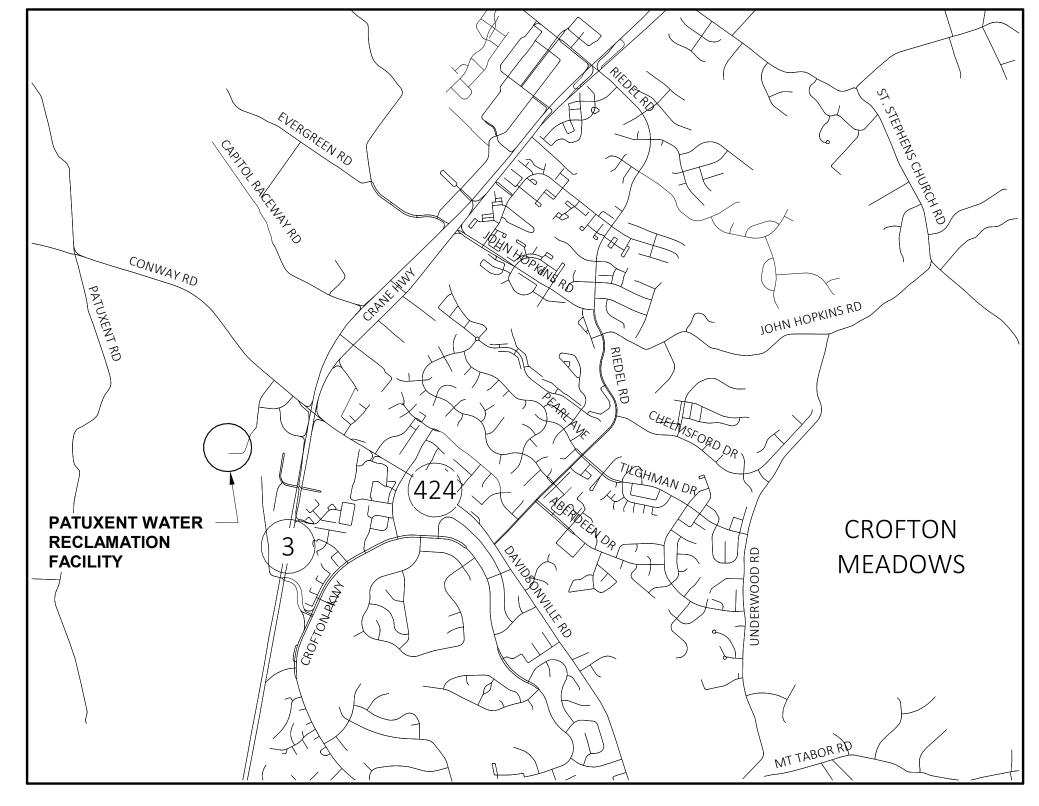
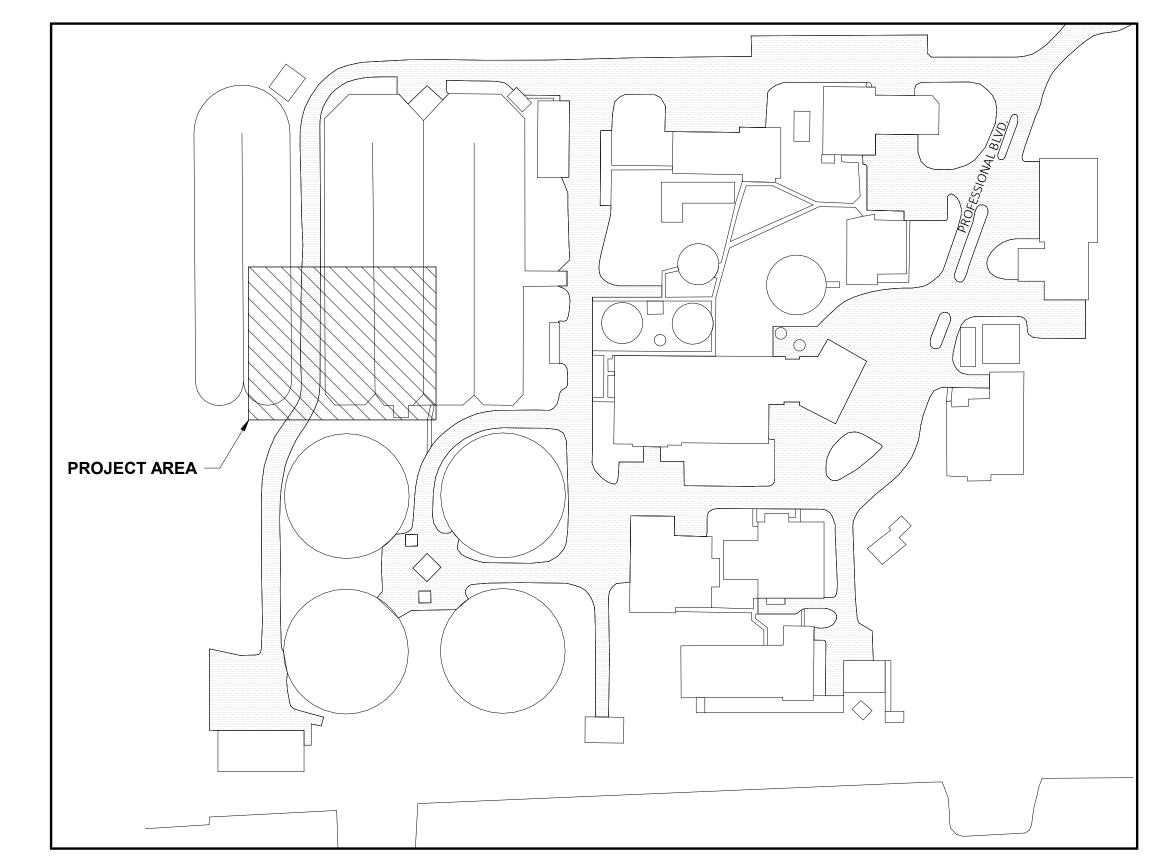
# ANNE ARUNDEL COUNTY MARYLAND DEPARTMENT OF PUBLIC WORKS

# PATUXENT WATER RECLAMATION FACILITY AIR PIPING AND SUPPORT REPAIRS

PROJECT NO. S802300 CONTRACT NO. S802380 FEBRUARY 2024

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VICINITY MAP
SCALE: 1" = 2000'

SCALE: 1" = 100'

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

IN CHARGE OF R. DUDLEY

A. SHUE

CHECKED BY N. VENKATESAN

T. LARAMAY

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC. +1 (301) 731-5622 16701 MELFORD BLVD, STE 400 BOWIE, MD 20715

RAMBOLL

	PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO., 31362 EXPIRATION DATE 06/20/2025	OF MAR VENKA VENKA OF OF O
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NO	DATE		DESCRIPTION

ANNE ARUNDEL COUNTY						
DEPARTMENT OF PUBLIC WORKS						
APPROVED DATE	APPROVED DATE	SCALE: AS INDICATED	PATUXENT WRF - AIR PIPING AND SUPPORT REPA			
		DRAWN BY: T. LARAMAY				
CHIEF ENGINEER	PROJECT MANAGER	CHECKED BY: N. VENKATESAN	TITLE CLIEFT			
APPROVED DATE	APPROVED DATE	SHEET NO: 1 OF 13	TITLE SHEET	T-001		
		PROJECT NO: \$802300				

CONTRACT NO: \$802380

**EXISTING OXIDATION DITCH** 

### STRUCTURAL GENERAL NOTES

- . WORK SHALL COMPLY WITH THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC 2018).
- THE CONTRACTOR SHALL COORDINATE SPECIAL INSPECTIONS WITH OWNER.
- 3. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE START OF WORK. 4. SECTIONS AND DETAILS SHOWN ON DRAWINGS ARE TYPICAL. USE SIMILAR CONSTRUCTION AT LOCATIONS NOT
- SPECIFICALLY DETAILED. DO NOT SCALE DRAWINGS. 5. EXAMINE AND COMPARE STRUCTURAL DRAWINGS WITH PROCESS DRAWINGS. VERIFY LOCATIONS AND DIMENSIONS OF SUPPORTS, INSERTS, OPENINGS, SLEEVES, DEPRESSIONS, AND OTHER PROJECT
- REQUIREMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS. 6. ADEQUATE TEMPORARY BRACING OF CONSTRUCTION ELEMENTS SHALL BE PROVIDED FOR STRUCTURAL SYSTEMS FOR WIND AND/OR CONSTRUCTION LOADS. BRACING SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION OPERATIONS PRIOR TO STRUCTURAL ELEMENTS REACHING THEIR SPECIFIED DESIGN STRENGTH
- AND/OR REACHING THEIR COMPLETED FORM AS SHOWN ON THE CONTRACT DRAWINGS. DESIGN AND MAINTENANCE OF SAID BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. 7. VERIFY IN FIELD EXISTING CONDITIONS AND DIMENSIONS PRIOR TO THE START OF WORK. NOTIFY THE ENGINEER OF RECORD OF ANY DISCREPANCIES IN WRITING. DO NOT PROCEED WITH AFFECTED WORK UNTIL DISCREPANCIES HAVE BEEN RESOLVED.

## STRUCTURAL FOUNDATION NOTES

- 1. FOUNDATION DESIGN IS BASED ON PRESUMED GEOTECHNICAL PARAMETERS
- NET ALLOWABLE SOIL BEARING PRESSURE: 3000 P.S.F.
- MODULUS OF SUBGRADE REACTION: 100 P.C.I. MINIMUM CAISSON DEPTH: 2'-6" BELOW FINISH GRADE
- 2. PLACE FOUNDATIONS ON 8 INCH THICKNESS OF #57 CRUSHED STONE. COMPACT EXISTING SUBGRADE
- PRIOR TO PLACEMENT OF FOUNDATIONS. 3. COMPACTED BACKFILL: BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DENSITY ACCORDING TO A.S.T.M. D1557. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8 INCHES
- IN LOOSE DEPTH. 4. UNSUITABLE SUBGRADE, IF ENCOUNTERED, WILL BE UNDERCUT AND REPLACED WITH LEAN CONCRETE OR
- SELECT GRANULAR MATERIAL AS ORDERED BY THE GEOTECHNICAL ENGINEER 5. FOUNDATIONS OR SLABS SHALL NOT BE PLACED IN WATER, OR SATURATED SUBGRADES, NOR ON FROZEN
- SUBGRADES. IN-PLACE FOUNDATIONS AND SLABS SHALL BE PROTECTED FROM FROST PENETRATION UNTIL
- 6. FOUNDATION ELEMENTS SHALL BE CENTERED IN EACH DIRECTION UNDER SUPPORTED STRUCTURAL MEMBERS UNLESS NOTED OTHERWISE ON THE DRAWINGS. MINIMUM FOOTING PROJECTION SHALL BE 6" ADEQUATE U.O.N.

#### STRUCTURAL CONCRETE NOTES

- 1. CONCRETE WORK SHALL CONFORM TO REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (A.C.I.)
- 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE"

2. CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH AS SHOWN:

#### @ 28 DAYS (P.S.I.) UNIT WEIGHT (P.C.F.)

- 3. PORTLAND CEMENT USED FOR CONCRETE WORK SHALL COMPLY WITH A.S.T.M. C-150 FOR TYPE I/II CEMENT 4. NORMAL WEIGHT CONCRETE SHALL CONTAIN FINE AND COARSE AGGREGATES COMPLYING WITH A.S.T.M. C-33. THE MAXIMUM SIZE OF COARSE AGGREGATES SHALL BE OF SIZES SUITABLE FOR PLACEMENT IN
- STRUCTURAL ELEMENTS CONSIDERING THEIR SIZE AND REINFORCEMENT CONFIGURATION. 5. CHAMFER EXPOSED CORNERS OF CONCRETE 3/4 INCH.
- EXTERIOR CONCRETE WORK SHALL BE AIR-ENTRAINED 5-7%.

### STRUCTURAL REINFORCING NOTES

- REINFORCEMENT WORK OF DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318)", "A.C.I. DETAILING MANUAL - 1988 (SP-66)", CRSI MANUAL OF STANDARD PRACTICE (MSP 1)" AND "STRUCTURAL WELDING CODE - REINFORCING STEEL
- 2. STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING:
- a. BARS, TIES AND STIRRUPS . . . . A.S.T.M. A615 GRADE (Fy = 60,000P.S.I.) b. REINFORCING TO BE WELDED SHALL CONFORM TO A.S.T.M. A706 (Fy = 60,000 P.S.I.) OR MILL TEST REPORTS
- SHALL BE SUBMITTED SHOWING CARBON EQUIVALENT 3. MINIMUM CONCRETE PROTECTIVE COVER FOR REINFORCEMENT OF NON-ENVIRONMENTAL ENGINEERING
- CONCRETE SHALL BE AS FOLLOWS U.O.N.:
- a. UNFORMED SURFACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH . . . . . . . 3.0" b. BUILDING SURFACES FORMED IN CONTACT
- WITH EARTH OR EXPOSED TO WEATHER, #6 THROUGH #18 BARS . . . 2.0"
- #5 BARS AND SMALLER.
- 4. WHERE CONTINUOUS REINFORCEMENT IS CALLED FOR, IT SHALL BE EXTENDED CONTINUOUSLY AROUND
- CORNERS AND LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS. LAPS SHALL BE CLASS B TENSION LAP SPLICES, UNLESS NOTED OTHERWISE.
- 6. WHERE REINFORCEMENT IS SHOWN IN SECTION, REINFORCEMENT IS CONSIDERED TYPICAL WHEREVER THE
- 7. REINFORCEMENT SHALL NOT BE TACK WELDED OR HEATED FOR BENDING.
- 8. INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO THE SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO THE SCHEDULED COMPLETION OF THE INSTALLATION OF REINFORCEMENT.

# **ALUMINUM RAILING NOTES**

- 1. ALUMINUM RAILINGS SHALL BE IN ACCORDANCE WITH APPLICABLE OSHA REGULATIONS AND SHALL MEET THE
- FOLLOWING SPECIFICATIONS: A. GUARDRAIL TOP RAIL: NOMINAL 1 1/2" SCHED 40 ALUMINUM PIPE (1.90" OD) B. GUARDRAIL INTERMEDIATE RAIL: NOMINAL 1 1/2" SCHED 40 ALUMINUM PIPE (1.90" OD) 21" TOP OF RAIL AFF
- C. GUARDRAIL TOE PLATE: 1/4" GAP AFF MAX ALUMINUM PL 1/4"X4" NOMINAL 1 1/2" SCHED 40 ALUMINUM PIPE (1.90" OD) D. HANDRAIL: 36" TOP OF RAIL AFF NOMINAL 1 1/2" SCHED 80 ALUMINUM PIPE (1.90" OD) E. POSTS: 6 - 0" MAX SPACING
- 2. GUARDRAIL AND HANDRAIL SYSTEMS SHALL BE DESIGNED TO WITHSTAND A CONCENTRATED LOAD OF 200 POUNDS OR A UNIFORM LOAD OF 50 POUNDS PER FOOT APPLIED IN ANY DIRECTION AT ANY POINT ON THE SYSTEM. 3. SEE TYPICAL DETAILS FOR RAILING DETAILS.
- 4. ALUMINUM RAILINGS SHALL BE NEW 6063-T6 ALLOY AND CONFORM TO ASTM B221 (Fy = 35 KSI), UNLESS OTHERWISE
- 5. POSTS SHALL NOT INTERRUPT THE CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS. THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND SHALL NOT BE INTERRUPTED BY PROJECTED FITTINGS.
- 6. FINISH SHALL BE ALUMINUM ASSOCIATION M12-C22-A41. THE PIPE SHALL BE PLASTIC-WRAPPED WITH THE WRAP TO BE REMOVED AFTER ERECTION.
- 7. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT, OR DISSIMILAR METALS SHALL BE PROTECTED WITH A
- COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS, OR OTHER APPROVED MATERIAL. 8. USE FULLY WELDED JOINTS FOR PERMANENTLY CONNECTING RAILING COMPONENTS. WELDS SHALL BE SMOOTH AND

## STRUCTURAL STEEL NOTES

- 1. FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH A.I.S.C. "SPECIFICATIONS FOR STRUCTURAL
- 2. STEEL MEMBERS HAVE PROPORTIONED UTILIZING ALLOWABLE STRESS DESIGN (ASD) METHODS AS PRESCRIBED
- 3. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH "DETAILING FOR STEEL CONSTRUCTION (A.I.S.C.)" AND WHERE REQUIRED, DESIGNED IN ACCORDANCE WITH CITED REFERENCES.
- 4. STRUCTURAL STEEL SHALL BE NEW AND CONFORM TO:
- a. UNLESS OTHERWISE NOTED A.S.T.M. A992 (Fy=50 K.S.I.) b. HOLLOW STRUCTURAL SECTIONS
- A.S.T.M. A500 (Fy=42 K.S.I.) ROUND SQUARE OR RECTANGULAR A.S.T.M. A500 (Fy=46 K.S.I.) c. MISC. STRUCTURAL SHAPES A.S.T.M. A36 (Fy=36 K.S.I.) & CONNECTIONS
- d. ANCHOR BOLTS A.S.T.M. F1554 GRADE 36 e. HIGH STRENGTH BOLTS A.S.T.M. A325-N
- 5. WELDING SHALL CONFORM TO THE REQUIREMENTS OF A.W.S. D1.1, AND SHALL BE PERFORMED BY APPROVED, CERTIFIED PERSONS.
- 6. WELDED CONNECTIONS SHALL UTILIZE E70XX ELECTRODES. 7. WELDS SHALL DEVELOP FULL STRENGTH OF THE MATERIALS BEING WELDED, UNLESS NOTED OTHERWISE,
- EXCEPT THAT FILLET WELDS SHALL BE A MINIMUM OF 1/4" U.O.N. 8. ANCHOR BOLTS, LEVELING PLATES OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK
- PRESET BY TEMPLATES, AND SET IN FULL BEDS OF NON-SHRINK GROUT. 9. PRINCIPAL STRUCTURAL BOLTED CONNECTIONS (BEAM-BEAM, BEAM-GIRDER, BEAM OR GIRDER TO COLUMN) SHALL
- BE MADE USING 3/4" DIAMETER MINIMUM A.S.T.M. A325 BOLTS IN BEARING CONNECTIONS 10. BEAM CONNECTIONS SHALL PROVIDE CONNECTION CAPACITY BY ALLOWABLE STRESS DESIGN (ASD) METHODS. WHERE BEAM REACTIONS ARE NOT INDICATED ON THE PLANS, CONNECTION CAPACITY SHALL BE DETERMINED
- a. NON-COMPOSITE BEAMS: SUPPORT A REACTION "R" EQUAL TO 1/2 THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM FOR A GIVEN SHAPE, SPAN, AND GRADE OF STEEL PER "ALLOWABLE LOADS ON BEAMS" PART 3, A.I.S.C. "MANUAL OF STEEL CONSTRUCTION", 13TH EDITION.
- b. ADD TO "R" THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND/OR THE VERTICAL COMPONENTS OF FORCE IN DIAGONAL BRACING MEMBERS FRAMING INTO BEAM.
- 11. A MINIMUM OF TWO (2) BOLTS SHALL BE UTILIZED AT CONNECTIONS.
- 12. ENDS OF COLUMNS AT SPLICES AND AT OTHER BEARING CONNECTIONS SHALL BE "FINISHED TO BEAR" TO
- 13. PROVIDE STIFFENERS "FINISHED TO BEAR" UNDER LOAD CONCENTRATIONS ON SUPPORTING MEMBERS, OVER
- COLUMNS AND WHERE SHOWN ON DRAWINGS. 14. PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL STEEL FRAMING SECURELY IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING
- HAS BEEN INSTALLED AND CONCRETE FLOOR SLABS HAVE ATTAINED 75% OF SPECIFIED CONCRETE STRENGTH. 15. STRUCTURAL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED. WHERE STEEL SHELF ANGLES FOR FACADE SUPPORT ARE PRESENT, TOP OF SHELF ANGLE ON SUCCESSIVE FLOORS WILL BE SET IN SAME VERTICAL PLANE
- 16. FIELD CUTTING OF STRUCTURAL FRAMING AND/OR FIELD MODIFICATIONS OF STRUCTURAL FRAMING SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY ENGINEER FOR EACH SPECIFIC CASE.
- 17. THE CONTRACTOR SHALL FURNISH & INSTALL ALL PLATES, CLIP ANGLES, CONNECTION MATERIALS, ETC. AS REQUIRED FOR COMPLETION OF THE STRUCTURE, EVEN IF SUCH ITEMS ARE NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.

### STRUCTURAL ALUMINUM NOTES

- 1. FABRICATE AND ERECT STRUCTURAL ALUMINUM IN ACCORDANCE WITH AA "ALUMINUM DESIGN MANUAL. 2. ALUMINUM MEMBERS HAVE BEEN PROPORTIONED UTILIZING ALLOWABLE STRESS DESIGN (ASD) METHODS AS
- 3. STRUCTURAL ALUMINUM SHALL BE DETAILED IN ACCORDANCE WITH AA "ALUMINUM DESIGN MANUAL" AND WHERE
- REQUIRED, DESIGNED IN ACCORDANCE WITH CITED REFERENCES. 4. STRUCTURAL ALUMINUM SHALL BE NEW 6061-T6 ALLOY AND CONFORM TO ASTM B221 (Fy = 35 KSI), UNLESS
- OTHERWISE NOTED. 5. WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.2, AND SHALL BE PERFORMED BY APPROVED,
- CERTIFIED PERSONS WELDED CONNECTIONS SHALL UTILIZE ALUMINUM WELD FILLER ALLOY 5356. 7. WELDS SHALL DEVELOP FULL STRENGTH OF THE MATERIALS BEING WELDED, UNLESS OTHERWISE NOTED, EXCEPT
- THAT FILLET WELDS SHALL BE A MINIMUM OF 1/4" UNLESS OTHERWISE NOTED. 8. ANCHOR BOLTS, LEVELING PLATES, OR BEARING PLATES SHALL BE LOCATED AND BUILT INTO CONNECTING WORK,
- PRESET BY TEMPLATES, AND SET IN FULL BEDS OF NON-SHRINK GROUT. PRINCIPAL STRUCTURAL BOLTED CONNECTIONS (BEAM-BEAM, BEAM-GIRDER, BEAM OR GIRDER TO COLUMN) SHALL
- BE MADE USING MINIMUM 3/4" DIAMETER ASTM F593-2 STAINLESS STEEL BOLTS IN BEARING CONNECTIONS. 10. BEAM CONNECTIONS SHALL PROVIDE CONNECTION CAPACITY BY ALLOWABLE STRESS DESIGN METHODS (ASD) WHERE BEAM REACTIONS ARE NOT INDICATED ON THE PLANS, CONNECTION CAPACITY SHALL BE DETERMINED AS
- A. BEAMS: SUPPORT A REACTION "R" EQUAL TO 1/2 THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM FOR A GIVEN SHAPE, SPAN, AND ALUMINUM ALLOY.
- B. ADD TO "R" THE LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM NEAR SUPPORTS AND/OR THE VERTICAL COMPONENTS OF FORCE IN DIAGONAL BRACING MEMBERS FRAMING INTO BEAM.
- 11. A MINIMUM OF TWO (2) BOLTS SHALL BE UTILIZED AT CONNECTIONS.
- 12. ENDS OF COLUMNS AT SPLICES AND AT OTHER BEARING CONNECTIONS SHALL BE "FINISHED TO BEAR" TO COMPLETE TRUE BEARING.
- 13. PROVIDE STIFFENERS "FINISHED TO BEAR" UNDER LOAD CONCENTRATIONS ON SUPPORTING MEMBERS, OVER COLUMNS AND WHERE SHOWN ON DRAWINGS. 14. PROVIDE TEMPORARY ERECTION BRACING AND SUPPORTS TO HOLD STRUCTURAL ALUMINUM FRAMING SECURELY
- IN POSITION. SUCH TEMPORARY BRACING AND SUPPORTS SHALL NOT BE REMOVED UNTIL PERMANENT BRACING HAS BEEN INSTALLED AND CONCRETE HAS ATTAINED 75% OF SPECIFIED COMPRESSIVE CONCRETE STRENGTH. 15. STRUCTURAL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED
- 16. FIELD CUTTING OF STRUCTURAL FRAMING AND / OR FIELD MODIFICATIONS OF STRUCTURAL FRAMING SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY ENGINEER FOR EACH SPECIFIC CASE. 17. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL PLATES, CLIP ANGLES, CONNECTION MATERIALS, ETC. AS REQUIRED FOR COMPLETION OF THE STRUCTURE, EVEN IF SUCH ITEMS ARE NOT SPECIFICALLY SHOWN ON THE
- STRUCTURAL DRAWINGS. 18. FIELD APPLY BITUMINOUS TAR COATING TO ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR

# STRUCTURAL DESIGN CRITERIA

1.0

# ROOF SNOW LOADS

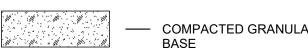
GROUND SNOW LOAD, Pa 19.3 FLAT-ROOF SNOW LOAD, Pf (PSF) SNOW EXPOSURE FACTOR, Ce: 1.0 SNOW LOAD IMPORTANCE FACTOR, Is: 1.1

## WIND DESIGN DATA

THERMAL FACTOR, Ct:

ULTIMATE DESIGN WIND SPEED, Vult (3s): 113 RISK CATEGORY: WIND IMPORTANCE FACTOR, Iw: 1.0 WIND EXPOSURE INTERNAL PRESSURE COEFFICIENTS: +/- 0.18

- **EARTHQUAKE DESIGN DATA:** 39.0174 N SITE LONGITUDE 76.7016 W SEISMIC IMPORTANCE FACTOR, Ie: **RISK CATEGORY** MAPPED SPECTRAL RESPONSE ACCELERATIONS:  $S_s =$  $S_1 =$ 0.042g DESIGN SPECTRAL RESPONSE ACCELERATIONS: 0.14c $S_{D1} =$ SEISMIC DESIGN CATEGORY BASIC SEISMIC FORCE-RESISTING SYSTEM: VARIES
- DESIGN BASE SHEAR, V: SEISMIC RESPONSE COEFFICIENT(S), Cs: VARIES RESPONSE MODIFICATION COEFFICIENT(S), R: VARIES ANALYSIS PROCEDURE:



— COMPACTED STONE FILL









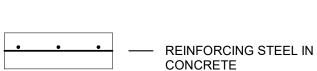
REVISIONS

# BRG **BSMT**









CHIEF ENGINEER

# **ABBREVIATIONS**

THOUSAND POUNDS (1 K = 1000 LBS)

LOAD AND RESISTANCE FACTOR DESIGN

ONE THOUSANDTH OF AN INCH

MASONRY LINTEL (STEEL)

MANUFACTURER'S PRINTED

INSTALLATION INSTRUCTIONS

NUMBER SYMBOL FOR REBAR SIZE

NUMBER SYMBOL FOR WOOD GRADE

KNEE BRACE

KIPS PER FOOT

THOUSAND FOOT/POUNDS

KIPS PER LINEAR FOOT

KIPS PER SQUARE FOOT

LONG LEG HORIZONTAL

LONG LEG VERTICAL

LONGITUDINAL

LOW POINT

LIGHTWEIGHT

MATERIAL

MAXIMUM

**MECHANICAI** 

**MEZZANINE** 

MANHOLE

MINIMUM

NEAR FACE

**NEAR SIDE** 

NOT TO SCALE

OUTSIDE FACE

OPPOSITE HAND

ON CENTER

**MANUFACTURER** 

MISCELLANEOUS

MASONRY OPENING

NOT IN CONTRACT

OUTSIDE DIAMETER

METAL DECK

LONG LEG OUTSTANDING

KILN DRIED

LIVE LOAD

THE ALUMINUM ASSOCIATION K OR KIP ANCHOR BOLT AGGREGATE BASE COURSE ACI AMERICAN CONCRETE INSTITUTE K/FT **ADDL** ADDITIONAL KIP FT ABOVE FINISHED FLOOR AFG KSF ABOVE FINISHED GRADE ABOVE FINISHED SLAB AFS **AGGR** AGGREGATE AISC AMERICAN INSTITUTE OF STEEL CONSTRUCTION LLH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION LLO ALUMINUM AL or ALUM ALTERNATE LONG ANSI AMERICAN NATIONAL STANDARD INSTITUTE APPD APPROVED LRFD **APPROX APPROXIMATE** LW AS REQUIRED ARCH ARCHITECT, ARCHITECTURAL ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS ASD ALLOWABLE STRESS DESIGN ASTM AMERICAN SOCIETY FOR TESTING AND MATERIALS AWC AMERICAN WOOD COUNCIL AWS AMERICAN WELDING SOCIETY B PL BASE PLATE **BOTTOM ELEVATION BOTH FACES** BELOW FINISHED FLOOR BLDG BUILDING BOS BOTTOM OF STEEL BOT BOTTOM **BRCG** BRACING BEARING BASEMENT BW **BOTH WAYS** (C) COMPRESSION CHANNEL CFMF COLD FORMED METAL FRAMING CHEM CHEMICAL CHAMFER CAST-IN-PLACE CONTRACTION JOINT, CONSTRUCTION JOINT CENTER LINE COLUMN LINE CLG CEILING CLR CLSM CONTROLLED LOW-STRENGTH MATERIAL CONCRETE MASONRY UNIT COL COLUMN CONC CONCRETE CONN CONNECTION CONSTR CONSTRUCTION CONT CONTINUE, CONTINUOUS CONTR CONTRACTOR COORD COORDINATE CRSI CONCRETE REINFORCING STEEL INSTITUTE CY CUBIC YARDS PENNY (NAIL SIZE) DEMOLISH, DEMOLITION DEMO DETL DFT DRY FILM THICKNESS DIA DIAMETER DIAG DIAGONAL DIMENSION DEAD LOAD DEPARTMENT OF TRANSPORTATION DWL DOWEL EACH EACH FACE **EXPANSION JOINT** ELEVATION ELEC ELECTRIC, ELECTRICAL **EMBED EMBEDMENT ENGR ENGINEER** EOR ENGINEER OF RECORD EOS EDGE OF SLAB EQ FQUAL **EQUIP EQUIPMENT EQUIV EQUIVALENT** EW **EACH WAY** EX or EXIS **EXISTING** EXP **EXPANSION** SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE FLOOR DRAIN SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE MASONRY FIBER REINFORCED CONCRETE **TPER** FIBERGLASS REINFORCED PLASTIC FS FAR SIDE TYP FT FEET UON FTG FOOTING **VERT** MINIMUM YIELD STRESS VIF **VRFY** GAGE GALV GALVANIZED GR BM GRADE BEAM GRTG GRATING

MATL MECH MEZZ MFR OPNG OSHA P/C OR PCP PCI PREFAB PSF PSI PVC REBAR REINF REQD REV SCHED SECT SIM SSR SST STD STIFF STIR

OPENING OPPOSITE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION PRECAST PLANK PRECAST CONCRETE PRECAST / PRESTRESSED CONCRETE INSTITUTE PENTHOUSE PLATE PREFABRICATED POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH POLYVINYL CHLORINE RADIUS OR RISER ROOF DRAIN REINFORCING STEEL BAR REFERENCE REINFORCED REQUIRED REVISION ROOM SELF-CONSOLIDATING GROUT SCHEDULE STRUCTURAL ENGINEER SECTION **SQUARE FEET** SIMIL AR

STEEL JOIST INSTITUTE SQUARE STANDING SEAM (ROOF) STANDING SEAM ROOFING STAINLESS STEEL STANDARD STIFFENER STIRRUP STEEL STL STRUCT STRUCTURAL SYMM SYMMETRICAL TENSION TREAD, TOP T&B TOP AND BOTTOM T&G **TONGUE & GROOVE** TOP ELEVATION TEMPERATURE, TEMPORARY **TEMP** 

> TOP OF THERMOPLASTIC ELASTOMERIC RUBBER TRUSS PLATE INSTITUTE TYPICAL **UNLESS OTHERWISE NOTED** VERTICAL VERIFY IN FIELD VERIFY WEST WITH

TOP OF FINISH FLOOR

WIDE FLANGE WIDE FLANGE BEAM W/O WITHOUT WS WATERSTOP

**WORKING POINT** CROSSBRACING

PATUXENT WRF REPAIRS

SERVICE INSIDE DIAMETER INSIDE FACE INCHES INFORMATION INSULATION INTERIOR INVERT

HEATING, VENTILATING AND AIR CONDITIONING

INTERNATIONAL CODE COUNCIL EVALUATING

HIGH DENSITY POLYETHYLENE

INTERNATIONAL BUILDING CODE

HORIZONTAL

HIGH STRENGTH

**HIGH POINT** 

ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS SCALE: AS INDICATED

RAWN BY: T. HOLLIS

CHECKED BY: C. LAUTZ

GENERAL NOTES **DESIGN CRITERIA** 

S-001

MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN

THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY

BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY

L. WOODS IN CHARGE OF J. WILSON **DESIGNED BY** C. LAUTZ

T. HOLLIS

CHECKED BY

MADE BY

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

301-731-5622 16701 MELFORD BLVD STE 400 **BOWIE, MD 20715** 

RAMBŒLL

**PROFESSIONAL CERTIFICATION:** HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DUI Y LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO.

10/10/2025

Line Wille B 44463 EXPIRATION DATE Mar-08-2024

NO. DATE

\_\_\_\_\_

SHEET NO: 2 OF 13 PROJECT NO: \$802300 03/06/24 ISSUED FOR BID ASSISTANT CHIEF ENGINEEF CHIEF, RIGHT OF WAY SERVICES CONTRACT NO: \$802380 **EXISTING OXIDATION DITCH** DESCRIPTION BY

PROJECT MANAGER

HDPE

HORIZ

**HVAC** 

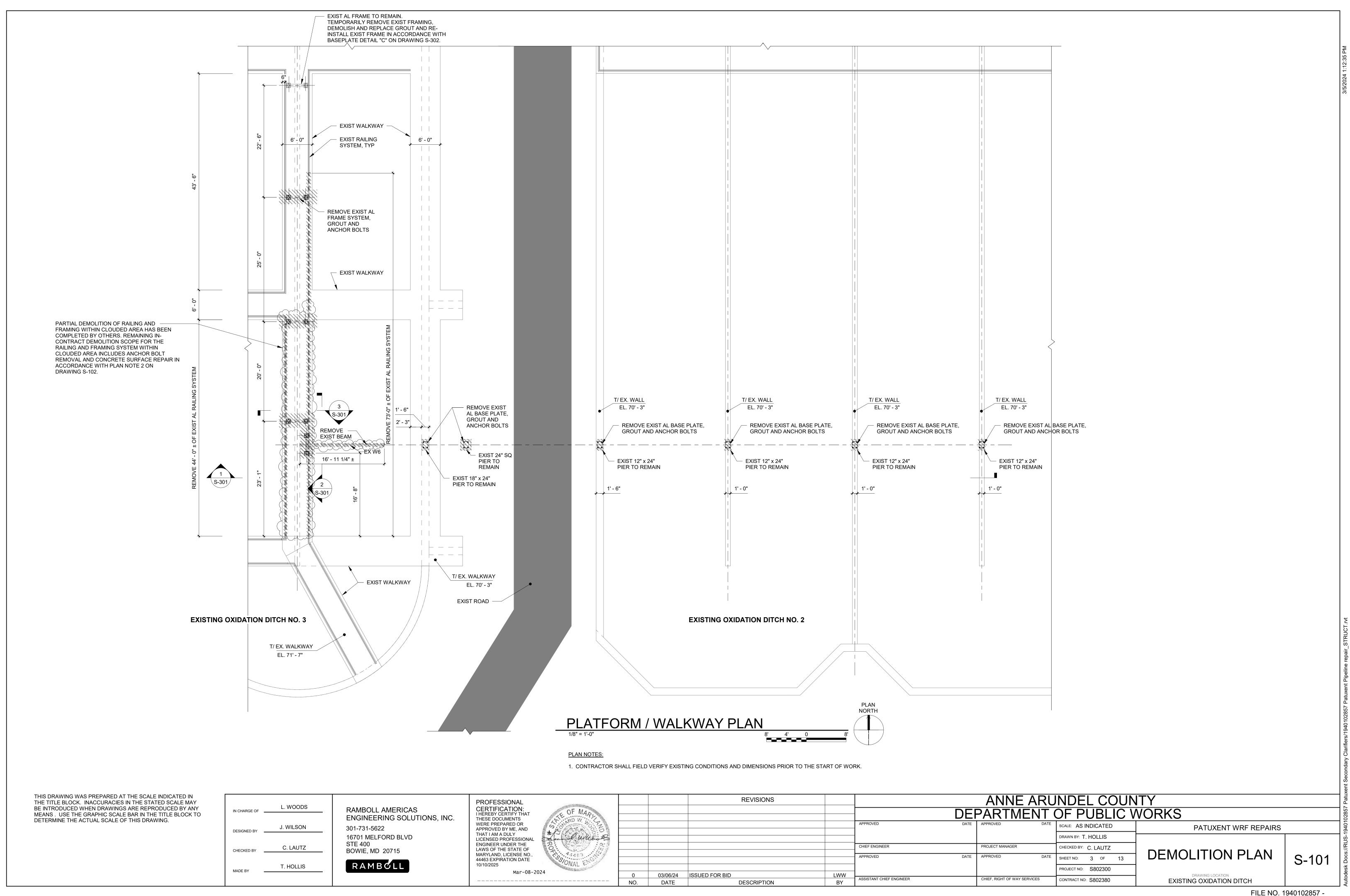
ICC-ES

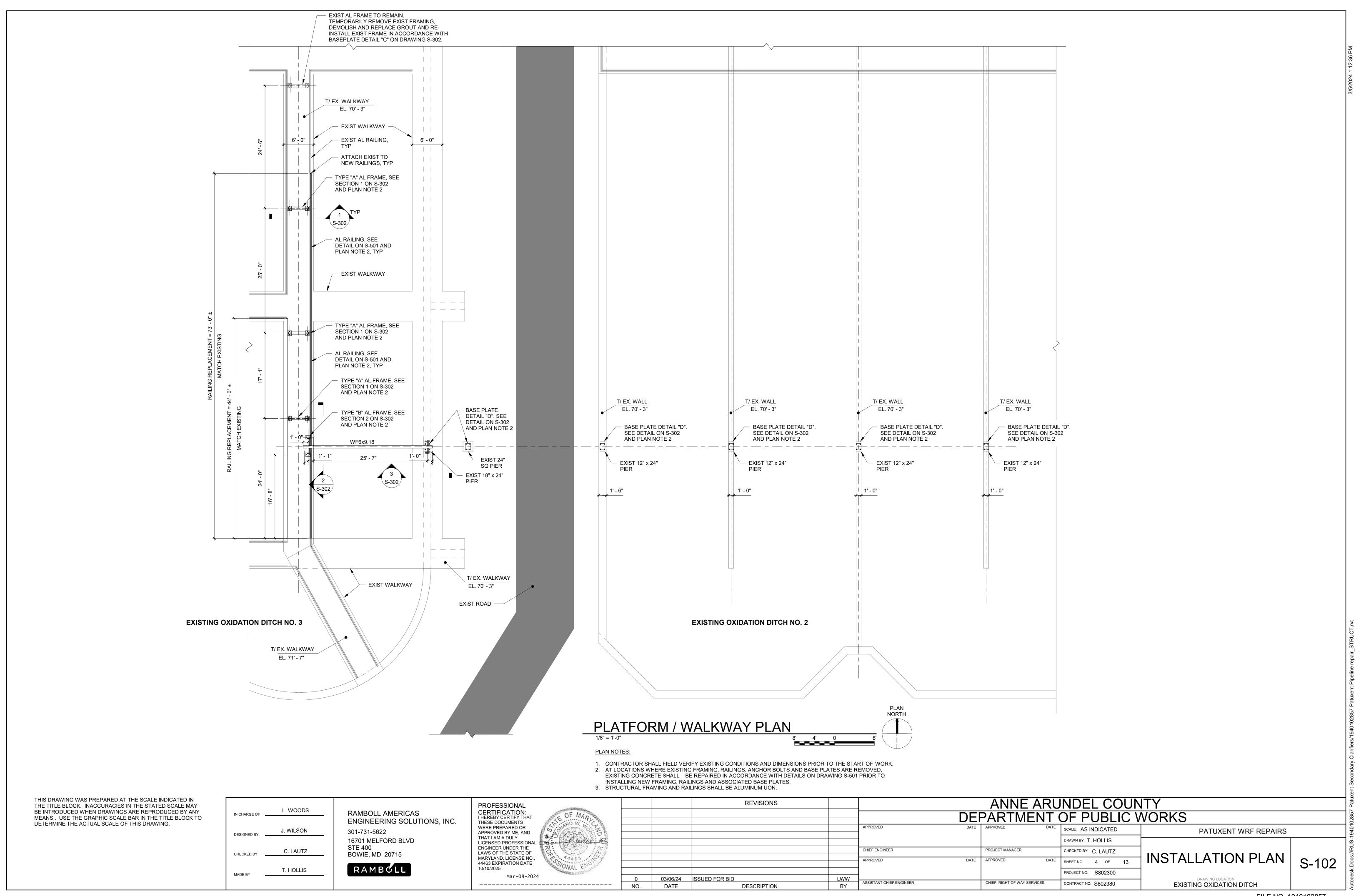
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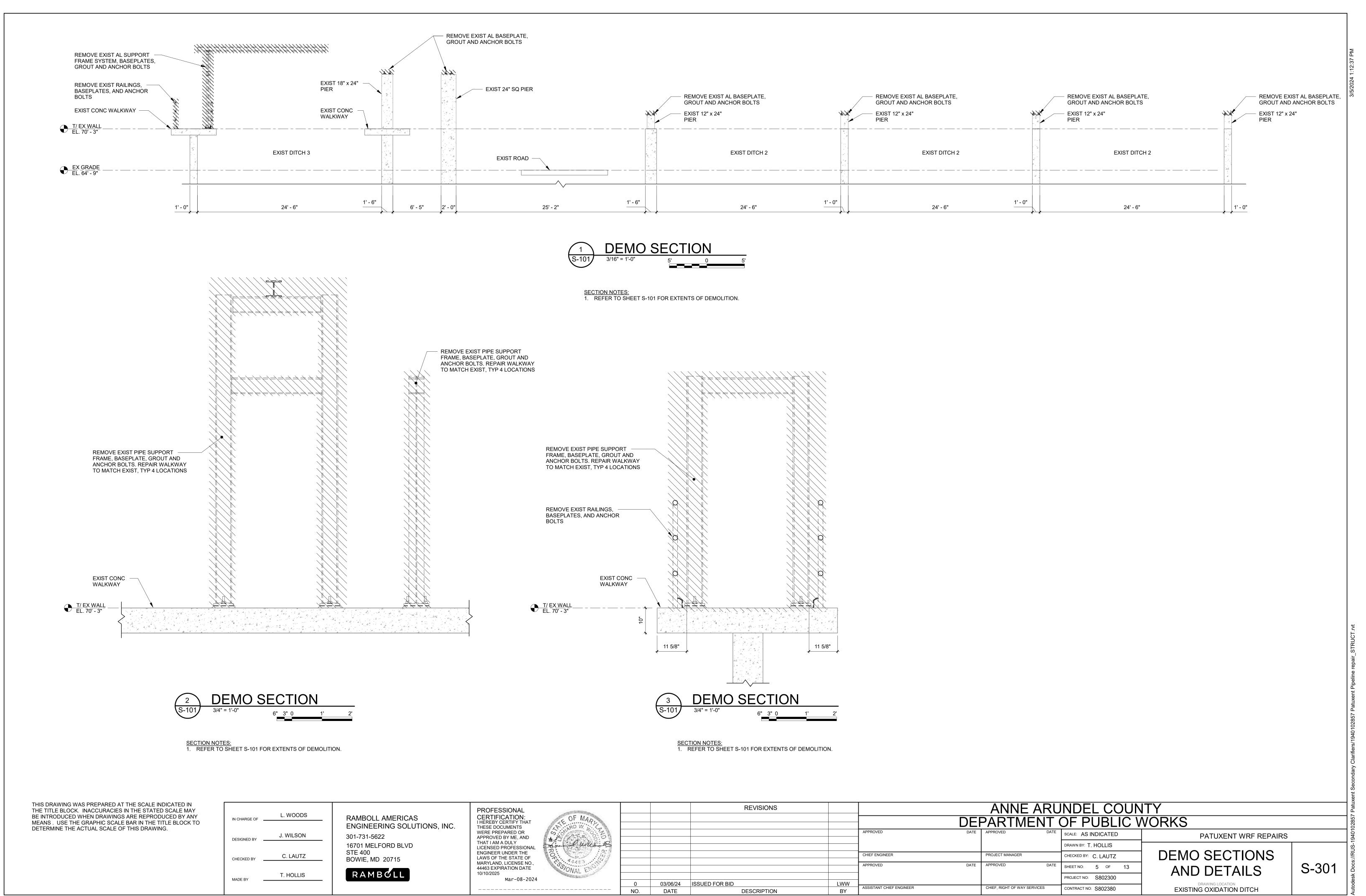
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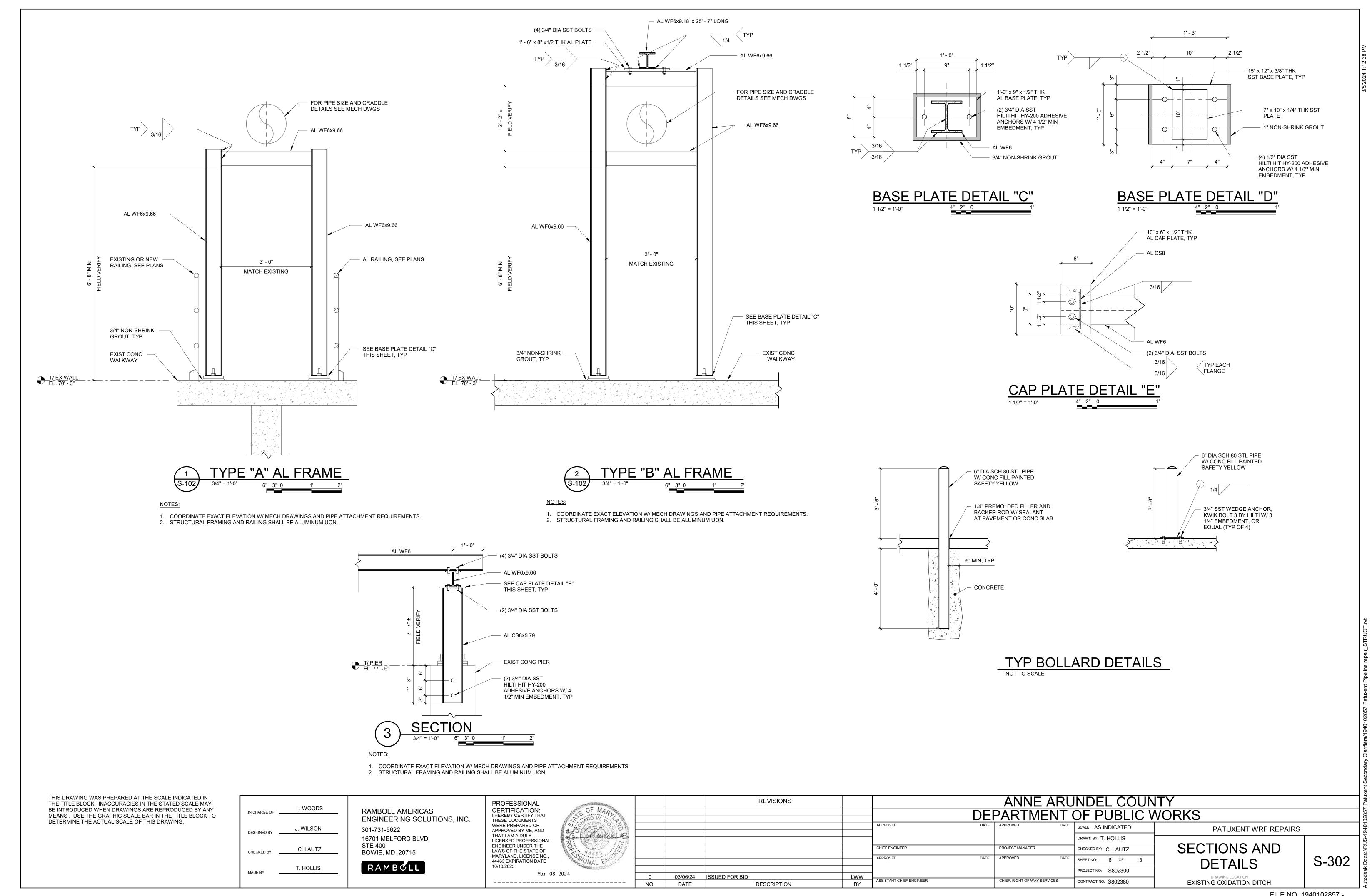
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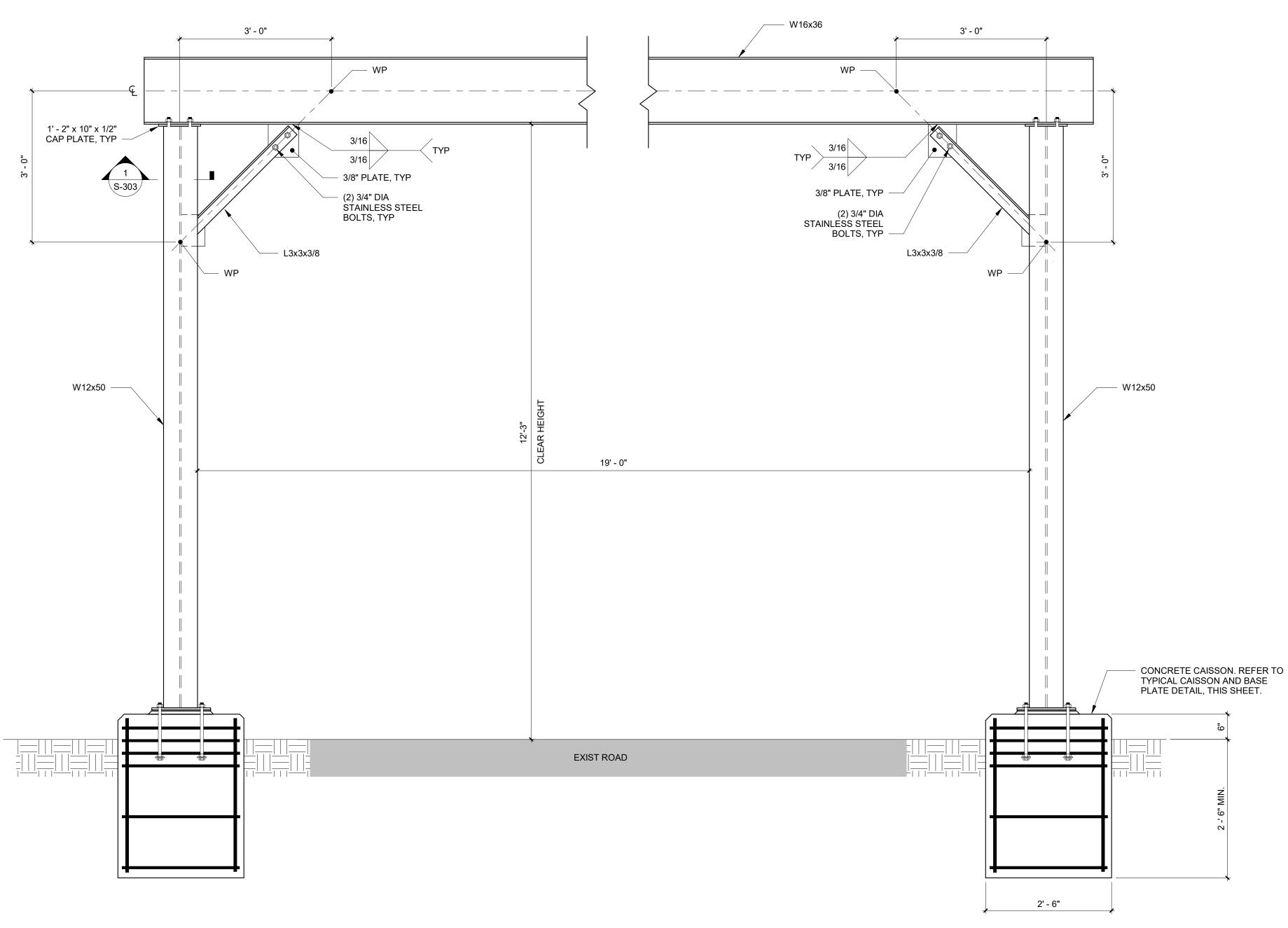
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- FIELD VERIFY GRADE ELEVATION.
   TWO (2) PROTECTION FRAMES AND FOUNDATIONS REQUIRED. COORDINATE FINAL LOCATIONS OF PROTECTION FRAMES WITH THE OWNER PRIOR TO FABRICATION AND INSTALLATION.
- 3. STRUCTURAL FRAMING AND PLATES SHALL BE HOT-DIP GALVANIZED AND SHALL BE GIVEN A
- MINIMUM OF 2.0 OZ./SQ. FT. COATING IN ACCORDANCE WITH ASTM A123.

  4. GALVANIZED SURFACES DAMAGED BY WELDING OR OTHER WORK SHALL BE COATED WITH ZINC

REFER TO SECTION - FOR REINFORCING FLANGE TYPICAL CAISSON AND BASE PLATE SECTION AND DETAIL

ANNE ARUNDEL COUNTY

2' - 6"

1 1/2" | 1' - 0" | 1 1/2"

1'-2" x 10" x 1/2" THKCAP PLATE, TYP

- (4) 3/4" DIA. SST BOLTS

(4) 3/4" DIA. SST ANCHOR BOLTS W/ 1' - 0" MIN EMBEDMENT, TYP

1/2" THK BASEPLATE

DOUBLE HEX NUT W/ 3"x3" SQ PLATE WASHER

2' - 6" DIA.CONCRETE CAISSON

BASEPLATE

W12 COLUMN

1'-3" x 1'-7" x 1/2" THK SST

- (4) 3/4" DIA. SST ANCHOR BOLTS, TYP

TYP EACH

2" COVER TYP.

1/4" THK LEVELING PLATE

3/4" NON-SHRINK GROUT

TYP EACH FLANGE

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS . USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

IN CHARGE OF	L. WOODS
DESIGNED BY	J. WILSON
CHECKED BY	C. LAUTZ
MADE BY	T. HOLLIS

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC. 301-731-5622

16701 MELFORD BLVD STE 400 BOWIE, MD 20715

RAMBOLL

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO., 44463 EXPIRATION DATE 10/10/2025	OF MAR
Mar-08-	2024

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-	NO.	DATE	DESCRIPTION	BY

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	APPROVED	DATE	APPROVED	DATE	SCALE: AS INDICATED	
					DRAWALDY: I WII CON	
					DRAWN BY: J. WILSON	
	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: C. LAUTZ	SEC
	APPROVED	DATE	APPROVED	DATE	SHEET NO: 7 OF 13	
					PROJECT NO: \$802300	
LWW	ASSISTANT CHIEF ENGINEER		CHIEF, RIGHT OF WAY SERVICES		CONTRACT NO. COOCOO	->//0/
BY	AGGIOTANT GITTET ENGINEER		OTHER, MOTH OF WAT SERVICES		CONTRACT NO: \$802380	EXISTI

W12 COLUMN, TYP -

3/4" CHAMFER, -

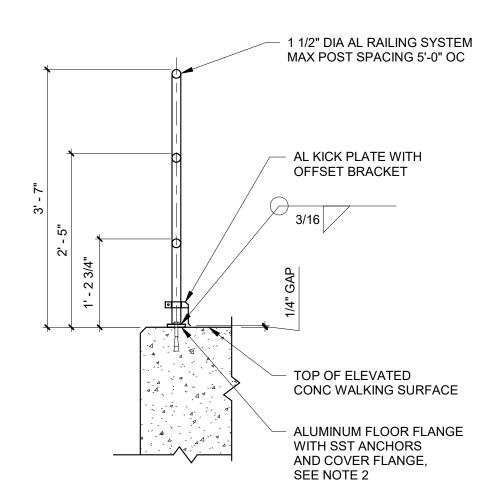
#4 @ 12"OC TIES W/ — (4) #4 @ 3" TIES AT TOP

(8) #6 VERT. BARS

2'-6" DIA CAISSON

PATUXENT WRF REPAIRS
SECTIONS AND DETAILS
DRAWING LOCATION EXISTING OXIDATION DITCH

S-303



# FIXED ALUMINUM RAILING DETAIL AT CONCRETE WALKWAY

NOT TO SCALE

## **DETAIL NOTES**:

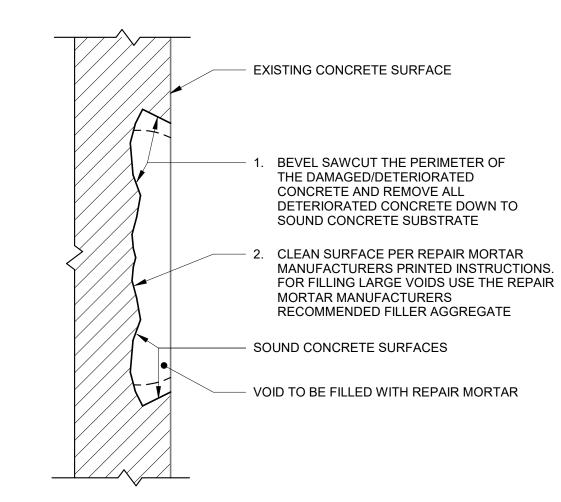
- 1. PAINT ALUMINUM SURFACES THAT WILL BE IN CONTACT WITH
- HYDRAULIC CEMENT USING BITUMINOUS PAINT. 2. ANCHORAGE OF FLOOR FLANGE BY RAILING MANUFACTURER.

# DRILL HOLES FOR INJECTION PORTS AS RECOMMENDED BY EPOXY MANUFACTURER. STAGGER HOLES FROM ONE SIDE OF CRACK TO THE OTHER. - EX CONCRETE WALL, SLAB OR BEAM EX CONCRETE CRACK TO BE REPAIRED WITH EPOXY ADHESIVE

# CONCRETE CRACK REPAIR DETAIL

# **DETAIL NOTES:**

- 1. REPAIR CONCRETE CRACKS GREATER THAN 1/16" WIDE AND OTHER DAMAGE IDENTIFIED BY THE OWNER'S REPRESENTATIVE.
- 2. CRACK REPAIR SHALL COMPLY WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, CONCRETE CRACK REPAIR DETAIL AND CONCRETE REHABILITATION SPECIFICATION (03930).
- 3. DRILL HOLES FOR INJÉCTORS AT 45 DEGREE ANGLE TO CRACK SO THAT HOLES INTERSECT CRACK.
- 4. CLEAN DEBRIS FROM CRACK SURFACE
- INSTALL INJECTORS IN HOLES. FLUSH CRACKS WITH CLEAN WATER.
- INJECT EPOXY ADHESIVE INTO CRACKS.
- REMOVE INJECTORS. FILL INJECTOR HOLES WITH NON SHRINK GROUT.
- 10. GRIND SURFACE SO THAT AREA IS SMOOTH AND MATCHES ADJACENT AREA.



2. CLEAN SURFACE PER REPAIR MORTAR MANUFACTURERS PRINTED INSTRUCTIONS. FOR FILLING LARGE VOIDS USE THE REPAIR MORTAR MANUFACTURERS VOID TO BE FILLED WITH REPAIR MORTAR RECOMMENDED FILLER AGGREGATE SOUND CONCRETE 1. BEVEL SAWCUT THE PERIMETER OF SURFACES THE DAMAGED/DETERIORATED CONCRETE AND REMOVE ALL EXISTING CONCRETE DETERIORATED CONCRETE DOWN TO SURFACE SOUND CONCRETE SUBSTRATE

# CONCRETE WALL SURFACE REPAIR DETAIL

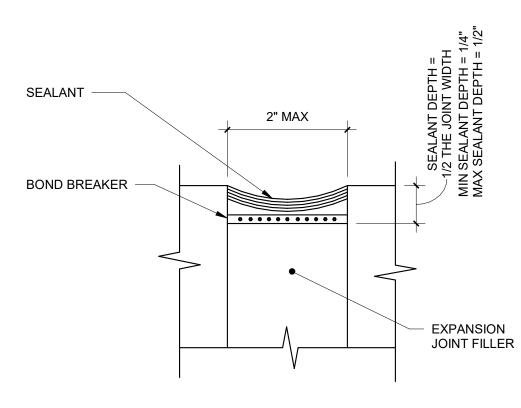
# CONCRETE SLAB SURFACE REPAIR DETAIL

NOT TO SCALE

# **DETAIL NOTES:**

NOT TO SCALE

- 1. REPAIR CONCRETE SPALLING, CRACKING, DELAMINATION AND DEFECTS INCLUDING VOIDS GREATER THAN 1/4" IN ANY DIMENSION, HONEYCOMBING, ROCK POCKETS, HOLES LEFT
- BY TIES ROD AND OTHER DAMAGE IDENTIFIED BY THE OWNER'S REPRESENTATIVE. 2. OUTLINE WITH MARKING PAINT THE EXACT EXTENT OF CONCRETE AREAS TO BE REPAIRED IN COORDINATION WITH THE OWNER'S REPRESENTATIVE. SOUND CONCRETE WITH A
- HAMMER TO DETERMINE THE EXTENT OF LOOSE OR DELAMINATE CONCRETE. 3. USING A MINIMUM NUMBER OF STRAIGHT LINE, LAYOUT AND MARK THE SAW-CUT LOCATIONS AROUND THE REPAIR AREA. SAW-CUT MIN 1" DEEP AROUND REPAIR AREA AT SLIGHT
- BEVEL IN ORDER TO KEY THE REPAIR AREA INTO THE EXISTING CONCRETE.
- 4. REMOVE ALL UNSOUND CONCRETE, AGGREGATES, CEMENT PASTE, DIRT, OIL, GREASE, FUNGUS, MILDEW, PAINT, PREVIOUS COATINGS, FORM RELEASE, CURING AGENTS AND OTHER FOREIGN MATERIALS.
- 5. AT ALL EXPOSED REINFORCING BARS, CHIP OUT CONCRETE TO CREATE A MINIMUM 3/4" SPACE BEHIND THE BAR.
- 6. REVIEW EACH REPAIR AREA WITH OWNER'S REPRESENTATIVE. TALLY QUANTITIES TO THE NEAREST 0.1 SQUARE FOOT. 7. SAND BLAST EXPOSED REINFORCING BARS TO COMPLY WITH SSPC SP-6/NACE NO. 3 "COMMERCIAL BLAST CLEANING." IF REINFORCING STEEL HAS LOST MORE THAN 25% OF CROSS SECTIONAL AREA (REFER TO STEEL REINFORCEMENT SECTION LOSS TABLE), THE REINFORCEMENT SHALL BE CUT AT THE EXTENTS OF THE SECTION LOSS, REMOVED FROM THE STRUCTURE AND A MATCHING BAR SHALL BE INSTALLED USING LENTON LOCK B-SERIES MECHANICAL REBAR COUPLERS AT EACH END. THE ERICO LENTON LOCK
- COUPLERS SHALL BE INSTALLED ACCORDING TO MANUFACTURER INSTRUCTIONS. 8. SAND BLAST EXPOSED SURFACE OF CONCRETE. INSPECT CLEANER CONCRETE AND REMOVE LOOSE UNBONDED AGGREGATE. VACUUM REPAIR AREA TO REMOVE REMAINING
- 9. WET THE CONCRETE SUBSTRATE WITH CLEAN WATER FOR 24 HOURS TO ACHIEVE A SATURATED SURFACE DRIED CONDITION, WITH NO STANDING WATER.
- 10. INSTALL SIKATOP-111 PLUS REPAIR MORTAR EXTENDED WITH 3/8" AGGREGATE. AGGREGATE SHALL BE NON-REACTIVE (PER ASTM C1260, C227 AND C289), CLEAN, WELL-GRADED. SATURATED SURFACE DRY, LOW ABSORPTION, HIGH DENSITY AND COMPLY WITH ASTM C33 SIZE NO. 8. REPAIR MORTAR SHALL BE MIXED, INSTALLED, FINISHED AND CURED IN
- ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. 11. APPLY CURING SYSTEM IMMEDIATELY AFTER FINISHING PATCH SURFACE CURING SYSTEM SHALL BE TWO OR MORE COATS OF LIQUID MEMBRANE-FORMING CURING COMPOUND.



# JOINT SEAL DETAIL

# **DETAIL NOTES**:

- 1. USE THIS DETAIL AT ALL EXPANSION JOINT LOCATIONS. 2. SEAL JOINTS USING SIKAFLEX-1A, OR EQUAL. (1 COMPONENT POLYURETHANE SEALANT). SEALANT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS.
- 3. AT SEALED JOINTS BELOW GRADE, COVER JOINTS WITH 1/4" x 12" ASPHALT IMPREGNATED FIBER BOARD.

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED IN THE TITLE BLOCK. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR IN THE TITLE BLOCK TO DETERMINE THE ACTUAL SCALE OF THIS DRAWING.

L. WOODS J. WILSON DESIGNED BY C. LAUTZ CHECKED BY T. HOLLIS MADE BY

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC. 301-731-5622 16701 MELFORD BLVD

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BOWIE, MD 20715

RAMBOLL

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Mar-08-2024	0	03/06/24	15
	NO	DATE	

		REVISIONS		
				APPROVED
				CHIEF ENGINEER
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	APPROVED	DATE	APPROVED	DATE	SCALE: AS INDICATED	
					DRAWN BY: T. HOLLIS	
	CHIEF ENGINEER		PROJECT MANAGER		CHECKED BY: C. LAUTZ	_
	APPROVED	DATE	APPROVED	DATE	SHEET NO: 8 OF 13	
10/10/					PROJECT NO: \$802300	
_WW BY	ASSISTANT CHIEF ENGINEER		CHIEF, RIGHT OF WAY SERVICES		CONTRACT NO: \$802380	

ANNE ARUNDEL COUNTY

PATUXENT WRF REPAIRS TYPICAL DETAILS S-501 **EXISTING OXIDATION DITCH** 

FILE NO. 1940102857 -

WELDED JOINT MECHANICAL JOINT

FLANGED JOINT

SOLID SLEEVE-TYPE MECHANICAL COUPLING ARCHED BAND EXPANSION

COUPLING

RUBBER EXPANSION COUPLING ELBOW UP

**ELBOW DOWN** 

90-DEG ELBOW 45-DEG ELBOW

TEE UP

TEE DOWN TEE

CROSS

CONCENTRIC REDUCER

FLxFL WALL SLEEVE MJxFL WALL SLEEVE

PIPE SLEEVE W/ LINK SEAL

# VALVES AND GATES

<u> </u>					
IN ELEVATION	IN PLAN				
		BUTTERFLY VALVE			
Ø	р	CHECK VALVE			
Ď	i <b>c</b>	BALL VALVE			
Ī	۵	GLOBE VALVE			
酉	a	GATE VALVE			
	0	PINCH VALVE			
	<b>T</b>	PLUG VALVE			
	0	KNIFE GATE VALVE			
		SLUICE GATE			
		WEIR GATE			
		MOTOR OPERATOR			

# MECHANICAL ABBREVIATIONS

# PIPING SERVICE IDENTIFICATION

**BIO-GAS** COMPRESSED AIR CA D/W DRAIN/WASTE DCW DGS DOMESTIC COLD WATER DIGESTED SLUDGE EFF PLANT EFFLUENT HPA HIGH PRESSURE AIR HW HOT WATER, POTABLE PLANT INFLUENT LPA LOW PRESSURE AIR NON-POTABLE WATER NPW PLANT AIR PSL PRIMARY SLUDGE PW PLANT WATER RAS RETURNED ACTIVATED SLUDGE RW RAW WATER SAN SANITARY SEWER SAW SAMPLE WATER SCM SCUM SLUDGE SSL SECONDARY SLUDGE STORM SEWER SW SETTLED WATER THS THICKENED SLUDGE TW TEMPERED WATER WASTE ACTIVATED SLUDGE WAS WW WASTE WATER

## <u>VALVES</u>

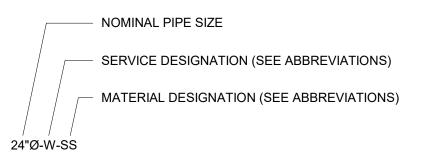
AIR/VACUUM VALVE ARV AIR RELEASE VALVE BALL VALVE BFV **BUTTERFLY VALVE** CV CHECK VALVE GATE VALVE PRV PRESSURE REGULATING VALVE PRLV PRESSURE RELIEF VALVE PLV PLUG VALVE

RPZ REDUCED PRESSURE ZONE/BACKFLOW PREVENTOR

## **MISCELLANEOUS**

ALUMINUM **BOTTOM OF** BLACK IRON CAST IRON CONC. CONCRETE OR CONCENTRIC CONN. CONNECTION CORP. CORPORATION STOP CENTERLINE CS CARBON STEEL **DUCTILE IRON** DOWN ECC. **ECCENTRIC ELEVATION** ELECTRIC OR ELECTRICAL ELEC. EXIST. FXISTING FLEX **FLEXIBLE** FLG. **FLANGED** FRP FOB FIBERGLASS REINFORCED PLASTIC FLAT ON BOTTOM FOT FLAT ON TOP GALV. GALVANIZED HIGH POINT INTERNAL DIAMETER ID INV. INVERT LOW POINT LONG RADIUS MAG MAGNETIC MH STORM MANHOLE MECHANICAL JOINT NORMALLY CLOSED NC NO NORMALLY OPEN NTS NOT TO SCALE O/F OVERFLOW PE PLAIN END PO PVC RAS PUSH ON POLYVINYL CHLORIDE RETURN ACTIVATED SLUDGE RECT RECTANGULAR RED. REDUCING OR REDUCER RJ RESTRAINED JOINT SCH SCHEDULE SG SLUICE GATE OR SLIDE GATE STAINLESS STEEL (PIPING) ST. STL. STAINLESS STEEL (OTHER THAN PIPING) SMH SANITARY MANHOLE TYP. TYPICAL TOP OF T-O-L THREAD-O-LET TURB. TURBIDITY VFD VARIABLE FREQUENCY DRIVE

# TYPICAL PIPING IDENTIFICATION



# TYPICAL VALVE IDENTIFICATION

- NOMINAL PIPE SIZE VALVE TYPE (SEE ABBREVIATIONS) ID NUMBER (SEE VALVE SCHEDULE) 24"-BFV-XXX

## GENERAL MECHANICAL NOTES (APPLY TO ALL MECHANICAL DRAWINGS)

- 1. REFER TO TECHNICAL SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.
- FLEXIBLE COUPLINGS SHOWN ON THE CONTRACT DRAWINGS ARE REQUIRED FOR REMOVAL OF EQUIPMENT AND PIPING BY THE OWNER AFTER COMPLETION OF THE WORK. ADDITIONAL COUPLINGS MAY BE REQUIRED TO FACILITATE INSTALLATION BY THE CONTRACTOR - NO ADDITIONAL PAYMENT WILL BE MADE THEREFOR.
- 3. PROVIDE HARNESSING FOR ALL FLEXIBLE COUPLINGS INSTALLED INSIDE STRUCTURES, UNLESS OTHERWISE INDICATED.
- 4. IN GENERAL, SMALL DIAMETER PIPING (I.E., 2-1/2" AND SMALLER) IS SHOWN FOR GENERAL LAYOUT PURPOSES ONLY, AND IS NOT INTENDED TO SHOW EXACT ALIGNMENT, NUMBER OF FITTINGS, VALVES AND APPURTENANCES. ALL PIPING, FITTINGS AND APPURTENANCES SHALL BE PROVIDED AS SPECIFIED ON THE INSTRUMENTATION DRAWINGS OR SHOWN IN APPLICABLE SCHEMATIC DIAGRAMS, AND AS REQUIRED FOR A COMPLETE INSTALLATION. ACTUAL PIPE ROUTING SHALL BE DETERMINED BY THE CONTRACTOR SUBJECT TO REVIEW BY THE ENGINEER, AND SHALL BE COORDINATED TO AVOID CONFLICTS WITH EXISTING AND NEW WORK OF ELECTRICAL, HVAC AND PLUMBING SYSTEMS, AND SO AS NOT TO INTERFERE WITH ACCESS TO OR OPERATION OF ANY OTHER PIPE, VALVE OR EQUIPMENT. SMALL DIAMETER PIPING SYSTEMS SHALL BE LAID OUT AND INSTALLED IN AN ORGANIZED, NEAT AND WORKMANLIKE MANNER.
- PIPE SIZES SHOWN MAY NOT BE THE SAME AS SIZES OF CONNECTIONS TO THE EQUIPMENT SUPPLIED. PROVIDE ALL NECESSARY REDUCERS, BUSHINGS AND APPURTENANCES REQUIRED TO MAKE EQUIPMENT CONNECTIONS.
- REPAIR INTERIOR AND EXTERIOR PIPE COATINGS DAMAGED DURING INSTALLATION.
- CONTRACTOR SHALL COORDINATE WALL HANGER LOCATIONS, ALLOWABLE LOADS, AND ATTACHMENT METHODS WITH MANUFACTURER OF WALL BRACKET AND OBTAIN APPROVAL OF THE ENGINEER.
- PRIOR TO INSTALLATION, CONTRACTOR SHALL SUBMIT EXPOSED PIPING SUPPORT PLAN TO ENGINEER FOR APPROVAL. REFER TO THE SPECIFICATIONS.
- 9. SEE STRUCTURAL DRAWINGS FOR RELATED REMOVALS AND DEMOLITION TO BE PERFORMED UNDER THIS PROJECT AND COORDINATE DEMOLITION WORK WITH OTHER CONTRACTS.
- 10. PROVIDE NEW GASKETS AND HARDWARE AT ALL CONNECTIONS BETWEEN NEW AND EXISTING PIPING AND AT ALL PIPE JOINTS DISASSEMBLED IN CONNECTION WITH THIS PROJECT.

# **GENERAL DEMOLITION NOTES**

- EXISTING DIMENSIONS, ELEVATIONS AND SIZES HAVE BEEN TAKEN FROM THE FOLLOWING DRAWINGS: "PATUXENT WRF EXPANSION - OXIDATION DITCHES OVERALL PLAN SOUTH UPPER LEVEL. SHEET 185 OF 366. ANNE ARUNDEL COUNTY DEPARTMENT OF PUBLIC WORKS BY ATKINS NORTH AMERICA, INC. FEBRUARY 2019 AS-BUILT DRAWINGS" ALL DIMENSIONS, ELEVATIONS AND SIZES ARE TO BE CONSIDERED APPROXIMATE, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
- REMOVE EXISTING PIPE SUPPORTS AND HARDWARE ASSOCIATED WITH DEMOLISHED PIPING. PATCH CONCRETE IN ACCORDANCE WITH STRUCTURAL DETAIL ON S-501.
- UNLESS OTHERWISE NOTED OR SPECIFIED IN THE CONTRACT DOCUMENTS. ALL MATERIALS REMOVED OR DEMOLISHED UNDER THIS PROJECT SHALL BE PROPERLY DISPOSED OF OFF-SITE BY CONTRACTOR, AT A LOCATION PROPERLY LICENSED FOR SUCH DISPOSAL. WHERE SPECIFICALLY NOTED, CERTAIN ITEMS SHALL BE TURNED OVER TO THE OWNER.
- UNLESS OTHERWISE NOTED OR SPECIFIED IN THE CONTRACT DOCUMENTS, EXISTING ITEMS SHALL REMAIN. CONTRACTOR SHALL PROTECT EXISTING ITEMS FROM DAMAGE AND DUST DURING WORK. ANY DAMAGED ITEMS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

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R. DUDLEY IN CHARGE OF A. SHUE DESIGNED BY N. VENKATESAN CHECKED BY T. LARAMAY MADE BY

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RAMBOLL

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						DRAWN BY: T. LARAMAY	4	
				CHIEF ENGINEER	PROJECT MANAGER	CHECKED BY: N. VENKATESAN	ABBREVIATIONS,	
				APPROVED DAT	E APPROVED DATE	SHEET NO: 9 OF 13	NOTES & SYMBOLS	M-001
_						PROJECT NO: \$802300		
NO.	02/29/24 DATE	ISSUED FOR BID  DESCRIPTION	NV BY	ASSISTANT CHIEF ENGINEER	CHIEF, RIGHT OF WAY SERVICES	CONTRACT NO: \$802380	DRAWING LOCATION EXISTING OXIDATION DITCH	

