

STORY COUNTY RCB CULVERT REPLACEMENT - SINGLE BOX

Proj. No. L-U28S--73-85

Letting Date March 3, 2026

PROJECT TRAFFIC CONTROL PLAN
 THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES, LAYOUTS, SIGNING, AND PAVEMENT MARKINGS INSTALLED WITHIN THE LIMITS OF THIS PROJECT SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AS ADOPTED BY THE DEPARTMENT PER 761 OF THE IOWA ADMINISTRATIVE CODE (IAC) CHAPTER 130.
 ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, AND MAINTAINED BY THE CONTRACTOR.

UTILITIES INFORMATION
 UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THESE PLANS OR SHOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE AND SUBSEQUENT WORK IN THE AREA.
 AT&T TRANSMISSION: 314-343-7228
 IOWA REGIONAL UTILITIES ASSOCIATION: 641-792-7011
 HUXLEY COMMUNICATION COOPERATIVE: 515-597-2281
 CONSUMERS ENERGY: 641-485-0702
 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF UTILITIES IN THE PROJECT AREA PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL GRANT ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATIONS. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEIR LOCATIONS ARE ONLY APPROXIMATE. IT IS POSSIBLE THERE MAY BE OTHER UTILITIES, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL UTILITIES IN THE PROJECT AREA AND THEIR EXACT LOCATION AND TO AVOID DAMAGE TO THEM. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

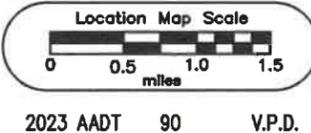
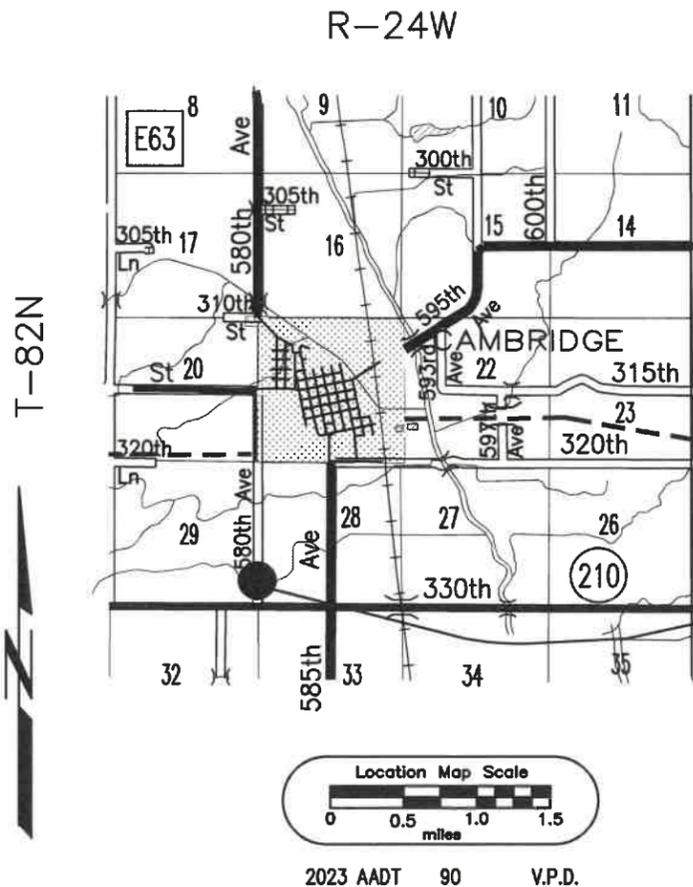
IOWA
DEPARTMENT OF TRANSPORTATION
 Highway Division
 PLANS OF PROPOSED IMPROVEMENT ON THE
SECONDARY ROAD SYSTEM
STORY COUNTY
RCB CULVERT REPLACEMENT-SINGLE BOX

On 580th Ave.; over small stream;
 S29- T82N-R23W

Refer to Proposal Form for a list of applicable specifications.

Scales: As Noted

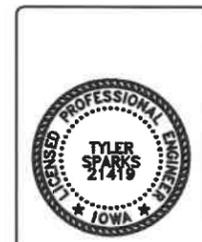
CORPS OF ENGINEERS PERMIT
 CONSTRUCT THIS PROJECT ACCORDING TO THE REQUIREMENTS OF U.S. ARMY CORPS OF ENGINEERS Nationwide Permit No. 14. A COPY OF THIS PERMIT IS AVAILABLE FROM THE IOWA DOT WEBSITE. THE U.S. ARMY CORPS OF ENGINEERS RESERVES THE RIGHT TO VISIT THE SITE WITHOUT PRIOR NOTICE. (HTTP://WWW.ENVPERMITS.IOWADOT.GOV/).



SEND SHOP DRAWINGS TO:
 STORY COUNTY ENGINEER
 837 N AVE.
 NEVADA, IOWA 50201

PROJECT LOCATION
 STA 7+97.08; On 580th Ave.; over small stream;
 S29- T82N-R23W

DESIGN FOR:
 SINGLE 8'X5'X52'
 PRE-CAST CONCRETE BOX
 CULVERT ON 30° SKEW



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.
 Signed: *Tyler Sparks* Date: *1-16-26*
 Tyler Sparks, P.E. 21419
 My license renewal date is December 31, *2026*
 Pages or sheets covered by this seal:
 (Entire submission unless specified here)

Project No. L-U28S--73-85

INDEX OF SHEETS	
No.	Description
A.01	TITLE SHEET
B.01	TYPICAL SECTIONS SHEET
B.02	CULVERT SECTION SHEET
C.01	QUANTITY INFORMATION SHEET
C.02	GENERAL NOTES SHEET
C.03	TABULATION SHEET
D.01	PLAN AND PROFILE SHEET
W.01-W.02	CROSS SECTION SHEETS

MILEAGE SUMMARY			
Div.	Location	Lin. Ft.	Miles
I	STA. 7+25.00 TO STA. 8+75.00	150.00	0.028
Total		150.00	0.028

STANDARD ROAD PLANS		
The following Standard Road Plans apply to construction work on this project.		
Number	Date	Title
DR-101	04-18-17	PIPE CULVERT (BEDDING AND BACKFILL)
DR-102	04-21-15	PIPE CULVERT (COVER AND CAMBER)
DR-103	04-21-15	PIPE CULVERT (INSTALLATION DETAILS)
DR-104	04-19-16	DEPTH OF COVER TABLES FOR CONCRETE AND CORRUGATED PIPE
EC-301	10-18-22	ROCK EROSION CONTROL (REC)
EW-101	10-17-17	EMBANKMENT AND REBUILDING EMBANKMENTS
EW-102	10-20-15	ALLOWABLE PLACEMENT OF UNSUITABLE SOILS IN EMBANKMENTS
TC-252	04-21-20	ROUTES CLOSED TO TRAFFIC

Accepted by
Dawn Mauer 1-20-26
 Story County Engineer Date

 Approved Story County
 Board of Supervisors

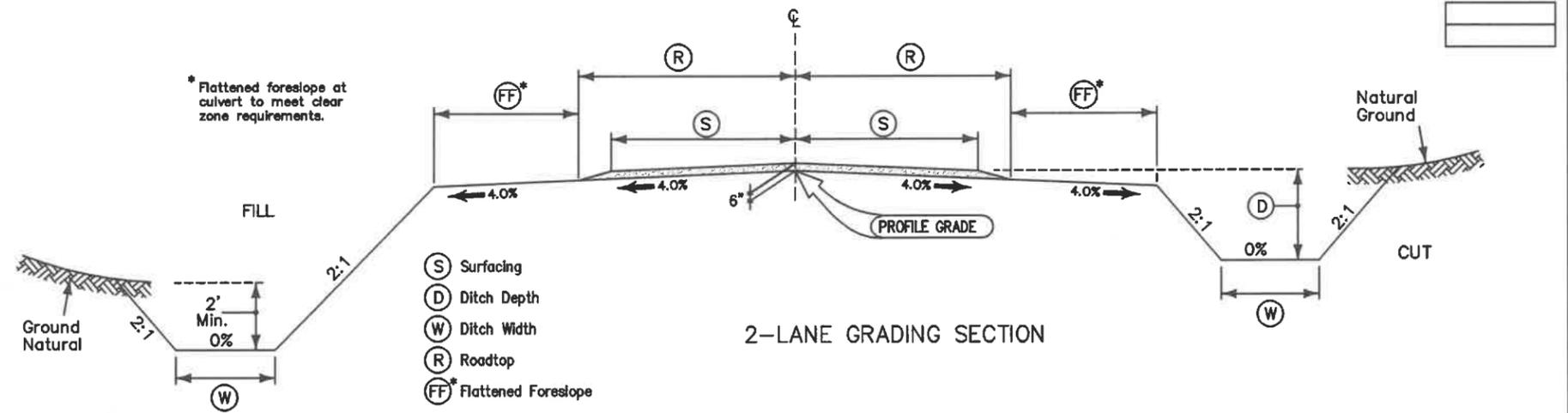
PROJ No. L-U28S--73-85

TYPICAL SECTIONS SHEET

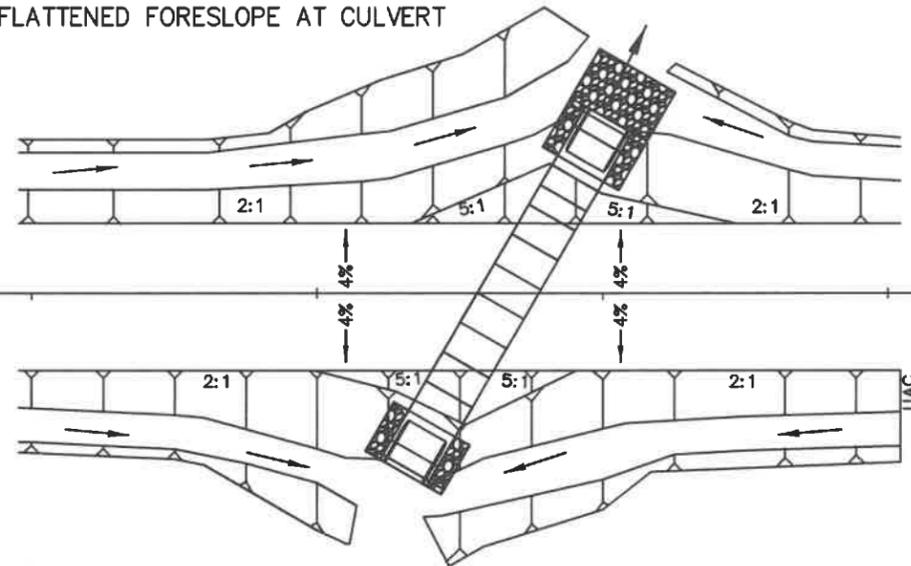
Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

See Plan & Profile sheets and cross sections for additional details of ditches and backslopes.

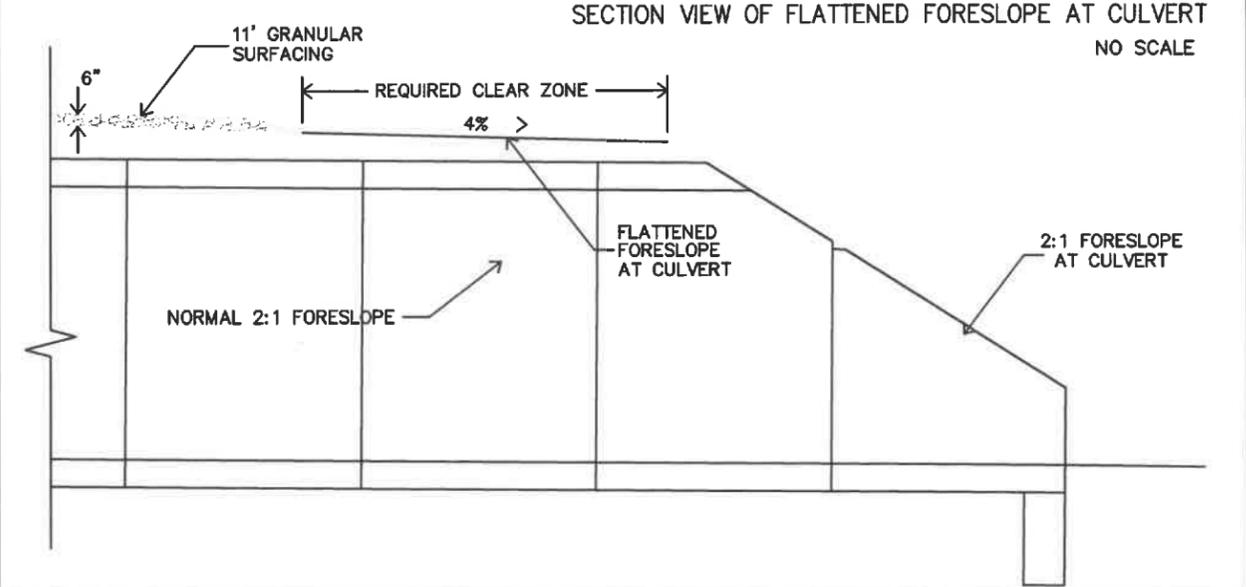
LOCATION				DIMENSIONS				
ROAD IDENTIFICATION	SIDE	STATION TO STATION		FF*	D	W	R	S
				Feet	Feet	Feet	Feet	Feet
580th Ave.	Lt.	7+25.0	7+56.8	0	var.	6	13	11
580th Ave.	Lt.	7+56.8	7+84.2	var.	var.	6	13	11
580th Ave.	Lt.	7+84.2	8+06.9	7	var.	6	13	11
580th Ave.	Lt.	8+06.9	8+41.3	var.	var.	6	13	11
580th Ave.	Lt.	8+41.3	8+75.0	0	var.	6	13	11
580th Ave.	Rt.	7+25.0	7+56.5	0	var.	6	13	11
580th Ave.	Rt.	7+56.5	7+81.3	var.	var.	6	13	11
580th Ave.	Rt.	7+81.3	7+91.8	7	var.	6	13	11
580th Ave.	Rt.	7+91.8	8+15.7	var.	var.	6	13	11
580th Ave.	Rt.	8+15.7	8+75.0	0	var.	6	13	11



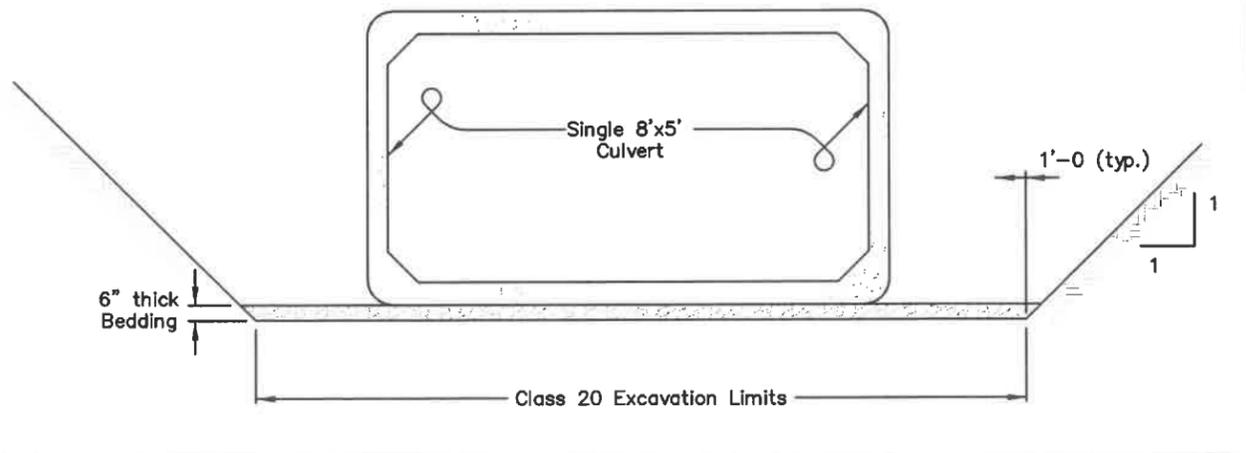
PLAN VIEW OF FLATTENED FORESLOPE AT CULVERT
NO SCALE



SECTION VIEW OF FLATTENED FORESLOPE AT CULVERT
NO SCALE

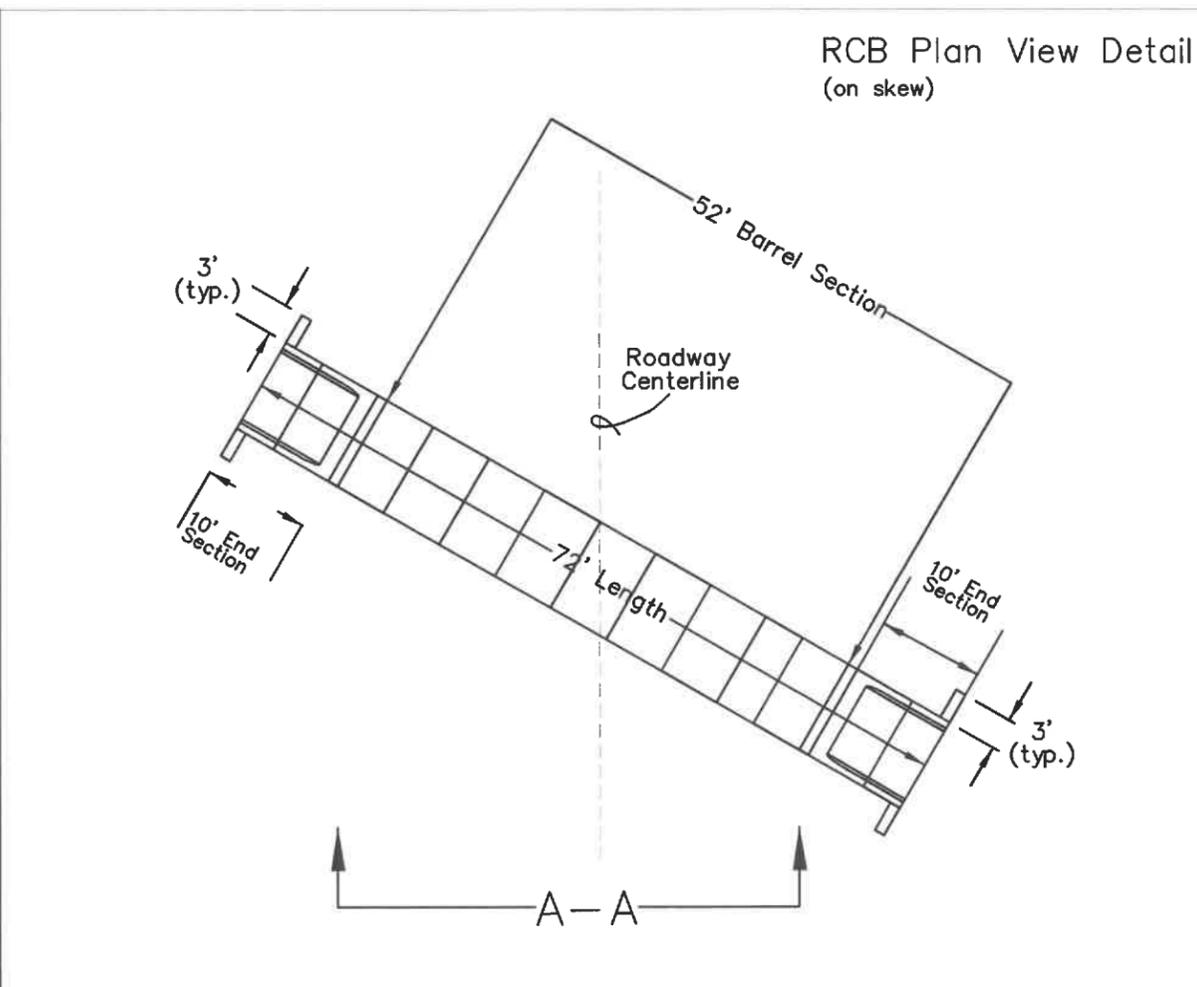
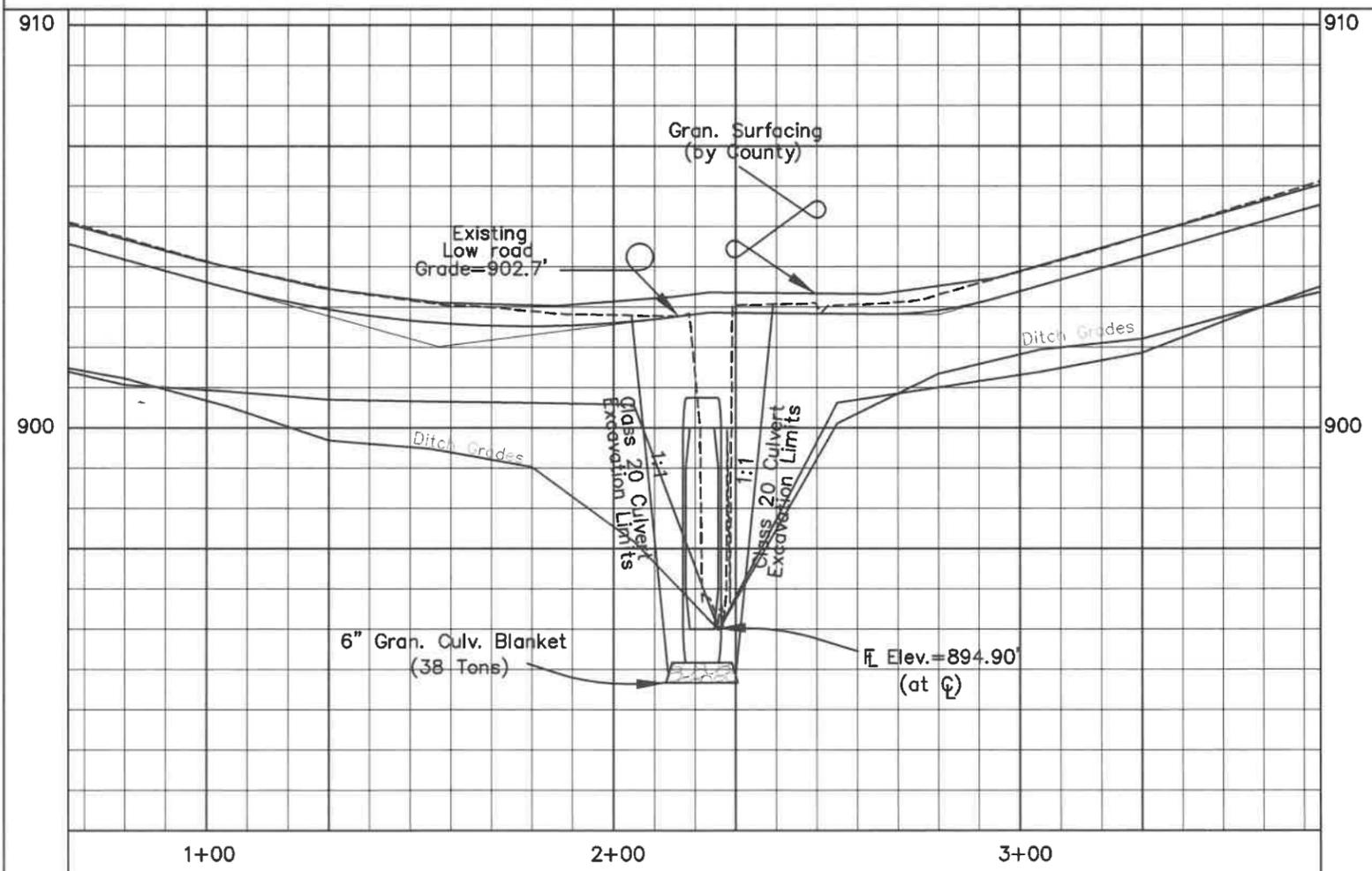
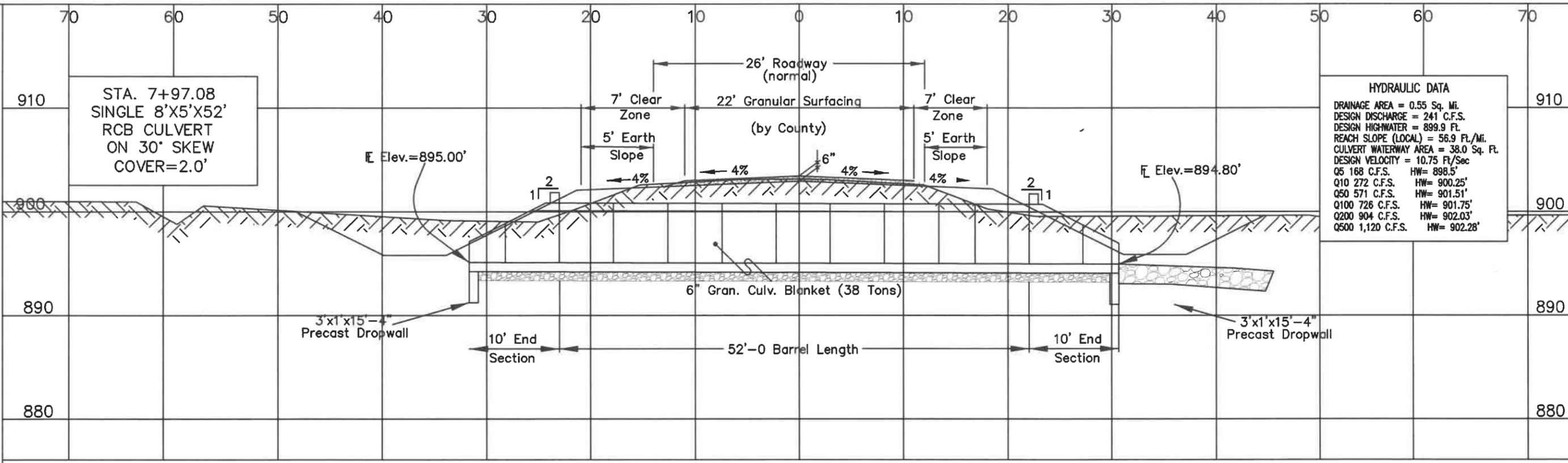


SECTION VIEW OF SINGLE CULVERT PLACEMENT
NO SCALE



PROJ No. L-U28S--73-85

CULVERT SECTION SHEET



PROJ No. L-U28S--73-85

QUANTITY INFORMATION SHEET

ESTIMATED PROJECT QUANTITIES OF QUANTITIES
(1 DIVISION PROJECT)

ITEM	ITEM CODE	ITEM	UNIT	TOTAL
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.3
2	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	60.0
3	2102-2710070	EXCAVATION, CL 10, ROADWAY AND BORROW	CY	143.3
4	2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	21.8
5	2110-3825010	GRANULAR MATERIAL	TON	38.0
6	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1.0
7	2402-2720000	EXCAVATION, CLASS 20	CY	79.7
8	2415-2110805	PRECAST CONCRETE BOX CULVERT, 8 FT. X 5 FT.	LF	52.0
9	2415-2200805	PRECAST CONCRETE BOX CULVERT END SECTION, 8 FT. X 5 FT.	EACH	2.0
10	2507-3250005	ENGINEERING FABRIC	SY	74.7
11	2507-6800061	REVTMENT, CLASS E	TON	33.8
12	2528-2518000	SAFETY CLOSURE	EACH	4.0
13	2528-8445110	TRAFFIC CONTROL	LS	1.0
14	2533-4980005	MOBILIZATION	LS	1.0

GENERAL NOTES

Story County to stake culvert control and right-of-way, maintain detour signing, furnish and place granular surfacing on roadway, apply seeding and mulching, and place erosion control measures.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1.	The entire project shall be cleared and grubbed from BOP to EOP and from ROW line to ROW line.
2.	Contractor to furnish suitable borrow material. Much of this material is intended for placement in the top 4'x9'x2½' of roadway fill over the culvert; the rest of this item quantity will be used to achieve dirt balance.
3.	Plan quantity is based on approximately 126.84 CY of fill (30% shrink factor) and 143.30 CY of cut. Contractor to furnish material from a suitable borrow site to achieve dirt balance (Item #2). Type A compaction required. No payment for overhaul will be made. Approximately 60.5 cy of this item includes the stripping, stockpiling, and spreading topsoil. Topsoil to be spread smooth to a minimum of 4" on all disturbed areas from catch points to edge of road. Slopes to be finished smooth to allow for seeding. See Cross Section sheets for station-by-station dirt quantities.
4.	Item for excavating a 10'x15'x2' rock splash basin at the outlet and matching the inlet channel. Quantity includes 9.8 cy for the outlet splash basin and approx. 12.0 cy for channel matching. Suitable excavated material may be drained and wasted on roadway foreslopes with the approval from the Engineer.
5.	Approximately 38 tons of 1" rock is required under the pipes for bedding.
6.	Materials from the old structure shall become the property of the Contractor according to article 1104.08 of the Standard Specifications, and removed from site. The existing structure is a 7'x5' concrete box on a 30'.
7.	Item for excavation for culvert placement. Suitable material may be used to backfill culvert and supplement Class 10 roadway quantity with approval from the Engineer.
8.-9.	Precast RCB culvert shall be a single 8'x5'x52' with straight end sections on the outlet and inlet. The culvert shall be supplied by the Contractor as per plan, which includes dropwalls, and parapets. See tabulation on Sheet C.03 and notes on Sheet C.02 for details.
11.	Items for the construction of a rock splash basin at the outlet and slope protection at all four wings. See Tabulation 100-23 on Sheet C.03 for stationing and quantities, and Standard Road Plan EC-301 for details.
12.	See Tabulation 108-13A on Sheet C.03 for stationing and quantities.
13.	See Standard Road Plan TC-252 for details.

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GENERAL NOTES SHEET

GENERAL NOTES

GENERAL NOTES:

Contractor to construct a single 8'x5'x52' pre-cast concrete box culvert on a 30' skew, on 580th Ave. over a field drainage waterway, and grade approaches.

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. These areas shall not impact wetlands or "Waters Of The U.S." No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right-of-way, unless specifically stated in the plans.

Contractor shall maintain access to individual properties during construction, and any associated work shall be considered incidental to this project.

Construction activities, equipment, and materials shall be kept out of the streams, wetlands, or other bodies of water to the maximum extent practicable.

CONTRACTOR'S WORK AREA:

The Contractor's work and material storage area shall be defined by the Contractor and noted to the Engineer. Any area outside the Contractor's work and material storage area that is disturbed by the Contractor shall be repaired to its original condition by the Contractor and no additional payment shall be made for this work.

UTILITY NOTES:

The Contractor shall call One Call at least 48 hours prior to beginning work. Utility companies found to be located within in the construction area are listed on the title sheet of these plans. See Section 1107.15 of the Iowa DOT Standard Specifications For Highway And Bridge Construction, Series 2015, regarding utility related responsibilities.

SHOP DRAWING NOTES:

Working drawings and calculations shall be furnished by the Contractor and certified by a licensed engineer in the State of Iowa, and shall be submitted to the Story County Engineer for review and approval. Refer to Section 1105.03 for additional information.

HAZARDOUS MATERIALS NOTES:

It is presumed that there is no asbestos at this site. However, should the occasion arise that asbestos is discovered during bridge demolition, then demolition shall cease and the the County will contract with a licensed asbestos contractor to remove any asbestos.

EMERALD ASH BORER NOTE:

Dispose of all wood material generated as a result of clearing and/or grubbing according to the Iowa Department of Agriculture and Land Stewardship's Emerald Ash Borer (EAB) Quarantine Order. For more information refer to http://www.iowatreepests.com/eab_regulations.html.

INDIANA BAT HABITAT:

See Iowa DOT Specification 2101.01.

PRE-CAST CULVERT NOTES

INSTALLATION NOTES:

Precast concrete box culvert sections shall be laid with the groove end of each section up-grade, and the sections shall be tightly joined. Joint openings between sections should be as tight as practicable and limited to a maximum of ¼ inch openings. The joint on the bottom of the culvert shall be sealed with a flexible water tight 1 inch butyl rope gasket as per Materials I.M. 491.09. Butyl rope gasket shall be installed in accordance with the recommendations of the manufacturer and shall extend vertically 6 inches above the bottom fillet. All joints shall be trimmed clean on the inside after sealing. The contractor shall also place a 2 foot wide piece of engineering fabric around the top and sides of each precast joint. The fabric shall be centered with 1 foot on each side of the joint. The fabric shall be attached to the walls and top of each section to prevent the fabric from slipping off the joint during backfilling operations. Attachment methods shall be approved by the engineer.

All costs including material, equipment, and labor necessary for installing the culvert as detailed herein, shall be included in the bid item Precast Concrete Box Culvert. The engineering fabric shall meet the material requirements as set forth in 4196.01c of the Iowa DOT Standard Specifications. During backfilling the compaction adjacent to the bottom corner radii shall be accomplished with a mechanical hand compactor. The contractor shall furnish and install lifting hole plugs for each section. Lifting holes shall be plugged with a precast concrete plug, sealed and covered with mastic or mortar.

DESIGN REQUIREMENTS:

The precast culvert sections shall meet the minimum requirements of ASTM C 1577, Table 1 sections that are designed for combined earth dead load and AASHTO HL-93 live load conditions. Any precast box culvert designs submitted that vary from the ASTM C 1577 standard, shall be designed and sealed by a professional engineer, currently registered in the State of Iowa. Minimum length of precast sections shall be 4.0 feet. Minimum culvert wall thickness shall be 8 inches.

PRE-CONSTRUCTION NOTES:

The Contractor shall submit details of the proposed precast box sections to the Story County engineers office for approval. These details shall include a situation plan, culvert barrel cross sections showing steel, and end section details. The length in linear feet of precast concrete box culvert will be based on the plan quantity.

For the number of linear feet given on the plan, the Contractor will be paid the contract unit price per linear foot. The payment shall be full compensation for furnishing all materials, labor and equipment necessary to complete the work except for items in end sections and Class 20 Excavation.

For each precast box culvert end section installed the Contractor will be paid the contract price for each. The payment shall be full compensation for furnishing all materials (including dropwalls), labor and equipment necessary to complete the work except for items in precast concrete box culvert and Class 20 Excavation.

Dropwalls and parapets shall be precast.

The Contractor shall furnish culvert ties for all joints. The main section joints will have one tie on each side of the barrel and the last barrel section will be attached to the end sections with two ties per side. Culvert ties shall be included in the cost for precast concrete box culvert. Tie rods will be 1 inch in diameter steel and shall meet requirements of ASTM A 709 grade 36 or equal. Culvert tie assemblies shall be galvanized or painted according to 2408.30 of the Iowa DOT Standard Specifications. Acrylic topcoat not required.

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TABULATIONS SHEET

DRAINAGE STRUCTURES BY CULVERT CONTRACTOR

* Not a bid item.

Location	Size Ft.	Type	Length New Const. Lin. Ft.	No. of Aprons	Flow Line Elevation				Dimensions - Lin. Ft.				Skew Ahead		By Road Contractor				Floodable* Backfill (A) Cu. Yds.	Porous* Backfill (B) Cu. Yds.	Flooded Backfill (A+B) Cu. Yds.	REMARKS
									Total		Extensions		Degrees		Rt. Location Station	Top Elev.	Type	Comp. Backfill Cu. Yds.				
					Left	Right	Left	Right	Left	Right	Lt.											
7+97.08	8x5	Single RCB	52.0		895.00	894.80			35.9	36.1			15							25.0 cy Class 20 Excav.		

ROCK EROSION CONTROL

Refer to EC-30 and Detail 570-81

Location				L FT	W FT	Rock Erosion Control (REC)					Material Bid Quantities			Remarks
Road Identification	Begin Station	End Station	Side Lt./Rt.			Type 1 Rock Ditch Check	Type 2 Rock Ditch	Type 3 Rock Flume	Type 4 Rock Splash Basin	Type 5 Rock Slope Protection	Eng. Fabric SY	Class E Revetment TON	Erosion Stone TON	
580th Ave.	7+67.7	7+91.0	27.3' Rt.	15	10				X	31.1	18.8		Splash Basin at RCB outlet.	
580th Ave.	7+72.7	7+91.0	34.4' Rt.	3	10				X	21.8	7.5		Wing Armoring at outlet.	
580th Ave.	8+03.7	8+22.0	35.6' Lt.	3	10				X	21.8	7.5		Wing Armoring at Inlet.	

TABULATION OF SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

STATION	CLOSURE TYPE		REMARKS
	ROAD QTY.	HAZARD QTY.	
7+00	1		
7+50		1	
8+50		1	
9+00	1		
	2	2	TOTAL = 4.00

PROJ No. L-U28S--73-85

SE¼, SE¼, Sec. 29-82-23

Nelson, Kenneth

- Water Line
- FIBER - FIBER - Fiber Cable
- ⊕ Power Pole
- ⊗ Telephone Ped
- Tile Intake
- ⊕ Water Valve

Rt. Sta. 8+03.70; Contractor to construct 3'x10'x2' rock slope protection along inlet.

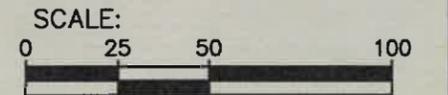
Sta. 7+97.08; Contractor to remove and dispose of existing 7'x5' concrete box culvert; furnish and place single 8'x5'x52' pre-cast concrete box culvert on 30° skew.

Lt. Sta. 7+67.70; Contractor to construct 15'x10'x2' rock splash basin at outlet and place 3'x10'x2' rock slope protection along outlet wings.

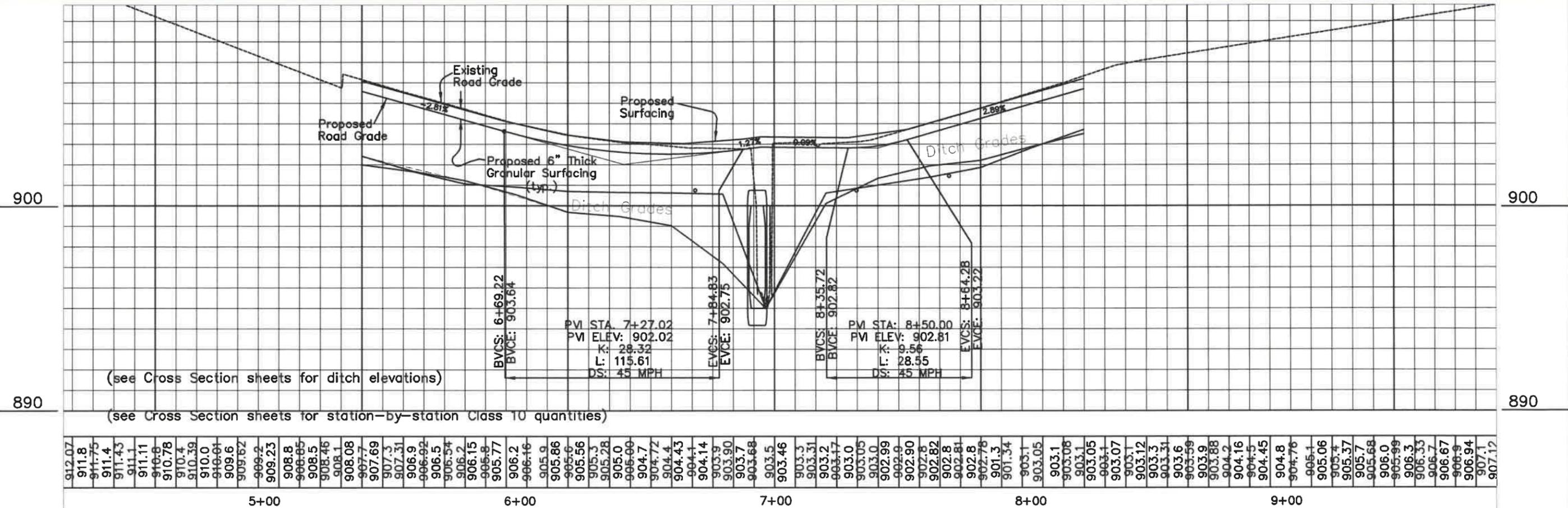
Bates, Arlene

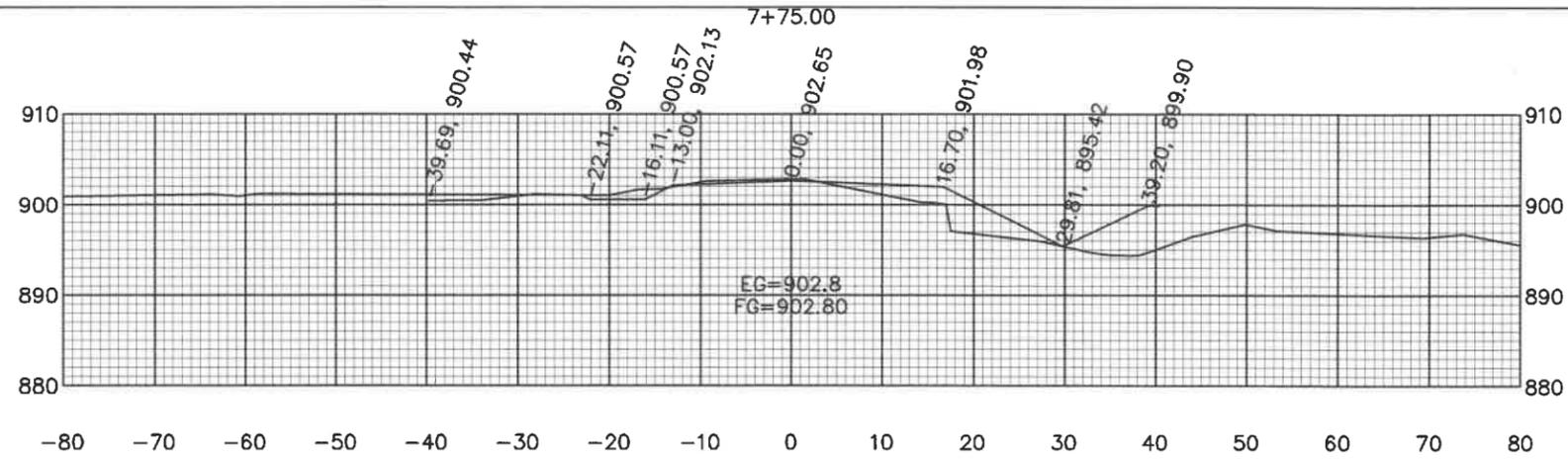
SW¼, SW¼, Sec. 28-82-23

BM: NW Cor. SW¼, SW¼, Sec. 28; Fd. ½" bar; on centerline; Sta. 13+20.00; Elev.=913.43

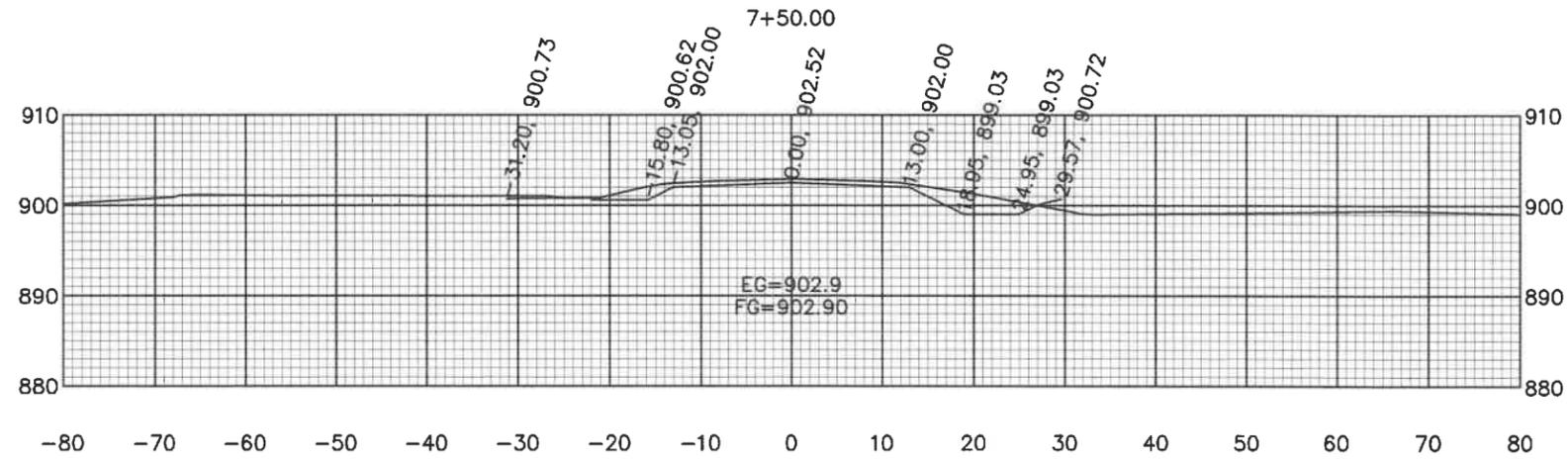


PLAN AND PROFILE SHEET

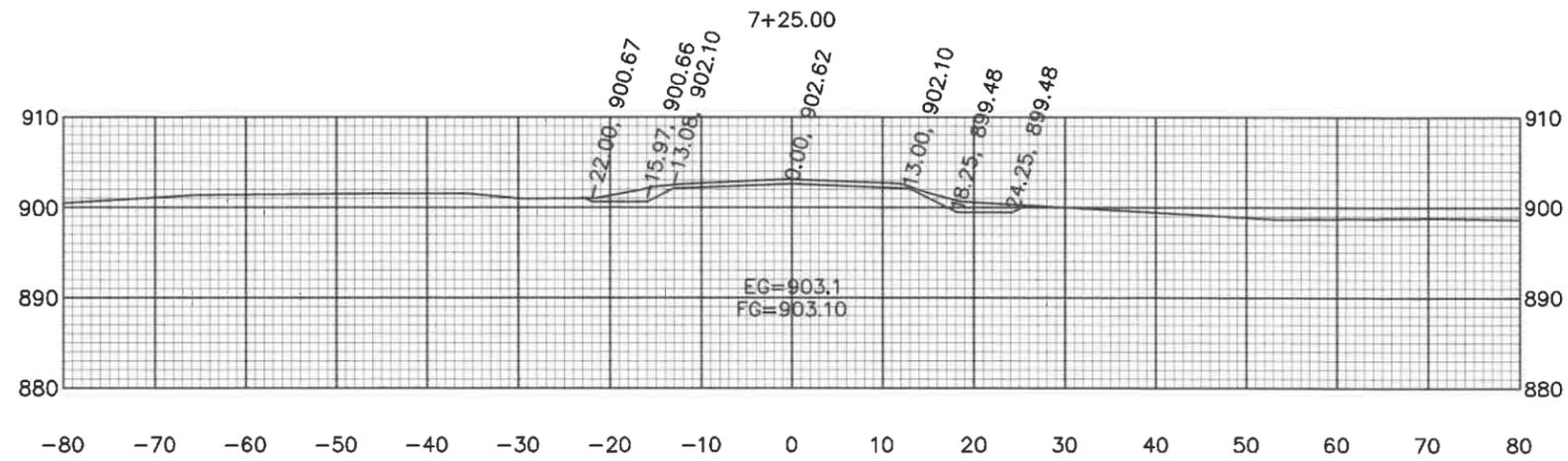




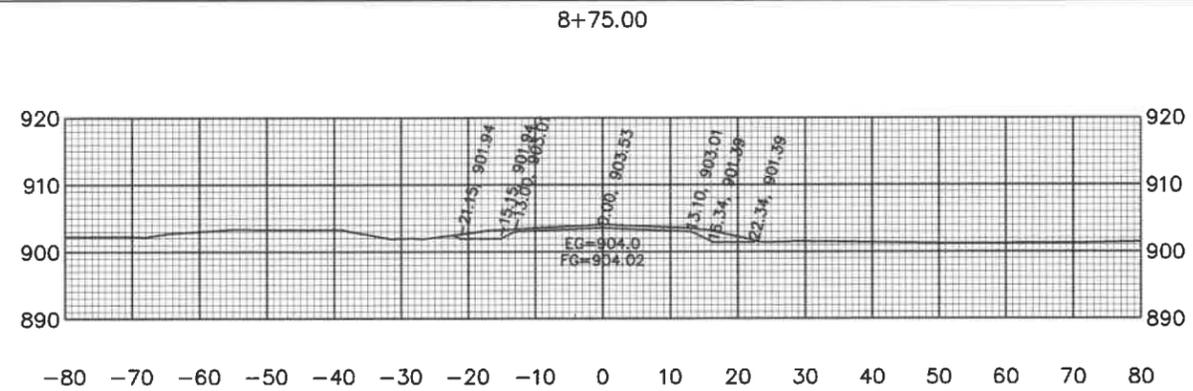
Sta. 7+75.00	
Cut Area	14.31
Fill Area	77.41
Cut Vol	26.04
Fill Vol	47.54



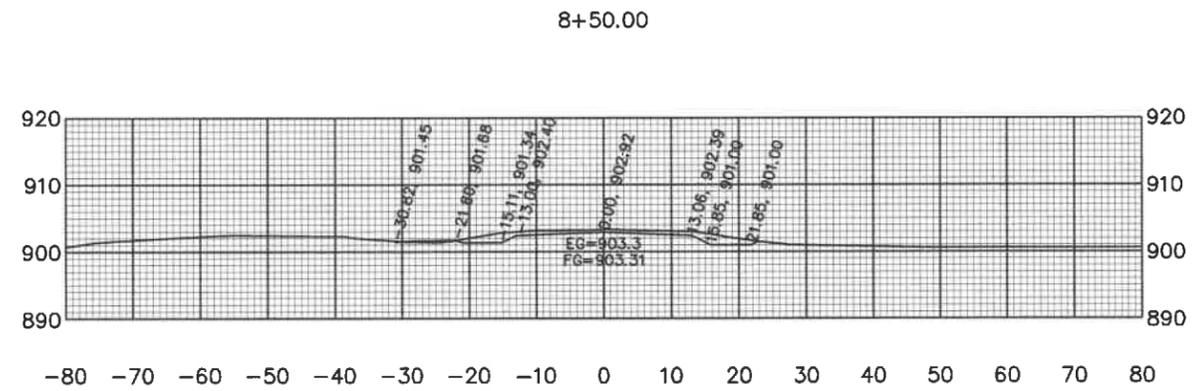
Sta. 7+50.00	
Cut Area	41.94
Fill Area	1.58
Cut Vol	33.90
Fill Vol	0.95



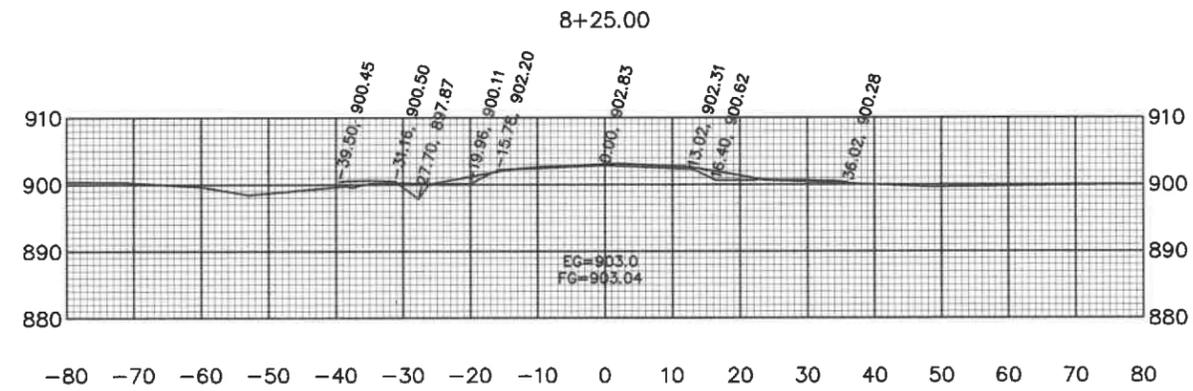
Sta. 7+25.00	
Cut Area	31.30
Fill Area	0.00
Cut Vol	14.49
Fill Vol	0.00



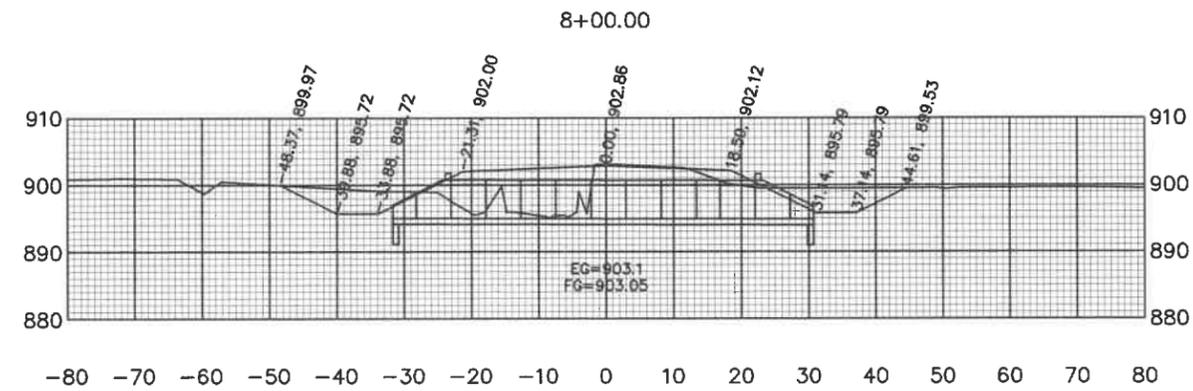
Sta. 8+75.00	
Cut Area	29.99
Fill Area	0.00
Cut Vol	28.43
Fill Vol	0.99



Sta. 8+50.00	
Cut Area	31.42
Fill Area	1.65
Cut Vol	25.96
Fill Vol	5.65



Sta. 8+25.00	
Cut Area	24.65
Fill Area	7.74
Cut Vol	14.48
Fill Vol	71.71



Sta. 8+00.00	
Cut Area	0.00
Fill Area	0.00
Cut Vol	0.00
Fill Vol	0.00