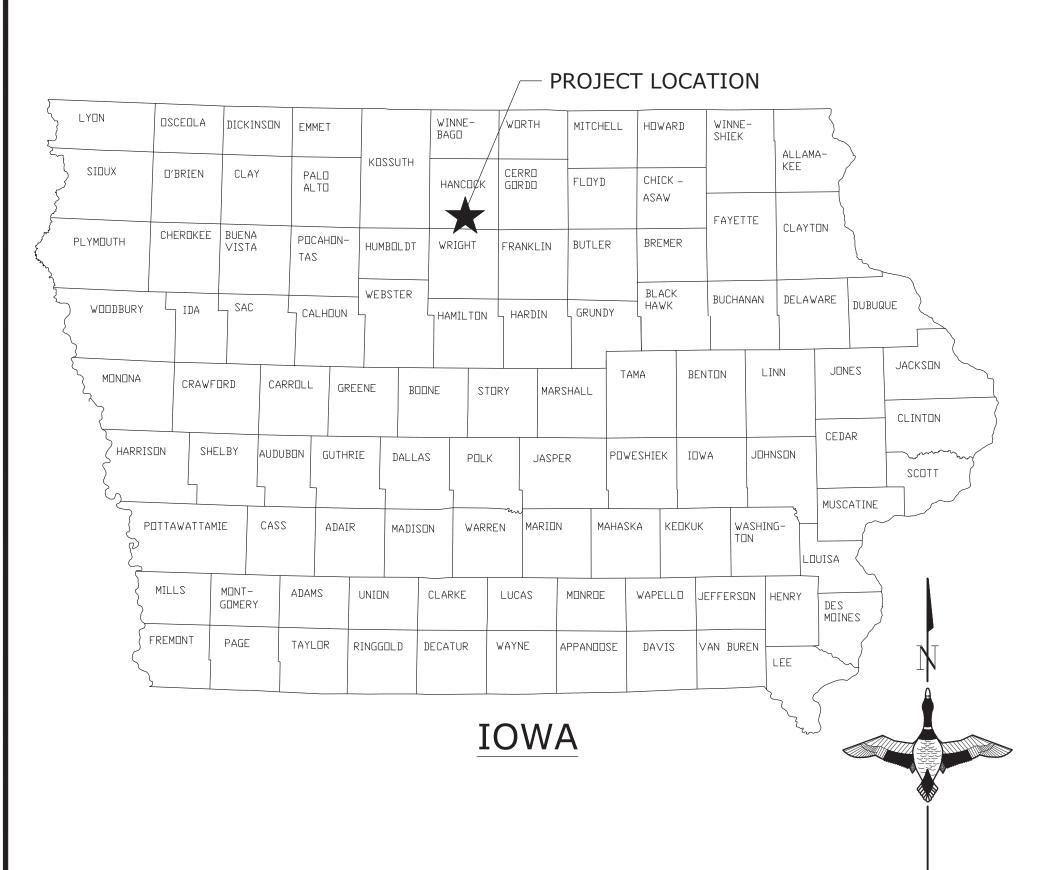


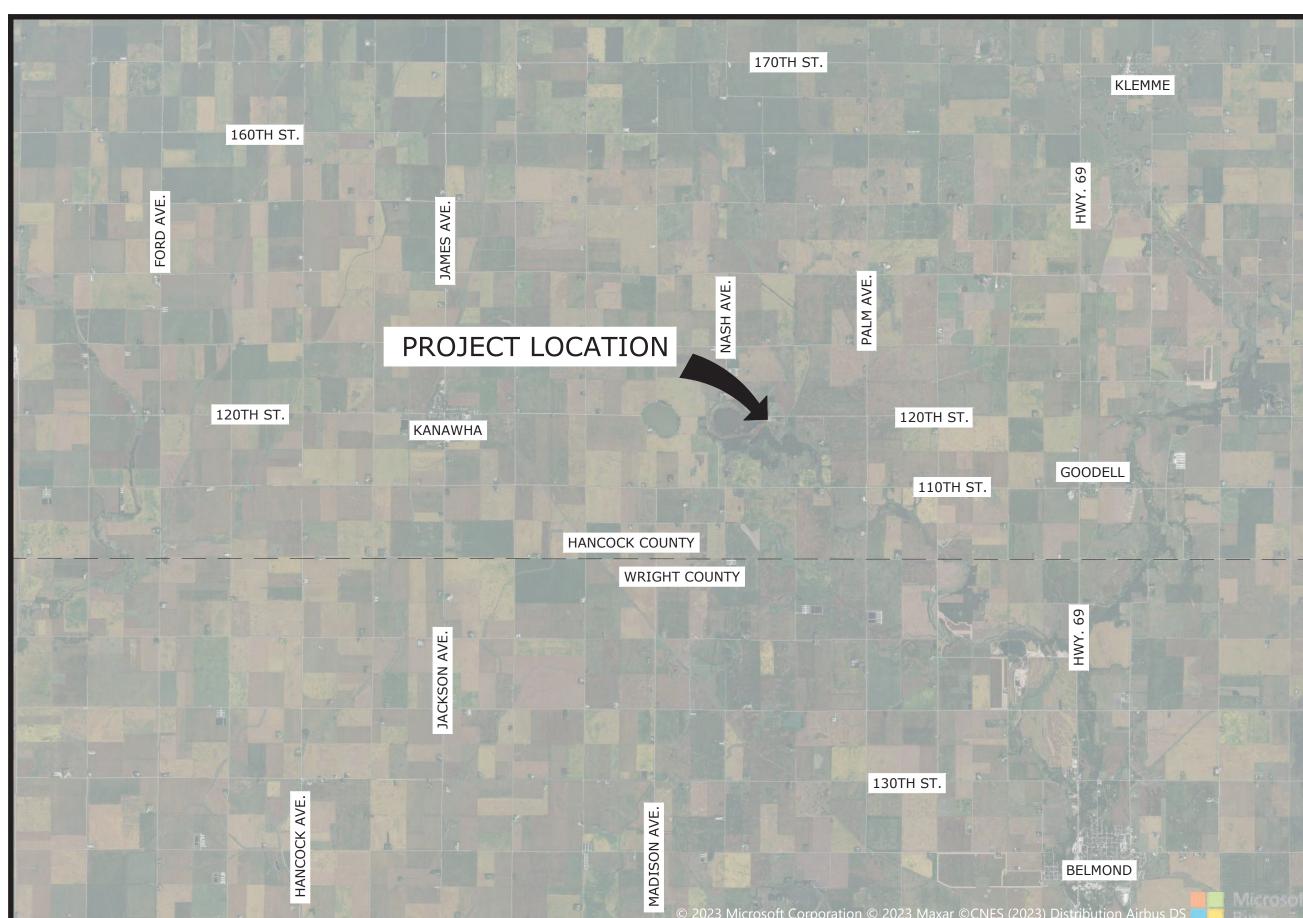
## EAST TWIN LAKE ENHANCEMENTS REBID

EAST TWIN LAKE SECTION 29, TWIN LAKE TOWNSHIP HANCOCK COUNTY, IOWA

IN COOPERATION WITH

IOWA DEPARTMENT OF NATURAL RESOURCES DNR PROJECT # 25-02-41-02



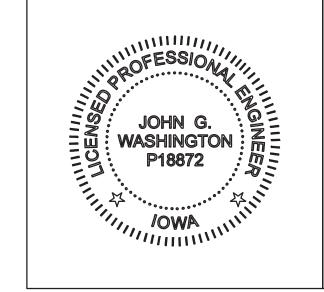


## PROJECT LOCATION MAP

SCALE: NOT TO SCALE

# Know what's **below.** Call before you dig.

AUTHORIZATION TO BID				
George Antoniou Digitally signed by George Antoniou Date: 2024.09.24 10:51:38 -05'00'				
AUTHORIZED - PARKS   WILDLIFE   FISHERIES   LAW ENFORC	DEMENT DATE			
Travis Baker Digitally signed by Travis Baker Date: 2024.09.24 11:49:41 -05'00'				
ENGINEERING BUREAU CHIEF	DATE			



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

9/17/2024 John G. Washington, P.E. Date My license number is P18872

My license renewal date is December 31, 2025

Pages or sheets covered by this seal: C001, C002, C051, C052, C053, C054, C101, C102, C301, C302, C306, C307



HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE

SHEET INDEX

SHEET

C051

C052

C053

C054

C303

C305

C306

C307

TITLE

**COVER SHEET** 

**SPECS & NOTES** 

**OVERALL TOPOGRAPHY** 

PROJECT AREA TOPOGRAPHY

REMOVALS & TOPO DETAIL UPPER

STRUCTURE

**REMOVALS & TOPO DETAIL LOWER** 

STRUCTURE

SITE PLAN - UPPER STRUCTURE

SITE PLAN - LOWER STRUCTURE

UPPER STRUCTURE DETAILS

**DETAILS - LOWER STRUCTURE GENERAL** 

LAYOUT

**DETAILS - LOWER STRUCTURE** 

REINFORCING

**DETAILS - PRECAST PLANK BEAMS** 

DETAILS - MISC.

DETAILS - MISC.

DETAILS - MISC.

LARAMIE V. MCMASTERS, PE

C303, C304, C305

MY LICENSE NUMBER IS P24379 MY LICENSE RENEWAL DATE IS DECEMBER 31, 2024 PAGES OR SHEETS COVERED BY THIS SEAL:

IA-356-1 Cover and Notes DESIGNED BY: JGW DRAWN BY: JGW SURVEYED BY: JGW/AB BIOLOGIST: MS DATE: 09/09/24 PROJECT NUMBER: US-IA-356-1 C001

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ESTIMATED BID QUANTITIES					
BID ITEM	BID ITEM NOTE	SPEC #	DESCRIPTION	UNIT	QUANTITY
1	1	201, 404	MOBILIZATION	LS	1
2	2	202	SITE PREPARATION	LS	1
3	3	203	EXCAVATION	CY-P	232
4	4	204	EMBANKMENT CONSTRUCTION	CY-P	25
5	5		PCC PAVING	CY	8
6	6	304	CAST-IN-PLACE CONCRETE - REINFORCED	CY	28
7	7	304	CAST-IN-PLACE CONCRETE - FLOWABLE	CY	10
8	8		PRECAST PLANK BEAMS	LS	1
9	9	305	DU CLASS IV RIPRAP	TN	455
10	10		IOWA DOT CLASS C ROADSTONE	TN	12
11	11	307	SHEET PILING	SF-P	400
12	12		BOLLARDS	EA	2
13	13	302, 309	STRUCTURAL STEEL - UPPER STRUCTURE	LS	1
14	14	302, 309	STRUCTURAL STEEL - LOWER STRUCTURE	LS	1
15	15	311	DEMOLITION AND REMOVALS	LS	1
16	16	401	SOIL EROSION AND POLLUTION CONTROL - SILT FENCE	LF	300
17	17	401	SOIL EROSION AND POLLUTION CONTROL - WATTLE	LF	300
18	18	402	TEMPORARY ROLLED EROSION CONTROL PRODUCT (RECP)	SY	150
19	19	402	SEEDING AND MULCHING	AC	.75

#### **GENERAL NOTES:**

- 1. ALL WORK SHALL BE COMPLETED PER DUCKS UNLIMITED SPECIFICATIONS. IF REQUIRED WORK IS NOT INCLUDED IN DUCKS UNLIMITED SPECIFICATIONS, WORK SHALL CONFORM TO THE CURRENT EDITION OF THE IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS).
- 2. CONTRACTOR SHALL CONFIRM LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. ENGINEER AND OWNER DO NOT GUARANTEE THE LOCATION, ACCURACY, OR COMPLETENESS OF EXISTING UTILITIES SHOWN ON THIS PLAN. THE CONTRACTOR SHALL CONTACT IOWA ONE-CALL FOR UTILITY LOCATIONS 48 HOURS PRIOR TO BEGINNING EXCAVATION.
- 3. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 4. ANY NECESSARY COFFER DAMS, DEWATERING SYSTEMS, EXCAVATION SHORING, OR RELATED ITEMS SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR. THESE ITEMS SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THESE ITEMS. LAKE LEVELS ARE MANAGED BY DNR STAFF AND SHALL NOT BE LOWERED BY THE CONTRACTOR FOR THE WORK. ANY LOWERING OF LAKE LEVELS IN PREPARATION FOR THIS PROJECT WILL BE AT THE DISCRETION OF DNR STAFF.
- 5. ANY AND ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. ALL QUANTITIES ARE FOR CONTRACTOR CONVENIENCE ONLY.
- 6. WORK THAT IS INDICATED ON THESE PLANS OR IS REQUIRED IN ORDER TO COMPLETE THE WORK SHOWN ON THESE PLANS BUT DOES NOT HAVE A SPECIFIC BID ITEM SHALL BE CONSIDERED INCIDENTAL WORK TO OTHER ITEMS ON THE PLAN. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR INCIDENTAL WORK.
- 7. SHOP DRAWINGS/SUBMITTALS ARE REQUIRED FOR ALL MATERIALS TO BE INCORPORATED IN THIS PROJECT. ENGINEER AND OWNER REVIEW OF SHOP DRAWINGS/SUBMITTALS SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO MEET THE REQUIREMENTS OF THE CONTRACT. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO ENSURE THAT MATERIALS, DIMENSIONS, AND FABRICATIONS ARE IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY COST ASSOCIATED WITH REWORK, MODIFICATIONS, OR OBTAINING REPLACEMENT MATERIALS IN ORDER TO MEET THE CONTRACT DOCUMENTS SHALL BE BORNE BY THE CONTRACTOR.
- 8. ALL ELEVATIONS ARE NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88). DESIGN CONTOURS SHOWN ARE TO FINISHED GRADE ELEVATIONS UNLESS OTHERWISE NOTED.
- 9. SITE ACCESS IS SHOWN ON THE PLAN. THE CONTRACTOR SHALL NOT UTILIZE ALTERNATE ACCESS TO THE SITE UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE OWNER OR ENGINEER. ANY TRACKOUT FROM THE WORK SITE SHALL BE CLEANED UP BY THE CONTRACTOR IMMEDIATELY.
- 10. UNLESS OTHERWISE INDICATED, CONTRACTOR SHALL MAKE ALL NECESSARY CONNECTIONS TO EXISTING FACILITIES, PIPELINES, OR STRUCTURES. PRIOR TO MAKING SUCH CONNECTIONS, THE CONTRACTOR SHALL OBTAIN PERMISSION FROM THE OWNING UTILITY AND SHALL NOTIFY OWNERS OF ADJACENT PROPERTIES AND UTILITIES WHEN WORK MAY EFFECT THEM OR THEIR UTILITY SERVICE. NOTIFICATIONS SHALL BE DONE SUFFICIENTLY IN ADVANCE TO ALLOW FOR THE OWNING UTILITY OR OWNERS OF ADJACENT PROPERTIES TO MAKE SUFFICIENT ARRANGEMENTS TO ACCOMMODATE THE PLANNED WORK. CONTRACTOR SHALL THOROUGHLY PLAN THE WORK IN ADVANCE AND HAVE ALL NECESSARY LABOR, EQUIPMENT, SUPERVISION, AND MATERIALS ONSITE TO COMPLETE THE WORK IN A TIMELY MANOR.
- 11. ALL WORK SHALL BE COMPLETED TO THE LINES, GRADES, AND ELEVATIONS INDICATED ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN DRAINAGE PATHS TO PREVENT PONDING OF WATER DURING CONSTRUCTION.
- 12. DURING TIMES OF UNFAVORABLE WEATHER CONDITIONS, THE CONTRACTOR SHALL CONFINE THEIR WORK TO AREAS THAT WILL NOT BE ADVERSELY EFFECTED BY SUCH CONDITIONS. NO WORK SHALL BE COMPLETED UNDER CONDITIONS WHICH WILL CAUSE THE QUALITY OR EFFICIENCY OF THE WORK TO BE ADVERSELY EFFECTED UNLESS SPECIAL MEANS ARE UNDERTAKEN BY THE CONTRACTOR TO ADDRESS THE ADVERSE CONDITIONS.
- 13. THE CONTRACTOR WILL BE REQUIRED TO USE "MACHINE CONTROL." DUCKS UNLIMITED WILL PROVIDE THE CONTRACTOR WITH DIGITAL FINISH GRADE SURFACES FOR GRADING AREAS ALONG WITH CONTROL POINTS. THERE WILL BE VERY FEW CONSTRUCTION STAKES SET IN THE FIELD. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TIE INTO DUCKS UNLIMITED'S SURVEY CONTROL AND PERFORM THE WORK AS OUTLINED IN THE PLANS.
- 14. THE CONTRACTOR SHALL PROTECT ALL SURVEY CONTROL AND PROPERTY PINS ENCOUNTERED. ANY DESTROYED SURVEY CONTROL OR PROPERTY PINS SHALL BE RESET BY LICENSED SURVEYOR AT THE COST OF THE CONTRACTOR
- 15. TO PROTECT THREATENED AND ENDANGERED BATS, TREES 3" IN DIAMETER OR LARGER SHALL BE FELLED/REMOVED BETWEEN OCTOBER 1ST AND MARCH 31ST ONLY.

#### **BID ITEM NOTES:**

- 1. BID ITEM FOR MOBILIZATION SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT TO TRANSPORT ALL NEEDED LABOR, MATERIAL, AND EQUIPMENT, TO AND FROM THE PROJECT SITE, TO SUCCESSFULLY COMPLETE THE PROJECT AS SHOWN ON THE PLANS. PAYMENT SHALL BE LUMP SUM.
- 2. BID ITEM FOR SITE PREPARATION SHALL INCLUDE TOPSOIL STRIPPING BENEATH EXCAVATION AND EMBANKMENT AREAS, STOCKPILING TOPSOIL FOR REPLACEMENT, PLACING TOPSOIL OVER ALL DISTURBED AREAS, PREPARING RESPREAD TOPSOIL FOR SEEDING, AND TEMPORARY ACCESS/CROSSINGS/DEWATERING. SITE PREPARATION SHALL ALSO INCLUDE REMOVAL OF TREES, ROOTS, BRUSH, ROCK, GRASS, AND ALL OTHER RUBBISH TO COMPLETE THE PROJECT AS SHOWN ON THE PLANS. PAYMENT SHALL BE LUMP SUM.
- BID ITEM FOR EXCAVATION SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO EXCAVATE MATERIALS AS SHOWN ON THE PLANS. MATERIAL EXCAVATED FOR EMBANKMENT CONSTRUCTION SHALL BE APPROVED BY THE ENGINEER AND STOCKPILED ON SITE FOR THE EMBANKMENT CONSTRUCTION. ANY ROCKS OR BOULDERS ENCOUNTERED DURING EXCAVATION SHALL BE STOCKPILED ONSITE WHERE DIRECTED BY THE ENGINEER. THE ESTIMATED QUANTITY FOR EXCAVATION IS A RAW QUANTITY (UNADJUSTED FOR SHRINK/SWELL). PLANS SHOW SPOILS/BORROW AREAS FOR THE PROJECT. IF THE SPOILS/BORROW AREAS ARE UTILIZED BY THE CONTRACTOR, TOPSOIL SHALL BE STRIPPED AND STOCKPILED. SPOILS/BORROWS SHALL BE DONE IN A MANNER THAT DOES NOT ALTER EXISTING DRAINAGE PATTERNS OR CREATE PONDING. SLOPES AT SPOILS/BORROW AREAS SHALL BE NO STEEPER THAN 6:1 (H:V). TOPSOIL SHALL BE RESPREAD AND THE AREA SHALL BE SEEDED AND MULCHED. ALL WORK RELATED TO SPOILS/BORROW AREAS ARE INCIDENTAL TO THIS ITEM. PAYMENT SHALL BE CUBIC YARD - PLAN. THERE WILL BE NO ADJUSTMENT MADE FOR INCREASE OR DECREASE TO QUANTITY.
- 4. BID ITEM FOR EMBANKMENT CONSTRUCTION SHALL INCLUDE ALL WORK REQUIRED TO HAUL, PLACE, AND COMPACT FILL MATERIAL TO CONSTRUCT THE EARTHWORK AS SHOWN ON THE PLANS. SURFACE FILES WILL BE PROVIDED TO THE CONTRACTOR FOR EMBANKMENT CONSTRUCTION. NO STAKES WILL BE PROVIDED IN THE FIELD. SEE GPS MACHINE CONTROL NOTE. ANY MATERIAL EITHER NEEDED OR REMAINING FROM THIS OPERATION SHALL BE UTILIZED FROM THE SPOILS/BORROW AREAS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE ESTIMATED QUANTITY FOR EMBANKMENT CONSTRUCTION IS A RAW QUANTITY (UNADJUSTED FOR SHRINK/SWELL). PAYMENT SHALL BE PER CUBIC YARD - PLAN. THERE WILL BE NO ADJUSTMENT MADE FOR INCREASE OR DECREASE TO QUANTITY.
- 5. BID ITEM FOR PCC PAVING SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT TO INSTALL THE PCC PAVING AND ASSOCIATED COMPONENTS AS SHOWN ON THE PLANS. CONCRETE SHALL MEET THE REQUIREMENTS OF IOWA DOT CLASS C. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F'c) OF 4,000 PSI, 1"-4" SLUMP, AND 4% TO 6% AIR ENTRAINMENT. INCIDENTAL TO THIS ITEM, CONTRACTOR SHALL HIRE AN INDEPENDENT CERTIFIED TESTING LAB TO PROVIDE ONSITE CONCRETE TESTING. AT A MINIMUM, EACH TRUCK SHALL HAVE A TEST COMPLETED AFTER ALL ADD-MIXTURES OR WATER HAVE BEEN ADDED TO INCLUDE TEMPERATURE, SLUMP, AIR CONTENT, AND CYLINDERS. COPIES OF ALL TESTING RESULTS SHALL BE SENT TO THE ENGINEER. CONTRACTOR SHALL PROVIDE TRUCK TICKETS. PAYMENT SHALL BE PER CUBIC YARD PLACED.
- 6. BID ITEM FOR CAST-IN-PLACE CONCRETE REINFORCED SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT TO INSTALL THE CAST-IN-PLACE CONCRETE WITH REINFORCING AS SHOWN ON THE PLANS. CONCRETE SHALL BE NORMAL WEIGHT AND SHALL MEET THE REQUIREMENTS OF IOWA DOT CLASS C. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F'c) OF 4,000 PSI, 1"-4" SLUMP, AND 4% TO 6% AIR ENTRAINMENT. INCIDENTAL TO THIS ITEM, CONTRACTOR SHALL HIRE AN INDEPENDENT CERTIFIED TESTING LAB TO PROVIDE ONSITE CONCRETE TESTING. AT A MINIMUM EACH TRUCK SHALL HAVE A TEST COMPLETED AFTER ALL ADD-MIXTURES OR WATER HAVE BEEN ADDED TO INCLUDE TEMPERATURE, SLUMP, AIR CONTENT, AND CYLINDERS. COPIES OF ALL TESTING RESULTS SHALL BE SENT TO THE ENGINEER. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60 WITH 2" MINIMUM CLEARANCE FROM EDGE OF STEEL TO FACE OF CONCRETE OR 3" MINIMUM CLEARANCE FROM EDGE OF STEEL TO FACE OF CONCRETE WHEN CAST AGAINST SOIL ALL HOOKS, BENDS AND BARS SHALL CONFORM TO ACI 318. MINIMUM LAP/SPLICE DISTANCE SHALL BE PER ACI 318 UNLESS NOTED OTHERWISE ON THE PLANS. FORM TIES THAT LEAVE A PORTION OF THE TIE IN THE CAST IN PLACE CONCRETE SHALL HAVE A MINIMUM ¾" BREAK BACK FROM THE EXPOSED CONCRETE SURFACE OR THE TIE SHALL BE GROUND BELOW THE SURFACE, COATED WITH A COROSION INHIBITOR, AND THEN PATCHED WITH A CEMENTITIOUS MATERIAL CONTRACTOR SHALL PROVIDE TRUCK TICKETS. PAYMENT SHALL BE PER CUBIC YARD PLACED.
- 7. BID ITEM FOR CAST-IN-PLACE CONCRETE FLOWABLE SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT TO INSTALL THE CAST-IN-PLACE CONCRETE AS SHOWN ON THE PLANS. MATERIAL SHALL BE FLOWABLE MORTAR AS PER IOWA DOT SECTION 2506 OR OTHER FLOWABLE MIX APPROVED BY THE ENGINEER. CONTRACTOR SHALL PROVIDE TRUCK TICKETS. PAYMENT SHALL BE PER CUBIC YARD PLACED.
- 8. BID ITEM FOR PRECAST PLANK BEAMS SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT TO INSTALL THE PRECAST PLANK BEAMS AS SHOWN ON THE PLANS. BEAMS HAVE BEEN DESIGNED FOR THE FOLLOWING DESIGN LOADS: BRIDGE LOAD - HS20 TRUCK, BRIDGE LIVE LOAD 100 PSF. THIS ITEM INCLUDES ALL LIFTING HOOKS, ABUTMENT ANCHORS, SHEAR KEYS, REINFORCING, GROUT, SOCKET EMBEDS, AND OTHER ITEMS RELATED TO THE PRECAST PLANK BEAMS AND NECESSARY FOR A COMPLETE INSTALLATION. PAYMENT SHALL BE LUMP SUM.
- 9. BID ITEM FOR DU CLASS IV RIPRAP SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PURCHASE, HAUL, AND PLACE RIPRAP AS SHOWN ON THE PLANS. NON-WOVEN FILTER FABRIC IS REQUIRED BENEATH ALL ROCK/RIPRAP AND SHALL BE SECURED TO SLOPES AND BOTTOM USING PINS AS NOTED IN DU SPECIFICATION 305. FINAL PLACEMENT OF RIPRAP SHALL BE APPROVED BY THE ENGINEER THE CONTRACTOR SHALL PROVIDE SCALE TICKETS WITH WEIGHTS INCLUDING TARE WEIGHTS, GROSS WEIGHTS, AND NET WEIGHTS OF MATERIAL DELIVERED. PAYMENT SHALL BE PER TON PLACED.
- 10. BID ITEM FOR IOWA DOT CLASS C ROADSTONE SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PURCHASE, HAUL AND PLACE IOWA DOT CLASS C ROADSTONE WHERE SHOWN ON THE PLANS OR AS DIRECTED BY ENGINEER. SPREADING, LEVELING, AND PLACING OF GRANULAR MATERIAL PER DOT REQUIREMENTS SHALL BE INCIDENTAL TO THIS ITEM. FINAL PLACEMENT OF GRANULAR MATERIAL SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE SCALE TICKETS FOR MATERIAL DELIVERED. PAYMENT SHALL BE PER TON PLACED.
- 11. BID ITEM FOR SHEET PILING SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO INSTALL SHEET PILING AS SHOWN ON THE PLANS. SHEET PILE SHALL BE SZ-22 OR APPROVED EQUAL. MINIMUM THICKNESS 0.375" (3/8") AND SECTION MODULUS 18.1^3. THE BID ITEM INCLUDE THE MATERIALS AND INSTALLATION OF THE PILE CAP AS DETAILED IN THE PLANS. PAYMENT SHALL BE LUMP SUM.
- 12. BID ITEM FOR BOLLARDS SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO INSTALL BOLLARDS AS SHOWN ON THE PLANS PAYMENT SHALL BE PER EACH BOLLARD INSTALLED.
- 13. BID ITEM FOR STRUCTURAL STEEL UPPER STRUCTURE SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, EQUIPMENT, AND METAL FABRICATIONS NECESSARY TO INSTALL THE UPPER STRUCTURE IMPROVEMENTS AND ALL OTHER ASSOCIATED APPURTENANCES NECESSARY TO INSTALL A COMPLETE SYSTEM. THIS ITEM DOES NOT INCLUDE SHEET PILE OR PILE CAP. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND QUANTITIES. REQUIRED QUANTITIES ARE LISTED ON THE PLANS FOR SPECIFIC FABRICATIONS. PAYMENT SHALL BE LUMP SUM.
- 14. BID ITEM FOR STRUCTURAL STEEL LOWER STRUCTURE SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, EQUIPMENT, AND METAL FABRICATIONS NECESSARY TO INSTALL THE LOWER STRUCTURE IMPROVEMENTS INCLUDING BUT NOT LIMITED TO: STOPLOG GUIDES, STOPLOGS, STOPLOG STORAGE BOX, STOPLOG LIFTING HOOK(S), FISH FINGERS, RAILING, WINCHES, AND ALL OTHER ASSOCIATED APPURTENANCES NECESSARY TO INSTALL A COMPLETE SYSTEM. THIS ITEM DOES NOT INCLUDE SHEET PILE, OR PILE CAP. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND QUANTITIES. REQUIRED QUANTITIES ARE LISTED ON THE PLANS FOR SPECIFIC FABRICATIONS. PAYMENT SHALL BE LUMP SUM.
- 15. BID ITEM FOR DEMOLITION AND REMOVALS SHALL INCLUDE THE SUPPLY OF ALL LABOR AND EQUIPMENT NECESSARY TO REMOVE THE ITEMS AS SHOWN IN THE PLANS. ITEMS INCLUDE: CONCRETE, BEAMS, BOARDS, DECKING, STOPLOGS, AND OTHER MISC. ITEMS. DRILLING AND PATCHING AS INDICATED ON THE PLANS OR AS NECESSARY TO PROVIDE A SMOOTH NEAT, FINISHED SURFACE IS INCIDENTAL TO THIS ITEM. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY DISPOSING OF ALL REMOVED MATERIAL OFF-SITE. PAYMENT SHALL BE LUMP SUM.
- 16. BID ITEM FOR SOIL EROSION AND POLLUTION CONTROL SILT FENCE SHALL INCLUDE THE SUPPLY OF LABOR, MATERIAL, AND EQUIPMENT TO INSTALL SILT FENCE. EROSION CONTROL MEASURES ARE NOT SHOWN ON THE PLANS. THE ENGINEER HAS INCLUDED AN ESTIMATED QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE. EROSION CONTROL MEASURES SHALL BE INSTALLED ON AN AS-NEEDED BASIS AS DIRECTED BY THE ENGINEER OR OWNER. MEASUREMENT AND PAYMENT SHALL BE PER LINEAR FOOT INSTALLED.
- 17. BID ITEM FOR SOIL EROSION AND POLLUTION CONTROL WATTLE SHALL INCLUDE THE SUPPLY OF LABOR, MATERIAL, AND EQUIPMENT TO INSTALL WATTLES. EROSION CONTROL MEASURES ARE NOT SHOWN ON THE PLANS. THE ENGINEER HAS INCLUDED AN ESTIMATED QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE. EROSION CONTROL MEASURES SHALL BE INSTALLED ON AN AS-NEEDED BASIS AS DIRECTED BY THE ENGINEER OR OWNER. MEASUREMENT AND PAYMENT SHALL BE PER LINEAR FOOT INSTALLED.
- 18. BID ITEM FOR TEMPORARY ROLLED EROSION CONTROL PRODUCT (RECP) SHALL INCLUDE THE SUPPLY OF LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO INSTALL RECP WHERE INDICATED ON THE PLANS. DNR STAFF WILL BE SEEDING DISTURBED AREAS OF THE SITE THAT FALL WITHIN THE "LIMITS OF DISTURBANCE" AS INDICATED ON THE PLAN. ANY AREAS DISTURBED BY THE CONTRACTOR THAT FALL OUTSIDE OF THE "LIMITS OF DISTURBANCE" SHALL BE SEEDED BY THE CONTRACTOR AT THEIR COST. THE CONTRACTOR IS REQUIRED TO COORDINATE RECP INSTALLATION TO OCCUR IMMEDIATELY AFTER SEEDING BY DNR STAFF. PAYMENT SHALL PER SQUARE YARD OF INSTALLED RECP AS MEASURED IN THE FIELD AND VERIFIED BY THE ENGINEER.
- 19. BID ITEM FOR SEEDING AND MULCHING SHALL INCLUDE THE SUPPLY OF LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO SPREAD SEED AND MULCH ON ALL DISTURBED AREAS OF THE CONSTRUCTION SITE. SEEDING SHALL BE SUDAS TYPE 2 SEED MIXTURE PLACED CONVENTIONALLY UPON PREPARED SEEDBED. FERTILIZER SHALL BE APPLIED AS PER SUDAS FOR CONVENTIONAL SEEDING (PERMANENT) AND THEN HYDRO MULCHED USING A WOOD CELLULOSE MULCH. FULL COVERAGE OF THE SOIL SURFACE WITH MULCH IS REQUIRED. SEEDING DATES SHALL BE PER SUDAS. THE ENGINEER HAS INCLUDED AN ESTIMATED QUANTITY IN ORDER TO ESTABLISH A UNIT PRICE. ALL AREAS THAT ARE DISTURBED AND NOT SURFACED BY OTHER MEANS SHALL RECEIVE SEEDING/MULCHING PER THIS SPECIFICATION. NOTE, AREAS DISTURBED THAT ARE OUTSIDE THE AREA OF WORK SHALL BE SEEDED AND MULCHED BY THE CONTRACTOR BUT WILL NOT BE MEASURED AND WILL NOT BE INCLUDED IN PAYMENT UNLESS PRIOR APPROVAL IS PROVIDED BY THE ENGINEER. MEASUREMENT AND PAYMENT SHALL PER ACRE OR PART THEREOF AS MEASURED IN THE FIELD AND VERIFIED BY THE ENGINEER.

#### **SPECIFICATIONS**

- 101 GENERAL CONDITIONS
- 102 SUPPLEMENTAL CONDITIONS
- 201 MOBILIZATION
- 202 SITE PREPARATION
- 203 EXCAVATION
- 204 EMBANKMENT CONSTRUCTION 205 CONSTRUCTED TOPOGRAPHY
- 206 WATER
- 301 WATER CONTROL STRUCTURES
- 303 CULVERT AND PIPE INSTALLATION
- 304 CAST-IN-PLACE REINFORCED CONCRETE
- 305 RIPRAP, REVETMENT AND AGGREGATE PLACEMENT

302 STRUCTURE AND CULVERT APPURTENANCES

- 306 TOE DRAIN INSTALLATION
- 307 SHEET PILING 308 STEEL PILING
- 309 STRUCTURAL STEEL
- 311 REMOVAL OF EXISTING CULVERTS AND STRUCTURES
- 312 TILE DRAIN LOCATION AND REMOVAL
- 313 PUMP INSTALLATION
- 315 SUPPLY OF ELECTRICAL POWER

314 WATER WELL DRILLING

316 DIKE AND ROAD SURFACING 317 FENCING

LEGEND

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DIKE **©** 

CHANNEL **Q** 

MINOR CONTOUR

DITCH **©** 

EDGE OF

EDGE OF

VEGETATION

CULTIVATION

**APPROXIMATE** 

EDGE OF GRAVEL

- ROAD OR TRAIL **Q** 

WATERLINE

FENCE LINE

— 🗤 — EDGE OF WETLAND

**APPROXIMATE** 

PROPERTY LINE

APPROXIMATE RIGHT-OF-WAY LINE

SPOT ELEVATION

HORIZONTAL &

**BENCHMARK** 

VERTICAL CONTROL

----1415---- MAJOR CONTOUR

TREE LINE

**EXISTING** 

- 318 BUILDINGS
- 319 DECKING AND RAILING
- 320 WATER PIPELINE INSTALLATION
- 401 SOIL EROSION AND POLLUTION CONTROL
- 402 SEEDING AND MULCHING
- 403 HERBICIDE APPLICATION

**PROPOSED** 

————(1415)——— PROPOSED MAJOR CONTOUR

PROPOSED PIPE

STRUCTURE

PROPOSED MANHOLE

PROPOSED RIPRAP

PROPOSED MINOR CONTOUR

PROPOSED WATER CONTROL

PROPOSED SPOT ELEVATION

PROPOSED SPOIL/BORROW AREA

404 TRAFFIC MAINTENANCE AND CONTROL

OFFI( AFFIX SEAL: DUCKS UNLIMITED, INC 

S E E E E E

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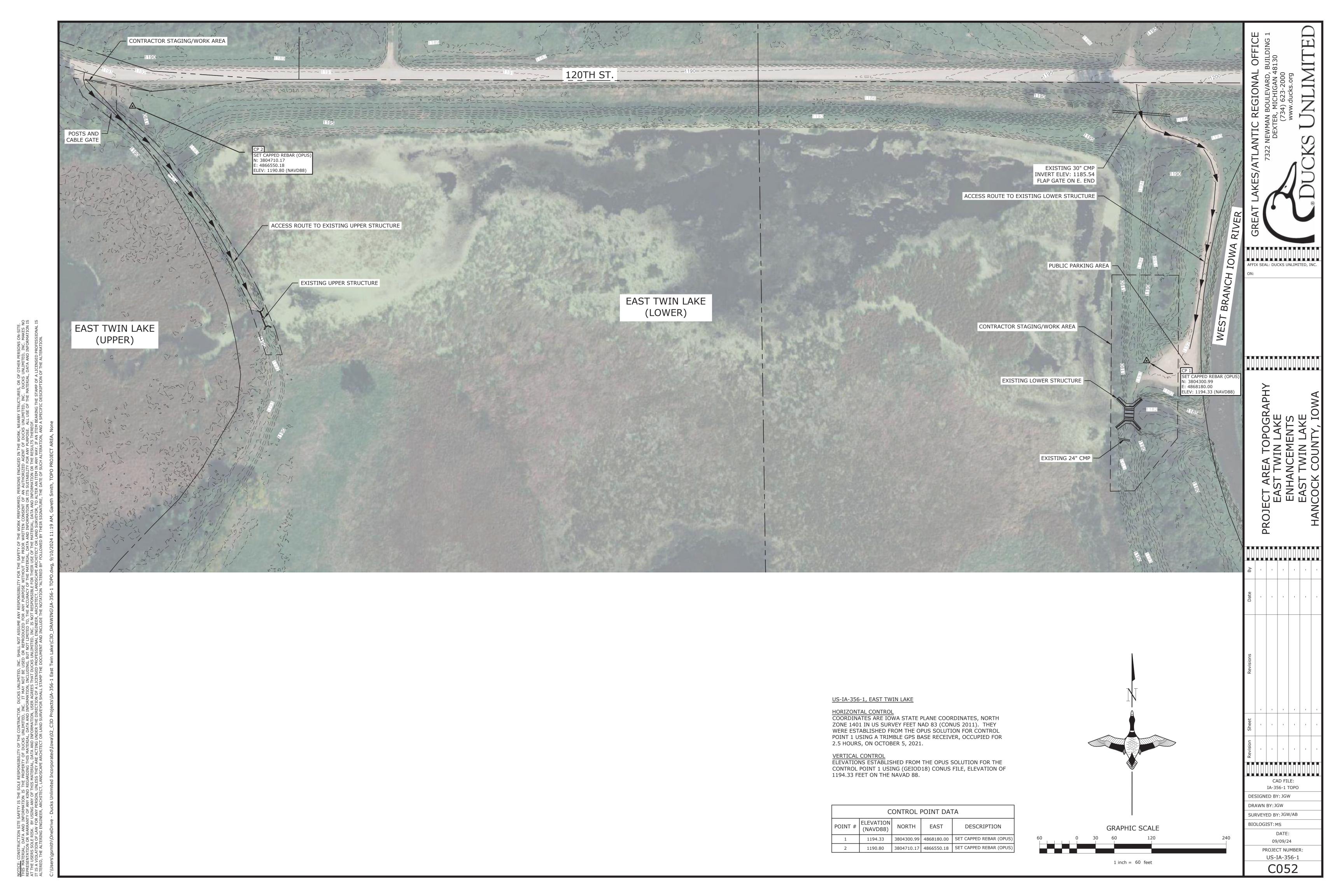
PROPOSED AGRIDRAIN STRUCTURE PROPOSED HEADWALL / ENDWALL ------

CAD FILE: IA-356-1 Cover and Notes DESIGNED BY: JGW

DRAWN BY:JGW SURVEYED BY: JGW/AB

BIOLOGIST: MS DATE: 11/11/24

PROJECT NUMBER: US-IA-356-1 C002



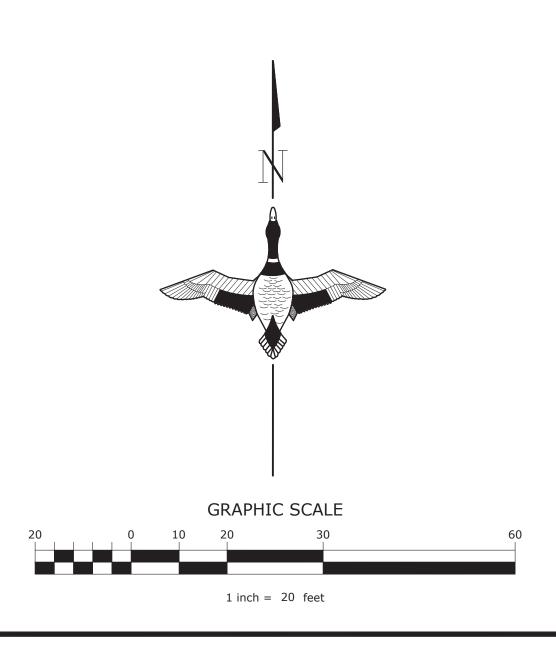




LOOKING NORTH AT EXISTING UPPER STRUCTURE

### REMOVAL KEYNOTES

- (A) REMOVE WOODEN PLANKS.
- B REMOVE TREE.
- C REMOVE TREES AND BRUSH. MOW VEGETATION TO PROVIDE 10' WIDE ACCESS AT TOP OF BERM BETWEEN EXISTING CABLE GATE AND EXISTING UPPER STRUCTURE. CONTACT DNR STAFF TO OPEN CABLE GATE.
- D REMOVE SEDIMENT AND DEPOSIT/SPREAD ON SOUTH SIDE OF SOUTH ABUTMENT WALL.



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LEMOVALS & TOPO DETA
UPPER STRUCTURE
EAST TWIN LAKE
ENHANCEMENTS
EAST TWIN LAKE

 Ision
 Sheet
 Revisions
 Date
 By

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CAD FILE:
IA-356-1 TOPO
DESIGNED BY: JGW
DRAWN BY: JGW
SURVEYED BY: JGW/AB

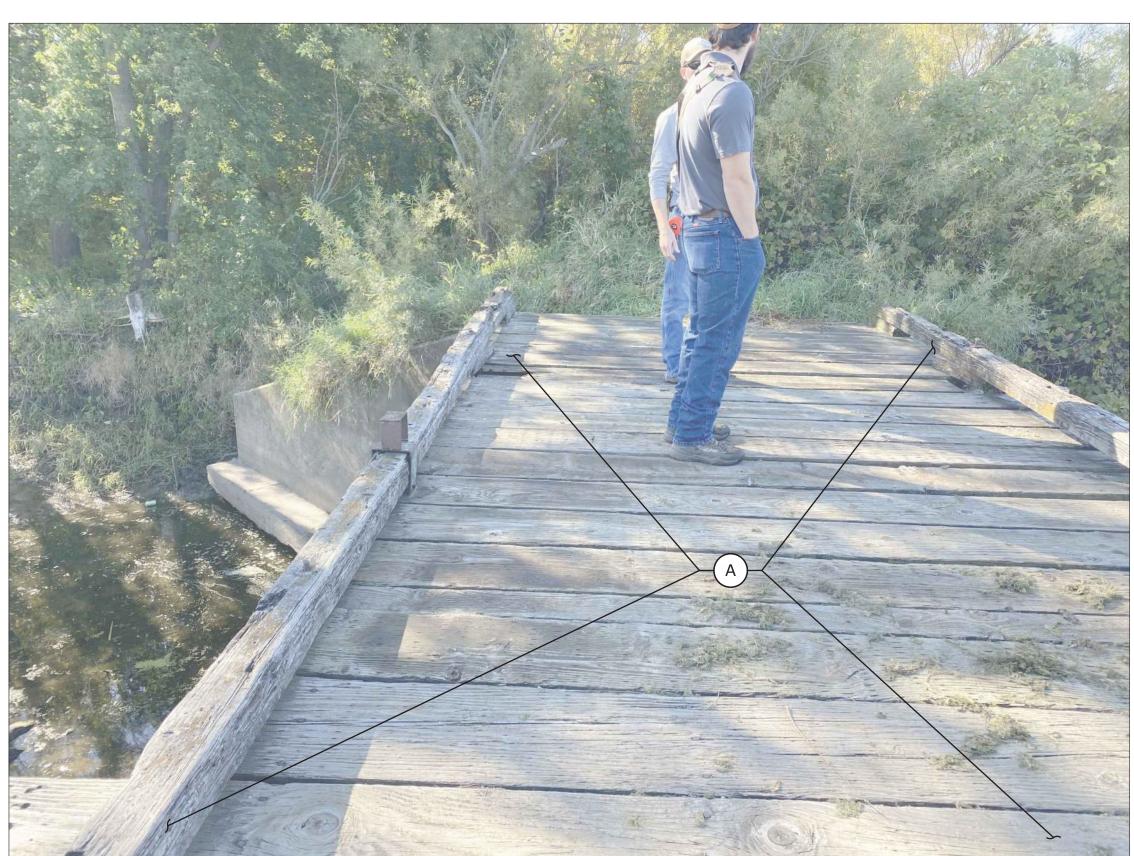
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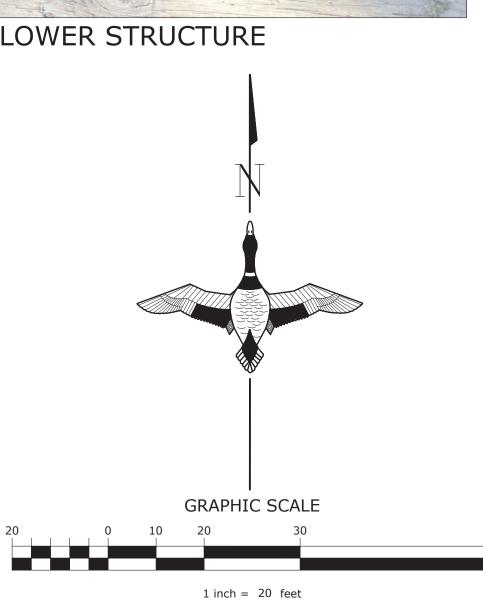
LOOKING WEST AT EXISTING LOWER STRUCTURE



LOOKING SOUTH AT EXISTING LOWER STRUCTURE

## REMOVAL KEYNOTES

- A REMOVE MIDDLE CONCRETE BASE SLAB (BETWEEN EXISTING CONSTRUCTION JOINTS), THREE MIDDLE WALLS, STEEL BEAMS, WOOD DECKING AND STOPLOGS TO THE LIMITS OUTLINED ON THIS SHEET.
- B REMOVE CMP CULVERT (CRUSHED AND ROTTED).
- C REMOVE TREES AND BRUSH TO LIMITS SHOWN ON THIS PLAN. MOW VEGETATION TO PROVIDE 10' WIDE ACCESS AT TOP OF BERM SOUTH OF EXISTING STRUCTURE FOR APPROXIMATELY 110'.
- D REMOVE EXISTING BOLLARD



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MOVALS & TOPO DETAIL LOWER STRUCTURE EAST TWIN LAKE ENHANCEMENTS EAST TWIN LAKE

 Sheet
 Revisions
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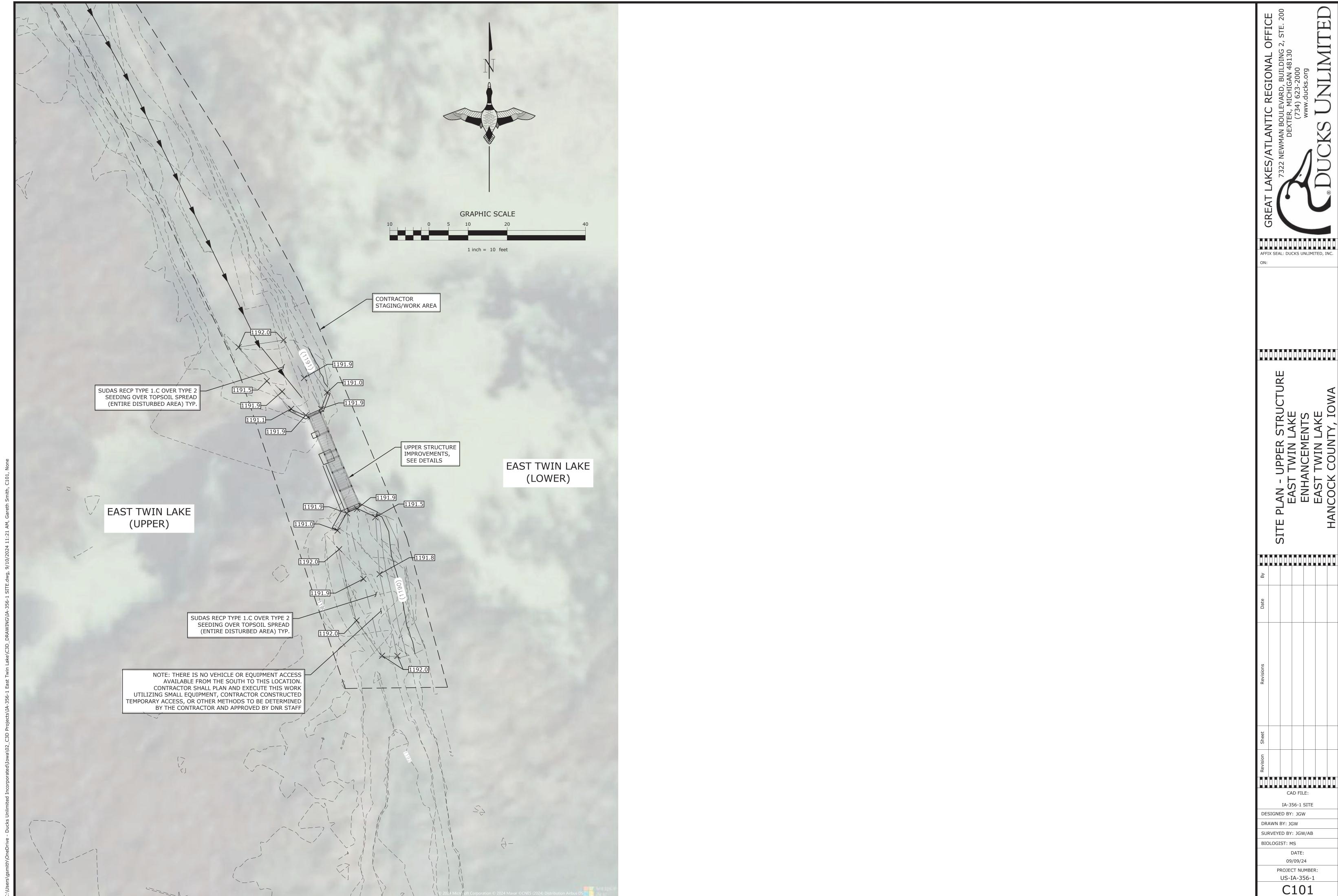
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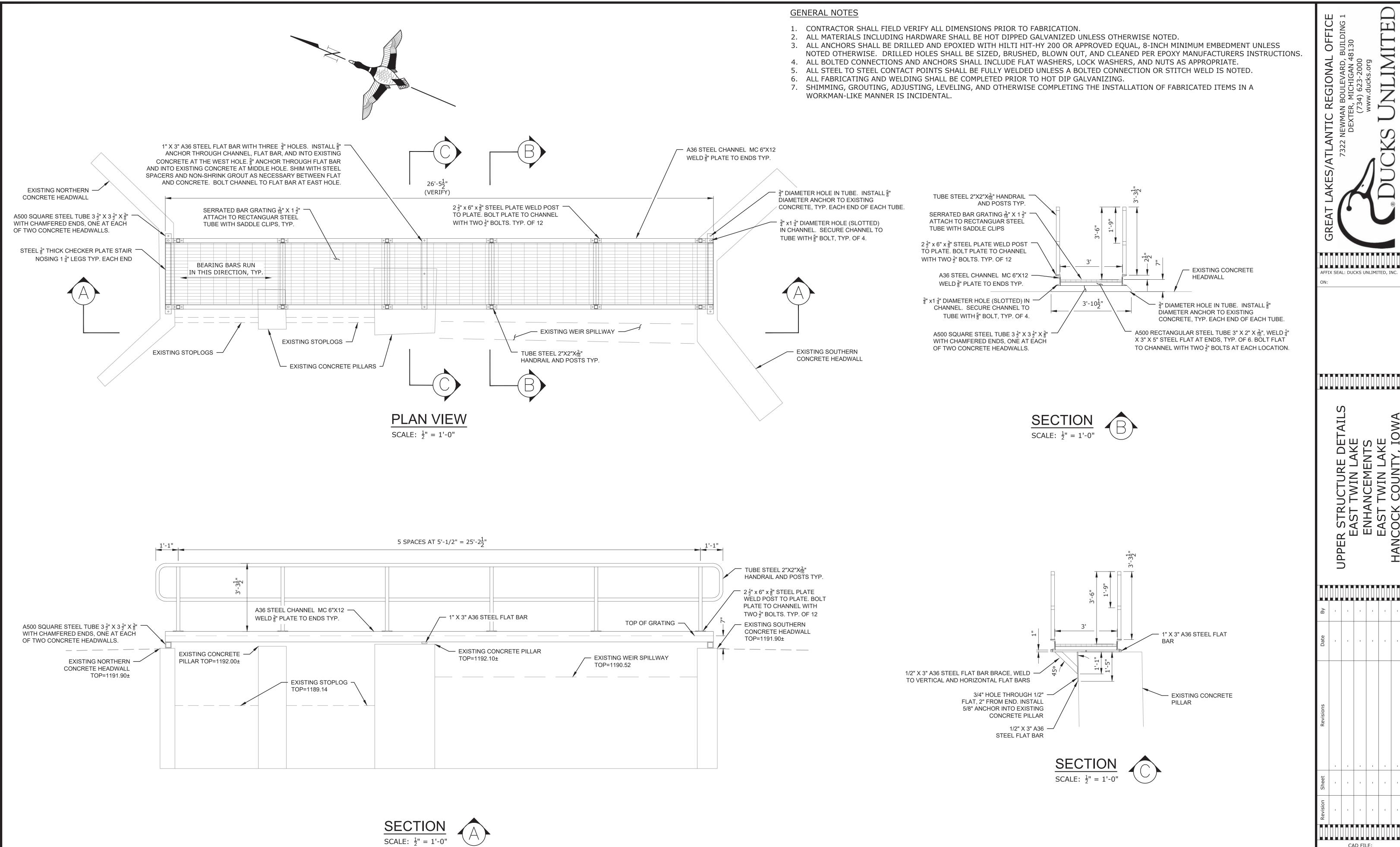
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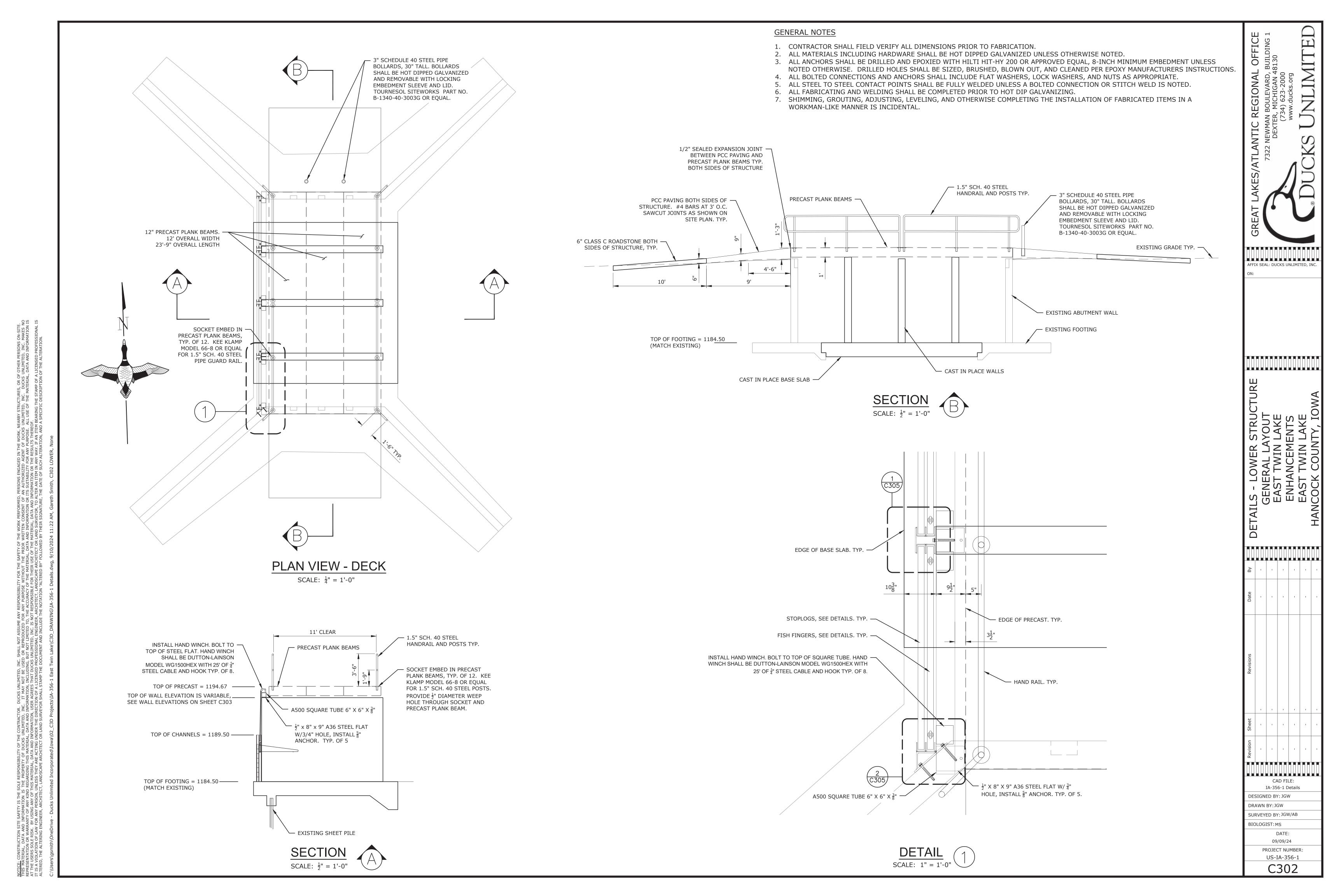
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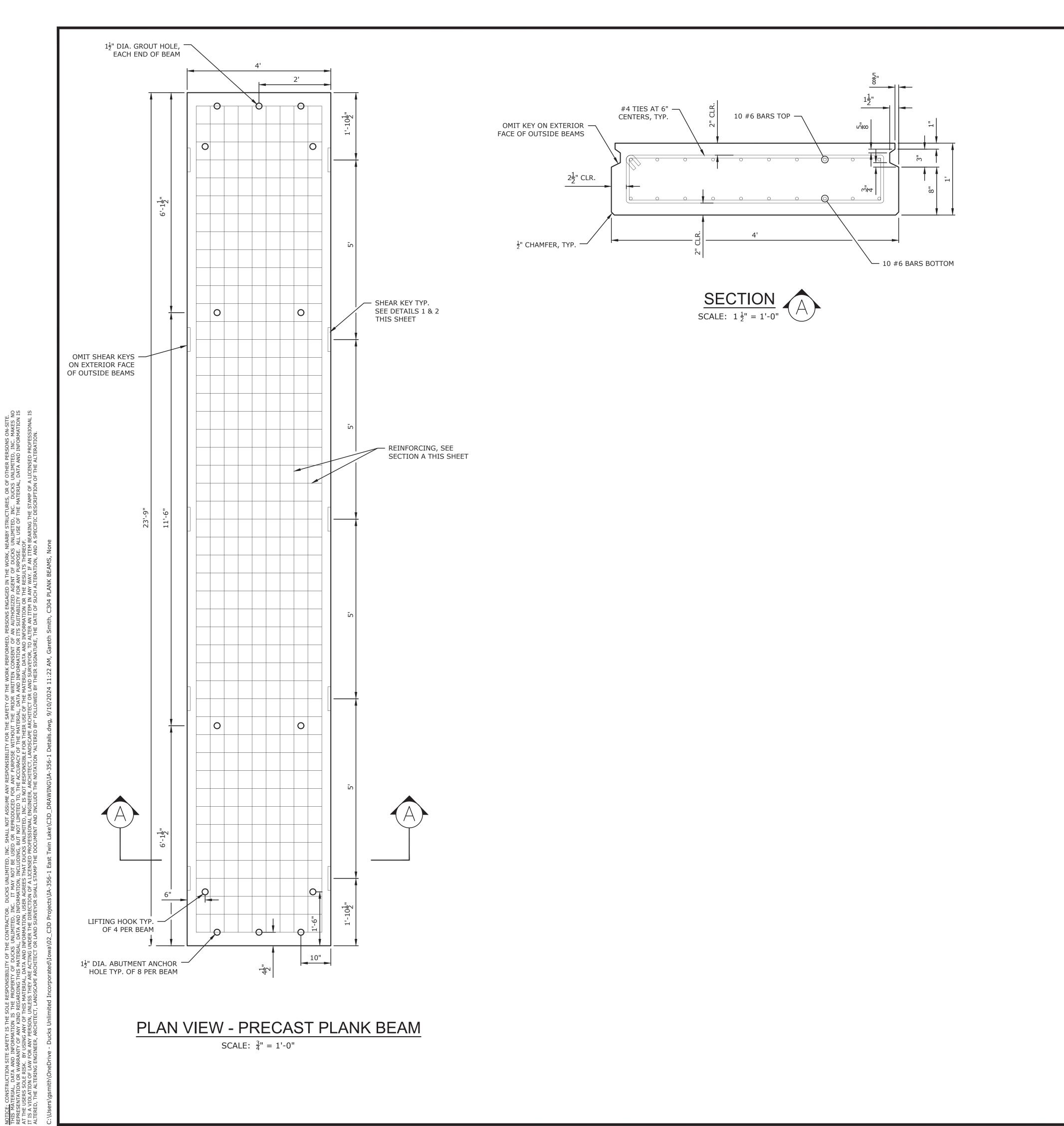
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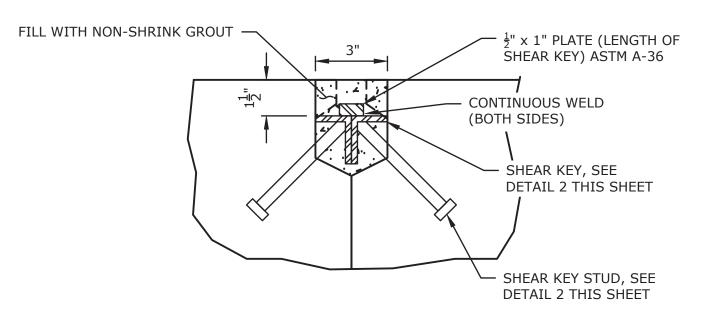
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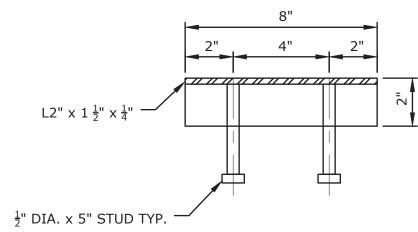
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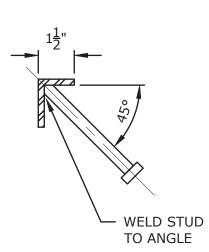




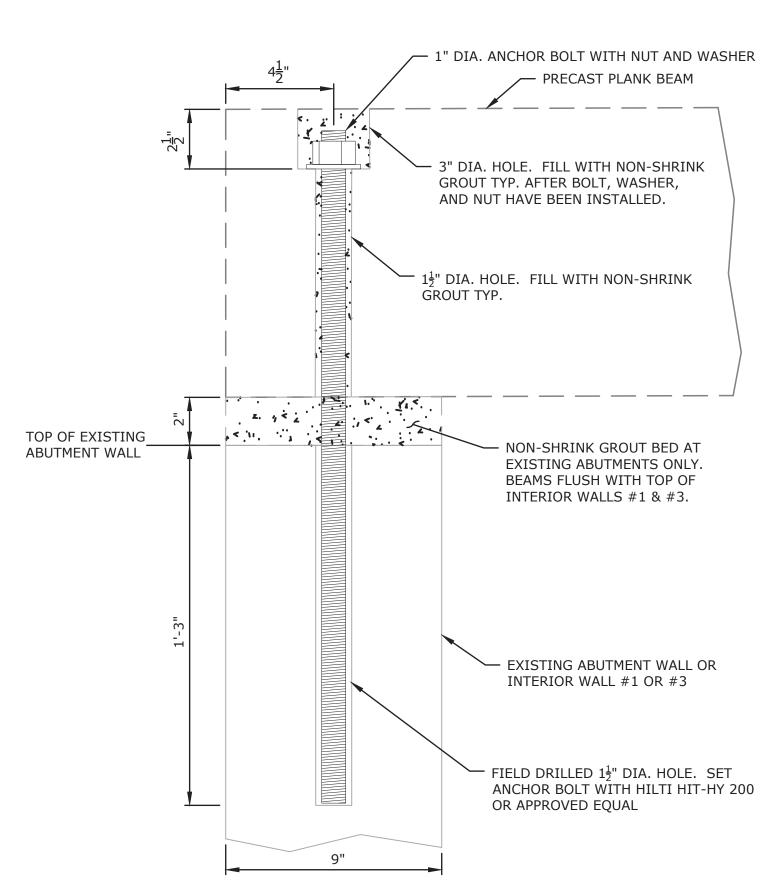


DETAIL - SHEAR KEY





DETAIL - SHEAR KEY EMBED ANGLES SCALE: 3" = 1'-0"





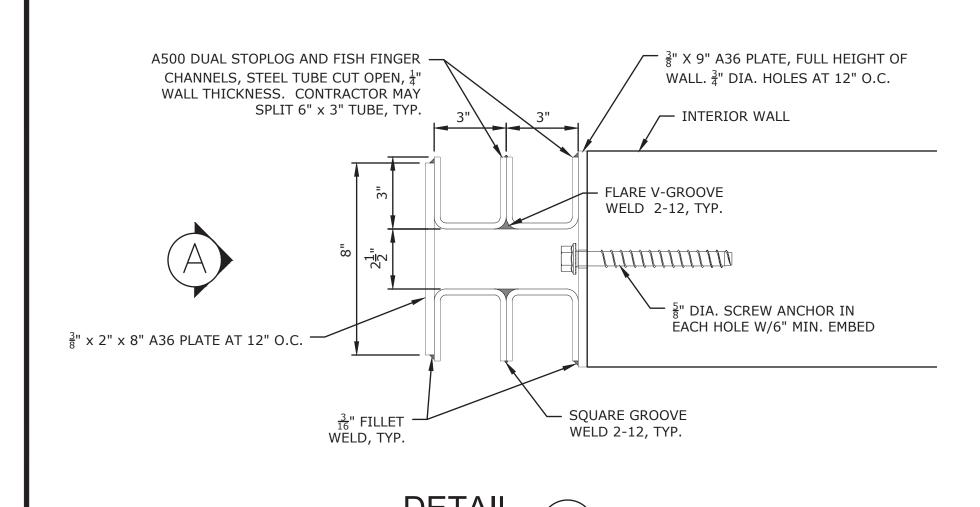
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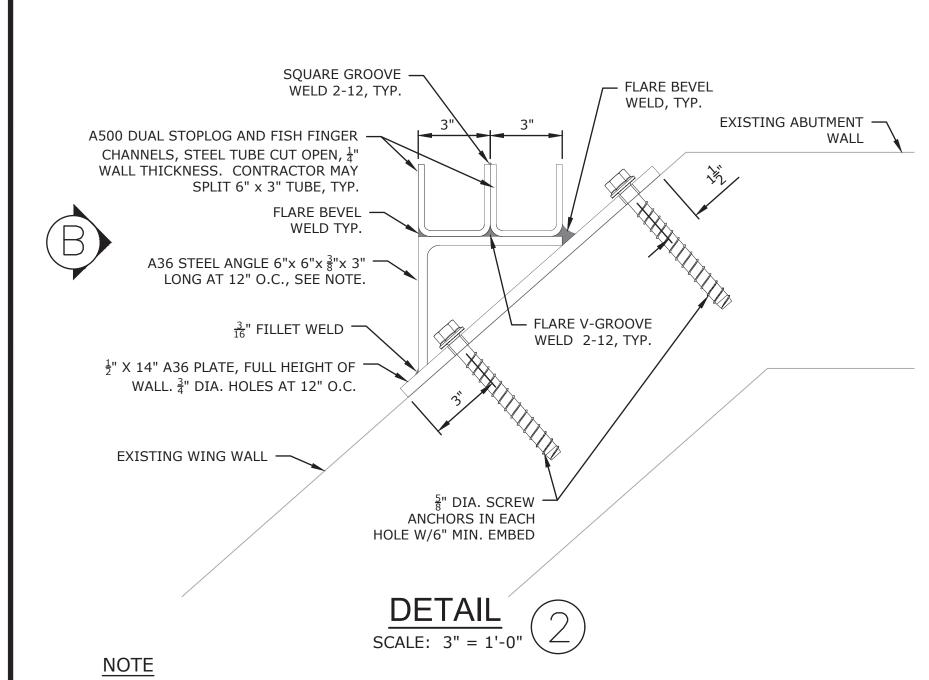
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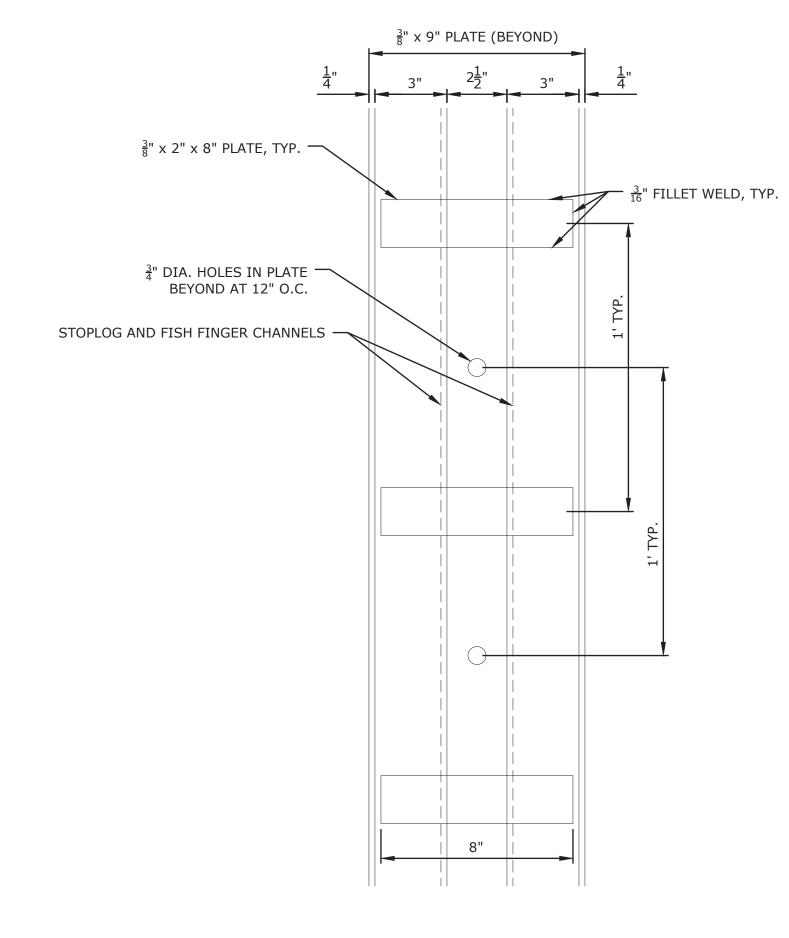
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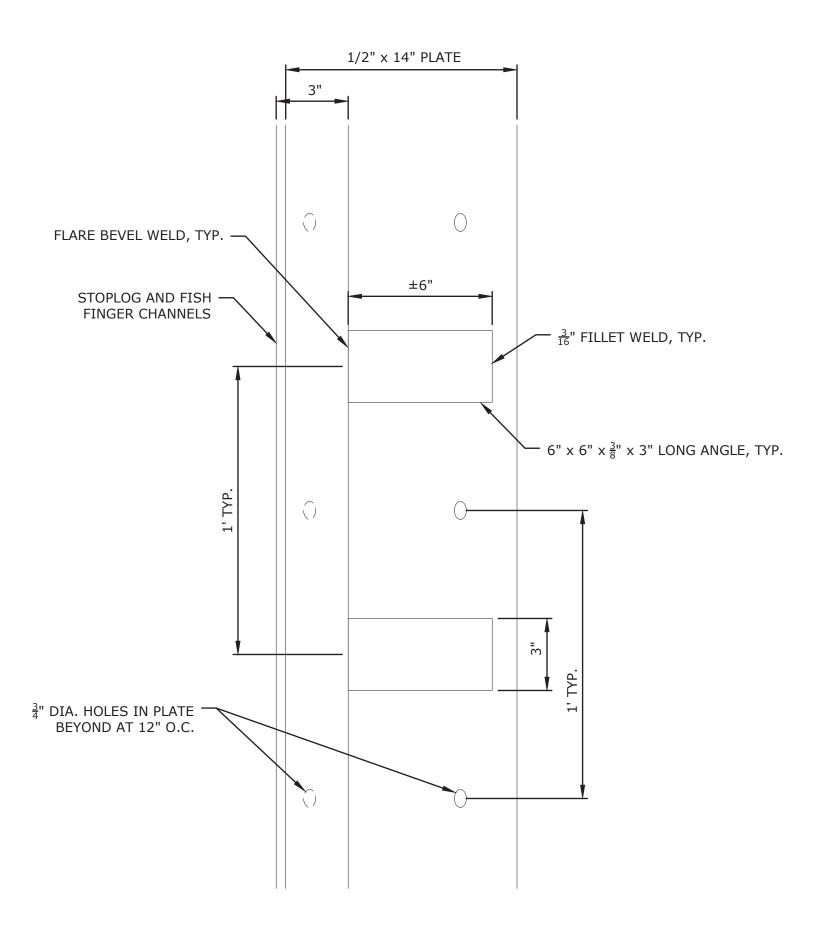




CONTRACTOR SHALL FIELD VERIFY ANGLE OF EXISTING ABUTMENT WING WALL AND PROVIDE MODIFIED ANGLE PIECE OR BENT PLATE AS NECESSARY TO MATCH ANGLE OF WING WALL.





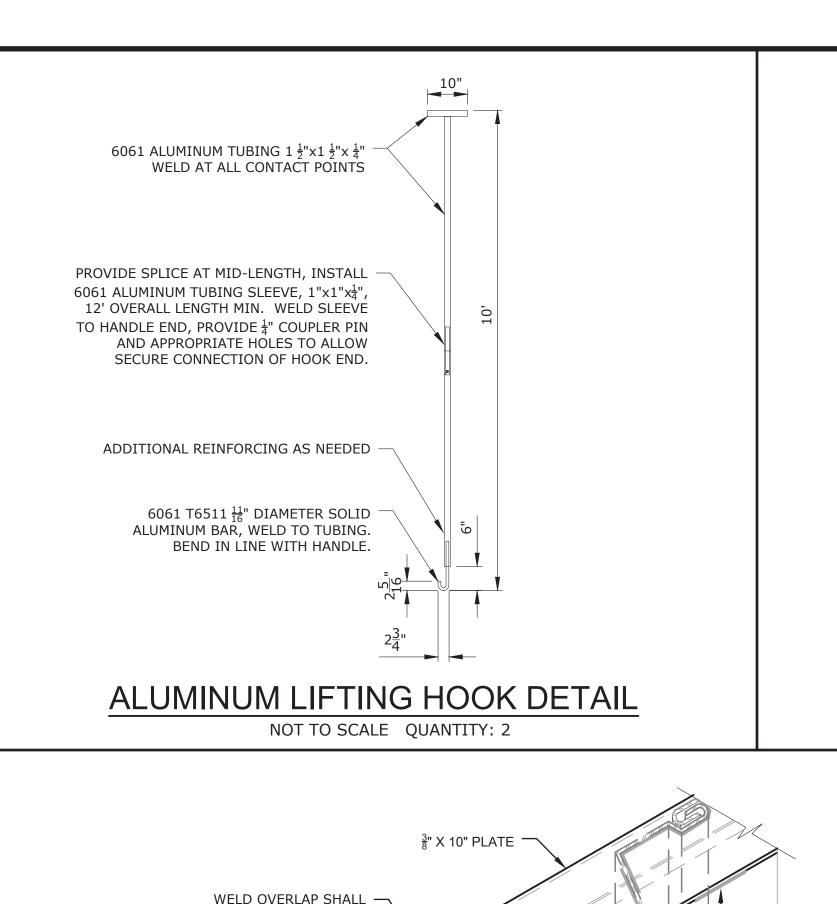




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C305



## TOP EDGE IS CRITICAL TO AVOID LEAKAGE. FINISHED SURFACES SHALL BE SMOOTH AND FLAT. 4. STOPLOGS ARE INCIDENTAL TO THE STRUCTURAL STEEL. 5. THE BOTTOM STOPLOG IN EACH BAY SHALL BE SET IN A BEAD OF POLYURETHANE SEALANT IN ORDER TO SEAL BETWEEN THE CONCRETE BASE SLAB AND THE ALUMINUM STOPLOG. 1" LESS THAN TOTAL TIGHT FIT, TO BE DETERMINED IN FIELD © <sub>(G</sub>)

STOPLOG NOTES

## **ALUMINUM STOPLOG DETAIL**

NOT TO SCALE

TOP VIEW

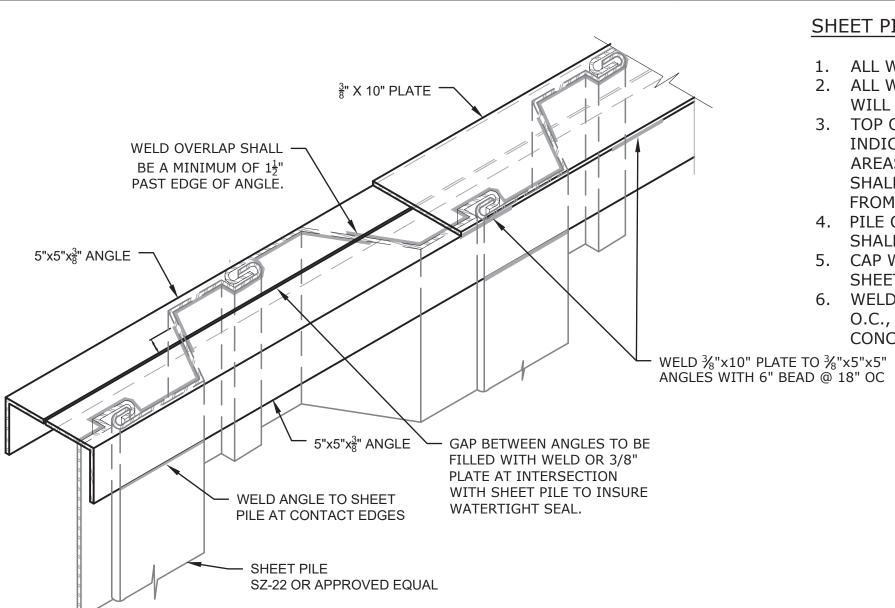
1. CONTRACTOR SHALL SUPPLY FABRICATED STOPLOGS OF

2. STOPLOGS SHALL BE FABRICATED FROM 6061 T6  $\frac{1}{4}$ " WALL

3. STOPLOG LENGTH AND SLOT SIZE/LOCATION CENTERED ON

QUANTITIES AND SIZES LISTED BELOW.

ALUMINUM RECTANGULAR TUBE.



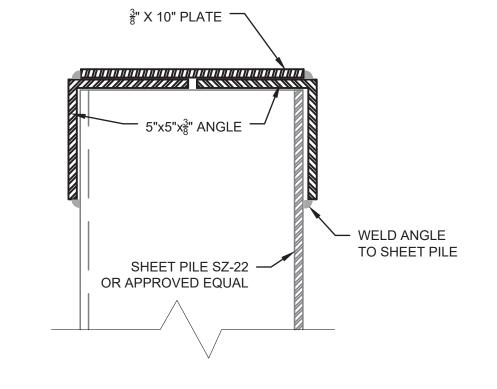
SHEET PILE CAP FABRICATION DETAIL

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#### SHEET PILE AND PILE CAP NOTES:

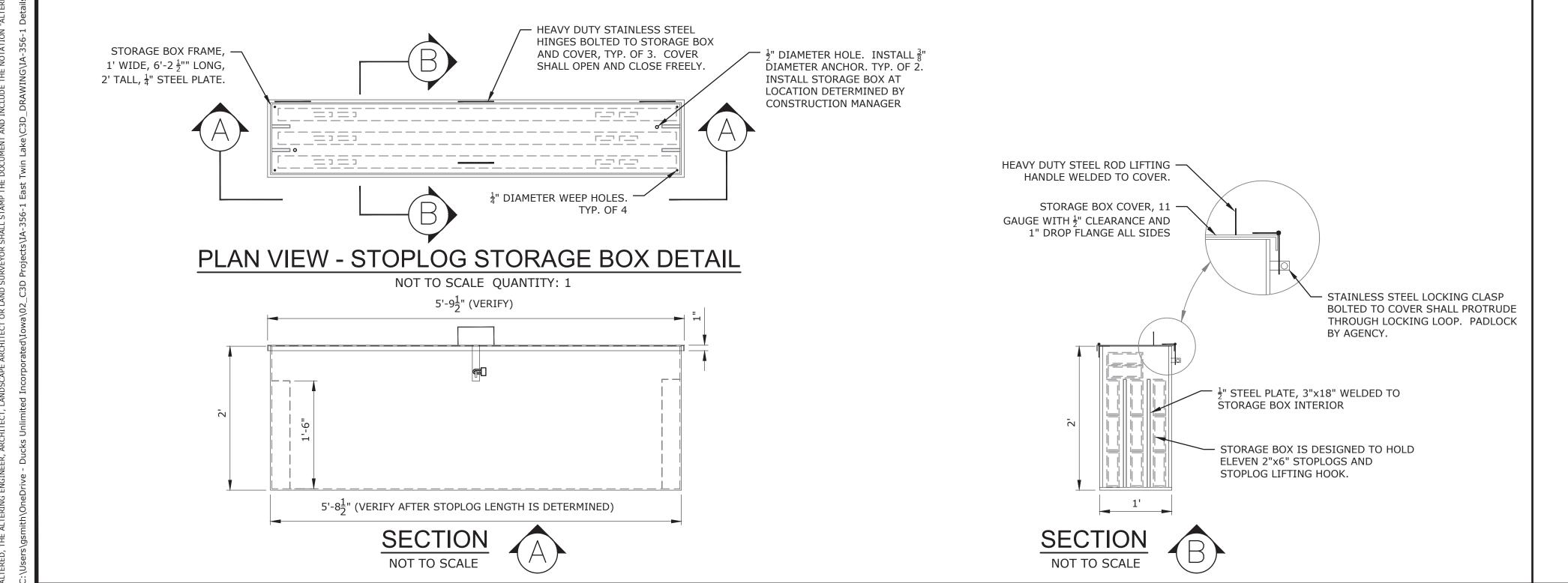
**EDGE VIEW** 

- ALL WELDS TO BE  $\frac{1}{4}$ " FILLET WELDS (SEE DU SPECIFICATIONS). 2. ALL WELDS ARE SUBJECT TO LAMPING, ANY AREAS FAILING
- WILL NEED TO BE RE-WELDED PRIOR TO ACCEPTANCE.
- TOP OF SHEET PILE SHALL BE TRIMMED TO TO GRADE INDICATED ON THIS PLAN AND TO REMOVE ANY DAMAGED AREAS FROM DRIVING OPERATIONS. ANY TRIMMING OVER 3" SHALL BE CONSIDERED CUT-OFF AND WILL BE DEDUCTED FROM THE COST OF SHEET PILE INSTALLATION.
- 4. PILE CAP IS NOT REQUIRED TO BE WATERTIGHT. WELDS SHALL CONSIST OF A 6" LONG BEAD AT 18" OC. MIN.
- 5. CAP WIDTH SHALL BE UNIFORM ALONG THE LENGTH OF THE SHEET PILE WALL.
- 6. WELDED EMBED STUDS OR SIMILAR ARE REQUIRED AT 18" O.C., 3" BELOW TOP OF PILE CAP ADJACENT TO POURED CONCRETE OR FLOWABLE MORTAR.



## PILE CAP SECTION VIEW

NOT TO SCALE



#### **GENERAL NOTES**

- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
- ALL MATERIALS INCLUDING HARDWARE SHALL BE HOT DIPPED GALVANIZED UNLESS OTHERWISE NOTED.
- ALL ANCHORS SHALL BE DRILLED AND EPOXIED WITH HILTI HIT-HY 200 OR APPROVED EQUAL, 8-INCH MINIMUM EMBEDMENT UNLESS NOTED OTHERWISE. DRILLED HOLES SHALL BE SIZED, BRUSHED, BLOWN OUT, AND CLEANED PER EPOXY MANUFACTURERS INSTRUCTIONS.
- ALL BOLTED CONNECTIONS AND ANCHORS SHALL INCLUDE FLAT WASHERS, LOCK WASHERS, AND NUTS AS APPROPRIATE.
- ALL STEEL TO STEEL CONTACT POINTS SHALL BE FULLY WELDED UNLESS A BOLTED CONNECTION OR STITCH WELD IS NOTED.
- ALL FABRICATING AND WELDING SHALL BE COMPLETED PRIOR TO HOT DIP GALVANIZING.
- SHIMMING, GROUTING, ADJUSTING, LEVELING, AND OTHERWISE COMPLETING THE INSTALLATION OF FABRICATED ITEMS IN A WORKMAN-LIKE MANNER IS INCIDENTAL.

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