LETTING DATE 12/15/2026

BRIDGE REPLACEMENT - PPCB
HDP-C078(210)--6B-78

POTTAWATTAMIE Co.

SECTION 404 PERMIT AND CONDITIONS

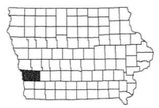
Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide Permit No. 14, Permit No. CEMVR-RD-2023-0995. A copy of this permit is available from the Iowa DOT website (http://www.envpermits.iowadot.gov/). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.

FLOODPLAIN CONSTRUCTION PERMIT

This project is covered by Iowa DNR Floodplain Construction Permit No. 2023-1425.

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	**Title Sheets**
A.1	Title Sheet
A.2	Location Map
B Sheets	**Typical Cross Sections and Details**
B.1 - 6	Typical Cross Sections and Details
C Sheets	**Quantities and General Information**
C.1	General Notes
C.2 - 3	Estimated Project Quantities
C.4 - 6	Estimate Reference Information
C.7 - 21	Tabulations
D Sheets	**Mainline Plan and Profile Sheets**
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2 - 9	Magnolia Road Plan & Profile
E Sheets	**Side Road Plan and Profile Sheets**
E.1	Jack Link's East Plan & Profile
E.2	Mulberry Lane Plan & Profile
E.3	265th Street Plan & Profile
F Sheets	**Removal Sheets**
F.1 - 8	Removals
G Sheets	**Survey Sheets**
G.1	Alignments, Reference Ties & Benchmarks
H Sheets	**Right-of-Way Sheets**
H.1 - 8	Right-of-Way
J Sheets	**Traffic Control and Staging Sheets**
J.1	Traffic Control Plan
J.2	Staging Notes
J.3 - 9	Detour Routes
J.10	Traffic Control & Staging Legend and Symbol Information Sheets
J.11 - 12	Staging Overview
J.13 - 14	Stage 1 Plan
J.15 - 16	Stage 2 Plan
J.17 - 36	Stage 3 Plan
J.37 - 48	Stage 4 Plan
J.49 - 56	Stage 5 Plan
J.57 - 62	Staging Typical Cross Sections
K Sheets	**Signage and Pavement Marking Sheets**
K.1	Signing Details
K.2 - 9	Striping and Signing Plans
L Sheets	**Geometric, Staking and Jointing Sheets**
L.1 - 20	Geometric, Staking & Jointing
Q Sheets	**Soils Sheets**
Q.1 - 8	Soils Sheets
RC Sheets	**Sediment Control Quantities Tabulations**
RC.1 - 2	Pollution Prevention Plan (PPP)
RC.3 - 4	Erosion Control Tabulations
RR Sheets	**Erosion Control Plan Sheets**
RR.1 - 8	Erosion Control Plan
V Sheets	**Bridge and Culvert Situation Plans**
V.1 - 45	Bridge Plans
W Sheets	**Mainline Cross Sections**
W.1 - 36	Magnolia Road Cross Sections
X Sheets	**Side Road Cross Sections**
X.1	Jack Link's East Cross Sections
X.2	Mulberry Lane Cross Sections
X.3	265th Street Cross Sections



For Project Location Map
Refer to Sheet No. A.02

IOWADOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

FARM-TO-MARKET

POTTAWATTAMIE COUNTY

BRIDGE REPLACEMENT - PPCB

On Magnolia Road,
Over Mosquito Creek, from 260th E 1 Mile

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.13 of the Specifications.

STORM WATER PERMIT

This project is covered by the Iowa Department of Natural Resources NPDES General Permit No. 2. The contractor shall carry out the terms and conditions of General Permit No. 2 and the storm water pollution prevention plan which is a part of these contract documents. Refer to Section 2602 of the Standard Specifications for additional information.

For List of Utility Contacts
Refer to Sheet No. D.1

For Standard Road Plans
Refer to Sheet No. C.7

REVISIONS

TOTAL SHEETS
253
PROJECT IDENTIFICATION NUMBER
PROJECT NUMBER
HDP-C078(210)--6B-78
R.O.W. PROJECT NUMBER
MCCLURE PROJECT NUMBER
2022000366-000

KEITH JONES — DATE 8-4-26

JEFF JORGENSEN — DATE 8/4/2026

SUSAN MILLER — DATE 8/4/26

BRIAN SHEA — DATE

TIM WICHMAN — DATE

BOARD OF SUPERVISORS

MILEAGE SUMMARY

105-1
09-27-94

Div.	Location	Lin. Ft.	Miles
1	Magnolia Rd		
	Sta. 91+80.00 to Sta. 101+05.71	925.71	0.18
	Sta. 101+32.05 to Sta. 127+58.73	2,626.68	0.50
	Deduct Bridge @ Sta. 116+19.00	(184.00)	(0.03)
	Sta. 133+36.61 to Sta. 138+70.09	533.48	0.10
	Total Length of Roadway	4,085.87	0.78
	Total Length of Bridge	184.00	0.03
	Total Length of Project	4,269.87	0.81

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

POTTAWATTAMIE COUNTY, IOWA

ANDY WICKS, P.E. — DATE 7/29/26

COUNTY ENGINEER

ACCEPTED FOR LETTING

DESIGN DATA RURAL

2016	AADT	3130	V.P.D.
2024	AADT	5400	V.P.D.
2024	DHV	594	V.P.H.
TRUCKS		11	%
Total Design ESALs		--	

INDEX OF SEALS

SHEET NO.	NAME	TYPE
A.1	Cody Forch	Primary Signature Block
V.1	Chad Meyer	Structural Design
V.4	Chad Meyer	Hydraulic Design

ROADWAY DESIGN

LICENSED PROFESSIONAL ENGINEER
CODY F. FORCH
22843
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signature — Date 7/29/26

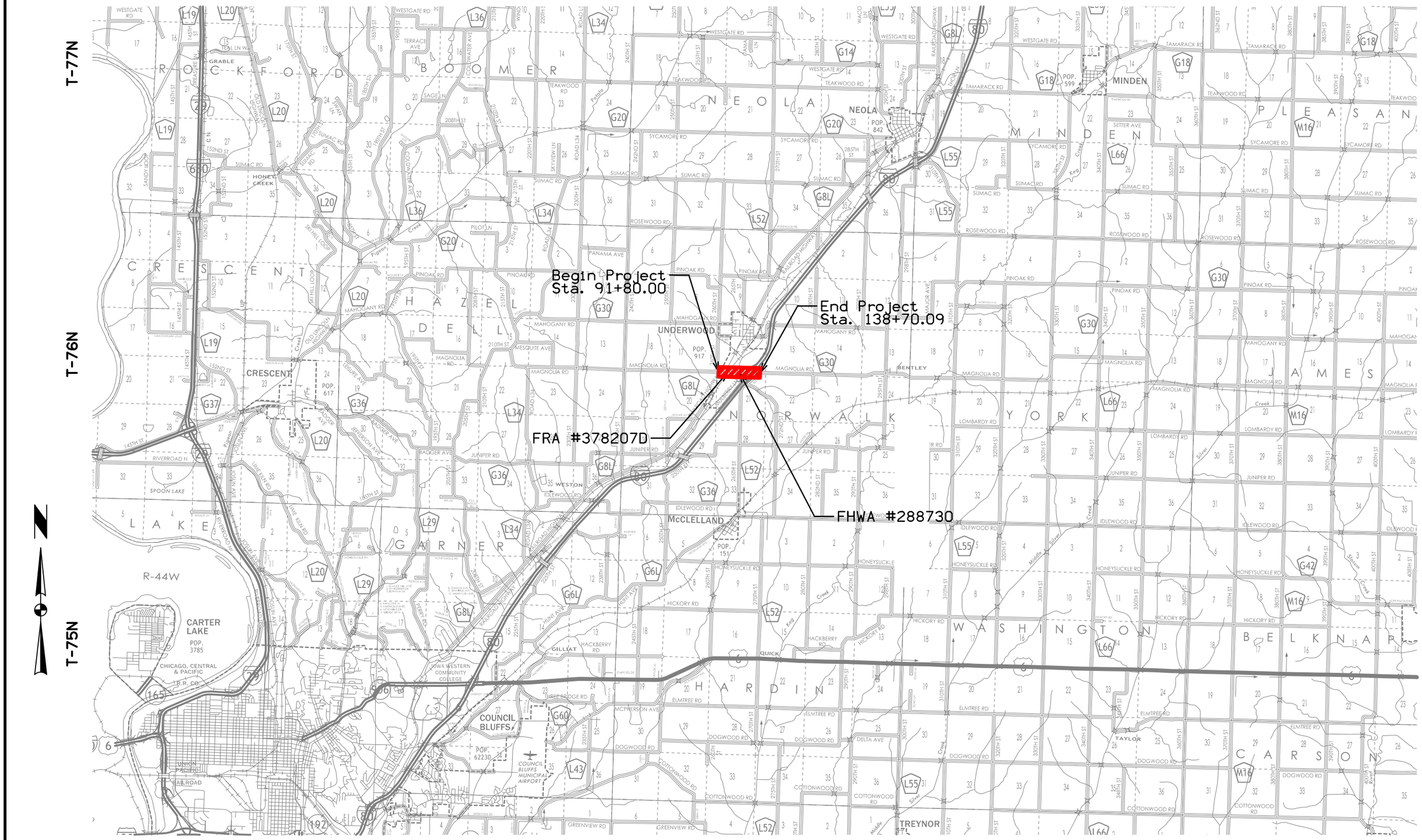
CODY F. FORCH, P.E.
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: ALL SHEETS EXCEPT V SHEETS

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER A.1

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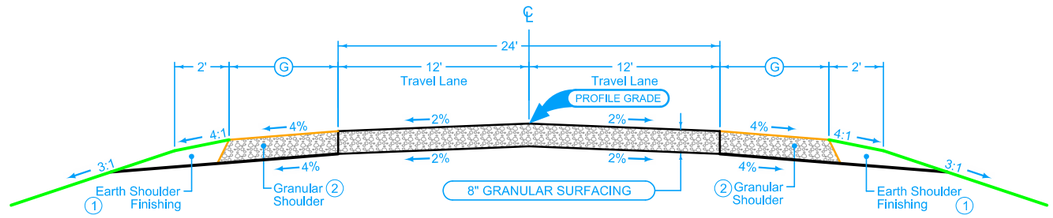
LOCATION MAP SCALE
0 1 2 3
Miles

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER A.2

1:45:36 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_A01.dgn

Granular Shoulder

STATION TO STATION		(G) Feet
91+80.00	100+55.60	4



Granular Shoulder

STATION TO STATION		(G) Feet
91+80.00	100+55.60	4

STATION TO STATION	
91+80.00	100+55.60

NOTE:

(1) Volume of material for earth shoulder finishing is included in the Class 10 Excavation Quantity.

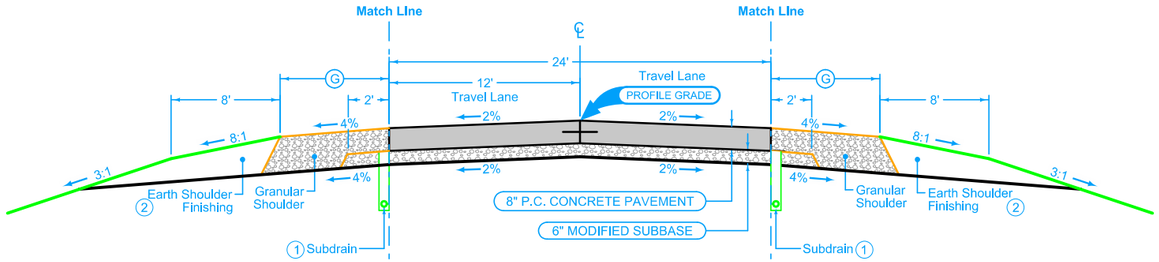
(2) Granular shoulder is included in bid item "Granular Surfacing on Road, Class A Crushed Stone"

NOTE:
NORMAL SECTIONS SHOWN MAY BE APPROPRIATELY MODIFIED FOR AREAS SPECIFICALLY DESIGNATED BY THE ENGINEER SUCH AS INTERSECTIONS OR TURN LANE TAPERS. REFER TO L SHEETS FOR ADDITIONAL GEOMETRICS AND JOINTING DETAILS. REFER TO W SHEETS FOR CROSS SECTIONS.

MAGNOLIA ROAD
PROPOSED
TYPICAL SECTIONS

Granular Shoulder

STATION TO STATION		(G) Feet
100+55.60	101+05.71	4



Granular Shoulder

STATION TO STATION		(G) Feet
100+55.60	101+05.71	4

STATION TO STATION	
100+55.60	101+05.71
101+32.05	103+66.46
124+15.93	127+58.73
133+36.61	138+70.09

Mainline Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2

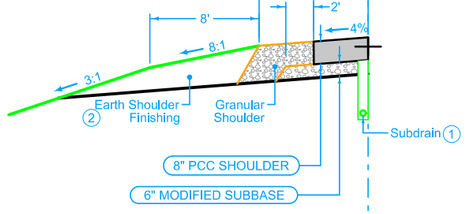
NOTE:
1. 6" Subdrain
   Type 7A Installation
   Refer to Standard Road Plan DR-303 for details
2. Volume of material for earth shoulder finishing is included in the Class 10 Excavation Quantity.

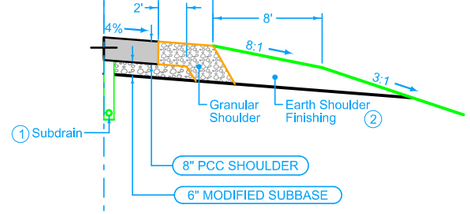
NOTE:
NORMAL SECTIONS SHOWN MAY BE APPROPRIATELY MODIFIED FOR AREAS SPECIFICALLY DESIGNATED BY THE ENGINEER SUCH AS INTERSECTIONS OR TURN LANE TAPERS. REFER TO L SHEETS FOR ADDITIONAL GEOMETRICS AND JOINTING DETAILS. REFER TO W SHEETS FOR CROSS SECTIONS.

Full Depth PCC Combination Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: CD at 15' spacing

		2_C_FullPCC_ 04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
101+32.05	103+66.46	4	4
124+15.93	124+75.05	2	6
126+59.24	127+58.73	2	6
136+13.04	138+70.09	2	6





Full Depth PCC Combination Shoulder

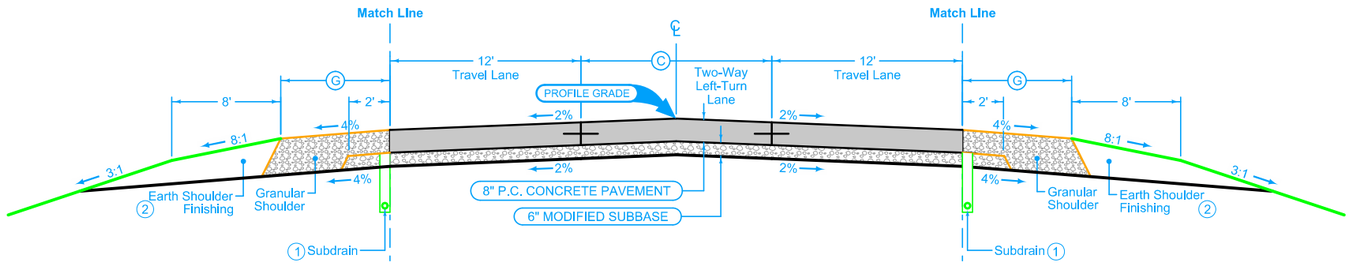
Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: CD at 15' spacing

		2_C_FullPCC_ 04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
101+32.05	103+66.46	4	4
126+06.89	127+58.73	2	6
135+34.11	137+30.58	2	6

MAGNOLIA ROAD
PROPOSED
TYPICAL SECTIONS

Granular Shoulder

STATION TO STATION		(G) Feet
104+03.21	114+23.50	8



STATION TO STATION		(C) Feet
104+08.71	106+81.46	1.9 - 14
106+81.46	114+58.50	14
117+79.50	119+82.15	14
119+82.15	124+15.93	14 - 0

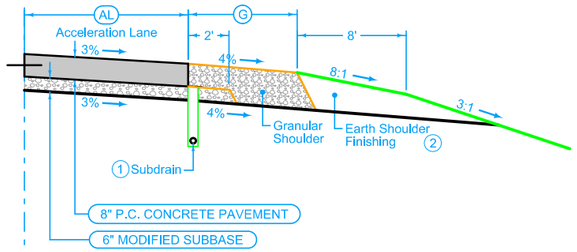
Mainline Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2 or KT-2

NOTE:

1. 6" Subdrain
   Type 7A Installation
   Refer to Standard Road Plan DR-303 for details
2. Volume of material for earth shoulder finishing is included in the Class 10 Excavation Quantity.
3. Refer to W Sheets for foreslopes

Granular Shoulder

STATION TO STATION		(G) Feet
103+85.24	105+55.31	8
		8
		8



Auxiliary Lane Granular Shoulder

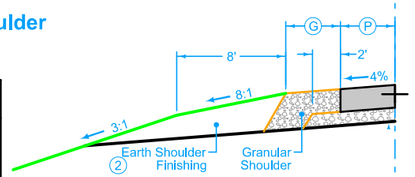
STATION TO STATION		(AL) Feet	(G) Feet
107+14.20	108+51.59	12	8
108+51.59	110+01.59	12	0
110+01.59	114+23.50	12	8
114+23.50	117+93.55	12	0

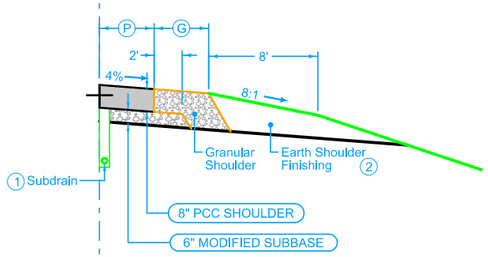
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2 or KT-2

Full Depth PCC Combination Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: CD at 15' spacing

		2_C_FullPCC_ 04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
103+66.46	103+92.47	4	4
118+14.50	124+15.93	2	6





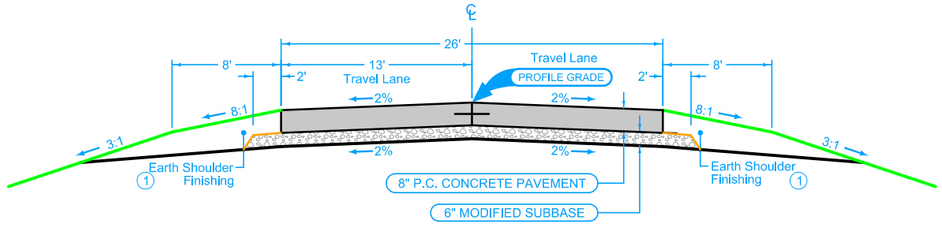
Full Depth PCC Combination Shoulder

Shoulder Jointing:
Longitudinal joint: L-2 or KT-2
Transverse joints: CD at 15' spacing

		2_C_FullPCC_ 04-21-20	
STATION TO STATION		(P) Feet	(G) Feet
119+24.55	120+83.18	2	6
122+07.40	123+99.95	2	6

NOTE:
NORMAL SECTIONS SHOWN MAY BE APPROPRIATELY MODIFIED FOR AREAS SPECIFICALLY DESIGNATED BY THE ENGINEER SUCH AS INTERSECTIONS OR TURN LANE TAPERS. REFER TO L SHEETS FOR ADDITIONAL GEOMETRICS AND JOINTING DETAILS. REFER TO W SHEETS FOR CROSS SECTIONS.

MAGNOLIA ROAD
PROPOSED
TYPICAL SECTIONS



STATION TO STATION	
300+19.04	300+81.00

Mainline Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2 or KT-2

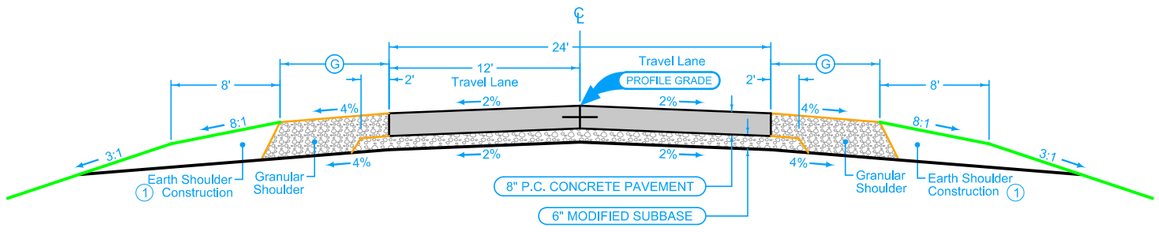
NOTE:
1 Volume of material for earth shoulder finishing is included in the Class 10 Excavation Quantity.

NOTE:
NORMAL SECTIONS SHOWN MAY BE APPROPRIATELY MODIFIED FOR AREAS SPECIFICALLY DESIGNATED BY THE ENGINEER SUCH AS INTERSECTIONS OR TURN LANE TAPERS. REFER TO L SHEETS FOR ADDITIONAL GEOMETRICS AND JOINTING DETAILS. REFER TO X SHEETS FOR CROSS SECTIONS.

MULBERRY ROAD
PROPOSED
TYPICAL SECTIONS

Granular Shoulder

STATION TO STATION		G Feet
600+13.32	600+97.66	8



Granular Shoulder

STATION TO STATION		G Feet
600+13.32	600+97.66	8

STATION TO STATION	
600+13.32	600+97.66

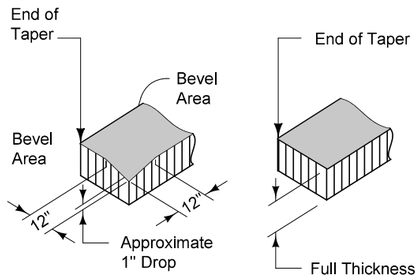
Mainline Jointing:
Transverse joints: CD at 15' spacing
Longitudinal joint: L-2

NOTE:
1 Volume of material for earth shoulder finishing is included in the Class 10 Excavation Quantity.

NOTE:
NORMAL SECTIONS SHOWN MAY BE APPROPRIATELY MODIFIED FOR AREAS SPECIFICALLY DESIGNATED BY THE ENGINEER SUCH AS INTERSECTIONS OR TURN LANE TAPERS. REFER TO L SHEETS FOR ADDITIONAL GEOMETRICS AND JOINTING DETAILS. REFER TO X SHEETS FOR CROSS SECTIONS.

265TH ST
PROPOSED
TYPICAL SECTIONS

7101
10-19-10

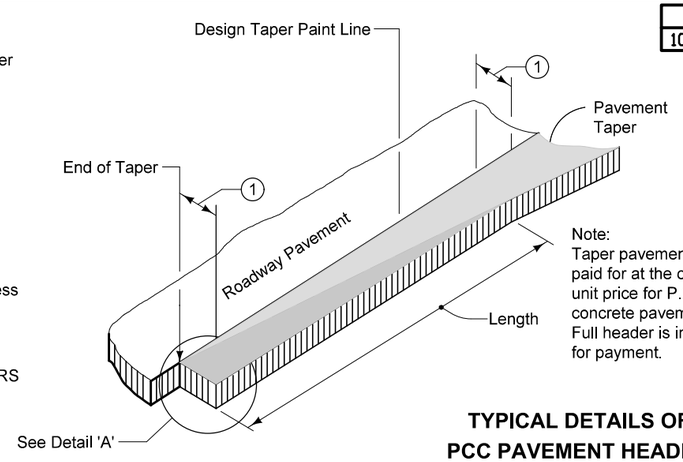


DETAIL 'A'

FOR
GRANULAR SHOULDERS

DETAIL 'A'

FOR
PAVED SHOULDERS

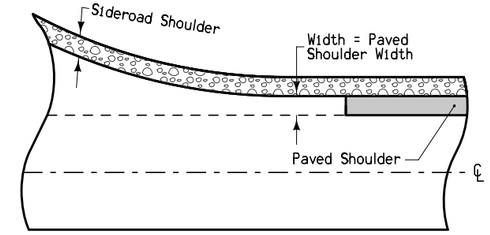


Note:
Taper pavement to be paid for at the contract unit price for P.C. concrete pavement. Full header is included for payment.

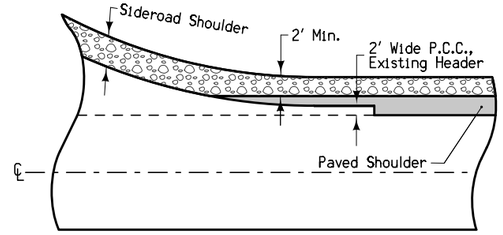
① Normal width is 2'-0". Construct 4'-0" width when butting into 4' wide HMA shoulders (See Typical 7154A).

TYPICAL DETAILS OF PCC PAVEMENT HEADER

7154B
10-20-09



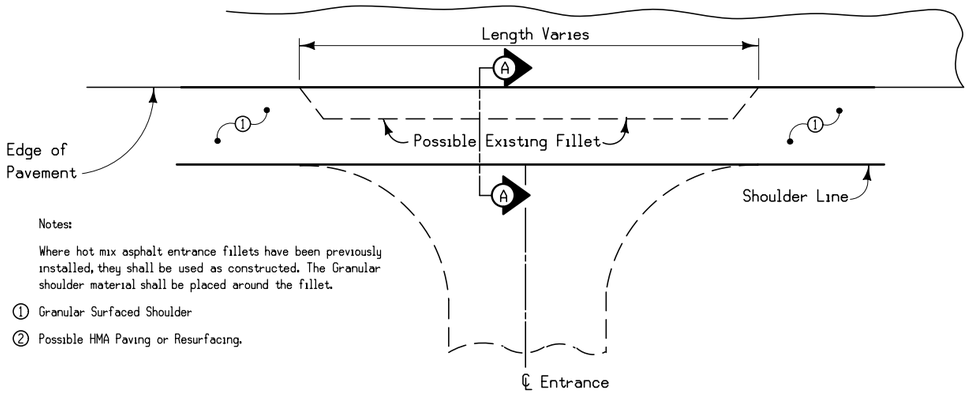
With Newly Constructed Returns



At UAC Returns

PAVED SHOULDER DETAIL AT RETURNS

7117
10-02-01



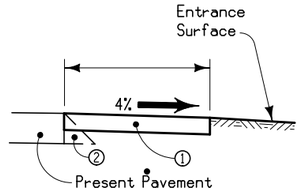
Notes:

Where hot mix asphalt entrance fillets have been previously installed, they shall be used as constructed. The Granular shoulder material shall be placed around the fillet.

① Granular Surfaced Shoulder

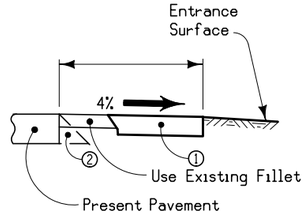
② Possible HMA Paving or Resurfacing.

Plan



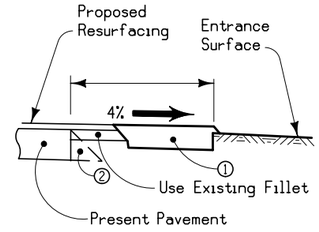
Section A-A

Without Fillet



Section A-A

With Previous Fillet

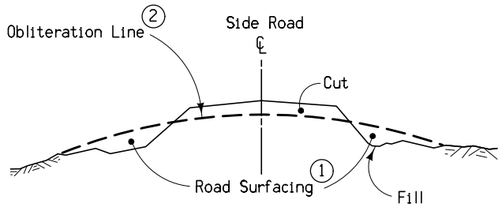


Section A-A

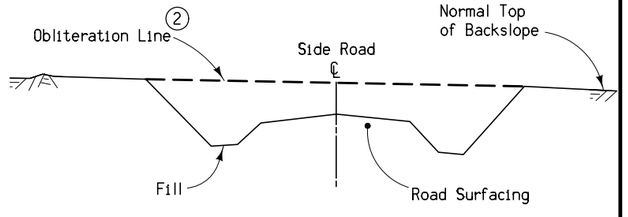
With Previous Fillet
And Resurfacing Less than 1½"

GRANULAR SHOULDER CONSTRUCTION THRU ENTRANCES

4302
04-03-01



Fill Section



Cut Section

① Existing road surfacing (granular material) shall be placed as shown unless otherwise directed by the Engineer or provided for in the detail project plans.

② When specified, the upper 1' to be suitable for vegetation (grass or crops).

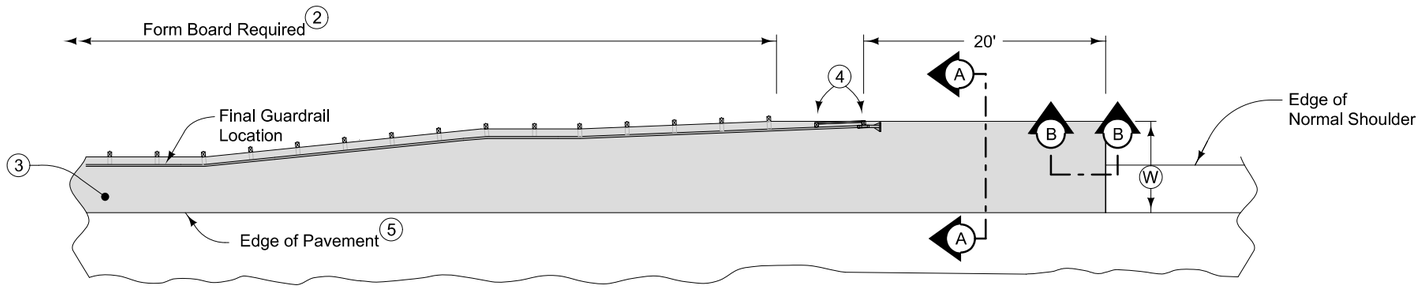
Note:
The work of obliterating or reshaping old roadbeds shall be done at the direction of the Engineer.

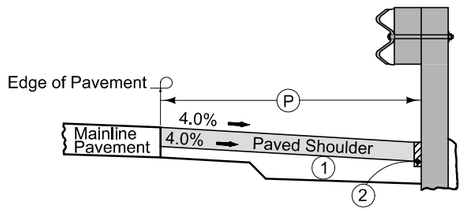
TYPICAL DETAILS FOR OBLITERATION EXISTING ROADBED

ROAD DESIGN DETAILS

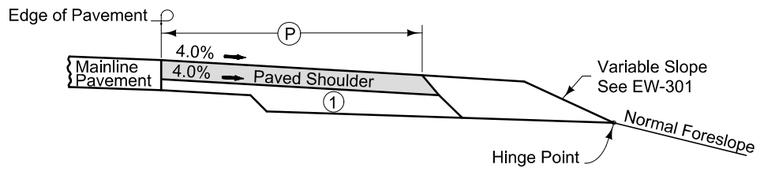
FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER B.5

1:45:41 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_B01.dgn

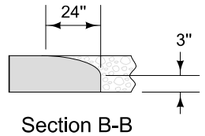




Typical Section with Form Board



Section A-A



Section B-B
Roll down at granular shoulder or earth.

6" HMA Paved Shoulder at guardrail. 7" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at W/2 from edge of mainline pavement when W is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal & reinstallation of guardrail will be allowed with no additional payment.

Refer to Shoulder tabulation (112-9) for quantities.

(1) 6" subgrade treatment.

(2) When guardrail posts are installed prior to construction of paved shoulder, nail 1" x 6" untreated form boards along the face of guardrail posts for the length shown. This board is to prevent shoulder material from contacting the sides of the posts and altering the function of the guardrail. Form board not required for final 2 posts.

(3) Continue paved shoulder to existing paved shoulder or 20' beyond the end of guardrail.

(4) Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement.

(5) 'KT-1' joint for PCC shoulder.
'B' joint for HMA shoulder.

PAVED SHOULDER AT GUARDRAIL

ROAD DESIGN DETAILS

CLEARING, GRUBBING, GRADING & EMBANKMENT

ALL LIGHT POLES, UTILITIES, AND TREES SHALL BE PROTECTED UNLESS NOTED OTHERWISE.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL, BROKEN CONCRETE, VEGETATION OR PAVEMENTS) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. NO PAYMENT FOR OVERHAUL OR DUMPING FEES WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL WILL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER. ANY HOLES OR TRENCHES THAT ARE OPEN AT THE END OF THE DAY'S WORK MUST BE FENCED WITH SAFETY FENCE (INCIDENTAL).

CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT-OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE REMOVED FROM ANY PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC, SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.

CONTRACTOR SHALL CONFINE THEIR GRADING OPERATIONS TO THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS UNLESS AUTHORIZED BY THE ENGINEER TO DO OTHERWISE. CONTRACTOR SHALL COMPENSATE PROPERTY OWNER FOR DAMAGES WHICH THEY CAUSE OUTSIDE AUTHORIZED LIMITS. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PRESERVE AND PROTECT ANY FENCES AND TREES, WITHIN THE CONSTRUCTION LIMITS, WHICH MAY BE REQUIRED TO REMAIN BY THE OWNER, CONTRACTOR SHALL NOT DISTURB DESIRABLE GRASS AREAS AND DESIRABLE TREES OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR SHALL ACCESS THE SITE IN A MANNER THAT DOES NOT DAMAGE EXISTING PAVED SURFACES, SIDEWALKS, AND TRAILS THAT ARE NOT DESIGNATED TO BE REPLACED. ANY DAMAGE TO THESE SURFACES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AS APPROVED BY THE ENGINEER.

IF CONTRACTOR FAILS TO CONTROL EROSION, POLLUTION AND/OR SILTATION, OWNER RESERVES THE RIGHT TO EMPLOY OUTSIDE ASSISTANCE TO PROVIDE THE NECESSARY CORRECTIVE MEASURES. SUCH INCURRED COSTS PLUS PROJECT ENGINEERING COSTS WILL BE CHARGED TO THE CONTRACTOR, AND APPROPRIATE DEDUCTIONS WILL BE MADE FROM THE CONTRACTOR'S MONTHLY PROGRESS ESTIMATE. THIS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

CONTRACTOR WILL NOT BE PERMITTED TO PARK OR SERVICE VEHICLES AND EQUIPMENT OR USE CONSTRUCTION SITE FOR STORAGE OF MATERIALS. STORAGE, PARKING AND SERVICE AREA(S) WILL BE SUBJECT TO THE APPROVAL OF ENGINEER AND OWNER.

UTILITIES GENERAL

LOCATIONS OF BURIED UNDERGROUND FACILITIES ARE APPROXIMATE, ENGINEER DOES NOT WARRANT, EITHER EXPRESSLY OR BY IMPLICATION, THE ACCURACY OF THE LOCATIONS SHOWN. EXACT LOCATION AND ELEVATIONS OF ALL UTILITIES SHALL BE DETERMINED BY CONTRACTOR AT THE TIME OF CONSTRUCTION. IT SHALL BE THE DUTY OF THE CONTRACTOR TO ASCERTAIN WHETHER ANY ADDITIONAL FACILITIES OTHER THAN THOSE SHOWN ON THE DRAWINGS MAY BE PRESENT. ENGINEER MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL UTILITIES IN THE AREA.

CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES OF THE ACTUAL START DATE OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH EACH COMPANY THE ACTUAL UTILITY LOCATION IN THE FIELD AND WHICH UTILITY LINES MUST BE ADJUSTED. CONTRACTOR SHALL USE CAUTION IN WORKING NEAR ALL UTILITY LINES. UTILITIES DAMAGED DUE TO THE OPERATIONS OF THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE AND AT NO EXPENSE TO THE OWNER.

CONTRACTOR SHALL PROVIDE TEMPORARY SUPPORT FOR EXISTING UTILITY LINES THAT ARE ENCOUNTERED DURING CONSTRUCTION UNTIL BACKFILLING IS COMPLETE.

ALL COSTS FOR STAGING CONSTRUCTION FOR UTILITY INSTALLATION, PROVIDING TEMPORARY SUPPORTS FOR UTILITIES WITH ASSISTANCE FROM THE AFFECTED UTILITY COMPANY, AND COORDINATING WITH UTILITIES, INCLUDING DELAYS, SHALL BE INCIDENTAL TO THE CONTRACT. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

TRENCH, BACKFILL & TUNNELING

CONTRACTOR SHALL SUBMIT GRADATION REPORTS FOR FILL AND BEDDING MATERIALS PRIOR TO USE IN THE PROJECT.

CONTRACTOR SHALL LIMIT THE LENGTH OF OPEN TRENCH AT ANY GIVEN TIME. NO MORE THAN APPROXIMATELY 300 FEET OF OPEN TRENCH WILL BE ALLOWED PRIOR TO BACKFILLING. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM CITY FOR VARIANCES FROM THIS OPEN TRENCH REQUIREMENT.

STREETS & RELATED WORK

CONTRACTOR SHALL CONTROL ALL FUGITIVE DUST DURING THE CONCRETE JOINT SAWING PROCESS. CONTRACTOR SHALL ENSURE THAT ALL CORNERS OF FIXTURES, INTAKES, ETC. ARE CONTROLLED WITH AN APPROPRIATE JOINT.

ESTIMATED QUANTITY FOR NEW CONCRETE PAVEMENT INCLUDES ALL INTEGRAL CURB, ALL STREET RETURNS AND SPECIAL AREAS OF REPAIRS TO CONNECTING PAVEMENTS.

SPECIAL CARE SHALL BE TAKEN WHEN FORMING AT INTERSECTIONS SO THAT THE PROFILES AND ELEVATIONS SHOWN ON THE CROSS SECTIONS, STREET RETURN PROFILE SHEETS, AND STAKING DIAGRAM SHEETS ARE OBTAINED. SHORT LENGTHS OF FORMS OR FLEXIBLE FORMS MAY BE NECESSARY AT THESE LOCATIONS. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO ANY PAVING WORK IF POSITIVE DRAINAGE IS IN QUESTION. THE INTENT OF THE DRAWINGS IS TO ENSURE POSITIVE DRAINAGE IN ALL SITUATIONS. IF POSITIVE DRAINAGE DOES NOT OCCUR AT SPECIFIC LOCATIONS, CONTRACTOR SHALL REPAIR, INCLUDING THE REMOVAL AND REPLACEMENT OF PAVEMENT, TO ACHIEVE POSITIVE DRAINAGE. CONTRACTOR WILL BE REQUIRED TO PAY ALL COSTS ASSOCIATED WITH THE NEEDED REPAIR.

REMOVE THE EXISTING PAVEMENT TO THE NEAREST EXISTING JOINT OR AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL DOUBLE SAW CUT ALL EDGES AT NO ADDITIONAL COST TO THE OWNER.

EXERCISE CARE WHEN PERFORMING ANY SAWCUTTING OR PAVEMENT REMOVAL. PROTECT THE ADJACENT STREET FROM DAMAGE. REMOVE AND REPLACE ANY DAMAGED AREAS WHICH ARE NOT INDICATED FOR REMOVAL AT NO COST TO THE OWNER.

GENERAL

ALL CONSTRUCTION IS SUBJECT TO OBSERVATION BY ENGINEER AND/OR OWNER. CONTRACTOR SHALL NOTIFY ENGINEER, OWNER, AND UTILITY COMPANIES 1 WEEK PRIOR TO START OF CONSTRUCTION.

IF ARCHAEOLOGICAL REMAINS ARE UNCOVERED ON THE PROJECT, CONTRACTOR WILL NOTIFY ENGINEER IMMEDIATELY.

CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS FROM POTTAWATTAMIE COUNTY, IF APPLICABLE, PRIOR TO ANY CONSTRUCTION WORK WITHIN THE PUBLIC RIGHT-OF-WAY.

IN THE EVENT OF A DISCREPANCY BETWEEN THE QUANTITY ESTIMATES AND THE DETAILED PLANS, THE DETAILED PLANS SHALL GOVERN.

SIDEWALKS, DRIVEWAYS, & RELATED WORK

GRADING TO MEET DEVIATIONS IN DRIVEWAYS AND SUBGRADE PREPARATION FOR CONCRETE SIDEWALKS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

WHERE REMOVAL OR REPLACEMENT OF DRIVEWAYS IS REQUIRED, CONTRACTOR SHALL REMOVE AND REPLACE TO THE NEAREST EXISTING JOINT. FULL-DEPTH SAW-CUT ALL EXISTING PAVEMENTS AT REMOVAL BOUNDARY. CONTRACTOR WILL REMOVE AND REPLACE THE MINIMUM AMOUNT OF SIDEWALK NECESSARY TO MEET OR SURPASS THE REQUIREMENTS SET FORTH IN THE SPECIFICATIONS OR CONSTRUCTION DRAWINGS, WHICHEVER IS MOST RESTRICTIVE.

SIDEWALKS AND SIDEWALK RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE JULY 26, 2011 PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY, (PROWAG), THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) HAS ISSUED GUIDANCE THAT THE CURRENT DRAFT VERSION OF THE PROWAG CAN BE CONSIDERED STATE OF THE PRACTICE. SUDAS STANDARDS ARE BASED UPON THE PROWAG REQUIREMENTS.

STORM SEWERS & DRAINS

REMOVE AND REPLACE EXISTING DRAIN TILES AS NECESSARY FOR CONSTRUCTION WITH NEW PIPE OF THE SAME SIZE AND MATERIAL. CONTRACTOR IS TO USE DUE CAUTION IN WORKING OVER AND AROUND ALL TILE LINES. BREAKS IN A TILE LINE DUE TO CONTRACTOR'S OPERATIONS ARE TO BE REPAIRED AND/OR REPLACED AT CONTRACTOR'S EXPENSE WITHOUT COST TO THE OWNER OR THE ENGINEER.

TEMPORARY TRAFFIC CONTROL

ALL TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH REQUIREMENTS SET FORTH IN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE(MUTCD), FOR STREETS AND HIGHWAYS, AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC), CHAPTER 130.

IT SHALL BE CONTRACTOR'S RESPONSIBILITY FOR PROPER BARRICADING AND ADEQUATE PROTECTION OF ALL OPEN TRENCHES AND OTHER EXCAVATIONS. OBSTRUCTIONS, SUCH AS MATERIAL PILES AND EQUIPMENT, SHALL BE PROVIDED WITH WARNING SIGNS, BARRICADES AND LIGHTS. ALL BARRICADES AND OBSTRUCTIONS SHALL BE ILLUMINATED BY MEANS OF WARNING LIGHTS FROM SUNSET TO SUNRISE OR WHEN ANY OTHER LOW LIGHT CONDITIONS EXIST. MATERIAL STORED UPON OR ALONGSIDE PUBLIC STREETS SHALL BE SO PLACED AND THE WORK SHALL AT ALL TIMES BE SO CONSTRUCTED AS TO CAUSE THE MINIMUM OBSTRUCTION AND INCONVENIENCE TO THE PUBLIC AND TO LOCAL RESIDENTS.

SAW-CUT TREE ROOTS

ALL TREE ROOTS EXCEEDING 1-1/2" IN DIAMETER WHICH ARE MANGLED BY EQUIPMENT DURING GRADING OR EXCAVATION SHALL BE CUT CLEANLY WITH A SAW. NO ROOTS WHICH EXCEED THE SPECIFIED DIAMETER SHALL BE LEFT STRIPPED OR MANGLED PRIOR TO BACKFILLING. CUTTING OF ROOTS IS CONSIDERED INCIDENTAL TO EXCAVATION.

SITE CLEANUP

THE CONTRACTOR SHALL CLEAN ALL SURFACES PRIOR TO OPENING THE PROJECT TO THE PUBLIC. PICKUP BROOM OR STREET SWEEPER THAT CREATES A MINIMAL AMOUNT OF DUST SHALL BE USED FOR CLEANING. ALL COSTS FOR CLEANING SHALL BE INCIDENTAL TO THE CONTRACT.

PROJECT CONTACTS

POTTAWATTAMIE COUNTY
ANDY WICKS
17501 EASTERN HILLS DR
COUNCIL BLUFFS, IA 51503
712-328-5608

ENGINEER
CODY FORCH
623 N CARROLL ST
CARROLL, IOWA 51401
712-220-2579

NOTE:
NEITHER THE OWNER (POTTAWATTAMIE COUNTY) NOR MCCLURE ENGINEERING COMPANY (ENGINEER) ASSUMES ANY RESPONSIBILITY FOR UTILITY LOCATIONS BEING ACCURATELY SHOWN OR NOT SHOWN ON THE PLANS. A REQUEST FOR UTILITY LOCATES WAS MADE FOR THIS PROJECT PURSUANT OF THE ONE-CALL NOTIFICATION SYSTEM ACT. UTILITIES SHOWN ARE FROM FIELD MARKINGS PROVIDED IN THE FIELD BY THE UTILITY PROVIDERS. THE EXACT LOCATION AND/OR SIZE OF UNDERGROUND FEATURES MAY NOT BE ACCURATELY, COMPLETELY, AND RELIABLY DEPICTED. FIELD VERIFICATION OF UTILITIES MAY BE REQUIRED. CONTRACTOR(S) SHALL NOTIFY THE RESPECTIVE UTILITY COMPANIES BEFORE COMMENCING ANY WORK.

ESTIMATED PROJECT QUANTITIES

(UP TO A 5 DIVISION PROJECT)

Division 1: FA Participating
Division 2: Non-Participating

Item No.	Item Code	Item	Unit	Division 1	Division 2	Division 3	Division 4	Division 5	Total	As Built Division 1	As Built Division 2	As Built Division 3	As Built Division 4	As Built Division 5
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.10					0.10					
2	2101-0850002	CLEARING AND GRUBBING	UNIT	169.40					169.40					
3	2102-2625000	EMBANKMENT-IN-PLACE	CY	7430.00					7430.00					
4	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	8728.00					8728.00					
5	2102-2710080	EXCAVATION, CLASS 10, UNSUITABLE OR UNSTABLE MATERIAL	CY	1000.00					1000.00					
6	2102-5020010	OBLITERATE OLD ROADBED	STA	7.86					7.86					
7	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	1271.00					1271.00					
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	5492.00					5492.00					
9	2109-8225100	SPECIAL COMPACTION OF SUBGRADE	STA	41.70					41.70					
10	2115-0100000	MODIFIED SUBBASE	CY	2296.00					2296.00					
11	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	2548.00					2548.00					
12	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.	SY	320.40					320.40					
13	2122-5190008	PAVED SHOULDER, P.C. CONCRETE, 8 IN.	SY	646.10					646.10					
14	2123-7450020	SHOULDER FINISHING, EARTH	STA	52.03					52.03					
15	2301-0690201	BRIDGE APPROACH, BR-201	SY	845.20					845.20					
16	2301-1033080	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.	SY	11989.90					11989.90					
17	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	1.00					1.00					
18	2301-9091000	RUMBLE STRIP PANEL (PCC SURFACE)	EACH	2.00					2.00					
19	2304-0101000	TEMPORARY PAVEMENT	SY	899.30					899.30					
20	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	1311.00					1311.00					
21	2315-8275025	SURFACING, DRIVEWAY, CLASS A CRUSHED STONE	TON	477.00					477.00					
22	2401-6745355	REMOVAL OF CONCRETE FOOTINGS OF HIGHWAY SIGNS	EACH	2.00					2.00					
23	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.00					1.00					
24	2402-2720000	EXCAVATION, CLASS 20	CY	850.20					850.20					
25	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	105.00					105.00					
26	2402-2721000	EXCAVATION, CLASS 21	CY	599.00					599.00					
27	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	1064.50					1064.50					
28	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	CY	417.50					417.50					
29	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)	LS	1.00					1.00					
30	2404-7775000	REINFORCING STEEL	LB	81037.00					81037.00					
31	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	103054.00					103054.00					
32	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	3108.00					3108.00					
33	2407-0562840	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB40	EACH	18.00					18.00					
34	2407-0562900	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB100	EACH	9.00					9.00					
35	2408-7800000	STRUCTURAL STEEL	LB	8421.00					8421.00					
36	2414-6424110	CONCRETE BARRIER RAILING	LF	402.00					402.00					
37	2416-0100015	APRONS, CONCRETE, 15 IN. DIA.	EACH	2.00					2.00					
38	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH	10.00					10.00					
39	2416-0100036	APRONS, CONCRETE, 36 IN. DIA.	EACH	12.00					12.00					
40	2416-1160015	CULVERT, CONCRETE ENTRANCE PIPE, 15 IN. DIA.	LF	28.00					28.00					
41	2416-1160024	CULVERT, CONCRETE ENTRANCE PIPE, 24 IN. DIA.	LF	152.00					152.00					
42	2416-1160036	CULVERT, CONCRETE ENTRANCE PIPE, 36 IN. DIA.	LF	434.00					434.00					
43	2416-1180024	CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.	LF	59.00					59.00					
44	2416-1180036	CULVERT, CONCRETE ROADWAY PIPE, 36 IN. DIA.	LF	68.00					68.00					
45	2416-1262024	CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.	LF	173.00					173.00					
46	2501-0201057	PILES, STEEL, HP 10 X 57	LF	1950.00					1950.00					
47	2501-0201473	PILES, STEEL, HP 14 X 73	LF	2730.00					2730.00					
48	2501-6335010	PREBORED HOLES	LF	300.00					300.00					
49	2501-8400172	TEMPORARY SHORING	LS	1.00					1.00					
50	2502-8212036	SUBDRAIN, LONGITUDINAL, (SHOULDER) 6 IN. DIA.	LF	4624.00					4624.00					
51	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	18.00					18.00					
52	2505-4008120	REMOVAL OF STEEL BEAM GUARDRAIL	LF	240.00					240.00					
53	2505-4008300	STEEL BEAM GUARDRAIL	LF	50.00					50.00					
54	2505-4008420	STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221	EACH	4.00					4.00					
55	2505-4021010	STEEL BEAM GUARDRAIL END ANCHOR, BOLTED	EACH	4.00					4.00					

ESTIMATED PROJECT QUANTITIES

(UP TO A 5 DIVISION PROJECT)

Division 1: FA Participating
Division 2: Non-Participating

Item No.	Item Code	Item	Unit	Division 1	Division 2	Division 3	Division 4	Division 5	Total	As Built Division 1	As Built Division 2	As Built Division 3	As Built Division 4	As Built Division 5
56	2505-4021722	STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225	EACH	4.00					4.00					
57	2505-6765006	REMOVE AND REINSTALL FORMED STEEL BEAM GUARDRAIL	LF	146.00					146.00					
58	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	16.00					16.00					
59	2507-3250005	ENGINEERING FABRIC	SY	1778.00					1778.00					
60	2507-4011100	CONCRETE GROUT FOR REVETMENT OR GABION	CY	33.00					33.00					
61	2507-6800061	REVETMENT, CLASS E	TON	2034.00					2034.00					
62	2510-6745850	REMOVAL OF PAVEMENT	SY	11057.00					11057.00					
63	2515-2475008	DRIVEWAY, P.C. CONCRETE, 8 IN.	SY	1496.40					1496.40					
64	2515-6745600	REMOVAL OF PAVED DRIVEWAY	SY	1727.90					1727.90					
65	2517-4225210	RAILROAD APPROACH SECTION, P.C.C.	SY	103.00					103.00					
66	2519-1002072	FENCE, CHAIN LINK, 72 IN. HEIGHT	LF	170.00					170.00					
67	2519-4200120	REMOVAL OF FENCE, CHAIN LINK	LF	213.00					213.00					
68	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN	EACH	4.00					4.00					
69	2524-6765110	REMOVAL OF TYPE A SIGN	EACH	16.00					16.00					
70	2524-9081261	CONCRETE FOOTING FOR BREAKAWAY SIGN POST, 2'-8 DIA. X 6'-0	EACH	2.00					2.00					
71	2524-9130011	GUIDANCE MARKER, CHEVRON W1-8 (SPECIAL)	EACH	4.00					4.00					
72	2524-9276010	PERFORATED SQUARE STEEL TUBE POSTS	LF	164.00					164.00					
73	2524-9276021	PERFORATED SQUARE STEEL TUBE POSTS, BREAK-AWAY SOIL INSTALLATION	EACH	16.00					16.00					
74	2524-9325001	TYPE A SIGNS, SHEET ALUMINUM	SF	121.20					121.20					
75	2524-9325150	INSTALL TYPE A SIGN	EACH	16.00					16.00					
76	2527-9263137	PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED	EACH	16.00					16.00					
77	2527-9263181	PAVEMENT MARKINGS REMOVED	STA	79.50					79.50					
78	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	176.23					176.23					
79	2528-2518000	SAFETY CLOSURE	EACH	15.00					15.00					
80	2528-8400048	TEMPORARY BARRIER RAIL, CONCRETE	LF	5812.50					5812.50					
81	2528-8400256	TEMPORARY TRAFFIC SIGNALS	EACH	2.00					2.00					
82	2528-8445110	TRAFFIC CONTROL	LS	1.00					1.00					
83	2528-8445113	FLAGGERS	EACH	PER PROPOSAL					PER PROPOSAL					
84	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	PER PROPOSAL					PER PROPOSAL					
85	2533-4980005	MOBILIZATION	LS	1.00					1.00					
86	2551-0000120	TEMP CRASH CUSHION, REDIRECTIVE (R)	EACH	15.00					15.00					
87	2555-0000010	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS		1.00				1.00					
88	2595-0005105	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR BNSF RAILWAY CO.	LS		1.00				1.00					
89	2601-2632110	FERTILIZING	ACRE	0.70					0.70					
90	2601-2634100	MULCHING	ACRE	5.50					5.50					
91	2601-2636017	NATIVE GRASS SEEDING (INSTALL ONLY)	ACRE	0.70					0.70					
92	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	2.70					2.70					
93	2601-2636044	SEEDING AND FERTILIZING (URBAN)	ACRE	2.30					2.30					
94	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	3020.00					3020.00					
95	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	3020.00					3020.00					
96	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	320.00					320.00					
97	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	4920.00					4920.00					
98	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	4920.00					4920.00					
99	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	1.00					1.00					
100	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	1.00					1.00					

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	**CLEARING AND GRUBBING**
2	2101-0850002	**CLEARING AND GRUBBING** Refer to Tabulation 110-17 and F-Sheets for locations and details. All material that is removed from the project shall become the property of the Contractor. Bid item includes, but is not limited to, removal of trees and stumps. Contractor shall confirm all tree removals and stump removals with the Engineer prior to beginning work.
3	2102-2625000	**EMBANKMENT-IN-PLACE** Type "A" compaction will be required. Quantity does not compensate for shrinkage. After all available onsite material has been depleted; the Contractor shall furnish all remaining material required. The Contractor shall furnish his own borrow material for "Embankment-In-Place". The Contractor shall familiarize himself with provisions of Iowa Law as it applies to removal and replacement of topsoil on borrow areas. Material must meet the requirement of Section 2102 for suitable material. No payment will be made for overhaul.
4	2102-2710070	**EXCAVATION, CLASS 10, ROADWAY AND BORROW** Quantity includes 8,728 CY of cut and 18,387 CY of adjusted fill which includes a 30% shrinkage factor, resulting in a need of 7,430 CY of unadjusted fill which shall be paid for under “Embankment-In-Place”. Quantity paid shall be plan quantity. Item includes excavating, hauling, depositing, compacting, grading, and work necessary to conform to the lines, grades, and slopes as shown on the plans, taking into account all staging of the construction. Unit price includes placement of the excavated materials as compacted. Compacted fill quantities include an assumed 30% shrink factor. Bidders shall determine quantities and satisfy themselves for all conditions of earthwork requirements in the submittal of a bid. No payment will be made for overhaul. Contractor is responsible for locating a stockpile location on-site. If on-site location is not available, then removal, stockpiling, hauling, and placing Class 10 material is incidental to this project and shall not be paid separately.
5	2102-2710080	**EXCAVATION, CLASS 10, UNSUITABLE OR UNSTABLE MATERIAL** If material that is deemed unsuitable or unstable by the Engineer is encountered, two feet of excavation below subgrade level shall be removed. Proofroll the exposed surface of the excavation bottom after the existing fill is removed to detect any soft or loose zones. Onsite soils may be reused as backfill material unless the material contains organics or debris that is considered unsuitable. In that instance, replacement soils shall be provided by the Contractor and shall be considered incidental to this bid item. Backfill shall meet Section 2101 of the Standard Specifications.
6	2102-5020010	**OBLITERATE OLD ROADBED** The work consists of obliterating Magnolia Road as shown on Typical 4302 between 260th St and Railroad Hwy. Method of measurement will be in stations measured along centerline of old roadbed. Basis of payment will be the contract unit price for the number of stations of old roadbed obliterated. Payment is full compensation for construction as shown on Typical 4302.
7	2104-2710020	**EXCAVATION, CLASS 10, CHANNEL** Excavation quantity assumes bridge berm and roadway grading have been completed. This item is included for the excavation required to embed the Class E Revetment. Refer to Sheet V.5 for quantity itemization and limits of excavation.
8	2105-8425015	**TOPSOIL, STRIP, SALVAGE AND SPREAD** Quantity includes placement of stripped topsoil material. Material shall be stripped at a depth of 8 inches and respread to a depth of 8 inches. Payment will be made for plan quantity only, no measurement will be made. Bidders shall determine quantities and satisfy themselves for all conditions of topsoil requirements of a bid. Contractor may waste excess topsoil on-site. Topsoil to be respread shall be free of rock and debris and be suitable for the growth of grass. Topsoil stockpile location shall be approved by the Engineer. No payment will be made for overhaul. Contractor is responsible for locating a stockpile location on-site. If on-site location is not available, then removal, stockpiling, hauling, and placing topsoil is incidental to this project and shall not be paid separately. Excess topsoil shall be wasted on site. Topsoil Cut = 5492 CY Topsoil Spread and Shrink (40%) = 4461 CY Total (Waste) = 1031 CY
9	2109-8225100	**SPECIAL COMPACTION OF SUBGRADE** Subgrade preparation shall be 12-inches in depth. Subgrade shall not sit longer than 14 days or after rainfall event without re-proofrolling or retesting. Contractor shall notify Engineer 24 hours prior to proofrolling subgrade. Proofrolling of the subgrade is incidental to this bid item. Protect utilities and storm sewer pipe during subgrade preparations in order to prevent damage to utilities and pipe. Contractor is responsible for replacing any damage to utilities and/or pipe at no extra cost to the Contracting Authority. Payment includes process control sampling, testing, and inspection.
10	2115-0100000	**MODIFIED SUBBASE** Refer to B-Sheets for typical sections. Refer to Tabulation 100-24 and 112-09 for details. Modified subbase shall be constructed beneath all street and side street return pavement, including 2-feet outside of the pavement, and at a depth of 6-inches as detailed in the B-Sheets. Modified subbase material must meet the requirements for Gradation No. 14 of the Aggregate Gradation Table, Article 4109.2 of the Iowa DOT Standard Specifications.

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Item No.	Item Code	Description
11	2121-7425010	**GRANULAR SHOULDERS, TYPE A** Refer to B-Sheets for typical sections. Refer to Tabulation 112-09 and D Sheets for locations and details. Refer to L Sheets for geometrics and staking. Quantity based on a unit weight of 140 lbs/cf.
12	2122-5190007	**PAVED SHOULDER, P.C. CONCRETE, 7 IN.**
13	2122-5190008	**PAVED SHOULDER, P.C. CONCRETE, 8 IN.** Refer to B-Sheets for typical sections. Refer to Tabulation 112-09 and D Sheets for locations and details. Refer to L Sheets for geometrics, staking, and jointing. Certified plant inspection is required and shall be considered incidental to this bid item. Shoulders adjacent to bridge approach pavement shall be 7" PCC.
14	2123-7450020	**SHOULDER FINISHING, EARTH** Refer to B-Sheets for typical sections. Refer to Tabulation 112-09 for details. The volume of earth shoulder is included in the Class 10 Excavation quantity.
15	2301-0690201	**BRIDGE APPROACH, BR-201** Refer to Tabulation 112-06 for details. Refer to L Sheets for jointing and geometrics. Certified plant inspection is required and shall be considered incidental to this bid item.
16	2301-1033080	**STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.** Refer to B-Sheets for typical sections and jointing details. Refer to D- and E-Sheets for plan and profile information. Refer to L-Sheets for jointing and geometric information. Refer to J-Sheets for staging. Certified plant inspection is required and shall be considered incidental to this bid item.
17	2301-6911722	**PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES** - -
18	2301-9091000	**RUMBLE STRIP PANEL (PCC SURFACE)** Refer to Tabulation 112-07 and K Sheets for locations and details.
19	2304-0101000	**TEMPORARY PAVEMENT** Refer to Tabulation 100_24 and J Sheets for locations and details. Pavement thickness for all temporary pavement shall be 6 inches. Measurement will be in square yards. Payment will be at the contract unit price per square yard of temporary pavement installed. Bid item includes, but is not limited to, excavation, subgrade preparation, jointing, sampling, and testing. Certified plant inspection is required and shall be considered incidental to this bid item.
20	2312-8260051	**GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE** Refer to B Sheets for typical sections. Refer to D Sheets for plan and profile information. Refer to L Sheets for geometric and staking information. Refer to W Sheets for cross sections. Quantity based on a uniform depth of 8 inches and a unit weight of 140 lbs/cf.
21	2315-8275025	**SURFACING, DRIVEWAY, CLASS A CRUSHED STONE** Refer to Tabulation 102-03 for details. Refer to D Sheets for plan and profile information. Refer to L Sheets for geometric and staking informationRefer to W Sheets for cross sections. Quantity based on a uniform depth of 6 inches and a unit weight of 140 lbs/cf.
22	2401-6745355	**REMOVAL OF CONCRETE FOOTINGS OF HIGHWAY SIGNS** Refer to Tabulation 190-62 for locations and details. This item shall consist of removal of concrete footings for steel breakaway sign support posts. Concrete footings or parts of concrete footings removed shall become the property of the Contracto, and shall be removed in accordance with Article 1104.08. Unless otherwise provided or ordered, concrete footings for steel breakaway sign support posts shall be removed 1 foot below natural ground surface. Where portions of the existing concrete footings lie wholly or in part within limits for a new structure (culvert, concrete footing, or other), they shall be removed as necessary to accommodate construction of the proposed structure. Holes remaining from the removal of concrete footings for steel breakaway sign support posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09. Measurement will be counted per concrete footing for steel breakaway sign support post removed. Payment will be at the contract unit price for each concrete footing for steel breakway sign support post removed. This payment shall be full compensation for furnishing all material, equipment, and labor and for the performance of all work necessary for removal of the concrete footings from the project and any backfilling made necessary by these operations.
23	2401-6745625	**REMOVAL OF EXISTING BRIDGE** - -
24	2402-2720000	**EXCAVATION, CLASS 20** - -
25	2402-2720100	**EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT** Refer to Tabulation 104-03 for details. Includes filling and compacting low areas around proposed culvert.
26	2402-2721000	**EXCAVATION, CLASS 21** - -
27	2403-0100010	**STRUCTURAL CONCRETE (BRIDGE)** All concrete shall be Class "C". Includes furnishing and placing subdrain (including excavation), floodable backfill, porous backfill, geotextile fabric, water flooding and subdrain outlets at abutments. Includes furnishing and placing all resilient joint filler. Includes anchor bolts and plates at light pole bases. Includes furnishing and placing 3 inch diameter plastic pipe and expanding foam in the abutment wings. Certified plant inspection is required and shall be considered incidental to this bid item.

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Item No.	Item Code	Description
28	2403-1000005	**FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE**
		Refer to Developmental Specification for Fiber Reinforcement for Structural Concrete.
29	2403-1000010	**TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)**
		Refer to Developmental Specification for Fiber Reinforcement for Structural Concrete.
30	2404-7775000	**REINFORCING STEEL**
31	2404-7775005	**REINFORCING STEEL, EPOXY COATED**
32	2404-7775009	**REINFORCING STEEL, STAINLESS STEEL**
		- -
33	2407-0562840	**BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB40**
		Includes cost of all coil ties, and furnishing and placing of bearing materials at abutments and piers. Vent holes are used for this beam. This beam uses non-standard stirrup extensions. Includes Contractor filling out beam numbers by locations and beam seat elevations in "PPC Beam Data Spreadsheet" and forwarding electronic spreadsheet to Engineer.
34	2407-0562900	**BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB100**
		Includes cost of all coil ties, and furnishing and placing of bearing materials at piers. Vent holes are used for this beam. This beam uses non-standard stirrup extensions. Includes Contractor filling out beam numbers by location and beam seat elevations in "PPC Beam Data Spreadsheet" and forwarding electronic spreadsheet to Engineer.
35	2408-7800000	**STRUCTURAL STEEL**
		Includes all costs of furnishing and installing intermediate diaphragms. Includes 8 drains at 92 lbs each.
36	2414-6424110	**CONCRETE BARRIER RAILING**
		Includes material and labor associated with providing and installing the rigid steel conduit, junction boxes and fittings. Includes 700 LF of 2" diameter conduit and 640 LF of 3" diameter conduit. If placement of concrete is done by slipforming method, Class BR concrete is required. Cast-in-place barrier rails shall use Class C Mix. Price bid for this item shall include the cost of cast-in-place forms if required for placement of concrete. Certified plant inspection is required and shall be considered incidental to this bid item.
37	2416-0100015	**APRONS, CONCRETE, 15 IN. DIA.**
38	2416-0100024	**APRONS, CONCRETE, 24 IN. DIA.**
39	2416-0100036	**APRONS, CONCRETE, 36 IN. DIA.**
40	2416-1160015	**CULVERT, CONCRETE ENTRANCE PIPE, 15 IN. DIA.**
41	2416-1160024	**CULVERT, CONCRETE ENTRANCE PIPE, 24 IN. DIA.**
42	2416-1160036	**CULVERT, CONCRETE ENTRANCE PIPE, 36 IN. DIA.**
43	2416-1180024	**CULVERT, CONCRETE ROADWAY PIPE, 24 IN. DIA.**
44	2416-1180036	**CULVERT, CONCRETE ROADWAY PIPE, 36 IN. DIA.**
45	2416-1262024	**CULVERT, CONCRETE PIPE, 2000D, TRENCHLESS, 24 IN. DIA.**
		Refer to Tabulation 104-03 and D Sheets for locations and details.
46	2501-0201057	**PILES, STEEL, HP 10 X 57**
		Includes furnishing and installing steel pile points.
47	2501-0201473	**PILES, STEEL, HP 14 X 73**
		Includes furnishing and installing steel pile points.
48	2501-6335010	**PREBORED HOLES**
		- -
49	2501-8400172	**TEMPORARY SHORING**
		Temporary shoring (sheet pile or other) shall be required as necessary to prevent the earth under the traffic lane from sloughing in during construction. Temporary shoring shall be paid for as a lump sum including all cost for designing, furnishing, installing and removal. All material used for shoring shall remain the property of the Contractor. Shoring is to be removed only after backfilling has been completed. Article 1107.07 of the Standard Specifications applies.
50	2502-8212036	**SUBDRAIN, LONGITUDINAL, (SHOULDER) 6 IN. DIA.**
51	2502-8221306	**SUBDRAIN OUTLET, DR-306**
		Refer to Tabulations 104-05C and 104-09A and D Sheets for locations and details.
52	2505-4008120	**REMOVAL OF STEEL BEAM GUARDRAIL**
		Refer to Tabulation 110-07A and F Sheets for locations and details. Removal of object markers shall be considered incidental to this bid item.
53	2505-4008300	**STEEL BEAM GUARDRAIL**
54	2505-4008420	**STEEL BEAM GUARDRAIL BARRIER TRANSITION SECTION, BA-221**
55	2505-4021010	**STEEL BEAM GUARDRAIL END ANCHOR, BOLTED**
56	2505-4021722	**STEEL BEAM GUARDRAIL TANGENT END TERMINAL, BA-225**
		Refer to Tabulation 108-08A and D Sheets for locations and details.

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Item No.	Item Code	Description
57	2505-6765006	**REMOVE AND REINSTALL FORMED STEEL BEAM GUARDRAIL**
		The intent of this work is to remove and reinstall only the steel beam guardrail for placement of pavement. Carefully remove and stockpile steel beam guardrail for reinstallation. The Contractor has the option to leave the posts in place, or to remove and reinstall the posts at no additional cost to the Contracting Authority. Replace steel beam rail and posts damaged by the Contractor's operations at no additional cost to the Contracting Authority. Posts, delineators, and object markers are to remain in place. Replace posts, delineators, and object markers damaged by the Contractor's operations at no additional cost to the Contracting Authority. Ensure that all posts are firm and plum prior to reinstalling the guardrail. Restore the area disturbed by removal and reinstallation operations to an acceptable condition. Method of measurement will be in linear feet, measured along the front of the rail, of steel beam guardrail (includes W-beam and Thrie-beam guardrail) removed and reinstalled. Basis of payment will be at the contract unit price per linear foot of steel beam guardrail removed and reinstalled. Payment includes all labor, equipment, and materials required to remove and reinstall the steel beam guardrail.
58	2507-2638650	**BRIDGE WING ARMORING - EROSION STONE**
		Includes furnishing and placing engineering fabric, erosion stone, and all required excavating, shaping and compacting.
59	2507-3250005	**ENGINEERING FABRIC**
		Engineering fabric shall be material as specified for embankment erosion control in accordance with Article 4196.01, B, 3 of the Standard Specifications.
60	2507-4011100	**CONCRETE GROUT FOR REVETMENT OR GABION**
		Refer to R Sheets for locations. This bid item is intended for grouting the revetment at the outlets at the channel. Include a 10' wide grouted section from the apron to the channel. Assumes a void percentage of 35% for Class E Revetment. Certified plant inspection is required and shall be considered incidental to this bid item.
61	2507-6800061	**REVETMENT, CLASS E**
		Estimated at 1.6 ton/cy.
62	2510-6745850	**REMOVAL OF PAVEMENT**
		Refer to Tabulation 110-01 and F Sheets for locations and details. Refer to J Sheets for staging details. Unit price includes full-depth sawcutting of the existing pavement at limits of removal and removal of pavement. All pavement is assumed to be 8 inches thick. No additional payment will be made for variances in pavement depth. All removed roadway pavement, excluding railroad and bridge approach pavement, shall be delivered to the Neola Yard. Delivery and stockpiling of removed pavement shall be paid for by the Deliver and Stockpile Salvaged Materials bid item.
63	2515-2475008	**DRIVEWAY, P.C. CONCRETE, 8 IN.**
		Refer to Tabulation 102-03, D Sheets, and L Sheets for locations and details. Finishing and edging shall match existing adjacent driveway pavements. Payment will be at the contract unit price per square yard of temporary pavement installed. Bid item includes, but is not limited to, excavation, subgrade preparation, jointing, sampling, and testing. Certified plant inspection is required and shall be considered incidental to this bid item.
64	2515-6745600	**REMOVAL OF PAVED DRIVEWAY**
		Refer to Tabulation 110-08 and F Sheets for locations and details. Unit price includes full-depth sawcutting of the existing pavement at limits of removal and removal of pavement. All pavement is assumed to be 8 inches thick. No additional payment will be made for variances in pavement depth. All removed paved drives shall be delivered to the Neola Yard. Delivery and stockpiling of removed pavement shall be paid for by the Deliver and Stockpile Salvaged Materials bid item.
65	2517-4225210	**RAILROAD APPROACH SECTION, P.C.C.**
		Refer to Tabulation 112-03 and L Sheets for locations and details. Certified plant inspection is required and shall be considered incidental to this bid item.
66	2519-1002072	**FENCE, CHAIN LINK, 72 IN. HEIGHT**
		Refer to Tabulation 100-07 and D Sheets for locations and details.
67	2519-4200120	**REMOVAL OF FENCE, CHAIN LINK**
		Refer to Tabulation 100-08 and F Sheets for locations and details.

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Item No.	Item Code	Description
68	2524-6765010	**REMOVE AND REINSTALL SIGN AS PER PLAN**
		Refer to Tabulations 190-61 and 190-62, F Sheets, and K Sheets for locations and details. The Contractor shall remove each sign and the hardware used to secure the sign to another sign, posts, or sign support structure. For signs mounted directly to posts, removal of the sign shall include the removal of the posts. Posts may be either wood posts, perforated square steel tube posts, or steel breakaway sign posts. The removal of concrete footings for steel breakway sign posts will be measured and paid for separately. Holes remaining from the removal of wood posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. Existing sign posts may be reused if determined by the Engineer to be in satisfactory condition. If replacement of existing posts is required, it shall be considered incidental to this bid item. All posts not reinstalled shall become the property of the Contractor. The Contractor shall furnish all necessary hardware to install the signs. When the new installation is similar to the orignal installation, unless otherwise noted, the existing hardware may be used to reinstall the sign. Signs damaged by the Contractor's activities shall be replaced at the Contractor's expense. Replacement materials shall be new. Measurement will be counted per sign assembly removed and reinstalled. Payment will be at the contract unit price for each sign assembly removed and reinstalled.
69	2524-6765110	**REMOVAL OF TYPE A SIGN**
		Refer to Tabulation 190-62 and K Sheets for locations and details. The Contractor shall remove each sign and the hardware used to secure the sign to another sign, posts, or sign support structure. For signs mounted directly to posts, removal of the sign shall include the removal of the posts. Posts may be either wood posts, perforated square steel tube posts, or steel breakaway sign posts. The removal of concrete footings for steel breakway sign posts will be measured and paid for separately. Holes remaining from the removal of wood posts shall be backfilled with suitable earth to the original level or to the natural ground surface in accordance with Article 2402.09 of the Standard Specifications. Measurement will be counted per sign assembly removed. Payment will be at the contract unit price for each sign assembly removed.
70	2524-9081261	**CONCRETE FOOTING FOR BREAKWAY SIGN POST, 2'-8" DIA. X 6'-0"**
		Refer to Tabulation 190-61 and K Sheets for locations and details. Refer to Standard Road Plan SI-112 for details. Certified plant inspection is required and shall be considered incidental to this bid item.
71	2524-9130011	**GUIDANCE MARKER, CHEVRON W1-8 (SPECIAL)**
		Refer to Tabulations 108-34, 190-51, and 190-66 and K Sheets for locations and details. Refer to Tabulation SI-175 for details.
72	2524-9276010	**PERFORATED SQUARE STEEL TUBE POSTS**
73	2524-9276021	**PERFORATED SQUARE STEEL TUBE POSTS, BREAK-AWAY SOIL INSTALLATION**
		Refer to Tabulation 190-51 and K Sheets for locations and details.
74	2524-9325001	**TYPE A SIGNS, SHEET ALUMINUM**
		Refer to Tabulation 190-66 for details.
75	2524-9325150	**INSTALL TYPE A SIGN**
		Refer to Tabulation 190-51 and K Sheets for locations and details. The Contractor shall furnish all necessary hardware to install the Type A signs. Measurement will be counted per Type A sign installed. Payment will be at the contract unit price for each Type A sign installed.
76	2527-9263137	**PAINTED SYMBOLS AND LEGENDS, WATERBORNE OR SOLVENT-BASED**
		Refer to Tabulation 108-29 and K Sheets for locations and details.
77	2527-9263181	**PAVEMENT MARKINGS REMOVED**
		Refer to Tabulation 108-22 and K Sheets for locations and details.
78	2527-9263209	**PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED**
		Refer to Tabulation 108-22 and K Sheets for locations and details.
79	2528-2518000	**SAFETY CLOSURE**
		Refer to Tabulation 108-13A and J Sheets for locations and details.
80	2528-8400048	**TEMPORARY BARRIER RAIL, CONCRETE**
		Refer to Tabulation 108-33 and J Sheets for locations and details. All temporary barrier rail shall be nominal 12'-6" long concrete units.
81	2528-8400256	**TEMPORARY TRAFFIC SIGNALS**
		Refer to Tabulation 108-28 and J Sheets for locations and details. This item is intended for setting up and operating temporary traffic signals during Stages 4 & 5. Stage 4 will require 6 signal heads, and Stage 5 will require 4 signal heads. Adjustments to signal timing during construction as directed by the Engineer shall be considered incidental to this bid item.
82	2528-8445110	**TRAFFIC CONTROL**
		Refer to J Sheets for traffic control notes.
83	2528-8445113	**FLAGGERS**
		Refer to J Sheets and Standard Road Plan TC-213 for details. This item is intended to be used for paving operations adjacent to Railroad Hwy during Stages 1 & 2.
84	2528-9290050	**PORTABLE DYNAMIC MESSAGE SIGN (PDMS)**
		Refer to J Sheets and Standard Road Plan TC-417 for locations and details.

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Item No.	Item Code	Description
85	2533-4980005	**MOBILIZATION**
		- -
86	2551-0000120	**TEMP CRASH CUSHION, REDIRECTIVE (R)**
		Refer to Tabulation 108-30 and J Sheets for locations and details.
87	2555-0000010	**DELIVER AND STOCKPILE SALVAGED MATERIALS**
		Refer to Tabulation 100-13 for details.
88	2595-0005105	**RAILROAD PROTECTIVE LIABILITY INSURANCE FOR BNSF RAILWAY CO.**
		Refer to Developmental Specifications for Work on Railroad Right-of-Way (BNSF Railway), DS-23057.
89	2601-2632110	**FERTILIZING**
		Fertilizing shall be as described in the Standard Specifications Section 2601 and as shown on the plans. This is intended for fertlizing the native grass seeding limits.
90	2601-2634100	**MULCHING**
		Perform mulching according to Article 2601.03, E, 2, of the Standard Specifications. Anchor mulch into the soil using mulch anchoring equipment with a minimum of two passes. Mulch Rate: 1-1/2 tons of dry cereal straw or native grass straw per acre.
91	2601-2636017	**NATIVE GRASS SEEDING (INSTALL ONLY)**
		Refer to R Sheets for locations. Native grass seeding to be provided by the County. The Engineer will review the limits with the Contractor prior to seeding. Seeding and seed bed preparation shall be as described in the Standard Specifications Section 2601 and as shown on the plans.
92	2601-2636043	**SEEDING AND FERTILIZING (RURAL)**
		Refer to R Sheets for locations. The Engineer will review the limits with the Contractor prior to seeding. Prepare seedbed, fertilize, and seed according to Article 2601.03, C, 3, of the Standard Specifications.
93	2601-2636044	**SEEDING AND FERTILIZING (URBAN)**
		Refer to R Sheets for locations. The Engineer will review the limits with the Contractor prior to seeding. Prepare seedbed, fertilize, and seed according to Article 2601.03, C, 4, of the Standard Specifications.
94	2602-0000030	**SILT FENCE FOR DITCH CHECKS**
		Refer to Tabulation 100-18 and R Sheets for locations and details. The tabulation includes estimated locations for placement of Silt Fence for Ditch Checks to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 50% additional quantity for field adjustments and replacements.
95	2602-0000071	**REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS**
		Refer to Tabulation 100-18 and R Sheets for locations and details. This item is included for silt fence and silt fence for ditch check removal required for staging reasons, for replacement (replacement to be paid separately), or for areas that have achieved 70% permanent growth.
96	2602-0000101	**MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK**
		Refer to Tabulation 100-18 and R Sheets for locations and details. This item is included for cleanout and repair of the silt fence and silt fence for ditch checks during the project.
97	2602-0000312	**PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.**
98	2602-0000351	**REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE**
		Refer to Tabulation 100-19 and R Sheets for locations and details. 20-ft logs shall be used. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 12 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement.
99	2602-0010010	**MOBILIZATIONS, EROSION CONTROL**
		- -
100	2602-0010020	**MOBILIZATIONS, EMERGENCY EROSION CONTROL**
		- -

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STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
BA-200	10/20/2026	Steel Beam Guardrail Components
BA-202	10/20/2026	Steel Beam Guardrail Bolted End Anchor
BA-221	10/18/2022	Steel Beam Guardrail Barrier Transition Section (MASH TL-2)
BA-225	10/17/2023	Steel Beam Guardrail Tangent End Terminal (MASH TL-2)
BA-260	10/20/2026	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-2)
BA-401	4/20/2021	Temporary Barrier Rail (Precast Concrete)
BA-500	4/20/2021	Temporary Crash Cushions Sand Barrel
BR-101	10/20/2026	Bridge Approach Section (General Details)
BR-201	10/20/2026	Double Reinforced 10in Approach
BR-211	4/21/2026	Bridge Approach (Abutting PCC or Composite Pavement)
DR-101	4/18/2017	Pipe Culvert (Bedding and Backfill)
DR-103	4/21/2015	Pipe Culvert (Installation Details)
DR-104	4/19/2016	Depth of Cover Tables for Concrete and Corrugated Pipe
DR-121	4/18/2023	Connected Pipe Joints
DR-201	10/17/2023	Concrete Aprons
DR-303	10/17/2017	Subdrains (Longitudinal)
DR-306	10/17/2023	Precast Concrete Headwall for Subdrain Outlets
DR-601	4/18/2017	Reinforced Concrete Pipe Culvert
EC-201	4/20/2021	Silt Fence
EC-204	10/19/2021	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-502	4/21/2015	Seeding in Rural Areas
EW-101	10/17/2017	Embankment and Rebuilding Embankments
EW-202	4/19/2016	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	10/20/2026	Guardrail Grading
EW-501	10/17/2023	Rural Entrance
EW-503	10/20/2015	Side Road Grading
MI-101	10/20/2015	Fencing Layout
MI-102	10/20/2015	Chain Link Fence Construction
MI-210	10/21/2025	PCC Driveways and Alleys
PM-110	10/15/2024	Line Types
PM-111	4/21/2020	Symbols and Legends
PM-120	10/15/2024	Stop Lines and Islands
PM-210	10/15/2024	Separation in Two-Lane Roadway
PM-240	10/15/2024	Railroad Crossing on Two-Lane Roadway
PM-420	10/20/2026	Two-Lane Roadway with no Turn Lanes (One-Way Stop Condition)
PM-521	10/20/2026	Two-Lane Roadway with Right Turn Lanes
PM-522	10/20/2026	Two-Lane Roadway with Left Turn Lanes
PM-550	10/15/2024	Two-Lane Roadway with Two-Way Left Turn Lane
PV-10	10/20/2026	Rumble Strip Panel for Intersection Approach
PV-101	10/20/2026	Joints
PV-106	10/17/2017	PCC Railroad Approach Section
PV-301	4/15/2025	Superelevation Details Two Lane Roadway
SI-101	4/19/2016	Locations - Type 'A' Signs
SI-111	4/19/2016	Support Structures - Wood Posts
SI-112	4/19/2016	Footings for Steel Breakaway Posts
SI-113	10/15/2019	Support Structures - Steel Breakaway Posts
SI-121	10/16/2018	Fabrication - Sign Legend Components
SI-131	10/18/2016	Installation - Type 'A' Signs
SI-173	4/19/2016	Object Markers
SI-175	4/19/2016	Chevrons
SI-211	10/18/2022	Object Marker and Delineator Placement with Guardrail
SI-241	4/20/2021	Sign Placement Approaching a Railroad Crossing
TC-1	10/15/2019	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-81	4/18/2023	Restricted Width Signing (Less Than 15.5 Feet)
TC-202	4/18/2023	Work Within 15 ft of Traveled Way

105_04
10/20/26

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
TC-213	04-18-23	Lane Closure with Flaggers
TC-217	10/20/2026	Lane Closure with Signals and TBR
TC-233	10/17/2017	Pavement Marking Operations Two-Lane
TC-252	10/20/2026	Routes Closed to Traffic
TC-273	10/15/2019	Construction Site Entrance
TC-402	4/18/2023	Work Within 15 ft of Traveled Way
TC-417	4/21/2020	Ramp Closure
TC-419	4/18/2023	Lane Closure on Undivided Highway
TC-433	10/17/2017	Pavement Marking Operations

111_25
10/20/26

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108_30
4/16/24

CRASH CUSHIONS

* Bid Item
1. Lane(s) to which the installation is adjacent.
2. Complete this section when using the Temporary Crash Cushion bid item and Earthwork is needed for Sand Barrel placement. Refer to BA-500.

Line No.	Lane	Station	Side	Obstacle Width (FT)	Crash Cushion Type	Crash Cushion Quantity	V (FT) (2)	W (FT) (2)	X (FT) (2)	Y (FT) (2)	Z (FT) (2)	Excavation Class 10* (CY)	Embankment in Place* (CY)	Obstacle Description	Remarks
1.0	EB	110+08.42	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3A
2.0	EB	117+85.33	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3A
3.0	WB	117+59.92	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3B
4.0	EB	112+85.22	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3B
5.0	EB	117+85.82	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3B
6.0	WB	112+85.24	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3C
7.0	WB	119+88.97	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 3C
8.0	WB	120+05.12	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 4A
9.0	WB	128+32.34	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 4A
10.0	EB	120+05.12	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 4B
11.0	EB	128+32.34	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 4B
12.0	WB	132+63.00	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 5A
13.0	WB	139+43.70	Right	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 5A
14.0	EB	132+63.00	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 5B
15.0	EB	139+43.70	Left	2.0	Temporary Redirective	1								Pavement Edge Drop-Off	End of TBR / Stage 5B
Total:						**15**									

108_33
8/15/22

TEMPORARY BARRIER RAIL

Possible Standard: BA-401 Possible Detail: 560-7

* Not a bid item. Anchorage requirements are based on TBR locations shown in the plans. TBR alignments that vary from what is shown in the plans may result in additional TBR sections requiring anchorage.

No.	Station From	Station To	Length (FT)	Barrier Rail Type	Anchored*	Modular Glare Screen System	Remarks
1	110+08.42	117+85.33	787.5	Concrete BA-401	Yes	No	Existing EB / Stage 3A
2	110+03.62	117+59.92	762.5	Concrete BA-401	Yes	No	Existing WB / Stage 3B
3	112+85.22	117+85.82	500.0	Concrete BA-401	Yes	No	Proposed EB / Stage 3B
4	112+85.24	119+88.97	712.5	Concrete BA-401	Yes	No	Proposed WB / Stage 3C
5	120+05.12	128+32.34	837.5	Concrete BA-401	Yes	No	Existing WB / Stage 4A
6	120+05.12	128+32.34	837.5	Concrete BA-401	Yes	No	Proposed EB / Stage 4B
7	132+63.00	139+43.70	687.5	Concrete BA-401	Yes	No	Existing WB / Stage 5A
8	132+63.00	139+43.70	687.5	Concrete BA-401	Yes	No	Proposed EB / Stage 5B
Total:			**5812.5**				

108_28
8/15/22

TEMPORARY TRAFFIC SIGNALS

Item No.	Station	Signal Type	Remarks
1	119+03.60	One Lane Traffic	Magnolia Rd / Stage 4
1	130+23.73	One Lane Traffic	Magnolia Rd / Stage 4
1	301+00.00	Intersection	Mulberry Ln / Stage 4
2	130+71.61	One Lane Traffic	Magnolia Rd / Stage 5
2	141+35.09	One Lane Traffic	Magnolia Rd / Stage 5

108_13A
3/27/25

SAFETY CLOSURES

Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
91+80.00	1		Stage 1
101+05.71	1		Stage 1
101+32.05	1		Stage 2
106+34.20	1		Stage 2
121+50.00	1		Truckstop / Stage 4A
125+50.00	2		I-80 WB On-Ramp / Stage 4A
126+00.00	2		I-80 WB Off-Ramp / Stage 4A & 4B
134+00.00	2		I-80 EB Off-Ramp / Stage 5A & 5B
134+50.00	2		I-80 EB On-Ramp / Stage 5B
600+13.32	1		Stage 5A & 5B
601+09.66	1		Stage 5A & 5B
Total:	**15**		

110_08
8/15/22

REMOVAL OF CONCRETE DRIVES

* Not a Bid Item.

Station	Side	Area (SY)	Saw Cut* (LF)	Remarks
106+34.20	Right	624.7	280.0	
109+26.59	Right	499.9	161.0	
118+00.00	Right	207.6	72.0	
121+50.09	Right	395.7	178.0	
Total:		**1727.9**	**691**	

100_08
8/15/22

REMOVAL OF FENCE

Removal of Field Fence is incidental to Clearing and Grubbing.

Station From	Offset	Station To	Offset	Side	Type	Length (LF)	Remarks
101+80.09	62.2	103+66.52	56.2	Left	Chain Link	213.0	

110_01
4/5/24

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
100+17.98	101+05.81	Both	HMA	677.6	217.0	
101+30.74	103+83.04	Both	PCC	1242.3	334.0	
103+94.32	103+99.83	Both	HMA	65.9	40.0	
103+99.83	115+41.75	Both	PCC	3050.2	950.0	
116+94.82	127+58.73	Both	PCC	2860.4	1613.0	
133+36.61	138+70.09	Both	PCC	1422.6	1008.0	
300+19.00	300+87.85	Both	HMA	414.3	157.0	
600+13.32	600+97.66	Both	PCC	424.4	164.0	
104+79.91	105+82.18	EB	PCC	38.4		Temporary Pavement / Stage 2
106+34.20	107+14.20	Center	PCC	56.3		Temporary Pavement / Stage 3A
108+51.59	110+01.59	Center	PCC	111.1		Temporary Pavement / Stage 3A
117+93.55	119+24.55	Center	PCC	99.7		Temporary Pavement / Stage 3A
118+90.26	121+11.85	EB	PCC	265.0		Temporary Pavement / Stage 3A
121+84.54	123+60.69	EB	PCC	110.2		Temporary Pavement / Stage 3A
108+51.59	110+01.59	Center	PCC	116.7		Temporary Pavement / Stage 3B
117+93.55	119+24.55	Center	PCC	101.9		Temporary Pavement / Stage 3B
Total:				**11057**	**4483**	

110_07A
8/15/22

REMOVAL OF STEEL BEAM GUARDRAIL

(1) Lane(s) to which the installation is adjacent.
(2) Includes length of End Terminals and End Anchors.

No.	Direction of Traffic (1)	Station From	Station To	Side	Removal of Guardrail (2) (LF)
1*	EB	102+93.13	103+63.66	Right	73.0
2*	WB	104+14.18	104+86.58	Left	73.0
3	WB	114+82.29	115+41.34	Left	60.0
4	EB	114+82.35	115+42.27	Right	60.0
5	EB	116+94.22	117+54.78	Right	60.0
6	WB	116+94.92	117+55.09	Left	60.0
Total:					**386**

Sign removal for object markers is incidental to this bid item.
* Stockpile guardrail and object markers for reinstall

110_13
8/15/22

DELIVERY AND STOCKPILING

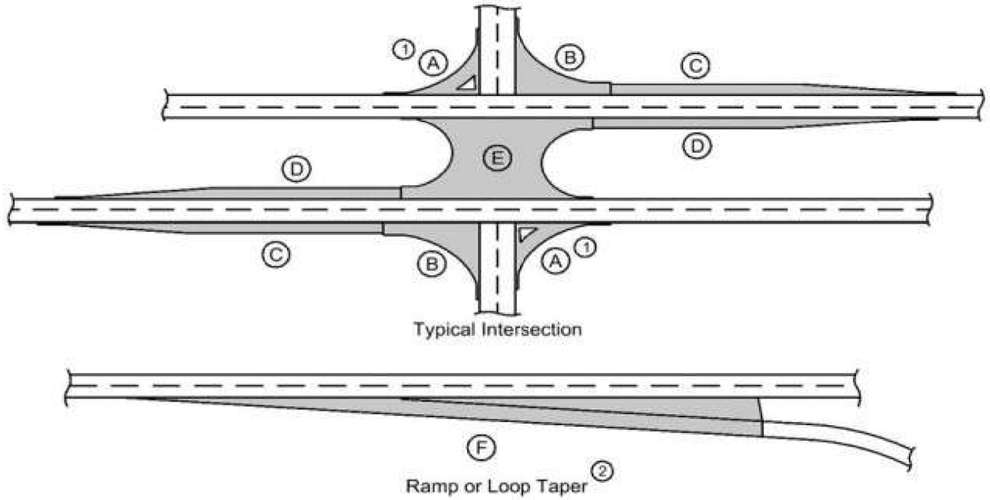
Item Description	Quantity	Quantity Units	Delivery Location	Contact Name	Contact Number	Remarks
Removal of Pavement		SY	Neola Yard	Andy Wicks	712-328-5608	11057 SY
Removal of Paved Driveway	1728	SY	Neola Yard	Andy Wicks	712-328-5608	

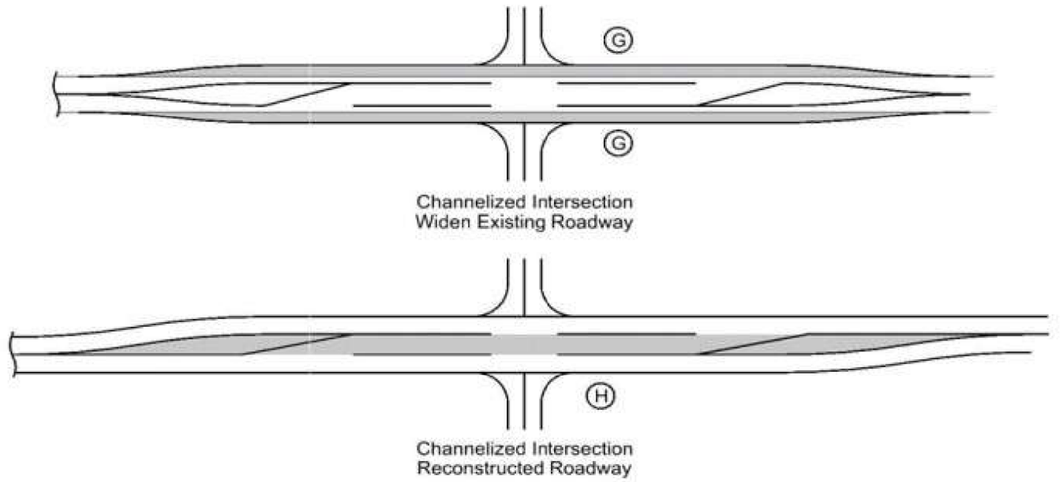
110_17
1/27/25

CLEARING AND GRUBBING

Station From	Station To	Direction of Traffic	Work and Material Type	>3"-6"	>6"-9"	>9"-12"	>12"-15"	>15"-18"	>18"-24"	>24"-30"	>30"-36"	>36"-42"	>42"-48"	>48"-60"	>60"-72"	>72"	Other Materials Length (FT)	Other Materials Width (FT)	Estimated Units	Estimated Area (Acres)	Estimated Herbicide Application (EA)	Remarks
102+18.14		WB	Trees - Clearing and Grubbing	1															1.6			
111+32.71		EB	Trees - Clearing and Grubbing		1														3.9			
114+93.50	115+93.50	WB	Trees - Clearing and Grubbing																	0.100		
114+84.95		WB	Trees - Clearing and Grubbing											1					160.0			
115+89.99		WB	Trees - Clearing and Grubbing		1														3.9			
Total:				**1**	**2**									**1**					**169.4**	**0.1**		

PCC PAVEMENT





(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.
(2) Refer to PV-410, PV-411, PV-412, and PV-414.
(3) Quantity includes Pavement Header.

Line No.	Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E (SY)(3)	Area F(2) (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	Area by Thickness - Thickness(IN)	Area by Thickness - Area (SY)	Modified Subbase (CY)	Remarks
14.0	Magnolia Rd	EB	104+79.91	105+82.18		102.27	38.40									6.0	38.4		Temporary Pavement / Stage 2
15.0	Magnolia Rd	Center	106+34.20	107+14.20		80.00	56.30									6.0	56.3		Temporary Pavement / Stage 3A
16.0	Magnolia Rd	Center	108+51.59	110+01.59		150.00	111.10									6.0	111.1		Temporary Pavement / Stage 3A
17.0	Magnolia Rd	Center	117+93.55	119+24.55		131.00	99.70									6.0	99.7		Temporary Pavement / Stage 3A
18.0	Magnolia Rd	EB	118+90.26	121+11.85		221.59	265.00									6.0	265.0		Temporary Pavement / Stage 3A
19.0	Magnolia Rd	EB	121+84.54	123+60.69		176.15	110.20									6.0	110.2		Temporary Pavement / Stage 3A
20.0	Magnolia Rd	Center	108+51.59	110+01.59	7.0	150.00	116.70									6.0	116.7		Temporary Pavement / Stage 3B
21.0	Magnolia Rd	Center	117+93.55	119+24.55	7.0	131.00	101.90									6.0	101.9		Temporary Pavement / Stage 3B
																	899.3		
Area by Thickness - Thickness(IN) 6.0:																			
1.0	Magnolia Rd	Both	100+55.60	101+05.71	24.0	50.11	133.60	61.00	55.80							8.0	250.4	47.33	
2.0	Magnolia Rd	Both	101+32.05	102+57.26	24.0	125.21	333.90	172.40	182.10							8.0	688.4	126.78	
3.0	Magnolia Rd	Both	102+57.26	103+66.46	24.0	109.20	291.20									8.0	291.2	56.62	
4.0	Magnolia Rd	Both	104+08.71	106+81.46		272.75	967.90									8.0	967.9	181.52	Width Varies
5.0	Magnolia Rd	Both	106+81.46	107+14.20	38.0	32.74	138.20									8.0	138.2	25.47	
6.0	Magnolia Rd	Both	107+14.20	114+58.50	50.0	744.30	4135.00									8.0	4135.0	744.30	
7.0	Magnolia Rd	Both	117+79.50	117+93.55	50.0	14.05	78.10									8.0	78.1	14.05	
8.0	Magnolia Rd	Both	117+93.55	119+82.15	38.0	188.60	796.30									8.0	796.3	141.83	
9.0	Magnolia Rd	Both	119+82.15	124+15.93		433.78	1499.30									8.0	1499.3	281.42	Width Varies
10.0	Magnolia Rd	Both	124+15.93	127+58.73	24.0	342.80	914.10									8.0	914.1	163.88	
11.0	Magnolia Rd	Both	133+36.61	138+70.09	24.0	533.48	1422.60									8.0	1422.6	253.89	
12.0	Mulberry Ln	Both	300+19.00	300+81.00	26.0	62.00	179.10	74.30	126.30							8.0	379.7	69.53	
13.0	265th St	Both	600+13.32	600+97.66	24.0	84.34	224.90	47.00	156.80							8.0	428.7	79.52	
																	11989.9	**2186.14**	
Area by Thickness - Thickness(IN) 8.0:																			

102_03
10/15/24

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of Unclassified Pipe calculated is based on using Corrugated Metal Pipe.
(1) Refer to MI-210.
(2) Refer to EW-501.
(3) Refer to EW-501 or EW-502.
*Predetermined for access point not constructed with this project.

Station	Side	Access Type	Width (FT)	PR (1) (2) (FT)	SR (2) (FT)	Pipe Culvert (H) (3) (FT)	Pipe Culvert Size (3) (IN)	Culvert Length (3) (LF)	Pipe Culvert Lt. (3) (LF)	Pipe Culvert Rt. (3) (LF)	Culvert Aprons (3) (No.)	Driveway Surface Type	Driveway Surface Area (SY)	Driveway Surfacing Material (TON)	Remarks
92+74.08	Right	C	20.0									Granular		13.000	Residential / 6 In. Granular
96+27.50	Left	D	15.0				15.0	28.0	12.00	16.00	2	Granular		10.000	Agricultural / 6 In. Granular
102+46.36	Right	B	50.0		20.0		36.0	71.0	33.00	38.00	2	Granular		79.000	Underwood Farm Supply / 6 In. Granular
105+05.27	Left	C	24.0									Granular		16.000	City of Underwood / 6 In. Granular
106+34.20	Right	A	60.0	50.0								PCC	607.7		Jack's Links / 8 In. PCC
106+34.20	Left	B	30.0		35.0		24.0	63.0	30.00	33.00	2	Granular		62.000	Paco's Tires / 6 In. Granular
109+26.59	Right	A	50.0	50.0			24.0	110.0	52.00	58.00	2	PCC	401.2		Jack's Links / 8 In. PCC
109+26.59	Left	B	40.0		40.0		24.0	73.0	34.00	39.00	2	Granular		234.000	Paco's Tires / 6 In. Granular
118+56.60	Left	D	24.0	25.0			36.0	106.0	91.00	15.00	2	PCC	151.1	63.000	Pump Station / 8 In. PCC & 6 In. Granular
121+50.09	Right	A	44.5	40.0			24.0	79.0	39.00	40.00	2	PCC	336.4		Underwood I80 Truck Stop / 8 In. PCC
Total:													**1496.4**	**477**	

104_03
3/18/24

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
* Not a bid item
(1) Diameter or equivalent diameter
(2) UNCL = Unclassified Pipe CMP = Corrugated Metal Pipe RCP = Reinforced Concrete Pipe LCP = Arch or Elliptical Low Clearance Pipe SARC = Steel Arch Pipe
(3) Backfill according to DR-101

Drainage Area (ACRE)	Location	Type	Size (IN) (1)	Pipe Classification	Kind of Pipe (2)	Length New Const. (LF)	Length of total that is Trenchless	Bedding Class	Design Cover (H) (FT)	Camber* (DR-102) (FT)	Apron No. (IN)	Apron No. (OUT)	Apron Guard* (DR-213) (No.)	Elbow* (DR-141) (No.)	Diaphragm* (DR-501) (No.)	Tee Section* (DR-142) (No.)	"D" Section* (DR-141) (No.)	Reducer* (No.)	Type 'C' Conn.* (DR-122)	Type 'C' Conn.* (No.)	Connected Pipe Joint* (DR-121)	4" Perforated Subdrain* (FT)	Flow Line Elevation LT.	Flow Line Elevation RT.	Flow Line Elevation Other	Flow Line Elevation Other	Dimensions Lineal Feet Total (Left)	Dimensions Lineal Feet Total (Right)	Dimensions Lineal Feet Extensions	Dimensions Lineal Feet Extensions	Skew Ahead Degrees (Left)	Skew Ahead Degrees (Right)	Dike Location	Dike Station	Dike Elevation	Dike Type	Class 20 (CY)	Flowable Mortar	Floodable Backfill* (A)	Porous Backfill* (B)	Flooded Backfill(A+B)	Remarks
	96+27.50	Ent	15.0	3000D	RCP	28.0		C	1.00		1	1											1094.83	1091.24			17.50	22.50														
						28																																				
Size (IN)				**(1) 15.0:**																																						
	100+72.97	Rwy	24.0	2000D	RCP	59.0		C	2.00		1	1											1063.04	1063.40			36.40	35.10			3.7					46.0					
	106+34.20	Ent	24.0	2000D	RCP	63.0	63.0	C	3.00		1	1											1054.78	1054.03			36.10	38.90													Trenchless
	200+77.82	Ent	24.0	2000D	RCP	110.0	110.0	C	6.00		1	1											1051.31	1048.86			57.90	64.50			2.0										Trenchless
	202+03.96	Ent	24.0	2000D	RCP	73.0		C	2.00		1	1											1053.21	1052.36			39.60	45.40				15.0									
	121+50.00	Ent	24.0	2000D	RCP	79.0		C	4.00		1	1											1057.25	1057.62			45.60	45.70			3.9										
						384	173																																		
Size (IN)				**(1) 24.0:**																																					
	102+46.36	Ent	36.0	2000D	RCP	71.0		C	2.00		1	1											1061.88	1059.50			40.20	46.30				5.2									
	103+06.57	Rwy	36.0	2000D	RCP	68.0		C	3.00		1	1											1058.85	1059.27			40.20	44.00			15.3					59.0					
	114+77.98	Ent	36.0	2000D	RCP	140.0		C	3.00		1	1											1048.07	1047.29			78.00	78.00													
	115+27.50	Ent	36.0	2000D	RCP	93.0		C	4.00		1	1											1050.75	1048.25			52.50	52.50													
	116+90.24	Ent	36.0	2000D	RCP	24.0		C	2.00		1	1											1049.52	1051.52			20.00	20.00				12.2									
	118+56.60	Ent	36.0	3000D	RCP	106.0		C	1.00		1	1											1052.00	1055.24			99.10	22.60			3.8										
						502																																			
Size (IN)				**(1) 36.0:**																																					
Total:						**914**	**173**																																		

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.
(2) See Typ. 7156, 7157, or 7158.
(3) Bid Item.
(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.
(5) Bid Item. Typ. 7156, 7157, or 7158.
(6) Does not include shrink.
(7) Paved shoulder thickness specified in Remarks.
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Paved Shoulder (3) (SY)	Shoulder at Grdrail (5)(7)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Remarks
Magnolia Rd	EB	100+55.60	101+05.58	Right			4	77.10				28.956	37.560	0.77	Railroad Hwy SW Return
Magnolia Rd	WB	100+55.60	101+07.26	Left			4	75.80				25.582	37.710	0.76	Railroad Hwy NW Return
Magnolia Rd	EB	101+31.88	102+57.26	Right	4		4	165.30	73.5		12.24	50.744	30.700	1.65	8 in. PCC, 6 in. modified subbase / SE Return
Magnolia Rd	WB	101+31.71	102+06.22	Left	4		4	141.10	62.4		10.40	42.685	30.250	1.41	8 in. PCC, 6 in. modified subbase / NE Return
Magnolia Rd	WB	102+06.22	103+66.46	Left	4		4	155.00	68.5		11.40	46.063	29.720	1.55	8 in. PCC, 6 in. modified subbase
Magnolia Rd	EB	102+57.26	103+66.46	Right	4		4	112.00	50.0		8.33	33.284	29.720	1.12	8 in. PCC, 6 in. modified subbase
Magnolia Rd	WB	103+66.46	103+95.37	Left			4	28.90				8.589	29.720	0.29	RR Approach
Magnolia Rd	EB	103+66.46	103+72.02	Right			4	5.50				1.664	29.720	0.06	RR Approach
Magnolia Rd	EB	103+85.24	104+08.71	Right			8	23.50				14.659	62.380	0.24	RR Approach
Magnolia Rd	WB	104+03.21	104+08.71	Left			8	5.50				3.431	62.380	0.06	RR Approach
Magnolia Rd	EB	104+08.71	105+82.25	Right			8	173.54				108.254	62.380	1.74	
Magnolia Rd	WB	104+08.71	106+07.06	Left			8	198.35				123.730	62.380	1.98	
Magnolia Rd	WB	106+62.45	109+00.12	Left			8	237.67				148.259	62.380	2.38	
Magnolia Rd	EB	106+87.07	108+78.72	Right			8	191.65				119.551	62.380	1.92	
Magnolia Rd	EB	109+74.46	114+23.50	Right			8	449.04				280.110	62.380	4.49	
Magnolia Rd	WB	109+77.34	114+23.50	Left			8	446.16				278.315	62.380	4.46	
Magnolia Rd	EB	114+23.50	115+08.50	Right		9.1 to 7.6		85.00		80.5				0.85	7 in. PCC
Magnolia Rd	WB	114+23.50	115+08.50	Left		9.1 to 7.6		85.00		80.5				0.85	7 in. PCC
Magnolia Rd	EB	117+29.50	118+22.28	Right		7.6 to 9.1		92.80		78.9				0.93	7 in. PCC
Magnolia Rd	WB	117+29.50	118+14.50	Left		7.6 to 9.1		85.00		80.5				0.85	7 in. PCC
Magnolia Rd	WB	118+14.50	118+19.55	Left	2		6	5.05	1.1		0.19	2.330	46.050	0.05	
Magnolia Rd	WB	118+19.55	118+37.88	Left			6	18.33				8.441	46.050	0.18	
Magnolia Rd	WB	118+75.22	118+93.55	Left			6	18.33				8.441	46.050	0.18	8 in. PCC, 6 in. modified subbase
Magnolia Rd	EB	118+95.98	119+24.55	Right			6	28.57				13.156	46.050	0.29	
Magnolia Rd	WB	118+93.55	124+74.89	Left	2		6	581.34	129.2		21.54	267.707	46.050	5.81	8 in. PCC, 6 in. modified subbase
Magnolia Rd	EB	119+24.55	120+83.18	Right	2		6	158.63	35.3		5.88	73.049	46.050	1.59	8 in. PCC, 6 in. modified subbase
Magnolia Rd	EB	120+83.18	121+07.23	Right			6	24.05				11.075	46.050	0.24	
Magnolia Rd	EB	121+83.73	122+07.40	Right			6	23.67				10.900	46.050	0.24	
Magnolia Rd	EB	122+07.40	123+99.97	Right	2		6	192.57	42.8		7.13	88.678	46.050	1.93	8 in. PCC, 6 in. modified subbase
Magnolia Rd	EB	126+06.89	127+58.73	Right	2		6	151.84	33.7		5.62	69.922	46.050	1.52	8 in. PCC, 6 in. modified subbase
Magnolia Rd	WB	126+59.24	127+58.73	Left	2		6	99.49	22.1		3.68	45.815	46.050	0.99	8 in. PCC, 6 in. modified subbase
Magnolia Rd	EB	135+34.11	137+30.58	Right	2		6	196.47	43.7		7.28	90.474	46.050	1.96	8 in. PCC, 6 in. modified subbase
Magnolia Rd	WB	136+13.04	138+70.09	Left	2		6	257.05	57.1		9.51	118.372	46.050	2.57	8 in. PCC, 6 in. modified subbase
Railroad Hwy	NB	400+24.43	401+74.16	Right			10	149.73				117.867	78.720	1.50	
Railroad Hwy	SB	400+74.59	401+98.46	Left			10	123.87				97.510	78.720	1.24	
Railroad Hwy	SB	403+18.39	403+74.95	Left			10	56.56				44.524	78.720	0.57	
Railroad Hwy	NB	403+73.40	404+33.56	Right	4		6	60.16	26.7		6.68	27.708	46.050	0.60	8 in. PCC, 6 in. modified subbase
265th St	NB	600+13.32	600+97.66	Right			8	118.80				74.107	62.380	1.19	
265th St	SB	600+13.32	600+97.66	Left			8	102.40				63.877	62.380	1.02	
Total:									**646.1**	**320.4**	**109.88**	**2547.829**		**52.03**	

104_05C
8/15/22

LIST OF SUBDRAIN WORK

Possible Standards: DR-121, DR-201, DR-203, DR-301, DR-302, DR-303, DR-305 and DR-306. Possible Detail: 500-10.

* Not a bid item

Station From	Station To	Type of Installation	Pipe Type	Pipe Diameter (IN)	Pipe Length (LF)	Outlet Type	Outlet Quantity	Connected Pipe Joints Type* (DR-121)	Connected Pipe Joints No.* (DR-121)	Trench Drain (LF)	Granular Blanket Material (CY)	Porous Backfill* (CY)	Class ""A"" Crushed Stone* (CY)	Remarks
114+68.50	114+68.50		Plastic	4.0	77.0	DR-306	1					5.7		Incidental to Bridge Approach Pavement
117+69.50	117+69.50		Plastic	4.0	71.0	DR-306	1					5.3		Incidental to Bridge Approach Pavement
					148		2					11		
Pipe Diameter (IN) 4.0:														
101+72.28	103+07.51	DR-303 Type 7A	Plastic	6.0	152.0	DR-306	1					8.4		
103+15.30	103+91.18	DR-303 Type 7A	Plastic	6.0	94.0	DR-306	1					5.2		
103+68.57	103+92.18		Plastic	6.0	59.0	DR-306	1					4.4		Incidental to Railroad Approach Section, P.C.C.
103+88.69	104+07.13		Plastic	6.0	64.0	DR-306	1					4.7		Incidental to Railroad Approach Section, P.C.C.
103+89.54	104+81.48	DR-303 Type 7A	Plastic	6.0	115.0	DR-306	1					6.4		
104+08.85	104+81.48	DR-303 Type 7A	Plastic	6.0	94.0	DR-306	1					5.2		
104+82.48	107+87.35	DR-303 Type 7A	Plastic	6.0	327.0	DR-306	1					18.2		
104+82.48	107+87.35	DR-303 Type 7A	Plastic	6.0	328.0	DR-306	1					18.2		
107+88.35	110+93.22	DR-303 Type 7A	Plastic	6.0	327.0	DR-306	1					18.2		
107+88.35	110+93.22	DR-303 Type 7A	Plastic	6.0	327.0	DR-306	1					18.2		
110+94.22	114+67.50	DR-303 Type 7A	Plastic	6.0	395.0	DR-306	1					22.0		
110+94.22	114+67.50	DR-303 Type 7A	Plastic	6.0	396.0	DR-306	1					22.0		
117+70.50	118+93.05	DR-303 Type 7A	Plastic	6.0	145.0	DR-306	1					8.1		
117+70.50	119+24.05	DR-303 Type 7A	Plastic	6.0	176.0	DR-306	1					9.8		
118+94.05	123+41.44	DR-303 Type 7A	Plastic	6.0	470.0	DR-306	1					26.1		
119+25.05	123+41.44	DR-303 Type 7A	Plastic	6.0	439.0	DR-306	1					24.4		
123+42.44	123+99.95	DR-303 Type 7A	Plastic	6.0	80.0	DR-306	1					8.6		
123+42.44	124+74.92	DR-303 Type 7A	Plastic	6.0	155.0	DR-306	1					4.4		
135+54.02	138+70.07	DR-303 Type 7A	Plastic	6.0	338.0	DR-306	1					18.8		
136+27.79	138+70.09	DR-303 Type 7A	Plastic	6.0	266.0	DR-306	1					14.8		
					4747		**20**					**266.1**		
Pipe Diameter (IN) 6.0:														
Total:					**4895**		**22**					**277.1**		

108_08A
4/25/25

STEEL BEAM GUARDRAIL AT CONCRETE BARRIER OR BRIDGE RAIL END SECTION

Possible Standards: BA-200, BA-201, BA-202, BA-205, BA-206, BA-209, BA-210, BA-211, BA-221, BA-225, BA-250, BA-260, LS-625, LS-626, LS-630, LS-635, SI-172, SI-173 and SI-211.

(1) Lane(s) to which the obstacle is adjacent.
(2) Not a bid item. Incidental to guardrail installation.

Line No.	Direction of Travel (1)	Side	Station	Offset (FT)	Barrier Transition Section	Barrier Transition Section (EA)	End Terminal	End Terminal Count (EA)	VT1 (LF)	VF (LF)	VT2 (LF)	ET (LF)	BA-211 Station	BA-211 (Type)	SI-211 (Type) (2)	Delineator SI-172 Type 1 (EA) (2)	Object Marker Type 2 (EA) (2)	Object Marker Type 3 Lt (EA)(2)	Object Marker Type 3 Rt (EA)(2)	Bolted End Anchor BA-202 (Type)	Bolted End Anchor BA-202 (EA)	Post Adapter BA-210 (EA)	Steel Beam Guardrail BA-200 (LF)	Remarks
1.0	EB	Outside	115+19.10	37.6	BA-221	1	BA-225	1	37.500			35.20							1	A	1		12.5	
2.0	WB	Outside	115+19.10	25.6	BA-221	1	BA-225	1	37.500			35.20						1		A	1		12.5	
3.0	EB	Outside	117+18.90	37.6	BA-221	1	BA-225	1	37.500			35.20							1	A	1		12.5	
4.0	WB	Outside	117+18.90	25.6	BA-221	1	BA-225	1	37.500			35.20						1		A	1		12.5	
Total:						**4**		**4**										**2**	**2**		**4**		**50**	

112_06
10/20/26

BRIDGE APPROACH SECTION

Refer to the BR Series.

* Not a bid item
** Verify layout of bridge approach does not conflict with guardrail posts.

Bridge Station	End	Skew Ahead Left (Degrees)	Skew Ahead Right (Degrees)	(T) Thickness (IN)	Pay Length (FT)	Right Edge Offset (FT) **	Left Edge Offset (FT) **	Non-Reinf. Area (SY)	Single-Reinf. Area (SY)	Double-Reinf. Area (SY)	SRP Approach	SRP Abutment Type	SRP Abutting Pavement	Perforated * 4" Subdrain (LF)	Subdrain * Outlet (STA)	Subdrain * Outlet Side	Porous * Backfill (CY)	Modified * Subbase (TON)	Polymer * Grid (SY)	Special * Backfill (TON)	Remarks
116+19.00	W			10.0	70.0	31	19	166.7	111.1	144.8	BR-201	Movable	BR-211	77.0	114+68.50	Right	5.7	399.000	422.6		
116+19.00	E			10.0	70.0	31	19	166.7	111.1	144.8	BR-201	Movable	BR-211	72.0	117+69.50	Left	5.3	399.000	422.6		
Total:								**333.4**	**222.2**	**289.6**				**149**			**11**	**798**	**845.2**		

104_09A
5/6/24

LONGITUDINAL SUBDRAIN SHOULDER

* Not a bid item.

Road or Lane Identification	Station From	Station To	Side	Depth (IN) (D)	Subdrain Size (IN)	Length (FT)	Outlet Station	Outlet Type	Porous Backfill* (CY)	Remarks
Magnolia Rd	101+72.28	103+07.51	Left	24.0	6.0	152.0	103+07.51	DR-306	8.4	
Magnolia Rd	103+15.30	103+91.18	Left	24.0	6.0	94.0	103+91.18	DR-306	5.2	
Magnolia Rd	103+89.54	104+81.48	Right	24.0	6.0	115.0	104+81.48	DR-306	6.4	
Magnolia Rd	104+08.85	104+81.48	Left	24.0	6.0	94.0	104+81.48	DR-306	5.2	
Magnolia Rd	104+82.48	107+87.35	Left	24.0	6.0	327.0	107+87.35	DR-306	18.2	
Magnolia Rd	104+82.48	107+87.35	Right	24.0	6.0	328.0	107+87.35	DR-306	18.2	
Magnolia Rd	107+88.35	110+93.22	Left	24.0	6.0	327.0	110+93.22	DR-306	18.2	
Magnolia Rd	107+88.35	110+93.22	Right	24.0	6.0	327.0	110+93.22	DR-306	18.2	
Magnolia Rd	110+94.22	114+67.50	Left	24.0	6.0	395.0	110+94.22	DR-306	22.0	
Magnolia Rd	110+94.22	114+67.50	Right	24.0	6.0	396.0	110+94.22	DR-306	22.0	
Magnolia Rd	117+70.50	118+93.05	Left	24.0	6.0	145.0	118+93.05	DR-306	8.1	
Magnolia Rd	117+70.50	119+24.05	Right	24.0	6.0	176.0	119+24.05	DR-306	9.8	
Magnolia Rd	118+94.05	123+41.44	Left	24.0	6.0	470.0	118+94.05	DR-306	26.1	
Magnolia Rd	119+25.05	123+41.44	Right	24.0	6.0	439.0	119+25.05	DR-306	24.4	
Magnolia Rd	123+42.44	124+74.92	Left	24.0	6.0	155.0	123+42.44	DR-306	8.6	
Magnolia Rd	123+42.44	123+99.95	Right	24.0	6.0	80.0	123+42.44	DR-306	4.4	
Magnolia Rd	135+54.02	138+70.07	Right	24.0	6.0	338.0	135+54.02	DR-306	18.8	
Magnolia Rd	136+27.79	138+70.09	Left	24.0	6.0	266.0	136+27.79	DR-306	14.8	
						4624				
Subdrain Size (IN) 6.0:										
Total:						**4624**				

112_03
8/15/22

RAILROAD APPROACH SECTIONS

Station	Angle	Pavement Type	Pavement Area (SY)	Remarks
103+66.46	35.5	PCC	61.7	Includes Paved Shoulders
104+08.71	35.5	PCC	41.3	
Total:			**103**	

100_07
1/13/23

FENCING

* Bid Item

Station From	Offset	Station To	Offset	Side	Fence Type	Fence Feature	Height (FT)	Quantity (EA) *	Length (LF) *	Remarks
101+80.09	62.2	102+24.75	42.9	Left	Chain Link		6.0		45.0	
102+24.75	42.9	103+66.52	56.2	Left	Chain Link		6.0		125.0	
Total:									**170**	

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17
BCY6: Broken Centerline (Yellow) @ 0.25
BLC6: Broken Line Contrast (White/Black) @ 0.50
BLW4: Broken Lane Line (White) @ 0.17
BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00
CHW8: Channelizing Line (White) @ 1.33
CHW10: Channelizing Line (White) @ 1.67
CHY8: Channelizing Line (Yellow) @ 1.33
CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00
DCY4: Double Centerline (Yellow) @ 1.34
DCY6: Double Centerline (Yellow) @ 2.00
DDY4: Double Dotted Line (Yellow) @ 0.44
DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22
DLW6: Dotted Line (White) @ 0.33
DLY4: Dotted Line (Yellow) @ 0.22
DLY6: Dotted Line (Yellow) @ 0.33
ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 0.67
ELY6: Edge Line Left (Yellow) @ 1.00
LDW8: Lane Drop (White) @ 0.33
LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00
NPY4: No Passing Zone Line (Yellow) @ 0.84
NPY6: No Passing Zone Line (Yellow) @ 1.25
RLW4: Ramp Edge Line Right (White) @ 0.67
RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67
RLY6: Ramp Edge Line Left (Yellow) @ 1.00
SLW2: Stop Line (White) @ 4.00
SLW4: Solid Lane Line (White) @ 0.67
SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16
SPW6: Sloped Curb 6" (White) @ 2.28
SPY4: Sloped Curb 4" (Yellow) @ 2.16
SPY6: Sloped Curb 6" (Yellow) @ 2.28
STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03
YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW4 Factored (STA)	CHW8 Factored (STA)	CHY8 Factored (STA)	DCY4 Factored (STA)	ELW4 Factored (STA)	NPY4** Factored (STA)	SLW2 Factored (STA)	SLW4 Factored (STA)	Remarks
55.0	Magnolia Rd	103+85.24	106+34.20	EB	Removal of Paint			X	No			3.31							Temporary / Stage 3A & 3B
56.0	Magnolia Rd	103+94.08	106+34.19	EB	Removal of Paint	X			No					3.22					Temporary / Stage 3A
57.0	Magnolia Rd	104+79.91	107+14.20	EB	Removal of Paint			X	No			3.13							Temporary / Stage 3B
58.0	Magnolia Rd	118+90.26	123+60.69	EB	Removal of Paint			X	No			6.26							Temporary / Stage 3B & 3C
59.0	Magnolia Rd	104+54.70	123+60.71	EB	Removal of Paint	X			No					25.57					Temporary / Stage 3C
60.0	Magnolia Rd	120+83.18	123+73.35	WB	Removal of Paint			X	No			3.87							Temporary / Stage 3C
61.0	Magnolia Rd	117+83.60		EB	Removal of Paint		X		No								0.92		Temporary / Stage 4A & 4B
62.0	Magnolia Rd	117+83.60	120+29.70	EB	Removal of Paint			X	No			3.29							Temporary / Stage 4A
63.0	Magnolia Rd	128+07.74	131+23.73	EB	Removal of Paint			X	No			4.20							Temporary / Stage 4A
64.0	Magnolia Rd	131+23.73		WB	Removal of Paint		X		No								0.48		Temporary / Stage 4A & 4B
65.0	Magnolia Rd	117+83.60	120+29.70	WB	Removal of Paint			X	No			3.29							Temporary / Stage 4B
66.0	Magnolia Rd	128+07.74	131+23.73	WB	Removal of Paint			X	No			4.20							Temporary / Stage 4B
67.0	Magnolia Rd	129+71.61		EB	Removal of Paint		X		No								0.48		Temporary / Stage 5A & 5B
68.0	Magnolia Rd	129+71.61	132+87.58	EB	Removal of Paint			X	No			4.20							Temporary / Stage 5A
69.0	Magnolia Rd	139+19.12	142+35.09	EB	Removal of Paint			X	No			4.20							Temporary / Stage 5A
70.0	Magnolia Rd	142+35.09		WB	Removal of Paint		X		No								0.48		Temporary / Stage 5A & 5B
71.0	Magnolia Rd	129+71.61	132+87.58	WB	Removal of Paint			X	No			4.20							Temporary / Stage 5B
72.0	Magnolia Rd	139+19.12	142+35.09	WB	Removal of Paint			X	No			4.20							Temporary / Stage 5B
												48.35		28.79			2.36		
Marking Type Removal of Paint:																			
1.0	Magnolia Rd	100+95.71		EB	Waterborne/Solvent Paint		X		No								1.08		
2.0	Magnolia Rd	101+31.71	103+92.47	WB	Waterborne/Solvent Paint			X	No						2.16				
3.0	Magnolia Rd	101+31.88	103+74.82	EB	Waterborne/Solvent Paint			X	No						1.92				
4.0	Magnolia Rd	101+42.05	103+83.51	EB	Waterborne/Solvent Paint	X			No					3.23					
5.0	Magnolia Rd	101+42.05		WB	Waterborne/Solvent Paint		X		No								1.76		
6.0	Magnolia Rd	103+59.82		EB	Waterborne/Solvent Paint		X		No								0.44		
7.0	Magnolia Rd	103+85.24	105+55.31	EB	Waterborne/Solvent Paint			X	No						1.14				
8.0	Magnolia Rd	103+94.08	105+79.24	EB	Waterborne/Solvent Paint	X			No				5.85						
9.0	Magnolia Rd	104+03.21	125+17.85	WB	Waterborne/Solvent Paint			X	No						14.17				
10.0	Magnolia Rd	104+18.21		WB	Waterborne/Solvent Paint		X		No								0.44		
11.0	Magnolia Rd	107+09.20	108+59.20	EB	Waterborne/Solvent Paint	X			No					2.01					
12.0	Magnolia Rd	107+09.20	107+84.20	WB	Waterborne/Solvent Paint	X			No									0.50	
13.0	Magnolia Rd	107+14.20	108+51.59	EB	Waterborne/Solvent Paint			X	No						0.92				
14.0	Magnolia Rd	107+16.51	116+31.60	EB	Waterborne/Solvent Paint		X		No		1.56								
15.0	Magnolia Rd	108+59.20	117+81.60	EB	Waterborne/Solvent Paint	X			No							7.74			
16.0	Magnolia Rd	108+59.20	117+81.60	WB	Waterborne/Solvent Paint	X			No							7.74			
17.0	Magnolia Rd	110+01.81	117+93.55	EB	Waterborne/Solvent Paint			X	No						5.31				
18.0	Magnolia Rd	116+31.60	117+81.60	EB	Waterborne/Solvent Paint		X		No									1.01	
19.0	Magnolia Rd	119+06.60	120+56.60	EB	Waterborne/Solvent Paint	X			No					2.01					
20.0	Magnolia Rd	119+06.60	120+56.60	WB	Waterborne/Solvent Paint	X			No									1.01	
21.0	Magnolia Rd	119+24.55	120+83.18	EB	Waterborne/Solvent Paint			X	No						1.07				

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.
*BCY4 - Place on the same side of the roadway to match existing markings near the project.
**NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.
***MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.

BCY4: Broken Centerline (Yellow) @ 0.17
BCY6: Broken Centerline (Yellow) @ 0.25
BLC6: Broken Line Contrast (White/Black) @ 0.50
BLW4: Broken Lane Line (White) @ 0.17
BLW6: Broken Lane Line (White) @ 0.25
CBW6: Crosswalk Bar (White) @ 10.00
CHW8: Channelizing Line (White) @ 1.33
CHW10: Channelizing Line (White) @ 1.67
CHY8: Channelizing Line (Yellow) @ 1.33
CHY10: Channelizing Line (Yellow) @ 1.67
CLW6: Crosswalk Line (White) @ 2.00
DCY4: Double Centerline (Yellow) @ 1.34
DCY6: Double Centerline (Yellow) @ 2.00
DDY4: Double Dotted Line (Yellow) @ 0.44
DDY6: Double Dotted Line (Yellow) @ 0.67
DLW4: Dotted Line (White) @ 0.22
DLW6: Dotted Line (White) @ 0.33
DLY4: Dotted Line (Yellow) @ 0.22
DLY6: Dotted Line (Yellow) @ 0.33
ELW4: Edge Line Right (White) @ 0.67
ELW6: Edge Line Right (White) @ 1.00
ELY4: Edge Line Left (Yellow) @ 0.67
ELY6: Edge Line Left (Yellow) @ 1.00
LDW8: Lane Drop (White) @ 0.33
LDW10: Lane Drop (White) @ 0.42
MNY6: Median Nose (Yellow) @ 1.00
NPY4: No Passing Zone Line (Yellow) @ 0.84
NPY6: No Passing Zone Line (Yellow) @ 1.25
RLW4: Ramp Edge Line Right (White) @ 0.67
RLW6: Ramp Edge Line Right (White) @ 1.00
RLY4: Ramp Edge Line Left (Yellow) @ 0.67
RLY6: Ramp Edge Line Left (Yellow) @ 1.00
SLW2: Stop Line (White) @ 4.00
SLW4: Solid Lane Line (White) @ 0.67
SLW6: Solid Lane Line (White) @ 1.00
SPW4: Sloped Curb 4" (White) @ 2.16
SPW6: Sloped Curb 6" (White) @ 2.28
SPY4: Sloped Curb 4" (Yellow) @ 2.16
SPY6: Sloped Curb 6" (Yellow) @ 2.28
STW6: Standard Curb 6" (Yellow) @ 2.03
STY6: Standard Curb 6" (Yellow) @ 2.03
YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BLW4 Factored (STA)	CHW8 Factored (STA)	CHY8 Factored (STA)	DCY4 Factored (STA)	ELW4 Factored (STA)	NPY4** Factored (STA)	SLW2 Factored (STA)	SLW4 Factored (STA)	Remarks
22.0	Magnolia Rd	120+56.60	123+50.25	EB	Waterborne/Solvent Paint	X			No				9.06						
23.0	Magnolia Rd	122+07.40	124+35.61	EB	Waterborne/Solvent Paint			X	No						1.53				
24.0	Magnolia Rd	123+50.25	127+58.73	EB	Waterborne/Solvent Paint	X			No					5.47					
25.0	Magnolia Rd	126+01.54	127+58.73	EB	Waterborne/Solvent Paint			X	No						1.05				
26.0	Magnolia Rd	126+47.89	127+58.73	WB	Waterborne/Solvent Paint			X	No						0.74				
27.0	Magnolia Rd	133+36.61	133+59.59	EB	Waterborne/Solvent Paint			X	No						0.15				
28.0	Magnolia Rd	133+36.61	138+70.09	EB	Waterborne/Solvent Paint	X			No					7.14					
29.0	Magnolia Rd	133+36.61	134+06.71	WB	Waterborne/Solvent Paint			X	No						0.47				
30.0	Magnolia Rd	134+94.93	137+30.58	EB	Waterborne/Solvent Paint			X	No						1.58				
31.0	Magnolia Rd	135+77.86	138+70.09	WB	Waterborne/Solvent Paint			X	No						1.96				
32.0	Mulberry Ln	300+71.00		NB	Waterborne/Solvent Paint		X		No								1.20		
33.0	265th St	600+13.32	600+87.66	NB	Waterborne/Solvent Paint	X			No					0.99					
34.0	265th St	600+13.32	600+97.66	NB	Waterborne/Solvent Paint			X	No						0.80				
35.0	265th St	600+13.32	600+97.66	SB	Waterborne/Solvent Paint			X	No						0.68				
36.0	265th St	600+87.66		NB	Waterborne/Solvent Paint		X		No								0.84		
37.0	Magnolia Rd	103+85.24	106+34.20	EB	Waterborne/Solvent Paint			X	No			3.31							Temporary / Stage 3A & 3B
38.0	Magnolia Rd	103+94.08	106+34.19	EB	Waterborne/Solvent Paint	X			No					3.22					Temporary / Stage 3A
39.0	Magnolia Rd	104+79.91	107+14.20	EB	Waterborne/Solvent Paint			X	No			3.13							Temporary / Stage 3B
40.0	Magnolia Rd	118+90.26	123+60.69	EB	Waterborne/Solvent Paint			X	No			6.26							Temporary / Stage 3B & 3C
41.0	Magnolia Rd	104+54.70	123+60.71	EB	Waterborne/Solvent Paint	X			No					25.57					Temporary / Stage 3C
42.0	Magnolia Rd	120+83.18	123+73.35	WB	Waterborne/Solvent Paint			X	No			3.87							Temporary / Stage 3C
43.0	Magnolia Rd	117+83.60		EB	Waterborne/Solvent Paint		X		No								0.92		Temporary / Stage 4A & 4B
44.0	Magnolia Rd	117+83.60	120+29.70	EB	Waterborne/Solvent Paint			X	No			3.29							Temporary / Stage 4A
45.0	Magnolia Rd	128+07.74	131+23.73	EB	Waterborne/Solvent Paint			X	No			4.20							Temporary / Stage 4A
46.0	Magnolia Rd	131+23.73		WB	Waterborne/Solvent Paint		X		No								0.48		Temporary / Stage 4A & 4B
47.0	Magnolia Rd	117+83.60	120+29.70	WB	Waterborne/Solvent Paint			X	No			3.29							Temporary / Stage 4B
48.0	Magnolia Rd	128+07.74	131+23.73	WB	Waterborne/Solvent Paint			X	No			4.20							Temporary / Stage 4B
49.0	Magnolia Rd	129+71.61		EB	Waterborne/Solvent Paint		X		No								0.48		Temporary / Stage 5A & 5B
50.0	Magnolia Rd	129+71.61	132+87.58	EB	Waterborne/Solvent Paint			X	No			4.20							Temporary / Stage 5A
51.0	Magnolia Rd	139+19.12	142+35.09	EB	Waterborne/Solvent Paint			X	No			4.20							Temporary / Stage 5A
52.0	Magnolia Rd	142+35.09		WB	Waterborne/Solvent Paint		X		No								0.48		Temporary / Stage 5A & 5B
53.0	Magnolia Rd	129+71.61	132+87.58	WB	Waterborne/Solvent Paint			X	No			4.20							Temporary / Stage 5B
54.0	Magnolia Rd	139+19.12	142+35.09	WB	Waterborne/Solvent Paint			X	No			4.20							Temporary / Stage 5B
											1.56	**48.35**	**14.91**	**49.64**	**35.65**	**15.48**	**8.12**	**2.52**	
Marking Type Waterborne/Solvent Paint:																			
Total:											**1.56**	**96.7**	**14.91**	**78.43**	**35.65**	**15.48**	**10.48**	**2.52**	

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4/15/25

PAVEMENT MARKING SYMBOLS AND LEGENDS

Refer to PM-111

Line No.	Roadway Identification	Station	Side	Pavement Symbol	Quantity (EA)	Groove Marking Needed?	Remarks
1.0	Magnolia Rd	102+15.51	Right	RRCW	1	No	
2.0	Magnolia Rd	107+34.20	Median	LTAW	1	No	
3.0	Magnolia Rd	107+71.70	Median	ONLW	1	No	
4.0	Magnolia Rd	108+09.20	Median	LTAW	1	No	
5.0	Magnolia Rd	110+60.27	Median	LTAW	1	No	
6.0	Magnolia Rd	110+80.27	Median	LTAW	1	No	
7.0	Magnolia Rd	111+82.68	Left	RRCW	1	No	
8.0	Magnolia Rd	114+60.27	Median	LTAW	1	No	
9.0	Magnolia Rd	114+80.27	Median	LTAW	1	No	
10.0	Magnolia Rd	116+81.60	Right	RTAW	1	No	
11.0	Magnolia Rd	117+19.10	Right	ONLW	1	No	
12.0	Magnolia Rd	117+56.60	Right	RTAW	1	No	
13.0	Magnolia Rd	117+56.60	Right	STAW	1	No	
14.0	Magnolia Rd	119+31.60	Median	LTAW	1	No	
15.0	Magnolia Rd	119+69.10	Median	ONLW	1	No	
16.0	Magnolia Rd	120+06.60	Median	LTAW	1	No	
Total:					**16**		

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10/20/26

RUMBLE STRIP PANELS

Refer to Standard Road Plan PV-10.

Roadway Identification	Station	Side	Pavement Type	Rumble Strip Panel Type	Remarks
Magnolia Road	104+84.92	Left	New	Rumble Strip Panel	
Magnolia Road	110+34.92	Left	New	Rumble Strip Panel	

MATERIALS FOR TYPE 'A' SIGNS

Refer to SI-101, SI-111, SI-119 and N Sheets.

Type A Signing Typicals	Sign Number	Dir. of Travel	Sign Location Station	Wood Posts (No.)	4 x 6 Leg 1 (FT)	4 x 6 Leg 2 (FT)	Perf. Sq. Steel Leg 1 (FT)	Perf. Sq. Steel Leg 2 (FT)	Perf. Sq. Steel Leg 3 (FT)	Perf. Sq. Anchor Type	Anchor Quantity (EA)	Type A Bracket One Post	Type A Bracket Two Post	Type A Bracket Auxiliary	Type A Bracket (H)	Type A Bracket (F)	Type A Bracket (F1)	Install. Type	Install. Dim X (FT)	Install. Signing Notes	Remarks
Turn (RT)	W1-1R	EB	95+87.82				11.0			Soil	1							1	13.0		
25 MPH	W13-1P																				
Chevron (RT)	W1-8R	WB	98+62.82		12.0													1	8.0		Paid for by Chevron W1-8 Bid Item
Chevron (LT)	W1-8L																				
Chevron (RT)	W1-8R	WB	99+21.80		12.0													1	8.0		Paid for by Chevron W1-8 Bid Item
Chevron (LT)	W1-8L																				
Chevron (RT)	W1-8R	WB	99+80.78		12.0													1	8.0		Paid for by Chevron W1-8 Bid Item
Chevron (LT)	W1-8L																				
Chevron (RT)	W1-8R	WB	100+39.77		12.0													1	8.0		Paid for by Chevron W1-8 Bid Item
Chevron (LT)	W1-8L																				
Stop	R1-1	EB	100+78.71				11.0			Soil	1							1	12.0		
Magnolia Rd	D3-1																				
Railroad Rd	D3-1																				
Stop	R1-1	WB	101+63.84				10.0			Soil	1							1	14.0		
RR Crossing	W10-1	EB	102+06.34				10.0			Soil	1							1	14.0		
G30	M1-6	EB	103+15.52				10.0			Soil	1							1	14.0		
G30	M1-6	WB	104+71.24				10.0			Soil	1							1	14.0		
L52	M1-6																				
Arrow (RT)	M6-1R																				
Turn (RT)	W1-1R	WB	105+89.25				11.0			Soil	1							1	14.0		
25 MPH	W13-1P	WB																			
Stop	R1-1	NB	106+94.07				10.0			Soil	1							1	12.0		
Stop Ahead	W3-1	WB	108+34.45				11.0			Soil	1							1	14.0		
Stop	R1-1	NB	109+73.01				10.0			Soil	1							1	12.0		
RL Must Turn	R3-7R	EB	111+48.00				10.0			Soil	1							1	14.0		
RR Crossing	W10-1	WB	111+92.04				10.0			Soil	1							1	14.0		
Mosquito Creek	I-3	EB	115+15.30				9.0			Soil	1							1	14.0		
Mosquito Creek	I-3	WB	117+22.70				9.0			Soil	1							1	14.0		
Stop	R1-1	NB	100+78.71				11.0			Soil	1							1	12.0		
Mulberry Ln	D3-1																				
Magnolia Rd	D3-1																				
Stop	R1-1	NB	138+43.75				11.0			Soil	1							1	12.0		
Total:					**48**		**164**				**16**										

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2/13/23

EXISTING SIGNS TO BE REMOVED

Sign Number or Description	Location Station	Direction of Travel	Type 'A' Sign Assembly (RA) (EA)	Type 'B' Sign Assembly (RB) (EA)	Type 'A' Remove and Reinstall (RR) (EA)	Type 'B' Remove and Reinstall (RR) (EA)	Concrete Foundation (RF) (EA)	Support Structure & Foundation (RS) (EA)	Applicable Signing Notes	Remarks
(2) Street Name Signs (D3-1)	100+63.26	WB	1							
Stop Sign (R1-1)	100+65.71	EB	1							
Stop Sign (R1-1)	101+79.57	WB	1							
Railroad Crossing Warning (W10-1)	102+14.08	EB	1							
No Passing Zone (W14-3)	102+32.85	EB	1							
26201 Magnolia Address Marker	102+94.23	EB			1					Stockpile for Reinstall
County Highway G-30 (M1-6)	103+05.90	EB	1							
Co. Hwy G-30 and L-52 (M1-6 x 2) (M6-1R)	104+71.53	WB	1							
Stop Ahead (W3-1)	107+95.86	WB	1							
Stop Sign (R1-1)	109+58.58	NB	1							
26276 Magnolia Address Marker	111+19.36	WB			1					Stockpile for Reinstall
Railroad Crossing (W10-2)	111+75.94	WB	1							
Junction I-80 Sign	114+47.97	EB			1					Stockpile for Reinstall
Mosquito Creek	115+33.30	EB	1							
Mosquito Creek	117+03.52	WB	1							
Arrow Direction	118+30.67	SB	1							
Arrow Direction	118+35.08	SB	1							
Arrow Direction	118+36.37	SB	1							
Two Direction Arrow (W1-7)	118+56.54	NB	1							
(2) Street Name Signs (D3-1)	118+65.09	NB	1							
Stop Sign (R1-1)	118+83.14	NB	1							
DSM/CB Directions Sign	119+73.63	EB			1			2		Stockpile for Reinstall
No Passing Zone (W14-3)	121+04.69	EB	1							
Stop Sign (R1-1)	138+40.18	NB	1							
Total:			**20**		**4**			**2**		

108_34
8/15/22

CHEVRONS

Refer to Standard Road Plan SI-175.

Station From	Station To	Guidance Marker - Chevron (EA)	S (FT)	Remarks
98+62.82	100+39.77	4	64.0	

190_66
9/29/23

SUMMARY OF TYPE 'A' SIGNS

Sign Number	Non-Standard Sign Number or Name	Quantity (EA)	Size (IN)	Total Sign Area (SF)	Remarks
D3-1	Magnolia Rd	2	54 x 12	9.0	
D3-1	Railroad Hwy	1	54 X 12	4.5	
D3-1	Mulberry Ln	1	54 X 12	4.5	
I3-1	Mosquito Creek	2	30 X 18	7.6	
M1-6	G30	2	24 X 24	12.0	
M1-6	L52	1	24 X 24	4.0	
M6-1	Right Arrow	1	21 X 15	2.2	
R1-1	Stop	6	30 X 30	37.8	
R3-7	Right Lane Must Turn Right	1	30 X 30	6.3	
W1-1R	Turn (RT)	2	30 X 30	12.6	
W3-1	Stop Ahead	1	30 X 30	6.3	
W10-1	Railroad Crossing Warning	2	30DIA	9.8	
W13-1P	25 MPH Advisory Speed (plaque)	2	18 X 18	4.6	
Total:		**24**		**121.2**	

190_61
2/10/23

EXISTING SIGNS TO BE REINSTALLED

Sign Description	Direction of Travel	Location Station	Number of Posts	Square Tube Steel Posts	Wood Posts 4"x4" (LF)	Wood Posts 4"x6" (LF)	Installation Type	Installation Dim 'X'	See Signing Notes
26201 Address Marker	EB	102+75.64					Soil	14.0	
26276 Address Marker	WB	109+90.97					Soil	14.0	
I80 Junction	EB	114+48.61	2				Soil	15.0	
DSM/CB Directions	EB	119+73.63	2				SRP SI-112	15.0	

SIGNING NOTES

The following tolerances will be allowed on all signs:

Accumulation error of not greater than +/-0.50" per line of copy, not greater than +/-0.50" for spacing between lines of copy, and the margin between lines of copy and the inside edge of the sign border.

The following tolerances will be allowed on each letter or numeral:

nominal height	variation in height	variation in width
4" thru 12"	-1/8" to +3/8"	-1/4" to +1/4"
over 12"	-1/8" to +3/8"	-3/8" to +3/8"

Type B signs can be separated into two categories:
- Major Guide Signs.
- Minor Guide Signs.

Major Guide Signs include the advance and exit direction guide signs for an interchange or intersection.

Minor Guide Signs include all other guide signs such as NEXT EXIT signs, supplemental guide signs, logo signs, exit gore signs, post-interchange mileage signs, ramp destination signs, and ramp logo signs for an interchange, as well as destination signs along sideroads.

Type A signs are not separated into categories, but special consideration should be given to regulatory signs.

Do not remove Type B signs until replacement signs have been installed. If construction activities require the removal of a sign, the existing sign may be relocated to temporary posts, or a temporary plywood sign may be installed to replace the existing sign.

Existing non-regulatory Type A signs are NOT required to remain in place until installation of replacement signs. Existing regulatory Type A signs, particularly Stop signs, should not be removed until replacement signs are installed. Where a staged traffic control plan is contrary to this guidance, follow the direction of the traffic control plan.

Apply the following during the replacement or modification of signs:
- No more than one of the major guide signs for each direction of travel at an interchange out of service at any one time.
- No major guide sign out of service for more than 8 hours.
- No minor guide out of service for more than 24 hours.

Remove existing signs and posts within 24 hours following the installation of a new replacement sign.

In any case where the plans call for a new sign and

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SIGNING NOTES

posts to be installed at the same station location and offset as an existing sign, install the new posts at a minimum of either 5 ft ahead or behind the existing sign installation. Signs shall not be installed more than 25 ft ahead or behind the existing sign installation. Whenever posts for a replacement sign are erected directly in front of an existing sign, install the new replacement sign and remove the existing sign installation within 24 hours of the time that the new posts are erected.

Where signs are located behind guardrail, locate the near edge of the sign a minimum of 3 ft behind the guardrail posts.

Unless noted otherwise, leave auxiliary panels, such as exit number panels, in place or reattach to the sign using the existing mounting hardware. Also, when replacing an existing logo sign with a new logo sign, remove the business logo panel(s) from the existing sign and attach to the new sign as directed by the Engineer. Do not damage the auxiliary or logo panels when removing and reattaching them. This work is incidental to other work and no separate payment will be made.

The following notes apply to the corresponding sign installations shown on the plan sheets and listed in the tabulations.

IB INSTALL NEW TYPE B SIGN
IA INSTALL NEW TYPE A SIGN

Install new signs at the location identified in the plans.

For installation of new signs on an existing sign support structure, refer to note (L).

For installation of new signs on existing posts:

- if the new sign is taller than the existing sign, furnish the necessary hardware to extend the sign above the posts. Refer to Standard Road Plan SI-132.

- if the new sign is shorter than the existing sign:

- for wood posts and perforated square tube posts, install the sign at the proper height and cut off the excess post length.

- for MASSH-400 and steel breakaway posts, install the sign at the top of the posts.

For plywood signs, no vertical splices are allowed in signs less than or equal to 10 ft wide. No horizontal splices are allowed in signs less than or equal to 4 ft tall.

Each new sign installed shall have a sticker applied to the back of the sign that shows the date the sign was installed. The Contractor shall supply the sticker for all contractor suppled signs. The DOT will supply date

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stickers on any signs supplied by the department.

Payment for installing Type A signs or Type B signs includes furnishing hardware for mounting, extending signs above existing posts, and cutting posts to length.

MS MODIFICATION OF EXISTING SIGNS

For removal and/or installation of logo panels, and other sign modifications. Refer to the project plans and typical details for additional information.

SC SIGN COVER

For the installation or removal of temporary sign covers for the purposes of temporary traffic control. Sign covers shall completely cover the existing Sign. Care should be taken so that covers, fasteners, and installation practices do not damage the existing sign. Tape of any type shall not be applied to the sheeted face of the existing sign under any circumstances. Repair of damage to the existing sign caused by sign covers will be the responsibility of the Contractor.

SO OVERLAY TYPE B GUIDE SIGNS
MB INSTALL SPECIAL MOUNTING BRACKET

Install special mounting brackets at the locations identified in the plans. Refer to Tabulations 190-51 and/or 190-65.

PB INSTALL NEW BREAKAWAY STEEL POSTS AND FOOTING
PP INSTALL NEW PERFORATED SQUARE TUBE POSTS AND ANCHORS
PM INSTALL NEW MASSH-400 POSTS AND ANCHORS

Install new breakaway steel posts and footings, perforated square tube posts and anchors, or MASSH-400 posts and anchors at the locations identified in the plans. Refer to the Standard Road Plans, Typicals, and Tabulations 190-51 and 190-50 for post size and footing information.

New posts shall be installed in undisturbed soil. The new posts shall not be placed in the hole of removed posts.

Remove excess soil from footing hole. Do not spread soil on adjacent seeded or vegetated areas.

If note (RR) accompanies (PB), (PP), or (PM), install an existing sign on the new posts.

RR REMOVE AND REINSTALL SIGN AS PER PLAN

Do not remove existing major Type B guide signs on posts until the new posts are installed. Promptly remove sign and install at the new location.

Existing major Type B guide signs on overhead support

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structures, minor Type B guide signs, plywood signs, and Type A signs may be removed and stored. Transport the signs to a DOT storage area as designated by the Engineer. Transport the signs back to the job site when ready for installation at the new location.

Signs to be reinstalled shall not be stored for any length of time with the sheeted face in contact with the ground.

Replace signs damaged by the Contractor's activities at no additional cost to the Contracting Authority.

Payment for Remove and Reinstall Sign includes sign removal, delivery to and from the DOT storage area (if applicable), and reinstallation, including any hardware required for reinstallation. When noted in the plans, payment for delivery and stockpile of existing signs will be separate from the payment for Remove and Reinstall Sign.

RA REMOVAL OF TYPE A SIGN ASSEMBLY
RB REMOVAL OF TYPE B SIGN ASSEMBLY

Type A Sign Assembly consists of one or more signs installed on one or more posts, either directly mounted to the post or mounted to the post with special sign mounting brackets.

Type B Sign Assembly consists of the main sign, all auxiliary signs and brackets, and posts.

Unless stated otherwise in the plans, remove all posts with the signs and brackets.

Remove each sign assembly identified in the plans. Sign posts removed become the property of the Contractor. All other materials removed remain the property of the DOT.

For each sign assembly removed, disassemble each assembly before delivering to the DOT.

* For Type A sign assemblies, unbolt all signs, special mounting brackets, and posts from each other.

* For Type B assemblies, unbolt all extruded aluminum panels, brackets, and posts from each other. Do not damage the disassembled materials.

When the plans call for the removal of posts, the entire existing post shall be removed. The post shall not be broken off or cut off at the ground line. Place backfill in holes remaining from the removal of posts and restore to the surrounding conditions.

Deliver the removed signs, special sign mounting brackets, and extruded aluminum panels to a DOT storage area, as designated by the Engineer.

SIGNING NOTES

The concrete footings for steel posts are not considered part of the sign assembly. Refer to note RF for concrete footing removal.

Payment for Removal of Type A Sign Assembly or Removal of Type B Sign Assembly includes sign assembly removal and disassembly, post removal (if applicable), delivery to the DOT storage area, placing backfill in holes, and restoration of the surrounding conditions.

RF REMOVE EXISTING CONCRETE FOOTING FOR STEEL POST

Remove existing concrete footings to a depth of at least 1 ft below the natural groundline. Place backfill in holes remaining from removal and restore to the normal surrounding conditions. This work is incidental to other work and no separate payment will be made.

RS REMOVE EXISTING TYPE B SIGN SUPPORT STRUCTURE

The following are considered Type B Sign Support Structures:
- Overhead sign trusses and foundations
- Cantilever sign trusses and foundations
- Bridge-mounted brackets

Unless stated otherwise in the plans, existing overhead trusses, cantilever trusses, and bridge brackets which are removed become the property of the Contractor. If stated in the plans, deliver overhead trusses, cantilever trusses, and bridge brackets to a DOT storage area, as designated by the Engineer.

Payment for Removal of Sign Support Structure and Foundation includes sign support structure removal, delivery to the DOT storage area (if applicable), and restoration of the surrounding conditions. Removal of the foundation includes removal of the stem to a minimum of 1 ft below the natural groundline.

L MODIFY SIGN SUPPORT ANGLES NEEDED TO INSTALL SIGNS ON EXISTING SIGN SUPPORT STRUCTURES

Refer to the sign support structure details for information on the required angle brackets.

Provided all specifications are met, the existing sign support angles may be reused. Install existing sign support angles to be reused only on the sign support structure from which they were removed.

Sign support angles removed and not reused become the property of the Contractor.

When reusing the existing sign support angles with a shorter replacement sign, the sign support angles may need to be trimmed. Refer to the sign support details to determine if and where to trim the sign support angles.

Do not use existing fasteners. Use new U-Bolts, stainless steel bolts and nuts to install the existing or new sign support angles to the sign support structure.

Removal of existing sign support angles is incidental to removal of the sign.

Reinstalling and/or modifying existing sign support angles; furnishing and installing new sign support angles (if required); and furnishing and installing new fasteners is incidental to work associated with Type B signs.

SIGN INSTALLATION QUALITY CONTROL NOTES

Post lengths have been derived from the proposed grading cross sections. Verify post lengths in the field prior to ordering or fabrication.

Slight differences between the design template and the actual conditions should be expected. These variations should be resolved by doing some localized shaping and grading. Obtain material needed to meet the site requirements of SI-112 from the excavation and/or the area immediately adjacent to the work. Ensure reshaping work does not substantially change foreslopes or the drainage in the vicinity of the sign.

Significant differences between the plan design and the actual field conditions shall be resolved in this manner:

Survey the location and draw the actual template on the cross section. Recalculate each post length and compare to the maximum allowable leg length. If all of the maximum leg lengths are less than or equal to the maximum allowable leg length, then the proposed post design will be sufficient. If any leg is greater than the maximum allowable leg length, then submit the cross section with the actual template drawn (including offsets and elevation from the survey shown) to the Engineer. The Engineer may forward this information to the Engineer of Record in order to complete a new post design.

Install the footings, stub posts, and posts according to the tolerances shown on the applicable SI Series Standard Road Plans.

Footing construction is the controlling activity that substantially affects the quality of the site installation. Verify the elevation difference between the stubs is exactly the same as the elevation difference between the post lengths. If the Engineer requests, submit documentation detailing the site cross section in order to verify site installation.

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Earth Dam or Dike (Proposed)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Proposed Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Proposed Intake
- Existing Utility Access (Manhole)
- Proposed Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)

- Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Luminaire
- Traffic Signal
- Traffic Signal with Luminaire
- TP Telephone Pedestal
- TVP Television Pedestal
- Telephone Pole
- Telephone Pole (Second Company)
- Telephone Pole (Third Company)
- Telephone Pole (Fourth Company)
- Telephone Pole (Fifth Company)
- Power Pole
- Power Pole (Second Company)
- Power Pole (Third Company)
- Power Pole (Fourth Company)
- Power Pole (Fifth Company)
- Electrical Highline Tower (Metal or Concrete)
- Telephone Riser Pole
- Power Riser Pole
- Telegraph Pole
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor

- Existing Water Line
- Existing Water Line (Second Company)
- Existing Sanitary Sewer Line
- Existing Telephone Line
- Existing Telephone Line (Second Company)
- Existing Fiber Optics Telephone Line
- Existing Storm Sewer Line
- Existing Gas Line
- Existing High Pressure Gas Line
- Existing Gas Line (Second Company)
- Existing High Pressure Gas Line (Second Company)
- Existing Power Line
- Existing Power Line (Second Company)
- Cable Television Line
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY CONTACTS

MIDAMER-GAS
Contact Name: David Fitch
Contact Phone: 712-366-5669
Contact Email: dlfitch@midamerican.com

CENTURYLINK
Contact Name: Sadie Hull
Contact Phone: 918-547-0147
Contact Email: sadie.hull@lumen.com

IOWA COMMUNICATIONS NETWORK
Contact Name: Chris Harris
Contact Phone: 515-380-3689
Contact Email: chris.harris@icn.state.ia.us

MIDAMER-ELEC
Contact Name: Scott Behrens
Contact Phone: 712-366-5636
Contact Email: scott.behrens@midamerican.com

REGIONAL WATER, INC
Contact Name: Thomass Kallman
Contact Phone: 712-343-2413
Contact Email: gm.rwrwa@gmail.com

IOWA DOT
Contact Name: Todd Frank
Contact Phone: 712-250-0463
Contact Email: todd.frank@iowadot.us

UNDERWOOD, CITY OF
Contact Name: Cindy Sorlien
Contact Phone: 712-566-2373
Contact Email: cityadmin@underwoodia.com

WINDSTREAM COMMUNICATIONS
Contact Name: Stephen Kness
Contact Phone: 319-538-1985
Contact Email: stephen.kness@windstream.com

MARNE ELK HORN COMMUNICATIONS
Contact Name: Darrin Petersen
Contact Phone: 712-784-2211
Contact Email: darrin@metcteam.com

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	**Design Color No.**	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

- Reference Point / Station — Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

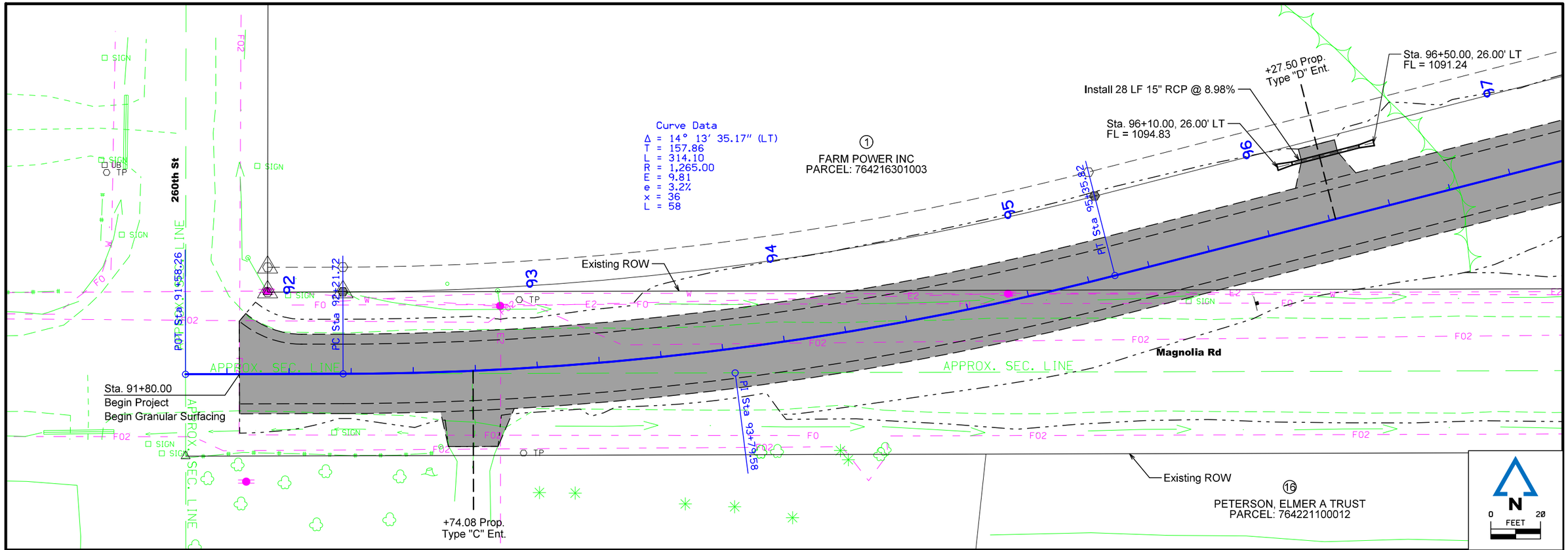
- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- C/A Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES D, E, F, & K)

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER D.1

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER D.2

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PI Sta 99+55.18

PC Sta 98+62.82

Curve Data
Δ = 40° 33′ 10.52″ (RT)
T = 92.36
L = 176.95
R = 250.00
E = 16.52
e = 5.4%
x = 33
L = 89

PT Sta 100+39.77

Sta. 100+75.31, 36.34' Lt
FL = 1063.04

Install 59 LF of
24" RCP @ 0.50%

Sta. 100+55.60
End Granular Surfacing
Begin Paving

Sta. 100+70.72, 34.98' Rt
FL = 1063.40

Sta. 101+05.71
Stop Paving

① FARM POWER INC
PARCEL: 764216301003

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

APPROX. SEC. LINE

Railroad Hwy

Magnolia Rd

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

Curve Data
Δ =26° 10′ 35.02″ (LT)
T =58.12
L =114.22
R =250.00
E =6.67
e = RC
x = 48
L = 48

Sta. 101+32.05
Resume Paving

6" Subdrain

Install 45 LF of
72" Chain Link
Fence

Install 125 LF of
72" Chain Link
Fence

Install 68 LF of
36" RCP @ 0.50%

PT Sta 102+98.79

PC Sta 103+14.89

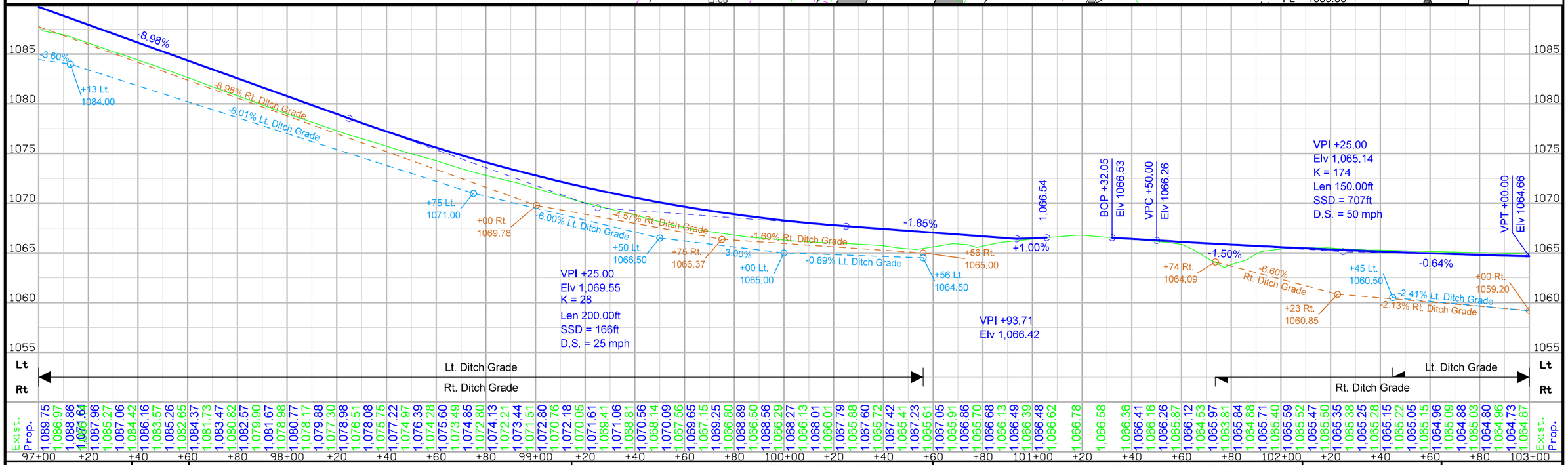
Install 71 LF of
36" RCP @ 2.75%

Sta. 102+13.01, 51.21' Rt
FL = 1061.88

⑮ UNDERWOOD
FARM SUPPLY LLC
26201 MAGNOLIA RD

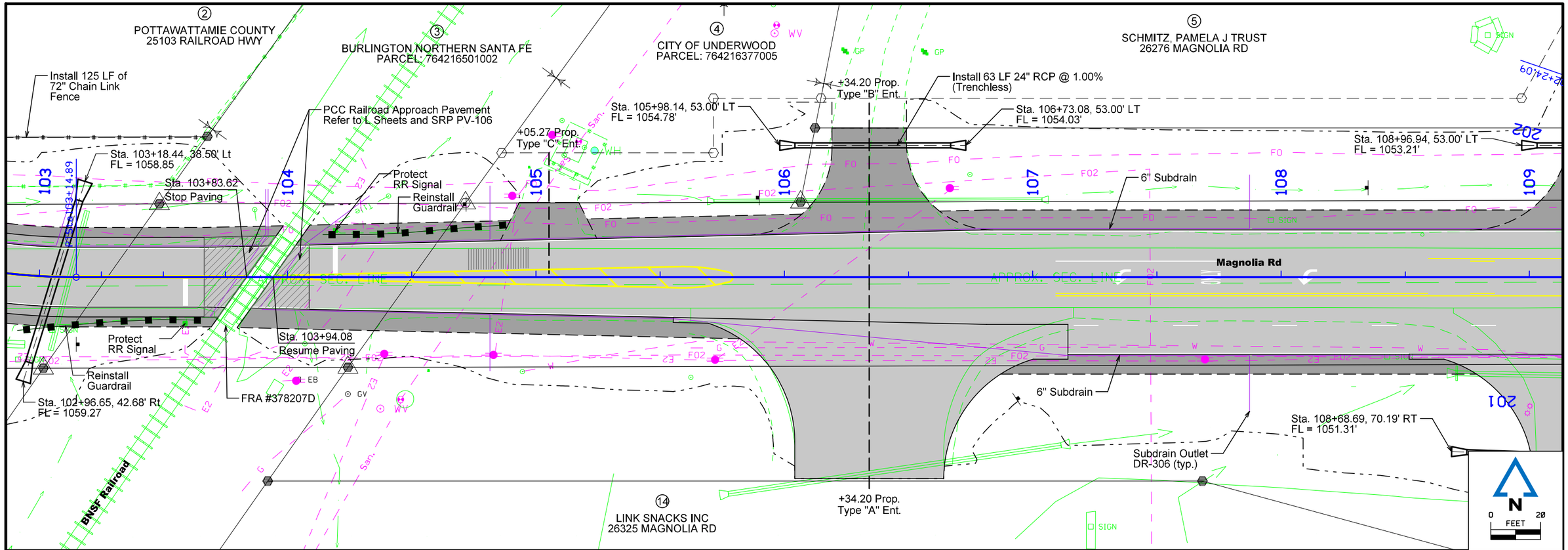
Sta. 102+85.72, 44.27' Rt
FL = 1059.50

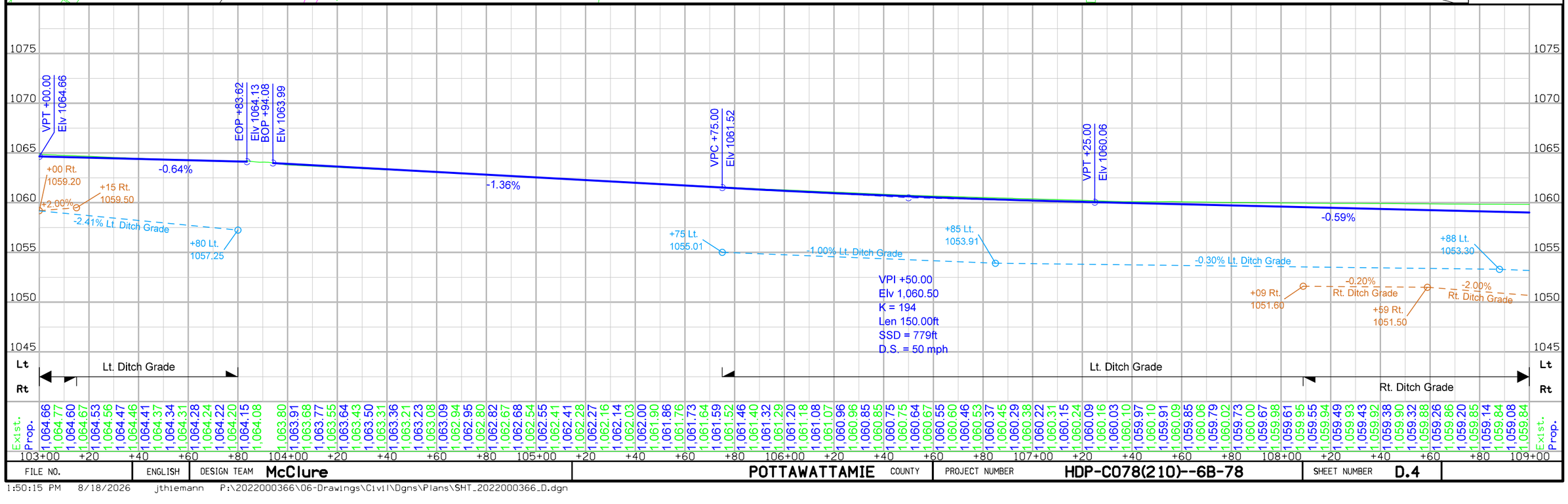
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FILE NO.	ENGLISH	DESIGN TEAM	McClure		POTTAWATTAMIE	COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	D.3

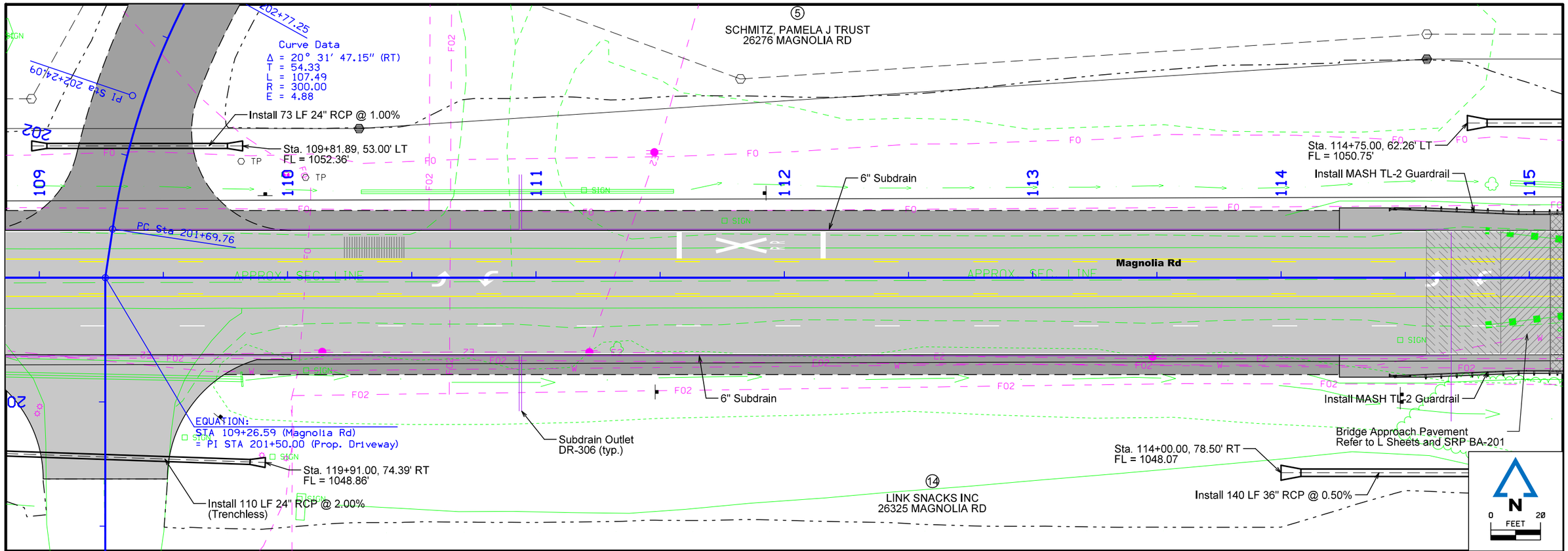
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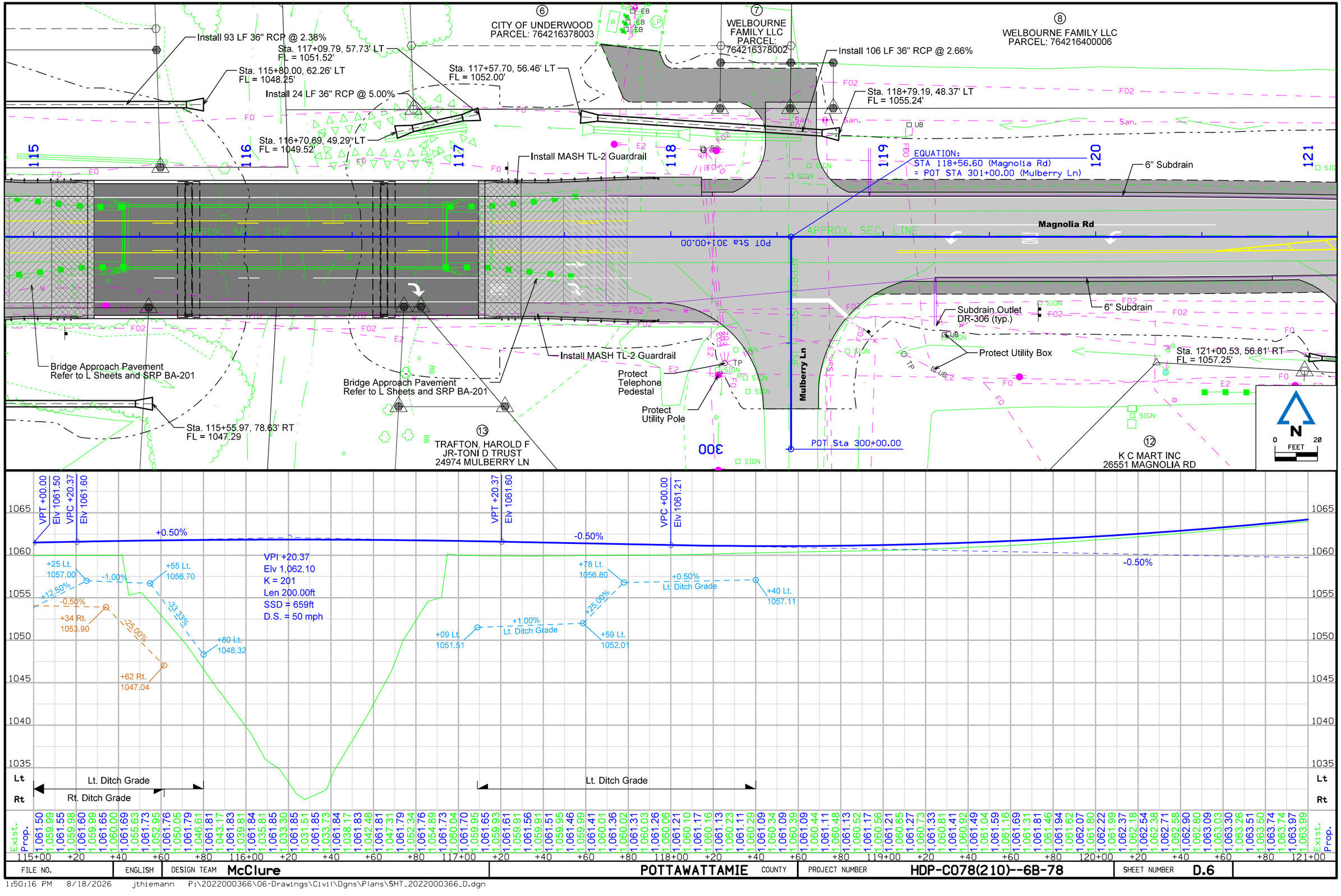
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FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	D.5

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FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	D.6

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⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

121 122 123 124 125 126 127

Sta 123+15.62

Subdrain Outlet
DR-306 (typ.)

6" Subdrain

6" Subdrain

APPROX. SEC. LINE

APPROX. SEC. LINE

Magnolia Rd

I-80 WB Off-Ramp

I-80 WB On-Ramp

Protect Light Pole

Protect Electric Manhole

Install 79 LF of 24" RCP @ 0.40%

Sta. 121+91.65, 63.01' RT
FL = 1057.62'

+50.09 Prop.
Type "A" Ent.

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

N
0 FEET 20

VPI +50.00
Elv 1,059.48
K = 100
Len 700.00ft
SSD = 441ft
D.S. = 50 mph

VPT +00.00
Elv 1082.19

-0.50%

+6.49%

+6.49%

1090 1085 1080 1075 1070 1065 1060

Lt
Rt

	121+00	+20	+40	+60	+80	122+00	+20	+40	+60	+80	123+00	+20	+40	+60	+80	124+00	+20	+40	+60	+80	125+00	+20	+40	+60	+80	126+00	+20	+40	+60	+80	127+00
Exist.	1,064.22	1,064.27	1,064.47	1,064.55	1,064.73	1,064.84	1,065.01	1,065.14	1,065.29	1,065.45	1,065.59	1,065.77	1,065.89	1,066.12	1,066.21	1,066.47	1,066.53	1,066.81	1,066.87	1,067.19	1,067.21	1,067.57	1,067.57	1,067.94	1,067.93	1,068.32	1,068.31	1,068.70	1,068.69	1,069.07	1,069.09	1,069.47
Prop.	1,064.22	1,064.27	1,064.47	1,064.55	1,064.73	1,064.84	1,065.01	1,065.14	1,065.29	1,065.45	1,065.59	1,065.77	1,065.89	1,066.12	1,066.21	1,066.47	1,066.53	1,066.81	1,066.87	1,067.19	1,067.21	1,067.57	1,067.57	1,067.94	1,067.93	1,068.32	1,068.31	1,068.70	1,068.69	1,069.07	1,069.09	1,069.47

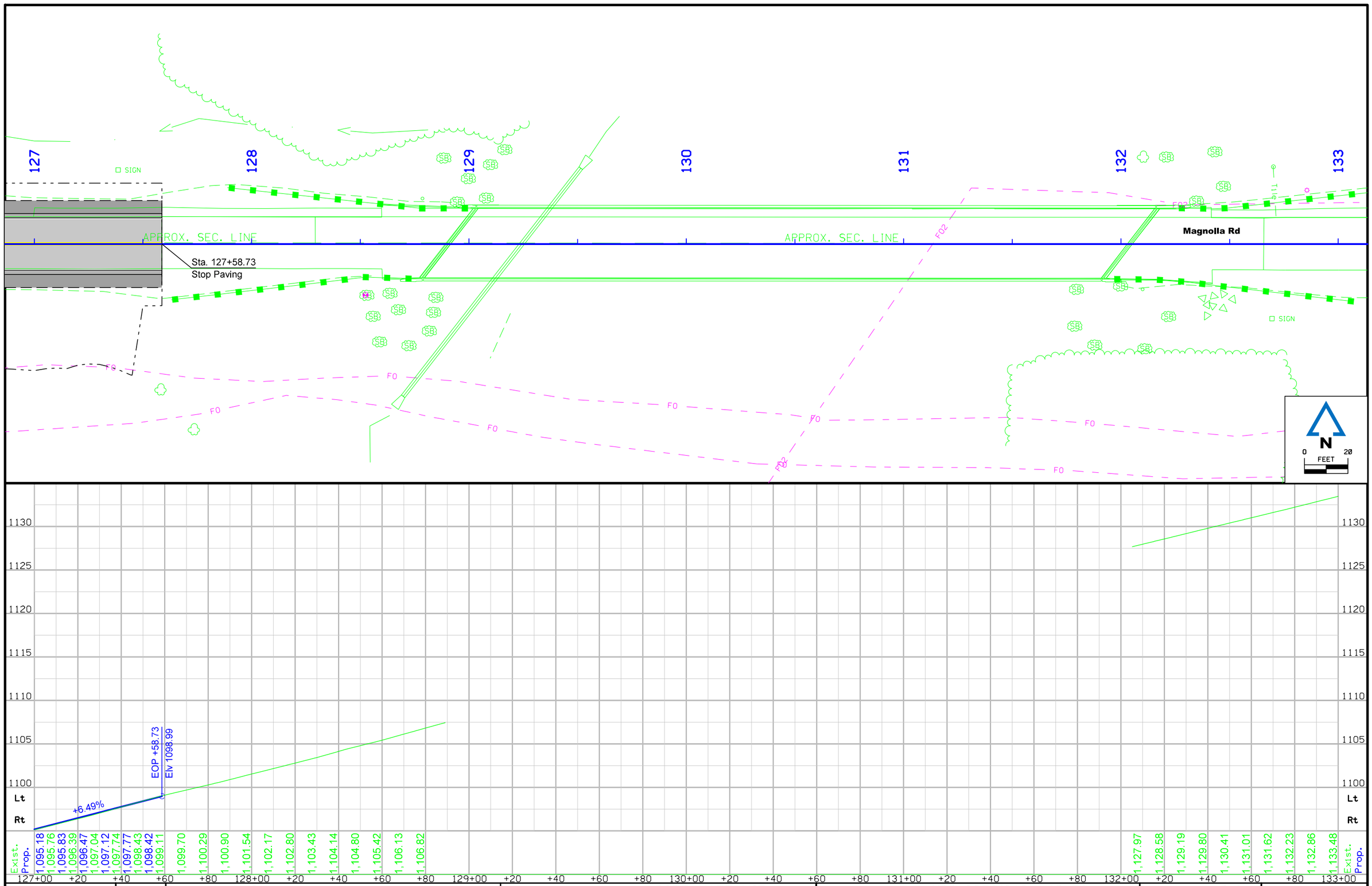
Exist.	1,069.49	1,069.88	1,069.91	1,070.29	1,070.33	1,070.72	1,070.76	1,071.18	1,071.21	1,071.63	1,071.66	1,072.09	1,072.13	1,072.57	1,072.60	1,073.04	1,073.09	1,073.52	1,073.58	1,074.02	1,074.09	1,074.51	1,074.60	1,075.01	1,075.12	1,075.56	1,075.66	1,076.15	1,076.20	1,076.74	1,076.76
Prop.	1,069.49	1,069.88	1,069.91	1,070.29	1,070.33	1,070.72	1,070.76	1,071.18	1,071.21	1,071.63	1,071.66	1,072.09	1,072.13	1,072.57	1,072.60	1,073.04	1,073.09	1,073.52	1,073.58	1,074.02	1,074.09	1,074.51	1,074.60	1,075.01	1,075.12	1,075.56	1,075.66	1,076.15	1,076.20	1,076.74	1,076.76

Exist.	1,077.35	1,077.32	1,077.96	1,077.90	1,078.57	1,078.48	1,079.21	1,079.07	1,079.84	1,079.68	1,080.47	1,080.29	1,081.07	1,080.92	1,081.68	1,081.55	1,082.32	1,082.19	1,082.95	1,082.84	1,083.58	1,083.49	1,084.21	1,084.14	1,084.85	1,084.79	1,085.48	1,085.44	1,086.11	1,086.09	1,086.74
Prop.	1,077.35	1,077.32	1,077.96	1,077.90	1,078.57	1,078.48	1,079.21	1,079.07	1,079.84	1,079.68	1,080.47	1,080.29	1,081.07	1,080.92	1,081.68	1,081.55	1,082.32	1,082.19	1,082.95	1,082.84	1,083.58	1,083.49	1,084.21	1,084.14	1,084.85	1,084.79	1,085.48	1,085.44	1,086.11	1,086.09	1,086.74

Exist.	1,086.74	1,087.38	1,087.39	1,088.02	1,088.04	1,088.68	1,088.69	1,089.33	1,089.33	1,089.98	1,089.98	1,090.62	1,090.63	1,091.26	1,091.28	1,091.90	1,091.93	1,092.54	1,092.58	1,093.19	1,093.23	1,093.84	1,093.88	1,094.48	1,094.53	1,095.13						
Prop.	1,086.74	1,087.38	1,087.39	1,088.02	1,088.04	1,088.68	1,088.69	1,089.33	1,089.33	1,089.98	1,089.98	1,090.62	1,090.63	1,091.26	1,091.28	1,091.90	1,091.93	1,092.54	1,092.58	1,093.19	1,093.23	1,093.84	1,093.88	1,094.48	1,094.53	1,095.13						

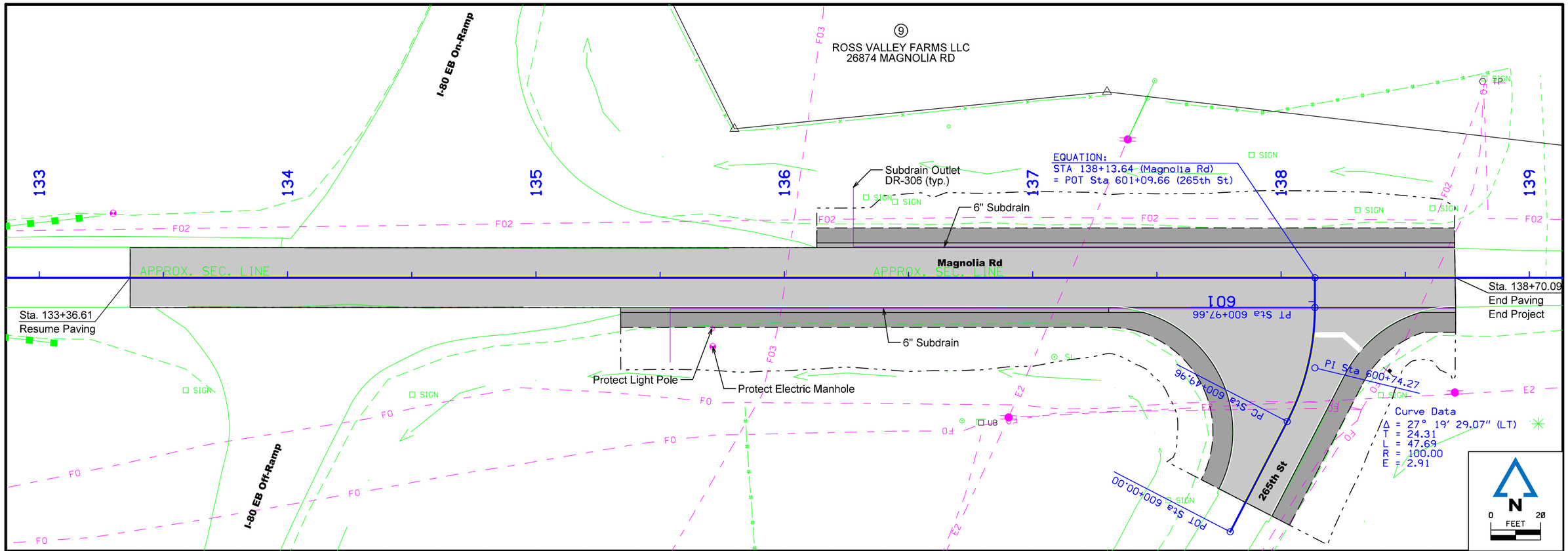
FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE	COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	D.7

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER D.8

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER D.9

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EQUATION:
STA 109+26.59 (Magnolia Rd)
= PI STA 201+50.00 (Prop. Driveway)

Sta. 108+68.69, 70.19' RT
FL = 1051.31'

Sta. 201+19.00
End Paving

Sta. 201+69.21
Begin Granular Surfacing

Sta. 108+96.94, 53.00' LT
FL = 1053.21'

⑤ SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

Install 73 LF 24" RCP @ 1.00%

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

Install 110 LF 24" RCP @ 2.00%
(Trenchless)

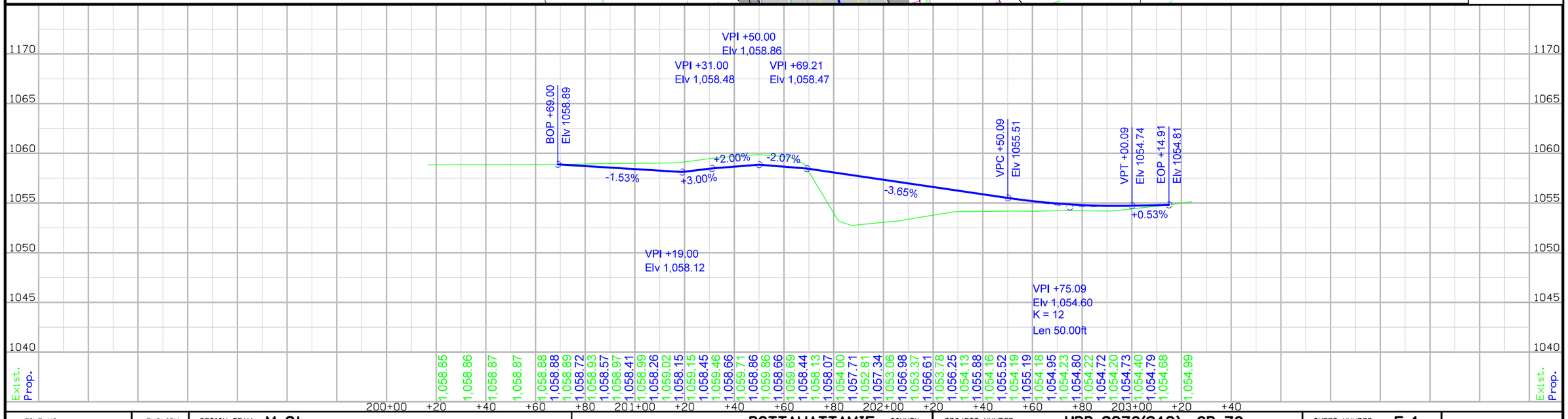
Sta. 200+69.00
Begin Paving

Sta. 203+14.91
End Granular Surfacing

Sta. 109+81.89, 53.00' LT
FL = 1052.36'

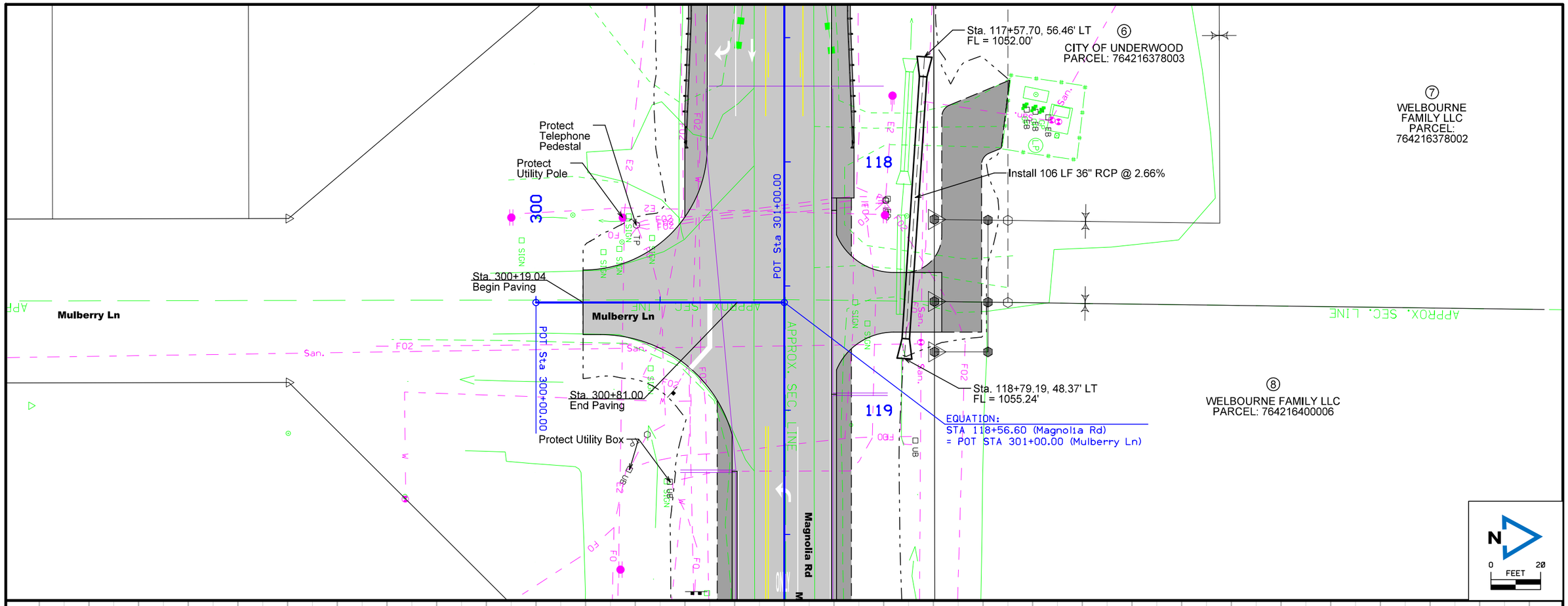
Sta. 119+91.00, 74.39' RT
FL = 1048.86'

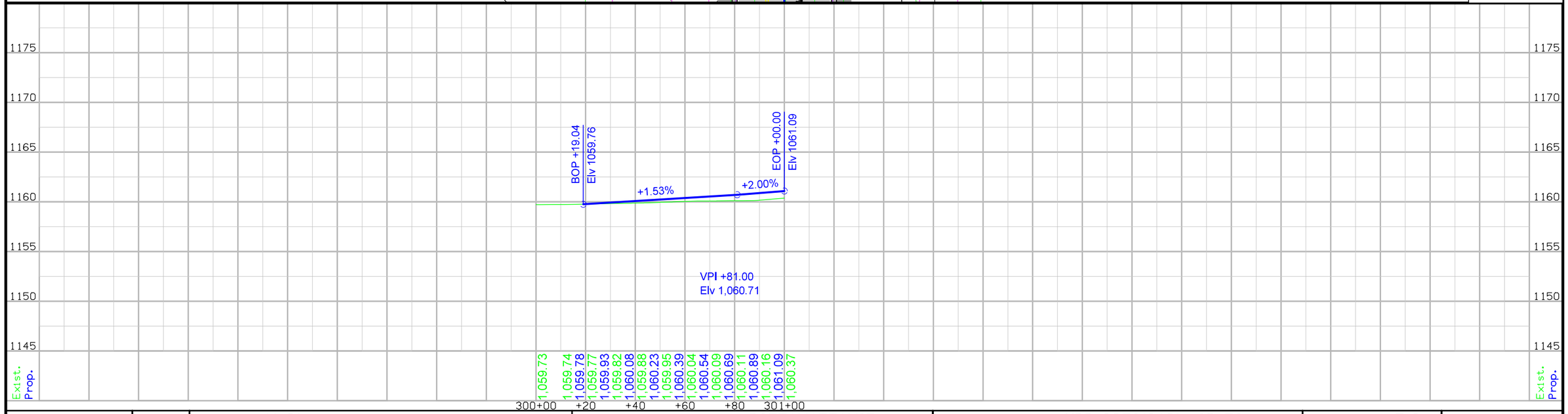
Curve Data
Δ = 20° 31' 47.15" (RT)
T = 54.33
L = 107.49
R = 300.00
E = 4.88



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER E.1

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER E.2

1:50:21 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_E.dgn

Magnolia Rd

265th St

Curve Data
Δ = 27° 19' 29.07" (LT)
T = 24.31
L = 47.69
R = 100.00
E = 2.91

POT Sta 600+00.00

PC Sta 600+49.96

PT Sta 600+97.66

PI Sta 600+74.27

Sta 600+13.32
Start Paving

Sta 600+97.66
End Paving

EQUATION:
STA 138+13.64 (Magnolia Rd)
= POT Sta 601+09.66 (265th St)

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

APPROX. SEC.

N
20 20
FEET

BOP +13.32
Elv 1162.56

EOP +09.66
Elv 1164.27

+1.74%

+2.00%

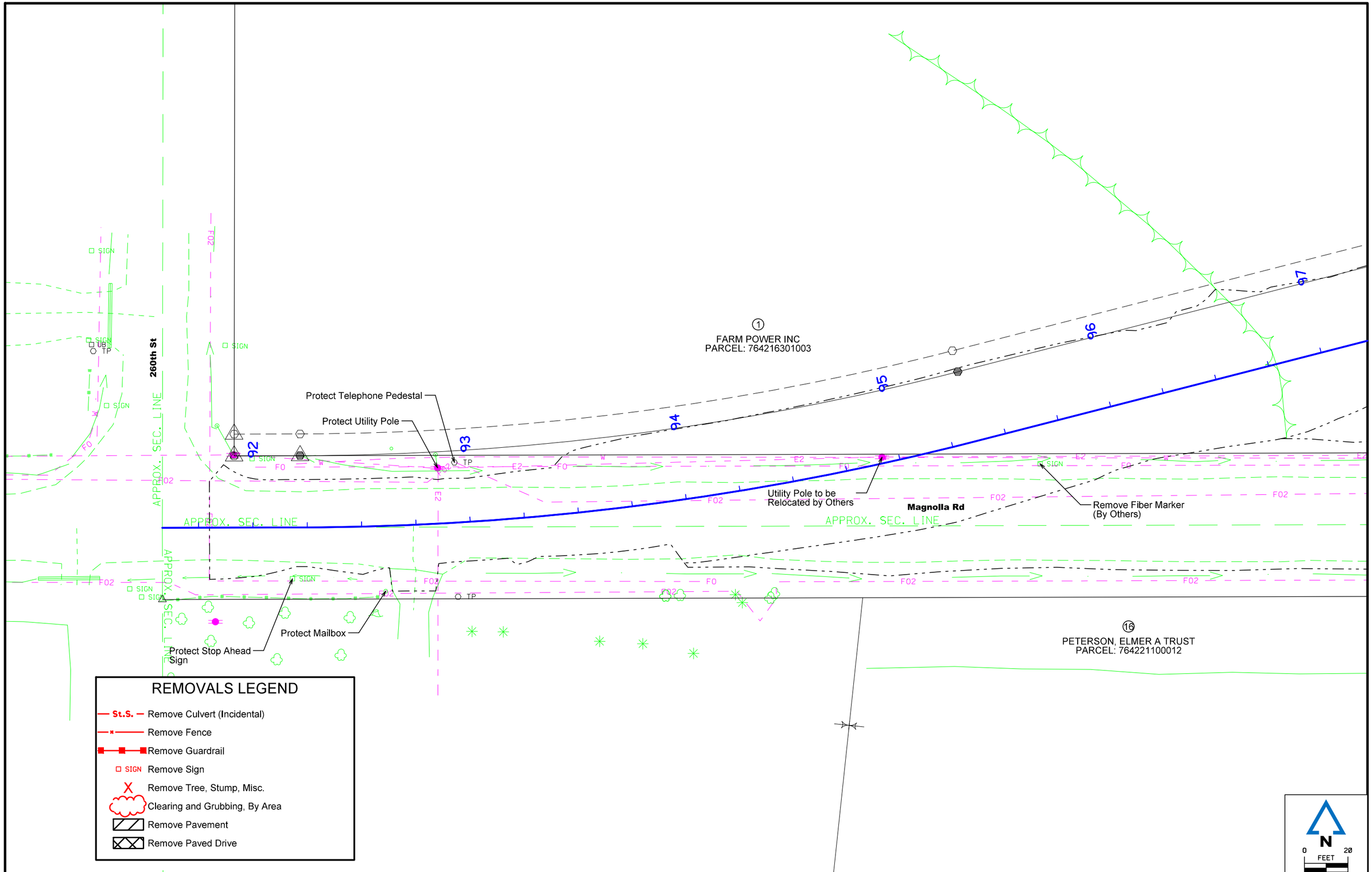
VPI +97.66
Elv 1,164.03

Exist.	1,162.23	1,162.48	1,162.67	1,162.71	1,162.85	1,162.94	1,163.02	1,163.19	1,163.20	1,163.46	1,163.37	1,163.69	1,163.55	1,163.84	1,163.72	1,163.95	1,163.89	1,164.06	1,164.08	1,164.19
Prop.																				

600+00 +20 +40 +60 +80 601+00

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER E.3

1:50:22 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_E.dgn



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.1

1:50:23 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

⑮ UNDERWOOD
FARM SUPPLY LLC
26201 MAGNOLIA RD

Railroad Hwy

Magnolia Rd

PNSF Railroad

APPROX. SEC. LINE

Relocate Handhole (By Others)

Relocate Handhole (By Others)

Remove Fiber Marker (By Others)

Remove Fiber Marker (By Others)

Remove (2) Street Name Signs

Remove 27 LF of 18" CMP

Relocate Handhole (By Others)

Remove Stop Sign

Remove 213 LF of Chain Link Fence

Clear and Grub 6" Tree

Remove 58 LF of 24" CMP

Remove Stop Sign

Remove No Passing Sign

Remove Gas Line Sign (By Others)

Remove RR Crossing Sign

Utility Pole to be Relocated by Others

Remove 62 LF of 36" CMP

Remove and Stockpile 26201 Address Marker

Remove G30 Highway Sign

Existing ROW

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.2

1:50:24 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

④ CITY OF UNDERWOOD
PARCEL: 764216377005

⑤ SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

Remove 213 LF of Chain Link Fence

Remove 58 LF of 24" CMP

Protect RR Signal

Remove and Stockpile 73 LF of Guardrail

Remove G30 and L52 Route Sign Assembly

Protect Utility Pole

Remove 132 LF of 18" CMP

Protect Landscaping

Remove Stop Ahead Sign

Magnolia Rd

Remove Gas Line Marker (By Others)

Utility Pole to be Relocated by Others

Remove 112 LF of 24" CMP

Remove Light Pole (By Others)

Remove and Stockpile 73 LF of Guardrail

Protect RR Signal

Protect Utility Pole

Protect Utility Pole

Protect Sanitary Manhole

BNSF Railroad

103 104 105 106 107 108 109

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- X Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

N

0 20 FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.3

1:50:25 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

Relocate Telephone Pedestal (By Others)
Adjust Utility Manhole (By Others)
Relocate Telephone Pedestal (By Others)
Protect Utility Pole
Remove and Stockpile 26276 Address Sign
Remove 126 LF of 18" CMP
Remove RR Crossing Sign
Clear and Grub 60" Tree
Remove 60 LF of Guardrail

109 110 111 112 113 114 115

St.S.

Magnolia Rd

APPROX. SECT. LINE

Utility Pole to be Relocated by Others
Remove 112 LF of 24" CMP
Remove Water Line Marker (By Others)
Remove Jack Link's Sign and Landscape Lights (By Others)
Remove Stop Sign
Clear and Grub 9" Tree
Utility Pole to be Relocated by Others
Utility Pole to be Relocated by Others
Remove and Stockpile I-80 Junction Sign
Remove 60 LF of Guardrail
Clear and Grub 0.1 Acres

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

N
0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.4

1:50:25 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

Remove 39 LF of 36" CMP

Remove 40 LF of 36" CMP

Remove 36 LF of 36" CMP

Remove 71 LF of 24" CMP

Clear and Grub 8" Tree

Remove Bridge

Remove 60 LF of Guardrail

Remove "Mosquito Creek" Sign

Remove 60 LF of Guardrail

Remove 2-Way Sign

Remove Mulberry/ Magnolia Sign

Magnolia Rd

APPROX. SEC. LINE

Remove 60 LF of Guardrail

Remove "Mosquito Creek" Sign

Remove and Stockpile DSM/CB Directions Sign

Utility Pole to be Relocated by Others

Clear and Grub 0.1 Acres

Protect Telephone Pedestal

Protect Address Marker

Protect Utility Pole

Remove Arrow Sign

Remove Arrow Sign

Remove Arrow Sign

Protect Utility Box

Remove Stop Sign

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

Mulberry Ln

⑫
K C MART INC
26551 MAGNOLIA RD

N
0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.5

1:50:26 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB Off-Ramp

I-80 WB On-Ramp

Magnolia Rd

121 122 123 124 125 126 127

Remove No Passing Sign

Protect Gas Line Marker

Protect Emergency I-80 Sign

Protect Stop Sign

Protect Stop Sign

Protect I-80 East/West Direction Sign

Protect Light Pole

Protect Electric Manhole

Remove 61 LF of 24" CMP

APPROX. SEC. LINE

APPROX. SEC. LINE

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.6

1:50:27 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

127
128
129
130
131
132
133
Protect I-80 West Sign
SIGN
Protect Light Pole
APPROX. SEC. LINE
APPROX. SEC. LINE
Magnolia Rd
Protect Electric Manhole
Protect I-80 East Sign
SIGN
SB
FO

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.7

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I-80 EB On-Ramp

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

133 134 135 136 137 138 139

Protect Electric Manhole

Protect I-80 East/West Sign

Protect G-30 Highway Sign

Protect Two Direction Large Arrow Sign

Protect DSM/CB Direction Sign

Magnolia Rd

APPROX. SEC. LINE

Protect Light Pole

Protect Electric Manhole

Protect Speed Limit Sign

Protect Do Not Enter Sign

Remove Stop Sign

Protect L52 Sign

I-80 EB Off-Ramp

265th St

REMOVALS LEGEND

- St.S. — Remove Culvert (Incidental)
- Remove Fence
- Remove Guardrail
- SIGN Remove Sign
- Remove Tree, Stump, Misc.
- Clearing and Grubbing, By Area
- Remove Pavement
- Remove Paved Drive

N

0 20 FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER F.8

1:50:28 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_F.dgn

ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
ML_G30_1	Magnolia Rd	91+58.26	7,010,342.40	16,512,013.12															
ML_G30_2	Magnolia Rd							92+21.72	7,010,342.62	16,512,076.58	93+79.58	7,010,343.16	16,512,234.44	95+35.82	7,010,382.49	16,512,387.33			
ML_G30_3	Magnolia Rd							98+62.82	7,010,463.94	16,512,704.02	99+55.18	7,010,486.95	16,512,793.47	100+39.77	7,010,446.27	16,512,876.39			
ML_G30_4	Magnolia Rd							102+00.67	7,010,375.41	16,513,020.86	102+58.79	7,010,349.82	16,513,073.04	103+14.89	7,010,349.86	16,513,131.16			
ML_G30_5	Magnolia Rd	123+15.62	7,010,351.53	16,515,131.89															
ML_G30_6	Magnolia Rd	140+00.00	7,010,356.25	16,516,816.26															
DWY_JL_1	Jack Link's East	200+00.00	7,010,200.37	16,513,742.99															
DWY_JL_2	Jack Link's East	201+50.00	7,010,350.37	16,513,742.86															
DWY_JL_3	Jack Link's East							201+69.76	7,010,369.92	16,513,745.77	202+24.09	7,010,423.65	16,513,753.77	202+77.25	7,010,471.17	16,513,780.10			
DWY_JL_4	Jack Link's East	203+53.17	7,010,537.58	16,513,816.90															
SR_MB_1	Mulberry Ln	300+00.00	7,010,251.15	16,514,672.96															
SR_MB_2	Mulberry Ln	301+00.00	7,010,351.15	16,514,672.88															
SR_RR_1	Railroad Hwy	400+00.00	7,010,179.01	16,512,833.04															
SR_RR_2	Railroad Hwy	404+59.73	7,010,591.15	16,513,036.76															
SR_L52_1	265th St	600+00.00	7,010,253.34	16,516,596.10															
SR_L52_2	265th St							600+49.96	7,010,297.79	16,516,618.91	600+74.27	7,010,319.42	16,516,630.01	600+97.66	7,010,343.73	16,516,629.94			
SR_L52_3	265th St	601+09.66	7,010,355.73	16,516,629.91															

BM

BENCHMARKS

IARCS ZONE 6
NAVD 88

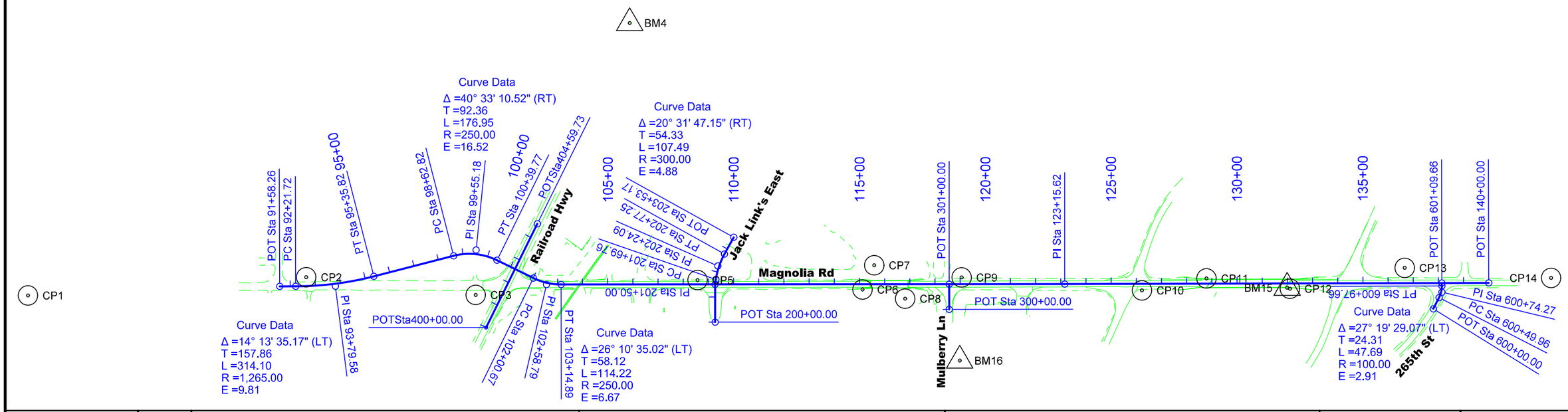
BM	Y (Northing)	X (Easting)	Elevation	Description
BM4	7,011,388.96	16,513,403.63	1,064.38	FD IHC PLUG INLET HDWL 10 X 8 RCB
BM15	7,010,337.24	16,516,015.33	1,130.04	DOT PLUG SE WING BRIDGE OVER I35
BM16	7,010,047.83	16,514,714.70	1,057.44	ARROWHEAD FHD S OF MAGNOLIA RD E OF MULBERRY LN

CP

CONTROL POINTS

IARCS ZONE 6
NAVD 88

CP	Y (Northing)	X (Easting)	Elevation	Description
CP1	7,010,306.48	16,511,013.06	1,153.95	BASE POINT_MEC CAP REBAR 5/8 S OF MAGNOLIA RD
CP2	7,010,378.95	16,512,118.51	1,122.03	MEC CAP REBAR 5/8 N OF MAGNOLIA RD E OF 260TH ST
CP3	7,010,308.50	16,512,791.70	1,076.40	MEC CAP REBAR 5/8 S OF MAGNOLIA RD W OF RAILROAD HWY
CP5	7,010,367.43	16,513,673.18	1,059.23	MEC CAP 5/8 REBAR N OF MAGNOLIA E OF RAILROAD HWY
CP6	7,010,329.98	16,514,328.45	1,059.27	MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK
CP7	7,010,426.30	16,514,375.01	1,058.36	MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK
CP8	7,010,293.68	16,514,497.79	1,057.57	MEC CAP 5/8 REBAR S OF MAGNOLIA RD E OF MOSQUITO CREEK
CP9	7,010,378.08	16,514,722.20	1,059.57	MEC CAP 5/8 REBAR N OF MAGNOLIA E OF MULBERRY LN
CP10	7,010,326.56	16,515,438.49	1,088.89	MEC CAP 5/8 REBAR
CP11	7,010,374.08	16,515,694.82	1,106.83	MEC CAP 5/8 REBAR
CP12	7,010,333.19	16,516,026.33	1,128.06	MEC CAP 5/8 REBAR
CP13	7,010,416.19	16,516,482.30	1,155.97	MEC CAP 5/8 REBAR
CP14	7,010,376.03	16,517,063.93	1,175.01	MEC CAP 5/8 REBAR



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER G.1

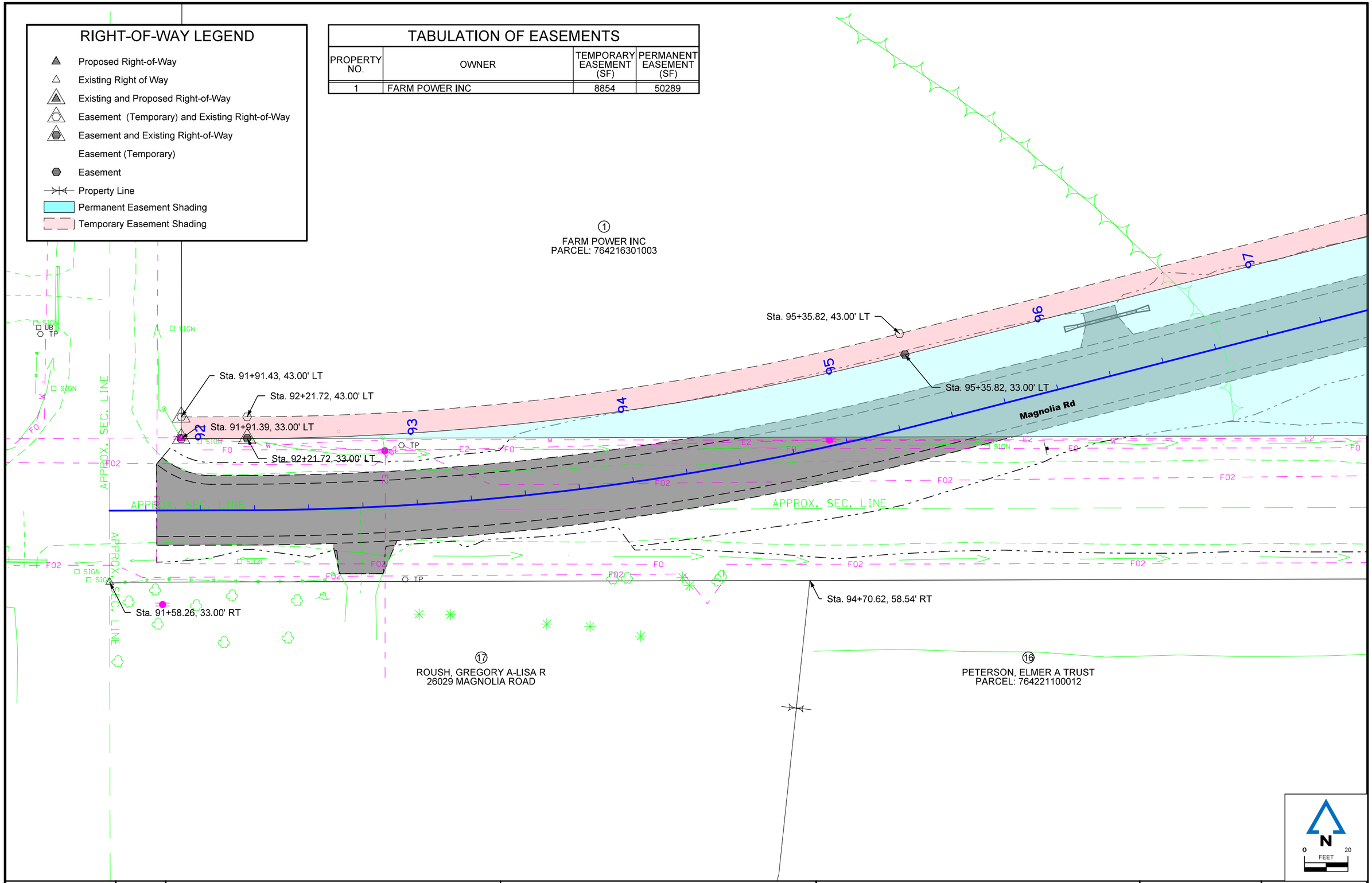
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RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

TABULATION OF EASEMENTS

PROPERTY NO.	OWNER	TEMPORARY EASEMENT (SF)	PERMANENT EASEMENT (SF)
1	FARM POWER INC	8854	50289



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.1

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TABULATION OF EASEMENTS

PROPERTY NO.	OWNER	TEMPORARY EASEMENT (SF)	PERMANENT EASEMENT (SF)
1	FARM POWER INC	8854	50289
2	POTTAWATTAMIE COUNTY	-	3505
15	UNDERWOOD FARM SUPPLY LLC	-	3278

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

③ BURLINGTON NORTHERN SANTA FE
PARCEL: 764216501002

⑮ UNDERWOOD FARM SUPPLY LLC
26201 MAGNOLIA RD

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

Railroad Hwy

Magnolia Rd

Sta. 98+62.82, 43.00' LT
Sta. 98+62.82, 33.00' LT
Sta. 100+59.35, 43.00' LT
Sta. 100+39.77, 43.00' LT
Sta. 100+39.77, 33.00' LT
Sta. 100+59.33, 33.00' LT
Sta. 100+59.20, 18.28' RT
Sta. 99+90.56, 88.28' RT
Sta. 100+10.97, 154.20' RT
Sta. 101+79.40, 62.33' LT
Sta. 101+79.35, 41.51' LT
Sta. 103+67.69, 56.53' LT
Sta. 102+24.61, 42.84' LT
Sta. 103+48.38, 29.48' LT
Sta. 102+32.48, 16.63' LT
Sta. 102+20.89, 58.45' RT
Sta. 103+03.37, 36.94' RT
Sta. 101+88.79, 106.73' RT
Sta. 102+88.98, 66.24' RT

APPROX. SEC. LINE

98 99 100 101 102 103

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.2

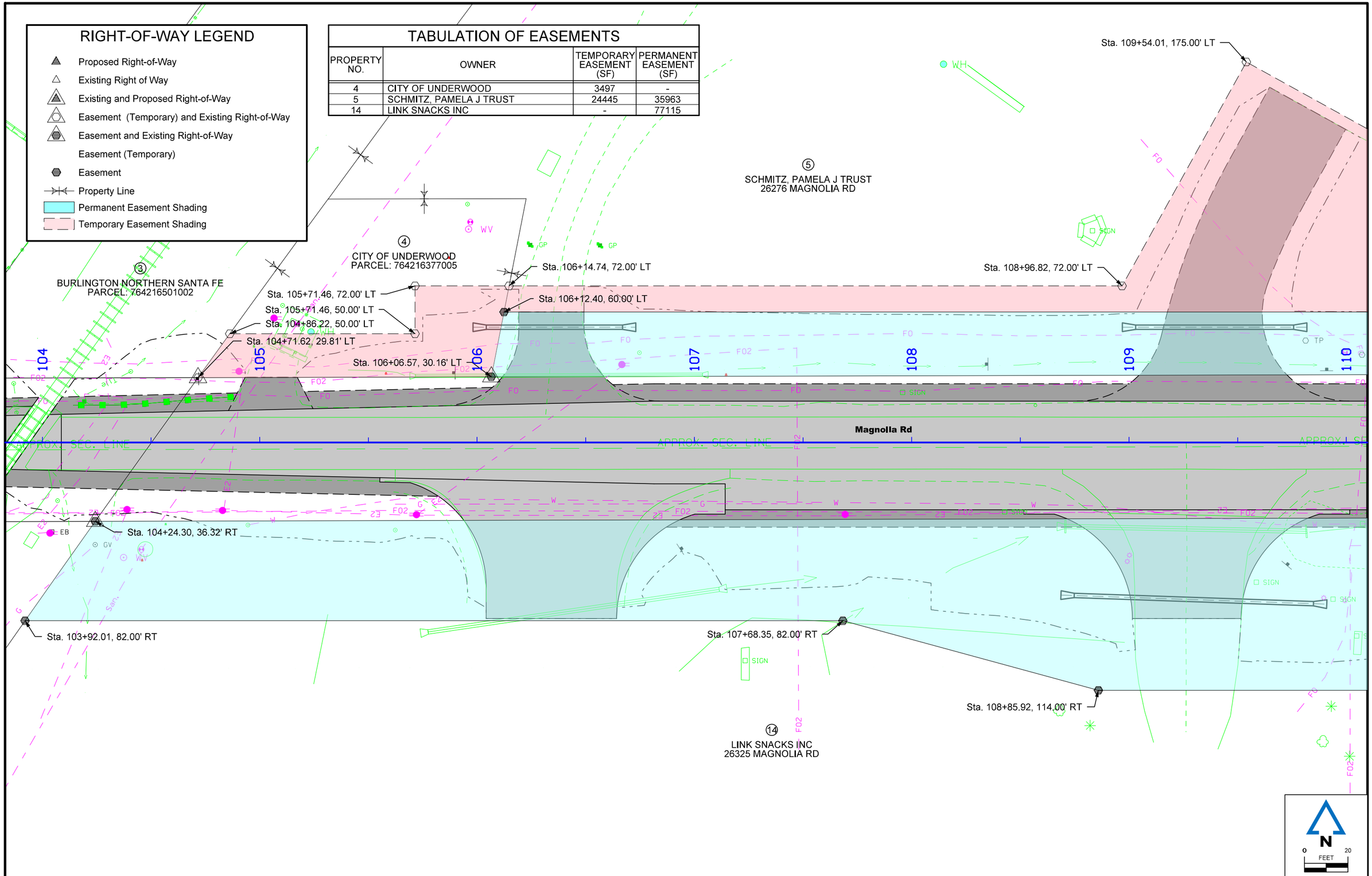
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RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

TABULATION OF EASEMENTS

PROPERTY NO.	OWNER	TEMPORARY EASEMENT (SF)	PERMANENT EASEMENT (SF)
4	CITY OF UNDERWOOD	3497	-
5	SCHMITZ, PAMELA J TRUST	24445	35963
14	LINK SNACKS INC	-	77115



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.3

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TABULATION OF EASEMENTS

PROPERTY NO.	OWNER	TEMPORARY EASEMENT (SF)	PERMANENT EASEMENT (SF)
5	SCHMITZ, PAMELA J TRUST	24445	35963
14	LINK SNACKS INC	-	77115

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

Sta. 110+17.42, 140.00' LT

Sta. 111+82.34, 80.00' LT

Sta. 110+28.80, 60.00' LT

Sta. 114+58.71, 98.00' LT

Sta. 114+58.71, 88.00' LT

Sta. 115+57.89, 88.00' LT

Sta. 115+59.73, 32.66' LT

Sta. 115+54.21, 33.36' RT

Sta. 115+49.82, 114.00' RT

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Magnolia Rd

SEC. LINE

APPROX. SEC. LINE

110 111 112 113 114 115 116

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.4

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TABULATION OF EASEMENTS

PROPERTY NO.	OWNER	TEMPORARY EASEMENT (SF)	PERMANENT EASEMENT (SF)
6	CITY OF UNDERWOOD	4327	-
7	WELBOURNE FAMILY LLC	264	714
8	WELBOURNE FAMILY LLC	-	434
11	I-80 PARTNERSHIP	417	-
12	K C MART INC	1083	-
13	TRAFTON, HAROLD F JR-TONI D TRUST	-	1364

RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

⑦ WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑥ CITY OF UNDERWOOD
PARCEL: 764216378003

⑧ WELBOURNE FAMILY LLC
PARCEL: 764216400006

Sta. 116+77.89, 90.00' LT
Sta. 116+78.89, 59.97' LT
Sta. 118+23.57, 90.00' LT
Sta. 118+23.47, 82.00' LT
Sta. 118+23.19, 60.35' LT
Sta. 118+56.62, 90.00' LT
Sta. 118+56.52, 82.00' LT
Sta. 118+76.51, 82.00' LT
Sta. 118+76.51, 60.45' LT
Sta. 118+56.24, 60.43' LT
Sta. 121+29.79, 60.74' LT

Magnolia Rd

APPROX. SEC. LINE

Mulberry Ln

Sta. 116+74.41, 33.04' RT
Sta. 116+82.38, 33.02' RT
Sta. 116+71.85, 80.00' RT
Sta. 117+21.97, 80.00' RT
Sta. 118+22.81, 199.63' RT
Sta. 118+88.81, 199.51' RT
Sta. 120+28.66, 59.24' RT
Sta. 120+98.40, 63.15' RT
Sta. 120+97.56, 78.12' RT
Sta. 121+98.24, 68.74' RT
Sta. 121+69.80, 67.15' RT
Sta. 121+70.29, 82.20' RT
Sta. 121+97.41, 83.72' RT

⑬ TRAFTON, HAROLD F JR-TONI D TRUST
24974 MULBERRY LN

⑫ K C MART INC
26551 MAGNOLIA RD

⑪ I-80 PARTNERSHIP
26553 MAGNOLIA RD

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.5

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RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

Sta. 125+61.31, 168.68' LT

Sta. 122+79.78, 75.92' LT

Sta. 124+54.92, 75.84' LT

Sta. 123+79.32, 79.02' RT

Sta. 124+07.87, 145.27' RT

I-80 WB Off-Ramp

I-80 WB On-Ramp

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

123 124 125 126 127 128

SIGN

F02

F0

E1

E2

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.6

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RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

129 130 131 132 133 134

APPROX. SEC. LINE

APPROX. SEC. LINE

Magnolia Rd

I-80 EB On-Ramp

I-80 EB Off-Ramp

SIGN SIGN SIGN

FO FO FO FO FO FO FO FO FO FO FO

E1 E1 E1 E1 E1 E1

SB

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.7

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RIGHT-OF-WAY LEGEND

- Proposed Right-of-Way
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement (Temporary) and Existing Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary)
- Easement
- Property Line
- Permanent Easement Shading
- Temporary Easement Shading

I-80 EB On-Ramp

Sta. 135+50.89, 118.69' LT

Sta. 135+79.91, 59.92' LT

Sta. 137+29.92, 74.79' LT

Sta. 139+04.57, 120.35' RT

135 136 137 138 139

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER H.8

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8/15/22

TRAFFIC CONTROL PLAN

General Traffic Control Notes:

All traffic control devices shall be furnished, erected, maintained, and removed by the Contractor. The proposed signing may be modified to meet field conditions, prevent obstructions, and to accommodate construction scheduling upon approval by the Engineer. Permanent traffic control signs that conflict with specific layout shown on these plans are to be covered as directed by the Engineer.

Traffic control on this project shall be in accordance with the most recent edition of the "Manual On Uniform Traffic Control Devices for Streets and Highways" (MUTCD), as adopted by the Department of Transportation per 761 of the Iowa Administrative Code (IAC), Chapter 130, current edition, and Iowa DOT Standard Road Plans and current standard specifications. Where conflicts between these documents exist, the more stringent requirements apply.

The Contractor shall erect all warning signs on steel or wooden posts. Portable mountings for warning signs may be used for temporary installations for less than three (3) days. Placement of signs on existing posts or structures will not be allowed.

The Contractor shall notify the Engineer, a minimum of seven (7) days prior to temporary road closures and changes in traffic patterns during construction. Install Portable Dynamic Message Signs (PDMS) a minimum of seven (7) days prior to actual closures.

The location of storage of materials and equipment by the Contractor during work and non-working hours shall be as approved by the Engineer and the Contractor shall provide written agreement with the property owner, if applicable.

The bid item "Traffic Control" shall include the cost of all traffic control installed by the Contractor except for those which are separate bid items or incidental to other bid items. Sign and barricade furnishing, erecting, removing, washing, and maintenance shall be considered incidental to "Traffic Control" and shall be required as directed by the Engineer.

Contractor shall provide sufficient number of Type III barricades and safety fence as required for lane closures. The Contractor shall provide, prior to construction, the name and 24-hour phone number of the Contractor's representative in charge of traffic control. The project site must be patrolled a minimum of two (2) times each 24-hour period to check and reinstall, if necessary, traffic control devices. All extra standard traffic control, signs, barricades, cones, etc. that are required will be delivered and installed at the project sit within four (4) hours of notification, including weekends and holidays.

Proposed changes in the traffic control plan, private property access, or alternate signing details to coincide with the schedule or operations for any variations shall be submitted in writing and reviewed with the Engineer at least 24-hours before changes are made in the field.

The Contractor shall maintain clean pavement in and out of the work area at all times.

The Contractor shall access to all properties at all times.

The Contractor shall coordinate traffic control with other projects in the area.

All permanent signing to be installed on this project shall be new signs and posts. No reinstallation of signs will be allowed unless approved by the Engineer or stated within these plans.

This layout does not include all barricades as may be required by Section 2528 of the Iowa DOT Specifications Manual. Contractor shall follow Standard Road Plans TC-1, TC-81, TC-202, TC-216, TC-217, TC-228, TC-233, TC-252, TC-273, TC-402, TC-419, and TC-433. Contractor shall be responsible to establish and maintain temporary access routes and detour routes.

There are no existing pedestrian facilities within this project area.

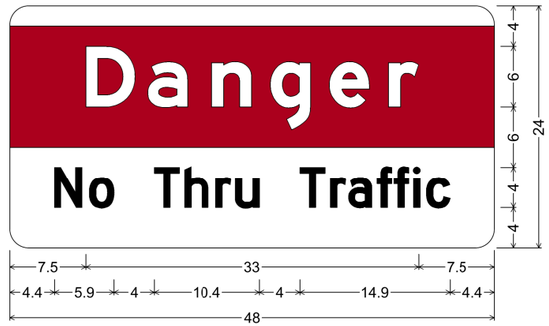
Mosquito Creek Paddle Route Signing:

“Danger No Thru Traffic” signs shall be installed along Mosquito Creek facing upstream and downstream throughout the entirety of the project. See sign detail on this sheet that meets the Iowa DNR’s criteria. Approximate placement of these signs is shown on the J Sheets. Contractor shall confirm locations with the Iowa DNR prior to construction.

Contractor shall notify John Wenck via e-mail at John.Wenck@dnr.iowa.gov when temporary channel obstruction is placed and removed so that hazard symbol can be added to the DNR’s interactive river mapping system and removed once project is complete.

Contractor shall notify and coordinate with Conservation Officers Adam Gacke (712-520-5570; Adam.Gacke@dnr.iowa.gov) and Richard Price (712-520-0121; Richard.Price@dnr.iowa.gov) for advice on placements as crew install signs.

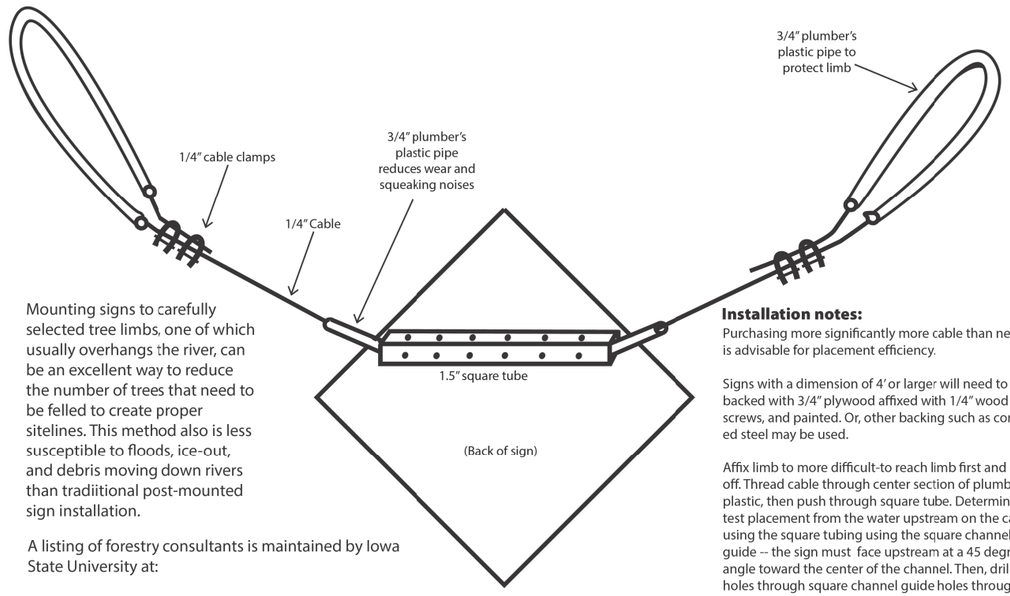
When no structure is present, Contractor shall install signs along adjacent river banks facing upstream and downstream. Installation options include either installing a total of four signs, one sign on each bank for both upstream and downstream, or using the limb-mounted installation option as detailed on this sheet. When structure is present, Contractor may install signs on center of bridge facing upstream and downstream. Signage must be present throughout the entirety of the project.



1.9" Radius, 0.0" Border, Black on White;
"Danger" White, E Mod 2K; "No Thru Traffic", D 2K;
Table of letter and object lefts

D	**a**	**n**	**g**	**e**	**r**								
7.5	13.6	20.0	25.8	31.7	37.5								
N	**o**	**T**	**h**	**r**	**u**	**T**	**r**	**a**	**f**	**f**	**i**	**c**	
4.4	7.9	14.3	17.3	20.4	22.4	28.7	31.7	33.5	36.3	38.0	39.9	41.2	

Addendum C: Limb-mounted method for riverside signage



Mounting signs to carefully selected tree limbs, one of which usually overhangs the river, can be an excellent way to reduce the number of trees that need to be felled to create proper sitelines. This method also is less susceptible to floods, ice-out, and debris moving down rivers than tradiitional post-mounted sign installation.

A listing of forestry consultants is maintained by Iowa State University at:

http://www.extension.iastate.edu/forestry/publications/F-361.pdf

Some of these consultants may be interested in bidding on installation contracts.

Installation notes:
Purchasing more significantly more cable than needed is advisable for placement efficiency.

Signs with a dimension of 4’ or larger will need to be backed with 3/4” plywood affixed with 1/4” wood screws, and painted. Or, other backing such as corrugated steel may be used.

Affix limb to more difficult-to reach limb first and clamp off. Thread cable through center section of plumbers plastic, then push through square tube. Determine and test placement from the water upstream on the cable using the square tubing using the square channel as a guide -- the sign must face upstream at a 45 degree angle toward the center of the channel. Then, drill two holes through square channel guide holes through the tubing and 1/3 the down the from the top of the sign. Use appropriately sized bolt, washer, and nut to affix sign to the square tub.

Raise the sign, and clamp final loop around second limb.

STAGING NOTES

General Staging Notes:

Contractor shall not start any work until after temporary traffic control is in place and approved by the Engineer.

Construction staging and traffic control plans shown in the J Sheets are provided to show anticipated signing, maintenance of access, and traffic placement during construction. The contractor may present alternate staging and traffic control plans for consideration by the Engineer, including revisions to construction sequencing and begin/end locations for each stage.

Coordinate all construction with utility companies and their relocation and services.

Contractor is responsible for coordinating mail delivery with the US Postal Service and property owners. Contractor shall coordinate water main services and shutoffs with Regional Water, Inc. and affected businesses. Provide 48-hours' notice prior to shutoffs. All services shall be active by the end of each workday.

The project shall be completed in five (5) stages as shown in the J Sheets.

Refer to C Sheets for measurement and payment for safety closures, temporary traffic signals, temporary barrier rails, temporary crash cushions, temporary pavement markings, and temporary pavement bid items.

All Stages:

Access shall be maintained to all businesses and residences in all stages.

Install Portable Dynamic Message Signs (PDMS) seven (7) days prior to beginning construction. PDMS shall indicate construction start date, traffic shifts, and lane closures. Coordinate PDMS locations with Engineer.

Stage 1 (Sta. 91+80.00 to Sta. 101+05.71)

Magnolia Road shall be closed to traffic between 260th Street and Railroad Hwy. Detour route shall be installed as shown on Sheet J.3. Two-way traffic along Railroad Hwy shall be maintained during removal and grading operations. During paving operations adjacent to Railroad Hwy, the adjacent lane of Railroad Hwy shall be closed and flaggers shall be used to direct traffic. Contractor shall complete all work within the stage limits. Temporary access to 26029 Magnolia Road shall be installed and maintained during Stage 1. Work for Stage 1 may be done concurrently with Stage 2.

Stage 2 (Sta. 101+62.05 to Sta. 106+34.20):

Magnolia Road shall be closed to traffic between Railroad Hwy and the centerline of the west Jack's Links access road. Detour route shall be installed as shown on Sheet J.4. Two-way traffic along Railroad Hwy shall be maintained during removal and grading operations. During paving operations adjacent to Railroad Hwy, the adjacent lane of Railroad Hwy shall be closed and flaggers shall be used to direct traffic. Contractor shall complete all work within the stage limits. One-way access for the west access roads of Paco's Tires and Jack's Links shall be maintained during Stage 2. Work for Stage 2 may be done concurrently with Stage 1.

Stage 3 (Sta. 106+34.20 to Sta. 120+83.18):

A) Refer to V Sheets for bridge construction details. Contractor shall begin work along the south edge of pavement line of G30. Work includes the construction of the south portion of the bridge as detailed on V Sheets; grading and paving one lane of the proposed pavement along G30 within the stage limits for future eastbound traffic use; temporary pavement to allow for future eastbound traffic to tie in outside the stage limits; and driveways along the south side of G30 within the stage limits. Two-way traffic shall remain on existing pavement and existing bridge. One-way access shall be maintained for both Jack's Links access roads and Mulberry Lane.

B) Eastbound traffic shall be shifted over to newly constructed pavement and new portion of the bridge. Contractor shall remove the existing eastbound lane of G30 within the stage limits and the south portion of the existing bridge as detailed on V Sheets. Additional work includes grading and paving an additional lane of the proposed pavement for future westbound traffic use; and building an additional lane on to the previously constructed portion of the bridge.

C) Refer to V Sheets for bridge construction details. Westbound traffic shall be shifted over to the recently constructed pavement and bridge, so that two-way traffic will continue south of the remaining existing pavement and bridge. Contractor shall grade and pave the remaining north lanes of G30 within the stage limits; build the remaining portion of the proposed bridge; and build temporary pavement wedges to tie in new pavement with existing pavement. One-way access shall be maintained for both Paco's Tires access roads.

D) Traffic shall be shifted on to new pavement as intended in the plans. Work includes removing remaining temporary pavement and installing remaining shoulder.

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8/15/22

STAGING NOTES

Stage 4 (Sta. 120+83.18 to Sta. 127+58.73):

A) Detour routes shall be installed as shown on Sheets J.5 and J.6. Temporary traffic signals and temporary barrier rail shall be installed per Standard Road Plan TC-217. Eastbound and westbound traffic shall utilize the existing westbound lane. Contractor shall remove the existing eastbound lane and construct the proposed eastbound lane within the stage limits. Additional work includes installing the granular shoulder and grading. The access along G30 for the Underwood I80 Truck Stop shall be closed for this stage; maintain access via Mulberry Ln.

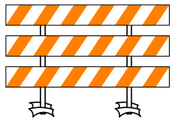
B) Detour route as shown on Sheet J.6 from Stage 4A shall be maintained. Temporary traffic signals from Stage 4A shall be maintained. The temporary barrier rails from Stage 4A shall shifted to the newly constructed lane. Eastbound and westbound traffic shall be shifted on to the newly constructed eastbound lane. Contractor shall remove the existing westbound lane and construct the proposed westbound lane within the stage limits. Additional work includes installing the granular shoulder and grading. The access along G30 for the Underwood I80 Truck Stop shall remain closed for this stage; maintain access via Mulberry Ln.

Stage 5 (Sta. 133+36.61 to Sta. 138+70.09):

A) Detour routes shall be installed as shown on Sheets J.7 and J.8. Temporary traffic signals and temporary barrier rail shall be installed per Standard Road Plan TC-217. Eastbound and westbound traffic shall utilize the existing westbound lane. Contractor shall remove the existing eastbound lane and construct the proposed eastbound lane within the stage limits. Additional work includes constructing the south return at Co. Hwy G30 & L52, installing the granular shoulder, and grading. The south return at Co. Hwy G30 & L52 shall be closed during this stage. Maintain access to 26874 Magnolia Rd.

B) Detour routes from Stage 5A shall be maintained; in addition, detour route as shown on Sheet J.9 shall be installed. Temporary traffic signals from Stage 5A shall be maintained. The temporary barrier rails from Stage 5A shall shifted to the newly constructed lane. Eastbound and westbound traffic shall be shifted on to the newly constructed eastbound lane. Contractor shall remove the existing westbound lane and construct the proposed westbound lane within the stage limits. Additional work includes installing the granular shoulder and grading. The south return at Co. Hwy G30 & L52 shall remain closed during this stage. Maintain access to 26874 Magnolia Rd.

TRAFFIC CONTROL AND DETOUR ROUTE
STAGE 1



TYPE III BARRICADE

Ⓐ



R11-2
48" x 30"

Ⓑ



M4-10L
48" x 18"

Ⓒ



M4-10R
48" x 18"

Ⓓ



W20-3
48" x 48"

Ⓔ



W20-3
48" x 48"

Ⓕ



W20-2
48" x 48"

Ⓖ



M4-8a
24" x 18"

Ⓗ

M4-9L
30" x 24"

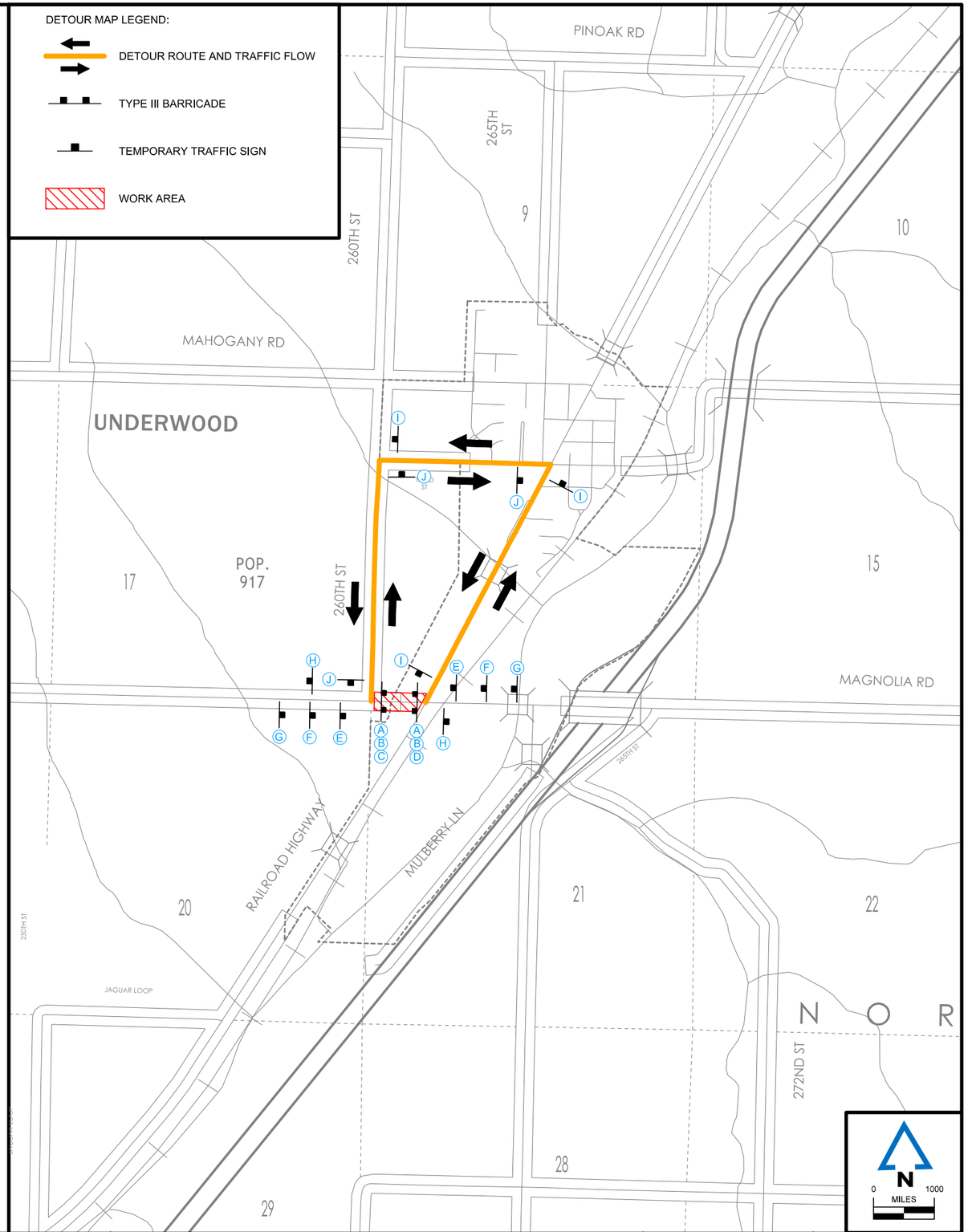
Ⓘ

M4-9R
30" x 24"

Ⓙ

DETOUR MAP LEGEND:

- DETOUR ROUTE AND TRAFFIC FLOW
- TYPE III BARRICADE
- TEMPORARY TRAFFIC SIGN
- WORK AREA



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.3

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TRAFFIC CONTROL AND DETOUR ROUTE
CO. HWY G30 BETWEEN RAILROAD HWY AND JACK'S LINKS
STAGE 2



TYPE III BARRICADE
Ⓐ



R11-2
48" x 30"
Ⓑ



R11-3a
60" x 30"
Ⓒ



M4-10L
48" x 18"
Ⓓ



M4-10R
48" x 18"
Ⓔ



W20-3
48" x 48"
Ⓕ



W20-3
48" x 48"
Ⓖ



W20-2
48" x 48"
Ⓗ



M4-8a
24" x 18"
Ⓘ



M4-8
24" x 12"
M1-6
24" x 24"
M5-1R
21" x 15"
Ⓙ



M4-8
24" x 12"
M1-6
24" x 24"
M5-1L
21" x 15"
Ⓚ



M4-8
24" x 12"
M1-6
24" x 24"
M6-1R
21" x 15"
Ⓛ



M4-8
24" x 12"
M1-6
24" x 24"
M6-1L
21" x 15"
Ⓜ



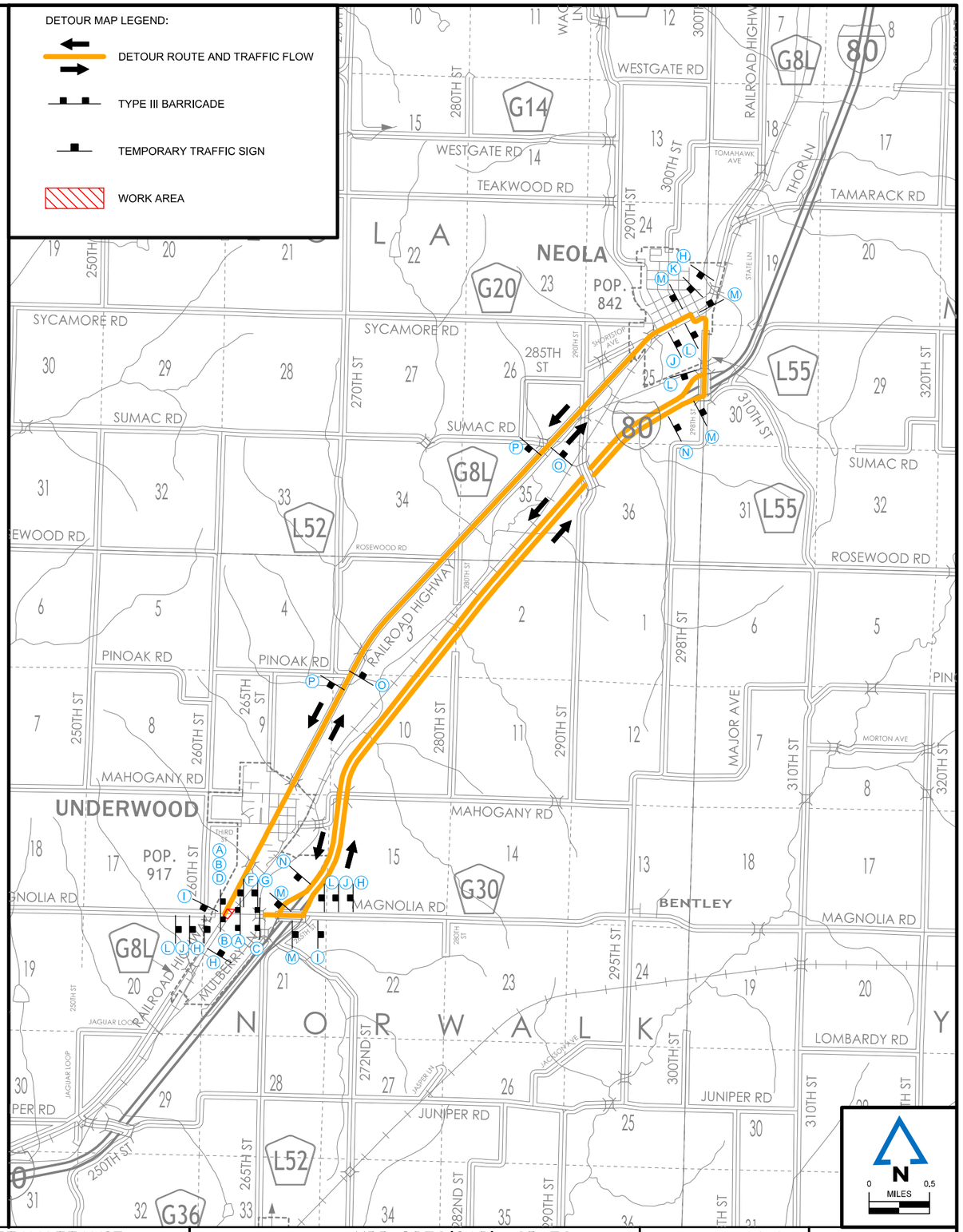
M4-8
30" x 15"
M1-6
30" x 30"
M6-2
30" x 21"
Ⓝ



M4-8
24" x 12"
M3-2
24" x 12"
M1-6
24" x 24"
Ⓞ



M4-8
24" x 12"
M3-4
24" x 12"
M1-6
24" x 24"
Ⓟ



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.4

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TRAFFIC CONTROL AND DETOUR ROUTE
CO. HWY G30 TO I-80 WESTBOUND
STAGE 4A



TYPE III BARRICADE

Ⓐ



R11-2
48" x 30"

Ⓑ



M4-10L
48" x 18"

Ⓒ



M4-8a
24" x 18"

Ⓓ



M4-8
30" x 15"
M3-4
36" x 18"
M1-6
30" x 30"
M6-2
30" x 21"

Ⓔ



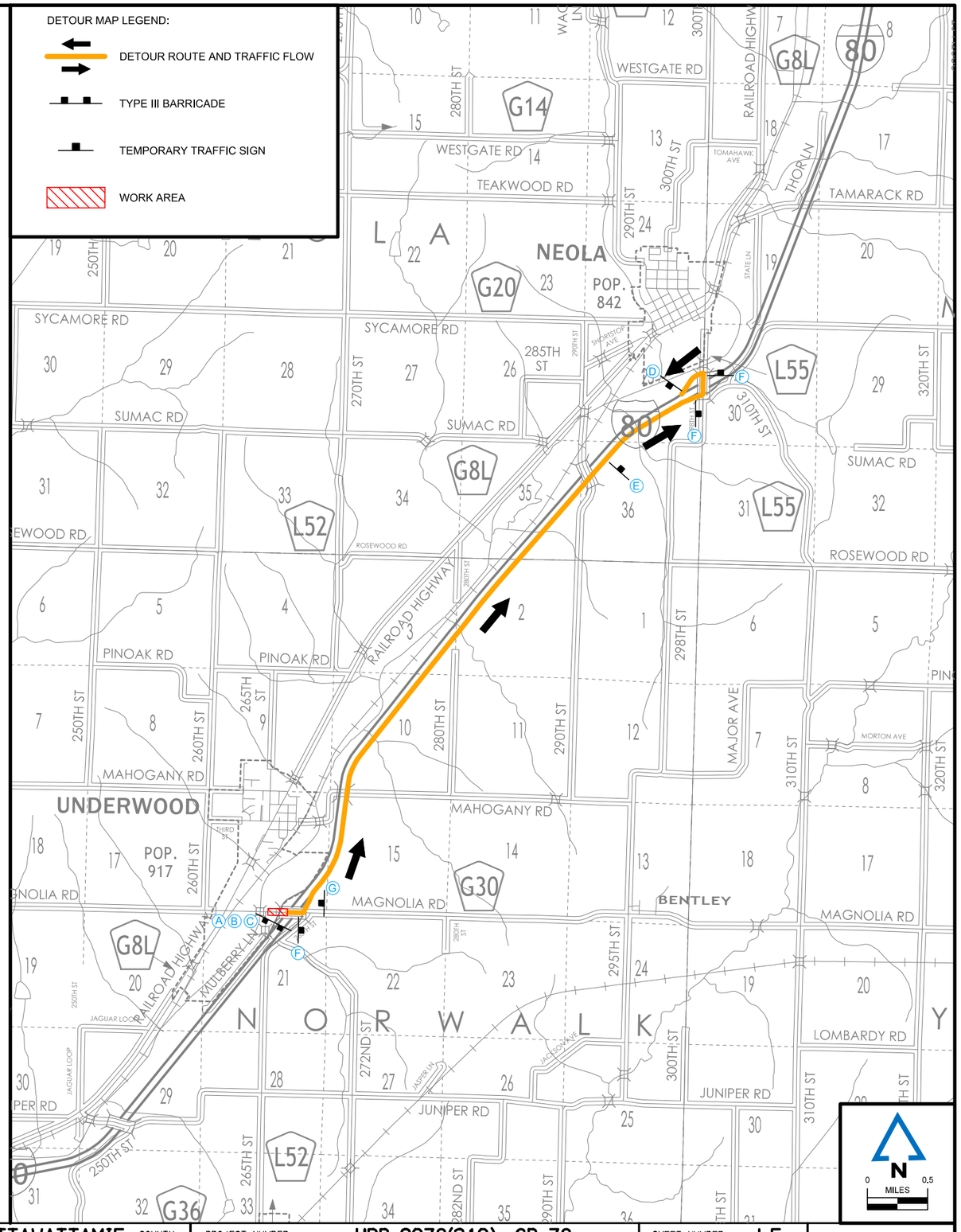
M4-8
24" x 12"
M3-4
24" X 12"
M1-1
24" x 24"
M6-1L
21" x 15"

Ⓕ



M4-8
24" x 12"
M3-4
24" X 12"
M1-1
24" x 24"
M6-1R
21" x 15"

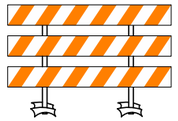
Ⓖ



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.5

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TRAFFIC CONTROL AND DETOUR ROUTE
I-80 WESTBOUND TO CO. HWY G30
STAGE 4A & 4B



TYPE III BARRICADE

Ⓐ



R11-2
48" x 30"

Ⓑ



E5-2a
48" x 36"

Ⓒ



M4-8a
24" x 18"

Ⓓ



M4-8
30" x 15"
M1-6
30" x 30"
M6-2
30" x 21"

Ⓔ



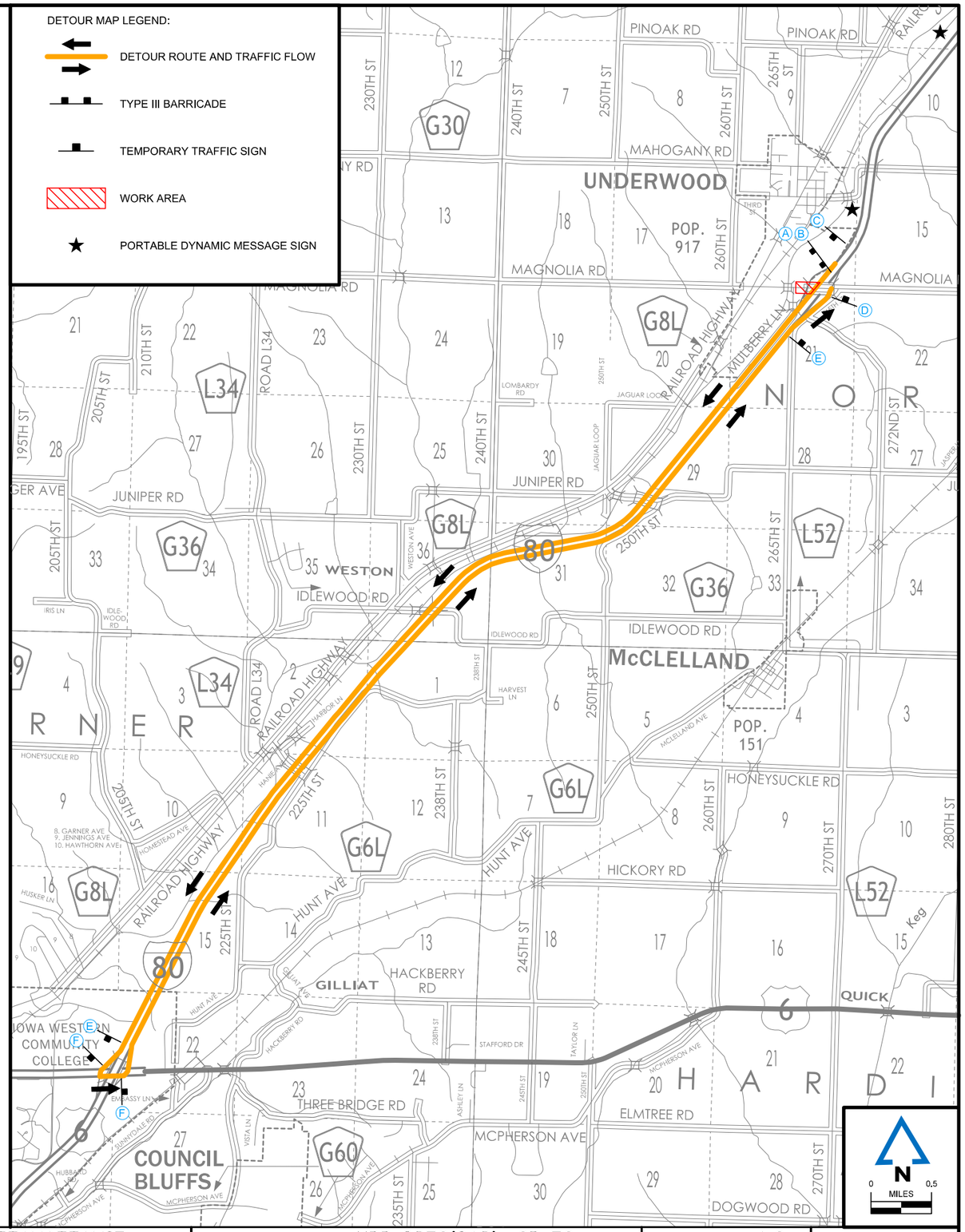
M4-8
24" x 12"
M1-6
24" x 24"
M6-1L
21" x 15"

Ⓕ

NOTE:

1. REFER TO STANDARD ROAD PLAN TC-417 FOR EXIT RAMP CLOSURE DETAILS.
2. PORTABLE DYNAMIC MESSAGE SIGNS (PDMS) SHALL BE INSTALLED ONE WEEK PRIOR TO START OF STAGE CONSTRUCTION. PDMS MESSAGE:

DISPLAY 1:	EXIT 17 CLOSED AHEAD
DISPLAY 2:	USE EXIT 8 -



TRAFFIC CONTROL AND DETOUR ROUTE
CO. HWY G30 TO CO. HWY L52
CO. HWY L52 TO CO. HWY G30
STAGE 5A & 5B



TYPE III BARRICADE

Ⓐ



R11-2
48" x 30"

Ⓑ



R11-3a
60" x 30"

Ⓒ



M4-10L
48" x 18"

Ⓓ



W20-3
48" x 48"

Ⓔ



W20-3
48" x 48"

Ⓕ



W20-2
48" x 48"

Ⓖ



M4-8a
24" x 18"

Ⓗ



M4-8
24" x 12"
M1-6
24" x 24"
M6-1R
21" x 15"

Ⓘ



M4-8
24" x 12"
M1-6
24" x 24"
M6-1L
21" x 15"

Ⓙ



M4-8
24" x 12"
M1-6
24" x 24"

Ⓚ



M4-8
24" x 12"
M1-6
24" x 24"
M6-1R
21" x 15"

Ⓛ



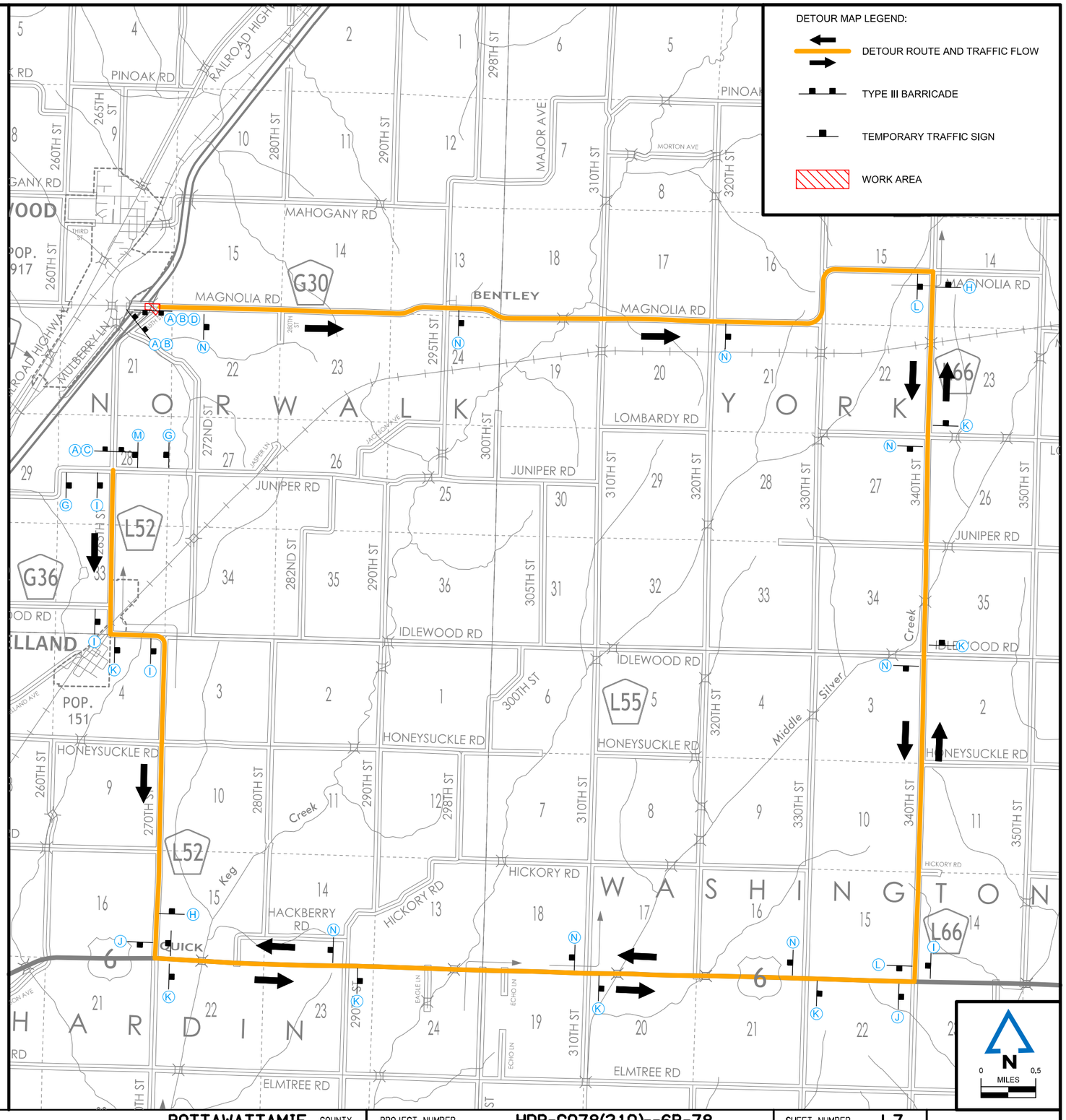
M4-8
24" x 12"
M1-6
24" x 24"
M6-1L
21" x 15"

Ⓜ



M4-8
24" x 12"
M1-6
24" x 24"

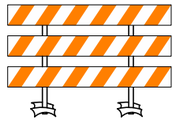
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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.7

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TRAFFIC CONTROL AND DETOUR ROUTE
I-80 EASTBOUND TO CO. HWY G30
STAGE 5A & 5B



TYPE III BARRICADE

Ⓐ



R11-2
48" x 30"

Ⓑ



E5-2a
48" x 36"

Ⓒ



M4-8a
24" x 18"

Ⓓ



M4-8
30" x 15"
M1-6
30" x 30"
M6-2
30" x 21"

Ⓔ



M4-8
24" x 12"
M1-6
24" x 24"
M6-1L
21" x 15"

Ⓕ

NOTE:

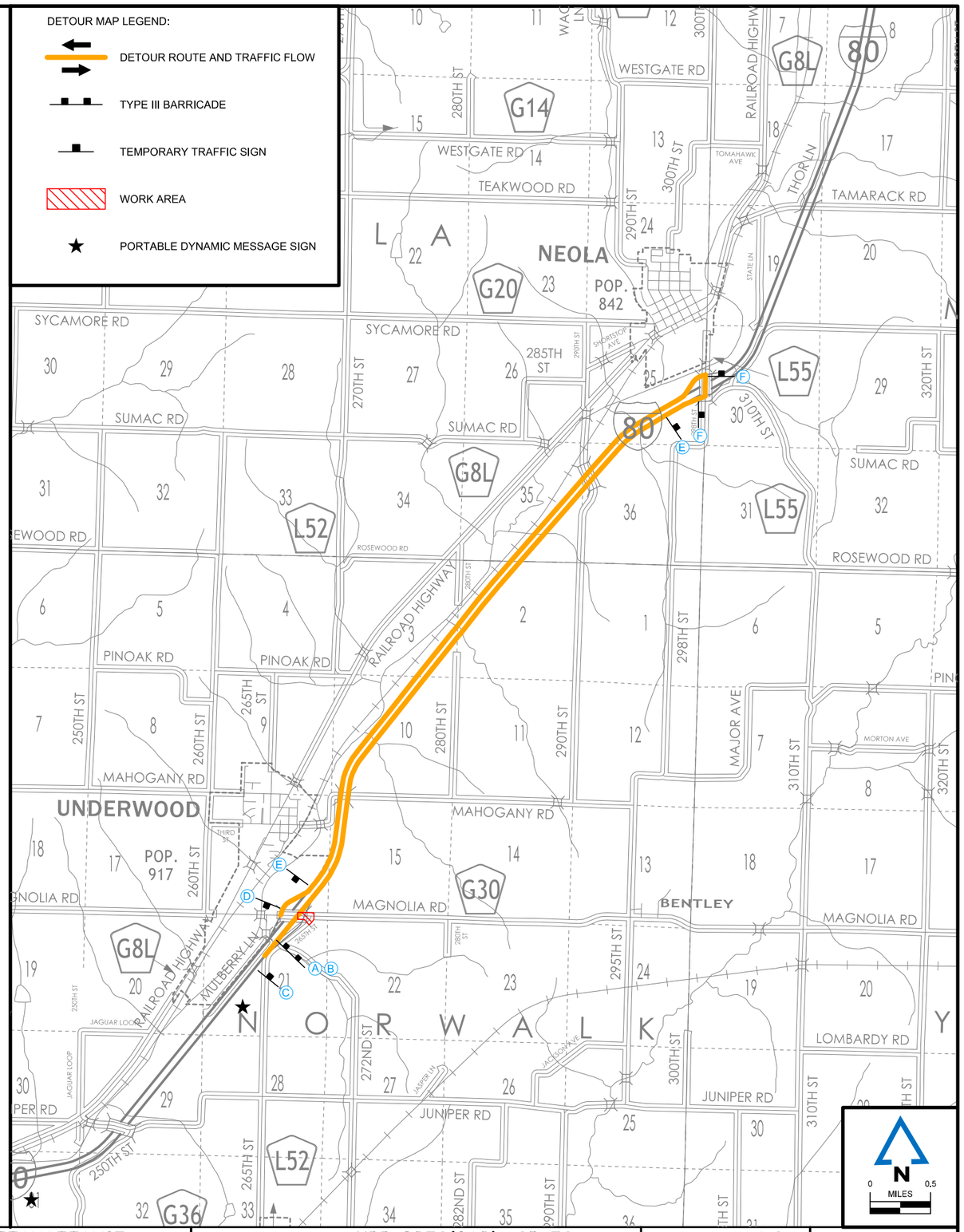
1. REFER TO STANDARD ROAD PLAN TC-417 FOR EXIT RAMP CLOSURE DETAILS.
2. PORTABLE DYNAMIC MESSAGE SIGNS (PDMS) SHALL BE INSTALLED ONE WEEK PRIOR TO START OF STAGE CONSTRUCTION. PDMS MESSAGE:

DISPLAY 1:

EXIT 17 CLOSED AHEAD

DISPLAY 2:

USE EXIT 23 -



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.8

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TRAFFIC CONTROL AND DETOUR ROUTE
CO. HWY G30 TO I-80 EASTBOUND
STAGE 5B



TYPE III BARRICADE

Ⓐ



R11-2
48" x 30"

Ⓑ



M4-10L
48" x 18"

Ⓒ



M4-8a
24" x 18"

Ⓓ



M4-8
30" x 15"
M3-2
36" x 18"
M1-6
30" x 30"
M6-2
30" x 21"

Ⓔ



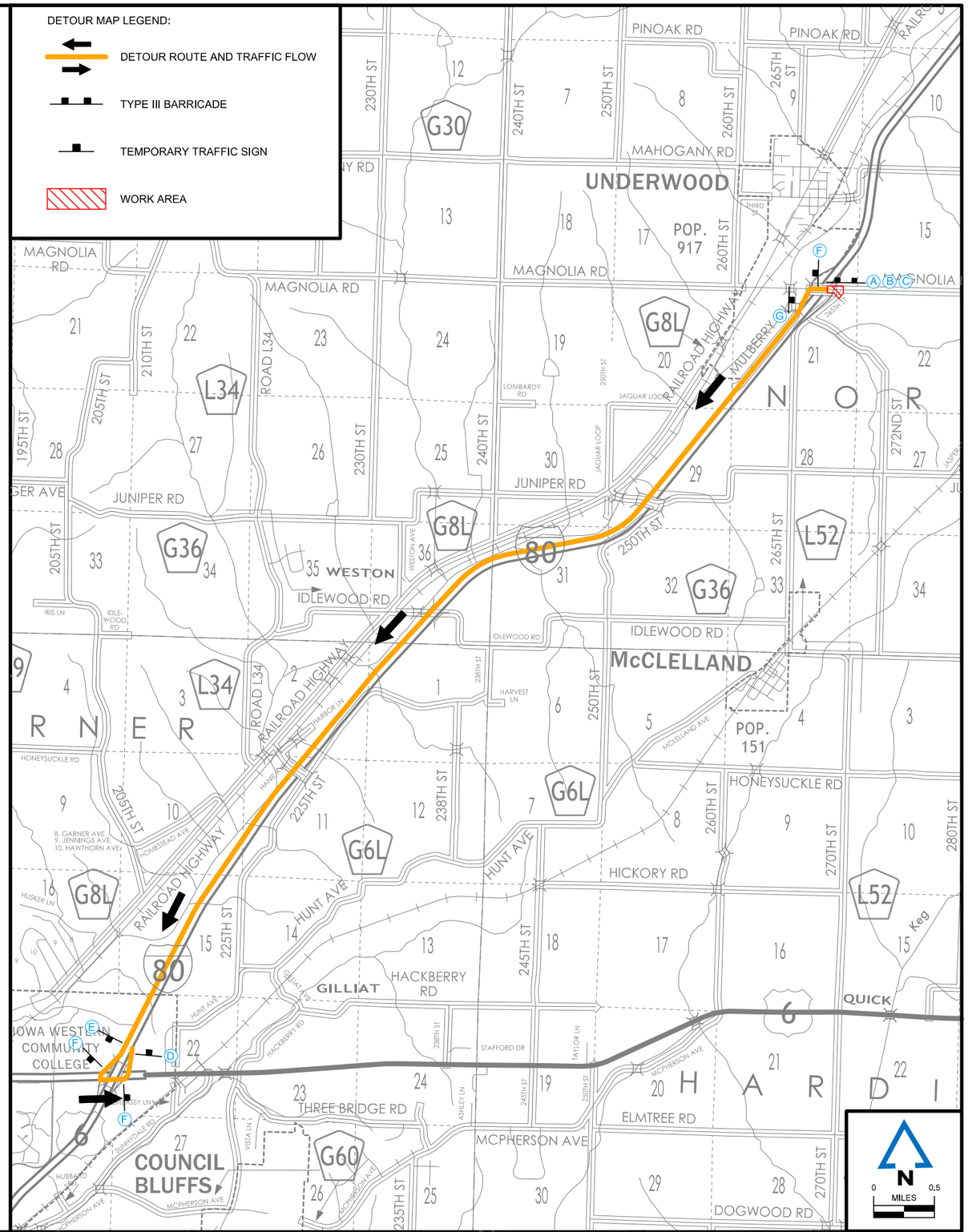
M4-8
24" x 12"
M3-2
24" X 12"
M1-1
24" x 24"
M6-1L
21" x 15"

Ⓕ



M4-8
24" x 12"
M3-2
24" X 12"
M1-1
24" x 24"
M6-1R
21" x 15"

Ⓖ



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.9

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CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Med	(237)	Future Proposed Pavement Shading

CROSS SECTION VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

- Pavement Removal
- Proposed Granular Subbase
- Proposed Special Backfill
- Temporary Barrier Rail
- Proposed Granular Shoulder
- Temporary Shoulder
- Existing Shoulder Strengthening
- Permanent Barrier Rail
- Channelizing Device

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Magenta	(5)	Pavement Marking Call Outs
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Yellow	(4)	Pavement Markings, Yellow
Off White	(254)	Pavement Markings, White
Violet	(15)	Temporary barrier rail, Unpinned
Flush Orange	(228)	Temporary barrier rail, Pinned

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(80)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Lavender	(9)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Pink, Dark	(13)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

- Channelizing Device
- Drum
- Temporary Lane Separator
- Tubular Marker
- Channelizer Marker
- Concrete Barrier Marker
- Delineator
- Temporary Barrier Rail
- Pavement Removal
- Sand Barrel Layout
- Crash Cushion (Temp or Perm)
- Traffic Signal
- Flagger
- Temporary Floodlighting
- Traffic Sign
- Type III Barricade
- Type A Warning Light
- Direction of Traffic
- Safety Closure
- Lane Identification (1)

NOTE: Device spacing according to Standard Road Plans unless specifically dimensioned.

TRAFFIC CONTROL AND STAGING

95+00

260th St

STAGE 1

Magnolia Rd

N
0 FEET 50

105+00

Sta. 106+34.13

110+00

115+00

Railroad Hwy

STAGE 2

STAGE 3

Magnolia Rd

BNSF Railroad

200+00

N
0 FEET 50

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.11

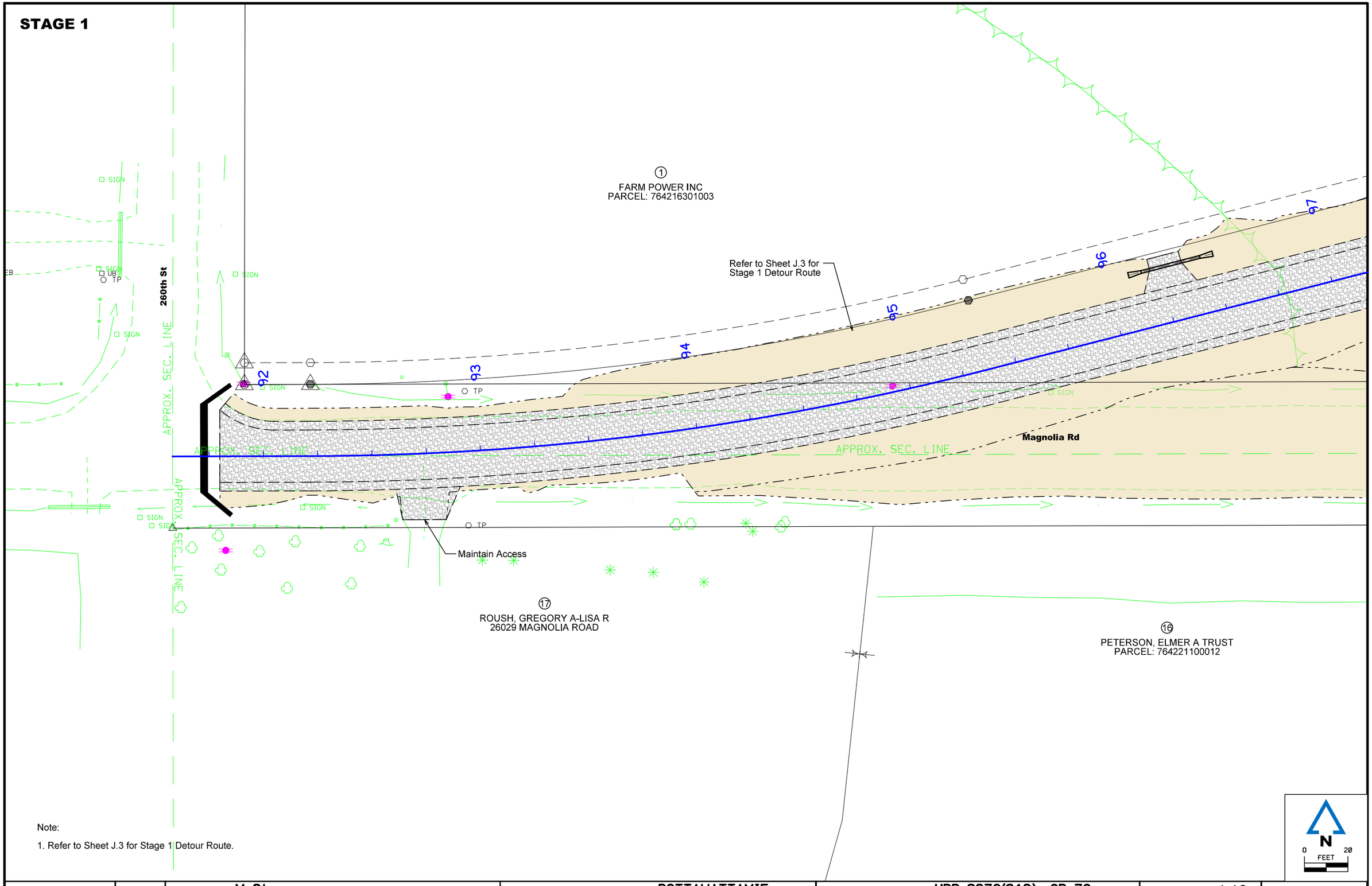
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115+00
120+00
Sta. 120+83.24
125+00
130+00
STAGE 3
STAGE 4
Magnolia Rd
300+00
Mulberry Ln
I-80 WB Off-Ramp
I-80 WB On-Ramp
N
0 FEET 50
130+00
135+00
I-80 EB On-Ramp
STAGE 5
Magnolia Rd
00+009
I-80 EB Off-Ramp
265th St
N
0 FEET 50

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.12

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STAGE 1



Note:

1. Refer to Sheet J.3 for Stage 1 Detour Route.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.13

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STAGE 1

SHOULDER DROP OFF
W8-9A
48" x 48"

ROAD WORK AHEAD
W20-1
48" x 48"

45 M.P.H.
W13-1
24" x 24"

SEE NOTE 2

SEE NOTE 2
END ROAD WORK
G20-2A
48" x 24"

98 99 100 101 102 103

Railroad Hwy

Magnolia Rd

BNSF Railroad

APPROX. SEC. LINE

APPROX. SEC. LINE

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

⑮ UNDERWOOD FARM SUPPLY LLC
26201 MAGNOLIA RD

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

SEE NOTE 4

SIGN UB GP AST TP

Note:

1. Refer to Sheet J.3 for Stage 1 Detour Route.
2. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
3. No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.
4. During paving operations adjacent to Railroad Hwy, utilize flaggers per Standard Road Plan TC-213.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.14

1:52:13 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 2

SEE NOTE 2

ROAD WORK AHEAD

45 M.P.H.

W20-1 48" x 48"

W13-1 24" x 24"

SEE NOTE 2

END ROAD WORK

G20-2A 48" x 24"

98 99 100 101 102 103

① FARM POWER INC PARCEL: 764216301003

② POTTAWATTAMIE COUNTY 25103 RAILROAD HWY

Railroad Hwy

Magnolia Rd

SEE NOTE 4

Maintain Access Via Railroad Hwy

APPROX. SEC. LINE

APPROX. SEC. LINE

⑯ PETERSON, ELMER A TRUST PARCEL: 764221100012

⑮ UNDERWOOD FARM SUPPLY LLC 26201 MAGNOLIA RD

BNSF Railroad

SEE NOTE 2

END ROAD WORK

G20-2A 48" x 24"

SEE NOTE 2

SHOULDER DROP OFF

W8-9A 48" x 48"

ROAD WORK AHEAD

W20-1 48" x 48"

45 M.P.H.

W13-1 24" x 24"

Note:

1. Refer to Sheet J.4 for Stage 2 Detour Route.
2. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
3. No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.
4. During paving operations adjacent to Railroad Hwy, utilize flaggers per Standard Road Plan TC-213.

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.15

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STAGE 2

③
BURLINGTON NORTHERN SANTA FE
PARCEL: 764216501002

④
CITY OF UNDERWOOD
PARCEL: 764216377005

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

Construct Access 1/2 Width.
Maintain One-Way Access.

Trenchless Installation
Under Existing Access

104 105 106 107 108 109

Magnolia Rd

APPROX. SEC. LINE

Sta. 104+79.91
Off. 14.52' RT

Sta. 104+79.91
Off. 16.52' RT

Sta. 105+05.63
Off. 17.09' RT

Sta. 105+82.18
Off. 24.75' RT

Temporary Pavement

Construct Access 1/2 Width.
Maintain One-Way Access.

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Sheet J.4 for Stage 2 Detour Route.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.16

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STAGE 3A

99
100
101
102
103
104
105

Railroad Hwy

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

③ BURLINGTON NORTHERN SANTA FE
PARCEL: 764216501002

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

⑮ UNDERWOOD FARM SUPPLY LLC
26201 MAGNOLIA RD

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

END ROAD WORK
G20-2A
48" X 24"

ROAD WORK AHEAD
W20-1
48" x 48"

25 M.P.H.
W13-1
24" x 24"

SHOULDER DROP OFF
W8-9A
48" x 48"

BNSF Railroad

45

DCY4

CHW8

SIGN
GP
AST
UB
EB
GV
WV

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.17

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STAGE 3A

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

④
CITY OF UNDERWOOD
PARCEL: 764216377005

WH
WV
GP
GP
SIGN
WH
DCY4
106
107
108
109
110
TP
TP
111
SIGN
SIGN

Temporary Pavement

Construct Temporary Pavement 1/2 Width

Temporary Crash Cushion

Temporary Barrier Rail

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

Sta. 106+34.20
Off. 12.35' RT

Sta. 107+14.20
Off. 12.23' RT

Sta. 108+51.59
Off. 12.33' RT

Sta. 110+01.59
Off. 12.21' RT

Sta. 106+34.20
Off. 17.95' RT

Sta. 107+14.20
Off. 19.00' RT

Sta. 108+51.59
Off. 19.00' RT

Sta. 110+01.59
Off. 19.00' RT

CHW8

SIGN
SIGN
SIGN
SIGN
SIGN
SIGN

Construct Access 1/2 Width.
Maintain One-Way Access.

Construct Access 1/2 Width.
Maintain One-Way Access.

Trenchless Installation

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.18

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STAGE 3A

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

112 113 114 115 116 117

SIGN

SIGN

Temporary
Barrier Rail

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SIGN

SIGN

Tile

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. Refer to Traffic Control Plan on Sheet J.1 for addtional placement details and Iowa DNR contacts.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.19

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STAGE 3A

⑥ CITY OF UNDERWOOD
PARCEL: 764216378003

⑦ WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑧ WELBOURNE FAMILY LLC
PARCEL: 764216400006

118 119 120 121 122 123

Temporary Barrier Rail

Temporary Crash Cushion

Construct Temporary Pavement 1/2 Width

APPROX. SEC. LINE

Magnolia Rd

APPROX. SEC. LINE

Sta. 117+93.55
Off. 12.21' RT

Sta. 117+93.55
Off. 19.00' RT

Sta. 119+24.55
Off. 12.08' RT

Sta. 119+24.55
Off. 19.00' RT

Sta. 118+90.26
Off. 31.00' RT

Temporary Pavement

Sta. 121+11.85
Off. 29.97' RT

Sta. 121+84.54
Off. 23.66' RT

Temporary Pavement

Sta. 123+44.43
Off. 13.05' RT

Sta. 123+60.69
Off. 11.05' RT

Sta. 123+60.69
Off. 13.05' RT

Construct Sideroad 1/2 Width.
Maintain One-Way Access.

Construct Sideroad 1/2 Width.
Maintain One-Way Access.

⑫ K C MART INC
26551 MAGNOLIA RD

⑪ I-80 PARTNERSHIP
26553 MAGNOLIA RD

Mulberry Ln

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.20

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STAGE 3A

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

124 125 126 127 128 129

SIGN

ROAD WORK AHEAD
25 M.P.H.
W20-1 48" x 48"
W13-1 24" x 24"

SB

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

Sta. 123+60.69
Off. 11.05' RT

Sta. 123+60.69
Off. 13.05' RT

END ROAD WORK
G20-2A 48" x 24"

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.21

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STAGE 3B

99
100
101
102
103
104
105

Railroad Hwy

Magnolia Rd

APPROX. SEC. LINE

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

③ BURLINGTON NORTHERN SANTA FE
PARCEL: 764216501002

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

⑮ UNDERWOOD FARM SUPPLY LLC
26201 MAGNOLIA RD

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

END ROAD WORK
G20-2A
48" x 24"

ROAD WORK AHEAD
W20-1
48" x 48"

25 M.P.H.
W13-1
24" x 24"

SHOULDER DROP OFF
W8-9A
48" x 48"

BNSF Railroad

DCY4

CHW8

AST

GP

SIGN

UB

EB

GV

WV

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.22

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STAGE 3B

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

④
CITY OF UNDERWOOD
PARCEL: 764216377005

WH
WV
GP
GP
SIGN
TP
TP
SIGN
SIGN
SIGN

STAGE 3B

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

112 113 114 115 116 117

SIGN

SIGN

Temporary
Barrier Rail

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SIGN

Temporary
Crash Cushion

Temporary
Barrier Rail

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. Refer to Traffic Control Plan on Sheet J.1 for addtional placement details and Iowa DNR contacts.

N
0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.24

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STAGE 3B

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑦
WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

118 119 120 121 122 123

Temporary Crash Cushion

Construct Temporary Pavement 1/2 Width

Temporary Crash Cushion

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

Magnolla Rd

Mulberry Ln

CHW8

⑫
K C MART INC
26551 MAGNOLIA RD

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.25

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STAGE 3B

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

SHOULDER DROP OFF
W8-9A
48" x 48"

ROAD WORK AHEAD
25 M.P.H.
W20-1
48" x 48"
W13-1
24" x 24"

124 125 126 127 128 129

SIGN

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SB

END ROAD WORK
G20-2A
48" x 24"

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.26

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STAGE 3C

99
100
101
102
103
104
105

Railroad Hwy

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

③ BURLINGTON NORTHERN SANTA FE
PARCEL: 764216501002

END ROAD WORK
G20-2A
48" X 24"

Magnolia Rd

APPROX. SEC. LINE

DCY4

CHW8

ROAD WORK AHEAD
W20-1
48" x 48"

25 M.P.H.
W13-1
24" x 24"

SHOULDER DROP OFF
W8-9A
48" x 48"

BNSF Railroad

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

⑮ UNDERWOOD FARM SUPPLY LLC
26201 MAGNOLIA RD

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.27

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STAGE 3C

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

④
CITY OF UNDERWOOD
PARCEL: 764216377005

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Magnolia Rd

APPROX. SEC. LINE

DCY4

CHW8

DCY4

106 107 108 109 110 111

WH WV GP GP WH SIGN TP TP SIGN SIGN SIGN SIGN SIGN SIGN SIGN SIGN

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.28

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STAGE 3C

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

112 113 114 115 116 117

Temporary
Crash Cushion

Temporary
Barrier Rail

Magnolla Rd

ASPHALT MED. LINE

ASPHALT SIDE LINE

SIGN

DCY4

Tile

BB

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. Refer to Traffic Control Plan on Sheet J.1 for addtional placement details and Iowa DNR contacts.
4. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.29

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STAGE 3C

⑥ CITY OF UNDERWOOD
PARCEL: 764216378003

⑦ WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑧ WELBOURNE FAMILY LLC
PARCEL: 764216400006

118 119 120 121 122 123

Temporary Barrier Rail

Temporary Crash Cushion

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

Mulberry Ln

CHW8

DCY4

CHW8

⑫ K C MART INC
26551 MAGNOLIA RD

⑪ I-80 PARTNERSHIP
26553 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.30

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STAGE 3C

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

SHOULDER DROP OFF
W8-9A
48" x 48"

ROAD WORK AHEAD
W20-1
48" x 48"
25 M.P.H.
W13-1
24" x 24"

124 125 126 127 128 129

SIGN

APPROX. SEC. LINE

Magnolia Rd

APPROX. SEC. LINE

SB

END ROAD WORK
G20-2A
48" x 24"

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.31

1:52:37 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 3D

99
100
101
102
103
104
105

Railroad Hwy

① FARM POWER INC
PARCEL: 764216301003

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

③ BURLINGTON NORTHERN SANTA FE
PARCEL: 764216501002

END ROAD WORK
G20-2A
48" X 24"

Magnolia Rd

APPROX. SEC. LINE

ROAD WORK AHEAD
W20-1
48" x 48"
25 M.P.H.
W13-1
24" x 24"

BNSF Railroad

⑮ UNDERWOOD FARM SUPPLY LLC
26201 MAGNOLIA RD

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

Note:

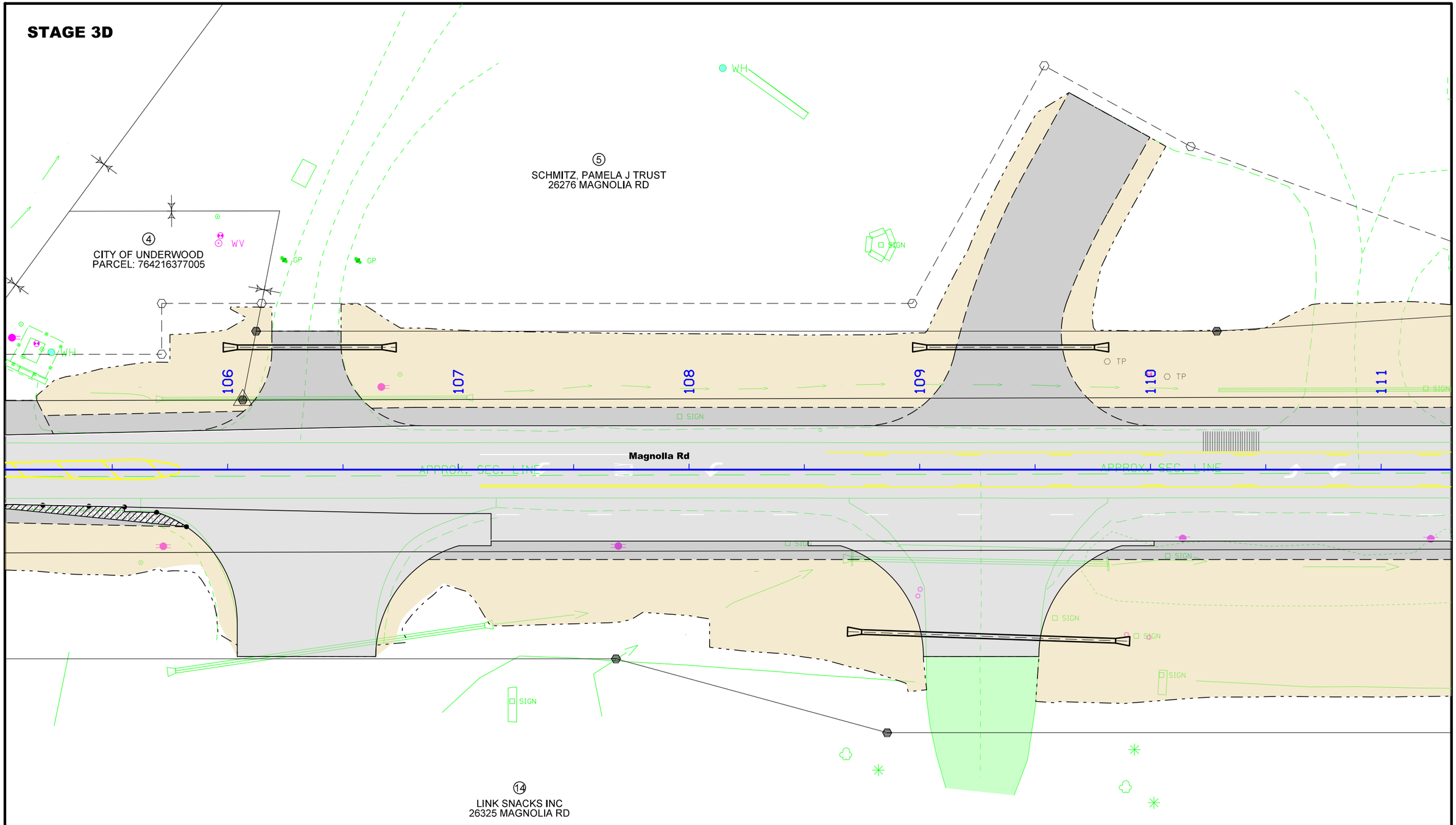
1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.32

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STAGE 3D



Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.33

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STAGE 3D

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

112 113 114 115 116 117

SIGN

SIGN

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SIGN

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

Danger
No Thru Traffic
48" x 24"
SEE NOTE 3

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.
3. Refer to Traffic Control Plan on Sheet J.1 for addtional placement details and Iowa DNR contacts.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.34

1:52:40 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 3D

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑦
WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

118 119 120 121 122 123

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

Mulberry Ln

⑫
K C MART INC
26551 MAGNOLIA RD

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.35

1:52:41 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 3D

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

ROAD WORK AHEAD
25 M.P.H.
W20-1 48" x 48"
W13-1 24" x 24"

124 125 126 127 128 129

SIGN

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SB

END ROAD WORK
G20-2A 48" x 24"

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

Note:

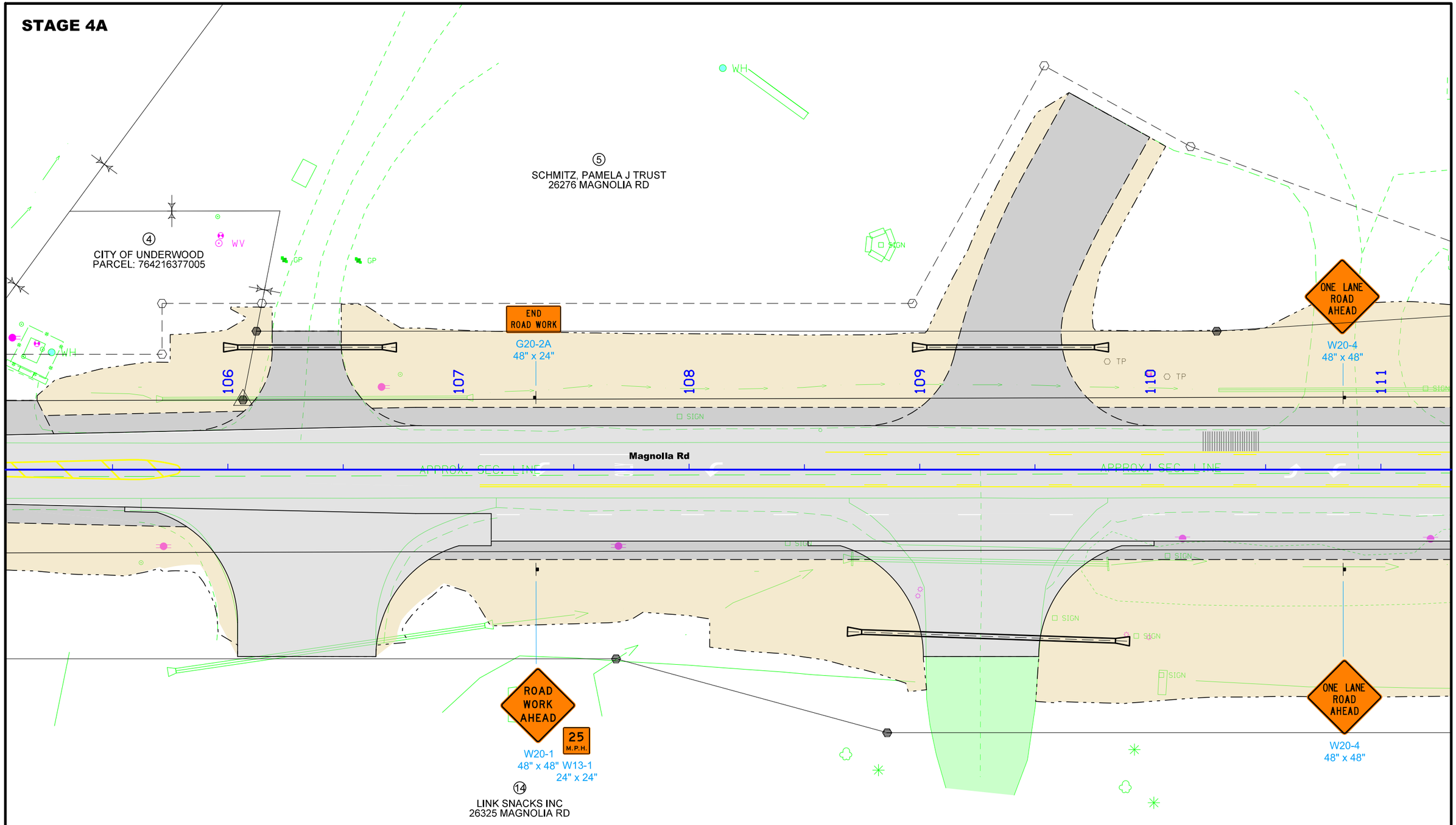
1. Refer to Standard Road Plan TC-202 for temporary sign and traffic device placement and spacing.
2. If pavement edge drop-off is greater than pavement depth during non-working hours, install temporary barrier rail.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.36

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STAGE 4A



Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.37

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STAGE 4A

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

112 113 114 115 116 117

W3-3
48" x 48"

SIGN

SIGN

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SIGN

Tile

88

88

W3-3
48" x 48"

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.38

1:52:44 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4A

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑦
WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

Temporary Traffic Signal

Temporary Crash Cushion

Temporary Barrier Rail

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

Mulberry Ln

SLW2

STOP HERE ON RED

R10-6
24" x 36"

Temporary Traffic Signal

Close Access
Utilize Mulberry Ln

⑫
K C MART INC
26551 MAGNOLIA RD

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.39

1:52:44 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4A

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

Close I-80 WB Off-Ramp.
Refer to Sheet J.6 for Detour Route

124 125 126 127 128 129

SIGN

Temporary
Barrier Rail

Temporary
Crash Cushion

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SB

CHW8

SIGN

SIGN

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

Close I-80 WB On-Ramp.
Refer to Sheet J.5 for Detour Route

Note:

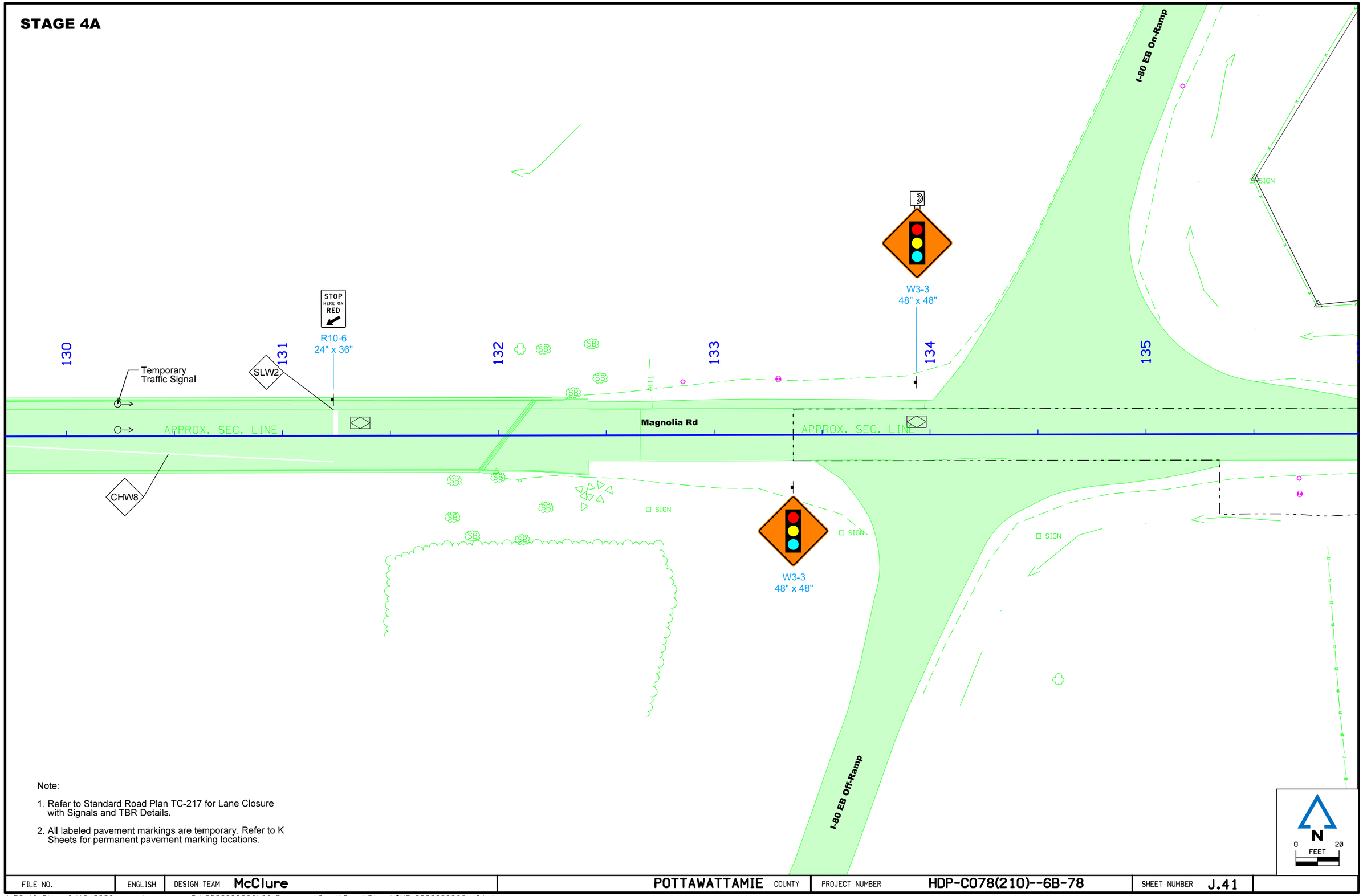
1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.40

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STAGE 4A



Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.41

1:52:46 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4A

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

ONE LANE ROAD AHEAD
W20-4
48" x 48"

ROAD WORK AHEAD
W20-1
48" x 48"
25 M.P.H.
W13-1
24" x 24"

136 137 138 139

SIGN
TP
UB
SI

Magnolia Rd
APPROX. SEC. LINE

265th St

⑩
TERRY, PHILIP D
26953 MAGNOLIA RD

END ROAD WORK
G20-2A
48" x 24"

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.42

1:52:47 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4B

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

④
CITY OF UNDERWOOD
PARCEL: 764216377005

WH
WV
GP
GP
SIGN
WH
TP
TP
SIGN
SIGN
SIGN
SIGN
SIGN
SIGN
SIGN

106
107
108
109
110
111

END
ROAD WORK
G20-2A
48" x 24"

ONE LANE
ROAD
AHEAD
W20-4
48" x 48"

Magnolia Rd

APPROX. SEC. LINE
APPROX. SEC. LINE

ROAD
WORK
AHEAD
25
M.P.H.
W20-1
48" x 48"
W13-1
24" x 24"

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

ONE LANE
ROAD
AHEAD
W20-4
48" x 48"

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.43

1:52:54 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4B

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

112 113 114 115 116 117

W3-3
48" x 48"

SIGN

SIGN

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SIGN

Tile

88

88

W3-3
48" x 48"

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.44

1:52:54 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4B

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑦
WELBOURNE FAMILY LLC
PARCEL: 764216378002

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

Temporary Traffic Signal

Temporary Crash Cushion

Temporary Barrier Rail

CHW8

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

118 119 120 121 122 123

SIGN

SLW2

STOP HERE ON RED

R10-6
24" x 36"

Mulberry Ln

Temporary Traffic Signal

Close Access
Utilize Mulberry Ln

⑫
K C MART INC
26551 MAGNOLIA RD

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.45

1:52:55 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4B

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

Close I-80 WB Off-Ramp.
Refer to Sheet J.6 for Detour Route

124 125 126 127 128 129

Temporary
Barrier Rail

Temporary
Crash Cushion

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

SIGN

SB

CHW8

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

Note:

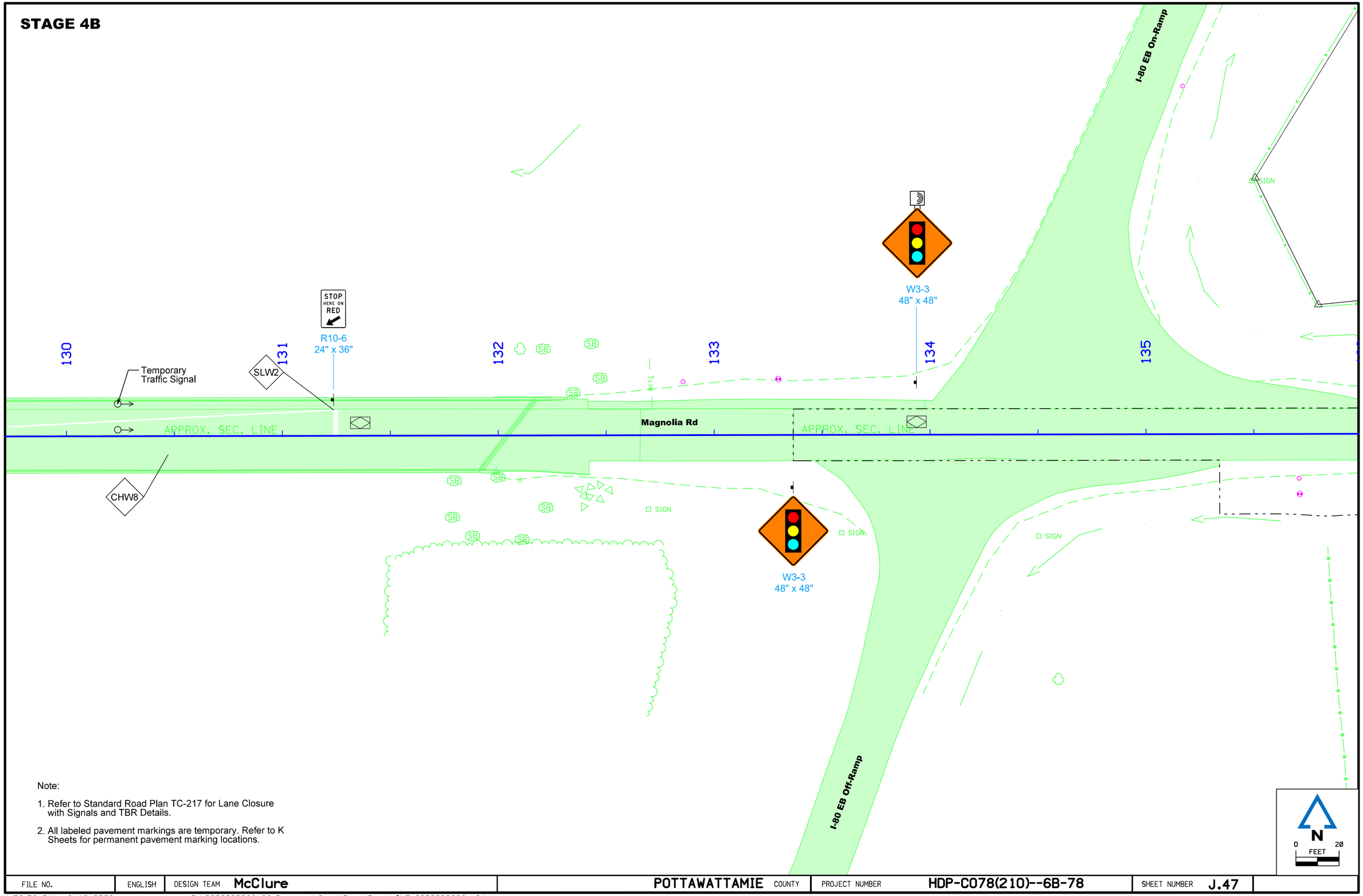
1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.46

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STAGE 4B



Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.47

1:52:58 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 4B

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

ONE LANE ROAD AHEAD
W20-4
48" x 48"

ROAD WORK AHEAD
W20-1
48" x 48"
25 M.P.H.
W13-1
24" x 24"

136 137 138 139

SIGN
OHP
UB

Magnolia Rd
APPROX. SEC. LINE
APPROX. SEC. LINE
Magnolia Rd

ONE LANE ROAD AHEAD
W20-4
48" x 48"

265th St

⑩
TERRY, PHILIP D
26953 MAGNOLIA RD

END ROAD WORK
G20-2A
48" x 24"

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.48

1:52:58 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5A

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

END ROAD WORK
G20-2A
48" x 24"

ONE LANE ROAD AHEAD
W20-4
48" x 48"

119 120 121 122 123 124 125

SIGN

Magnolia Rd

SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

ROAD WORK AHEAD
25 M.P.H.
W20-1
48" x 48" W13-1
24" x 24"

⑫
K C MART INC
26551 MAGNOLIA RD

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

ONE LANE ROAD AHEAD
W20-4
48" x 48"

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.49

1:52:59 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5A

I-80 WB Off-Ramp

I-80 WB On-Ramp

Magnolia Rd

SIGN

SIGN
W3-3
48" x 48"

SIGN

126

127

128

129

130

131

APPROX. SEC. LINE

APPROX. SEC. LINE

SLW2

CHW8

Temporary
Traffic Signal

STOP
HERE ON
RED
R10-6
24" x 36"

W3-3
48" x 48"

Note:

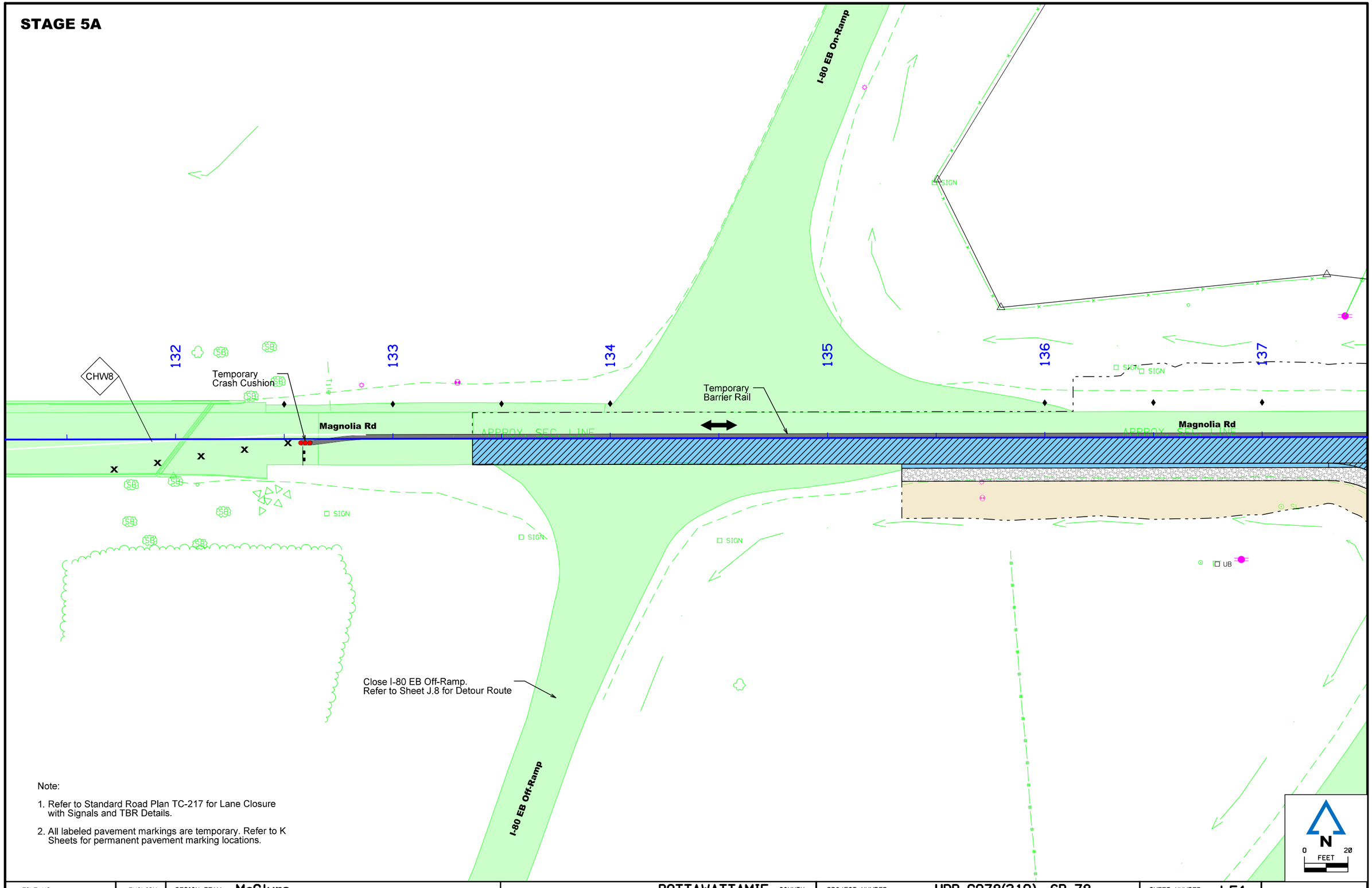
1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.50

1:53:00 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5A



Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.51

1:53:01 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5A

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

25

138

139

Temporary
Barrier Rail

Temporary
Crash Cushion

Temporary
Traffic Signal

STOP
HERE ON
RED
R10-6
24" x 36"

W3-3
48" x 48"

ONE LANE
ROAD
AHEAD
W20-4
48" x 48"

ROAD
WORK
AHEAD
W20-1
48" x 48"

25
M.P.H.
W13-1
24" x 24"

500'
500'
500'

APPROX. SEC. LINE

APPROX. SEC. LINE

Magnolia Rd

CHW8

SLW2

SIGN

TP

⑩
TERRY, PHILIP D
26953 MAGNOLIA RD

Refer to Sheet J.7 for Detour Route

265th St

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.52

1:53:02 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5B

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

END
ROAD WORK
G20-2A
48" x 24"

ONE LANE
ROAD
AHEAD
W20-4
48" x 48"

UB
SIGN
119
120
121
122
123
124
125

Magnolia Rd
SEC. LINE
APPROX. SEC. LINE
APPROX. SEC. LINE

ROAD
WORK
AHEAD
25
M.P.H.
W20-1
48" x 48" W13-1
24" x 24"

TP
UB
SIGN
WV

⑫
K C MART INC
26551 MAGNOLIA RD

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

ONE LANE
ROAD
AHEAD
W20-4
48" x 48"

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80

N
0 FEET 20

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.53

1:53:03 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5B

I-80 WB Off-Ramp

SIGN

SIGN
W3-3
48" x 48"

SIGN

126

127

128

129

130

131

SLW2

CHW8

Magnolia Rd

APPROX. SEC. LINE

APPROX. SEC. LINE

Temporary
Traffic Signal

STOP
HERE ON
RED

R10-6
24" x 36"

W3-3
48" x 48"

I-80 WB On-Ramp

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N

0 20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.54

1:53:04 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5B

Close I-80 EB On-Ramp.
Refer to Sheet J.9 for Detour Route

I-80 EB On-Ramp

132 133 134 135 136 137

CHW8

Temporary
Crash Cushion

Magnolia Rd

Temporary
Barrier Rail

Magnolia Rd

SIGN

SIGN

SIGN

SIGN

SIGN

UB

Close I-80 EB Off-Ramp.
Refer to Sheet J.8 for Detour Route

I-80 EB Off-Ramp

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.55

1:53:05 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

STAGE 5B

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

25

138

139

Temporary
Barrier Rail

Temporary
Crash Cushion

Temporary
Traffic Signal

STOP
HERE ON
RED
R10-6
24" x 36"

W3-3
48" x 48"

ONE LANE
ROAD
AHEAD
W20-4
48" x 48"

ROAD
WORK
AHEAD
W20-1
48" x 48"

25
M.P.H.
W13-1
24" x 24"

500'
500'
500'

APPROX. SEC. LINE

APPROX. SEC. LINE

Magnolia Rd

CHW8

SLW2

SIGN

⑩
TERRY, PHILIP D
26953 MAGNOLIA RD

Refer to Sheet J.7 for Detour Route

265th St

Note:

1. Refer to Standard Road Plan TC-217 for Lane Closure with Signals and TBR Details.
2. All labeled pavement markings are temporary. Refer to K Sheets for permanent pavement marking locations.

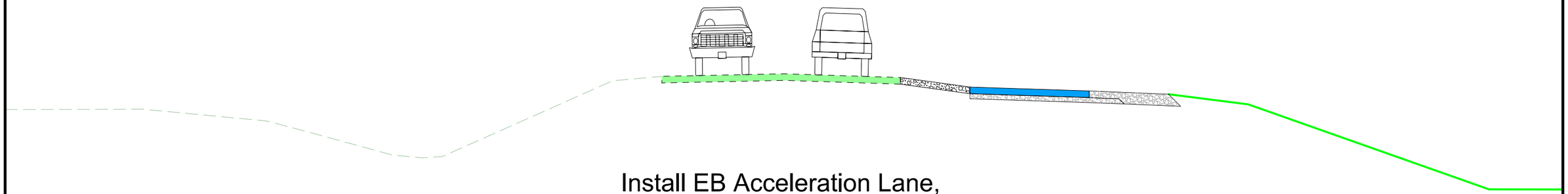
N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.56

1:53:06 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

NOTES:

Refer to V Sheets for bridge construction staging



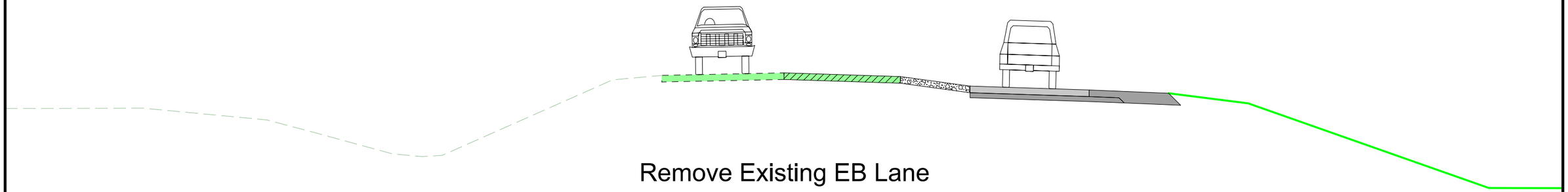
Install EB Acceleration Lane, Granular Shoulder, and Grading

Stage 3A

Sta 105+55 to 120+95

NOTES:

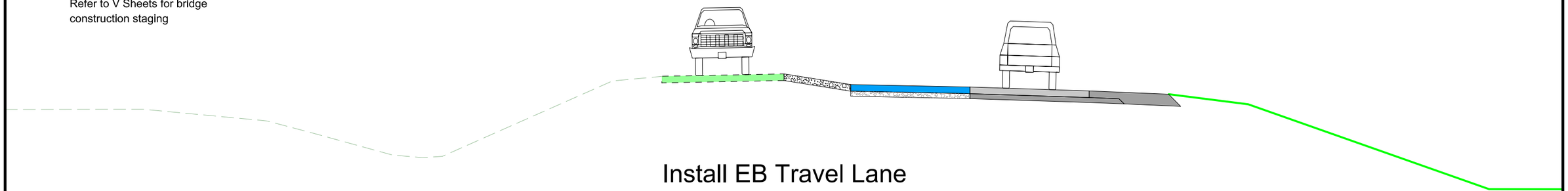
Refer to V Sheets for bridge construction staging



Remove Existing EB Lane

NOTES:

Refer to V Sheets for bridge construction staging



Install EB Travel Lane

Stage 3B

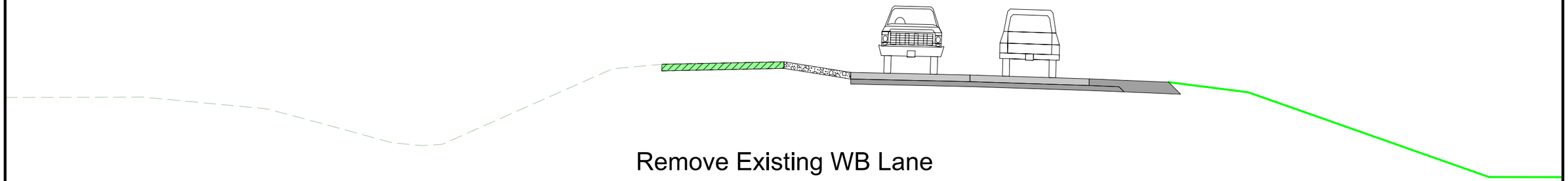
Sta 105+55 to 120+95

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.58

1:53:07 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

NOTES:

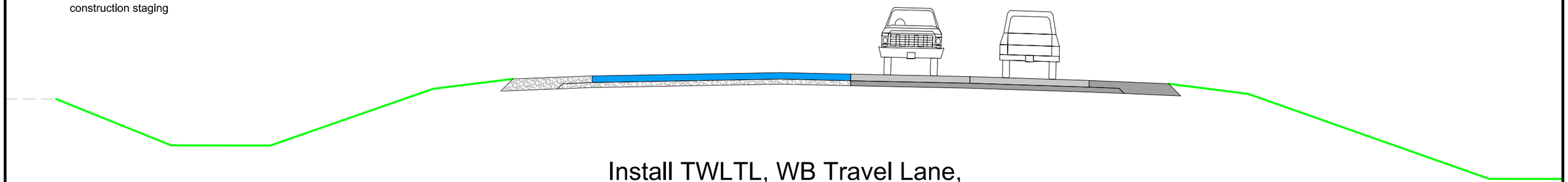
Refer to V Sheets for bridge
construction staging



Remove Existing WB Lane

NOTES:

Refer to V Sheets for bridge
construction staging



Install TWLTL, WB Travel Lane,
Granular Shoulder, and Grading

Stage 3C

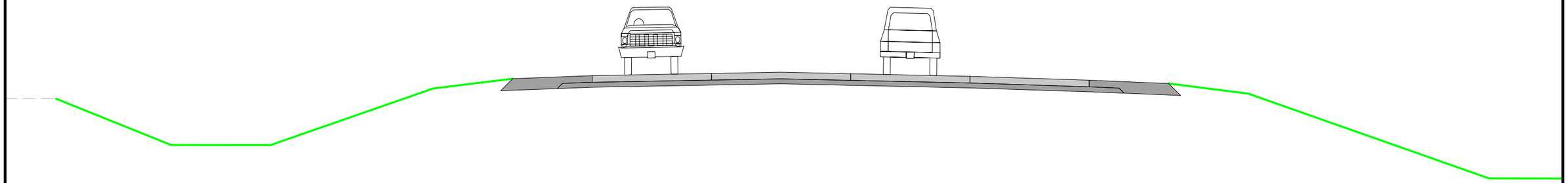
Sta 105+55 to 120+95

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.59

1:53:08 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

NOTES:

Refer to V Sheets for bridge construction staging



Stage 3D

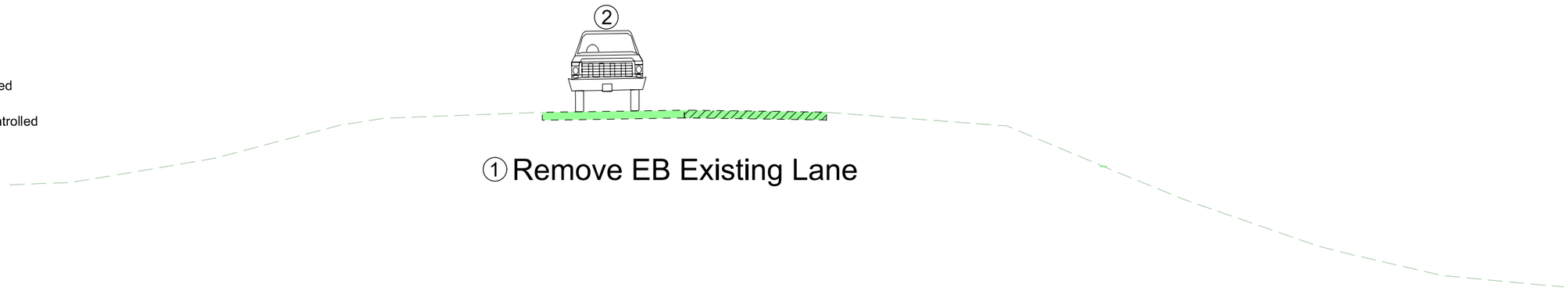
Sta 105+55 to 120+95

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.60

1:53:08 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

NOTES:

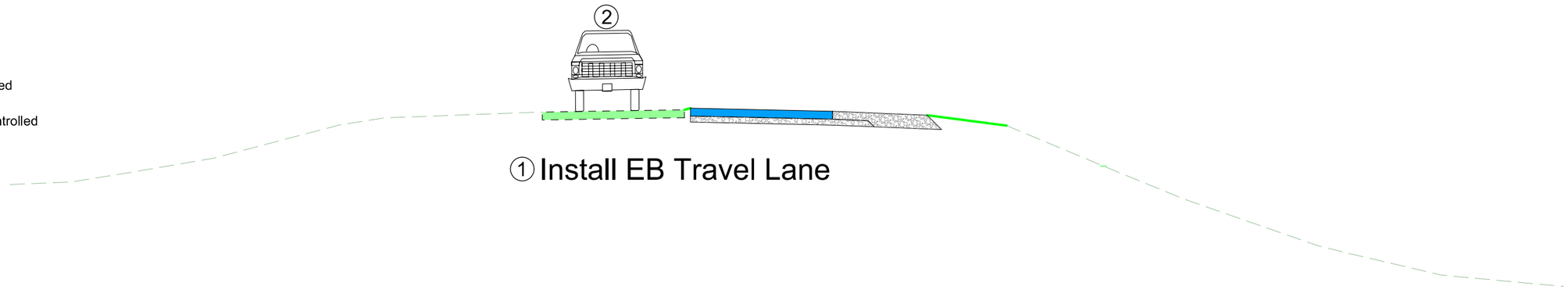
1. EB & WB can be interchanged
2. Allow for one-way signal-controlled traffic on existing pavement.



① Remove EB Existing Lane

NOTES:

1. EB & WB can be interchanged
2. Allow for one-way signal-controlled traffic on existing pavement.



① Install EB Travel Lane

Stage 4A & 5A

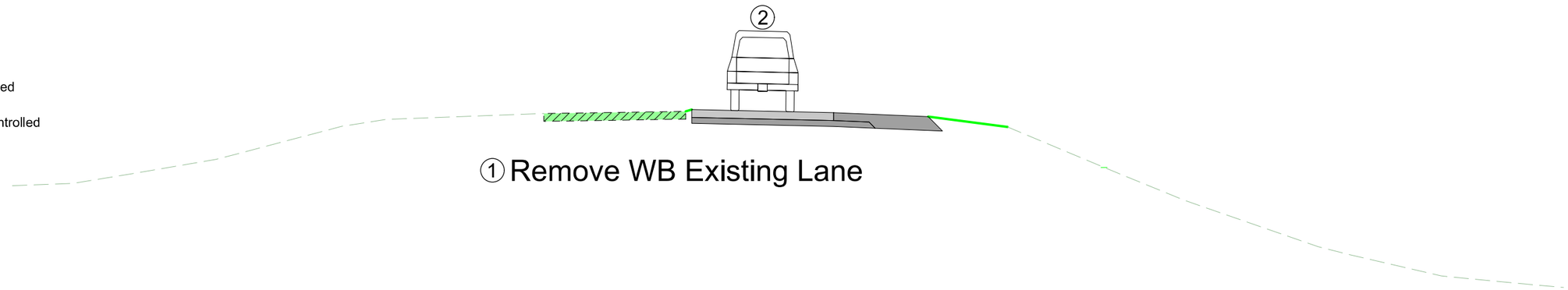
Sta 120+95 to 138+70

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.61

1:53:09 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn

NOTES:

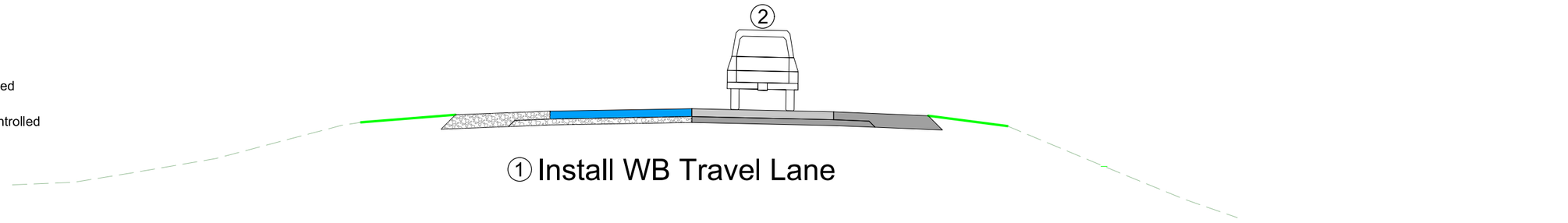
1. EB & WB can be interchanged
2. Allow for one-way signal-controlled traffic on new pavement.



① Remove WB Existing Lane

NOTES:

1. EB & WB can be interchanged
2. Allow for one-way signal-controlled traffic on new pavement.



① Install WB Travel Lane

Stage 4B & 5B

Sta 120+95 to 138+70

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER J.62

1:53:09 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_J01.dgn



1.5" Radius, 0.5" Border, 0.4" Indent, White on Green;
"Magnolia", D 2K; "Rd", D 2K;
Table of letter and object lefts

M	a	g	n	o	l	i	a	R	d
6.3	12.0	16.3	21.1	25.6	30.2	32.3	34.2	42.1	45.3



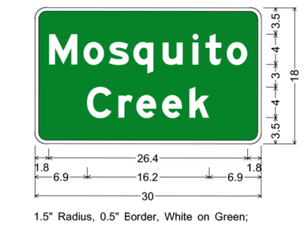
1.5" Radius, 0.5" Border, 0.4" Indent, White on Green;
"Railroad", D 2K; "Hwy", D 2K;
Table of letter and object lefts

R	a	i	l	r	o	a	d	H	w	y
5.0	9.7	14.2	16.4	18.6	21.3	25.6	30.0	38.1	41.3	46.0



1.5" Radius, 0.5" Border, 0.4" Indent, White on Green;
"Mulberry", D 2K; "Ln", D 2K;
Table of letter and object lefts

M	u	l	b	e	r	r	y	L	n
6.3	12.2	17.0	19.1	23.5	27.8	30.8	33.3	42.3	45.4



1.5" Radius, 0.5" Border, White on Green;
"Mosquito", E Mod 2K 80% spacing;
"Creek", E Mod 2K 80% spacing;
Table of letter and object lefts

M	o	s	q	u	i	t	o	
1.8	6.4	9.7	13.1	17.0	20.9	22.6	25.4	
C	r	e	e	k				
6.9	11.0	13.5	16.8	20.5				

SIGN
SIGN
UB
TP
260th St
SIGN
SIGN
92
SIGN
93
TP
94
95
96
97
Magnolia Rd
SIGN
SIGN
SIGN
SIGN
TP
Protect Stop
Ahead Sign
①
FARM POWER INC
PARCEL: 764216301003
25
MPH
Turn (Right) (W1-1R)
30" x 30"
"25 MPH" Advisory Speed (W13-1P)
18" x 18"
⑯
PETERSON, ELMER A TRUST
PARCEL: 764221100012
N
0
20
FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.2

1:53:11 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

① FARM POWER INC
PARCEL: 764216301003

Chevron Alignment (Right) (W1-8R)
18" x 24"
Chevron Alignment (Left) (W1-8L)
18" x 24"

Chevron Alignment (Right) (W1-8R)
18" x 24"
Chevron Alignment (Left) (W1-8L)
18" x 24"

Chevron Alignment (Right) (W1-8R)
18" x 24"
Chevron Alignment (Left) (W1-8L)
18" x 24"

Chevron Alignment (Right) (W1-8R)
18" x 24"
Chevron Alignment (Left) (W1-8L)
18" x 24"

Magnolia Rd

97 98 99 100 101 102 103

Railroad Hwy

Railroad Hwy
Magnolia Rd

STOP

"Magnolia Rd"
Street Name (D3-1)
54" x 12"
"Magnolia Rd"
Street Name (D3-1)
54" x 12"
Stop (R1-1)
30" x 30"

SLW2
SLW2
ELW4
DCY4
ELW4
RRCW

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

STOP
Stop (R1-1)
30" x 30"

Railroad Crossing
Warning (W10-1)
30" Diameter

Reinstall
"26201" Address Marker

County Route
G30 (M1-6)
24" x 24"

⑯ PETERSON, ELMER A TRUST
PARCEL: 764221100012

⑮ UNDERWOOD
FARM SUPPLY LLC
26201 MAGNOLIA RD

BNSF Railroad

SIGN
UB
TP
GP

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.3

1:53:12 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

County Route G30 (M1-6)
24" x 24"
County Route L52 (M1-6)
24" x 24"
Turn Arrow (Auxiliary) (M6-1R)
21" x 15"

Turn (Right) (W1-1R)
30" x 30"
"25 MPH" Advisory Speed (W13-1P)
18" x 18"

Rumble Strip Panel

④ CITY OF UNDERWOOD
PARCEL: 764216377005

⑤ SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

Stop Ahead (W3-1)
30" x 30"

103 104 105 106 107 108 109

DCY4 ELW4 SLW2 ELW4 ELW4 CHY8 SLW4 DCY4 BLW4 ELW4 NPY4

LTAW ONLW LTAW NPY4

20' Typ.

75' 75'

Magnolia Rd

SIGN

County Route G30 (M1-6)
24" x 24"

BNSF Railroad

Stop (R1-1)
30" x 30"

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.4

1:53:13 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

Reinstall
"26276" Address Marker

Rumble Strip
Panel

Railroad Crossing
Warning (W10-1)
30" Diameter

109 110 111 112 113 114 115

TP TP

LTAW RRCW NPY4 ELW4

SIGN SIGN SIGN SIGN SIGN SIGN SIGN

Magnolia Rd

LTAW NPY4 BLW4 ELW4

RIGHT LANE MUST TURN RIGHT

Right Lane Must
Turn Right (R3-7R)
30" x 30"

STOP

Stop (R1-1)
30" x 30"

Reinstall
I80 Junction Sign

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.5

1:53:13 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

Mosquito Creek
"Mosquito Creek"
Geographic Feature (I-3)
30" x 18"

115 116 117 118 119 120 121

NPY4 ELW4 STAW SLW4 LTAW ONLW LTAW ELW4

150'

10:1 Taper

Magnolia Rd

NPY4 SLW4 DCY4

BLW4 ELW4 RTAW ONLW RTAW SLW2 ELW4 CHY8

Reinstall DSM/CB
Directions Sign

Mosquito Creek
"Mosquito Creek"
Geographic Feature (I-3)
30" x 18"

Magnolia Rd
Mulberry Ln
STOP
"Magnolia Rd"
Street Name (D3-1)
54" x 12"
"Magnolia Rd"
Street Name (D3-1)
54" x 12"
Stop (R1-1)
30" x 30"

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

Mulberry Ln

⑫
K C MART INC
26551 MAGNOLIA RD

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.6

1:53:14 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

I-80 WB Off-Ramp

121 122 123 124 125 126 127

SIGN

CHY8

ELW4

20'
Typ.

10:1 Taper

Magnolia Rd

DCY4

Protect

UEB

WV

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB On-Ramp

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.7

1:53:15 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

127 128 129 130 131 132 133

SIGN ELW4

DCY4 ELW4

Magnolia Rd

SIGN

N

0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.8	

1:53:15 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

I-80 EB On-Ramp

⑨
ROSS VALLEY FARMS LLC
26874 MAGNOLIA RD

Protect G-30
Highway Sign

Protect I-80
East/West Sign

Protect DSM/CB
Direction Sign

Protect Two Direction
Large Arrow Sign

133 134 135 136 137 138 139

ELW4 ELW4 ELW4 ELW4 ELW4 ELW4 DCY4 DCY4 SLW2

SIGN

Magnolia Rd

Protect Speed
Limit Sign

SL

UB

STOP
Stop (R1-1)
30" x 30"

Protect
L-52 Sign

I-80 EB Off-Ramp

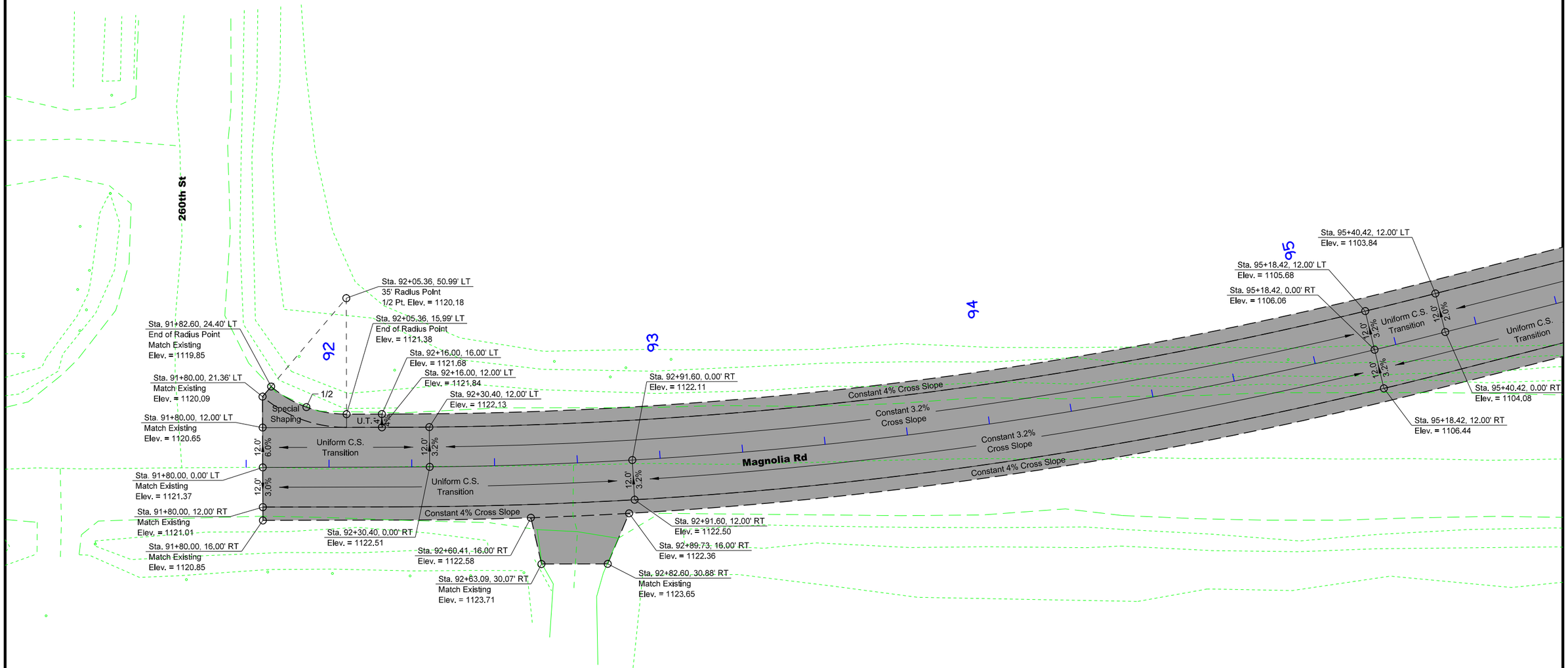
265th St

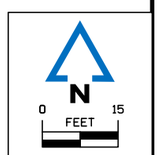
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0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER K.9

1:53:16 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_K.dgn

GEOMETRICS

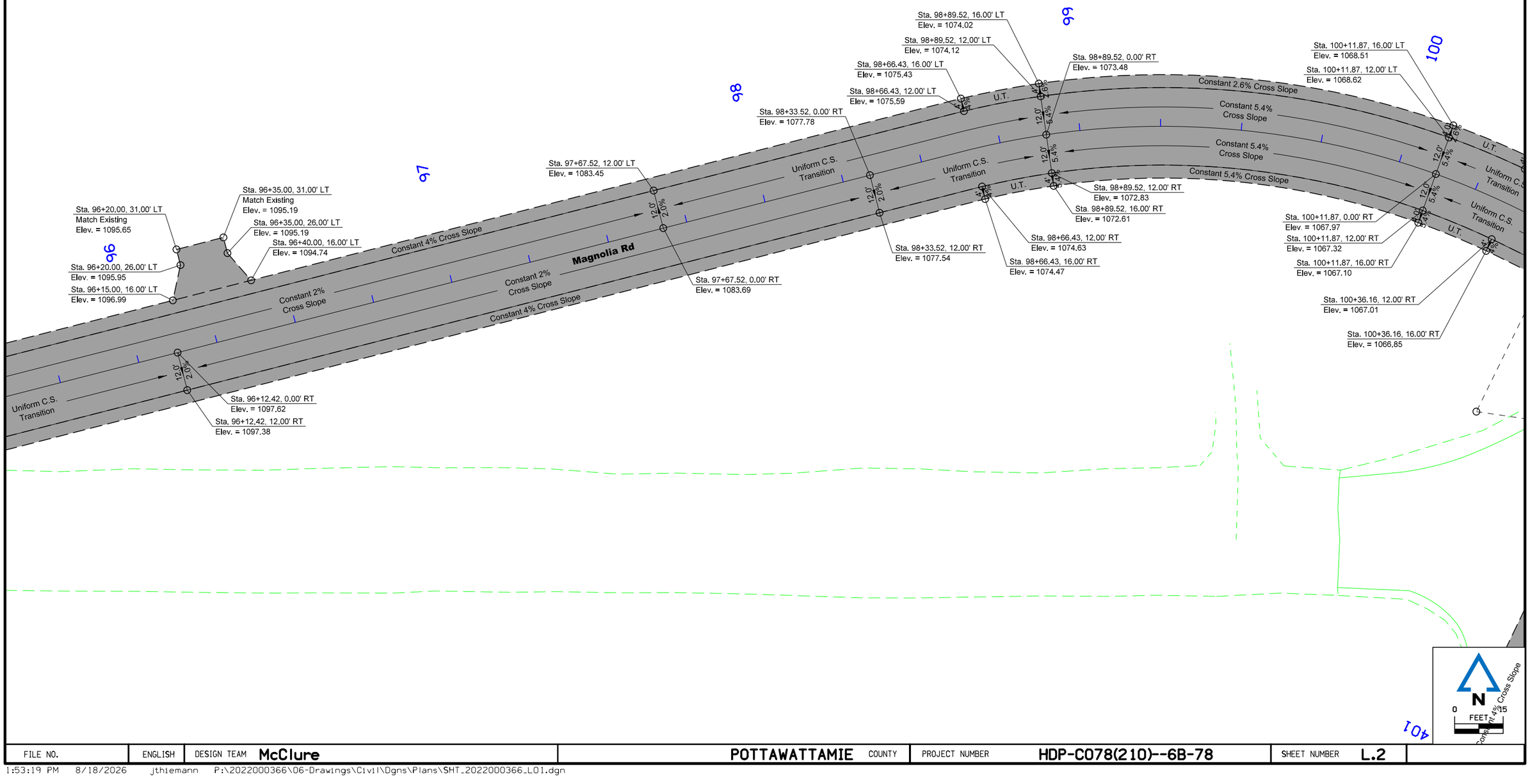




FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.1

1:53:18 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

GEOMETRICS



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.2

1:53:19 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

GEOMETRICS

Sta. 100+36.16, 12.00' RT
Elev. = 1067.01

Sta. 100+36.16, 16.00' RT
Elev. = 1066.85

Sta. 100+36.16, 12.00' LT
Elev. = 1067.97

Sta. 100+36.16, 16.00' LT
Elev. = 1067.81

Sta. 100+55.60, 62.00' RT
50' Radius Point
1/4 Pt. Elev. = 1066.73
1/2 Pt. Elev. = 1066.86
3/4 Pt. Elev. = 1067.05

Sta. 100+55.60, 0.00' RT
Elev. = 1067.13

Sta. 100+55.60, 12.00' RT
Elev. = 1066.78

Sta. 100+55.60, 12.00' LT
Elev. = 1067.47

Sta. 100+57.33, 12.00' LT
Elev. = 1067.41

Sta. 100+57.33, 62.00' LT
50' Radius Point
1/4 Pt. Elev. = 1066.88
1/2 Pt. Elev. = 1066.34
3/4 Pt. Elev. = 1065.94

Sta. 100+94.92, 38.13' RT
Elev. = 1066.97

Sta. 100+93.71, 12.00' RT
Elev. = 1066.50

Sta. 100+93.71, 0.00' RT
Elev. = 1066.42

Sta. 100+93.71, 12.00' LT
Elev. = 1066.35

Sta. 100+96.04, 37.14' LT
Elev. = 1065.75

Sta. 101+03.17, 46.61' RT
End of Radius Point
Elev. = 1067.36

Sta. 101+04.50, 45.41' LT
End of Radius Point
Elev. = 1065.81

401

402

403

404

101

Sta. 400+74.47, 22.12' LT
Elev. = 1069.10

Sta. 100+95.58, 60.83' RT
Elev. = 1067.27

Sta. 101+03.58, 60.60' RT
Elev. = 1067.65

Sta. 100+97.27, 59.83' LT
Elev. = 1065.33

Sta. 403+74.92, 22.22' LT
Elev. = 1064.70

Constant 4% Cross Slope

Special Shaping

Uniform C.S. Transition

Sta. 101+05.26, 59.39' LT
Elev. = 1065.65

Constant 4% Cross Slope

Sta. 400+74.59, 12.12' LT
Match Existing
Elev. = 1069.50

Sta. 101+05.58, 60.54' RT
Match Existing
Elev. = 1067.67

Sta. 101+05.69, 12.00' RT
Match Existing
Elev. = 1066.75

Sta. 101+05.71, 0.00' RT
Match Existing
Elev. = 1066.54

Sta. 101+05.75, 12.00' LT
Match Existing
Elev. = 1066.34

Sta. 101+07.26, 59.28' LT
Match Existing
Elev. = 1065.73

Sta. 403+74.95, 12.22' LT
Match Existing
Elev. = 1065.10

Railroad Hwy

Sta. 400+24.43, 12.12' RT
Match Existing
Elev. = 1070.71

Sta. 101+32.04, 69.09' RT
Match Existing
Elev. = 1067.71

Sta. 101+32.02, 34.67' RT
Match Existing
Elev. = 1067.14

Sta. 101+31.97, 12.00' RT
Match Existing
Elev. = 1066.74

Sta. 101+32.05, 0.00' RT
Match Existing
Elev. = 1066.53

Sta. 101+32.05, 12.00' LT
Match Existing
Elev. = 1066.37

Sta. 101+31.71, 103.91' LT
Match Existing
Elev. = 1065.26

Sta. 404+33.56, 12.22' RT
Match Existing
Elev. = 1064.56

Constant 4% Cross Slope

Sta. 101+31.88, 84.92' RT
Match Existing
Elev. = 1067.94

Special Shaping

U.T.

Sta. 101+47.05, 0.00' RT
Elev. = 1066.31

Sta. 101+47.05, 12.00' LT
Elev. = 1066.07

Constant 4% Cross Slope

Constant 4% Cross Slope

Sta. 101+35.71, 114.31' LT
Elev. = 1064.99

Sta. 404+33.52, 16.22' RT
Elev. = 1064.40

Sta. 400+24.42, 22.12' RT
Elev. = 1070.31

Sta. 101+35.88, 84.97' RT
Elev. = 1067.78

Sta. 101+41.88, 85.03' RT
Elev. = 1067.54

Sta. 101+34.04, 69.11' RT
End of Radius Point
Elev. = 1067.63

Sta. 101+42.04, 70.20' RT
Elev. = 1067.37

Sta. 101+47.05, 31.21' RT
Elev. = 1066.93

Sta. 101+47.05, 12.00' RT
Elev. = 1066.55

Magnolia Rd

Constant 2% Cross Slope

Sta. 101+41.77, 63.52' LT
End of Radius Point
Elev. = 1065.51

Sta. 101+33.71, 103.91' LT
Elev. = 1065.22

Sta. 101+41.71, 104.70' LT
Elev. = 1064.90

Sta. 404+33.46, 22.22' RT
Elev. = 1063.99

Sta. 101+81.51, 23.27' RT
End of Radius Point
Elev. = 1066.29

Sta. 102+15.04, 19.84' RT
End of Radius Point
Elev. = 1065.57

102

Sta. 101+95.87, 85.64' RT
64' Radius Point
1/4 Pt. Elev. = 1067.39
1/2 Pt. Elev. = 1067.02
3/4 Pt. Elev. = 1066.62

Sta. 102+07.10, 37.77' RT
20' Radius Point
1/2 Pt. Elev. = 1065.30

Sta. 102+06.22, 12.00' LT
End of Radius Point
Elev. = 1065.27

Sta. 102+06.22, 76.00' LT
64' Radius Point
1/4 Pt. Elev. = 1065.65
1/2 Pt. Elev. = 1065.65
3/4 Pt. Elev. = 1065.53

Sta. 102+24.42, 35.33' RT
End of Radius Point
Elev. = 1065.14

Sta. 102+26.24, 61.01' RT
Match Existing
Elev. = 1064.73

Sta. 102+23.05, 18.51' RT
Elev. = 1065.46

Uniform C.S. Transition

Sta. 102+46.36, 16.25' RT
Elev. = 1065.17

Sta. 102+46.36, 60.00' RT
Match Existing
Elev. = 1064.70

Sta. 102+57.26, 12.00' RT
Elev. = 1065.23

Uniform C.S. Transition

Sta. 102+69.89, 16.00' RT
Elev. = 1064.96

Sta. 102+66.47, 61.01' RT
Match Existing
Elev. = 1064.49

Sta. 102+68.75, 29.51' RT
End of Radius Point
Elev. = 1064.71

Sta. 102+86.42, 32.00' RT
20' Radius Point
1/2 Pt. Elev. = 1064.77

Sta. 102+75.47, 16.00' RT
End of Radius Point
Elev. = 1064.91

103

Constant 4% Cross Slope

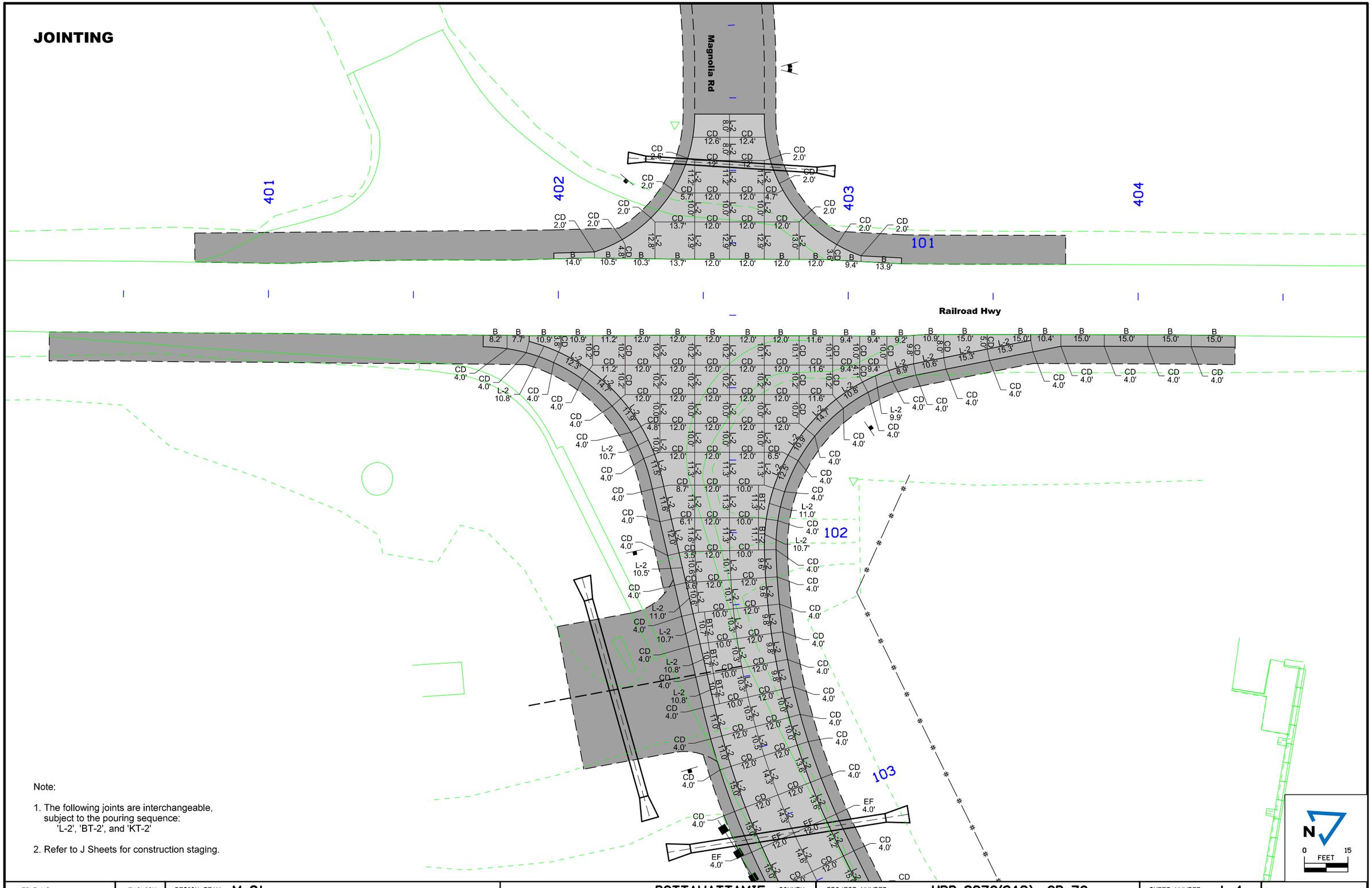
N

0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.3

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JOINTING



Note:

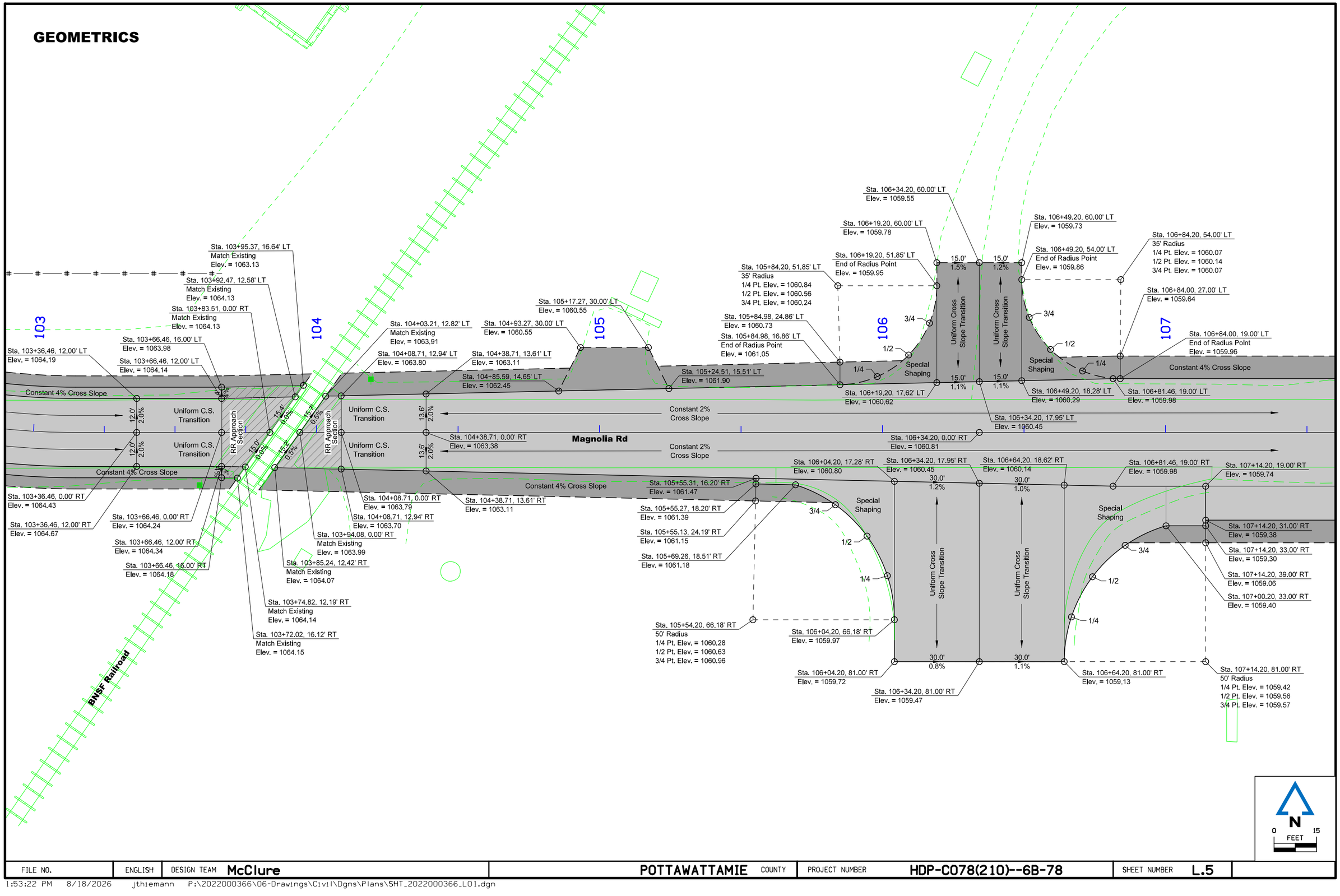
1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.4

1:53:21 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

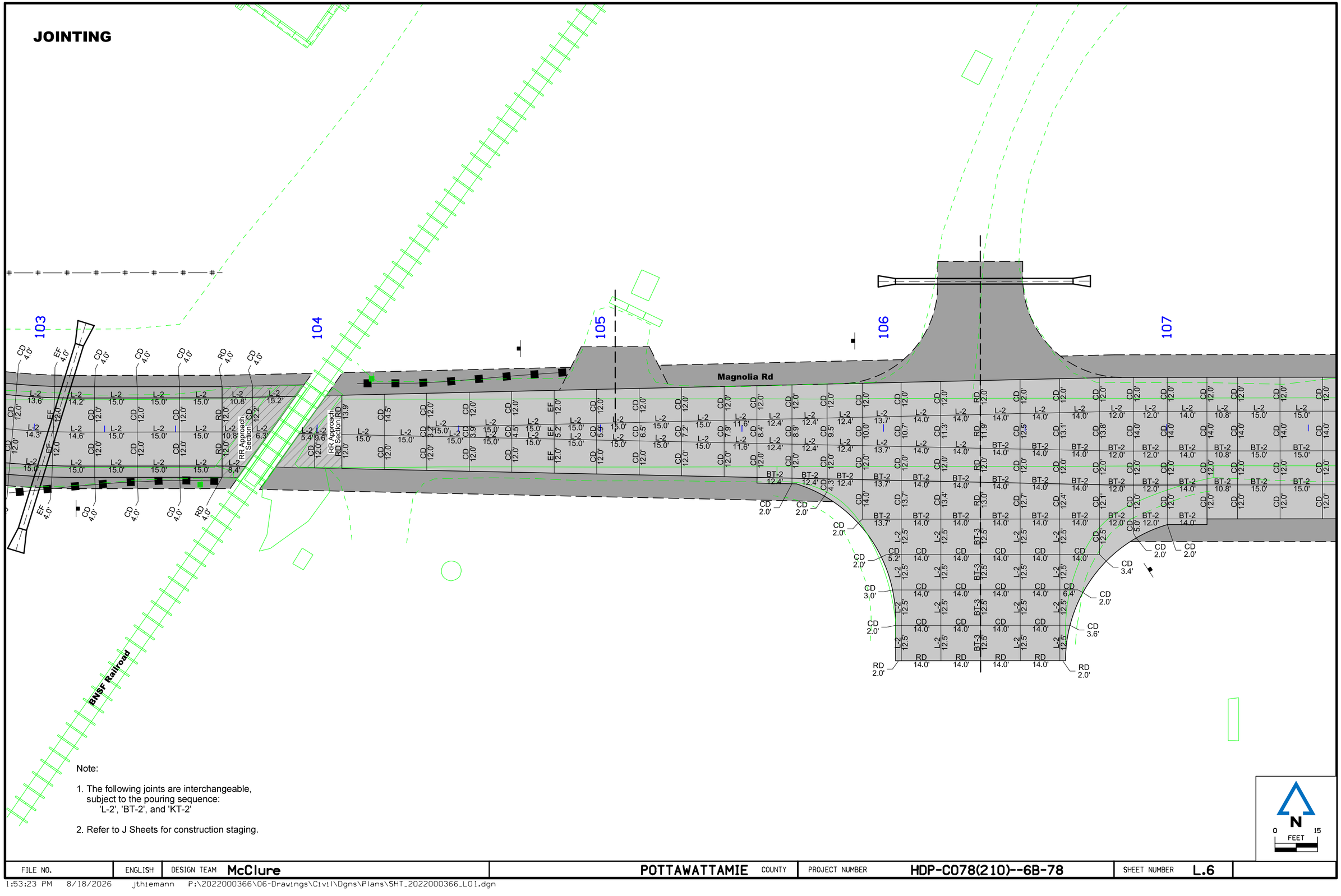
GEOMETRICS



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.5

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JOINTING



Note:

1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

N

0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.6

1:53:23 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

GEOMETRICS

Sta. 109+64.70, 163.36' LT
Match Existing
Elev. = 1054.82

20.0'
0.1%

Sta. 109+82.21, 153.70' LT
Match Existing
Elev. = 1054.81

20.0'
0.0%

Sta. 109+99.72, 144.03' LT
Match Existing
Elev. = 1054.81

Uniform C.S. Transition

Uniform C.S. Transition

Sta. 109+50.14, 137.13' LT
Elev. = 1054.35

20.0'
2.0%

20.0'
2.0%

Sta. 109+85.16, 117.81' LT
Elev. = 1054.35

Sta. 109+67.65, 127.47' LT
Elev. = 1054.75

Constant 2% Cross Slope

Constant 2% Cross Slope

Sta. 109+45.12, 79.97' LT
Elev. = 1056.16

20.0'
2.0%

Sta. 109+63.86, 72.98' LT
End of Radius Point
Elev. = 1055.76

Sta. 110+01.34, 59.00' LT
40' Radius
1/4 Pt. Elev. = 1056.52
1/2 Pt. Elev. = 1057.27
3/4 Pt. Elev. = 1057.90

Sta. 108+76.12, 59.00' LT
40' Radius
1/4 Pt. Elev. = 1058.61
1/2 Pt. Elev. = 1058.23
3/4 Pt. Elev. = 1057.67

Sta. 109+34.47, 45.02' LT
Elev. = 1057.50

3/4

Sta. 109+15.02, 49.68' LT
End of Radius Point
Elev. = 1057.10

20.0'
2.0%

Uniform C.S. Transition

Uniform C.S. Transition

Sta. 108+76.12, 27.00' LT
Elev. = 1058.46

Sta. 110+01.34, 27.00' LT
Elev. = 1057.72

Sta. 108+76.12, 19.00' LT
End of Radius Point
Elev. = 1058.78

Sta. 110+01.34, 19.00' LT
End of Radius Point
Elev. = 1058.04

3/4

1/2

1/2

108

109

110

111

112

Special Shaping

Special Shaping

1/4

1/4

Constant 4% Cross Slope

Constant 4% Cross Slope

20.0'
0.6%

20.0'
0.6%

Sta. 109+09.21, 19.00' LT
Elev. = 1058.59

Sta. 109+49.67, 19.00' LT
Elev. = 1058.35

Sta. 109+29.44, 19.00' LT
Elev. = 1058.47

Constant 2% Cross Slope

Magnolia Rd

Sta. 109+26.59, 0.00' RT
Elev. = 1058.86

9.00' RT

Constant 2% Cross Slope

Sta. 109+26.59, 31.00' RT
Elev. = 1058.12

Constant 3% Cross Slope

Sta. 109+01.59, 31.00' RT
Elev. = 1058.27

Sta. 109+51.59, 31.00' RT
Elev. = 1057.98

25.0'
0.6%

25.0'
0.6%

Constant 4% Cross Slope

Constant 4% Cross Slope

Sta. 108+51.59, 31.00' RT
Elev. = 1058.57

Sta. 110+01.59, 31.00' RT
Elev. = 1057.68

Special Shaping

Special Shaping

3/4

3/4

Sta. 108+51.59, 33.00' RT
Elev. = 1058.49

Sta. 110+01.59, 33.00' RT
Elev. = 1057.60

Sta. 108+51.59, 39.00' RT
Elev. = 1058.25

Sta. 110+01.59, 39.00' RT
Elev. = 1057.36

1/2

1/2

Sta. 108+65.59, 33.00' RT
End of Radius Point
Elev. = 1058.40

Sta. 109+87.59, 33.00' RT
End of Radius Point
Elev. = 1057.68

1/4

1/4

Uniform C.S. Transition

Uniform C.S. Transition

25.0'
1.4%

25.0'
1.1%

Sta. 108+51.59, 81.00' RT
50' Radius
1/4 Pt. Elev. = 1058.36
1/2 Pt. Elev. = 1058.31
3/4 Pt. Elev. = 1058.39

Sta. 109+01.59, 81.00' RT
End of Radius Point
Match Existing
Elev. = 1058.54

Sta. 109+26.59, 81.00' RT
Match Existing
Elev. = 1058.89

Sta. 109+51.59, 81.00' RT
End of Radius Point
Match Existing
Elev. = 1058.62

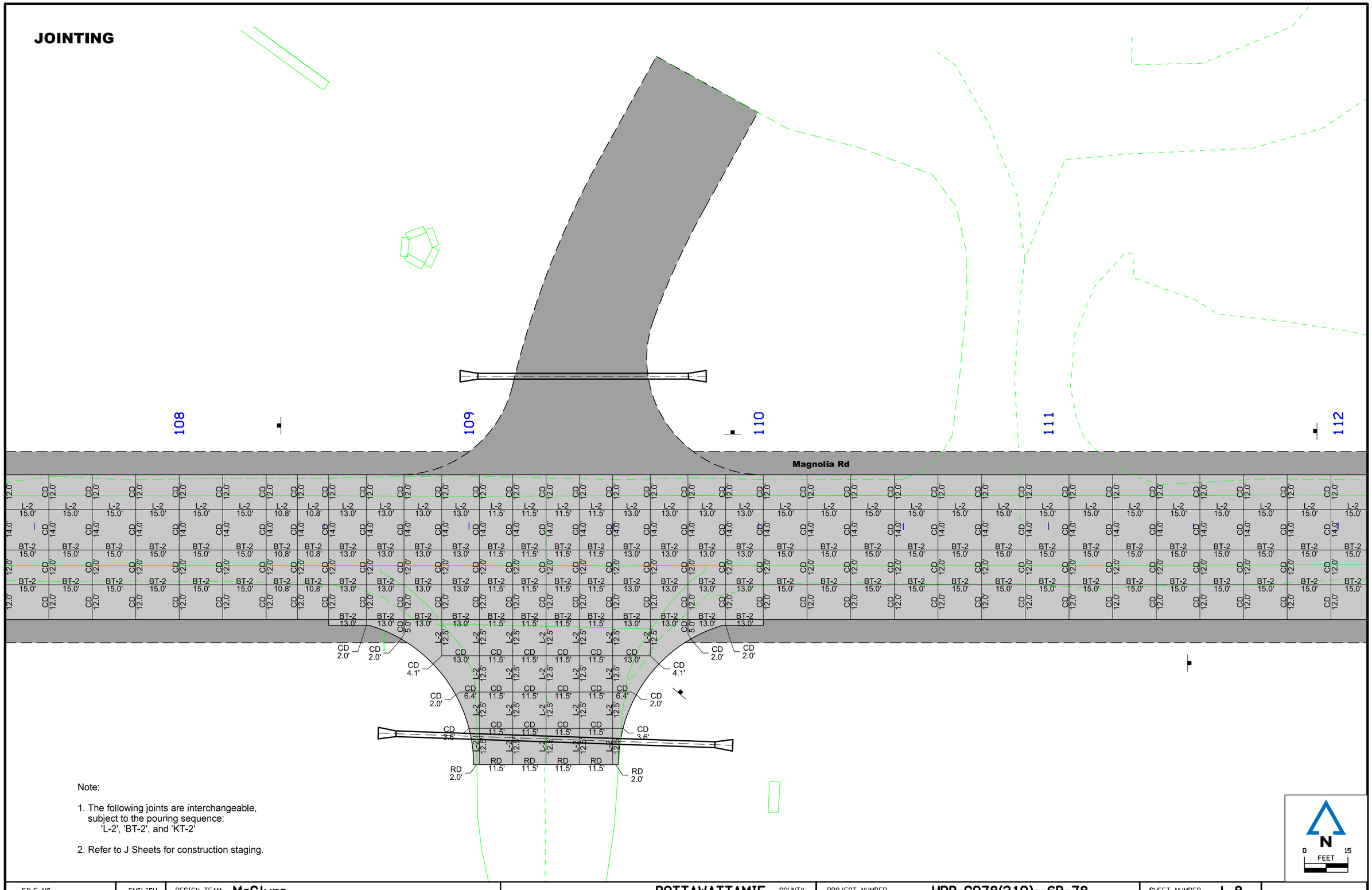
Sta. 110+01.59, 81.00' RT
50' Radius
1/4 Pt. Elev. = 1058.36
1/2 Pt. Elev. = 1058.12
3/4 Pt. Elev. = 1057.93

N
0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.7

1:53:24 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

JOINTING



Note:

1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

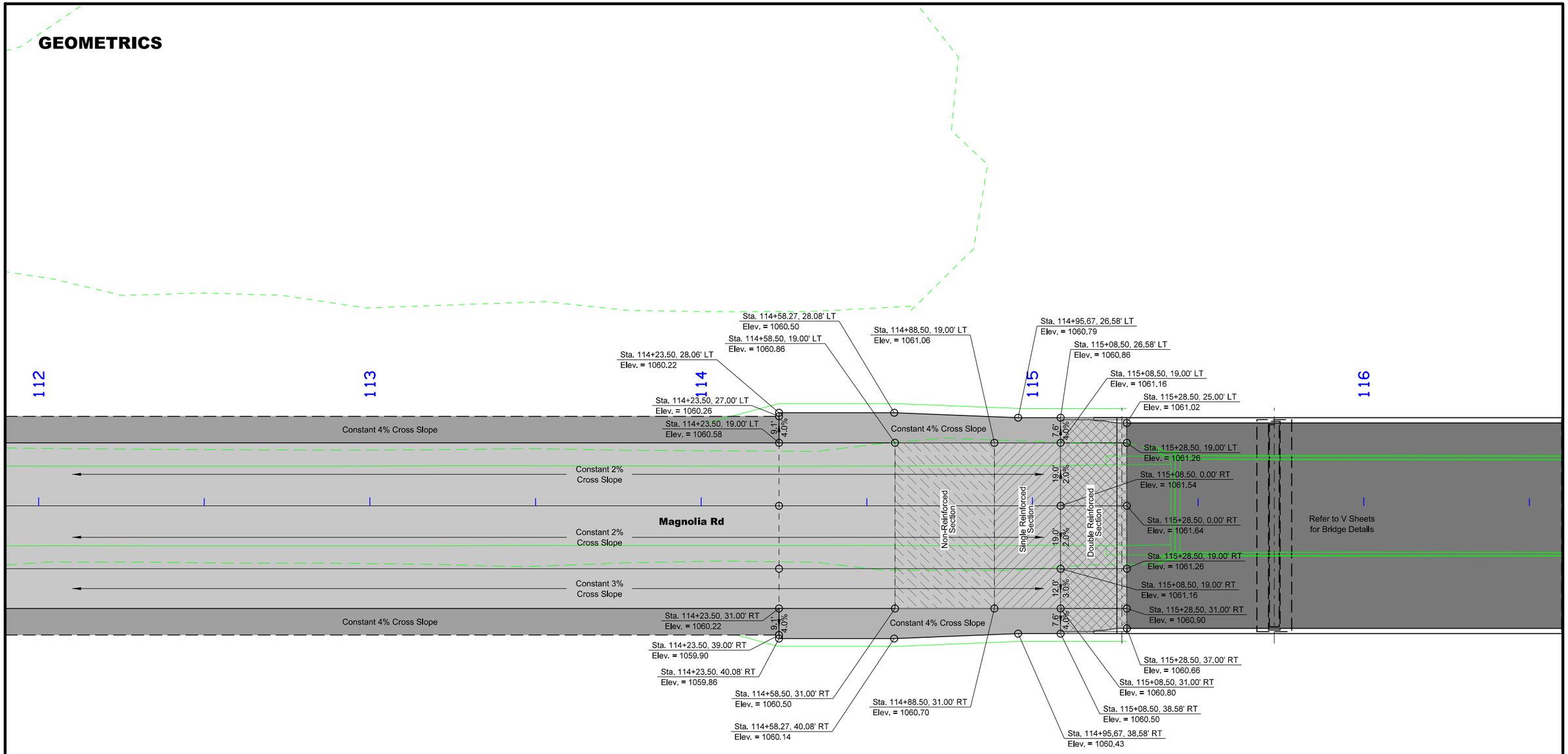
N

0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.8

1:53:25 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

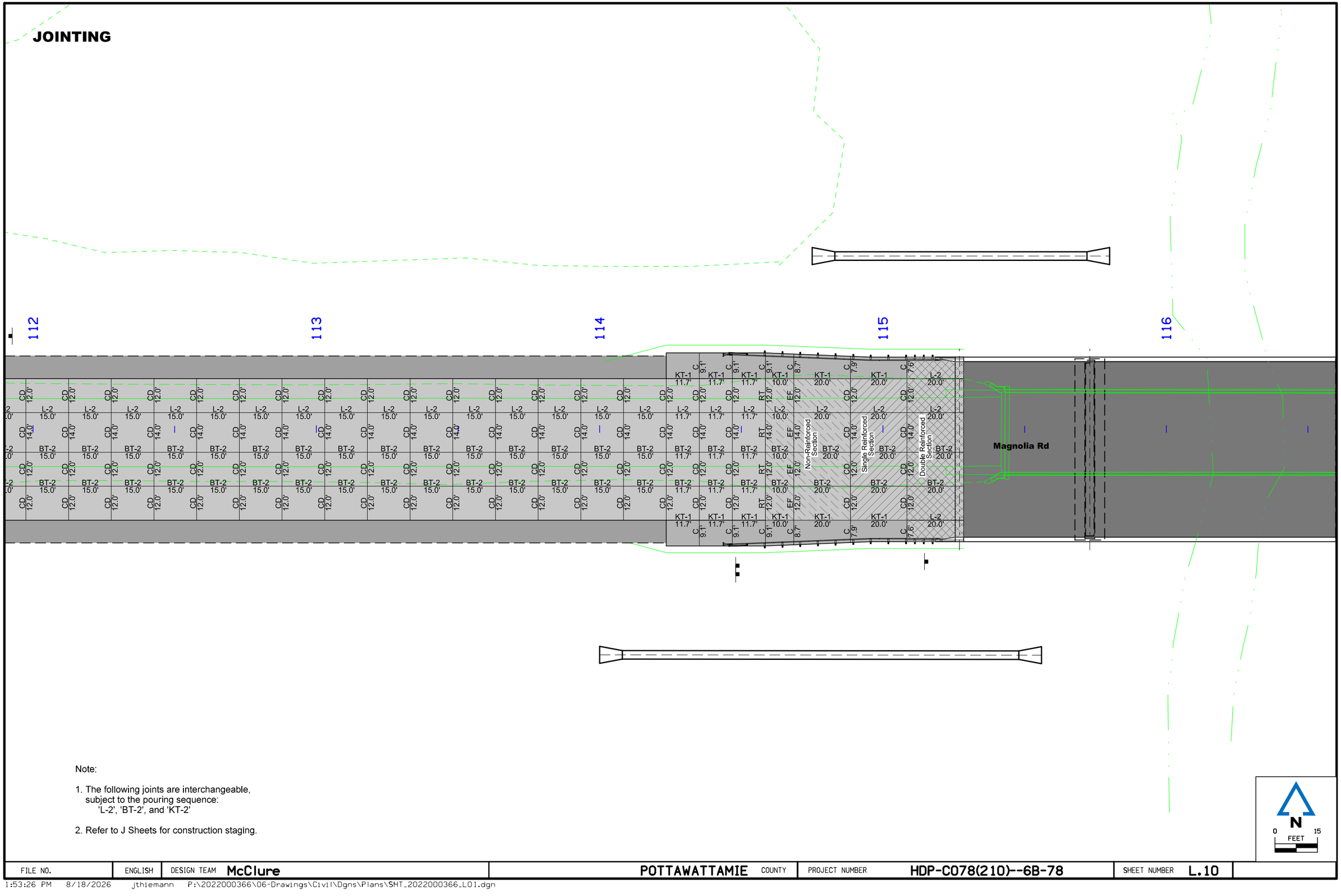
GEOMETRICS



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.9

1:53:25 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

JOINTING



Note:

1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

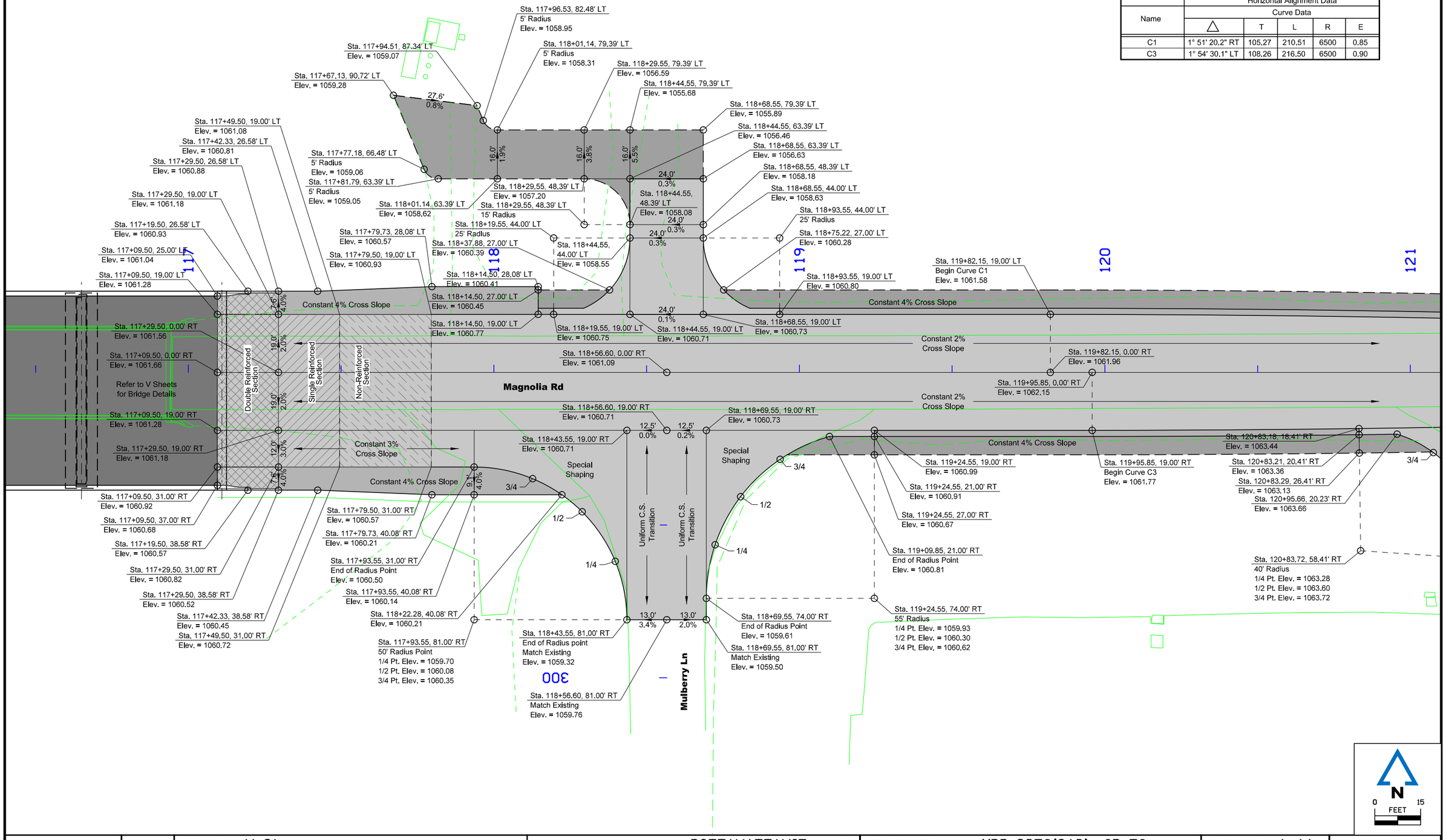
N
0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.10

1:53:26 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

GEOMETRICS

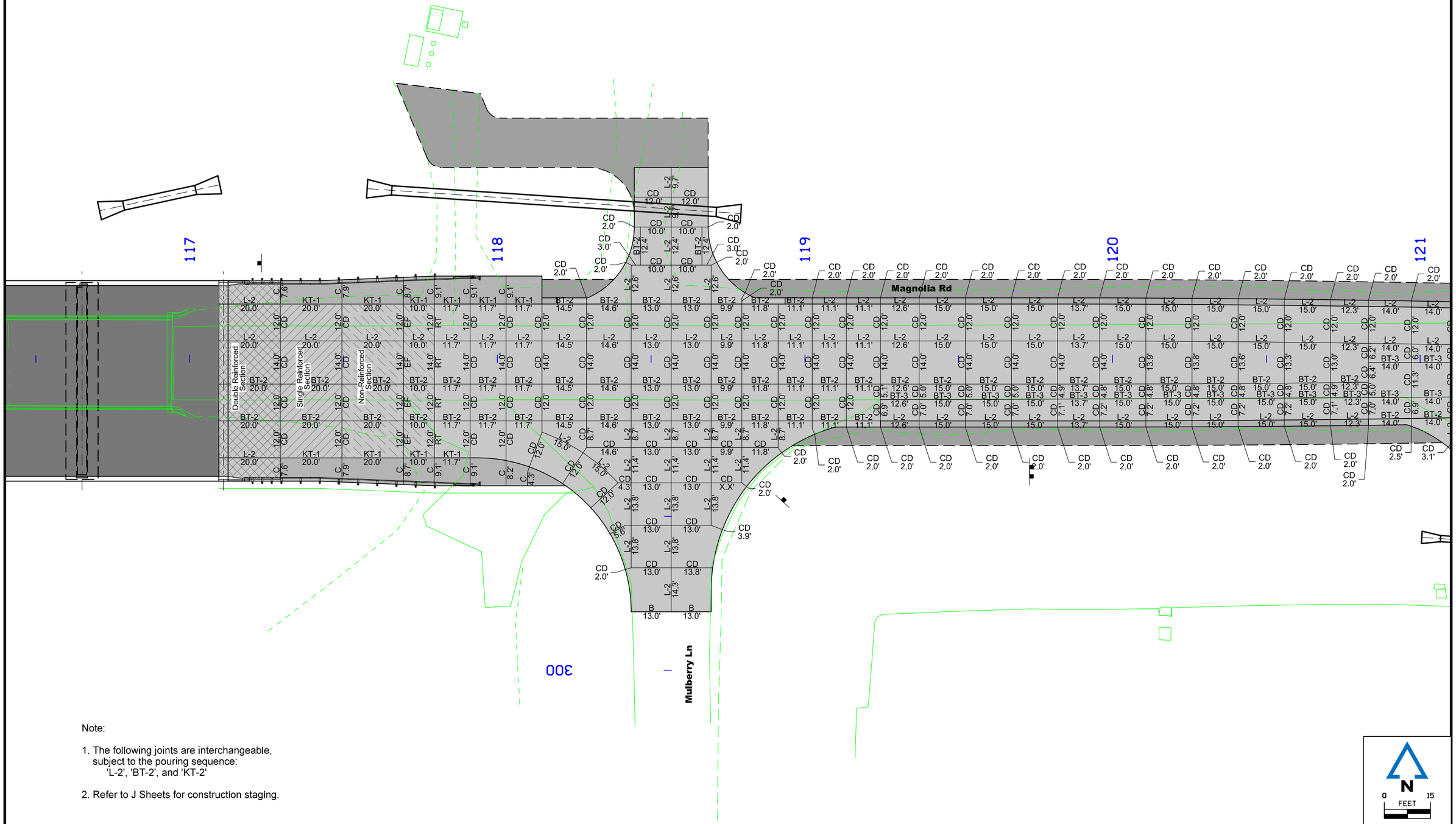
CIRCULAR CURVE DATA					
Name	Horizontal Alignment Data				
	Curve Data				
	△	T	L	R	E
C1	1° 51' 20.2" RT	105.27	210.51	6500	0.85
C3	1° 54' 30.1" LT	108.26	216.50	6500	0.90



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.11

1:53:27 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

JOINTING



Note:

1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

N

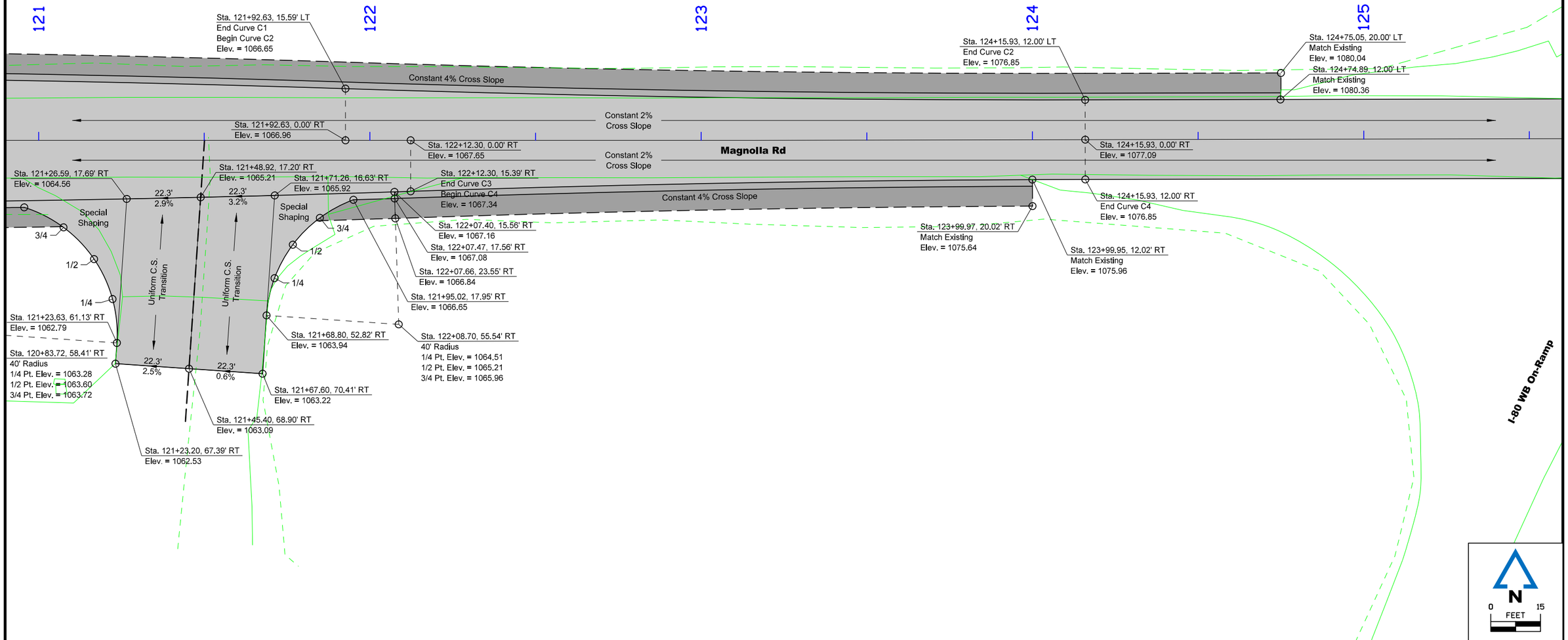
0 15 FEET

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.12

1:53:28 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_L01.dgn

GEOMETRICS

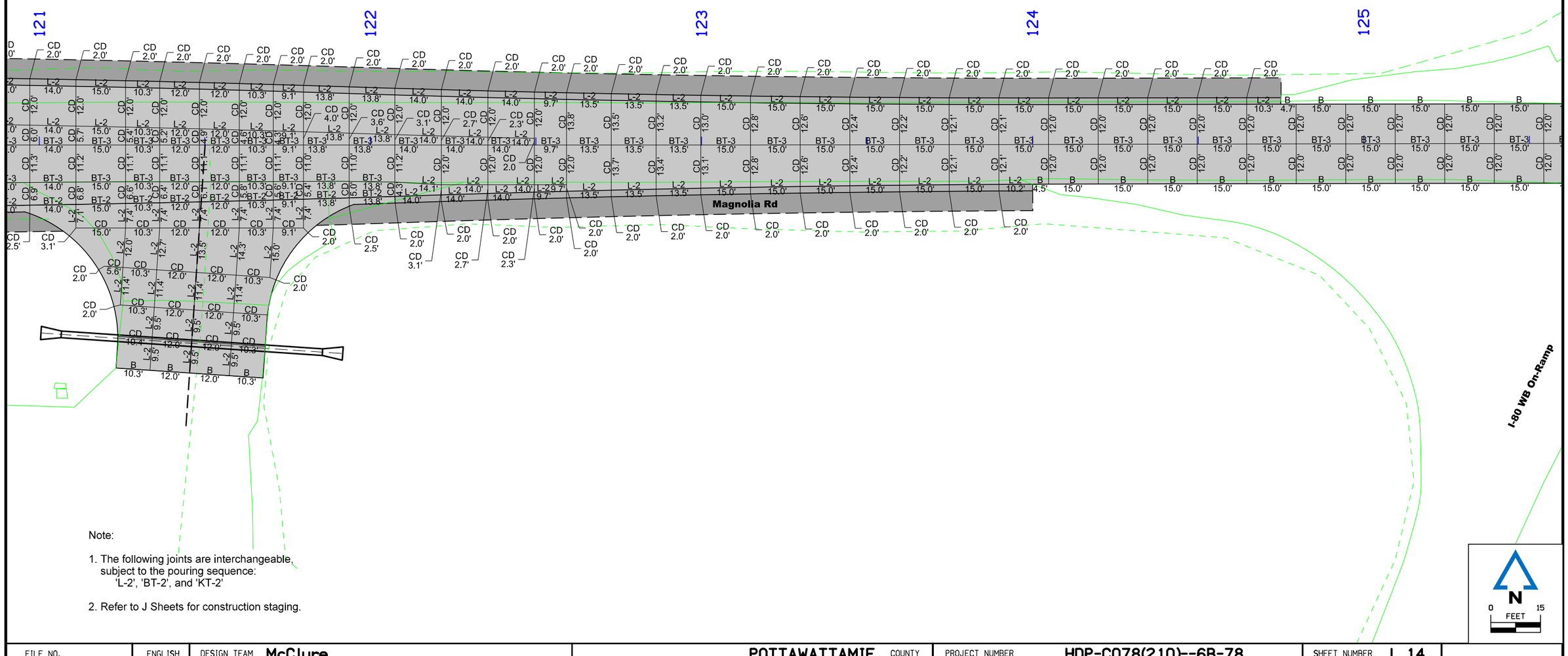
CIRCULAR CURVE DATA					
Name	Horizontal Alignment Data				
	Curve Data				
	△	T	L	R	E
C1	1° 51' 20.2" RT	105.27	210.51	6500	0.85
C2	1° 58' 06.5" LT	111.67	223.32	6500	0.96
C3	1° 54' 30.1" LT	108.26	216.50	6500	0.90
C4	1° 47' 43.8" RT	101.86	203.69	6500	0.80



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.13

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JOINTING



Note:

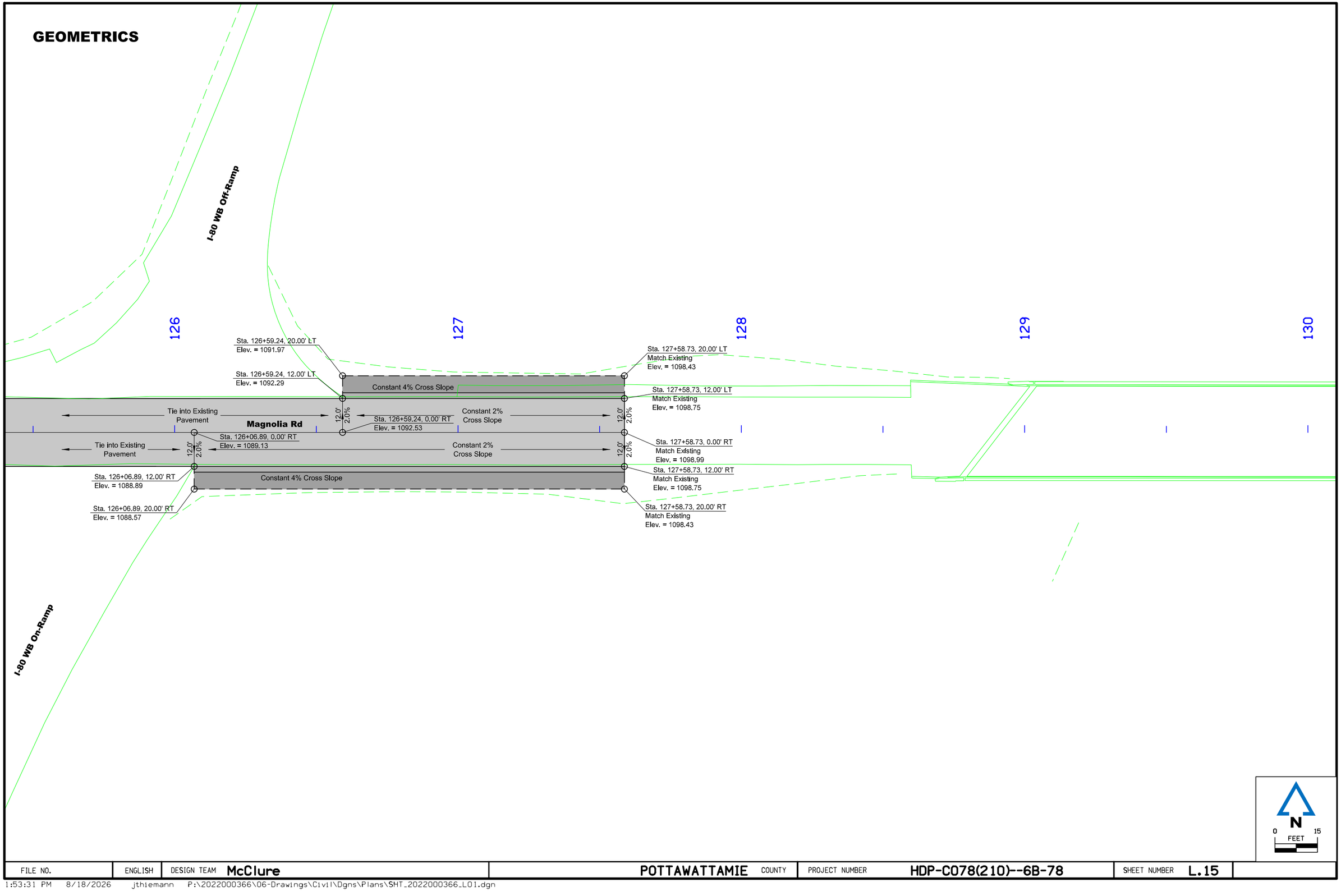
1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.14

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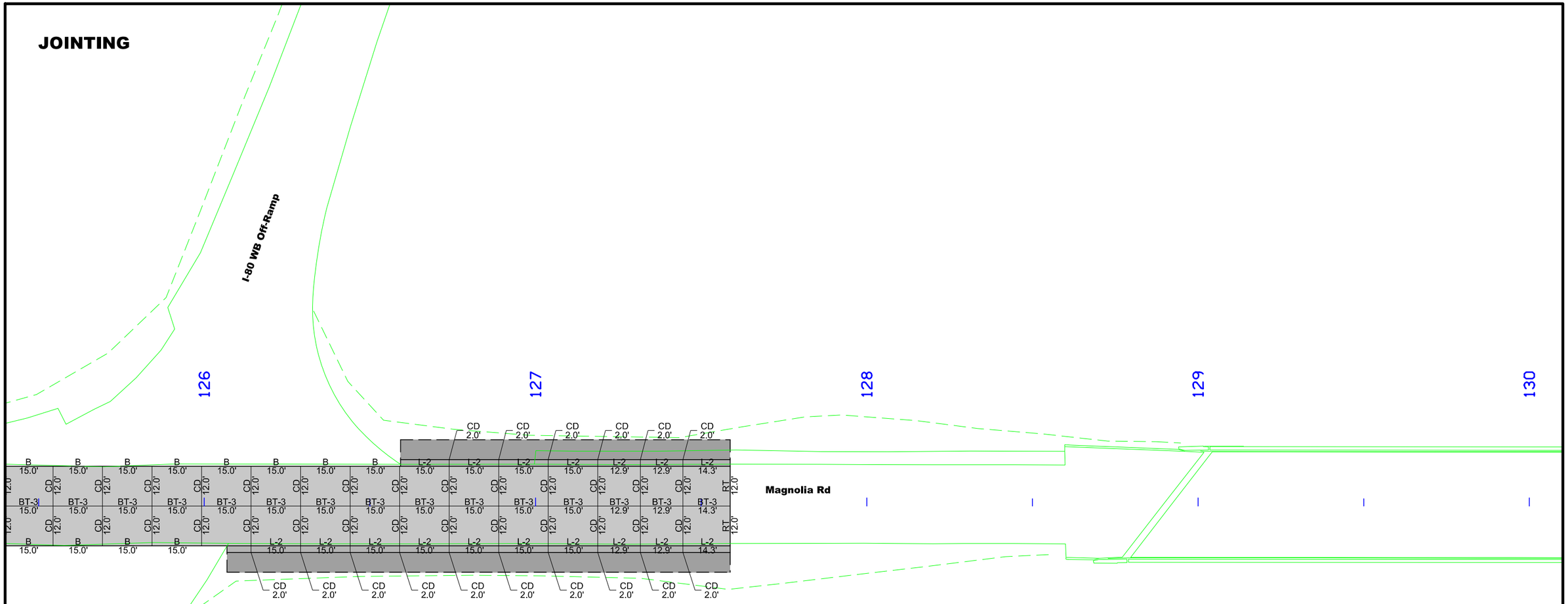
GEOMETRICS



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.15

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JOINTING



Note:

1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

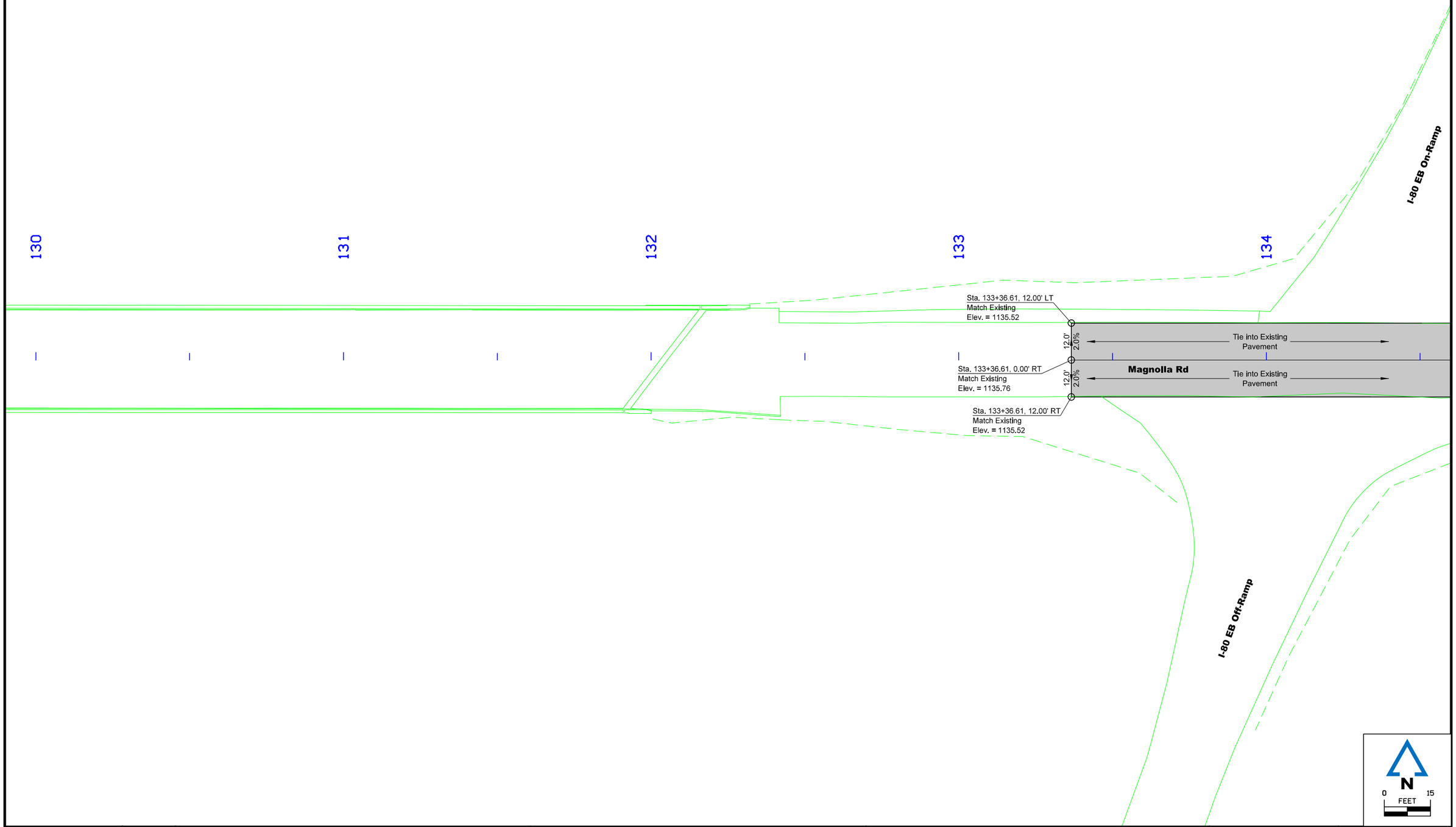
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0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.16

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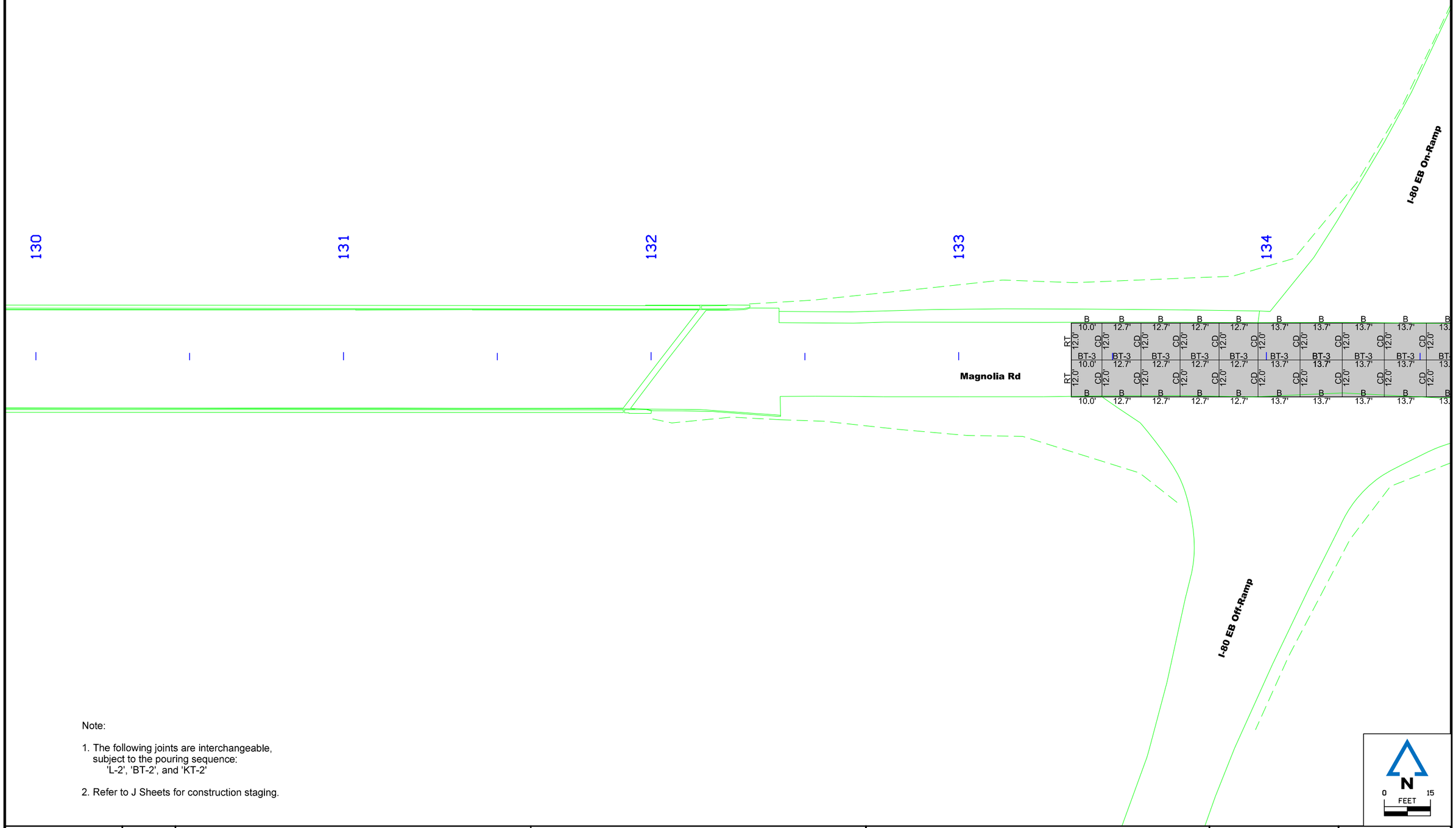
GEOMETRICS



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.17

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JOINTING



Note:

1. The following joints are interchangeable, subject to the pouring sequence:
   'L-2', 'BT-2', and 'KT-2'

2. Refer to J Sheets for construction staging.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.18

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GEOMETRICS

I-80 EB On-Ramp

135 136 137 138 139

Sta. 136+13.04, 20.00' LT
Elev. = 1152.21

Sta. 136+13.04, 12.00' LT
Elev. = 1152.53

Constant 4% Cross Slope

Tie into Existing Pavement

Sta. 135+34.11, 0.00' RT
Elev. = 1147.92

Sta. 136+13.04, 0.00' RT
Elev. = 1152.77

12.0' 2.0%

Magnolia Rd

Constant 2% Cross Slope

Sta. 138+13.64, 0.00' LT
Elev. = 1164.27

12.0' 2.0% U.T. 12.0' 2.1%

Sta. 138+58.82, 12.00' LT
Elev. = 1166.22

Sta. 138+69.77, 20.00' LT
Match Existing
Elev. = 1166.43

Sta. 138+69.90, 12.00' LT
Match Existing
Elev. = 1166.75

Sta. 138+58.82, 0.00' RT
Elev. = 1166.46

Sta. 138+70.09, 0.00' RT
Match Existing
Elev. = 1167.00

Tie into Existing Pavement

12.0' 2.0%

Constant 2% Cross Slope

Sta. 137+30.58, 12.00' RT
Elev. = 1159.63

Sta. 138+13.64, 12.00' RT
Elev. = 1164.03

12.0' 5.0%

12.0' 4.8%

Sta. 138+25.64, 12.00' RT
Elev. = 1164.61

12.0' 2.0% U.T. 12.0' 1.9%

Sta. 138+70.28, 12.00' RT
Match Existing
Elev. = 1166.77

Sta. 135+34.11, 12.00' RT
Elev. = 1147.68

Constant 4% Cross Slope

Sta. 137+30.58, 14.00' RT
Elev. = 1159.55

Sta. 138+01.64, 12.00' RT
Elev. = 1163.43

Special Shaping

Special Shaping

Sta. 138+70.28, 14.00' RT
Match Existing
Elev. = 1166.68

Sta. 135+34.11, 20.00' RT
Elev. = 1147.36

Sta. 137+30.58, 20.00' RT
Elev. = 1159.31

Sta. 138+58.82, 12.00' RT
Elev. = 1166.22

Sta. 138+70.28, 22.00' RT
Match Existing
Elev. = 1166.36

Sta. 137+44.58, 14.00' RT
End of Radius Point
Elev. = 1160.33

3/4 1/2 1/4

3/4 1/2 1/4

Sta. 600+96.25, 42.53' RT
End of Radius Point
Elev. = 1166.07

Sta. 600+90.71, 44.05' RT
Elev. = 1165.68

Uniform C.S. Transition

Uniform C.S. Transition

265th St

Sta. 600+49.96, 12.00' LT
Elev. = 1162.56

Sta. 600+73.98, 15.31' RT
Elev. = 1164.38

Sta. 600+13.32, 62.00' LT
50' Radius
1/4 Pt. Elev. = 1161.92
1/2 Pt. Elev. = 1161.76
3/4 Pt. Elev. = 1161.25

Sta. 600+66.73, 64.30' RT
50' Radius
1/4 Pt. Elev. = 1164.71
1/2 Pt. Elev. = 1165.12
3/4 Pt. Elev. = 1165.57

Sta. 600+49.96, 12.00' RT
Elev. = 1163.79

Sta. 600+13.32, 20.00' LT
Match Existing
Elev. = 1161.15

12.0' 7.0%

12.0' 5.0%

Sta. 600+13.32, 12.00' LT
Match Existing
Elev. = 1161.71

Sta. 600+13.32, 0.00' LT
Match Existing
Elev. = 1162.56

Sta. 600+13.32, 12.00' RT
Match Existing
Elev. = 1163.16

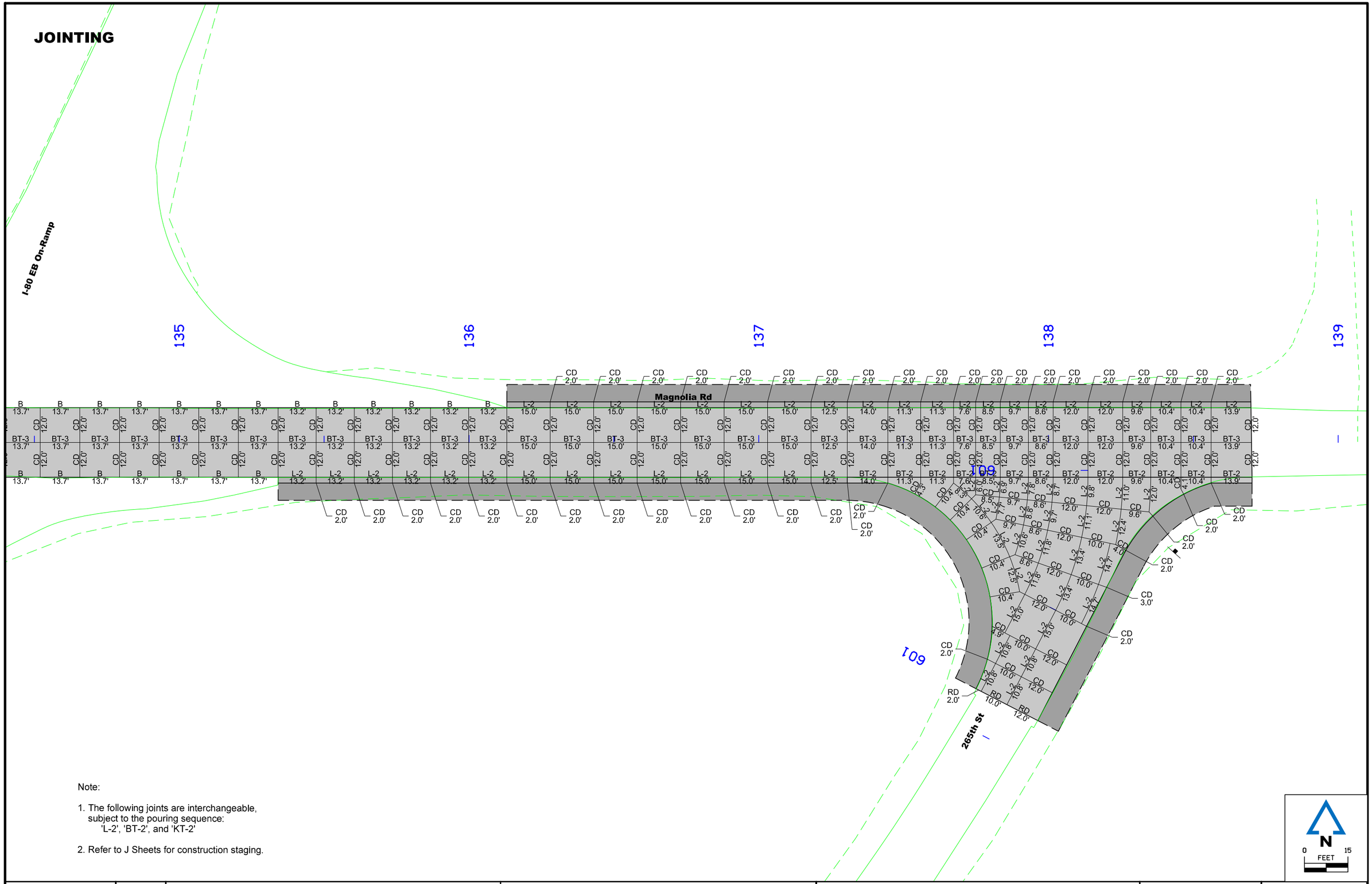
Sta. 600+13.32, 20.00' RT
Match Existing
Elev. = 1162.92

N
0 FEET 15

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.19

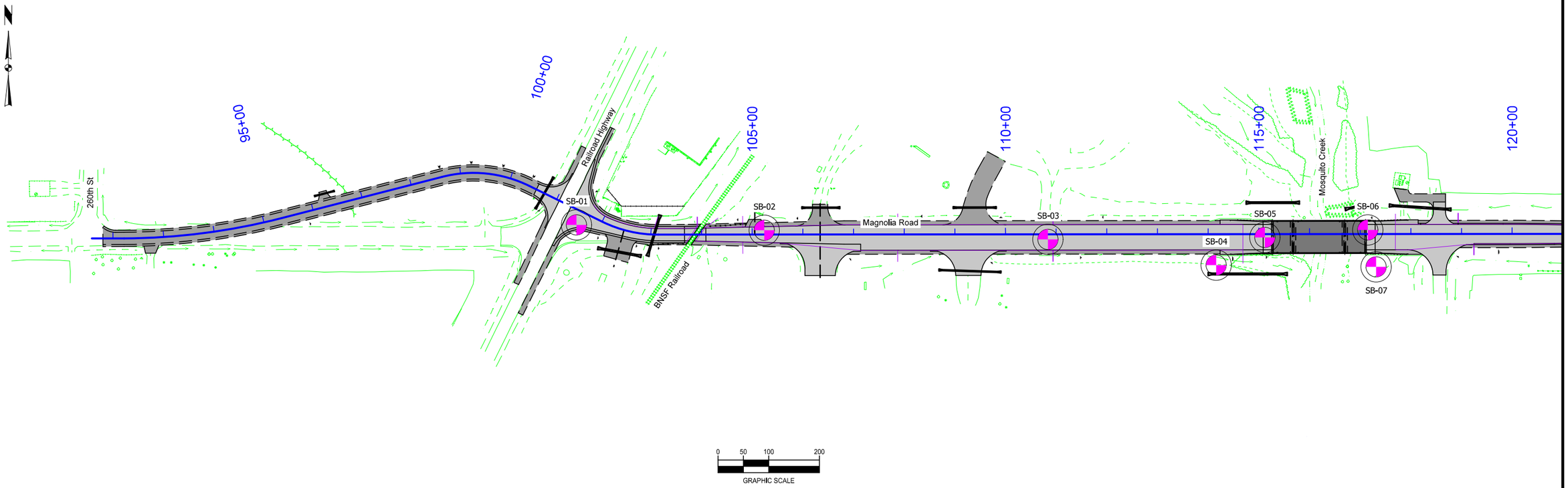
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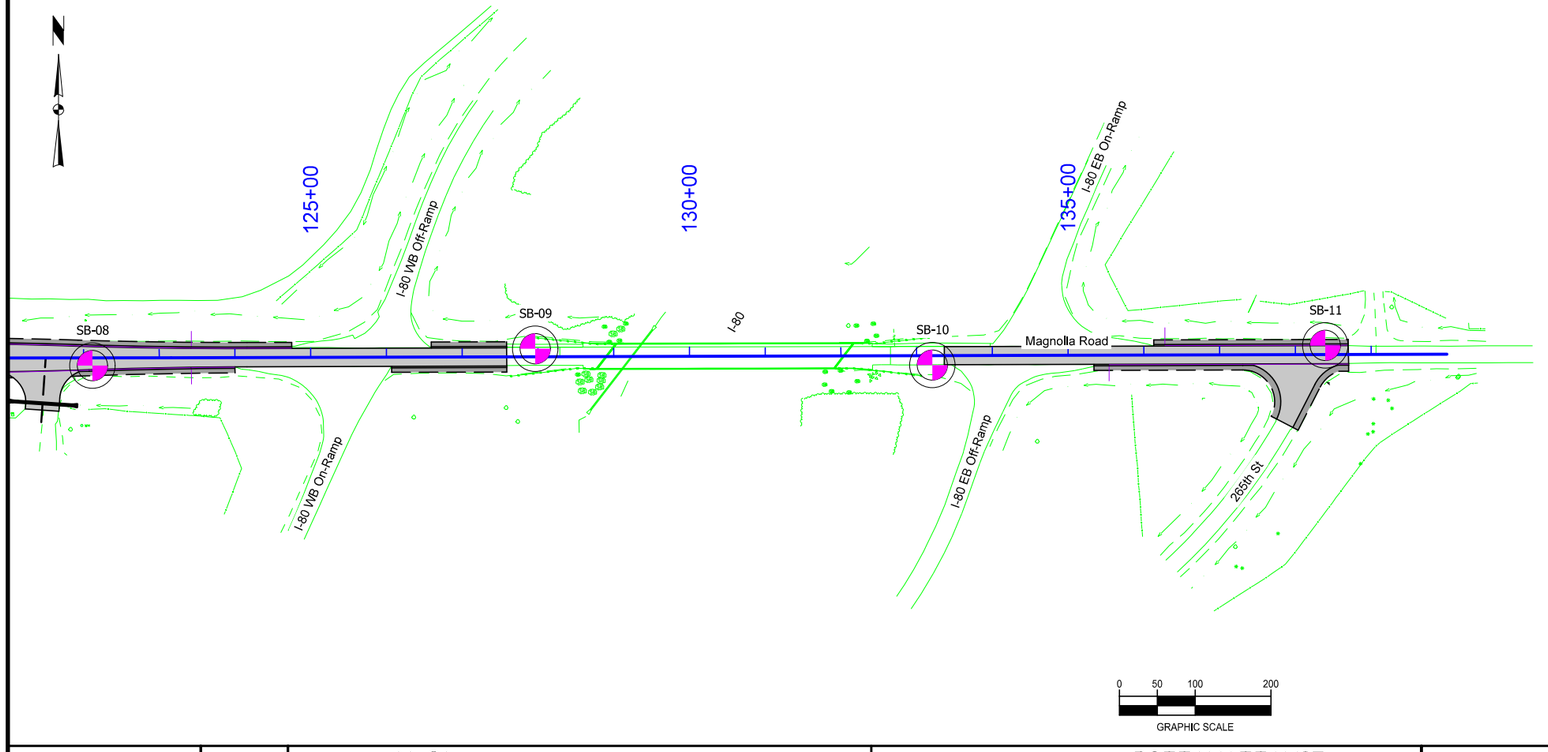
JOINTING



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER L.20

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LEGEND

SB-01 — Soil Boring

Geotechnical Information - Prepared by Others

The geotechnical boring logs presented within these plans were prepared by Braun Intertec Corporation as part of the geotechnical investigation for this project. The borings, field investigations, soil classifications, laboratory testing, and associated geotechnical interpretations were performed by Braun Intertec Corporation. These boring logs are included in the project plans for informational and reference purposes. The Engineer of Record did not perform the geotechnical investigation and does not certify the field investigation, boring logs, soil classifications, laboratory test results, or other geotechnical information prepared by Braun Intertec Corporation. The Engineer of Record's seal on these sheets certifies only the engineering work performed by or under the direct personal supervision of the Engineer of Record and does not certify the geotechnical investigation or other professional services performed by Braun Intertec Corporation. The original geotechnical report, including the boring logs, should be referenced for additional information regarding subsurface conditions.

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER Q.1

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-01**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37629 LONGITUDE: -95.68608
DRILLER: JL/KR LOGGED BY: I.Breitlow START DATE: 07/08/22 END DATE: 07/08/22
SURFACE ELEVATION: 1068.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: ACC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1067.3		ACC Pavement, 8 inches					
0.7		AGGREGATE BASE					
1066.8		FILL: SANDY LEAN CLAY (CL), trace Gravel,		3-2-2			
1.2		dark gray, moist		(4)		17	
				5"			
				0-0-2			
1063.0			5	(2)			
5.0		LEAN CLAY (CL), trace Sand, gray to brown,		1"			
		moist to wet, soft (LOESS)		3-2-2			
				(4)		30	LL=42, PL=23, PI=19
				12"			
				1-2-2			
1058.0				(4)		28	
10.0			10	14"			Water not observed while drilling.
		END OF BORING					
		Boring immediately backfilled					

B2205839 Braun Intertec Corporation Print Date:10/14/2022 SB-01 page 1 of 1

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-02**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37626 LONGITUDE: -95.68473
DRILLER: JL/KR LOGGED BY: I.Breitlow START DATE: 07/07/22 END DATE: 07/07/22
SURFACE ELEVATION: 1063.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1062.2		PCC Pavement, 10 inches					
0.8		APPARENT AGGREGATE BASE					
1061.8		FILL: SANDY LEAN CLAY (CL), trace Gravel,		4-6-10			
1.3		brown to gray, moist		(16)		19	
				6"			
				7-2-3			
			5	(5)		19	
				5"			
				4-6-9			
				(15)			
1054.5				12"			
8.5		LEAN CLAY (CL), trace Sand, brown to gray,		2-2-2			
1053.0		moist to wet, soft (LOESS)		(4)		31	
10.0			10	10"			Water not observed while drilling.
		END OF BORING					
		Boring immediately backfilled					

B2205839 Braun Intertec Corporation Print Date:10/14/2022 SB-02 page 1 of 1

Geotechnical Information - Prepared by Others
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-03**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37621 LONGITUDE: -95.68269
DRILLER: JL/KR LOGGED BY: I.Breitlow START DATE: 07/08/22 END DATE: 07/08/22
SURFACE ELEVATION: 1060.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1059.2		PCC Pavement, 10 inches					
0.8		AGGREGATE BASE					
1058.8		FILL: SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist		6-6-11 (17) 7"		18	
1.3				2-3-6 (9) 6"			
1052.0			5	6-8-8 (16) 9"		19	
8.0	▽	LEAN CLAY (CL), trace Sand, dark gray, moist, medium (LOESS)		1-2-3 (5) 12"		28	
1050.0			10				Water observed at 9.0 feet while drilling.
10.0		END OF BORING Boring immediately backfilled					

15 20 25 30 35

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-04**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37607 LONGITUDE: -95.68148
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/14/22 END DATE: 07/14/22
SURFACE ELEVATION: 1056.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: Grass WEATHER: Sunny & 88

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SANDY FAT CLAY (CH), dark gray, moist, medium (GLACIAL TILL)		2-4-2 (6) 16"		27	P200=56%
1014.0			40				
42.0		LEAN CLAY (CL), gray, moist, very stiff to hard (GLACIAL TILL) *Gravel & Cobbles at 42 feet.*		6-10-18 (28) 12"		17	
1006.0			45				
50.0		END OF BORING Boring immediately backfilled		10-14-24 (38) 15"		18	LL=48, PL=16, PI=32 Water observed at 13.0 feet while drilling.

50 55 60 65 70

Geotechnical Information - Prepared by Others
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-05**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37622 LONGITUDE: -95.68113
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/19/22 END DATE: 07/19/22
SURFACE ELEVATION: 1061.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 90

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1060.5		PCC Pavement, 6 inches					
0.5		FILL: LEAN CLAY (CL), trace organic, brown, moist		9-17-12 (29)			
			5	5-9-13 (22) 8"		19	
1055.0							
6.0		LEAN CLAY (CL), gray, moist, medium to stiff (ALLUVIUM)		4-3-4 (7) 8"			
				SH 16"	1.25	30	LL=38, PL=26, PI=12 DD=89 pcf
			10				
			15	3-4-4 (8) 18"		25	
1045.0							
16.0		FAT CLAY (CH), gray, moist to wet, medium (ALLUVIUM)					
			20	3-4-4 (8) 18"			Mud rotary started at 20 feet
		Trace Sand below 23 feet					
			25	0-2-3 (5) 16"		40	LL=54, PL=22, PI=32
			30	0-2-3 (5) 18"			
			35	3-2-4 (6) 18"		39	

Continued on next page

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-05**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37622 LONGITUDE: -95.68113
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/19/22 END DATE: 07/19/22
SURFACE ELEVATION: 1061.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 90

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		FAT CLAY (CH), gray, moist to wet, medium (ALLUVIUM)					
			40	2-3-3 (6) 18"			
1018.0							
43.0		SILT (ML), gray, wet, soft (ALLUVIUM)					
			45	0-0-3 (3) 18"		31	LL=32, PL=28, PI=4
1015.0							
46.0		FAT CLAY (CH), trace Sand, gray, moist to wet, soft (ALLUVIUM)					
			50	2-1-1 (2) 18"			
1008.0							
53.0		CLAYEY SAND (SC), fine to medium-grained, gray, wet, loose (GLACIAL OUTWASH)					
			55	2-2-5 (7) 18"		30	P200=36%
1003.0							
58.0		CLAYEY GRAVEL with SAND (GC), fine to coarse-grained, gray, moist to wet, medium dense (GLACIAL OUTWASH)					
			60	10-7-10 (17) 6"		18	P200=49%
998.0							
63.0		SHALE, light brown, highly weathered, hard					
			65	50/0" (REF)			
992.5							
68.5		END OF BORING					Boring terminated at 68 1/2 feet
		Boring then backfilled with auger cuttings	70	50/0" (REF)			Water not observed while during due to mud rotary drilling techniques

Geotechnical Information - Prepared by Others
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-06**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37626 LONGITUDE: -95.68039
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/18/22 END DATE: 07/18/22
SURFACE ELEVATION: 1061.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 70

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1060.1		PCC Pavement, 11 inches					
0.9		FILL: POORLY GRADED SAND with CLAY (SP-SC), fine to medium-grained, Gravel, dark gray, dry		8-11-9 (20) 5"		15	P200=9%
1058.0		FILL: LEAN CLAY (CL), gray, moist		1-2-2 (4) 8"			
3.0			5				
1056.0		LEAN CLAY (CL), trace Sand, dark brown, moist, stiff to medium (ALLUVIUM)		SH 18"	2.63	23	DD= 100 PCF
5.0				2-4-6 (10) 12"			
			10				
1046.0	▽			0-2-3 (5) 14"		26	Mud rotary started at 14 feet
15.0		LEAN CLAY (CL), trace Sand, dark brown, wet, very soft to soft (ALLUVIUM)	15				LL=44, PL=20, PI=24
				0-0-1 (1) 18"		38	
			20				
				2-2-2 (4) 18"		40	
			25				
				2-2-3 (5) 18"		41	LL=47, PL=18, PI=29
			30				
				2-3-4 (7) 18"			
1026.0			35				
35.0		LEAN CLAY (CL), trace Sand, gray, moist to wet, medium (ALLUVIUM)					

Continued on next page

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-06**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37626 LONGITUDE: -95.68039
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/18/22 END DATE: 07/18/22
SURFACE ELEVATION: 1061.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 70

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		LEAN CLAY (CL), trace Sand, gray, moist to wet, medium (ALLUVIUM)					
			40	2-2-2 (4) 18"		36	LL=38, PL=19, PI=19
1019.0							
42.0		FAT CLAY (CH), gray, moist to wet, stiff (GLACIAL TILL) *Trace Sand and organics at 42 feet*					
			45	0-4-5 (9) 18"		30	
1013.0							
48.0		FAT CLAY (CH), with organics, gray, wet, soft (GLACIAL TILL)					
			50	1-2-2 (4) 18"		60	
1008.0							
53.0		POORLY GRADED SAND with CLAY (SP-SC), fine to medium-grained, gray, wet, medium dense (GLACIAL TILL)					
			55	5-7-6 (13) 12"		22	P200=11%
1005.0							
56.0		LEAN CLAY (CL), trace Sand, brown, moist, stiff (GLACIAL TILL)					
			60	5-6-8 (14) 12"			
997.0							
64.0		SHALE, light brown, highly weathered, soft to moderately hard	65	10-50/3" (REF) 12"			
991.0							
70.0		END OF BORING	70	50/0" (REF)			Boring terminated at 70 feet
		Boring then backfilled with auger cuttings					Water observed at 14.0 feet while drilling.

Geotechnical Information - Prepared by Others
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-07**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37606 LONGITUDE: -95.69033
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/13/22 END DATE: 07/13/22
SURFACE ELEVATION: 1058.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: Grass WEATHER: Sunny & 88

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1057.8		Topsoil Fill					
0.3		FILL: LEAN CLAY (CL), trace organic, and Gravel, dark gray, moist		8-7-6 (13) 9"			
1054.5							
3.5		FAT CLAY (CH), dark gray, moist, medium to stiff (ALLUVIUM)	5	3-3-4 (7) 10"		29	LL=41, PL=23, PI=18
				TW 18"	1.5	29	DD= 86 PCF
			10	4-5-5 (10) 12"			
1046.0							
12.0	▽	FAT CLAY (CH), trace Sand, dark gray, moist to wet, very soft (ALLUVIUM)	15	0-0-0 14"		33	
			20	TW 18"	0	37	LL=58, PL=21, PI=37 DD=80 pcf
			25	0-0-0 15"		36	
			30	2-3-3 (6) 18"			
			35	2-2-3 (5) 18"			

Continued on next page

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LOG OF BORING

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Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-07**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37606 LONGITUDE: -95.69033
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/13/22 END DATE: 07/13/22
SURFACE ELEVATION: 1058.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: Grass WEATHER: Sunny & 88

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		FAT CLAY (CH), trace Sand, dark gray, moist to wet, very soft (ALLUVIUM)					
1019.0							
39.0		LEAN CLAY (CL), trace Sand, dark gray, moist, medium (GLACIAL TILL)	40	1-2-2 (4) 17"		32	
			45	1-3-4 (7) 18"			
1010.0							
48.0		CLAYEY SAND (SC), fine to medium-grained, gray, wet, loose to medium dense (GLACIAL OUTWASH)	50	2-3-4 (7) 13"		22	P200=14%
		Gravel and Cobbles at 52 feet.	55	3-6-5 (11) 10"		18	
1002.0							
56.0		LEAN CLAY (CL), gray, moist, stiff (GLACIAL TILL)	60	4-6-9 (15) 10"		17	Water observed at 13.0 feet while drilling.
998.0							
60.0		END OF BORING					
		Boring immediately backfilled	65				
			70				

Geotechnical Information - Prepared by Others
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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-08**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37621 LONGITUDE: -95.67858
DRILLER: JL/KR LOGGED BY: I.Breitlow
START DATE: 07/08/22 END DATE: 07/08/22
SURFACE ELEVATION: 1068.0 ft RIG: 7512 METHOD: 3 1/4" HSA
SURFACING: PCC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1067.4		PCC Pavement, 7 inches					
0.6		FILL: LEAN CLAY (CL), trace Sand, and organic, and Gravel, light gray to brown, moist		4-7-7 (14) 10"		18	
			5	4-6-8 (14) 10"			
				4-5-6 (11) 11"		19	
1058.0			10	6-11-13 (24) 10"			Water not observed while drilling.
10.0		END OF BORING					
		Boring immediately backfilled					
			15				
			20				
			25				
			30				
			35				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-09**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37627 LONGITUDE: -95.67645
DRILLER: JL/KR LOGGED BY: I.Breitlow
START DATE: 07/08/22 END DATE: 07/08/22
SURFACE ELEVATION: 1102.0 ft RIG: 7512 METHOD: 3 1/4" HSA
SURFACING: PCC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1101.2		PCC Pavement, 10 inches					
0.8		FILL: LEAN CLAY (CL), trace Sand, light gray to brown, moist		2-4-5 (9) 12"			
			5	4-6-6 (12) 10"		19	
				4-5-6 (11) 11"			
1092.0			10	4-6-9 (15) 9"		17	Water not observed while drilling.
10.0		END OF BORING					
		Boring immediately backfilled					
			15				
			20				
			25				
			30				
			35				

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LOG OF BORING

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Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-10**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37621 LONGITUDE: -95.67454
DRILLER: JL/KR LOGGED BY: I.Breitlow START DATE: 07/08/22 END DATE: 07/08/22
SURFACE ELEVATION: 1135.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1134.2	PCC Pavement, 10 inches					
0.8	FILL: LEAN CLAY (CL), trace Sand, gray, moist		5-7-10 (17) 12"			
			3-3-3 (6) 6"		20	
			4-5-8 (13) 13"			
1125.0			4-6-7 (13) 12"		23	LL=52, PL=22, PI=30
10.0	END OF BORING					Water not observed while drilling.
	Boring immediately backfilled					

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2205839
Geotechnical Evaluation
Magnolia Road Reconstruction
Railroad Highway to 265th St.
Pottawattamie County, Iowa

BORING: **SB-11**
LOCATION: See attached sketch
DATUM: WGS 84
LATITUDE: 41.37628 LONGITUDE: -95.67265
DRILLER: JL/KR/BG LOGGED BY: I.Breitlow START DATE: 07/08/22 END DATE: 07/08/22
SURFACE ELEVATION: 1166.0 ft RIG: 7512 METHOD: 3 1/4" HSA SURFACING: PCC Pavement WEATHER: Sunny & 80

Elev./ Depth ft	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1165.3	PCC Pavement, 8 inches					
0.7	FILL: LEAN CLAY (CL), trace Gravel, and Sand, brown, moist		6-7-8 (15) 6"		16	
1162.0			4-5-7 (12) 10"			
4.0	LEAN CLAY (CL), trace Sand, light gray to brown, moist, stiff (LOESS)		4-6-8 (14) 12"		17	
1156.0			5-6-7 (13) 10"			
10.0	END OF BORING					Water not observed while drilling.
	Boring immediately backfilled					

B2205839 Braun Intertec Corporation Print Date:10/14/2022 SB-11 page 1 of 1

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POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed during construction, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The Contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:

1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Is signature authority on the Base PPP. If consultant designed, signature from Contracting Authority is also required.

B. Contractor:

1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
4. Installs and maintains appropriate controls. This work may be subcontracted as documented through Subcontractor Request Forms (Form 830231).
5. Supervises and implements good housekeeping practices according to Paragraph III, C, 2.
6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.
8. Submits amended PPP site map according to Section 2602 of the Standard Specifications.

C. Subcontractors:

1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if: responsible for sediment or erosion controls; involved in land disturbing activities; or performing work that is a source of potential pollution as defined in this PPP. Subcontracted work items are identified in Subcontractor Request Forms (Form 830231). All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Implement good housekeeping practices according to Paragraph III, C, 2.

D. RCE/Project Engineer:

1. Is Project Storm Water Manager.
2. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
3. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
4. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
5. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
6. Is familiar with the Project PPP and storm water site map.
7. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
8. Is signature authority on Notice of Discontinuation.
9. Maintains an up-to-date record of contractors, subcontractors, and subcontracted work items through Subcontractor Request Forms (Form 830231).
10. Makes information to determine permit compliance available to the DNR upon their request.

E. Inspector:

1. Updates PPP through fieldbook entries and storm water site inspection reports if there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
2. Makes information to determine permit compliance available to the DNR upon their request.
3. Conducts joint required inspections of the site with the contractor/subcontractor.
4. Completes an inspection report after each inspection.
5. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of the Magnolia Road Reconstruction Project.

B. This PPP covers approximately 16.90 acres with an estimated 10.05 acres being disturbed. The portion of the PPP covered by this contract has 10.05 acres disturbed.

C. The PPP is located in an area of 1 soil association (Monona - Ida - Napier). The estimated weighted average runoff coefficient number for this PPP after completion will be 0.41.

D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:

1. Drainage Patterns – Plan and Profile sheets and Situation plans.
2. Proposed Slopes – Cross Sections.
3. Areas of Soil Disturbance – Construction limits shown on Plan and Profile sheets.
4. Location of Structural Controls – Tabulations in C sheets.
5. Locations of Non-structural Controls – Tabulations in C sheets.
6. Locations of Stabilization Practices – Generally within construction limits shown on Plan and Profile sheets.
7. Surface Waters (including wetlands) – Project Location Map and Plan and Profile sheets.
8. Locations where Storm Water is Discharged – Plan and Profile sheets.

E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries and amended PPP site map.

F. Runoff from this work will flow into roadway ditch into Mosquito Creek.

III. CONTROLS

A. The Contractor’s ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries, amended PPP site map, or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water site inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices

1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
   a) Permanently ceased on any portion of the site, or
   b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
4) Permanent and Temporary Stabilization practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C sheets.
5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets. Additional information may be found in Tabulations in the C or T sheets or is referenced in Section 2105 of Standard Specifications.

b. Structural Practices

1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.

POLLUTION PREVENTION PLAN

2) Structural practices to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found in the B sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C sheets.

c. Storm Water Management

Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C sheets. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS

Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive applicable laws, rules or regulations shall apply.

a. Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.

b. Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.

c. Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.

d. Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.

e. Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean up spills and prevent material discharges to the storm drain system and waters of the state.

f. Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.

g. Concrete Grooving/Grinding Slurry - Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.

h. Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.

i. Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.

j. Dewatering - Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

3. APPROVED STATE OR LOCAL PLANS

During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES

The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the Contractor and the Contracting Authority's inspector at least once every seven calendar days. Storm water site inspections will include:

1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water site inspection reports in the amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3

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8/23/22

POLLUTION PREVENTION PLAN

calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

A. Base PPP - Initial Pollution Prevention Plan.

B. Amended PPP - Base PPP amended during construcion. May include Plan Revisions or Contract Modifications for new items, storm water site inspection reports, fieldbook entries made by the inspector, amended PPP site map by the Contractor, ECIP, NOI, co-permittee certifications, and Subcontractor Request Forms. Items amending the PPP are stored electronically and are readily available upon request.

C. Fieldbook Entries – This contains the inspector’s daily diary and bid item postings.

D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).

E. Signature Authority - Representative authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Cody Forch

Signature

CODY FORCH

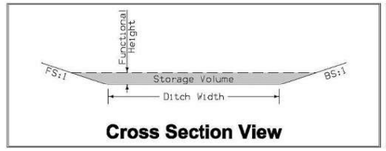
Printed or Typed Name

Signature

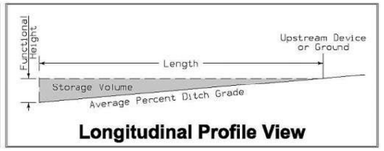
Printed or Typed Name

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



Longitudinal Profile View

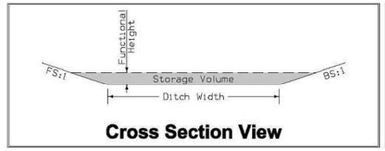
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS:1)	Backslope (BS:1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
Type 1	93+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	93+80.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	93+90.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+10.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+20.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+30.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+40.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+50.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+60.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+80.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+90.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+10.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+20.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+30.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+40.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+50.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+60.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+80.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+90.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+60.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+80.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+90.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+10.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+20.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+30.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+40.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+50.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+60.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+80.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+90.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+10.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+20.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+30.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+40.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+50.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+60.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	

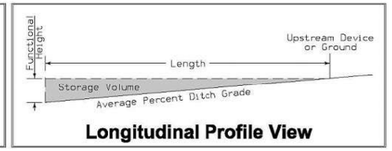
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SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



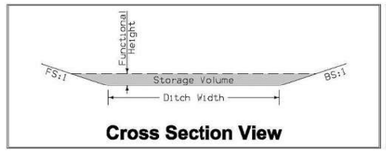
Longitudinal Profile View

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

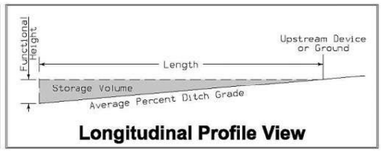
Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS:1)	Backslope (BS:1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
Type 1	98+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+80.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+90.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+10.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+20.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+30.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+40.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+50.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+75.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	4.6	129.13	
Type 1	100+00.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	4.6	129.13	
Type 1	100+70.00	Left	15.0	1.5	15.0	3.0	2.5	4.0	1.7	361.55	
Type 1	102+50.00	Left	16.0	1.6	16.0	3.0	2.5	5.0	1.6	321.20	
Type 1	103+05.00	Left	16.0	1.6	16.0	3.0	2.5	5.0	1.6	321.20	
Type 1	103+60.00	Left	16.0	1.6	16.0	3.0	2.5	5.0	1.6	321.20	
Type 1	106+95.00	Left	21.0	2.1	21.0	3.0	2.5	10.0	0.3	1701.08	
Type 1	108+80.00	Left	21.0	2.1	21.0	3.0	2.5	10.0	0.3	1701.08	
Type 1	110+90.00	Left	21.0	2.1	21.0	3.0	2.5	10.0	0.3	1701.08	
Type 1	112+75.00	Left	21.0	2.1	21.0	3.0	2.5	10.0	0.3	1701.08	
Type 1	114+60.00	Left	21.0	2.1	21.0	3.0	2.5	10.0	0.3	1701.08	
Type 1	94+45.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+65.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+75.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+85.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	94+95.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+05.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+15.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+25.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+35.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+45.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+65.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+75.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+85.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	95+95.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+05.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+15.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+25.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+35.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+45.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+65.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+75.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	96+85.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	

SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



Longitudinal Profile View

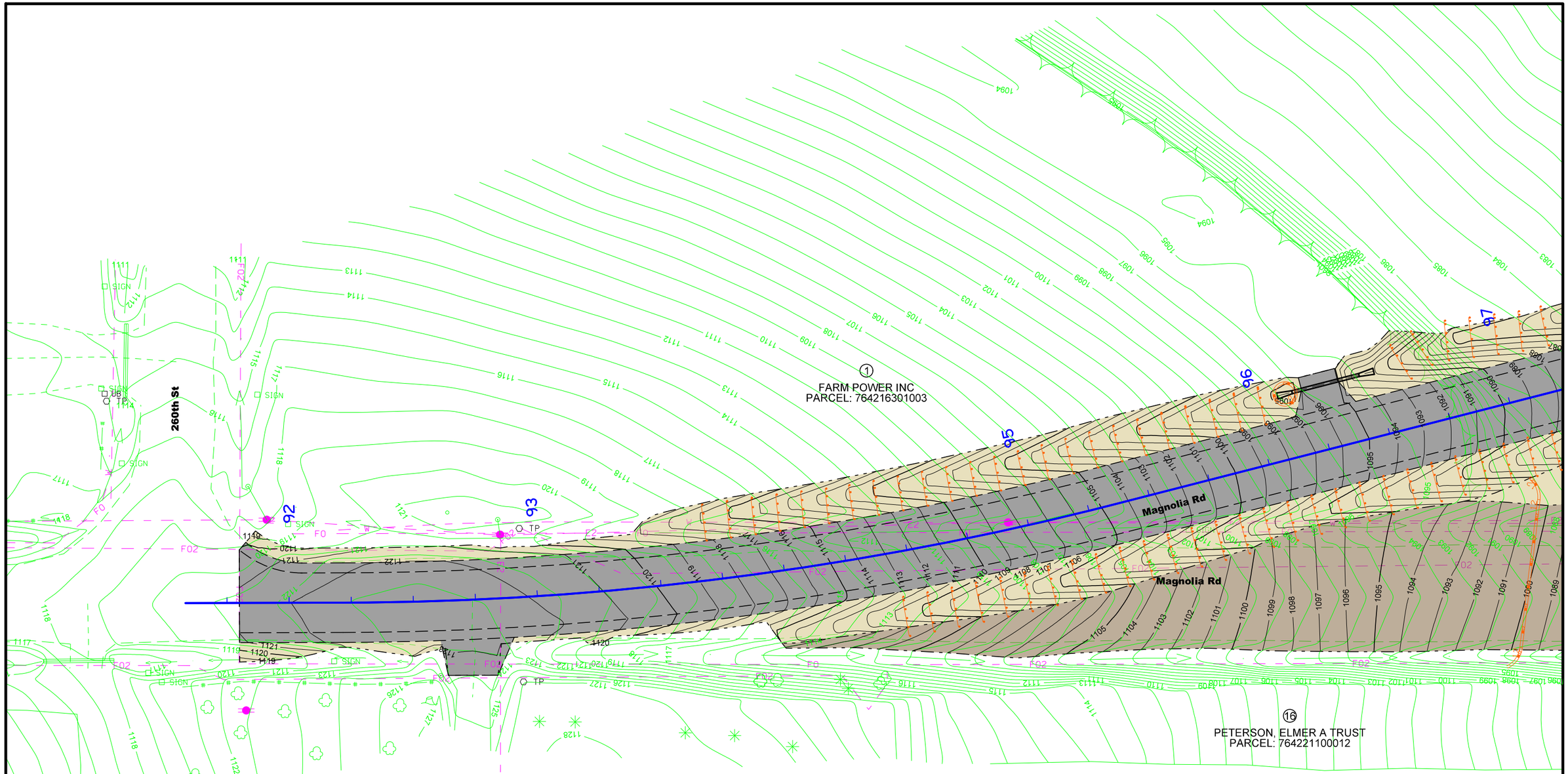
* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.
* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS:1)	Backslope (BS:1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
Type 1	96+95.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+05.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+15.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+25.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+35.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+45.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+65.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+75.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+85.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	97+95.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+05.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+15.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+25.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+35.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+45.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+65.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+75.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+85.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	98+95.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	9.0	51.65	
Type 1	99+10.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	6.0	77.47	
Type 1	99+25.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	6.0	77.47	
Type 1	99+40.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	6.0	77.47	
Type 1	99+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	6.0	77.47	
Type 1	99+70.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	6.0	77.47	
Type 1	100+30.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	3.0	309.90	
Type 1	100+55.00	Right	15.0	1.5	15.0	3.0	2.5	4.0	3.0	309.90	
Type 1	101+55.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	6.6	137.93	
Type 1	101+65.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	6.6	137.93	
Type 1	101+75.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	6.6	137.93	
Type 1	101+85.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	6.6	137.93	
Type 1	101+95.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	6.6	137.93	
Type 1	102+05.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	6.6	137.93	
Type 1	108+40.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	0.2	1701.08	
Type 1	110+15.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	0.2	1701.08	
Type 1	112+00.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	0.2	1701.08	
Type 1	113+85.00	Right	21.0	2.1	21.0	3.0	2.5	10.0	0.2	1701.08	
Total:			**2013**	**201.3**	**2013**						

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
96+10.00		Left	Perimeter and Slope	12 inch	20.00	Inlet Protection
96+90.00		Right	Perimeter and Slope	12 inch	80.00	Old Roadbed
98+15.00		Right	Perimeter and Slope	12 inch	80.00	Old Roadbed
100+40.00		Right	Perimeter and Slope	12 inch	80.00	Old Roadbed
100+70.00		Right	Perimeter and Slope	12 inch	20.00	Inlet Protection
101+55.00	101+95.00	Left	Perimeter and Slope	12 inch	160.00	Perimeter
102+15.00		Right	Perimeter and Slope	12 inch	20.00	Inlet Protection
102+30.00	103+85.00	Left	Perimeter and Slope	12 inch	220.00	Foreslope
103+00.00		Right	Perimeter and Slope	12 inch	20.00	Inlet Protection
104+10.00	105+70.00	Right	Perimeter and Slope	12 inch	20.00	Perimeter
104+25.00	104+95.00	Left	Perimeter and Slope	12 inch	80.00	Perimeter
105+15.00	106+00.00	Left	Perimeter and Slope	12 inch	100.00	Foreslope
106+00.00		Left	Perimeter and Slope	12 inch	20.00	Inlet Protection
106+75.00	108+95.00	Left	Perimeter and Slope	12 inch	220.00	Foreslope
107+10.00	108+65.00	Right	Perimeter and Slope	12 inch	160.00	Foreslope
108+70.00		Right	Perimeter and Slope	12 inch	20.00	Inlet Protection
109+00.00		Left	Perimeter and Slope	12 inch	20.00	Inlet Protection
109+80.00	114+75.00	Left	Perimeter and Slope	12 inch	500.00	Foreslope
109+85.00	114+00.00	Right	Perimeter and Slope	12 inch	420.00	Backslope
109+90.00	114+00.00	Right	Perimeter and Slope	12 inch	420.00	Foreslope
110+50.00	114+75.00	Left	Perimeter and Slope	12 inch	420.00	Backslope
114+00.00		Right	Perimeter and Slope	12 inch	20.00	Inlet Protection
114+80.00		Left	Perimeter and Slope	12 inch	20.00	Inlet Protection
117+05.00		Left	Perimeter and Slope	12 inch	20.00	Inlet Protection
118+75.00		Left	Perimeter and Slope	12 inch	20.00	Inlet Protection
118+85.00	120+95.00	Right	Perimeter and Slope	12 inch	240.00	Perimeter
119+00.00	123+40.00	Left	Perimeter and Slope	12 inch	440.00	Perimeter
121+90.00		Right	Perimeter and Slope	12 inch	20.00	Inlet Protection
121+90.00	124+00.00	Right	Perimeter and Slope	12 inch	220.00	Perimeter
126+35.00	127+60.00	Right	Perimeter and Slope	12 inch	140.00	Perimeter
126+60.00	127+60.00	Left	Perimeter and Slope	12 inch	100.00	Perimeter
135+35.00	137+60.00	Right	Perimeter and Slope	12 inch	260.00	Perimeter
136+40.00	138+70.00	Left	Perimeter and Slope	12 inch	240.00	Perimeter
138+20.00	138+50.00	Right	Perimeter and Slope	12 inch	80.00	Perimeter
Total:					**4920**	

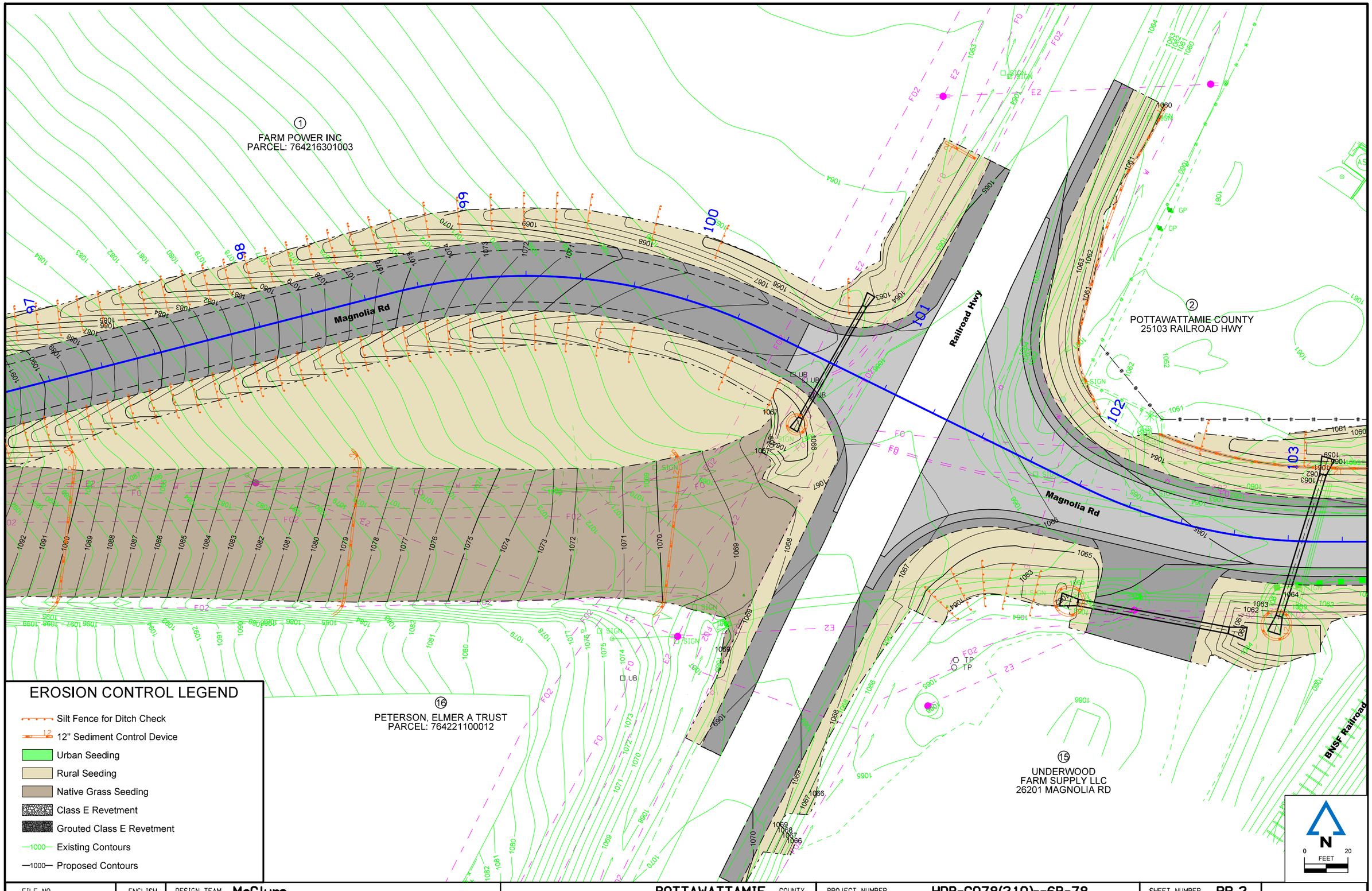


EROSION CONTROL LEGEND

- Silt Fence for Ditch Check
- 12" Sediment Control Device
- Urban Seeding
- Rural Seeding
- Native Grass Seeding
- Class E Revetment
- Grouted Class E Revetment
- 1000 Existing Contours
- 1000 Proposed Contours

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.1

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.2

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② POTTAWATTAMIE COUNTY
25103 RAILROAD HWY

④ CITY OF UNDERWOOD
PARCEL: 764216377005

⑤ SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

⑭ LINK SNACKS INC
26325 MAGNOLIA RD

Magnolla Rd

BNSF Railroad

EROSION CONTROL LEGEND

- Silt Fence for Ditch Check
- 12" Sediment Control Device
- Urban Seeding
- Rural Seeding
- Native Grass Seeding
- Class E Revetment
- Grouted Class E Revetment
- 1000 Existing Contours
- 1000 Proposed Contours

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.3

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⑤
SCHMITZ, PAMELA J TRUST
26276 MAGNOLIA RD

Magnolia Rd

⑭
LINK SNACKS INC
26325 MAGNOLIA RD

EROSION CONTROL LEGEND

- Silt Fence for Ditch Check
- 12" Sediment Control Device
- Urban Seeding
- Rural Seeding
- Native Grass Seeding
- Class E Revetment
- Grouted Class E Revetment
- 1000 Existing Contours
- 1000 Proposed Contours

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.4

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⑥
CITY OF UNDERWOOD
PARCEL: 764216378003

⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

Magnolia Rd

Mulberry Ln

300

⑬
TRAFTON, HAROLD F
JR-TONI D TRUST
24974 MULBERRY LN

⑫
K C MART INC
26551 MAGNOLIA RD

EROSION CONTROL LEGEND

- Silt Fence for Ditch Check
- 12" Sediment Control Device
- Urban Seeding
- Rural Seeding
- Native Grass Seeding
- Class E Revetment
- Grouted Class E Revetment
- 1000 Existing Contours
- 1000 Proposed Contours

N
0 FEET 20

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.5

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⑧
WELBOURNE FAMILY LLC
PARCEL: 764216400006

⑪
I-80 PARTNERSHIP
26553 MAGNOLIA RD

I-80 WB Off-Ramp

I-80 WB On-Ramp

Magnolia Rd

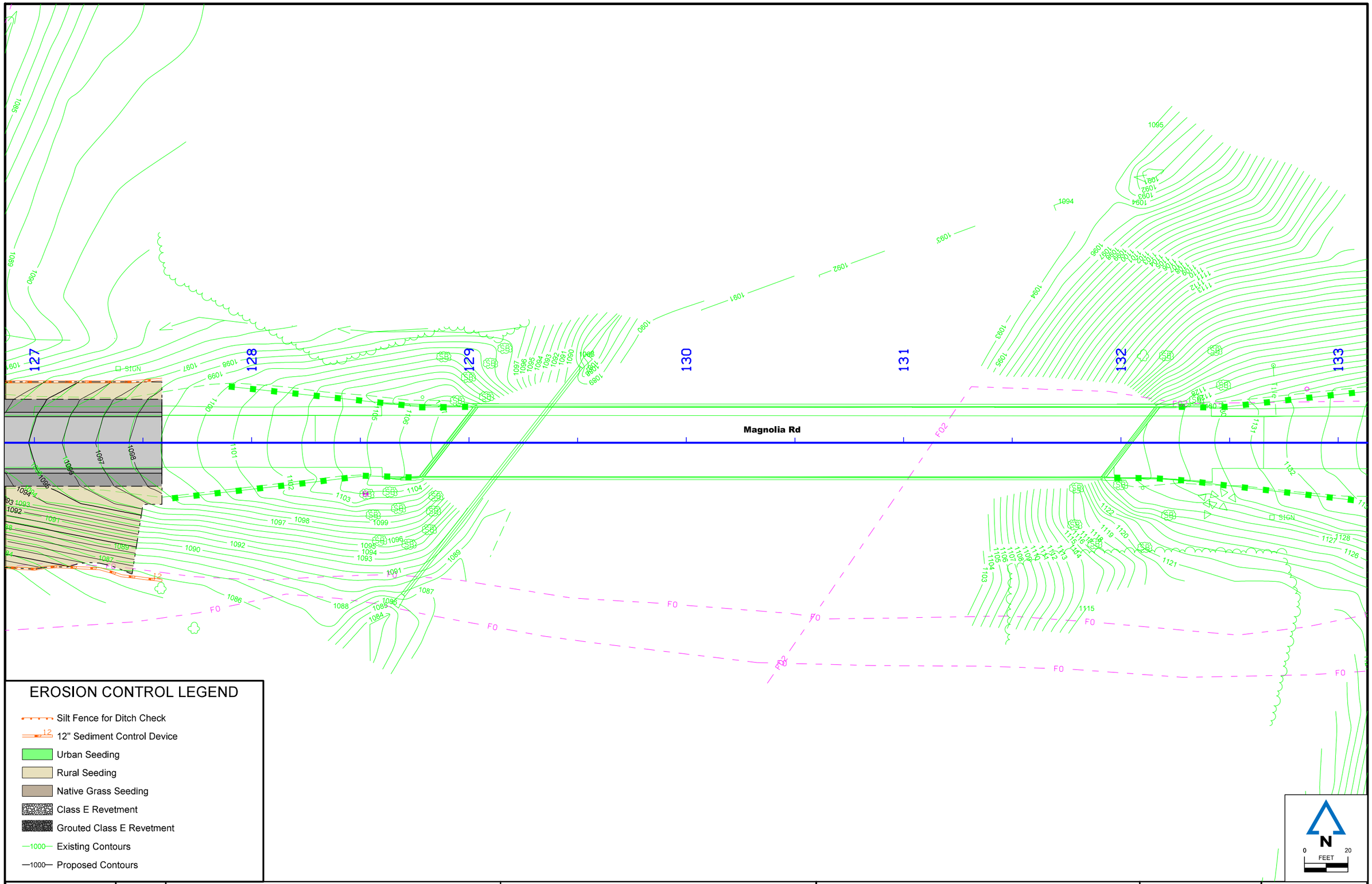
EROSION CONTROL LEGEND

- Silt Fence for Ditch Check
- 12" Sediment Control Device
- Urban Seeding
- Rural Seeding
- Native Grass Seeding
- Class E Revetment
- Grouted Class E Revetment
- 1000 Existing Contours
- 1000 Proposed Contours

N
0 20
FEET

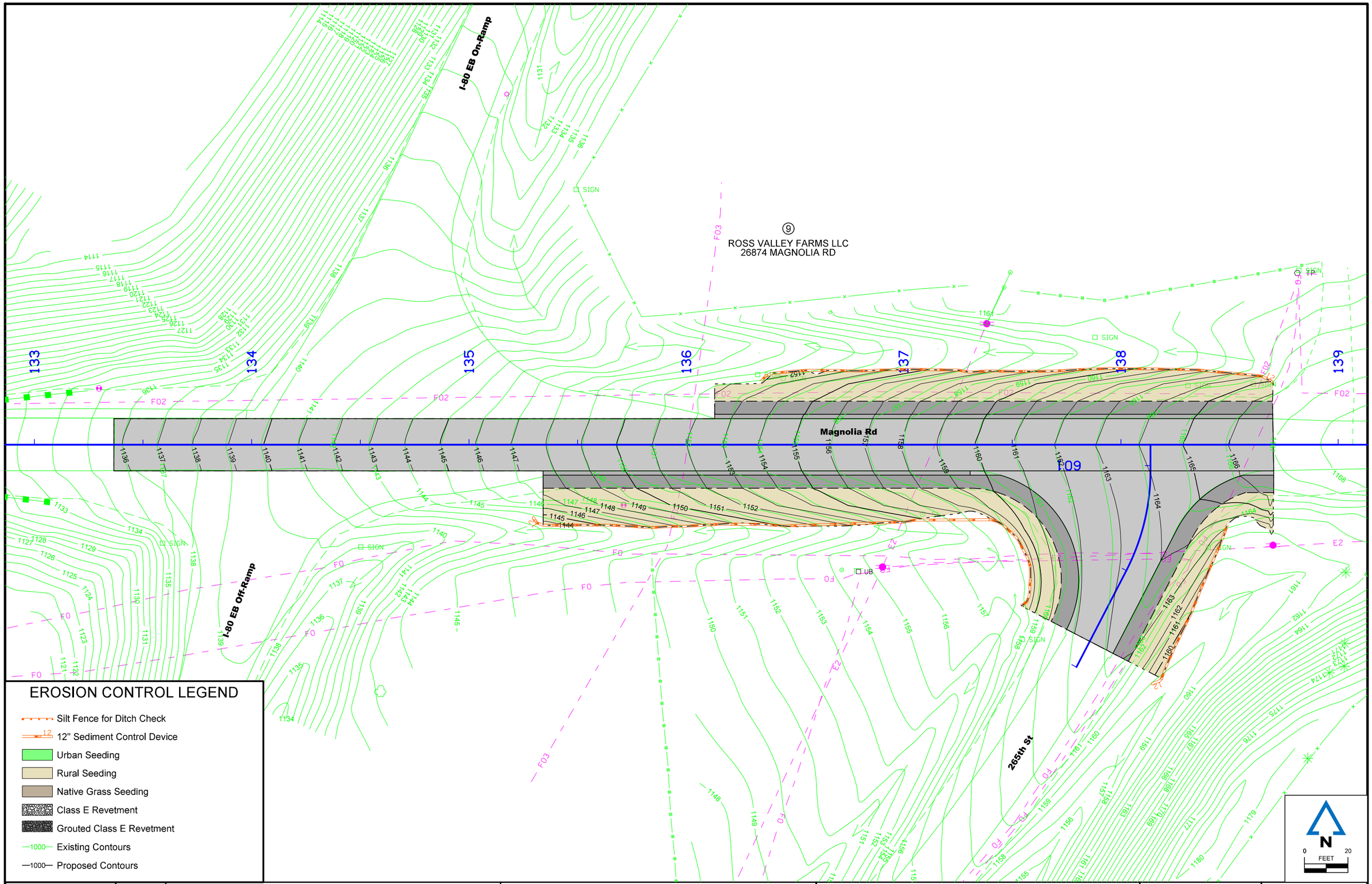
FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE	COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	RR.6

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.7

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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER RR.8

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ESTIMATED BRIDGE QUANTITIES - FOR INFORMATION ONLY

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QTY.
7	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	1,271.0	
23	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.00	
24	2402-2720000	EXCAVATION, CLASS 20	CY	850.2	
26	2402-2721000	EXCAVATION, CLASS 21	CY	599.0	
27	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	647.0	
28	2403-1000005	FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	CY	417.5	
29	2403-1000010	TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)	LS	1	
30	2404-7775000	REINFORCING STEEL	LB	81,037	
31	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	103,054	
32	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	3,108	
33	2407-0562840	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB40	EACH	18	
34	2407-0562900	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB100	EACH	9	
35	2408-7800000	STRUCTURAL STEEL	LB	8,421	
36	2414-6424110	CONCRETE BARRIER RAILING	LF	402.0	
46	2501-0201057	PILES, STEEL, HP 10 X 57	LF	1,950.0	
47	2501-0201473	PILES, STEEL, HP 14 X 73	LF	2,730.0	
48	2501-6335010	PREBORED HOLES	LF	300.0	
49	2501-8400172	TEMPORARY SHORING	LS	1.00	
58	2507-2638650	BRIDGE WING ARMORING - EROSION STONE	SY	16.0	
59	2507-3250005	ENGINEERING FABRIC	SY	1,778	
61	2507-6800061	REVETMENT, CLASS E	TON	2,034	
86	2533-4980005	MOBILIZATION	LS	1.00	

ESTIMATE REFERENCE INFORMATION - FOR INFORMATION ONLY

ITEM NO.	ITEM CODE	DESCRIPTION
7	2104-2710020	**EXCAVATION, CLASS 10, CHANNEL** EXCAVATION QUANTITY ASSUMES BRIDGE BERM AND ROADWAY GRADING HAVE BEEN COMPLETED. THIS ITEM IS INCLUDED FOR THE EXCAVATION REQUIRED TO EMBED THE CLASS E REVETMENT. REFER TO SHEET V.5 FOR QUANTITY ITEMIZATION AND LIMITS OF EXCAVATION.
23	2401-6745625	**REMOVAL OF EXISTING BRIDGE** AN INSPECTION FOR THE PRESENCE OF ASBESTOS CONTAINING MATERIALS WAS PERFORMED ON THE EXISTING BRIDGE. THERE WERE NO ASBESTOS CONTAINING MATERIALS FOUND DURING THE INSPECTION.
24	2402-2720000	**EXCAVATION, CLASS 20** EXCAVATION QUANTITY ASSUMES BRIDGE BERM AND ROADWAY GRADING HAVE BEEN COMPLETED. REFER TO SHEET V.43 FOR LIMITS OF CLASS 20 EXCAVATION AND TO SHEET V.2 FOR QUANTITY ITEMIZATION.
26	2402-2721000	**EXCAVATION, CLASS 21** EXCAVATION QUANTITY ASSUMES BRIDGE BERM AND ROADWAY GRADING HAVE BEEN COMPLETED. REFER TO SHEET V.2 FOR QUANTITY ITEMIZATION.
27	2403-0100010	**STRUCTURAL CONCRETE (BRIDGE)** ALL CONCRETE SHALL BE CLASS "C". INCLUDES FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), FLOODABLE BACKFILL, POROUS BACKFILL, GEOTEXTILE FABRIC, WATER FLOODING AND SUBDRAIN OUTLETS AT ABUTMENTS. INCLUDES FURNISHING AND PLACING ALL RESILIENT JOINT FILLER. INCLUDES FURNISHING AND PLACING 3 INCH DIAMETER PLASTIC PIPE AND EXPANDING FOAM IN THE ABUTMENT WINGS.
28	2403-1000005	**FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE** REFER TO DEVELOPMENTAL SPECIFICATION FOR FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE.
29	2403-1000010	**TRIAL BATCH AND TEST PLACEMENT (FIBER REINFORCED CONCRETE)** REFER TO DEVELOPMENTAL SPECIFICATION FOR FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE.
30	2404-7775000	**REINFORCING STEEL** - -
31	2404-7775005	**REINFORCING STEEL, EPOXY COATED** - -
32	2404-7775009	**REINFORCING STEEL, STAINLESS STEEL** - -
33	2407-0562840	**BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB40** INCLUDES COST OF ALL COIL TIES, AND FURNISHING AND PLACING OF BEARING MATERIALS AT ABUTMENTS AND PIERS. VENT HOLES ARE USED FOR THIS BEAM. THIS BEAM USES NON-STANDARD STIRRUP EXTENSIONS. INCLUDES CONTRACTOR FILLING OUT BEAM NUMBERS BY LOCATION AND BEAM SEAT ELEVATIONS IN "PPC BEAM DATA SPREADSHEET" AND FORWARDING ELECTRONIC SPREADSHEET TO ENGINEER.

ESTIMATE REFERENCE INFORMATION - FOR INFORMATION ONLY

ITEM NO.	ITEM CODE	DESCRIPTION
34	2407-0562900	**BEAMS, PRETENSIONED PRESTRESSED CONCRETE, BTB100** INCLUDES COST OF ALL COIL TIES, AND FURNISHING AND PLACING OF BEARING MATERIALS AT PIERS. VENT HOLES ARE USED FOR THIS BEAM. THIS BEAM USES NON-STANDARD STIRRUP EXTENSIONS. INCLUDES CONTRACTOR FILLING OUT BEAM NUMBERS BY LOCATION AND BEAM SEAT ELEVATIONS IN "PPC BEAM DATA SPREADSHEET" AND FORWARDING ELECTRONIC SPREADSHEET TO ENGINEER.
35	2408-7800000	**STRUCTURAL STEEL** INCLUDES ALL COSTS OF FURNISHING AND INSTALLING INTERMEDIATE DIAPHRAGMS. INCLUDES 8 DRAINS AT 92 LBS. EACH.
36	2414-6424110	**CONCRETE BARRIER RAILING** INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS. INCLUDES 700 LF OF 2" DIAMETER CONDUIT AND 640 LF OF 3" DIAMETER CONDUIT. IF PLACEMENT OF CONCRETE IS DONE BY SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF CONCRETE.
46	2501-0201057	**PILES, STEEL, HP 10 X 57** INCLUDES FURNISHING AND INSTALLING STEEL PILE POINTS.
47	2501-0201473	**PILES, STEEL, HP 14 X 73** INCLUDES FURNISHING AND INSTALLING STEEL PILE POINTS.
48	2501-6335010	**PREBORED HOLES** - -
49	2501-8400172	**TEMPORARY SHORING** - -
58	2507-2638650	**BRIDGE WING ARMORING - EROSION STONE** INCLUDES FURNISHING AND PLACING ENGINEERING FABRIC, EROSION STONE, AND ALL REQUIRED EXCAVATING, SHAPING AND COMPACTING.
59	2507-3250005	**ENGINEERING FABRIC** ENGINEERING FABRIC SHALL BE MATERIAL AS SPECIFIED FOR EMBANKMENT EROSION CONTROL IN ACCORDANCE WITH ARTICLE 4196.01,B,3 OF THE STANDARD SPECIFICATIONS.
61	2507-6800061	**REVETMENT, CLASS E** ESTIMATED AT 1.6 TON/C.Y.
86	2533-4980005	**MOBILIZATION** - -

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
Chad W. Meyer
17394
IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Chad W Meyer — 08-18-2026
Signature — Date

Chad W. Meyer
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: SHEETS V.1 THRU V.45

ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

ESTIMATED BRIDGE QUANTITIES

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 1 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.1

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SUMMARY OF CONCRETE QUANTITIES

LOCATION	STRUCTURAL CONCRETE	FIBER REINF. STRUCT. CONC.
WEST ABUT. FTG. + STEPS	29.2	———
EAST ABUT. FTG. + STEPS	29.2	———
BRIDGE DECK + ABUT. & PIER DIAPHRAGMS	———	417.5
ABUTMENT WINGS & WINGWALLS	7.6	———
PIER NO. 1	290.5	———
PIER NO. 2	290.5	———
TOTAL (CU. YDS.)	647.0	417.5

SUMMARY OF REINFORCING STEEL

LOCATION	NON-COATED REINFORCING STEEL	STAINLESS STEEL REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
BRIDGE DECK + ABUTMENT FOOTING **	309	———	95,206
ABUTMENT WINGS	———	———	4 AT 198
BARRIER RAIL - NORTH & SOUTH RAIL	———	2,340	5,992
BARRIER RAIL END SECTION	———	4 AT 192	4 AT 266
PIER NO. 1	40,364	———	———
PIER NO. 2	40,364	———	———
** INCLUDES ABUTMENT AND PIER DIAPHRAGMS			
TOTAL (LBS.)	81,037	3,108	103,054

SUMMARY OF EXCAVATION

LOCATION	CLASS 20 EXCAVATION	CLASS 21 EXCAVATION
WEST ABUTMENT	76.4	———
EAST ABUTMENT	76.4	———
PIER NO. 1	348.7	299.5
PIER NO. 2	348.7	299.5
TOTAL (CU. YDS.)	850.2	599.0

SUMMARY OF FOUNDATIONS

LOCATION	SUBSTRUCTURE TYPE	FOUNDATION TYPE	NUMBER	LENGTH (LIN. FT.)	TOTAL (LIN. FT.)
WEST ABUTMENT	INTEGRAL ABUTMENT	HP10x57	15	65	975
EAST ABUTMENT	INTEGRAL ABUTMENT	HP10x57	15	65	975
PIER NO. 1	WALL PIER	HP14x73	39	35	1,365
PIER NO. 2	WALL PIER	HP14x73	39	35	1,365

SUMMARY OF STRUCTURAL STEEL

LOCATION	TOTAL (LBS.)
BRIDGE DECK DRAINS	736
INTERMEDIATE DIAPHRAGMS	7,685
TOTAL (LBS.)	8,421

SUMMARY OF BEARINGS

LOCATION	BEARING TYPE	NUMBER	ASSOCIATED BID ITEM
WEST ABUTMENT	3 x 3 BAR	9	INCIDENTAL ITEM
EAST ABUTMENT	3 x 3 BAR	9	INCIDENTAL ITEM
PIER NO. 1	PLAIN NEOPRENE 1"	18	INCIDENTAL ITEM
PIER NO. 2	PLAIN NEOPRENE 1"	18	INCIDENTAL ITEM

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

SUMMARY QUANTITIES SHEET

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 2 OF 45 FILE NO. _____ DESIGN NO. _____

SPECIFICATIONS:

DESIGN: AASHTO LRFD 8th Ed, SERIES OF 2017, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2023, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.
DEVELOPMENTAL SPECIFICATIONS - FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8th Ed, SERIES OF 2017, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.
REINFORCING STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 5, GRADE 60 FOR EPOXY COATED AND NON-COATED, AND GRADE 60 OR 75 FOR STAINLESS.
CONCRETE IN ACCORDANCE WITH AASHTO LRFD SECTION 5, f'c = 4.0 KSI, EXCEPT PRESTRESSED BEAM CONCRETE AS NOTED.
PRESTRESSED CONCRETE BEAMS, SEE SHEET V.36 AND V.38.
BRIDGE DECK CONCRETE f'c = 4.0 KSI.
STRUCTURAL STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 6. ASTM A709 GRADE 36, GRADE 50, AND GRADE 50W (AASHTO M270 GRADE 36, GRADE 50, AND GRADE 50W).

GENERAL NOTES:

IT IS THE INTENT OF THIS DESIGN TO CONSTRUCT A NEW 184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE ON MAGNOLIA ROAD OVER MOSQUITO CREEK.

THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 150'-0 X 28'-0 CONTINUOUS I-BEAM BRIDGE, DESIGN NO. 663, WITH A YEAR OF CONSTRUCTION OF 1960. ELECTRONIC PLANS OF THE EXISTING STRUCTURE ARE AVAILABLE TO THE CONTRACTOR AS PART OF THE E-FILES SUPPLIED WITH THE CONTRACT DOCUMENTS.

THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL OF THE EXISTING 150'-0 X 28'-0 CONTINUOUS I-BEAM BRIDGE.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS.

THE CITY, COUNTY, AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE, AND 75 LBS. PER SQUARE FOOT PEDESTRIAN LOAD ON THE PATH.

EXCAVATION QUANTITIES FOR THE ABUTMENTS ARE BASED ON THE ASSUMPTION THAT ABUTMENT SLOPES/FILLS ARE IN PLACE.

IT SHALL BE THE BRIDGE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SITES FOR EXCESS EXCAVATED MATERIAL. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS BR CONCRETE IN ACCORDANCE WITH ARTICLE 2513.03, A, 2, OF THE STANDARD SPECIFICATIONS. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS (CAST-IN-PLACE OR SLIPFORMED METHOD).

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a) IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	3	4	5	6	7	8	9	10	11
BAR DESIGNATION	10	13	16	19	22	25	29	32	36

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING STABILITY OF PRESTRESSED CONCRETE BEAMS DURING ERECTION AND CONSTRUCTION UP THROUGH THE CONCRETE BRIDGE DECK REACHING ITS FULL 28-DAY STRENGTH. THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY ANCHOR BRACING AT BEAM ENDS AND TEMPORARY INTERMEDIATE BRACING AS NEEDED TO ENSURE PRESTRESSED BEAM STABILITY. PARTIALLY OR FULLY INSTALLED PERMANENT BRACING AS SHOWN IN THESE DESIGN PLANS SHALL NOT BE ASSUMED SUFFICIENT TO BRACE PRESTRESSED BEAMS DURING ERECTION AND CONSTRUCTION. TEMPORARY BRACING SHALL NOT BE WELDED TO PRESTRESSED BEAM STIRRUPS.

LONGITUDINAL GROOVING WILL BE COMPLETED BY THE ROADWAY CONTRACTOR PRIOR TO OPENING THE BRIDGE TO TRAFFIC.

CAST IN-ONE-PIECE STEEL PILE POINTS ARE REQUIRED FOR THE STEEL H-PILES AT THE ABUTMENTS AND THE PIER, AND SHALL BE IN ACCORDANCE WITH ARTICLE 4167.02 OF THE CURRENT STANDARD SPECIFICATIONS AND MATERIALS IM 468.

THE BRIDGE CONTRACTOR SHALL PREBORE HOLES FOR ABUTMENT PILES. HOLES SHALL BE BORED TO THE ELEVATIONS SHOWN ON THE "LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY" ON SHEET V.4. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING.

A SCRAPE SAMPLE WAS TAKEN FROM AN AREA OF THIS BRIDGE TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL LEAD AND TOTAL CHROMIUM. ANALYSIS OF TOTAL LEAD ON THIS SAMPLE WAS 360 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM ON THIS SAMPLE WAS 17,000 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE COUNTY'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

AN INSPECTION FOR THE PRESENCE OF ASBESTOS CONTAINING MATERIALS WAS PERFORMED ON THE EXISTING BRIDGE. THERE WERE NO ASBESTOS CONTAINING MATERIALS FOUND DURING THE INSPECTION.

IF DURING DEMOLITION OF THE EXISTING BRIDGE ANY SUSPECT MATERIALS FOR ASBESTOS OR PAINTED BRIDGE COMPONENTS ARE UNCOVERED, NOTIFY THE ENGINEER IMMEDIATELY.

THE IOWA DNR SHALL BE NOTIFIED AT LEAST 10 BUSINESS DAYS PRIOR TO BRIDGE DEMOLITION OPERATIONS. (HTTPS://PROGRAMS.IOWADNR.GOV/ASBESTOS). THE BIDDER SHOULD NOT RELY ON THE OWNER'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF ASBESTOS.

PLANS FOR THE EXISTING STRUCTURE INDICATE THAT THE ORIGINAL STRUCTURE WAS A 75' x 18' PONY TRUSS WITH 17' AND 35' APPROACH SPANS. PLANS FOR THE ORIGINAL STRUCTURE WERE NOT AVAILABLE. HOWEVER, THE CONTRACTOR SHALL BE AWARE THAT THERE IS POTENTIAL FOR CONFLICT BETWEEN THE PROPOSED BRIDGE FOUNDATIONS AND THE ORIGINAL BRIDGE FOUNDATIONS. PLANS FOR THE EXISTING STRUCTURE INDICATE THAT THE ORIGINAL STRUCTURE WAS SUPPORTED ON CREOSOTED WOOD PILING. LENGTH, QUANTITY, AND LOCATIONS OF THE WOOD PILES, IF STILL PRESENT, ARE UNKNOWN.

BRIDGE DECK DIMENSIONS TABLE

NO.	ITEM	UNIT	QUANTITY
1	DECK LENGTH	L.F.	187.0
2	MINIMUM DECK WIDTH	L.F.	65.2
3	MAXIMUM DECK WIDTH	L.F.	65.2
4	DECK AREA	S.F.	12,186

1. DECK LENGTH IS MEASURED FROM FACE-TO-FACE OF PAVING NOTCHES ALONG THE CENTERLINE OF ROADWAY.
2, 3. DECK WIDTHS ARE MEASURED FROM OUT-TO-OUT OF DECK PERPENDICULAR TO THE CENTERLINE OF ROADWAY.
4. DECK AREA IS TO BE BASED ON THE FACE-TO-FACE PAVING NOTCH DISTANCE AND OUT-TO-OUT DECK DIMENSIONS.

WORKING DRAWING AND CALCULATIONS SUBMITTALS

WORKING DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS SHOWN IN THE TABLE BELOW. (NOTE ADDITIONAL WORKING DRAWINGS AND CALCULATIONS MAY BE REQUIRED IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS.)

SUBMITTAL REQUIREMENTS FOR WORKING DRAWINGS AND CALCULATIONS SHALL BE IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION OF THE IOWA DEPARTMENT OF TRANSPORTATION. THE ABSENCE OF A CERTIFICATION REQUIREMENT FOR A SUBMITTAL DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO ATTAIN CERTIFICATION.

CALCULATION SUBMITTALS IN THIS TABLE WHICH ARE ASSOCIATED WITH WORKING DRAWING SUBMITTALS SHALL BE SUBMITTED ON THE SAME DAY. REVIEW TIME FOR CALCULATION SUBMITTALS SHALL BE OF THE SAME DURATION AS AND RUN CONCURRENTLY WITH REVIEW TIME FOR ASSOCIATED WORKING DRAWINGS. THE CALCULATION SUBMITTALS LISTED IN THE TABLE ARE NOT MEANT TO BE AN EXHAUSTIVE LIST AND DO NOT RELIEVE THE CONTRACTOR FROM PROVIDING ADDITIONAL CALCULATION SUBMITTALS IF REQUESTED BY THE ENGINEER.

NO.	WORKING DRAWING DESCRIPTION	WORKING DRAWING FILE NAME CONVENTION FOR SUBMITTAL	CERTIFIED BY IOWA P.E. (YES/NO)
1	STEEL INTERMEDIATE DIAPHRAGMS	(210)_Pottawattamie_IntermediateDiaphragms.pdf	NO
2	STEEL DECK DRAINS	(210)_Pottawattamie_DeckDrains.pdf	NO
3	TEMPORARY SHORING	(210)_Pottawattamie_TemporaryShoring.pdf	YES
NO.	CALCULATION DESCRIPTION	CALCULATION FILE NAME CONVENTION FOR SUBMITTAL	CERTIFIED BY IOWA P.E. (YES/NO)
1	TEMPORARY SHORING DESIGN	(210)_Pottawattamie_TemporaryShoringCalcs.pdf	YES

CONTRACTOR SHALL NOTIFY IOWA DNR VIA EMAIL WHEN ANY TEMPORARY CHANNEL OBSTRUCTIONS ARE PLACED AND REMOVED SO THE IOWA DNR INTERACTIVE RIVER MAPPING SYSTEM CAN BE UPDATED.

CONTACT INFORMATION:
JOHN WENCK
JOHN.WENCK@DNR.IOWA.GOV

CONTRACTOR SHALL NOTIFY AND COORDINATE WITH IOWA DNR FOR ADVICE ON PLACEMENT OF TEMPORARY RIVER DANGER SIGNS.

CONTACT INFORMATION:
ADAM GACKE
(712) 520-5570
ADAM.GACKE@DNR.IOWA.GOV

RICHARD PRICE
(712) 520-0121
RICHARD.PRICE@DNR.IOWA.GOV

DRAWING APPROVAL

ALL WORKING DRAWINGS WHICH REQUIRE REVIEW BY THE CONTRACTING AUTHORITY SHALL BE REVIEWED BY POTTAWATTAMIE COUNTY.

POTTAWATTAMIE COUNTY:
POTTAWATTAMIE COUNTY ROADS OPERATION CENTER
ANDY WICKS, PE
17501 EASTERN HILLS DRIVE
COUNCIL BLUFFS, IA 51503
PHONE: (712) 328-5608

PROJECT ENGINEER:
MCCLURE ENGINEERING
CODY FORCH, PE
623 N. CARROLL ST.
CARROLL, IA 51401
PHONE: (712) 220-8121

TEMPORARY SHORING (SHEET PILE OR OTHER) SHALL BE REQUIRED AS NECESSARY TO PREVENT THE EARTH UNDER THE TRAFFIC LANE FROM SLOUGHING IN DURING CONSTRUCTION.

THE CONTRACTOR SHALL SUBMIT A TEMPORARY SHORING PLAN FOR REVIEW. THE TEMPORARY SHORING PLAN SHALL BE DESIGNED AND CERTIFIED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IOWA. WHEN DETERMINING SLOPE STABILITY TO SUPPORT STRUCTURES SUCH AS BRIDGES, CULVERTS AND RETAINING WALLS, A GLOBAL STABILITY ANALYSIS SHALL BE INCLUDED IN THE DESIGN OF THE TEMPORARY SHORING IN ACCORDANCE WITH CHAPTER 200F-1 IN THE DESIGN MANUAL OF THE IOWA DOT, DESIGN BUREAU. THE CONTRACTOR SHALL NOT PROCEED WITH INSTALLATION OF THE TEMPORARY SHORING WITHOUT NOTICE TO PROCEED FROM THE ENGINEER.

THE TEMPORARY SHORING SUBMITTAL SHALL INCLUDE:
- DESIGN CALCULATIONS (INCLUDING A GLOBAL STABILITY ANALYSIS)
- SOIL PROPERTIES
- SHORING MATERIAL PROPERTIES
- SHORING PLAN LAYOUT (SHOWING LOCATION OF TRAFFIC)
- SHORING DETAILS

TEMPORARY SHORING SHALL BE PAID FOR AS A LUMP SUM INCLUDING ALL COST FOR DESIGNING, FURNISHING, INSTALLING AND REMOVAL. ALL MATERIAL USED FOR SHORING SHALL REMAIN THE PROPERTY OF THE CONTRACTOR. SHORING IS TO BE REMOVED ONLY AFTER BACKFILLING HAS BEEN COMPLETED. IN ADDITION TO THE REQUIREMENTS NOTED ABOVE, ARTICLE 1107.07 OF THE STANDARD SPECIFICATIONS, STILL APPLIES.

POLLUTION PREVENTION PLAN SHOWN ELSEWHERE IN THESE PLANS.

TRAFFIC CONTROL PLAN
NOTE: THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN SHOWN ELSEWHERE IN THESE PLANS.

DESIGN FOR 0° SKEW
184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE
41'-0 END SPANS 102'-0 INTERIOR SPAN
GENERAL NOTES
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026
POTTAWATTAMIE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 3 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.3

BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45

HYDRAULIC DATA

DRAINAGE AREA = 165.0 SQ. MI.
STREAM SLOPE = 3.9 FT./MI.
AVG. LOW WATER STAGE = 1033.0±

Q_{25} = 11,100 CFS
STAGE = 1054.49

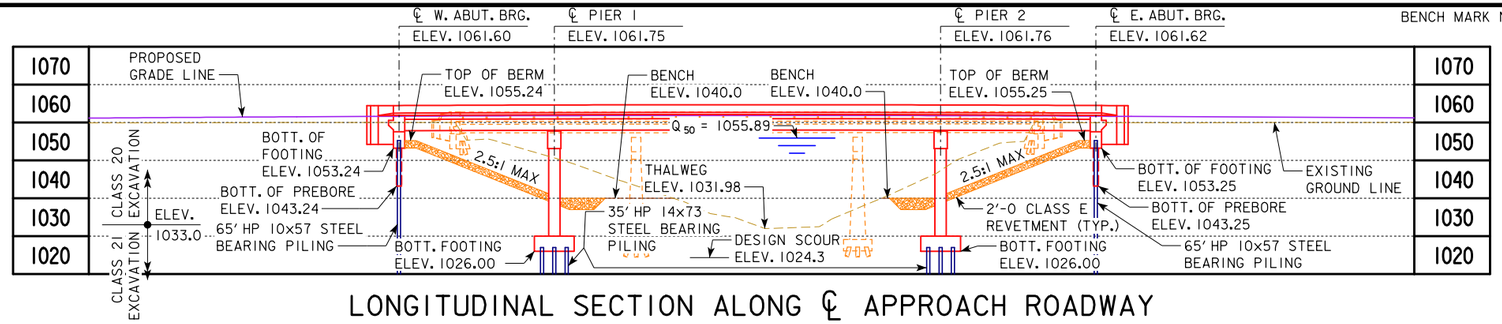
Q_{50} = 12,560 CFS
STAGE = 1055.89
REGULATORY LOW BEAM = 1056.94
BACKWATER = 0.35 FT.
AVG. BRIDGE VELOCITY = 5.03 FPS

Q_{100} = 14,950 CFS
STAGE = 1056.87
OPERATIONAL LOW BEAM = 1057.42
BACKWATER = 0.97 FT.
AVG. BRIDGE VELOCITY = 5.83 FPS

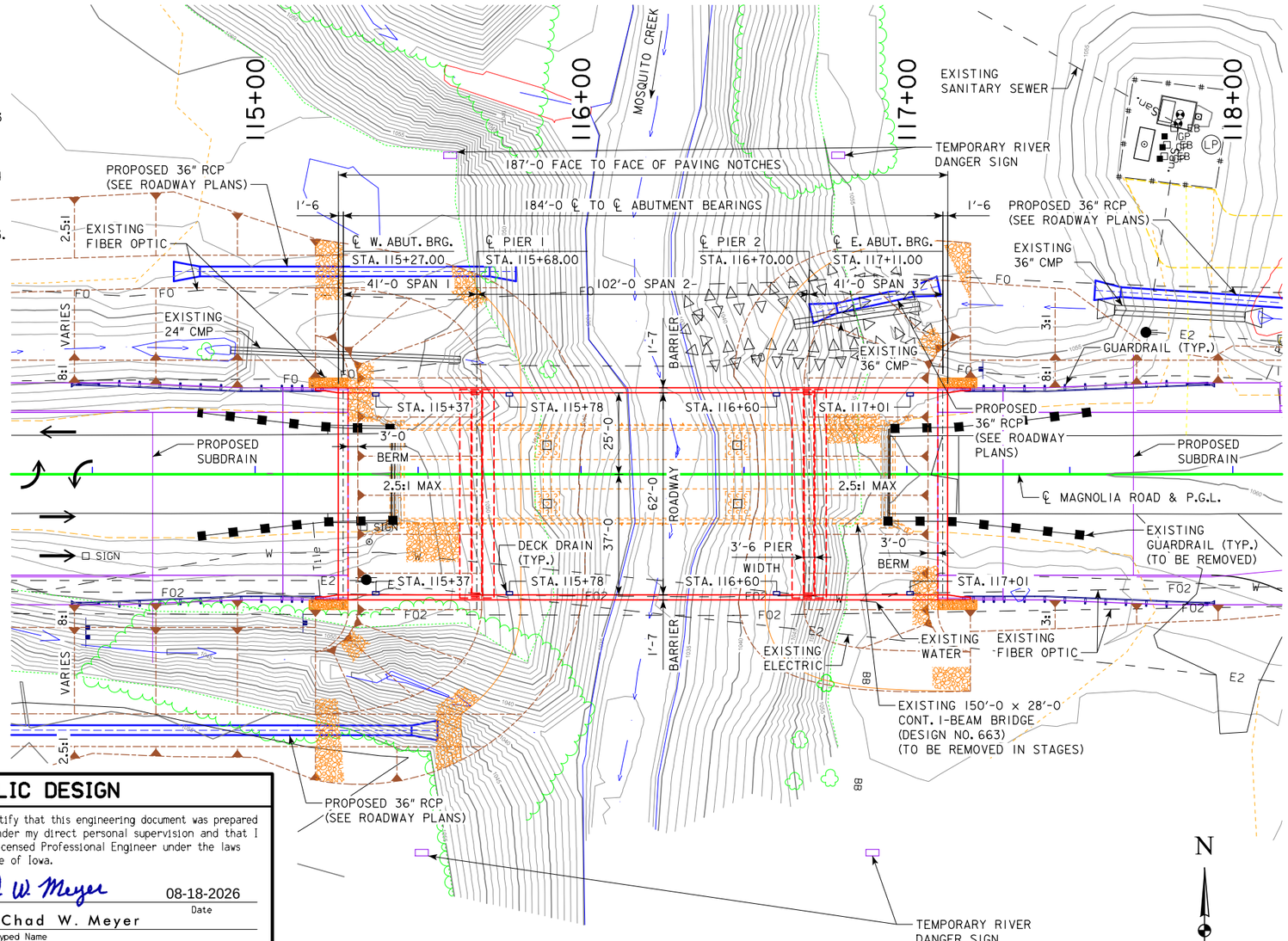
Q_{200} = 17,350 CFS
STAGE = 1057.87
CALCULATED DESIGN SCOUR = 1024.3

Q_{500} = 20,560 CFS
STAGE = 1058.62
CALCULATED CHECK SCOUR = 1021.04

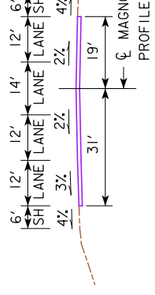
50, 100 & 500 YR. STAGES AND DISCHARGES FROM POTTAWATTAMIE COUNTY F.I.S., DATED APRIL 16, 2013.



LONGITUDINAL SECTION ALONG ℄ APPROACH ROADWAY



TYPICAL APPROACH SECTION



SITUATION PLAN

VPI STA = 114+25.00
VPI ELEV = 1061.12
VC = 150'
+1.303%
+0.500%
-0.495%
VPI STA = 116+20.37
VPI ELEV = 1062.10
VC = 200'

PROPOSED PROFILE GRADE MAGNOLIA ROAD

NOTES:
SEE SHEET V.5 FOR OVERALL SITE PLAN AND CROSS SECTION.
SEE SHEETS V.6 - V.9 FOR STAGING AND REMOVAL DETAILS.
TOP OF BRIDGE DECK AT CENTERLINE OF ROADWAY IS 0.03' BELOW THE PROFILE GRADE TO ACCOUNT FOR PARABOLIC CROWN.
SEE NOTES ON SHEET V.3 FOR REQUIREMENTS OF TEMPORARY RIVER DANGER SIGNS.

UTILITIES LEGEND:

E2 - ELECTRIC - MIDAMERICAN ENERGY
FO - FIBER OPTIC - WALNUT TELEPHONE COMPANY, INC.
FO2 - FIBER OPTIC - CENTURYLINK
SAN - SANITARY SEWER - CITY OF UNDERWOOD
W - WATER - REGIONAL WATER, INC.

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION

MAGNOLIA ROAD
OVER MOSQUITO CREEK
T-76N R-42W
SECTION 16/21
NORWALK TOWNSHIP
POTTAWATTAMIE COUNTY
CITY OF UNDERWOOD
FHWA NO. 288730
LATITUDE 41.376237°
LONGITUDE -95.680736°

TRAFFIC ESTIMATE

2016 AADT	3181	V.P.D.
2036 AADT	3524	V.P.D.
2036 DHV	423	V.P.H.
TRUCKS	14	%
TOTAL DESIGN ESALs	-	

HYDRAULIC DESIGN

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Chad W. Meyer — 08-18-2026
Signature — Date
Chad W. Meyer
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: SHEET V.4 HYDRAULIC DATA

LICENSED PROFESSIONAL ENGINEER — Chad W. Meyer 17394 — IOWA

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

SITUATION PLAN

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

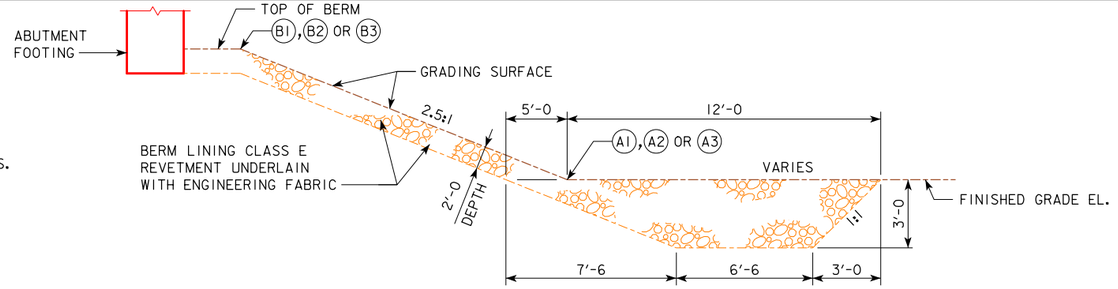
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 4 OF 45 FILE NO. _____ DESIGN NO. _____

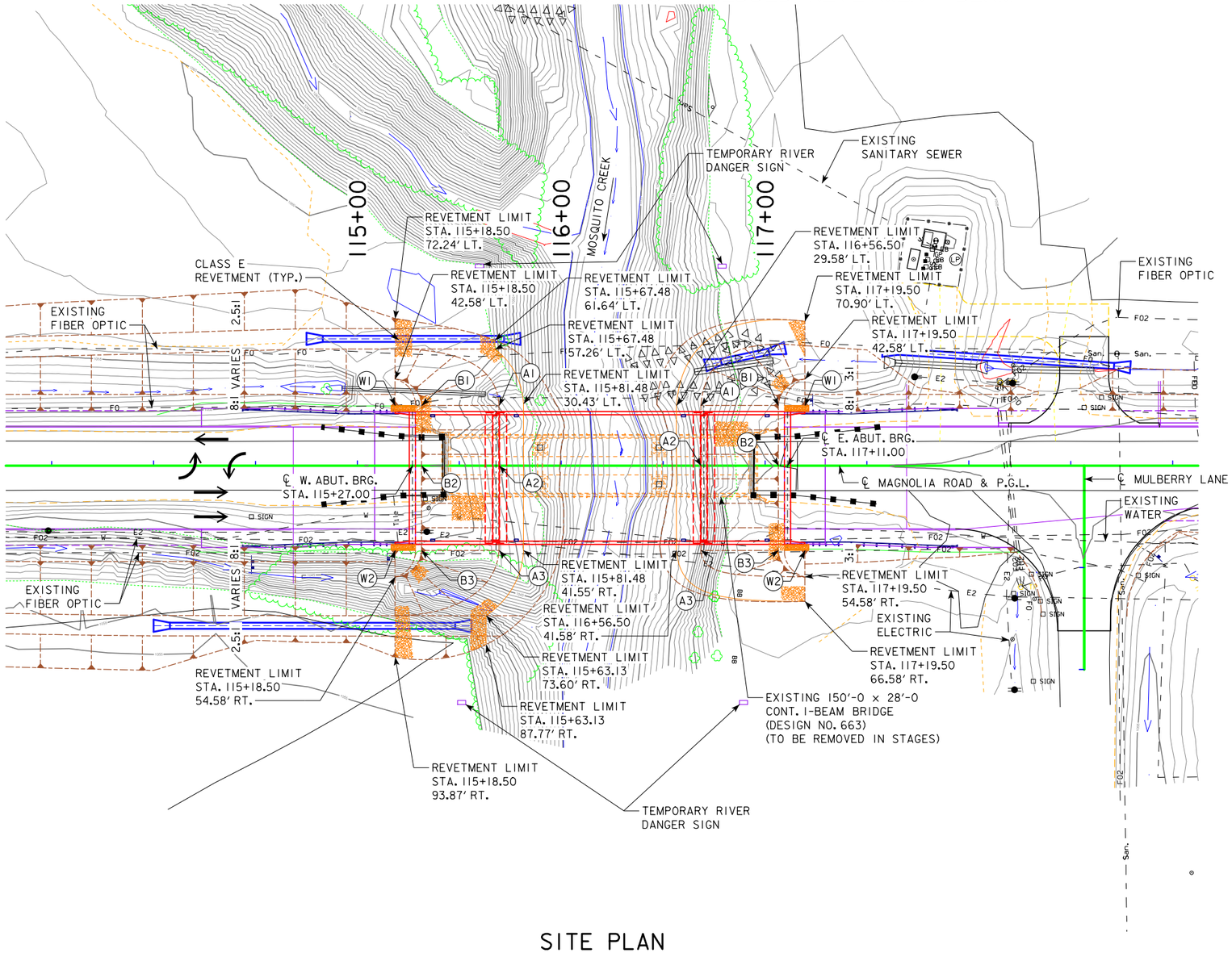
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.4

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NOTES:
ALL UNITS ARE IN FEET UNLESS NOTED OTHERWISE.
SEE SHEET V.4 FOR DETAILED PLAN OF MAGNOLIA ROAD OVER MOSQUITO CREEK.
SEE SHEETS V.6 - V.9 FOR STAGING AND REMOVAL DETAILS.
CLASS E REVETMENT STONE IS EMBEDDED.



SECTION THRU EMBEDDED REVETMENT BERM



SITE PLAN

BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	REVETMENT CL. E (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - WEST	1,080	960	675
BERM LINING - EAST	954	818	596
TOTALS	2,034	1,778	1,271

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
REVETMENT ESTIMATED AT 1.6 TON/CY.

END OF BRIDGE WING TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
W1	115+18.50	29.58' LT	1060.94	117+19.50	29.58' LT	1060.96
W2	115+18.50	41.58' RT	1060.52	117+19.50	41.58' RT	1060.54

BERM SLOPE LOCATION TABLE

POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	115+69.48	29.58' LT	1040.00	116+68.50	29.58' LT	1040.00
A2	115+69.48	0.00'	1040.00	116+68.50	0.00'	1040.00
A3	115+69.48	41.58' RT	1040.00	116+68.50	41.58' RT	1040.00
B1	115+31.50	29.58' LT	1055.24	117+06.50	29.58' LT	1055.25
B2	115+31.50	0.00'	1055.24	117+06.50	0.00'	1055.25
B3	115+31.50	41.58' RT	1055.24	117+06.50	41.58' RT	1055.25

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

UTILITIES LEGEND:

E2 - ELECTRIC - MIDAMERICAN ENERGY
FO - FIBER OPTIC - WALNUT TELEPHONE COMPANY, INC.
FO2 - FIBER OPTIC - CENTURYLINK
SAN - SANITARY SEWER - CITY OF UNDERWOOD
W - WATER - REGIONAL WATER, INC.

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

N

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

SITE PLAN

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

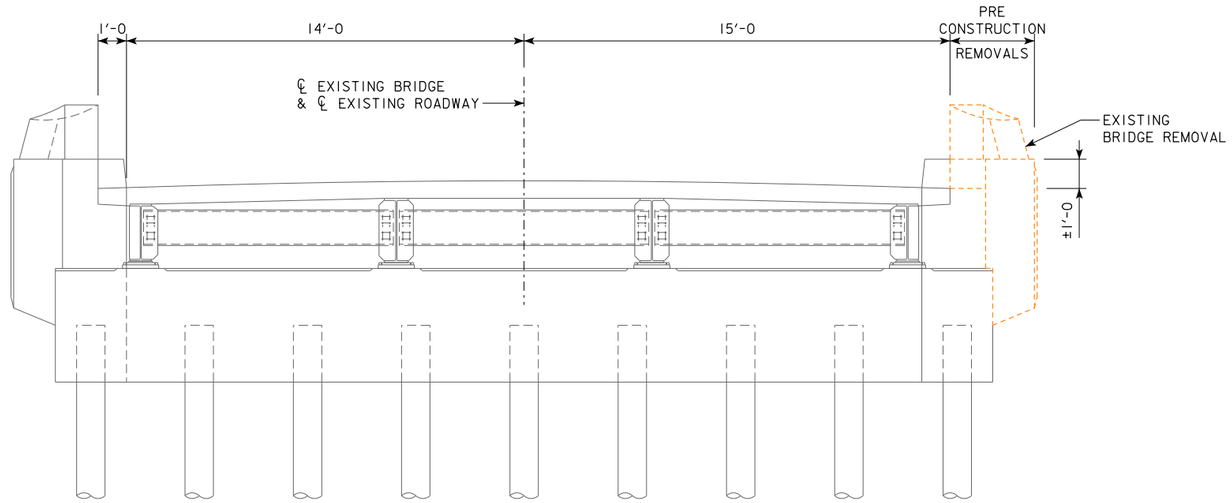
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

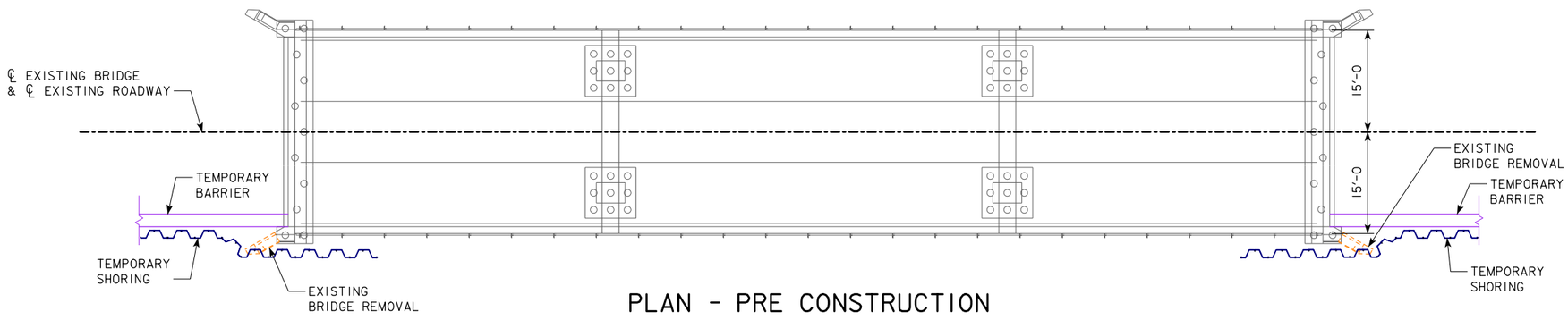
DESIGN SHEET NO. 5 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.5

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ABUTMENT SECTION - PRE CONSTRUCTION
(LOOKING EAST)



PLAN - PRE CONSTRUCTION

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

STAGING AND REMOVAL DETAILS

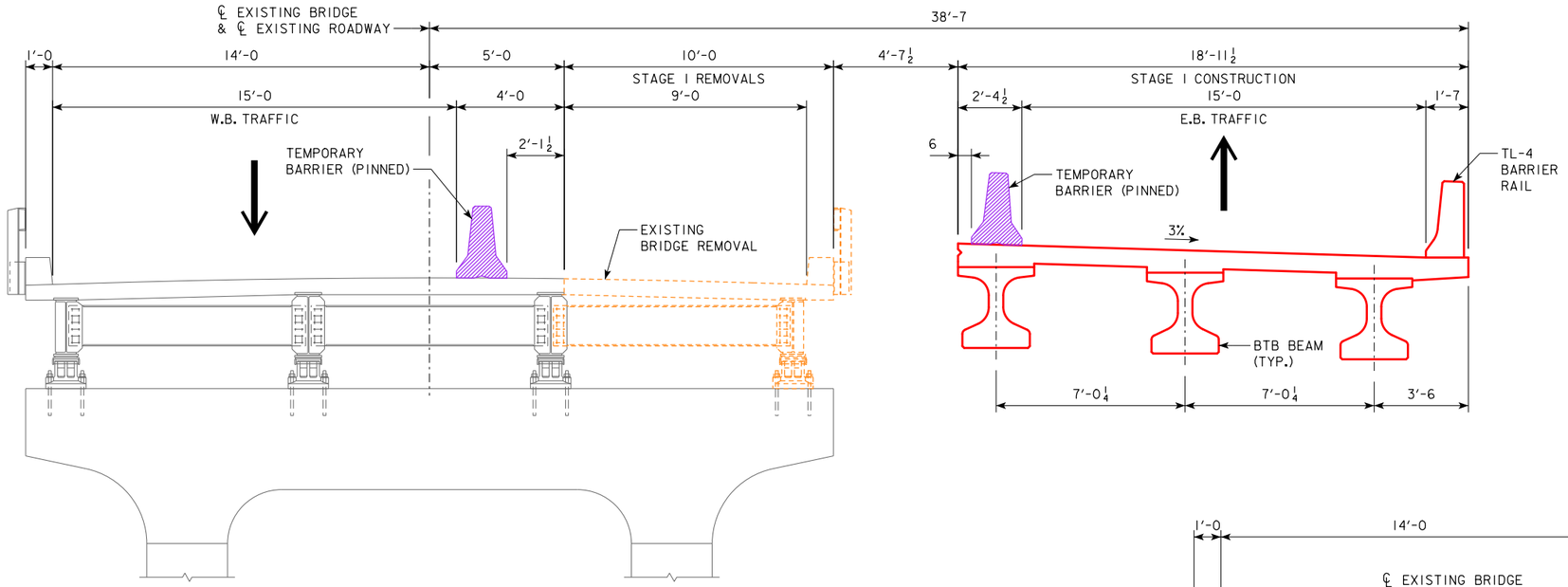
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

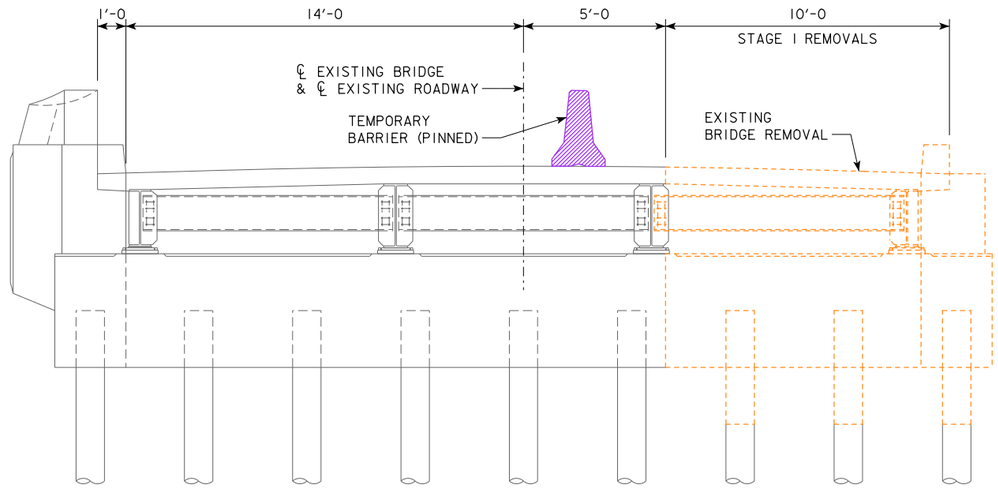
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 6 OF 45 FILE NO. _____ DESIGN NO. _____

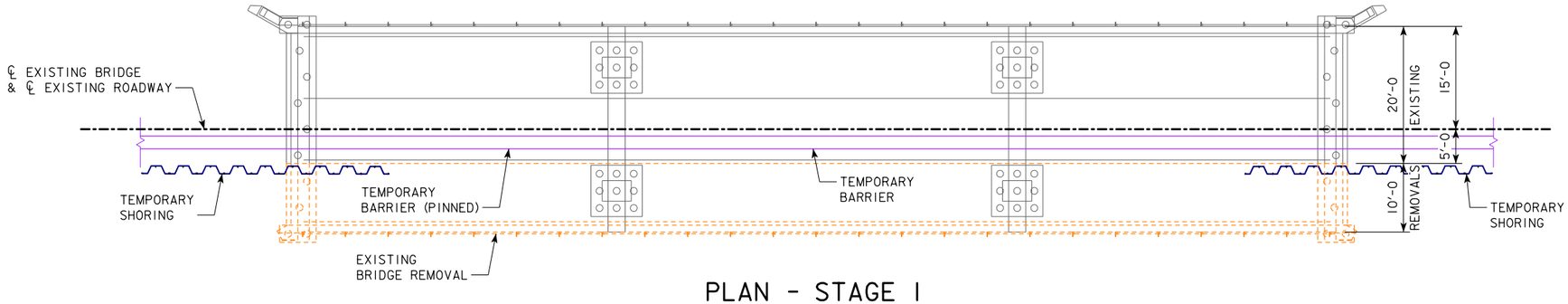
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.6



PIER SECTION - STAGE I
(LOOKING EAST)



ABUTMENT SECTION - STAGE I
(LOOKING EAST)



PLAN - STAGE I

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

STAGING AND REMOVAL DETAILS

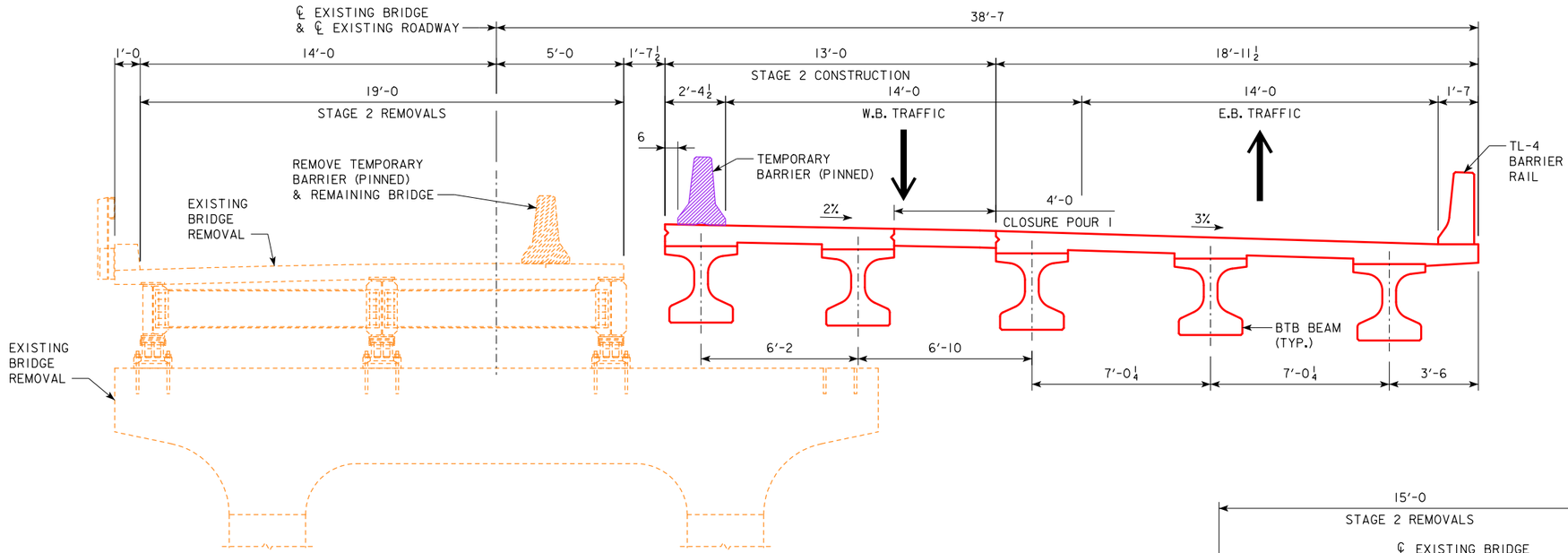
STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

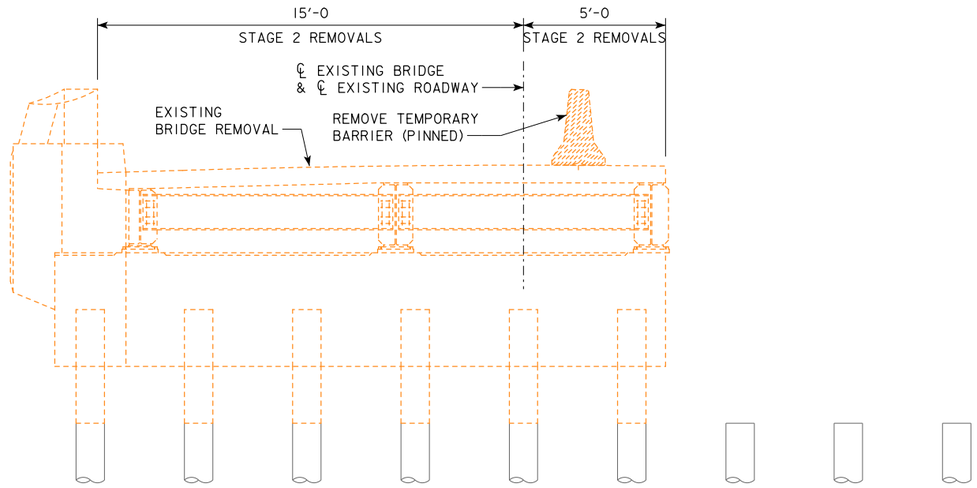
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 7 OF 45 FILE NO. _____ DESIGN NO. _____

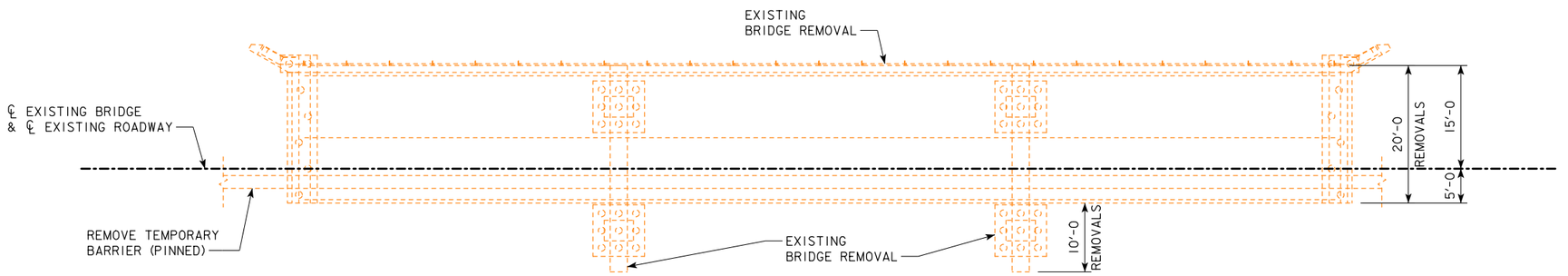
DESIGN TEAM McCLURE	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.7



PIER SECTION - STAGE 2
(LOOKING EAST)



ABUTMENT SECTION - STAGE 2
(LOOKING EAST)



PLAN - STAGE 2

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

STAGING AND REMOVAL DETAILS

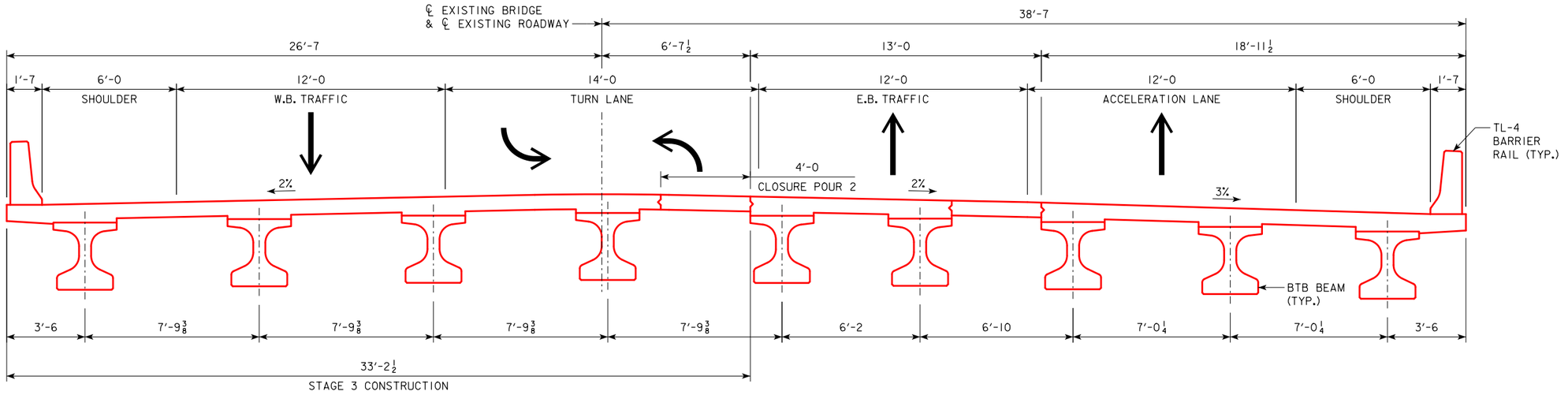
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 8 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.8



STAGE 3
(LOOKING EAST)

DESIGN FOR 0° SKEW

184′-0 x 62′-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41′-0 END SPANS 102′-0 INTERIOR SPAN

STAGING AND REMOVAL DETAILS

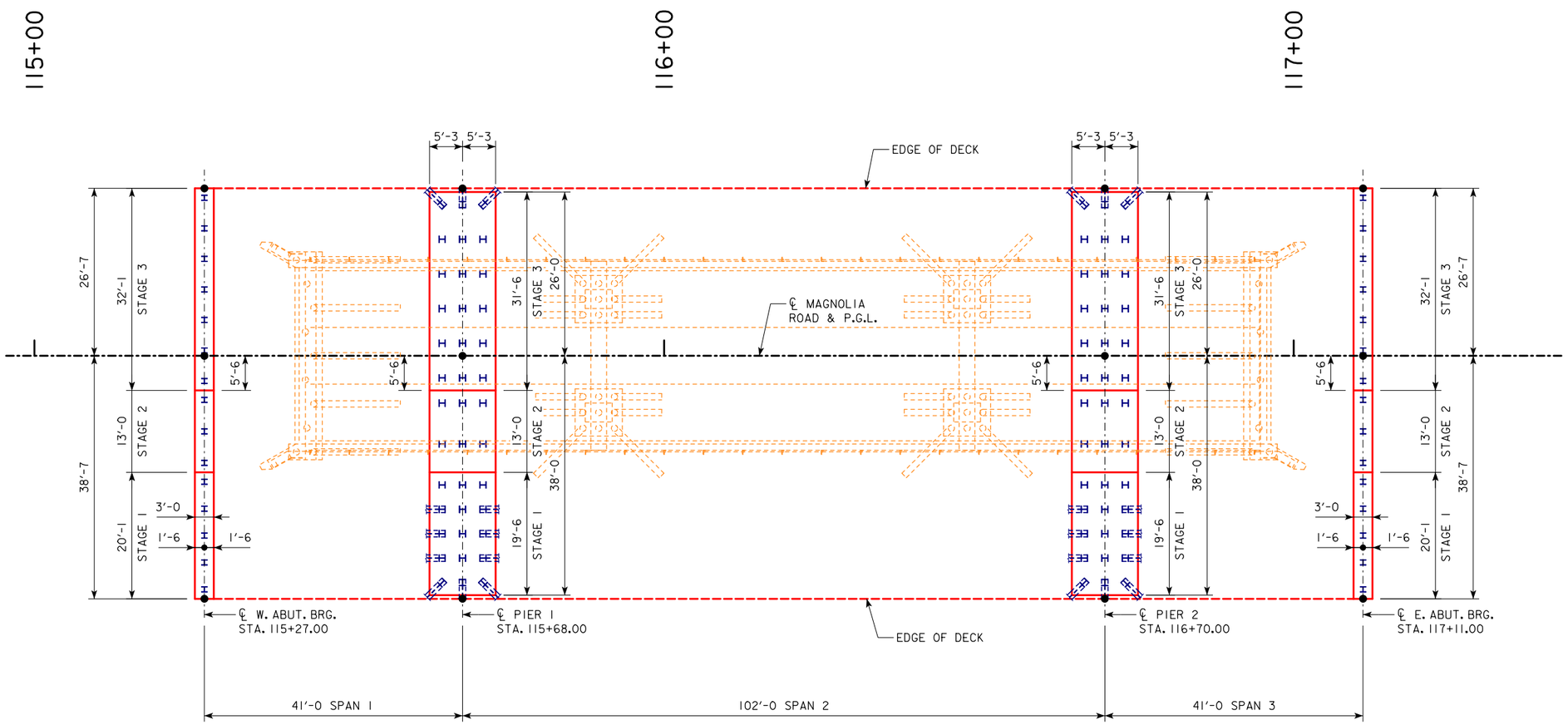
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 9 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.9



STAKING DIAGRAM

N

BRIDGE COORDINATES

LOCATION	℄ W. ABUT. BRG.	℄ PIER 1	℄ PIER 2	℄ E. ABUT. BRG.
NORTH EDGE OF DECK	X=16514343.2502 Y=7010377.4575	X=16514384.2502 Y=7010377.4916	X=16514486.2501 Y=7010377.5766	X=16514527.2501 Y=7010377.6107
℄ APPROACH ROADWAY	X=16514343.2723 Y=7010350.8742	X=16514384.2723 Y=7010350.9083	X=16514486.2723 Y=7010350.9933	X=16514527.2723 Y=7010351.0274
SOUTH EDGE OF DECK	X=16514343.3045 Y=7010312.2908	X=16514384.3044 Y=7010312.3250	X=16514486.3044 Y=7010312.4100	X=16514527.3044 Y=7010312.4441

NOTE: AN ELECTRONIC FILE CONTAINING THE BRIDGE COORDINATE DATA IS AVAILABLE AS PART OF THE E-FILES SUPPLIED WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL VERIFY THESE COORDINATES WITH THE PROJECT HORIZONTAL CONTROL INFORMATION PROVIDED IN THE ROAD PLANS.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

STAKING DIAGRAM

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

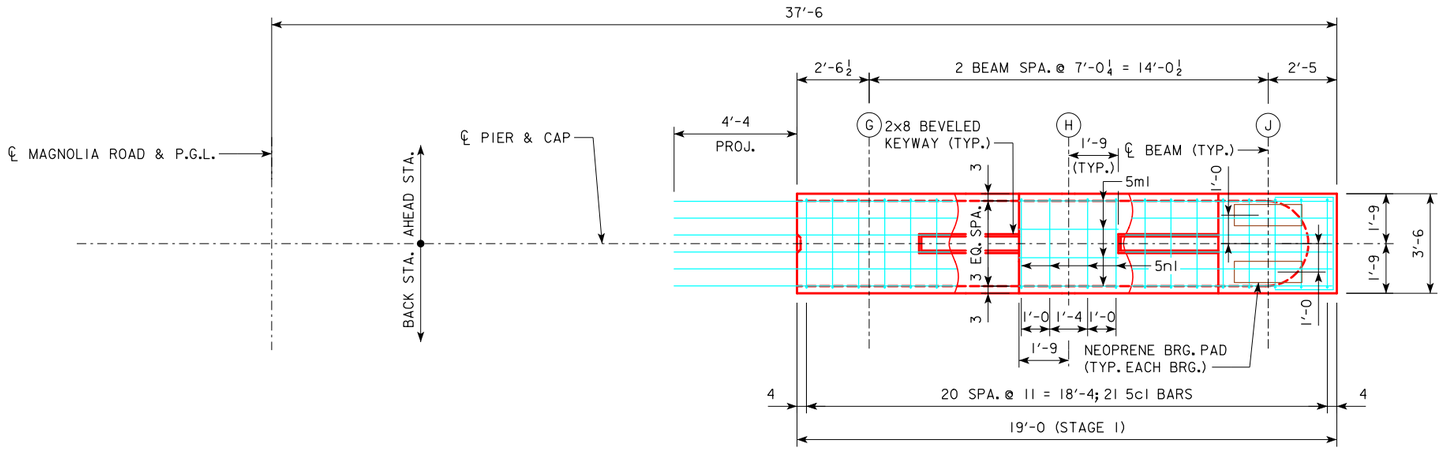
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 10 OF 45 FILE NO. _____ DESIGN NO. _____

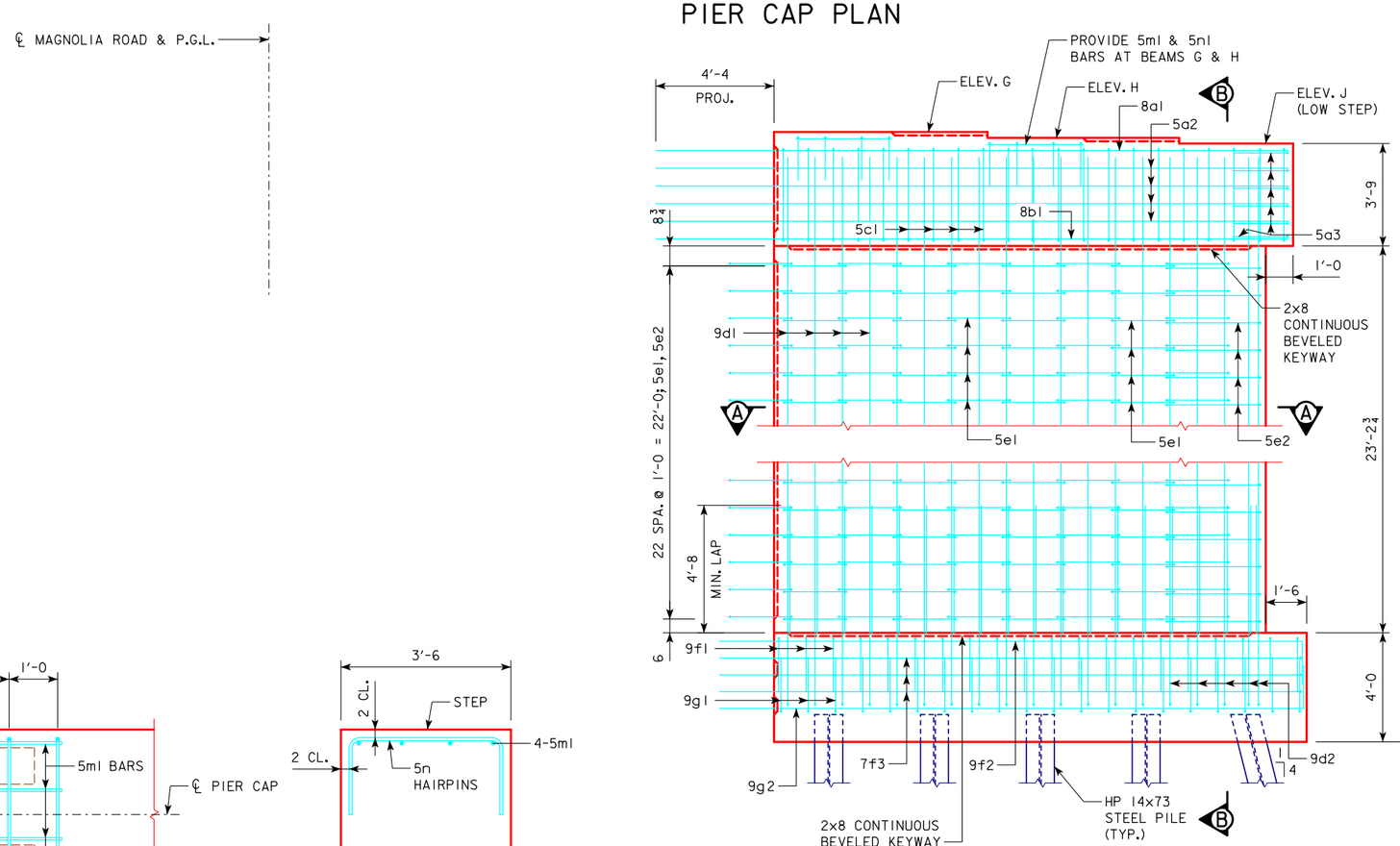
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.10

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BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45

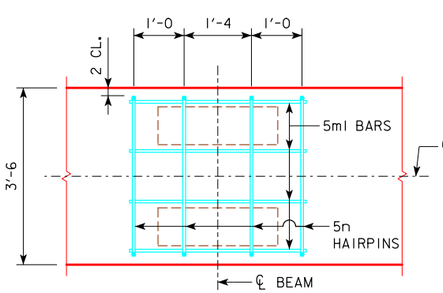


PIER CAP PLAN



PIER ELEVATION

TABLE OF PIER ELEVATIONS		
LOCATION	PIER 1	PIER 2
ELEV. G	1057.40	1057.41
ELEV. H	1057.19	1057.20
ELEV. J	1056.98	1056.99
BOTT. FTG. ELEV.	1026.00	1026.00



TYP. PLAN VIEW
BEAM SEAT REINFORCING

TYP. SECTION VIEW
BEAM SEAT REINFORCING

NOTE: SEE SHEET V.12 FOR SECTION A-A AND SHEET V.17 FOR SECTION B-B.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

PIER DETAILS - STAGE 1

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

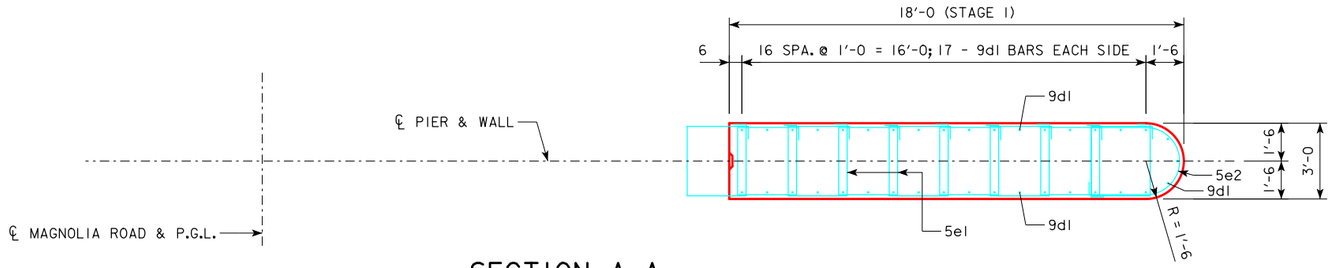
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

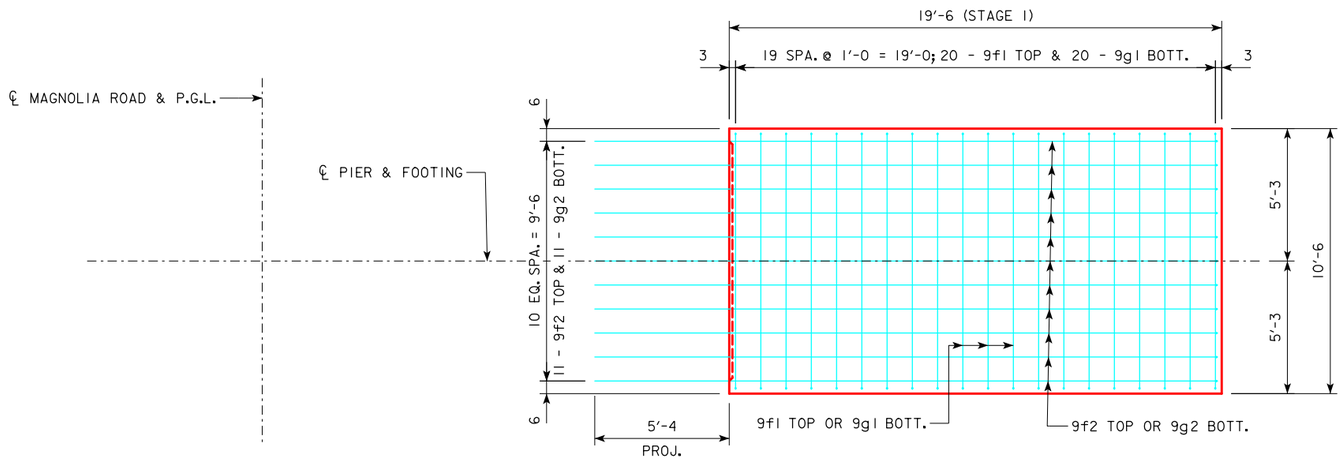
DESIGN SHEET NO. 11 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.11

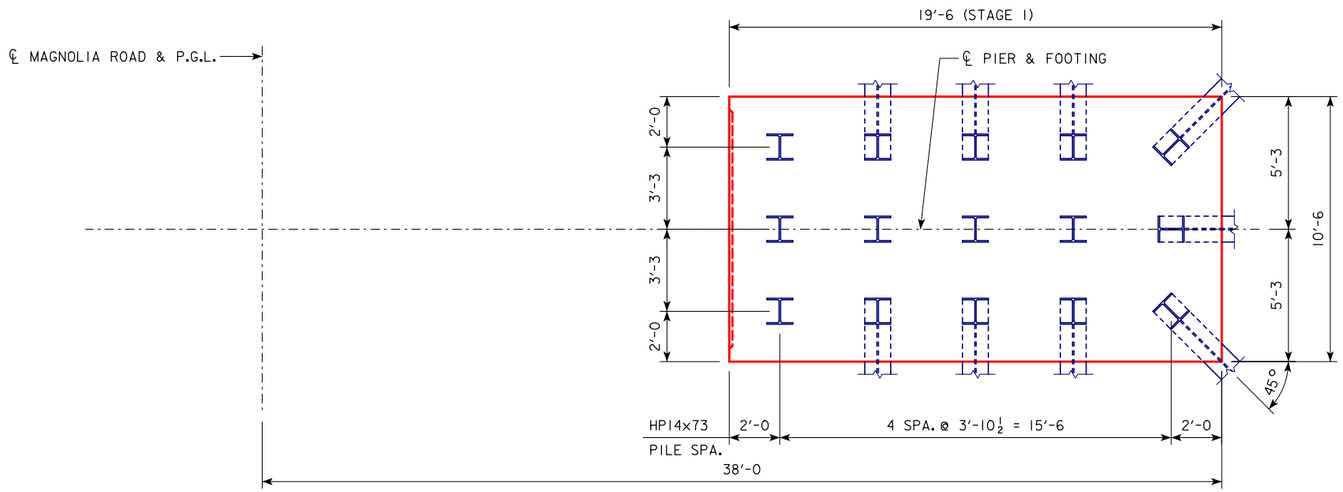
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SECTION A-A



FOOTING REINFORCING



FOOTING PLAN

NOTE: SEE SHEET V.11 FOR LOCATION OF SECTION A-A.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

PIER DETAILS - STAGE I

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

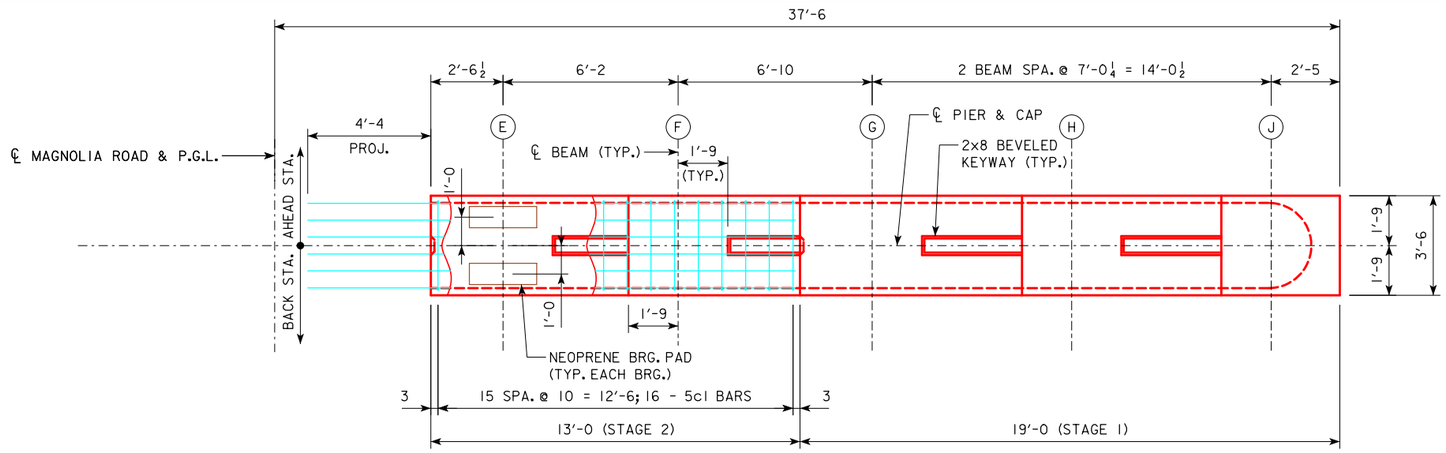
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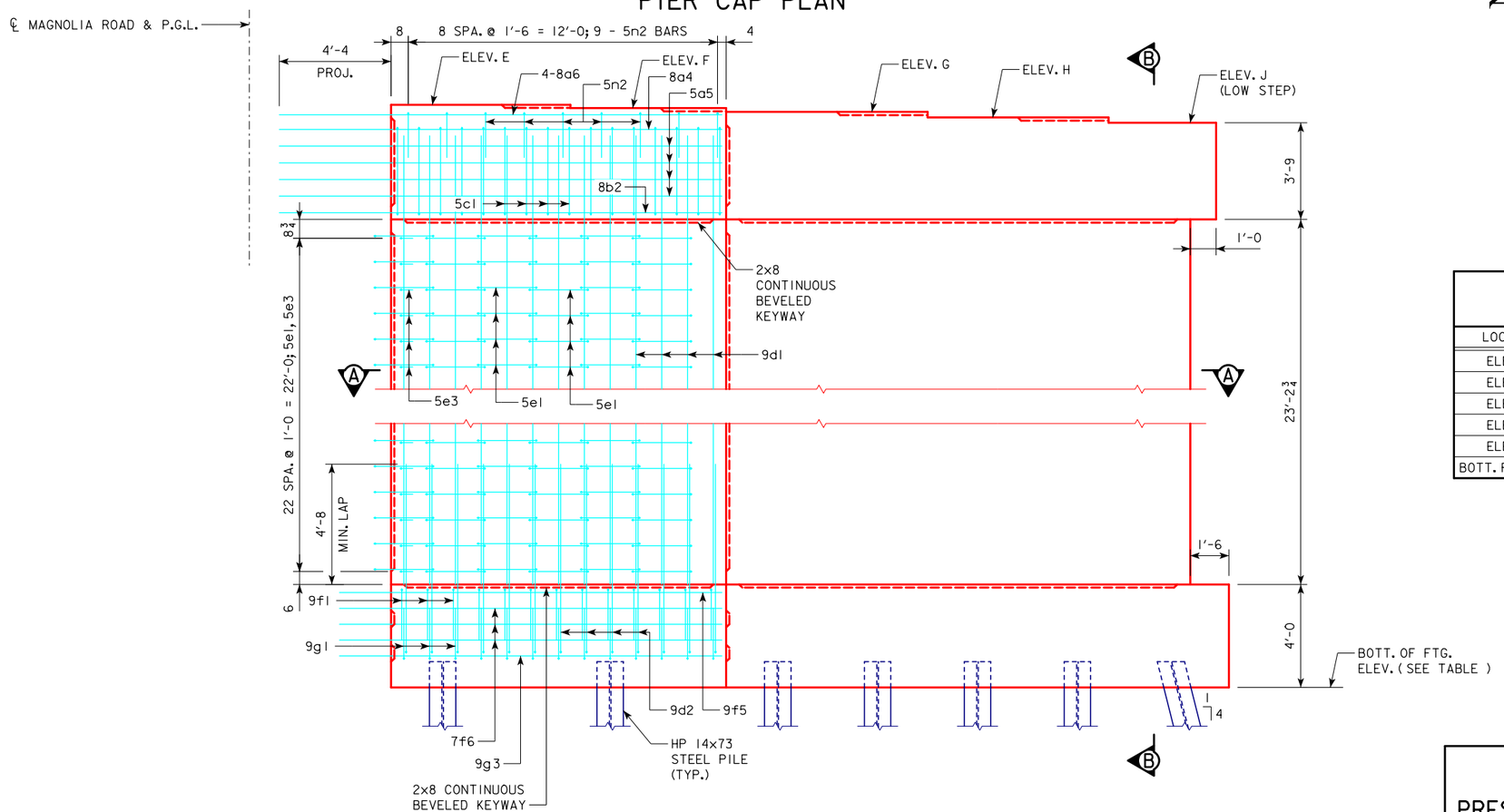
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.12

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BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45



PIER CAP PLAN



PIER ELEVATION

N

TABLE OF PIER ELEVATIONS		
LOCATION	PIER 1	PIER 2
ELEV. E	1057.68	1057.69
ELEV. F	1057.55	1057.56
ELEV. G	1057.40	1057.41
ELEV. H	1057.19	1057.20
ELEV. J	1056.98	1056.99
BOTT. FTG. ELEV.	1026.00	1026.00

NOTE: SEE SHEET V.14 FOR SECTION A-A AND SHEET V.17 FOR SECTION B-B.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

PIER DETAILS - STAGE 2

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

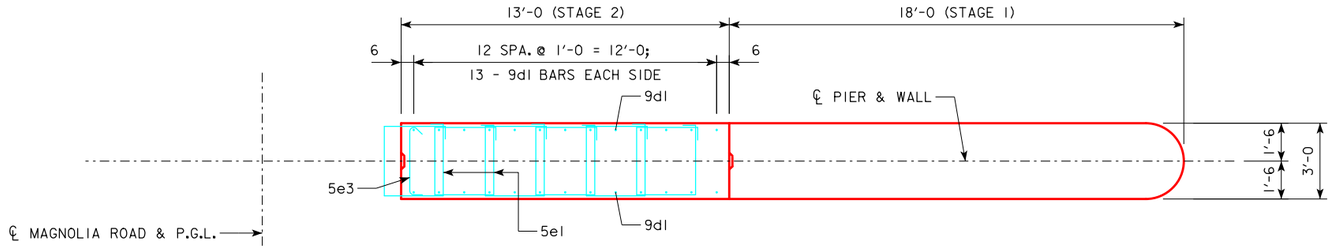
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

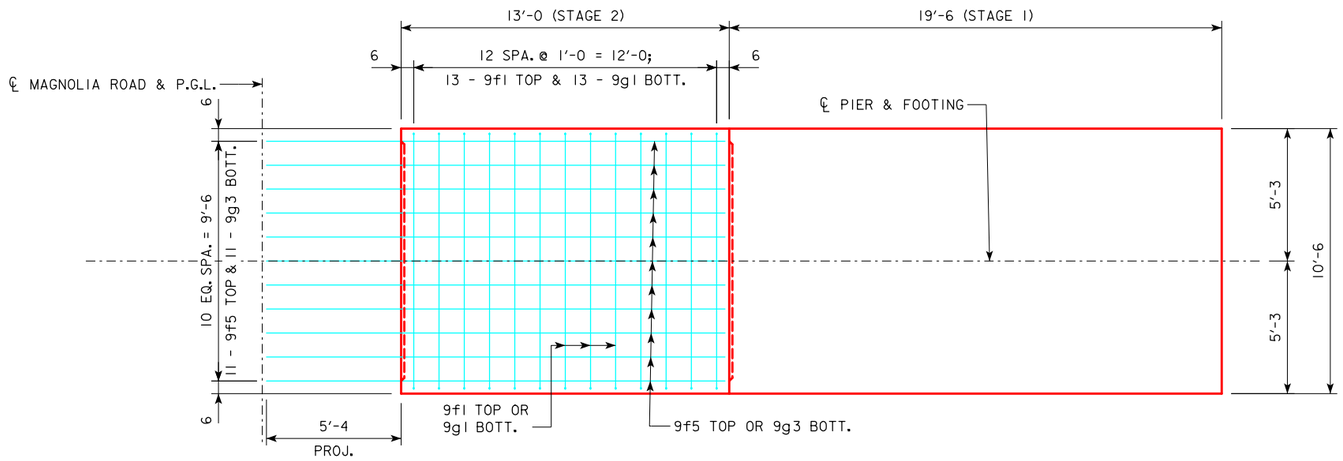
DESIGN SHEET NO. 13 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.13

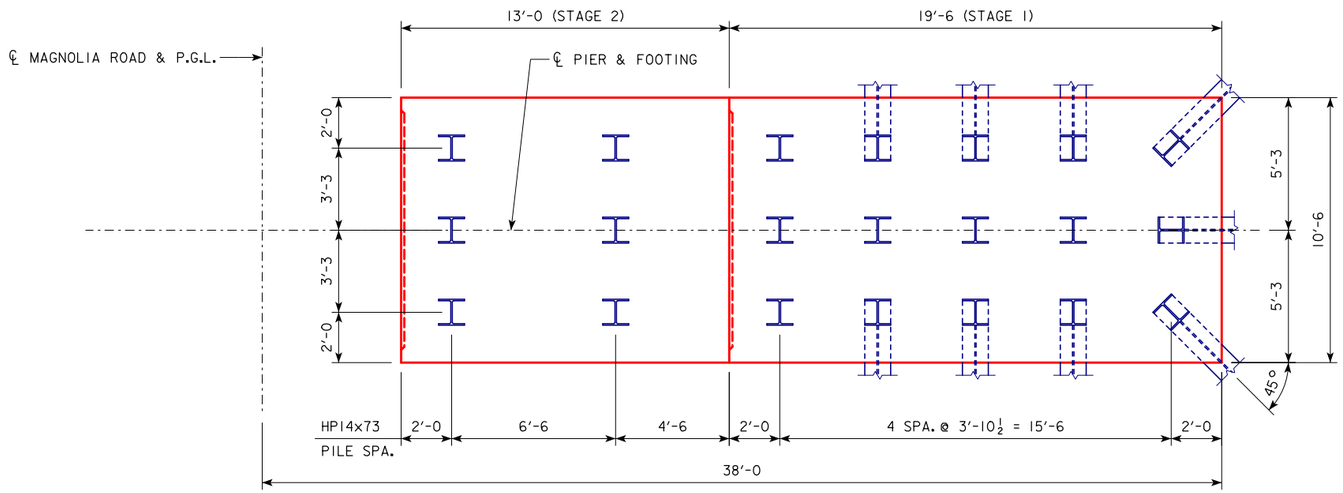
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SECTION A-A



FOOTING REINFORCING



FOOTING PLAN

NOTE: SEE SHEET V.13 FOR LOCATION OF SECTION A-A.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

PIER DETAILS - STAGE 2

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

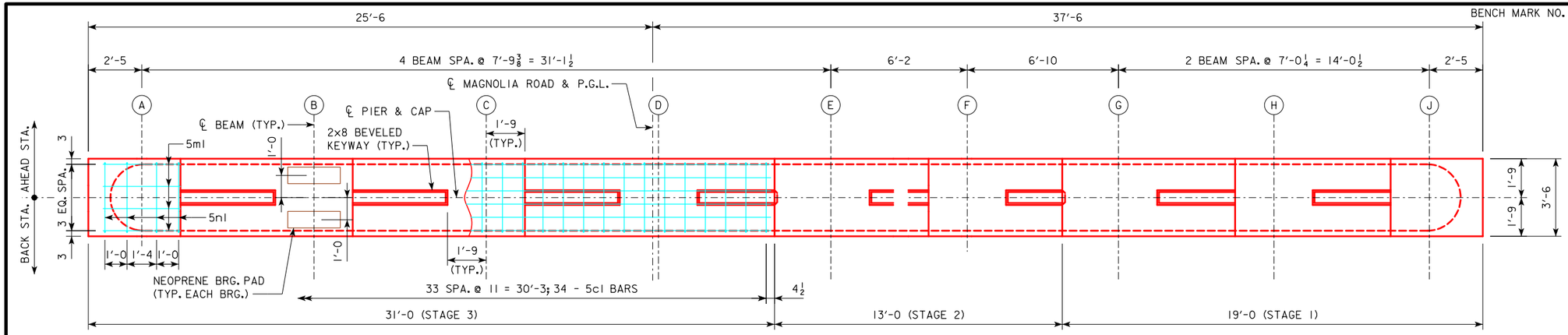
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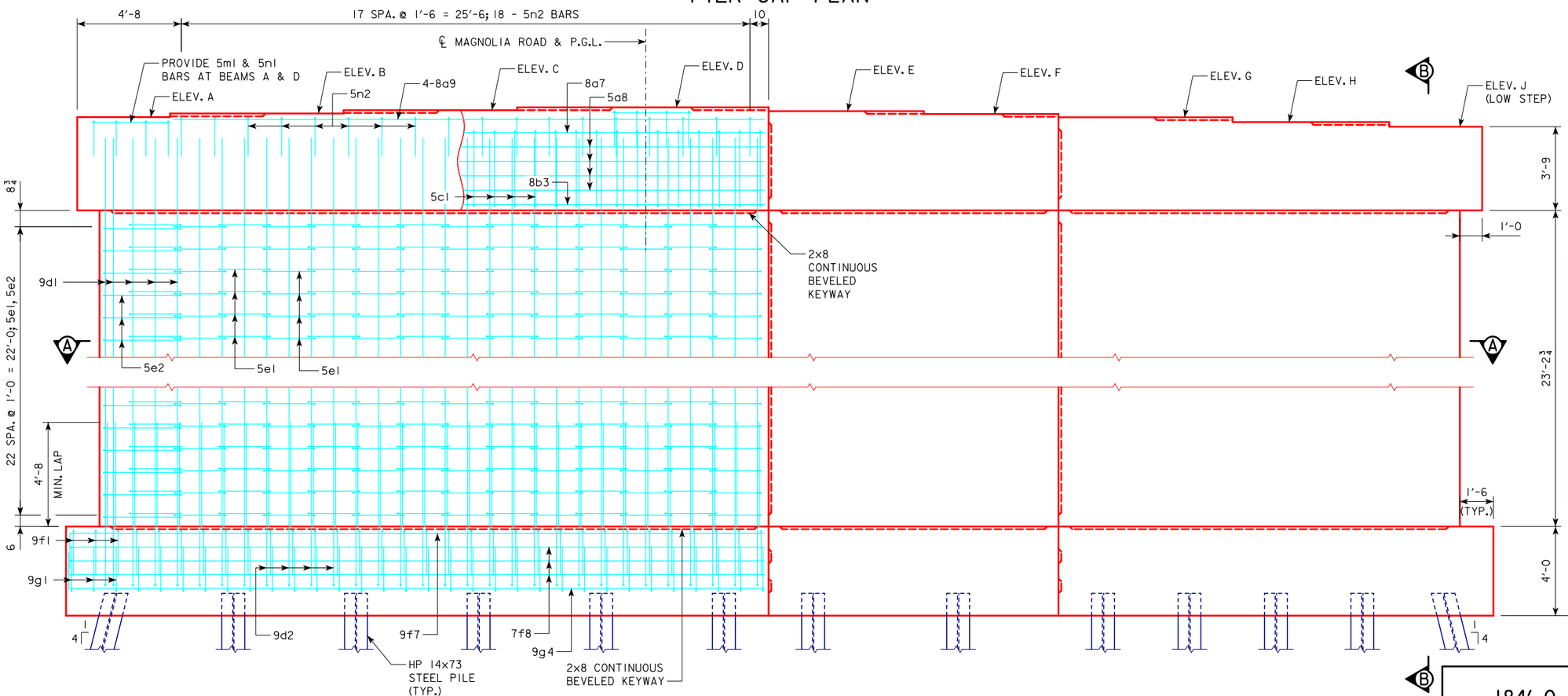
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.14

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BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45



PIER CAP PLAN



PIER ELEVATION

N

TABLE OF PIER ELEVATIONS

LOCATION	PIER 1	PIER 2
ELEV. A	1057.41	1057.42
ELEV. B	1057.57	1057.58
ELEV. C	1057.72	1057.73
ELEV. D	1057.85	1057.86
ELEV. E	1057.68	1057.69
ELEV. F	1057.55	1057.56
ELEV. G	1057.40	1057.41
ELEV. H	1057.19	1057.20
ELEV. J	1056.98	1056.99
BOTT. FTG. ELEV.	1026.00	1026.00

NOTE: SEE SHEET V.16 FOR SECTION A-A AND SHEET V.17 FOR SECTION B-B.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

PIER DETAILS - STAGE 3

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

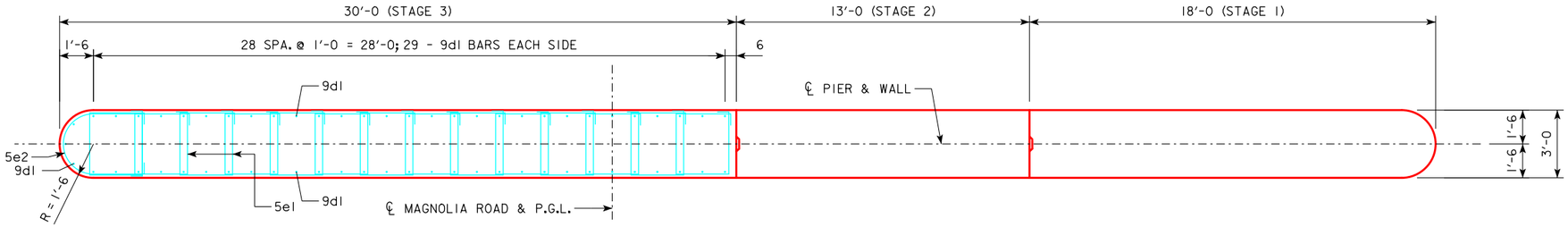
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

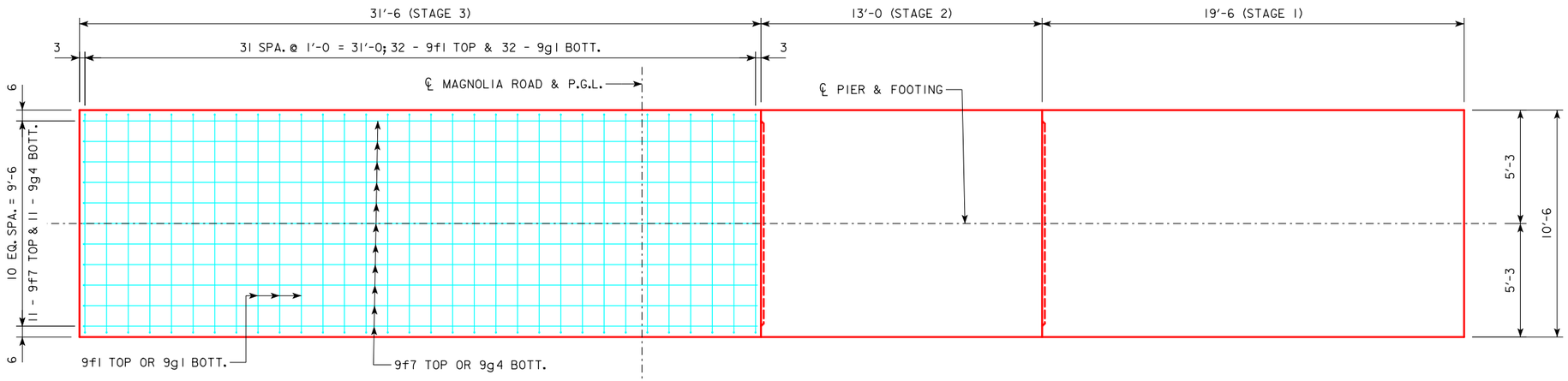
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DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.15

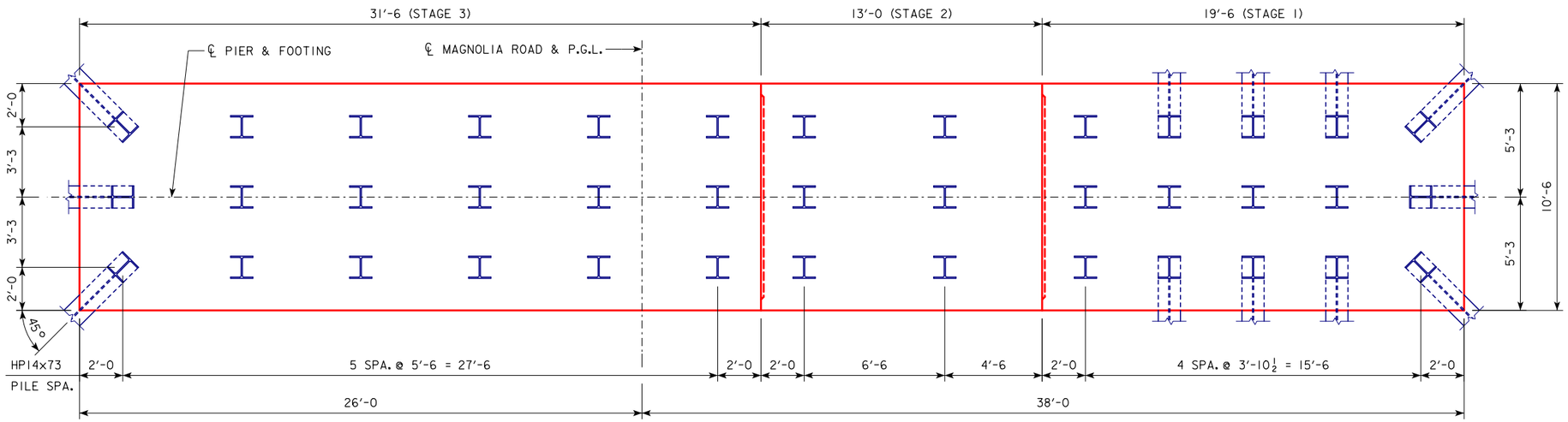
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SECTION A-A



FOOTING REINFORCING



FOOTING PLAN

NOTE: SEE SHEET V.15 FOR LOCATION OF SECTION A-A.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

PIER DETAILS - STAGE 3

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

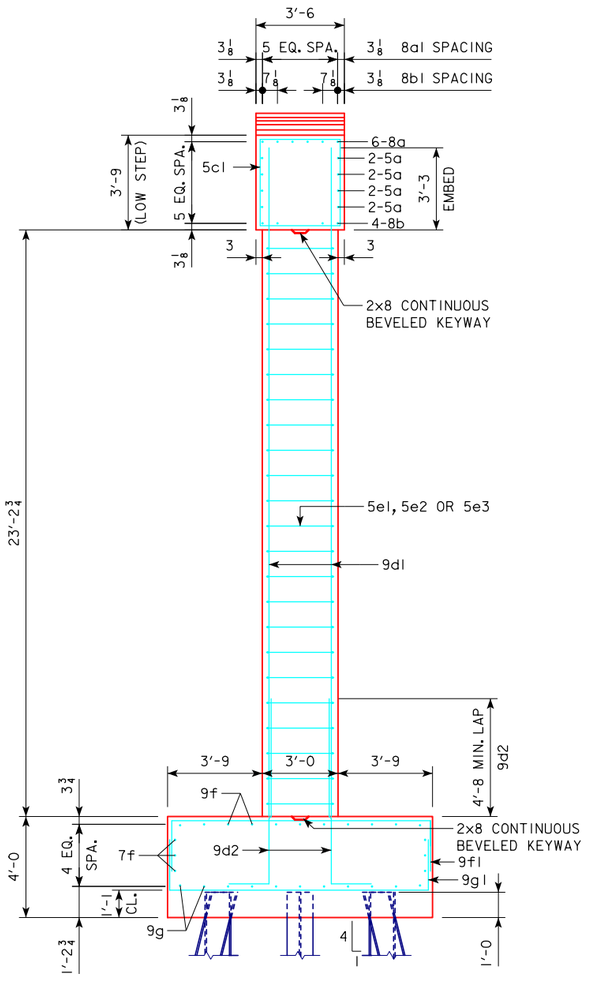
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 16 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.16

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SECTION B-B

PIER NOTES:

ALL REINFORCING STEEL IS TO BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED.

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A $\frac{3}{4}$" DRESSED AND BEVELED STRIP.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE 9d2 FOOTING TO COLUMN DOWELS ARE TO BE IN PLACE BEFORE FOOTING CONCRETE IS PLACED.

PILE DIMENSIONS SHOWN ARE AT THE BOTTOM OF FOOTING. BATTER PILES 1H:4V IN THE DIRECTION SHOWN. 39 - HP14x73 STEEL BEARING PILES ARE REQUIRED AT EACH PIER. ALL BATTERED PILES SHALL BE TRIMMED TO A LEVEL HORIZONTAL LINE TO AID IN THE PLACEMENT OF REINFORCING. STEEL PILE POINTS ARE REQUIRED FOR THE STEEL H-PILES AT THE PIER.

PIER 1 PILE DRIVING NOTES:

THE CONTRACT LENGTH OF 35 FEET FOR THE PIER 1 PILES IS BASED ON A MIXED SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 184 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.6 FOR SOIL AND 0.7 FOR ROCK END BEARING. PILES ALSO WERE DESIGNED FOR A FACTORED TENSION FORCE OF 12 KIPS.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A MIXED SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.7 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING. DESIGN SCOUR (200-YEAR) WAS ASSUMED TO AFFECT THE UPPER 2 FEET OF EMBEDDED PILE LENGTH AND CAUSE 3 KIPS OF DRIVING RESISTANCE.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR PIER 1 PILES IS 138 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. IN NO CASE SHALL A PILE BE EMBEDDED LESS THAN 22 FEET. CONSTRUCTION CONTROL REQUIRES A MODIFIED IOWA DOT ENR FORMULA.

PIER 2 PILE DRIVING NOTES:

THE CONTRACT LENGTH OF 35 FEET FOR THE PIER 2 PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 184 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.6 FOR SOIL AND 0.7 FOR ROCK END BEARING. PILES ALSO WERE DESIGNED FOR A FACTORED TENSION FORCE OF 12 KIPS.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.7 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING. DESIGN SCOUR (200-YEAR) WAS ASSUMED TO AFFECT THE UPPER 2 FEET OF EMBEDDED PILE LENGTH AND CAUSE 2 KIPS OF DRIVING RESISTANCE.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR PIER 2 PILES IS 140 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. IN NO CASE SHALL A PILE BE EMBEDDED LESS THAN 19 FEET. CONSTRUCTION CONTROL REQUIRES A MODIFIED IOWA DOT ENR FORMULA.

NOTE: SEE SHEET V.11, V.13, AND V.15 FOR LOCATION OF SECTION B-B.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

PIER DETAILS

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 17 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.17

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REINF. BAR LIST - ONE PIER (STAGE 1)

NON-COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	CAP TOP, LONGITUDINAL		6	23'-2	371
5a2	CAP SIDES, LONGITUDINAL		8	23'-2	193
5a3	CAP ENDS, TRANSVERSE		6	7'-1	44
8b1	CAP BOTTOM, LONGITUDINAL		4	23'-2	247
5c1	CAP STIRRUPS		21	14'-2	310
9d1	COLUMN VERTICAL		37	26'-6	3,334
9d2	COLUMN VERTICAL DOWEL		37	9'-0	1,132
5e1	COLUMN TIES		207	11'-0	2,375
5e2	COLUMN TIES, ENDS		23	12'-3	294
9f1	PILE FOOTING TOP, TRANSVERSE		20	13'-4	907
9f2	PILE FOOTING TOP, LONGITUDINAL		11	26'-3	982
7f3	PILE FOOTING SIDES, LONGITUDINAL		6	23'-1	283
7f4	PILE FOOTING SIDE, TRANSVERSE		3	10'-2	62
9g1	PILE FOOTING BOTTOM, TRANSVERSE		20	13'-4	907
9g2	PILE FOOTING BOTTOM, LONGITUDINAL		11	26'-3	982
5m1	CAP STEPS, LONGITUDINAL		8	3'-6	29
5n1	CAP STEPS, TRANSVERSE		8	7'-2	60
	REINFORCING STEEL - TOTAL (LBS.)				12,512

REINF. BAR LIST - ONE PIER (STAGE 2)

NON-COATED REINFORCING

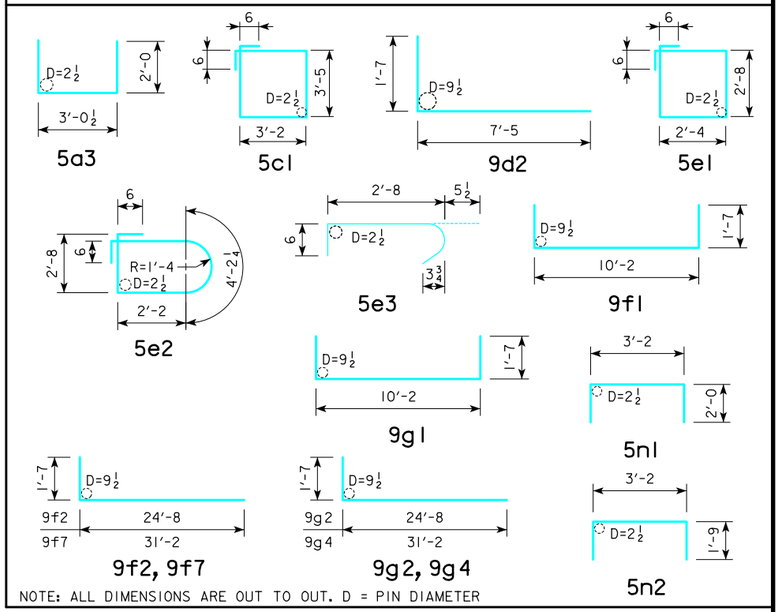
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a4	CAP TOP, LONGITUDINAL		6	17'-2	275
5a5	CAP SIDES, LONGITUDINAL		8	17'-2	143
8a6	CAP SUPPLEMENTAL TOP, LONGITUDINAL		4	17'-2	183
8b2	CAP BOTTOM, LONGITUDINAL		4	17'-2	183
5c1	CAP STIRRUPS		16	14'-2	236
9d1	COLUMN VERTICAL		26	26'-6	2,343
9d2	COLUMN VERTICAL DOWEL		26	9'-0	796
5e1	COLUMN TIES		138	11'-0	1,538
5e3	COLUMN TIES, HAIRPIN		23	3'-8	88
9f1	PILE FOOTING TOP, TRANSVERSE		13	13'-4	589
9f5	PILE FOOTING TOP, LONGITUDINAL		11	18'-2	679
7f6	PILE FOOTING SIDES, LONGITUDINAL		6	16'-7	203
9g1	PILE FOOTING BOTTOM, TRANSVERSE		13	13'-4	589
9g3	PILE FOOTING BOTTOM, LONGITUDINAL		11	18'-2	679
5n2	CAP SUPPLEMENTAL TOP, TRANSVERSE		9	6'-8	63
	REINFORCING STEEL - TOTAL (LBS.)				8,587

REINF. BAR LIST - ONE PIER (STAGE 3)

NON-COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a3	CAP ENDS, TRANSVERSE		6	7'-1	44
8a7	CAP TOP, LONGITUDINAL		6	30'-8	491
5a8	CAP SIDES, LONGITUDINAL		8	30'-8	256
8a9	CAP SUPPLEMENTAL TOP, LONGITUDINAL		4	26'-6	283
8b3	CAP BOTTOM, LONGITUDINAL		4	30'-8	328
5c1	CAP STIRRUPS		34	14'-2	502
9d1	COLUMN VERTICAL		61	26'-6	5,496
9d2	COLUMN VERTICAL DOWEL		61	9'-0	1,867
5e1	COLUMN TIES		322	11'-0	3,694
5e2	COLUMN TIES, ENDS		23	12'-3	294
9f1	PILE FOOTING TOP, TRANSVERSE		32	13'-4	1,451
7f4	PILE FOOTING SIDE, TRANSVERSE		3	10'-2	62
9f7	PILE FOOTING TOP, LONGITUDINAL		11	32'-9	1,225
7f8	PILE FOOTING SIDES, LONGITUDINAL		6	31'-2	382
9g1	PILE FOOTING BOTTOM, TRANSVERSE		32	13'-4	1,451
9g4	PILE FOOTING BOTTOM, LONGITUDINAL		11	32'-9	1,225
5m1	CAP STEPS, LONGITUDINAL		8	3'-6	29
5n1	CAP STEPS, TRANSVERSE		8	7'-2	60
5n2	CAP SUPPLEMENTAL TOP, TRANSVERSE		18	6'-8	125
	REINFORCING STEEL - TOTAL (LBS.)				19,265

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER

CONCRETE PLACEMENT QUANT. (STAGE 1)

LOCATION	PIER 1	PIER 2
FOOTING	30.3	30.3
COLUMN	45.6	45.6
CAP	9.9	9.9
TOTAL (CU. YDS.)	85.8	85.8

ESTIMATED QUANTITIES (STAGE 1)

ITEM	UNIT	PIER 1	PIER 2	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	85.8	85.8	171.6
REINFORCING STEEL	LB.	12,512	12,512	25,024
EXCAVATION, CLASS 20	C.Y.	127.0	127.0	254.0
EXCAVATION, CLASS 21	C.Y.	109.1	109.1	218.2
PILES, STEEL, HP14x73	L.F.	525	525	1,050

CONCRETE PLACEMENT QUANT. (STAGE 2)

LOCATION	PIER 1	PIER 2
FOOTING	20.2	20.2
COLUMN	33.6	33.6
CAP	7.4	7.4
TOTAL (CU. YDS.)	61.2	61.2

ESTIMATED QUANTITIES (STAGE 2)

ITEM	UNIT	PIER 1	PIER 2	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	61.2	61.2	122.4
REINFORCING STEEL	LB.	8,587	8,587	17,174
EXCAVATION, CLASS 20	C.Y.	64.8	64.8	129.6
EXCAVATION, CLASS 21	C.Y.	55.6	55.6	111.2
PILES, STEEL, HP14x73	L.F.	210	210	420

CONCRETE PLACEMENT QUANT. (STAGE 3)

LOCATION	PIER 1	PIER 2
FOOTING	49.0	49.0
COLUMN	76.6	76.6
CAP	17.9	17.9
TOTAL (CU. YDS.)	143.5	143.5

ESTIMATED QUANTITIES (STAGE 3)

ITEM	UNIT	PIER 1	PIER 2	TOTAL
STRUCTURAL CONCRETE (BRIDGE)	C.Y.	143.5	143.5	287.0
REINFORCING STEEL	LB.	19,265	19,265	38,530
EXCAVATION, CLASS 20	C.Y.	156.9	156.9	313.8
EXCAVATION, CLASS 21	C.Y.	134.8	134.8	269.6
PILES, STEEL, HP14x73	L.F.	630	630	1,260

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

PIER DETAILS

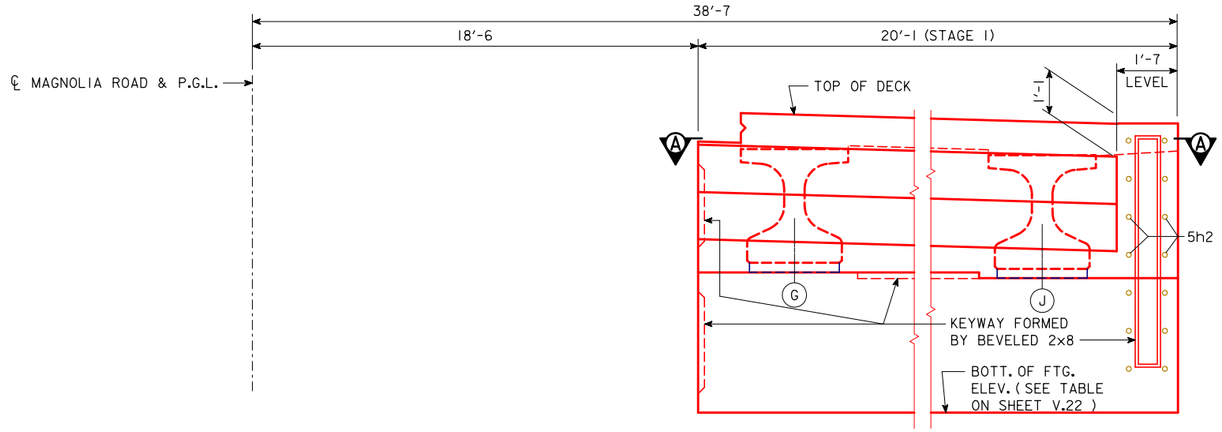
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

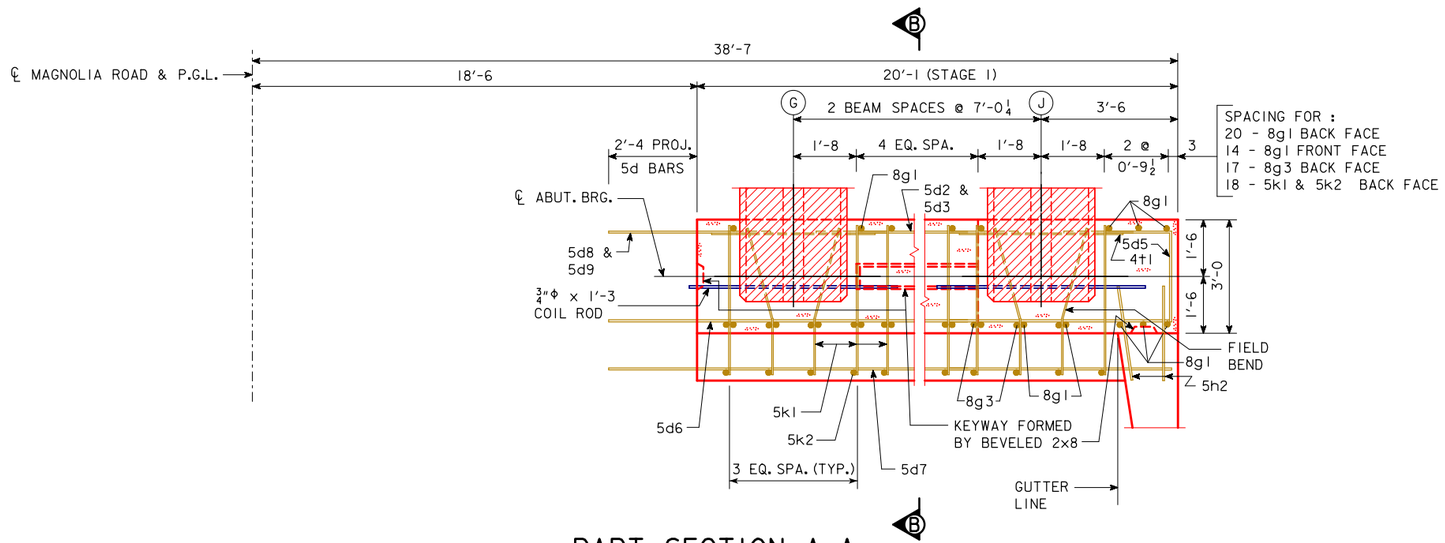
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 18 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.18

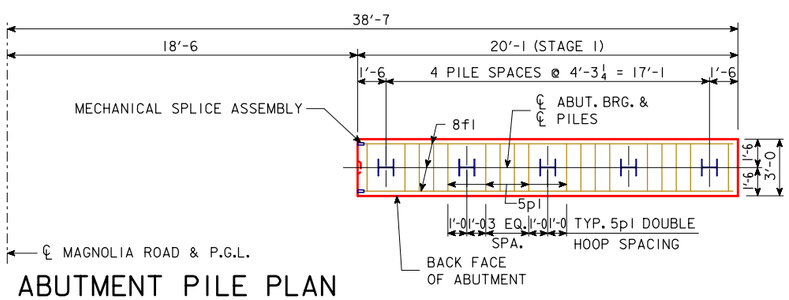


PART REAR ELEVATION AT ABUTMENT



PART SECTION A-A

NOTE: PLACE 5h2 BAR AT 1:6 TAPER TO MATCH TRAFFIC SIDE OF ABUTMENT WING FACE.



ABUTMENT PILE PLAN

NOTE: WEST ABUTMENT SHOWN. EAST ABUTMENT SIMILAR.

SEE SHEET V.22 FOR SECTION B-B.

SEE SHEET V.22 FOR MECHANICAL SPLICE ASSEMBLY NOTES.

N

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

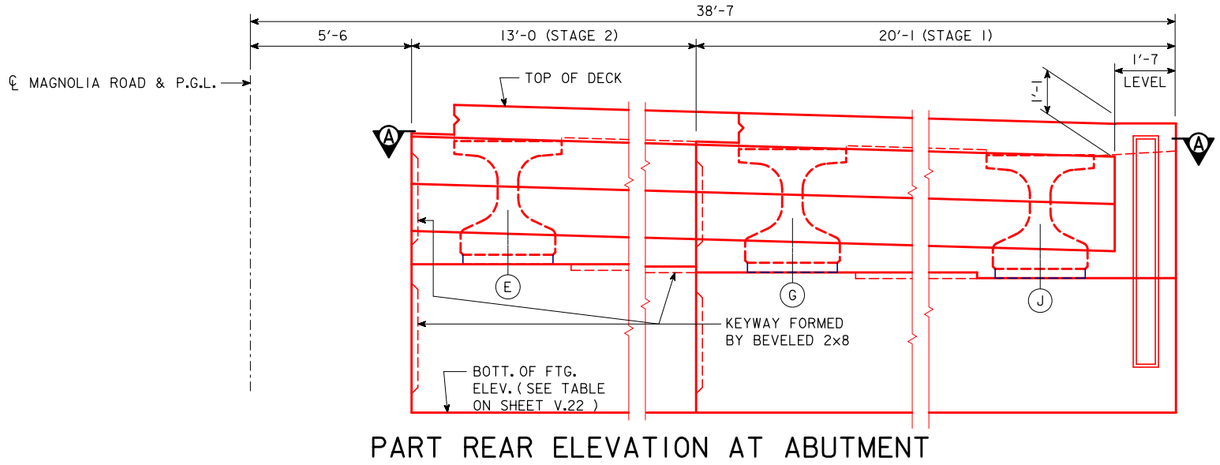
ABUTMENT DETAILS - STAGE 1

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

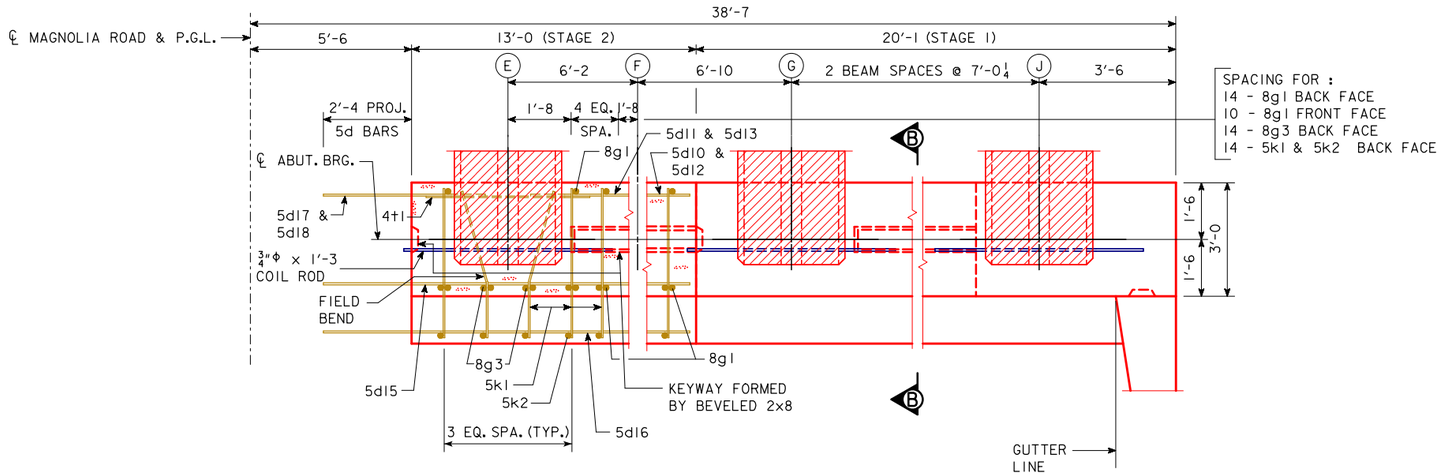
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

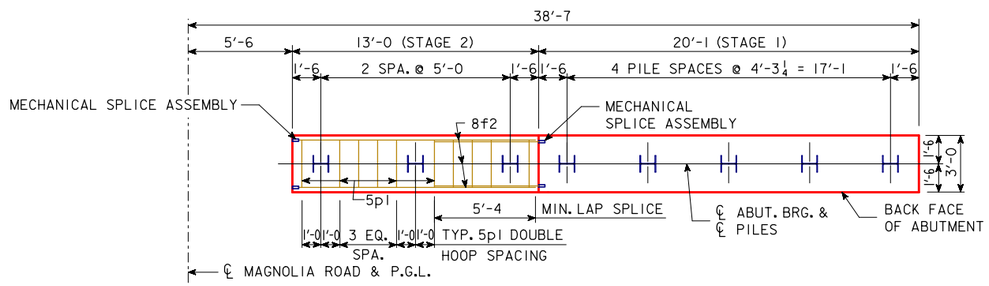
DESIGN SHEET NO. 19 OF 45 FILE NO. _____ DESIGN NO. _____



PART REAR ELEVATION AT ABUTMENT



PART SECTION A-A



ABUTMENT PILE PLAN

NOTE: WEST ABUTMENT SHOWN. EAST ABUTMENT SIMILAR.

SEE SHEET V.22 FOR SECTION B-B.

SEE SHEET V.22 FOR MECHANICAL SPLICE ASSEMBLY NOTES.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

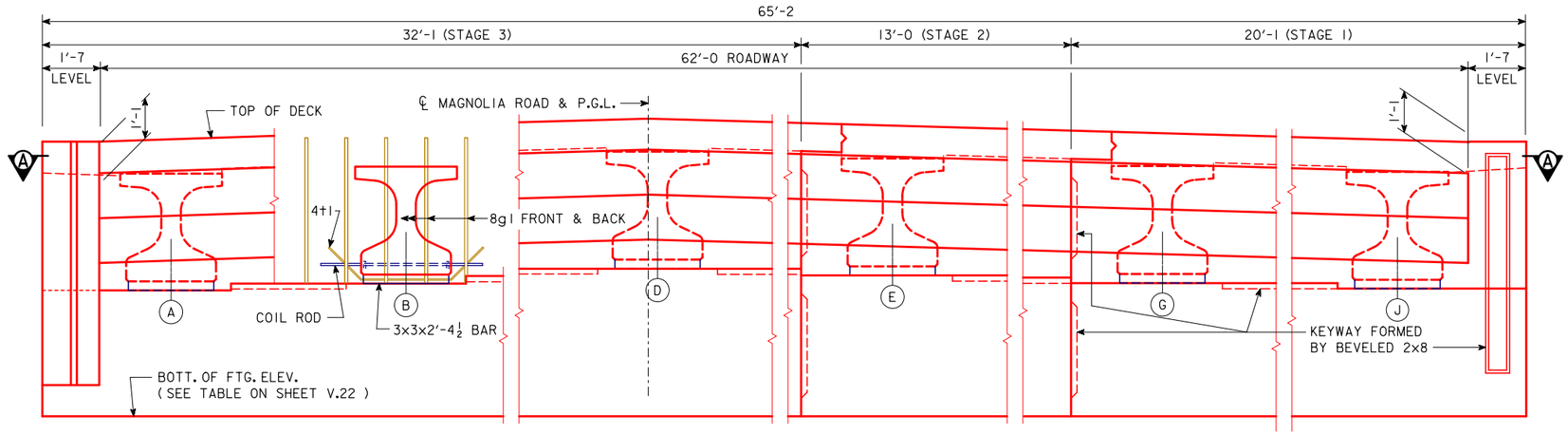
ABUTMENT DETAILS - STAGE 2

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

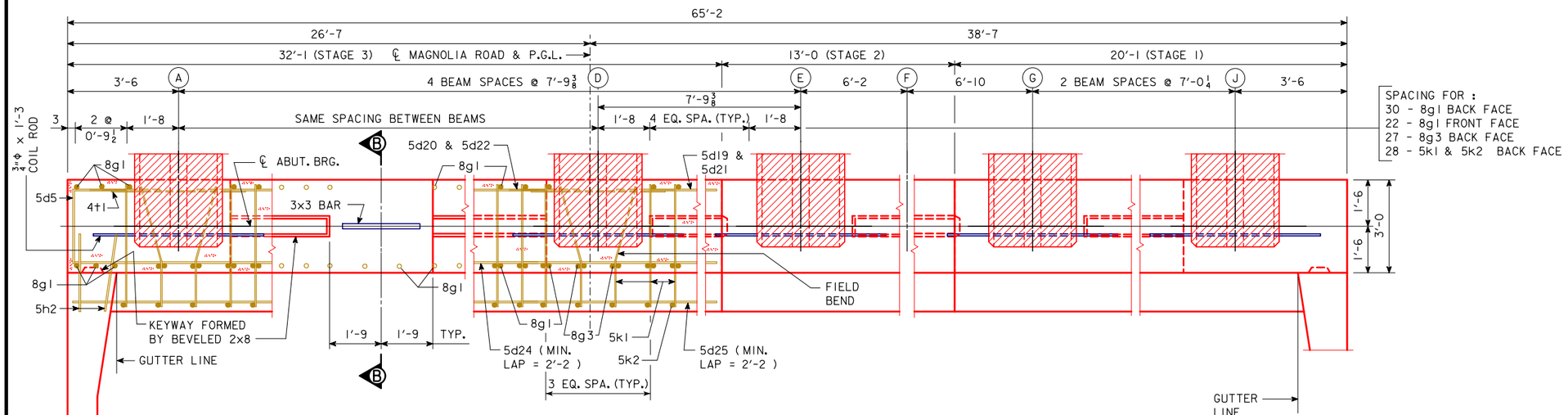
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 20 OF 45 FILE NO. _____ DESIGN NO. _____

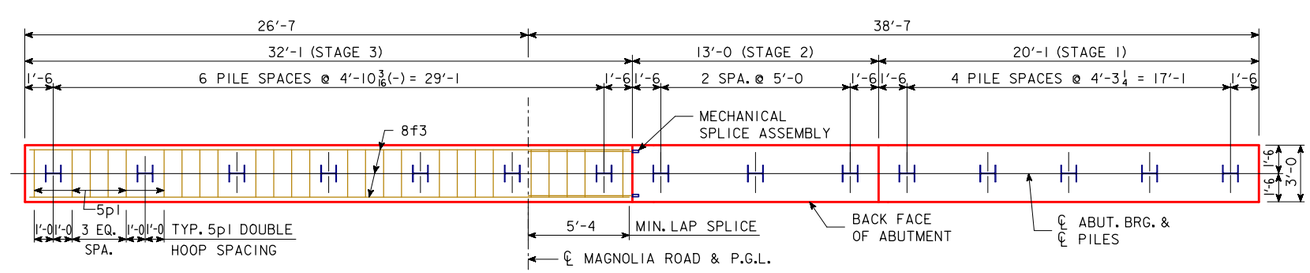


PART REAR ELEVATION AT ABUTMENT



PART SECTION A-A

NOTE: PLACE 5h2 BAR AT 1:6 TAPER TO MATCH TRAFFIC SIDE OF ABUTMENT WING FACE.



ABUTMENT PILE PLAN

N

NOTE: WEST ABUTMENT SHOWN. EAST ABUTMENT SIMILAR.

SEE SHEET V.22 FOR SECTION B-B.

SEE SHEET V.22 FOR MECHANICAL SPLICE ASSEMBLY NOTES.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

ABUTMENT DETAILS - STAGE 3

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 21 OF 45 FILE NO. _____ DESIGN NO. _____

BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45

WEST ABUTMENT PILE DRIVING NOTES:

THE CONTRACT LENGTH OF 65 FEET FOR THE WEST ABUTMENT PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 131 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.6 FOR SOIL AND 0.7 FOR ROCK END BEARING. TO ACCOUNT FOR SOIL CONSOLIDATION UNDER THE NEW FILL, THE FACTORED AXIAL LOAD INCLUDES A FACTORED DOWNDRAG LOAD OF 12 KIPS.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.7 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF PREBORE.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST ABUTMENT PILES IS 99 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A MODIFIED IOWA DOT ENR FORMULA.

EAST ABUTMENT PILE DRIVING NOTES:

THE CONTRACT LENGTH OF 65 FEET FOR THE EAST ABUTMENT PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 127 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.6 FOR SOIL AND 0.7 FOR ROCK END BEARING. TO ACCOUNT FOR SOIL CONSOLIDATION UNDER THE NEW FILL, THE FACTORED AXIAL LOAD INCLUDES A FACTORED DOWNDRAG LOAD OF 8 KIPS.

THE NOMINAL AXIAL BEARING RESISTANCE FOR CONSTRUCTION CONTROL WAS DETERMINED FROM A COHESIVE SOIL CLASSIFICATION AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.55 FOR SOIL AND 0.7 FOR ROCK END BEARING. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF PREBORE.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR EAST ABUTMENT PILES IS 97 TONS AT END OF DRIVE OR RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A MODIFIED IOWA DOT ENR FORMULA.

MECHANICAL SPLICE ASSEMBLY NOTE:

THE "8f" BARS IN THE ABUTMENT FOOTINGS SHALL BE SPLICED AT THE LOCATIONS SHOWN USING MECHANICAL SPLICE ASSEMBLIES. MECHANICAL SPLICE ASSEMBLIES CONSIST OF MECHANICAL SPLICERS AND REINFORCING SPLICE BARS AS REQUIRED TO FACILITATE THE USE OF THE MECHANICAL SPLICER. THE MECHANICAL SPLICE ASSEMBLY USED SHALL MEET THE REQUIREMENTS OF MATERIALS I.M. 451 APPENDIX E. REINFORCING SPLICE BARS SHALL BE A MINIMUM OF 1 INCH DIAMETER FOR "8f" BARS.

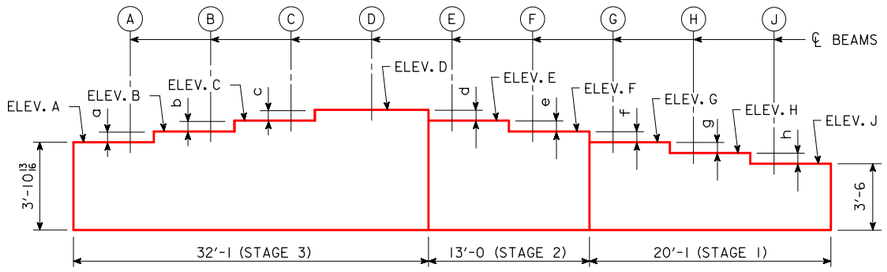
ALL MECHANICAL SPLICE ASSEMBLIES TO BE USED IN SPLICING "8f" BARS IN THE ABUTMENT FOOTINGS SHALL BE EPOXY COATED.

THE COST OF ALL SPLICE ASSEMBLIES IS TO BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL EPOXY COATED" AND NO SEPARATE PAYMENT WILL BE MADE. THE WEIGHT OF MECHANICAL SPLICE ASSEMBLIES IS NOT INCLUDED IN THE QUANTITY SHOWN FOR "REINFORCING STEEL EPOXY COATED". A TOTAL OF 18-1 INCH DIAMETER EPOXY COATED SPLICE ASSEMBLIES WILL BE REQUIRED FOR WEST ABUTMENT AND A TOTAL OF 18-1 INCH DIAMETER ASSEMBLIES WILL BE REQUIRED FOR EAST ABUTMENT.

ABUTMENT NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

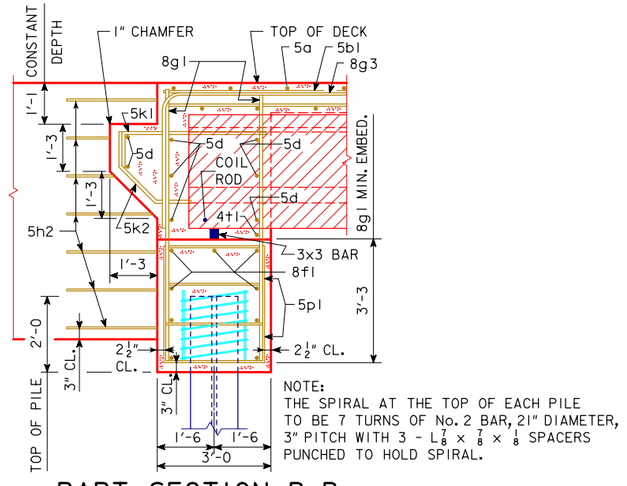
IF NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR AT NO EXTRA COST TO THE STATE.



ABUTMENT STEP DIAGRAM

(REAR ELEVATION)

(WEST ABUTMENT SHOWN. EAST ABUTMENT OPPOSITE HAND.)



PART SECTION B-B

NOTE:
THE SPIRAL AT THE TOP OF EACH PILE TO BE 7 TURNS OF No. 2 BAR, 21" DIAMETER, 3" PITCH WITH 3 - L 7/8 x 7/8 x 1/8 SPACERS PUNCHED TO HOLD SPIRAL.

TABLE OF ABUTMENT ELEVATIONS

POINT	WEST ABUT.	EAST ABUT.
ELEV. A	1057.14	1057.15
ELEV. B	1057.30	1057.31
ELEV. C	1057.46	1057.47
ELEV. D	1057.58	1057.59
ELEV. E	1057.45	1057.46
ELEV. F	1057.32	1057.33
ELEV. G	1057.16	1057.17
ELEV. H	1056.95	1056.96
ELEV. J	1056.74	1056.75
BOTT. FTG. ELEV.	1053.24	1053.25

TABLE OF ABUTMENT STEPS

STEP	WEST ABUT.	EAST ABUT.
a	1 15/16	1 15/16
b	1 15/16	1 15/16
c	1 7/16	1 7/16
d	1 9/16	1 9/16
e	1 9/16	1 9/16
f	1 15/16	1 15/16
g	2 1/2	2 1/2
h	2 1/2	2 1/2

ABUTMENT CONCRETE QUANTITY

LOCATION	QUANTITY
WEST ABUTMENT FOOTING, STAGE 1	8.3
WEST ABUTMENT FOOTING, STAGE 2	6.0
WEST ABUTMENT FOOTING, STAGE 3	14.9
EAST ABUTMENT FOOTING, STAGE 1	8.3
EAST ABUTMENT FOOTING, STAGE 2	6.0
EAST ABUTMENT FOOTING, STAGE 3	14.9
TOTAL (CU. YDS.)	58.4

NOTE: CONCRETE QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

NOTE:
15 - HP 10 x 57 STEEL BEARING PILING REQUIRED AT EACH ABUTMENT:
3 - HP 10 x 57 STAGE 1
5 - HP 10 x 57 STAGE 2
7 - HP 10 x 57 STAGE 3

NOTE: BARRIER RAIL NOT SHOWN IN DETAILS.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

ABUTMENT DETAILS

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

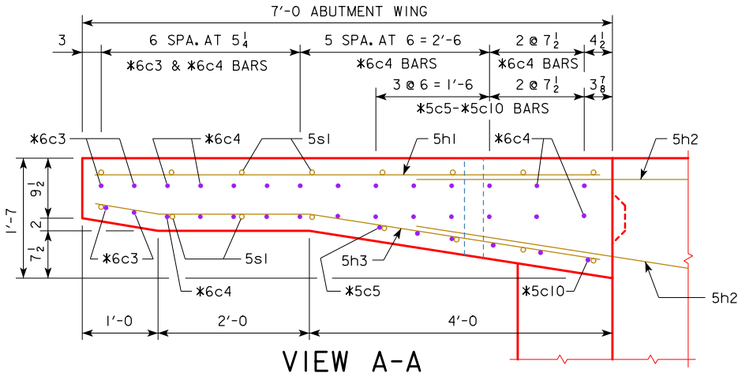
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 22 OF 45 FILE NO. _____ DESIGN NO. _____

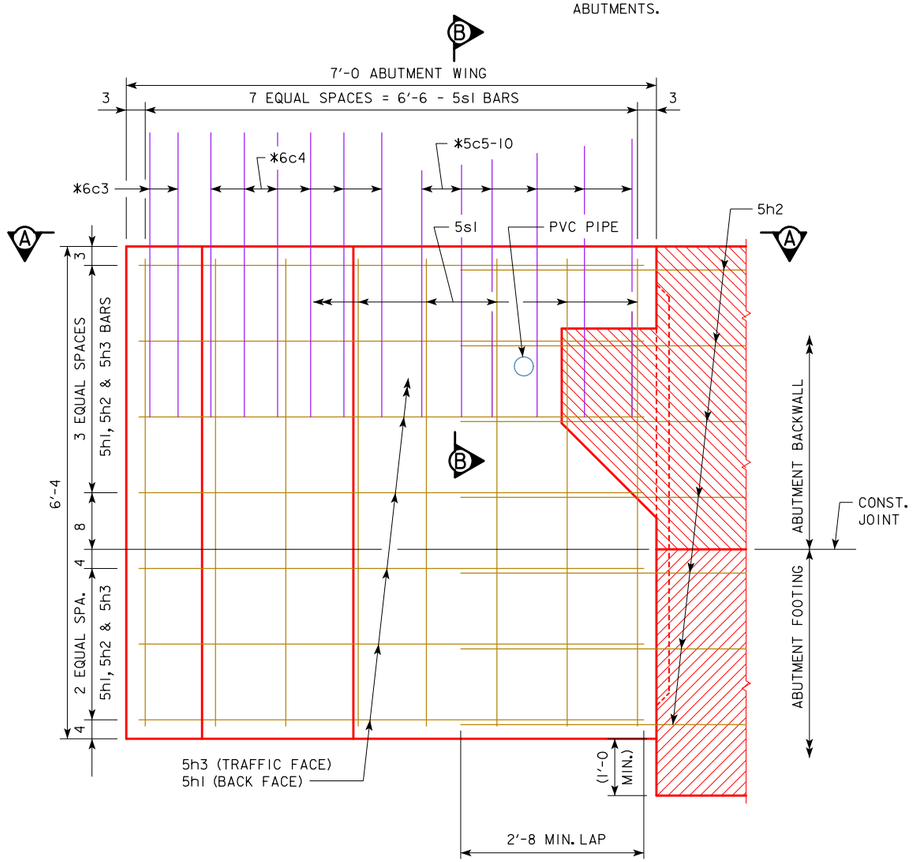
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.22

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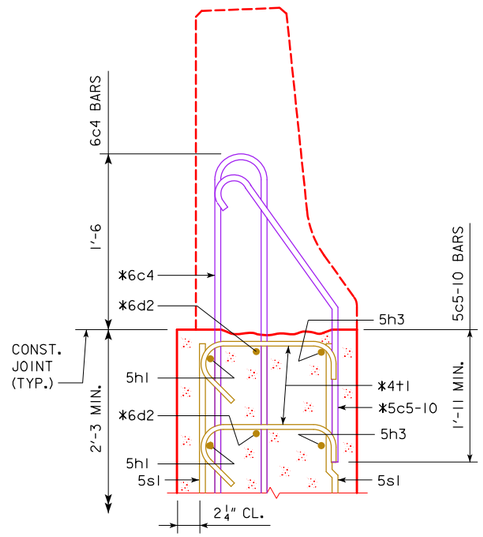


VIEW A-A

NOTE:
PLUG 3"Φ PVC PIPE WITH EXPANDING FOAM PRIOR TO BACKFILLING BEHIND ABUTMENTS.



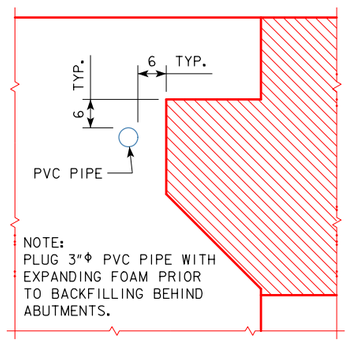
ABUTMENT WING - ELEVATION VIEW



SECTION B-B

* BARRIER RAIL END SECTION BARS TO BE PLACED WITH ABUTMENT WING.

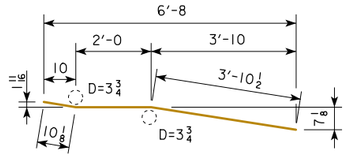
SEE BARRIER RAIL END SECTION SHEET IN THESE PLANS FOR DETAILS OF REINFORCING BARS 6c3, 6c4, 5c5-10, 6d2 & 4t1.



PVC PIPE LOCATION

REINFORCING BAR LIST - ONE ABUT. WING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5h1	HORIZONTAL BACK FACE		7	6'-8	49
5h3	HORIZONTAL TRAFFIC FACE		7	6'-9	49
5s1	VERTICAL BOTH FACES		16	6'-0	100
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				198



5h3

NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER.

BENT BAR DETAILS

CONCRETE PLACEMENT SUMMARY

CONCRETE	TOTAL
ONE ABUTMENT WING	1.9
TOTAL (CU. YDS.)	1.9

NOTE:

CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

ABUTMENT WING DETAILS

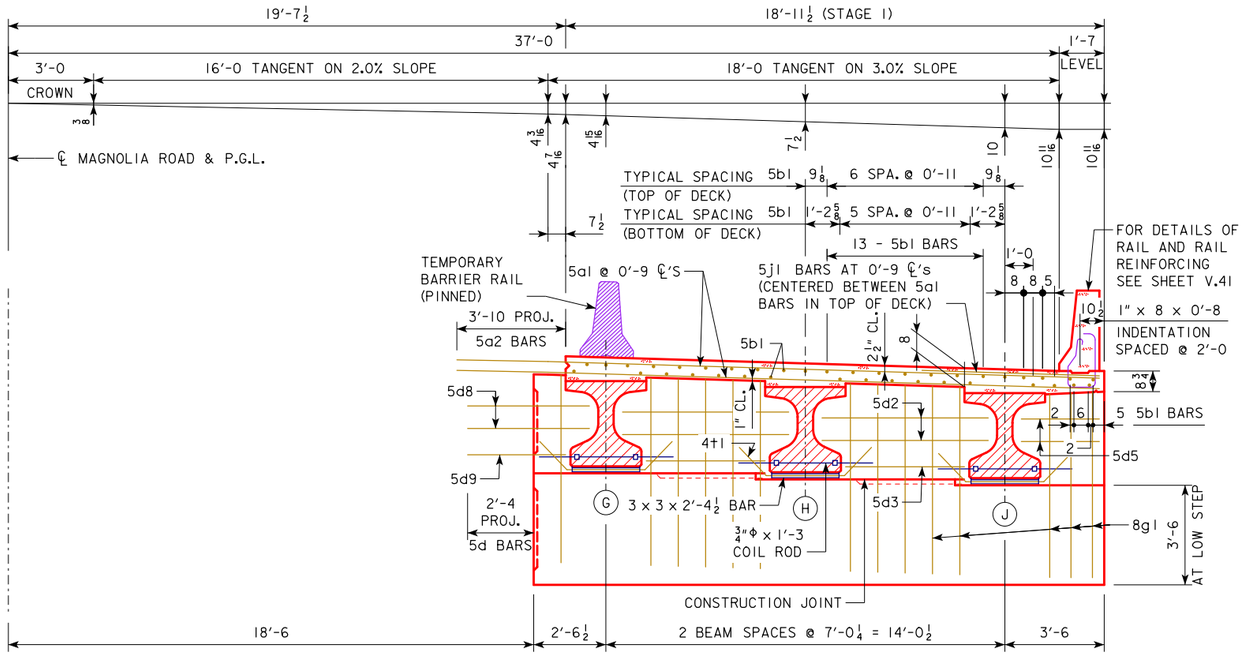
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

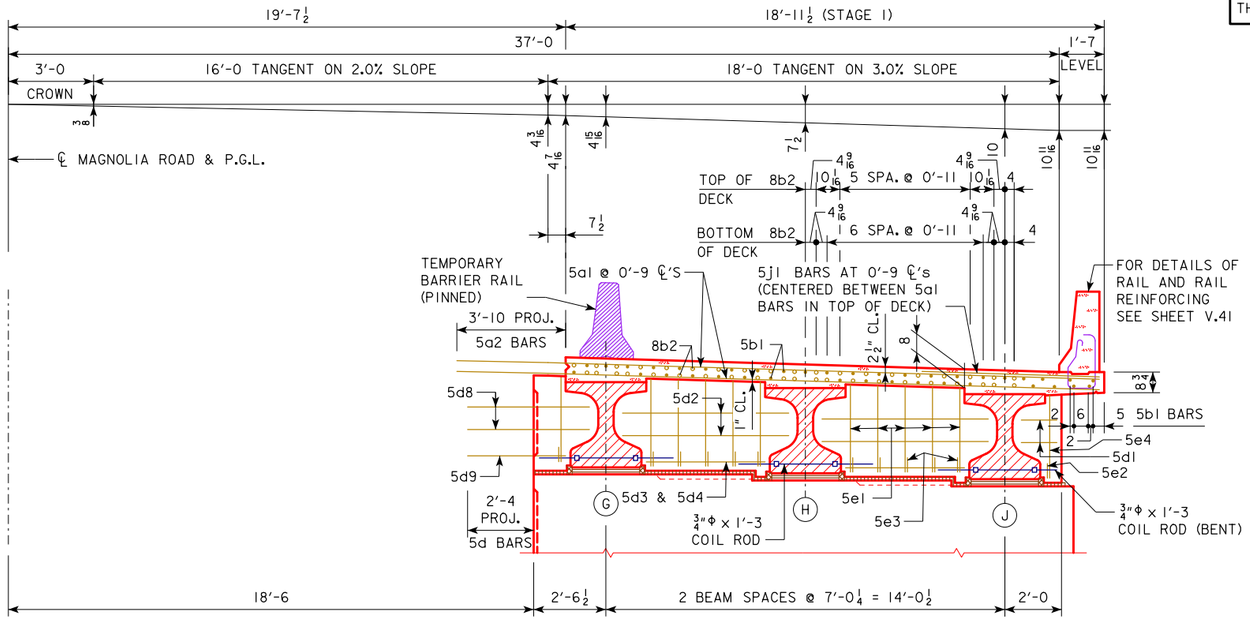
DESIGN SHEET NO. 23 OF 45 FILE NO. _____ DESIGN NO. _____

CORRECTION 04-14 - ADDED REFERRAL NOTE TO SUMMARY QUANTITIES SHEET.
ENGLISH\MISCELLANEOUSBRIDGES.DGN - 2111 - THIS SHEET ISSUED 02-08.



SECTION NEAR ABUTMENT
(LOOKING EAST)

STAGE I DECK AREA = 12.89 SQ. FT.
DECK AREA DOES NOT INCLUDE THE HAUNCH.



SECTION NEAR PIER
(LOOKING EAST)

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

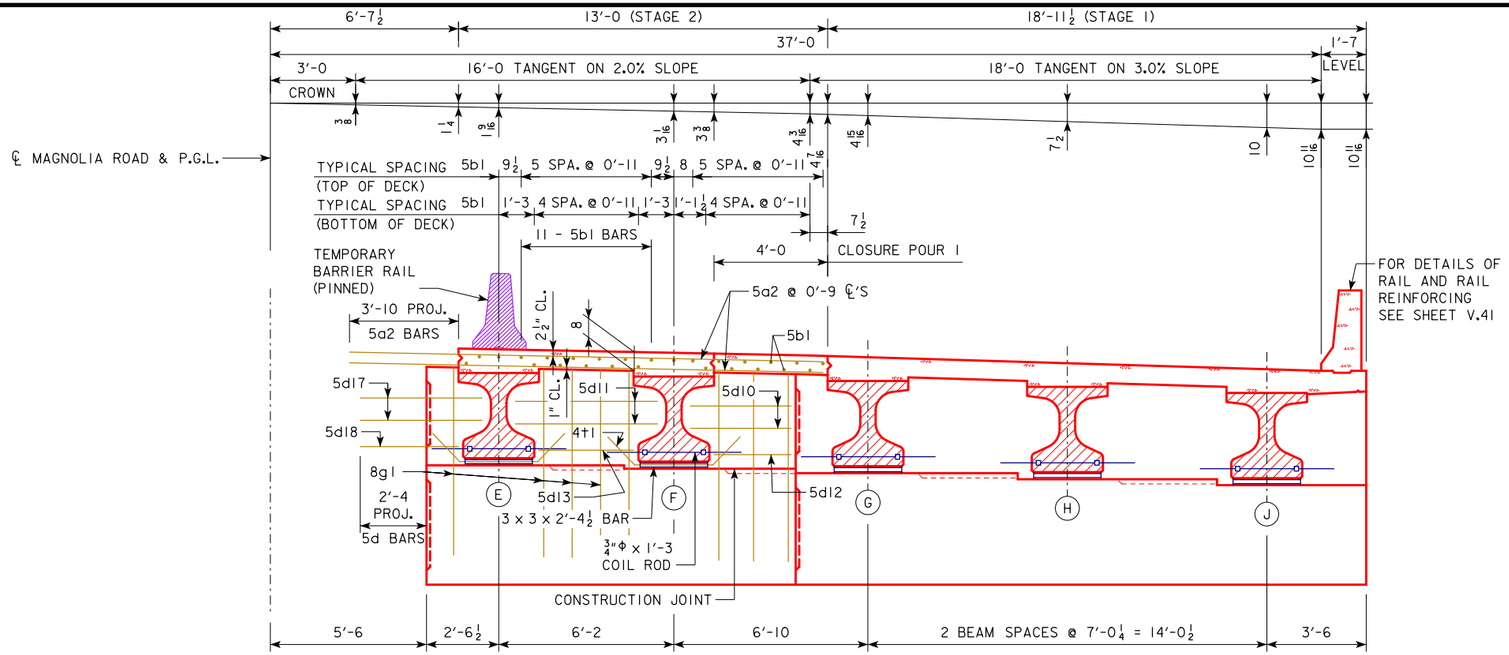
SUPERSTRUCTURE DETAILS - STAGE I

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

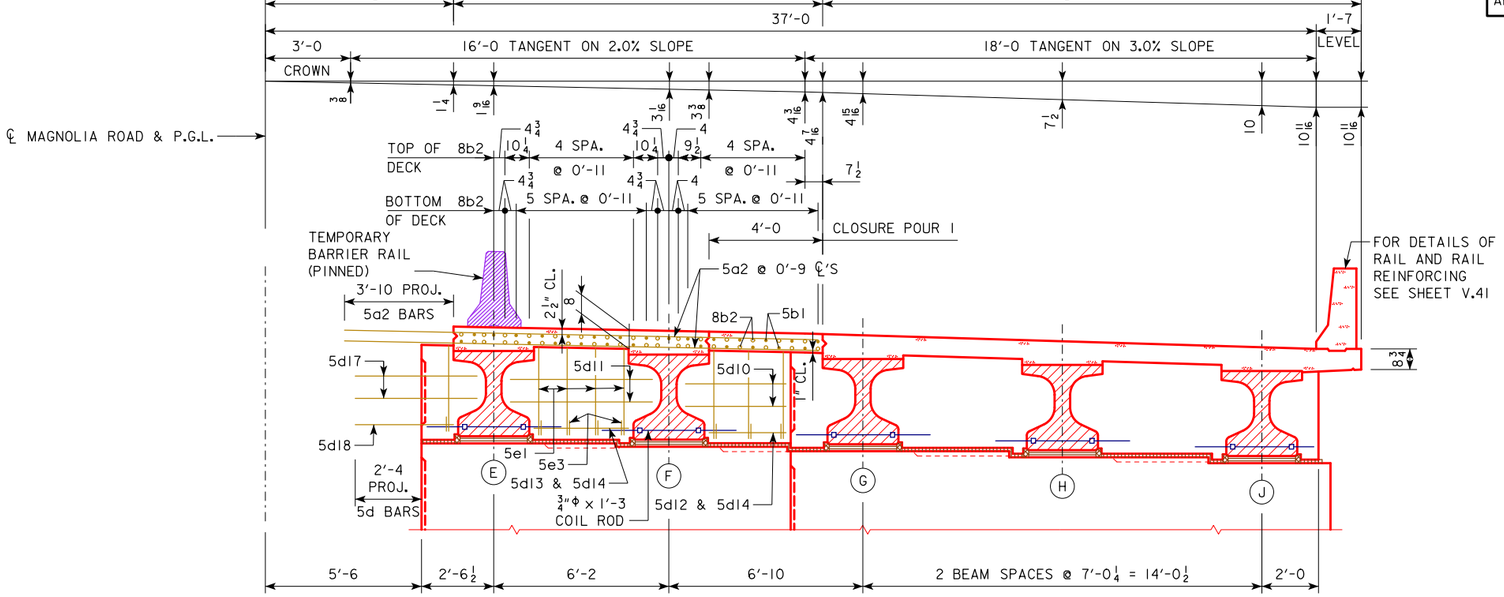
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 24 OF 45 FILE NO. _____ DESIGN NO. _____



SECTION NEAR ABUTMENT
(LOOKING EAST)



SECTION NEAR PIER
(LOOKING EAST)

STAGE 2 DECK AREA = 8.67 SQ. FT. (INCLUDING CLOSURE POUR 1) DECK AREA DOES NOT INCLUDE THE HAUNCH.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

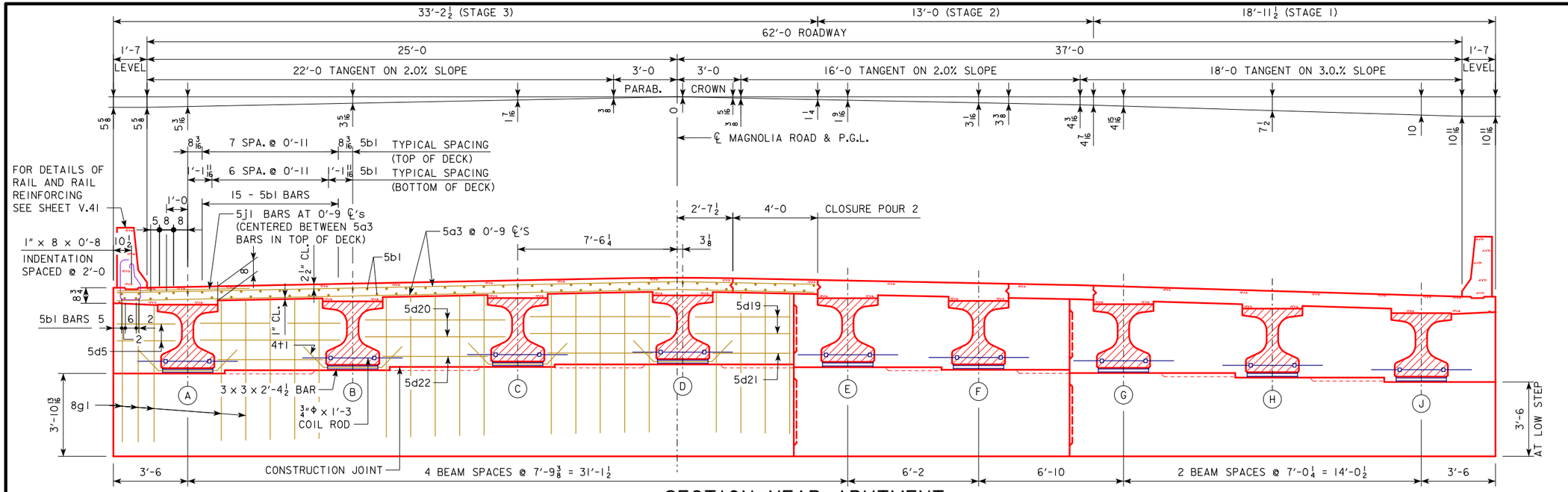
SUPERSTRUCTURE DETAILS - STAGE 2

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

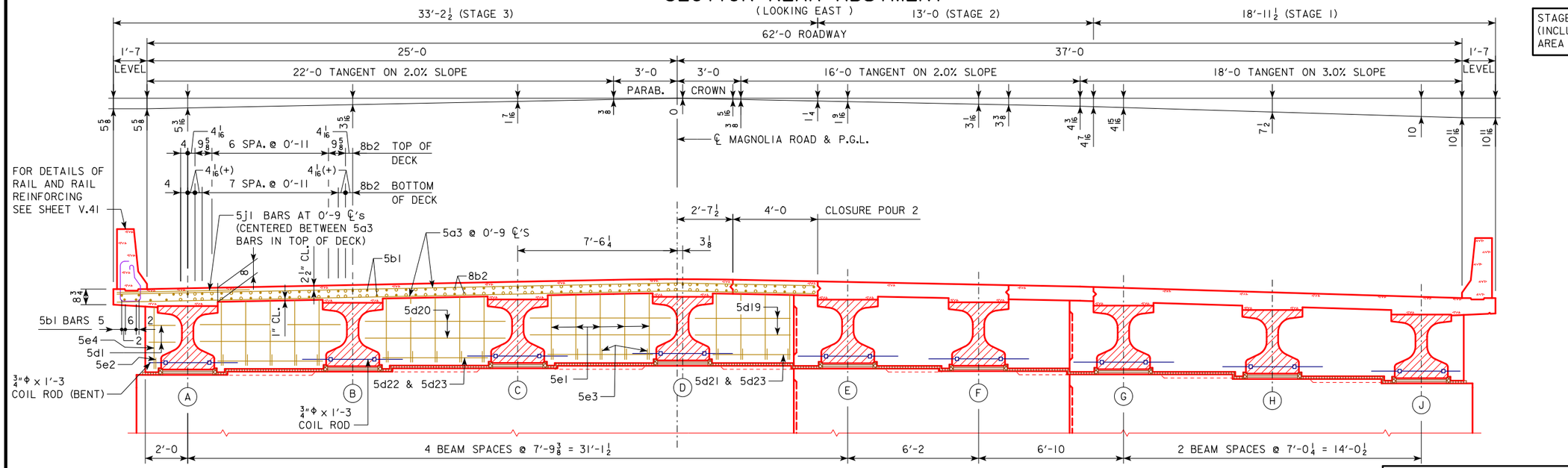
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 25 OF 45 FILE NO. _____ DESIGN NO. _____



SECTION NEAR ABUTMENT
(LOOKING EAST)



SECTION NEAR PIER
(LOOKING EAST)

STAGE 3 DECK AREA = 22.42 SQ. FT.
(INCLUDING CLOSURE POUR 2) DECK AREA DOES NOT INCLUDE THE HAUNCH.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

SUPERSTRUCTURE DETAILS - STAGE 3

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

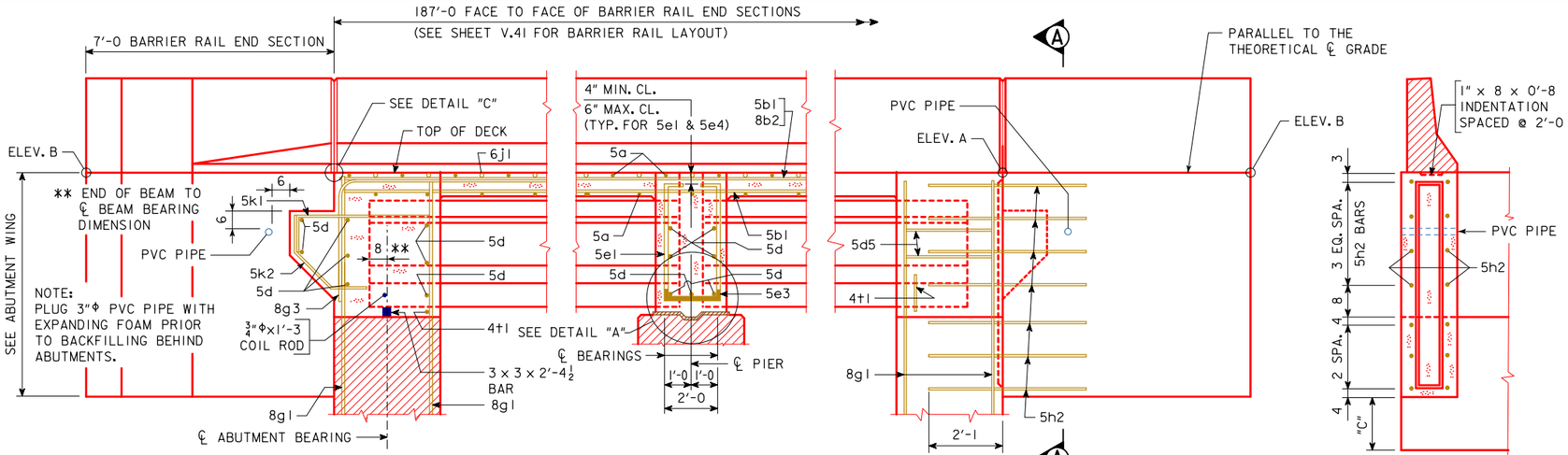
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 26 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.26

BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45

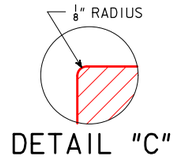


PART LONGITUDINAL SECTION NEAR GUTTER

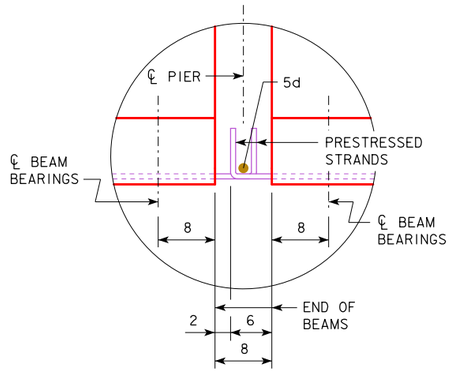
(FOR DETAILS OF INTERMEDIATE DIAPHRAGM SEE SHEET V.40)

PART END VIEW AT ABUTMENT

SECTION A-A

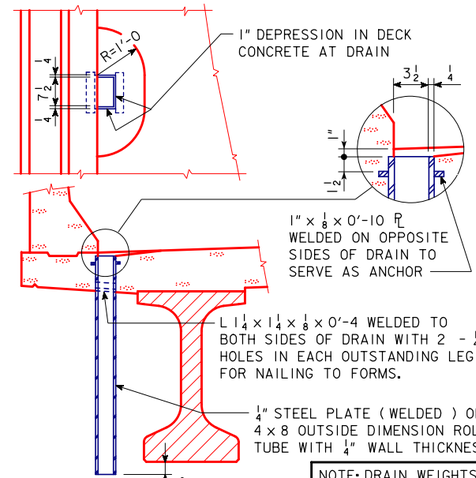


DETAIL "C"



DETAIL "A"

TABLE OF WING ELEVATIONS			
LOCATION	DIM "C"	ELEV. A	ELEV. B
S.W. CORNER	1'-1 9/16	1060.70	1060.67
N.W. CORNER	1'-6 5/8	1061.12	1061.09
S.E. CORNER	1'-1 11/16	1060.72	1060.69
N.E. CORNER	1'-6 11/16	1061.14	1061.11

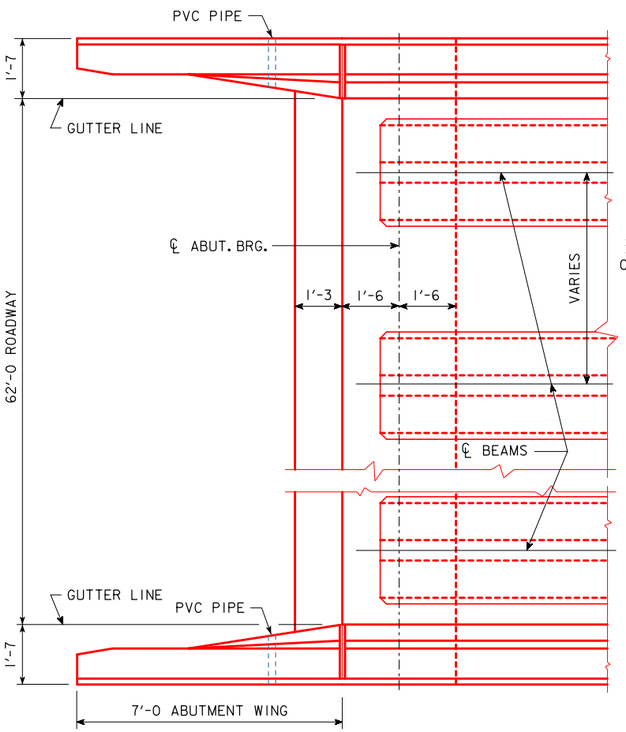


DRAIN DETAILS

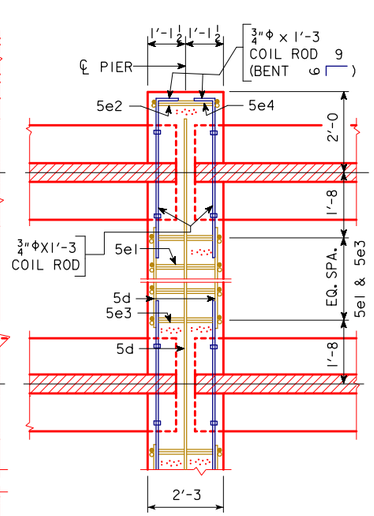
NOTE: DRAIN WEIGHTS ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

NOTE :
DRAINS ARE TO BE GALVANIZED. 8 DRAINS REQUIRED.
SEE "SITUATION PLAN" FOR LOCATION. WEIGHT OF DRAINS IS INCLUDED IN THE QUANTITY FOR "STRUCTURAL STEEL".
WEIGHT IS BASED ON ROLLED TUBE.

DATA FOR ONE DRAIN	
BEAM SIZE	BTB
DRAIN WEIGHT (LBS.)	92
DRAIN LENGTH (FT.)	4'-8 3/4

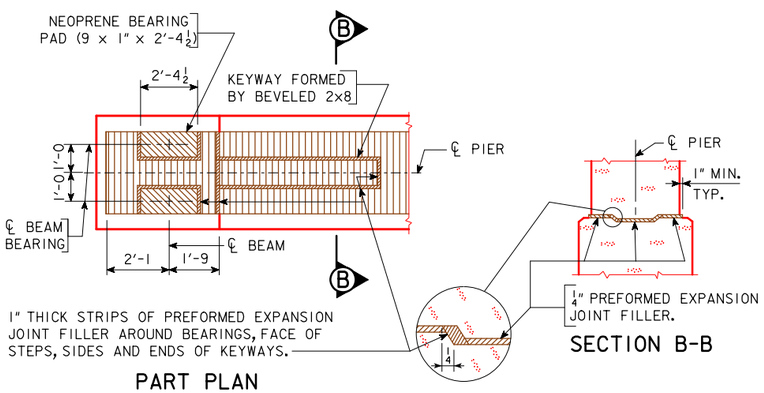


PART PLAN



PART SECTION AT PIER

(SEE CROSS SECTION THRU DECK FOR NUMBER OF DIAPHRAGM HOOP BARS BETWEEN BEAMS)



PART PLAN

SECTION B-B

TOP OF PIER DETAILS

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

SUPERSTRUCTURE DETAILS

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

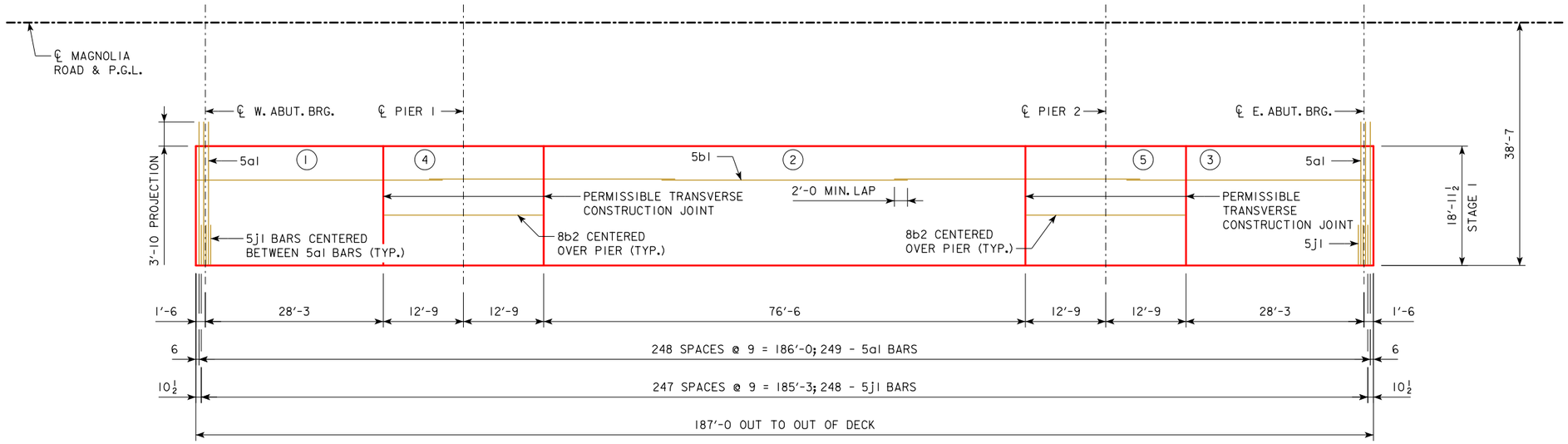
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 27 OF 45 FILE NO. _____ DESIGN NO. _____

ENGLISHBTINTEGRALBRIDGES.DGN - 4500-BTB - THIS SHEET ISSUED 02-08.

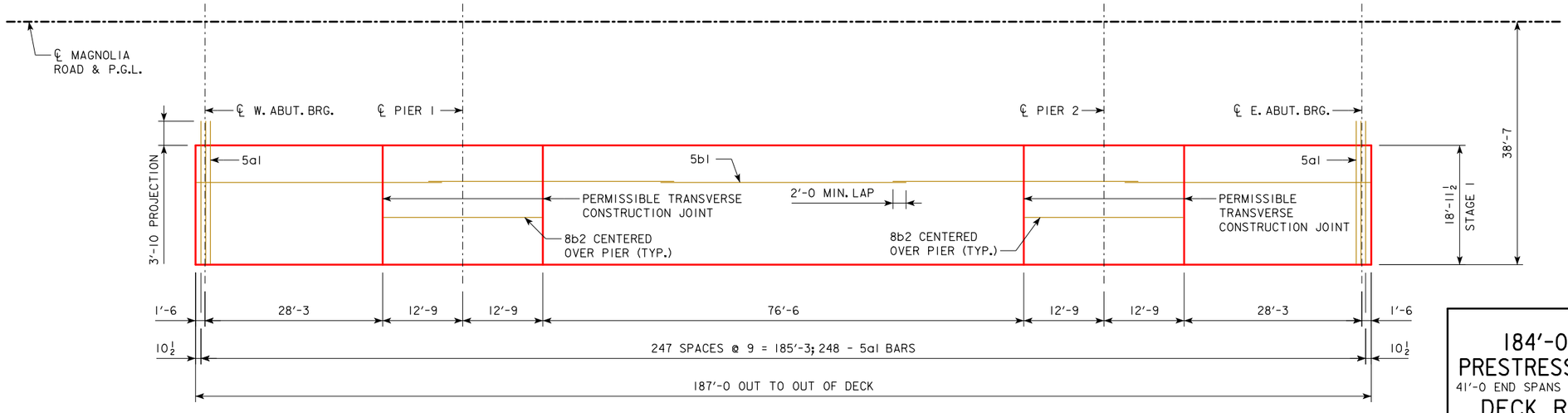
DESIGN TEAM McCLURE | STANDARD SHEET 4500-BTB | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.27

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TOP OF DECK REINFORCING LAYOUT AND CONCRETE PLACEMENT DIAGRAM

NOTE: CONCRETE DECK SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. (AN APPROVED ALTERNATE PROCEDURE IS TO PLACE THE CONCRETE DECK IN ONE CONTINUOUS POUR BEGINNING AT ONE END OF THE THE BRIDGE.)
SEE SHEET V.35 FOR CONCRETE PLACEMENT QUANTITIES.
ALTERNATE PROCEDURES FOR PLACING DECK CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS. THE BRIDGE ENGINEER SHALL REVIEW ANY ALTERNATE PROCEDURES. THE COST OF ANY ADDITIONAL ANALYSIS AND PLAN MODIFICATIONS SHALL BE PAID FOR BY THE CONTRACTOR. THE ENGINEER SHALL DETERMINE IF A RETARDING ADMIXTURE IS REQUIRED TO MAINTAIN PLASTICITY OF THE CONCRETE DECK DURING PLACEMENT. DECK CONCRETE SECTIONS SHALL CURE FOR A MINIMUM OF 48 HOURS AND SHALL ACHIEVE A MINIMUM STRENGTH OF 75% OF THE 28 DAY DECK CONCRETE STRENGTH PRIOR TO REMOVING DECK HEADERS AND BEGINNING AN ADJACENT POUR.



BOTTOM OF DECK REINFORCING LAYOUT

N

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

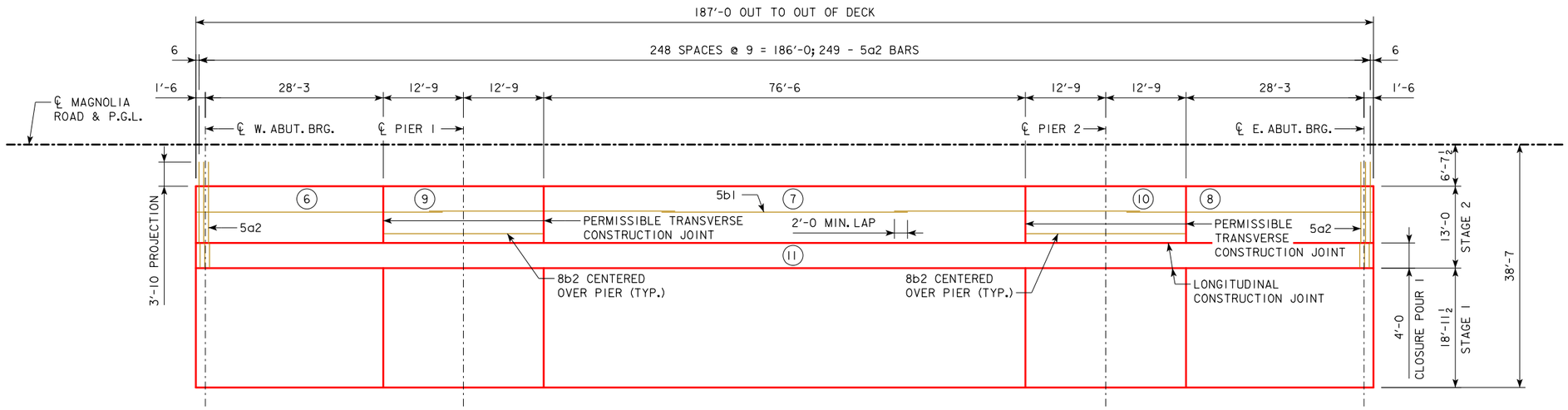
DECK REINFORCING - STAGE I

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

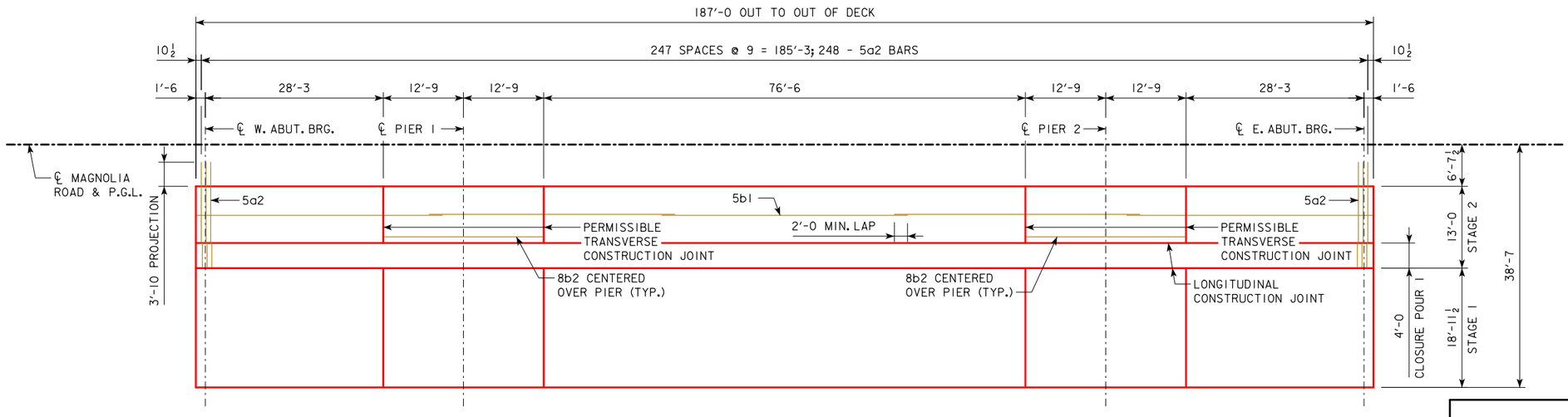
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 28 OF 45 FILE NO. _____ DESIGN NO. _____



TOP OF DECK REINFORCING LAYOUT AND CONCRETE PLACEMENT DIAGRAM

NOTE: CONCRETE DECK SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. (AN APPROVED ALTERNATE PROCEDURE IS TO PLACE THE CONCRETE DECK IN ONE CONTINUOUS POUR BEGINNING AT ONE END OF THE THE BRIDGE. THE CLOSURE POUR SHALL REMAIN A SEPARATE POUR.) SEE SHEET V.35 FOR CONCRETE PLACEMENT QUANTITIES.
ALTERNATE PROCEDURES FOR PLACING DECK CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS. THE BRIDGE ENGINEER SHALL REVIEW ANY ALTERNATE PROCEDURES. THE COST OF ANY ADDITIONAL ANALYSIS AND PLAN MODIFICATIONS SHALL BE PAID FOR BY THE CONTRACTOR. THE ENGINEER SHALL DETERMINE IF A RETARDING ADMIXTURE IS REQUIRED TO MAINTAIN PLASTICITY OF THE CONCRETE DECK DURING PLACEMENT. DECK CONCRETE SECTIONS SHALL CURE FOR A MINIMUM OF 48 HOURS AND SHALL ACHIEVE A MINIMUM STRENGTH OF 75% OF THE 28 DAY DECK CONCRETE STRENGTH PRIOR TO REMOVING DECK HEADERS AND BEGINNING AN ADJACENT POUR.



BOTTOM OF DECK REINFORCING LAYOUT

N

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

DECK REINFORCING - STAGE 2

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

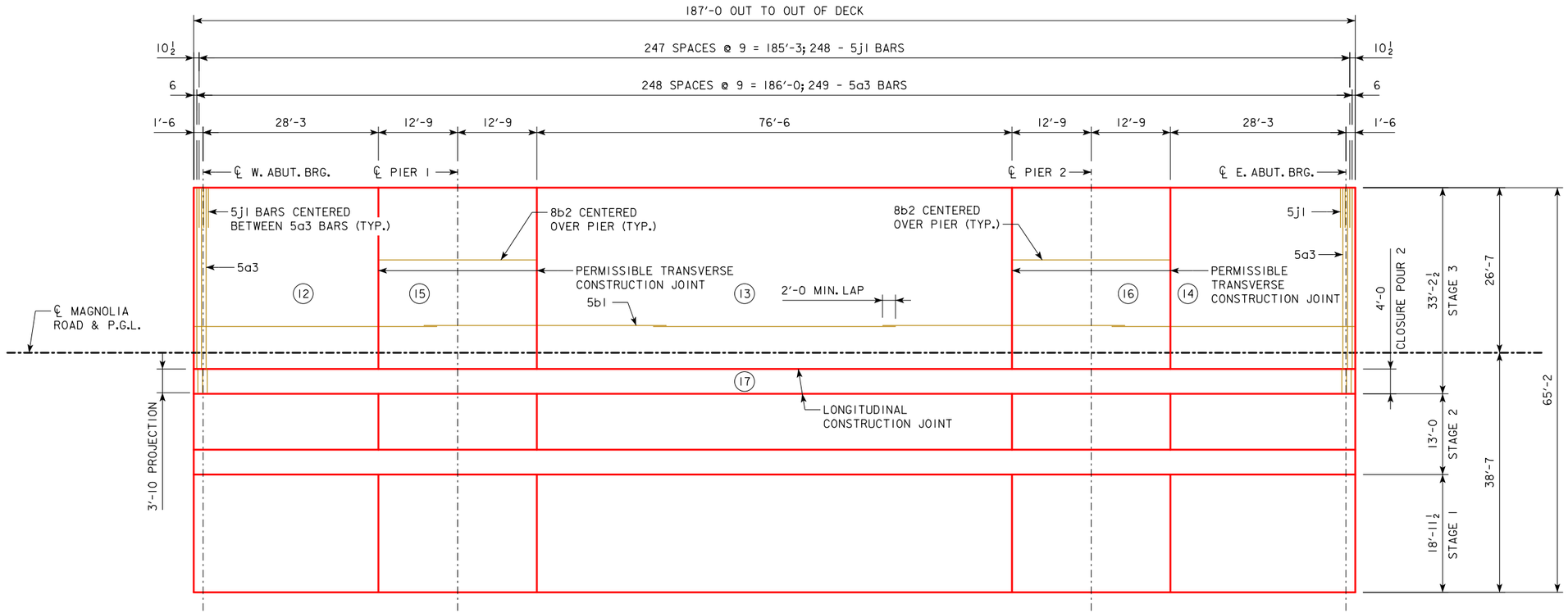
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 29 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.29

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TOP OF DECK REINFORCING LAYOUT AND CONCRETE PLACEMENT DIAGRAM

NOTE: CONCRETE DECK SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. (AN APPROVED ALTERNATE PROCEDURE IS TO PLACE THE CONCRETE DECK IN ONE CONTINUOUS POUR BEGINNING AT ONE END OF THE THE BRIDGE. THE CLOSURE POUR SHALL REMAIN A SEPARATE POUR.) SEE SHEET V.35 FOR CONCRETE PLACEMENT QUANTITIES.
ALTERNATE PROCEDURES FOR PLACING DECK CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHOD AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS. THE BRIDGE ENGINEER SHALL REVIEW ANY ALTERNATE PROCEDURES. THE COST OF ANY ADDITIONAL ANALYSIS AND PLAN MODIFICATIONS SHALL BE PAID FOR BY THE CONTRACTOR. THE ENGINEER SHALL DETERMINE IF A RETARDING ADMIXTURE IS REQUIRED TO MAINTAIN PLASTICITY OF THE CONCRETE DECK DURING PLACEMENT. DECK CONCRETE SECTIONS SHALL CURE FOR A MINIMUM OF 48 HOURS AND SHALL ACHIEVE A MINIMUM STRENGTH OF 75% OF THE 28 DAY DECK CONCRETE STRENGTH PRIOR TO REMOVING DECK HEADERS AND BEGINNING AN ADJACENT POUR.

N

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

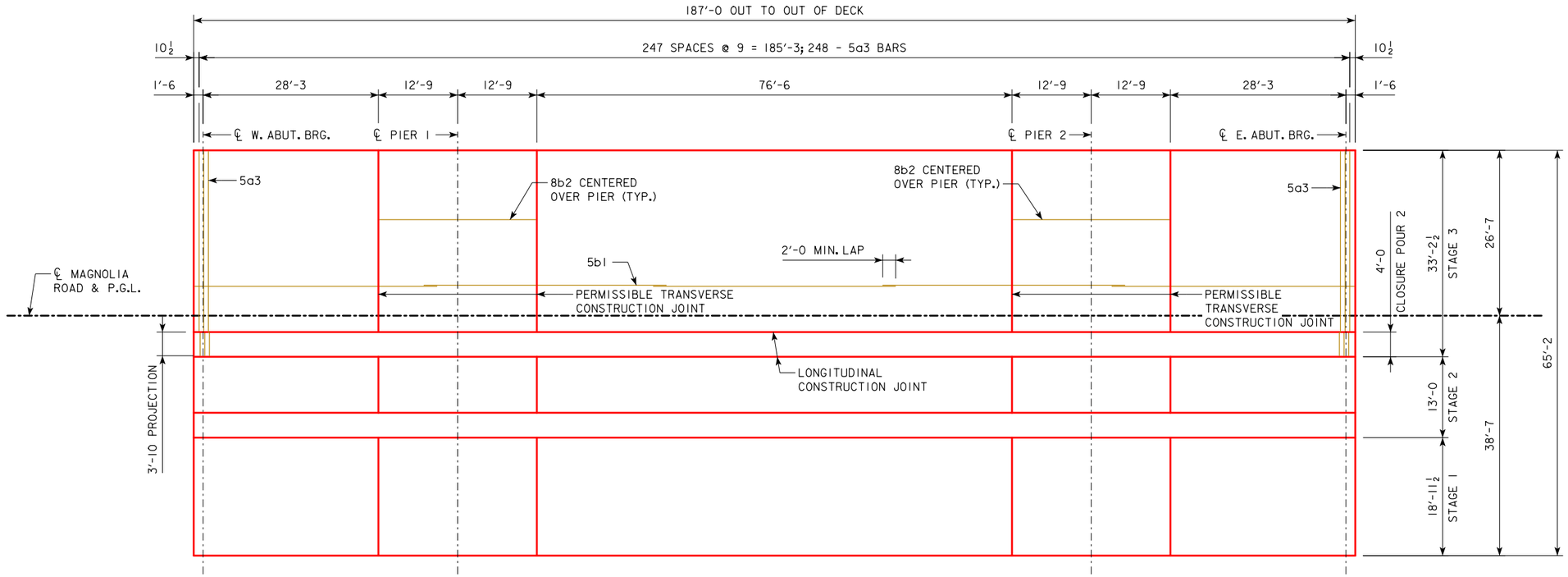
DECK REINFORCING - STAGE 3

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 30 OF 45 FILE NO. _____ DESIGN NO. _____



BOTTOM OF DECK REINFORCING LAYOUT



DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

DECK REINFORCING - STAGE 3

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

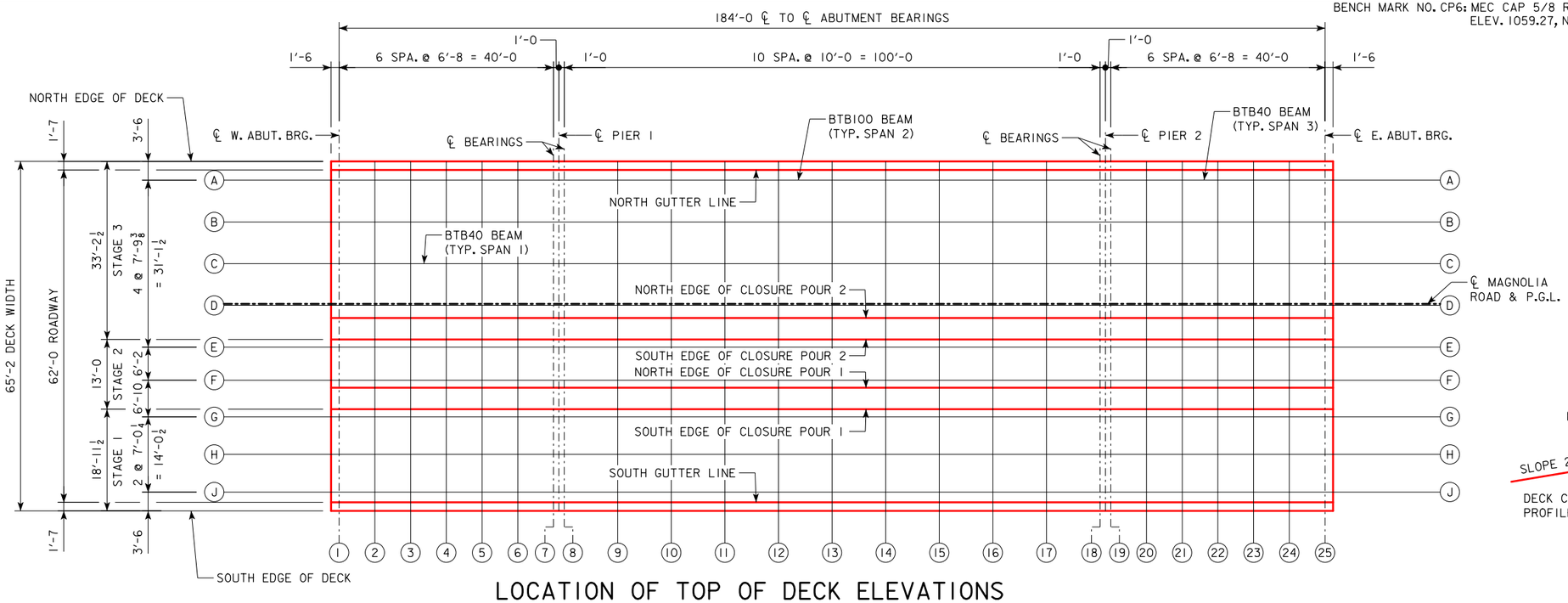
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 31 OF 45 FILE NO. _____ DESIGN NO. _____

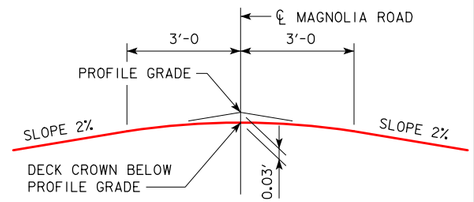
DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.31

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BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N: 7010329.98, E: 16514328.45



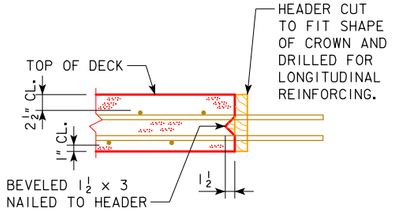
LOCATION OF TOP OF DECK ELEVATIONS



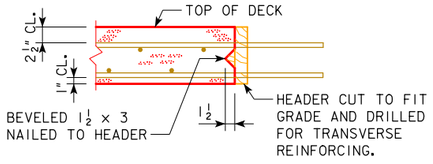
CROWN TEMPLATE
NO SCALE

TOP OF DECK ELEVATIONS

	℄ W. ABUT. BEARING						℄ PIER 1 BEARINGS											℄ PIER 2 BEARINGS							℄ E. ABUT. BEARING
LINE NUMBER	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25
NORTH EDGE OF DECK	1061.13	1061.16	1061.19	1061.22	1061.24	1061.26	1061.28	1061.28	1061.31	1061.33	1061.34	1061.35	1061.35	1061.35	1061.34	1061.33	1061.32	1061.29	1061.29	1061.27	1061.25	1061.23	1061.20	1061.18	1061.15
NORTH GUTTER LINE	1061.13	1061.16	1061.19	1061.22	1061.24	1061.26	1061.28	1061.28	1061.31	1061.33	1061.34	1061.35	1061.35	1061.35	1061.34	1061.33	1061.32	1061.29	1061.29	1061.27	1061.25	1061.23	1061.20	1061.18	1061.15
BEAM LINE A	1061.17	1061.20	1061.23	1061.25	1061.28	1061.30	1061.32	1061.32	1061.35	1061.36	1061.38	1061.39	1061.39	1061.39	1061.38	1061.37	1061.35	1061.33	1061.33	1061.31	1061.29	1061.27	1061.24	1061.22	1061.19
BEAM LINE B	1061.33	1061.36	1061.38	1061.41	1061.43	1061.45	1061.47	1061.48	1061.50	1061.52	1061.53	1061.54	1061.55	1061.54	1061.54	1061.53	1061.51	1061.49	1061.48	1061.46	1061.44	1061.42	1061.40	1061.37	1061.34
BEAM LINE C	1061.48	1061.51	1061.54	1061.57	1061.59	1061.61	1061.63	1061.63	1061.66	1061.68	1061.69	1061.70	1061.70	1061.70	1061.69	1061.68	1061.66	1061.64	1061.64	1061.62	1061.60	1061.58	1061.55	1061.53	1061.50
℄ MAGNOLIA ROAD	1061.60	1061.63	1061.66	1061.69	1061.71	1061.73	1061.75	1061.76	1061.78	1061.80	1061.81	1061.82	1061.82	1061.82	1061.81	1061.80	1061.79	1061.76	1061.76	1061.74	1061.72	1061.70	1061.68	1061.65	1061.62
BEAM LINE D	1061.60	1061.63	1061.66	1061.69	1061.71	1061.73	1061.75	1061.76	1061.78	1061.80	1061.81	1061.82	1061.82	1061.82	1061.81	1061.80	1061.79	1061.76	1061.76	1061.74	1061.72	1061.70	1061.68	1061.65	1061.62
N. EDGE OF CLOSURE POUR 2	1061.58	1061.61	1061.64	1061.66	1061.69	1061.71	1061.73	1061.73	1061.75	1061.77	1061.79	1061.80	1061.80	1061.80	1061.79	1061.78	1061.76	1061.74	1061.74	1061.72	1061.70	1061.68	1061.65	1061.63	1061.60
S. EDGE OF CLOSURE POUR 2	1061.50	1061.53	1061.56	1061.58	1061.61	1061.63	1061.65	1061.65	1061.68	1061.69	1061.71	1061.72	1061.72	1061.72	1061.71	1061.70	1061.68	1061.66	1061.66	1061.64	1061.62	1061.60	1061.57	1061.55	1061.52
BEAM LINE E	1061.47	1061.50	1061.53	1061.55	1061.58	1061.60	1061.62	1061.62	1061.65	1061.67	1061.68	1061.69	1061.69	1061.69	1061.68	1061.67	1061.65	1061.63	1061.63	1061.61	1061.59	1061.57	1061.54	1061.52	1061.49
BEAM LINE F	1061.35	1061.38	1061.41	1061.43	1061.45	1061.48	1061.49	1061.50	1061.52	1061.54	1061.56	1061.56	1061.57	1061.57	1061.56	1061.55	1061.53	1061.51	1061.50	1061.49	1061.47	1061.44	1061.42	1061.39	1061.36
N. EDGE OF CLOSURE POUR 1	1061.32	1061.35	1061.38	1061.40	1061.43	1061.45	1061.47	1061.47	1061.50	1061.51	1061.53	1061.54	1061.54	1061.54	1061.53	1061.52	1061.50	1061.48	1061.48	1061.46	1061.44	1061.42	1061.39	1061.37	1061.34
S. EDGE OF CLOSURE POUR 1	1061.23	1061.26	1061.29	1061.32	1061.34	1061.36	1061.38	1061.39	1061.41	1061.43	1061.44	1061.45	1061.45	1061.45	1061.44	1061.43	1061.42	1061.39	1061.39	1061.37	1061.35	1061.33	1061.31	1061.28	1061.25
BEAM LINE G	1061.19	1061.22	1061.25	1061.27	1061.30	1061.32	1061.34	1061.34	1061.37	1061.38	1061.40	1061.41	1061.41	1061.41	1061.40	1061.39	1061.37	1061.35	1061.35	1061.33	1061.31	1061.29	1061.26	1061.24	1061.21
BEAM LINE H	1060.98	1061.01	1061.04	1061.06	1061.09	1061.11	1061.13	1061.13	1061.16	1061.17	1061.19	1061.20	1061.20	1061.20	1061.19	1061.18	1061.16	1061.14	1061.14	1061.12	1061.10	1061.08	1061.05	1061.03	1061.00
BEAM LINE J	1060.77	1060.80	1060.83	1060.85	1060.88	1060.90	1060.92	1060.92	1060.95	1060.96	1060.98	1060.99	1060.99	1060.99	1060.98	1060.97	1060.95	1060.93	1060.93	1060.91	1060.89	1060.87	1060.84	1060.82	1060.79
SOUTH GUTTER LINE	1060.71	1060.74	1060.77	1060.80	1060.82	1060.84	1060.86	1060.86	1060.89	1060.91	1060.92	1060.93	1060.93	1060.93	1060.92	1060.91	1060.90	1060.87	1060.87	1060.85	1060.83	1060.81	1060.78	1060.76	1060.73
SOUTH EDGE OF DECK	1060.71	1060.74	1060.77	1060.80	1060.82	1060.84	1060.86	1060.86	1060.89	1060.91	1060.92	1060.93	1060.93	1060.93	1060.92	1060.91	1060.90	1060.87	1060.87	1060.85	1060.83	1060.81	1060.78	1060.76	1060.73



PERMISSIBLE TRANSVERSE DECK CONSTRUCTION JOINT



LONGITUDINAL DECK CONSTRUCTION JOINT

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

TOP OF DECK ELEVATIONS

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 32 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.32

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BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK, ELEV. 1059.27, N. 7010329.98, E. 16514328.45

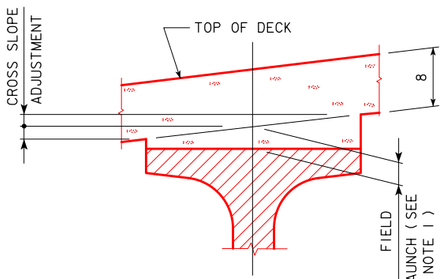
TABLE OF BEAM LINE DECK HAUNCH ELEVATIONS

BEAM LINE	℄ W. ABUT. BEARING						℄ PIER 1 BEARINGS											℄ PIER 2 BEARINGS							℄ E. ABUT. BEARING
	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25
A	1060.50	1060.54	1060.57	1060.60	1060.62	1060.64	1060.65	1060.66	1060.79	1060.89	1060.96	1061.00	1061.02	1061.00	1060.96	1060.89	1060.79	1060.67	1060.66	1060.65	1060.63	1060.61	1060.59	1060.56	1060.52
B	1060.66	1060.70	1060.73	1060.75	1060.78	1060.79	1060.81	1060.81	1060.94	1061.04	1061.11	1061.16	1061.17	1061.16	1061.12	1061.05	1060.95	1060.82	1060.82	1060.80	1060.79	1060.77	1060.74	1060.71	1060.68
C	1060.81	1060.85	1060.88	1060.91	1060.93	1060.95	1060.96	1060.97	1061.10	1061.20	1061.27	1061.31	1061.33	1061.32	1061.27	1061.20	1061.10	1060.98	1060.97	1060.96	1060.94	1060.92	1060.90	1060.87	1060.83
D	1060.94	1060.97	1061.00	1061.03	1061.05	1061.07	1061.08	1061.09	1061.22	1061.32	1061.39	1061.44	1061.45	1061.44	1061.40	1061.32	1061.23	1061.10	1061.09	1061.08	1061.07	1061.04	1061.02	1060.99	1060.95
E	1060.80	1060.84	1060.87	1060.90	1060.92	1060.94	1060.95	1060.96	1061.08	1061.17	1061.23	1061.27	1061.29	1061.28	1061.24	1061.17	1061.08	1060.97	1060.96	1060.95	1060.93	1060.91	1060.89	1060.86	1060.82
F	1060.68	1060.72	1060.75	1060.77	1060.80	1060.81	1060.83	1060.83	1060.95	1061.03	1061.10	1061.13	1061.15	1061.14	1061.10	1061.04	1060.95	1060.84	1060.84	1060.83	1060.81	1060.79	1060.76	1060.73	1060.70
G	1060.52	1060.56	1060.59	1060.62	1060.64	1060.66	1060.67	1060.68	1060.79	1060.89	1060.95	1060.99	1061.01	1060.99	1060.96	1060.89	1060.80	1060.69	1060.68	1060.67	1060.65	1060.63	1060.61	1060.58	1060.54
H	1060.31	1060.35	1060.38	1060.41	1060.43	1060.45	1060.46	1060.47	1060.58	1060.68	1060.74	1060.78	1060.80	1060.79	1060.75	1060.68	1060.59	1060.48	1060.47	1060.46	1060.44	1060.42	1060.40	1060.37	1060.33
J	1060.10	1060.14	1060.17	1060.20	1060.22	1060.24	1060.25	1060.26	1060.37	1060.47	1060.53	1060.57	1060.59	1060.58	1060.54	1060.47	1060.38	1060.26	1060.26	1060.25	1060.23	1060.21	1060.18	1060.15	1060.12

MISCELLANEOUS DATA TABLE

	BEAM LINE		℄ W. ABUT. BEARING						℄ PIER 1 BEARINGS											℄ PIER 2 BEARINGS							℄ E. ABUT. BEARING
			LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25
ANTICIPATED DEFLECTION DUE TO DECK (IN.)	A - D		0	1/16	1/8	1/8	1/8	1/16	0	0	1 1/4	2 1/4	3	3 3/8	3 9/16	3 3/8	3	2 1/4	1 1/4	0	0	1/16	1/8	1/8	1/8	1/16	0
	E		0	1/16	1/8	1/8	1/8	1/16	0	0	1 1/8	2 1/16	2 11/16	3 1/16	3 3/16	3 1/16	2 11/16	2 1/16	1 1/8	0	0	1/16	1/8	1/8	1/8	1/16	0
	F		0	1/16	1/8	1/8	1/8	1/16	0	0	1 1/16	1 7/8	2 1/2	2 13/16	2 15/16	2 13/16	2 1/2	1 7/8	1 1/16	0	0	1/16	1/8	1/8	1/8	1/16	0
	G		0	1/16	1/8	1/8	1/8	1/16	0	0	1 1/8	2	2 5/8	3	3 1/8	3	2 5/8	2	1 1/8	0	0	1/16	1/8	1/8	1/8	1/16	0
	H & J		0	1/16	1/8	1/8	1/8	1/16	0	0	1 1/8	2 1/16	2 11/16	3 1/16	3 3/16	3 1/16	2 11/16	2 1/16	1 1/8	0	0	1/16	1/8	1/8	1/8	1/16	0
CROSS SLOPE ADJUSTMENTS (IN.)	A - C, E & F		5/16																								
	D		1/16																								
	G - J		1/2																								
ALLOWABLE FIELD HAUNCH (IN. & FT.)	MAX.	ALL	3 (0.25)	2 1/2 (0.208)					3 (0.25)		2 1/2 (0.208)							3 (0.25)		2 1/2 (0.208)					3 (0.25)
	MIN.	A-C, E&F	0 (0)	-3/16 (-0.013)					0 (0)		-3/16 (-0.013)							0 (0)		-3/16 (-0.013)					0 (0)
		D	0 (0)	-7/16 (-0.035)					0 (0)		-7/16 (-0.035)							0 (0)		-7/16 (-0.035)					0 (0)
		G - J	0 (0.001)																								

NOTE:
HAUNCH LOCATIONS ARE AT THE SAME LOCATION AS THE ENCIRCLED LETTERS AND NUMBERS SHOWN ON DECK ELEVATIONS SHEET.



HAUNCH DETAIL

NOTE:
BRIDGE SEAT ELEVATIONS ARE SET BASED ON THEORETICAL CAMBER AND BEAM DEFLECTIONS. THESE BRIDGE SEATS WILL PROVIDE A THEORETICAL BEAM HAUNCH WITHIN DESIGN PARAMETERS. FIELD HAUNCHES ARE DETERMINED USING SURVEYED TOP OF BEAM ELEVATIONS AND "BEAM LINE HAUNCH ELEVATION" DATA. ALLOWABLE MAXIMUM AND MINIMUM "FIELD HAUNCH" VALUES ARE GIVEN IN INCHES AND DECIMALS OF FEET IN THE "MISCELLANEOUS DATA" TABLE. "CROSS SLOPE ADJUSTMENT" VALUES WILL AID THE CONTRACTOR IN DETERMINING ACTUAL FORMED HAUNCH DIMENSIONS AT THE EDGES OF THE TOP FLANGE.

NOTE 1:
TO CALCULATE FIELD HAUNCH REQUIRED AT EACH LOCATION, SURVEY THE BEAM TOPS CONSISTENT WITH THE SPACINGS SHOWN ON THE "TOP OF DECK ELEVATIONS LAYOUT". SUBTRACT THE SURVEYED BEAM SHOT FROM THE "BEAM LINE HAUNCH ELEVATION". THIS VALUE WILL BE THE HAUNCH NEEDED (SEE "FIELD HAUNCH" IN HAUNCH DETAIL). THE "BEAM LINE HAUNCH ELEVATION" INCLUDES ADJUSTMENTS FOR DECK THICKNESSES AND ANTICIPATED DEFLECTIONS. NO ADDITIONAL CALCULATIONS ARE REQUIRED. IF THE FIELD HAUNCH EXCEEDS THE MAXIMUMS AND MINIMUMS SHOWN IN INCHES AND DECIMALS OF FEET IN THE MISCELLANEOUS DATA TABLE, ADJUSTMENTS TO THE GRADE OR ADDITIONAL HAUNCH REINFORCEMENT WILL BE REQUIRED.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

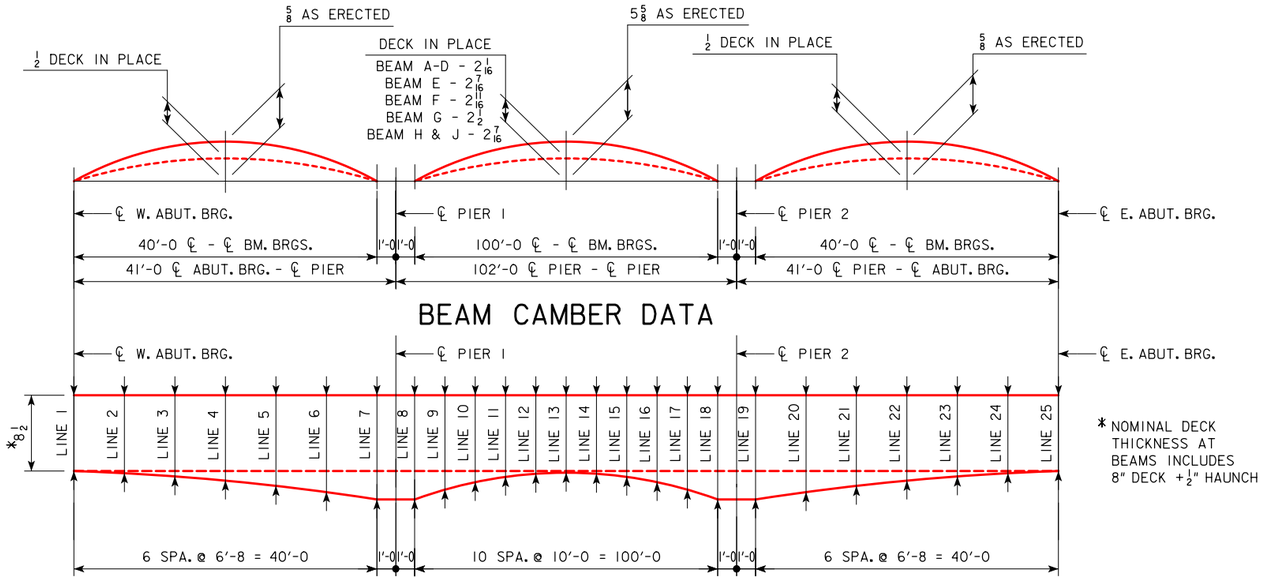
DECK HAUNCH DATA DETAILS

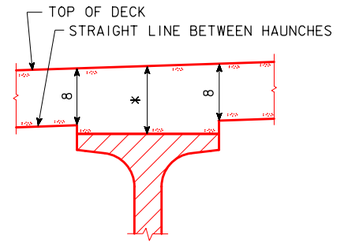
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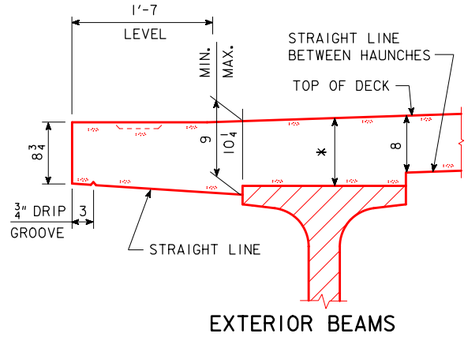
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DESIGN SHEET NO. 33 OF 45 FILE NO. _____ DESIGN NO. _____





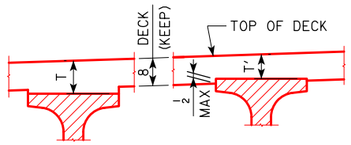
INTERIOR BEAMS



EXTERIOR BEAMS

TYPICAL DECK AND HAUNCH DETAIL

* FOR DECK THICKNESS OVER BEAMS SEE HAUNCH AND CAMBER DETAILS ON THIS SHEET.



DECK THICKNESS DETAILS

NOTE: THE DECK THICKNESS (T) AT BEAMS IS BASED ON THE ANTICIPATED BEAM CAMBER AND DEFLECTIONS. THESE VALUES ARE USED BY THE DESIGNER TO SET BEAM ELEVATIONS AND ESTIMATE CONCRETE QUANTITIES. REFER TO THE HAUNCH DATA DETAILS SHEET FOR ADDITIONAL INFORMATION TO AID THE CONTRACTOR IN SETTING THE FIELD HAUNCHES REQUIRED FOR CONSTRUCTION.

DECK THICKNESS AT BEAMS (T)

	℄ W. ABUT. BEARING						℄ PIER 1 BEARINGS											℄ PIER 2 BEARINGS						℄ E. ABUT. BEARING
BEAM LINE	LINE 1	LINE 2	LINE 3	LINE 4	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9	LINE 10	LINE 11	LINE 12	LINE 13	LINE 14	LINE 15	LINE 16	LINE 17	LINE 18	LINE 19	LINE 20	LINE 21	LINE 22	LINE 23	LINE 24	LINE 25
A - D	9 5/16	9 3/16	9 3/16	9 1/4	9 3/8	9 9/16	9 7/8	9 15/16	9 7/16	9 1/16	8 13/16	8 5/8	8 9/16	8 5/8	8 13/16	9 1/16	9 7/16	9 15/16	9 7/8	9 9/16	9 3/8	9 1/4	9 1/4	9 1/4	9 3/8
E	9 1/4	9 3/16	9 1/4	9 3/8	9 5/8	9 7/8	10 1/4	10 5/16	9 11/16	9 1/4	8 7/8	8 11/16	8 5/8	8 11/16	8 7/8	9 1/4	9 11/16	10 5/16	10 1/4	9 7/8	9 5/8	9 7/16	9 5/16	9 5/16	9 5/16
F	9 5/16	9 5/16	9 5/16	9 7/16	9 11/16	9 15/16	10 5/16	10 3/8	9 11/16	9 3/16	8 13/16	8 9/16	8 1/2	8 9/16	8 3/4	9 3/16	9 11/16	10 3/8	10 5/16	10	9 11/16	9 1/2	9 3/8	9 3/8	9 7/16
G	9 3/8	9 5/16	9 5/16	9 7/16	9 5/8	9 7/8	10 1/4	10 5/16	9 11/16	9 3/16	8 7/8	8 5/8	8 9/16	8 5/8	8 7/8	9 3/16	9 11/16	10 5/16	10 1/4	9 15/16	9 11/16	9 9/16	9 1/2	9 1/2	9 9/16
H & J	9 3/8	9 5/16	9 5/16	9 7/16	9 5/8	9 7/8	10 1/4	10 5/16	9 11/16	9 3/16	8 7/8	8 11/16	8 5/8	8 11/16	8 7/8	9 3/16	9 11/16	10 5/16	10 1/4	9 7/8	9 5/8	9 1/2	9 3/8	9 3/8	9 7/16

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

DECK THICKNESS DETAILS

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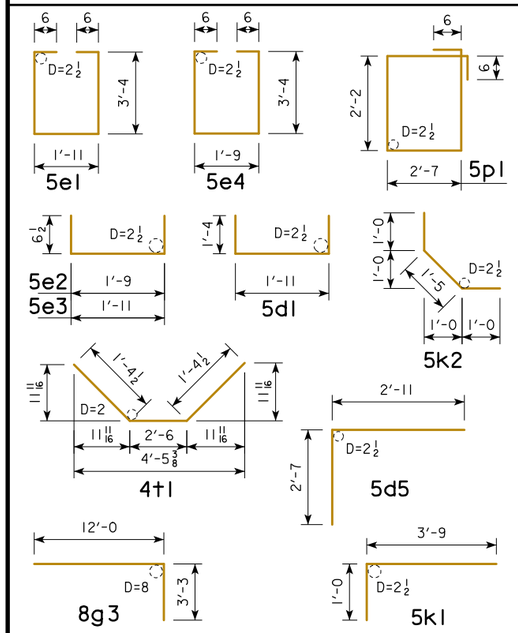
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DESIGN SHEET NO. 34 OF 45 FILE NO. _____ DESIGN NO. _____

DESIGN TEAM McCLURE | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.34

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BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER

CONCRETE PLACEMENT QUANT. (STAGE 1)

LOCATION	QUANTITY
SECTION 1, DECK & ABUT. DIAPH.	23.8
SECTION 2, DECK	40.5
SECTION 3, DECK & ABUT. DIAPH.	23.8
SECTION 4, DECK & PIER DIAPH.	17.7
SECTION 5, DECK & PIER DIAPH.	17.7
TOTAL (CU. YDS.)	123.5

CONCRETE PLACEMENT QUANT. (STAGE 2)

LOCATION	QUANTITY
SECTION 6, DECK & ABUT. DIAPH.	12.9
SECTION 7, DECK	19.7
SECTION 8, DECK & ABUT. DIAPH.	12.9
SECTION 9, DECK & PIER DIAPH.	9.5
SECTION 10, DECK & PIER DIAPH.	9.5
SECTION 11, DECK - CLOSURE POUR 1	18.5
TOTAL (CU. YDS.)	83.0

CONCRETE PLACEMENT QUANT. (STAGE 3)

LOCATION	QUANTITY
SECTION 12, DECK & ABUT. DIAPH.	38.1
SECTION 13, DECK	61.3
SECTION 14, DECK & ABUT. DIAPH.	38.1
SECTION 15, DECK & PIER DIAPH.	27.5
SECTION 16, DECK & PIER DIAPH.	27.5
SECTION 17, DECK - CLOSURE POUR 2	18.5
TOTAL (CU. YDS.)	211.0

REINFORCING BAR LIST (STAGE 1)

EPOXY COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	DECK TRANSV. TOP & BOTT.		497	22'-7	11,707
5b1	DECK LONGIT. TOP & BOTT.		195	39'-2	7,966
8b2	DECK LONGIT. TOP & BOTT. AT PIERS		40	25'-2	2,688
5d1	PIER DIAPH. ENDS		4	4'-7	19
5d2	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		24	6'-1	152
5d3	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		12	4'-2	52
5d4	PIER DIAPH. LONGIT.		2	20'-9	43
5d5	ABUT. DIAPH. ENDS		4	5'-6	23
5d6	ABUT. DIAPH. LONGIT. B.F.		6	22'-3	139
5d7	PAVING NOTCH LONGIT.		4	22'-3	93
5d8	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		12	4'-5	55
5d9	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		6	3'-5	21
5e1	PIER DIAPH. HOOPS		22	9'-7	220
5e2	PIER DIAPH. TIES ENDS		2	2'-10	6
5e3	PIER DIAPH. TIES		22	3'-0	69
5e4	PIER DIAPH. HOOPS ENDS		2	9'-5	20
8f1	ABUT. FOOTING LONGIT. B.F.		18	19'-11	957
8g1	ABUT. VERT. BOTH F.		68	6'-8	1,210
8g3	ABUT. DIAPH. VERT. B.F.		34	15'-3	1,384
5h2	ABUT. TO WING ANCHOR		28	4'-11	144
5j1	DECK TRANSV. TOP (AT RAIL)		248	6'-3	1,617
5k1	PAVING NOTCH		36	4'-9	178
5k2	PAVING NOTCH		36	3'-5	128
5p1	ABUT. FOOTING HOOPS		36	10'-6	394
4t1	UNDER BEAMS AT ABUTMENTS		6	5'-3	21
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				29,306

NON-COATED

#2	PILE SPIRAL		10	38'-6	64
	SPIRAL SPACERS, L $\frac{7}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$ x 0.70		30	1'-10	39
	REINFORCING STEEL - TOTAL (LBS.)				103

NOTE: ESTIMATED CONCRETE PLACEMENT QUANTITIES INCLUDE CONCRETE FOR PAVING NOTCHES AND HAUNCHES.

ESTIMATED QUANTITIES (STAGE 1)

ITEM	UNIT	QUANTITY
FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	C.Y.	123.5
REINFORCING STEEL, EPOXY COATED	LB.	29,306
REINFORCING STEEL	LB.	103
EXCAVATION, CLASS 20	C.Y.	49.0

REINFORCING BAR LIST (STAGE 2)

EPOXY COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a2	DECK TRANSV. TOP & BOTT.		497	16'-8	8,640
5b1	DECK LONGIT. TOP & BOTT.		130	39'-2	5,311
8b2	DECK LONGIT. TOP & BOTT. AT PIERS		32	25'-2	2,150
5d10	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		12	3'-8	46
5d11	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		12	5'-3	66
5d12	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		6	2'-8	17
5d13	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		6	3'-4	21
5d14	PIER DIAPH. LONGIT.		2	15'-2	32
5d15	ABUT. DIAPH. LONGIT. B.F.		6	15'-2	95
5d16	PAVING NOTCH LONGIT.		4	15'-2	63
5d17	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		12	4'-5	55
5d18	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		6	3'-5	21
5e1	PIER DIAPH. HOOPS		16	9'-7	160
5e3	PIER DIAPH. TIES		16	3'-0	50
8f2	ABUT. FOOTING LONGIT. B.F.		18	12'-10	617
8g1	ABUT. VERT. BOTH F.		48	6'-8	854
8g3	ABUT. DIAPH. VERT. B.F.		28	15'-3	1,140
5k1	PAVING NOTCH		28	4'-9	139
5k2	PAVING NOTCH		28	3'-5	100
5p1	ABUT. FOOTING HOOPS		20	10'-6	219
4t1	UNDER BEAMS AT ABUTMENTS		4	5'-3	14
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				19,810

NON-COATED

#2	PILE SPIRAL		6	38'-6	39
	SPIRAL SPACERS, L $\frac{7}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$ x 0.70		18	1'-10	23
	REINFORCING STEEL - TOTAL (LBS.)				62

ESTIMATED QUANTITIES (STAGE 2)

ITEM	UNIT	QUANTITY
FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	C.Y.	83.0
REINFORCING STEEL, EPOXY COATED	LB.	19,810
REINFORCING STEEL	LB.	62
EXCAVATION, CLASS 20	C.Y.	28.6

REINFORCING BAR LIST (STAGE 3)

EPOXY COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a3	DECK TRANSV. TOP & BOTT.		497	32'-10	17,020
5b1	DECK LONGIT. TOP & BOTT.		350	39'-2	14,298
8b2	DECK LONGIT. TOP & BOTT. AT PIERS		74	25'-2	4,972
5d1	PIER DIAPH. ENDS		4	4'-7	19
5d5	ABUT. DIAPH. ENDS		4	5'-6	23
5d19	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		12	4'-7	57
5d20	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		36	6'-10	257
5d21	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		6	3'-7	22
5d22	PIER & ABUT. DIAPH. LONGIT. BTWN. BEAMS		18	4'-11	92
5d23	PIER DIAPH. LONGIT.		2	30'-3	63
5d24	ABUT. DIAPH. LONGIT. B.F.		6	31'-9	199
5d25	PAVING NOTCH LONGIT.		4	31'-9	132
5e1	PIER DIAPH. HOOPS		38	9'-7	380
5e2	PIER DIAPH. TIES ENDS		2	2'-10	6
5e3	PIER DIAPH. TIES		38	3'-0	119
5e4	PIER DIAPH. HOOPS ENDS		2	9'-5	20
8f3	ABUT. FOOTING LONGIT. B.F.		18	31'-9	1,526
8g1	ABUT. VERT. BOTH F.		104	6'-8	1,851
8g3	ABUT. DIAPH. VERT. B.F.		54	15'-3	2,199
5h2	ABUT. TO WING ANCHOR		28	4'-11	144
5j1	DECK TRANSV. TOP (AT RAIL)		248	6'-3	1,617
5k1	PAVING NOTCH		56	4'-9	277
5k2	PAVING NOTCH		56	3'-5	200
5p1	ABUT. FOOTING HOOPS		52	10'-6	569
4t1	UNDER BEAMS AT ABUTMENTS		8	5'-3	28
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)				46,090

NON-COATED

#2	PILE SPIRAL		14	38'-6	90
	SPIRAL SPACERS, L $\frac{7}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$ x 0.70		42	1'-10	54
	REINFORCING STEEL - TOTAL (LBS.)				144

ESTIMATED QUANTITIES (STAGE 3)

ITEM	UNIT	QUANTITY
FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE	C.Y.	211.0
REINFORCING STEEL, EPOXY COATED	LB.	46,090
REINFORCING STEEL	LB.	144
EXCAVATION, CLASS 20	C.Y.	75.2

SUPERSTRUCTURE NOTES:

THE BRIDGE DECK AS SHOWN INCLUDES ½" INTEGRAL WEARING SURFACE.

THE PIER AND ABUTMENT DIAPHRAGM CONCRETE IS TO BE PLACED MONOLITHICALLY WITH THE BRIDGE DECK.

COST OF ALL PREFORMED EXPANSION JOINT FILLER MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "FIBER REINFORCEMENT FOR STRUCTURAL CONCRETE".

ALL BEAMS ARE TO BE SET VERTICAL.

FORMS FOR THE DECK AND BARRIER RAIL ARE TO BE SUPPORTED BY THE PRESTRESSED CONCRETE BEAMS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

ALL DECK AND DIAPHRAGM REINFORCING IS TO BE WIRED IN PLACE AND ADEQUATELY SUPPORTED BEFORE CONCRETE IS PLACED.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF DECK. BOTTOM TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 1" CLEAR ABOVE BOTTOM OF DECK. TOP AND BOTTOM REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF BAR HIGH CHAIRS OR DECK BOLSTERS SPACED 4'-0 APART. I.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND DECK BOLSTERS.

COST OF BEARING MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "PRETENSIONED PRESTRESSED CONCRETE BEAMS".

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.
FOR DETAILS OF INTERMEDIATE DIAPHRAGMS SEE SHEET V.40

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

SUPERSTRUCTURE QUANTITIES

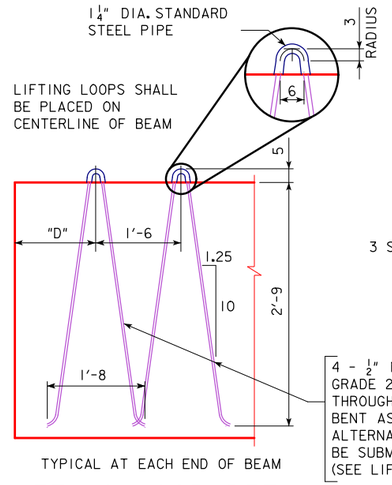
STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

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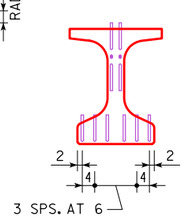
REVISED 07-2015 - CHANGED CONCRETE PLACEMENT NOTE TO ACCOUNT FOR THE POSSIBLE ADDITION OF A RETARDING ADMIXTURE TO THE CONCRETE.
ENGLISHBTINTEGRALBRIDGES.DGN - 4514-BTB - THIS SHEET ISSUED 02-08.



TYPICAL AT EACH END OF BEAM

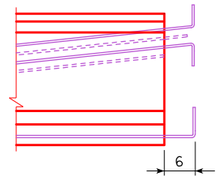
4 - ½" NOMINAL DIA. GRADE 270 STRANDS THREADED THROUGH EACH PIPE SLEEVE BENT AS SHOWN AFTER THREADING. ALTERNATE LIFTING DEVICES MAY BE SUBMITTED FOR APPROVAL (SEE LIFTING LOOP TABLE).

LIFTING LOOP DETAIL



3 SPS. AT 6

THE TOP AND BOTTOM FOR 2 ROWS OR THE TOP AND 3rd ROWS OF DEFLECTED STRANDS ARE TO BE CUT WITH 1'-6 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE SECOND ROW IS TO BE CUT WITH A 5" PROJECTION AND THE REMAINING TOP DEFLECTED STRANDS IN ROWS 4 AND BELOW ARE TO BE CUT FLUSH WITH BEAM FACE. SIX BOTTOM STRANDS ARE TO BE CUT WITH 1'-6 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE REMAINING BOTTOM STRANDS ARE TO BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.



TYPICAL AT BOTH BEAM ENDS

STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS

BTB BEAM DATA

BTB BEAM	SPAN LENGTH ℄–℄ BEARING	OVERALL BEAM LENGTH (L)	CONCRETE STRENGTH f'ci (ksi)	CONCRETE STRENGTH f'c (ksi)	STRAND SIZE DIA. (in)	NO. OF STRAND STRAIGHT	NO. OF STRAND DEFLECTED	TOTAL INITIAL PRESTRESS ③ kips	HOLD DOWN FORCE-kips	CAMBER (in) AT RELEASE	CAMBER (in) AFTER LOSSES	DEFLECTION (in) Δ D IMMEDIATE ① (ELASTIC) Δi STEEL DIAPHRAGM	DEFLECTION (in) Δ D TIME ② (PLASTIC) ΔT STEEL DIAPHRAGM	PERMISSIBLE MAXIMUM SPACING HL-93 LOADING STEEL DIAPHRAGM	WEIGHT (TONS)	CONCRETE (CU YD.)	REINFORCING STEEL (WEIGHT-LBS)
BTB40	40'-0	41'-4	4.5	5.0	0.60	12	1	510	——	0.34	0.61	0.14	0.03	9'-3	13.6	6.7	1068

① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB (8 in) AND HAUNCH (1.5 in) WEIGHT OF:
0.98 kips/ft FOR 9'-3 BEAM SPACING
AND ONE STEEL DIAPHRAGM (0.500 kips) AT ℄ OF SPAN.
FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.

② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.
TOTAL BEAM DEFLECTIONS AT ℄ OF SPAN, Δ_D , DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSE:
(A) $\Delta_D = \Delta_I + \Delta_T$ FOR SIMPLE SPAN.
(B) $\Delta_D = \Delta_I + \frac{3}{4}\Delta_T$ FOR END SPANS OF CONTINUOUS BRIDGE.
(C) $\Delta_D = \Delta_I + \frac{1}{2}\Delta_T$ FOR INTERIOR SPANS OF CONTINUOUS BRIDGE.

③ TOTAL INITIAL PRESTRESS IS BASED ON 72.6% f's, f's. = 270 ksi. AND As = 0.217 in².

CALCULATED DESIGN CAMBERS HAVE BEEN REDUCED FROM THEIR THEORETICAL VALUES BY 15% TO AID CONSTRUCTABILITY.

BEAM NOTES:

THESE BEAMS ARE DESIGNED FOR AASHTO LIVE LOADS AS INDICATED IN ABOVE TABLE WITH AN ALLOWANCE OF 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

ALL PPC BEAMS SHALL USE HIGH PERFORMANCE CONCRETE (HPC) IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE MOVED TOWARD ENDS OF BEAM A DISTANCE OF 0.05 L MAXIMUM AT PRODUCER'S OPTION.

ALL PRESTRESSING STRANDS EXCEPT LIFTING LOOP STRANDS SHALL BE 0.60 in. NOMINAL DIAMETER (NOMINAL STEEL AREA = 0.217 in²) AND CONFORM TO ASTM A416 GRADE 270 LOW RELAXATION STRANDS. MINIMUM STRAND BREAKING STRENGTH SHALL BE 58.6 kips.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND FINISHED AS PER MATERIALS IM570.

BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.

BEAMS TO BE USED IN BRIDGES MADE CONTINUOUS BY THE POURED IN PLACE FLOOR, ARE TO BE AT LEAST 28 DAYS OLD BEFORE THE FLOOR IS PLACED UNLESS A SHORTER CURING TIME IS APPROVED BY THE BRIDGE ENGINEER.

THE PORTIONS OF THE PRESTRESSED BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT AND PIER DIAPHRAGMS SHALL BE ROUGHENED FOR A DISTANCE OF 10" FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2403.03, I, OF THE STANDARD SPECIFICATIONS.

ALL BEAMS ARE TO BE INCREASED IN LENGTH TO COMPENSATE FOR ELASTIC SHORTENING, CREEP AND SHRINKAGE.

FOR TRANSPORTING, THE ALLOWABLE OVERHANG IS SHOWN IN THE LIFTING LOOP AND OVERHANG TABLE.

HOLES MUST BE CAST IN THE WEB TO ACCOMMODATE THE STEEL DIAPHRAGM ATTACHMENTS AS DETAILED ON THE STEEL DIAPHRAGM DETAIL SHEET.

MINIMUM CONCRETE f'c (AT 28 DAYS) AND MINIMUM f'ci AT RELEASE ARE LOCATED IN THE BTB BEAM DATA TABLE ABOVE.

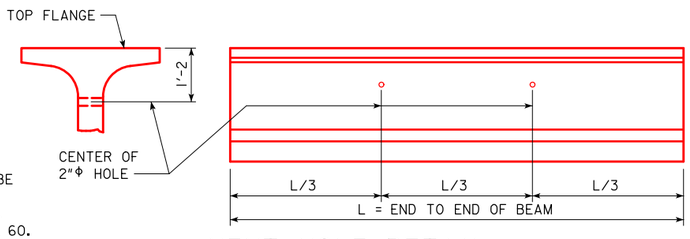
FOUR 0.60 IN. DIAMETER STRANDS STRESSED TO NOT MORE THAN 5000 lbs EACH MAY BE USED IN LIEU OF BARS 5a1 AND 5a2 IN THE TOP FLANGE.

LIFTING LOOP AND OVERHANG TABLE

BEAMS	LIFTING LOOPS EACH END	# OF STRANDS PER LOOP	D	BEAM OVERHANG (FT)
BTB40	1	4	2'-0	**

** IN ACCORDANCE WITH ARTICLE 2407.03, K OF THE STANDARD SPECIFICATIONS.

LIFTING LOOPS SHALL CARRY LOADS EQUALLY.



VENT HOLE DETAIL

NOTE: 2"Φ HOLES TO BE PROVIDED IN EVERY PRESTRESSED BEAM. 2"Φ HOLES MAY BE PRODUCED WITH A REMOVABLE OR NON-REMOVABLE FORM. THEY MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH REINFORCING.

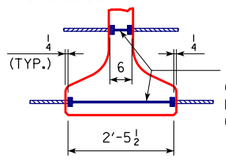
DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2007.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 5.
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 270.

SPECIFICATIONS:

CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICABLE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.
DESIGN: A.A.S.H.T.O. LRFD, SERIES OF 2007, WITH MINOR MODIFICATIONS.

NUMBER AND EXACT LOCATION OF COIL TIES TO BE AS DETAILED ON SPECIFIC BRIDGE DESIGN.



COIL TIE DETAIL

ALTERNATE BAR NOTES:

ALTERNATE BARS SHOWN IN BENT BAR DETAILS MAY BE USED IN LIEU OF REINFORCING BARS SHOWN IN BAR LIST. NO ADDITIONAL PAYMENT SHALL BE MADE FOR USE OF ALTERNATE BARS.

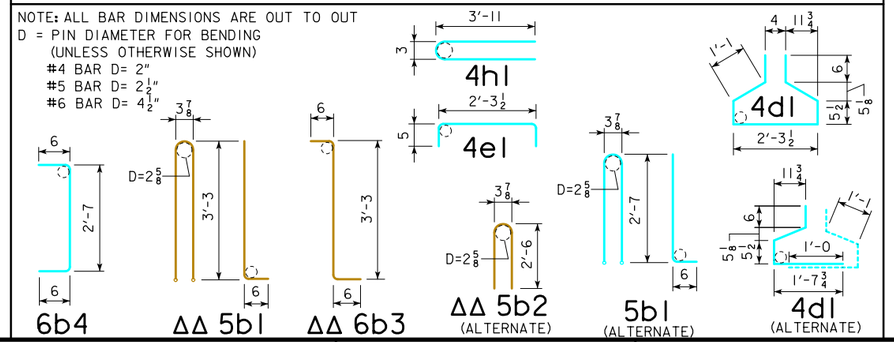
ΔΔ 5b1 AND 6b3 BARS TO BE EPOXY COATED
* 6b3 AND 6b4 BARS TO BE USED IN PAIRS

REINFORCING BAR LIST

	BEAM		BTB40	
	BAR	SHAPE	NO.	LENGTH
	5a1		6	41'-1
	5a2		——	——
ΔΔ	5b1		25	7'-8
ΔΔ *	6b3		36	4'-3
*	6b4		4	3'-7
	4c1		55	2'-7
	4d1		45	6'-5
	4e1		24	3'-2
	4h1		4	8'-0

BENT BAR DETAILS

NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT
D = PIN DIAMETER FOR BENDING (UNLESS OTHERWISE SHOWN)
#4 BAR D= 2"
#5 BAR D= 2½"
#6 BAR D= 4½"



DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

BTB40 BEAM DETAILS

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

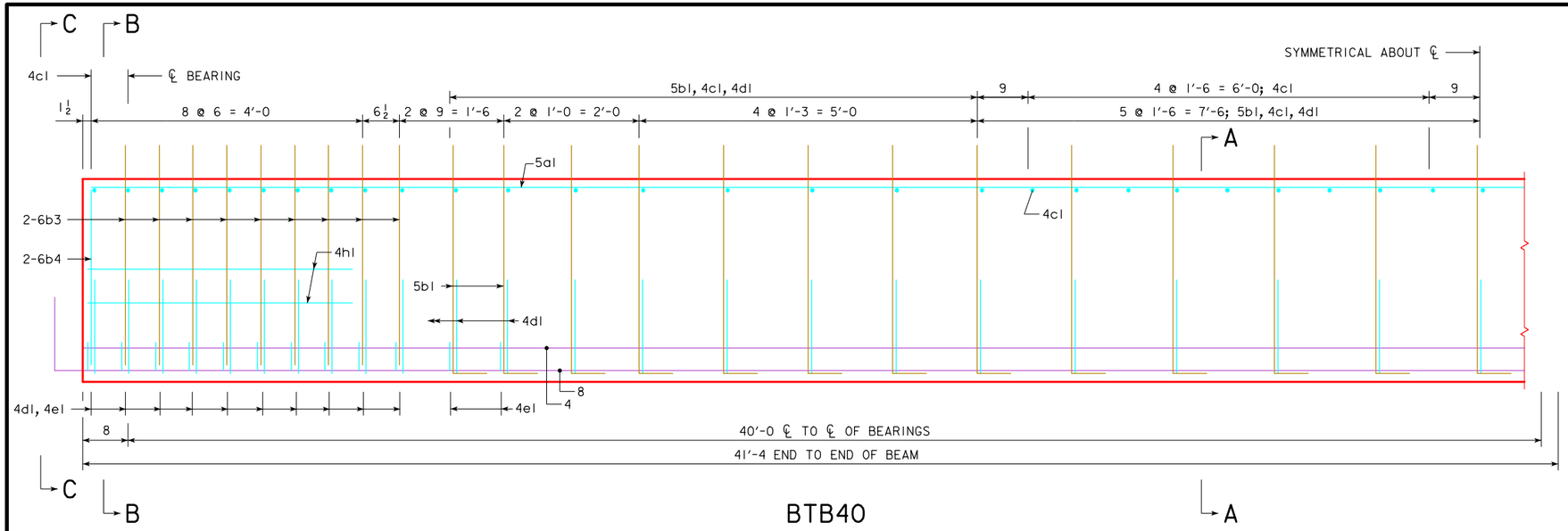
POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 36 OF 45 FILE NO. _____ DESIGN NO. _____

CORRECTION 12-13 - COIL TIE DETAIL WAS CHANGED TO REFLECT THE DISTANCE BETWEEN COIL TIE ANCHORS EMBEDDED 4 INCH.
ENGLISHBEAMS.DGN - 4750 - THIS SHEET ISSUED 02-08.

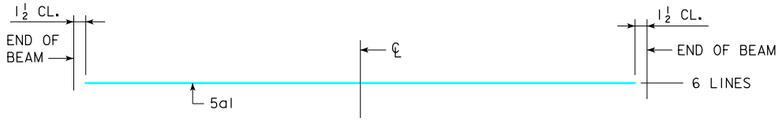
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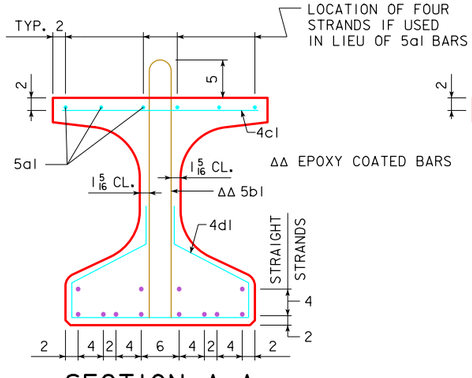
BTB40

NOTE: VENT HOLE REQUIREMENTS ON SHEET V.36

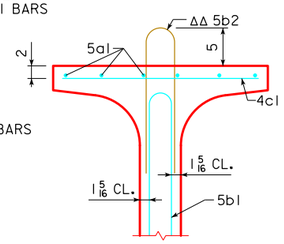
NOTE: THIS BEAM HAS NON-STANDARD STIRRUP EXTENSIONS



TOP FLANGE LONGITUDINAL BAR LAYOUT

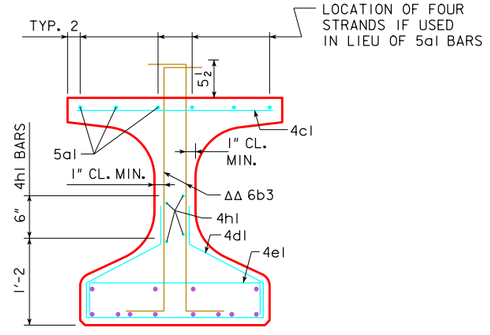


SECTION A-A

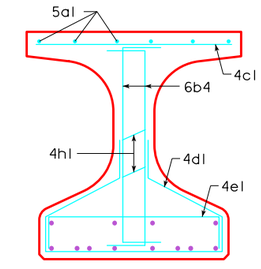


SECTION A-A (ALTERNATE)

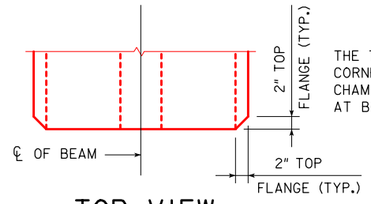
SEE ALTERNATE BAR NOTE ON SHEET V.36.



SECTION B-B



SECTION C-C

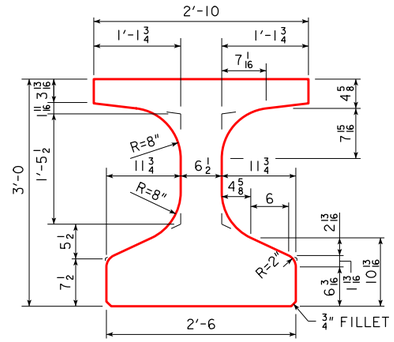


TOP VIEW

THE TOP FLANGE BEAM CORNERS ARE TO BE CHAMFERED 2" AS SHOWN AT BOTH ENDS OF THE BEAM.

AREA = 631.7 in²
$\bar{y}_b$ = 17.14 in.
I = 99,980 in⁴

BEAM SECTION PROPERTIES



BTB BEAM CROSS SECTION

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

BTB40 BEAM DETAILS

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

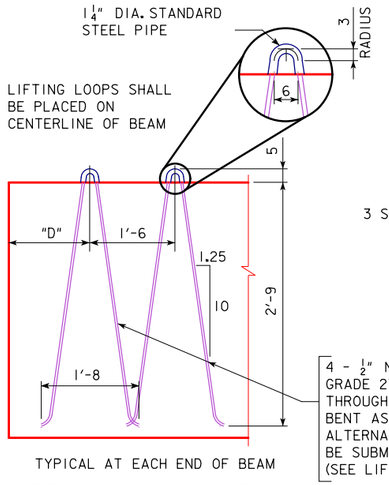
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 37 OF 45 FILE NO. _____ DESIGN NO. _____

REVISED 08-09 - ADDED STRANDS TO SECTIONS A-A, B-B, & C-C.
ENGLISHBEAMS.DGN - 4753 - THIS SHEET ISSUED 02-08.

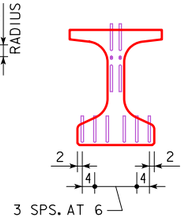
DESIGN TEAM McCLURE	MODIFIED STANDARD SHEET 4753	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.37

CORRECTION 12-13 - COIL TIE DETAIL WAS CHANGED TO REFLECT THE DISTANCE BETWEEN COIL TIE ANCHORS EMBEDDED 4 INCH. REMOVED ARTICLE 2407.13 SPEC. NOTE UNDER LIFTING LOOP TABLE.
ENGLISHBEAMS.DGN - 4765 - THIS SHEET ISSUED 02-08.

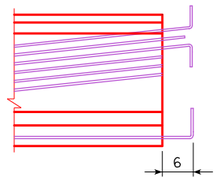


TYPICAL AT EACH END OF BEAM

LIFTING LOOP DETAIL



THE TOP AND 3rd ROWS OF THE DEFLECTED STRANDS ARE TO BE CUT WITH 1'-6 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE SECOND ROW IS TO BE CUT WITH A 5" PROJECTION AND THE REMAINING TOP DEFLECTED STRANDS IN ROWS 4 AND BELOW ARE TO BE CUT FLUSH WITH BEAM FACE. SIX BOTTOM STRANDS ARE TO BE CUT WITH 1'-6 PROJECTIONS WHICH ARE TO BE SHOP BENT AS SHOWN. THE REMAINING BOTTOM STRANDS ARE TO BE CUT OFF REASONABLY FLUSH WITH THE CONCRETE.



TYPICAL AT BOTH BEAM ENDS

STRAND PROJECTION AT BEAM ENDS WHEN EMBEDDED IN CONCRETE END DIAPHRAGMS

BTB BEAM DATA

	BTB BEAM	SPAN LENGTH ℄–℄ BEARING	OVERALL BEAM LENGTH (L)	CONCRETE STRENGTH f'ci (ksi)	CONCRETE STRENGTH f'c (ksi)	STRAND SIZE DIA. (in)	NO. OF STRAND STRAIGHT	NO. OF STRAND DEFLECTED	TOTAL INITIAL PRESTRESS ③ kips	HOLD DOWN FORCE-kips	CAMBER (in) AT RELEASE	CAMBER (in) AFTER LOSSES	DEFLECTION (in) Δ D IMMEDIATE ① (ELASTIC) Δi STEEL DIAPHRAGM	DEFLECTION (in) Δ D TIME ② (PLASTIC) ΔT STEEL DIAPHRAGM	PERMISSIBLE MAXIMUM SPACING HL-93 LOADING STEEL DIAPHRAGM	WEIGHT (TONS)	CONCRETE (CU YD.)	REINFORCING STEEL (WEIGHT-LBS)
④	BTB100	100'-0	101'-4	8.0	9.0	0.60	32	12	1871	20.9	3.19	5.63	3.44	0.86	8'-6	33.3	16.5	2300

① DEFLECTIONS AT MID-SPAN DUE TO WEIGHT OF SLAB AND DIAPHRAGM. THE DEFLECTIONS SHOWN ARE FOR A SLAB (8 in) AND HAUNCH (1.5 in) WEIGHT OF:
0.93 kips/ft FOR 8'-6 BEAM SPACING
0.80 kips/ft FOR 7'-4 BEAM SPACING
AND ONE STEEL DIAPHRAGM (0.500 kips) AT ℄ OF SPAN.
FOR DIFFERENT SLAB AND DIAPHRAGM WEIGHTS, DEFLECTIONS WILL BE DIRECTLY PROPORTIONAL.
② DEFLECTIONS DUE TO THE COMBINED EFFECT OF CREEP DUE TO WEIGHT OF SLAB AND SHRINKAGE OF SLAB.
TOTAL BEAM DEFLECTIONS AT ℄ OF SPAN, Δ_D , DUE TO WEIGHT OF SLAB AND DIAPHRAGMS FOR DETAILING PURPOSE:
(A) $\Delta_D = \Delta_I + \Delta_T$ FOR SIMPLE SPAN.
(B) $\Delta_D = \Delta_I + \frac{3}{4}\Delta_T$ FOR END SPANS OF CONTINUOUS BRIDGE.
(C) $\Delta_D = \Delta_I + \frac{1}{2}\Delta_T$ FOR INTERIOR SPANS OF CONTINUOUS BRIDGE.
③ TOTAL INITIAL PRESTRESS IS BASED ON 72.6% f's, f's. = 270 ksi. AND As = 0.217 in^2.
④ REQUIRES 4000 psi COMPRESSIVE STRENGTH FOR CAST-IN-PLACE SLAB CONCRETE.

CALCULATED DESIGN CAMBERS HAVE BEEN REDUCED FROM THEIR THEORETICAL VALUES BY 15% TO AID CONSTRUCTABILITY.

BEAM NOTES:

THESE BEAMS ARE DESIGNED FOR AASHTO LIVE LOADS AS INDICATED IN ABOVE TABLE WITH AN ALLOWANCE OF 20 LBS PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

ALL PPC BEAMS SHALL USE HIGH PERFORMANCE CONCRETE (HPC) IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

HOLD DOWN POINTS FOR DEFLECTED STRANDS MAY BE MOVED TOWARD ENDS OF BEAM A DISTANCE OF 0.05 L MAXIMUM AT PRODUCER'S OPTION.

ALL PRESTRESSING STRANDS EXCEPT LIFTING LOOP STRANDS SHALL BE 0.60 in. NOMINAL DIAMETER (NOMINAL STEEL AREA = 0.217 in^2) AND CONFORM TO ASTM A416 GRADE 270 LOW RELAXATION STRANDS. MINIMUM STRAND BREAKING STRENGTH SHALL BE 58.6 kips.

TOPS OF BEAMS ARE TO BE STRUCK OFF LEVEL AND FINISHED AS PER MATERIALS IM570.

BEARINGS SHALL BE AS DETAILED ON OTHER DESIGN SHEETS.

BEAMS TO BE USED IN BRIDGES MADE CONTINUOUS BY THE POURED IN PLACE FLOOR, ARE TO BE AT LEAST 28 DAYS OLD BEFORE THE FLOOR IS PLACED UNLESS A SHORTER CURING TIME IS APPROVED BY THE BRIDGE ENGINEER.

THE PORTIONS OF THE PRESTRESSED BEAMS THAT ARE TO BE EMBEDDED IN THE ABUTMENT AND PIER DIAPHRAGMS SHALL BE ROUGHENED FOR A DISTANCE OF 10" FROM THE BEAM END BY SANDBLASTING OR OTHER APPROVED METHODS TO PROVIDE SUITABLE BOND BETWEEN THE BEAM AND THE DIAPHRAGM IN ACCORDANCE WITH ARTICLE 2403.03, I, OF THE STANDARD SPECIFICATIONS.

ALL BEAMS ARE TO BE INCREASED IN LENGTH TO COMPENSATE FOR ELASTIC SHORTENING, CREEP AND SHRINKAGE.

FOR TRANSPORTING, THE ALLOWABLE OVERHANG IS SHOWN IN THE LIFTING LOOP AND OVERHANG TABLE.

THE CONTRACTOR SHALL ASSURE THE LATERAL STABILITY OF THE BEAMS DURING HANDLING, TRANSPORTING AND ERECTION BY PROVIDING TEMPORARY BRACING AS NEEDED.

HOLES MUST BE CAST IN THE WEB TO ACCOMMODATE THE STEEL DIAPHRAGM ATTACHMENTS AS DETAILED ON THE STEEL DIAPHRAGM DETAIL SHEET.

MINIMUM CONCRETE f'c (AT 28 DAYS) AND MINIMUM f'ci AT RELEASE ARE LOCATED IN THE BTB BEAM DATA TABLE ABOVE.

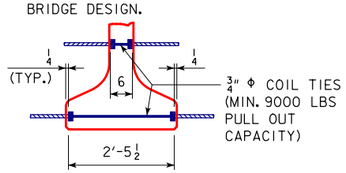
FOUR 0.60 IN. DIAMETER STRANDS STRESSED TO NOT MORE THAN 5000 lbs EACH MAY BE USED IN LIEU OF BARS 5a1 AND 5a2 IN THE TOP FLANGE.

LIFTING LOOP AND OVERHANG TABLE

BEAMS	LIFTING LOOPS EACH END	# OF STRANDS PER LOOP	D	BEAM OVERHANG (FT)
BTB100	2	4	6'-3	12

LIFTING LOOPS SHALL CARRY LOADS EQUALLY.

NUMBER AND EXACT LOCATION OF COIL TIES TO BE AS DETAILED ON SPECIFIC BRIDGE DESIGN.



COIL TIE DETAIL

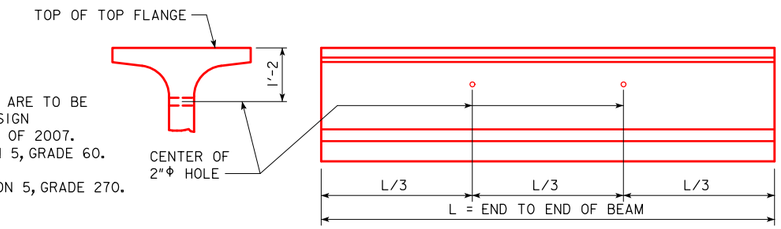
DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE TO BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 2007.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 5.
PRESTRESSING STEEL IN ACCORDANCE WITH SECTION 5, GRADE 270.

SPECIFICATIONS:

CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, CURRENT SERIES, WITH CURRENT APPLICABLE SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN: AASHTO LRFD, SERIES OF 2007, WITH MINOR MODIFICATIONS.



VENT HOLE DETAIL

NOTE: 2"Φ HOLES TO BE PROVIDED IN EVERY PRESTRESSED BEAM. 2"Φ HOLES MAY BE PRODUCED WITH A REMOVABLE OR NON-REMOVABLE FORM. THEY MAY BE SHIFTED SLIGHTLY TO AVOID INTERFERENCE WITH REINFORCING.

ΔΔ 5b1 AND 6b3 BARS TO BE EPOXY COATED
∗ 6b3 AND 6b4 BARS TO BE USED IN PAIRS

REINFORCING BAR LIST

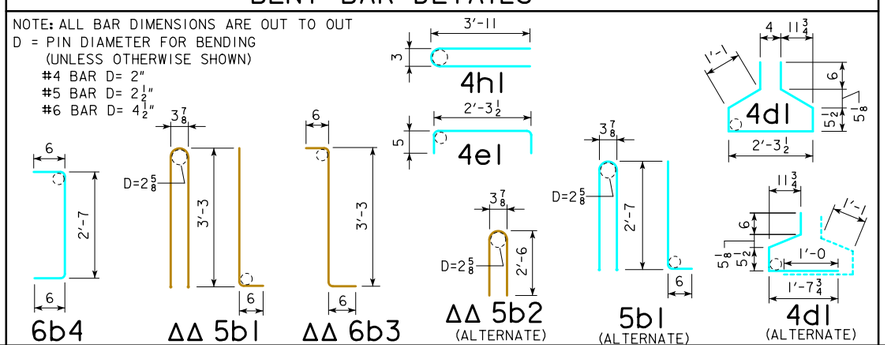
	BEAM		BTB100	
	BAR	SHAPE	NO.	LENGTH
	5a1		12	32'-9
	5a2		6	40'-0
ΔΔ	5b1		79	7'-8
ΔΔ ∗	6b3		32	4'-3
∗	6b4		16	3'-7
	4c1		121	2'-7
	4d1		101	6'-5
	4e1		26	3'-2
	4h1		4	8'-0

ALTERNATE BAR NOTES:

ALTERNATE BARS SHOWN IN BENT BAR DETAILS MAY BE USED IN LIEU OF REINFORCING BARS SHOWN IN BAR LIST. NO ADDITIONAL PAYMENT SHALL BE MADE FOR USE OF ALTERNATE BARS.

BENT BAR DETAILS

NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT
D = PIN DIAMETER FOR BENDING (UNLESS OTHERWISE SHOWN)
#4 BAR D= 2"
#5 BAR D= 2½"
#6 BAR D= 4½"



DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

BTB100 BEAM DETAILS

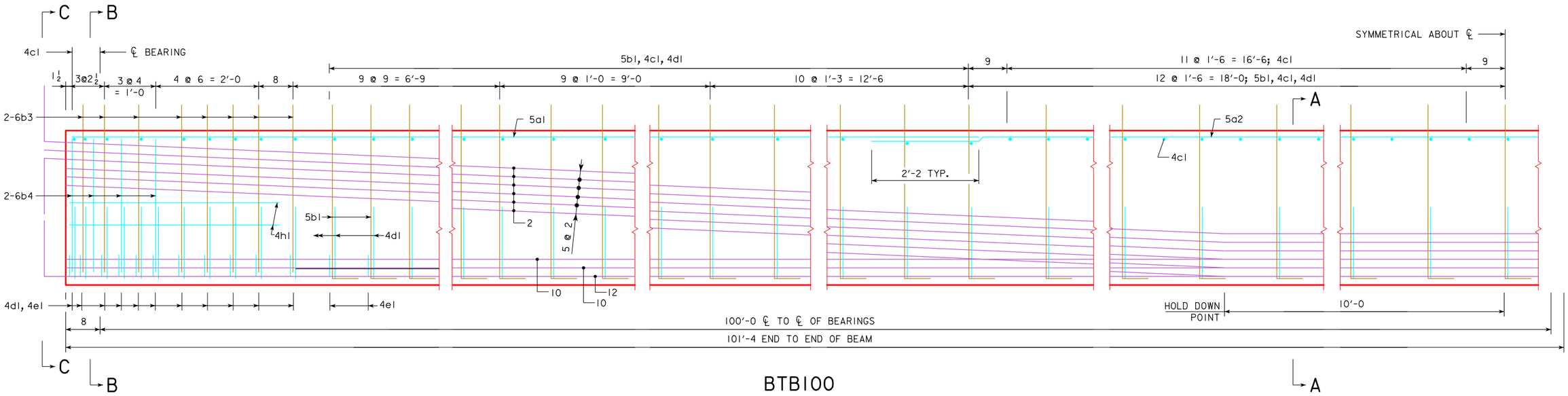
STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 38 OF 45 FILE NO. _____ DESIGN NO. _____

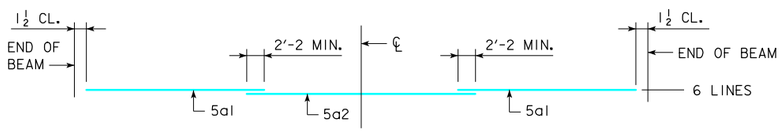
DESIGN TEAM McCLURE	MODIFIED STANDARD SHEET 4765	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.38



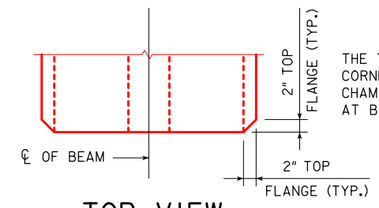
BTB100

NOTE: VENT HOLE REQUIREMENTS ON SHEET V.38

NOTE: THIS BEAM HAS NON-STANDARD STIRRUP EXTENSIONS

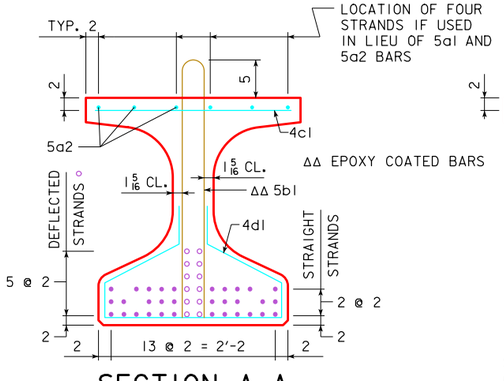


TOP FLANGE LONGITUDINAL BAR LAYOUT

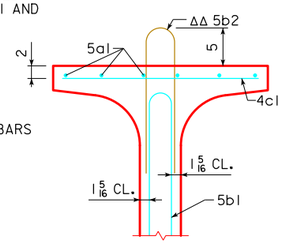


TOP VIEW

THE TOP FLANGE BEAM CORNERS ARE TO BE CHAMFERED 2" AS SHOWN AT BOTH ENDS OF THE BEAM.

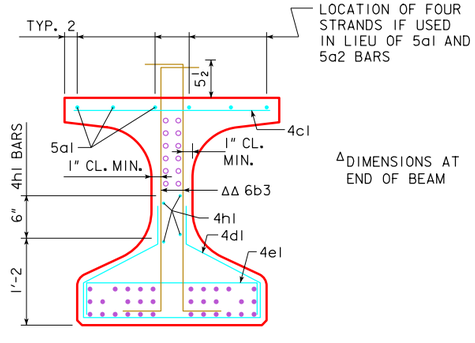


SECTION A-A



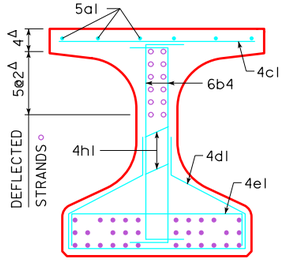
SECTION A-A (ALTERNATE)

SEE ALTERNATE BAR NOTE ON SHEET V.38.



SECTION B-B

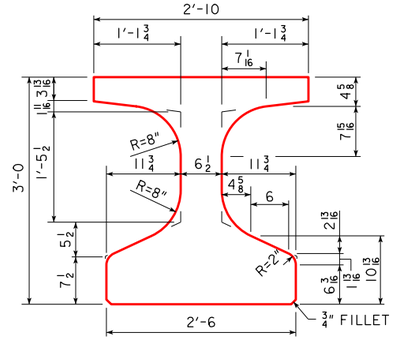
ΔDIMENSIONS AT END OF BEAM



SECTION C-C

AREA = 631.7 in²
$\bar{y}_b$ = 17.14 in.
I = 99,980 in⁴

BEAM SECTION PROPERTIES



BTB BEAM CROSS SECTION

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

BTB100 BEAM DETAILS

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

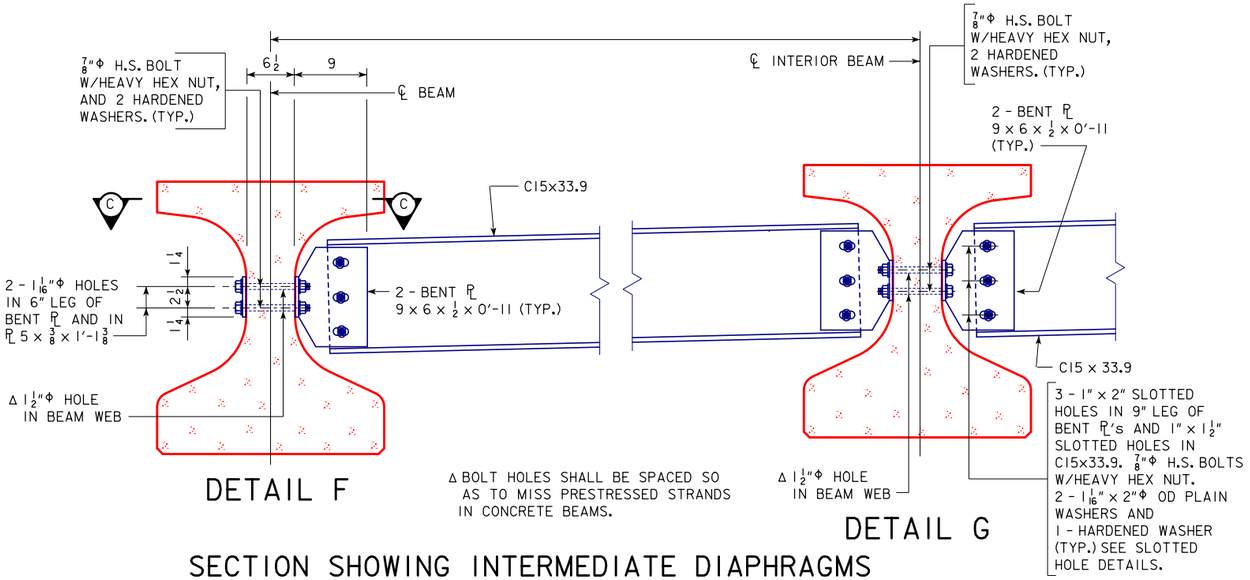
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 39 OF 45 FILE NO. _____ DESIGN NO. _____

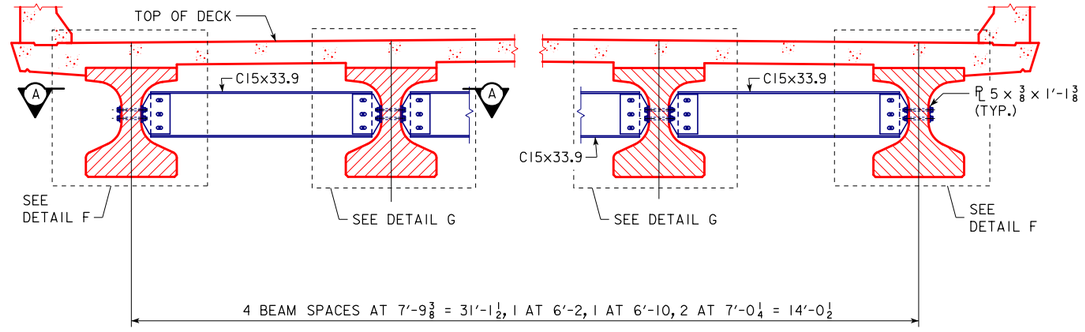
DESIGN TEAM McCLURE	MODIFIED STANDARD SHEET 4766	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.39

ENGLISHBEAMS.DGN - 4766 - THIS SHEET ISSUED 02-08.

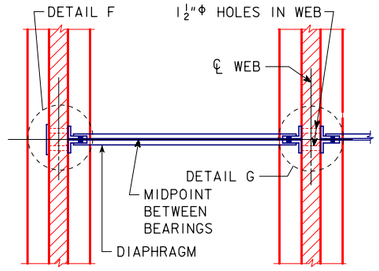
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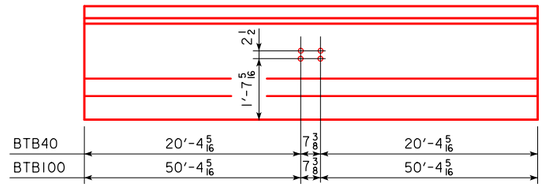
SECTION SHOWING INTERMEDIATE DIAPHRAGMS AT EXTERIOR BAY



SECTION SHOWING INTERMEDIATE DIAPHRAGMS



PART SECTION A-A



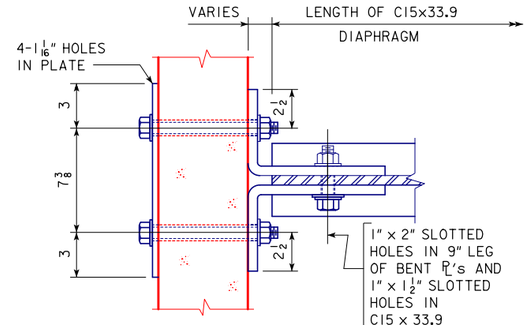
INTERMEDIATE DIAPHRAGM BOLT HOLE LOCATIONS

STRUCTURAL STEEL	
WEIGHT	7,685 LBS.

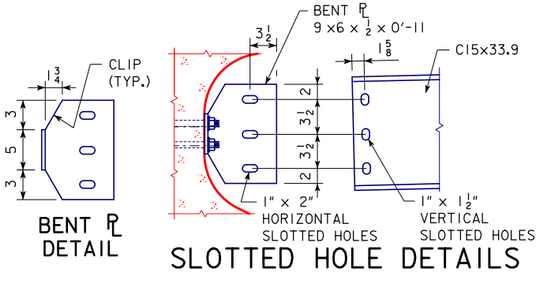
NOTE: STRUCTURAL STEEL WEIGHT IS INCLUDED ON THE SUMMARY QUANTITIES SHEET.

BULB TEE "B" BEAM INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL

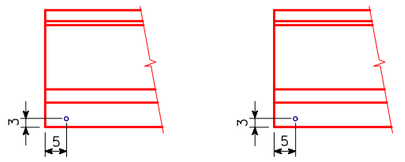
ONE BEAM CONNECTION (DETAIL "F" AND/OR DETAIL "G")		NO. OF BEAM CONNECTIONS	WEIGHT
4 - 7/8"Φ x 9 1/4 H.S. BOLTS WITH NUTS & WASHERS = 9.6 LBS.		27	259
ONE DETAIL "G"	4 - BENT PL 9 x 6 x 1/2 x 0'-11 = 93.6 LBS.	21	1,966
ONE DETAIL "F"	1 - BACKING PL 5 x 3/8 x 1'-1 3/8 = 7.1 LBS.	6	43
	2 - BENT PL 9 x 6 x 1/2 x 0'-11 = 46.8 LBS.	6	281
ONE DIAPHRAGM			
		NUMBER OF DIAPHRAGMS	
6 - 7/8"Φ x 3" H.S.BOLTS WITH NUTS & WASHERS = 7.8 LBS.		24	187
	LENGTH OF MEMBER		
1 - C15 x 33.9 = 33.9 LBS./FT. (BEAM A-E)	6'-7 1/8	12	2,682
1 - C15 x 33.9 = 33.9 LBS./FT. (BEAM E-F)	4'-11 3/4	3	506
1 - C15 x 33.9 = 33.9 LBS./FT. (BEAM F-G)	5'-7 1/4	3	574
1 - C15 x 33.9 = 33.9 LBS./FT. (BEAM G-J)	5'-10	6	1,187
INTERMEDIATE DIAPHRAGM STRUCTURAL STEEL - TOTAL (LBS.)			7,685



SECTION C-C



SLOTTED HOLE DETAILS



BEAM COIL TIE LOCATIONS

NOTES:

ALL DIAPHRAGM MATERIALS, INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.

SHOP DRAWINGS OF THE STEEL DIAPHRAGMS SHOWING LAYOUT AND DETAILS OF THE DIAPHRAGMS SHALL BE SUBMITTED FOR APPROVAL.

ALL COSTS FOR FURNISHING AND INSTALLING STEEL INTERMEDIATE DIAPHRAGMS SHALL BE INCLUDED IN THE PRICE BID FOR STRUCTURAL STEEL.

THE 1 1/2"Φ HOLES FOR THE 7/8"Φ H.S. BOLTS SHALL BE CAST INTO THE WEB. DRILLING IS NOT ALLOWED.

THE 7/8"Φ H.S. BOLTS THROUGH THE WEB SHALL HAVE A THREAD LENGTH OF 3" MIN. AND 4" MAX. AND SHALL MEET THE REQUIREMENTS OF ASTM A449.

ALL BOLTS ARE TO BE TIGHTENED PRIOR TO PLACING BRIDGE FLOOR CONCRETE WITH THE FOLLOWING EXCEPTION: BOLTS IN DIAPHRAGMS LOCATED UNDER LONGITUDINAL BRIDGE FLOOR CONSTRUCTION JOINTS SHALL NOT BE TIGHTENED UNTIL THE FOLLOWING ADJACENT STAGE OF THE BRIDGE FLOOR HAS BEEN PLACED.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

INTERMEDIATE STEEL DIAPHRAGM DETAILS

STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

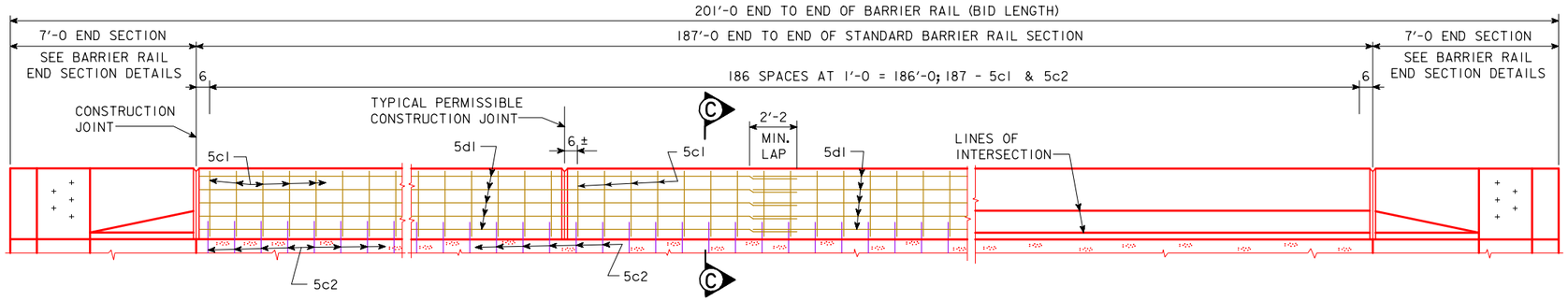
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 40 OF 45 FILE NO. _____ DESIGN NO. _____

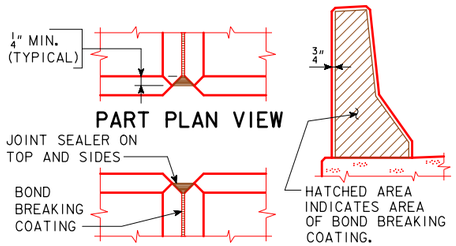
ENGLISHBEAMS.DGN - 1036-2-BTB - THIS SHEET ISSUED 06-14. SHEET 2 OF 2.

DESIGN TEAM McCLURE	MODIFIED STANDARD SHEET 1036-2-BTB	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER V.40

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ELEVATION OF BARRIER RAIL LAYOUT



BARRIER RAIL JOINT DETAILS

BARRIER RAIL NOTES:

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

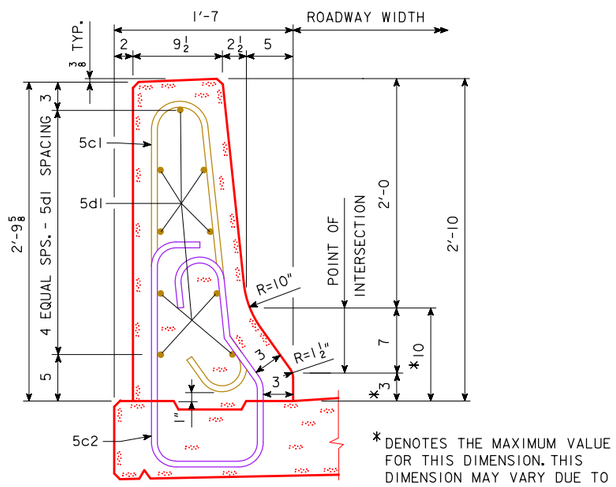
ALL BARRIER RAIL REINFORCING STEEL IS TO BE EITHER EPOXY COATED OR STAINLESS STEEL AS SHOWN. THE STAINLESS STEEL REINFORCING STEEL SHALL BE DEFORMED BAR GRADE 60 MEETING THE REQUIREMENTS OF MATERIALS I.M. 452.

THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL ℄ GRADE.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.



*DENOTES THE MAXIMUM VALUE FOR THIS DIMENSION. THIS DIMENSION MAY VARY DUE TO CONSTRUCTION INACCURACIES.

PART SECTION C-C

EPOXY COATED REINF. STEEL - TWO RAILS

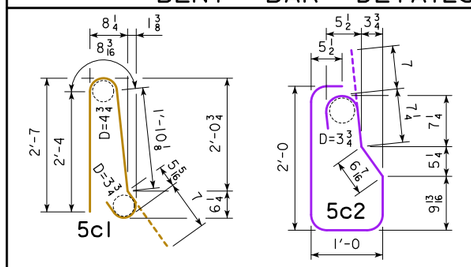
SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c1	RAIL, VERTICAL		374	5'-11	2,308
	5d1	RAIL, LONGITUDINAL		90	39'-3	3,684
					EPOXY STEEL TOTAL (LBS.)	5,992

STAINLESS STEEL REINF. STEEL - TWO RAILS

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c2	RAIL, VERTICAL		374	6'-0	2,340
					STAINLESS STEEL TOTAL (LBS.)	2,340

NOTE: REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

BENT BAR DETAILS



NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER.

CONCRETE PLACEMENT SUMMARY

SECTION		TOTAL
STANDARD SECTION	374 FT. @ 0.1052 CU.YD. PER FT.	39.4
	TOTAL (CU. YD.)	39.4

CONCRETE BARRIER RAIL QUANTITIES

ITEM		UNIT	QUANTITY
CONCRETE BARRIER RAILING	2 @ 201 L.F.	L.F.	402.0

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

BARRIER RAIL DETAILS

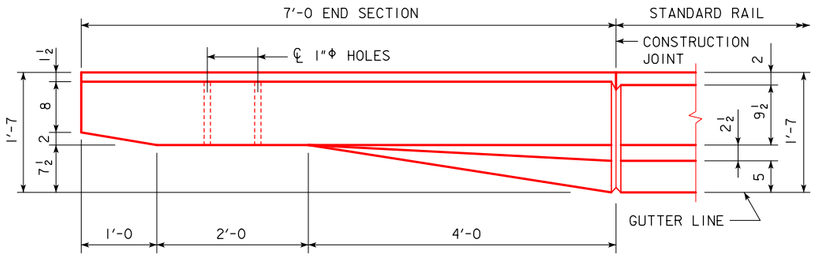
STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

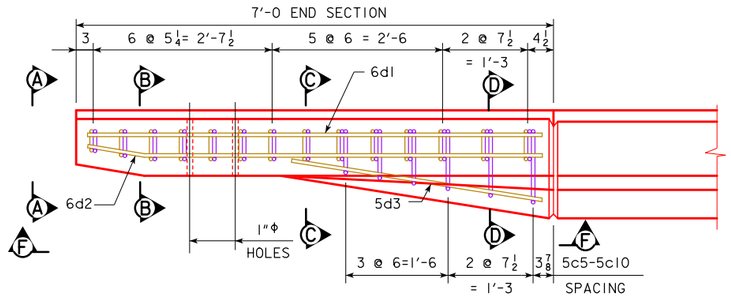
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 41 OF 45 FILE NO. _____ DESIGN NO. _____

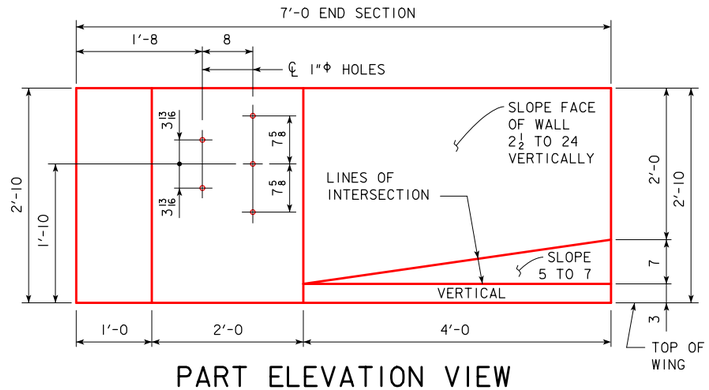
ENGLISHDECKRAILBRIDGES.DGN 1020SA THIS SHEET ISSUED 04-14 - ADDED STAINLESS STEEL REINFORCING BAR LIST AND CHANGED 5c2 BARS TO STAINLESS STEEL.



PART PLAN VIEW

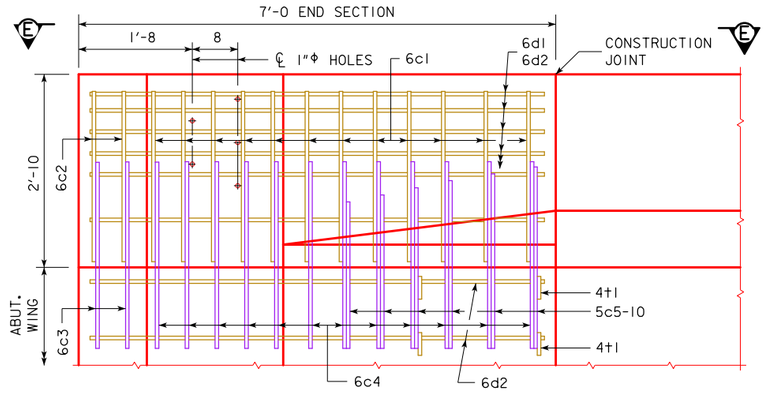


PART VIEW E-E

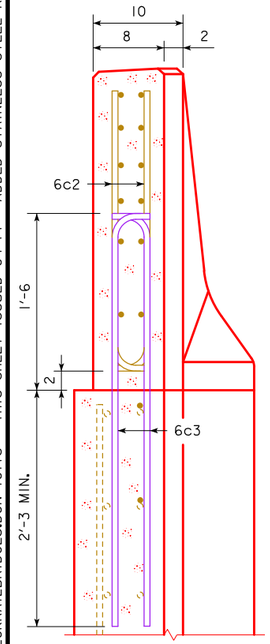


PART ELEVATION VIEW

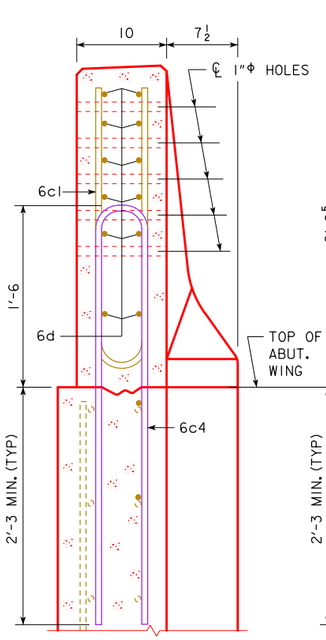
PROVIDE 5 HOLES FORMED WITH 1"Φ PLASTIC CONDUIT. COST TO BE INCLUDED IN PRICE BID FOR CONCRETE BARRIER RAILING.



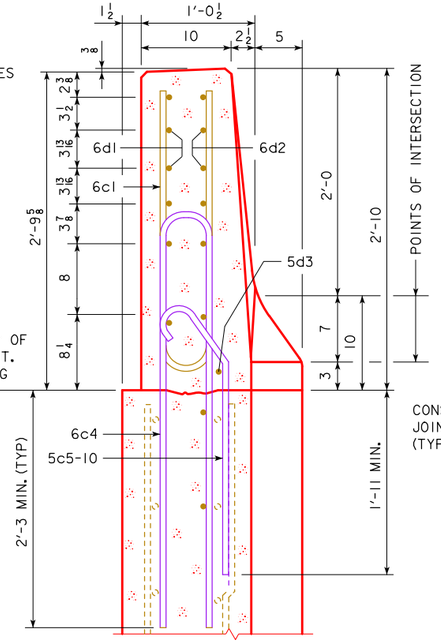
PART VIEW F-F



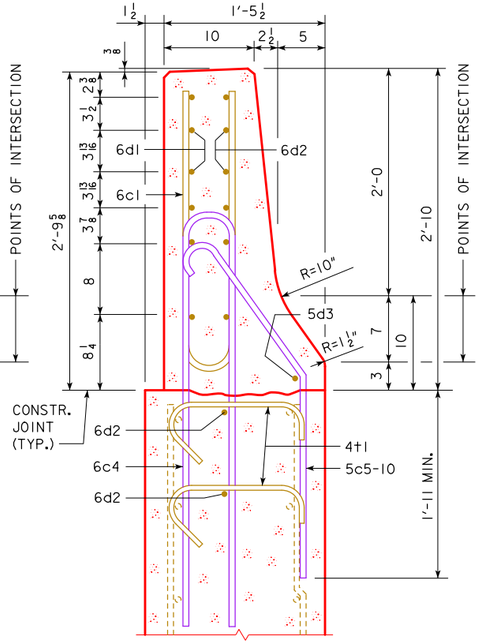
VIEW A-A



SECTION B-B



SECTION C-C



SECTION D-D

NOTE:
4t1 PLACEMENT- 2 BARS EACH LEVEL OF 6d2 IN WING FOOTING.

NOTE:
CONSTRUCTION JOINT BETWEEN TOP OF WING AND BARRIER RAIL IS ROUGHENED CONCRETE.

NOTE:
THE 10" RADIUS AND 1½" RADIUS ARE TYPICAL AND SHALL BE USED WHEN CONSTRUCTING THE CORNERS FOR VIEW A-A, SECTION B-B, SECTION C-C AND SECTION D-D.

NOTE:
THE 6c4, 6c3, 5c5-10, 2 - 6d2 AND 4t1 BARS ARE TO BE PLACED WITH THE ABUTMENT WING. THE DETAILS FOR PLACEMENT ARE SHOWN ON THE WING ABUTMENT SHEET.

NOTE:
DASHED LINES BELOW THE TOP OF WING ARE THE ABUTMENT WING REINFORCING STEEL. SEE WING ABUTMENT SHEET FOR PLACEMENT.

EPOXY COATED REINF. STEEL - ONE END SECT.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	RAIL, VERTICAL		12	5'-6	99
6c2	RAIL, VERTICAL		4	2'-10	17
6d1	RAIL, HORIZONTAL		6	6'-8	60
6d2	RAIL, HORIZONTAL		8	6'-9	81
5d3	RAIL, HORIZONTAL		1	3'-9	4
4t1	RAIL, ABUTMENT WING TIE BARS		4	VARIES	5
			EPOXY REINF. TOTAL WEIGHT (LBS.)		266

STAINLESS STEEL REINF. STEEL - ONE END SECT.

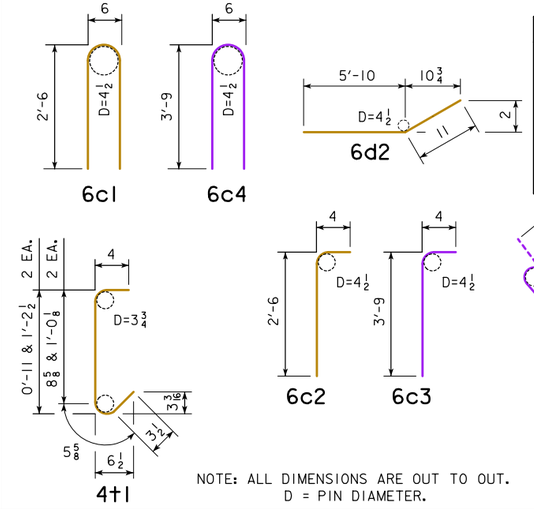
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c3	RAIL, VERTICAL		4	4'-1	25
6c4	RAIL, VERTICAL		12	8'-0	144
5c5-10	RAIL, VERTICAL		6	VARIES	23
			STAINLESS STEEL TOTAL WEIGHT (LBS.)		192

NOTE: REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
BARRIER RAIL ONE END SECTION	0.65 CU. YD.

BENT BAR DETAILS



BAR	"X"
5c5	0'-6½
5c6	0'-8½
5c7	0'-10¼
5c8	1'-0¼
5c9	1'-2
5c10	1'-4

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS — 102'-0 INTERIOR SPAN

BARRIER RAIL END SECTION

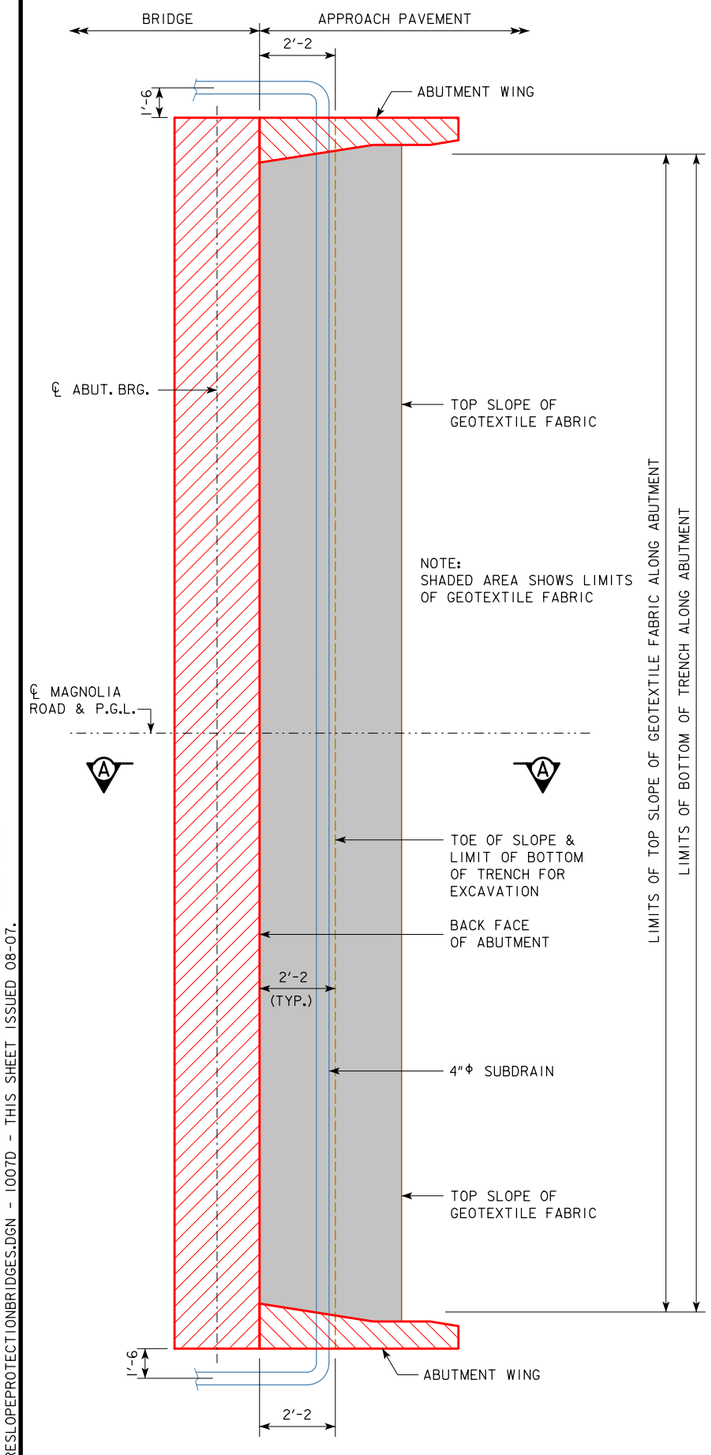
STA. 116+19.00 (MAGNOLIA RD.) — JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 42 OF 45 FILE NO. _____ DESIGN NO. _____

ENGLISHDECKRAILBRIDGES.DGN 1017S - THIS SHEET ISSUED 04-14 - ADDED STAINLESS STEEL REINFORCING BAR LIST AND CHANGED 6c3, 6c4 & 5c5-10 BARS TO STAINLESS STEEL.



ABUTMENT PLAN

ABUTMENT BACKFILL STAGING NOTE:

PERFORM ABUTMENT BACKFILL PROCESS IN STAGES TO ALIGN WITH THE STAGED CONSTRUCTION SEQUENCE OF THE BRIDGE ABUTMENT. ENSURE ADEQUATE STABILITY OF THE BACKFILL MATERIAL IS PROVIDED IN THE TRANSVERSE DIRECTION BETWEEN CONSTRUCTION STAGES. MAINTAIN EVEN LAYERING TO PROVIDE CONTINUITY OF BACKFILL MATERIAL LAYERS IN ADJACENT CONSTRUCTION STAGES. ADJUST BACKFILL PLACEMENT AS NEEDED BASED ON SITE CONDITIONS AND CONSTRUCTION CLEARANCES. REFER TO SUBDRAIN DETAILS SHEET FOR SUBDRAIN STAGING NOTE.

ABUTMENT BACKFILL PROCESS:

THE BASE OF THE EXCAVATION SUBGRADE BEHIND THE ABUTMENT IS TO BE GRADED WITH A 4% SLOPE AWAY FROM THE ABUTMENT FOOTING AND A 2% CROSS SLOPE IN THE DIRECTION OF THE SUBDRAIN OUTLET. THIS EXCAVATION SHAPING IS TO BE DONE PRIOR TO BEGINNING INSTALLATION OF THE GEOTEXTILE AND BACKFILL MATERIAL.

AFTER THE SUBGRADE HAS BEEN SHAPED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN. THE FABRIC IS INTENDED TO BE INSTALLED IN THE BASE OF THE EXCAVATION AND EXTENDED VERTICALLY UP THE ABUTMENT BACKWALL, ABUTMENT WING WALLS, AND EXCAVATION FACE TO A HEIGHT THAT WILL BE APPROXIMATELY 1 TO 2 FOOT HIGHER THAN THE HEIGHT OF THE POROUS BACKFILL PLACEMENT AS SHOWN IN THE "BACKFILL DETAILS" ON THIS SHEET. THE STRIPS OF THE FABRIC PLACED SHALL OVERLAP APPROXIMATELY 1 FOOT AND SHALL BE PINNED IN PLACE. THE FABRIC SHALL BE ATTACHED TO THE ABUTMENT BY USING LATH FOLDED IN THE FABRIC AND SECURED TO THE CONCRETE WITH SHALLOW CONCRETE NAILS. THE FABRIC PLACED AGAINST THE EXCAVATION FACE SHALL BE PINNED.

WHEN THE FABRIC IS IN PLACE, THE SUBDRAIN SHALL BE INSTALLED DIRECTLY ON THE FABRIC AT THE TOE OF THE REAR EXCAVATION SLOPE. A SLOT WILL NEED TO BE CUT IN THE FABRIC AT THE POINT WHERE THE SUBDRAIN EXITS THE FABRIC NEAR THE END OF THE ABUTMENT WING WALL.

POROUS BACKFILL IS THEN PLACED AND LEVELED, NO COMPACTION IS REQUIRED.

THE REMAINING WORK INVOLVES BACKFILLING WITH FLOODABLE BACKFILL, SURFACE FLOODING, AND VIBRATORY COMPACTION. THE FLOODABLE BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE FLOODABLE BACKFILL SHALL BE PLACED IN INDIVIDUAL LIFTS, SURFACE FLOODED, AND COMPACTED WITH VIBRATORY COMPACTION TO ENSURE FULL CONSOLIDATION. LIMIT THE LOOSE LIFTS TO NO MORE THAN 2 FEET OF THICKNESS.

START SURFACE FLOODING FOR EACH FLOODABLE BACKFILL LIFT AT THE HIGH POINT OF THE SUBDRAIN AND PROGRESS TO THE LOW POINT WHERE THE SUBDRAIN EXITS THE FABRIC. TO ENSURE UNIFORM SURFACE FLOODING, WATER RUNNING FULL IN A 2-INCH DIAMETER HOSE SHOULD BE SPRAYED IN SUCCESSIVE 6-FOOT TO 8-FOOT INCREMENTS FOR 5 MINUTES WITHIN EACH INCREMENT.

FLOODABLE BACKFILL LIFT PLACEMENT, FLOODING, AND COMPACTION SHALL PROGRESS UNTIL THE REQUIRED FULL THICKNESS OF THE ABUTMENT BACKFILL HAS BEEN COMPLETED.

WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS WILL NOT BE MEASURED SEPARATELY FOR PAYMENT.

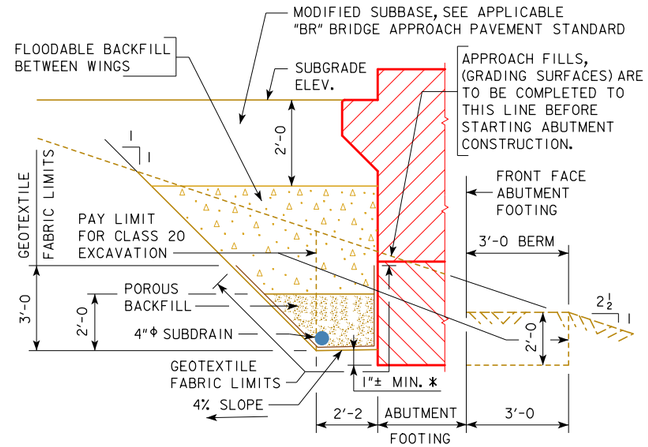
THE COST OF WATER REQUIRED FOR FLOODING, SUBDRAINS, POROUS BACKFILL, FLOODABLE BACKFILL, AND GEOTEXTILE FABRIC FURNISHED AT THE BRIDGE ABUTMENTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

NOTE:
SEE SUBDRAIN DETAILS SHEET FOR DETAILS NOT SHOWN ON THIS SHEET WHICH ARE PERTINENT TO THIS STRUCTURE.

NOTE:

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM ℄ APPROACH ROADWAY.

THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH ARTICLE 4196.01, B, 6 OF THE STANDARD SPECIFICATIONS. IF THE ENGINEERING FABRIC IS LAPPED THE LAPS SHALL BE A MINIMUM OF ONE FOOT IN LENGTH, SHINGLE FASHION WITH UP SLOPE LAP PIECE ON TOP AND STAPLED FOR CONTINUITY.



SECTION A-A

BACKFILL DETAILS

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

* DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

ABUTMENT BACKFILL DETAILS

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

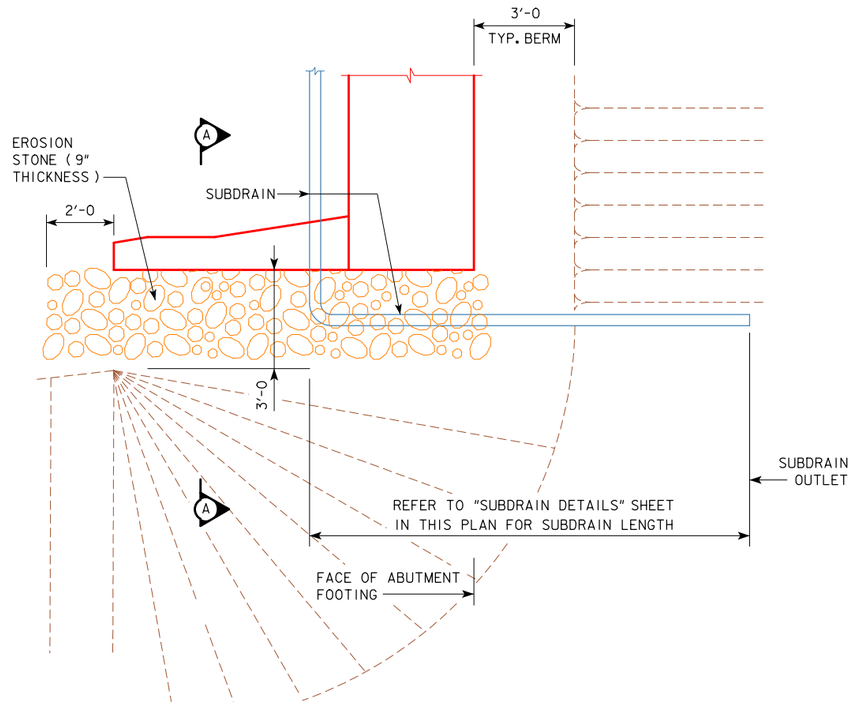
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 43 OF 45 FILE NO. _____ DESIGN NO. _____

REVISED 09-14 - THE TECHNICAL DATA INFORMATION TABLE WAS REMOVED AND IS LOCATED IN THE STANDARD SPECIFICATIONS. CHANGED SURFACE FLOODING TIME TO 5 MINUTE INCREMENTS.
REVISED 09-2016 - CHANGED THE BRIDGE APPROACH PAVEMENT STANDARD TO "BR" (WAS "RK").
ENGLISHFORESLOPEPROTECTIONBRIDGES.DGN - 1007D - THIS SHEET ISSUED 08-07.

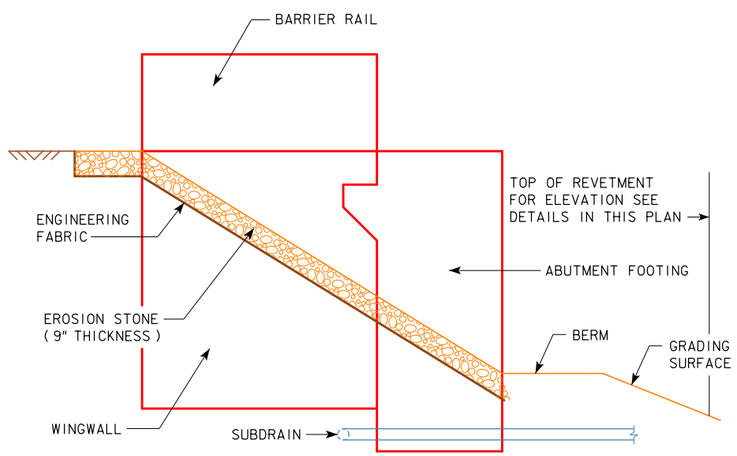
DESIGN TEAM McCLURE | MODIFIED STANDARD SHEET 1007D | POTTAWATTAMIE COUNTY | PROJECT NUMBER HDP-C078(210)--6B-78 | SHEET NUMBER V.43

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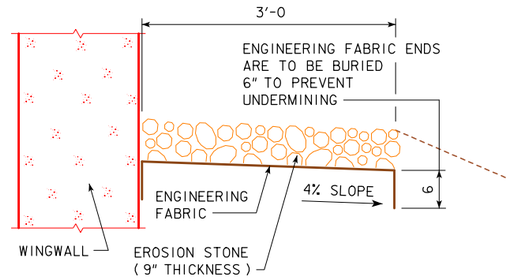
TOP VIEW OF WING ARMORING

A CHECK SHALL BE MADE AT THE SUBDRAIN OUTLET TO INSURE THAT IT IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS.



PROFILE VIEW OF WING ARMORING

(SHOWN FOR INTEGRAL ABUTMENT)



SECTION A-A

GENERAL NOTES:

EROSION STONE SHALL BE PLACED ALONG THE SIDES OF THE WINGS AND ABUTMENT FOOTING AS SHOWN IN SECTION A-A. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS. THE EROSION STONE AT THESE LOCATIONS SHALL BE UNDERLAID WITH ENGINEERING FABRIC IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

THE EROSION STONE SHALL BE IN ACCORDANCE WITH SECTION 4130, OF THE STANDARD SPECIFICATIONS. MATERIAL PASSING THE 3 INCH SCREEEN BUT 100% RETAINED ON A 1 INCH SCREEN MAY BE USED AS CHOKE STONE.

THE EROSION STONE SHALL BE DEPOSITED, SPREAD, CONSOLIDATED AND SHAPED BY MECHANICAL OR HAND METHODS THAT WILL PROVIDE UNIFORM 9" DEPTH AND DENSITY AND PROVIDE UNIFORM SURFACE APPEARANCE.

PAYMENT FOR THE BRIDGE WING ARMORING WILL BE BID PER SQUARE YARD. COST WILL INCLUDE ENGINEERING FABRIC, EROSION STONE, EXCAVATION, SHAPING, AND COMPACTION TO DIMENSIONS SHOWN IN THESE PLANS. BID ITEM SHALL BE "BRIDGE WING ARMORING - EROSION STONE".

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

BRIDGE WING ARMORING

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

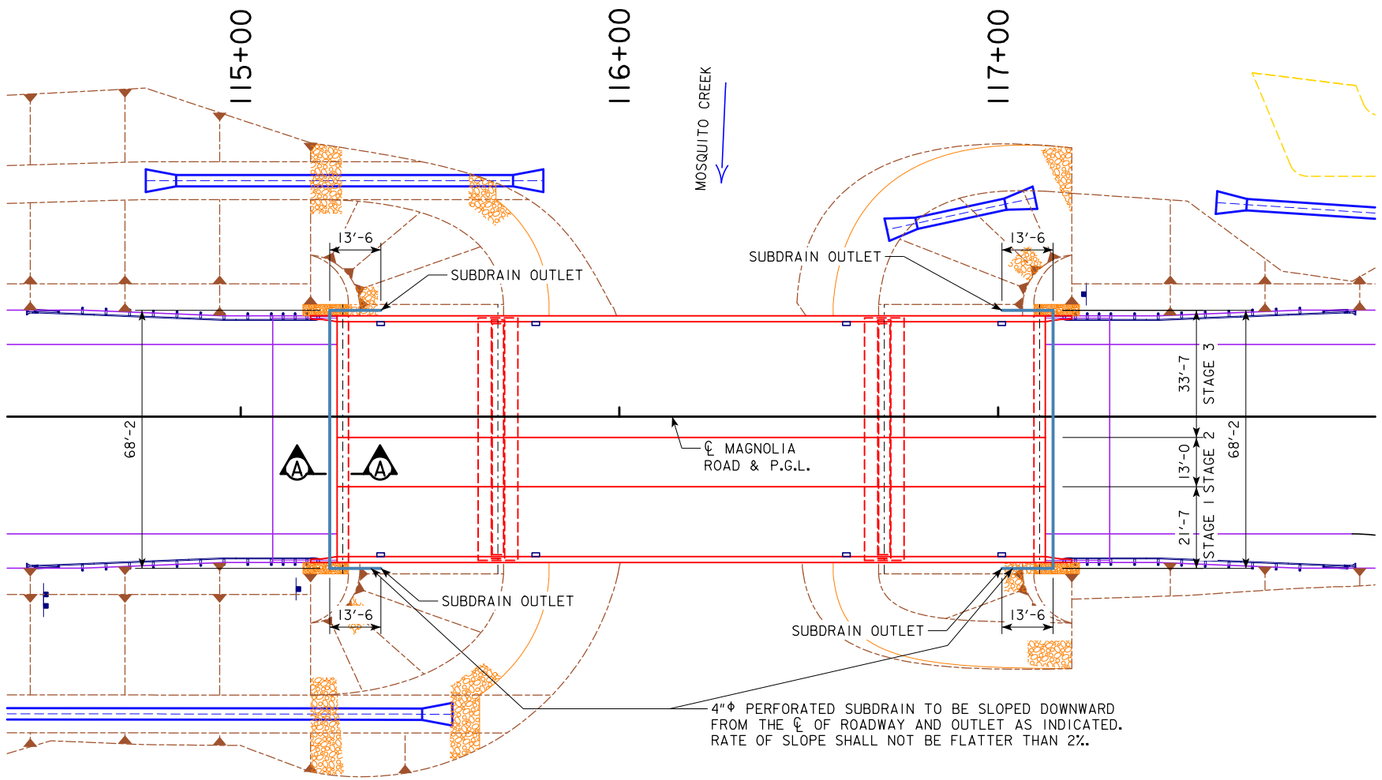
DESIGN SHEET NO. 44 OF 45 FILE NO. _____ DESIGN NO. _____

REVISED 06-14 - ADDED 2 FEET OF LENGTH OF EROSION STONE IN FRONT OF THE BRIDGE WING.
ENGLISHFORESLOPEPROTECTIONBRIDGES.DGN 1005A - THIS SHEET ISSUED 06-02.

BENCH MARK NO. CP6: MEC CAP 5/8 REBAR N OF MAGNOLIA RD W OF MOSQUITO CREEK,
ELEV. 1059.27, N. 7010329.98, E. 16514328.45

SUBDRAIN STAGING NOTE:

INSTALL SUBDRAIN IN SEGMENTS TO ALIGN WITH THE STAGED CONSTRUCTION SEQUENCE OF THE BRIDGE ABUTMENT. AT THE COMPLETION OF EACH STAGE (STAGE 1 OR STAGE 2), SECURELY CAP THE END OF THE SUBDRAIN. WHEN INSTALLING THE SUBDRAIN FOR THE SUBSEQUENT STAGE, UNCAP THE SUBDRAIN AND COUPLE IT TO THE NEWLY INSTALLED SEGMENT TO MAINTAIN CONTINUITY OF THE PERFORATED SUBDRAIN. ESTIMATED LENGTHS OF SUBDRAIN REQUIRED BEHIND THE ABUTMENT FOR EACH STAGE ARE SHOWN IN THE SITUATION PLAN DETAIL ON THIS SHEET, BUT MAY BE ADJUSTED AS NEEDED BASED ON AVAILABLE CLEARANCES DURING CONSTRUCTION.



SITUATION PLAN

SHOWING SUBDRAIN LOCATIONS

N

SUBDRAIN NOTES:

THIS PLAN SHEET SHOWS DETAILS FOR PLACING ALL SUBDRAINS AND SUBDRAIN OUTLETS REQUIRED FOR THIS STRUCTURE.

THE SUBDRAINS SHALL BE 4" IN DIAMETER AND SHALL BE IN ACCORDANCE WITH ARTICLE 4143.01, B, OF THE STANDARD SPECIFICATIONS.

THE SUBDRAIN OUTLET SHALL CONSIST OF A LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD AS DETAILED ON THIS SHEET. THE LENGTH OF THE OUTLET PIPE SHALL BE DETERMINED BY THE REVETMENT AND ITS PLACEMENT LOCATION. THE CONTRACTOR IS TO ENSURE THE OUTLET PIPE IS ADEQUATELY STRONG AND WILL NOT BE DAMAGED WHEN REVETMENT IS PLACED. A CHECK WILL BE MADE AT THE SUBDRAIN OUTLET TO ENSURE THAT THE SUBDRAIN IS NOT DAMAGED AND IS DRAINING PROPERLY DURING THE BACKFILL FLOODING PROCESS. IF A METAL OUTLET PIPE IS USED, IT SHALL BE 6 INCHES IN DIAMETER AND COUPLED TO THE 4 INCH DIAMETER SUBDRAIN IN ONE OF THE TWO FOLLOWING WAYS.

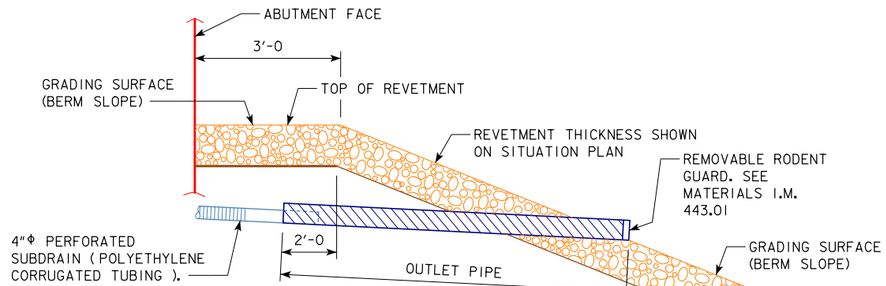
1. USE AN INSIDE FIT REDUCER COUPLER (COUPLER MUST BE INSERTED A MINIMUM OF 1'-0 INTO THE METAL OUTLET PIPE).
2. INSERT 1'-0 OF THE 4"Φ SUBDRAIN INTO THE 6"Φ METAL OUTLET PIPE, THEN FULLY SEAL THE ENTIRE OPENING WITH GROUT.

THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), GRANULAR BACKFILL, POROUS BACKFILL, AND SUBDRAIN OUTLET IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)". NO EXTRA PAYMENT WILL BE MADE.

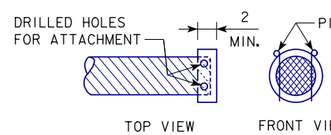
THE DIMENSIONS SHOWN FOR THE PROPOSED SUBDRAINS ARE BASED ON THE PROPOSED GRADING LAYOUT OF BRIDGE BERMS. THE DIMENSIONS SHOWN ARE FOR ESTIMATING ONLY. REQUIRED LENGTHS AND GENERAL LOCATIONS OF SUBDRAINS ARE SUBJECT TO CHANGE DUE TO FIELD ADJUSTMENTS OF THE GRADING LAYOUT.

SUBDRAIN OUTLET ELEVATIONS

LOCATION	ELEVATION
WEST ABUTMENT	1053.0
EAST ABUTMENT	1053.0



TYPICAL SECTION OF SUBDRAIN OUTLET



REMOVABLE RODENT GUARD DETAILS

REVETMENT STONE (EMBEDDED) OUTLET DETAILS

NOTE:
SECTION A-A IS SHOWN ON ABUTMENT BACKFILL DETAILS SHEET.

DESIGN FOR 0° SKEW

184'-0 x 62'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

41'-0 END SPANS 102'-0 INTERIOR SPAN

SUBDRAIN DETAILS

STA. 116+19.00 (MAGNOLIA RD.) JULY, 2026

POTTAWATTAMIE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 45 OF 45 FILE NO. _____ DESIGN NO. _____

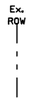
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8/18/2026 12:52:51 PM jlk P:\2022000366\06-Drawings\Structural\BRG_2022000366.dgn 2022000366S045 11x17_pdf.pltcfg

LINE STYLE LEGEND OF CROSS SECTION SHEETS (ROAD)

- Existing Ground Line
- Proposed Template
- Proposed Topsoil Placement
- Additional Topsoil Removal
- Subrade Treatment
- Granular Shoulder
- Pavement
- Existing Pipe\RCB
- Proposed Pipe\RCB
- Proposed Dike
- All Elements Associated with Proposed Entrances

SYMBOL LEGEND OF CROSS SECTION SHEETS



Existing Right-of-Way Limit



Temporary Easement Limit



Permanent Easement Limit

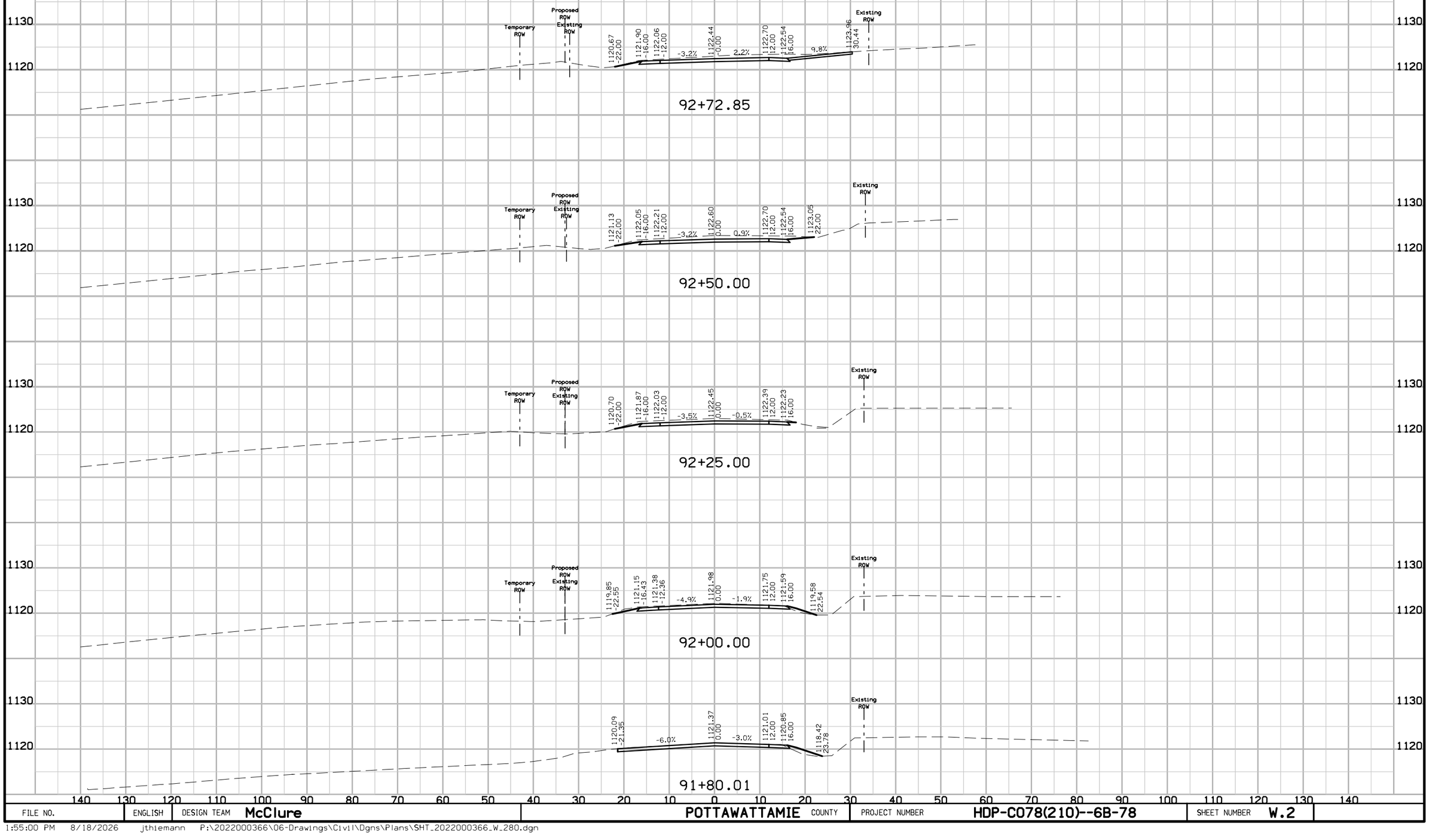
CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

FILE NO.	ENGLISH	DESIGN TEAM **McClure**	**POTTAWATTAMIE** COUNTY	PROJECT NUMBER **HDP-C078(210)--6B-78**	SHEET NUMBER **W.1**

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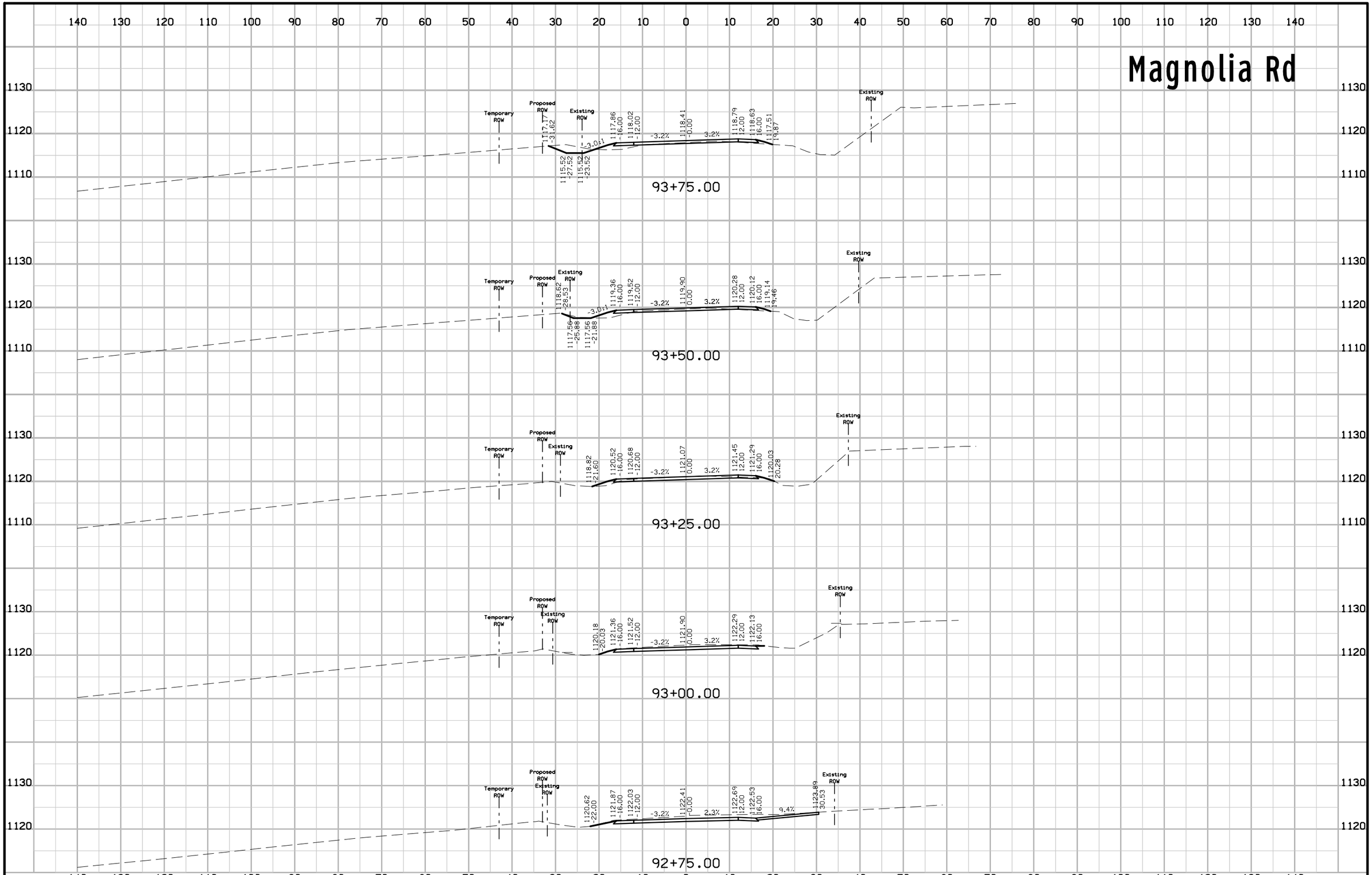
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.2

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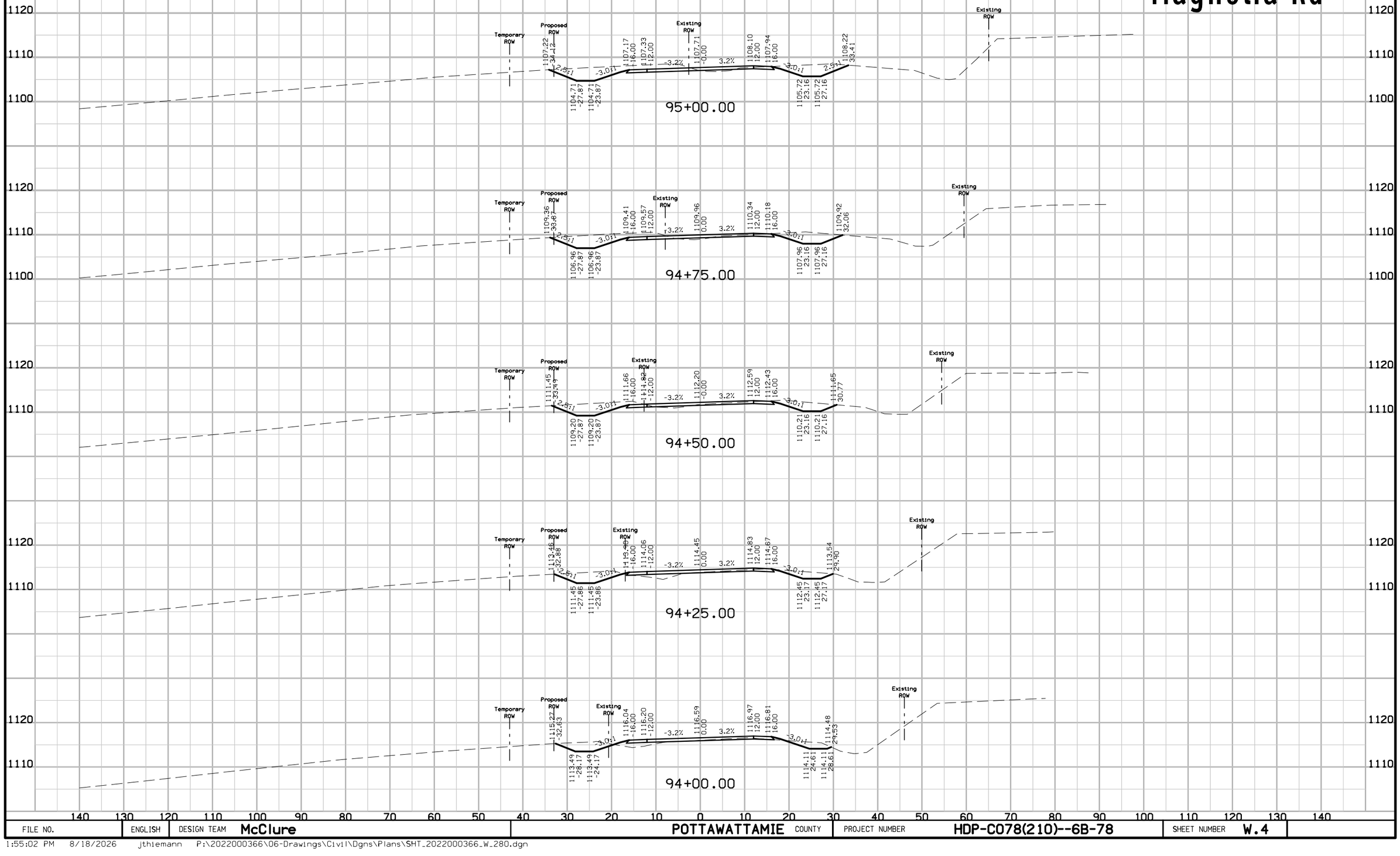
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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.3

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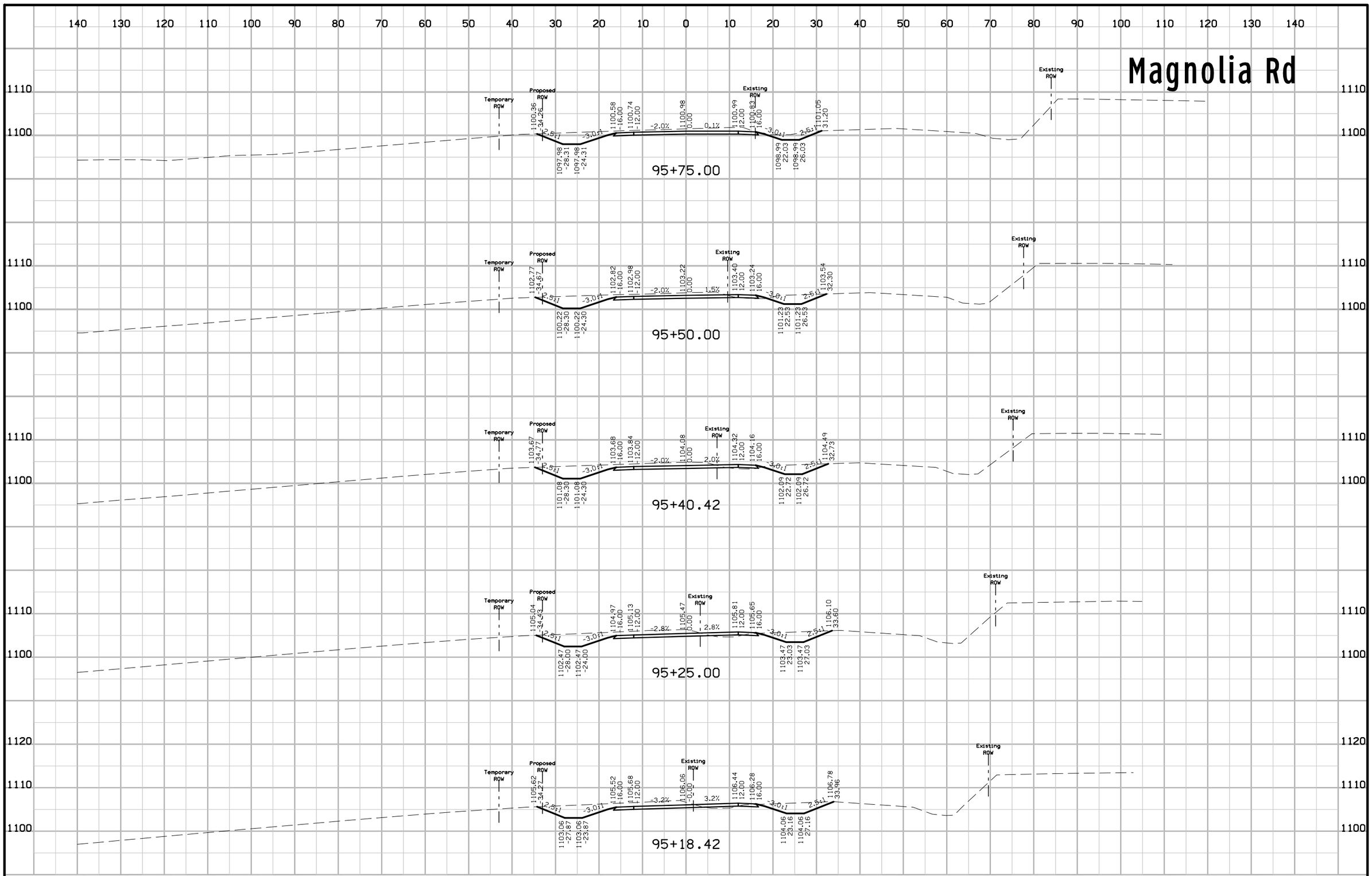
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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.4

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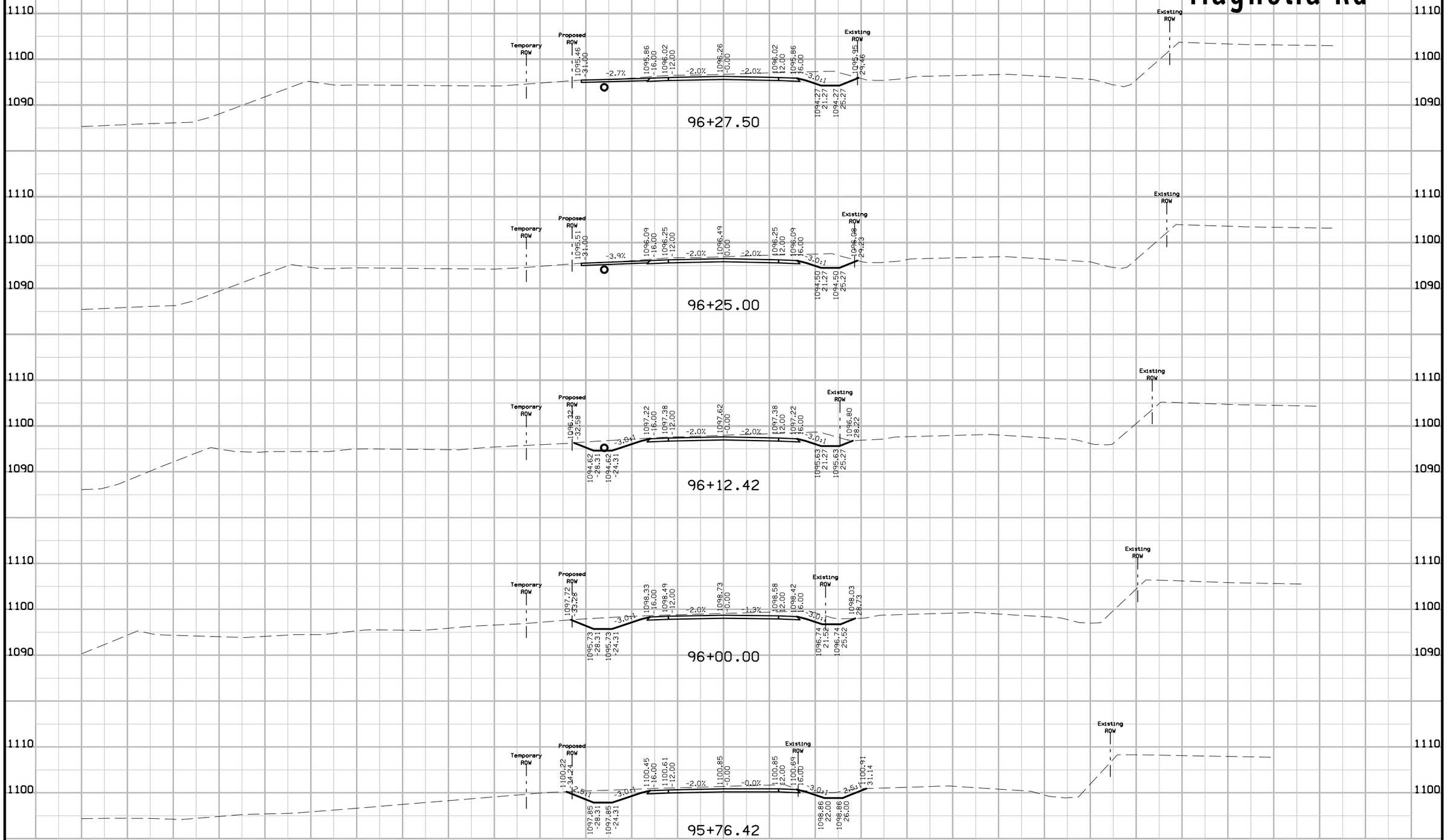
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.5

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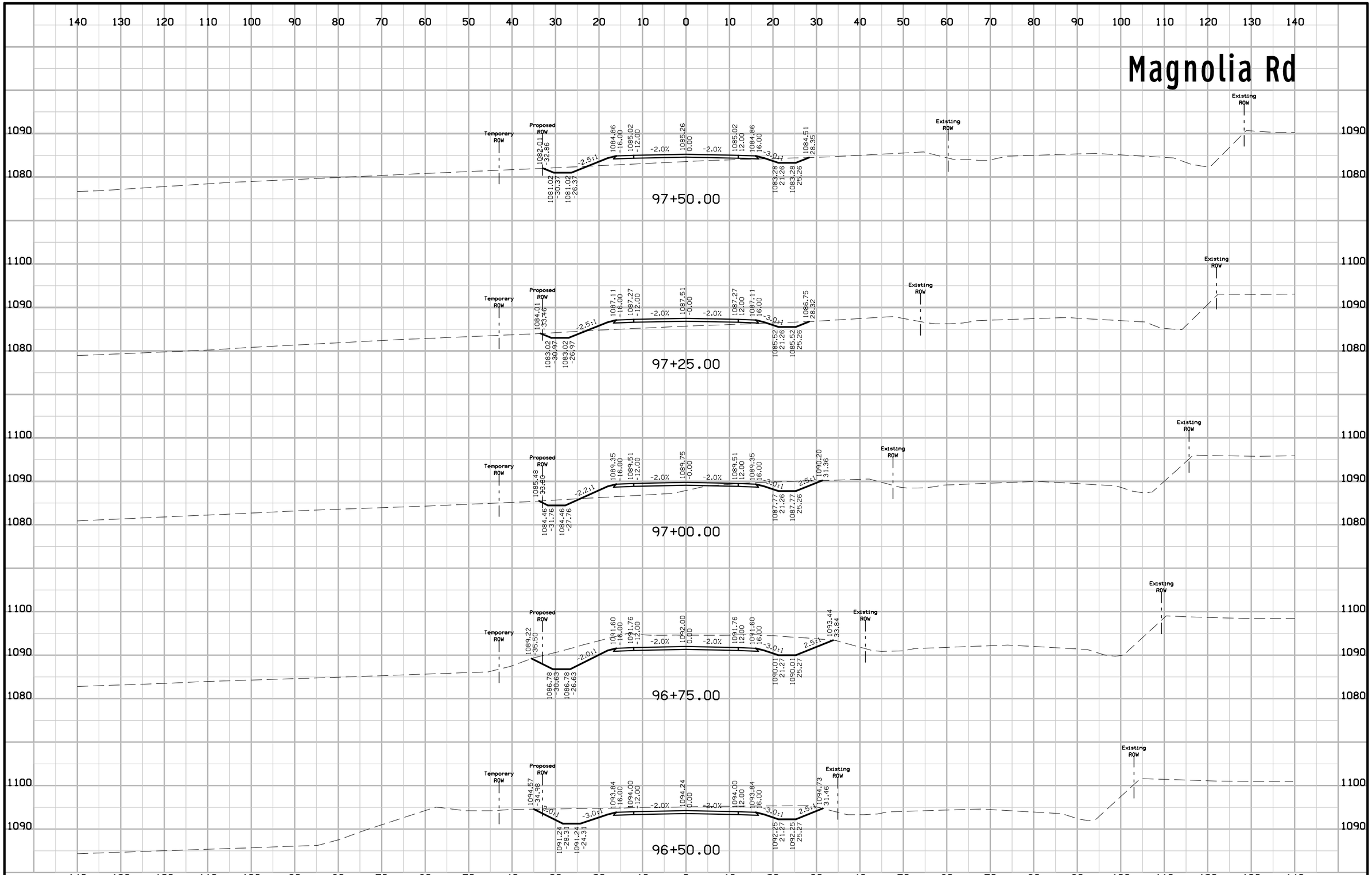
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FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.6

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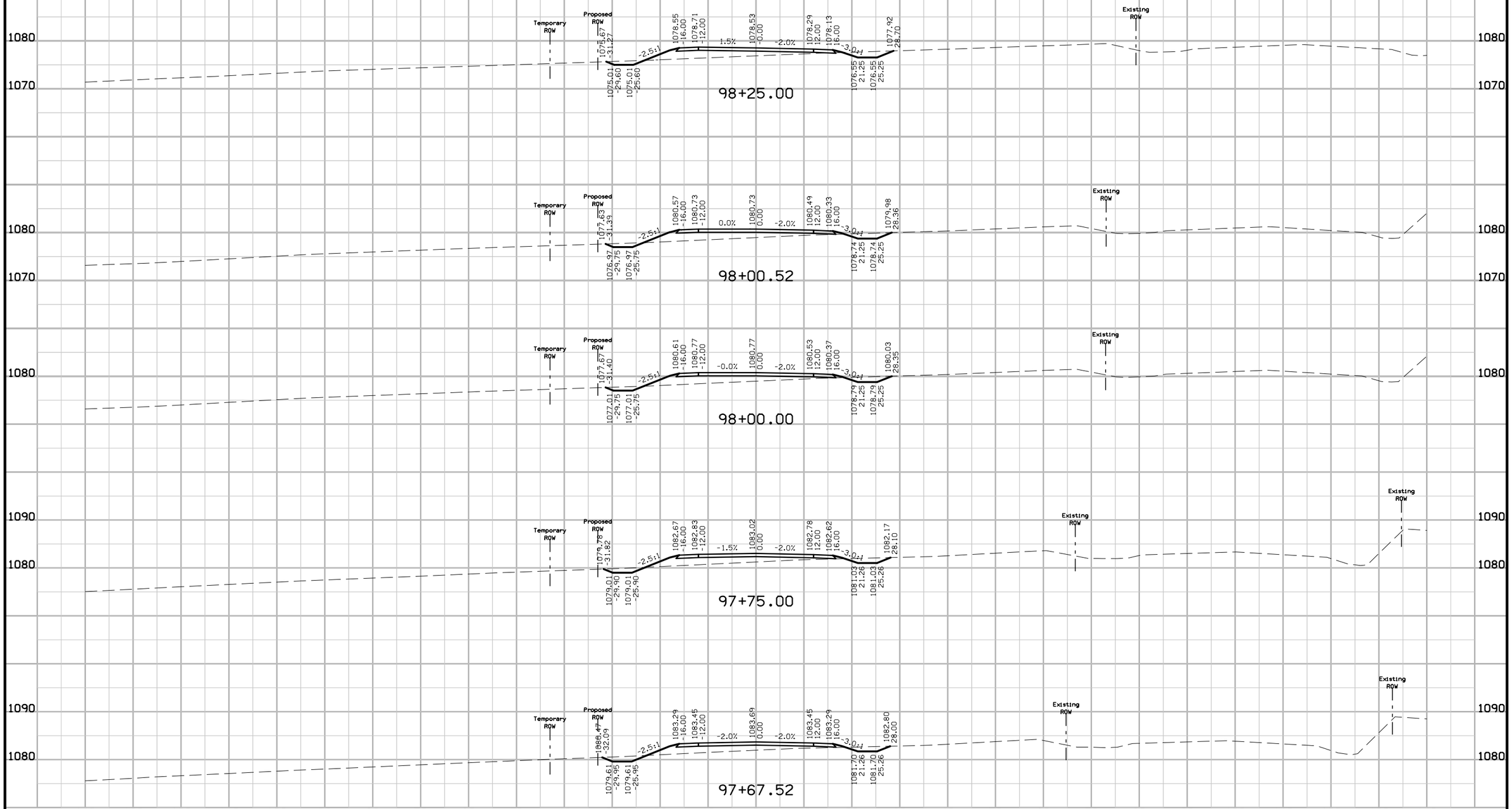
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FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.7

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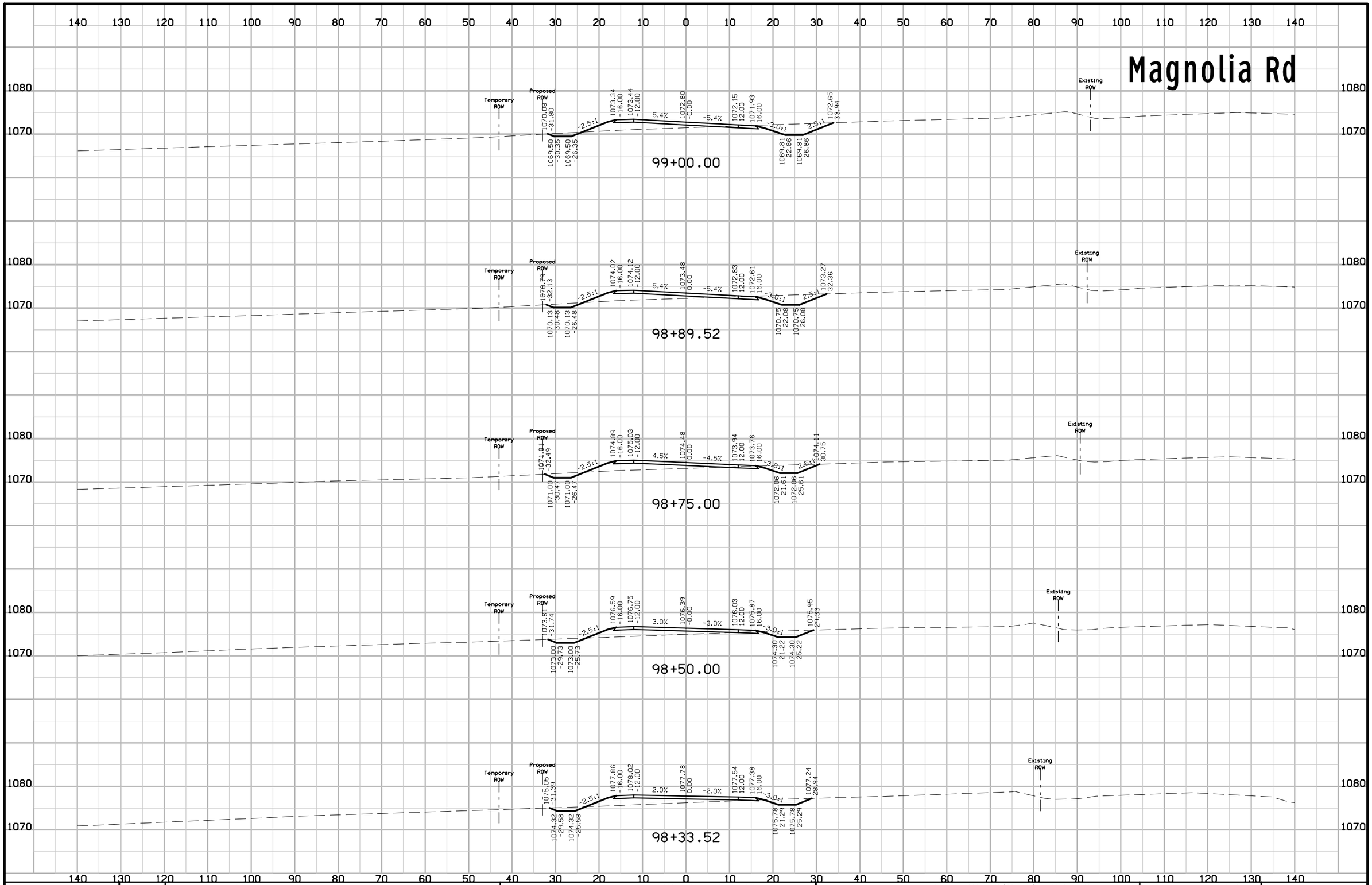
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FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.8

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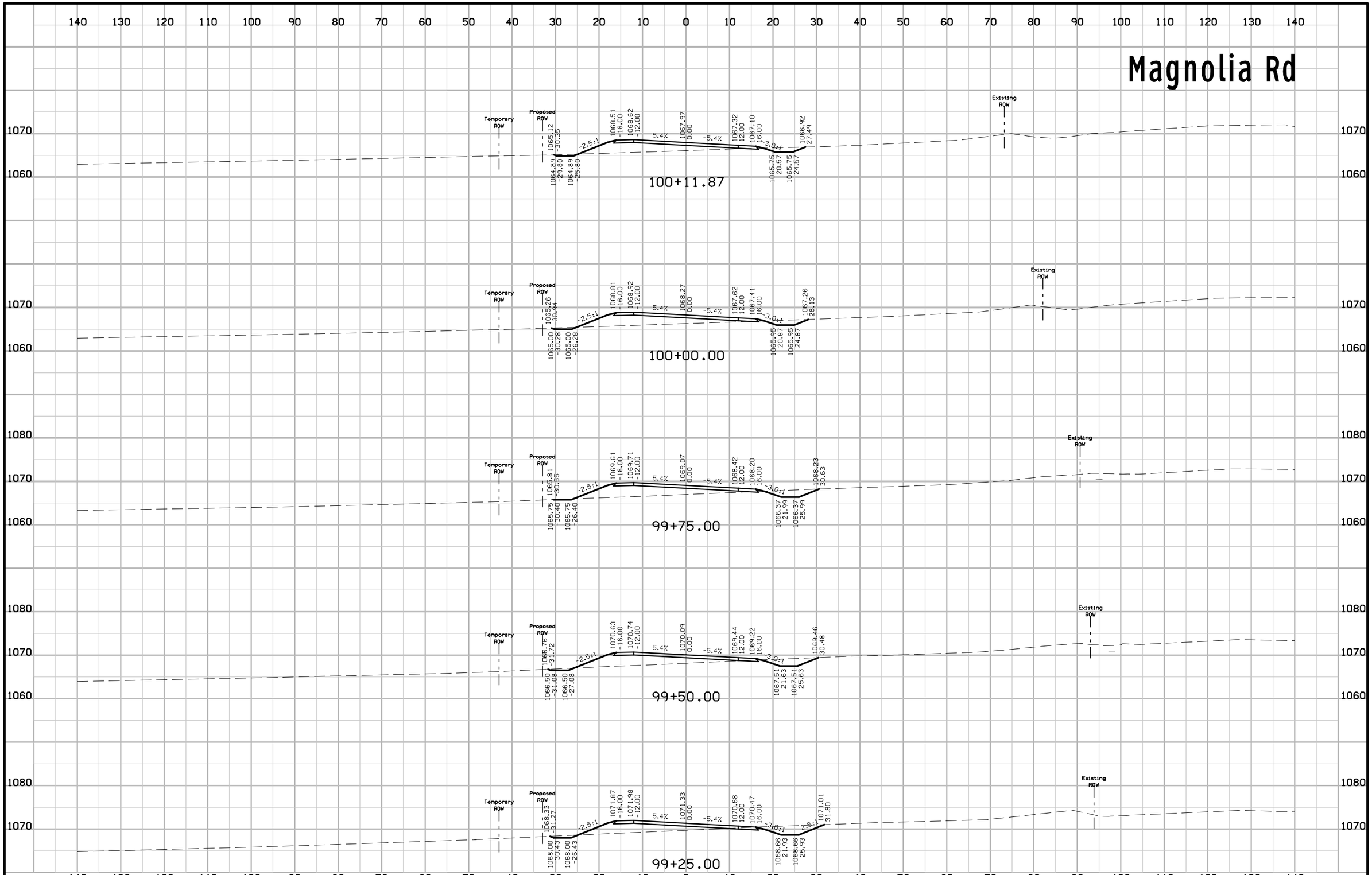
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Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.10

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Magnolia Rd

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1070

1063.92 -104.03
1065.20 -63.33
1065.46 -51.06
1065.65 -42.62
-1.2%
1066.02 -12.00
-2.0%
1066.26 -0.00
2.0%
1066.87 30.53
1067.06 41.02
1067.01 46.97
1066.97 53.59

101+50.00

1065.90 -35.95
-1.7%
1066.17 -19.50
-2.3%
1066.34 -12.00
-1.2%
1066.48 0.00
1.2%
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1067.20 39.03
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101+00.00

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1066.56 -19.54
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-1.1%
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1065.92 27.38

100+75.00

1070
1060

Temporary ROW
Proposed ROW
Existing ROW

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100+50.00

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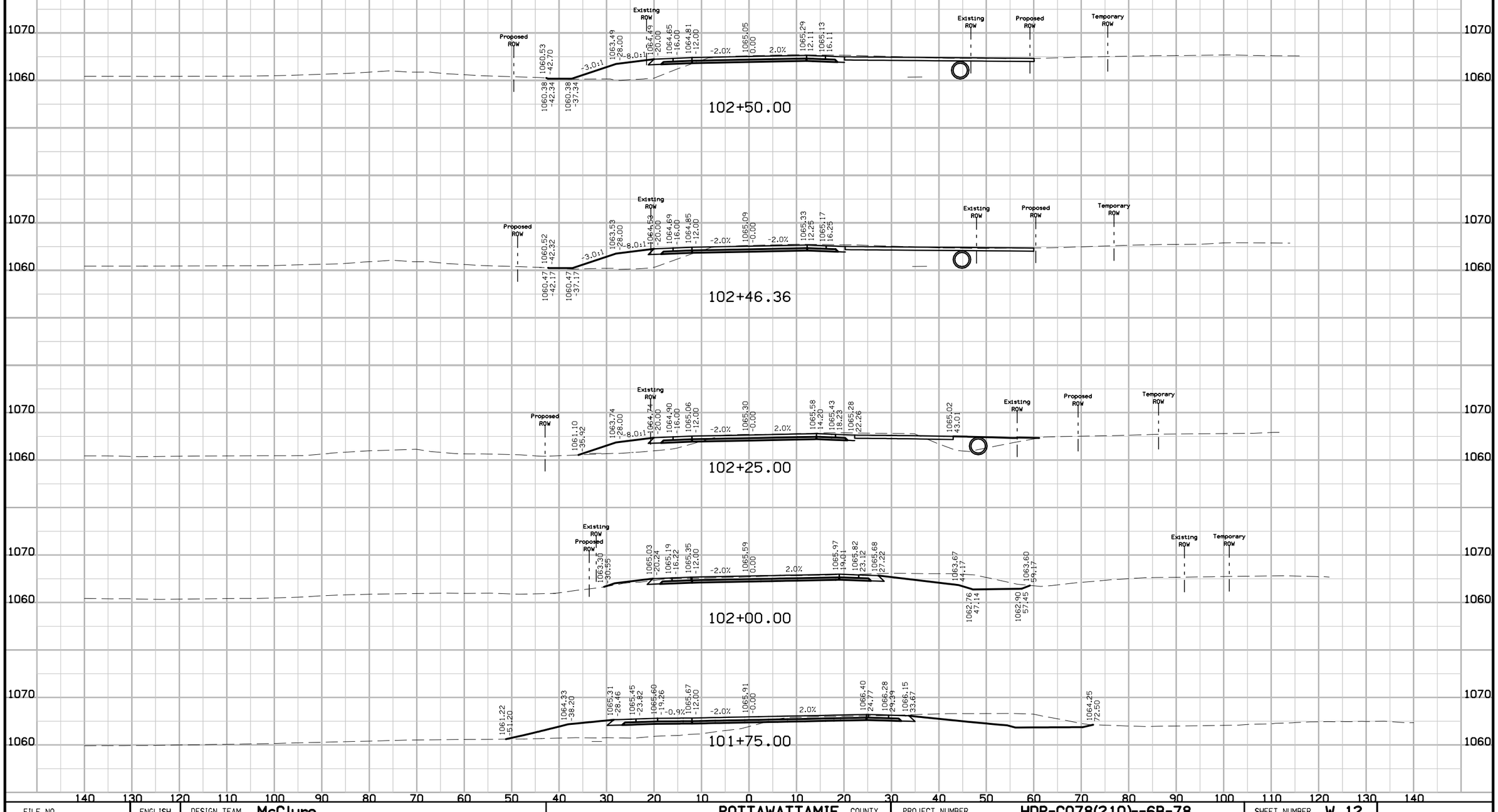
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FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.11

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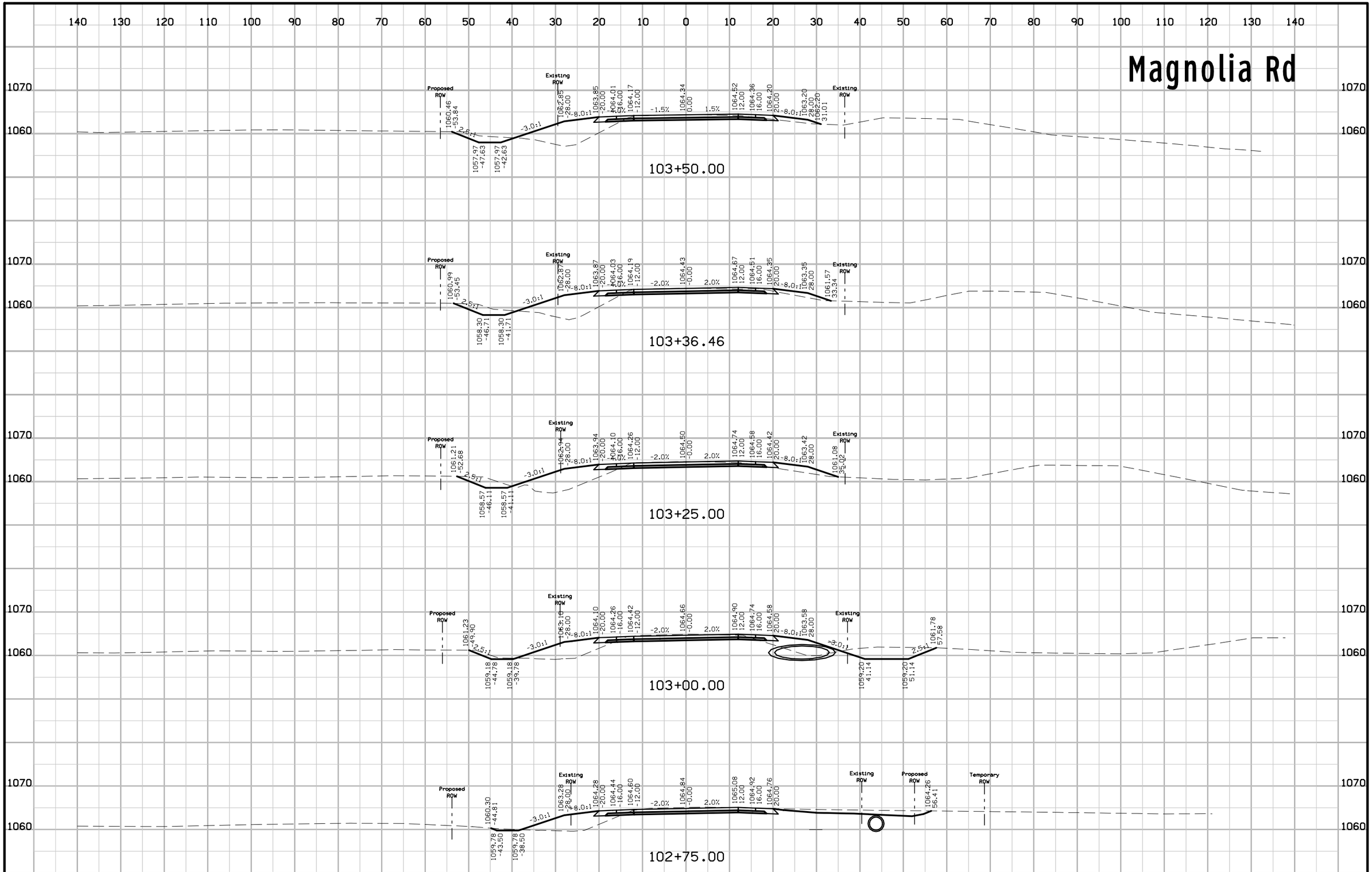
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.12

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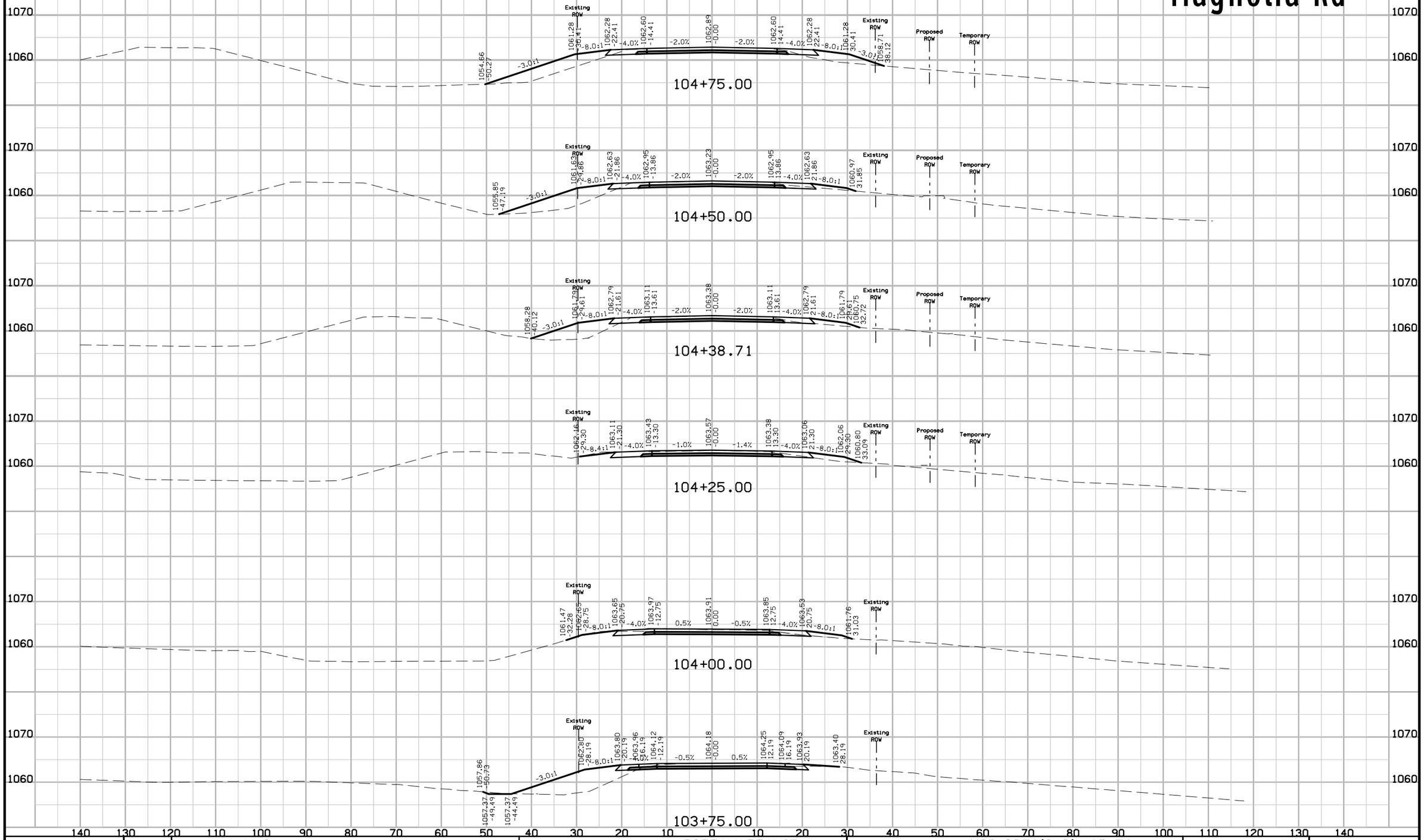
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.13

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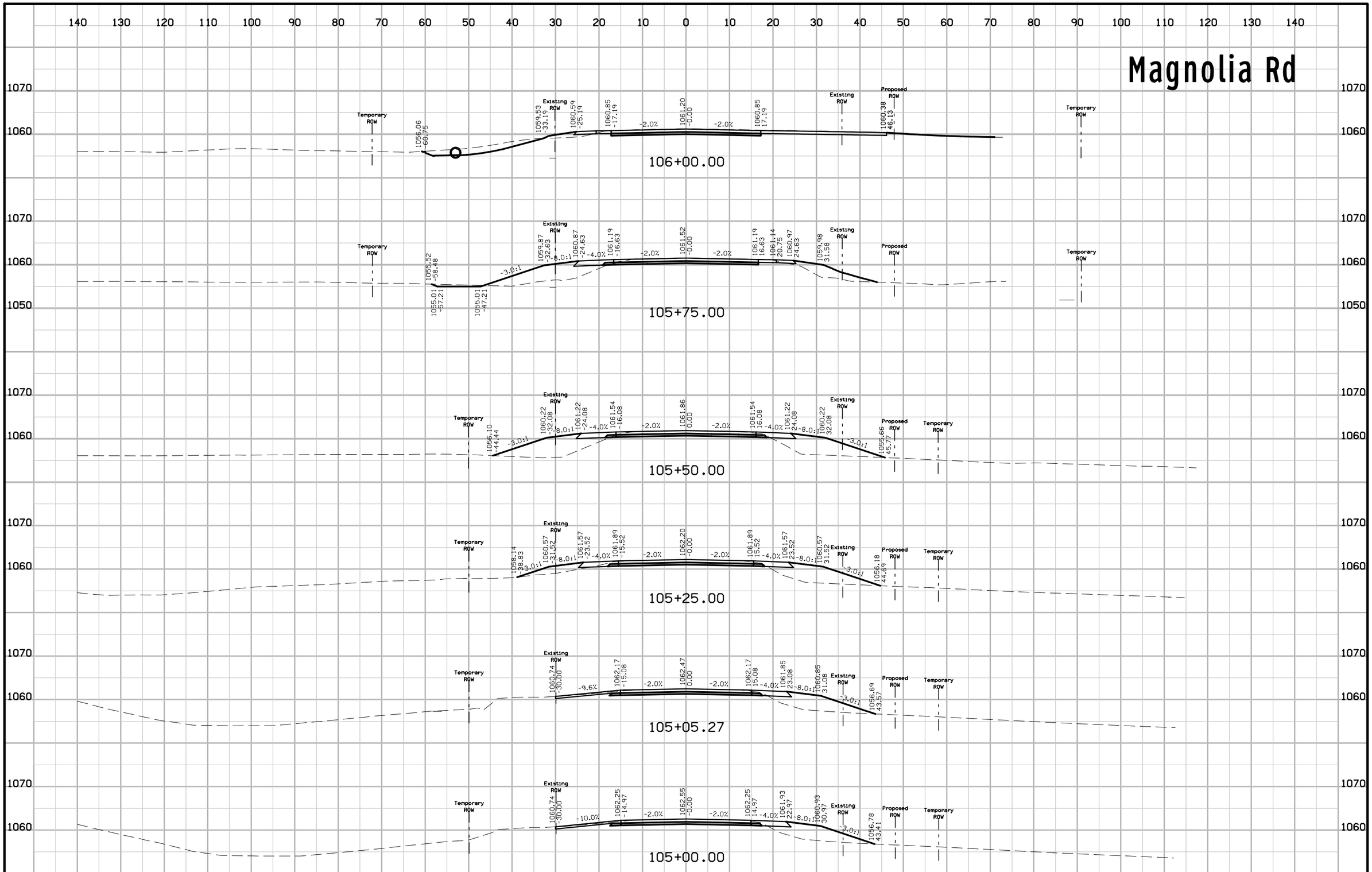
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.14

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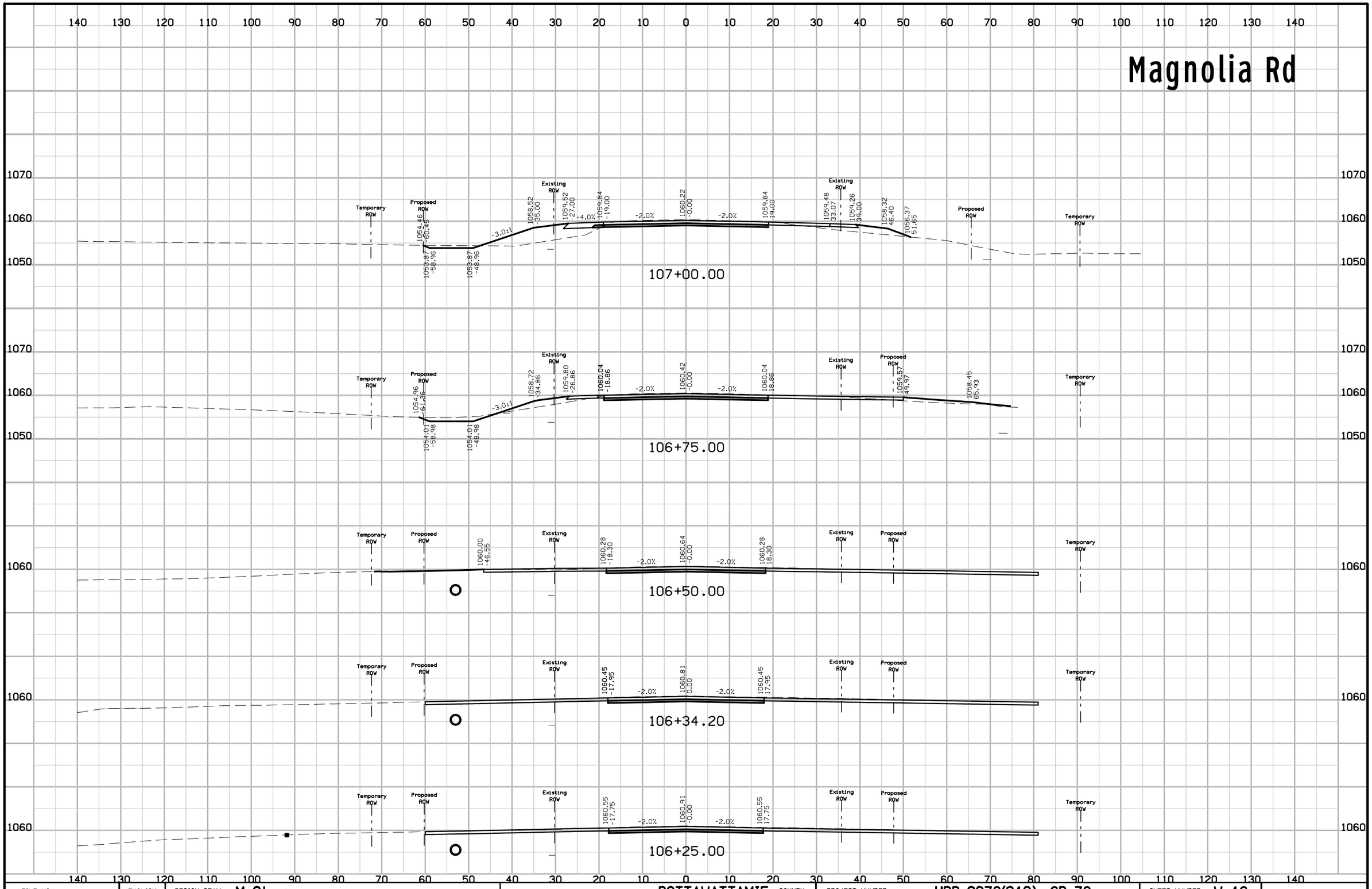
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.15

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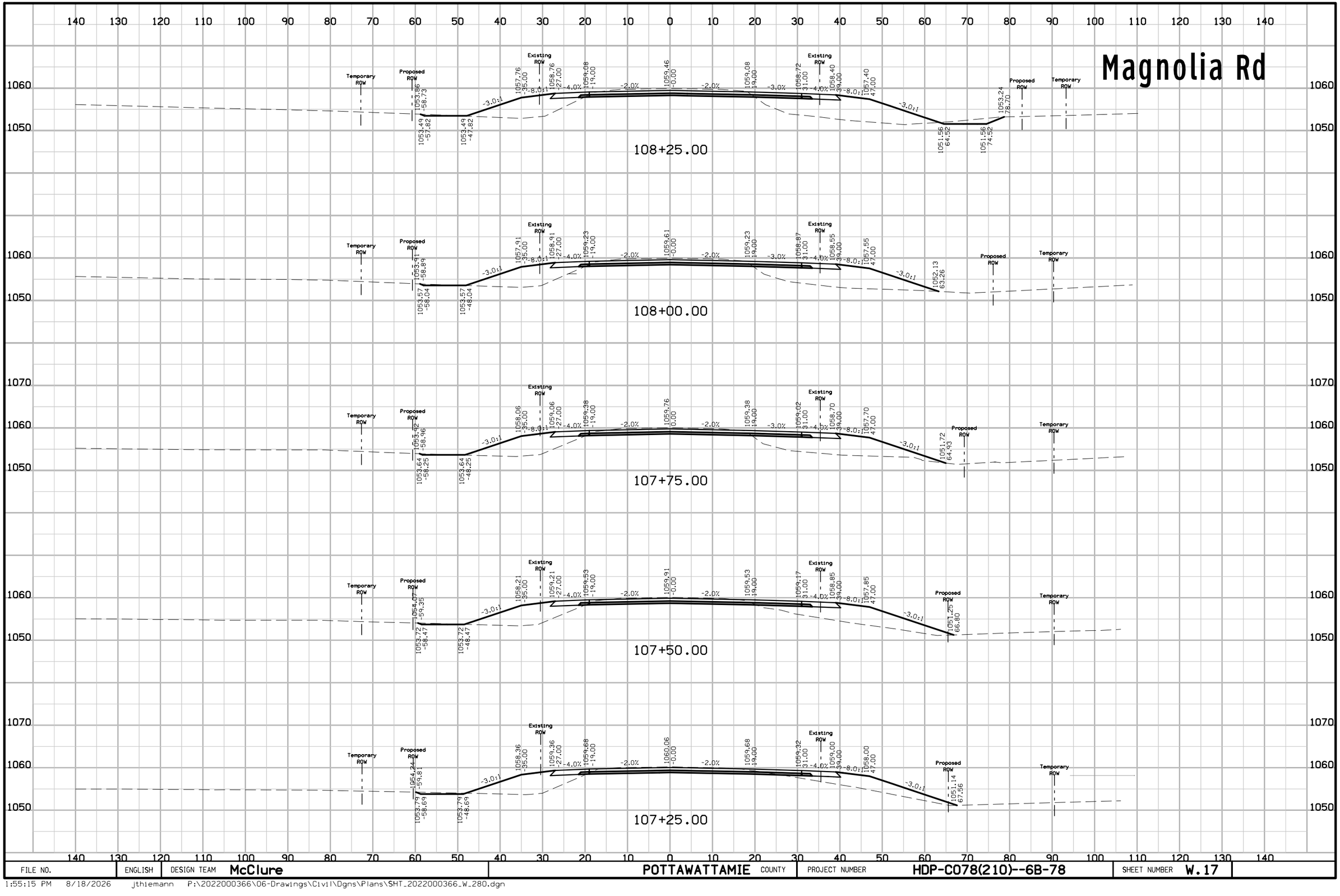
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.16

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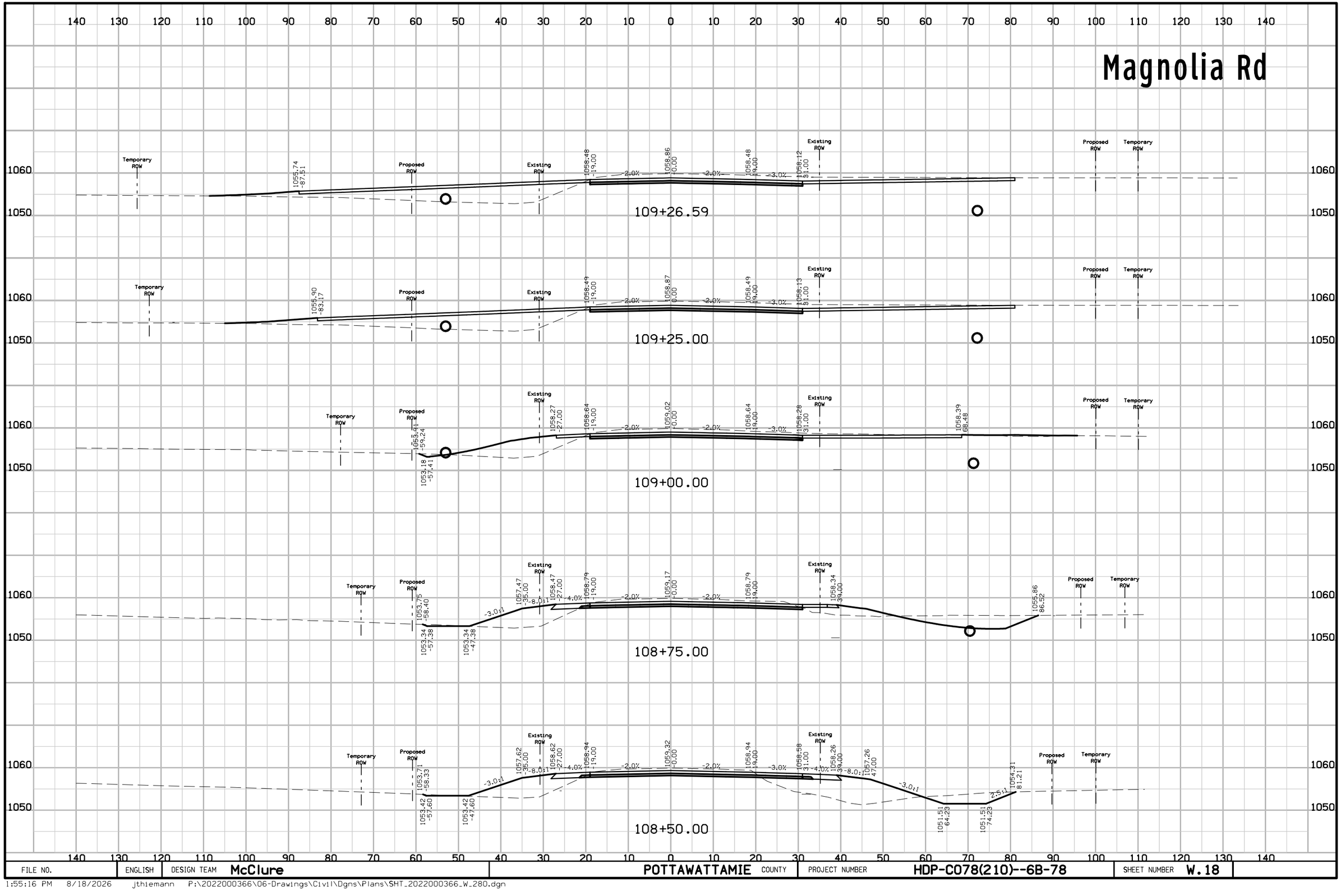
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.17

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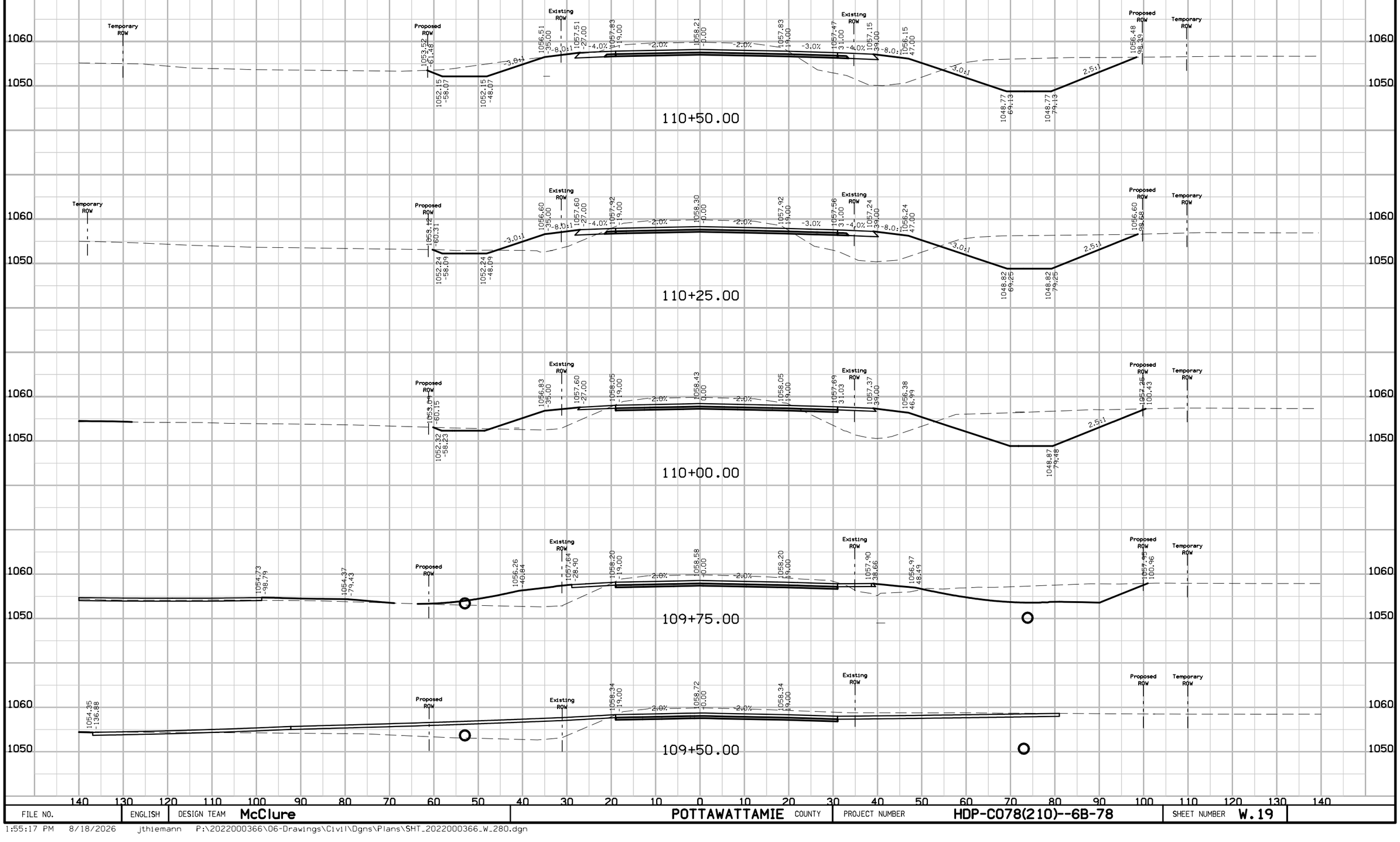
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.18

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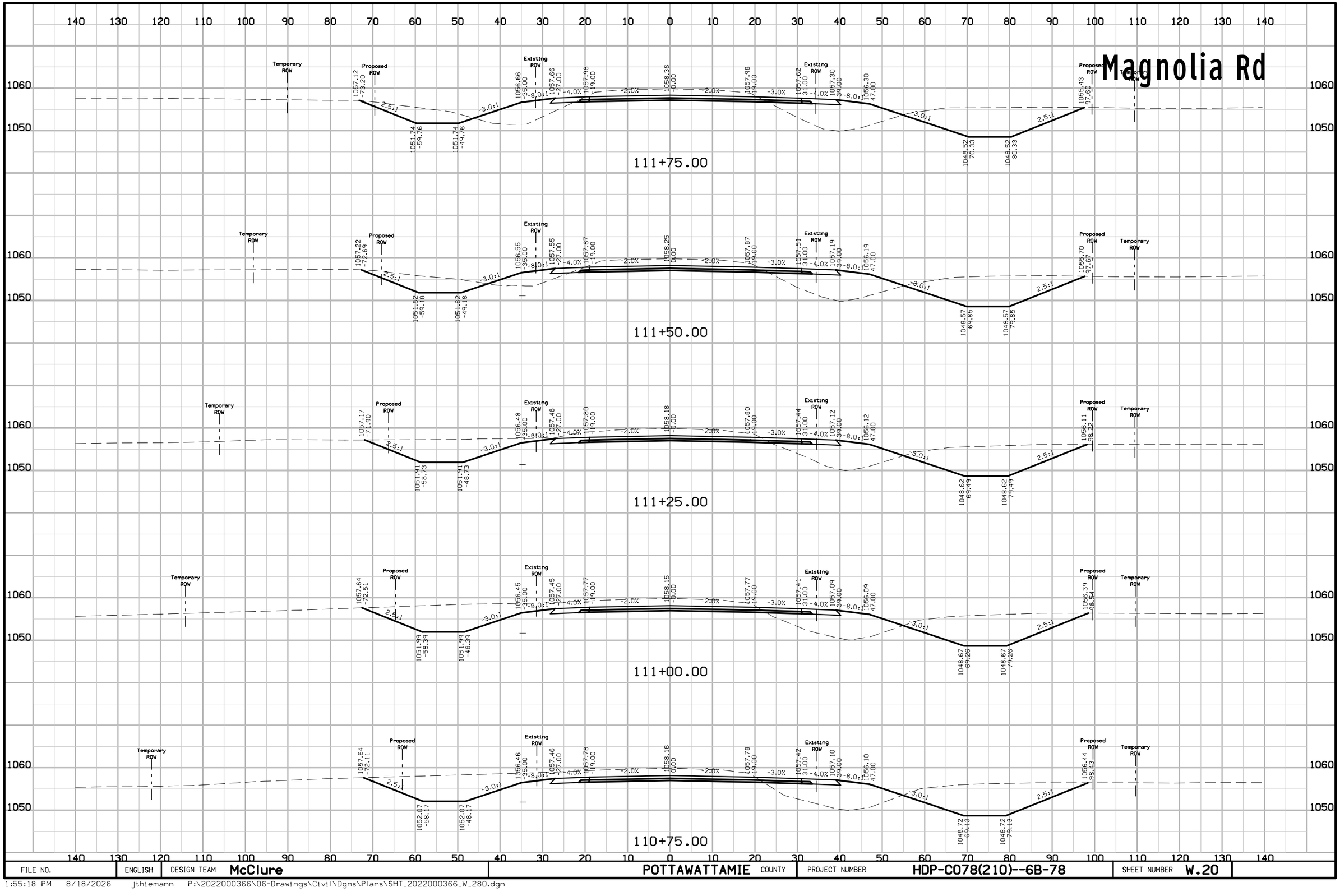
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.19

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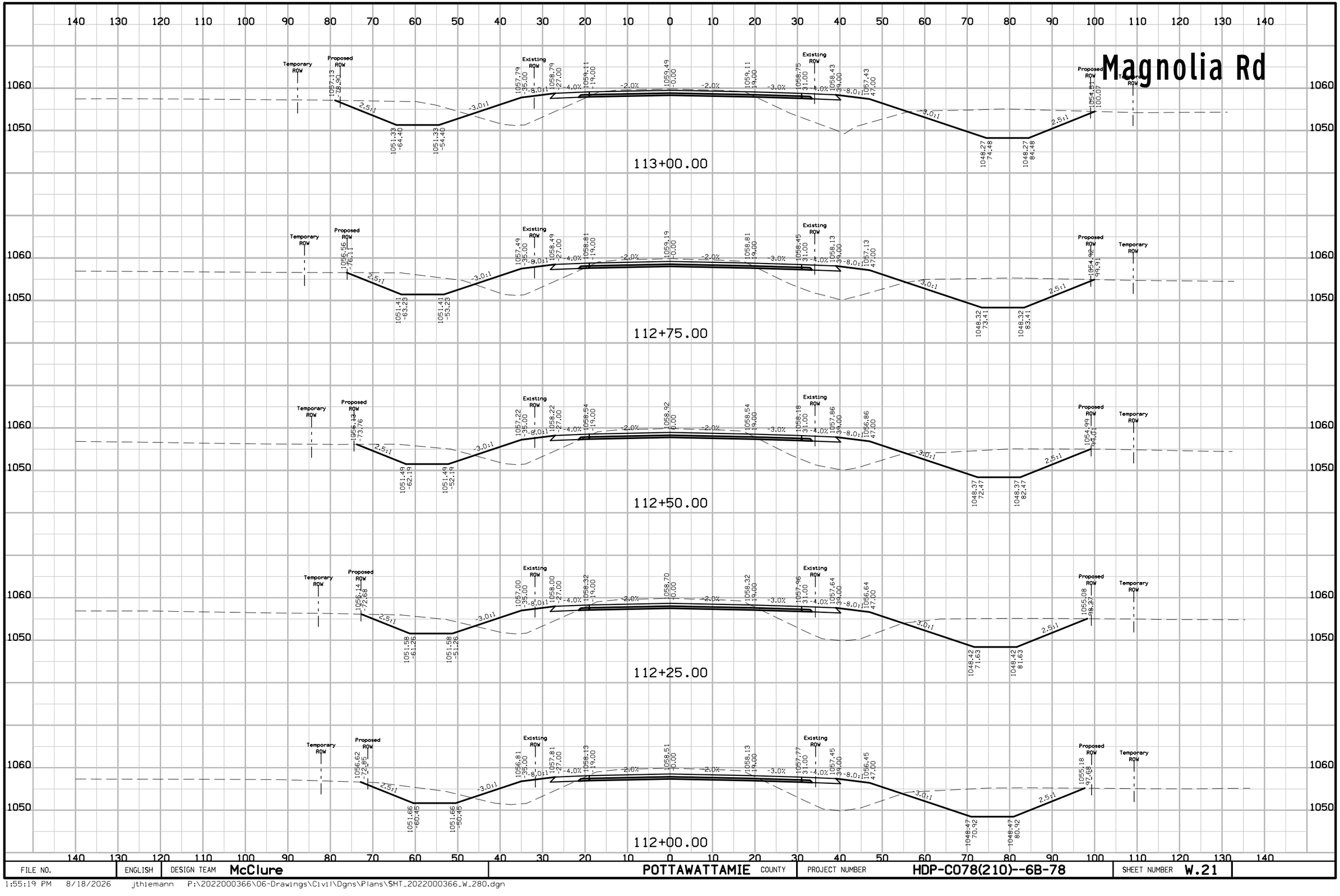
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.20

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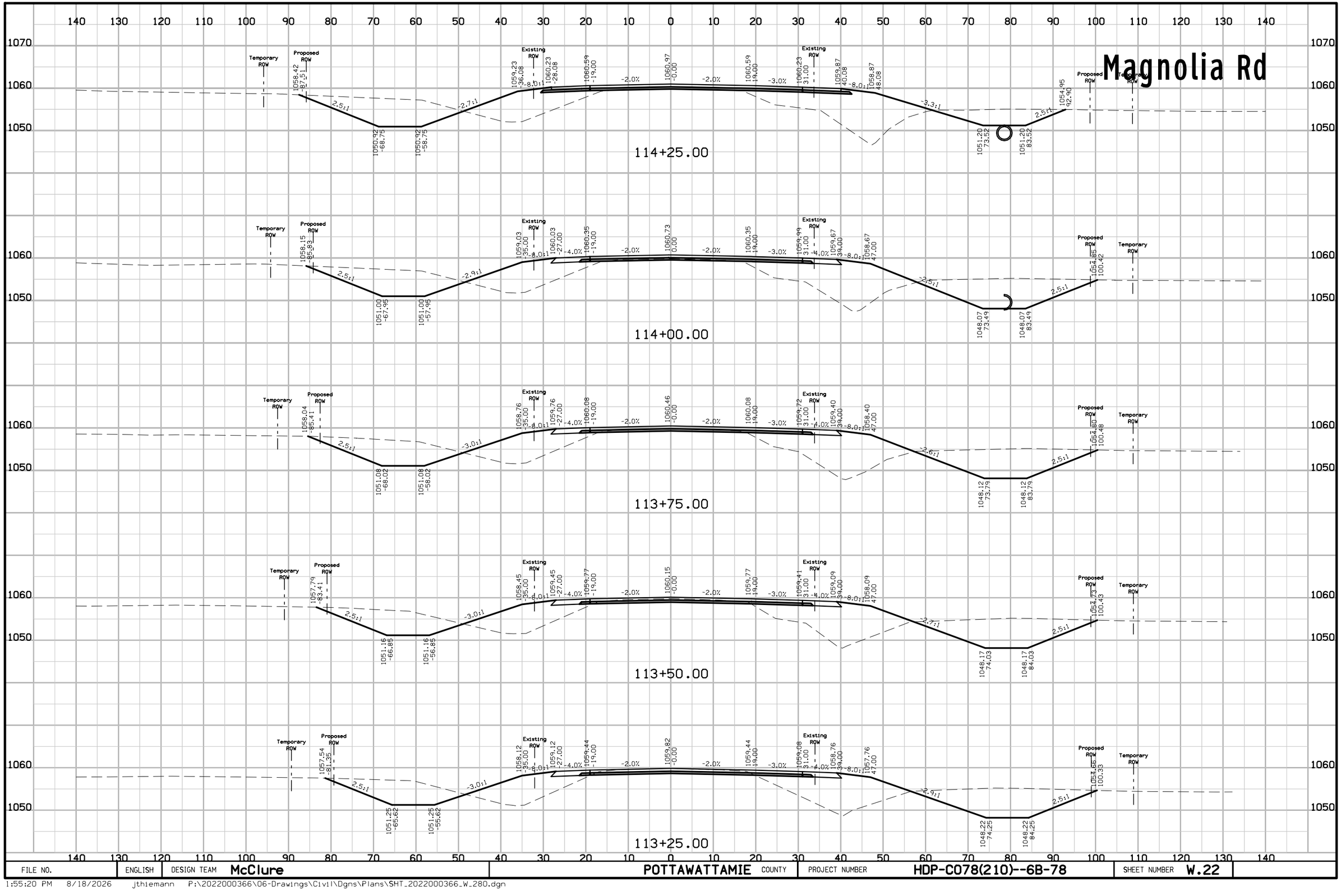
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.21

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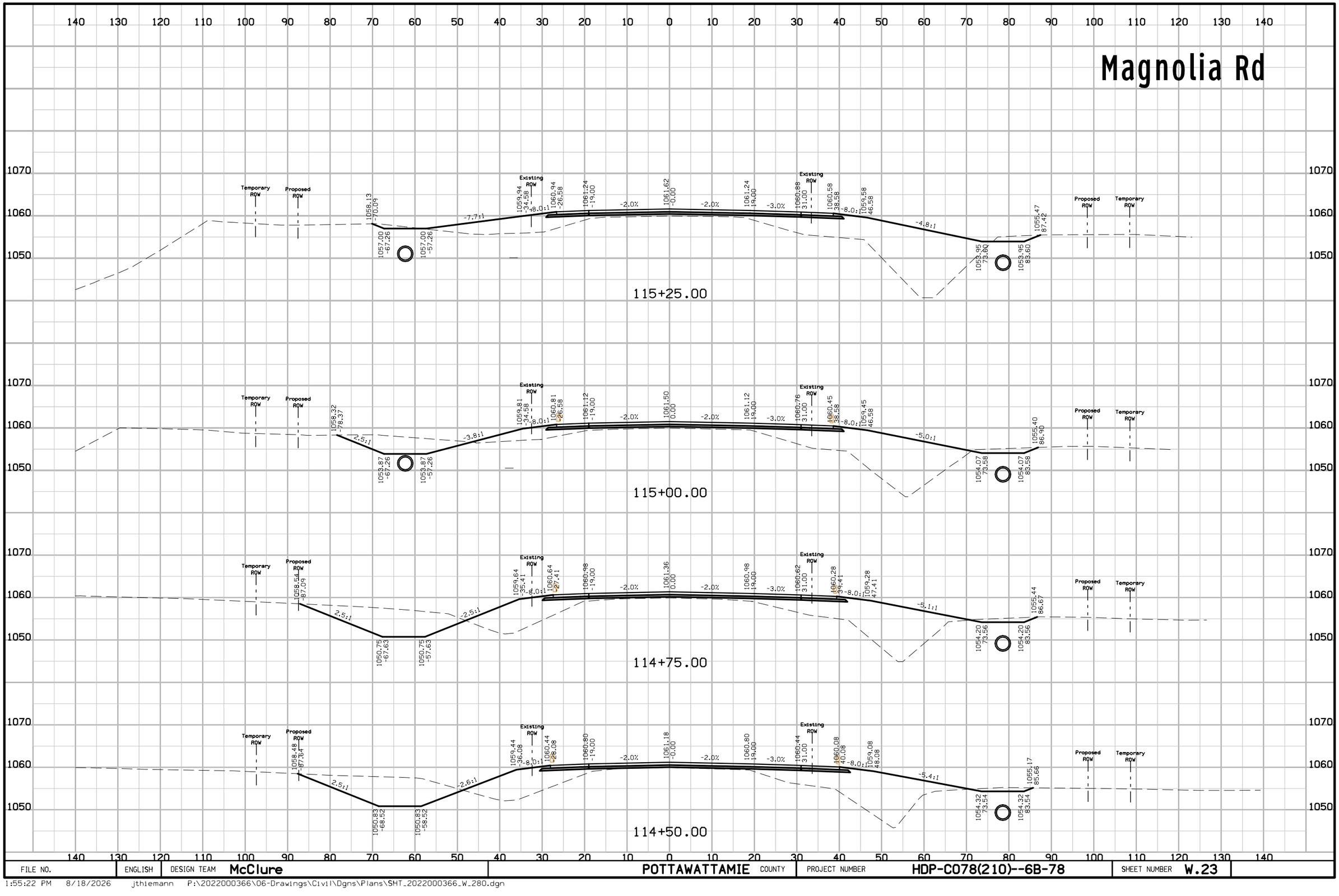
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.22

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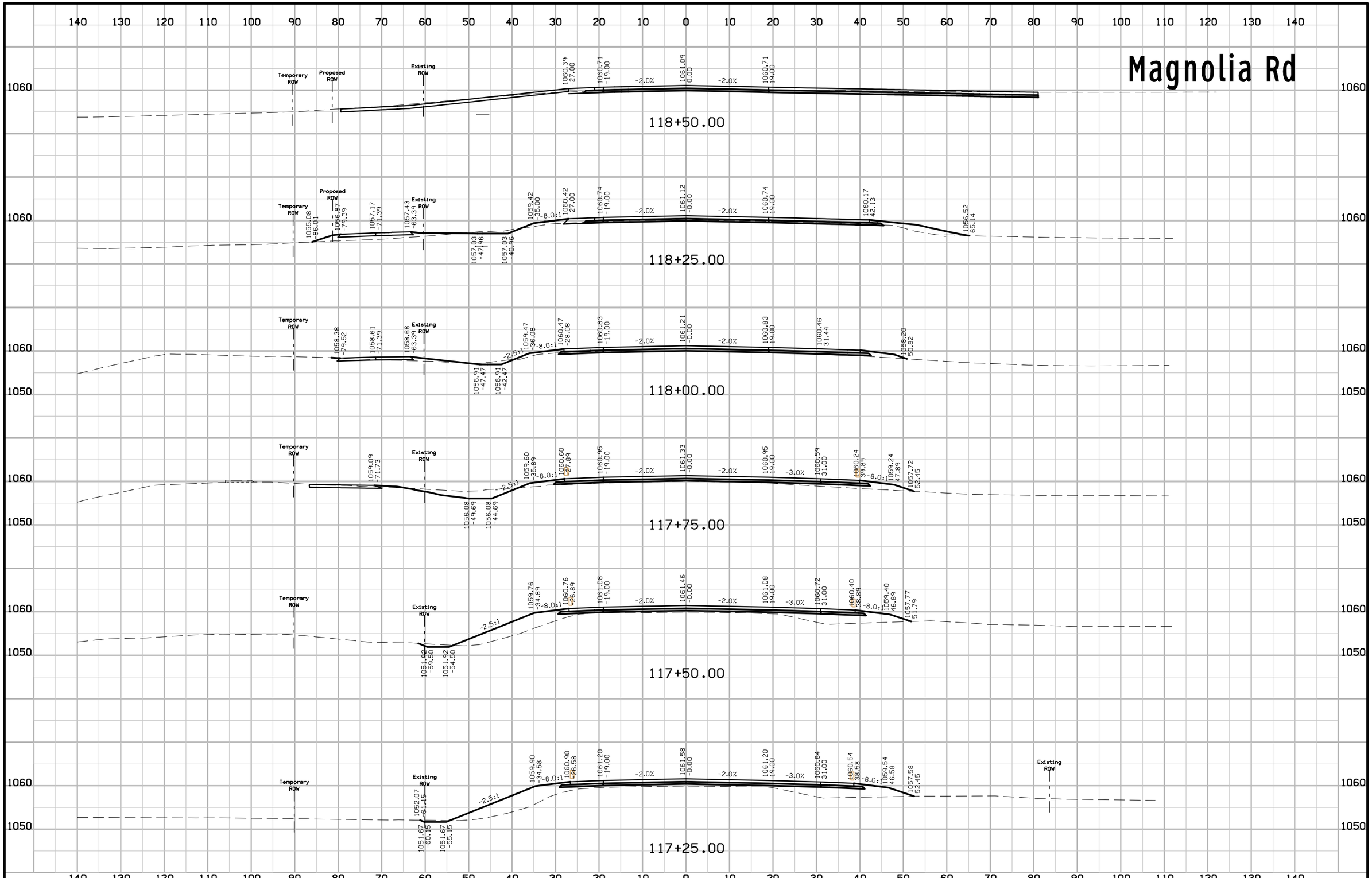
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.23

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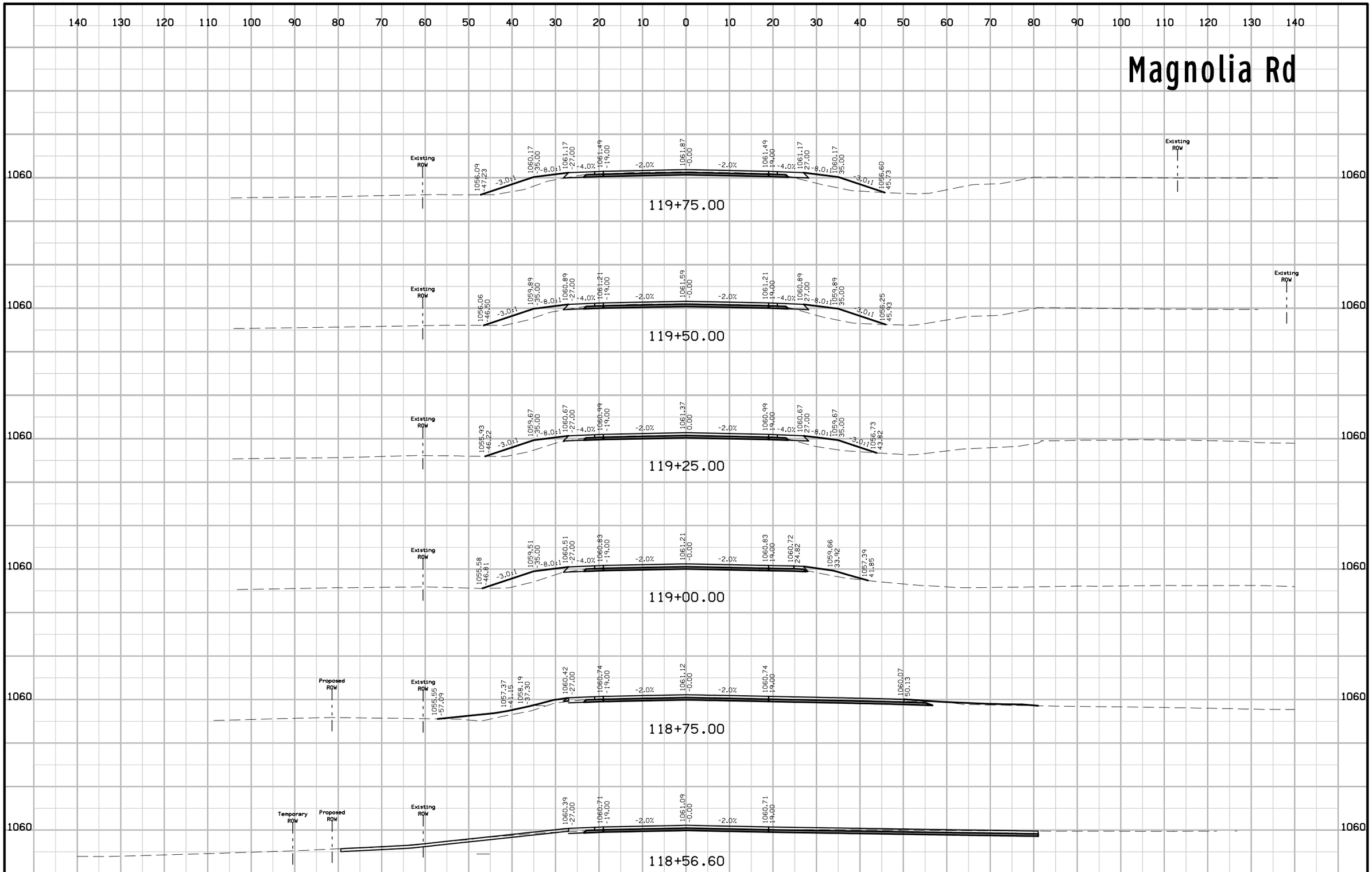
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM	McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER	HDP-C078(210)--6B-78	SHEET NUMBER	W.24

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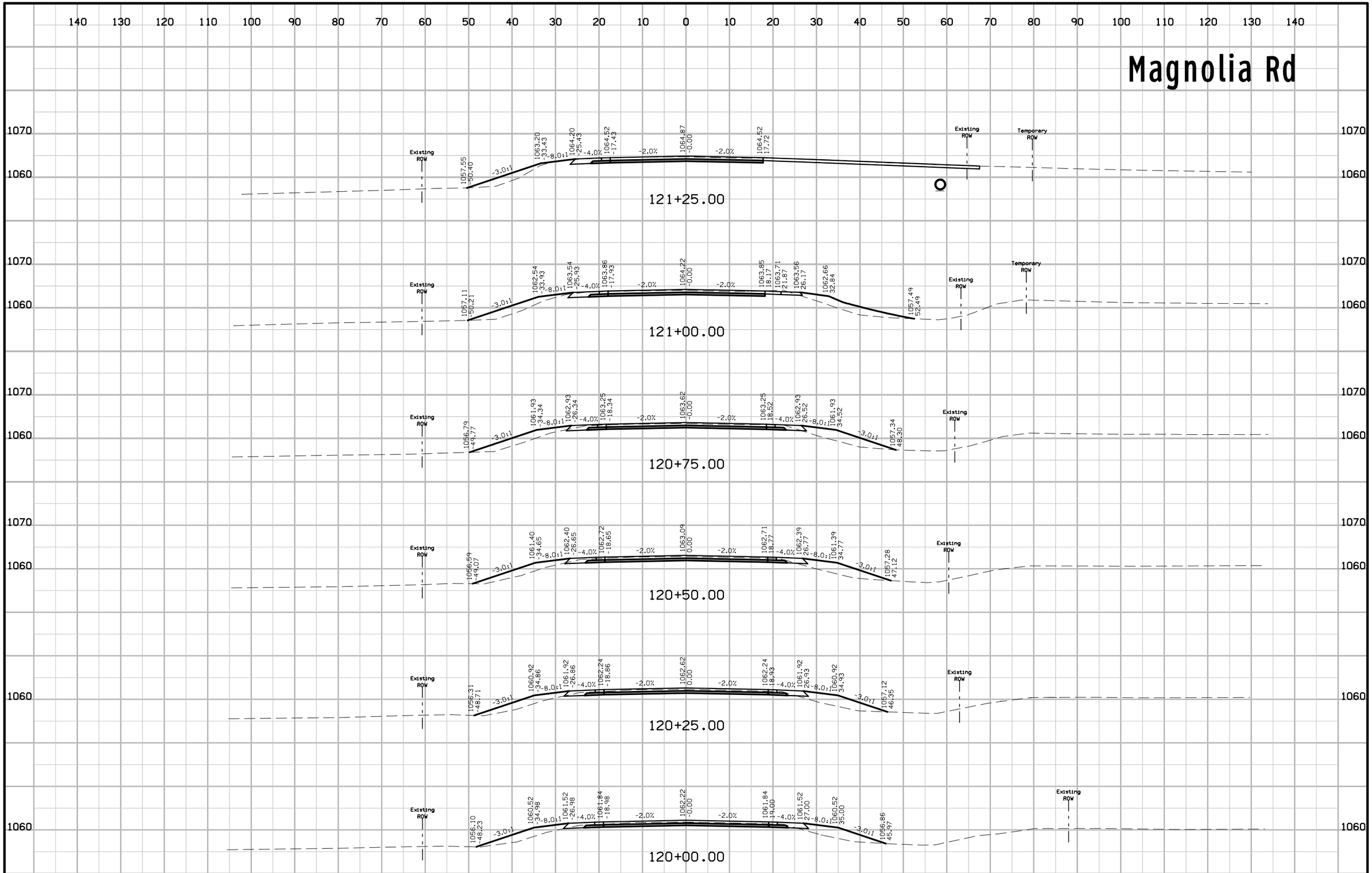
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.25

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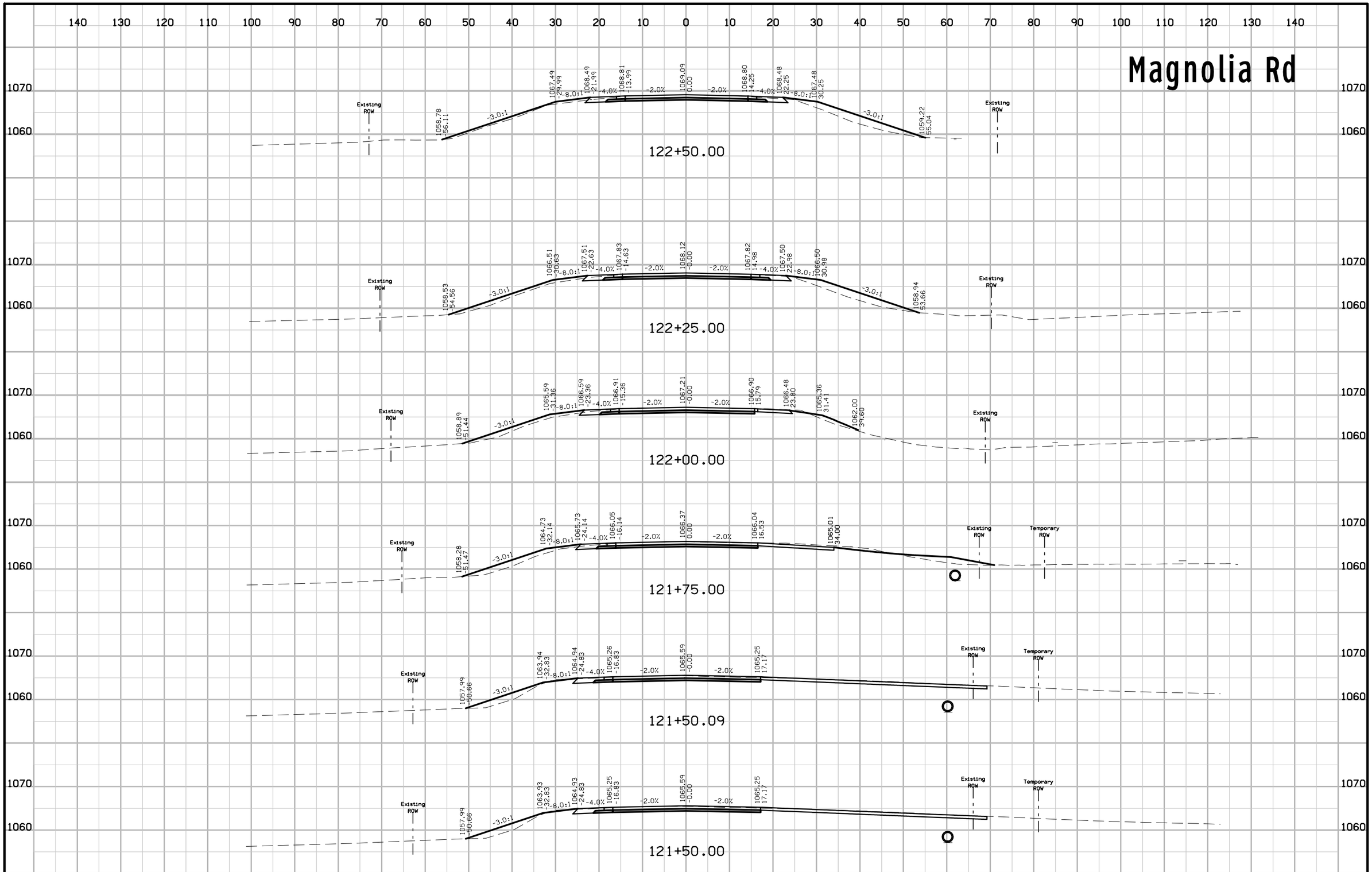
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.26

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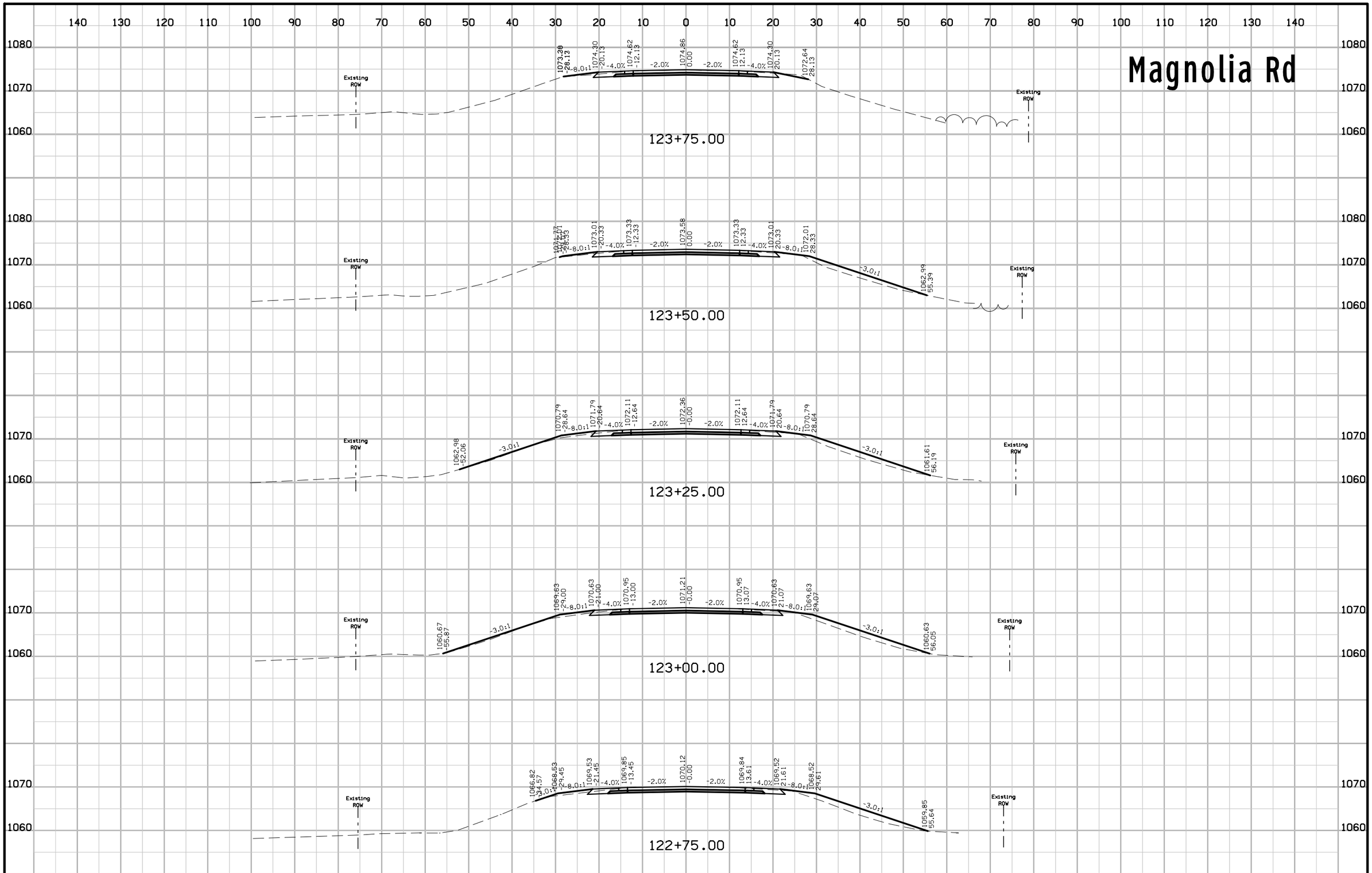
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.27

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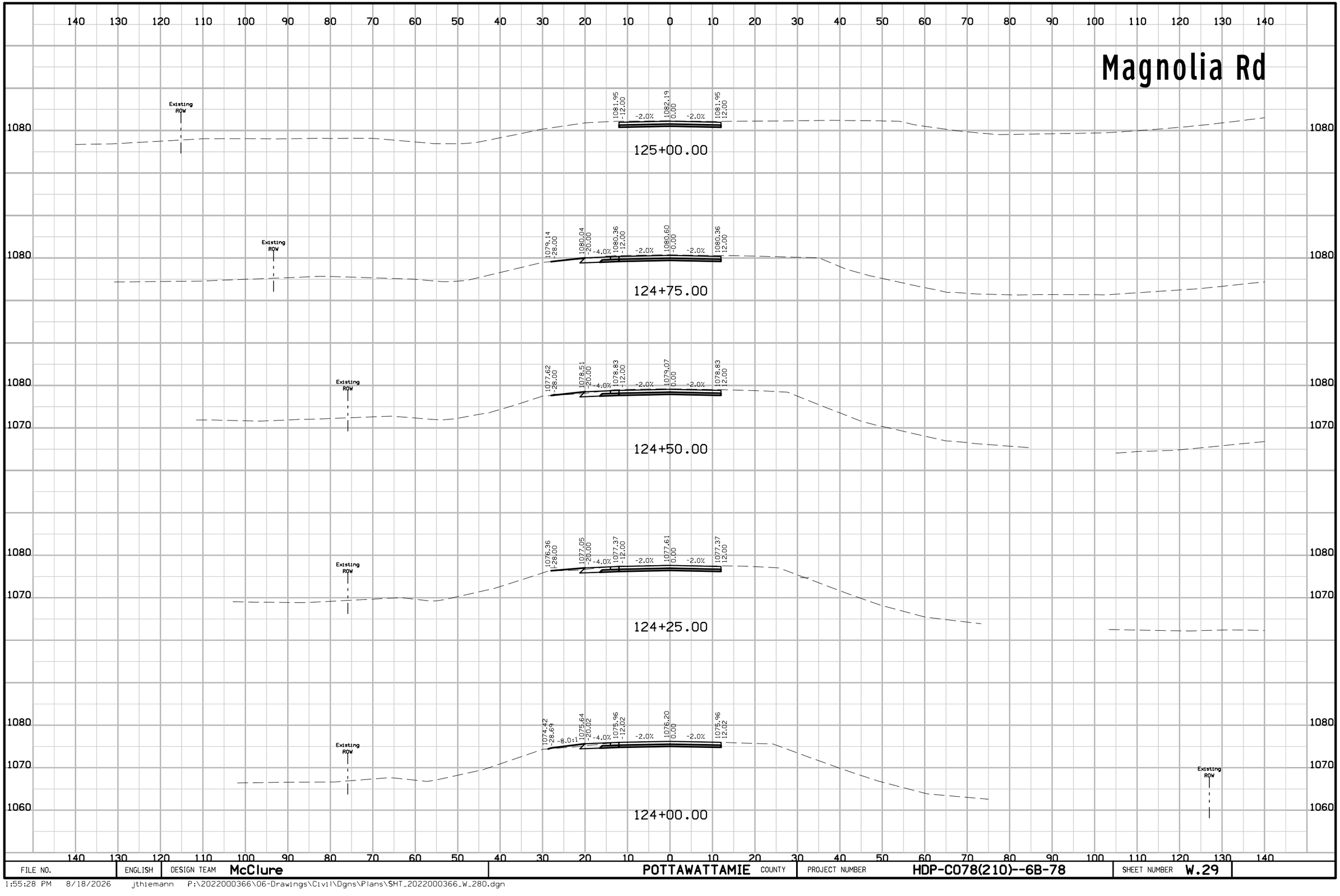
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.28

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Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.29

1:55:28 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_W_280.dgn

Magnolia Rd

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1090
1080

1091.69 -12.00 | -2.0% | 1091.93 -0.00 | -2.0% | 1091.69 12.00 | -4.0% | 1091.37 20.00 | -8.0:1 | 1090.37 28.00 | -3.0:1 | 1081.74 53.89

126+50.00

1090.07 -12.00 | -2.0% | 1090.31 0.00 | -2.0% | 1090.07 12.00 | -4.0% | 1089.75 20.00 | -8.0:1 | 1088.49 28.77

126+25.00

1088.45 -12.00 | -2.0% | 1088.69 0.00 | -2.0% | 1088.45 12.00

126+00.00

1086.82 -12.00 | -2.0% | 1087.06 0.00 | -2.0% | 1086.82 12.00

125+75.00

1085.20 -12.00 | -2.0% | 1085.44 0.00 | -2.0% | 1085.20 12.00

125+50.00

Existing ROW

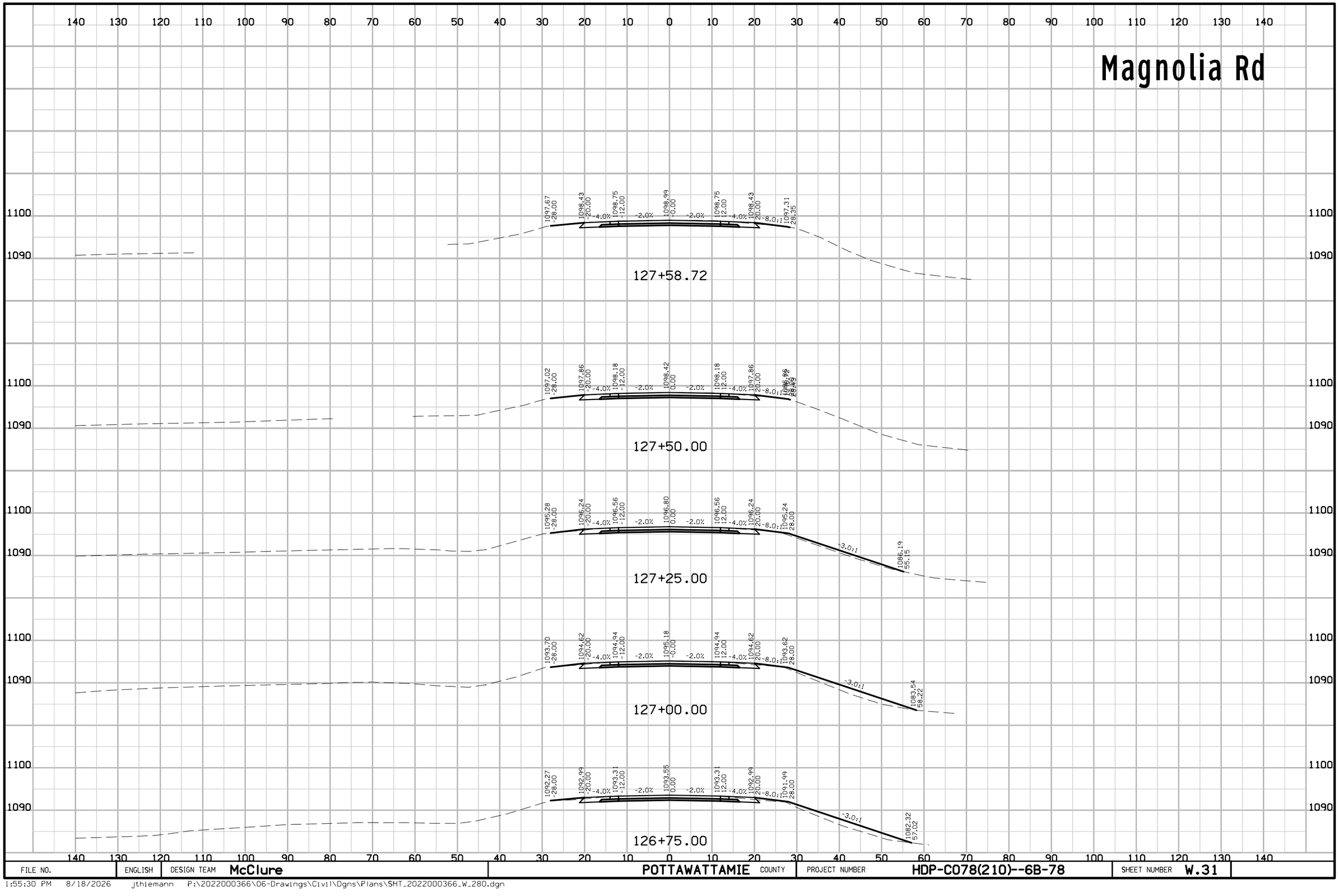
1083.58 -12.00 | -2.0% | 1083.82 -0.00 | -2.0% | 1083.58 12.00

125+25.00

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.30

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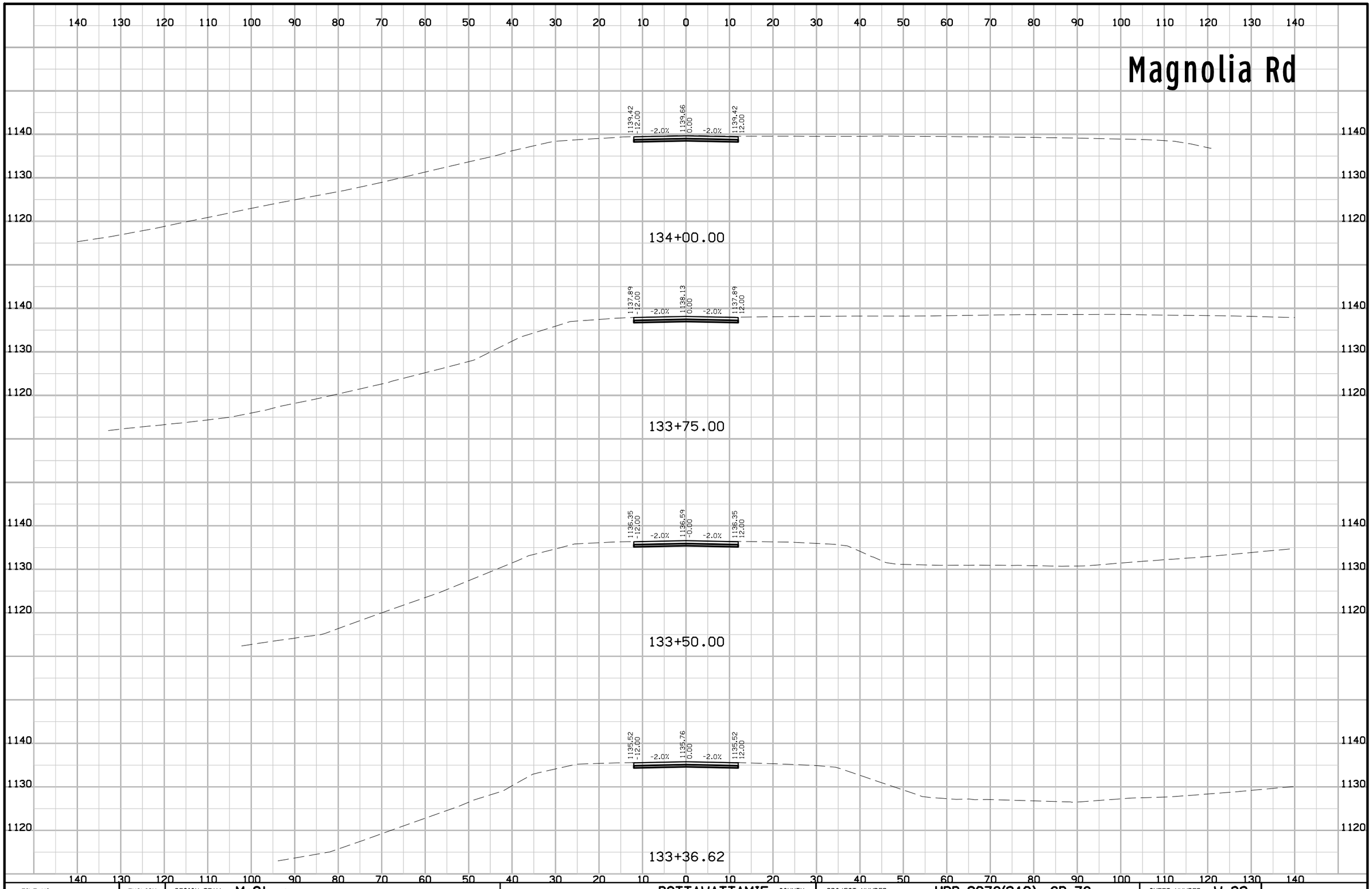
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.31

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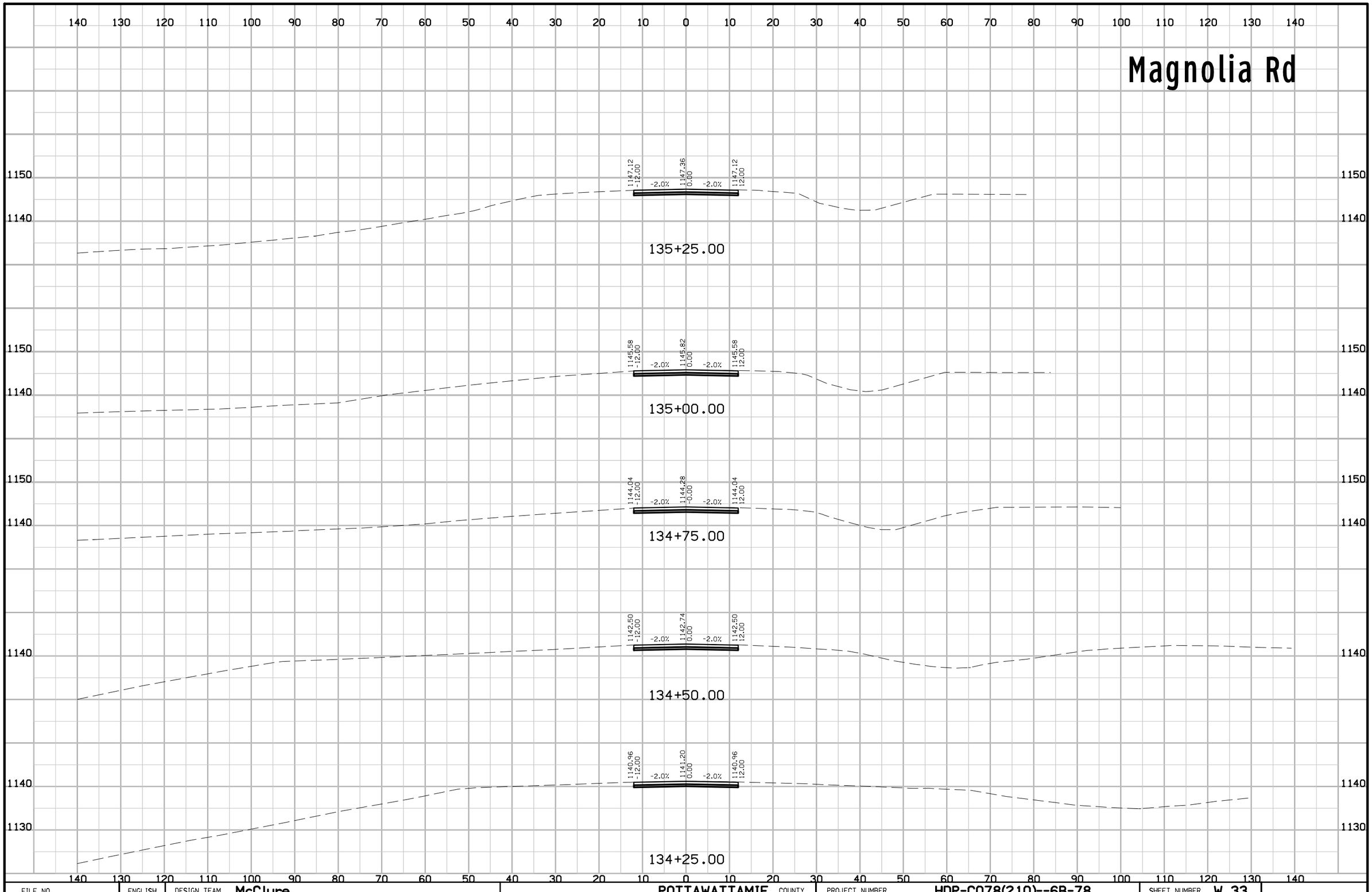
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.32

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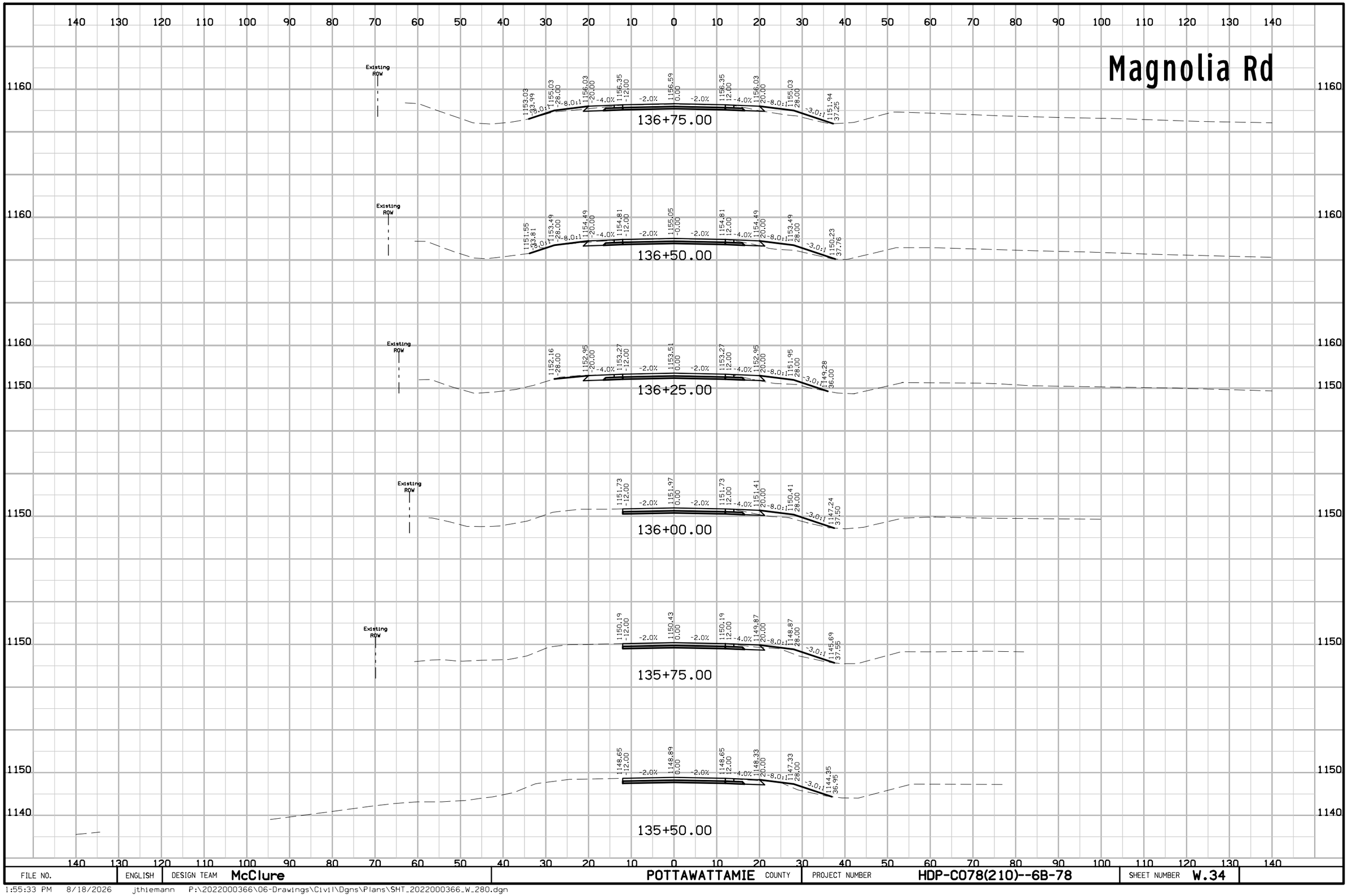
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.33

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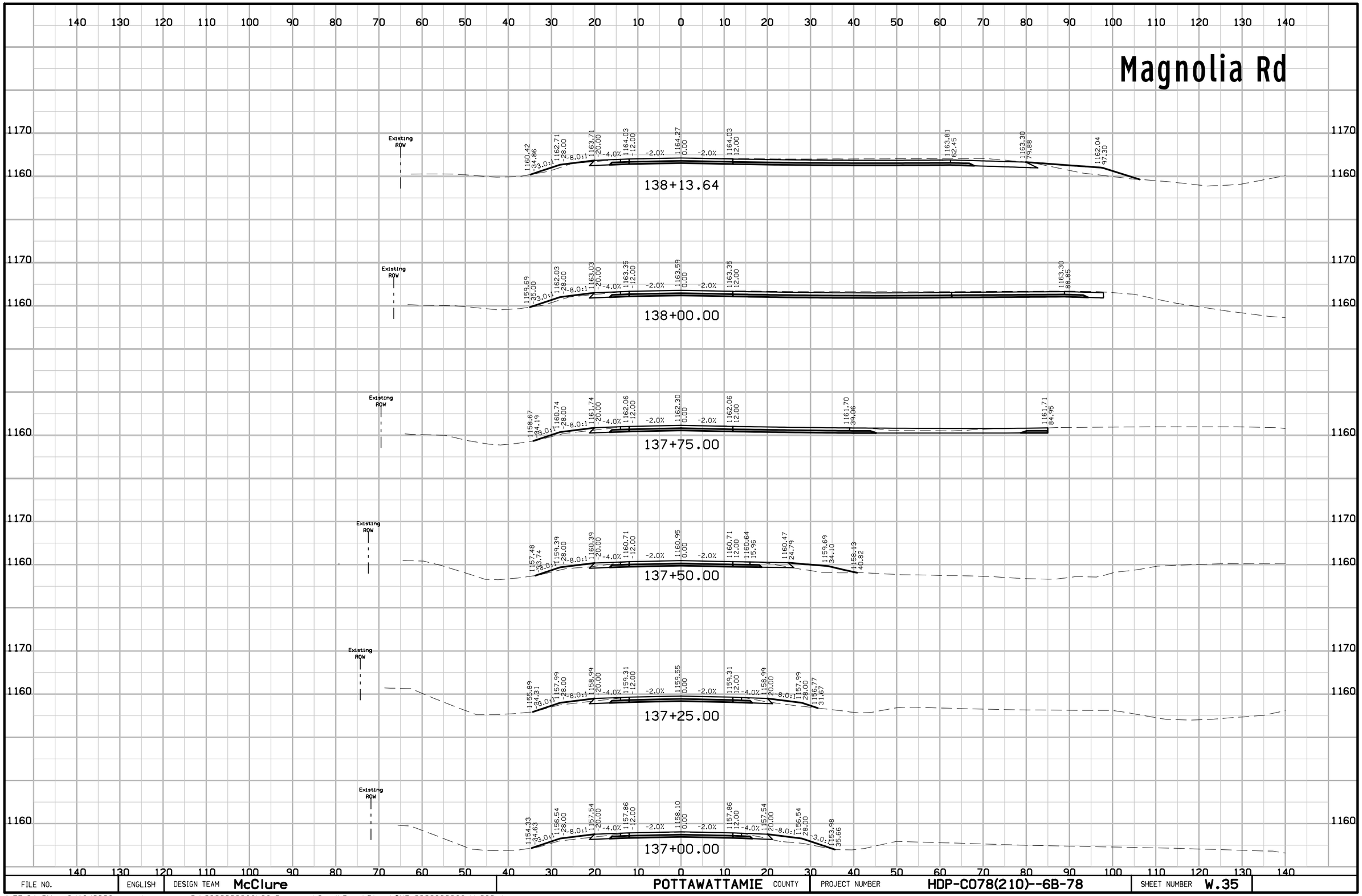
Magnolia Rd



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.34

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Magnolia Rd

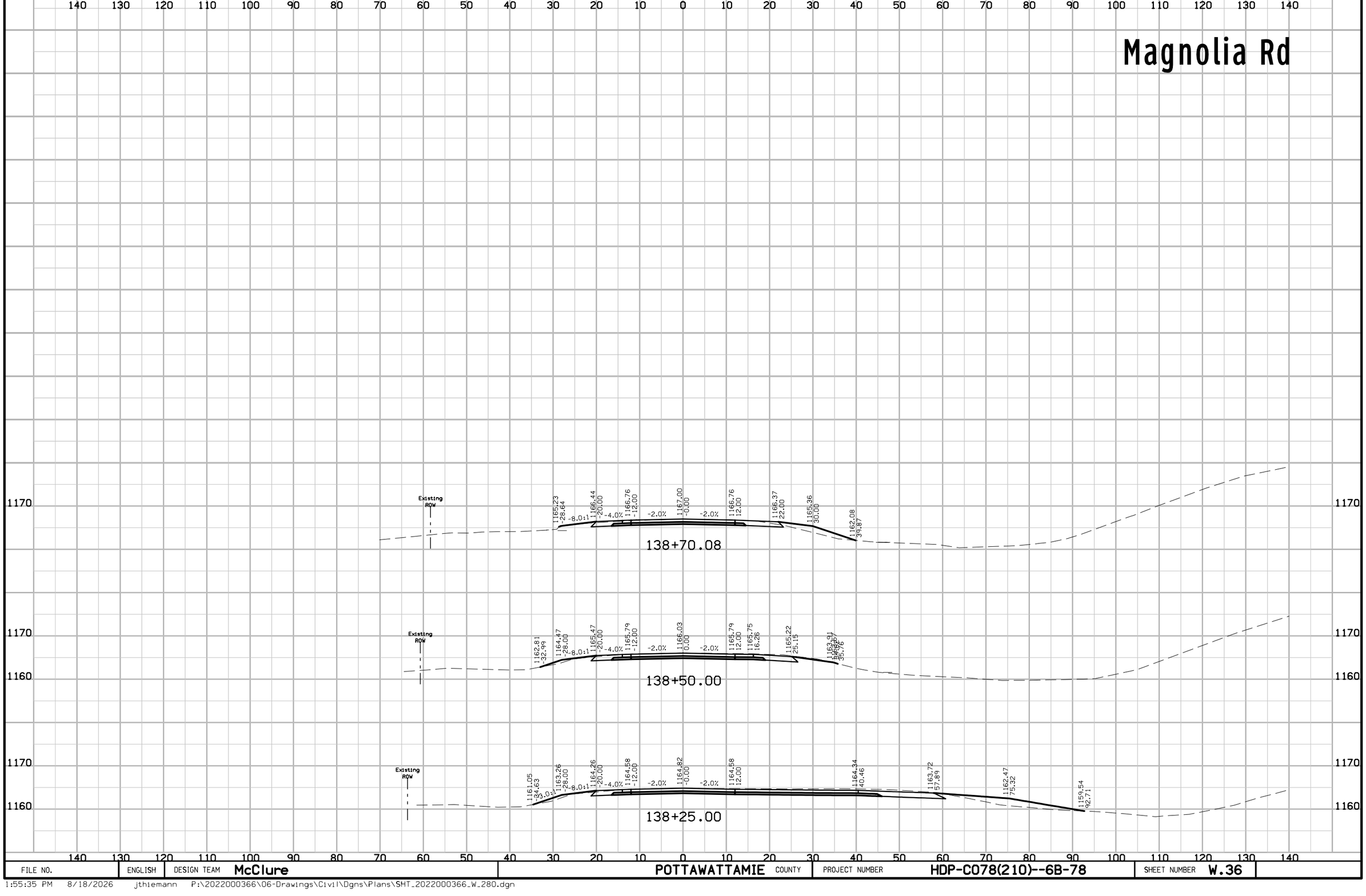


FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.35

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Magnolia Rd

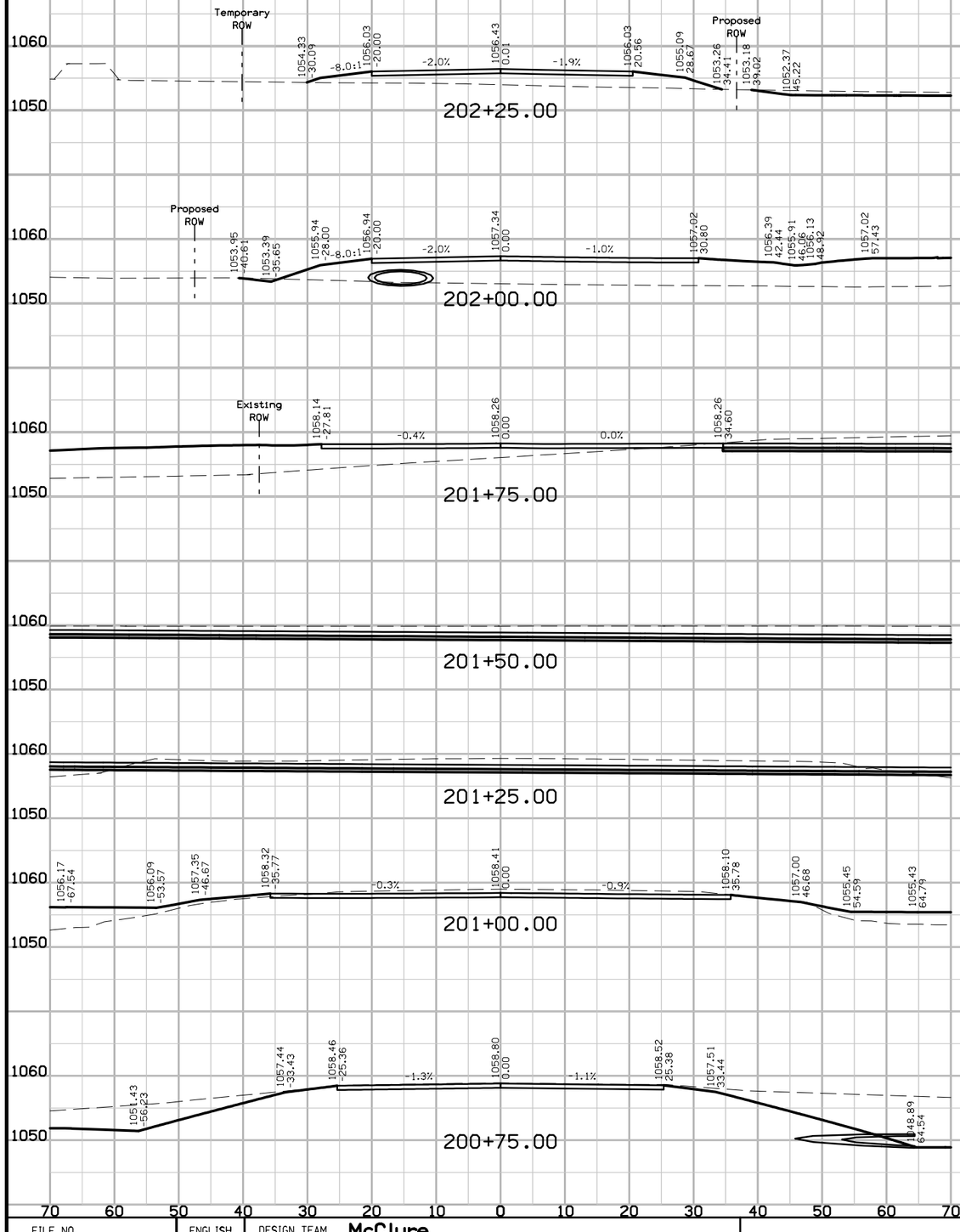
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FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER W.36

1:55:35 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_W_280.dgn

Jack Link's East



FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER X.1

1:55:36 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_X_JL_E.dgn

Mulberry Ln

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1060
1050

301+00.00

1060.66
-63.05

1060.62
-0.00

1060.72
43.03

300+75.00

1058.35
-52.49

1058.64
-37.08

1059.98
-23.83

-1.1%

1060.23
0.00

-0.9%

1060.07
18.46

1059.17
27.54

1057.12
35.31

300+50.00

Existing
ROW

1056.81
-26.50

1058.45
-21.49

1059.42
-13.42

-3.2%

1059.85
0.00

-2.0%

1059.59
12.95

-8.0:1

1058.59
20.95

-3.0:1

1055.61
29.89

300+25.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER X.2

1:55:37 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_X_Mulberry.dgn

265th St

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

1170
1160

601+00.00

1170
1160

1161.17
-50.33
-4.9%
1163.63
-0.01
-5.0%
1164.42
15.62
1164.19
24.00
1163.32
32.57
1162.16
36.73

600+75.00

1180
1170
1160

Existing ROW

1161.19
-41.52
1161.80
-28.01
-5.0%
1163.19
-0.00
-5.0%
1163.79
12.00
1163.55
20.00
1162.55
28.00
1160.18
35.12

600+50.00

1190
1180
1170
1160

Existing ROW

1158.32
-36.90
1160.38
-30.11
1161.34
-21.69
1161.86
-13.44
-6.7%
1162.76
-0.00
5.0%
1163.36
12.00
1163.12
20.00
1162.12
28.00
1159.40
36.18

600+25.00

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

FILE NO.	ENGLISH	DESIGN TEAM McClure	POTTAWATTAMIE COUNTY	PROJECT NUMBER HDP-C078(210)--6B-78	SHEET NUMBER X.3

1:55:38 PM 8/18/2026 jthiemann P:\2022000366\06-Drawings\Civil\Dgns\Plans\SHT_2022000366_X_L52.dgn