



ADDENDUM #1

To: Prospective Bidders
From: Porter Co. Dept. of Development & Storm Water Management
Date: November 8, 2024
Subject: North Stimson Drain Tile Reconstruction

The attention of all prospective bidders is called to the following Addendum.

This Addendum, designated as Addendum #1, is hereby included in and made a part of the bidding documents, whether or not attached thereto. Except as modified by this Addendum, all requirements of the bidding documents shall remain in full force and effect.

Bidder shall acknowledge the receipt of this Addendum #1 on his or her bid form.

PRE-BID MEETING SIGN-IN SHEET & MINUTES

1. The pre-bid meeting sign-in sheet and minutes are attached as Attachments A & B to this Addendum. Please note that the meeting minutes may contain clarifications related to bid items that should be considered when preparing bids for this project.

CLARIFICATIONS & MODIFICATIONS

The following clarifications and/or modifications to the bidding documents are being provided or are being made by the Department in response to questions posed and/or as determined necessary by the Department and are hereby included in and made a part of the bidding documents.

BASIS OF BID FORM

1. Basis of Bid Form

The Basis of Bid Form has been revised, to reflect the following:

- ADDED LINE ITEM #20, "DRAIN TILE REMOVAL, 12" CMP"
Line item #20, "Drain Tile Removal, 12" CMP" was added to the Basis of Bid Form. The quantity for Line item #20 is 50-LF to reflect the quantity of the work item required to successfully complete the work, as shown on the construction plans.
- REMOVED LINE ITEM #24, "DRAIN TILE, 12" RCP, CLASS III"
Line item #24, "Drain Tile, 12" RCP, Class III" was removed from the Basis of Bid Form to reflect the actual quantity of the work item to successfully complete the work, as shown on the construction plans.
- ADDED LINE ITEM #25, "DRAIN TILE INVESTIGATION"
Line item #25, "Drain Tile Investigation" was added to the Basis of Bid Form to provide a means of quantifying and paying for locating drain tile laterals that need to be tied into the stormwater manhole structures, as shown on the construction plans.
- WORK ITEM #28, "STORM SEWER STRUCTURES, STORMWATER MANHOLE"
The quantity of Work Item #28 "Storm Sewer Structures, Stormwater Manhole" has decreased from 15 to 14 to reflect the actual quantity of such work item required to successfully complete the work, as shown on the construction plans.



The revised Bid Form is attached to this Addendum #1. **Please replace the original Bid Form with the attached revised Bid Form.**

CONSTRUCTION PLANS

1. Construction Plans

The construction plans have been revised on Sheets 14, 15, and 16 to correct the scale bar to 1" = 100'.

The construction plans have been revised on Sheet 19 to correct Table 2: Pipe Installation and Table 3: Pipe Installation / Removal Summary.

The construction plans have been revised on Sheet 20 to correct the storm inlet and storm manhole details. The storm inlet detail was revised to have an inside diameter of 60" and HAALA CG60TM type grate. The CG60TM grate has a 69" outside diameter. The storm manhole detail was updated to identify that the detail is consistent with the Porter County standard storm manhole type 2.

TECHNICAL SPECIFICATIONS AND SPECIAL PROVISIONS

1. Technical Specifications and Special Provisions

The Technical Specifications and Special Provisions have been revised to reflect the following:

- DIVISION 300 "DRAIN TILE INVESTIGATION"
The measurement and payment sections have been revised to reflect that drain tile investigation will be paid per each stormwater lateral that is located for tying into the storm manholes.



CONTRACTOR QUESTIONS

The following are questions received during bidding and all responses will be made part of the bidding documents.

1. Q: A prospective bidder asked if soil borings have been or will be completed for the site to assist bidders with estimating the dewatering requirements.
A: The County will not conduct soil boring on-site since it is unlikely that they will be able to get the assessment completed before the bids are due. Bidders are to assume that localized dewatering will be required to complete the proposed work. If it is determined during construction that localized dewatering is not sufficient, the County may reevaluate the unit cost associated with this line item.
2. Q: Can the headwall structure at STA. 200+00 can be precast?
A: Yes, the headwall structure can be precast.
3. Q: There are 15 manholes indicated on the bid form for item #27, however, there are only 14 new manholes, will the quantity for bid item #27 be adjusted?
A: Yes, the Basis of Bid form is updated to show that the stormwater manhole quantity is 14.
4. Q: There is existing 12" CMP (50 LF) shown on sheet 6 of 26 to be removed, but there is no bid item for this. Will a bid Item be added for 12" CMP Removal?
A: Yes, the Basis of Bid form is updated to show the 12" CMP Removal line item.
5. Q: Bid item #24 indicates 60 LF of 12" RCP storm pipe, however, no where can I find this run of pipe. Where is this pipe, are we to replace the pipe to the North of Storm Str. ST-951 as shown on sheet 6 of 26? Please clarify.
A: The Basis of Bid form has been updated to have this line item removed.
6. Q: Bid Item #6 indicates 600 LF of silt fence, there are only two locations of silt fence (approx. 300' total) shown on sheet 16 of 26, is there additional silt fence located elsewhere? Will the quantity on the bid form be revised?
A: The silt fence quantity shown in the Basis of Bid Form is correct. The scale was off on sheets 14, 15, and 16, which has been corrected.
7. Q: Can a "drain tile investigation" line item be included in the Basis of Bid Form, which would be paid per each storm water lateral that is investigated?
A: Yes, a line item has been added to the Basis of Bid Form for drain tile investigation.
8. Q: Will the Contractor be seeding the entire disturbed area through the easement or if the farmer would prefer to till the field?
A: Temporary seeding is only required at those stations identified on Detail 2/25.
9. Q: Can a detail be provided showing the bed, envelope and backfill required for the 6" and 8" perforated drain tile?
A: Refer to the "Pipe Bedding and Backfill" detail in the plans for perforated drain tile bedding and backfill requirements. Trenchless construction such as directional bore or tile machine, in native material, may be considered an approved equal and will be discussed with the successful bidder prior to construction during the submittal phase of the project.



10. Q: Bid item #12 indicates removal and disposal of 321 cubic yards of unsuitable material, where is this unsuitable material located or is this just a quantity provided for bid purposes for this item?
A: This estimated quantity was provided for bid purposes for this line item.
11. Q: Clarification was requested regarding the manhole structure dimensions.
A: The plans and specifications have been revised to show that the required manhole structure diameter is 60", which is in accordance with the County standards.
12. Q: Clarification was requested on Bid Item 11 and if the rock excavation line item was added into the bid due to known rock vanes/limestone on-site or if that line item is just a formality on the bid form.
A: The bidders are to assume that the excavation line item will consist of native soil, small rock, and other materials that can reasonably be excavated using conventional trench excavation methods. Should bedrock or large rock be encountered that requires more robust excavation methods, the increased unit cost will be negotiated at that time.
13. Q: ST-1928 has 12 CMP running through it in the plans are we tying it back into the structure or abandoning it? If we are tying it back in inverts are needed.
A: Assuming that this question is referring to one of the existing structures in the farm field, the contractor will need to coordinate with the landowner during construction to identify the invert elevations for the lateral pipes. This is identified in the "Drain Tile Investigation" technical specification.
14. Q: Is all pipe being pulled out to be loaded and taken off site?
A: Yes, the "Drain Tile Removal" line items are intended to account for the cost associated with this work.
15. Q: Inlet structures are 24" but grates in the specs are 48" which size is correct for the inlets?
A: The plans have been corrected to show that the stormwater inlets should have a 60" inside diameter.
16. Q: Is ST-09 being counted in the bid tab and being replaced?
A: The 15" RCP is being tied into ST-09. The assumption is that ST-09 does not need to be replaced.
17. Q: Is there end sections for the rip rap outlets for 15" RCP?
A: Yes, a flared end section should be installed as depicted on the riprap outlet protection detail.
18. Q: For manholes our casting company has a question on why the #5 rebar in the base when structures are going in green area? They said its not typical and will add more to the cost.
A: The plans are consistent with the County's Storm Manhole Type 2 standard detail.
19. Q: The pre-cast company we use are having issues with the following structures; ST-07, ST-06, ST-1833, ST-05, ST-1832, and ST-02. They say they are having trouble with the invert heights and positions in these structures. The inverts are overlapping and too close due to this.
A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.



20. Q: I have had conversations with one of my manhole suppliers and they say there are a few manholes due to pipe angles, elevations, etc. that a 5' dia. structure will not be large enough and will need to be upsized.
A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
21. Q: Are we to upsize the structures as required to fit the storm pipes?
A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
22. Q: Is it required to reduce the manhole to a 4' dia. as shown on detail or can the larger size manhole be built all the way up?
A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
23. Q: Are watertight connections required on the RCP storm pipe? Regarding watertight connectors for the pipe into structures there are some manholes which will not be able to install watertight connectors. If a watertight connection cannot be installed in the structures can the storm pipe/underdrains be grouted in place?
A: Watertight connectors are not required for concrete pipe to concrete structure as this can be brick and mortared. Watertight connections shall be provided for non-concrete pipe connections. Cast-in-place watertight connections are preferred; however, if cast-in-place watertight connectors are not available for the pipe diameter, then alternative watertight connectors will be discussed with the successful bidder prior to starting construction during the submittals phase of the project.
24. Q: Bid item #30: Road Cut & Repair indicates 105 SY. Is this bid item only for Division Road crossing? The road crossing is only approx. 28' wide x the width of the trench which seems much less than the provided quantity. Please clarify.
A: This bid item is only for the Division Road crossing. The Road Cut and Repair quantity is higher than the required trench width to account for additional disturbance to the road surface that may necessitate additional repair.
25. Q: What are the limits of mowing for bid item 9?
A: The Basis of Bid Form identifies the mowing area as 17-acres. This is approximately consistent with the limits of disturbance shown on the construction plans.
26. Q: The plans call for 5' diameter manholes, but several of them will not work at 5' diameter. Str's 1833 (s/b 7'); 1832 (s/b 8'); 1826 (s/b 6'); 1825 (s/b 6'). Please advise.
A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
27. Q: The inlets are specified as 24" diameter, but the casting opening is 4' diameter. Please advise.

A: The stormwater inlet detail has been revised to account for a 60" inside diameter structure and a HAALA CG60™ grate inlet.

28. Q: In detail 2 of sheet 20 it calls for 36" RCP with a watertight connector into a 60" structure. Our caster said this is not possible although, if we went to a 72" structure we could use A-Lok gaskets or we could go to an 84" structure for Press seal boots. What possible avenues do you think would best suit this situation? Please let me know.

A: Watertight connectors are not required for concrete pipe to concrete structure as this can be brick and mortared. Watertight connections shall be provided for non-concrete pipe connections. Cast-in-place watertight connections are preferred; however, if cast-in-place watertight connectors are not available for the pipe diameter, then alternative watertight connectors will be discussed with the successful bidder prior to starting construction during the submittals phase of the project.

29. Q: Can we come to agreement on plan quantities in cubic yards for backfill and excavation beforehand?

A: The estimated plan quantities for excavation and backfill are included in the Basis of Bid form. Significant differences or changes in quantity during the performance of work will need to be negotiated during construction.

30. Q: Would we be able to cap off the flow for our daily operation and then reconnect it at the end of the workday? Or do we need to bypass the flow?

A: Yes, the existing drain tile can be plugged during the work day. The contractor shall monitor for any negative upstream effects and bypass pump, as necessary, to alleviate any negative upstream effects. The contractor is required to include a dewatering plan in their submittals prior to initiating construction.

31. Q: Is there any contingency for cutting through field tile?

A: Work Item #25, Drain Tile Investigation, has been added to the Basis of Bid Form. If any field tiles are encountered during the performance of work, the Drain Tile investigation shall be completed in accordance with the technical specifications and connected to the proposed drain tile at the discretion of the Engineer, Department, or their representatives.

32. Q: Where should we discharge dewatering to?

A: A dewatering plan shall be submitted by the contractor during the submittal phase prior to beginning work.

PUBLIC OPENING OF BIDS

1. Public Opening of Bids

As stated in the bidding documents, bids will be opened at 10:00 a.m., or as soon thereafter as possible, on Tuesday, November 12, 2024, at a public opening of bids to be held at the Porter Co. Administration Center, 155 Indiana Ave., Ste. 311, Valparaiso, Indiana 46383. In accordance with the bidding documents, the public



opening of bids will also be conducted live via videoconference. All bidders, as well as members of the public, are welcome to attend the opening of bids, either in person or via videoconference.

The following information may be used to access and participate in the videoconference:

Zoom Meeting: <https://us02web.zoom.us/j/82729791544?pwd=bOiZZcD0yblewNgEGOV41fCcKuM2aX.1>
Meeting ID: 827 2979 1544
Passcode: EAScz6

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

ATTACHMENTS

- ATTACHMENT A&B - PRE-BID MEETING MINUTES & SIGN-IN SHEET
- ATTACHMENT C – REVISED BID FORM
- ATTACHMENT D – REVISED CONSTRUCTION PLANS
- ATTACHMENT E – REVISED TECHNICAL SPECIFICATIONS



**ATTACHMENTS A & B
PRE-BID MEETING MINUTES & SIGN-IN SHEET**

Pre-Bid Meeting Minutes

Project/File: North Stimson Drain Tile Reconstruction
Date/Time: October 31, 2024 / 11:00 am
Location: 155 Indiana Ave., Ste. 311, Valparaiso, IN 46383
Attendees: See attached sign-in sheet
Distribution: Pre-bid meeting attendees

1. Introductions:
 - a. Stantec opened the meeting by welcoming the attendees and allowing for introductions around the room.
 - b. Porter County Department of Development and Storm Water Management (County) staff, Stantec Staff, and prospective bidders in attendance are included on the attached sign-in sheet.
2. Project description:
 - a. Stantec gave a brief overview of the project goals and scope of work.
 - b. The project consists of the installation of a new drain tile system to replace a failed drain tile system. The overall purpose of the project is to enhance the drainage and storm water management services provided to the surrounding property owners by improving the area's storm water infrastructure.
3. Bidding schedule:
 - a. Stantec reviewed the bidding schedule, and the County provided additional details on the due dates.
 - b. Bid questions are due on Thursday, November 7, 2024.
 - c. Responses to the bid questions and any necessary bid document addendums will be send out to pre-bid meeting attendees on Friday, November 8, 2024.
 - d. Bids are due at 10:00 am on Tuesday, November 12, 2024.
 - e. The bids will be opened after 10:00 am on Tuesday, November 12, 2024.
 - f. The notice of award will be sent to the successful bidder soon after Tuesday, November 19, 2024.
4. Construction schedule:

- a. Stantec and the County stated that the construction start date will be negotiated with the successful bidder after the notice of award has been sent out.
 - b. The County will take care of the land disturbance permitting in-house, which needs to be completed prior to the successful bidder initiating construction on-site.
 - c. Stantec noted that there is a typo in the agenda; the substantial completion date should be Friday, October 31, 2025.
 - d. Stantec and the County reviewed work restrictions that should be considered by the bidders:
 - i. Division Road cannot be closed during the Porter County Fair, July 16 through 26, 2025. Work can resume on Division Road on July 28, 2025.
 - ii. There are no restrictions related to working in the farm field portions of the project; the County will work with the landowner to recoup any potential losses in crop revenue.
 - iii. The County will coordinate with the Pratt Paper Mill regarding site access at the upstream extent of the project area.
5. Identify where bid documents can be reviewed:
- a. The County stated that the bid documents can be reviewed at the Porter County Department of Development and Storm Water Management website:
<https://www.portercountystormwater.org/166/Bids-RFQs>
6. Review items to be submitted with the bid:
- a. Stantec and the County reviewed the items that are required to be submitted with the bid, including:
 - i. Basis of Bid Form
 1. Stantec and the County stated that questions related to the quantities and scope of work associated with the bid items would be addressed in the Addendum sent out on Friday, November 8, 2024.
 - ii. Responsible Bidding Submittal Requirements Form
 - iii. Bidder's Work History Form
 - iv. Bidder's Organizational Experience and Workload Form
 - v. Bidder's Subcontractor and Supplier Form
 - vi. Bid Security
 - b. The County reiterated that the 7% minority business enterprises (MBE) and 5% women's business enterprises (WBE) goals listed in the Instructions to Bidders are goals, not requirements, for prospective bidders.

c. No other questions were asked related to the items to be submitted with the bid.

7. Review construction plans and specifications:

a. Stantec reviewed the construction plans and highlighted the major scope of work items. A summary of the scope of work items that were reviewed is included in the pre-bid meeting agenda.

8. Questions:

a. Stantec opened the floor to questions and added that all questions are due by Thursday, November 7, 2024. Stantec stated that formal responses to bidder questions will be sent to all pre-bid meeting attendees and posted on the Porter County Department of Development and Storm Water Management website on Friday, November 8, 2024.

i. Q: A prospective bidder asked if soil borings have been or will be completed for the site to assist bidders with estimating the dewatering requirements.

1. A: The County will not conduct soil boring on-site since it is unlikely that they will be able to get the assessment completed before the bids are due. Bidders are to assume that localized dewatering will be required to complete the proposed work. If it is determined during construction that localized dewatering is not sufficient, the County may reevaluate the unit cost associated with this line item.

ii. Q: Can the headwall structure at STA. 200+00 can be precast?

1. A: Yes, the headwall structure can be precast.

iii. Q: There are 15 manholes indicated on the bid form for item #27, however, there are only 14 new manholes, will the quantity for bid item #27 be adjusted?

1. A: Yes, the Basis of Bid form is updated to show that the stormwater manhole quantity is 14.

iv. Q: There is existing 12" CMP (50 L.F.) shown on sheet 6 of 26 to be removed, but there is no bid item for this. Will a bid Item be added for 12" CMP Removal?

1. A: Yes, the Basis of Bid form is updated to show the 12" CMP Removal line item.

v. Q: Bid item #24 indicates 60 L.F. of 12" RCP storm pipe, however, no where can I find this run of pipe. Where is this pipe, are we to replace the pipe to the North of Storm Str. ST-951 as shown on sheet 6 of 26? Please clarify.

1. A: The Basis of Bid form has been updated to have this line item removed.

vi. Q: Bid Item #6 indicates 600 L.F. of silt fence, there are only two locations of silt fence (approx. 300 L.F. total) shown on sheet 16 of 26, is there additional silt fence located elsewhere? Will the quantity on the bid form be revised?

1. A: The silt fence quantity shown in the Basis of Bid Form is correct. The scale was off on sheets 14, 15, and 16, which has been corrected.

- vii. Q: Can a “drain tile investigation” line item be included in the Basis of Bid Form, which would be paid per each storm water lateral that is investigated?
1. A: Yes, a line item has been added to the Basis of Bid Form for drain tile investigation.
- viii. Q: Will the Contractor be seeding the entire disturbed area through the easement or if the farmer would prefer to till the field?
1. A: Temporary seeding is only required at those stations identified on Detail 2/25.
- ix. Q: Can a detail be provided showing the bed, envelope and backfill required for the 6” and 8” perforated drain tile?
1. A: Refer to the “Pipe Bedding and Backfill” detail in the plans for perforated drain tile bedding and backfill requirements. Trenchless construction such as directional bore or tile machine, in native material, may be considered an approved equal and will be discussed with the successful bidder prior to construction during the submittal phase of the project.
- x. Q: Bid item #12 indicates removal and disposal of 321 cubic yards of unsuitable material, where is this unsuitable material located or is this just a quantity provided for bid purposes for this item?
1. A: This estimated quantity was provided for bid purposes for this line item.
- xi. Q: Clarification was requested regarding the manhole structure dimensions.
1. A: The plans and specifications have been revised to show that the required manhole structure diameter is 60”, which is in accordance with the County standards.
- xii. Q: Clarification was requested on Bid Item 11 and if the rock excavation line item was added into the bid due to known rock vanes/limestone on-site or if that line item is just a formality on the bid form.
1. A: The bidders are to assume that the excavation line item will consist of native soil, small rock, and other materials that can reasonably be excavated using conventional trench excavation methods. Should bedrock or large rock be encountered that requires more robust excavation methods, the increased unit cost will be negotiated at that time.
- xiii. Q: ST-1928 has 12 CMP running through it in the plans are we tying it back into the structure or abandoning it? If we are tying it back in inverts are needed.
1. A: Assuming that this question is referring to one of the existing structures in the farm field, the contractor will need to coordinate with the landowner during construction to identify the invert elevations for the lateral pipes. This is identified in the “Drain Tile Investigation” technical specification.
- xiv. Q: Is all pipe being pulled out to be loaded and taken off site?
1. A: Yes, the “Drain Tile Removal” work items are intended to account for the cost associated with this work.

- xv. Q: Inlet structures are 24" but grates in the specs are 48" which size is correct for the inlets?
1. A: The plans have been corrected to show that the stormwater inlets should have a 60" inside diameter.
- xvi. Q: Is ST-09 being counted in the bid tab and being replaced?
1. A: The 15" RCP is being tied into ST-09. The assumption is that ST-09 does not need to be replaced.
- xvii. Q: Is there end sections for the rip rap outlets for 15" RCP?
1. A: Yes, a flared end section should be installed as depicted on the riprap outlet protection detail.
- xviii. Q: For manholes our casting company has a question on why the #5 rebar in the base when structures are going in green area? They said its not typical and will add more to the cost.
1. A: The plans are consistent with the County's Storm Manhole Type 2 standard detail.
- xix. Q: The pre-cast company we use are having issues with the following structures; ST-07, ST-06, ST-1833, ST-05, ST-1832, and ST-02. They say they are having trouble with the invert heights and positions in these structures. The inverts are overlapping and too close due to this.
1. A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
- xx. Q: I have had conversations with one of my manhole suppliers and they say there are a few manholes due to pipe angles, elevations, etc. that a 5' dia. structure will not be large enough and will need to be upsized.
1. A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
- xxi. Q: Are we to upsize the structures as required to fit the storm pipes?
1. A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
- xxii. Q: Is it required to reduce the manhole to a 4' dia. as shown on detail or can the larger size manhole be built all the way up?
1. A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project.

Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.

- xxiii. Q: Are watertight connections required on the RCP storm pipe? Regarding watertight connectors for the pipe into structures there are some manholes which will not be able to install watertight connectors. If a watertight connection cannot be installed in the structures can the storm pipe/underdrains be grouted in place?
1. A: Watertight connectors are not required for concrete pipe to concrete structure as this can be brick and mortared. Watertight connections shall be provided for non-concrete pipe connections. Cast-in-place watertight connections are preferred; however, if cast-in-place watertight connectors are not available for the pipe diameter, then alternative watertight connectors will be discussed with the successful bidder prior to starting construction during the submittals phase of the project.
- xxiv. Q: Bid item #30: Road Cut & Repair indicates 105 SY. Is this bid item only for Division Road crossing? The road crossing is only approx. 28' wide x the width of the trench which seems much less than the provided quantity. Please clarify.
1. A: This bid item is only for the Division Road crossing. The Road Cut and Repair quantity is higher than the required trench width to account for additional disturbance to the road surface that may necessitate additional repair.
- xxv. Q: What are the limits of mowing for bid item 9?
1. A: The Basis of Bid Form identifies the mowing area as 17-acres. This is approximately consistent with the limits of disturbance shown on the construction plans.
- xxvi. Q: The plans call for 5' diameter manholes, but several of them will not work at 5' diameter. Str's 1833 (s/b 7'); 1832 (s/b 8'); 1826 (s/b 6'); 1825 (s/b 6'). Please advise.
1. A: Adjustments to structure sizes and invert elevations will need to be discussed with the successful bidder prior to starting construction during the submittals phase of the project. Potential changes in cost for structures due to changes in dimensions will need to be handled on a case-by-case basis.
- xxvii. Q: The inlets are specified as 24" diameter, but the casting opening is 4' diameter. Please advise.
1. A: The stormwater inlet detail has been revised to account for a 60" inside diameter structure and a HAALA CG60TM grate inlet.
- xxviii. Q: In detail 2 of sheet 20 it calls for 36" RCP with a watertight connector into a 60" structure. Our caster said this is not possible although, if we went to a 72" structure we could use A-Lok gaskets or we could go to an 84" structure for Press seal boots. What possible avenues do you think would best suit this situation? Please let me know.
1. A: Watertight connectors are not required for concrete pipe to concrete structure as this can be brick and mortared. Watertight connections shall be provided for non-concrete pipe connections. Cast-in-place watertight connections are preferred; however, if cast-in-place

watertight connectors are not available for the pipe diameter, then alternative watertight connectors will be discussed with the successful bidder prior to starting construction during the submittals phase of the project.

xxix. Q: Can we come to agreeance on plan quantities in cubic yards for backfill and excavation beforehand?

1. A: The estimated plan quantities for excavation and backfill are included in the Basis of Bid form. Significant differences or changes in quantity during the performance of work will need to be negotiated during construction.

xxx. Q: Would we be able to cap off the flow for our daily operation and then reconnect it at the end of the workday? Or do we need to bypass the flow?

1. A: Yes, the existing drain tile can be plugged during the work day. The contractor shall monitor for any negative upstream effects and bypass pump, as necessary, to alleviate any negative upstream effects. The contractor is required to include a dewatering plan in their submittals prior to initiating construction.

xxxi. Q: Is there any contingency for cutting through field tile?

1. A: Work Item #25, Drain Tile Investigation, has been added to the Basis of Bid Form. If any field tiles are encountered during the performance of work, the Drain Tile investigation shall be completed in accordance with the technical specifications and connected to the proposed drain tile at the discretion of the Engineer, Department, or their representatives.

xxxii. Q: Where should we discharge dewatering to?

1. A: A dewatering plan shall be submitted by the contractor during the submittal phase prior to beginning work.

Thank you,

STANTEC CONSULTING SERVICES INC.

Jacob Cochrane
Water Resources Engineer
Mobile: 989-390-3526
jacob.cochrane@stantec.com

NORTH STIMSON - DRAIN TILE RECONSTRUCTION PROJECT
 PRE-BID MEETING SIGN IN
 OCTOBER 31, 2024 (11:00 AM CST)

NAME	COMPANY	ADDRESS	OFFICE/CELL/FAX	EMAIL
Chelsey Gordon	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 465-3652 Cell: (219)252-7499 Fax:	chelsey.gordon@porterco.org
Meredith Poore	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 465-3632 Cell: Fax:	meredith.poore@porterco.org MP
Lori Larson	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 510-9056 Cell: Fax:	lori.larson@porterco.org LL
Rob Goodman	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 510-1152 Cell: Fax:	robert.goodman@porterco.org RG
Tom McNabb	Porter Co. Dept. of Development and Storm Water Management	155 Indiana Ave., Ste. 311 Valparaiso, IN 46383	Office: (219) 510-9058 Cell: Fax:	tom.mcnabb@porterco.org TM
Roger MARSHALL	L&E MARSHALL	1351 Jdiel rd. VALPO 46385	Office: 219 462 3415 Cell: Fax:	

NORTH STIMSON - DRAIN TILE RECONSTRUCTION PROJECT
 PRE-BID MEETING SIGN IN
 OCTOBER 31, 2024 (11:00 AM CST)

ERIC Cannon	G.E. Marshall	1351 Soliet RD Valpo IN	Office: 219-462-3415	eric.cannon eric.cannon@gemarshall.com
			Cell:	
			Fax: 219-462-3964	
Lute Haan	Grimmer Construction	2619 Main St HI, IN	Office:	lhaan@grimmer construction.com
			Cell: 219-331-9097	
			Fax:	
Mike Szutor	RES	751 Acadia Rd. Valparaiso	Office:	mszutor@res.us
			Cell: 614-342-0388	
			Fax:	
Ethan Knapp	HRP Construction		Office: 574-271-7800	Ethan K ChrpConstruction.com
			Cell:	
			Fax:	
COLBY STANGER	THE STANGER GROUP	15763 CR 46 GOSHEN, IN 46526	Office: 574-642-3390	cstanger@stangergroup.com
			Cell: 574-536-5835	
			Fax:	
David Roe	The Stanger Group		Office:	droe@stangergroup.com
			Cell: 574-238-4743	
			Fax:	

NORTH STIMSON - DRAIN TILE RECONSTRUCTION PROJECT
 PRE-BID MEETING SIGN IN
 OCTOBER 31, 2024 (11:00 AM CST)

Jakob Goodan	Egolf Coates Excavation		Office:	jgoodan@egolfcoates. com
			Cell:	
			Fax:	
Robert Miller	Austgen Equipment		Office:	miller@austgenequipment. com
			Cell:	
			Fax:	
Will Smith	Rieth-Riley Construction Co., INC.		Office:	wsmith@rieth-riley.com
			Cell:	
			Fax:	
Chuck Campbell	RES, LLC		Office:	ccampbell@res.us
			Cell:	
			Fax:	
Kyle Weisman	H+G		Office:	kyle@hnguu.com
			Cell:	
			Fax:	
Jennifer Gough	Gough		Office:	jgough2@goughinc.com
			Cell:	
			Fax:	

NORTH STIMSON - DRAIN TILE RECONSTRUCTION PROJECT
 PRE-BID MEETING SIGN IN
 OCTOBER 31, 2024 (11:00 AM CST)

John Dumbosky	Autogen Autogen Equipment		Office: Cell: Fax:	
Luca DeBellis	Stantec		Office: Cell: 847-980-3115 Fax:	luca.debellis@ stantec.com
John Richardson	Stantec		Office: Cell: 574-229-5560 Fax:	John.richardson@ stantec.com
Justin Glaser	LGS Plumbing		Office: 219-663-2177 Cell: Fax:	Admin@LGSPlumbing.com
			Office: Cell: Fax:	
			Office: Cell: Fax:	

NORTH STIMSON - DRAIN TILE RECONSTRUCTION PROJECT
PRE-BID MEETING SIGN IN
OCTOBER 31, 2024 (11:00 AM CST)

			Office:	
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			Fax:	
			Office:	
			Cell:	
			Fax:	
			Office:	
			Cell:	
			Fax:	
			Office:	
			Cell:	
			Fax:	



**ATTACHMENT C
REVISED BID FORM**

BID FORM

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

SECTION I. BID
(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: _____ \$ _____

The undersigned bidder further agrees to furnish, with this bid, a bid security made payable to the owner in an amount not less than ten percent (10%) of bidder's total bid and in the form of a bank cashier's check, bank draft, certified check, or bid bond, on the bid bond form included in the bidding documents, or a form otherwise approved by the owner, executed in accordance with the provisions of the instructions to bidders, and issued by a surety acceptable to the owner and authorized to transact business under the laws of the state of Indiana.

If items "as ordered by engineer", additive bid items, and/or alternate bid items will be considered by owner, the undersigned bidder shall submit a bid for each item "as ordered by engineer", additive bid item, and/or alternate bid item in accordance with the instructions to bidders. 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 BID FORM
(Please type or print)

This Basis of Bid Form is to be submitted by bidder, as an attachment to the Bid Form, for the project designated as **North Stimson – Drain Tile Reconstruction**. It is to include an entry for each and every work item 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 bid, in both words and figures, as provided for below.

BASE BID

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

BASE BID ITEMS

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	EXT. PRICE
1	MOBILIZATION & DEMOBILIZATION	LS	1		
2	PRE-CONSTRUCTION VIDEO SURVEY	LS	1		
3	CONSTRUCTION LAYOUT & SURVEY	LS	1		
4	AS-BUILT DRAWINGS	LS	1		
5	TEMPORARY CONSTRUCTION ENTRANCE	EA	2		
6	TEMPORARY PERMIETER SEDIMENT CONTROL	LF	600		
7	TEMPORARY CATCH BASIN INSERT INLET PROTECTION	EA	3		
8	CLEARING & TREE REMOVAL	LS	1		
9	MOWING	AC	17		
10	DEWATERING	LS	1		
11	EXCAVATION AND/OR ROCK EXCAVATION	CY	20,844		
12	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CY	321		
13	BEDDING & INITIAL BACKFILL (INDOT NO. 8, NO. 9, OR NO. 73 COMPACTED AGGREGATE)	CY	2,379		
14	FINAL BACKFILL (NATIVE MATERIAL)	CY	17,637		
15	INDOT REVETMENT RIPRAP (RIPRAP OUTLET PROTECTION)	TN	13		
16	ABANDON 15" CMP (GROUT FILL)	CY	68		
17	DRAIN TILE REMOVAL, 24" CMP	LF	4,557		
18	DRAIN TILE REMOVAL, 18" CMP	LF	776		

ITEM	DESCRIPTION	UNIT	QTY.	UNIT PRICE	EXT. PRICE
19	DRAIN TILE REMOVAL, 15" CMP	LF	104		
20	DRAIN TILE REMOVAL, 12" CMP	LF	50		
21	STORMWATER MANHOLE REMOVAL	EA	6		
22	STORMWATER INLET REMOVAL	EA	3		
23	DRAIN TILE, 36" RCP, CLASS III	LF	5,383		
24	DRAIN TILE, 15" RCP, CLASS III	LF	166		
25	DRAIN TILE INVESTIGATION	EA	7		
26	6" PERFORATED PIPE	LF	1,485		
27	8" PERFORATED PIPE	LF	1,928		
28	STORM SEWER STRUCTURES, STORMWATER MANHOLE	EA	14		
29	STORM SEWER STRUCTURES, STORMWATER INLET	EA	3		
30	INLET HEADWALL AND ORIFICE	EA	1		
31	ROAD CUT & REPAIR	SY	105		
32	TRAFFIC CONTROL	LS	1		
33	RESTORE DISTURBED AREAS	LS	1		
TOTAL BID (I.E., TOTAL OF ALL EXTENDED PRICES, ITEMS 1-33):					

Bidder's total bid for the work, which is the sum of the Bidder's extended price(s) for the base bid items, is:

TOTAL BID (IN FIGURES): _____

TOTAL BID (IN WORDS): _____

Bidder acknowledges that the estimated quantities of items of unit price work included on this Basis of Bid Form are not guaranteed and are provided solely for the purposes of comparing bids, establishing pay item unit prices, and determining an initial contract price. In accordance with the contract documents, payment to the successful bidder 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 bidder, or agent of such bidder, 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. BIDDER'S FINANCIAL STATEMENT

Attachment of bidder's financial statement is mandatory. Any bid 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. BIDDER'S NON-COLLUSION AFFIDAVIT

The undersigned bidder, or agent of such bidder, 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 bid by anyone in response to the invitation to bid issued by the governmental unit, nor to prevent any person from bidding, nor to include anyone to refrain from bidding, and that this bid is provided without reference to any other bid and without any agreement, understanding, or combination with any other person in reference to such other bid.

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 bidder.

SECTION VI. BIDDER'S REPRESENTATIONS

In submitting this bid, bidder represents that:

- (a) Bidder has examined and carefully studied the contract documents, other related data identified in the invitation to bid, and the following addenda, receipt of which is hereby acknowledged:

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

- (b) Bidder 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 bid is submitted.

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**ATTACHMENT D
REVISED CONSTRUCTION PLANS**



Stantec

708 ROOSEVELT ROAD
WALKERTON, INDIANA 46574
www.stantec.com

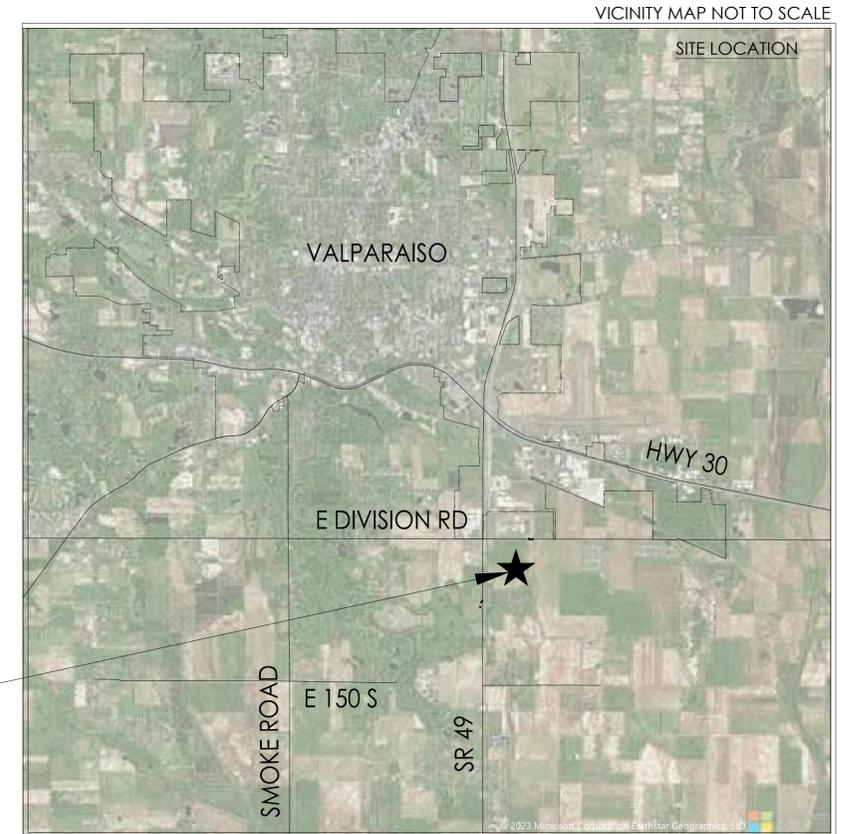
CLIENT:

PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT
155 INDIANA AVE, SUITE 311, VALPARAISO, IN 46383

NORTH STIMSON DRAIN
DRAIN TILE RECONSTRUCTION
PORTER COUNTY, IN
FINAL PLANS



PROJECT AREA



SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
1	COVER
2	CONSTRUCTION SEQUENCE AND ESC PLAN
3	OVERVIEW
4 - 13	PLAN & PROFILE
14 - 16	EROSION AND SEDIMENT CONTROL PLAN
17 - 26	DETAILS

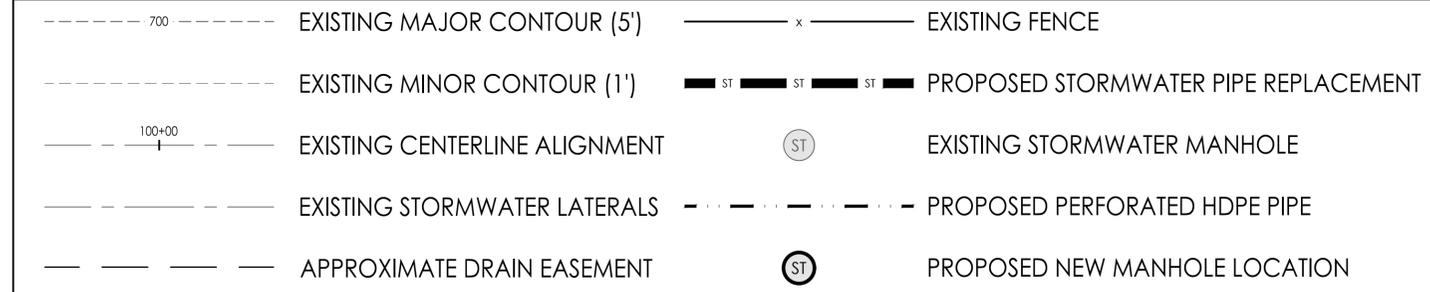
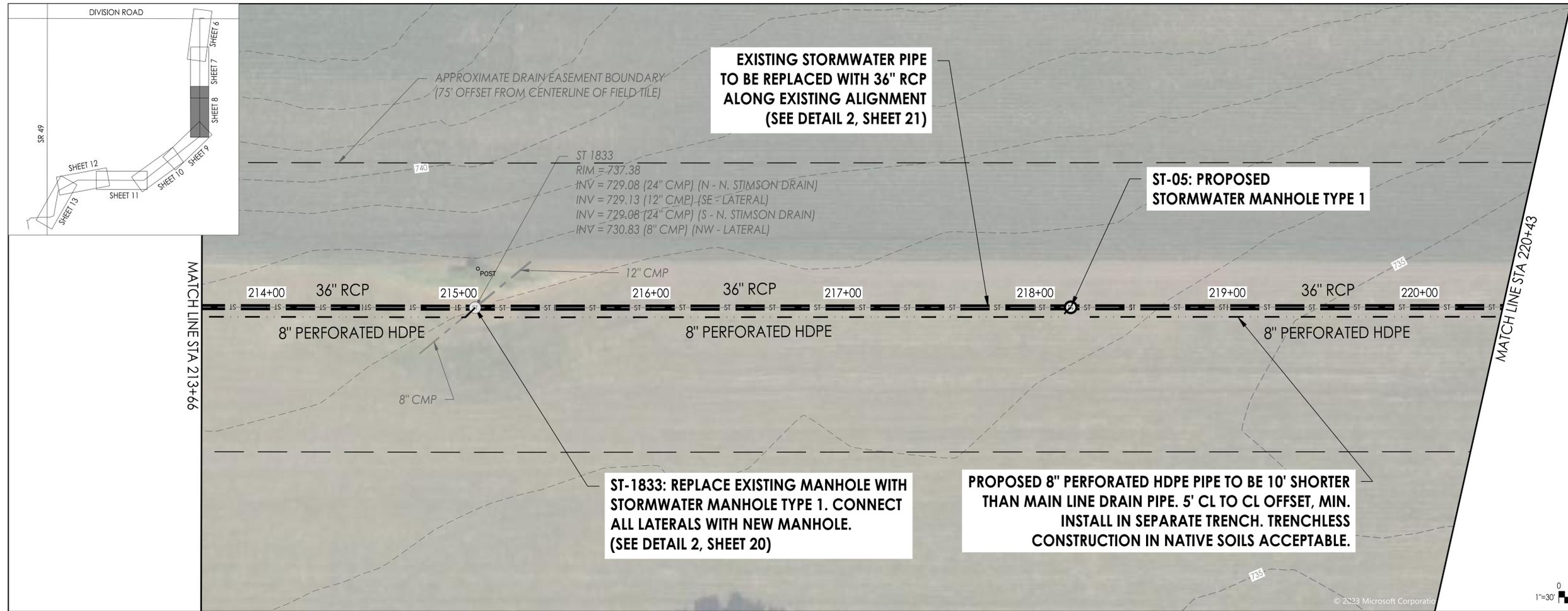


EXISTING STORMWATER PIPE TO BE REPLACED WITH 36" RCP ALONG EXISTING ALIGNMENT (SEE DETAIL 2, SHEET 21)

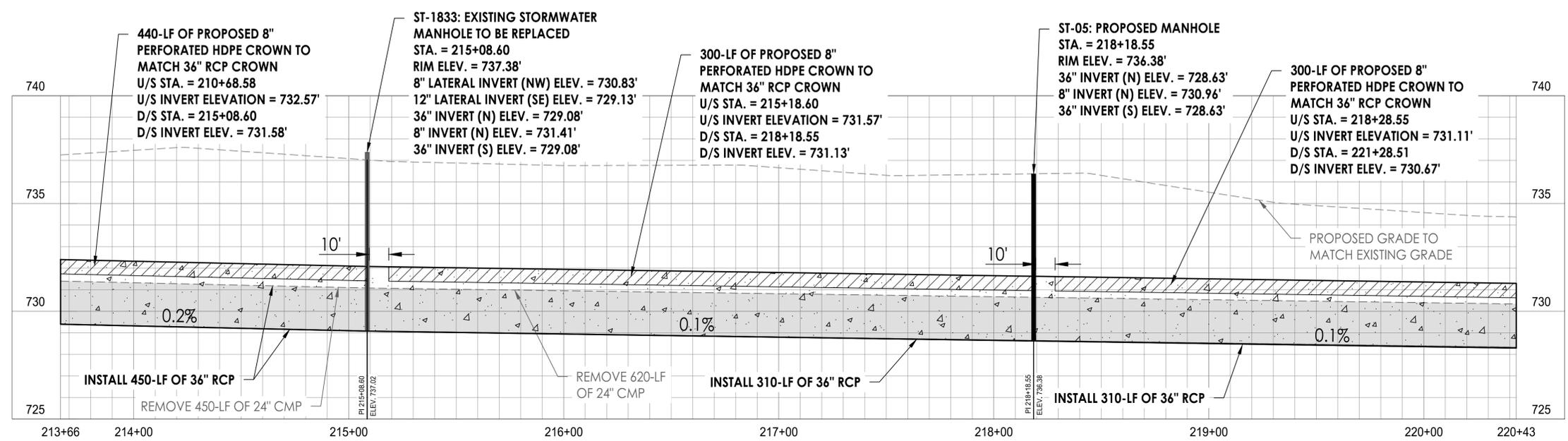
ST-05: PROPOSED STORMWATER MANHOLE TYPE 1

ST-1833: REPLACE EXISTING MANHOLE WITH STORMWATER MANHOLE TYPE 1. CONNECT ALL LATERALS WITH NEW MANHOLE. (SEE DETAIL 2, SHEET 20)

PROPOSED 8" PERFORATED HDPE PIPE TO BE 10' SHORTER THAN MAIN LINE DRAIN PIPE. 5' CL TO CL OFFSET, MIN. INSTALL IN SEPARATE TRENCH. TRENCHLESS CONSTRUCTION IN NATIVE SOILS ACCEPTABLE.



- NOTES:**
- PROPOSED STRUCTURE ELEVATIONS SHOWN IN PROFILE VIEW.
 - SPREAD SPOILS WITHIN EASEMENT IN FARM FIELD TO MAX DEPTH OF 6". TOPSOIL SHALL BE STRIPPED TO MIN. DEPTH OF 6" FROM THE EXISTING SURFACE OF TRENCHES AND OTHER CUT AREAS AND STOCKPILED. ALL CUT AREAS TO BE COVERED WITH MIN. 6" OF TOPSOIL POST DISTURBANCE.



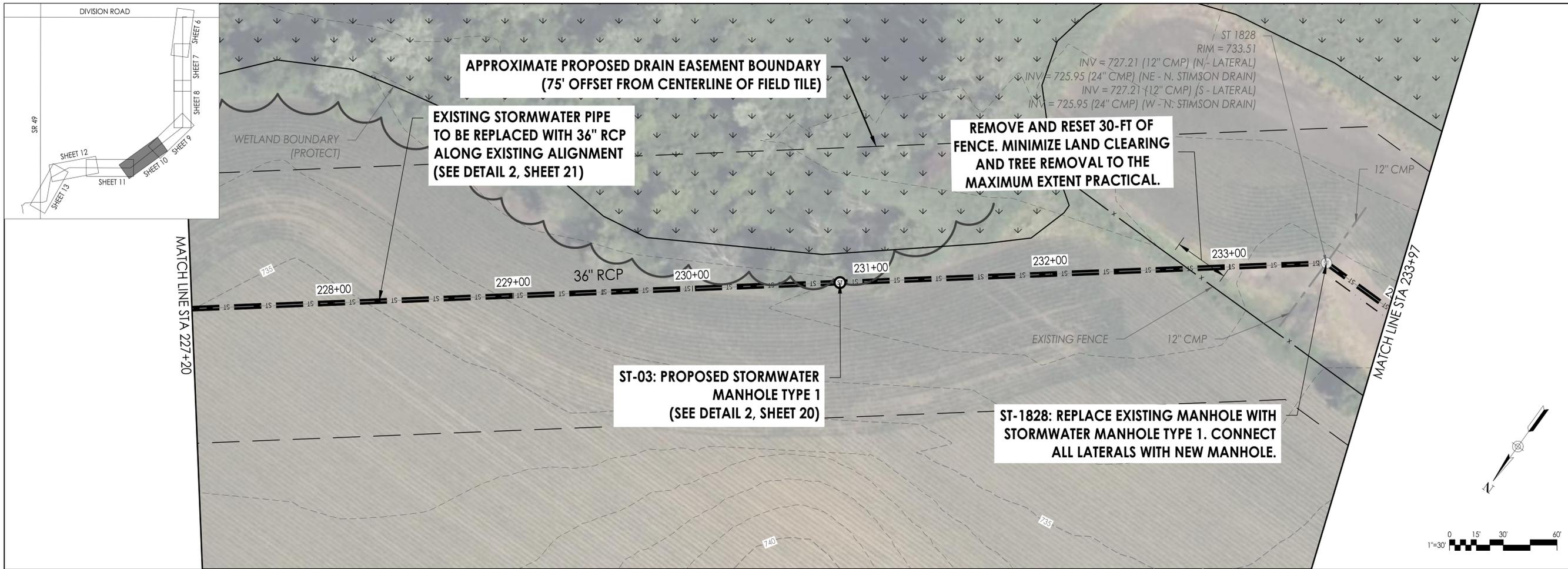
stantec

708 Roosevelt Road
Walkerton, IN 46574
www.stantec.com

Client/Project: PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
Title: NORTH STIMSON DRAIN TILE RECONSTRUCTION
Permit-Seal: JESSICA MCCLURE, REGISTERED PROFESSIONAL ENGINEER, STATE OF INDIANA, No. 12200391

Revision	By	Appd.	YY.MM.DD

Project Number: 238102157
File Name: 238102158_Plans_N Stimson Drain.dwg
Drawing No. 2
Revision 2
Sheet 8 of 26



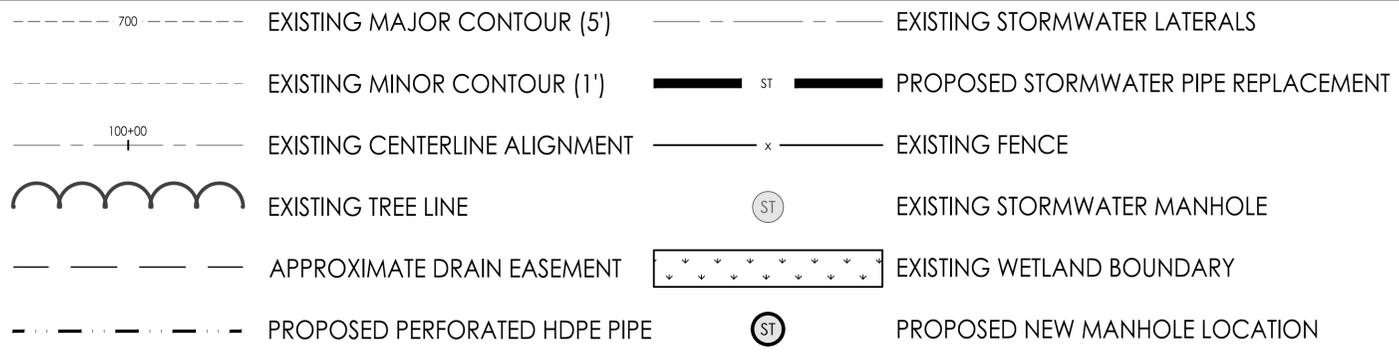
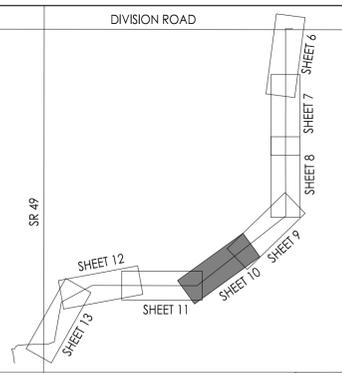
**APPROXIMATE PROPOSED DRAIN EASEMENT BOUNDARY
(75' OFFSET FROM CENTERLINE OF FIELD TILE)**

**EXISTING STORMWATER PIPE
TO BE REPLACED WITH 36" RCP
ALONG EXISTING ALIGNMENT
(SEE DETAIL 2, SHEET 21)**

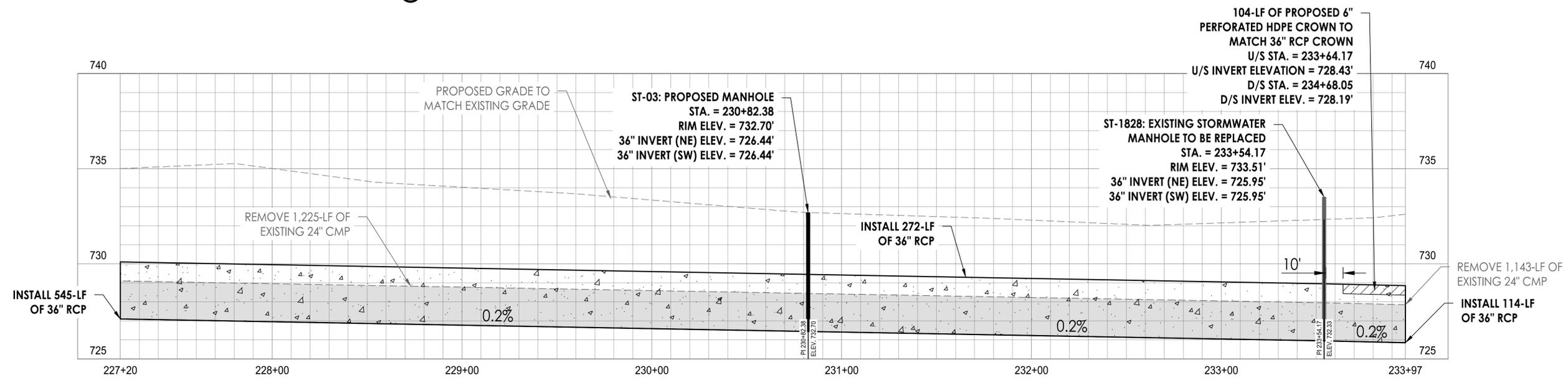
**REMOVE AND RESET 30-FT OF
FENCE. MINIMIZE LAND CLEARING
AND TREE REMOVAL TO THE
MAXIMUM EXTENT PRACTICAL.**

**ST-03: PROPOSED STORMWATER
MANHOLE TYPE 1
(SEE DETAIL 2, SHEET 20)**

**ST-1828: REPLACE EXISTING MANHOLE WITH
STORMWATER MANHOLE TYPE 1. CONNECT
ALL LATERALS WITH NEW MANHOLE.**



- NOTES:**
- PROPOSED STRUCTURE ELEVATIONS SHOWN IN PROFILE VIEW.
 - AVOID IMPACTS TO EXISTING WETLAND.
 - SPREAD SPOILS WITHIN EASEMENT IN FARM FIELD TO MAX DEPTH OF 6". TOPSOIL SHALL BE STRIPPED TO MIN. DEPTH OF 6" FROM THE EXISTING SURFACE OF TRENCHES AND OTHER CUT AREAS AND STOCKPILED. ALL CUT AREAS TO BE COVERED WITH MIN. 6" OF TOPSOIL POST DISTURBANCE.



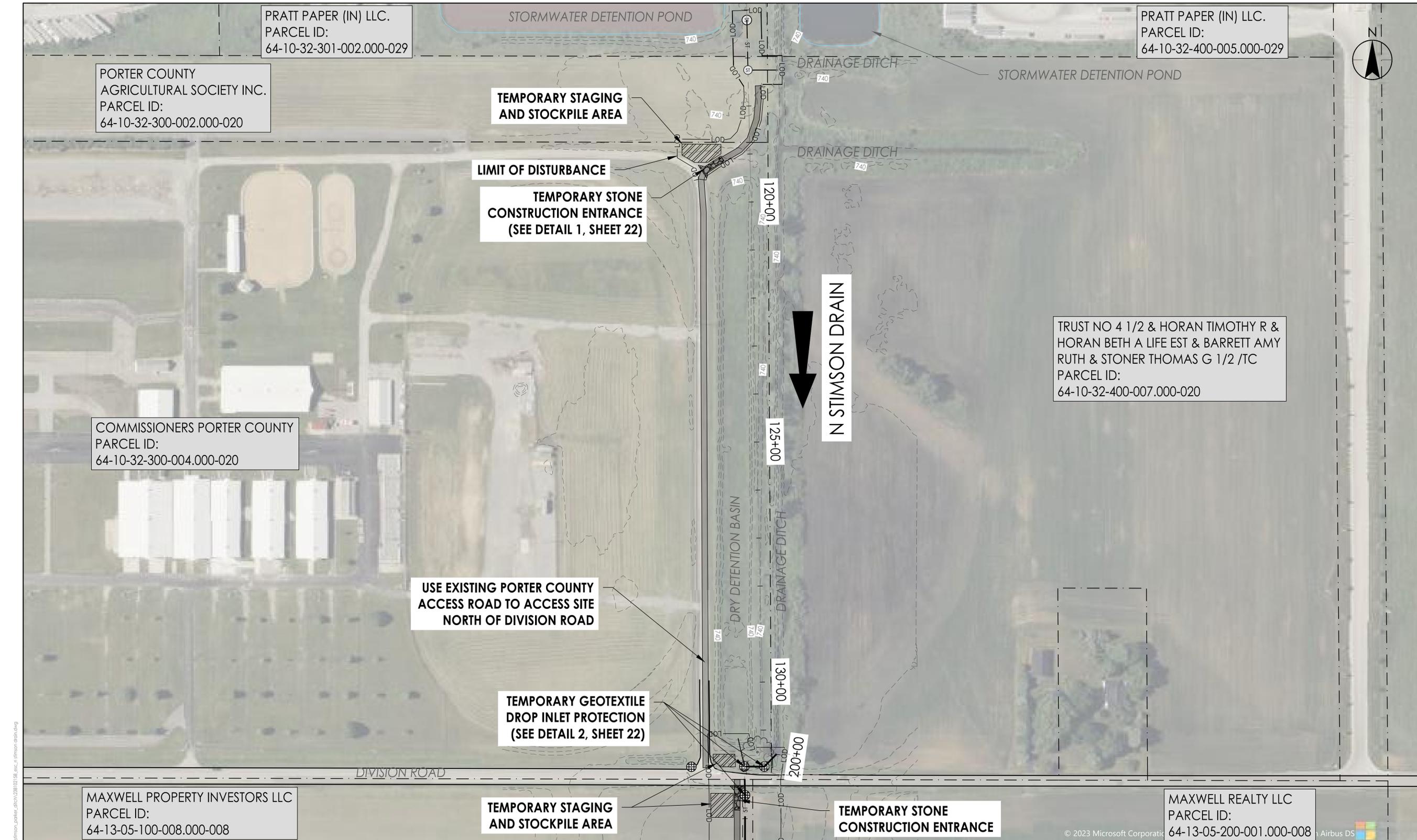
Stantec
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Walkerton, IN 46574
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Client/Project: PORTER COUNTY DEPARTMENT OF DEVELOPMENT & STORMWATER MANAGEMENT
Title: NORTH STIMSON DRAIN DRAIN TILE RECONSTRUCTION
Permit-Seal: JESSICA MCCLURE, REGISTERED PROFESSIONAL ENGINEER, STATE OF INDIANA, No. 12200391

By	App'd.	Y.Y.MM.DD
By	App'd.	Y.Y.MM.DD

Revision: 2
Sheet: 10 of 26

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PRATT PAPER (IN) LLC.
PARCEL ID:
64-10-32-301-002.000-029

PRATT PAPER (IN) LLC.
PARCEL ID:
64-10-32-400-005.000-029

PORTER COUNTY
AGRICULTURAL SOCIETY INC.
PARCEL ID:
64-10-32-300-002.000-020

COMMISSIONERS PORTER COUNTY
PARCEL ID:
64-10-32-300-004.000-020

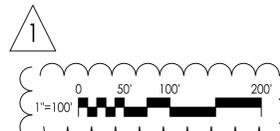
MAXWELL PROPERTY INVESTORS LLC
PARCEL ID:
64-13-05-100-008.000-008

TRUST NO 4 1/2 & HORAN TIMOTHY R &
HORAN BETH A LIFE EST & BARRETT AMY
RUTH & STONER THOMAS G 1/2 /TC
PARCEL ID:
64-10-32-400-007.000-020

MAXWELL REALTY LLC
PARCEL ID:
64-13-05-200-001.000-008



--- 700 ---	EXISTING MAJOR CONTOUR (10')	-----	PROPOSED 6" PERFORATED PIPE	▬▬▬▬▬▬	TEMPORARY ACCESS ROUTE
--- 2' ---	EXISTING MINOR CONTOUR (2')	⊙	EXISTING STORMWATER MANHOLE	— LOD — LOD —	LIMIT OF DISTURBANCE
100+00	EXISTING CENTERLINE ALIGNMENT	⊕	EXISTING STORMWATER INLET	▬▬▬▬▬▬	TEMPORARY STONE CONSTRUCTION ENTRANCE
---	EXISTING PARCEL LINE	⊙	PROPOSED NEW MANHOLE LOCATION	▨▨▨▨▨▨	TEMPORARY STAGING AND STOCKPILE AREA
— ST — ST — ST —	PROPOSED STORMWATER PIPE REPLACEMENT				



Scale bar corrected	JTC	JW	24.11.08
Revision	By	Appd.	YY.MM.DD
Issued	By	Appd.	YY.MM.DD

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT
NORTH STIMSON DRAIN DRAIN TILE RECONSTRUCTION
BETWEEN E DIVISION RD & SR 49
Title
FINAL PLANS
ESC PLANS

Permit-Seal

 Project Number: 238102157
 File Name: 238102158_ESC_N Stimson Drain.dwg
 JTC RAS JTC 24.02.12
 Dwn. Chkd. Dsgn. YY.MM.DD
 Drawing No.
 Revision Sheet
 2 14 of 26

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----- 700 -----	EXISTING MAJOR CONTOUR (10')	- - - - -	PROPOSED 6" PERFORATED PIPE	▬	TEMPORARY ACCESS ROUTE
----- 720 -----	EXISTING MINOR CONTOUR (2')	(ST)	EXISTING STORMWATER MANHOLE	— LOD — LOD —	LIMIT OF DISTURBANCE
----- 100+00 -----	EXISTING CENTERLINE ALIGNMENT	(Globe)	EXISTING STORMWATER INLET	▬	TEMPORARY STONE CONSTRUCTION ENTRANCE
-----	EXISTING PARCEL LINE	(ST)	PROPOSED NEW MANHOLE LOCATION	▨	TEMPORARY STAGING AND STOCKPILE AREA
— ST — ST — ST —	PROPOSED STORMWATER PIPE REPLACEMENT				

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1"=100'

Revision	By	Appd.	Y/M/D
1	JTC	JW	24.11.08
Scale bar corrected			
Issued			

Client/Project
 PORTER COUNTY DEPARTMENT OF DEVELOPMENT
 & STORMWATER MANAGEMENT

Title
 NORTH STIMSON DRAIN DRAIN TILE RECONSTRUCTION

Permit-Seal
 BETWEEN E DIVISION RD & SR 49

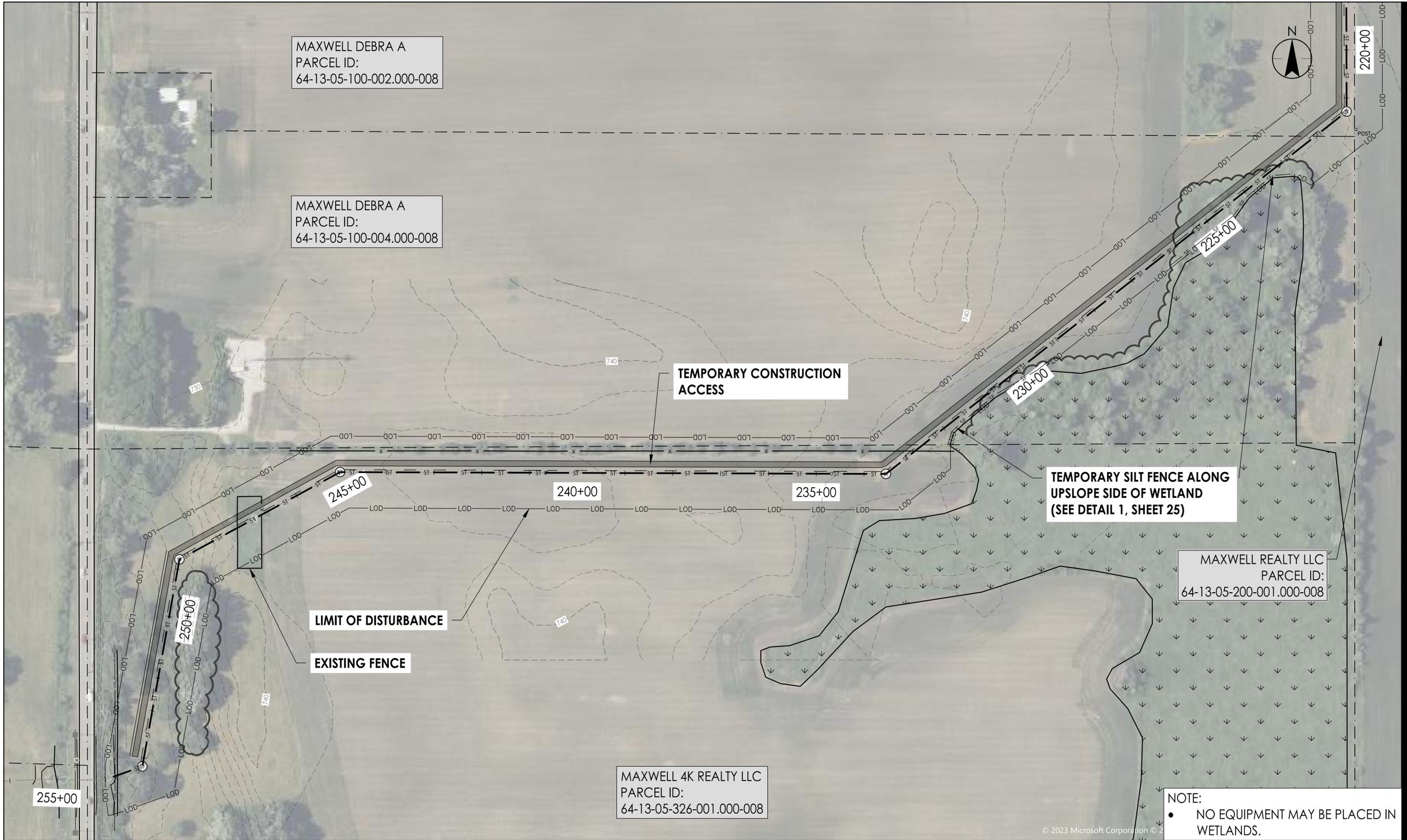
Final Plans
 ESC PLANS

Project Number: 238102157

File Name: 238102157_ESC_N\Stimson Drain.dwg

JTC RAS JTC 24.02.12
 Dwn. Chkd. Dsgn. Y/M/D

Drawing No. 2
 Sheet 15 of 26



MAXWELL DEBRA A
PARCEL ID:
64-13-05-100-002.000-008

MAXWELL DEBRA A
PARCEL ID:
64-13-05-100-004.000-008

TEMPORARY CONSTRUCTION
ACCESS

TEMPORARY SILT FENCE ALONG
UPSLOPE SIDE OF WETLAND
(SEE DETAIL 1, SHEET 25)

LIMIT OF DISTURBANCE

EXISTING FENCE

MAXWELL REALTY LLC
PARCEL ID:
64-13-05-200-001.000-008

MAXWELL 4K REALTY LLC
PARCEL ID:
64-13-05-326-001.000-008

NOTE:
• NO EQUIPMENT MAY BE PLACED IN
WETLANDS.

- 700 --- EXISTING MAJOR CONTOUR (10')
- 100+00 --- EXISTING MINOR CONTOUR (2')
- EXISTING CENTERLINE ALIGNMENT
- EXISTING PARCEL LINE
- ST --- ST --- ST --- PROPOSED STORMWATER PIPE REPLACEMENT

- PROPOSED 6" PERFORATED PIPE
- (ST) EXISTING STORMWATER MANHOLE
- (Globe) EXISTING STORMWATER INLET
- (ST) PROPOSED NEW MANHOLE LOCATION
- (Square) EXISTING POWERPOLE

- TEMPORARY ACCESS ROUTE
- LOD --- LOD --- LIMIT OF DISTURBANCE
- (Stone) TEMPORARY STONE CONSTRUCTION ENTRANCE
- (Hatched) TEMPORARY STAGING AND STOCKPILE AREA
- SF --- SF --- SF --- TEMPORARY SILT FENCE



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1	JTC	JW	24-11-08
Scale bar corrected			
Issued			

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT
NORTH STIMSON DRAIN DRAIN TILE RECONSTRUCTION
BETWEEN E DIVISION RD & SR 49

Title
FINAL PLANS
ESC PLANS

Permit-Seal

Project Number: 238102157
 File Name: 238102158_ESC_N Stimson Drain.dwg

JTC	PAS	JTC	Date
Dwn.	Chkd.	Dsgn.	24.02.12
Drawing No.			YY.MM.DD

Revision 2 Sheet 16 of 26

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TABLE 1 - OPEN LOW MAINTENANCE AREAS
(REMAINING IDLE > 6 MONTHS)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL PH
1. PERENNIAL RYEGRASS - WHITE CLOVER	70 LBS 2 LBS	5.6 TO 7.0
2. PERENNIAL RYEGRASS - TALL FESCUE	70 LBS 50 LBS	5.6 TO 7.0
3. TALL FESCUE - WHITE CLOVER	70 LBS 2 LBS	5.5 TO 7.5

NOTES:

- PERMANENT SEEDING FROM STA. 200+00 TO 201+50 (ST 933) & 246+80 TO 254+00.
- FOR BEST RESULTS (1) LEGUME SEED SHOULD BE INOCULATED; (B) SEEDING MIXTURES CONTAINING LEGUMES SHOULD PREFERABLY BE SPRING-SEEDED, ALTHOUGH THE GRASS MAY BE FALL-SEEDED AND THE LEGUME FROST-SEEDED; AND (C) IF LEGUMES ARE FALL-SEEDED, DO SO IN EARLY FALL.
- TALL FESCUE PROVIDES LITTLE COVER FOR, AND MAY BE TOXIC TO, SOME SPECIES OF WILDLIFE. THE INDIANA DEPARTMENT OF NATURAL RESOURCES RECOGNIZES THE NEED FOR ADDITIONAL RESEARCH ON ALTERNATIVES SUCH AS BUFFALOGRASS, ORCHARDGRASS, SMOOTH BROMEGRASS, AND SWITCHGRASS. THIS RESEARCH, IN CONJUNCTION WITH DEMONSTRATION AREAS, SHOULD FOCUS ON EROSION CONTROL CHARACTERISTICS, WILDLIFE TOXICITY, TURF DURABILITY, AND DROUGHT RESISTANCE.
- AN OAT OR WHEAT COMPANION OR NURSE CROP MAY BE USED WITH ANY OF THE ABOVE PERMANENT SEEDING MIXTURES, AT THE FOLLOWING RATES: (A) SPRING OATS - ONE-FOURTH TO THREE-FOURTHS BUSHEL PER ACRE; (B) WHEAT - NO MORE THAN ONE-HALF BUSHEL PER ACRE.
- A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH OUT EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

INSTALLATION:

SITE PREPARATION:

- GRADE THE SITE TO ACHIEVE POSITIVE DRAINAGE.
- ADD TOPSOIL OR COMPOST MULCH (SEE COMPOST MULCHING) TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. (COMPOST MATERIAL MAY BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRIABILITY, AND NUTRIENT AVAILABILITY.)

SEEDING:

- OPTIMUM SEEDING DATES ARE MARCH 1 TO MAY 10 AND AUGUST 10 TO SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. SEEDING OUTSIDE OR BEYOND OPTIMUM SEEDING DATES IS STILL POSSIBLE WITH THE UNDERSTANDING THAT RESEEDING OR OVERSEEDING MAY BE REQUIRED IF THE SOIL SURFACE REMAINS WELL PROTECTED WITH MULCH.
- APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE-FOURTH TO ONE-HALF INCH. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.)
- MULCH ALL SEEDED AREAS (STRAW MULCH) AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS (SEE EROSION CONTROL BLANKET).

MAINTENANCE:

- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED.
- CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE VIGOROUS DARK GREEN OR BLuish GREEN SEEDLINGS WITH A UNIFORM VEGETATIVE COVER DENSITY OF 90 PERCENT OR MORE.
- CHECK FOR EROSION OR MOVEMENT OF MULCH.
- REPAIR DAMAGED, BARE, GULLIED OR SPARSELY VEGETATED AREAS AND THEN FERTILIZE, RESEED, AND APPLY AND ANCHOR MULCH.
- IF PLANT COVER IS SPARSE OR PATCH, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION; REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RESEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDED AREAS.
- IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL PH OR NUTRIENT DEFICIENCY PROBLEMS. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.)
- IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS.
- ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
- FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL-SEASON GRASSES, APPLY ONE-HALF OF THE FERTILIZER IN LATE SPRING AND ONE-HALF IN EARLY FALL. FOR WARM-SEASON GRASSES, APPLY ONE-THIRD IN EARLY SPRING, ONE-THIRD IN LATE SPRING, AND THE REMAINING ONE-THIRD IN MIDDLE SUMMER.

LIMITATIONS:

SEEDED SURFACES MUST NOT BE SUBJECT TO EROSION FLOWS.



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The Contractor shall verify and be responsible for all dimensions. DO NOT scale.
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Revision	By	Appd.	Y/M/A	Issued	By	Appd.	Y/M/A

Client/Project
PORTER COUNTY DEPARTMENT OF DEVELOPMENT
& STORMWATER MANAGEMENT
NORTH STIMSON DRAIN DRAIN TILE RECONSTRUCTION

Permit-Seal
BETWEEN E DIVISION RD & SR 49

Title
FINAL PLANS
DETAILS

Project Number: 238102157

File Name: 238102157_Details_NStimson Drain.dwg

JTC RAS JTC 04.02.19
Dwn. Chkd. Dsgn. Y1.M.M.DD

Drawing No. 2
Sheet 26 of 26

Save Date: 2024/11/08 10:21 AM User: Cacthrene_jeach
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**ATTACHMENT E
REVISED TECHNICAL SPECIFICATIONS**

**TECHNICAL SPECIFICATIONS
FOR
NORTH STIMSON
DRAIN TILE RECONSTRUCTION**

PORTER CO. DEPARTMENT OF DEVELOPMENT & STORM WATER MANAGEMENT
OCTOBER 15, 2024

The following Technical Specifications shall apply to and govern the project designated as **North Stimson – Drain Tile 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
Special Provisions for North Stimson – Drain Tile Reconstruction	Porter Co. Department of Development & Storm Water Management	October 15, 2024
Technical Specifications for North Stimson – Drain Tile Reconstruction	Porter Co. Department of Development & Storm Water Management	October 15, 2024
Construction Plans for North Stimson – Drain Tile Reconstruction	Porter Co. Department of Development & Storm Water Management	February 12, 2024
General Specifications to the Construction & Maintenance Services Agreements	Porter Co. Department of Development & Storm Water Management	February 1, 2024

**DIVISION 200
SITE PREPARATION AND EARTHWORK**

PRE-CONSTRUCTION AUDIO/VIDEO SURVEY

DESCRIPTION

This work shall consist of conducting an audio/video survey of the project site and adjacent areas to document the condition of such areas prior to the start of the work. Such audio/video recording will be used to resolve disputes regarding damage to public or private property and/or the restoration of areas disturbed during the performance of the work.

CONSTRUCTION REQUIREMENTS

An audio/video survey of the project site and the project site shall be conducted prior to the start of the work. The audio/video recording system and the procedures used to conduct such survey shall provide a finished product that will fulfill the technical requirements outlined below as well as provide high quality audio and video documentation of the conditions found on the project site and adjacent areas prior to the start of the work. The audio/video recording system shall provide bright, sharp, clear pictures and accurate colors and shall be free from distortion, discoloration, and other forms of picture imperfection and shall provide precise and concise explanatory notes about the survey with adequate volume and clarity and free from distortion and other forms of sound imperfection.

This work shall be completed in accordance with the following technical requirements:

- (a) Audio/Video Equipment (Video Camera). The video shall be recorded in high definition video.
- (b) Recording Index. Video recordings shall be supplemented with an index identifying the area documented by such recording and the date and time such video was recorded.
- (c) Start of Survey. At the start of production and/or at the beginning of each video documenting a new area or project segment, an introduction should be read into the recording while a wide-angle view of such area or segment is provided for a visual marker. The introduction shall include: (1) project name, (2) summary of area or segment being surveyed, (3) location at start of survey and general direction of survey, (4) date and time, (5) weather conditions, and (6) any other notable conditions.
- (d) Survey Coverage. Video recordings shall include coverage of all surface features within the project site and all adjacent areas within the area that may be affected by the performance of the work. This area shall be defined as: (1) the area within the right-of-way as well as areas adjacent to such right-of-way which may be affected by construction activities, (2) the area within any permanent and/or temporary easements as well as areas adjacent to such permanent and/or temporary easements which may be affected by construction activities; and, (3) any other areas identified by the Owner. Surface features include, but are not limited to, pavement, walls and foundations of buildings, vaults, underground structures of public utilities, underground structures of private utilities, survey markers, overhead structures of public utilities, trees, shrubbery, landscaped areas, crops, and fences contiguous to the work. Of particular interest to the survey shall be surface features for which the contract does not provide for removal and/or specify precautions as well as the existence or non-existence of any existing defects or damage to surface features.
- (e) Visibility. Video recordings shall be performed only when sufficient sunlight is available to properly illuminate the area or segment being documented. No video recordings shall be performed during periods of significant precipitation, mist, or fog. No video recordings shall be performed when the area or segment being document is covered with snow unless otherwise authorized by the Engineer.
- (f) Rate of Travel. The rate of travel while conducting video recordings shall be indirectly proportional to the number, size, and value of the surface features found within the area or segment being documented. In no case shall the average rate of travel exceed 50 feet per minute.
- (g) Perspective. To ensure proper perspective and to capture an optimal level of detail during the survey, the video camera shall be placed at an optimal height above the ground, typically at breast or shoulder height.

- (h) End of Survey. At the end of production and/or at the end of each video documenting a new area or project segment, a summary should be read into the recording while a wide-angle view of such area or segment is provided for a visual marker. The summary shall include: (1) project name, (2) summary of area or segment being surveyed, and, (3) location at end of survey.

Upon completion of the audio/video survey, and prior to the start of the work, the Contractor shall provide the Owner with two copies of the survey on DVDs, USB drives, or other electronic format acceptable to Owner. Such DVDs, USB drives, or other deliverables shall include a log that shall describe: (1) the various areas or segments that are documented therein, (2) location at start of each video recording, general direction of survey, and location at end of each video recording, and, (3) date and time of each video recording.

Owner shall have the authority to reject any or all of the video recordings not conforming to these technical specifications. Those areas or segments that were the subject of video recordings that were so rejected by Owner shall be re-surveyed at no additional cost to Owner.

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 PRE-CONSTRUCTION AUDIO/VIDEO SURVEY – LUMP SUM shown on the basis of bid or quote form.

PAYMENT

This work shall be paid for at the contract unit price for PRE-CONSTRUCTION AUDIO/VIDEO SURVEY – LUMP SUM.

Such unit price shall include all preparation necessary to complete the work, the furnishing, transporting, and use of all equipment and materials necessary to complete the work, as well as the recording, documentation, editing, and other necessary items and tasks necessary to complete the work.

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. Woody scrub areas requiring Clearing & Tree Removal are denoted by the existing tree line linework and callouts in the construction plans. Clearing & Tree Removal shall not extend outside of the proposed drain easement boundary shown on the construction plans. Clearing & Tree Removal shall not extend into the wetland boundaries depicted on the construction plans.

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.

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.

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.

PAYMENT

This work shall be paid for at the contract quantity and/or quantities for CLEARING & TREE REMOVAL – LUMP SUM shown on the basis of bid form.

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.

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 shown on the basis of bid form.

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.

STRIP TOPSOIL

DESCRIPTION

This work shall consist of the stripping of topsoil from the existing surface of trenches and other cut areas and the existing surface of embankments and other fill areas and the transportation of materials generated during such stripping work to stockpile areas located on the project site.

CONSTRUCTION REQUIREMENTS

Topsoil shall be stripped from the existing surface of trenches and other cut areas and the existing surface of embankments and other fill areas, as shown on the construction plans. Topsoil shall be stripped to a depth of 6 IN, or as directed by the Engineer, and stockpiled on the project site near the areas where it is to be spread.

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.

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. Typically spoils will be spread in depths 3-6" in adjacent agricultural field and then top dressed with minimum 6" of topsoil

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 used as backfill within pipe replacement trenches, 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 spreading of suitable excess excavation material within the drain easement shown in the construction plans shall be 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.

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 and storm sewers.

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.

Should suitable bedding and initial backfill material be discovered beneath the existing CMP drain tile and within the footprint of the proposed bedding needed, the depth and quality of the aggregate will first be confirmed by the Engineer but then shall be reused in-lieu of imported bedding & initial backfill material.

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. Stone lift tickets may be requested by the Engineer and/or Owner so the Contractor should keep documentation of these tickets.

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 or for spreading within the drain easement as shown in the construction plans 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.

STRUCTURE BEDDING

DESCRIPTION

This work shall consist of furnishing, transporting, and placing fine aggregate for the bedding to be installed at the bottom of all excavations made during the performance of the work for the purpose of installing storm sewer structures.

This work also includes the transportation of suitable surplus excavated material from such excavations, such suitable surplus excavated material having been replaced by structure bedding, 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) Structure Bedding

CONSTRUCTION REQUIREMENTS

The installation of structure bedding 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 STRUCTURE BEDDING shown on the basis of quote or basis of quote form. The entire volume of STRUCTURE BEDDING 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 STRUCTURE BEDDING.

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 sand bedding, 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 and storm sewer structures 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 and storm sewer structures 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
- (3) Structure 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.

SPREAD TOPSOIL

DESCRIPTION

This work shall consist of the transportation of materials from topsoil stockpile areas located on the project site to disturbed areas located on the project site, such as trenches and other cut areas and embankments, spoils areas, and other fill areas, and the spreading of such materials over such disturbed areas.

CONSTRUCTION REQUIREMENTS

Topsoil shall be spread over disturbed areas located on the project site, such as trenches and other cut areas and embankments, spoils areas and other fill areas, as shown on the construction plans. Topsoil shall be spread over such disturbed areas to a depth of 6 IN, or as directed by the Engineer, and firmly tamped or compacted.

So far as practicable, each lift of topsoil shall extend the entire length and width of the disturbed area. The material shall be spread 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 firmly tamped or 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.

All spreading 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.

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.

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.

STONE

DESCRIPTION

All stone detailed in this section is intended to be material installed as indicated in the plans and as directed by the Engineer for installation of the riprap outlet protection.

MATERIALS

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

MATERIALS

(1) INDOT Revetment Riprap (well graded material sized 3 inches to 12 inches).

CONSTRUCTION REQUIREMENTS

The installation of stone shall be completed in accordance with these technical specifications and the location and dimension in the plans or as directed by the Engineer.

MEASUREMENT

This work shall be measured based on submitted delivery lift tickets.

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

PAYMENT

This work shall be paid for at the contract unit price(s) per ton for the following stone materials shown on the basis of quote or basis of bid form:

MATERIALS

(1) INDOT Revetment Riprap

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.

**DIVISION 300
DRAINAGE AND STORMWATER MANAGEMENT**

DRAIN TILE

DESCRIPTION

This work shall consist of constructing drain tiles 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)
- (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

Drain tiles 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 to the depths and widths described in the table below.

Inside Diameter or Equivalent Diameter of Storm Sewer, d (IN)	Required Trench Width on Each Side of the Storm Sewer (IN)	Required Trench Depth Below the Storm Sewer (IN)
d < 24 IN	9 IN	3 IN
24 IN < d < 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 storm sewer. 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 storm sewer and at the grade established for the storm sewer, 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 when the drain tile outlets from an embankment or existing slope, the last 3 FT of the pipe shall be bedded in compacted impervious material. The bedding material and/or impervious material shall be compacted by mechanical means to the satisfaction of the Engineer.

Inside Diameter or Equivalent Diameter of Drain Tile, d (IN)	Required Depth of Bedding Material (IN)
$d < 24$ IN	3 IN
24 IN $\leq d < 60$ IN	4 IN
$d > 60$ IN	6 IN

(c) Laying Drain Tile Pipe

No drain tile pipe 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 sewer 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.

(d) Backfilling

As soon as the condition of the drain tile will permit, the entire width of the trench shall be backfilled with initial backfill material to the top of the pipe, except when the drain tile outlets from an embankment or existing slope, the initial backfill material around and above the last 3 FT of the pipe shall be impervious material. 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 drain tile 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 12 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.

(f) Television Inspection

All drain tiles shall be inspected via closed circuit television not less than 30 days after the pipe has been installed and the backfilling has been completed. Such inspection shall be performed in the presence of the Engineer. All drain tiles shall be cleaned as necessary to allow for such inspection.

(g) Deflection Testing

All PVC and HDPE drain tiles shall be tested for deflection not less than 30 days after the pipe has been installed and the backfilling has been completed. Such testing shall be performed in the presence of the Engineer.

For PVC and HDPE pipe with a diameter of 24 IN or smaller, a mandrel drag shall be used for deflection testing. For PVC and HDPE pipe with a diameter of greater than 24 IN, deflection measurements other than by a mandrel shall be used.

Where the mandrel is used, the mandrel shall be furnished by the Contractor and pulled by hand through the pipeline with a suitable rope or cable connected to each end. Winching or other means of forcing the deflection gauge through the pipeline will not be allowed.

The mandrel shall be of a shape similar to that of a true circle enabling the gauge to pass through a satisfactory pipeline with little or no resistance. The mandrel shall be of a design to prevent it from tipping from side to side and to prevent debris buildup from occurring between the channels of the adjacent fins or legs during operation.

Each end of the core of the mandrel shall have fasteners to which the pulling cables can be attached. The mandrel shall have nine, various sized fins or legs of appropriate dimension for various diameter pipes. Each fin or leg shall have a permanent marking that states its designated pipe size and percent of deflection allowable.

The outside diameter of the mandrel shall be 95 percent of the base inside diameter. For all PVC pipe, the base inside diameter shall be defined using ASTM D 3034 methodology. For all HDPE pipe, the base inside diameter shall be defined using ASTM F 2306 methodology.

If the pipe is found to have a deflection greater than that specified, that pipe section shall be removed, replaced, and retested.

(h) Plugging Drain Tile Pipe

Drain tiles to be plugged, as shown on the construction plans or as designated by the Engineer, shall be plugged with Class SI concrete, brick and mortar, or other methods approved by the Engineer. This work will not be paid for directly but shall be considered as included in the other drain tile work involved and shall be included in the unit prices for such items and no additional compensation will be allowed. If other drain tile work is not provided for in the contract documents, plugging drain tile pipe will be paid for according to Article 109.05.

MEASUREMENT

DRAIN TILE 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 DRAIN TILE of the diameter, material, and class and/or type specified in the contract documents. The entire length of DRAIN TILE necessary to complete the work shown on the construction plans shall have been used in computing such quantity. When a drain tile enters a manhole, catch basin, inlet, or drainage structure, calculation of the contract quantity and/or quantities for drain tile shall have ended at the inside wall of such manhole, catch basin, inlet, or drainage structure.

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

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

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

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

PAYMENT

DRAIN TILE shall be paid for at the contract unit price(s) per foot for DRAIN TILE 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 DRAIN TILE shall be paid for in accordance with these technical specifications.

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

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

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

PERFORATED DRAIN TILE

DESCRIPTION

This work shall consist of constructing perforated drain tiles, via open trench construction, 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) Flexible Pipe
 - a. High Density Polyethylene (HDPE) Pipe, Type SWP (Single Wall, Perforated)
- (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

Perforated drain tiles 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 to the depths and widths described in the table below.

Inside Diameter or Equivalent Diameter of Drain Tile, d (IN)	Required Trench Width on Each Side of the Drain Tile (IN)	Required Trench Depth Below the Drain Tile (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 perforated drain tile. 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 drain tile and at the grade established for the perforated drain tile, 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 when the perforated drain tile outlets from an embankment or existing slope, the last 3 FT of the pipe shall be bedded in compacted impervious material. The bedding material and/or impervious material shall be compacted by mechanical means to the satisfaction of the Engineer.

Inside Diameter or Equivalent Diameter of Drain Tile, d (IN)	Required Depth of Bedding Material (IN)
d < 24 IN	3 IN
24 IN < d < 60 IN	4 IN
d > 60 IN	6 IN

(c) Laying Drain Tile Pipe

No perforated drain tile pipe 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 perforated drain tile 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.

HDPE pipe shall be joined according to the manufacturer's specifications. PVC pipe shall be joined according to the manufacturer's specifications.

(d) Backfilling

As soon as the condition of the perforated drain tile will permit, the entire width of the trench shall be backfilled with trench backfill material to a height of at least the top of the pipe, except when the perforated drain tile outlets from an embankment or existing slope, the initial backfill material around and above the last 3 FT of the pipe shall be impervious material. 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 perforated drain tile 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.

(f) Plugging Perforated Drain Tile Pipe

Perforated drain tiles to be plugged, as shown in the construction plans or as designated by the Engineer, shall be plugged with Class SI concrete, brick and mortar, or other methods approved by the Engineer. This work will not be paid for directly but shall be considered as included in the other perforated drain tile work involved and shall be included in the unit prices for such items and no additional compensation will be allowed. If other perforated drain tile work is not provided for in the contract documents, plugging perforated drain tile pipe will be paid for according to Article 109.05.

MEASUREMENT

PERFOATED DRAIN TILE 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 PERFORATED DRAIN TILE of the diameter, material, and class and/or type specified in the contract documents. The entire length of PERFORATED DRAIN TILE necessary to complete the work shown in the construction plans shall have been used in computing such quantity. When a drain tile enters a storm sewer structure, calculation of the contract quantity and/or quantities for drain tile shall have ended at the inside wall of such storm sewer structure.

EXCAVATION FOR PERFORATED DRAIN TILE will be measured for payment in accordance with these technical specifications.

DEWATERING FOR PERFORATED DRAIN TILE will be measured for payment in accordance with these technical specifications.

BEDDING & INITIAL BACKFILL FOR PERFORATED DRAIN TILE will be measured for payment in accordance with these technical specifications.

FINAL BACKFILL FOR PERFORATED DRAIN TILE will be measured for payment in accordance with these technical specifications.

PAYMENT

PERFORATED DRAIN TILE shall be paid for at the contract unit price(s) per foot for PERFORATED DRAIN TILE 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 PERFORATED DRAIN TILE shall be paid for in accordance with these technical specifications.

DEWATERING FOR PERFORATED DRAIN TILE shall be paid for in accordance with these technical specifications.

BEDDING & INITIAL BACKFILL FOR PERFORATED DRAIN TILE shall be paid for in accordance with these technical specifications.

FINAL BACKFILL FOR PERFORATED DRAIN TILE shall be paid for in accordance with these technical specifications.

ABANDON/GROUT FILL EXISTING PIPE

DESCRIPTION

This work consists of abandoning 15-inch CMP using grout fill as shown on the construction plans.

MATERIALS

Materials shall be in accordance with the following material specification, which is presented elsewhere in these technical specifications.

MATERIALS

(1) Grout Fill

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.

Pipelines to be abandoned shall be filled with grout and securely closed at all pipe openings by a watertight plug of concrete, or brick and cement mortar, not less than 2-ft thick.

The Contractor shall establish the proposed grout mixes, methods, plans, and criteria that the grouting operations shall meet and submit these to the Engineer or Owner for approval. The grouting system shall have sufficient gauges, monitoring devices, and tests to determine the effectiveness of the grouting operation and to ensure complete fill (100%) and that no voids exist within the pipeline or structure.

One or more mixes shall be developed to completely fill the abandoned pipe and to meet the following requirements:

- (1) Accommodate the diameter or size of the pipe.
- (2) Accommodate the void size of the surrounding soil.
- (3) Accommodate the absence or presence of groundwater.
- (4) Provide the acceptable strength and durability.
- (5) Provide load bearing capacity.
- (6) Shrinkage shall not exceed 2% by volume.

MEASUREMENT

ABANDON 15" CMP (GROUT FILL) 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 ABANDON 15" CMP (GROUT FILL) of the quantity, material, and class and/or type specified in the contract documents. The entire volume of grout fill necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

GROUT FILL to ABANDON 15" CMP shall be paid for in accordance with these technical specifications.

PAYMENT

This work shall be paid for at the contract unit price per cubic yard for ABANDON 15" CMP (GROUT FILL) shown on the basis of bid form.

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.

STORM SEWER STRUCTURES

DESCRIPTION

This work shall consist of constructing, adjusting, or reconstructing storm sewer structures with castings, 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) Precast Reinforced Concrete Storm Sewer Structures
- (2) Structure Bedding
- (3) Structure 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) Classification

Classification as to the adjustment or reconstruction of existing storm sewer structures shall be made by the Engineer on the following basis:

- (1) Adjustment. Adjustment shall include all those existing storm sewer structures which are to be adjusted to grade where 2 FT or less of material will be either added, removed, or rebuilt to bring the specified structure to the finished grade specified on the construction plans.
- (2) Reconstruction. Reconstruction shall include all those existing storm sewer structures which are to be adjusted to grade where more than 2 FT of material will be either added, removed, or rebuilt to bring the specified structure to the finished grade specified on the construction plans.

(b) Excavation

Storm sewer structures shall be constructed in excavations free of water, excavated either in embankments or natural ground. 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 provide for proper embedment of the structure, and in order to permit proper joining of sections of the structure, the excavation shall be made to 6 IN below the structure and a diameter of at least 6 IN greater than the diameter of the structure.

Where a firm foundation is not encountered at the bottom of the excavation 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 the bottom of the excavation, 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 diameter or length and width of the excavation, and replaced with well compacted bedding material. Rock shall be removed to an elevation 1 FT lower than the bottom of the structure or to a depth equal to 1/2 IN/FT of ultimate fill height over the top of the structure, whichever is the greater depth, for the diameter or length and width of the excavation, 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 structure will be in fill, the embankment, or a portion thereof, shall be constructed prior to excavating. The embankment shall be constructed to a height which will provide approximately 1 FT of cover over the structure. The width of the top of the embankment shall be a minimum of 2 FT on each side of the structure, measured from the side of the structure along centerlines passing through the center of the structure,

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.

(c) Foundation

Well compacted structure bedding material shall be placed along the entire diameter or length or width of the excavation to a depth of 6 IN. The structure bedding material shall be compacted by mechanical means to the satisfaction of the Engineer.

(d) Setting Storm Sewer Structures

No structure shall be placed until the excavation and the prepared foundation have been approved by the Engineer.

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

Precast reinforced concrete sections shall be constructed in horizontal courses. The sections shall be laid in mortar or sealed with external sealing bands, preformed flexible joint sealant, or mastic joint sealer. When mastic joint sealer is used, the material shall completely fill the joint after the units have been brought together.

All precast reinforced concrete units shall be installed on a 6 IN thick cushion of structure bedding. Handling holes shall be filled with a precast concrete plug and sealed with mastic or mortar. The plug shall not project beyond the inside surface after installation. When metal lifting inserts are used, their sockets shall be filled with mastic or mortar.

(e) Connecting Pipe to Storm Sewer Structures

Connections of pipe to storm sewer structures shall utilize cast-in-place watertight connectors and shall be used in accordance with the manufacturer's recommendations.

(f) Placing Adjusting Rings and Castings

Placing adjusting rings and castings shall be as follows:

- (1) Furnishing. Adjusting rings and castings, including frames and grates, frames and lids, and trash racks, shall be furnished as specified in the contract documents.
- (2) Placing. Adjusting rings shall be constructed in horizontal courses. Adjusting rings shall be laid mortar or sealed with preformed flexible joint sealant or mastic joint sealer. When mastic joint sealer is used, the material shall completely fill the joint after the units have been brought together.

Casting frames shall be set in full mortar beds or sealed with preformed flexible joint sealant or mastic joint sealer. When mastic joint sealer is used, the material shall completely fill the joint after the units have been brought together.

Adjusting rings and castings shall be set to the natural line or finished surface so that no subsequent adjustment will be necessary.

(g) Backfilling

If the structure is located within the subgrade of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, or if any point of the excavation created to allow for the installation of the structure is located within 2 FT of the edge of a proposed or existing pavement, curb, gutter, curb and gutter, stabilized shoulder, or sidewalk, as soon as the condition of the structure will permit, the entire space between the sides of the excavation and the outside of the structure shall be backfilled with structure backfill meeting the requirements of these technical specifications to the top of the structure. 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.

For all other structures, the entire space between the sides of the excavation and the outside of the structure shall be backfilled with suitable excavated material to the top of the structure. 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).

Once adjusting rings and castings have been set, backfilling shall continue, as described herein, from the top of the structure to the existing adjacent grade or finished surface.

All backfill material shall be deposited and compacted in such a manner as not to damage the structure, adjusting rings, or casting.

(h) Shaping, Trimming & Finishing

After backfilling has been completed, the top of the excavation shall be shaped, trimmed, and finished to the lines, grades, and elevations shown on the construction plans, in accordance with these technical specifications.

(i) Cleaning

All storm sewer structures shall be cleaned of any accumulation of silt, debris, or foreign matter of any kind, and shall be free from such accumulations at the time of final inspection.

MEASUREMENT

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

When this work includes construction of storm sewer structures, 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 STORM SEWER STRUCTURES of the diameter, depth, material, and class and/or type specified in the contract documents, and with the type of casting, including frame and grate, frame and lid, or trash rack, specified in the contract documents. The entire quantity of STORM SEWER STRUCTURES necessary to complete the work shown on the construction plans shall have been used in computing such quantity.

When this work includes adjustment or reconstruction of storm sewer structures, and existing castings are to be used, 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 ADJUSTMENT OF STORM SEWER STRUCTURES or RECONSTRUCTION OF STORM SEWER STRUCTURES of the diameter, depth, material, and class and/or type specified in the contract documents.

When this work includes adjustment or reconstruction of storm sewer structures, and new castings are to be used, 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 ADJUSTMENT OF STORM SEWER STRUCTURES WITH NEW CASTINGS or RECONSTRUCTION OF STORM SEWER STRUCTURES WITH NEW CASTINGS of the diameter, depth, material, and class and/or type specified in the contract documents, and with the type of casting, including frame and grate, frame and lid, or trash rack, specified in the contract documents.

EXCAVATION FOR STORM SEWER STRUCTURES will be measured for payment in accordance with these technical specifications.

DEWATERING FOR STORM SEWER STRUCTURES will be measured for payment in accordance with these technical specifications.

STRUCTURE BEDDING FOR STORM SEWER STRUCTURES will be measured for payment in accordance with these technical specifications.

STRUCTURE BACKFILL FOR STORM SEWER STRUCTURES will be measured for payment in accordance with these technical specifications.

PAYMENT

Construction of STORM SEWER STRUCTURES shall be paid for at the contract unit price(s) per each for STORM SEWER STRUCTURES of the diameter, depth, material, and class and/or type specified in the contract documents, and with the type of casting, including frame and grate, frame and lid, or trash rack, specified in the contract documents.

Adjustment or reconstruction of STORM SEWER STRUCTURES, using existing castings, shall be paid for at the contract unit price(s) per each for ADJUSTMENT OF STORM SEWER STRUCTURES or RECONSTRUCTION OF STORM SEWER STRUCTURES of the diameter, depth, material, and class and/or type specified in the contract documents.

Adjustment or reconstruction of STORM SEWER STRUCTURES, using new castings, shall be paid for at the contract unit price(s) per each for ADJUSTMENT OF STORM SEWER STRUCTURES WITH NEW CASTINGS or RECONSTRUCTION OF STORM SEWER STRUCTURES WITH NEW CASTINGS of the diameter, depth, material, and class and/or type specified in the contract documents, and with the type of casting, including frame and grate, frame and lid, or trash rack, specified in the contract documents.

Such unit prices 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 STORM SEWER STRUCTURES shall be paid for in accordance with these technical specifications.

DEWATERING FOR STORM SEWER STRUCTURES shall be paid for in accordance with these technical specifications.

STRUCTURE BEDDING FOR STORM SEWER STRUCTURES shall be paid for in accordance with these technical specifications.

STRUCTURE BACKFILL FOR STORM SEWER STRUCTURES shall be paid for in accordance with these technical specifications.

DRAIN TILE INVESTIGATION

DESCRIPTION

This work shall consist of locating existing drain tiles within the project site.

CONSTRUCTION REQUIREMENTS

Existing drain tiles in those areas where they are suspected to exist, as shown on the construction plans, and in other locations identified by the Engineer, shall be located by excavating an exploratory trench, in accordance with these technical specifications.

The exploratory trench shall be not less than 54 IN in depth, as measured from the existing adjacent grade. The width of the exploratory trench shall be sufficient to allow for proper investigation of the entire trench.

When an existing drain tile is encountered, additional exploratory trenches shall be excavated as needed to establish the alignment, size, and depth of the existing drain tile.

When an existing drain tile is encountered, the trench shall be inspected by the Engineer to determine what treatment, if any shall be applied to the existing drain tile. Broken drain tile shall be repaired as directed by the Engineer and no surface runoff or sediment shall be allowed to enter any existing drain tile.

After the trench has been inspected by the Engineer, and any necessary treatment has been applied to any existing drain tile, the excavated material shall be used to backfill the trench. Any excess excavated material shall be disposed of in accordance with these technical specifications and, following the completion of backfilling activities, the area shall be shaped, trimmed, and finished in accordance with these technical specifications.

MEASUREMENT

DRAIN TILE INVESTIGATION shall be measured per each stormwater lateral (pipe not including the existing and proposed drain tile main line) entering the STORMWATER SEWER STRUCTURES. Additional laterals identified in the field that are in excess of the laterals shown on the plans shall be identified and confirmed with the Engineer prior to their measurement and payment.

PAYMENT

DRAIN TILE INVESTIGATION shall paid for at the contract unit price(s) per each stormwater lateral included for DRAIN TILE INVESTIGATION specified in the contract documents.

**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.

TEMPORARY PERIMETER SEDIMENT CONTROL

DESCRIPTION

This work shall consist of the creation of temporary perimeter sediment control 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 perimeter sediment control throughout the performance of the work and restoring areas disturbed as a result of the installation and maintenance of such temporary perimeter and sediment control.

MATERIALS

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

MATERIALS

(1) Silt Fence

DEFINITIONS

Rain Event. A rain event shall be defined as a precipitation event that results in a total measured precipitation accumulation equal to, or greater than, one-half (0.5) inch of rainfall.

CONSTRUCTION REQUIREMENTS

Temporary perimeter sediment control shall be confined to those locations indicated on the construction plans or as approved by the Engineer. The Contractor shall conduct inspection of the temporary perimeter sediment control and such temporary perimeter sediment control shall be maintained in accordance with manufacturer recommendations continually throughout the duration of the work and through establishment of adequate stabilizing vegetation. The temporary perimeter sediment control shall be inspected within 24 hours of each rain event and at least once every seven calendar days.

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 PERIMETER SEDIMENT CONTROL shown on the basis of quote or basis of bid form. The entire quantity of TEMPORARY PERIMETER SEDIMENT CONTROL 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 foot for TEMPORARY PERIMETER SEDIMENT CONTROL.

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.

TEMPORARY CATCH BASIN INSERT INLET PROTECTION

DESCRIPTION

This work shall consist of the installation of temporary catch basin insert inlet protection 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 catch basin insert inlet protection throughout the performance of the work and restoring areas disturbed as a result of the installation and maintenance of such temporary catch basin insert inlet protection.

CONSTRUCTION REQUIREMENTS

Temporary catch basin insert inlet protection shall be confined to those locations indicated on the construction plans or as approved by the Engineer. Temporary catch basin insert inlet protection shall be constructed in accordance with the construction plans.

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 CATCH BASIN INSERT INLET PROTECTION shown on the basis of quote or basis of bid form. The entire quantity of TEMPORARY CATCH BASIN INSERT PROTECTION 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 CATCH BASIN INSERT PROTECTION.

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, 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, temporary construction entrances, construction access routes, storm sewer trenches, detention basins, 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.

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) Temporary Seed Mix
- (3) Final Seed Mix
- (4) Straw Mulch
- (5) 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, fertilizer, and/or 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.

Seed Mixes to be applied as described in the plans.

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, 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). Disturbed areas located in row crop areas shall not receive straw mulch, unless otherwise directed by the Engineer.

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.

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 laid 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

This work includes the restoration of all areas disturbed during performance of the work and the various items of work involved, including, but not limited to, temporary construction entrances, construction access routes, storm sewer trenches, and other areas disturbed during the performance of the work. 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 RESTORE DISTURBED AREAS 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 RESTORE DISTURBED AREAS.

Such unit price shall include all materials and labor 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.

**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.

ROAD CUT & REPAIR

DESCRIPTION

This work shall consist of cutting existing pavement to allow for the excavation of trenches in the subgrade of an existing pavement, curb, gutter, curb and gutter, stabilized shoulder, driveway, or sidewalk for the purpose of installing culvert, storm sewers, and drain tiles. This work also includes furnishing, transporting, and placing trench backfill the final backfilling of all trenches located in the subgrade of an existing pavement, curb, gutter, curb and gutter, stabilized shoulder, driveway, or sidewalk. It also includes restoration of the existing pavement, curb, gutter, curb and gutter, stabilized shoulder, driveway, or sidewalk.

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.

Road cuts shall be made no wider than the width of the trench required to install the culvert, storm sewer, and drain tile, in accordance with these technical specifications. Road cuts shall be made by sawing the existing pavement with a concrete saw.

Once the road cut has been made, culvert, storm sewer, and drain tile installation may proceed in accordance with these technical specifications.

After initial backfilling has been completed, the remainder of the trench shall be backfilled to within 4 IN of the existing adjacent grade or finished surface as rapidly as the condition of the culvert, storm sewer, and drain tile will permit. The backfill material shall consist of trench backfill meeting the requirements of these technical specifications.

The existing pavement, curb, gutter, curb and gutter, stabilized shoulder, driveway, or sidewalk shall then be restored in accordance with the Porter County Supplemental Design and Construction Standards/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 ROAD CUT & REPAIR shown on the basis of quote or basis of bid form. The entire area designated for ROAD CUT & REPAIR 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 ROAD CUT & REPAIR.

Such unit price 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 1000 MATERIALS

SILT FENCE

Silt fence shall be "36 IN INDOT Silt Fence", as manufactured by LCS, LLC, or equivalent, as approved by the Engineer.

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.

STRUCTURE BEDDING

Structure bedding shall be natural sand or crushed stone, dolomite, or gravel, INDOT No. 23 or No. 24 fine aggregate or 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.

STRUCTURE BACKFILL

Structure backfill shall be natural sand or crushed stone, dolomite, or gravel, INDOT No. 23 or No. 24 fine aggregate or crushed stone, dolomite, or gravel, INDOT No. 5, No. 8, or No. 9 coarse aggregate.

STONE

All stone detailed in this section is intended to be material installed as indicated in the plans and as directed by the Engineer for installation of the riprap outlet protection.

MATERIALS

- (1) INDOT Revetment Riprap (well graded material sized 3 inches to 12 inches).

DRAIN TILES

- (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.

PERFORATED DRAIN TILE

- (1) Flexible Pipe
 - a. High Density Polyethylene (HDPE) Pipe, Type SWP (Single Wall, Perforated)
Pipe and fittings shall be in accordance with AASHTO M 294. Pipe shall be manufactured with virgin materials and be marked with the code "V". Pipe shall not be manufactured with recycled materials.

GROUT FILL

The grout materials for filling pipelines shall consist of Portland cement, or Portland cement and fly ash with additives to enhance maximum flowability without bleeding or segregating.

The grout shall have a minimum compressive strength of 25 psi in 24-hours when tested in accordance with ASTM C-403. The grout shall have a minimum compressive strength of 100 psi in 28 days and a maximum compressive strength of 150 psi in 28 days when tested in accordance with ASTM C-495 or C-109.

The Contractor shall establish the proposed grout mixes, methods, plans and criteria that the grouting operations shall meet. The grouting system shall have sufficient gauges, monitoring devices and tests to determine the effectiveness of the grouting operation and to ensure complete fill (100 percent) and that no voids exist within the pipeline or structure.

One or more mixes shall be developed to completely fill the abandoned pipe/structure and to meet the following requirements:

- (1) ACCOMMODATE THE DIAMETER OR SIZE OF PIPE/STRUCTURE.
- (2) ACCOMMODATE THE VOID SIZE OF THE SURROUNDING SOIL.
- (3) ACCOMMODATE THE ABSENCE OR PRESENCE OF GROUND WATER.
- (4) PROVIDE THE ACCEPTABLE STRENGTH AND DURABILITY.
- (5) PROVIDE LOAD BEARING CAPACITY.
- (6) SHRINKAGE SHALL NOT EXCEED TWO PERCENT BY VOLUME.

The Contractor shall design a grout mix with a maximum density of 65 pcf, while at the same time maintaining apparent viscosity not to exceed 18 seconds as tested in accordance with ASTM C-939.

PRECAST REINFORCED CONCRETE STORM SEWER STRUCTURES

Precast reinforced concrete storm sewer structures shall be in accordance with ASTM C478/AASHTO M199.

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.

SEED MIXES

Temporary and Final Seed Mixes to be applied as detailed in the construction plans.

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.).