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G.1	Reference Ties and Benchmarks
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IOWA | DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

URBAN ROAD SYSTEM

CITY OF FORT DODGE

BRIDGE REPLACEMENT - OTHER

In the city of Fort Dodge, On S 19TH STREET, Over UP RR, S29 T89N R28W

Refer to the Proposal Form for list of applicable specifications.

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

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 the 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.

Utility contacts can be found on sheet D.1



STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED
ON SHEET NUMBER C.3

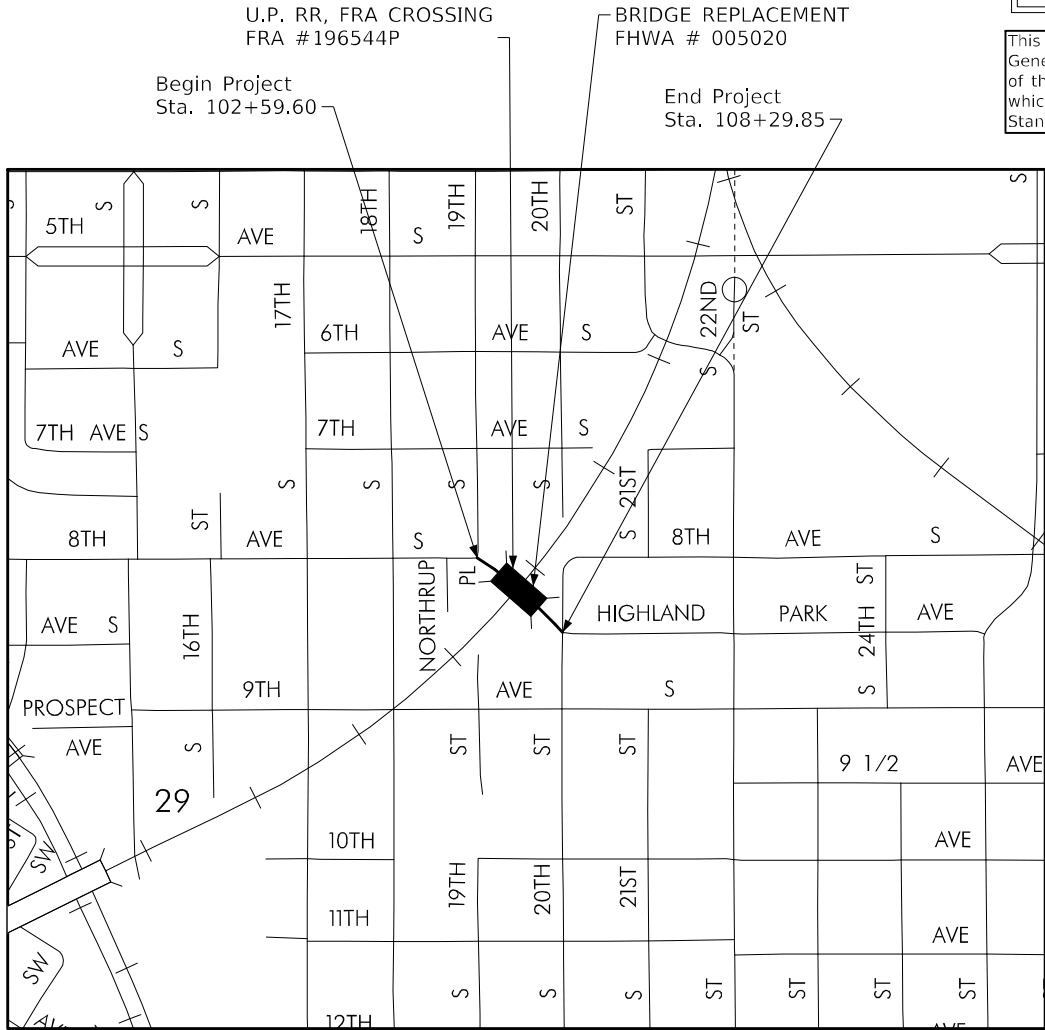
Shop Drawing Submittals

Shop drawings shall be submitted for the following items shown on Sheet V.3. (Note additional shop drawings may be required in accordance with Article 1105.03 of the Standard Specifications.)

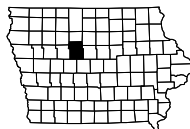
Submittal requirements for shop drawings shall be in accordance with Article 1105.03, of the Standard Specifications, for Highway and Bridge Construction of the Iowa DOT.

All working drawings including shop drawings and falsework drawings will be reviewed by:

Stanley Consultants Inc.
100 Court Ave, Ste 300
Des Moines, IA 50309
515-246-8585



NOT TO SCALE



APPROVED
Austin Munoz 6/26/2026
CITY OF FORT DODGE, CITY ENGINEER DATE

ROADWAY 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.

Gregory S. Shuger 6/24/2026
Signature Date

Gregory S. Shuger
Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: A.1, B.1-B.2, C.1-C.5, D.1-D.3, G.1-G.2, H.1, J.1-J.2, L.1-L.4, M.1, RC.1-RC.3, RR.1-RR.3, S.1-S.5, U.1-U.4, W.1-W.15

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	Gregory S. Shuger	Roadway Design
SPS.1	Matthew D. Cushman	Geotechnical Design
V.1	Tim J. McDermott	Structural Design

6" Standard Curbed Shoulder

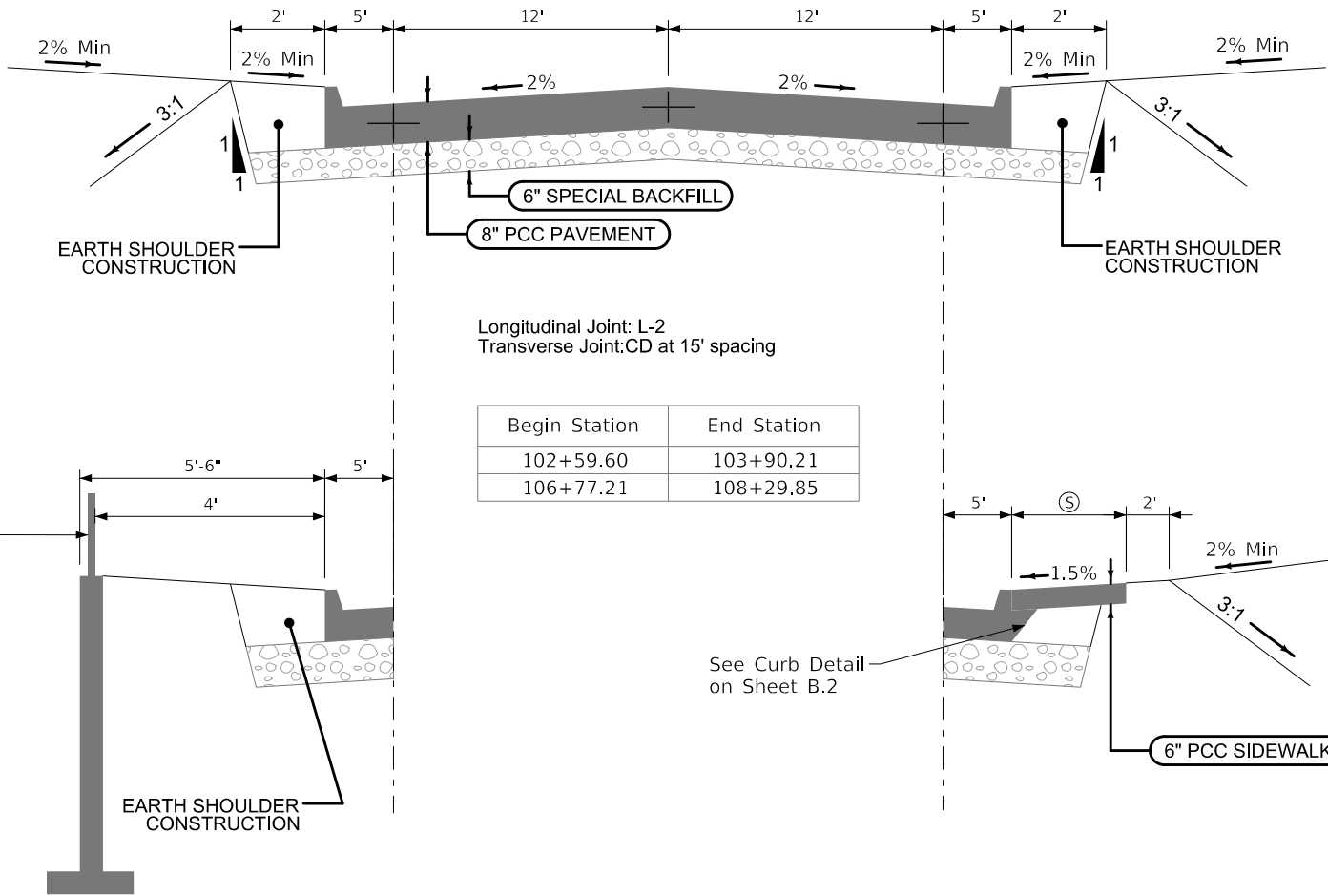
Shoulder Jointing:
Longitudinal joint not required when distance from back of
curb to nearest joint is less than 15':

Longitudinal Joint: L-2
Transverse Joint:CD at 15' spacing

Begin Station	End Station	
102+59.60	103+90.21	
107+12.55	108+29.85	

Begin Station	End Station	
106+77.21	107+12.55	

Fence, Chain Link Vinyl
Coated 54" Height
See Sheet V.203



Longitudinal Joint: L-2
Transverse Joint:CD at 15' spacing

Begin Station	End Station
102+59.60	103+90.21
106+77.21	108+29.85

6" Standard Curbed Shoulder

Shoulder Jointing:
Longitudinal joint not required when distance from back of
curb to nearest joint is less than 15':

Longitudinal Joint: L-2
Transverse Joint:CD at 15' spacing

Begin Station	End Station	
102+59.60	103+78.68	
107+14.54	108+29.85	

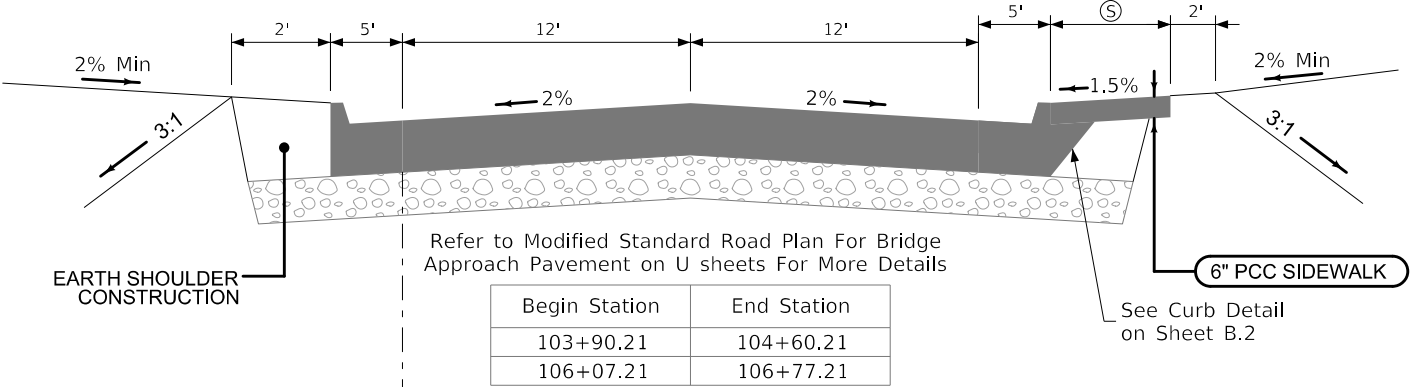
Begin Station	End Station	⊙ Feet
103+78.68	103+90.21	5
106+77.21	107+14.54	5

HIGHLAND PARK AVE / S. 19TH ST

6" Standard Curbed Shoulder

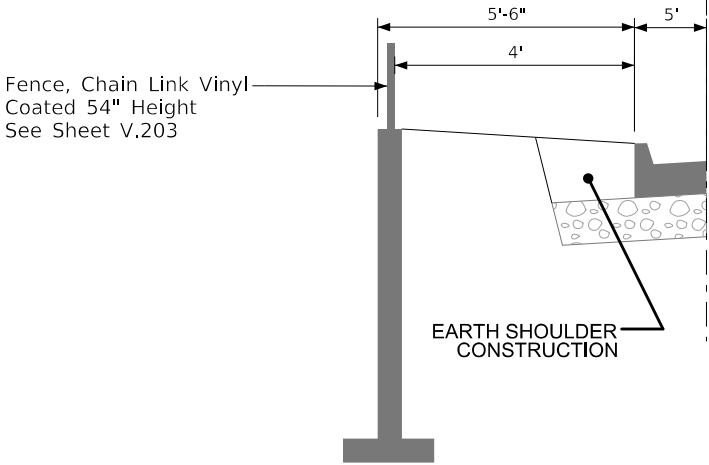
6" Standard Curbed Shoulder

Begin Station	End Station	
103+90.21	104+60.21	



Begin Station	End Station	Ⓢ Feet
103+90.21	104+60.21	5-10
106+07.21	106+77.21	10-5

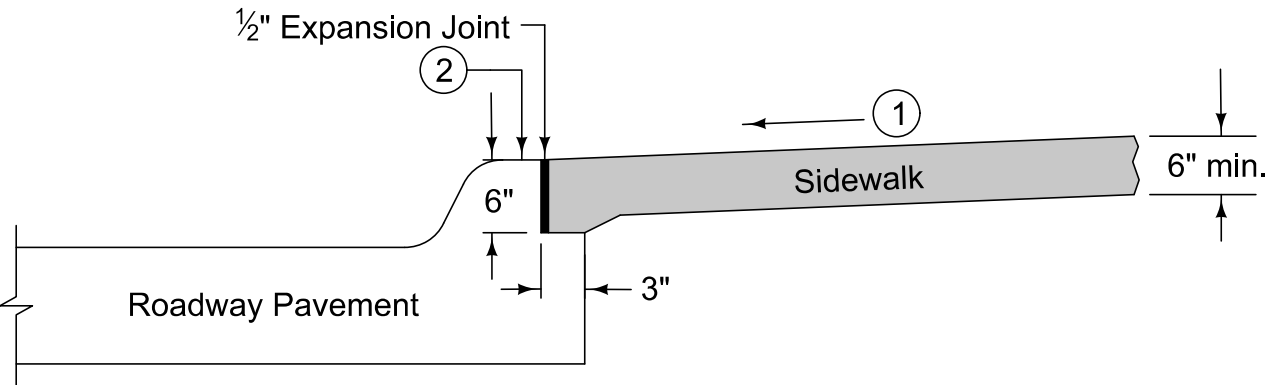
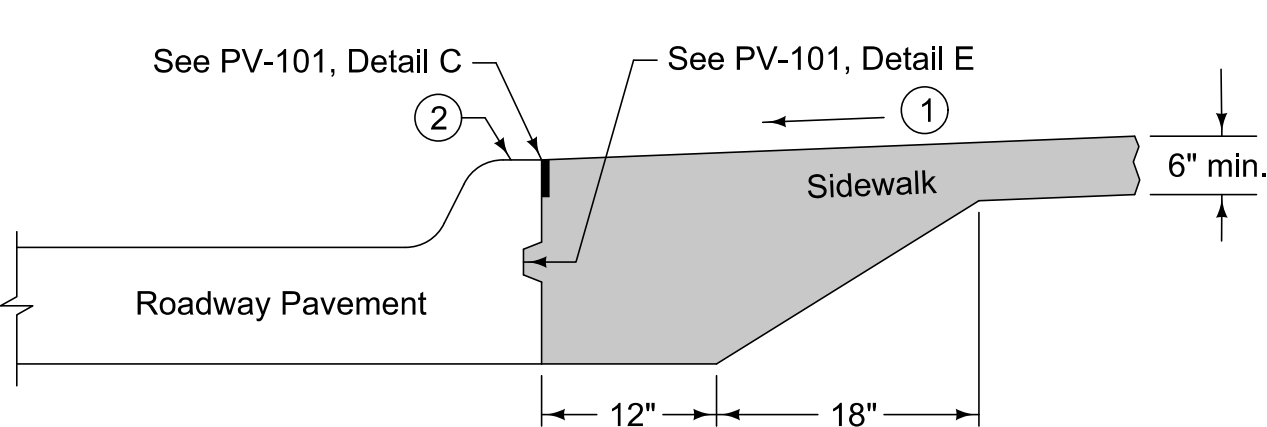
Begin Station	End Station	
106+07.21	106+77.21	



HIGHLAND PARK AVE / S. 19TH ST

For new sidewalk with new curb and gutter, comply with Detail 1 or Detail 2.

- ① Target cross slope of 1.5% with a maximum cross slope of 2.0%.
- ② Ensure top of curb slopes to street for drainage.



DETAIL 1

DETAIL 2

CURB DETAILS FOR CLASS A SIDEWALK

Item No.	Item Code	Item	Unit	Quantities										
				Estimated					As Built					
				Division 1	Division 2	Division 3	Division 4	Division 5	Total	Division 1	Division 2	Division 3	Division 4	Division 5
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.18					0.18					
2	2102-0425070	SPECIAL BACKFILL	TON	466.0					466.0					
3	2102-2625000	EMBANKMENT-IN-PLACE	CY	1054.0					1054.0					
4	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	303.0					303.0					
5	2102-2713090	EXCAVATION, CLASS 13, WASTE	CY	275.8					275.8					
6	2105-8425015	TOPSOIL, STRIP, SALVAGE, AND SPREAD	CY	175.0					175.0					
7	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	9.00					9.00					
8	2301-0685550	BRIDGE APPROACH, AS PER PLAN	SY	545.7					545.7					
9	2301-1033080	STD/S-F PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8"	SY	1314.2					1314.2					
10	2315-8275030	SURFACING, DRIVEWAY, CLASS C GRAVEL	TON	30.2					30.2					
11	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1					1					
12	2402-0425030	GRANULAR BACKFILL	CY	320.0					320.0					
13	2402-2720000	EXCAVATION, CLASS 20	CY	620.0					620.0					
14	2403-0100000	STRUCTURAL CONCRETE (MISC.)	CY	85.2					85.2					
15	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	282.8					282.8					
16	2403-7000210	HIGH PERFORMANCE STRUCTURAL CONCRETE	CY	247.6					247.6					
17	2404-7775000	REINFORCING STEEL	LB	31084					31084					
18	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	96823					96823					
19	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	68					68					
20	2408-7800000	STRUCTURAL STEEL	LB	113909					113909					
21	2408-8000000	GIRDER ERECTION PLAN	LS	1					1					
22	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK	SY	1179.9					1179.9					
23	2414-6424110	CONCRETE BARRIER RAIL	LF	322					322					
24	2414-6444100	STEEL PIPE PEDESTRIAN HAND RAIL	LF	150					150					
25	2435-0250100	INTAKE, SW-501	EACH	3					3					
26	2435-0600020	MANHOLE ADJUSTMENT, MAJOR	EACH	2					2					
27	2501-0201057	PILE, STEEL, HP 10X57	LF	4560					4560					
28	2501-6335010	PREBORED HOLE	LF	160					160					
29	2502-8212204	SUBDRAIN, PERFORATED PLASTIC PIPE, 4"	LF	185					185					
30	2502-8221303	SUBDRAIN OUTLET, DR-303	EACH	1					1					
31	2503-0114215	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 15 IN	LF	67					67					
32	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF	67					67					
33	2507-2638620	MACADAM STONE SLOPE PROTECTION	SY	1240.0					1240.0					
34	2507-2638660	BRIDGE WING ARMORING - MACADAM STONE	SY	16.0					16.0					
35	2507-3250005	ENGINEERING FABRIC	SY	73.0					73.0					
36	2510-6745850	REMOVAL OF PAVEMENT	SY	1655.1					1655.1					
37	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSSES	EACH	3					3					
38	2511-6745900	REMOVAL OF SIDEWALK	SY	217.3					217.3					
39														

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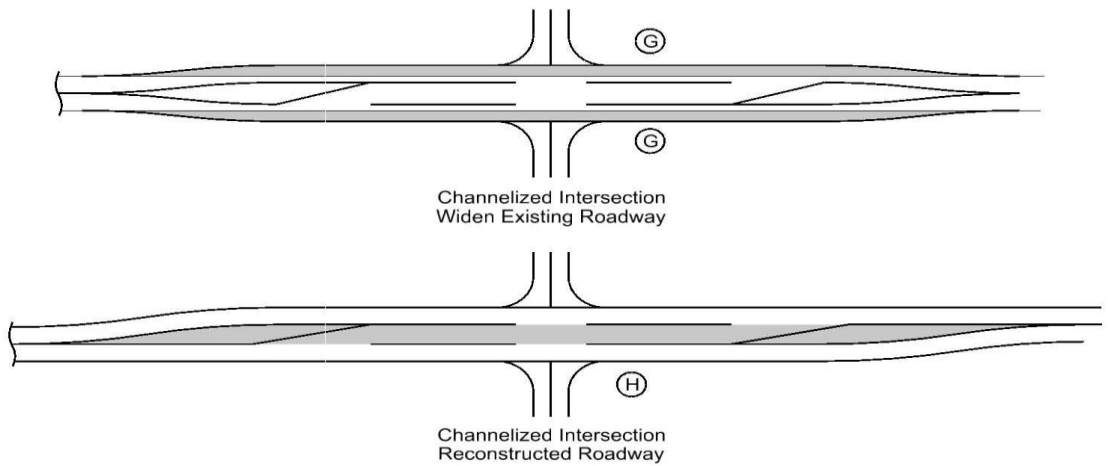
ESTIMATE REFERENCE INFORMATION			100-4A MODIFIED
Item No.	Item Code	Description	
1	2101-0850001	CLEARING AND GRUBBING Item includes approximately 0.14 acres for the Northeast quadrant of the bridge, 0.01 acres for the Southeast quadrant, 0.01 acres for the Southwest quadrant, and 0.02 acres for the Northwest quadrant.	
2	2102-0425070	SPECIAL BACKFILL Refer to Tab. 100-24 and B Sheets for details.	
3	2102-2625000	EMBANKMENT-IN-PLACE Contractor shall provide borrow material according to Section 2102 of the Standard Specifications. Refer to T sheets.	
4	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW Refer to T sheets.	
5	2102-2713090	EXCAVATION, CLASS 13, WASTE Includes 6 inches of excavation waste in all areas of pavement removal. Waste material shall be disposed of offsite.	
6	2105-8425015	TOPSOIL, STRIP, SALVAGE, AND SPREAD Item includes 6 inches stripping depth and 6 inches spreading depth. Refer to T sheets.	
7	2123-7450000	SHOULDER CONSTRUCTION, EARTH Refer to typical sections on B sheets.	
8	2301-0685550	BRIDGE APPROACH, AS PER PLAN Refer to Tab. 112-6 on C sheets and U sheets for details. Also refer to B and D sheets for locations. Includes Certified Plant Inspection per Section 2521 of the Standard Specifications. Method of measurement is square yards. Basis of payment is per Section 2301.05.D of the Standard Specifications.	
9	2301-1033080	STD/S-F PCC PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8" Refer to Tab. 100-24 on C sheets. Refer also to B sheet typical sections. Includes Certified Plant Inspection per Section 2521 of the Standard Specifications. Maturity testing shall be required.	
10	2315-8275030	SURFACING, DRIVEWAY, CLASS C GRAVEL Refer to Tab. 102-3 on C sheets for locations and details. Item also includes approximately 65'x10' temporary surfacing for driveway at Sta. 107+75, Rt. (6" thickness). Construct temp driveway prior to constructing new concrete driveway apron. Coordinate with Engineer for exact installation location. Assumed density is 140 pcf.	
11	2401-6745625	REMOVAL OF EXISTING BRIDGE Includes removal of existing bridge as noted and detailed in these plans on sheets V.1 and V.3.	
12	2402-0425030	GRANULAR BACKFILL Includes backfill behind the retaining wall per Section 2402 of the Standard Specifications. See Sheet V.202.	
13	2402-2720000	EXCAVATION, CLASS 20 Includes excavation for west & east abutment pile cap footings & pier 1 & 2 footings and retaining wall. Includes furnishing and placing subdrains (including excavation) and subdrain outlet at abutments. Includes furnishing and placing porous backfill, geotextile fabric, and water flooding. See Sheet V.2.	
14	2403-0100000	STRUCTURAL CONCRETE (MISC.) Includes furnishing and placing concrete for the retaining wall along the north side of the east approach. See sheet V.201 & V.202. Includes cost to provide shop drawings for reinforcing steel in wall. Certified plant inspection required. Refer also to sheet V.2.	
15	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) Includes furnishing and placing concrete for the two piers, two abutment pile caps, and all abutment wings. Structural concrete shall be class C. Contractor shall provide certified plant inspection. Includes furnishing and placing 3 inch diameter pvc plastic pipe and expanding foam in the abutment wings. See Sheet V.2.	
16	2403-7000210	HIGH PERFORMANCE STRUCTURAL CONCRETE Includes furnishing and installing concrete for the bridge deck, pier diaphragms, and abutment diaphragms. See developmental specification for "high performance concrete for structures" for additional requirements. Certified plant inspection required. Refer to Sheet V.2.	
17	2404-7775000	REINFORCING STEEL	
18	2404-7775005	REINFORCING STEEL, EPOXY COATED	
19	2404-7775009	REINFORCING STEEL, STAINLESS STEEL Refer to Sheet V.2.	
20	2408-7800000	STRUCTURAL STEEL Quantity is based on the rolled steel option. See sheet V.17 for quantity based on plate girder option. Includes cost of pier bearing materials. Includes anchored curved sole plates. Include contractor fill out beam numbers by location and beam seat elevations and filling out top of beam shots in "Bridge Deck Grade Adjustment" spreadsheet and forwarding electronic spreadsheets to the engineer.	
21	2408-8000000	GIRDER ERECTION PLAN See Developmental Specification for Girder Erection Plan.	
22	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE, BRIDGE DECK Refer to Tab. 100-28 on C sheets.	

ESTIMATE REFERENCE INFORMATION			100-4A MODIFIED
Item No.	Item Code	Description	
23	2414-6424110	CONCRETE BARRIER RAIL If placement of concrete is done by the 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 required. See Sheet V.28.	
24	2414-6444100	STEEL PIPE PEDESTRIAN HAND RAIL Refer to Sheet V.30.	
25	2435-0250100	INTAKE, SW-501	
26	2435-0600020	MANHOLE ADJUSTMENT, MAJOR Refer to Tab. 104-5B on sheet M.1 and Sheet D.2 for locations and details.	
27	2501-0201057	PILE, STEEL, HP 10X57 Includes cost to furnish and install all piles at abutments and piers. Refer to sheet V.2.	
28	2501-6335010	PREBORED HOLE 10'-0 prebore required at all piles for each abutment.	
29	2502-8212204	SUBDRAIN, PERFORATED PLASTIC PIPE, 4" Refer to Sheet D.2. Also refer to SRP DR-303, Type 11 installation; minimum 1 ft porous backfill above top of subdrain; minimum 1 ft of clean earth fill above top of porous backfill.	
30	2502-8221303	SUBDRAIN OUTLET, DR-303 Outlet subdrain to storm sewer inlet I-1; refer to Sheet D.2.	
31	2503-0114215	STORM SEWER GRAVITY MAIN, TRENCHED, RCP, 2000D (CLASS III), 15 IN	
32	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN. Refer to Tab. 104-5B on sheet M.1 and D.2 for locations and details. Connections to existing pipes and manholes are considered incidental.	
33	2507-2638620	MACADAM STONE SLOPE PROTECTION Includes furnishing and placing engineering fabric, macadam stone, 4" x 6" treated timber edging, 1/2" diameter steel pins (or rebars), porous backfill or granular subbase backfill at front face of abutment footing, and all required excavating, shaping and compacting for slope protection. See details on sheet V.33	
34	2507-2638660	BRIDGE WING ARMORING - MACADAM STONE Includes furnishing and placing engineering fabric, macadam stone, 4" x 6" treated timber edging, 1/2" diameter steel pins (or rebars)1 and all required excavating, shaping and compacting for wing armorng. See details on sheet V.32.	
35	2507-3250005	ENGINEERING FABRIC Place fabric prior to installation of temporary driveway surfacing at Sta. 107+75, Rt. Assumed area is 65'x10'.	
36	2510-6745850	REMOVAL OF PAVEMENT Refer to Tab. 110-1 on C sheets for locations. Includes full depth pavement and driveway pavement.	
37	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSES Item includes removal of 3 existing intakes at Highland Park Ave and 20th St intersection.	
38	2511-6745900	REMOVAL OF SIDEWALK Refer to Tab. 110-5 on C sheets for locations. Existing sidewalk is assumed to be 4" PCC.	
39	2511-7526004	SIDEWALK, P.C. CONCRETE, 4 IN.	
40	2511-7526006	SIDEWALK, P.C. CONCRETE, 6 IN.	
41	2511-7528101	DETECTABLE WARNING Refer to Tab. 113-1 on C sheets for locations. Refer also to S sheets for layout details. Includes Certified Plant Inspection per Section 2521 of the Standard Specifications.	
42	2515-2475006	DRIVEWAY, P.C. CONCRETE, 6 IN. Refer to Tab. 102-3 on C sheets for locations and details. Includes Certified Plant Inspection per Section 2521 of the Standard Specifications. Maturity testing shall be required.	
43	2519-1001000	FENCE, CHAIN LINK, VINYL COATED 121 feet is 54" height on retaining wall; refer to B Sheets and Sheets V.201 thru V.203 for locations and details of fence on retaining wall. 144 feet is 120" height; see sheet V.32 for details. 144 feet is 88" height; see sheet V.30 for details. Includes cost to furnish and install chain-link fence. Includes the cost of all pvc coating.	
44	2519-1002048	FENCE, CHAIN LINK, 48 IN. HEIGHT Item is for fence on Fors property as shown on sheet D.2; match existing fence height, style, and finish. Coordinate exact installation limits with Engineer.	
45	2519-4200090	REMOVAL AND REINSTALLATION OF FENCE, WOOD Item covers wood fence on NE side of bridge. Refer to sheet D.2. Incidental to reinstallation shall be replacement of all unserviceable parts, including fence panels, posts, and all related appurtenances.	
46	2519-4200120	REMOVAL OF FENCE, CHAIN LINK Refer to Fors property notes on sheet D.2. Coordinate exact limits of removal with Engineer.	

ESTIMATE REFERENCE INFORMATION			100-4A MODIFIED
Item No.	Item Code	Description	
47	2520-3350015	FIELD OFFICE --	
48	2524-6765010	REMOVE AND REINSTALL SIGN AS PER PLAN Refer to Tab. 190-62 on C sheets. Method of Measurement shall be by count for each sign removed and reinstalled. Basis of Payment shall be the contract unit price for each sign removed and reinstalled without damage to sign and shall include all new mounting hardware and posts at no additional cost to the contracting authority.	
49	2524-6765110	REMOVAL OF TYPE A SIGN Refer to Tab. 190-62 on C Sheets. Method of Measurement shall be by count for each sign removed. Basis of Payment shall be the contract unit price for each sign removed including all mounting hardware and posts at no additional cost to the contracting authority.	
50	2526-8285010	CONSTRUCTION SURVEY, MONUMENT PRESERVATION	
51	2526-8285020	CONSTRUCTION SURVEY, CONTROL POINT SURVEY	
52	2526-8285030	CONSTRUCTION SURVEY, RIGHT OF WAY	
53	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY --	
54	2528-2518000	SAFETY CLOSURE Refer to Tab. 108-13A on C sheets and the J Sheets.	
55	2528-8445110	TRAFFIC CONTROL Refer to the Traffic Control Plan on the J Sheets.	
56	2533-4980005	MOBILIZATION --	
57	2595-0005150	RAILROAD PROTECTIVE LIABILITY INSURANCE FOR UNION PACIFIC RAILROAD CO. Refer to "Developmental Specifications For Construction or Maintenance Work on Railroad Right-Of-Way (Union Pacific Railroad)." Refer also to notes on sheet V.04.	
58	2601-2634105	MULCHING, BONDED FIBER MATRIX	
59	2601-2636044	SEEDING AND FERTILIZING (URBAN)	
60	2601-2642120	STABILIZING CROP - SEEDING AND FERTILIZING (URBAN)	
61	2602-0000020	SILT FENCE Refer to Tab. 100-17 on RC sheets. The tabulation includes estimated locations for placement of Silt Fence to address possible erosion during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.	
62	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS 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.	
63	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	
64	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	
65	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	
66	2602-0000351	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE Refer to Tab. 100-19 on RC sheets. Also refer to detail 570-5 on U Sheets.	
67	2602-0000500	OPEN-THROAT CURB INTAKE SEDIMENT FILTER, EC-602	
68	2602-0000510	MAINTENANCE OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER	
69	2602-0000520	REMOVAL OF OPEN-THROAT CURB INTAKE SEDIMENT FILTER Refer to Tab. 100-36 on RC sheets for locations and details.	
70	2602-0000530	GRATE INTAKE SEDIMENT FILTER BAG, EC-604	
71	2602-0000540	MAINTENANCE OF GRATE INTAKE SEDIMENT FILTER BAG	
72	2602-0000550	REMOVAL OF GRATE INTAKE SEDIMENT FILTER BAG Refer to Tab. 100-37 on RC sheets for locations and details. Refer to EC-604 for Method of Measurement and Basis of Payment for each item.	
73	2602-0010010	MOBILIZATION, EROSION CONTROL Quantity is for installation and maintenance of erosion control within the project limits.	
74	2602-0010020	MOBILIZATION, EMERGENCY EROSION CONTROL Quantity is for repair or reinstallation of erosion control due to events requiring emergency measures as determined by the Engineer.	

STANDARD ROAD PLANS			105-4 MODIFIED
The following Standard Road Plans apply to construction work on this project.			
Number	Date	Title	
BR-211	04-21-26	Bridge Approach (Abutting PCC or Composite Pavement)	
DR-303	10-17-17	Subdrains (Longitudinal)	
DR-305	04-19-22	Subdrain Outlets (Standard Subdrain, Pressure Release and Special)	
EC-201	04-20-21	Silt Fence	
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices	
EC-602	10-15-24	Open-Throat Curb Intake Sediment Filter	
EC-604	10-17-23	Grate Intake Sediment Filter Bag	
EW-202	04-19-16	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)	
MI-102	10-20-15	Chain Link Fence Construction	
MI-210	10-21-25	PCC Driveways and Alleys	
MI-220	04-15-25	Detectable Warnings and Pedestrian Ramp	
PV-101	10-20-26	Joints	
PV-102	10-21-25	PCC Curb Details	
PV-103	10-21-25	Manhole Boxouts in PCC Pavement	
SW-101	10-21-25	Trench Bedding and Backfill Zones	
SW-102	10-21-25	Rigid Gravity Pipe Trench Bedding	
SW-301	10-21-25	Circular Sanitary Sewer Manhole	
SW-501	10-21-25	Single Grate Intake	
SW-511	10-21-25	Rectangular Area Intake	
SW-514	10-21-25	Boxouts for Grate Intakes	
SW-601	10-21-25	Castings for Sanitary Sewer Manholes	
SW-603	10-21-25	Castings for Grate Intakes	
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)	
TC-251	04-18-23	Temporary Road Closure	
TC-252	10-21-25	Routes Closed to Traffic	
TC-601	10-15-19	Pedestrian Detour	

INDEX OF TABULATIONS			111-25 MODIFIED
Tabulation	Tabulation Title	Sheet No.	
C Sheets			
100-1C	ESTIMATED PROJECT QUANTITIES (UP TO A 5 DIVISION PROJECT)	C.1	
100-4A	ESTIMATE REFERENCE INFORMATION	C.2 - C.3	
100-24	PCC PAVEMENT	C.4	
100-28	LONGITUDINAL GROOVING	C.4	
102-3	ACCESS POINTS AND SAFETY RAMPS	C.4	
105-4	STANDARD ROAD PLANS	C.3	
108-13A	SAFETY CLOSURES	C.4	
110-1	REMOVAL OF PAVEMENT	C.5	
110-5	SIDEWALK REMOVAL	C.5	
111-25	INDEX OF TABULATIONS	C.3	
112-6	BRIDGE APPROACH SECTION	C.5	
113-1	SIDEWALKS	C.5	
190-62	EXISTING SIGNS TO BE REMOVED	C.5	
G Sheets			
101-16	ALIGNMENT COORDINATES	G.2	
101-17	SPIRAL OR CIRCULAR CURVE DATA	G.2	
J Sheets			
108-23A	TRAFFIC CONTROL PLAN	J.1	
113-2	PEDESTRIAN PATH CLOSURES	J.1	
M Sheets			
104-5B	STORM SEWER	M.1	
RC Sheets			
110-12L	POLLUTION PREVENTION PLAN	RC.1 - RC.2	
100-17	TABULATION OF SILT FENCES	RC.2	
100-36	OPEN-THROAT CURB INTAKE SIDEMENT FILTER	RC.2	
100-37	GRATE UBTAJE SEDIMENT FILTER BAG	RC.2	
100-19	PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES	RC.2	
100-34	STORMWATER DRAINAGE BASIN AND STORAGE	RC.3	



- 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.

[illegible]

			108-13A MODIFIED
SAFETY CLOSURES			
Refer to Section 2528 of the Standard Specifications			
Station	Closure Type		Remarks
	Road Qty.	Hazard Qty.	
102+59.60	1		8th Ave
102+99.08	1		19th St
108+29.85	2		Highland Park Ave
108+03.38	1		20th St
Total	5		

			100-28 MODIFIED
LONGITUDINAL GROOVING			
Location	Total	Remarks	
	SY		
104+25.00	269.05		
105+25.00	574.47		
106+50.00	336.34		
Total:	1179.9		

[illegible]

SURVEY SYMBOLS

	C.E.C. CONTROL POINT & BENCHMARKS
	FOUND CORNERS
	SET PROPERTY CORNER (5/8" I.R. W/BUE CAP #18381 UNLESS OTHERWISE NOTED)
	PROPERTY BOUNDARY
	LOT LINES
	ORIGINAL PLATTED LOT LINES
	TREE LINE
	EDGE OF ASPHALTIC CEMENT CONCRETE (HOT MIX ASPHALT - HMA)
	BACK OF PORTLAND CEMENT CONCRETE (P.C.C.) CURB & EDGE OF PORTLAND CEMENT CONCRETE SLAB
	GUTTER
	CENTERLINE STREET
	SIDEWALK
	EXISTING CHAIN LINK FENCE
	EXISTING PIPE FENCE
	EXISTING WIRE FENCE
	OVERHEAD WIRES (X = NUMBER OF WIRES)
	UNDERGROUND FIBER OPTIC LINES
	STORM SEWER AND SIZE
	SANITARY SEWER AND SIZE
	WATER MAIN AND SIZE
	GAS MAIN AND SIZE
	UNDERGROUND ELECTRIC
	UNDERGROUND CABLE TELEVISION LINE
	UNDERGROUND TELEPHONE LINE
	RETAINING WALL
	EXISTING BUILDING
	UTILITY LOCATION BASED ON MAPS PROVIDED BY THE IOWA ONE CALL SERVICE (APPROXIMATE LOCATIONS ONLY)
	ESTIMATED LOCATION BASED ON A COMBINATION OF SURVEY DATA, UTILITY MAPS, AND THE ORIGINAL SITE PLAN.
	PLANS LOCATION BASED ON ORIGINAL CONSTRUCTION DRAWINGS PROVIDED BY THE CITY OF URBANDALE.
	B/B BACK OF CURB TO BACK OF CURB
	CI & DIP CAST IRON PIPE & DUCTILE IRON PIPE
	VCP VITRIFIED CLAY PIPE
	RCP REINFORCED CONCRETE PIPE
	RCB REINFORCED CONCRETE BOX CULVERT
	CO CLEAN OUT

	SANITARY & STORM MANHOLE
	OPEN THROAT INTAKE OR MG INTAKE
	SINGLE & DOUBLE BACK OF CURB(B/C) INTAKE
	STORM AREA INTAKE
	COMMUNICATIONS RISER
	ELECTRIC TRANSFORMER
	ELECTRIC METER
	ELECTRIC BOX
	WOOD POWER POLE WITH LIGHT
	POWER POLE
	STEEL STREET LIGHT POLE
	METAL LIGHT POLE
	GUYWIRE ANCHOR
	FIRE HYDRANT
	WATER MAIN GATE VALVE
	WATER MAIN STOP BOX VALVE
	SIGN
	DEEDED BEARING & DISTANCE
	PREVIOUSLY RECORDED BEARING & DISTANCE
	MEASURED BEARING & DISTANCE
	FINISHED FLOOR ELEVATION
	PORTLAND CEMENT CONCRETE
	ASPHALTIC CEMENT CONCRETE
	CONCRETE MASONRY UNIT
	I.R. IRON ROD
	I.P. IRON PIPE
	BH
	PROPERTY ADDRESS

UTILITY LEGEND

Frontier Communications / Verizon
Chuck Salen
712-541-1941
charles.salen@verizon.com

City of Fort Dodge
Brett Daniel
515-573-5071
bdaniel@fordodgeiowa.org

Midamerican Energy - Electric
Brian Sewell
515-574-5042
bjsewell@midamerican.com

Midamerican Energy - Gas
Matt Hartman
515-972-6138
matthew.hartman@midamerican.com

Mediacom
Mike Lawler
515-571-2183
mlawler@mediacomcc.com

Fort Dodge Fiber
Joe Sheeder
515-515-5002
jsheeder@fordodgefiber.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.	
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	

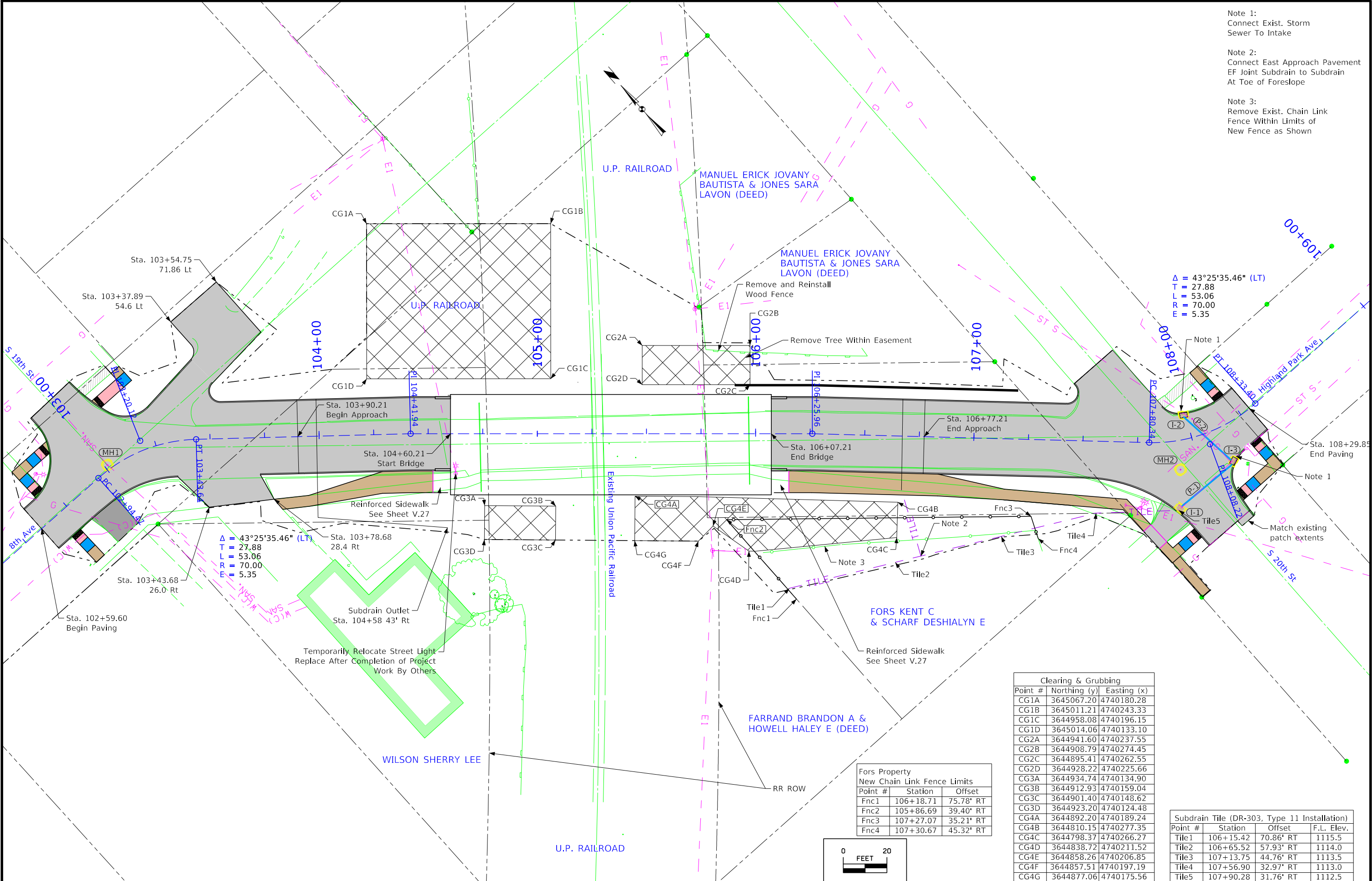
	Reference Point
	Station
	Survey Line
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	HighTension Cable Guardrail
	Sheet Pile
	Clearing & Grubbing Area

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
	Access Control
	Property Line

PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET

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



- Note 1:
Connect Exist. Storm
Sewer To Intake
- Note 2:
Connect East Approach Pavement
EF Joint Subdrain to Subdrain
At Toe of Foreslope
- Note 3:
Remove Exist. Chain Link
Fence Within Limits of
New Fence as Shown

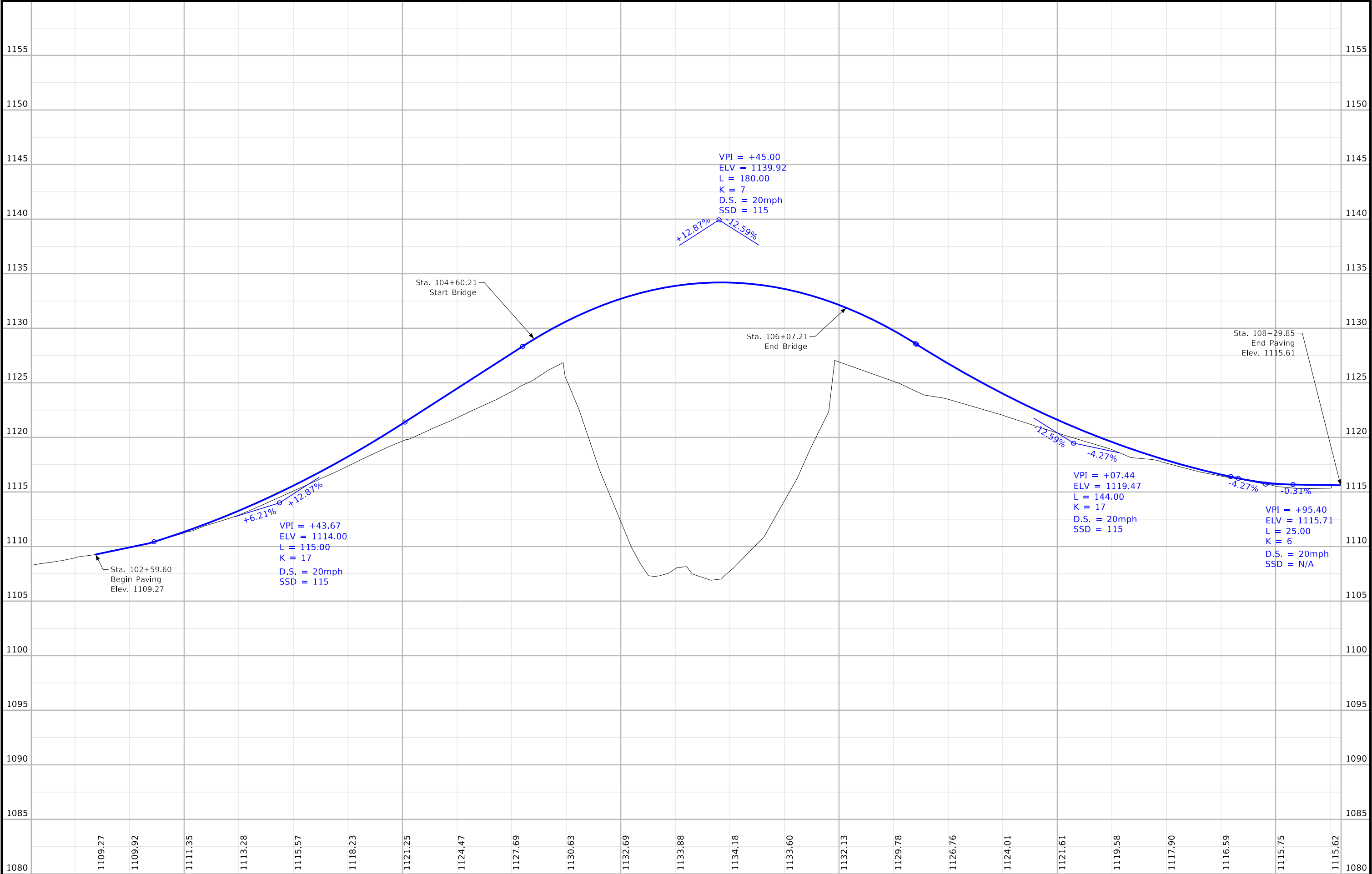
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T = 27.88
L = 53.06
R = 70.00
E = 5.35

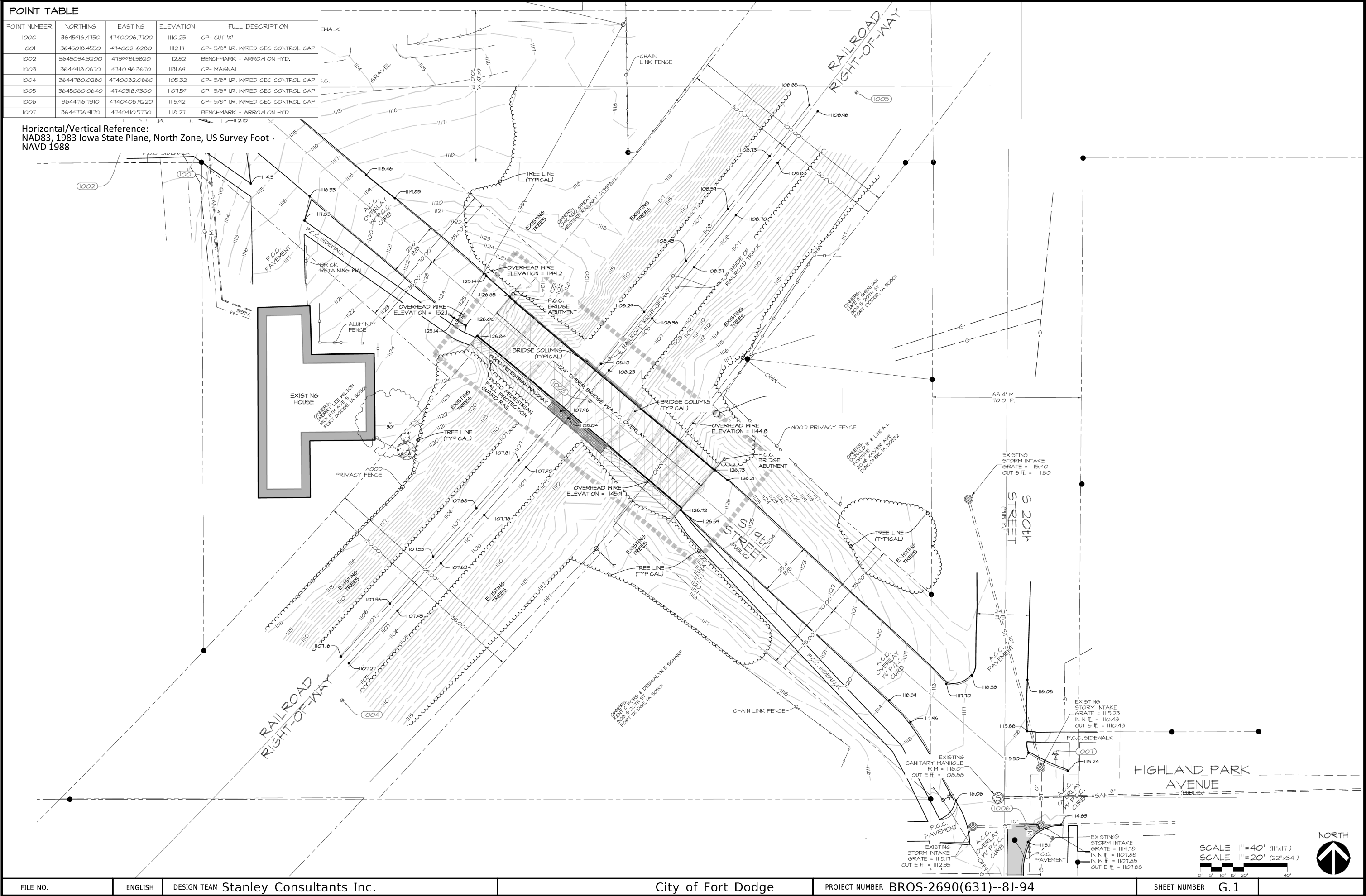
Δ = 43°25'35.46" (LT)
T = 27.88
L = 53.06
R = 70.00
E = 5.35

Clearing & Grubbing		
Point #	Northing (y)	Easting (x)
CG1A	3645067.20	4740180.28
CG1B	3645011.21	4740243.33
CG1C	3644958.08	4740196.15
CG1D	3645014.06	4740133.10
CG2A	3644941.60	4740237.55
CG2B	3644908.79	4740274.45
CG2C	3644895.41	4740262.55
CG2D	3644928.22	4740225.66
CG3A	3644934.74	4740134.90
CG3B	3644912.93	4740159.04
CG3C	3644901.40	4740148.62
CG3D	3644923.20	4740124.48
CG4A	3644892.20	4740189.24
CG4B	3644810.15	4740277.35
CG4C	3644798.37	4740266.27
CG4D	3644838.72	4740211.52
CG4E	3644858.26	4740206.85
CG4F	3644857.51	4740197.19
CG4G	3644877.06	4740175.56

Fors Property New Chain Link Fence Limits		
Point #	Station	Offset
Fnc1	106+18.71	75.78' RT
Fnc2	105+86.69	39.40' RT
Fnc3	107+27.07	35.21' RT
Fnc4	107+30.67	45.32' RT

Subdrain Tile (DR-303, Type 11 Installation)			
Point #	Station	Offset	F.L. Elev.
Tile1	106+15.42	70.86' RT	1115.5
Tile2	106+65.52	57.93' RT	1114.0
Tile3	107+13.75	44.76' RT	1113.5
Tile4	107+56.90	32.97' RT	1113.0
Tile5	107+90.28	31.76' RT	1112.5





FILE NO.

ENGLISH

DESIGN TEAM Stanley Consultants Inc.

City of Fort Dodge

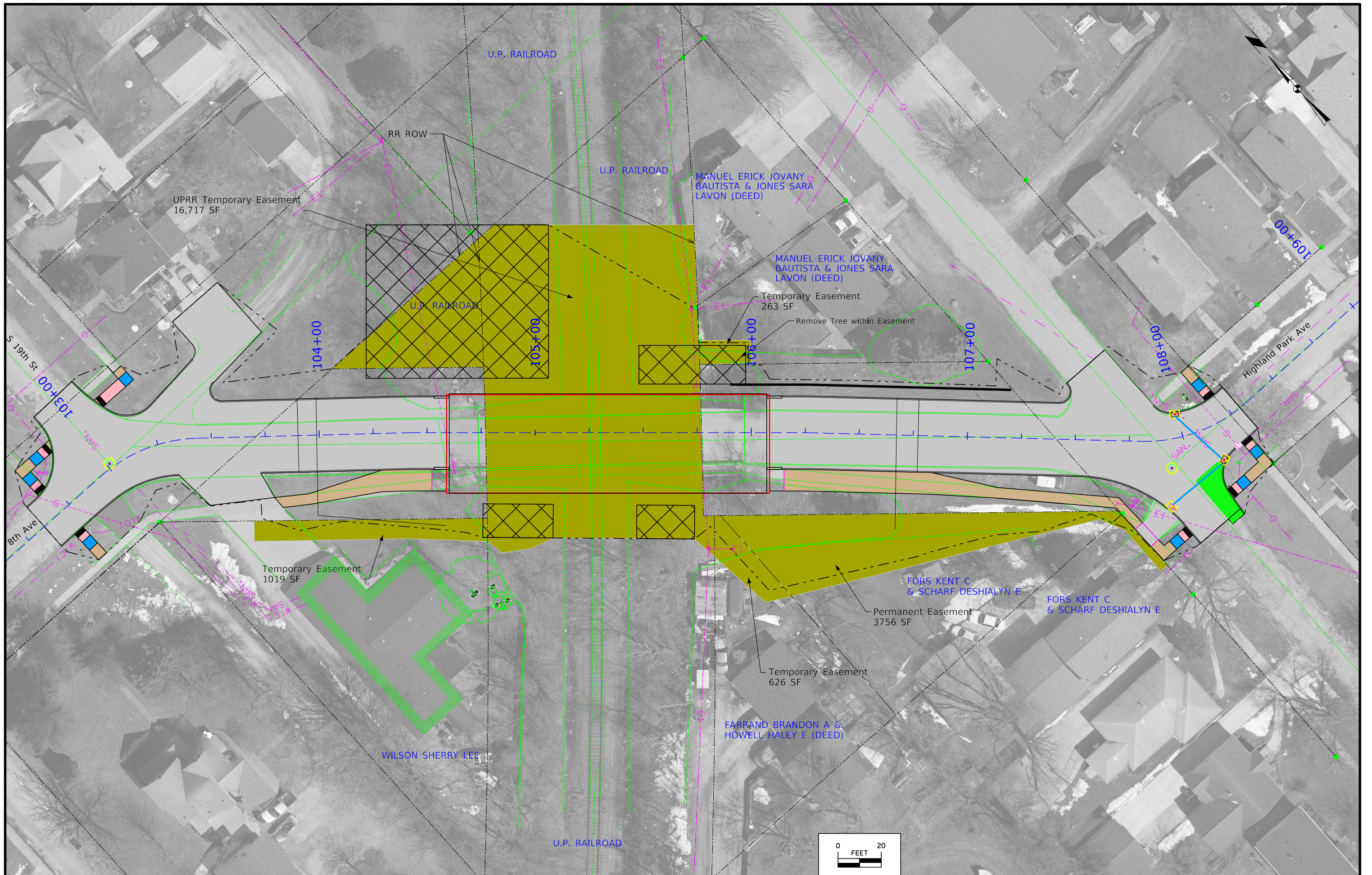
PROJECT NUMBER BROS-2690(631)--8J-94

SHEET NUMBER G.1

11:17:00 AM 9/6/2023 9474 pw:\SCL-PWINTG-2.stanleygroup.com:Datasource-1\Documents\City_of_FortDodge\28325 - Highland Pk Ave Over UPRR Bridge Repl-Feasibility Study\11-CADD\Design-Road\Sheet_Files\SHT_28325_G01.dgn

101-16 MODIFIED																			
ALIGNMENT COORDINATES																			
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)
Highland Park Ave/S 19th St.		100+00.00	3645061.24	4739716.57															
								102+94.47	3645061.78	4740011.03	103+20.12	3645061.82	4740036.69	103+43.64	3645045.28	4740056.30			
		104+41.94	3644981.91	4740131.43															
		106+25.96	3644859.61	4740268.94															
								107+80.35	3644754.04	4740381.58	108+08.22	3644734.97	4740401.92	108+33.40	3644735.11	4740429.79			
		110+22.06	3644736.03	4740618.45															

101-17 MODIFIED																
SPIRAL OR CIRCULAR CURVE DATA																
Name	Location	ΔSCS	Horizontal Alignment Data												Remarks	
			Spiral Data								Curve Data					
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R		E
C1	Highland Park Ave/S 19th St										40.252°	25.652	49.177	70	4.552	
C2	Highland Park Ave/S 19th St										43.427°	27.875	53.055	70	5.346	



108-23A
MODIFIED

TRAFFIC CONTROL PLAN

1. Project will replace Highland Park Ave/S 19th St bridge over UP RR and replace associated roadway, pavements, and sidewalks.

2. Highland Park Ave will be closed to vehicular and pedestrian traffic from 8th Ave and S 19th St intersection to Highland Park Ave and S 20th St intersection.

Vehicular Detours:
8th Ave Eastbound - South on S 18th St to East on 9th Ave S to North on S 22th St.
Highland Park Westbound - South on S 22nd St to West on 9th Ave S to North on S 18th St.

Pedestrian Detours:
Refer to Tab 113-2

Contractor shall be responsible for providing, installing, and maintaining detour route signs.
Refer to other J sheets for additional information.

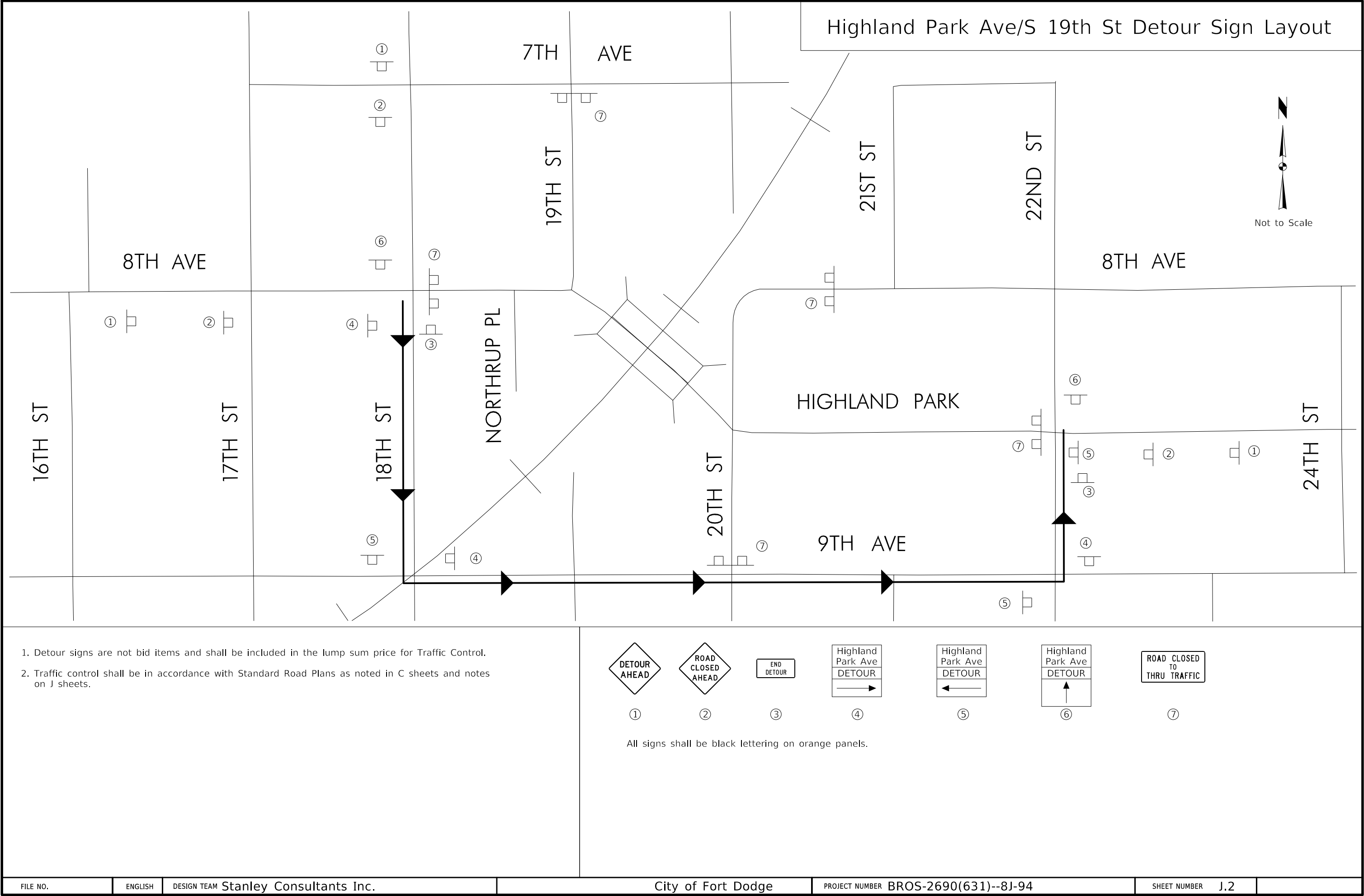
113-2
MODIFIED

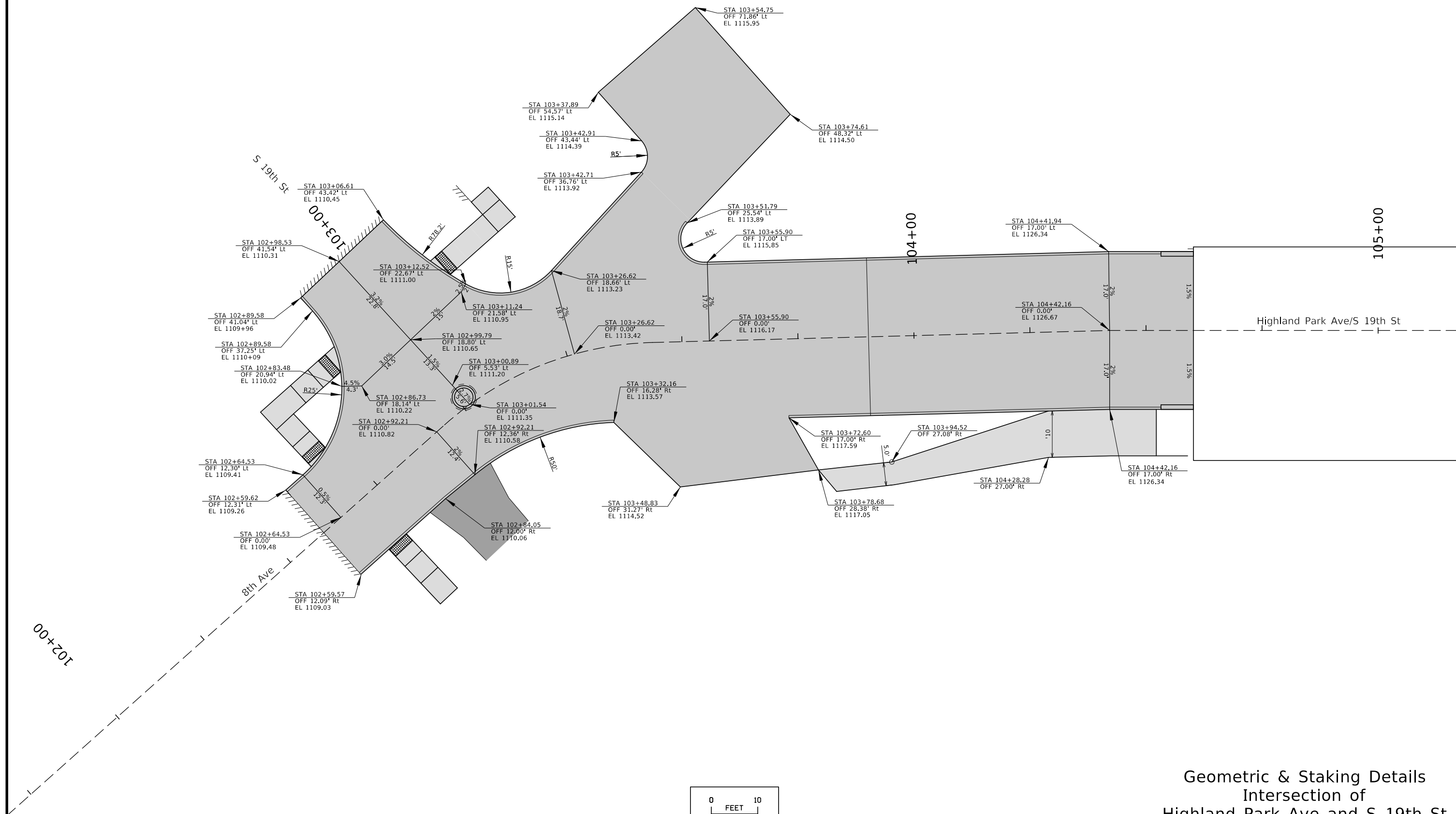
PEDESTRIAN PATH CLOSURES

Refer to TC-601.

*Assumes 6 foot wide barricade.
Closures may need to be removed and re-established.

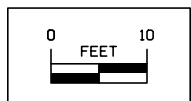
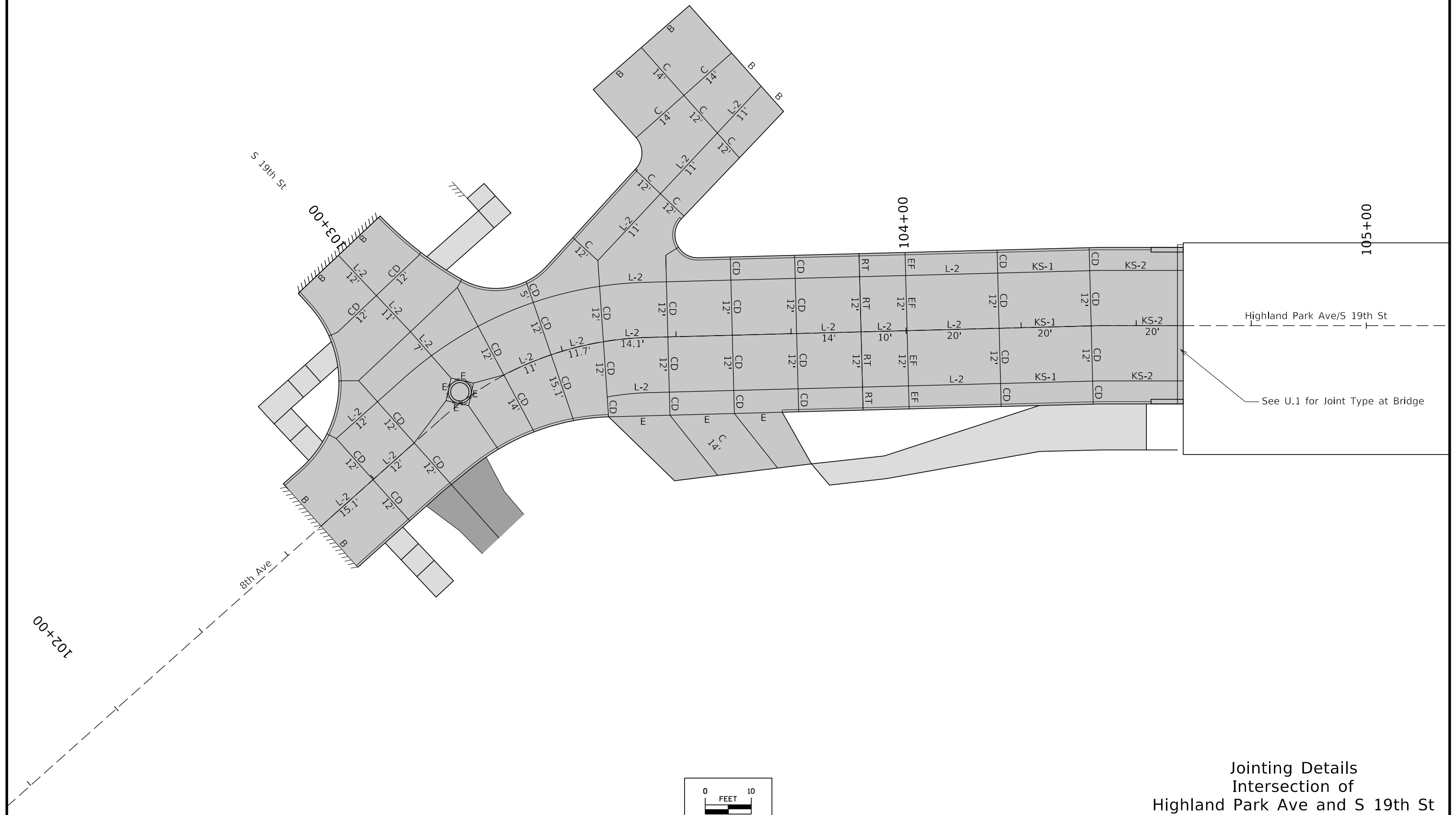
Location	Side	Type III Barricades*	Remarks
		No.	
South side of 8th Ave, West of bridge	R	1	
West side of 19th St, West of bridge	L	2	
East side of 19th St, West of bridge	L	2	
West side of 20th St, East of bridge	R	2	
East side of 20th St, East of bridge	R	3	
South side of Highland Park Ave, East of bridge	R	1	
North side of Highland Park Ave, East of bridge	L	3	





Geometric & Staking Details
Intersection of
Highland Park Ave and S 19th St

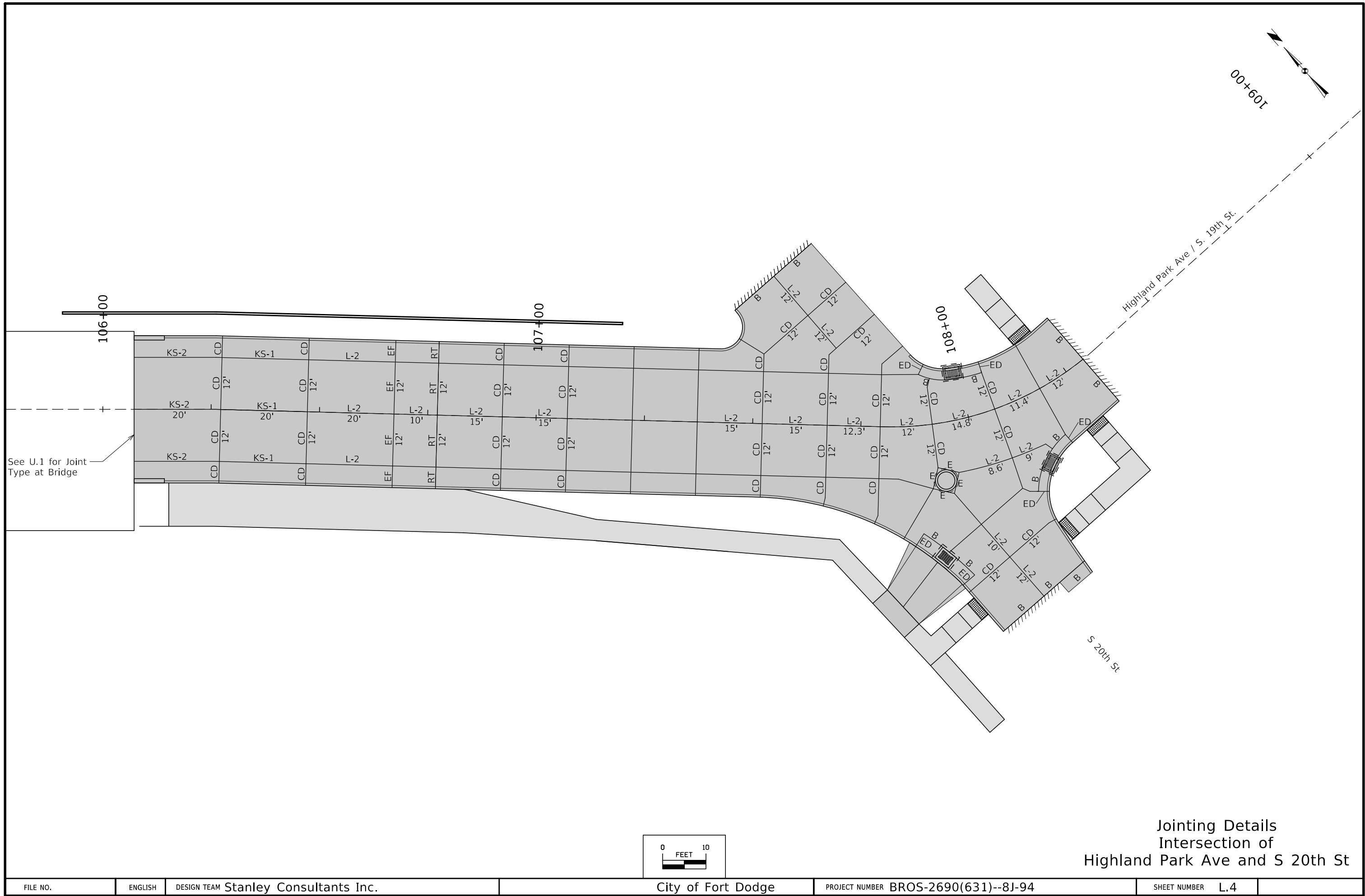
FILE NO.	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	City of Fort Dodge	PROJECT NUMBER BROS-2690(631)--8J-94	SHEET NUMBER L. 1
10:30:47 AM	1/15/2026	8877	pw:\\SCI-PW\\INTEG-2.stanleygroup.com\\Datasource-1\\Documents\\City_of_FortDodge\\28325 - Highland Pk Ave Over UPRR Bridge Repl-Feasibility Study\\11-CADD\\Design-Road\\Sheet_Files\\SHT_28325_L01.dgn		



Jointing Details
Intersection of
Highland Park Ave and S 19th St

FILE NO.	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	City of Fort Dodge	PROJECT NUMBER BROS-2690(631)--8J-94	SHEET NUMBER L.2
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4:43:27 PM1/8/20268877pw:\\SCI-PW\\INTEG-2.stanleygroup.com\\Datasource-1\\Documents\\City_of_FortDodge\\28325 - Highland Pk Ave Over UPRR Bridge Repl-Feasibility Study\\11-CADD\\Design-Road\\Sheet_Files\\SHT_28325_L01.dgn



1 Diameter or equivalent diameter
* Bid Item
** For SW-545

STORM SEWER

[illegible]

110-12L MODIFIED				110-12L MODIFIED					
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 reconstruction of a bridge and adjacent roadways. B. This PPP covers approximately 1.2 acres with an estimated 1.0 acres being disturbed. The portion of the PPP covered by this contract has 1.0 acres disturbed. C. The PPP is located in an area of one soil association (Clarion - Nicollet - Webster). The estimated weighted average runoff coefficient number for this PPP after completion will be 0.53. 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									
POLLUTION PREVENTION PLAN									
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 storm sewer. 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. 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									
FILE NO.	ENGLISH	DESIGN TEAM	Stanley Consultants Inc.	City of Fort Dodge	COUNTY	PROJECT NUMBER	BROS-2690(631)--8J-94	SHEET NUMBER	RC.1
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110-12L
MODIFIED

POLLUTION PREVENTION PLAN

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 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.

Signature

Gregory S. Shuger

Printed or Typed Name

Signature

Austin Morrow

Austin Morrow, City of Fort Dodge

Printed or Typed Name

PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES									
Possible Standards: EC-204									
Location			Perimeter and Slope			Ditch Check		Remarks	
Begin Station	End Station	Side	Length of Installation			Length of Installation			
			9 inch Dia	12 inch Dia	20 inch Dia	12 inch Dia	20 inch Dia		
			LF	LF	LF	LF	LF		
102+60.00	103+35.00	Rt		80					
103+73.00	104+59.00	Rt		100					
106+08.00	107+95.00	Rt		210					
108+12.00	108+30.00	Rt		50					
102+60.00	102+88.00	Lt		50					
103+09.00	103+42.00	Lt		90					
103+55.00	103+72.00	Lt		30					
103+82.00	104+58.00	Lt		150					
107+13.00	107+44.00	Lt		40					
107+64.00	108+29.00	Lt		70					
107+91.00		Rt			20.0			Intake	
			Totals:	870	20.0				

FILE NO.

ENGLISH

DESIGN TEAM

Stanley Consultants Inc.

City of Fort Dodge

COUNTY

PROJECT NUMBER

BROS-2690(631)--8J-94

SHEET NUMBER

RC.2

1/9/2026

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STORMWATER DRAINAGE BASIN AND STORAGE														100-34 MODIFIED
Drainage Basin Location						Refer to EC Standards and 570s Details. Summary of Stormwater Storage							Remarks	
Basin No.	Station to Station		Side	Discharge Point		Total Disturbed Area	Disturbed Area with Storage Provided	Disturbed Area without Storage Provided	Best Management Practice	Total Storage Volume Provided	Total Storage Volume Required	Storage Volume Met?		
				Station	Side							Yes/No		
	Acres	Acres		Acres	CF	CF	Yes/No							
1	102+60.00	103+10.00	Lt	102+60.00	Lt	0.0	0.0	0.0	Vegetated Buffer	0.0	0.0	N/A		
2	102+60.00	105+46.00	Rt	102+60.00	Rt	0.2	0.0	0.2	Vegetated Buffer	0.0	0.0	N/A		
3	103+10.00	105+46.00	Lt	103+06.00	Lt	0.3	0.0	0.3	Vegetated Buffer	0.0	0.0	N/A		
4	104+61.00	106+08.00	Rt	105+13.00	Rt	0.1	0.0	0.1	Vegetated Buffer	0.0	0.0	N/A		
5	104+59.00	106+08.00	Lt	105+18.00	Lt	0.2	0.0	0.2	Vegetated Buffer	0.0	0.0	N/A		
6	105+46.00	108+05.00	Lt	108+03.00	Lt	0.2	0.0	0.2	Vegetated Buffer	0.0	0.0	N/A		
7	105+44.00	107+93.00	Rt	107+91.00	Rt	0.1	0.0	0.1	Vegetated Buffer	0.0	0.0	N/A		
8	106+08.00	107+97.00	Rt	107+94.00	Rt	0.1	0.0	0.1	Vegetated Buffer	0.0	0.0	N/A		
9	107+54.00	108+30.00	Both	108+12.00	Rt	0.1	0.0	0.1	Vegetated Buffer	0.0	0.0	N/A		

LINE STYLE LEGEND OF EROSION CONTROL SHEETS	
	Silt Fence
	Perimeter and Slope Sediment Control Device (9")
	Perimeter and Slope Sediment Control Device (12")
	Perimeter and Slope Sediment Control Device (20")
	Open-Throat Curb Intake Sediment Filter
	Concentrated Flow
	Sheet Flow

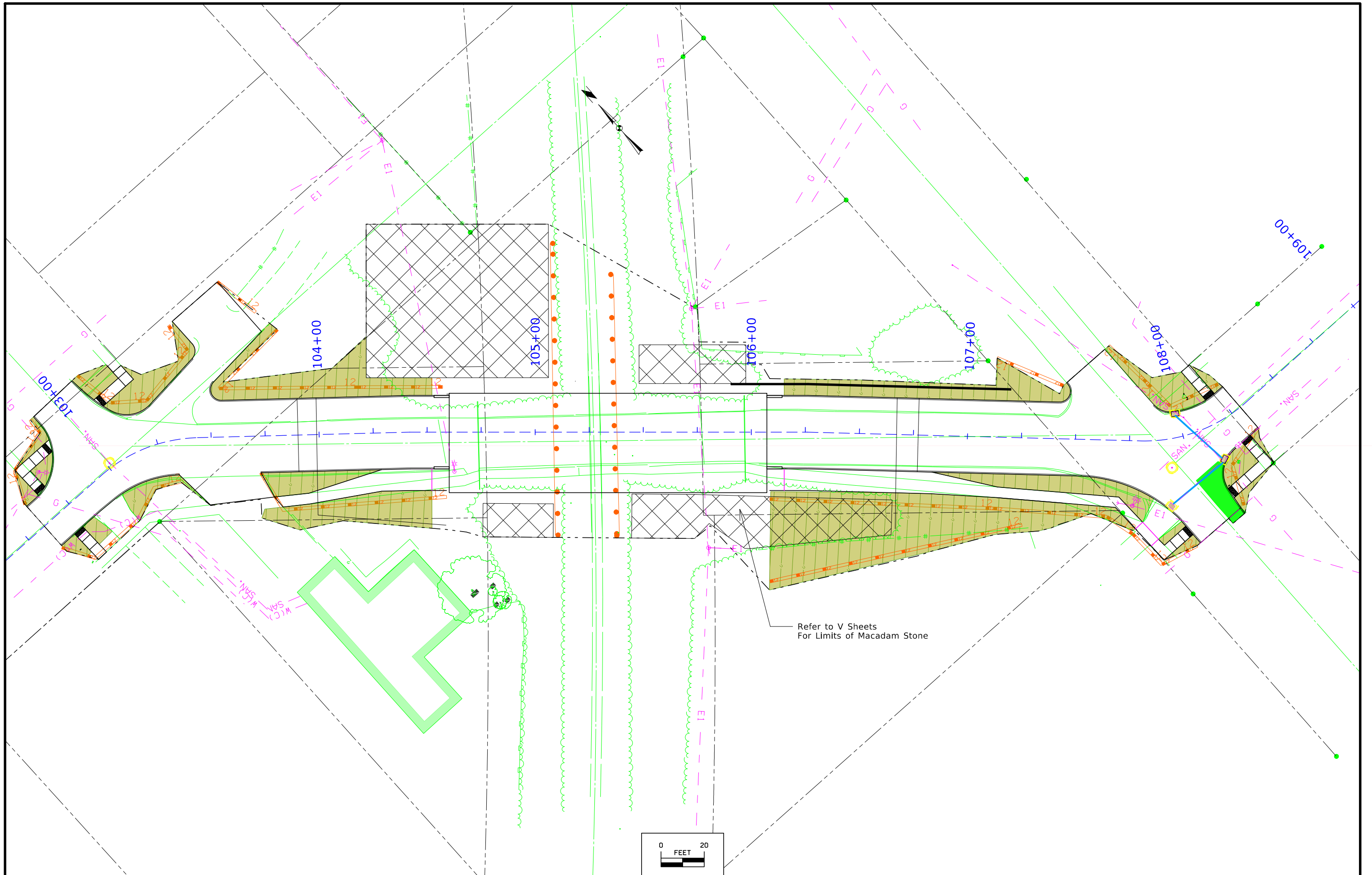
CELL LEGEND OF EROSION CONTROL SHEETS	
	Temporary Sediment Control basin
	Erosion Control for Circular Intake or Manhole Well
	Erosion Control for Rectangular Intake or Manhole Well
	Grate Intake Sediment Filter Bag
	Silt Basin
	Silt Fence Tail
	Stormwater Drainage Basin Discharge Point

PLAN VIEW COLOR LEGEND OF EROSION CONTROL 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
Black	(0)		Permanent Erosion Control Features
Blaze Orange	(222)		Temporary Erosion Control Features
SHADING	Design Color No.		Transparency
Citron	(234)		Mulching, All Types50%
Light Brown	(238)		Special Ditch Control, Wood Excelsior Mat0%

PATTERN LEGEND OF EROSION CONTROL SHEETS	
	Seeding and Fertilizing
	Seeding and Fertilizing (Rural)
	Seeding and Fertilizing (Urban)
	Native Grass Seeding
	Salt Tolerant Seeding
	Wetland Grass Seeding
	Wildflower Seeding
	Sodding
	Turf Reinforcement Mat Type 1
	Turf Reinforcement Mat Type 2
	Turf Reinforcement Mat Type 3
	Turf Reinforcement Mat Type 4
	Slope Protection, Wood Excelsior Mat
	Transition Mat
	Rock Features, Permanent
	Rock Features, Temporary

EROSION CONTROL
LEGEND AND SYMBOL
INFORMATION SHEET

(COVERS SHEET SERIES RR)



SURVEY SYMBOLS

	C.E.C. CONTROL POINT & BENCHMARKS		SANITARY & STORM MANHOLE
	FOUND CORNERS		OPEN THROAT INTAKE OR MG INTAKE
	SET PROPERTY CORNER (5/8" I.R. W/BUE CAP #18381 UNLESS OTHERWISE NOTED)		SINGLE & DOUBLE BACK OF CURB(B/C) INTAKE
	PROPERTY BOUNDARY		STORM AREA INTAKE
	LOT LINES		COMMUNICATIONS RISER
	ORIGINAL PLATTED LOT LINES		COMMUNICATIONS RISER
	TREE LINE		ELECTRIC TRANSFORMER
	EDGE OF ASPHALTIC CEMENT CONCRETE		ELECTRIC METER
	(HOT MIX ASPHALT - HMA)		ELECTRIC BOX
	BACK OF PORTLAND CEMENT CONCRETE		WOOD POWER POLE WITH LIGHT
	(P.C.C.) CURB & EDGE OF PORTLAND CEMENT CONCRETE SLAB		POWER POLE
	GUTTER		STEEL STREET LIGHT POLE
	CENTERLINE STREET		METAL LIGHT POLE
	SIDEWALK		GUYWIRE ANCHOR
	EXISTING CHAIN LINK FENCE		FIRE HYDRANT
	EXISTING PIPE FENCE		WATER MAIN GATE VALVE
	EXISTING WIRE FENCE		WATER MAIN STOP BOX VALVE
	OVERHEAD WIRES (X = NUMBER OF WIRES)		SIGN
	UNDERGROUND FIBER OPTIC LINES		DEEDED BEARING & DISTANCE
	STORM SEWER AND SIZE		PREVIOUSLY RECORDED BEARING & DISTANCE
	SAN. SANITARY SEWER AND SIZE		MEASURED BEARING & DISTANCE
	W(C) WATER MAIN AND SIZE		FINISHED FLOOR ELEVATION
	G GAS MAIN AND SIZE		PORTLAND CEMENT CONCRETE
	UGE UNDERGROUND ELECTRIC		ASPHALTIC CEMENT CONCRETE
	CATV UNDERGROUND CABLE TELEVISION LINE		CONCRETE MASONRY UNIT
	UGT UNDERGROUND TELEPHONE LINE		
	RETAINING WALL		IRON ROD
	EXISTING BUILDING		IRON PIPE
	UTILITY LOCATION BASED ON MAPS		
	PROVIDED BY THE IOWA ONE CALL SERVICE (APPROXIMATE LOCATIONS ONLY)		
	EST. ESTIMATED LOCATION BASED ON A COMBINATION OF SURVEY DATA, UTILITY MAPS, AND THE ORIGINAL SITE PLAN.		
	PLANS. LOCATION BASED ON ORIGINAL CONSTRUCTION DRAWINGS PROVIDED BY THE CITY OF URBANDALE.		BH
	B/B BACK OF CURB TO BACK OF CURB		
	CI & DIP CAST IRON PIPE & DUCTILE IRON PIPE		
	VCP VITRIFIED CLAY PIPE		
	RCP REINFORCED CONCRETE PIPE		
	RCB REINFORCED CONCRETE BOX CULVERT		
	CO CLEAN OUT		
			PROPERTY ADDRESS

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

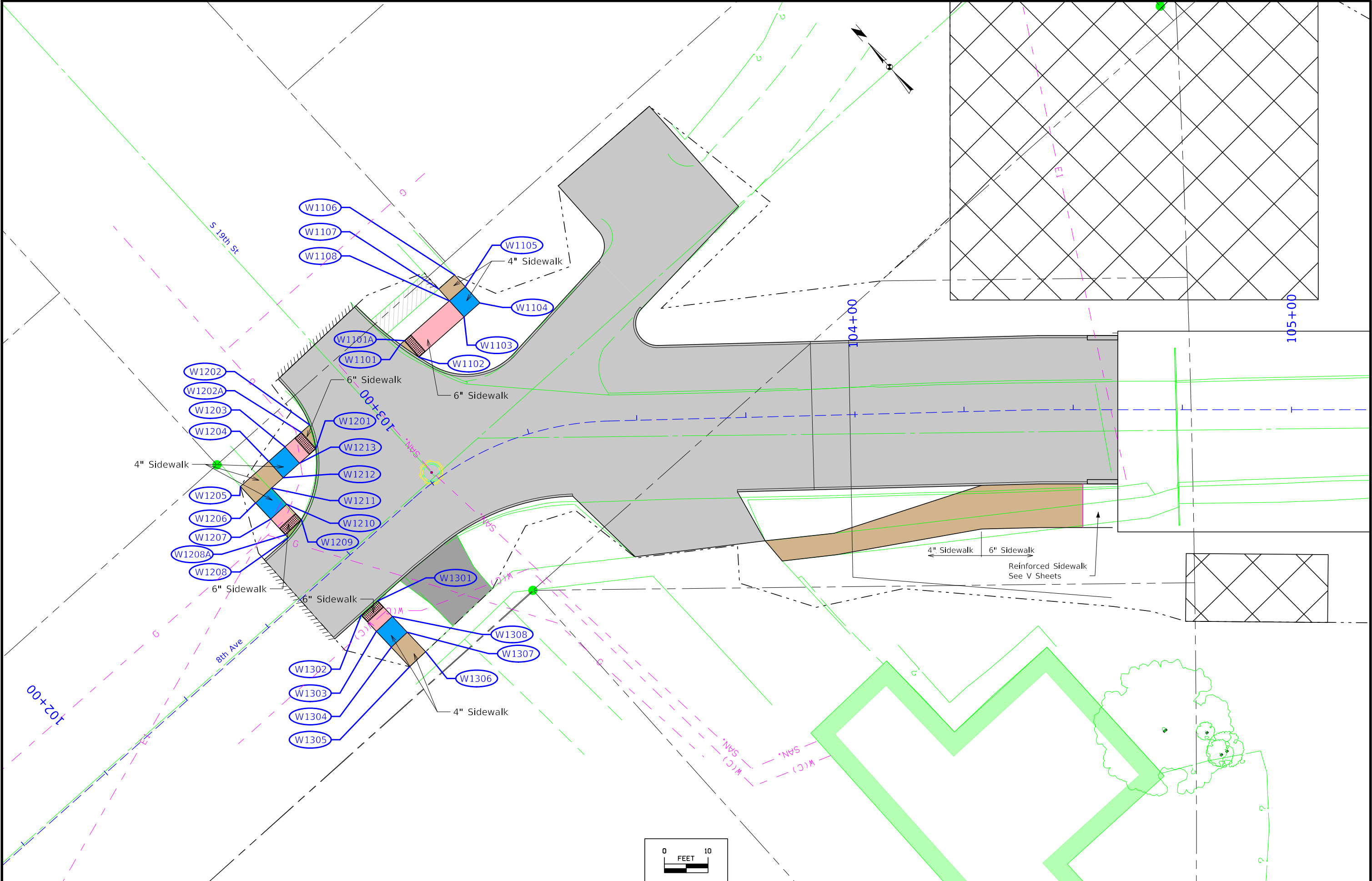
LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING	Design Color No.	
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Magenta	(5)	Detectable Warning
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
Brown, Light	(236)	Grading Shading

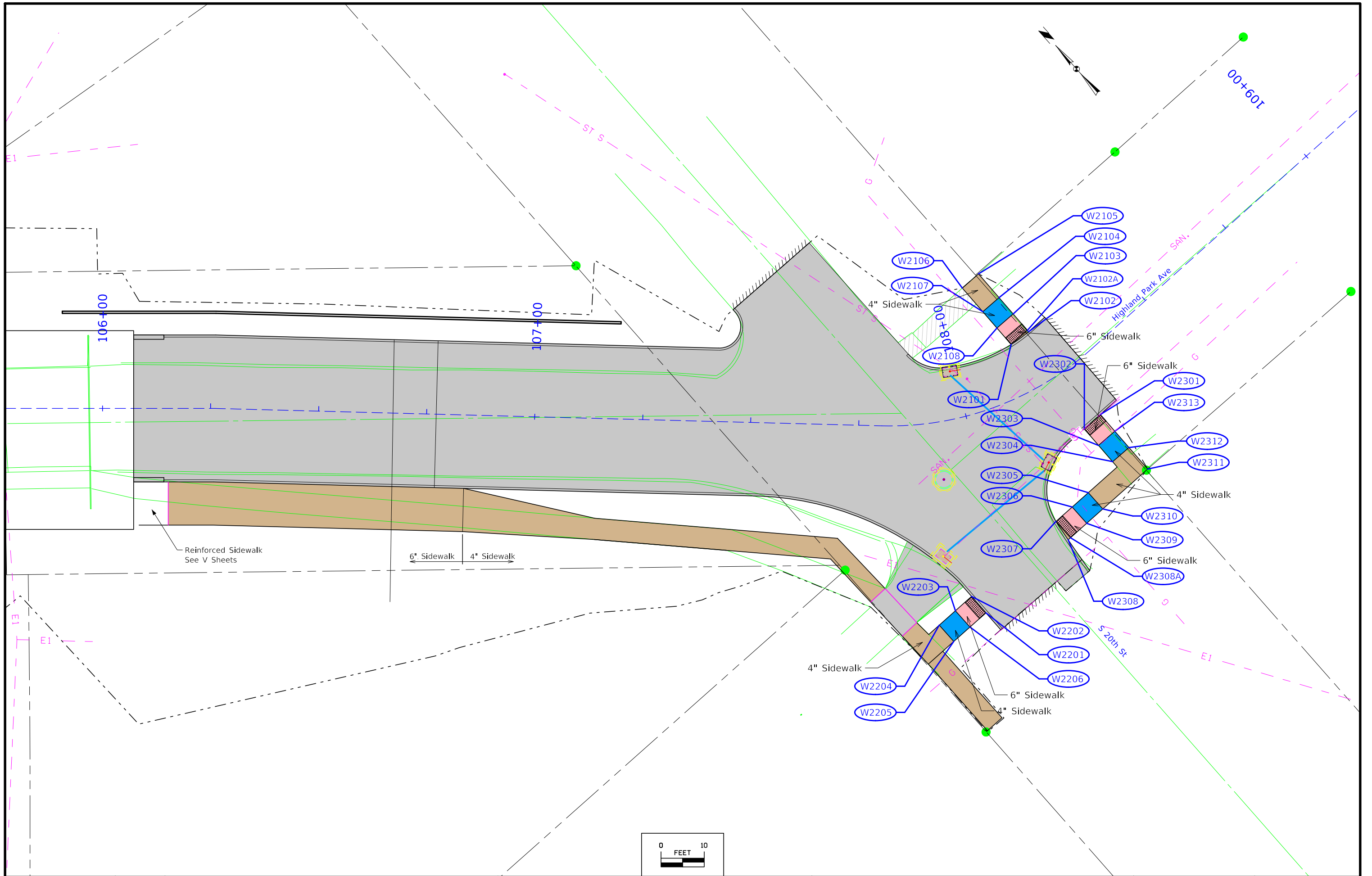
RIGHT-OF-WAY LEGEND	
	Proposed Right-of-Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Borrow
	Easement (Temporary)
	Easement
	Excess
	Access Control

	Reference Point
	Survey Line
	Station
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Clearing & Grubbing Area

SIDEWALK
LEGEND AND SYMBOL
INFORMATION SHEET

(COVERS SHEET SERIES S)





SIDEWALK COMPLIANCE

See S Sheets

113-10
MODIFIED

- * Does not include curb
① Staking required by Contracting Authority per Article 2511.03 of the Standard Specifications.
② Refer to tabulation 113-01 for bid quantities.

Point to Point		Sidewalk Designation	- " PCC Sidewalk ②	Distance*	Δ Elevation	Slope	Acceptable Constructed Range	Staking Required on this Quadrant? ①	Measured Slope	Initials	Remarks	FOR INFORMATION ONLY: VALUES USED TO DETERMINE DESIGNED SLOPES			
				FT	FT	%	Pos. or Neg.		%			Point	Station	Offset	Elevation
W1101	W1102	Crosswalk Cross Slope - No Yield Condition	6	5.20	0.12	2.3%	0.0% to 5.0%					W1101	103+09.35	-30.62	1110.78
W1101	W1101A	Sidewalk Running Slope	6	1.25	0.05	4.0%	0.5% to 5.0%					W1101A	103+10.20	-30.89	1110.83
W1101A	W1102	Ramp Cross Slope	6	5.00	0.07	1.4%	0.1% to 2.0%					--	--	--	--
W1101A	W1108	Ramp Running Slope	6	13.80	0.55	4.0%	0.5% to 8.3%					W1102	103+11.00	-26.02	1110.90
W1102	W1103	Ramp Running Slope	6	13.80	0.45	3.3%	0.5% to 8.3%					W1103	103+21.20	-30.57	1111.35
W1103	W1104	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W1104	103+24.29	-32.45	1111.40
W1103	W1108	Landing/Turning Space	4	5.00	0.03	0.6%	0.1% to 2.0%					W1105	103+22.51	-36.77	1111.45
W1104	W1105	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W1106	103+21.31	-39.91	1111.60
W1105	W1108	Landing/Turning Space	4	5.00	-0.07	-1.4%	0.1% to 2.0%					W1107	103+18.38	-38.21	1111.40
W1105	W1106	Sidewalk Running Slope	4	3.60	0.15	4.2%	0.5% to 5.0%	Yes				W1108	103+19.51	-34.97	1111.38
W1106	W1107	Match Existing Cross Slope	4	4.80	-0.20	-4.2%	Match Existing					--	--	--	--
W1107	W1108	Sidewalk Running Slope	4	3.60	-0.02	-0.6%	0.5% to 5.0%					W1201	102+85.36	-23.41	1110.21
												W1202	102+87.94	-28.40	1110.27
W1201	W1202A	Ramp Cross Slope	6	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W1202A	102+85.37	-28.41	1110.31
W1201	W1202	Crosswalk Cross Slope - No Yield Condition	6	5.60	0.06	1.1%	0.0% to 5.0%					W1203	102+80.37	-28.42	1110.40
W1202A	W1202	Sidewalk Running Slope	6	2.60	-0.04	-1.5%	0.5% to 5.0%					--	--	--	--
W1201	W1213	Ramp Running Slope	6	5.00	0.09	1.8%	0.5% to 8.3%					W1204	102+75.37	-28.42	1110.35
W1202A	W1203	Ramp Running Slope	6	5.00	0.09	1.8%	0.5% to 8.3%					W1205	102+66.72	-28.44	1110.20
W1203	W1204	Landing/Turning Space	4	5.00	-0.05	-1.0%	0.1% to 2.0%					W1206	102+66.78	-23.22	1110.00
W1203	W1213	Landing/Turning Space	4	5.00	-0.10	-2.0%	0.1% to 2.0%	Yes				W1207	102+66.91	-18.25	1109.90
W1204	W1205	Sidewalk Running Slope	4	8.60	-0.15	-1.7%	0.5% to 5.0%					W1208	102+67.07	-12.42	1109.48
W1208	W1208A	Sidewalk Running Slope	6	0.89	0.04	4.5%	0.5% to 5.0%	Yes				W1208A	102+67.04	-13.31	1109.52
W1208A	W1209	Ramp Cross Slope	6	5.00	0.10	2.0%	0.1% to 2.0%	Yes				--	--	--	--
W1205	W1206	Sidewalk Running Slope	4	5.20	-0.20	-3.8%	0.5% to 5.0%					W1209	102+72.04	-13.44	1109.62
W1206	W1207	Landing/Turning Space	4	5.00	-0.10	-2.0%	0.1% to 2.0%	Yes				W1210	102+71.91	-18.34	1109.95
W1206	W1211	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W1211	102+71.78	-23.43	1110.05
W1207	W1208A	Ramp Running Slope	6	4.94	-0.38	-7.7%	0.5% to 8.3%	Yes				W1212	102+75.36	-23.43	1110.20
W1207	W1210	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W1213	102+80.36	-23.43	1110.30
W1208	W1209	Crosswalk Cross Slope - No Yield Condition	6	5.10	0.14	2.7%	0.0% to 5.0%					--	--	--	--
W1209	W1210	Ramp Running Slope	6	5.00	0.33	6.6%	0.5% to 8.3%					W1301	102+72.71	12.04	1109.58
W1210	W1211	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W1302	102+67.55	12.06	1109.37
W1211	W1212	Sidewalk Running Slope	4	3.60	0.15	4.2%	0.5% to 5.0%	Yes				W1303	102+67.68	17.06	1109.75
W1212	W1213	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W1304	102+67.81	22.06	1109.85
												W1305	102+67.97	28.18	1110.10
W1301	W1302	Crosswalk Cross Slope - No Yield Condition	6	5.00	-0.21	-4.2%	0.0% to 5.0%					W1306	102+73.13	28.05	1110.23
W1301	W1308	Ramp Running Slope	6	5.00	0.27	5.4%	0.5% to 8.3%					W1307	102+72.97	21.93	1109.95
W1302	W1303	Ramp Running Slope	6	5.00	0.38	7.6%	0.5% to 8.3%	Yes				W1308	102+72.68	16.93	1109.85
W1303	W1304	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				--	--	--	--
W1303	W1308	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				--	--	--	--
W1304	W1305	Sidewalk Running Slope	4	6.10	0.25	4.1%	0.5% to 5.0%	Yes				--	--	--	--
W1304	W1307	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				--	--	--	--
W1305	W1306	Match Existing Cross Slope	4	5.00	0.13	2.6%	Match Existing					--	--	--	--
W1306	W1307	Sidewalk Running Slope	4	6.10	-0.28	-4.6%	0.5% to 5.0%	Yes				--	--	--	--
W1307	W1308	Landing/Turning Space	4	5.00	-0.10	-2.0%	0.1% to 2.0%	Yes				--	--	--	--
												W2101	108+17.32	-11.66	1115.73
W2101	W2102	Crosswalk Cross Slope - No Yield Condition	6	5.00	-0.03	-0.6%	0.0% to 5.0%					W2102	108+23.30	-12.11	1115.70
W2101	W2102A	Ramp Cross Slope	6	5.00	-0.02	-0.4%	0.1% to 2.0%					W2102A	108+23.24	-12.50	1115.71
W2101	W2108	Ramp Running Slope	6	5.00	0.17	3.4%	0.5% to 8.3%					W2103	108+22.39	-17.47	1115.80
W2102	W2102A	Sidewalk Running Slope	6	0.40	0.01	2.5%	0.5% to 5.0%					W2104	108+21.37	-22.42	1115.85
W2102A	W2103	Ramp Running Slope	6	5.00	0.09	1.8%	0.5% to 8.3%					--	--	--	--
W2103	W2104	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W2105	108+19.44	-29.60	1115.75
W2103	W2108	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W2106	108+11.23	-28.39	1115.83
W2104	W2105	Sidewalk Running Slope	4	7.30	-0.10	-1.4%	0.5% to 5.0%					W2107	108+14.30	-21.41	1115.95
W2104	W2107	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W2108	108+15.94	-16.56	1115.90
W2105	W2106	Match Existing Cross Slope	4	5.00	0.08	1.6%	Match Existing					--	--	--	--
W2106	W2107	Sidewalk Running Slope	4	7.30	0.12	1.6%	0.5% to 5.0%					W2201	107+95.75	45.41	1116.32
W2107	W2108	Landing/Turning Space	4	5.00	-0.05	-1.0%	0.1% to 2.0%					W2202	107+94.16	41.07	1116.40
												W2203	107+91.54	43.79	1116.35
W2201	W2202	Crosswalk Cross Slope - Yield Condition	6	5.00	0.08	1.6%	0.0% to 2.0%					W2204	107+89.06	46.66	1116.30
W2201	W2206	Ramp Running Slope	6	5.00	0.08	1.6%	0.5% to 8.3%					W2205	107+90.78	50.78	1116.30
W2202	W2203	Ramp Running Slope	6	5.00	-0.05	-1.0%	0.5% to 8.3%					W2206	107+93.22	48.00	1116.40
W2203	W2204	Landing/Turning Space	4	5.00	-0.05	-1.0%	0.1% to 2.0%					--	--	--	--
W2203	W2206	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W2301	108+26.00	13.13	1115.51
W2204	W2205	Match Existing Cross Slope	4	5.00	0.00	0.0%	Match Existing					W2302	108+21.85	13.78	1115.50
W2205	W2206	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W2303	108+22.43	18.77	1115.50
												W2304	108+23.10	25.32	1115.60
W2301	W2302	Crosswalk Cross Slope - No Yield Condition	6	5.00	-0.01	-0.2%	0.0% to 5.0%					W2305	108+16.70	27.00	1115.70
W2301	W2313	Ramp Running Slope	6	5.00	0.09	1.8%	0.5% to 8.3%					W2306	108+13.23	28.27	1115.60
W2302	W2303	Ramp Running Slope	6	5.00	0.00	0.0%	0.5% to 8.3%					W2307	108+09.86	29.79	1115.67
W2303	W2304	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W2308	108+10.51	34.80	1115.68
W2307	W2308A	Ramp Cross Slope	6	5.00	0.02	0.4%	0.1% to 2.0%					W2308A	108+10.96	34.57	1115.69
W2303	W2313	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W2309	108+14.19	33.13	1115.70
W2304	W2312	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				W2310	108+17.50	31.91	1115.75
W2305	W2306	Landing/Turning Space	4	5.00	-0.10	-2.0%	0.1% to 2.0%	Yes				W2311	108+27.03	29.78	1115.80
W2305	W2310	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%					W2312	108+26.67	23.20	1115.70
W2306	W2307	Ramp Running Slope	6	5.00	0.07	1.4%	0.5% to 8.3%					W2313	108+26.35	18.22	1115.60

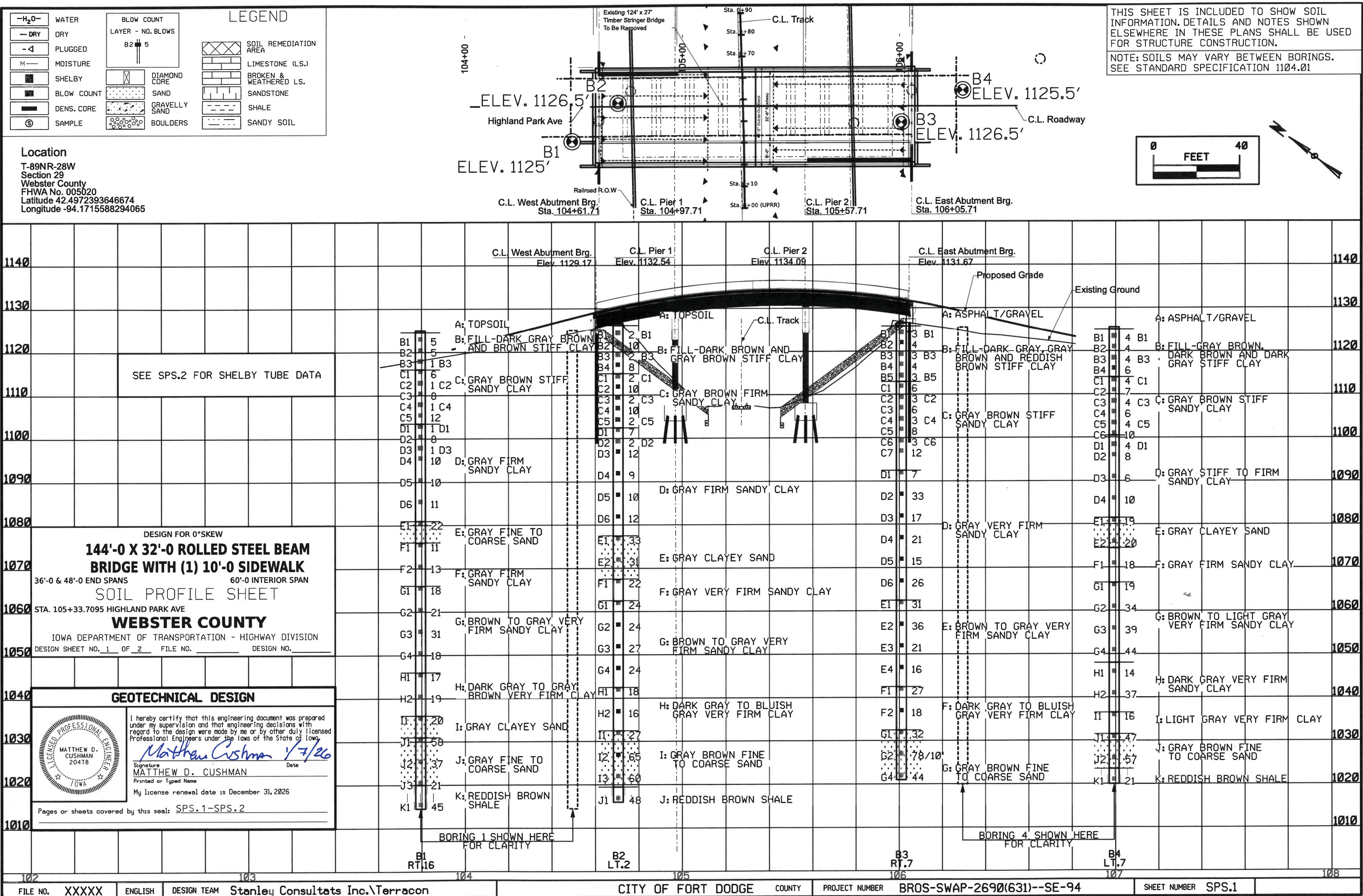
SIDEWALK COMPLIANCE

See S Sheets

113-10
MODIFIED

- * Does not include curb
- ① Staking required by Contracting Authority per Article 2511.03 of the Standard Specifications.
- ② Refer to tabulation 113-01 for bid quantities.

Point to Point		Sidewalk Designation	_" PCC Sidewalk ②	Distance*	Δ Elevation	Slope	Acceptable Constructed Range	Staking Required on this Quadrant? ①	Measured Slope	Initials	Remarks	FOR INFORMATION ONLY: VALUES USED TO DETERMINE DESIGNED SLOPES			
				FT	FT	%	Pos. or Neg.	①	%			Point	Station	Offset	Elevation
W2306	W2309	Landing/Turning Space	4	5.00	0.10	2.0%	0.1% to 2.0%	Yes				--	--	--	--
W2307	W2308	Crosswalk Cross Slope - No Yield Condition	6	5.10	0.01	0.2%	0.0% to 5.0%								
W2308	W2308A	Sidewalk Running Slope	6	0.70	0.01	1.4%	0.5% to 5.0%								
W2308A	W2309	Ramp Running Slope	6	5.00	0.01	0.2%	0.5% to 8.3%								
W2309	W2310	Landing/Turning Space	4	5.00	0.05	1.0%	0.1% to 2.0%								
W2310	W2311	Sidewalk Running Slope	4	13.90	0.05	0.4%	0.5% to 5.0%								
W2311	W2312	Sidewalk Running Slope	4	6.60	-0.10	-1.5%	0.5% to 5.0%								
W2312	W2313	Landing/Turning Space	4	5.00	-0.10	-2.0%	0.1% to 2.0%	Yes							



SHELBY TUBE CORE DATA

CORE NO.	B1 B3	B1 C2	B1 C4	B1 D1	B1 D3	B2 B1	B2 B3	B2 C1	B2 C3	B2 C5	B2 D2
DEPTH IN FEET	6.5	11.5	16.5	21.5	26.5	1.5	6.5	11.5	16.5	21.5	26.5
CLASSIFICATION (AASHTO)	-	-	-	-	-	-	A-7-6(18)	-	A-6(6)	-	-
COEFF.CON SOL. (SQ. FT /DAY)	-	-	-	-	-	-	-	-	-	-	-
TRIA XIAL COMPRESSION	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC
COHESION - PSF	2325	1645	2660	2345	1585	1645	865	2665	2250	2275	1905
FRICTION COEFF.	-	-	-	-	-	-	-	-	-	-	-
MOISTURE CONTENT %	22	26	18	17	18	11	16	17	18	19	18
DRY DENSITY - PCF	98	94	111	113	111	91	87	111	109	108	112
CU-CONSOLIDATED UN DRAINED											
UU-UNCONSOLIDATED UN DRAINED											
UC-UNCONFINED COMPRESSION (c=1/2 Qu)											

THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

NOTE: SOILS MAY VARY BETWEEN BORINGS. SEE STANDARD SPECIFICATION 1104.01

SHELBY TUBE CORE DATA

CORE NO.	B3 B1	B3 B3	B3 B5	B3 C2	B3 C4	B3 C6	B4 B1	B4 B3	B4 C1	B4 C3	B4 C5	B4 D1
DEPTH IN FEET	1.5	6.5	11.5	16.5	21.5	26.5	1.5	6.5	11.5	16.5	21.5	26.5
CLASSIFICATION (AASHTO)	-	A-7-6(25)	-	A-6(7)	-	-	-	-	A-6(10)	-	-	-
COEFF.CON SOL. (SQ. FT /DAY)	-	-	-	-	-	-	-	-	-	-	-	-
TRIA XIAL COMPRESSION	UC	-	UC	CU	UC	UC	UC	UC	UC	UC	UC	UC
COHESION - PSF	1000	-	720	780	1290	2475	-	915	1125	975	995	3425
FRICTION COEFF.	-	-	-	-	-	-	-	-	-	-	-	-
MOISTURE CONTENT %	26	-	21	31	19	19	28	30	20	20	20	19
DRY DENSITY - PCF	96	-	88	102	106	107	92	79	103	108	106	111
CU-CONSOLIDATED UN DRAINED												
UU-UNCONSOLIDATED UN DRAINED												
UC-UNCONFINED COMPRESSION (c=1/2 Qu)												

Water Level Observations (Ft.)

Boring No.	Date Drilled	While Drilling	End of Drilling	Delayed Water Level
B1	09/17/21	-	-	-
B2	09/16/21	-	-	14' ON 09/17/21
B3	09/15/21	-	-	16' ON 09/16/21
B4	09/14/21	-	-	-

BORING	B1	B2	B3	B4
LAYER	THICKNESS	THICKNESS	THICKNESS	THICKNESS
A	0.4	0.4	0.7	0.5
B	8.6	11.1	12.8	11.0
C	12.5	12.5	20.5	13.5
D	22.5	25.0	30.0	19.0
E	5.0	10.0	20.0	7.0
F	10.0	5.0	10.0	8.0
G	20.0	20.0	11.5	18.5
H	10.0	10.0	-	11.5
I	5.0	13.0	-	5.0
J	11.0	3.5	-	8.0
K	5.5	-	-	3.5

DESIGN FOR 0°SKEW

144'-0 X 32'-0 ROLLED STEEL BEAM
BRIDGE WITH (1) 10'-0 SIDEWALK

36'-0 & 48'-0 END SPANS

60'-0 INTERIOR SPAN

SOIL PROFILE SHEET

STA. 105+33.7095 HIGHLAND PARK AVE

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 2 FILE NO. DESIGN NO.

FILE NO. XXXXX

ENGLISH

DESIGN TEAM

Stanley Consultats Inc.\Terracon

CITY OF FORT DODGE

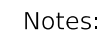
COUNTY

PROJECT NUMBER

BROS-SWAP-2690(631)--SE-94

SHEET NUMBER SPS.2

RURAL



- CUT SIDE Total Cut Adjusted



- RURAL



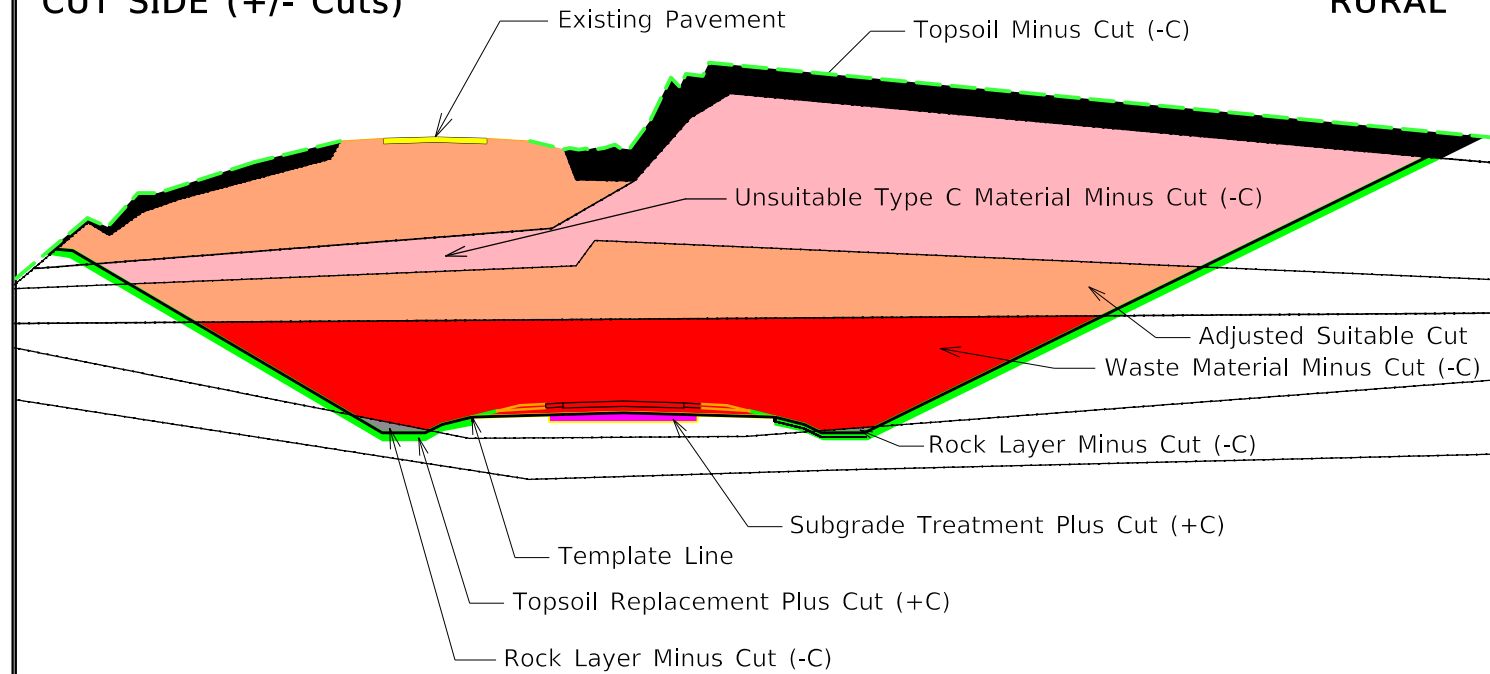
- FILL SIDE Total Fill Adjusted



1. "Total Fill Adjusted" Column includes all Class 10, 12, and 13 fill and adjustments for additional fill from cuts such as existing pavement, plowing and shaping operations, entrances, dikes, and topsoil stripping.
2. The available area to place unsuitable materials in the T Sheet tabulation does not include the undercut values from the topsoil stripping, existing pavement, or plowing and shaping

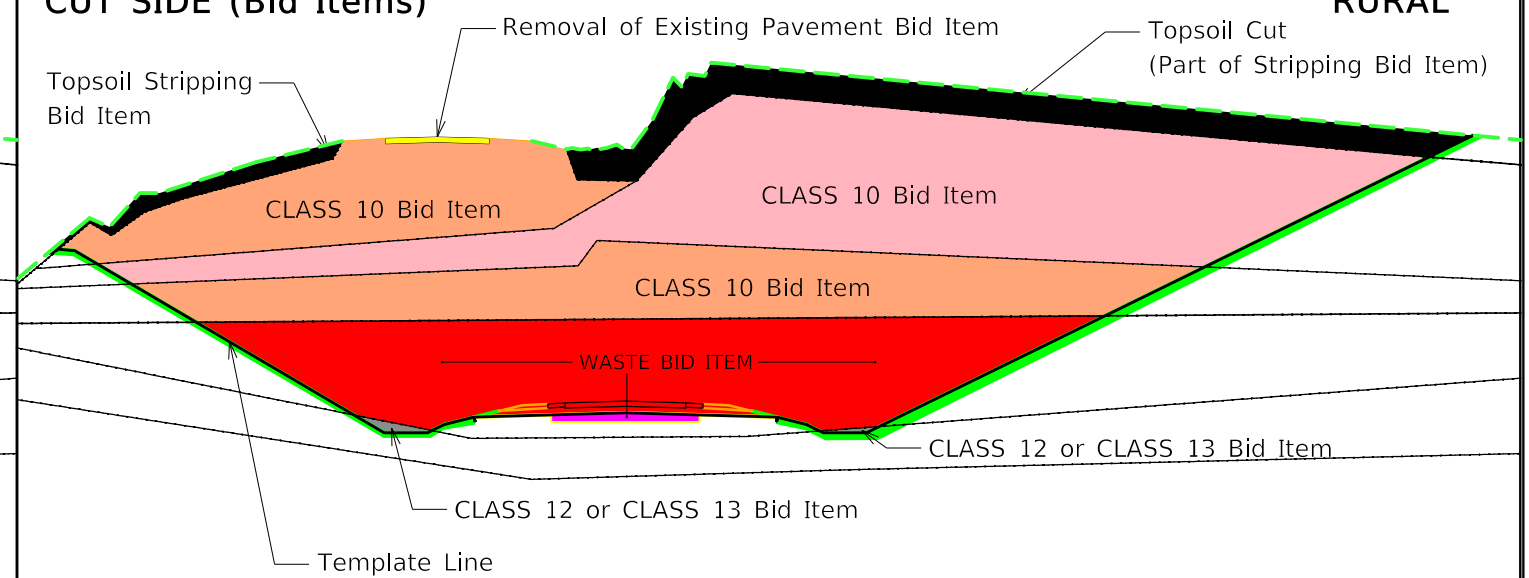
CUT SIDE (+/- Cuts)

RURAL



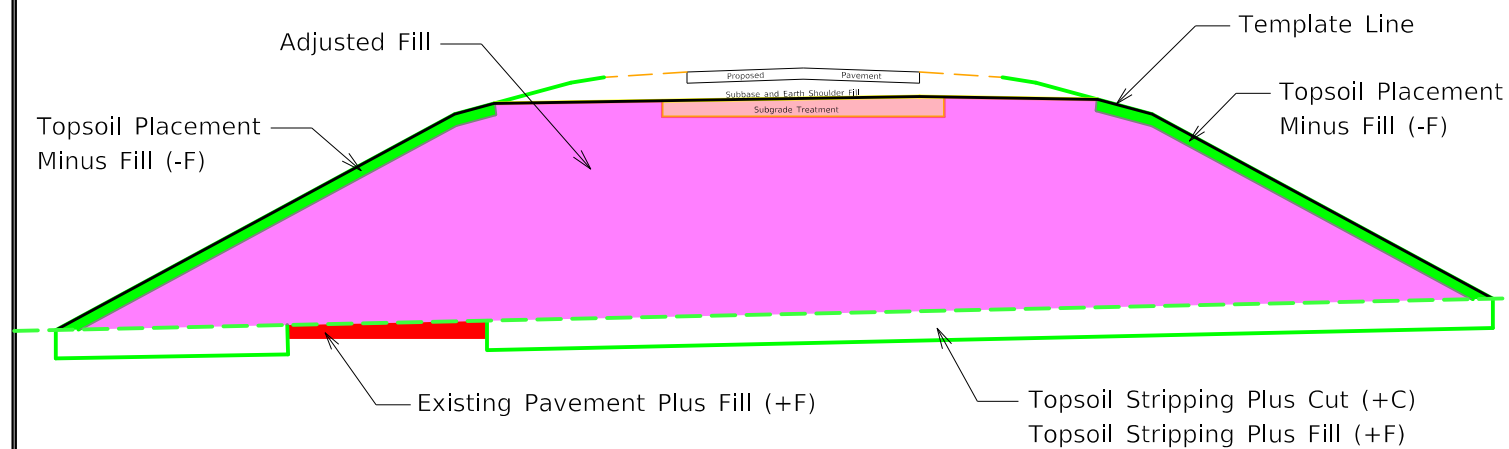
CUT SIDE (Bid Items)

RURAL



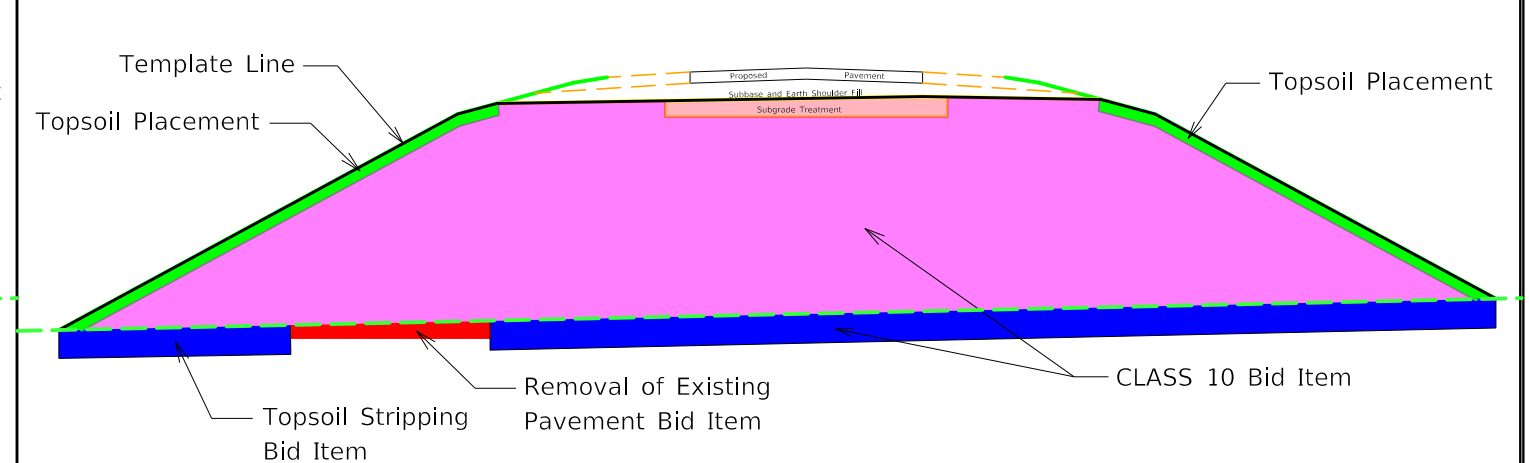
FILL SIDE (+/- Fills)

RURAL



FILL SIDE (Bid Items)

RURAL



Notes:

1. "Add Quantity +C" columns are additional cut encountered that is not Typical, Topsoil, or Subgrade Treatment Based. (Entrance, Dike, Etc.)
2. "-C" columns are either soil types or Class 10, 12, or 13 designated material that is encountered in the cut station range that is paid for by other bid items.
3. The "(SoilType) Cut" columns are soil types encountered in the cut that are paid by either Class 10, 12, or 13.
4. The "Adjusted Clas (10,12 or 13)" columns are the sum of all various soil types encountered in that station range, that are paid by Class 10, 12, or 13 bid items.
5. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

Notes:

1. Refer to Standard Road Plan EW-102 for placement of unsuitable soil types.

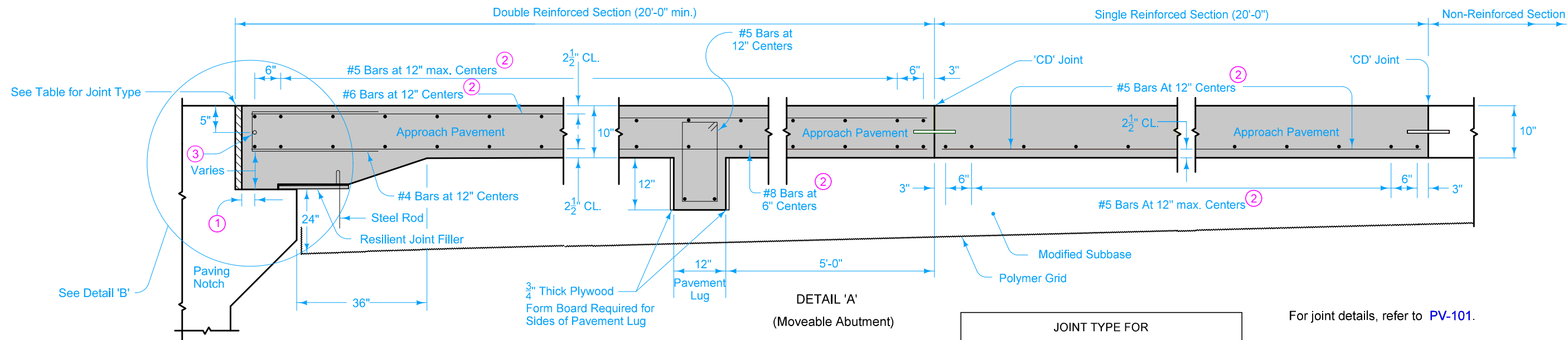
Refer to Standard Road Plans EW-101 and EW-102.

107-28
04-21-15

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

Station	Cut					Fill				Checks (EW-102)		Topsoil											
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	
	Total Cut Unadjusted Volume	Total Class 10 Unadjusted Volume	Topsoil Cut Volume	Template Pavement Removal Volume	Total Cut Adjusted	Total Fill Unadjusted Volume	Total Fill Adjusted	Total Fill Adjusted w/ Weighted Average 1.3 Shrink Factor	Total Cut Adjusted Minus Fill w/ Shrink	Approx. Fill Vol. Below 5' & Above 20' w/ Shrink	Approx. Fill Volume Below 3' w/ Shrink	Topsoil Stripping Undercut Volume	Topsoil Placement Undercut Volume	Topsoil Placement With 1.4 Shrink Factor	Topsoil Stripping Minus Topsoil Placement w/Shrink								
HighlandPark																							
102+59.60																							
102+64.53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
102+75.00	3	3	0	0	3	0	0	0	3	0	0	0	0	0	0								
103+00.00	14	9	0	5	9	0	0	0	9	0	0	0	0	0	0								
103+12.52	47	11	0	36	11	0	0	0	11	0	0	0	0	0	0								
103+25.00	27	7	0	20	7	1	1	1	7	0	0	0	0	0	0								
103+26.62	19	5	0	14	5	2	2	2	3	0	0	0	0	0	0								
103+32.26	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0								
103+50.00	7	2	0	5	2	1	1	1	0	0	0	0	0	0	0								
103+55.32	40	23	1	15	23	2	2	3	21	0	0	1	0	0	2								
103+72.60	18	12	1	5	12	1	1	1	11	0	0	1	0	0	1								
103+75.00	41	24	6	12	24	9	9	12	12	0	0	6	0	0	6								
103+94.52	3	1	1	1	1	2	2	3	-2	0	0	1	0	0	1								
104+00.00	25	4	11	10	4	20	20	26	-22	0	0	11	3	4	8								
104+25.00	7	0	4	3	0	8	8	10	-10	0	0	4	1	1	3								
104+41.74	26	0	19	6	0	71	71	93	-93	0	0	19	2	3	16								
104+50.00	14	0	13	0	0	78	78	101	-101	0	0	13	0	0	13								
104+75.00	7	0	6	0	0	48	48	63	-63	0	0	6	0	0	6								
105+00.00	92	85	9	0	85	80	80	105	-20	0	0	9	0	0	9								
105+25.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
105+50.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
105+75.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
106+00.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
106+25.00	31	31	0	0	31	37	37	48	-17	0	0	0	0	0	0								
106+26.22	6	6	0	0	6	98	98	127	-121	0	0	0	0	0	0								
106+50.00	20	6	14	0	6	175	175	228	-222	0	0	14	9	13	1								
106+75.00	2	0	1	0	0	17	17	22	-22	0	0	1	1	1	0								
107+00.00	29	5	24	0	5	272	272	354	-349	0	0	24	16	23	2								
107+14.54	27	6	21	0	6	176	176	229	-224	0	0	21	15	22	0								
107+25.00	24	6	17	1	6	101	101	131	-125	0	0	17	8	12	6								
107+42.09	16	4	8	3	4	37	37	48	-44	0	0	8	1	2	7								
107+50.00	13	3	5	5	3	18	18	23	-21	0	0	5	1	2	4								
107+51.12	26	6	7	13	6	15	15	20	-13	0	0	7	2	3	4								
107+75.00	16	4	2	10	4	2	2	3	1	0	0	2	1	2	0								
107+87.75	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0								
107+95.40	57	12	1	44	12	2	2	2	10	0	0	1	4	6	-5								
107+97.16	30	8	0	22	8	4	4	5	4	0	0	0	3	4	-4								
108+00.00	16	4	0	12	4	3	3	5	-1	0	0	0	1	2	-2								
108+18.02	4	1	0	3	1	1	1	1	0	0	0	0	0	0	0								
108+23.38	7	1	0	6	1	1	1	1	0	0	0	0	0	0	0								
108+25.00	31	7	0	24	7	3	3	4	3	0	0	0	0	0	0								
108+29.85	6	5	0	1	5	0	0	1	4	0	0	0	0	0	0								
HighlandPark Totals:	2	2	0	0	2	0	0	0	2	0	0	0	0	0	0								
	755	303	175	279	303	1,286	1,286	1,673	-1,370	0	0	175	70	99	77								
	Excavation, Class 10 Roadway and Borrow 303 [5]											Topsoil, Strip, Salvage, and Spread 175 [12]											
	Embankment in Place 1,370 / 1.3 = 1,054 [9] / 1.3																						

FILE NO.		DESIGN TEAM Stanley Consultants Inc.	City of Fort Dodge COUNTY	PROJECT NUMBER BR0S-2690(631) - -8J-94	SHEET NUMBER T.2
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DETAIL 'A'
(Moveable Abutment)

JOINT TYPE FOR MOVEABLE ABUTMENT BRIDGES		
Joint	Maximum Bridge Length	
	Concrete Beam or Slab	Steel Girder
CF-1	370'	250'
CF-2	465'	320'
CF-3	575'	400'

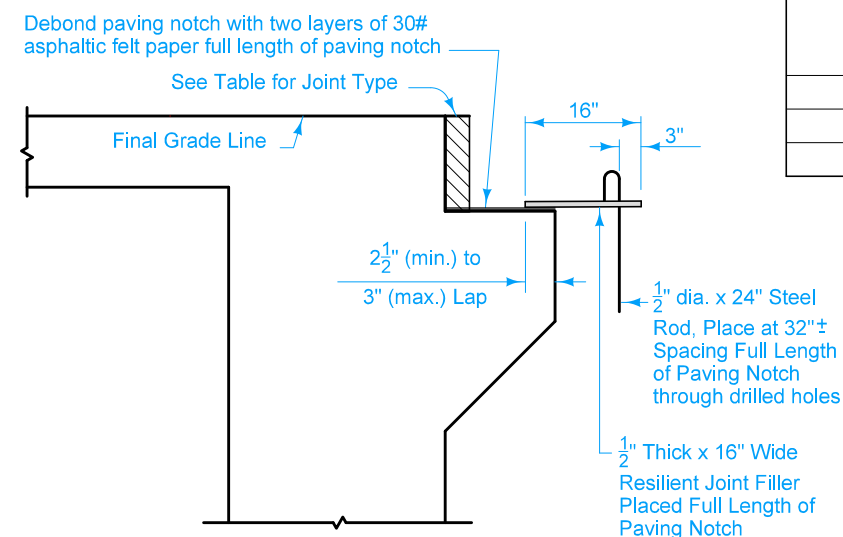
For joint details, refer to [PV-101](#).

For curb details, see Detail 'G'.

All transverse bars are #5.

Contract Item:
Bridge Approach, As Per Plan

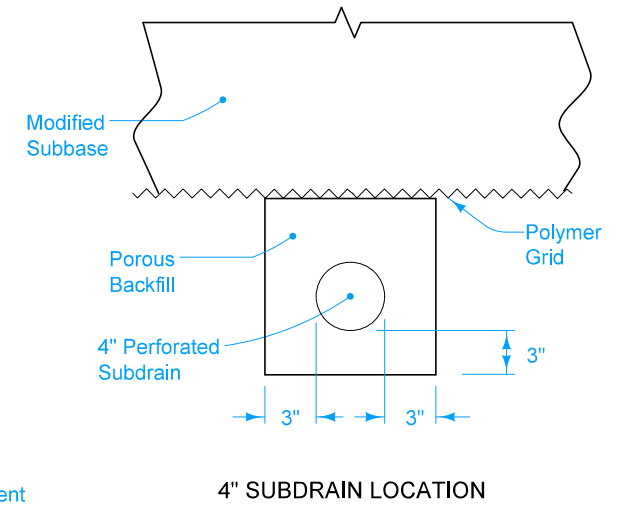
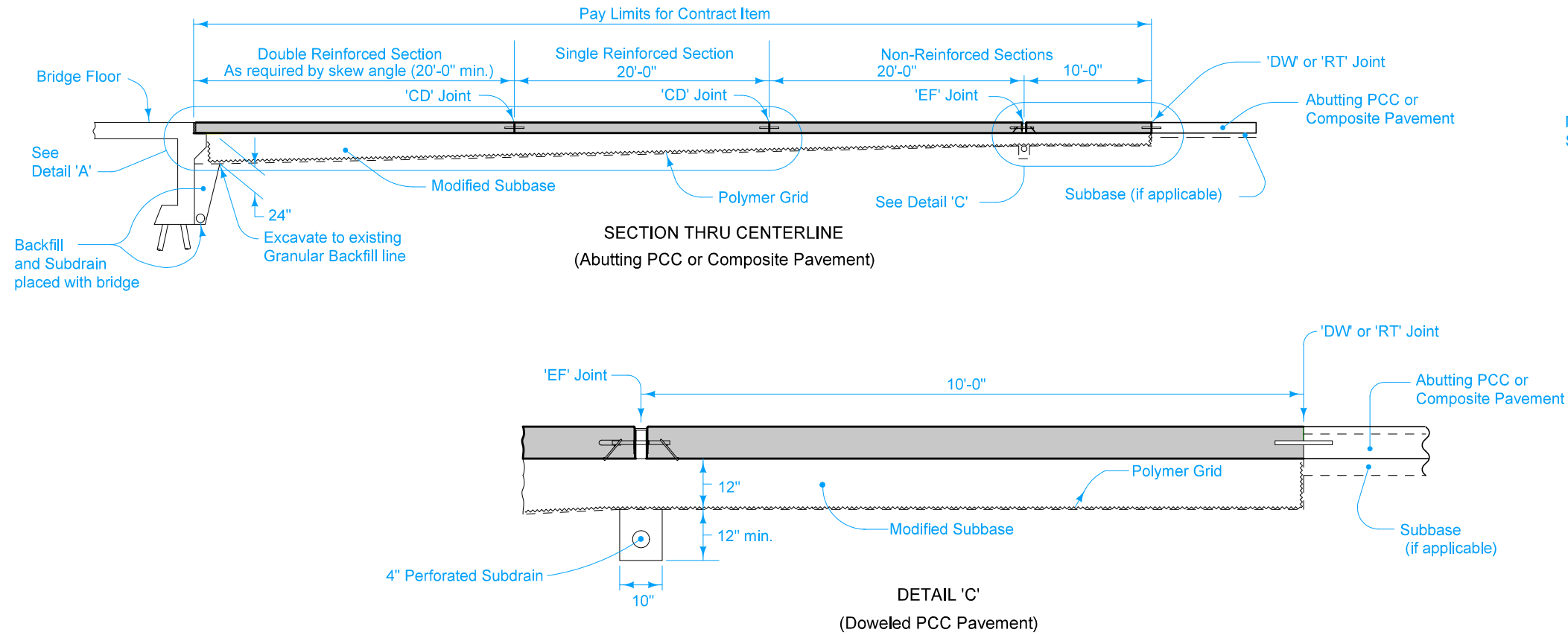
Possible Tabulation:
[112-6](#)



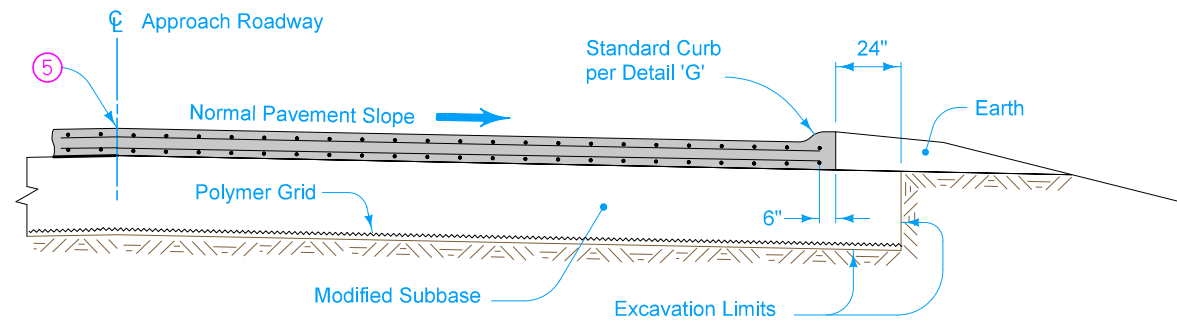
DETAIL 'B' (Moveable Abutment)

- ① 2" min. to 2 1/2" max. clear to bent bar.
- ② Minimum lap length: #5 Bars - 18"
#6 Bars - 27"
#8 Bars - 48"
- ③ If bridge is skewed, place additional #5 bar parallel to skewed face.

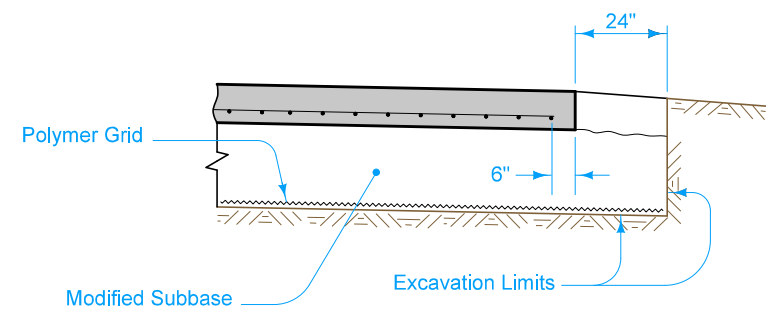
MODIFIED STANDARD ROAD PLAN	
	SHEET 1 of 3
	MODIFICATIONS: Changed pavement cross slope and added variable depth paving notch
DOUBLE REINFORCED 10" APPROACH WITH VARIABLE DEPTH PAVING NOTCH	



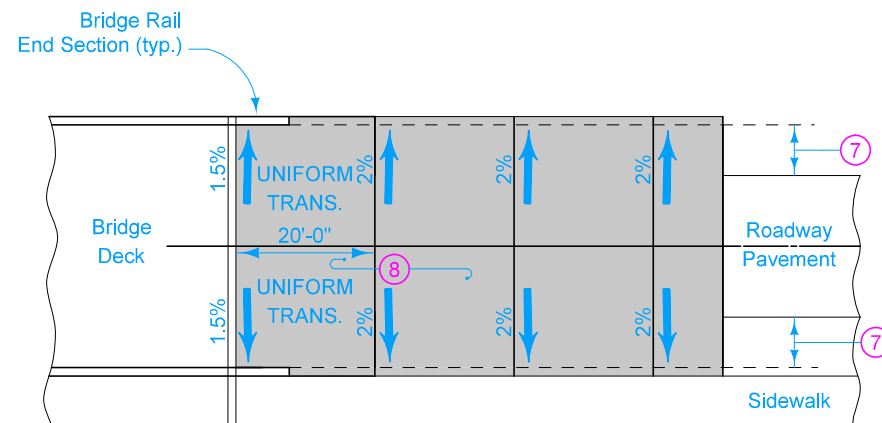
MODIFIED	
STANDARD ROAD PLAN	
	SHEET 2 of 3
MODIFICATIONS: Changed pavement cross slope and added variable depth paving notch	
DOUBLE REINFORCED 10" APPROACH WITH VARIABLE DEPTH PAVING NOTCH	



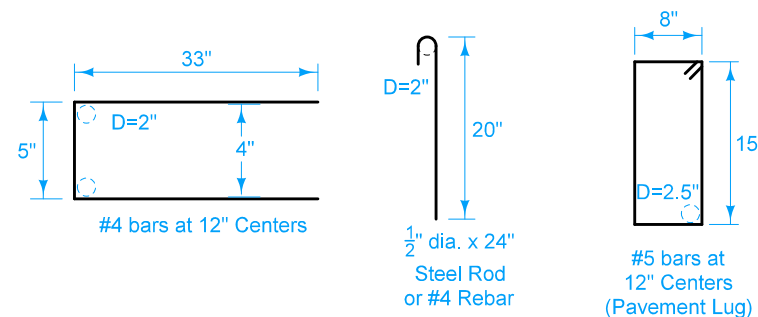
SECTION A-A



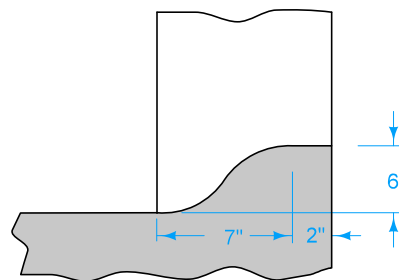
SECTION B-B



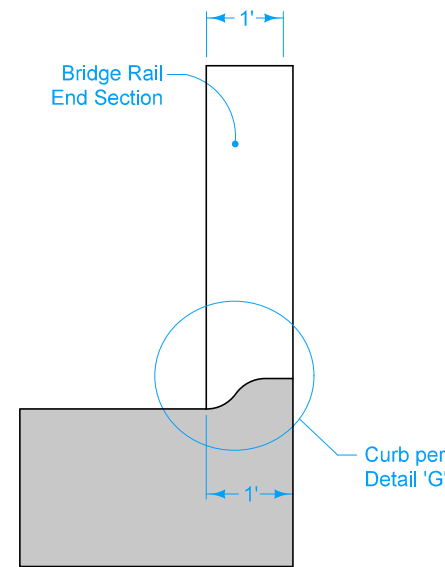
APPROACH PAVEMENT
CROSS SLOPE



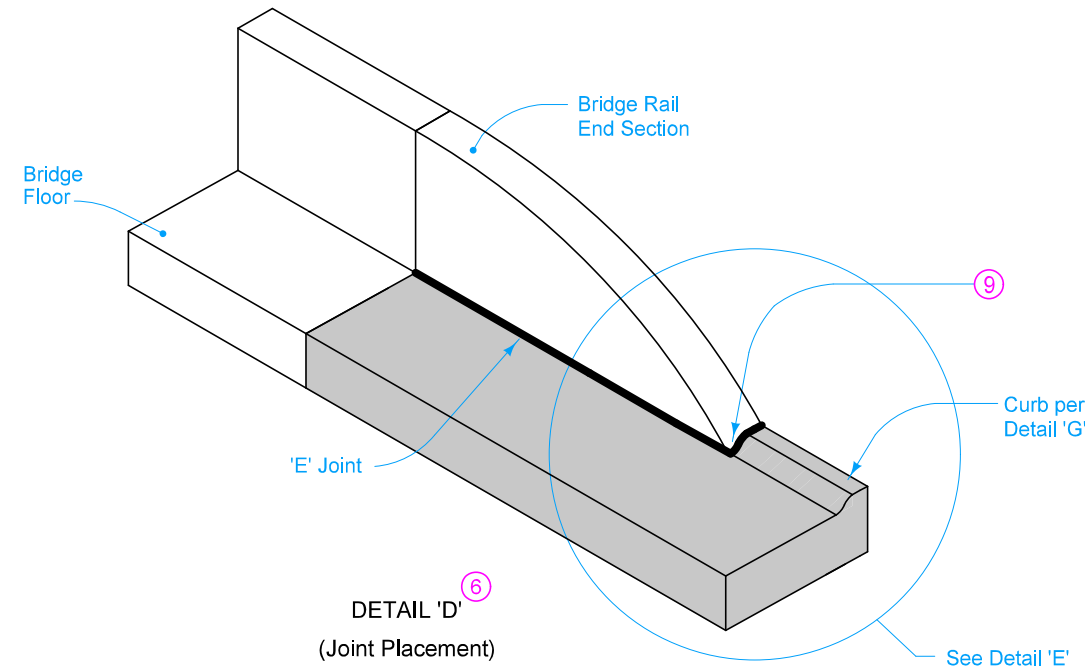
BENT BAR SHAPES



DETAIL 'G'



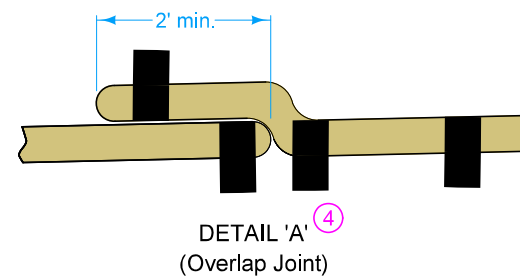
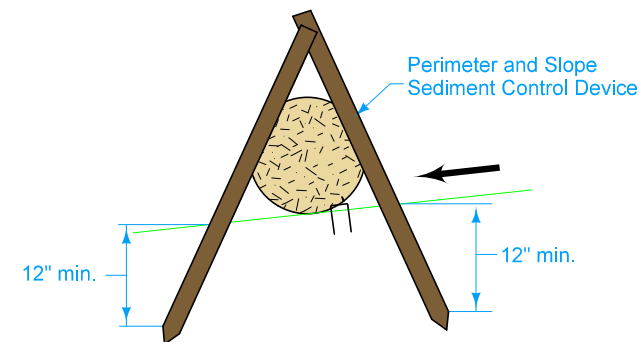
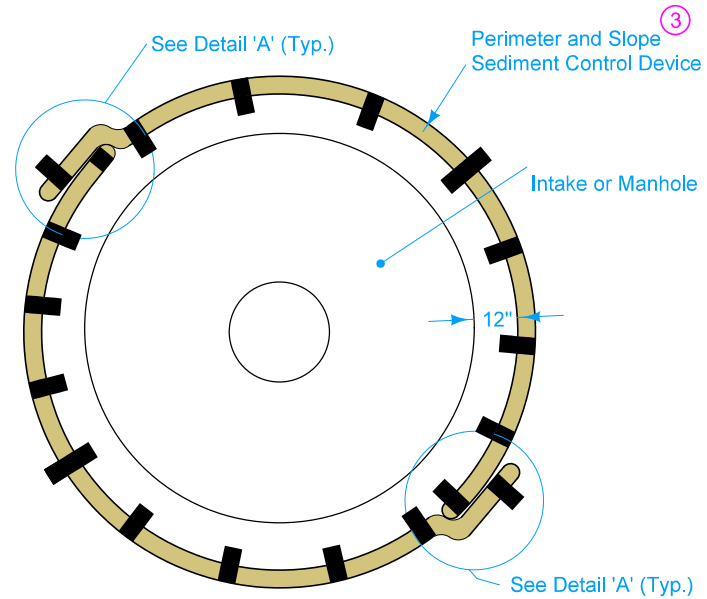
DETAIL 'E'
(Back of Curb Placement)



DETAIL 'D'
(Joint Placement)

- ⑤ Longitudinal Joint (PV-101):
Single pour - Saw cut joint per Detail B.
Two pours - Use 'KS-2' Joint.
- ⑥ Refer to BR-211.
- ⑦ Design shoulder width.
- ⑧ Reinforced bridge approach section.
- ⑨ Expansion joint at end of Bridge Rail End Section: Place joint filler the full depth of the bridge approach pavement. In areas with curb, place full depth of pavement plus curb and shape material to fit the shape of the curb per Section B-B of PV-101. Seal joint per Detail F of PV-101.
- Moveable Abutment Bridges: Flexible Foam Expansion Joint Filler complying with Section 4136 of the Standard Specifications. Minimum filler width is the abutment 'CF' joint width. Joint length as required to completely fill from back side of curb to front face of bridge wing.

MODIFIED		
STANDARD ROAD PLAN		
MODIFICATIONS: Changed pavement cross slope and added variable depth paving notch		SHEET 3 of 3
DOUBLE REINFORCED 10" APPROACH WITH VARIABLE DEPTH PAVING NOTCH		



PERIMETER AND SLOPE SEDIMENT CONTROL

- ③ Place Perimeter and Slope Sediment Control Devices around all intake or manhole wells. Use 20 inch diameter device.
- ④ Extra material required to install overlaps will not be included in the installation length.

Contract Item:
Perimeter and Slope Sediment Control Device

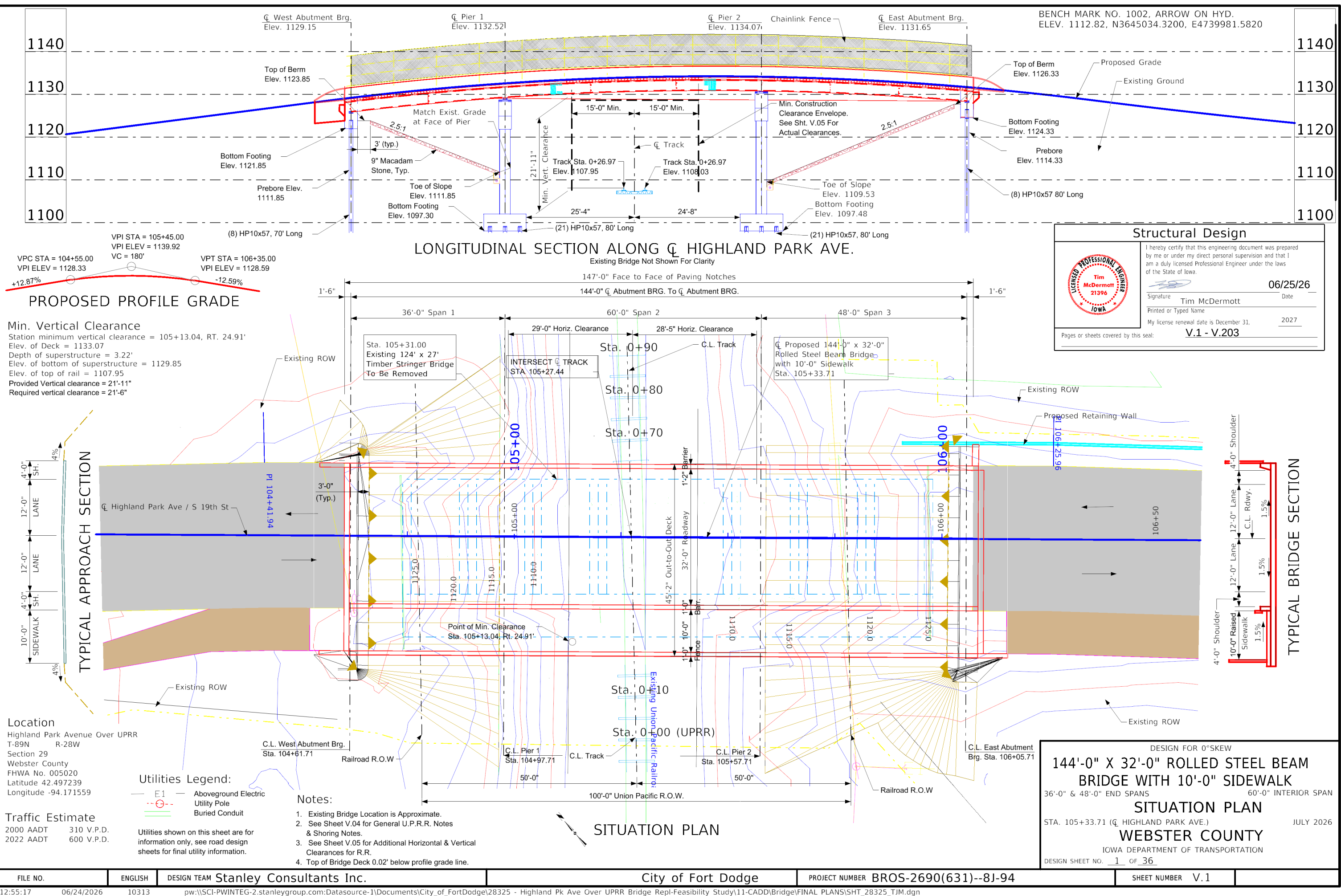
Possible Tabulations:
100-19

MODIFIED	
ROAD DESIGN DETAIL	

SHEET 1 of 1

MODIFICATIONS: Removed Temporary Intake or Manhole Cover Assembly details and notes.

**EROSION CONTROL FOR INTAKE
OR MANHOLE WELL**



GENERAL NOTES:

IT IS THE INTENT OF THIS DESIGN TO CONSTRUCT A 144'-0" X 32'-0" ROLLED STEEL BEAM BRIDGE, SKEWED 0 DEGREES, ON HIGHLAND PARK AVENUE/ S 19th St AT STA. 105+33.71 OVER UPRR.

THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 124'-0" X 27'-0" TIMBER STRINGER BRIDGE. PLANS FOR THE EXISTING BRIDGE ARE NOT AVAILABLE. THE EXISTING BRIDGE HAS BOTH TIMBER STRINGERS AND STEEL BEAMS. THE DECK IS COMPOSED OF TIMBER PLANK WITH AN HMA OVERLAY. THE ABUTMENT AND PIERS ARE COMPOSED OF TIMBER PILE BENTS.

THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE REMOVAL OF THE EXISTING 124'-0" X 27'-0" TIMBER STRINGER BRIDGE.

REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401, OF THE STANDARD SPECIFICATIONS, THE REMOVED BRIDGE SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING, PLUS 20 LBS. PER SQUARE FOOT OF ROADWAY FOR FUTURE WEARING SURFACE.

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 STARTING DATE.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE.

THE BRIDGE CONTRACTOR SHALL PREBORE HOLES FOR ABUTMENT PILES. HOLES SHALL BE BORED TO THE ELEVATIONS SHOWN ON THE "LONGITUDINAL SECTION ALONG Ȣ HIGHLAND PARK AVE." ON SITUATION PLAN SHEET. PILES SHALL BE DRIVEN THROUGH THE HOLES TO AT LEAST THE SPECIFIED DESIGN BEARING.

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.

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.

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 SLIP-FORMED METHOD).

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

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 (5a1 IS 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

THE BRIDGE CONTRACTOR SHALL WORK IN SUCH A MANNER THAT EQUIPMENT AND MATERIALS SHALL NOT BE ALLOWED TO INTERFERE WITH TRAIN TRAFFIC OR BE ALLOWED TO FALL ON THE RAILROAD TRACKS. INTERFERENCE ABOVE THE RAILROAD TRACK AREA SHALL BE COORDINATED WITH THE RAILROAD.

ABUTMENT PILES SHALL NOT BE DRIVEN FOR A MINIMUM OF 14 DAYS FOLLOWING COMPLETION OF APPROACH FILLS.

THIS PROJECT USES THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHODOLOGY FOR DETERMINING PILE CONTRACT LENGTH AND NOMINAL AXIAL BEARING RESISTANCE. NOMINAL AXIAL BEARING RESISTANCES WILL BE LARGER THAN BEARING VALUES IN THE PAST, BUT CONSTRUCTION CONTROL BLOW COUNTS WILL BE APPROXIMATELY THE SAME.

THE CONTRACTOR IS RESPONSIBLE TO PROVIDE SUFFICIENT TEMPORARY BRACING TO MINIMIZE LATERAL DEFLECTION AND ROTATION OF EXTERIOR STEEL BEAMS DURING DECK PLACEMENT. LATERAL DEFLECTION AND ROTATION OF EXTERIOR BEAMS MAY RESULT IN THIN DECKS AND AN UPWARDS SHIFT IN BAR MATS WHICH CAN DECREASE CONCRETE COVER. PARTIALLY OR FULLY INSTALLED PERMANENT BRACING AS SHOWN IN THESE DESIGN PLANS SHALL NOT BE ASSUMED SUFFICIENT TO MINIMIZE LATERAL DEFLECTION AND ROTATION OF EXTERIOR BEAMS DURING DECK PLACEMENT. TEMPORARY BRACING SHALL NOT BE WELDED TO THE STEEL BEAMS OR ITS ATTACHMENTS INCLUDING THE STUDS.

IN ACCORDANCE WITH IOWA DOT STANDARD SPECIFICATIONS SECTION 1105, THE CONTRACTOR SHALL SUBMIT A GIRDER ERECTION PLAN (GEP) CONSISTING OF ERECTION PLANS, ERECTION PROCEDURES, AND ERECTION ENGINEERING CALCULATIONS TO THE ENGINEER ACCORDING TO SPECIAL PROVISION SP-150508 "GIRDER ERECTION PLAN".

THE COST OF FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), FLOODABLE BACKFILL, AND POROUS BACKFILL IS TO BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

THERE ARE NO KNOWN ASBESTOS CONTAINING MATERIALS ON THE EXISTING BRIDGE. THE CONTRACTOR IS REQUIRED TO SUBMIT THE FORM ASBESTOS NOTIFICATION OF BRIDGE DEMOLITION AND RENOVATION TO THE IOWA DNR PRIOR TO DEMOLITION FOR ALL BRIDGE REMOVALS REGARDLESS OF THE PRESENCE OR ABSENCE OF ASBESTOS. SEE SPECIFICATION SECTION 2401 REMOVAL OF EXISTING STRUCTURES. IF IN THE RARE EVENT ASBESTOS IS FOUND DURING DEMOLITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE WORK WITH A LICENSED ASBESTOS CONTRACTOR. THE COST OF ASBESTOS REMOVAL BY A LICENSED ASBESTOS CONTRACTOR WILL BE PAID BY THE LOCAL PUBLIC AGENCY.

AN INSPECTION FOR THE PRESENCE OF ASBESTOS CONTAINING MATERIALS WAS COMPLETED:
KEMP JOHNSON OF TERRACON CONSULTANTS
IA LICENSE NUMBER 21-6548
DATE INSPECTED 09/13/21
PHONE 515-244-3184

GENERAL NOTES (CONTINUED):

SUBSTRUCTURE CONCRETE SHALL BE PROTECTED FROM STAINING BY A WRAPPING OF POLYETHYLENE OR SIMILAR MATERIALS WHICH SHALL BE LEFT IN PLACE AND KEPT IN A SERVICEABLE CONDITION UNTIL AFTER THE DECK HAS BEEN PLACED. IF SUBSTRUCTURE CONCRETE IS STAINED, THE STAINS SHALL BE REMOVED BY METHODS APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH THE PROTECTION AND ANY REQUIRED CLEANING OF THE SUBSTRUCTURE CONCRETE SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL STEEL".

THIS STRUCTURE SHALL BE BUILT WITH WEATHERING STEEL. ALL STRUCTURAL STEEL, EXCEPT AS NOTED, SHALL CONFORM TO ASTM A709 GRADE 50W. PAINTING REQUIREMENTS FOR THIS STRUCTURE SHALL BE IN ACCORDANCE WITH ARTICLE 2408.02, Q, OF THE STANDARD SPECIFICATIONS.

SEE ROADWAY PLANS FOR LONGITUDINAL GROOVING BID ITEMS AND NOTES.

THE ROAD WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION. SEE TRAFFIC CONTROL PLAN NOTE ON THIS SHEET.

SPECIFICATIONS:

DESIGN: AASHTO LRFD 10TH ED., SERIES OF 2024, 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 SPECIFICATION FOR CONSTRUCTION OR MAINTENANCE WORK ON RAILROAD RIGHT-OF-WAY (UNION PACIFIC RAILROAD)
DEVELOPMENTAL SPECIFICATION FOR HIGH PERFORMANCE CONCRETE FOR STRUCTURES
DEVELOPMENTAL SPECIFICATION FOR GIRDER ERECTION PLAN

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 10TH ED, SERIES OF 2024, 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.

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).
FATIGUE DESIGN BASED ON FATIGUE 1 LOAD COMBINATION AND INFINITE LIFE.

BRIDGE DECK DIMENSIONS TABLE			
NO.	ITEM	UNIT	QUANTITY
1	DECK LENGTH	L.F.	147.0
2	MINIMUM DECK WIDTH	L.F.	45.2
3	MAXIMUM DECK WIDTH	L.F.	45.2
4	DECK AREA	S.F.	6,640.0

1. DECK LENGTH IS MEASURED FROM FACE-TO-FACE OF PAVING NOTCHES ALONG THE CENTERLINE OF THE ROADWAY.
2. DECK WIDTHS ARE MEASURED FROM OUT-TO-OUT OF DECK PERPENDICULAR TO THE CENTERLINE OF ROADWAY.
3. DECK AREA IS TO BE BASED ON THE FACE-TO-FACE PAVING NOTCH DISTANCE AND OUT-TO-OUT DECK DIMENSIONS.

TRAFFIC CONTROL PLAN

NOTE: THE ROADWAY WILL BE CLOSED TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN SHOWN ELSEWHERE IN THESE PLANS.

POLLUTION PREVENTION PLAN

NOTE: THE POLLUTION PREVENTION PLAN IS SHOWN ELSEWHERE IN THESE PLANS.

Working Drawing and Calculation 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 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	Structural Steel	(631)_FortDodge_StructuralSteel.pdf	Yes
2	Erection Plan	(631)_FortDodge_ErectionPlan.pdf	Yes
3	Demolition Plan	(631)_FortDodge_DemoPlan.pdf	Yes
4	Chain Link Fence	(631)_FortDodge_ChainLinkFence.pdf	No
5	Steel Pipe Hand Rail	(631)_FortDodge_SteelPipeHandrail.pdf	No
6	Bearings	(631)_FortDodge_Bearings.pdf	Yes
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Erection Plan Calculations	(631)_FortDodge_StructuralSteel.pdf	Yes
2	Demolition Plan Calculations	(631)_FortDodge_DemoPlan.pdf	Yes
X			

Submit drawings & calculations to:
Tim McDermott, P.E.
mcdermotttim@stanleygroup.com

Stanley Consultants, Inc.
100 Court Ave, Ste 300
Des Moines, IA 50309

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

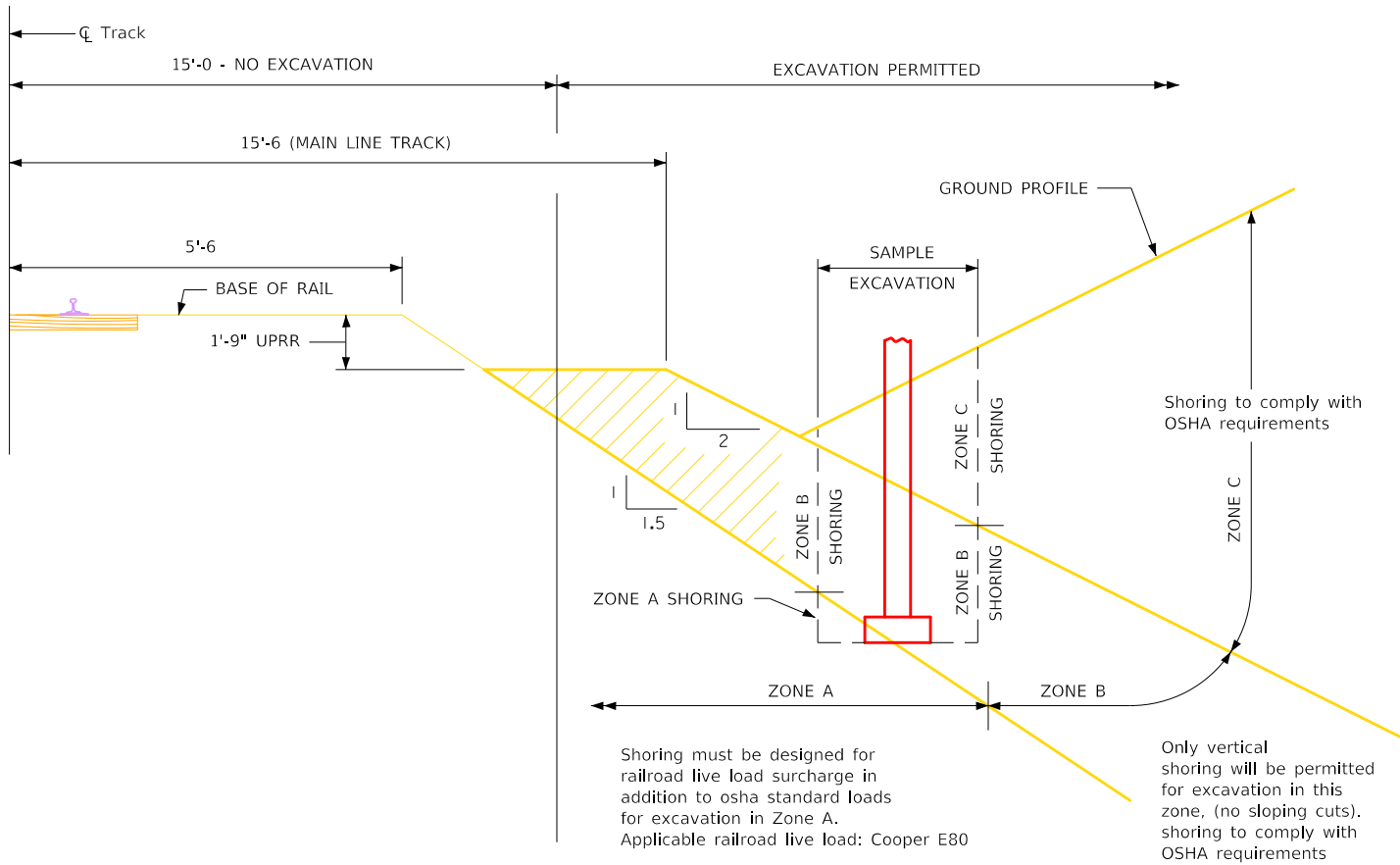
GENERAL NOTES

STA. 105+33.71 (Ȣ HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

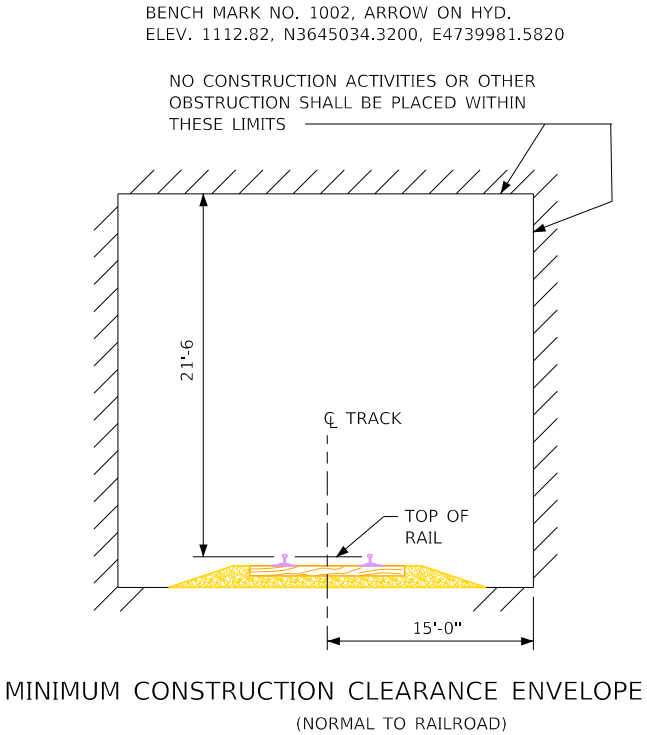
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 3 OF 36



TOP OF RAIL ELEVATIONS (STATIONS INCREASE WITH MILEPOST INCREASE)			
MAIN LINE			
ALIGNMENT: LEFT RAIL		ALIGNMENT: RIGHT RAIL	
STATION	ELEVATION	STATION	ELEVATION
0+00	1107.81	0+00	1107.90
0+10	1107.86	0+10	1107.95
0+20	1107.91	0+20	1107.99
0+30	1107.96	0+30	1108.04
0+40	1108.01	0+40	1108.11
① 0+46.93	1108.04	② 0+46.93	1108.15
0+50	1108.06	0+50	1108.17
0+60	1108.11	0+60	1108.24
0+70	1108.17	0+70	1108.28
0+80	1108.23	0+80	1108.32

- ① Intercept $\overline{CL}$ Rdwy Sta. 105+27.56
- ② Intercept $\overline{CL}$ Rdwy Sta. 105+32.33



RAILROAD GENERAL NOTES:

1. The proposed project shall not increase the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structures.
2. The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.
3. The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad.
4. All shoring systems that impact the Railroad's operations and/or supports the Railroad's embankment shall be designed and constructed per current Railroad Guidelines for Temporary Shoring. The method of shoring permissible is dependent upon the availability of track windows, if any.
5. All demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations shall be in compliance with the Railroad's Demolition Guidelines. Demolition activities shall be designed to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's requirements. The method of demolition permissible is dependent upon the availability of track windows, if any.
6. Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation, enabling the track(s) to remain open to traffic per the Railroad's requirements. The method of erection permissible is dependent upon the availability of track windows, if any.
7. Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.
8. Construction activities, including falsework/formwork, are not allowed within the "Minimum Construction Clearance Envelope" as they would otherwise disrupt Railroad operations.
9. All permanent clearances shall be verified before project closing. All discrepancies shall be brought to the attention of the Railroad.
10. Email Before You Dig. Prior to excavation, disrupting, or working on the Railroad property the contractor shall locate and protect UPRR facilities sending requests to the UPRR "Call Before You Dig" (CBUD) email. Guidance can be found at the following web address: www.up.com/CBUD.

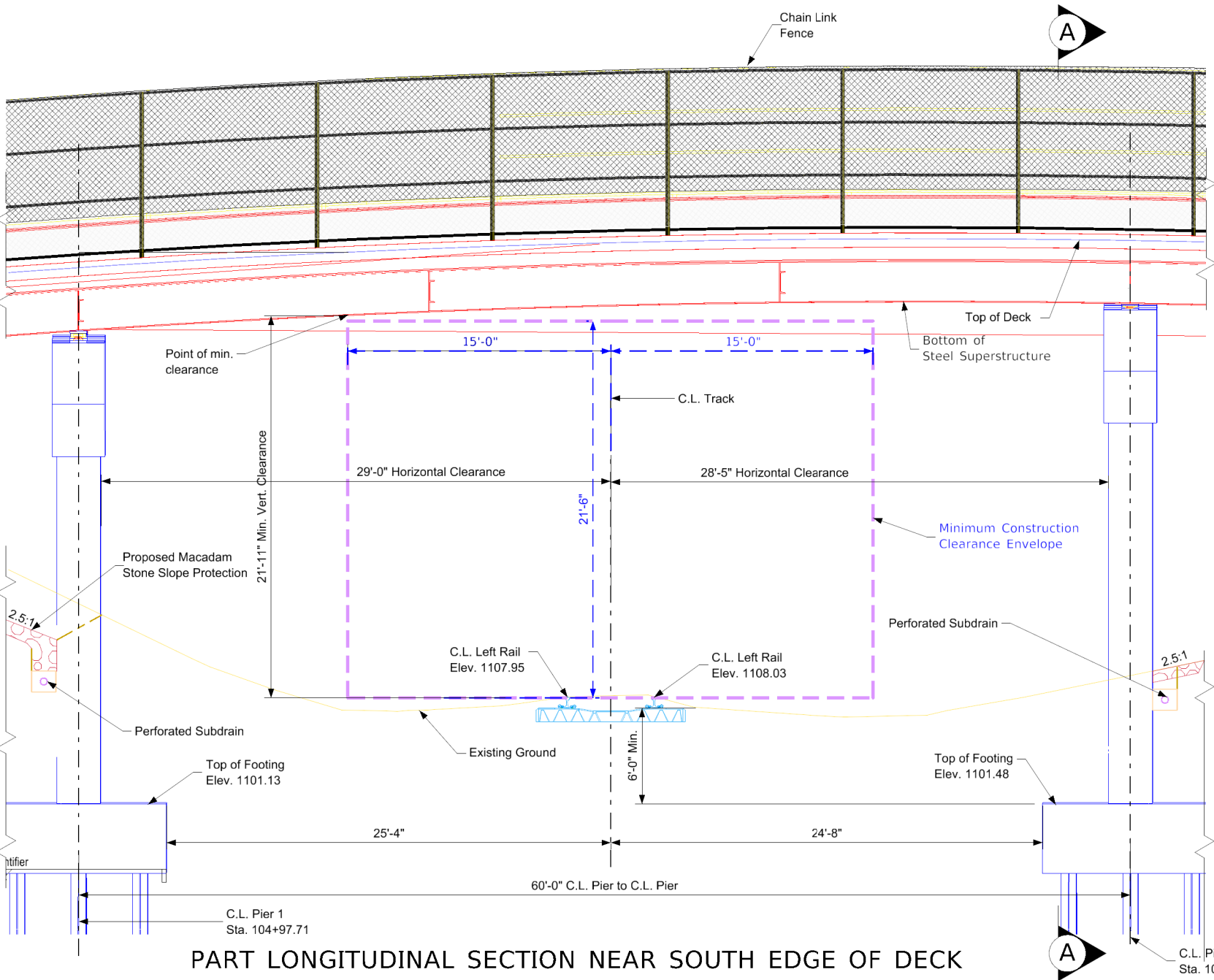
GENERAL EXCAVATION ZONES

GENERAL SHORING NOTES:

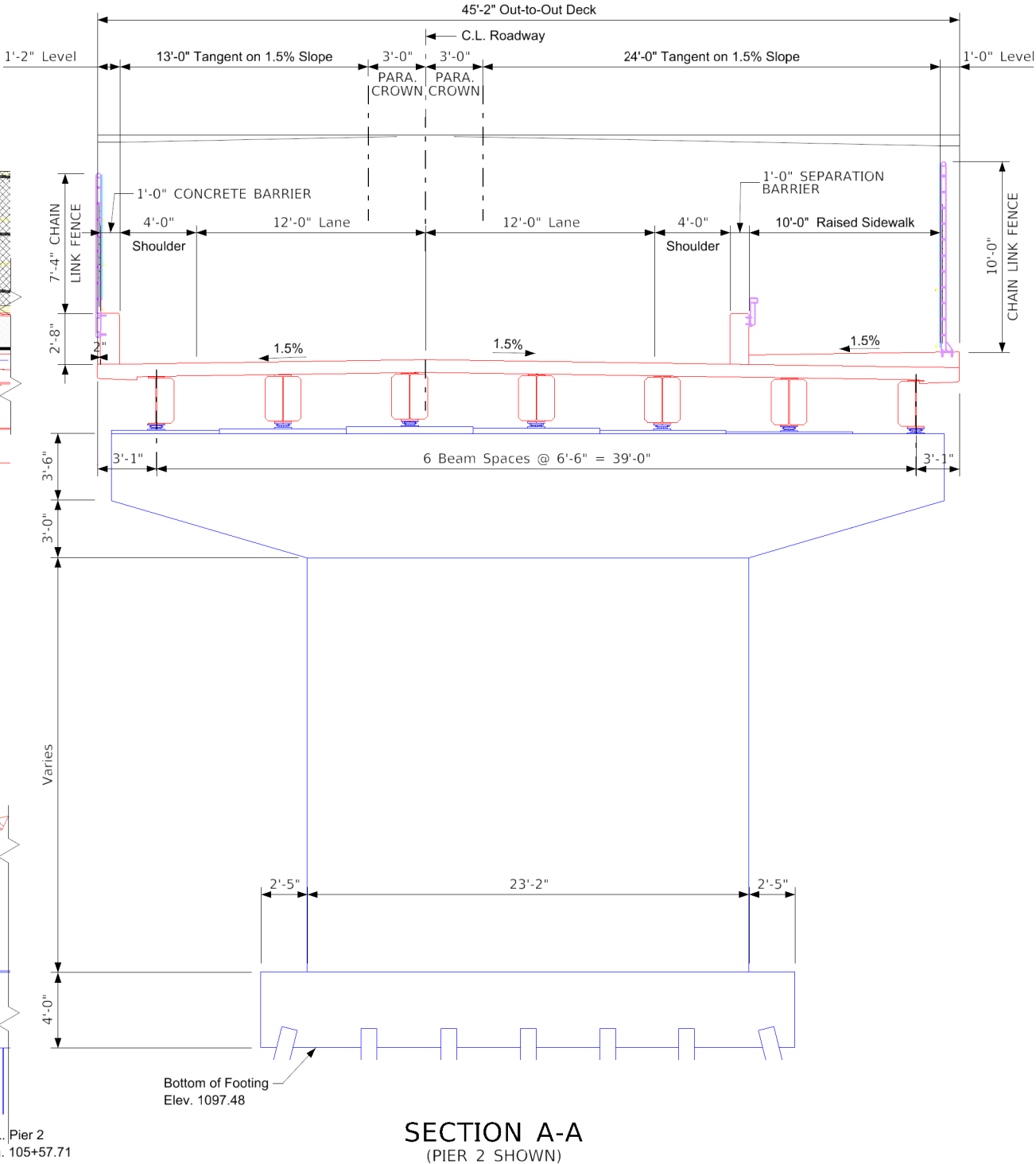
1. All dimensions are measured perpendicular to track.
2. Prior to commencing any work, the contractor shall submit for approval by the railroad detailed plans indicating the nature and extent of the track protection shoring proposed. the contractor shall install the temporary shoring system per the approved plans. design of the temporary shoring system to comply with guidelines for temporary shoring.
3. For excavations which encroach into zone a or b, shoring plans shall be accompanied by design calculations. plans and calculations must be signed and stamped by a Professional Engineer registered in the state of Iowa.

DESIGN FOR 0°SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
UPRR GENERAL NOTES & SHORING
STA. 105+33.71 ($\overline{CL}$ HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 4 OF 36

BENCH MARK NO. 1002, ARROW ON HYD.
ELEV. 1112.82, N3645034.3200, E4739981.5820

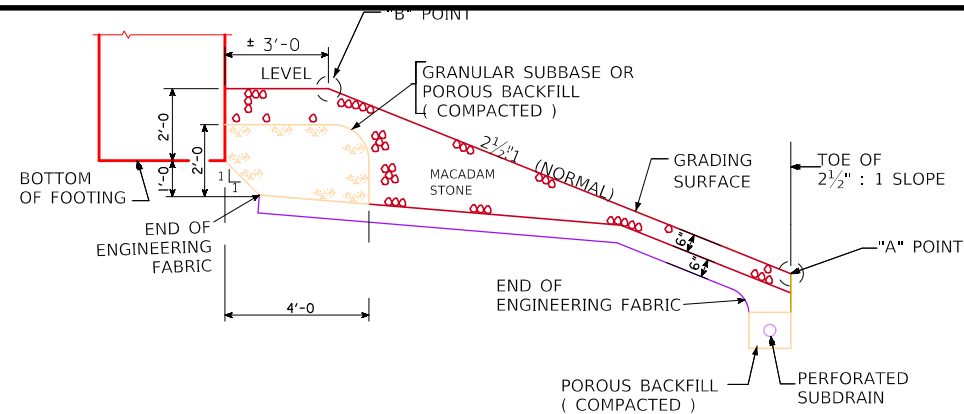


PART LONGITUDINAL SECTION NEAR SOUTH EDGE OF DECK



SECTION A-A
(PIER 2 SHOWN)

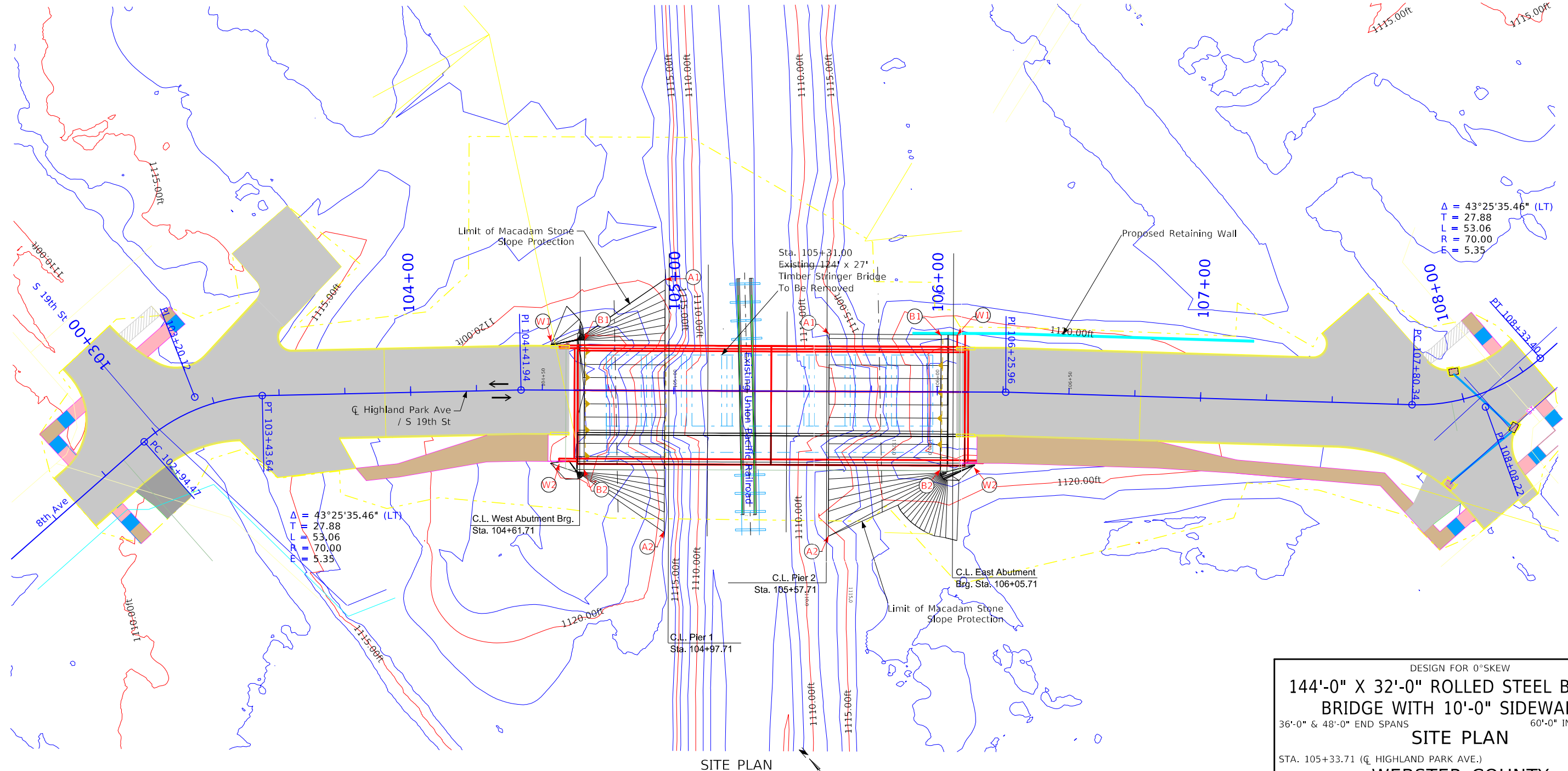
DESIGN FOR 0° SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
RR CLEARANCES
STA. 105+33.71 (Q. HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 5 OF 36



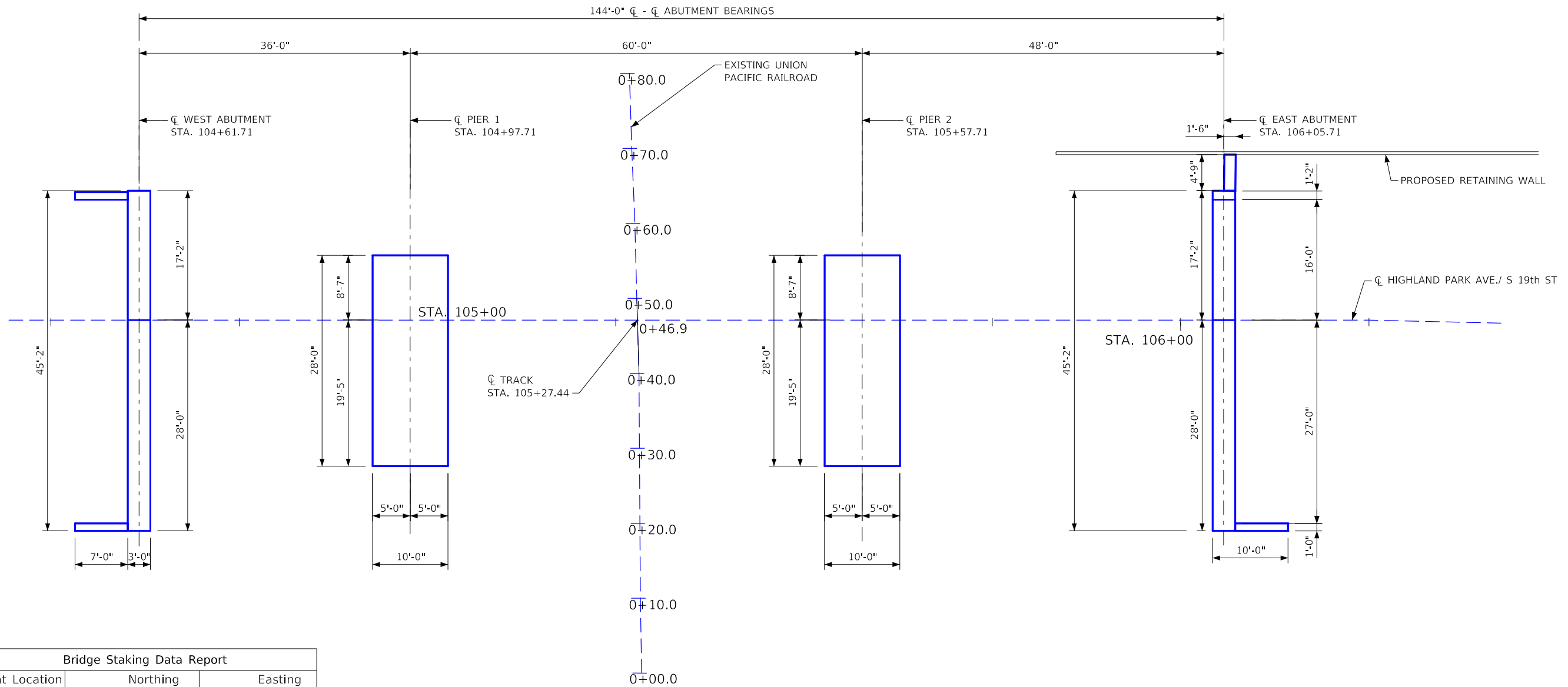
BERM SLOPE LOCATION TABLE						
POINTS	WEST ABUTMENT			EAST ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	104+96.55	42.32 LT.	1118.00	105+58.67	20.17 LT.	1112.00
A2	104+96.55	53.75 RT.	1118.00	105+58.67	53.75 RT.	1115.00
B1	104+66.21	20.17 LT.	1123.85	106+01.21	20.17 LT.	1126.33
B2	104+66.21	31.00 RT.	1123.85	106+01.21	31.00 RT.	1126.33
W1	104+53.21	20.17 LT.	1115.96	106+11.81	20.17 LT.	1115.70
W2	104+53.21	31.00 RT.	1116.13	106+13.21	31.00 RT.	1115.70

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

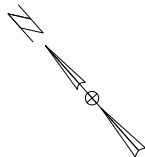
SECTION THROUGH MACADAM STONE SLOPE PROTECTION



DESIGN FOR 0°SKEW
**144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK**
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
SITE PLAN
STA. 105+33.71 (Q HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 6 OF 36



SUBSTRUCTURE LAYOUT



Bridge Staking Data Report		
Point Location	Northing	Easting
EAbut_Rt	3644852.298	4740235.036
EAbut_Lt	3644885.902	4740265.218
EAbut_CL	3644873.221	4740253.643
P2_Rt	3644884.112	4740199.263
P2_Lt	3644917.800	4740229.349
P2_CL	3644905.035	4740217.870
P1_Rt	3644923.984	4740154.428
P1_Lt	3644957.735	4740184.444
P1_CL	3644944.907	4740173.036
WAbut_Rt	3644947.845	4740127.598
WAbut_Lt	3644981.596	4740157.614
WAbut_CL	3644968.768	4740146.206

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

SUBSTRUCTURE LAYOUT

STA. 105+33.71 (CL HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 7 OF 36

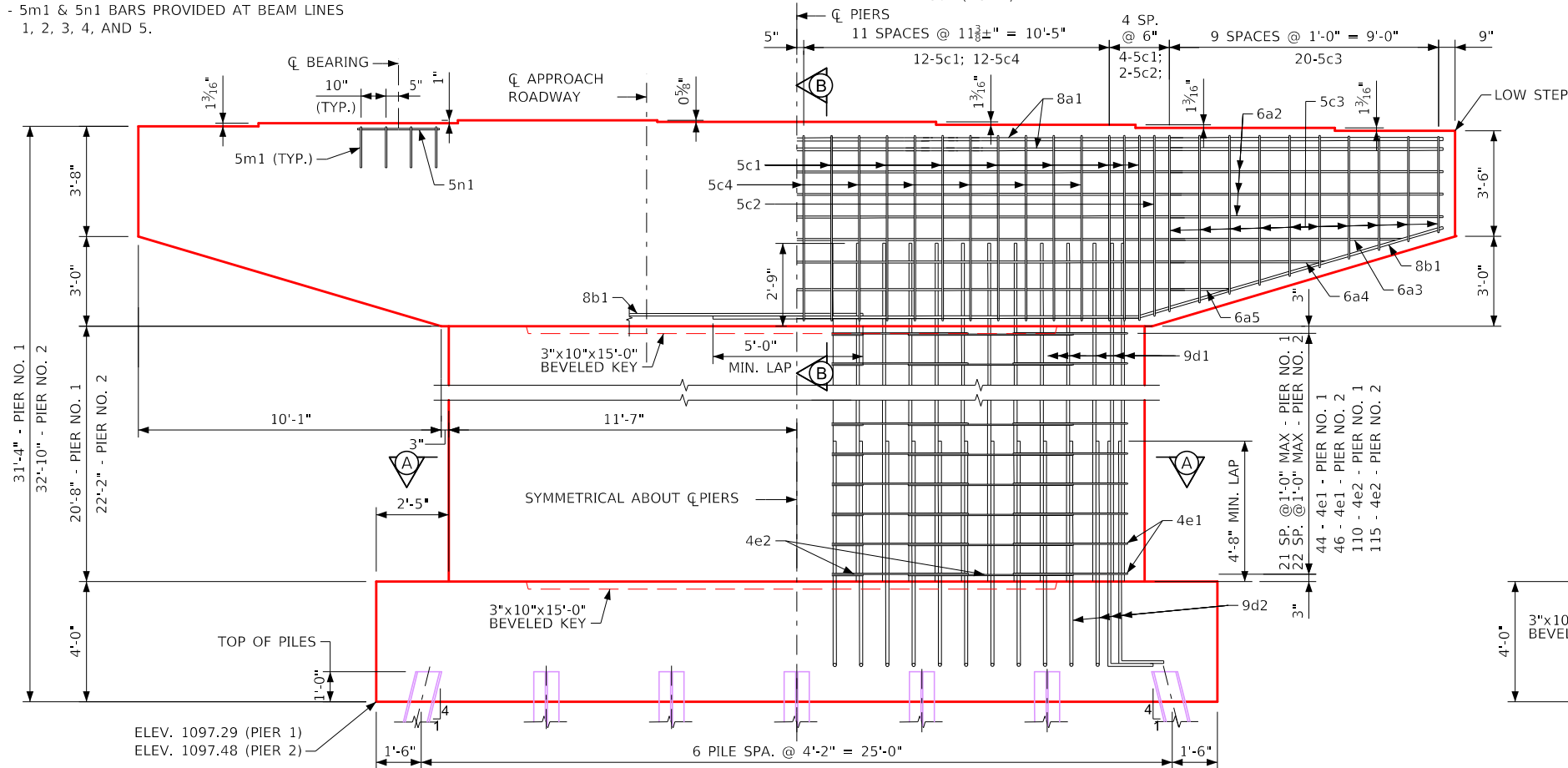
BENCH MARK NO. 1002, ARROW ON HYD.
ELEV. 1112.82, N3645034.3200, E4739981.5820

STEP ELEVATIONS

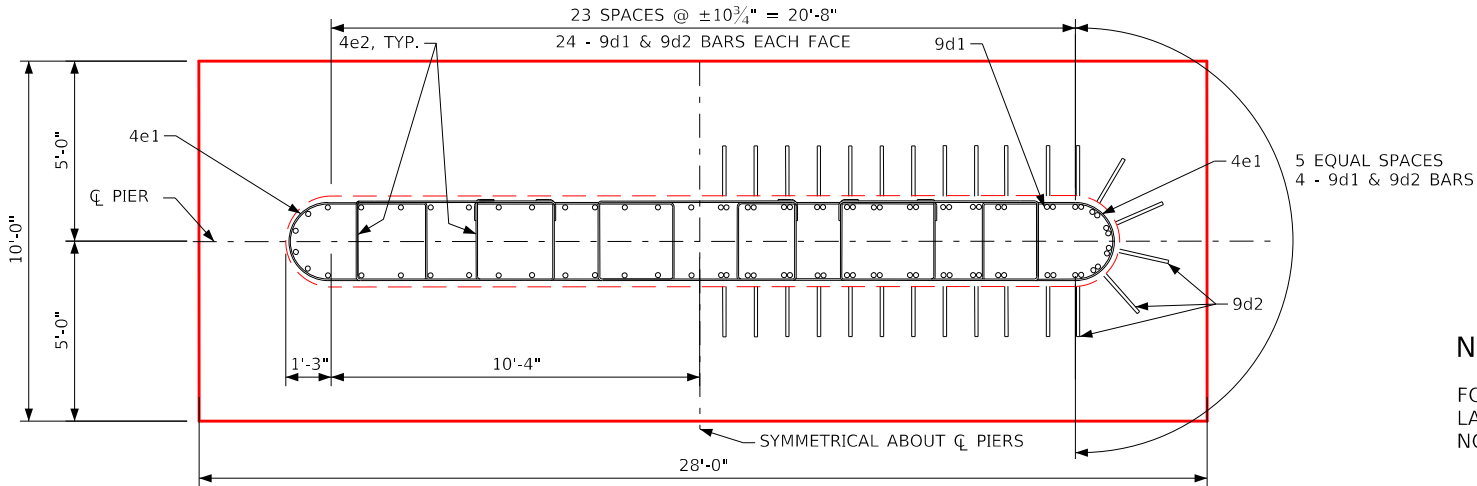
	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
PIER 1	1128.63	1128.72	1128.80	1128.75	1128.65	1128.56	1128.46
PIER 2	1130.32	1130.42	1130.50	1130.45	1130.35	1130.25	1130.15

NOTE:
ANCHOR BOLTS REQUIRED FOR FIXED PIER
BEARINGS ONLY (PIER NO. 2). FOR BOLT
AND BEARING SIZES SEE SHEET V.26.

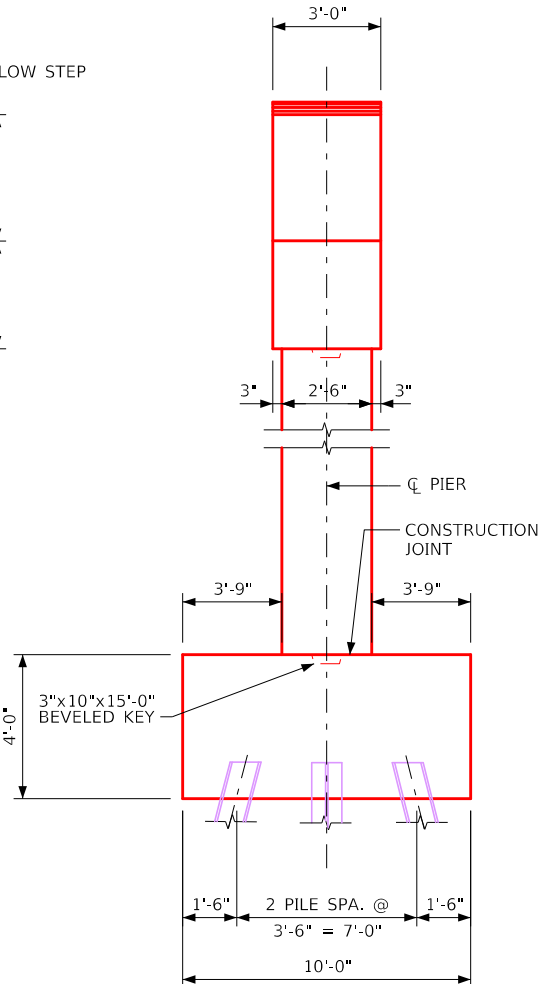
- NOTES:
- SHIFT 5c1 BARS TO CLEAR 9d1 COLUMN BARS .
 - 5m1 & 5n1 BARS PROVIDED AT BEAM LINES 1, 2, 3, 4, AND 5.



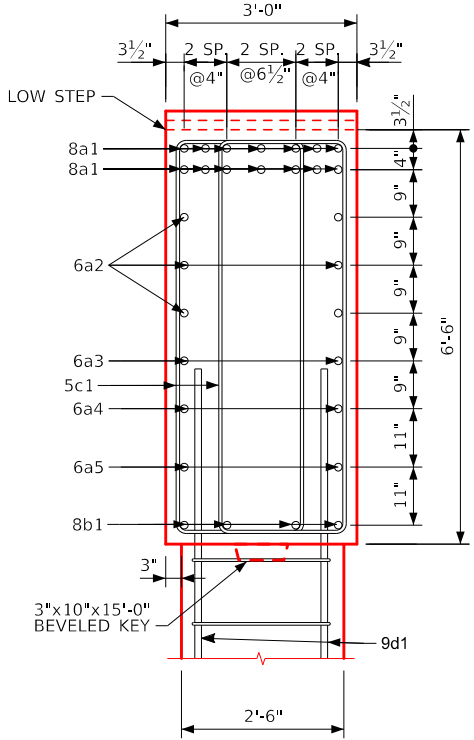
FRONT ELEVATION
(LOOKING SOUTHEAST)



SECTION A - A



END ELEVATION

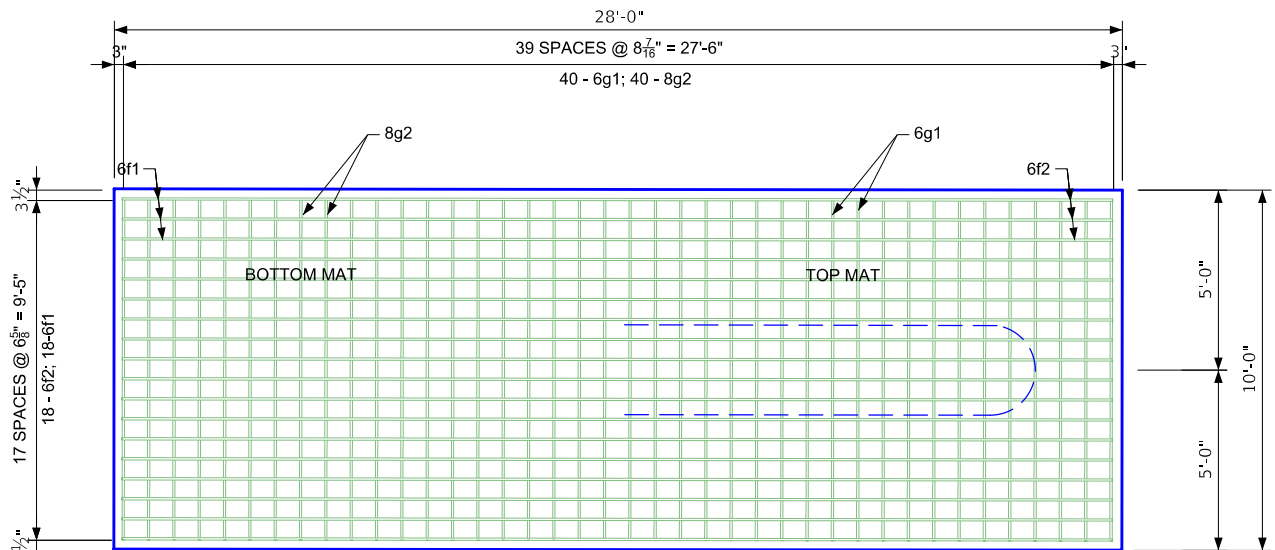


SECTION B - B

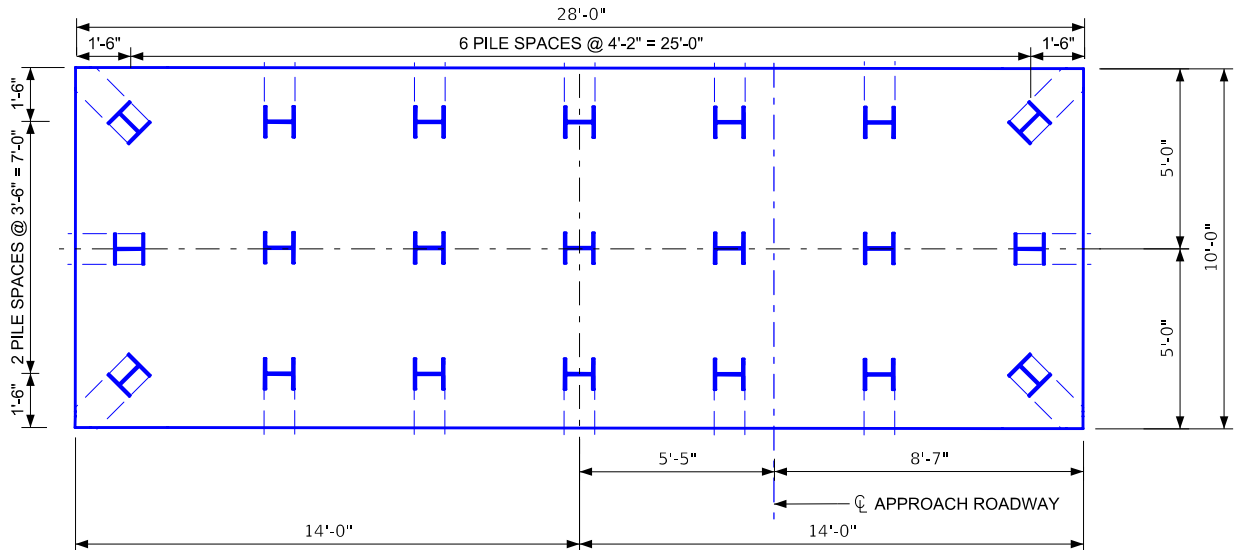
NOTE:

FOR PIER FOOTING REINFORCEMENT, H-PILE
LAYOUT, REBAR LIST AND DETAILS, AND PIER
NOTES, SEE SHEET V.09.

DESIGN FOR 0° SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
PIER 1 & PIER 2 DETAILS
STA. 105+33.71 (CL HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 8 OF 36



FOOTING PLAN



PILE PLAN
(HP10x57)

PIER 1 PILE NOTES:

ALL PIER PILES SHALL BE HP10X57.
THE CONTRACT LENGTH OF 80 FEET FOR THE PIER 1 PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 149 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.
PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING.
THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR PIER 1 PILES IS 74 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY TO ACHIEVE BEARING, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 106 TONS AT ONE-DAY RETAP, 111 TONS AT THREE-DAY RETAP, OR 114 TONS AT SEVEN-DAY RETAP, THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL.
CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

PIER 2 PILE NOTES:

ALL PIER PILES SHALL BE HP10X57.
THE CONTRACT LENGTH OF 80 FEET FOR THE PIER 2 PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 158 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65.
PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF FOOTING.
THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR PIER 2 PILES IS 79 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY TO ACHIEVE BEARING, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 112 TONS AT ONE-DAY RETAP, 117 TONS AT THREE-DAY RETAP, OR 121 TONS AT SEVEN-DAY RETAP, THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL.
CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH.

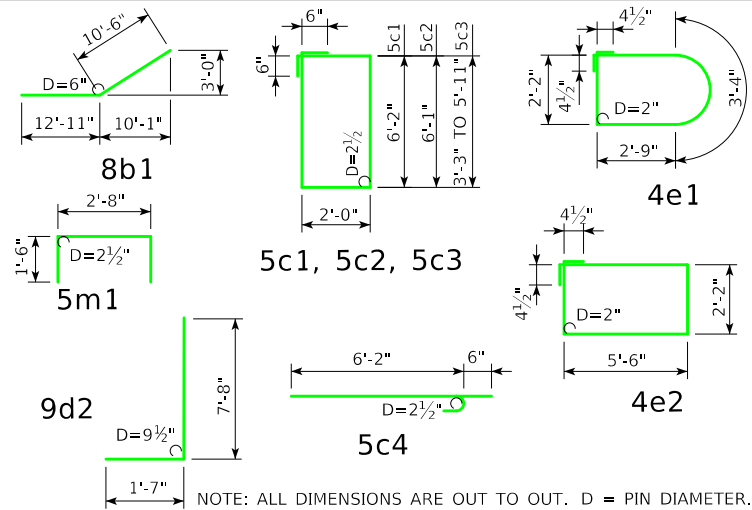
REINFORCING BAR LIST - PIER 1					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	Pier Cap, Longitudinal, Top		14	43'-6"	1626
6a2	Pier Cap, Longitudinal, Sides		6	43'-6"	392
6a3	Pier Cap, Longitudinal, Sides		2	41'-9"	125
6a4	Pier Cap, Longitudinal, Sides		2	36'-9"	110
6a5	Pier Cap, Longitudinal, Sides		2	30'-7"	92
8b1	Pier Cap, Longitudinal, Bottom		8	24'-8"	527
5c1	Pier Cap, Hoops		32	17'-4"	579
5c2	Pier Cap, Hoops		4	17'-2"	72
5c3	Pier Cap, Hoops		40	Varies	591
5c4	Pier Cap, Vertical		24	6'-8"	167
9d1	Pier Column, Verticals		56	23'-5"	4466
9d2	Pier Footing To Column Dowels		56	9'-3"	1761
4e1	Pier Column, Ties End		44	11'-9"	345
4e2	Pier Column, Ties		110	16'-1"	1182
6f1	Pier Footing, Transverse, Bottom		18	27'-6"	743
6f2	Pier Footing, Transverse, Top		18	27'-6"	743
6g1	Pier Footing, Longitudinal, Top		40	9'-6"	571
8g2	Pier Footing, Longitudinal, Bottom		40	9'-6"	1015
5m1	Pier Cap, Under Beam		20	5'-8"	118
5n1	Pier Cap, Under Beam		20	2'-10"	59
REINFORCING STEEL - TOTAL (LBS.)					15284

REINFORCING BAR LIST - PIER 2					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
8a1	Pier Cap, Longitudinal, Top		14	43'-6"	1626
6a2	Pier Cap, Longitudinal, Sides		6	43'-6"	392
6a3	Pier Cap, Longitudinal, Sides		2	41'-9"	125
6a4	Pier Cap, Longitudinal, Sides		2	36'-9"	110
6a5	Pier Cap, Longitudinal, Sides		2	30'-7"	92
8b1	Pier Cap, Longitudinal, Bottom		8	24'-8"	527
5c1	Pier Cap, Hoops		32	17'-4"	579
5c2	Pier Cap, Hoops		4	17'-2"	72
5c3	Pier Cap, Hoops		40	Varies	591
5c4	Pier Cap, Vertical		24	6'-8"	167
9d1	Pier Column, Verticals		56	24'-11"	4744
9d2	Pier Footing To Column Dowels		56	9'-3"	1761
4e1	Pier Column, Ties End		46	11'-9"	361
4e2	Pier Column, Ties		115	16'-1"	1236
6f1	Pier Footing, Transverse, Bottom		18	27'-6"	743
6f2	Pier Footing, Transverse, Top		18	27'-6"	743
6g1	Pier Footing, Longitudinal, Top		40	9'-6"	571
8g2	Pier Footing, Longitudinal, Bottom		40	9'-6"	1015
5m1	Pier Cap, Under Beam		20	5'-8"	118
5n1	Pier Cap, Under Beam		20	2'-10"	59
REINFORCING STEEL - TOTAL (LBS.)					15632

CONC. ESTIMATED QUANTITIES

LOCATION	PIER 1	PIER 2
CAP	30.7	30.7
COLUMN	43.3	46.4
FOOTING	41.5	41.5
TOTAL (CY)	115.5	118.6

BENT BAR DETAILS

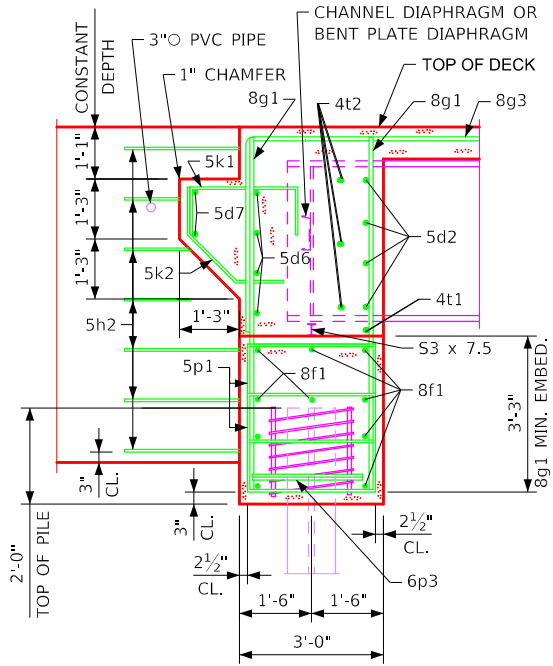
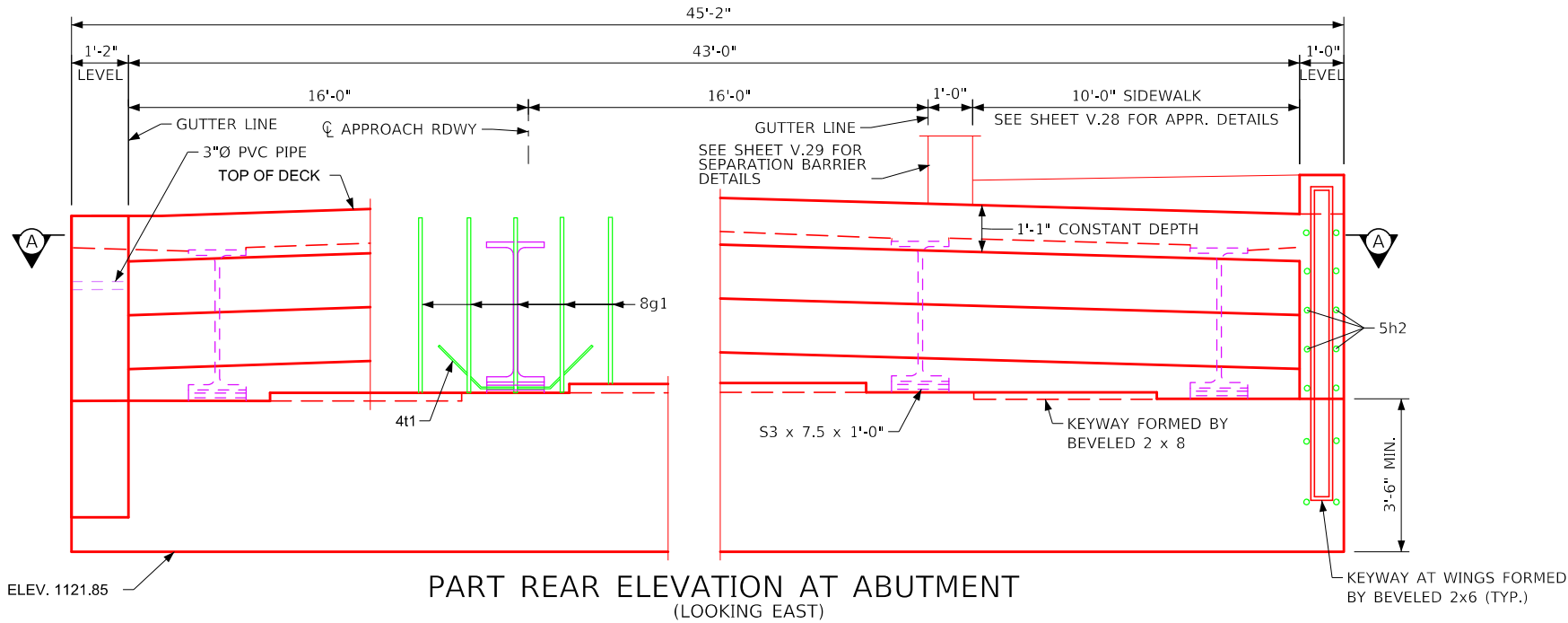


PIER NOTES:

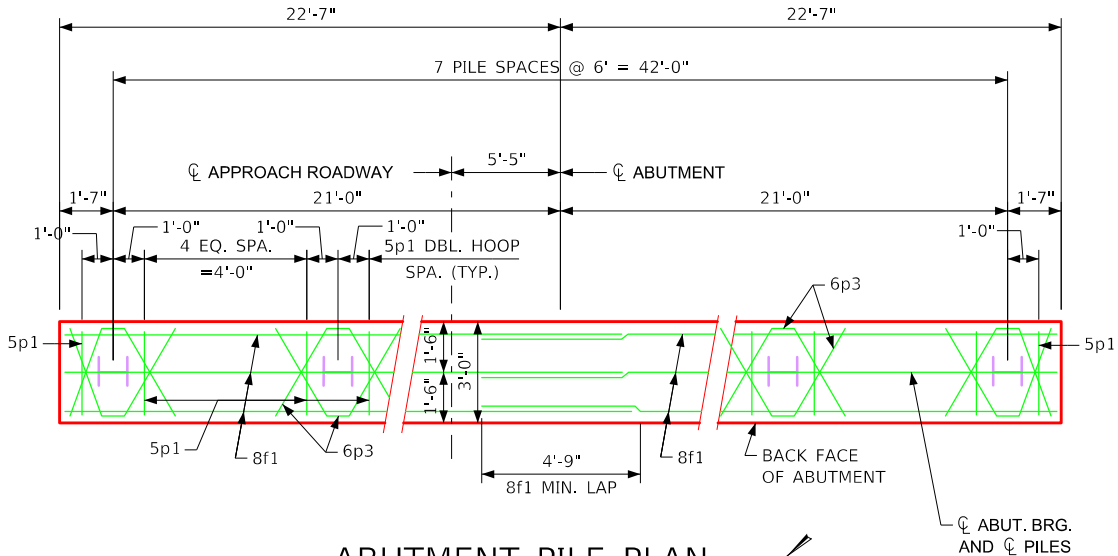
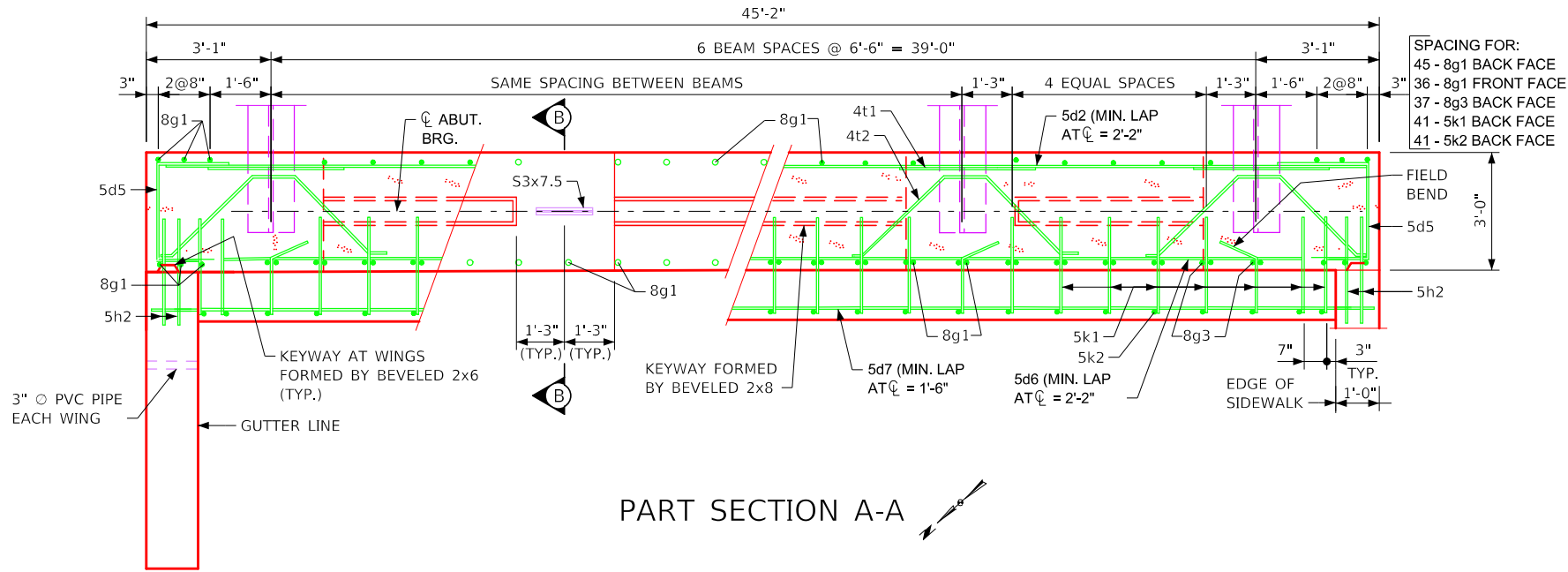
FOR PIER ELEVATION, SECTIONS, AND END ELEVATIONS, SEE SHEET V.08.
MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.
REINFORCING BARS MAY BE SHIFTED SLIGHTLY TO CLEAR ANCHOR BOLTS.
ANCHOR BOLTS ARE TO BE PRESET IN PIERS IN ACCORDANCE WITH ARTICLE 2405.03, H, 2, OF THE STANDARD SPECIFICATIONS. THE WEIGHT OF ANCHOR BOLTS IS INCLUDED IN THE STRUCTURAL STEEL QUANTITY.
ALL BATTERED PILE SHALL BE TRIMMED TO A HORIZONTAL LINE TO AID IN THE PLACEMENT OF REINFORCING.
FORMS FOR PIER CAPS SHALL BE REMOVED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. EARLY FORM REMOVAL IS PROHIBITED.

DESIGN FOR 0°SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
PIER 1 & PIER 2 REINFORCING BAR LIST
STA. 105+33.71 (Q HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 9 OF 36

BENCH MARK NO. 1002, ARROW ON HYD.
ELEV. 1112.82, N3645034.3200, E4739981.5820



PART SECTION B-B



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 CITY.

BARRIER RAIL NOT SHOWN IN DETAILS.

THE CONTRACT LENGTH OF 70 FEET FOR THE WEST ABUTMENT PILES IS BASED ON A COHESIVE SOIL CLASSIFICATION, A TOTAL FACTORED AXIAL LOAD PER PILE (PU) OF 100 KIPS, AND A GEOTECHNICAL RESISTANCE FACTOR (PHI) OF 0.65. TO ACCOUNT FOR THE SOIL CONSOLIDATION UNDER NEW FILL, THE FACTORED AXIAL LOAD INCLUDES A FACTORAL DOWNDRAW LOAD OF 12 KIPS.

THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE FOR WEST ABUTMENT PILES IS 55 TONS AT END OF DRIVE. IF RETAPS ARE NECESSARY TO ACHIEVE BEARING, THE REQUIRED NOMINAL AXIAL BEARING RESISTANCE IS 78 TONS AT ONE-DAY RETAP, 81 TONS AT THREE-DAY RETAP, OR 82 TONS AT SEVEN-DAY RETAP. THE PILE CONTRACT LENGTH SHALL BE DRIVEN AS PER PLAN UNLESS PILES REACH REFUSAL. CONSTRUCTION CONTROL REQUIRES A WEAP ANALYSIS WITH BEARING GRAPH. PILES ARE ASSUMED TO BE DRIVEN FROM A START ELEVATION AT THE BOTTOM OF PREBORE.

STEP ELEVATIONS

	BEAM 1	BEAM 2	BEAM 3	BEAM 4	BEAM 5	BEAM 6	BEAM 7
W. ABUT	1125.50	1125.60	1125.69	1125.64	1125.54	1125.43	1125.35

WEST ABUT. PILE DESIGN (LRFD)

PARAMETER	WEST ABUT.
SOIL CLASSIFICATION	C
GEOTECH. RESIST. FACTOR, "PHI" - SOIL	0.65
TOTAL FACTORED AXIAL LOAD, "PU" (KIPS)	100
NO. PILES	8
PILE TYPE (STEEL HP-SECTION)	HP10x57
CONTRACT LENGTH (FT)	70

DESIGN FOR 0° SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
WEST ABUTMENT DETAILS
STA. 105+33.71 (CL HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 10 OF 36

49'-11"

1'-0" LEVEL

10'-0" SIDEWALK
SEE SHEET V.28 FOR DETAILS

1'-0"

16'-0"

16'-0"

1'-2" LEVEL

4'-9" WING EXT.

SEE SHEET V.29 FOR SEPARATION BARRIER DETAILS

1'-1" CONSTANT DEPTH

5h2

KEYWAY FORMED BY BEVELED 2 x 8

S3 x 7.5 x 1'-0"

3'-6" MIN

ELEV. 1124.33

KEYWAY AT WINGS FORMED BY BEVELED 2x6 (TYP.)

8g1

4t1

TOP OF DECK

8f4 (F.F.)
8f3 (B.F.)

8g1

8g1

8f3

4'-9" LAP

4 EQ. SPACES

3"

MATCH RETAINING WALL ELEV.
SEE SHT. V201 & V202 FOR RETAINING WALL DETAILS

KEYWAY FORMED BY BEVELED 2 x 8

1" PREFORMED RESILIENT JOINT FILLER

TOP OF APPROACH SIDEWALK

CONSTANT DEPTH

TOP OF APPROACH SLAB

3" Ø PVC PIPE

1" CHAMFER

TOP OF SIDEWALK

TOP OF DECK

8g1

4t2

8g1

8g3

5k1

5d7

5k2

5d6

5d2

4t1

5h2

1'-3"

1'-3"

5p1

8f1

8f1

3" CL.

3" CL.

2 1/2" CL.

3'-3" MIN. EMBED.

0" F PILE

BENCH MARK NO. 1002, ARROW ON HYD.
ELEV. 1112.82, N3645034.3200, E4739981.5820

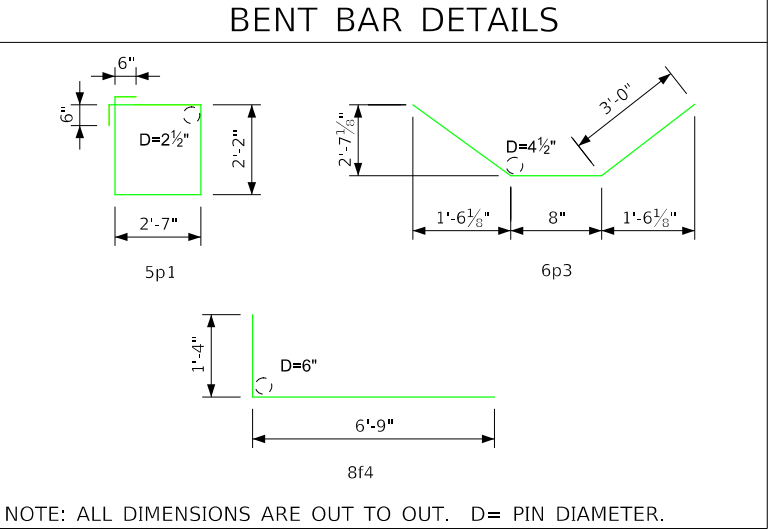
PART REAR ELEVATION AT ABUTMENT
(LOOKING WEST)

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REINFORCING BAR LIST - WEST ABUT.							REINFORCING BAR LIST - EAST ABUT.						
EPOXY COATED	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	EPOXY COATED	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	8f1	ABUTMENT, FOOTING, LONGITUDINAL		20	24'-10"	1,326		8f1	ABUTMENT, FOOTING, LONGITUDINAL		20	24'-10"	1,326
	5p1	ABUTMENT, FOOTING, HOOPS, TRANSVERSE		74	10'-6"	810		8f3	ABUTMENT EXTENSION, LONGITUDINAL		13	9'-6"	330
	6p3	ABUTMENT, FOOTING, TIES AT PILES		16	6'-8"	160		8f4	ABUTMENT EXTENSION, LONGITUDINAL		5	8'-1"	108
	8g1	FOOTING TO DIAPHRAGM DOWELS, VERT.		81	8'-7"	1,856		5p1	ABUTMENT, FOOTING, HOOPS, TRANSVERSE		74	10'-6"	810
								6p3	ABUTMENT, FOOTING, TIES AT PILES		16	6'-8"	160
								8g1	FOOTING TO DIAPHRAGM DOWELS, VERT.		91	8'-7"	2,085
	REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					4,152		REINFORCING STEEL EPOXY COATED - TOTAL (LBS.)					4819
NON-COATED							NON-COATED						
	#2	PILE SPIRAL		8	38'-6"	53		#2	PILE SPIRAL		8	38'-6"	53
		SPIRAL SPACERS, L ₈ x 7/8 x 1/8 x 0.70		24	1'-10"	31			SPIRAL SPACERS, L ₈ x 7/8 x 1/8 x 0.70		24	1'-10"	31
	REINFORCING STEEL - TOTAL (LBS.)					84		REINFORCING STEEL - TOTAL (LBS.)					84

ABUTMENT CONCRETE QUANTITY		
LOCATION		QUANTITY
WEST ABUT. FOOTING		18.5
EAST ABUT. FOOTING		19.5
EAST ABUTMENT WINGWALLS	1@1.3	1.3
WEST ABUTMENT WINGWALLS	1@1.5,1@1.3	2.8
TOTAL (CY)		42.1



NOTE: ALL DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER.

CONCRETE AND REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

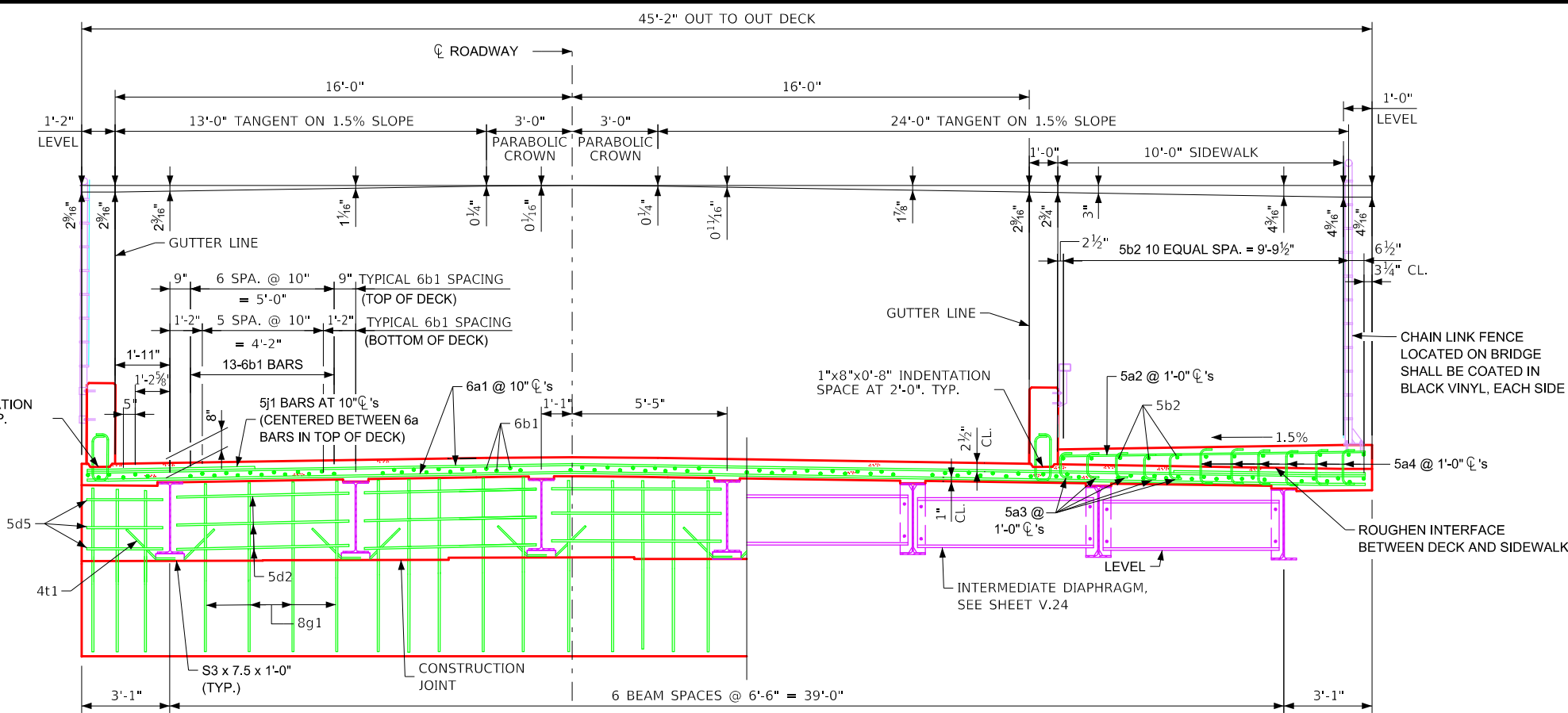
ABUTMENT QUANTITIES

STA. 105+33.71 (Q HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 12 OF 36

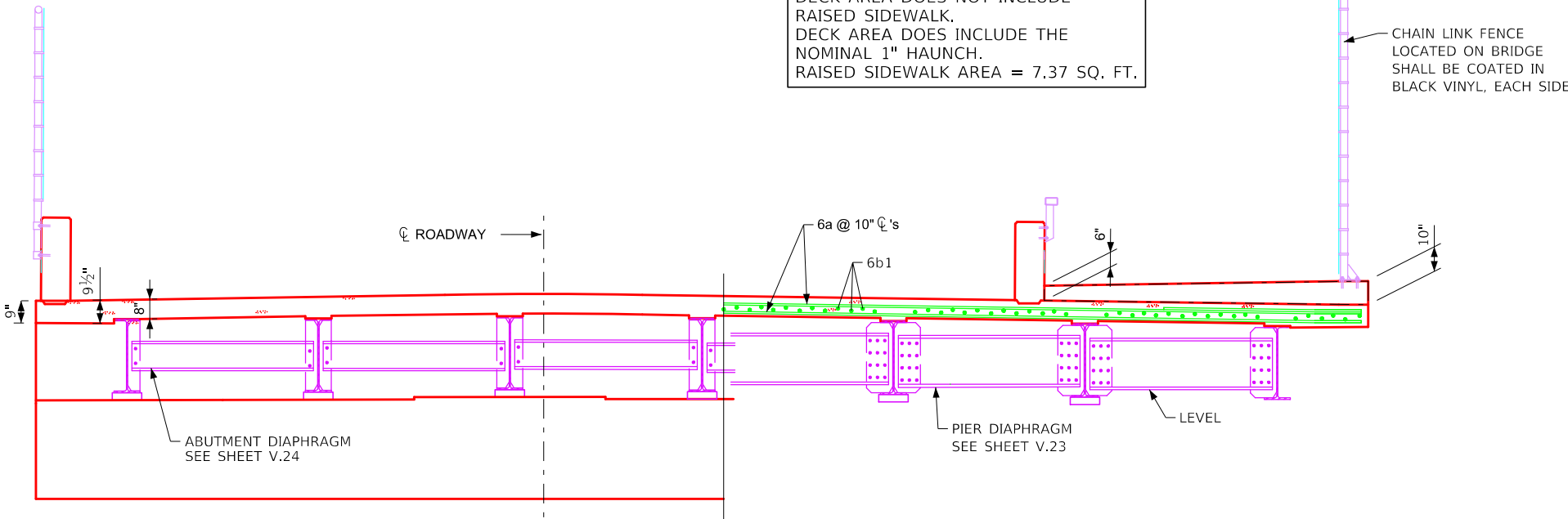


HALF SECTION NEAR ABUTMENT

NOTE:
STEEL ABUTMENT DIAPHRAGMS OMITTED FOR CLARITY.
SEE SHEET V.24 FOR DETAILS.

HALF SECTION NEAR INTERMEDIATE DIAPHRAGM

DECK AREA = 30.9 SQ. FT.
DECK AREA DOES NOT INCLUDE
RAISED SIDEWALK.
DECK AREA DOES INCLUDE THE
NOMINAL 1" HAUNCH.
RAISED SIDEWALK AREA = 7.37 SQ. FT.



HALF SECTION NEAR ABUTMENT

NOTE:
REINFORCING OMITTED FOR CLARITY. FOR BEAM
CAMBER AND THEORETICAL CONCRETE HAUNCH
DIAGRAM, SEE SHEET V.21.

HALF SECTION NEAR PIER

SUPERSTRUCTURE NOTES:

THE DECK AS SHOWN INCLUDES 1/2" INTEGRAL WEARING SURFACE.

FORMS FOR THE DECK AND BARRIER RAIL ARE TO BE SUPPORTED BY THE BEAMS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2 INCHES UNLESS OTHERWISE NOTED OR SHOWN.

TOP TRANSVERSE REINFORCING STEEL IS TO BE PARALLEL TO AND 2 1/2" 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. 1.M. 451.01 REQUIREMENTS SHALL APPLY FOR BAR CHAIRS, BAR HIGH CHAIRS, AND DECK BOLSTERS.

TRANSVERSE DECK REINFORCING MAY BE SPLICED WITH ONE LAP LOCATED AS FOLLOWS:

TOP BARS - LAP MIDWAY BETWEEN BEAMS
(MIN. LAP = 1'-10").

BOTTOM BARS - LAP OVER BEAMS (MIN. LAP = 1'-10").
PAYMENT FOR REINFORCING BARS SHALL BE BASED ON NO SPLICES, AND NO ALLOWANCE SHALL BE MADE FOR THE ADDITIONAL LENGTH OF BAR REQUIRED FOR THE USE OF SPLICES.

ALL FIELD CONNECTIONS ARE TO BE BOLTED USING "HIGH TENSILE STRENGTH BOTLS". UNLESS OTHERWISE NOTED, ALL OPEN HOLES ARE TO BE 15/16" O AND ALL BOLTS ARE TO BE 7/8" O.

BOTTOM FLANGES ARE TO BE PERPENDICULAR TO WEBS AT THE REACTION POINTS.

THE DESIGN DRAWINGS INDICATE AWS PREQUALIFIED WELDED JOINTS. ALTERNATE JOINT DETAILS MAY BE SUBMITTED FOR APPROVAL.

MAGNETIC PARTICLE INSPECTION OF WELDS, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, WILL BE REQUIRED.

SHOP WELDED FLANGE SPLICES SHALL BE A MINIMUM OF 6 INCHES FROM A STIFFENER. SPLICES SHALL NOT INTERFERE WITH ANY OTHER BRIDGE COMPONENTS. ALL SHOP WELDED BUTT SPLICES SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBJECT TO APPROVAL BY THE ENGINEER.

SIDEWALK CONCRETE PLACEMENT AND FINISHING NOTES:
ACCURATELY PLACE, SCREED, AND FINISH SIDEWALK/TRAIL CONCRETE TO THE CROSS SLOPE FIGURE(S) SHOWN IN THE PLANS. THE MAXIMUM CROSS SLOPE ON THE SIDEWALK SHALL NOT EXCEED 2%. FOLLOWING BROOM FINISHING OF THE SIDEWALK SURFACE, APPLY WHITE PIGMENTED LIQUID CURING COMPOUND TO THE SIDEWALK IN ACCORDANCE WITH SECTION 2301.03, K, 2 OF THE STANDARD SPECIFICATIONS. DO NOT DAMAGE THE BROOM FINISH BY USING ADDITIONAL CURING METHODS THAT INCLUDE FABRIC, PLASTIC, OR OTHER COVERS DURING THE INITIAL CURING PERIOD. ENSURE THAT COVERINGS WILL NOT DAMAGE THE BROOM FINISH BY WAITING UNTIL SURFACE HAS SUFFICIENTLY SET BEFORE APPLICATION. ALL COSTS FOR CORRECTION OF EXCESSIVE SIDEWALK SURFACE CROSS SLOPE OR TO CORRECT DAMAGED SURFACE FINISH SHALL BE PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS

60'-0" INTERIOR SPAN

BRIDGE CROSS SECTIONS

STA. 105+33.71 (CL HIGHLAND PARK AVE.)

JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 13 OF 36

FILE NO.

ENGLISH

DESIGN TEAM Stanley Consultants Inc.

City of Fort Dodge

PROJECT NUMBER BROS-2690(631)--8J-94

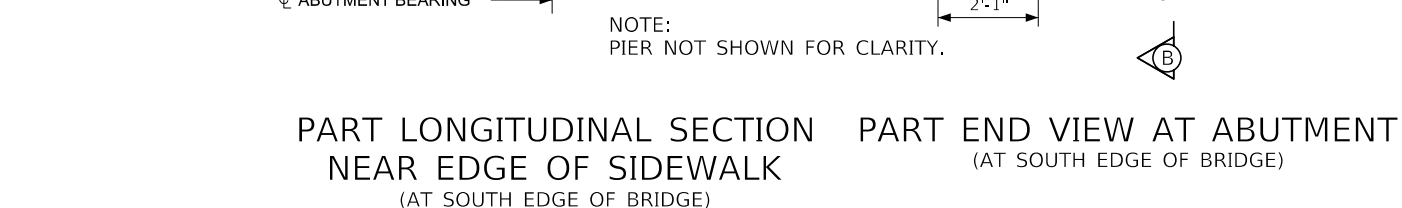
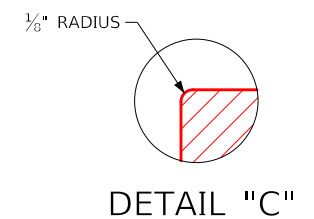
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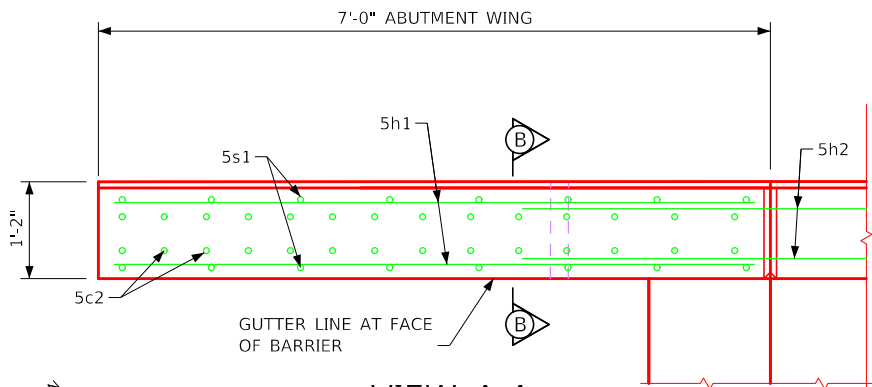
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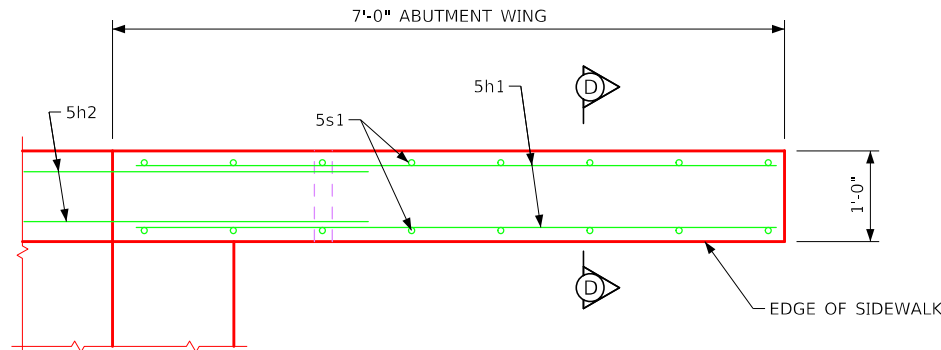
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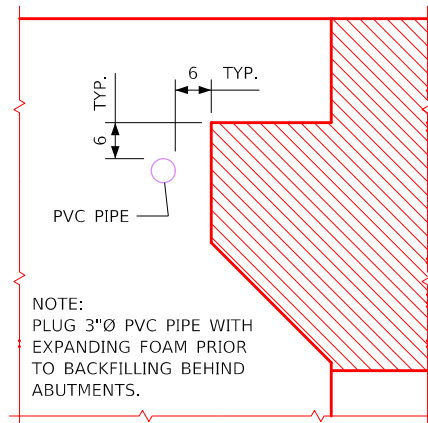
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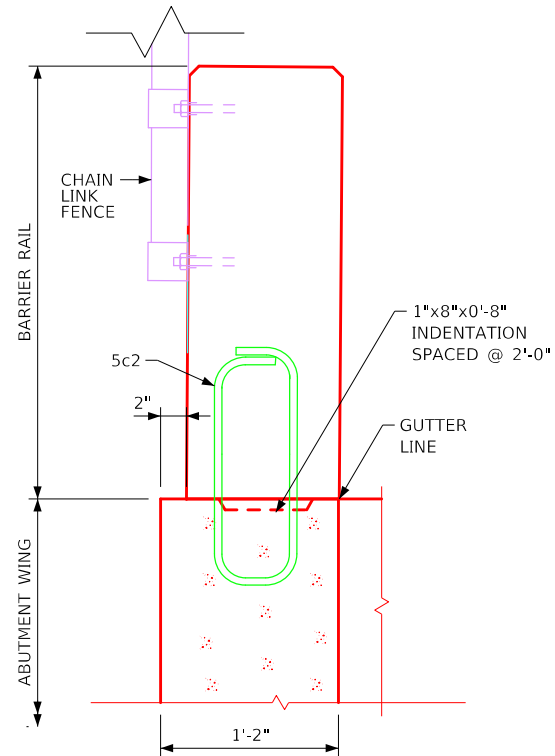
VIEW A-A
(AT NORTH EDGE OF BRIDGE - WEST ABUTMENT ONLY)



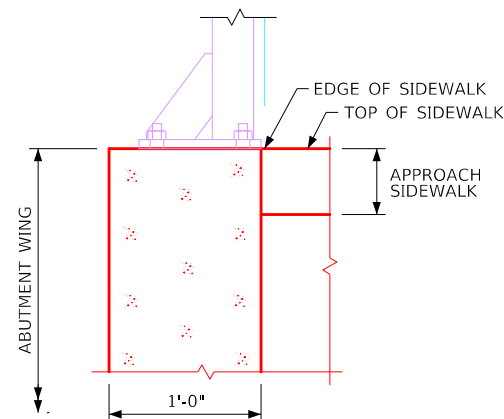
VIEW C-C
(AT SOUTH EDGE OF BRIDGE)



PVC PIPE LOCATION



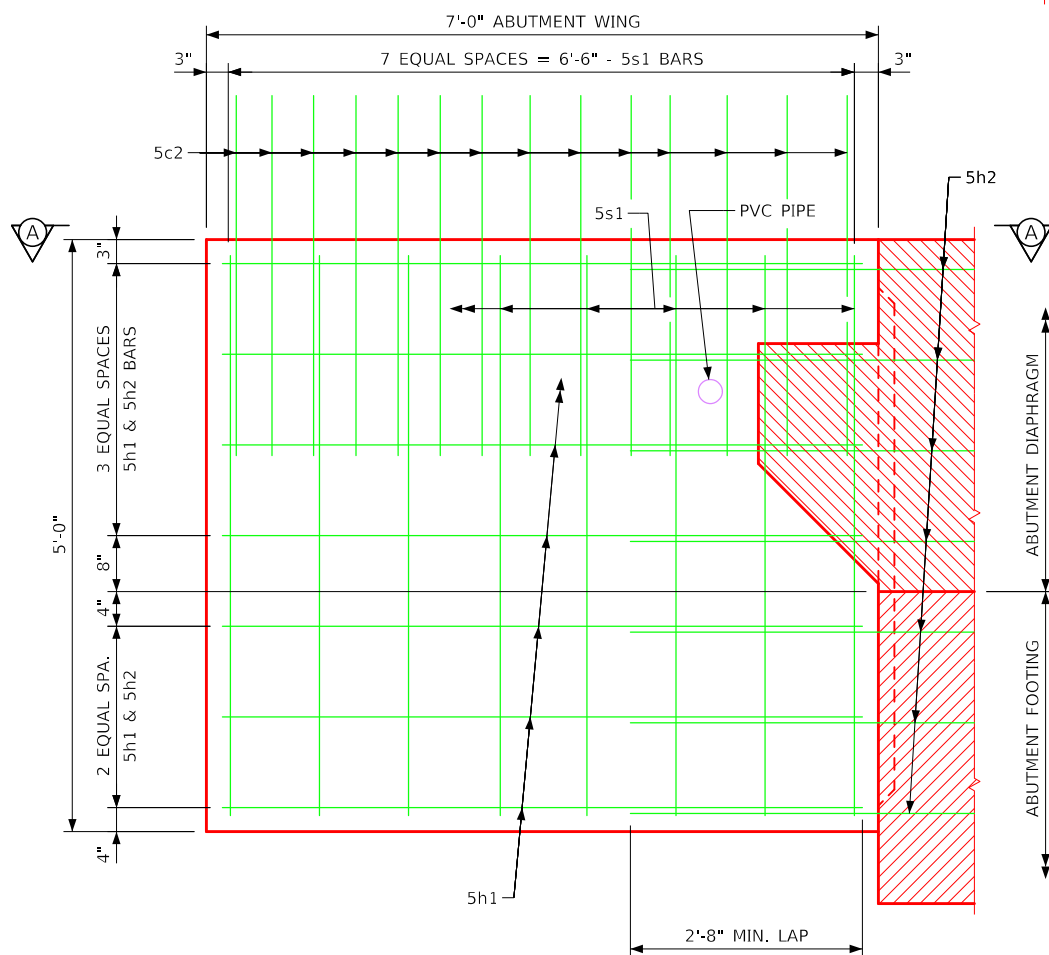
SECTION B-B



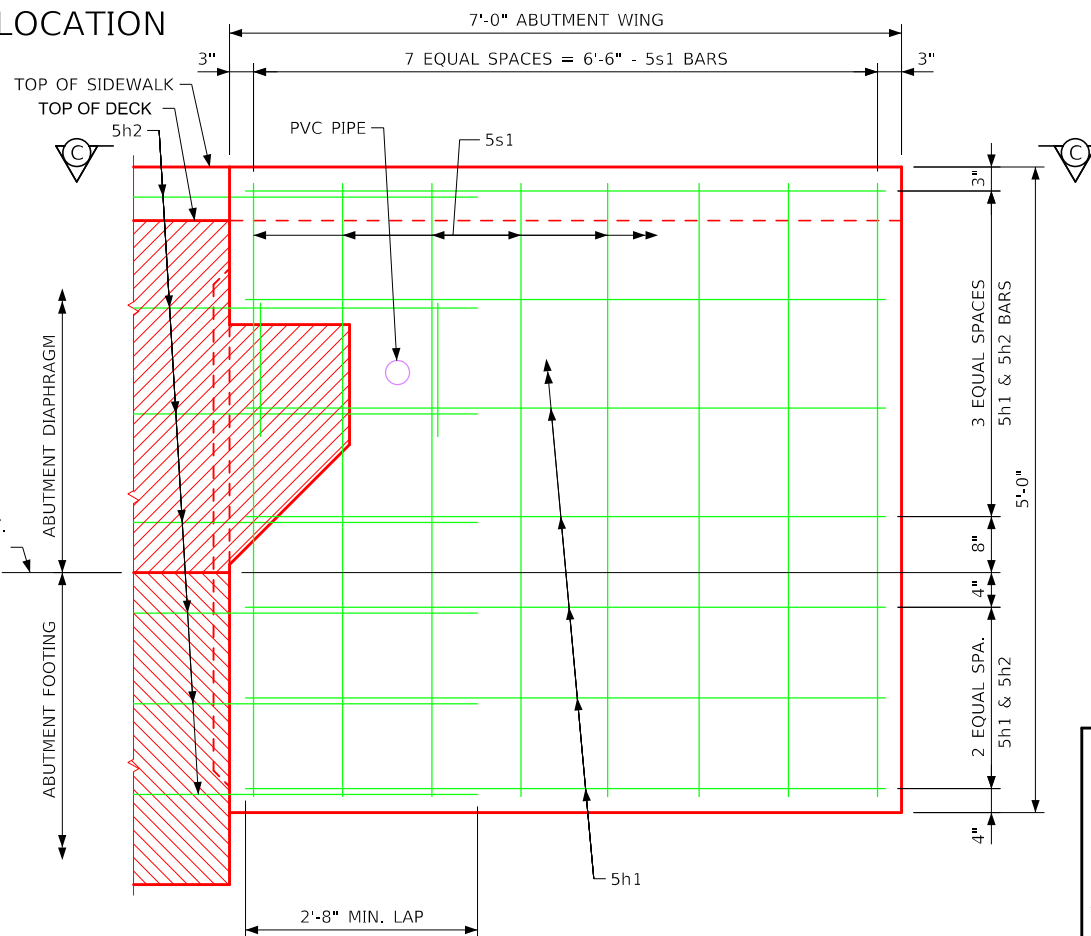
SECTION D-D

NOTES:

1. BARRIER RAIL END SECTION 5c2 BARS TO BE PLACED WITH ABUTMENT WING.
2. SEE BARRIER RAIL DETAILS ON SHEET V.29 FOR DETAILS OF BARRIER RAIL END SECTION. REINFORCING BARS 5c2 & 5c3-9 ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.
3. REINFORCING STEEL QUANTITY AND CONCRETE QUANTITY ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.



ABUTMENT WING - ELEVATION VIEW
(AT NORTH EDGE OF BRIDGE - WEST ABUTMENT ONLY)



ABUTMENT WING - ELEVATION VIEW
(AT SOUTH EDGE OF BRIDGE)

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

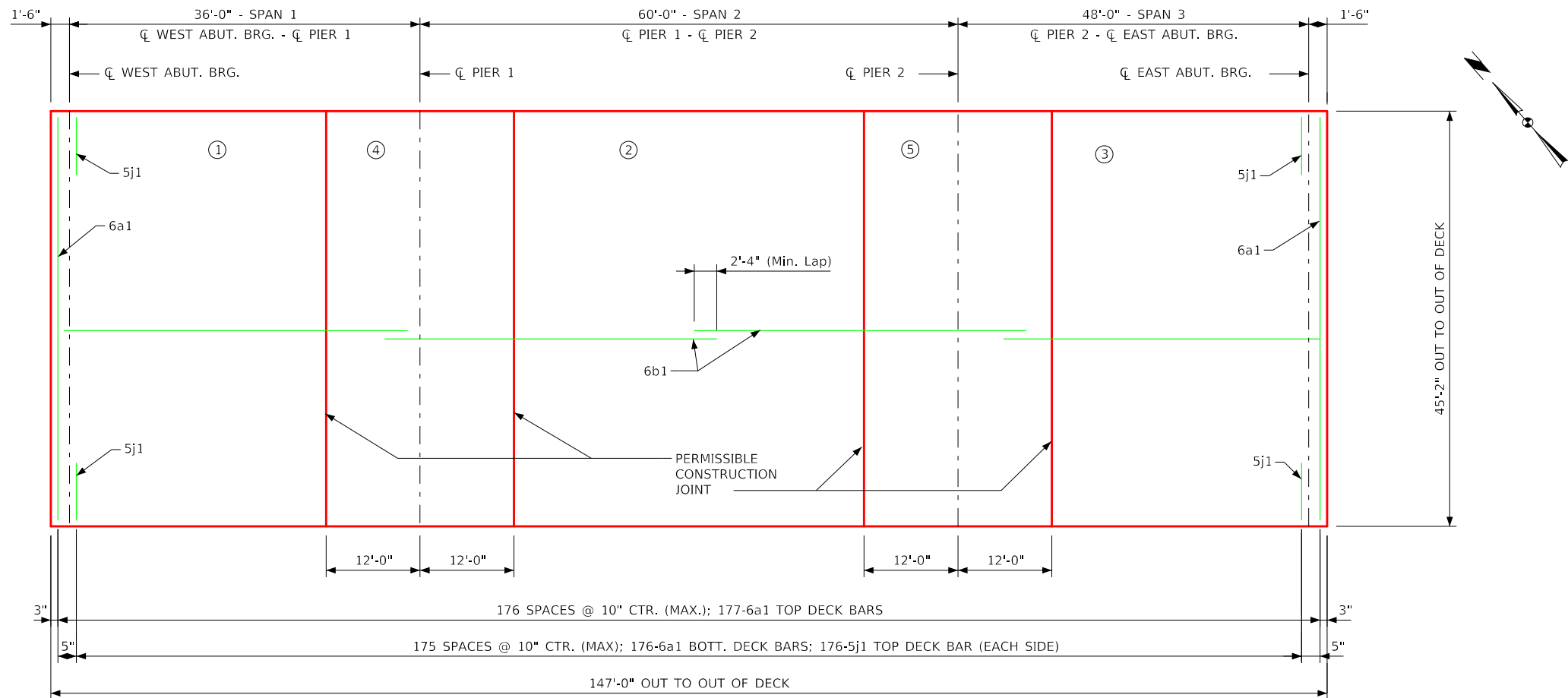
ABUTMENT WING DETAILS

STA. 105+33.71 (Q. HIGHLAND PARK AVE.) JULY 2026

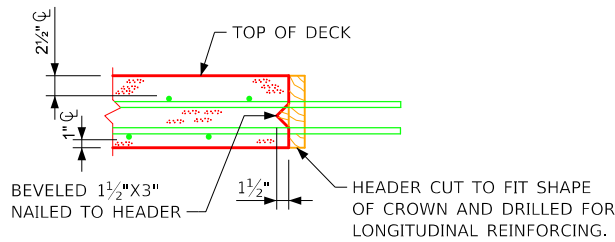
WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 15 OF 36



DECK REBAR LAYOUT



TRANSVERSE SLAB
CONSTRUCTION JOINT

NOTE:
CONCRETE DECK SHALL BE PLACED IN SECTIONS AND SEQUENCES INDICATED. 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. FOR APPROVED ALTERNATE PROCEDURES THE ENGINEER SHALL DETERMINE IF A RETARDING ADMIXTURE IS REQUIRED TO MAINTAIN PLASTICITY OF THE CONCRETE DECK DURING PLACEMENT. IF THE CONCRETE DECK IS PLACED CONTINUOUSLY, SPAN 1 SHALL BE PLACED FIRST TO PREVENT UPLIFT AT THE ABUTMENT BEARINGS.

HPC CONCRETE PLACEMENT QTYS.	(CY)
SECTION 1 - DECK AND ABUT DIAPHRAGM	47.8
SECTION 2 - DECK	42.0
SECTION 3 - DECK AND ABUT. DIAPHRAGM	61.8
SECTION 4 - DECK	28.0
SECTION 5 - DECK	28.0
RAISED SIDEWALK FULL LENGTH	40.1
TOTAL	247.6

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

SLAB REINFORCING LAYOUT

STA. 105+33.71 (CL HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 16 OF 36

BENT BAR DETAILS				REINFORCING BAR LIST - ONE SUPERSTRUCTURE AND TWO ABUTMENTS						
NOTE: ALL DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER 5a3 5a4 4t1 4t2 5d5 8g3 5k1 5k2				BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT	
				6a1	DECK TRANSVERSE, TOP & BOTTOM		353	44'-10"	23,771	
				5a2	RAISED SW TRANSVERSE, TOP		147	10'-7"	1,623	
				5a3	RAISED SW TO DECK DOWELS		735	2'-7"	1,980	
				5a4	RAISED SW TO DECK DOWELS		882	2'-11"	2,683	
				6b1	DECK LONGITUDINAL TOP & BOTTOM		360	38'-5"	20,773	
				5b2	RAISED SW LONGITUDINAL, TOP		44	38'-5"	1,763	
				5d2	ABUTMENT DIAPHRAGM, LONGIT.		16	23'-11"	399	
				5d5	ABUTMENT DIAPHRAGM, LONGIT. - END		16	5'-0"	83	
				5d6	ABUTMENT DIAPHRAGM, LONGIT. - B.F.		16	23'-11"	399	
				5d7	PAVING NOTCH, LONGITUDINAL		8	23'-7"	197	
				8g3	ABUTMENT DIAPHRAGM VERTICAL - B.F.		74	15'-3"	3,013	
				5h1	WING HORIZONTAL BOTH FACES		42	6'-8"	292	
				5h2	WING HORIZONTAL BOTH FACES		42	4'-11"	215	
				5j1	TOP OF DECK, TRANSVERSE, AT RAIL		352	6'-3"	2295	
				5k1	PAVING NOTCH, TRANSVERSE		82	4'-3"	363	
				5k2	PAVING NOTCH, TRANSVERSE		82	3'-5"	292	
				5s1	WING, VERTICAL		48	4'-8"	234	
				4t1	UNDER BEAMS AT ABUTMENTS		14	4'-7"	43	
				4t2	ABUTMENT DIAPHRAGM, LONGITUDINAL		42	7'-6"	210	
				REINFORCING STEEL EPOXY COATED (LBS.)					TOTAL (LBS.)	60,628

EPOXY COATED REINFORCING

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

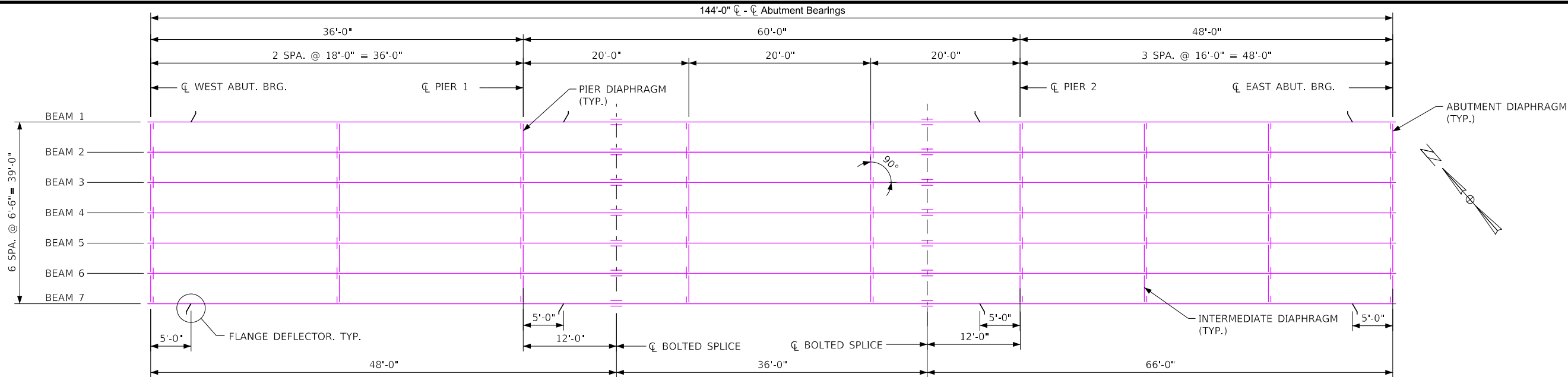
SUPERSTRUCTURE QUANTITIES AND BAR LIST

STA. 105+33.71 (Q HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 17 OF 36



FRAMING PLAN

MOMENT AND REACTION TABLE - ROLLED STEEL													
LOAD NAME		LOAD - k/ft		POSITIVE MOMENT - ft-kips				NEGATIVE MOMENT - ft-kips		REACTION - kips			
				0.4 PT. END SPAN		0.5 PT. CENTER SPAN		PIER 2	PIER 2	E. ABUT	E. ABUT	PIER 2	PIER 2
		INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR
DC1 *		0.62	0.66	36.64	37.97	110.51	113.03	-197.82	-202.54	11.19	11.51	19.82	20.37
DC2 **		0.34	0.34	22.93	22.84	67.42	66.99	-96.30	-96.13	6.15	6.13	10.55	10.53
DW **		0.13	0.13	8.88	8.85	26.11	25.94	-37.29	-37.23	2.38	2.37	4.09	4.08
LIVE LOAD + IMPACT HL-93	DISTRIBUTION FACTOR	MOMENT	MOMENT	393.09	342.26	582.55	507.22	-503.08	-438.04	64.15	55.83	67.20	58.49
		0.73	0.63										
		REACTION	REACTION										
		0.73	0.63										
PL ***		0.075 ksf		3.35	5.62	6.84	10.47	-6.32	-10.92	0.52	0.97	0.77	1.42
TOTAL				461.54	411.92	786.58	713.18	-834.50	-773.93	83.87	75.85	101.66	93.47

NOTES:
WEIGHT OF STRUCTURAL STEEL SHOWN ON THIS SHEET INCLUDES: BENT PLATES, BEAMS, DIAPHRAGMS, SPLICES, SHEAR STUDS, BEARINGS, DRAINS, DEFLECTORS, WELDS AND BOLT HARDWARE.

QUANTITY OF STRUCTURAL STEEL SHOWN ON THIS SHEET IS TABULATED FOR BENT PLATE DIAPHRAGM OPTION SHOWN ON SHEET V.22. PAYMENT FOR STRUCTURAL STEEL WILL BE BASED ON QUANTITIES SHOWN. THE CONTRACTOR MAY CHOOSE TO PROVIDE ROLLED STEEL DIAPHRAGMS WHERE ALLOWABLE, AT NO ADDITIONAL COST.

STRUCTURAL STEEL WEIGHT IS INCLUDED ON SUMMARY QUANTITIES SHEET.

THE CONTRACTOR MAY CHOOSE WELDED PLATE GIRDERS IN PLACE OF ROLLED BEAMS. SEE SHEET V.23 FOR PLATE GIRDER DETAILS.

SEE SHEET V.25 FOR STRUCTURAL STEEL NOTES.

WELDING OF ANCHOR BOLTS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL OBTAIN A TEMPLATE FROM THE MANUFACTURER / FABRICATOR FOR PROPER PLACEMENT OF THE ANCHOR BOLTS.

MOMENT AND REACTION TABLE - PLATE GIRDER ALTERNATIVE													
LOAD NAME		LOAD - k/ft		POSITIVE MOMENT - ft-kips				NEGATIVE MOMENT - ft-kips		REACTION - kips			
				0.4 PT. END SPAN		0.5 PT. CENTER SPAN		PIER 2	PIER 2	E. ABUT	E. ABUT	PIER 2	PIER 2
		INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR	INTERIOR	EXTERIOR
DC1 *		0.62	0.67	36.57	37.98	110.44	113.17	-197.69	-202.77	11.18	11.52	19.81	20.39
DC2 **		0.33	0.33	22.48	22.39	66.11	65.69	-95.03	-94.86	6.05	6.03	10.39	10.37
DW **		0.13	0.13	8.85	8.81	26.01	25.85	-37.39	-37.33	2.38	2.37	4.09	4.08
LIVE LOAD + IMPACT HL-93	DISTRIBUTION FACTOR	MOMENT	MOMENT	395.25	340.10	585.75	504.02	-505.85	-435.27	64.39	55.48	67.45	58.12
		0.73	0.63										
		REACTION	REACTION										
		0.73	0.63										
PL ***		0.075 ksf		5.97	9.55	6.85	10.66	-6.34	-11.12	0.51	0.99	0.77	1.43
TOTAL				463.14	409.28	788.32	708.73	-835.97	-770.22	83.99	75.40	101.74	92.95

STRUCTURAL STEEL WEIGHT:

113,909 LBS. (ROLLED BEAMS)

128,051 LBS. (PLATE GIRDER ALTERNATIVE)

NOTE:
ALL DIMENSIONS SHOWN ARE MEASURED IN A HORIZONTAL PLANE UNLESS NOTED OTHERWISE.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

FRAMING PLAN

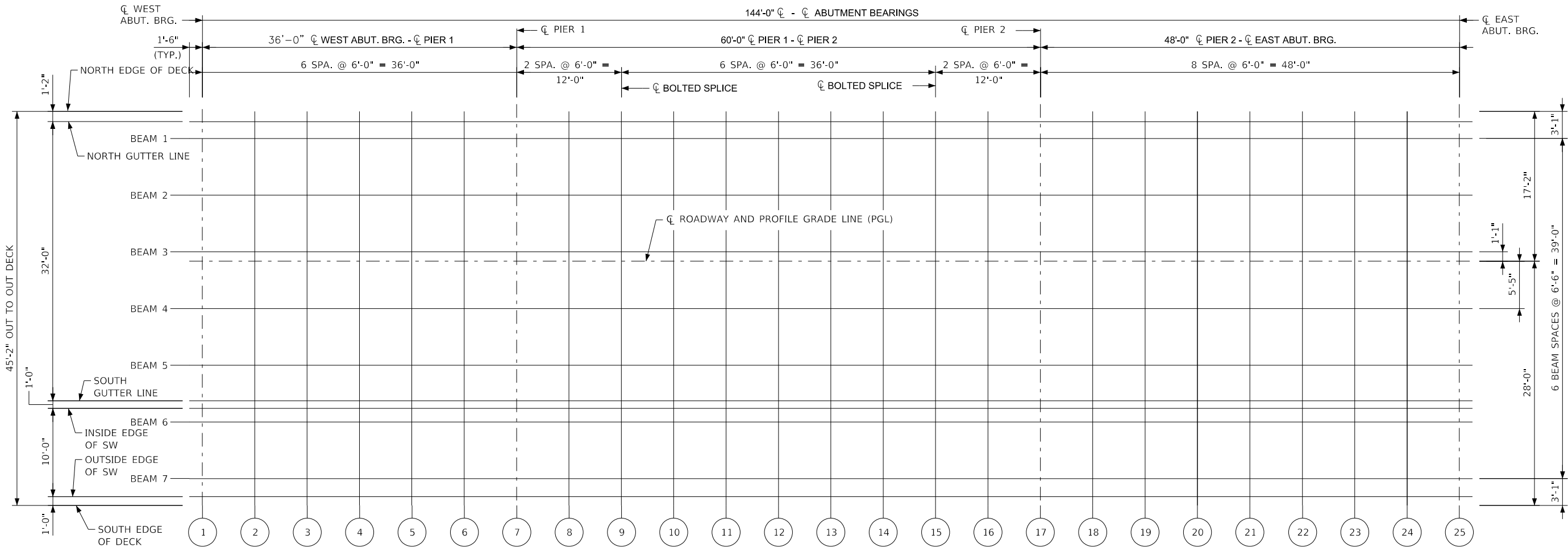
STA. 105+33.71 (CL HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

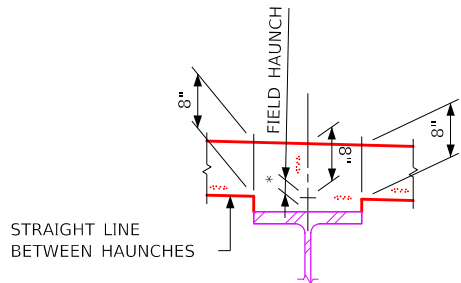
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 18 OF 36

TOP OF DECK ELEVATIONS																									
LOCATION	C.L. WEST. ABUT. BRG.						C.L. PIER #1		C.L. BOLTED SPLICE						C.L. BOLTED SPLICE		C.L. PIER #2						C.L. EAST ABUT. BRG.		
		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
NORTH EDGE OF DECK	1128.96	1129.64	1130.28	1130.87	1131.41	1131.89	1132.33	1132.71	1133.05	1133.33	1133.56	1133.74	1133.87	1133.95	1133.98	1133.96	1133.88	1133.76	1133.58	1133.35	1133.08	1132.75	1132.37	1131.94	1131.46
NORTH GUTTER LINE	1128.96	1129.64	1130.28	1130.87	1131.41	1131.89	1132.33	1132.71	1133.05	1133.33	1133.56	1133.74	1133.87	1133.95	1133.98	1133.96	1133.88	1133.76	1133.58	1133.35	1133.08	1132.75	1132.37	1131.94	1131.46
BEAM 1	1128.99	1129.68	1130.32	1130.90	1131.44	1131.93	1132.36	1132.75	1133.08	1133.36	1133.59	1133.77	1133.90	1133.98	1134.01	1133.99	1133.91	1133.79	1133.61	1133.39	1133.11	1132.78	1132.40	1131.97	1131.49
BEAM 2	1129.08	1129.77	1130.41	1131.00	1131.53	1132.02	1132.46	1132.84	1133.17	1133.46	1133.69	1133.87	1134.00	1134.08	1134.10	1134.08	1134.01	1133.88	1133.71	1133.48	1133.20	1132.87	1132.49	1132.06	1131.58
BEAM 3	1129.16	1129.85	1130.49	1131.08	1131.62	1132.10	1132.54	1132.92	1133.26	1133.54	1133.77	1133.95	1134.08	1134.16	1134.19	1134.16	1134.09	1133.96	1133.79	1133.56	1133.28	1132.96	1132.58	1132.15	1131.66
CL ROADWAY & PROFILE GRADE	1129.17	1129.86	1130.50	1131.09	1131.62	1132.11	1132.54	1132.93	1133.26	1133.54	1133.78	1133.96	1134.09	1134.16	1134.19	1134.17	1134.10	1133.97	1133.79	1133.57	1133.29	1132.96	1132.58	1132.15	1131.67
BEAM 4	1129.11	1129.80	1130.44	1131.03	1131.57	1132.05	1132.49	1132.87	1133.20	1133.49	1133.72	1133.90	1134.03	1134.11	1134.13	1134.11	1134.04	1133.91	1133.74	1133.51	1133.23	1132.90	1132.52	1132.09	1131.61
BEAM 5	1129.01	1129.70	1130.34	1130.93	1131.47	1131.95	1132.39	1132.77	1133.11	1133.39	1133.62	1133.80	1133.93	1134.01	1134.04	1134.01	1133.94	1133.81	1133.64	1133.41	1133.13	1132.80	1132.43	1131.99	1131.51
SOUTH GUTTER LINE	1128.96	1129.64	1130.28	1130.87	1131.41	1131.89	1132.33	1132.71	1133.05	1133.33	1133.56	1133.74	1133.87	1133.95	1133.98	1133.96	1133.88	1133.76	1133.58	1133.35	1133.08	1132.75	1132.37	1131.94	1131.46
INSIDE EDGE OF S.W.	1128.94	1129.63	1130.27	1130.86	1131.39	1131.88	1132.31	1132.70	1133.03	1133.31	1133.55	1133.73	1133.86	1133.94	1133.96	1133.94	1133.87	1133.74	1133.57	1133.34	1133.06	1132.73	1132.35	1131.92	1131.44
BEAM 6	1128.92	1129.61	1130.25	1130.84	1131.37	1131.86	1132.29	1132.68	1133.01	1133.29	1133.53	1133.71	1133.84	1133.91	1133.94	1133.92	1133.85	1133.72	1133.54	1133.32	1133.04	1132.71	1132.33	1131.90	1131.42
BEAM 7	1128.82	1129.51	1130.15	1130.74	1131.27	1131.76	1132.19	1132.58	1132.91	1133.19	1133.43	1133.61	1133.74	1133.82	1133.84	1133.82	1133.75	1133.62	1133.45	1133.22	1132.94	1132.61	1132.23	1131.80	1131.32
OUTSIDE EDGE OF S.W.	1128.79	1129.48	1130.12	1130.71	1131.24	1131.73	1132.16	1132.55	1132.88	1133.16	1133.40	1133.58	1133.71	1133.78	1133.81	1133.79	1133.71	1133.59	1133.41	1133.19	1132.91	1132.58	1132.20	1131.77	1131.29
SOUTH EDGE OF DECK	1128.79	1129.48	1130.12	1130.71	1131.24	1131.73	1132.16	1132.55	1132.88	1133.16	1133.40	1133.58	1133.71	1133.78	1133.81	1133.79	1133.71	1133.59	1133.41	1133.19	1132.91	1132.58	1132.20	1131.77	1131.29

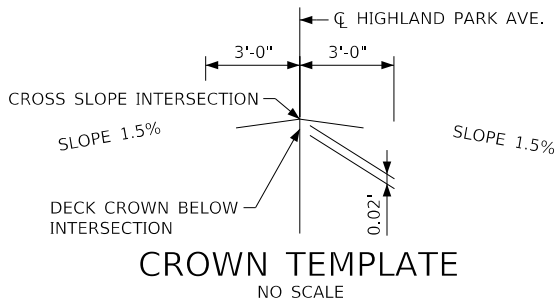


LOCATION OF TOP OF DECK ELEVATIONS



TYP. DECK & HAUNCH DETAIL

* THE HAUNCH DIMENSION SHOWN IS THE NOMINAL HAUNCH DIMENSION NEAR THE ABUTMENT BEARINGS, AND IS USED AS A BASIS ALONG WITH THE DEAD LOAD DEFLECTION AND GIRDER PARAMETERS TO DETERMINE THE THEORETICAL CONCRETE HAUNCH DIAGRAM. THIS HAUNCH DIAGRAM IS USED BY THE DESIGNER TO SET BRIDGE SEAT ELEVATIONS AND ESTIMATE CONCRETE QUANTITIES. REFER TO THE BEAM LINE HAUNCH DATA DETAIL SHEET FOR ADDITIONAL INFORMATION TO AID THE CONTRACTOR IN SETTING THE FIELD HAUNCHES REQUIRED FOR CONSTRUCTION.



CROWN TEMPLATE
NO SCALE

NOTE:
THE TOP OF DECK ELEVATIONS FOR THE HIGH POINT ON THE BRIDGE DECK ARE 0.02 FEET BELOW THE HIGH POINT ON THE APPROACH ROADWAY TO ACCOUNT FOR THE ROUNDING OF THE DECK WITH A PARABOLIC TEMPLATE AT THE CROSS SLOPE INTERSECTION.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS
60'-0" INTERIOR SPAN

TOP OF DECK ELEVATIONS

STA. 105+33.71 (CL HIGHLAND PARK AVE.)

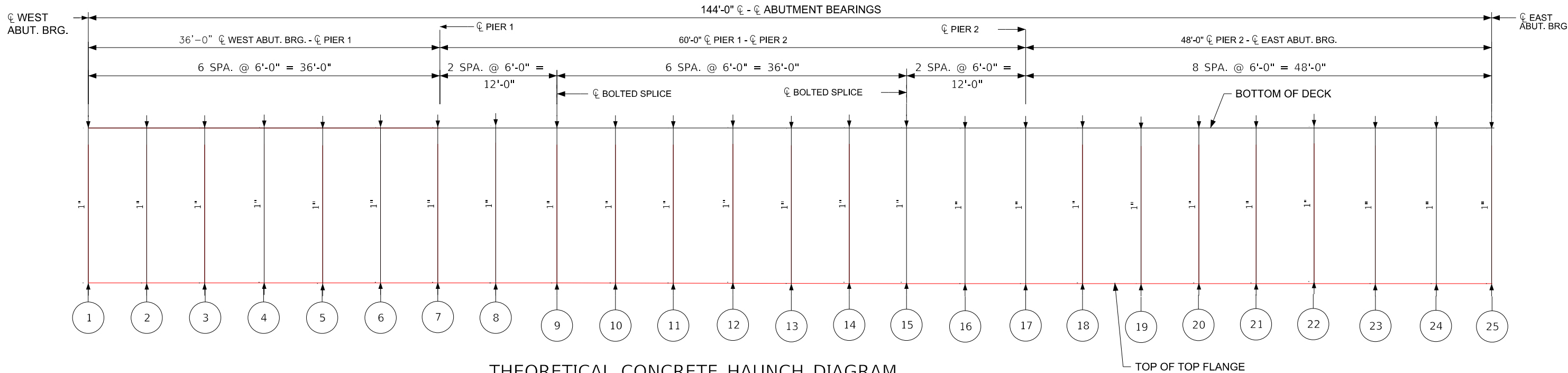
JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 19 OF 36

**BENCH MARK NO. 1002, ARROW ON HYD.
ELEV. 1112.82, N3645034.3200, E4739981.5820**



THEORETICAL CONCRETE HAUNCH DIAGRAM (FOR ESTIMATING PURPOSES ONLY)

BEAM LINE HAUNCH ELEVATIONS																									
LOCATION	C.L. WEST. ABUT. BRG.						C.L. PIER #1	C.L. BOLTED SPLICE					C.L. BOLTED SPLICE					C.L. PIER #2						C.L. EAST ABUT. BRG.	
		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
BEAM 1	1128.32	1129.01	1129.65	1130.24	1130.77	1131.26	1131.69	1132.09	1132.43	1132.72	1132.96	1133.14	1133.27	1133.34	1133.36	1133.33	1133.25	1133.12	1132.95	1132.73	1132.46	1132.13	1131.75	1131.31	1130.82
BEAM 2	1128.41	1129.11	1129.75	1130.33	1130.87	1131.35	1131.79	1132.18	1132.52	1132.82	1133.06	1133.24	1133.36	1133.44	1133.45	1133.42	1133.34	1133.22	1133.05	1132.83	1132.56	1132.23	1131.84	1131.41	1130.91
BEAM 3	1128.50	1129.19	1129.83	1130.42	1130.95	1131.43	1131.87	1132.26	1132.61	1132.90	1133.14	1133.32	1133.45	1133.52	1133.54	1133.50	1133.42	1133.30	1133.13	1132.91	1132.64	1132.31	1131.93	1131.49	1131.00
BEAM 4	1128.44	1129.14	1129.78	1130.36	1130.90	1131.38	1131.82	1132.21	1132.56	1132.85	1133.09	1133.27	1133.40	1133.47	1133.48	1133.45	1133.37	1133.25	1133.08	1132.86	1132.59	1132.26	1131.87	1131.44	1130.95
BEAM 5	1128.35	1129.04	1129.68	1130.26	1130.80	1131.28	1131.72	1132.11	1132.46	1132.75	1132.99	1133.17	1133.30	1133.37	1133.38	1133.35	1133.27	1133.15	1132.98	1132.76	1132.49	1132.16	1131.77	1131.34	1130.85
BEAM 6	1128.25	1128.94	1129.58	1130.17	1130.71	1131.19	1131.63	1132.02	1132.36	1132.66	1132.89	1133.08	1133.20	1133.27	1133.29	1133.26	1133.18	1133.06	1132.88	1132.67	1132.39	1132.07	1131.68	1131.25	1130.75
BEAM 7	1128.15	1128.85	1129.48	1130.07	1130.61	1131.09	1131.53	1131.92	1132.26	1132.56	1132.79	1132.98	1133.10	1133.17	1133.19	1133.16	1133.08	1132.96	1132.79	1132.57	1132.29	1131.97	1131.58	1131.15	1130.65

MISCELLANEOUS DATA TABLE																											
	BEAMLINE		℄ WEST ABUT. BRG.					℄ PIER 1 BRG.		℄ BOLTED SPLICE					℄ BOLTED SPLICE		℄ PIER 2 BRG.							℄ EAST ABUT. BRG.			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
ANTICIPATED DEFLECTION DUE TO DECK(IN.)	ALL		0.000	0.030	0.037	0.025	-0.003	-0.023	0.000	0.097	0.226	0.344	0.423	0.444	0.404	0.312	0.189	0.070	0.000	0.031	0.081	0.190	0.249	0.260	0.188	0.130	0.000
CROSS SLOPE ADJUSTMENTS (IN.)	ALL		1/8"																								
ALLOWABLE FIELD HAUNCH (IN. & FT.)	MAX.	ALL	2" (0.167)																								
	MIN.	ALL	0" (0.000)																								

NOTES:
BRIDGE SEAT ELEVATIONS ARE SET BASED ON THEORETICAL CAMBER AND BEAM DEFLECTIONS. THESE BRIDGE SEATS WILL PROVIDE A THEORETICAL BEAM HAUNCH WITHIN DESIGN PARAMETERS. ACTUAL HAUNCHES ARE DETERMINED USING SURVEYED TOP OF BEAM ELEVATIONS AND "BEAM LINE HAUNCH ELEVATIONS" DATA. ALLOWABLE MAXIMUM AND MINIMUM "FIELD HAUNCH" VALUES SHOWN IN INCHES AND DECIMALS FEET ARE GIVEN 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.

NOTES:
TO CALCULATE FIELD HAUNCH REQUIRED AT EACH LOCATION, SURVEY THE BEAM TOPS CONSISTENT WITH THE SPACINGS SHOWN ON THE "TOP OF DECK ELEVATIONS LAYOUT" ON DECK ELEVATIONS SHEET. 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 FEET IN THE MISCELLANEOUS DATA TABLE, ADJUSTMENTS TO THE GRADE OR ADDITIONAL HAUNCH REINFORCEMENT WILL BE REQUIRED.

NOTE:
HAUNCH LOCATIONS ARE AT THE SAME
LOCATION AS THE ENCIRCLED LETTERS
AND NUMBERS SHOWN ON SLAB
ELEVATIONS SHEET.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

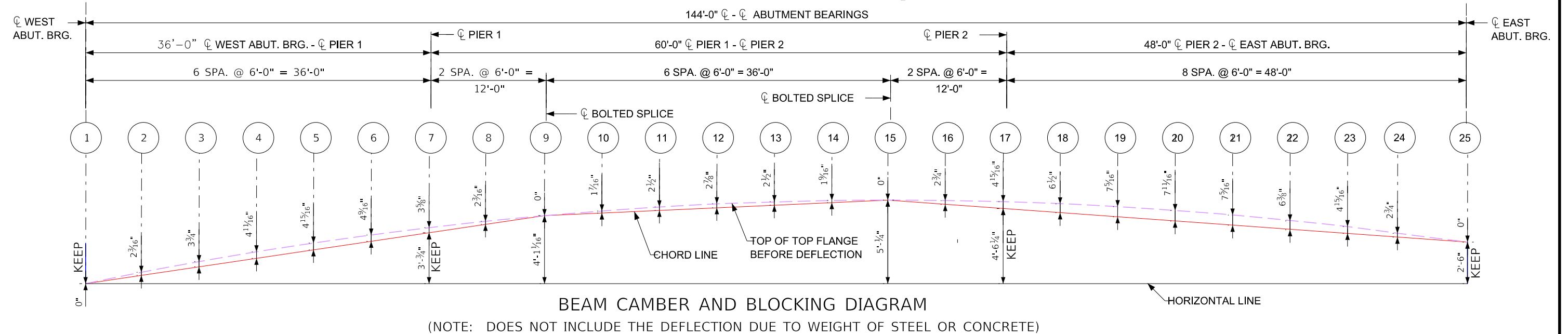
HAUNCH AND DATA TABLES

STA. 105+33.71 (Q HIGHLAND PARK AVE.) JULY 2026

WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 20 OF 36

[illegible]

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

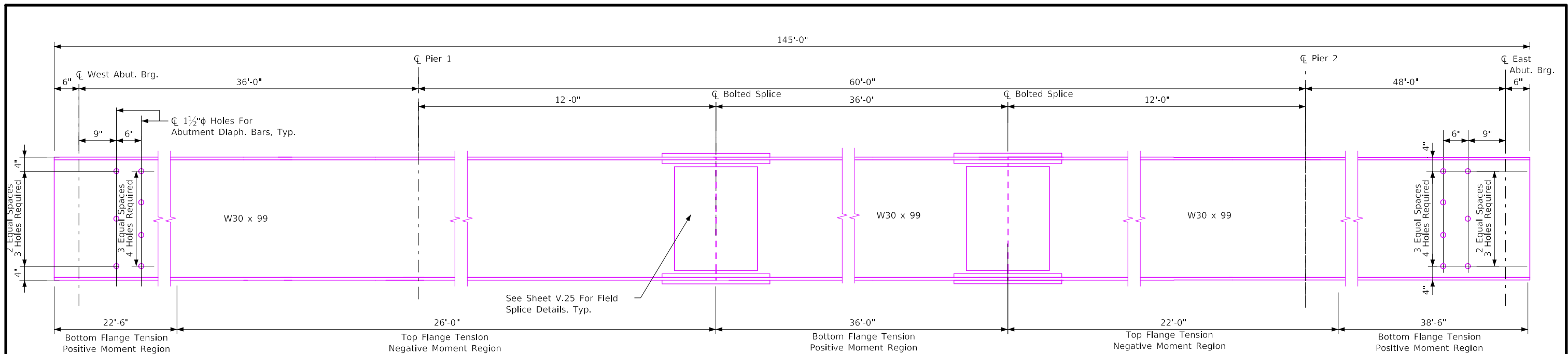
BEAM DEFLECTION AND CAMBER

STA. 105+33.71 (C HIGHLAND PARK AVE.) JULY 2026

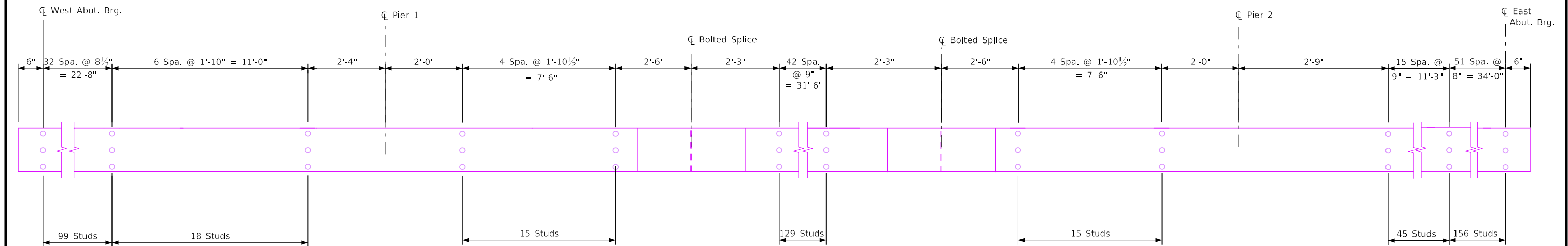
WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

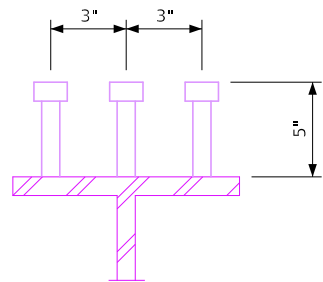
DESIGN SHEET NO. 21 OF 36



BEAM ELEVATION

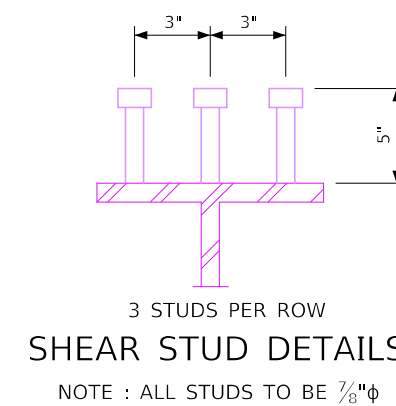
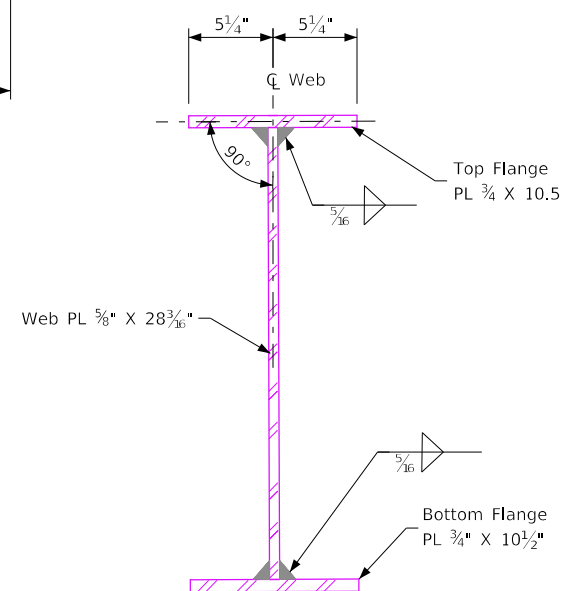
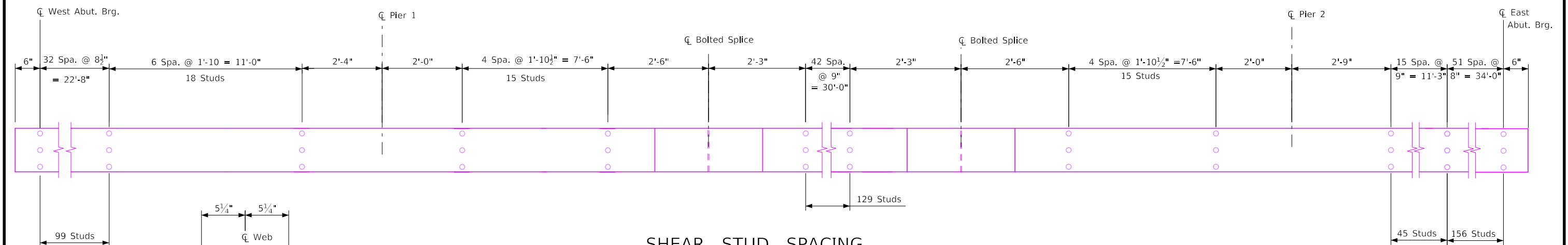
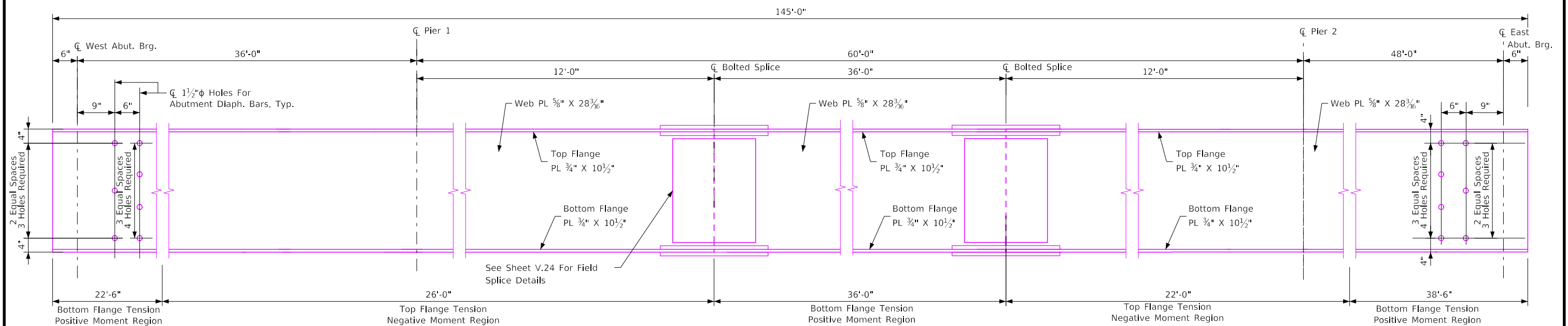


SHEAR STUD SPACING



3 STUDS PER ROW
SHEAR STUD DETAILS
NOTE : ALL STUDS TO BE 7/8"φ

DESIGN FOR 0°SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
BEAM PLAN AND ELEVATION
STA. 105+33.71 (CL HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 22 OF 36



DESIGN FOR 0°SKEW

**144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK**

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

BEAM PLAN AND ELEVATION - PLATE GIRDER ALTERNATE

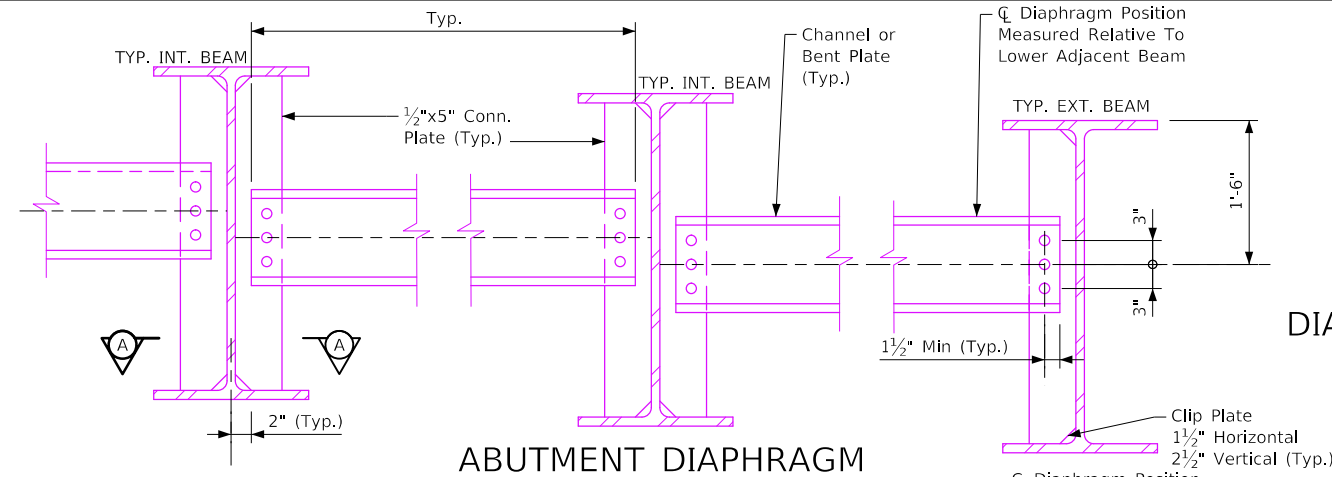
STA. 54+33.71 (Q HIGHLAND PARK AVE.) JULY 2026

WEBSTER COUNTY

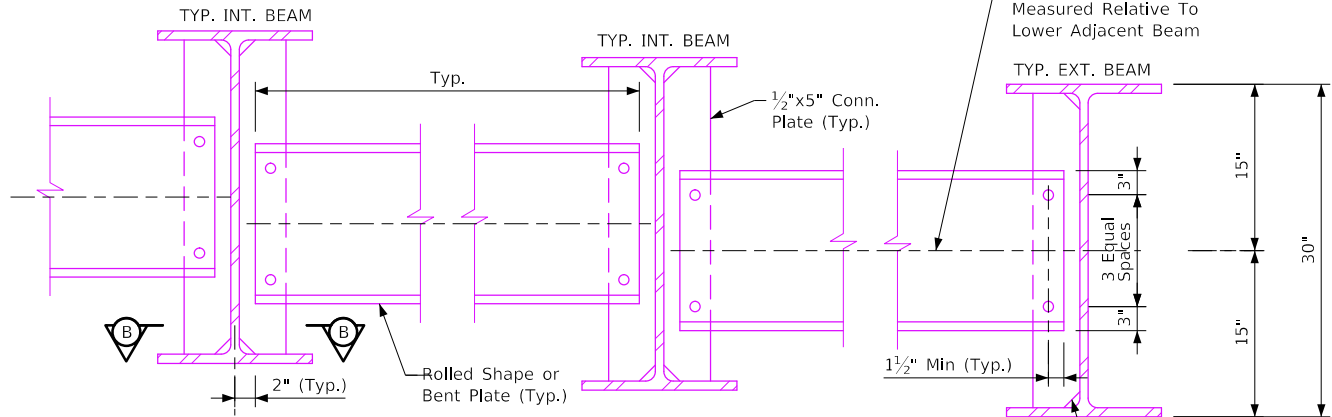
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 23 OF 36

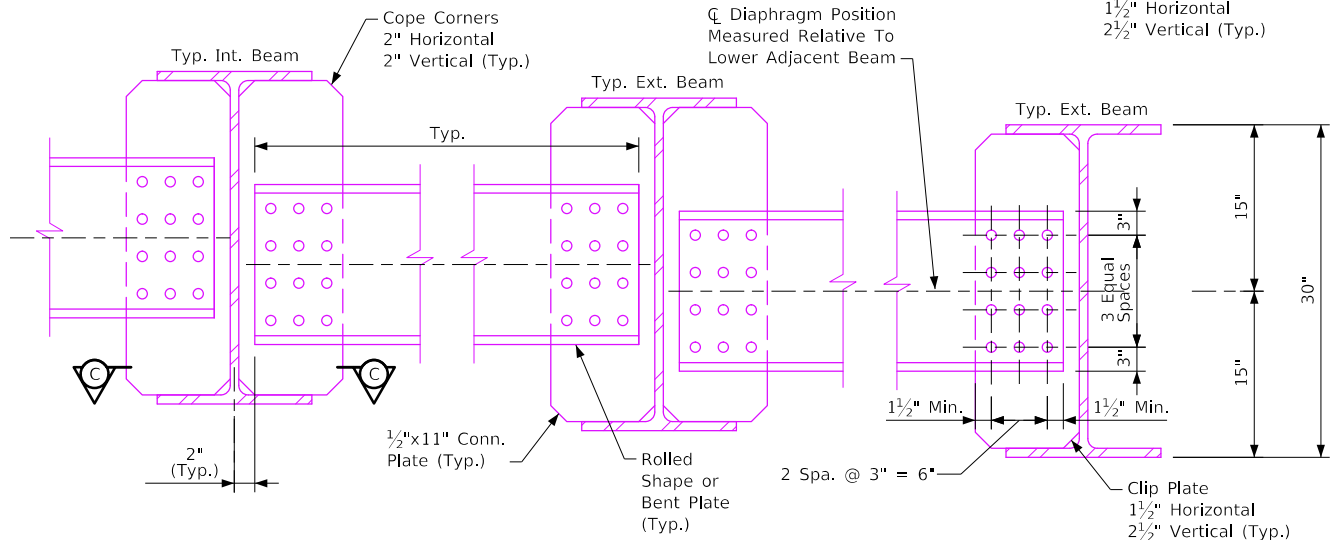
REVISED 08-2018 - REVISED INTERMEDIATE & PIER DIAPHRAGM SIZES & BOLTED CONNECTION DTLS. FOR BRIDGE LENGTHS 200'-0 TO 340'-0, ADDED SECTION D-D, UPDATED BRIDGE ENGINEER SIGNATURE.



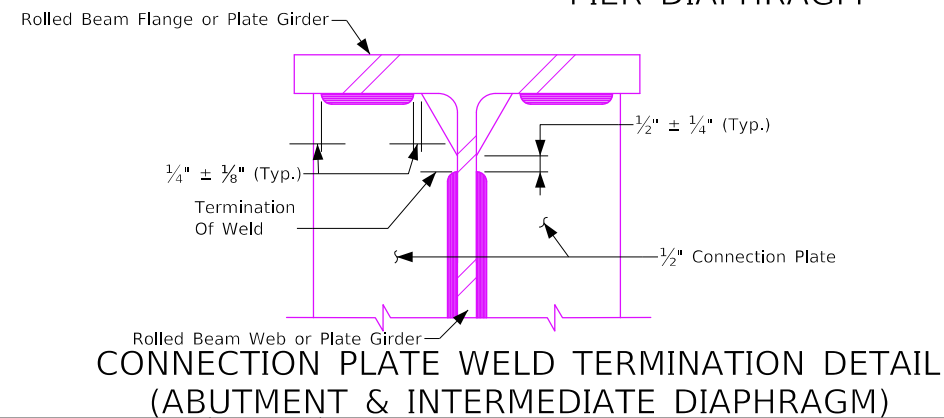
ABUTMENT DIAPHRAGM



INTERMEDIATE DIAPHRAGM

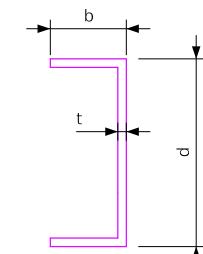


PIER DIAPHRAGM



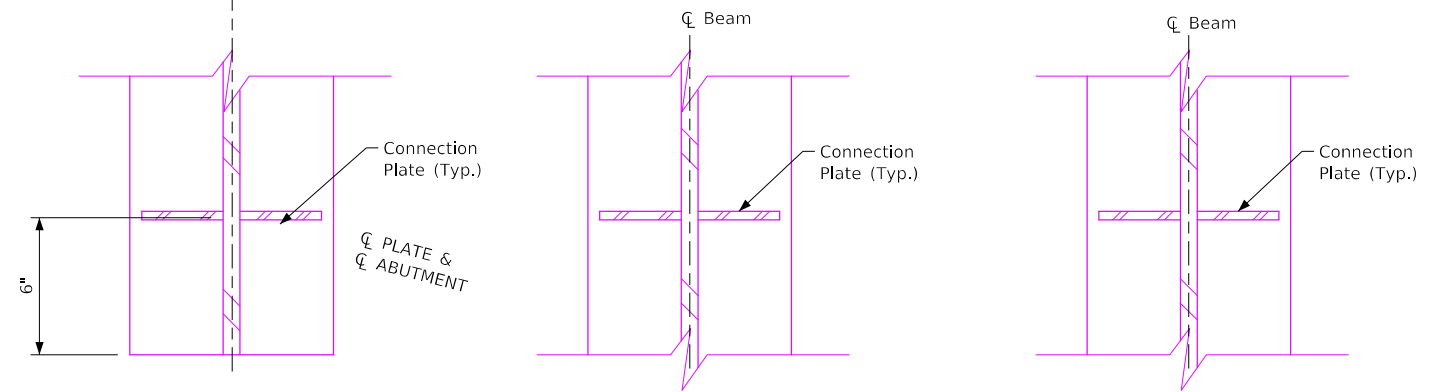
CONNECTION PLATE WELD TERMINATION DETAIL
(ABUTMENT & INTERMEDIATE DIAPHRAGM)

BENT PLATE
DIAPHRAGM OPTION



DIAPHRAGM MEMBER OPTIONS							
DIAPHRAGM LOCATION		ROLLED SHAPE OPTION		BENT PLATE OPTION			
		DESIGNATION	CONN. BOLTS	d (IN)	b (IN)	t (IN)	CONN. BOLTS
INTERMEDIATE	W30	C15x33.9	3 - 7/8" φ	15	4	3/8"	3 - 7/8" φ
ABUTMENT	W30	C12x20.7	3 - 7/8" φ	12	4	3/8"	3 - 7/8" φ
PIER	W30	C15x33.9	12 - 7/8" φ	15	4	3/8"	12 - 7/8" φ

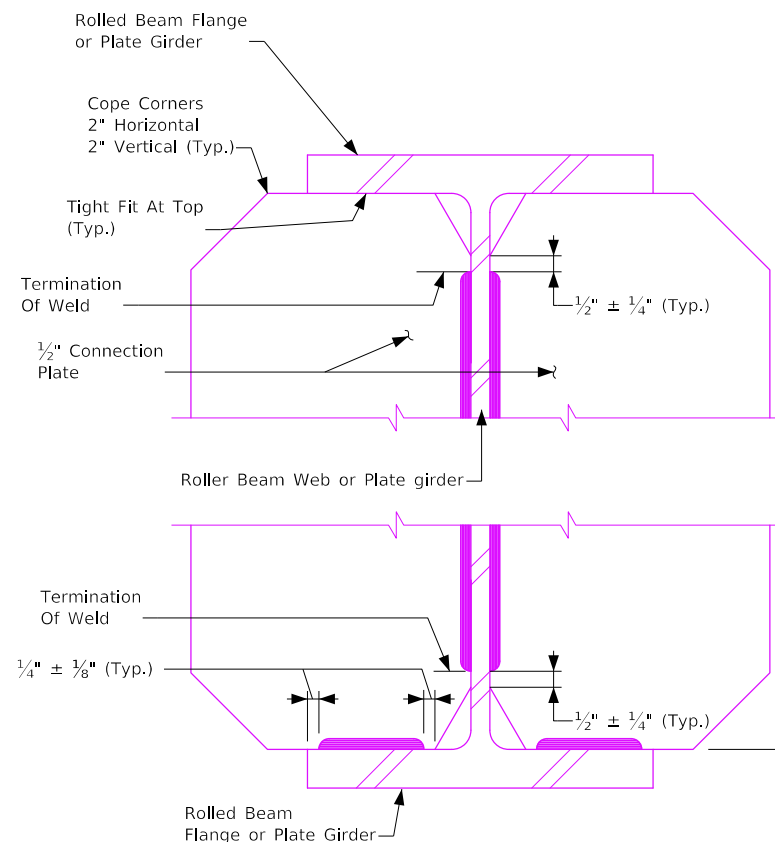
NOTES:
1. EITHER ROLLED SHAPE OR BENT PLATE DIAPHRAGM OPTION MAY BE SELECTED AT CONTRACTOR'S OPTION.



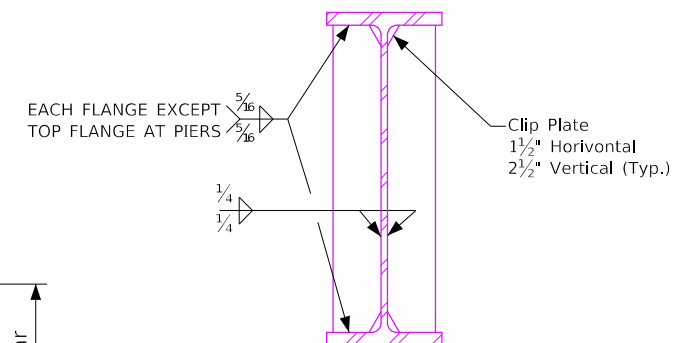
SECTION A-A

SECTION B-B

SECTION C-C



CONNECTION PLATE WELD
TERMINATION DETAIL
(PIER DIAPHRAGM)



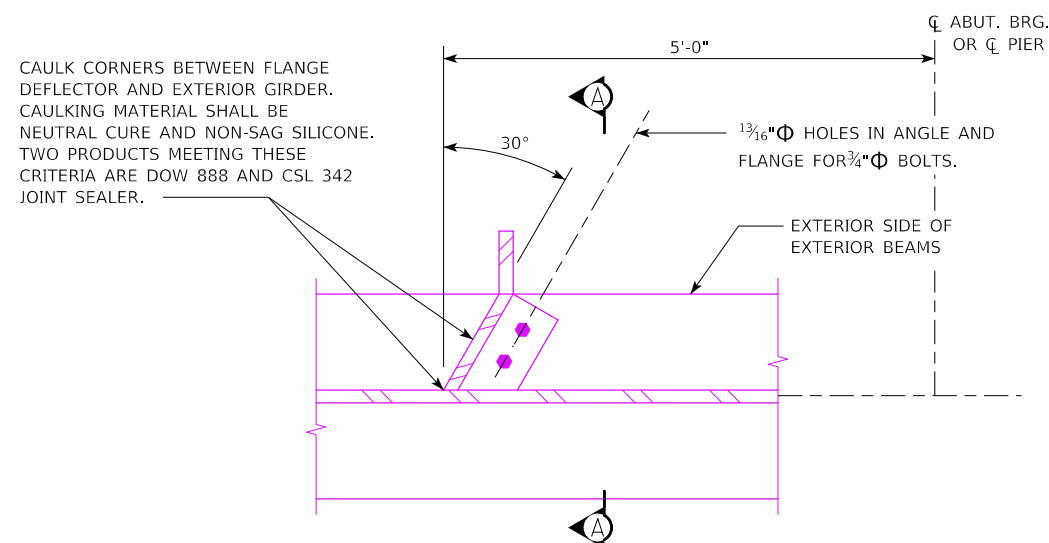
CONNECTION PLATE DETAIL

DESIGN FOR 0° SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
DIAPHRAGM DETAILS
STA. 105+33.71 (Q. HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 24 OF 36

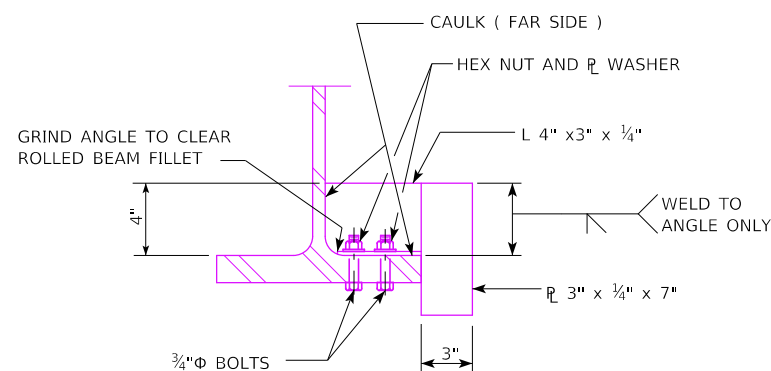


FIELD SPLICE DETAIL

NOTE: ALL BOLTS $\frac{7}{8}"\Phi$



FLANGE DEFLECTOR DETAILS



SECTION A-A

NOTES:

1. FLANGE DEFLECTORS ARE REQUIRED ON THE OUTSIDE OF THE EXTERIOR BEAM. LOCATION AND NUMBER OF FLANGE DEFLECTORS DETERMINED BY FINAL DESIGNER.
2. WEIGHTS TABULATED ON THIS SHEET ARE INCIDENTAL TO THE WEIGHT OF STRUCTURAL STEEL.

STRUCTURAL STEEL NOTES:

ALL STRUCTURAL STEEL, EXCEPT AS NOTED, SHALL CONFORM TO ASTM A709 GRADE 50W. THE MINIMUM YIELD POINT FOR GRADE 50W STRUCTURAL STEEL IS 50 KSI FOR PLATES 4 INCHES AND UNDER IN THICKNESS, AND ALL STRUCTURAL SHAPES. THE GRADE 50W STEEL IS A WEATHERING STEEL AND IS TO REMAIN UNPAINTED, EXCEPT AS NOTED.

ALL PIECES COMPRISING THE PIER BEARINGS SHALL COMPLY WITH THE REQUIREMENTS AS STATED IN THE NOTES ON DESIGN SHEET V.26.

SHEAR STUDS ARE TO BE OF AN APPROVED TYPE LISTED IN MATERIALS I.M. 453.10, APPENDIX A.

THE FINISH ON BEARINGS AND WEATHERING STEEL SHALL BE IN ACCORDANCE WITH THE PLAN NOTES AND SECTION 2408, OF THE STANDARD SPECIFICATIONS. ALL WEATHERING STEEL EMBEDDED INTO AN INTEGRAL ABUTMENT SHALL BE PAINTED TO A DISTANCE OF 1 FOOT FROM THE CONCRETE FACE AND SEALED BY CAULKING AT THE ABUTMENT CONCRETE AND STEEL INTERFACE. EXTERIOR SURFACES OF ALL GALVANIZED COMPONENTS WHICH ARE DESIGNATED IN THE CONTRACT DOCUMENTS TO BE PAINTED SHALL BE PREPARED ACCORDING TO ARTICLE 2509.03, OF THE STANDARD SPECIFICATIONS.

BOLTS FOR USE WITH WEATHERING STEEL SHALL BE A325 TYPE III WITH A563 GRADE DH3 NUTS AND F436 TYPE III WASHERS.

BOLTS USED TO SPLICE GIRDER SECTIONS ARE TO BE INSTALLED SUCH THAT NUTS ARE ON THE INSIDE FACE OF THE GIRDER WEBS FOR THE EXTERIOR GIRDERS, AND ON THE TOP OF BOTH TOP AND BOTTOM FLANGES OF ALL THE GIRDERS.

THE STEEL SHALL BE KEPT FREE OF OIL, GREASE, DIRT, CRAYON OR CHALK MARKS, CONCRETE SPATTER AND ANY OTHER FOREIGN MATTER THAT MAY AFFECT THE NATURAL OXIDATION OF THE STEEL. ANY FOREIGN MATTER REMAINING ON THE STEEL AFTER COMPLETION OF BRIDGE CONSTRUCTION SHALL BE REMOVED BY THE BRIDGE CONTRACTOR AS DIRECTED BY THE ENGINEER. THE RESULTANT SURFACE SHALL BE FREE OF ALL VISIBLE RESIDUES. ALL COSTS ASSOCIATED WITH CLEANING STEEL SURFACES SHALL BE BORNE BY THE BRIDGE CONTRACTOR.

SEAL MATERIAL FOR CAULKING SHALL BE NEUTRAL CURE AND NON SAG SILICONE. THREE PRODUCTS MEETING THESE CRITERIA ARE DOW 888, CRAFTCO ROAD SAVER SILICONE, OR CSL342 JOINT SEALANT.

THE GIRDERS ARE TO BE FABRICATED FOR A STEEL DEAD LOAD FIT CONDITION.

BOTTOM FLANGES ARE TO BE PERPENDICULAR TO WEBS AT THE REACTION POINTS.

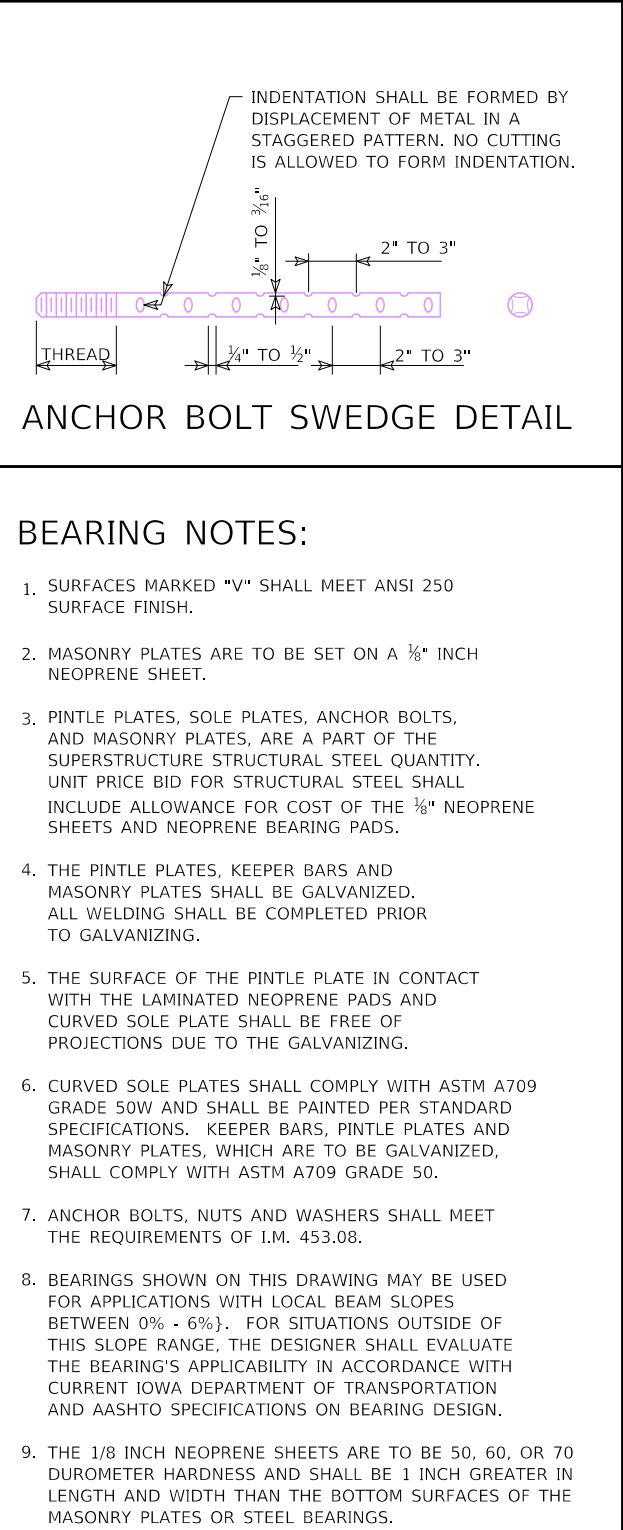
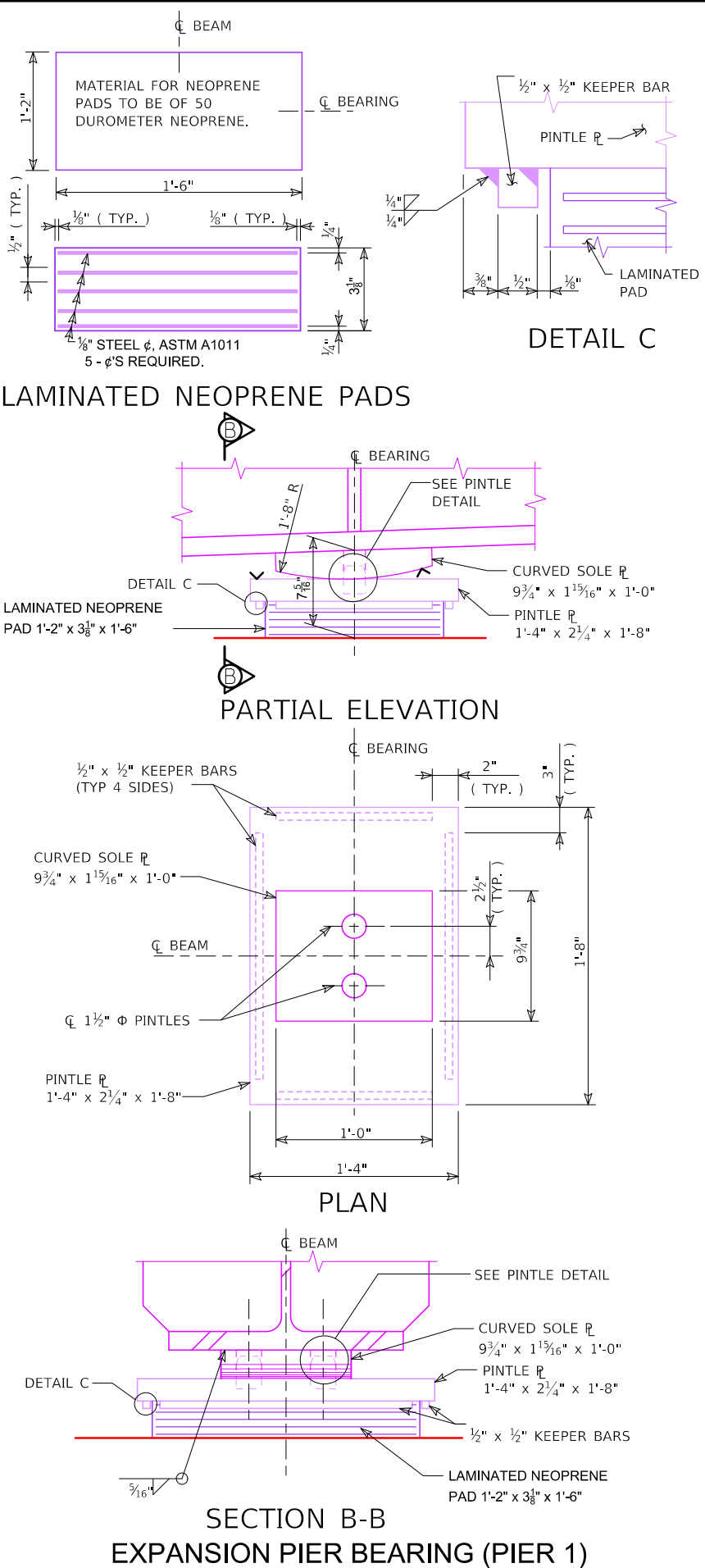
THE DESIGN DRAWINGS INDICATE AWS PREQUALIFIED WELDED JOINTS.
ALTERNATE JOINT DETAILS MAY BE SUBMITTED FOR APPROVAL.

MAGNETIC PARTICLE INSPECTION OF WELDS, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS WILL BE REQUIRED.

SHOP WELDED FLANGE SPLICES SHALL BE A MINIMUM OF 6 INCHES FROM A STIFFENER, 6 INCHES FROM A WEB SPlice, AND 4 INCHES FROM A SHEAR CONNECTOR. WEB SPLICES SHALL BE A MINIMUM OF 6 INCHES FROM A STIFFENER. SPLICES SHALL NOT INTERFERE WITH ANY OTHER BRIDGE COMPONENTS. ALL SHOP WELDED BUTT SPLICES SHALL BE SHOWN ON THE SHOP DRAWINGS AND SUBJECT TO APPROVAL BY THE ENGINEER.

FILE NO.	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	City of Fort Dodge	PROJECT NUMBER BROS-2690(631)--8J-94	SHEET NUMBER V.25
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12:29:31	06/24/2026	10313	pw:\S\CI-PWINTG-2.stanleygroup.com:Datasource-1\Documents\City of FortDodge\28325 - Highland Pk Ave Over UPRR Bridge Repl-Feasibility Study\11-CADD\Bridge\FINAL PLANS\SHT 28325 TJM.dgn
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DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

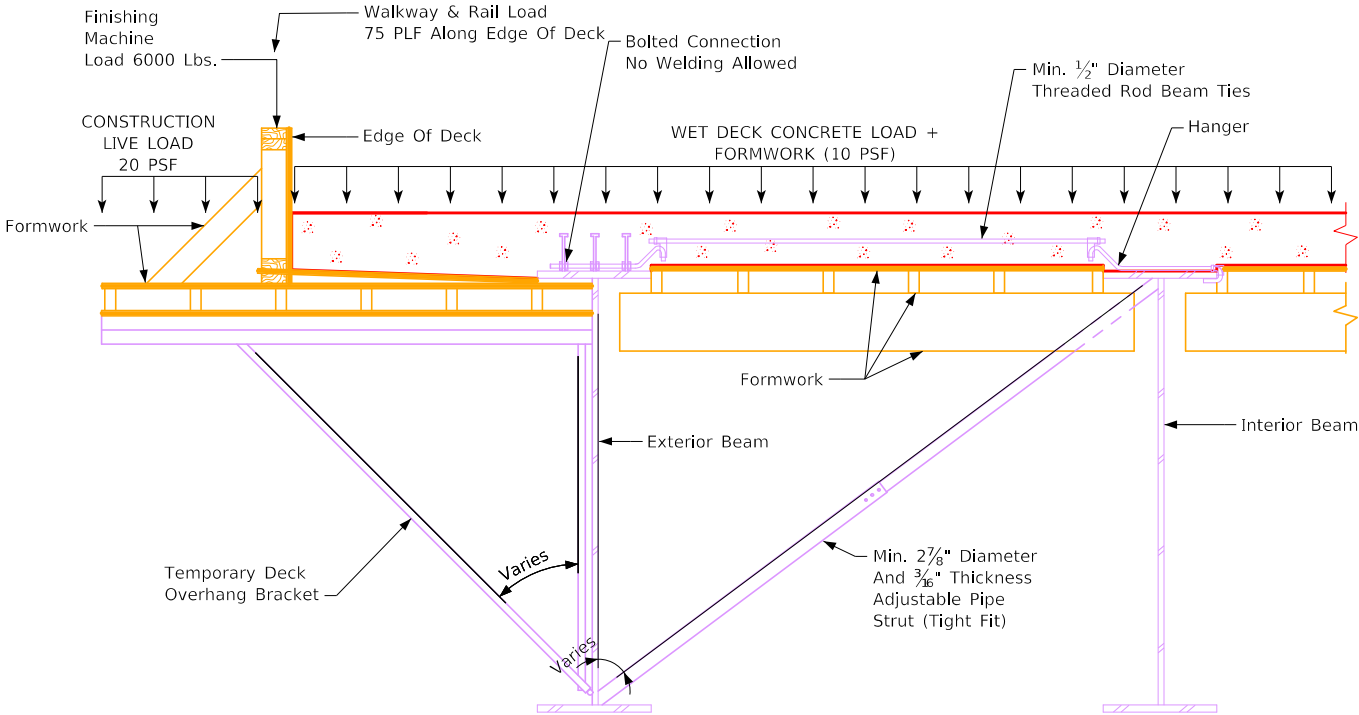
PIER BEARING DETAILS

STA. 105+33.71 (C HIGHLAND PARK AVE.) JULY 2026

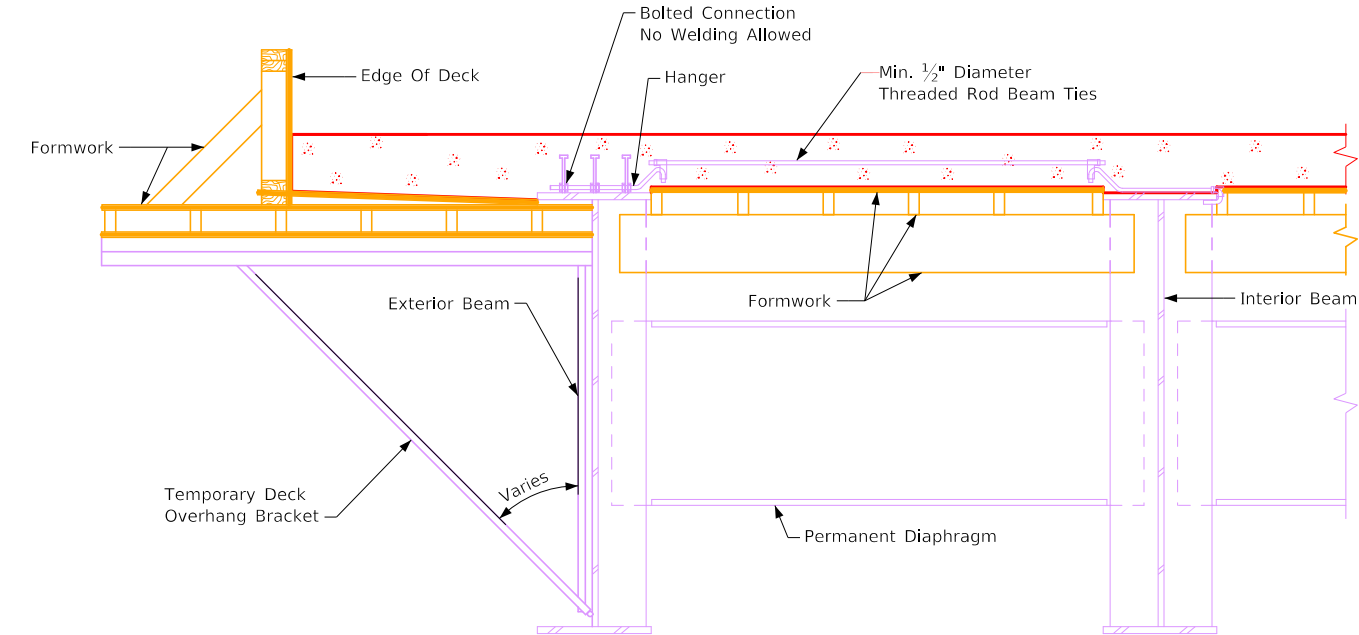
WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 26 OF 36



TEMPORARY DECK OVERHANG BRACKET AND BRACING SYSTEM DETAILS BETWEEN DIAPHRAGMS



TEMPORARY DECK OVERHANG BRACKET AND BRACING SYSTEM DETAILS AT PERMANENT DIAPHRAGMS

OVERHANG BRACKET NOTES:

THE SPACING OF THE OVERHANG BRACKET AND THE ANGLE OF THE DIAGONAL MEMBER SHALL BE DETERMINED PER THE MAUFACTURER'S DESIGN HANDBOOK INCLUDING THE TYPE AND SIZE OF OVERHANG BRACKET AND THE ANTICIPATED CONSTRUCTION LOADS.

IF THE VERTICAL HEIGHT OF THE OVERHANG BRACKET IS ADJUSTABLE, THE BASE OF THE BRACKET IS TO BE LOCATED AS CLOSE AS POSSIBLE TO THE BOTTOM FLANGE OF THE BEAM.

TEMPORARY BRACING SYSTEM NOTES:

TEMPORARY BRACING SYSTEMS (TBS) SHALL BE ADDED BETWEEN PERMANENT DIAPHRAGMS IN ORDER TO SUPPLEMENT PERMANENT BRACES, STABILIZE BEAMS, AND REDUCE THE DECK THICKNESS LOSS DURING THE DECK PLACEMENT. MAXIMUM SPACING BETWEEN ADJACENT TBS OR BETWEEN TBS AND PERMANENT DIAPHRAGM IS 5 FEET. TBS SHALL CONSIST OF A COMPRESSION STRUT PIPE, A TIE BAR, AND HANGERS (OR CLIPS). THE HANGERS (OR CLIPS) SHALL BE USED TO CONNECT THE BEAM TIE TO THE SHEAR STUDS OR THE TOP FLANGES OF EXTERIOR AND FIRST INTERIOR BEAMS PER MANUFACTURER'S RECOMMENDATIONS. THE COMPRESSION STRUT PIPE SHALL BE WEDGED NEAR THE JUNCTIONS OF THE WEB AND TOP FLANGE AT THE TOP JUNCTION CORNER OF INTERIOR BEAM AND THE BOTTOM JUNCTION CORNER OF THE EXTERIOR BEAM. THE COMPRESSION PIPE STRUT AND BEAM TIE SHALL BE WITHIN A PLANE PERPENDICULAR TO THE BEAM WEB.

ABOVE EACH OF ABUTMENT, PIER, AND INTERMEDIATE DIAPHRAGM, A TBS SHALL BE USED CONSISTING OF A BEAM TIE AND HANGERS (OR CLIPS).

ONE TBS WILL ALSO BE REQUIRED AT EACH PERMANENT DIAPHRAGM.

THE ULTIMATE CAPACITY OF THE THREADED ROD BEAM TIE AND CONNECTION TO THE BEAM FLANGES SHALL BE A MINIMUM OF 10,000 LBS. THE YIELD STRENGTH OF THE STEEL OF THE TIE AND STRUT SHALL BE A MINIMUM OF 36,000 PSI.

WELDING TO THE BEAM FLANGE OR SHEAR STUDS IS NOT ALLOWED.

WET DECK CONCRETE IS ASSUMED TO EXTEND 15 FT IN THE FRONT OF FINISHING MACHINE. THE 20 PSF CONSTRUCTION LIVE LOAD IS APPLIED WHERE WET DECK CONCRETE IS ABSENT.

TEMPORARY BRACING SHALL BE CONSIDERED INCIDENTAL TO THE COST OF STRUCTURAL STEEL.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

TEMPORARY DECK OVERHANG BRACING

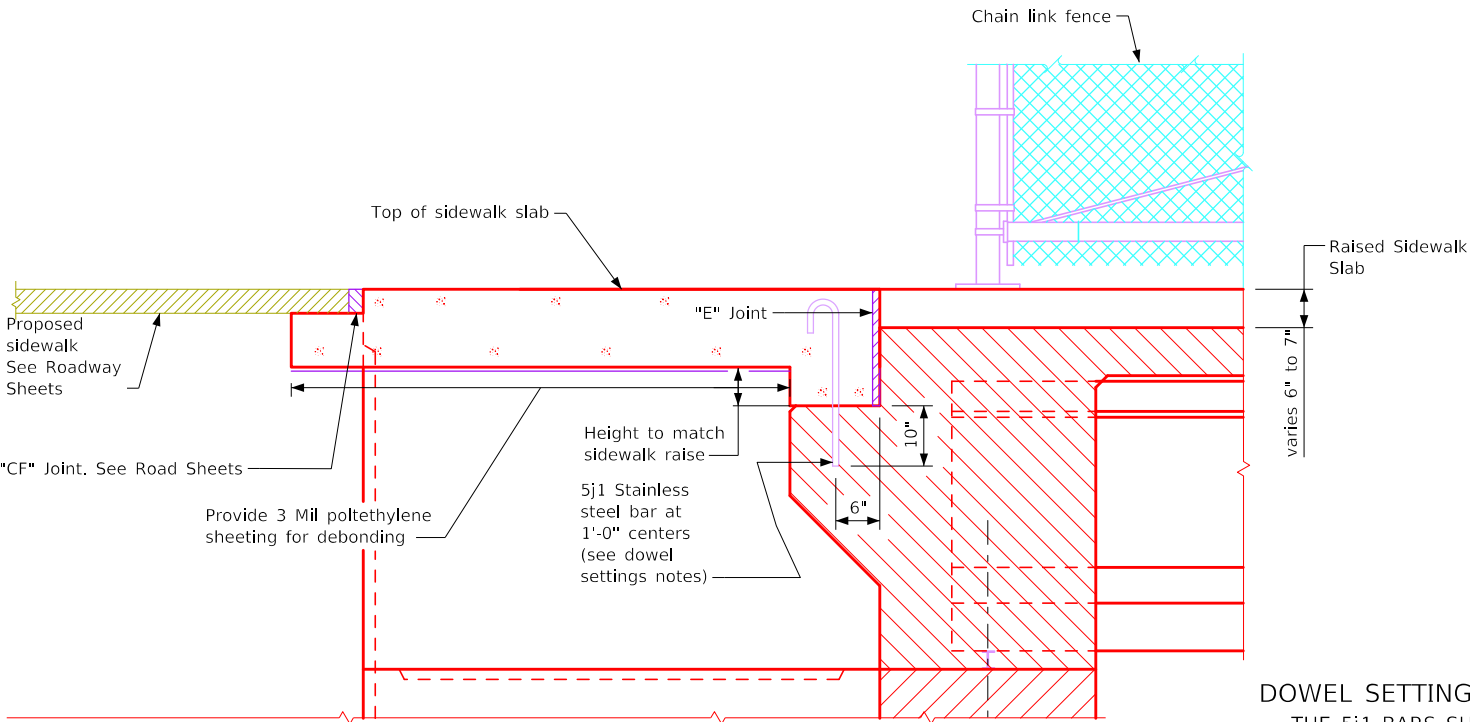
STA. 105+33.71 (Q HIGHLAND PARK AVE.)JULY 2026

WEBSTER COUNTY

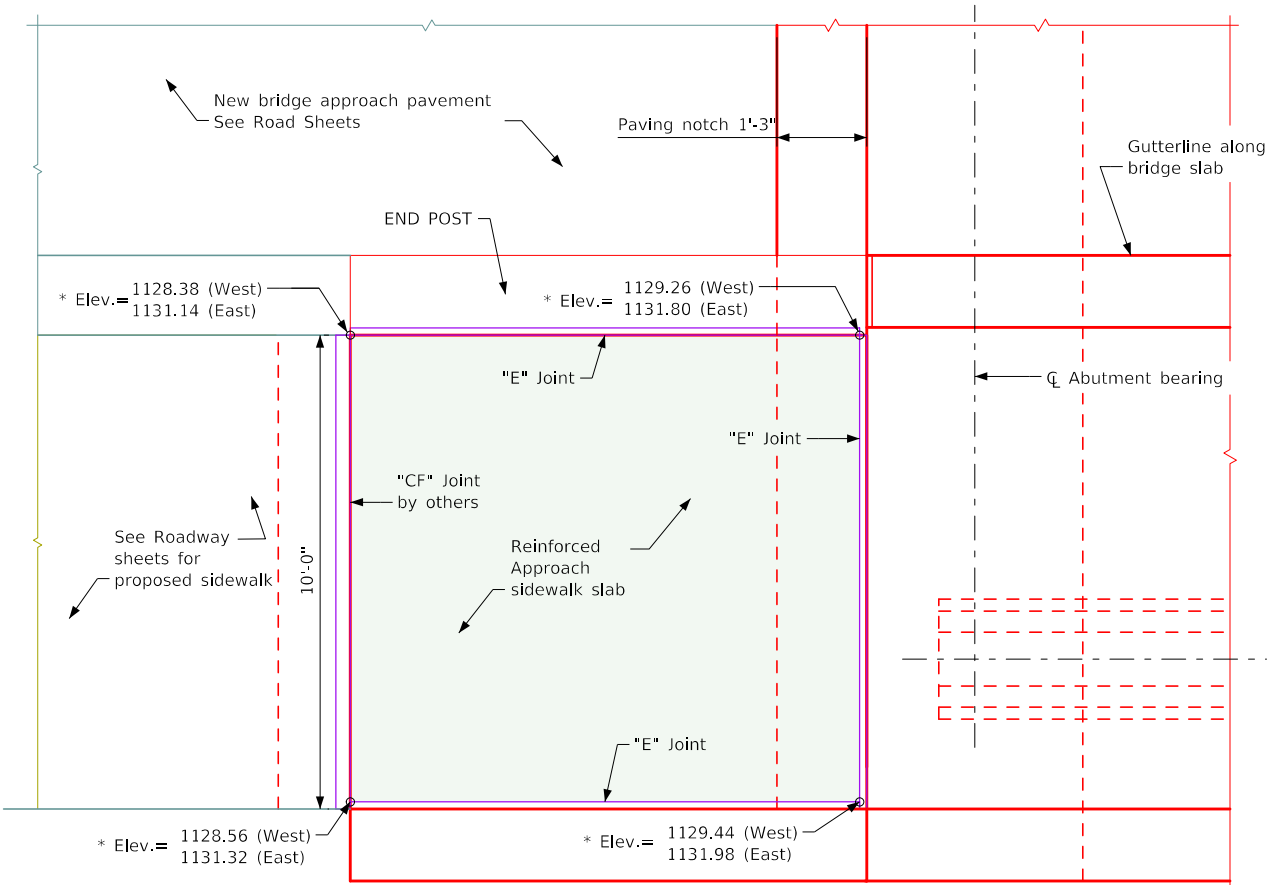
IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 27 OF 36

BENCH MARK NO. 1002, ARROW ON HYD.
ELEV. 1112.82, N3645034.3200, E4739981.5820



PART LONGITUDINAL SECTION THRU APPROACH SIDEWALK SLAB



PART PLAN VIEW OF APPROACH SIDEWALK SLAB
(CHAIN LINK FENCE NOT SHOWN IN PART PLAN VIEW)

DOWEL SETTING NOTE :

THE 5j1 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE DOWELS :

A. POLYMER GROUT SYSTEM IN ACCORDANCE WITH ARTICLE 2301.03, E, OF THE STANDARD SPECIFICATIONS.

B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

*NOTE: MATCH BRIDGE SIDEWALK ELEVATION

CONCRETE PLACEMENT QTY - ONE SIDEWALK SLAB

ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE (BRIDGE)	CU.YD.	3.30

NOTE: COST OF "E" JOINT MATERIAL AND POLYETHYLENE SHEETING IS CONSIDERED INCIDENTAL TO THE COST OF STRUCTURAL CONCRETE.

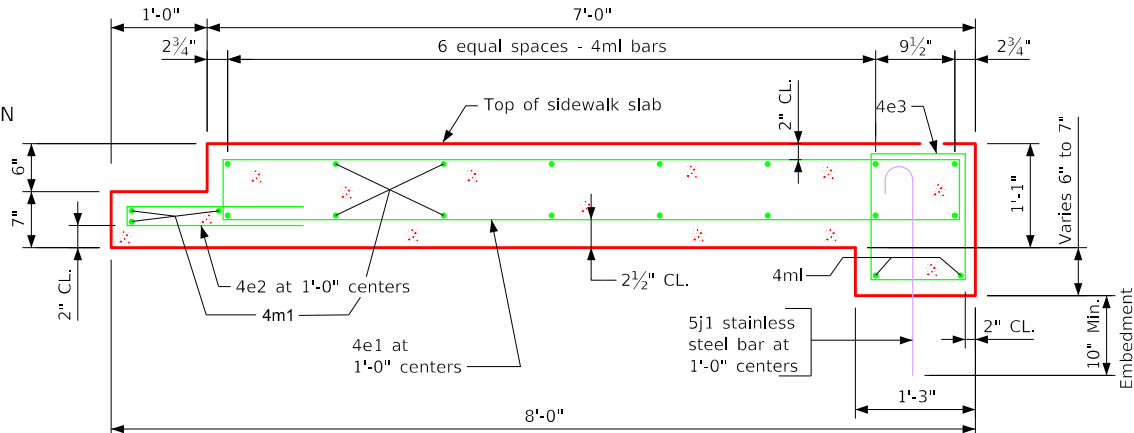
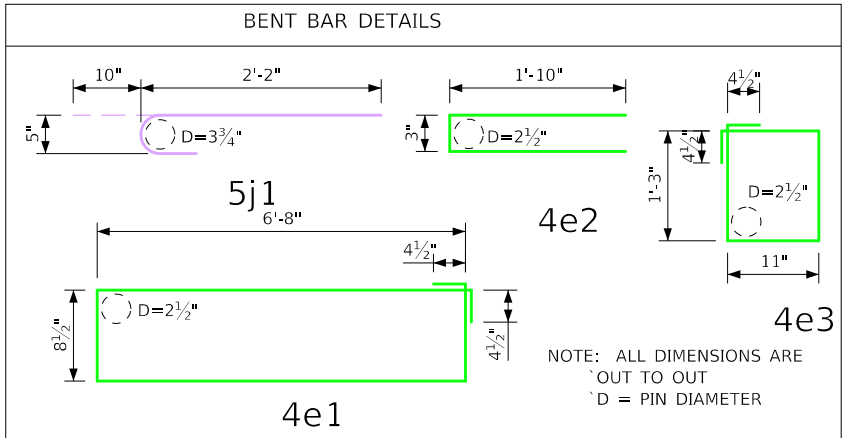
NOTE: CONCRETE QUANTITY IS TO BE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

EPOXY BARS	REINFORCING BAR LIST - ONE SIDEWALK SLAB					
	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	4e1	SIDEWALK SLAB HOOPS		11	15'-6"	114
	4e2	SIDEWALK SLAB HOOPS AT SIDEWALK LIP		11	3'-11"	29
	4e3	SIDEWALK SLAB HOOPS AT PAVING NOTCH		11	5'-1"	37
S.S. BARS	4m1	SIDEWALK SLAB TRANSV. TOP & BOTTOM		21	9'-6"	133
	EPOXY COATED REINFORCING STEEL TOTAL (LBS.)					313
	REINFORCING BAR LIST - ONE SIDEWALK SLAB					
	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	*5j1	SIDEWALK SLAB DOWEL BAR		11	3'-0"	34
S.S. BARS	STAINLESS REINFORCING STEEL TOTAL (LBS.)					34

SIDEWALK SLAB DOWELS SHALL BE DEFORMED BAR GRADE 60, TYPE 316 LN IN ACCORDANCE WITH ASTM A955/A955M-01.

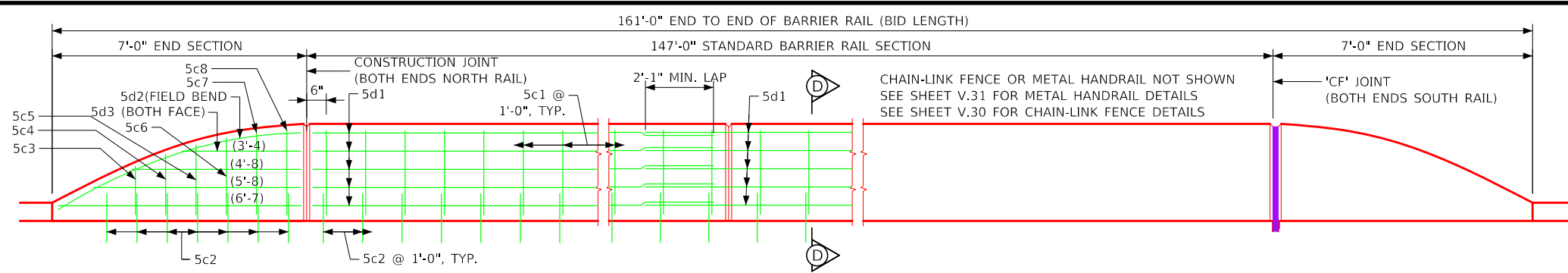
NOTE: REINFORCING STEEL QUANTITIES ARE INCLUDED ON THE SUMMARY QUANTITIES SHEET.

*ADDITIONAL COST OF STAINLESS INCLUDED IN EPOXY COATED BID ITEM

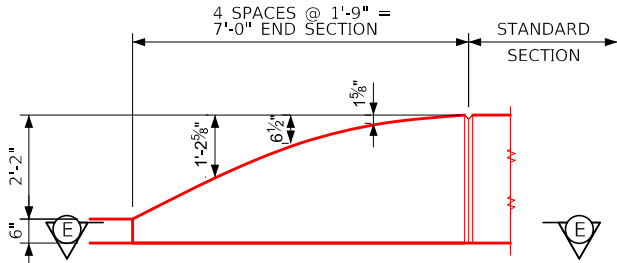


LONGITUDINAL SECTION OF APPROACH SIDEWALK SLAB

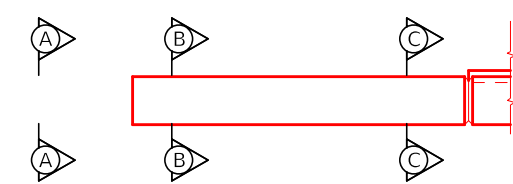
DESIGN FOR 0° SKEW
**144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK**
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
APPROACH SIDEWALK SLAB
STA. 105+33.71 (Q HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 28 OF 36



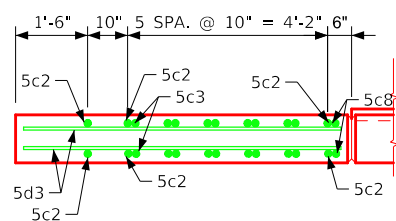
ELEVATION OF BARRIER RAIL LAYOUT



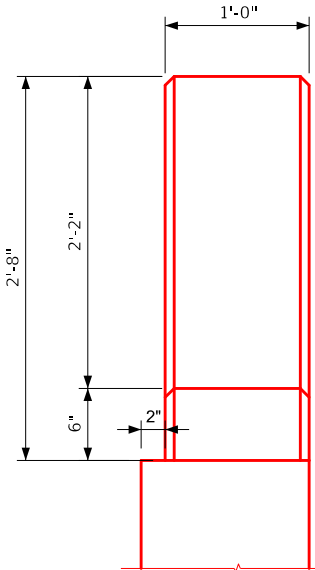
PART ELEVATION



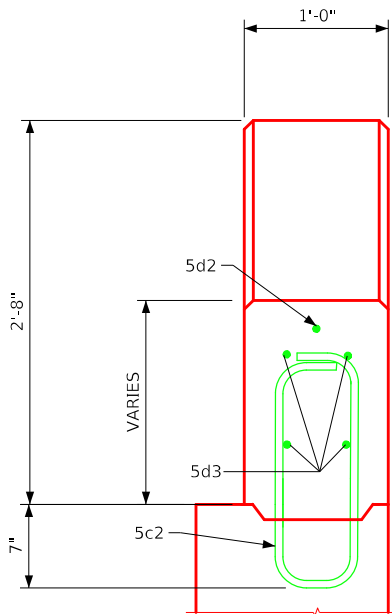
PART PLAN VIEW



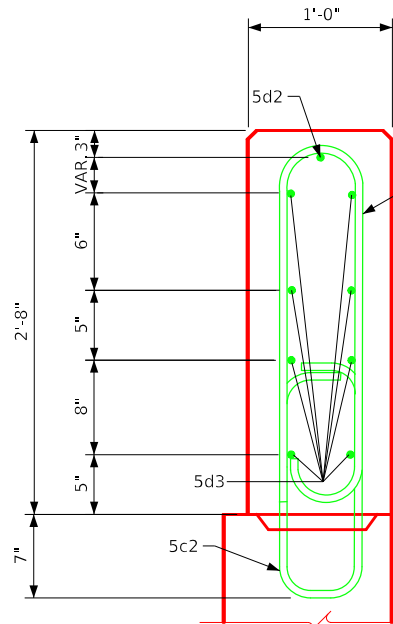
PART SECTION E-E
END SECTION DETAILS



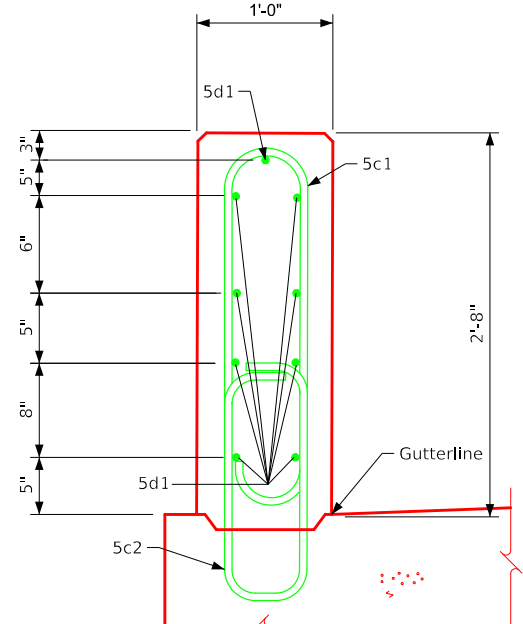
VIEW A-A
(BARRIER END SECTION)



SECTION B-B
(BARRIER END SECTION)



SECTION C-C
(BARRIER END SECTION NEAR BRIDGE)



SECTION D-D
(BARRIER RAIL ON BRIDGE)

BARRIER RAIL NOTES:

TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL $\bar{C}$ GRADE.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

ALL BARRIER RAIL REINFORCING IS TO BE EPOXY COATED.

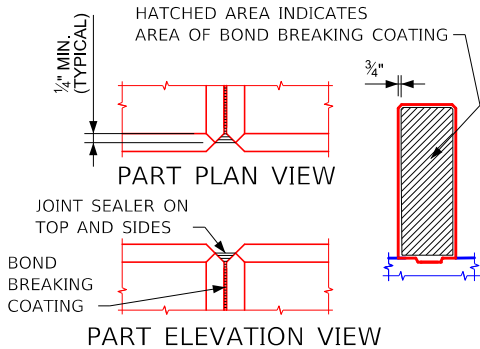
THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETING FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.

COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20'-0 FEET. CONSTRUCTION JOINT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.

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. THE PRICE BID FOR "CONCRETE BARRIER RAILING" SHALL BE FULL COMPENSATION FOR FURNISHING ALL EQUIPMENT, LABOR AND MATERIAL, EXCEPT REINFORCING STEEL, REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT STANDARD SPECIFICATIONS.

CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.67 SQUARE FEET.



BARRIER RAIL JOINT DETAILS

EPOXY COATED REINF. STEEL - TWO RAILS

SECTION	BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
STANDARD SECTIONS	5c1	RAIL, VERTICAL		294	6'-1"	1865
	5c2	RAIL TO DECK		294	5'-0"	1533
END SECTIONS	5d1	RAIL, LONGITUDINAL		90	31'-6"	2957
	5c2	RAIL TO WING OR APPROACH SLAB		28	4'-5"	129
	5c3-5c8	RAIL, VERTICAL		24	VARIES	131
	5d2	RAIL, LONGITUDINAL, TOP, FIELD BEND		4	7'-0"	29
	5d3	RAIL, LONGITUDINAL		32	VARIES	169
EPOXY REINF. TOTAL WEIGHT (LBS.)						6813

BENT BAR DETAILS

MARK	"X"	LENGTH
5c3	1'-4"	3'-11"
5c4	1'-8 1/2"	4'-8"
5c5	2'-1 1/2"	5'-4"
5c6	2'-2"	5'-7"
5c7	2'-4"	5'-11"
5c8	2'-4 1/2"	6'-0"

NOTE: ALL DIMENSIONS ARE OUT TO OUT. D = PIN DIAMETER

CONCRETE PLACEMENT SUMMARY

SECTION	TOTAL
STANDARD SECTION 147 FT. AT 0.099 CU. YDS. PER FT.	14.55
END SECTION	
1 FT. WIDE AT 0.485 CU. YDS. PER 7' SECTION	0.485
1 FT. WIDE AT 0.485 CU. YDS. PER 7' SECTION	0.485
TOTAL (CU. YD.)	15.45

CONCRETE BARRIER RAIL QUANTITIES

ITEM	UNIT	QUANTITY
NORTH RAIL, VERTICAL	LF	161
SOUTH RAIL, VERTICAL	LF	161

DESIGN FOR 0°SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
BARRIER RAIL DETAILS
STA. 105+33.71 (Q. HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 29 OF 36

QUANTITIES		
ITEM	UNITS	AMOUNT
FENCE, CHAIN LINK VINYL COATED 120" HEIGHT	LIN. FT.	144'-0"

STEEL CHAIN LINK FENCE NOTES:

The chain link fence is to be bid on a linear foot basis measured from $\mathcal{C}$ to $\mathcal{C}$ of end posts. The price bid for "Fence, Chain Link Vinyl Coated" shall be full compensation for furnishing all material, including concrete anchors and shims, and all of the equipment and labor required to erect the fence in accordance with these plans and specifications.

The stud concrete anchors shall be galvanized and have a minimum pullout strength of 8000 pounds based on 4000 psi concrete. Concrete anchors shall be provided in accordance with Iowa D.O.T. Materials I.M. 453.09.

The material for posts, braces and rails shall be steel pipe in accordance with Article 4154.10, A, of the Standard Specifications. Base plates and shims shall meet the requirements of ASTM A36. Posts and base plates shall be galvanized, after fabrication, in accordance with the requirements of ASTM A123. Special fittings shall be in accordance with Article 4154.11, of the Standard Specifications, unless otherwise noted.

The fence shall be true to line, taut, and comply with the best practice for fence construction of this type. All ends of wires shall be turned so that they extend away from the sidewalk side of the fence.

The chain link fabric shall be either zinc or aluminum coated fabric, 1'-1/4" (1.25 inch) mesh, no. 9 wires, with knuckled selvages top and bottom.

Chain link fabric, rails, and fences accessories are to be PVC coated in accordance with ASTM F 668, class 2B. Color shall be black in accordance with ASTM F 934. The cost of PVC coating is to be included in the price bid for "Fence, Chain Link, Vinyl Coated".

Steel fence post assemblies shall be abrasive blast cleaned to a minimum of SSPC-SP6 "Commercial Blast Cleaning" prior to hot-dip galvanizing. Galvanize components in accordance with ASTM A 123. Do not quench or apply chromate conversion coatings to any galvanized components that will receive powder coating. Following galvanizing, powder coat components in accordance with Materials I.M. 568.

Preparation of galvanized surfaces for paint shall be in accordance with Materials I.M. 568, Appendix F. Complete "Paint Over Galvanized Surface Travel Log" in Appendix E.

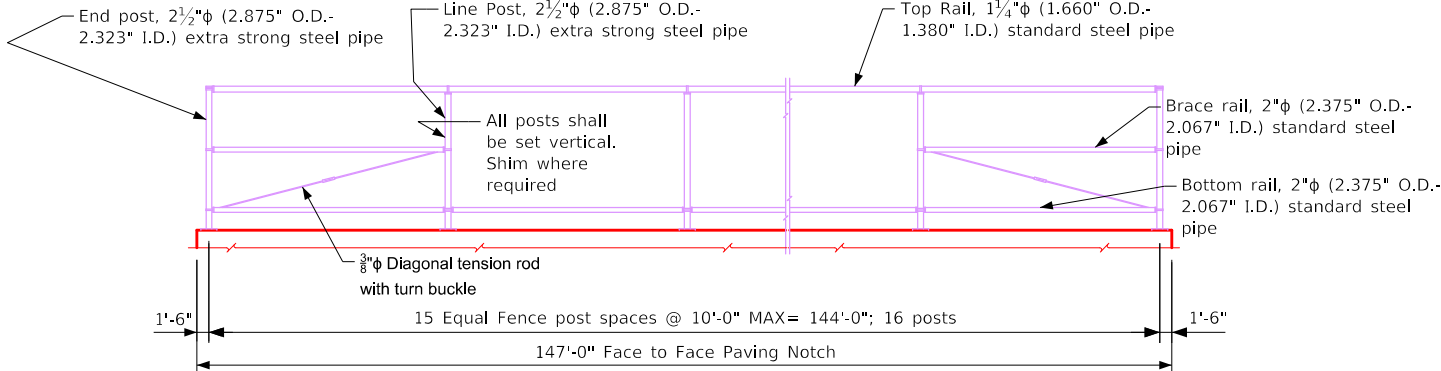
All powder coating except field touch-up shall be performed in an approved shop in accordance with Materials I.M. 568.

Submit proposed preparation methods and product data for all coating proposed for use to the engineer for review and approval prior to powder coating. Powder coating shall match Federal Standard No. 595C color number 27038 (black).

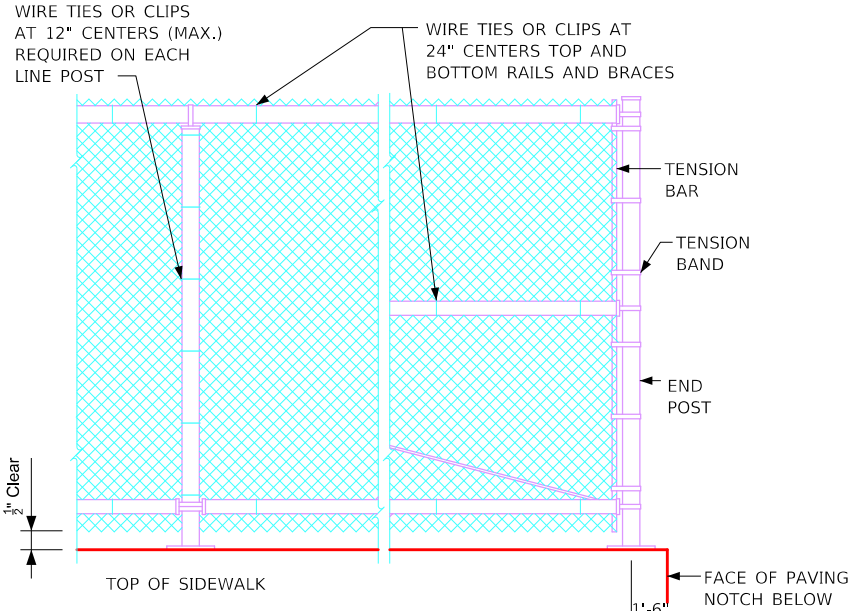
If available, vinyl coated fence post assemblies may be substituted for powder coated components provided the material is in compliance with all other requirements listed in these plans and the Standard Specifications. PVC coating shall comply with ASTM F 668, class 2B and shall be black in accordance with ASTM F 934. The cost of PVC coated fence post assemblies shall be included in the price bid for "Fence, Chain Link, Vinyl Coated".

Protect all powder coated railing surfaces from damage during shipping, handling, and installation.

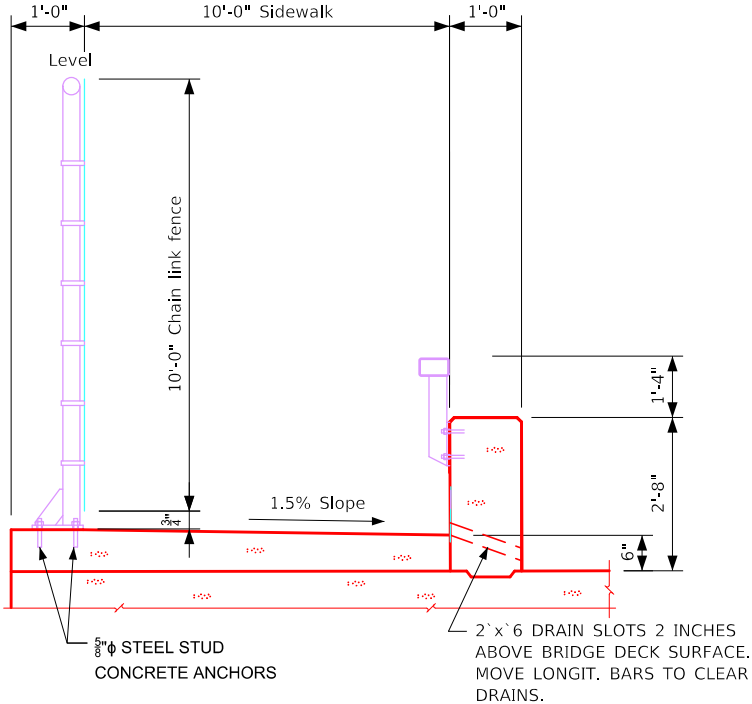
Following fence installation, repair any damage to the powder coated finish in accordance with the coating manufacturer's recommendations. All costs associated with powder coating shall be considered incidental to the bid item, "Fence, Chain Link, Vinyl Coated".



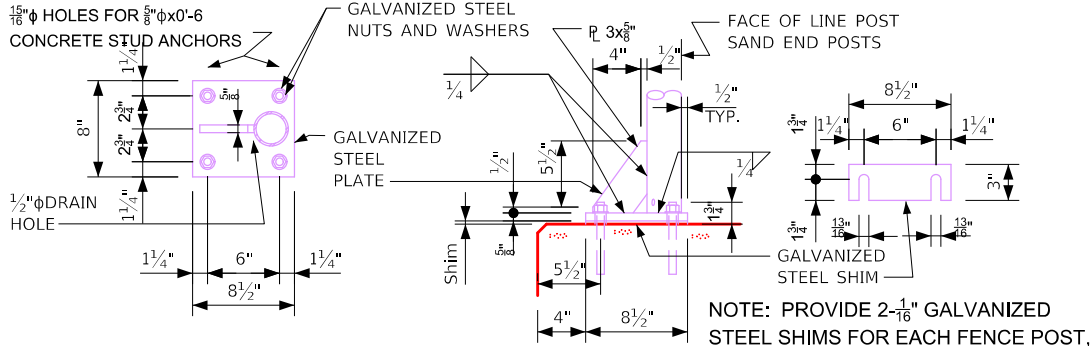
ELEVATION OF FENCE
NOTE: MAXIMUM POST SPACING IS 10'-0".



FENCE DETAILS



TYPICAL SECTION



BASE PLATE DETAILS FOR END POST AND LINE POSTS
NOTE: POSTS AND BASE PLATES SHALL BE GALVANIZED, AFTER FABRICATION, IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A123.

DESIGN FOR 0°SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS60'-0" INTERIOR SPAN

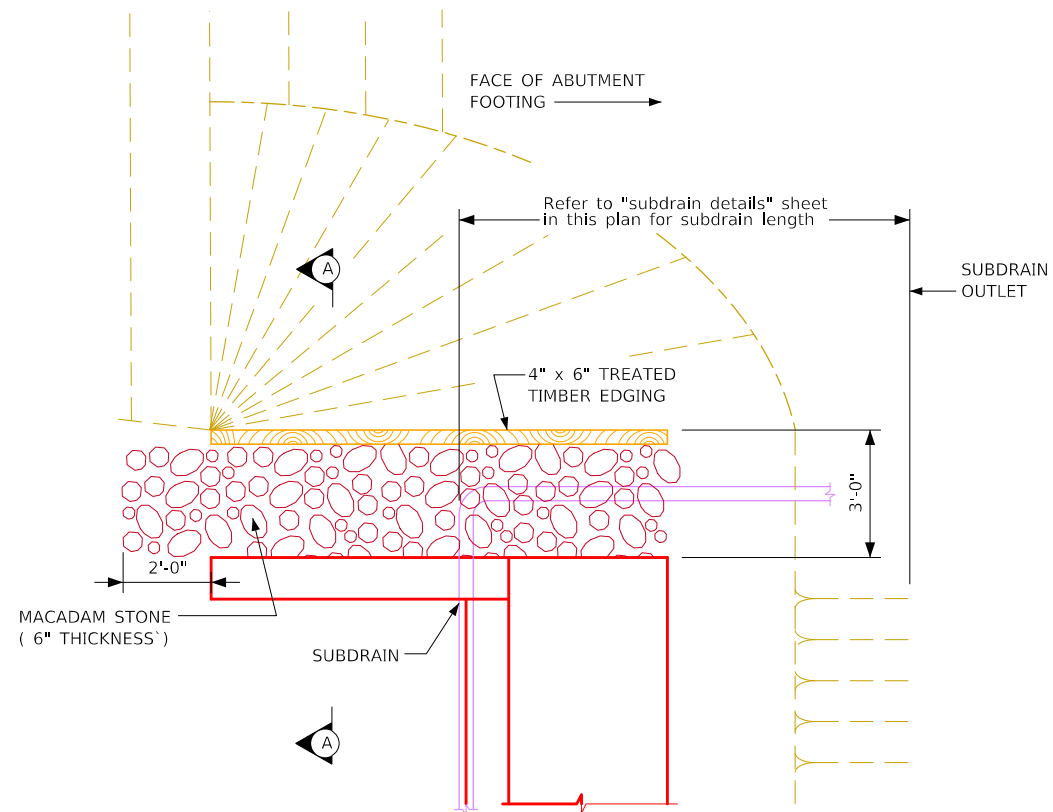
SOUTH CHAIN LINK FENCE DETAILS

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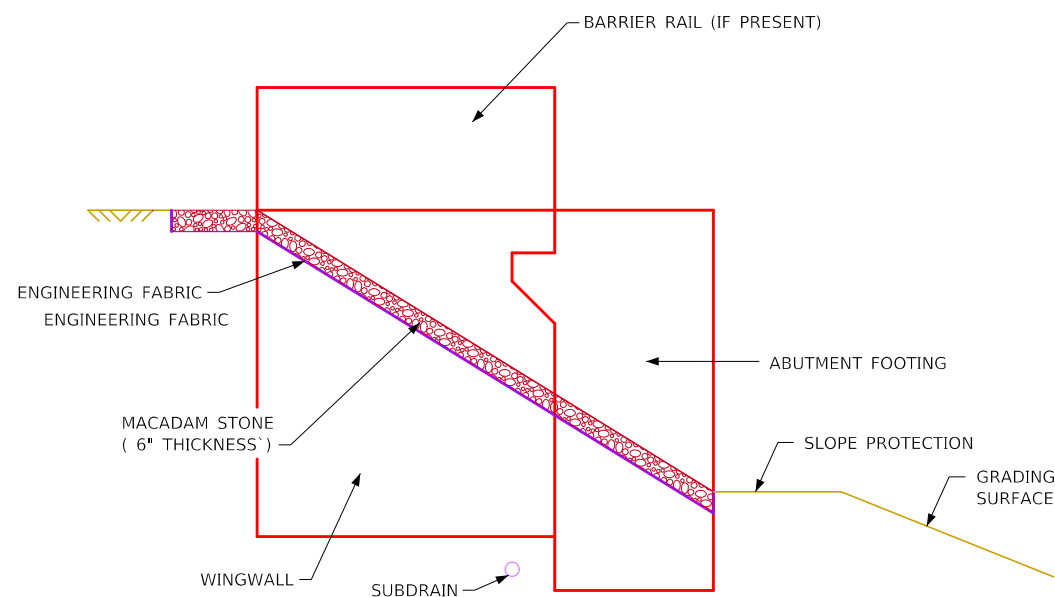
WEBSTER COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

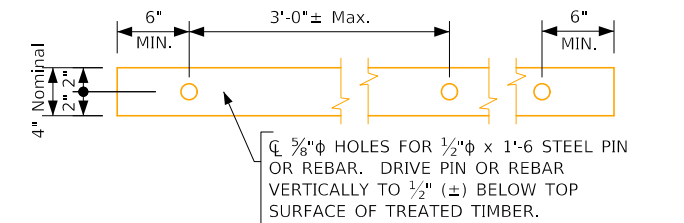
DESIGN SHEET NO. 32 OF 36



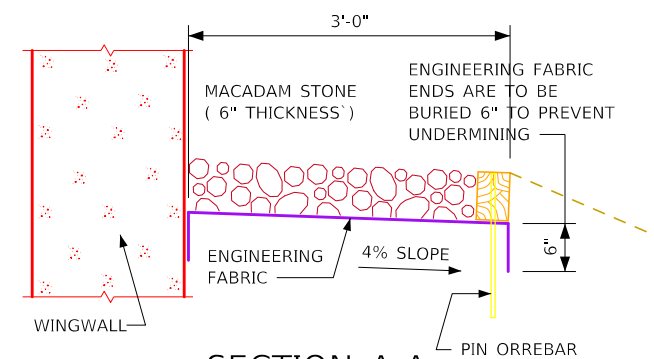
TOP VIEW OF WING ARMORING



PROFILE VIEW OF WING ARMORING



4" x 6" TREATED TIMBER EDGING DETAILS



SECTION A-A

GENERAL NOTES:

MACADAM STONE SHALL BE PLACED ALONG THE SIDE OF THE WING AND ABUTMENT FOOTING AS SHOWN IN SECTION A-A. THIS IS TYPICAL AT EACH CORNER OF THE BRIDGE UNLESS OTHERWISE NOTED IN THE PLANS. NO WING ARMORING REQUIRED AT THE NORTHEAST CORNER OF THE BRIDGE DUE TO RETAINING WALL. THE MACADAM STONE AT THESE LOCATIONS SHALL BE UNDERLAYED WITH ENGINEERING FABRIC IN ACCORDANCE WITH ARTICLE 4196.01, B, 3, OF THE STANDARD SPECIFICATIONS.

THE MACADAM STONE SHALL BE IN ACCORDANCE WITH SECTION 4122, OF THE STANDARD SPECIFICATIONS, COARSE MATERIAL (NO CHOKE STONE IS ALLOWED).

WOOD PRESERVATIVE TREATMENT FOR THE TIMBER EDGING SHALL MEET THE REQUIREMENTS FOR GUARDRAIL POSTS, SAWED FOUR SIDES, IN ACCORDANCE WITH SECTION 4161, OF THE STANDARD SPECIFICATIONS.

THE MACADAM STONE SHALL BE DEPOSITED, SPREAD, CONSOLIDATED AND SHAPED BY MECHANICAL OR HAND METHODS THAT WILL PROVIDE UNIFORM 6" 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, MACADAM STONE, TREATED TIMBER EDGING, EXCAVATION, SHAPING, AND COMPACTION TO DIMENSIONS SHOWN IN THESE PLANS. BID ITEM SHALL BE "BRIDGE WING ARMORING - MACADAM STONE."

DESIGN FOR 0° SKEW

144'-0" X 32'-0" ROLLED STEEL BEAM

BRIDGE WITH 10'-0" SIDEWALK

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

WING ARMORING DETAILS

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ENGINEERING FABRIC END
ARE TO BE BURIED
6" TO PREVENT
UNDERMINING.

A cross-sectional diagram of a subdrain. It shows a central circular subdrain with a diameter of 4 inches, labeled "4\" ϕ PERFORATED SUBDRAIN". The subdrain is surrounded by a layer of "POROUS BACKFILL (COMPACTED)". This layer is itself surrounded by "BACKFILL WITH SOIL OR MATERIAL APPROVED BY ENGINEER.". Dimensions are indicated on the left: the total depth is "VAR." (variable), the depth of the porous backfill is "1'-0\" MIN." (1 foot minimum), and the thickness of the outer backfill layer is "4\" MIN." (4 inches minimum). A horizontal dimension at the bottom indicates a width of "10\" MIN." (10 inches minimum).

"D" = Depth Required To Provide Proper
Flow Line For Subdrain.

LOCATION	ELEVATION
TOP OF WEST BERM	1121.8±
TOE OF WEST BERM	1110.0±
TOE OF EAST BERM	1108.0±
TOP OF EAST BERM	1124.5±

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 6'-0 LENGTH OF PIPE WITH A REMOVABLE RODENT GUARD AS DETAILED ON THIS SHEET.

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.

THE UPHILL END OF THE PERFORATED SUBDRAIN AT THE TOE OF SLOPE PROTECTION SHALL BE CAPPED AS APPROVED BY THE ENGINEER.

THE POROUS BACKFILL AND SUBDRAIN ARE TO BE CARRIED AROUND PIER COLUMNS IF THE COLUMN PLACEMENT INTERFERES WITH ALIGNMENT OF SUBDRAIN AS SHOWN ON THIS SHEET.

SECTION B-B

DITCH SLOPE LINE

REMOVABLE RODENT GUARD.
SEE MATERIALS I.M. 443.01

ETHYLENE
()

DESIGN FOR 0°SKEW

**144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK**

36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN

SUBDRAIN DETAILS

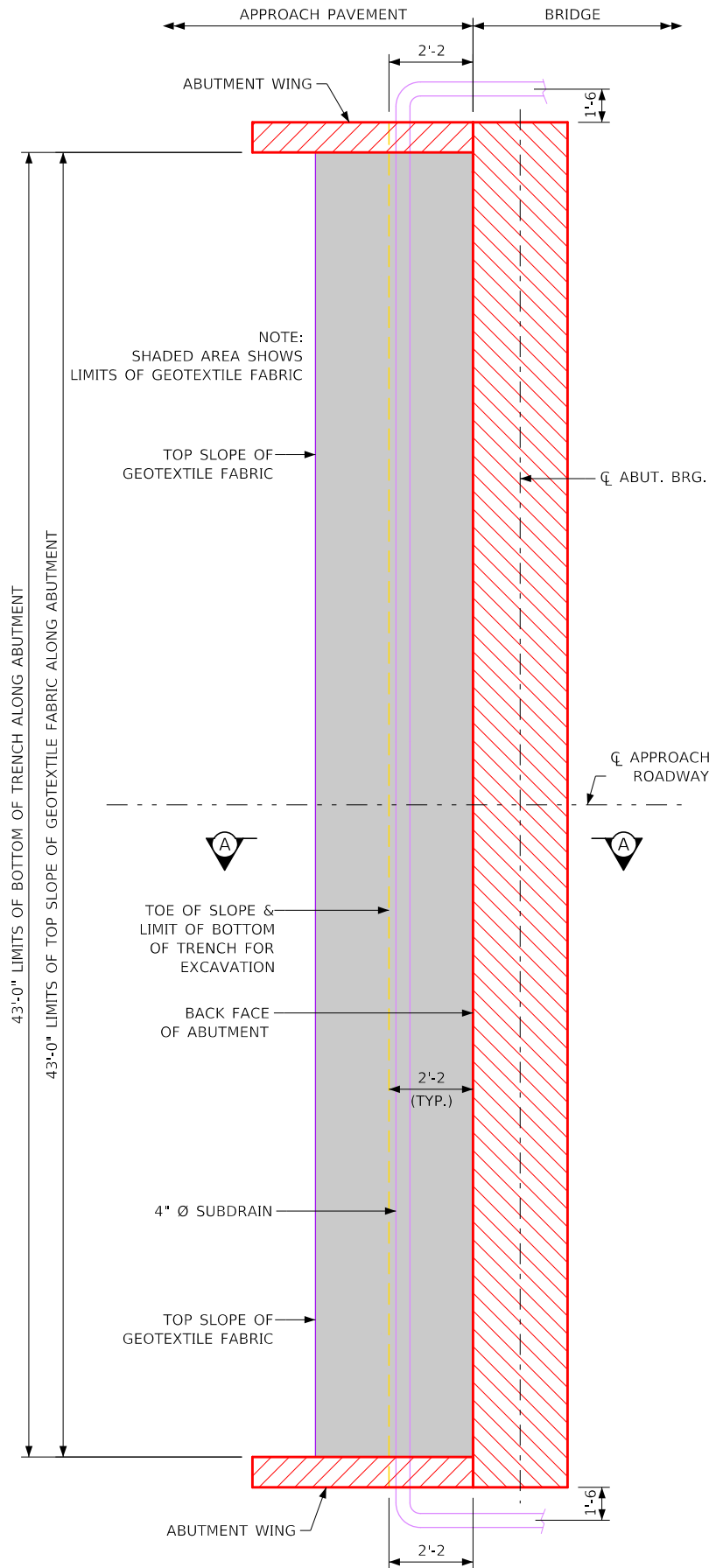
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IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 35 OF 36

NOTE:SECTION A-A IS SHOWN ON ABUTMENT
BACKFILL DETAILS SHEET.



WEST ABUTMENT PLAN
EAST ABUTMENT SIMILAR

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.

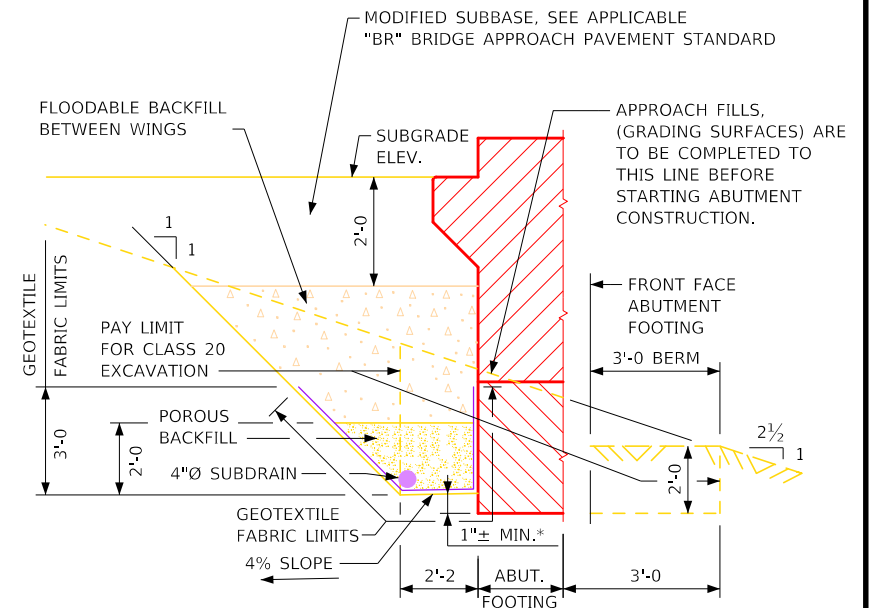
NOTE:
SEE SUBDRAIN DETAILS SHEET FOR DETAILS NOT SHOWN ON THIS SHEET WHICH ARE PERTINENT TO THIS STRUCTURE.

NOTE:

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM CL APPROACH ROADWAY OUTLETTING BOTH SIDES OF THE WEST ABUTMENT.

SUBDRAIN SHALL SLOPE DOWNWARD 2% FROM HIGH END OUTLETTING AT ONE END OF THE EAST ABUTMENT.

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.

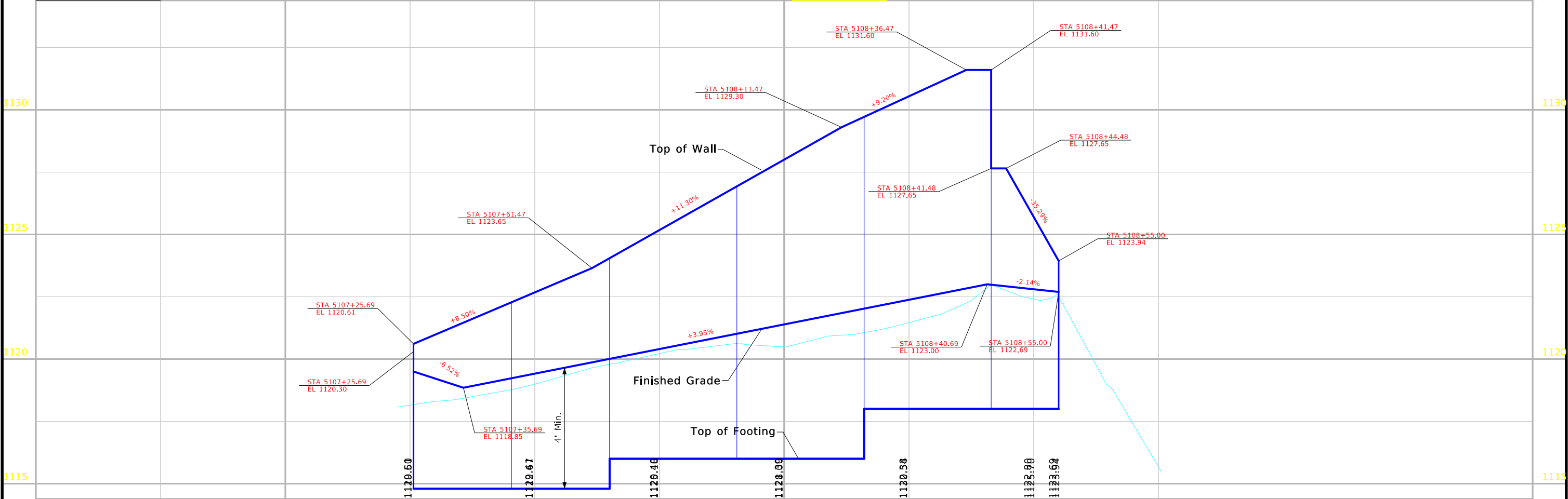
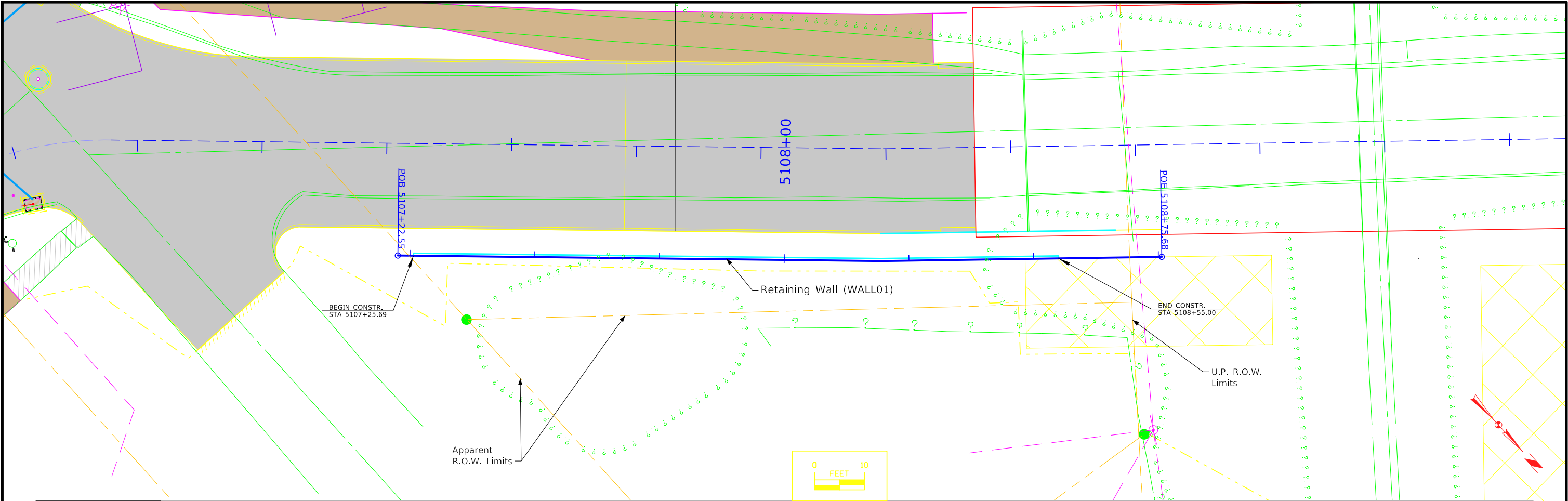


SECTION A-A
BACKFILL DETAILS

NOTE: GEOTEXTILE FABRIC WILL BE ATTACHED TO FACE OF ABUTMENT FOOTING AND WINGS.

*DIMENSION VARIES DUE TO 2% SUBDRAIN SLOPE.

DESIGN FOR 0° SKEW
144'-0" X 32'-0" ROLLED STEEL BEAM
BRIDGE WITH 10'-0" SIDEWALK
36'-0" & 48'-0" END SPANS 60'-0" INTERIOR SPAN
ABUTMENT BACKFILL DETAILS
STA. 105+33.71 (CL HIGHLAND PARK AVE.) JULY 2026
WEBSTER COUNTY
IOWA DEPARTMENT OF TRANSPORTATION
DESIGN SHEET NO. 36 OF 36



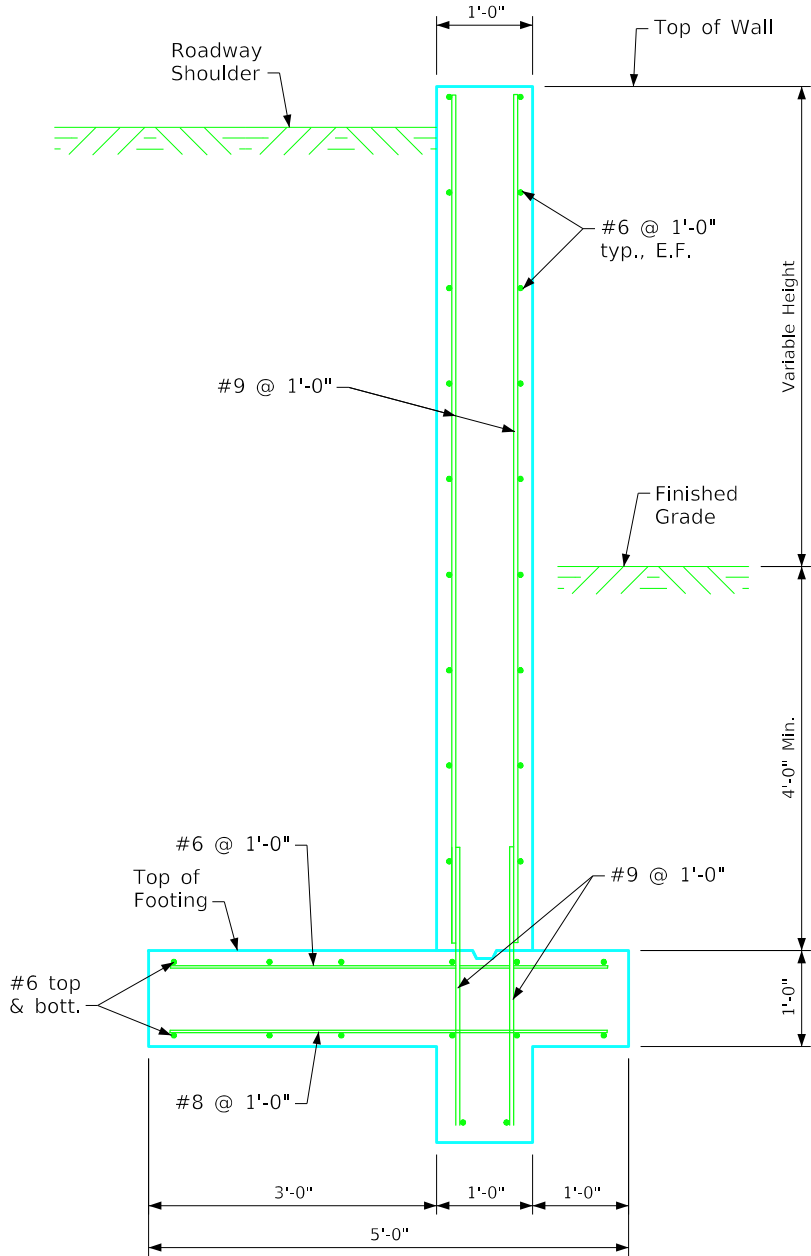
Note: 54" chain link fencing not shown.
See Sheet V.203 for details.

REINFORCING BAR LIST					
BAR NO.	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
#6	Wall Stem, Horizontal		48	35'-0"	2523
#9	Wall Stem, Vertical		258	VAR.	8772
#9	Wall Stem to Footing Dowels		258	5'-0"	4386
#6	Footing, Longitudinal		48	35'-0"	2523
#6	Footing, Transverse, Top		129	4'-6"	827
#8	Footing, Transverse, Bottom		129	4'-6"	1550
EPOXY COATED REINFORCING STEEL - TOTAL (LBS.)					19,784

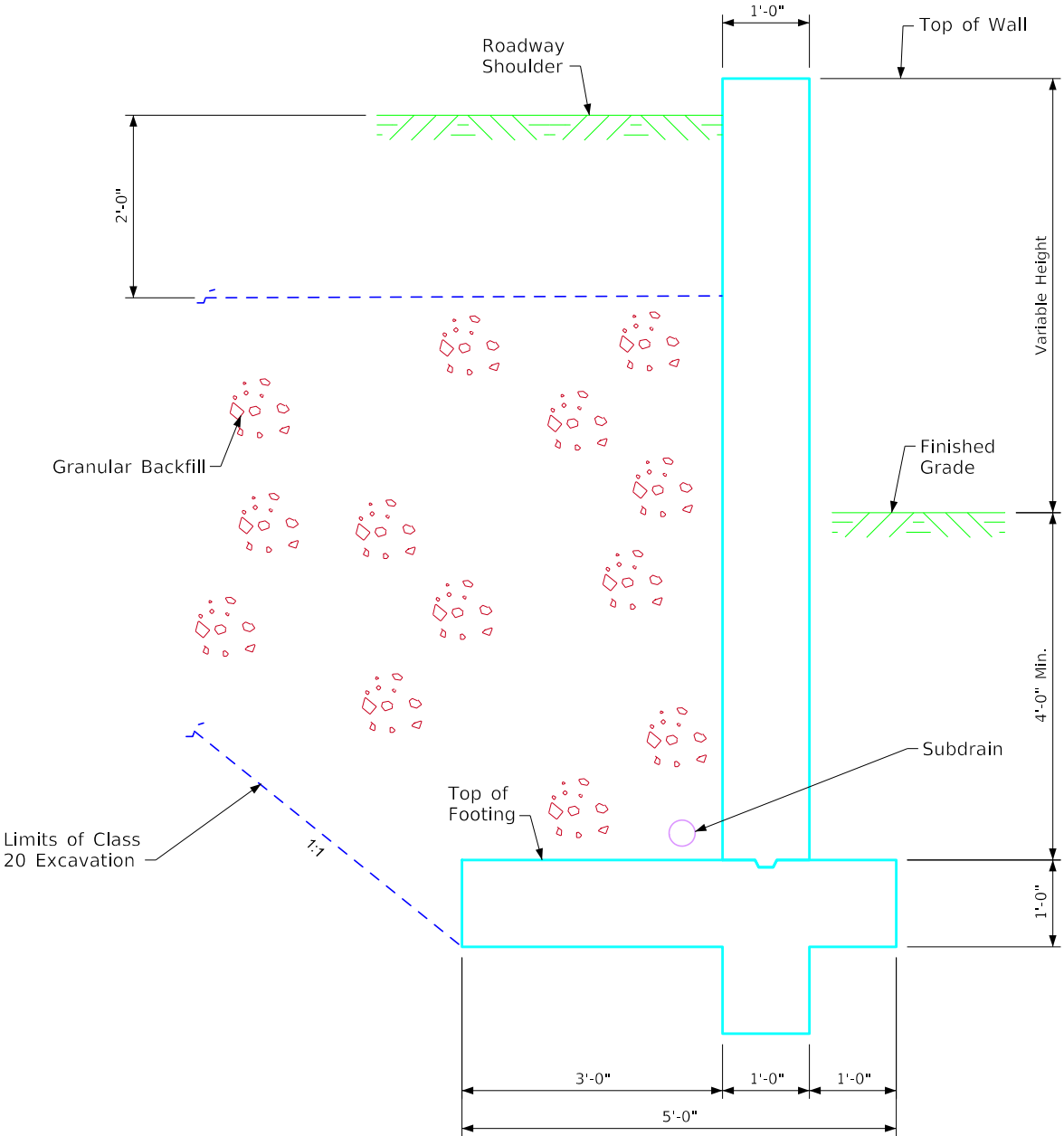
CONC. ESTIMATED QUANTITIES	
LOCATION	CY
WALL STEM	64.5
FOOTING	20.7
TOTAL (CY)	85.2

Retaining Wall Notes:

The top of the retaining wall is to be parallel to the theoretical roadway grade.
Minimum clear distance from face of concrete to near epoxy coated reinforcing bar is to be 2" unless otherwise noted or shown.
All exposed corners are to be filleted with a 3/4" dressed and beveled strip.
All reinforcing is to be epoxy coated.
The cast-in-place concrete retaining wall is to be bid on a cubic yard basis. The number of cubic feet of concrete retaining wall installed will be paid for at the contract price per cubic yard based on plan quantities. The price bid for "Structural Concrete (Misc.)" shall be full compensation for furnishing all equipment, labor, and material required to construct the retaining wall in accordance with these plans and current Standard Specifications.
Contractor shall submit shop drawings in accordance with the Standard Specifications showing reinforcing layout.
54" tall vinyl coated chain link fence to be installed on top of retaining wall. See fence details shown on sheet V.203 for additional information.

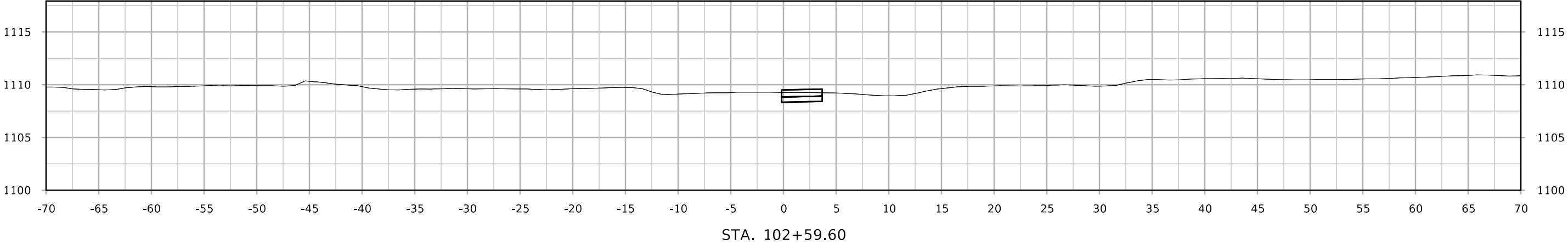
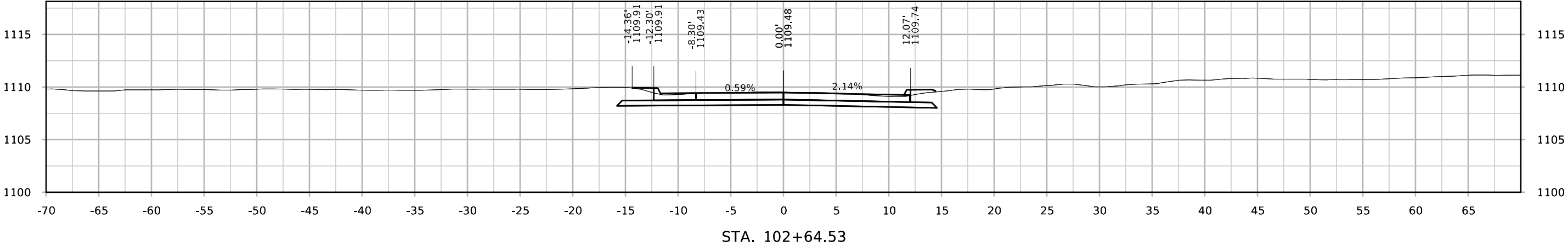
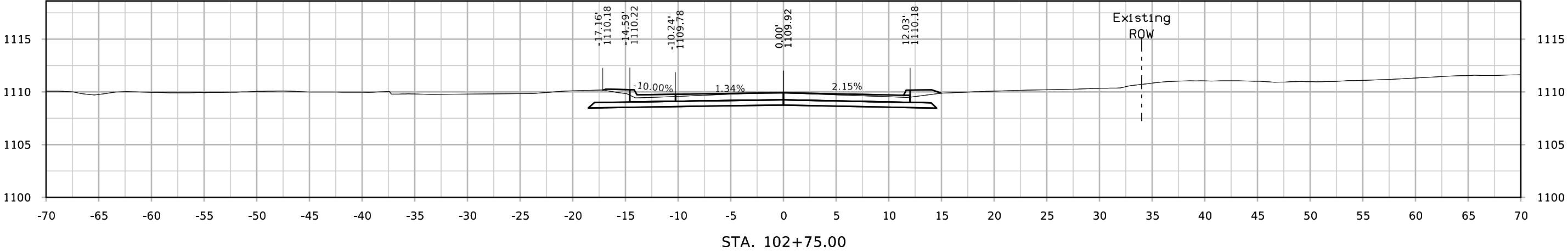


RETAINING WALL TYPICAL SECTION

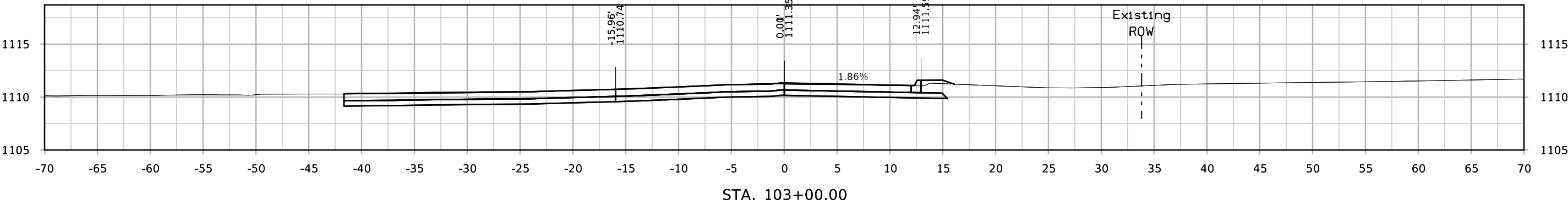
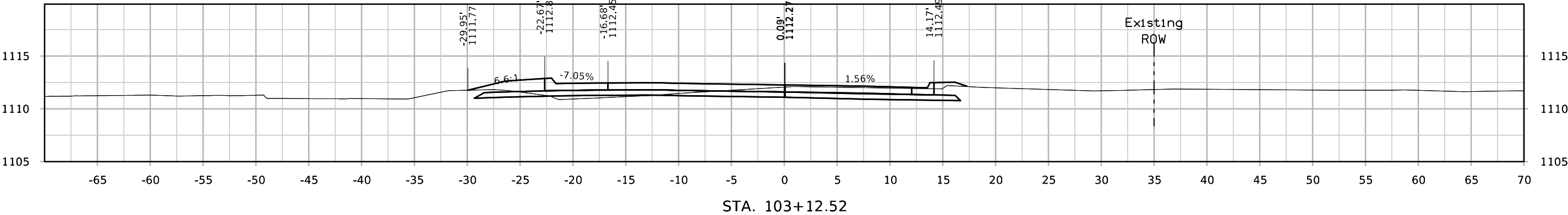
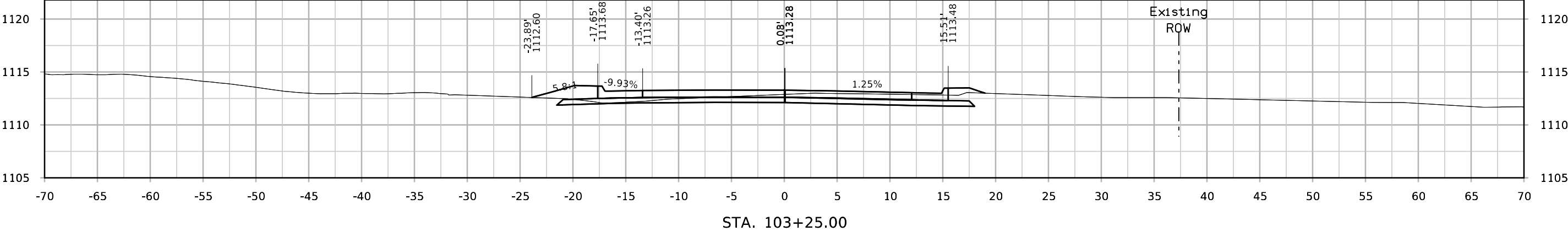


RETAINING WALL BACKFILL DETAIL

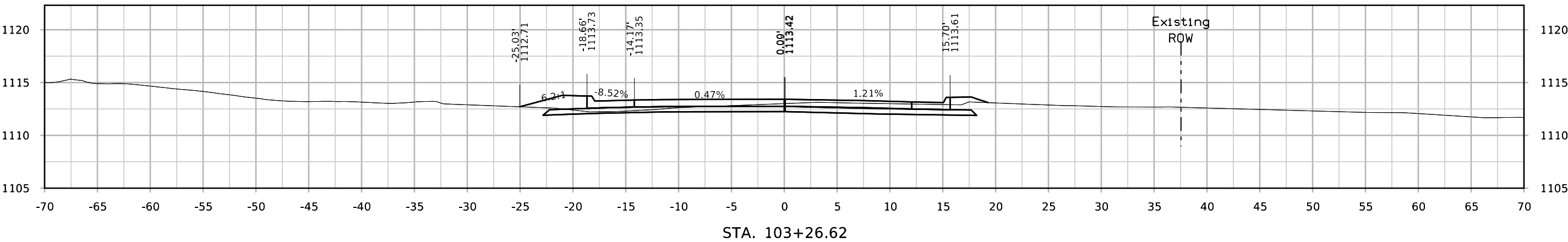
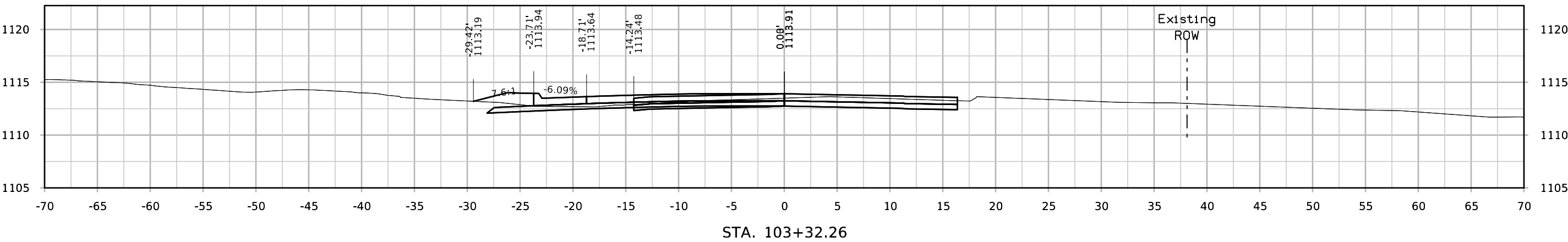
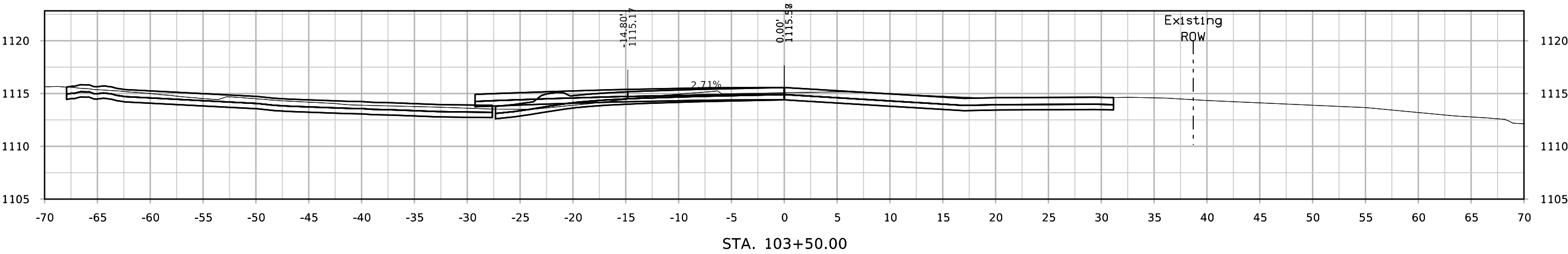
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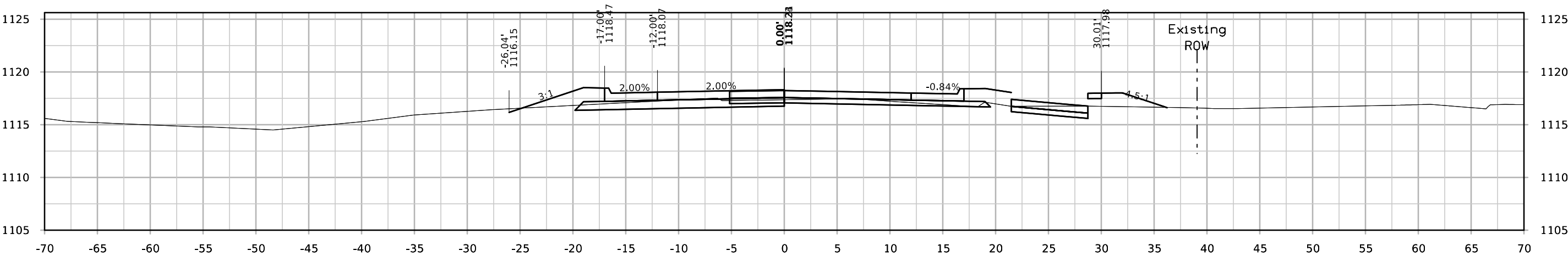
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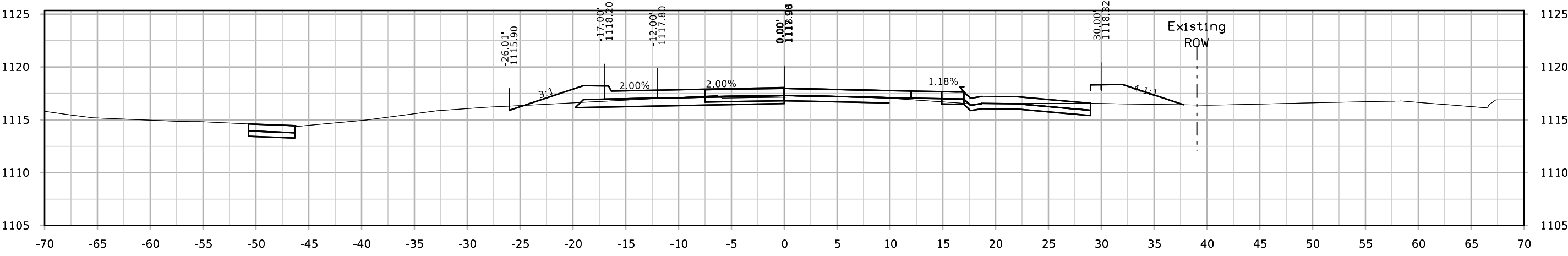
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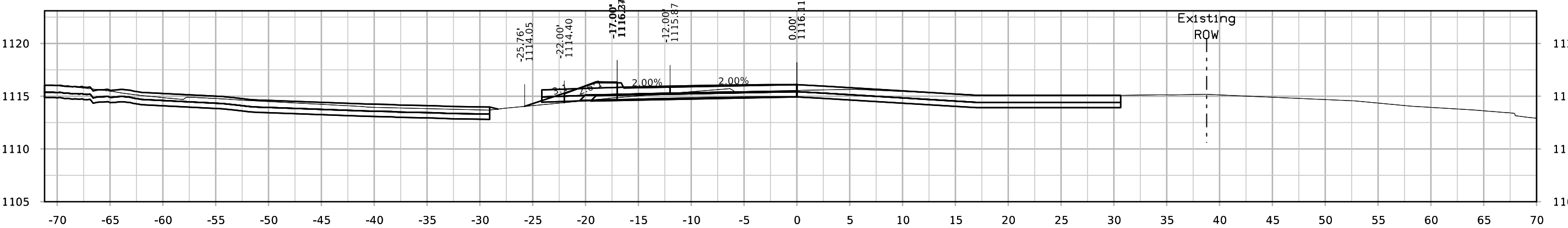
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STA. 103+75.00

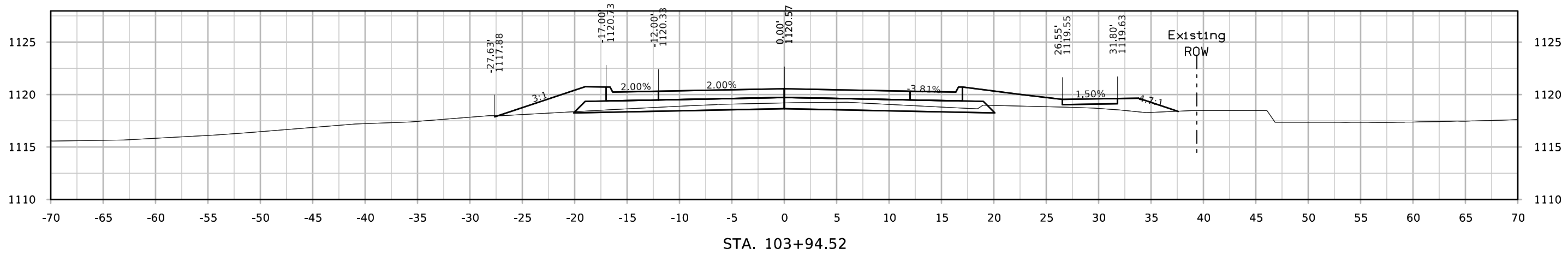
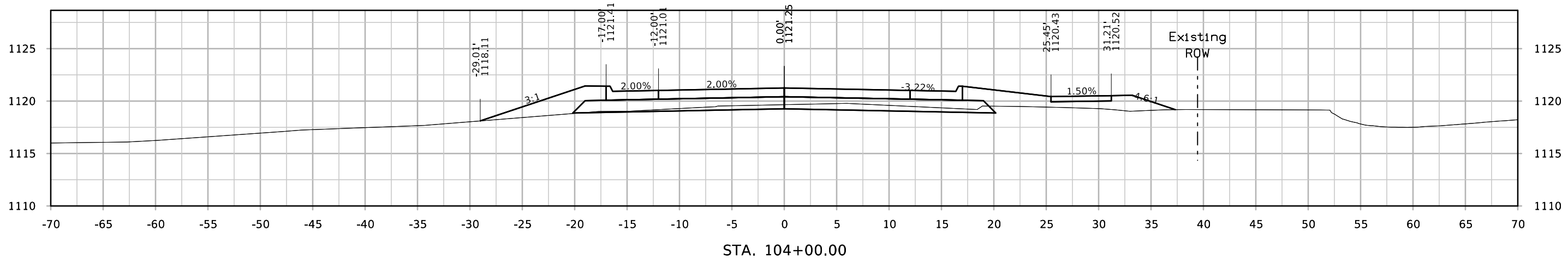
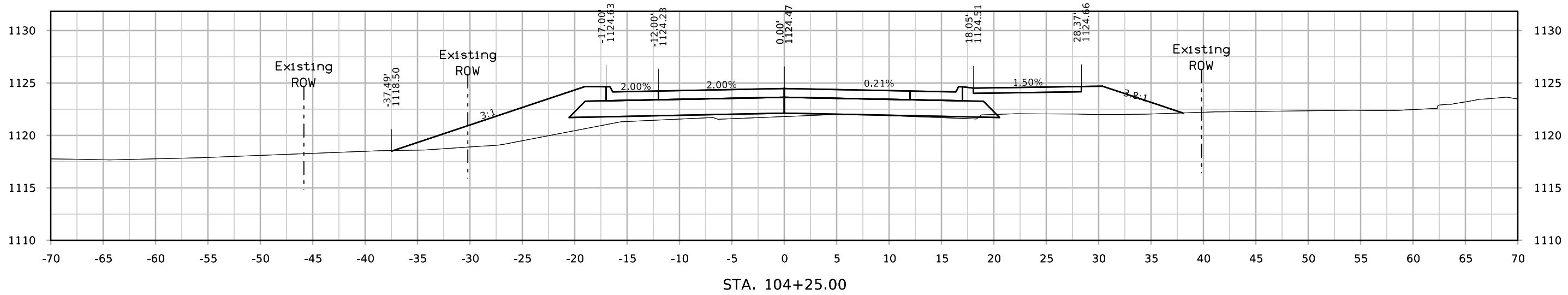


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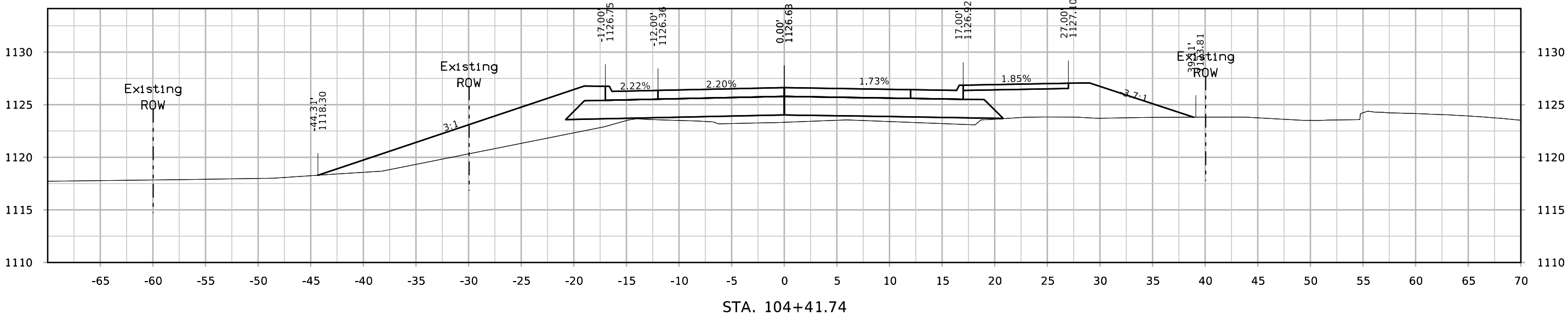
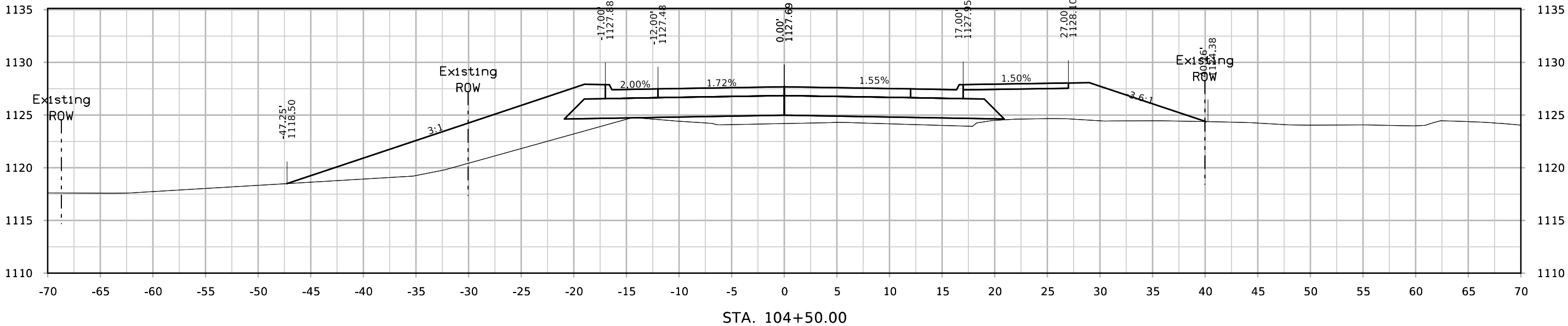


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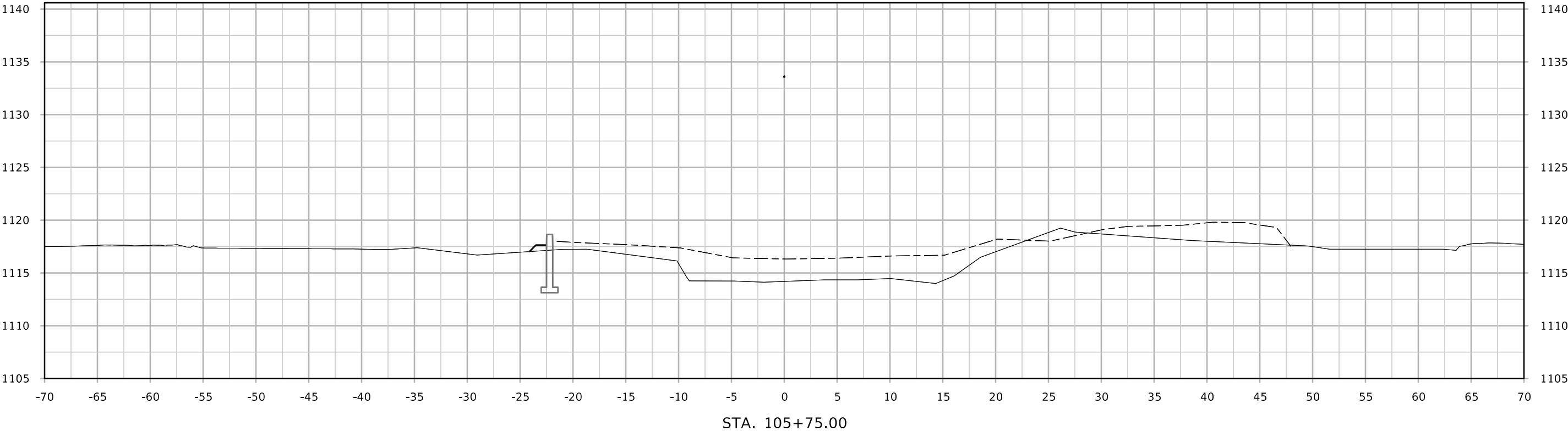
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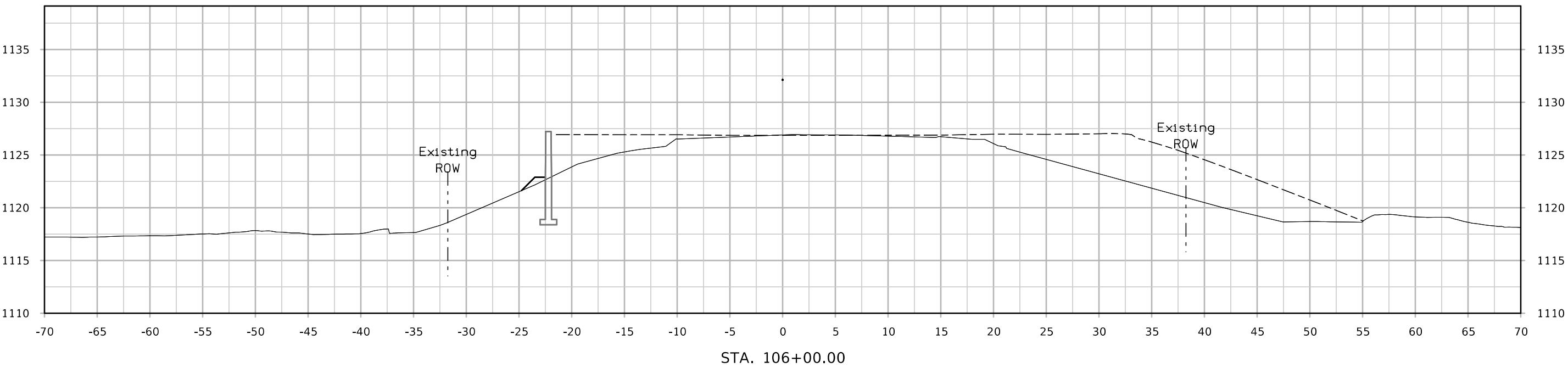
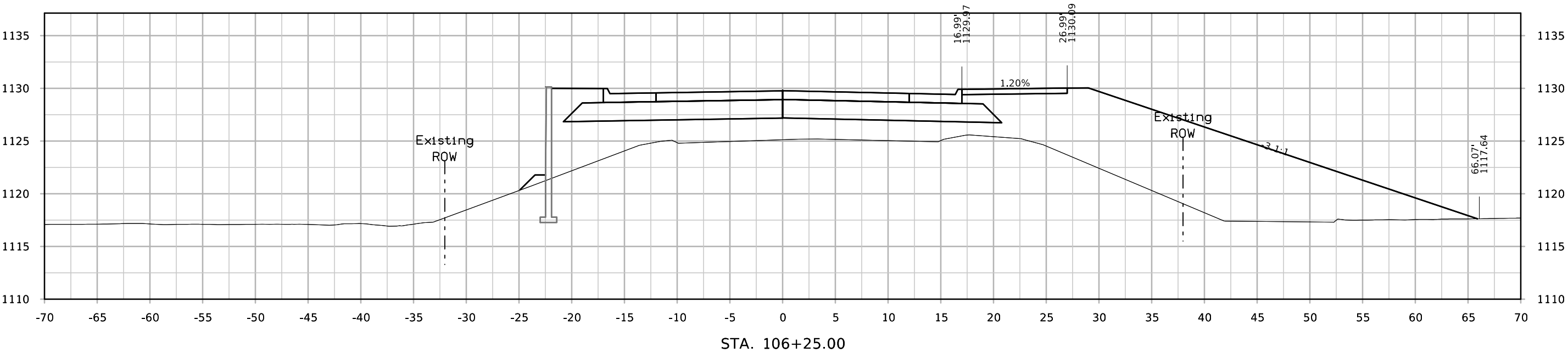
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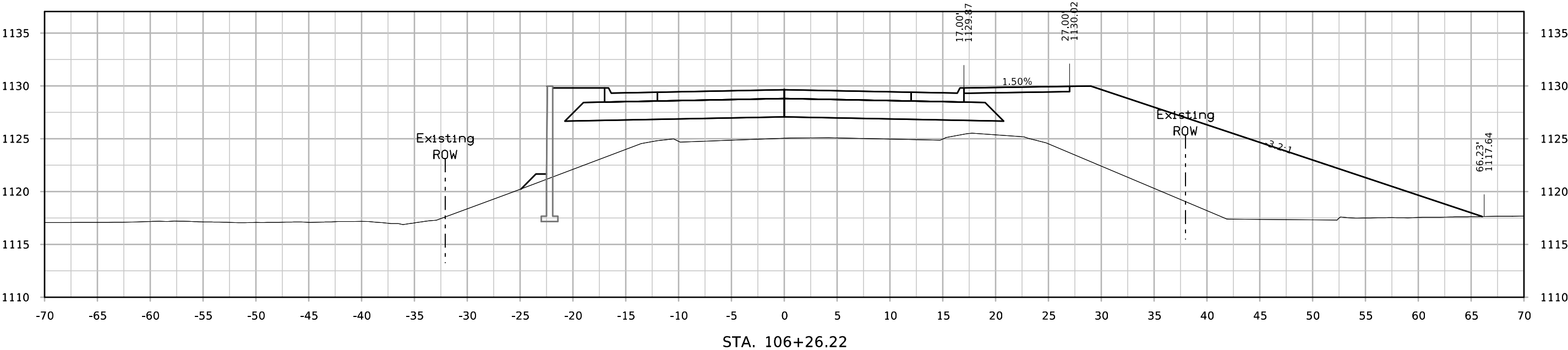
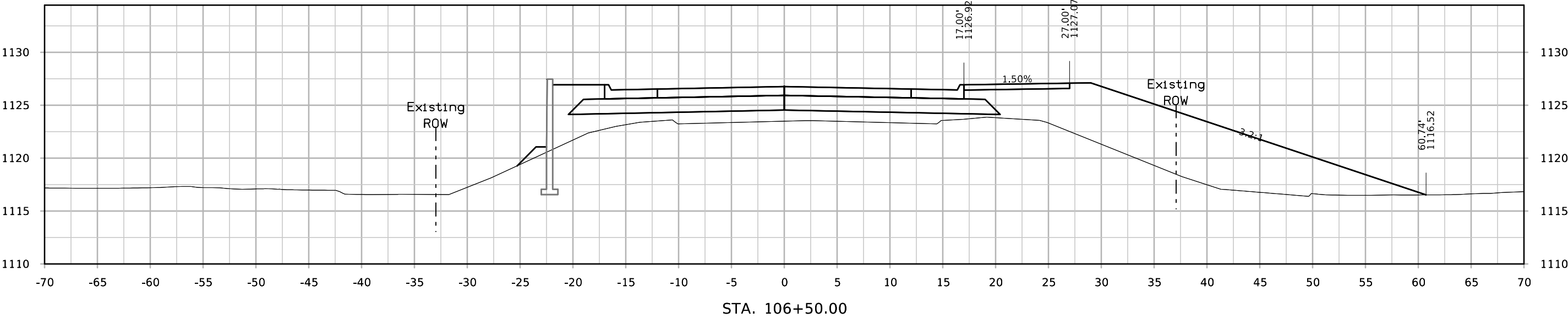
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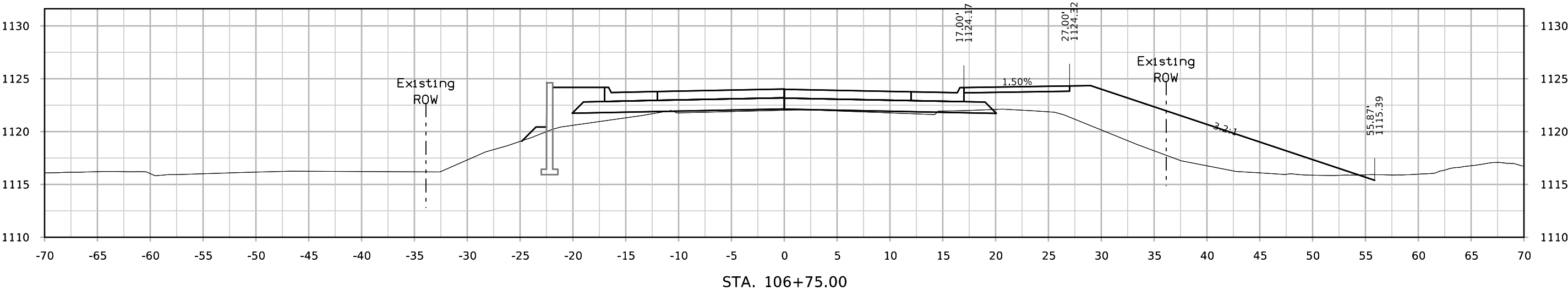
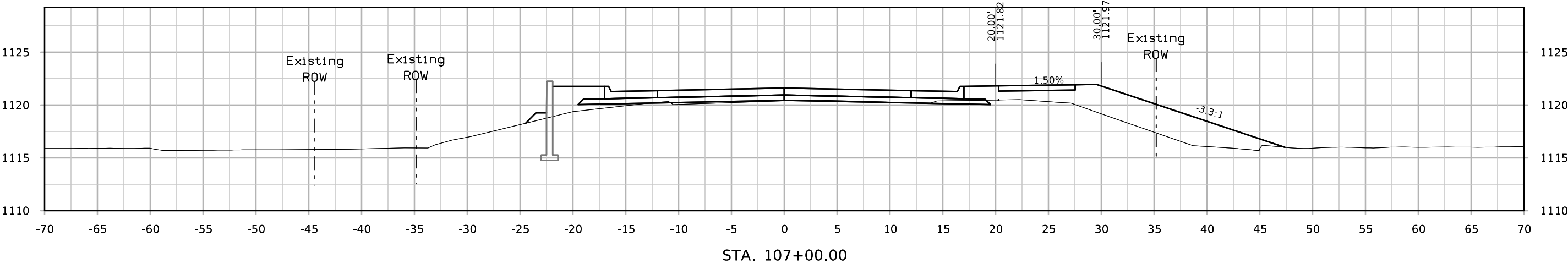
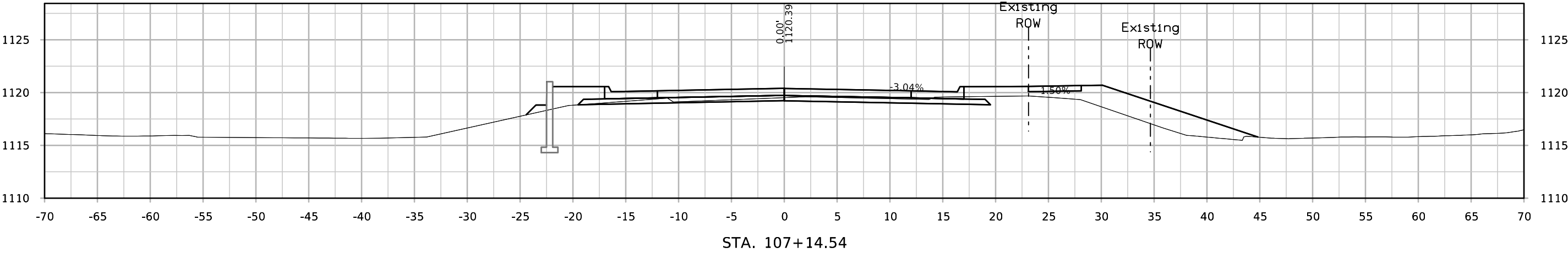
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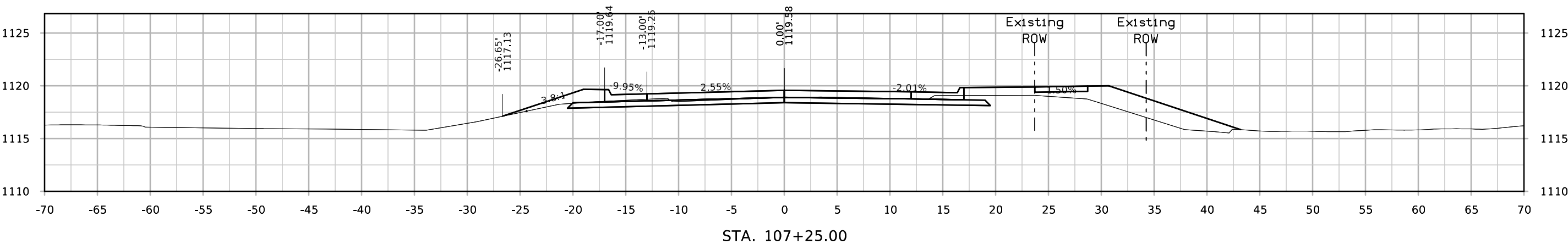
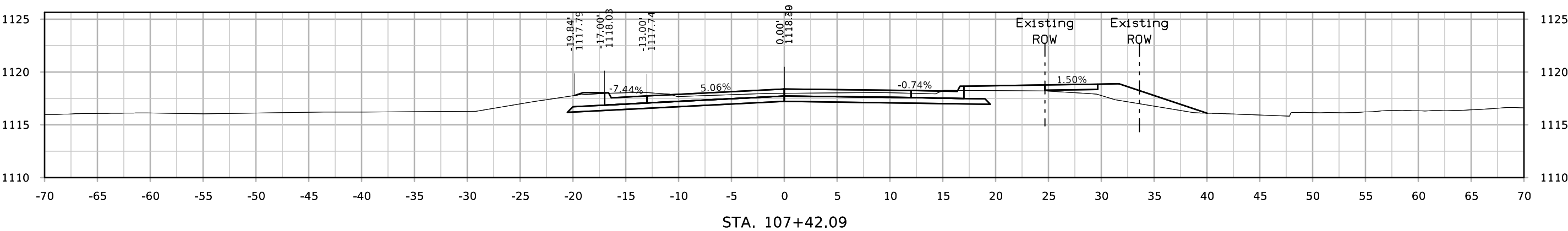
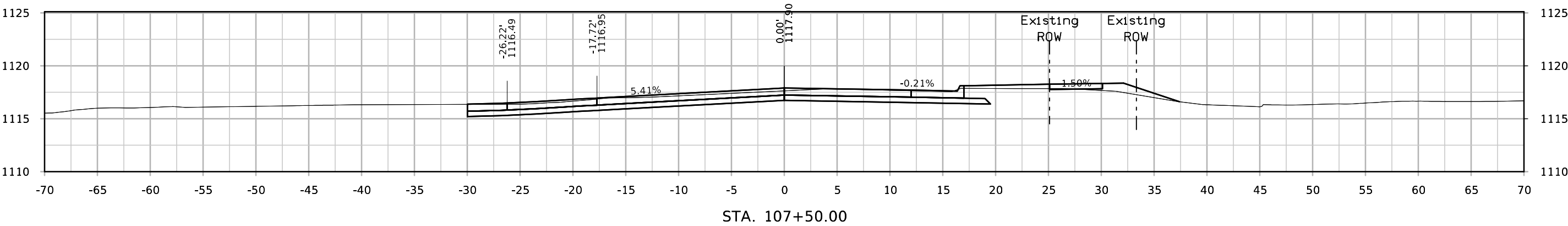
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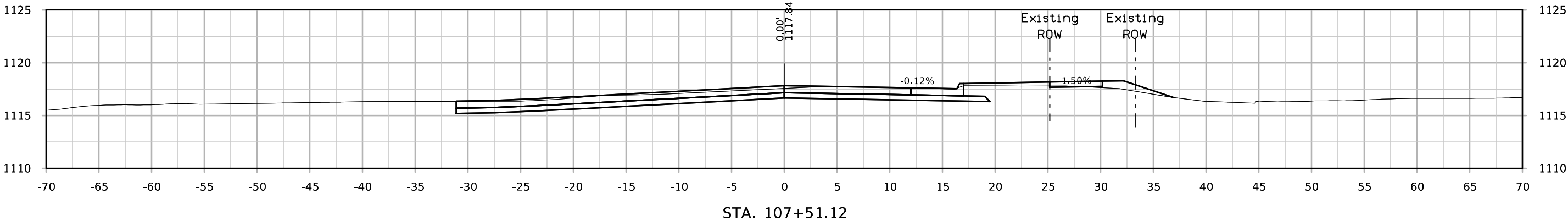
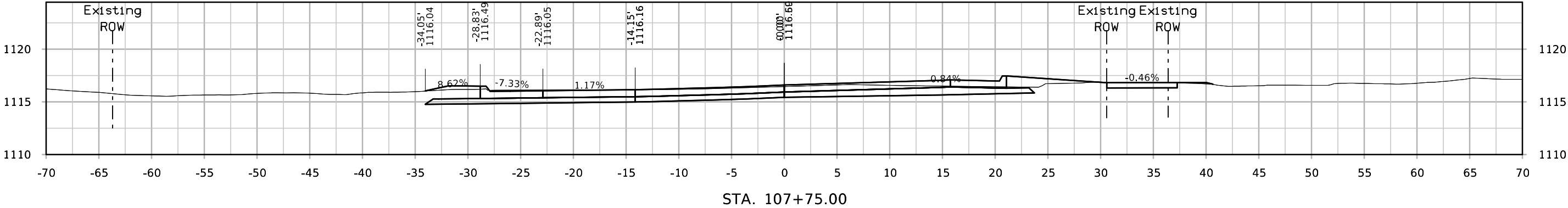
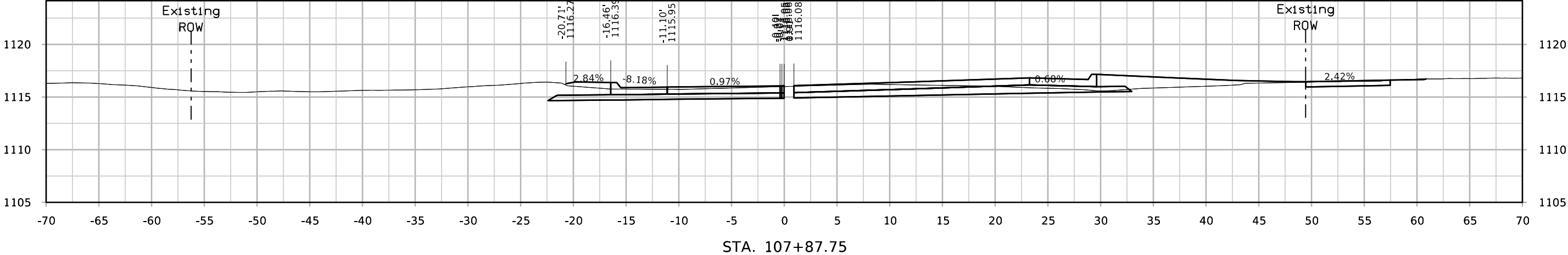
Highland Park Ave / S. 19th St



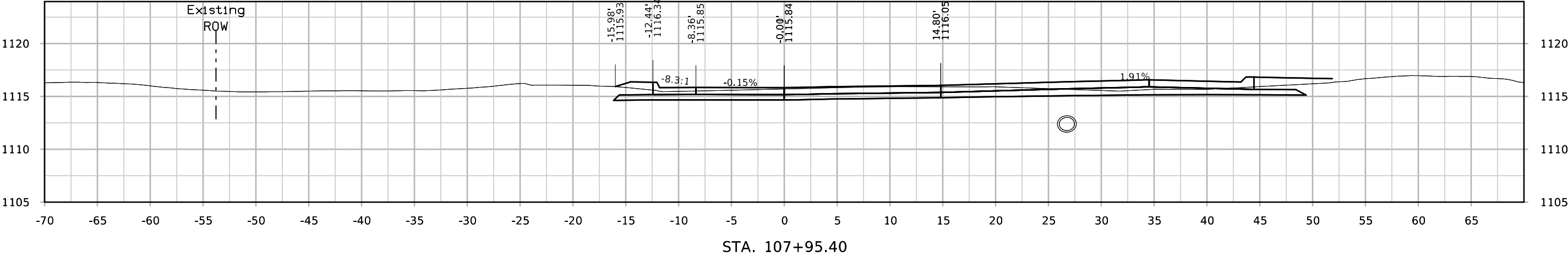
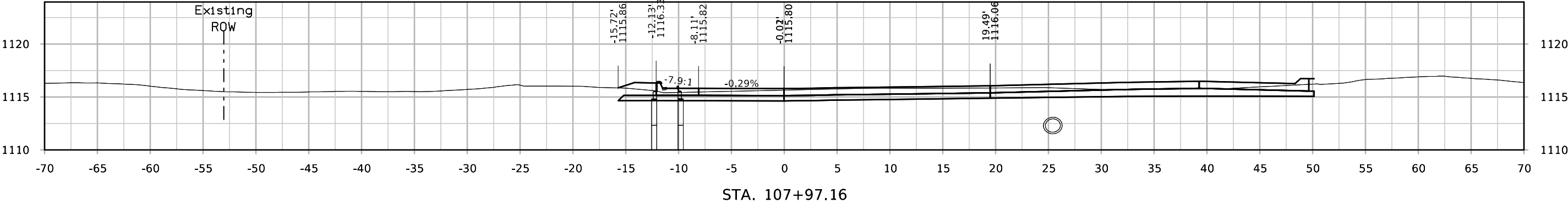
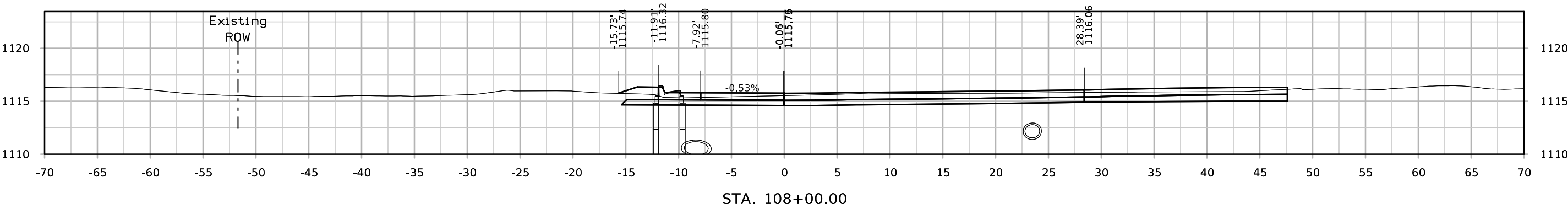
Highland Park Ave / S. 19th St



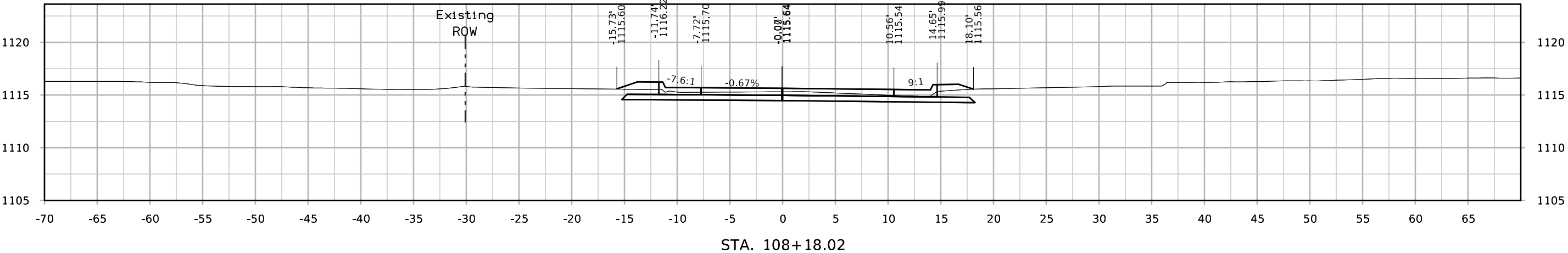
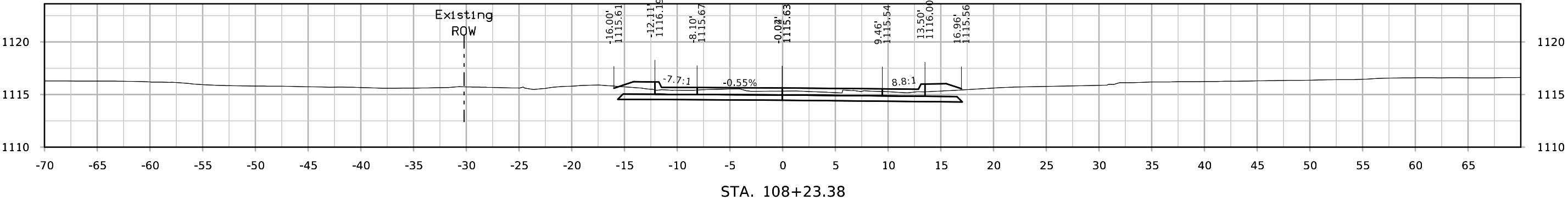
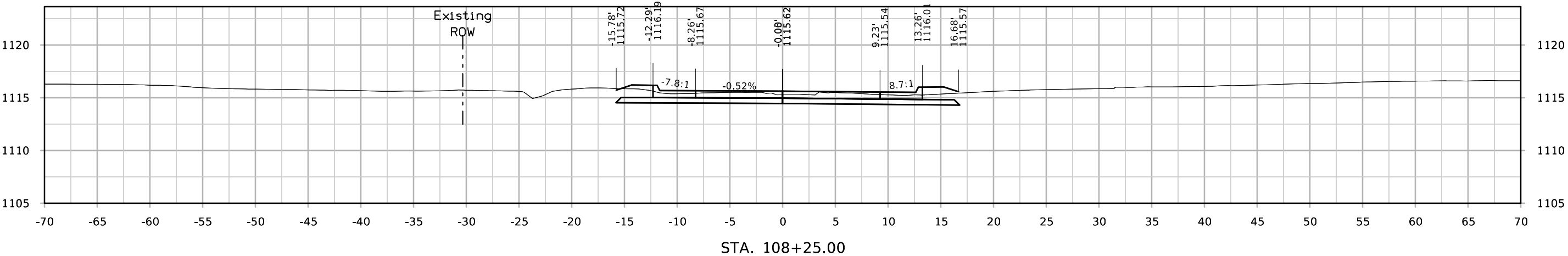
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