

Standard Road Plans

Standard Road Plans are listed on Sheet Number C.4

Design Data Urban		
2022 AADT	37,600	V.P.D.
2050 AADT	66,000	V.P.D.
2050 DHV	4,240	V.P.H.
TRUCKS	6	%
Total Design ESALs		

Index Of Seals		
Sheet No.	Name	Type
A.1	Jerome L. Hatlewick	Structural Design
* A.3	Nathan E. Carhoff	Roadway Design

* Provided by Snyder & Associates

Structural Design



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

Signature

Jerome L. Hatlewick

07-01-2026

Date

Printed or Typed Name

My license renewal date is December 31, 2027

Pages or sheets covered by this seal: Sheets A.1, A.2, and V.1 thru V.5

Index of Sheets	
No.	Description
Sheets Bridge Plan	
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design 0227 (Stage 2)
V.2 - V.5	Design 0227 (Stage 2)
Road Sheets Road Plan	
A.3-J.3	Road Plans
C.1	Estimated Quantities - Road
C.2	Project Description
C.3	Roadway Items for Drainage Structures
C.4	Standard Road Plans
C.5	Utilities

IOWA | DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

INTERSTATE ROAD SYSTEM

Polk COUNTY

RCB Culvert New - Single Box

W of I-35/80 (City Trail)

Refer to the Plan Sheets for list of applicable specifications.

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

Iowa DOT Bridges and Structures
Consultant Coordinator Contact: Lili Yang



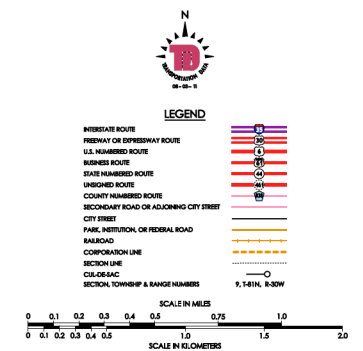
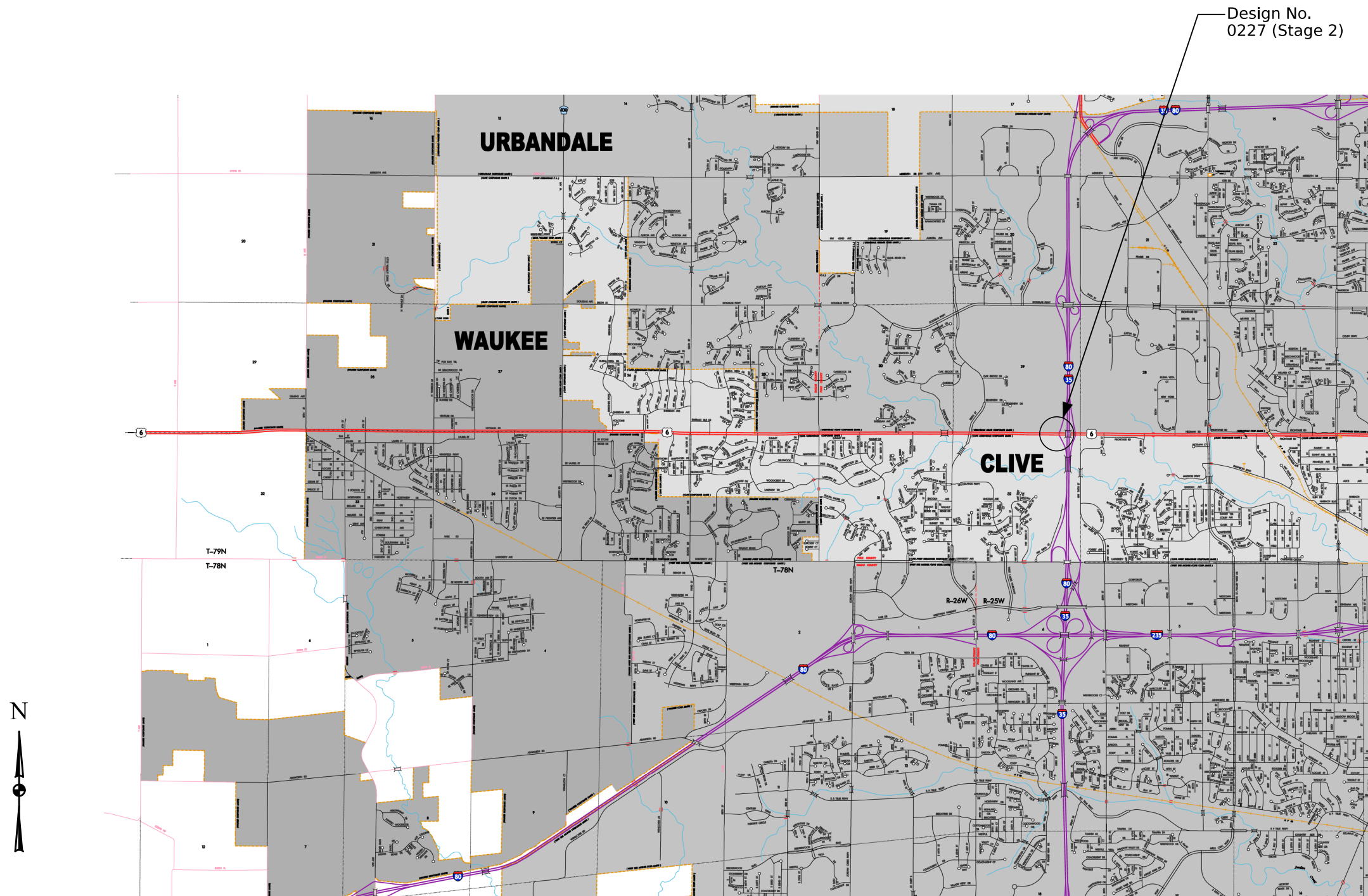
1-800-292-8989
www.iowaonecall.com

811
Know what's below.
Call before you dig.

Revisions

	TOTAL
	26
PROJECT IDENTIFICATION NUMBER	
15-77-080-060	
PROJECT NUMBER	
IMN-080-3(344)125--0E-77	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
7708006015	

English Culvert Standards		
Standard	Issued	Revised
PT G1-20	Aug. 2020	----

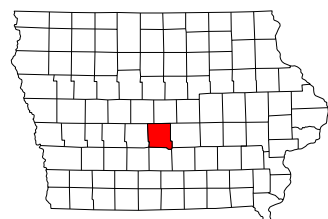


HIGHWAY AND STREET MAP OF DES MOINES METRO IOWA

PREPARED BY
IOWA DEPARTMENT OF TRANSPORTATION
PLANNING, PROGRAMMING, AND MODAL DIVISION
OFFICE OF TRANSPORTATION DATA
PHONE (515) 239-1299
IN COOPERATION WITH
UNITED STATES DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Polk County Location Map

Part of City of Des Moines
Not To Scale



Estimate Project Quantities and Reference Notes - Design #0227					
Item No.	Item Code	Item	Unit	Quantities Estimated Design No. 0227	Estimate Reference Notes
1	2402-2720000	Excavation, Class 20	CY	1,884	The excavation quantity is measured from the existing ground surface. Includes filling and compacting low areas around proposed pedestrian tunnel. Includes the excavation necessary to place the 1'-0" thick working blanket. Quantity should be reduced by 53.0 CY in the event that the working blanket is deleted.
2	2402-3825025	Granular Material For Blanket	CY	53.0	Includes cost of 1'-0" thick working blanket. Granular material shall be in accordance with Section 4118, Gradation No. 3 (excluding the No. 200 restriction) of the Standard Specifications. Includes 53.0 CY for a working blanket. The working blanket may be deleted if determined to be unnecessary at the time of construction. Reclaimed Asphalt Pavement (RAP) and reclaimed HMA shall not be used for the working blanket.
3	2403-0100020	Structural Concrete (RCB Culvert)	CY	130.9	Includes all resilient joint filler required. Includes all costs associated with furnishing and installing materials for waterproofing as detailed in these plans including PVC waterstops, waterproofing membranes, and bentonite waterstops. No measurement or additional payment will be made for these items.
4	2404-7775000	Reinforcing Steel	LB	28,888	---
5	2501-8400172	Temporary Shoring	LS	1.00	---
6	2526-8285040	Construction Survey, Location Survey	LS	1.00	---
7	2533-4980005	Mobilization	LS	1.00	---
8	2599-9999010	('LUMP SUM' ITEM) Removal of Shoring Left in Place	LS	1.00	This bid item is for the removal of the shoring that was left in place to support the existing roadway, over the ends of the pedestrian tunnels, and the end caps of the pedestrian tunnels (Stage 1 Designs 2225 and 2325). The shoring that was left in place to support the existing roadway was cut off below grade and will be removed during excavation that is required to construct the remaining portion of the pedestrian tunnel. The shoring over the ends of the tunnels was intended to prevent the earth under the traffic lane from sloughing during construction, and the end caps were constructed to permit backfilling of the Stage 1 construction. Electronic copies of the Shoring left in place shop drawings are available to the Contractor as a part of the E-files supplied with the contract documents.

Summary of Reinforcing Steel		
Location	Quantity	Total
* 32'-0" Barrel Section	2 at 10,993	21,986
20'-0" Barrel Section	1 at 6,902	6,902
Total (LB)		28,888

* Includes 5z1 and 5r1 bars.

Concrete Placement Quantities				
Location	Footing	Walls	Slab	Total
** 32'-0" Barrel Section	2 at 15.4	2 at 21.7	2 at 12.8	99.8
** 20'-0" Barrel Section	1 at 9.6	1 at 13.5	1 at 8.0	31.1
Total (CY)	40.4	56.9	33.6	130.9

**Quantities estimated for the footing (floor) include an additional 0.02 CY/FT of concrete for the crown.

Roadway quantities shown elsewhere in these plans.

Design For 0 Degree Skew

12'-0" x 10'-4" x 177'-4" (84'-0" Stage 2)

Reinforced Concrete Pedestrian Tunnel

Estimated Quantities

STA. 668+50.00 (Hickman Rd.) Turn-in Date: July 2026

Polk County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0227 Design Sheet No. 1 of 5 FHWA/Asset 900595



Specifications:

Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2023, plus applicable General Supplemental Specifications, and Developmental Specifications. Supplemental Specifications and Special Provisions shall apply to construction work on this project.

General Notes:

It is the intent of this design to construct a 12'-0" x 10'-4" x 84'-0" (Stage 2) reinforced concrete pedestrian tunnel at Sta. 668+50.00, skewed 0°, to connect the portions of reinforced concrete pedestrian tunnel built in Stage 1.

Electronic copies of original design plans and working drawings (for Designs 2225 and 2325) are available to the Contractor as part of the E-files supplied with the contract documents. Dimensions shown on these plans are based on design plans for Designs 2225 and 2325.

The RCB culvert sections are designed for HL-93 live load and earth fills of 2-5 feet. Utility companies and municipalities 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.

Excess Class 20 excavation material suitable for backfilling shall be stockpiled at the construction site, as directed by the Engineer.

Class 20 excavation material unsuitable for backfilling shall be disposed of in a manner that will leave the site in a neat condition.

During construction of this project the Culvert Contractor will be required to coordinate operations with those of other Contractors working within the same area. Other work in progress during the same period of time will include, but is not limited to, construction of the projects listed on sheet J.2 of the roadway plans.

Structure stage numbers do not correspond with the roadway construction and traffic staging numbers outlined in the tied IM-080-3(274)125--13-77 plans.

SPS sheets are included in Stage 1 (Designs 2225 and 2325) plans, project number IMN-080-3(340)125-0E-77. Electronic copies of Stage 1 plans are available to the Contractor as part of the E-files supplied with the contract documents.

5z1 Dowel Notes:

Stage 2 of the pedestrian tunnel shall abut against the front face of the existing Stage 1 barrels. 5z1 x 2'-6" dowel reinforcing bars with a 10" minimum embedment into existing concrete shall be set around the entire periphery of the existing pedestrian tunnel.

5z1 dowel reinforcing bars shall be centered in the existing slab, walls and floor. 5z1 dowel reinforcing bars shall be at 1'-0" maximum spacing C-C of dowels.

5z1 dowel reinforcing bars shall be set with polymer grout in accordance with Article 2301.03, E, of the Standard Specifications, and current Supplemental Specifications of the Iowa D.O.T. Highway Division.

Working Drawing and Calculation Submittals

Working drawings and calculations shall be submitted for the following items shown in the table below. (Note additional working drawings and calculations may be required in accordance with Article 1105.03 of the Standard Specifications.)			
Submittal requirements for working drawings and calculations shall be in accordance with 1105.03 of the Standard Specifications for Highway and Bridge Construction of the Iowa Department of Transportation. The absence of a certification requirement for a submittal does not relieve the Contractor of the responsibility to attain certification.			
Calculation submittals in this table which are associated with working drawing submittals shall be submitted on the same day. Review time for calculation submittals shall be of the same duration as and run concurrently with review time for associated working drawings. The calculation submittals listed in the table are not meant to be an exhaustive list and do not relieve the Contractor from providing additional calculation submittals if requested by the Engineer.			
No.	Working Drawing Description	Working Drawing File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Temporary Shoring	77_Polk0227_TemporaryShoring.pdf	Yes
No.	Calculation Description	Calculation File Name Convention For Submittal	Certified by Iowa P.E. (Yes/No)
1	Temporary Shoring	77_Polk0227_TemporaryShoringCalculations.pdf	Yes

Temporary Shoring Notes:

Temporary shoring (sheet pile or other) shall be required as necessary to prevent the earth under the traffic lane from sloughing in during construction.

The Contractor shall submit a temporary shoring plan for review. The temporary shoring plan shall be designed and certified by a Professional Engineer licensed in the state of Iowa. When determining slope stability to support structures such as bridges, culverts, and retaining walls, a global stability analysis shall be included in the design of the temporary shoring in accordance with Chapter 200F-1 in the Design Manual of the Iowa DOT, Design Bureau. The Contractor shall not proceed with installation of the temporary shoring without notice to proceed from the Engineer.

The temporary shoring submittal shall include:

- Design calculations (including a global stability analysis)
- Soil properties
- Shoring material properties
- Shoring plan layout (showing location of traffic)
- Shoring details

Temporary shoring shall be paid for as a lump sum including all cost for designing, furnishing, installing and removal. All material used for shoring shall remain the property of the Contractor. Shoring is to be removed only after backfilling has been completed. In addition to the requirements noted above, Article 1107.07 of the Standard Specifications still applies.

Temporary shoring shall be designed and constructed so that existing embankment under existing and proposed pavement remains undisturbed.

Standards: For details and notes not shown refer to the following Iowa D.O.T. - Highway Standards:		
Standard	Issued	Revised
PT G1-20	August 2020	-----

See tied IM-080-3(274)125--13-77 plans for construction staging information for roadway and structures, and for traffic staging information, TBR layout, and final paving configuration.

The Pollution Prevention Plan is not included in these plans, but is included in the Grade and Pave Plans for the project IM-080-3(274)125--13-77 which is tied to the pedestrian tunnel plans through the contract letting process.

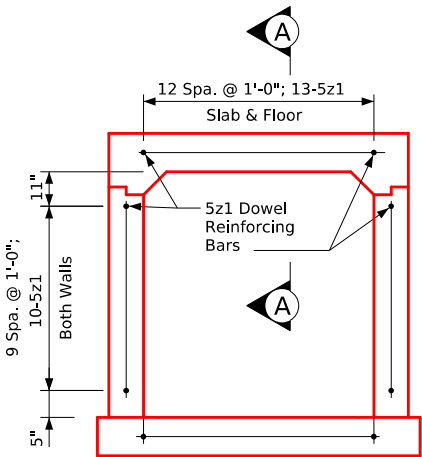
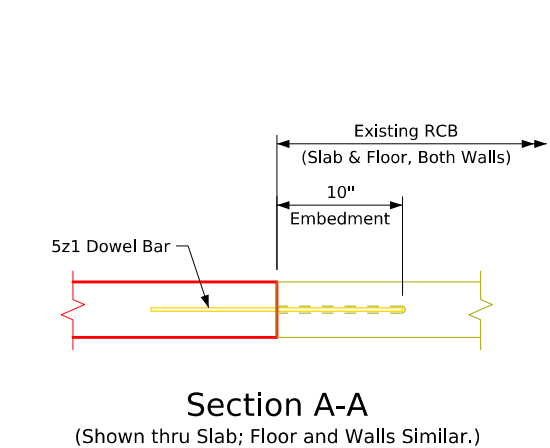
Traffic Control Plan

The roadway will be open to thru traffic. Refer to the Traffic Control Plan included in the tied Grade and Pave Plans, project number IM-080-3(274)125--13-77.

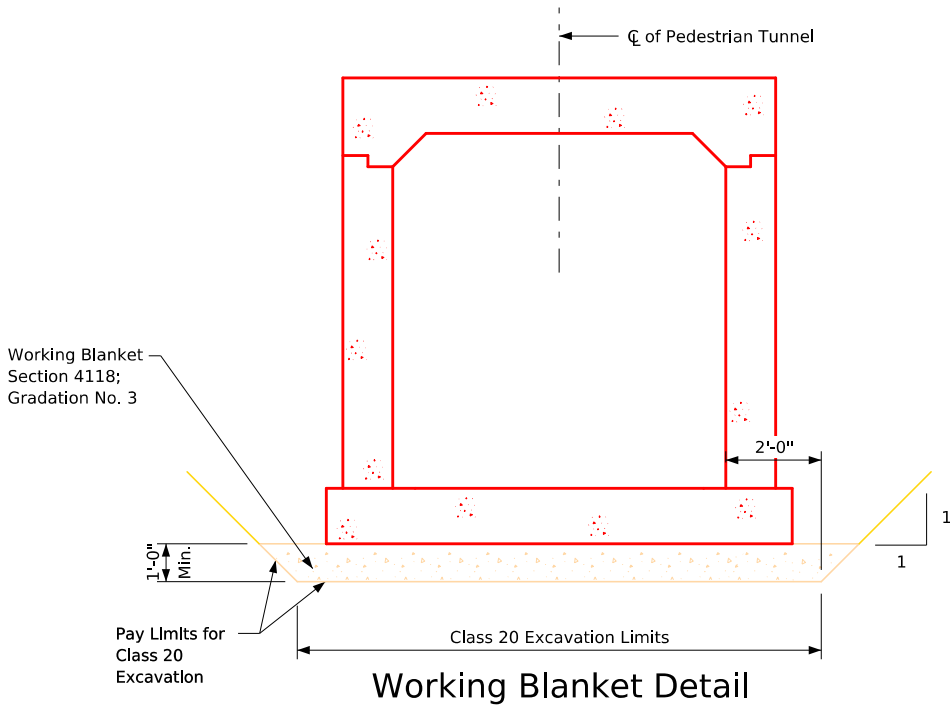
Design History at this Site

(Includes this Design)

Des. No.	Type of Work
2225	Original Design - Stage 1
2325	Original Design - Stage 1
0227	This Design - Stage 2



Showing spacing of 5z1 dowel reinforcing bars - 46 bars at 2'-6"; 120 lbs. 5z1 bars are included in Bar List on Design Sheet 4.

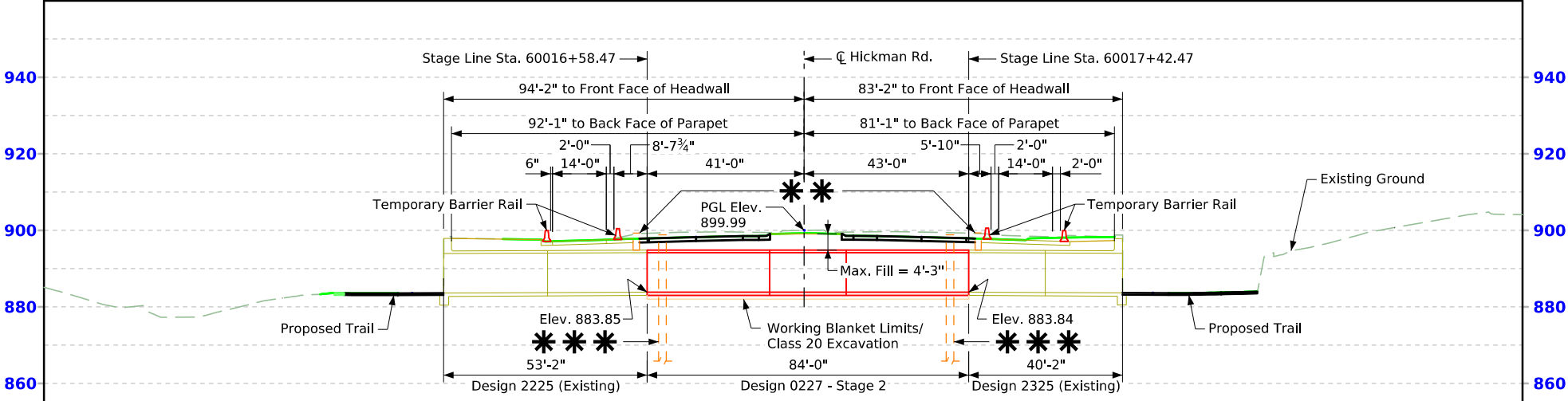


Design For 0 Degree Skew
12'-0" x 10'-4" x 177'-4" (84'-0" Stage 2)
Concrete Pedestrian Tunnel

General Notes

STA. 668+50.00 (Hickman Rd.) Turn-in Date: July 2026
Polk County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0227 Design Sheet No. 2 of 5 FHWA/Asset 900595

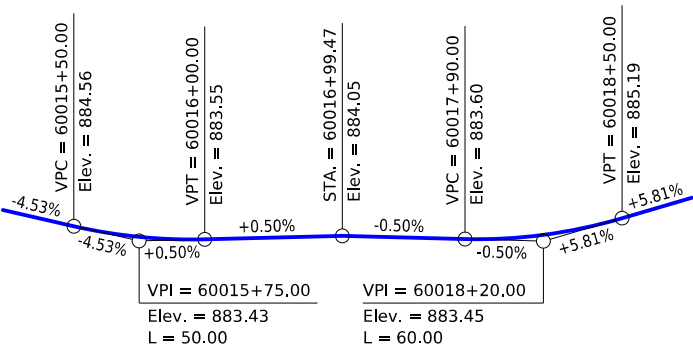




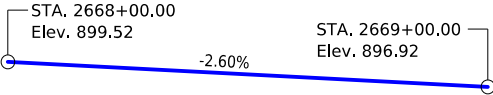
Anticipated Settlement = Negligible
The crown elevation is 1" above the profile grade on trail.

Longitudinal Section Along Centerline of Tunnel

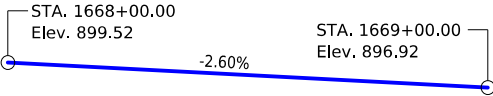
Design Fill Height = 2' - 5'
NBIS Structure Length = 12.0'



Proposed Profile Grade on Pedestrian Trail



Proposed Profile Grade on Hickman Rd. EB



Proposed Profile Grade on Hickman Rd. WB

- * Temporary Shoring placed as part of this project. Final shoring layout, limits, and configuration is at the discretion of the Contractor.
- ** Existing Shoring Left in Place from Design No. 2225 & Design No. 2325: To be removed upon completion of backfilling and approval by the Engineer.
- *** Existing Shoring Left in Place from Design No. 2225 & Design No. 2325: To be removed during excavation that is required to construct the remaining portion of the pedestrian tunnel (Design No. 0227).

Curve Data

PI Sta. 60015+80.14
 $\Delta = 83^\circ 47' 44.91''$ (LT)
T = 26.92'
L = 43.88'
E = 10.30'
R = 30.00'
PC Sta. 60015+53.22
PT Sta. 60015+97.10

Curve Data

PI Sta. 669+47.20
 $\Delta = 02^\circ 00' 01.95''$ (LT)
T = 17.46'
L = 39.42'
E = 0.15'
R = 1000.00'
PC Sta. 669+29.74
PT Sta. 669+64.65

Curve Data

PI Sta. 60018+36.55
 $\Delta = 85^\circ 19' 20.41''$ (LT)
T = 46.08'
L = 74.46'
E = 17.99'
R = 1000.00'
PC Sta. 60017+90.48
PT Sta. 60018+64.94

Location

Trail under Hickman Rd.
T-79N R-25W
Section 29
Walnut Township
Polk County
Asset No. 900595
Latitude 41.614866°
Longitude -93.779810°

Hickman Rd. Traffic Estimate

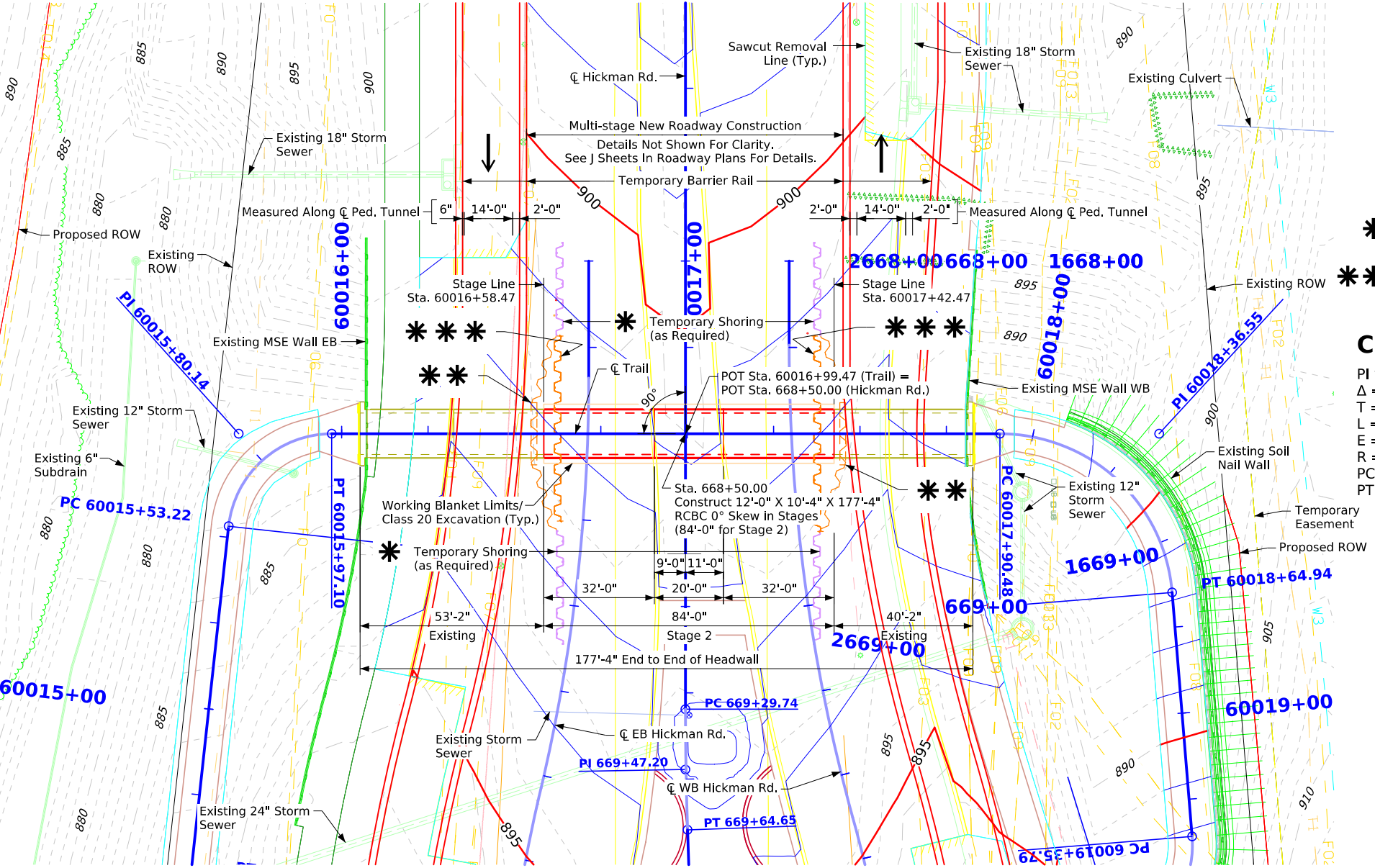
2022 AADT	37,600 V.P.D.
2050 AADT	66,000 V.P.D.
2050 DHV	4,240 V.P.H.
TRUCKS	6 %

Utility Legend

--E2--	- ELECTRIC LINE
--FO--	- FIBER OPTIC LINE
--FO2--	- FIBER OPTIC LINE
--FO3--	- FIBER OPTIC LINE
--FO4--	- FIBER OPTIC LINE
--FO6--	- FIBER OPTIC LINE
--FO7--	- FIBER OPTIC LINE
--FO8--	- FIBER OPTIC LINE
--FO9--	- FIBER OPTIC LINE
--FO11--	- FIBER OPTIC LINE
--FO13--	- FIBER OPTIC LINE
--T1--	- TELEPHONE LINE
--W3--	- WATER LINE
⊕	- POWER POLE
⊗	- POWER POLE
⊙	- POWER POLE

Utilities Note:

Utilities shown on this sheet are for information only. See Road Design Sheets for final utility information.



Situation Plan

Structure stage numbers do not correspond with the roadway construction and traffic staging numbers outlined in the tied IM-080-3(274)125--13-77.

Design For 0 Degree Skew
12'-0" x 10'-4" x 177'-4" (84'-0" Stage 2)
Concrete Pedestrian Tunnel

Situation Plan - Stage 2

STA. 668+50.00 (Hickman Rd.) Turn-in Date: July 2026

Polk County

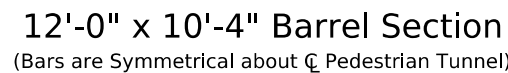
IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0227 Design Sheet No. 3 of 5 FHWA/Asset 900595

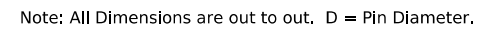




* Joint details not shown. See Design Sheet No. 4 for Wall, Slab, and Floor Construction Joint Details.

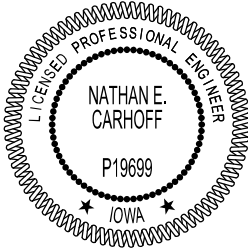


Bent Bar Details



Note:
Concrete and reinforcing steel quantities are included in the summary quantities tables on Design Sheet No. 1.

INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.3	Index of Roadway Sheets
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
C Sheets	Quantities and General Information
C.1	Estimated Roadway Quantities and Reference Notes
C.2 - 5	Roadway Tabulations
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	U.S. Hwy 6 (Hickman Road)
E Sheets	Recreational Trail Plan and Profile Sheets
* E.1	U.S. Hwy 6 (Hickman Road) Trail
G Sheets	Survey Sheets
G.1 - 2	Reference Ties and Bench Marks
G.3	Horizontal and Vertical Control Coordinates
G.4 - 5	Alignment Coordinates and Curve Data
H Sheets	Right-of-Way Sheets
HE.1	U.S. Hwy 6 (Hickman Road)
J Sheets	Traffic Control and Staging Sheets
J.1 - 3	Traffic Control Plan, Staging Notes, and Tabulations
	 * Color Plan Sheets



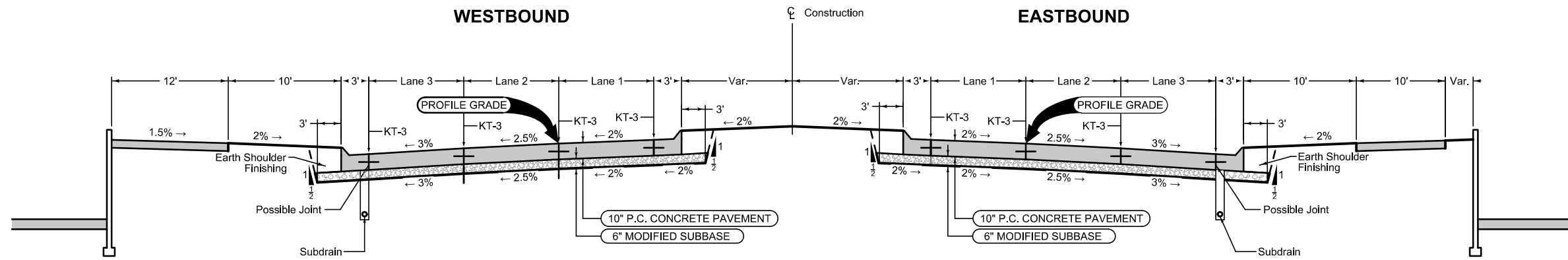
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.


Nathan E. Carhoff, P.E. 4/27/2026
Date

License Number P19699

My License Renewal Date is December 31, 2027

Pages or sheets covered by this seal:
A.3, B.1, C.1-C.5, D.1-D.2, E.1, G.1-G.5, HE.1, J.1-J.3



ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items :

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTURES	CY	43.1	Refer to Tabulation 104-4 and Standard Road Plan DR-111. Installation of subdrain, and connection of subdrain to existing subdrain, shall be considered incidental.
2	2402-0425040	FLOODED BACKFILL	CY	108.9	
3	2402-0875150	COMPACTION WITH MOISTURE CONTROL (STRUCTURES)	CY	780	

100_01D
8/15/22

PROJECT DESCRIPTION

This project includes the completion of a partially constructed pedestrian tunnel under U.S. Hwy 6 (Hickman Road).

104_04

8/15/22

ROADWAY ITEMS FOR DRAINAGE STRUCTURES INSTALLED BY CULVERT CONTRACTOR

* Not a Bid Item

(1) Backfill according to DR-111

Location	Design No.	Size	Kind	Dike Lt.	Dike Rt.	Dike Station	Dike Top Elevation	Dike Type	Compacting Backfill Adjacent (CY)	Compaction w/ Moisture Control (CY)	Compaction w/ Moisture and Density (CY)	Floodable Backfill* (A) (CY)	Porous Backfill* (B) (CY)	Flooded Backfill (1) (A+B) (CY)	Excavation Type	Excavation Quantity (CY)	Revetment Type	Revetment Quantity (TONS)	Engineering Fabric (SY)	Remarks
668+50.00	0227	12'-0 X 10'-4	RCB						43.1	780.0		102.7	6.2	108.9						See Design No. 0227 for Excavation QTys

STANDARDS The following Standards apply to construction work on this project.			105_04 4/21/26
Number	Date	Title	
DR-111	04-17-18	Box Culvert (Backfill)	

262.05 9/28/22 UTILITIES (POINT 25 PROJECT)	
This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.	

262.05 9/28/22 UTILITIES (POINT 25 PROJECT)	
This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.	

262.05 9/28/22 UTILITIES (POINT 25 PROJECT)	
This is a POINT 25 project and is subject to the provisions of IAC 761-115.25.	

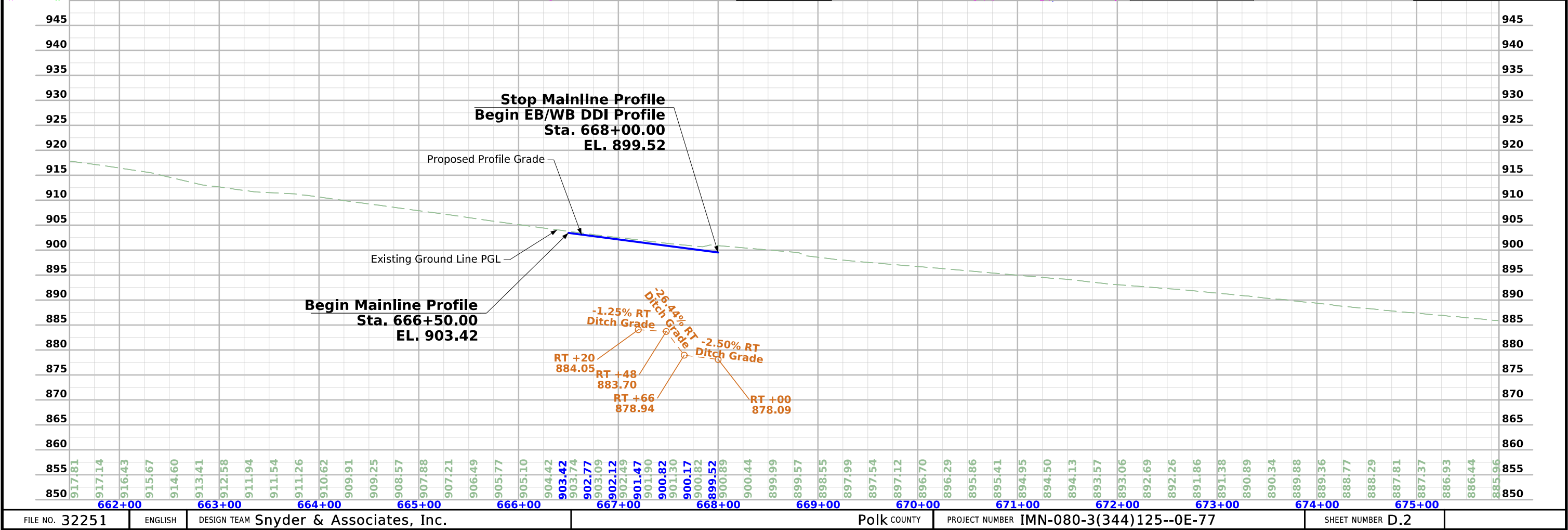
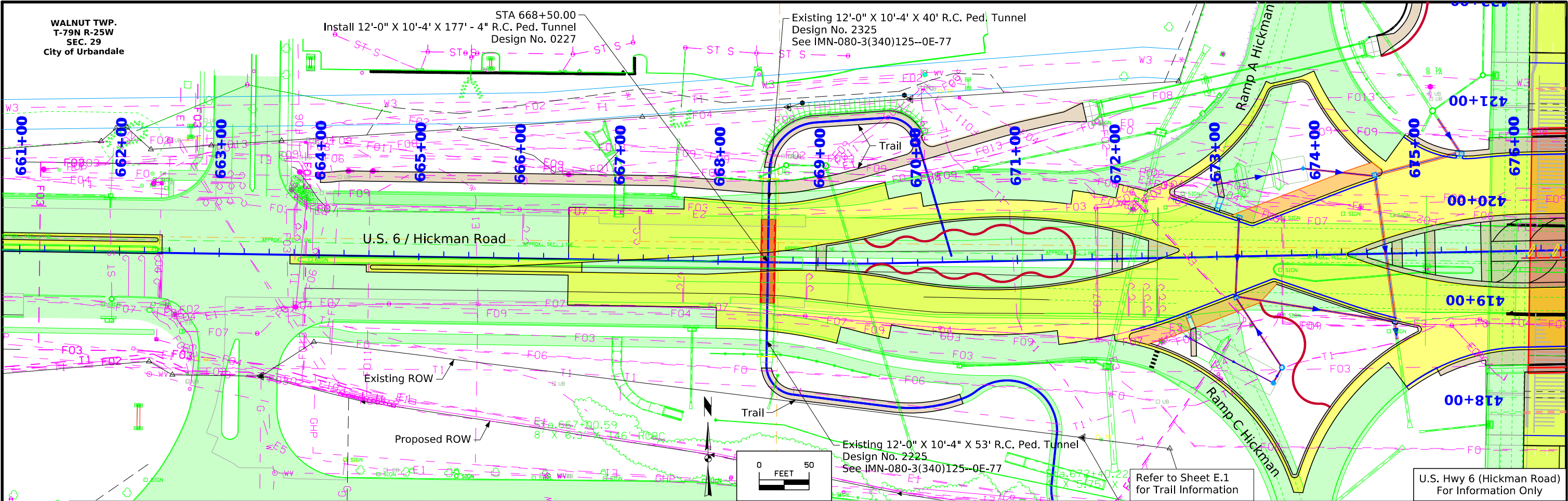
SURVEY SYMBOLS

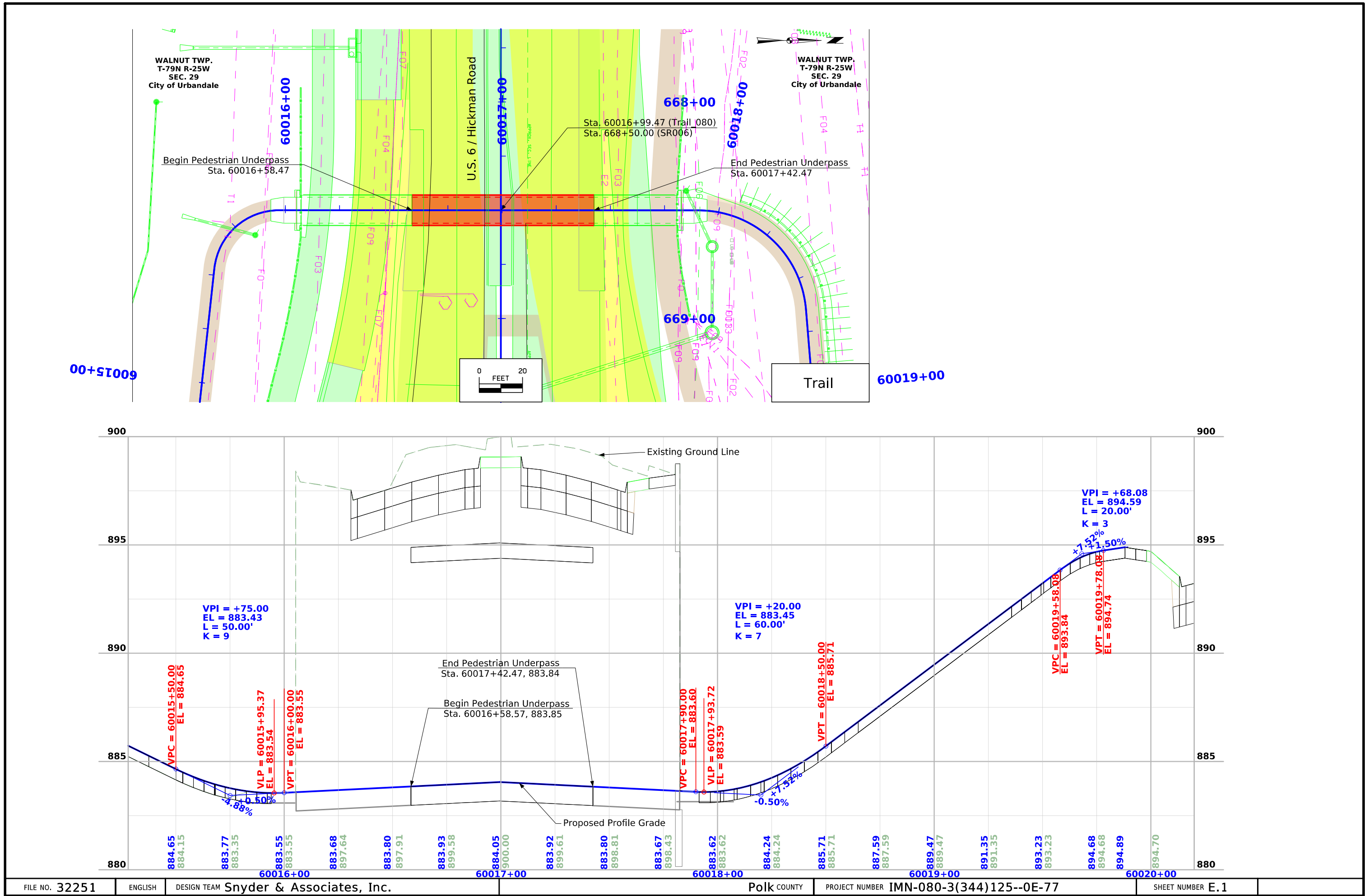
	Interstate Highway Symbol
	U.S. Highway Symbol
	Iowa Highway Symbol
	County Road Highway Symbol
	Evergreen Tree
	Deciduous Tree
	Fruit Tree
	Shrub (Bushes)
	Timber
	Hedge
	Stump
	Swamp
	Rock Outcrop
	Broken Concrete
	Revetment (Rip Rap)
	Cemetery
	Grave
	Cave
	Sink Hole
	Board Fence
	Chain Link or Security 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
	Water Hydrant (Rural)
	Septic Tank
	Cistern
	L.P. Gas Tank (No Footing)
	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)
	GP	Guard Post (one or two)
	GP	Guard Post (over two)
	FP	Filler Pipe
	GV	Gas Valve
	WV	Water Valve
	SL	Speed Limit Sign
	MM	Mile Marker Post
	SIGN	Sign
	TCB	Traffic Signal Control Box
	RRB	Rail Road Signal Control Box
	TSB	Telephone Switch Box
	EB	Electric Box
UTILITY LEGEND		
	E1	MidAmerican Energy Company Matthew Novy (515) 901-8274 Matthew.Novy@midamerican.com
	E2	City of Urbandale - Traffic Electric John Larson (515) 331-6718 engpw@urbandale.org
	E3	City of Clive - Traffic Electric Jerry Freestone (515) 223-6231 JFreestone@cityofclive.com
	E4	Iowa Department of Transportation (IDOT) Electric Jason Dale (515) 239-1995 jason.dale@iowadot.us
	E5	GPRS - No Name Electric
	F0	Zayo - Fiber Optic John Ferraresi (847) 417-9609 john.ferraresi@zayo.com
	F02	Lumen / CenturyLink - Fiber Optic Ashlie Clements (906) 284-2821 Ashlie.Clements@lumen.com
	F03	MCI/Verizon - Fiber Optic Grace Gilborn (515) 443-2865 Grace.Gilborn@verizon.com
	F04	Iowa Communications Network (INC) Fiber Optic Timothy Flicknger (515) 491-3750 timothy.flickinger@iowa.gov
	F05	Windstream Communications - Fiber Optic Mark Hussman (402) 677-5874 Mark.Hussman@Windstream.com
	F06	Unite Private Network - Fiber Optic Wyatt Bohle (515) 361-0491 Wyatt.Bohle@upnfiber.com
	F07	Clive Traffic - Fiber Optic Jerry Freestone (515) 223-6231 JFreestone@cityofclive.com

— F08	Consolidated Communications - Fiber Optic Phillip Williams (515) 418-1937 Phillip.Williams@consolidated.com
— F09	No Name (Unidentified) - Fiber Optic
— F010	Aureon - Fiber Optic Jeff Klocko (515) 830-0445 jeff.klocko@aureon.com
— F011	Mediacom - Fiber Optic Jerry Broughton (515) 246-2252 jbroughton@mediacomcc.com
— F013	Metronet - Fiber Optic Jeff Talbert (563) 505-1856 Jeff.Talbert@metronet.com
— G	MidAmerican Energy - Gas Line Matthew Novy (515) 901-8274 Matthew.Novy@midamerican.com
— G2	Unknown - Gas Line
— GHP	MidAmerican Energy - High Pres Gas Line Matthew Novy (515) 901-8274 Matthew.Novy@midamerican.com
● —	MidAmerican Energy - Riser Pole Matthew Novy (515) 901-8274 Matthew.Novy@midamerican.com
— ●	MidAmerican Energy - Power Pole Matthew Novy (515) 901-8274 Matthew.Novy@midamerican.com
— SAN.	City of Clive - Sanitary Sewer Jim Hagelie (515) 223-6231 JHagelie@cityofclive.com
— SAN.2	Des Moines Waste Water- Sanitary Sewer Patrick Brown (515) 323-8027 PABrown@dmgov.org
— SAN.3	City of Urbandale - Sanitary Sewer John Larson (515) 331-6718 engpw@urbandale.org
— ST S -	Storm Sewer Co. 1
— T1	CenturyLink - Telephone Line Ashlie Clements (906) 284-2821 Ashlie.Clements@lumen.com
— T2	Comm Data Link - Telephone Line
— TV	Mediacom - TV Cable Jerry Broughton (515) 246-2252 jbroughton@mediacomcc.com
— TV2	Proposed Route - TDI Cable TV Cable
— W	Clive Public Works Water - Water Line Jim Hagelie (515) 223-6231 JHagelie@cityofclive.com
— W2	Urbandale Water - Water Line Gail Palmer (515) 278-3940 gpalmer@urbandalewater.org
— W3	Des Moines Water Works - Water Line Carla Schumacher (515) 323-6227 cscumacher@dmww.com

<





Survey Information

POLK COUNTY
IM-080-4(69)125—13-77
I-35/80 & US HWY 6/HICKMAN ROAD INTERCHANGE
PIN 13770804069
SAP#04129

General Information

Measurement units for this survey are US survey feet. This survey is Preliminary Engineering Survey for the proposed Hickman Interchange project. This project is a Partial DTM survey. Traditional survey was performed within the project limits, with the exception of interstate pavement. For efficiency and safety, UAS was utilized to collect photo generated point cloud data on the interstate. The point cloud data was used to generate 3D line in the SUR file.

Vertical Control

Vertical datum for this survey is relative to NAVD88 Geoid 12b. Vertical datum originated from Hickman Road and 128th intersection, NHSX-006-4(189)—77, SAP 07011. Vertical positions originated from City of Urbandale published city benchmark report. BM #55 was used as the primary vertical control and is an IHC brass marker located at NE corner of northbound I-35 bridge over U.S. Highway 6. This survey observed three City of Urbandale Benchmark Monuments with published NAVD88 elevations:

City of Urbandale Benchmark #55 has a published Elev. of 929.83
Survey Elev. = 929.83

City of Urbandale Benchmark #45 has a published Elev. of 908.05
IR-35-2(204)73--12-77 published Elev. of 907.82
Survey Elev. = 908.05

BM #38B Project STP-6-49119)—2C-77 published Elev. of 889.17 (271.021m)
Survey Elev.= 889.46

City of Urbandale Benchmark #57 has a published Elev. of 899.61
Survey Elev. = 899.61

IDOT performed a 2018 survey of the SB University exit ramp, Project IMN-080-3(235)124—OE-77, SAP 0412.8. A difference of 0.07’ was found. Vertical difference between this current survey and the SB University exit ramp project are shown below.

Control Point	Published Elevation	Surveyed Elevation
FENO1	915.08	915.02
FENO2	895.27	895.21
G032	937.70	937.63

Horizontal Control

The project coordinate system is the Iowa Regional Coordinate System, Zone 8. Horizontal datum is NAD83 (2011) for Epoch 2010.00. The projection parameters for Zone 8 of the IaRCS is defined below:

Traverse Mercator Projection North American Datum of 1983
Origin Lat: 40°15'00"N
Origin Central Meridian: 093°43'00"W
Central Meridian Scale: 1.000033
False Northing: 7,000,000
False Easting: 18,500,000

Coordinates were determined by averaging a minimum of three IaRTN observations with appropriate time spans between. The horizontal standard deviation of these observations was less than 0.05’ at 95% confidence level.

Alignment Information

The horizontal alignments for I-35 was a retrace of as-built pacing plans for project IR-35-2(204)73—12-77. Stationing was held at POT Station 419+51.50 and ran ahead and back without equation.

P.C. 363+05.61 (plan) = P.C. 363+00.68 (this survey)

Plan Equation
P.O.T. 388+16.72 (plan back) = P.O.T. 388+17.60 (plan ahead) = P.C. 388+21.85 (this survey)
P.O.T. 419+51.50 (plan) = P.O.T 419+51.50 (this survey)

P.C. 437+32.9 (plan) = P.C. 437+32.9 (this survey)

P.T. 443+32.9 (plan) = P.T. 443+32.89 (this survey)

P.C. 469+65.5 (plan) = P.C. 469+65.5 (this survey)

P.T. 475+65.5 (plan) = P.T. 475+64.91 (this survey)

P.C. 522+83.36 (plan) = P.C. 522+84.09 (this survey)

The horizontal alignments for U.S. Highway 6 and 128th Street was provided by Iowa DOT District 1 Office. Description of alignment as received described below.

The horizontal alignment for U.S. 6 (Hickman Road) is a retrace of as-built paving plan for project STP-6-4(119)--2C-77. Plan stationing is in metric and was converted to U.S. survey foot for this survey. Stationing was held at P.I. 186+92.513m (converted to station 613+27.02 in U.S. survey foot) and ran ahead without equation.

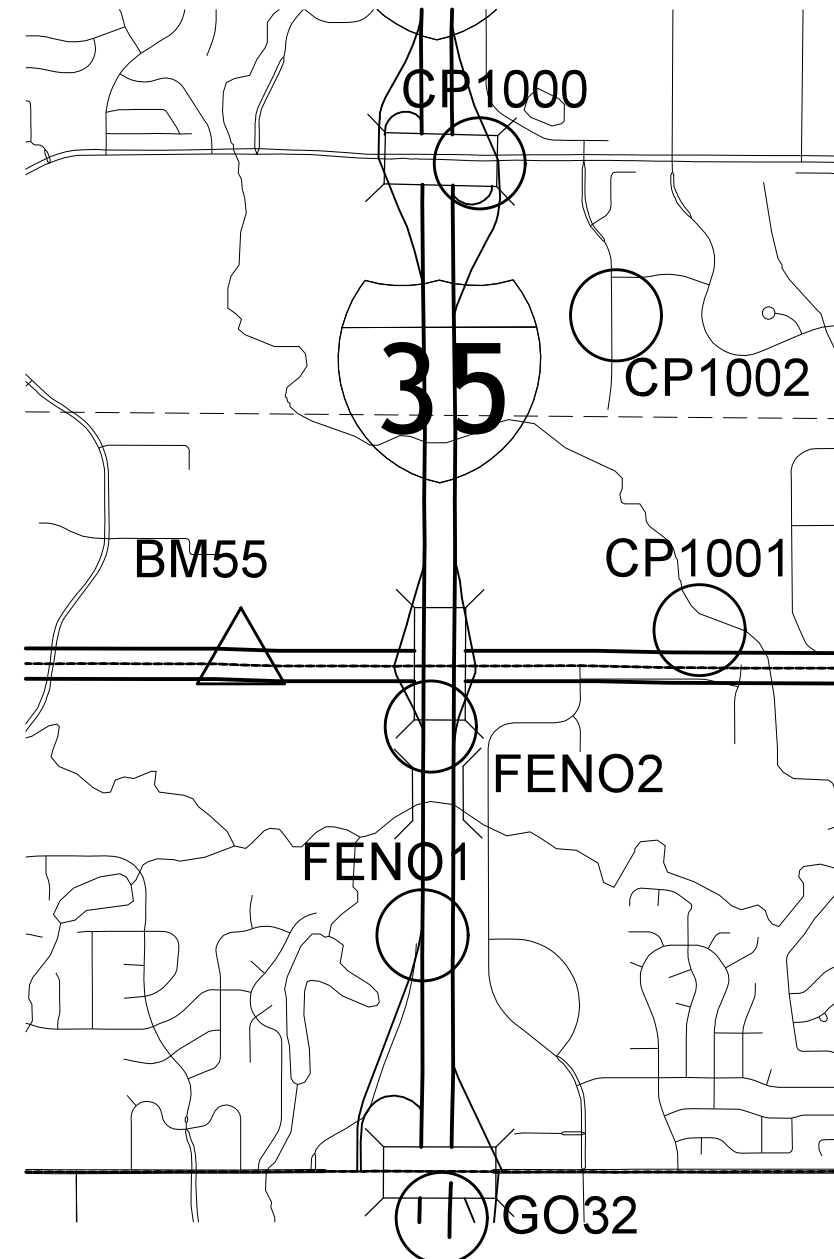
P.I. 186+92.513m (613+27.02 U.S. survey foot) = P.I. 186+92.513m (613+27.02 U.S. survey foot) (this survey)
Found “P-K” nail in conc. crossover

P.C. 198+53.721m (651+36.75 U.S. survey foot) = P.C. 198+53.757 (651+36.87 U.S. survey foot) (this survey)
Found 5/8” re-rod (flush)

Utilizing the provided alignment and the same as-built paving plans for project STP-6-4(119)--2C-77, Snyder & Associates extended alignment east from 651+36.75 to 673+00.

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points
Primary control is for use with RTK base stations and for RTN validation.
Future surveys will use primary project control to establish temporary
control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 8

Coordinate listing from next sheet will be used with 1aRTN for monument
recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 8

Point Name	Northing	Easting	Elevation	Feature Definition
CP1000	7502552.37	18483969.64	999.20	FENO-SET MONUMENT +/- 25' SOUTH OF DOUGLAS AVE, +/-25' OFF RAMP.
CP1001	7497688.97	18486259.21	876.70	FENO-SET MONUMENT NORTH SIDE NW 11TH ST, 8' NORTH OF BACK OF CURB, 40' SW OF LIGHT POLE.
CP1002	7500968.72	18485389.65	935.99	FENO-SET MONUMENT EAST SIDE OF 11TH ST, +/- 7' EAST OF 1ST HYDRANT SOUTH OF JOHNSTON SUPPLY.
FEN01	7494509.38	18483375.02	915.02	FENO-FOUND MONUMENT WEST SIDE OF I-35 AT START OF UNIVERSITY OFF RAMP.
FEN02	7496684.19	18483459.91	895.21	FENO-FOUND MOUNUMENT WEST SIDE I-35 AND EAST OF SB ON RAMP OF HICKMAN ROAD.
G032	7491564.87	18483573.86	937.63	FENO-FOUND MONUMENT +/- 5' EAST OF EAST SHOULDER NB I-35, 500' SOUTH OF UNIVERSITY AVE.
BM55	7497393.85	18481482.57	929.83	URBANDALE BM55//FOUND BRASS PLUG IN CONCRETE/NORTH SIDE OF HICKMAN ROAD

ALIGNMENT COORDINATES																				101_16 10/25/24
Line No.	Name	Location	Point on Tangent Station	Point on Tangent Y Northing	Point on Tangent X Easting	Begin Spiral Station	Begin Spiral Y Northing	Begin Spiral X Easting	Begin Curve Station	Begin Curve Y Northing	Begin Curve X Easting	Simple Curve PI or Master PI Station	Simple Curve PI or Master PI Y Northing	Simple Curve PI or Master PI X Easting	End Curve Station	End Curve Y Northing	End Curve X Easting	End Spiral Station	End Spiral Y Northing	End Spiral X Easting
1.0	SR006	POB	613+27.02	7497336.77	18477210.04															
2.0		Hickman Curve 1							651+36.87	7497335.47	18481019.89	653+55.18	7497335.4	18481238.2	655+73.43	7497327	18481456.34			
3.0		Hickman Curve 2							657+09.06	7497321.79	18481591.87	659+05.58	7497314.23	18481788.25	661+02.06	7497313.41	18481984.76			
4.0		Hickman Curve 3							669+29.74	7497309.98	18482812.44	669+47.20	7497309.91	18482829.9	669+64.65	7497310.45	18482847.35			
5.0		Hickman Curve 4							680+71.65	7497344.51	18483953.82	681+26.43	7497346.19	18484008.57	681+81.10	7497341.89	18484063.18			
6.0		Hickman Curve 5							685+49.54	7497312.93	18484430.48	685+88.90	7497309.84	18484469.72	686+28.21	7497309.84	18484509.07			
7.0		POE	716+00.00	7497309.84	18487480.86															
8.0																				
9.0	TRAIL_080	POB	60000+00.00	7496001.166	18483411.55															
10.0		Curve 1							60001+07.11	7496108.259	18483409.45	60001+43.70	7496144.83	18483408.74	60001+75.74	7496168.22	18483380.6			
11.0		Curve 2							60001+75.74	7496168.22	18483380.6	60002+22.90	7496198.36	18483344.33	60002+63.88	7496245.526	18483344.51			
12.0		Curve 3							60004+06.66	7496388.308	18483345.08	60004+53.18	7496434.82	18483345.26	60004+93.74	7496464.931	18483309.81			
13.0		Curve 4							60004+93.74	7496464.931	18483309.81	60005+20.88	7496482.46	18483289.08	60005+46.75	7496508.064	18483280.06			
14.0		Curve 5							60010+35.88	7496969.414	18483117.56	60010+68.47	7497000.15	18483106.73	60010+98.89	7496969.414	18483079.88			
15.0		Curve 6							60011+46.16	7497045.381	18483040.92	60011+75.57	7497062.04	18483016.68	60011+99.33	7497091.317	18483019.46			
16.0		Curve 7							60012+48.15	7497139.915	18483024.07	60013+66.34	7497257.59	18483035.09	60013+65.21	7497183.55	18482942.97			
17.0		Curve 8							60013+65.21	7497183.55	18482942.97	60013+71.77	7497179.44	18482937.86	60013+78.24	7497176.961	18482931.78			
18.0		Curve 9							60013+78.24	7497176.961	18482931.78	60014+16.53	7497162.49	18482896.33	60014+53.22	7497166.788	18482858.28			
19.0		Curve 10							60015+53.22	7497178.007	18482758.91	60015+80.14	7497181.03	18482732.16	60015+97.10	7497207.942	18482732.27			
20.0		Curve 11							60017+90.48	7497401.322	18482733.08	60018+36.55	7497447.4	18482733.27	60018+64.94	7497450.965	18482779.2			
21.0		Curve 12							60019+35.79	7497456.45	18482849.84	60019+59.84	7497458.31	18482873.83	60019+76.34	7497435.306	18482880.86			
22.0		POE	60020+98.03	7497318.93	18482916.42															

101_17
1/17/24

SPIRAL OR CIRCULAR CURVE DATA

Line No.	Name	Location	SCS	S	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	C	T	L	R	E	Remarks
1.0	SR006	Hickman Curve 1										2❖ 11' 04.29	218.31	436.56	11450.11	2.08	
2.0		Hickman Curve 2										1❖ 57' 59.59	196.52	393.00	11450.11	1.69	
3.0		Hickman Curve 3										2❖ 00' 01.95	17.46	34.92	1000.00	0.15	
4.0		Hickman Curve 4										6❖ 16' 14.38	54.78	109.44	1000.00	1.50	
5.0		Hickman Curve 5										4❖ 30' 27.18	39.36	78.67	1000.00	0.77	
6.0																	
7.0	TRAIL_080	Curve C1										49❖ 08' 57.94	36.58	68.63	80.00	7.97	
8.0		Curve C2										50❖ 30' 00.02	47.16	88.14	100.00	10.56	
9.0		Curve C3										49❖ 53' 29.08	46.52	87.08	100.00	10.29	
10.0		Curve C4										30❖ 22' 28.31	27.15	53.01	100.00	3.62	
11.0		Curve C5										36❖ 05' 54.69	32.59	63.00	100.00	5.18	
12.0		Curve C6										60❖ 55' 41.81	29.41	53.17	50.00	8.01	
13.0		Curve C7										134❖ 08' 18.81	118.19	117.06	50.00	78.33	
14.0		Curve C8										16❖ 35' 22.76	6.56	13.03	45.00	0.48	
15.0		Curve C9										28❖ 38' 30.37	38.29	74.98	150.00	4.81	
16.0		Curve C10										83❖ 47' 44.91	26.92	43.88	30.00	10.30	
17.0		Curve C11										85❖ 19' 20.41	46.08	74.46	50.00	17.99	
18.0		Curve C12										77❖ 26' 58.15	24.06	40.55	30	8.45	

TRAFFIC CONTROL PLAN		108_23A 8/15/22
Refer to J-Sheets in project IM-080-3(274)124--13-77 for traffic control plan and staging layout details.		

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
IM-080-3(274)125--13-77	PCC Pavement - Grade and New
IM-080-3(269)124--13-77	PCC Pavement - Grade and New
IM-080-3(277)125--13-77	Traffic Signals
IM-080-3(275)125--13-77	Traffic Signing
IM-080-3(276)125--13-77	Lighting

511 TRAVEL RESTRICTIONS													108_25 3/28/24
Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
				Refer to IM-080-3(274)125--13-77 for	travel restrictions.			None					