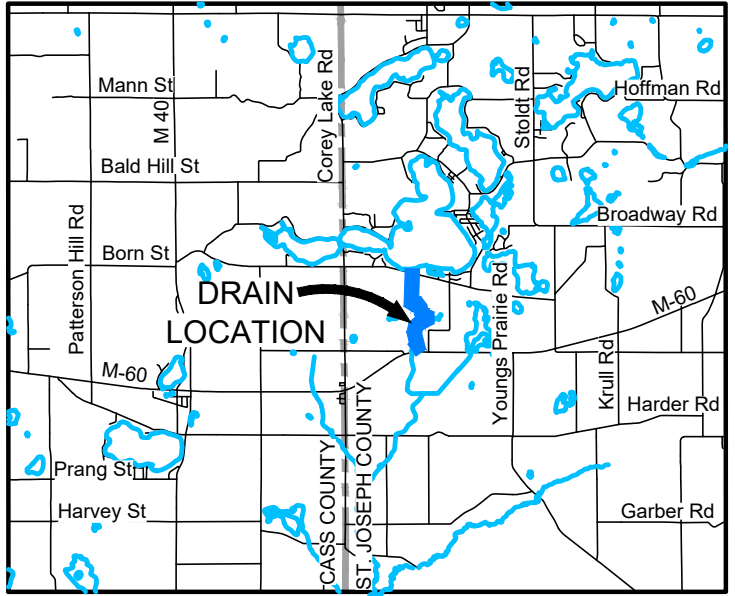




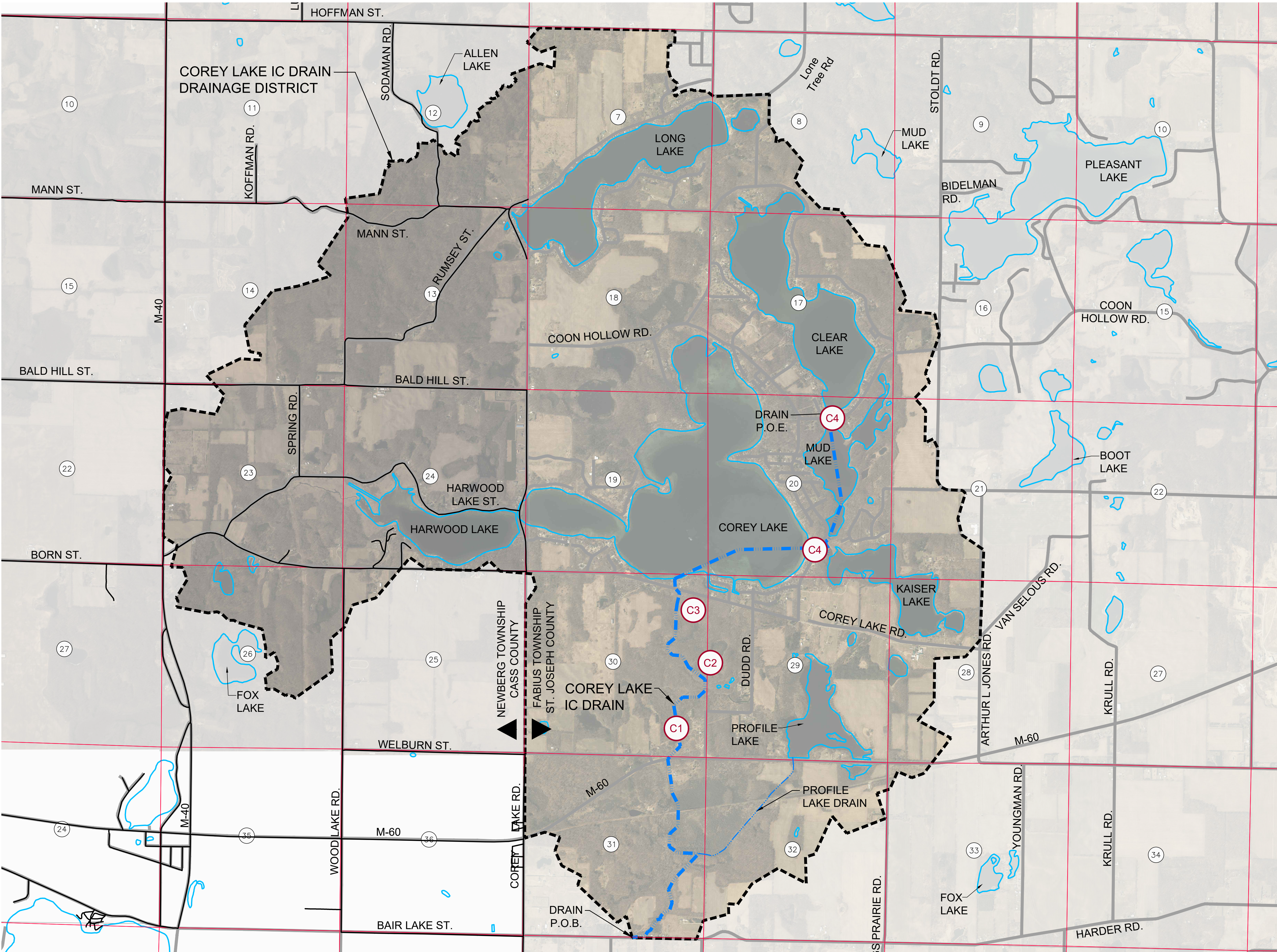
COREY LAKE INTERCOUNTY DRAIN

SECTIONS 11-14 & 23-26
T6S R13W
NEWBERG TOWNSHIP, CASS COUNTY

SECTIONS 7-8, 16-21 & 28-33
T6S R12W
FABIUS TOWNSHIP, ST. JOSEPH COUNTY



VICINITY MAP
NOT TO SCALE



INDEX OF SHEETS

CS - COVER SHEET
C1 - PLAN & PROFILE (STA. 0+00 - 24+50)
C2 - PLAN & PROFILE (STA. 24+50 - 51+50)
C3 - PLAN & PROFILE (STA. 51+50 - 68+00)
C4 - PLAN & PROFILE MUD - CLEAR LAKE COREY - KAISER LAKE
C5 - DETAIL SHEET
C6 - LAKE LEVEL STRUCTURE DETAILS

DISTRICT INFORMATION:

DRAIN DISTRICT AREA:	
CASS COUNTY:	2,590.9 ACRES (30%)
ST. JOSEPH COUNTY:	5,973.0 ACRES (70%)
TOTALS	8,563.9 ACRES

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

MISCELLANEOUS QUANTITIES:

MOBILIZATION (10% MAX.)	1 LS
SESC MEASURES	1 LS
UTILITY COORDINATION	1 LS
SITE RESTORATION	1 LS



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

LRE
ENGINEERS & SURVEYORS

REVISIONS:

NO.	ISSUED FOR	DATE
1.	DRAFT REVIEW	11/27/2019
2.	BIDS & CONSTRUCTION	04/23/2025
3.	FOR CONSTRUCTION	09/19/2025
4.	BULLETIN NO. 1	09/26/2025

CLIENT: COREY LAKE INTERCOUNTY DRAIN DRAINAGE BOARD
PROJECT: INWARD 525 W. ALLEGAN STREET, LANSING, MICHIGAN 48203

COREY LAKE INTERCOUNTY DRAIN
CASS AND ST. JOSEPH COUNTIES, MICHIGAN

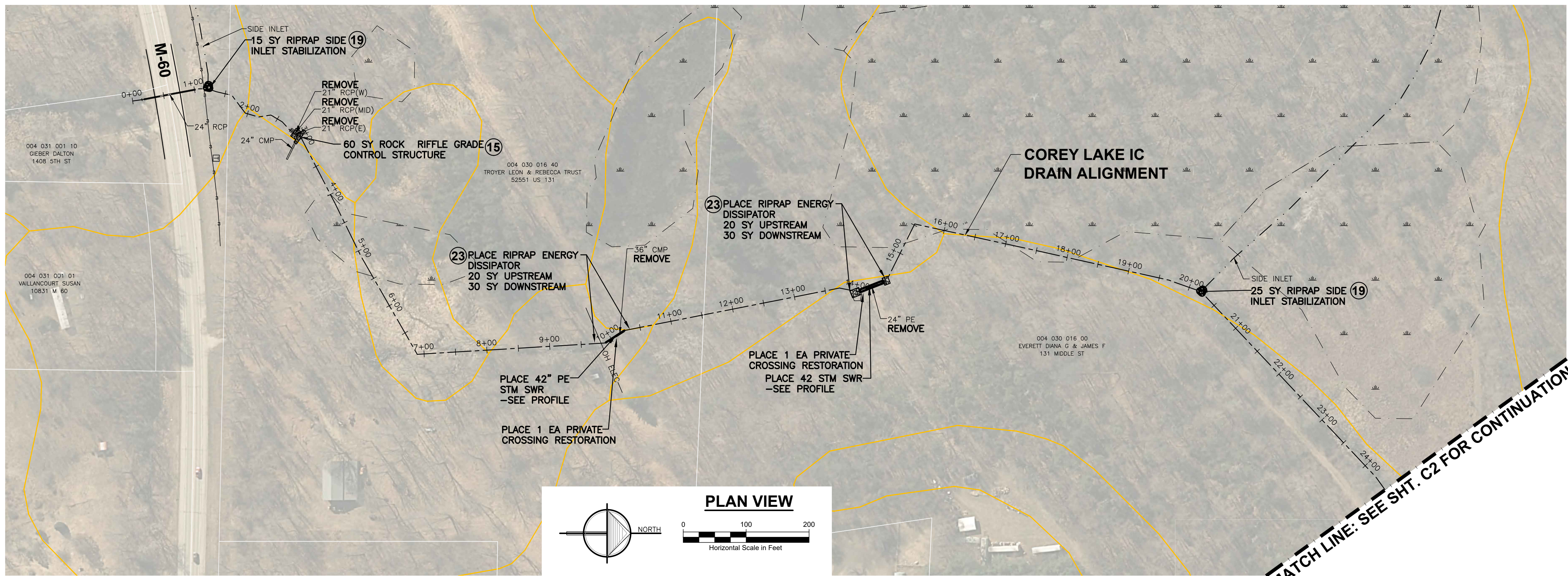
PROJECT NUMBER: 19078

DATE
11/2019
06/2022
11/2019
03/2025

SURVEYED BY: GFL-AOK
DESIGNED BY: AWS
DRAFTED BY: RAG
CADC: DJF

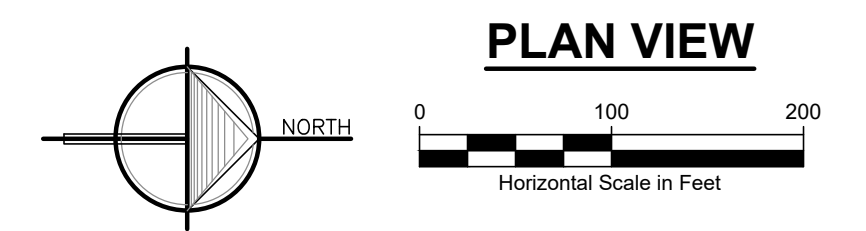
COVER SHEET

SHEET NUMBER
CS



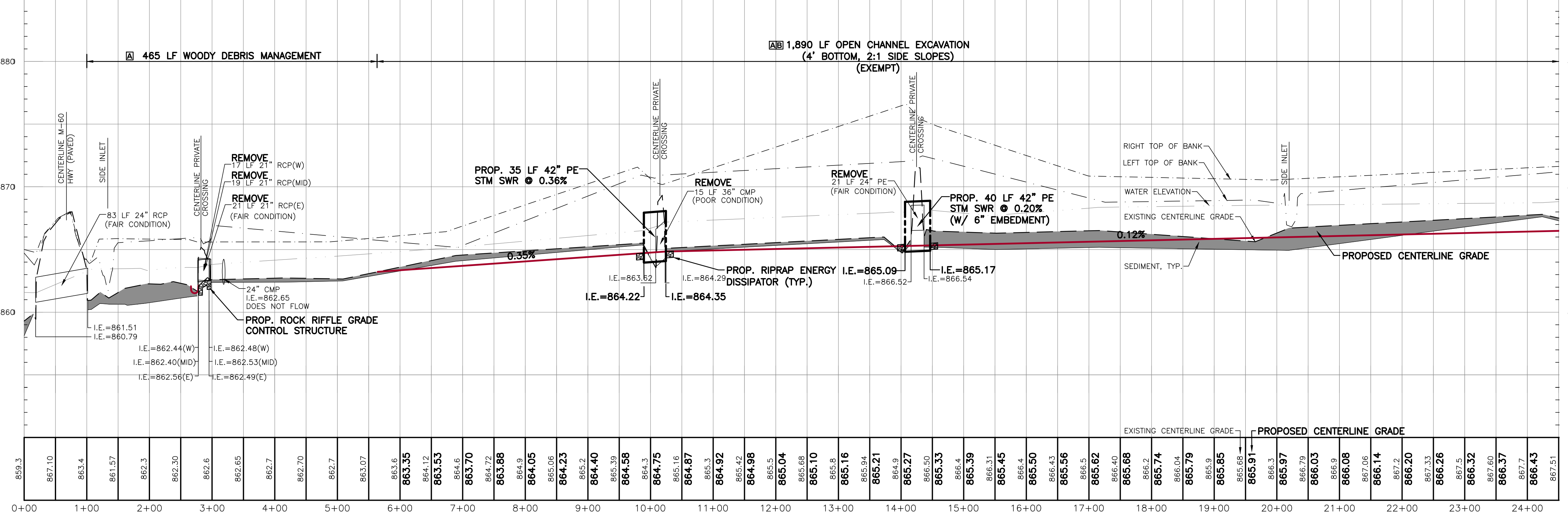
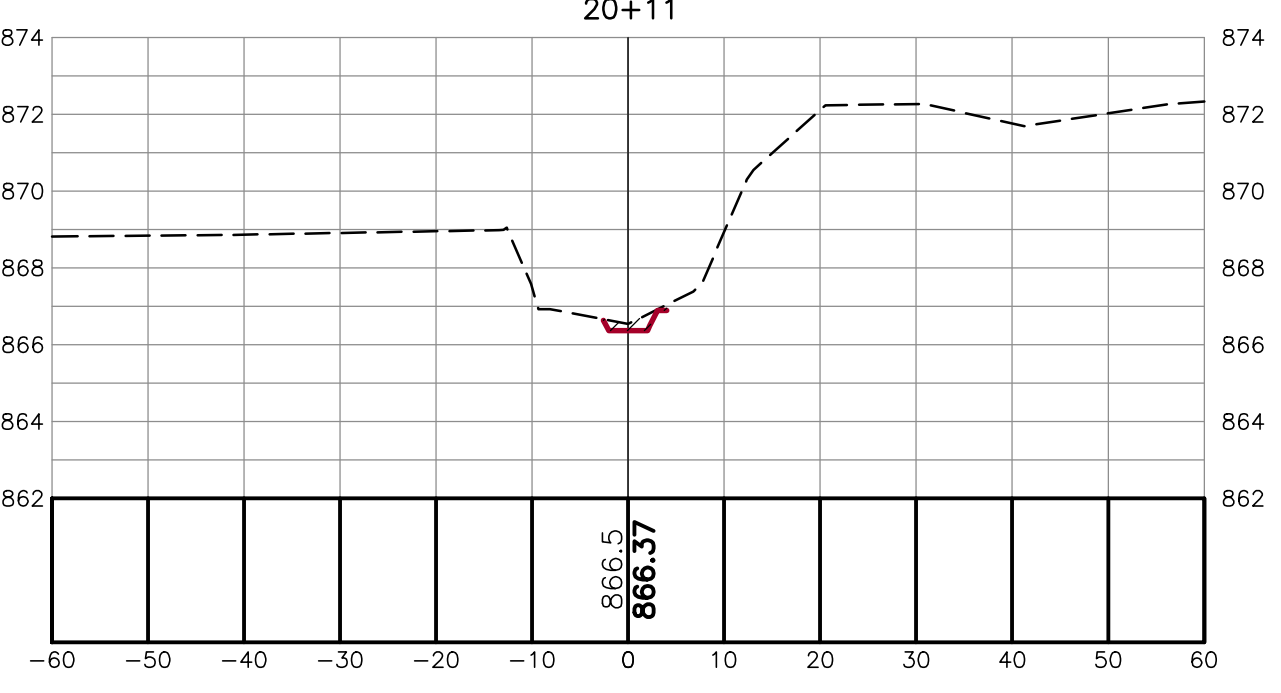
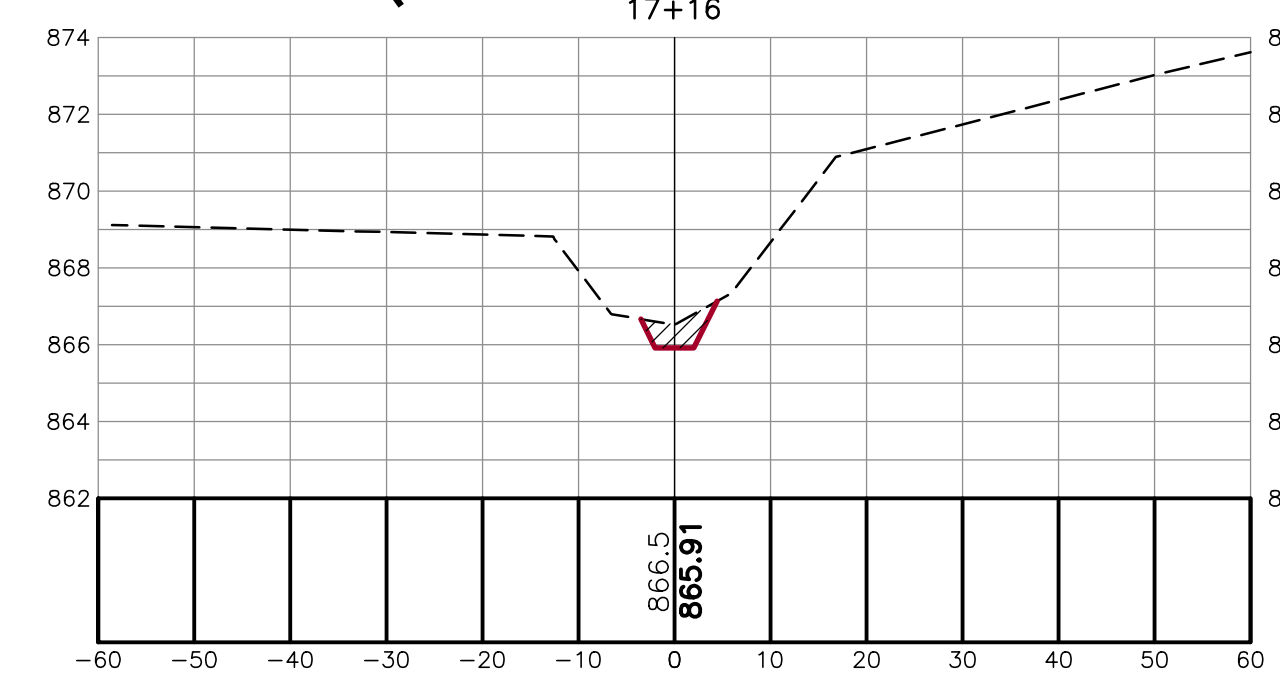
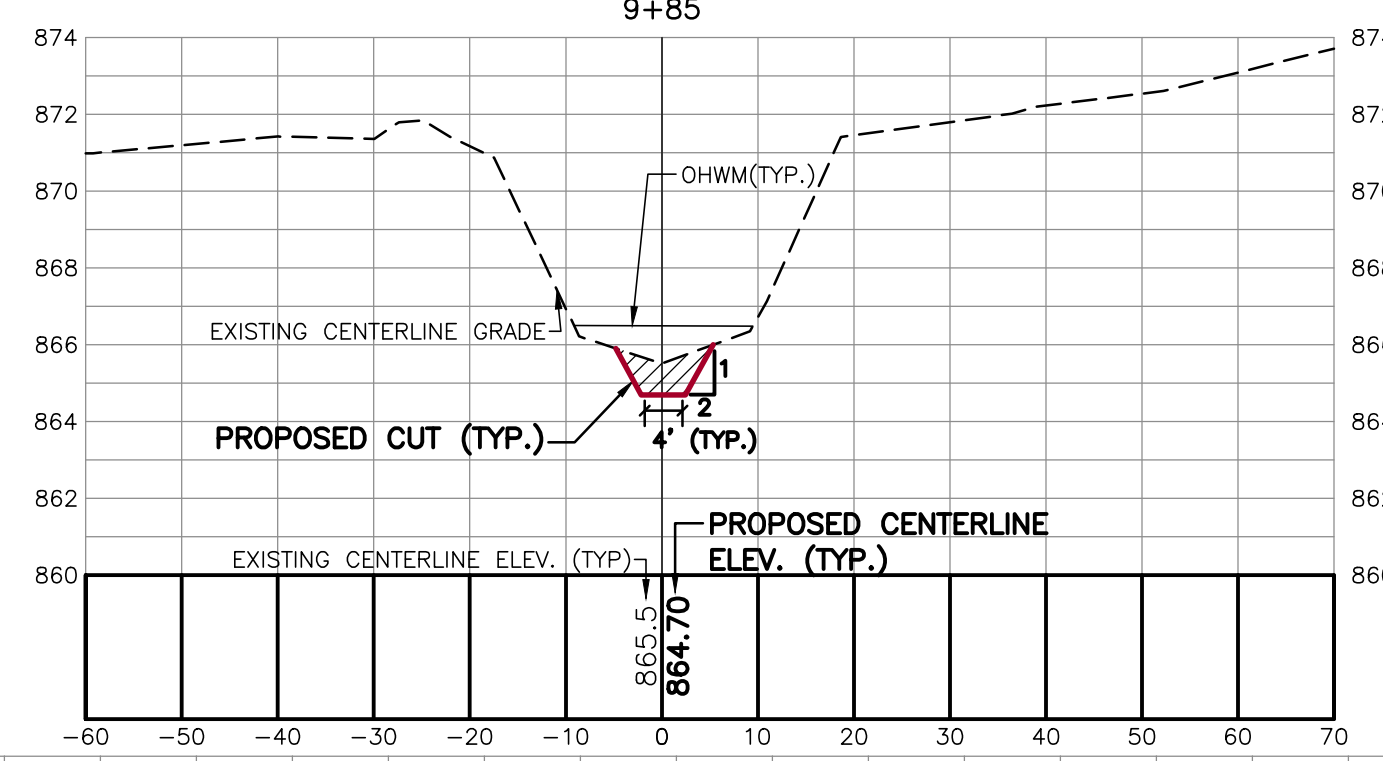
- NOTES:**
- CONTRACTOR TO FIELD VERIFY HORIZONTAL & VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND MUST NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
 - PROPOSED EARTH CHANGE SHALL BE LIMITED TO EASEMENT AREA
 - CONTRACTOR SHALL USE CRANE MATS WHILE WORKING IN WETLANDS IDENTIFIED IN THE USFWS NWI TO REDUCE DISTURBANCE.
 - MULCH BLANKET BANKS AS DIRECTED BY ENGINEER.
 - IF DRAIN IS ACCESSED ACROSS PROPERTY OUTSIDE OF DRAIN EASEMENT, A LANDOWNER'S AGREEMENT FORM MUST BE EXECUTED.
 - QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS APPROVED BY ENGINEER.
 - CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE AND FEDERAL LAWS INCLUDING CONDITIONS OF EGLE PERMIT #: WRP040908V1.0
 - REMOVE, SALVAGE AND REPAIR FENCES, STRUCTURES AND OTHER ITEMS THAT INTERFERE WITH CONSTRUCTION, PAID FOR AS 1 LS SITE RESTORATION.
 - CONTRACTOR TO DISPOSE OF REMOVED CULVERTS.
 - DRAINAGE EASEMENT: 66', 33' EACH SIDE OF DRAIN CENTERLINE UNLESS SHOWN OTHERWISE.

- LEGEND**
- WETLAND (USFWS NATIONAL WETLAND INVENTORY)
 - SOIL TYPE (USDA NRCS WEBSOIL SURVEY)



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

- MISCELLANEOUS QUANTITIES:**
- M-60 CULVERT CLEANOUT 1 LS
 - OPEN CHANNEL SEEDING 1,890 LF
 - MULCH BLANKET 750 SY



- LEGEND**
- BENCHMARK
 - WELL
 - MONUMENT
 - FOUND IRON STAKE
 - SET IRON STAKE
 - SET WOOD STAKE
 - SIGN
 - RR SIGN
 - GUY POLE
 - GUY ANCHOR
 - UTILITY POLE
 - LIGHT POLE
 - POST
 - SOIL BORING
 - MAILBOX
 - AC UNIT
 - FLAGPOLE
 - FIRE HYDRANT
 - WATER VALVE
 - ELECTRIC TRANSFORMER
 - GAS METER
 - WATER METER
 - TELEPHONE RISER
 - ELECTRIC METER
 - CATCH BASIN
 - ROUND CATCH BASIN
 - UTILITY MANHOLE
 - STORM MANHOLE
 - FLARED END SECTION
 - SANITARY MANHOLE
 - ELECTRIC MANHOLE
 - TELEPHONE MANHOLE
 - 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
 - LAKE LINE
 - EXISTING CONTOUR

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

NOTE:
ELEVATIONS ARE BASED ON NGVD 29

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.LREI.com

LRE
ENGINEERS & SURVEYORS

REVISIONS:	NO.	ISSUED FOR:	DATE
	1.	DRAFT REVIEW	11/27/2019
	2.	BIDS & CONSTRUCTION	04/23/2020
	3.	FOR CONSTRUCTION	08/19/2020
	4.	BULLETIN NO. 1	09/28/2020

CLIENT: COREY LAKE INTERCOUNTY DRAIN DRAINAGE BOARD
INDARD 528 W. ALLEGAN STREET, LANSING, MICHIGAN 48933

PROJECT: COREY LAKE INTERCOUNTY DRAIN
CASS AND ST. JOSEPH COUNTIES, MICHIGAN

PROJECT NUMBER:	DATE
19078	11/2019

SURVEYED BY: CRY-ADK
DESIGNED BY: AWS
DRAFTED BY: RAG
CADC:DJF

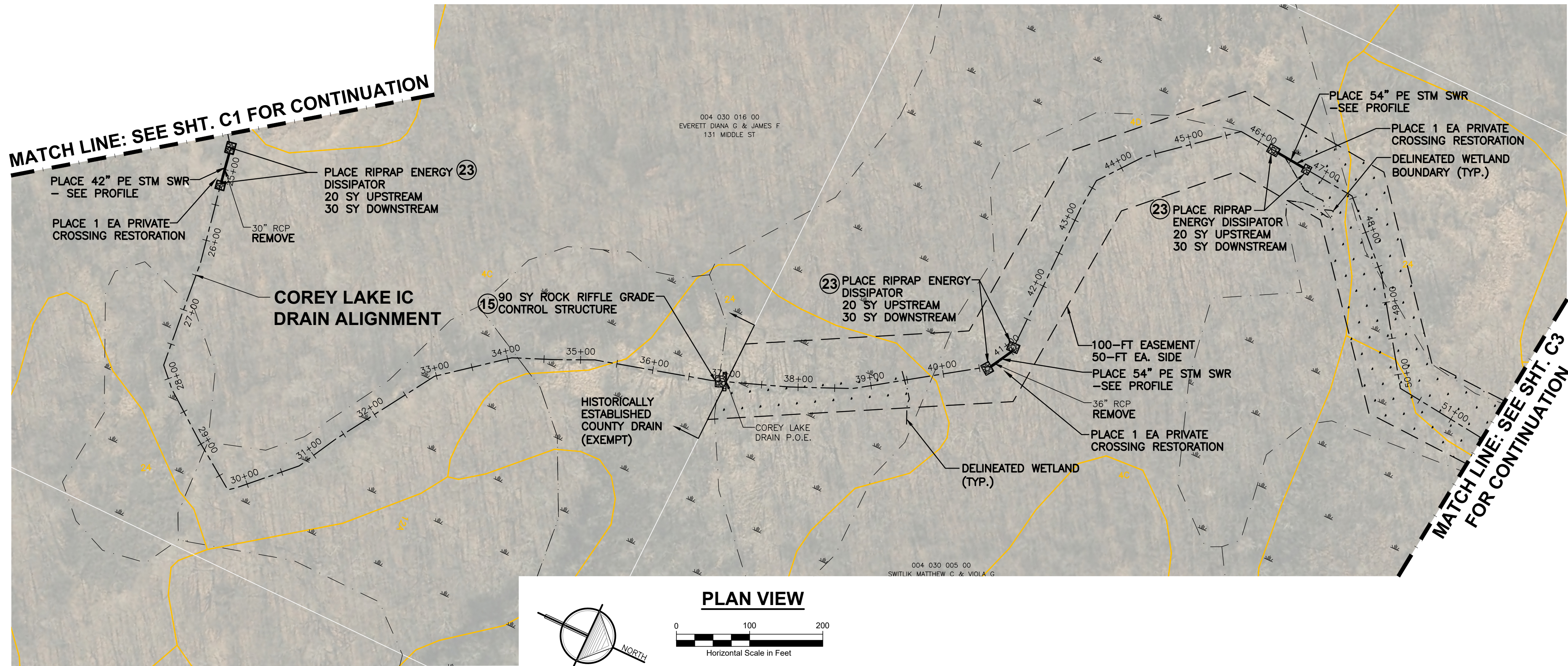
PROJECT: COREY LAKE INTERCOUNTY DRAIN DRAINAGE BOARD
INDARD 528 W. ALLEGAN STREET, LANSING, MICHIGAN 48933

PROJECT: COREY LAKE INTERCOUNTY DRAIN
CASS AND ST. JOSEPH COUNTIES, MICHIGAN

PROJECT NUMBER: 19078
DATE: 11/2019
SURVEYED BY: CRY-ADK
DESIGNED BY: AWS
DRAFTED BY: RAG
CADC:DJF

PLAN & PROFILE
STA: 0+00 - 24+50

C1



NOTES:

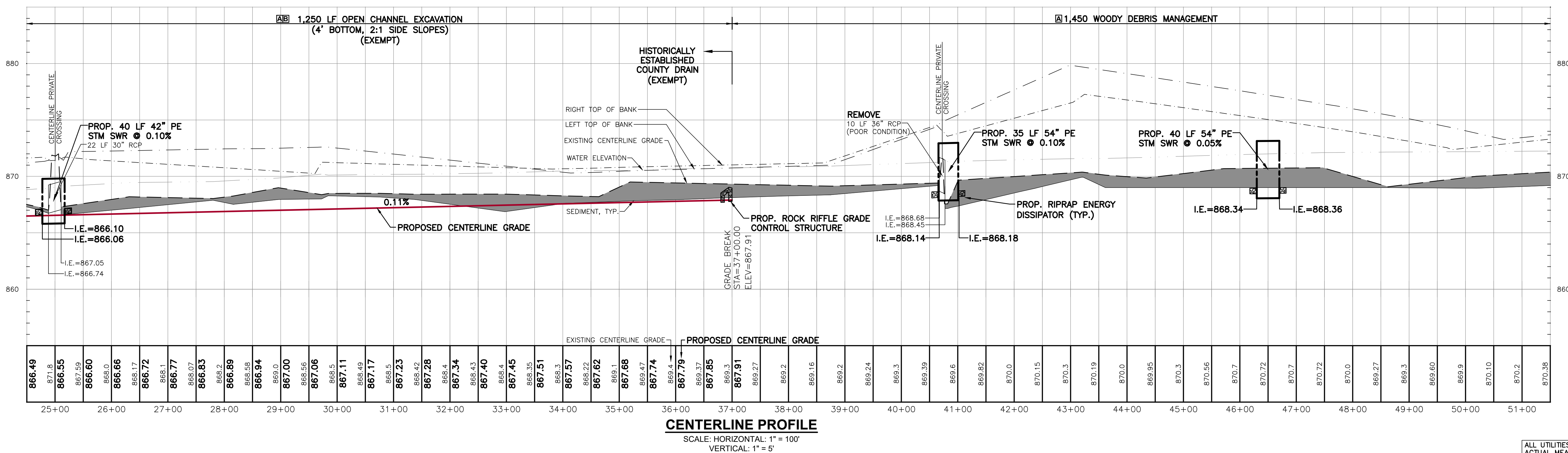
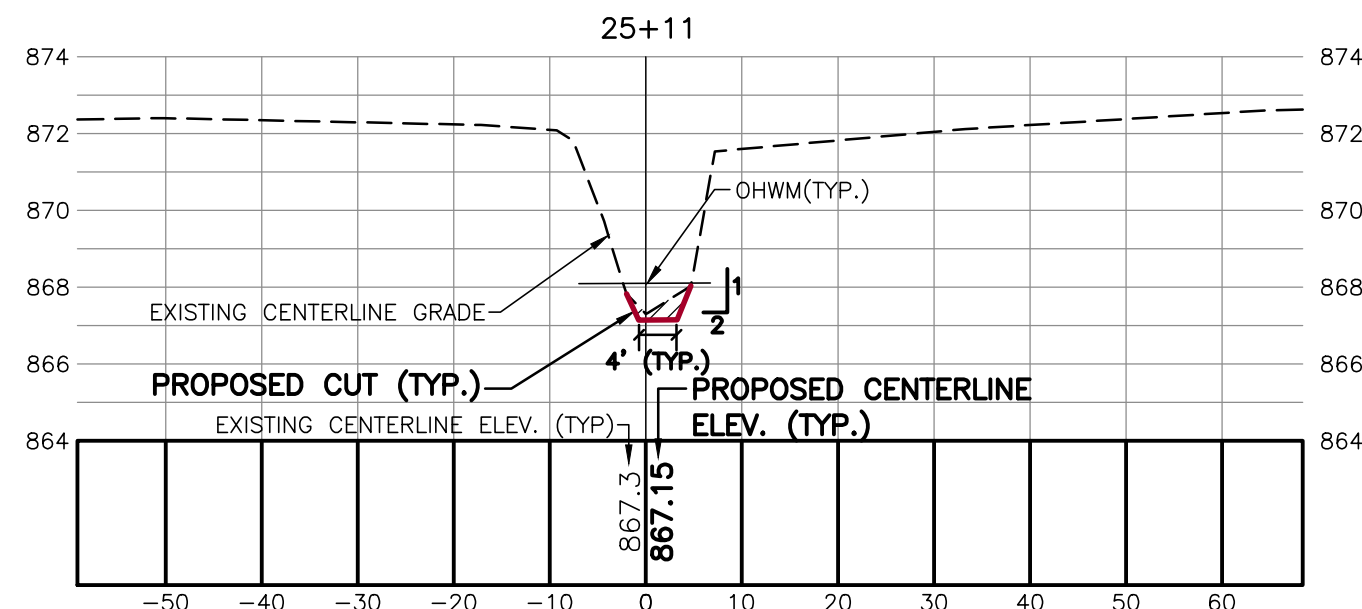
1. CONTRACTOR TO FIELD VERIFY HORIZONTAL & VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND MUST NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. PROPOSED EARTH CHANGE SHALL BE LIMITED TO EASEMENT AREA
3. CONTRACTOR SHALL USE CRANE MATS WHILE WORKING IN WETLANDS IDENTIFIED IN THE USFWS NWI TO REDUCE DISTURBANCE.
4. MULCH BLANKET BANKS AS DIRECTED BY ENGINEER.
5. IF DRAIN IS ACCESSED ACROSS PROPERTY OUTSIDE OF DRAIN EASEMENT, A LANDOWNER'S AGREEMENT FORM MUST BE EXECUTED.
6. QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS APPROVED BY ENGINEER.
7. CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE AND FEDERAL LAWS INCLUDING CONDITIONS OF EGLE PERMIT #: WRP040908V1.0
8. REMOVE, SALVAGE AND REPAIR FENCES, STRUCTURES AND OTHER ITEMS THAT INTERFERE WITH CONSTRUCTION, PAID FOR AS 1 LS SITE RESTORATION.
9. CONTRACTOR TO DISPOSE OF REMOVED CULVERTS.
10. DRAINAGE EASEMENT: 66', 33' EACH SIDE OF DRAIN CENTERLINE UNLESS SHOWN OTHERWISE.

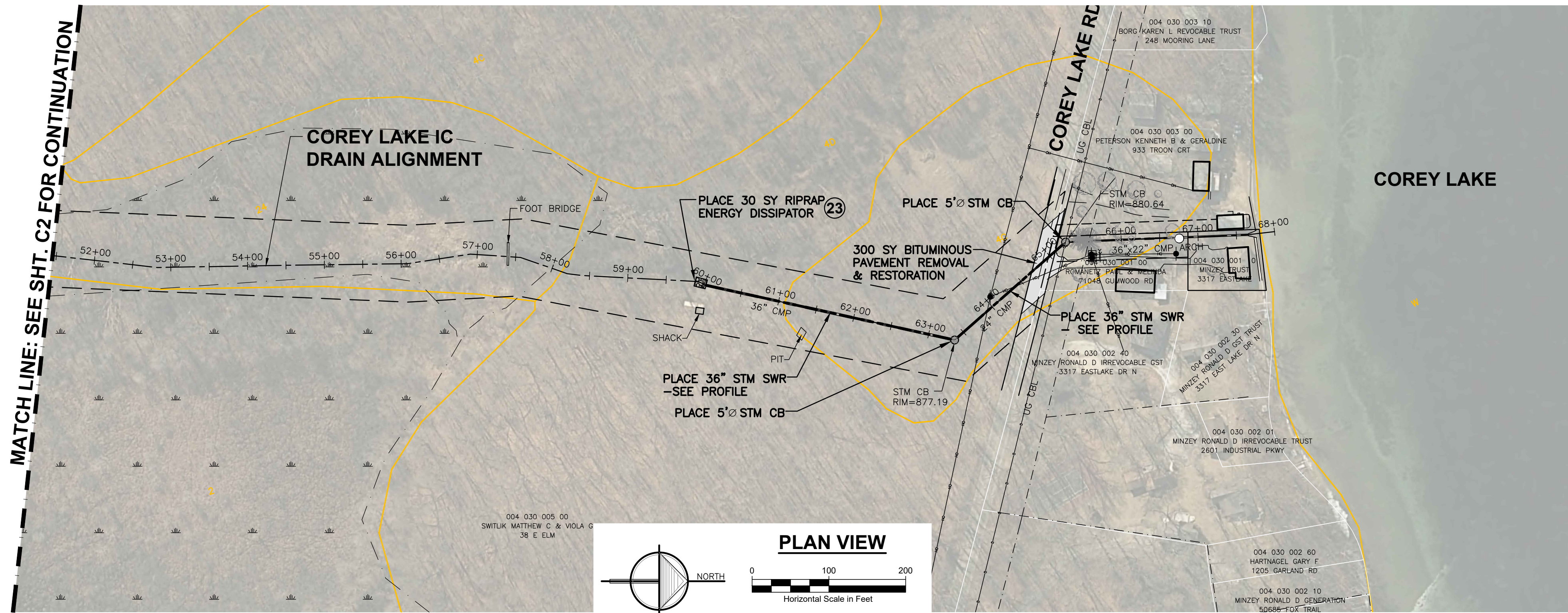
LEGEND

	WETLAND (USFWS NATIONAL WETLAND INVENTORY)
	SOIL TYPE (USDA NRCS WEBSOIL SURVEY)

MISCELLANEOUS QUANTITIES:

- ① OPEN CHANNEL SEEDING 1,250 LF
② MULCH BLANKET 500 SY





MISCELLANEOUS QUANTITIES

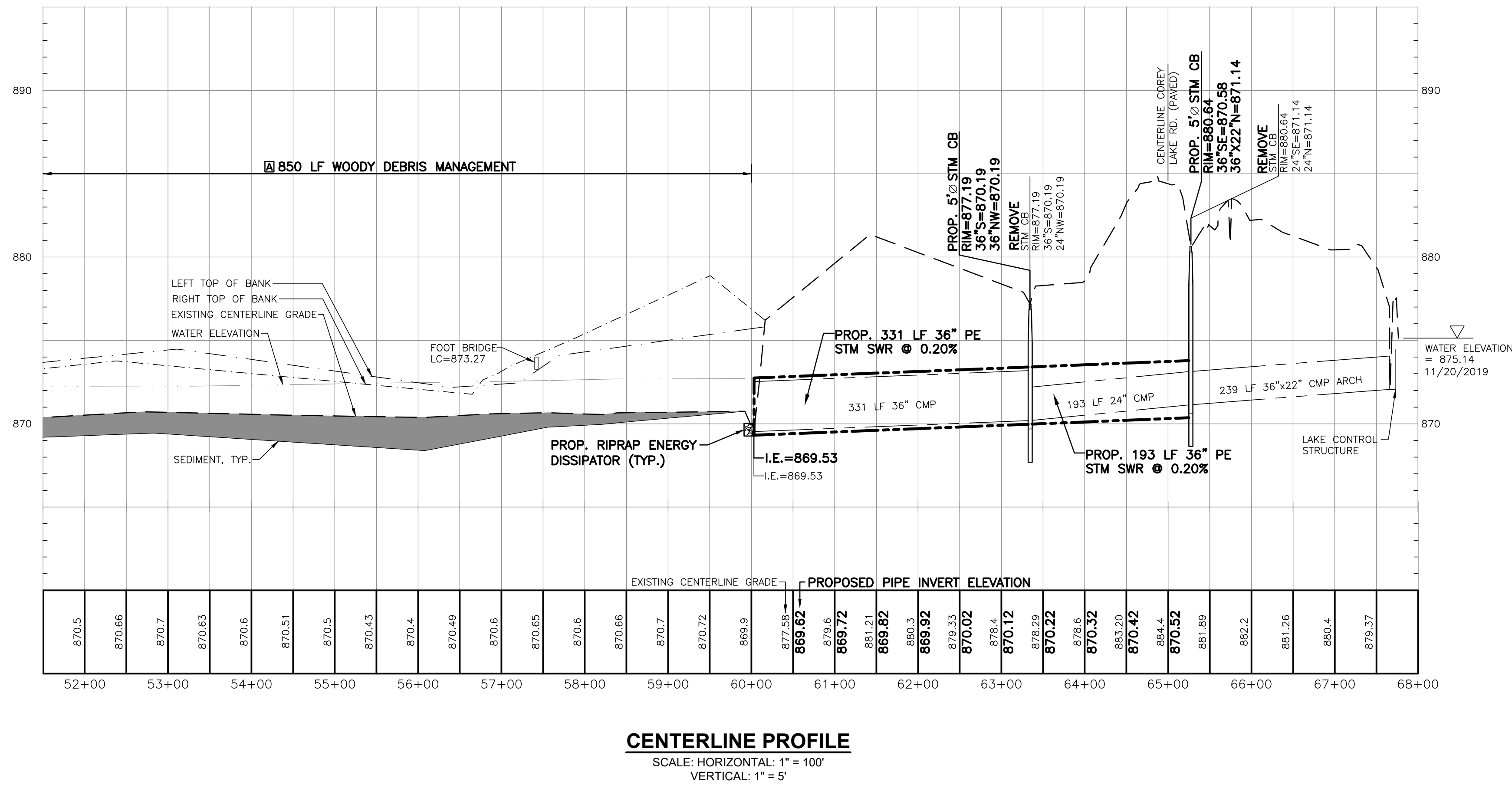
1	COREY LAKE OUTLET DEWATERING	1 LS
1	SURFACE RESTORATION	524 LF

NOTES:

- PROPOSED EARTH CHANGE SHALL BE LIMITED TO EASEMENT AREA.
- CONTRACTOR SHALL SUBMIT DE-WATERING PLAN FOR APPROVAL PRIOR TO CONSTRUCTION.
- ANY EXISTING STRUCTURES WITHIN EASEMENT MUST REMAIN OR IF NECESSARY TO ACCESS THE WORK, BE MOVED AND REPLACED AT NO COST TO PROPERTY OWNER. PAID FOR AS 1 LS SITE RESTORATION.
- CONTRACTOR TO FIELD VERIFY HORIZONTAL & VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND MUST NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- CONTRACTOR SHALL USE CRANE MATS WHILE WORKING IN WETLANDS IDENTIFIED IN THE USFWS NWI TO REDUCE DISTURBANCE.
- MULCH BLANKET BANKS AS DIRECTED BY ENGINEER.
- IF DRAIN IS ACCESSED ACROSS PROPERTY OUTSIDE OF DRAIN EASEMENT, A LANDOWNER'S AGREEMENT FORM MUST BE EXECUTED.
- QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS APPROVED BY ENGINEER.
- CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE AND FEDERAL LAWS INCLUDING CONDITIONS OF EGLE PERMIT #: WRP040908V1.0.
- CONTRACTOR TO DISPOSE OF CULVERTS AND STORM SEWER.
- CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS WITHIN PROJECT LOCATION.
- REMOVE, SALVAGE AND REPAIR FENCES, STRUCTURES AND OTHER ITEMS THAT INTERFERE WITH CONSTRUCTION, PAID FOR AS 1 LS SITE RESTORATION.

LEGEND

	WETLAND (USFWS NATIONAL WETLAND INVENTORY)
	BITUMINOUS PAVEMENT REMOVAL
	SoA
	SOIL TYPE (USDA NRCS WEBSOIL SURVEY)



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.

CLIENT: COREY LAKE INTERCOUNTY DRAIN DRAINAGE BOARD
10400 528 W. ALLEGAN STREET, LANSING, MICHIGAN 48933

PROJECT: COREY LAKE INTERCOUNTY DRAIN
CASS AND ST. JOSEPH COUNTIES, MICHIGAN

PROJECT NUMBER: 19078	DATE
SURVEYED BY: CRY-ADK	11/2019
DESIGNED BY: AWS	06/2022
DRAFTED BY: RAG	11/2019
CADD: DJF	03/2025

PLAN & PROFILE
STA: 51+50 - 68+000

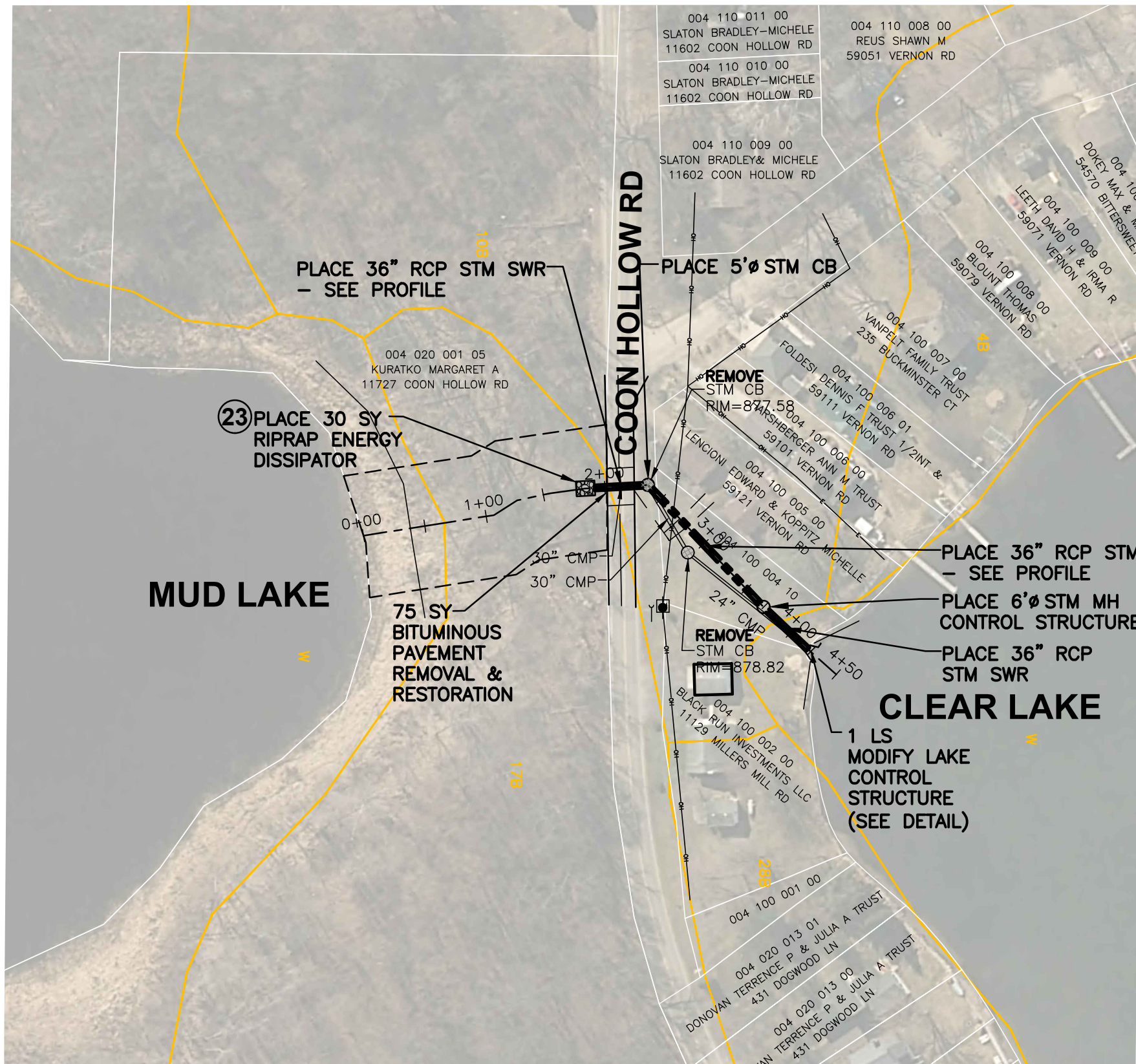
SHEET NUMBER
C3

2121.3 Mile Rd. NW
Walker, MI 49544
Ph: 616-301-7888
www.LREIM.com

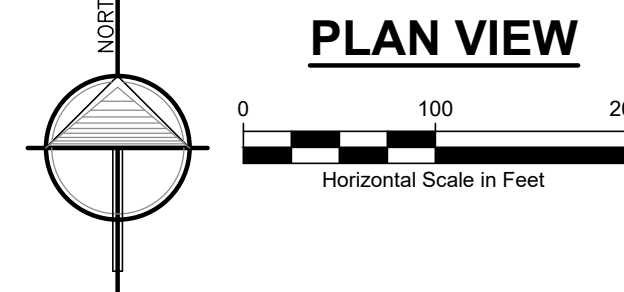
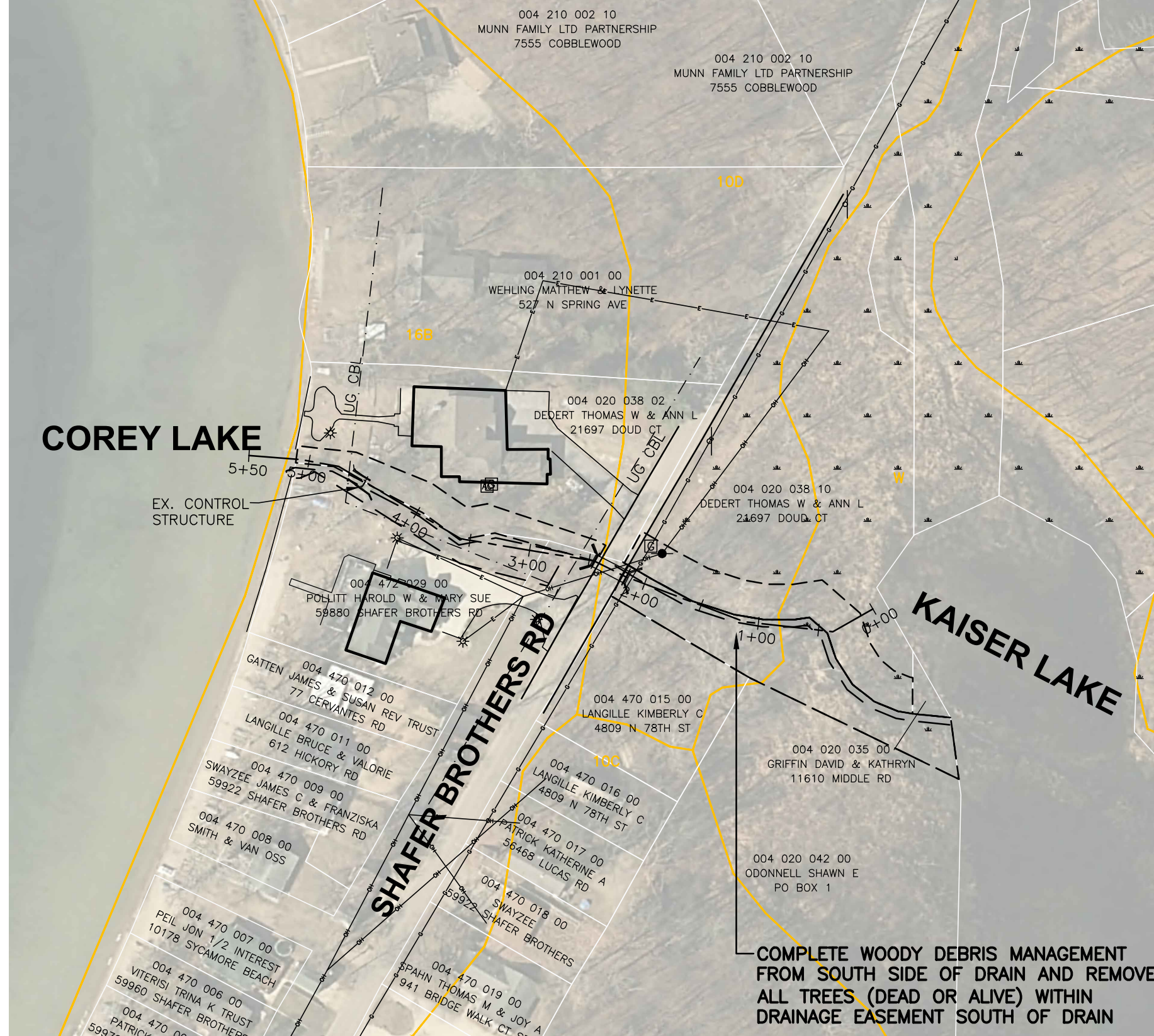
LRE
ENGINEERS & SURVEYORS

REVISIONS:	NO.	ISSUED FOR	DATE
	1.	DRAFT REVIEW	11/27/2019
	2.	BIDS & CONSTRUCTION	04/23/2025
	3.	FOR CONSTRUCTION	08/19/2025
	4.	BULLETIN NO. 1	09/26/2025

MUD LAKE - CLEAR LAKE



COREY LAKE - KAISER LAKE



NOTES:

- PROPOSED EARTH CHANGE SHALL BE LIMITED TO EASEMENT AREA.
- CONTRACTOR SHALL SUBMIT DE-WATERING PLAN FOR APPROVAL PRIOR TO CONSTRUCTION.
- ANY EXISTING STRUCTURES WITHIN EASEMENT MUST REMAIN OR IF NECESSARY TO ACCESS THE WORK, BE MOVED AND REPLACED AT NO COST TO PROPERTY OWNER. PAID FOR AS 1 LS SITE RESTORATION.
- CONTRACTOR TO FIELD VERIFY HORIZONTAL & VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND MUST NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
- CONTRACTOR SHALL USE CRANE MATS WHILE WORKING IN WETLANDS IDENTIFIED IN THE USFWS NWI TO REDUCE DISTURBANCE.
- MULCH BLANKET BANKS AS DIRECTED BY ENGINEER.
- IF DRAIN IS ACCESSED ACROSS PROPERTY OUTSIDE OF DRAIN EASEMENT, A LANDOWNER'S AGREEMENT FORM MUST BE EXECUTED.
- QUANTITIES WILL NOT BE PAID ABOVE CONTRACT AMOUNT UNLESS APPROVED BY ENGINEER.
- CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE AND FEDERAL LAWS INCLUDING CONDITIONS OF EGLE PERMIT #: WRPO4090BV1.0. INCLUDING: NO WORK IN CLEAR LAKE MARCH 1ST – JUNE 30TH & NO WORK IN COREY LAKE MAY 1 – JUNE 30.
- CONTRACTOR TO DISPOSE OF CULVERTS AND STORM SEWER.
- CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS WITHIN PROJECT LOCATION.
- REMOVE, SALVAGE AND REPAIR FENCES, STRUCTURES AND OTHER ITEMS THAT INTERFERE WITH CONSTRUCTION, PAID FOR AS 1 LS SITE RESTORATION.

MISCELLANEOUS QUANTITIES:

1 SURFACE RESTORATION	227 LF
1 OPEN CHANNEL SEEDING	363 LF
CLEAR LAKE OUTLET DEWATERING	1 LS

TIMING AND SEQUENCE OF CONSTRUCTION & SESC MEASURES

CONSTRUCTION ACTIVITY	ACTIVITY BY MONTH/WEEKS											
	FALL 2025			WINTER 2026			SPRING 2026			SUMMER 2026		
1 MOBILIZE CONSTRUCTION EQUIPMENT												
2 PLACE TEMPORARY SESC MEASURES												
3 CONDUCT CLEARING, GRUBBING, & SNAGGING												
4 CONDUCT OPEN CHANNEL EXCAVATION												
5 INSTALL CULVERTS												
6 INSTALL PERMANENT IN-STREAM SESC MEASURES												
7 INSTALL STORM SEWER FROM LAKE OUTLETS												
8 INSTALL PERMANENT UPLAND SESC MEASURES												
9 CONDUCT FINAL RESTORATION MEASURES												
10 REMOVE TEMPORARY SESC MEASURES												

*NOTE:
TEMPORARY CONTROL MEASURES TO BE REMOVED ONCE VEGETATION IS ESTABLISHED AND SITE IS STABILIZED.

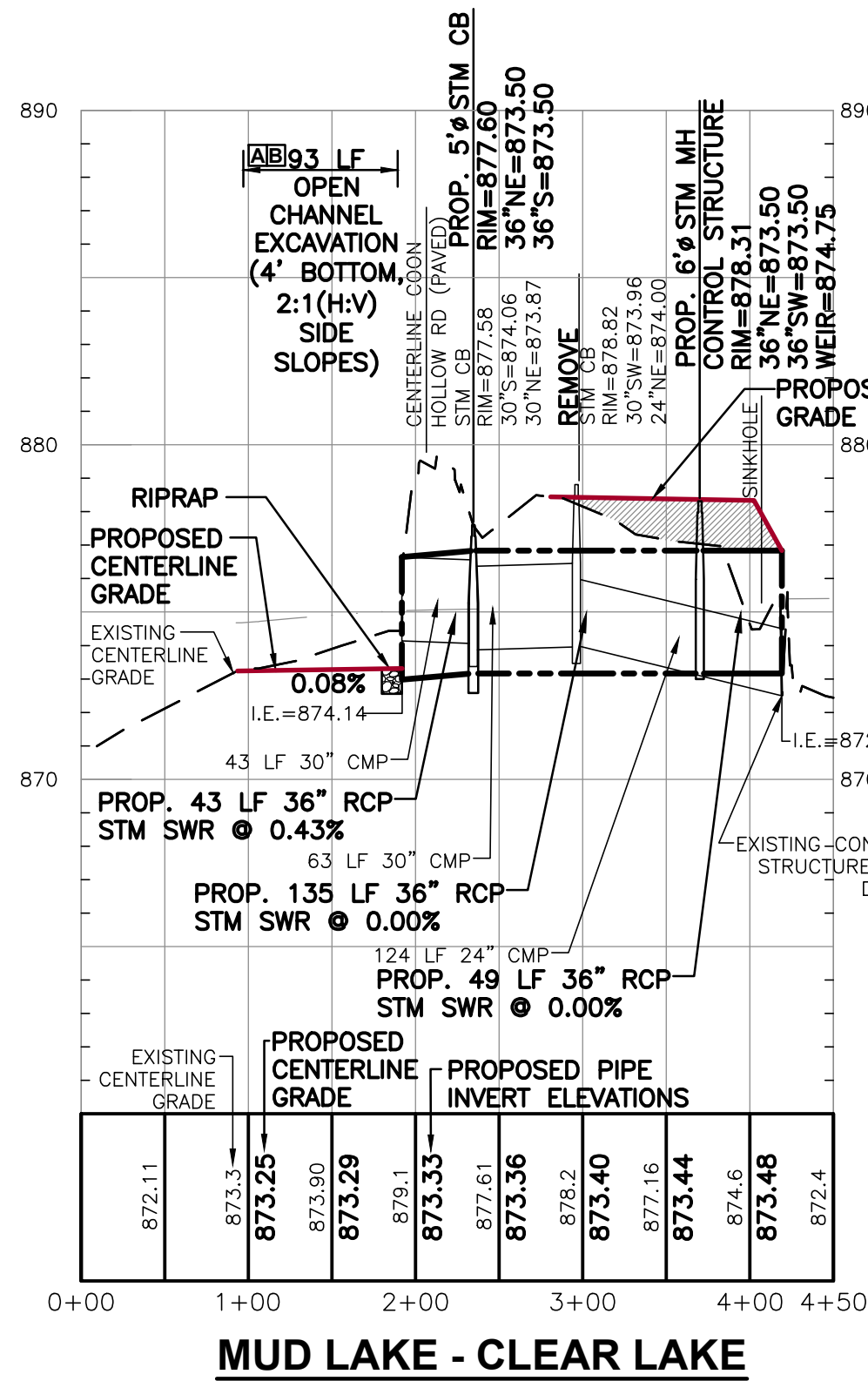
MACDC UNIFIED KEYING SYSTEM EROSION CONTROL MEASURES (SESC)

KEY	SESC MEASURE	SYMBOL	WHERE USED
1	Seeding		When bare soil is exposed, temporarily or permanently, to erosive forces from wind and or water on flat areas, mild slopes, grassed waterways and spillways, diversion ditches and dikes, borrow and stockpile areas, and spoil piles.
2	Mulch		On flat areas, slopes, grassed waterways and spillways, diversion ditches & dikes, borrow & stockpile areas, & spoil piles when areas are subject to raindrop impact, & erosive forces from wind or water.
9	Vegetation Removal without Grubbing		Retains existing root mat which assists in stabilizing slopes. Assists in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gullying. Discourages off-road vehicle use.
13	Slope Stabilization		Slope stabilizing measures provide an immediate and effective cover over raw erodible slopes affording excellent protection against rain and wind erosion.
15	Riprap		Along drain banks, shorelines, or where concentrated flows occur. slows velocity, reduces erosion and sedimentation.
16	Riprap Toe of Slope		Riprap toe of slope protection is used in areas where velocities are causing drain bank erosion and are too high to stabilize using other methods.
19	Armored Spillway		When concentrated flow must be conveyed down a drain bank or slope of discharge into another drain. Where slope failure or channel scour is observed or is likely to occur, or when runoff must be redirected around work in the drain.
23	Outfall Stabilization		In the stream or drain bank usually above the ordinary high water mark where an enclosed drain or tile discharges to an open drain.

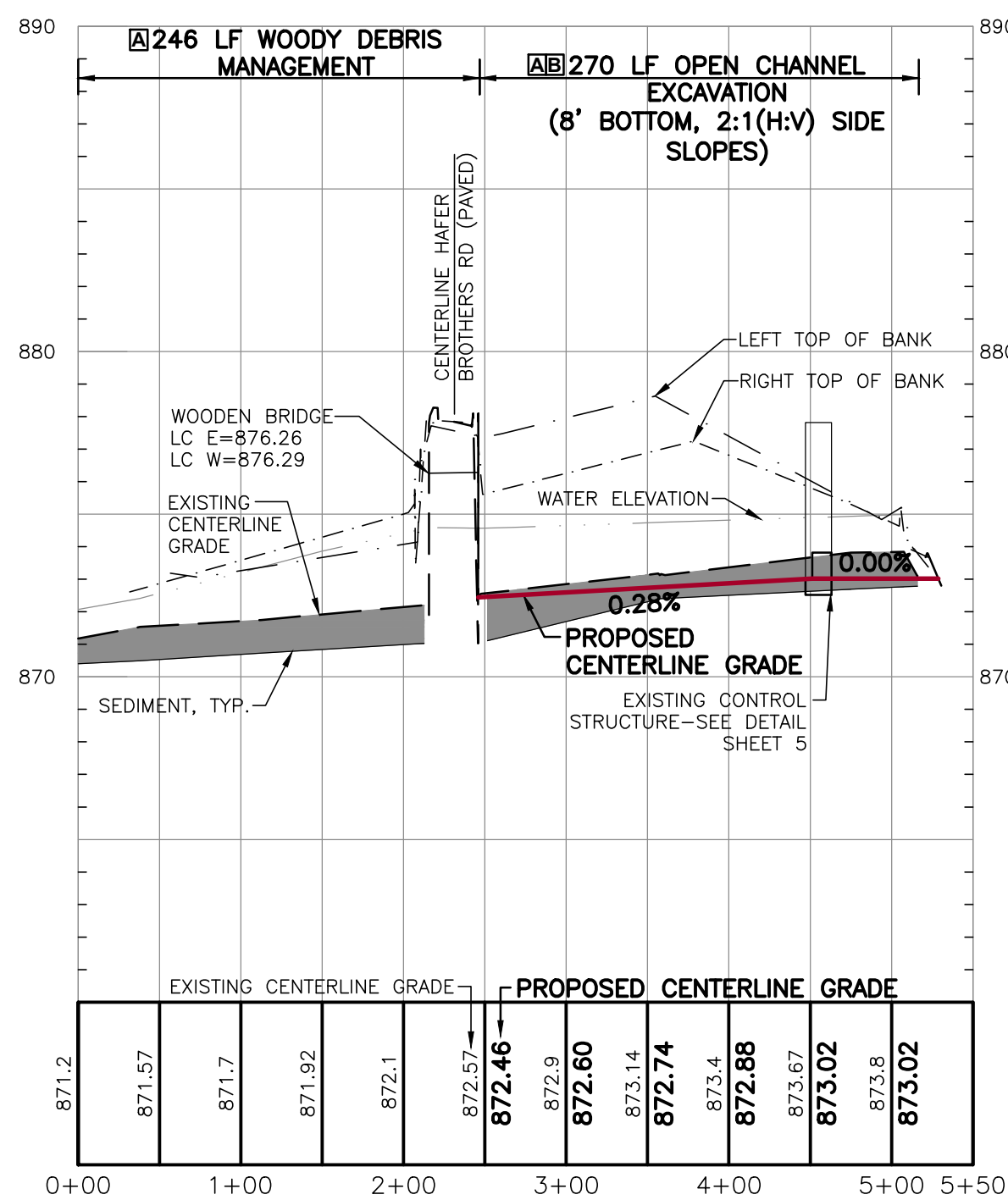
MACDC UNIFIED KEYING SYSTEM – ROUTINE MAINTENANCE ACTIVITIES

KEY	BEST MANAGEMENT PRACTICE	SESC PLAN
A	Debris Removal	NO
B	Sediment Removal	> 100 FEET

*NOTE:
ALL SESC MEASURES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH MACDC SESC MANUAL.



MUD LAKE - CLEAR LAKE



COREY LAKE - KAISER LAKE

CENTERLINE PROFILE

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

NOTE:
ELEVATIONS ARE BASED ON NGVD 29

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.

CLIENT: COREY LAKE INTERCOUNTY DRAIN DRAINAGE BOARD
PROJECT: MIDARD 528 W. ALLEGAN STREET, LANSING, MICHIGAN 48333
COREY LAKE INTERCOUNTY DRAIN
CASS AND ST. JOSEPH COUNTIES, MICHIGAN

PROJECT NUMBER: 19078
SURVEYED BY: CRV-AOK
DESIGNED BY: AWS
DRAFTED BY: RAG
DATE: 11/2019
06/2022
11/2019
03/2025

PLAN & PROFILE
MUD - CLEAR LAKE
COREY - KAISER LAKE

SHEET NAME: C4

SHEET NUMBER: C4

2121.3 Mile Rd. NW
Walker, MI 49544
Ph: 616-301-7888
www.LREMI.com

LRE
ENGINEERS & SURVEYORS

REVISIONS:
NO. DATE
1. 11/27/2019
2. 04/23/2025
3. 08/19/2025
4. 09/26/2025

A	B	OPEN CHANNEL EXCAVATION DETAIL
----------	----------	---------------------------------------

STORM SEWER TRENCH DETAIL

CROSS SECTION-SPOIL LEVELING AREA

NOT TO SCALE

SPOIL LEVELING DETAIL

Diagram illustrating the Spoil Leveling Detail, showing cross-sections of a channel and adjacent fields.

- BOTTOM OF BANK:** Indicated by dashed vertical lines representing the original ground level.
- SPOIL PILES:** Shaded areas representing the material excavated from the channel and placed on the adjacent fields.
- DRAIN CENTERLINE:** A horizontal line indicating the centerline of the drain.
- EASEMENT LIMITS:** Vertical dashed lines defining the boundaries of the easement.
- TOP OF BANK:** The upper boundary of the spoil piles.
- Channel Section:** A U-shaped section at the bottom, labeled "LEAVE 10' WIDE CHANNEL AT LOW POINTS IN ADJACENT FIELD TO ALLOW OVERLAND FLOW".

NOT TO SCALE

*NOTE: 10 (MIN) ALONG SIDE INLET DITCHES, 5 (MIN) ALONG CHANNEL BANKS

VARIES

PROPOSED DRAIN BOTTOM

FILL WITH ACCEPTABLE NATIVE MATERIAL AND COMPACT

12"

12"

3'

12"

24"

12"

NON-WOVEN GEOTEXTILE FILTER FABRIC

EXISTING GROUND

MDOT PLAIN RIPRAP (8-16" MIN. DIAMETER) WITH SMALLER CRUSHED STONE (4"± DIAMETER) BETWEEN VOID

SECTION A-A

SECTION B-B

VARIES

4'

LIMITS OF RIPRAP

VARIES

TOP OF BANK

BANK SIDE SLOPES SEE PROFILE

B

BOT OF BANK

DRAIN

FLOW

FLOW

BOT OF BANK

A

PLAN VIEW

BURY UPSLOPE END OF BLANKET IN TRENCH 12" DEEP

OVERLAP END OF UPSLOPE BLANKET 12" OVER DOWNSLOPE BLANKET. SECURE WITH WOOD STAKES

OVERLAP BLANKETS SIDE BY SIDE USING A 6" OVERLAP WITH UPSLOPE BLANKET LAID OVER DOWNSLOPE BLANKET

FLOW

- 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

2 MULCH BLANKETS INSTALLATION DETAIL
NOT TO SCALE

TRENCH WIDTH TABLE

MINIMUM TRENCH WIDTH FOR N-12 PLASTIC PIPE
(PER ADS STANDARD DRAWING STD-101)

PIPE DIAMETER	TRENCH WIDTH
---------------	--------------

PIPE SIZE	SPACING, FEET	TRUSS, FEET	WIND TIMBER
4"		21"	
6"		23"	
8"		26"	
10"		28"	
12"		30"	
15"		34"	
18"		39"	
24"		48"	
30"		56"	
36"		64"	
42"		72"	
48"		80"	
60"		96"	

- NOTES:
1. CUT STUMPS FLUSH WITH GROUND SURFACE.
2. LEAVE EMBEDDED MATERIAL WITHIN THE CHANNEL BOTTOM.

A **WOODY DEBRIS MANAGEMENT**

REMOVE DEAD, LEANING & ALL ASH TREES 10' (MIN.) LANDWARD OF TOP OF BANK ON BOTH SIDES

PRESERVE LIVE TREES THAT DO NOT INTERFERE WITH CONSTRUCTION

CHANNEL CENTERLINE

30' OR GREATER

10'

10'

REMOVE TREES, SNAGS, DEADFALL AND OTHER DEBRIS FROM CHANNEL

COMPLETE CLEARING & GRUBBING AS NECESSARY TO ACCESS & COMPLETE THE WORK

NOT TO SCALE

SECTION

Labels for Section View:

- RIPRAP (12" MIN. DIAMETER) WITH SMALLER CRUSHED STONE (4"-8" DIAMETER) BETWEEN VOIDS
- ANCHOR ROCK AT RIFFLE CREST 5' MIN. INTO BANK (TYP. EACH SIDE)
- 1' MIN.
- CENTERLINE DRAIN
- VARIES
- OPEN CHANNEL SEEDING
- TOP OF BANK
- 3.5' (MIN.)
- 6" (MAX)
- 1.5' MIN.
- NON-WOVEN GEOTEXTILE FABRIC

PROFILE

Labels for Profile View:

- PROP. MAIN DRAIN BOTTOM ELEVATION
- FOOTER ROCK 18" (MIN.) DIAMETER
- POOL
- POOL ROCK 6"-8" IN DIA. WITH SMALLER CRUSHED ROCK (2"-4" DIA.) TO FILL VOIDS
- 2'
- 2' (MIN)
- RIFFLE
- 10 (MAX)
- 1
- 6" (MAX)
- DRAIN BOTTOM
- HEADER ROCK 18" (MIN.) DIAMETER
- NON-WOVEN GEOTEXTILE FABRIC, TYP. WRAP FABRIC UNDER TOP COARSE OF ROCK AT HEADER & FOOTER
- RIPRAP (12" MIN. DIAMETER) WITH SMALLER CRUSHED STONE (4"-8" DIAMETER) BETWEEN VOIDS
- 3' (MIN)
- 10' (MIN)
- 20' (MIN)

15) ROCK RIFFLE DETAIL

NOT TO SCALE

Technical drawing of a STANDARD CATCH BASIN. The drawing shows a cross-section of the basin with various components and dimensions labeled.

Labels and Dimensions:

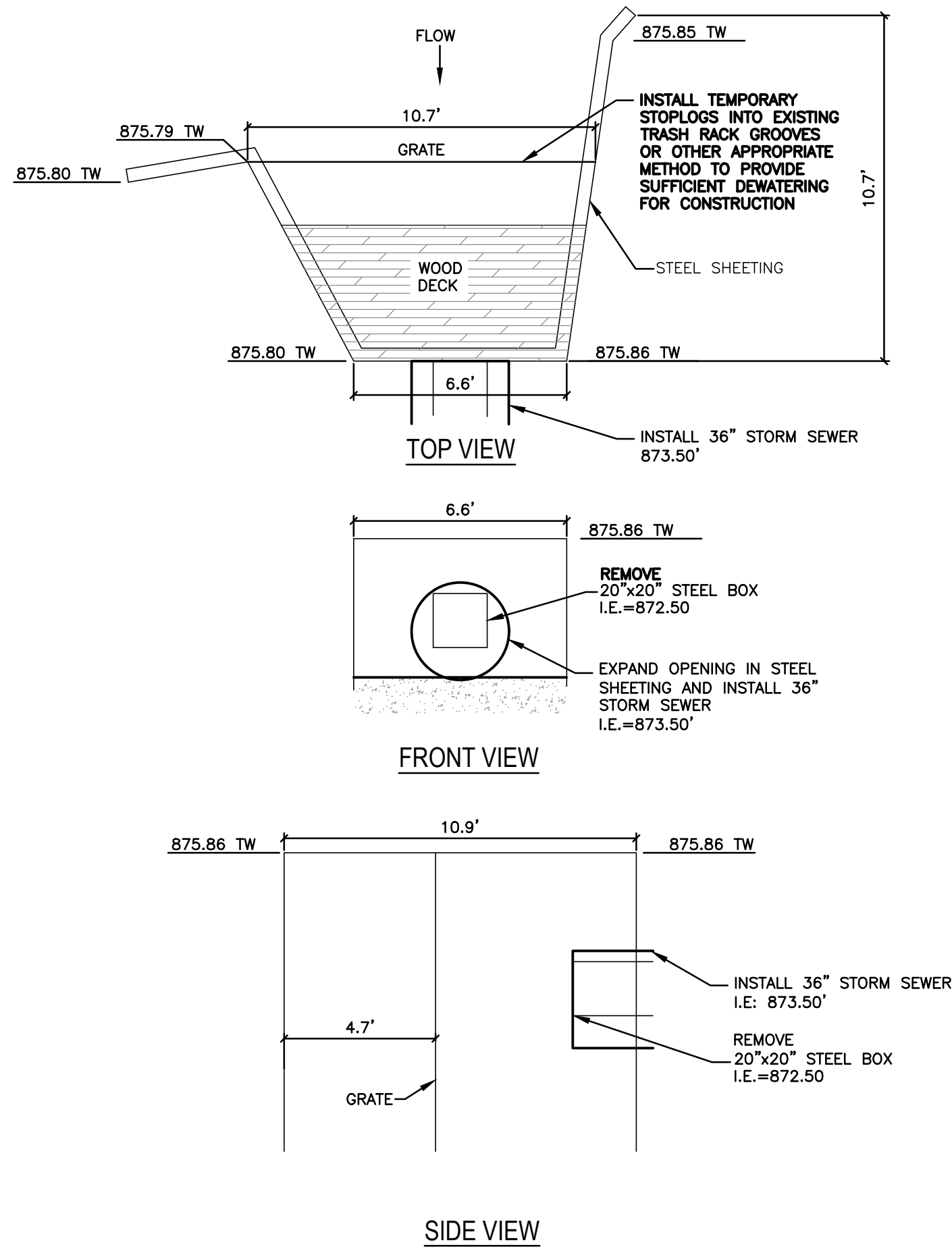
- SET FRAME IN MIN. 1" THICK MORTAR FINISHED GRADE
- PRECAST ECCENTRIC CONE
- 6" MIN.
- BRICK OR GRADE RING(S) WITH MIN. 1/2" MORTAR COATING INSIDE AND OUTSIDE
- AS INDICATED ON DRAWINGS ASTM C-478
- 6"
- PRECAST
- *NOTE: USE FLAT TOP REDUCER IN MIN. COVER SITUATIONS
- 2'-0" MIN. SUMP
- 6"
- 3" MIN.
- INTEGRAL BASE UNLESS APPROVED BY ENGINEER
- COMPACTED GRANULAR MATERIAL
- UNDISTURBED GROUND
- SET ON 4" MIN. MDOT 26A (PEA-STONE)

STANDARD CATCH BASIN

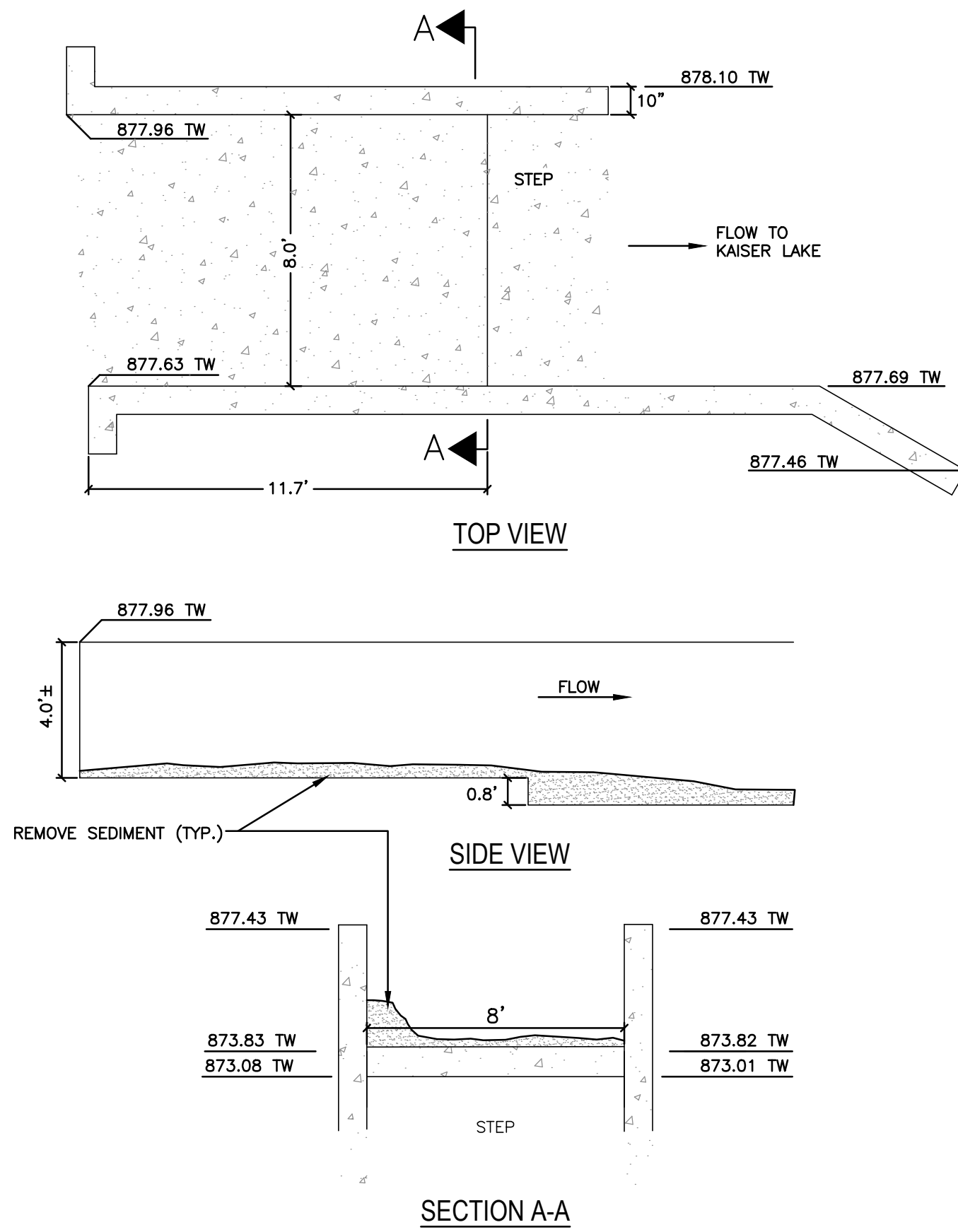
NOT TO SCALE

Diagram illustrating the proposed pipe installation structure, showing the layers and materials to be used:

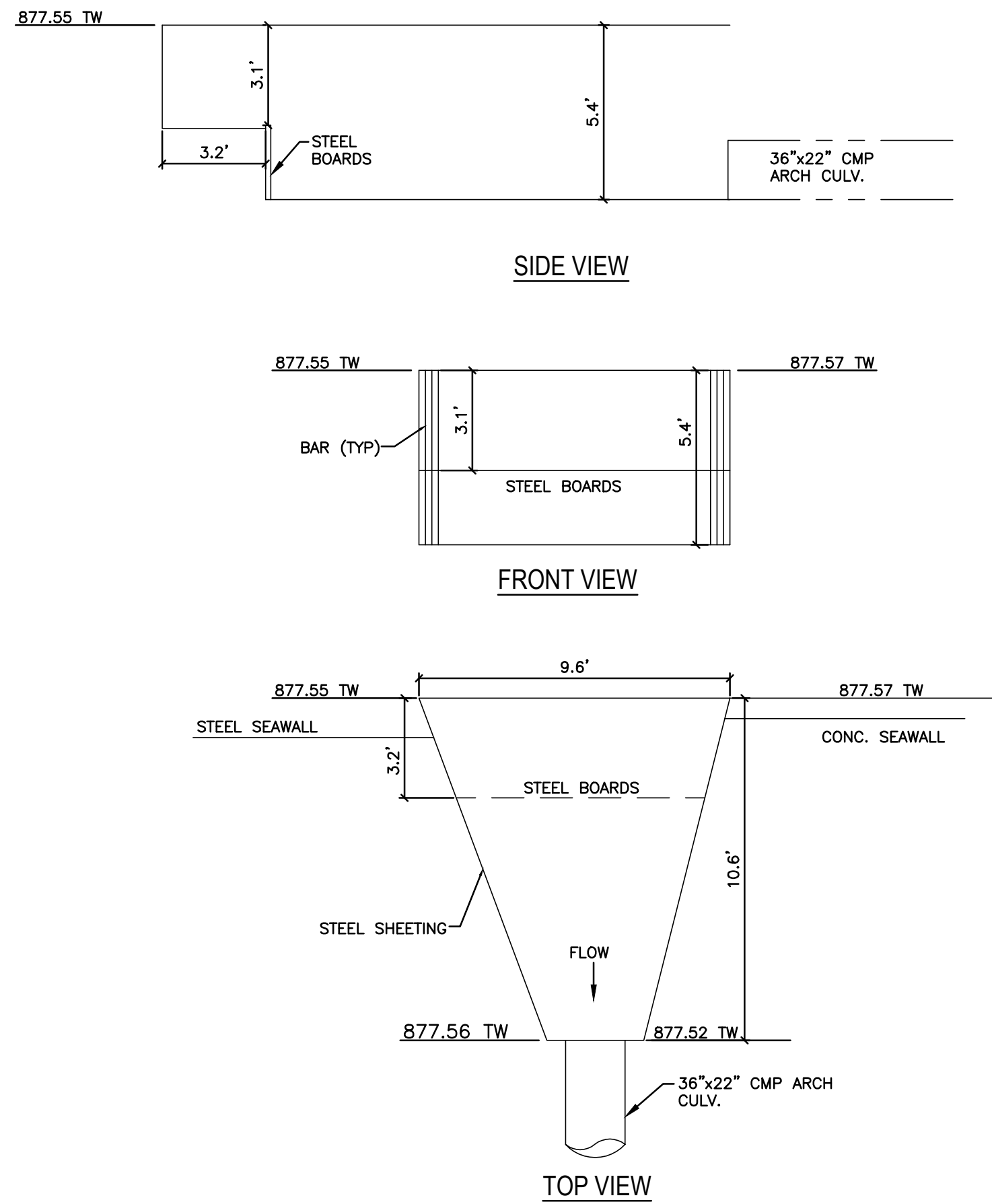
- SAWCUT LIMITS OF EX. PAVEMENT PRIOR TO REMOVAL
- IMPORTED MDOT CLASS II SAND COMPACT TO 95% MAXIMUM UNIT WEIGHT.
- PROPOSED CENTERLINE GRADE
- 2" 13A BIT, LEVELING COARSE
- 2" 13A BIT, BASE COARSE
- 8" MDOT 22A DENSE GRADED AGGREGATE BASE COMPACTED TO A MINIMUM OF 98% OF ITS MAX UNIT WEIGHT
- PROPOSED PIPE
- GEOTEXTILE FABRIC (TYP.)
- MDOT 26A (3/4") PEASTONE TO HAUNCHES
- LIMITS OF PAVEMENT REMOVAL
- 12"
- 12"
- 6" MIN.



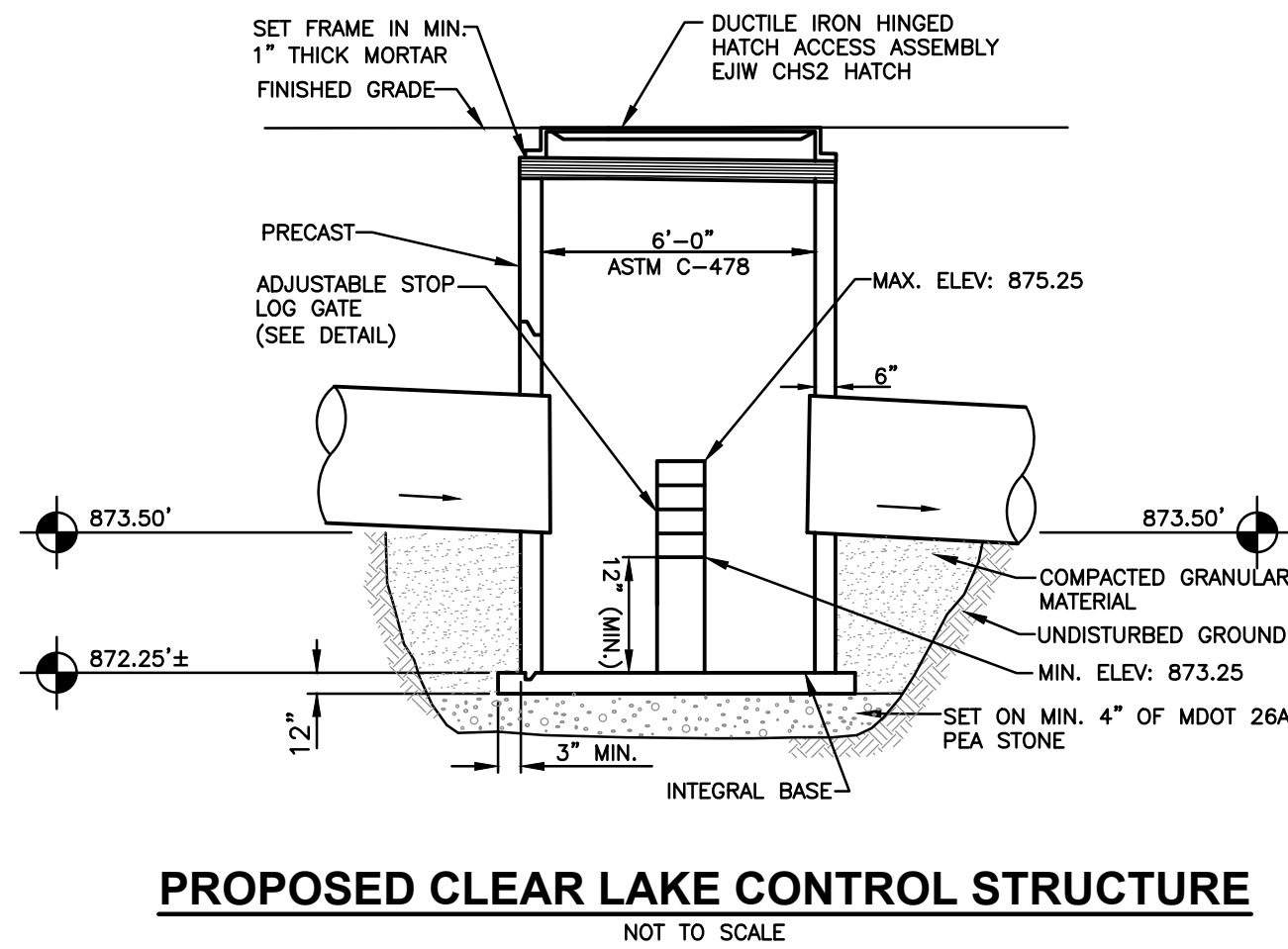
EXISTING CONTROL STRUCTURE CLEAR LAKE
SCALE: 1"=4'
ELEVATIONS ARE BASED ON NGVD 29



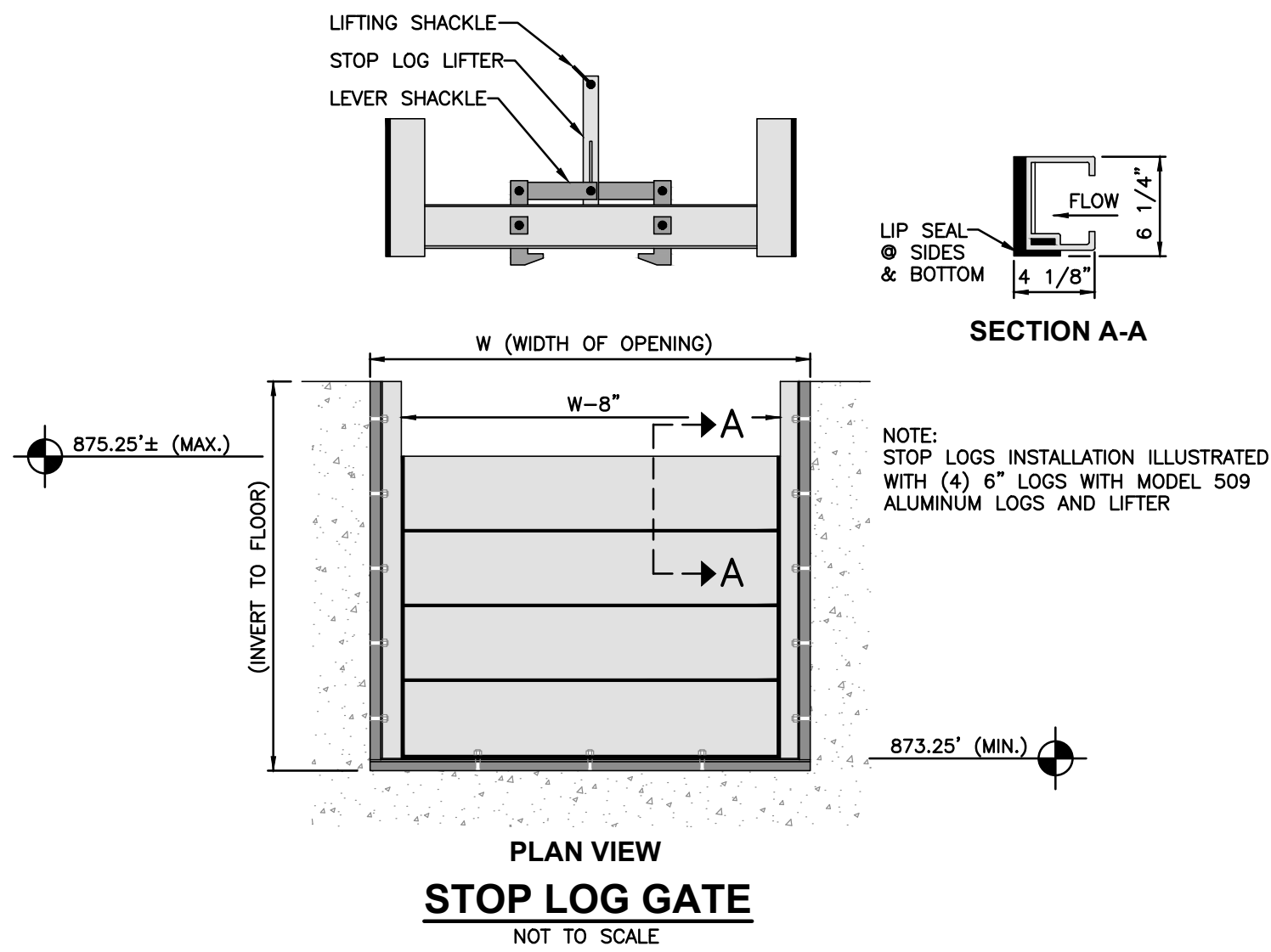
EXISTING CONTROL STRUCTURE KAISER LAKE TO COREY LAKE
SCALE: 1"=4'
ELEVATIONS ARE BASED ON NGVD 29



EXISTING CONTROL STRUCTURE COREY LAKE
SCALE: 1"=4'
ELEVATIONS ARE BASED ON NGVD 29



PROPOSED CLEAR LAKE CONTROL STRUCTURE
NOT TO SCALE



**PLAN VIEW
STOP LOG GATE**
NOT TO SCALE



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.

REVISIONS:	NO.	DATE	ISSUED FOR
1.	11/27/2019	DRAFT REVIEW	
2.	04/23/2025	BIDS & CONSTRUCTION	
3.	09/19/2025	FOR CONSTRUCTION	
4.	09/26/2025	BULLETIN NO. 1	

CLIENT:	PROJECT:
COREY LAKE INTERCOUNTY DRAIN DRAINAGE BOARD INDARD 528 W. ALLEGAN STREET, LANSING, MICHIGAN 48933	COREY LAKE INTERCOUNTY DRAIN CASS AND ST. JOSEPH COUNTIES, MICHIGAN

PROJECT NUMBER:	DATE
19478	11/2019
SURVEYED BY: CRY-ADK	06/2022
DESIGNED BY: AWS	11/2019
DRAFTED BY: RAG	03/2025
CADC-DJF	

SHEET NAME:	SHEET NUMBER:
LAKE LEVEL STRUCTURE DETAILS	C6