The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
p: 219.465.3530
www.porterco.org

REQUEST FOR QUOTES

To:	Known Qualified Firms
From:	Porter Co. Dept. of Development & Storm Water Management
Date:	February 25, 2021
Subject:	Ludington Ditch, Arm 19 – Ditch Reconstruction Construction Services

On behalf of the Porter Co. Stormwater Management Board (Board), the Porter Co. Department of Development & Storm Water Management (Department) hereby invites sealed quotes for the project designated as **Ludington Ditch, Arm 19 – Ditch Reconstruction**, described in brief in this Request for Quotes and in detail in the attached contract documents.

PROJECT INFORMATION

Project Location

The project is located in Section 27, Township 34 North, Range 6 West, in Porter Township, Porter County, Indiana. The project is located in a regulated drainage easement and runs from CR 450 S to the confluence of Ludington Ditch, Arm 19 with Ludington Ditch.

Project Description

The project consists of mowing, clearing and tree removal, and reconstructing the existing ditch, which is known as Ludington Ditch, Arm 19. The overall purpose of the project is to improve drainage through the ditch and to provide a functioning outlet for the surrounding property owners by improving the area's drainage infrastructure.

The project includes clearing and tree removal, including the removal and disposal of all downed trees and logs, the cutting, removal, and disposal of all bushes, saplings, and other woody vegetation of a diameter of less than 6 inches at breast height, the cutting, removal, and disposal of trees, and the removal and disposal of all other obstructions, including accumulations of rubbish of whatever nature; mowing, including the cutting and shredding and/or cutting and mulching of herbaceous vegetation and grass; channel excavation, including the excavation of the bankfull channel, creation of a uniform toe of slope within the bankfull channel, and the re-shaping of the channel side slopes; and, the grading of ditches and swales, including shaping, trimming, and finishing and restoration of the reconstructed ditch. Excess excavated material generated during the performance of the work shall be disposed of on-site, within the regulated drainage easement, as shown on the construction plans.

The project also includes the removal and replacement of an existing culvert, via open trench construction, including excavation, removal of the existing culvert, placing bedding, laying the culvert, placing initial backfill, placing final backfill, and shaping, trimming, and finishing the work. The project will also include the use of and maintenance of a construction entrance and construction access route and the restoration of areas that will be disturbed during the performance of the work. The project may include the installation of a temporary construction entrance, if and as ordered by the Department. The work includes the carrying out of all duties and obligations and the furnishing of all labor, material, tools, equipment, and other incidentals necessary or convenient to the successful completion of the project.

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The work items associated with the project are described in brief below and in more detail in the attached contract documents.

Vegetation Management - Mowing

- This work item includes the cutting and shredding and/or cutting and mulching of herbaceous vegetation and grass.
- As shown on the construction plans, which are included in the attached contract documents, this work shall be performed within the entire project reach, between STA. 0+00 and STA 27+00, from the top of the east bank to the top of the west bank of the ditch. Such area consists of approx. 1.7 AC.
- This work shall be conducted in accordance with the technical specifications, which are included in the attached contract documents.

Vegetation Management – Clearing & Tree Removal

- This work item consists of the removal and disposal of all downed trees and logs, the cutting, removal, and disposal of all bushes, saplings, and other woody vegetation of a diameter of less than 6 inches at breast height, the cutting, removal, and disposal of trees, and the removal and disposal of all other obstructions, including accumulations of rubbish of whatever nature, at the locations shown on the construction plans, which are included in the attached contract documents.
    - Unless otherwise directed by the Department, large and/or specimen trees (i.e., those trees having a diameter of 15 in. or more at breast height) shall not be included in this work.
- As shown on the construction plans, which are included in the attached contract documents, this work shall be performed within the entire project reach, between STA. 0+00 and STA 27+00, from the top of the east bank to the top of the west bank of the ditch. Such area consists of approx. 1.7 AC. It shall also be performed within an existing wooded area located between STA. 18+25 and STA. 23+25 (approx.), from 25 feet from the top of the east bank to 25 feet from the top of the west bank of the ditch. Such area consists of an additional 0.6 AC (approx.) (i.e., the total area, including the area located with the ditch – from the top of the east bank to the top of the west bank – is 1.0 AC).
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents.
    - On-site open burning of materials removed during the performance of this work shall be allowed. Such on-site open burning shall be conducted in accordance with the technical specifications.

Channel Excavation

- This work item includes the creation of new stream channels and/or the deepening, widening, or straightening of existing stream channels and the transportation of materials generated during such channel excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.
- As shown on the construction plans, which are included in the attached contract documents, this work shall be performed within the entire project reach, between STA. 0+00 and STA 27+00, from the top of the east bank to the top of the west bank of the ditch. Such channel excavation work includes approx. 3,167 CY of excavation.
- Excess excavated material (i.e., spoil) resulting from the channel excavation work shall be disposed of within the regulated drainage easement, between the top of the east bank and 75 from the top of the east bank of the ditch and/or the top of the west bank and 75 feet from the top of the west bank of the ditch, spread evenly to a maximum depth of 6 inches, and sloped away from the top of bank at a maximum cross-slope of 3%.
- As shown on the construction plans, which are included in the attached contract documents, the spoil disposal area is located between STA. 0+40 and STA. 23+25, from the top of the east bank and 75 from the

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top of the east bank of the ditch and from the top of the west bank and 75 feet from the top of the west bank of the ditch.
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents.

Grading Ditches & Swales
- This work item includes the creation of new swales, ditches, and other small channels and/or the deepening, widening, or straightening of existing swales, ditches, and other small channels and the transportation of materials generated during such grading work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.
- As shown on the construction plans, which are included in the attached contract documents, this work shall be performed within the entire project reach, between STA. 0+00 and STA. 27+00, from the top of the east bank to the top of the west bank of the ditch. Such work is to be performed in order to shape, trim, and finish and restore the reconstructed ditch. Such work includes approx. 2,635 LF of grading, shaping, trimming, and finishing, and restoration work.
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents. In accordance with the technical specifications, such work includes:
  - Conducting the grading work in accordance with the lines, grades, and elevations shown on the construction plans.
  - Shaping, trimming, and finishing the grading work, including smoothing out irregularities, filling in depressions, finishing uniformly to the lines, grades, and elevations shown on the construction plans, and blending the work into the existing adjacent grade.

Culvert
- This work item includes the construction of culverts as shown on the construction plans, which are included in the attached contract documents.
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents.
- As shown on the construction plans, which are included in the attached contract documents, this work includes the installation of 40 linear feet of 117" x 79" diameter CMP culvert, which will be provided by the Department.
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents. In accordance with the technical specifications, such work includes:
  - Excavation of trenches to the appropriate depths and widths to allow for construction of the culvert.
  - Removal of the existing culvert, as indicated on the construction plans, to allow for the completion of the work.
  - Dewatering of the trenches, as necessary, to allow for the construction of the culvert.
  - Placement of appropriate bedding material along the entire lengths and widths of the trenches to provide a firm foundation for the culvert.
  - Laying, including matching, fitting, and "bringing home," sections of the appropriate culvert pipe.
  - As soon as the condition of the culvert permits, backfilling the trench with appropriate initial backfill material to at least 12 inches above the top of the pipe.
  - As soon as the condition of the culvert and embedment (i.e., bedding and initial backfill) permits, backfilling the rest of the trench with final backfill material.
  - Shaping, trimming, and finishing the top of the trenches that were excavated to the lines, grades, and elevations shown on the construction plans.

County Administration Center
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Construction Access Routes

- Generally, construction access routes shall be confined to those construction access routes indicated on the construction plans, which are included in the attached contract documents. If dirt or debris are carried on to any portion of any public or private roadway by equipment or vehicles using such construction access routes, the Contractor shall immediately clean the pavement of all dirt and debris.

Temporary Construction Entrance (As Ordered By Engineer)

- As shown on the construction plans, this work includes, if and as ordered by the Department, the construction of a temporary construction entrance at 1 location.
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents. In accordance with such technical specifications, this work also includes maintaining temporary construction entrances throughout the performance of the work and restoring areas disturbed as a result of the installation and maintenance of such temporary construction entrances.
- Where equipment or vehicles related to the performance of the work are operated on any portion of any public or private roadway adjacent to such temporary construction entrances, the Contractor shall maintain such roadway free from all dirt and debris at all times. If dirt or debris are carried on to such roadway by equipment or vehicles related to the performance of the work, the Contractor shall immediately clean the pavement of all dirt and debris.

Shaping, Trimming & Finishing

- This work shall consist of the shaping, trimming, and finishing of disturbed areas located along the project reach, the cleaning up of disturbed areas located along the project, and completing the work for acceptance.
  - *Grading*
    Within disturbed areas located on the project site, all irregularities shall be smoothed out, depressions shall be filled in, and the entire disturbed area shall be shaped, and trimmed uniformly to the lines, grades, and elevations shown on the construction plans and blended into the existing adjacent grade.
  - *Finishing*
    Finished surfaces shall be cleaned up for final acceptance. All unsuitable material, debris, and rubbish, resulting from construction operations, or otherwise occurring within the finished surface, and all stones more than 6 IN in the largest dimension, shall be removed from the finished surface and disposed of in accordance with these technical specifications. The degree of finish required shall be that which can be obtained by use of suitable mechanical equipment, with only such hand labor as special conditions may require. Following finishing, the finished surface shall have a smooth appearance and shall be relatively free of dirt clods, stones, woody debris, rubbish, and other irregularities.
- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents.

Restore Disturbed Area

- This work item consists of preparation and furnishing, transporting, and placing topsoil and/or fertilizer, plant seed, and, straw mulch or, where required by the contract documents, erosion control blanket, over areas disturbed during the performance of the work, including, but not limited to, construction access routes, temporary construction entrances, stream channels, swales, ditches, and other small channels, and other areas disturbed during the performance of the work. It shall include the restoration of those areas shown in the construction plans and, as directed by the Engineer, other areas disturbed during the performance of the work.
  - Agricultural land (i.e., row crop areas) disturbed during the performance of the work shall not be restored, unless otherwise directed by the Engineer. However, such disturbed areas shall be shaped,

County Administration Center
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Valparaiso, IN 46383
p: 219.465.3530
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trimmed, and finished and cleaned up for final acceptance, in accordance with the technical specifications.

- This work item shall be conducted in accordance with the technical specifications, which are included in the attached contract documents.

Project Schedule
The project shall be substantially complete by April 26, 2021, or before, and shall be completed and ready for final payment, 15 days, or as soon as possible, thereafter.

Substantial completion shall mean that all drainage and storm water management infrastructure to be constructed, including all ditch reconstruction (i.e., mowing, clearing and tree removal, channel excavation, grading) and culverts, has been constructed, that all disturbed areas have been shaped, trimmed, and finished to the lines, grades, and elevations shown on the construction plans and have been blended into the existing adjacent grade, and that the site is ready for the restoration of all disturbed areas and completion of the work for acceptance. Final completion shall mean that all work has been completed that that all disturbed areas have been restored in accordance with the Technical Specifications.

Project Contact(s)

Chelsey Gordon, PE
Storm Water Engineer
155 Indiana Ave., Ste. 311
Valparaiso, IN 46383
P: (219) 465-3530
E: chelsey.gordon@porterco.org

Michael E. Novotney, PE
County Engineer
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INSTRUCTIONS TO RESPONDENTS

Definition of Terms
Terms used in this Request for Quotes have the meanings indicated elsewhere in the contract documents and shall have such defined meanings wherever used.

Copies of Contract Documents
One complete set of the contract documents may be obtained from the issuing office, the Porter Co. Department of Development & Storm Water Management, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383. Additional complete sets of the contract documents may be inspected at the issuing office and may, upon request, be issued to interested firms by the issuing office.

The Department, in making copies of the contract documents available on the above terms, does so only for the purpose of obtaining quotes for the project and does not authorize or confer a license for any other use. The contract documents furnished by the Department that may be relied upon for preparation of a quote are limited to the printed or hard copies. Files of text, data, graphics, or other types provided in electronic media format are furnished only for the convenience of interested firms. Any conclusion or information obtained from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies shall take precedence and govern.

Site
The Department will furnish the site. All easements, landowner agreements, and permits and authorizations necessary to allow for the prosecution of the work will be obtained by the Department in advance of the start of the work. Land and access thereto required for construction and the storage of materials and equipment to be incorporated into the work are located on site. If the successful respondent should wish to use another area for access to the site, the storage of materials and equipment, or other purposes, he or she shall obtain written approval from the owner of such property and present such written approval to the Department prior to using such area for such purpose.

Examination of Contract Documents and Site
Each respondent shall, before submitting his or her quote, visit the site and become familiar with and satisfy himself or herself as to the general, local, and site conditions that may affect cost, progress, and performance of the work. The Department assumes no responsibility for errors or misinterpretations resulting from a respondent's failure or neglect to conduct such examinations.

Pre-Submittal Meeting
A pre-submittal meeting will be held at 11:00 a.m. local time on Monday, March 8, 2021, at the Porter County Department of Development & Storm Water Management, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383. In accordance with the Department's COVID-19 Safety & Action Plan, the pre-submittal meeting will also be conducted live via videoconference. All prospective respondents are encouraged to attend and participate in the meeting, either in person or via videoconference.

Immediately following the pre-submittal meeting, each prospective respondent is encouraged to conduct an examination of the site and surrounding area to evaluate the local and site conditions that may affect the work. Upon request, representatives of the Owner, including the Engineer, will be available at the project site at such time to respond to questions that may arise as a result of the site examination.

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Interpretations and Addenda
All questions about the meaning or intent of the contract documents or any discrepancies or omissions identified therein are to be submitted to the Department in writing. All such questions shall be submitted directly to the contact identified in this Request for Quotes. Interpretations or clarifications considered necessary by the Department in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by the Department as having received this Request for Quotes and the attached contract documents.

Questions received less than three days prior to the date and time for opening of quotes may not be answered, as all Addenda to be issued by the Department will be issued at least two days prior to the date and time for opening of quotes in order to provide respondents ample time to incorporate such Addenda into their quotes. Only questions answered by Addenda will be binding. The Department assumes no responsibility for any other interpretations or clarifications of the contract documents and such interpretations or clarifications will be without legal effect.

Taxes
All applicable sales, use, payroll, and other similar taxes required to be paid during the performance of the work shall be considered during the preparation of quotes. Respondents are hereby advised that the Department is exempt from Indiana state sales taxes on materials to be incorporated into the work and such exemption shall be considered during the preparation of quotes. The Department will furnish evidence of such exemption to the successful respondent, if necessary, for use in purchasing materials to be incorporated into the work. The Department's exemption does not apply to construction supplies, tools, machinery, equipment, or other property purchased or leased by the successful respondent, or to materials not incorporated into the work.

Preparation of Quote
Quotes shall be made using only the attached Quote Form and any attachments thereto. Quotes made without the use of such form will not be considered. Respondents need not return the entire contract documents when submitting a quote; only the Quote Form and any attachments thereto need be submitted.

Respondents shall fill in all blanks on the Quote Form and all blanks on any attachments thereto using "not applicable," "N/A," or "none" where applicable. Entries on the Quote Form and any attachments thereto shall be typed or legibly written in ink. Respondents are warned against making alterations of any kind to the Quote Form and any attachments thereto or to any entry thereon. Quote Forms or any attachments thereto that contain omissions, conditions, alterations, or additions not called for by the Department may be rejected or interpreted so as to be favorable to the Department.

Total quotes are to be provided in both words and figures, as provided for on the Quote Form. In case of conflict between the words and figures provided on the Quote Form, the words shall take precedence and govern.

Respondents do not need to complete the Basis of Quote Form, which is an attachment to the Quote Form. Following award of the contract, the successful respondent shall submit the Basis of Quote Form as his or her schedule of values, in accordance with Article 108.02 of the General Conditions.

Respondents shall complete the Contractor's Certifications, Statements, Affidavits, and Representations Form, which is an attachment to the Quote Form. Respondents shall also complete the Contractor's Oath and Affirmation Form, which is an attachment to the Quote Form.

Respondents shall also complete the Contractor's Work History Form and Contractor's Experience and Workload Form, which are attachments to this Request for Quotes.

County Administration Center
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Valparaiso, IN 46383
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Approximate Quantities
The quantities of work items appearing on the Basis of Quote Form, which is an attachment to the Quote Form, are estimates prepared by the Department. Such estimates are provided solely for the Department's convenience in establishing work item unit prices for the various work items associated with the project. In accordance with the contract documents, payment to the successful respondent will be based upon the actual quantities of work performed, the acceptance of such work and the determination of such quantities to be made by the Department in accordance with the contract documents.

Alternate Work Items
All items appearing in the Basis of Quote Form as alternate work items are contingent work items that may be substituted for base work items and selected for inclusion in the work prior to the notice of award at the sole discretion of the Department. Respondent acknowledges that respondent's total quote does not include such alternate quote items but that the initial contract price will depend on the number of alternate quote items substituted for base quote items and selected for inclusion in the work prior to the notice of award. Once such alternate work items have been included in the work, payment for such alternate work items will be based on the actual quantities of such work completed by respondent and accepted by the Department.

Additive Work Items
All items appearing in the Basis of Quote Form as additive work items are contingent work items that may be selected for inclusion in the work prior to the notice of award at the sole discretion of the Department. Respondent acknowledges that respondent's total quote does not include such additive work items but that the initial contract price will depend on the number of additive work items selected for inclusion in the work prior to the notice of award. Once such additive work items have been included in the work, payment for such additive work items will be based on the actual quantities of such work completed by respondent and accepted by the Department.

Items "As Ordered By Engineer"
All items appearing in the Basis of Quote Form as items "as ordered by Engineer" are contingent work items that may be selected for inclusion in the work during the performance of the work at the sole discretion of the Department. Respondent acknowledges that respondent's total quote includes such items "as ordered by Engineer" but that such items "as ordered by Engineer" shall not be included in the work unless the Department adds such items "as ordered by Engineer" to the work during the performance of the work in accordance with the contract documents. Once such items "as ordered by Engineer" have been added to the work, payment for such items "as ordered by Engineer" will be based on the actual quantities of such work completed by bidder and accepted by the Department.

Signing of Quote
Respondent shall observe the following requirements in signing his or her quote:

(a) A quote by a corporation shall be executed in the legal name of the corporation by the president or other corporate officer authorized to sign contracts on behalf of the corporation. The quote shall bear the attesting signature of the secretary or an assistant secretary of the corporation. The official address of the corporation and the state of incorporation shall be provided.

(b) A quote by a limited liability company shall be executed in the legal name of the firm by a member of the company. The official address of the company and the state of formation shall be provided.

(c) A quote by a partnership shall be executed in the legal name of the partnership and signed by all of the partners. The official address of the partnership shall be provided.

County Administration Center
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(d) A quote by an individual shall show the respondent's name and official address.

(e) A quote by a joint venture shall be executed by each joint venture in the manner indicated on the Quote Form. The official address of the joint venture shall be provided.

All names shall be printed in ink below the signatures. When requested by the Department, satisfactory evidence of the authority of the person or persons signing on behalf of respondent shall be furnished by respondent.

The signature requirements set forth above shall apply to the Quote Form and any attachments thereto requiring execution by respondent, as well as to all contract documents requiring execution by the successful respondent.

Submittal of Quote
The Department will receive sealed quotes for the project until **10:00 a.m**. local time on **Thursday, March 11, 2021**, at the **Porter Co. Department of Development & Storm Water Management, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383**. Quotes will be opened and read aloud on **Thursday, March 11, 2021**, at a public opening of quotes to be held at **10:00 a.m**. local time at the **Porter Co. Administration Center, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383**.

Quotes shall consist of properly prepared and signed Quote Forms, complete with an acknowledgement of the receipt of all Addenda issued by the Department, if any, and all of the following attachments thereto:

(a) Basis of Quote Form;

(b) Contractor's Certifications, Statements, Affidavits, and Representations Form; and,

(c) Contractor's Financial Statement; and ,

(d) Contractor's Oath and Affirmation Form.

Each quote shall include all of the requirements named above and shall be enclosed in a sealed package, plainly marked with the project title **"LUDINGTON DITCH, ARM 19 – DITCH RECONSTRUCTION"**, the name and address of the respondent, and the notation **"QUOTE ENCLOSED. DO NOT OPEN UNTIL THURSDAY, MARCH 11, 2021 10:00 AM."** Quotes shall be submitted to the place indicated above no later than the date and time prescribed above. If a quote is sent by mail or other delivery system, the sealed envelope containing the quote shall be enclosed in a sealed envelope contained inside the package and be plainly marked on the outside as described above.

Opening of Quotes
Quotes will be opened at **10:00 a.m**., or as soon thereafter as possible, on **Thursday, March 11, 2021,** at a public opening of quotes to be held at **10:00 a.m.** local time at the **Porter Co. Administration Center, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383.** In accordance with the Department's COVID-19 Safety & Action Plan, the pre-public opening of quotes will also be conducted live via videoconference. All respondents, as well as members of the public, are welcome to attend and participate in the opening of quotes, either in person or via videoconference.

At the meeting, quotes will be opened and, unless obviously non-responsive, read aloud publicly. Respondents are invited to be present at the opening of quotes. An abstract of the total quotes will be made available to respondents after the opening of quotes.

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
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Quotes Remain Subject to Acceptance
All quotes will remain subject to acceptance for 60 days after the opening of quotes, or for such longer period of time that respondent may agree to in writing upon request of the Department. The Department may, in its sole discretion, release or reject any quote prior to the end of this acceptance period.

Disqualification of Quotes
More than one quote for the same work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any respondent has an interest in more than one quote for the work may be cause for disqualification of that respondent and the rejection of all quotes in which that respondent has an interest. If there are reasonable grounds for believing that collusion exists among the respondents, the quotes of the respondents reasonably believed to be involved in such collusion will not be considered. If a respondent is or has been in default on a contract with the Department or in the payment of monies due the Department, his or her quote will not be considered.

Evaluation of Quotes and Award of Contract
The Department reserves the right to reject any or all quotes, including, without limitation, nonconforming, nonresponsive, unbalanced, or conditioned quotes and to reject the quote of any respondent whom it finds, after reasonable inquiry and evaluation, to not be responsible. The Department further reserves the right to reject the quote of any respondent if it believes that it would not be in the best interest of the project to make an award to that respondent. The Department also reserves the right to waive all irregularities or informalities at its discretion and to negotiate a contract with the successful respondent.
If a contract is to be awarded, the Department will award the contract to the lowest responsive and responsible respondent whose quote is in the best interests of the project.

Notice of Award
If a contract is awarded by the Department, such award will be made when a formal notice of award, duly executed by the Department, has been issued by the Department and delivered or sent by mail or other delivery system to the successful respondent at the principal business address shown on his or her Quote Form.

Insurance
Upon award of the contract, the successful respondent will be required to furnish certificates of insurance and insurance policy endorsements as required by the contract documents. Such insurance shall be provided by insurance companies acceptable to the Department and authorized to transact business under the laws of the state of Indiana. The successful respondent will be required to furnish such certificates of insurance and insurance policy endorsements to the Department within ten days after receipt of a notice of award.

E-Verify Affidavit & Certification Regarding Investments in Iran
Pursuant to Indiana Code (IC 22-5-1.7-11), unless such E-Verify program no longer exists, any party entering into a contract with the Department is required to enroll in and verify the work eligibility status of all its newly hired employees through the E-Verify program.

Pursuant to Indiana Code (IC 5-22-16.5), the Department cannot enter into a contract with any party who is engaged in investment activities in Iran. Upon award of the contract, the successful respondent will be required to furnish an E-Verify Affidavit & Certification Regarding Investments in Iran to the Department within ten days after receipt of a notice of award.

Signing of Agreement
When the Department issues a notice of award to the successful respondent, it shall be accompanied by one partially executed copy of the agreement along with the other contract documents requiring execution attached

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
p: 219.465.3530
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thereto. Within ten days after receipt of the notice of award and partially executed copy of the agreement, the successful respondent shall sign and deliver one fully executed copy of the agreement and the other contract documents requiring execution attached thereto, along with the required certificates of insurance, insurance policy endorsements, and E-Verify Affidavit and Certification Regarding Investments in Iran to the Department.

The Department will date the partially executed copy of the agreement that will accompany the notice of award to indicate when the agreement is to become effective. This will be the effective date of agreement.

Failure to Sign Agreement
If the successful respondent fails to execute and deliver the contract documents and furnish the required certificates of insurance, insurance policy endorsements, and E-Verify Affidavit and Certification Regarding Investments in Iran within ten days after receipt of a notice of award and partially executed contract documents, the Department may consider the respondent to be in default and annul the notice of award. Upon annulment of the notice of award, the Department may then award the contract to the next lowest responsive and responsible respondent whose quote is in the best interests of the project.

ATTACHMENTS

1. Quote Form
    a. Basis of Quote Form
    b. Contractor's Certifications, Statements, Affidavits, and Representations
    c. Contractor's Financial Statement **(PROVIDED BY REPSONDENT)**
    d. Contractor's Oath and Affirmation Form
2. Notice of Award
3. Contract Documents
    a. Construction Services Agreement
    b. General Specifications to the Construction & Maintenance Services Agreements **(PREVIOUSLY PROVIDED)**
    c. Construction Plans
    d. Technical Specifications

County Administration Center
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Valparaiso, IN 46383
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QUOTE FORM

(*Based on State Form 52414 (R2 / 2-13) / Form 96 (Revised 2013)*)

SECTION I. QUOTE
(*Please type or print*)

Date (month, day, year): _____

1. Project: _____
2. Owner (Governmental Unit): _____
3. County: _____
4. Respondent (Firm): _____

   Address: _____

   City/State/ZIP Code: _____
5. Telephone Number: _____
6. Agent of Respondent (*if applicable*): _____

Pursuant to notices given, the undersigned offers to furnish labor, equipment, and/or material necessary to complete the public works project of _____ (Governmental Unit) in accordance with the plans and specifications prepared by _____ _____ and dated _____ for the sum of _____ $ _____

If items “as ordered by engineer”, additive work items, and/or alternate work items will be considered by owner, the undersigned shall submit a quote for each item “as ordered by engineer”, additive work item, and/or alternate work item in accordance with the request for quotes. If additional items of work originally included in the contract are needed, the unit costs associated with such work shall be the same as those included in the contract, if accepted by the owner. Any addenda issued by the governmental unit shall be specifically acknowledged by the undersigned at the appropriate location on this form.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

SECTION II. BASIS OF QUOTE FORM
(*Please type or print*)

This Basis of Quote Form is to be submitted by respondent, as an attachment to the Quote Form, for the project designated as **Ludington Ditch, Arm 19 – Ditch Reconstruction**. It is to include an entry for all work items listed, Including all base work items, all items "as ordered by Engineer", if any, all additive work items, if any, and all alternate work items, if any, as well as a total quote, in both words and figures, as provided for below..

Respondent will perform all work specified or indicated in the contract documents in accordance with terms and conditions of such contract documents for the following price(s):

BASE WORK ITEMS

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	EXT. PRICE
1	MOBILIZATION & DEMOBILIZATION	LS	1		
2	CONSTRUCTION LAYOUT & SURVEY	LS	1		
3	AS-BUILT DRAWINGS	LS	1		
4	TEMPORARY CONSTRUCTION ENTRANCE (AS ORDERED BY ENGINEER)	EA	1		
5	MOWING	AC	1.7		
6	CLEARING & TREE REMOVAL	AC	2.3		
7	CHANNEL EXCAVATION	CY	3,167		
8	GRADING DITCHES & SWALES	LF	2,635		
9A	CULVERT, 117"X79" CMP, 12 GA., PLAIN (PROVIDED BY OWNER)	LF	40		
9B	EXCAVATION FOR CULVERT	CY	187		
9C	DEWATERING FOR CULVERT	LS	1		
9D	BEDDING & INITIAL BACKFILL FOR CULVERT	CY	72		
9E	FINAL BACKFILL FOR CULVERT	CY	19		
10	ROCK APRON	SY	22		
11	SHAPING, TRIMMING & FINISHING, SURPLUS EXCAVATED MATERIAL	CY	3,335		
TOTAL QUOTE (I.E., TOTAL OF ALL EXTENDED PRICES, ITEMS 1-11):					

Respondent's total quote for the work, which is the sum of the respondent's extended price(s) for the base work items, is:

TOTAL QUOTE (IN FIGURES): _____

TOTAL QUOTE (IN WORDS): _____

Respondent acknowledges that the quantities of items of unit price work included on this Basis of Quote Form are not guaranteed and are provided solely for the purposes of comparing quotes, establishing pay item unit prices, and determining an initial contract price. Except as otherwise stated in the contract documents, payment to the successful respondent will be based upon the actual quantities of work performed, the acceptance of such work and the determination of such quantities to be made by the Engineer in accordance with the contract documents.

SECTION III. CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS
(*if applicable*)

I, the undersigned respondent, or agent of such respondent, understand my statutory obligation to use steel products made in the United States (IC 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel products on this project if awarded to me. I understand that violations hereunder may result in forfeiture of contractual payments.

SECTION IV. CONTRACTOR'S FINANCIAL STATEMENT

Attachment of respondent's financial statement is mandatory. Any quote submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governmental unit awarding the contract shall be specific enough and shall provide enough detail so that the governmental unit can make a proper determination of the respondent's capability for completing the project if the contract is awarded to the respondent.

SECTION V. CONTRACTOR'S NON-COLLUSION AFFIDAVIT

The undersigned respondent, or agent of such respondent, being duly sworn under oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation, or partnership represented by him, entered into any combination, collusion, or agreement with any person relative to the price to be quoted by anyone in response to the request for quotes issued by the governmental unit, nor to prevent any person from responding, nor to include anyone to refrain from responding, and that this quote is provided without reference to any other quote and without any agreement, understanding, or combination with any other person in reference to such other quote.

He further says that no person or persons, firm, or corporation has, have, or will receive, directly or indirectly, any rebate, fee, gift, commission, or thing of value on account of the contract being awarded to the respondent.

SECTION VI. RESPONDENT'S REPRESENTATIONS

In submitting this quote, respondent represents that:

(a) Respondent has examined and carefully studied the contract documents, other related data identified in the request for quotes, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date

(b) Respondent has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance of the work.

(c) The contract documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the work for which this quote is submitted.

SECTION VII. OATH AND AFFIRMATION FORM

I HEREBY AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING QUOTE ARE TRUE AND CORRECT.

Dated at _____ this _____ day of _____, _____

_____
(Name of Organization)

By_____

_____
(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF_____)
) ss
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named _____ and swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____, _____.

_____
(Notary Public)

My Commission Expires: _____

County of Residence: _____

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The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
p: 219.465.3530
www.porterco.org

NOTICE OF AWARD

To:	[SUCCESSFUL RESPONDENT]
From:	Porter Co. Dept. of Development & Storm Water Management
Date:	[DATE]
Subject:	Ludington Ditch, Arm 19 – Ditch Reconstruction Construction Services

You are hereby notified that your quote dated [DATE], for the project designated as **Ludington Ditch, Arm 19 – Ditch Reconstruction** was accepted at the [MONTH] [DAY], [YEAR], meeting of the Porter Co. Storm Water Management Board. You are the successful respondent and are hereby awarded a contract for the project.

The value of your contract is **[CONTRACT VALUE]**, which represents the represents the initial contract price.

Two copies of the agreement and one complete set of the contract documents, including the construction plans, accompany this notice of award.

You must comply with the following conditions within ten days after receipt of this notice of award:

1. Sign and deliver to Department two partially executed copies of the agreement and two fully executed copies of the other contract documents requiring execution attached thereto.
2. Deliver to Department the required certificates of insurance, and insurance policy endorsements, as required by the Request for Quotes and General Specifications (Article 107.20), and a signed E-Verify Affidavit & Certification Regarding Investments in Iran, as required by the Request for Quotes.

Failure to comply with these conditions within the time specified will permit the Department to consider you to be in default and annul this notice of award.

DEPARTMENT

By: _____
(Signature)

Printed Name: _____

Title: _____

Enclosure(s)

County Administration Center
155 Indiana Avenue, Suite 311
Valparaiso, IN 46383
p: 219.465.3530
www.porterco.org

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CONSTRUCTION SERVICES AGREEMENT
between
PORTER CO. DEPARTMENT OF DEVELOPMENT &
STORM WATER MANAGEMENT
and
[NAME OF SUCCESSFUL RESPONDENT]
for
LUDINGTON DITCH, ARM 19
DITCH RECONSTRUCTION

This is an agreement by and between the PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383 (hereinafter called Owner) and [SUCCESSFUL RESPONDENT], [SUCCESSFUL RESPONDENT'S ADDRESS] (hereinafter called Contractor), for the project designated as Ludington Ditch, Arm 19 – Ditch Reconstruction.

1. Project
The project, for which the work described in the contract documents may be the whole or only a part, is generally described as follows:

The project consists of mowing, clearing and tree removal, and reconstructing the existing ditch, which is known as Ludington Ditch, Arm 19. The overall purpose of the project is to improve drainage through the ditch and to provide a functioning outlet for the surrounding property owners by improving the area's drainage infrastructure.

2. Work
Contractor shall perform all work specified or indicated in the contract documents for the contract price and within the contract times indicated therein and in accordance with all other terms and conditions of the contract documents. The work, which is described in detail in the contract documents, is generally described as follows:

The project includes clearing and tree removal, including the removal and disposal of all downed trees and logs, the cutting, removal, and disposal of all bushes, saplings, and other woody vegetation of a diameter of less than 6 inches at breast height, the cutting, removal, and disposal of trees, and the removal and disposal of all other obstructions, including accumulations of rubbish of whatever nature; mowing, including the cutting and shredding and/or cutting and mulching of herbaceous vegetation and grass; channel excavation, including the excavation of the bankfull channel, creation of a uniform toe of slope within the bankfull channel, and the re-shaping of the channel side slopes; and, the grading of ditches and swales, including shaping, trimming, and finishing and restoration of the reconstructed ditch. Excess excavated material generated during the performance of the work shall be disposed of on-site, within the regulated drainage easement, as shown on the construction plans.

The project also includes the removal and replacement of an existing culvert, via open trench construction, including excavation, removal of the existing culvert, placing bedding, laying the culvert, placing initial backfill, placing final backfill, and shaping, trimming, and finishing the work. The project will also include the use of and maintenance of a construction entrance and construction access route and the restoration of areas that will be disturbed during the performance of the work. The project may include the installation of a temporary construction entrance, if and as ordered by the Department. The work includes the carrying out of all duties and obligations and the furnishing of all labor, material, tools, equipment, and other incidentals necessary or convenient to the successful completion of the project.

3. Contract Times
Contractor shall complete all work in accordance with terms and conditions of the contract documents within the dates and times determined pursuant to Paragraphs 3(a), 3(b), and 3(c) below.

(a) Time is of the Essence. All dates and times for milestones, substantial completion, and final completion and readiness for final payment described in the contract documents are of the essence of this agreement.

(b) Dates for Substantial Completion and Final Completion. The work shall be substantially completed, as described in Article 105.17 of the General Specifications, by April 26, 2021, or before, and shall be

completed and ready for final payment, as described in Article 109.09 of the General Specifications, 15 days, or as soon as possible, thereafter. Acceptance of and payment for the work shall occur in accordance with the applicable provisions of the contract documents.

Substantial completion shall mean that all drainage and storm water management infrastructure to be constructed, including all ditch reconstruction (i.e., mowing, clearing and tree removal, channel excavation, grading) and culverts, has been constructed, that all disturbed areas have been shaped, trimmed, and finished to the lines, grades, and elevations shown on the construction plans and have been blended into the existing adjacent grade, and that the site is ready for the restoration of all disturbed areas and completion of the work for acceptance. Final completion shall mean that all work has been completed that that all disturbed areas have been restored in accordance with the Technical Specifications.

(c) Liquidated Damages. Contractor recognizes that time is of the essence of this agreement, as stated in Paragraph 3(a) above, and that Owner will suffer financial loss if the work is not completed within the dates and times specified in Paragraph 3(b) above, or any extensions thereof agreed to in writing by Owner in accordance with Article 108.11 of the General Specifications. Contractor and Owner also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the work is not completed within the dates and times specified in Paragraph 3(b) above, or any extensions thereof agreed to in writing by Owner. Accordingly, Contractor and Owner agree that Contractor shall pay Owner, as liquidated damages, but not as a penalty, the amount shown in the schedule of deductions provided in Article 108.12 of the General Specifications for each day that expires after the date and time specified in Paragraph 3(b) above for substantial completion, or any extensions thereof agreed to in writing by Owner, until the work is complete.

Following substantial completion of the work, if Contractor shall neglect, refuse, or fail to complete the remaining work by the date and time specified in Paragraph 3(b) above for final completion, or any extensions thereof agreed to in writing by Owner, Contractor and Owner agree that Contractor shall pay Owner, as liquidated damages, but not as a penalty, the amount shown in the schedule of deductions provided in Article 108.12 of the General Specifications for each day that expires after the date and time specified in Paragraph 3(b) above for final completion, or any extensions thereof agreed to in writing by Owner, until the work is complete and ready for final payment.

4. Contract Price

Owner shall pay Contractor for all work completed in accordance with terms and conditions of the Contract Documents an amount determined pursuant to Paragraphs 4(a), 4(b), and 4(c) below.

(a) Owner shall pay Contractor for all quantities of work completed in accordance with terms and conditions of the Contract Documents at the unit prices stated on the Contractor's Quote Form, which, as specified in Paragraph 7 below, is attached as a Contract Document. The Contractor's Total Quote of [TOTAL QUOTE], which is stated on the Contractor's Quote Form, represents the initial Contract Price of [CONTRACT PRICE].

(b) The estimated quantities of work stated on the Basis of Quote Form and the Contract Price set forth above are not guaranteed and are provided herein for the purposes of establishing pay item unit prices and the initial Contract Price. In accordance with the Contract Documents, payment to Contractor will be based upon the actual quantities of work performed by Contractor, the acceptance of such work and the determination of such quantities to be made by the Owner in accordance with the Contract Documents.

5. Payment Procedures

Owner shall pay Contractor for all work completed in accordance with terms and conditions of the Contract Documents in accordance with the procedures described below.

(a) Progress Payment Requests. During performance of the work, Contractor shall submit to Owner, on approximately a monthly basis, applications for payment prepared in accordance with Article 109.08 of the General Specifications. Applications for payment will be processed by the Owner in accordance with the applicable provisions of the Contract Documents.

(b) Progress Payments and Retainage. During performance of the work, in response to Contractor's applications for payment, Owner shall make, on approximately a monthly basis, progress payments, as described in Paragraph 5(b)(1) below, to Contractor. All such progress payments will be made based upon the actual quantities of work completed in accordance with terms and conditions of the Contract Documents and upon the Contractor's schedule of values prepared in accordance with Article 108.02 of the General Specifications.

(1) Prior to substantial completion of the work, progress payments will be made in an amount equal to the value of 90 percent (90%) of the work completed, less the sum of payments previously made and less such amounts as Owner may withhold in accordance with Article 109.08 of the General Specifications, including, but not limited to, liquidated damages.

(2) Upon substantial completion of the work, Owner shall pay Contractor an amount sufficient to increase the sum of the payments made to Contractor to the value of 100 percent (100%) of the work completed, less such amounts as Owner may withhold in accordance with Article 109.08 of the General Specifications, including, but not limited to, liquidated damages, and less 200 percent (200%) of the estimated value of any work to be completed or corrected before final inspection and payment, as shown on the list of such items attached to the certificate of substantial completion.

(c) Final Payment. Upon final completion of the work, as described in Article 109.09 of the General Specifications, Contractor shall submit to Owner a final application for payment prepared in accordance with Article 109.09 of the General Specifications. In response to Contractor's final application for payment, Owner shall pay Contractor an amount equal to the total value of the work completed for which payment has not yet been made, less such amounts as Owner may withhold in accordance with Article 109.08 of the General Specifications, including, but not limited to, liquidated damages. At the time of final payment, any retainage withheld from payments previously made will also become due and payable to Contractor.

6. Contractor's Representations

In entering into this Agreement, Contractor makes the following representations:

(a) Contractor has examined and carefully studied the Contract Documents and other related data identified in the Contract Documents.

(b) Contractor has visited the site and become familiar with and is satisfied as to the general, local, and site conditions that may affect cost, progress, and performance of the work.

(c) Contractor is familiar with and is satisfied as to all laws and regulations that may affect cost, progress, and performance of the work.

(d) Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the site; information and observations obtained from visits to the site; and the Contract Documents, with respect to the effect of such information, observations, and documents on: (1) the cost, progress, and performance of the work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and, (3) Contractor's safety precautions and programs.

(e) Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the work at the Contract Price and within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

(f) Contractor has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Owner is acceptable to Contractor.

(g) Contractor is familiar with and is satisfied with the general nature of the work to be performed by Owner or others at the site, as described in the Contract Documents, as a part of the project.

(h) The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the work.

7. Contract Documents
The Contract Documents consist of the following, which are attached hereto:

(a) Contract (i.e., this Agreement).

(b) General Specifications to the Construction & Maintenance Services Agreements.

(c) Construction Plans for Ludington Ditch, Arm 19 – Ditch Reconstruction.

(d) Technical Specifications for Ludington Ditch, Arm 19 – Ditch Reconstruction.

(e) Addendum #___.

(f) Contractor's Quote Form.

(g) Contractor's Basis of Quote Form.

and the following, which may be issued or delivered on or after the effective date of the agreement and, consequently, are not attached hereto:

(h) Notice to Proceed.

(i) Work Change Directives.

(j) Change Orders.

The contract documents may only be amended, modified, or supplemented as provided for in Article 104.02 of the General Specifications.

8. Contractor's Certifications
Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing this contract. For the purposes of this Paragraph 8:

(a) "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the competition for or in execution of the contract;

(b) "fraudulent practice" means an intentional misrepresentation of facts made: (a) to influence the competition for or the execution of the contract to the detriment of Owner; (b) to establish quote or contract prices at artificial non-competitive levels; or, (c) to deprive Owner of the benefits of free and open competition;

(c) "collusive practice" means a scheme or arrangement between two or more respondents, with or without the knowledge of Owner, a purpose of which is to establish quote or contract prices at artificial, non-competitive levels; and,

(d) "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the competition for or affect the execution of the contract.

9. Miscellaneous
The following terms and conditions are hereby made a part of this agreement:

(a) Terms. Terms used in this agreement have the meanings indicated in the contract documents and shall have such defined meanings wherever used.

(b) Assignment of Contract. No assignment by a party hereto of any rights under or interests in the contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the contract documents.

(c) Successors and Assigns. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the contract documents.

(d) Severability. Any provision or part of the contract documents held to be void or unenforceable under any laws or regulations shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the contract documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All of the Contract Documents have been identified by Owner and reviewed and, if applicable, signed, by Owner and Contractor or on their behalf.

This Agreement will be effective on the date on which the agreement is signed by the last of the two parties to sign the Agreement, but not later than [MONTH] [DAY], [YEAR] the earliest of which shall be the effective date of the Agreement.

OWNER:
PORTER CO. STORM WATER MANAGEMENT BOARD

Date: _____

By: Jeff Good

Title: County Commissioner

By: Laura Blaney

Title: County Commissioner

By: Jim Biggs

Title: County Commissioner

By: Kevin Breitzke

Title: County Surveyor

Address for giving notices:

Porter Co. Dept. of Development & Storm Water Management

155 Indiana Ave., Ste. 311

Valparaiso, Indiana 46383

CONTRACTOR:
[SUCCESSFUL RESPONDENT]

Date: _____

By: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Address for giving notices:

CONSTRUCTION PLANS

FOR

LUDINGTON DITCH, ARM 19
DITCH RECONSTRUCTION

PORTER CO. DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
FEBRUARY 23, 2021

The following Construction Plans shall apply to and govern the project designated as **Ludington Ditch, Arm 19 – Ditch Reconstruction.** Such Construction Plans supplement the specifications contained in the documents listed in the table below and, in case of conflict with any part or parts of said specifications, the Engineer shall determine which specifications shall take precedence and govern. The following hierarchy will be applied by the Engineer in resolving any conflict, error, ambiguity, or discrepancy in or between said specifications.

Specification	Issuing Agency	Adopted/Dated
Technical Specifications for Ludington Ditch, Arm 19 – Ditch Reconstruction	Porter Co. Department of Development & Storm Water Management	February 23, 2021
Construction Plans for Ludington Ditch, Arm 19 – Ditch Reconstruction	Porter Co. Department of Development & Storm Water Management	February 23, 2021
General Specifications to the Construction & Maintenance Services Agreements	Porter Co. Department of Development & Storm Water Management	February 1, 2020

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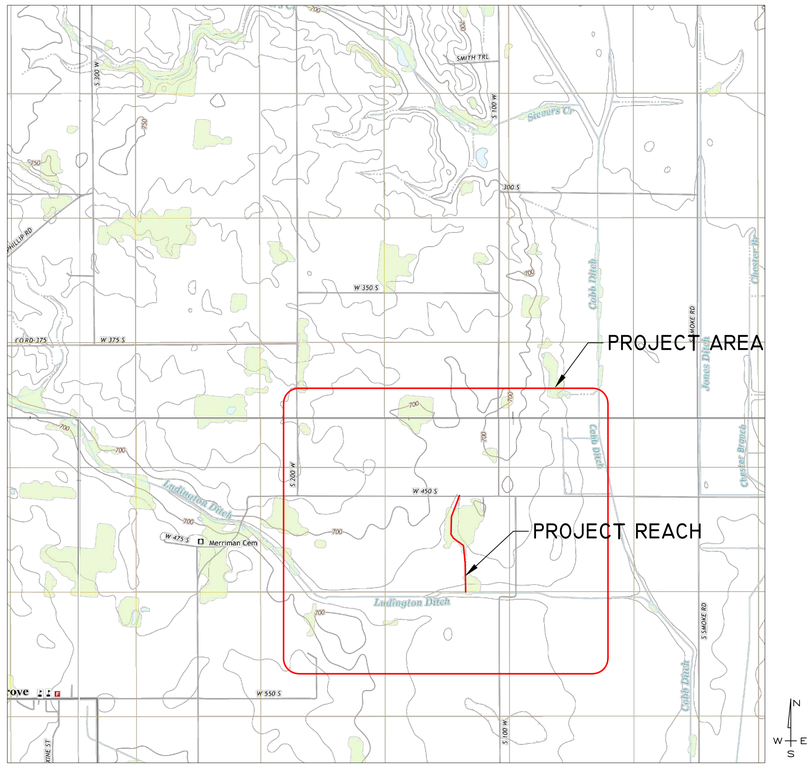
PORTER CO. DEPT. OF DEVELOPMENT & STORM WATER MANAGEMENT
LUDINGTON DITCH, ARM 19 - DITCH RECONSTRUCTION
PORTER COUNTY, IN

OWNER:
PORTER CO. DEPT. OF DEVELOPMENT &
STORM WATER MANAGEMENT
ATTN: MICHAEL E. NOVOTNEY, P.E.
155 INDIANA AVE. STE. 311
VALPARAISO, IN 46383
P: (219) 465-3530

ENGINEER:
PORTER CO. DEPT. OF DEVELOPMENT &
STORM WATER MANAGEMENT
ATTN: MICHAEL E. NOVOTNEY, P.E.
155 INDIANA AVE. STE. 311
VALPARAISO, IN 46383
P: (219) 465-3530



PROJECT LOCATION MAP

SHEET INDEX:

I, THE UNDERSIGNED, A PROFESSIONAL ENGINEER REGISTERED WITH THE STATE OF INDIANA, WHOSE LICENSE IS IN GOOD STANDING, HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

_____
MICHAEL E. NOVOTNEY, PE
INDIANA LICENSED PROFESSIONAL ENGINEER NO. PE11600602
EXPIRES 7/31/2022

APPROVED FOR CONSTRUCTION BY: _____
MICHAEL E. NOVOTNEY, PE
COUNTY ENGINEER

NO.	DATE	REVISION	BY
1	2/23/21	INTERNAL REVIEW	CRG

DESIGNED:	CRG
DRAWN:	CRG
CHECKED:	MEN
DATE:	6/21/19
PROJECT NO.:	P21-013

The Department of DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

PROJECT: LUDINGTON DITCH, ARM 19 - DITCH RECONSTRUCTION

LOCATION: CR 450 S TO CONFLUENCE W/ LUDINGTON DITCH

SHEET TITLE: SHEET 1 - COVER

SHEET NO.: 1 OF 4

CHANNEL EXCAVATION. TOP OF EAST BANK TO TOP OF WEST BANK. 3,167 CY. SEE TYP. SECTION & PROFILE.

GRADING DITCHES & SWALES. 2,635 LF. 0.3%. SEE TYPICAL SECTION AND PROFILE.

SPOIL DISPOSAL AREA (TOP OF BANK TO 75 FT FROM TOP OF BANK). SPREAD SPOIL EVENLY (6 INCH MAX DEPTH) & SLOPE AWAY FROM TOP OF BANK (3% MAX. CROSS SLOPE).

REMOVE EX. CULVERT.

APPROX. LIMITS LUDINGTON DITCH, ARM 19 REGULATED DRAINAGE EASEMENT

CONSTRUCTION ACCESS ROUTE. RESTORE DISTURBED AREA.

TEMP. CROSSING.

MOWING AND CLEARING & TREE REMOVAL. TOP OF EAST BANK TO TOP OF WEST BANK. 1.7 AC.

SPOIL DISPOSAL AREA (TOP OF BANK TO 75 FT FROM TOP OF BANK). SPREAD SPOIL EVENLY (6 INCH MAX DEPTH) & SLOPE AWAY FROM TOP OF BANK (3% MAX. CROSS SLOPE).

DOWNSTREAM SPOIL DISPOSAL LIMITS. STA. 0+40

DOWNSTREAM PROJECT LIMITS. STA. 0+00

ROCK APRON.

REMOVE EX. 36" CMP CULVERT.

CULVERT, PROVIDED BY OWNER. 117"X79" CMP, 12 GA., PLAIN. 40 LF. 0.3%.

LUDINGTON DITCH

UPSTREAM PROJECT LIMITS. STA. 27+00

CR 450 S

TOP OF BANK.

TEMPORARY ENTRANCE, AS ORDERED BY ENGINEER. RESTORE DISTURBED AREA.

CL DITCH.

TOE OF SLOPE.

UPSTREAM SPOIL DISPOSAL LIMITS. STA. 23+25

CLEARING AND TREE REMOVAL. 25 FT FROM TOP OF EAST BANK TO 25 FT FROM TOP OF WEST BANK. 1.0 AC.

PARCEL NO.: 64-12-27-426-004.000-018
CRONCH, LAWRENCE W. SR. & CHARLOTTE A.
118 W 450 S, KOUTS, IN 46367

PARCEL NO.: 64-12-27-426-008.000-018
VANN, CHRISTOPHER D.
122 W 450 S, KOUTS, IN 46347

PARCEL NO.: 64-12-27-476-008.000-018
GOOBERGER LAND, LLC
540 S 100 W, KOUTS, IN 46347

PARCEL NO.: 64-12-27-451-001.000-018
HERLITZ, MICHAEL W.
180 E 400 S, VALPARAISO, IN 46385

PARCEL NO.: 64-12-27-451-002.000-018
GOOBERGER LAND, LLC
540 S 100 W, KOUTS, IN 46347

N
W E
S

0 100 200 Feet

NO.	DATE	REVISION	BY
1	2/23/21	INTERNAL REVIEW	CRG

DESIGNED:	CRG
DRAWN:	CRG
CHECKED:	MEN
DATE:	6/21/19
PROJECT NO.:	P21-013

The Department of
DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

PROJECT: LUDINGTON DITCH, ARM 19 - DITCH RECONSTRUCTION

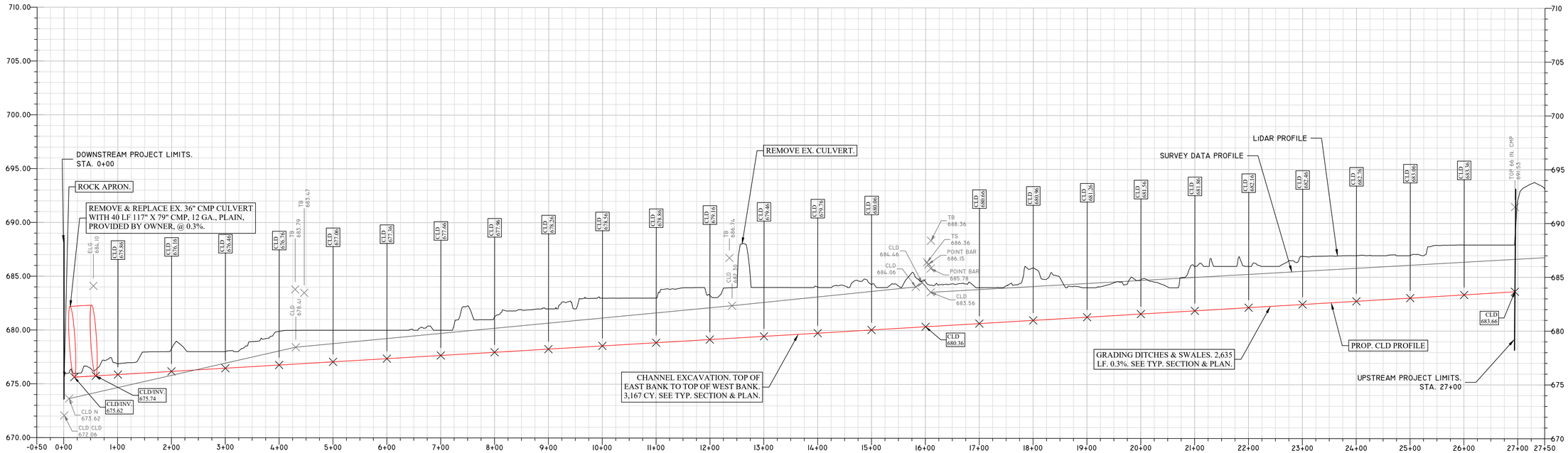
LOCATION: CR 450 S TO CONFLUENCE W/ LUDINGTON DITCH

SHEET TITLE: SHEET 2 - PLAN

SHEET NO.: 2 OF 4

G:\STORM WATER\2019 STORM WATER MANAGEMENT\2019 PROJECTS\ENGINEERING\LUDINGTON ARM 14, 17, 18, 19\LUDINGTON_SALTVANN.DWG

PROFILE VIEW OF LUDINGTON ARM 19



NO.	DATE	REVISION	BY
1	2/23/21	INTERNAL REVIEW	CRG

DESIGNED:	CRG
DRAWN:	CRG
CHECKED:	MEN
DATE:	6/21/19
PROJECT NO.:	P21-013

The Department of DEVELOPMENT & STORM WATER MANAGEMENT Porter County, Indiana

PROJECT: LUDINGTON DITCH, ARM 19 - DITCH RECONSTRUCTION

LOCATION: CR 450 S TO CONFLUENCE W/ LUDINGTON DITCH

SHEET TITLE: SHEET 3 - PROFILE

SHEET NO.: 3 OF 4

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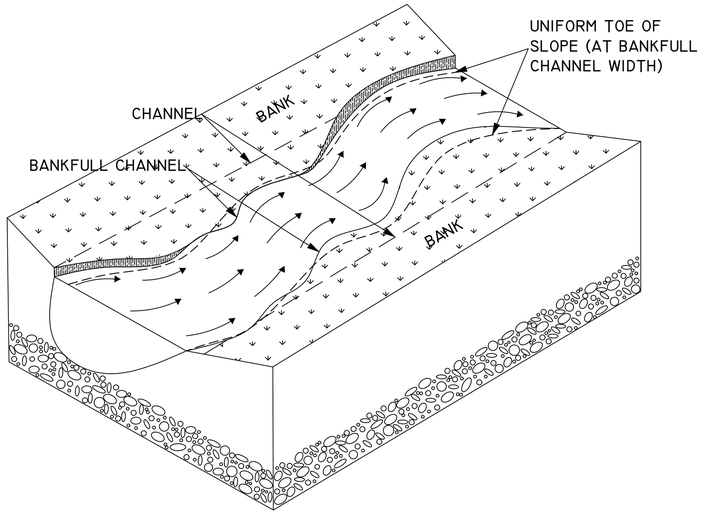
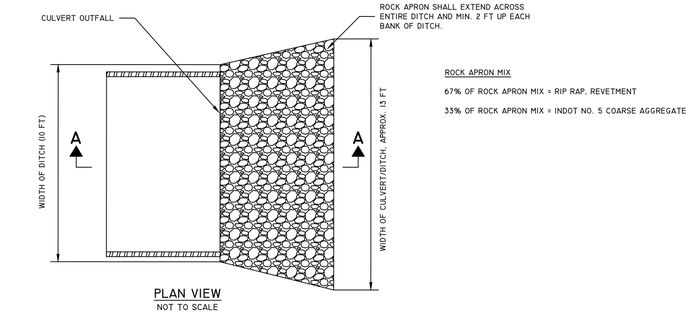


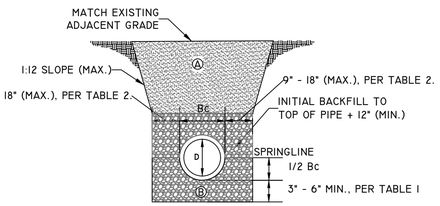
UNIFORM TOE OF SLOPE



INSTALLATION

1. EXCAVATION OR FILL (USING ROCK APRON MIX) BENEATH ROCK APRON AS NEEDED TO CREATE FOUNDATION MIN. 1.5 FT BELOW TOP OF APRON.
2. FIRMLY TAMP ALONG TOP OF FOUNDATION.
3. PLACE MIN. 3 INCH LIFT OF INDOT NO. 5 OVER TOP OF FOUNDATION.
4. PLACE ALTERNATING LIFTS OF RIP RAP, REVETMENT, INDOT NO. 5, AND RIP RAP, REVETMENT AS NEEDED TO ACHIEVE LINES AND GRADES SHOWN. INDOT NO. 5 SHALL FILL VOID SPACE BETWEEN LARGER STONE IN RIP RAP, REVETMENT.
5. RE-SHAPE BANKS OF DITCH ABOVE ROCK APRON TO 2:1 OR FLATTER (TYP.). BLEND INTO ADJ. GRADE.
6. RESTORE DISTURBED AREAS ON AND ABOVE RE-SHAPED BANKS OF DITCH PER DITCH TYPICAL SECTION AND TECHNICAL SPECIFICATIONS.

ROCK APRON



LEGEND

Ⓐ UNDER PAVEMENT AND/OR WITHIN 2 FT OF PAVEMENT, TRENCH BACKFILL SHALL BE USED. ELSEWHERE, SUITABLE EXCAVATED MATERIAL MAY BE USED. INSTALL FINAL BACKFILL & COMPACT IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS.

Ⓑ CRUSHED STONE OR GRAVEL INDOT NO. 5, NO. 8, OR NO. 9 COARSE AGGREGATE WITH A 50% MECHANICAL CRUSH COUNT.

Bc PIPE OUTSIDE DIAMETER

NOTES:

1. ALL BEDDING & INITIAL BACKFILL SHALL BE INSTALLED IN 8" LIFTS (MAX.) & COMPACTED IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS. BEDDING & INITIAL BACKFILL MATERIAL SHALL BE HAND PLACED AROUND THE HAUNCH AND SIDES OF THE PIPE TO ENSURE PROPER COMPACTION AND COMPLETE FILLING OF ALL VOIDS.

TABLE 1.

DEPTH OF BEDDING BELOW PIPE	
D	BEDDING (MIN.)
D ≤ 24IN.	3 IN.
24 IN. ≤ D ≤ 60 IN.	4 IN.
D ≥ 60 IN.	6 IN.

TABLE 2.

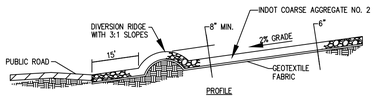
WIDTH OF TRENCH, EACH SIDE OF PIPE	
D	WIDTH (MAX.)
D ≤ 24IN.	9 IN.
24 IN. ≤ D ≤ 60 IN.	12 IN.
D ≥ 60 IN.	18 IN.

STORM SEWER BEDDING AND BACKFILL

REQUIREMENTS: MATERIAL: 1-2.5 IN. WASHED STONE (INDOT CA NO. 2) OVER A STABLE FOUNDATION.
THICKNESS: 6 IN. MINIMUM.
WIDTH: 12 FT. MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER.
LENGTH: 50 FT. MINIMUM. THE LENGTH CAN BE SHORTER FOR SMALL SITES SUCH AS FOR AN INDIVIDUAL HOME, BUT SHALL BE OF SUFFICIENT LENGTH TO PREVENT TRACKING.
WASHING FACILITY (OPTIONAL): LEVEL AREA WITH 3 IN. WASHED STONE MINIMUM OR A COMMERCIAL RACK, AND WASTE WATER DIVERTED TO A SEDIMENT TRAP OR BASIN.
GEOTEXTILE FABRIC UNDERLINER: REQUIRED TO PROVIDE GREATER BEARING STRENGTH.

INSTALLATION:

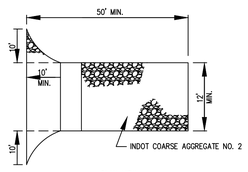
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA, AND GRADE AND CROWN FOR POSITIVE DRAINAGE.
3. IF SLOPE TOWARDS THE ROAD EXCEEDS 2%, CONSTRUCT A 6-8 IN.-HIGH WATER BAR (RIDGE) WITH 3:1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FT. FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD (SEE PROFILE).
4. INSTALL PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
5. PLACE STONE TO DIMENSIONS AND GRADE SHOWN IN THE EROSION/SEDIMENT CONTROL PLAN, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.



PROFILE

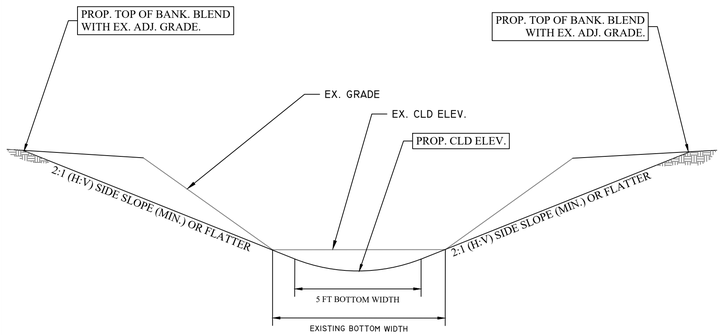
MAINTENANCE

- INSPECT ENTRANCE PAD, SEDIMENT DISPOSAL AREA, AND ALL OTHER EROSION CONTROL MEASURES WEEKLY AND AFTER STORM EVENTS OR HEAVY USE. REQUIRED REPAIRS SHOULD BE COMPLETED IMMEDIATELY.
- RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOPDRESS WITH CLEAN STONE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN.
- REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.



PLAN VIEW

TEMPORARY CONSTRUCTION ENTRANCE



SECTION VIEW
NOT TO SCALE

NOTE:

RESTORE DISTURBED AREAS WITHIN DITCH AS FOLLOWS:

1. TOE OF SLOPE TO TOE SLOPE: RESTORE W/ TOPSOIL, FERTILIZER, DITCH SEED, AND EROSION CONTROL BLANKET (C125BN), PER TECHNICAL SPECIFICATIONS.
2. TOP OF BANK TO TOE OF SLOPE: RESTORE W/ TOPSOIL, FERTILIZER, DITCH SEED, AND EROSION CONTROL BLANKET (NAG S75BN) AND/OR STRAW MULCH (FLAT AREAS), PER TECHNICAL SPECIFICATIONS.
3. OTHER AREAS: RESTORE W/ TOPSOIL, FERTILIZER, COVER CROP SEED OR DITCH SEED & STRAW MULCH.

DITCH TYP. SECTION

NO.	DATE	REVISION	BY
1	2/23/21	INTERNAL REVIEW	CRG

DESIGNED:	CRG
DRAWN:	CRG
CHECKED:	MEN
DATE:	6/21/19
PROJECT NO.:	P21-013

The Department of DEVELOPMENT & STORM WATER MANAGEMENT
Porter County, Indiana

PROJECT: LUDINGTON DITCH, ARM 19-DITCH RECONSTRUCTION

LOCATION: CR 450 S TO CONFLUENCE W/ LUDINGTON DITCH

SHEET TITLE: SHEET 4 - DETAILS

SHEET NO.: 4 OF 4

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TECHNICAL SPECIFICATIONS
FOR
LUDINGTON DITCH, ARM 19
DITCH RECONSTRUCTION

PORTER CO. DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
FEBRUARY 23, 2021

The following Technical Specifications shall apply to and govern the project designated as **#P21-013 Ludington Ditch, Arm 19 – Ditch Reconstruction.** Such Technical Specifications supplement the specifications contained in the documents listed in the table below and, in case of conflict with any part or parts of said specifications, the Engineer shall determine which specifications shall take precedence and govern. The following hierarchy will be applied by the Engineer in resolving any conflict, error, ambiguity, or discrepancy in or between said specifications.

Specification	**Issuing Agency**	**Adopted/Dated**
Technical Specifications for Ludington Ditch, Arm 19 – Ditch Reconstruction	Porter Co. Department of Development & Storm Water Management	February 23, 2021
Construction Plans for Ludington Ditch, Arm 19 – Ditch Reconstruction	Porter Co. Department of Development & Storm Water Management	February 23, 2021
General Specifications to the Construction & Maintenance Services Agreements	Porter Co. Department of Development & Storm Water Management	February 1, 2021

DIVISION 200
SITE PREPARATION AND EARTHWORK

VEGETATION MANANGEMENT – CLEARING & TREE REMOVAL

DESCRIPTION

This work shall consist of performing the following items within the areas shown on the construction plans, where required to complete the work in accordance with the contract documents, and other locations identified by the Engineer.

(a) Clearing. Clearing shall consist of the removal and disposal of all downed trees and logs, regardless of diameter. It shall also consist of the cutting, removal, and disposal of all bushes, saplings, and other woody vegetation of a diameter of less than 6 in., as measured at a point 4.5 ft. above the highest adjacent grade at the base of the vegetation (i.e., diameter at breast height). It shall also consist of the removal and disposal of all other obstructions, including log jams and accumulations of rubbish of whatever nature, the removal and disposal of which is not otherwise provided for in the contract documents.

(b) Tree Removal. Tree Removal shall consist of the cutting, removal, and disposal of trees as hereinafter defined.

DEFINITIONS

Tree. A woody, perennial plant having a single main stem or trunk, the diameter of which is 6 in. or more, as measured at a point 4.5 ft. above the highest adjacent grade at the base of the tree (i.e., diameter at breast height). Those trees having a diameter less than 6 in. diameter at breast height shall be considered saplings. A multiple stem tree that forks at a point below breast height shall be considered to be a cluster of multiple individual trees. A tree that forks at or above breast height shall be considered to be a single tree. If already cut or broken off at less than 4.5 ft. above the highest adjacent grade at the base of the tree, but more than 1.0 ft. above the highest adjacent grade, the remaining trunk will be measured at the elevation of such existing cut or break.

Limits of Clearing & Tree Removal. A boundary line as shown on the construction plans or as designated by the Department.

CONSTRUCTION REQUIREMENTS

This work includes clearing and tree removal within the areas shown on the construction plans, where required to complete the work in accordance with the contract documents, and other locations identified by the Engineer. If such areas have been previously subjected to VEGETATION MANAGEMENT – CHEMICAL TREATMENT, this work shall not occur until at least two weeks after the completion of such VEGETATION MANAGEMENT – CHEMICAL TREATMENT to provide adequate time for the plants treated to absorb such chemical treatment.

This work shall be completed in accordance with the following.

(a) Clearing. All downed trees and logs, regardless of diameter, and all other obstructions, including log jams and accumulations of rubbish of whatever nature, shall be removed and disposed of as specified below. All bushes, saplings, and other woody vegetation of a diameter of less than 6 in. diameter at breast height, shall be cut, removed, and disposed of as specified below. All bushes, saplings, and other woody vegetation of a diameter of less than 6 in. diameter at breast height shall be cut off at a height of not more than 4 in.

The Contractor shall select and use appropriate means and methods, based on the specified cutting height and the bushes, saplings, and other woody vegetation to be cut, removed, and disposed of, to conduct the work. The equipment used shall be capable of neatly and completely severing all growth at the specified cutting height.

(b) Tree Removal. All trees shall be cut and disposed of in accordance with the contract documents. Trees located on embankments with a slope of 3:1 (H:V) or steeper shall be cut off at a height of not more than

1.0 ft. above the highest adjacent grade at the base of the tree. All other trees shall be cut off at the height of not more than 4 in. above the highest adjacent grade at the base of the tree (i.e., flush cut). The Contractor shall select and use appropriate means and methods, based on the specified cutting height and the trees to be cut and disposed of, to conduct the work. The equipment used shall be capable of neatly and completely severing the trees at the specified cutting height. No splinters or spurs shall extend from the top or sides of any stump.

To prevent re-sprouting, the stumps of all trees that are cut and disposed of in accordance with the contract documents shall be treated with garlon as soon as possible following cutting. Garlon shall be applied in accordance with the manufacturer's recommendations by a licensed commercial pesticide applicator. The Contractor shall assume responsibility for the re-sprouting of any trees that are cut and disposed of as part of the Tree Removal work.

(c) Disposal of Materials. All trees, downed trees and logs, all bushes, saplings, and other woody vegetation of a diameter of less than 6 in. diameter at breast height, and all other materials removed during the Clearing & Tree Removal work shall be disposed of in accordance with the following.

The Contractor shall dispose of all materials in such a manner that public or private property will not be damaged or endangered. No on-site open burning of materials removed during the Clearing & Tree Removal work shall be allowed, unless otherwise provided for in the contract documents, or otherwise approved in writing by the Engineer. Considering the following tolerances for mulched, shredded, and/or chipped materials, materials removed during the Clearing & Tree Removal work may be mulched, shredded, and/or chipped and may be placed or left upon the site, when approved in writing by the Engineer or otherwise provided for in the contract documents. Mulched, shredded, and/or chipped materials to be placed or left upon the site shall not be left in windrows or otherwise in a lumpy or bunched condition and shall be evenly placed or left upon the site at a depth not to exceed 3 in.

(1) Tolerances for Mulched, Shredded, and/or Chipped Material. Mulched, shredded, and/or chipped material shall be considered adequately mulched, shredded, and/or chipped and may be left in place provided that 90% of such material is smaller than 6 in., as measured in any direction, and that 50% of such material is smaller than 3 in., as measured in any direction.

The means and methods selected and used by the Contractor in the performance of the work shall minimize soil disturbance in the areas subject to the work. The Contractor will not be required to conduct Clearing & Tree Removal work in areas that are continuously wet and/or cannot otherwise be cleared with equipment, as determined in coordination with the Engineer. In the case that an area cannot be cleared with equipment, VEGETATION MANAGEMENT – HAND REMOVAL, shall be completed in accordance with these Technical Specifications, provided the completion of such work is provided for in the contract documents.

Wherever areas have been disturbed as a result of the performance of the work, provided the following tolerances for ruts, Contractor, at no additional cost to the Department, shall restore such property to a condition equal to that existing before such disturbance occurred. Damage, such as ruts or wheel tracks more than 2 in. in depth or more than 12 in. in length or width, shall be repaired to the satisfaction of the Engineer. If the Contractor fails to do so, the Department may, after the expiration of a period of 48 hours after giving the Contractor notice in writing, proceed to repair such damage, and the cost thereof will be deducted from any compensation due, or which may become due, the Contractor under this or any other contract between the Contractor and the Department.

(1) Tolerances for Ruts. Disturbed areas shall be free from ruts or wheel tracks measuring more than 2 in. in depth or more than 12 in. in length or width. Disturbed areas with ruts or wheel tracks that measure more than 2 in. in depth or more than 12 in. in length or width, shall be restored to be free from such ruts or wheel tracks.

MEASUREMENT

This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity and/or quantities for CLEARING & TREE REMOVAL – UNIT DIAMETER and/or CLEARING & TREE REMOVAL – ACRES shown on the basis of quote form. The entire area designated for CLEARING & TREE REMOVAL on the construction plans shall have been used in computing such quantity and/or quantities.

(1) Unit Diameter. CLEARING & TREE REMOVAL – UNIT DIAMETER, when included in the contract documents as a work item, will be measured per unit diameter of the trees to be removed as part of the work. The unit diameter will be measured in inches at a point 4.5 ft. above the highest adjacent grade at the base of the tree (i.e., diameter at breast height) and will be determined by dividing the measured circumference of the tree by 3.1416. If already cut or broken off at less than 4.5 ft. above ground level at the base of the tree, removal of the remaining trunk will be measured at the elevation of such existing cut or break. On trees with multiple stems, such multiple stems will be measured for payment as individual trees, provided that such stems have a diameter of 6 in. or more at a point 4.5 ft. above ground level at the base of the tree. Clearing shall be considered incidental to this work item and will not be measured separately for payment.

(2) Acres. CLEARING & TREE REMOVAL – ACRES, when included in the contract documents as a work item, will be measured per acre. The entire area designated for Clearing & Tree Removal on the construction plans, or as otherwise delineated by the Engineer, will be used in computing such measurement.

PAYMENT
This work shall paid for at the contract unit price(s) per unit diameter for CLEARING & TREE REMOVAL – UNIT DIAMETER and/or per acre for CLEARING & TREE REMOVAL – ACRES.

Such unit price(s) shall include all preparation necessary to complete the work, the furnishing, transporting, and placing of all materials necessary to complete the work, as well as the cutting, removal, and disposal, including transporting, of all materials resulting from the performance of the work.

VEGETATION MANAGEMENT – MOWING

DESCRIPTION
This work shall consist of the mowing of herbaceous vegetation within the areas shown on the construction plans, where required to complete the work in accordance with the contract documents, and other locations identified by the Engineer. In general, the purpose of this work is to control and manage invasive and undesirable vegetation and to promote the growth of native and desirable vegetation.

DEFINITIONS
Limits of Mowing. A boundary line as shown on the construction plans or as designated by the Department.

CONSTRUCTION REQUIREMENTS
This work consists of cutting and shredding and/or cutting and mulching herbaceous vegetation within the areas shown on the construction plans, where required to complete the work in accordance with the contract documents, and other locations identified by the Engineer. Such areas shall be mowed one or more times as necessary to achieve a uniform vegetation height of not more than 4 in. If such areas have been previously subjected to VEGETATION MANAGEMENT – CHEMICAL TREATMENT, this work shall not occur until at least two weeks after the completion of such VEGETATION MANAGEMENT – CHEMICAL TREATMENT to provide adequate time for the plants treated to absorb such chemical treatment.

The Contractor shall select and use appropriate means and methods, based on the specified cutting height, the vegetation to be mowed, and the ground conditions present in the areas to be mowed, to conduct the work. The equipment used, which may include, but shall not be limited to flail mowers or rotary mowers, shall be capable of neatly and completely severing all growth at the specified cutting height, shredding and/or mulching the cut material, and evenly distributing the cut material over the mowed area. Cut material shall not be left in windrows or otherwise in a lumpy or bunched condition. Additional mowing may be required, as directed by the Engineer, in order to complete the work in accordance with the contract documents.

Once the mowing has been completed, any remaining cut material, unless adequately shredded and/or mulched, provided the following tolerances for cut material, shall be raked, removed, and disposed of in an appropriate manner to allow sunlight to reach the underlying soil surface to promote the growth of native and desirable vegetation and prevent cut material from clogging downstream stormwater infrastructure (e.g., inlets, culverts).

(1) Tolerances for Cut Material. Cut material shall be considered adequately shredded and/or mulched and may be left in place provided that 90% of such cut material is smaller than 6 in., as measured in any direction, and that 50% of such cut material is smaller than 3 in., as measured in any direction.

The means and methods selected and used by the Contractor in the performance of the work shall minimize soil disturbance in the areas to be mowed. The Contractor will not be required to mow continuously wet surfaces or areas which may otherwise be designated as not mowable by the Engineer. In the case that a surface cannot be mowed, VEGETATION MANAGEMENT – HAND REMOVAL, shall be completed in accordance with these Technical Specifications, provided the completion of such work is provided for in the contract documents.

Wherever areas have been disturbed as a result of the performance of the work, provided the following tolerances for ruts, Contractor, at no additional cost to the Department, shall restore such property to a condition equal to that existing before such disturbance occurred. Damage, such as ruts or wheel tracks more than 2 in. in depth or more than 12 in. in length or width, shall be repaired to the satisfaction of the Engineer. If the Contractor fails to do so, the Department may, after the expiration of a period of 48 hours after giving the Contractor notice in writing, proceed to repair such damage, and the cost thereof will be deducted from any compensation due, or which may become due, the Contractor under this or any other contract between the Contractor and the Department.

(1) Tolerances for Ruts. Disturbed areas shall be free from ruts or wheel tracks measuring more than 2 in. in depth or more than 12 in. in length or width. Disturbed areas with ruts or wheel tracks that measure more than 2 in. in depth or more than 12 in. in length or width, shall be restored to be free from such ruts or wheel tracks.

Debris encountered during the performance of the work which hampers the performance of the work or that is visible from adjacent areas shall be removed and disposed of in accordance with these Technical Specifications.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for MOWING shown on the basis of quote form. The entire area designated for MOWING on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price per acre for MOWING.

Such unit price shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and placing of all labor, tools, equipment, materials and other incidental items necessary to complete the work. The removal and disposal, including transporting, of cut material and other materials resulting from the performance of the work shall also be considered as incidental to this work.

EXCAVATION

DESCRIPTION
This work shall consist of the excavation of materials from trenches and other cut areas and the transportation of materials generated during such excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.

CONSTRUCTION REQUIREMENTS
(a) Preparation
Prior to starting the excavation work, necessary clearing and tree removal, mowing, hand removal, and/or topsoil stripping work shall be conducted within the work area and within any fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site, in accordance with these technical specifications.

(b) Excavation
All excavation work shall be conducted in accordance with the lines, grades, and elevations shown on the construction plans; there shall be no deviation from such lines, grades, and elevations, without the written consent of the Engineer.

All suitable materials generated during the excavation work, including, but not limited to, earth, gravel, rock, stone, boulders, and broken concrete not containing exposed rebar, shall be re-used in the work, as described below, provided that such materials meet all applicable materials specifications. Materials generated during the excavation work that are not suitable for re-use in the work shall be removed and disposed of off-site in a responsible and lawful manner.

Suitable earth, gravel, rock, stone, and boulders generated during the excavation work may be placed in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted in accordance with the contract documents. Suitable broken concrete not containing exposed rebar generated during the channel excavation work may also be used in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted to the satisfaction of the Engineer, buried under a minimum of two feet of earth, and do not create an unsightly appearance or conflict with the natural topography of the area. Suitable gravel, rock, and broken concrete not containing exposed rebar generated during the excavation work may also be used as coarse aggregate, provided that such materials meet all applicable materials specifications. Suitable rock, stone, boulders, and broken concrete not containing exposed rebar generated during the excavation work may also be used as rip rap, provided that such materials meet all applicable materials specifications.

Materials generated during the excavation work that are not suitable for re-use in the work shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations. Should the Contractor choose to dispose of such materials at a clean construction and demolition debris (CCDD) facility or at an uncontaminated soil fill operation, it shall be the Contractor’s responsibility to have the pH of the material tested to ensure the value is between 6.25 and 9.0, inclusive. A copy of the pH test results shall be provided to the Engineer.

When the Contractor removes and disposes of materials generated during the excavation work that are not suitable for re-use in the work, the Contractor shall obtain written approval from the owner of such off-site location and present such written approval to the Engineer prior to using such location. The approval of the proposed off-site disposal site shall be according to Article 107.17.

(c) Classification
All excavation work will be classified by the Engineer. All excavation work will be classified as EXCAVATION, except that excavation work conducted in rock shall be classified as ROCK EXCAVATION.

ROCK EXCAVATION shall consist of the excavation of boulders 1/2 CY in volume or greater and all rock in ledges, bedded deposits, and conglomerate deposits exhibiting the physical characteristics and difficulty of rock removal, as determined by the Engineer.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for EXCAVATION AND/OR ROCK EXCAVATION shown on the basis of quote or basis of bid form. The entire volume designated for EXCAVATION AND/OR ROCK EXCAVATION on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price(s) per cubic yard for EXCAVATION AND/OR ROCK EXCAVATION.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of materials generated during such excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

The removal and disposal, including transportation, of materials generated during the excavation work that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

CHANNEL EXCAVATION

DESCRIPTION

This work shall consist of the creation of new stream channels and/or the deepening, widening, or straightening of existing stream channels and the transportation of materials generated during such channel excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.

CONSTRUCTION REQUIREMENTS

Prior to starting the channel excavation work, necessary clearing and tree removal and mowing shall be conducted within the work area and within any fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site, in accordance with these technical specifications.

All channel excavation work shall be conducted in accordance with the lines, grades, and elevations shown in the construction plans; there shall be no deviation from such lines, grades, and elevations, without the written consent of the Engineer.

All suitable materials generated during the channel excavation work, including, but not limited to, earth, gravel, rock, stone, boulders, and broken concrete not containing exposed rebar, shall be re-used in the work, as described below, provided that such materials meet all applicable materials specifications. Materials generated during the channel excavation work that are not suitable for re-use in the work shall be removed and disposed of off-site in a responsible and lawful manner.

Suitable earth, gravel, rock, stone, and boulders generated during the channel excavation work may be placed in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted in accordance with the contract documents. Suitable broken concrete not containing exposed rebar generated during the channel excavation work may also be used in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted to the satisfaction of the Engineer, buried under a minimum of two feet of earth, and do not create an unsightly appearance or conflict with the natural topography of the area. Suitable gravel, rock, and broken concrete not containing exposed rebar generated during the channel excavation work may also be used as coarse aggregate, provided that such materials meet all applicable materials specifications. Suitable rock, stone, boulders, and broken concrete not containing exposed rebar generated during the channel excavation work may also be used as rip rap, provided that such materials meet all applicable materials specifications.

Materials generated during the channel excavation work that are not suitable for re-use in the work shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations. Should the Contractor choose to dispose of such materials at a clean construction and demolition debris (CCDD) facility or at an uncontaminated soil fill operation, it shall be the Contractor’s responsibility to have the pH of the material tested to ensure the value is between 6.25 and 9.0, inclusive. A copy of the pH test results shall be provided to the Engineer.

When the Contractor removes and disposes of materials generated during the channel excavation work that are not suitable for re-use in the work, the Contractor shall obtain written approval from the owner of such off-site location and present such written approval to the Engineer prior to using such location. The approval of the proposed off-site disposal site shall be according to Article 107.17 of the General Conditions.

The means and methods selected and used by the Contractor in the performance of the work shall minimize soil disturbance in the areas subject to the work. Wherever areas have been disturbed as a result of the performance of the work, provided the following tolerances for ruts, Contractor, at no additional cost to the Department, shall restore such property to a condition equal to that existing before such disturbance occurred. Damage, such as ruts or wheel tracks more than 2 in. in depth or more than 12 in. in length or width, shall be repaired to the satisfaction of the Engineer. If the Contractor fails to do so, the Department may, after the expiration of a period of 48 hours after giving the Contractor notice in writing, proceed to repair such damage, and the cost thereof will be deducted from any compensation due, or which may become due, the Contractor under this or any other contract between the Contractor and the Department.

(1) Tolerances for Ruts. Disturbed areas shall be free from ruts or wheel tracks measuring more than 2 in. in depth or more than 12 in. in length or width. Disturbed areas with ruts or wheel tracks that measure more than 2 in. in depth or more than 12 in. in length or width, shall be restored to be free from such ruts or wheel tracks.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for CHANNEL EXCAVATION shown on the basis of quote form. The entire volume designated for CHANNEL EXCAVATION on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price per cubic yard for CHANNEL EXCAVATION.

Such unit price shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and placing of all labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of materials generated during such channel excavation work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

Removal and disposal of materials generated during the channel excavation work that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL.

GRADING DITCHES & SWALES

DESCRIPTION
This work shall consist of the creation of new swales, ditches, and other small channels and/or the deepening, widening, or straightening of existing swales, ditches, and other small channels and the transportation of materials generated during such grading work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site.

CONSTRUCTION REQUIREMENTS
(a) Preparation
Prior to starting the grading work, necessary clearing and tree removal, mowing, hand removal, and/or topsoil stripping work shall be conducted within the work area and within any fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site, in accordance with these technical specifications.

(b) Grading
All grading work on swales, ditches, and other small channels shall be conducted in accordance with the lines, grades, and elevations shown on the construction plans; there shall be no deviation from such lines, grades, and elevations, without the written consent of the Engineer.

All suitable materials generated during the grading work, including, but not limited to, earth, gravel, rock, stone, boulders, and broken concrete not containing exposed rebar, shall be re-used in the work, as described below, provided that such materials meet all applicable materials specifications. Materials generated during the grading work that are not suitable for re-use in the work shall be removed and disposed of off-site in a responsible and lawful manner.

Suitable earth, gravel, rock, stone, and boulders generated during the grading work may be placed in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted in accordance with the contract documents. Suitable broken concrete not containing exposed rebar generated during the grading work may also be used in fill areas, embankment locations, spoil disposal areas, or stockpile areas, provided that such materials are placed and compacted to the satisfaction of the Engineer, buried under a minimum of two feet of earth, and do not create an unsightly appearance or conflict with the natural topography of the area. Suitable gravel, rock, and broken concrete not containing exposed rebar generated during the grading work may also be used as coarse aggregate, provided that such materials meet all applicable materials specifications. Suitable rock, stone, boulders, and broken concrete not containing exposed rebar generated during the grading work may also be used as rip rap, provided that such materials meet all applicable materials specifications.

Materials generated during the grading work that are not suitable for re-use in the work shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations. Should the Contractor choose to dispose of such materials at a clean construction and demolition debris (CCDD) facility or at an uncontaminated soil fill operation, it shall be the Contractor's responsibility to have the pH of the material tested to ensure the value is between 6.25 and 9.0, inclusive. A copy of the pH test results shall be provided to the Engineer.

When the Contractor removes and disposes of materials generated during the grading work that are not suitable for re-use in the work, the Contractor shall obtain written approval from the owner of such off-site location and present such written approval to the Engineer prior to using such location. The approval of the proposed off-site disposal site shall be according to Article 107.17.

(c) Finishing
Within swales, ditches, and other small channels designated for this work, all irregularities shall be smoothed out, depressions shall be filled in, and the swale, ditch, or other small channel shall be shaped, trimmed, and finished uniformly to the lines, grades, and elevations shown on the construction plans and blended into the existing adjacent grade.

Finished surfaces shall be cleaned up for final acceptance. All unsuitable material, debris, and rubbish, resulting from construction operations, or otherwise occurring within the finished surface, and all stones more than 6 IN in

the largest dimension, shall be removed from the finished surface and disposed of in accordance with these technical specifications. The degree of finish required shall be that which can be obtained by use of suitable mechanical equipment, with only such hand labor as special conditions may require. Following finishing, the finished surface shall have a smooth appearance and shall be relatively free of dirt clods, stones, woody debris, rubbish, and other irregularities.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for GRADING DITCHES & SWALES shown on the basis of quote or basis of bid form. The entire length along the centerline of ditches, swales, and other small channels designated for GRADING DITCHES & SWALES on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price(s) per linear foot for GRADING DITCHES & SWALES.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of materials generated during such grading work to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

The removal and disposal, including transportation, of materials generated during the grading work that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

FILL

DESCRIPTION
This work shall consist of the construction of embankments and other fill areas on the project site by transporting, spreading, and tamping or compacting suitable material above the surface of the existing grade.

CONSTRUCTION REQUIREMENTS
(a) Preparation
Prior to starting the construction of an embankment or other fill area, necessary clearing and tree removal, mowing, hand removal, and/or topsoil stripping work shall be conducted within the work area in accordance with these technical specifications.

The existing ground surface within the embankment or other fill area shall then be scarified or tilled to a minimum of 3 IN deep to prepare the ground surface for the placement of fill. Fill shall not be placed on frozen earth.

When embankments and other fill areas are located on existing slopes, or if existing slopes are included in embankments or other fill areas, the existing slopes shall be scarified or tilled to a minimum of 3 IN deep to prepare the ground surface for the placement of fill. If additional precautions for binding the fill to the ground surface are justified, steps shall be cut into the existing slopes before the construction of the embankment or other fill area begins.

(b) Fill
Embankments and other fill areas shall be constructed of suitable materials that will compact and develop stability. No sod, frozen material, or any material which, by decay or otherwise, might cause settlement shall be placed or allowed to remain in embankments or other fill areas. Embankments and other fill areas shall be constructed to the height and width deemed necessary to provide for shrinkage during compaction. Upon completion, the embankments and other fill areas shall be according to the lines, grades, and cross sections shown on the construction plans.

When embankments and other fill areas are constructed of materials generated during excavation work, such materials shall be well distributed, and sufficient earth or other fine material shall be incorporated within them when they are deposited to fill interstices and provide solid embankments and surfaces. No rock, stones or broken concrete more than 4 IN in largest dimension shall be permitted within a vertical distance of 12 IN from the surface of the finished grade.

Pieces of concrete, not exceeding 2 SF for any area of surface, and large rocks and boulders may be placed in embankments and other fill areas without being broken up, provided they are well embedded, and the interstices filled with smaller pieces or smaller material in a manner to give a density satisfactory to the Engineer. The lifts of the smaller pieces or smaller material shall not exceed 8 IN in depth.

So far as practicable, each lift of material shall extend the entire length and width of the embankment or other fill area. The material shall be leveled by means of bulldozers, graders, or other equipment approved by the Engineer. Each lift shall be not more than 8 IN thick when in loose condition, uniform in cross section, and thoroughly compacted before the next lift is started. Each lift of material shall be disked sufficiently to break down oversized clods, mix the different materials, secure a uniform moisture content, and ensure uniform density and compaction. Disking may be omitted if the fill material consists of sand or gravel.

The use of drag line excavators or similar equipment which excavate and deposit material in large unit masses will not be permitted, unless all materials excavated in this manner are spread as provided herein and compacted in accordance with these technical specifications, or as directed by the Engineer.

(c) Compaction
If the height of the embankment or other fill area is less than 1-1/2 FT, all lifts shall be compacted to not less than 95 percent of the standard laboratory density. If the height of the embankment or other fill area is between 1-1/2 FT and 3 FT, the first lift shall be compacted to not less than 90 percent, and the balance to a minimum of 95 percent of the standard laboratory density. If the height of the embankment or other fill area exceeds 3 FT in height, the lower 1/3 of the embankment or surface, but not to exceed the lower 2 FT, shall be compacted in a

manner that will yield a minimum of 90 percent of standard laboratory density to the uppermost lift of that portion of the embankment or other fill area. The next 1 FT of the embankment or other fill area shall be compacted to not less than 93 percent, and the balance of the embankment or other fill area shall be compacted to not less than 95 percent of the standard laboratory density.

The top 2 FT of all embankments and other fill areas shall not contain more than 120 percent of the optimum moisture determined according to AASHTO T 99 (Method C). The Contractor will be permitted the use of an approved additive to effect a quicker drying time.

The standard laboratory density shall be the maximum dry density determined according to AASHTO T 99 (Method C). A coarse particle correction according to AASHTO T 224 shall be used.

The dry density of the compacted embankment or other fill area will be determined by the Engineer at regular intervals according to AASHTO T 191, AASHTO T 310, or by other methods approved by the Engineer.

The embankment or other fill area shall be sprinkled with water when it is necessary to increase the moisture content of the soil to permit the fill area or embankment location to be constructed to the densities indicated above.

Compacting equipment and compacting operations shall be coordinated with the rate of placing fill material so that the required density is obtained.

Special care shall be exercised in compacting embankments and other fill areas adjacent to structures and in sharp depressions. Where such areas are inaccessible to the compacting equipment being used, the material shall be placed in 8 IN lifts and uniformly compacted with suitable mechanical equipment. Embankment and other fill areas placed adjacent to a structure shall not contain more than 110 percent of the optimum moisture determined according to AASHTO T 99 (Method C).

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

BEDDING & INITIAL BACKFILL

DESCRIPTION
This work shall consist of furnishing, transporting, and placing coarse aggregate for the bedding and initial backfill to be installed at the bottom of all trenches excavated during the performance of the work for the purpose of installing drain tiles, storm sewers, and culverts.

This work also includes the transportation of suitable surplus excavated material from trenches, such suitable surplus excavated material having been replaced by bedding and initial backfill, to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site. Surplus excavated material not suitable for use in fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Bedding & Initial Backfill

CONSTRUCTION REQUIREMENTS
The installation of bedding and initial backfill shall be completed in accordance with these technical specifications.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for BEDDING & INITIAL BACKFILL shown on the basis of quote or basis of bid form. The entire volume of BEDDING & INITIAL BACKFILL necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price per cubic yard for BEDDING & INITIAL BACKFILL.

Such unit price shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of suitable surplus excavated material from trenches, such suitable surplus excavated material having been replaced by bedding and initial backfill, to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

The removal and disposal, including transportation, of surplus excavated materials that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

FINAL BACKFILL

DESCRIPTION
This work shall consist of furnishing, transporting, and placing suitable excavated material for the final backfilling of all trenches not located in or near the subgrade of a proposed or existing pavement. It shall also consist of furnishing, transporting, and placing coarse aggregate for the final backfilling of all trenches located in the subgrade of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, and all trenches located where the inner edge of the trench is within 2 FT of the edge of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk.

This work also includes the transportation of suitable surplus excavated material from trenches, such suitable surplus excavated material having been replaced by final backfill, to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site. Surplus excavated material not suitable for use in fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall be removed and disposed of off-site in a licensed landfill, recycled, reused, or otherwise disposed of in accordance with local, state, and federal laws and regulations.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Suitable Excavated Material
(2) Trench Backfill

CONSTRUCTION REQUIREMENTS
The installation of final backfill shall be completed in accordance with these technical specifications.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for FINAL BACKFILL shown on the basis of quote form. The entire volume of FINAL BACKFILL necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price per cubic yard for FINAL BACKFILL.

Such unit price shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work. The transportation of suitable surplus excavated material from trenches, such suitable surplus excavated material having been replaced by trench backfill, to fill areas, embankment locations, spoil disposal areas, or stockpile areas located on the project site shall also be considered as incidental to this work.

The removal and disposal, including transportation, of surplus excavated materials that are not suitable for re-use in the work will be paid for at the contract unit price per cubic yard for REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL, provided the completion of such work is provided for in the contract documents. If the completion of such work is not provided for in the contract documents, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL will be paid for according to Article 109.05.

ROCK APRON

DESCRIPTION
This work shall consist of preparation, earthwork, and furnishing, transporting, and placing rock to create rock aprons at the locations shown on the construction plans.

MATERIALS
Materials for rock aprons shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Rock Apron Mix:
  (A) Rip Rap, Revetment 67% of Mix
  (B) INDOT No. 5 Coarse Aggregate 33% of Mix
(2) Common Borrow

CONSTRUCTION REQUIREMENTS
(a) Preparation
Prior to starting the earthwork, necessary clearing and tree removal, mowing, and/or hand removal shall be conducted within the work area, in accordance with these technical specifications.

(b) Earthwork
The bed of the stream channel, swale, ditch, or other small channel located beneath the rock apron shall then be excavated or filled, using rock apron mix, as needed to create a foundation a minimum of 1.5 FT below the top of the rock apron. The foundation shall extend across the entire width of the ditch, plus 2 FT up/into each bank of the ditch, and shall be, at a minimum, as long as it is wide. If fill is used to create the foundation, the foundation shall be blended into the existing adjacent grade.

All earthwork shall be completed in accordance with these technical specifications and shall be reviewed and approved by the engineer prior to placing the rock apron.

PLACING
After the Engineer has reviewed and approved the earthwork, the top of the foundation located beneath the rock apron shall be firmly tamped to provide a sound foundation for the rock apron.

A minimum 3 IN lift of INDOT No. 5 coarse aggregate shall then be placed over the top of the foundation located beneath the rock apron. Alternating lifts of rip rap, revetment, INDOT No. 5 coarse aggregate, and rip rap, revetment shall then be placed to achieve the lines and grades shown on the construction plans. The INDOT No. 5 coarse aggregate shall be placed so as to fill the void space between the larger stones in the rip rap, revetment.

The placement of the rock apron shall be reviewed and approved by the Engineer.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for ROCK APRON shown on the basis of quote or basis of bid form. The entire area of ROCK APRON necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price per square yard for ROCK APRON.

Such unit price shall include all preparation and earthwork necessary to complete the work, as well as the furnishing, transporting, and placing of all materials necessary to complete the work. The transportation of excess excavated material resulting from the work to fill areas, embankments, or material stockpiles located on the

project site shall be considered as incidental to this work. The restoration of areas disturbed as a result of the work shall also be considered as incidental to this work.

SHAPING, TRIMMING & FINISHING

DESCRIPTION
This work shall consist of the shaping, trimming, and finishing of disturbed areas located on the project site, the cleaning up of disturbed areas located on the project site, and completing the work for acceptance.

CONSTRUCTION REQUIREMENTS

(a) Grading
Within disturbed areas located on the project site, all irregularities shall be smoothed out, depressions shall be filled in, and the entire disturbed area shall be shaped, trimmed, and finished uniformly to the lines, grades, and elevations shown on the construction plans and blended into the existing adjacent grade.

(b) Finishing
Finished surfaces shall be cleaned up for final acceptance. All unsuitable material, debris, and rubbish, resulting from construction operations, or otherwise occurring within the finished surface, and all stones more than 6 IN in the largest dimension, shall be removed from the finished surface and disposed of in accordance with these technical specifications. The degree of finish required shall be that which can be obtained by use of suitable mechanical equipment, with only such hand labor as special conditions may require. Following finishing, the finished surface shall have a smooth appearance and shall be relatively free of dirt clods, stones, woody debris, rubbish, and other irregularities.

MEASUREMENT
This work shall be considered as incidental to the work and the various other items of work involved and will not be measured for payment.

PAYMENT
This work will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

DIVISION 300
DRAINAGE AND STORMWATER MANAGEMENT

CULVERT

DESCRIPTION
This work shall consist of constructing culverts as shown on the construction plans.

MATERIALS
Materials shall be in accordance with the following materials specifications, which are presented elsewhere in these technical specifications.

MATERIALS
(1) Rigid Pipe
   a. Reinforced Concrete Pipe (RCP)
   b. Corrugated Metal Pipe (CMP)
(2) Bedding & Initial Backfill
(3) Final Backfill

CONSTRUCTION REQUIREMENTS
This work shall be completed in accordance with the Porter County Supplemental Design and Construction Standards/Specifications and these technical specifications. In case of conflict between these technical specifications and any part or parts of said Porter County Supplemental Design and Construction Standards/Specifications, the Engineer shall determine which specifications shall take precedence and govern.

(a) Excavation
Culverts shall be constructed in trenches free of water, excavated either in embankments or natural ground. Trenches shall be dewatered through the use of diversion channels or other methods approved by the Engineer before proceeding with the construction.

Trenches shall be excavated in accordance with the depths and widths described in the table below.

Inside Diameter or Equivalent Diameter of Culvert, d (IN)	Maximum Trench Width on Each Side of the Culvert (IN)	Minimum Trench Depth Below the Culvert (IN)
$d \leq 24$ IN	9 IN	3 IN
24 IN $< d \leq 60$ IN	12 IN	4 IN
$d > 60$ IN	18 IN	6 IN

If the width of the trench exceeds the maximum horizontal dimension specified above as a result of careless or faulty construction methods, that portion of the trench shall be corrected by backfilling in 8 IN lifts and again excavating the trench to the required width.

Trenches shall be excavated so that vertical faces are maintained at least to an elevation 12 IN above the top of the culvert. If the trench has been made deeper than necessary, the foundation shall be brought to the proper grade by the addition of well compacted bedding material. For trench depths greater than 5 FT, trench protection shall be utilized according to the applicable standards for work place safety. At the request of the Engineer, the Contractor shall provide to the Department, in writing, his/her procedures for fulfilling the safety requirements for trench protection.

Where pipe having bells or hubs is used, cross trenches not more than 2 IN wider than the bell or hub shall be excavated to provide uniform bearing along the length of the pipe.

Where a firm foundation is not encountered at the bottom of the trench due to the presence of unsuitable material, such as soft or spongy soil, unstable soil, or rock in either ledge or boulder formation is encountered at locations along the line of the culvert and at the grade established for the culvert, the material or rock shall be removed and replaced before proceeding with the construction.

The unsuitable material shall be removed to a depth determined by the Engineer for the width of the trench, and replaced with well compacted bedding material. Rock shall be removed to an elevation 1 FT lower than the bottom of the pipe or to a depth equal to 1/2 IN/FT of ultimate fill height over the top of the pipe, whichever is the greater depth, for the width of the trench, and replaced with well compacted bedding material. Bedding material shall be placed in 8 IN lifts and compacted by mechanical means to the satisfaction of the Engineer.

When all or a portion of a pipe will be in fill, the embankment, or a portion thereof, shall be constructed prior to excavating the trench. The embankment shall be constructed to a height which will provide approximately 1 FT of cover over the pipe, except that in no case shall the height of the embankment constructed result in a finished trench depth exceeding 5 FT. The width of the top of the embankment shall be a minimum of 2 FT on each side of the pipe, measured at right angles to its centerline, and the longitudinal slopes shall be 6:1 (H:V) or flatter. The embankment shall be constructed according to the requirements of these technical specifications, except the material shall be suitable excavated material meeting the approval of the Engineer.

All excavated material not suitable for re-use on the work shall be disposed of in accordance with these technical specifications.

(b) Foundation
Well compacted bedding material, in accordance with the table below, shall be placed along the entire width of the trench for the entire length of the pipe, except where the culvert outlets from the embankment or the existing slope, the last 3 FT of the pipe shall be bedded in suitable excavated material, as described below. The bedding material and/or suitable excavated material shall be compacted by mechanical means to the satisfaction of the Engineer.

Inside Diameter or Equivalent Diameter of Storm Sewer, d (IN)	Minimum Depth of Bedding Material (IN)
$d \leq 24$ IN	3 IN
24 IN $< d \leq 60$ IN	4 IN
$d > 60$ IN	6 IN

(c) Laying Culverts
No culvert shall be placed until the trench and the prepared foundation have been approved by the Engineer.

The trench shall be kept free from water while the pipe is being placed and until the joints have been sealed. Trenches shall be dewatered through the use of diversion channels or other methods approved by the Engineer before proceeding with the construction.

The laying of pipes shall be started at the outlet end with the spigot ends pointing in the direction of flow, and shall proceed toward the inlet end with pipes abutting and true to line and grade. The ends of pipes shall be carefully cleaned before the pipes are lowered into the trenches, and the pipes shall be lowered so as to avoid unnecessary handling in the trench.

As each length of pipe is laid, the mouth of the pipe shall be properly protected to prevent the entrance of earth or the bedding material. The pipes shall be fitted and matched so that when laid in the work they will form a culvert with a smooth, uniform invert. If reinforced concrete pipe is used, the word "top" or "bottom" may be stenciled on the inside of the pipe sections. All concrete pipe so marked shall be placed as indicated by these marks. Each section of pipe shall be pushed or pulled to the section in place to ensure tight joints. Pipe having a diameter greater than 42 IN shall be set or "brought home" with a winch, come-a-long, or other positive means.

All joints in concrete pipe shall be sealed with rubber gaskets, preformed flexible joint sealants, mastic joint sealer, or external sealing bands. When mastic joint sealer is used, it shall be applied according to the manufacturer’s recommendations and the material shall completely fill the joint after the pipes have been brought together. After each joint is sealed, it shall be wiped clean on the inside. Handling holes in concrete pipe shall be filled with a precast concrete plug and sealed with mastic or mortar; or filled with a polyethylene plug. The plug shall not project beyond the inside surface after installation.

CMP pipe shall be joined according to the manufacturer's specifications using a Type 10-C band and appropriate gasket material between the pipe and band.

(d) Backfilling
As soon as the condition of the culvert will permit, the entire width of the trench shall be backfilled with initial backfill material to a height of at least 1 FT above the top of the pipe, except where the culvert outlets from the embankment or the existing slope, the initial backfill material around and above the last 3 FT of the pipe shall be suitable excavated material, as described below. All initial backfill material shall be deposited in such a manner as not to damage the pipe. The initial backfill material shall be placed longitudinally along the pipe and the filling of the trench shall be carried on simultaneously on both sides of the pipe. Upon finishing placement of the initial backfill material, the elevation of the initial backfill material on each side of the pipe shall be the same and the space under the pipe shall be completely filled. The initial backfill material shall be placed in 8 IN lifts and compacted by mechanical means to the satisfaction of the Engineer.

The installed pipe and its embedment (i.e., bedding and initial backfill) shall not be disturbed when using movable trench boxes and shields, sheet pile, or other trench protection.

The remainder of the trench shall be backfilled to the existing adjacent grade or finished surface as rapidly as the condition of the culvert will permit. The final backfill material shall consist of suitable excavated material from the trench or trench backfill, as specified in the contract documents or as follows:

(1) Trench Backfill. For trenches made in the subgrade of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, and trenches where the inner edge of the trench is within 2 FT of the edge of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, the remainder of the trench shall be backfilled with trench backfill material meeting the requirements of these technical specifications. The material shall be placed in lifts not exceeding 8 IN in depth and compacted to a minimum of 95 percent of standard lab density by mechanical means.

(2) Suitable Excavated Material. For all other trenches, the remainder of the trench shall be backfilled with suitable excavated material. The material shall be from excavation or borrow, free from large or frozen lumps, clods, or rock, and meeting the approval of the Engineer. The material shall be placed in lifts not exceeding 8 IN in depth, and compacted to 95 percent of standard lab density by mechanical means.

Before compaction, each lift shall be wetted or dried to bring the moisture content within 80 to 110 percent of optimum as determined according to AASHTO T 99 (Method C).

When sheeting and bracing have been used, sufficient bracing shall be left across the trench as the backfilling progresses to hold the sides firmly in place without caving or settlement. This bracing shall be removed as soon as practicable. Any depressions which may develop within the area involved in the construction operation due to settlement of the backfill material shall be filled in a manner meeting the approval of the Engineer.

When the Contractor constructs the trench with sloped or benched sides, backfilling for the full width of the excavation shall be as herein specified, except that no additional compensation will be allowed for backfill material required outside the vertical limits of the specified trench width.

(e) Shaping, Trimming & Finishing
After backfilling has been completed, the top of the trench shall be shaped, trimmed, and finished to the lines, grades, and elevations shown on the construction plans, in accordance with these technical specifications.

MEASUREMENT
CULVERT shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity and/or quantities shown on the basis of quote or basis of bid form for CULVERT of the diameter, material, and class and/or type specified in the contract documents. The entire length of CULVERT necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

EXCAVATION FOR CULVERT will be measured for payment in accordance with these technical specifications.

DEWATERING FOR CULVERT will be measured for payment in accordance with these technical specifications.

BEDDING FOR CULVERT will be measured for payment in accordance with these technical specifications.

TRENCH BACKFILL FOR CULVERT will be measured for payment in accordance with these technical specifications.

PAYMENT
CULVERT shall paid for at the contract unit price(s) per foot for CULVERT of the diameter, material, and class and/or type specified in the contract documents.

Such unit price shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all material, labor, tools, equipment, and other incidental items necessary to complete the work.

EXCAVATION FOR CULVERT shall be paid for in accordance with these technical specifications.

DEWATERING FOR CULVERT shall be paid for in accordance with these technical specifications.

BEDDING FOR CULVERT shall be paid for in accordance with these technical specifications.

TRENCH BACKFILL FOR CULVERT shall be paid for in accordance with these technical specifications.

DIVISION 500
EROSION AND SEDIMENT CONTROL

TEMPORARY CONSTRUCTION ENTRANCE

DESCRIPTION
This work shall consist of the creation of temporary construction entrances at the locations shown on the construction plans or where otherwise required to complete the work in accordance with the contract documents. This work shall also include maintaining temporary construction entrances throughout the performance of the work and restoring areas disturbed as a result of the installation and maintenance of such temporary construction entrances.

CONSTRUCTION REQUIREMENTS
Temporary construction entrances shall be confined to those locations indicated on the construction plans or as approved by the Engineer and shall avoid wetland areas. Where equipment or vehicles related to the performance of the work are operated on any portion of any public or private roadway adjacent to such temporary construction entrances, the Contractor shall maintain such roadway free from all dirt and debris at all times. If dirt or debris are carried on to such roadway by equipment or vehicles related to the performance of the work, the Contractor shall immediately clean the pavement of all dirt and debris.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for TEMPORARY CONSTRUCTION ENTRANCE shown on the basis of quote or basis of bid form. The entire quantity of TEMPORARY CONSTRUCTION ENTRANCE shown on the construction plans shall have been used in computing such quantity.

PAYMENT
This work shall be paid for at the contract unit price(s) per each for TEMPORARY CONSTRUCTION ENTRANCE.

Such unit price(s) shall include all preparation necessary to complete the work, as well as the furnishing, transporting, and/or placing of all labor, tools, equipment, and other incidental items necessary to complete the work.

DIVISION 600
LANDSCAPING

RESTORE DISTURBED AREA

DESCRIPTION
This work shall consist of preparation and furnishing, transporting, and placing topsoil and/or fertilizer, plant seed and, as appropriate, straw mulch or erosion control blanket, over areas disturbed during the performance of the work, including, but not limited to, stream channels, swales, ditches, and other small channels, temporary construction entrances, construction access routes, and other areas disturbed during the performance of the work.

MATERIALS
Materials for the restoration of disturbed areas shall be in accordance with the following materials specifications, which are presented elsewhere in these Technical Specifications.

MATERIALS
(1) Topsoil
(2) Fertilizer
(3) Cover Crop Seed Mix
(4) Ditch Seed Mix
(5) Straw
(6) Erosion Control Blanket

CONSTRUCTION REQUIREMENTS
Restoration of the disturbed area shall begin by raking, scarifying, tilling, or blading the soil surface to a minimum of 3 in. deep to prepare the disturbed area for the placement of topsoil and/or fertilizer and plant seed. The soil surface shall be shaped, trimmed, and finished uniformly and blended into the existing adjacent grade. Topsoil may be placed over the disturbed area as needed to smooth out the soil surface, fill in ruts, wheel tracks, and depressions, and blend the disturbed area into the existing adjacent grade. Following preparation of the disturbed area, the soil surface shall have a relatively smooth appearance and shall be relatively free of dirt clods, rocks, sticks, and other irregularities.

Once the surface of the disturbed area has been prepared, fertilizer shall be installed in the disturbed area, as outlined below.

FERTILIZER

(1) Fertilizer. Fertilizer shall be spread uniformly over those disturbed areas located in swales, ditches, and other small channels disturbed during the performance of the work. Disturbed areas located in row crop areas and other miscellaneous areas disturbed during the performance of the work, such as temporary construction entrances and construction access routes, shall not receive fertilizer, unless otherwise directed by the Engineer.

Once fertilizer has been spread uniformly over the surface of the disturbed area, the appropriate plant seed, as outlined below, shall be installed in the disturbed area.

PLANT SEED

(1) Cover Crop Seed Mix. Cover crop seed mix shall be installed in miscellaneous areas disturbed during the performance of the work, including temporary construction entrances and construction access routes, and, as directed by the Engineer, other areas disturbed during the performance of the work.

(2) Ditch Seed Mix. Ditch seed mix shall be installed in all stream channels, swales, ditches, and other small channels disturbed during the performance of the work.

The appropriate plant seed shall be installed in the disturbed area using seeding equipment or methods approved by the Engineer. If requested by the Contractor, the Engineer will consider the use of broadcast seeding or hydraulic seeding. Regardless of the seeding method used, the Contractor shall ensure that the disturbed area receives the appropriate plant seed at the seeding rates specified in these Technical Specifications.

Installation of plant seed in disturbed areas shall occur at appropriate times of the year under appropriate weather conditions. Plant seed shall only be installed between March 1 and June 30 or between September 1 and November 30, unless otherwise approved by the Engineer. Under no circumstances shall plant seed be installed when the ground surface is frozen or saturated.

After the appropriate plant seed has been installed in the disturbed area, as appropriate, straw mulch or erosion control blanket shall be installed over the disturbed area, as outlined below.

STRAW MULCH

(1) Straw Mulch. Straw mulch shall be uniformly applied over all disturbed areas with a slope of flatter than 3:1 (H:V).

EROSION CONTROL BLANKET

(1) NAG S75BN Erosion Control Blanket. North American Green (NAG) S75BN erosion control blanket, or equivalent, as approved by the Engineer, shall be installed over all disturbed areas located within stream channels, swales, ditches, and other small channels disturbed during the performance of the work, including side slopes (i.e., toe of slope to top of bank) and all other disturbed areas to be restored and located on slopes of 3:1 (H:V) or steeper.

(2) NAG C125BN Erosion Control Blanket. North American Green (NAG) C125BN erosion control blanket, or equivalent, as approved by the Engineer, shall be installed over all disturbed areas located within stream channels, swales, ditches, and other small channels disturbed during the performance of the work, include bottoms (i.e., toe of slope to toe of slope).

In order to prevent erosion of the underlying soil surface and washout of the underlying plant seed, the straw mulch or erosion control blanket shall be installed within 24 hours of the installation of the plant seed.

Erosion control blanket shall be installed in accordance with the manufacturer's instructions. It shall be layed out flat, evenly, and smoothly over the disturbed area, without stretching the blanket. If the height of the slope of the disturbed area is greater than 4 ft., the erosion control blanket shall be installed vertically up the slope, perpendicular to the streambank. If the height of the slope of the disturbed area is 4 ft. or less, the erosion control blanket shall be installed horizontally along the slope, parallel to the streambank. If the disturbed area is located within a swale, gully, or stream channel, the erosion control blanket shall be installed parallel to the centerline of the swale, gully, or stream channel, so that there are no perpendicular seams within the swale, gully, or stream channel or longitudinal seams within 2 ft. of the bottom (i.e., invert) of the swale, gully, or stream channel.

Erosion control blanket of insufficient width or length to fully cover the disturbed area shall be lapped or sewn. Overlaps in the erosion control blanket, whether such overlaps will be lapped or sewn, shall be placed so that any upslope section of erosion control blanket will overlap the downslope section. The minimum overlap for lapped sections is 12 in. and the minimum overlap for sewn sections is 4 in. When sewn, overlapped sections of erosion control blanket shall be stitched together at a minimum rate of one stitch per 1.5 in. with the same thread used to manufacture the erosion control blanket, as described in these Technical Specifications.

Erosion control blanket shall be placed in firm contact with the underlying soil surface and then fastened to the underlying soil surface with minimum 6 in. long staples, in accordance with the manufacturer's recommended staple pattern. Each end of the erosion control blanket shall then be anchored to the underlying soil surface in a minimum 12 in. deep by minimum 6 in. wide trench, as shown on the construction plans.

MEASUREMENT

The restoration of all areas disturbed during performance of the work and the various items of work involved, including, but not limited to, swales, ditches, and other small channels, temporary construction entrances,

construction access routes, and other areas disturbed during the performance of the work shall be considered as incidental to the work and the various items of work involved and will not be measured for payment.

PAYMENT

The restoration of all areas disturbed during performance of the work and the various items of work involved will not be paid for directly but shall be considered as included in the various other items of work involved and shall be included in the unit prices for such items and no additional compensation will be allowed.

DIVISION 700
INCIDENTAL CONSTRUCTION

DEWATERING

DESCRIPTION
This work shall consist of implementation of an approved dewatering plan, which shall have been prepared by the Contractor, submitted to the Engineer for approval, and approved by the Engineer prior to the start of the work.

In accordance with the approved dewatering plan, this work shall include preparation, earthwork, and furnishing, transporting, and placing materials to construct dewatering structures (e.g., dewatering sump, dewatering bag) and furnishing, transporting, placing, and operating dewatering equipment (e.g., bypass pump, evacuation pump) in order to complete the work in accordance with the construction plans. This work shall also include maintaining dewatering structures and equipment during the performance of the work, removing dewatering structures and equipment prior to completion of the work, and restoring areas disturbed as a result of the installation and removal of dewatering structures and equipment.

MATERIALS
Materials shall be in accordance with the approved dewatering plan.

SUBMITTALS
Prior to the start of the work, the Contractor shall develop a dewatering plan and shall submit such dewatering plan to the Engineer for approval. Approval of the dewatering plan is required prior to the start of the work. The Contractor shall coordinate with the Engineer as needed to develop such dewatering plan.

In accordance with these technical specifications, drain tiles and storm sewer structures shall be constructed in excavations free of water. Excavations shall be dewatered through the use of diversion channels or other methods approved by the Engineer before proceeding with the construction.

In order to create the dry conditions necessary to construct drain tiles and storm sewer structures surface and groundwater flows moving through a work area may be temporarily reduced by isolating and pumping around the work area using check dams and bypass pump(s) installed in a dewatering sump, or other methods approved by the Engineer. Following isolation, work areas may be dewatered using an evacuation pump(s) or other methods approved by the Engineer.

If dewatering will be used to create the dry conditions necessary to construct drain tiles and storm sewer structures, work areas shall be isolated using non-erodible materials, such as rock, sandbags, or pre-fabricated rigid cofferdams, and such dewatering shall be performed in a manner that maintains flow downstream of the work area. If dewatering will be used, dewatering pump discharge locations shall be adequately protected from erosion. Discharges shall be routed through an appropriate sediment control measure (e.g., dewatering bag, rock apron), approved by the Engineer, and, if necessary, treated with an appropriate anionic polymer treatment system (e.g., floc log, coir fiber roll), before being routed downstream.

CONSTRUCTION REQUIREMENTS
Construction shall be in accordance with the approved dewatering plan.

MEASUREMENT
This work shall not be measured for payment, but shall be considered complete following inspection and acceptance of the work by the Department.

This work shall be paid for at the contract quantity for DEWATERING shown on the basis of quote or basis of bid form.

PAYMENT
This work will be paid for at the contract unit price per lump sum for DEWATERING.

Such unit price shall include all preparation and earthwork necessary to complete the work, as well as the furnishing, transporting, and placing of all materials and the furnishing, transporting, placing, and operation of all equipment necessary to complete the work. The preparation of a dewatering plan, maintenance of dewatering structures and equipment during performance of the work, the removal of dewatering structures and equipment prior to completion of the work, and the transportation and disposal of items resulting from the removal of dewatering structures and equipment shall also be considered as incidental to this work. The restoration of areas disturbed as a result of the installation and removal of dewatering structures and equipment shall also be considered as incidental to this work.

DIVISION 1000
MATERIALS

BEDDING & INITIAL BACKFILL
Bedding and initial backfill shall be crushed stone, dolomite, or gravel, INDOT No. 5, No. 8, or No. 9 coarse aggregate. INDOT No. 8 coarse aggregate is preferred.

TRENCH BACKFILL
Trench backfill shall be crushed stone, dolomite, or gravel, INDOT No. 53, or No. 73 coarse aggregate.

INDOT NO. 5 COARSE AGGREGATE
INDOT No. 5 coarse aggregate shall be crushed stone, dolomite, or gravel, INDOT No. 5 coarse aggregate.

RIP RAP, REVETMENT
Rip rap, revetment shall be crushed stone, dolomite, or gravel, INDOT rip rap, revetment.

CULVERT
Culvert shall be in accordance with the following.

(1) Rigid Pipe
   a. Reinforced Concrete Pipe (RCP)
      Reinforced concrete pipe (RCP) shall be Class III, or greater if conditions warrant, in accordance with ASTM C 76/AASHTO M170.
   b. Corrugated Metal Pipe (CMP)
      Corrugated metal pipe (CMP) shall be 12 gage, or greater if conditions warrant, galvanized or aluminized steel pipe, with 2-2/3" x 1/2" corrugations, unless otherwise specified in the contract documents.

TOPSOIL
Topsoil shall be loamy soil from the "A horizon" of the soil profile and shall be relatively free from large plant material, roots, sticks, rocks, and other materials larger than 0.5 in. in diameter and other litter or waste. 90 percent of the topsoil shall pass a No. 10 sieve (i.e., 0.0787 in.). It shall have an organic content of between one and ten percent, its pH shall be between 5.5 and 8.0, and it shall be capable of germinating native plant material.

To the maximum extent practicable, all topsoil to be used on the project site shall be obtained from the project site. If additional topsoil is required to complete the work in accordance with the contract documents, the Contractor shall furnish and transport the required additional topsoil from locations other than the project site. Should topsoil from locations other than the project site be required in order to complete the work in accordance with the contract documents, the Contractor shall notify the Engineer of such need and shall name the source of such topsoil prior to the delivery of such topsoil to the project site.

FERTILIZER
Fertilizer shall be 12-12-12 fertilizer and shall be applied uniformly over those disturbed areas to receive fertilizer at a rate of 400 LB/AC.

COVER CROP SEED MIX
Cover crop seed shall be in accordance with the following.

DESCRIPTION
Cover crop seed shall be healthy, with an origin as close as possible to the project site.

QUALITY
All plant seed shall be handled and packed in a manner appropriate for the particular plant species included in the seed mix, with regard for the soil and climate conditions present at the time and place of packing, the soil and climate conditions present at the project site, the time that the plant seed will be in transit to the project site, and for the time that the plant seed will be in storage at the project site. All precautions customary to good trade practices shall be taken to ensure that the plant seed is delivered to the site in good and healthy condition.

Inspection shall occur at the time of delivery for disease and insect infestation, in accordance with all applicable state and federal laws.

Seeding shall occur promptly following delivery of the plant seed. If seeding will be significantly delayed following delivery, precautions shall be taken to protect the plant seed and maintain its healthy condition. Seed shall be stored in a shaded area when ambient temperatures exceed 72°F.

SPECIES

COVER CROP SEED MIX

SCIENTIFIC NAME	COMMON NAME	LB/AC
COVER CROP (MARCH 1 – JUNE 30)		
Avena sativa	Seed oats	120.0
Lolium multiflorum	Annual rye	240.0
		360.0
COVER CROP (SEPTEMBER 1 – NOVEMBER 30)		
Triticum aestivum	Winter wheat	120.0
Lolium multiflorum	Annual rye	240.0
		360.0

DITCH SEED MIX

Ditch seed shall be in accordance with the following.

DESCRIPTION

Ditch seed shall be healthy, with an origin as close as possible to the project site.

QUALITY

All plant seed shall be handled and packed in a manner appropriate for the particular plant species included in the seed mix, with regard for the soil and climate conditions present at the time and place of packing, the soil and climate conditions present at the project site, the time that the plant seed will be in transit to the project site, and for the time that the plant seed will be in storage at the project site. All precautions customary to good trade practices shall be taken to ensure that the plant seed is delivered to the site in good and healthy condition. Inspection shall occur at the time of delivery for disease and insect infestation, in accordance with all applicable state and federal laws.

Seeding shall occur promptly following delivery of the plant seed. If seeding will be significantly delayed following delivery, precautions shall be taken to protect the plant seed and maintain its healthy condition. Seed shall be stored in a shaded area when ambient temperatures exceed 72°F.

SPECIES

DITCH SEED MIX

SCIENTIFIC NAME	COMMON NAME	LB/AC
Agrostis gigantea	Redtop	16.0
Bromus inermis	Smooth brome	32.0
Festuca arundinacea "Kentucky 31"	Kentucky 31 tall fescue	64.0
Lolium perenne	Perennial rye	32.0
Panicum virgatum	Switchgrass	16.0
		160.0
COVER CROP (MARCH 1 – JUNE 30)		
Avena sativa	Seed oats	80.0
Lolium multiflorum	Annual rye	120.0

		200.0
COVER CROP (SEPTEMBER 1 – NOVEMBER 30)		
Triticum aestivum	Winter wheat	80.0
Lolium multiflorum	Annual rye	120.0
		200.0

STRAW MULCH

Straw mulch shall consist of wheat, barley, oat, or rye straw. The straw mulch shall be air-dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The use of straw mulch that contains noxious weeds is not permitted.

NAG S75BN EROSION CONTROL BLANKET

Erosion control blanket shall be North American Green (NAG) S75BN erosion control blanket, or equivalent, as approved by the Engineer.

The blanket shall be a machine-produced, 100% biodegradable blanket consisting of a 100% agricultural straw fiber matrix with a functional longevity of approximately 12 months. The blanket shall have a consistent thickness, with the straw fiber evenly distributed over the entire surface of the blanket.

The blanket shall be covered on the top only with a 100% biodegradable woven natural organic fiber (e.g., jute fiber) netting. The netting shall consist of machine-produced directional strands formed from two intertwined yarns. Cross directional strands shall be interwoven through the intertwined yards of one another, commonly referred to as a leno weave, to form a mesh measuring approximately 0.5 inch by 1.0 inch. The blanket shall be sown together with biodegradable thread on 1.5 inch centers.

The blanket shall have the following properties.

(1) Matrix. The content of the matrix shall be 100% agricultural straw fiber, with a density of 0.50 pounds per square yard (0.50 lb./sq. yd.).

(2) Top Netting. Netting shall be located on the top side of the blanket only. The netting shall consist of a leno woven 100% biodegradable organic fiber (e.g., jute fiber) with a mesh size of 0.5 inch by 1.0 inch and an approximate weight of 9.3 pounds per 1,000 square feet (9.3 lb./msf).

(3) Thread. Biodegradable.

(4) Stitch Spacing. 1.5 inches on center (1.5 in./O.C.).

NAG C125BN EROSION CONTROL BLANKET

Erosion control blanket shall be North American Green (NAG) C125BN erosion control blanket, or equivalent, as approved by the Engineer.

The blanket shall be a machine-produced, 100% biodegradable blanket consisting of a 100% coconut fiber matrix with a functional longevity of approximately 24 months. The blanket shall have a consistent thickness, with the coconut fiber evenly distributed over the entire surface of the blanket.

The blanket shall be covered on the top and bottom with a 100% biodegradable woven natural organic fiber (e.g., jute fiber) netting. The netting covering the top of the blanket shall consist of machine-produced directional strands formed from two intertwined yarns. Cross directional strands shall be interwoven through the intertwined yards of one another, commonly referred to as a leno weave, to form a mesh measuring approximately 0.5 inch by 1.0 inch. The netting covering the bottom of the blanket shall consist of machine-produced directional strands formed from two intertwined yards. Cross directional strands shall be woven into one another, commonly known as a simple weave, to form a mesh measuring approximately 0.5 inch by 1.0 inch. The blanket shall be sown together with biodegradable thread on 1.5 inch centers. The blanket shall be manufactured with a colored thread stitched along both outer edges, approximately 2 to 5 inches from the edge, as an overlap guide for adjacent mats.

The blanket shall have the following properties.

(1) Matrix. The content of the matrix shall be 100% coconut fiber, with a density of 0.50 pounds per square yard (0.50 lb./sq. yd.).

(2) Top Netting. The netting located on the top side of the blanket shall consist of a leno woven 100% biodegradable organic fiber (e.g., jute fiber) with a mesh size of 0.5 inch by 1.0 inch and an approximate weight of 9.3 pounds per 1,000 square feet (9.3 lb./msf).

(3) Bottom Netting. The netting located on the bottom side of the blanket shall consist of a simple woven 100% biodegradable organic fiber (e.g., jute fiber) with a mesh size of 0.5 inch by 1.0 inch and an approximate weight of 7.7 pounds per 1,000 square feet (7.7 lb./msf).

(4) Thread. Biodegradable.

(5) Stitch Spacing. 1.5 inches on center (1.5 in./O.C.).