



## **DRAINAGE PROJECT**

### **Ditch and Culvert Work**

#### **INTRODUCTION**

The MBA Board is working to improve the Pine side drainage issues which have plagued the community for decades. Ditch and culvert work was completed on Bridge Road in April 2022 and on Bayberry in January 2023. We are preparing now to do the same ditch and culvert work on other roads. This work will create ditches at the east end of the road (north and south sides), and ensure existing ditches have the proper depth and slope to allow for water movement from east to west. The existing drainage pipes will not be removed unless the contractor decides they are past their useful lives or installed improperly. The slope of the ditches will allow for the movement of water to the drainage ditches along Kent Ave or existing tax ditches in South Bethany.

Critical to this are properly functioning culverts under driveways. In the years since these culverts were installed, many have rusted, broken or collapsed. Homeowners in most cases don't know that this has happened because they have rusted at the bottom, filled up with roots and other debris (preventing the actual collapse of the culvert). These broken and improperly installed culverts are impeding the movement of water out to Kent or the tax ditches. Broken and improperly installed culverts will continue to be replaced by the contractor.

The ditches are critical infrastructure to hold and remove water from our lots and roads. They allow for westward water movement, expose it to sunlight and air (which aids evaporation), and allows it to drain into the ground below.

This ditch and culvert work has been done by MBA's contractor, LH Excavating, Inc. (LH). This company is owned and operated by Lyndon Hitchens. Lyndon and his company have been extensively vetted by the MBA Board. LH was recommended by various local governmental entities as well as another existing MBA contractor (Matt's Paving). Matt's was asked to bid on the job, but instead recommended we work with LH.

#### **HAS MBA BEEN ADVISED TO PERFORM DRAINAGE PROJECT?**

As early as 2001, MBA was advised by Carl Swanson (Chairman of the MBA Drainage Committee) we can improve the appearance of the community and reduce standing water by establishing a uniform grade from Beach Plum Road to the west end of MBA rights-of-way. This work would include filling in of ditches at appropriate locations and raising or lowering of some culverts on driveways. MBA was advised at other times, among other things, to:

- (A) get the ditches on Kent Ave. cleaned out; and
- (B) hire an expert ditch company to realign all MBA ditches, including the replacement of some or all culverts.

In 2021, the Board approved a project to improve drainage on the Pine side. LH had visited Middlesex Beach and reviewed the current drainage issues. LH recommended that the drainage project include:

- (A) “shoot the grade” from east to west to be certain the ditches and culverts have the proper slope toward Kent Ave.;
- (B) replace some culverts and pipes, as needed;
- (C) clear out vegetation and trees, as needed, to have properly functioning ditches; and
- (D) dig and grade all ditches, as needed.

DNREC, through its drainage division, had advised MBA to perform this ditch work. It is familiar with the project and has visited Middlesex Beach several times. DNREC has told MBA to continue the work as it is needed.

### **HAS MBA CONSULTED ANYONE ELSE ABOUT THIS PROJECT?**

MBA consulted with Brett Warner, Director of Public Works for Bethany Beach for 23 years. Mr. Warner visited Middlesex Beach on Thursday, February 9, 2023. He drove around the community with Ron Thomas and other Board Members to review the drainage system and the work done.

Mr. Warner stated to Ron on February 7, 2023 that continued drainage work is highly recommended for Middlesex Beach. The roughly \$100,000 cost to our community per road is “money well spent” and should be completed sooner rather than later. He also stated LH Excavating is the only drainage company currently operating in Sussex County with the necessary expertise to do this sort of work. Brett believes the drainage issues in MBA will only continue to deteriorate and the cost to install the necessary infrastructure to address it will only continue to rise. Brett has provided MBA with balanced feedback. When he was informed MBA is assessing the merits of continuing the drainage work this year versus waiting for a year to further assess the “performance” of Bridge and Bayberry Road in a future significant rainstorm, hurricane, or tropical storm while also giving DelDOT an opportunity to start making progress on the ditch work on Kent Ave. Brett responded by stating “that might not be a bad idea”.

### **I UNDERSTAND THAT UNLESS KENT AVE. DRAINAGE IS IMPROVED, MBA SHOULD NOT SPEND MONEY ON THE PROJECT.**

First, the drainage system we’re installing allows the ditches to serve as “french drains”. They hold water while it evaporates into the air, soaks into the ground and slowly moves its way out of the community to Kent Ave and Sussex County tax ditches. Water held in ditches helps to stop or reduce flooding on owner’s lots.

Second, MBA has been meeting with DNREC on a monthly basis to push for progress on Kent Ave. DNREC and MBA have been in contact with DelDOT, who would perform the work on Kent Ave. DelDOT has reviewed the ditches and culverts and plans to clean its ditches and piping to allow the movement of water to the Assawoman Canal.

DNREC has committed to obtain funds to perform surveys on Kent Ave. to identify property lines and drainage grades.

MBA continues to work with both DeIDOT and DNREC to get this work done.

DeIDOT has begun work on Kent Ave. Progress has been made and we are committed to continuing to pressure the state agencies to do the work.

Below are some questions that have been asked by homeowners on Bridge & Bayberry, the roads that have already been completed.

**Q. We live on the east end of the north side of the road. We have owned the property for many years and have never, ever had standing water on our property.**

A. MBA is working to alleviate current drainage issues on the entire Pine side by installing ditches in front of all properties (regardless of location along the road). With a congruent ditch network, MBA is planning for the future. Global warming and the resulting rise in water levels is expected to result in more frequent flooding throughout the Pine Side of the community. According to our contractor, MBA needs at least 6" of "fall" in the roughly 1,800 feet we have between Beach Plum to the existing underground pipes on the west side of each Pine Side street. MBA actually has 12" – 18" of fall to work with. These measurements are taken from the bottom of the ditches (rather than from the manhole covers). This amount of "fall" allows ditches to be installed along the entire 1,800 feet. Starting the ditches at Beach Plum Rd. allows for a more gradual "fall" while maintaining adequate "head pressure". Head pressure is necessary to "push" water through the existing underground pipes to eventually exit MBA on the west end of the community.

**Q. Steel galvanized drain pipe is buried underground and seems to work...so why can't it stay there?**

A. LH will determine if underground pipes should remain or be replaced. In most instances, the steel is rusted out at the bottom or in such bad shape they won't last much longer. MBA is not using either concrete or steel pipes going forward because they are not a long term solution for the community. The life expectancy of galvanized steel pipe or culvert is significantly reduced in beach communities such as ours (due to the salt air). Lyndon has explained that in his 30 years of experience, galvanized steel pipes typically fail after 20 years. The life expectancy of concrete pipes or culverts is no more than 30 years. Concrete pipe connectors fail after this amount of time. We are installing a '100+ year' solution for MBA by utilizing hard plastic piping material. According to Lyndon, its lifetime is more than five times concrete or steel.

**Q. We installed the buried pipe underground, per Association guidelines, because we did not want an open culvert adjacent to our property.**

A. According to MBA's written and email records, the existing buried pipe was not installed per Association guidelines. Written instructions were provided to the homeowner by the Chairman of the Building Committee. The length, type of pipe and mode of installation instructions were not followed by the contractor hired by the homeowner. Members of the current Board have completed extensive research on this topic (including frequent and lengthy consultations with DNREC and our drainage contractor). The current Board cannot be held to decisions that were made years ago by previous Boards that did not complete this level of research or speak with the appropriate authorities and subject matter experts.

**Q. I am aware there are other properties (Short and other roads) with installations several years ago, which also have the buried pipe adjacent to their properties. To that end, it would seem to be a viable alternative to unbury those pipes and open up all yards to with an open ditch.**

A. The piping you're referring to is located in many places throughout the Pine Side. It was installed prior to the date many owners purchased their properties. Those pipes are the MBA standard hard plastic material. A decision was made last year not to uninstall those pipes and create an open ditch in their place. This would occur only if Lyndon Hitchens were to determine a particular pipe is installed improperly. This assessment will occur at the time MBA requests a proposal from Lyndon for ditch work on a particular street. The decision is based primarily on the fact it is extremely cost prohibitive to remove the piping and replace it with open ditches. According to Lyndon, doing this work on Bayberry Road alone would have increased the cost by at least \$50K. Based upon feedback MBA has received from DNREC and two contractors, underground pipes are not recommended to alleviate our drainage issues. The installation of pipes takes away two of the three mechanisms we have to remove water from the community. Utilizing pipes means we could no longer evaporate the water into the air or allow it to sink into the water table below. Installation and maintenance of underground pipes is also significantly more expensive than creating a network of open ditches.

**Q. What will be the resulting function and aesthetics of my property after the work?**

A. The work is performed on MBA property or on the easement granted by the Covenants. You will be informed where the ditch will be located as well as its estimated width and depth. Finally, grass seed will be put in the ditch (allowing it to be consistent with the yard around it).

**Q. There are various homeowners on the Pine Side with a history of parking their cars on their front yards (rather than the driveway).**

A. Homeowners will no longer have the option to drive across MBA community property outside of their driveways. Doing so will damage the ditch infrastructure. In the event you believe your existing driveway will not provide sufficient space for you and your guests, you have an option to submit a proposal to the MBA Board and Building Committee to install a second or a "U-Shaped" driveway. Doing so requires the installation of a second culvert and a pervious driveway at your expense. MBA will provide maintenance of one culvert per property. Maintenance of additional culverts is at the homeowner's expense.

**Q. I am asking you not to perform this work affecting my property so that I can maintain the current landscape of my property and driveway. Additionally, this should reduce the overall cost to the community.**

A. The Board has approved the continuance of this project as it's believed to be in the best interests of the entire community (consistent with our fiduciary responsibility). In addition to the expected positive impact on drainage and yard flooding (now and in the future) a professionally installed and functioning drainage infrastructure is expected to have a positive impact on property values on the entire Pine Side of the community. We realize some homeowners will not always agree with decisions made by the Board. This is something we regret but also realize is an unavoidable fact.

**Q. How is water moved via new / improved ditches into Kent Ave. ditches at the west end?**

A. LH utilizes precision machinery to "shoot the grade" on all the pipes previously installed. This process ensures they are installed properly. Lyndon confirmed this is the case on Bridge and Bayberry. He also flushes the pipes out (if necessary) with high powered jets of water (using specialized machinery). Only some of the water in the ditches eventually makes its way out to

Kent through the pipes. One of the biggest purposes of the open ditch network is to function as a “french drain”. By that, I mean they are designed to hold storm water in a contained space (rather than on yards). The water in the ditches is held until a combination of three things occurs...evaporation into the air, sinking into the water table below, and making its way to Kent via the pipes. Unlike the pipes installed by MBA many years ago, many of the culverts were determined to be either broken or installed improperly. This has necessitated the replacement or reinstallation of the culverts. Doing so has allowed sufficient ‘head pressure’ to be maintained...allowing water to move as effectively as possible from east to west.

**Q. It is my understanding that a portion of the surface of my driveway will be removed and only replaced with stone. Additionally, an open ditch will be rerouted though the front portion adjacent to my property.**

A. This is correct. Community property may not be covered by an impervious surface. When necessary work is completed to common areas by MBA, impervious surfaces will be corrected to comply with this rule. Existing impervious surfaces not impacted by the drainage work are not required to be converted to a pervious surface at this time.

**Q. [When we built our house, we specifically (with Association approval), had the storm run-off drain line buried and installed so that there would not be an open ditch.**

A. The current material utilized by MBA is a hard plastic. This material is most often utilized in the drainage industry due to its extreme durability and lightweight characteristics. Lyndon Hitchens could not hazard a guess for the life expectancy of this material. This is due to the fact it does not break down (like concrete) or rust (like steel). As you’re aware, your contractor connected a steel pipe to an existing cement culvert (located on the east end of your property under the original driveway). A connector from a cement culvert to a steel pipe does not exist. As we agreed when we spoke, your contractor could only jury rig a connection between the two pipes. According to Lyndon, any connection between them would be only a short-term solution. He believes it’s therefore highly probable the connection has broken down over the past 17 years. Lyndon believes the life expectancy of both the concrete and the steel material is about 20-30 years (considering the weather conditions and salt air in this area). The concrete culvert is likely 40+ years old whereas the steel pipe is nearing the end of its useful life. Lyndon informed me the concrete culverts are like “swiss cheese” when he removed them on Bridge Rd. The steel culverts he removed on that street also had rusted through and collapsed in many places. When the steel pipe was subsequently removed, it was discovered it was not corrugated (as had been requested) and there was no connector installed between the concrete and the steel culvert.]

**Q. Was the work on Bridge and Bayberry determined to be effective?**

A. As has been explained in a community town hall in March as well as Board meetings in February and October the measure of success is seeing water in the ditches (along with a significant reduction or elimination in standing water on private property). Another measure is the elimination of water flowing across the streets from the north to the south side during the height of storms. The Board was briefed in the October 2022 Board meeting that we have not had a significant rain or flooding event since the work was completed on Bridge Rd in April. Everyone was aware of this fact when the Board voted in October to move forward with Bayberry Road. The Minutes to the February 2022 meeting reflect a question was asked by a Board member as to what “percentage improvement” we can expect to see after the work is completed. I explained it is impossible to specifically quantify a percentage change. However, Lyndon Hitchens and I believe the improvement will be “significant” or “material”. It’s also important to note the degree of improvement is expected to vary between streets as well as within streets. This is NOT a “fix all” solution. The intent of the project is to

significantly improve drainage and the ability to store water off personal property until the combination of three things occurs...evaporation, sinking into the ground and drainage off of MBA property the west.

**Q. How will the project and resulting flow of water impact residents in the western portion of Bayberry or other roads?**

- A. The short answer is it won't impact residents in the western portions of either street. I discussed this question at length with Lyndon when we first discussed the project on a conceptual basis. He stated the completion of the proposed work would not increase the chances of flooding on those homeowners' properties. Lyndon explained he "shoots the grade" with the use of a laser. This is done every 36" along the entire street. The grade of the ditch is always "shot" at the minimum grade necessary to allow water to move from east to west. Any water in the ditches will always find its equilibrium. Therefore, all existing water in the ditches will always remain spread out along the entire stretch of the street. It therefore, will not come rushing down the street and overflow the much narrower pipes on the west end of the streets. Water does move through the pipes and out to Kent Ave (if ever so slowly). When DelDOT fixes those ditches, water will move through the pipes at a faster pace...but never at a rate that is too much for the pipes to handle. The water remaining in the ditches will always "wait its turn" to make its way into and through the pipes (not overflow into yards on the west end). According to Lyndon, any flooding seen by those residents will come from west to east (not east the west). During a hurricane or a bad nor'easter, water will rise in the South Bethany canals and the Assawoman canal. This water will eventually make its way into the west end of Middlesex.

**Q. Is this the best use of the Association's funds?**

- A. Along with continuing to grow the height and stability of our dunes, the Board believes this is the best (and an absolutely necessary) use of MBA's funds. We discussed your belief that Bridge Rd. is in a FEMA designated flood zone (whereas Bayberry is not). I did additional research and confirmed the entire Pine Side of our community is designated by FEMA as being in flood zone "AE". An AE designation means there is a 26% chance of our community experiencing a "100 year" flood within any 30 year period. I found an interesting and informative article about flooding from Sea Grant Delaware ([deseagrant.org/flood-risk](https://seagrant.org/flood-risk)). The article states flooding from storms and sea level rise is anticipated to become more frequent and more intense over the coming century (due to climate change). It also states communities and individuals need to understand the risk of flooding that communities face and adapt to meet the challenge. That is what MBA is doing...alleviating current flooding issues and being proactive by planning for the future. The article provides interactive maps that demonstrate the impact on various communities from a 100 year flood. The South Bethany map also shows Middlesex Beach. The map shows 1-2 feet of flooding along much of our Pine Side streets from a 100 year flood. Pockets of the Pine Side where flooding has not been an historic issue may sorely need a drainage mechanism within ten years. The map provided in the report shows significant flooding on the east end of our Pine Side streets (just to the west of Beach Plum).

**Q. Will the residents where the work is to be done be provided with a detailed written notification of the scope of work affecting their property?**

- A. The MBA Board approved the use of budgeted funds to complete the ditch work on Bayberry Rd. on October 20. Ron Thomas and Margie Cyr walked the length of Bayberry Rd to answer any questions and address all concerns from Bayberry residents. Ron was also available to answer any questions from residents via telephone or email from any residents that were unable to join us for the walk through. The following email was sent to all Bayberry Rd residents on November 1. A similar email will be sent to residents where drainage work is expected to be done.

Dear neighbor:

The MBA Board is working to improve the drainage issues on the Pine Side which have plagued the community for many, many years. As homes are enlarged and lots raised, combined with effects from global warming and sea level rise, we have witnessed more frequent flooding on lots and roads. Ditch and culvert work was completed on Bridge Road in April. We are preparing now to do the same ditch and culvert work on Bayberry Road.

This work will create ditches at the east end of Bayberry (north and south sides) and ensure existing ditches have the proper depth and slope to allow for water movement from east to west. The existing drainage pipes on this road will not be removed. The slope of the ditches will allow for the movement of water out to the drainage ditches along Kent Ave.

Critical to this are properly functioning culverts under driveways. In the years since these culverts were installed, many of them have broken or collapsed. Homeowners in most cases don't know that this has happened because they have filled up with roots and other debris (preventing the actual collapse of the culvert). These broken culverts are impeding the movement of water out to Kent.

In some places, shrubbery and trees have grown into the ditches themselves or on community property. This is further creating a barrier for proper water movement.

The ditches are a critical infrastructure to remove water from our lots and roads. They allow for westward water movement and expose it to sunlight and air (which aids evaporation). Water in the ditches also eventually drains into the ground below.

There are twelve (12) broken or collapsed culverts on Bayberry Road which will be replaced. An additional seven (7) culverts will be installed where there are none now. If you are a property owner where culvert work will take place, we will let you know that by a separate email. This ditch and culvert work will be done by MBA's contractor, LH Excavating, Inc. (LH). This company is owned and operated by Lyndon Hitchens. Lyndon and his company have been extensively vetted by the MBA Board. The removal of trees and shrubbery will be completed by a subcontractor of LH (and only where it's absolutely necessary). The removal of shrubbery and trees is scheduled to take place November 15 and 16. Lyndon Hitchens will be marking the trees to be removed with orange paint or yellow/orange ribbons between November 1 - 4. It is expected that the ditch and culvert work will begin on November 21.

If you have any questions or concerns, please reach out to Ron Thomas, Community Facilities Chairman, at 302-220-9341 or by email to [rtfromde@yahoo.com](mailto:rtfromde@yahoo.com).

Paul Bradley  
MBA President

**Q. Can you tell me if they plan to dig a ditch in our front yard?**

- A. Yes, the contractor will dig a ditch in front of your property. Because you're near the east end of the street, it will be smaller and more shallow than the homeowners to your west. The ditch adjacent to your property is expected to be approximately 4' wide and 16' - 18" in deep. There will also be an 8" culvert placed under your driveway.