NOISE WALL

ER-218-1(087)--28-56

LETTING DATE 1-22-2025

LEE COUNTY

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SPS.1 - SPS.3	Noise Wall Plan Soils Sheet
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IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

LEE COUNTY

NOISE WALL

From MP 2.37 to MP 2.58 in Keokuk

Refer to the Plan Sheets for list of applicable specifications.

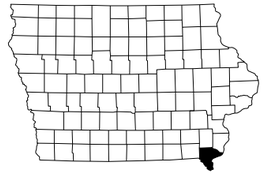
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

Revisions

	TOTAL
	43
PROJECT IDENTIFICATION NUMBER	
24-56-218-020	
CONTRACT ID NUMBER	
56-2181-087	
PROJECT NUMBER	
ER-218-1(087)--28-56	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
5621802024	

Preliminary
Not For Construction

Revisions to this Design Plan and/or Project Specifications should be submitted by _____



Standard Road Plans
Standard Road Plans are listed on Sheet C.3.

US 218 Design Data		
2023 AADT	9,200	V.P.D.
20?? AADT		V.P.D.
20?? DHV		V.P.H.
TRUCKS	5	%
Total Design ESALs		

Index Of Seals		
Sheet No.	Name	Type
A.1	Samantha L. McKillop	Structural Design
SPS.1	Zachary A. Bonzer	Geotechnical Design
B.1	James I. Robinson	Roadway Design

Structural Design

LICENSED PROFESSIONAL ENGINEER Samantha McKillop P26065 IOWA

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

Preliminary For Review XX-XX-XXXX

Signature Date

Samantha L. McKillop

Printed or Typed Name

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: V.1 - V.14

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER A.1	

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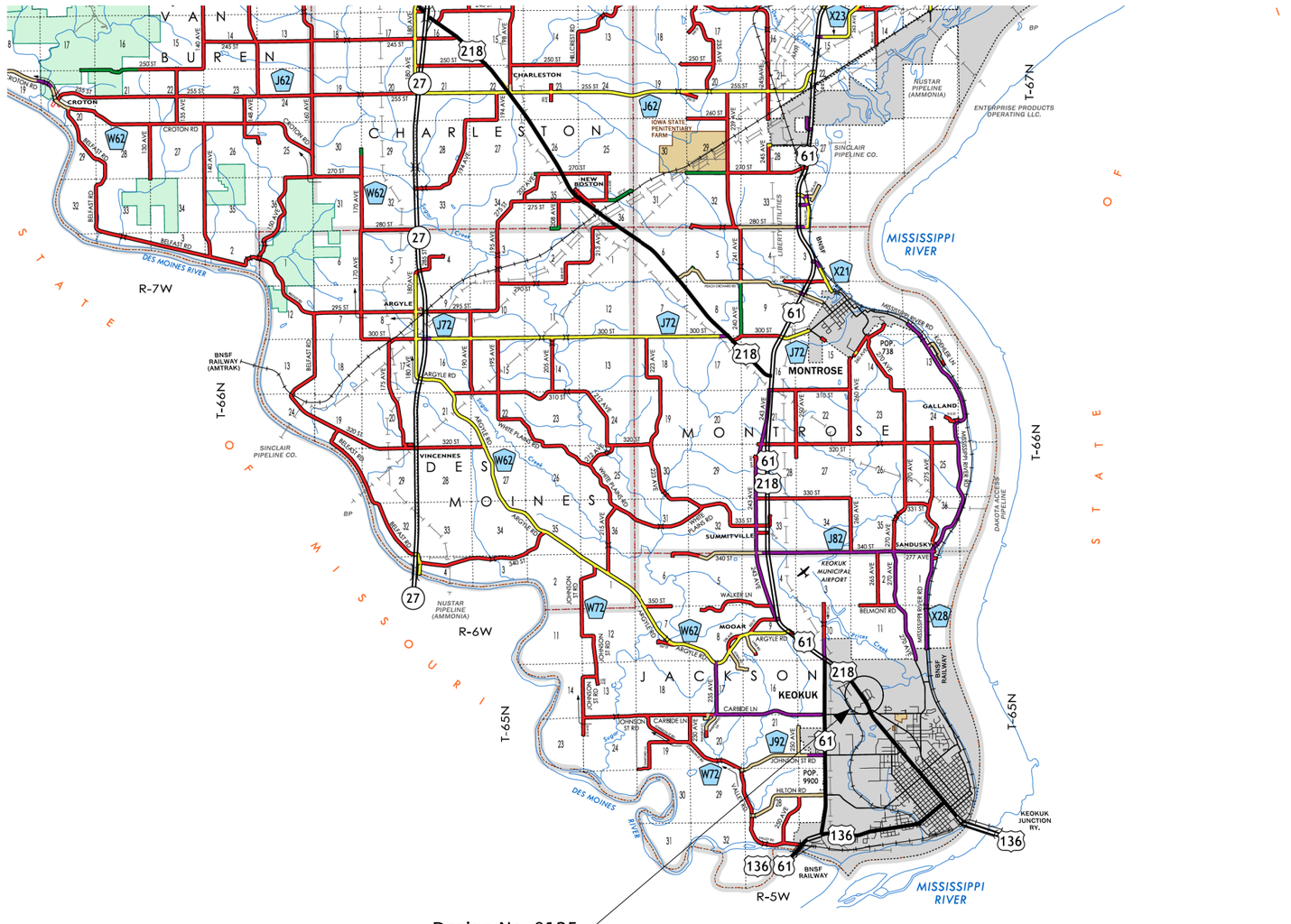
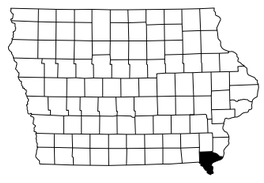


Design No. 0125

Lee County Location Map

Not To Scale



LEGEND

- INTERSTATE HIGHWAY
- PRIMARY HIGHWAY-DIVIDED
- PRIMARY HIGHWAY
- PORTLAND CEMENT CONCRETE ROAD
- ASPHALT ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTHEN ROAD

- INTERSTATE HIGHWAY 80
- UNITED STATES HIGHWAY 65
- STATE HIGHWAY 237
- COUNTY HIGHWAY 527

- RAILROAD
- PIPELINE
- AIRPORT
- HYDROLOGY
- BRIDGE

- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE BOUNDARY
- TOWNSHIP LINE
- SECTION LINE
- ROAD NAMES — ABBEY ROAD
- UNINCORPORATED PLACE — ELWOOD

- STATE PARKS
- STATE INSTITUTIONS
- FEDERAL LAND

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell		LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER A.2

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Estimated Noise Wall Quantities - Design 0125

Item No.	Item Code	Item	Unit	Total	As Built Quantity
1	2402-2720000	Excavation, Class 20	C.Y.	137	
2	2404-7775005	Reinforcing Steel, Epoxy Coated	Lb.	6,826	
3	2414-6425410	Concrete Barrier, Reinforced, Separation	L.F.	1,075	
4	2436-0000100	Precast Noise Wall	S.F.	14,816	
5	2526-8285000	Construction Survey	L.S.	1.00	
6	2533-4980005	Mobilization	L.S.	1.00	
7	2599-9999018	Anti-Graffiti Coating	S.Y.	2,240	

Item No. — Estimated Reference Information

1. Includes excavation to embed precast concrete panels as shown in the plans. Top soil shall be kept separate from other excavated materials. As portions of the precast noise wall are completed, backfilling may proceed using the "other excavated materials" first and then returning the top soil to the surface. Excavation for drilled shafts is not included.

2. Includes all costs associated with furnishing and installing reinforcing steel for concrete separation barrier rail.

3. 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 slipform method).

   This bid item does not include epoxy coated reinforcing steel for concrete barrier rail.

4. Includes all costs associated with furnishing and constructing noise wall as detailed in these plans. For reference information only, this work includes the following component quantities. These quantities shall not be used for measurement or basis of payment.

   1,198 ft of 3'-0" diameter concrete drilled shaft;
   14,816 sf of precast concrete panels (surface area of one panel side) with 214 4'-0" tall precast concrete panels and 35 2'-0" tall precast concrete panels;
   61 standard precast concrete columns;
   4 end precast concrete columns.

   Includes all costs for leveling neoprene pads and shims.

   Includes all reinforcing for precast wall panels, precast columns and drilled shafts. All reinforcing for precast wall panels and precast columns shall be epoxy coated. All reinforcing for drilled shafts shall be uncoated.

   All costs associated with all noise wall aesthetic features including concrete texturing, integral concrete color and form liners will be included in the price bid for "Precast Noise Wall".

   All costs associated with noise wall panel mockups will be included in the price bid for "Precast Noise Wall".

   Precast noise wall is to be bid on a square foot basis. The work of furnishing and installing precast noise walls will be paid for at the contract unit price per square foot based on plan quantities and will not be measured.

   Includes all costs associated with conducting low strain impact integrity testing on approximately 10% of all drilled shafts (7 shafts). An additional 10% of all shafts may be selected for testing at the discretion of the engineer if circumstances either during or after shaft installation should make a shaft's integrity suspect or if initial tests reveal major defects.

7. The Contractor shall follow the Special Provisions for Anti-Graffiti Coating. The work of furnishing and applying anti-graffiti coating will be based on plan quantities and will not be measured.

Traffic Control Plan

The roadway will be open to thru traffic for the duration of the project. Refer to the traffic control plans shown elsewhere in these plans.

Note:
Pollution Prevention Plan is included elsewhere in these plans.

Roadway quantities are shown elsewhere in these plans.

Index of Sheets

Design For
1008'-0" x Variable Height Precast Concrete Noise Walls A & B Estimated Quantities

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 1 of 14 | Asset ID No. MIS000048

General Notes:

This design is for the construction of a new precast noise wall in the City of Keokuk along US-218 from MP 2.37 to MP 2.58.

This noise wall is designed for a wind pressure of 35 lbs./sq. ft.

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

The city and utility companies whose facilities are shown on the plans or known to be within the construction limits shall be notified by the contractor of the construction starting date.

It shall be the Contractor's responsibility to provide sites for excess excavated material. No payment for overhaul will be allowed for material hauled to these sites.

The contractor shall dress up the slopes around the wall which are distrubed during construction. This work shall be considered incidental and no extra payment will be made.

The panel fabricator shall use steel forms, rigidly blocked, in the production of the concrete panels.

Class 20 excavation quantities assumes that roadway foreslope grading fill has been placed prior to noise wall construction.

The fabricator shall furnish handling devices located at the top edge of panel approximately 3'-3" from each side of the panel, subject to the approval of the engineer. All handling devices shall be cut off and grouted after panel installation. The cost of furnishing, placing, and grouting handling devices is considered incidental and no direct payment will be made.

Plastic or fiberglass bar supports meeting the requirements of I.M. 451.01 shall be used in the construction of the columns and panels. Color of the bar supports shall match the color of the cured concrete.

Handling devices installed on the sides of precast columns shall be galvanized.

The trimming of precast concrete panels for fit shall not be allowed.

The concrete columns shall be set plumb unless otherwise shown on the plans, and secured in place in a precise position to accept the panels. The concrete columns shall be placed within the tolerances given in Article 2436.03, B, l of the standard specifications.

These bridge plans label all reinforcing steel with English notation. 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

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Fiber optic utility representatives need to be on site during wall foundation construction and shift the exposed fiber line away from drilled shaft foundations at conflicting locations. Contractor to notify the fiber optic utility at least two weeks in advance of excavation/construction activities for the drilled shaft foundations.

Low Strain Impact Integrity Testing For Drilled Shafts

Low strain impact integrity testing shall be conducted in accordance with ASTM D5882-07. This Nondestructive Testing (NDT) will be performed in the field by an experienced technician with at least one year experience in integrity testing. The interpretation of the record will be by a licensed Engineer with at least three years experience in integrity testing. Submit the resumes of the testing consultant's personnel to the engineer for approval prior to any testing.

At all locations where impact integrity testing is to be performed, a construction joint in the drilled shaft shall be provided approximately 2 inches below the proposed bottom elevation of the precast column. The bottom elevation of the precast column shall provide a minimum embedment in the drilled shaft as specified in these plans.

Low strain impact integrity testing shall not be preformed until the concrete has cured for a minimum of seven (7) days. If concrete has achieved at least 75% of its design strength, testing may be conducted earlier. The shaft head shall be free from water, dirt or other debris. The concrete at the shaft top surface must be relatively smooth and provide sufficient space for attaching the motion sensing device and for the hammer impact area.

10% of all shafts (7 shafts) shall be integrity tested. An additional 10% of all shafts may be selected for testing at the discretion of the Engineer if circumstances either during or after shaft installation should make a shaft's integrity suspect, or if the initial tests reveal major defects.

A preliminary report shall be submitted to the Engineer within 72 hours of the low strain impact integrity testing. Two copies of the final report, sealed by the Professional Engineer superising the testing, shall be submitted to the Engineer within ten days of testing. The report will be prepared in accordance with Section 7.1.5 ASTM D5882-07. The Engineer will evaluate test results and determine whether the drilled shaft construction is acceptable. Precast concrete panels shall not be set until shafts are accepted.

A drilled shaft will be considered defective if the quality of the concrete in the drilled shaft is determined to be unacceptable. Correct defective shafts using approved methods. The Contractor shall submit a plan for corrective work to the Engineer for approval. Corrective action may consist of, but is not limited to, the following:

- Removing the shaft concrete and extending the shaft deeper to compensate for loss of frictional capacity.
- Providing straddle shafts to compensate for capacity loss.
- Providing a replacement shaft.

All work required for low strain impact integrity testing shall be considered incidental to the construction of the noise wall.

Specifications:

Design: AASHTO LRFD 8th Ed, series of 2017, except as noted in the current Iowa Bridge Design Manual.

Construction: Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series 2023, plus applicable general supplemental specifications, developmental specifications, supplemental specifications and special provisions shall apply to construction work on this project.

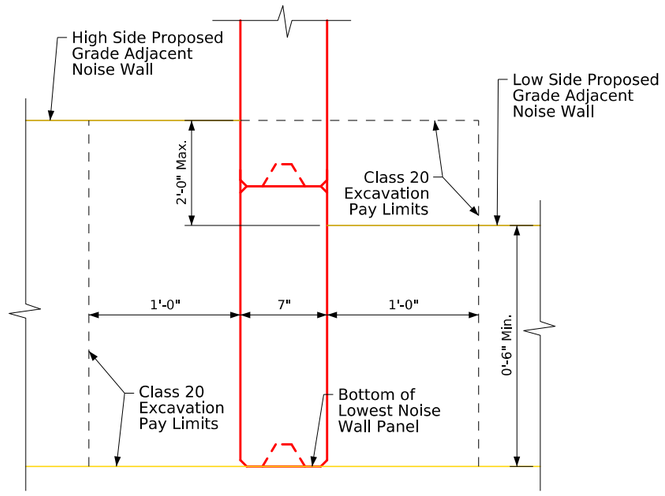
- Special Provisions for Anti-Graffiti Coating

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Ed, series of 2017, except as noted in the current Iowa Bridge Design Manual.

Reinforcing steel in accordance with AASHTO LRFD Section 5, Grade 60.

Concrete in accordance with AASHTO LRFD Section 5, f'c = 4.0 ksi, except Reinforced Concrete Separation Barrier which shall be in accordance with AASHTO LRFD Section 5, f'c = 4.5 ksi.



Class 20 Excavation Pay Limits

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 absense 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	Noise Wall Panel Aesthetic Features	(087)_Lee_Design0125_NoiseWallPanelAestheticFeatures.pdf	No
2	Precast Columns	(087)_Lee_Design0125_PrecastColumns.pdf	No
3	Shims for Panels	(087)_Lee_Design0125_Shims.pdf	No
4	Handling Devices for Columns and Panels	(087)_Lee_Design0125_HandlingDevices.pdf	No

Design For
1008'-0" x Variable Height Precast Concrete Noise Walls A & B
General Notes

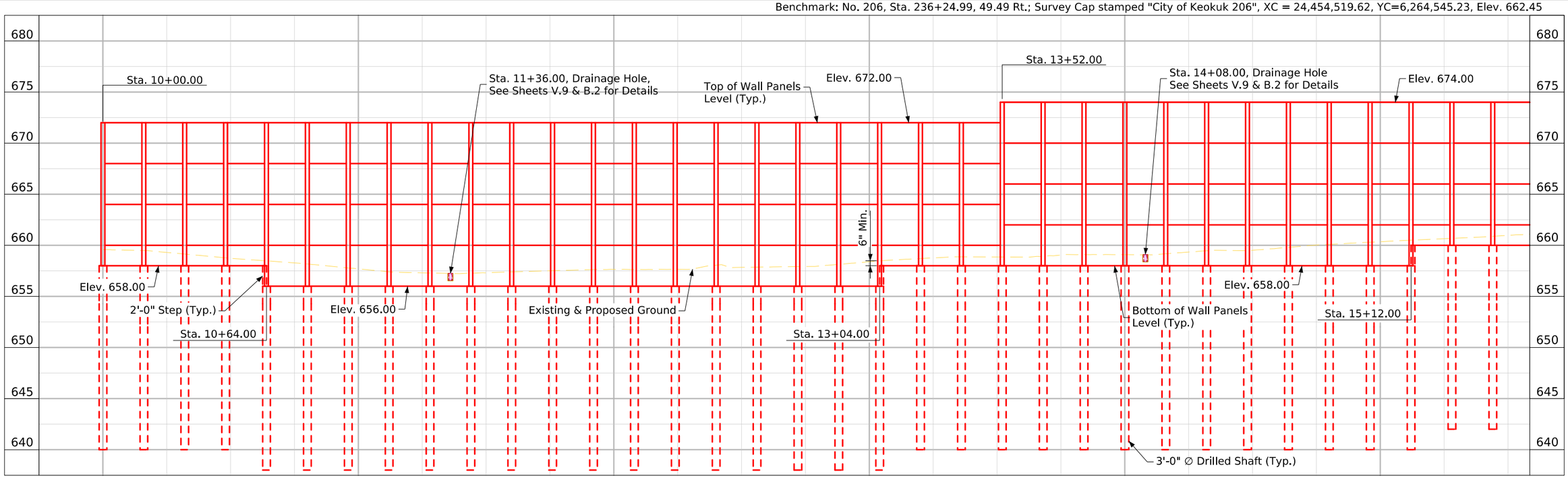
STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

Lee County
IOWA DEPARTMENT OF TRANSPORTATION

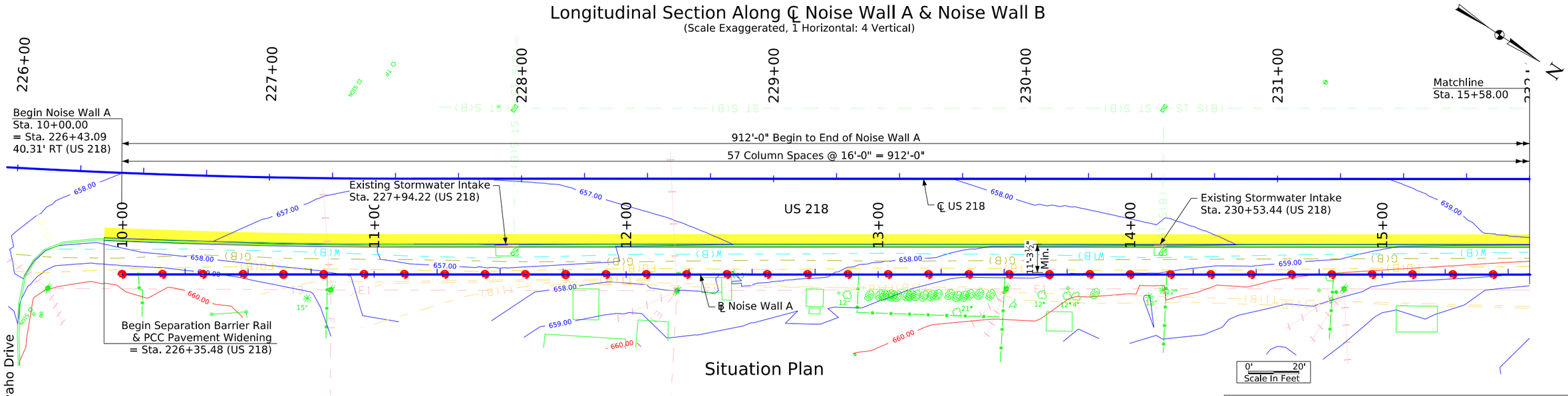
Design No. 0125 | Design Sheet No. 2 of 14 | Asset ID No. MIS000048

Benchmark: No. 206, Sta. 236+24.99, 49.49 Rt.; Survey Cap stamped "City of Keokuk 206", XC = 24,454,519.62, YC=6,264,545.23, Elev. 662.45



Longitudinal Section Along ℄ Noise Wall A & Noise Wall B

(Scale Exaggerated, 1 Horizontal: 4 Vertical)



Situation Plan

Utilities Legend:

- FO(B) — Existing Fiber Optic Line (Danville Mutual Telephone)
- ST S(B) — Existing Storm Sewers (City of Keokuk)
- W(B) — Existing Water Line (Keokuk Municipal Waterworks)
- Existing Power Poles (Alliant Energy)
- E1 — Existing Overhead Utility Line (Alliant Energy)
- T1(B) — Existing Telephone Line, To Be Abandoned (Lumen)
- G(B) — Existing Gas Line (Liberty Utilities)

Horizontal Alignment	
Wall ℄ Station	Roadway Station, Offset
10+00.00 Begin Noise Wall A	226+43.09, 40.31' RT. US 218
19+12.00 End Noise Wall A	235+53.51, 38.00' RT. US 218
10+00.00 Begin Noise Wall B	236+64.00, 38.00' RT. US 218
10+96.00 End Noise Wall B	237+60.00, 38.00' RT. US 218

Location

From MP 2.37 to MP 2.58 in Keokuk
T-65N R-5W
Section 14
Jackson Township
Latitude: 40.42605833"
Longitude: -91.41255556"

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Situation Plan

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 3 of 14 | FHWA No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.3

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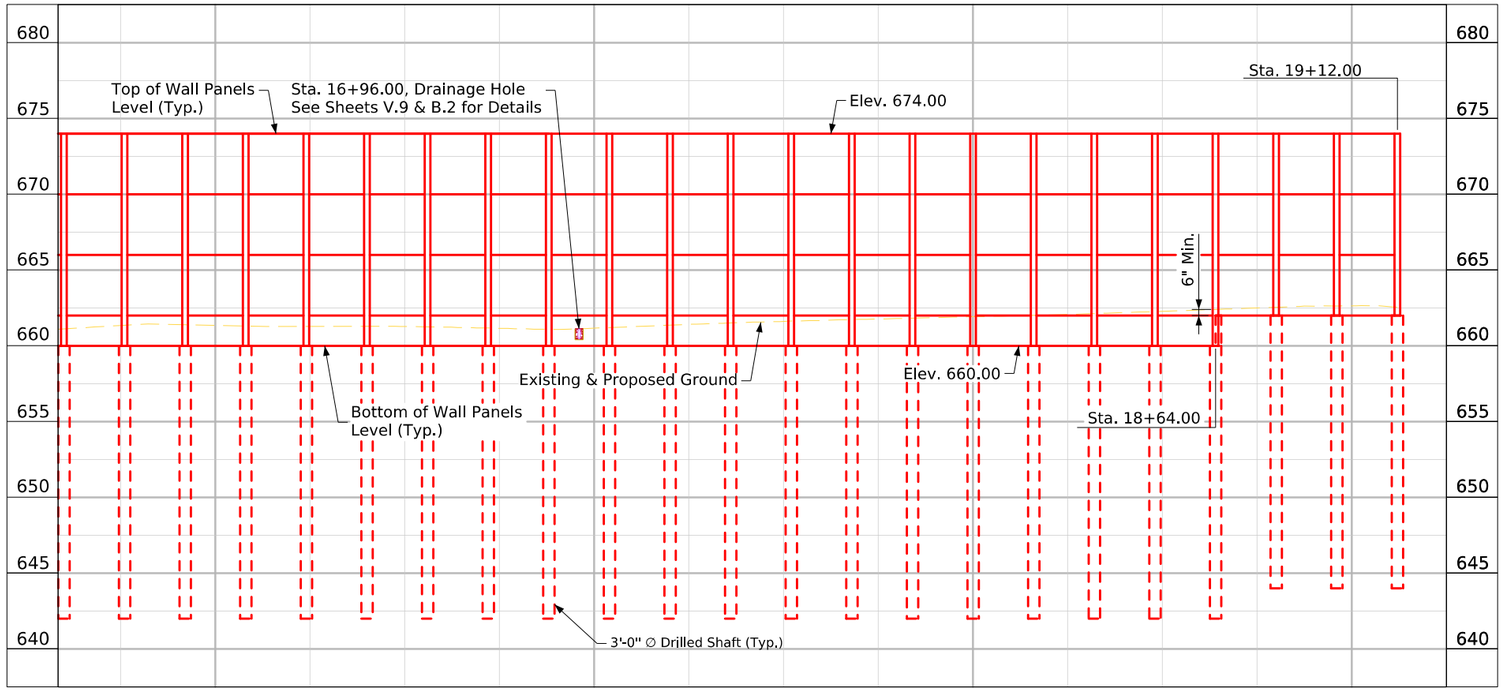
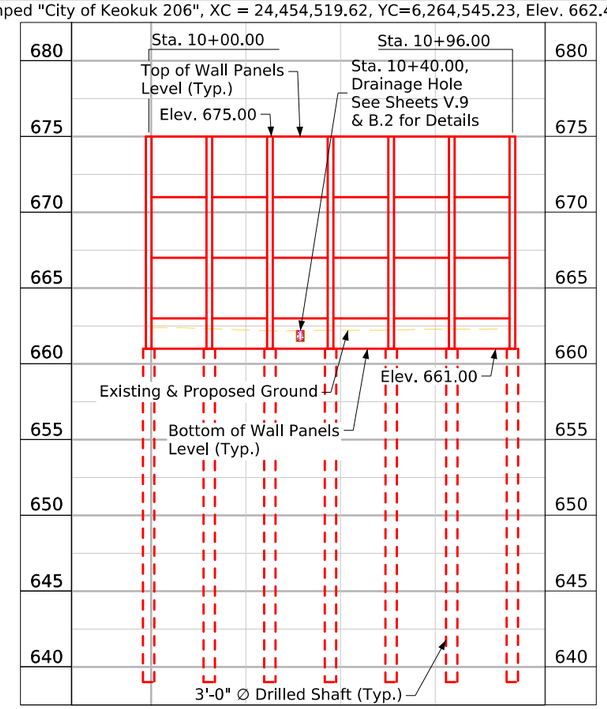
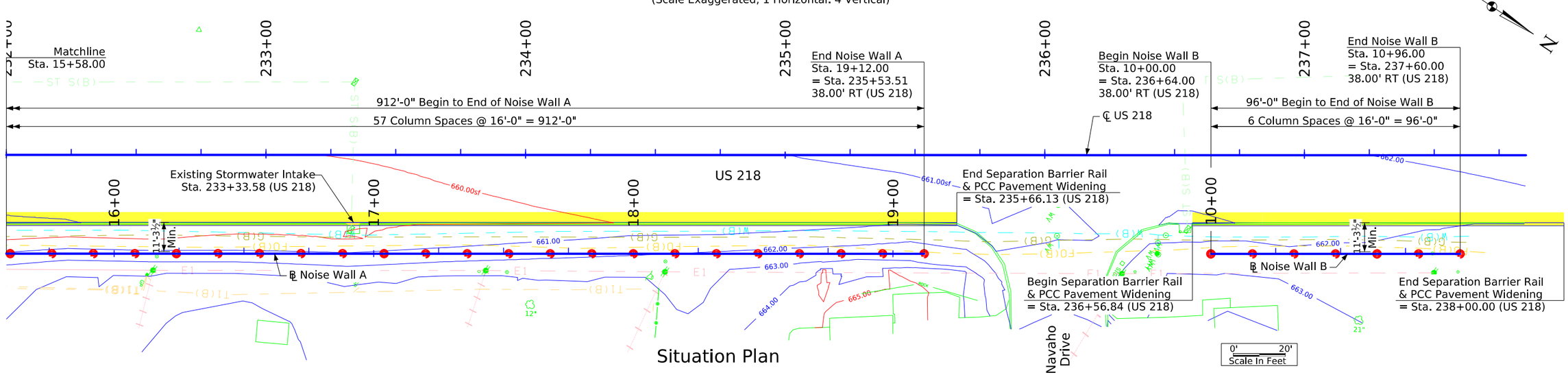
Benchmark: No. 206, Sta. 236+24.99, 49.49 Rt.; Survey Cap stamped "City of Keokuk 206", XC = 24,454,519.62, YC=6,264,545.23, Elev. 662.45





Longitudinal Section Along ℄ Noise Wall A & Noise Wall B

(Scale Exaggerated, 1 Horizontal: 4 Vertical)



Situation Plan

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- Existing Power Poles (Alliant Energy)
- E1 — Existing Overhead Utility Line (Alliant Energy)
- T1(B) — Existing Telephone Line, To Be Abandoned (Lumen)
- G(B) — Existing Gas Line (Liberty Utilities)

Wall ℄ Station	Top of Wall Elev.	Bottom of Wall Elev.
10+00.00 - 10+64.00 Noise Wall A	672.00	658.00
10+64.00 - 13+04.00 Noise Wall A	672.00	656.00
13+04.00 - 13+52.00 Noise Wall A	672.00	658.00
13+52.00 - 15+12.00 Noise Wall A	674.00	658.00
15+12.00 - 18+64.00 Noise Wall A	674.00	660.00
18+64.00 - 19+12.00 Noise Wall A	674.00	662.00
10+00.00 - 10+96.00 Noise Wall B	675.00	661.00

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Situation Plan

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 4 of 14 | FHWA No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.4

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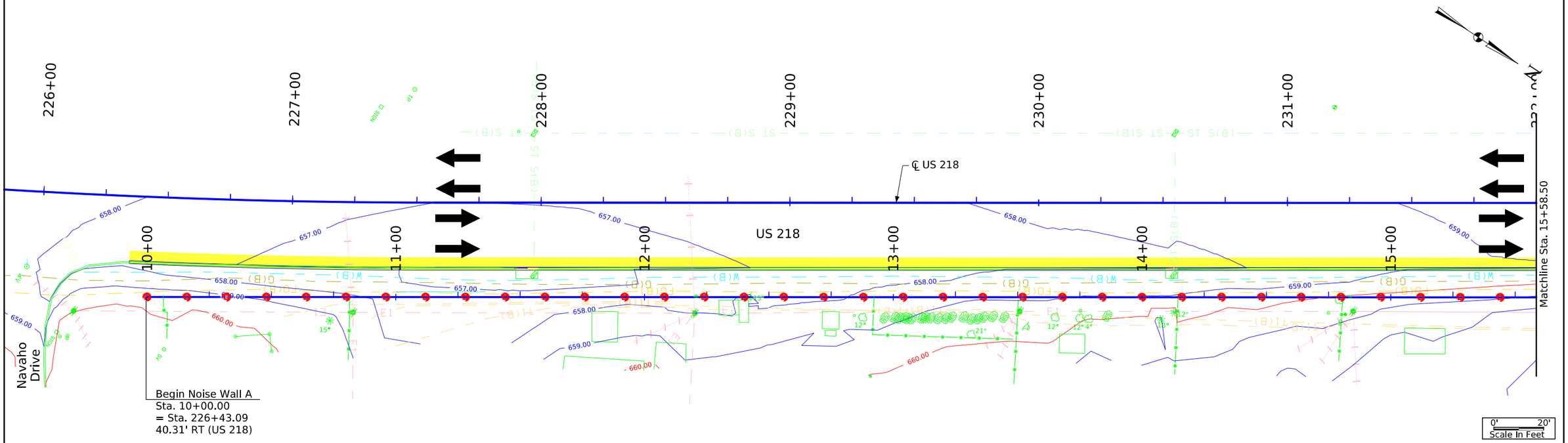

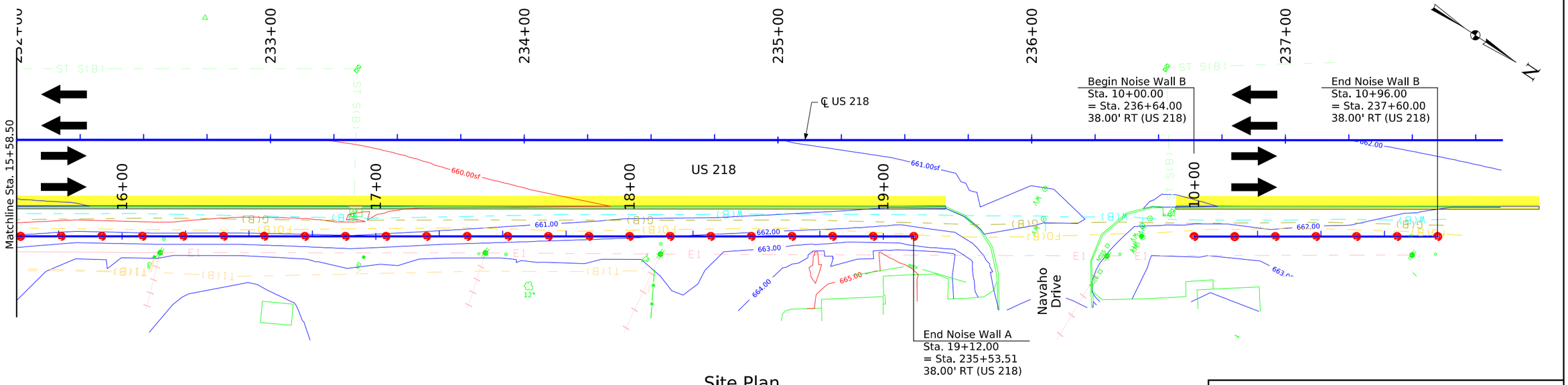

Site Plan

Utilities Legend:

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- Existing Power Poles (Alliant Energy)
- E1 — Existing Overhead Utility Line (Alliant Energy)
- T1(B) — Existing Telephone Line, To Be Abandoned (Lumen)
- G(B) — Existing Gas Line (Liberty Utilities)

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Situation Plan - Site

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 5 of 14 FHWA No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.5

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Textured Concrete Notes:

See individual design sheets for specific notes and details describing the features which incorporate textured concrete. Work performed to create textured concrete shall be in accordance with the Standard Specifications for formwork and the following:

Form the textured concrete surface using a form liner system made of high-strength urethane elastomer, plastic or flexible foam materials capable of withstanding anticipated concrete pour pressures without leakage or causing physical defects. Form liners shall easily attach to forms and be removable without causing concrete surface damage. If recommended by the form liner manufacturer, use structural backers to prevent deformation of the liner during loading of the forms. The liners shall be designed to form surfaces conforming to the design intent including the shape, lines and dimensions shown in the plans and to avoid visible pattern repeats. Match pattern features at form liner joints to minimize pattern repeats and make the formed concrete surface appear uniform and continuous without visible seams and form marks. When joints are unavoidable, make joints along main features of the pattern in accordance with manufacturer's recommendations. Do not mix form liners from different manufacturers when forming any individual texture on the project.

Form liner edges following curves are to be cut cleanly and parallel to the curve. Use adequate blocking, sealing and other means in order to maintain the appropriate depth and character of texture at cut edges of liners and to prevent mortar leakage.

During loading of forms with concrete, take extra care to adequately vibrate concrete in order to maintain all intended features of the form liner in the final surface and to prevent voids. Following removal of forms, finish minor defects to blend with the balance of the surface texture. The completed surface shall be free of blemishes, surface voids and conspicuous form marks to the satisfaction of the Engineer. The Contractor shall correct any surface defects at no additional cost to the project.

Verify that release agents used are compatible with form liner material, and are non-staining. Apply release agent in accordance with the form liner manufacturer's recommendations.

If used, form ties shall be made of non-corrosive materials when the portion permanently embedded in the concrete is less than 1½ inches from the finished surface. Position form ties and accessories in stone pattern mortar joints if applicable and at high points of finished wall.

Strip formwork in accordance with liner manufacturer's recommendations after the concrete has achieved the strengths and cure times required by the plans and applicable specifications. Clean and repair form liner surfaces prior to use. Do not use split, frayed, delaminated or otherwise damaged form liners.

All costs associated with concrete texturing and form liners are to be included in the bid item, "Precast Noise Wall".

Noise Wall Panel Mockup Notes:

The Contractor shall provide a full-size mockup wall panel for review by the Engineer. Actual panel production may not proceed until final approval of the mockup. Additional mockup panels may be ordered by the Engineer until an acceptable result is achieved. Mockup(s) shall be produced at least one month prior to start of actual panel production.

All materials and methods used to create the mockup(s) shall be identical to those used to create the actual wall panels for the project, including concrete texture and rustications. Patching materials shall also be tested on the mockup panel.

The mockup(s) shall remain at the panel casting location for comparison to actual panels as they are manufactured. The mockup(s) shall remain the property of the contracting authority upon the completion and acceptance of related work.

If approved for use by the Engineer, the successful mockup panel may be used as part of the installed wall. If mockup is not approved for use, it shall become the property of the Contractor.

All costs associated with noise wall panel mockups are to be included in the bid item, "Precast Noise Wall".

Noise Panel Texture Notes

Noise wall panels as designated in the plans shall have surface textures on both sides. Full size textured and colored concrete mockup noise wall panels must be reviewed and approved by the Engineer before beginning production panel work that includes texture and color. Work performed to create the surface texture shall be in accordance with the Standard Specifications and the Textured Concrete Notes on this sheet.

The form liner used to produce "Texture A" as shown in the plan details shall produce a textured effect of variable width, realistic, aged and weathered barnwood planks with uneven grain. Boards are to be oriented vertically and are to be aligned from wall panel to wall panel when stacked. Maximum texture relief shall be 0.375 inches, and relief shall average 0.25 inches.

Obtain "Texture A" form liner materials from one of the following manufacturers:

1. Custom Rock International (Pattern No. 12009)
2. Scott System (Pattern No. 116)
3. Architectural Polymers (Pattern No. 501)
4. Submit all other manufacturers and patterns including a 1 foot by 1 foot sample of proposed form liner to the Iowa Department of Transportation, Bridges and Structures Bureau, Ames, Iowa. Sample may be either actual form liner materials or foam castings, but not concrete. No samples are required to be submitted for manufacturers and patterns listed above.

The form liner used to create "Texture B" shall produce a textured effect of a realistic, random dry-stacked stone masonry surface having natural, uncut stones of varying size and shape. Stone sizes may range from 3 inches to 24 inches. Maximum texture relief shall be 1.25 inches and relief shall average 1 inch depth.

Obtain "Texture B" form liner materials from one of the following manufacturers:

1. Custom Rock International (Pattern No. 12003)
2. Scott System (Pattern 189)
3. Architectural Polymers (Pattern 911A)
4. Submit all other manufacturers and patterns including a 1 foot by 1 foot sample of proposed form liner to the Iowa Department of Transportation, Bridges and Structures Bureau, Ames, Iowa. Sample may be either actual form liner materials or foam castings, but not concrete. No samples are required to be submitted for manufacturers and patterns listed above.

Prior to beginning any production concrete work that includes texture, submit manufacturer's cut sheets for form liners.

Panels of unacceptable visual quality may be rejected by the Engineer and shall not be used on the project.

All costs associated with concrete texturing and form liners shall be considered incidental to the bid item, "Precast Noise Wall".

Integral Concrete Color Notes

Noise wall panels and columns as designated in the plans shall have integral concrete color. The Contractor shall take particular care in all aspects of manufacturing the wall panels and columns in order to achieve consistent color and quality in the finished units.

The noise wall panel and column concrete shall be integrally colored using cement pigments in compliance with ASTM C 979. The pigments shall be lightfast, wettable, weather resistant, alkali resistant, and free of deleterious fillers and extenders. The pigments shall be composed of inorganic natural and/or synthetic iron oxides to obtain a medium brown color. The color shall match SAE AMS-STD-595 Color Number 30129 (Medium Brown) as close as possible using gray portland cement. The amount of incorporated cement pigment is not to exceed 7 percent by weight of portland cement in the concrete mix.

Approved cement pigment suppliers include the following:

1. Sika Color/Scofield Systems (1-800-800-9900)
2. Davis Colors (1-800-835-0849)
3. Dynamic Color Solutions (1-800-657-0737)
4. Euclid Chemical (1-800-321-7628)
5. Butterfield Color (1-800-282-3388)
6. Other suppliers submitted to the Iowa Department of Transportation, Construction and Materials Bureau

Concrete mixing, batching and transporting equipment shall be thoroughly rinsed prior to mixing and delivery of colored concrete to the wall panel and column forms.

The Contractor Shall verify with the pigment manufacturer the compatibility of the cement pigment with concrete admixtures, form release compounds, and cleaning and curing methods. The sources and compositions of sand and aggregate shall remain consistent throughout the entire project. Class 3 durability coarse aggregate is required. Fly ash and calcium chloride shall not be used. Slag (GGBFS) may be used if in accordance with pigment manufacturer's recommendations. Water to cement ratio shall be kept consistent with a maximum variation of +/-0.02 percent. The Contractor shall follow the pigment manufacturer's specifications for measuring pigment and for its distribution throughout the mixed concrete prior to placement. Forms shall be watertight.

After removal from the forms, colored concrete panels and columns are to be cleaned using potable water and a stiff wire brush only. Care shall be taken to avoid damage to the textured surface during cleaning operations. Patching of surface voids shall require adjustment of the mortar mix proportions so that patches match adjacent concrete. White cement may be necessary to lighten the patching mix. Curing shall be at a uniform temperature above 40 degrees F (5 degrees C). Panels are to be stored face down during initial cure and covered with wet burlap for the first 24 hours after casting. Continued wet curing methods may be required to reduce the incidence of shrinkage cracks and to enhance cement hydration for achieving required strengths in shorter time periods. Apply no sealers to the completed panels.

Complete records of the casting process including concrete mix design, water content, cement pigment and rate of incorporation, mixing sequence, form release compounds, and the patching, cleaning, and curing methods used on the job shall be submitted to the Engineer after completion of the work.

All costs associated with the integral concrete color shall be considered incidental to the bid item, "Precast Noise Wall".

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Panel & Column Concrete Notes

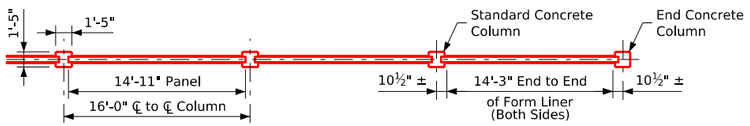
STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

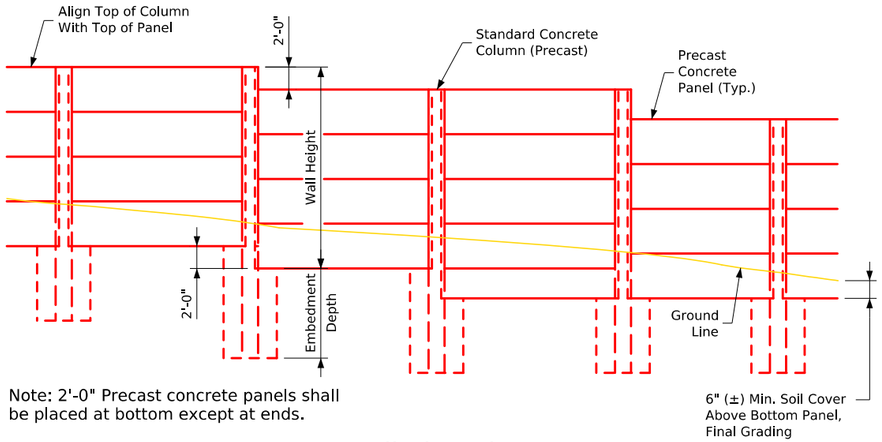
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 6 of 14 | Asset ID No. MIS000048

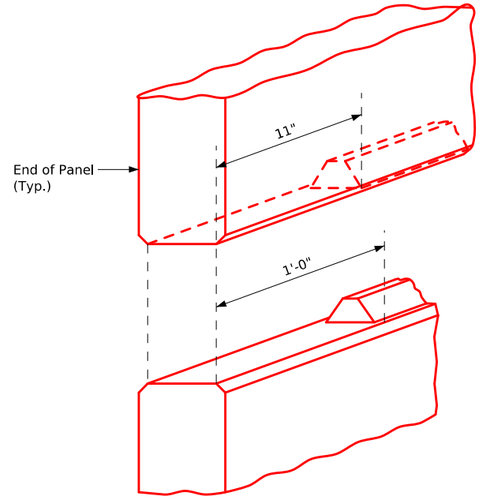


Plan



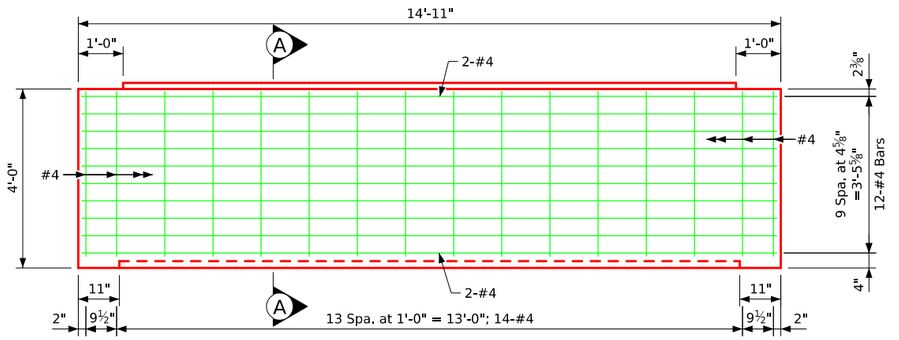
Note: 2'-0" Precast concrete panels shall be placed at bottom except at ends.

Part Wall Elevation

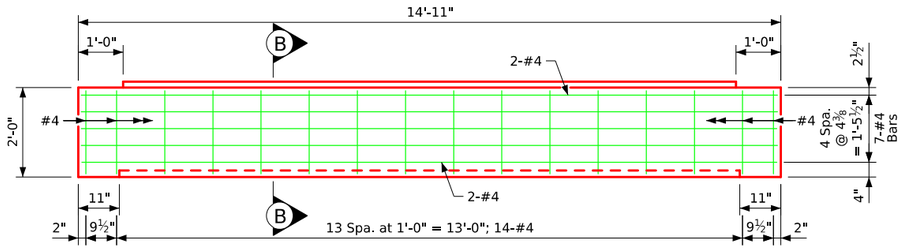


Panel Stacking Detail

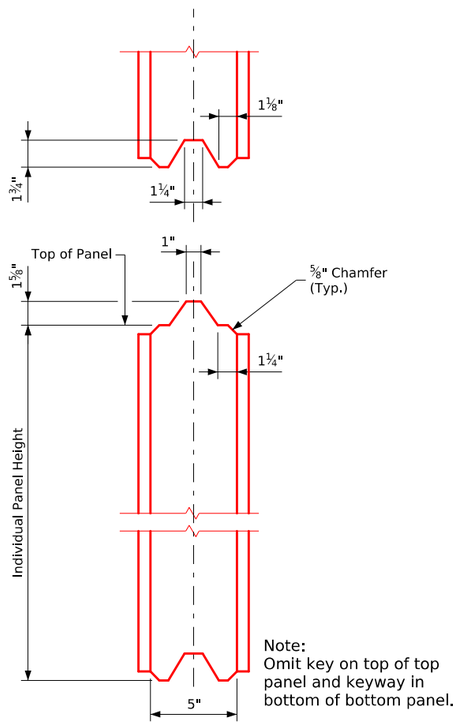
Note:
Discontinue top of panel key 1'-0" from each end. Discontinue bottom of panel keyway 11" from each end.



Reinforcing for 4'-0" Precast Concrete Panel

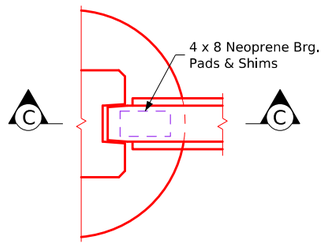


Reinforcing for 2'-0" Precast Concrete Panel

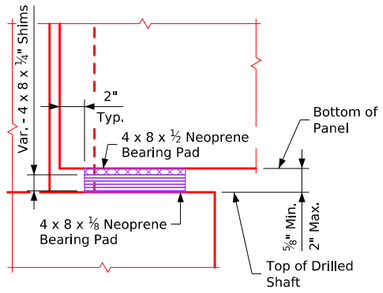


Note:
Omit key on top of top panel and keyway in bottom of bottom panel.

Shear Key Detail



Part Plan View

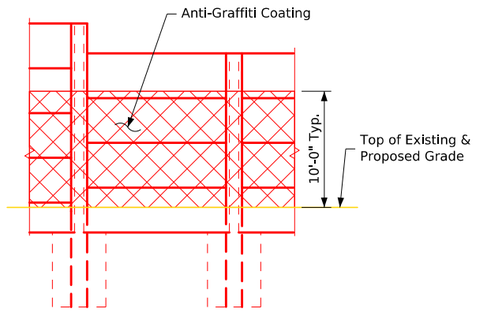


Section C-C

Neoprene Bearing Pad Details

Notes:
Shim material shall provide contact area equal to the neoprene bearing pad. It shall have a compressive strength of at least 5 ksi, be non-compressible and shall not rust or rot. Shim material must be submitted for approval by the Engineer.

70 durometer neoprene shall be used for bearing pads.



Application Limits of Anti-Graffiti Coating

Notes:
Anti-graffiti surface preparation and application shall be in accordance with the "Special Provisions for Anti-Graffiti Coating" and material used shall be an approved type in accordance with Materials I.M. 492.23. Anti-graffiti coating shall be applied to surfaces and to the limits as indicated in these plans.

Apply anti-graffiti coating as shown to both sides of the wall.

Note:

For Sections A-A & B-B, see Design Sheet 8.

All precast panel reinforcing shall be epoxy coated.

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Precast Concrete Panel Details

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

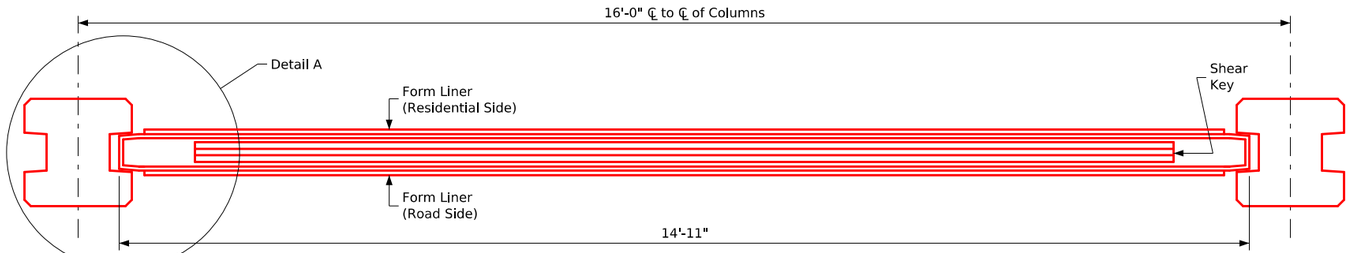
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

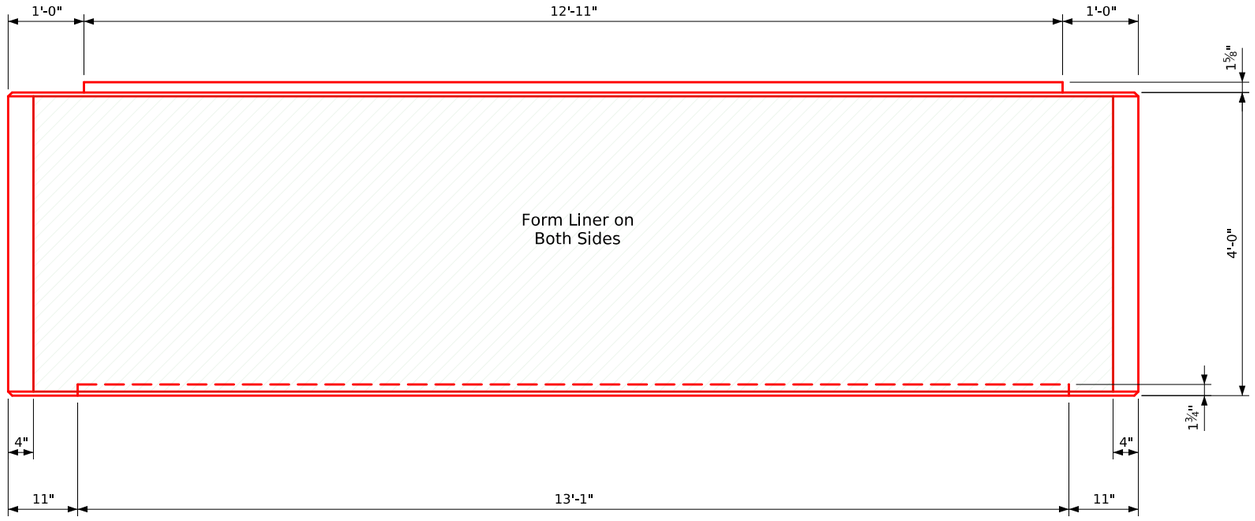
Design No. 0125 | Design Sheet No. 7 of 14 | Asset ID No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.7

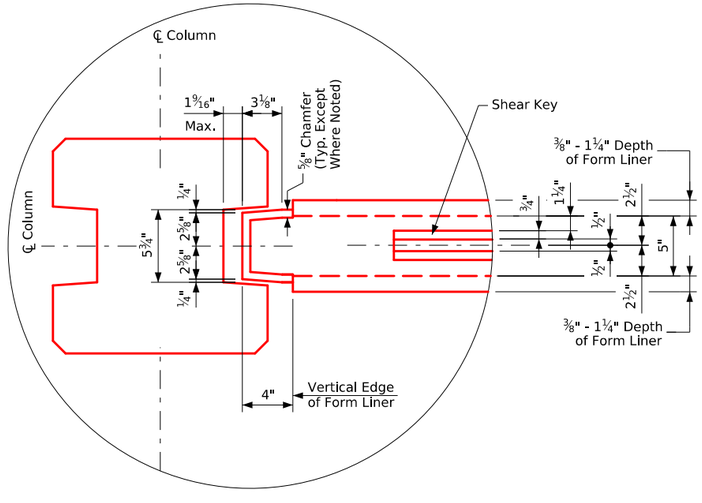
4:39:26 PM 8/28/2024 ajurczyk pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5621802024\Bridge\(087)_Noise Wall\SHT_56218087_0125_BMCD_Z14.dgn



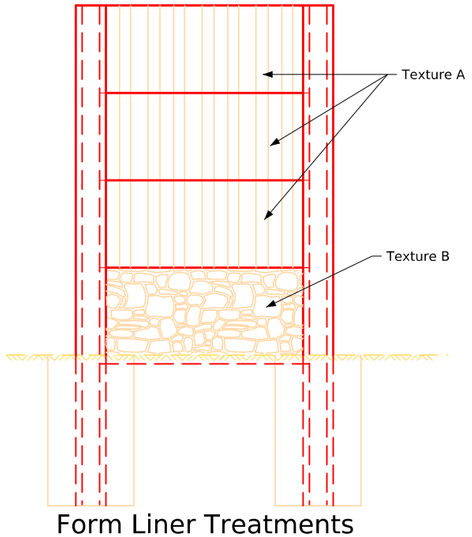
Plan View



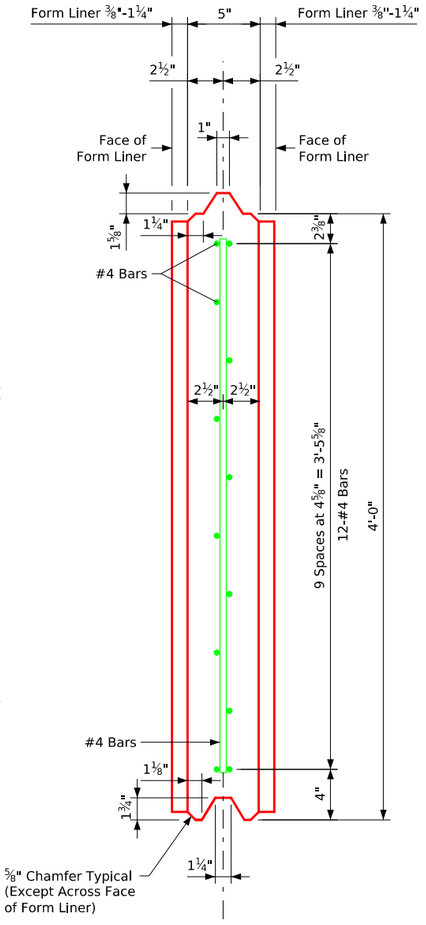
Elevation View



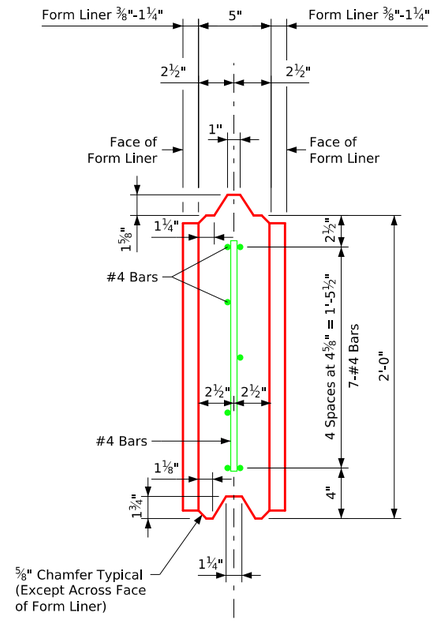
Detail A



Form Liner Treatments
Both Sides



Section A-A



Section B-B

Note:
See Design Sheet 7 for location of Sections A-A & B-B.

All precast panel reinforcing shall be epoxy coated.

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Precast Concrete Panel Details

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: August 2024

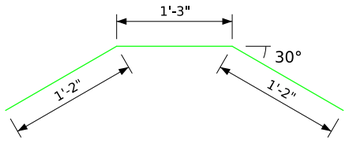
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 | Design Sheet No. 8 of 13 | Asset ID No. MIS00048

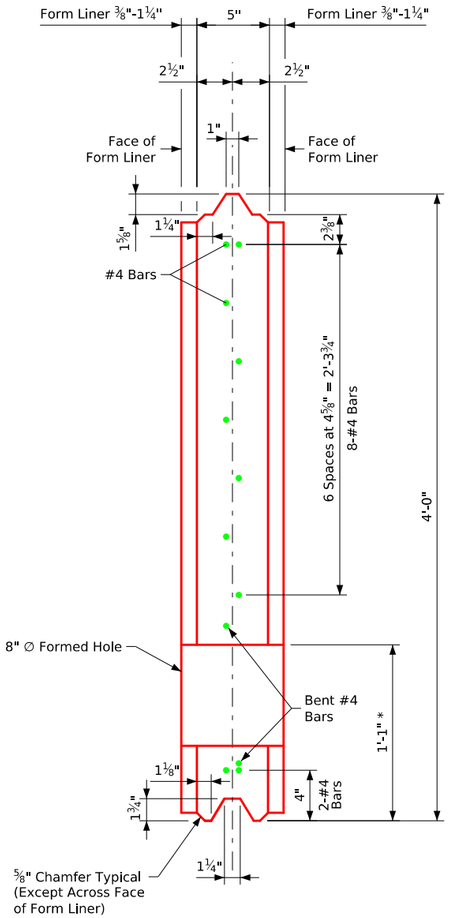
FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.8	

4:39:31 PM 8/28/2024 ajurczyk pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5621802024\Bridge\(087)_Noise Wall\SHT_56218087_0125_BMCD_Z14.dgn

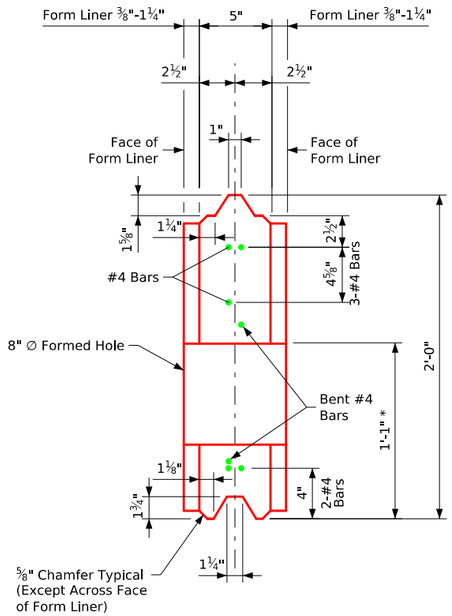


Bent Bar Details

Note: All dimensions are out to out.

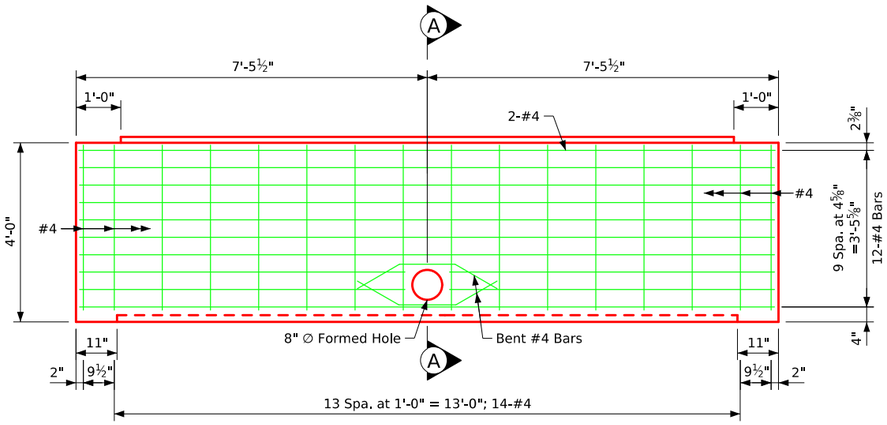


Section A-A

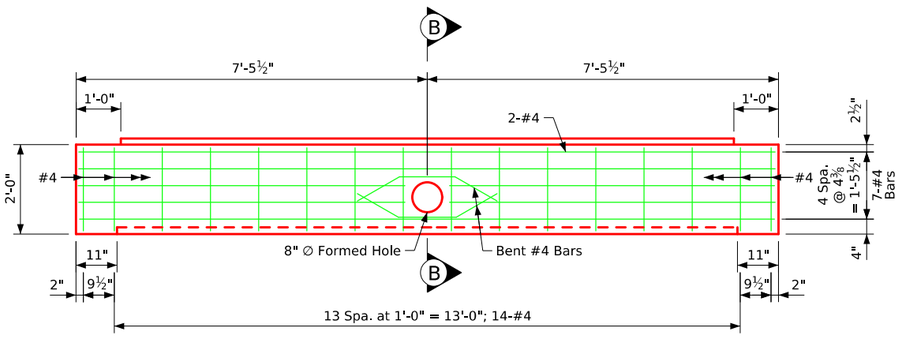


Section B-B

* Contractor to Grade in Field if Needed



Reinforcing for 4'-0" Precast Concrete Panel with Subdrain



Reinforcing for 2'-0" Precast Concrete Panel with Subdrain

4'-0" Panels With Subdrains	
Noise Wall	Station
A	11+36.00
A	14+08.00

2'-0" Panels With Subdrains	
Noise Wall	Station
A	16+96.00
B	10+40.00

All precast panel reinforcing shall be epoxy coated.

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Precast Concrete Panel Details

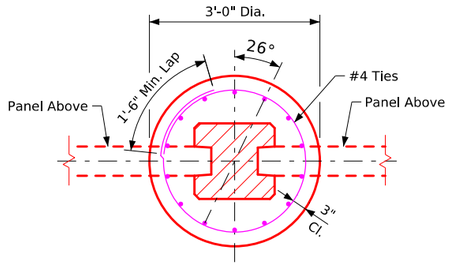
STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

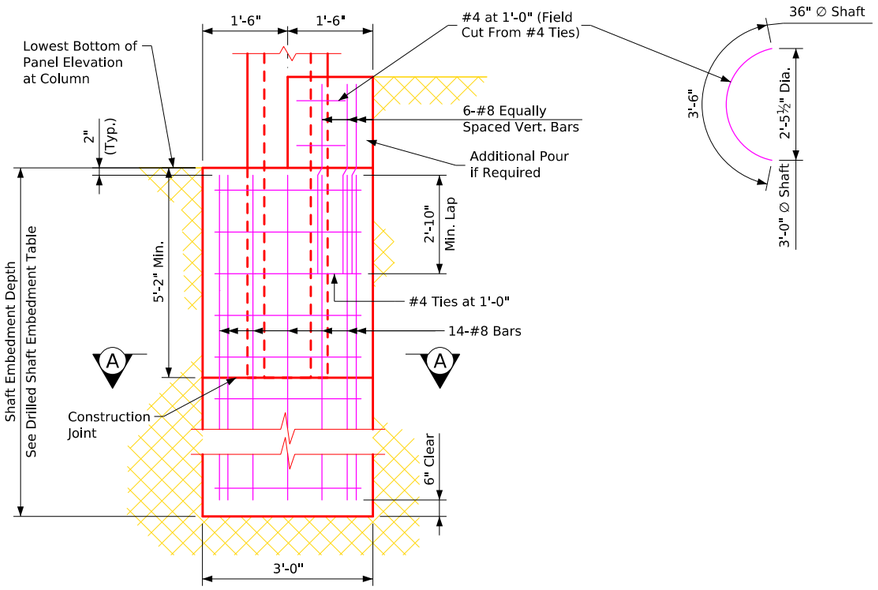
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 9 of 14 FHWA No. MIS000048



Section A-A



Drilled Shaft and Column Elevation

Notes:
All column reinforcing shall be epoxy coated.

All reinforcing bars in drilled shafts shall be uncoated.

The minimum clear distance from face of concrete to near reinforcing bar is to be 2 inches unless otherwise noted or shown.

Shaft embedment depth is measured from bottom of drilled shaft to bottom of lower wall elevation either side of column.

Additional pour height, if required, may be 2'-0" or 4'-0". Refer to noise wall elevation. 2'-0" height shown in the Drilled Shaft and Column Elevation.

Precast column shall align with top of precast panel wall.

Precast column shall be embedded into the drilled shaft a minimum of 5 feet.

Construction joints shall be roughened concrete.

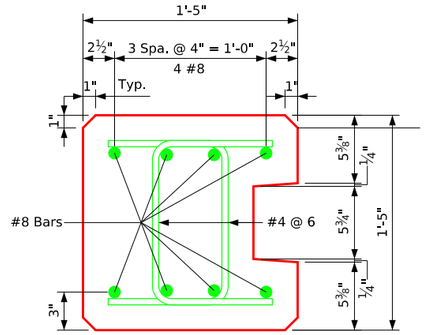
65 Drilled Shafts are required:
58 @ 18'-0" = 1,044 ft.
7 @ 22'-0" = 154 ft.
Total = 1,198 lineal feet of 3'-0" ∅ Drilled Shaft

Wall A Drilled Shaft Embedment Table

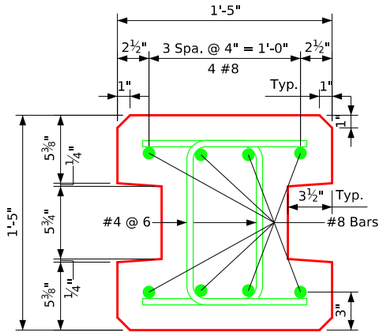
℄ Noise Wall A Stationing	Depth (Ft.)	Approx. Shaft Tip Elevation
10+00.00	18'-0"	640.00
10+16.00	18'-0"	640.00
10+32.00	18'-0"	640.00
10+48.00	18'-0"	640.00
10+64.00	18'-0"	638.00
10+80.00	18'-0"	638.00
10+96.00	18'-0"	638.00
11+12.00	18'-0"	638.00
11+28.00	18'-0"	638.00
11+44.00	18'-0"	638.00
11+60.00	18'-0"	638.00
11+76.00	18'-0"	638.00
11+92.00	18'-0"	638.00
12+08.00	18'-0"	638.00
12+24.00	18'-0"	638.00
12+40.00	18'-0"	638.00
12+56.00	18'-0"	638.00
12+72.00	18'-0"	638.00
12+88.00	18'-0"	638.00
13+04.00	18'-0"	638.00
13+20.00	18'-0"	640.00
13+36.00	18'-0"	640.00
13+52.00	18'-0"	640.00
13+68.00	18'-0"	640.00
13+84.00	18'-0"	640.00
14+00.00	18'-0"	640.00
14+16.00	18'-0"	640.00
14+32.00	18'-0"	640.00
14+48.00	18'-0"	640.00
14+64.00	18'-0"	640.00
14+80.00	18'-0"	640.00
14+96.00	18'-0"	640.00
15+12.00	18'-0"	640.00
15+28.00	18'-0"	642.00
15+44.00	18'-0"	642.00
15+60.00	18'-0"	642.00
15+76.00	18'-0"	642.00
15+92.00	18'-0"	642.00
16+08.00	18'-0"	642.00
16+24.00	18'-0"	642.00
16+40.00	18'-0"	642.00
16+56.00	18'-0"	642.00
16+72.00	18'-0"	642.00
16+88.00	18'-0"	642.00
17+04.00	18'-0"	642.00
17+20.00	18'-0"	642.00
17+36.00	18'-0"	642.00
17+52.00	18'-0"	642.00
17+68.00	18'-0"	642.00
17+84.00	18'-0"	642.00
18+00.00	18'-0"	642.00
18+16.00	18'-0"	642.00
18+32.00	18'-0"	642.00
18+48.00	18'-0"	642.00
18+64.00	18'-0"	642.00
18+80.00	18'-0"	644.00
18+96.00	18'-0"	644.00
19+12.00	18'-0"	644.00

Wall B Drilled Shaft Embedment Table

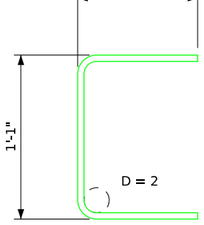
℄ Noise Wall B Stationing	Depth (Ft.)	Approx. Shaft Tip Elevation
10+00.00	22'-0"	639.00
10+16.00	22'-0"	639.00
10+32.00	22'-0"	639.00
10+48.00	22'-0"	639.00
10+64.00	22'-0"	639.00
10+80.00	22'-0"	639.00
10+96.00	22'-0"	639.00



End Concrete Column



Standard Concrete Column



Transv. #4 Bars Column

Wall A Quantities:
58 Precast Concrete Columns are Required:
56 - Standard Concrete Columns
2 - End Concrete Columns

Wall B Quantities:
7 Precast Concrete Columns are Required:
5 - Standard Concrete Columns
2 - End Concrete Columns

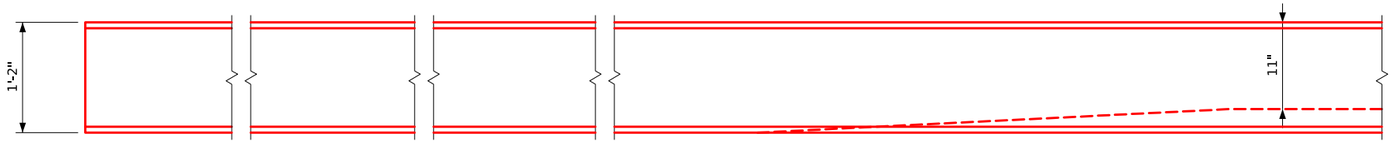
Design For
1008'-0" x Variable Height Precast Concrete Noise Walls A & B Column & Drilled Shaft Details

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

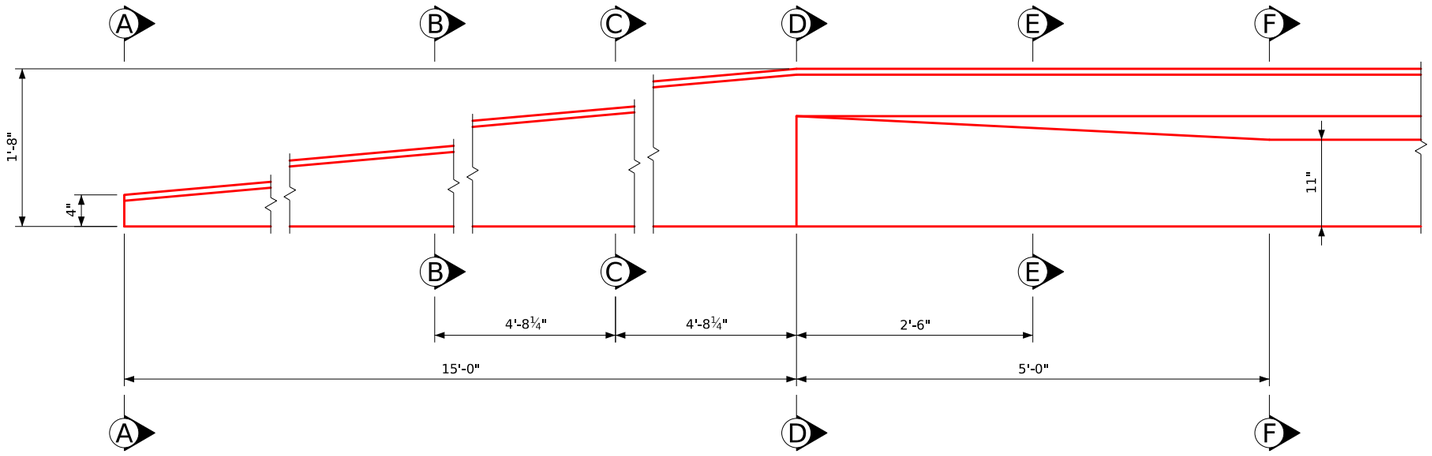
Turn-in Date: November 2024

Lee County
IOWA DEPARTMENT OF TRANSPORTATION

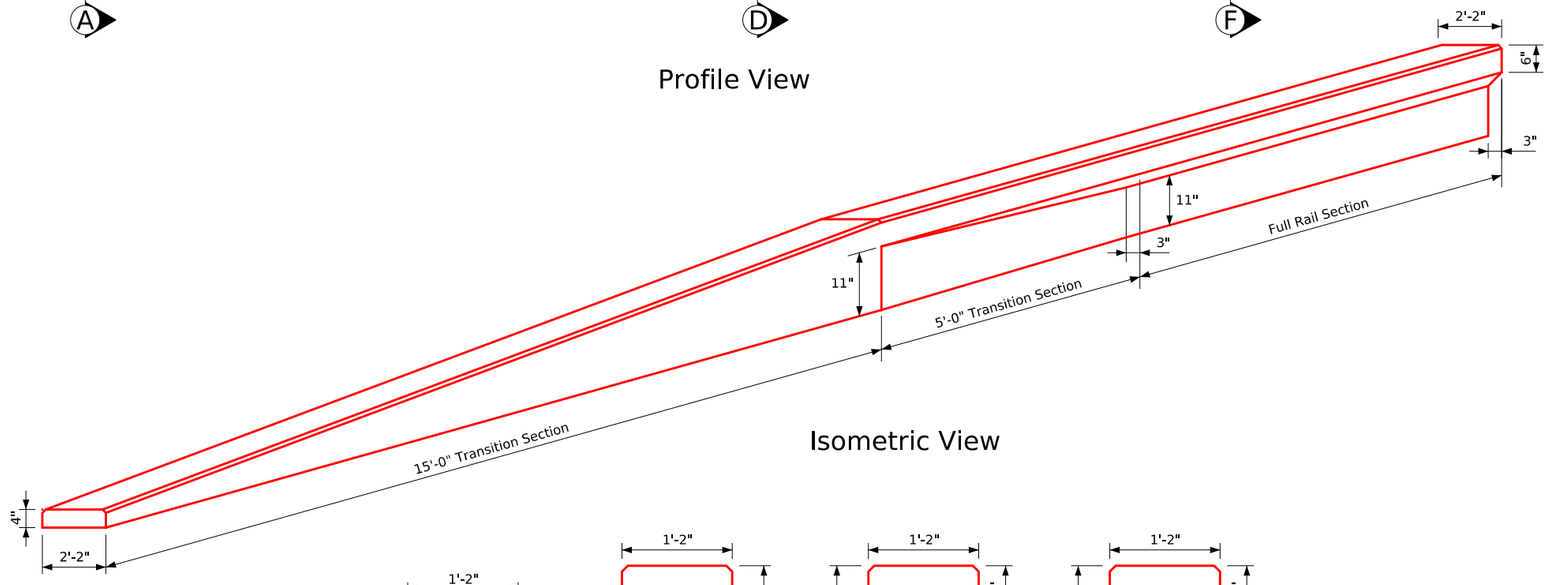
Design No. 0125 Design Sheet No. 10 of 14 Asset ID No. MIS000048



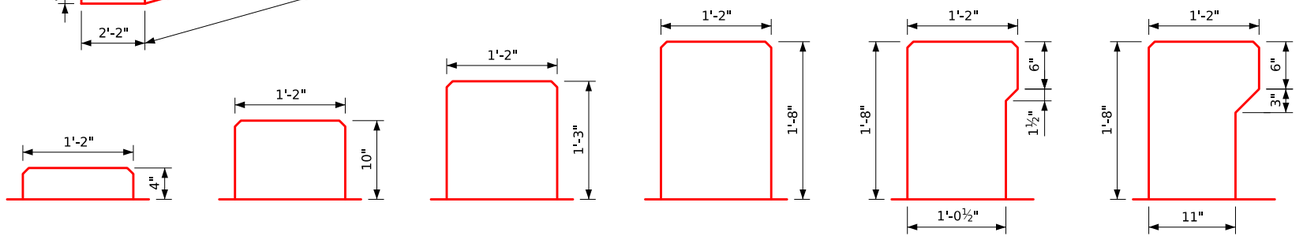
Plan View



Profile View



Isometric View



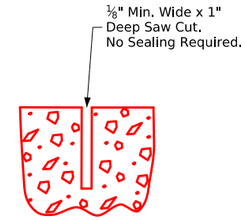
Section A-A | Section B-B | Section C-C | Section D-D | Section E-E | Section F-F

Concrete Barrier, Reinforced, Separation Quantity

Item	Unit	Quantity
Wall A Separation Barrier Rail	L.F.	931.8
Wall B Separation Barrier Rail	L.F.	143.2
Total (L.F.)		1,075.0

Concrete Placement Summary

Section		Total
Wall A Separation Barrier Typical Section	871.8 @ 0.062 cu. yd. per ft.	54.1
Wall B Separation Barrier Typical Section	103.2 @ 0.062 cu. yd. per ft.	6.4
Separation Barrier Sections over Intakes	20 @ 0.045 cu. yd. per ft.	0.9
Separation Barrier Transition Section	4 @ 0.336 cu. yd. each	1.3
Separation Barrier Taper Section	4 @ 0.65 cu. yd. each	2.6
Total (cu. yd.)		65.3



Details of Contraction Joint

Separation Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 1½" unless otherwise noted or shown.

All exposed corners of 90° or sharper are to be filleted with a ¾" dressed and beveled strip.

All separation barrier concrete shall be produced and constructed in accordance with Section 2513.03 of the Standard Specifications.

All separation barrier rail reinforcing steel is to be epoxy coated.

The separation barrier rail is to be bid on a linear foot basis from end to end of rail, including end transition and taper sections. Price bid for concrete barrier railing shall be full compensation for furnishing all material, excluding reinforcing steel, and all of the equipment and labor required to erect the rail in accordance with these plans and current Standard Specifications.

Cross sectional area of separation barrier rail typical section = 1.68 square feet.

See Design Sheet 13 for drain slot details and details at stormwater intakes.

Contraction joints shall be sawn, as indicated. Spacing shall match pavement joints.

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Separation Barrier Rail Details

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

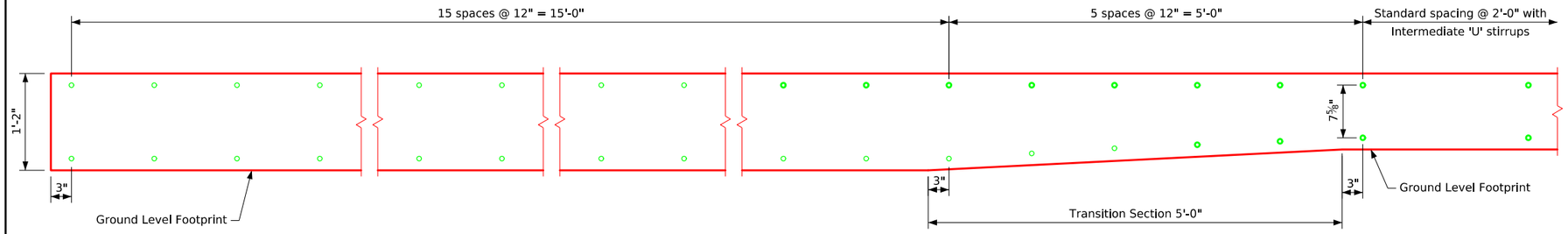
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

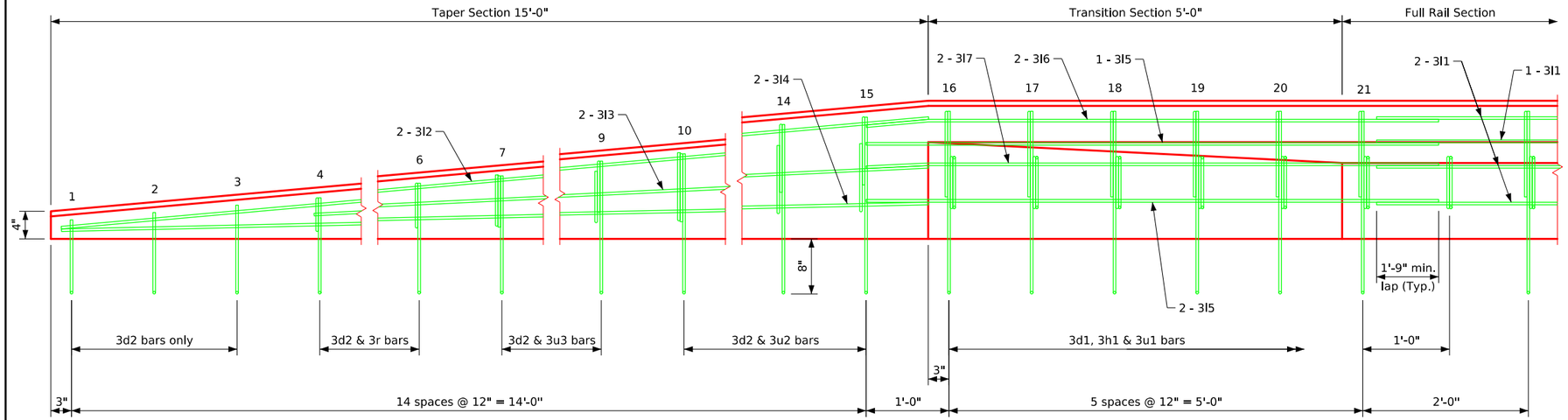
Design No. 0125 | Design Sheet No. 11 of 14 | Asset ID No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.11

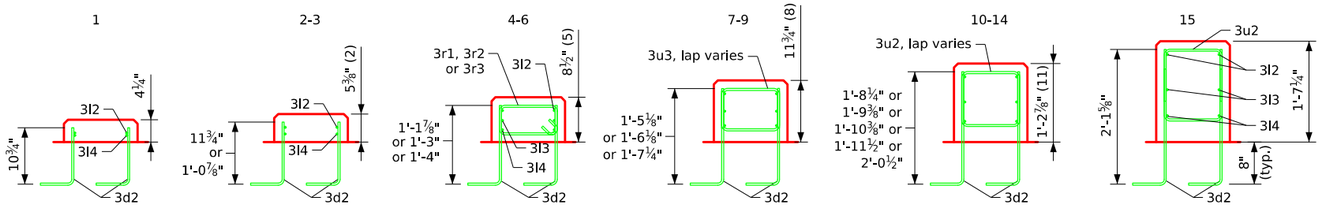
4:39:47 PM 8/28/2024 ajurczyk pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5621802024\Bridge\(087)_Noise Wall\SHT_56218087_0125_BMCD_Z14.dgn



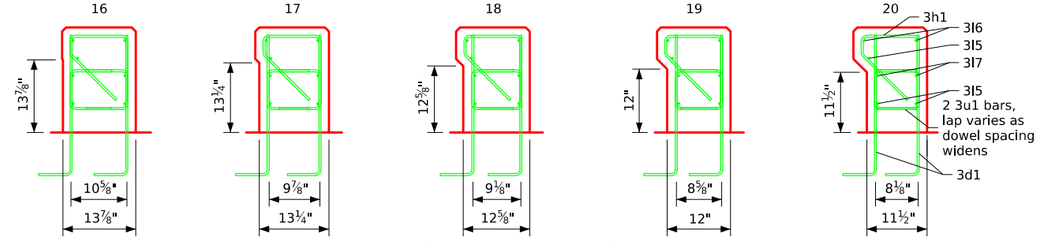
Plan of Separation Barrier Rail



Elevation of Separation Barrier Rail



Tapered End Cross Sections



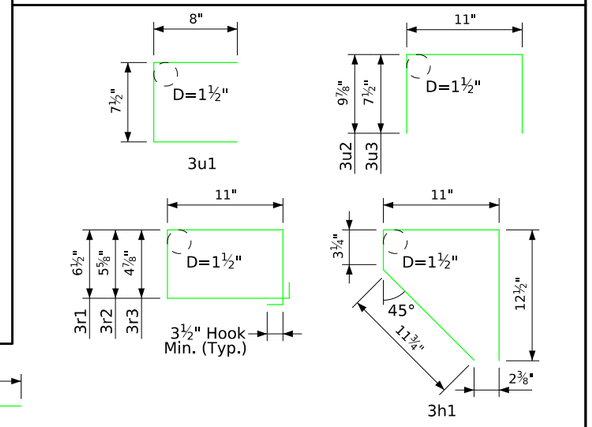
Transition Cross Sections

Full Rail Sections

Epoxy Coated Reinf. Steel - Two Rails

Bar	Location	Shape	No.	Length	Weight
3d1	Rail, Vertical, Transition & Full Section	L	1,028	2'-9"	1,062
3d2	Rail, Vertical, Taper	L	120	Varies	91
3h1	Rail, Vertical		514	3'-3"	628
3h2	Rail, Vertical, @ Storm Intakes		40	4'-3"	64
3l1	Rail, Horizontal		203	36'-6"	2,785
3l2	Rail, Horizontal, Taper		8	14'-11"	45
3l3	Rail, Horizontal, Taper		8	11'-10"	36
3l4	Rail, Horizontal, Taper		8	14'-11"	45
3l5	Rail, Horizontal, Transition		12	8'-6"	38
3l6	Rail, Horizontal, Transition		8	8'-6"	26
3l7	Rail, Horizontal, Transition		8	8'-6"	26
5l8	Rail, Horizontal, @ Storm Intakes		15	16'-4"	256
5l9	Rail, Horizontal, @ Storm Intakes		12	10'-8"	134
3r1	Rail, Hoops		4	3'-6"	5
3r2	Rail, Hoops		4	3'-5"	5
3r3	Rail, Hoops		4	3'-3"	5
3u1	Rail, Hoops		2,006	2'-0"	1,508
3u2	Rail, Hoops		48	2'-7"	47
3u3	Rail, Hoops		24	2'-2"	20
				Epoxy Reinforcing Total Weight (Lbs.)	6,826

Bent Bar Details



Note: All dimensions are out to out. D = Pin Diameter

Note:
See Design Sheet 13 for reinforcing details over stormwater intakes.

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Separation Barrier Rail Details

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

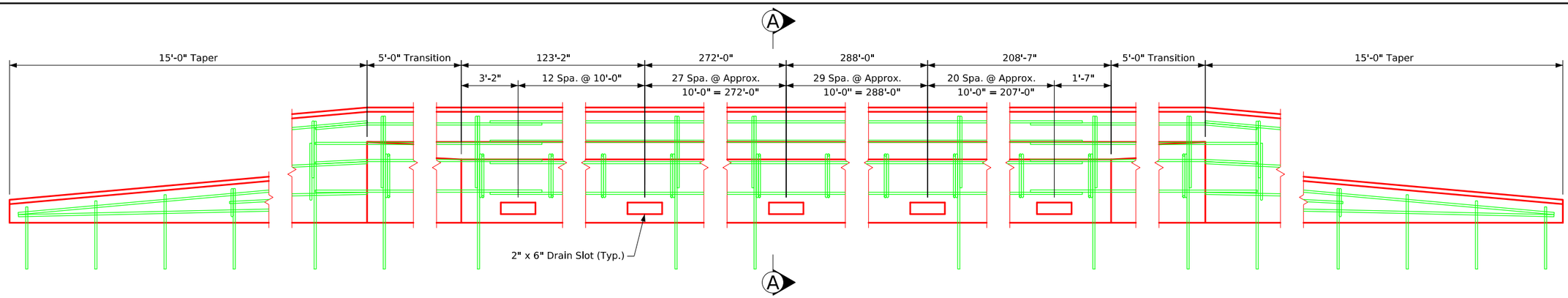
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

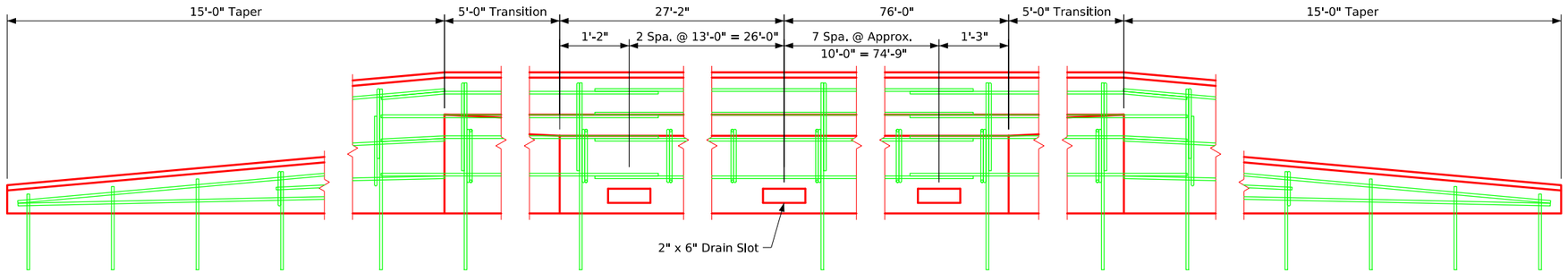
Design No. 0125 | Design Sheet No. 12 of 14 | Asset ID No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.12	

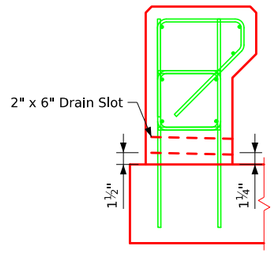
4:39:52 PM 8/28/2024 ajurczyk pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5621802024\Bridge\(087)_Noise Wall\SHT_56218087_0125_BMCD_Z14.dgn



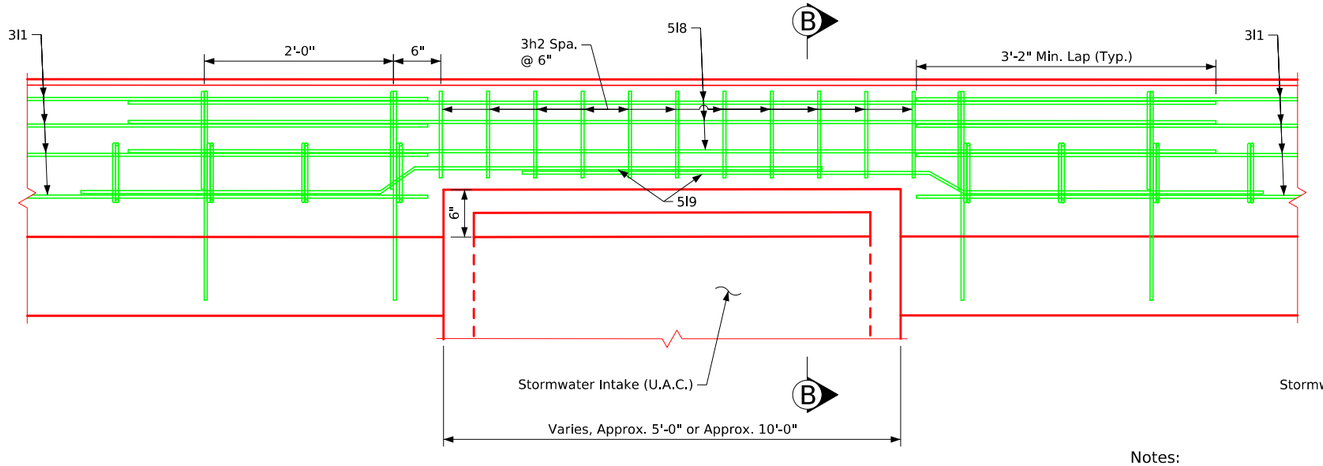
Wall A Separation Barrier Rail Drain Slots



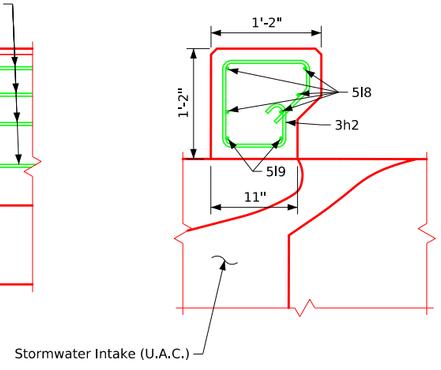
Wall B Separation Barrier Rail Drain Slots



Section A-A



Elevation of Barrier Rail Over Stormwater Intake



Section B-B

Stormwater Intakes	
Noise Wall	US 218 Station
A	227+94.22
A	230+53.44
A	233+33.58

Notes:
Trim 3l1 bars as necessary to lap to 5l8 bars. Repair epoxy coating on cut ends of bars according to the Standard Specifications.

U.A.C. = use as constructed

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Separation Barrier Rail Details

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

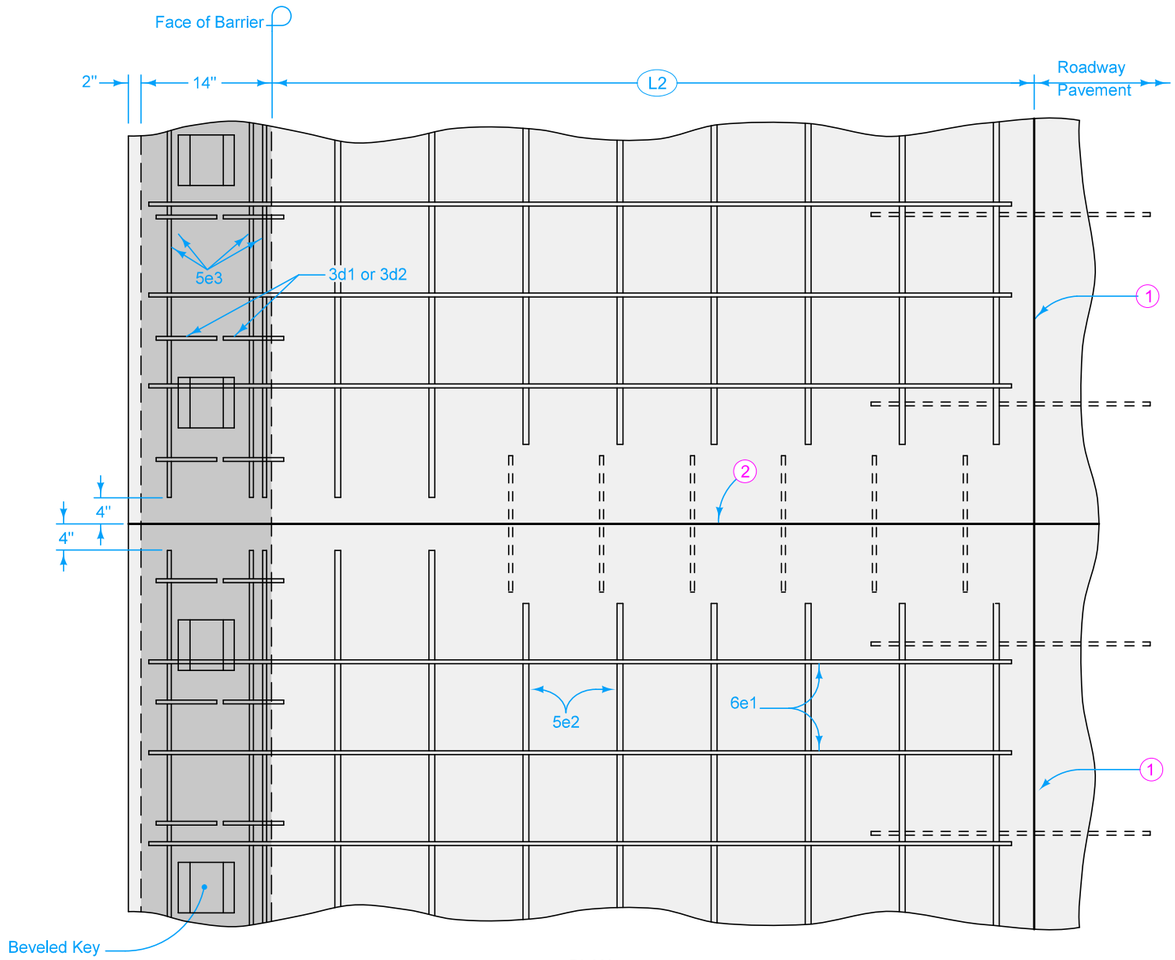
Lee County

IOWA DEPARTMENT OF TRANSPORTATION

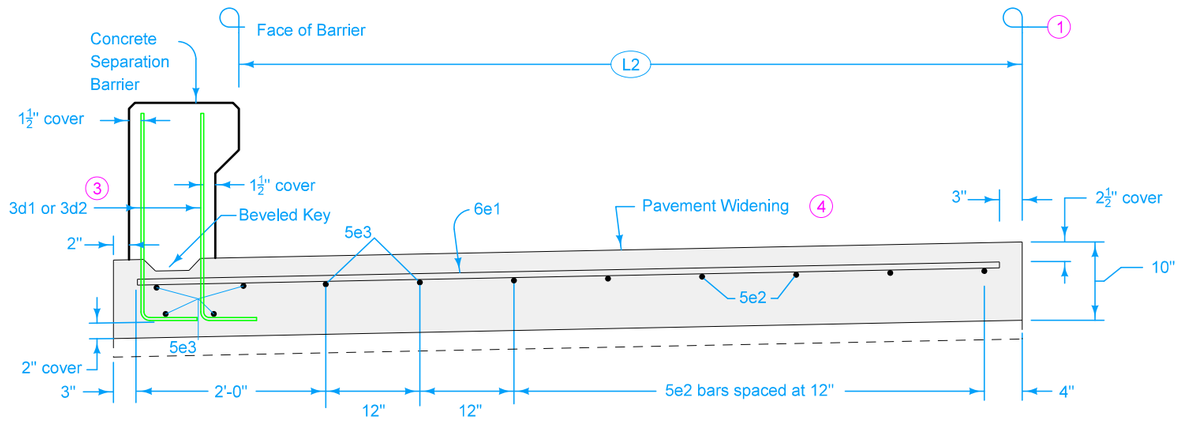
Design No. 0125 | Design Sheet No. 13 of 14 | FHWA No. MIS000048

FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell	Lee COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER V.13	

4:40:19 PM 8/28/2024 ajurczyk pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\5621802024\Bridge\(087)_Noise Wall\SHT_56218087_0125_BMCD_Z14.dgn



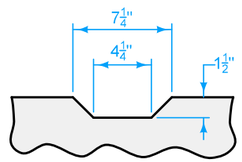
PLAN



TYPICAL SECTION

REINFORCING BAR LIST Per Panel (Approximately 17 Linear Feet)				
L2	Bar	Number of Bars	Length	Spacing
4'	6e1	15	5'-1"	12"
	5e2	4	15'-0"	12"
6'	6e1	15	7'-1"	12"
	5e2	6	15'-0"	12"
8'	6e1	15	9'-1"	12"
	5e2	8	15'-0"	12"
10'	6e1	15	11'-1"	12"
	5e2	10	15'-0"	12"
12'	6e1	15	13'-1"	12"
	5e2	12	15'-0"	12"
Applies to all Widths	5e3	4	16'-4"	See Drawing

1. 'L-2' or 'KT-2' joint. When roadway pavement is existing, use 'BT-3' joint. See PV-101.
2. 'CD' joint. Match roadway joint locations. See PV-101. No 'CD' joint baskets required within 4' of outside edge of shoulder.
3. Included in Separation Barrier Rail Bill of Reinforcing. See details and quantities on Design Sheet 11.
4. Match slope of existing roadway. Quantity for PCC Pavement Widening is included in roadway sheets. See Sheet C.2. All costs associated with furnishing and installing joints and reinforcing bars, except 3d1 & 3d2 bars, shall be subsidiary to the bid item "Portland Cement Concrete Pavement Widening, 10in".



BEVELED KEY

Use 2 x 8 lumber 8" long to make keys.
Place keys at 2'-8" centers.

Design For
1008'-0" x Variable Height Precast Concrete Noise Walls A & B PCC Pavement Widening

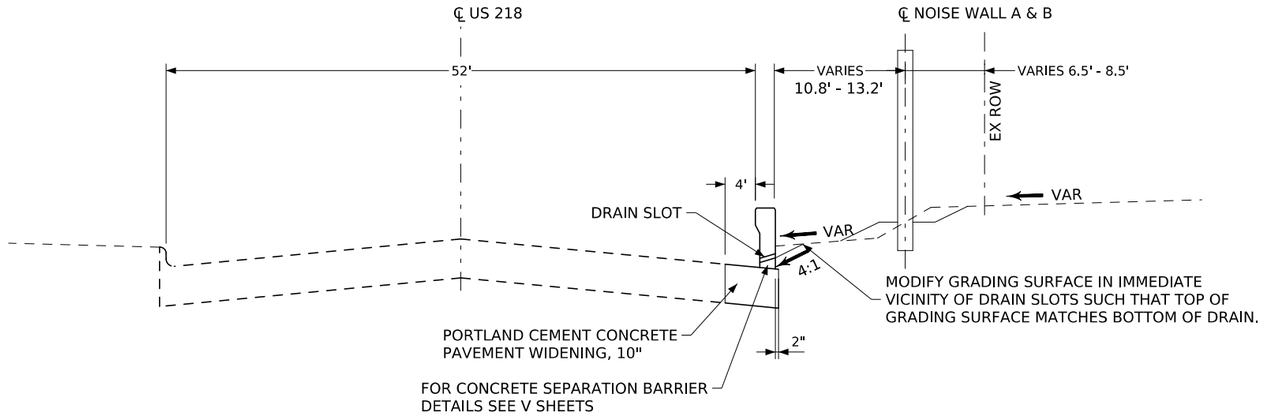
STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Turn-in Date: November 2024

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

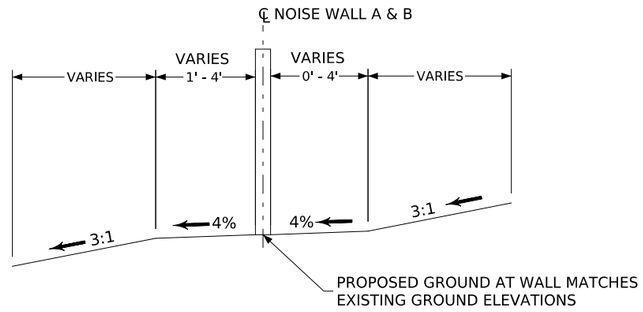
Design No. 0125 Design Sheet No. 14 of 14 FHWA No. MIS000048



PROPOSED TYPICAL CROSS SECTION

PORTLAND CEMENT CONCRETE PAVEMENT WIDENING, 10" LIMITS STATION TO STATION	
STA 226+35.47	STA 235+66.13
STA 236+56.84	STA 238+00.00

SEE SHEET V.14 FOR DETAILS.



NOTE:
REFER TO STRUCTURAL PLANS FOR TOP AND BOTTOM OF WALL ELEVATIONS.

DETAIL OF PROPOSED NOISE WALL GRADING

WALL	STATION	STATION
A	226+43.00	235+53.51
B	236+64.00	237+70.00

LICENSED PROFESSIONAL ENGINEER
James I. Robinson
P28616
IOWA

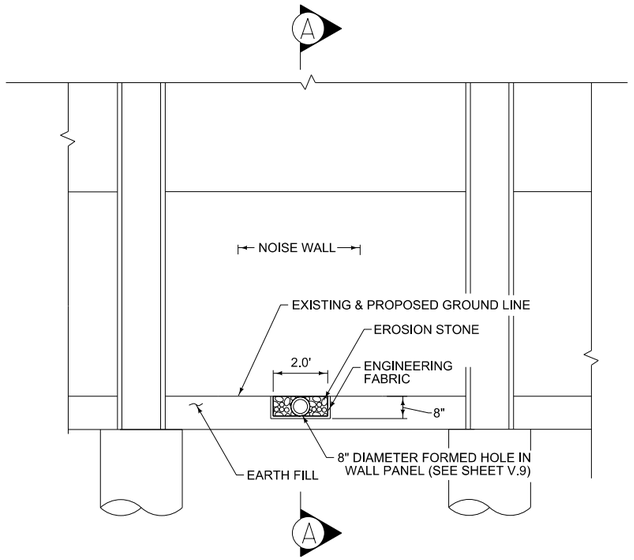
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Preliminary For Review — 08-27-2024
Signature — Date

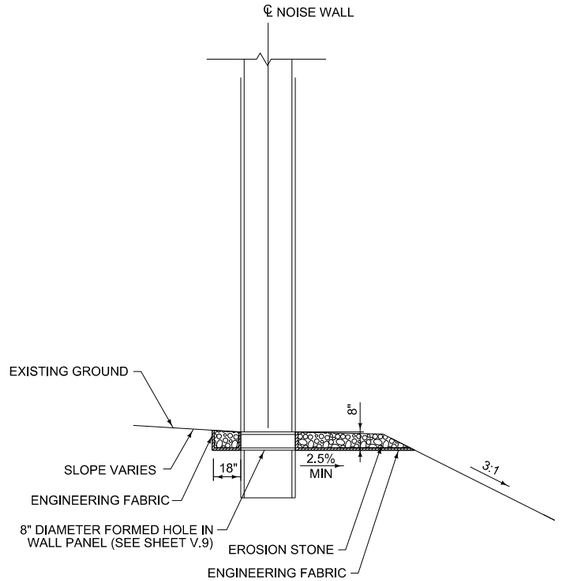
James I. Robinson
Printed or Typed Name

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: B.1-B.2, C.1-C.5, D.1-D.3, G.1, J.1-J.4, R.1-R.2, W.1-W.5



ELEVATION
PASS THROUGH DITCH DETAIL



SECTION A-A

PASS THROUGH DITCH LOCATIONS		
	NOISE WALL STA	US 218 STA
NOISE WALL A	STA 11+36.00	STA 227+77.51
NOISE WALL A	STA 14+08.37	STA 230+49.86
NOISE WALL A	STA 16+95.63	STA 233+37.14
NOISE WALL B	STA 10+39.80	STA 237+03.80

100_01A
9/20/22

ESTIMATED PROJECT QUANTITIES

Line No.	Item No.	Item Code	Item	Unit	Total	As Built Qty.
1.0	1	2102-2710070	EXCAVATION, CLASS 10, RDWY+BORROW	CY	91.000	
2.0	2	2102-2710090	EXCAVATION, CLASS 10, WASTE	CY	29.000	
3.0	3	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY	70.000	
4.0	4	2102-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	182.000	
5.0	5	2302-1200100	PORTLAND CEMENT CONCRETE PAVEMENT WIDENING, 10 IN.	SQ YD	636.300	
6.0	6	2507-3250005	ENGINEERING FABRIC	SY	10.000	
7.0	7	2507-8029000	EROSION STONE	TON	2.400	
8.0	8	2510-6745850	REMOVAL OF PAVEMENT	SQ YD	477.200	
9.0	9	2514-0000200	REMOVAL OF CURB	STA	10.700	
10.0	10	2520-3350015	FIELD OFFICE	EACH	1.000	
11.0	11	2528-2518000	SAFETY CLOSURE	EACH	1.000	
12.0	12	2528-8445110	TRAFFIC CONTROL	LS	1.000	
13.0	13	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN	CDAY	220.000	
14.0	14	2601-2636041	SEEDING AND FERILIZING	ACRE	0.400	
15.0	15	2602-0000500	OPEN-THROAT CURB INTAKE SEDIMENT FILTER, EC-602	LF	24.900	

100_01D
8/15/22

PROJECT DESCRIPTION

This project is for the construction of a new precast noise wall in the city of Keokuk on US-218 from milepost 2.37 to milepost 2.58. Along with the construction of approximately 1000 feet of precast noise wall, approximately 1250 feet of concrete barrier will be installed along US 218.

100_04A
6/2/23

ESTIMATE REFERENCE INFORMATION

Line No.	Item No.	Item Code	Description
1.0		2105-8425005	TOPSOIL, FURNISH AND SPREAD
2.0			The number of cubic yards of topsoil has been computed on the basis of a uniform 4-inch placement over the area
3.0		2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD
4.0			The number of cubic yards of topsoil has been computed on the basis of a uniform 4-inch placement over the area
5.0		2302-1200100	PORTLAND CEMENT CONCRETE PAVEMENT WIDENING, 10 IN.
6.0			The face of the proposed concrete barrier shall match the existing alignment of the curb. The drainage profiles along US 218 shall be maintained and match existing conditions.
7.0		2602-0000500	OPEN-THROAT CURB INTAKE SEDIMENT FILTER, EC-602
8.0			This pay item is designated for use during construction at all drainage inlets listed in Table 100_36.

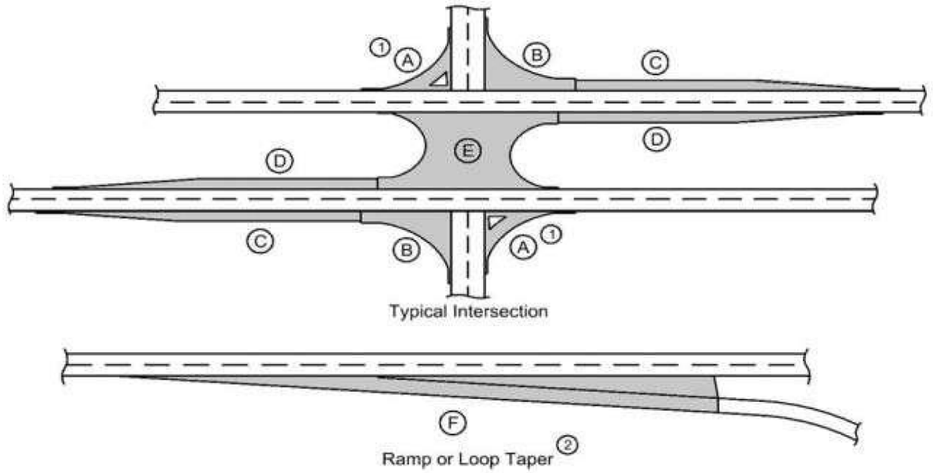
102_05
9/29/23

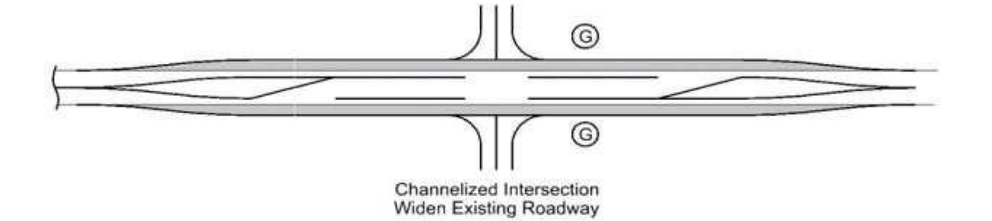
EXISTING PAVEMENT

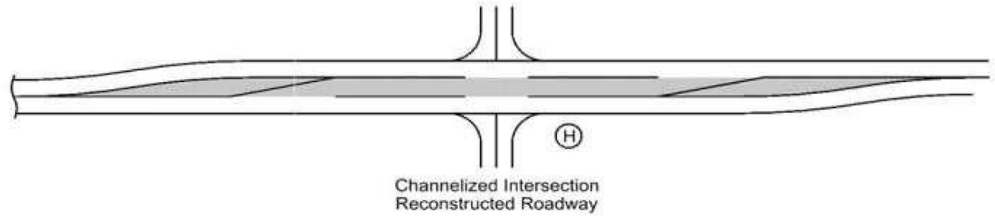
Line No.	County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforcement Type	Remarks
1.0	Lee	US 218	Both			1979	PCC	F-218-1(22)--20-56	PCC	9.5											

100_24
10/15/24

PCC PAVEMENT







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

Line No.	Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E (SY)(3)	Area F(2) (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	Area by Thickness - Thickness(IN)	Area by Thickness - Area (SY)	Polymer Grid (SY)	Special Backfill (TON)	Modified Subbase (CY)	Granular Subbase (SY)	Remarks
1.0	US 218	NB	226+35.47	235+66.13	5.3	930.66	551.50															
2.0	US 218	NB	236+56.84	238+00.00	5.3	143.16	84.80															

100_23
8/15/22

ROCK EROSION CONTROL

Refer to EC-301 and Detail 570-8

Line No.	Road Identification	Station From	Station To	Side	Length (FT)	Width (FT)	Rock Erosion Control Type	Engineering Fabric (SY)	Class E Revetment (TON)	Erosion Stone (TON)	Remarks
1.0	US 218	227+79.00		Right	6.75	2.0	Type 3 - Rock Flume	2.5		0.600	
2.0	US 218	230+51.37		Right	6.75	2.0	Type 3 - Rock Flume	2.5		0.600	
3.0	US 218	233+38.63		Right	6.75	2.0	Type 3 - Rock Flume	2.5		0.600	
4.0	US 218	237+03.80		Right	6.75	2.0	Type 3 - Rock Flume	2.5		0.600	

100_36
8/15/22

OPEN-THROAT CURB INTAKE SEDIMENT FILTER

Possible Standard: EC-602

Line No.	Station	Side	Installation (LF)	Maintenance (Each)	Removal (Each)	Remarks
1.0	227+89.00	Right	9.4	1	1.0	
2.0	230+51.00	Right	5.1	1	1.0	
3.0	233+31.00	Right	5.4	1	1.0	
4.0	236+52.00	Right	5.0	1	1.0	

110_01
4/5/24

REMOVAL OF PAVEMENT

Refer to Tabulation 102-5.

* Not a bid item.

Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0	226+35.47	235+66.13	NB	PCC	413.6	938.7	
2.0	236+56.84	238+00.00	NB	PCC	63.6	151.2	

110_04
8/15/22

CURB REMOVAL

Line No.	Station From	Station To	Side	Length (STA)	Remarks
1.0	226+35.47	235+66.13	Right	9.31	
2.0	236+56.84	238+00.00	Right	1.43	

105_04
10/15/24

STANDARDS

The following Standards apply to construction work on this project.

Number	Date	Title
EC-602	10-15-24	Open-Throat Curb Intake Sediment Filter
TC-419	04-18-23	Lane Closure on Undivided Highway

111_25
6/18/24

INDEX OF TABULATIONS

Line No.	Tabulation	Tabulation Title	Sheet No.
	100_01C	ESTIMATED PROJECT QUANTITIES	C.1
	100_01D	PROJECT DESCRIPTION	C.1
	100_04A	ESTIMATE REFERENCE INFORMATION	C.1
	100_24	PCC PAVEMENT	C.2
	108_23A	TRAFFIC CONTROL PLAN	J.1
	108_23B	TRAFFIC CONTROL CLOSURE TABLE(S)	J.1
	108_26A	STAGING NOTES	J.1
	111_25	INDEX OF TABULATIONS	C.2
	110_12	POLLUTION PREVENTION PLAN	C.4
	102_05	EXISTING PAVEMENT	C.1
	100_23	ROCK EROSION CONTROL	C.2
	100_36	OPEN-THROAT CURB INTAKE SEDIMENT FILTER	C.2
	110_01	REMOVAL OF PAVEMENT	C.2
	102_05	EXISTING PAVEMENT	C.1
	110_04	CURB REMOVAL	C.3
	105_04	STANDARD ROAD PLANS	C.3
	111_25	INDEX OF TABULATIONS	C.3
	231_01	PLANTING	C.3
	262_06	UTILITIES (NOT A POINT 25 PROJECT)	C.3
	232_03B	EROSION CONTROL (URBAN SEEDING)	C.3

231_01
9/28/22

PLANTING

Exercise all necessary caution in construction operations within the rest area to prevent injury to all plantings and landscaping.

232_03B
9/28/22

EROSION CONTROL (URBAN SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the Contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,4 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are incidental to mobilization and will not be paid for separately.

262_06
9/28/22

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

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 peroming 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. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
3. 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.
4. 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.
5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
6. 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.
7. Is familiar with the Project PPP and storm water site map.
8. On projects where DOT is Contracting Authority, is responsible for periodically monitoring inspection reports to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
10. Is signature authority on Notice of Discontinuation.
11. Maintains an up-to-date record of contractors, subcontractors, and subcontracted work items through Subcontractor Request Forms (Form 830231).
12. Makes information to determine permit compliance available to the DNR upon their request.

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POLLUTION PREVENTION PLAN

E. Inspector:
1. Updates PPP through fieldbook entries and storm water site inspection reports if there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
2. Makes information to determine permit compliance available to the DNR upon their request.
3. Conducts joint required inspections of the site with the contractor/subcontractor.
4. Completes an inspection report after each inspection.
5. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of a new precast noise wall in the city of Keokuk on US-218 from mile post 2.37 to milepost 2.58.

B. This PPP covers approximately 0.485 acres with an estimated 0.485 acres being disturbed. The portion of the PPP covered by this contract has 0.485 acres disturbed.

C. The PPP is located in an area of four soil associations Grundy, Haig, Arispe, and Gara. The estimated weighted average runoff coefficient number for this PPP after completion will be 0.45.

D. Storm Water Site Map is located in the R sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the C or CE sheets.

E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries and amended PPP site map.

F. Runoff from this work will flow into City of Keokuk drainage inlets.

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 storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R 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 or R 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 or R sheets. Additional information may be found in the Tabulations in the C or T Tabulation sheets, or is referenced in Section 2105 of the 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 storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be

POLLUTION PREVENTION PLAN

found on the B or R sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C or R 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 storm water site map and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R 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. 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 laws, rules or regulations shall apply.

a. Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.

b. Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.

c. Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.

d. Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.

e. Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean up spills and prevent material discharges to the storm drain system and waters of the state.

f. Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.

g. Concrete Grooving/Grinding Slurry – Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.

h. Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.

i. Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.

j. Dewatering – Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

3. APPROVED STATE OR LOCAL PLANS

During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES

The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the Contractor and the Contracting Authority's inspector at least once every seven calendar days. Storm water site inspections will include:

1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water site inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 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.

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POLLUTION PREVENTION PLAN

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 construction. 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

James I. Robinson

Printed or Typed Name

Signature

Printed or Typed Name

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- WH Water Hydrant (Rural)
- ST Septic Tank
- C Cistern
- LP L.P. Gas Tank (No Footing)
- UST Underground Storage Tank
- Latrine
- Satellite TV Dish
- WHU Water Hook Up
- RT Radio Tower
- TA Tower Anchor
- Guardrail (Beam or Cable)
- GP Guard Post (one or two)
- Guard Post (over two)
- FP Filler Pipe
- GV Gas Valve
- WV Water Valve
- SL Speed Limit Sign
- MM Mile Marker Post
- SIGN Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box
- TP Telephone Pole

UTILITY LEGEND

- FO(B) Existing Fiber Optic Line (Danville Mutual Telephone)
- ST S(B) Existing Storm Sewers (City of Keokuk)
- W(B) Existing Water Line (Keokuk Municipal Waterworks)
- Existing Power Poles (Alliant Energy)
- E1 Existing Overhead Utility Line (Alliant Energy)
- T1(B) Existing Telephone Line, To Be Abandoned (Lumen)
- G(B) Existing Gas Line (Liberty Utilities)

TABULATION OF UTILITIES

Iowa Regional Utility Assoc
Heather H Loshaw
1351 Iowa Speedway Drive
Newton, IA 50208
641-792-7011
hhloshaw@irua.net

MidAmerican-Electric
P.O. Box 657
Des Moines, IA 50306-0657
Matt Novy
515 252-6730

Danville Mutual Telephone
102 S Main Street
Danville, IA 52623
Mike Baker
mbaker@danvilletelco.net
319-392-4440

City of Keokuk, Sewer Department
249 Carbide Lane
Keokuk, IA 52632
Michael Clark
319-524-1171

Liberty Utilities
2547 Hilton Road
Keokuk, IA 52632
Dan Ashworth
daniel.ashworth@libertyutilities.com
319-795-3653

Alliant Energy
James Coan
319-526-5519
Senior Field Designer
jamescoan@alliantenergy.com

Lumen
Beth Houston
OSP Engineer II
3908 Utica Ridge Rd.
Bettendorf, IA, 52722
563-355-1934
elizabeth.houston@lumen.com

Lumen
Antonio Glessner
NI Program Manager
Engineering & Construction
3908 Utica Ridge Rd.
Bettendorf, IA, 52722
563-343-9498
antonio.glessner@centurylink.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.**		**Transparency**
Pink, Dark	(13)	Temporary Pavement Shading	50%
Yellow	(4)	Proposed Pavement Shading	50%
Orange	(6)	Proposed Granular Shading	50%
Orange	(70)	Proposed Shoulder Granular Shading	50%
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading	50%
Brown, Light	(236)	Grading Shading	50%
Orange, Light	(134)	Proposed Granular Entrance Shading	50%
Yellow	(220)	Proposed Paved Entrance Shading	50%
Tan	(8)	Proposed Sidewalk Shading	50%
Blue, Light	(230)	Proposed Sidewalk Landing Shading	50%
Pink	(11)	Proposed Sidewalk Ramp Shading	50%
Red	(3)	Proposed Structure Shading	50%
Red	(3)	Delineates Restricted Areas	0%

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.	
Green	(10)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

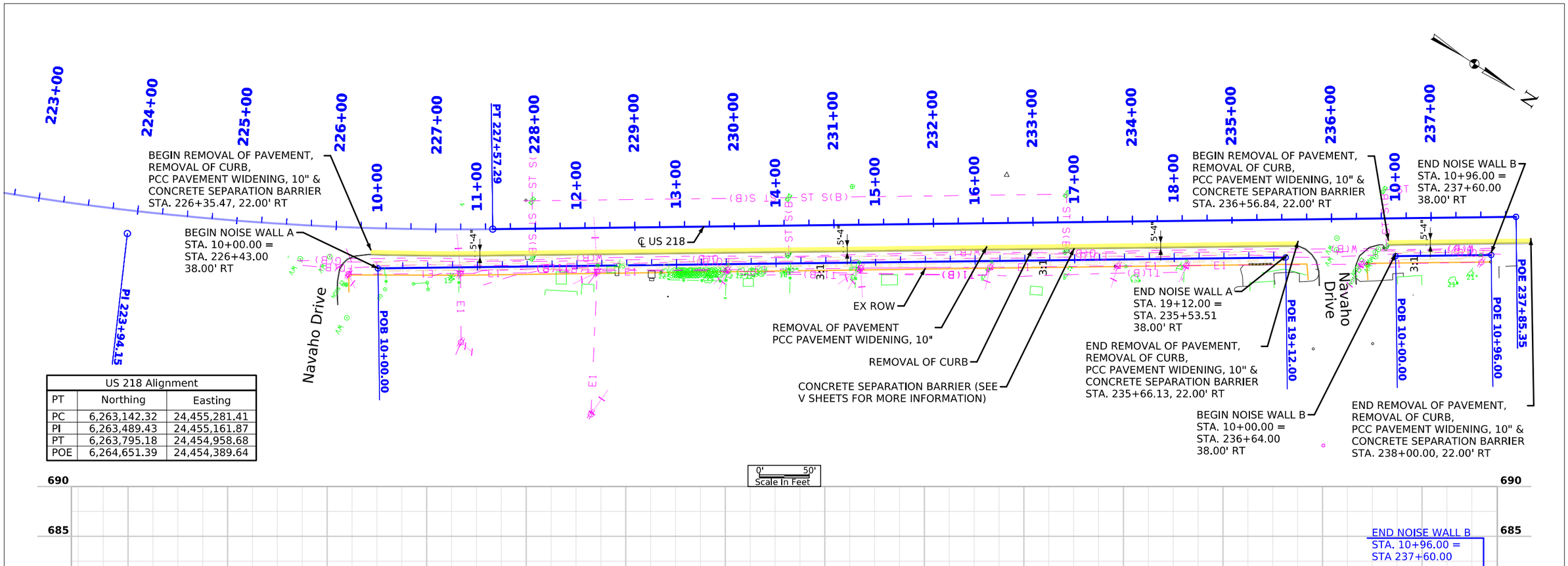
- Reference Point / Station — Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

RIGHT-OF-WAY LEGEND

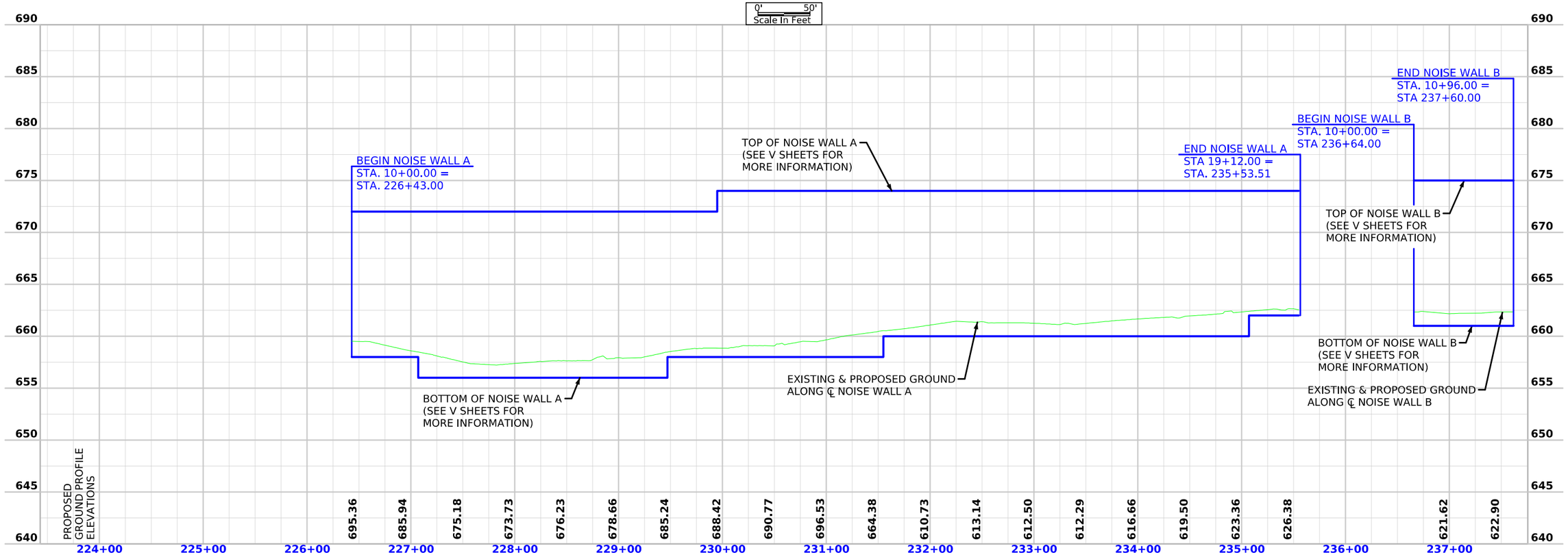
- Proposed Right-of-Way Symbol
- Proposed Right-of-Way Line
- Existing Right of Way
- Existing and Proposed Right-of-Way
- Easement and Existing Right-of-Way
- Easement (Temporary) Symbol
- Easement (Temporary) Line
- Easement
- C/A Access Control
- Property Line Symbol
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



US 218 Alignment		
PT	Northing	Easting
PC	6,263,142.32	24,455,281.41
PI	6,263,489.43	24,455,161.87
PT	6,263,795.18	24,454,958.68
POE	6,264,651.39	24,454,389.64



FILE NO. 32594	ENGLISH	DESIGN TEAM BURNS & MCDONNELL	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER D.2

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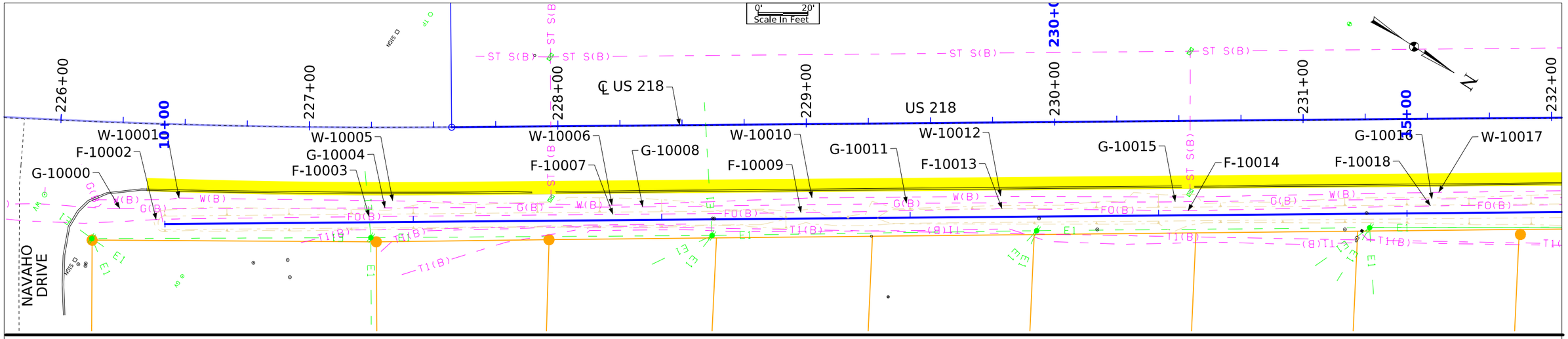


Liberty Utilities - Gas Line

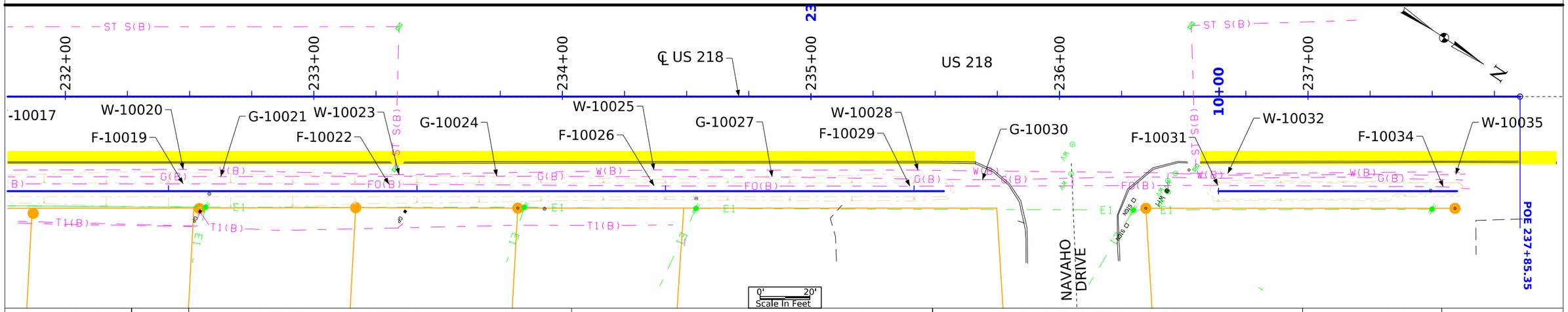
Point	Station	Offset	Existing Ground Elevation	Top of Utilities Elevation
G-10000	226+24.98	34.66	658.42	654.95
G-10004	227+30.45	32.39	657.33	654.11
G-10008	228+33.86	32.75	657.02	654.38
G-10011	229+40.13	32.24	658.04	654.91
G-10015	230+48.28	32.54	658.61	655.15
G-10016	231+51.63	32.34	659.14	656.28
G-10021	232+62.56	32.12	660.12	656.69
G-10024	233+73.55	31.97	660.50	657.53
G-10027	234+84.42	32.30	661.97	658.06
G-10030	235+69.00	33.47	661.52	657.65

Danville Mutual Telephone - Existing Fiber Optic Line

Point	Station	Offset	Existing Ground Elevation	Top of Utilities Elevation
F-10002	226+48.14	38.05	658.92	655.95
F-10003	227+23.97	35.85	657.52	654.28
F-10007	228+21.92	35.66	657.22	653.80
F-10009	228+97.56	35.64	657.81	654.53
F-10013	229+78.53	34.73	658.47	654.86
F-10014	230+53.39	36.13	659.19	655.02
F-10018	231+51.00	35.06	660.06	656.76
F-10019	232+47.46	35.08	660.80	656.86
F-10022	233+30.22	35.23	660.85	657.14
F-10026	234+36.94	35.88	661.51	658.49
F-10029	235+39.87	36.01	662.16	659.23
F-10031	236+63.76	35.66	662.21	658.98
F-10034	237+54.43	36.25	662.29	659.22

Keokuk Municipal Waterworks - Existing Water Line

Point	Station	Offset	Existing Ground Elevation	Top of Utilities Elevation
W-10001	226+48.24	29.67	657.92	654.18
W-10005	227+33.49	29.54	656.88	652.96
W-10006	228+21.57	32.00	656.96	653.46
W-10010	229+02.05	29.72	657.50	653.41
W-10012	229+78.03	29.69	657.99	653.71
W-10017	231+54.27	29.65	659.40	654.59
W-10020	232+46.39	29.29	659.78	655.16
W-10023	233+34.30	31.40	659.92	655.60
W-10025	234+36.84	29.54	660.93	655.96
W-10028	235+43.09	29.54	661.45	656.30
W-10032	236+67.73	30.94	661.89	656.91
W-10035	237+58.86	30.23	662.15	657.45



FILE NO. 32594	ENGLISH	DESIGN TEAM BURNS & MCDONNELL	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER D.3

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GENERAL INFORMATION

THIS IS A PRELIMINARY TOPOGRAPHIC SURVEY TO ASSIST IN THE DESIGN OF A NOISE WALL ALONG HWY 218 IN KEOKUK, IOWA.

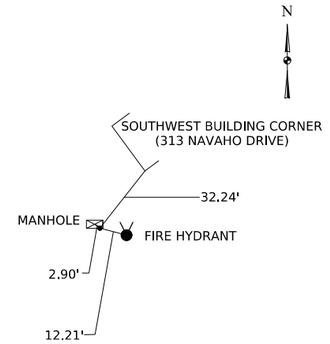
THE SURVEY CONTROL IS REFERENCED TO:
HORIZONTAL DATUM: IOWA REGIONAL COORDINATE SYSTEM ZONE 14, BURINGTON LDP
VERTICAL DATUM: NAVD88

BENCHMARKS			ELEVATION
No. 206 Sta. 236+24.99	49.49 Rt.	Survey Cap stamped "City of Keokuk 206" XC = 24,454,519.62 YC = 6,264,545.23	662.45

CONTROL POINT 200

CUT "X"

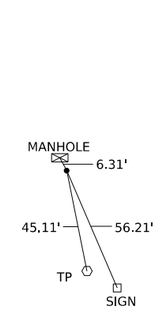
XC = 24,454,487.924 , YC = 6,264,556.789



CONTROL POINT 201

CUT "X"

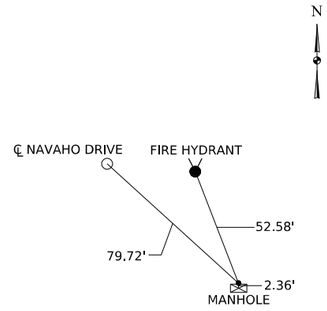
XC = 24,454,916.220, YC = 6,263,807.408



CONTROL POINT 202

CUT "X"

XC = 24,455,119.311 , YC = 6,263,586.335



ALIGNMENT COORDINATES

101-16
10-20-09

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
US 218																			
PC								220+27.04	6,263,142.32	24,455,281.41	223+92.16	6,263,489.43	24,455,161.87	227+57.29	6,263,795.18	24,454,958.67			
POE		237+85.35	6,264,650.12	24,454,387.72															
NOISEWALL A																			
POB		226+43.00	6,263,718.51	24,455,052.48															
PT		229+93.51	6,264,012.95	24,454,859.57															
POE		235+53.51	6,264,479.34	24,454,549.61															
NOISEWALL B																			
POB		236+64.00	6,264,571.36	24,454,488.45															
POE		237+60.00	6,264,651.32	24,454,435.32															

108_23A
8/15/22

TRAFFIC CONTROL PLAN

Refer to Tab 108-26A for traffic control specific details.

US 218

Maintain two lanes of traffic, both southbound and northbound, at all times during all stages of construction except as noted in the traffic control plan and staging notes.

Navaho Drive

This street shall be open to traffic at all times during construction in all stages.

111_01
10/14/22

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
None provided.	

108_26A
8/15/22

STAGING NOTES

Stage 1 Traffic

-Close the outside northbound US 218 lane per Iowa Standard TC-419.

-Lane closure shall not affect Navaho drive which shall be maintained at all times.

Stage 1 Construction:

-Remove existing noise wall posts

-Construct proposed noise wall and guardrail as shown on plans.

CROSS SECTION VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

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

PLAN VIEW COLOR LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

SHADING	Design Color No.	
Green, Light	(225)	Existing Pavement Shading
Gray, Light	(48)	Previously Constructed Pavement Shading
Gray, Med	(6)	Proposed Granular Surface Shading
Gray, Med	(80)	Previously Constructed Granular Surface Shading
Blue, Light	(230)	Proposed Pavement Shading
Pink, Dark	(13)	Temporary Pavement Shading
Brown, Light	(236)	Proposed Grading Limits Shading
Cyan	(7)	Proposed MSE or CIP Wall Shading
Red	(3)	Proposed Bridge Shading and Sign Trusses
Black w/Gray, Light Fill	(0,48)	Previously Constructed Structure

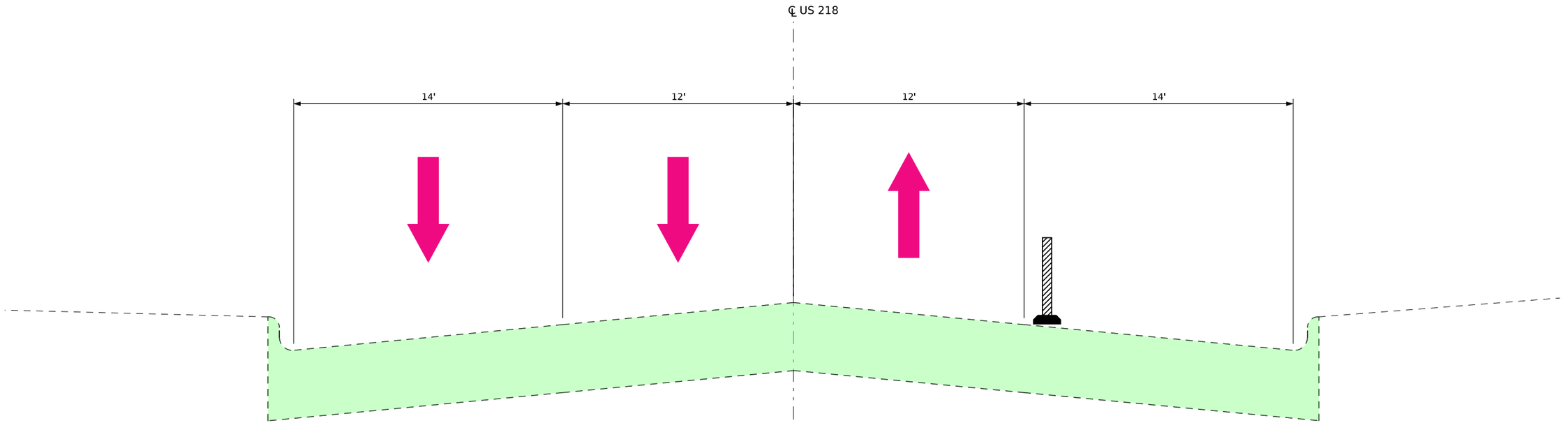
PLAN VIEW PATTERN AND SYMBOL LEGEND OF TRAFFIC CONTROL AND STAGING SHEETS

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

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

TRAFFIC CONTROL AND STAGING LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES J)



US 218 - STAGE 1

FILE NO. 32594	ENGLISH	DESIGN TEAM BURNS & MCDONNELL	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER J.3	

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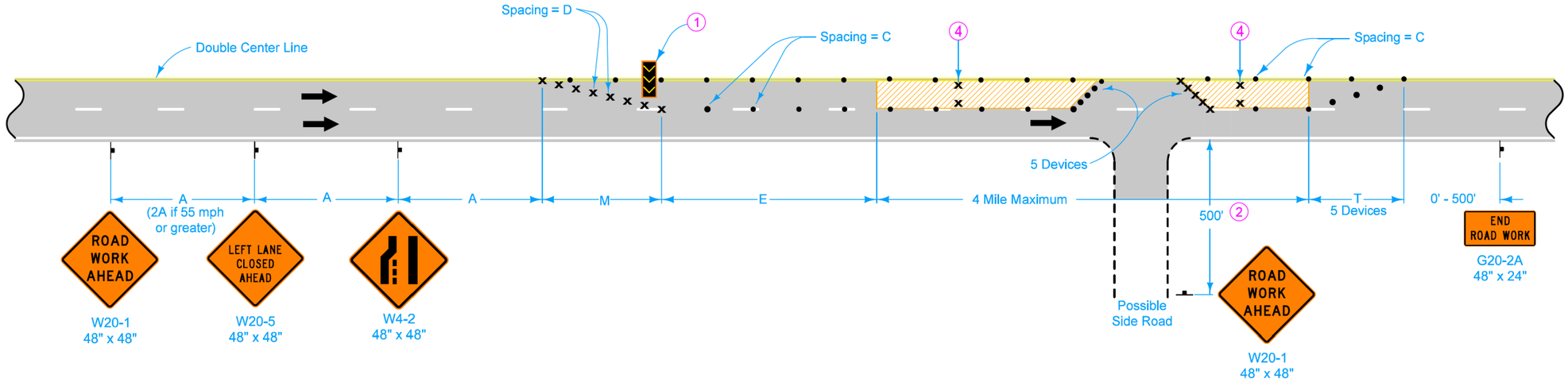
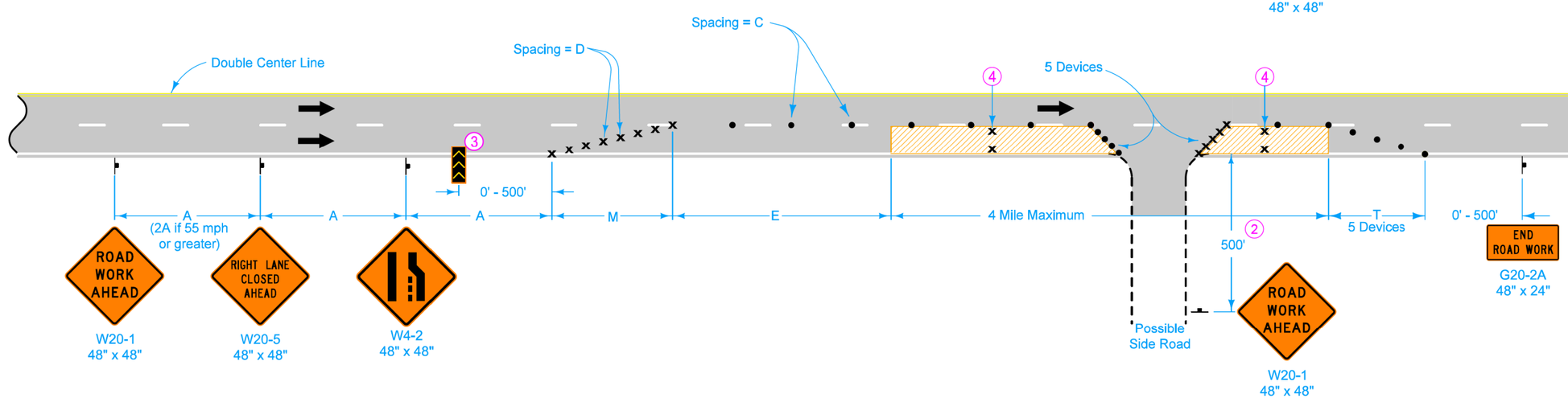
LEFT LANE CLOSURE



RIGHT LANE CLOSURE



LEGEND

- Traffic Sign
- Drum
- 42" Channelizer
- Arrow Board
- Work Area
- Direction of Traffic

SPEED LIMIT (mph)*	A	C	D	E	M	T
35 or less	250'	40'	35'	0'-200'	245'	50'
40	500'	80'	40'	0'-300'	320'	50'
45	700'	80'	45'	0'-400'	630'	100'
50	700'	80'	45'	400'	630'	100'
55 - 60	1000'	100'	55'	600'	770'	100'

* Speed Limit refers to regulatory speed limit before road work.

Where there is a lane line drop-off or rise, do not allow traffic to cross over the drop-off or rise, except for ramp locations where a BUMP (W8-1) sign is placed.

Lane line drop-offs greater than a nominal 4 inches are not allowed during non-working hours.

(1) Place arrow board within the closed lane behind the drums and as close to the beginning of the taper as practical.

(2) Where side road speed limit is 40 mph or less, a distance of 200 feet is allowed.

(3) When there is no shoulder, place arrow board within the closed lane behind the drums and as close to the beginning of the taper as practical.

(4) For lanes closed to traffic, place two drums every 1000 feet. For full depth excavations, in a closed lane, place two drums in front of each location. Additional drums need not be placed for full depth excavations spaced closer than 150 feet.

Possible Contract Item:

Traffic Control

IOWADOT

STANDARD ROAD PLAN

REVISION

9	4-18-23

TC-419

SHEET 1 of 1

REVISIONS: Added speed limit note.

APPROVED BY DESIGN METHODS ENGINEER

LANE CLOSURE ON UNDIVIDED HIGHWAY

LINE STYLE LEGEND OF LANDSCAPE SHEETS

LINESTYLE	Design Element
– – – – – – – – – – – –	Living Snow Fence Single Row
⋯⋯⋯⋯⋯⋯⋯⋯⋯⋯	Living Snow Fence Double Row
———	Mechanical Edge

CELL LEGEND OF LANDSCAPE SHEETS

CELL	Design Element	Plant Diameter
	Clearing	
	Proposed Shrub	6 FT
	Proposed Understory Tree	12 FT
	Proposed Conifer Tree	18 FT
	Proposed Overstory Tree	30 FT

PATTERN LEGEND OF LANDSCAPE SHEETS

Brush Clearing

Spray Area

Clearing & Grubbing

LINE STYLE LEGEND OF EROSION CONTROL SHEETS

LINESTYLE	Design Element
	Silt Fence
9	Perimeter and Slope Sediment Control Device (9")
12	Perimeter and Slope Sediment Control Device (12")
20	Perimeter and Slope Sediment Control Device (20")
	Open-Throat Curb Intake Sediment Filter
	Concentrated Flow
	Rock Check and Rock Check Dam
	Sheet Flow

CELL LEGEND OF EROSION CONTROL SHEETS

CELL	Design Element
	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 Types	50%
Light Brown	(238)	Special Ditch Control, Wood Excelsior Mat	0%
Grass Green	(233)	8FT Mow Strip	50%
Red	(3)	Delineates Restricted Areas	0%

PATTERN LEGEND OF EROSION CONTROL SHEETS

Seeding and Fertilizing

R — Seeding and Fertilizing (Rural)

U — Seeding and Fertilizing (Urban)

N — Native Grass Seeding

ST — Salt Tolerant Seeding

WL — Wetland Grass Seeding

WF — Wildflower Seeding

SOD — 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

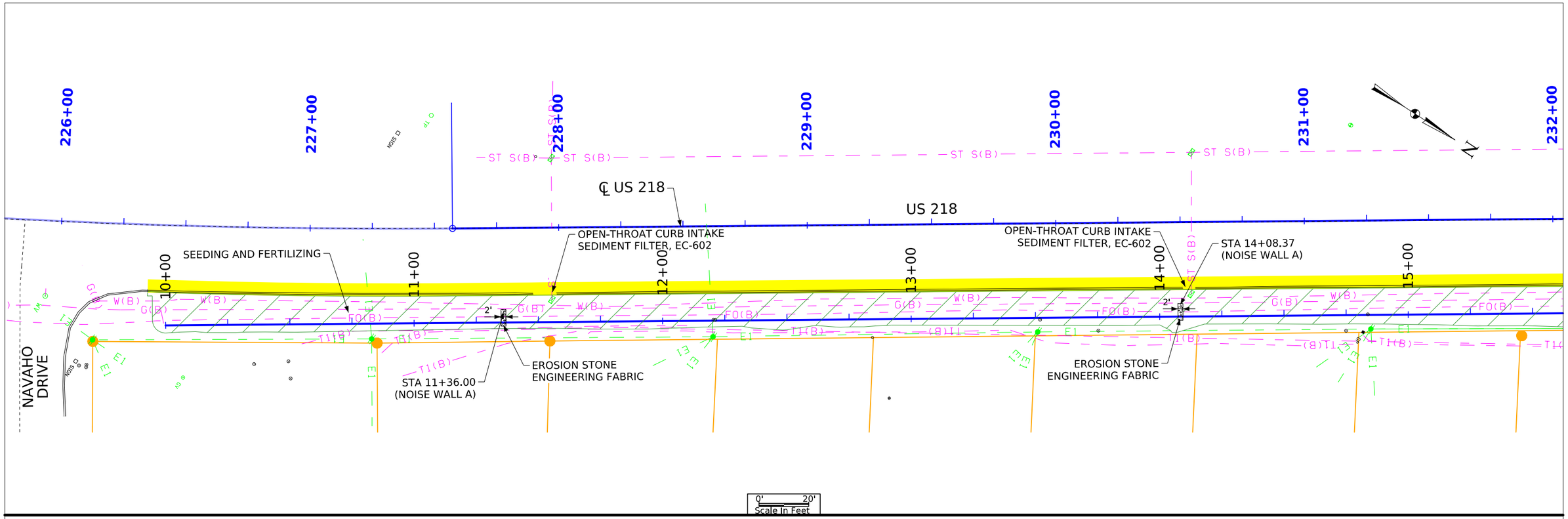
Transition Mat

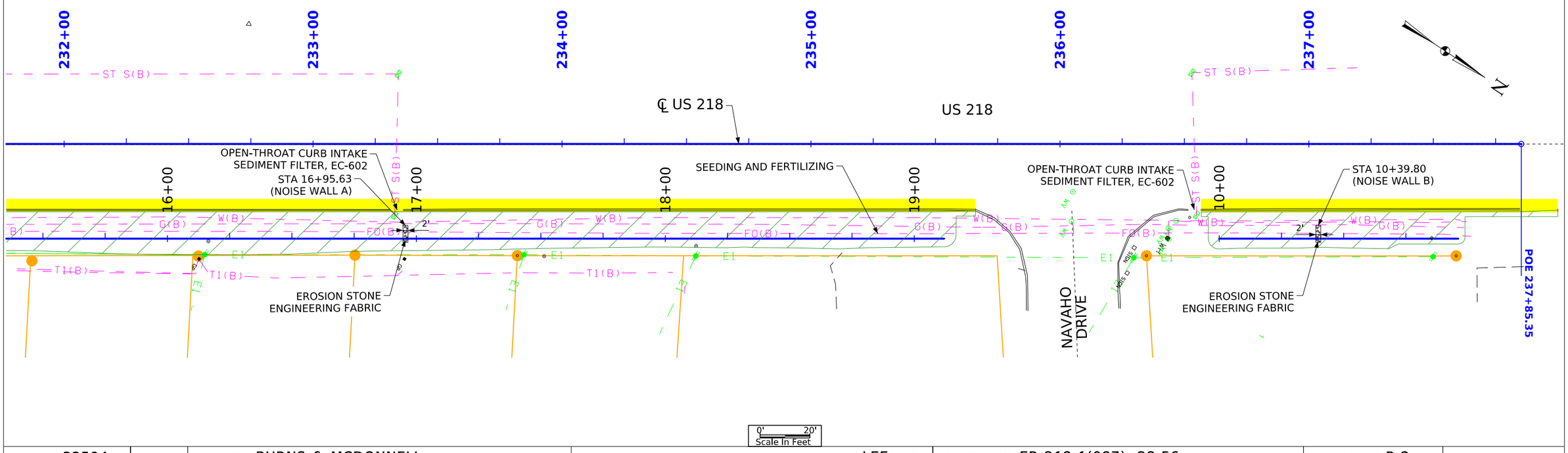
Rock Features, Permanent

Rock Features, Temporary

EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)





FILE NO. 32594	ENGLISH	DESIGN TEAM BURNS & MCDONNELL	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER R.2

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LEGEND

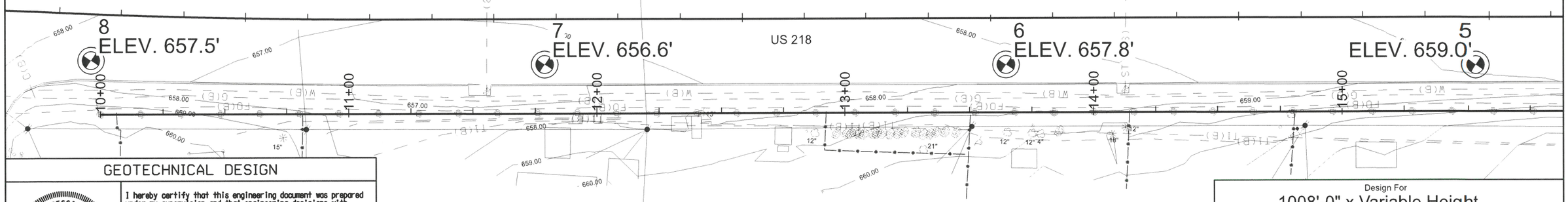
WATER	SOIL REMEDIATION AREA
DRY	LIMESTONE (LS.)
PLUGGED	BROKEN & WEATHERED LS.
MOISTURE	SANDSTONE
SHELBY	SHALE
BLOW COUNT	SANDY SOIL
DENS. CORE	
SAMPLE	

BLOW COUNT
LAYER - NO. BLOWS
B2 5

DIAMOND CORE
SAND
GRAVELLY SAND
BOULDERS

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



GEOTECHNICAL DESIGN

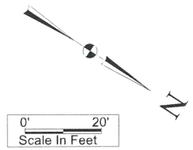
LICENSED PROFESSIONAL ENGINEER
ZACHARY A. BONZER
P23811
IOWA

I hereby certify that this engineering document was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Signature 8-22-2024 Date

ZACHARY A. BONZER
Printed or Typed Name
License Number P23811
My license renewal date is December 31, 2024

Pages or sheets covered by this seal: SPS.1-SPS.3



Location

From MP 2.37 to MP 2.58 in Keokuk
T-65N R-5W
Section 14
Jackson Township
Latitude: 40.42605833"
Longitude: -91.41255556"

Design For

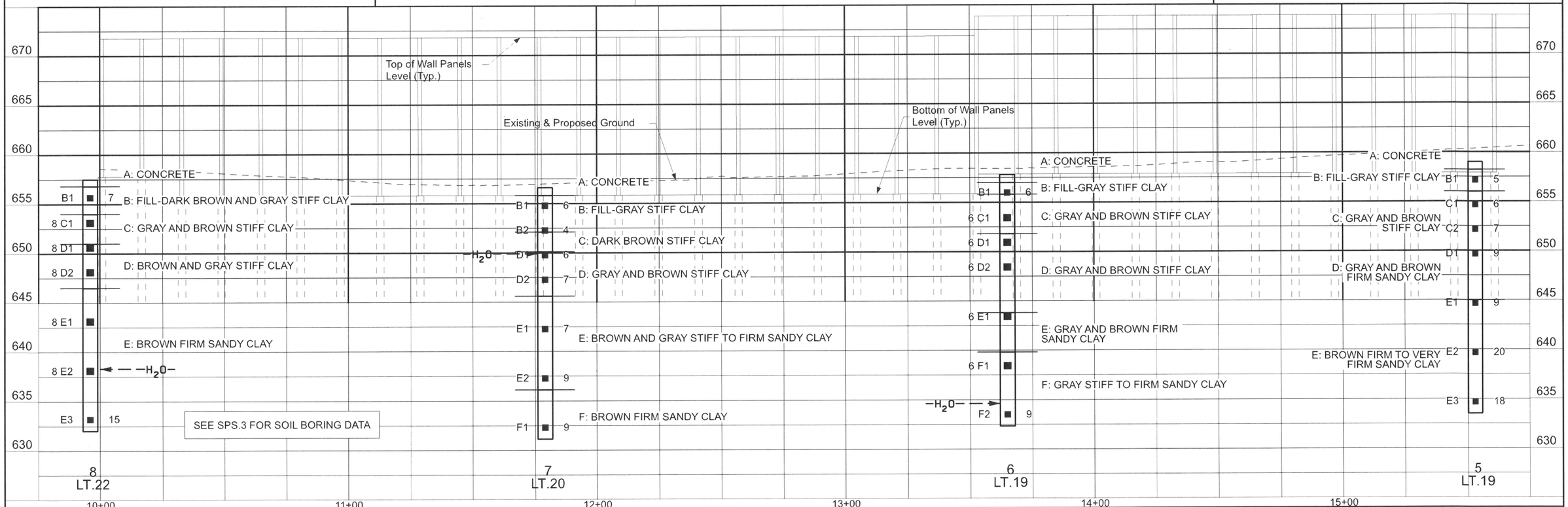
1008'-0" x Variable Height Precast Concrete Noise Walls A & B Soil Profile Sheet

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No.1 of 3 Asset ID No. MIS00048



LEGEND

WATER
DRY
PLUGGED
MOISTURE
SHELBY
BLOW COUNT
DENS. CORE
SAMPLE

BLOW COUNT
LAYER - NO. BLOWS
B2 5

DIAMOND CORE
SAND
GRAVELLY SAND
BOULDERS

SOIL REMEDIATION AREA
LIMESTONE (LS.)
BROKEN & WEATHERED LS.
SANDSTONE
SHALE
SANDY SOIL

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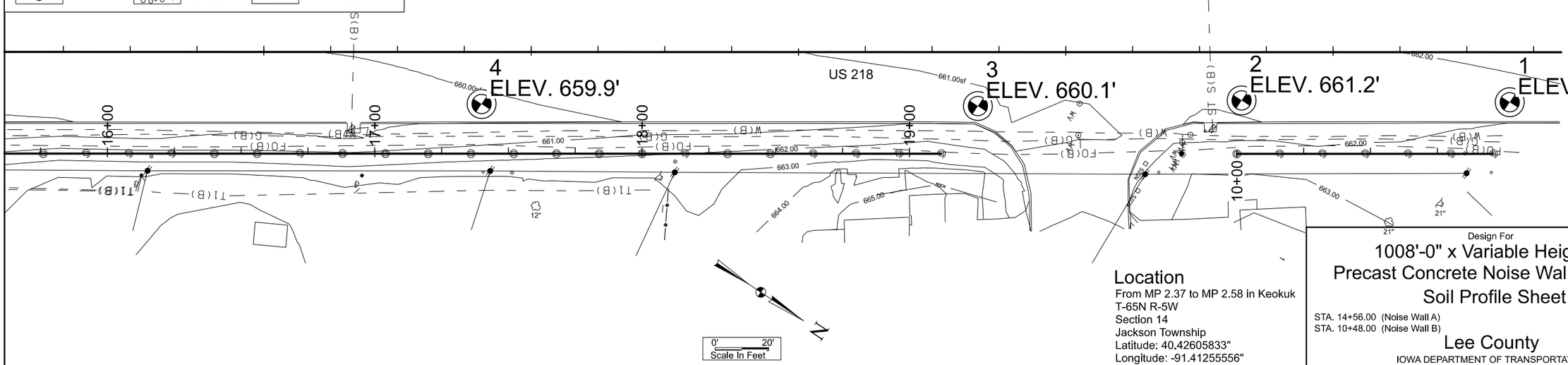


Location

From MP 2.37 to MP 2.58 in Keokuk
T-65N R-5W
Section 14
Jackson Township
Latitude: 40.42605833"
Longitude: -91.41255556"

Design For

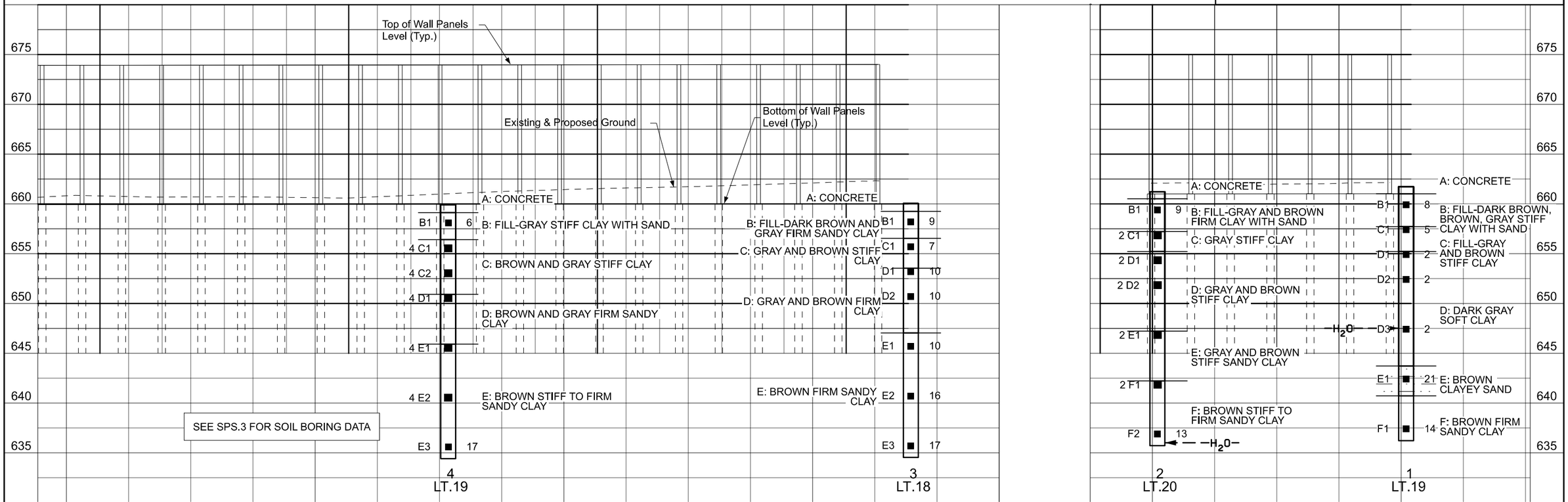
1008'-0" x Variable Height Precast Concrete Noise Walls A & B Soil Profile Sheet

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 2 of 3 Asset ID No. MIS00048



FILE NO. 32594	ENGLISH	DESIGN TEAM Burns & McDonnell\Terracon	Lee COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER SPS.2

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

BORING	1	2	3	4	5	6	7	8
LAYER	THICKNESS	THICKNESS	THICKNESS	THICKNESS	THICKNESS	THICKNESS	THICKNESS	THICKNESS
A	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7
B	3.3	3.3	2.7	2.7	2.2	1.2	3.7	2.8
C	2.5	2.0	3.0	5.5	6.0	4.0	2.0	3.0
D	11.5	8.0	6.5	5.0	5.0	8.0	4.5	4.5
E	3.0	5.0	12.5	11.5	11.5	4.0	9.5	14.5
F	4.5	6.5	-	-	-	7.5	5.0	-

Water Level Observations (Ft.)				
Boring No.	Date Drilled	While Drilling	End of Drilling	Delayed Water Level
1	05/10/24	16'	14'	-
2	05/10/24	-	25'	-
3	05/10/24	-	-	-
4	05/09/24	-	-	-
5	05/09/24	-	-	-
6	05/09/24	-	23'	-
7	05/09/24	6.5'	14.5'	-
8	05/09/24	19'	23'	-

SHELBY TUBE CORE DATA

CORE NO.	2 C1	2 D1	2 D2	2 E1	2 F1	4 C1	4 C2	4 D1	4 E1	4 E2	6 C1	6 D1	6 D2	6 E1	6 F1	8 C1	8 D1	8 D2	8 E1	8 E2
DEPTH IN FEET	4-6	6.5-8.5	9-11	14-16	19-21	4-6	6.5-8.5	9-11	14-16	19-21	4-6	6.5-8.5	9-11	14-16	19-21	4-6	6.5-8.5	9-11	14-16	19-21
CLASSIFICATION (AASHTO)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
COEFF.CONSOL. (SQ. FT /DAY)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIAXIAL COMPRESSION	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC	UC
COHESION - PSF	1210	1680	1295	1365	1645	960	665	2395	1120	2530	1530	900	1785	3065	1340	1735	905	1845	2020	2155
FRICTION COEFF.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MOISTURE CONTENT %	26.1	22.1	26.4	16.6	14.4	22.7	29.6	21.5	16.4	13.5	21.8	26.3	24	19.7	16.6	24.2	26.6	29.1	17.7	13.7
DRY DENSITY - PCF	99	106	98	110	118	102	93	108	118	123	108	98	102	109	117	106	100	97	113	122

CU-CONSOLIDATED UNDRAINED
UU-UNCONSOLIDATED UNDRAINED
UC-UNCONFINED COMPRESSION (c=1/2 Qu)

Location

From MP 2.37 to MP 2.58 in Keokuk
T-65N R-5W
Section 14
Jackson Township
Latitude: 40.42605833"
Longitude: -91.41255556"

Design For

1008'-0" x Variable Height Precast Concrete Noise Walls A & B Soil Profile Sheet

STA. 14+56.00 (Noise Wall A)
STA. 10+48.00 (Noise Wall B)

Lee County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0125 Design Sheet No. 3 of 3 Asset ID No. MIS00048

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

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

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							
Noise Wall A																						
226+43.35	3	0	1	1	0	0	0	0	0	0	0	1	1	2	-1							
226+50.00	21	4	9	7	4	2	2	3	2	0	0	9	9	13	-4							
227+00.00	21	7	8	7	7	3	3	4	3	0	0	8	8	12	-4							
227+50.00	20	6	7	7	6	3	3	4	1	0	0	7	8	11	-4							
228+00.00	19	3	8	7	3	2	2	3	0	0	0	8	8	12	-3							
228+50.00	19	3	8	7	3	1	1	1	2	0	0	8	8	11	-2							
229+00.00	19	4	8	7	4	1	1	1	3	0	0	8	7	11	-2							
229+50.00	19	4	8	7	4	1	1	1	2	0	0	8	8	12	-3							
230+00.00	20	3	9	7	3	3	3	4	0	0	0	9	9	13	-3							
230+50.00	20	4	10	7	4	3	3	4	0	0	0	10	9	13	-3							
231+00.00	21	5	9	7	5	3	3	4	1	0	0	9	9	12	-3							
231+50.00	22	6	10	7	6	4	4	5	1	0	0	10	9	13	-4							
232+00.00	23	6	10	7	6	5	5	6	-1	0	0	10	10	14	-4							
232+50.00	23	5	10	7	5	5	5	6	-1	0	0	10	10	14	-4							
233+00.00	22	5	10	7	5	3	3	4	1	0	0	10	10	14	-4							
233+50.00	21	4	9	7	4	2	2	3	1	0	0	9	9	13	-4							
234+00.00	20	4	9	7	4	2	2	2	2	0	0	9	9	12	-4							
234+50.00	21	5	9	7	5	2	2	3	2	0	0	9	9	12	-4							
235+00.00	21	5	9	7	5	2	2	3	3	0	0	9	9	12	-3							
235+50.00	1	0	1	0	0	0	0	0	0	0	0	1	1	1	0							
235+53.50																						
Sub Total:	375	83	165	128	83	47	47	62	22	0	0	165	161	227	-63							
Noise Wall B																						
236+64.00	14	3	6	5	3	0	0	1	3	0	0	6	6	9	-3							
237+00.00	19	4	8	7	4	0	0	0	4	0	0	8	8	11	-3							
237+50.00	4	1	2	1	1	0	0	0	1	0	0	2	1	2	-1							
237+60.00																						
Sub Total:	37	8	17	13	8	1	1	1	7	0	0	17	16	23	-7							

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

TABULATION OF TEMPLATE QUANTITIES AND ADJUSTMENTS

107-28
04-21-15

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							
Summary:																						
NoiseWallA	375	83	165	128	83	47	47	62	22	0	0	165	161	227	-63							
NoiseWallB	37	8	17	13	8	1	1	1	7	0	0	17	16	23	-7							
Project Totals:	412	91	182	141	91	48	48	63	29	0	0	182	177	250	-70							

FILE NO.	ENGLISH	DESIGN TEAM BURNS & MCDONNELL	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER T.2	

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature
Aggregate	
(64)	Choke Stone
(42)	Engineering Fabric
(8)	Flooded Backfill
(92)	Macadam Stone
(20)	Modified
(12)	Plowing Shaping
(14)	Porous Backfill
(8)	Revetment Class A
(6)	Revetment Class B
(62)	Revetment Class C
(188)	Revetment Class D
(28)	Revetment Class E
(12)	Shoulder Special Backfill
(12)	Special Backfill
(20)	Subbase
(20)	Subbase Lower
(20)	Subbase Upper
(118)	Subgrade Treatment
Asphalt	
(207)	HMA Base Course
(207)	HMA Interim Course
(207)	HMA Surface Course
Bridge	
(0)	Bridge
Concrete	
(0)	Barrier Concrete
(0)	Barrier Concrete Footing
(0)	Curb Gutter
(48)	Flowable Mortar
(0)	Median Concrete
(0)	PCC Pavement
(0)	Sidewalk
Existing	
(0)	Existing Pavement
Shoulder	
(209)	Shoulder HMA
(0)	Shoulder PCC
(6)	Shoulder Granular
Structural	
(112)	Noise Wall
(112)	Noise Wall Footing
(112)	Retaining Wall Back
(112)	Retaining Wall Back Excavate
(112)	Retaining Wall Face
(112)	Retaining Wall Front Excavate
(112)	Retaining Wall Front Footing
(112)	Retaining Wall MSE Gutter
(112)	Retaining Wall Reinforced Earth

Design Color No.	Feature
Grading	
(8)	Behind Curb Cut
(6)	Granular
(13)	Granular Back Fill
(48)	Rock Undercut
(8)	Shoulder Earth Fill
(2)	Side Slopes
(226)	Side Slopes Dressing
Substrata	
(128)	Boulder
(209)	Boulder Removed
(48)	Broken Weathered
(210)	Broken Weathered Removed
(3)	Core Out
(115)	Core Out Remove Only
(195)	Core Out Remove and Replace
(203)	Existing Pavement
(184)	Existing Pavement Remove Only
(200)	Existing Pavement Remove and Replace
(6)	Loam
(211)	Loam Removed
(80)	Rock
(212)	Rock Removed
(4)	Select Sand
(214)	Select Sand Removed
(3)	Shale
(215)	Shale Removed
(10)	Topsoil
(2)	Topsoil Remove Only
(4)	Topsoil Remove and Replace
Unsuitable / Waste	
(3)	Unsuitable Type A
(216)	Unsuitable Type A Removed
(13)	Unsuitable Type B
(217)	Unsuitable Type B Removed
(11)	Unsuitable Type C
(218)	Unsuitable Type C Removed
(3)	Waste
(219)	Waste Removed

NOTES:

Text

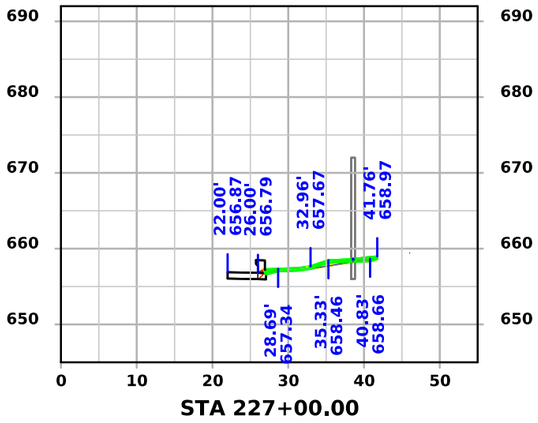
NOTES:

Text

CROSS SECTIONS
LEGEND AND INFORMATION SHEET

(COVERS SHEET SERIES W, X, Y, & Z)

ML - US218



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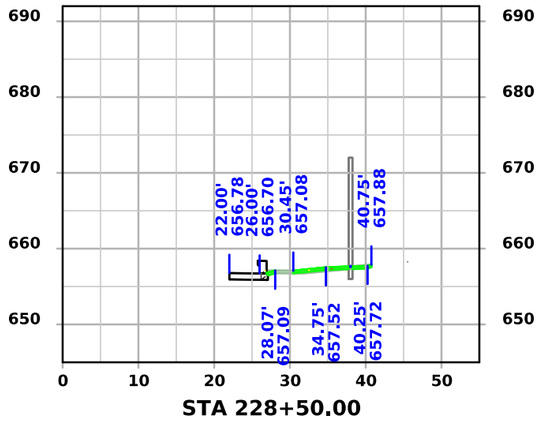

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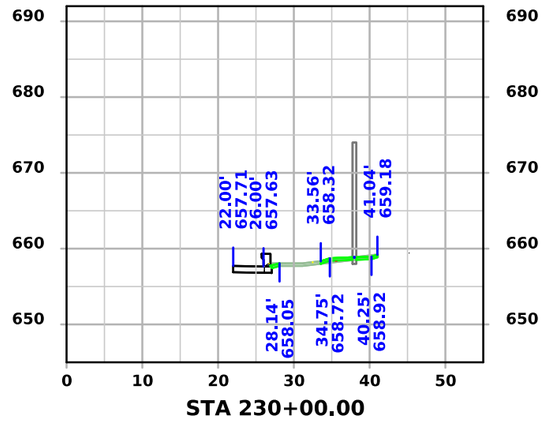

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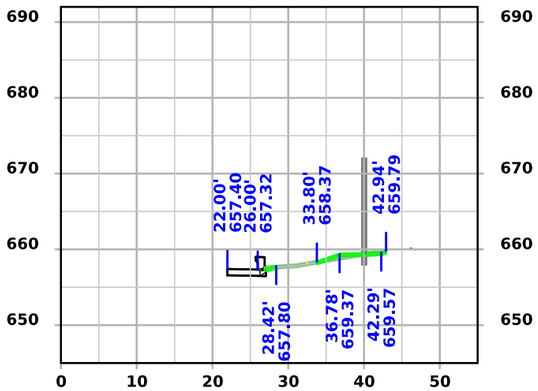

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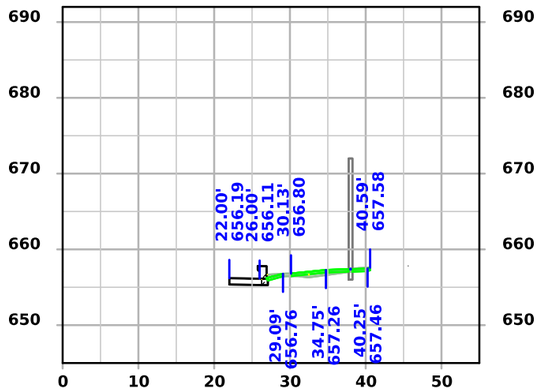

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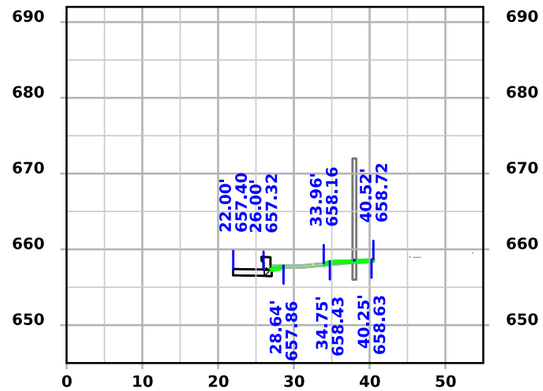

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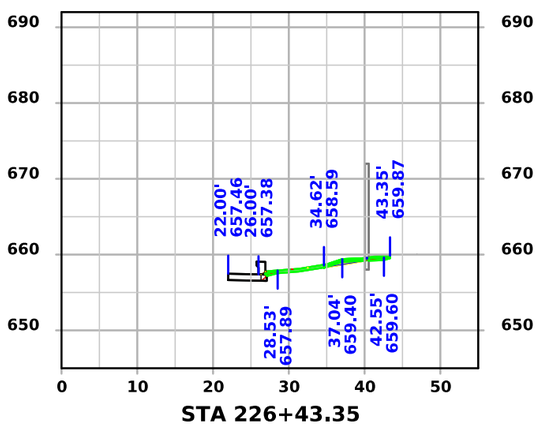

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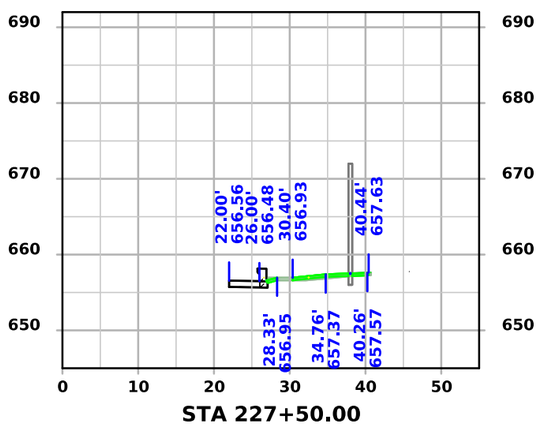

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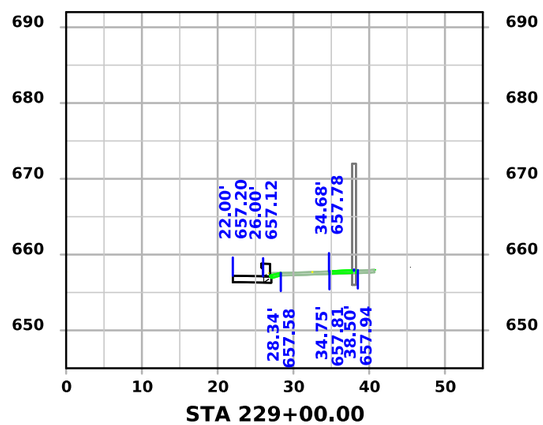

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FILE NO. 32594	ENGLISH	DESIGN TEAM BURNS & MCDONNELL	LEE COUNTY	PROJECT NUMBER ER-218-1(087)--28-56	SHEET NUMBER W.2

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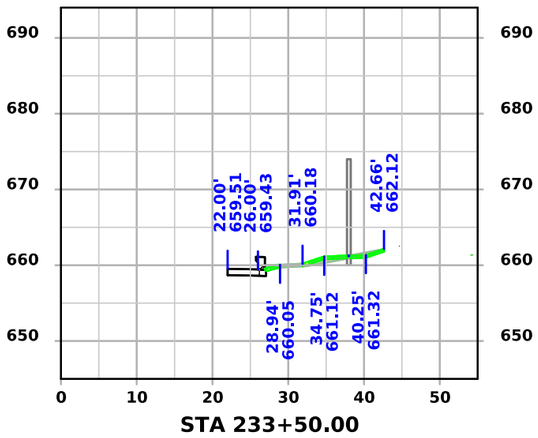

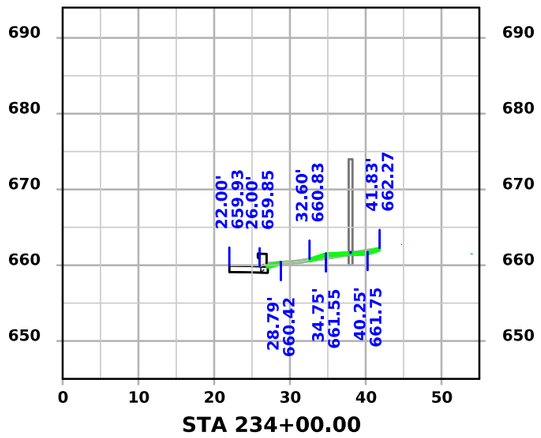

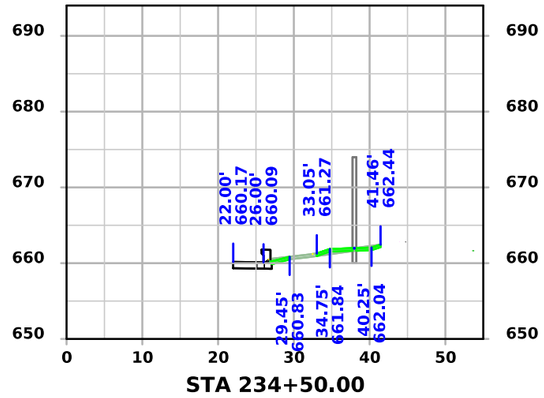

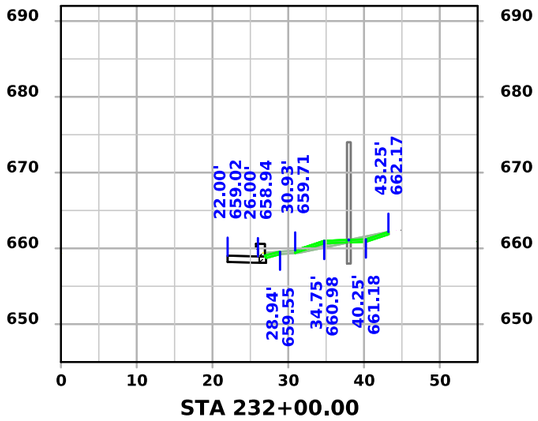

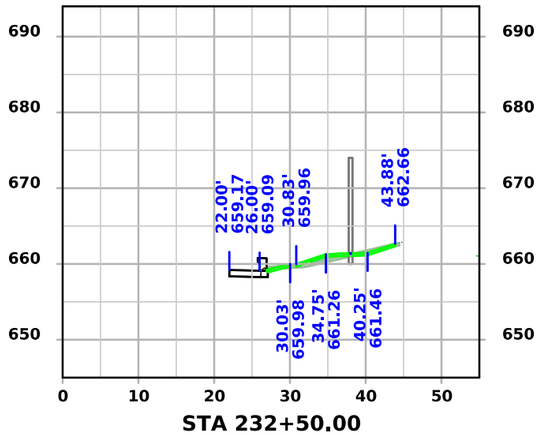

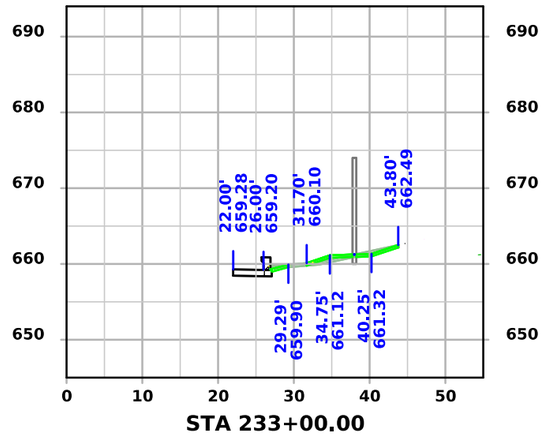

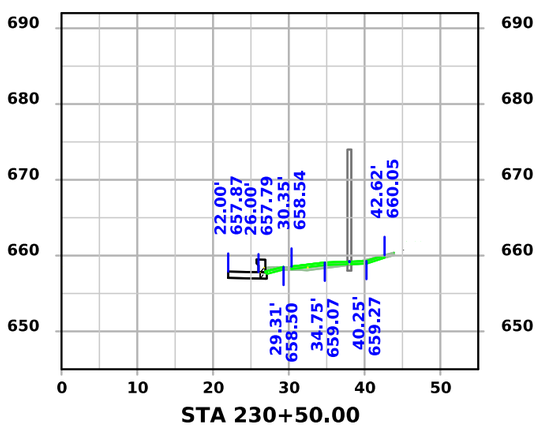

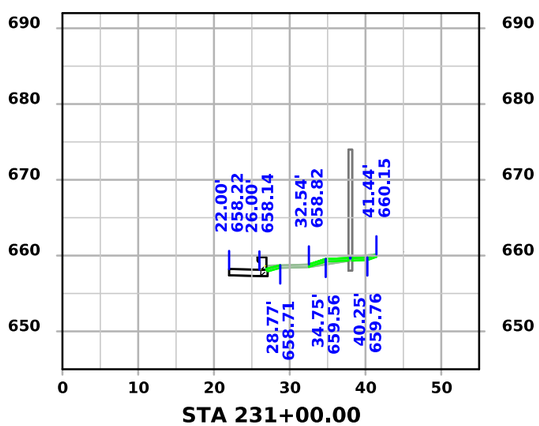

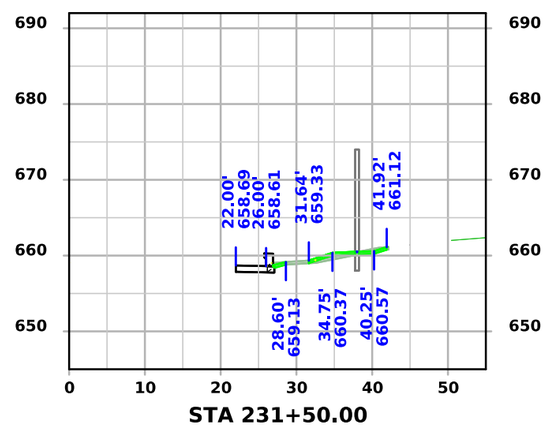

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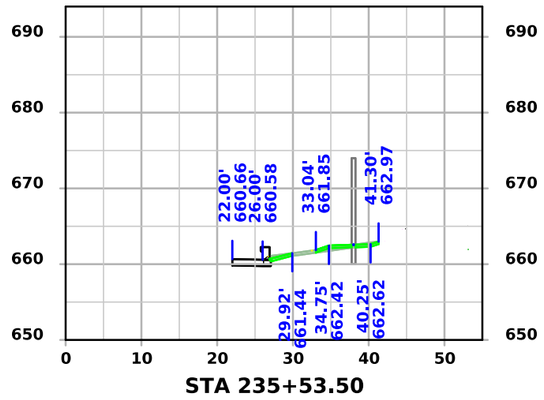

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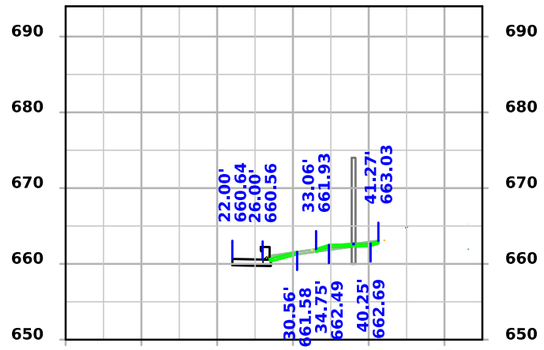

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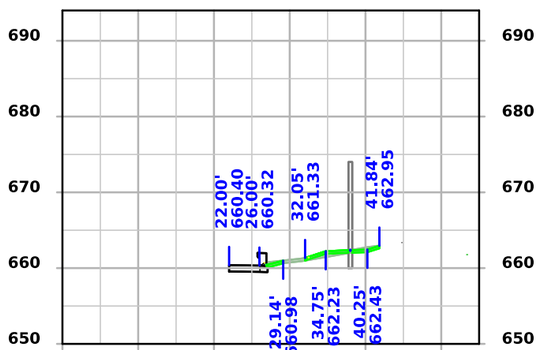

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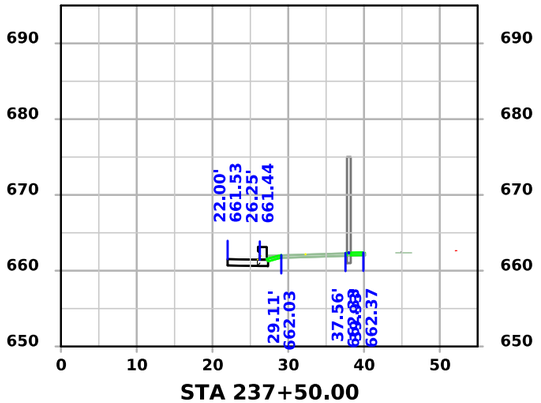

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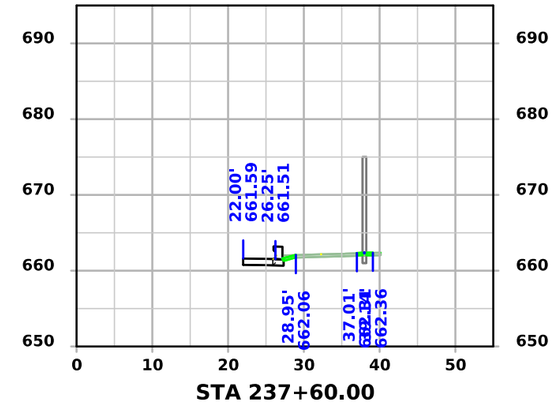

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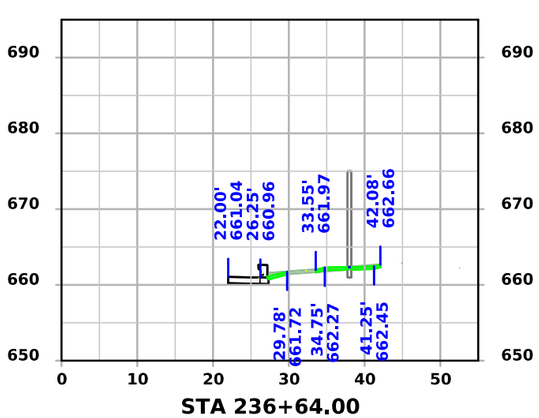

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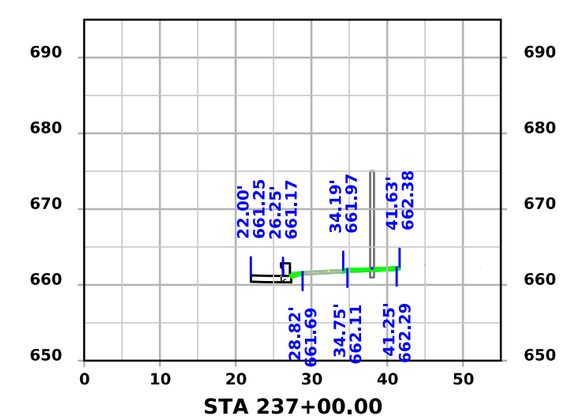

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