

Sibley Island Flood Control Project Preliminary Engineering Report

CERTIFICATION

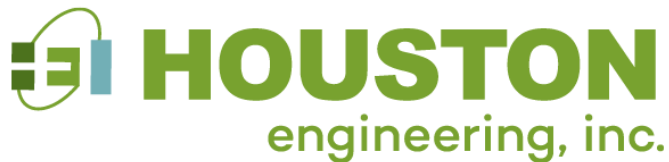
As a Registered Professional Engineer under the laws of the State of North Dakota, I hereby certify that the ***Sibley Island Flood Control Preliminary Engineering Report*** was prepared by me or under my direct supervision.

***THIS DOCUMENT WAS ORIGINALLY ISSUED
AND SEALED BY MICHAEL H. GUNSCH,
REGISTRATION NUMBER 3052, ON
MARCH 21, 2024 AND IS STORED AT THE
BISMARCK OFFICE OF HOUSTON ENGINEERING.***



Michael H. Gunsch, PE
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Date: March 21, 2024



ACKNOWLEDGMENTS

THE BURLEIGH COUNTY WATER RESOURCE DISTRICT

**ACKNOWLEDGES THE SUPPORT,
ASSISTANCE AND INPUT PROVIDED BY THE FOLLOWING WHILE COMPLETING THE
SIBLEY ISLAND FLOOD CONTROL ALTERNATIVE EVALUATIONS AND
THIS PRELIMINARY ENGINEERING REPORT:**

SIBLEY ISLAND AREA RESIDENTS AND PROPERTY OWNERS

BURLEIGH COUNTY HIGHWAY DEPARTMENT

BURLEIGH COUNTY COMMISSION (LINCOLN TOWNSHIP)

**NORTH DAKOTA STATE WATER COMMISSION
COST SHARE ASSISTANCE**

**NORTH DAKOTA DEPARTMENT OF WATER RESOURCES
REGULATORY AND ECONOMIC EVALUATION**

**BISMARCK PARKS AND RECREATION DISTRICT
GENERAL SIBLEY PARK LEASEHOLDER**

**UNITED STATES ARMY CORPS OF ENGINEERS
GENERAL SIBLEY PARK – FEDERAL PROPERTY**

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BIBLIOGRAPHY:

- {1} *Policy/Guidelines REG-2020-1 Construction Permit Water Management, NDDWR*
- {2} *Burleigh County Water Resource District – Flood Ordinance Position Statement – June 23, 2010*
- {3} *Oahe-Bismarck Area Studies, Analysis of Missouri River Flood Potential in the Bismarck, North Dakota Area, August 1985*
- {4} *Impact of Siltation on Flood Control, Missouri River, North Dakota, The Lewis Berger Group, Inc. February 2, 2009, Prepared for the U.S. Army Corps of Engineers Omaha District, and the Missouri River Joint Water Board.*

SIBLEY ISLAND FLOOD CONTROL PRELIMINARY ENGINEERING REPORT

EXECUTIVE SUMMARY

This Preliminary Engineering Report was prepared and is presented in an executive summary format. Therefore, a summary is provided for each section with the respective appendices providing the supporting documentation, including details and specifics on each subject matter.

PROJECT HISTORY

2011 FLOOD EVENT

The historic 2011 flood greatly increased community awareness of the flood risks associated with the Missouri River in Burleigh County. While Garrison Dam and Lake Sakakawea can regulate high runoff and inflows from the upstream watershed to reduce flood potential via controlled discharges, they cannot eliminate or prevent all flood risks. Burleigh County and the City of Bismarck collaborated after the 2011 flood to prepare a protection plan entitled the ***Burleigh County 20-foot Plan {circa 2012-2013}***. Since then, many of the identified plan components were evaluated, designed, and implemented by the applicable entity, utilizing various funding sources.

The ***Burleigh County 20-Foot Plan*** goal was to protect as many residences and properties as possible. While noble, this approach has not been entirely practical due various factors including, but not limited to, control feature locations and landowner preferences. The *Sibley Island Flood Control Project (Project)* is the last of the primary flood protective measures to be implemented under this plan. The *Project* has undergone numerous revisions to achieve the design envisioned in this *Preliminary Engineering Report (PER)*. The *Project* was created by resolution of the *Burleigh County Water Resource District (BCWRD)*, under NDCC 61-16.1.

2013 FEASIBILITY ASSESSMENT

The BCWRD utilized funding provided by the *North Dakota State Water Commission (SWC)* to complete a project feasibility assessment, with reference to the Glenwood Estates/Falconer Estates rural residential area located south of the City of Bismarck. A *Public Informational Meeting* was held October 25, 2012, to gather information on flood risks and concerns in this area, which was unprotected during the 2011 Flood. A meeting summary dated October 30, 2012, along with the presentation material, was prepared for the BCWRD and is provided in ***Appendix A***.

The Sibley Island Flood Hazard Mitigation Memorandum (*Feasibility Assessment*) was provided to the BCWRD on October 26, 2013, ***Appendix B***. This assessment contained several components, including a Sibley Island Levee, and an Oahe Bend Levee with two alternative alignments. In addition, it contained feasibility level projected costs per lot, as well as conclusions and next step opportunities. This report was provided to the residents via a special mailing, however there was no response to establish the level of interest for the BCWRD to proceed with further project development. The Washington Street grade raise noted later and now included in the *Project* was in the planning stages for construction at the time of the 2013 assessment.

2018 PETITION TO RECONSIDER

In 2018 the Missouri River again experienced high releases from Garrison Dam, peaking at 62,600 cfs on June 29th and remaining at around 60,000 cfs during the summer months. These releases resulted in flows entering the west end of the old Missouri River Oxbow, creating groundwater issues that could impact septic systems in the adjoining rural residential properties to the north. Temporary measures were installed to prevent these inflows, as well as to pump excess waters from the oxbow back into the Missouri River. Subsequently, there was a renewed interest in the Sibley Island Flood Control Project, and various landowners collaborated to submit a petition requesting the BCWRD to further investigate flood protection opportunities. **Appendix C** contains a copy of the petition and a map illustrating the seventy-eight (78) lots representing the landowners who signed the petition.

After receiving the petition, the BCWRD proceeded to complete a revised *Feasibility Study*, to protect those residents expressing an interest in flood protection. The focus was again to protect as many residences and properties as practical, within the subject area that reflected the petitioners request to reconsider.

2019 REVISED FEASIBILITY STUDY

A revised *Feasibility Study* was finalized after a November 27, 2018 Public Informational Meeting. During this public meeting insights were provided via stakeholder input, and subsequently modifications were made to the preliminary alignment to accommodate those insights. It also focused on protecting those properties north of Oahe Bend, with those located to the south included in the original feasibility study being removed from further consideration.

The primary modification was to realign the levee system through General Sibley Park. This resulted in a significant reduction in the Opinion of Probable Cost (OPC) and reducing the protection area within the park. In addition, there were discussions with the Burleigh County Highway Department (a.k.a., Lincoln Township) regarding their participation in select project components, principally township roadway grade raises. One grade raise was Washington Street south of Burleigh Avenue and into the entrance to the General Sibley Park, which represented an uncompleted portion of the original 48th Avenue Grade Raise. The township previously committed to complete this portion of their project when the Sibley Island Flood Control Project was implemented. The two other township roadways included in the *Project* were Oahe Bend and South 12th Street.

In addition to the realignment several landowners in the southern portion of the protection area west of South 12th Street adjacent to the river requested they be removed from the *Project*. Given the need to place the levee near the floodway and close to one of the residences, along with the extended levee length protecting only a few properties, their removal represented a cost savings. The total protection area was then reduced to 1,272 acres. See **Appendix D** for the February 4, 2019 *Feasibility Study*, {**Alternative #1**}, OPC, map of the protected area and Public Hearing Presentation. The BCWRD then proceed to further evaluate the project components and preliminary design opportunities.

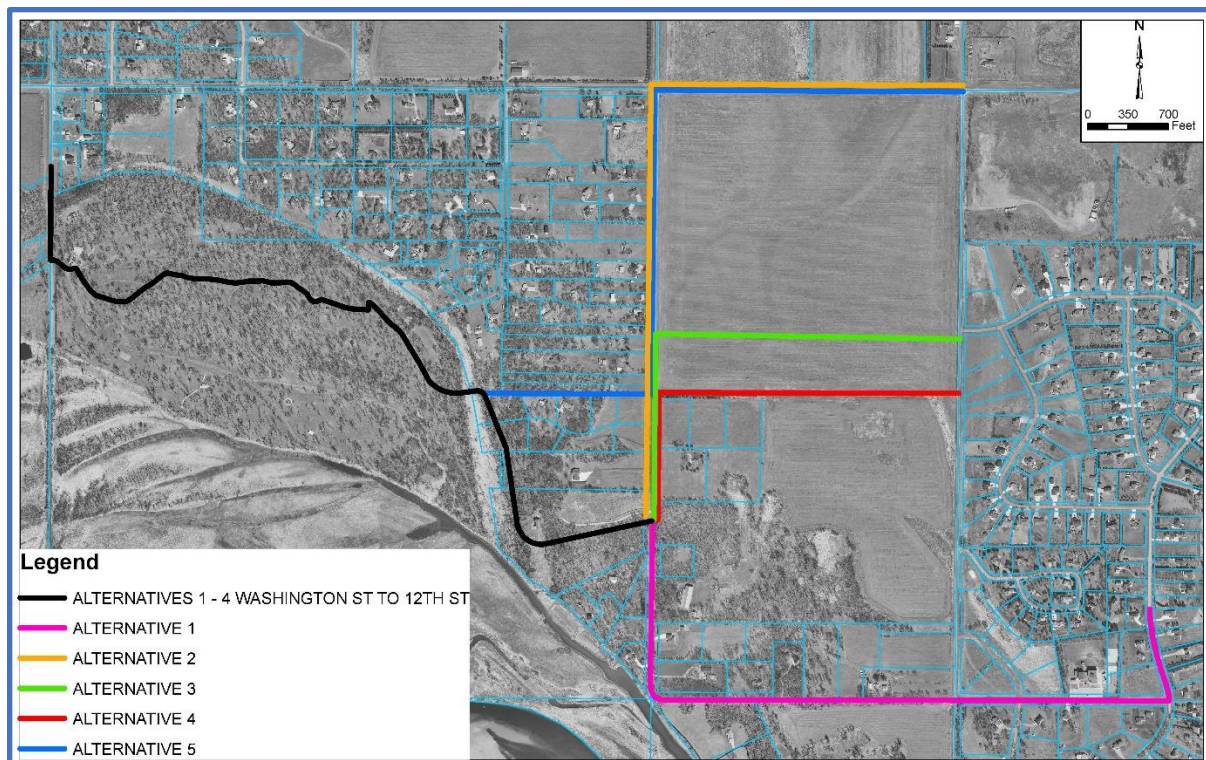
APPLE CREEK FLOODWAY – ALTERNATIVE IMPACTS

While evaluating the primary levee alignment the BCWRD became aware that the Apple Creek floodplain and its floodway were under consideration to be revised via FEMA Risk Map funding provided to the North Dakota State Water Commission (a.k.a. North Dakota Department of Water Resources). Subsequently, in June 2021 the designated levee alignment along Oahe Bend was deemed to adversely impact the Apple Creek floodplain/floodway by increasing downstream flows and base flood elevations, therefore; it was no longer viable. Subsequently, other alternatives along with special assessment boundary revisions were necessary, as outlined in the next sections, and described in **Appendix E**.

ALTERNATIVE EVALUATIONS

After considering the Apple Creek Floodway impacts the BCWRD determined it prudent to evaluate other alternatives as part of the preliminary design process. The following is a summary of the alternatives evaluated, which are illustrated on **Figure 1**. It is important to note the alternative review process considered many facets including design configuration, levee alignments, landowner considerations (via a public information meeting and private communications), opinions of probable costs, as well as a required economic evaluation.

FIGURE 1 – ALTERNATIVE ALIGNMENTS



ALT #1 – ORIGINAL OAH BEND ALIGNMENT

This was the original project alignment discussed with the residents following the petition submittal. After hearing the preliminary findings related to the Flood Insurance Study, it was determined this route was no longer viable and not considered further. As a reference to this determination the revised Apple Creek floodplain and Breakout Channel (Floodway) are illustrated in **Figure 2**.

FIGURE 2 – APPLE CREEK FLOODPLAIN FLOODWAY



ALT #2 – LINCOLN TOWNSHIP ROADWAY GRADE RAISE

The Burleigh County Highway Department (a.k.a., Lincoln Township) proposed that the flood protection alignment be routed north along South 12th Street, then east along Burleigh Avenue, as part of a township roadway improvement project. The resulting grade raises would provide the desired flood protection. Their decision included covering the grade raise costs, using other funding sources, was to remove these expenses from the *Project’s* special assessment district thus improving its viability. This culminated in selecting the preferred alternative (**Alternative #2**), which is documented in **Appendix F** {January 14, 2023}. The Burleigh County Highway Department’s commitment letter {October 13, 2022}, is included in **Appendix F** noting these grade raises would be completed after the *Project* is implemented.

ALT #3 AND ALT #4 – HIGH GROUND/DEVELOPMENT LEVEE ROUTE

While evaluating various alternatives there was a focus on controlling costs and providing flood protection to as many residences and properties as possible. **Alternative #3** followed a higher topographic route that reduced costs and limited the earthwork required. Several landowner concerns were identified along this route including impacts to existing agricultural lands and cropping patterns. During discussions with the landowner, a route further to the south near the property line was suggested as being more acceptable, **Alternative #4**. This route could eventually be constructed as a township roadway to connect South 12th Street and Sibley Drive. Another value would be the potential ability to open additional lands for future rural residential development with flood protection.

Both these alternatives were eliminated from further consideration given the Townships commitment to the grade raises in **Alternative #2**. In addition, there were concerns related to the ability to assess for future benefits (development) or having others pay for these benefits, which were both unacceptable.

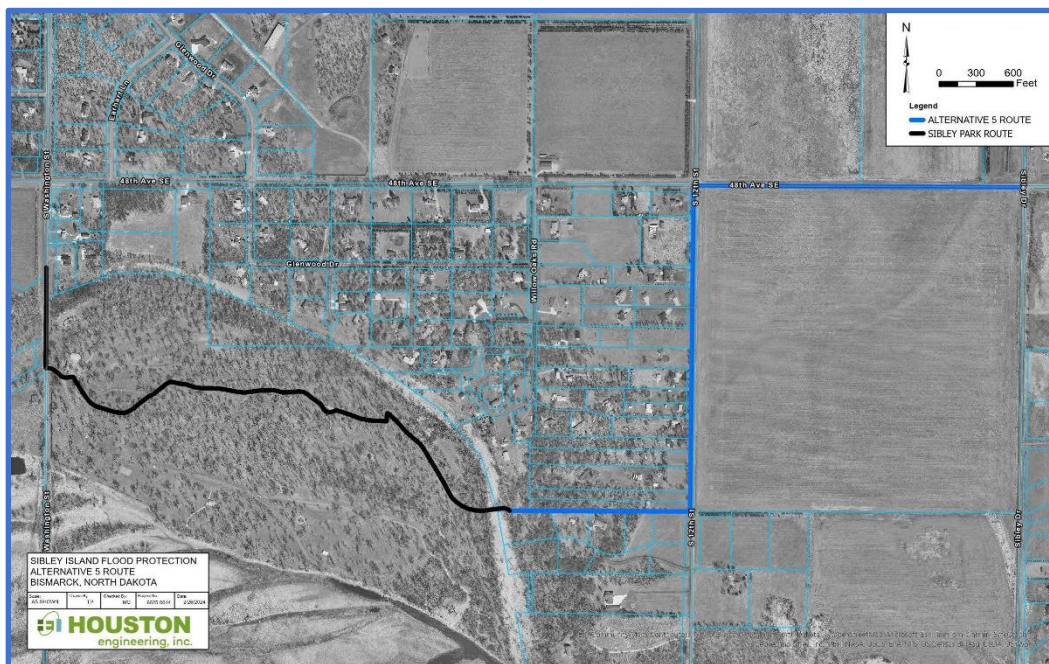
ALT #5 – LANDOWNER AND REVISED PROTECTION LIMITS

After **Alternative #2** was selected as the preferred alternative, the BCWRD updated project costs and completed a justification memorandum **Appendix F** {January 14, 2023}. The BCWRD then held a Public Informational Meeting on February 15, 2023 with those located within or adjacent to the proposed project, based on the original and revised benefited area. The meeting results are summarized in **Appendix G**. Various Federal, State and Local agencies were invited as part of the notifications associated with the required regulatory process described later.

Following the Public Informational Meeting additional work was completed to refine the levee alignments and considering right-of-way easements. This process involved communications with the landowners, on whose land the levee would be constructed. Several property owners on the southern end of the project expressed their interest in being removed from the protection area and forgoing the offered flood protection. These owners were also not signatories to the petition, **Appendix C**. Therefore, the BCWRD reviewed a previous alignment that was discounted, as it protected fewer residences and properties. The new alignment still affected one of the removed lots, however the landowner indicated general concurrence given the limited easement, if there were no assessments.

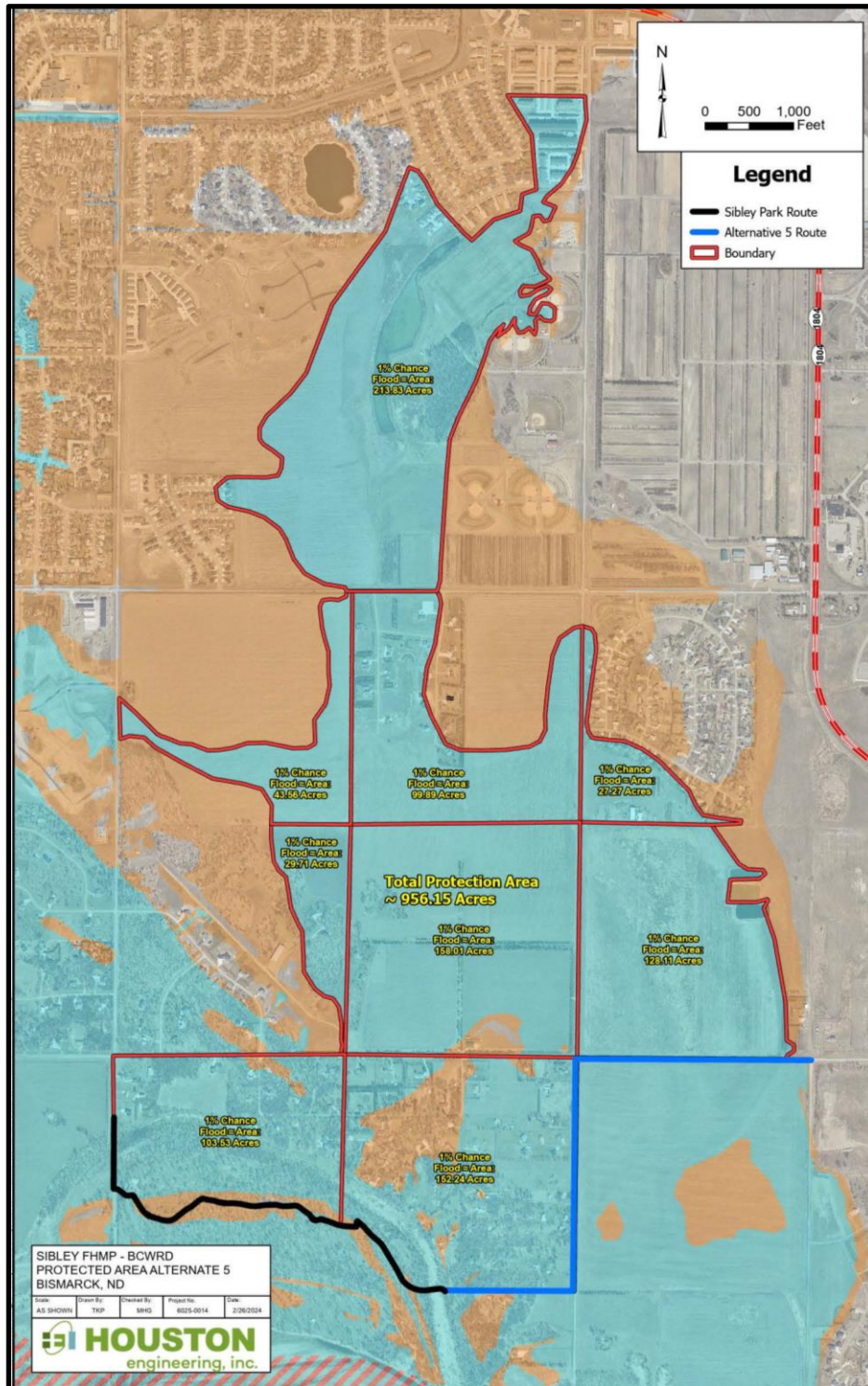
The result was creating what is now, **Alternative #5**, see **Figure Three**. This took considerable time as the landowner had recently sold the necessary parcel. The BCWRD started communications with the new owner regarding an easement. During this process, a property survey and offer letter were presented to the landowner containing considerations as part of the easement. The new landowner then elected to place the property back on the market for sale. Subsequently, the BCWRD shifted discussions to the potential buyer. This has not resulted in an easement, with either the owner or potential buyer. Subsequently, it was determined the prudent path was to proceed with the special assessment district vote and address the easement later as part of final design if the project is implemented. Typically, easements are secured after the project is approved, however given the critical nature of this easement to the *Project* the BCWRD desired to have informed discussions with the landowner.

FIGURE 3 – ALTERNATIVE #5 ALIGNMENT



During the **Alternative #5** review process, including a revised Opinion of Probable Cost, realignment considerations, ties to Sibley Island Park via Breise Dam, South 12th Street and various design components this alignment was selected as the new preferred alternative, see **Appendix H**. The selection of this alignment also resulted in a change to the overall protected area, now 956.15 acres, as illustrated on **Figure 4**.

FIGURE 4 - ALTERNATIVE #5, PROJECT PROTECTION AREA



LANDOWNER EASEMENTS

The projected landowner easement maps for those properties impacted by the **Alternative #5** levee system are illustrated in **Appendix I**. These maps provide an indication of the easement width, levee height and anticipated footprint, along with an acreage determination.

The right-of-way and easements along South Washington Street grade raise were previously secured under the 48th Avenue Grade raise project. Easements in the General Sibley Park will be negotiated separately with the USACE, as well as the Bismarck Parks and Recreation District who leases these federal properties. It is anticipated that a Memorandum of Understanding (MOU – O&M Agreement) will be created between the parties regarding use of these park properties during flood events, as well operations and maintenance of the *Project's* levee/roadway system. There are various coordination and mitigation issues that remain to be will addressed as part of the regulatory permitting process and related to construction activities.

As a reference the private property area that would have been utilized for the various alternatives are illustrated in **Table One**. The selection of **Alternative #5** has a right-of-way requirement of 2.07 acres, which remains to be formalized during final design.

Parcel Number	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
38-138-80-00-27-400	0.00	0.00	4.88	3.53	0.00
38-138-80-40-01-010, 38-138-80-00-27-700, 38-138-80-00-27-710	0.00	0.00	0.00	0.51	0.00
38-138-80-00-27-611	0.00	0.00	0.00	10.00	0.00
38-138-80-00-28-238	0.13	0.13	0.13	0.13	0.40
38-138-80-78-01-050	0.18	0.18	0.18	0.18	0.08
38-138-80-78-01-060	0.11	0.11	0.11	0.11	0.00
38-138-80-57-01-010	0.11	0.11	0.11	0.11	0.00
38-138-80-56-01-010	0.77	0.77	0.77	0.77	0.00
38-138-80-00-28-202	0.00	0.00	0.00	0.00	1.59
TOTALS	0.00	0.00	0.00	0.00	2.07

ALTERNATIVE COST SUMMARY

Table Two presents a summary of the Opinions of Probable Cost (OPC) for the evaluated alternatives.

Alternative #1	\$6,692,527	Original Levee Alignment
Alternative #2	\$4,165,490	Lincoln Twp Grade Raise Alignment
Alternative #3	\$3,965,237	Landowner high ground levee alignment
Alternative #4	\$3,521,692	Landowner development levee alignment
Alternative #5 ²	\$4,319,584	Preferred Alternative - Special Assessment District
<i>Notes: 1] These OPC's include the township roadway costs</i>		
<i>2] Alternative #5 is based on current pricing, the others are projected as noted</i>		

The costs in **Table Two** are based on the 2021 Opinions of Probable Cost (OPC) updated using an inflationary factor of 7% per year to an anticipated 2025 construction. This was deemed reasonable versus updating each unit price item from the 2021 determinations. Especially given the extensive preferred alternative evaluation process and subsequent plan revisions. The exception is **Alternative #5**, where the OPC is based on 2024 construction with an inflationary factor to 2025. The **Table Two** cost for **Alternative #5**, less the Lincoln Township grade raise, presented in **Appendix H**, will be utilized for the Special Assessment District.

REGULATORY AND PERMITTING REQUIREMENTS

There are several critical regulatory permits required to implement the *Project*, which are described in the following sections.

- ***DWR Construction Permit (State of North Dakota)*** ⁽¹⁾
- ***Floodplain Development Permit (City of Bismarck and Burleigh County)***
- ***Section 408, 404 and 401 (US Army Corps of Engineers)***
- ***Section 106 (North Dakota Historical Society)***

ND DEPARTMENT OF WATER RESOURCES – CONSTRUCTION PERMIT

The North Dakota Century Code 61-16-1-38 and ND Administrative Code article 89-08 outline the requirements to secure a permit to construct the *Project*. The Missouri River Hydraulic Analysis Memorandum, **Appendix J**, is a key component in the application process necessary to document impacts associated with placing a levee system within the Missouri River floodplain. The original evaluation was based on implementing **Alternative #1**, which has been replaced with **Alternative #5**. The impacts associated with **Alternative #1** were deemed negligible and within acceptable permissible standards. Since the **Alternative #5** alignment is set back further from the river, though still within the floodplain, the impacts will be even less measurable than those reported. Subsequently, a revised analysis for the **Alternative #5** alignment was not completed. Final permitting requirements may be different based on the regulatory agency's determination.

The results presented in **Appendix J** are based on utilizing the current effective Missouri River floodplain river hydraulics and mapping {circa August 4, 2014}. This is a conservative approach given the projected changes to the DFIRM mapping scheduled to be adopted in June 2024. The new hydrology has identified increased stream flows for the various frequencies however some base flood elevations are decreasing while others are increasing due to changes in river hydraulics. Given the nature of this major alluvial river base flood elevations in the Sibley Island area will again increase over time due to accumulated sediments in the upper portion of the Oahe Reservoir. *Burleigh County Water Resource District – Flood Ordinance Position Statement – June 23, 2010* ⁽²⁾ documented these changes and is included herein by reference. This progressive increase in flood elevations was also documented in previous technical studies completed by the USACE ⁽³⁾ {circa 1985} and *The Lewis Berger Group, Inc.* ⁽⁴⁾ {circa, 2012} completed for the USACE and Missouri River Joint Water Board, see bibliography references.

This state permit application requires final construction plans and specifications for NDDWR review and approval. To complete these plans and specifications the BCWRD has requested preconstruction cost share funding via the NDSWC, which was approved on February 8, 2024. All other federal, state, and local permits also need to be secured as part of NDDWR approval process.

FLOODPLAIN DEVELOPMENT PERMIT

As part of the National Flood Insurance Program (NFIP) the City of Bismarck and Burleigh County have created and enforce provisions governing activities within the Missouri River Floodplain. Subsequently, the *Project*, including the grade township roadway grade raises, involving placement of fill within the floodplain must secure a floodplain development permit. As no work will be conducted in or near the floodway, the approval process should be simplified and is based the plans and specifications completed for construction. Changes in the floodplain are limited to the new constructed features. Project impacts to flood elevations are again as noted in **Appendix J**.

SECTION 408, SECTION 404, SECTION 401 – US ARMY CORPS OF ENGINEERS (NEPA)

General Sibley Park is owned by the federal government and regulated under the USACE's authority. They will require an environmental review of the project and an evaluation of impacts along with identifying any anticipated mitigation requirements. This *National Environmental Policy Act (NEPA)* and Section 408 review has been budgeted in the projected project costs. This regulatory process has the potential to impact final design, project implementation schedule and costs due to the complexity of the review process on federal property, along with agency availability to review the submittal and their available funding.

Appendix K provides information related to the Section 408 evaluation and compliance. This evaluation and permit application requires an environmental review, geotechnical evaluation, discussion regarding alternatives, public meetings, and meetings with the USACE, and the Bismarck Parks and Recreation District, who holds the operational lease to the park facilities, which is also included in **Appendix K**.

The USACE previously approved completing a geotechnical evaluation of what is known as "Breise Dam". This earthen embankment will be modified to act as a flood control levee and pump system location. It is partially on federal property and partially on a private parcel, mapping of the property boundaries is provided in **Appendix I**. The geotechnical evaluation report is included in **Appendix K**, with additional geotechnical exploration along the levee alignment required for final design.

SECTION 106 – NORTH DAKOTA STATE HISTORICAL SOCIETY

The USACE permit process requires considering the potential existence of cultural or historical resources within the designated project area that might be impacted. The BCWRD has initiated contact with the North Dakota State Historic Preservation Office (SHPO) via a notification letter, which will be included in the NEPA regulatory process, project development and permitting. SHPO responded noting that a site investigation will be required, so it can be cleared for cultural resources prior to permitting and/or if mitigation efforts need to be defined. The referral letter and the response are included in **Appendix K**.

ECONOMIC ANALYSIS - NDSWC

The ND State Water Commission cost share policy requires completing an Economic Analysis (EA) to support the allocation and expenditure of state funds. Should the EA evaluation indicate the project has a benefit/cost (B/C) ratio equal to or greater than 1.0, then full cost share funding may be provided at the rate of 60% of eligible costs. If the B/C ratio is below 1.0 then the amount of cost share funds would be prorated to a lower percentage depending on the results.

There have been many iterations of the EA spreadsheet, based on the numerous alternatives, OPC's, as well as the changing property valuations. Currently the projected B/C ratio is just over 1.0, meaning that any small increase in the OPC could trigger limitations on the available cost share. The current Opinion of Probable Costs (OPC) contains 10% in contingencies, and a nominal inflationary factor in the Special Assessment District values for construction in 2025. The final determination on cost share and the B/C will be made when the final design is completed, and the *Project* ready to be advertised for bids.

Appendix L – provides the summary sheets for the current OPC EA Spreadsheet Evaluation. The full evaluation document is not required at this stage in project development and cost share requests. However, the EA process was utilized to determine the present value benefits attributable to the various properties. The BCWRD then utilized this information to assist in preparing the tiered assessments recommended in the Special Assessment District and voting process.

SPECIAL ASSESSMENT DISTRICT

Creating the Special Assessment District to implement the project requires several steps, including the following contained in **Appendix M**.

Resolution #1 – The BCWRD created the *Project* via their resolution on {June 4, 2019}, which started the process to complete the various evaluations, alternative reviews, and eventually this Preliminary Engineering Report.

Lincoln Township Participation Resolution – This resolution was approved by Lincoln Township {June 3, 2019} to participate in the various elements of the Sibley Island Flood Control Project. While elements of the *Project* have been revised through the alternative evaluations the township continues to support its implementation.

Resolution #2 – This resolution, provided as a Draft, remains to be approved by the BCWRD. This includes the acceptance of the Preliminary Engineering Report. The BCWRD will then proceed with the special assessment district voting process, per the resolution language. This includes filing documents with the County Auditor, proceeding with the advertisement, public hearing, ballot mailing and vote process, along with any protests that may arise.

Special Assessment Certification

Appendix N provides recommendations related to the Sibley Island Benefit Distributions for the special assessment district per parcel, which are to be certified by the BCWRD for the vote process. An excerpt (Page 2) from **Appendix N** is provided on **Page 11** and **Figure 5** of this Preliminary Engineering Report to document the recommended assessments along with the

Public Notice, Public Hearing – Advertisement and Vote

All properties owners are notified via a special mailing, Public Notice advertisement, and Public Hearing followed by the ballots being submitted based on the established timeline. The information contained in the notice, draft letters and a sample ballot are included in **Appendix M**.

It is recommended the landowners be provided a 45-day period, after the Public Hearing to cast their votes. Given their input from an earlier Public Information meeting this time was extended from the statutory minimum, and options to submit their ballots were expanded to allow adequate time and convenience to submit. After the expiration of the time set in the notice, the votes will be tallied. If there is a “*simple majority*” vote in favor, the *Project*, it is approved and the BCWRD is authorized to proceed with final design. If approved, landowners have the option to protest their assessment and the BCWRD will consider and act on those protests based on the justification provided.

As a reference the annual amount that could be raised, using the statutory criteria and current market valuations is \$10,810. The projected annual O&M costs are anticipated at around \$6,000 so the initial assessed funds (\$72,000) should provide around an 8-to-10-year balance. The earlier years could have higher costs due to monitoring following construction, and later years influenced by inflation.

Sibley Island Assessment Distribution						
Recommended for the Public Hearing / Vote Process						
Category	Base Assessment ^[1]	Number of Parcels	Average Damages	Recommended Assessment ^{[1][2]}	Funds Generated ^[3]	% of Assessment
Rural Residential Lot No Structure	\$3,000	11	\$3,381	\$3,000	\$33,000	4.2%
Rural Residential Structure No Damages	\$3,200	28	\$3,381	\$4,200 ^[3]	\$117,600	15.0%
RR (2% chance – 50 yr)	\$7,583	21	\$37,632	\$19,600 ^[3]	\$411,600	52.3%
RR (1% chance - 100 yr)	\$7,583	7	\$35,706	\$12,100 ^[3]	\$84,700	10.8%
RR (1% chance - 100 yr)	\$7,583	1	NA	\$10,000 ^[4]	\$10,000	1.3%
RR (0.6% chance – 170 yr)	\$7,583	16	\$18,604	\$ 8,100 ^[3]	\$129,600	16.5%
Non-Assessed Parcels ^[5]	NA	2	NA	NA	NA	NA
Burleigh County (ROW)	NA	4	NA	NA	NA	NA
USACE (General Sibley Park)	NA	NA	NA	NA	NA	NA
		Total 90 (84 Assessed)		Total	\$786,500	100%
[1] All assessment values remain under review are subject to revision based on final cost projections. [2] These values consider SWC/Lincoln Twp cost share contributions, except for the "base cost". [3] Value includes the \$1,000 contribution to the project O&M fund, and a 6.2% inflationary factor for construction in 2024. [4] There is one parcel where the assessment could exceed the computed benefit, so the assessment was lowered [5] These parcels are either small and non-conforming or isolated through another parcel will no defined access.						

The table notes categories where there will be no assessment or O&M assessments. The first are properties owned by Burleigh County, which include right of way (ROW) or small parcels that appear to have been set aside for roadways. The second are properties that either are small nonconforming rural residential lots or are isolated with no access. The third are properties owned by the United States Army Corps of Engineers (USACE), which as a federal entity is not assessed. Note there are no designated agricultural properties within the special assessment district.

The table identifies the funds anticipated to be raised using the recommended assessments. This is the total required, based on the Alternative #5 Opinion of Probable Cost (OPC), and considers SWC cost share, and Lincoln Township's commitment to the Washington Street grade raise. The latter is a portion of the 48th Avenue grade raise project postponed due to USACE timing and permitting issues. The following is a projection of those costs based on the OPC:

▪ OPC (2024 Construction Estimate, and EA Value)	\$ 2,175,530
▪ Lincoln Township (40%) Cost Share (Washington Street)	\$ 284,675
▪ SWC Cost Share (60% of eligible items)	\$ 1,217,620
▪ Remaining Costs needing to be secured	\$ 673,235
<hr/>	
▪ Assessment Recommendation	\$ 713,500
▪ Special O&M Assessment	\$ 72,000
▪ Total Assessments	\$ 786,500

These values are subject to revision with final design, due to economic/construction costs, inflation, and funding availability. These costs are outlined in the Preliminary Engineering Report. The during the January 2023 Public Informational Meeting it was noted some regulatory costs were not included in the total. The Attached **Exhibit A** presents those values to be certified by the BCWRD in the Vote and Public Hearing.



FIGURE 5 – SPECIAL ASSESSMENT DISTRICT COST DISTRIBUTION



FINANCIAL AND FUNDING OPPORTUNITIES

Several funding sources were utilized to develop the Sibley Island Flood Control Project. The North Dakota State Water Commission (NDSWC) provided cost share funds to complete the 2013 Feasibility Study. Then in 2019 the NDSWC again provided funding to complete the evaluations and Preliminary Engineering Report. The Burleigh County Water Resource District provided all remaining funds through its general mill levee, some of these costs are reimbursable through the Special Assessment District. The NDSWC recently approved funding to assist in the final project design (preconstruction funding).

Should the project not be approved by the voters the project information will be archived until such a time as it is deemed necessary and prudent to revisit its implementation. Another option is to redesign to reduce costs where practical and rebid, however given the depth of the evaluations already completed it appears that limited reductions could be achieved.

If the Special Assessment District is approved, the BCWRD will proceed with final design, regulatory permitting and securing the necessary easements. Upon completing the regulatory permitting and approvals, the BCWRD will seek 60% construction cost share funding through the NDSWC. Then as the project proceeds toward final implementation, the BCWRD will apply to the Bank of North Dakota for an infrastructure loan fund, see **Appendix O**. This is a two percent (2%) loan with a maximum 30-year term, with the final rate of 3.5%, including 1.5% for the BCWRD to cover its administrative expenses associated with managing the loan and annual assessments. The approximate annual installments using the infrastructure loan rate and 30-year are provided in **Appendix O**. The project life is projected at 50 years for the Economic Analysis and benefit/cost computations. Also included in **Appendix O** are rough projections of the annual assessments based on the BND funding or anticipated bond sale.

CONSTRUCTION PLANS

This Preliminary Engineering Report and Resolution #2 required the completion of a preliminary set of construction plans for the project. This process took considerable time and effort as each alternative required time to review and determine costs and variables to avoid impacts and determine viability.

Appendix P contains the Preliminary Construction plans as of the date of this report. It is anticipated changes will occur with final design via comments obtained through the regulatory review and approval process. The Project Manual containing the specifications, contract document and bid procedures are prepared as part of the final design.

CONCLUSIONS AND RECOMMENDATIONS

Based on the process that occurred while developing the Sibley Island Flood Control Project we recommend the BCWRD pursue the project vote utilizing the Preferred Alternative (**Alternative #5**), that includes Lincoln Township's participation, North Dakota State Water Commission cost share funding, and seeking to secure the available low interest loan through the Bank of North Dakota. This will require the approval of **Resolution #2** and the process therein describe with notices and letters, see **Appendix M**.

APPENDICES

Appendix A	Sibley Public Informational Meeting Summary	October 25, 2012
Appendix B	Sibley Island Flood Hazard Mitigation Memorandum	October 26, 2013
Appendix C	Landowner Petition and Signature Map	2018
Appendix D	Sibley Island Alternative #1, OPC, Protection Map	February 4, 2019
Appendix E	Sibley Island Project Status Update	June 6, 2021
Appendix F	Preferred Alternative #2 Justification Memo	January 14, 2023
Appendix G	Public Information Meeting Summary	February 15, 2023
Appendix H	Preferred Alternative #5 (alignment revision)	November 11, 2023
Appendix I	Landowner Easement Mapping	February 2024
Appendix J	Missouri River Hydrology/Hydraulics Memo	July 8, 2021
Appendix K	Section 408, Geotechnical Report, SHPO Letters, Park Lease	12/23, 12/20, 7-8/21
Appendix L	Economic Evaluation Projection	January 11, 2024
Appendix M	Resolutions - #1 BCWRD, Lincoln Twp, #2 BCWRD	6/19, 6/19, 3/2024
Appendix N	Benefit Distribution Memorandum	February 15, 2024
Appendix O	Financial Documentation – BND Loan Fund	2023
Appendix P	Preliminary Plan Documents	March 4, 2024

Note: The appendices for this report are posted as a separate file.