ADDENDUM NO. 2

To: All Planholders
From: Frank A. Ferris, PE
Subject: Hidalgo County Irrigation District No. 6
New River Pumping Facility
Date: October 28, 2026

The Contract Documents, Specifications & Plans are hereby modified as follows:

CONTRACT DOCUMENTS AND SPECIFICATIONS

I. Section 00030 Invitation to Bid

- The Bid Opening date is hereby extended an additional five (5) calendar days from the Bid Opening Date in Addendum No. 1 to **2:00 PM on Tuesday, November 10, 2026.** Replace the words "Thursday, October 15, 2026", in the Contract Documents and Specifications, with the words "Tuesday, November 10, 2026".

II. Section 01300 Submittal Requirements

- Polyvinyl Chloride Pipe and Fittings shall require a formal submittal in accordance with the submittal requirements outlined in Section 01300.
- Gas Supply Piping Plan shall require a formal submittal in accordance with the submittal requirements outlined in Section 01300.

III. Section 07720 Roof Hatches

- Section 07720 "Roof Hatches", attached, is hereby added to the Technical Specifications in Volume 2 of the Contract Documents and Specifications.

IV. Section 15100 Vertical Pumping Units

- Change the requirement for a WP-2 type electric motor enclosure on page 15100-7 to a WP-I type.
- Both pumps shall be Vertical Hollow Shaft (VHS) type. No flanged coupling is required (15100-2.02 C.2 and 2.03 A.1)
- Both pumps shall have plain-end discharges, NOT flanged discharges (15100-2.02 C.6).

V. **Section 15101 Natural Gas Engine**

- The following shall be added to the "Fuel System" Subsection of Section 15101 on page 15101-2: "Contractor shall furnish and install natural gas supply piping, sized in accordance with the proposed engine's maximum fuel flowrate demand, from the utility company's gas meter to the engine's fuel inlet, including pipe, fittings (including but not limited to bends, couplings, reducers, adapters), sealants, hangars, paint/coatings, and required testing. Gas supply piping plan shall be reviewed by the Engineer and the gas utility company prior to installation to coordinate with the meter location and Owner's accessibility for site maintenance and operation."

CONSTRUCTION PLANS

I. **Sheets S1 – S15**

- Replace sheets S1 through S15 with the attached Revision 1 (10/28/26) sheets S1 through S15 Addendum No. 2.

Addendum No. 2 Issued by,
FERRIS, FLINN & MEDINA, LLC
TBPE Firm Reg. No. F-897



10.28.26

Frank A. Ferris, PE
President

SECTION 07720

ROOF HATCHES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: Provide factory-fabricated roof hatches for equipment access.

Roof hatches provided under this specification shall be compliant with Section 00900 Supplementary Special Conditions regarding Buy America Preference for Infrastructure Projects as required by the United States Bureau of Reclamation and US Iron & Steel requirements as required by the Texas Water Development Board, both of which are contributing funding for this project.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data.

B. Shop Drawings: Submit shop drawings including profiles, accessories, location, adjacent construction interface, and dimensions.

C. Warranty: Submit executed copy of manufacturer's standard warranty.

1.3 QUALITY ASSURANCE

A. Manufacturer: A minimum of 5 years experience manufacturing similar products.

B. Installer: A minimum of 2 years experience installing similar products.

C. Manufacturer's Quality System: Registered to ISO 9001 Quality Standards including in-house engineering for product design activities.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver products in manufacturer's original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

1.5 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard warranty. Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis-of-Design Manufacturer: Type D Roof Hatch by The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-800-366-6530, Fax: 1-203-535-1582, Web: www.BILCO.com.

2.2 ROOF HATCH

A. Furnish and install where indicated on plans metal roof hatch Type D, size 7'0" width X 9'0" length. Length denotes hinge side. The roof hatch shall be double leaf. The roof hatch shall be pre-assembled from the manufacturer.

B. Performance characteristics:

1. Covers shall be reinforced to support a minimum live load of 40 psf (195kg/m^2) with a maximum deflection of 1/150th of the span or 20 psf (97 kg/m^2) wind uplift.
2. Operation of the covers shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
3. Operation of the covers shall not be affected by temperature.
4. Entire hatch shall be weather tight with fully welded corner joints on covers and curb

C. Covers: Shall be [select: 14 gauge (1.9 mm) galvannealed steel or 11 gauge (2.3mm) aluminum] with a 3" (76mm) beaded flange with formed reinforcing members. Covers shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

D. Cover insulation: Shall be fiberglass of 1" (25mm) thickness, fully covered and protected by a metal liner [select: 22 gauge (.8mm) galvannealed steel or 18 gauge (1mm) aluminum].

E. Curb: Shall be 12" (305mm) in height and of [select: 14 gauge paint (1.9 mm) galvannealed steel or 11 gauge (2.3mm) aluminum]. The curb shall be formed with a 3-1/2" (89mm) flange with 7/16" (11mm) holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of the same gauge and material as the curb, fully welded at the corners, that features the Bil-Clip® flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold single ply roofing membrane securely in place.

F. Curb insulation: Shall be rigid, high-density fiberboard of 1" (25mm) thickness on outside of curb.

G. Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe [for aluminum construction: welded to the curb assembly; for steel construction: through bolted to the curb assembly].

H. Hardware

1. Heavy pintle hinges shall be provided
2. Covers shall be equipped with an enclosed two point spring latch with interior and exterior turn handles
3. Roof hatch shall be equipped with interior and exterior padlock hasps.
4. The latch strike shall be a stamped component bolted to the curb assembly.

5. Covers shall automatically lock in the open position with a rigid hold open arm equipped with a 1” (25mm) diameter red vinyl grip handle to permit easy release for closing.
6. Hardware: All hardware shall be zinc plated and chromate sealed. [For installation in highly corrosive environments or when prolonged exposure to hot water or steam is anticipated, specify Type 316 stainless steel hardware].
7. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.

I. Finishes: Factory finish shall be mill finished aluminum.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install products in strict accordance with manufacturer’s instructions and approved submittals. Locate units level, plumb, and in proper alignment with adjacent work.

1. Test units for proper function and adjust until proper operation is achieved.
2. Repair finishes damaged during installation.
3. Restore finishes so no evidence remains of corrective work.

3.3 ADJUSTING AND CLEANING

A. Clean exposed surfaces using methods acceptable to the manufacturer which will not damage finish.

END OF SECTION

I - STRUCTURAL

1. **SCOPE LIMITATION:**
THE DESIGN IS LIMITED TO THE STRUCTURAL ELEMENTS SHOWN ON THE DRAWINGS. ALL OTHER WORK, INCLUDING BUT NOT LIMITED TO MECHANICAL AND ELECTRICAL INSTALLATIONS; SLOPE STABILITY AGAINST SLIDING DUE TO SITE TOPOGRAPHY; EROSION AND SCOUR PROTECTION; AND HYDRAULIC STRUCTURE COMPONENTS AND REQUIREMENTS, IS EXCLUDED FROM THE SCOPE OF SERVICES OF BARRON ENGINEERING LLC. ACCORDINGLY, BARRON ENGINEERING LLC ASSUMES NO RESPONSIBILITY FOR THE DESIGN, PERFORMANCE, OR ADEQUACY OF THESE ITEMS.

2. **COORDINATION OF DOCUMENTS:**
THESE DRAWINGS, TOGETHER WITH ALL RELATED PROJECT DOCUMENTS, CONSTITUTE THE CONSTRUCTION DOCUMENTS. ANY INCONSISTENCIES OR CONFLICTS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER FOR CLARIFICATION PRIOR TO PROCEEDING.

3. **GENERAL NOTES:**
GENERAL NOTES FORM AN INTEGRAL PART OF THE CONSTRUCTION DOCUMENTS AND APPLY THROUGHOUT THE DRAWINGS UNLESS SPECIFICALLY NOTED OTHERWISE.

4. **SCALING OF DRAWINGS:**
DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS, MATERIAL LENGTHS, OR QUANTITIES. ONLY WRITTEN DIMENSIONS SHALL BE USED.

5. **FIELD VERIFICATION:**
THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS, ELEVATIONS, AND EXISTING SITE CONDITIONS. ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THE STRUCTURAL DRAWINGS SHALL BE REPORTED TO THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH THE AFFECTED WORK.

6. **SITE OBSERVATION AND CERTIFICATION:**
CERTIFICATION OF INSTALLED STRUCTURAL ELEMENTS, INCLUDING FOUNDATIONS, WILL NOT BE PROVIDED BY THE ENGINEER OF RECORD (E.O.R.) UNLESS SITE OBSERVATIONS ARE PERFORMED BY THE E.O.R. OR AN AUTHORIZED REPRESENTATIVE DURING CONSTRUCTION AND PRIOR TO CONCEALMENT OF THE WORK.

7. **CONSTRUCTION RESPONSIBILITY:**
CONSTRUCTION MEANS, METHODS, SEQUENCING, TEMPORARY BRACING, SHORING, FORMWORK, AND SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURAL DRAWINGS INDICATE THE FINAL DESIGN INTENT ONLY.

8. **MECHANICAL AND ELECTRICAL COORDINATION**:
   A. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SUPPORTS, HANGERS, ANCHORAGE, AND CONNECTIONS REQUIRED FOR MECHANICAL AND ELECTRICAL EQUIPMENT, INCLUDING, BUT NOT LIMITED TO, PUMPS, GAS ENGINES, ENGINE EXHAUST SYSTEMS, VFD EQUIPMENT, AND ALL ASSOCIATED INSTALLATIONS. ALL SUPPORTS, HANGERS, ANCHORAGE, AND CONNECTIONS SHALL BE DESIGNED AND INSTALLED TO SAFELY SUPPORT THE APPLICABLE EQUIPMENT WEIGHTS, OPERATING LOADS, VIBRATION, DYNAMIC EFFECTS, AND OTHER IMPOSED LOADS.

   B. TO ACCOUNT FOR DYNAMIC EFFECTS IN THE STRUCTURAL ANALYSIS AND DESIGN, THE PUMP AND GAS ENGINE LOADS HAVE BEEN DESIGNED USING IMPACT FACTORS OF 1.20 AND 1.50, RESPECTIVELY, IN ACCORDANCE WITH THE DESIGN CRITERIA. IF THE EQUIPMENT MANUFACTURER REQUIRES GREATER IMPACT OR DYNAMIC LOAD FACTORS, THE STRUCTURAL DESIGN, INCLUDING THE SUPPORTING CONCRETE SLAB AND OTHER AFFECTED STRUCTURAL ELEMENTS, SHALL BE REVIEWED AND REVISED AS REQUIRED PRIOR TO CONSTRUCTION.

   C. SUCH INSTALLATIONS SHALL NOT IMPOSE LOADS EXCEEDING THE DESIGN CAPACITY OF THE SUPPORTING STRUCTURAL MEMBERS. FLEXIBLE CONNECTIONS AT JOINTS ARE RECOMMENDED, WHERE APPROPRIATE, TO ACCOMMODATE ANTICIPATED STRUCTURAL SETTLEMENT AND MOVEMENT. THE CONTRACTOR SHALL COORDINATE ALL EQUIPMENT SUPPORTS, HANGERS, ANCHORAGE, CONNECTIONS, AND ASSOCIATED INSTALLATIONS WITH THE STRUCTURAL SHOP DRAWINGS PRIOR TO FABRICATION AND INSTALLATION.

9. **CONSTRUCTION LOADING AND SAFETY REQUIREMENTS:**
   A. THE CONCRETE SLAB AND SHEET PILES HAVE BEEN DESIGNED FOR A SURCHARGE LOAD OF 200 PSF. HEAVY CONSTRUCTION EQUIPMENT, INCLUDING CRANES AND CONCRETE TRUCKS, MAY BE PERMITTED TO OPERATE OVER STRUCTURAL ELEMENTS ONLY IF THE IMPOSED LOADS, INCLUDING IMPACT EFFECTS, DO NOT EXCEED THE DESIGN SURCHARGE CAPACITY. EQUIPMENT TYPE, CONFIGURATION, AND OPERATING CONDITIONS SHALL BE SELECTED AND CONTROLLED TO ENSURE COMPLIANCE WITH THIS LOAD LIMIT. ANY LOADS EXCEEDING THIS LIMIT SHALL BE EVALUATED AND APPROVED BY THE ENGINEER PRIOR TO OPERATION TO VERIFY THAT THE STRUCTURAL CAPACITY IS NOT EXCEEDED. STRUCTURAL FRAMING SHALL NOT BE OVERLOADED DURING CONSTRUCTION. DESIGN LOADS SHALL NOT BE APPLIED UNTIL ALL PERMANENT BRACING SYSTEMS, INCLUDING SHEATHING WHERE APPLICABLE, ARE FULLY INSTALLED.

   B. ACCUMULATED DEBRIS, INCLUDING TRASH, LOGS, STONES, MUD, AND OTHER SEDIMENT, SHALL BE REMOVED FROM THE STRUCTURAL MEMBERS AT REGULAR INTERVALS TO PREVENT EXCESSIVE LOADING OF THE STRUCTURE.

   C. ALL CONSTRUCTION PRACTICES SHALL COMPLY WITH APPLICABLE LOCAL REGULATIONS AND OSHA SAFETY STANDARDS.

10. REMOVAL OF OBSTRUCTIONS:
ALL ABANDONED OR EXISTING FOOTINGS, FOUNDATIONS, UTILITIES, PIPING, OR OTHER OBSTRUCTIONS THAT INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE IDENTIFIED AND REMOVED OR RELOCATED AS REQUIRED. AREAS AFFECTED BY SUCH REMOVALS SHALL BE REPLACED WITH PROPERLY COMPACTED FILL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND GEOTECHNICAL RECOMMENDATIONS.

11. **CODE COMPLIANCE:**
ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE MOST RECENT INTERNATIONAL BUILDING CODE (IBC) AND ALL APPLICABLE GOVERNING CODES.

II - FOUNDATION

1. **GEOTECHNICAL COMPLIANCE:**
THE FOUNDATION SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION REPORT PREPARED BY RABA KISTNER, INC. (RKI), PROJECT NO. AMA25-009-00, DATED SEPTEMBER 10, 2025. ALL CONSTRUCTION ACTIVITIES, INCLUDING EARTHWORK OPERATIONS, SUBGRADE PREPARATION, COMPACTION FOR CONCRETE SLAB CONSTRUCTION, SELECTION AND PLACEMENT OF FILL MATERIALS, AND BACKFILL COMPACTION, SHALL COMPLY WITH THE REQUIREMENTS AND RECOMMENDATIONS OUTLINED IN THE GEOTECHNICAL REPORT. ANY DEVIATIONS FROM THESE RECOMMENDATIONS SHALL BE REPORTED TO RKI FOR REEVALUATION OF THE DESIGN CRITERIA.

2. **SITE PREPARATION AND SUBGRADE:**
PRIOR TO CONSTRUCTION OR PLACEMENT OF FILL, ALL VEGETATION, ORGANIC TOPSOIL (INCLUDING GRASS AND ROOTS), AND ANY SOFT, LOOSE, WET, SENSITIVE, OR OTHERWISE UNSUITABLE SOILS SHALL BE REMOVED. ALL SUBGRADES SHALL BE PROOF ROLLED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. SOFT, LOOSE, WET, OR OTHERWISE UNSUITABLE SOILS IDENTIFIED DURING PROOF-ROLLING SHALL BE UNDERCUT AND REPLACED WITH APPROVED STRUCTURAL FILL TO FIRM, STABLE MATERIAL AS DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER. UNDERCUT DEPTH SHALL BE BASED ON ACTUAL SITE CONDITIONS.

3. **FOUNDATION CONSTRUCTION:**
THE FOUNDATION HAS BEEN DESIGNED USING AN ALLOWABLE SOIL BEARING CAPACITY, AS INDICATED IN THE GEOTECHNICAL REPORT. IF FOUNDATION ELEMENTS ARE CONSTRUCTED AT DIFFERENT DEPTHS OR UNDER CONDITIONS THAT RESULT IN A LOWER BEARING CAPACITY, RKI SHALL BE NOTIFIED FOR REEVALUATION OF THE RECOMMENDATIONS AND DESIGN CRITERIA PRIOR TO CONSTRUCTION.

4. **DEWATERING:**
THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE DEWATERING MEASURES TO CONTROL SURFACE WATER, GROUNDWATER, AND SEEPAGE DURING EXCAVATION AND CONSTRUCTION.

5. **TEMPORARY EARTH RETENTION:**
THE CONTRACTOR SHALL DESIGN, PERMIT, AND INSTALL ALL NECESSARY TEMPORARY EARTH RETENTION SYSTEMS, INCLUDING BUT NOT LIMITED TO SHORING, BRACING, SHEATHING, AND CRIBBING, TO SAFELY SUPPORT EXCAVATION SIDEWALLS AND PROTECT ADJACENT STRUCTURES.

6. **BACKFILL AND BRACING:**
EXCAVATIONS SHALL BE PROPERLY BACKFILLED IN ACCORDANCE WITH APPROVED PROCEDURES. BACKFILL SHALL NOT BE PLACED AGAINST RETAINING WALLS UNTIL CONCRETE OR MASONRY ELEMENTS HAVE ACHIEVED THE REQUIRED DESIGN STRENGTH. BELOW-GRADE WALLS SHALL BE BRACED OR OTHERWISE SUPPORTED AGAINST LATERAL EARTH PRESSURES UNTIL PERMANENT STRUCTURAL SUPPORT IS IN PLACE AND HAS REACHED FULL DESIGN STRENGTH. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED TEMPORARY BRACING.

7. **COMPACTION:**
BACKFILL WITHIN FOOTING EXCAVATIONS AND UTILITY TRENCHES INSIDE THE BUILDING FOOTPRINT SHALL BE PLACED IN CONTROLLED LIFTS AND MECHANICALLY COMPACTED TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

8. **UTILITIES THROUGH SLABS AND SHEET PILES:**
UTILITIES PASSING THROUGH CONCRETE SLABS AND SHEET PILES SHALL BE INSTALLED WITH FLEXIBILITY OR PROTECTIVE SLEEVES TO ACCOMMODATE MOVEMENT AND PREVENT DAMAGE.

9. **SCOUR AND EROSION PROTECTION:**
PROVIDE STONE RIPRAP PROTECTION AT THE INLET BOTTOM SLAB, ALONG THE SLOPE ADJACENT TO THE SHEET PILES, AND AT THE TOP SLAB AS SHOWN ON THE DRAWINGS. RIPRAP SIZE, THICKNESS, LIMITS, TOE PROTECTION, FILTER/BEDDING REQUIREMENTS, AND PLACEMENT SHALL BE DETERMINED BASED ON SITE-SPECIFIC GEOTECHNICAL AND HYDRAULIC CONDITIONS AND IN ACCORDANCE WITH APPLICABLE CODES, STANDARDS, SPECIFICATIONS, AND ENGINEERING PRACTICES. THE RIPRAP PROTECTION SYSTEM SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT THE RIPRAP DESIGN, CALCULATIONS, AND DETAILS FOR REVIEW PRIOR TO INSTALLATION

III - CONCRETE

1. **CODE COMPLIANCE:**
ALL CONCRETE-RELATED WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE LATEST ADOPTED EDITIONS OF ACI 318, ACI 315, ACI 301, AND ACI 350.

2. **COMPRESSIVE STRENGTH:**
MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH (F'_C) FOR STRUCTURAL CONCRETE SHALL BE 4000 PSI. THIS VALUE HAS BEEN SELECTED IN ACCORDANCE WITH TABLES 4.2(A) AND 4.2(B) OF ACI 350 FOR EXPOSURE CLASSES EF1 AND ES0, RESPECTIVELY. IF THERE IS A DEVIATION IN EXPOSURE CONDITIONS, INCLUDING INCREASED ENVIRONMENTAL SEVERITY OR WATER-SOLUBLE SULFATE CONCENTRATIONS BEYOND THOSE ASSUMED FOR EF1 AND ES0, THE MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH SHALL BE INCREASED ACCORDINGLY.

3. **AGGREGATES:**
AGGREGATES USED IN NORMAL-WEIGHT CONCRETE SHALL MEET THE REQUIREMENTS OF ASTM C33. ANY DEVIATIONS SHALL BE SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER.

4. **CONCRETE MIX DESIGN:**
CONCRETE MIX DESIGNS SHALL BE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 350 BY AN APPROVED TESTING AGENCY AND SUBMITTED FOR REVIEW. EACH MIX DESIGN SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE JURISDICTION OF THE PROJECT AND SHALL CLEARLY IDENTIFY THE PROJECT NAME AND THE INTENDED CONCRETE APPLICATION.

5. **CONCRETE BATCHING, MIXING, TRANSPORT, AND DELIVERY REQUIREMENTS:**
BATCHING, MIXING, TRANSPORTING, AND DELIVERY OF CONCRETE SHALL COMPLY WITH ASTM C94 AND APPLICABLE PROJECT SPECIFICATIONS.

6. **COORDINATION OF OPENINGS AND EMBEDDED ITEMS:**
THE CONTRACTOR SHALL VERIFY ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF OPENINGS, BLOCKOUTS, SLEEVES, CURBS, PADS, EMBEDDED ITEMS, AND PENETRATIONS PRIOR TO CONCRETE PLACEMENT. PRIMARY OPENINGS ARE GENERALLY INDICATED ON THE STRUCTURAL DRAWINGS; REFER TO THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR COMPLETE INFORMATION REGARDING THE SIZE AND LOCATION OF ALL OPENINGS AND EMBEDDED ITEMS NOT SHOWN ON THE STRUCTURAL PLANS. OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE INSTALLED WITHOUT PRIOR WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER. EMBEDDED CONDUITS OR PIPING SHALL COMPLY WITH SECTION 20.6 (EMBEDDED ITEMS) OF ACI 318.

7. **REINFORCING STEEL SUPPORT AND PLACEMENT REQUIREMENTS:**
REINFORCING STEEL SHALL BE ADEQUATELY SUPPORTED AND SECURED PRIOR TO AND DURING CONCRETE PLACEMENT. SUPPLEMENTAL SUPPORTS SHALL BE PROVIDED BY THE CONTRACTOR AS NECESSARY TO MAINTAIN PROPER POSITION AND ALIGNMENT.

8. **CONCRETE COVER:**
MINIMUM CLEAR CONCRETE COVER TO REINFORCING STEEL SHALL BE AS SPECIFIED BELOW, UNLESS NOTED OTHERWISE ON THE DRAWINGS:

CONCRETE EXPOSURE	MEMBER	REINFORCEMENT	SPECIFIED COVER, IN.
CAST AGAINST & PERMANENTLY INCONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	NO.6 THROUGH NO.18 BARS	2
		NO.5 BAR, W31 OR D31 WIRE, AND SMALLER	1-1/2
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLABS, JOISTS, AND WALLS	NO.14 AND NO.18 BARS	1-1/2
		NO.11 AND SMALLER	3/4
	BEAMS, COLUMNS, PEDESTALS, AND TENSION TIES	PRIMARY REINFORCEMENT, STIRRUP, TIES, SPIRALS, AND HOOPS	1-1/2

REQUIRED REINFORCING STEEL COVER SHALL BE CLEARLY INDICATED ON ALL REINFORCING SHOP DRAWINGS.

9. **FORMWORK DESIGN AND CONSTRUCTION REQUIREMENTS:**
   A. CONCRETE FORMWORK SHALL BE DESIGNED, CONSTRUCTED, AND MAINTAINED TO ACHIEVE THE LINES, GRADES, DIMENSIONS, AND CAMBER REQUIREMENTS INDICATED ON THE DRAWINGS.

   B. UNLESS OTHERWISE SPECIFIED, USE 3/4" X 3/4" CHAMFER STRIPS IN CORNERS OF FORMWORK TO PRODUCE BEVELED EDGES ON PERMANENTLY EXPOSED SURFACES. UNLESS OTHERWISE SPECIFIED, DO NOT BEVEL REENTRANT CORNERS OR EDGES OF FORMED JOINTS IN CONCRETE. (ACI 301)

10. **CONCRETE PLACEMENT:**
CONCRETE PLACEMENT PROCEDURES SHALL CONFORM TO ACI 304. EXISTING CONCRETE SURFACES RECEIVING NEW CONCRETE SHALL BE PROPERLY PREPARED TO ENSURE ADEQUATE BOND, INCLUDING CLEANING AND ROUGHENING OF THE SURFACE WHERE REQUIRED.

11. **CONSTRUCTION JOINT:**
   A. PROPOSED CONSTRUCTION JOINT LOCATIONS NOT INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO REINFORCING STEEL PLACEMENT. ALL APPROVED CONSTRUCTION JOINTS SHALL BE SHOWN ON THE REINFORCING SHOP DRAWINGS. ADDITIONAL REINFORCEMENT MAY BE REQUIRED AT APPROVED JOINT LOCATIONS.

   B. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED UNLESS EXPLICITLY SHOWN ON THE DRAWINGS OR APPROVED IN WRITING BY THE ARCHITECT/ENGINEER.

12. **TIME-DEPENDENT EFFECTS IN CONCRETE DESIGN:**
THE EFFECTS OF ELASTIC SHORTENING, SHRINKAGE, AND CREEP SHALL BE CONSIDERED, WHERE APPLICABLE, IN DETERMINING THE REQUIRED LENGTHS AND DIMENSIONS OF CONCRETE ELEMENTS.

IV - REINFORCEMENT STEEL

1. **STANDARDS AND CODE COMPLIANCE:**
REINFORCING STEEL FOR CONCRETE AND MASONRY CONSTRUCTION SHALL BE FURNISHED, FABRICATED, DETAILED, AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF ACI 318, ALONG WITH THE APPLICABLE PROVISIONS OF CRSI AND WCRSI STANDARD PRACTICE MANUALS, EXCEPT WHERE MODIFIED BY THE CONTRACT DRAWINGS AND PROJECT SPECIFICATIONS.

2. **MATERIAL REQUIREMENTS:**
UNLESS NOTED OTHERWISE, DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60.

3. **IDENTIFICATION AND TAGGING:**
REINFORCING BARS SHALL BE CLEARLY IDENTIFIED AND TAGGED TO ALLOW VERIFICATION DURING FINAL INSPECTION AFTER PLACEMENT.

4. **BENDING REQUIREMENTS:**
ALL REINFORCING BAR BENDS SHALL BE PERFORMED BY COLD BENDING METHODS. HEATING OF REINFORCING STEEL TO FACILITATE BENDING IS NOT PERMITTED.

5. **DOWELS:**
DOWELS CONNECTING FOOTINGS TO WALLS SHALL MATCH THE GRADE, BAR SIZE, SPACING, AND QUANTITY OF THE VERTICAL REINFORCEMENT UNLESS OTHERWISE NOTED ON THE DRAWINGS.

6. **REINFORCEMENT AROUND OPENINGS:**
ADDITIONAL REINFORCEMENT SHALL BE PROVIDED AROUND OPENINGS. REINFORCEMENT AT THE CORNERS OF OPENINGS SHALL BE DETAILED TO DEVELOP THE SPECIFIED YIELD STRENGTH (FY) IN TENSION THROUGH ADEQUATE STRAIGHT DEVELOPMENT LENGTH OR STANDARD HOOKS, IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.

7. **WELDING OF REINFORCING BARS REQUIREMENTS:**
WELDING OF REINFORCING BARS, WHEN PERMITTED, SHALL BE PERFORMED USING LOW-HYDROGEN ELECTRODES AND SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.4.

8. **WELDED WIRE REINFORCEMENT (WWR):**
   A. AWELDED WIRE REINFORCEMENT (WWR) SHALL CONFORM TO ASTM A1064/A1064M, UNLESS OTHERWISE SPECIFIED.

   B. BWELDED WIRE REINFORCEMENT SHALL BE DETAILED, FABRICATED, AND INSTALLED IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

   C. CWHERE WELDED WIRE REINFORCEMENT IS SPECIFIED, IT SHALL BE PLACED CONTINUOUSLY ACROSS SLABS OR SURFACES, UNINTERRUPTED BY BEAMS OR GIRDERS, AND SHALL BE PROPERLY LAPPED IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

9. HEADED SHEAR STUD REINFORCEMENT COVER:
CONCRETE COVER FOR HEADED SHEAR STUDS, INCLUDING HEADS AND BASE RAILS, SHALL MEET THE REQUIREMENTS OF ACI 318.

10. **SHOP DRAWINGS AND SUBMITTAL:**
REINFORCING STEEL SHOP DRAWINGS SHALL BE SUBMITTED FOR INFORMATIONAL REVIEW ONLY. ANY DEVIATION FROM THE CONTRACT DOCUMENTS, INCLUDING BAR SIZE, SPACING, QUANTITY, OR LOCATION, SHALL BE SUBMITTED THROUGH THE RFI PROCESS AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO INSTALLATION. SHOP DRAWINGS SHALL NOT SUPERSEDE THE DESIGN DRAWINGS OR SPECIFICATIONS.

V- STRUCTURAL STEEL

1. **CODES AND STANDARDS:**
STRUCTURAL STEEL DETAILING, FABRICATION, ERECTION, BOLTING, AND WELDING SHALL COMPLY WITH THE FOLLOWING:

   - AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360)
   - RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS
   - AMERICAN WELDING SOCIETY STANDARDS (AWS D1.1 – STRUCTURAL WELDING CODE – STEEL)
   - PROJECT SPECIFICATIONS
   - GOVERNING BUILDING CODES

2. **MATERIALS:**
STRUCTURAL STEEL SHAPES, PLATES, AND BOLTS SHALL CONFORM TO THE FOLLOWING:

   - W-SHAPES: ASTM A992, FY = 50 KSI
   - HSS (SQUARE AND RECTANGULAR): ASTM A500, GRADE B, FY = 46 KSI
   - HSS (ROUND): ASTM A500, GRADE B, FY = 42 KSI
   - PIPE STEEL: ASTM A53, FY = 35 KSI
   - ALL OTHER SHAPES AND PLATES: ASTM A36, FY = 36 KSI

3. **FASTENERS AND CONNECTIONS:**

   - HIGH-STRENGTH BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325 (OR GRADE A490 WHERE NOTED).
   - ANCHOR RODS SHALL CONFORM TO ASTM F1554 GRADE 36 UNLESS NOTED OTHERWISE.
   - THREADED RODS SHALL CONFORM TO ASTM A193 GRADE B7 OR ASTM A36 STEEL WHERE APPLICABLE.
   - HIGH-STRENGTH BOLTS SHALL BE INSTALLED IN THE SNUG-TIGHT CONDITION UNLESS DESIGNATED AS SLIP-CRITICAL OR FULLY TENSIONED CONNECTIONS.
   - SLIP-CRITICAL CONNECTIONS SHALL UTILIZE CLASS A FAYING SURFACES AND PRETENSIONED HIGH-STRENGTH BOLTS.
   - MINIMUM BOLT DIAMETER SHALL BE 3/4 INCH UNLESS NOTED OTHERWISE.
   - PROVIDE NOT LESS THAN TWO (2) BOLTS PER CONNECTION UNLESS NOTED OTHERWISE.

4. **SHOP DRAWINGS AND FABRICATION:**
THE STEEL FABRICATOR SHALL SUBMIT COMPLETE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

5. **SPLICING LIMITATIONS:**
BEAMS, COLUMNS, AND BRACES SHALL NOT BE SPLICED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.

6. **GROUTING:**
   A. NON-SHRINK GROUT SHALL CONFORM TO ASTM C1107 AND SHALL BE A PREPACKAGED, CEMENTITIOUS GROUT REQUIRING ONLY THE ADDITION OF WATER AT THE JOB SITE.
   B. GROUT SHALL BE USED TO SUPPORT STRUCTURES, MACHINERY, AND SIMILAR EQUIPMENT, AND FOR OTHER STRUCTURAL LOAD-TRANSFER APPLICATIONS INDICATED ON THE DRAWINGS.
   C. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
   D. GROUT SHALL BE PLACED, CONSOLIDATED, AND CURED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPLICABLE PROJECT SPECIFICATIONS.
   E. INSTALL GROUT UNDER BEARING AND BASE PLATES PRIOR TO INSTALLATION OF FRAMING MEMBERS. AT COLUMNS, PLACE GROUT BENEATH BASE PLATES AFTER COLUMNS HAVE BEEN PROPERLY PLUMBED AND ALIGNED, BUT PRIOR TO INSTALLATION OF FLOOR OR ROOF FRAMING.

7. **WELDING STANDARDS:**
   A. ALL WELDING SHALL BE PERFORMED BY WELDERS HOLDING VALID CERTIFICATIONS ISSUED BY AN APPROVED TESTING AGENCY AND HAVING CURRENT EXPERIENCE IN THE TYPE OF WELDS SHOWN ON THE DRAWINGS.
   B. ALL WELDS SHOWN ON THE DRAWINGS ARE DESIGNATED AS SHOP WELDS UNLESS NOTED OTHERWISE.
   C. THE CONTRACTOR MAY PERFORM SHOP OR FIELD WELDING AT THEIR DISCRETION; HOWEVER, ALL SHOP AND FIELD WELDS SHALL BE CLEARLY IDENTIFIED ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW.
   D. FULL-PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.

8. **WELD ROD SPECIFICATIONS:**
ALL WELDING SHALL USE E70 SERIES LOW-HYDROGEN ELECTRODES, UNLESS NOTED OTHERWISE.

9. **SHEAR STUDS AND ANCHORS:**
HEADED SHEAR STUDS AND ANCHORS SHALL CONFORM TO APPLICABLE ASTM STANDARDS AND BE INSTALLED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

10. **SURFACE PROTECTION:**
STRUCTURAL STEEL NOT EXPOSED TO WEATHER MAY REMAIN UNPAINTED UNLESS NOTED OTHERWISE. ALL EXTERIOR STRUCTURAL STEEL AND MISCELLANEOUS METALS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION, UNLESS SPECIFIED OTHERWISE, TO PROVIDE CORROSION PROTECTION AND ENSURE DURABILITY THROUGHOUT THE SERVICE LIFE OF THE STRUCTURE. THE THICKNESS SHOWN FOR ALL STEEL COMPONENTS IS BASED ON STRUCTURAL DESIGN REQUIREMENTS. WHERE ENHANCED CORROSION PROTECTION AND REDUCED POTENTIAL FOR DISTORTION DURING THE GALVANIZING PROCESS ARE DESIRED, INCREASED MEMBER THICKNESS SHALL BE CONSIDERED FOR STEEL COMPONENTS SUCH AS STEEL PLATES, W-SHAPES (WEBS AND FLANGES), ANGLES, AND SIMILAR MEMBERS.

11. **ERECTION AND TEMPORARY WORKS:**
THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY BRACING, SHORING, GUYING, AND ERECTION AIDS REQUIRED FOR SAFE CONSTRUCTION. ERECTION-RELATED CONSIDERATIONS SUCH AS CAMBER, SPLICES, AND SEQUENCING SHALL BE FULLY COORDINATED PRIOR TO FABRICATION.

12. **FIELD MODIFICATIONS:**
SPLICING OF MEMBERS SHALL ONLY BE PERMITTED WHERE SHOWN ON APPROVED SHOP DRAWINGS. FIELD CUTTING OR MODIFICATION OF STRUCTURAL STEEL SHALL NOT BE PERFORMED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.

VI - MASONRY

1. ALL MASONRY GROUTS SHALL CONFORM TO ASTM C476 AND THE REQUIREMENTS OF TMS 402/602.

2. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AND A MAXIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS. IN ALL CASES, THE COMPRESSIVE STRENGTH OF GROUT SHALL NOT BE LESS THAN THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, (F'M).

3. GROUT SHALL BE CONSOLIDATED AND RECONSOLIDATED IN ACCORDANCE WITH TMS 402/602 REQUIREMENTS. THE GROUT SHALL BE MIXED TO A SLUMP OF 8 TO 11INCHES.

4. PROVIDE MINIMUM CLEAR DISTANCE BETWEEN REINFORCEMENT AND MASONRY UNITS AS REQUIRED BY TMS 402/602 FOR PROPER GROUT PLACEMENT.

5. USE COARSE GROUT WHERE CELL DIMENSIONS AND REINFORCEMENT CLEARANCES COMPLY WITH TMS 402/602 REQUIREMENTS; OTHERWISE, USE FINE GROUT.

6. GROUT LIFT HEIGHTS, POUR HEIGHTS, AND CLEANOUT REQUIREMENTS SHALL COMPLY WITH TMS 402/602.

7. ALL GROUTED CELLS SHALL BE FREE OF MORTAR DROPPINGS AND DEBRIS PRIOR TO GROUT PLACEMENT.

8. PLACE HORIZONTAL AND VERTICAL REINFORCEMENT AS SHOWN ON THE DRAWINGS. PROVIDE VERTICAL REINFORCEMENT AT CORNERS, WALL INTERSECTIONS, MOVEMENT JOINTS, AND ON EACH SIDE OF OPENINGS AT THE SPECIFIED SPACING. PROVIDE HORIZONTAL REINFORCEMENT IN BOND BEAMS, AT ROOF AND FLOOR LEVELS, AT THE TOP OF WALLS, AND AT THE TOP AND BOTTOM OF OPENINGS AS INDICATED ON THE DRAWINGS.

9. ALL REINFORCED CELLS SHALL BE FULLY GROUTED. ALL OTHER CELLS SHALL REMAIN UNGROUTED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

10. MORTAR SHALL CONFORM TO ASTM C270 AND SHALL BE TYPE S UNLESS NOTED OTHERWISE.

11. THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY, F'M, SHALL BE A MINIMUM OF 1500 PSI UNLESS NOTED OTHERWISE.

12. REINFORCING STEEL AND JOINT REINFORCEMENT SHALL HAVE A MINIMUM YIELD STRENGTH, FY, OF 60 AND 70 KSI UNLESS NOTED OTHERWISE.

13. TYPICAL CONTROL JOINT LOCATIONS: AT A MAXIMUM OF ONE-HALF THE CONTROL JOINT SPACING FROM CORNERS; AT PILASTERS AND CHANGES IN WALL THICKNESS; ADJACENT TO LINTELS AND THROUGH OPENINGS IF NOT CROSSING VERTICAL REINFORCEMENT; BETWEEN MAIN AND INTERSECTING WALLS; AND AT CHANGES IN WALL HEIGHT.

14. CONTROL JOINTS IN MASONRY WALLS SHALL BE SPACED SUCH THAT THE MAXIMUM PANEL LENGTH DOES NOT EXCEED THE LESSER OF 1.5 TIMES THE WALL HEIGHT OR 25 FT.

15. BOND BEAM REINFORCEMENT SHALL BE CONTINUOUS ACROSS CONTROL JOINTS. JOINT REINFORCEMENT SHALL BE DISCONTINUED AT CONTROL JOINTS AND SHALL NOT EXTEND THROUGH THE JOINT.

16. THE SUPERIMPOSED ALLOWABLE LOAD ON THE STEEL ROOF DECK, INCLUDING THE 2-IN. CONCRETE THICKNESS, DECK WEIGHT, AND LIVE LOAD, SHALL BE LIMITED TO 60 PSF.

VII - POST INSTALLED ANCHORS (INTO CONCRETE AND MASONRY)

1. **REFERENCE STANDARDS:**
   A. POST-INSTALLED ANCHORS INTO CONCRETE SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH ACI 318, CHAPTER 17, AS REFERENCED BY THE GOVERNING BUILDING CODE, AND THE CURRENT ICC-ES EVALUATION REPORT FOR THE SPECIFIED ANCHOR SYSTEM.

   B. POST-INSTALLED ANCHORS INTO MASONRY SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH TMS 402/602, THE GOVERNING BUILDING CODE, AND THE CURRENT ICC-ES EVALUATION REPORT FOR THE SPECIFIED ANCHOR SYSTEM.

   C. POST-INSTALLED ANCHORS AND POST-INSTALLED REINFORCING BARS SHALL BE PROVIDED ONLY AT LOCATIONS SPECIFICALLY INDICATED ON THE APPROVED STRUCTURAL DRAWINGS.

   D. THE USE OF POST-INSTALLED ANCHORS OR REINFORCING BARS AS A CORRECTIVE MEASURE FOR OMITTED OR INCORRECTLY PLACED CAST-IN-PLACE ANCHORS OR REINFORCEMENT SHALL BE SUBJECT TO PRIOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD (EOR).

   E. EXISTING REINFORCEMENT WITHIN CONCRETE MEMBERS SHALL NOT BE CUT OR SEVERED UNLESS EXPRESSLY AUTHORIZED BY THE EOR. PRIOR TO DRILLING OR INSTALLATION, EXISTING REINFORCING STEEL SHALL BE LOCATED USING APPROVED DETECTION METHODS SUCH AS GPR, FERRO SCAN, X-RAY SCANNING, SELECTIVE CHIPPING, OR EQUIVALENT TECHNIQUES.

   F. POST-INSTALLED ANCHORAGE SYSTEMS AND REINFORCING BARS SHOWN ON THE DRAWINGS CONSTITUTE THE BASIS OF DESIGN. PROPOSED ALTERNATIVE SYSTEMS OF EQUAL OR SUPERIOR PERFORMANCE SHALL BE SUBMITTED TO THE EOR FOR REVIEW AND WRITTEN APPROVAL.

   G. PRODUCT SUBMITTALS, INCLUDING MANUFACTURER TECHNICAL DATA AND CURRENT ICC-ES EVALUATION REPORTS, SHALL BE PROVIDED FOR EOR APPROVAL. ADDITIONAL PROJECT-SPECIFIC CALCULATIONS MAY BE REQUIRED WHERE DEEMED NECESSARY BY THE EOR.

   H. INSTALLATION OF ALL POST-INSTALLED ANCHORS AND REINFORCING BARS SHALL STRICTLY COMPLY WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS, INCLUDING EDGE DISTANCE, SPACING, AND EMBEDMENT REQUIREMENTS SHOWN ON THE STRUCTURAL DRAWINGS. THOROUGHLY CLEAN HOLES AND REMOVE ALL DUST AND DEBRIS. HOLES SHALL BE DRY UNLESS THE ADHESIVE IS APPROVED FOR WET CONDITIONS. ROUGHENING OF THE HOLE IS RECOMMENDED.

   I. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL COORDINATE MANUFACTURER-PROVIDED INSTALLATION TRAINING FOR ALL ANCHOR SYSTEMS TO BE USED. ONLY INSTALLERS WITH DOCUMENTED TRAINING SHALL PERFORM THE WORK. TRAINING RECORDS SHALL BE MAINTAINED ON SITE AND MADE AVAILABLE TO THE EOR OR INSPECTOR UPON REQUEST.

   J. ADHESIVE ANCHORS AND POST-INSTALLED REINFORCING BARS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS AND SUBJECTED TO SUSTAINED TENSION LOADS SHALL BE INSTALLED ONLY BY PERSONNEL CERTIFIED AS ADHESIVE ANCHOR INSTALLERS (AAI) IN ACCORDANCE WITH ACI/CRSI REQUIREMENTS. CURRENT CERTIFICATION DOCUMENTATION SHALL BE SUBMITTED TO THE EOR PRIOR TO INSTALLATION.

   K. ADHESIVE ANCHOR SYSTEMS AND POST-INSTALLED REINFORCING BARS SHALL NOT BE INSTALLED IN CONCRETE UNTIL THE CONCRETE HAS ATTAINED A MINIMUM AGE OF 21 DAYS, UNLESS OTHERWISE APPROVED BY THE EOR IN ACCORDANCE WITH ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE PROVISIONS.

2. **CONCRETE ANCHORS:**
   A. MECHANICAL ANCHORS SHALL BE TESTED AND QUALIFIED FOR USE IN BOTH CRACKED AND UNCRACKED CONCRETE IN ACCORDANCE WITH ACI 355.2 QUALIFICATION OF POST-INSTALLED MECHANICAL ANCHORS IN CONCRETE AND ICC-ES AC193.

   B. ADHESIVE (EPOXY) ANCHORING SYSTEMS SHALL BE QUALIFIED FOR USE IN CRACKED AND UNCRACKED CONCRETE IN ACCORDANCE WITH ACI 355.4 QUALIFICATION OF POST-INSTALLED ADHESIVE ANCHORS IN CONCRETE AND ICC-ES AC308.

   C. CAST-IN-PLACE INSERTS SHALL COMPLY WITH ICC-ES AC446 REQUIREMENTS FOR USE IN CRACKED AND UNCRACKED CONCRETE.

3. **MASONRY ANCHORS:**
   A. MECHANICAL ANCHORS INSTALLED IN MASONRY SHALL BE TESTED AND QUALIFIED IN ACCORDANCE WITH ICC-ES AC01 OR AC106, AS APPLICABLE.

   B. ADHESIVE ANCHORS USED IN MASONRY CONSTRUCTION SHALL COMPLY WITH ICC-ES AC58.

4. **POWER-ACTUATED FASTENERS:**
POWER-ACTUATED FASTENING SYSTEMS SHALL BE TESTED AND APPROVED IN ACCORDANCE WITH ICC-ES AC70.

5. **SPECIAL INSPECTION REQUIREMENTS:**
SPECIAL INSPECTIONS SHALL BE PROVIDED FOR ALL MECHANICAL AND ADHESIVE ANCHOR INSTALLATIONS IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE AND CURRENT ICC-ES EVALUATION REPORTS.

   A. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR ADHESIVE ANCHORS AND POST-INSTALLED REINFORCING BARS INSTALLED IN HORIZONTAL, UPWARDLY INCLINED, OR OVERHEAD ORIENTATIONS AND DESIGNED TO RESIST SUSTAINED TENSION LOADS.

   B. INSPECTIONS SHALL BE PERFORMED BY INSPECTORS APPROVED BY THE BUILDING OFFICIAL AND QUALIFIED IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

6. **OWNER'S TESTING AGENCY:**
   A. THE OWNER SHALL RETAIN AN INDEPENDENT TESTING AND INSPECTION AGENCY TO PERFORM REQUIRED TESTING AND SPECIAL INSPECTIONS IN ACCORDANCE WITH IBC CHAPTER 17 AND PROJECT REQUIREMENTS.

   B. THE CONTRACTOR SHALL PROVIDE ADEQUATE ADVANCE NOTICE TO FACILITATE SCHEDULING OF INSPECTIONS AND TESTING.

7. **QUALITY ASSURANCE PLAN:**
   A. QUALITY ASSURANCE (QA) PLAN SHALL BE PROVIDED WHERE REQUIRED IN ACCORDANCE WITH IBC SECTION 1705.

8. **SPECIAL INSPECTION SCOPE:**
SPECIAL INSPECTIONS SHALL INCLUDE, AS APPLICABLE, STRUCTURAL STEEL (WELDING AND HIGH-STRENGTH BOLTING), CONCRETE (REINFORCING STEEL PLACEMENT AND ANCHORS), AND MASONRY (REINFORCEMENT AND GROUTING), IN ADDITION TO POST-INSTALLED ANCHORS.

9. **STATEMENT OF SPECIAL INSPECTIONS:**
A STATEMENT OF SPECIAL INSPECTIONS SHALL BE SUBMITTED IDENTIFYING THE TYPE AND EXTENT OF REQUIRED INSPECTIONS AND TESTS, INCLUDING WHETHER INSPECTIONS ARE CONTINUOUS OR PERIODIC, IN ACCORDANCE WITH APPLICABLE BUILDING CODE REQUIREMENTS AND PROJECT SPECIFICATIONS.

BARRON ENGINEERING
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832-295-3600
TBPE FIRM No. F-23075

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FIRM REGISTRATION NO.: 100370-00

STATE OF TEXAS — SEIYED ALI HAJ SEIYED TAGHIA — 153533 — LICENSED PROFESSIONAL ENGINEER

10/28/2026

REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
GENERAL NOTES I

SCALE: AS SHOWN
DRAWN BY:
FILE:
DATE:09/30/2026

S1 (1)

S15

VIII – SHEET PILES

1. MECHANICAL CONNECTIONS FOR DISCHARGE PIPES SHALL NOT COMPROMISE THE STRUCTURAL INTEGRITY OF THE PIPE-Z COMBI WALL. DISCHARGE PIPES SHALL PASS THROUGH THE NZ14 SHEET PILES AND BE FULLY WELDED TO THE NZ14 SHEET PILES. DISCHARGE PIPES SHALL NOT INTERSECT OR CONFLICT WITH THE 42-INCH-DIAMETER PIPE PILES OF THE COMBI WALL UNDER ANY CIRCUMSTANCES.

2. WHERE THE SHEET PILE COMPONENTS (NZ14 SHEET PILES AND 42-INCH-DIAMETER PIPE PILES) INTERSECT, ADEQUATE CONNECTORS SHALL BE PROVIDED TO ENSURE PROPER LOAD TRANSFER BETWEEN THE COMPONENTS UNDER LATERAL SOIL PRESSURE THROUGHOUT THE FULL HEIGHT OF THE SHEET PILE SYSTEM.

3. EXCAVATION, BRACING, AND CONSTRUCTION:

   A. TEMPORARY EXCAVATION, BRACING, AND CONTRACTOR RESPONSIBILITY: THE CONTRACTOR SHALL DEVELOP AND SUBMIT A DETAILED EXCAVATION AND CONSTRUCTION SEQUENCE FOR THE ENTIRE PROJECT, INCLUDING A TEMPORARY LATERAL BRACING SYSTEM DESIGNED TO RESIST THE LATERAL SOIL PRESSURES ACTING ON THE SHEET PILES. THE TEMPORARY EXCAVATION, SHEET PILES, BRACING SYSTEM, EXCAVATION SEQUENCE, AND CONSTRUCTION PROCEDURES SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, AND THE DESIGN DOCUMENTS SHALL BE SIGNED AND SEALED BY THAT ENGINEER AND SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO THE START OF EXCAVATION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE TEMPORARY EXCAVATION, SHEET PILES, TEMPORARY BRACING SYSTEM, EXCAVATION SEQUENCE, AND CONSTRUCTION PROCEDURES. THE BRACING SYSTEM SHALL BE INSTALLED PROGRESSIVELY AND IN COORDINATION WITH THE EXCAVATION, AS REQUIRED BY THE APPROVED CONSTRUCTION SEQUENCE. EXCAVATION SHALL NOT PROCEED BELOW ANY STAGE REQUIRING BRACING UNTIL THE REQUIRED BRACING HAS BEEN INSTALLED AND SECURED. BRACING SHALL NOT BE DEFERRED UNTIL AFTER COMPLETION OF THE EXCAVATION. THE TEMPORARY BRACING SYSTEM SHALL NOT INTERFERE WITH OR INTERSECT ANY PERMANENT STRUCTURAL COMPONENT UNLESS THE BRACING IS DESIGNED TO BECOME PART OF THE PERMANENT STRUCTURE.

   B. TEMPORARY BRACING REMOVAL: THE TEMPORARY BRACING SYSTEM SHALL NOT BE REMOVED, CUT, OR MODIFIED UNTIL ALL REQUIRED PERMANENT STRUCTURAL COMPONENTS HAVE BEEN CONSTRUCTED AND HAVE ACHIEVED THE REQUIRED STRENGTH, OR UNTIL A LICENSED PROFESSIONAL ENGINEER HAS VERIFIED THAT THE COMPLETED STRUCTURAL COMPONENTS ARE CAPABLE OF SUPPORTING ALL APPLICABLE LATERAL SOIL PRESSURES AND OTHER DESIGN LOADS WITHOUT THE TEMPORARY BRACING.

   C. FILL AROUND DISCHARGE PIPES: THE FILL MATERIAL SHALL BE PLACED IN FULL AND CONTINUOUS CONTACT WITH THE DISCHARGE PIPES TO PROVIDE ADEQUATE SUPPORT AND ENSURE PROPER TRANSFER OF THE PIPE WEIGHT TO THE SURROUNDING FILL MATERIAL. THE CONTRACTOR SHALL CONTROL THE RATE AND SEQUENCE OF FILL PLACEMENT TO PREVENT EXCESSIVE TEMPORARY OR DIFFERENTIAL PRESSURE ON THE DISCHARGE PIPES. THE REQUIRED FILL DEPTH SHALL BE SPECIFIED BY A LICENSED GEOTECHNICAL ENGINEER.

   D. MONITORING, FIELD OBSERVATIONS, AND UNFORESEEN CONDITIONS: PRIOR TO EXCAVATION, THE CONTRACTOR SHALL SUBMIT A MONITORING PLAN FOR REVIEW BY THE ENGINEER, INCLUDING MONITORING LOCATIONS, FREQUENCIES, AND ALERT/ACTION LIMITS FOR SHEET-PILE DEFLECTIONS, BRACING LOADS, GROUND MOVEMENTS, AND GROUNDWATER CONDITIONS. THE CONTRACTOR SHALL MONITOR THESE CONDITIONS THROUGHOUT CONSTRUCTION. IF UNEXPECTED CONDITIONS OCCUR OR ESTABLISHED LIMITS ARE EXCEEDED, THE CONTRACTOR SHALL IMMEDIATELY STOP THE AFFECTED WORK AND NOTIFY THE ENGINEER. WORK SHALL NOT RESUME UNTIL THE CONDITIONS HAVE BEEN EVALUATED AND NECESSARY CORRECTIVE MEASURES HAVE BEEN IMPLEMENTED. THE ENGINEER OR THE ENGINEER'S REPRESENTATIVE MAY PERFORM FIELD OBSERVATIONS AT APPROPRIATE CONSTRUCTION STAGES. SUCH OBSERVATIONS DO NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR CONSTRUCTION MEANS AND METHODS, SEQUENCING, SAFETY, MONITORING, OR PROPER EXECUTION OF THE WORK.

4. THE INSIDE FACE OF THE SHEET PILE AND ALL EXTERIOR FACES OF THE BAFFLE WALL SHALL BE IN FULL CONTACT OVER THE ENTIRE WALL HEIGHT, FROM EL. 87'-6" TO EL. 116'-0", AND SHALL BE CONNECTED USING HEADED SHEAR STUDS TO FORM A COMPOSITE SECTION.

5. HEADED SHEAR STUDS SHALL CONFORM TO AISC 360, AND ACI 318, AND SHALL BE INSTALLED AND WELDED IN ACCORDANCE WITH AWS D1.1 STUD SIZE, SPACING, AND LAYOUT SHALL BE AS SHOWN ON THE DRAWINGS.

6. SHEET PILE CORROSION PROTECTION:

   A. THE SHEET PILES SHALL BE PAINTED WITH A MINIMUM OF 16 MILS COATING (TOTAL THICKNESS) OF CARBOLINE BITUMASTIC 300M, SHOP APPLIED. SURFACE PREPARATION OF STEEL SURFACE TO BE PAINTED SHALL BE NEAR WHITE METAL BLAST CONDITION PER SSPC-SPS-10. FIELD REPAIR ANY SCRATCHES OR ABRASIONS PER MANUFACTURER'S RECOMMENDATIONS. VERIFY COATING ADEQUACY FOR THE PROPOSED STRUCTURE CONDITIONS WITH MANUFACTURER PRIOR TO ORDERING MATERIAL. COATING SHALL BE APPLIED TO THE EXPOSED SIDE OF THE SHEET PILES. COATING OF THE PILES SHALL EXTEND A MINIMUM OF 5 FT BELOW THE MUD LINE. ADDITIONAL SURFACE COATING MAY BE REQUIRED BASED ON SITE-SPECIFIC SOIL AND WATER CONDITIONS. COORDINATION WITH THE MANUFACTURER IS REQUIRED PRIOR TO CONSTRUCTION.

   B. ALL SURFACE PREPARATION, APPLICATION, CURING, INSPECTION, AND REPAIR OF THE COATING SYSTEM SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE COATING MANUFACTURER'S CURRENT WRITTEN RECOMMENDATIONS AND PRODUCT DATA SHEETS.

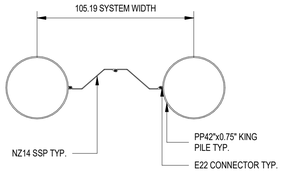
   C. PRIOR TO CONSTRUCTION AND MATERIAL PURCHASE, THE CONTRACTOR SHALL SUBMIT THE PROPOSED COATING AND CORROSION PROTECTION SYSTEM, INCLUDING SURFACE PREPARATION, APPLICATION PROCEDURES, REQUIRED DRY FILM THICKNESS, INSPECTION, AND FIELD REPAIR PROCEDURES, FOR REVIEW.

   D. ANY DEVIATIONS FROM THE SPECIFIED COATING SYSTEM OR THE MANUFACTURER'S RECOMMENDATIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION.

7. SHEET PILES SHALL MEET THE MINIMUM SPECIFICATIONS AS TABULATED:

NUCOR NZ

SECTION	WIDTH (W) in	HEIGHT (H) in	THICKNESS FLANGE (TF) in	THICKNESS WEB (TW) in	CROSS SECTIONAL AREA in²/ft	WEIGHT SINGLE PILE lb/ft	WEIGHT WALL AREA lb/ft²	SECTION MODULUS ELASTIC in³/ft	SECTION MODULUS PLASTIC in³/ft	MOMENT OF INERTIA in⁴/ft	COATING AREA BOTH SIDES ft²/ft OF SINGLE	COATING AREA WALL SURFACE ft²/ft²
NZ 14	30.31	13.39	0.375	0.375	6.40	55	21.77	25.65	30.50	171.7	6.10	1.20
NZ 42	27.56	19.77	0.769	0.589	12.41	97	42.24	78.17	90.80	772.5	6.58	1.43



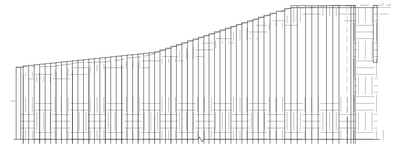
PP42"x0.75"-E22 CONNECTOR/DBL NZ14 SSP COMBI-WALL

COMBINED WALL PROPERTIES			
SYSTEM WIDTH	MOMENT OF INERTIA	ELASTIC SECTION MODULUS	STEEL GRADE
in	in⁴/ft	in³/ft	ksi
105.19	2458	117.1	50

STRUCTURAL ABBREVIATIONS

ADDITIONAL	- ADDL
ALTERNATE	- ALT
AND	- &
ANCHOR BOLT	- AB
APPROXIMATE	- APPROX
ARCHITECTURAL	- ARCH
AT	- @
BEAM	- BM
BEARING	- BRG
BELOW FINISH FLOOR	- BFF
BETWEEN	- BTWN
BOTTOM	- BOT
BOTTOM OF	- B/
BUILDING	- BLDG
CAST-IN-PLACE	- CIP
CEILING	- CLG
CENTER LINE	- CL
CENTER TO CENTER	- C/C
CLEAR	- CLR
COLUMN	- COL
COMPRESSION	- C OR COMP
CONCRETE	- CONC
CONCRETE MASONRY UNIT	- CMU
CONNECTION(S)	- CONN(S)
CONTINUOUS	- CONT
CONSTRUCTION JOINT	- CJ
CONSTRUCTION	- CONST
DETAIL	- DET
DEAD LOAD	- DL
DEMOLITION	- DEMO
DIAGONAL	- DIAG
DIAMETER	- DIA OR ø
DIMENSION(S)	- DIM(S)
DRAWING(S)	- DWG(S)
DOUBLE	- DBL
DOWEL(S)	- DWL(S)
EACH	- EA
EACH FACE	- EF
EACH WAY	- EW
ELECTRICAL	- ELEC
ELEVATION	- EL
EMBEDMENT	- EMBED
EQUAL	- EQ
EXPANSION JOINT	- EJ
EXPANSION	- EXP
EXISTING	- EXIST OR EX
EXTERIOR	- EXT
FACE-TO-FACE	- F TO F
FAR SIDE	- FS
FINISHED FLOOR	- FF
FOUNDATION	- FDN
FOOTING	- FTG
GAGE OR GAUGE	- GA
GALVANIZED	- GALV
HEIGHT	- HT
HORIZONTAL	- HORIZ
HIGH POINT	- H.P.
INFORMATION	- INFO
INSIDE DIAMETER	- ID
INSIDE FACE	- IF
INTERIOR	- INT
INTERMEDIATE	- INTERM
JOINT	- JT
JOIST(S)	- JSY(S)
LOW POINT	- L.P.
LIVE LOAD	- LL
LONG	- LG
LONGITUDINAL	- LONG
MANHOLE	- MH
MAXIMUM	- MAX
MINIMUM	- MIN
MISCELLANEOUS	- MISC
NEAR SIDE	- NS
NOMINAL	- NOM
NUMBER	- NO OR # OR NOS
ON CENTER	- OC
OPENING(S)	- OPNG(S)
OPPOSITE	- OPP
OPPOSITE HAND	- OH
OUTSIDE FACE	- OF
OUTSIDE DIAMETER	- OD
OVERALL	- OA
POLYVINYL CHLORIDE	- PVC
REINFORCEMENT	- REINF.
RADIUS	- R
REINFORCED CONCRETE PIPE	- RCP
REQUIRED	- REQ'D
ROOF DRAIN	- RD
SCHEDULE(D)	- SCHED
SECTION	- SECT
SHEET	- SHT
SIMILAR	- SIM
SPACE	- SP
SPECIFICATION(S)	- SPEC(S)
SQUARE FOOT (FEET)	- SF
STAINLESS STEEL	- SS
STANDARD	- STD
STEEL	- STL
STRAIGHT	- STRA
STIRRUPS	- STIR
STRUCTURAL	- STRUCT'L
SYMMETRICAL	- SYMM
TOP	- TOP
TOP OF	- T/
THICK	- THK
TOUNGE AND GROOVE	- T & G
TOP OF BEAM	- TOB
TOP OF FOOTING	- TOF
TOP OF PIER	- TOP
TOP OF SLAB	- TOS
TOP OF WALL	- TOW
TYPICAL	- TYP
UNLESS OTHERWISE NOTED	- UON
VERTICAL	- VERT
VARIES	- VAR
WELDED WIRE FABRIC	- WWF
WITH	- W/

CONSTRUCTION SEQUENCE
PUMP STATION



#1 - DRIVE SHEET PILES

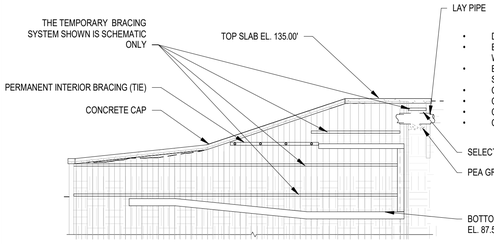
NOTES:

THESE SCHEMATICS DEPICT A PROPOSED CONSTRUCTION SEQUENCE TO HIGHLIGHT KEY MILESTONES. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINAL CONSTRUCTION SEQUENCE AND CONSTRUCTION MEANS AND METHODS.

THE STRUCTURE IS DESIGNED FOR PERMANENT LOAD CONDITIONS.

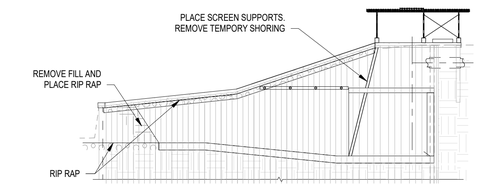
SEE GENERAL NOTES FOR ADDITIONAL SHORING REQUIREMENTS.

DESIGN FOR ALL CONSTRUCTION SHORING SYSTEMS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A SIGNED AND SEALED BRACING SYSTEM FOR REVIEW.



- DEWATER AS REQUIRED.
- EXCAVATE INSIDE AND OUTSIDE OF WALL FOR PIPE. LAY PIPE AND WELD TO SHEET PILES.
- EXCAVATE IN STAGES AND INSTALL TEMPORARY BRACING SIMULTANEOUSLY AS EXCAVATION PROGRESSES.
- CONSTRUCT TOP SLAB OVER FILL OR FORMS
- CONSTRUCT PILE CAP AND PERMANENT INTERIOR BRACING (TIE).
- CONSTRUCT BOTTOM SLAB.
- CONSTRUCT BAFFLE WALLS AND MIDDLE SLAB.

#2 - EXCAVATE, INSTALL BRACING SYSTEM, LAY PIPE, TIE, TOP AND BOTTOM SLAB, BAFFLE WALL, MIDDLE SLAB AND CONCRETE CAP



- PLACE SCREEN
- EXCAVATE REMAINING FILL & PLACE RIP RAP.
- PLACE BACKFILL AROUND EXTERIOR OF SHEET PILES.
- BUILD SHED STRUCTURE & INSTALL PUMP.

#3- PLACE STRUCTURAL & NON-STRUCTURAL COMPONENTS

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FIRM REGISTRATION NO.: F-897
FIRM REGISTRATION NO.: 100370-00

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153533
LICENSED
PROFESSIONAL ENGINEER

10/28/2026

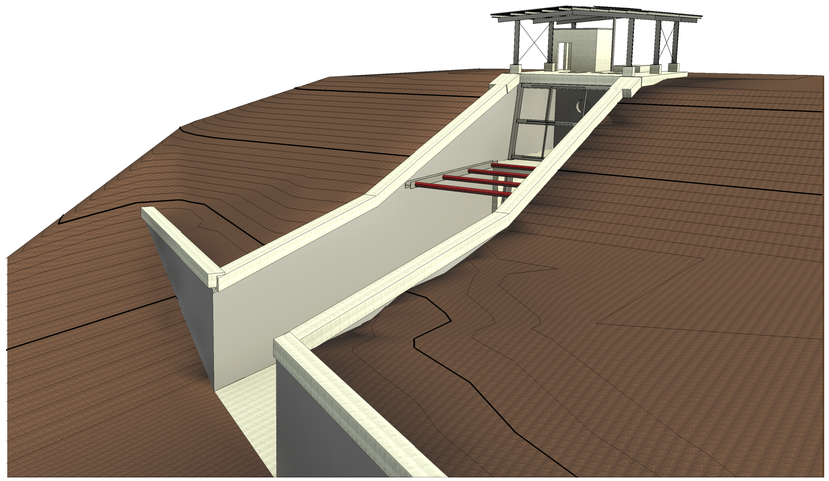
REVISIONS:		
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
GENERAL NOTES II

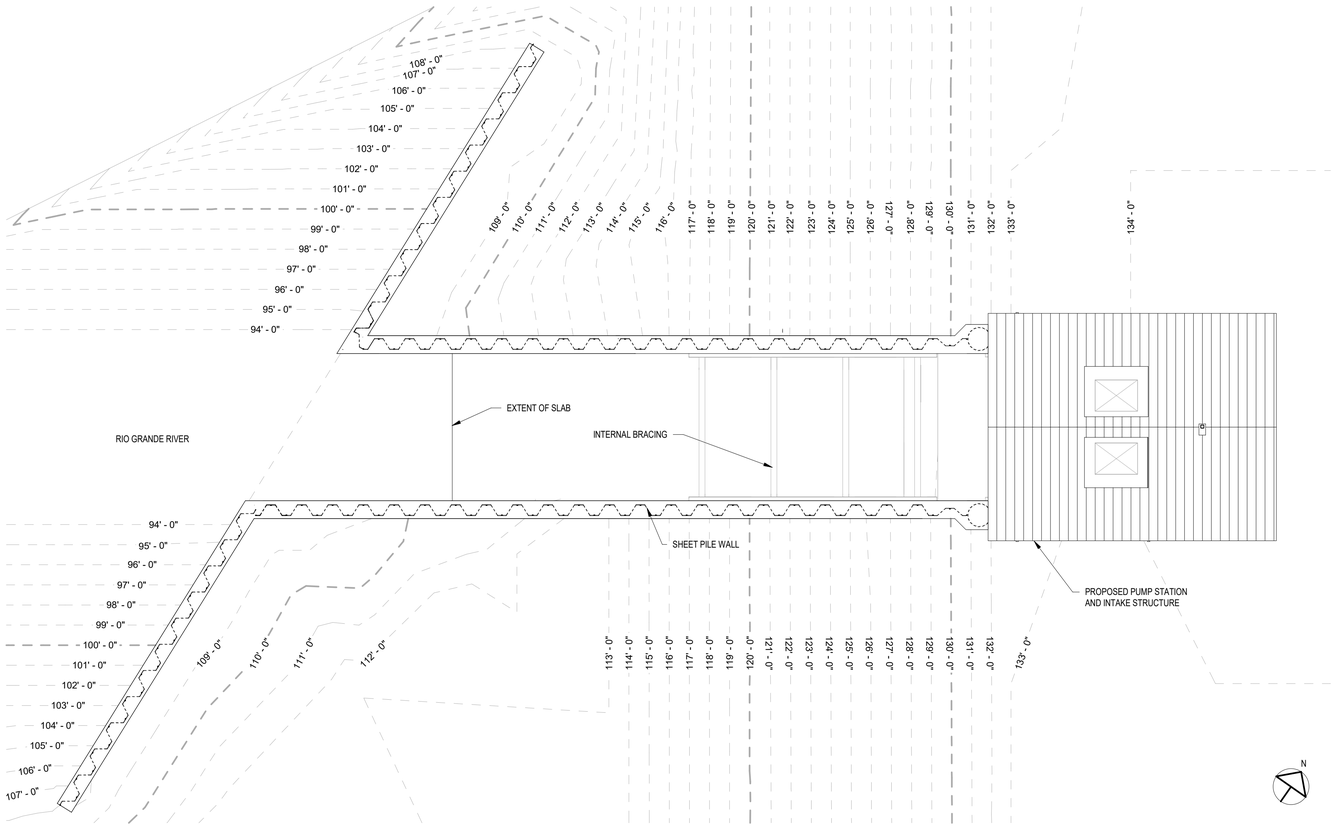
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S2 / 1
S15



2 3D VIEW



1 NEW PUMP STATION - PLAN VIEW LAYOUT
NTS

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PROFESSIONAL ENGINEER

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REVISIONS:

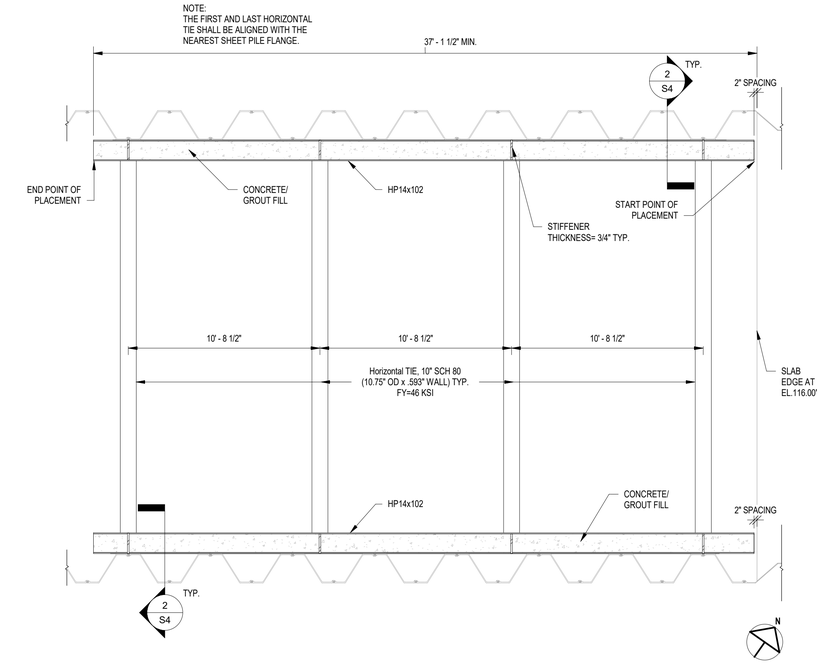
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
REFERENCE VIEWS

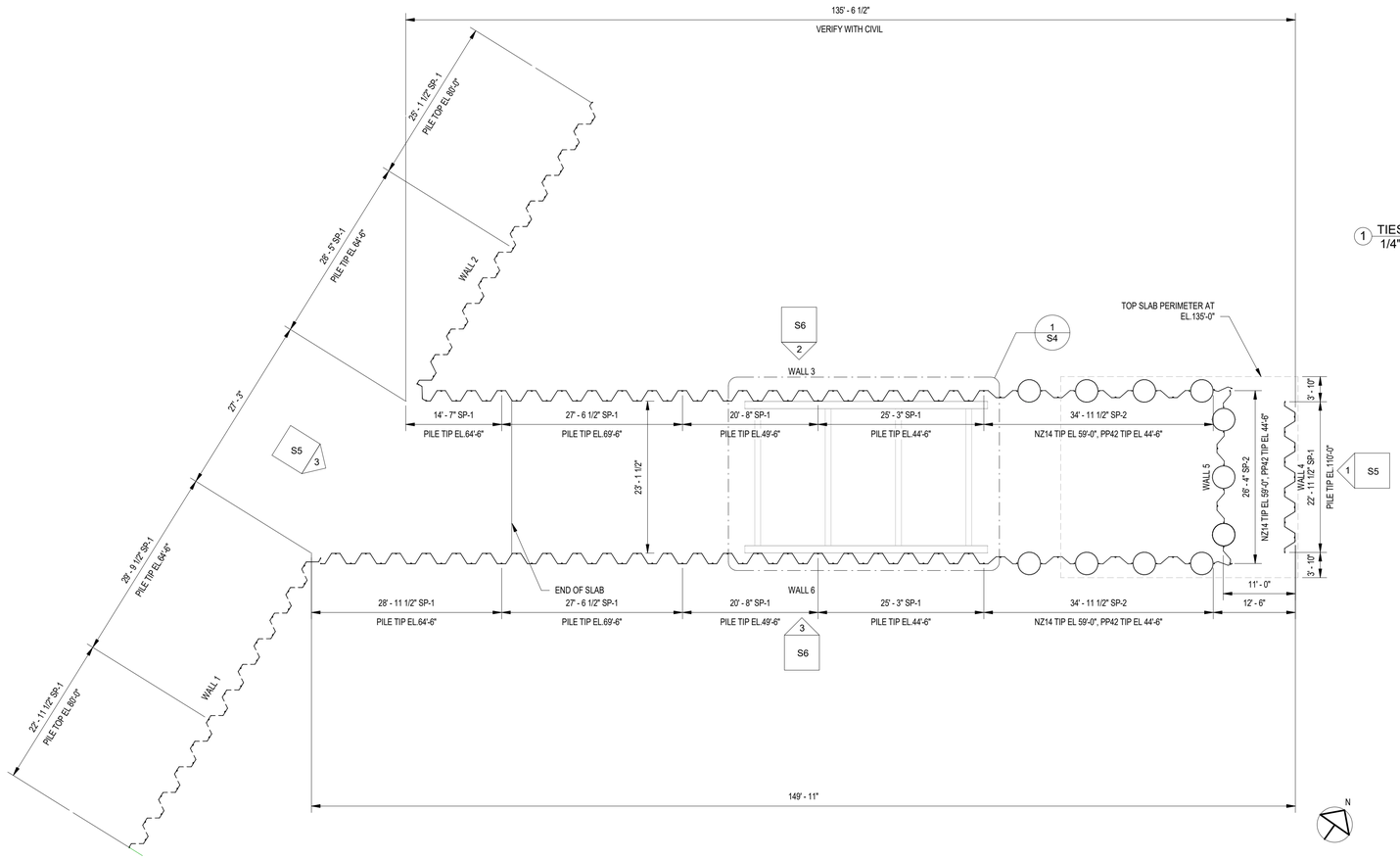
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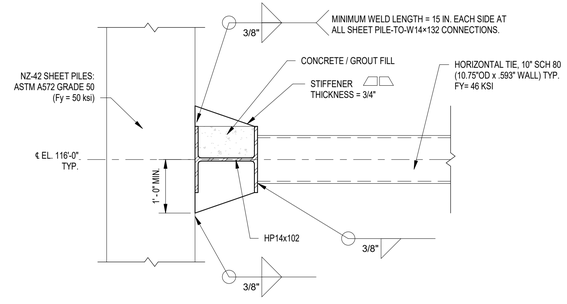
S3 / 1 / S15



1 TIES LAYOUT PLAN
1/4" = 1'-0"



3 SHEET PILE LAYOUT PLAN
3/32" = 1'-0"



2 WALER TO SHEET PILE CONNECTION AT TIE LOCATION
NTS

LEGEND: SHEET PILE TYPES

SP-1
- NUCOR NZ 42 SHEET PILE, ASTM A572 GRADE 50
- SEE ELEVATIONS SHEET FOR PILE TIP EL.

SP-2
- PP 42" x 0.75" - E22 CONNECTOR/DBL NZ14 SSP COMBI-WALL-ASTM A572 GRADE 50

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FIRM REGISTRATION NO.: F-897
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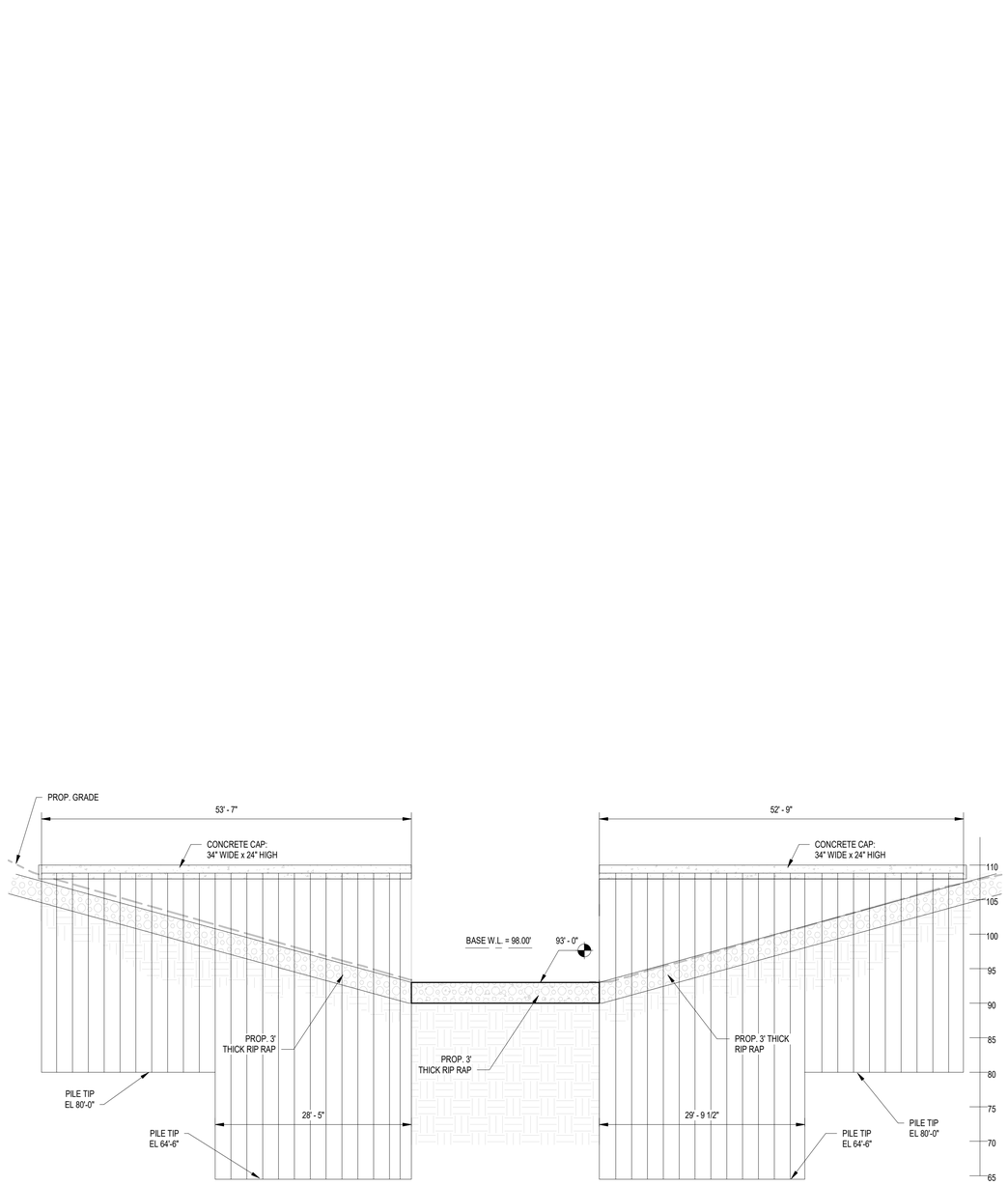
REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

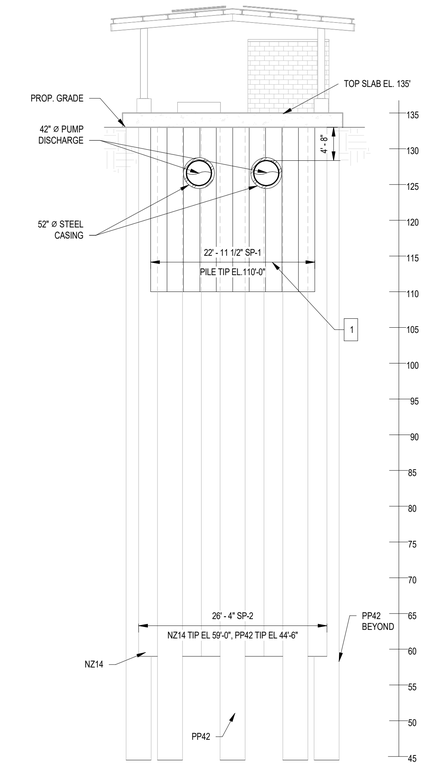
HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
SHEET PILE PLAN LAYOUT

SCALE: AS SHOWN
DRAWN BY:
FILE:
DATE:09/30/2026

S4 / 1
S15



3 SHEET PILE PROFILE AT WALLS 1 AND 2
1" = 10'-0"



1 SHEET PILE PROFILE AT WALLS 4 AND 5
1" = 10'-0"

NOTES:

1. PILE TIP SHALL BE 10 FT BELOW DRIVING DEPTH OR AS SHOWN, WHICHEVER IS DEEPER.

LEGEND: SHEET PILE TYPES

SP-1
- NUCOR NZ 42 SHEET PILE, ASTM A572 GRADE 50
- SEE ELEVATIONS SHEET FOR PILE TIP EL.

SP-2
- PP 42" x 0.75" - E22 CONNECTOR/DBL NZ14 SSP COMBI-WALL-ASTM A572 GRADE 50

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10/28/2026

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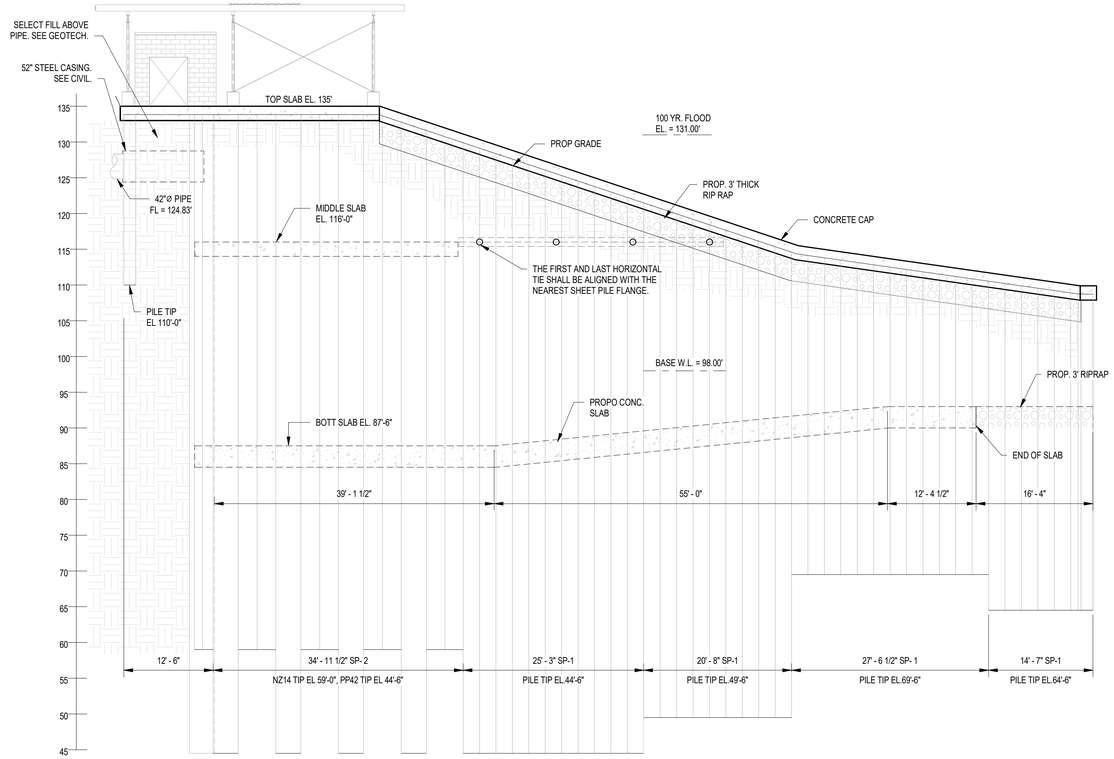
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
SHEET PILE PROFILES I

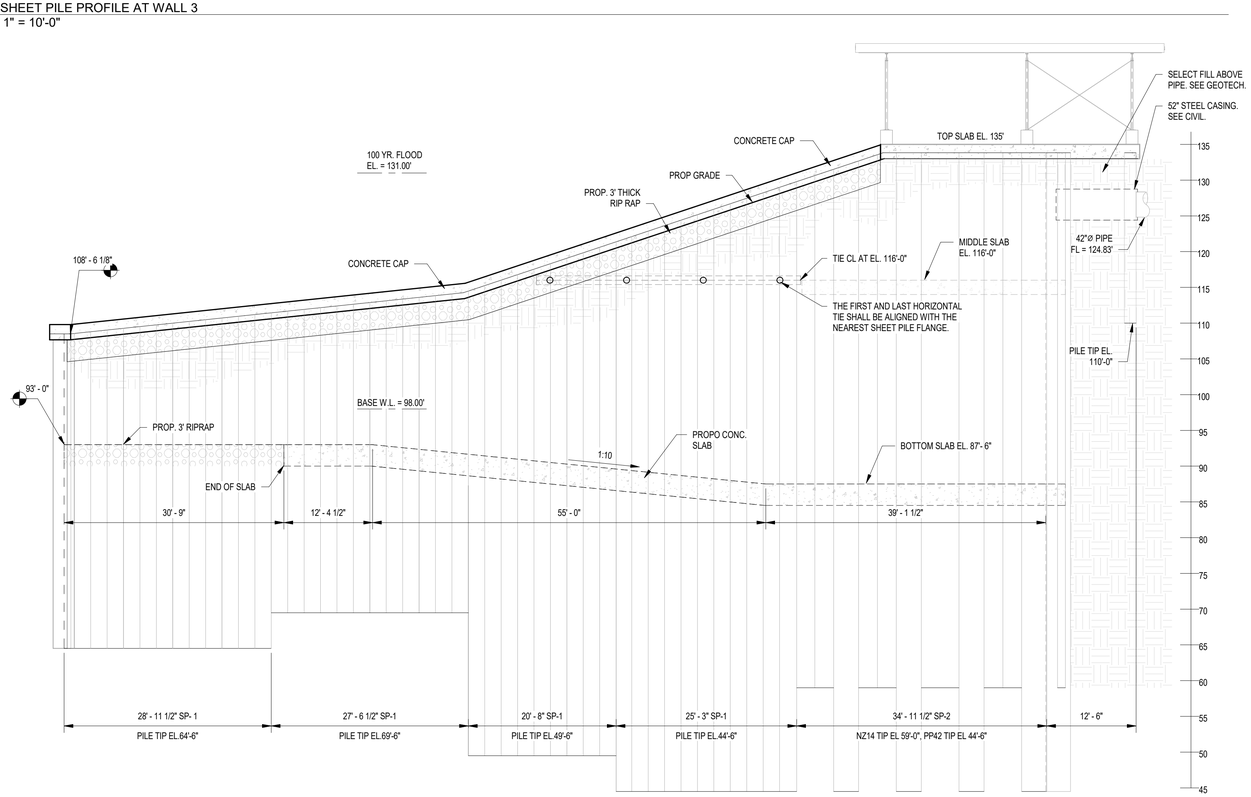
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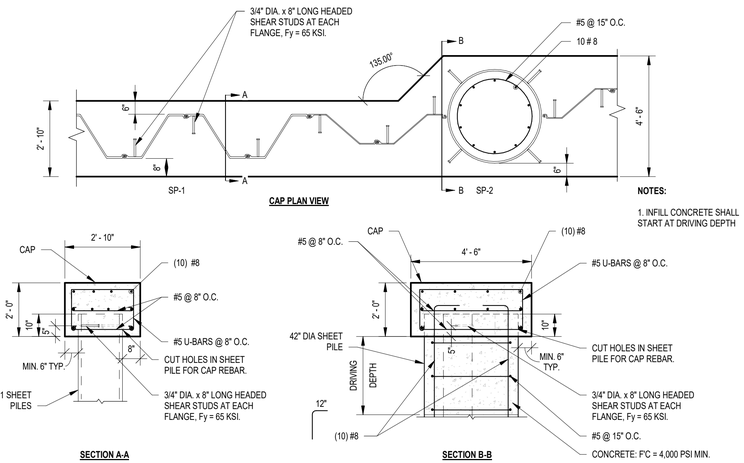
S5 / S15



2 SHEET PILE PROFILE AT WALL 3
1" = 10'-0"



3 SHEET PILE PROFILE AT WALL 6
1" = 10'-0"



1 SHEET PILE CAP CONNECTON
NTS

LEGEND: SHEET PILE TYPES

SP-1
- NUCOR NZ 42 SHEET PILE, ASTM A572 GRADE 50
- SEE ELEVATIONS SHEET FOR PILE TIP EL.

SP-2
- PP 42" x 0.75" - E22 CONNECTOR/DBL NZ14 SSP COMBI-WALL-ASTM A572 GRADE 50

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NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

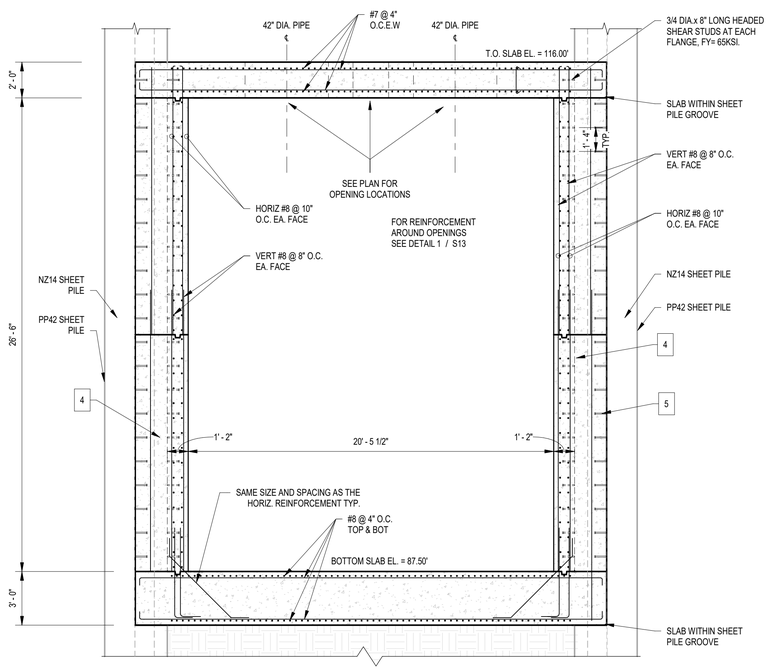
HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
SHEET PILE PROFILES II

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DATE:09/30/2026

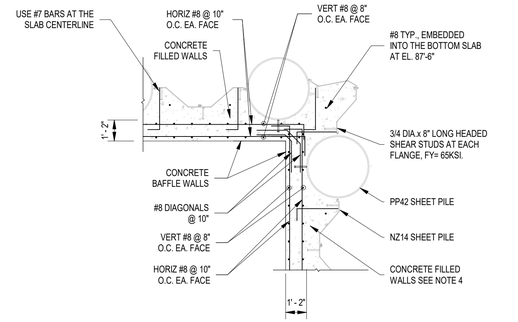
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S6 / 1
S15

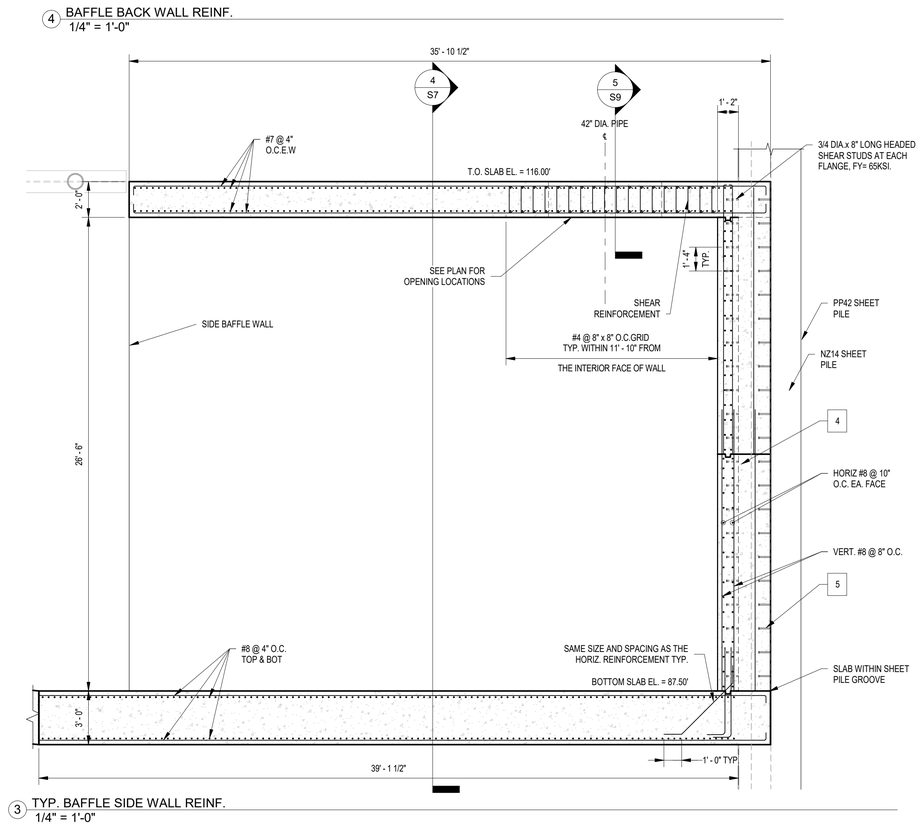
1. SEE GENERAL NOTES: SHEET PILE/ NOTE 1
2. SEE GENERAL NOTES: SHEET PILE/ NOTE 2
3. SEE GENERAL NOTES: SHEET PILE/ NOTE 3
4. THE INSIDE FACE OF THE SHEET PILE AND ALL EXTERIOR FACES OF THE BAFFLE WALL SHALL BE IN FULL CONTACT OVER THE ENTIRE WALL HEIGHT, FROM EL. 87'-6" TO EL. 116'-0", AND SHALL BE CONNECTED USING HEADED SHEAR STUDS TO FORM A COMPOSITE SECTION.
5. HEADED SHEAR STUDS SHALL CONFORM TO AISC 360, AND ACI 318, AND SHALL BE INSTALLED AND WELDED IN ACCORDANCE WITH AWS D1.1 STUD SIZE, SPACING, AND LAYOUT SHALL BE AS SHOWN ON THE DRAWINGS.



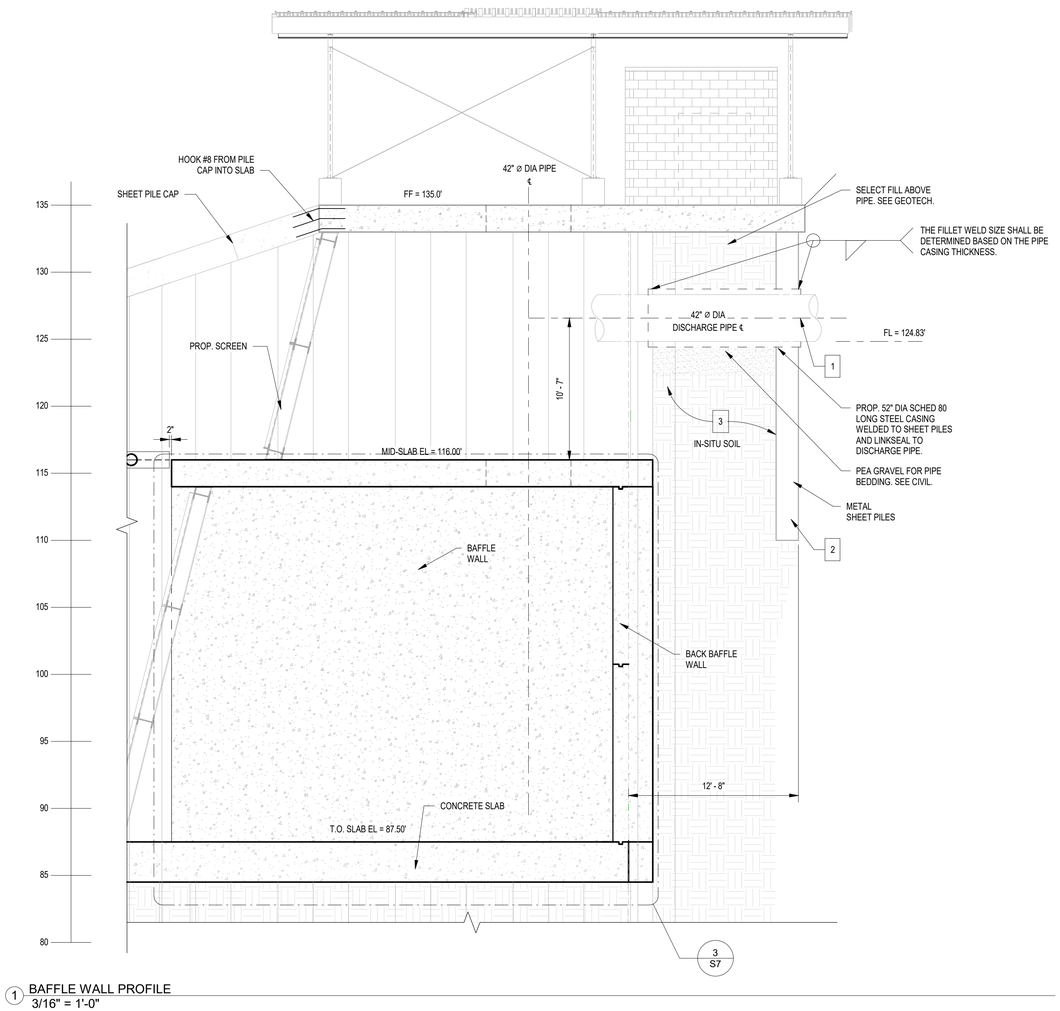
4 BAFFLE BACK WALL REINF.
1/4" = 1'-0"



2 BAFFLE WALL TO SHEET PILE CONNECTION AT EL. 116.00'
NTS



3 TYP. BAFFLE SIDE WALL REINF.
1/4" = 1'-0"



1 BAFFLE WALL PROFILE
3/16" = 1'-0"

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10/28/2026

REVISIONS:

No.	Description	Date
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
BAFFLE WALL SECTIONS

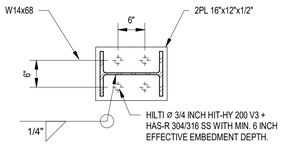
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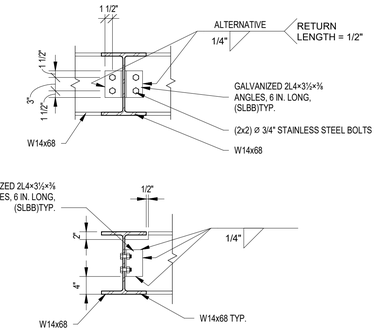
S7 / 1
S15

NOTES:

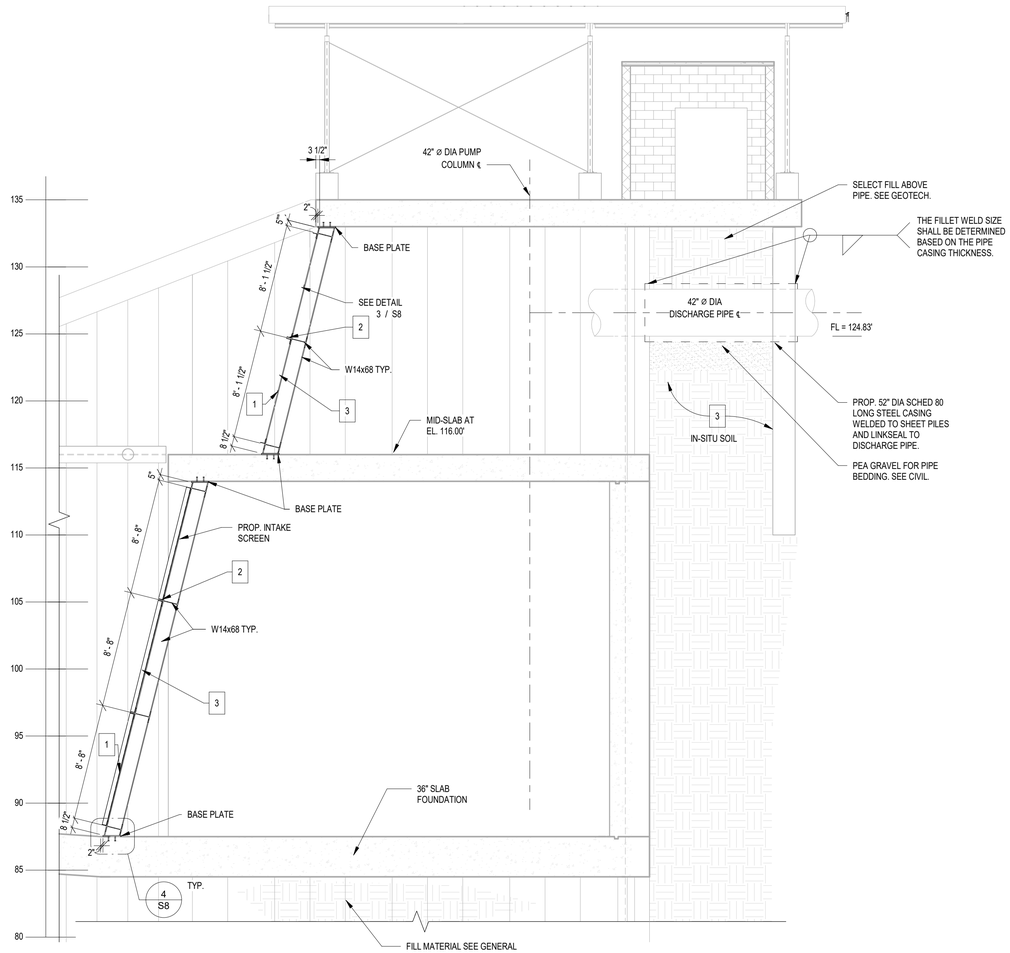
1. 2" x 3/8" GALVANIZED FLAT STEEL BRACE EQUALLY SPACED. WELD BRACE TO ANGLE FRAME AND TACK WELD TO EACH FLAT BAR. TYP.
2. 4"x 4" x 3/8" GALVANIZED STEEL ANGLE FRAME TYP.
3. 3 1/2" x 3/8" GALVANIZED FLAT STEEL @ 2" O.C. WELD TO FRAME. TYP.
4. 3/4" STAINLESS STEEL BOLTS
5. #6 REBAR HOIST 12" x3" LOOPED WELDED TO TOP OF SEGMENT. 2 PER SEGMENT. TYP.
6. THE SCREEN EDGE SHALL BE LOCALLY EXTENDED AS REQUIRED TO LIMIT THE GAP BETWEEN THE SCREEN AND THE CORRUGATED INTERIOR FACE OF THE SHEET PILE TO 2 IN AT ANY LOCATION. AS AN ALTERNATIVE, THE SHEET PILE CAVITIES MAY BE LOCALLY FILLED TO PREVENT DEBRIS, SAND, OR GRAVEL FROM PASSING THROUGH THE GAP.



4 BASE PLATE
NTS



2 BEAM TO BEAM CONNECTION FOR TRASH RACK
NTS



1 TRASH RACK SECTION
3/16" = 1'-0"

5 TRASH RACK FRONT VIEW
NTS

3 TOP AND BOTTOM TRASH RACK SCREENING DETAIL
NTS

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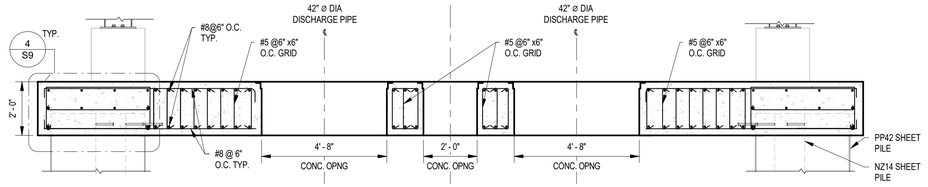
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
TRASH RACK PROFILE AND DETAILS

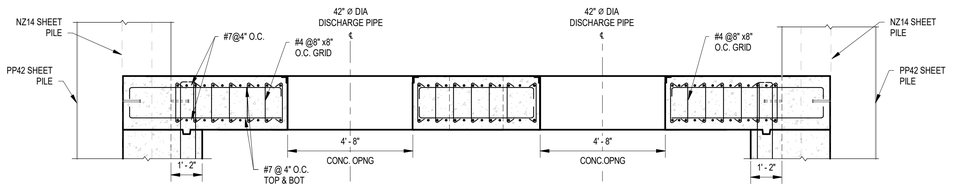
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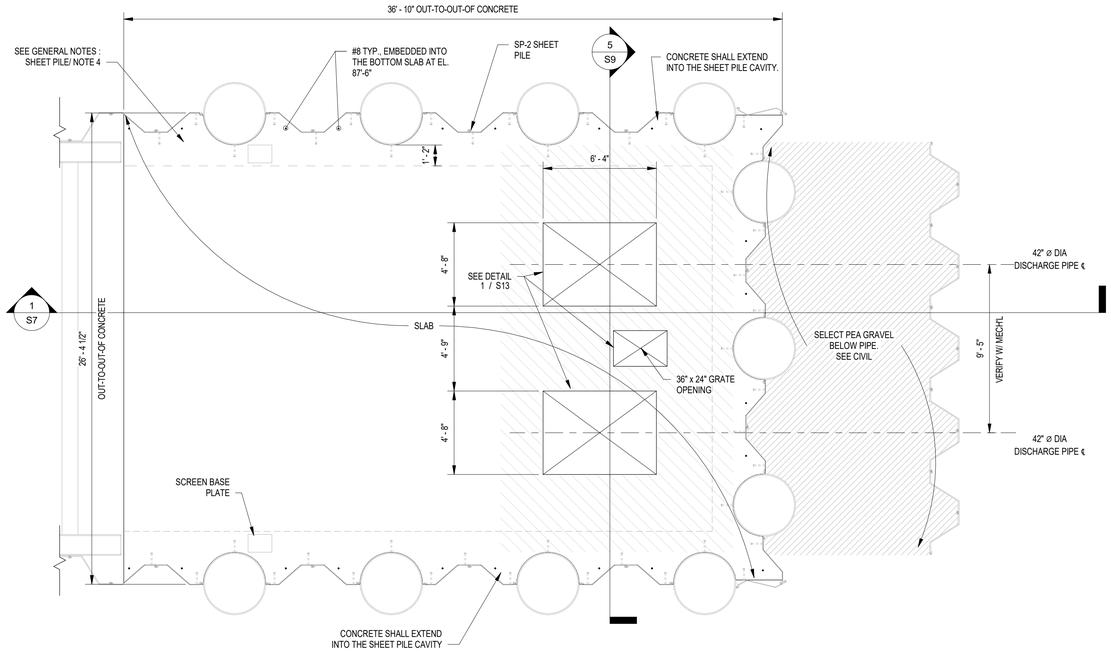
S8 / 4
S15



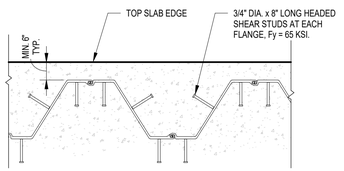
6 TOP SLAB SECTION AT EL. 135.00'
3/8" = 1'-0"

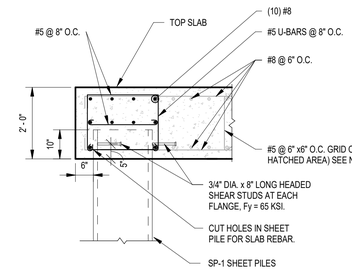


5 SLAB SECTION AT EL. 116.00'
3/8" = 1'-0"

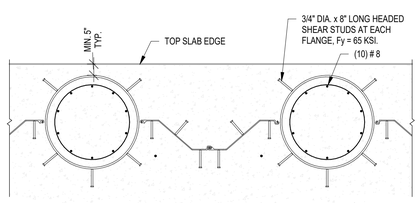


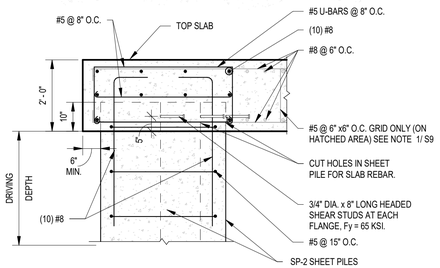
2 BAFFLE WALL MID-SLAB AT EL. 116.00'
1/4" = 1'-0"



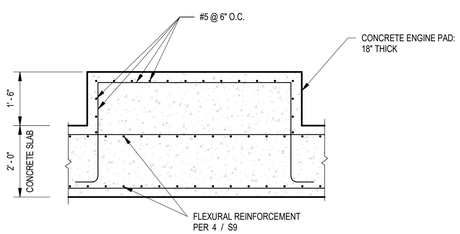


7 TOP SLAB TO SP-1 SHEET PILE CONNECTION
NTS

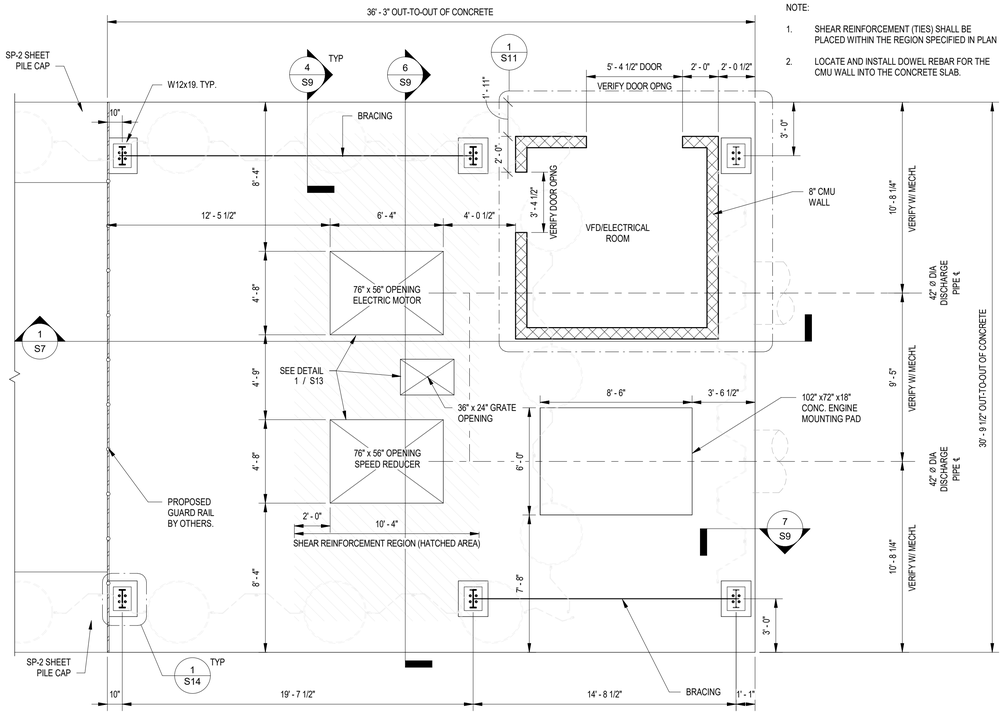




4 TOP SLAB TO SP-2 SHEET PILE CONNECTION
NTS



3 REINFORCEMENT FOR ENGINE PAD TO SLAB CONNECTION AT EL.135.00'
NTS



NOTE:

1. SHEAR REINFORCEMENT (TIES) SHALL BE PLACED WITHIN THE REGION SPECIFIED IN PLAN
2. LOCATE AND INSTALL DOWEL REBAR FOR THE CMU WALL INTO THE CONCRETE SLAB.

1 PUMP STATION - TOP SLAB AT EL. 135.00'
1/4" = 1'-0"

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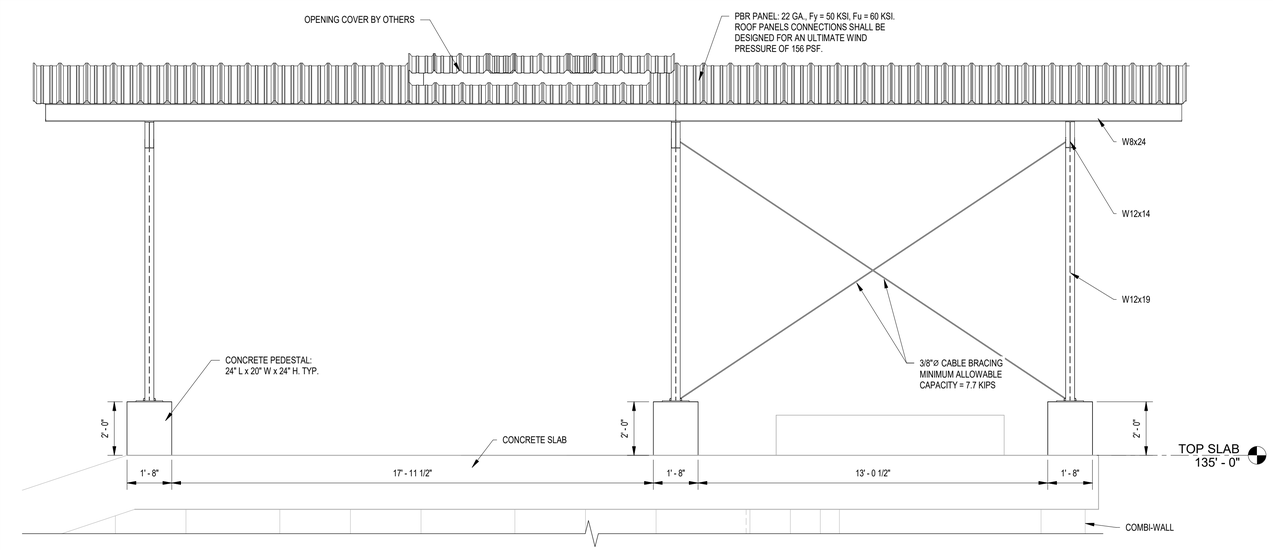
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
PUMP STATION TOP SLAB PLAN

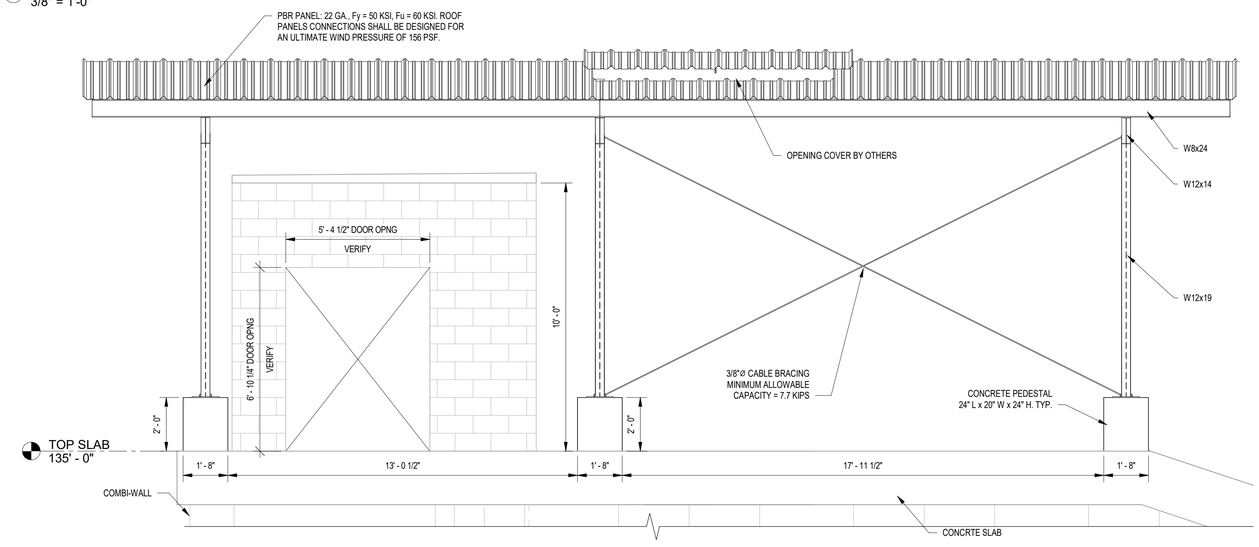
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DRAWN BY:
FILE:
DATE:09/30/2026

BARRON ENGINEERING
2743 SMITH RANCH RD, STE 2604,
PEARLAND, TX 77584
832-295-3600
TBPE FIRM No. F-23075

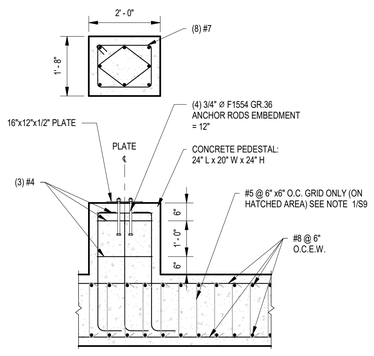
S9 / S15



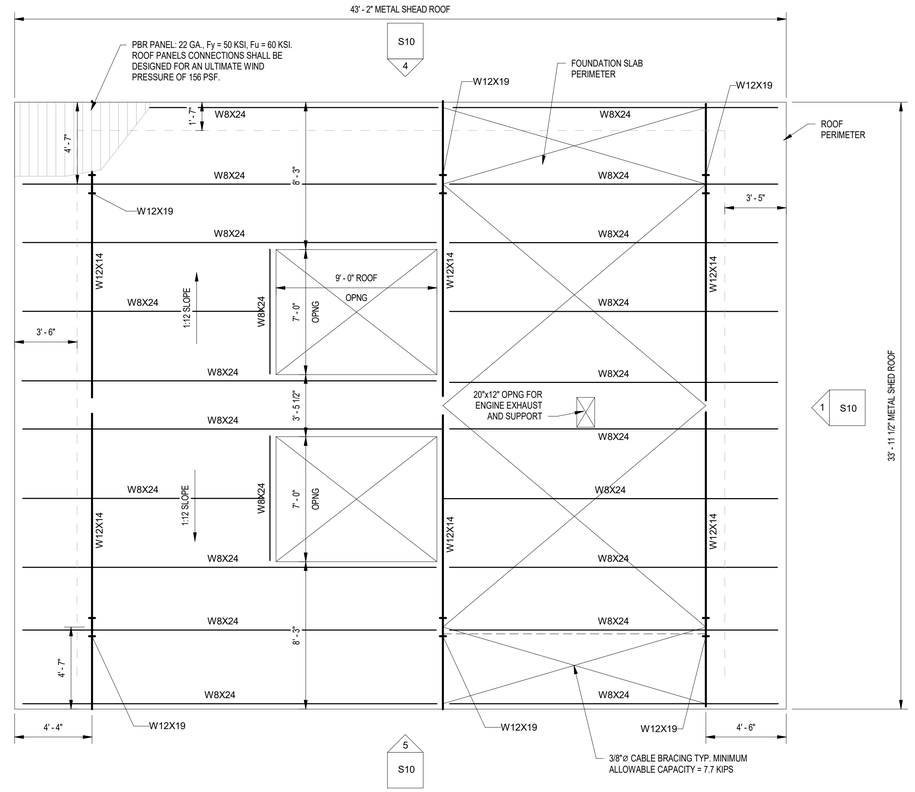
5 STEEL FRAMING - SOUTH ELEVATION
3/8" = 1'-0"



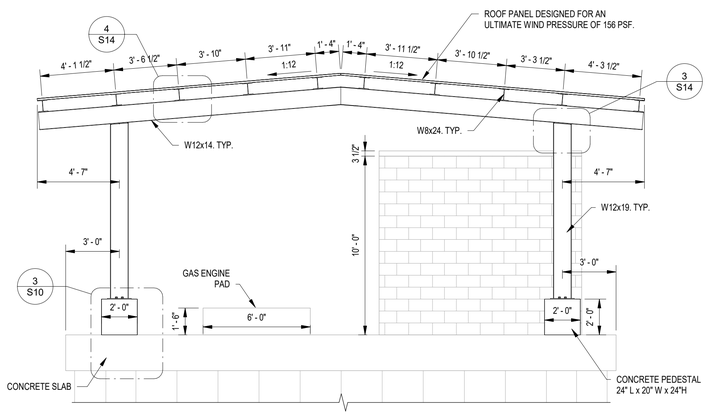
4 STEEL FRAMING - NORTH ELEVATION
3/8" = 1'-0"



3 PEDESTAL TO SLAB CONNECTION
NTS



2 PUMP STATION - STEEL FRAMING - ROOF PLAN
1/4" = 1'-0"



1 STEEL FRAMING - EAST ELEVATION
1/4" = 1'-0"

FERRIS, FLINN & MEDINA, LLC
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FIRM REGISTRATION NO.: F-897
FIRM REGISTRATION NO.: 100370-00

STATE OF TEXAS
CERTIFIED ALL HAIL CERTIFIED TAGHEA
153533
LICENSED PROFESSIONAL ENGINEER

10/28/2026

REVISIONS:

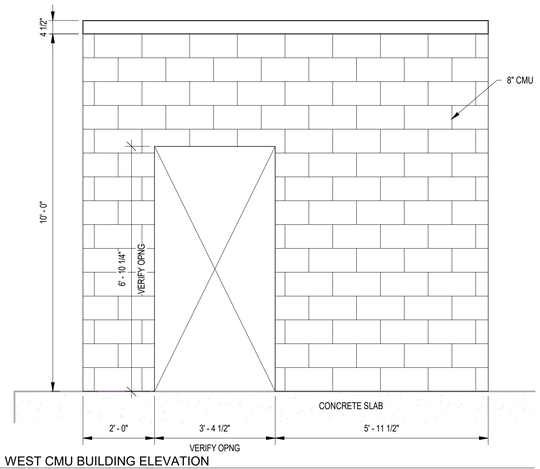
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
PUMP STATION FRAMING AND ROOF LAYOUT

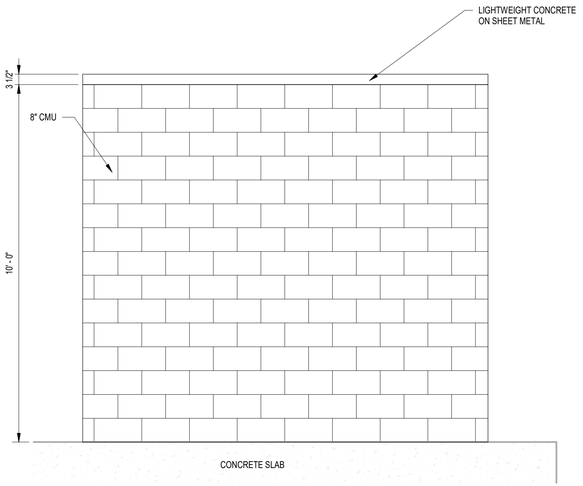
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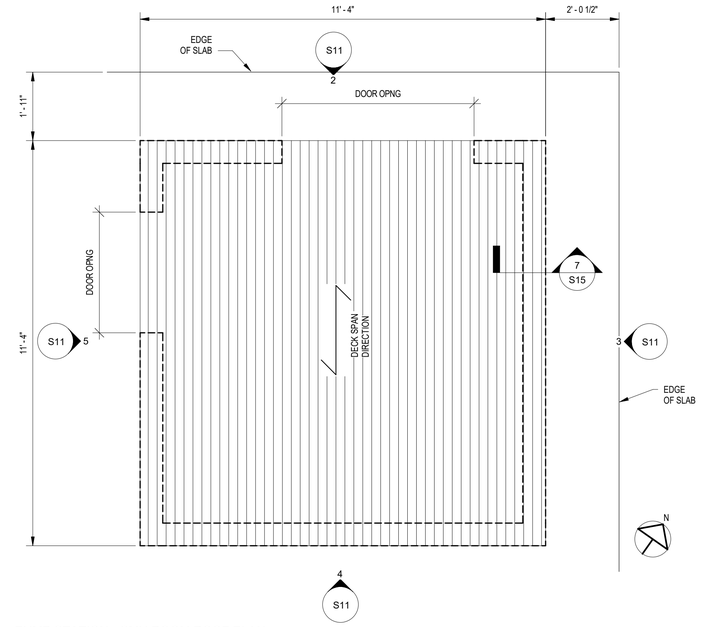
S10 / S15



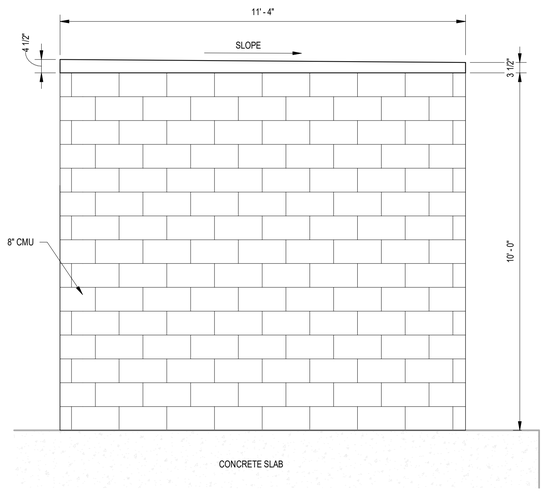
5 WEST CMU BUILDING ELEVATION
1/2" = 1'-0"



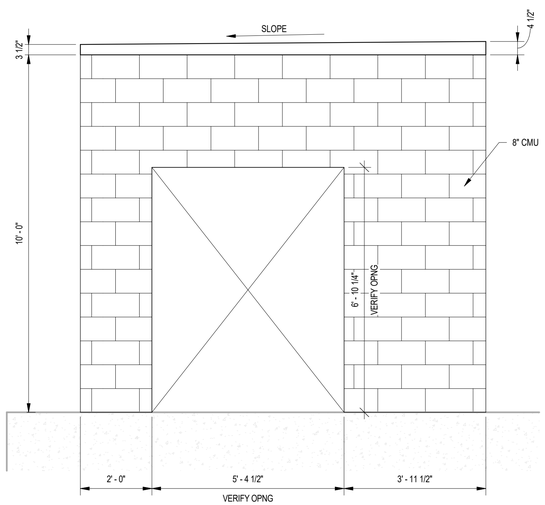
3 EAST CMU BUILDING ELEVATION
1/2" = 1'-0"



1 PUMP STATION - CMU ROOM ROOF PLAN
NTS



4 SOUTH CMU BUILDING ELEVATION
1/2" = 1'-0"



2 NORTH CMU BUILDING ELEVATION
1/2" = 1'-0"

NOTES:

- THE SUPERIMPOSED ALLOWABLE LOAD FOR THE STEEL ROOF DECK, INCLUDING 2-IN. CONCRETE THICKNESS AND DECK WEIGHT, AND LIVE LOAD, SHALL BE LIMITED TO 60 PSF.
- THE CONTRACTOR SHALL VERIFY THAT ALL CMU WALL DIMENSIONS CONFORM TO THE STANDARD 8-IN. MODULAR MASONRY GRID. ANY NON-MODULAR DIMENSIONS SHALL BE REPORTED, AND COORDINATION WITH THE ARCHITECT SHALL BE COMPLETED PRIOR TO CONSTRUCTION.

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FIRM REGISTRATION NO.: F-897
FIRM REGISTRATION NO.: 100370-00

STATE OF TEXAS
REGISTERED
153533
LICENSED
PROFESSIONAL ENGINEER

10/28/2026

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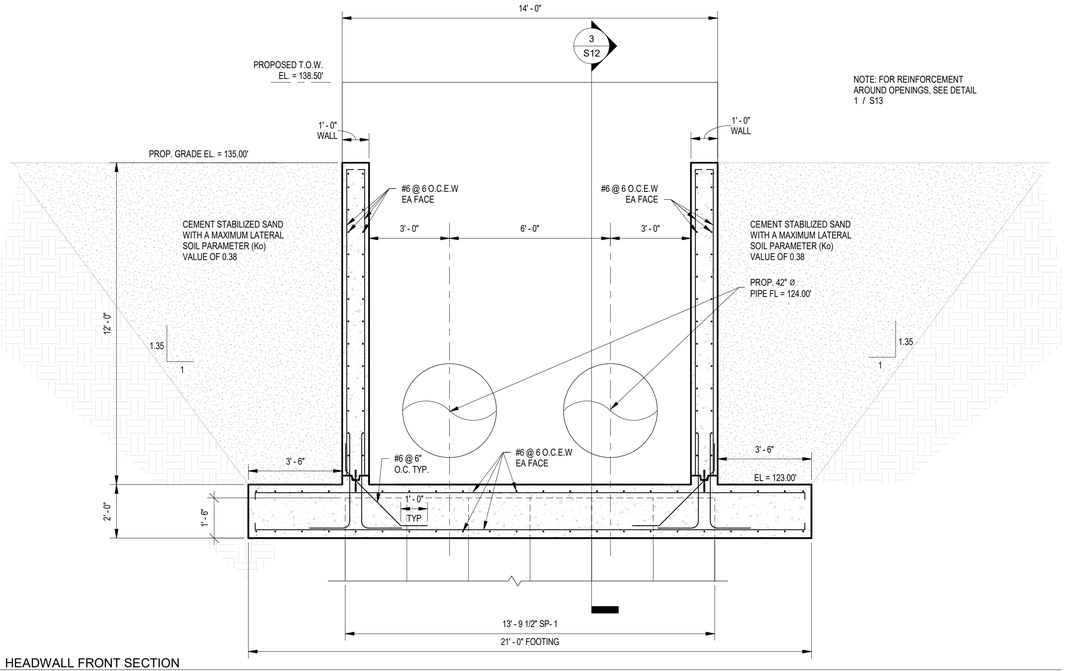
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
CMU BUIDLING ROOF PLAN AND ELEVATIONS

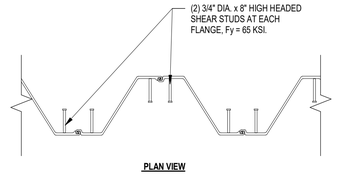
SCALE: AS SHOWN
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FILE:
DATE:09/30/2026

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832-295-3600
TBPE FIRM No. F-23075

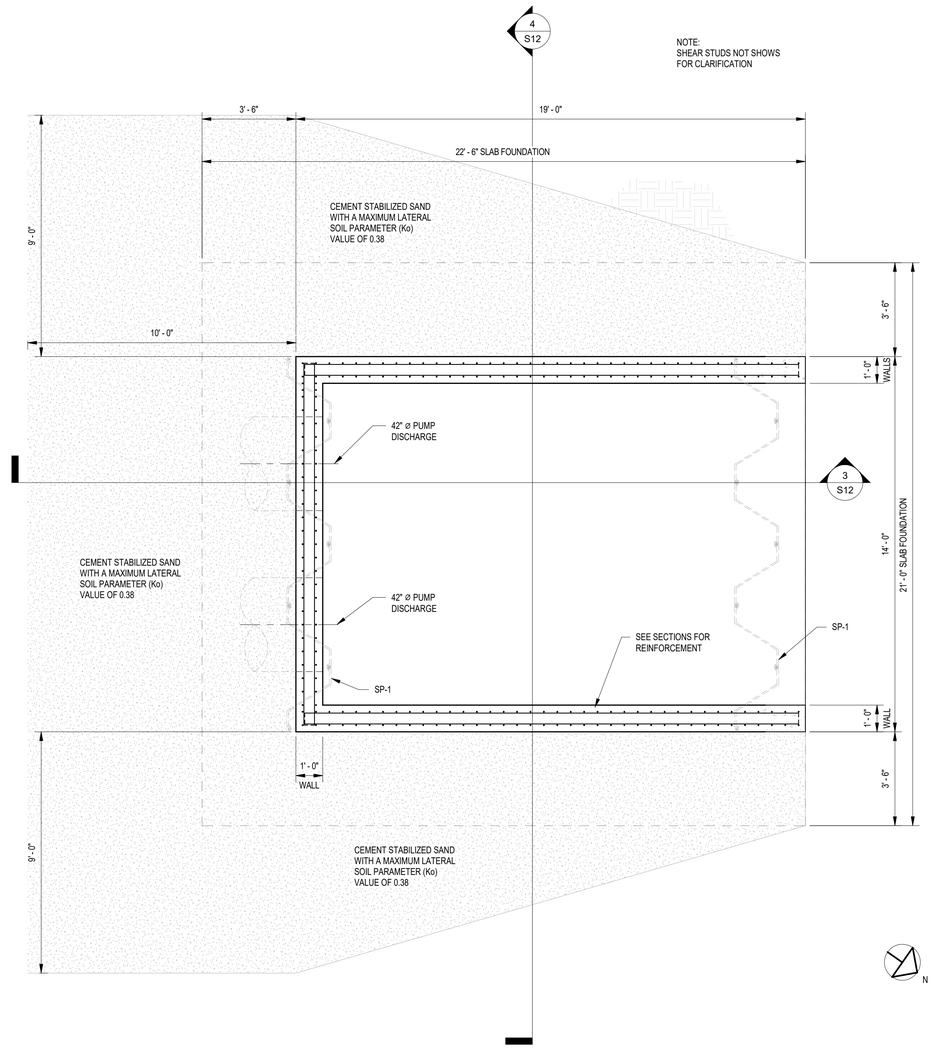
S11 1
S15



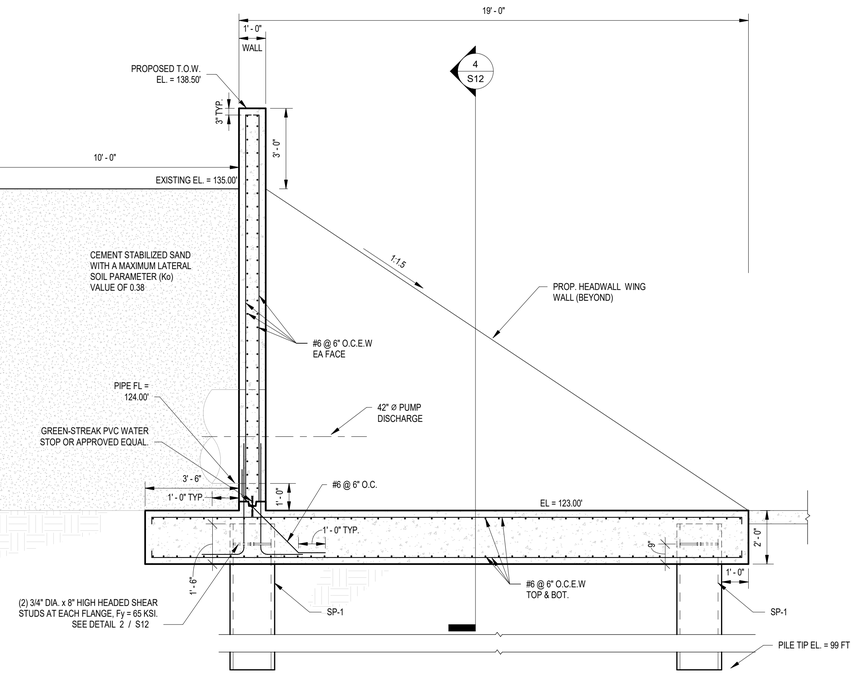
4 HEADWALL FRONT SECTION
3/8" = 1'-0"



2 SHEET PILE TO SLAB FOUNDATION CONNECTION
NTS



1 HEADWALL PLAN VIEW
3/8" = 1'-0"



3 HEADWALL SECTION
3/8" = 1'-0"

LEGEND: SHEET PILE TYPES

SP-1
- NUCOR NZ 42 SHEET PILE, ASTM A572 GRADE 50
- SEE ELEVATIONS SHEET FOR PILE TIP EL.

SP-2
- PP 42" x 0.75" - E22 CONNECTOR/DBL NZ14 SSP COMBI-WALL-ASTM A572 GRADE 50

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PALM VALLEY, TEXAS 78552
PHONE (956) 364-2236 FAX (956) 364-1023
FIRM REGISTRATION NO.: F-897
FIRM REGISTRATION NO.: 100370-00

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER

10/28/2026

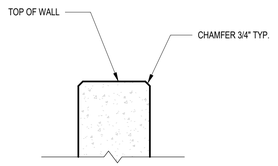
REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

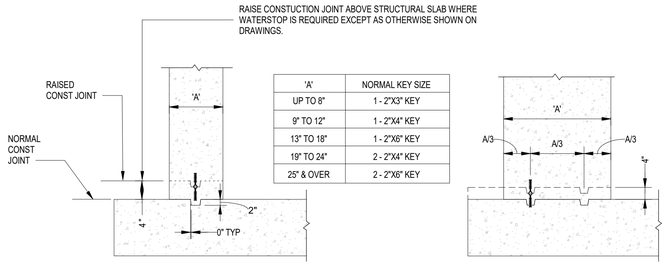
HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
CONCRETE OUTLET HEADWALL

SCALE: As Shown
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FILE:
DATE:09/30/2026

S12 / S15



6 TYPICAL CHAMFER AT TOP OF WALL
NTS



'A'	NORMAL KEY SIZE
UP TO 8"	1 - 2"X3" KEY
9" TO 12"	1 - 2"X4" KEY
13" TO 18"	1 - 2"X6" KEY
19" TO 24"	2 - 2"X4" KEY
25" & OVER	2 - 2"X6" KEY

NUMBER AND SIZE OF KEYS SHOWN APPLY TO JOINTS SLABS AND TO BOTH VERTICAL AND HORIZONTAL JOINTS IN WALLS EXCEPT AS OTHERWISE NOTED ON DRAWINGS.

3 CONSTUCTION JOINT KEY DETAILS
NTS

TYPE OF STANDARD HOOK	BAR SIZE	MIN. INSIDE BEND DIAMETER, IN.	STAIGHT EXTENSION [1] Lext, IN.	STANDARD HOOK DETAIL
90° HOOK	#3	1.5	3	db, DIAMETER, Lext
	#4	2	3	
	#5	2.5	3.75	
	#6	4.5	9	
	#7	5.25	10.5	
	#8	6	12	
135° HOOK	#3	1.5	3	db, BEND 135.00°, DIAMETER, Lext
	#4	2	3	
	#5	2.5	3.75	
	#6	4.5	4.5	
	#7	5.25	5.25	
	#8	6	6	
180° HOOK	#3	1.5	2.5	db, BEND 180.00°, DIAMETER, Lext
	#4	2	2.5	
	#5	2.5	2.5	
	#6	4.5	3	
	#7	5.25	3.5	
	#8	6	4	

1. A STANDARD HOOK FOR STIRRUPS, TIES, AND HOOPS INCLUDES THE SPECIFIC INSIDE BEND DIAMETER AND STRAIGHT EXTENSION LENGTH. IT SHALL BE PERMITTED TO USE A LONGER STRAIGHT EXTENSION AT THE END OF A HOOK. A LONGER EXTENSION SHALL NOT BE CONSIDERED TO INCREASE THE ANCHORAGE CAPACITY OF THE HOOK.

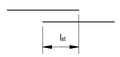
db - BAR DIAMETER

5 MIN. INSIDE BEND DIAMETERS & STANDARD HOOK GEOMETRY FOR STIRRUPS, TIES, & HOOPS
NTS

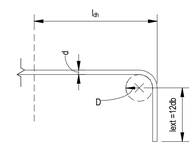
DEVELOPMENT AND LAP SPLICE SCHEDULE

	F'c = 4000 psi			F'c = 4500 psi			F'c = 5000 psi		
BAR	l_d	l_{dh}	l_{st}	l_d	l_{dh}	l_{st}	l_d	l_{dh}	l_{st}
#3	12"	8"	16"	12"	7"	16"	12"	7"	16"
#4	15"	10"	20"	14"	9"	19"	14"	9"	18"
#5	19"	12"	24"	18"	12"	23"	17"	11"	22"
#6	23"	15"	29"	21"	14"	28"	20"	13"	26"
#7	33"	17"	43"	31"	16"	40"	29"	15"	38"
#8	37"	19"	49"	35"	18"	46"	34"	17"	43"
#9	42"	22"	55"	40"	21"	51"	38"	20"	49"
#10	47"	28"	61"	44"	26"	57"	42"	25"	54"
#11	54"	30"	70"	51"	29"	66"	49"	27"	63"

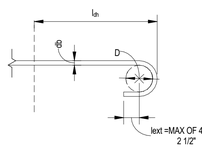
- l_d: DEVELOPMENT LENGTH FOR STRAIGHT BAR IN TENSION
- l_{dh}: DEVELOPMENT LENGTH FOR HOOKED BAR IN TENSION
- l_{st}: LAP SPLICE LENGTH



2 SPLICE AND DEVELOPMENT LENGTHS
NTS



90° HOOK



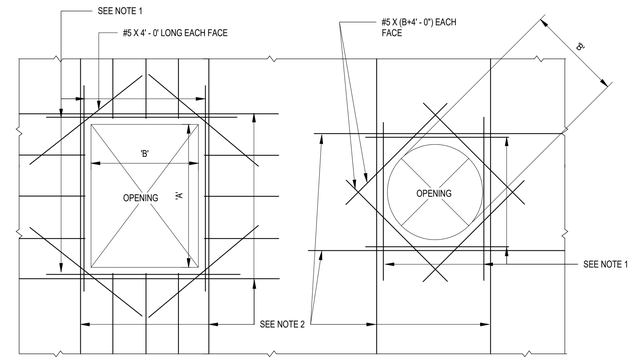
180° HOOK

BAR SIZE	MINIMUM D(IN)	180° HOOKS	90° HOOKS
		l_{ext}(IN)	l_{ext}(IN)
#3	2 1/4"	2.5	4.5
#4	3"	2.5	6
#5	3 3/4"	2.5	7.5
#6	4 1/2"	3	9
#7	5 1/4"	3.5	10.5
#8	6"	4	12
#9	9"	4.5	13.5
#10	10"	5	15
#11	11	5.5	16.5
#14	17.5	7	21
#18	22.5	9	27

[1]A STANDARD HOOK FOR DEFORMED BARS IN TENSION INCLUDES THE SPECIFIC INSIDE BEND DIAMETER AND STRAIGHT EXTENSION LENGTH. IT SHALL BE PERMITTED TO USE A LONGER STRAIGHT EXTENSION AT THE END OF A HOOK. A LONGER EXTENSION SHALL NOT BE CONSIDERED TO INCREASE THE ANCHORAGE CAPACITY OF THE HOOK.

D - INSIDE DIAMETER OF HOOK
db - BAR DIAMETER

4 STANDARD HOOK GEOMETRY FOR DEVELOPMENT OF DEFORMED BARS IN TENSION
NTS



NOTES:
1. PROVIDE 2-#6 X (B+4'-0") ADDITIONAL REBARS @ TOP AND BOTTOM AND 2-#6 X (A+4'-0") ADDITIONAL REBARS AT EACH SIDE OF OPENING IN WALLS ONLY.
2. PROVIDE ADDL BARS EQUAL TO ONE-HALF OF BARS INTERRUPTED AT EACH SIDE OF OPENING AT 3" O.C. THESE BARS SHALL BE ORIGNAL SIZES AND LENGTHS AS THOSE OF THE INTERRUPTED BARS. (TYPICAL FOR OPENINGS IN SLABS AND PRESSURE WALLS.)

1 ADDITIONAL REINFOCING STEEL AT OPENING IN WALLS AND SLABS
NTS

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FIRM REGISTRATION NO.: 100370-00

STATE OF TEXAS
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153533
LICENSED PROFESSIONAL ENGINEER

10/28/2026

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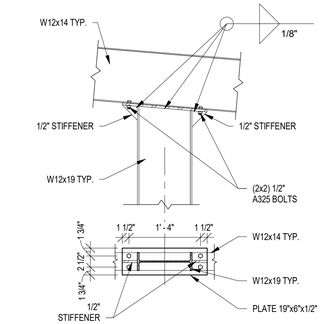
NO.	DESCRIPTION	DATE
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HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
TYPICAL DETAILS

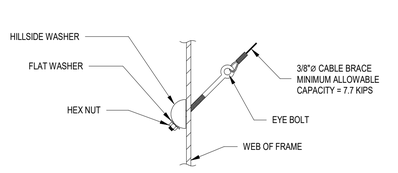
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S13 / 1
S15



3 COLUMN TO BEAM CONNECTION
NTS

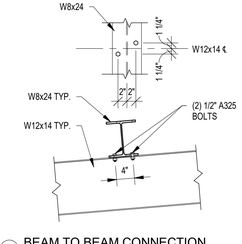


CABLE BRACE TO FRAME DETAIL

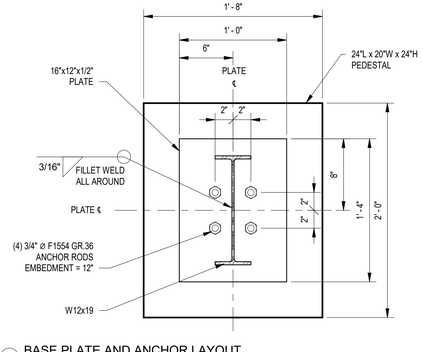
NOTE:

CABLE TO BE INSTALLED AS SHOWN AND TENSIONED SO THAT STRUCTURE WILL NOT SWAY OR ROCK WHEN WIND BLOWS. CARE SHOULD BE TAKEN; HOWEVER, TO NOT OVER-TIGHTEN AND BEND STRUCTURAL MEMBERS.

2 TYPICAL CABLE BRACE TO FRAME DETAIL
NTS



4 BEAM TO BEAM CONNECTION
NTS



1 BASE PLATE AND ANCHOR LAYOUT
NTS

FERRIS, FLINN & MEDINA, LLC
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PHONE (956) 364-2236 FAX (956) 364-1023
FIRM REGISTRATION NO.: F-897
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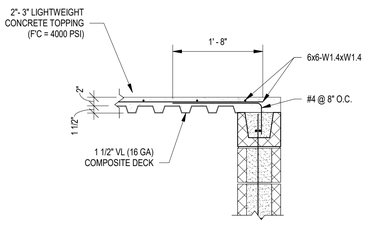
NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
STEEL DETAILS

SCALE: AS SHOWN
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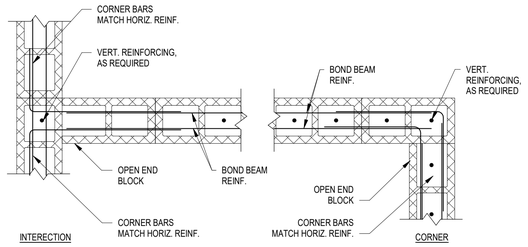
S14 / S15



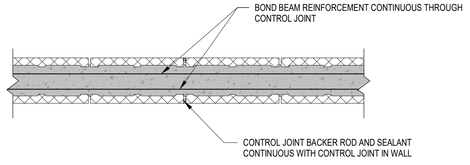
7 ROOF DECK REINFORCEMENT AND DECK CONNECTION
NTS

BAR SIZE	f'm = 1500 PSI					f'm = 2000 PSI					f'm = 3000 PSI				
	MASONRY COVER OR CLEAR SPACING BETWEEN BARS WHICHEVER IS SMALLER					MASONRY COVER OR CLEAR SPACING BETWEEN BARS WHICHEVER IS SMALLER					MASONRY COVER OR CLEAR SPACING BETWEEN BARS WHICHEVER IS SMALLER				
	1.5"	2"	2.5"	3"	3.5" OR GREATER	1.5"	2"	2.5"	3"	3.5" OR GREATER	1.5"	2"	2.5"	3"	3.5" OR GREATER
#3	19	14	11	9	8	16	12	10	8	7	13	10	8	7	6
#4	34	25	20	17	14	29	22	17	15	12	24	18	14	12	10
#5	45	39	31	26	22	45	34	27	23	19	37	28	22	19	16
#6	54	54	54	49	42	54	54	51	43	36	54	52	42	35	30
#7	63	63	63	63	57	63	63	63	58	50	63	63	57	47	40
#8	72	72	72	72	72	72	72	72	72	72	72	72	72	71	61
#9	81	81	81	81	81	81	81	81	81	81	81	81	81	81	77

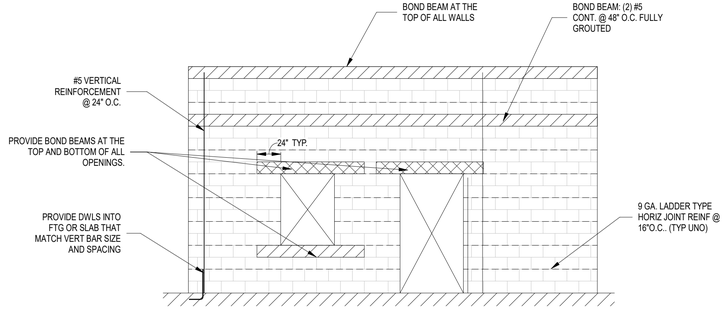
6 LAP SPLICE IN MASONRY FOR VERTICAL & HORIZONTAL REINFORCING BARS
NTS



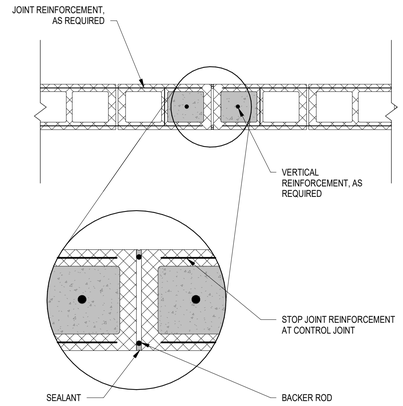
5 MASONARY WALL INTERSECTIONS
NTS



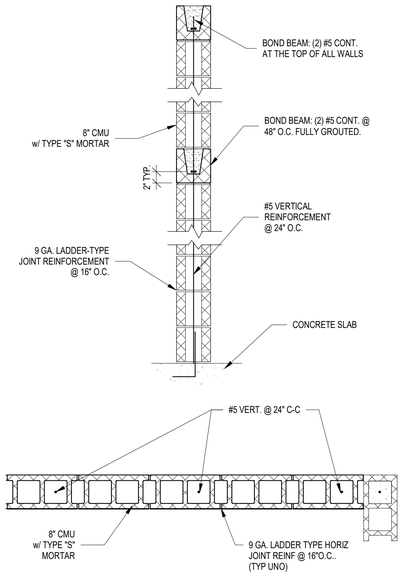
4 CONTROL JOINT THROUGH A BOND BEAM - CONTINUOUS HORIZONTAL REINFORCEMENT
NTS



3 TYPICAL WALL REINFORCEMENT
NTS



2 DISCONTINUOUS HORIZONTAL REINFORCEMENT
NTS



1 TYPICAL CMU WALL SECTION
NTS

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FIRM REGISTRATION NO.: F-897
FIRM REGISTRATION NO.: 100370-00

STATE OF TEXAS
SEETED ALI HAJ SEETED TAGHA
153533
LICENSED
PROFESSIONAL ENGINEER

10/28/2026

REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM 2	10/28/26

HIDALGO COUNTY IRRIGATION DISTRICT NO. 6
NEW RIVER PUMPING FACILITY
CMU TYPICAL DETAILS

SCALE: AS SHOWN
DRAWN BY:
FILE:
DATE:09/30/2026

BARRON ENGINEERING
2743 SMITH RANCH RD, STE 2604,
PEARLAND, TX 77584
832-295-3600
TBPE FIRM No. F-23075

S15 1
S15