the City's selection of a discharge location to replace the current location. Third, and most important, is that the Department's experts conclude that the Ocean Outfall will provide a suitable replacement discharge location that meets all the Department's regulatory requirements.

The public comments in opposition essentially seek to have the Department reconsider the ROD, and cite alleged problems with the EIS. The alleged problems include outdated information and not considering alternatives. I recommend rejecting the public comments in opposition because they seek the Department to reconsider the ROD in this proceeding, which is limited to reviewing the pending six applications for regulatory authority to construct and operate the Ocean Outfall. As noted in this Report's Procedural History and Background, the Department reviewed the City's selection of the Ocean Outfall when in the 2015 ROD, which accepted the City's EIS that the Department required to support the Ocean Outfall's selection from among alternatives that included the same or similar alternatives that the public comments mention.

I find that the Department's regulatory requirements for the NPDES permit application review do not support the public comments that assert that the Department must

consider alternatives to the Ocean Outfall. The Department's procedures for its review of the City's application for WPCRF financing required the City to prepare the EIS, which the Department reviewed and approved in the ROD. This record, however, is based upon an entirely different record and regulatory requirements than the WPCRF's financing application. I find that this record supports the Ocean Outfall approval based upon the Department's procedures and regulatory requirements for the pending six applications. Indeed, the EIS and the ROD provide more than the normal support required for a NPDES permit application.

Despite not having to consider alternatives, I find that the Record supports finding that the City's selection of the Ocean Outfall is reasonable because it replaces the current discharge without violating water quality standards or violating other laws and regulations. The WAMS TRM provides its expert concurrence in the overall reasonableness and scientific support for the Ocean Outfall. The public comments in opposition claim that the Ocean Outfall will violate laws and regulations. The Department's experts disagree with the public comments' claims and I find that the Department's experts, as supported by the Applicant's experts and public comments in support of the Ocean Outfall, provide ample support for finding that the Ocean Outfall will not violate any laws or regulations.

Many of the public comments in opposition seek to have the Department require revising the EIS to include updated information since the EIS was approved by the ROD in 2015. I disagree that any changed event requires the Department to require an updated EIS. The EIS was required only for the financing and was not required by any of the requested regulatory approvals considered by this Report. Again, Surfriders argue that the permit applications should trigger a new EIS, but there is no requirement for an EIS in any

of the Department's regulatory requirements this Report considers. Thus, I reject this position as unsupported by the law or Department regulations.

I find that the EIS provided supplemental support above what the Department's regulations require. The EIS and the ROD's approval of it support the recommended permitting of the Ocean Outfall as a reasonable method for the disposal of the WWTP's treated wastewater. I do not dispute the public comments that claim that there may be many other reasonable disposal methods at various costs and regulatory and legal requirements.

The City's six applications seek the Department's approval of the Ocean Outfall, which the City selected from among alternative as part of its proper exercise of its managerial judgment and discretion. As noted in the WAMS TRM, the City even held a referendum on the Ocean Outfall, and the Ocean Outfall received the support of the majority of voters. I find that the ROD⁶ and the EIS properly support the City's decision to select the Ocean Outfall alternative, which is a decision that entails the cost of the discharge location replacement. This cost will be borne by the City's wastewater system users within the City's limits and in the communities of Henlopen Acres, North Shores and the Town of Dewey Beach.

The ROD sets forth the decision to select the Ocean Outfall that includes requiring a study of stormwater discharges into the Atlantic Ocean in the following:

F. Decision

Although the Department generally prefers the disposal of treated wastewater effluent to be through land application rather than to surface waters, the EIS has identified numerous environmental, economic and practical impediments to implementation of such an alternative. The

⁶ The Environmental Appeals Board dismissed an appeal of the ROD after determining that the appeal was not timely filed and, more importantly, that it was not a final agency action subject to the EAB's review.

cost of land, lack of available land in reasonable proximity to the City of Rehoboth Beach, coordination with Sussex County and additional costs have been identified. In addition, land application within the Inland Bays watershed would result in continued, albeit reduced, nitrogen and phosphorous loads to the Bays and its tributaries whereas an ocean outfall will completely eliminate those loads to the Bays from the RBWWTP.

Public comment in the Record raised concerns about the potential impacts to ocean water quality from an ocean outfall. While an assessment of those potential impacts in the EIS reveals that the RBWWTP would meet water quality standards for an ocean outfall under even catastrophic conditions, there are other potential impacts on recreational ocean water quality that, along with the temporary impacts of construction of the outfall, should be considered.

Therefore, as a condition of this Record of Decision, the City will conduct a stormwater evaluation of its catchment areas and collection system that are associated with the existing five (5) outfalls which discharge directly to the Atlantic Ocean. The City will submit a planning-level report to the Department which identifies nonpoint sources of stormwater effluent and options for controlling those sources in order to minimize potential impacts to swimmers, surfers, and other water users within the nearshore area. The report shall include cost effective alternatives for improving stormwater quality, reducing stormwater volume within the collection system, and an evaluation of disposal options, including possible reorientation, reconfiguration, extension, or other upgrades to the outfalls. The stormwater evaluation shall include Engineers Estimates of Probable Construction Costs of the various approaches for improving stormwater quality, reducing quantity, and improving disposal methods. The report shall be completed and provided to DNREC by January 1, 2016.

The factors and considerations identified in the Final EIS warrant approval of Alternative 6, Ocean Outfall, as described and analyzed in the Final EIS for the wastewater disposal method for the City of Rehoboth Beach and in this Record of Decision. All practical means to avoid and minimize environmental harm from implementation of the selected alternative have been incorporated, as described in the final EIS and this Record of Decision.
ROD at 26-27.

The Department's review of comments pertinent to the NPDES permit do not support any changes to the draft NPDES permit prepared by the SWDS. The SWDS recommended draft permit continues the current treatment process, which removes significant levels of nutrients. The treated effluent's discharge into the new receiving waters of the Atlantic Ocean will meet the standards required by the receiving water's water quality, unlike the current discharge into the more environmentally sensitive waters of Rehoboth Bay. Thus, the Ocean Outfall meets the NPDES permit application's regulatory requirements.

I find that the Ocean Outfall is reasonable and supported by the Record, which includes the EIS and the ROD as supplemental information. The proposed discharge of treated effluent into Atlantic Ocean will comply with the Water Quality Standards and will not harm the environment or public health. Indeed, the current discharge into Rehoboth Bay flows into the Atlantic Ocean via the Indian River Inlet, which is adjacent to heavily used recreational beaches and prime fishing areas. The Ocean Outfall, as an offshore discharge, is similar to other offshore discharges of treated effluent, including the outfall offshore of South Bethany Beach. The EIS set forth other locations along the Atlantic Ocean where beach resort communities use offshore discharges. Thus, the Ocean Outfall will end the current discharge location's adverse impact on Rehoboth Bay and allow proper discharge away from the Atlantic Ocean's shoreline.

C . Delaware Coastal Program's Consistency Determination

I find that the Applicant's Application for a consistency determination and the DCP's TRM supports issuing the letter concurring in the Applicant's federal consistency determination as attached to the DCP's TRM. The Surfriders submitted public comments

that specifically addressed the consistency determination, but again this comment challenged the overall selection of the Ocean Outfall.

D. Water Quality Considerations

The WAMS TRM also provides an overall support for approving the applications to construct and operate the Ocean Outfall based upon its expert review of the Department's efforts to improve Rehoboth Bay's water quality to meet water quality standards. I concur with the WAMS opinion and recommendations based upon its role in protecting the Delaware's water quality, including the Atlantic Ocean and Rehoboth Bay.

IV. CONCLUSIONS AND REASONS

Based upon the above findings of fact, I conclude that the Department should issue the requested approvals based upon approvals prepared by the Department's experts in their respective TRMs.

The City supported its applications by showing that the applications met the Department's regulatory standards, which, as noted above, did not require an EIS or the ROD. The EIS and ROD provide the Department with additional information that supports approving the City's applications because of the extensive scientific information and analysis that goes beyond the Department's regulatory requirements to support the Ocean Outfall's applications. I conclude that the Record developed in the consolidated application proceedings does not support any change to the ROD or the EIS's conclusion that the Ocean Outfall is reasonable and supported by a sound analysis of reasonable alternatives.

The Record in this proceeding indicates differences of opinion among experts on whether the Ocean Outfall is the appropriate method to replace the current discharge location. I rely upon the Department's experts and conclude that their opinions support the

regulatory approvals required for the Ocean Outfall. The Department's experts conclude that the discharge of the treated effluent at the proposed location will not adversely impact the receiving waters' water quality, the environment or public health. Indeed, the Atlantic Ocean currently receives the City's treated effluent at the current discharge location, after being transported by the Lewes-Rehoboth Canal and into Rehoboth Bay and then into the Atlantic Ocean at the inlet. The Department's experts indicate that the discharge of treated effluent at the Ocean Outfall will not adversely impact the Atlantic Ocean's water quality or its marine life and I accept their opinions on this critical issue. I conclude that the Record supports finding that the public comments do not support any Department decision to deny the requested approvals for the Ocean Outfall or modify the Department recommended approvals as set forth in the TRMs.

In sum, I recommend the Department enter the following conclusions and ordering paragraphs:

1. The Department has jurisdiction under its state and delegated federal authority pursuant to *7 Del. C. Section 6001 and 6006* to make a determination on the City's requests for a NPDES Permit, a wastewater facility construction permit, a coastal construction permit, a subaqueous lands permit, a water quality certification, and a federal consistency determination;

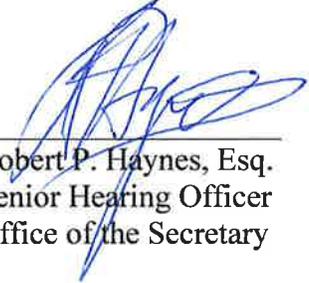
2. The Department provided proper public notice of the Applications and of the public hearing, and held a public hearing in a manner required by the law and its regulations pursuant to *Sections 6003, 6004, and 6006 of Title 7*;

3. The Department considered all timely and relevant public comments in making this determination and this Order and the attached Report establish the Record to support this decision;

4. The appropriate regulatory programs shall issue the Applicant the appropriate approvals considered in this Order consistent with the draft approvals provided in the TRMs, as approved by this Order;

5. The conditions and terms in the approvals attached to the TRMs shall allow the City to move forward to construct the Ocean Outfall in order to meet the Consent Decree's June 1, 2018 deadline for ending the City's nutrient discharges at the current discharge location consistent with the Department's TMDL; and

6. The Department shall publish this Order on its website and provide such public notice of the Order as required by the law, applicable regulations, and as the Department determines is appropriate.



Robert P. Haynes, Esq.
Senior Hearing Officer
Office of the Secretary



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

Technical Response Memorandum

To: Robert Haynes, Hearing Officer

Through: Virgil Holmes
Steve Smailer

From: Jim Chaconas *JTC*

Date: February 27, 2017

Subject: City of Rehoboth Beach Application for a Subaqueous Lands Permit and Water Quality Certification to construct and maintain a wastewater treatment plant outfall in the Atlantic Ocean, extending approximately one mile east of the Deauville Beach parking area near the intersection of Henlopen Avenue and Duneway Drive in Rehoboth Beach, Sussex County, Delaware

This Technical Response Memorandum (TRM) presents the Wetlands and Subaqueous Lands Section's (WLS) findings regarding the above-referenced Subaqueous Lands Permit and Water Quality Certification (WQC) applications. The applicant, the City of Rehoboth Beach, proposes to construct a sanitary wastewater outfall pipeline and diffuser via horizontal directional drill and mechanical dredging in the Atlantic Ocean, east of Deauville Beach in Rehoboth Beach. The proposed pipeline and diffuser alignment begins at the existing Rehoboth Beach Waste Water Treatment Plant and follows the Lewes and Rehoboth canal north to Grove Park. From there the pipeline turns northeast to Henlopen Avenue and continues along Henlopen Avenue to the Deauville Beach parking area and terminates in the Atlantic Ocean, approximately 6,125 linear feet east of the parking area. The twenty-four (24) inch high density polyethylene (HDPE) will be directionally drilled approximately 3,000 linear feet, eight (8) feet below the ocean substrate. Due to the limits of the directional drill, the remaining 3,000 feet of pipe will be placed by open cut in a trench excavated using mechanical dredging and backfill techniques. The dimensions of the trench will be eight feet deep with a base of 4 feet and sideslope of 3:1. The pipe will be anchored with concrete collars, ballast rock and covered with the excavated material. The terminus of the pipe will be connected to a 2 foot diameter by 125 foot long diffuser assembly installed on pilings approximately 1.5 feet above the seabed at an approximate depth of

40 feet. In all, 5,445 feet of structure will extend seaward of the mean high water line and 5,285 feet seaward of the mean low water line of the Atlantic Ocean.

The ocean outfall provides a viable alternative for the City of Rehoboth Beach to meet their court ordered requirement to find another disposal method to eliminate current wastewater discharge to Rehoboth Bay. Several alternatives to eliminate the discharge were evaluated in the final Environmental Impact Statement (EIS) dated December 2012, and following the DNREC Record of Decision (ROD) in January 2015, an ocean outfall was deemed the best option for the City.

A public workshop and hearing have been held for this project, as well as placing the project on public notice. Numerous comments, for and against, the project were received by the Department, during this process. Comments received not in favor of the project largely expressed concerns over water quality issues associated with the treated wastewater discharge and potential negative impacts to sea life and water quality affecting the use of the nearby beaches. The effluent discharge from the wastewater treatment plant is subject to the conditions of a National Pollutant Discharge Elimination System (NPDES) permit which is being renewed and amended for this project.

The Subaqueous Lands Permit and WQC are authorizations to dredge and construct in jurisdictional waters of the State of Delaware, in this case the Atlantic Ocean. Typically, construction in public subaqueous would be authorized via a subaqueous lands lease. However, section 7217(f) of the Subaqueous Lands Act (SLA) states: "*The **lease provisions** of this chapter shall not apply to any wastewater conveyance or treatment works system owned or operated by the State or any county or municipal government with the State.*" [emphasis added]. Therefore, the SLA authorization for this project should be in the form of a subaqueous lands permit instead of a lease. Note: the only significant distinction in this regard is the fact that the Department does not receive an annual lease fee payment from the permittee. Additionally, the WQC is required for the dredging/excavation and construction authorized by a Department of the Army Individual Permit that has been applied for by the City of Rehoboth. Impacts associated with the construction of this project are not unlike impacts associated with dredging projects (e.g. Corps dredging projects in the Delaware Bay and Atlantic Ocean) permitted by this office. These impacts are generally related to water quality issues associated with turbidity during sediment excavation and disturbance and potential impacts to flora and fauna, including migrating fauna, during dredging/excavation and construction. The NOAA National Marine Fisheries Service has reviewed the project and concluded that the effects of suspended sediment resulting from pile driving (for the diffuser) and dredging (to trench in the pipe) will be insignificant and discountable. They also stated that the noise from pile driving will not have any significant impact on species in the area during construction.

Recommendations to minimize impacts to fauna potentially affected by the proposed work have been provided by the Department's Division of Fish and Wildlife. The

recommendations include time of year work restrictions that would protect terrestrial and ocean dwelling animals. Terrestrial fauna addressed in their recommendations include Piping Plover, Seals and Osprey. Ocean dwelling animals addressed in their recommendations include Atlantic Sturgeon, Sea Turtles and marine mammals such as Bottlenose Dolphins, and Sandbar and Sand Sharks. The Fish and Wildlife comments will be added as conditions to the Permit and WQC. With respect to protecting living resources, winter months will be the most ideal time to conduct the work. Additionally, as recommended by Fish and Wildlife benthic monitoring, both pre and post construction, will be conducted and made a part of the Permit and WQC conditions. Concerning the horizontal directional drill component of the project, the Department will require the Permittee to have a frac-out contingency plan in the event a frac-out occurs during this phase of the construction.

The Department's own review finds that the project is in compliance with requirements of the Regulations Governing the Use of Subaqueous Lands, in particular the criteria addressing dredging, filling and excavation criteria and criteria related to water quality on dredging projects. A geotechnical investigation, including laboratory analysis, authorized by this office and conducted last year found there are no contaminants in the sediments proposed to be disturbed by this project. Most of the substrate in the path of excavation and construction is fine to medium sand with some silt and clay. The project also conforms to requirements of the Regulations Governing the Control of Water Pollution pertinent to issuing the WQC. The proposed construction, including excavation and dredging, is not unlike previously authorized dredging projects in nearby areas of the Atlantic Ocean and Delaware Bay.

Recommendations

Based on the above findings, I recommend that the attached Subaqueous Lands Permit and Water Quality Certification for this project be issued with the conditions recommended by the commenting agencies.



February 27, 2017

DNREC, Division of Watershed Stewardship
Watershed Assessment & Management Section
100 West Water Street
Suite 10B
Dover, DE 19904

Attn: John Schneider

Re: Ocean Outfall Project Benthic Sampling Plan
City of Rehoboth Beach
GHD No. 8618693

Dear Mr. Schneider:

Per our conference call on February 14, 2017, and additions to the February 22, 2017 draft plan requested by the Department, which were included verbatim, following is the final version of the benthic sampling plan.

Background

The City of Rehoboth Beach is required, under the terms of a consent order from the Delaware Department of Natural Resources, to eliminate the discharge of treated effluent from the Rehoboth Beach Wastewater Treatment Plant into the Lewes-Rehoboth Canal. To meet the requirements of the ROD, an ocean outfall has been proposed to convey the treatment effluent. The outfall will consist of a 24-inch pipe and diffuser located approximately 1.8 km (6000 feet) offshore in 12 m of water. The preliminary plan is to utilize horizontal directional drilling to install at least 900 m of pipe and to excavate the remaining length of the outfall to the diffuser assembly. Benthic monitoring is required prior to the construction of the outfall and for a period of 3 years following construction and after the start of effluent release. The purpose of the monitoring is to gather information on the potential effects of the construction and operation of the proposed diffuser effluent discharge.

Objectives

The objectives of the benthic monitoring are the following:

1. To establish pre-construction and pre-operation condition of the benthic communities within the open trench construction area and the outfall diffuser area.
2. To assess and monitor impacts and recovery of the benthic community within the open trench construction area.
3. To monitor and assess any effects on the benthic community related to the operation of the outfall diffuser.

Sampling Design

The benthic monitoring will consist of two components. The first component is designed to assess the impacts to the benthic community from the excavation and installation of the outfall pipe. This first component will also monitor recovery of the benthic community following construction. The second component is designed to monitor the benthic communities in proximity to the diffuser to assess the effects if any, from the operation of the outfall. Each component will include collection of sediment samples for analysis of both physical and chemical sediment quality and benthic community structure and composition.

Component 1 – Assessment of Open Trench Cut Construction Area

To assess the open trench construction area, sampling is proposed along transects perpendicular to the route of the excavated trench within Plot 1 as shown on Figure 01. Three transects will be established at approximately 200 m intervals along the route. At each transect four sampling stations will be established, two north and two south of the construction trench, as shown on Figure 1. This sample design will allow for assessment of nearfield (100 m) and farfield (600 m) impacts from the construction of the pipe. Sampling is proposed to take place in the Spring (April-May) and in Summer (August-September) seasons to account for typically increased activity of the benthos during recruitment and growth. If benthic communities are observed as returning to pre-impact conditions in Plot 1 prior to the three year monitoring period, it is proposed that sampling be discontinued. The City will submit the raw data and the analysis that demonstrates the recovery of the construction area at least 60 calendar days before the next scheduled sampling event and seek the Department's concurrence to discontinue sampling.

Component 2 - Assessment of Effluent Outfall Operation

For the assessment of the effluent outfall, sampling is proposed within two (2) 600-meter diameter circular plots, Plots 2 and 3, as shown on Figure 01 attached. Plot 2 will encompass the diffuser with radial distances of 100 m (nearfield) and 300 m (farfield) from the outfall. Within both the nearfield and farfield sampling areas, 6 sampling sites are proposed, for a total of 12 sites within Plot 2 as shown on Figure 01. A reference area (Plot 3) of similar size (600 m diameter) and equivalent depth as the effluent outfall area will be established north of the outfall, with 6 sampling sites, for a total of 18 sampling sites for the effluent outfall component of the benthic monitoring. Because the underlying sediment quality and benthic habitat may be patchy and variable across seasons and years, sampling stations will be selected randomly for each sample event within Plot 3 and within each of the two zones of Plot 2. Random sample location will provide more representative samples and more robust basis for statistical comparisons. Sampling will take place in Spring and Summer before construction of the outfall and for three years after.

Proposed sampling locations can be viewed on Figure 01.

Sampling Methods

Samples will be collected with a Ted Young-modified van Veen grab (440 cm² surface area) to a depth of 10 cm in the sediment. At each site, two samples will be collected, one for benthic macroinvertebrates and one for analysis of sediment characteristics (grain size, nitrogen, and organic carbon content). The first sample will be

sieved through a 0.5-mm screen in the field, and the organisms retained on the sieve will be transferred to labeled jars, preserved with 10% buffered formaldehyde, and stored in the laboratory until analysis.

The second sample for sediment testing will be subsampled by removing the top 2 cm of sediment and placing the sediment in labeled plastic bags kept on ice while onboard and subsequently frozen in the laboratory pending analysis. For each area and time period, surface and bottom water temperature, salinity, dissolved oxygen, pH, and turbidity will be measured using a multiparameter water quality sonde.

Laboratory Methods

Organisms will be sorted from sediment residue and identified to the lowest practicable taxonomic level in the laboratory. Taxa will be identified to species whenever possible and counted. Species-specific biomass (ash-free dry weight) will be calculated by drying the organisms to a constant weight at 60° C and ashing in a muffle furnace at 500° C for four hours. Sediments will be analyzed for grain size following the Wentworth grade scale for particles >64 microns (percent gravel, very coarse, coarse, medium, fine, and very fine sand), and for percent silt-clay by wet-sieving, following methodology in Folk (1974). Carbon and nitrogen content of dried sediments will be determined by combustion at high temperature in a carbon analyzer followed by thermal conductivity detection of the N₂ and CO₂ produced.

Data Analysis and Report

For each sampling event, an analysis of the data will be completed comparing the benthic community sampling data and sediment testing data to pre-construction data and previous sampling events conducted post-construction throughout the 3-year monitoring program. For the pipe construction area, the analysis will include an assessment of effects due to construction if any, and an analysis of trends in recovery. For the outfall, the analysis will include a comparison of each sampling event data to pre-construction data and to reference area data. These comparisons will assess the effects of the outfall and its effluent discharges on the benthic community. The raw data will be submitted to the Department in an electronic format mutually agreeable to the City and the Department.

If you should have any questions, please feel free to contact me at (240) 260-6841.

Sincerely,

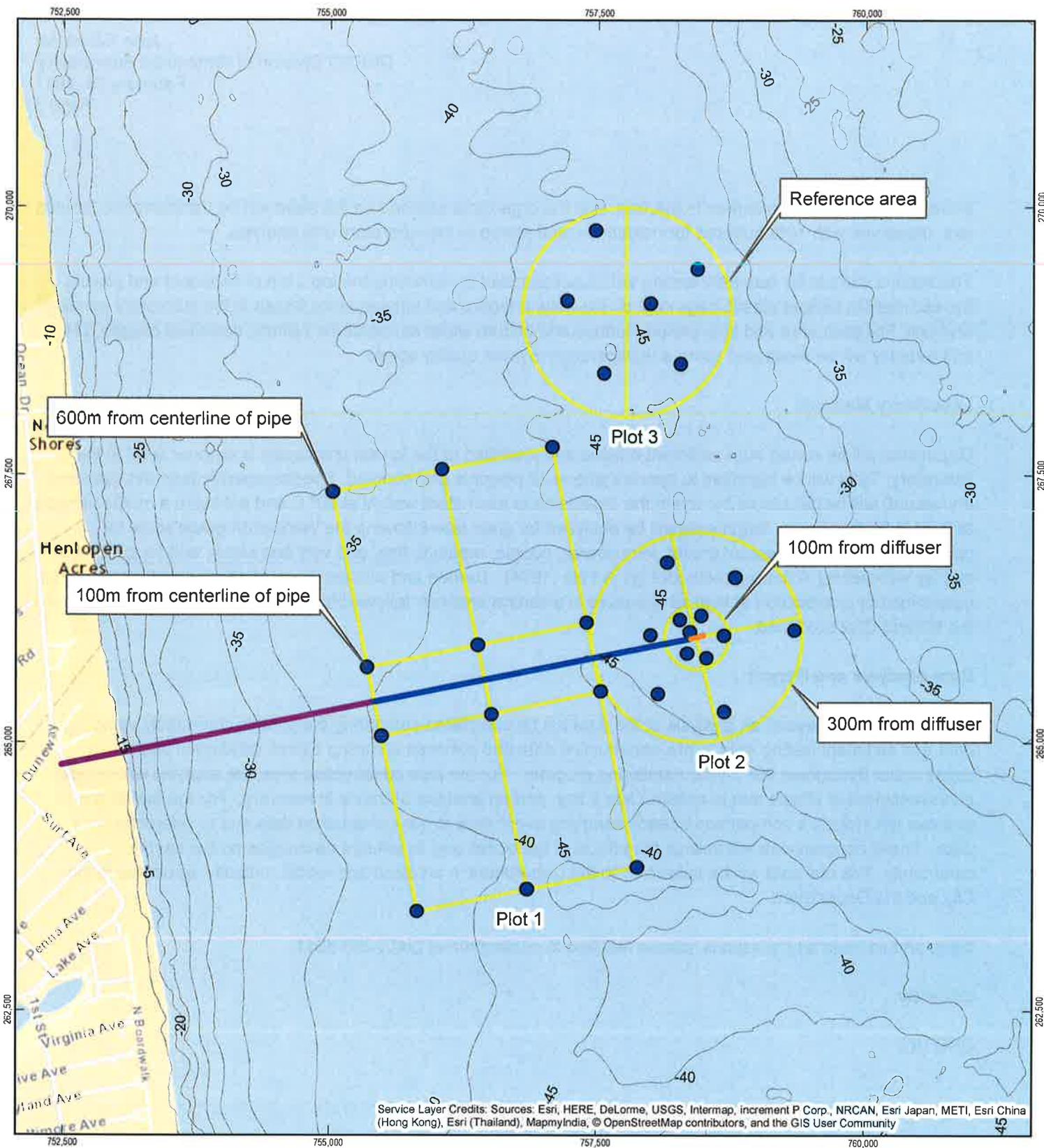
GHD INC



Sean Snow
Project Engineer

SCS/ts

Attachment: Figure 1 – Ocean Outfall Benthic Sampling Stations



Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Legend

- Diffuser
- Outfall HDD
- Benthic Sampling Stations
- Outfall Open Cut
- Benthic Sampling Area



City of Rehoboth Beach
Ocean Outfall Project
Ocean Outfall Benthic
Sampling Stations

Job Number 86-18693
Revision A
Date Feb 22, 2017

Figure 01



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FAX (302) 739-6304

City of Rehoboth Beach
Attn: Sharon Lynn
229 Rehoboth Ave.
P.O. Box 1163
Rehoboth Beach, DE 19971
Tax Parcel: 3-34-14.09-215.00

Subaqueous Lands Permit: SP-292/16
Associated Permit(s): WQ-292/16
Date of Issuance:
Construction Expiration Date:
Amended Date: N/A

SUBAQUEOUS LANDS PERMIT

GRANTED TO:

The City of Rehoboth Beach

TO CONSTRUCT AND UTILIZE:

**A 6,000 foot long by 24 inch diameter sanitary wastewater outfall pipe
via horizontal directional drill (HDD) and excavated trench methods
anchored with ballast stone and concrete collars**

Connected to a 125 foot long by 24 inch diameter diffuser pipe constructed on pilings

LOCATED ON PUBLIC SUBAQUEOUS LANDS:

**In the Atlantic Ocean
At Deauville Beach,
38 Henlopen Avenue,
Rehoboth Beach, Sussex County, Delaware**

Pursuant to the provisions of 7 Del. C., §7205, and the Department's Regulations Governing the Use of Subaqueous Lands, permission is hereby granted on this _____ day of _____ A.D. 2017, to construct the above-referenced project in accordance with the approved plans (23 sheets), as approved on February 17, 2017; and the application dated June 6, 2016, and received by this Division on June 20, 2016.

WHEREAS, the City of Rehoboth Beach, Lessee of certain adjoining lands to the Atlantic Ocean, has applied for permission to install the indicated structures for public use; and;

WHEREAS, pursuant to the provisions of 7 Del. C., §7203, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

Delaware's good nature depends on you!

NOW THEREFORE, this Permit is issued subject to the attached Subaqueous Lands Permit General Conditions and the following special conditions:

SPECIAL CONDITIONS

1. This approval is in accordance with the plans and application submitted to the Department of Natural Resources and Environmental Control, a copy of which is attached hereto and made a part hereof.
2. This permit authorizes the installation of 6,000 linear feet of sanitary wastewater outfall pipe connected to a 125 foot long diffuser in the Atlantic Ocean. It is recognized (based on sediment boring analysis) that directional drill methods of installing the pipe have an approximate maximum feasible length of up to 3,000 feet after which the remainder of pipe will need to be trenched into the ocean bottom. The applicant expects that the method of trenching will likely employ mechanical dredging and backfill techniques. However, other trenching methods (e.g. hydraulic dredging) may be applicable and identified during the project bid process. Prior to the start of construction, the applicant shall consult with this office so that we can provide additional comments on the selected trenching method, as appropriate.
3. Trenching activities authorized by this permit shall be conducted during the period from **December 15th through March 15th** to protect Atlantic Sturgeon, Sea Turtles, Marine Mammals (e.g. dolphins, whales), and sandbar and sand sharks.
4. The permittee shall conduct benthic monitoring of the area disturbed by the pipe installation and the area of the diffuser. The monitoring shall be done over a period of three years, in the spring and late summer of each year. The baseline monitoring shall be done prior to installation of the outfall and diffuser. This monitoring shall be conducted in accordance with the attached monitoring plan referenced as, *Ocean Outfall Project Benthic Sampling Plan*, and prepared by GHD, Inc.
5. A frac-out response plan shall be implemented immediately upon the detection of a frac-out, a sediment release or spill of a deleterious substance. The plan shall include measures to, a) stop work, contain the drilling mud, cuttings and other waste materials and prevent their further migration into the watercourse or adjacent wetland; b) notify all applicable authorities within 24 hours of the detection of the frac-out or other accidental release, including this office at (302) 739-9943; c) promptly clean-up and appropriately dispose of the drilling mud, cuttings and other waste material in a location where it cannot re-enter any watercourse or wetland; and d) ensure clean-up measures are suitably applied so as not to result in further alteration of the ocean bed.
6. This permit is granted for the purpose of installing and maintaining a sanitary wastewater outfall and diffuser in the Atlantic Ocean, as stated in the permit application. Any other use without prior approval shall constitute reason for this Permit being revoked.
7. The work authorized by this permit is subject to the terms and conditions of the Department of the Army Individual Permit issued for this project.

IN WITNESS WHEREOF, I, Steven M. Smailer, the duly authorized representative of David S. Small, Secretary of the Department of Natural Resources and Environmental Control, have hereunto set my hand this _____ day of _____, 2017.

By Steven M. Smailer, Section Manager
the duly authorized representative of the Secretary of the
Department of Natural Resources and Environmental Control

James T. Chaconas, Environmental Scientist
Wetlands and Subaqueous Lands Section



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FAX (302) 739-6304

**SUBAQUEOUS LANDS PERMIT
CONTRACTOR'S COMPLETION REPORT
POST-CONSTRUCTION**

Subaqueous Lands Permit Number: SP-292/16

Name: City of Rehoboth Beach
Attn: Sharon Lynn

Address: 229 Rehoboth Ave.
P.O. Box 1163
Rehoboth Beach, DE 19971

Parcel #: 3-34-14.09-215.00

I hereby certify that I have constructed the project authorized by the above-referenced Subaqueous Lands Permit in accordance with the approved plans for the project.

Printed Name of Contractor

Name of Company

Contractor's Signature

Date

Telephone Number

Upon completion of construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

**DNREC
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901**

Or faxed to the Wetlands and Subaqueous Lands Section at: **302-739-6304**

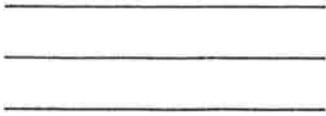
This form must be received by the Department within ten days of the date that construction is completed.

For official use only

Compliance inspection date _____ Built in accordance with plans Yes No

Scientist: _____

Delaware's good nature depends on you!



ATTN
Proper
Postage
Here

Mail to:
DNREC – Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, DE 19901

--

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--



WETLANDS AND SUBAQUEOUS LANDS SECTION

PERMIT NO.: SP-292/16

CONSTRUCTION EXPIRATION DATE: _____

**TO CONDUCT THE FOLLOWING ACTIVITIES:
TO CONSTRUCT AND UTILIZE:**

A 6,000 foot long by 24 inch diameter sanitary wastewater outfall pipe
via horizontal directional drill (HDD) and excavated trench methods
anchored with ballast stone and concrete collars
Connected to a 125 foot long by 24 inch diameter diffuser pipe constructed on pilings

LOCATED ON PUBLIC SUBAQUEOUS LANDS:

In the Atlantic Ocean
At Deauville Beach,
38 Henlopen Avenue,
Rehoboth Beach, Sussex County, Delaware

ISSUED TO: The City of Rehoboth Beach

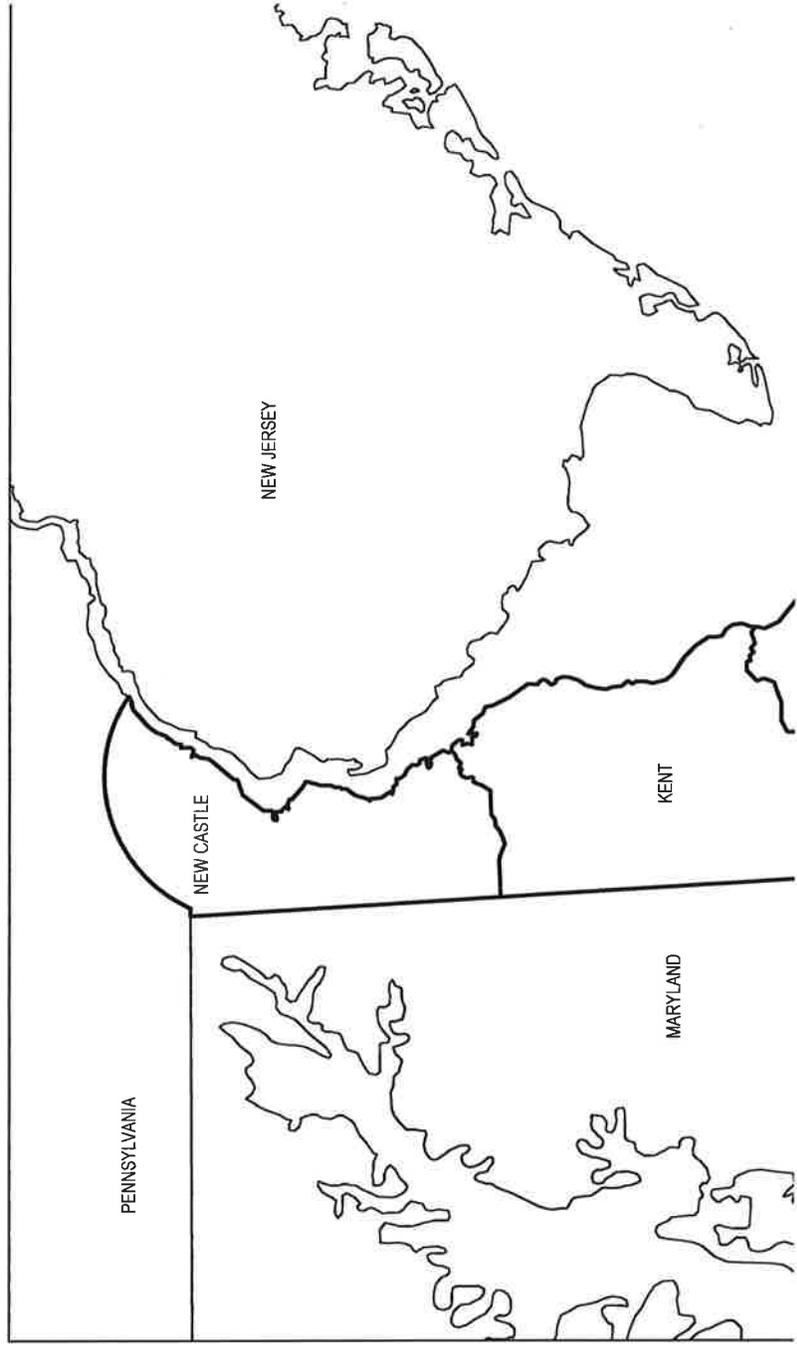
LOCATION OF WORK: Same as above

DISPLAY THIS CERTIFICATE IN A HIGHLY

VISIBLE LOCATION ON THE JOB SITE.

Authorized by: _____

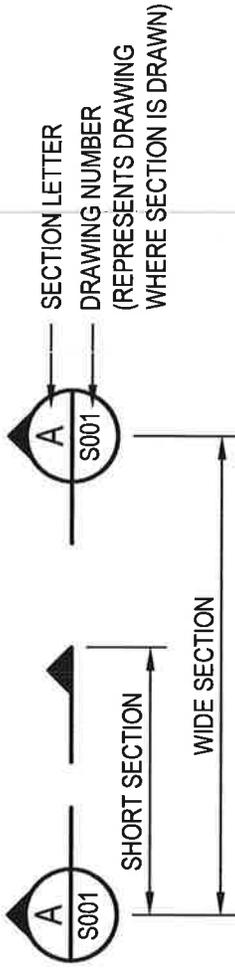
PERMIT SUBMITTAL



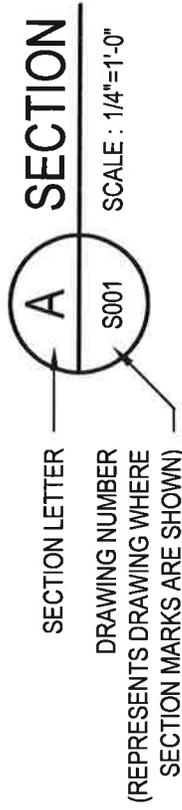
PIPE SIZE AND PIPING DESIGNATION
(VARIES, SEE 'LIST OF PIPING DESIGNATIONS')

INVERT or CENTER LINE
NOT REQUIRED

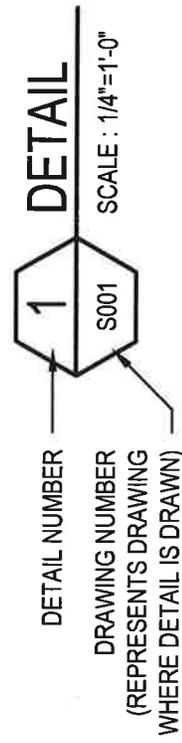
TYPICAL SECTION MARKS (FOR PLANS)



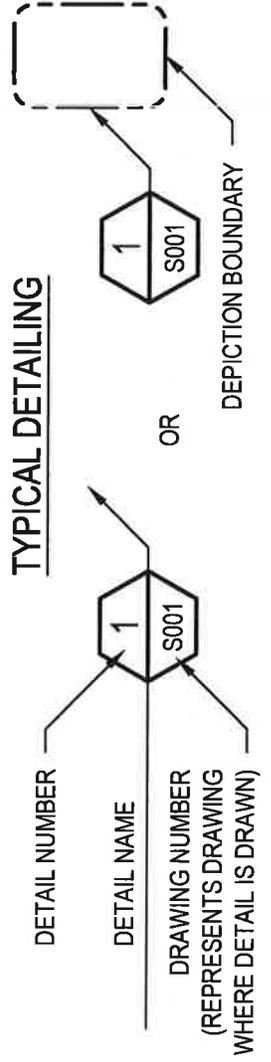
TYPICAL SECTION SUB-TITLE (FOR SECTIONS)

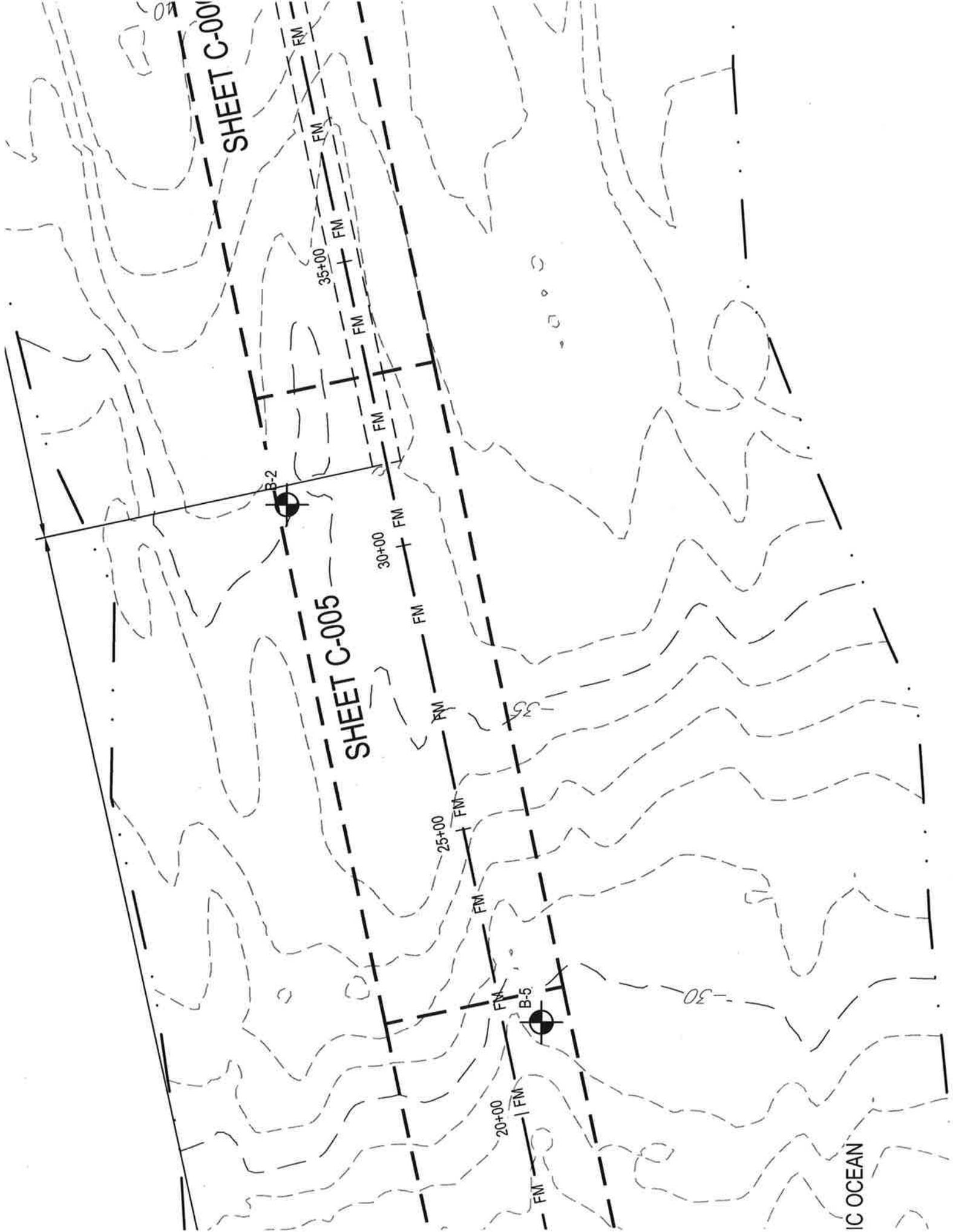


TYPICAL DETAIL MARKS



TYPICAL DETAILING





09

SHEET C-001

SHEET C-005

IC OCEAN

B-2

B-5

35+00

30+00

25+00

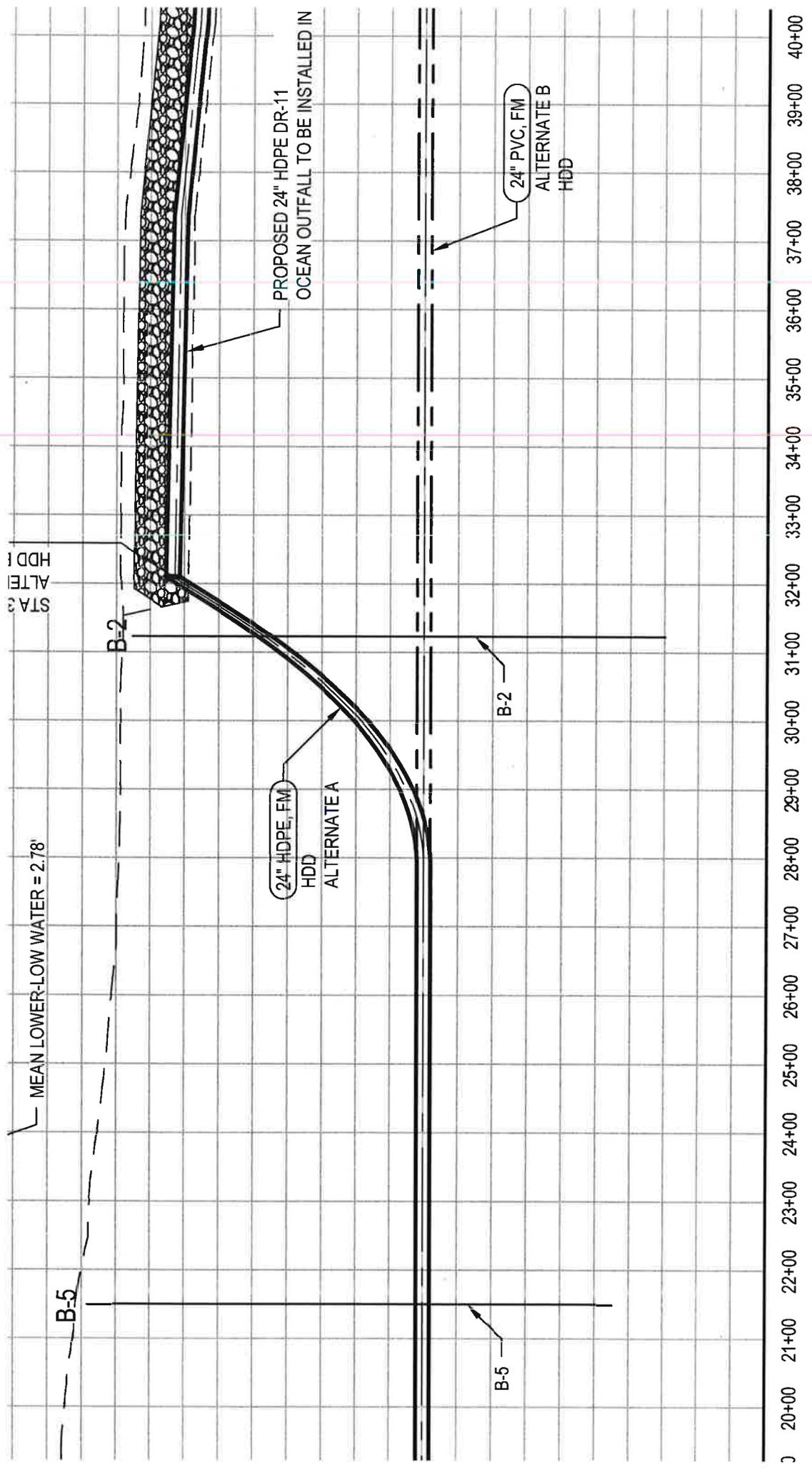
20+00

FM

30

35





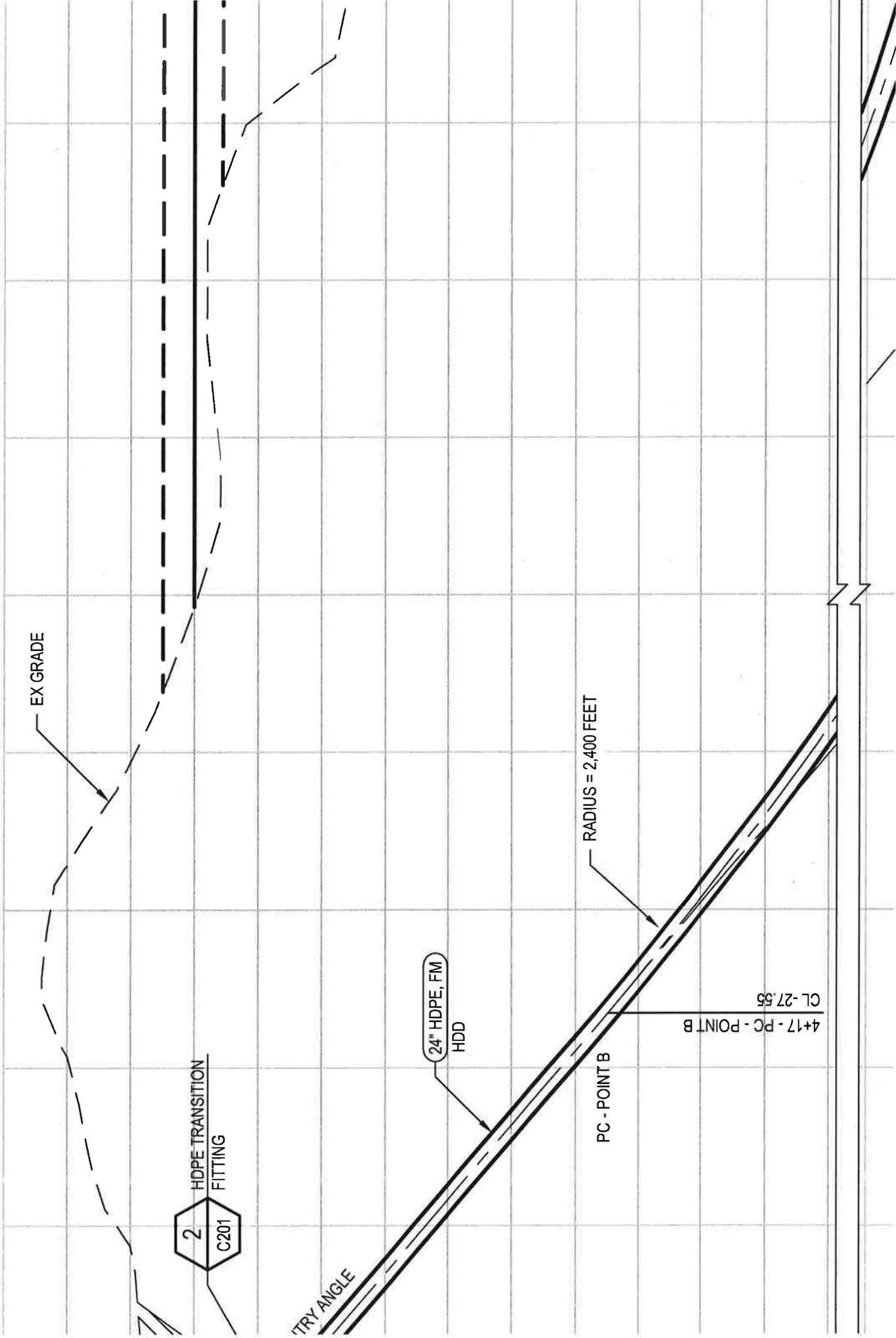
OCEAN OUTFALL OVERALL PROFILE

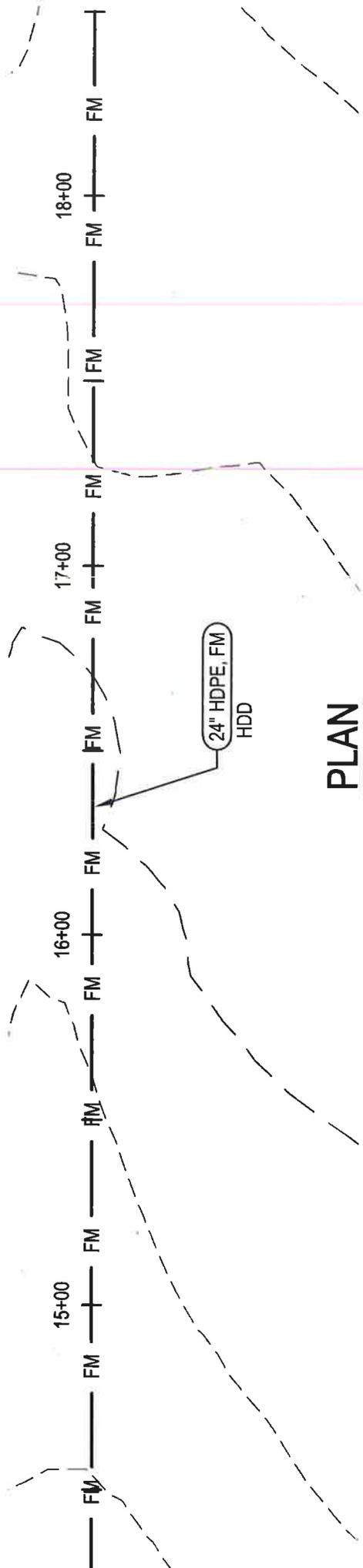
SCALE 1"=200'-0"

NOTE: SEE PLAN SHEETS FOR MORE DETAIL

20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00

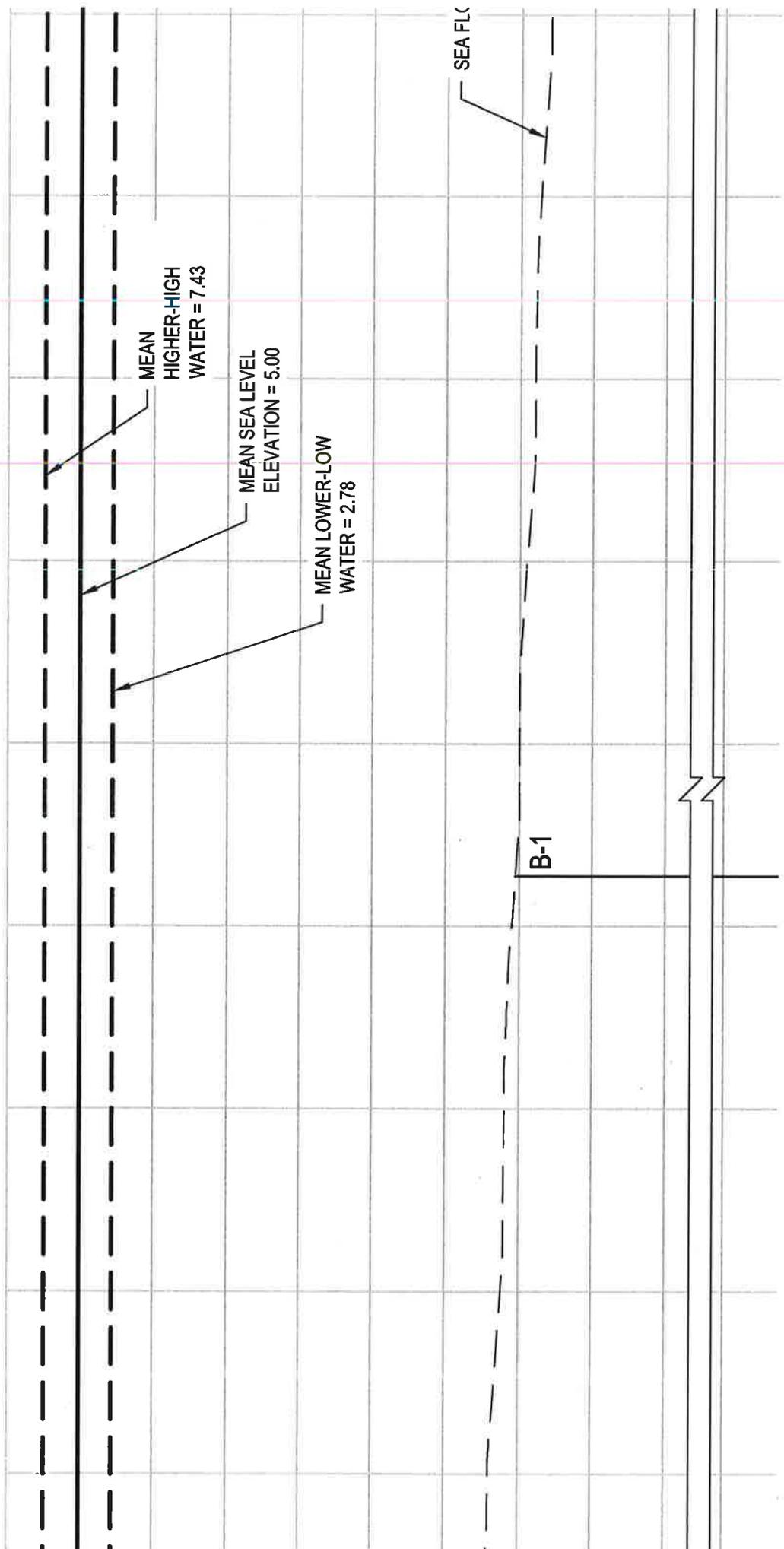
PLAN
SCALE 1"=40'-0"





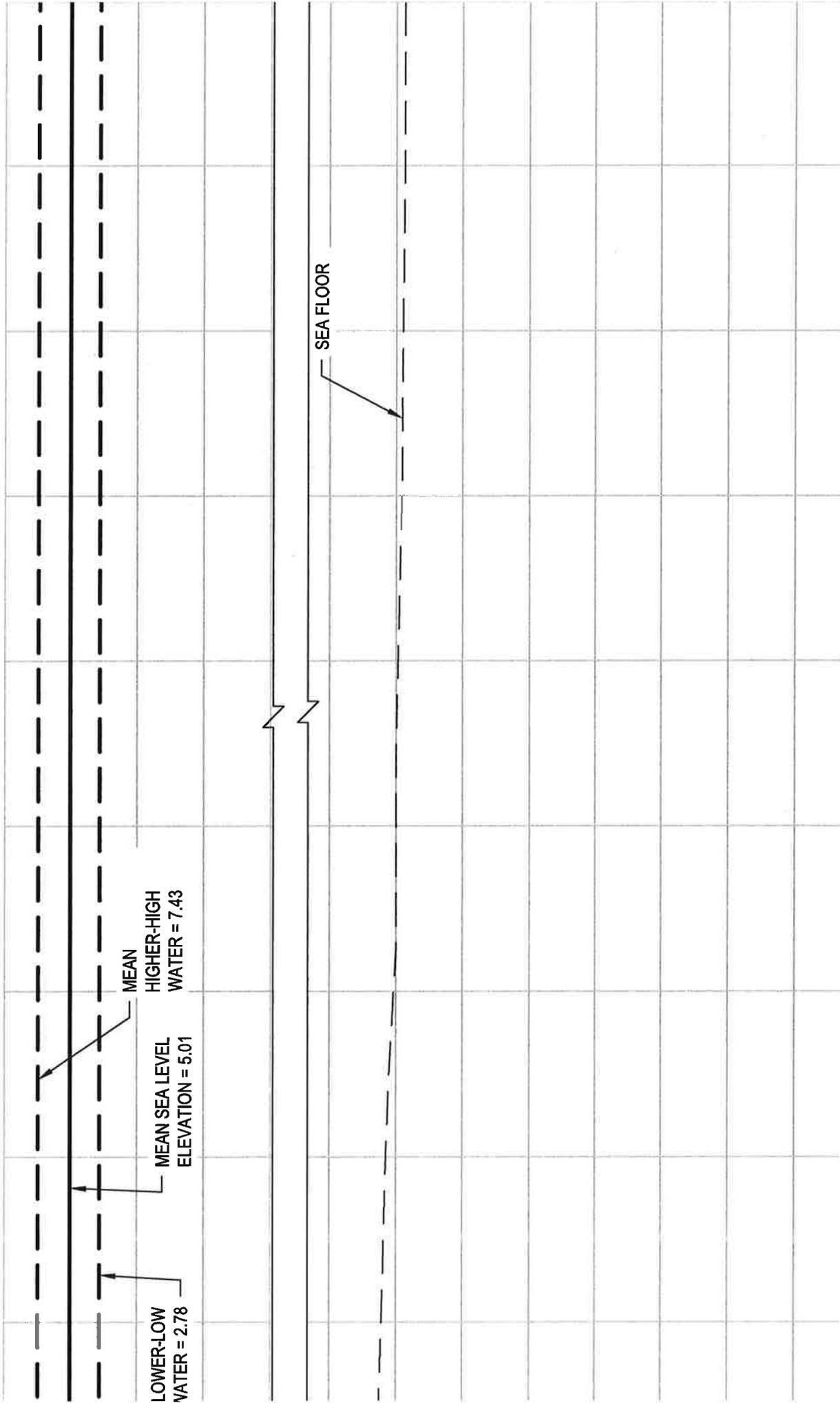
PLAN

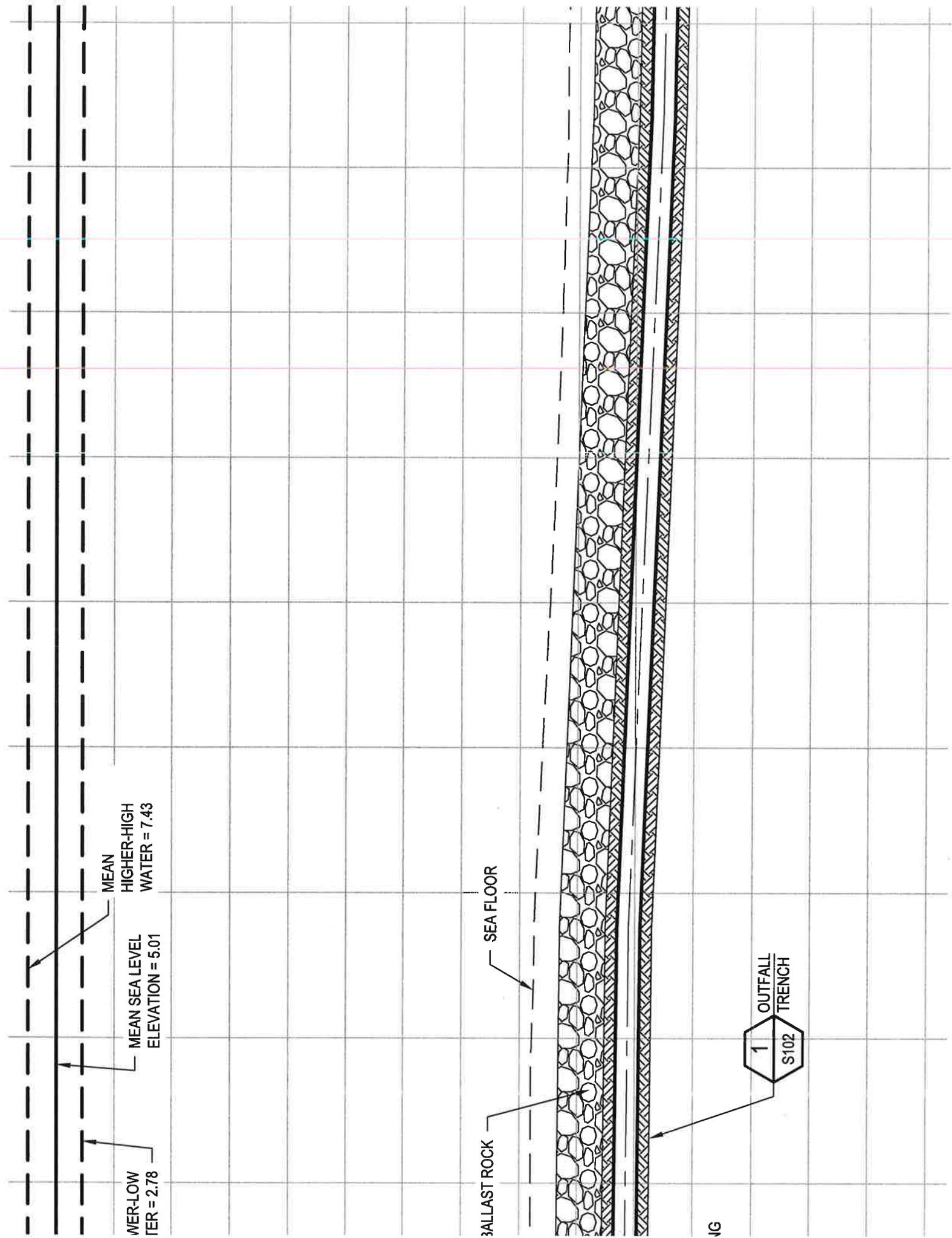
SCALE 1"=40'-0"



PLAN

SCALE 1"=40'-0"





MEAN HIGHER-HIGH WATER = 7.43
MEAN SEA LEVEL ELEVATION = 5.01

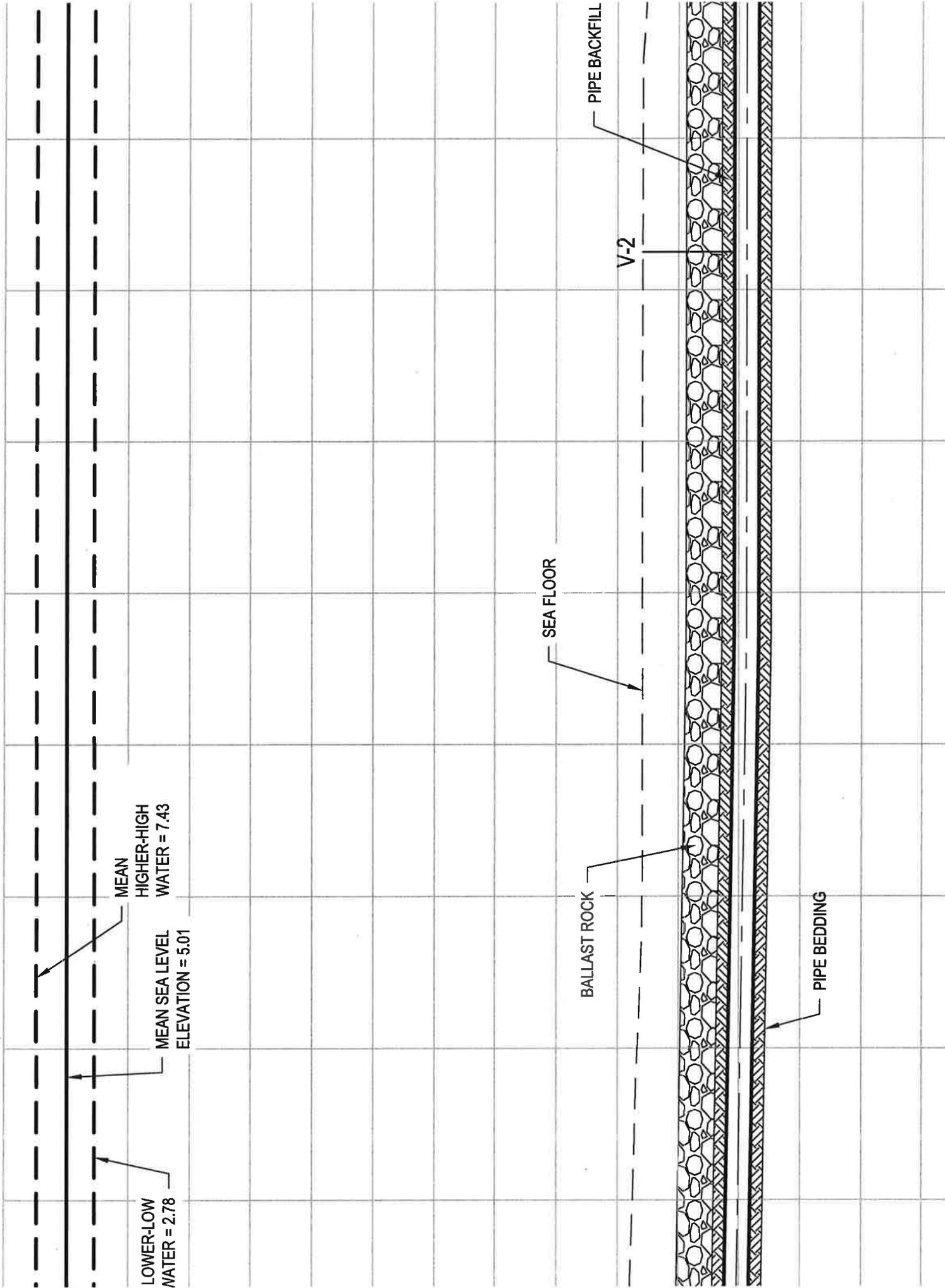
SEA FLOOR

BALLAST ROCK

1 S102 OUTFALL TRENCH

IG

SCALE 1"=40'-0"



MEAN
HIGHER-HIGH
WATER = 7.43

MEAN SEA LEVEL
ELEVATION = 5.01

LOWER-LOW
WATER = 2.78

SEA FLOOR

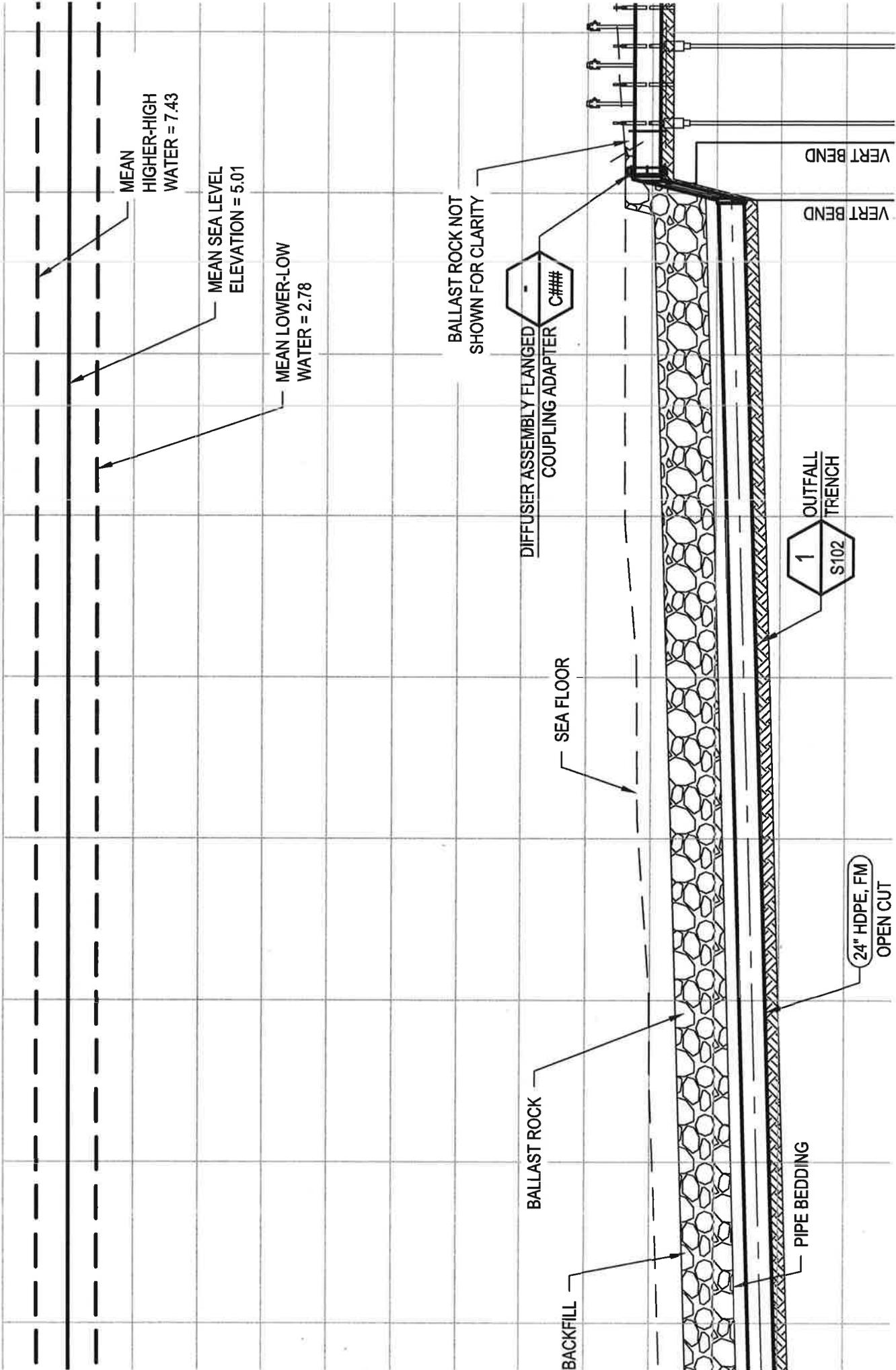
BALLAST ROCK

PIPE BACKFILL

V-2

PIPE BEDDING

SCALE 1"=40'-0"



PARKING AREA



ION OF SEDIMENT CONTROL MEASURES OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE THE AGENCY CONSTRUCTION SITE REVIEWER. THE LANDOWNER/DEVELOPER, CONTRACTOR, AND R ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS

BE REVIEWED BY THE AGENCY CONSTRUCTION SITE REVIEWER AND APPROVED PRIOR TO STURBANCE OR CONSTRUCTION.

ES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL VULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER HE AGENCY CONSTRUCTION SITE REVIEWER.

FOR STORMWATER SYSTEM CONSTRUCTION REVIEW AT LEAST THREE (3) DAYS PRIOR TO THE START STRUCTION; STORMWATER FACILITIES MUST BE REVIEWED THROUGHOUT THEIR CONSTRUCTION.

VICES SHOULD BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND AL FROM THE AGENCY CONSTRUCTION SITE REVIEWER.

SE OF CONSTRUCTION, THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE AGENCY T THE PREVIOUS PHASE HAS BEEN SUFFICIENTLY STABILIZED.

CTION GENERAL PERMIT WILL REQUIRE SUBMISSION AND ACCEPTANCE OF THE POST IMENTS, INCLUDING FINAL STABILIZATION THROUGHOUT THE SITE, ALL ELEMENTS OF THE SEDIMENT AN IMPLEMENTED, AND ACCEPTANCE OF THE FINAL OPERATION AND MAINTENANCE PLAN.

PERMANENT LONG LIVED VEGETATIVE COVER IS NEEDED.

SEDED PREPARATION: LOOSEN UPPER THREE INCHES BY RAKING, DISCING OR BEFORE SEEDING.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS. USE THE FOLLOW APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 300 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING, HARROW OR DISC INTO UPPER THREE IN

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCT. ACRE (1.4 LBS.1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MA' KENTUCKY 31 TALL FESCUE PER ACRE AND 6 LBS. PER ACRE (0.05 LBS./1000 SQ.F THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28 PROTECT SITE BY: OPTION (1) 2 ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OF WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PE

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNR IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATIC TOOL OR 218 GALLONS PER ACRE (5 GAL./1000 SQ.FT.) OF EMULSIFIED ASPHALT (FT. OR HIGHER USE 348 GALLONS PER ACRE (8 GAL./1000 SQ.FT.) FOR ANCHORIN

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE REPAIRS IF NEEDED. REC

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A S SEDED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DIS

SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000

SEEDING: FOR PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NO RYE (3.2 LBS/1000 SQ.FT.) FOR PERIOD FROM MAY 1 THRU AUGUST 14, SEED WIT SQ.FT.) FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY , MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNF AFTER SEEDING, ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MUL ACRE (5 GAL./1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES GAL./1000 SQ.FT.) FOR ANCHORING.

OWNER DEVELOPER'S CERTIFICATION

5. **Spill prevention practices**
- Potential spill areas to the storm drains
 - Warning signs shall
 - Preventive maintenance equipment as needed
 - Low or non-toxic substances

Source:
Adapted from USEPA
Pub. 840-B-92-002

- f. The site foreman shall designate someone to inspect all BMPs daily.
3. **Waste management practices**
- All waste materials shall be collected and stored in securely lidded dumpsters in a location that does not drain to a waterbody.
 - Waste materials shall be salvaged and/or recycled whenever possible.
 - The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters.

Source:
Adapted from USEPA
Pub. 840-B-92-002

Detail No. **DE-ESC-3.6.1**
Sheet 3 of 5

Date: 03/13

or other approved equivalent

approved equivalent

Detail No. **DE-ESC-3.1.2.1**
Sheet 2 of 2

Date: 6/05



Construction Noise

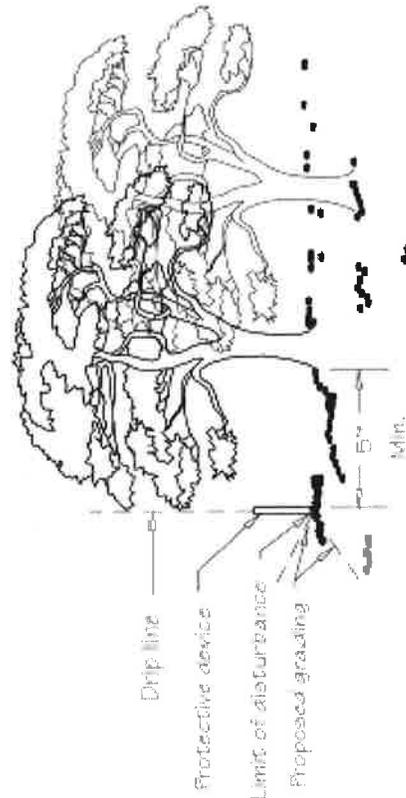
Fencing shall be installed outside the delineation (map) intended to honor protection to exclude the use is to be used for demarcation 20 feet denoting the area

Materials:

- Snow Fence - Standard construction on standard
- Board Fence - Board fence protruding at least 4 inches minimum of two horizontal a fence at the drip line still be located at the drip



Standard Detail & Specifications Sensitive Area Protection



5' min. setback applies to all sensitive areas covered by this specification.

Location of Sensitive Area Protection



Standard Detail & Specifications Soil Stockpile

any storm drain inlet, open channel, wetland around the stockpile using an approved

approved erosion and sediment control

calendar days, the stockpile must be stabilized. The vegetation chosen shall be restabilized if the temporary

O	A	<p>All species are native.</p> <p>Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill.</p> <p>Creeping Red Fescue will provide erosion protection while the warm season grasses get established.</p>
---	---	--

maximum % of weed seeds shall be in accordance with Section 1, Chapter 24, Title 3 of the Delaware Code.

4. Cool season species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.

5. All leguminous seed must be inoculated.

6. Warm season grass mix and Reed Canary Grass cannot be mowed more than 4 times per year.

7. Warm season grasses require a soil temperature of at least 50 degrees in order to germinate, and will remain dormant until then.

- b. Apply seed uniformly will be applied at the
- c. Seed that has been t into place using a r mixed, they will be interruption.

5. Mulching
All mulching shall be dar

Source:	Delaware ESC Handbook
Detail No.	DE-ESC-3.4.3 Sheet 2 of 4 Date: 12/03

Source:	Delaware ESC Handbook
Detail No.	DE-ESC-3.4.3 Sheet 3 of 4 Date: 12/03

Standard Detail & Specifications

Compost Filter Log

Standard Detail & Specifications

Geotextile Dewatering Bag

ons including rocks or debris larger than 1 inch

if the logs are rigid and do not deform. Terminate

elow grade along the width and length of the

ow direction and parallel to the slope with the

ie slope a minimum of 1 foot elevation difference.

imum length of 10' at a 30 degree angle to

il, mulch, or compost on the upslope side of the

the center of the sock for trenched applications,

2" by 2" hardwood. It should extend 12" below

sock. If located on a slope greater than 8:1, the

ngle to prevent the force of the water from



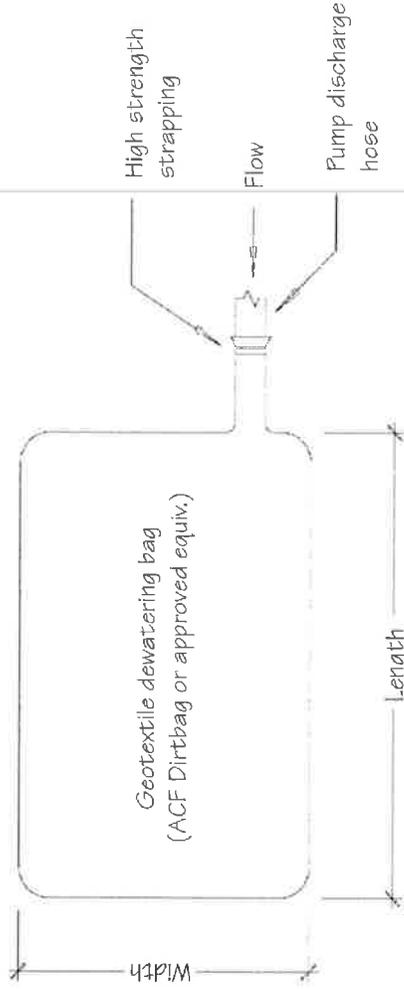
Construction Not

- The dewatering bag sho then flow off the site with water from flowing out o placed on a gravel bed t
- The dewatering bag is cc filter the sediment out at
- Disposal may be accomi may be buried on site ar proper disposal area.

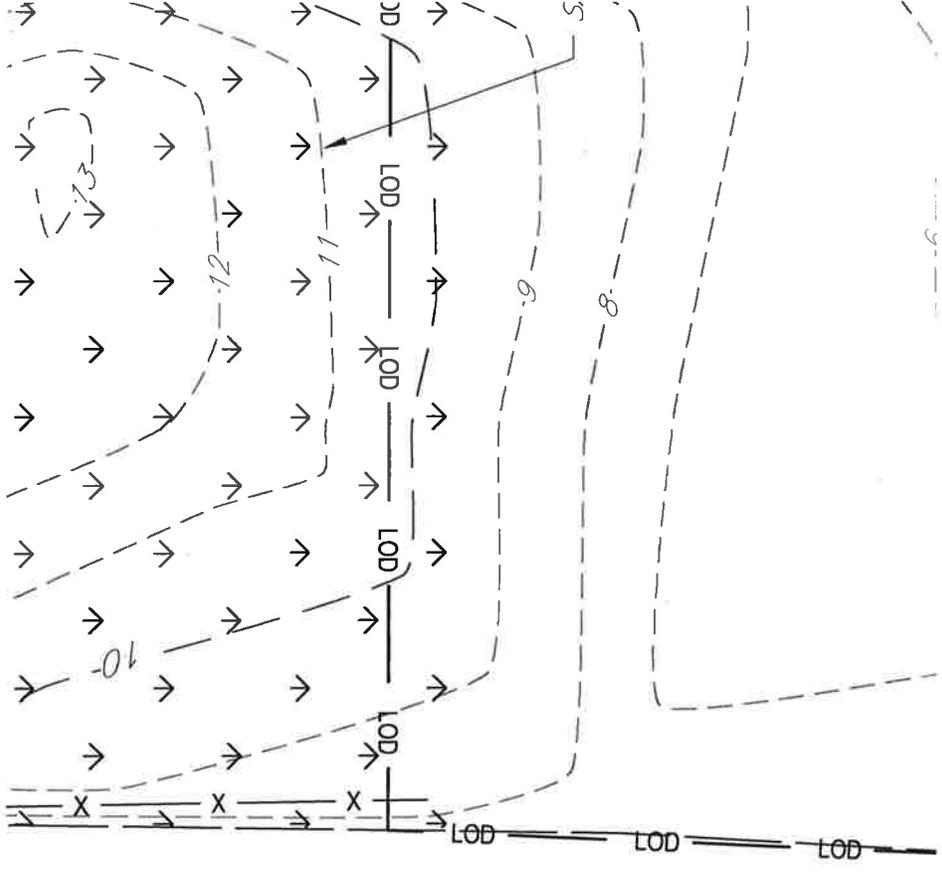
Materials:

- The geotextile fabric shal
- The dewatering bag sha structural seams will be : have the following minir

Type
Heavy duty



Plan



PLANTING PLAN

SCALE 1"=20'-0"

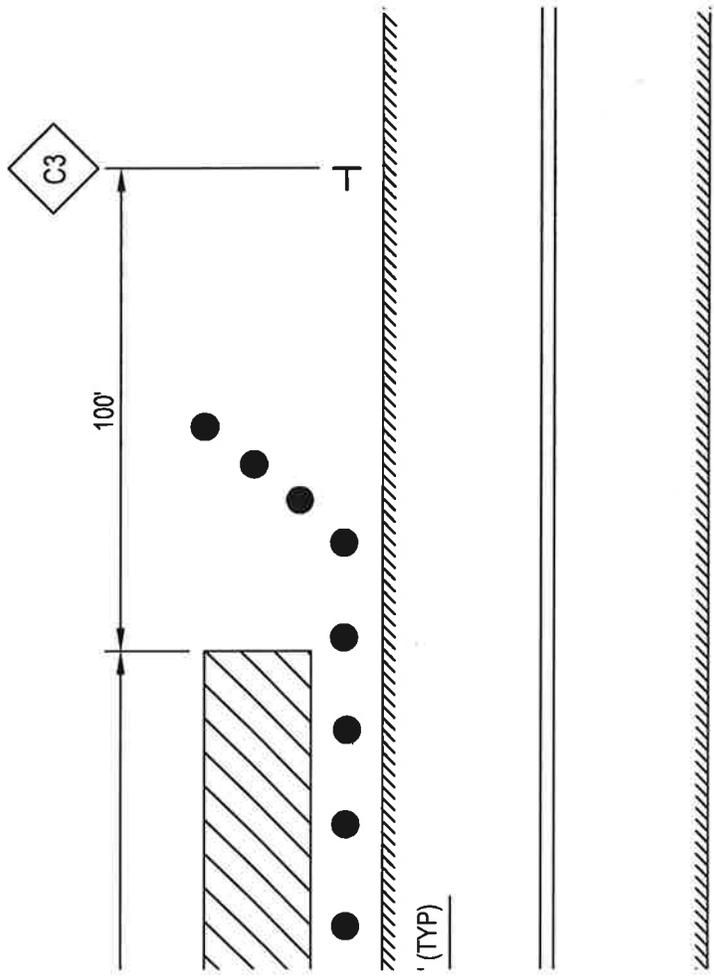
BEACH DUNE PLANT LIST

KEY	BOTANICAL NAME	TYPE	COMMON NAME
1	PRUNUS MARITIMA	SHRUB	BEACH PLUM
3	MORRELLA CERIFERA	SHRUB	SOUTHERN BAYBERRY
4	HUDSONIA TOMENTOSA	HERB	BEACH HEATER
5	COLLETA COLLETA	HERB	BEACH SANDPEPPER
6	SPARGANGLIS	HERB	BEACH SANDPEPPER



- TWO WAY, ONE LANE TRAFFIC
GGER CONTROL)

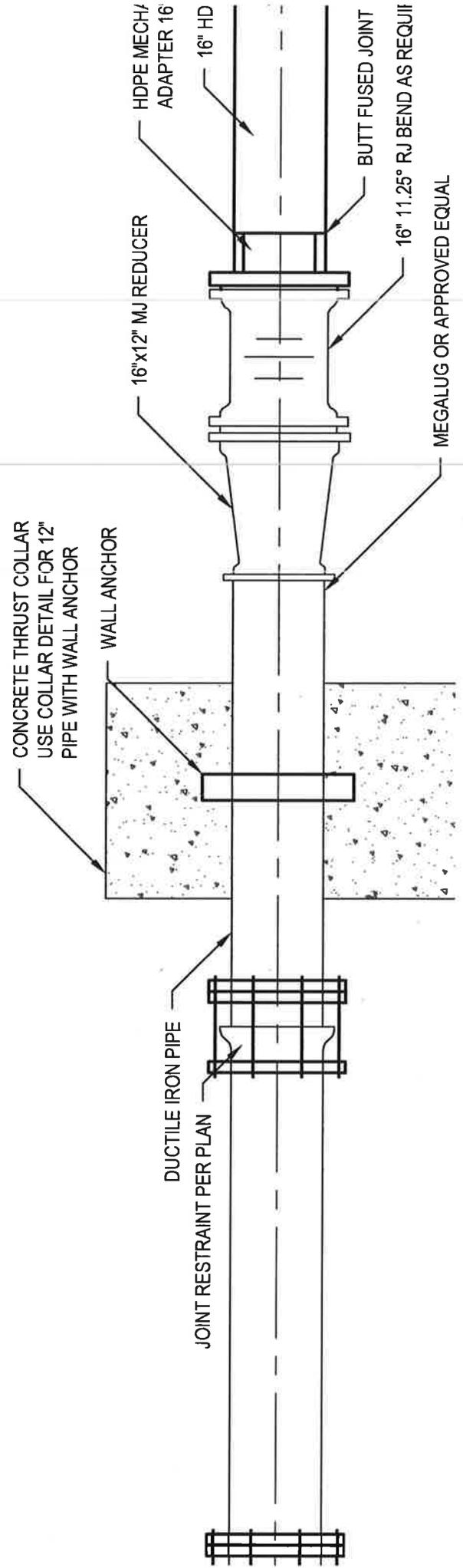
NOT TO SCALE



4 MJ ADAPTER DETAIL DIP
TO HDPE TRANSITION

NOT TO SCALE

3 TRENCH DETAIL
NOT TO SCALE



REINFORCING BARS OR ANCHOR BOLTS IS INDICATED ON THE DRAWINGS.
SET-XP ADHESIVE FOR USE IN CONCRETE. CONTRACTOR MAY SUBMIT OTHER
ALONG WITH AN ICBO EVALUATION REPORT FOR EACH SPECIFIC PRODUCT.

ELECTRICALLY CONNECTED TO ONE ZINC SACRIFICIAL ANODE. ANODES SHALL BE
CORE STRAP TO THE PILE. METHODS AND MATERIALS FOR ANODE CORE
SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCING

E A 26-LB ZINC ANODE (MODEL LL-26 HULL ANODE OR APPROVED EQUIVALENT)
TEEL PILE APPROXIMATELY HALFWAY BETWEEN EXISTING GRADE AND THE
NOT BELOW THE BOTTOM OF THE PILE CAP, WHICHEVER IS HIGHER.

AT WELD LOCATIONS PRIOR TO WELDING AND REPAIRED FOLLOWING
DANCE WITH THE COATING MANUFACTURER'S RECOMMENDATIONS.

ED.

INOUS METAL:

1 TO ASTM A252 GRADE 3 OR APPROVED EQUAL.

ONFORM TO ASTM A36 OR APPROVED EQUAL.

- CONFORM TO STAINLESS STEEL TYPE 316 UNLESS NOTED OTHERWISE.

- CONFORM TO STAINLESS STEEL TYPE 316 UNLESS NOTED OTHERWISE:

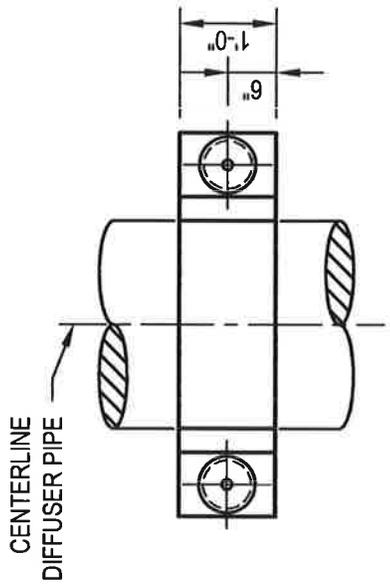
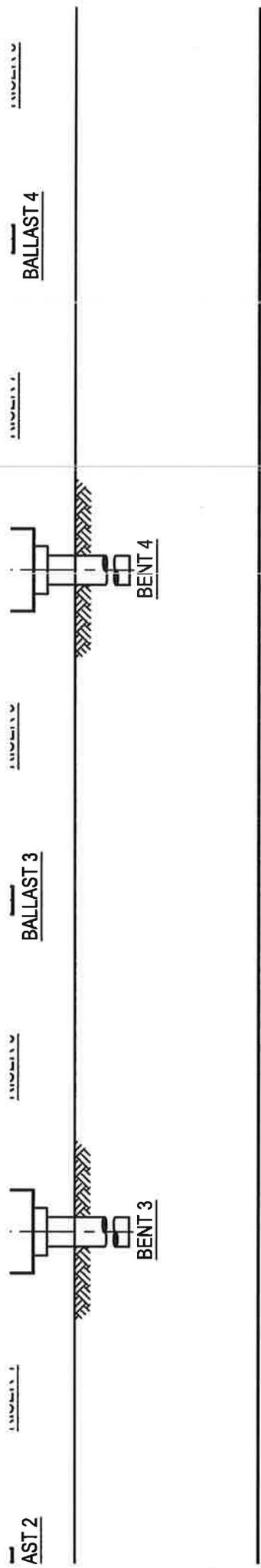
STRUCTURAL WELDING CODE -- STEEL" (AWS D1.1) OR "STRUCTURAL WELDING
1.6), AS APPLICABLE.

JECTURAL STEEL SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123
AND FABRICATIONS OR ASTM A153 CLASS C FOR HARDWARE.

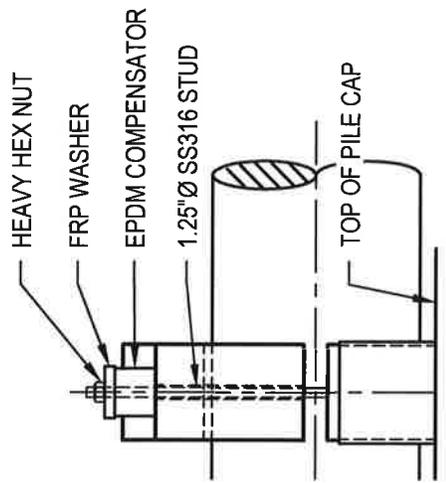
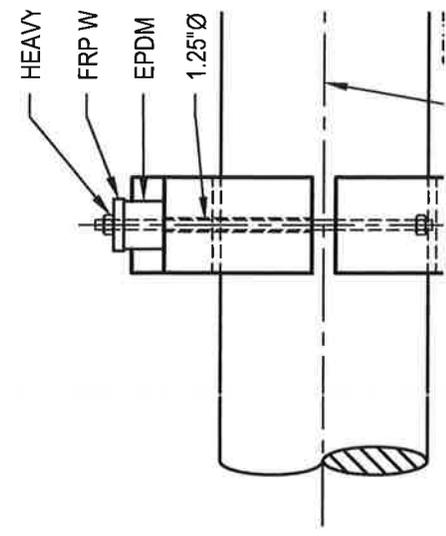
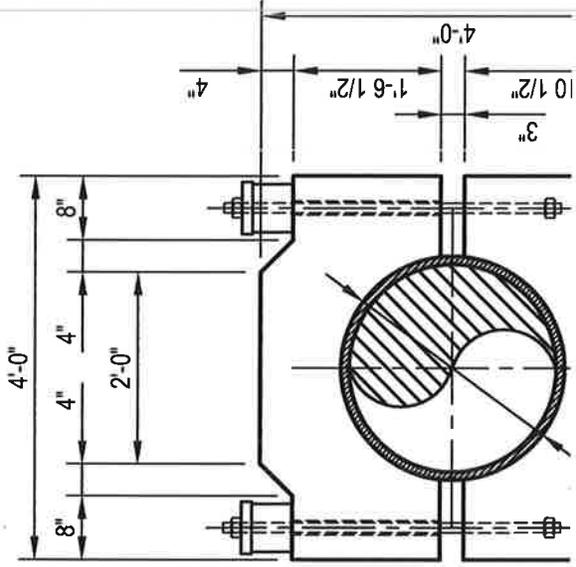
S AND ANCHOR RODS USING TEMPLATES THAT ARE VERIFIED WITH CERTIFIED
ARDWARE PRIOR TO THE CONCRETE POUR. NOTIFY THE DESIGNER OF RECORD
T. SIZES, SPACING, OR QUANTITIES FROM WHAT IS SHOWN ON THE DRAWINGS.
D HOLD THE BOLTS ACCURATELY IN PLACE DURING THE CONCRETE POUR.

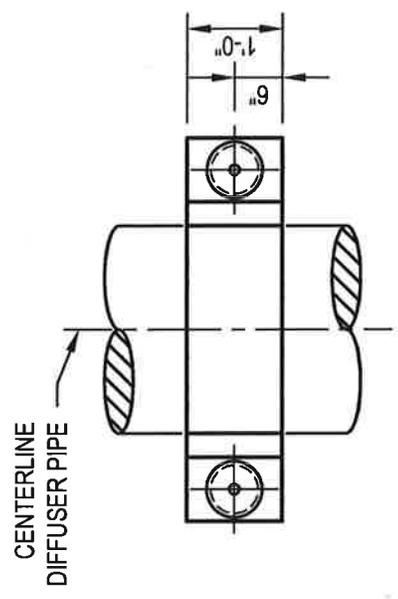
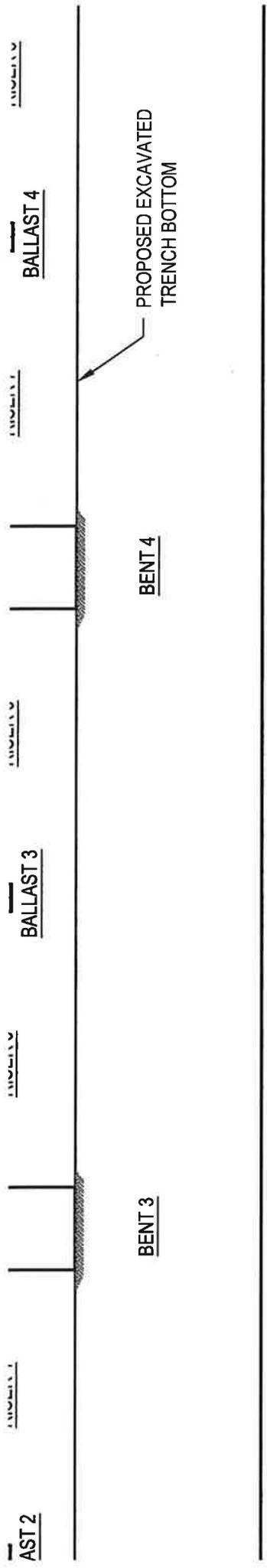
MP):

MANAGEMENT PRACTICES (BMP) DURING ALL CONSTRUCTION WORK TO PREVENT /
INTO THE WATER

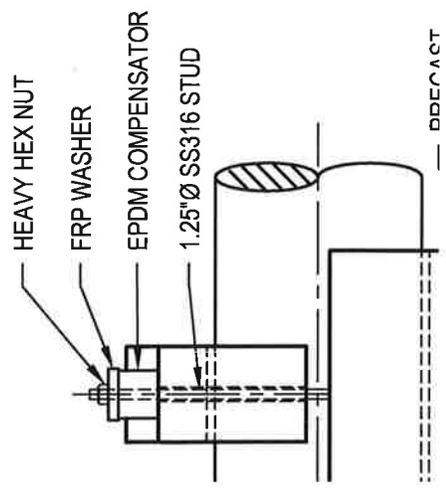
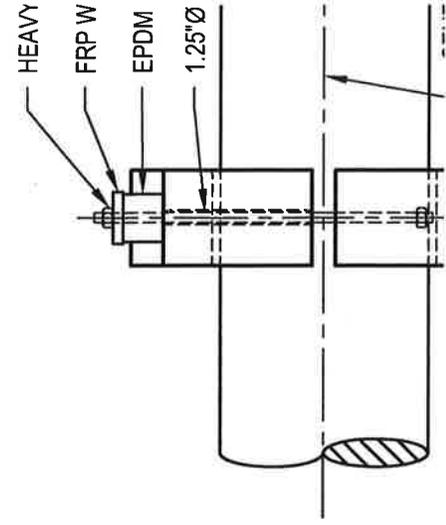
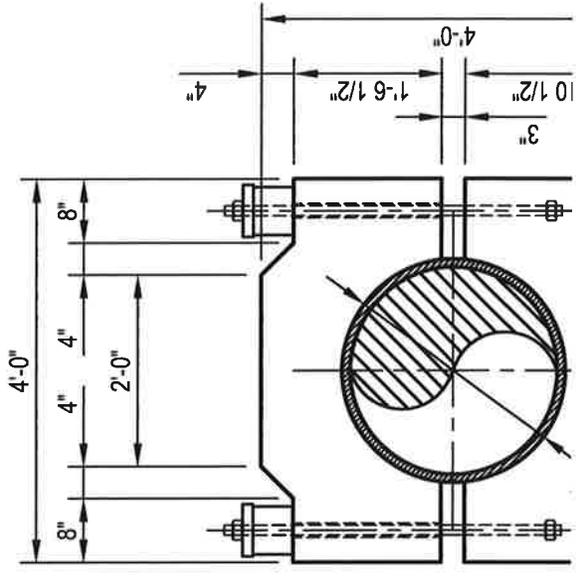


PLAN





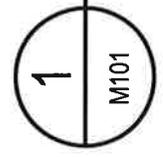
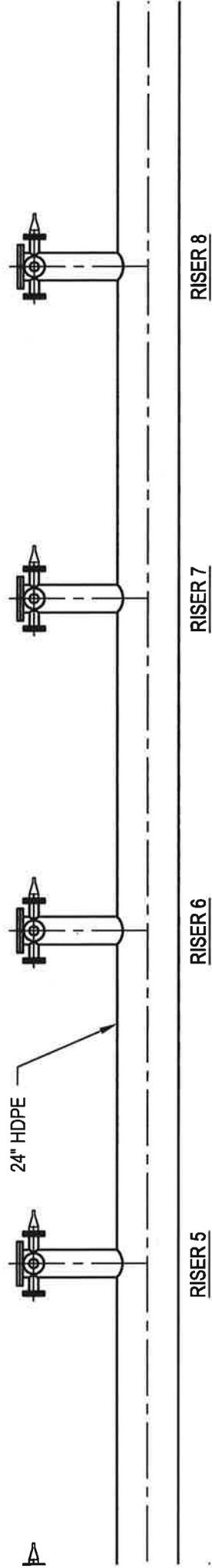
PLAN





PLAN

SCALE 3/16"=1'-0"



SECTION

SCALE : 3/16"=1'-0"

DIFFUSER ASSEMBLY NOTES:

1. DIFFUSER ASSEMBLY SHALL BE HDPE CONSTRUCTION AS SHOWN IN ACCORDANCE WITH SECTION XXXX. HDPE TO BE BUTT-FUSED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS UNLESS OTHERWISE NOTED.
2. DIFFUSER SUPPORTS NOT SHOWN FOR CLARITY. REFER TO STRUCTURAL DRAWINGS FOR INFORMATION.



WETLANDS AND SUBAQUEOUS LANDS SECTION

PERMIT NO.: SP-292/16

CONSTRUCTION EXPIRATION DATE: _____

**TO CONDUCT THE FOLLOWING ACTIVITIES:
TO CONSTRUCT AND UTILIZE:**

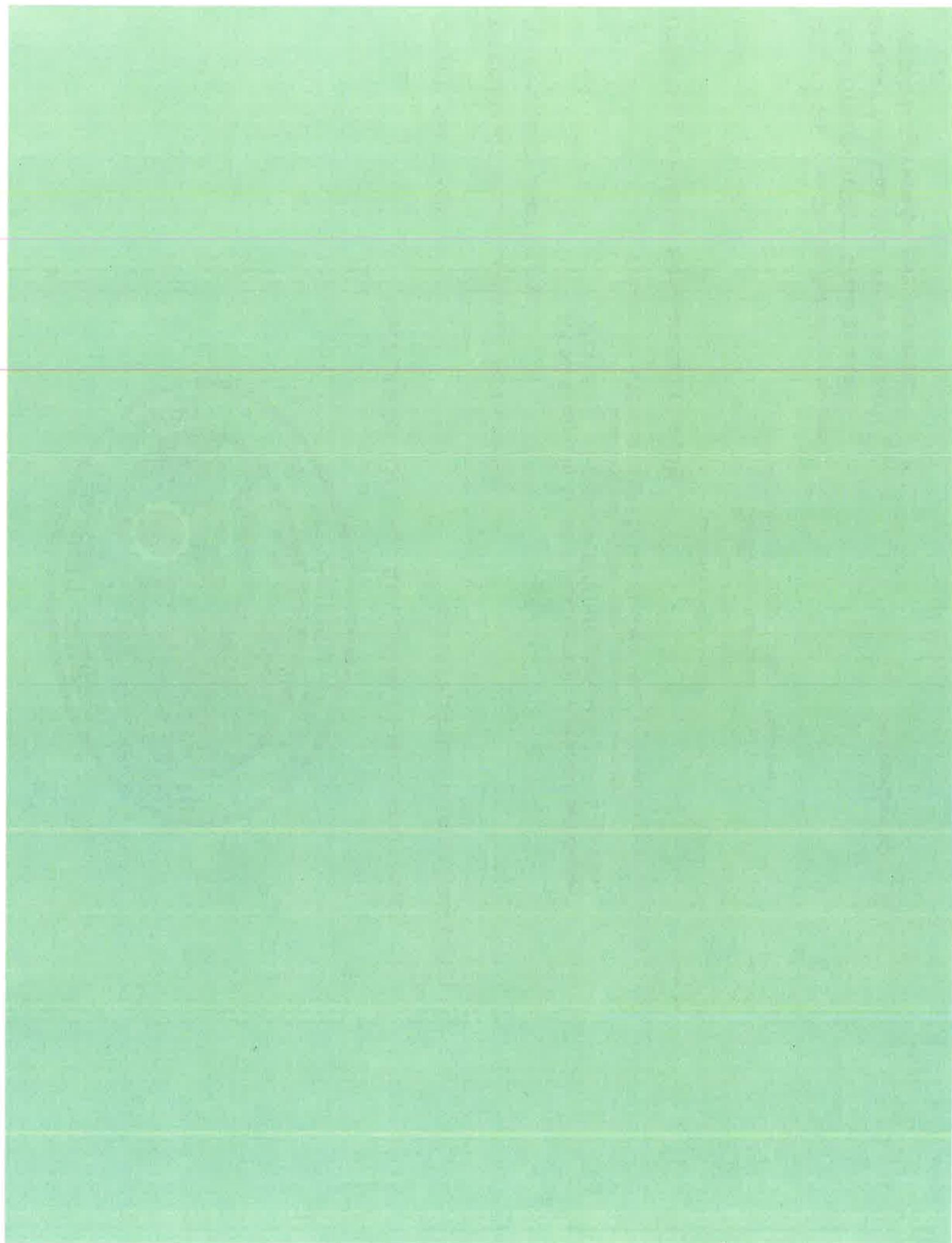
A 6,000 foot long by 24 inch diameter sanitary wastewater outfall pipe
via horizontal directional drill (HDD) and excavated trench methods
anchored with ballast stone and concrete collars
Connected to a 125 foot long by 24 inch diameter diffuser pipe constructed on pilings

LOCATED ON PUBLIC SUBAQUEOUS LANDS:

In the Atlantic Ocean
At Deauville Beach,
38 Henlopen Avenue,
Rehoboth Beach, Sussex County, Delaware

ISSUED TO: The City of Rehoboth Beach
LOCATION OF WORK: Same as above
**DISPLAY THIS CERTIFICATE IN A HIGHLY
VISIBLE LOCATION ON THE JOB SITE.**

Authorized by: _____





STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FAX (302) 739-6304

City of Rehoboth Beach
Attn: Sharon Lynn
229 Rehoboth Ave.
P.O. Box 1163
Rehoboth Beach, DE 19971
Tax Parcel: 3-34-14.09-215.00

Water Quality Certification: WQ-292/16
Associated Permit(s): SP-292/16
Date of Issuance:
Construction Expiration Date:
Amended Date: N/A

WATER QUALITY CERTIFICATION

GRANTED TO:

The City of Rehoboth Beach

TO INSTALL AND UTILIZE:

**A 6,000 foot long by 24 inch diameter sanitary wastewater outfall pipe
via horizontal directional drill (HDD) and excavated trench methods
anchored with ballast stone and concrete collars**

Connected to a 125 foot long by 24 inch diameter diffuser pipe constructed on pilings

LOCATED ON PUBLIC SUBAQUEOUS LANDS:

**In the Atlantic Ocean
At Deauville Beach,
38 Henlopen Avenue,
Rehoboth Beach, Sussex County, Delaware**

Pursuant to the provisions of 7 Del. C., Section 6003, the Department's Regulations Governing the Control of Water Pollution and Section 401 of the Clean Water Act, permission is hereby granted on this _____ day of _____ A.D. 2017 to construct the above referenced project in accordance with the approved plans (23 sheets) for this Certification, as approved on February, 2017; and application dated June 6, 2016, and received by this Division on June 20, 2016.

WHEREAS, the City of Rehoboth Beach, Lessee of certain adjoining lands to the Atlantic Ocean, has applied for permission to install the indicated structures for public use; and;

Whereas, in accordance with the provisions of Section 401 of the Clean Water Act, 33 U.S.C. Section 1341 and 7 Del. C., Chapter 60, the State of Delaware, by and through the Department of Natural Resources and Environmental Control, certifies that the permitted activity will be conducted in a manner which will not violate the applicable water quality standards of the State of Delaware, subject to the terms and conditions of this approval.

Delaware's good nature depends on you!

NOW THEREFORE, this Water Quality Certification (Certification) is issued subject to the following conditions:

SPECIAL CONDITIONS

1. The work authorized by this Certification shall be completed in accordance with the terms and conditions of Department of the Army Corps of Engineers Individual Permit issued for this project.
2. This approval is in accordance with the plans and application submitted to the Department of Natural Resources and Environmental Control, a copy of which is attached hereto and made a part hereof.
3. This Certification authorizes the installation of 6,000 linear feet of sanitary wastewater outfall pipe connected to a 125 foot long diffuser in the Atlantic Ocean. It is recognized (based on sediment boring analysis) that directional drill methods of installing the pipe have an approximate maximum feasible length of up to 3,000 feet after which the remainder of pipe will need to be trenched into the ocean bottom. The applicant expects that the method of trenching will likely employ mechanical dredging and backfill techniques. However, other trenching methods (e.g. hydraulic dredging) may be applicable and identified during the project bid process. Prior to the start of construction, the applicant shall consult with this office so that we can provide additional comments on the selected trenching method, as appropriate.
4. Trenching activities authorized by this permit shall be conducted during the period from **December 15th through March 15th** to protect Atlantic Sturgeon, Sea Turtles, Marine Mammals (e.g. dolphins, whales), and sandbar and sand sharks.
5. The Certification holder shall conduct benthic monitoring of the area disturbed by the pipe installation and the area of the diffuser. The monitoring shall be done over a period of three years, in the spring and late summer of each year. The baseline monitoring shall be done prior to installation of the outfall and diffuser. This monitoring shall be conducted in accordance with the attached monitoring plan referenced as *Ocean Outfall Project Benthic Sampling Plan*, and prepared by GHD, Inc.
6. A frac-out response plan shall be implemented immediately upon the detection of a frac-out, a sediment release or spill of a deleterious substance. The plan shall include measures to, a) stop work, contain the drilling mud, cuttings and other waste materials and prevent their further migration into the watercourse or adjacent wetland; b) notify all applicable authorities within 24 hours of the detection of the frac-out or other accidental release, including this office at (302) 739-9943; c) promptly clean-up and appropriately dispose of the drilling mud, cuttings and other waste material in a location where it cannot re-enter any watercourse or wetland; and d) ensure clean-up measures are suitably applied so as not to result in further alteration of the ocean bed.
7. This Certification is granted for the purpose of installing and maintaining a sanitary wastewater outfall and diffuser in the Atlantic Ocean, as stated in the permit application. Any other use without prior approval shall constitute reason for this Permit being revoked.

IN WITNESS WHEREOF, I, Steven M. Smailer, the duly authorized representative of David S. Small, Secretary of the Department of Natural Resources and Environmental Control, have hereunto set my hand this _____ day of _____, 2017.

By Steven M. Smailer, Section Manager
the duly authorized representative of the Secretary of the
Department of Natural Resources and Environmental Control

James T. Chaconas, Environmental Scientist
Wetlands and Subaqueous Lands Section



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FAX (302) 739-6304

**SUBAQUEOUS LANDS PERMIT
CONTRACTOR'S COMPLETION REPORT
POST-CONSTRUCTION**

Subaqueous Lands Permit Number: WQ-292/16

Name: The City of Rehoboth Beach
Attn: Sharon Lynn

Address: 229 Rehoboth Ave.
P.O. Box 1163
Rehoboth Beach, DE 19971

Parcel #: 3-34-14.09-215.00

I hereby certify that I have constructed the project authorized by the above-referenced Subaqueous Lands Permit in accordance with the approved plans for the project.

Printed Name of Contractor

Name of Company

Contractor's Signature

Date

Telephone Number

Upon completion of construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

**DNREC
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901**

Or faxed to the Wetlands and Subaqueous Lands Section at: 302-739-6304

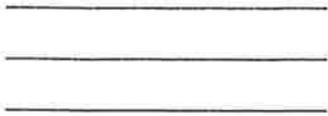
This form must be received by the Department within ten days of the date that construction is completed.

=====
For official use only

Compliance inspection date _____ *Built in accordance with plans* Yes No

Scientist: _____

Delaware's good nature depends on you!



ATTIX
Proper
Postage
Here

Mail to:
DNREC – Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, DE 19901



WETLANDS AND SUBAQUEOUS LANDS SECTION

PERMIT NO.: WQ-292/16

CONSTRUCTION EXPIRATION DATE: _____

**TO CONDUCT THE FOLLOWING ACTIVITIES:
TO CONSTRUCT AND UTILIZE:**

A 6,000 foot long by 24 inch diameter sanitary wastewater outfall pipe
via horizontal directional drill (HDD) and excavated trench methods
anchored with ballast stone and concrete collars
Connected to a 125 foot long by 24 inch diameter diffuser pipe constructed on pilings

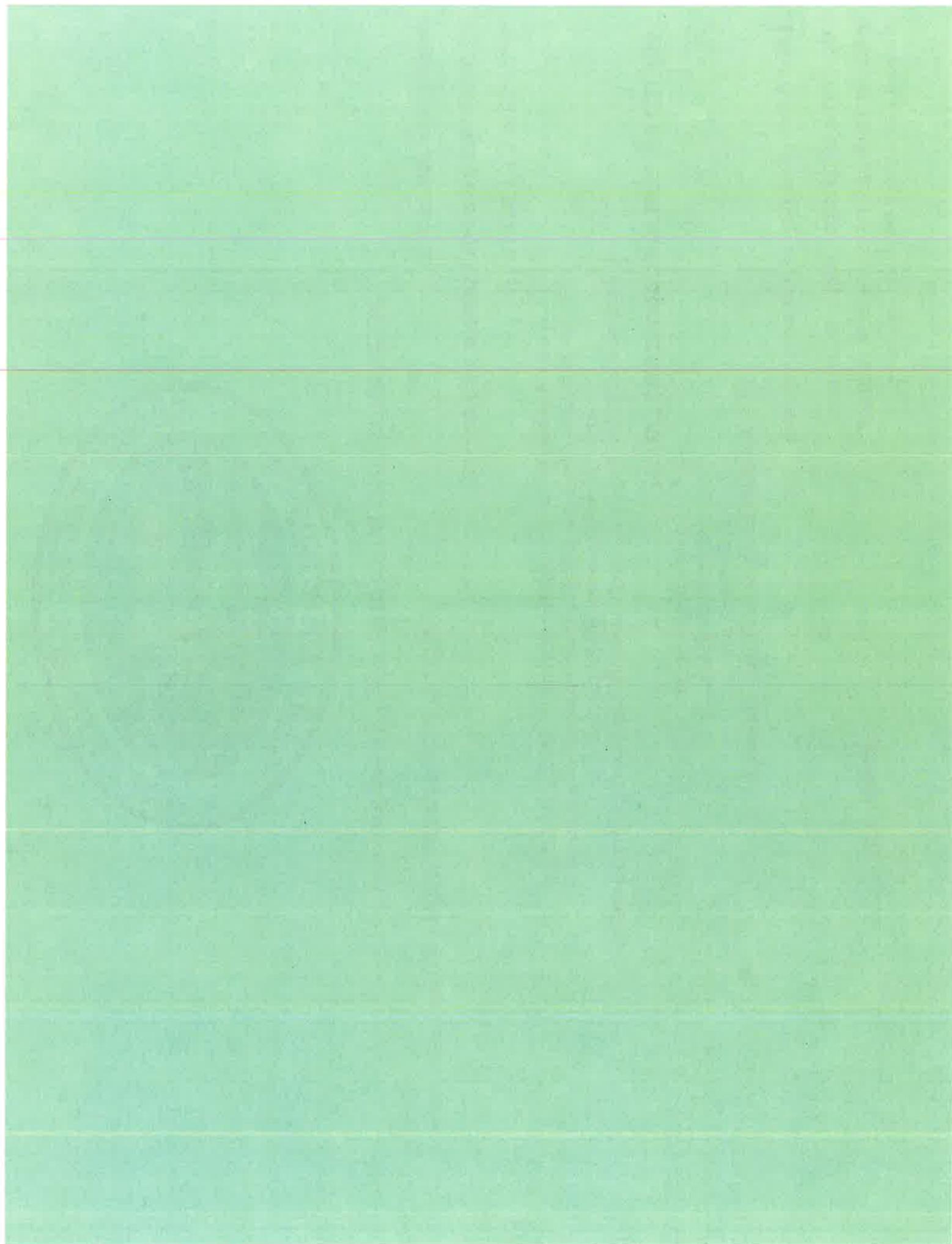
LOCATED ON PUBLIC SUBAQUEOUS LANDS:

In the Atlantic Ocean
At Deauville Beach,
38 Henlopen Avenue,
Rehoboth Beach, Sussex County, Delaware

ISSUED TO: The City of Rehoboth Beach

**LOCATION OF WORK: Same as above
DISPLAY THIS CERTIFICATE IN A HIGHLY
VISIBLE LOCATION ON THE JOB SITE.**

Authorized by: _____





STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

Surface Water Discharges Section

Telephone: (302) 739-9946
Fax: (302) 739-8369

MEMORANDUM

To: Robert P. Haynes, Esq., Senior Hearing Officer, OTS

Thru: Bryan Ashby, Environmental Program Manager II, SWDS
John Rebar, Environmental Program Manager I, SWDS

From: Tony Hummel, PE, Engineer IV, SWDS

Date: February 7, 2017

Subject: **Technical Response Memorandum - Response to Public Notice and Public Hearing Comments for NPDES Permit Reissuance for Rehoboth Beach WWTP, Rehoboth Beach, Delaware**

Re: Rehoboth Beach WWTP, NPDES Permit No. DE 0020028
November 15, 2016 Public Hearing

The purpose of this Technical Response Memorandum (TRM) is to address issues raised by the public regarding the National Pollutant Discharge Elimination System (NPDES) Permit reissuance for the Rehoboth Beach Wastewater Treatment Plant (WWTP) facility located in Rehoboth Beach, Delaware.

Based on comments received during the public comment period and during the November 15, 2016 Public Hearing, I have prepared the following responses for the issues raised regarding the referenced NPDES Permit (DE 0020028).

A. NPDES Permit Background

In December of 1998, DNREC promulgated a Total Maximum Daily Load Regulation, which required the elimination of all point sources of nitrogen and phosphorus and called for significant reductions of nonpoint source loads of nutrients as well for the Lewes-Rehoboth (L-R) Canal. Excess levels of nutrients cause algae blooms, low dissolved oxygen levels, fish kills, and the proliferation of algae that may be toxic to humans, fish, and other aquatic life.

The City of Rehoboth (the City) appealed DNREC's TMDL Regulation. The two parties negotiated a settlement agreement which was memorialized by a Consent Order (No. 98C-12-023-THG) approved by Superior Court in December, 2002, and amended in June, 2005. The current NPDES permit was issued October, 2005, which required the City to significantly reduce the amount of nitrogen and phosphorus being discharged into the L-R Canal by October, 2007. Additionally, the permit called for the eventual elimination of the discharge by December 31, 2014, in accordance with the Consent Order.

As part of Delaware's Water Pollution Control Revolving Fund procedures, the City was required to prepare an Environmental Impact Statement (EIS). The EIS identifies potential wastewater treatment and disposal options and then explores the regulatory, technological, and financial aspects of the various alternatives. The EIS concluded that utilizing the existing wastewater treatment plant to produce a high quality effluent and disposing of the highly treated effluent via an ocean outfall was the best alternative.

Because working through the numerous alternatives and public input related to those alternatives took years, DNREC and the City needed to reach agreement on a new deadline for the elimination of the City's discharge. Rehoboth's Environmental Impact Statement also evaluated a number of alternatives involving land application of treated wastewater, including the use of public and private lands. However, the lack of agricultural lands in reasonable proximity to the City, lack of interest among landowners to partner with the City, and environmental considerations, led to the conclusion that an ocean outfall was the preferred alternative.

On January 5, 2015, DNREC Secretary David Small signed a Record of Decision (ROD) concurring with the conclusions contained in the EIS that an ocean outfall is the most environmentally and financially responsible alternative to the current discharge into the L-R Canal. This action allowed Rehoboth Beach to proceed with its request to borrow an estimated \$25 million from the State's Water Pollution Control Revolving Fund and move forward with plans to eliminate the largest single wastewater discharge to Delaware's Inland Bays. The decision brought to a close nearly 10 years of extensive studies and analyses, reports, public meetings, hearings, and public input and moves the project to the next phase of financing, permitting, final design and construction. The decision also included a requirement that the City evaluate its current storm water collection system that discharges to the ocean and identify improvements and associated costs that could reduce potential impacts to swimmers, surfers and other recreational users. Concurrent with the decision, on January 8, 2015 the City and DNREC filed and were granted an amended Consent Order by Sussex County Superior Court to require elimination of the current discharge to the L-R Canal by June 1, 2018.

The SWDS prepared a Public Notice Draft NPDES Permit and Fact Sheet dated, October 14, 2016. This permit was included in the October 14, 2016, Legal Notice for all of the required permits and notice of the Public Workshop held on October 19, 2016, and Public Hearing held on November 15, 2016.

B. TRM Assumptions

The issuance of the NPDES Permit for an ocean outfall by its nature assumes that there will be a discharge to the Atlantic Ocean. Based on this assumption, any comments disputing the conclusion of the Environmental Impact Statement that an ocean outfall is the best option will not be addressed in this TRM. The main focus of this TRM is to explore whether any of the comments received during the public notice period and/or the public hearing require changes to the tentative determinations made during the drafting of the NPDES Permit.

C. Public Hearing Testimony/Comments

Nineteen (19) individuals presented oral comments at the November 15, 2016 public hearing. Six (6) of the public hearing speakers presented comments in favor of the ocean outfall and thirteen (13) were opposed to the ocean outfall.

The speakers offering comments in favor of the ocean outfall (Medlarz, Brittingham, Gay, Cooper, Bason, and Mabrey) were appreciative of the Departments' work on the issues regarding the project and believe that the due diligence has been done in evaluating all options. The comments support moving forward with the ocean outfall on the proposed schedule.

Comments against the project indicate a lack of familiarity with the publicly available information regarding the project and/or a misunderstanding of the facts and information contained in the EIS, NPDES Permit, and Fact Sheet. Comments against the ocean outfall will be summarized below accompanied by a response from the Department.

1. Endangered Species

Comment:

Three (3) speakers at the public hearing (Rosner, Hansen-Reynolds, and Thurman) commented that the proposed effluent discharge to the Atlantic Ocean will adversely affect endangered species in the area of the discharge. Ms. Hansen-Reynolds stated that, "The National Oceanic and Atmospheric Administration states that the project will have an adverse effect on essential fish habitat because the effluent contains pharmaceuticals and many intracranial inhibitors which can accumulate in fish, modifying their growth, their reproduction, and their resistance to disease and parasites."

Response:

As required by applicable portions of Section 6.31.3 of the Delaware Regulations Governing the Control of Water Pollution (RGCWP), the SWDS provided notice to the U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) of our tentative determinations and intent to reissue

the NPDES Permit for the Rehoboth Beach WWTP. No comments were received from the USFWS during the public comment period. The NMFS submitted comments regarding the NPDES Permit reissuance via letter from Kimberly B. Damon-Randall, Assistant Regional Administrator for Protected Resources, dated November 3, 2016. The letter indicated that the Protected Resources Division (PRD) of the Greater Atlantic Regional Fisheries Office (GARFO) considered the effects of construction of the ocean outfall and the potential effects of discharges from the proposed outfall on the listed species under the Endangered Species Act (ESA). The PRD stated that, "the construction of a new ocean outfall and all interrelated and interdependent activities (i.e., discharges from the facility) are not likely to adversely affect species listed under the ESA because the facility achieves a high rate of dilution during discharge activities, complies with state water quality standards, and discharge streams are localized in the environment." The letter further stated that, "the waters where the Rehoboth WWTP is permitted to discharge, currently, and has proposed to discharge into the ocean environment, in the future, are not known spawning, feeding, or aggregating areas for any species listed by us, and thus, the overlap of species with the species with the effluents prior to complete dilution is minimal. As such, and impacts are expected to be insignificant and/or discountable, as was concluded during ESA section 7 consultation."

2. Regulated Contaminants

Comment:

Two (2) speakers at the public hearing (Hansen-Reynolds, Thurman) commented generally that the proposed ocean outfall discharge will pose undue risks to the environment due to toxins including nutrients, bacteria, heavy metals, and chlorine. Ms. Thurman specifically stated that, "High concentrations of chlorine will be contained within the effluent plume as part of this treatment process. And this is known to destroy plankton, the basis of the marine food web, including fisheries species."

Response:

Ms. Thurman's statement regarding chlorine in the discharge is not accurate. As indicated in the Public Notice Fact Sheet dated, October 14, 2016, the current and proposed permit for the Rehoboth Beach WWTP includes a "none detectable" effluent limitation for Total Residual Chlorine (TRC). Compliance with this effluent limitation has been excellent and it is anticipated that compliance with this effluent limitation will continue.

With respect to the general statements regarding nutrients, bacteria, and heavy metals, the EIS and NPDES Fact Sheet indicate that these concerns are unfounded.

Nutrients: No regulations or standards exist for nitrogen and phosphorus

concentrations within the ocean; however, background nutrient concentrations should be met after dilution. To reach background nutrient levels within the ocean, the effluent must undergo at least a 1:17 dilution. Based on CORMIX dilution modeling, the minimum dilution for the proposed ocean outfall is 1:82. This information was available in the EIS, Fact Sheet, and was presented at the October 19, 2016 workshop.

Bacteria: The indicator organism that is established as the measure of bacterial water quality in Delaware marine surface waters is Enterococcus. The most restrictive applicable regulatory standard for Enterococcus for marine discharges is 35 mg/L. The proposed NPDES permit includes an even more restrictive effluent limitation of 10 mg/L for enterococcus. Compliance with the 10 mg/L effluent limitation for enterococcus has been excellent and it is anticipated that compliance with this effluent limitation will continue. This information was available in the EIS, Fact Sheet, and was presented at the October 19, 2016 workshop.

Heavy metals: Section 5.4.4.1 of the EIS discussed heavy metals analyses of effluent samples from the Rehoboth WWTP. Thirteen (13) metals were analyzed in the three effluent samples. In every case the metals were either below detection limits or were present at concentrations substantially below the level of concern as listed in the Surface Water Quality Standards. Out of the 39 possible detections, there were only 16 detections, yielding an overall detection frequency of 41%. The concentrations of metals identified by Delaware's Surface Water Quality Standards for the protection of human health and aquatic life were presented in Table 5-10 of the EIS. Even under the more stringent limits imposed on surface waters classified as Public Water Supply Sources (Fish & Water Ingestion), the effluent meets the surface water quality criteria for human health without dilution. With the exception of copper, all of the detections were less than the applicable water quality criteria for the protection of aquatic life. However, the criteria listed in Table 5-10 apply to the ambient receiving waters after proper consideration of mixing/dilution and other fate processes. The detected concentration of 7.0 µg/L copper must undergo at least 1:3 dilution to achieve the required 3.1 µg/L concentration. As discussed previously, the minimum dilution for the proposed ocean outfall is anticipated to be 1:82.

Based on information contained in the NPDES Permit Application, the EIS, and Discharge Monitoring Report (DMR) data, the effluent from the Rehoboth WWTP is expected to meet all applicable water quality standards for all currently regulated pollutants.

3. Unregulated Contaminants

Comment:

Four (4) speakers at the public hearing (Hansen-Reynolds, O'Connor, Thurman, and Garlow) expressed concern about the environmental effects of unregulated

contaminants such as pharmaceuticals and personal care products.

Response:

There are currently no applicable regulatory water quality standards for pharmaceuticals or personal care products. If applicable standards are promulgated in the future, the NPDES Permit can be reopened and modified to include such standards in accordance with the applicable permit conditions.

4. Previous DNREC Secretary Opposed Ocean Outfall

Comment:

Two (2) hearing speakers (Hansen-Reynolds, O'Connor) commented that the previous DNREC Cabinet Secretary Collin O'Mara was opposed to the Rehoboth Beach Ocean Outfall and questioned how the Current DNREC Secretary could approve the outfall with the same information.

Response:

The previous DNREC Cabinet Secretary made no decision or determination regarding the Rehoboth Beach Ocean Outfall while serving as Cabinet Secretary. Only after his departure did he publicly voice opposition to the project. The fact that Mr. O'Mara was unable to make a decision on the matter during his tenure and has since indicated opposition to the outfall should have little bearing on the Department's decision to approve the project.

DNREC Secretary David Small relied on expertise of professional DNREC staff in making the decision to sign the Record of Decision (ROD) concurring with the conclusions contained in the EIS that an ocean outfall was the most environmentally and financially responsible alternative to the current discharge into the L-R Canal.

5. Treatment Plant Operations

Comment:

Two (2) hearing speakers expressed concern regarding treatment plant operator competency (Meyers) and stated that the water treatment processes being used at the Rehoboth Beach WWTP are outdated (King).

Response:

All wastewater treatment plant operators employed at the Rehoboth Beach WWTP are appropriately licensed through the DNREC, SWDS, Board of Certification (BOC) for Wastewater Operators. The BOC oversees the Training,

Testing, and Certification of Wastewater Operators under the Regulations for Licensing Operators of Wastewater Facilities.

As described in the EIS and the Fact Sheet, the Rehoboth Beach WWTP is an advanced secondary treatment plant that produces an effluent of higher quality than that of a typical secondary treatment plant. The additional level of treatment includes processes to remove nitrogen and phosphorus and filtration to remove additional very fine solids. The plant is currently meeting and achieving higher levels of treatment than required by the current existing permit limits with effluent concentrations and loadings well below the permitted amounts.

Based upon the evaluation of public hearing comments summarized above, no changes to the NPDES Permit are recommended.

D. Public Notice Written Comments

In addition to the public hearing comments/testimony written comments were also received from EPA, NOAA, and the Permittee during the Public Notice period. These comments and the Department response are summarized below.

1. EPA Comments via E-mail

EPA Region 3 submitted comments via e-mail on October 13, 2016..

Comment:

Under what effect was the chronic biomonitoring for outfall 002 evaluated? That is, what lethal and sub lethal end point was used during the evaluation? Consider including this as part of the discussion in the fact sheet and/or permit for the new outfall 002.

Response:

The chronic biomonitoring for Outfall 002 was evaluated under a NOEC based on the Instream Waste Concentration (IWC) of 1.2% for both lethal and sub lethal effects. The fact sheet has been revised to clarify the reasoning behind the biomonitoring special condition for the Outfall 002 discharge to the ocean.

Comment:

The No Observable Effect Concentration that will trigger additional WET testing is less than 100% effluent for Outfall 001. The No Observable Effect Concentration that will trigger additional WET testing for Outfall 002 (ocean outfall) is 1.2% effluent. Please provide a justification for the difference in NOECs between Outfall 001 and 002 and/or a justification for a toxicity level of 1.2% effluent at outfall 002 before triggering additional WET testing.

Response:

The biomonitoring special condition language including the NOEC of 100% for Outfall 001 was carried over from the current permit. Chronic biomonitoring on 100% effluent was presumably chosen in previous permit iterations as a more conservative/restrictive test that was routinely met by the permittee. The permit could have also been written with chronic biomonitoring using a dilution series which would have more accurately evaluated the toxicity to the surface waters from the effluent. In other words, if the test organisms can survive in 100% effluent, they can survive in more dilute testing situations.

The intent of biomonitoring is to evaluate a representative sample of effluent for toxicity. When the effluent discharge through Outfall 002 commences to the Atlantic Ocean, biomonitoring shall be required on a dilution series based on the worst case dilution factor of 82:1 and the corresponding in stream waste concentration of 1.2%. The decision to change to this dilution series was based on the available dilution and a desire to more accurately evaluate whole effluent toxicity.

Comment:

The fact sheet summarizes chronic toxicity monitoring results for the most recent 3 years, showing failures in both the initial testing as well as the confirmation test. In considering these failures it is recommended that the WET testing frequency be quarterly for the first year, then annually once the permittee can show passing results for 3 consecutive tests.

Response:

Based on the failures on 100% effluent, the permittee has initiated quarterly biomonitoring. As of the date of this document, the permittee has passed three (3) quarterly biomonitoring tests on 100% effluent from Outfall 001. If the effluent passes the fourth consecutive test, then the biomonitoring frequency will revert to once annually and continue annually in accordance with the provisions of Special Condition No. 7. When discharge to Outfall 002 is initiated, the frequency would remain once annually, but on the dilution series indicated in Special Condition No. 9. If quarterly monitoring is still in effect at the time of initiation of discharge to Outfall 002, the effluent must pass four (4) consecutive quarterly biomonitoring tests using the dilution series prior to commencing annual biomonitoring for Outfall 002.

Special Condition No. 9 has been revised to include language mirroring Special Condition No. 8 in the current permit, but will apply to Outfall 002. Special Condition No. 9 will require the facility to notify the Department and initiate quarterly biomonitoring if the effluent fails an annual biomonitoring test for Outfall 002 and one or both of the required confirmatory tests. The facility is then allowed to resume annual biomonitoring frequency after successful completion of

four consecutive quarters of valid biomonitoring with written approval from the Department.

To clarify, the baseline frequency for biomonitoring for both Outfalls 001 and 002 is once annually. If the effluent fails one annual test (on 100% effluent or the dilution series) and one or both of the confirmatory tests, the frequency changes to quarterly until the effluent passes four (4) consecutive quarterly tests.

2. NOAA Comment Letter/E-mail

As noted above, the National Marine Fisheries Service (NMFS) submitted comments regarding the NPDES Permit reissuance via letter from Kimberly B. Damon-Randall, Assistant Regional Administrator for Protected Resources, dated November 3, 2016. Based on their review and in consideration of the effects of construction of the ocean outfall and the potential effects of discharges from the proposed outfall on the listed species under the Endangered Species Act (ESA), the NMFS indicated that the construction of a new ocean outfall and all interrelated and interdependent activities (i.e., discharges from the facility) are not likely to adversely affect species listed under the ESA because the facility achieves a high rate of dilution during discharge activities, complies with state water quality standards, and discharge streams are localized in the environment. The letter further indicated that the waters where the Rehoboth WWTP is permitted to discharge, currently, and has proposed to discharge into the ocean environment, in the future, are not known spawning, feeding, or aggregating areas for any species listed by the NMFS, and thus, the overlap of species with the species with the effluents prior to complete dilution is minimal. As such, and impacts are expected to be insignificant and/or discountable.

3. Permittee Comments

The City of Rehoboth submitted comments via e-mail on the Draft NPDES Permit on October 13, 2016, prior to the publication of the legal notice for the Public Hearing. The comments/questions contained in the e-mail as well as any answers/permit changes are as follows:

Comment:

"Special Conditions A. 14 reads as follows:

As required in Part II.A.3., the permittee shall at all times maintain in good working order and operate as efficiently as possible all collection and treatment facilities and systems (and related appurtenances) installed or used by the Permittee for water pollution control and abatement to achieve compliance with the terms and conditions of this permit and maintain current treatment levels. Based on the most recent three (3) years of effluent data, current treatment has resulted in 6.2 mg/L average total nitrogen (TN), 20.5 mg/L maximum TN, 0.32 mg/L average total phosphorus (TP), and 1.8 mg/L maximum TP. The permittee

shall submit an annual report demonstrating that current treatment levels are being maintained. The report shall be submitted to the Department on September 1st each year.

At a minimum, maintenance and operation of all equipment, practices, and procedures outlined in the applicable sections of Part I.A.2 and Part I.A.3 shall be continued. Specifically, the permittee shall maintain a level of treatment consistent with current wastewater industry standards of secondary treatment, filtration, biological nutrient removal (BNR), and disinfection. Failure to maintain current treatment levels may result in modification or revocation and reissuance of this permit as outlined in Part II.B.7.

In the last sentence, 2nd paragraph, the City would like clarification regarding the term "current treatment levels". Does "current treatment levels" refer to the numerical levels cited above or just wastewater treatment effort consistent with current plant operation?"

Response:

As stated in the Fact Sheet, there are currently no numeric regulatory standards for nutrients from which to form a basis for effluent limitations for the proposed discharge to the Atlantic Ocean. The numeric levels indicated in the permit were for informational purposes only. The required nutrient monitoring and reporting will be used to evaluate facility performance in light of the technology in use.

No changes to the permit documents are needed since the comment was a request for clarification which is addressed in the above response.

Comment:

"The Post-Aeration tanks are not shown in the process diagram for Outfall 002 and are not discussed on Page 3 and 6. Needs to be added since they are now requiring DO limits be maintained."

Response:

The process description was revised to include post aeration, and an updated process diagram including post aeration tanks for Phase 2 was added to the permit prior to the public notice period. No further changes to the permit documents are needed since the comment had been addressed prior to the public notice period.

Comment:

"Footnotes on Page 5 and 6 reference "page 2 of 22 of this permit" – There are 25 pages total, needs to be updated 3 of 25 and 4 of 25 respectively."

Response:

The footnotes on pages 5 and 6 of the permit were corrected in the permit as requested prior to the public notice period. No further changes to the permit documents are needed since the comment had been addressed prior to the public notice period.

Comment:

“Page 5 at the bottom of the table indicates all samples, including biomonitoring will be taken after the post aeration tank but page 21, #7 indicates sample for biomonitoring be taken prior to chlorination. Please clarify.”

Response:

The intent of biomonitoring is to evaluate a **representative** sample of effluent for toxicity. Unless there is a valid reason for alternative sampling locations, all samples for compliance purposes should all be collected at the location indicated on the Effluent Limitations and Monitoring Requirements pages for the respective outfalls. The wording on page 21, Special Condition No. 7 was carried over from the current permit and was presumably carried over from the previous permit. The instruction to collect the biomonitoring sample prior to chlorination is inconsistent with current practices and makes little sense in light of the fact that the treatment process includes dechlorinating of the effluent.

The final permit has been revised to be consistent with current practices and remove the reference to sampling prior to chlorination.

Comment:

“Page 21, # 5, will this apply to the proposed dewatering and potential sludge drying processes?”

Response:

Page 21, Special Condition Nos. 4, 5, and 6 are special conditions that apply to all facilities that handle domestic sewage sludge. Special Condition No. 5 specifies that the Department must be notified of any planned changes in sludge use or disposal. Dewatering and sludge drying are not considered use or disposal so they would not be subject to this special condition. However, changes in sludge handling processes, such as dewatering or drying, do require notification of the Department under NPDES Permit Part II, A.2.a.

No changes to the permit documents are needed since the comment was a request for clarification which is addressed in the above response.

Comment:

"Page 22, # 8, if the City is performing quarterly biomonitoring under the first phase of this permit because of a <100% NOEC, and then the second phase of the permit kicks in, does the City still have to show a 100% survival on 100% effluent for 4 consecutive quarters or does the City begin using the dilution series as outlined for the ocean outfall phase?"

Response:

As indicated in Part I.B.2. of the permit, biomonitoring for Outfall 002 (Ocean Outfall) will be conducted in accordance with Part III.A., Special Condition No. 9, which is on a dilution series. We understand that the City has passed three (3) quarterly biomonitoring tests on 100% effluent from Outfall 001. If the effluent passes the fourth consecutive test, then the biomonitoring frequency will revert to once annually and continue annually in accordance with the provisions of Special Condition No. 7. When discharge to Outfall 002 is initiated, the frequency would remain once annually, but on the dilution series indicated in Special Condition No. 9.

If quarterly monitoring is still in effect at the time of initiation of discharge to Outfall 002, the effluent must pass four (4) consecutive quarterly biomonitoring tests using the dilution series prior to commencing annual biomonitoring for Outfall 002.

Special Condition No. 9 has been revised to include language mirroring Special Condition No. 8 in the current permit, but will apply to Outfall 002. Special Condition No. 9 will require the facility to notify the Department and initiate quarterly biomonitoring if the effluent fails an annual biomonitoring test for Outfall 002 and one or both of the required confirmatory tests. The facility is then allowed to resume annual biomonitoring frequency after successful completion of four consecutive quarters of valid biomonitoring with written approval from the Department.

To clarify, the base line frequency for biomonitoring for both Outfalls 001 and 002 is once annually. If the effluent fails one annual test (on 100% effluent or the dilution series) and one or both of the confirmatory tests, the frequency changes to quarterly until the effluent passes four consecutive quarterly tests. Once the effluent discharge is initiated to Outfall 002, the dilution series will be used for the duration of the permit.

Comment:

"Page 24, #15. The City currently tests influent for BOD5 and TSS once per week. No testing frequency is listed for demonstrating an 85% reduction. Will once per week be adequate?"

Response:

Once per week would be more than adequate for demonstrating the 85% removal requirement. Special Condition No. 15 has been revised to specify the minimum once monthly influent monitoring frequency for BOD₅ and TSS. More frequent sampling is allowed and must be reported. Influent sampling for BOD₅ and TSS has been added to the Monitoring Requirements in Parts I.B.1. and I.B.2. of the permit.

Based on the above discussion, I recommend reissuance of NPDES Permit No. DE 0020028 for the Rehoboth Beach WWTP with the above noted revisions. I have attached the revised NPDES Permit and Fact Sheet for review and approval from the Secretary.

Please let me know if you need any clarification on the above discussion or recommendations.

State Permit Number WPCC 3084E/74
NPDES Permit Number DE 0020028
Effective Date:
Expiration Date:

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
AND THE LAWS OF THE
STATE OF DELAWARE

In compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251 et seq.) (hereinafter referred to as "the Act"), and pursuant to the provisions of 7 Del. C., Chapter 60 "Permit Required."

City of Rehoboth Beach
229 Rehoboth Avenue
Rehoboth Beach, Delaware 19971

is authorized to discharge from the facility (Point Source 001 or 002) located at

Bay Road
Rehoboth Beach, Sussex County, Delaware 19971

to receiving waters named

Rehoboth segment of the Lewes and Rehoboth Canal (38°42'36.0"N, 75°05'34.0"W) (Outfall 001)

or

Atlantic Ocean (38° 43.787' N, 75° 03.505' W) (Outfall 002)

The effluent limitations, monitoring requirements and other permit conditions are set forth in Parts I, II and III hereof.

Bryan A. Ashby, Manager
Surface Water Discharges Section
Division of Water
Department of Natural Resources and Environmental Control

Date Signed

Part I

A. General Description of Discharges and Facilities

1. Discharge Description and Site Location Map

Outfall 001 - Effluent from the wastewater treatment facilities. The discharge is conveyed to the Rehoboth segment of the Lewes-Rehoboth Canal (38°42'36.0"N, 75°05'34.0"W).

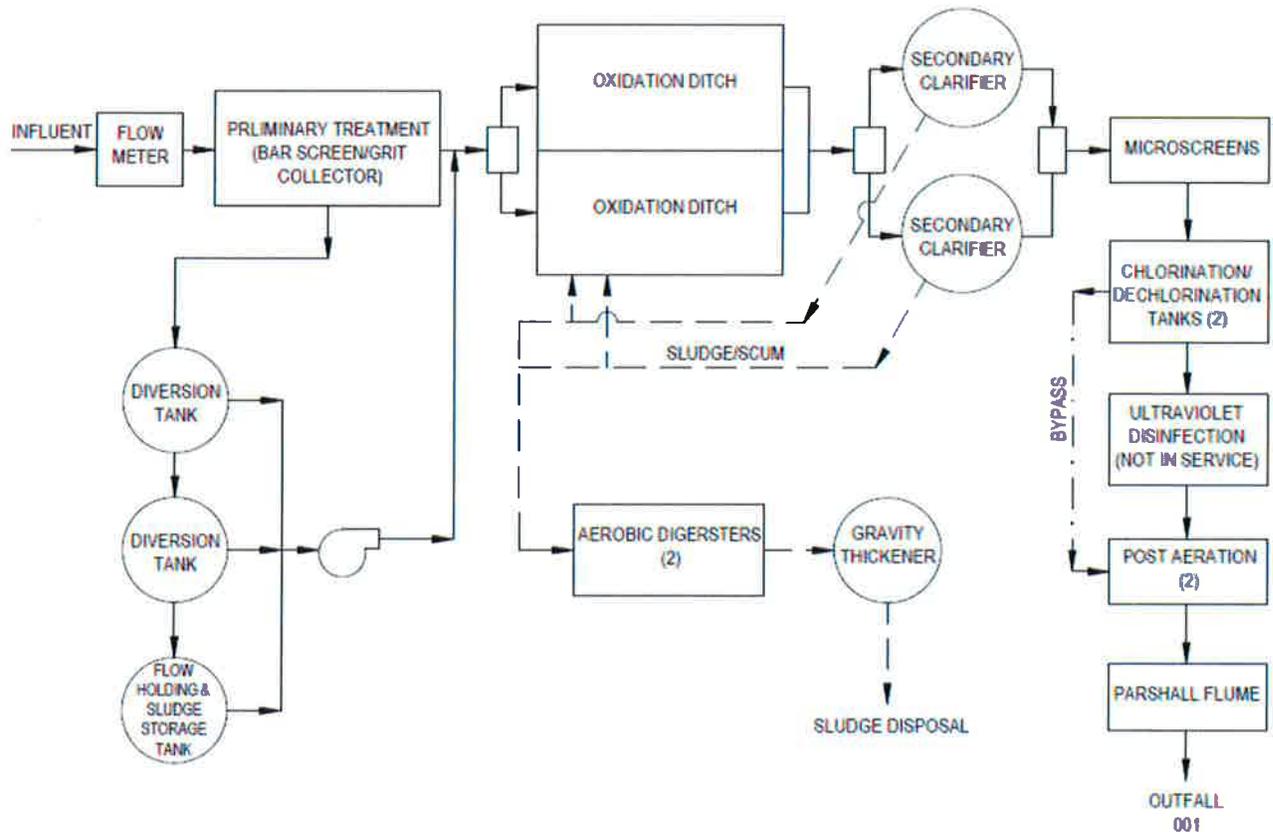
Outfall 002 - Effluent from the wastewater treatment facilities. The discharge is conveyed to the Atlantic Ocean (38° 43.787' N, 75° 03.505' W).



A. General Description of Discharges and Facilities (continued)

2. Process Diagram – Outfall 001 (Phase 1)

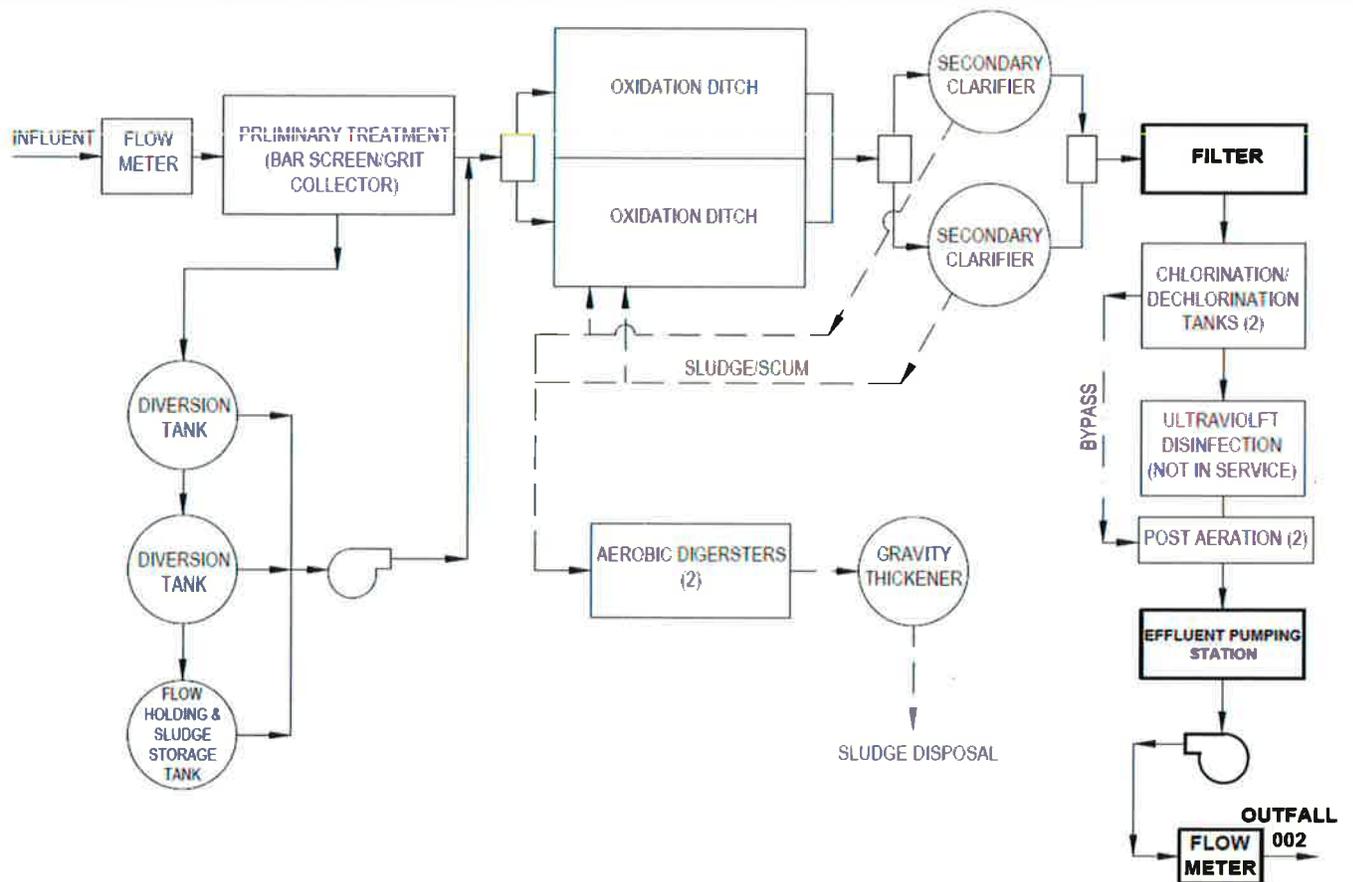
Wastewater treatment is provided by bar screens, a grit collector, emergency off-line diversion tanks, two total barrier oxidation ditches, chemical addition for phosphorus removal, two secondary clarifiers, two microscreens, chlorination and de-chlorination tanks, and post aeration. Waste sludge is aerobically digested, thickened, and land applied as a liquid or dewatered by a belt press and taken to a sanitary landfill.



A. General Description of Discharges and Facilities (continued)

3. Process Diagram – Outfall 002 (Phase 2)

Wastewater treatment is provided by bar screens, a grit collector, emergency off-line diversion tanks, two total barrier oxidation ditches, chemical addition for phosphorus removal, two secondary clarifiers, filtration, chlorination and de-chlorination tanks, post aeration, effluent pumping, and flow metering. Waste sludge is aerobically digested, thickened, and land applied as a liquid or dewatered by a belt press and taken to a sanitary landfill.



B. Effluent Limitations and Monitoring Requirements

1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS for Outfall 001 (Phase 1)

During the period beginning **effective date** and lasting through **Completion Date of Ocean Outfall Project, but no later than May 31, 2018**, the permittee is authorized to discharge from point source 001⁽¹⁾ the quantity and quality of effluent specified below:

Parameter	Effluent Limitations						Monitoring Requirements ⁽²⁾		
	Load			Concentration			Measurement Frequency	Sample Type	
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units			
Flow ⁽³⁾			MGD	---	---	---	Continuous	Record/ Totalize	
pH	The pH shall be between 6.0 S.U. and 9.0 S.U at all times						S.U.	Once Daily	Grab
Total Residual Chlorine	None Detectable ⁽⁴⁾						mg/L	Once Daily	
Dissolved Oxygen	The dissolved oxygen concentration shall not be less than 5.0 mg/L at any time						mg/L	Once Daily	
Enterococcus	--	--	--	10 ⁽⁵⁾		Col./ 100mL	Three times weekly		
BOD ₅	425	652	lbs/day	15	23	mg/L	Three times weekly	Composite	
BOD ₅ (Influent)			lbs/day			mg/L	Once Monthly	Composite	
Total Suspended Solids (TSS)	425	652	lbs/day	15	23	mg/L	Three times weekly	Composite	
TSS (Influent)			lbs/day			mg/L	Once Monthly	Composite	
Total Nitrogen (as N)			lbs/day			mg/L	Three times weekly	Composite	
Total Nitrogen (as N)	Moving 12-Month Cumulative Load of 24,300 pounds ⁽⁶⁾							Once Monthly	Calculated
Total Phosphorus (as P)			lbs/day			mg/L	Three times weekly	Composite	
Total Phosphorus (as P)	Moving 12-Month Cumulative Load of 5,308 pounds ⁽⁶⁾							Once Monthly	Calculated
Biomonitoring	See Part III, A., Special Condition No. 7							Once per year	Composite
The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.									

Note: In the table above, a blank box indicates that a value must be reported, but there is no effluent limitation.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: From the overflow box of the post aeration chambers.

A daily average discharge rate of 3.4 million gallons per day (MGD) was used in determining the effluent limitations for this outfall.

- 1 See discharge description on page 3 of 25 of this permit.
- 2 Report "nondetected" testing results on the discharge monitoring report (DMR) as "<" and the applicable test MDL. For example, if BOD₅ is "nondetected" using a test method with an MDL of 2.4 mg/L, report "< 2.4 mg/L" on the DMR.
- 3 Report both average daily and maximum daily flows on the discharge monitoring report (DMR).
- 4 See Part III.A., Special Condition No. 11.
- 5 The average enterococcus limit is based on a geometric mean.
- 6 See Part III.A., Special Condition No. 13.

B. Effluent Limitations and Monitoring Requirements (continued)

2. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS for Outfall 002 (Phase 2)

During the period beginning **Completion Date of Ocean Outfall Project, but no later than June 1, 2018**, and lasting through **expiration date**, the permittee is authorized to discharge from point source 002⁽¹⁾ the quantity and quality of effluent specified below:

Parameter	Effluent Limitations						Monitoring Requirements ⁽²⁾		
	Load			Concentration			Measurement Frequency	Sample Type	
	Daily Average	Daily Maximum	Units	Daily Average	Daily Maximum	Units			
Flow ⁽³⁾			MGD	--	--	--	Continuous	Record/ Totalize	
pH	The pH shall be between 6.0 S.U. and 9.0 S.U at all times						S.U.	Once Daily	Grab
Total Residual Chlorine	None Detectable ⁽⁴⁾						mg/L	Once Daily	
Dissolved Oxygen	The dissolved oxygen concentration shall not be less than 5.0 mg/L at any time						mg/L	Once Daily	
Enterococcus	--	--	--	10 ⁽⁵⁾		Col./ 100mL	Three times Weekly		
BOD ₅	425	652	lbs/day	15	23	mg/L	Three times Weekly	Composite	
BOD ₅ (Influent)			lbs/day			mg/L	Once Monthly	Composite	
Total Suspended Solids (TSS)	425	652	lbs/day	15	23	mg/L	Three times Weekly	Composite	
TSS (Influent)			lbs/day			mg/L	Once Monthly	Composite	
Total Nitrogen (as N)			lbs/day			mg/L	Three times Weekly	Composite	
Total Nitrogen (as N)	Report Moving 12-Month Cumulative Load ⁽⁶⁾							Once Monthly	Calculated
Total Phosphorus (as P)			lbs/day			mg/L	Three times Weekly	Composite	
Total Phosphorus (as P)	Report Moving 12-Month Cumulative Load ⁽⁶⁾							Once Monthly	Calculated
Biomonitoring	See Part III, A., Special Condition No. 9							Once per year	Composite
The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.									

Note: In the table above, a blank box indicates that a value must be reported, but there is no effluent limitation.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: From the effluent pumping station.

A daily average discharge rate of 3.4 million gallons per day (MGD) was used in determining the effluent limitations for this outfall.

- 1 See discharge description on page 4 of 25 of this permit.
- 2 Report "nondetected" testing results on the discharge monitoring report (DMR) as "<" and the applicable test MDL. For example, if BOD₅ is "nondetected" using a test method with an MDL of 2.4 mg/L, report "< 2.4 mg/L" on the DMR.
- 3 Report both average daily and maximum daily flows on the discharge monitoring report (DMR).
- 4 See Part III.A., Special Condition No. 11.
- 5 The average enterococcus limit is based on a geometric mean.
- 6 See Part III.A., Special Condition No. 13.

C. Schedule of Compliance

1. The Permittee shall comply with the requirements herein as soon as possible, but in no event later than the dates set forth in the following schedule:
 - a. No later than June 1, 2017, the permittee shall prepare and submit to the Department a report detailing progress made toward completion of the Ocean Outfall Project. The report shall include but may not necessarily be limited to progress made on financing, permitting, final design, and construction of the ocean outfall and related wastewater treatment plant upgrades and conveyances.
 - b. No later than December 1, 2017, the permittee shall prepare and submit to the Department a report detailing progress made toward completion of the Ocean Outfall Project. The report shall include but may not necessarily be limited to progress made on financing, permitting, final design, and construction of the ocean outfall and related wastewater treatment plant upgrades and conveyances.
 - c. Upon completion of the Ocean Outfall Project, but no later than June 1, 2018, the permittee shall comply with the Phase 2 Effluent Limitations and Monitoring Requirements in Part I.B.2 of this permit, and shall cease discharge to the L-R Canal.
2. No later than fourteen (14) calendar days following a date identified in the above schedule of compliance, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

D. Monitoring and Reporting

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous one (1) month shall be summarized for each month and reported via the Department approved Electronically Generated Discharge Monitoring Report (eDMR).

- a. The permittee shall submit results via the eDMR. The eDMR must be electronically signed and submitted no later than the 28th day of the month following the completed reporting period. All other reports required herein, shall be submitted to the Department via email or by regular mail. The Department mailing address is:

State of Delaware – DNREC
Division of Water – Surface Water Discharges Section
R & R Building
89 King Highway
Dover, DE 19901
Telephone: (302) 739-9946

- b. In the event of a catastrophic “electronic system failure”, the permittee may submit/may be required to submit, results on a signed hard copy DMR (EPA Form No. 3320-1 or approved equivalent). This hard copy DMR must be postmarked no later than the 28th day of the month following the completed reporting period. SPECIAL NOTE: Departmental approval must be obtained prior to sending in any hard copy DMR, as the eDMR process is the only reporting method meeting the eReporting Federal reporting requirements.

3. Definitions

- a. "Average daily loading" means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.
- b. "Average monthly discharge" or "daily average discharge" is the arithmetic mean of all daily discharges during a calendar month, calculated as the sum of all daily discharges sampled and/or measured during the month divided by the number of daily discharges sampled or measured during such month.
- c. "Average monthly effluent limitation" or "daily average effluent limitation" means the highest allowable average of daily discharges over a calendar month.
- d. "Best Management Practices" or "BMP's" means schedules of activities, prohibitions of practices, maintenance procedures and other management practices or measures to prevent or reduce the discharge of pollutants. BMP's include, but are not limited to: structural and nonstructural controls; treatment requirements; operating procedures and practices to control spills or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs can be applied before, during and after pollution generating activities to reduce or eliminate the introduction of pollutants into receiving waters.
- e. "Biosolids" refers to the biomass or biological sludge generated or produced by biological wastewater treatment processes.
- f. "Bypass" means the intentional diversion of wastes from any portion of a treatment facility.
- g. "Composite sample" means a combination of individual samples obtained at specified intervals over a given time period, generally twenty-four (24) hours.

In collecting a composite sample of a discharge other than a discharge of storm water or storm runoff (a non-storm water discharge), either: a) the volume of each individual sample is proportional to the discharge flow rate or b) the sampling interval is proportional to the discharge flow rate and the volume of each individual sample is constant. For a continuous non-storm water discharge, a minimum of twenty-four (24) individual grab samples shall be collected and combined to constitute a twenty-four (24) hour composite sample. For intermittent non-storm water discharges four (4) hours or more in duration, the number of individual grab samples collected and combined to constitute a composite sample shall at a minimum be equal to the duration of the discharge in hours but not less than twelve (12). For intermittent non-storm water discharges of less than four (4) hours, the minimum number of individual grab samples collected and combined to constitute a composite sample shall be equal to the duration of the discharge in hours times three (3) but not less than three (3) samples.

- h. "Daily discharge" means the total discharge measured during a calendar day or any twenty-four (24) hour period that reasonably represents the calendar day for sampling purposes. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of a pollutant discharged over a calendar day or the equivalent twenty-four (24) hour period. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over a calendar day or the equivalent twenty-four (24) hour period.
- i. "Daily maximum effluent limitation" is the highest total mass of a pollutant allowed to be discharged during a calendar day or, in the case of a pollutant limited in terms other than mass, the highest average concentration or other measurement of the pollutant specified during the calendar day, or

- any twenty-four (24) hour period that reasonably represents the calendar day for sampling purposes.
- j. "Daily maximum temperature" is the highest arithmetic mean of the temperature observed for any two (2) consecutive hours during a twenty-four (24) hour day, or during the operating day if flows are of shorter duration.
 - k. "Direct Responsible Charge" or "DRC" means on-location accountability for, and on-location performance of, active daily operation (including Technical Supervision, Administrative Supervision, or Maintenance Supervision) for a Wastewater Facility, an operating shift of a system or a facility, or a major segment of a system or facility.
 - l. "Estimate" is that based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.
 - m. "Grab sample" is an individual sample collected in less than fifteen (15) minutes.
 - n. "Immersion Stabilization" or "I/S" means the immersion of a calibrated device in the effluent stream until the reading is stabilized.
 - o. "Maximum instantaneous concentration" or "MIC" is the highest allowable measured concentration of a pollutant, obtained by analyzing a grab sample of the discharge.
 - p. "Measured flow" is any method of liquid volume measurement the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.
 - q. "Method Detection Limit" or "MDL" means the lowest concentration of a substance which can be measured with ninety-nine (99%) percent confidence that the analyte concentration is greater than zero (0) and is determined from analysis of a sample in a given matrix containing the analyte.
 - r. "Minimum Analytical Level" or "MAL" means the lowest concentration of a substance that can be quantified within specified limits of interlaboratory precision and accuracy under routine laboratory operating conditions in the matrix of concern. When there is insufficient interlaboratory study data, the "MAL" may be determined through the use of a multiplier of five (5) to ten (10) times the Method Detection Limit or "MDL."
 - s. "Monthly average temperature" is the arithmetic mean of temperature measurements made on an hourly basis, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar month, or during the operating month if flows are of shorter duration.
 - t. "Non-contact cooling water" is that which is contained within a leak-free system, i.e. has no contact with any gas, liquid or solid other than the container used for transport.
 - u. "Nuisance condition" is any condition that, as a result of pollutant addition to a surface water, causes unreasonable interference with the designated uses of the waters or the uses of the adjoining land areas.
 - v. "Operator" means any person employed or appointed by any owner, and who is designated by such owner to be the person controlling the operations of the treatment works, including direct actions, decisions or evaluations which affect the quality of the discharge, and whose duties include testing or evaluation to control treatment works operations.
 - w. "Pollution prevention" means any practice which results in a lesser quantity of emissions released or discharged prior to out-of-process recycling, treatment or control, as measured on a per-unit-of-production basis.

- x. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- y. "Sewage" means the water-carried human or animal wastes from septic tanks, water closets, residences, buildings, industrial establishments or other places together with such ground water infiltration, subsurface water, storm inflow, admixture of industrial wastes, or other wastes as may be present.
- z. "Sewage sludge" means any solid, semi-solid or liquid residue removed during the treatment of municipal wastewater or domestic sewage including, but not limited to, solids removed during primary, secondary or advanced wastewater treatment, scum, septage, portable toilet pumpings and sewage sludge products.
- aa. "Sludge" means the accumulated semi-liquid suspension, settled solids, or dried residue of these solids removed by any surface water or ground water treatment facility or any liquid waste treatment facility or works, whether or not such solids have undergone treatment.
- bb. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. The basis for specific effluent limitations can be found in this permit's Fact Sheet. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- cc. "Whole Effluent Toxicity" or "WET" means the aggregate toxic effect of an effluent or discharge measured directly by a toxicity test.

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to the applicable test procedures identified in 40 C.F.R., Part 136, unless otherwise specified in this permit.

5. Quality Assurance Practices

The Permittee is required to show the validity of all data by requiring its laboratory to adhere to the following minimum quality assurance practices:

- a. Duplicate¹ and spiked² samples must be run for each constituent in the permit on five (5%) percent of the samples, or at least on one (1) sample per month, whichever is greater. If the analysis frequency is less than one (1) sample per month, duplicate and/or spiked samples must be run for each analysis.
- b. For spiked samples, a known amount of each constituent is to be added to the discharge sample. The amount of constituent added should be approximately the same amount present in the unspiked sample, or must be approximately that stated as maximum or average in the discharge permit.

¹ Duplicate samples are not required for the following parameters: color, temperature, and turbidity.

² Spiked samples are not required for the following parameters: acidity, alkalinity, bacteriological, benzidine, chlorine, color, dissolved oxygen, hardness, pH, oil & grease, radiological, residues, temperature, turbidity, BOD₅, and total suspended solids. Procedures for spiking samples are available through the EPA Regional Quality Assurance Coordinator.

- c. The data obtained in a and b shall be summarized in an annual report in terms of precision, percent recovery, and the number of duplicate and spiked samples run, date and laboratory log number of samples run, and name of analyst. The report shall cover the calendar year, January 1 through December 31, and shall be submitted to the Department, postmarked no later than the February 15 following the fourth quarter of reporting.
 - d. Precision shall be calculated by the formula, standard deviation $s = (\sum d^2/k)^{1/2}$, where d is the difference between duplicate results, and k is the number of duplicate pairs used in the calculations.
 - e. Percent recovery shall be reported on the basis of the formula $R = 100 (F-I)/A$, where F is the analytical result of the spiked sample, I is the result before spiking of the sample, and A is the amount of constituent added to the sample.
 - f. The percent recovery, R, in e above shall be summarized yearly in terms of mean recovery and standard deviation from the mean. The formula, $s = (\sum (x-\bar{x})^2/(n-1))^{1/2}$, where s is the standard deviation around the mean \bar{x} , x is an individual recovery value, and n is the number of data points, shall be applied.
 - g. The Permittee or its contract laboratory is required to annually analyze an external quality control reference sample for each pollutant. These are available through the EPA Regional Quality Assurance Coordinator, or other EPA-approved supplier. Results shall be included in the Annual Report, required in paragraph c above.
 - h. The Permittee and/or its contract laboratory is required to maintain an up-to-date and continuous record of the method used, of any deviations from the method or options employed in the reference method, of reagent standardization, of equipment calibration and of the data obtained in a, b and f above.
 - i. If a contract laboratory is utilized, the Permittee shall report the name and address of the laboratory and the parameters analyzed together with the monitoring data required.
6. Records
- a. For each measurement or sample taken pursuant to the requirements of this permit, the Permittee shall record the following information:
 - 1) The date, exact place and time of sampling or measurements;
 - 2) The person(s) who performed the sampling or measurements;
 - 3) The date(s) and time(s) analyses were performed;
 - 4) The individual(s) who performed each analysis;
 - 5) The analytical techniques or methods used;
 - 6) The results of each analysis; and
 - 7) The quality assurance information as stated above.
 - b. An operator log must be kept on site at all times. This log should include time spent at the treatment facility on any date, and the nature of operation and maintenance performed.

7. Additional Monitoring by Permittee

Effective Date:
Expiration Date:

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If the Permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report (DMR, EPA Form No. 3320-1). Such increased frequency shall also be indicated.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit including hard copies of any electronically generated Discharge Monitoring Reports, all records of analyses performed, records of calibration and maintenance of instrumentation, and recording from continuous monitoring instrumentation shall be retained for three (3) years. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the Permittee, or as requested by the Department.

Part II

A. Management Requirements

1. Duty to Comply

- a. The Permittee must comply with all the terms and conditions of this permit. All discharges authorized herein shall be consistent with the terms and conditions of this permit.
- b. The discharge of any pollutant more frequently than, or at a level in excess of that identified and authorized herein, shall constitute a violation of the terms and conditions of this permit. The violation of any effluent limitation or of any other condition specified in this permit is a violation of 7 Del. C. Chapter 60, and the Act and is grounds for enforcement as provided in 7 Del. C., Chapter 60 "Enforcement; civil and administrative penalties; and expenses.", "Criminal Penalties." and "Cease and desist order." for permit termination or loss of authorization to discharge pursuant to this permit, for permit revocation and reissuance, or permit modification, or denial of a permit renewal application. The Department may seek voluntary compliance by way of warning, notice or other educational means, pursuant to 7 Del. C., Chapter 60 "Voluntary compliance." or any other means authorized by Law. However, the Law does not require that such voluntary means be used before proceeding by way of compulsory enforcement.
- c. Any person violating Sections 301, 302, 306, 307, 318, or 405 of the Clean Water Act or any permit condition or limitation implementing such sections in a permit issued under Section 402 of the Act is subject to civil, administrative, and/or criminal penalties as set forth in 40 C.F.R., Parts 122.41(a)(2) and 122.41(a)(3).

2. Notification

a. Notification of Planned Changes

The Permittee shall notify the Department in writing of any anticipated expansion or alteration of this permitted facility, any production increases, process modifications, or other changes which could result in new, different or increased discharges of pollutants. Notice is required only when such alteration, addition or change:

- 1) may justify the application of permit conditions that are different from those specified in this permit, or
- 2) may justify the application of permit conditions that are absent from this permit, or
- 3) meets any one (1) of the following criteria:
 - a) The alteration or addition to this permitted facility may meet one of the criteria for determining whether a facility is a new source, as defined in the Section "New Source", of the State of Delaware's *Regulations Governing the Control of Water Pollution*; or
 - b) As a result of the alteration or addition, the nature of the discharge is or could be substantially different from that represented in the application originally submitted for the discharge(s) authorized herein, upon which this permit is based; or
 - c) The alteration or addition results in a significant change in the Permittee's sludge use or disposal practices, including any uses or disposal sites not identified in the application for this permit or during this permit's issuance process; or

- d) The planned change in permitted facility or activity may result in noncompliance with the requirements of this permit.

Upon notification of a planned change, the Department may require the submission of a new application. The Permittee is encouraged to notify the Department and submit any application well in advance of the scheduled date for the anticipated alteration or addition to allow sufficient time to process any modifications of this permit necessitated by the change and to avoid any resultant project delays.

b. Notification of Noncompliance

The Permittee shall report all instances of noncompliance with this permit to the Department as outlined herein:

- 1) If, for any reason, the Permittee does not comply with or will be unable to comply with any daily maximum effluent limitation or maximum instantaneous concentration specified in this permit, the Permittee shall report such incident within twenty-four (24) hours and provide the Department with the following information, in writing, within five (5) days of becoming aware of such conditions:
 - a) A description of the discharge and cause of noncompliance;
 - b) The period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time when the discharge will return to compliance; and
 - c) Actions taken or to be taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.
- 2) If, for any reason, the Permittee does not comply with any daily average or average monthly effluent limitation or standard specified in this permit, the Permittee shall provide the information outlined above in paragraph b.1) with the Discharge Monitoring Report (DMR) submitted in accordance with Part I.D.2. of this permit.
- 3) In the case of any upset or unanticipated bypass that exceeds any permitted effluent or discharge limitation, the Permittee shall notify the Department within twenty-four (24) hours. If this notification is provided orally, a written report shall be submitted within five (5) days.
- 4) In the case of any discharge subject to any toxic pollutant effluent standard under Section 307(a) of the Act, the Permittee shall notify the Department within twenty-four (24) hours from the time the Permittee becomes aware of a noncomplying discharge. Notification shall include the information outlined above in paragraph b.1). If this information is provided orally, a written submission covering these points shall be provided within five (5) days of the time the Permittee becomes aware of the circumstances covered by this paragraph.
- 5) In the case of any other discharges which could constitute a threat to human health, welfare, or the environment, the information required above in paragraph b.1) shall be provided as quickly as possible upon discovery and after activating the appropriate emergency site plan, unless circumstances exist which make such a notification impossible. A delay in notification shall not be considered a violation of this permit when the act of reporting may delay the mitigation of the discharge and/or the protection of public health and the environment. A written submission covering these points must be

provided within five (5) days of the time the Permittee becomes aware of the circumstances covered by this paragraph.

- 6) The Permittee shall report all instances of noncompliance not otherwise reported under the preceding paragraphs at the time the Discharge Monitoring Report (DMR) is submitted. The report shall contain the information outlined above in paragraph b.1).
 - 7) The Department may waive the written report as required herein on a case-by-case basis, if an oral report was provided within twenty-four (24) hours.
- c. Reporting Discharge(s) of Pollutants Pursuant to 7 Del. C., Chapter 60, "Report of discharge of pollutant or air contaminant"

Any person who causes or contributes to the discharge of a pollutant into waters of the State or the United States either in excess of any conditions specified in this permit or in absence of a specific permit condition shall report such an incident to the Department as required under 7 Del. C., Chapter 60, "Report of discharge of pollutant or air contaminant".

3. Facilities Operation

The Permittee shall at all times maintain in good working order and operate as efficiently as possible all collection and treatment facilities and systems (and related appurtenances) installed or used by the Permittee for water pollution control and abatement to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, effective performance (based upon the facilities' design), adequate funding, effective management, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, when necessary, to achieve compliance with the terms and conditions of this permit.

4. Adverse Impact

The Permittee shall take all reasonable steps to minimize any adverse impact to State waters resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and extent of the noncomplying discharge.

5. Failure

The Permittee, in order to maintain compliance with this permit, shall control production and all discharges as necessary upon reduction, loss, or failure of the treatment facility until the treatment facility is restored or an alternative method of treatment is provided. The need to halt or reduce the permitted activity in order to maintain compliance with this permit shall not be a defense for a Permittee in any enforcement action.

6. Alternative Power Source

In order to ensure compliance with the terms and conditions of this permit, the Department may require that the Permittee provide an alternative power supply which is sufficient to operate the Permittee's wastewater collection, conveyance and treatment facilities.

7. Removed Substances

Any solids, sludges, filter backwash, or other pollutants removed in the collection, conveyance or treatment of wastewater shall be disposed of in such manner as to prevent any pollutant from such materials from entering surface waters or ground waters.

8. Bypass

- a. The Secretary may prohibit the intentional diversion or bypass of waste streams from any portion of the facility regulated herein in consideration of the adverse effect of the proposed bypass or where the proposed bypass does not meet the conditions set forth below in Part II.A.8.b.
- b. The intentional diversion or bypass of waste streams from any portion of the facility regulated herein is prohibited unless:
 - 1) The bypass is necessary to perform essential maintenance and auxiliary equipment, a redundant or back-up system or an alternate mode of operation is utilized to maintain treatment performance; or
 - 2) The following four (4) conditions are met:
 - a) Bypass is unavoidable to prevent loss of human life, personal injury or severe property damage;
 - b) There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, plant shutdown or maintenance during normal periods of equipment down-time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent the bypass;
 - c) The Permittee notifies the Department of the bypass or of the need to bypass as outlined below in Part II.A.8.c below; and
 - d) The Permittee is utilizing or will utilize all available alternative operating procedures or interim control measures to reduce the impact of the bypass on State waters.
- c. Notice
 - 1) If the Permittee knows in advance of the need for a bypass, the Permittee shall notify the Secretary, in writing, at least ten (10) days before the date of the bypass, if possible.
 - 2) In the event of an unanticipated or unintentional bypass, the Permittee shall notify the Department within twenty-four (24) hours of discovery. Notice may be provided orally, but shall be followed up with submission of a written report that provides the information outlined in Part II.A.2.b.1) within five (5) days.
 - 3) The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible.

9. Upset

- a. An upset shall constitute an affirmative defense to an action brought for noncompliance with any technology based permit effluent limitations established herein, if the requirements of Part II.A.9.b below are met.

- b. To establish an affirmative defense for an upset, the Permittee shall demonstrate, through properly signed and authenticated, contemporaneous operating logs, or by other relevant evidence that:
 - 1) An upset occurred and that the Permittee can identify the specific cause(s) of the upset;
 - 2) The permitted facility was at the time being operated in a prudent and workman like manner and in compliance with proper operation and maintenance procedures;
 - 3) The Permittee submitted notice of the upset as required in Part II.A.2.b.3) (i.e., within twenty-four (24) hours of becoming aware of the upset); and
 - 4) The Permittee took all reasonable measures necessary to minimize any adverse impact to State waters.
- c. Burden of proof. The Permittee shall have the burden of proving an upset in any case where an upset is claimed as a defense.

B. Responsibility

1. Right of Entry

The Permittee shall allow the Secretary of the Department, the EPA Regional Administrator, or their authorized representatives, jointly and severally, upon the presentation of his or her credentials:

- a. To enter upon the Permittee's premises where the regulated facility, treatment works, or discharge(s) is located or the regulated activity is conducted or where any records required to be kept under the terms and conditions of this permit are located;
- b. To have access to and copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;
- c. To inspect at reasonable times any monitoring equipment or monitoring method required in this permit;
- d. To inspect at reasonable times any facilities, equipment, management or control practices, or operations regulated or required under this permit; and
- e. To sample at reasonable times any discharge or substance at any location for the purpose of assuring compliance with this permit or otherwise determine whether a violation of the Law or these regulations exists, as provided in 7 Del. C., Chapter 60, "Right of Entry".

2. Duty to Provide Information Requested by the Department

The Permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit or to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit. The Permittee shall also furnish, upon request, copies of records required to be kept by this permit.

3. Duty to Provide Information Found to be Missing or Inaccurate

When the Permittee discovers that it failed to submit any relevant facts in a permit application or that it submitted any incorrect information in any permit application or in any report to the Department, it shall promptly submit such facts or information.

4. Availability of Reports

Except for any data and information that is deemed to be confidential and claimed as such when submitted, and that is entitled to protection as trade secrets under State Law, all reports prepared in accordance with the terms and conditions of this permit shall be available for public inspection at the Department's offices. This permit, the permit application and any information submitted to support the application (other than information entitled to protection as trade secrets pursuant to State Law) and any effluent or discharge monitoring data shall not be deemed confidential and any claims of confidentiality will be denied. Knowingly making any false statement in any such report may result in the imposition of criminal penalties as provided in 7 Del. C., Chapter 60, "Criminal penalties".

5. Signatory Requirements

All applications, reports, or information submitted to the Department shall be signed and certified as required in the Section "Identity of Signatories to NPDES Forms" of the State of Delaware's *Regulations Governing the Control of Water Pollution*.

6. Permit Transfer

- a. This permit is not transferable to any person, except after notice to and with the concurrence of the Secretary.
- b. In the event of a change in ownership or control of the facilities from which the authorized discharge(s) emanate(s), this permit may be transferred if:
 - 1) The Permittee notifies the Department, in writing, of the proposed transfer, in advance; and
 - 2) The Permittee submits to the Department a written agreement signed by all parties to the transfer, containing a specific date for transfer of permit responsibility, coverage and liability to the new Permittee. The written agreement shall expressly acknowledge the current Permittee is responsible and liable for compliance with the terms and conditions of this permit up to the date of transfer and the new Permittee is responsible and liable for compliance from that date on; and
 - 3) The Department within thirty (30) days of receipt of the notification of the proposed transfer does not notify the current Permittee and the new Permittee of its intent to modify, to revoke and reissue or to terminate this permit and require that a new application be submitted.
- c. The Permittee is encouraged to provide as much advance notice as possible of any proposed transfer, to allow sufficient time for the Department to modify this permit to identify the new Permittee and to incorporate such other requirements as may be necessary under the Law or the Act.

7. Modification, Termination, or Revocation and Reissuance

This permit may be modified, terminated or revoked and reissued in whole or in part, during its term, for cause as provided in the Section "Modification, Revocation and Reissuance, and Termination" of the State of Delaware's *Regulations Governing the Control of Water Pollution*.

The filing of a request for permit modification, or revocation and reissuance, or termination, or a notification of any planned changes or anticipated noncompliance does not stay any permit condition.

8. Reapplication for a Permit

- a. The Permittee must apply for and obtain a new permit if the Permittee wishes to continue the activity regulated by this permit beyond its expiration date;
- b. At least one hundred and eighty (180) days before the expiration date of this permit, the Permittee shall submit a new application or notify the Department of the Permittee's intent to cease discharging by the expiration date;
- c. In the event that a timely and sufficient reapplication has been submitted and the Department is unable, through no fault of the Permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are continued and remain fully effective and enforceable;

9. Compliance with Effluent Standards for Toxic Pollutants

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish such standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

10. Construction Authorization

This permit does not approve or authorize the construction, installation or modification of any wastewater/liquid waste collection, transmission or treatment facilities, system, or any other pollution control equipment or device necessary to achieve or to maintain compliance with the terms and conditions of this permit. Separate authorization for the construction, installation or modification of such pollution control facilities must be obtained from the Secretary.

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in navigable waters.

11. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privileges.

12. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from any responsibilities, liabilities, or penalties to which the Permittee is or may be subject under 7 Del. C., Chapter 60, or any other State Law or regulation.

13. Severability

The provisions of this permit are severable. If any provision of this permit is held invalid, the remainder of this permit shall not be affected. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

Part III

A. Special Conditions

1. Supersedes previous permit

This permit supersedes NPDES Permit DE0020028 and State Permit WPCC 3084D/74 issued on September 21, 2005, effective date October 1, 2005.

2. Pretreatment Program

The permittee, a publicly owned treatment works (hereinafter referred to as POTW), shall:

a. Provide adequate notice to the Department and the EPA of the following:

- i. Any new discharge of pollutants to the POTW from any source which would be subject to sections 301 (requires effluent limitations for point sources) and 306 (designation of the primary industrial categories) of the Act if the source is directly discharged to waters of the United States; and
- ii. Any substantial change in the volume or character of pollutants being introduced into the POTW at the time of issuance of the permit.

b. Identify, in terms of character and volume of pollutants, any significant indirect dischargers into the POTW subject to pretreatment standards under section 307 (b) of the ACT and 40 CFR, Part 403.

c. Establish a local pretreatment program, when required by the Department or EPA. The Department or EPA will require program development in accordance with 40 CFR, Part 403 and applicable State laws and regulations when the permittee receives non-domestic waste which may interfere with, pass through, or otherwise be incompatible with the operation of the treatment works, including sludge use or disposal; or to assure compliance with pretreatment standards to the extent practicable under section 307 (b) of the Clean Water Act. The local program shall be incorporated into the permit as described in 40 CFR, Part 403.

d. Require any indirect discharger to such POTW to comply with the reporting requirements of section 204(b), 307, and 308 of the Act, including any requirements established under 40 CFR, Part 403.

3. Permit Reopener Clause

The Department or agencies under its supervision may perform or direct the performance of analyses or biosurveys on the receiving waters in the immediate vicinity of the Permittee's discharge or further downstream, after the issuance of this permit. Such analyses or biosurveys may include evaluating impingement, entrainment, and thermal impacts the Permittee's facility poses on its intake and receiving waters. If the results of these analyses or biosurveys suggest that the Permittee's discharge is causing, or has the potential to cause, diminished attainment of designated protected uses (as defined by the State of Delaware's *Surface Water Quality Standards*) then this permit may be reopened and modified after notice and opportunity for a public hearing. At that time, additional effluent limitations, monitoring requirements and/or special conditions may be included in the permit. If it is determined that additional equipment is needed to meet the revised permit conditions, the Permittee shall install the necessary equipment.

In addition to any other grounds specified herein, shall be modified or revoked at any time if, on

the basis of any new data, the Department determines that continued discharges may cause unreasonable degradation of the marine environment.

4. Sludge Disposal – Requirements

The Permittee shall comply with all existing Federal and State Laws and regulations that apply to its sludge use or disposal practice(s) including, but not limited to, federal regulations outlined in 40 C.F.R., Part 258, Section 28, Liquids Restrictions; 40 C.F.R., Part 503, Standards for the Use and Disposal of Sludge (February, 1993); the State of Delaware's Guidance and Regulations Governing the Land Treatment of Wastes, including Part III.B.; and the State of Delaware's Regulations Governing the Use and Disposal of Wastewater Sludge (October, 1999). If the Department determines that additional requirements or permit conditions are needed to insure compliance with the referenced regulations, or if the Federal Government promulgates new regulations under Section 405(d) of the Act governing (a) the treatment or disposal of sewage sludge; (b) sewage sludge management practices; or (c) concentrations of pollutants in sewage sludge, this permit may be reopened, and after notice and opportunity for public hearing, modified accordingly during its term.

5. Sludge Disposal – Planned Changes

Prior to any planned change in the Permittee's sludge use or disposal practice(s), the Permittee shall notify the Department in accordance with the requirements of Part II.A.2.a, "Notification of Planned Changes" of this permit. A change in the Permittee's sludge use or disposal practice(s) shall be considered cause for this permit to be modified, or revoked and reissued, under Part II.B.7, "Modification, Termination, or Revocation and Reissuance" of this permit.

6. Sludge Disposal – Record Keeping

The Permittee shall maintain monthly sludge inventory data. This data shall include at a minimum (a) quantity of sludge generated; (b) quantity of sludge stored on site; and (c) quantity of sludge transported off site. Transportation records shall include the date, quantity, carrier used, and the final destination for each shipment. The inventory data shall be maintained at the facility and be made available to the Department in accordance with Part I.D.8. "Records Retention", of this permit, except that records shall be retained for five (5) years.

7. Chronic Biomonitoring – Outfall 001

The permittee shall conduct chronic biomonitoring tests once per **year** on effluent in accordance with the following requirements. Dependent on the results of the initial tests, outlined in 7.a., the permittee may be required to perform additional testing as outlined in 7.b. below. Dependent on the results of the additional testing, the permittee may be required to perform a Toxicity Reduction Evaluation as outlined in 7.c. below.

These tests shall be performed using a 100% representative composite effluent sample. All testing shall be performed in accordance with the test procedure requirements under 40 CFR 136. At a minimum these tests shall include the following:

- a. The permittee shall conduct EPA test methods 1004.0 Sheepshead Minnow Larval Survival and Growth Test, and 1007.0 Mysid Survival, Growth and Fecundity Test. Alternative EPA test method approved species may be used. Each test shall be initiated no later than 36 hours after the collection of the representative composite effluent sample.

Within 30 days of the completion of these tests, the results shall be reported to the

Department. This report shall follow the general format and include the information listed in Section 10, pages 40 – 51, of EPA-821-R-02-014.

- b. If the NOEC (No Observable Effect Concentration) is less than 100% effluent, the permittee shall perform two (2) confirmation tests on the more sensitive species in 7.a. Both confirmation tests shall be completed within 60 days of the completion date of the testing described in 7.a.

Within 30 days of the completion of each test, the results shall be reported to the Department in accordance with the general format and information requirements referenced in 7.a.

- c. If either of the additional tests result in a NOEC less than 100% effluent, the permittee shall submit a plan for reducing the effluent toxicity to the Department. This plan shall be submitted within 60 days of the completion date of the testing described in 7.b. This plan shall outline a schedule, as well as identify the test methods to be used for performing a Toxicity Reduction Evaluation.

For a purpose of these tests, a representative composite sample is a 24-hour composite sample as defined in Part I.D.3.g. If the instantaneous flow rate does not vary by more than +/- 15 percent of the average flow rate, a time-interval composite will be an acceptable representative sample. Otherwise, a flow-weighted composite sample must be used. All composite samples shall be representative of 24 hours of typical operations.

The Department shall be notified in writing at least thirty (30) days in advance of the day when a bioassay test is planned to commence. The permittee shall split the composite samples used to perform a bioassay test with the Department upon request. All documentation pertaining to these tests shall be maintained at the facility as required in Part I.D. (Monitoring and Reporting) of this permit and shall be made available for inspection, upon request.

8. Biomonitoring Frequency – Outfall 001

If annual biomonitoring results indicate a NOEC < 100% effluent, and one or both of the confirmation tests described in Special Condition No. 7.b. indicate a NOEC < 100%, the permittee shall notify the Department and initiate quarterly biomonitoring frequency. The permittee may resume annual biomonitoring after successfully completing four (4) consecutive quarters of valid biomonitoring with written approval from the Department.

9. Chronic Biomonitoring – Outfall 002

The permittee shall conduct chronic biomonitoring tests once per **year** on effluent from Outfall 002 in accordance with the following requirements. Dependent on the results of the initial tests, outlined in 9.a., the permittee may be required to perform additional testing as outlined in 9.b. below. Dependent on the results of the additional testing, the permittee may be required to perform a Toxicity Reduction Evaluation as outlined in 9.c. below.

These tests shall be performed using a dilution series made from representative composite effluent samples and laboratory control water. The dilution series shall use effluent concentrations of 0.3%, 1.2%, 5.3%, 23%, & 100%. Alternative dilution series concentrations may be used if approved by the Department in writing. All testing shall be performed in accordance with the test procedure requirements under 40 CFR 136. At a minimum these tests shall include the following:

- a. The permittee shall simultaneously perform EPA chronic test methods 1004.0 Sheepshead Minnow Larval Survival and Growth Test, and 1007.0 Mysid Survival,

Growth and Fecundity Test. Alternative EPA test method approved species may be used. Each test shall be initiated no later than 36 hours after the collection of the representative composite effluent sample.

Within 30 days of the completion of these tests, the results shall be reported to the Department. This report shall follow the general format and include the information listed in Section 10, pages 40 – 51, of EPA-821-R-02-014.

- b. If the NOEC (No Observable Effect Concentration) is less than 1.2% effluent, the permittee shall perform two (2) confirmation tests on the on the more sensitive species in 9.a. Both confirmation tests shall be completed within 60 days of the completion date of the testing described in 9.a.

Within 30 days of the completion of each test, the results shall be reported to the Department in accordance with the general format and information requirements referenced in 9.a.

- c. If either of the additional tests results in a NOEC less than 1.2% effluent, the permittee shall submit a plan for reducing the effluent toxicity to the Department". This plan shall be submitted within 60 days of the completion date of the testing described in 9.b. This plan shall outline a schedule, as well as identify the test methods to be used for performing a Toxicity Reduction Evaluation.

For a purpose of these tests, a representative composite sample is a 24-hour composite sample as defined in Part I.D.3.g. If the instantaneous flow rate does not vary by more than +/- 15 percent of the average flow rate, a time-interval composite will be an acceptable representative sample. Otherwise, a flow-weighted composite sample must be used. All composite samples shall be representative of 24 hours of typical operations.

The Department shall be notified in writing at least thirty (30) days in advance of the day when a bioassay test is planned to commence. The permittee shall split the composite samples used to perform a bioassay test with the Department upon request. All documentation pertaining to these tests shall be maintained at the facility as required in Part I.D., "Monitoring and Reporting", of this permit and shall be made available for inspection, upon request.

If annual biomonitoring results indicate a NOEC < 1.2% effluent, and one or both of the confirmation tests described in Special Condition No. 9.b. indicate a NOEC < 1.2%, the permittee shall notify the Department and initiate quarterly biomonitoring frequency. The permittee may resume annual biomonitoring after successfully completing four (4) consecutive quarters of valid biomonitoring with written approval from the Department.

10. Wastewater Treatment Plant Operator Licensing

The wastewater treatment facility shall be under the direct supervision of a Delaware licensed/certified wastewater treatment plant operator(s) in Direct Responsible Charge, whose competency is licensed by the Secretary in a classification corresponding to, or higher than, the classification of the wastewater treatment plant. All operators who perform duties of a wastewater treatment plant operator shall be licensed by the Secretary. All activities and licensing shall comply with the State of Delaware's Regulations for Licensing Operators of Wastewater Facilities.

11. Compliance with "none detected" Total Residual Chlorine (TRC) Limits

Compliance with the "none detected" Total Residual Chlorine (TRC) limit shall be demonstrated by the Permittee using Standard Methods test procedures 4500-Cl B, 4500-Cl F, and 4500-Cl G,

respectively. TRC concentrations less than or equal to the minimum detection level for each of the referenced test procedures shall be considered in compliance with the TRC limit.

12. Storm Water Plan

The Permittee shall continue to implement and maintain a Storm Water Plan (SWP) that is designed to limit the exposure of industrial materials and activities to precipitation and to minimize the discharge of contaminated storm water from the Permittee's facility. The SWP shall be implemented and maintained in accordance with the requirements in § 9 of the State of Delaware's *Regulations Governing the Control of Water Pollution* (as revised). A copy of an updated Storm Water Plan for this facility shall be submitted to the Department within sixty days of the effective date of this permit.

13. Moving 12-Month Cumulative Loads

The moving 12-month cumulative loads shall be calculated by adding the individual monthly discharge loads for the most current twelve (12) months of operation. Individual monthly loads shall be calculated by using the following formula:

$$\text{Average monthly concentration (mg/L)} \times \text{total monthly flow (Million Gallons)} \times 8.34 = \text{monthly total discharge load (pounds/month)}$$

This load for the month will be added to the calculated loads for the previous eleven (11) months and reported on the DMR as the moving 12-month cumulative load.

14. Maintain Treatment Efficiency

As required in Part II.A.3., the permittee shall at all times maintain in good working order and operate as efficiently as possible all collection and treatment facilities and systems (and related appurtenances) installed or used by the Permittee for water pollution control and abatement to achieve compliance with the terms and conditions of this permit and maintain current treatment levels. Based on the most recent three (3) years of effluent data, current treatment has resulted in 6.2 mg/L average total nitrogen (TN), 20.5 mg/L maximum TN, 0.32 mg/L average total phosphorus (TP), and 1.8 mg/L maximum TP. The permittee shall submit an annual report demonstrating that current treatment levels are being maintained. The report shall be submitted to the Department on September 1st each year.

At a minimum, maintenance and operation of all equipment, practices, and procedures outlined in the applicable sections of Part I.A.2 and Part I.A.3 shall be continued. Specifically, the permittee shall maintain a level of treatment consistent with current wastewater industry standards of secondary treatment, filtration, biological nutrient removal (BNR), and disinfection. Failure to maintain current treatment levels may result in modification or revocation and reissuance of this permit as outlined in Part II.B.7.

15. TSS and BOD₅ 85% Removal

The permittee shall demonstrate a minimum of 85% reduction in the raw waste TSS and BOD₅ concentrations on a monthly average basis prior to discharge. Each month, the permittee shall tabulate the influent and effluent data for TSS and BOD₅, determine the percent removal for each parameter and sampling event, and submit a summary of the data with the monthly discharge monitoring report (DMR). As noted in Part I.B.1. and I.B.2., the minimum influent monitoring frequency shall be once monthly.

16. Ocean Outfall Maintenance and Inspection

The permittee shall perform proper maintenance and inspection of the ocean outfall in accordance with the recommendations found in the applicable sections of "*Marine Wastewater Outfalls and Treatment Systems*" by Roberts, P. J. W., Salas, H. J., Reiff, F. M., Libhaber, M., Labbe, A., & Thomson, J. C. (2010), London, UK: IWA Publishing. The permittee shall visually inspect the ocean outfall structure immediately after it is placed in operation, one year later, and then every two years thereafter. The permittee shall maintain records of all outfall inspections, maintenance, and repairs at a location accessible for review during facility inspections.

17. Emergency Generator System

The Permittee shall comply with the requirements herein as soon as possible, but in no event later than the dates set forth in the following schedule:

- a. No later than June 1, 2019, the permittee shall prepare and submit to the Department final construction plans and specifications for the installation of an emergency generator system which is sufficient to maintain plant operations during a power outage as recommended in the Permittee's Preliminary Engineering Report dated July 3, 2012 and in accordance with Sections 6.14.13 and 6.14.16 of the *State of Delaware Regulations Governing the Control of Water Pollution*. The emergency generator system shall consist of (at least) a single diesel fueled standby generator, generator main line circuit breakers, and associated fuel tank and accessories as recommended in the Permittee's Preliminary Engineering Report dated July 3, 2012. Prior to installation of the emergency generator system and its associated components, the permittee shall obtain written verification from the Department that the plans and specifications meet the requirements of this Permit.
- b. No later than June 1, 2020, the permittee shall complete the installation of the emergency generator system in accordance with the final construction plans and specifications required by this Permit. No later than thirty (30) calendar days following project completion, the permittee shall prepare and submit to the Department record drawings that bear the seal and signature of a licensed Delaware professional engineer for the newly installed emergency generator system.

No later than fourteen (14) calendar days following a date identified above, the Permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

Surface Water Discharges Section

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Fact Sheet
February 7, 2017

City of Rehoboth Beach
229 Rehoboth Avenue
Rehoboth Beach, Delaware 19971

NPDES Permit No. DE 0020028
Permit No. WPCC 3084E/74

The City of Rehoboth Beach has applied for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge treated sanitary wastewater to the Rehoboth segment of the Lewes and Rehoboth Canal. Concurrently, the City has applied to cease said discharge and redirect the treated sanitary wastewater to the Atlantic Ocean through a new outfall to be completed no later than June 1, 2018.

Proposed Permit Changes

1. Deleted effluent limits for average daily flow, in favor of a note stating, "A daily average discharge rate of 3.4 million gallons per day (mgd) was used in determining the effluent limitations for this outfall."
2. Revised effluent limitations and monitoring requirements for BOD₅ to comply with Section 7.7.3 of the current State of Delaware Regulations Governing the Control of Water Pollution (RGCWP).
3. Continued authorization to discharge effluent to the Rehoboth segment of the Lewes-Rehoboth Canal (Phase 1 – Outfall 001) from effective date of permit through completion of Ocean Outfall Project, but no later than May 31, 2018, in accordance with Consent Order No. 98C-12-023-THG, as amended January 8, 2015.
4. Authorized discharge of effluent to the Atlantic Ocean (Phase 2 – Outfall 002) beginning with completion of Ocean Outfall Project, but no later than June 1, 2018, in accordance with Consent Order No. 98C-12-023-THG, as amended January 8, 2015.
5. New Special Condition No. 9 outlining the biomonitoring requirements for Phase 2.
6. Added new Electronically Generated Discharge Monitoring Report (eDMR) requirements.
7. New Special Condition No. 14 requiring the permittee to properly operate and maintain all equipment necessary to maintain current treatment levels.
8. New Special Condition No. 15 requiring the permittee to demonstrate a minimum of 85% reduction in the raw waste TSS and BOD₅ concentrations on a monthly average basis prior to discharge.
9. New Special Condition No. 16 requiring the permittee to perform proper maintenance and inspection of the ocean outfall structure in accordance with applicable industry standards.

10. New Special Condition No. 17 requiring the permittee to install an emergency generator system.

Facility Location

The facility is located on Bay Road, Rehoboth Beach, Sussex County, Delaware, as shown in the attached permit.

Activity Description

The facility is a municipal wastewater treatment plant (WWTP) that receives wastewater from Rehoboth Beach and neighboring areas including North Shores, Henlopen Acres, and the Dewey Beach Sanitary District. No significant industrial wastes are discharged to this facility.

Discharge Description

This WWTP currently has a single discharge (Outfall 001) to the Rehoboth segment of the Lewes-Rehoboth (L-R) Canal located at Latitude 38°42'36.0"N, Longitude 75°05'34.0"W. Outfall 001 to the L-R Canal is proposed to remain in use for Phase 1 of the permit. Phase 2 of the permit will commence following permitting and construction of the proposed Ocean Outfall (Outfall 002) to the Atlantic Ocean with an anticipated location of Latitude 38° 43.787' N, Longitude 75° 03.505' W.

Receiving Stream Classification

The L-R Canal is a tidal salt water body. The designated uses for the L-R Canal are: industrial water supply; primary contact recreation; secondary contact recreation; and maintenance of fish, aquatic life, and wildlife. The designated protected uses of the ocean in the vicinity of the proposed discharge are industrial water supply; primary contact recreation; secondary contact recreation; propagation and maintenance of fish, aquatic life, and wildlife; and Waters of Exceptional or Ecological Significance (ERES).

In December of 1998, DNREC promulgated a Total Maximum Daily Load Regulation, which required the elimination of all point sources of nitrogen and phosphorus and called for significant reductions of nonpoint source loads of nutrients as well for the L-R Canal. Excess levels of nutrients cause algae blooms, low dissolved oxygen levels, fish kills, and the proliferation of algae that may be toxic to humans, fish, and other aquatic life.

The City of Rehoboth (the City) appealed DNREC's TMDL Regulation. The two parties negotiated a settlement agreement which was memorialized by a Consent Order (No. 98C-12-023-THG) approved by Superior Court in December, 2002, and amended in June, 2005. The current NPDES permit was issued October, 2005, which required the City to significantly reduce the amount of nitrogen and phosphorus being discharged into the L-R Canal by October, 2007. Additionally, the permit called for the eventual elimination of the discharge by December 31, 2014, consistent with the Consent Order.

As part of Delaware's Water Pollution Control Revolving Fund procedures, the City was required to prepare an Environmental Impact Statement (EIS). The EIS identifies potential wastewater treatment and disposal options and then explores the regulatory, technological, and financial aspects of the various alternatives. The EIS concluded that utilizing the existing wastewater

treatment plant to produce a high quality effluent and disposing of the highly treated effluent via an ocean outfall was the best alternative.

Because working through the numerous alternatives and public input related to those alternatives took years, DNREC and the City needed to reach agreement on a new deadline for the elimination of the City's discharge. Rehoboth's Environmental Impact Statement also evaluated a number of alternatives involving land application of treated wastewater, including the use of public and private lands. However, the lack of agricultural lands in reasonable proximity to the City, lack of interest among landowners to partner with the City, and environmental considerations, led to the conclusion that an ocean outfall was the preferred alternative.

On January 5, 2015, DNREC Secretary David Small signed a Record of Decision (ROD) concurring with the conclusions contained in the EIS that an ocean outfall is the most environmentally and financially responsible alternative to the current discharge into the L-R Canal. This action allowed Rehoboth Beach to proceed with its request to borrow an estimated \$25 million from the State's Water Pollution Control Revolving Fund and move forward with plans to eliminate the largest single wastewater discharge to Delaware's Inland Bays. The decision brought to a close nearly 10 years of extensive studies and analyses, reports, public meetings, hearings, and public input and moves the project to the next phase of financing, permitting, final design and construction. The decision also included a requirement that the City evaluate its current storm water collection system that discharges to the ocean and identify improvements and associated costs that could reduce potential impacts to swimmers, surfers and other recreational users. Concurrent with the decision, on January 8, 2015 the City and DNREC filed and were granted an amended Consent Order by Sussex County Superior Court to require elimination of the current discharge to the L-R Canal by June 1, 2018.

Statutory and Regulatory Basis

The Delaware Department of Natural Resources and Environmental Control (DNREC) proposes to reissue an NPDES permit to discharge the wastewater subject to certain effluent discharge limitations, monitoring requirements and other terms and conditions identified in the draft permit. Section 402 of the federal Clean Water Act, as amended, and 7 Del. C. Chapter 60 provide the authority for permit issuance. Federal and state regulations promulgated pursuant to these statutes are the regulatory bases for permit issuance.

Bases for Proposed Effluent Limitations

DNREC has examined the application, recent discharge monitoring data, and related information. The Department proposes to reissue the facility's NPDES permit for a period not to exceed five (5) years, subject to the effluent discharge limitations and monitoring requirements shown in the attached permit.

Flow: The current permit includes a daily average effluent flow limitation based on the design flow of the treatment facilities. The proposed permit deletes the flow limitation for average daily flow in favor of a note stating, "A daily average discharge rate of 3.4 million gallons per day (MGD) was used in determining the effluent limitations for this outfall." Monitoring frequency for flow is proposed to remain continuous for both the current discharge to the L-R Canal (Outfall 001) and the proposed outfall to the Atlantic Ocean (Outfall 002).

pH: Technology-based pH limits and once daily monitoring requirements have been retained from the current permit for both Outfall 001 and Outfall 002. These limits are based on Section 7.7.3 of the Regulations Governing the Control of Water Pollution (RGCWP).

Total Residual Chlorine (TRC): The current permit includes water quality-based TRC limits and a once daily monitoring requirement. The “none detectable” TRC effluent limitation and monitoring requirements have been retained for both Outfall 001 and Outfall 002.

Dissolved Oxygen (DO): The current permit includes a performance-based DO effluent limitation and a once daily monitoring requirement. The current effluent limitation requires that the DO concentration of the effluent shall not be less than 5.0 mg/L at any time. Section 4.5.2.2 of the State of Delaware Surface Water Quality Standards (SWQS) includes criteria for DO that are applicable outside approved regulatory mixing zones. These “in-stream” criteria include requirements that the daily average DO concentration shall not be less than 5.0 mg/L, and that the Instantaneous Minimum concentration shall not be less than 4.0 mg/L. The current performance-based effluent limitation is more stringent than the SWQS and, therefore protective of the in-stream criteria. Accordingly, the current effluent limitation and monitoring requirement have been retained for both Outfall 001 and Outfall 002.

Enterococcus: The current permit includes water quality based effluent limitations and monitoring requirements for enterococcus based on Section 11.6 of the State of Delaware SWQS, as amended, August 11, 1999. Section 4.5.7.1 of the current SWQS allows enterococcus limits of 35 colonies per 100 mL (Daily Average) and 104 colonies per 100 mL (Daily Maximum). Based on facility performance during the current permit term, the current enterococcus effluent limitation and three times weekly monitoring frequency have been retained for both Outfall 001 and Outfall 002.

BOD₅: The current permit includes water quality based effluent limitations for BOD₅ that had been retained from the previous permit. Section 7.7.3 of the RGCWP requires BOD₅ effluent limitations of 15 mg/L daily average and 23 mg/L daily maximum for Phase 1. These effluent limitations are slightly more stringent than the current effluent limitations. Based on facility performance during the current permit term, no compliance issues are anticipated. As such, these technology-based effluent limitations have been implemented in the permit for Outfall 001. Sections 7.2.1 and 7.7.1 of the RGCWP allow for less stringent effluent limitations for surface water discharges to the Atlantic Ocean (Outfall 002). The applicable technology-based BOD₅ effluent limitations are 30 mg/L daily average and 45 mg/L daily maximum. However, based on facility performance, the more restrictive effluent limitations for BOD₅ from section 7.7.3 of the RGCWP have been retained for Phase 2. Monitoring requirements for BOD₅ have been retained from the current permit at three times weekly for both Outfall 001 and Outfall 002.

Additionally, based on the requirements of 40CFR§133.102(a)(3), the permittee must demonstrate a minimum of 85% reduction in the raw waste BOD₅ concentrations on a monthly average basis prior to discharge. This requirement has been added to the permit in Part III.A., Special Condition No.15.

Total Suspended Solids (TSS): The current permit includes effluent limitations based on Section 7.7.3 of the RGCWP. As discussed above for BOD₅, the RGCWP allows for less stringent TSS effluent limitations for surface water discharges to the Atlantic Ocean. However, based on historical facility performance, the current technology-based TSS

effluent limitations of 15 mg/L daily average and 23 mg/L daily maximum as well as the three times weekly monitoring requirement have been retained from the current permit for both Outfall 001 and Outfall 002.

Additionally, based on the requirements of 40CFR§133.102(a)(3), the permittee must demonstrate a minimum of 85% reduction in the raw waste TSS concentrations on a monthly average basis prior to discharge. This requirement has been added to the permit in Part III.A., Special Condition No.16.

Total Nitrogen (TN) and Total Phosphorus (TP): The current permit includes numeric effluent limitations and monitoring requirements for TN and TP as follows:

- For the first 24 months of the permit, the permittee was required to continue to meet the annual effluent limits from the previous permit. Specifically, the twelve-month moving cumulative discharge loads were not to exceed 32,427 lbs. and 7,077 lbs. for TN and TP, respectively.
- No later than 25 months following the permit effective date, the permittee was required to meet interim nutrient permit levels, which were a 25% reduction from the above levels. Specifically, the twelve-month moving cumulative discharge loads were not to exceed 24,300 lbs. and 5,308 lbs. for TN and TP, respectively.

Additionally, the permit called for the eventual elimination of the discharge to the L-R Canal by December 31, 2014, consistent with the earlier referenced Consent Order.

In order to secure funding to eliminate the discharge, the permittee was required to prepare an Environmental Impact Statement (EIS) to identify potential wastewater treatment and disposal options and explore the regulatory, technological, and financial aspects of the various alternatives. The EIS concluded that utilizing the existing wastewater treatment plant to produce a high quality effluent and disposing of the highly treated effluent via an ocean outfall was the best alternative.

On January 5, 2015, DNREC Secretary David Small signed a Record of Decision (ROD) concurring with the conclusions contained in the EIS that an ocean outfall is the most environmentally and financially responsible alternative to the current discharge into the L-R Canal. This action allowed Rehoboth Beach to proceed with its request to borrow an estimated \$25 million from the State's Water Pollution Control Revolving Fund and move forward with plans to eliminate the discharge to the L-R Canal. Concurrent with the decision, on January 8, 2015 the City and DNREC filed and were granted an amended Consent Order by Sussex County Superior Court to require elimination of the current discharge to the L-R Canal by June 1, 2018.

For Phase 1 in the proposed draft permit renewal, effluent limitations and monitoring requirements for TN and TP have been retained from the current permit for Outfall 001 to the L-R Canal. Specifically, the twelve-month cumulative loads are not to exceed 24,300 lbs. and 5,308 lbs. for TN and TP, respectively. Monitoring frequency is three times weekly.

However, regarding Phase 2 in the draft permit renewal, there are currently no numeric regulatory standards for nutrients from which to form a basis for effluent limitations for the proposed discharge to the Atlantic Ocean. The Atlantic Ocean is designated as ERES waters which prohibits degradation of water quality. The average effluent nutrient concentrations (July 2013 – June 2016) were 6.2 mg/L TN and 0.32 mg/L TP.

Background nutrient concentrations in the Atlantic Ocean are 0.37 mg/L TN and 0.06 mg/L TP.¹ In order to reach background nutrient levels in the ocean, the effluent must undergo at least 1:17 dilution. The minimum worst case dilution based on CORMIX modeling is 1:82.² Consequently, the dilution provided by the ocean is more than adequate to reach background nutrient concentrations upon initial dilution and not degrade water quality.

Therefore, for the proposed Outfall 002 to the Atlantic Ocean, Phase 2 of the draft permit retains the three times weekly monitoring requirements for TN and TP from the current permit. However, since there is no regulatory basis for numeric effluent limitations for TN and TP to the Atlantic Ocean, the proposed permit does not include effluent limitations for nutrients. Instead, Special Condition No. 14 has been added, which requires the permittee to maintain current treatment including biological nutrient removal to ensure the same level of effluent treatment is maintained.

Biomonitoring: Special Condition No. 7 in the current permit requires chronic biomonitoring on an annual basis. The following table summarizes chronic toxicity monitoring results for the most recent three (3) years.

Chronic Toxicity Monitoring Results				
“No Observable Effect Concentrations” (“NOEC” as % effluent)				
	Survival		Reproduction or Growth	
Date	C. variegatus	M. bahia	C. variegatus	M. bahia
07/15/2013	100	50	100	50
09/10/2013	---	100	---	100
09/24/2013	---	100	---	100
12/11/2014	100	100	100	100
05/19/2015	100	25	100	25
07/08/2015	---	50	---	50

A NOEC of 100% indicates a passing result for this facility. A NOEC of less than 100% effluent requires the permittee to perform two (2) confirmation tests on the more sensitive species. A confirmed NOEC of less than 100% effluent would trigger the need for a plan to reduce effluent toxicity. As indicated in the above table, the NOEC for *M. bahia* was less than 100% effluent in the initial test in 2013. However, both confirmation tests for *M. bahia* resulted in a NOEC of 100% effluent. The following bioassay in 2014 resulted in NOECs of 100%. In 2015, the annual bioassay resulted in a NOEC of 25% for *M. bahia* and the confirmation test also resulted in a NOEC less than 100%. Based on these results in 2015, the permittee has submitted a Toxicity Reduction Evaluation (TRE) Plan as required in the current permit. During Phase 1 of the proposed permit, the current biomonitoring requirements are proposed to be retained in Special Condition No. 7.

Special Condition No. 8 in the current permit requires the permittee to notify the Department and initiate quarterly biomonitoring frequency in the event that an annual biomonitoring result and one or both of the confirmatory tests indicates a NOEC less than 100% effluent. This condition also allows the permittee to resume annual biomonitoring after successfully completing four (4) consecutive quarters of valid biomonitoring with written approval from the Department. Special Condition No. 8 has been retained from the current permit.

¹ EIS Section 5.2 Nutrients, Table 5-2.

² EIS Section 6.6.8 Modeling Results, Table 6-9.

Upon completion of the Ocean Outfall Project (Phase 2), new biomonitoring requirements are proposed for Outfall 002. Special Condition No. 9 in the proposed permit requires chronic biomonitoring on an annual basis to be performed on a dilution series. When the effluent discharge through Outfall 002 commences to the Atlantic Ocean, biomonitoring shall be required on a dilution series based on the worst case dilution factor of 82:1 and the corresponding Instream Waste Concentration (IWC) of 1.2%. The chronic biomonitoring for Outfall 002 was evaluated under a NOEC based on the IWC for both lethal and sub lethal effects. The decision to change to this dilution series was based on the available dilution and a desire to more accurately evaluate whole effluent toxicity.

Special Condition No. 9 includes requirements for the facility to notify the Department and initiate quarterly biomonitoring of the effluent if the effluent fails an annual biomonitoring test for Outfall 002 and one or both of the required confirmatory tests. The facility is then allowed to resume annual biomonitoring frequency after successful completion of four consecutive quarters of valid biomonitoring with written approval from the Department.

Special Conditions

Special Condition No. 1 states that this permit supersedes NPDES Permit DE 0020028 and State Permit WPCC 3084D/74, issued on September 21, 2005, effective date October 1, 2005.

Special Condition No. 2 outlines the pretreatment program requirements applicable to this facility.

Special Condition No. 3 is a standard permit clause which provides for reopening the permit to address water quality concerns.

Special Condition No. 4, 5, and 6 require proper disposal of sludge in accordance with State and Federal requirements.

Special Condition No. 7 outlines the requirements for biomonitoring applicable to this facility for Outfall 001.

Special Condition No 8 requires the facility to notify the Department and initiate quarterly biomonitoring of the effluent if the effluent fails an annual biomonitoring test for Outfall 001 and one or both of the required confirmatory tests. The facility is then allowed to resume annual biomonitoring frequency after successful completion of four consecutive quarters of valid biomonitoring with written approval from the Department.

Special Condition No 9 outlines the requirements for biomonitoring applicable to this facility for Outfall 002. Condition also requires the facility to notify the Department and initiate quarterly biomonitoring of the effluent if the effluent fails an annual biomonitoring test for Outfall 002 and one or both of the required confirmatory tests. The facility is then allowed to resume annual biomonitoring frequency after successful completion of four consecutive quarters of valid biomonitoring with written approval from the Department.

Special Condition No 10 outlines wastewater treatment plant operator licensing requirements for this facility.

Special Condition No. 11 states requirements to meet the “none detectable” effluent limitation for total residual chlorine (TRC).

Special Condition No. 12 requires the permittee to continue to implement and maintain a Storm Water Plan (SWP) to minimize the discharge of contaminated storm water from its facility.

Special Condition No. 13 outlines the requirements to meet the moving 12-month cumulative average load effluent limitations for TN and TP.

Special Condition No. 14 requires the permittee to properly operate and maintain all equipment necessary to maintain current treatment levels. Based on the most recent three (3) years of effluent data, current treatment has resulted in 6.2 mg/L average total nitrogen (TN), 20.5 mg/L maximum TN, 0.32 mg/L average total phosphorus (TP), and 1.8 mg/L maximum TP. The last 3 years of monthly average and maximum concentration data to TN and TP are included as Attachment A to this Fact Sheet.

Special Condition No. 15 requires the permittee to demonstrate a minimum of 85% reduction in the raw waste TSS and BOD5 concentrations on a monthly average basis prior to discharge.

Special Condition No. 16 requires the permittee to perform proper maintenance and inspection of the ocean outfall structure in accordance with applicable industry standards.

Special Condition No. 17 requires the permittee to install an emergency generator system which is sufficient to maintain plant operations during a power outage as recommended in the Permittee’s Preliminary Engineering Report dated July 3, 2012 and in accordance with Sections 6.14.13 and 6.14.16 of the State of Delaware *Regulations Governing the Control of Water Pollution*.

Antidegradation Statement

The proposed effluent limitations included in this NPDES permit comply with the applicable portions of the State of Delaware Surface Water Quality Standards, Section 5: Antidegradation and ERES Waters Policies.

Public Notice and Process for Reaching a Final Decision

The public notice of the Department’s receipt of the application and of reaching the tentative determinations outlined herein was published in the Wilmington News Journal and the Delaware State News on **October 9, 2016**. Interested persons were invited to submit their written views on the draft permit and the tentative determinations made with respect to this NPDES permit application. The Department held a public hearing on this application on **November 15, 2016**, as the Department believed that this proposal would generate substantial public interest. Oral and written testimony during the public hearing and all written comments received by **4:30 pm on December 2, 2016** were considered by the Department in preparing the final permit. A Technical Response Memorandum was written addressing the comments received. Based upon the public hearing record and subsequent Hearing Officer’s Report, this permit was issued pursuant to Secretary’s Order No. 2017-W-~~###~~.

Permit Revisions Based on Comments Received

As noted above, a Public Hearing was held on November 15, 2016. Nineteen (19) individuals presented oral comments at the public hearing. Six (6) of the public hearing speakers

presented comments in favor of the ocean outfall and thirteen (13) were opposed to the ocean outfall. Based on the comments received during the public hearing and the public notice period, a Technical Response Memo was written and some minor permit changes were recommended. The changes made to the NPDES Permit and/or Fact Sheet based on the TRM recommendations are summarized below:

- Based on comments/questions from EPA, the fact sheet has been revised to clarify the basis and reasoning behind the biomonitoring special condition for the Outfall 002 discharge to the ocean.
- Based on comments/questions from EPA and the Permittee, Special Condition No. 9 has been revised to include language mirroring Special Condition No. 8 in the current permit, but will apply to Outfall 002. Special Condition No. 9 will require the facility to notify the Department and initiate quarterly biomonitoring if the effluent fails an annual biomonitoring test for Outfall 002 and one or both of the required confirmatory tests. The facility is then allowed to resume annual biomonitoring frequency after successful completion of four consecutive quarters of valid biomonitoring with written approval from the Department.
- Based on comments/questions from the Permittee, the final permit has been revised to be consistent with current practices and remove the reference to sampling prior to chlorination.
- Based on a question from the Permittee, Special Condition No. 15 has been revised to specify the minimum once monthly influent monitoring frequency for BOD5 and TSS. More frequent sampling is allowed and must be reported. Influent sampling for BOD5 and TSS has been added to the Monitoring Requirements in Parts I.B.1. and I.B.2. of the permit.

Department Contact for Additional Information:

Anthony E. Hummel, P.E., Environmental Engineer
Surface Water Discharges Section, Division of Water
Department of Natural Resources and Environmental Control
89 Kings Highway, Dover, DE 19901
Telephone: (302) 739-9946 Facsimile: (302) 739-8369
Email: Anthony.Hummel@state.de.us

Attachment A

Table 1: Nitrogen and Phosphorus Treatment Data (2013-2016)

Month	Total Nitrogen		Total Phosphorus	
	Monthly Ave.	Monthly Max.	Monthly Ave.	Monthly Max.
Jul-13	3.3	9.7	0.55	1.04
Aug-13	3.1	5.8	0.39	0.72
Sep-13	6.4	16.2	0.86	1.53
Oct-13	6.7	16.0	0.41	0.86
Nov-13	5.4	9.3	0.10	0.17
Dec-13	9.3	18.2	0.09	0.20
Jan-14	10.2	13.8	0.10	0.15
Feb-14	11.0	15.0	0.11	0.17
Mar-14	9.9	14.3	0.17	0.45
Apr-14	4.9	8.4	0.15	0.24
May-14	4.0	8.5	0.35	0.91
Jun-14	2.5	3.8	0.47	0.66
Jul-14	3.9	9.2	0.27	0.75
Aug-14	4.1	6.7	0.35	0.97
Sep-14	5.8	12.7	0.41	0.80
Oct-14	5.8	12.9	0.26	0.37
Nov-14	6.6	10.2	0.13	0.20
Dec-14	6.4	9.4	0.10	0.19
Jan-15	8.1	14.7	0.18	0.38
Feb-15	5.6	8.7	0.18	0.32
Mar-15	8.3	16.5	0.17	0.45
Apr-15	7.0	16.1	0.23	0.35
May-15	6.3	16.9	0.47	1.26
Jun-15	8.0	15.7	0.97	1.80
Jul-15	3.3	5.1	0.52	0.70
Aug-15	4.2	6.7	0.67	0.99
Sep-15	6.9	14.5	0.50	0.66
Oct-15	13.1	20.5	0.54	1.17
Nov-15	5.9	10.8	0.23	0.48
Dec-15	2.2	3.1	0.18	0.37
Jan-16	4.8	9.3	0.19	0.28
Feb-16	6.7	11.1	0.09	0.20
Mar-16	4.0	6.9	0.11	0.18
Apr-16	3.0	4.7	0.16	0.42
May-16	3.5	8.7	0.28	0.68
Jun-16	9.7	15.4	0.74	1.12
Ave.	6.2		0.32	
Min.	0.9		0.02	
Max.	20.5		1.80	
95th%ile	13.8		0.90	
99th%ile	16.5		1.24	



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
OFFICE OF THE SECRETARY

DELAWARE COASTAL
MANAGEMENT PROGRAM

100 W. WATER STREET, SUITE 7B
DOVER, DELAWARE 19904

Phone: (302) 739-9283
Fax: (302) 739-2048

Technical Response Memorandum

To: Bob Haynes, Hearing Officer

From: Tricia Arndt, Delaware Coastal Management Program, Environmental Planner IV

Date: February 16, 2017 *supplemented 5-24-17*

RE: Rehoboth Outfall, Federal Consistency Determination

Project Description:

The City of Rehoboth Beach is proposing to construct an ocean outfall pipe for the Rehoboth Beach Wastewater Treatment Plant (RBWWTP), installing 6,000 linear feet of buried pipeline extending offshore from the Deauville Beach parking area to a diffuser for the disposal of treated effluent. Pipeline will be installed using a combination of horizontal directional drilling and excavation and backfill methods. Additionally, approximately two miles of force main pipe will be installed along existing right of way from the RBWWTP to the Deauville Beach parking area.

DCMP permitting role:

An individual permit for is required from the U.S. Army Corps of Engineers for this project. The Delaware Coastal Programs reviews federal activities and activities requiring a federal license or permit for consistency with the state's coastal management policies pursuant to the federal Coastal Zone Management Act, Federal Consistency Regulations (15 CFR 930). The DCMP policy document including complete text of each policy referenced in this memo is available online:

<http://www.dnrec.delaware.gov/coastal/Documents/Federal%20Consistency/2011DCMPPolicyDocument.pdf>

The DCMP's action is timely and complies with the Federal Consistency Regulations, 15 CFR 930.60. The CZMA six-month review period began on June 13, 2016 and was to end on December 10, 2016. Both parties agreed to stay the six-month project review period beginning on July 18, 2016 and ending November 16, 2016. At this time, the remainder of the six-month review period commenced thus making the review deadline April 10, 2017.

Delaware's good nature depends on you!

Response to Comments:

Comments made at the November 15, 2016, hearing included specific reference to DCMP Policies in Section 5.3 for Coastal Waters Management and Section 5.11 for Living Resources.

Comments were expressed about the project's impact to water quality offshore of Rehoboth Beach, and the need to manage water resources to protect aquatic life and public users. The DCMP has consulted with subject matter experts from the DNREC Division of Water Surface Water Discharges Section in regards to the Delaware Surface Water Quality Standards and the issuance of a National Pollutant Discharge Elimination Systems Permit for the Rehoboth Ocean Outfall. Based on our consultation, the DCMP finds that with the location of the outfall diffuser and rapid dilution of nutrients within the effluent of the outfall, nutrients will be dispersed to levels indistinguishable from existing ocean nutrient levels well within the zone of initial dilution, thus minimizing any long term negative impacts to coastal water resources. Water quality improvements are anticipated from the removal of the effluent from the Rehoboth Bay.

Comments were also expressed about project's potential to negatively impact wildlife, especially rare species. The DNREC Division of Fish and Wildlife Species Conservation and Research Program has recommended time of year restrictions that will be implemented during construction phases to reduce impact on any rare threatened and endangered species, unique natural communities, and other significant living resources in the vicinity of the project. Pre-construction and post-construction benthic sampling will also be conducted to assess the composition and recovery of benthic communities surrounding the outfall. The DCMP finds these measures are sufficient to comply with the living resources policies.

Conclusion and Recommendation:

The DCMP coordinated with multiple sections within DNREC, including the Wetlands and Subaqueous Lands Section, Species Conservation and Research Program, Shoreline and Waterway Management Section, Watershed Assessment Section, Surface Water Discharges, and Environmental Finance for expert analysis on the potential impacts to state natural resources as a result of this project.

The DCMP reviews projects on a case by case basis and has determined that this project can be constructed in a manner consistent with DCMP's approved coastal management policies.

Should the Secretary decide to approve the project, a draft consistency determination is included for consideration.



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
OFFICE OF THE SECRETARY

DELAWARE COASTAL
MANAGEMENT PROGRAM

100 W. WATER STREET, SUITE 7B
DOVER, DELAWARE 19904

Phone: (302) 739- 9283
Fax: (302) 739-2048

May

XX, 2017

Sean Snow
GHD, Inc
16701 Melford Boulevard, Suite 330
Bowie, Maryland 20715

**RE: Delaware Coastal Management Program – Federal Consistency Determination
Rehoboth Beach Ocean Outfall (2016.0106)**

Dear Mr. Snow,

The Delaware Coastal Management Program (DCMP) received your consistency determination on behalf of your client, the City of Rehoboth Beach, for the above referenced project on June 13, 2016. The six month review period would have concluded on December 10, 2016. However, both parties agreed to stay the six-month project review period beginning on July 18, 2016 and ending November 16, 2016. At this time, the remainder of the six-month review period commenced thus making the review deadline April 10, 2017. The Coastal Zone Management Act Federal Consistency Regulations dictate that if the federal consistency review timeframe exceeds 180 days, then concurrence is conclusively presumed. Therefore, Pursuant to section 930.62 of the Regulations, the wastewater projects proposed by the City were deemed consistent on April 10, 2017.

If you have any questions, please contact Tricia Arndt of my staff at 302-739-9283 or via email at Tricia.Arndt@state.de.us.

Sincerely,

Kimberly Cole, Administrator
Delaware Coastal Programs

KBC/tka
cc: 2016.0106
Michael Yost-USACE

TECHNICAL RESPONSE MEMORANDUM

TO: Robert P. Haynes, Esq. Senior Hearing Officer, Office of the Secretary

THROUGH: Bryan Ashby, Program Manager II, Surface Water Discharges Section

FROM: Greg Pope, Lead Project Engineer, Environmental Finance

DATE: February 17, 2017

SUBJECT: Technical Response to Comments at November 15, 2016 Public Hearing and Written Comments from October 15, 2016 through December 2, 2016

RE: Rehoboth Beach Ocean Outfall Wastewater Construction Permit Application
WPCC 3046/16

SWDS prepared this Technical Response Memorandum (TRM) to assist the presiding hearing officer for his Report to the Secretary of the Department of Natural Resources and Environmental Control (Department) and the final decision regarding the Rehoboth Beach ocean outfall construction permit application.

The Department's Division of Water, Surface Water Discharges Section (SWDS), received an application on August 2, 2016 from the City of Rehoboth Beach, Delaware to construct a 7.2 MGD treated effluent pump station at the existing wastewater treatment plant, approximately 11,300 linear feet of 24 inch diameter force main and approximately 6,100 linear feet of 24 inch diameter ocean outfall piping with a diffuser assembly. Permitting of such construction is regulated by DE Admin C 7201 Regulations Governing the Control of Water Pollution, Section 4 Pollution Control Facilities Construction and Operation.

On October 11, 2016, the Department placed a legal notice of the application in the News Journal, the Delaware State News and the Cape Gazette. The notice indicated that a public hearing would be held on November 15, 2016 to provide the public an opportunity to comment on the permit application and the draft permit. In addition, notice of the public meeting was provided on the Delaware public meeting calendar. In the legal notice, the public was also given the opportunity to provide written comments beginning on October 15 and ending on December 2.

On November 15, 2016 a public hearing was held at the Rehoboth Elementary School located at 500 Stockley Street in Rehoboth Beach DE, 19971. Nineteen (19) individuals presented oral comments. Thirteen (13) speakers were opposed and six (6) speakers were in favor of the project. Of the written comments received, thirty-one (31) submissions opposed and thirty (30) submissions favored the project.

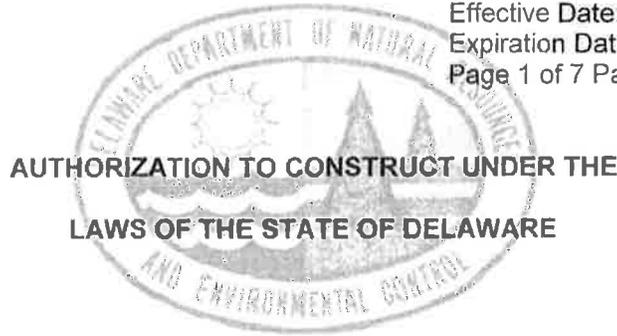
Almost all of the received comments were found not materially relevant to this construction permit. There were however, three (3) comments found relative:

1. At the November 15 meeting, William Moore questioned how silt was going to be prevented from entering the Rehoboth Lewes canal during construction. Along the entire pipe installation paralleling the canal, silt fence is going to be installed at the edge of the pipe excavation area between the proposed pipe and top of canal bank. The purpose of silt fence is to block un-stabilized soil from eroding into a water body during a rain event.
2. William Richardson in an email dated November 9, 2016, attached a letter dated September 24, 2016, which questioned the safety and security of the proposed pipe system. Based on the permit reviewer's experience, the proposed underground force main meets the material and restraint standards of other existing force main installed throughout Sussex County.
3. On November 23, 2016, Bonnie Mann submitted an email asking if the proposed force main path is to go along the canal, under Grove Park, down Henlopen Avenue to Deauville Beach. Yes, the aforementioned proposed force main path is correct.

Conclusions:

The permit application, final design summary, technical specifications and drawings submitted by the City of Rehoboth's consultant GHD, Inc. meet Department requirements for a construction permit under the Regulations Governing the Control of Water Pollution and are consistent with the City of Rehoboth, Sussex County and Recommended Standards for Water Works (Ten States) ordinances and standards. Absent the three (3) comments responded to above, no comments provided were applicable to this permit.

The SWDS recommends that the City of Rehoboth be issued a construction permit for a pump station, force main, ocean outfall piping and a diffuser assembly for transmitting treated effluent from the City's wastewater treatment facility. A draft permit is attached.



**AUTHORIZATION TO CONSTRUCT UNDER THE
LAWS OF THE STATE OF DELAWARE**

PART I

1. **In compliance with the provisions of 7 Del. C., §6003,**

**City of Rehoboth Beach
229 Rehoboth Avenue
P.O. Box 1163
Rehoboth Beach, DE 19971**

is authorized to construct facilities consisting of the following:

Approximately 11,300 linear feet (11,300 LF) of twenty-four (24) inch diameter force main, six thousand one hundred linear feet (6,100 LF) of twenty-four (24) inch diameter ocean outfall piping, six (6) air release manholes, a diffuser assembly, three (3) sixty (60) horsepower pumps, pump controls and related appurtenances to discharge treated effluent from the Rehoboth Beach Treatment Facility to the ocean approximately five thousand five hundred linear feet (5,500 LF) from the shore line.

The subject project shall be constructed in accordance with plans and specifications as described below and limitations, requirements and other conditions set forth in Parts I, II and III hereof.

2. The plans and specifications consist of the following:

Three (3) plan sets** and three (3) Contract Documents issued February 2017. Plans and Contract Documents are prepared by GHD, Inc. The three (3) projects are titled Rehoboth Beach Ocean Outfall Project, Force Main Project and WWTP Effluent Pumping Station.

** The drawings include:

Ocean Outfall Project (23 sheets) – dated 06/2016, latest revision 02/2017

Force Main Project (29 sheets) – dated 06/2016, latest revision 02/2017

WWTP Effluent Pumping station (29 sheets) – dated 10/2016, latest revision 02/2017

3. The liquid waste is treated effluent wastewater from the City of Rehoboth wastewater treatment Facility, which discharges in accordance with NPDES Permit Number DE 0020028.

Bryan A. Ashby, Manager
Surface Water Discharges Section
Division of Water
State of Delaware Department of Natural Resources
and Environmental Control

Date Signed

A. Effluent Limitations on Pollutants Attributable to Industrial Users

The use of the constructed facility is conditioned on meeting all applicable pretreatment standards under 40 CFR, Part 403, or toxic pollutant discharge limitations under Section 307(a) of the Clean Water Act of 1977, PL 95-217.

B. Flow and Usage Limitations

This permit authorizes a daily average discharge of N/A gallons*. The flow in the system shall be measured at least every N/A.

The estimated daily average flow for the subject project is 3.5 MGD.

* This permit authorizes only the construction of the wastewater collection and conveyance facilities referenced herein.

C. Monitoring and Reporting (When Required)

1. Representative sampling of the volume and nature of the monitored discharge shall be conducted at the request of the Division of Water.

2. Reporting

Monitoring results shall be reported to the:
Delaware Department of Natural Resources and Environmental Control
Division of Water, Surface Water Discharges Section
89 Kings Highway
Dover, DE 19901
302-739-9946

3. Definitions

- a. "Daily average flow" means the total flow during a calendar month divided by the number of days in the month that the facility was operating.
- b. "Daily maximum flow" means the highest total flow during any calendar day.
- c. "Daily Peak Flow" means the flow which can be safely transported within the sewage system without causing an overflow or a backup into the building(s) or residence(s).
- d. "Bypass" means the intentional diversion of wastes from any portion of a treatment facility.
- e. "Measured flow" means any method of liquid volume measurement, the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.
- f. "Estimate" means a value to be based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.

4. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

- a. The date, exact place and time of sampling or measurement;
- b. The person(s) who performed the sampling and/or measurement;
- c. The date(s) and time(s) analysis was performed;
- d. The individual(s) who performed each analysis;
- e. The analytical technique(s) or method(s) used;
- f. The results of each analysis; and
- g. Appropriate quality assurance information.

5. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed, all records of instrument calibration and maintenance and all charts from continuous monitoring instruments, shall be retained for three (3) years. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Department.

6. Test Procedures

Test procedures for the analysis of pollutants shall conform to the applicable test procedures identified in 40 CFR, Part 136, unless otherwise specified in this permit.

END OF PART I

PART II

A. Management Requirements

1. Duty to Comply

The permittee must comply with the terms and conditions of this permit. Failure to do so constitutes a violation of this permit, which is grounds for enforcement and the imposition of penalties as provided in 7 Del.C., Chapter 60, grounds for permit termination or loss of authorization to discharge or operate pursuant to this permit, grounds for permit revocation and reissuance or permit modification, or denial of a permit renewal application.

2. Notification

a. Changes in Authorized Activities

The permittee shall notify the Department of any proposed change in the activity authorized herein, of any proposed substantive change in the operation of the facility or facilities authorized herein, or of any anticipated facility expansions, production increases, or process modifications. Notification is required only when such alteration, addition or change may justify the inclusion of conditions that are absent or different from those specified in this permit. This includes, for example, the construction of additional wastewater collection, transmission or treatment facilities and changes which will result in new, different, or increased discharges of pollutants. Following such notice, the Department may require the submission of a new permit application and this permit may be reopened and modified to address the proposed changes.

b. Noncompliance

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this permit, the permittee shall provide the Department with the following information, in writing, within five (5) days of becoming aware of such condition:

A description of the discharge and cause of noncompliance; and

The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall, at all times, maintain in good working order and operate as efficiently as possible all collection and treatment facilities and systems (and related appurtenances) installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, effective management, adequate operator staffing and training and adequate laboratory process controls, including appropriate quality assurance procedures.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to waters of the State resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and extent of the noncomplying discharge.

5. Bypassing

Any bypass or intentional diversion of waste streams from the facilities authorized by this permit, or any portion thereof, is prohibited, except (i) where unavoidable to prevent loss of human life, personal injury or severe property damage, or (ii) where excessive storm drainage or run-off would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit. The permittee shall promptly notify the Department, in writing, of each such diversion or bypass.

6. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewater shall be disposed of in a manner such as to prevent any pollutant from such materials from entering the surface water or groundwater.

B. Responsibilities

1. Within 90 days following the completion of construction, the permittee shall submit to the Department an "as-built" set of plans of the facility or facilities constructed, bearing the seal and signature of a licensed Professional Engineer registered in the State of Delaware.

2. Right of Entry

The permittee shall allow the Secretary of the Department of Natural Resources and Environmental Control, or his authorized representative(s), upon the presentation of credentials:

- a. To enter upon the permittee's premises for inspection of any records, flow measurements, construction or other activity authorized by this permit or any condition required under the terms of this permit; and
- b. At reasonable times, to have access to and to copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and
- c. To sample any discharge.

3. Transferability

This permit is transferable with the Department's consent, provided that an intention to transfer accompanied by a copy of the permit is provided to the Department, signed by both the transferor and the transferee at least ten (10) days prior to the actual transfer.

4. Availability of Reports

All reports submitted with the application and those reports required under the terms of this permit shall be available for public inspection at the offices of the Department of Natural Resources and Environmental Control. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in 7 Del. C., §6013. Any person who causes or contributes to the discharge of a pollutant into State waters either in excess of any conditions specified in this permit or in absence of a specific permit condition shall report such an incident to the Department required under 7 Del. C. §6028.

5. Permit Modification

This permit may be modified, suspended or revoked in whole or in part during its term for cause including, but not limited to, the following:

- a. Violation of any term or condition of this permit;
- b. Obtaining this permit by misrepresentation or failure to fully disclose all relevant facts;
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized activity; or
- d. Information that the permitted activity poses a threat to human health or welfare, or to the environment.

6. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under 7 Del. C., Chapter 60.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

8. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

9. Severability

The provisions of this permit are severable. If any provision of this permit is held invalid, or if the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

PART III

A. Special Conditions

1. This permit authorizes only the construction of the wastewater facilities and related work referenced herein.
2. If wellpointing is required during construction, the wells must be installed by a licensed well driller, and a permit to construct such wells must first be obtained from the Well Permits Branch of the Water Supply Section.
3. All construction shall be in agreement with plans and specifications submitted under this project and approved by the Department of Natural Resources and Environmental Control.
4. All construction shall be in accordance with Ten States Standards and other applicable local utility construction specifications and standards.
5. Connections or additions to the proposed system, other than those proposed on the plans, will not be allowed without prior approval from the Department.

END OF PART III



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF WATERSHED STEWARDSHIP

89 Kings Highway
DOVER, DELAWARE 19901

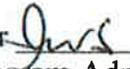
OFFICE OF THE
DIRECTOR

PHONE: (302) 739-9921
FAX: (302) 739-6724

MEMORANDUM

TO: Robert P. Haynes
Hearing Officer

THROUGH: Robert R. Palmer 
Director
Division of Watershed Stewardship

FROM: John W. Schneider 
Environmental Program Administrator
Watershed Assessment and Management Section

DATE: February 21, 2017

SUBJECT: Technical Response: City of Rehoboth Beach Wastewater Projects

The regulatory requirement for the City of Rehoboth Beach (City) to eliminate its wastewater discharge from the current location in the Lewes-Rehoboth Canal was created by a Total Maximum Daily Load (TMDL) Regulation promulgated by the Department of Natural Resources and Environmental Control (DNREC) on December 11, 1998. Section 303 of the Federal Clean Water Act requires states to identify waterbodies that do not meet water quality standards and to impose a TMDL. In 1996, the Lewes-Rehoboth Canal and Rehoboth Bay were listed as "water quality limited" by DNREC, which required the development of a TMDL. The 1998 TMDL Regulation consists of a series of eight articles. Article 1. states, "All point sources which are currently discharging into the Indian River, Indian River Bay, and Rehoboth Bay and their tributaries shall be eliminated systematically." This requirement was further elucidated by the Regulations Governing The Pollution Control Strategy For The Indian River, Indian River Bay, Rehoboth Bay And Little Assawoman Bay Watersheds, which was promulgated by DNREC on November 1, 2008. The latter Regulations define "systematically eliminate" as "to require the elimination of waste loading into the affected waterbody by point sources on a firm, fixed schedule as approved by the Department. This elimination must occur within five years of the expiration of the facility's current NPDES permit unless a longer period of time is provided for in a State or Federally enforceable Consent Order, Decree, or Administrative Order."

Delaware's good nature depends on you!

Prior to the regulations cited above, DNREC issued a 1993 consent order to implement Biological Nutrient Removal at the City's wastewater treatment plant. In response to the City's appeal of the 1998 TMDL Regulation, a December 11, 2002 consent order established a firm date of December 31, 2014 for the discharge to be eliminated from the Lewes-Rehoboth Canal and an alternative disposal method to be fully operational. Due to unforeseen delays in the implementation of the alternative wastewater disposal method, the consent order was amended on January 5, 2015 to require elimination of the discharge to the Lewes-Rehoboth Canal by June 1, 2018.

Among the numerous procedures to be followed by applicants seeking loans for wastewater facility construction included in a document entitled *Environmental Review Procedures for the Delaware Water Pollution Control Revolving Fund and Drinking Water State Revolving Fund*, issued September 17, 1991 and revised February 1, 1999, is a requirement to prepare an Environmental Impact Statement (EIS) if the proposed project is considered to be controversial. In August 2010, DNREC issued a Notice of Intent to prepare an EIS and conduct public scoping for the proposed ocean outfall project. Comments were accepted from federal, state, and local agency reviewers and the public. A public meeting was held on September 21, 2010 to independently evaluate the scope and contents of the EIS prior to its approval. A draft EIS was prepared by the City's consultants and received by DNREC on December 15, 2011. After review by DNREC, the draft EIS was made available to reviewing agencies and the public on March 12, 2012. The period for public comment was 60 days.

A public hearing on the draft EIS was held on April 10, 2012 to provide an opportunity for all interested parties and the public to submit comments on the report. The hearing was conducted by an independent hearing officer hired by the City and approved by DNREC. Testimony was taken and comments were received until May 10, 2012. A proposed final EIS was submitted to DNREC by the City in August 2012. DNREC found certain issues were not adequately addressed; the City addressed those issues and submitted a revised final EIS in December 2012.

DNREC's Environmental Review Procedures also require that the Secretary issue a Record of Decision (ROD) that recommends whether or not the loan should be approved after considering the findings of the EIS. Secretary David S. Small issued the ROD on January 5, 2015 recommending approval of the loan for the ocean outfall alternative. The ROD makes it clear that final DNREC action to implement this decision will occur when a financing agreement incorporating the terms of the ROD is completed and all required permits are issued to the City.

On June 27, 2015, the City held a special election to vote on a referendum to borrow \$25 million for the outfall pipe, \$10 million for upgrades to the wastewater treatment plant, and \$12.5 million for an upgraded biosolids treatment facility. The referendum passed by a 637-606 vote.

Since early 2015, the City and its consultants have been working diligently to meet the June 1, 2018 deadline to eliminate the City's discharge from the Lewes-Rehoboth Canal. Six DNREC approvals are required for the various wastewater projects proposed by the City; they include a 1. National Pollutant Discharge Elimination System (NPDES) Permit; 2. Coastal Zone Management Act Federal Consistency Determination; 3. Subaqueous Lands Act Permit; 4. Water Quality Certification; 5. Wastewater Facilities Construction Permit; and 6. a Beach Preservation Coastal Construction Permit. The City submitted the last permit application on July 29, 2016.

In order to provide the public a comprehensive understanding of the regulatory actions necessary to construct and operate the proposed wastewater infrastructure, including the ocean outfall, and offer the public an opportunity to obtain information, ask questions and offer comments on any or all of these actions, DNREC held a Public Workshop at 6:00 PM, October 19, 2015, at the Rehoboth Beach Volunteer Fire Department, 219 Rehoboth Avenue, Rehoboth Beach. A Public Hearing followed and was held at 6:00 PM, November 15, 2016, at the Rehoboth Elementary School, 500 Stockley Street, Rehoboth Beach. Throughout the entire process, DNREC provided information on-line at <http://www.dnrec.delaware.gov/Admin/Pages/Rehoboth-Wastewater-Projects-Info.aspx>, including links to the EIS, ROD, applications, supporting information and data, construction plans, and other information. The comment period commenced on October 15, 2016 and ended at 4:30 PM, December 2, 2016. The website continues to be available. I made a presentation at the Workshop, listened to testimony at the Hearing, and have reviewed the Hearing transcript and all of the written comments.

In addition to TMDLs, the Watershed Assessment and Management Section is responsible for Delaware's Surface Water Quality Standards Regulation. The current version of the Standards was promulgated on October 11, 2014.

The Standards designate the Atlantic Ocean as Waters of Exceptional Recreational or Ecological Significance (ERES). By definition, ERES waters "are important, unique, or sensitive from a recreational and/or ecological perspective." Accordingly, these waters are afforded the highest level of protection under the Standards. Section 5.6 of the Standards requires that, "Discharges to ERES waters shall be avoided to the maximum extent practicable. In order to be permitted, a discharge must be the least environmentally damaging practicable alternative. Further, "Any applicant for a discharge permit required pursuant to 7 Del.C. Ch. 60 shall provide to the Department, as part of a complete application, a resource assessment tailored to the site performed by qualified professionals. Such assessments shall fully consider ecological functions and values in light of the policies set forth in these standards. Consideration shall be given to: potential impacts on physical and chemical characteristics of the aquatic ecosystems which shall include, but not be limited to, substrates, substrate particulates/turbidity, water, current patterns, water circulation, normal water fluctuations, and salinity gradients; potential impacts on biological characteristics of the aquatic ecosystem which shall include, but not be limited to, fish, crustaceans, mollusks and other organisms in the food web, other wildlife, and threatened or endangered species; and potential effects on human use characteristics which shall include, but

not be limited to, water supplies, recreational and commercial fisheries, water related recreation, aesthetics, parks, research sites, wildlife areas or public access areas.” Further, pursuant to the pollution prevention requirements of the ERES provisions, the Department will be tracking pollutant loadings for oxygen demanding substances, nitrogen, phosphorous, bacteria, and total suspended solids to ensure that water quality is protected.

Numerous Watershed Assessment and Management Section Engineers, Environmental Scientists, Managers, and I have reviewed the EIS, ROD, applications and supporting materials, and other documents and data submitted and have determined that the assessments conducted and submitted by the City satisfy the ERES requirements, and that the proposed wastewater projects will be in compliance with Delaware’s Water Quality Standards Regulation during construction and operation.

I have personally been attending any City Commission meetings which included wastewater-related agenda items since 2008. I have listened to presentations by numerous State agencies, including several DNREC programs, and the testimony of residents, visitors, and business owners at those meetings. Alternatives to an ocean outfall were considered in great detail and after numerous studies and reviews. After more than two decades of considering impacts of the current discharge and potential alternatives, I am satisfied that the ocean outfall is the least environmentally damaging practicable alternative. Based upon comments made at the Workshop, testimony from the Hearing, and my review of the Hearing transcript and all written comments, my conclusion has been confirmed.

Based upon research that has been conducted, and the documented knowledge of Delaware’s soils and hydrology, it remains to be determined whether or not land application of treated wastewater is a long-range disposal solution, especially in Sussex County, given the sandy soils, high groundwater table, and the rapid residential and commercial development taking place. We know that once spray-irrigated wastewater infiltrates the soil profile during the growing season beyond the root systems of crops, it enters the groundwater system and will be discharged to surface waters with little to no reduction in nitrogen levels. Spray-irrigated wastewater outside the growing season infiltrates the groundwater system with no reduction in nitrogen levels. Further, research has shown that phosphorus accumulates in the soils and, with continued application of wastewater, can reach a point where the phosphorus becomes soluble and is transported by groundwater.

The other method of land application commonly used in Sussex County is the rapid infiltration basin. Treated wastewater is discharged into basins and rapidly infiltrates into the soil profile. In this case, there are no crops to take up neither nitrogen nor phosphorus and nitrogen does, and phosphorus can, move into ground and surface waters. More research needs to be done to determine the long-term impact of land application on ground and surface water quality.



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
89 Kings Highway
Dover, DE 19901

OFFICE OF THE
DIRECTOR

Phone: (302) 739-9910
Fax: (302) 739-6157

Memorandum

To: Robert P. Haynes, Hearing Officer

From: Stewart Michels, Fisheries Program Manager II 

Through: David E. Saveikis, Director 
John H. Clark, Fisheries Administrator 
Robert Hossler, Wildlife Administrator 

Cc: Kate M. Fleming, ES III – Env. Review
Joseph E. Rogerson, Species Conservation & Research Program Manger

Date: February 9, 2017

Subject: Request for Technical Response Memorandums on City of Rehoboth Applications related to the proposed Ocean Outfall

No permits regarding this City of Rehoboth's proposed Ocean Outfall project are being sought from the Division of Fish & Wildlife (DFW). However, DFW has reviewed the project and provided written comment (attached) regarding the associated permit applications to the Delaware Coastal Program and to the Wetlands & Subaqueous Lands Section.

As requested in your memorandum dated February 1, 2017, we have reviewed the extensive public comment received by the Department on this project as presented in the following electronic files:

Rehoboth_Wastewater_Projects_11-15-16_Hearing_Transcript.pdf
Rehoboth_Beach_Wastewater_Comments_Submitted_at_11-15-16_Hearing.pdf
Rehoboth_Beach_Wastewater_Comments_Submitted_at_11-15-16_Hearing_CIB.pdf
Rehoboth_Beach_Wastewater_Comments_10-17-16_through_12-2-16.pdf
Rehoboth_Beach_Wastewater_Comments12-2-16.pdf.

Following our review, the Division does not wish to modify or amend our January 26, 2017 comments regarding rare, threatened and endangered species, unique natural communities, and other significant natural resources as they pertain to the proposed project and associated permit applications.

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through Science and Service*



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
89 Kings Highway
Dover, Delaware 19901

OFFICE OF THE
DIRECTOR

Phone: (302) 739-9910
Fax: (302) 739-6157

January 26, 2017

Re: DNREC Multiple Permits 2016 Rehoboth Outfall Environmental Review

The following comments about rare, threatened and endangered species, unique natural communities, and other significant natural resources as they relate to the proposed Rehoboth Outfall Project are submitted in response to multiple public notices.

If project activities are updated and/or altered, our program requests the opportunity to complete a thorough review on those components.

Comments regarding Terrestrial Project Components

Piping Plover

The federally listed piping plover (*Charadrius melodus*) has been observed migrating through and roosting on the beach within the proposed work area. In order to minimize the chance that piping plovers will be impacted by this project SCRIP recommends that work/staging on the beach be avoided from March 15th through June 15th and then from August 1st through September 15th. Our previous environmental review letter indicated that if work during these times cannot be avoided, the applicant should contact Matthew Bailey at (302) 735-8677, or at, matthew.bailey@state.de.us for further guidance. Brandon Gott from the GHD consulting firm subsequently contacted Matthew Bailey to indicate that some of the proposed work on the beach might not be completed until April 1.

After the discussing with Brandon the details of the work involved, the Species Conservation and Research Program offers the following recommendations:

- If work (including staging) on the beach portion of the project cannot be completed by March 15, a manager for the project should contact Matthew at the contact points listed below. This contact should be made as early as possible once it is determined that work may continue beyond March 15.
- If Matthew Bailey determines that the nature of the work left to be completed has the potential to disturb Piping Plovers, he may recommend that a biologist familiar with Piping Plover identification should be present while work is being conducted after March 15.
- If the biologist observes Piping Plovers in the work area, work should cease until the plovers leave or until Matthew Bailey can be contacted for further guidance.

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through Science and Service***

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Upon review of the site plans included in the permit submittal, we noted that sensitive species are not included on the Environmental Compliance sheet. It is our recommendation that the Environmental Compliance sheet is updated to ensure that these measures are included.

Impacts to Dunes and Associated Vegetation

There are historical records of rare Lepidopteran species (i.e. butterflies and moths) having been observed in the vicinity of the dunes associated with this project, although no known recent surveys have been conducted to determine that said species are still extant at the site. SCRP recommends that disturbance to the dunes be kept to an absolute minimum. For example, there is a vehicular access to the beach on the north side of the Deauville parking lot. SCRP suggests that this access should be used to the greatest extent possible to move equipment on and off the beach. It is our preference that this area is used for the pipe laydown, if practicable.

Seals

Several species of seals (harbor, gray, harp, hooded) are known annual migrants to Delaware's waters, typically during the cooler months (November through April). Although the majority of seals that occur in Delaware are juveniles, adult harp seals have been observed hauling out on Delaware's Atlantic Coast beaches in recent years. If construction activities on the beach are to be conducted during the winter months, the applicant should be cognizant that seals may be encountered. Marine mammals are federally protected by the Marine Mammal Protection Act. As such, if a seal is observed hauled out on the beaches any time during the project period, work should stop immediately and the Marine Education, Research & Rehabilitation Institute should be notified immediately for guidance (302-644-2678).

Fisheries/Water Quality

Because the directional drilling will be conducted at the edge of the canal, we recommend a frac-out contingency plan be in place prior to the start of project activities. The contingency plan should include the following:

- 1) A provision to contain materials released,
- 2) A clean-up protocol, and
- 3) Arrangements for an experienced representative (drilling crew or consultant) to watch the site at all times so that the operation can be shut down immediately in the event a frac-out occurs.
- 4) If a frac-out occurs, please contact Edna Stetzar (302-735-8654, Edna.Stetzar@state.de.us) immediately so that she may respond to a potential fish kill appropriately.

Comments Regarding Atlantic Ocean Components

In-water Work Construction Schedule

Multiple construction schedules have been referenced throughout the process and among the various permit applications submitted. For example, December through April is identified as the likely construction period in the Federal Consistency Permit application. On the wetlands and subaqueous Lands Section application, the applicant indicates that they will conform to time of year restriction recommendations provided by the Delaware Division of Fish and Wildlife.

Overall, to avoid impacts to the great diversity of marine species present in Delaware's Atlantic coast waters, we maintain that the best time to conduct in-water work continues to be during the winter months, (mid-December to mid-March). However, if in-water work cannot be completed during this time, the Delaware Division of Fish and Wildlife recommends that activities are expanded to allow work

in the fall (mid-October at the very earliest) and not the spring, in order to avoid impacting the spawning migrations of the federally listed Atlantic sturgeon, which can begin as early as mid-March.

Below is species-specific information and guidance:

Atlantic Sturgeon

This area of the Delaware's Atlantic coast is utilized by the federally endangered Atlantic sturgeon (*Acipenser oxyrinchus*). Telemetry data show a strong seasonal pattern of arrival and departure of Atlantic Sturgeon along Delaware's coast, with marine-phase Atlantic Sturgeon returning to Delaware's coastal waters in mid-late March through mid-May and departing between early September and mid-December (Dr. Dewayne Fox personal communication). During the warmer months, these animals will either return to Delaware River to spawn (mature adults), occupy river/upper estuary foraging areas (primarily sub-adults), or remain in the lower estuary mouth/Cape Henlopen region, including the coastal habitats of Delaware's Atlantic Coast. Large numbers of adult Atlantic sturgeon are known to consistently occupy habitats in and around the proposed outfall location for prolonged periods of time between May and October. During the period mid-December through mid-March telemetry arrays have detected few, if any, telemetered Atlantic Sturgeon in Delaware's coastal region and this would be the best time to conduct trenching activities to avoid impacts to this species.

Note that because these sturgeons are federally protected under the U.S. Endangered Species Act, if this project requires a federal permit, a Section 7 consultation by the federal agency responsible for permitting the action may be required.

Sea turtles and Marine Mammals

The status of sea turtle and marine mammal populations are currently not monitored within state waters. As such our Division does not have GIS data or maps depicting the distribution of these species in relation to the project area. However, there is enough evidence from satellite tracked individuals, aerial surveys, incidental capture, and sightings to confirm that the Atlantic coast of the U.S., including Delaware, is a migratory pathway for many sea turtle species, including loggerhead, Kemp's Ridley, green and leatherback sea turtles. These sea turtles migrate northward from southern wintering areas and enter estuaries along the coast to forage, including Delaware Bay and the Inland Bays. The timing and route of this migration has been documented via satellite tracked individuals and occurs from early spring to late fall. Additionally, aerial surveys and sightings confirm the occurrence of cetaceans along Delaware's Atlantic coast; bottlenose dolphins (*Tursiops truncatus*) occur daily during the warmer months often occurring just outside the surf zone, large whales such as humpback and fin whales have been sighted just offshore during spring and fall migratory periods and have come as far inshore as the mouth of Delaware Bay and Indian River Inlet. Finally, several species of seals (harbor, gray, harp, hooded) are known annual migrants to Delaware's waters, typically during the cooler months (November through April).

In-water installation of the pipeline is not likely to impact these species provided installation methods do not include the use of equipment that emits pressure waves and sound bursts that can affect the acoustic ability or injure the hearing organs of these species. If a hopper dredge is used for any phase of the project, there is a potential to impact sea turtles as the mortality of sea turtles in hopper dredging operations is well documented. However, not much information exists in regards to sea turtle interactions with cutter dredges. For that reason, it would be best to conduct in-water work during a time of year when these species are less likely to be present (winter months).

Sharks

The Delaware Bay and its nearby coastal waters are used extensively by sandbar (*Carcharhinus plumbeus*) and sand tiger (*Carcharias taurus*) sharks, which are listed as a NOAA Species of Concern. Delaware's coastal waters provide important summer habitat to juvenile sand tigers from June to October and migratory habitat as they move to and from overwinter grounds in the spring and fall/early winter. Extensive utilization of the Delaware coast by large juvenile and adult sand tigers regardless of size or sex has also been documented in the summer and fall. Delaware Bay also serves as one of the largest nursery habitats for young-of-year and juvenile sandbar sharks along the Atlantic coast. Like sand tigers, juvenile sandbar sharks have been documented in Delaware's coastal waters as they migrate to and from their wintering grounds in the south, typically in the spring and fall. These species do not overwinter in Delaware's coastal waters. As such, to avoid impacts to important shark species, winter (December-March) may be the best time to conduct this work.

Long term impacts to the benthos

As mentioned above, the habitat where the outfall is proposed is ideal for Atlantic sturgeon. As benthic feeders, the potential degradation of benthic habitats associated with the outfall discharge is of utmost concern. Benthic sampling surrounding the proposed outfall location has not yet taken place, but according to the Final EIS and more recent communications, plans are in place to do so before and after construction. SCRIP recommends implementing a statistically valid benthic sampling design to assess the composition of benthic communities surrounding the outfall. It would be best if sampling is conducted both prior to construction as well as on an annual basis following construction to allow for long-term monitoring, as degradation may not be detectable within the first few years after the structure has been put in place. Additionally, samples should be taken across seasons to account for seasonal variation.

Disposal of Excavated Material

It is our understanding that excavated material will be backfilled within the open-cut trench, and the remainder of material will be side-cast. If any additional plans form to dispose of the dredged material, please contact us again for further recommendations.

State Natural Heritage Site

Because federally listed species are present, this project is within a State Natural Heritage Site. State Natural Heritage Sites and Delaware National Estuarine Research Reserves are identified as "Designated Critical Resource Waters" by the Army Corps of Engineers (ACOE), and as such are subject to the restrictions and limitations imposed through Nationwide Permit General Condition No. 22. A copy of this letter shall be included in any permit application or pre-construction notification submitted to the Army Corps of Engineers for activities on this property.

If you propose to use Nationwide Permit No. 3, 13, 18, 29, 39 or 42 the State of Delaware has denied 401 Water Quality Certification (WQC) and Coastal Zone Federal Consistency Concurrence (CZM) for these Nationwide Permits in Designated Critical Resource Waters. In order to use any of these six Nationwide Permits at this site you must apply for a project-specific Water Quality Certification (WQC) and Coastal Consistency Determination (CZM) from the appropriate offices at DNREC. To obtain the application materials and for all information regarding WQC, contact DNREC's Wetlands and Subaqueous Lands Section at (302) 739-9943. For information pertaining to CZM, contact DNREC's Coastal Programs at (302) 739-9283.

If you propose to use Nationwide Permit No. 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, or 44, this Designated Critical Resource Water designation may require you to obtain authorization through some

other nationwide or general permit, or an individual permit from the Army Corps of Engineers. You should review the Nationwide Permit General Conditions and Regional Conditions for Delaware (see, in particular, Nationwide Permit General Condition No. 19) to determine what notification requirements or restrictions might be applicable for your activity. Please contact the Army Corps of Engineers at (215) 656-6728 if you have questions or require additional information regarding the Nationwide Permit Program.

We are continually updating our records on Delaware's rare, threatened and endangered species, unique natural communities and other significant natural resources. If the start of the project is delayed more than a year past the date of this letter, please contact us again for the latest information.

Please feel free to contact me with any questions or if you require additional information.

Sincerely,

A handwritten signature in brown ink that reads "Katherine M. Fleming".

Kate Fleming
Wildlife Biologist/Environmental Review Coordinator
(302) 735-8658; fax: (302) 653-3431; Kate.Fleming@state.de.us



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF WATERSHED STEWARDSHIP

89 Kings Highway
DOVER, DELAWARE 19901

OFFICE OF THE
DIRECTOR

PHONE: (302) 739-9921
FAX: (302) 739-6724

To : Robert P. Haynes, Hearing Officer

From: Jennifer Luoma, Environmental Scientist *JL*

Thru: Robert Palmer, Acting Division Director *RP*
Tony Pratt, Administrator *TP*
Michael S. Powell, Program Manager *MSP*

Subject: Division of Watershed Stewardship's Technical Response on City of Rehoboth Coastal Construction Permit Application BP5263

Date: February 2, 2017

Memorandum

After reviewing the Coastal Construction Permit application submitted by the City of Rehoboth to directional drill an ocean outfall pipeline to a diffuser assembly 6,000 LF offshore for disposal of treated effluent, reviewing the transcript from the public hearing held on November 15, 2016 and reviewing any comments received during the public comment period, the Division of Watershed Stewardship has rendered the proposed activity to be in compliance with the Regulations Governing Beach Protection and the Use of Beaches.

The Division will issue a Permit with the following conditions:

- 1. Dune areas that are disturbed are to be restored and revegetated.**
- 2. Any pipe, equipment, etc. that is staged on the beach during construction must be removed in the case of a threat of a coastal storm or higher than usual tides that could result in said staging area to be impacted by wave action or inundation.**

The purpose of the first condition is to insure that the dune will continue to serve its purpose as a first line of defense during coastal storms and associated erosion. The project proposes the temporary excavation of sand landward of the DNREC Building Line and the primary dune. The pipe will enter the ground in the Deauville Beach parking lot and descend down to approximately 85 feet below sea level, leaving the primary dune untouched. Excavated material will be temporarily placed in the Deauville parking lot until the drilling is complete.

Delaware's good nature depends on you!

The proposed work is to be conducted on what is now an established dune, despite being located landward of the DNREC Building Line; therefore, measures must be taken to minimize impacts to the dunes and restoration of the disturbed areas is critical. Plans indicate that excavated material will be returned to its original location and native dune vegetation will be planted.

The purpose of the 2nd condition is to insure that the impacts of a coastal storm do not create a hazardous environment with pipeline and equipment becoming waterborne debris. Plans indicate that pipe will be temporarily stored on the beach before being inserted into the ground/ocean floor.

The portion of the pipe that is located seaward of the DNREC Building Line is to be buried deep enough that no impacts to shoreline recession, beach erosion, flooding and potential damage are expected.

None of the comments made during the hearing or received during the comment period directly applied to the Coastal Construction Permit or the Regulations Governing Beach Protection. Therefore, none are addressed in this memorandum.

Due to the circumstances above, the Division of Watershed Stewardship will issue Permit BP5263 to the City of Rehoboth for directional drilling of an ocean outfall pipeline to a diffuser assembly 6,000 LF offshore for disposal of treated effluent.

(Draft Permit is attached.)



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF WATERSHED STEWARDSHIP

89 Kings Highway
DOVER, DELAWARE 19901

PHONE: (302) 739-9921
FAX: (302) 739-6724

OFFICE OF THE
DIRECTOR

February 2, 2017

City of Rehoboth Beach
229 Rehoboth Avenue, P. O. Box 1163
Rehoboth Beach, DE 19971

RE: Tax Map # 334-14.09-215.00

Dear Sir or Madam:

Application No. BP5263 - To directional drill an ocean outfall pipeline to a diffuser assembly 6,000 LF offshore for disposal of treated effluent on the parcel at the Corner of Surf and Henlopen Ave. , Rehoboth Beach, Sussex County, Delaware.

This is to advise you that this Division has reviewed your plans for coastal construction with regard to its material physical effects on coastal conditions and natural shore processes with particular reference to the extent that it may induce or aggravate beach erosion, storm damage, flooding, etc., or may otherwise have a detrimental effect on the shore or adjacent property.

A permit indicating compliance with the requirements of the Beach Preservation Act and the "Regulations Governing Beach Protection and the Use of Beaches" (effective August 11, 2016) is hereby issued to you to perform the aforementioned work in accordance with the plans and specifications dated **June 2016** submitted by you, or on your behalf, through application received on **June 20, 2016** with the following conditions:

- 1. Dune areas that are disturbed are to be restored and revegetated.**
- 2. Any pipe, equipment, etc. that is staged on the beach during construction must be removed in the case of a threat of a coastal storm or higher than usual tides that could result in said staging area to be impacted by wave action or inundation.**

Any unauthorized additions or modifications of the final permitted construction plans will be considered a violation of this permit and the Regulations and are therefore subject to penalties provided in the Beach Preservation Act and the Regulations. Major modifications or subsequent additions involving horizontal expansion of the initial construction must be submitted as a new application subject to conditions for construction outlined in the Regulations Governing Beach Protection and the Use of Beaches. Copies of the Regulations are available upon request from the Shoreline and Waterway Management Section.

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For the purpose of dune and beach protection, construction activities seaward of the Building Line must be minimized. Any residential construction proposed seaward of the Building Line shall be free of all non-essential portions of the dwelling. This includes, but is not limited to, showers, garages, patios, retaining walls, vehicle ramps, storage areas, steps, solid driveways, fences and all other non-living space portions of the dwelling seaward of the Building Line and below the first living floor. Decks must be supported by cantilevering.

Prohibited activities seaward of the Building Line include landscaping (hard structures such as railroad ties, flower boxes, brick, cement, patio blocks, etc.), erection of fencing other than sand/snow fence, and other modifications which impede the natural function and flexibility of the dune.

This approval pertains only to compliance with the above Regulations and is not to be construed as an all-inclusive approval for any other activities or requirements of the Department of Natural Resources and Environmental Control or any other governmental agency, which may pertain to this site.

This approval is void if on-site construction has not been initiated on or before one year and completed on or before two years from the above date.

This approval in no way affects, or rules upon, ownership of the subject lands.

You are required to notify the Division of Watershed Stewardship at (302) 739-9921 at least one week prior to the initiation of on-site construction, to schedule a meeting between a Shoreline and Waterway Management Section representative, the contractor, the property owner and or their authorized agent and any other parties involved in the proposed construction activities. Construction may not commence until this meeting has occurred and all parties have signed the attached Pre-Construction Agreement form. **If it is found that construction has begun without this meeting, construction will be stopped until the meeting is held.** You are also required to notify the Division when construction is completed.

Absolutely no quantity of sand or sedimentary material may be removed from the site which is the subject of this approval without prior inspection by a Shoreline and Waterway Management Section representative. Any quantity of material which is to be removed from the site and is suitable beach material as determined by the Section representative shall be placed on the beach at the nearest suitable location.

City of Rehoboth Beach
BP5263
Page Three
February 2, 2017

In accordance with Section 7.0 DE Admin. Code 5102 of the Regulations Governing Beach Protection and the Use of Beaches and with Section 6803, Chapter 68, Title 7 of the Delaware code, any person or persons, aggrieved by any decision of the Secretary, may appeal to the Superior Court in and for the County in which the activity is principally located. Notice to the Secretary shall be by certified or registered mail within twenty (20) calendar days of the Division's decision. Any appeal to Superior Court shall be in the record and shall be perfected within thirty (30) days of the receipt of the decision of the Secretary. The applicant shall not commence any activity approved by this permit until the appeal process has been exhausted.

If you have any questions concerning this approval, or the requirements, please contact the Shoreline and Waterway Management Section of this Division at (302) 739-9921.

Sincerely,

Robert R. Palmer
Acting Director

Anthony P. Pratt
Program Administrator
Shoreline and Waterway
Management Section

Michael S. Powell
Program Manager
Shoreline and Waterway
Management Section

Cf.: Adjacent Landowners



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF WATERSHED STEWARDSHIP

89 Kings Highway
DOVER, DELAWARE 19901

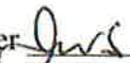
OFFICE OF THE
DIRECTOR

PHONE: (302) 739-9921
FAX: (302) 739-6724

MEMORANDUM

TO: Robert P. Haynes
Hearing Officer

THROUGH: Robert R. Palmer 
Director
Division of Watershed Stewardship

FROM: John W. Schneider 
Environmental Program Administrator
Watershed Assessment and Management Section

DATE: February 21, 2017

SUBJECT: Technical Response: City of Rehoboth Beach Wastewater Projects

The regulatory requirement for the City of Rehoboth Beach (City) to eliminate its wastewater discharge from the current location in the Lewes-Rehoboth Canal was created by a Total Maximum Daily Load (TMDL) Regulation promulgated by the Department of Natural Resources and Environmental Control (DNREC) on December 11, 1998. Section 303 of the Federal Clean Water Act requires states to identify waterbodies that do not meet water quality standards and to impose a TMDL. In 1996, the Lewes-Rehoboth Canal and Rehoboth Bay were listed as "water quality limited" by DNREC, which required the development of a TMDL. The 1998 TMDL Regulation consists of a series of eight articles. Article 1. states, "All point sources which are currently discharging into the Indian River, Indian River Bay, and Rehoboth Bay and their tributaries shall be eliminated systematically." This requirement was further elucidated by the Regulations Governing The Pollution Control Strategy For The Indian River, Indian River Bay, Rehoboth Bay And Little Assawoman Bay Watersheds, which was promulgated by DNREC on November 1, 2008. The latter Regulations define "systematically eliminate" as "to require the elimination of waste loading into the affected waterbody by point sources on a firm, fixed schedule as approved by the Department. This elimination must occur within five years of the expiration of the facility's current NPDES permit unless a longer period of time is provided for in a State or Federally enforceable Consent Order, Decree, or Administrative Order."

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Prior to the regulations cited above, DNREC issued a 1993 consent order to implement Biological Nutrient Removal at the City's wastewater treatment plant. In response to the City's appeal of the 1998 TMDL Regulation, a December 11, 2002 consent order established a firm date of December 31, 2014 for the discharge to be eliminated from the Lewes-Rehoboth Canal and an alternative disposal method to be fully operational. Due to unforeseen delays in the implementation of the alternative wastewater disposal method, the consent order was amended on January 5, 2015 to require elimination of the discharge to the Lewes-Rehoboth Canal by June 1, 2018.

Among the numerous procedures to be followed by applicants seeking loans for wastewater facility construction included in a document entitled *Environmental Review Procedures for the Delaware Water Pollution Control Revolving Fund and Drinking Water State Revolving Fund*, issued September 17, 1991 and revised February 1, 1999, is a requirement to prepare an Environmental Impact Statement (EIS) if the proposed project is considered to be controversial. In August 2010, DNREC issued a Notice of Intent to prepare an EIS and conduct public scoping for the proposed ocean outfall project. Comments were accepted from federal, state, and local agency reviewers and the public. A public meeting was held on September 21, 2010 to independently evaluate the scope and contents of the EIS prior to its approval. A draft EIS was prepared by the City's consultants and received by DNREC on December 15, 2011. After review by DNREC, the draft EIS was made available to reviewing agencies and the public on March 12, 2012. The period for public comment was 60 days.

A public hearing on the draft EIS was held on April 10, 2012 to provide an opportunity for all interested parties and the public to submit comments on the report. The hearing was conducted by an independent hearing officer hired by the City and approved by DNREC. Testimony was taken and comments were received until May 10, 2012. A proposed final EIS was submitted to DNREC by the City in August 2012. DNREC found certain issues were not adequately addressed; the City addressed those issues and submitted a revised final EIS in December 2012.

DNREC's Environmental Review Procedures also require that the Secretary issue a Record of Decision (ROD) that recommends whether or not the loan should be approved after considering the findings of the EIS. Secretary David S. Small issued the ROD on January 5, 2015 recommending approval of the loan for the ocean outfall alternative. The ROD makes it clear that final DNREC action to implement this decision will occur when a financing agreement incorporating the terms of the ROD is completed and all required permits are issued to the City.

On June 27, 2015, the City held a special election to vote on a referendum to borrow \$25 million for the outfall pipe, \$10 million for upgrades to the wastewater treatment plant, and \$12.5 million for an upgraded biosolids treatment facility. The referendum passed by a 637-606 vote.

Since early 2015, the City and its consultants have been working diligently to meet the June 1, 2018 deadline to eliminate the City's discharge from the Lewes-Rehoboth Canal. Six DNREC approvals are required for the various wastewater projects proposed by the City; they include a 1. National Pollutant Discharge Elimination System (NPDES) Permit; 2. Coastal Zone Management Act Federal Consistency Determination; 3. Subaqueous Lands Act Permit; 4. Water Quality Certification; 5. Wastewater Facilities Construction Permit; and 6. a Beach Preservation Coastal Construction Permit. The City submitted the last permit application on July 29, 2016.

In order to provide the public a comprehensive understanding of the regulatory actions necessary to construct and operate the proposed wastewater infrastructure, including the ocean outfall, and offer the public an opportunity to obtain information, ask questions and offer comments on any or all of these actions, DNREC held a Public Workshop at 6:00 PM, October 19, 2015, at the Rehoboth Beach Volunteer Fire Department, 219 Rehoboth Avenue, Rehoboth Beach. A Public Hearing followed and was held at 6:00 PM, November 15, 2016, at the Rehoboth Elementary School, 500 Stockley Street, Rehoboth Beach. Throughout the entire process, DNREC provided information on-line at <http://www.dnrec.delaware.gov/Admin/Pages/Rehoboth-Wastewater-Projects-Info.aspx>, including links to the EIS, ROD, applications, supporting information and data, construction plans, and other information. The comment period commenced on October 15, 2016 and ended at 4:30 PM, December 2, 2016. The website continues to be available. I made a presentation at the Workshop, listened to testimony at the Hearing, and have reviewed the Hearing transcript and all of the written comments.

In addition to TMDLs, the Watershed Assessment and Management Section is responsible for Delaware's Surface Water Quality Standards Regulation. The current version of the Standards was promulgated on October 11, 2014.

The Standards designate the Atlantic Ocean as Waters of Exceptional Recreational or Ecological Significance (ERES). By definition, ERES waters "are important, unique, or sensitive from a recreational and/or ecological perspective." Accordingly, these waters are afforded the highest level of protection under the Standards. Section 5.6 of the Standards requires that, "Discharges to ERES waters shall be avoided to the maximum extent practicable. In order to be permitted, a discharge must be the least environmentally damaging practicable alternative. Further, "Any applicant for a discharge permit required pursuant to 7 Del.C. Ch. 60 shall provide to the Department, as part of a complete application, a resource assessment tailored to the site performed by qualified professionals. Such assessments shall fully consider ecological functions and values in light of the policies set forth in these standards. Consideration shall be given to: potential impacts on physical and chemical characteristics of the aquatic ecosystems which shall include, but not be limited to, substrates, substrate particulates/turbidity, water, current patterns, water circulation, normal water fluctuations, and salinity gradients; potential impacts on biological characteristics of the aquatic ecosystem which shall include, but not be limited to, fish, crustaceans, mollusks and other organisms in the food web, other wildlife, and threatened or endangered species; and potential effects on human use characteristics which shall include, but

not be limited to, water supplies, recreational and commercial fisheries, water related recreation, aesthetics, parks, research sites, wildlife areas or public access areas.” Further, pursuant to the pollution prevention requirements of the ERES provisions, the Department will be tracking pollutant loadings for oxygen demanding substances, nitrogen, phosphorous, bacteria, and total suspended solids to ensure that water quality is protected.

Numerous Watershed Assessment and Management Section Engineers, Environmental Scientists, Managers, and I have reviewed the EIS, ROD, applications and supporting materials, and other documents and data submitted and have determined that the assessments conducted and submitted by the City satisfy the ERES requirements, and that the proposed wastewater projects will be in compliance with Delaware’s Water Quality Standards Regulation during construction and operation.

I have personally been attending any City Commission meetings which included wastewater-related agenda items since 2008. I have listened to presentations by numerous State agencies, including several DNREC programs, and the testimony of residents, visitors, and business owners at those meetings. Alternatives to an ocean outfall were considered in great detail and after numerous studies and reviews. After more than two decades of considering impacts of the current discharge and potential alternatives, I am satisfied that the ocean outfall is the least environmentally damaging practicable alternative. Based upon comments made at the Workshop, testimony from the Hearing, and my review of the Hearing transcript and all written comments, my conclusion has been confirmed.

Based upon research that has been conducted, and the documented knowledge of Delaware’s soils and hydrology, it remains to be determined whether or not land application of treated wastewater is a long-range disposal solution, especially in Sussex County, given the sandy soils, high groundwater table, and the rapid residential and commercial development taking place. We know that once spray-irrigated wastewater infiltrates the soil profile during the growing season beyond the root systems of crops, it enters the groundwater system and will be discharged to surface waters with little to no reduction in nitrogen levels. Spray-irrigated wastewater outside the growing season infiltrates the groundwater system with no reduction in nitrogen levels. Further, research has shown that phosphorus accumulates in the soils and, with continued application of wastewater, can reach a point where the phosphorus becomes soluble and is transported by groundwater.

The other method of land application commonly used in Sussex County is the rapid infiltration basin. Treated wastewater is discharged into basins and rapidly infiltrates into the soil profile. In this case, there are no crops to take up neither nitrogen nor phosphorus and nitrogen does, and phosphorus can, move into ground and surface waters. More research needs to be done to determine the long-term impact of land application on ground and surface water quality.