

STORY COUNTY
 RCB CULVERT NEW--TWIN BOX
 Proj. No. LFM-IC36--7X-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.
 CONSUMERS ENERGY: 641-485-0702
 IOWA REGIONAL UTILITIES ASSOC.: 641-792-7011
 HUXLEY COMMUNICATIONS COOP.: 515-597-2281
 PRECISION UNDERGROUND UTILITY: 515-782-6733
 WINDSTREAM COMMUNICATIONS: 800-289-1901
 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

FARM-TO-MARKET ROAD SYSTEM
 STORY COUNTY
 RCB CULVERT NEW
 -SINGLE BOX

On 670th Ave., over small stream, S36-T82-R22.

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.ENRPERMITS.IOWADOT.GOV/](http://www.enrpermits.iowadot.gov/)).



SEND SHOP DRAWINGS TO:

STORY COUNTY ENGINEER
 837 N AVE.
 NEVADA, IOWA 50201

PROJECT LOCATION

On 670th Ave., over small stream, S36-T82-R22.

DESIGN FOR:
 SINGLE 12'X7'X72' PRE-CAST
 CONCRETE BOX CULVERT
 ON 15' SKEW

Project No. LFM-IC36--7X-85

INDEX OF SHEETS

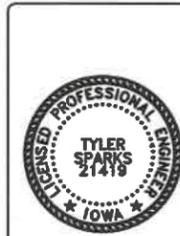
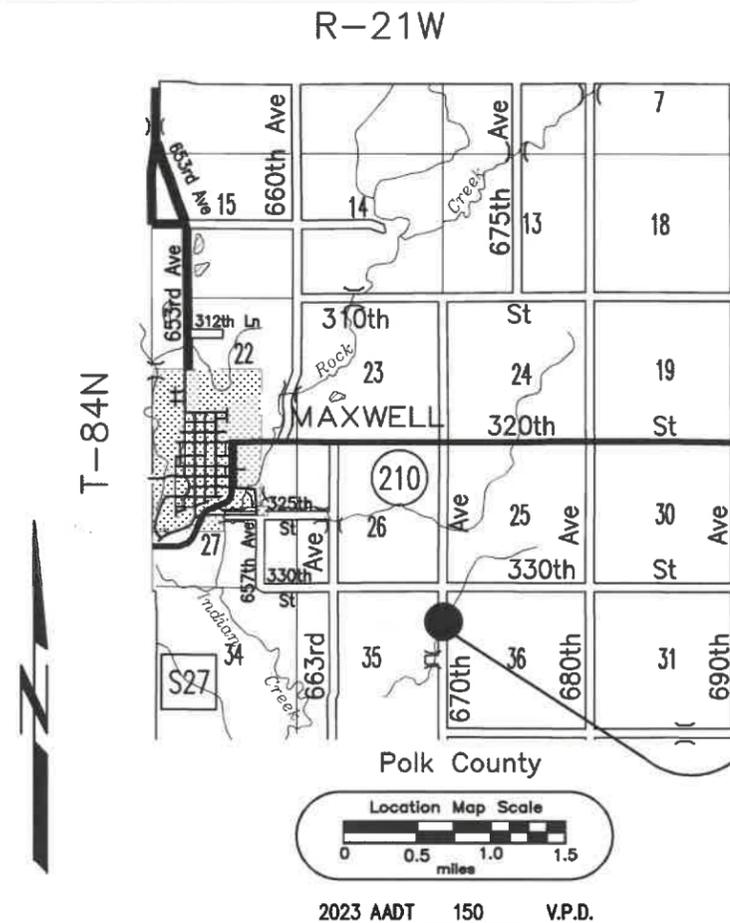
No.	Description
A.01	TITLE SHEET
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B.02	CULVERT DETAILS SHEET
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C.02	GENERAL NOTES
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MILEAGE SUMMARY

Div.	Location	Lin. Ft.	Miles
1	STA. 10+50.00 TO STA. 12+50.00	200.00	0.037
Total		200.00	0.037

STANDARD ROAD PLANS

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
DR-302	10-20-15	SUBDRAINS STANDARD (FARM TILE REPLACEMENT)
DR-305	04-19-22	SUBDRAIN OUTLETS (STANDARD SUBDRAIN, PRESSURE RELEASE AND SPECIAL)
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 SOIL IN EMBANKMENTS
TC-252	04-21-20	ROUTES CLOSED TO TRAFFIC



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)

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

Approved Story County
 Board of Supervisors

PROJ No. LFM-IC36--7X-85

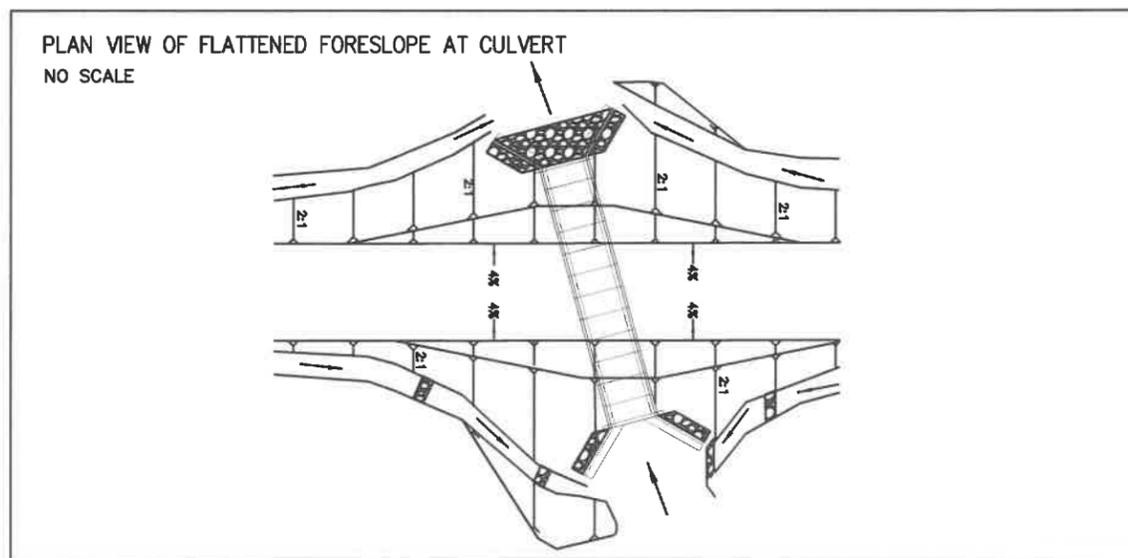
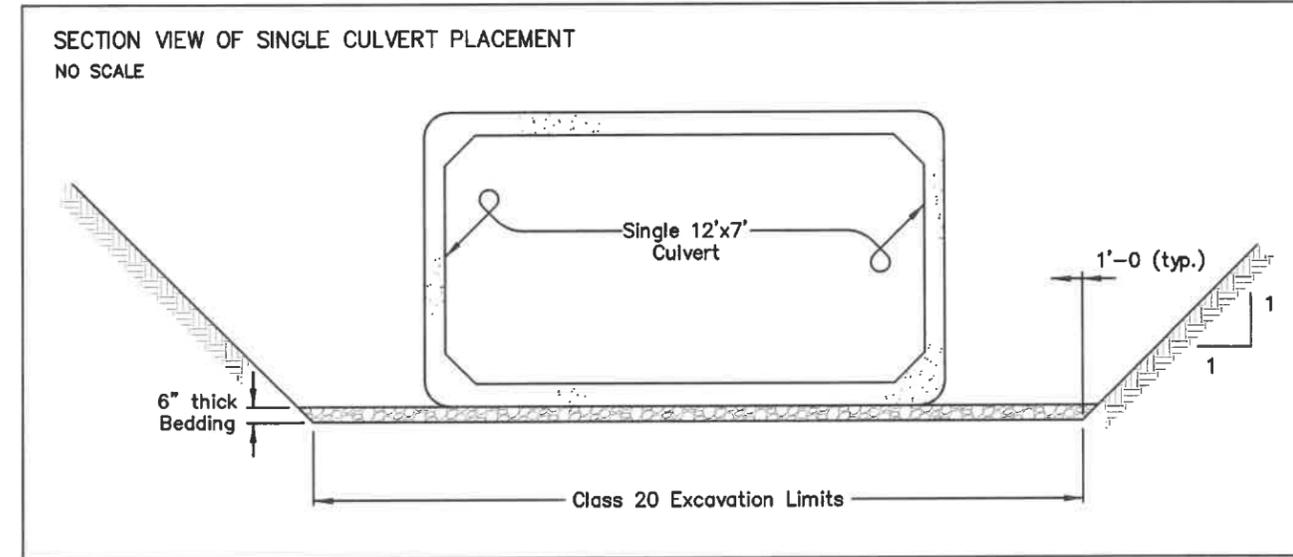
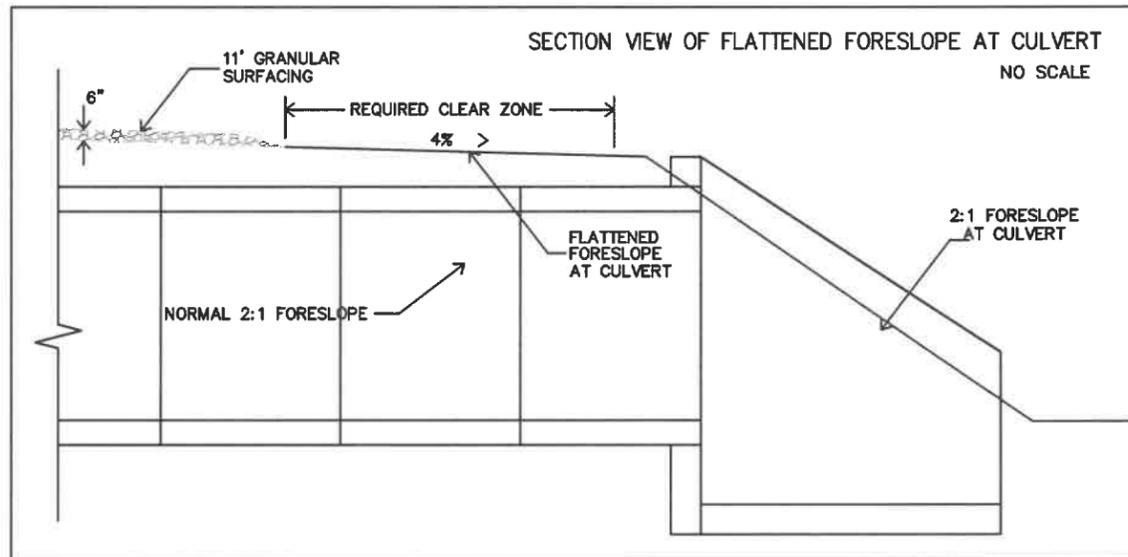
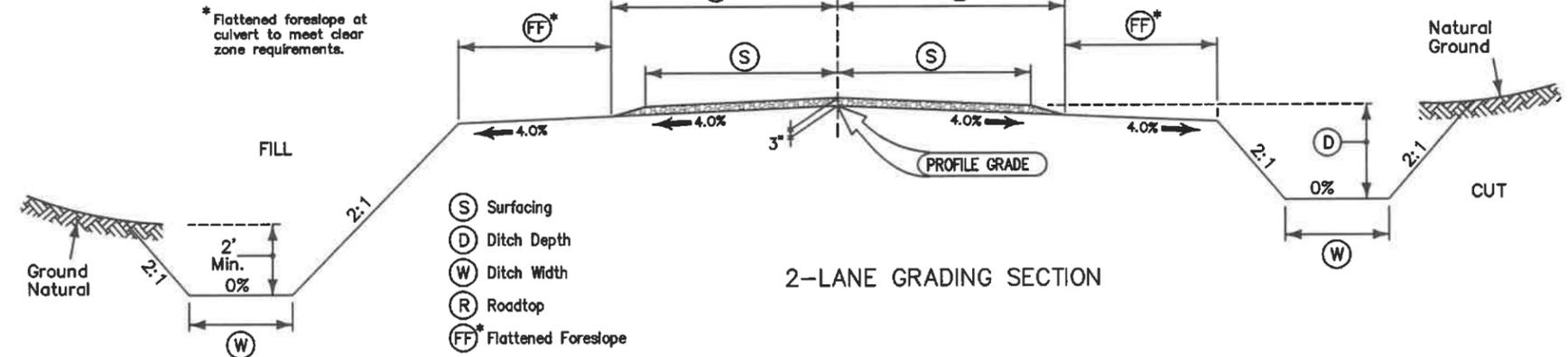
TYPICAL SECTIONS SHEET

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.

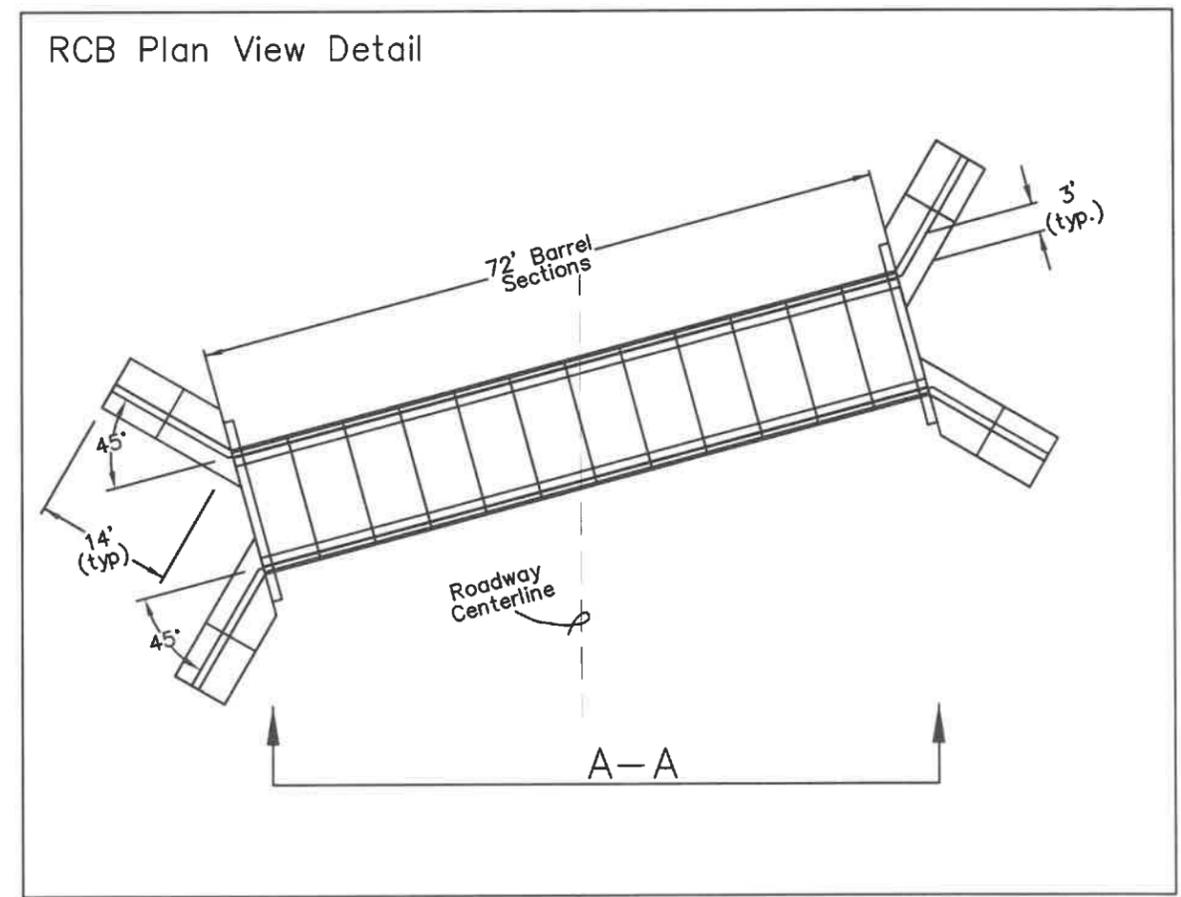
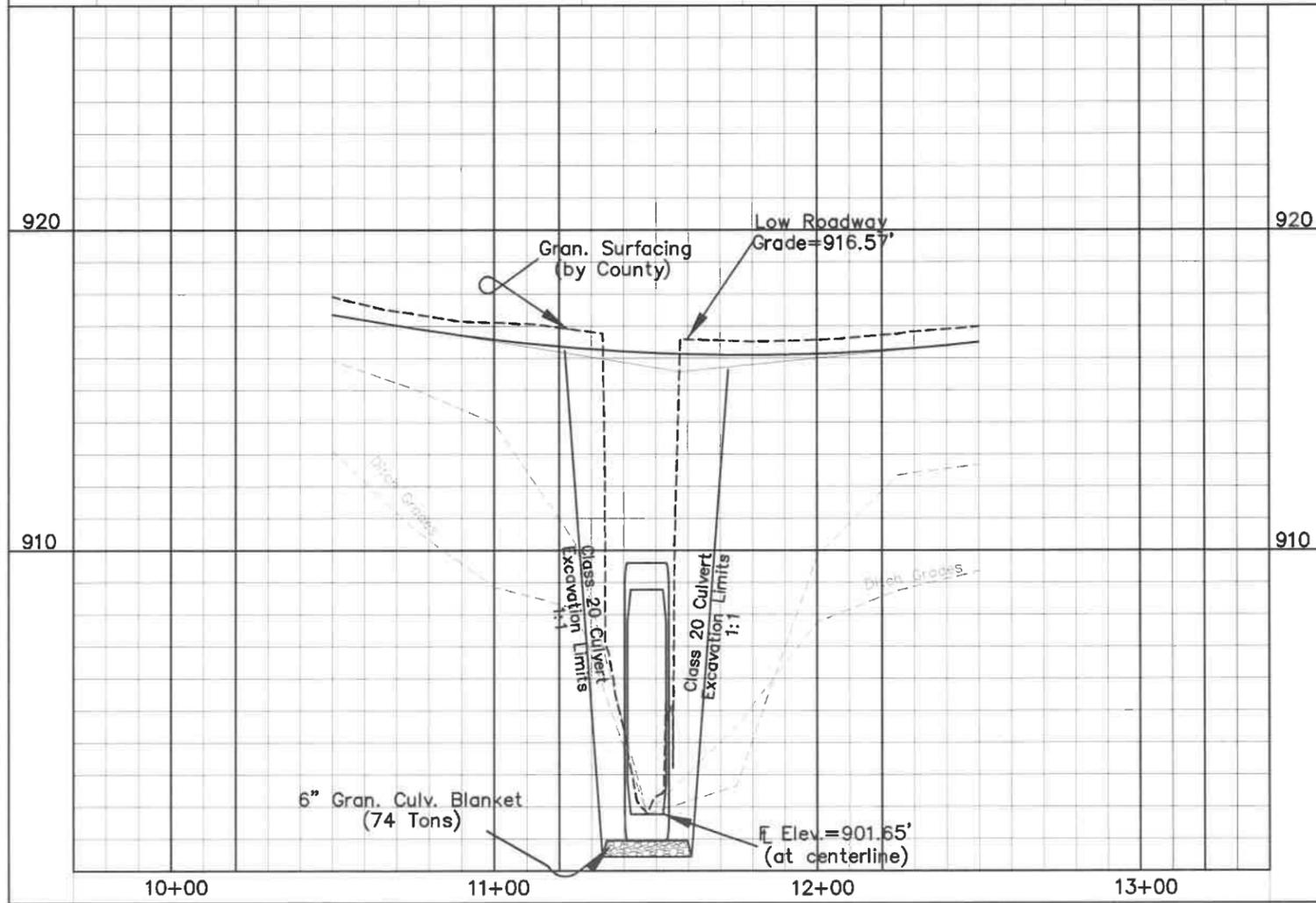
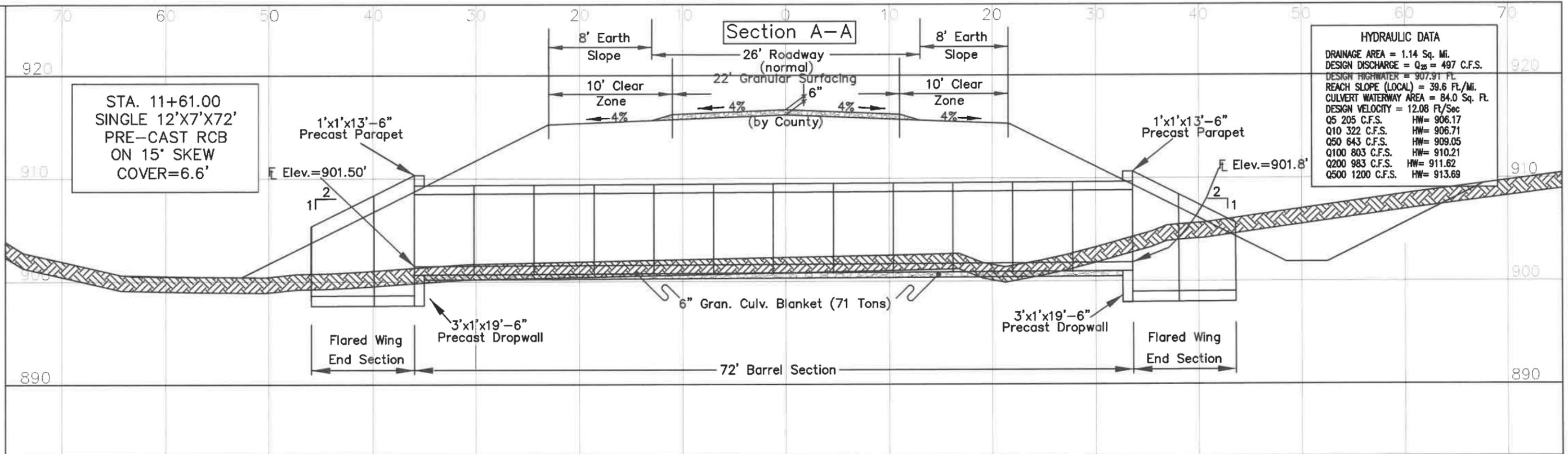
MODIFIED

LOCATION				DIMENSIONS				
ROAD IDENTIFICATION	SIDE	STATION TO STATION		FF*	D	W	R	S
				Feet	Feet	Feet	Feet	Feet
670th Ave.	Lt.	10+50.0	10+95.0	0	var.	6	13	11
670th Ave.	Lt.	10+95.0	11+45.0	var.	var.	6	13	11
670th Ave.	Lt.	11+45.0	11+65.0	10	var.	6	13	11
670th Ave.	Lt.	11+65.0	12+15.0	var.	var.	6	13	11
670th Ave.	Lt.	12+15.0	12+50.0	0	var.	6	13	11
670th Ave.	Rt.	10+50.0	11+07.0	0	var.	6	13	11
670th Ave.	Rt.	11+07.0	11+57.0	var.	var.	6	13	11
670th Ave.	Rt.	11+57.0	11+76.0	10	var.	6	13	11
670th Ave.	Rt.	11+76.0	12+27.0	var.	var.	6	13	11
670th Ave.	Rt.	12+27.0	12+50.0	0	var.	6	13	11



PROJ No. LFM-IC36--7X-85

CULVERT DETAILS SHEET



PROJ No. LFM-IC36--7X-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	0.6
2	2102-2625001	EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	859.6
3	2102-2710070	EXCAVATION, CL 10, ROADWAY AND BORROW	CY	947.8
4	2104-2710020	EXCAVATION, CL 10, CHANNEL	CY	50.0
5	2110-3825010	GRANULAR MATERIAL	TON	71.0
6	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1.0
7	2402-2720000	EXCAVATION, CLASS 20	CY	411.3
8	2415-2111207	PRECAST CONCRETE BOX CULVERT, 12 FT. X 7 FT.	LF	72.0
9	2415-2300000	PRECAST CONCRETE BOX FLARED APRON	EACH	2.0
10	2502-8215824	SUBDRAIN, TILE, 8 IN. DIA.	LF	50.0
11	2502-8221305	SUBDRAIN OUTLET, DR-305	EACH	1.0
12	2507-3250005	ENGINEERING FABRIC	SY	145.1
13	2507-6800061	REVTMENT, CLASS E	TON	56.4
14	2528-2518000	SAFETY CLOSURE	EACH	4.0
15	2528-8445110	TRAFFIC CONTROL	LS	1.0
16	2533-4980005	MOBILIZATION	LS	1.0
17	2599-9999003	REVTMENT, REMOVE STOCKPILE AND DISPOSE	CY	16.9

GENERAL NOTES

Story County to stake culvert control and right-of-way; furnish and place granular surfacing.

ESTIMATE REFERENCE INFORMATION

ITEM NO.	DESCRIPTION
1.	Entire project to 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 (198.58 CY) is intended for placement in the top 45'x12'x7' of roadway fill over the culvert, with the rest used to achieve dirt balance.
3.	Plan quantity is based on approximately 947.83 CY of fill (30% shrink factor) and 286.82 CY of cut. Contractor to furnish approx. 859.59 CY of material from a suitable borrow site to achieve dirt balance. No payment for overhaul will be made. Type A compaction required. Approximately 56.7 cy of this item includes the stripping, stockpiling, and spreading of 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 25'x10'x2' rock splash basin at the outlet and matching the inlet channel. Quantity includes 25.0 cy for the outlet splash basin and approx. 25.0 cy for channel matching. Suitable excavated material may be drained and wasted on roadway foreslopes with the approval from the Engineer.
5.	Approximately 74.0 tons of 1" rock is required under the box 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 14'x26' treated timber beam bridge with timber deck, piling, backwalls and wings, on a 0° skew.
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 12'x7', with 45° flared wing walls on the inlet and outlet. The culvert shall be supplied by the Contractor as per plan, which includes dropwalls and parapets. See tabulation on Sheet C.03 and installation notes on Sheet C.02 for details.
10.-11.	Items for the relocation of existing tile. Tiles are common design features and are sometimes encountered during construction. Existing tiles that are found during the preliminary survey are identified on these plans; however, occasionally, existing tiles may not be found during the survey and only discovered during construction activities. This bid item includes all bends, fittings, and adapters. DR-305 shall be corrugated metal pipe.
13.	Items for constructing a rock splash basin at the culvert outlet, slope protection at inlet and outlet, and rock ditch checks. See plan view on Sheet D.01, tabulation on Sheet C.03, and Standard Road Plan EC-301 for details. Item include furnishing revetment and all labor necessary for the construction of the splash basin. Excavation is paid for in Class 10 Channel item.
14.	See tabulation on Sheet C.03 for stationing and quantities.
15.	See Standard Road Plan TC-252 for details.
17.	Item for the removal, stockpiling, and disposal of existing revetment and broken concrete. Preliminary survey shows several pieces of broken concrete lying in the streambed and on the stream banks. With the approval of the Engineer the material maybe used to supplement Class E revetment if the material with steel or over 3' maximum dimension has the steel removed and is processed under the maximum dimension. Quantity is an estimate only. Contractor shall be paid actual quantity by measuring the stockpile and computing its volume. Basis of Payment shall be in cubic yards as computed by measurements.

GENERAL NOTES

GENERAL NOTES:

Contractor to construct a single 12'x7'x72' pre-cast concrete box culvert on a 15' skew, on 670th Ave. over an unnamed field drainage, 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 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 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 1/4 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.

PROJ No. LFM-IC36--7X-85

GENERAL NOTES SHEET

PROJ No. LFM-IC36--7X-85

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
					Left	Right	Other	Other	Total		Extensions		Degrees		Dike			Comp. Backfill Cu. Yds.				
									Left	Right	Left	Right	Left	Right	Lt.	Rt.	Location Station					
11+61.00	12x7	Single RCB	72.0	2	901.5	901.8			35.4	36.6										411.3 cy Class 20 Excav.		

LIST OF SUBDRAIN WORK

* Not a bid item.

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

No.	Location Station to Station		Type of Installation DR-301, DR-302, DR-303	Pipe		Aprons			Outlets			Connected Pipe Joints* DR-121		Trench Drain LF	Granular Material Blanket CY	Porous Backfill* CY	Class "A" Crushed Stone* CY	REMARKS
				Concrete C.M.P., C.M.P. Coated, or Plastic	Dia. IN	Length LF	DR-201 No.	DR-203 No.	500-10 No.	DR-305 Type No.	DR-306 No.	Type No.	No.					
1	11+67.1 Lt.	11+96.4 Lt.	DR-302	C.M.P.	8	50				A	1							DR-305 shall be corrugated metal pipe.

ROCK EROSION CONTROL

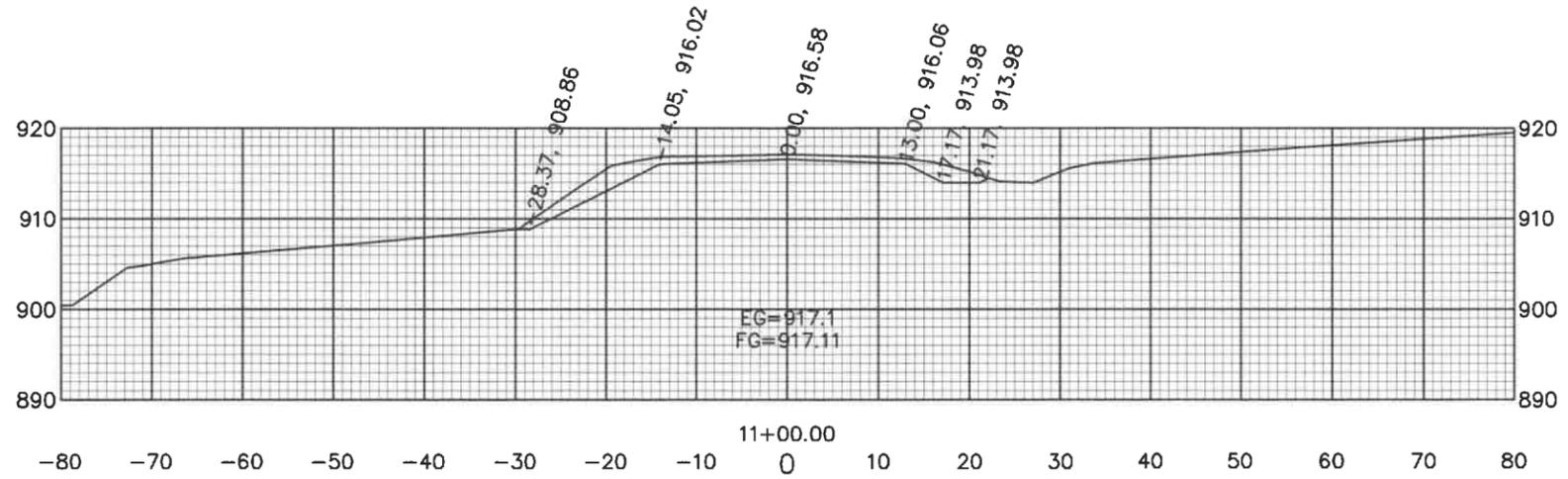
Refer to EC-30 and Detail 570-81

Location				Ⓛ FT	Ⓜ FT	Rock Erosion Control (REC)					Material Bid Quantities			REMARKS
Road Identification	Begin Station	End Station	Side Lt./Rt.			Type 1	Type 2	Type 3	Type 4	Type 5	Eng. Fabric SY	Class E Revetment TON	Erosion Stone TON	
						Rock Ditch Check	Rock Ditch	Rock Flume	Rock Splash Basin	Rock Slope Protection				
670th Ave.	11+32.9	11+63.9	35.9' Lt.	32	10.5				X			58.0	28.4	Splash basin at RCB outlet.
670th Ave.	11+32.4	11+43.8	35.0' Lt.	3	14					X		14.0	4.9	Wing armoring at outlet.
670th Ave.	11+57.9	11+67.2	38.4' Lt.	3	14					X		14.0	4.9	Wing armoring at outlet.
670th Ave.	11+51.7	11+61.8	38.7' Rt.	3	14					X		14.0	4.9	Wing armoring and slope protection at inlet.
670th Ave.	11+67.1	11+82.4	35.1' Rt.	3	14					X		14.0	4.9	Wing armoring and slope protection at Inlet.
670th Ave.	11+19.7	11+22.7	32.5' Rt.	3	6	X						7.8	2.1	Rock ditch checks Rt.
670th Ave.	11+41.5	11+44.5	46.1' Rt.	3	6	X						7.8	2.1	Rock ditch checks Rt.
670th Ave.	11+82.4	11+85.4	41.0' Rt.	3	6	X						7.8	2.1	Rock ditch checks Rt.
670th Ave.	12+02.1	12+05.1	34.8' Rt.	3	6	X						7.8	2.1	Rock ditch checks Rt.
											Total=145.2	Total=56.4		

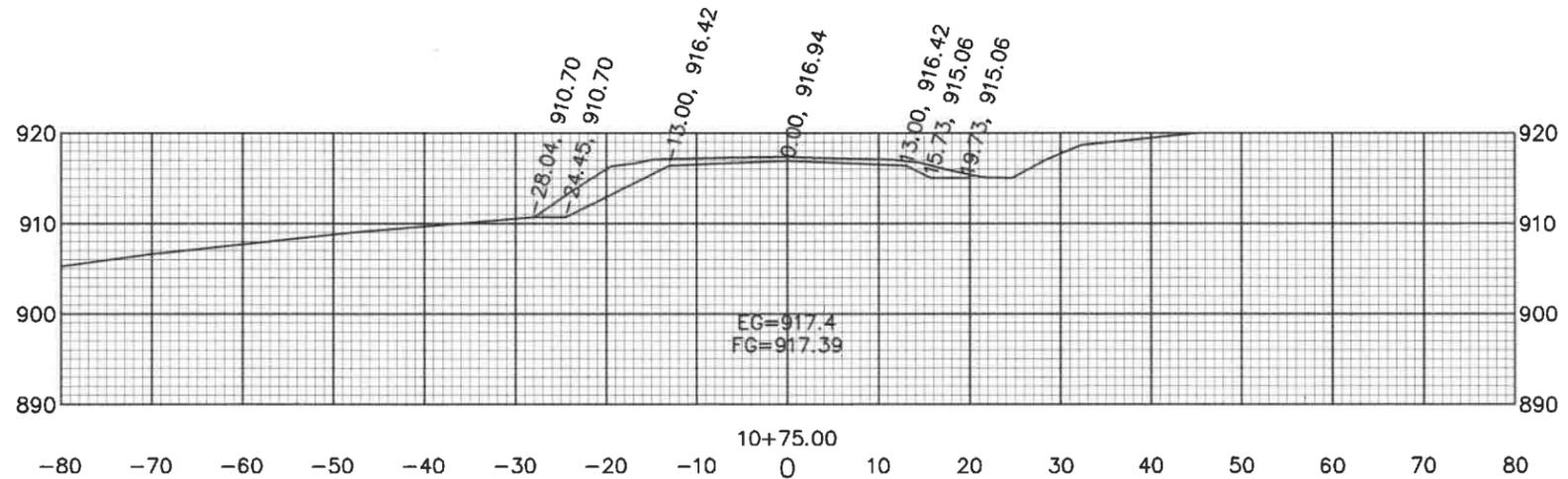
TABULATION OF SAFETY CLOSURES

Refer to Section 2518 of the Standard Specifications

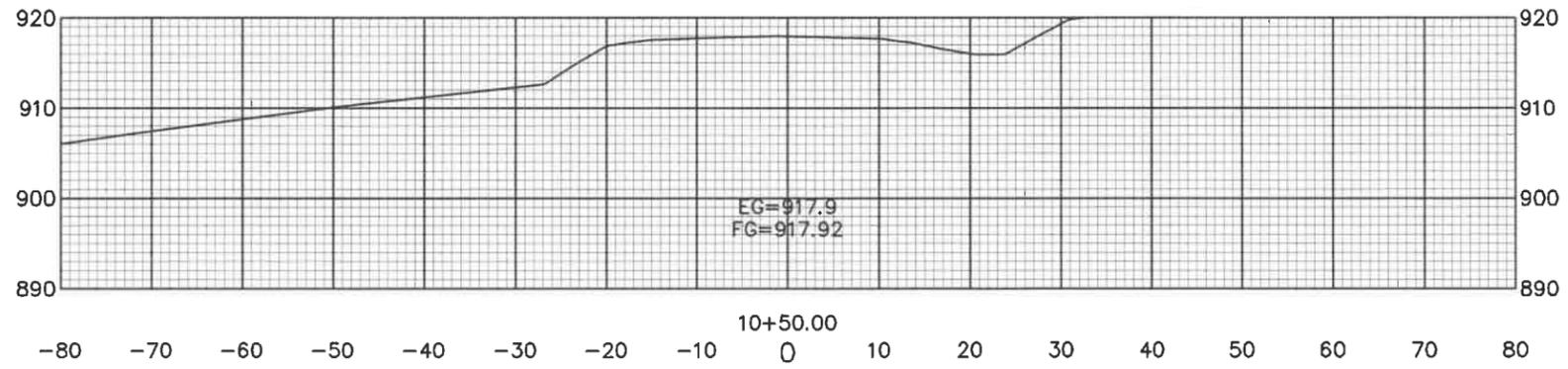
STATION	CLOSURE TYPE		REMARKS
	ROAD QTY.	HAZARD QTY.	
10+50	1		
11+00		1	
12+25		1	
12+50	1		
	2	2	TOTAL = 4.00



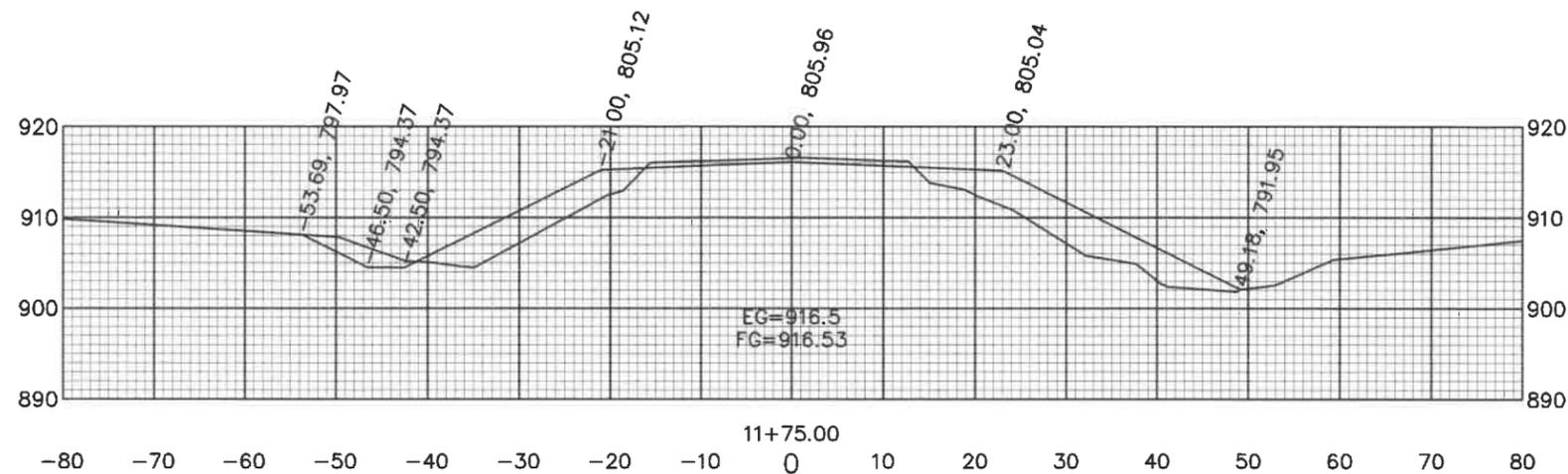
Sta. 11+00.00	
Cut Area	54.09
Fill Area	0.00
Cut Vol	49.13
Fill Vol	0.00



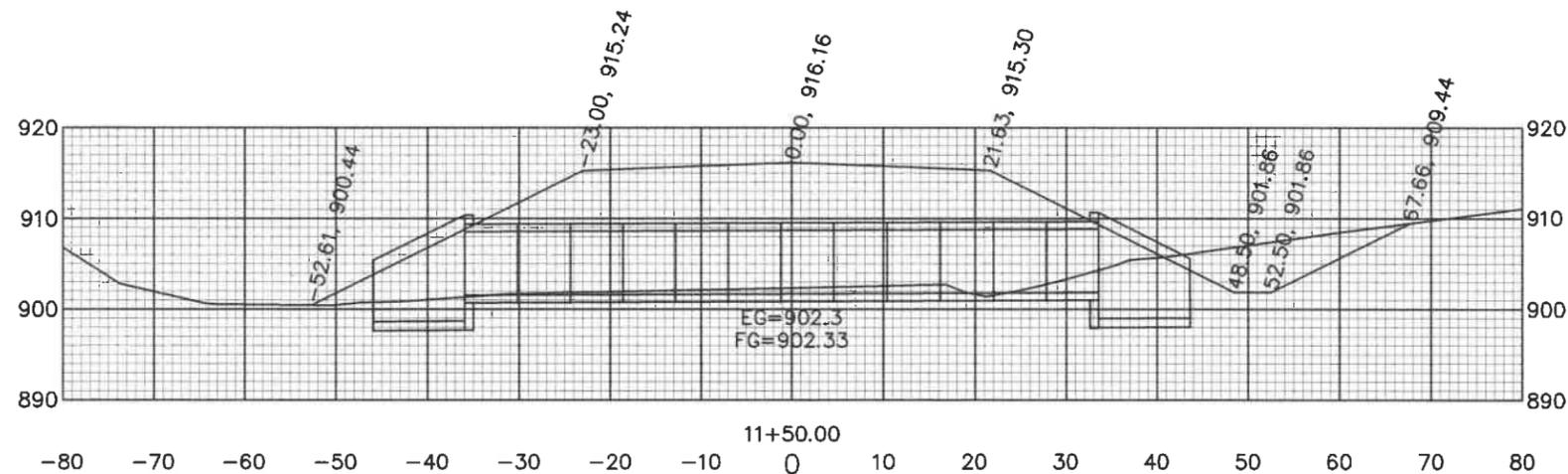
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Cut Area	52.04
Fill Area	0.00
Cut Vol	24.09
Fill Vol	0.00



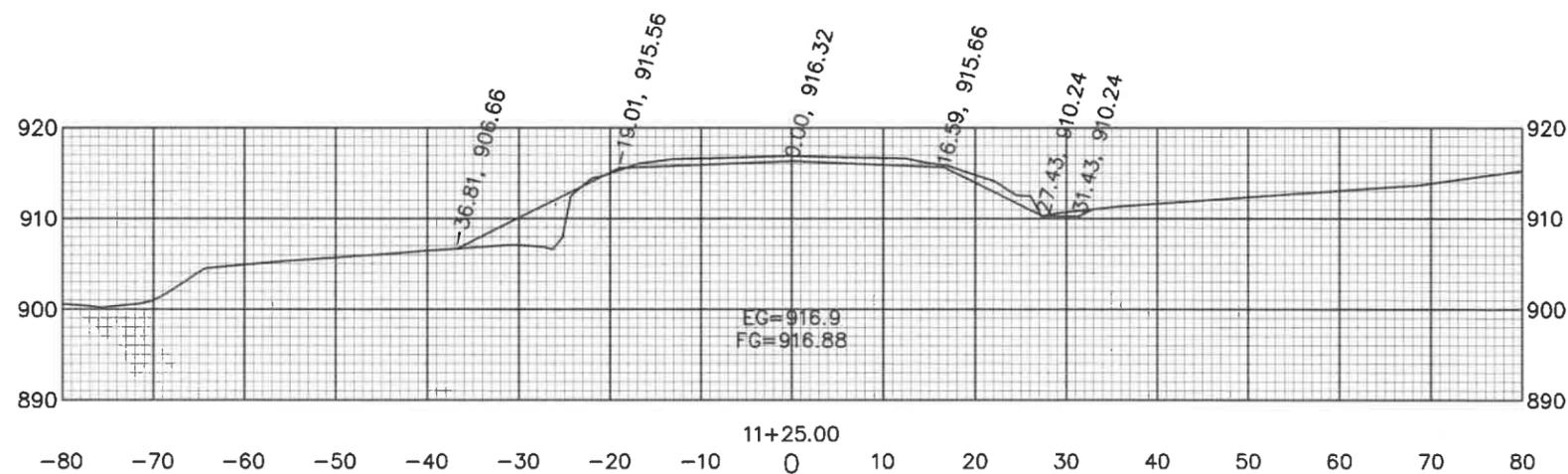
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Cut Area	0.00
Fill Area	0.00
Cut Vol	0.00
Fill Vol	0.00



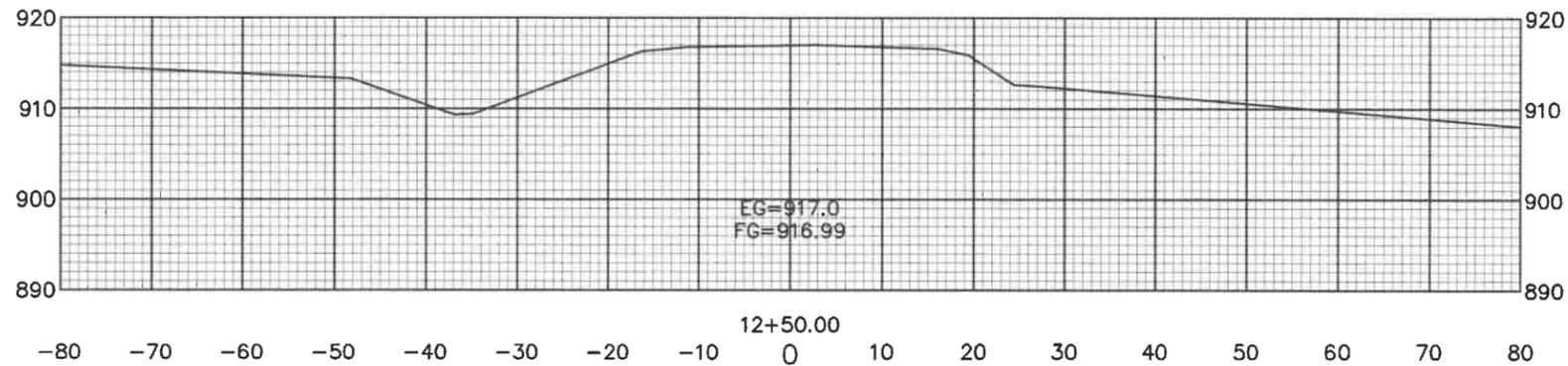
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Cut Area	31.18
Fill Area	178.68
Cut Vol	6.06
Fill Vol	72.90



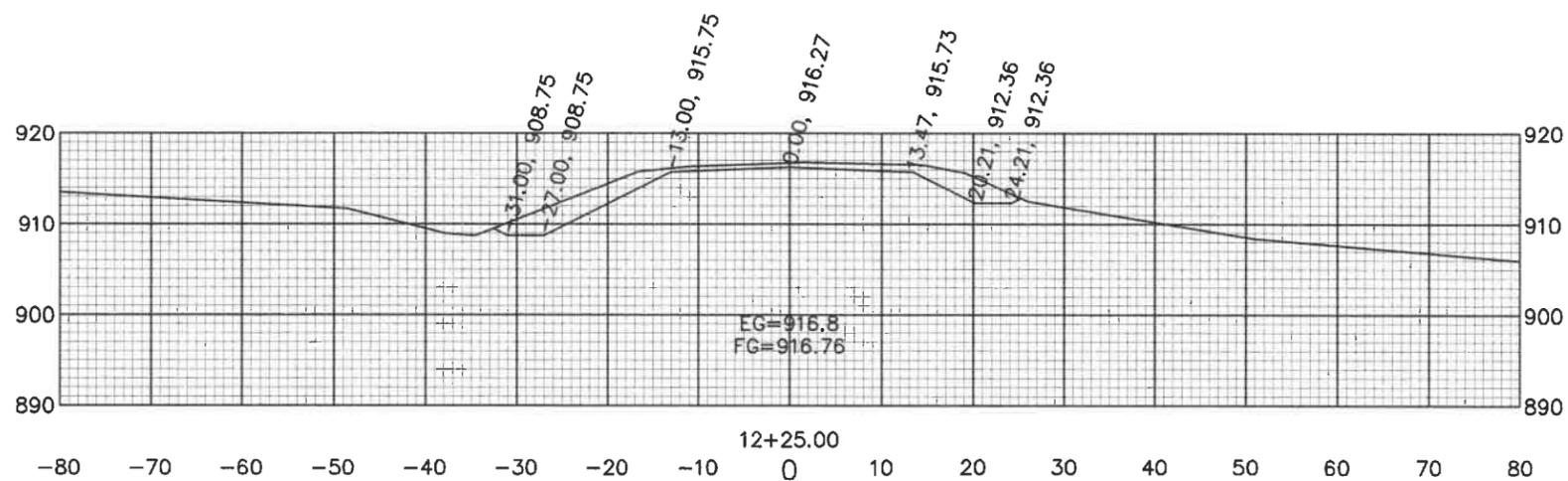
Sta. 11+50.00	
Cut Area	82.07
Fill Area	929.89
Cut Vol	53.21
Fill Vol	579.72



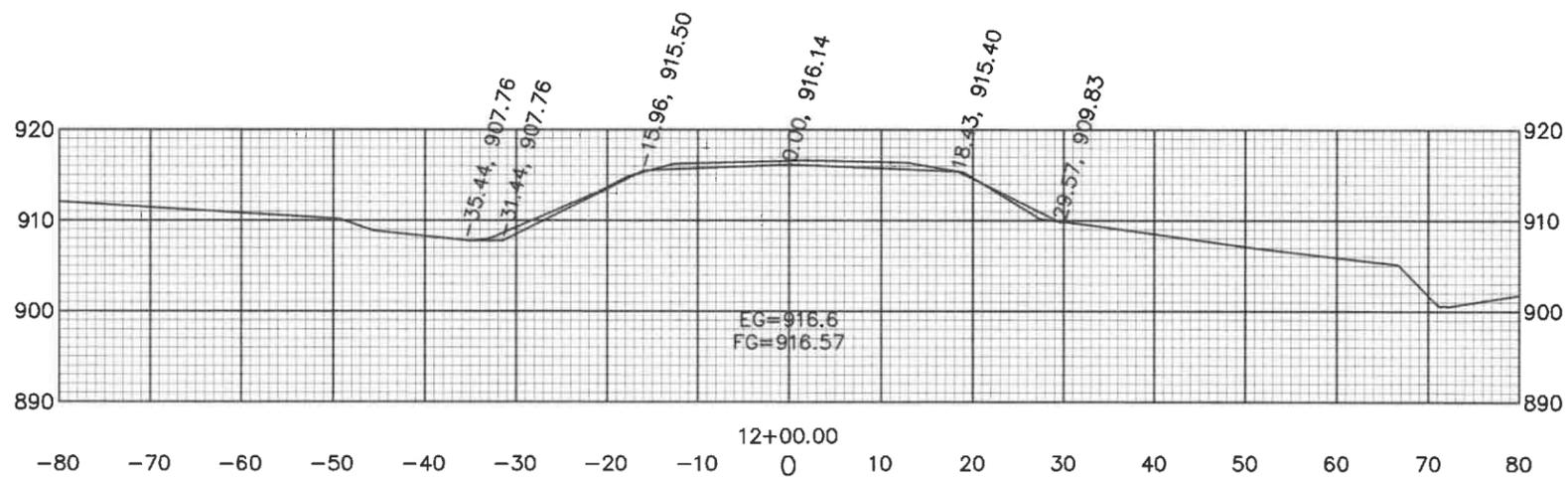
Sta. 11+25.00	
Cut Area	32.87
Fill Area	33.35
Cut Vol	40.26
Fill Vol	20.07



Sta. 12+50.00	
Cut Area	0.00
Fill Area	0.00
Cut Vol	35.22
Fill Vol	0.00



Sta. 12+25.00	
Cut Area	76.07
Fill Area	0.00
Cut Vol	46.64
Fill Vol	1.98



Sta. 12+00.00	
Cut Area	24.68
Fill Area	3.29
Cut Vol	25.86
Fill Vol	109.52