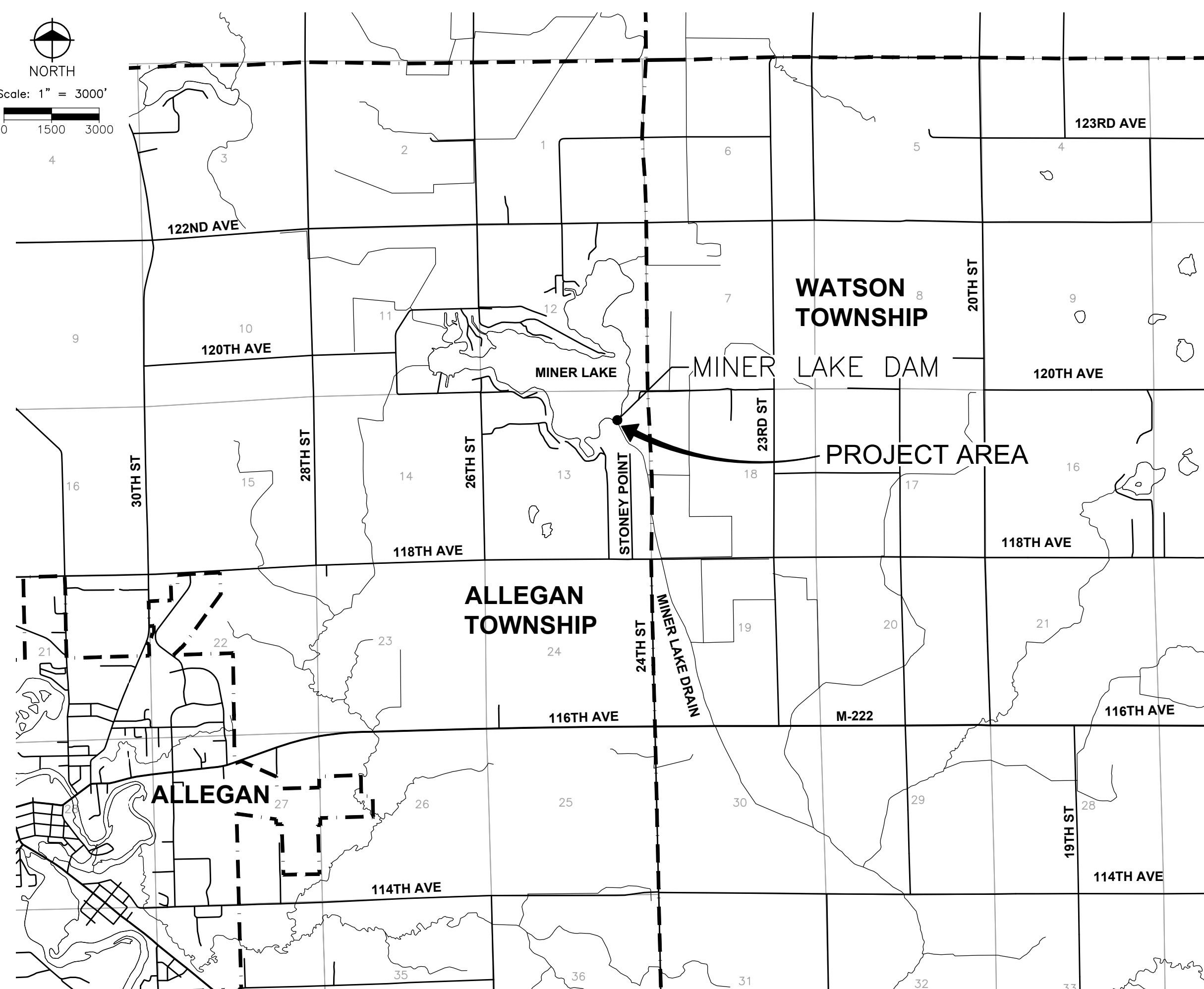
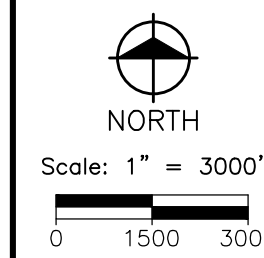
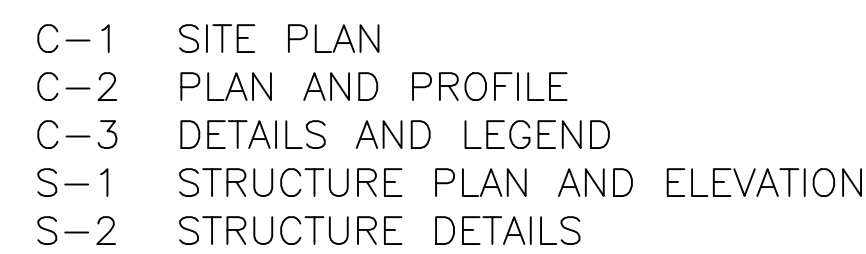


Project Number G120841



COUNTY ROADS:
MR. LARRY BROWN
ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010
269-673-2184

shbeck, thompson, carr & huber, inc.

Miner Lake Dam Replacement

| | |
|------------|--------------|
| 08/03/2016 | CONSTRUCTION |
|------------|--------------|

| | |
|------------|-----------------------|
| 01/08/2015 | BIDS AND CONSTRUCTION |
|------------|-----------------------|

Drawn By MB2

Designer CES

Reviewer MLB

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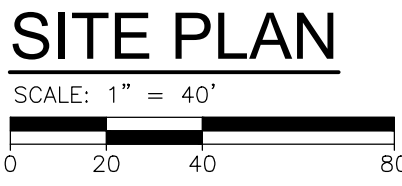
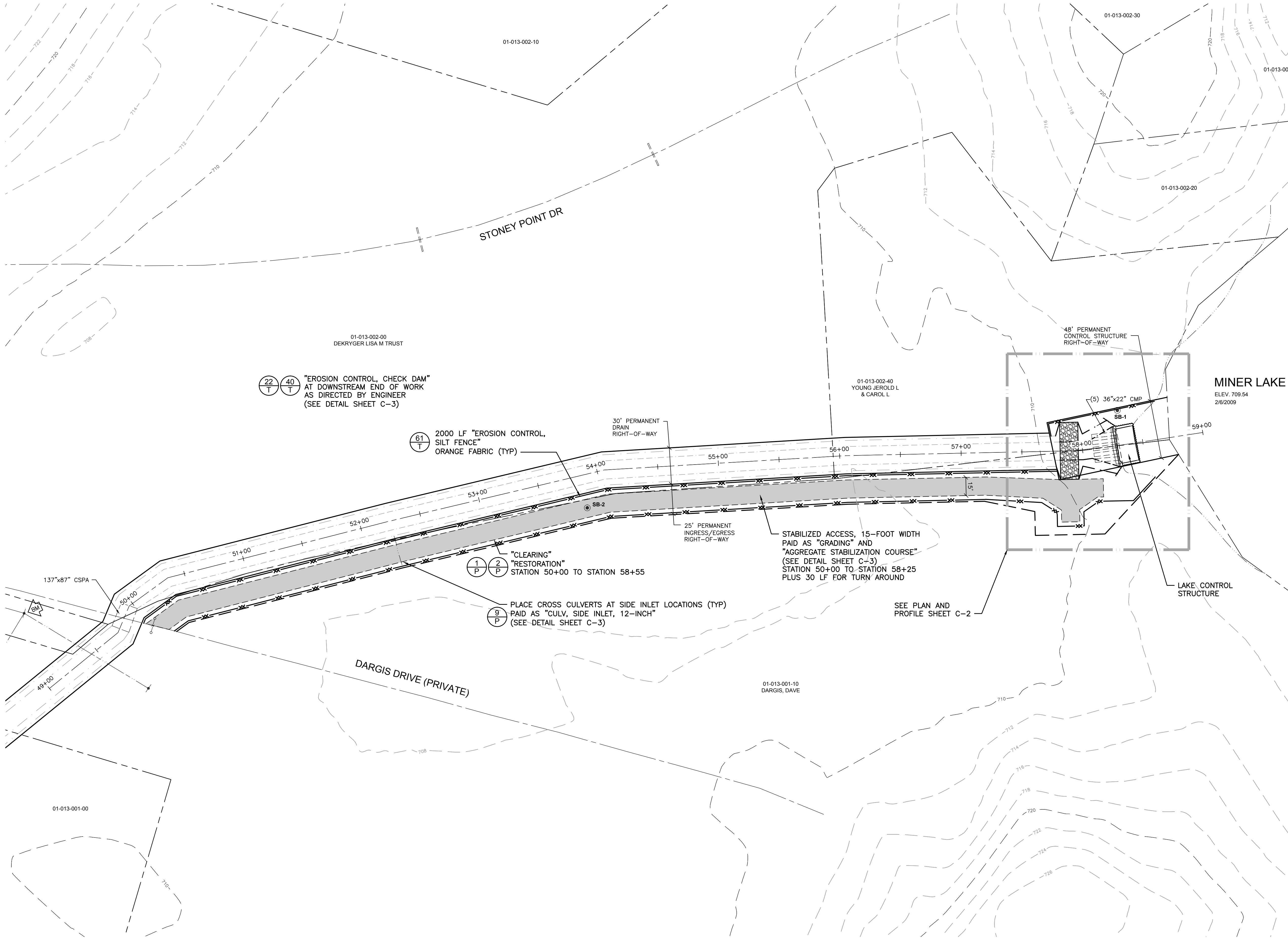
PROJECT NO.

G120841

SHEET NO.

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Allegan County Drain Commissioner

Allegan Township, Allegan County, Michigan

Miner Lake Dam Replacement

CONTROL

- HORIZONTAL DATUM: MICHIGAN STATE PLANE SOUTH ZONE, NAD83
- VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

BENCH MARK

BENCH MARK ELEVATION: 711.90
COTTON SPINDLE IN WEST SIDE UTILITY POLE 75FT SOUTH OF MINER LAKE DRAIN; 17FT EAST OF DRIVEWAY TO HOUSE; 2.5FT ABOVE GROUND.

CONSTRUCTION NOTES

- TOPOGRAPHY SHOWN REPRESENTS CONDITIONS AT THE TIME THE INFORMATION WAS GATHERED. FIELD VERIFY EXISTING CONDITIONS.
- PERFORM TEMPORARY BYPASS DIVERSION AND/OR PUMPING NECESSARY TO COMPLETE THE WORK AND MAINTAIN LEGAL LAKE LEVEL AT NO ADDITIONAL COST TO OWNER.
- CLEARING - CLEAR ONLY MARKED TREES WITHIN RIGHT-OF-WAY FOR ACCESS. REMOVE BRUSH AND TREES FROM SITE.
- GRADING - REMOVE ALL EXCESS MATERIAL FROM SITE.
- RESTORATION - SALVAGE AND RESPREAD EXISTING TOPSOIL AS NEEDED. SEED AND MULCH ALL DISTURBED AREAS WITHIN CONSTRUCTION LIMITS.
- MAINTAIN AND RESTORE HAUL ROADS USED DURING CONSTRUCTION TO EXISTING CONDITION, AS DETERMINED BY ENGINEER AT NO ADDITIONAL COST TO OWNER.
- RESTORE ALL PAVED SURFACES, LAWNS OR OTHER IMPROVEMENTS DAMAGED OR DISTURBED DURING CONSTRUCTION TO EQUAL OR BETTER CONDITION AND TO THE SATISFACTION OF THOSE HAVING JURISDICTION AT NO ADDITIONAL COST TO OWNER.

LEGAL LAKE LEVEL

| SEASON | NGVD29 | NAVD88 |
|--------|--------|--------|
| SUMMER | 711.0 | 710.55 |
| WINTER | 710.0 | 709.55 |

DATA SOURCES

- TOPOGRAPHIC SURVEY CONDUCTED BY FTC&H, 2009
- SURVEY STATIONING FROM ALLEGAN COUNTY DRAIN COMMISSIONER MINER LAKE DRAIN PROJECT (FTC&H RECORD DRAWINGS JUNE 2010)
- 2 FOOT CONTOURS FROM ALLEGAN COUNTY LAND INFORMATION SERVICES (ACLIS)
- PARCEL INFORMATION FROM ACLIS, 2009
- DRAIN RIGHT-OF-WAY "15 FEET ON EACH SIDE OF CENTERLINE", FROM FINAL ORDER DATED JUNE 15, 1887.
- EASEMENT FOR CONTROL STRUCTURE FROM RELEASE OF RIGHT-OF-WAY DATED JULY 30, 1965.
- INGRESS/EGRESS RIGHTS-OF-WAY INCLUDED IN PROJECT MANUAL AND ON FILE AT THE OFFICE OF THE ALLEGAN COUNTY DRAIN COMMISSIONER.

PAY QUANTITIES

| TOTAL | UNIT | ITEM |
|-------|------|--------------------------------|
| 1 | LS | Mobilization |
| 855 | LF | Clearing |
| 855 | LF | Grading |
| 1 | EA | Erosion Control, Check Dam |
| 2,000 | LF | Erosion Control, Silt Fence |
| 855 | LF | Aggregate Stabilization Course |
| 4 | EA | Culv, Side Inlet, 12 inch |
| 855 | LF | Restoration |

08/03/2016 [CONSTRUCTION]
01/08/2015 [BIDS AND CONSTRUCTION]

Drawn By MB2
Designer CES
Reviewer M.L.B
Manager CES

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PROJECT NO.
G120841

SHEET NO.

C-1



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scientists

architects

constructors

fishbeck.thompson.carr & huber, inc.

Allegan County Drain Commissioner

Allegan Township, Allegan County, Michigan

Miner Lake Dam Replacement

CONTROL

- HORIZONTAL DATUM: MICHIGAN STATE PLANE SOUTH ZONE, NAD 83
- VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88)

BENCH MARK

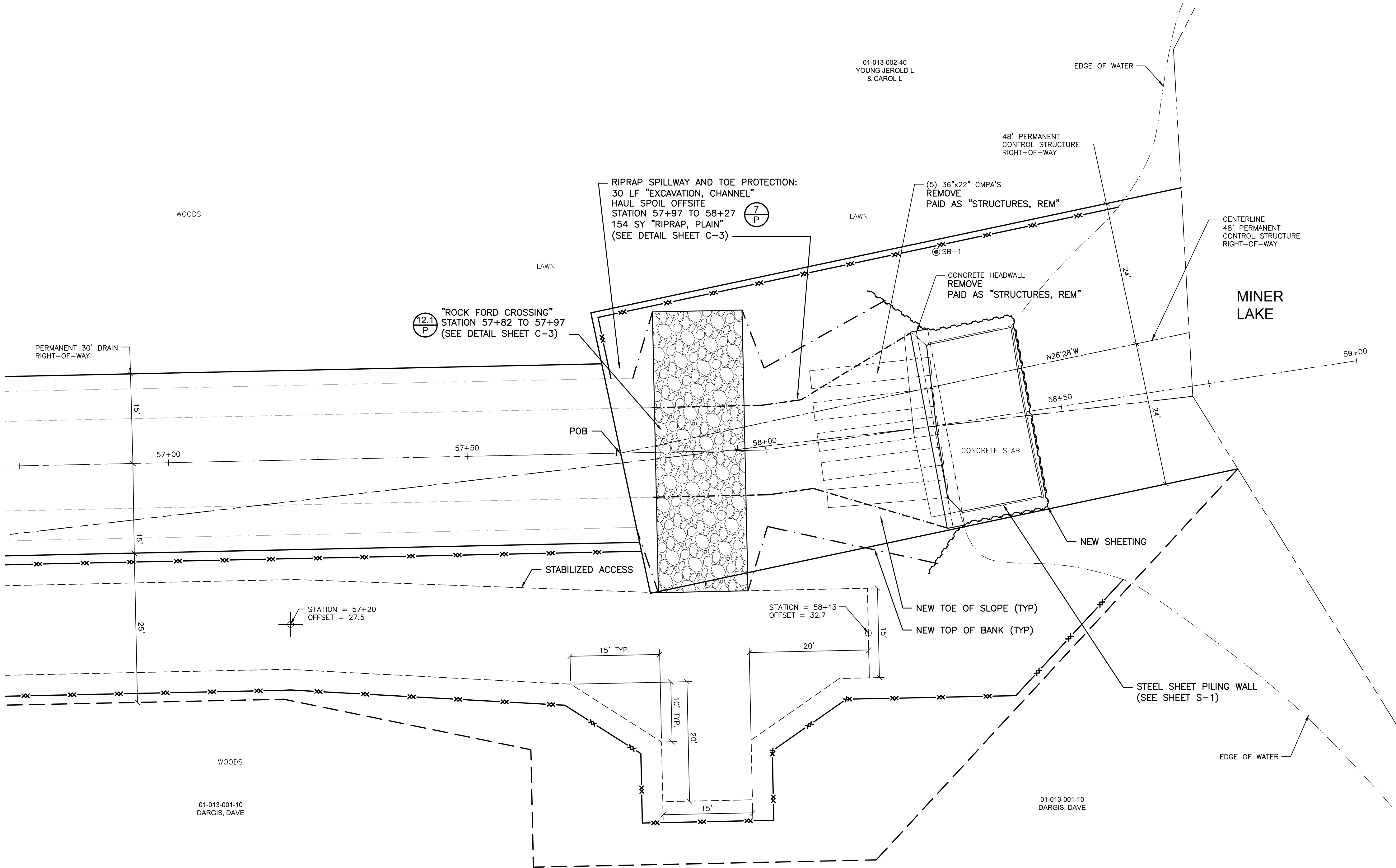
BENCH MARK ELEVATION: 711.90
COTTON SPINDLE IN WEST SIDE UTILITY POLE 75FT SOUTH OF MINER LAKE DRAIN; 17FT EAST OF DRIVEWAY TO HOUSE; 2.5FT ABOVE GROUND.

DATA SOURCES

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- PARCEL INFORMATION FROM ACLIS, 2009
- DRAIN RIGHT-OF-WAY "15 FEET ON EACH SIDE OF CENTERLINE", FROM FINAL ORDER DATED JUNE 15, 1887.
- EASEMENT FOR CONTROL STRUCTURE FROM RELEASE OF RIGHT-OF-WAY DATED JULY 30, 1965. POB FROM FTC&H 2013 CONTROL SURVEY IS 956' WEST AND 4,322' NORTH OF THE SOUTHEAST CORNER OF SECTION 13, T2N, R3W, WHICH VARIES FROM RECORDED DISTANCES OF 1,064' WEST AND 4,344 FEET NORTH.
- INGRESS-EGRESS RIGHTS-OF-WAY INCLUDED IN PROJECT MANUAL AND ON FILE AT THE OFFICE OF THE ALLEGAN COUNTY DRAIN COMMISSIONER.

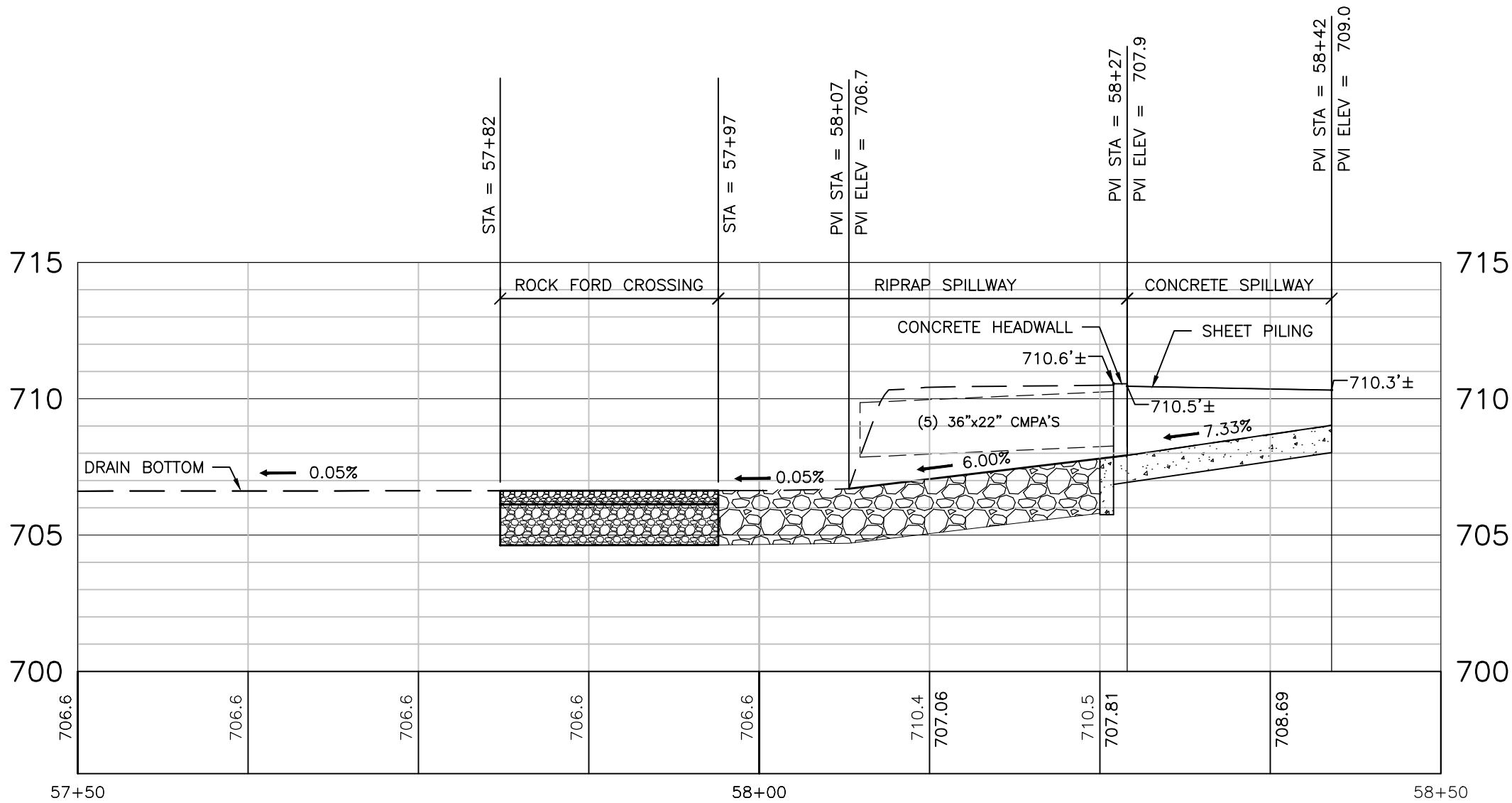
PAY QUANTITIES

| TOTAL | UNIT | ITEM |
|-------|------|---------------------|
| 1 | LS | Structures, Rem |
| 30 | LF | Excavation, Channel |
| 1 | EA | Rock Ford Crossing |
| 154 | SY | Riprap, Plain |



PLAN AND PROFILE

SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



08/03/2016 [CONSTRUCTION]
01/08/2015 [BIDS AND CONSTRUCTION]

Drawn By MB2
Designer CES
Reviewer MLB
Manager CES

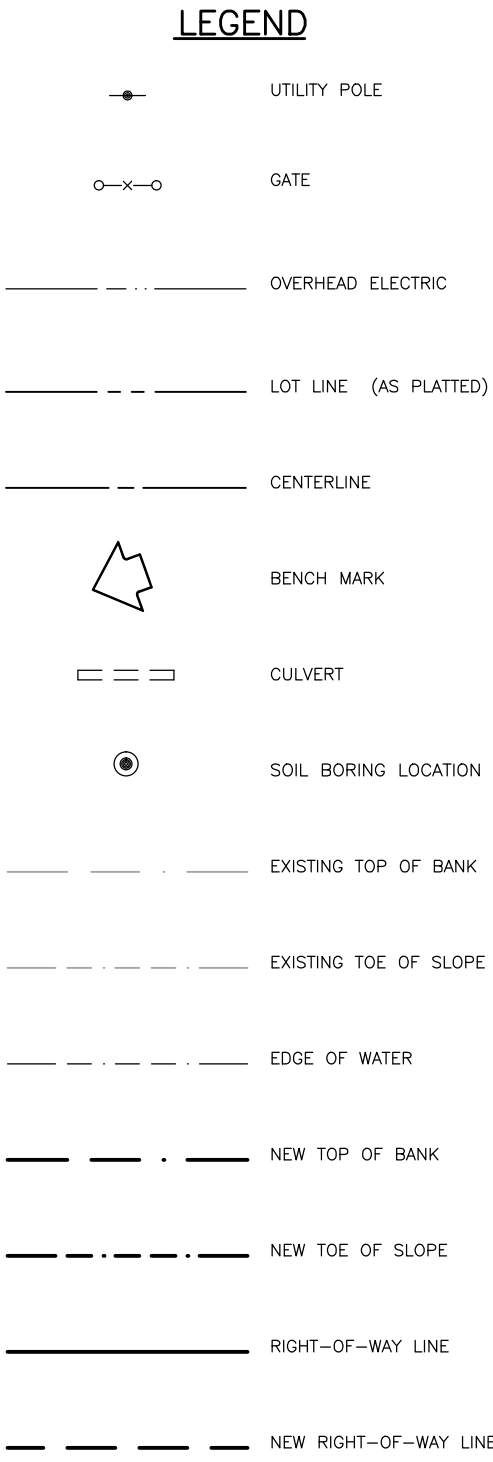
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PROJECT NO.
G120841

SHEET NO.

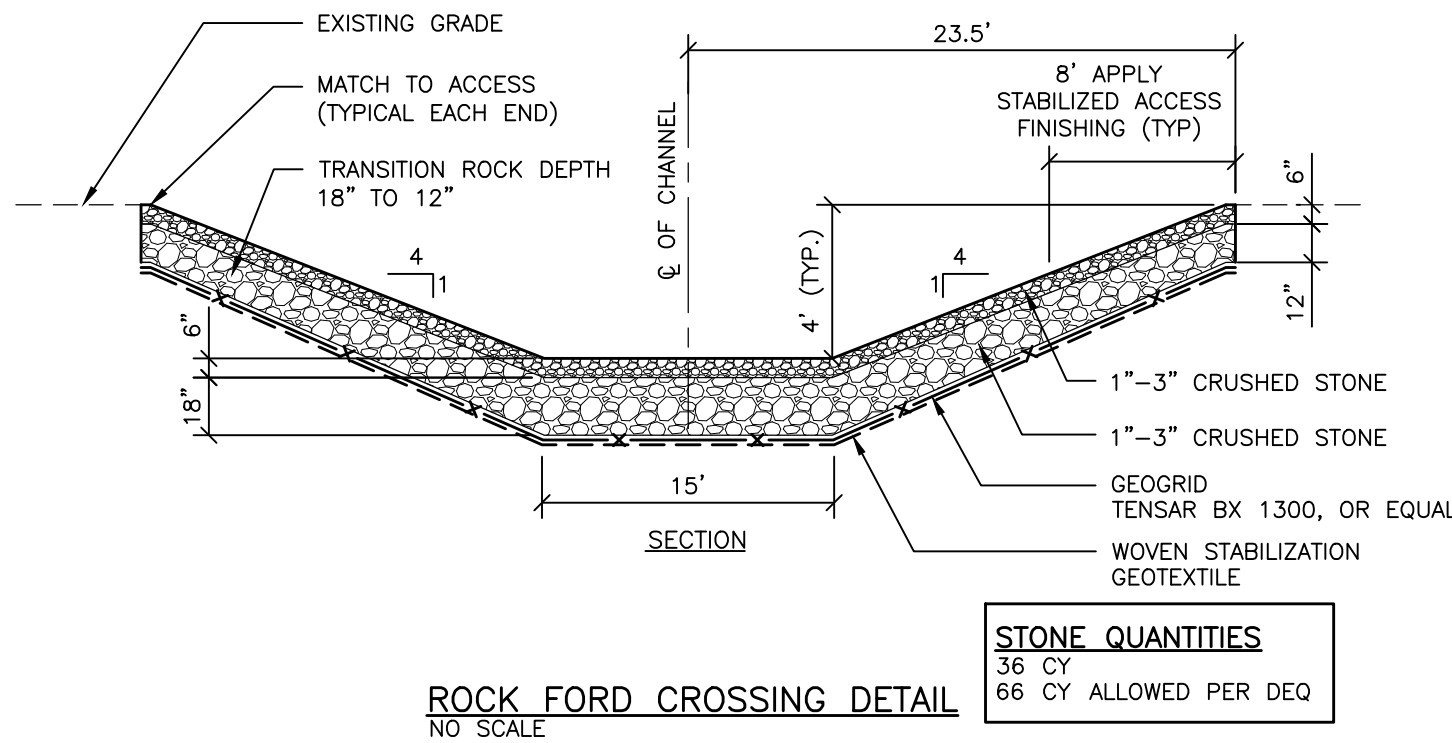
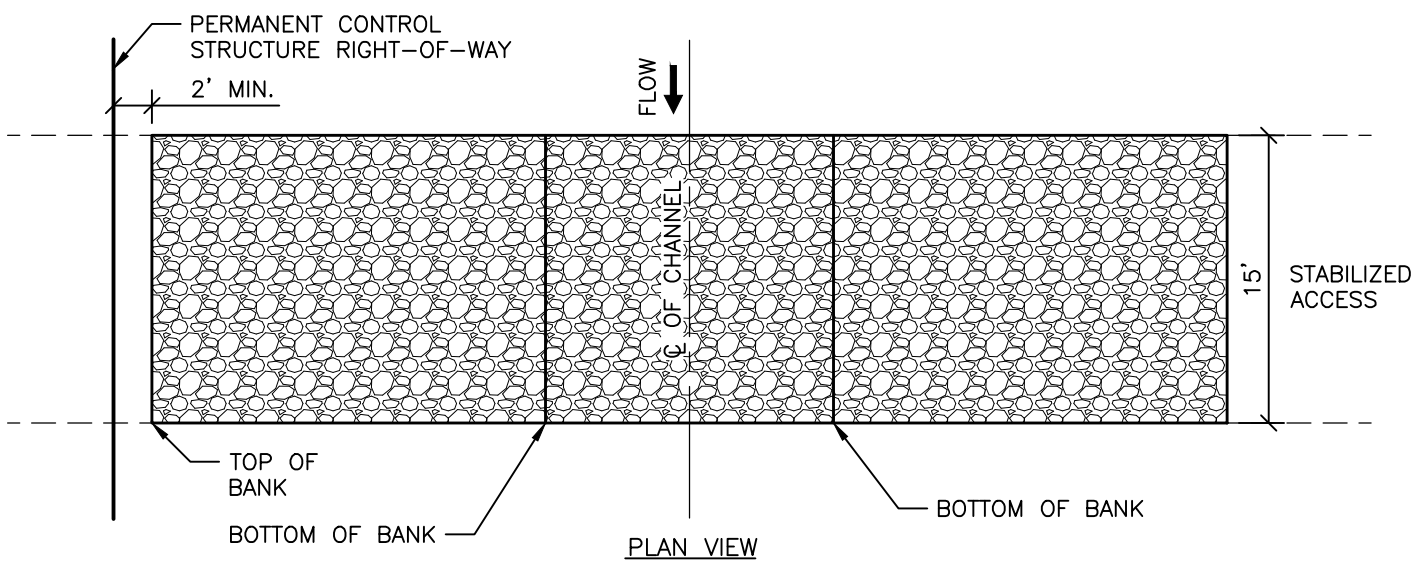
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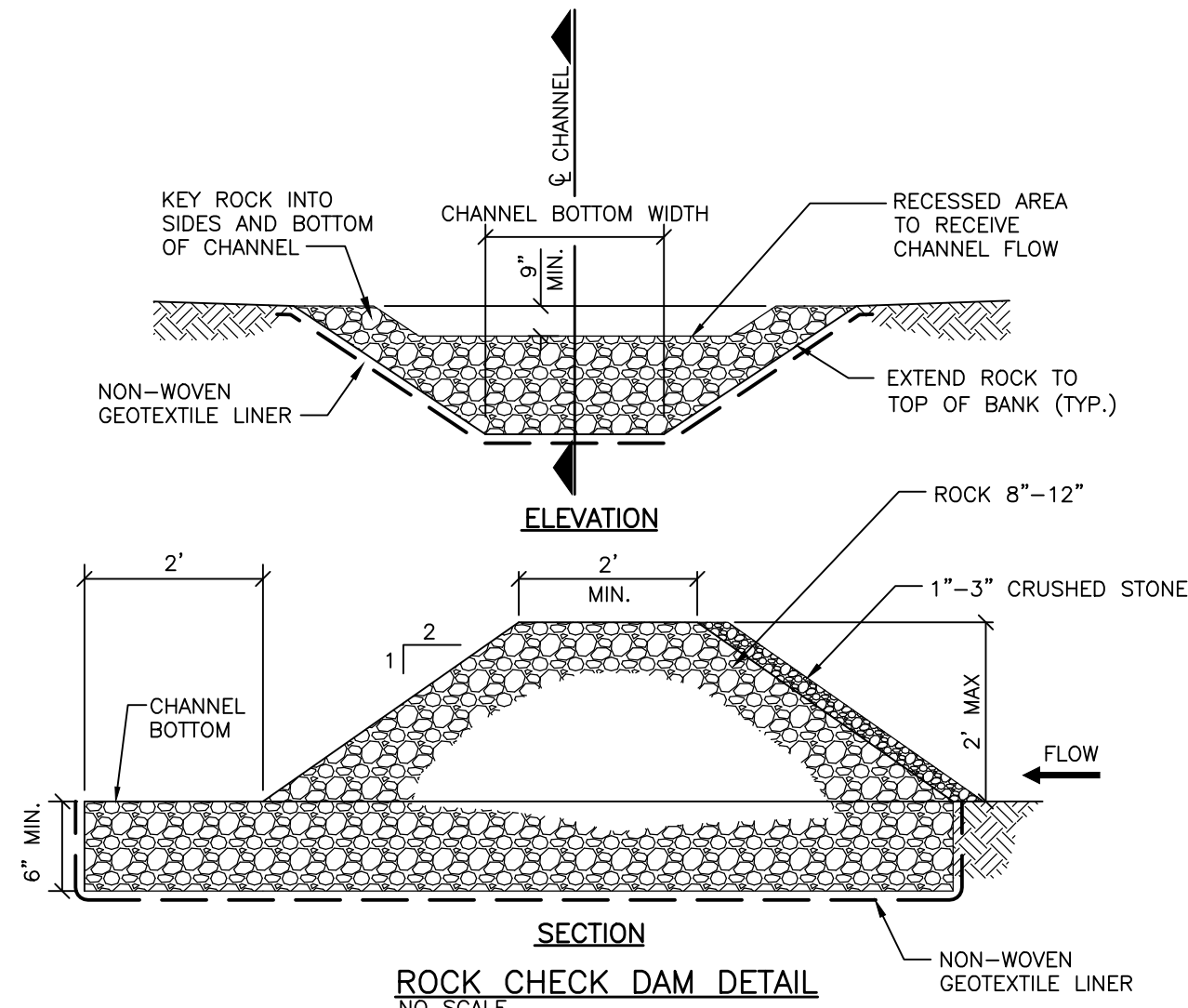
MACDC EROSION CONTROL MEASURES

| 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 when areas are subject to rainfall impact, and erosive forces from wind or water. |
| 2 | MULCH | | On flat areas, mild slopes, grassed waterways and spillways, diversion ditches and dikes, borrow and stockpile areas, and spoil piles when areas are subject to rainfall impact, and erosive forces from wind or water. |
| 7 | RIPRAP | | Along drain banks, shorelines, or where concentrated flows occur. Slows velocity, reduces erosion and sediment load. |
| 9 | OUTFALL STABILIZATION | | In the stream or drain bank usually above the ordinary high water mark where an enclosed drain or the discharges to an open drain. |
| 12.1 | CROSSING - FORD DRAIN | | Where access to the opposite side of a drain is required and crossing the drain by fording will result in less damage than constructing a crossing. |
| 22 | SAND OR STONE FILLED BAGS | | Within or adjacent to a stream to isolate or divert flow during construction. Can also be used to temporarily impound water for very short time periods. |
| 40 | CHECK DAM | | In constructed and existing flow corridors to reduce flow velocities. |
| 61 | SILT FENCE | | As a temporary measure used to capture sediment from sheet flow. May also divert small volumes of sheet flow to protected outlets. |



ROCK FORD CROSSING DETAIL

NO SCALE



RIPRAP TOE PROTECTION ROCK QUANTITIES

10 SY

5 CY

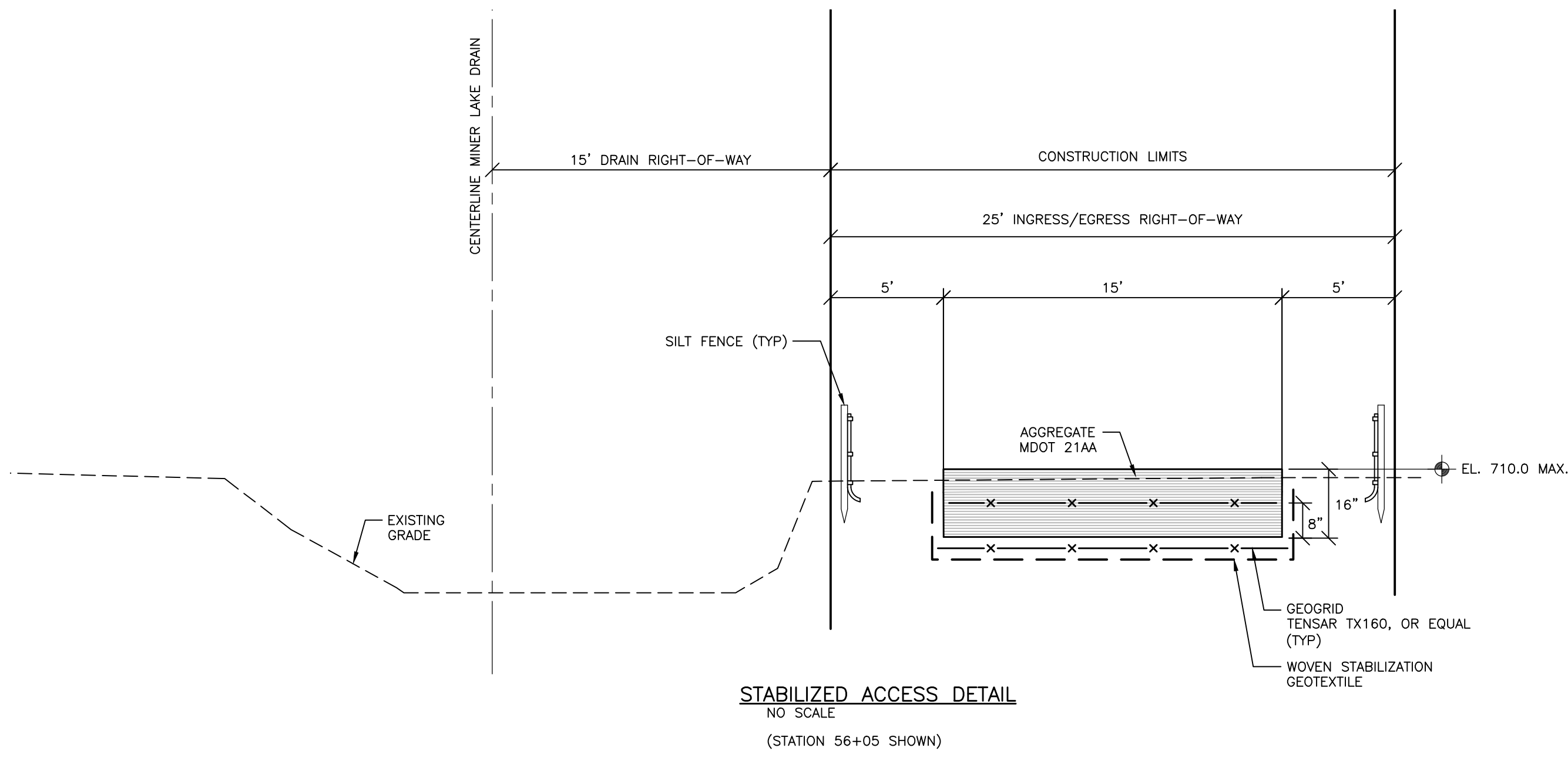
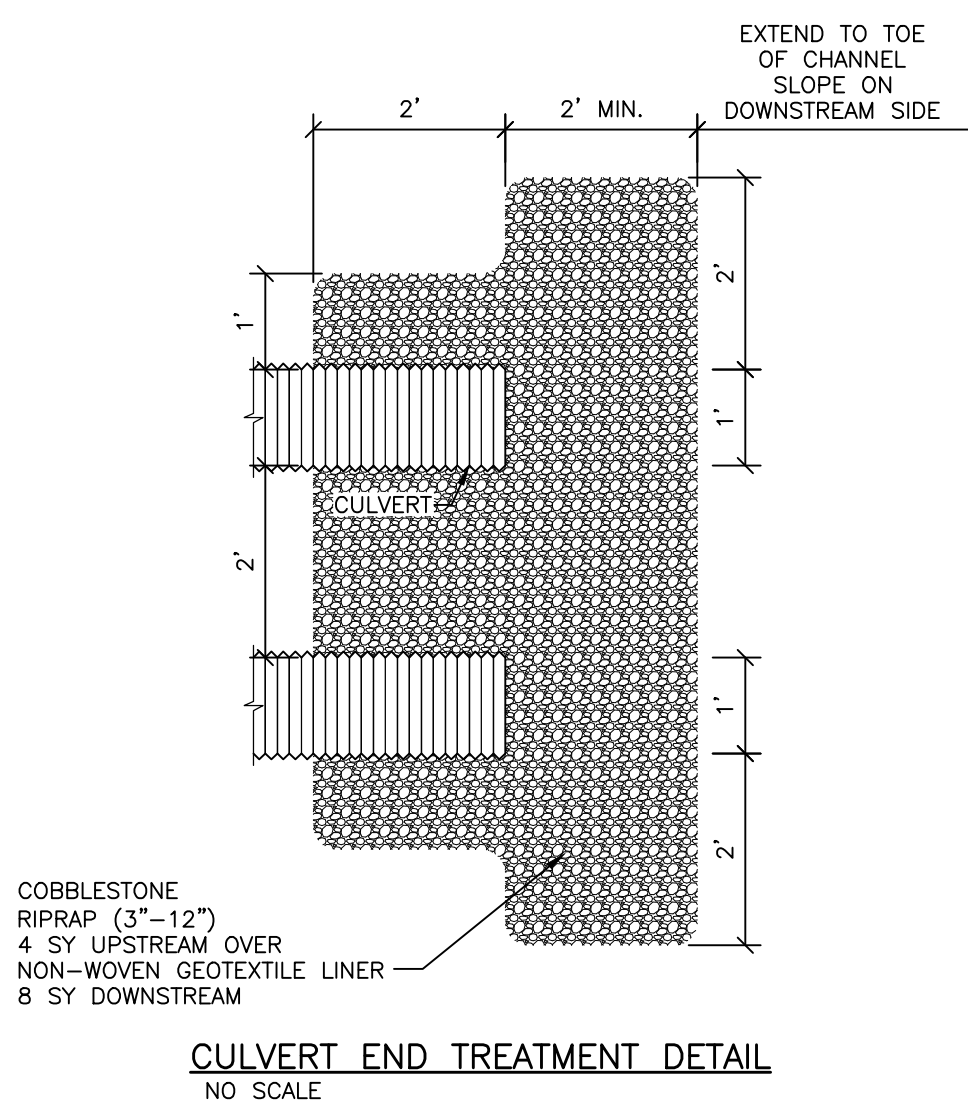
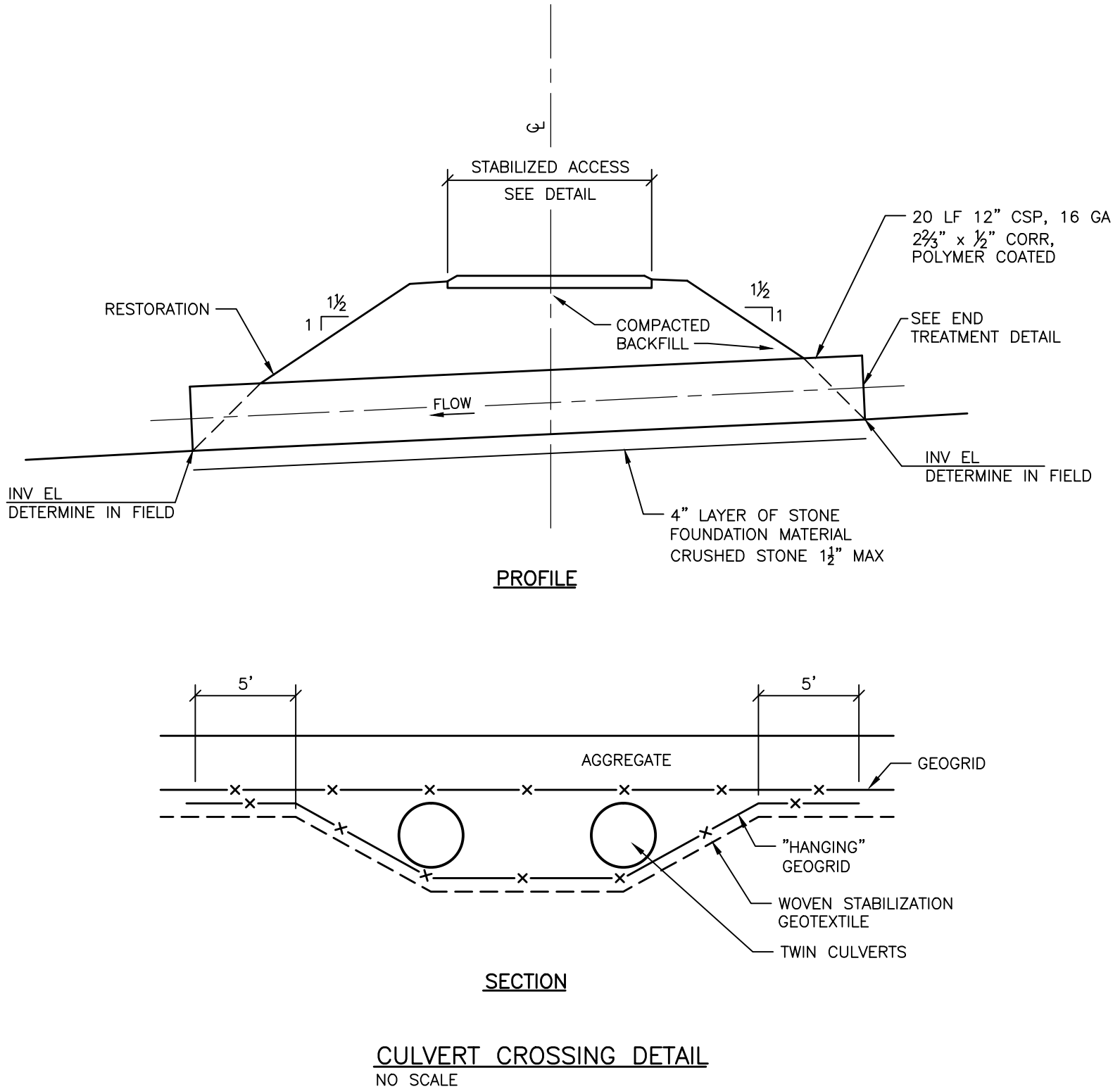
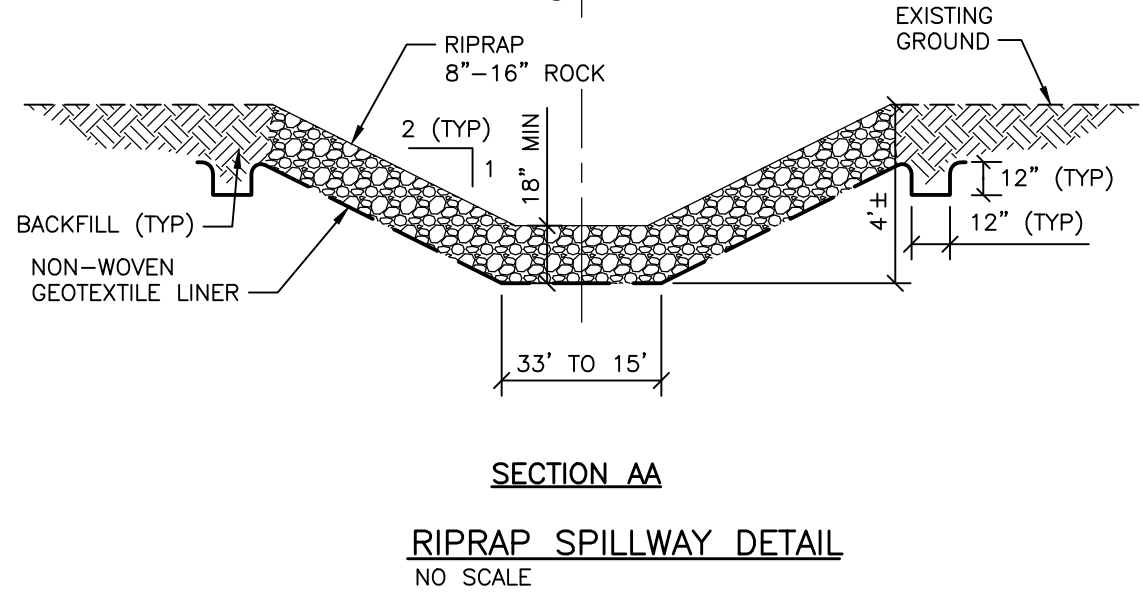
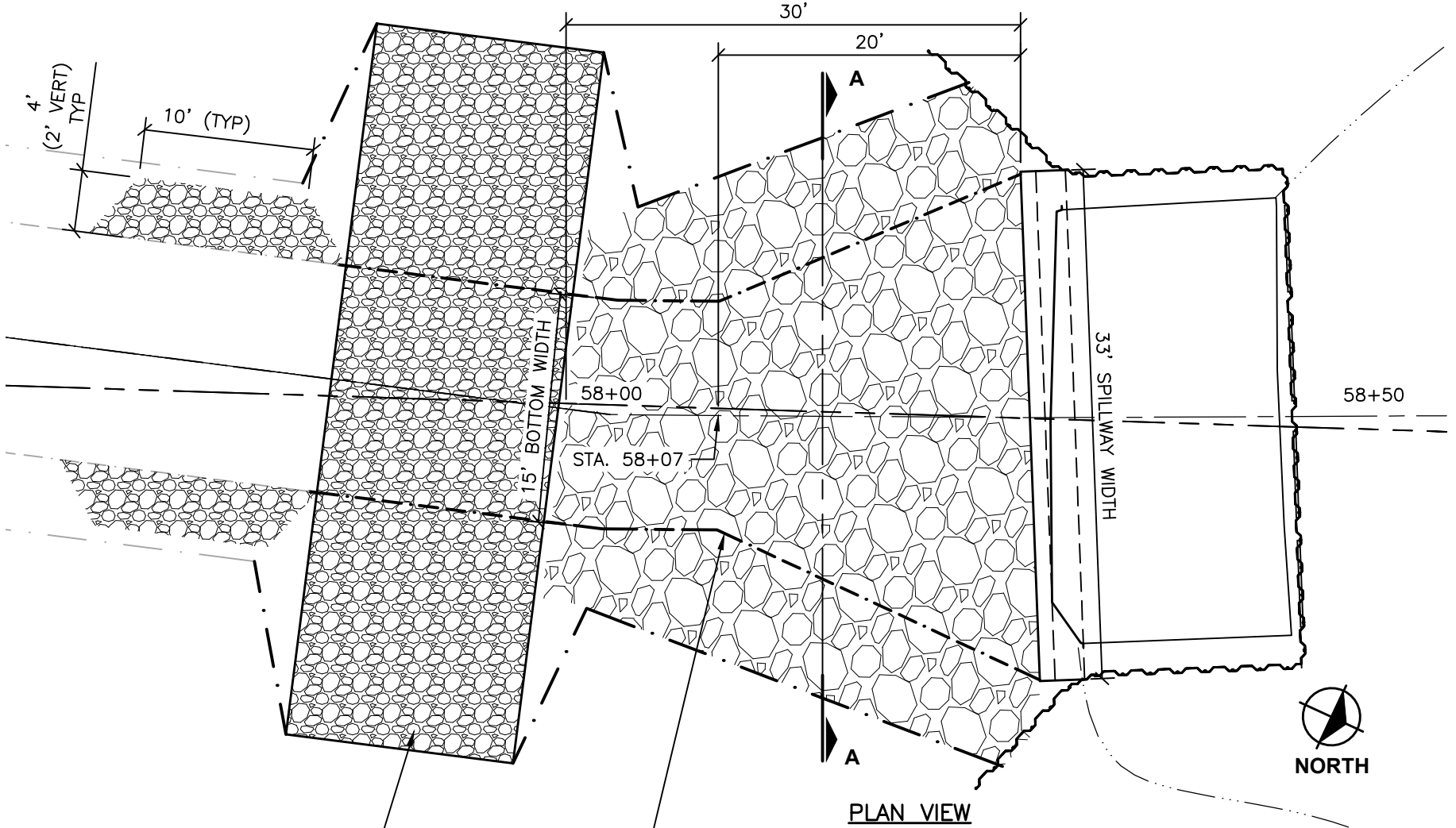
RIPRAP SPILLWAY ROCK QUANTITIES

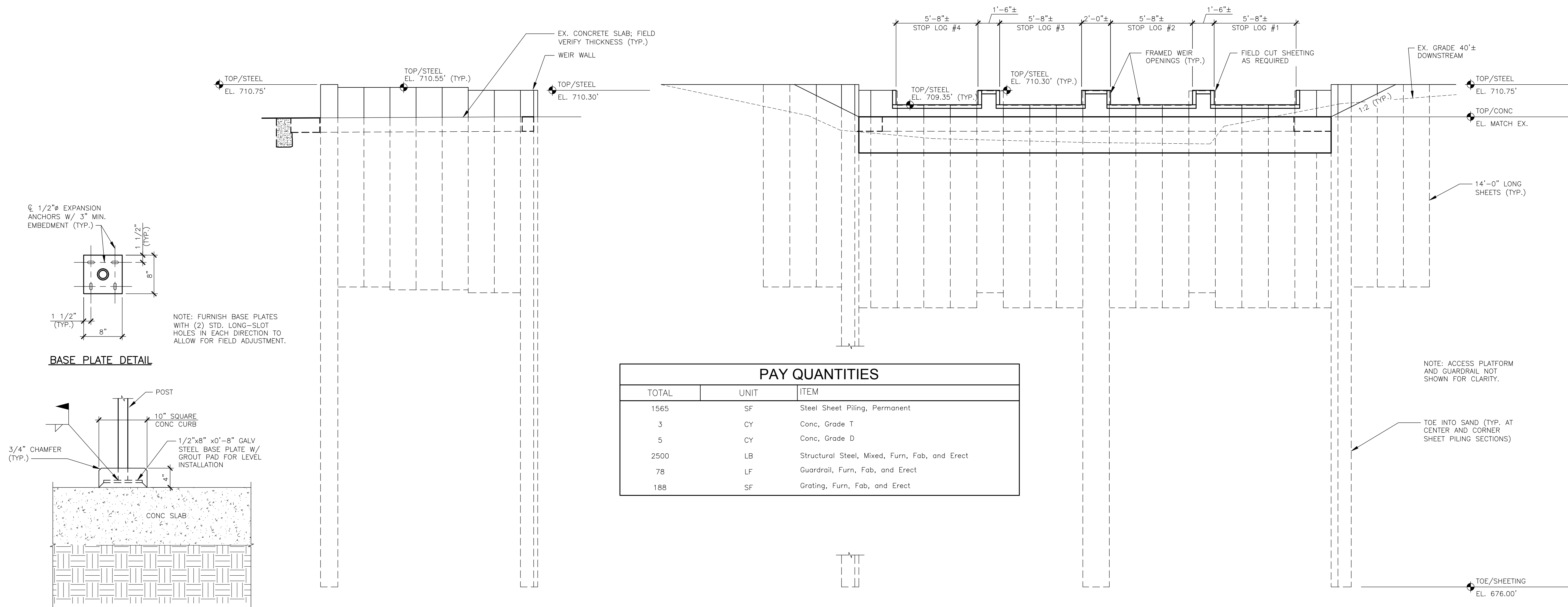
140 SY (+4 SY CONTINGENCY)

70 CY (+2 CY CONTINGENCY)

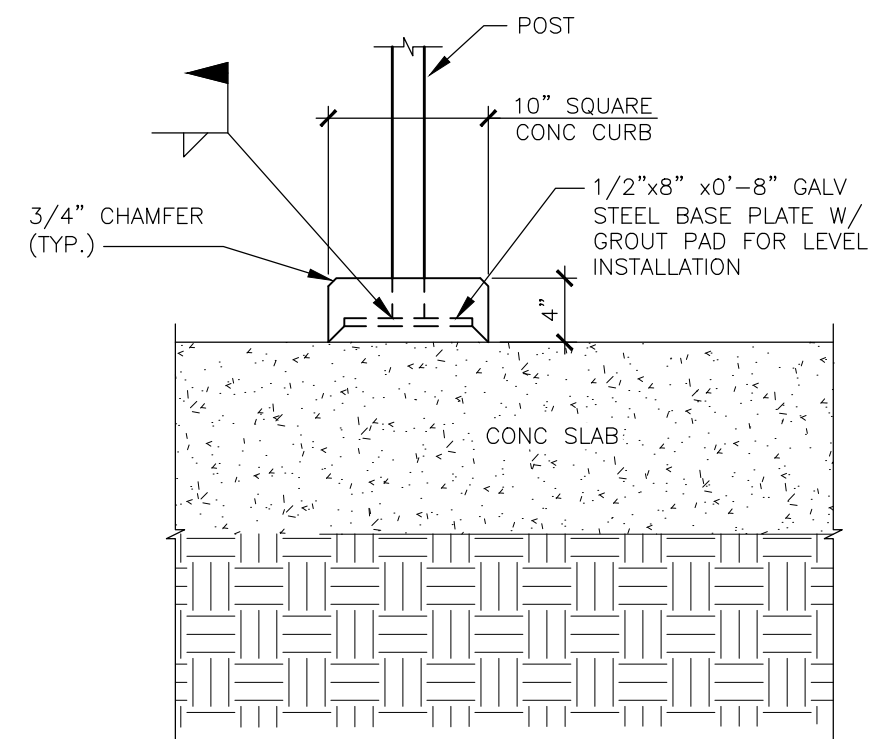
77 CY TOTAL ALLOWED PER DEQ

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Michigan's Utility Notification Organization
1-800-482-7171
on the net at: www.missdig.org





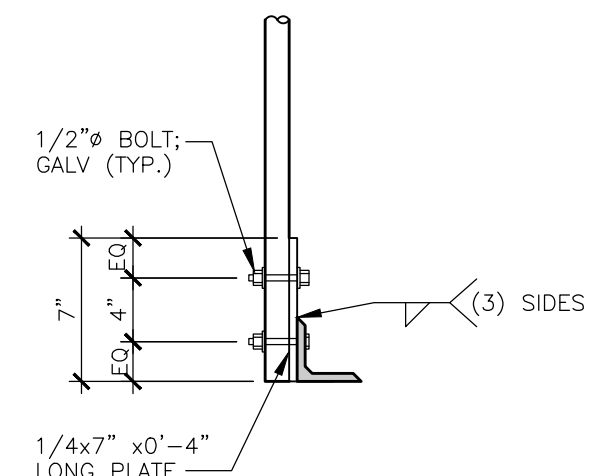
BASE PLATE DETAIL



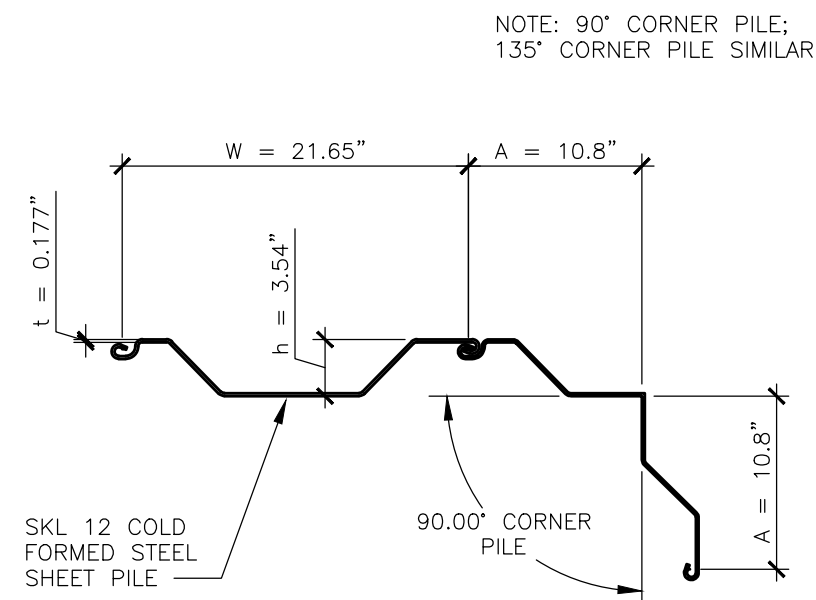
POST BASE PLATE AND CURB DETAIL
SCALE: 1" = 1'-0"

B ELEVATION
SCALE: 1/4" = 1'-0"

A ELEVATION
SCALE: 1/4" = 1'-0"



RAILING POST CONNECTION
NO SCALE



SHEET PILE DETAIL
SCALE: 1" = 1'-0"

DESIGN DATA

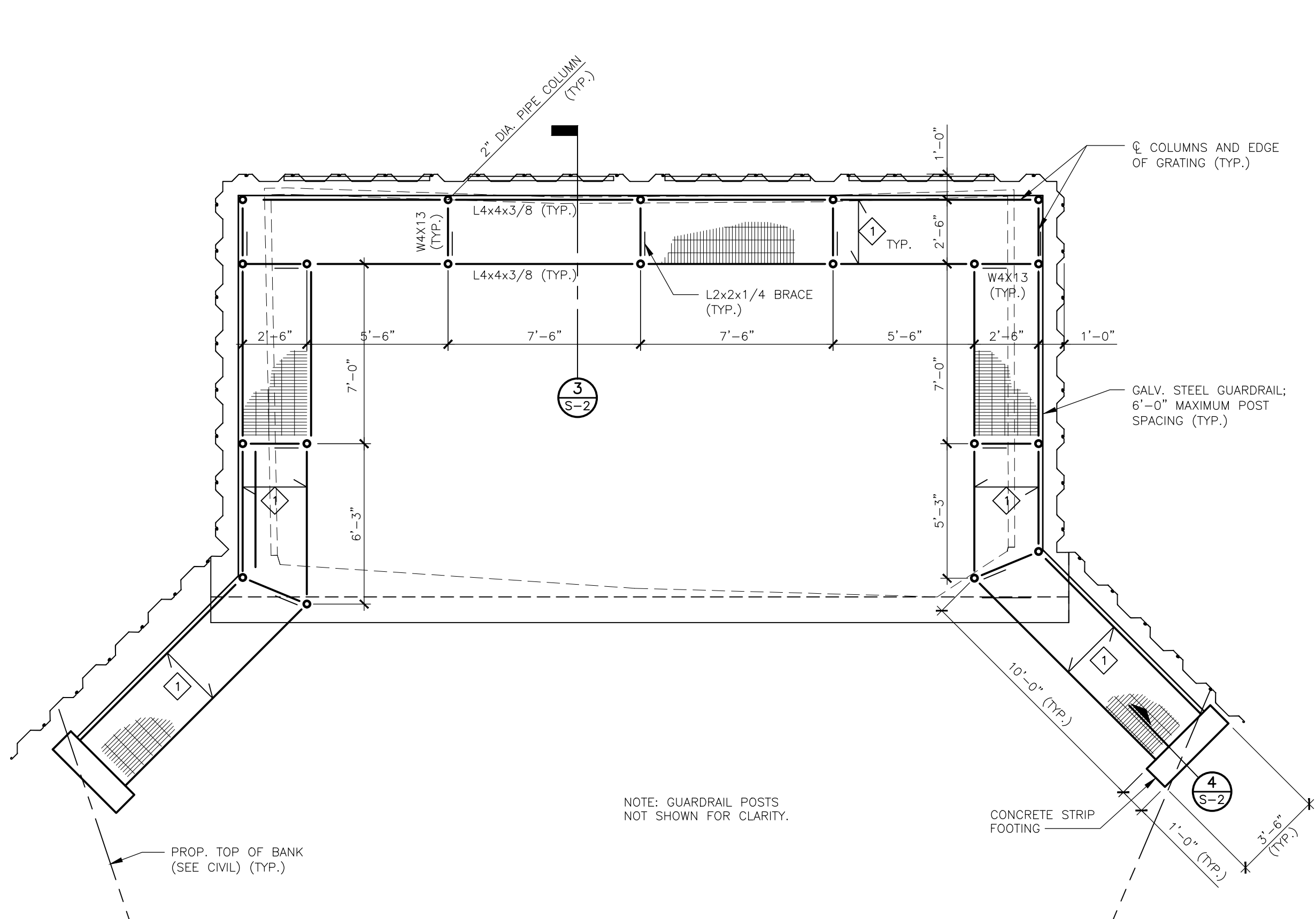
- THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:
CONCRETE: GRADE D $f'_c = 4,000$ PSI
STEEL MEMBERS: $F_y = 36,000$ PSI
- CATWALK DESIGN LIVE LOAD = 40 PSF

NOTES

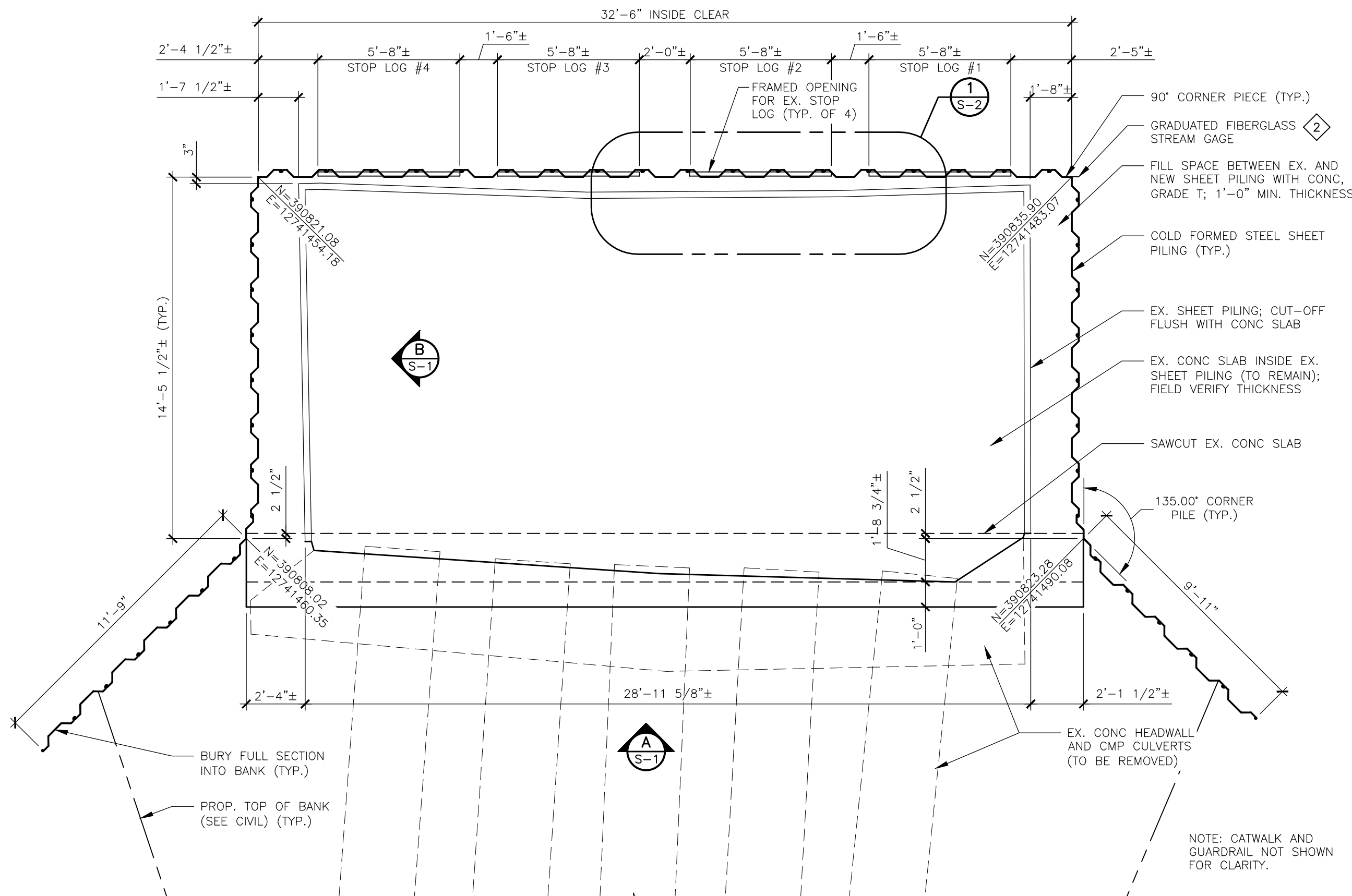
- THE INFORMATION ON THIS SHEET SHALL APPLY TO ALL STRUCTURAL DRAWING SHEETS.
- INFORMATION ON THIS SHEET SUPPLEMENTS THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- A FULL SET OF DESIGN DRAWINGS MAY BE REQUIRED FOR AN INDIVIDUAL TRADE TO DETERMINE THE FULL SCOPE OF WORK.
- COORDINATE WORK OF ALL TRADES. NOTIFY ENGINEER OF ANY VARIANCE BEFORE WORK BEGINS.
- DRAWINGS HAVE BEEN SET UP TO PLOT AS INTENDED WHEN PLOTTED AS FULL SIZE DRAWINGS. USE OF REDUCED SIZE DRAWINGS SHALL BE AT CONTRACTOR'S RISK.
- DO NOT SCALE DRAWINGS TO OBTAIN DIMENSIONS NOT INDICATED.
- DESIGN DRAWINGS SHALL NOT BE USED AS SHOP AND/OR ERECTION DRAWINGS.
- WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.
- ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH 1/2" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.
- ALL PERMANENT STEEL SHEET PILING SHALL BE SKL 12 WITH A NOMINAL SECTION MODULUS OF 4.42 CUBIC INCHES PER FOOT UNLESS OTHERWISE SHOWN.
- THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

KEY NOTES

- 1"x3/16" GALVANIZED LIGHT DUTY WELDED STEEL GRATING WITH 1"x3/16" MINIMUM BEARING BARS AT 1 3/16" SPACING WITH SERRATED SURFACE. PROVIDE (4) HOLD DOWN CLIPS PER SPAN.
- FIBERGLASS STREAM GAGE GRADUATED IN FEET/10THS/100THS BY FORESTRY SUPPLIERS OR APPROVED EQUAL. PROVIDE (2) 4'-0" LONG SECTIONS. SELECT INTERVAL TO PROVIDE DIRECT READ VALUE FOR WATER ELEVATIONS FROM 709' TO 713'. MOUNT TO SHEET PILING WITH STAINLESS STEEL HARDWARE. COORDINATE FINAL LOCATION ON DAM WITH OWNER. INCLUDED IN BID ITEM "STRUCTURAL STEEL, MIXED, FURN, FAB, AND ERECT".



CATWALK FRAMING PLAN
SCALE: 1/4" = 1'-0"



PLAN OF WALL
SCALE: 1/4" = 1'-0"

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scientists
architects
constructors

fishbeck, thompson, carr & huber, inc.

Allegan County Drain Commissioner

Allegan Township, Allegan County, Michigan

Miner Lake Dam Replacement

08/03/2016 [CONSTRUCTION]
01/08/2015 [BIDS AND CONSTRUCTION]

Drawn By EW
Designer EW
Reviewer DJV
Manager CES

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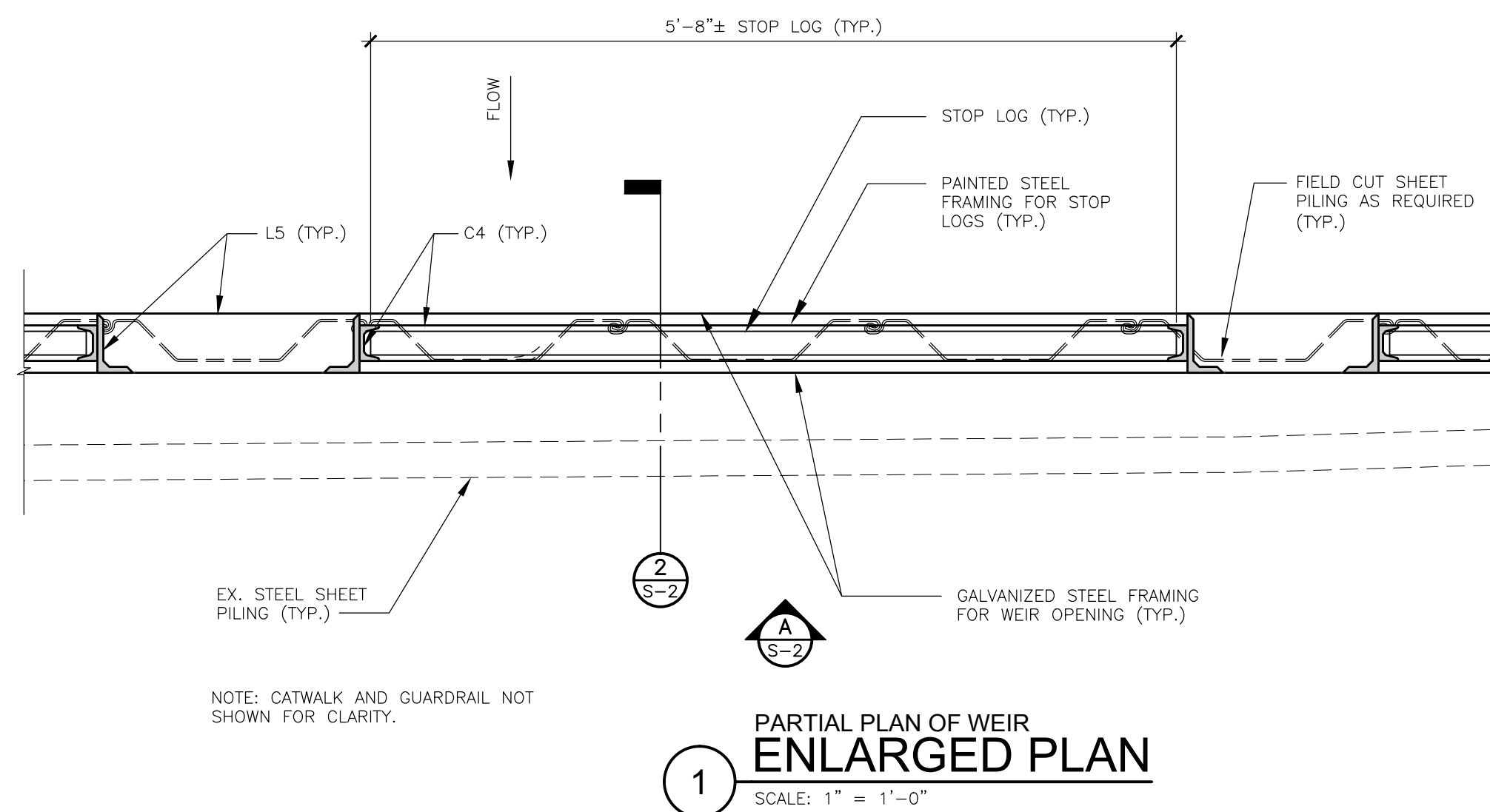
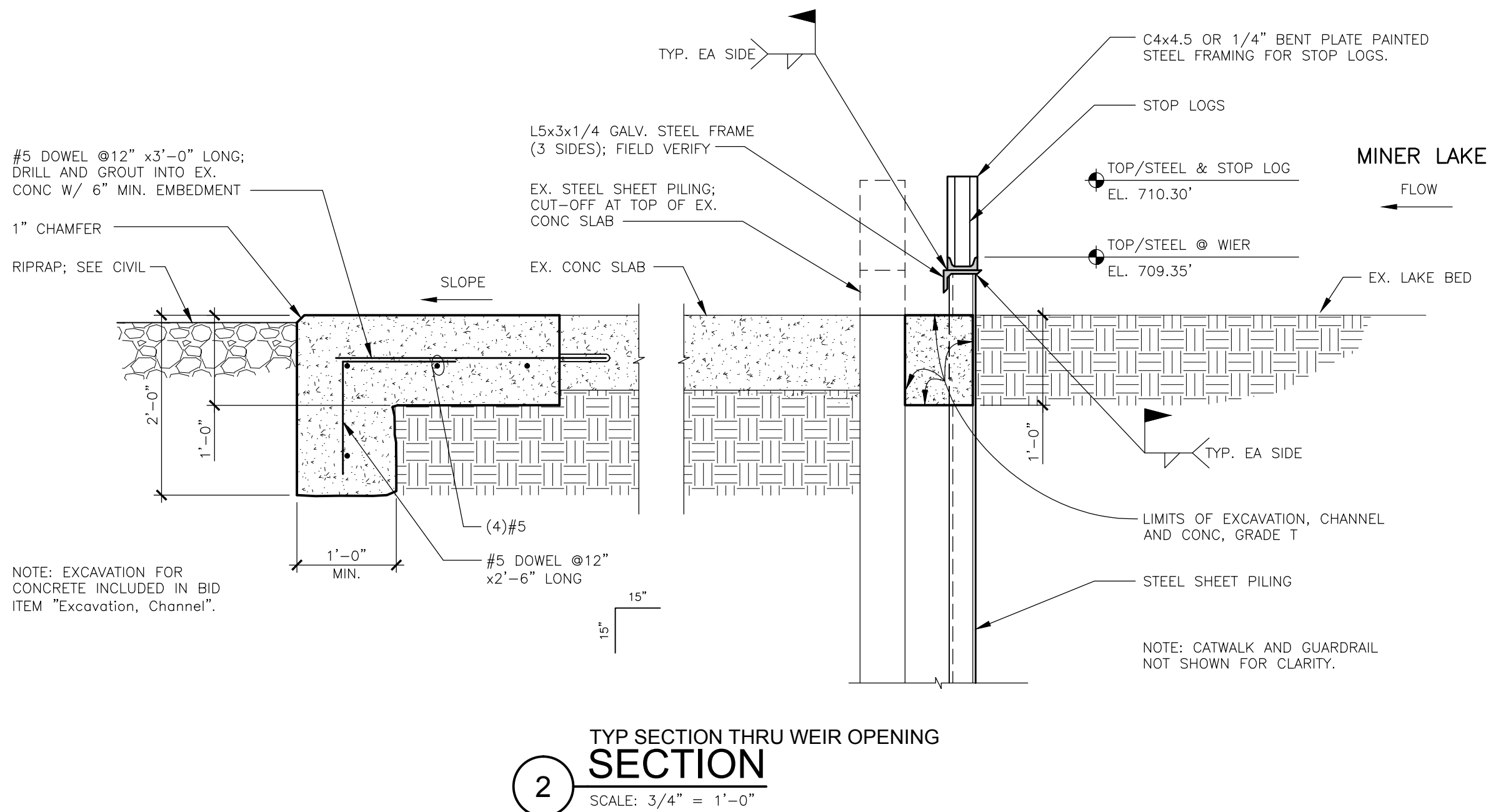
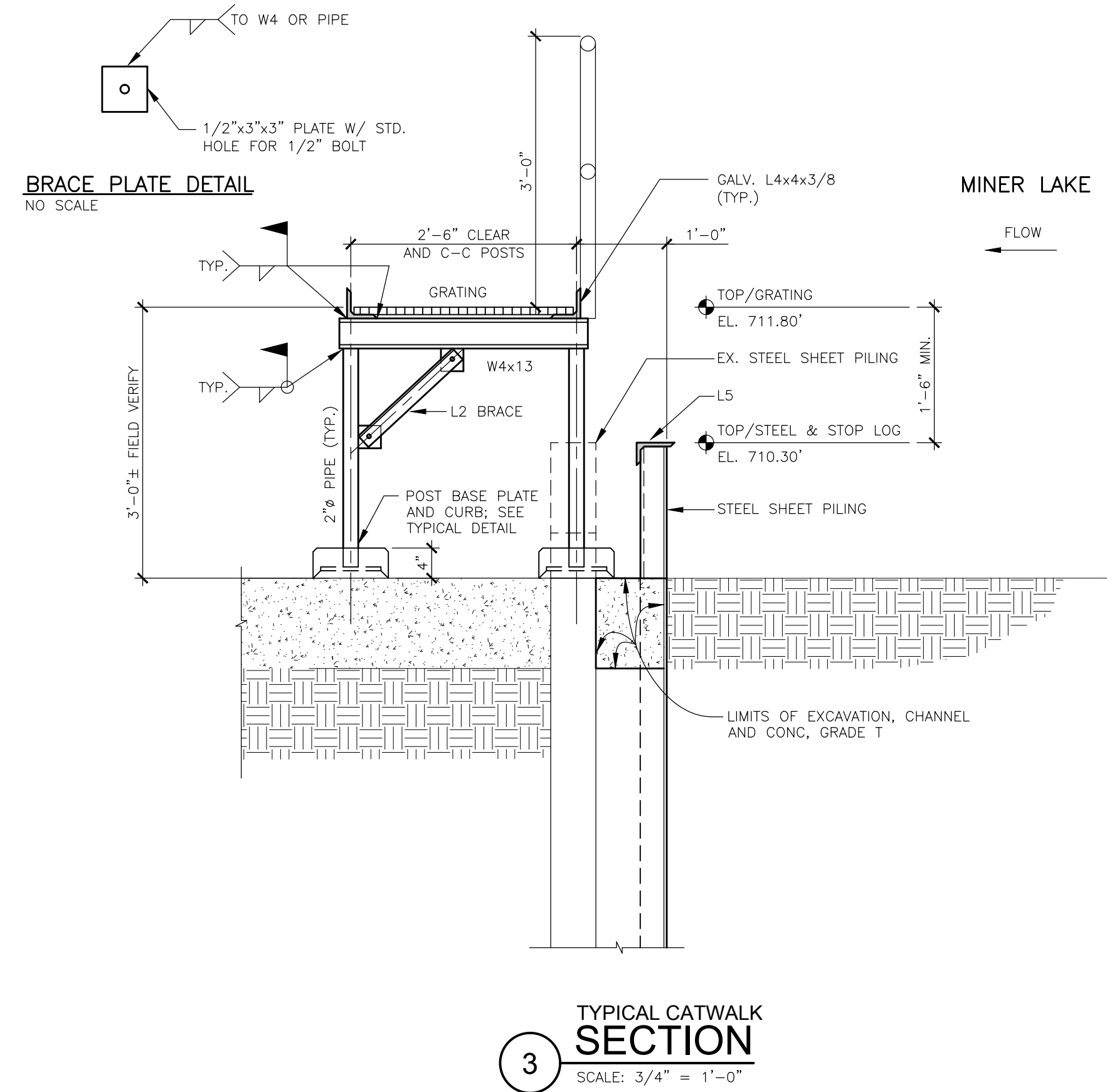
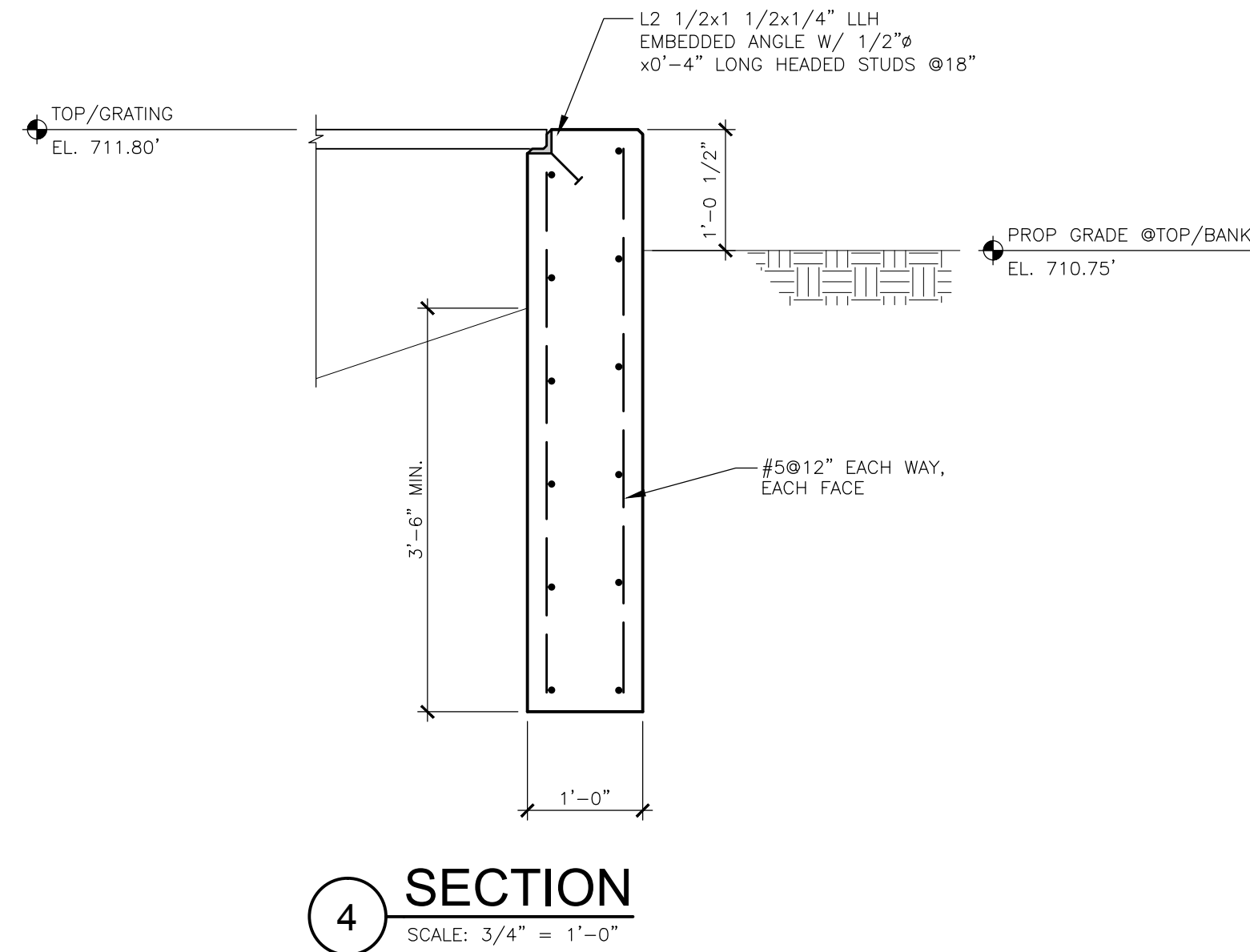
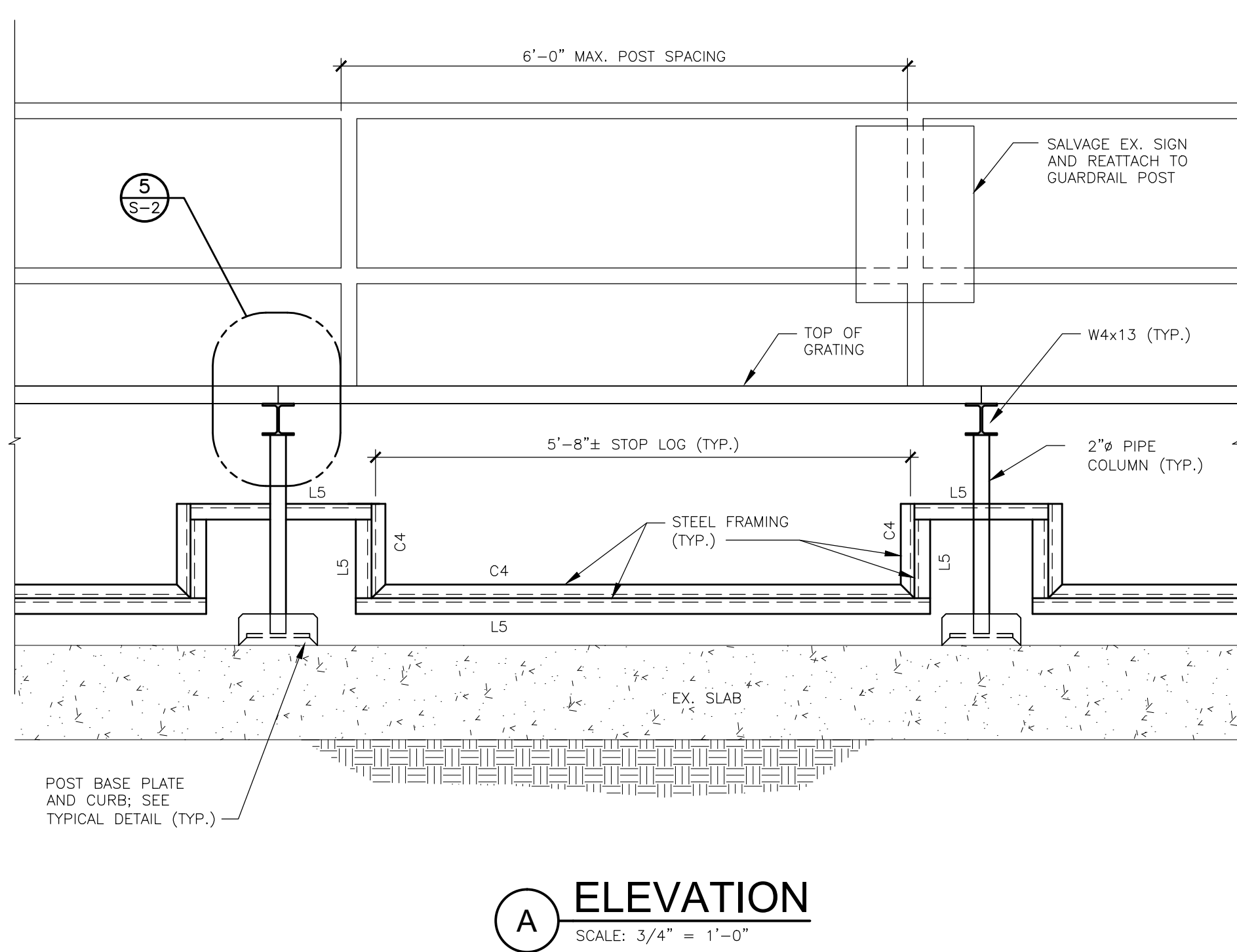
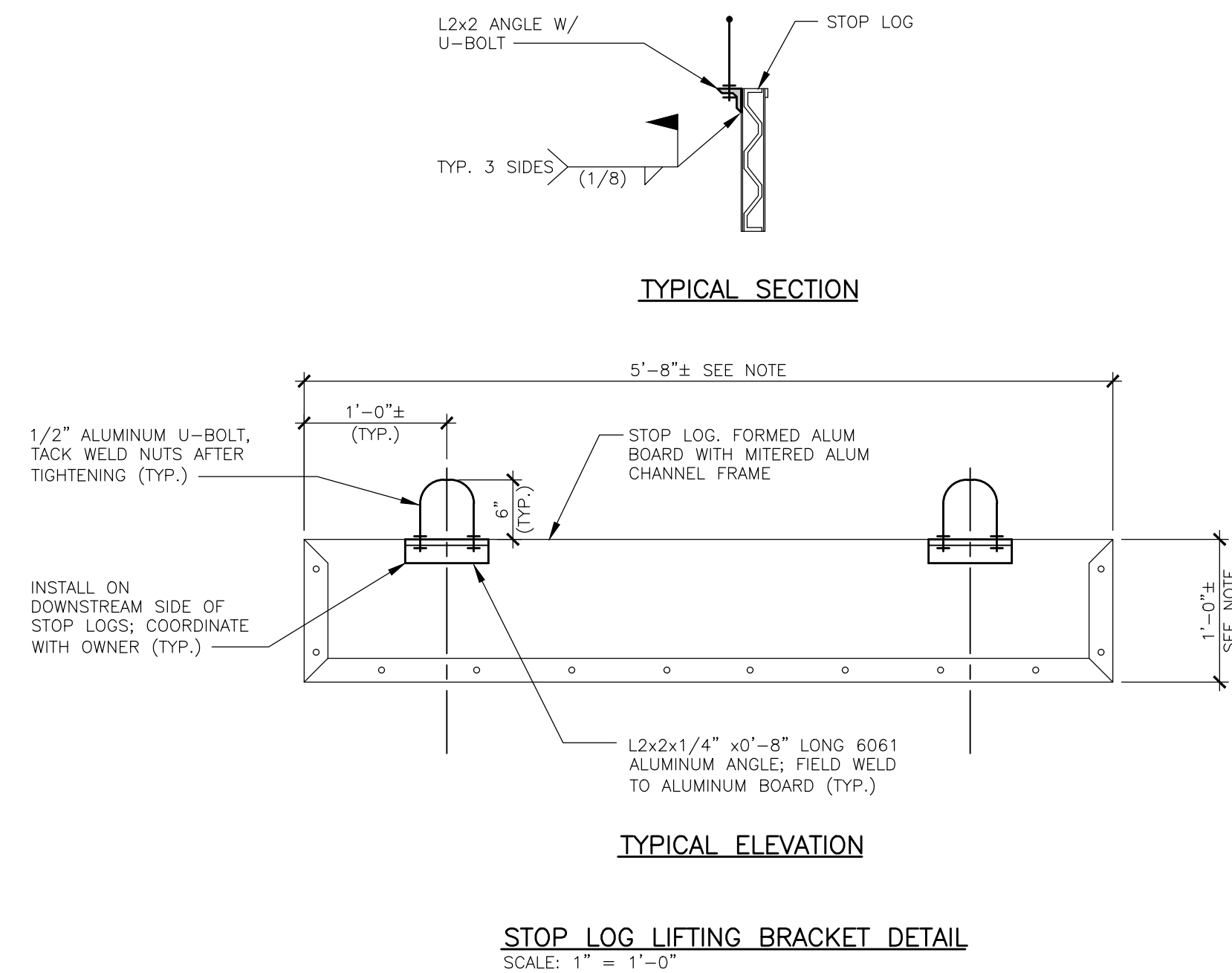
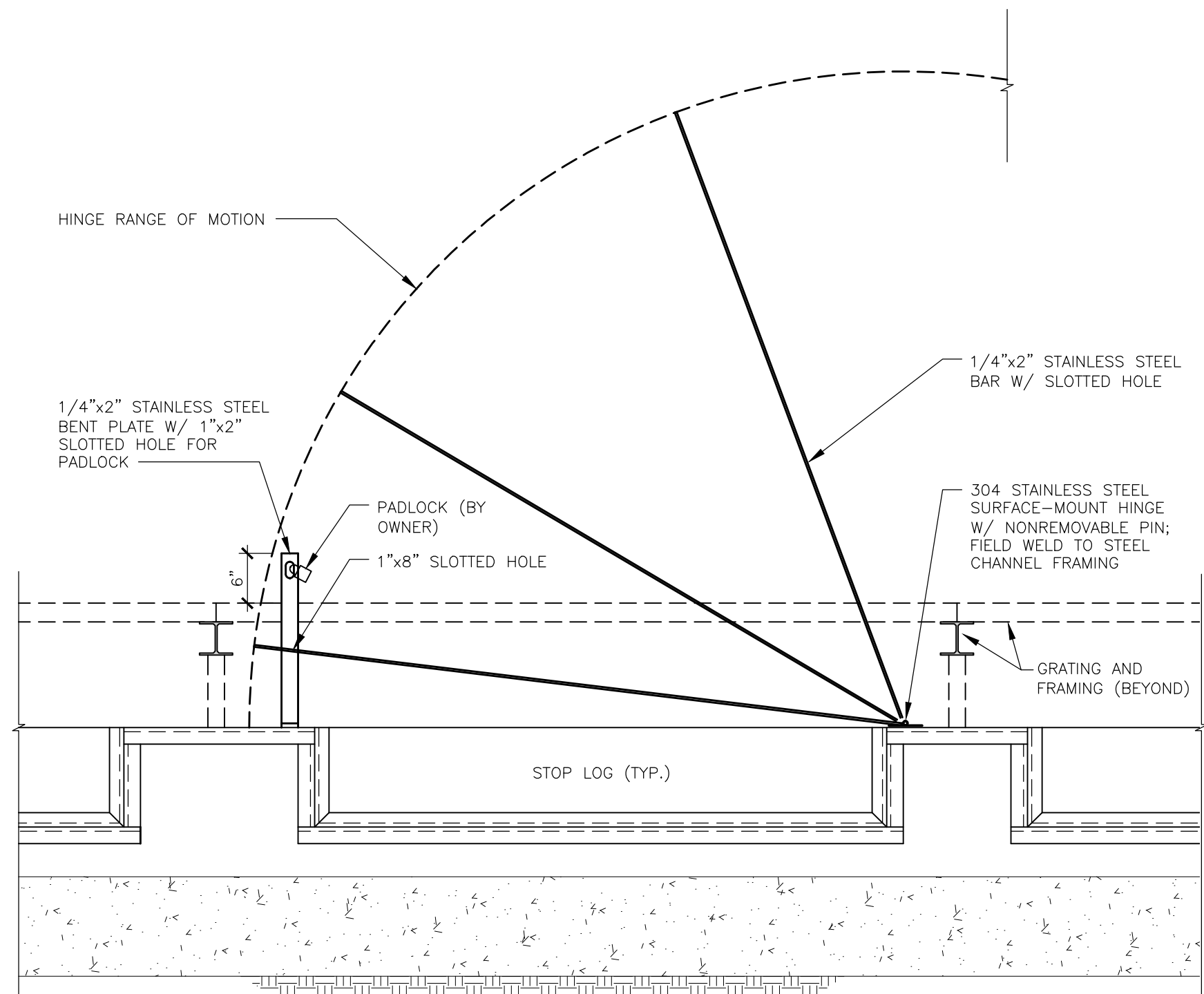
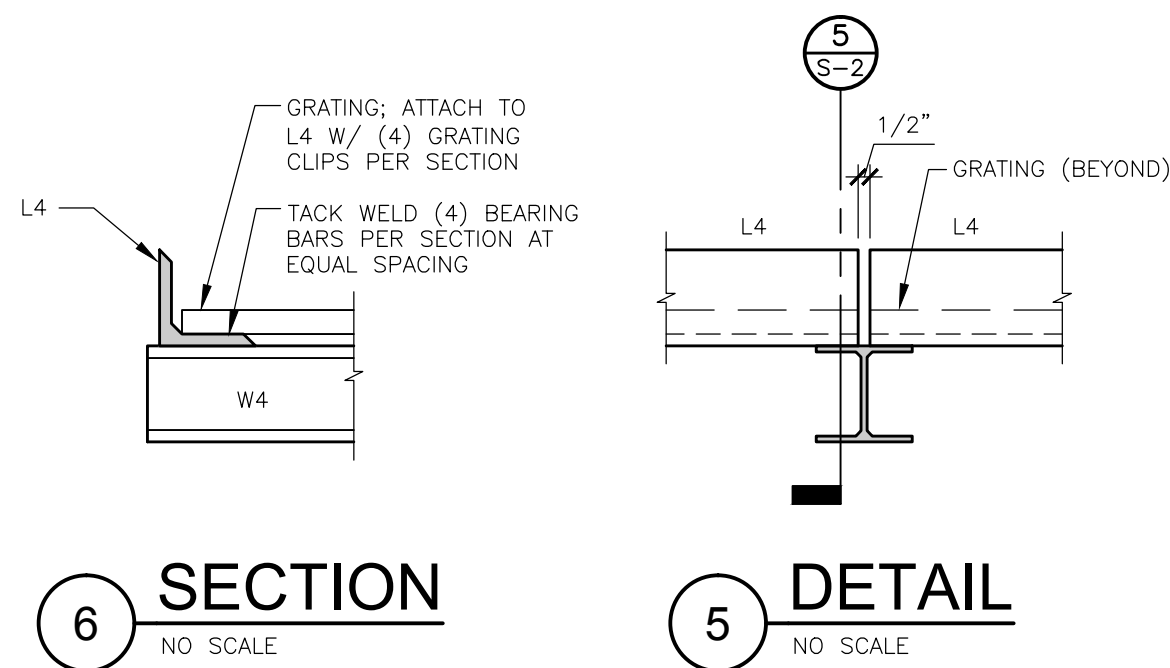
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PLOT INFO: Z:\2016\12\20841\CADD\CD\S01120841.DWG LAYOUT: S-2 DATE: 8/3/2016 TIME: 3:18:45 PM USER: M62



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Allegan County Drain Commissioner

Allegan Township, Allegan County, Michigan

Miner Lake Dam Replacement

08/03/2016 [CONSTRUCTION]
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Drawn By EW
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