6312 S. Fiddler's Green, Suite 300N
Greenwood Village, CO 80111

November 14, 2022

Kelly Crowe, PE.
Utilities Director
City of Key West
1300 White Street
Key West, FL 33040

Subject: Out-of-Scope Letter Agreement – Ferric Sulfate Tank Replacement & Gangway Replacement

Dear Kelly:

Jacobs would like to propose the following out-of-scope services as further defined in Task A & B below. These services will comply with the requirements of the Operations, Maintenance and Management Agreement between Operations Management International, Inc. and the City of Key West, Florida dated 31 March 2014.

Task A – Ferric Sulfate Tank Replacement

What is being provided: Jacobs will provide the following scope services for the replacement of the ferric sulfate tanks:

- Coordinate with plant staff for tank removal.
- Drain, flush tanks, and piping.
- Remove all piping and dispose leaving discharge piping that enters wall for reuse with new tanks.
- Use crane to remove tanks and set in safe area.
- Clean pad and prep for new tank install.
- Set new tanks on pad per spec from drawing and anchor.
- Run new fill lines and discharge piping.
- Set new panel for level transducer and monitor.
- Hook up and calibrate level monitor
- Hydro test tanks for leaks
- Turn over to plant staff for use.
- Dismantle old tanks and dispose in dumpsters.
- Clean all spoils crated by work.

This replacement will be performed in accordance with the attached engineering drawings. As Jacobs was not the designer of record for this scope, Jacobs hereby assumes no liability as to any warranties, fitness for a particular purpose or design defect that may arise after completion. Jacobs will provide anchors, piping and electrical material as required.

What is not being provided: The City will provide the tanks and controls required to complete this scope.

Task B – Gangway Replacement

What is being provided: Jacobs will provide the following scope services for a gangway replacement:

- Removal of existing walkways.
- Prep each location as required by drawing (repair any spalling concrete where old walkways were mounted) and add concrete for 1 walkway for transition.
- Assemble new walkways and fasten per drawing (anchor depths and style of anchor) listed in drawing.
- Dispose of old walkways in scrap metal dumpster.

This replacement will be performed in accordance with the attached engineering drawings. As Jacobs was not the designer of record for this scope, Jacobs hereby assumes no liability as to any warranties, fitness for a particular purpose or design defect that may arise after completion.

What is not being provided: The City will provide all materials required to complete this scope.

Task A & B

When it is being provided: Start date is to be determined pending issuance of an NTP from the City. The project is anticipated to be completed within a mutually agreed time of the start date.

Project costs: The lump sum price for task A & B is shown in the below table:

Item	Price
Task A – Ferric Sulfate Tank Replacement	$45,490.38
Task B – Gangway Replacement	$75,026.64
Total (Task A & B)	$120,517.02

If during the performance of this scope, Jacobs encounters unforeseen conditions, Jacobs shall retain the right to bill City for any additional labor and/or materials needed to complete the scope as intended. Any additional materials that would subsequently be required to complete the scope would be invoiced at cost plus thirteen and three quarter (13.75%) percent.

Payment terms: Payment will be due and payable within thirty (30) days following receipt of Jacobs' invoice.

All other terms and conditions of the Agreement between OMI and the City of Key West remain in full force and effect.

The pricing contained in this letter is valid for thirty (30) days. If these terms are agreeable to you, please sign this letter. A fully executed version of this Agreement will be returned for your files.

Jacobs appreciates the opportunity to provide these additional services to the City of Key West.

Sincerely,

Richard Cleaver
Project Manager

Both parties indicate their approval of the above described services by their signature below.

Operations Management International, Inc.:	City of Key West, Florida
Name: Andy Rouse	Name: Kelly Crowe
Title: Vice President	Title: Utilities Director
Date: 11/14/2022	Date:

SULFATE TANK REPLACEMENT

RICHARD A. HEYMAN ENVIRONMENTAL POLLUTION CONTROL FACILITY

KEY WEST, FLORIDA

SITE DATA

ZONING DISTRICT: M

FLOOD ZONE: AE8
F.I.R.M. - U.S. NAVAL RESERVATION 12 FED; PANEL #1508; SUFFIX "K"; DATED: 02-18-2005

LEGAL DESCRIPTION: KW PT SEC19-30-31 TWP67S RNG25E FLEMING KEY SPOIL AREA G53-309/11
(II DEED NO 19221)

DESIGN DATA

THE WORK DEPICTED HEREIN WAS DESIGNED TO MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, 6TH EDITION (2017)
ASCE 7-10, ASCE 24-14

THE WORK DEPICTED HEREIN WILL NOT YIELD ADDITIONAL IMPERVIOUS COVERAGE

THE FOLLOWING LOADINGS WERE USED:
FUTURE PROPOSED FLOOD ELEVATION: AE8 NAVD = 9.35' NGVD29 (NOT IN THE LiMWA)
DESIGN FLOOD ELEVATION (D.F.E.) 9.35' + 1.0' = 10.35' NGVD29, FLOOD DESIGN CLASS III
WIND LOAD: 200 MPH (ASCE 7-10) 3 SECOND GUST, EXPOSURE D, RISK CATEGORY III

INDEX OF DRAWINGS

GENERAL NOTES

1. THESE PLANS ARE FOR THE WORK AT THE LOCATION SO DESIGNATED HEREIN.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT AND SUPERVISION NECESSARY TO COMPLETE THE WORK AND MAKE STRUCTURE READY FOR USE.
3. THERE SHALL BE NO DEVIATION FROM THESE PLANS WITHOUT PRIOR APPROVAL FROM THE ENGINEER OF RECORD.
4. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS BEFORE BID. CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS OF THE WORK SITE AND REPORT ANY DISCREPANCIES, DIFFERENCES OR CONDITIONS THAT ARE UNSATISFACTORY OR UNSAFE.
5. NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY DISCREPANCIES, DIFFERENCES, UNSATISFACTORY OR UNSAFE CONDITIONS. ANY MODIFICATIONS OR CHANGES MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER AND ENGINEER OF RECORD SHALL NOT BE ALLOWED. ANY REWORK, RESTORATION OR OTHER IMPACT AS A RESULT OF NOT OBTAINING SUCH PRIOR APPROVAL WILL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR COMPENSATION FROM THE OWNER.
6. THE CONTRACTOR SHALL PROVIDE FOR THE SAFETY, PREVENTION OF INJURY OR OTHER LOSS AT THE JOB TO ALL PERSONS EMPLOYED IN THE WORK, PERSONS VISITING THE WORK AND THE GENERAL PUBLIC. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PREVENTION OF DAMAGE, DUE TO THE WORK, TO MATERIALS OR EQUIPMENT AND OTHER PROPERTY AT THE SITE OR ADJACENT THERETO.
7. NO RESEARCH AS TO THE PRESENCE OF UNDERGROUND UTILITIES HAS BEEN INCLUDED ON OR PERFORMED FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING SUNSHINE UTILITY LOCATE SERVICE PRIOR TO ANY CONSTRUCTION WITHIN ANY PUBLIC RIGHT-OF-WAY OR OTHER AREAS WHERE UNDERGROUND UTILITIES MAY BE PRESENT (I.E. IN AND AROUND UTILITY EASEMENTS, ETC.)
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10. SHOP DRAWINGS OF ALL PREFABRICATED STRUCTURAL FLOOR AND ROOF SYSTEMS AND MECHANICAL SYSTEMS SHALL BEAR THE SEAL OF A FLORIDA PROFESSIONAL ENGINEER AS REQUIRED BY THE FLORIDA BUILDING CODE, 6TH EDITION (2017) AND SHALL BE SUBMITTED TO THE ENGINEER OF RECORD BY THE CONTRACTOR FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
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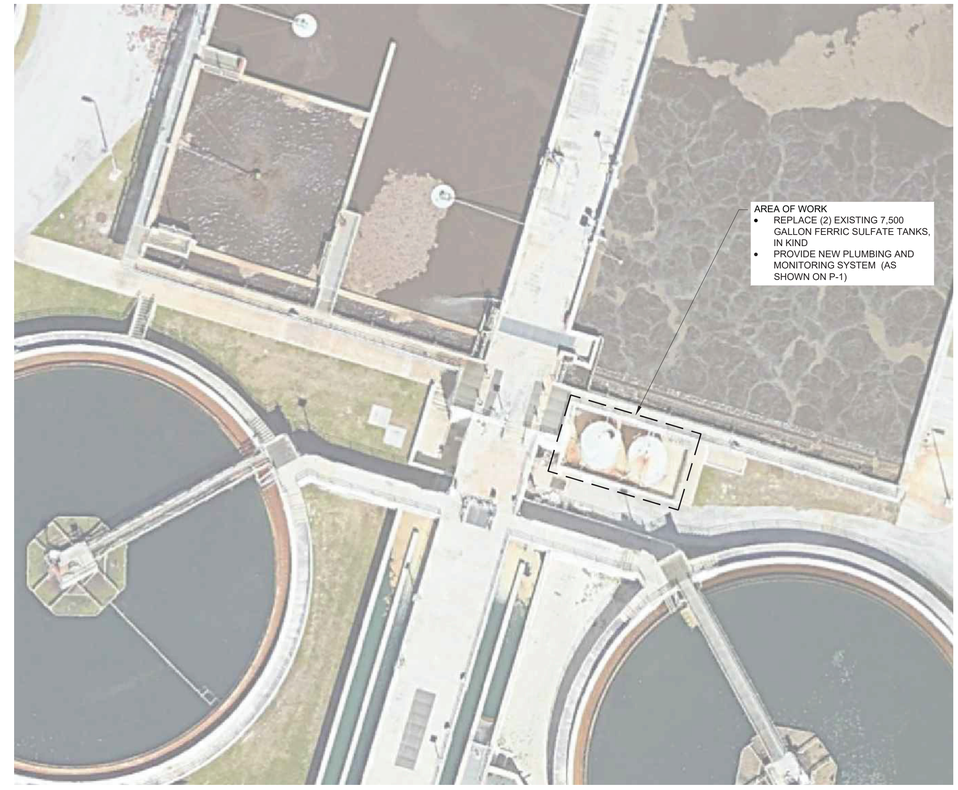
N W E S

LOCATION MAP



N W E S

SITE PLAN

SCALE: N.T.S.

PEREZ ENGINEERING & DEVELOPMENT, INC
CIVIL ENGINEERING • REGULATORY PERMITTING • CONSTRUCTION MANAGEMENT
Key West Office
1010 Kennedy Drive, Suite 202
Key West, Florida 33040
Tel: (305) 293-9440
CERTIFICATE OF AUTHORIZATION No. 8579

JAMES C. REYNOLDS, P.E.
Florida P.E. NO. 46685
November 2, 2020
305-394-5987

Reynolds Engineering Services, Inc.
CERTIFICATE OF AUTHORIZATION No. 26597
24478 OVERSEAS HWY, SUMMERLAND KEY, FL

REVISIONS: ORIGINAL: JULY 2020
1
2
3
4
5
6

SULFATE TANK REPLACEMENT
WASTEWATER TREATMENT PLANT
TRUMBO POINT ANX
KEY WEST, FL 33040

CITY OF KEY WEST
UTILITIES DEPARTMENT
1300 WHITE ST
KEY WEST, FL 33040

JOB NO. 201016
DRAWN JDH
DESIGNED JDH
CHECKED JCR
SHEET T-1

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TANK DESIGN REQUIREMENTS

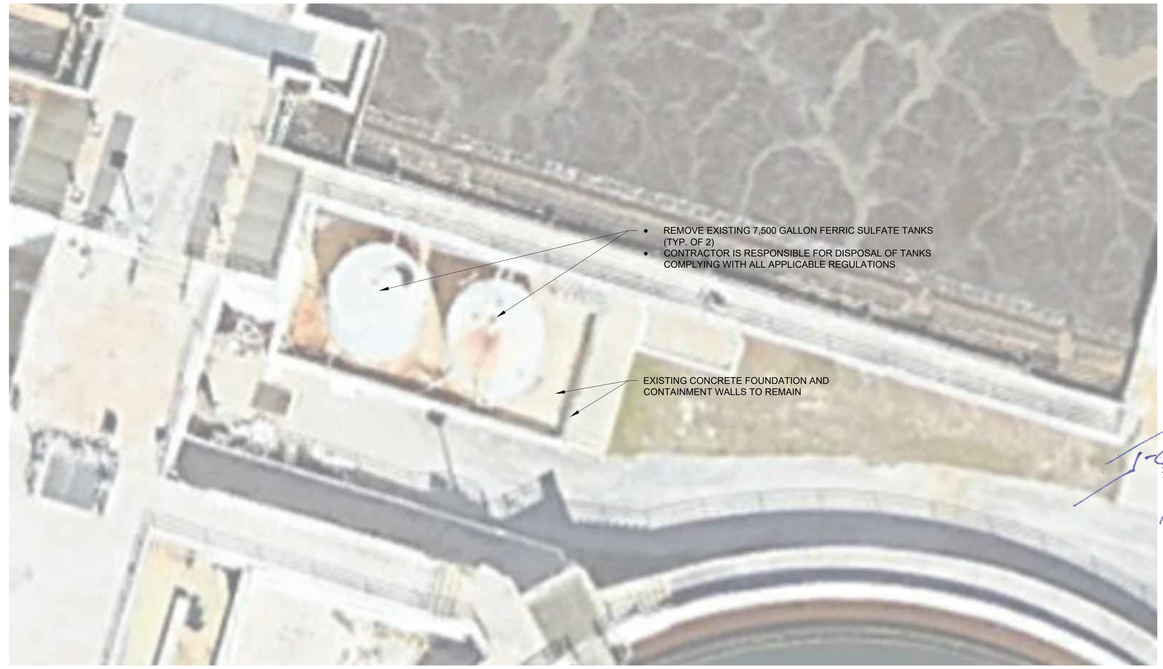
TANK TO BE MANUFACTURED AND DESIGNED BY PLAS-TANK INDUSTRIES, INC.MEETTING THE FOLLOWING CRITERIA:

- DESIGN FLOOD LOAD (PER ASCE 24-14) AND WIND LOAD (PER ASCE 7-10) ACTING CONCURRENTLY PER APPLICABLE ASCE7-10 LOAD FACTORS AND ASCE 24-14 SECTION 9.7 (FACTOR OF SAFETY = 1.5)
  - D.F.E. AS SHOWN IN TYP. SECTION
  - DESIGN WIND LOAD AS STATED IN DESIGN DATA ON SHEET T-1
- EACH TANK SHALL BE IDENTICAL, (2) TANKS TOTAL, MEETING THE PREVIOUS PLAS-TANK JOB NO: 10517 - WITH THE EXCEPTION OF THE REQUIRED (12) TIE DOWN LUGS, AS SHOWN ON THESE PLANS

- TANK DESIGN SHALL BE SIGNED AND SEALED BY A STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER
- THE DESIGN AND SHOP DRAWINGS AS WELL AS THE FABRICATION OF TANKS, WILL BE SUBJECT TO THE INSPECTIONS AND APPROVAL OF THE ENGINEER OF RECORD.
- THE HANDLING AND INSTALLATION OF THE TANKS SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- PER F.B.C. - BUILDING, CH. 1, SEC. 107.3.4.1, DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

DEMOLITION NOTES

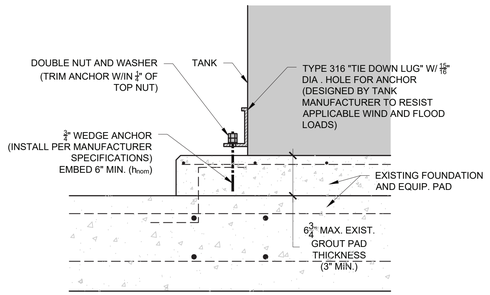
1. PRIOR TO SUBMITTING A BID, VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS ON THE JOB SITE, AND ALSO AFTER AWARD, BUT PRIOR TO THE START OF CONSTRUCTION.
2. ALL DEMOLISHED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS SPECIFICALLY NOTED OTHERWISE, AND SHALL BE PROPERLY REMOVED FROM THE SITE. COMPLY WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE PROJECT.
3. ALL COST OF DEMOLITION INCLUDING PERMIT FEES, DISPOSAL FEES, ETC. ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE AWARE OF AND TO CONFORM WITH ALL APPLICABLE DEMOLITION AND DISPOSAL CODES, SAFETY REQUIREMENT, AND ENVIRONMENTAL PROTECTION REGULATIONS OF ANY GOVERNMENTAL BODY HAVING JURISDICTION OVER THE WORK.
5. PROVIDE SAFETY BARRICADES AS REQUIRED TO PROTECT THE SAFETY OF THE GENERAL PUBLIC AND WORKERS ASSOCIATED WITH THE PROJECT.
6. PROVIDE BRACING AND SHORING AS REQUIRED TO TEMPORARILY SUPPORT STRUCTURAL MEMBERS DURING CONSTRUCTION. BRACING & SHORING OF STRUCTURAL MEMBERS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER
7. DEMOLISHED MATERIAL CLASSIFIED AS CLEAN FILL MAY BE DISTRIBUTED ONSITE WHEN SPECIFICALLY APPROVED BY THE ENGINEER.



DEMOLITION PLAN

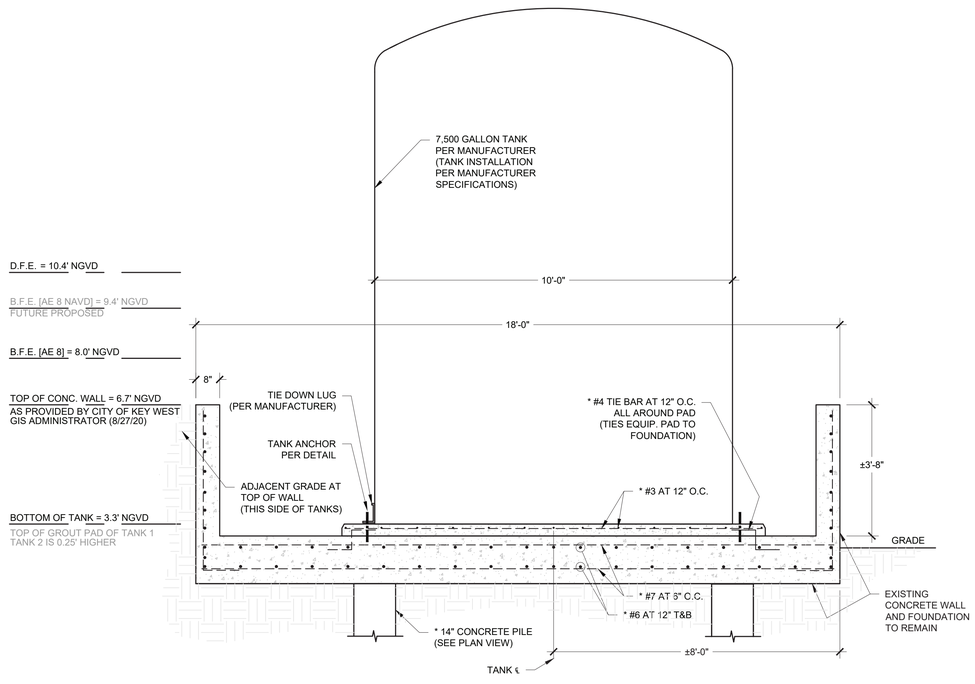
SCALE:1/4"=1'-0"

-ALL ANCHOR AND FASTENER HARDWARE TO TYPE 316 STAINLESS STEEL
-WEDGE ANCHOR SHALL BE ¾" X10" HILTI QUICK BOLT TZ SS 316
- WEDGE ANCHOR SHALL HAVE A MIN. EMBED. OF 6" (h_{nom})
- INSTALL WEDGE ANCHOR PER MANUFACTURER SPECIFICATIONS



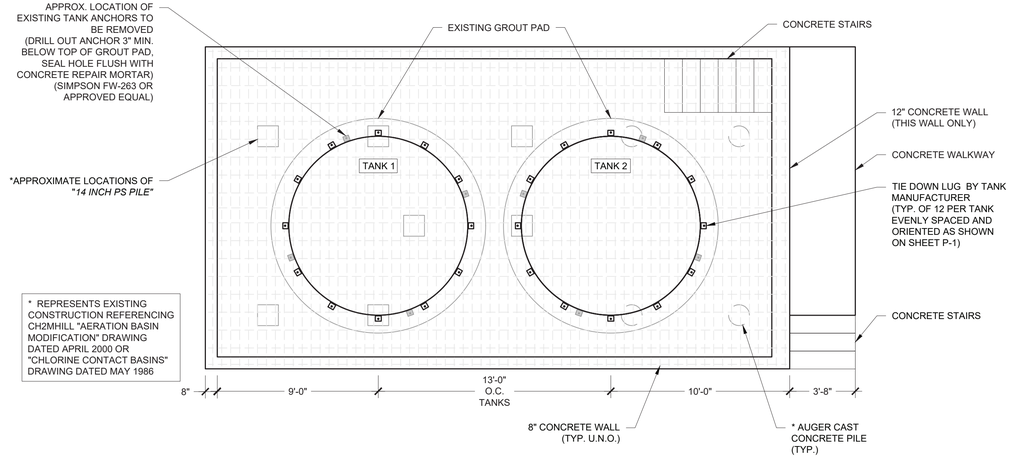
TYP. DETAIL - TANK ANCHOR

TYP. OF 12 PER TANK SCALE:1"=1'-0"



TYP. SECTION - PROPOSED TANKS

SCALE:1/2"=1'-0"



PLAN - PROPOSED TANKS

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

CIVIL ENGINEERING • REGULATORY PERMITTING • CONSTRUCTION MANAGEMENT

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November 2, 2020
305-394-5987

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REVISIONS: ORIGINAL: JULY 2020
1 2 3 4 5 6

SULFATE TANK REPLACEMENT
WASTEWATER TREATMENT PLANT
TRUMBO POINT ANX
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CITY OF KEY WEST
UTILITIES DEPARTMENT
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SHEET S–1

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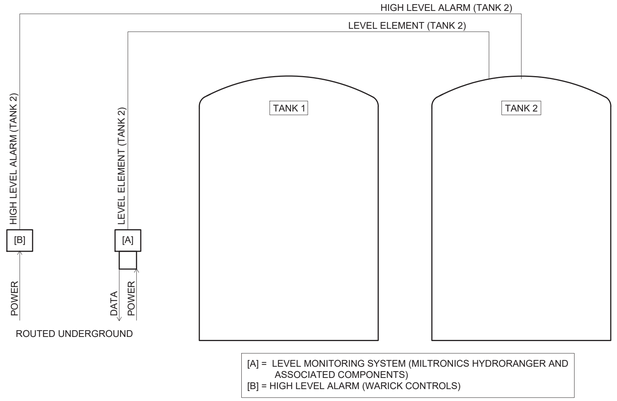
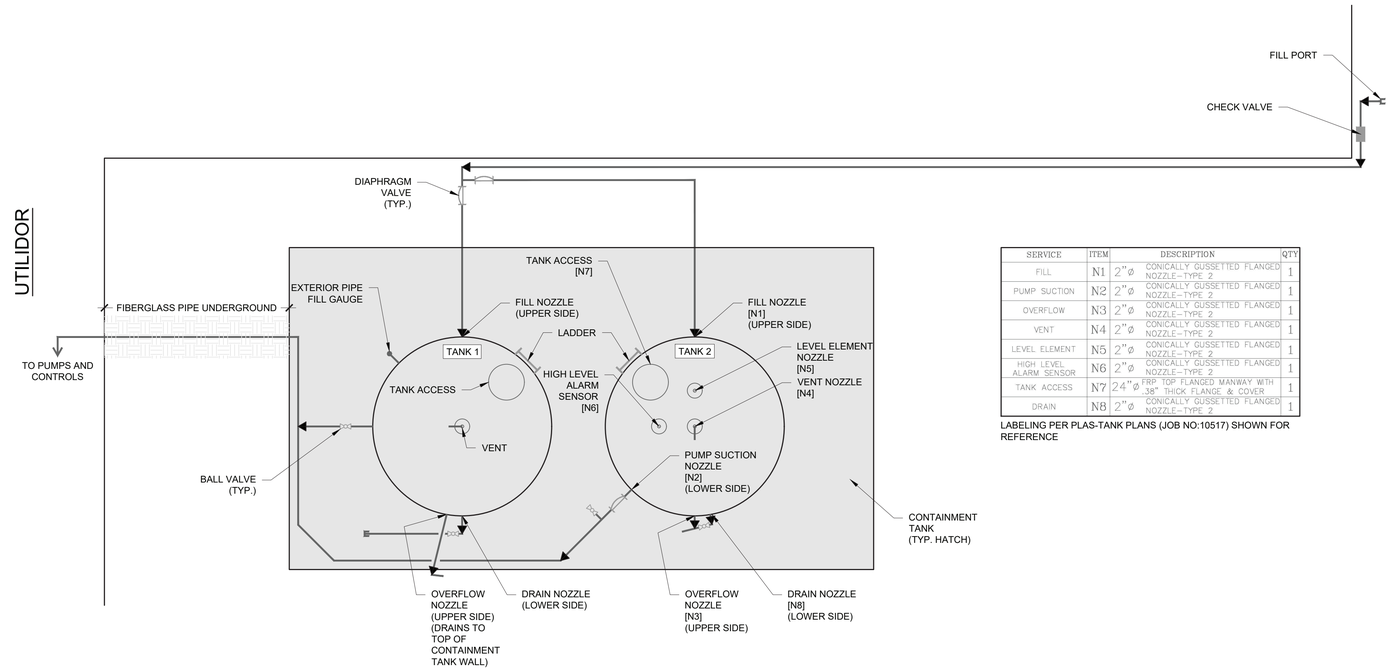


[A] = LEVEL MONITORING SYSTEM (MILTRONICS HYDRORANGER AND ASSOCIATED COMPONENTS)
[B] = HIGH LEVEL ALARM (WARICK CONTROLS)

ELECTRICAL SCHEMATIC - MONITORING SYSTEM

EXISTING — SCALE: N.T.S.

SHOWN FOR REFERENCE



SERVICE	ITEM	DESCRIPTION	QTY
FILL	N1	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1
PUMP SUCTION	N2	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1
OVERFLOW	N3	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1
VENT	N4	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1
LEVEL ELEMENT	N5	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1
HIGH LEVEL ALARM SENSOR	N6	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1
TANK ACCESS	N7	24"ø FRP TOP FLANGED MANWAY WITH .38" THICK FLANGE & COVER	1
DRAIN	N8	2"ø CONICALLY GUSSETTED FLANGED NOZZLE–TYPE 2	1

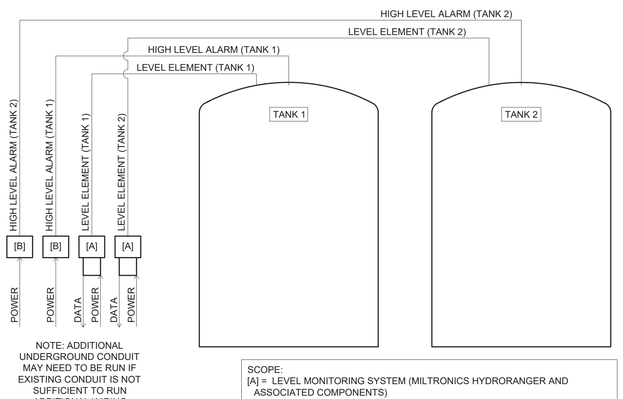
LABELING PER PLAS-TANK PLANS (JOB NO:10517) SHOWN FOR REFERENCE

PLUMBING SCHEMATIC - FERRIC SULFATE TANKS

EXISTING - PLAN VIEW — SCALE: N.T.S.

SHOWN FOR REFERENCE

- ALL PIPING AND CONDUIT SHALL BE SUPPORTED W/ SERIES 300 STAINLESS STEEL UNISTRUT (OR APPROVED EQUAL PIPE BRACKET). SUPPORT TYPE SHALL BE COORDINATED WITH AND APPROVED BY FACILITY MAINTENANCE MANAGER [DANNY CARABALLO (PH:305-292-5100)]
- SUPPORTS SHALL BE SPACED AT ±6' O.C. MAX. AND ANCHORED TO CONCRETE WITH A MIN. OF (2) $\frac{3}{4}$" STAINLESS STEEL (SERIES 300) CONCRETE EXPANSION ANCHORS
- ALL LOCATIONS OF SUPPORT ANCHORS SHALL BE APPROVED BY FACILITY MAINTENANCE MANAGER [DANNY CARABALLO] PRIOR TO DRILLING INTO EXISTING CONCRETE

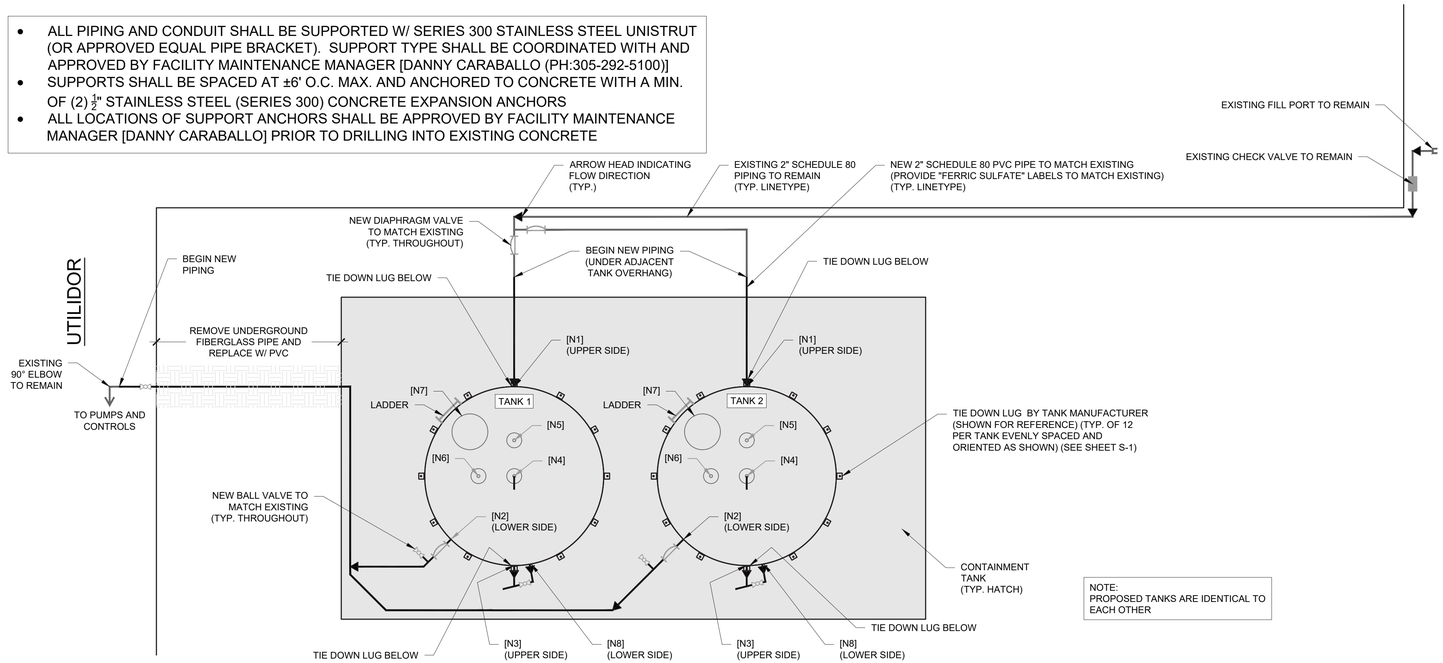


NOTE: ADDITIONAL UNDERGROUND CONDUIT MAY NEED TO BE RUN IF EXISTING CONDUIT IS NOT SUFFICIENT TO RUN ADDITIONAL WIRING

SCOPE:
[A] = LEVEL MONITORING SYSTEM (MILTRONICS HYDRORANGER AND ASSOCIATED COMPONENTS)
[B] = HIGH LEVEL ALARM (WARICK CONTROLS OR SIEMENS APPROVED EQUAL)
- EACH TANK SHALL HAVE NEW HIGH LEVEL ALARM AND LEVEL MONITORING (DESIGNED BY OTHERS)
- HIGH LEVEL ALARM SHALL BE INDEPENDENT FROM LEVEL MONITORING SYSTEM
- LEVEL MONITORING SYSTEM SHALL BE COMPATIBLE W/ EXISTING PLANT MONITORING SYSTEM
- MONITORING SYSTEM TO BE INSTALLED BY SIEMENS REGISTERED INTEGRATOR

ELECTRICAL SCHEMATIC - MONITORING SYSTEM

PROPOSED — SCALE: N.T.S.



NOTE:
PROPOSED TANKS ARE IDENTICAL TO EACH OTHER

PLUMBING SCHEMATIC - FERRIC SULFATE TANKS

PROPOSED - PLAN VIEW — SCALE: N.T.S.

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November 2, 2020
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REVISIONS: ORIGINAL: JULY 2020
1 2 3 4 5 6

SULFATE TANK REPLACEMENT
WASTEWATER TREATMENT PLANT
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CITY OF KEY WEST
UTILITIES DEPARTMENT
1300 WHITE ST
KEY WEST, FL 33040

JOB NO. 201016
DRAWN JDH
DESIGNED JDH
CHECKED JCR
SHEET P–1

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GANGWAY REPLACEMENT

RICHARD A. HEYMAN ENVIRONMENTAL POLLUTION CONTROL FACILITY

KEY WEST, FLORIDA

SITE DATA

ZONING DISTRICT: M

FLOOD ZONE: AE8
F.I.R.M. - U.S. NAVAL RESERVATION 12 FED; PANEL #1508; SUFFIX "K"; DATED: 02-18-2005

LEGAL DESCRIPTION: KW PT SEC19-30-31 TWP67S RNG25E FLEMING KEY SPOIL AREA G53-309/11
(II DEED NO 19221)

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ASCE 7-16, ASCE 24-14
OSHA PART 1910 SUBPART D

THE WORK DEPICTED HEREIN WILL NOT YIELD ADDITIONAL IMPERVIOUS COVERAGE

THE FOLLOWING LOADINGS WERE USED:
WIND LOAD: 200 MPH (ASCE 7-16) 3 SECOND GUST, EXPOSURE D, RISK CATEGORY III
GANGWAY LIVE LOAD = 40 PSF & 300 LB CONCENTRATED LOAD (NON-CONCURRENT) (ASCE 7-16, TABLE 4.3-1)
STAIR LIVE LOAD = 100 PSF & 300 LB CONCENTRATED LOAD (NON-CONCURRENT) (ASCE 7-16, TABLE 4.3-1)

INDEX OF DRAWINGS

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N W E S

SITE PLAN

SCALE: N.T.S.

N W E S

LOCATION MAP

NOTE: PER CITY OF KEY WEST UTILITIES DEPARTMENT, ALL WORK WITHIN THE BASINS MUST FOLLOW CONFINED SPACE PROTOCOLS

DEMOLITION NOTES

1. PRIOR TO SUBMITTING A BID, VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS ON THE JOB SITE, AND ALSO AFTER AWARD, BUT PRIOR TO THE START OF CONSTRUCTION.
2. ALL DEMOLISHED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR, UNLESS SPECIFICALLY NOTED OTHERWISE, AND SHALL BE PROPERLY REMOVED FROM THE SITE, COMPLY WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE PROJECT.
3. ALL COST OF DEMOLITION INCLUDING PERMIT FEES, DISPOSAL FEES, ETC. ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE AWARE OF AND TO CONFORM WITH ALL APPLICABLE DEMOLITION AND DISPOSAL CODES, SAFETY REQUIREMENT, AND ENVIRONMENTAL PROTECTION REGULATIONS OF ANY GOVERNMENTAL BODY HAVING JURISDICTION OVER THE WORK.
5. PROVIDE SAFETY BARRICADES AS REQUIRED TO PROTECT THE SAFETY OF THE GENERAL PUBLIC AND WORKERS ASSOCIATED WITH THE PROJECT.
6. PROVIDE BRACING AND SHORING AS REQUIRED TO TEMPORARILY SUPPORT STRUCTURAL MEMBERS DURING CONSTRUCTION. BRACING & SHORING OF STRUCTURAL MEMBERS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER
7. DEMOLISHED MATERIAL CLASSIFIED AS CLEAN FILL MAY BE DISTRIBUTED ONSITE WHEN SPECIFICALLY APPROVED BY THE ENGINEER.

CONCRETE NOTES (NEW CONSTRUCTION)

1. SEE SHEET S-10 FOR REPAIR OF EXISTING CONCRETE
2. ALL CAST-IN-PLACE CONCRETE SHALL BE MADE WITH TYPE II PORTLAND CEMENT, STONE AGGREGATE, WITH WATER/CEMENT RATIO <0.4, AND SHALL DEVELOP AT LEAST 5000 PSI COMPRESSIVE STRENGTH IN 28 DAYS. (UNLESS OTHERWISE NOTED.)
3. SLABS, TOPPING, FOOTINGS, BEAMS AND WALLS SHALL NOT HAVE JOINTS IN THE HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT THE CENTER OF SPAN WITH VERTICAL BULKHEADS AND SHEAR KEYS, UNLESS OTHERWISE NOTED. ALL CONSTRUCTION JOINTS SHALL BE AS DETAILED OR OTHERWISE APPROVED BY THE ENGINEER.
4. ALL CONCRETE WORK AND REINFORCING DETAILS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 318. EXPOSED EDGES OF CONCRETE SHALL HAVE ¾" CHAMFER. USE STANDARD REBAR HOOKS UNLESS OTHERWISE NOTED.
5. CONCRETE FORMS SHALL BE WETTED IMMEDIATELY PRIOR TO PLACING CONCRETE.
6. MIXING, PLACING AND CURING OF ALL CONCRETE MUST BE IN ACCORDANCE WITH ACI 305R, HOT WEATHER CONCRETING. NEW CONCRETE EXPOSED TO DIRECT SUNLIGHT SHALL BE SPRAYED OR MOPPED WITH A CURING COMPOUND AFTER THE FINISH HAS SET, OR THE CONCRETE SHALL COVERED AND WETTED.
7. ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60.
8. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND SHALL BE LAPPED ONE FULL MESH AND AT SIDE AND END SPLICES AND WIRED TOGETHER.
9. REINFORCEMENT COVERAGE SHALL BE 2" MINIMUM WHEN FORMS ARE USED AND 3" MINIMUM WHEN POURED AGAINST THE EARTH, UNLESS OTHERWISE NOTED.
10. LAP SPLICES SHALL BE PER BAR SPLICING SCHEDULE ON SHEET S-10, UNLESS NOTED OTHERWISE. MAKE ALL BARS CONTINUOUS AROUND CORNERS.
11. PROVIDE ALL ACCESSORIES NECESSARY TO SECURE REINFORCING IN PROPER POSITION AS INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH ACI 318. ALL ACCESSORIES THAT DO NOT MEET REINFORCEMENT COVERAGE REQUIREMENTS SHALL BE NON-METALLIC.
12. CONCRETE ANCHORS
    - 12.1. VERTICAL ANCHORING (NOT OVERHEAD) INTO CONCRETE SHALL BE MADE WITH TYPE 316 STAINLESS STEEL THREADED ROD. DOWEL AND EPOXY W/ SIMPSON SET 3G. MAINTAIN 2.5" MIN CONCRETE EDGE DISTANCE. ANCHORING REBAR IS SIMILAR.
    - 12.2. HORIZONTAL AND OVERHEAD CONCRETE ANCHORS SHALL BE TYPE 316 STAINLESS STEEL WEDGE ANCHORS (SIMPSON STRONG BOLT 2 OR HILTI KWIK BOLT) (6" MIN. CONC. EDGE DISTANCE, 6" MIN. SPACING)

STAINLESS STEEL NOTES

1. CONTRACTOR SHALL BE EXPERIENCED IN FABRICATION AND ERECTION OF STAINLESS STEEL
2. ALL STEEL STRUCTURAL MEMBERS AND FASTENERS SHALL BE TYPE 316/316L (UNS S31600/S316030) STAINLESS STEEL (U.N.O.), WITH A MIN. SPECIFIED YIELD STRENGTH (Fy) OF 25 KSI MIN. AND AN ULTIMATE STRENGTH (Fu) OF 70 KSI MIN.
3. STAINLESS STEEL MEMBERS SHALL BE HOT ROLLED (ASTM A276), OR LASER FUSED (ASTM A1069) WHEN LISTED SHAPES ARE AVAILABLE IN HOT ROLLED IT IS PREFERRED OVER LASER FUSED
4. STAINLESS STEEL BOLTS AND THREADED ROD SHALL BE TYPE 316, Fy=30 KSI MIN. Fu=75 KSI MIN.; PROVIDED WITH TYPE 316 NUTS AND WASHERS. [DO NOT ALLOW CONTACT BETWEEN STAINLESS STEEL AND GALVANIZED PARTS] FASTENERS SHALL BE SNUG TIGHT. DOUBLE NUTTING OR OTHER APPROVED LOCKING METHOD SHALL BE USED TO ENSURE FASTENERS DO NOT BECOME LOOSE.
5. WHERE A STAINLESS STEEL PART IS IN CONTACT WITH ALUMINUM, APPLY BITUMINOUS PAINT TO PROPERLY PREPARED STAINLESS STEEL AREA IN CONTACT WITH DISSIMILAR METALS (e.g. ALUMINUM). COAT SURFACE WITH 2 COATS OF BITUMINOUS PAINT FOR A MIN. TOTAL 16 MILS DFT, OR AS RECOMMENDED BY THE COATING MANUFACTURER. ALLOW BITUMINOUS PAINT TO DRY PRIOR TO INSTALLATION OF ALUMINUM COMPONENT. USE PTFE WASHERS WHERE STAINLESS STEEL WASHERS BEAR ON DISSIMILAR METALS (ALUMINUM)
6. WHERE STAINLESS STEEL BEARS DIRECTLY ON TOP OF CONCRETE PROVIDE NEOPRENE BEARING PAD (¼" TO ¾" THICK)
7. STAINLESS STEEL SHAPES SHALL BE SUPPLIED WITH A SMOOTH SURFACE FINISH (Ra = 6µm, OR SMOOTHER)
8. STAINLESS MEMBERS MAY BE FIELD CUT AND DRILLED, HOWEVER, SHOP FABRICATION IS PREFERRED WHEN FEASIBLE.
    - 8.1. DRILLING, CUTTING, AND GRINDING BITS SHALL BE DEDICATED FOR USE WITH STAINLESS STEEL (A.K.A. DO NOT USE BITS MADE OF, OR PREVIOUSLY USED ON NON-STAINLESS STEEL) TO AVOID IRON CONTAMINATION
    - 8.2. CORNERS SHALL BE ROUNDED OFF
    - 8.3. FIELD MODIFIED AREAS OF STAINLESS STEEL SHALL BE GROUND AND FINISHED SMOOTH. (ROUGH SURFACES ARE AT HIGH RISK FOR CORROSION)
    - 8.4. DO NOT USE OXYACETYLENE TO MODIFY STAINLESS STEEL
    - 8.5. AVOID CARBON STEEL LIFTING TACKLE THAT MAY CAUSE "IRON PICKUP" ON STAINLESS STEEL
    - 8.6. FIELD WELDING IS NOT PERMITTED
    - 8.7. STRUCTURE SHALL BE CLEANED OF ALL DUST AND DEBRIS AFTER COMPLETION (SPECIAL CARE SHALL BE TAKEN TO CLEAN CREVICES OF CONSTRUCTION DUST THAT WILL CAUSE CORROSION)

ALUMINUM NOTES - DEFERRED SUBMITTAL

1. ALUMINUM GRATING AND RAILING DETAILS HEREIN ARE FOR SCHEMATIC PURPOSES ONLY. MANUFACTURER SHALL VERIFY LAYOUT AND PROVIDE DESIGN.
2. RAILING AND GRATING SHALL BE DESIGNED, FABRICATED AND INSTALLED TO MEET ALL APPLICABLE REQUIREMENTS OF OSHA PART 1910 AND F.B.C. 7TH EDITION (2020).
3. THE DESIGN OF GRATING AND RAILING SHALL BE SIGNED AND SEALED BY A LICENSED FLORIDA PROFESSIONAL ENGINEER. SHOP DRAWINGS AND THE FABRICATION, WILL BE SUBJECT TO THE INSPECTIONS AND APPROVAL OF THE ENGINEER OF RECORD.
4. PER F.B.C. - BUILDING, CH. 1, SEC. 107.3.4.1, DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

LIGHTNING PROTECTION AND GROUNDING

1. ALL GANGWAYS, GRATING, AND RAILING SHALL BE ELECTRICALLY GROUNDED AND TIED INTO THE EXISTING LIGHTNING PROTECTION SYSTEM AS REQUIRED PER CODE. LIGHTNING PROTECTION AND GROUNDING PLAN SHALL BE PROVIDED BY THE CONTRACTOR, PLAN SHALL BE SIGNED AND SEALED BY A FLORIDA LICENSED ENGINEER.

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24476 OVERSEAS HWY, SUMMERLAND KEY, FL
305-394-5987

REVISIONS: ORIGINAL: DECEMBER 2020
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GANGWAY REPLACEMENT
WASTEWATER TREATMENT PLANT
TRUMBO POINT ANX
KEY WEST, FL 33040

CITY OF KEY WEST
UTILITIES DEPARTMENT
1300 WHITE ST
KEY WEST, FL 33040

JOB NO. 201054
DRAWN SLB
DESIGNED JDH
CHECKED JCR
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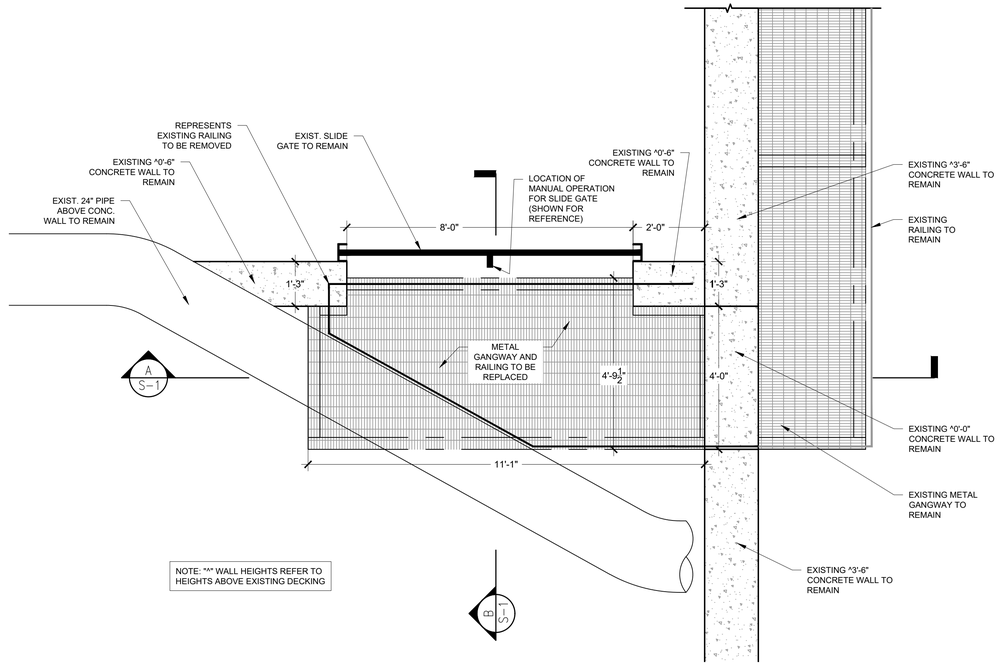
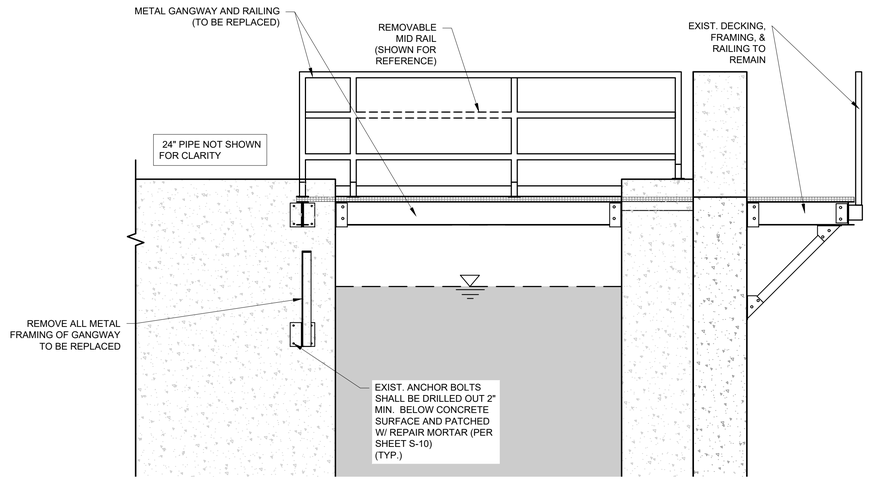


PARTIAL PLAN - GANGWAY 1

EXISTING SCALE:1/2"=1'-0"

PHOTOS - EXISTING GANGWAY 1

FOR REFERENCE ONLY



A S-1 SECTION - GANGWAY 1

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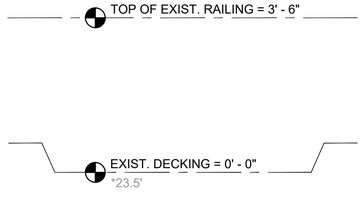

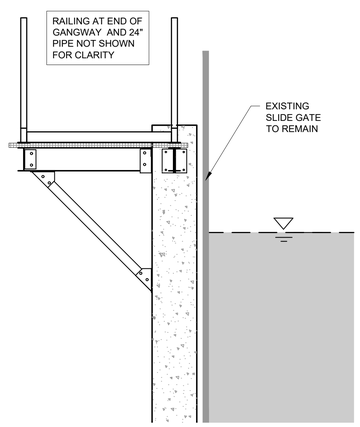

B S-1 SECTION - GANGWAY 1

EXISTING SCALE:1/2"=1'-0"

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305-394-5987

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UTILITIES DEPARTMENT
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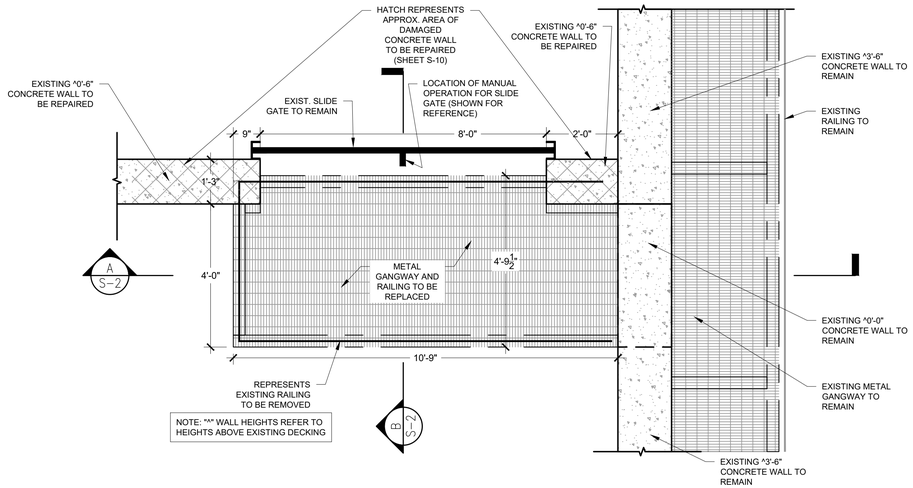
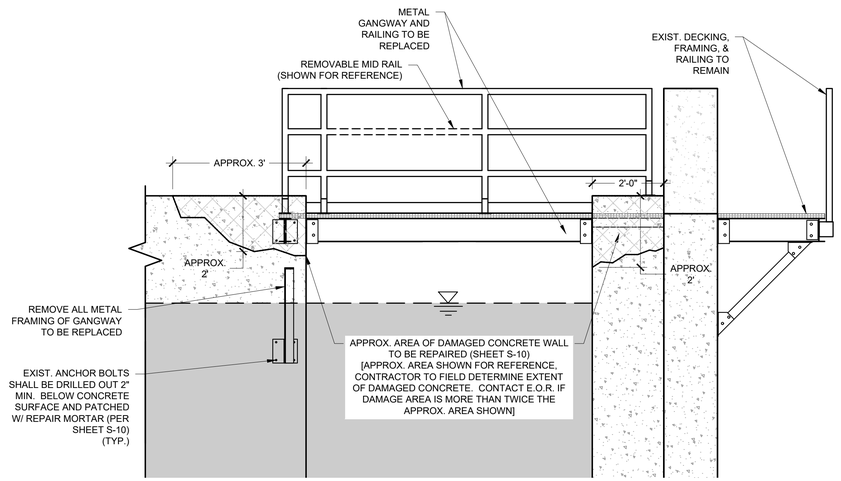


PARTIAL PLAN - GANGWAY 2

EXISTING SCALE:1/2"=1'-0"

PHOTOS - EXISTING GANGWAY 2

FOR REFERENCE ONLY



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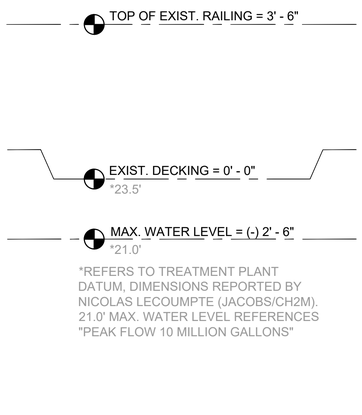

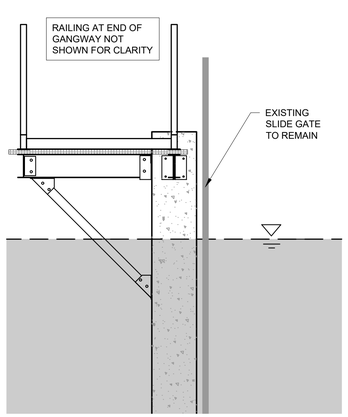

B S-2 SECTION - GANGWAY 2

EXISTING SCALE:1/2"=1'-0"

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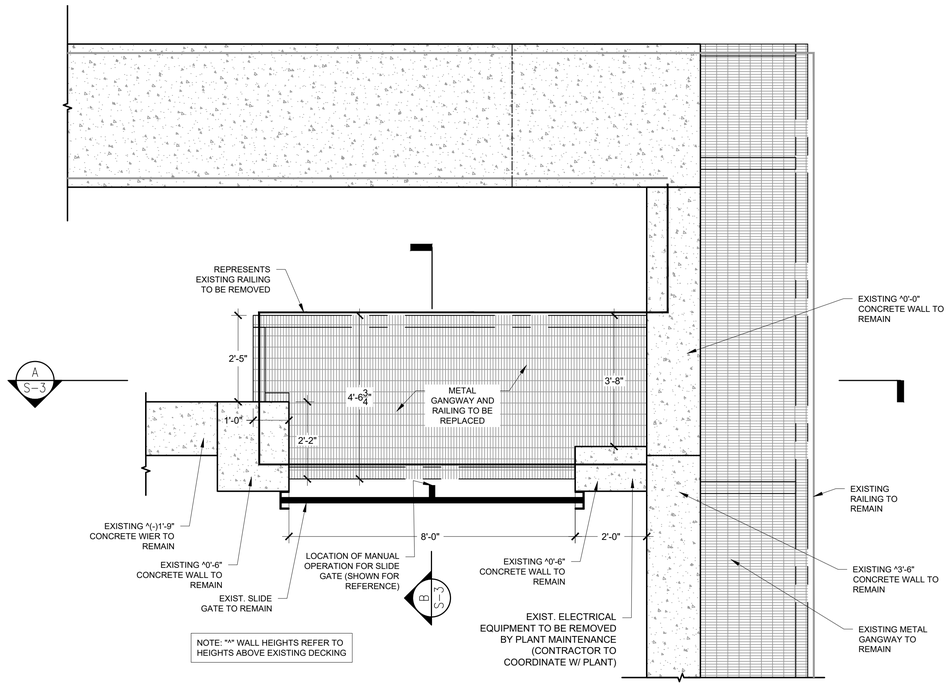


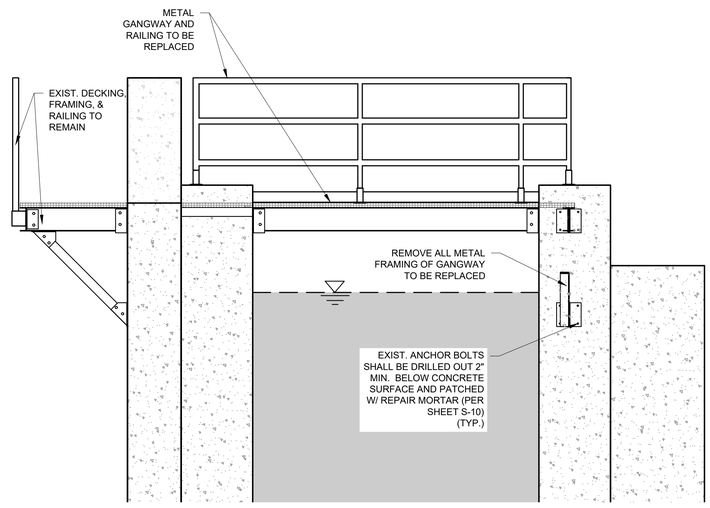
PARTIAL PLAN - GANGWAY 3

EXISTING SCALE:1/2"=1'-0"

EXISTING

PHOTOS - EXISTING GANGWAY 3

FOR REFERENCE ONLY



A S-3 SECTION - GANGWAY 3

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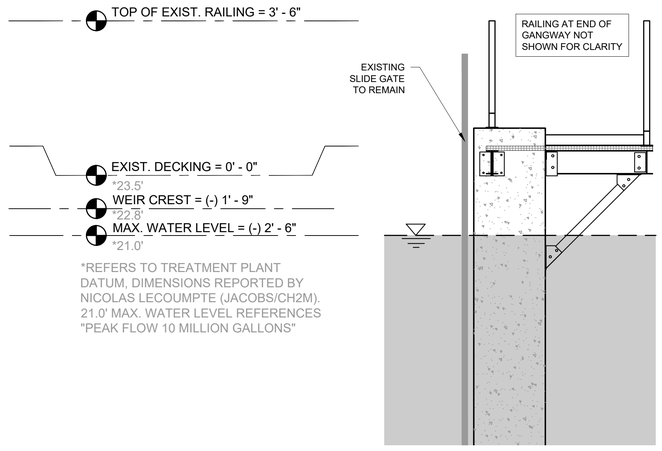

B S-3 SECTION - GANGWAY 3

EXISTING SCALE:1/2"=1'-0"

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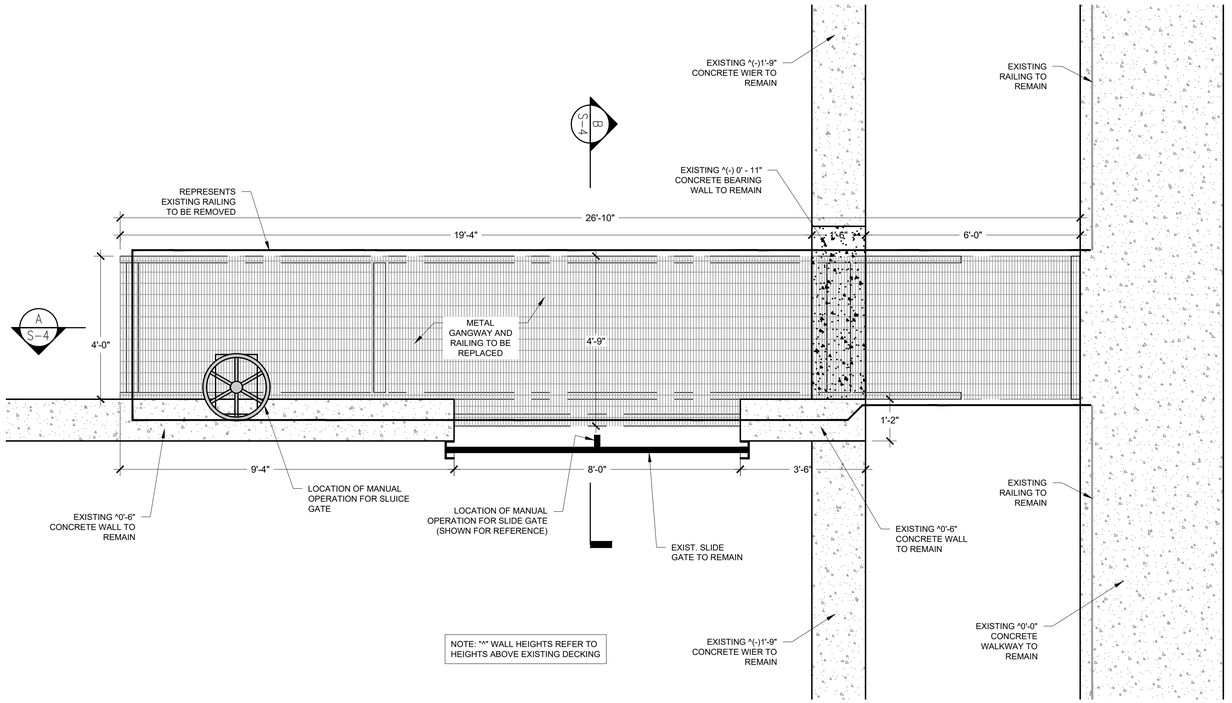
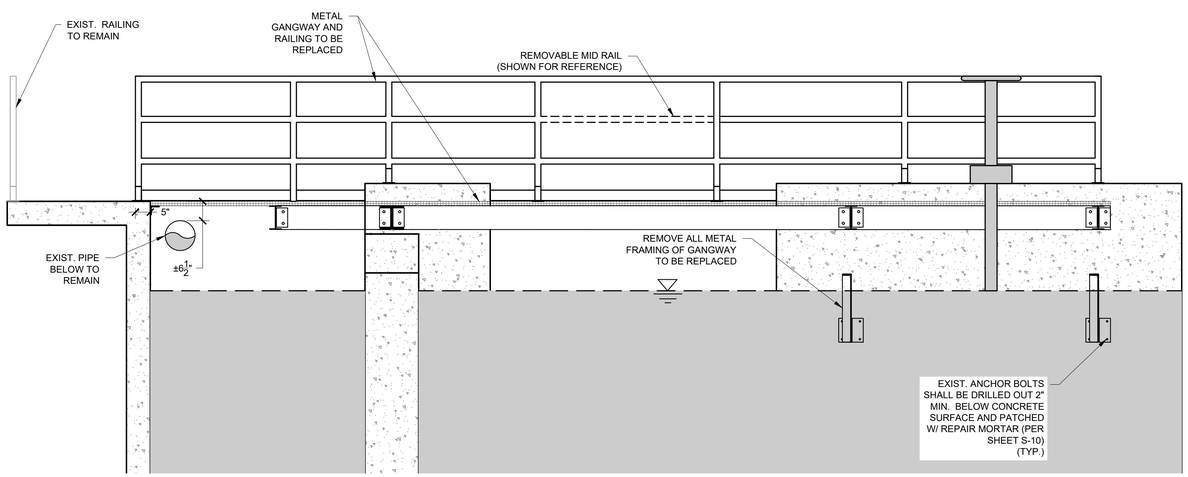


PARTIAL PLAN - GANGWAY 4

EXISTING SCALE:1/2"=1'-0"

PHOTOS - EXISTING GANGWAY 4

FOR REFERENCE ONLY



A S-4 SECTION - GANGWAY 4

EXISTING SCALE:1/2"=1'-0"

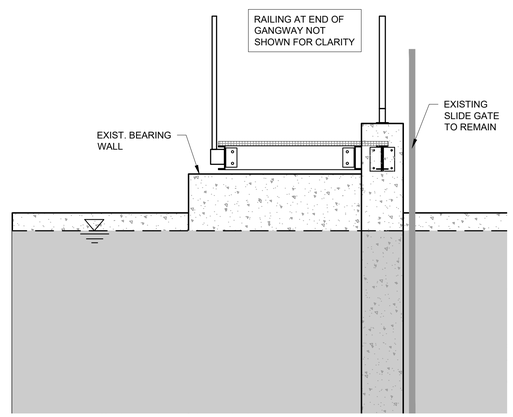
TOP OF EXIST. RAILING = 3' - 6"

EXIST. DECKING = 0' - 0"
*23.5'

TOP OF BEARING WALL = (-) 0' - 11"
*22.6'

MAX. WATER LEVEL = (-) 2' - 6"
*21.0'

*REFERS TO TREATMENT PLANT DATUM, DIMENSIONS REPORTED BY NICOLAS LECOUMPTE (JACOBS/CH2M). 21.0' MAX. WATER LEVEL REFERENCES "PEAK FLOW 10 MILLION GALLONS"



B S-4 SECTION - GANGWAY 4

EXISTING SCALE:1/2"=1'-0"

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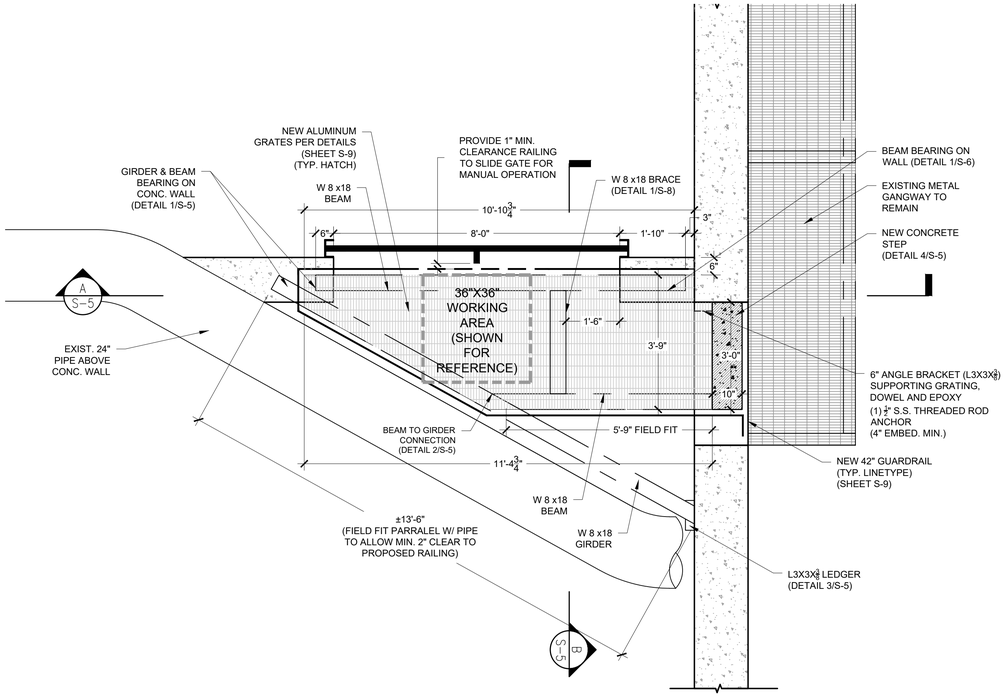
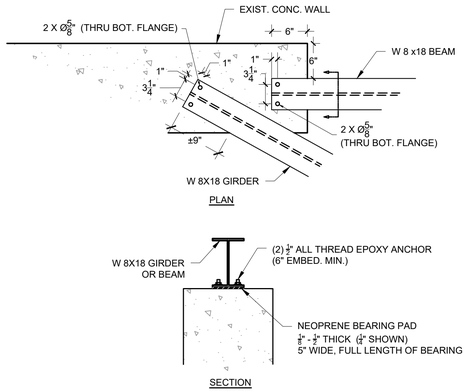


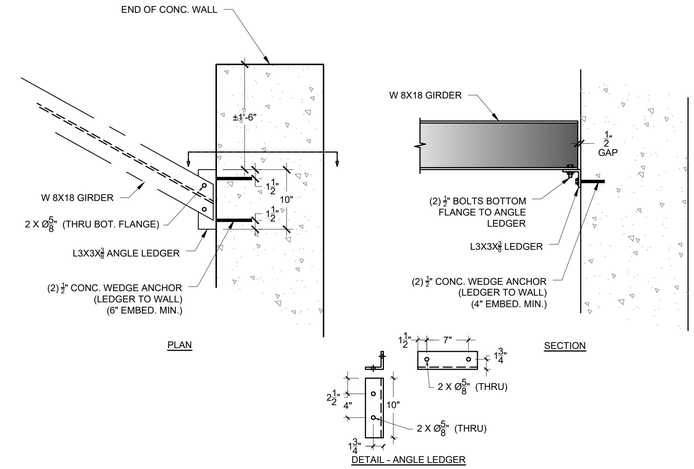
PARTIAL PLAN - GANGWAY 1

PROPOSED SCALE:1/2"=1'-0"



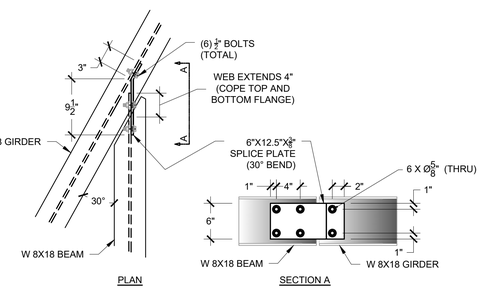
1 S-5 DETAIL - GIRDER BEARING ON WALL

SCALE:1"=1'-0"



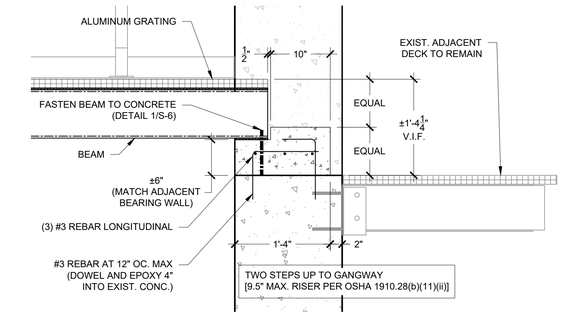
3 S-5 DETAIL - GIRDER BEARING INTO WALL

SCALE:1"=1'-0"



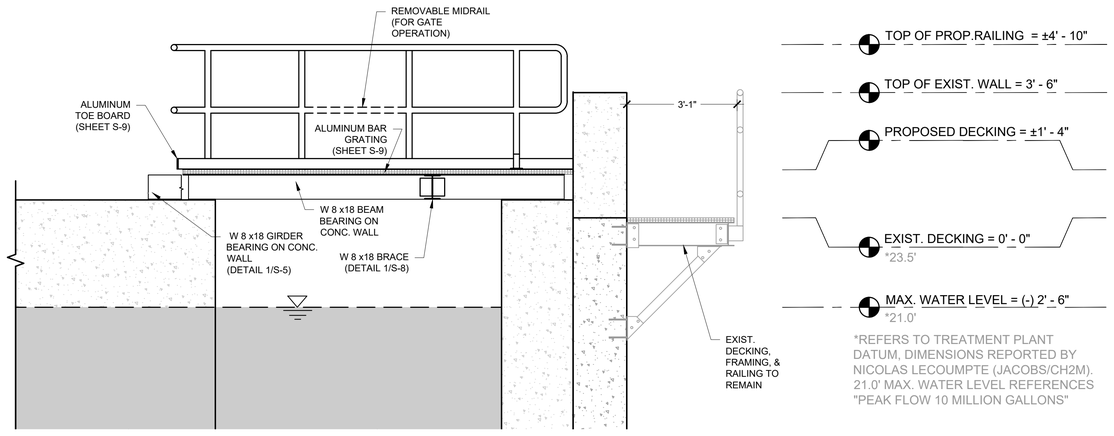
2 S-5 DETAIL - BEAM TO GIRDER CONNECTION

SCALE:1"=1'-0"



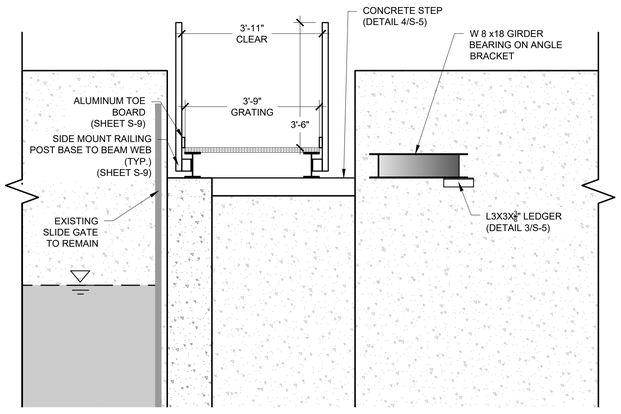
4 S-5 TYPICAL DETAIL - CONCRETE STAIRS

SECTION VIEW SCALE:1"=1'-0"



A S-5 SECTION - GANGWAY 1

PROPOSED SCALE:1/2"=1'-0"



B S-5 SECTION - GANGWAY 1

PROPOSED SCALE:1/2"=1'-0"

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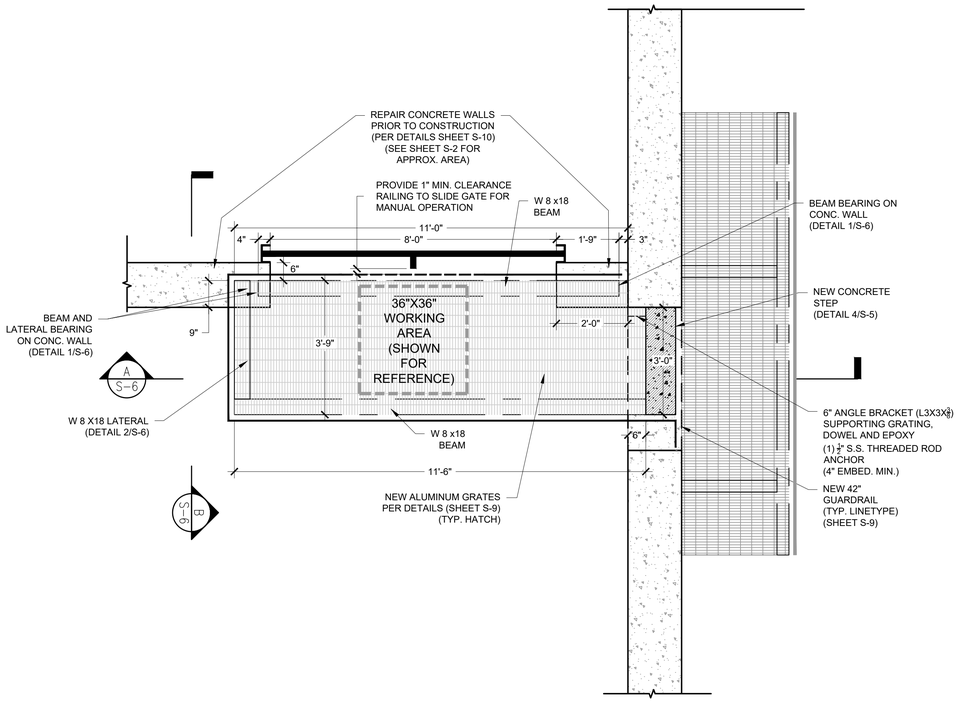
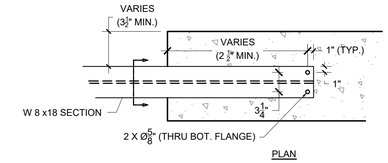
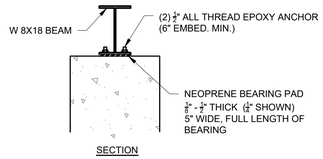


PARTIAL PLAN - GANGWAY 2

PROPOSED SCALE:1/2"=1'-0"



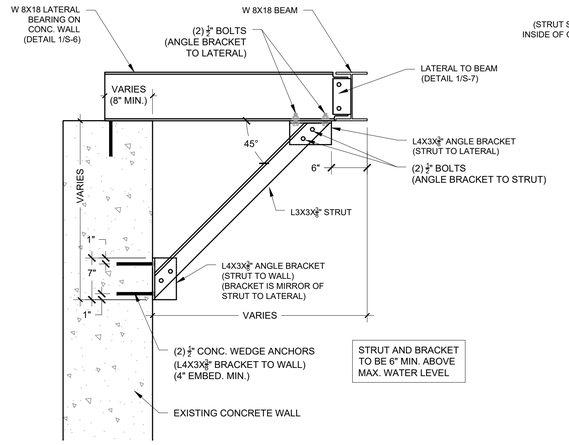
PLAN



SECTION

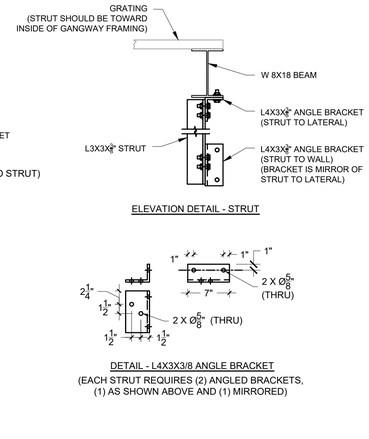
1 S-6 TYP. DETAIL - BEAM BEARING ON WALL

SCALE:1"=1'-0"



2 S-6 TYP. DETAIL - LATERAL CONNECTION

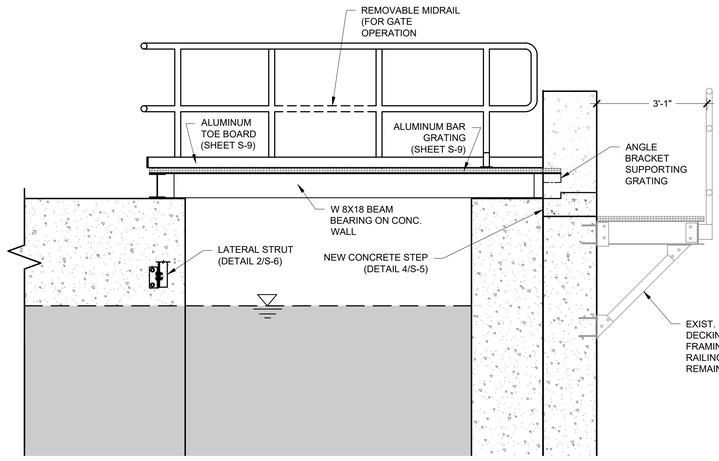
SCALE:1"=1'-0"

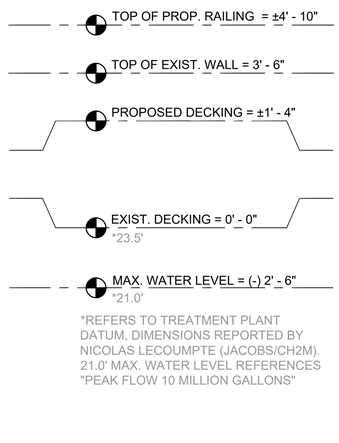


ELEVATION DETAIL - STRUT

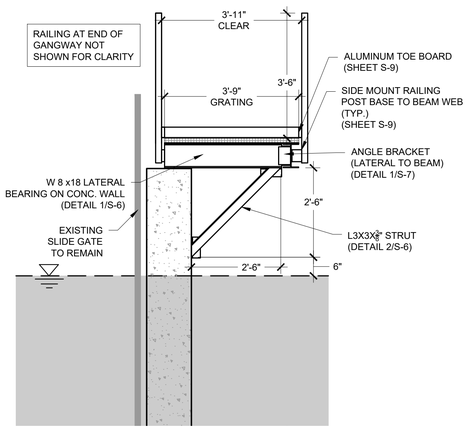
DETAIL - L4X3X3/8 ANGLE BRACKET

(EACH STRUT REQUIRES (2) ANGLED BRACKETS, (1) AS SHOWN ABOVE AND (1) MIRRORED)





*REFERS TO TREATMENT PLANT DATUM, DIMENSIONS REPORTED BY NICOLAS LECOUMPTE (JACOBS/CH2M). 21.0' MAX. WATER LEVEL REFERENCES "PEAK FLOW 10 MILLION GALLONS"



A S-6 SECTION - GANGWAY 2

PROPOSED SCALE:1/2"=1'-0"

B S-6 SECTION - GANGWAY 2

PROPOSED SCALE:1/2"=1'-0"

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Key West Office
1010 Kennedy Drive, Suite 202
Key West, FL 33040
Tel: (305) 293-9440

PEREZ ENGINEERING & DEVELOPMENT, INC
CERTIFICATE OF AUTHORIZATION No. 8579

Reynolds Engineering Services, Inc.
JAMES C. REYNOLDS, P.E.
Florida P.E. NO. 46685
August 2, 2021
CERTIFICATE OF AUTHORIZATION No. 26597
24478 OVERSEAS HWY, SUMMERLAND KEY, FL
305-394-5987

REVISIONS: ORIGINAL - DECEMBER 2020

1 2 3 4 5 6

GANGWAY REPLACEMENT
WASTEWATER TREATMENT PLANT
TRUMBO POINT ANX
KEY WEST, FL 33040

CITY OF KEY WEST
UTILITIES DEPARTMENT
1300 WHITE ST
KEY WEST, FL 33040

JOB NO. 201054
DRAWN SLB
DESIGNED JDH
CHECKED JCR
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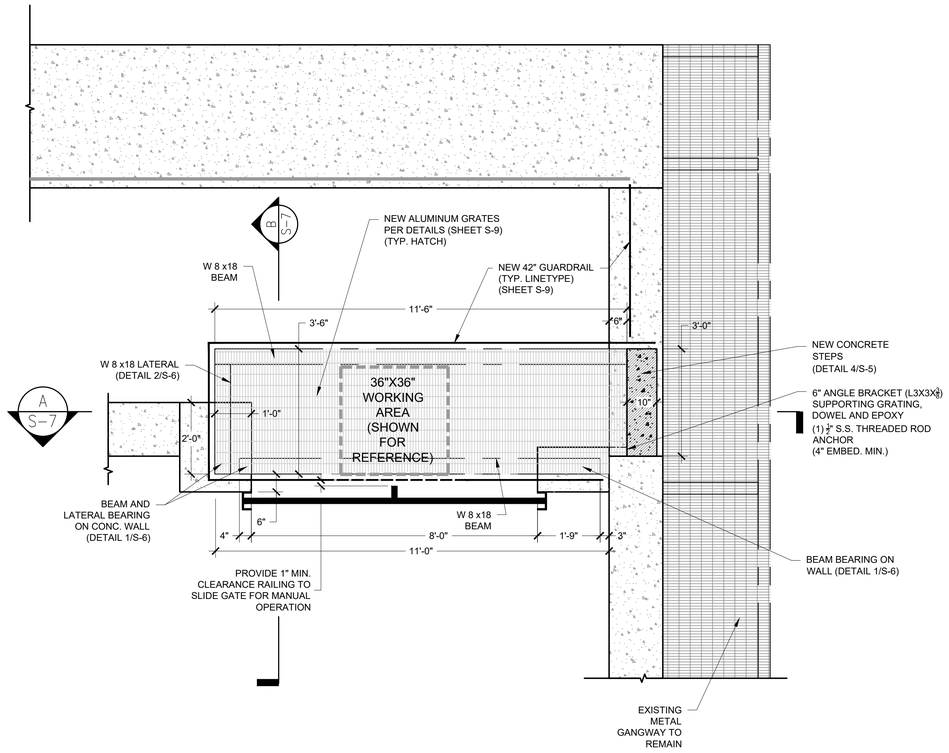
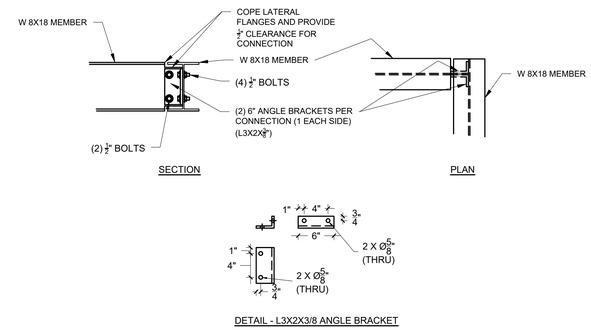
PROPOSED



PARTIAL PLAN - GANGWAY 3

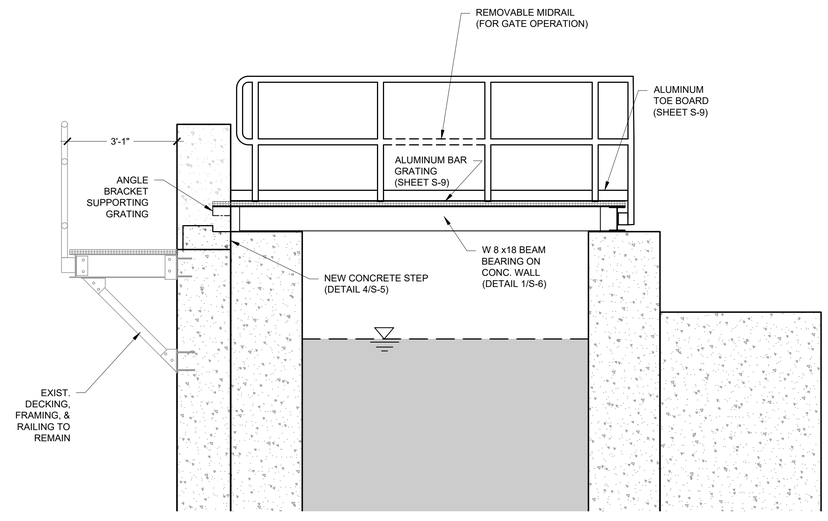
PROPOSED SCALE:1/2"=1'-0"



DETAIL - L3X2X3/8 ANGLE BRACKET

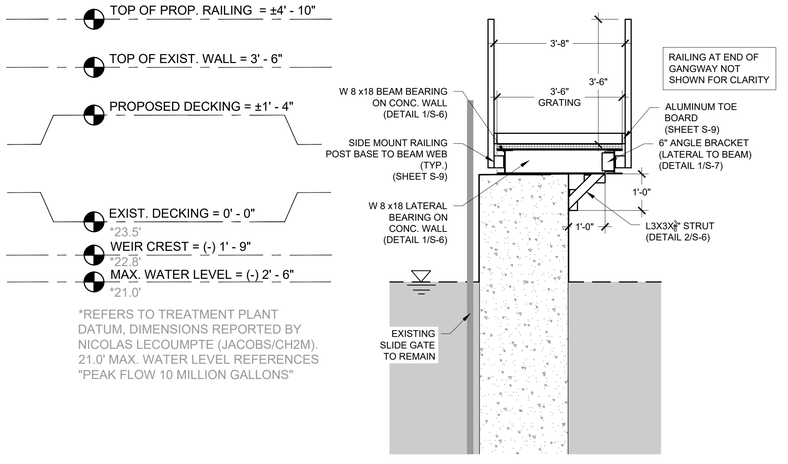
1 S-7 TYP. DETAIL - CONNECTION BETWEEN W SECTIONS

SCALE:1"=1'-0"



A S-7 SECTION - GANGWAY 3

PROPOSED SCALE:1/2"=1'-0"



B S-7 SECTION - GANGWAY 3

PROPOSED SCALE:1/2"=1'-0"

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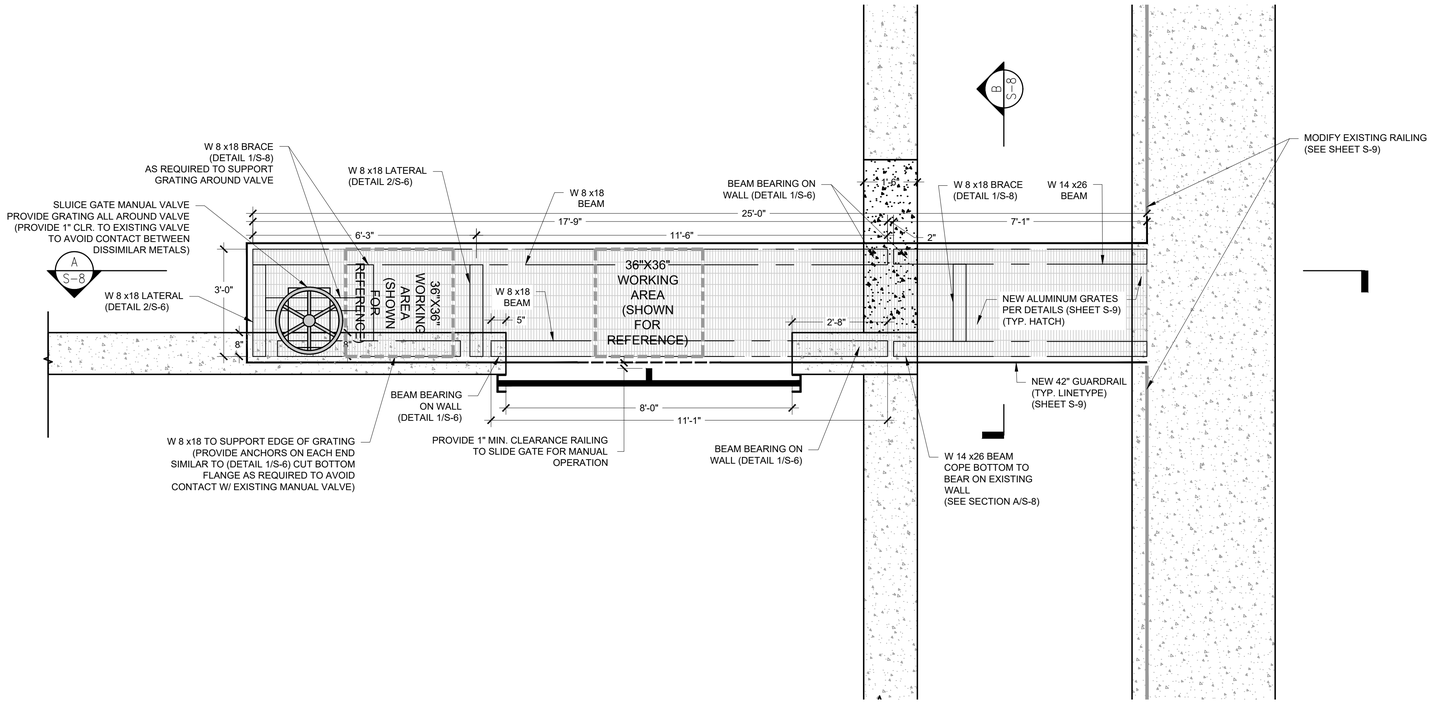
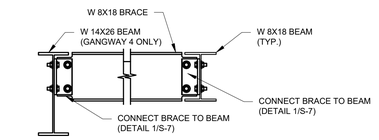
PROPOSED



PARTIAL PLAN - GANGWAY 4

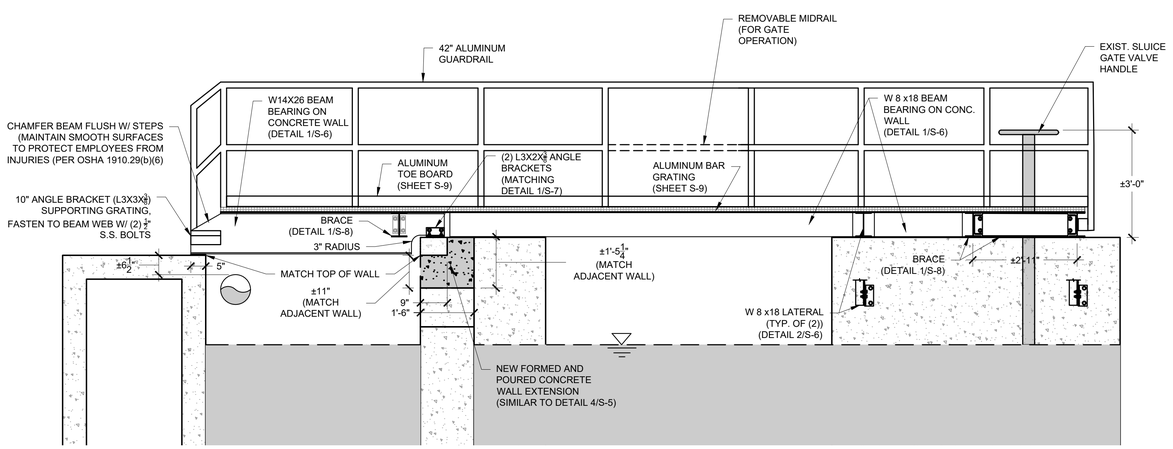
PROPOSED SCALE:1/2"=1'-0"



TYP. DETAIL - BRACE

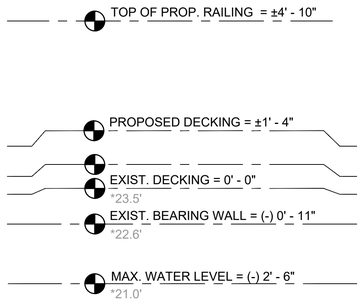
1/S-8 TYP. DETAIL - BRACE BETWEEN BEAMS

SCALE:1"=1'-0"



A S-8 SECTION - GANGWAY 4

PROPOSED SCALE:1/2"=1'-0"



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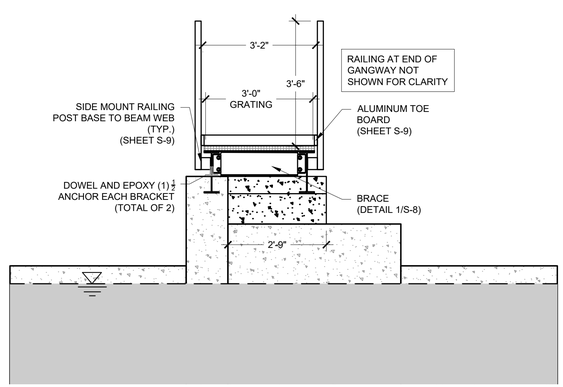

B S-8 SECTION - GANGWAY 4

PROPOSED SCALE:1/2"=1'-0"

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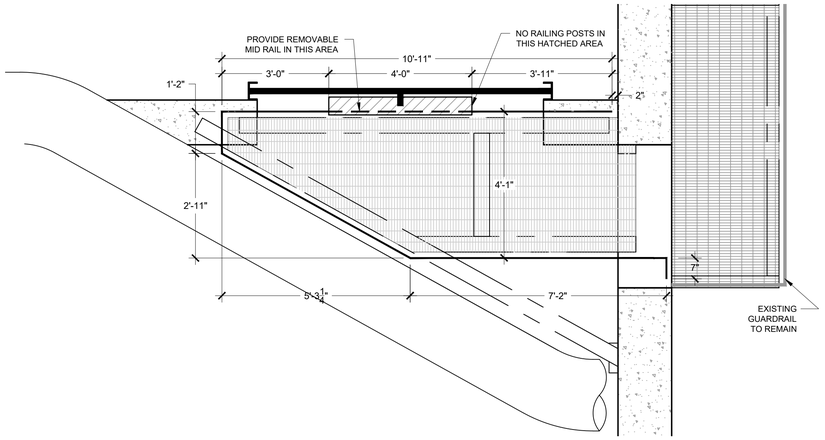
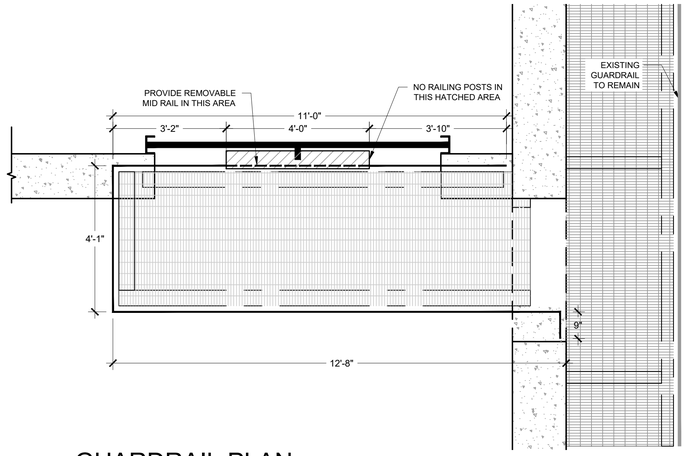
PROPOSED RAILINGS



GUARDRAIL PLAN

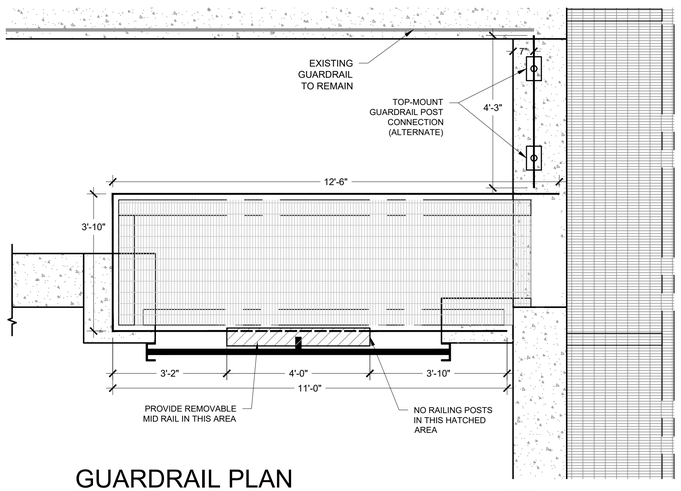
GANGWAY 1 SCALE:1/2"=1'-0"



GUARDRAIL PLAN

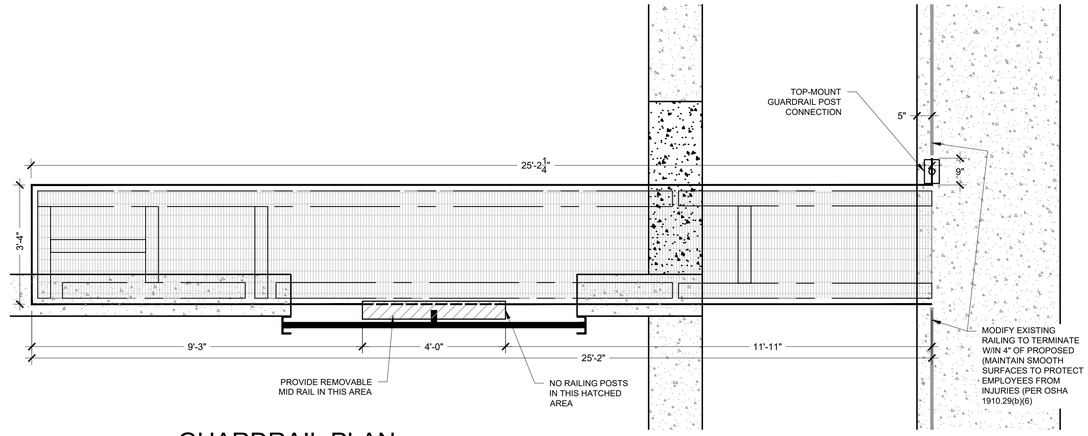
GANGWAY 2 SCALE:1/2"=1'-0"

NOTE: ALL POST CONNECTIONS TO BE SIDE MOUNT TO W SECTION WEB. U.N.O. (TYP. GUARDRAIL POST CONNECTION)



GUARDRAIL PLAN

GANGWAY 3 SCALE:1/2"=1'-0"

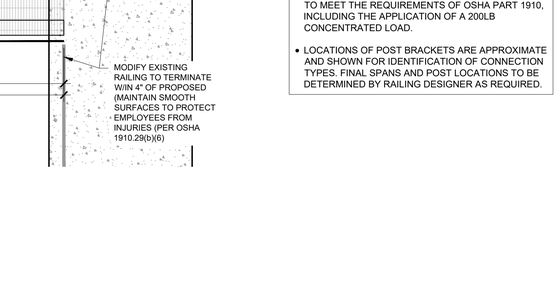


GUARDRAIL PLAN

GANGWAY 4 SCALE:1/2"=1'-0"

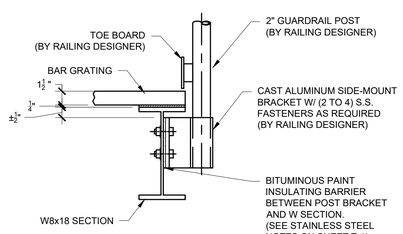
NOTES:

- RAILINGS TO BE CONSTRUCTED OF 2" ALUMINUM PIPE. SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A FLORIDA LICENSED PROFESSIONAL ENGINEER, SUBMITTED, AND APPROVED PRIOR TO FABRICATION
- CONTRACTOR TO COORDINATE FINAL AS-BUILT DIMENSIONS WITH RAIL MANUFACTURER AS REQUIRED, PRIOR TO DESIGN AND FABRICATION. (DIMENSIONS SHOWN ON THIS PLAN ARE FOR SCHEMATIC PURPOSES AND REPRESENT RAILING CENTERLINES)
- GUARDRAILS TO BE DESIGNED AND CONSTRUCTED TO MEET THE REQUIREMENTS OF OSHA PART 1910, INCLUDING THE APPLICATION OF A 200LB CONCENTRATED LOAD.
- LOCATIONS OF POST BRACKETS ARE APPROXIMATE AND SHOWN FOR IDENTIFICATION OF CONNECTION TYPES. FINAL SPANS AND POST LOCATIONS TO BE DETERMINED BY RAILING DESIGNER AS REQUIRED.



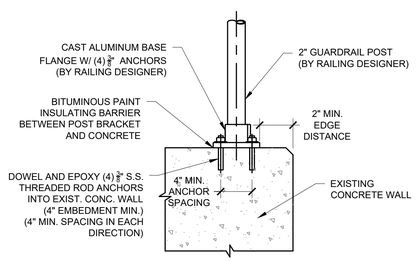
TYP. DETAIL - GRATING

SCALE: N.T.S.



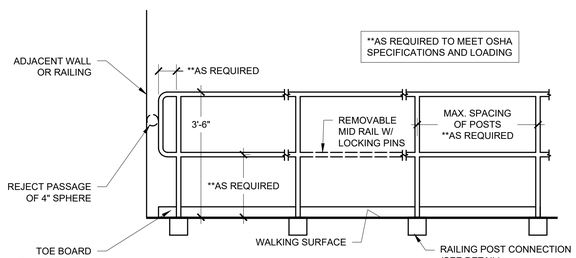
TYP. GUARDRAIL POST CONNECTION

SIDE-MOUNT TO STEEL SCALE: N.T.S.



ALTERNATE GUARDRAIL POST CONNECTION

TOP-MOUNT TO CONCRETE SCALE: N.T.S.



TYP. GUARDRAIL DETAIL

SCALE:1/2"=1'-0"

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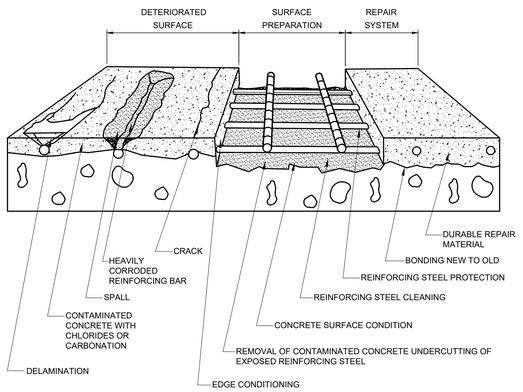
CONCRETE REPAIR

ANATOMY OF SURFACE REPAIRS



CONCRETE REPAIR SPECIFICATIONS

SECTION 1 - SCOPE OF WORK

1.1 THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, UTILITIES AND SUPERVISION NECESSARY TO ACCOMPLISH THE WORK DESCRIBED HEREIN. THE WORK INCLUDES REMOVING UNSOUND CONCRETE, CLEANING ALL AREAS UPON WHICH REPAIR MORTAR IS TO BE PLACED, CLEANING AND COATING REINFORCEMENT STEEL, REPLACING REINFORCEMENT STEEL, PLACING REPAIR MORTAR, SHORING AS REQUIRED AND ANY WORK NECESSARY TO PROVIDE THE WORK COMPLETE AND READY FOR USE.
1.2 THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE, INCLUDING ACCESS AND AVAILABILITY OF UTILITIES. ALL SITE CONDITIONS WILL BE VERIFIED AND ANY DEVIATIONS WILL BE REPORTED TO THE ENGINEER OF RECORD. THE CONTRACTOR SHALL VERIFY THAT NO CONCEALED ELECTRICAL CONDUITS OR PRE-STRESSING/POST-TENSIONING TENDONS EXIST.
1.3 THE CONTRACTOR IS RESPONSIBLE FOR SECURING AND PROVIDING ALL PERMITS REQUIRED FOR THE WORK. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, REGULATIONS AND LAWS. IF THERE IS A CONFLICT BETWEEN THESE SPECIFICATIONS AND ANY SUCH CODES, ORDINANCES, REGULATIONS AND LAWS, THE MOST STRINGENT WILL GOVERN.
1.4 THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION FOR ALL EXISTING FEATURES THAT ARE TO REMAIN AND APPROVED SHORING FOR TEMPORARY SUPPORT OF STRUCTURAL MEMBERS. SHORING SHALL BE ENGINEERED TO SAFELY AND ADEQUATELY SUPPORT STRUCTURAL LOADINGS TO BE ENCOUNTERED UNTIL THE WORK IS COMPLETE. THE CONTRACTOR WILL REMOVE ALL DEVICES USED FOR PROTECTION AFTER THE WORK IS COMPLETE AND WILL RETURN THE SITE TO ITS ORIGINAL CONDITION.
1.5 PROOF OF INSURANCE AND LICENSURE WILL BE TENDERED TO THE OWNER PRIOR TO COMMENCING WORK.

SECTION 2 - MATERIALS

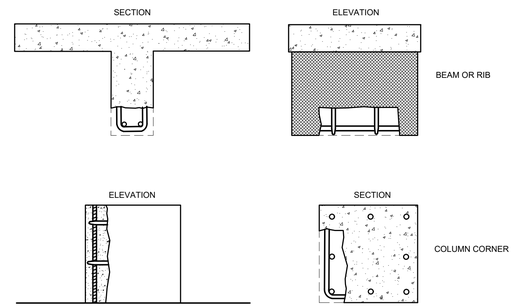
2.1 THE MATERIALS SHALL BE DELIVERED TO THE SITE IN ORIGINAL PACKAGING BEARING IDENTIFICATION OF THE PRODUCT, MANUFACTURER, BATCH NUMBER, AND EXPIRATION DATE AS APPLICABLE. THE PRODUCTS SHALL BE PROTECTED FROM DAMPNESS, CONSTRUCTION ACTIVITY, PRECIPITATION, AND DIRECT SUNLIGHT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. HANDLE ALL PRODUCTS WITH APPROPRIATE PRECAUTIONS AND CARE AS DESCRIBED ON THE MATERIAL SAFETY DATA SHEET (MSDS).
2.2 THE STRUCTURAL REPAIR MORTAR SYSTEMS SHALL BE FACTORY PRE-MEASURED, POLYMER AND/OR SILICA FUME MODIFIED, SHRINKAGE-COMPENSATED, CEMENT BASED PRODUCTS OR PLANT MIX APPROVED BY ENGINEER. THE STRUCTURAL REPAIR MORTAR SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS FOR THE SPECIFIC APPLICATION USED.
2.2.1 REPAIR MORTAR SYSTEMS SHALL BE FX-263 OR FX-225 FOR FORM AND POUR APPLICATIONS; OR APPROVED EQUALS
2.2.2 WHERE APPROVED FX-225 FORM AND POUR REPAIRS MAY BE EXTENDED WITH CLEAN, WASHED NOMINAL ⅜" PEA GRAVEL AT THE RATE OF NO MORE THAN 30LBS PER BAG. WHEN USED, AGGREGATE MUST MEET GROUT MANUFACTURER'S SPECIFICATIONS. DO NOT USE LIMESTONE AGGREGATE.
2.3 REINFORCING STEEL
a. ASTM A615, GRADE 60
2.4 AGGREGATE,
A. PER MORTAR MANUFACTURER SPECIFICATIONS
2.5 CURING COMPOUND, PER MORTAR MANUFACTURER SPECIFICATIONS
A. CHEMICAL-TYPE HARDENING COMPOUND FUNCTIONAL AS A CONCRETE CURE AND SEAL.

SECTION 3 - EXECUTION

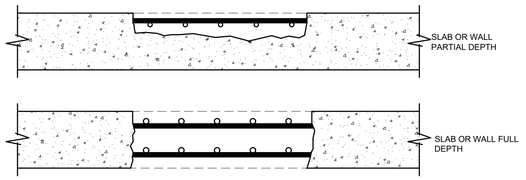
3.1 CONCRETE REPAIR
3.1.1 REMOVE UNSOUND CONCRETE AND ALL CONCRETE NECESSARY TO COMPLETELY EXPOSE ANY CORRODED STEEL. UNSOUND CONCRETE AND ANY LOOSE AND/OR DELETERIOUS MATERIAL SHALL BE MECHANICALLY REMOVED USING A 15-POUND CLASS PNEUMATIC HAMMER OR HYDRODEMOLITION. ALL CONCRETE ADJACENT TO CORRODED STEEL SHALL BE REMOVED TO A DEPTH THAT WILL PERMIT REPAIR MORTAR TO BOND TO THE ENTIRE PERIPHERY OF THE STEEL. A MINIMUM 3/4-INCH CLEARANCE SHALL BE REQUIRED OR 1/4-INCH LARGER THAN THE LARGEST REPAIR AGGREGATE, WHICHEVER IS GREATER.
3.1.2 THE REINFORCING STEEL SHALL BE MECHANICALLY CLEANED TO BARE WHITE METAL BY SANDBLASTING OR WIREBRUSHING. THE STEEL SHALL BE FREE OF RUST, GREASE, OIL, AND OTHER BOND INHIBITING MATTER. STEEL THAT HAS LOST MORE THAN 15% OF ITS CROSS SECTIONAL AREA SHALL BE REPAIRED; BY MEANS OF REPLACEMENT OR SUPPLEMENTAL REINFORCEMENT. NEW STEEL SHALL BE CLEANED IN THE SAME MANNER DESCRIBED ABOVE. CARE SHALL BE EXERCISED TO PREVENT CUTTING, STRETCHING, OR DAMAGING ANY EXPOSED STEEL. ALL EXPOSED AND NEW STEEL SHALL BE COATED WITH CORROSION PROTECTION MATERIAL.
3.1.3 THE REPAIR AREA PERIMETER SHALL BE SAW-CUT TO ELIMINATE FEATHERED EDGES. THE SAW-CUTS SHALL BE 1/2"-INCH DEEP OR LESS AS REQUIRED TO AVOID CUTTING REINFORCING STEEL (MINIMUM 1/4"-INCH).
3.1.4 ALL WORK SHALL BE IN CONFORMANCE WITH THE INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI) 310.1R/310.2R AND THE MANUFACTURER'S RECOMMENDATIONS.
3.1.5 REPORT ANY CRACKS THAT APPEAR IN THE INTERFACE AREA OF THE PATCH OR OVERLAY TO THE ENGINEER. REPAIR ALL CRACKS AND EXPANSION/CONTROL JOINTS AS DIRECTED BY THE ENGINEER.
3.2 MIXING
THE MIXERS SHALL BE CLEAN AND THE INGREDIENTS ACCURATELY PROPORTIONED. THE REPAIR MORTAR SHALL BE MIXED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AT THE SITE WITH THE SPECIFIC EQUIPMENT REQUIREMENTS. THE MATERIAL DISCHARGED FROM THE MIXER SHALL BE UNIFORM IN COMPOSITION AND CONSISTENCY.
3.3 PLACEMENT
3.2.1 STRUCTURAL REPAIR MORTAR
THE WORK SHALL NOT BE EXECUTED UNDER CONDITIONS OF PRECIPITATION OR TEMPERATURES ABOVE 90 DEGREES FAHRENHEIT. INSPECT ALL SURFACES TO RECEIVE REPAIR MORTARS TO ENSURE SUBSTRATE IS CLEAN, SOUND, PROPERLY CURED, AND FREE OF STANDING WATER, COATINGS, CURING COMPOUNDS, FOREIGN PARTICLES, OIL, DUST, GREASE, LAITANCE OR OTHER MATERIAL THAT WILL ADVERSELY AFFECT THE BONDING OF THE REPAIR MATERIALS. AT THE TIME OF APPLICATION, THE SUBSTRATE SHALL BE SATURATED SURFACE DRY WITH NO STANDING WATER. PLACEMENT OF REPAIR MORTAR SHALL BE AS SPECIFIED BY THE MATERIAL SUPPLIER, INCLUDING THE USE OF MANUFACTURER RECOMMENDED BONDING AGENT.
3.4 CURING
ADHERE TO THE MANUFACTURER'S RECOMMENDATIONS, LIMITATIONS AND CAUTIONS FOR THE STRUCTURAL REPAIR MORTAR.
3.5 SAFETY
SHORING, SCAFFOLDING, LADDERS, BELTS, HARNESSES, LIFELINES AND OTHER SAFETY EQUIPMENT (SUCH AS RESPIRATORY, SKIN, AND EYE PROTECTION) USED TO REDUCE HAZARDS TO WORKERS SHALL BE IN COMPLIANCE WITH THE REGULATIONS ESTABLISHED BY THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
3.6 QUALITY CONTROL
COMPRESSIVE STRENGTH TESTS: A MINIMUM OF, ONE SET OF THREE CYLINDERS, FOR EACH 100 CUBIC FEET OF MATERIAL BATCHED, SHALL BE TESTED AT 28 DAYS. TESTING SHALL BE IN ACCORDANCE WITH ASTM C109. TEST RESULTS WILL BE RETURNED WITHIN 24 HOURS. ANY MATERIAL THAT FALLS BELOW THE SPECIFIED LEVELS SHALL BE REPLACED ENTIRELY.

REMOVAL GEOMETRY

PROVIDE SHORING OF MEMBERS AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTION TO COLUMNS. SHORING SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER.



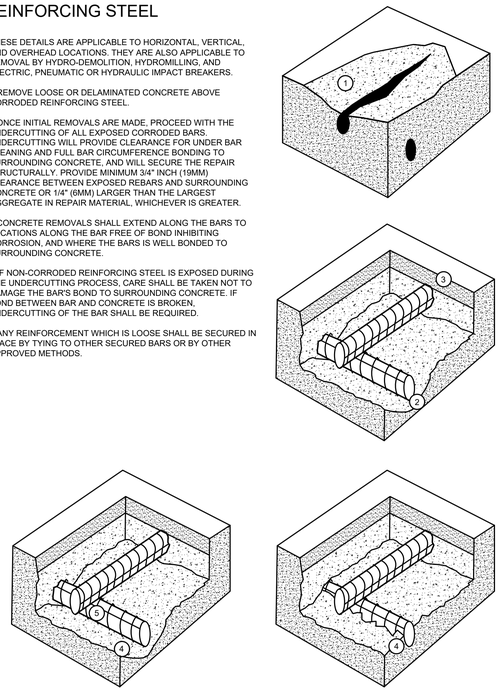
FOR COLUMNS, REMOVAL OF CONCRETE WITHIN THE CORE (AREA WITHIN THE REBAR TIES), SHALL BE THE MINIMUM REQUIRED TO REMOVE DELITERIOUS MATERIALS AND REHABILITATE REBAR. IF THE REPAIR REQUIRES REMOVAL OF MORE THAN 15% OF THE COLUMN CORE, CONTACT THE ENGINEER OF RECORD.



EXPOSING AND UNDERCUTTING OF REINFORCING STEEL

THESE DETAILS ARE APPLICABLE TO HORIZONTAL, VERTICAL, AND OVERHEAD LOCATIONS. THEY ARE ALSO APPLICABLE TO REMOVAL BY HYDRO-DEMOLITION, HYDROMILLING, AND ELECTRIC, PNEUMATIC OR HYDRAULIC IMPACT BREAKERS.

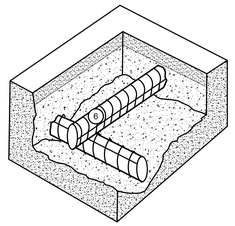
1. REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE CORRODED REINFORCING STEEL.
2. ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED CORRODED BARS. UNDERCUTTING WILL PROVIDE CLEARANCE FOR UNDER BAR CLEANING AND FULL BAR CIRCUMFERENCE BONDING TO SURROUNDING CONCRETE, AND WILL SECURE THE REPAIR STRUCTURALLY. PROVIDE MINIMUM 3/4" INCH (19MM) CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE OR 1/4" (6MM) LARGER THAN THE LARGEST AGGREGATE IN REPAIR MATERIAL, WHICHEVER IS GREATER.
3. CONCRETE REMOVALS SHALL EXTEND ALONG THE BARS TO LOCATIONS ALONG THE BAR FREE OF BOND INHIBITING CORROSION, AND WHERE THE BARS IS WELL BONDED TO SURROUNDING CONCRETE.
4. IF NON-CORRODED REINFORCING STEEL IS EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BAR'S BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.
5. ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS.

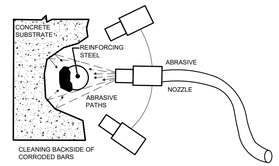


CLEANING AND REPAIR OF REINFORCING STEEL

CLEANING OF REINFORCING STEEL

6. ALL HEAVY CORROSION AND SCALE SHOULD BE REMOVED FROM THE BAR AS NECESSARY TO PROMOTE MAXIMUM BOND OF REPLACEMENT MATERIAL. OIL FREE ABRASIVE BLAST IS THE PREFERRED METHOD. A TIGHTLY BONDED LIGHT RUST BUILD-UP ON THE SURFACE IS USUALLY NOT DETRIMENTAL TO BOND. STEEL SHALL BE COATED WITH A CORROSION PROTECTION MATERIAL AND PREPARED PER THE MANUFACTURES SPECIFICATIONS.

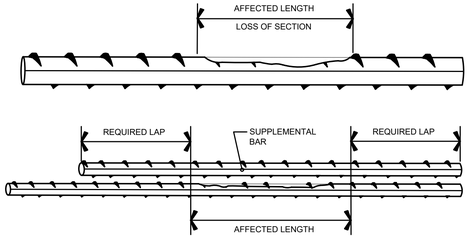




REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION

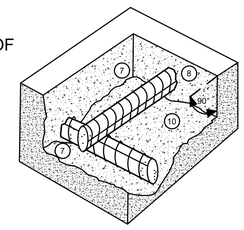
IF REINFORCING STEEL HAS LOST MORE THAN 15% OF ITS CROSS SECTIONAL AREA, CONSULT THE ENGINEER OF RECORD. ONE OF THE FOLLOWING METHODS SHOULD BE USED TO REPAIR THE REINFORCING STEEL, :
- COMPLETE BAR REPLACEMENT, OR
- ADDITION OF SUPPLEMENTAL BAR OVER AFFECTED SECTION.

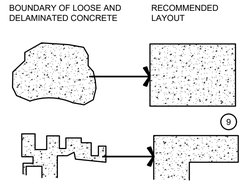
NEW BARS MAY BE MECHANICALLY SPLICED OR LAP SPLICED TO OLD BARS. LAP LENGTHS SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318: ALSO REFER TO CRSI AND AASHTO MANUAL.



EDGE AND SURFACE CONDITIONS OF CONCRETE

7. REMOVE DELAMINATED CONCRETE, UNDERCUT REINFORCING STEEL (REFER TO "EXPOSING AND UNDERCUTTING OF REINFORCING STEEL"), REMOVE ADDITIONAL CONCRETE AS REQUIRED TO PROVIDE MINIMUM REQUIRED THICKNESS OF REPAIR MATERIAL.
8. AT EDGE LOCATIONS, PROVIDE RIGHT ANGLE CUTS TO THE CONCRETE SURFACE WITH EITHER OF THE FOLLOWING METHODS:
   SAWCUT 1/2" (13MM) OR LESS AS REQUIRED TO AVOID CUTTING REINFORCING STEEL.
   USE POWER EQUIPMENT SUCH AS HYDRODEMOLITION OR IMPACT BREAKERS. AVOID FEATHER EDGES.
9. REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE, PREFERABLY WITH SQUARED CORNERS.
10. AFTER REMOVALS AND EDGE CONDITIONING ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, CONCRETE SLURRY, LOOSELY BONDED AGGREGATES) BY ABRASIVE OR HIGH PRESSURE WATERBLASTING WITH OR WITHOUT ABRASIVE. CHECK THE CONCRETE SURFACES AFTER CLEANING TO INSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE, OR ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
7. IF HYDRODEMOLITION IS USED, CEMENT AND PARTICULATE SLURRY MUST BE REMOVED FROM THE PREPARED SURFACES BEFORE SLURRY HARDENS.





BAR SPLICING SCHEDULE

SLABS, WALLS & FOOTINGS (CLASS B)

BAR SIZE	LOCATION	LAP SPLICE LENGTH (INCHES)
#3	TOP BARS*	15"
	ALL OTHER BARS	12"
#4	TOP BARS*	20"
	ALL OTHER BARS	15"
#5	TOP BARS*	24"
	ALL OTHER BARS	19"
#6	TOP BARS*	29"
	ALL OTHER BARS	22"
#7	TOP BARS*	42"
	ALL OTHER BARS	33"
#8	TOP BARS*	48"
	ALL OTHER BARS	37"
#9	TOP BARS*	60"
	ALL OTHER BARS	46"
#10	TOP BARS*	74
	ALL OTHER BARS	57"

NOTES:
1. BASED ON NORMAL WEIGHT CONCRETE (4,000 PSI CONCRETE STRENGTH) & GRADE 60 REINFORCEMENT, CLASS B SPLICE
2. *TOP BARS ARE HORIZONTAL OR INCLINED BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS
3. SPLICES SHALL BE STAGGERED, WHEN POSSIBLE. HOWEVER, NOT REQUIRED
4. CENTER TO CENTER BAR SPACING IS ASSUMED TO BE A MINIMUM OF 5" FOR #8 BARS AND SMALLER, AND (4" + ONE BAR DIAMETER) FOR BARS LARGER THAN #8. OTHERWISE SEE BEAMS & COLUMNS SPLICING TABLE.
5. TENSION DEVELOPMENT AND LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-14, SECTIONS 25.4.2.3 AND 25.5.1.

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PEREZ ENGINEERING & DEVELOPMENT, INC
CERTIFICATE OF AUTHORIZATION No. 8579

Reynolds Engineering Services, Inc.
JAMES C. REYNOLDS, P.E.
Florida P.E. NO. 46685
August 2, 2021
CERTIFICATE OF AUTHORIZATION No. 26597
24476 OVERSEAS HWY, SUMMERLAND KEY, FL
305-394-5987

REVISIONS: ORIGINAL: DECEMBER 2020
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GANGWAY REPLACEMENT
WASTEWATER TREATMENT PLANT
TRUMBO POINT ANX
KEY WEST, FL 33040

CITY OF KEY WEST
UTILITIES DEPARTMENT
1300 WHITE ST
KEY WEST, FL 33040

JOB NO. 201054
DRAWN SLB
DESIGNED JDH
CHECKED JCR
SHEET S-10

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