

**CASS COUNTY HIGHWAY DEPARTMENT
BIDDERS PROPOSAL & PLANS
FOR
COUNTY PROJECTS TB1202, CH1110, CB1203
BRIDGE REPLACEMENT**

31/32 Noble Township on a Township Road, 2 Noble Township on a County Road 31, and
35/36 Wiser Township on a Township Road in Cass County, North Dakota

Date of Letting: 10:00 A.M., May 24th, 2012

Proposal of: _____

COUNTY PROJECTS TB1202, CH1110, CB1203

BRIDGE REPLACEMENT

31/32 Noble Township on a Township Road, 2 Noble Township on a County Road 31, and

35/36 Wiser Township on a Township Road in Cass County, North Dakota

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.

/S/

Jason P. Benson
ND Reg. No. 7490

Date: _____ 5/4/12 _____

GOVERNING SPECIFICATIONS:

STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED BY THE NORTH DAKOTA DEPARTMENT OF TRANSPORTATION, OCTOBER 2008; SHALL APPLY, STANDARD DRAWINGS CURRENTLY IN EFFECT; AND OTHER CONTRACT PROVISIONS SUBMITTED HEREIN.

THIS DOCUMENT WAS ORIGNALLY ISSUED AND SEALED BY JASON P. BENSON, ND REG. NO. 7490 ON 5/4/12 AND THE ORIGINAL DOCUMENT IS STORED AT THE CASS COUNTY HIGHWAY DEPARTMENT, WEST FARGO, ND.

COUNTY PROJECTS TB1202, CH1110, CB1203

BRIDGE REPLACEMENT

SCOPE OF WORK:

TB1202: The scope of this project is to remove the existing single span 37' bridge and replace it with 2-87"X63" CMPA's with beveled ends located between sections 31/32 of Noble Township, T143N R49W on Drain 32. Culverts in the four corners of this structure all also need to be changed, 3 of them replaced and 1 relayed.

CH1110: The scope of this project is to remove the existing 13'-5"X8'-5" SPPA and replace it with 3-117"X79" CMPA's with beveled ends located in section 2 of Noble Township, T143N R49W on Cass Highway 31 on Drain 42.

CB1203: The scope of this project is to remove the existing single span 17' bridge and replace it with 2-81"X59" CMPA's with beveled ends located between sections 35/36 of Wiser township, T142N R49W. Culverts in the 3 corners of this structure all also need to be replaced.

All projects are considered standalone projects but are bid together as one package.

INSTRUCTIONS TO BIDDERS:

The Cass County Auditor at the Auditor's Office, 211 9th Street South, Fargo, North Dakota, will receive sealed bids until 10:00 A.M. on May 24, 2012. Bids will be opened immediately following the hour set for receiving bids in the Commission Room at the Cass County Courthouse, 211 9th Street South, Fargo, North Dakota.

Plans and proposals may be obtained at the office of the Cass County Engineer at West Fargo, North Dakota, at \$10.00 per set, non-refundable.

All envelopes containing bids must be clearly marked on the outside "**BID FOR BRIDGE REPLACEMENT**", and the current North Dakota Contractors license number must be shown.

A bidder's bond in the amount of 5% of the amount bid, made payable to Cass County shall accompany each bid in a SEPARATE ENVELOPE ATTACHED TO THE OUTSIDE OF THE BID. Certified or Cashier's checks will not be accepted. **A copy of the current ND Contractor's License or certificate of renewal shall be included in the Bid Bond envelope.** No bid will be read or considered which does not comply with the bond or license requirements.

Prequalification is required for all bidders prior to obtaining a bidder's proposal. Contractors may be required to submit information detailing their ability to perform the work specific to this project. Cass County shall determine the Prequalification status of each contractor requesting a proposal, and reserves the right to deny bid documents to any contractor based on the County's responsibility determination.

The County reserves the right to reject any or all bids, and to waive any irregularities. All bidders must be qualified to bid under the laws of the State of North Dakota.

COUNTY PROJECTS NUMBER TB1202, CH1110, CB1203

BRIDGE REPLACEMENT

INDEX OF PROVISIONS:

North Dakota Supplemental Specifications

Supplemental Specifications dated January 1, 2012 are not included in this proposal but are available at the county engineer's office, or be downloaded from the NDDOT's website at the following website:

<http://www.dot.nd.gov/dotnet/supplspecs/standardspecs.aspx>

Price Schedule for Miscellaneous Items Dated January 1, 2012

Special Provision 12-1 Contractor License & Contractor Claims

Construction Notes

Box Culvert Details

Location Map

NOT FOR BIDDING PURPOSES

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

PRICE SCHEDULE FOR MISCELLANEOUS ITEMS

January 1, 2012

The Contractor agrees to accept the following unit prices for each listed item of work and/or material when no project Contract Unit Price exists for that item. Each price listed will be full compensation for the cost of labor, material, and equipment necessary to provide the item of work and/or material, complete in place, including (but not limited to) royalty, disposal of unsuitable material, equipment rental, sales tax, use tax, overhead, profit, and incidentals.

Payment for items of work under this schedule performed by a Subcontract shall include an additional allowance for the Prime Contractor as specified in Section 104.03 of the Standard Specifications.

Each listed price is referenced to the Standard Specifications by Section number and Section name.

SECTION NO.	SECTION NAME	ITEM NAME	PRICE PER ITEM
107.05 A.1	Maintaining Traffic	Flagging	\$25 per MHR
107.05 B.1	Haul Roads	Water	\$21 per M Gal.
107.05 B.7	Haul Roads	Bituminous Mix	\$28 per Ton**
107.05 B.7	Haul Roads	Bitumen for Mix	Invoice Price* + 10%
107.05 B.7	Haul Roads	Aggregate Base	\$13 per Ton**
203.01 B	Rock Excavation	Rock Excavation	\$8.40 per CY
203.01 C	Shale Excavation	Shale Excavation	Common Excavation Bid Price + \$0.70 per CY
203.01 D	Muck Excavation	Muck Excavation	\$7 per CY
203.02 F	Embankment Construction	Overhaul	\$1.12 per CY - Mile
407.07 B.2.a or 408.07 C.2.a	Hot Bit. Pavement (Excavated Material Hauled to Disposal Area)	Bituminous Mixture	Machine Placed: Bid or Invoice Price + \$20 per Ton Hand Placed: Bid or Invoice Price + \$37 per Ton
420.06	Bituminous BOX CULVERT REPLACEMENT	Blotter Sand	\$23 per Ton**
650.04 D.2 Step 3 650.05 D.2 Step 3	Repair & Overlay of PCC Bridge Decks	Low-Slump Concrete	\$335.55 per CY
708	Erosion Control	Mucking Silt Fence	\$3.00 per L.F.
708	Erosion Control	Mucking of Fiber Rolls	\$3.00 per L.F.
708	Erosion Control	Removal of Silt Fence	\$3.50 per L.F.
708	Erosion Control	Removal of Fiber Rolls	\$3.50 per L.F.

* Price paid for bituminous material will be Invoice Price plus Freight Costs.

** Price includes haul up to 10 miles. Payment for haul exceeding 10 miles will be according to Section 109.04 C of the Standard Specifications. The haul distance for Aggregate Base and Bituminous Mix will be based on the average haul. The haul distance for Blotter Sand will be from the point where the haul begins to the point where it enters the project.

CASS COUNTY HIGHWAY DEPARTMENT

SPECIAL PROVISION 12-1

January 1, 2012

SECTION 102.02 CONTRACTOR LICENSE

Section 102.02 of the Standard Specifications for Road and Bridge Construction, 2008 edition is deleted. All bidders must possess a current North Dakota Contractors License in accordance with § 43-07-12 of the North Dakota Century Code.

SECTION 104.06 CONTRACTOR CLAIMS

If the Contractor claims additional compensation for work or material not covered by the Contract, the Contractor is required to prosecute the claim in accordance with Standard Specifications for Road and Bridge Construction, 2008 edition, paragraph 104.06, et seq. The provisions of subparagraph 104.06 D are not applicable to this contract, nor are the provisions of North Dakota Century Code 24-02-26 et seq. as the North Dakota Department of Transportation is not a party to this contract.

References in the Standard Specifications for Road and Bridge Construction, 2008 edition, to the North Dakota Department of Transportation or Department must be construed as referring to the owner. Likewise, a reference by the same works to engineer or director must be construed as referring to the owner of the project.

NOT FOR BIDDING PURPOSES

CONSTRUCTION NOTES

AGGREGATES:

The attention of the bidders is directed to M.S. 298.75 (Aggregate Material Tax), pursuant to the removal of aggregates from any deposit in Clay County, Minnesota.

HAUL ROADS:

The Contractor's attention is directed to Section 107.05 B of the Standard Specifications with regard to the use of public roads for hauling materials to the project. It shall be the Contractor's responsibility to investigate the suitability of routes with the agency having control of the road prior to submitting a bid.

CLEARING & GRUBBING:

This item shall include all costs associated with clearing and grubbing in any areas within the right-of-way necessary to construct the project to the lines and grades shown on the plans. Payment for this item shall be a lump sum basis per project.

REMOVAL OF STRUCTURE:

This bid item shall include all costs associated with the removal of each structure at each project. The structures and there superstructures shall be removed in their entirety. Substructures shall be removed to the point that any material remaining shall have a minimum 2 feet of cover after excavation and embankment to the proposed lines and grades. All material shall be disposed of off-site at a location of the contractor's choosing, approved by the engineer. Burial of the removed material will not be permitted.

REMOVAL OF METAL CULVERTS:

This item shall include all costs associated with the removal of existing culverts at each project that is either replaced with a new or relayed. All costs for this work to be included in the price bid for that replacement culvert. All culverts are to become property of the contractor except for the relayed culverts. The cost to remove the SPPA for CH1101 shall be included in the bid item 117"X79" CMPA. Burial of the removed culverts will not be permitted.

PIPE CORR STEEL ARCH:

The corrugated steel arch lengths listed in the bid documents are the top distance, and do not include the required 2:1 beveled end sections. The cost of the beveled end sections are included in the cost of the bid item for "Pipe Corr Steel Arch."

SALVAGE EXISTING STRINGERS:

Approximately 10 of the existing stringers on TB1202 will be salvaged and remain the property of Cass County, the balance will become the property of the Contractor.

BORROW-EXCAVATION:

This item shall include all costs required transport and compact borrow material from the borrow source to the project site.

REINFORCEMENT AGGREGATE: This bid item shall include costs associated with the placement of size 3 concrete rock as shown on the plans.

CONSTRUCTION NOTES

SELECT BACKFILL: The Class 5 aggregate backfill shall be compacted in layers not to exceed 6 inches using a hand-held vibratory plate compactor or hand-held mechanical tamper to the top pipe a distance of two feet on either side of the pipe. All equipment shall be operated to produce a uniform density throughout the entire section. The desired degree of compaction will be considered obtained when the surface is tightly bound and shows no rutting or displacement under equipment operation. Water shall be applied as needed to secure required results. All other aggregate pertaining to pipe culverts shall be placed according to section 203.02H. Plan quantity includes 25% shrinkage.

TYPE AA-3 CONCRETE: This item shall include all costs of forming, reinforcement steel, and hook bolts in concrete headwall as shown on the plans.

TRAFFIC CONTROL: This item shall include all costs associated with flagging if needed, and required advanced warning signage for project closure. No detour will be provided, signage to include use alternate routes. Payment per project will be on a lump sum basis.

LOOSE ROCK RIPRAP AND GEOTEXTILE FABRIC TYPE RR: Excavation quantities for placement of loose rock riprap and geotextile fabric type RR shall be included in the price bid for riprap and not paid for separately. This item shall be placed at the locations shown on the plans. Exact dimensions to be determined by the Engineer in the field, and quantities may vary. Riprap shall be 6" to 12" diameter and uniformly graded. Materials shall meet the requirements of sections 708.04, 709, and 858 of the standard specifications.

SEEDING – HYDRO MULCH:

The hydro mulch material shall be as specified in the NDDOT Standard Specification Section 708.02. Seed mix shall be as follows:

A-1 Pasture Mix

Meadow Bromegrass - 25%
Intermediate Wheatgrass - 25%
Crested Wheatgrass - 25%
Tetraploid Int. Ryegrass - 10%
Creeping Alfalfa - 15%

80 lbs of Seed and 20 lbs of Rye per acre.

Basis of payment for seeding shall be actual field measurements. No adjustment to unit prices will be made for the increase or decrease in Seeding – Hydro Mulch. All costs for labor, equipment and materials necessary to complete the work will be included in the bid price for “Seeding – Hydro Mulch.”

GEOTEXTILE FABRIC – TYPE S1:

This item shall include all costs associated with the placement of the geotextile fabric – Type S1. Actual surface area will be the measurement used for payment, no allowances made for overlapping.

CONSTRUCTION NOTES

GEOTEXTILE FABRIC – TYPE R1:

This item shall include all costs associated with the placement of the geotextile fabric – Type R1. Actual surface area will be the measurement used for payment, no allowances made for overlapping.

RELAY EXISTING FLAPGATES:

This item shall include all costs associated with the removal of the flap gates from the existing and culverts and the placement onto the new culverts.

NOT FOR BIDDING PURPOSES

PROPOSAL

Note: The envelope containing this proposal should be marked:

“BID FOR BRIDGE REPLACEMENT”, in Cass County

Proposal of: _____

Mailing Address

to furnish and deliver all materials and to do and perform all work, in accordance with the Standard Specifications, adopted by North Dakota Department of Transportation October 2008, Standard Drawings currently in effect, and other contract provisions submitted herewith of the North Dakota Department of Transportation except as specifically stated otherwise in the "Special Provisions" contained therein, for the improvement of a certain Public Highway in Cass County, State of North Dakota, on which proposals will be received until 10:00 o'clock A.M., on the 24th day of May, 2012, this project being known as Cass County Projects TB1202, CH1110 & CB1203. Said projects being situated as follows: Bridge Replacement on a Township road in Noble Township between sections 31 and 32, 50' south of 16th St. SE, Bridge Replacement on Cass County Highway 31 in Noble Township section 2, and Bridge replacement on Cass County Highway 31 in Wisner Township between sections 35 and 36.

NOT FOR BIDDING PROPOSALS

PROPOSAL

PROJECT NO: TB1202, CH1110, CB1203

TYPE: BRIDGE REPLACEMENT

To The Chairman:
Cass County Board of Commissioners
Fargo, North Dakota

In accordance with the advertisement and notice to bidders from the Cass County Highway Department inviting proposals for the work on the project described above, the Bidder proposes to furnish all materials specified, and perform all work in the manner and at the time prescribed. The Bidder understands the quantities of work shown herein are approximate only, and are subject to increase or decrease. The bidder further understands that all quantities of work, whether increased or decreased, are to be performed at the unit prices proposed herein (except as otherwise provided in the contract documents).

The bid schedule, time for completion, other provisions, and bidder's affidavit follows:

NOT FOR BIDDING PURPOSES

PROPOSAL

BID SCHEDULE FOR COUNTY PROJECT NUMBERS TB1202, CH1110, CB1203

BIDDER MUST TYPE OR NEATLY PRINT UNIT PRICES IN NUMERALS,
MAKE EXTENSIONS FOR EACH ITEM, AND TOTAL, DO NOT CARRY
UNIT PRICES FURTHER THAN THREE (3) DECIMAL PLACES.

CASS COUNTY HIGHWAY DEPARTMENT						
TB1202: 31-32 NOBLE TOWNSHIP			ESTIMATED QUANTITIES			
ON A TOWNSHIP ROAD OVER DRAIN 32						
ITEM	SPEC NO.	DESCRIPTION	UNIT	APPROX QUANTITY	UNIT COST	TOTAL
1	103	CONTRACT BOND	L SUM	1		
2	201	CLEARING AND GRUBBING	L SUM	1		
3	202	REMOVAL OF STRUCTURE	EA	1		
4	203	BORROW - EXCAVATION	CY	550		
5	210	EXCAVATE, SALVAGE & RECOMPACT FILL (APPROX 250 CY)	L SUM	1		
6	210	SELECT BACKFILL	TON	109		
7	210	REINFORCEMENT AGGREGATE	CY	70		
8	302	AGGREGATE BASE COURSE CL 5	TON	125		
9	602	TYPE AAE-3 CONCRETE	CY	32		
10	702	MOBILIZATION	L SUM	1		
11	704	TRAFFIC CONTROL	L SUM	1		
12	708	FIBER ROLL 12 IN	LF	120		
13	708	RIPRAP - LOOSE ROCK	CY	70		
14	708	SEEDING - HYDRO MULCH	ACRE	0.25		
15	709	GEOTEXTILE FABRIC - TYPE S1	SY	157		
16	709	GEOTEXTILE FABRIC - TYPE R1	SY	342		
17	714	PIPE CORR STEEL 0.109IN 87IN X 63IN ARCH	LF	96		
18	714	PIPE CORR STEEL 0.064IN 24IN	LF	160		
19	714	PIPE CORR STEEL 0.079IN 36IN	LF	160		
20	714	24" FLAP GATE - RELAY	EA	2		
21	714	36" FLAP GATE - RELAY	EA	1		
22	714	24" FLARED END SECTION	EA	2		
23	714	36" FLARED END SECTION	EA	1		

TOTAL = \$ _____

CASS COUNTY HIGHWAY DEPARTMENT						
CH1110: 2 NOBLE TOWNSHIP - TRIPLE 117" X 79" CMPA ON CASS HWY 31 OVER DRAIN 42			ESTIMATED QUANTITIES			
ITEM	SPEC NO.	DESCRIPTION	UNIT	APPROX. QUANTITY	UNIT COST	TOTAL
1	103	CONTRACT BOND	L SUM	1		
2	201	CLEARING AND GRUBBING	L SUM	1		
3	203	BORROW - EXCAVATION	CY	500		
4	210	EXCAVATE, SALVAGE & RECOMPACT FILL (APPROX 1800 CY)	L SUM	1		
5	210	SELECT BACKFILL	TON	223		
6	210	REINFORCEMENT AGGREGATE	CY	196		
7	302	AGGREGATE BASE COURSE CL 5	TON	70		
8	602	TYPE AAE-3 CONCRETE	CY	48		
9	702	MOBILIZATION	L SUM	1		
10	704	TRAFFIC CONTROL	L SUM	1		
11	708	FIBER ROLL 12 IN	LF	120		
12	708	RIPRAP - LOOSE ROCK	CY	116		
13	708	SEEDING - HYDRO MULCH	ACRE	0.25		
14	709	GEOTEXTILE FABRIC - TYPE S1	SY	413		
15	709	GEOTEXTILE FABRIC - TYPE R1	SY	800		
16	714	PIPE CORR STEEL 0.138IN 117IN X 79IN ARCH	LF	222		

TOTAL = \$ _____

NOT FOR BIDDING PURPOSES

CASS COUNTY HIGHWAY DEPARTMENT						
CB1203: 35/36 WISER TOWNSHIP				ESTIMATED QUANTITIES		
ON A TOWNSHIP ROAD						
ITEM	SPEC NO.	DESCRIPTION	UNIT	APPROX. QUANTITY	UNIT COST	TOTAL
1	103	CONTRACT BOND	L SUM	1		
2	201	CLEARING AND GRUBBING	L SUM	1		
3	202	REMOVAL OF STRUCTURE	EA	1		
4	203	BORROW - EXCAVATION	CY	356		
5	210	EXCAVATE, SALVAGE & RECOMPACT FILL (APPROX 1800 CY)	L SUM	1		
6	210	SELECT BACKFILL	TON	89		
7	210	REINFORCEMENT AGGREGATE	CY	75		
8	302	AGGREGATE BASE COURSE CL 5	TON	125		
9	602	TYPE AAE-3 CONCRETE	CY	16		
10	702	MOBILIZATION	L SUM	1		
11	704	TRAFFIC CONTROL	L SUM	1		
12	708	FIBER ROLL 12 IN	LF	120		
13	708	RIPRAP - LOOSE ROCK	CY	58		
14	708	SEEDING - HYDRO MULCH	ACRE	0.25		
15	709	GEOTEXTILE FABRIC - TYPE S1	SY	150		
16	709	GEOTEXTILE FABRIC - TYPE R1	SY	331		
17	714	PIPE CORR STEEL 0.109IN 81IN X 59IN ARCH	LF	100		
18	714	PIPE CORR STEEL 0.064IN 24IN	LF	50		
19	714	PIPE CORR STEEL 0.079IN 36IN	LF	136		
20	714	24" FLAP GATE - RELAY	EA	1		
21	714	36" FLAP GATE - RELAY	EA	2		
22	714	24" FLARED END SECTION	EA	1		
23	714	36" FLARED END SECTION	EA	2		

TOTAL = \$ _____

GRAND TOTAL = \$ _____

RECEIPT OF ADDENDUMS

NO. 1 _____

NO. 2 _____

NO. 3 _____

PROPOSAL

COUNTY PROJECT NUMBER: TB1202, CH1110, CB1203

TYPE: BRIDGE REPLACEMENT

TIME FOR COMPLETION:

The undersigned Bidder agrees, if awarded the contract, to prosecute the work with sufficient forces and equipment to complete the contract work within the allowable time specified as follows:

WORKING DAY CONTRACT: N/A working days, counted as provided in Standard Specification No. 108.04. Working days will be counted from N/A or from the actual date on which on-site work is started, whichever is earlier.

COMPLETION DATE CONTRACT: September 30, 2012 provided however, that a minimum of N/A working days, counted as provided in Standard Specification No. 108.04, are guaranteed for the performance of the work. Working days will be counted from N/A or from the actual date on which onsite work is started, whichever is earlier.

NOT FOR BIDDING PURPOSES

PROPOSAL

COUNTY PROJECT NUMBER: TB1202, CH1110, CB1203

TYPE: BRIDGE REPLACEMENT

CONTRACT EXECUTION:

The undersigned Bidder agrees, if awarded the contract, to execute the contract form and furnish a contract bond within ten days, as determined by NDCC Section 1-02-15, after date of notice of tentative award, in accordance with the provisions of Sections 103.05 and 103.06 of the Standard Specifications.

AFFIDAVIT:

STATE OF _____)
)ss.
COUNTY OF _____

The undersigned bidder, being duly sworn, does depose and say that he/she is an authorized representative

Of _____
_____, a
Mailing Address

___ Individual ___ Partnership ___ Joint Venture ___ Corporation

and that the said bidder has examined and carefully prepared its bid from the plans and specifications and has checked the same in detail before submitting said proposal or bid; and that the said bidder or its agents, office, or employees have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this proposal or bid.

_____,
Bidder must sign on this line

Title _____

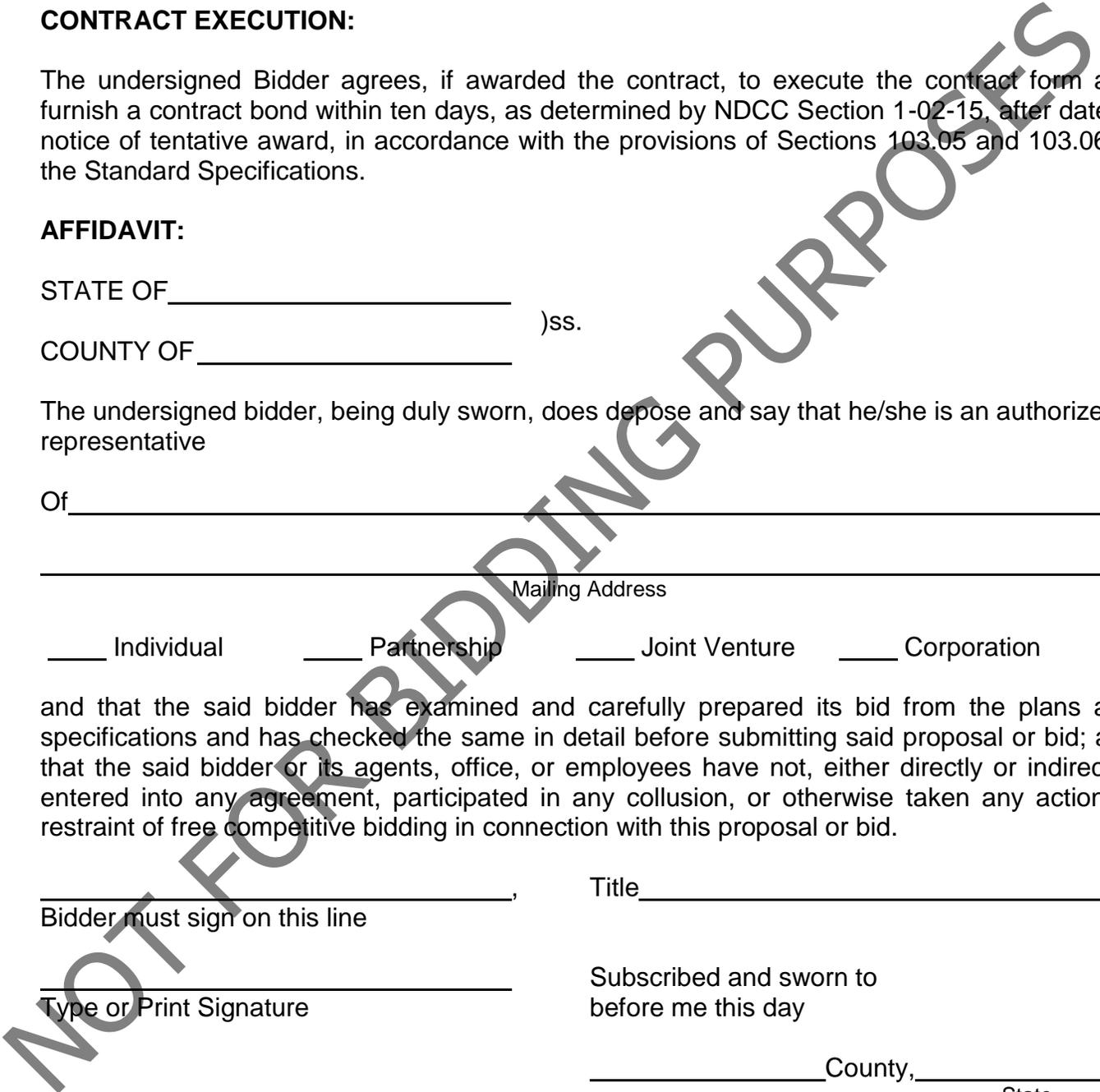
Type or Print Signature

Subscribed and sworn to
before me this day

_____ County, _____
State

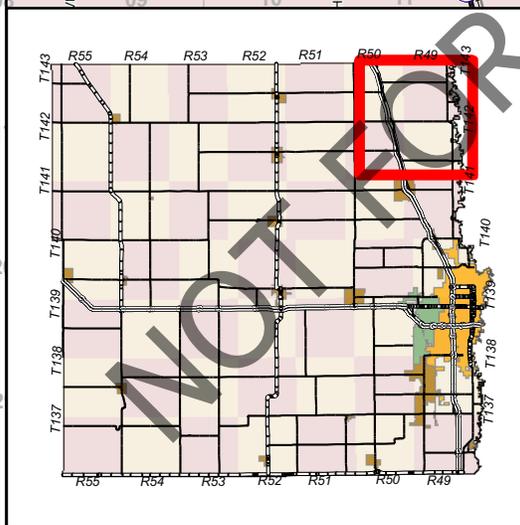
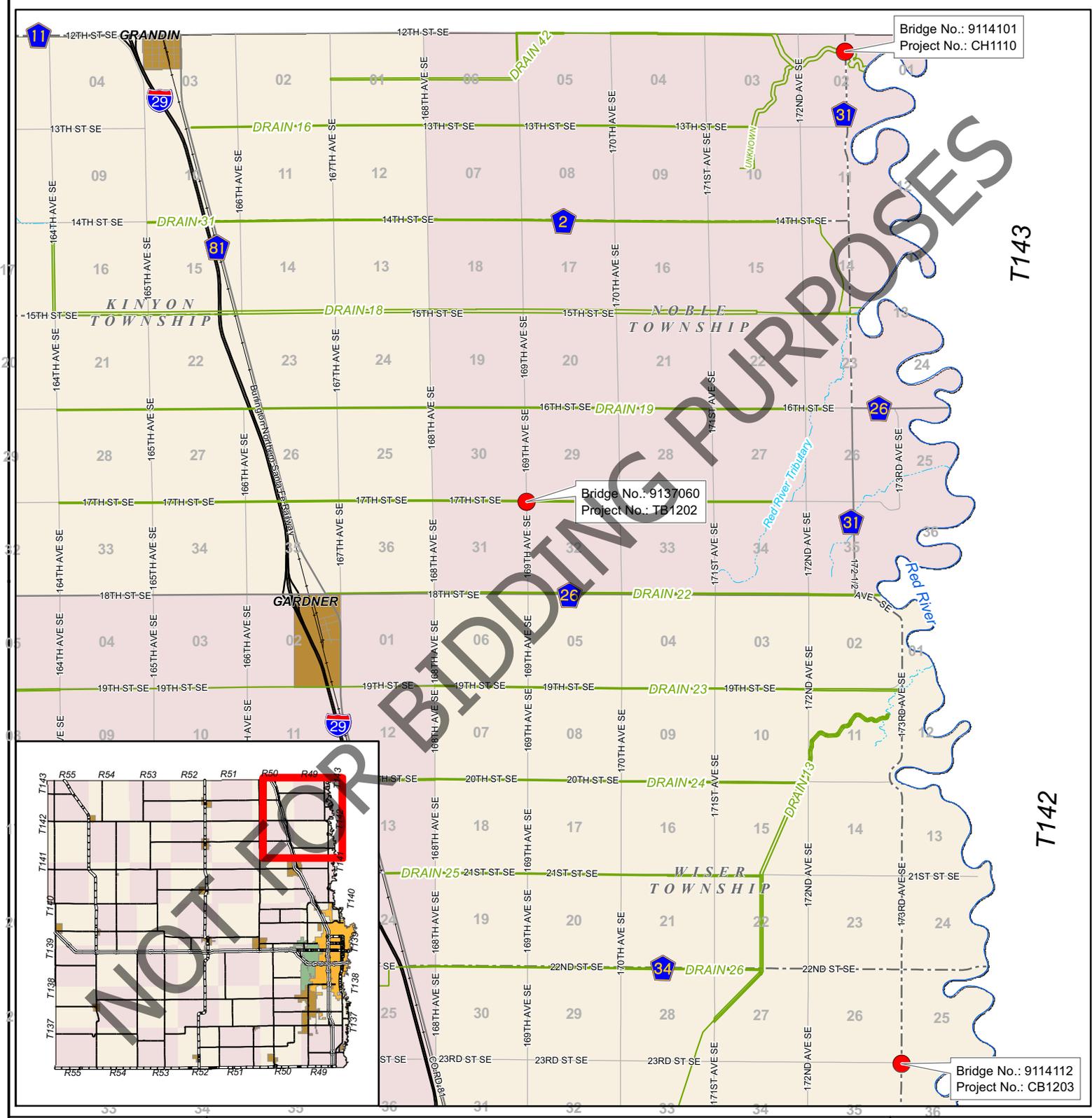
Notary Public

My commission expires _____



CASS COUNTY HIGHWAY DEPARTMENT

COUNTY PROJECTS CH1110 Section 2 Noble Township, TB1202 Sections 31/32 Noble Township, CB1202 Sections 35/36 Wisner Township



CASS COUNTY GOVERNMENT

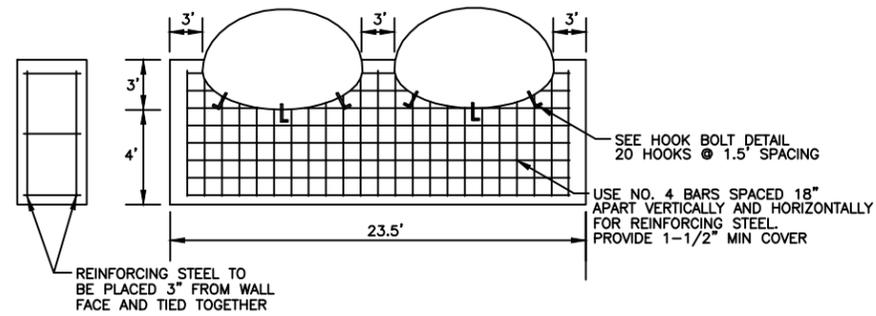


Prepared by
Cass County Highway Dept.
May 2012

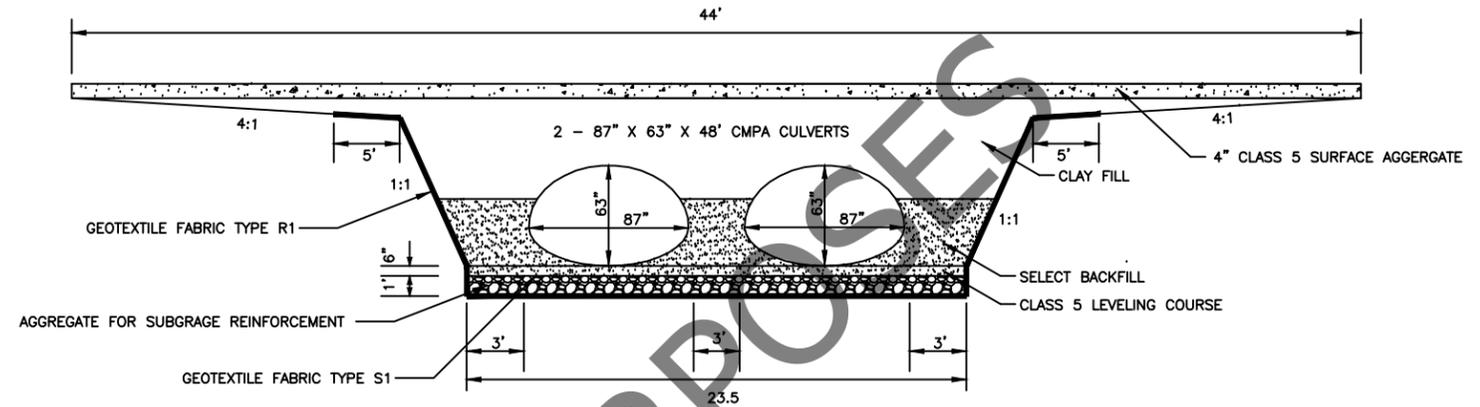
 Structure Projects	 Drain/Coulee/Ditch	 Interstates
 City Limits	 Perennial Stream	 US Routes
 FARGO	 Intermittent Stream	 State
 WEST FARGO		 County



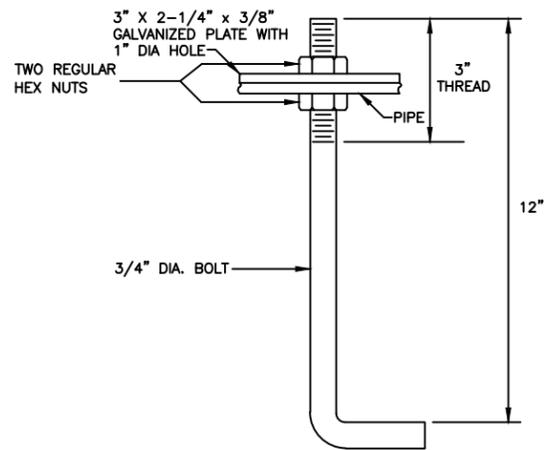

Miles



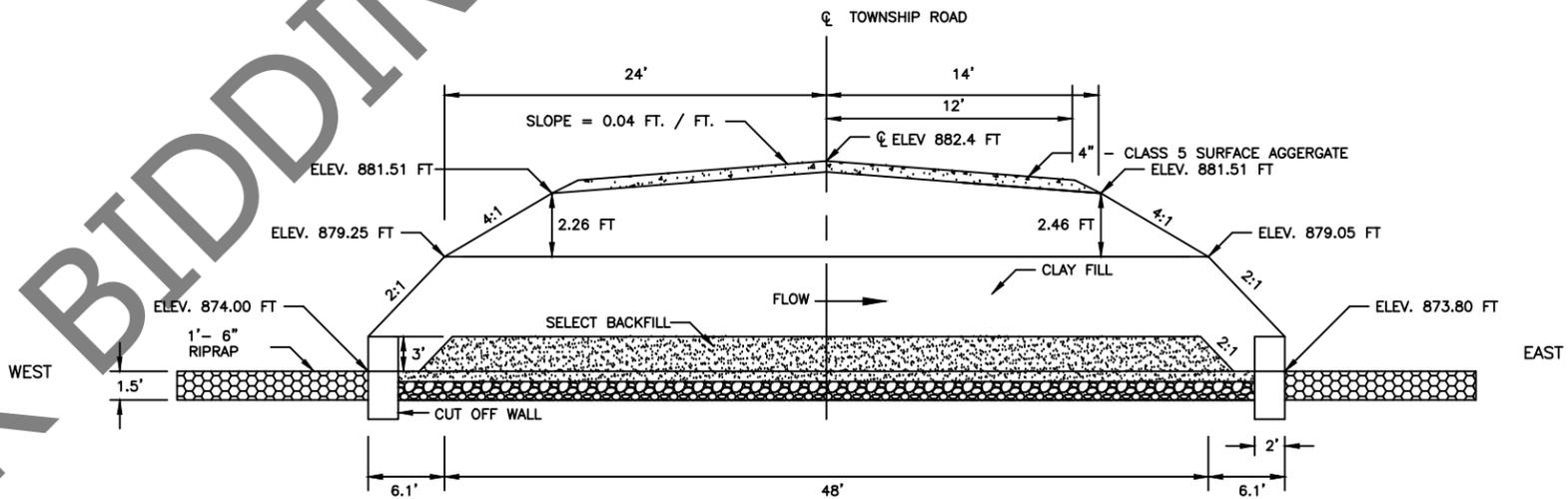
CUTOFF WALL DETAIL
NOT TO SCALE



END VIEW
NOT TO SCALE



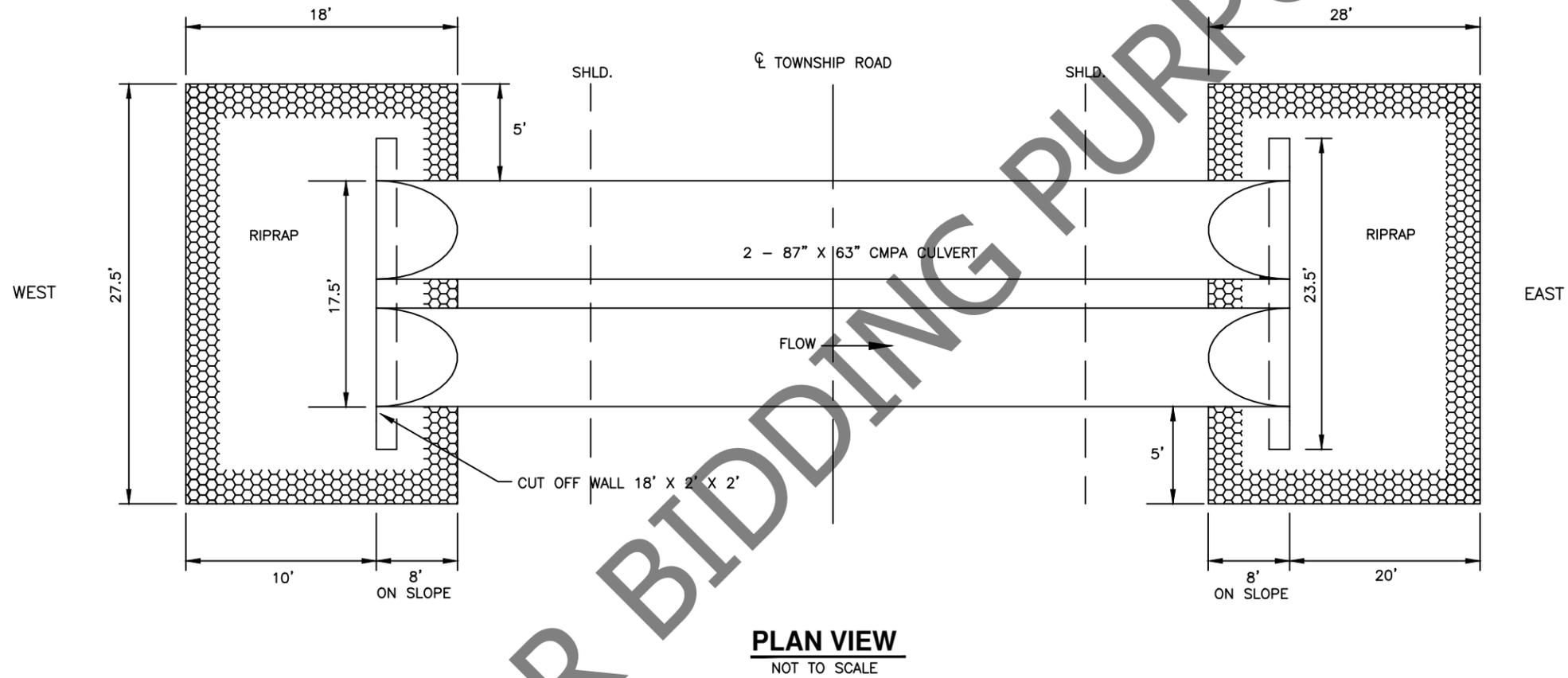
HOOK BOLT DETAIL
NOT TO SCALE



SIDE VIEW
NOT TO SCALE

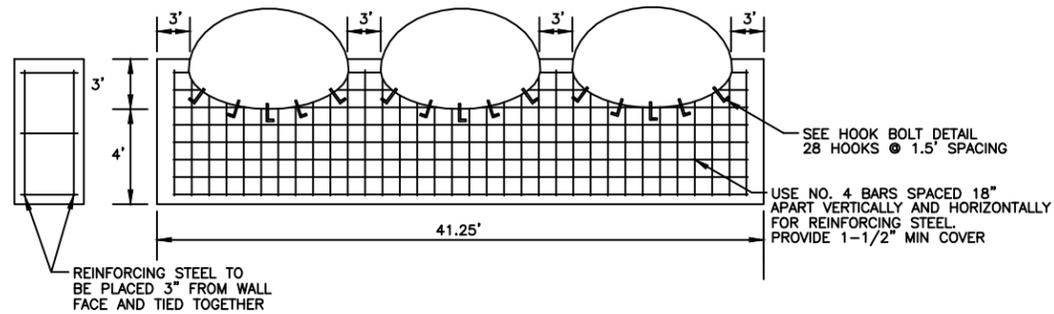
NOT FOR BIDDING PURPOSES

CASS COUNTY HIGHWAY DEPARTMENT
NOBLE TOWNSHIP 31-32
CULVERT DETAILS
PROJECT NO. TB1202

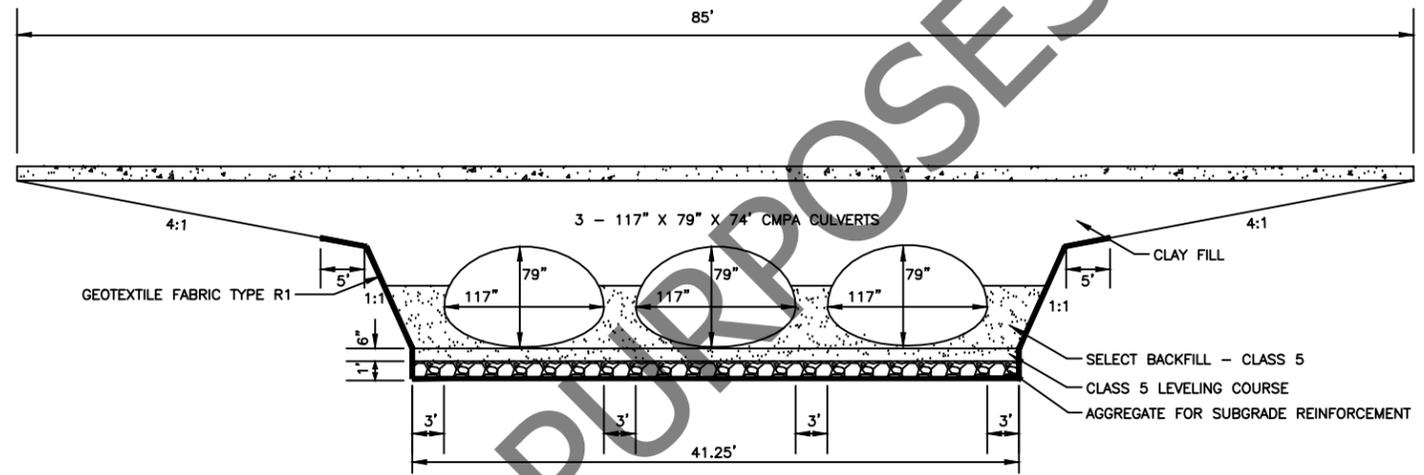


CULVERT LIST												
EXISTING CULVERT DESCRIPTION				NEW CULVERT DATA								
CORNER	EXISTING	DISPOSITION	LENGTH (FT)	NEW DIA (IN)	NEW LGT (FT)	CULVERT THICKNESS	TYPE	# NEW END SECT	END SECT THICKNESS	RELAY FLAP GATES	ELEVATION (INLET)	ELEVATION (OUTLET)
NW	36" CMP	REPLACE	66	36	80	0.079	CMP	1	0.079	1	874.77	874.57
NE	24" CMP	REPLACE	52	24	80	0.064	CMP	1	0.064	1	875.40	875.20
SW	36" CMP	REPLACE	62	36	80	0.079	CMP	1	0.079	1	874.95	874.75
SE	24" CMP	REPLACE	50	24	80	0.064	CMP	1	0.064	1	874.92	874.72

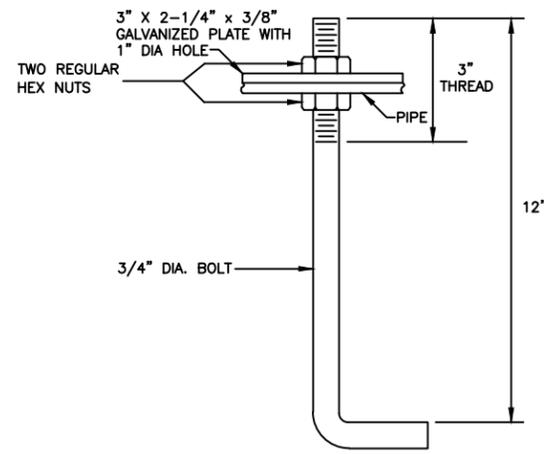
CASS COUNTY HIGHWAY DEPARTMENT
NOBLE TOWNSHIP 31-32
CULVERT DETAILS
PROJECT NO. TB1202



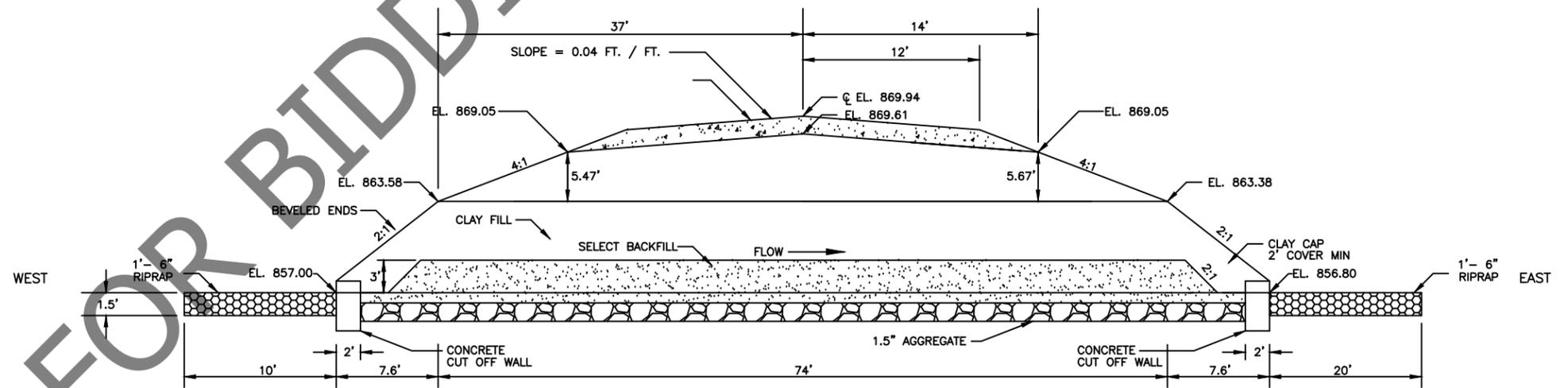
CUTOFF WALL DETAIL
NOT TO SCALE



END VIEW
NOT TO SCALE



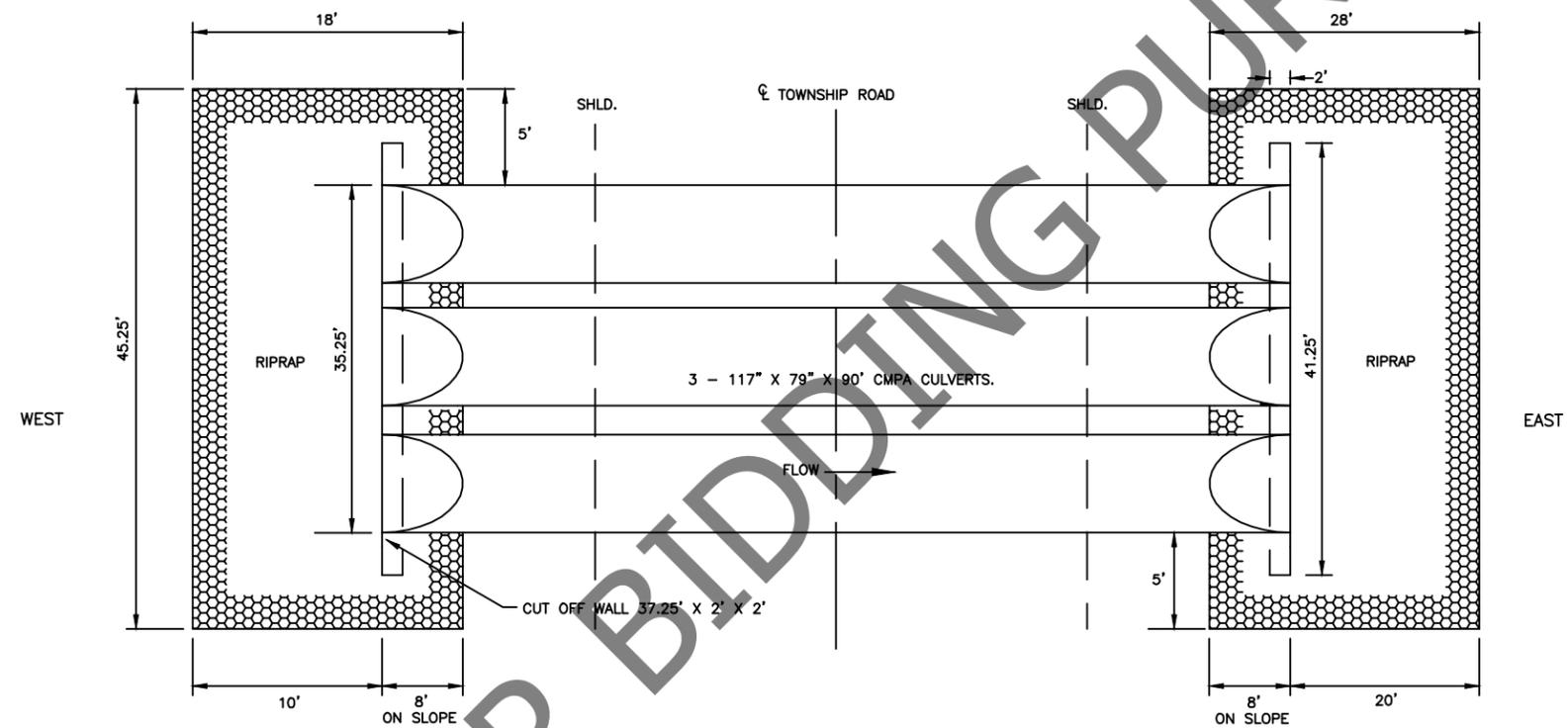
HOOK BOLT DETAIL
NOT TO SCALE



SIDE VIEW
NOT TO SCALE

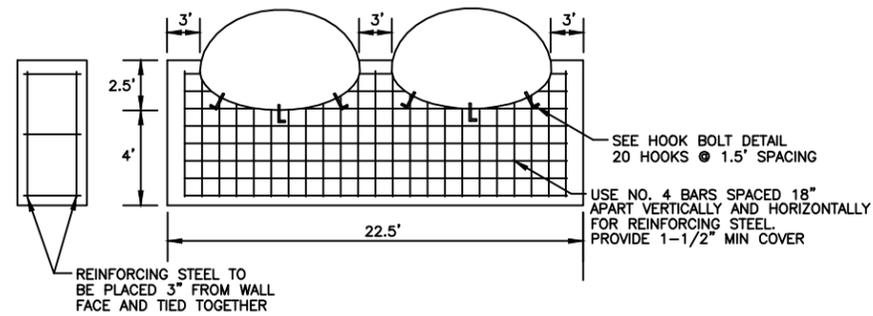
CASS COUNTY HIGHWAY DEPARTMENT
NOBLE TOWNSHIP 2
CULVERT DETAILS
PROJECT NO. CH1110 - COUNTY HWY 31

NOT FOR BIDDING PURPOSES

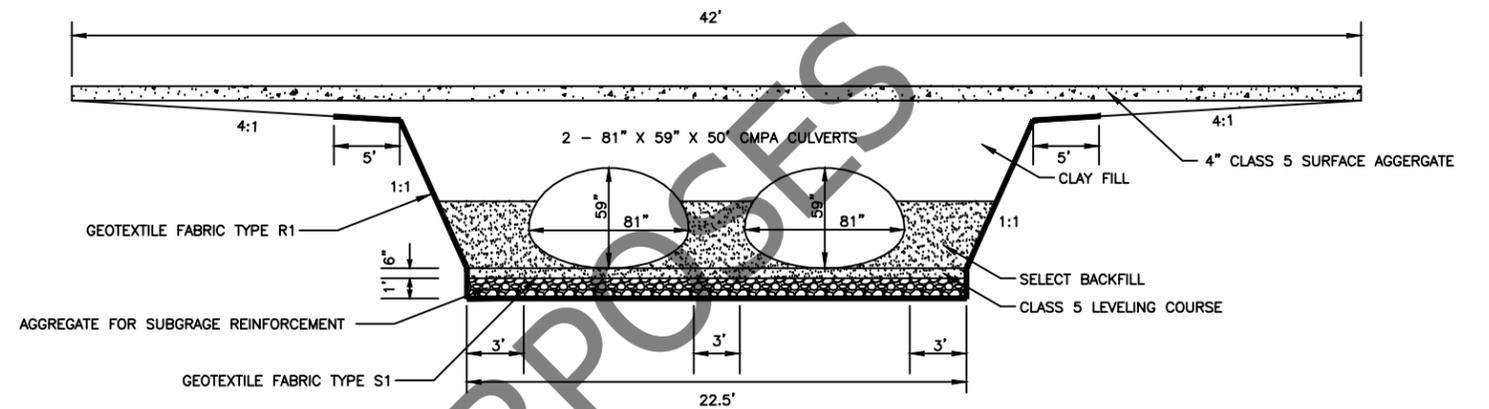


PLAN VIEW
NOT TO SCALE

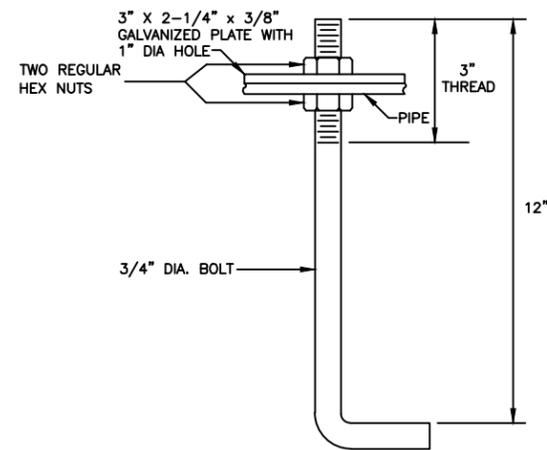
CASS COUNTY HIGHWAY DEPARTMENT
NOBLE TOWNSHIP 2
CULVERT DETAILS
PROJECT NO. CH1110 - COUNTY HWY 31



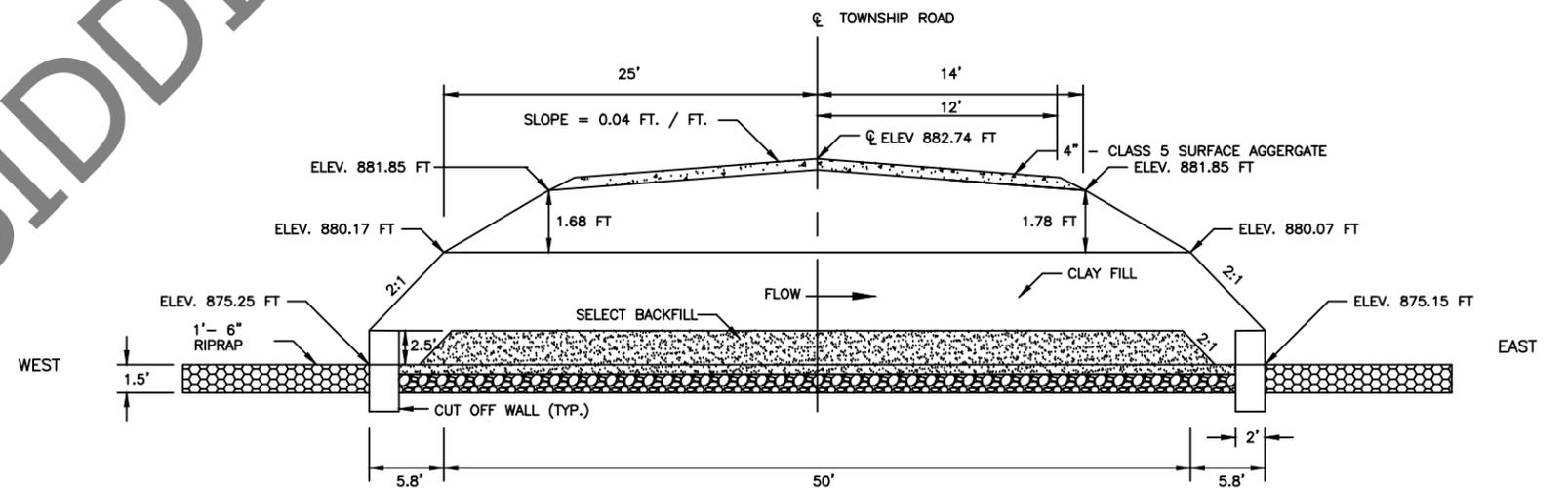
CUTOFF WALL DETAIL
NOT TO SCALE



END VIEW
NOT TO SCALE



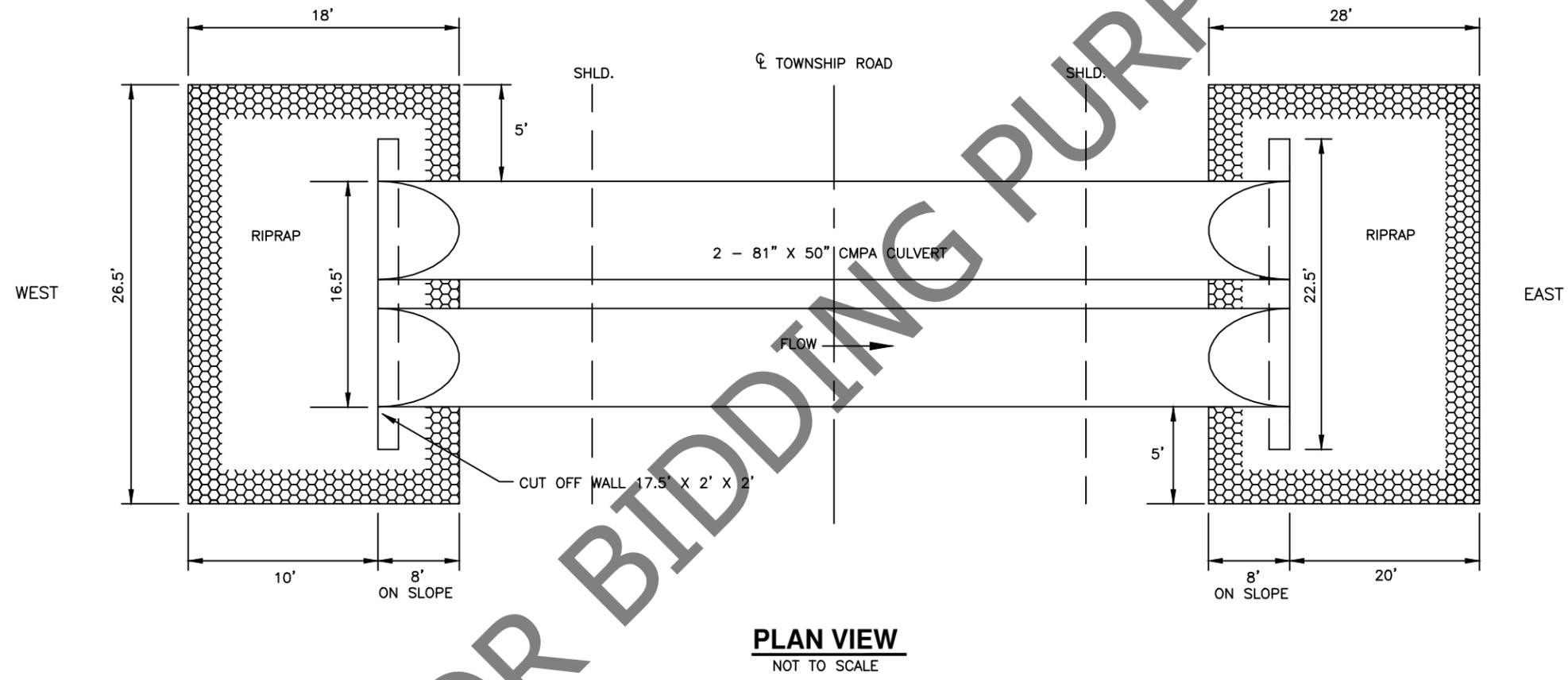
HOOK BOLT DETAIL
NOT TO SCALE



SIDE VIEW
NOT TO SCALE

NOT FOR BIDDING PURPOSES

CASS COUNTY HIGHWAY DEPARTMENT
WISER TOWNSHIP 35-36
CULVERT DETAILS
PROJECT NO. CB1203 - COUNTY HWY 31



CULVERT LIST												
EXISTING CULVERT DESCRIPTION				NEW CULVERT DATA								
CORNER	EXISTING	DISPOSITION	LENGTH (FT)	NEW DIA (IN)	NEW LGT (FT)	CULVERT THICKNE	TYPE	# NEW END SECT	END SECT THICKNESS	RELAY FLAP GATES	ELEVATION (INLET)	ELEVATION (OUTLET)
NW	36" CMP	REPLACE	24	36	62	0.079	CMP	1	0.079	1	876.40	876.14
SW	36" CMP	REPLACE	30	36	62	0.079	CMP	1	0.079	1	876.31	875.82
SE	24" CMP	REPLACE	20	24	56	0.064	CMP	1	0.064	1	878.58	878.57

CASS COUNTY HIGHWAY DEPARTMENT
 WISER TOWNSHIP 35-36
 CULVERT DETAILS
 PROJECT NO. CB1203 - COUNTY HWY 31