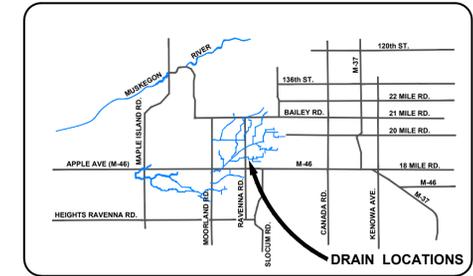




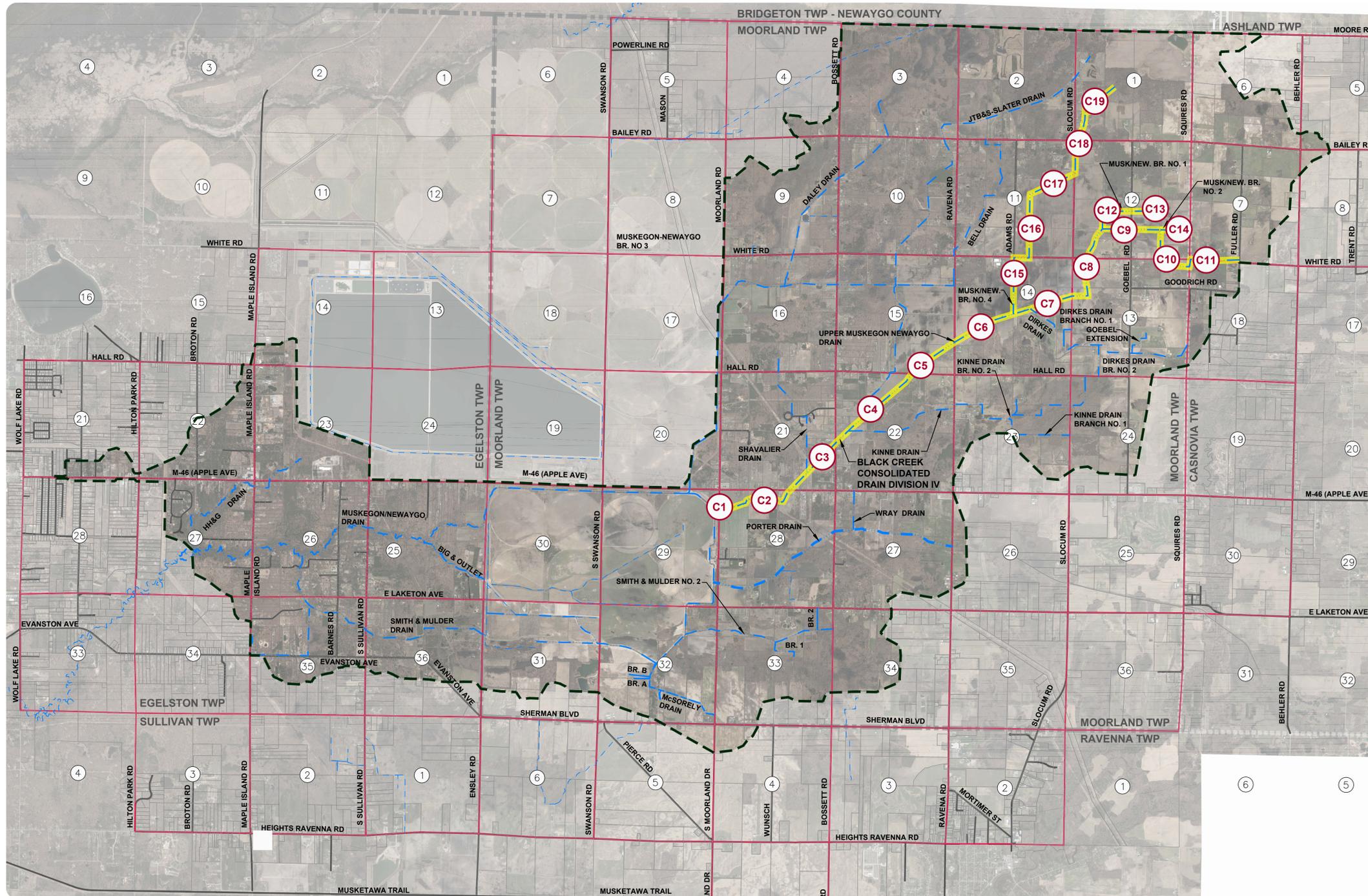
BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV

FORMER MUSKEGON-NEWAYGO DRAIN, BRANCH NO. 1, BRANCH NO. 2 & BRANCH NO. 4
 EGELSTON, MOORLAND, RAVENNA & CASNOVIA TOWNSHIPS
 MUSKEGON COUNTY, MICHIGAN



2121 3 Mile Rd. NW
 Walker, MI 49544
 Ph: 616-301-7888
 www.LREMI.com

LRE
 ENGINEERS & SURVEYORS



INDEX OF SHEETS

CS - COVER SHEET

C1 - PLAN & PROFILE
 (STA. 0+00 - 30+50 FORMER UPPER MUSK. NEW. DRAIN)

C2 - PLAN & PROFILE
 (STA. 30+50 - 61+50 FORMER UPPER MUSK. NEW. DRAIN)

C3 - PLAN & PROFILE
 (STA. 61+50 - 92+50 FORMER UPPER MUSK. NEW. DRAIN)

C4 - PLAN & PROFILE
 (STA. 92+50 - 123+50 FORMER UPPER MUSK. NEW. DRAIN)

C5 - PLAN & PROFILE
 (STA. 123+50 - 154+50 FORMER UPPER MUSK. NEW. DRAIN)

C6 - PLAN & PROFILE
 (STA. 154+50 - 185+50 FORMER UPPER MUSK. NEW. DRAIN)

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 (STA. 247+50 - 278+50 FORMER UPPER MUSK. NEW. DRAIN)

C10 - PLAN & PROFILE
 (STA. 278+50 - 309+50 FORMER UPPER MUSK. NEW. DRAIN)

C11 - PLAN & PROFILE
 (STA. 309+50 - 340+50 FORMER UPPER MUSK. NEW. DRAIN)

C12 - PLAN & PROFILE
 (STA. 0+00 - 29+50 FORMER UPPER MUSK. NEW. BR. NO. 1)

C13 - PLAN & PROFILE
 (STA. 29+50 - 40+00 FORMER UPPER MUSK. NEW. BR. NO. 1)
 (STA. 0+00 - 13+00 FORMER UPPER MUSK. NEW. BR. NO. 1 EXT.)

C14 - PLAN & PROFILE
 (STA. 0+00 - 16+00 FORMER UPPER MUSK. NEW. BR. NO. 2)

C15 - PLAN & PROFILE
 (STA. 0+00 - 29+50 FORMER UPPER MUSK. NEW. BR. NO. 4)

C16 - PLAN & PROFILE
 (STA. 29+50 - 59+50 FORMER UPPER MUSK. NEW. BR. NO. 4)

C17 - PLAN & PROFILE
 (STA. 59+50 - 87+50 FORMER UPPER MUSK. NEW. BR. NO. 4)

C18 - PLAN & PROFILE
 (STA. 87+50 - 111+50 FORMER UPPER MUSK. NEW. BR. NO. 4)

C19 - PLAN & PROFILE
 (STA. 111+50 - 128+00 FORMER UPPER MUSK. NEW. BR. NO. 4)

C20 - DETAILS

LEGEND

▲ - TRAVERSE POINT	○ - FIRE HYDRANT
● - WELL	○ - WATER VALVE
— - HIGHWAY	⊠ - GAS METER
● - MONUMENT	⊠ - WATER METER
○ - FOUND IRON STAKE	⊠ - TELEPHONE RISER
○ - SET IRON STAKE	⊠ - ELECTRIC METER
— - SIGN	⊠ - CATCH BASIN
⊠ - RR SIGN	⊠ - ROUND CATCH BASIN
○ - GUY POLE	⊠ - UTILITY MANHOLE
— - GUY ANCHOR	⊠ - STORM MANHOLE
— - UTILITY POLE	⊠ - SANITARY MANHOLE
⊠ - LIGHT POLE	⊠ - ELECTRIC MANHOLE
⊠ - POST	⊠ - TELEPHONE MANHOLE
⊠ - SOIL BORING	⊠ - TELEPHONE MANHOLE
⊠ - U.G. UTILITY MARKER	⊠ - SHRUB
⊠ - MAILBOX	⊠ - DECIDUOUS TREE
	⊠ - CONIFEROUS TREE

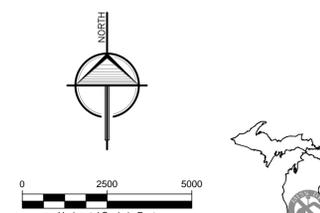
---	WATER UTILITY LINE
---	TELEPHONE UTILITY LINE
---	ELECTRIC UTILITY LINE
---	GAS UTILITY LINE
---	STEAM UTILITY LINE
---	STORM UTILITY LINE
---	SANITARY UTILITY LINE
---	FIBER OPTIC UTILITY LINE
---	OVERHEAD UTILITY LINE

UTILITY CONTACTS

CONSUMERS ENERGY KURT GOLDING MISSDIGDESIGNTICKERS @CMSENERGY.COM	MUSKEGON AREA INTERMEDIATE SCHOOL DISTRICT KEN LOPEZ (616) 393-0138 (O) MITICKETS@DIGTRACK.COM	GAS-AMERIGAS CHAD KROUSE (231) 638-3183 (O) CHAD.KROUSE@AMERIGAS.COM	FRONTIER/VERIZON KATHRYN ANDERSON (810) 724-3127 (O) MI.MISSDIG.FACILITIES.DESIGN.REQUEST@FTR.COM
GREAT LAKES ENERGY COOPERATIVE BARBARA SAUNDERS KIMBERLY MATELSKI (231) 487-1332 (O) DISPATCH@GLEENERGY.COM	GAS-DTE GAS TRANSMISSION STEVE BARNARD (313) 235-5111 (O) & GREG BLOSSER (313) 235-1080 (O) BLOSSERG@DTEENERGY.COM	MUSKEGON COUNTY WASTEWATER STEVE BARNARD (231) 724-3441 (O) MISSDIG@CO.MUSKEGON.MI.US	WINDSTREAM COMMUNICATIONS (800) 289-1901 (O) LOCATE.DESK@WINDSTREAM.COM

LEGEND

---	ENCLOSED CHANNEL DRAIN	---	TOWNSHIP LINE
---	OPEN CHANNEL DRAIN	---	ROADS
---	DRAINAGE DISTRICT BOUNDARY	---	PROPERTY LINES
---	SECTION LINE	---	SECTION NUMBERS
---		---	SHEET NUMBERS



BEFORE YOU DIG CALL MISS DIG
 1-800-482-7171

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REVISIONS:

NO.	ISSUED FOR	DATE
1.	EX. CONDITION SURVEY	DEC. 2017
2.	PRELIMINARY DESIGN	AUG. 2019
3.	BIDS	JUNE 2020

MUSKEGON COUNTY DRAIN COMMISSIONER
 141 E APPLE AVE. MUSKEGON, MI 49842

PROJECT:
BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
 EGELSTON, MOORLAND, RAVENNA & CASNOVIA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER: 17-008

DATE	BY
SEPT. 2017	CT JS
AUG. 2019	AWB
AUG. 2019	AWB
JUNE 2020	AWB

DESIGNED BY: AWB
 DRAFTED BY: RAG
 CADC:DJF

COVER SHEET

SHEET NUMBER
CS



MISCELLANEOUS QUANTITIES:
 MOBILIZATION 1 LS
 TRAFFIC CONTROL 1 LS

REVISIONS:	NO.	ISSUED FOR	DATE
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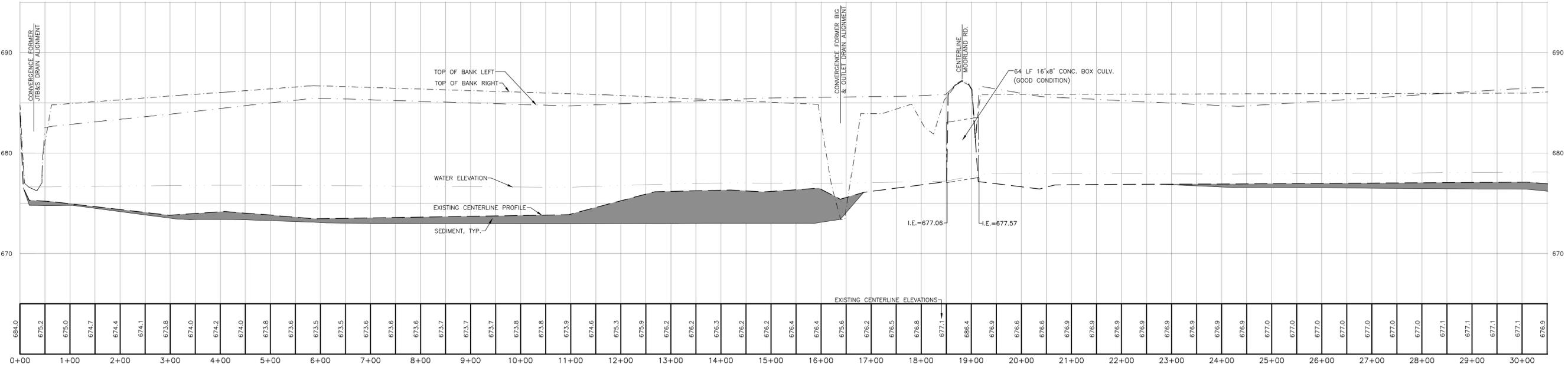
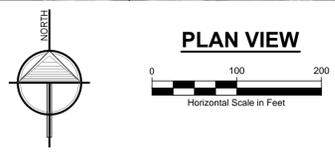
CLIENT: MUSKEGON COUNTY DRAIN COMMISSIONER
 141 E APPLE AVE., MUSKEGON, MI 49842

PROJECT: BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
 EGELESTON, MOORLAND, RAVENNA & CASSIOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER:	DATE
17-036	SEPT 2017
	AUG 2019
	AUG 2019
	JUNE 2020

SURVEYED BY: CF JS
 DESIGNED BY: AWS
 DRAFTED BY: RAG
 L000C.DJF

- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
 2. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER. PAID FOR AS SY MULCH BLANKET.
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CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'

3 WORKING DAYS
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MATCH LINE: SEE SHT. C1 FOR CONTINUATION

MISCELLANEOUS QUANTITIES:
 OPEN CHANNEL SEEDING 1,400 LF
 MULCH BLANKET 1,500 SY



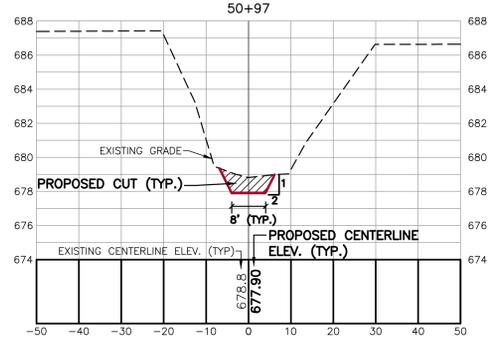
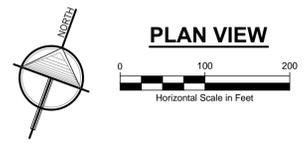
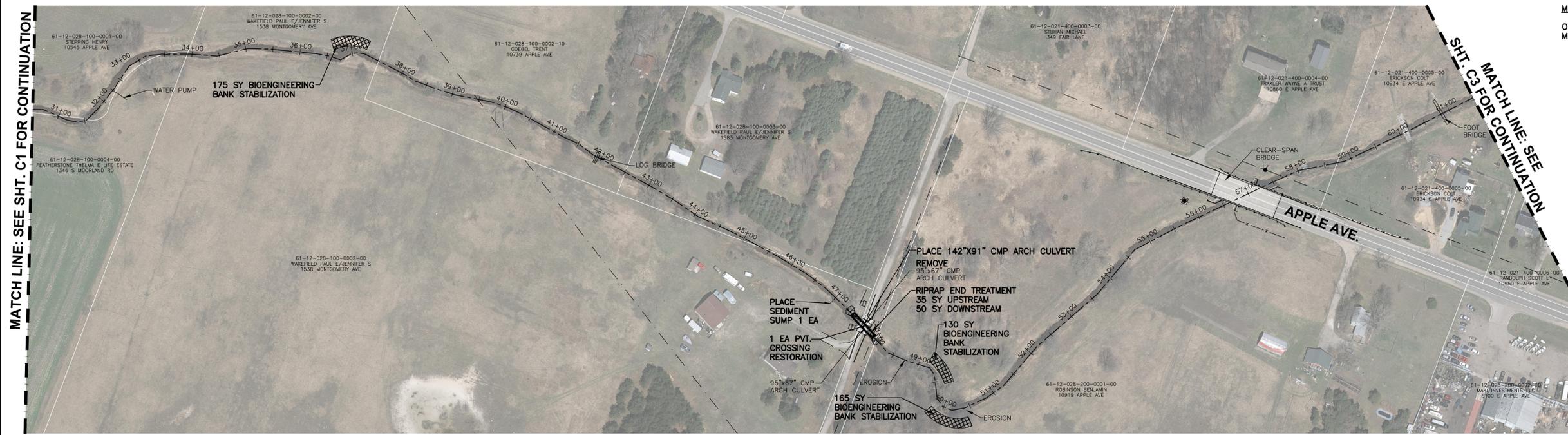
NO.	ISSUED FOR	DATE
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MUSKOGON COUNTY DRAIN COMMISSIONER
 141 E. APPLE AVE., MUSKOGON, MI 49842
BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
 EGLESTON, MOORLAND, RAVENNA & CASINOVA TOWNSHIPS, MUSKOGON COUNTY, MI

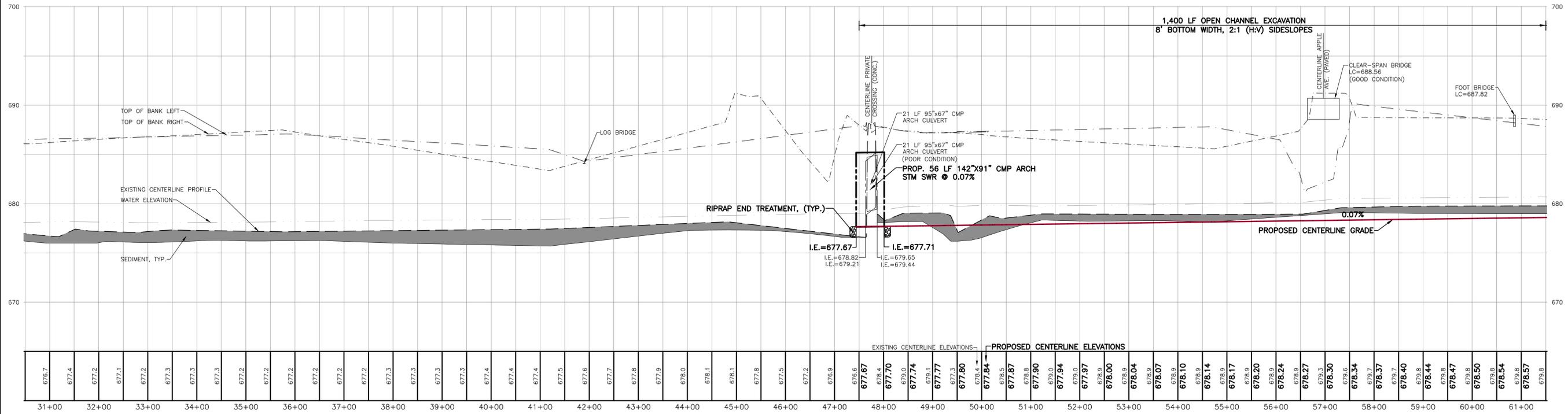
DATE	BY
SEPT. 2017	CF JS
AUG. 2019	AW S
AUG. 2019	AW S
JUNE 2020	AW S

PLAN & PROFILE
 STA: 30+50 - 61+50
 FORMER UPPER MUSKOGON
 NEWWAYGO DRAIN

C2



- NOTES:**
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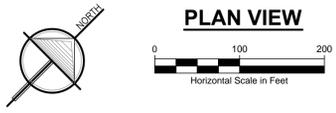
CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'

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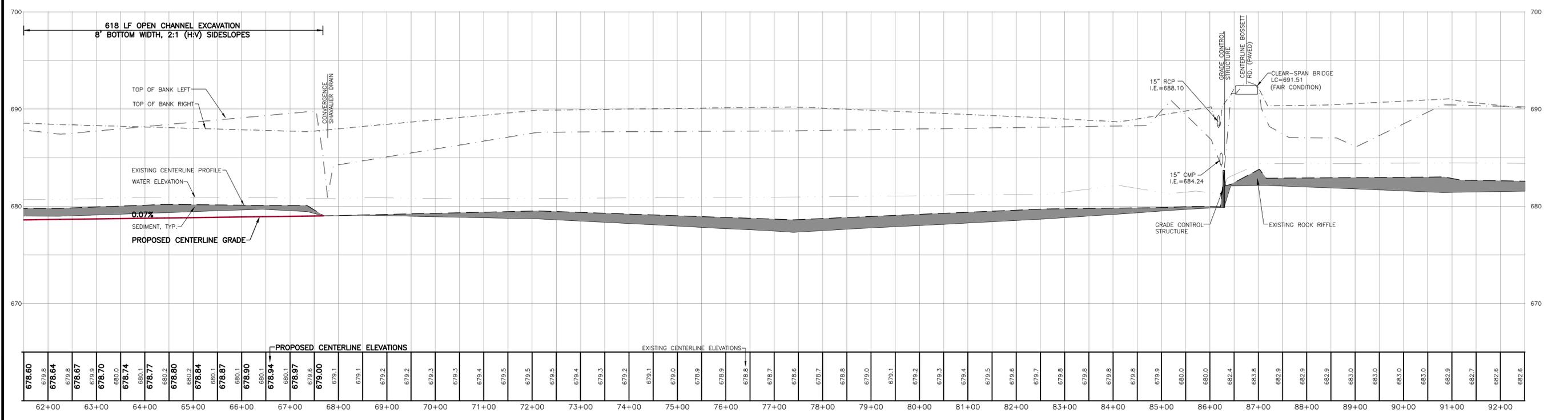


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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING 618 LF
 MULCH BLANKET 1,000 SY



CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'

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 Ph: 616-301-7888
 www.LREMI.com

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MUSKEGON COUNTY DRAIN COMMISSIONER
 141 E. APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN DIVISION IV
 EGGLESTON, MOORLAND, RAVENNA & CASINOVA TOWNSHIPS, MUSKEGON COUNTY, MI

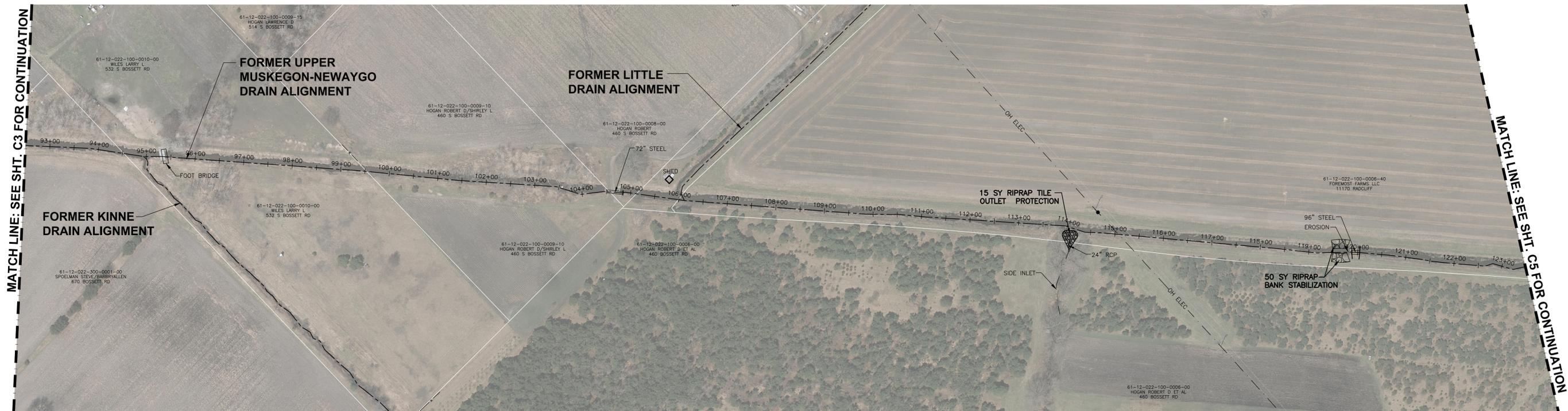
PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	AUG. 2019
	AUG. 2019
	JUNE 2020

PLAN & PROFILE
 STA: 61+50 - 92+50
 FORMER UPPER MUSKEGON
 NEWAYGO DRAIN

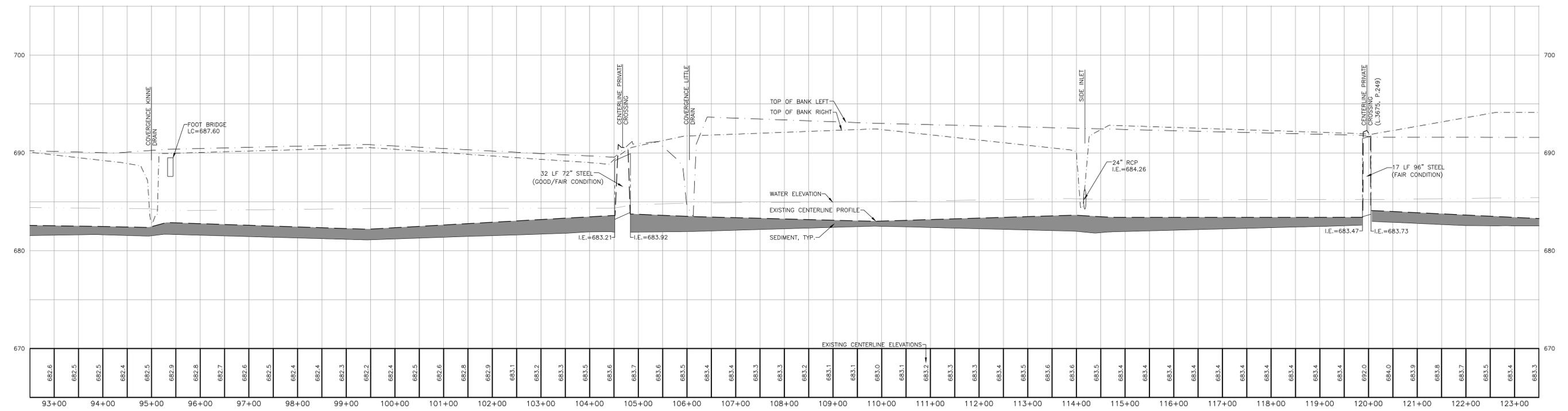
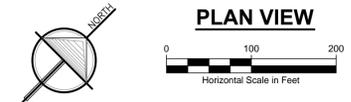
SHEET NUMBER
C3

MATCH LINE: SEE SHIT. C3 FOR CONTINUATION

MATCH LINE: SEE SHIT. C5 FOR CONTINUATION



- NOTES:**
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CENTERLINE PROFILE
SCALE: HORIZONTAL: 1" = 100'
VERTICAL: 1" = 5'

**3 WORKING DAYS
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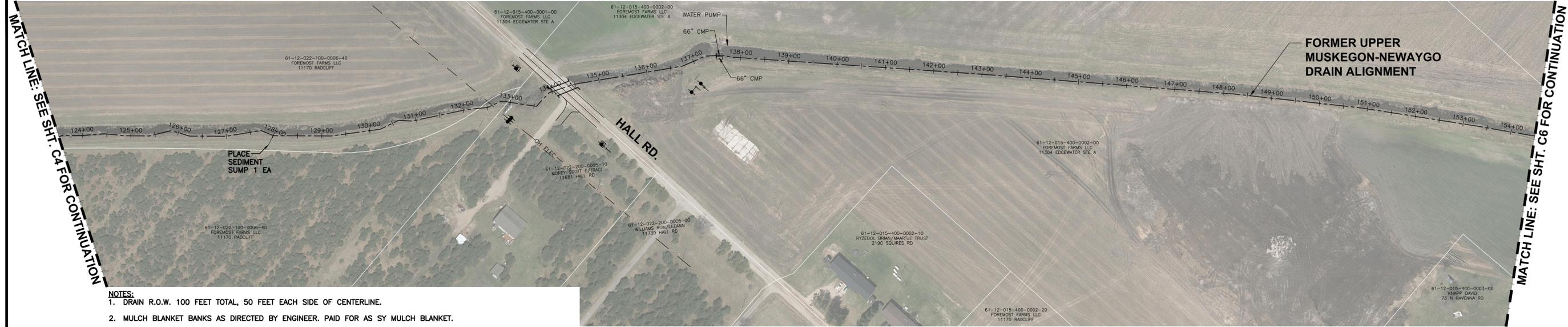
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141 E APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

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	AUG 2019
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PLAN & PROFILE
STA: 92+50 - 123+50
FORMER UPPER MUSKEGON
NEWAYGO DRAIN

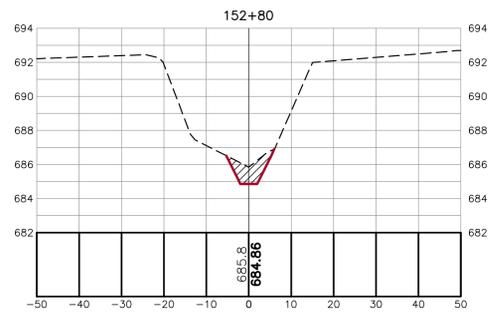
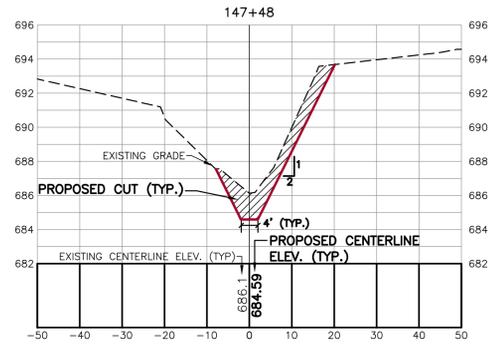
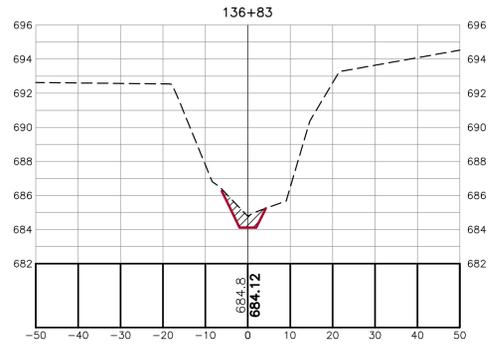
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C4



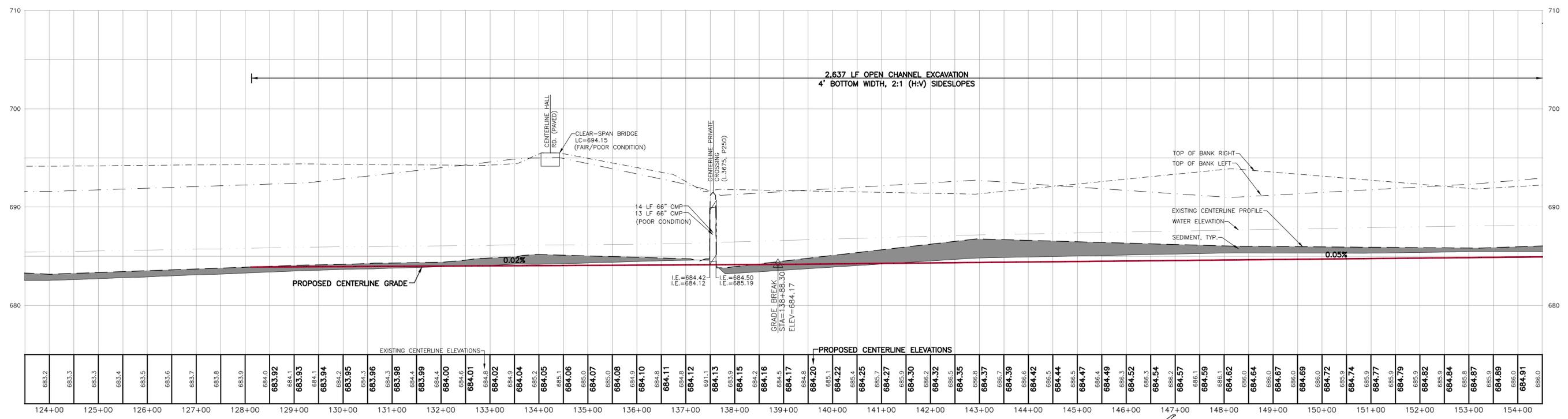
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING	2,637 LF
MULCH BLANKET	5,500 SY
RIPRAP	20 SY



CROSS SECTIONS
SCALE: HORIZONTAL: 1"=20'
VERTICAL: 1"=5'



CENTERLINE PROFILE
SCALE: HORIZONTAL: 1"=100'
VERTICAL: 1"=5'

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ENGINEERS & SURVEYORS

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	3.	BIDS	JUNE 2020

PROJECT NUMBER: 17-008
SURVEYED BY: CF JS
DESIGNED BY: AWS
DRAFTED BY: RAG
L0002.DWG

MUSKEGON COUNTY DRAIN COMMISSIONER
141 E APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PLAN & PROFILE
STA: 123+50 - 154+50
FORMER UPPER MUSKEGON
NEWAYGO DRAIN

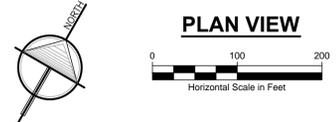
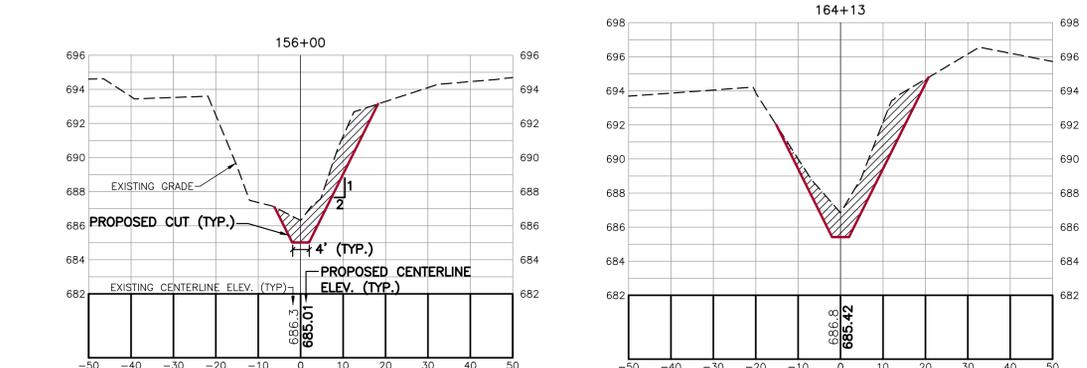
SHEET NUMBER
C5

MATCH LINE: SEE SHT. C5 FOR CONTINUATION

MATCH LINE: SEE SHT. C7 FOR CONTINUATION



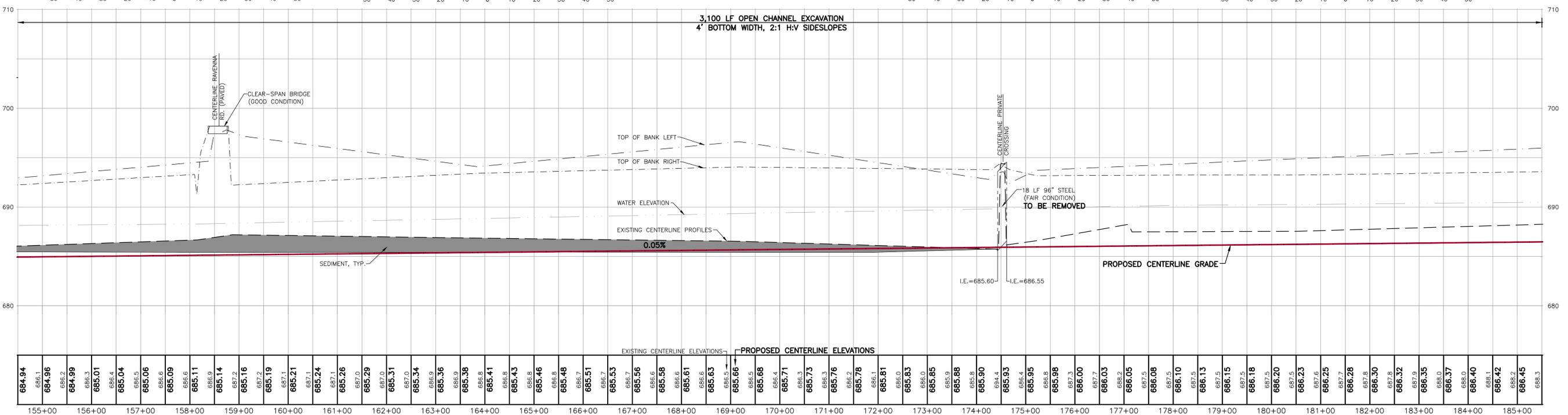
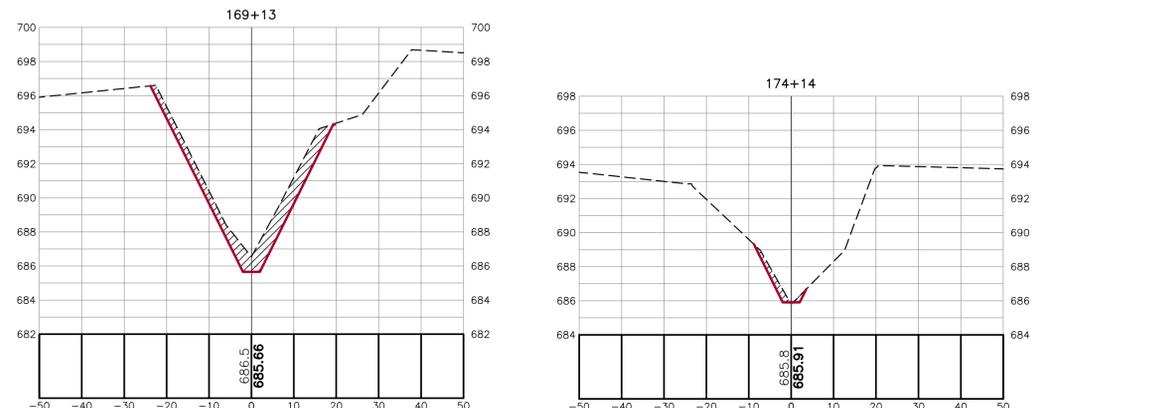
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING 3,100 LF
 MULCH BLANKET 7,000 SY
 RIPRAP 20 SY

CROSS SECTIONS
 SCALE: HORIZONTAL: 1"=20'
 VERTICAL: 1"=5'



CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1"=100'
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	2.	PRELIMINARY DESIGN	AUG 2019
	3.	BIDS	JUNE 2020

MUSKEGON COUNTY DRAIN COMMISSIONER
 141 E APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
 EGGLESTON, MOORLAND, RAVENNA & CASSIOVA TOWNSHIPS, MUSKEGON COUNTY, MI

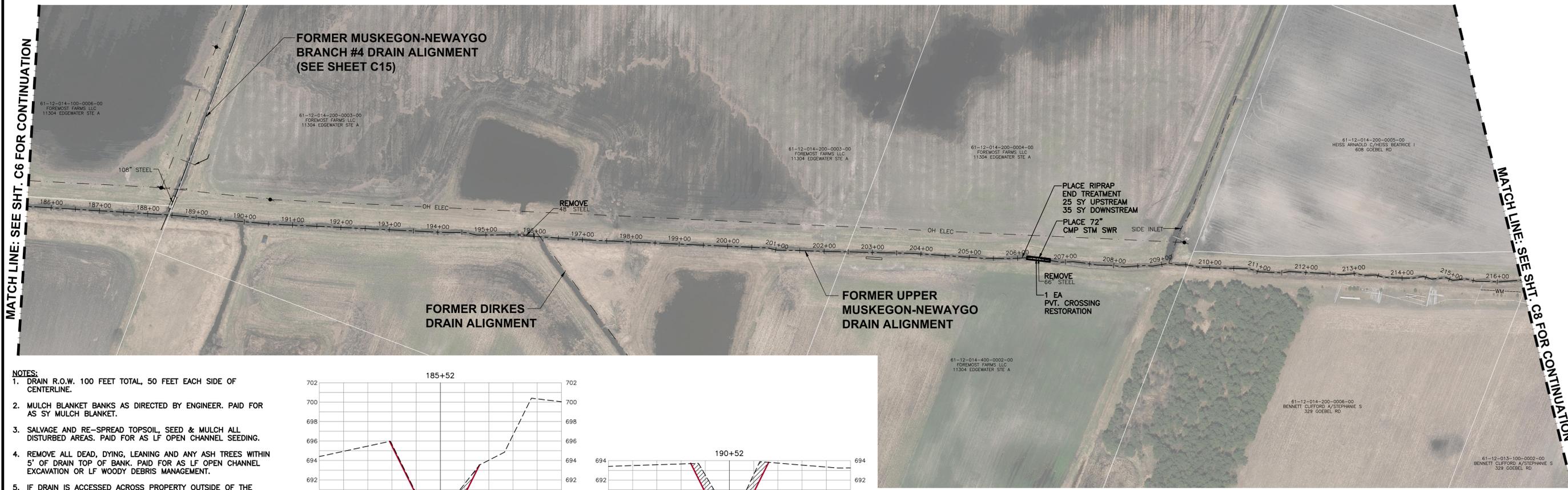
PROJECT NUMBER:	DATE
17-008	SEPT 2017
	SURVEYED BY: CF JS
	DESIGNED BY: AWS
	DRAFTED BY: RAG
	LOACC DJF
	JUNE 2020

PLAN & PROFILE
 STA: 154+50 - 185+50
 FORMER UPPER MUSKEGON
 NEWAYGO DRAIN

SHEET NUMBER
C6

MATCH LINE - SEE SHT. C6 FOR CONTINUATION

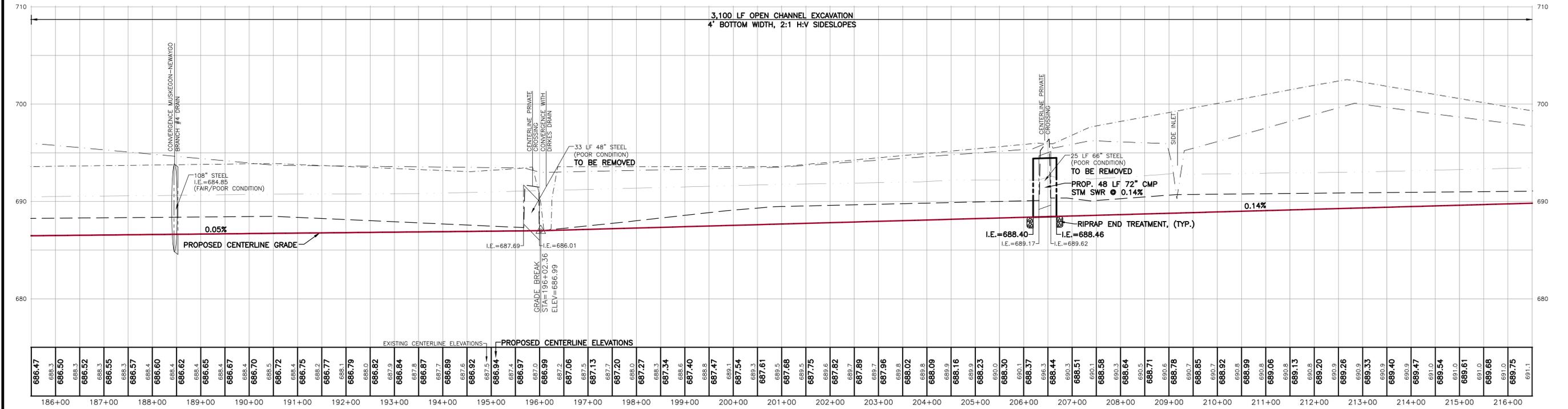
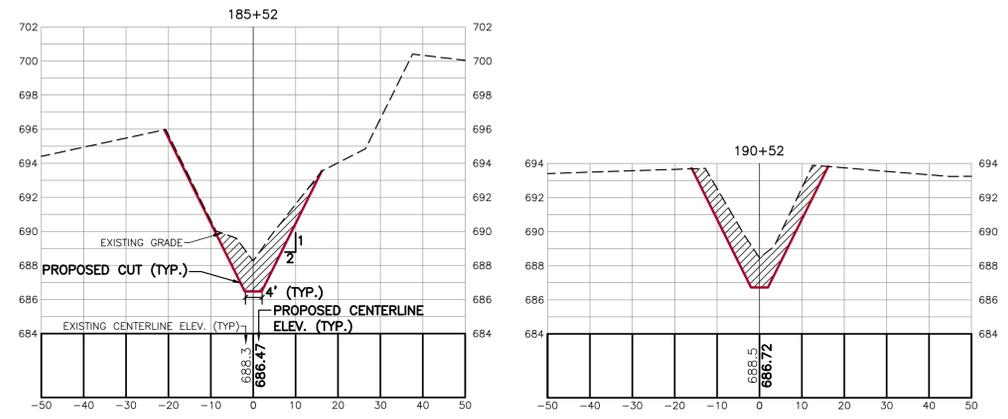
MATCH LINE - SEE SHT. C8 FOR CONTINUATION



- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
 2. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER. PAID FOR AS SY MULCH BLANKET.
 3. SALVAGE AND RE-SPREAD TOPSOIL, SEED & MULCH ALL DISTURBED AREAS. PAID FOR AS LF OPEN CHANNEL SEEDING.
 4. REMOVE ALL DEAD, DYING, LEANING AND ANY ASH TREES WITHIN 5' OF DRAIN TOP OF BANK. PAID FOR AS LF OPEN CHANNEL EXCAVATION OR LF WOODY DEBRIS MANAGEMENT.
 5. IF DRAIN IS ACCESSED ACROSS PROPERTY OUTSIDE OF THE DRAIN EASEMENT, A LAND OWNER'S AGREEMENT FORM MUST BE OBTAINED.
 6. QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS AUTHORIZED BY ENGINEER.

MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING 3,100 LF
 MULCH BLANKET 6,000 SY
 RIPRAP 20 SY



CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'

**3 WORKING DAYS
 BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171**

ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

2121 3 Mile Rd. NW
 Walker, MI 49544
 Ph: 616-301-7888
 www.LREMI.com

REVISIONS:	NO.	ISSUED FOR:	DATE
	1.	EX. CONDITION SURVEY	DEC. 2017
	2.	PRELIMINARY DESIGN	AUG. 2019
	3.	BIDS	JUNE 2020

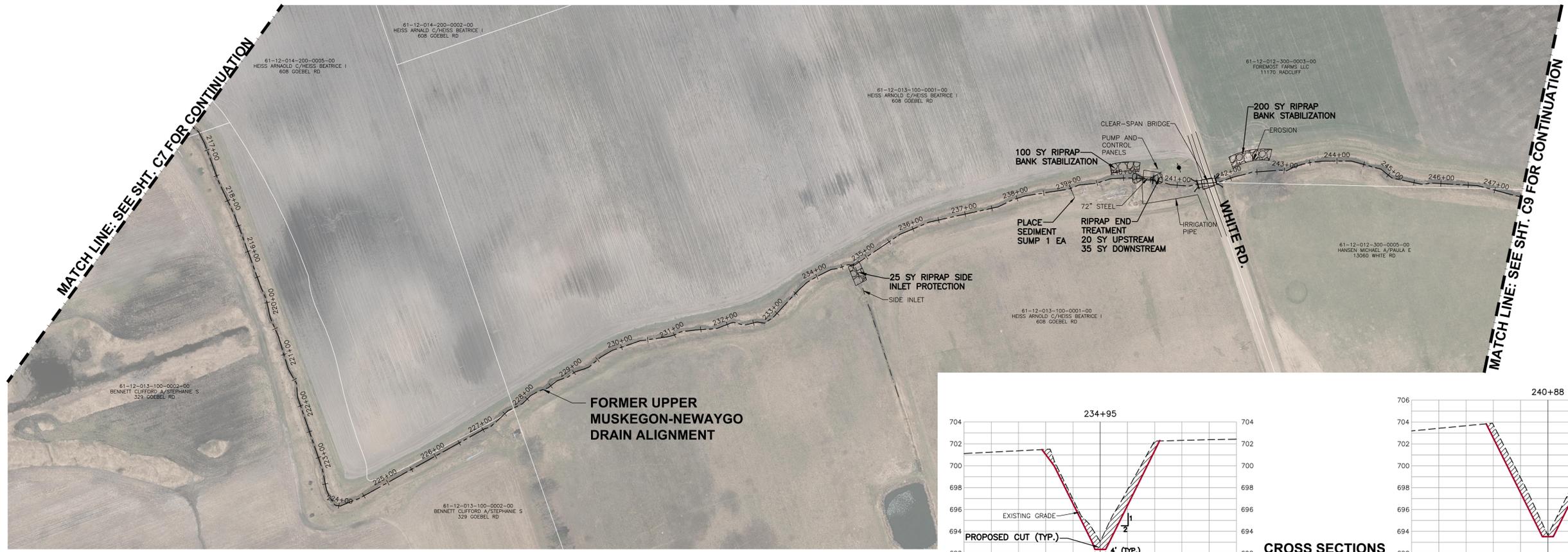
MUSKEGON COUNTY DRAIN COMMISSIONER
 141 E. APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
 EGGLESTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	AUG. 2019
	AUG. 2019
	JUNE 2020

PLAN & PROFILE
 STA: 185+50 - 216+50
 FORMER UPPER MUSKEGON
 NEWAYGO DRAIN

SHEET NUMBER
C7



- MISCELLANEOUS QUANTITIES:**
- OPEN CHANNEL SEEDING 3,100 LF
 - MULCH BLANKET 6,000 SY
 - RIPRAP 20 SY
- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
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CLIENT: MUSKEGON COUNTY DRAIN COMMISSIONER
141 E APPLE AVE, MUSKEGON, MI 49842

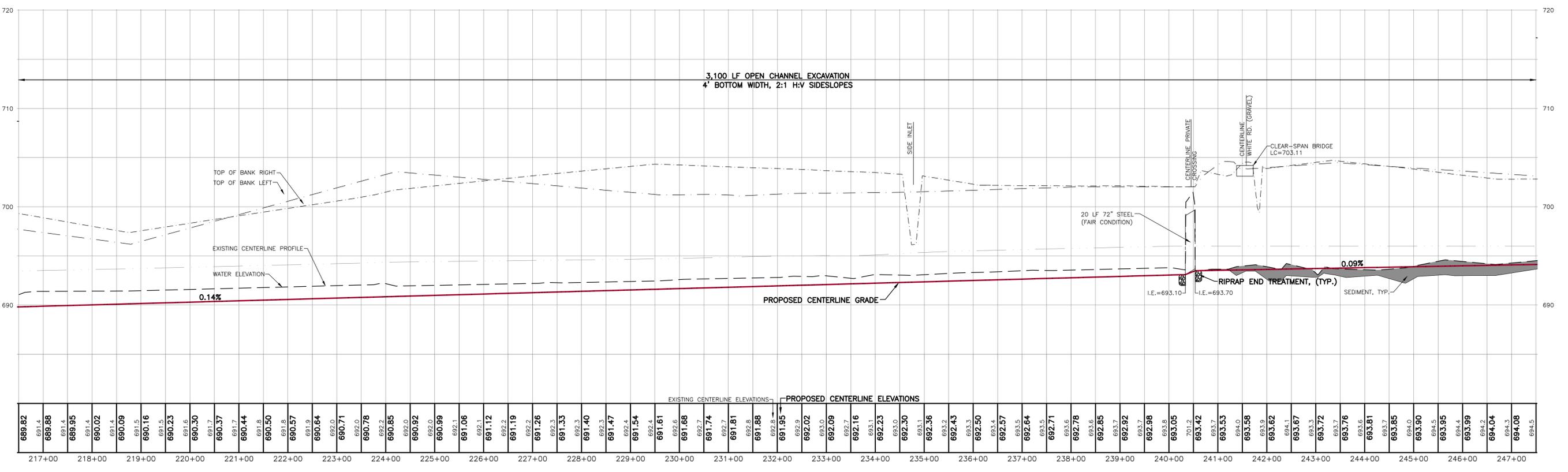
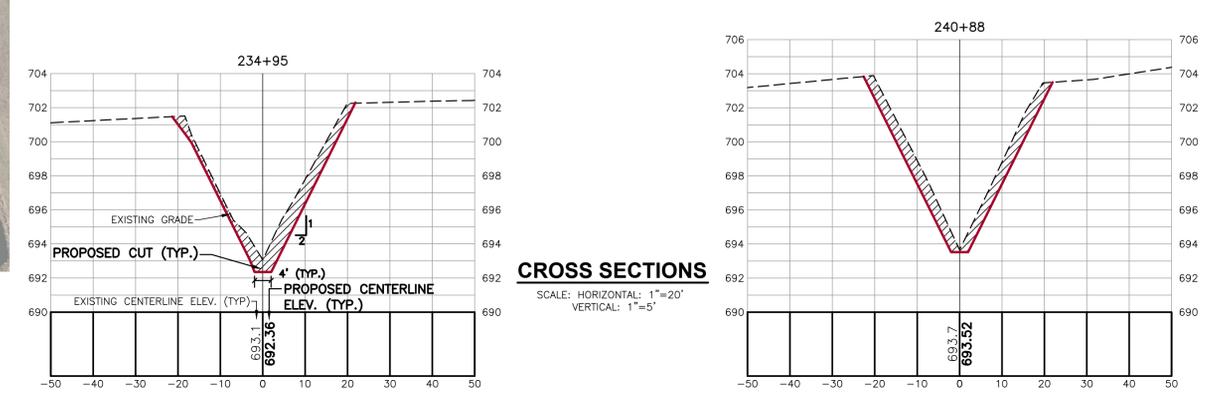
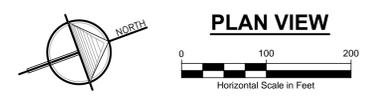
PROJECT: BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASSIOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER:	DATE
17-036	SEPT 2017
	AUG 2019
	AUG 2019
	JUNE 2020

SURVEYED BY: CF JS
DESIGNED BY: AWS
DRAFTED BY: RAG
LQAC/DJF

SHEET NUMBER: PLAN & PROFILE
STA: 216+50 - 247+50
FORMER UPPER MUSKEGON NEWAYGO DRAIN

SHEET NUMBER: C8



CENTERLINE PROFILE
SCALE: HORIZONTAL: 1" = 100'
VERTICAL: 1" = 5'

3 WORKING DAYS
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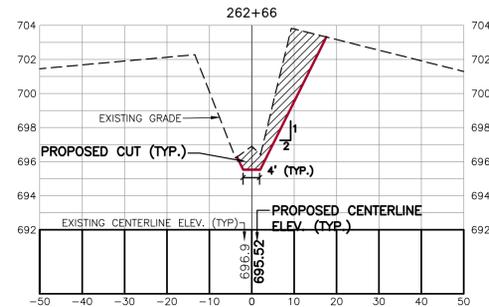
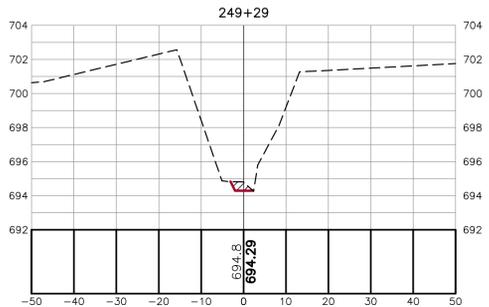
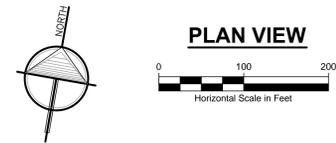
MATCH LINE: SEE SHT. C8 FOR CONTINUATION

MATCH LINE: SEE SHT. C10 FOR CONTINUATION

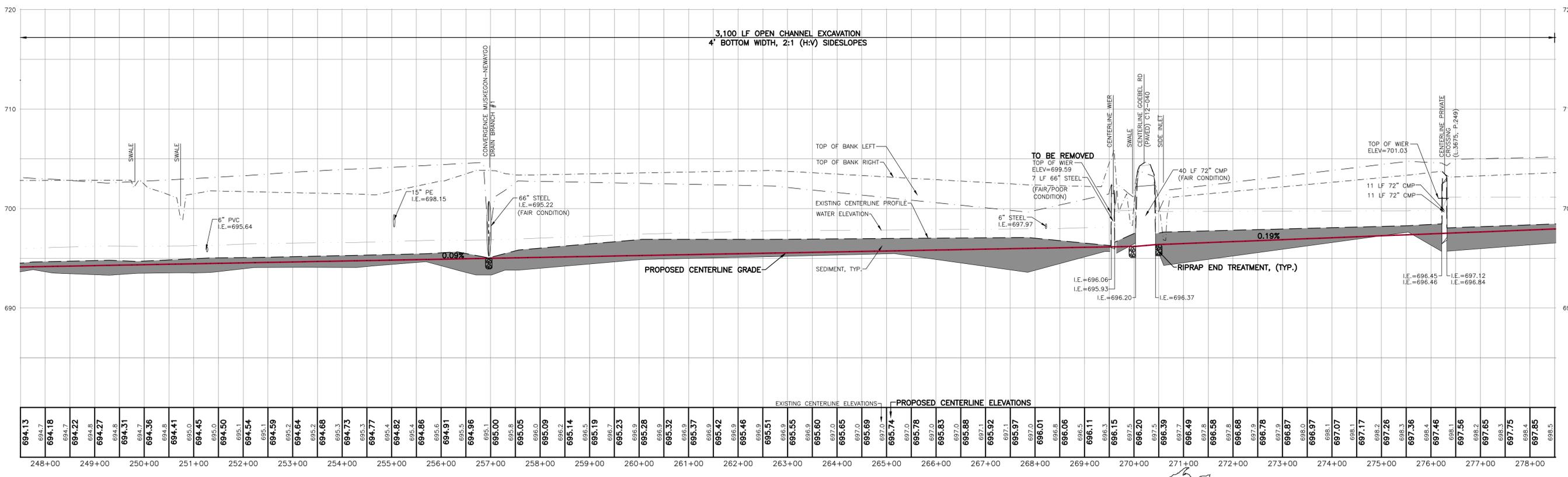
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL 3,100 LF
 MULCH BLANKET 5,000 SY



CROSS SECTIONS
 SCALE: HORIZONTAL: 1"=20'
 VERTICAL: 1"=5'



CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1"=100'
 VERTICAL: 1"=5'

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ENGINEERS & SURVEYORS

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	2.	PRELIMINARY DESIGN	AUG. 2019
	3.	BIDS	JUNE 2020

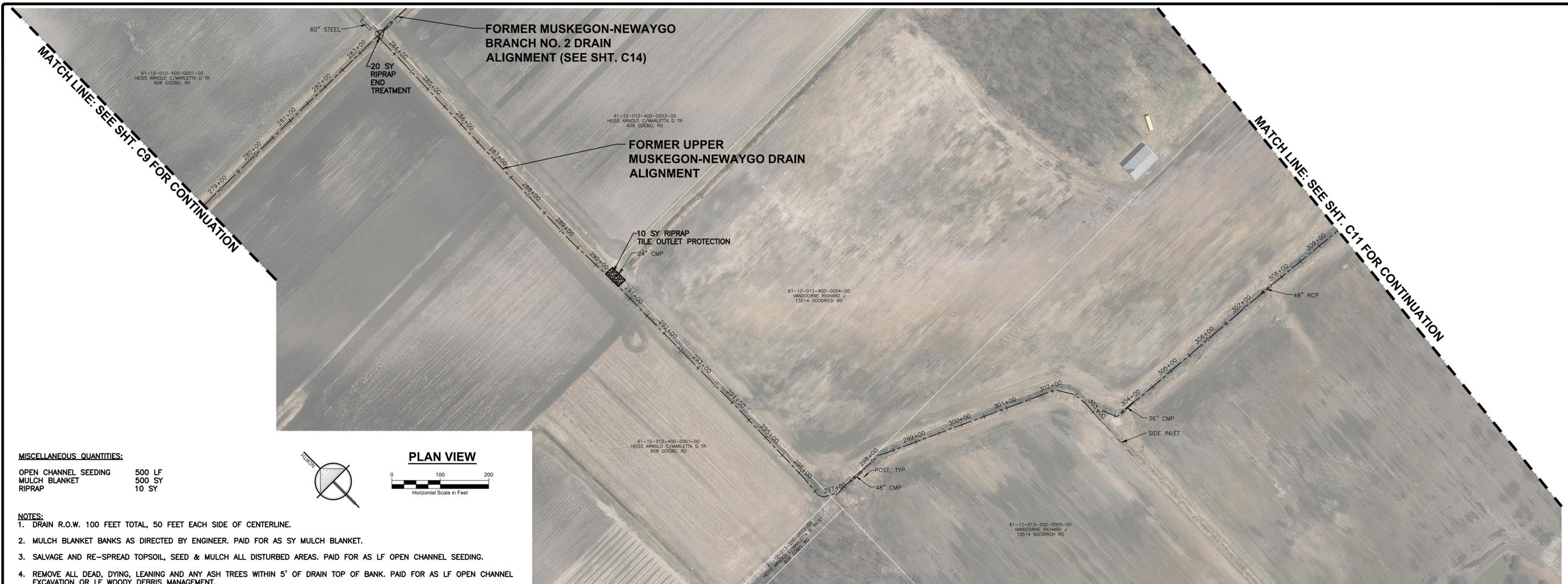
MUSKEGON COUNTY DRAIN COMMISSIONER
 141 E. APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
 EGELESTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	AUG. 2019
	AUG. 2019
	JUNE 2020

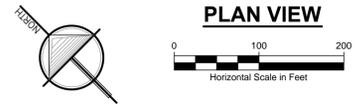
PLAN & PROFILE
 STA: 247+50 - 278+50
 FORMER UPPER MUSKEGON
 NEWAYGO DRAIN

SHEET NUMBER
C9



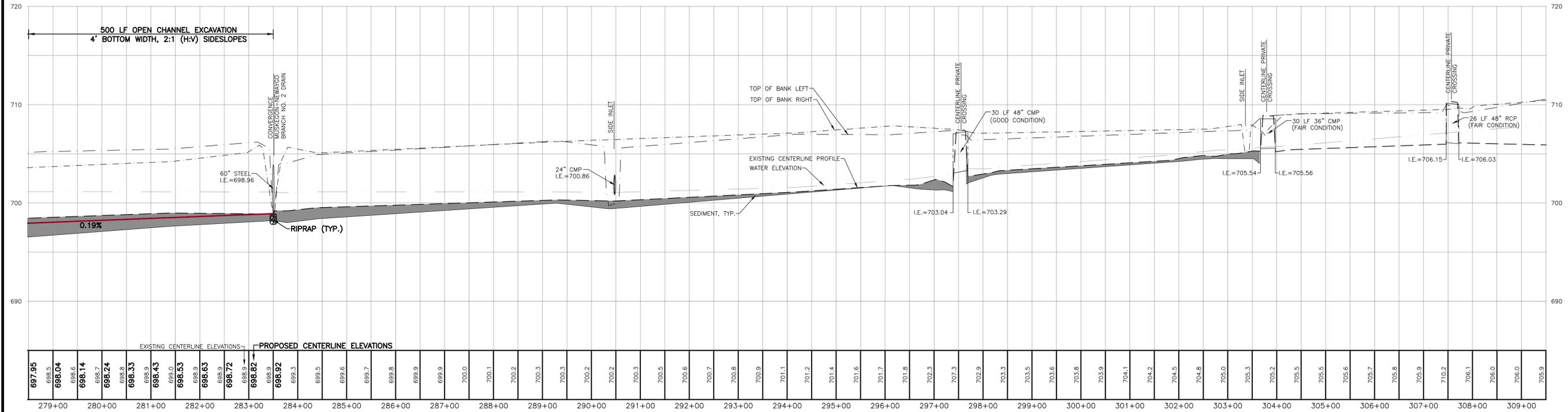
MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING 500 LF
 MULCH BLANKET 500 SY
 RIPRAP 10 SY



NOTES:

1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
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CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'



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2121.3 Mile Rd. NW
 Walker, MI 49544
 Ph: 616-301-7888
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LRE

ENGINEERS & SURVEYORS

REVISIONS:	NO.	ISSUED FOR:	DATE
1.	EX. CONDITION SURVEY	DEC 2017	
2.	PRELIMINARY DESIGN	AUG 2019	
3.	BIDS	JUNE 2020	

PROJECT:	CLIENT:
MUSKEGON COUNTY DRAIN COMMISSIONER	MUSKEGON COUNTY DRAIN COMMISSIONER
BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV	141 E APPLE AVE., MUSKEGON, MI 49842
EGBELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI	

PROJECT NUMBER:	DATE
17-036	SEPT 2017
	AUG 2019
	JUNE 2020

SURVEYED BY:	DESIGNED BY:	DRAFTED BY:
CF-JS	AWJS	RAG
		LOACD-DJF

PLAN & PROFILE
 STA: 278+50 - 309+50
 FORMER UPPER MUSKEGON
 NEWAYGO DRAIN

C10

REVISIONS:	NO.	ISSUED FOR	DATE
	1.	EX. CONDITION SURVEY	DEC 2017
	2.	PRELIMINARY DESIGN	AUG 2019
	3.	BIDS	JUNE 2020

CLIENT: MUSKOGON COUNTY DRAIN COMMISSIONER
141 E APPLE AVE., MUSKOGON, MI 49842

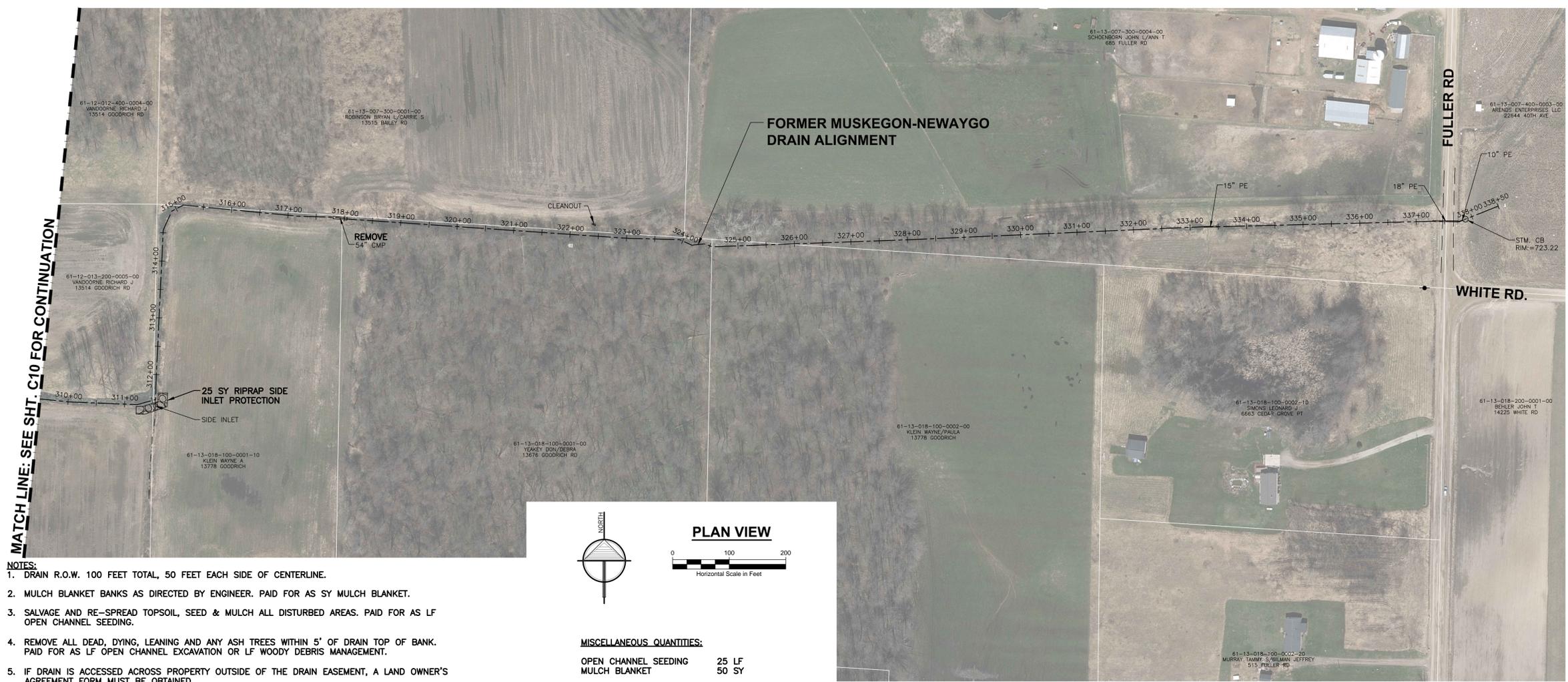
PROJECT: BLACK CREEK CONSOLIDATED DRAIN DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASSIOVA TOWNSHIPS, MUSKOGON COUNTY, MI

PROJECT NUMBER:	DATE
17-008	SEPT 2017
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	AUG 2019
	JUNE 2020

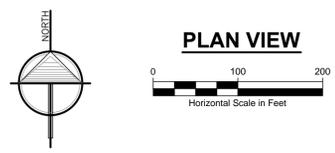
SURVEYED BY: CF JS
DESIGNED BY: AWS
DRAFTED BY: RAG
L0002.DWG

SHEET NUMBER: PLAN & PROFILE
STA: 309+50 - 340+00
FORMER UPPER MUSKOGON
NEWAYGO DRAIN

SHEET NUMBER: C11

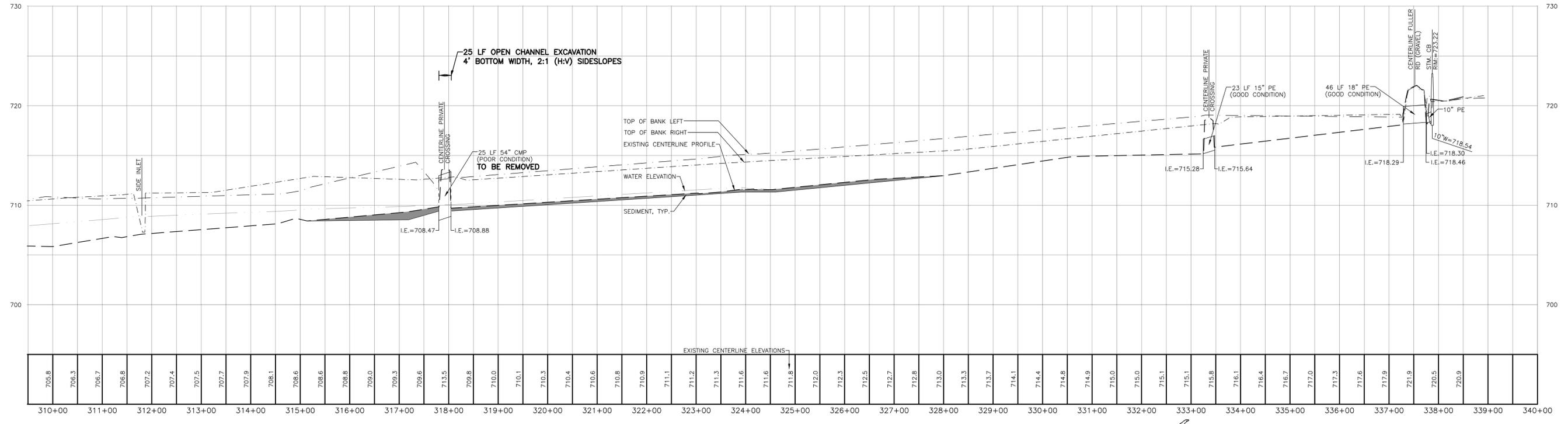


- NOTES:**
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING	25 LF
MULCH BLANKET	50 SY

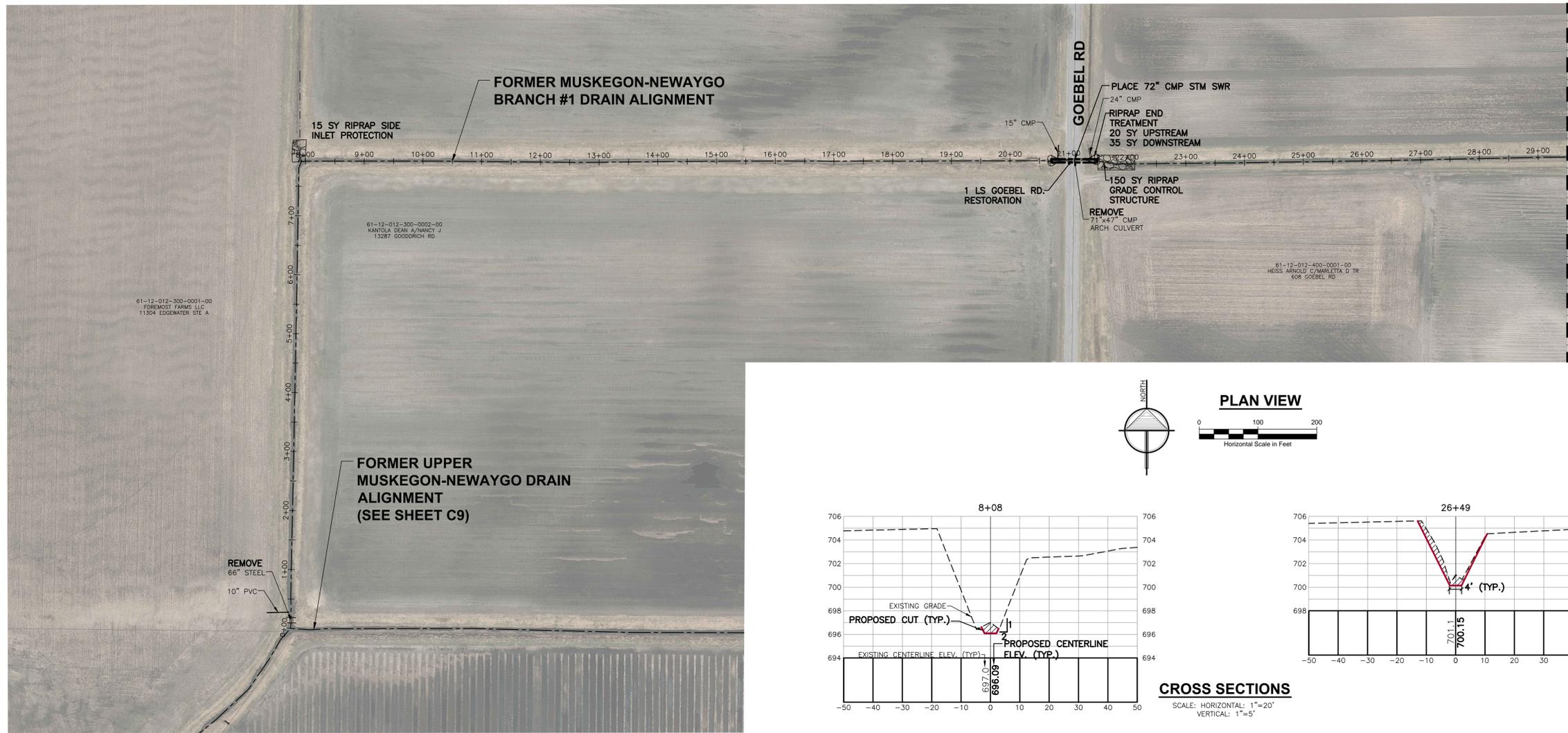


CENTERLINE PROFILE
SCALE: HORIZONTAL: 1" = 100'
VERTICAL: 1" = 5'

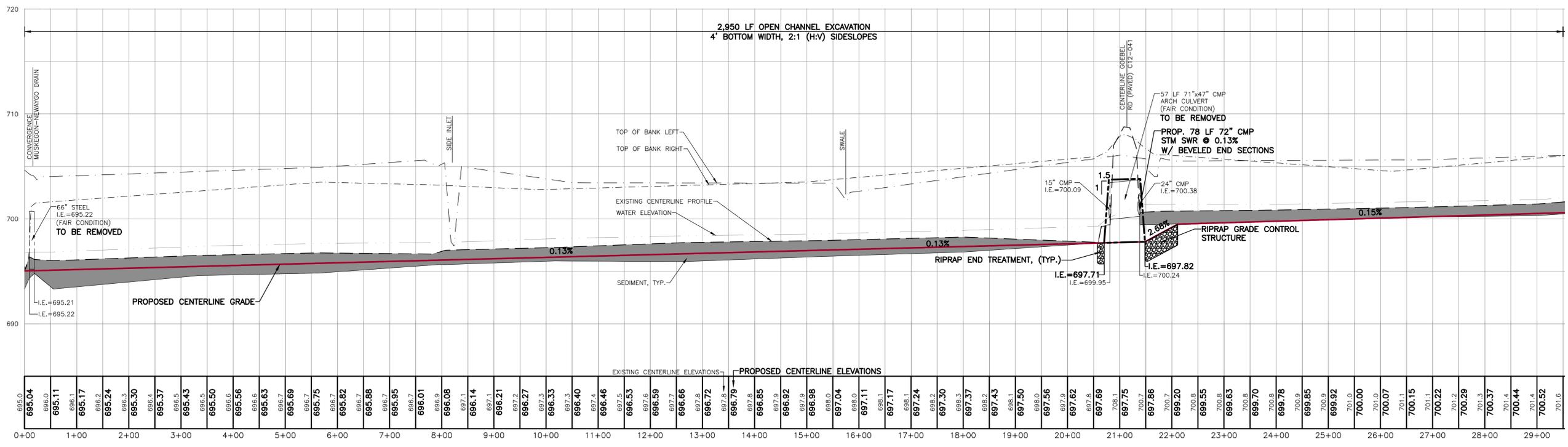
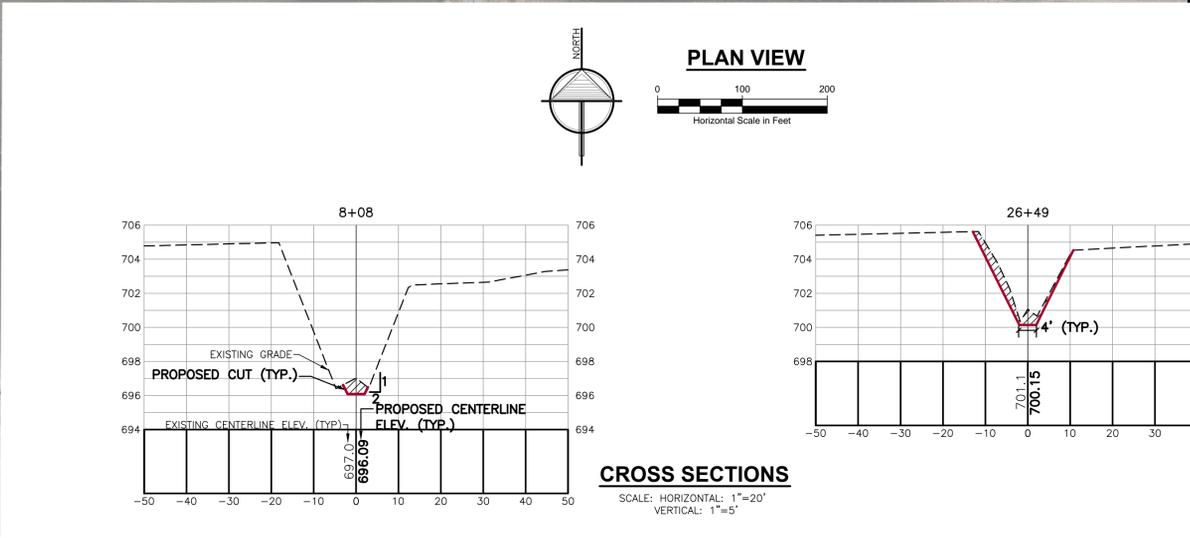


3 WORKING DAYS
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- MISCELLANEOUS QUANTITIES:**
- | | |
|----------------------|----------|
| OPEN CHANNEL SEEDING | 2,950 LF |
| MULCH BLANKET | 6,000 SY |
- MATCH LINE: SEE SHT. C13 FOR CONTINUATION**



CENTERLINE PROFILE
SCALE: HORIZONTAL: 1" = 100'
VERTICAL: 1" = 5'

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ENGINEERS & SURVEYORS

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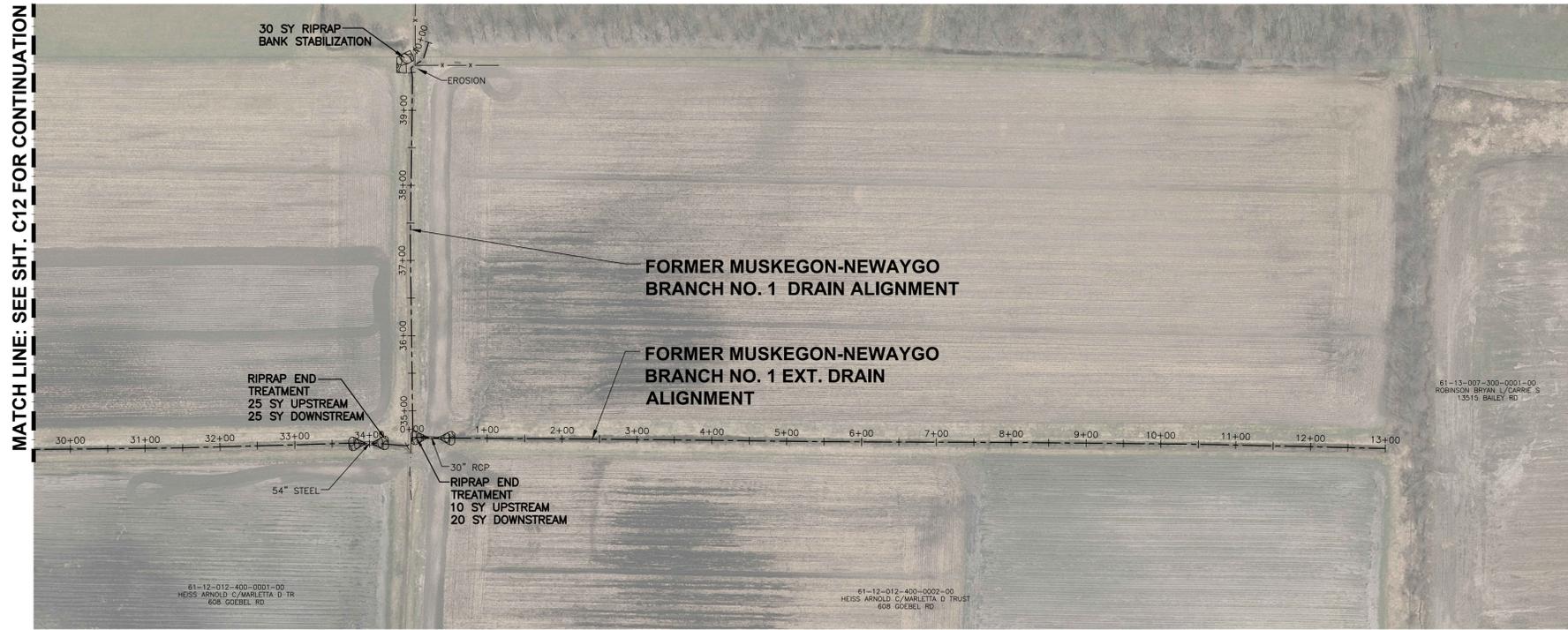
PROJECT NUMBER: 17-008
CLIENT: MUSKEGON COUNTY DRAIN COMMISSIONER
141 E. APPLE AVE., MUSKEGON, MI 49842
PROJECT: BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
EGBLSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

DATE	BY
SEPT. 2017	CF JS
AUG. 2019	AW
AUG. 2019	AW
JUNE 2020	CF JS

PROJECT NUMBER: 17-008
SURVEYED BY: CF JS
DESIGNED BY: AW
DRAFTED BY: RAG
CACC/DJF

PLAN & PROFILE
STA: 0+00 - 29+50
FORMER MUSK./NEW. BRANCH 1

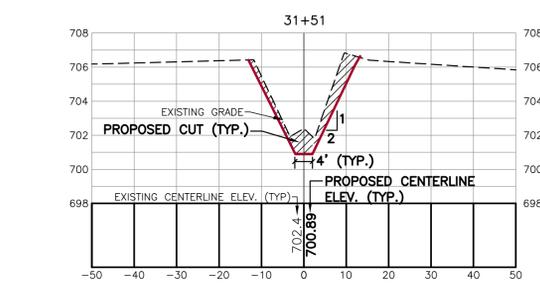
SHEET NUMBER
C12



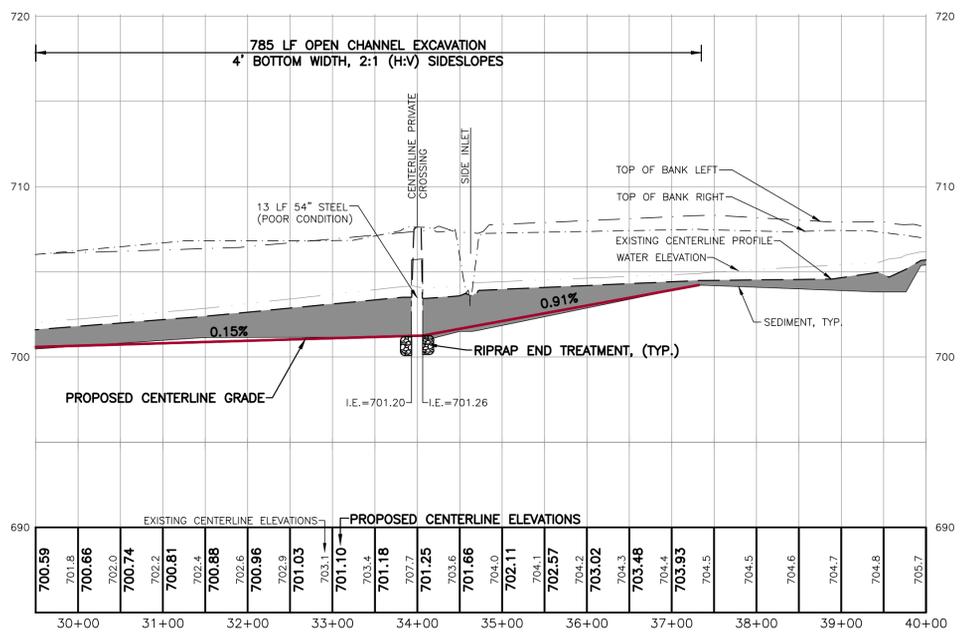
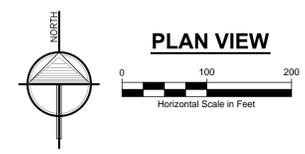
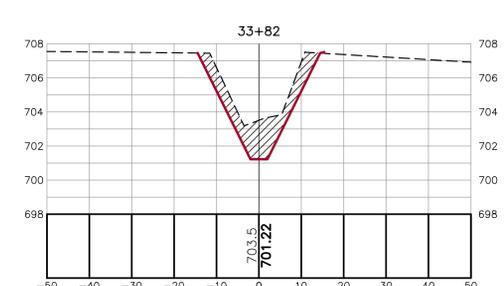
- NOTES:**
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MISCELLANEOUS QUANTITIES:

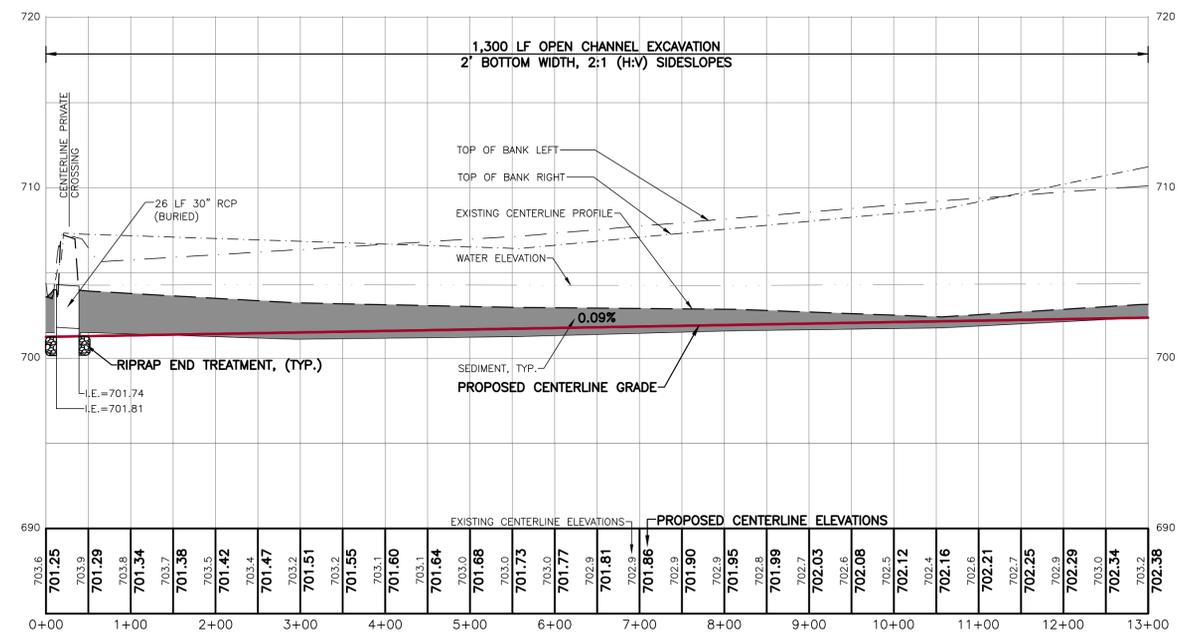
OPEN CHANNEL SEEDING	2,085 LF
MULCH BLANKET	5,000 SY



CROSS SECTIONS
SCALE: HORIZONTAL: 1"=20'
VERTICAL: 1"=5'



BRANCH NO. 1 CENTERLINE PROFILE
SCALE: HORIZONTAL: 1"=100'
VERTICAL: 1"=5'



BRANCH NO. 1 EXT. CENTERLINE PROFILE
SCALE: HORIZONTAL: 1"=100'
VERTICAL: 1"=5'



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141 E APPLE AVE., MUSKEGON, MI 49842

PROJECT: BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASSIOVA TOWNSHIPS, MUSKEGON COUNTY, MI

DATE	BY
SEPT 2017	CF, JS
AUG 2019	AW
AUG 2019	AW
JUNE 2020	AW

SHEET NUMBER: 17-008

PROJECT NUMBER: 17-008

DESIGNED BY: AW

DRAFTED BY: RAG

DATE: SEPT 2017

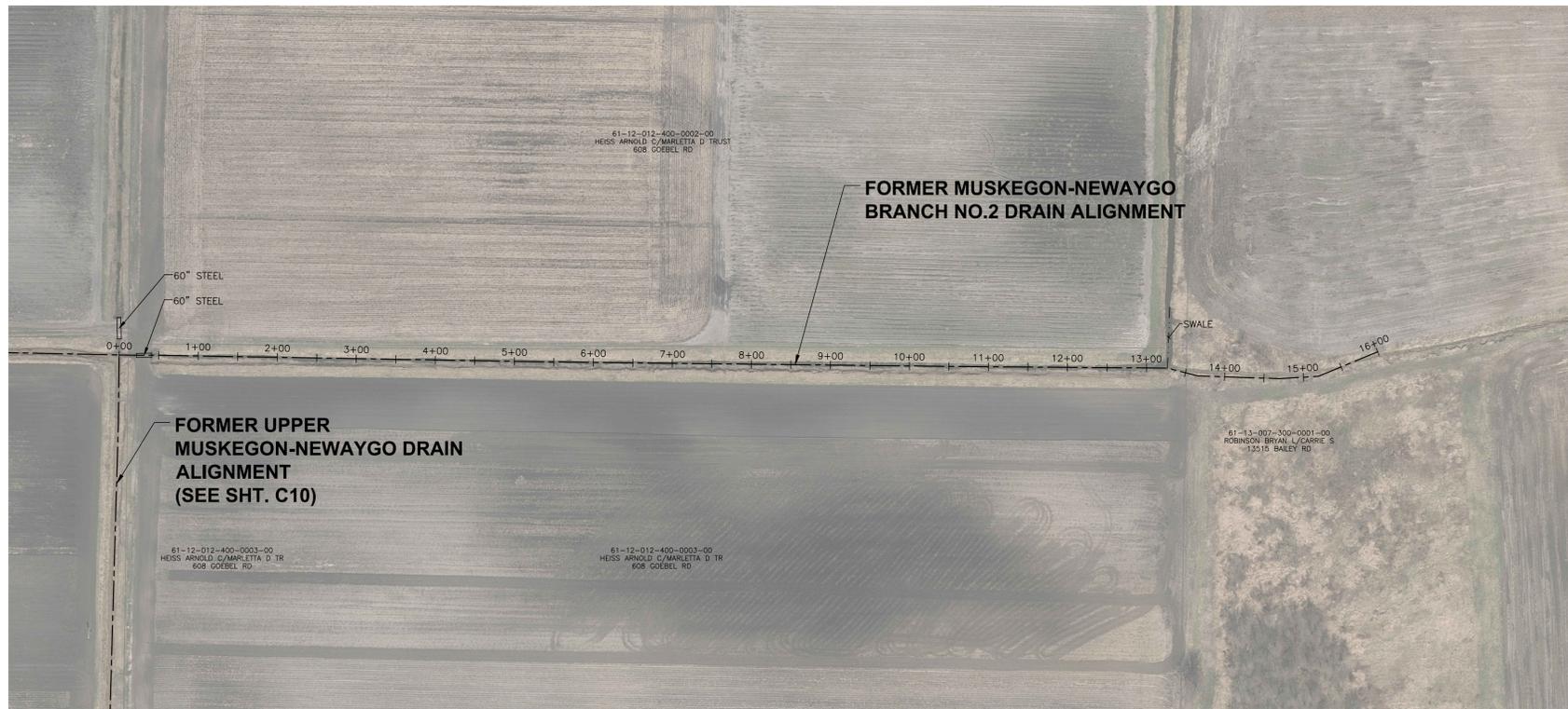
STA: 29+50 - 40+00

STA: 0+00 - 13+00

FORMER MUSK/NEW. BRANCH 1

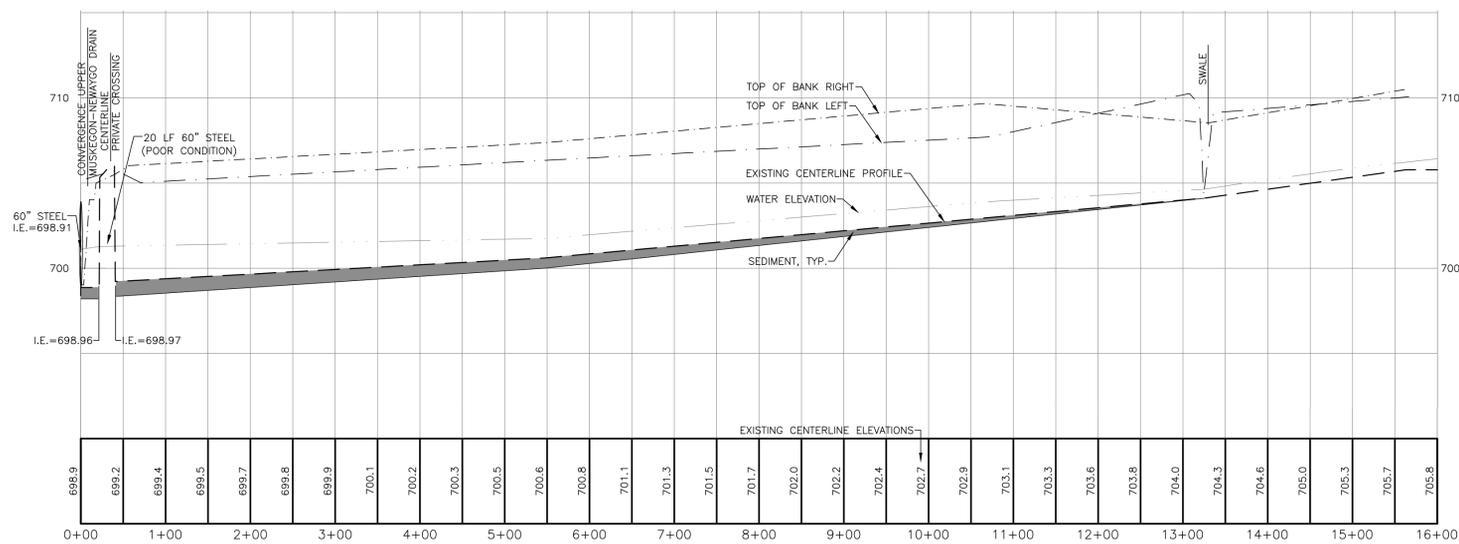
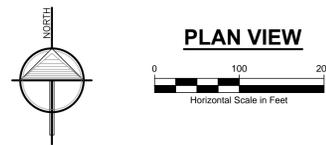
SHEET NUMBER

C13



NOTES:

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2. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER. PAID FOR AS SY MULCH BLANKET.
3. SALVAGE AND RE-SPREAD TOPSOIL, SEED & MULCH ALL DISTURBED AREAS. PAID FOR AS LF OPEN CHANNEL SEEDING.
4. REMOVE ALL DEAD, DYING, LEANING AND ANY ASH TREES WITHIN 5' OF DRAIN TOP OF BANK. PAID FOR AS LF OPEN CHANNEL EXCAVATION OR LF WOODY DEBRIS MANAGEMENT.
5. IF DRAIN IS ACCESSED ACROSS PROPERTY OUTSIDE OF THE DRAIN EASEMENT, A LAND OWNER'S AGREEMENT FORM MUST BE OBTAINED.
6. QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS AUTHORIZED BY ENGINEER.



CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'

2121 3 Mile Rd. NW
 Walker, MI 49544
 Ph: 616-301-7888
 www.LREM.com



REVISIONS:	NO.	ISSUED FOR:	DATE
1.	EX. CONDITION SURVEY	DEC. 2017	
2.	PRELIMINARY DESIGN	AUG. 2019	
3.	BIDS	JUNE 2020	

CLIENT: **MUSKEGON COUNTY DRAIN COMMISSIONER**
 141 E. APPLE AVE., MUSKEGON, MI 49842
 PROJECT: **BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV**
 EGELESTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	AUG. 2019
	AUG. 2019
	JUNE 2020

SURVEYED BY: CF JS
 DESIGNED BY: AWS
 DRAFTED BY: RAG
 CACOC-DJF

SHEET NAME: **PLAN & PROFILE**
 STA: 0+00 - 16+00
 FORMER MUSK./NEW. BRANCH 2

SHEET NUMBER

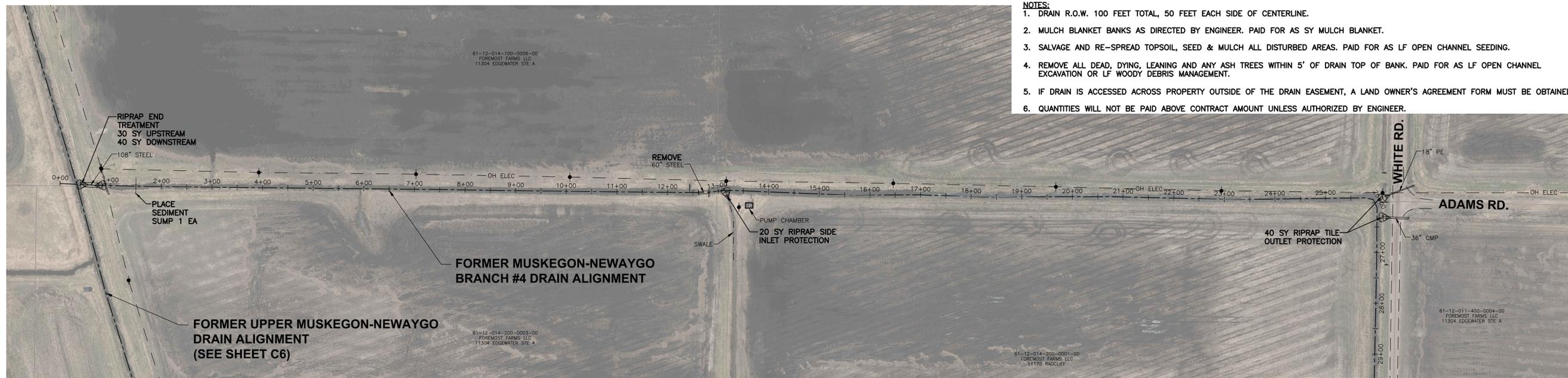
C14



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
 1-800-482-7171

ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

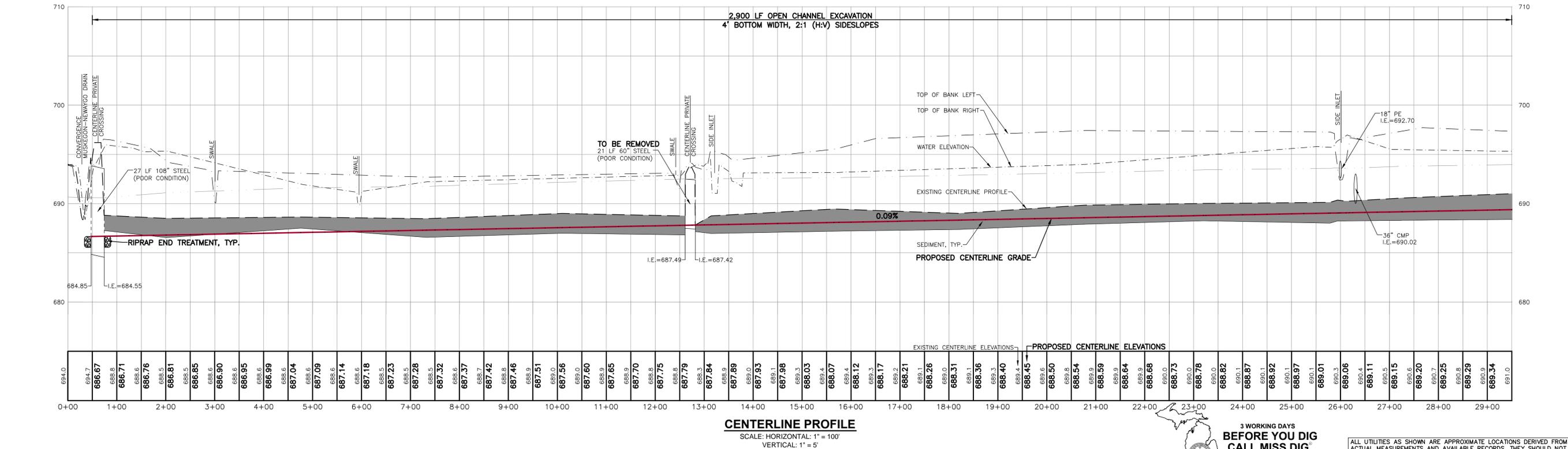
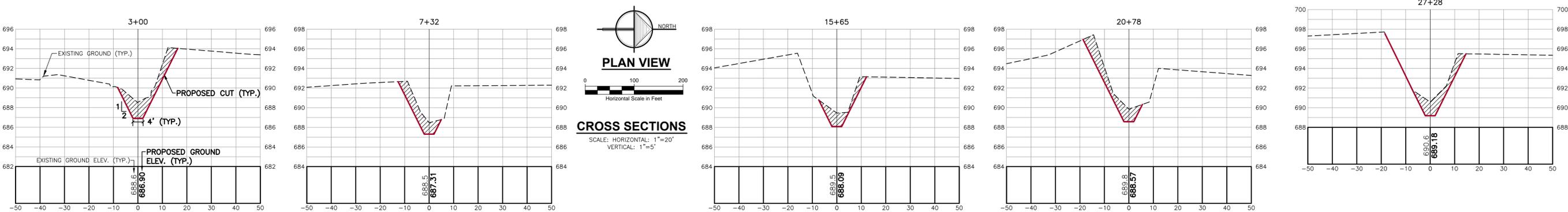
- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
 2. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER. PAID FOR AS SY MULCH BLANKET.
 3. SALVAGE AND RE-SPREAD TOPSOIL, SEED & MULCH ALL DISTURBED AREAS. PAID FOR AS LF OPEN CHANNEL SEEDING.
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 6. QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS AUTHORIZED BY ENGINEER.



MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING	2,950 LF
MULCH BLANKET	5,000 SY

MATCH LINE: SEE SHT. C16 FOR CONTINUATION



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Ph: 616-307-7888
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NO.	ISSUED FOR	DATE
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2.	PRELIMINARY DESIGN	AUG 2019
3.	BIDS	JUNE 2020

MUSKOGON COUNTY DRAIN COMMISSIONER
141 E APPLE AVE., MUSKOGON, MI 49842

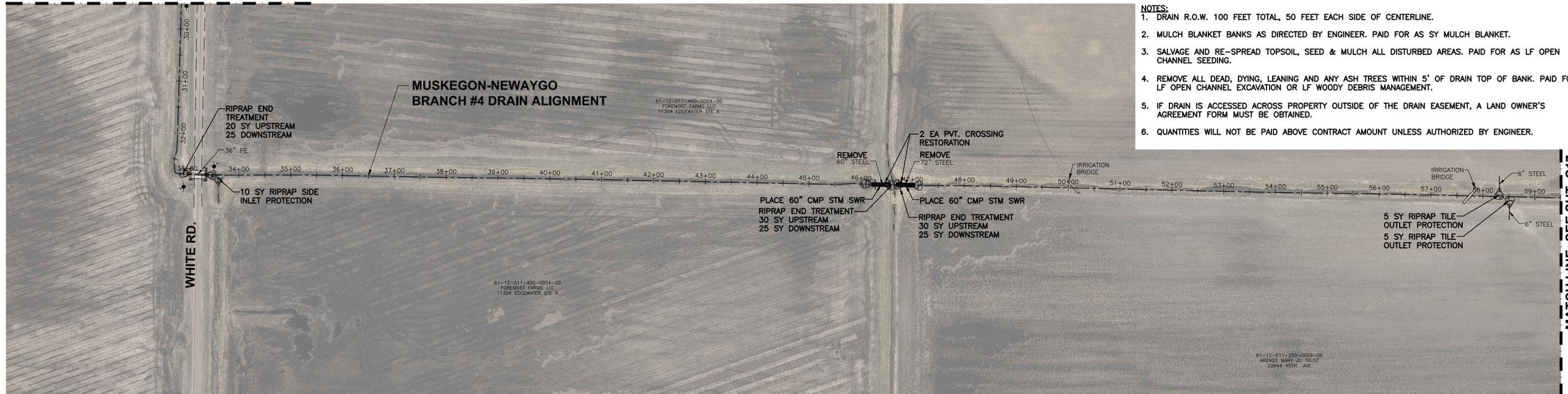
BLACK CREEK CONSOLIDATED DRAIN DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKOGON COUNTY, MI

PROJECT NUMBER	DATE
17-008	SEPT 2017
DESIGNED BY: CF JS	AUG 2019
DRAFTED BY: RAG	AUG 2019
LDACC:DJF	JUNE 2020

PLAN & PROFILE
STA: 0+00 - 29+50
FORMER MUSK./NEW. BRANCH 4

C15

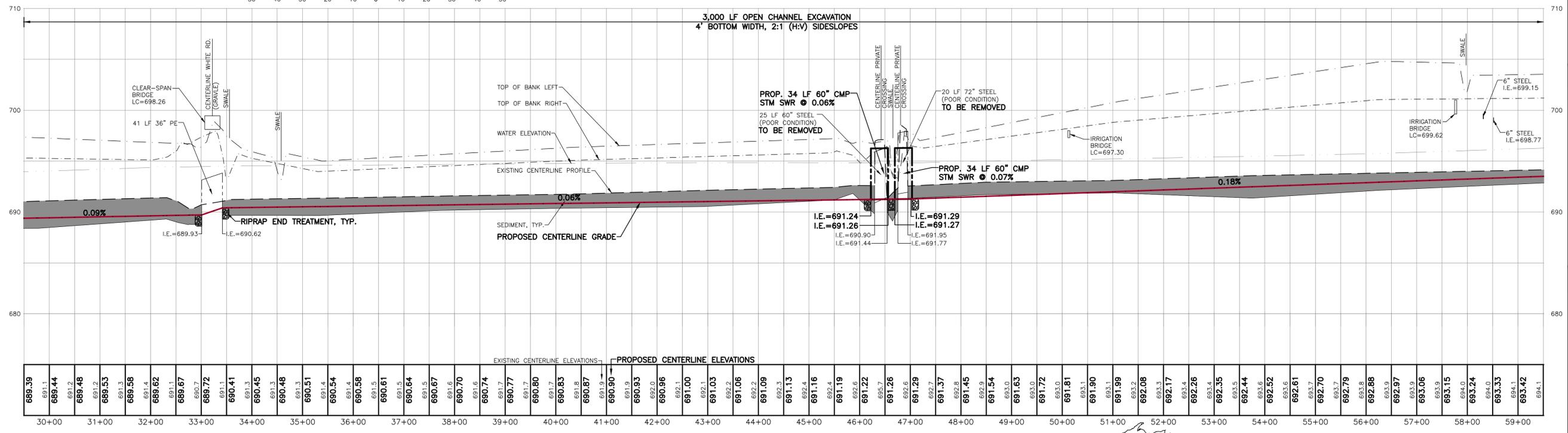
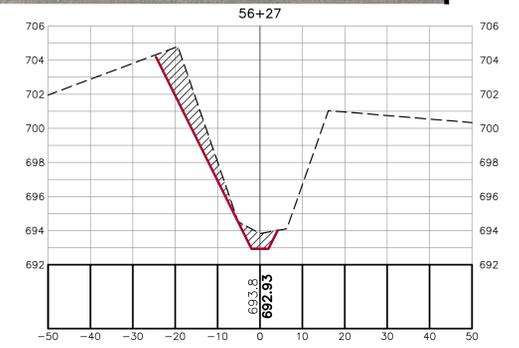
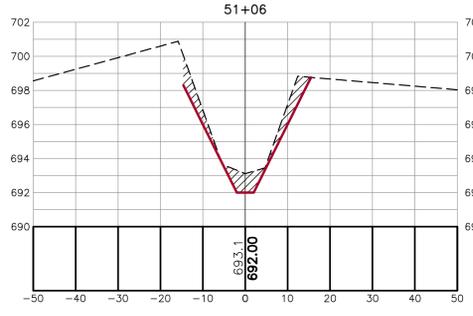
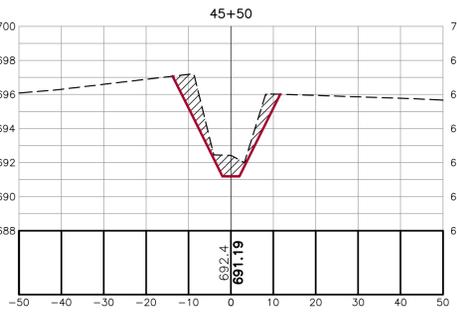
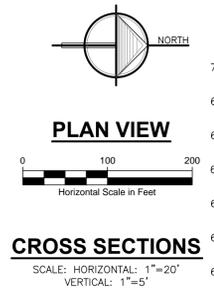
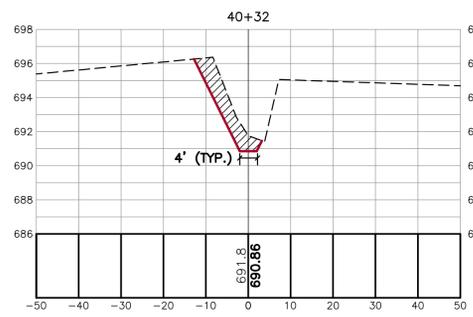
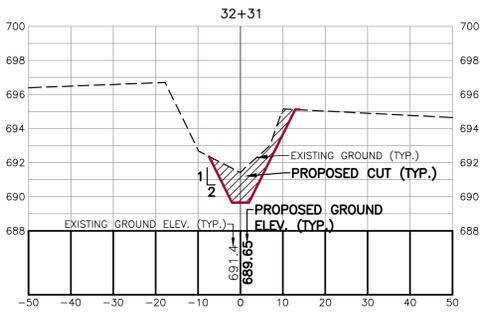
MATCH LINE: SEE SHT. 15 FOR CONTINUATION



- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
 2. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER. PAID FOR AS SY MULCH BLANKET.
 3. SALVAGE AND RE-SPREAD TOPSOIL, SEED & MULCH ALL DISTURBED AREAS. PAID FOR AS LF OPEN CHANNEL SEEDING.
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MATCH LINE: SEE SHT. C17 FOR CONTINUATION

MISCELLANEOUS QUANTITIES:
 OPEN CHANNEL SEEDING 3,000 LF
 MULCH BLANKET 5,000 SY



CENTERLINE PROFILE
 SCALE: HORIZONTAL: 1" = 100'
 VERTICAL: 1" = 5'

2121.3 Mile Rd. NW
Walker, MI 49544
Ph: 616-307-7888
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LRE

ENGINEERS & SURVEYORS

NO.	ISSUED FOR	DATE
1.	EX. CONDITION SURVEY	DEC 2017
2.	PRELIMINARY DESIGN	AUG 2019
3.	BIDS	JUNE 2020

PROJECT	MUSKEGON COUNTY DRAIN COMMISSIONER
CLIENT	141 E APPLE AVE., MUSKEGON, MI 49842
PROJECT	BLACK CREEK CONSOLIDATED DRAIN DIVISION IV
CLIENT	EGELSTON, MOORLAND, RAVENNA & CASSIOVA TOWNSHIPS, MUSKEGON COUNTY, MI

PROJECT NUMBER	17-008
SURVEYED BY	CF JS
DESIGNED BY	AW
DRAFTED BY	RAG
DATE	SEPT 2017
DATE	AUG 2019
DATE	AUG 2019
DATE	JUNE 2020

SHEET NAME	PLAN & PROFILE
STA.	29+50 - 59+50
MUSK./NEW. BRANCH	4

PROJECT NUMBER	17-008
SURVEYED BY	CF JS
DESIGNED BY	AW
DRAFTED BY	RAG
DATE	SEPT 2017
DATE	AUG 2019
DATE	AUG 2019
DATE	JUNE 2020

SHEET NAME	PLAN & PROFILE
STA.	29+50 - 59+50
MUSK./NEW. BRANCH	4

PROJECT NUMBER	17-008
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DESIGNED BY	AW
DRAFTED BY	RAG
DATE	SEPT 2017
DATE	AUG 2019
DATE	AUG 2019
DATE	JUNE 2020

SHEET NAME	PLAN & PROFILE
STA.	29+50 - 59+50
MUSK./NEW. BRANCH	4

PROJECT NUMBER	17-008
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DESIGNED BY	AW
DRAFTED BY	RAG
DATE	SEPT 2017
DATE	AUG 2019
DATE	AUG 2019
DATE	JUNE 2020

SHEET NAME	PLAN & PROFILE
STA.	29+50 - 59+50
MUSK./NEW. BRANCH	4

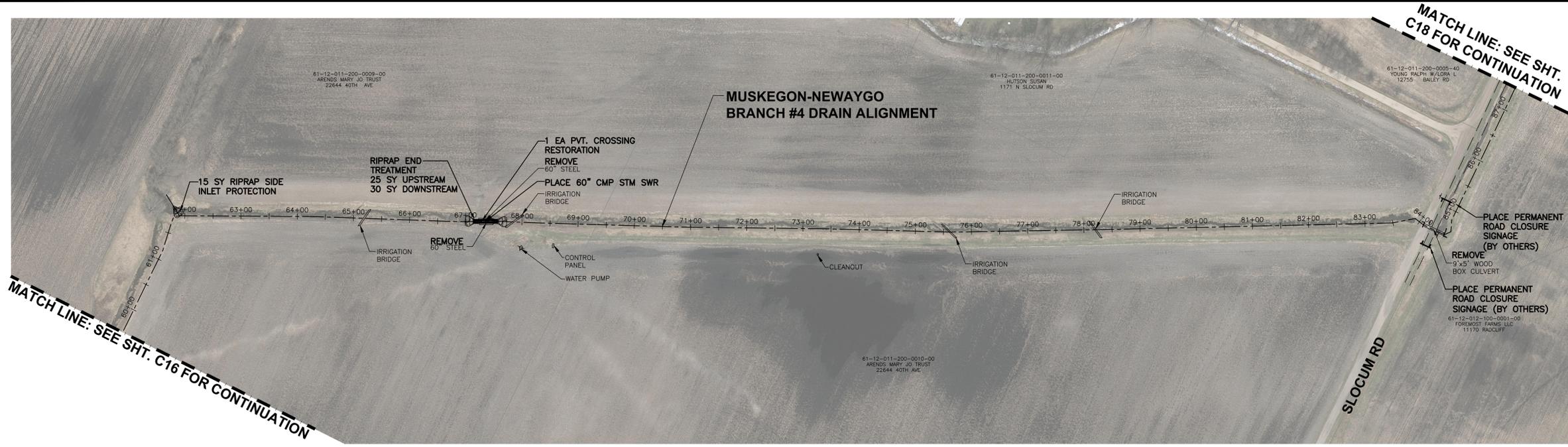
PROJECT NUMBER	17-008
SURVEYED BY	CF JS
DESIGNED BY	AW
DRAFTED BY	RAG
DATE	SEPT 2017
DATE	AUG 2019
DATE	AUG 2019
DATE	JUNE 2020

SHEET NAME	PLAN & PROFILE
STA.	29+50 - 59+50
MUSK./NEW. BRANCH	4

3 WORKING DAYS
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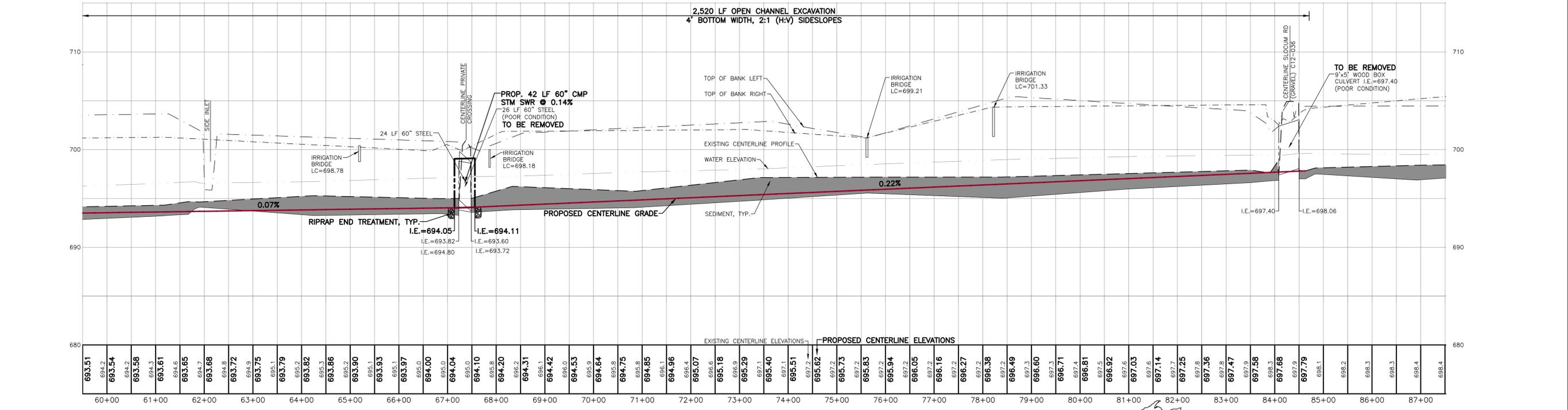
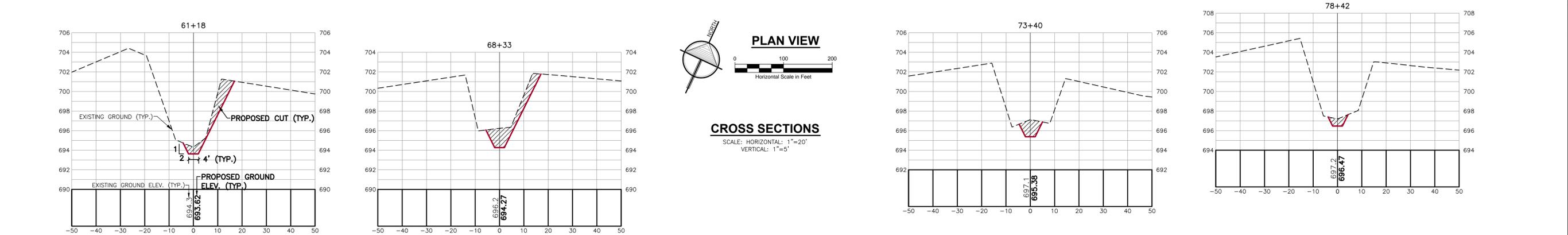
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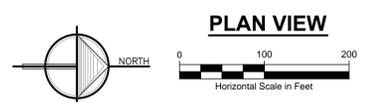
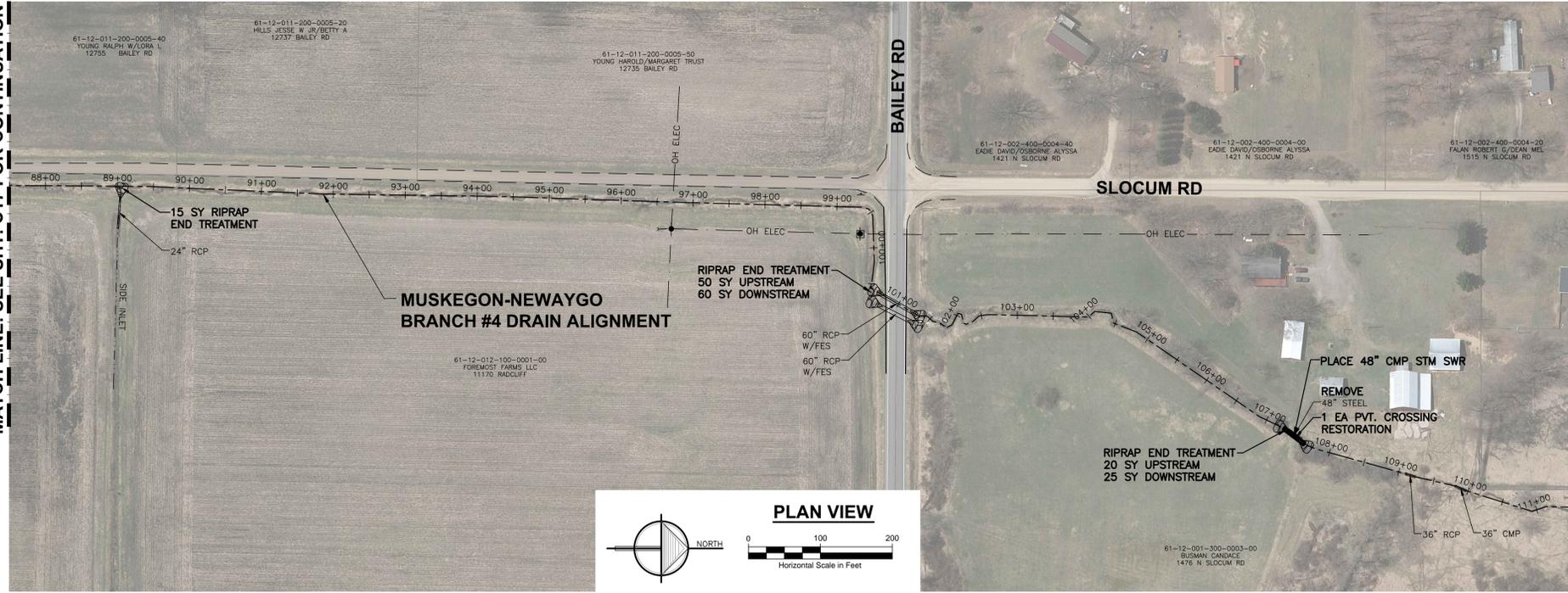
- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING	2,520 LF
MULCH BLANKET	4,000 SY



MATCH LINE: SEE SHT. C17 FOR CONTINUATION



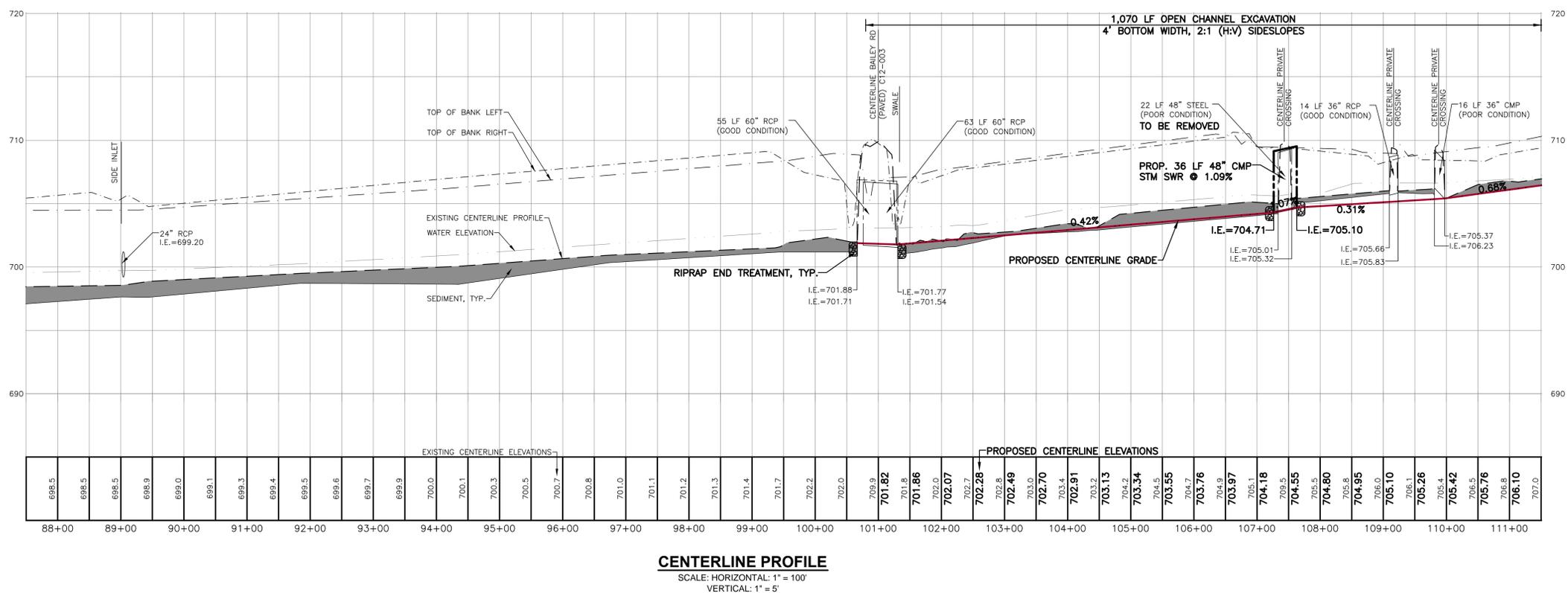
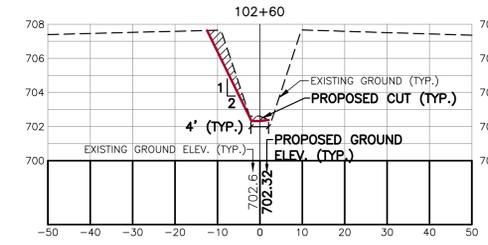
MATCH LINE: SEE SHT. C19 FOR CONTINUATION

- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING	1,070 LF
MULCH BLANKET	1,500 SY

CROSS SECTIONS
SCALE: HORIZONTAL: 1"=20'
VERTICAL: 1"=5'



CENTERLINE PROFILE
SCALE: HORIZONTAL: 1"=100'
VERTICAL: 1"=5'



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REVISIONS:	NO.	ISSUED FOR:	DATE
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	2.	PRELIMINARY DESIGN	AUG. 2019
	3.	BIDS	JUNE 2020

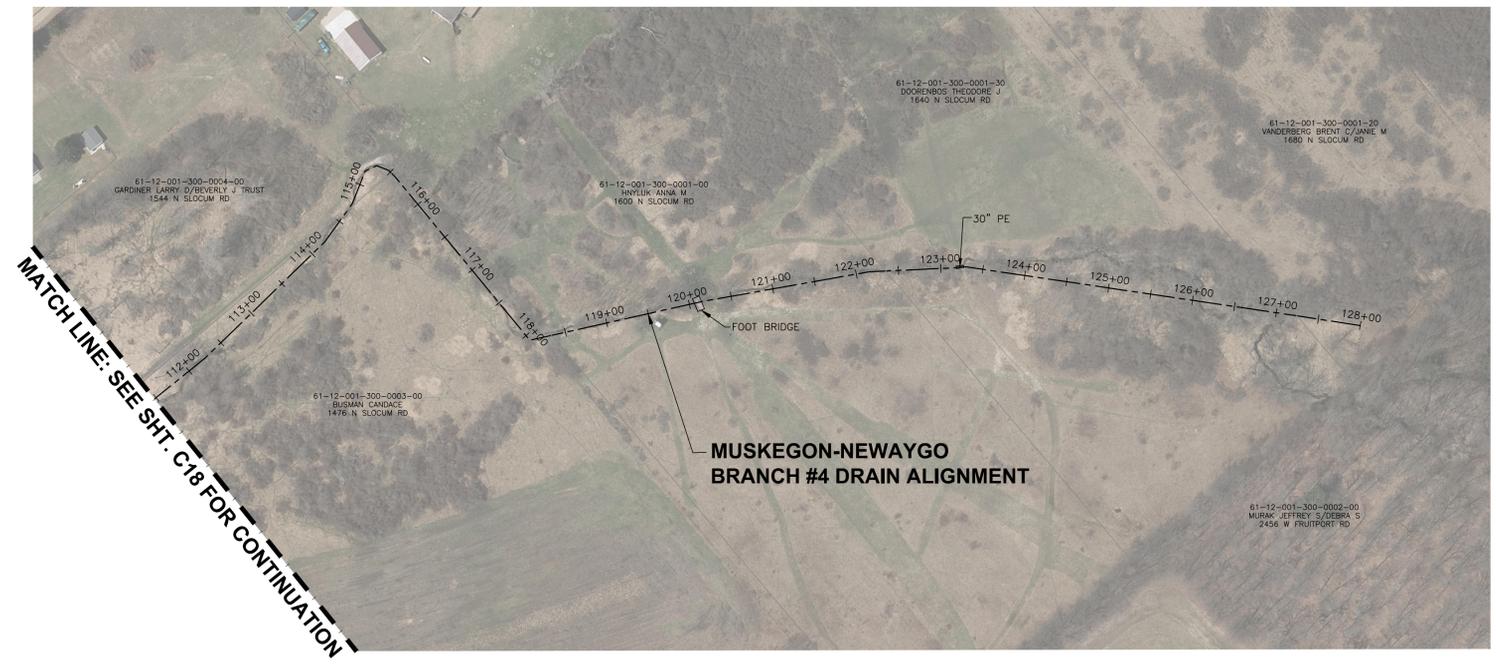
MUSKEGON COUNTY DRAIN COMMISSIONER
141 E. APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

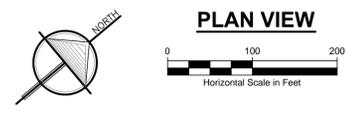
PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	DESIGNED BY: AWS
	DRAFTED BY: RAG
	CAOCC:DJF
	JUNE 2020

PLAN & PROFILE
STA: 87+50 - 111+50
FORMER MUSK./NEW. BRANCH 4

C18



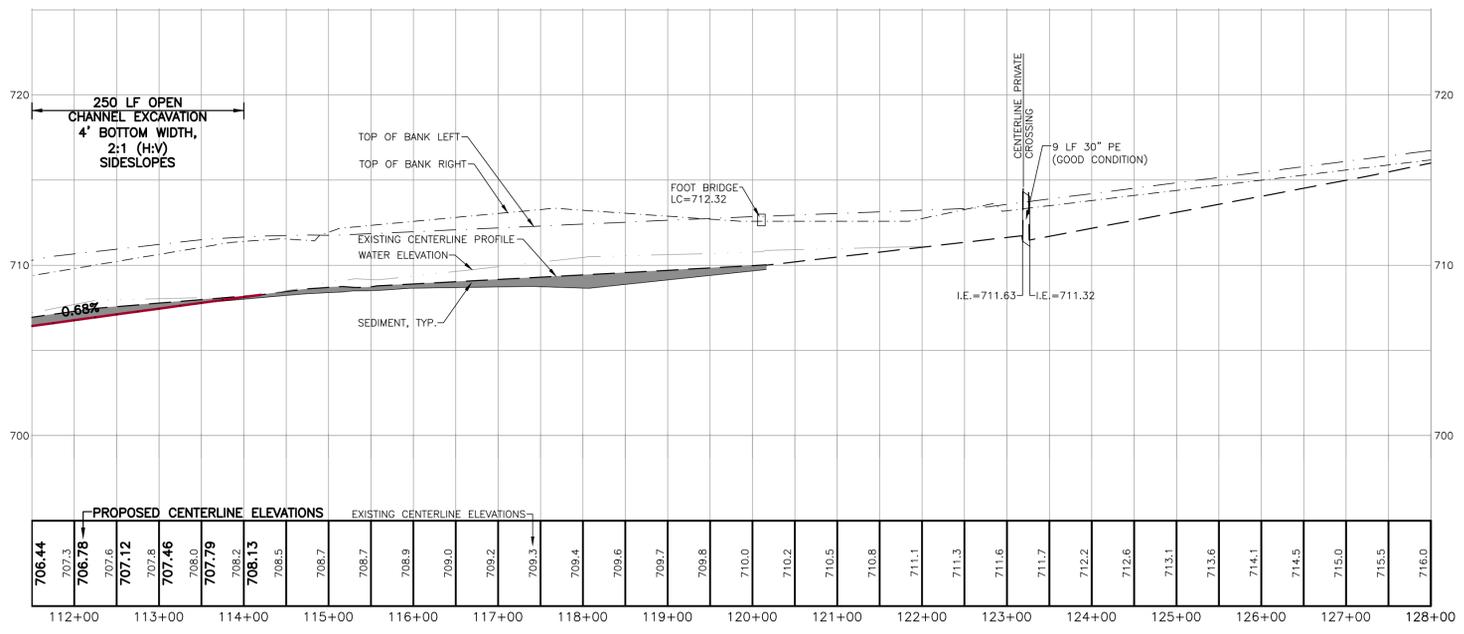
MATCH LINE: SEE SHT. C18 FOR CONTINUATION



- NOTES:**
1. DRAIN R.O.W. 100 FEET TOTAL, 50 FEET EACH SIDE OF CENTERLINE.
 2. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER. PAID FOR AS SY MULCH BLANKET.
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MISCELLANEOUS QUANTITIES:

OPEN CHANNEL SEEDING	250 LF
MULCH BLANKET	250 SY



CENTERLINE PROFILE
SCALE: HORIZONTAL: 1" = 100'
VERTICAL: 1" = 5'



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	2.	PRELIMINARY DESIGN	AUG. 2019
	3.	BIDS	JUNE 2020

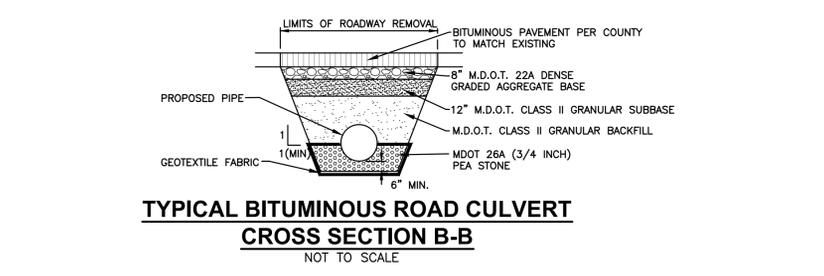
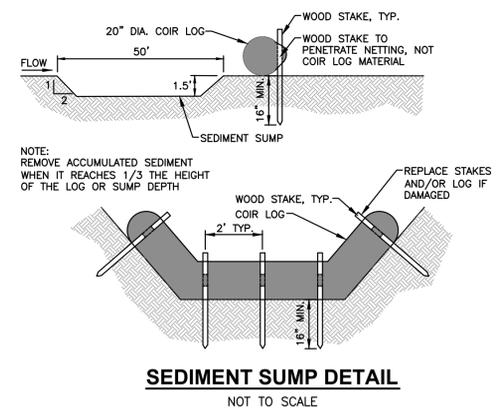
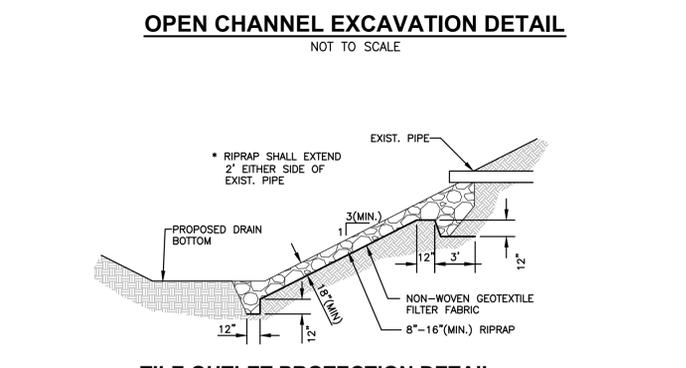
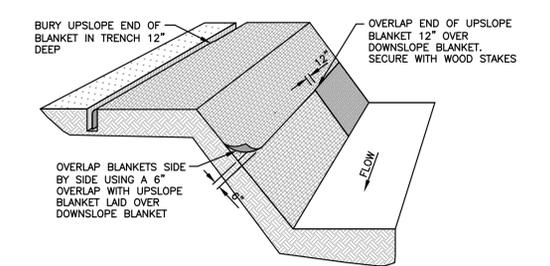
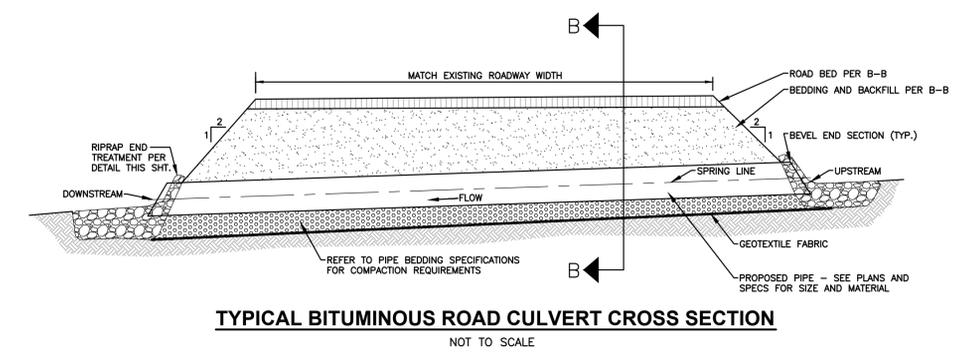
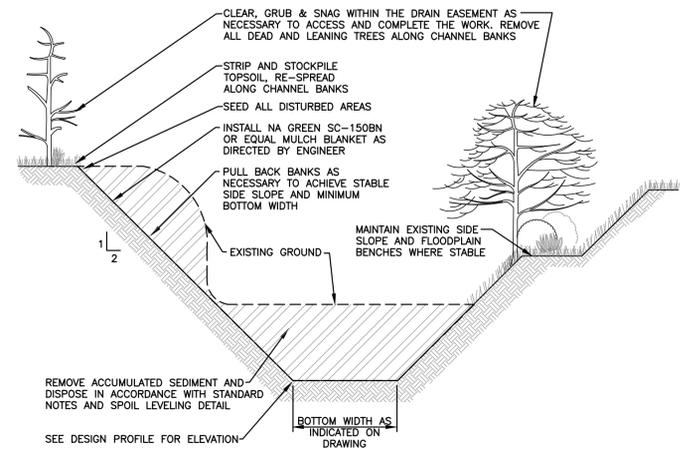
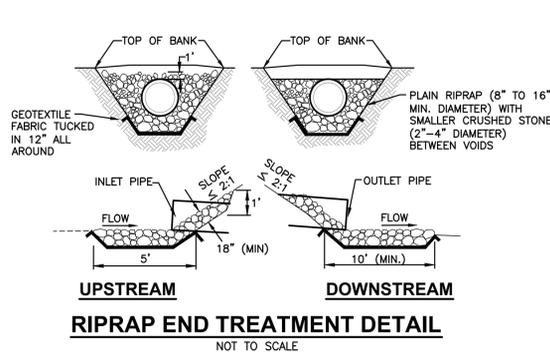
MUSKEGON COUNTY DRAIN COMMISSIONER
141 E. APPLE AVE., MUSKEGON, MI 49842

BLACK CREEK CONSOLIDATED DRAIN-DIVISION IV
EGELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKEGON COUNTY, MI

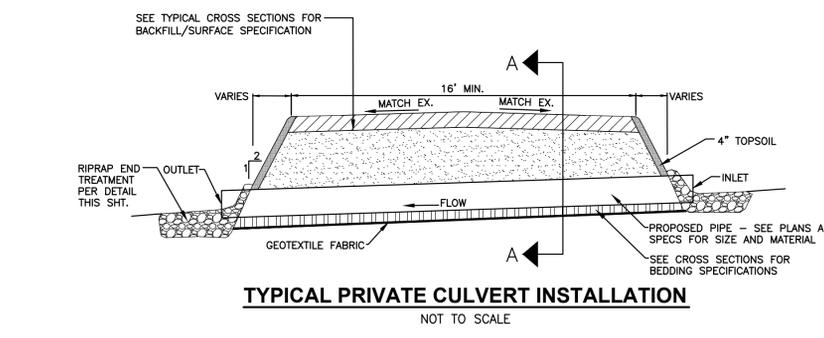
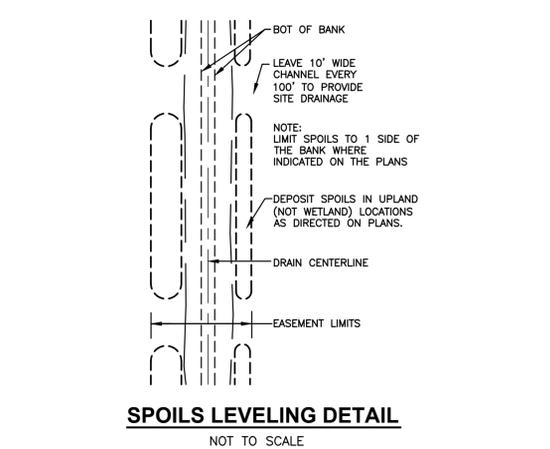
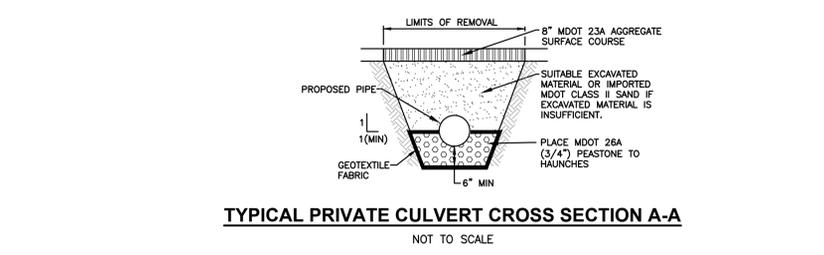
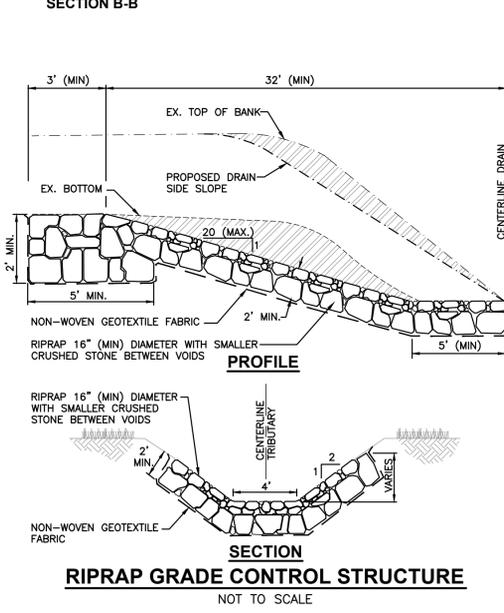
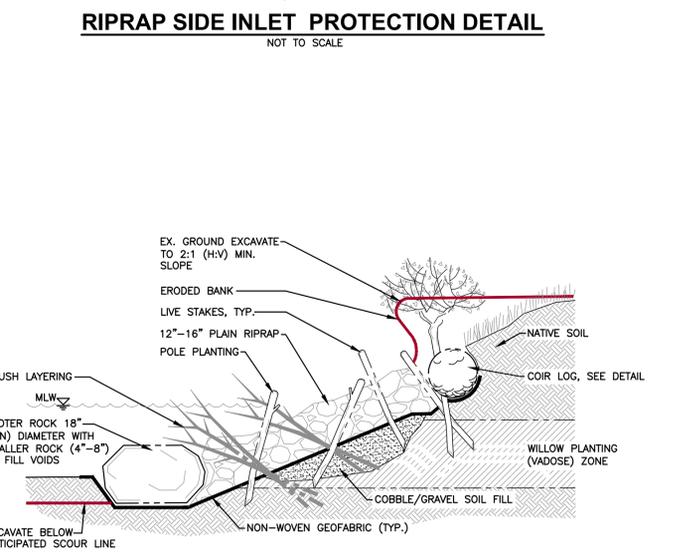
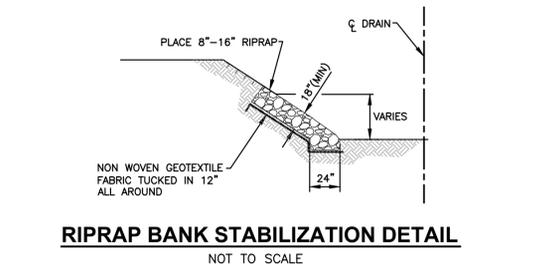
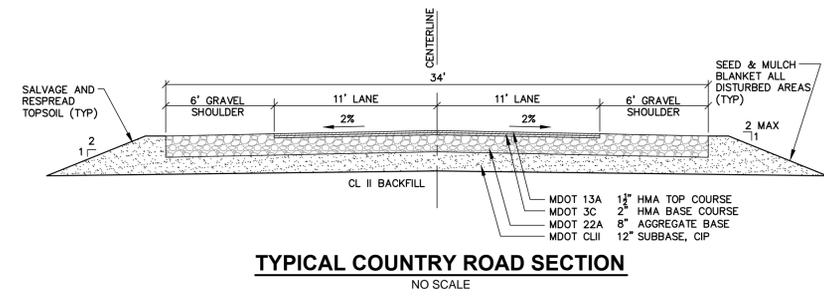
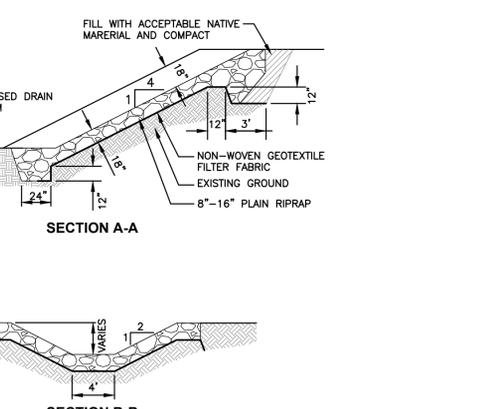
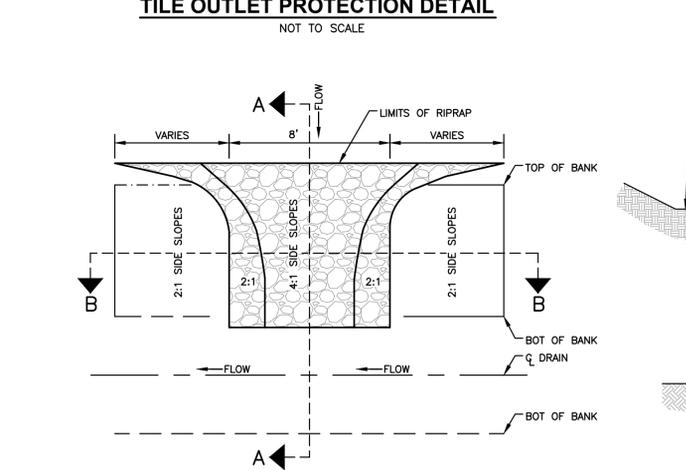
PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	AUG. 2019
	AUG. 2019
	JUNE 2020

PLAN & PROFILE
STA: 111+50 - 128+00
FORMER MUSK./NEW. BRANCH 4

SHEET NUMBER
C19



- NOTES:
1. PLACE MULCH BLANKET PARALLEL TO FLOW AND ANCHOR SECURELY.
 2. STAPLES INSTALLED/SECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
 3. MULCH BLANKET SHALL BE NA GREEN SC 150 BN OR EQUAL.



2121 3 Mile Rd NW
Walker, MI 49544
Ph: 616-301-7888
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LRE
ENGINEERS & SURVEYORS

REVISIONS:	NO.	ISSUED FOR:	DATE
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	2.	PRELIMINARY DESIGN	AUG. 2019
	3.	BIDS	JUNE 2020

CLIENT: MUSKOGEE COUNTY DRAIN COMMISSIONER
141 E. APPLE AVE., MUSKOGEE, MI 49842

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EGELSTON, MOORLAND, RAVENNA & CASNOVA TOWNSHIPS, MUSKOGEE COUNTY, MI

PROJECT NUMBER:	DATE
17-008	SEPT. 2017
	AUG. 2019
	AUG. 2019
	JUNE 2020

DESIGNED BY: AWS
DRAFTED BY: RAG
CADC:DJF

DETAILS

SHEET NUMBER: **C20**

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