

## **PLANS**





## GENERAL NOTES

- CONTRACTOR TO CONTACT IOWA ONE CALL AT 1-800-292-8889 AT LEAST 2 WORKING DAYS BEFORE YOU DIG. CONSTRUCTION CAN ONLY TAKE PLACE WHEN OXBOW IS DRY OR FROZEN SOLID TO MINIMIZE IMPACT TO FEDERALLY ENDANGERED TOPEKA SHINER.
- IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY THE ENGINEER. IOWA ONE CALL IS RESPONSIBLE FOR ACQUIRING ALL PERMITS NEEDED FOR CONSTRUCTION.
- REMOVE ALL TREES, STUMPS, AND BRUSH BEFORE ANY EXCAVATION AND PLACE IN LOCATION AS AGREED UPON WITH OWNER.
- PRIOR TO ANY EXCAVATION AT THE SITE, THE CONTRACTOR SHALL EXAMINE ANY APPLICABLE DRAWINGS AVAILABLE FROM THE OWNER AND/OR ENGINEER, AND CONSULT WITH OWNER'S PERSONNEL AND UTILITY COMPANY'S REPRESENTATIVES TO DETERMINE POSSIBLE UTILITY LOCATIONS AND DEPTHS. NO COMPENSATION WILL BE ALLOWED FOR DAMAGE RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
- ALL DEBRIS SHALL BE REMOVED FROM THE PUBLIC R.O.W. SHALL BE PICKED UP BY THE CONTRACTOR AT THE END OF EACH WORK DAY. ALL WORK SHALL BE IN ACCORDANCE WITH OSHA CODES AND STANDARDS. NOTHING INDICATED ON THESE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATIONS.
- FIELD VERIFY EXISTING GRADES AND LOCATION OF EXISTING UTILITIES, CONDUIT LINES, POLES, TREES, PAVING, BUILDINGS AND/OR OTHER SITE STRUCTURES PRIOR TO DEMOLITION OR CONSTRUCTION AND IMMEDIATELY INFORM THE ENGINEER OF ANY DISCREPANCIES.
- CONTRACTOR SHALL PROTECT EXISTING FENCE, UTILITIES, PIPELINE, POLES, TREES, PAVING, BUILDINGS, SHORELINE, AND OTHER SITE STRUCTURES.
- PER OWNER, THE FENCE SHALL BE REMOVED AS NEEDED IN SPECIFIED LOCATIONS; SEE C101 FOR DETAIL.
- ALL DEMOLISHED ITEMS NOT TO BE SALVAGED SHALL BE LEGALLY DISPOSED OF OFF-SITE.
- THE CONTRACTOR WILL HOLD THE OWNER, LT LEON ASSOCIATES, INC., IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP, AND THE NATURE CONSERVANCY HARMLESS FROM ANY AND ALL CLAIMS OF ANY TYPE WHATSOEVER RESULTING FROM DAMAGES TO ADJOINING PUBLIC OR PRIVATE PROPERTY, INCLUDING REASONABLE ATTORNEY FEES INCURRED TO THE OWNER. FURTHER, IF THE CONTRACTOR FAILS TO TAKE NECESSARY STEPS TO PROMPTLY REMOVE EARTH SEDIMENTATION OR DEBRIS WHICH COMES ONTO ADJOINING PUBLIC OR PRIVATE PROPERTY, THE OWNER MAY, BUT NEED NOT, REMOVE SUCH ITEMS AND DEDUCT THE COST THEREOF FROM THE AMOUNTS DUE TO THE CONTRACTOR.
- CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS, INCLUDING ACCESS PATH AND STAGING AREA. CONTRACTOR SHALL DISC TOPSOIL SOILS TO A 6" DEPTH IN AREAS WHERE COMPACTION OCCURRED DUE TO CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL PROVIDE HAUL ROUTE LOCATIONS TO ENGINEER FOR REVIEW AND APPROVAL.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN, AT NO EXPENSE TO OWNERS, ALL NECESSARY ROADS FOR HAULING MATERIAL. CONTRACTOR SHALL NOT CAUSE ANY ROADS TO DETERIORATE IN CONDITION. ALL HAUL ROUTES ALONG PUBLIC ROADS SHALL BE APPROVED BY COUNTY ENGINEER PRIOR TO CONSTRUCTION. ALL HAUL ROUTES ON PRIVATE LAND SHALL BE RESTORED TO CONDITIONS PRIOR TO CONSTRUCTION.
- OWNER SHALL APPROVE ALL SPOIL AREAS TO BE USED FOR THIS PROJECT.
- PLACE SPOIL WHERE IT WILL NOT INTERFERE WITH SURFACE WATER FLOW INTO THE WATERWAY.
- EXISTING TOPOGRAPHY SHOWN ON THIS DRAWING WAS DEVELOPED FROM LIDAR INFORMATION FOR WRIGHT COUNTY, IOWA AND SUPPLEMENTAL TOPOGRAPHIC SURVEY COMPLETED IN 2021. LIDAR DATA IS PUBLICLY AVAILABLE THROUGH THE IOWA GEODATA BASE. IT IS MADE AVAILABLE THROUGH THE IOWA DEPARTMENT OF NATURAL RESOURCES.
- TRAFFIC CONTROL DEVICES, PROCEDURES, AND LAYOUT SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND LOCAL STANDARDS.
- CONTRACTOR SHALL COORDINATE WITH COUNTY OR LOCAL OFFICIALS AT LEAST 48 HOURS PRIOR TO PLACING TRAFFIC CONTROL SIGNS AND DEVICES, IF REQUIRED.
- CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN EROSION CONTROL UNTIL ESTABLISHMENT OF PERMANENT GROUND COVER.
- THE ENGINEER RESERVES THE RIGHT TO MAKE ADJUSTMENTS IN THE FIELD TO THE DIMENSIONS, STRUCTURE LOCATION, STRUCTURE DETAILS, AND ALL OTHER RELEVANT EROSION CONTROL PRACTICES NEEDED TO PROTECT UTILITIES, PRESERVE TREES AND TO FIT SITE CONDITIONS.
- NO TREES SHALL BE REMOVED BETWEEN APRIL 1 AND SEPTEMBER 30.
- CONSTRUCTION SURVEY SHALL BE PROVIDED BY CONTRACTOR.
- IF GRAVEL LAYER IS UNCOVERED BEFORE BOTTOM OF OXBOW ELEVATION STOP CONSTRUCTION AND CONTACT ENGINEER TO DETERMINE FURTHER EXCAVATION.
- IF FLOODWATERS ENTER THE OXBOW BEFORE RESTORATION IS COMPLETE, STOP EXCAVATION AND CONTACT ENGINEER SO THAT FEDERALLY ENDANGERED FISH CAN BE REMOVED BY U.S. FISH AND WILDLIFE BEFORE RESTORATION CONTINUES.

## ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	Quantity
1	MOBILIZATION	LS	1
2	SITE CLEARING AND PREPARATION	AC	4.5
3	EXCAVATION	CY	9500
4	SEEDING AND MULCHING	AC	4.0
5	ROLLED EROSION CONTROL PRODUCT	SY	6950
6	CLASS 'E' RIPRAP	TN	143
7	STRAW WATTLE, 12" DIA.	LF	1100
8	STABILIZED CONSTRUCTION ENTRANCE, MACADAM STONE	TON	45

## EROSION CONTROL NOTES

- DISTURB THE LEAST AREA POSSIBLE TO COMPLETE THE SCOPE OF THE PROJECT.
- ALL SEDIMENT AND EROSION CONTROL PRACTICES WILL BE INSPECTED AT ONE EVERY SEVEN (7) CALENDAR DAYS BY RESPONSIBLE PERSONNEL. ANY NECESSARY REPAIRS OR CLEAN UP TO MAINTAIN THE EFFECTIVENESS OF THE BEST MANAGEMENT PRACTICES SHALL BE MADE IMMEDIATELY. INSPECTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
- STABILIZATION OF DISTURBED AREAS MUST, AT A MINIMUM, BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE THAT WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THIS SEQUENCE SHALL REPEAT AS GROUND COVER IS REMOVED BY SUBSEQUENT CONSTRUCTION ACTIVITY.
- APPLY FREQUENT LIGHT WATERING TO GROUND SURFACE, AS REQUIRED TO CONTROL DUST.
- UPON COMPLETION OF CONSTRUCTION, SEED ALL DISTURBED AREA PER PROJECT SPECIFICATIONS.
- MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR SUBCONTRACTORS. CLEANING OF CONTROL DEVICES SHALL BEGIN WHEN THEY HAVE LOST 50% OF THEIR CAPACITY.
- LOCATION OF SOLID WASTE CONTAINER AND PORTABLE RESTROOM TO BE SPECIFIED BY CONTRACTOR AND APPROVED BY OWNER.
- WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PUBLIC ROAD SURFACE, THE ROAD SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE IMPLEMENTING AGENCY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY IMPROVEMENT TO THE ROAD CONDITIONS, GATES, AND FENCES REQUIRED FOR ACCESS DURING CONSTRUCTION.
- DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL EROSION CONTROL MEASURES NOT SHOWN ON THE PLANS BUT NECESSARY TO CONTROL EXCESS SEDIMENT.
- CONTRACTOR SHALL REFUEL EQUIPMENT AT A LOCATION AWAY FROM THE WATERWAY AND APPROVED BY THE OWNER.

TOTAL AREA TO BE DISTURBED = 5.0 ACRES

## ESTIMATE REFERENCE INFORMATION

ITEM NUMBER	DESCRIPTION
1	MOBILIZATION (LS) THIS BID ITEM SHALL INCLUDE PROVIDING AND REMOVING CONSTRUCTION EQUIPMENT TO THE SITE. THIS ITEM WILL BE PAID PER LUMP SUM.
2	SITE CLEARING AND PREPARATION (AC) THIS BID ITEM INCLUDES REMOVAL OF ALL VEGETATION, TREES, SHRUBS, STUMPS, RUBBISH, AND MISCELLANEOUS DEBRIS ENCOUNTERED WITHIN THE PROJECT AREA PER NRCS CONSTRUCTION SPECIFICATION IA-1. REMOVAL OF EXISTING FIELD FENCE IS INCIDENTAL TO THIS ITEM. SEE SHEET G-01 FOR SPECIFIC LOCATIONS. BURNING AND BURIAL IS NOT ALLOWED ON THE PROJECT SITE.
3	EXCAVATION (CY) THIS ITEM INCLUDES ALL EXCAVATION, EARTHFILL, COMPACTION, TOPSOILING, AND SHAPING REQUIRED IN THE PLANS PER NRCS CONSTRUCTION SPECIFICATIONS IA-21 EXCAVATION, IA-23 EARTHFILL AND IA-26 TOPSOILING. PLACE MINIMUM 8-INCH LAYER OF TOPSOIL ON ALL DISTURBED AREAS. OVERHAUL AND TOPSOILING WILL NOT BE MEASURED OR PAID FOR, BUT SHALL BE CONSIDERED INCIDENTAL SPOIL MATERIAL SHALL BE SPREAD AND GRADED IN MANNER THAT DOES NOT BLOCK ANY DRAINAGE. OXBOW 1 CUT: 5583 CY, FILL: 6 CY, OXBOW 2 CUT: 1058 CY, FILL: 422 CY, OXBOW 3 CUT: 2828 CY, FILL: 8 CY, STREAMBANK STABILIZATION CUT: 22 CY, FILL: 99 CY, SPOIL AREA FILL: 8,977 CY.
4	SEEDING AND MULCHING (AC) THIS ITEM INCLUDES SEEDING AND MULCHING REQUIRED FOR ALL DISTURBED AREAS PER NRCS CONSTRUCTION SPECIFICATION IA-8. USE APPROVED CRP SEED MIX OR APPROVED EQUIVALENT NATIVE SEED MIX. MULCH SHALL COMPLY WITH SUDAS SECTION 9010.2.07, PART A. APPLY MULCH AT A RATE OF 1.5 TONS/ACRE. REFER TO IOWA NRCS CONSERVATION COVER (PRACTICE 327) JOB SHEET FOR GUIDANCE.
5	ROLLED EROSION CONTROL PRODUCT (SY) ROLLED EROSION CONTROL PRODUCT WILL BE USED ON ALL DISTURBED AREAS OF 3:1 SLOPES OR STEEPER. THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER SQUARE YARD OF ROLLED EROSION CONTROL PRODUCT INSTALLED. BID ITEM INCLUDES SURFACE PREPARATION, FURNISHING, PLACING, STAPLING, SECURING, AND MAINTAINING MATTING IN LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ROLLED EROSION CONTROL PRODUCT SHALL COMPLY WITH SUDAS SECTION 9040.2.05, TYPE 1 C OR APPROVED EQUAL.
6	CLASS 'E' RIPRAP REFER TO SHEETS C109 AND C110 FOR LOCATION AND DETAILS. ITEM INCLUDES PROVIDING AND PLACING CLASS 'E' RIPRAP AS SPECIFIED IN THE CONTRACT DOCUMENTS. CLASS 'E' RIPRAP SHALL MEET REQUIREMENTS OF IOWA DOT. SECTION 4130.
7	STRAW WATTLE, 12" DIA. CONTRACTOR SHALL INSTALL STRAW WATTLE AS DETAILED IN THE PLANS. ADDITIONAL STRAW WATTLE MAY BE REQUIRED BY INSPECTOR TO CONTROL EROSION. STRAW WATTLE SHALL COMPLY WITH SUDAS SECTION 9040.2.06 AND IOWA DOT SECTION 4169.
8	STABILIZED CONSTRUCTION ENTRANCE, MACADAM STONE (TON) ITEM INCLUDES GRADING, PROVIDING AND PLACING MACADAM STONE FOR TEMPORARY STABILIZED CONSTRUCTION ENTRANCE AS SPECIFIED IN THE CONTRACT DOCUMENTS. MAINTENANCE OF THE STABILIZED CONSTRUCTION ENTRANCE IS INCIDENTAL TO THIS ITEM. CONSTRUCTION ENTRANCE SHALL BE COMPLIANT WITH SUDAS DETAIL 9040.20. MACADAM STONE SHALL MEET IOWA SECTION 4122. GRADATION 13.

NO.	REVISION	BY	DATE
DESIGNED LTL	PROJECT NO. 048.006.05		
DRAWN IOM	FILE NUMBER 048.006.05		
SHEET NO. C100			
SCALE: NA	DATE: DECEMBER 8, 2024		

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
BOONE RIVER WATERSHED OXBOW RESTORATION  
S31, T91N, R24E WRIGHT COUNTY, IOWA  
NOTES AND QUANTITIES



1025 OHIO STREET, SUITE 502H  
DES MOINES, IOWA 50319  
OFFICE: 562-2700  
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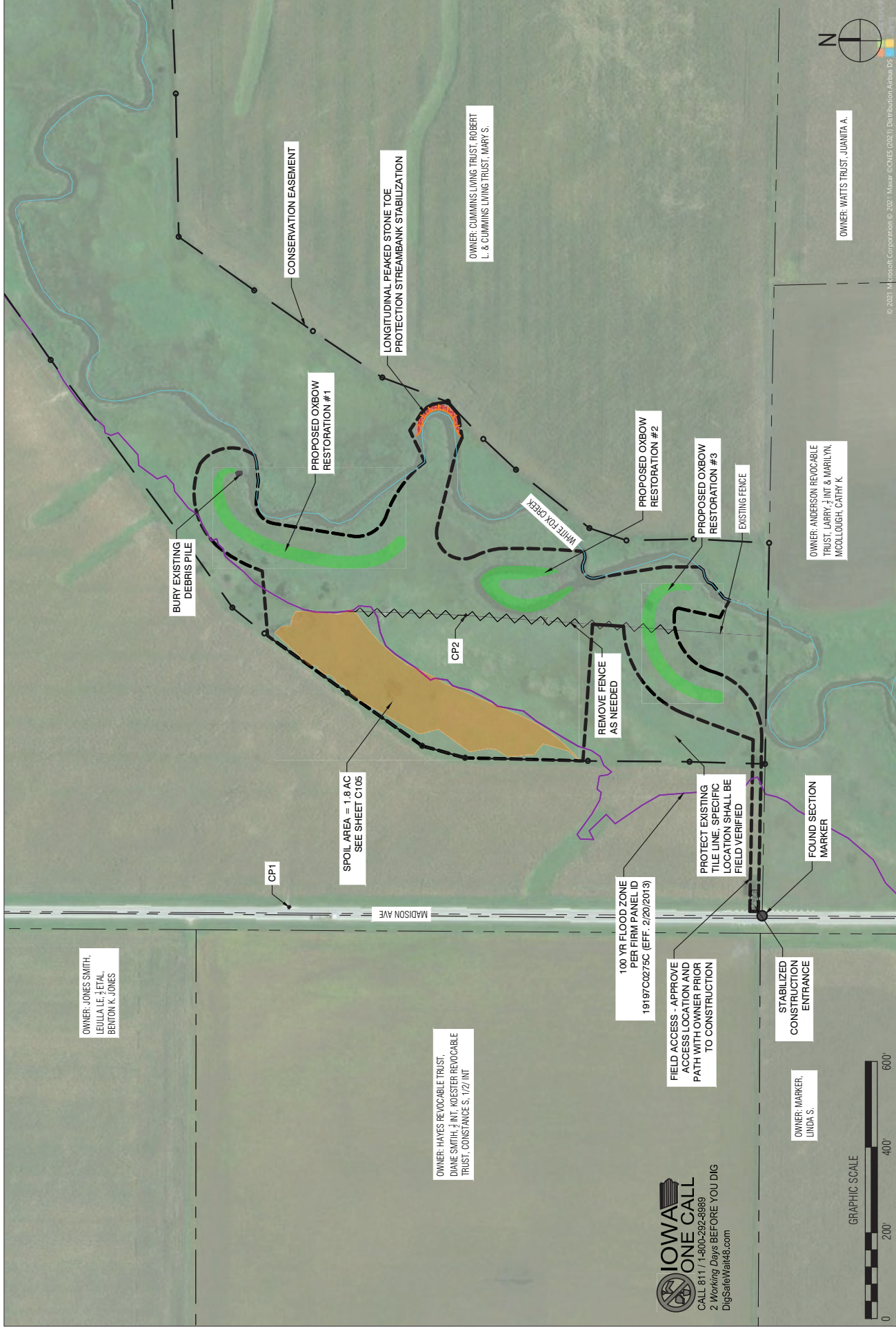
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NOTES AND QUANTITIES  
SHEET NO. C100

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DRAWN BY	FILE NUMBER 049.000.05
CHECKED LTL	SHEET NO. C101
SCALE: 1"=200'	DATE: DECEMBER 8, 2024

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 SITUATION PLAN

**LT LEON ASSOCIATES, INC.**  
 1025 OHIO STREET SUITE 101  
 DES MOINES, IOWA 50319  
 OFFICE 515-272-2018  
 WWW.LTLEON.COM

PROJECT NO. 049.000.05  
 SITUATION PLAN  
 SHEET NO. C101



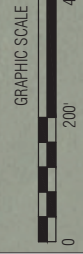
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 LEOULA LE, ETAL,  
 BENYON K. JONES

OWNER: HAYES REVOCABLE TRUST,  
 DIANE SMITH, ET AL, ROSETER REVOCABLE  
 TRUST, CONSTANCE S. 1/2/INT

OWNER: CUMMINS LIVING TRUST, ROBERT  
 L. & CUMMINS LIVING TRUST, MARY S.

OWNER: ANDERSON REVOCABLE  
 TRUST, LARRY, JINT & MARILYN,  
 MCCULLOUGH, CARY K.

OWNER: MARKER,  
 LINDA S.



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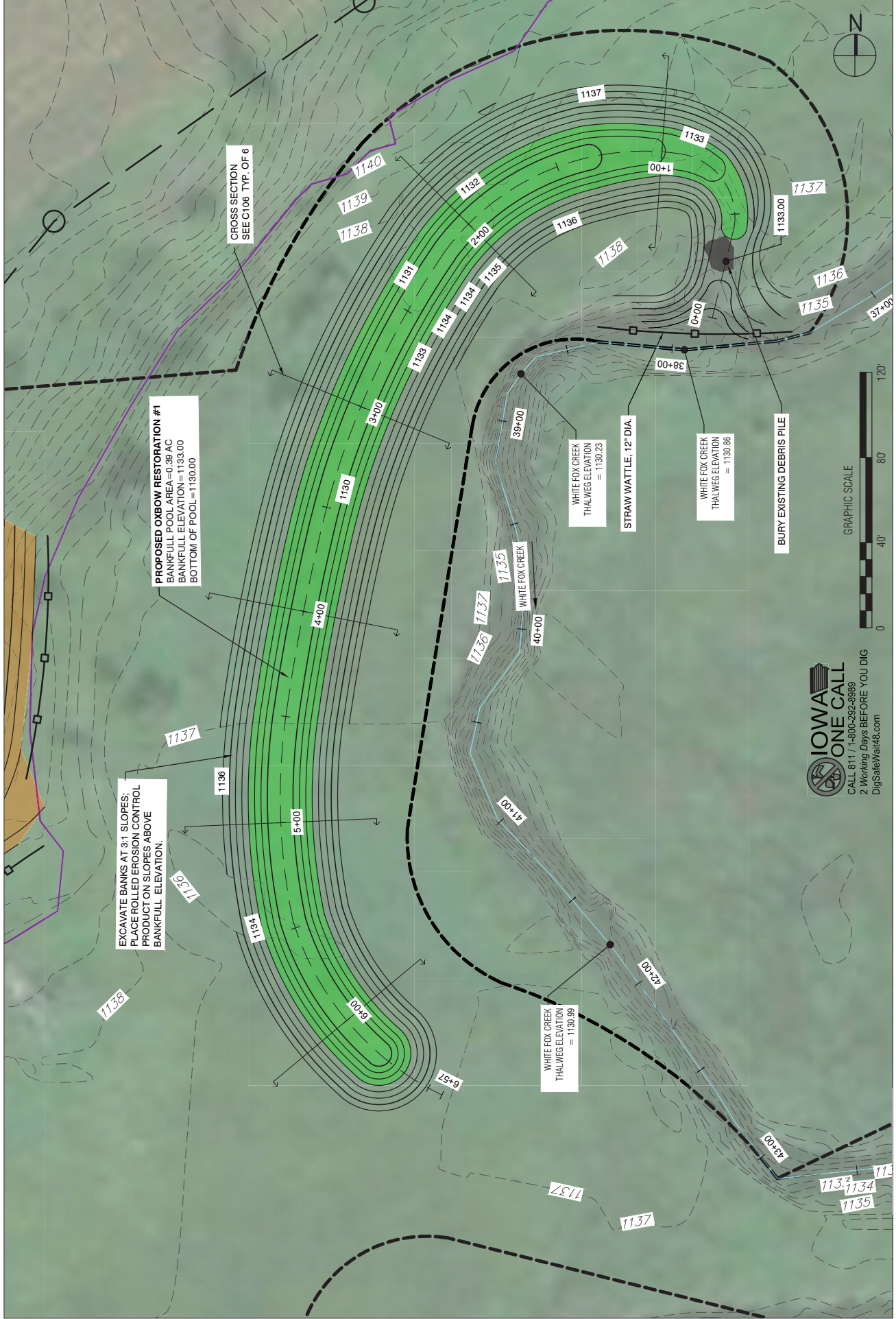
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 GRADING PLAN, OXBOW RESTORATION #1

LT LEON ASSOCIATES, INC.  
 1025 OHIO STREET, SUITE 101  
 DES MOINES, IOWA 50319  
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PROJECT NO.: 049000.05  
 GRADING PLAN, OXBOW #1

SHEET NO.: C102

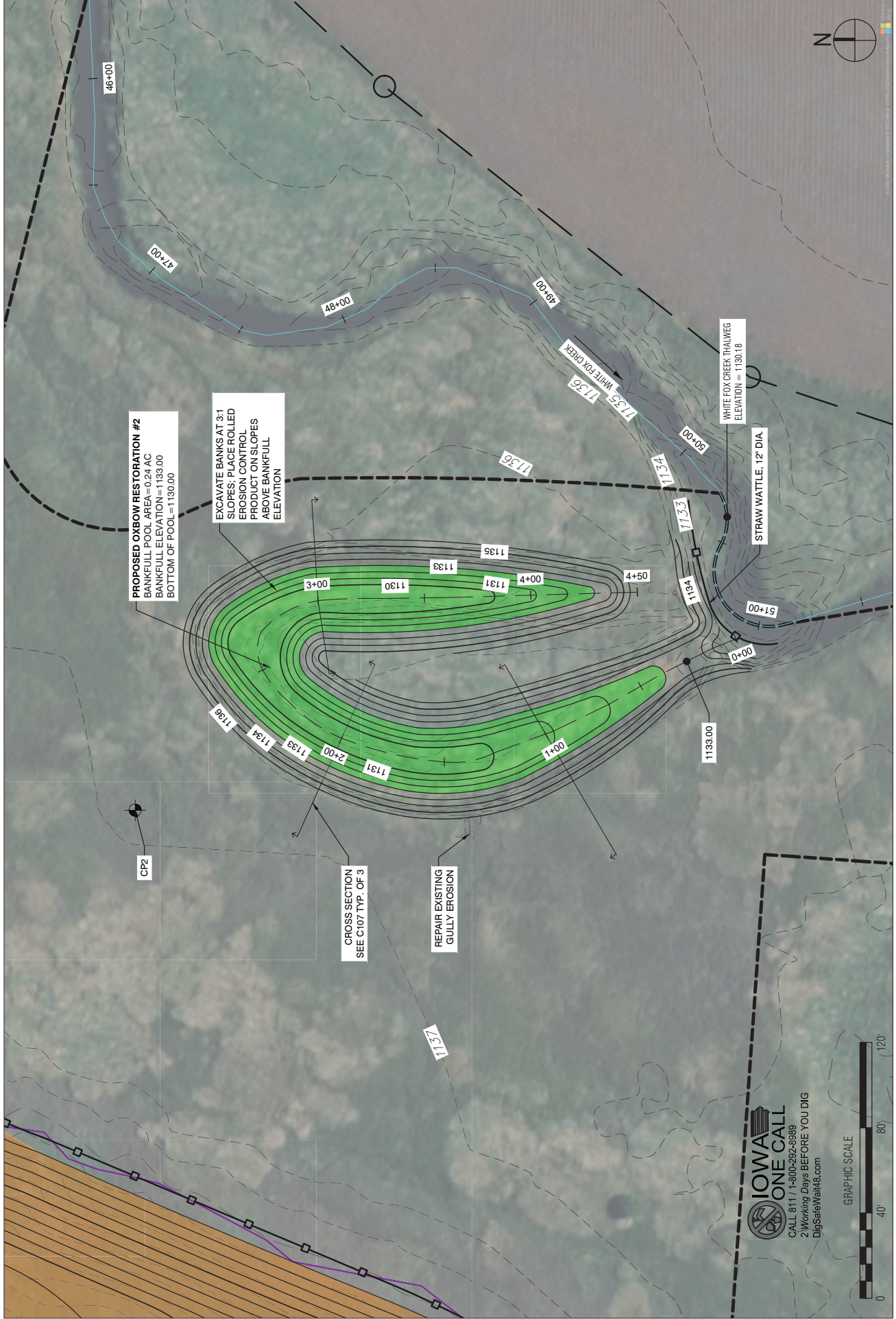


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DESIGNED: LTL	
NO.	REVISION
BY	DATE

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 GRADING PLAN, OXBOW RESTORATION #2

**LT LEON ASSOCIATES, INC.**  
 1023 OHIO STREET SUITE 101  
 DES MOINES, IOWA 50314  
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PROJECT NO.: 049.006.05  
 GRADING PLAN, OXBOW #2  
 SHEET NO.: C103



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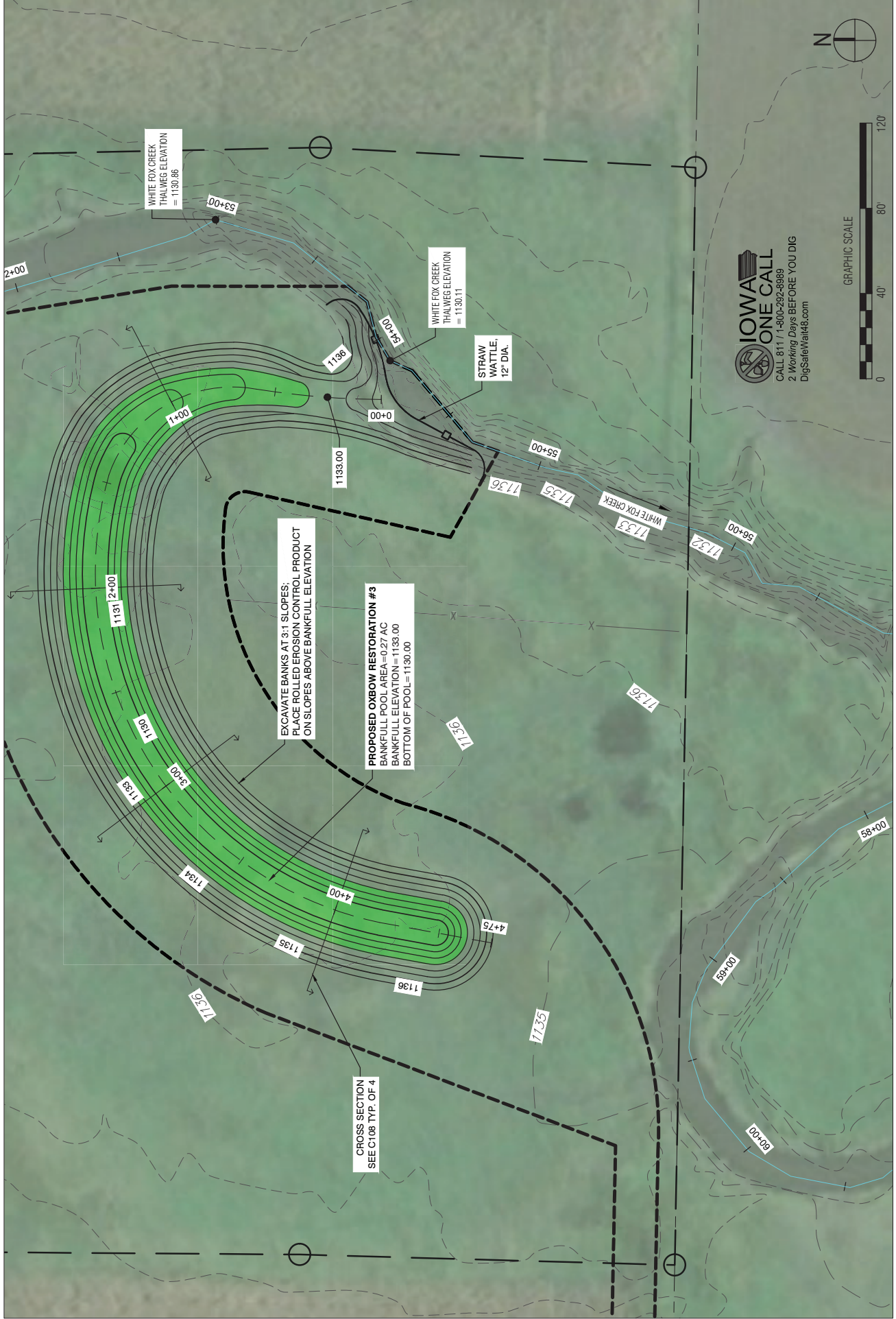


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DRAWN: JOM	FILE NUMBER: 049.006.05		
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SCALE: 1"=40'	DATE: DECEMBER 8, 2024		

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 GRADING PLAN, OXBOW RESTORATION #3

**LT LEON ASSOCIATES • INC**  
 1025 OHIO STREET SUITE 101  
 DES MOINES, IOWA 50314  
 OFFICE: 515-272-0915  
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PROJECT NO.: 049.006.05  
 GRADING PLAN, OXBOW #3  
 SHEET NO.: C104



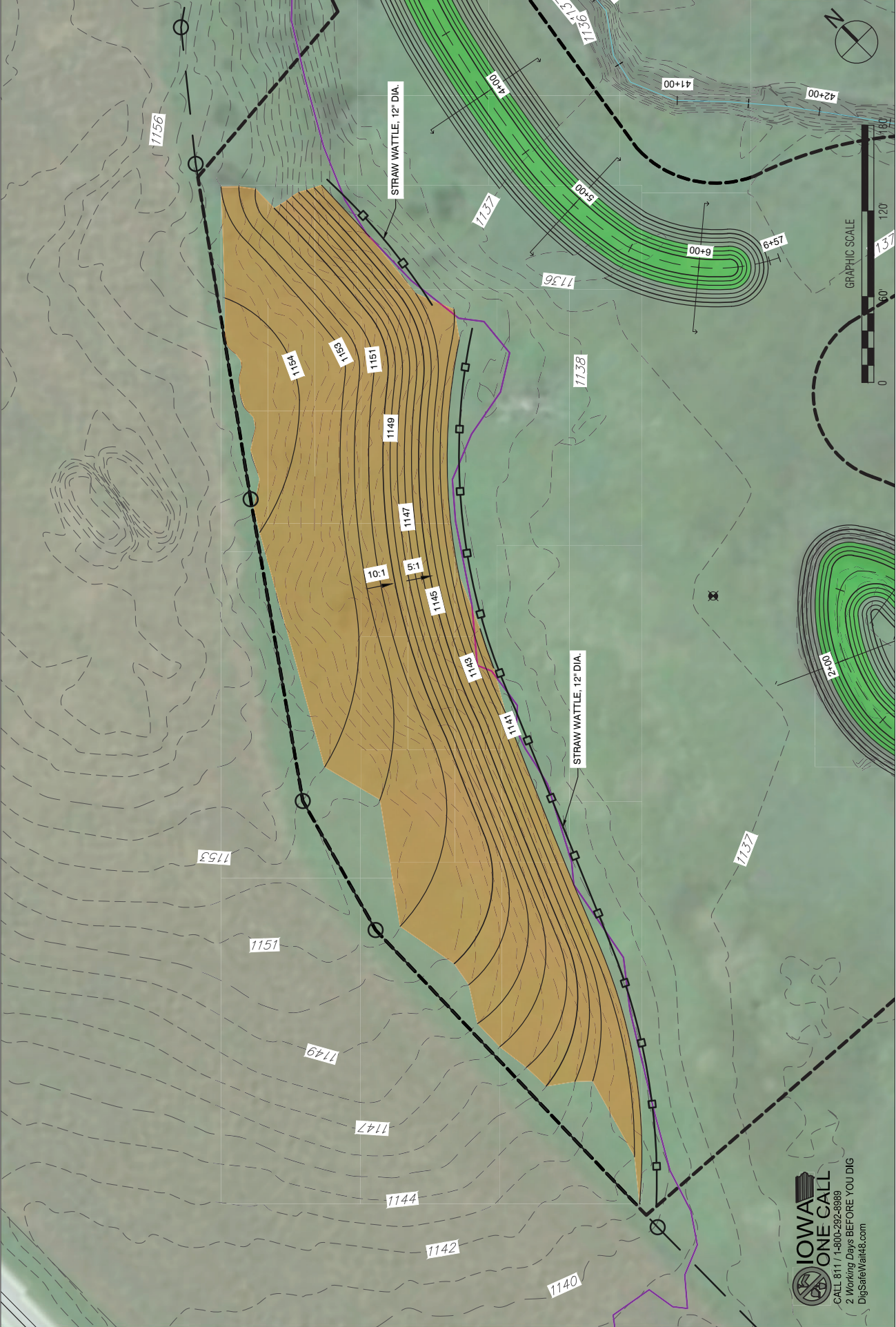


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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 SPOIL AREA GRADING PLAN

**LT LEON ASSOCIATES INC**  
 1023 OHIO STREET SUITE 101  
 DES MOINES, IOWA 50314  
 OFFICE: 515-272-7015  
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PROJECT NO.: 049.000.05  
 SPOIL AREA GRADING PLAN  
 SHEET NO.: C105



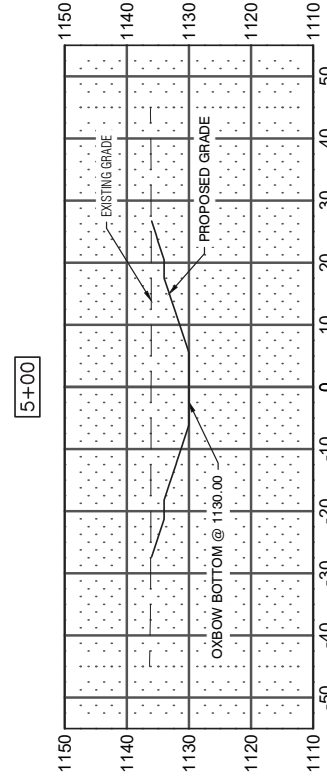
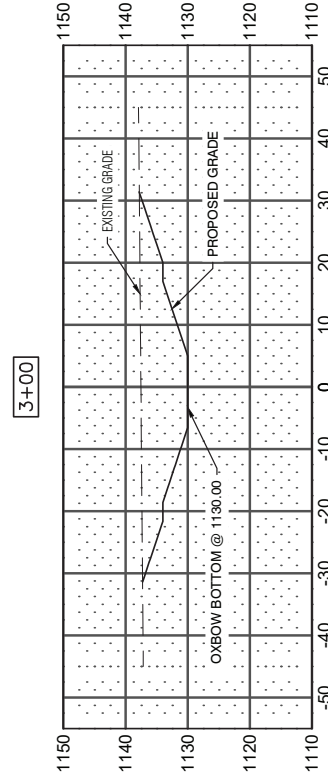
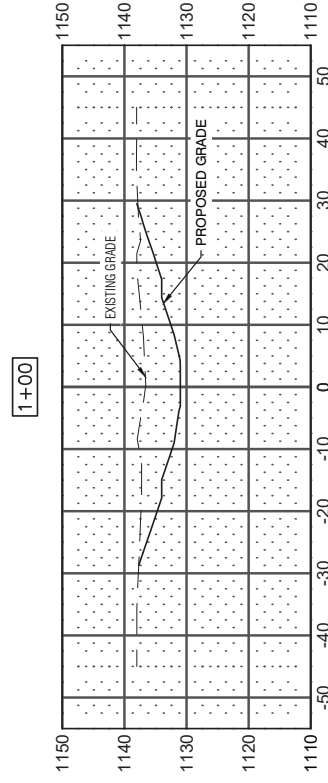
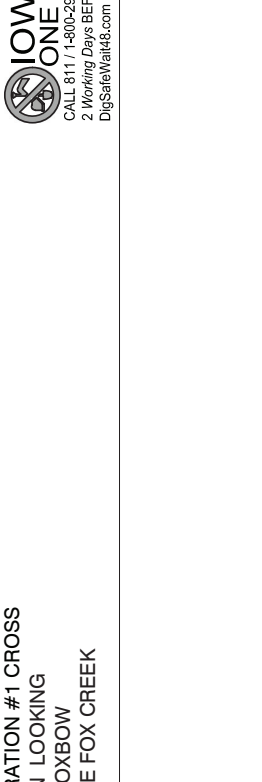
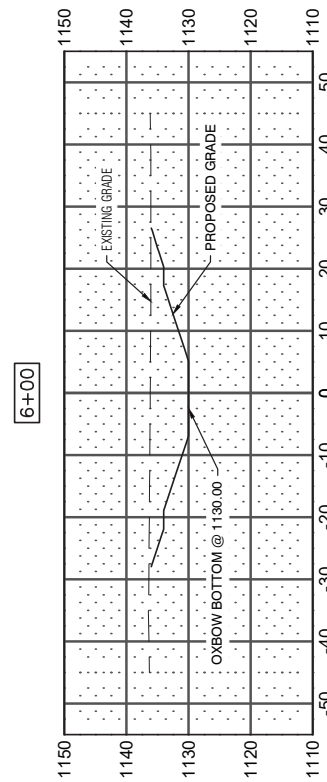
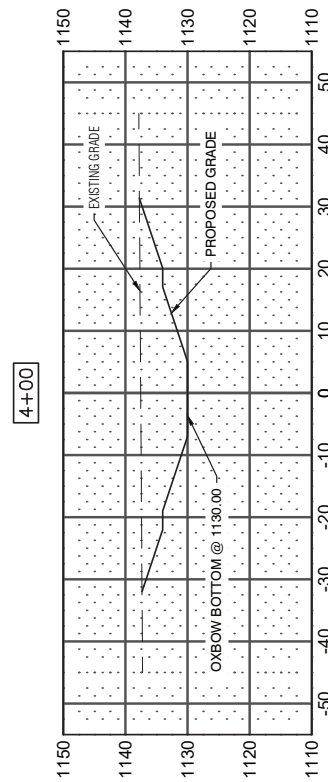
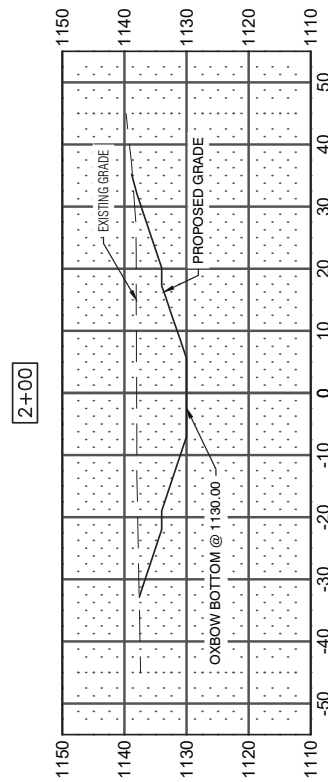
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DESIGNED: LTL	PROJECT NO. 049.000.05		
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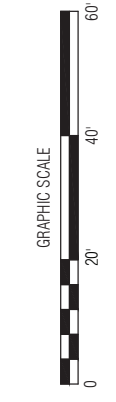
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 CROSS SECTIONS, OXBOW RESTORATION #1

**LT LEON**  
 ASSOCIATES - INC.  
 1025 OHIO STREET SUITE 502A  
 DES MOINES, IOWA 50319  
 OFFICE: 515-272-0215  
 WWW.LTLEON.COM

CROSS SECTIONS  
 SHEET NO. C106  
 PROJECT NO. 049.000.05



**NOTE: OXBOW RESTORATION #1 CROSS SECTIONS ARE SHOWN LOOKING UPSTREAM FROM THE OXBOW CONNECTION TO WHITE FOX CREEK**



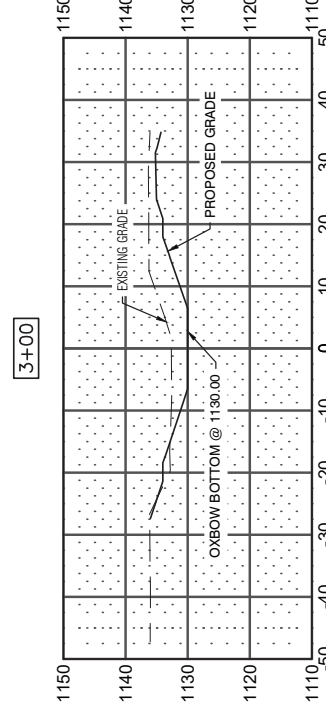
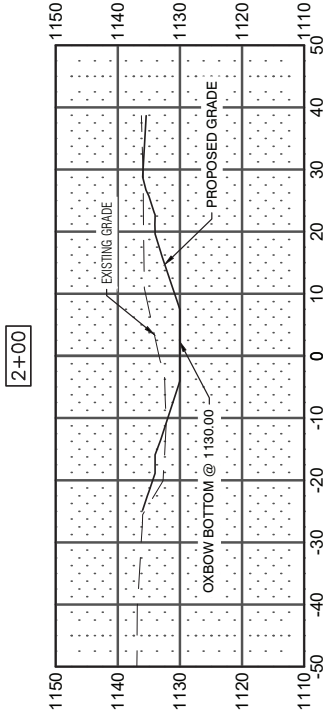
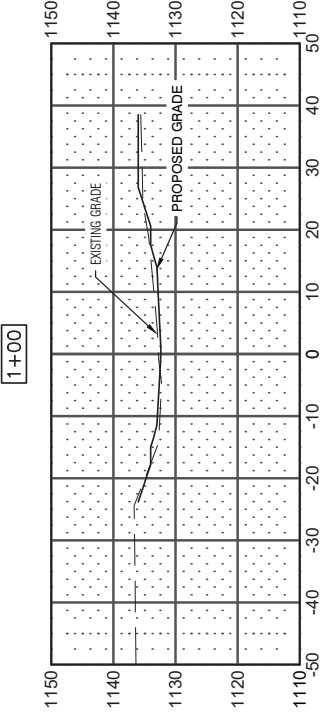
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SHEET NO.: C107			
DATE: DECEMBER 8, 2024			

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 CROSS SECTIONS, OXBOW RESTORATION #2

**LT LEON**  
 ASSOCIATES • INC  
 1822 93RD STREET SUITE 101  
 DES MOINES, IOWA 50319  
 OFFICE: 515-272-7018  
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PROJECT NO. 040009.02  
 CROSS SECTIONS  
 SHEET NO.  
**C107**



**NOTE: OXBOW RESTORATION #2 CROSS SECTIONS ARE SHOWN LOOKING UPSTREAM FROM THE OXBOW CONNECTION TO WHITE FOX CREEK**

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DESIGNED LTL	PROJECT NO. 049.006.05		
DRAFTED JOM	SHEET NO. C108		
CHECKED LTL	DATE: DECEMBER 8, 2024		
SCALE: 1"=20'			

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
BOONE RIVER WATERSHED OXBOW RESTORATION  
S31, T91N, R24E WRIGHT COUNTY, IOWA  
CROSS SECTIONS, OXBOW RESTORATION #3

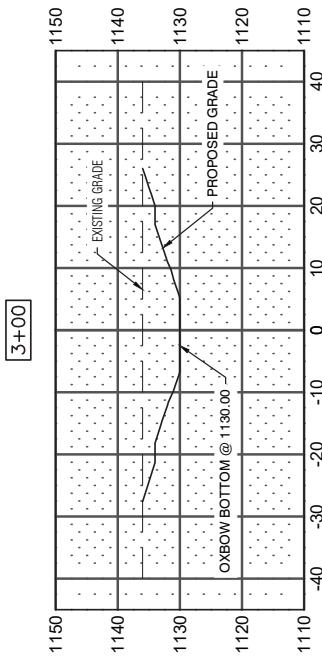
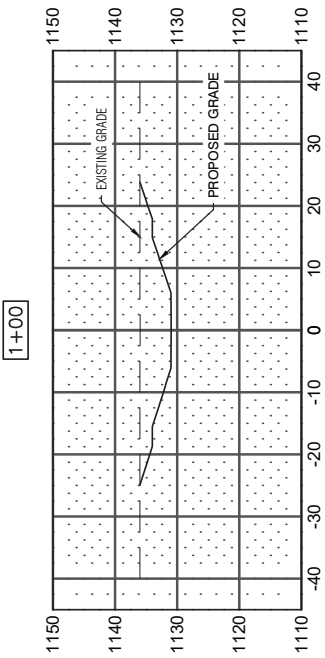
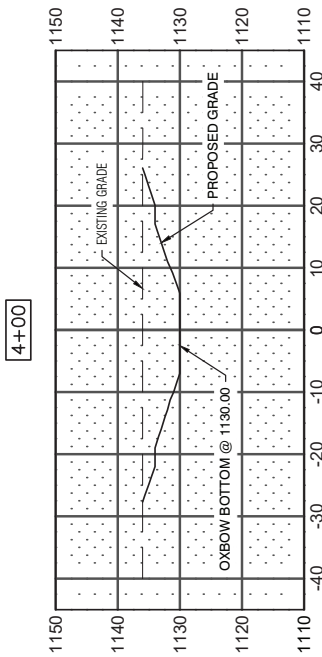
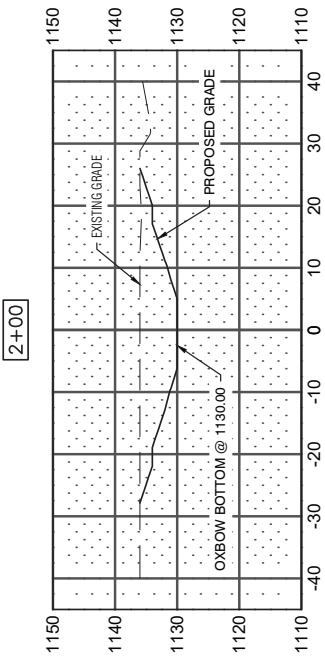

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DES MOINES, IOWA 50319

PROJECT NO. 049.006.05

CROSS SECTIONS

SHEET NO.

C108



NOTE: OXBOW RESTORATION #3 CROSS  
SECTIONS ARE SHOWN LOOKING  
UPSTREAM FROM THE OXBOW  
CONNECTION TO WHITE FOX CREEK




**IOWA ONE CALL**  
CALL 811 / 1-800-282-8989  
2 Working Days BEFORE YOU DIG  
DigSafeWait48.com

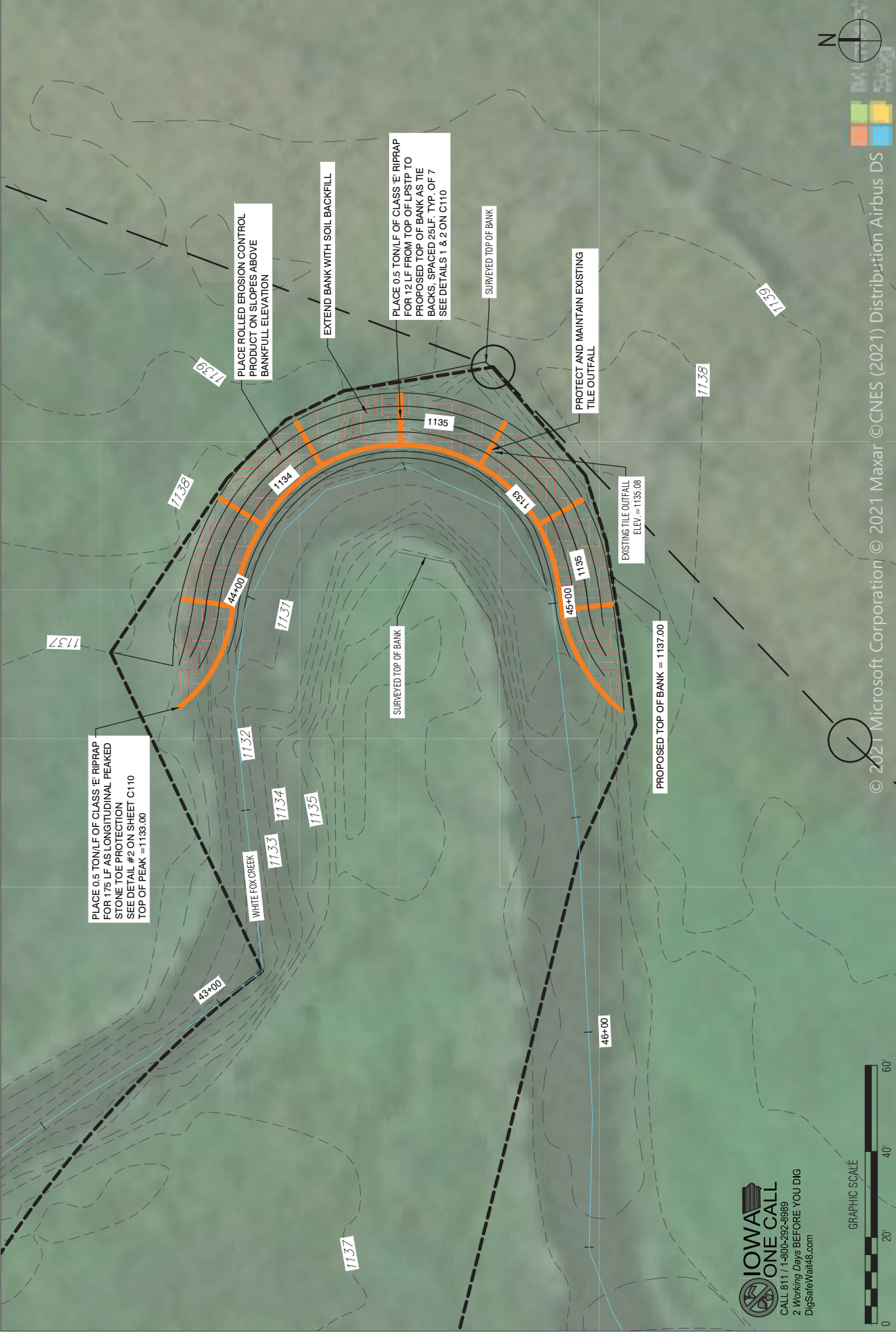
NO.	REVISION	BY	DATE
DESIGNED: LTL	PROJECT NO. 049.006.05		
DRAWN: JOM	FILE NUMBER: 049.006.05		
CHECKED: LTL	SHEET NO.: C109		
SCALE: 1/20	DATE: DECEMBER 8, 2024		

IOWA DEPARTMENT OF AGRICULTURE AND LAND STewardSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 STRAMBANK STABILIZATION PLAN  
 S31, T91N, R24E WRIGHT COUNTY, IOWA

**LT LEON ASSOCIATES, P.C.**  
 1825 OHIO STREET SUITE 101  
 DES MOINES, IOWA 50319  
 OFFICE: 515-272-2015  
 WWW.LTLEON.COM

PROJECT NO. 049.006.05  
 STREAMBANK STABILIZATION

SHEET NO.  
**C109**



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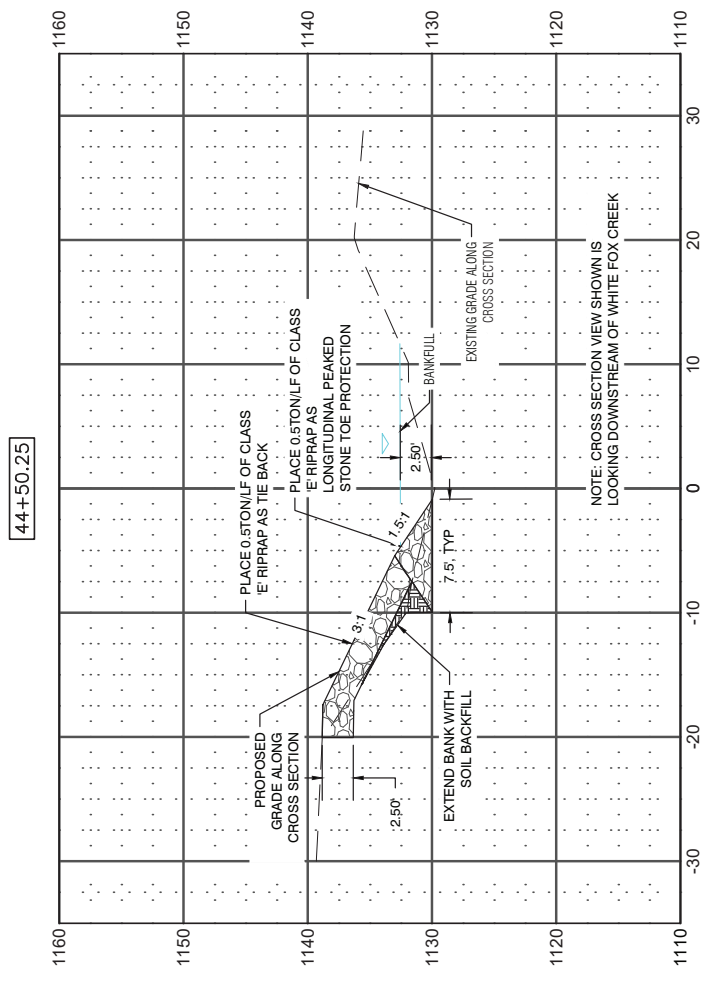
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NO.	REVISION	BY	DATE
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DRAFTED: JOM	FILE NUMBER: 049.006.05		
CHECKED: TLT	SHEET NO.: C110		
SCALE: VARS	DATE: DECEMBER 8, 2024		

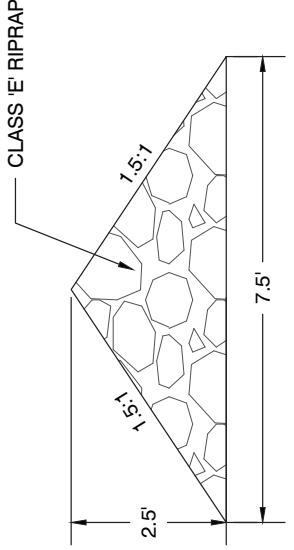
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
 BOONE RIVER WATERSHED OXBOW RESTORATION  
 S31, T91N, R24E WRIGHT COUNTY, IOWA  
 STREAMBANK STABILIZATION DETAILS

**LT LEON ASSOCIATES INC.**  
 1022 OHIO STREET SUITE 101  
 DES MOINES IOWA 50314  
 OFFICE: 515-272-7018  
 WWW.LTLEON.COM

PROJECT NO.: 049.006.05  
 STREAMBANK STABILIZATION  
 SHEET NO.: C110



① TYPICAL SECTION OF LONGITUDINAL PEAKED STONE TOE PROTECTION WITH TIE BACK  
 1"=10'



② TYPICAL SECTION OF LONGITUDINAL PEAKED STONE TOE PROTECTION AND TIE BACK  
 NOT TO SCALE

**IOWA ONE CALL**  
 CALL 811/1-800-292-8989  
 2 Working Days BEFORE YOU DIG  
 DigSafeIowa48.com

