

STRUCTURAL NOTES

GENERAL:

1. CUTOFF WALL HAS BEEN DESIGNED FOR HORIZONTAL EARTH LOADS WITH VARYING BACK-SLOPE AND ANTICIPATED HYDROSTATIC (TIDAL) LOADS W/ NO PROVISIONS FOR MOORING OR SURCHARGE/VEHICULAR LOADS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND ALL VERTICAL AND HORIZONTAL CONTROL AND SHALL VISIT THE SITE TO FIELD CONFIRM AND FAMILIARIZE HIMSELF AS TO FIELD CONSTRUCTION CONDITIONS.
3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
4. THE TOWN SHALL APPROVE OF ALL HORIZONTAL ALIGNMENTS, BASED ON FIELD STAKEOUT BY CONTRACTOR, PRIOR TO CONTRACTOR STARTING WORK.
5. VERTICAL DATUM: MEAN LOW WATER (MLW BEAUFORT DATUM). 0.0 NGVD29 = +1.88' MLW; HWL = +4.47'± MLW.
6. CONTRACTOR SHALL ANTICIPATE POSSIBLE OBSTRUCTIONS DURING INSTALLATION OF PILES & SHALL MAKE PROVISIONS WHEN HARD ITEMS ARE ENCOUNTERED. SHEET PILING SHALL BE DRIVEN WITH MADRELS. SEE SHEET PILING NOTES BELOW.
7. NEW SLOPED CONCRETE OVERLAY SLAB IS DESIGNED NOT ONLY AS A TOPPING SLAB BUT ALSO REINFORCED TO PROVIDE SPANNING FOR MODERATE LIVE LOADING (40 PSF) AND FOR TEMPERATURE & SHRINKAGE RESISTANCE. IT IS ASSUMED THAT ALL VISIBLE AS WELL AS SOUNDED VOIDS ARE REPAIRED PRIOR TO POURING OVERLAY SLAB.
8. BULKHEAD DESIGN BASED ON DERIVED, ASSUMED CHARACTERISTICS OF SOIL. CONTRACTOR SHALL BE AWARE THAT EXISTING SOIL BASICALLY CONSISTS OF A NON-HOMOGENEOUS MATERIAL OF FINE TO MEDIUM SAND WITH A SLIGHT INORGANIC CLAY CONTENT.
9. CONTRACTOR SHALL PROVIDE SHEET PILE CORNER INSERTS AT ENDS OF WALLS AT ADJACENT UNIMPROVED LOT WALLS. CONTRACTOR SHALL TERMINATE/NOTCH "CAP" AT INSERTS AS REQUIRED SO THAT FUTURE SHEET PILE INSTALLATION CAN OCCUR AT ADJACENT LOTS. SOME MODIFICATIONS TO DETAILS SHOWN ARE ANTICIPATED; HOWEVER, INSERTS SHALL TERMINATE AT OR JUST PAST LOT LINE. CONTRACTOR SHALL PROTECT INSERTS AT RE-GROUTED SLAB LOCATIONS BY WRAPPING EXPOSED END WITHIN GROUT WITH NEOPRENE/RUBBER TUBE (APPROX. 1 1/2" TO 2" DIA.), SPLIT LENGTHWISE & PLACED AROUND INSERT INTERLOCK.

SHEET PILING:

1. **SHEET PILING:** SHALL BE INTERLOCKING SHEET PILING, UV INHIBITED, IMPACT MODIFIED, COMPOSED OF A WEATHERABLE RIGID POLYVINYL CHLORIDE MATERIAL, 50 YEAR LIMITED WARRANTY. USE ONE OF THE SHEET PILING PRODUCTS (OR APPROVED EQUAL) WITH THICKNESS, LENGTHS AND PUBLISHED LONG TERM ALLOWABLE BENDING MOMENT EQUAL TO OR EXCEEDING AS SHOWN IN SCHEDULE (COLOR: GREY).
2. SHEET PILING SHALL BE DRIVEN WITH A VIBRATORY HAMMER & MANDRELS DUE TO POSSIBLE OBSTRUCTIONS AND/OR HARDPAN OR OTHER DENSE MATERIAL ENCOUNTERED TO PREVENT DAMAGE TO PILING. SHOULD OBSTRUCTIONS BE ENCOUNTERED & PILING CANNOT BE DRIVEN, PILING SHALL BE EXTRACTED & SOIL EXCAVATED AS REQUIRED TO REMOVE OBSTRUCTION. PILE INSTALLATION MAY RESUME ONCE OBSTRUCTION IS REMOVED. MANDRELS ARE AVAILABLE THRU THE SHEET PILE MANUFACTURER.
3. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR CUTOFF OR INSTALL SHORTER SHEET PILE LENGTHS WITHOUT WRITTEN AUTHORIZATION FROM ENGINEER. DRIVE TO MINIMUM EMBEDMENT DEPTH AS INDICATED.
4. CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO INSURE THAT PILES ARE DRIVEN PLUMB. SHEET PILING SHALL NOT BE DRIVEN MORE THAN 1-INCH PER FOOT OUT OF PLUMB IN THE PLANE OF THE WALL, NOR MORE THAN 1/16-INCH PER FOOT "OUT" OF PLUMB PERPENDICULAR TO THE PLANE OF THE WALL, NOR MORE THAN 1/4-INCH PER FOOT "IN" OF PLUMB PERPENDICULAR TO THE PLANE OF THE WALL.

SHEET PILING (CONT.):

5. PILES DRIVEN OUT OF INTERLOCK WITH ADJACENT PILES (WHICH CANNOT BE EXTRACTED & RE-INSTALLED) OR OTHERWISE DAMAGED, SHALL BE REMOVED AND REPLACED BY NEW PILES AT THE CONTRACTOR'S EXPENSE.
6. SEE SHEET PILE SCHEDULE FOR MINIMUM PILE LENGTHS & EMBEDMENT. CONTRACTOR SHALL MAKE HIS OWN DETERMINATION AS TO WHETHER LONGER SHEET PILES, THAN MINIMUM LENGTHS SHOWN, ARE REQUIRED TO SUIT HIS OWN METHOD OF OPERATION/INSTALLATION & DAILY TIDAL CYCLES.

CONCRETE:

1. REINFORCED CONCRETE WORK SHALL CONFORM TO ACI 318 (LATEST EDITION).
2. CAST-IN-PLACE CONCRETE: 4,000 PSI (TYPE III CONCRETE) AT 28 DAYS W/ CORROSION INHIBITOR ADDITIVE (4 GAL PER CUBIC YARD - VERIFY WITH MFR.).
3. CONCRETE SHALL HAVE AN APPROVED ENTRAINED AIR ADMIXTURE TO PROVIDE 4 PERCENT TO 6 PERCENT ENTRAINED AIR & SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.40.
4. REINFORCING STEEL: ASTM A615, GRADE 60.
5. MINIMUM CLEAR COVER ON REINFORCING: SEE SECTION/DETAILS
6. CONCRETE FINISH: STEEL TROWEL
7. CORROSION INHIBITOR ADDITIVE: ASTM C494
8. CURING: ASTM C309, TYPE 1, CLASS B, DISSIPATING CURING COMPOUND AND WITH MOISTURE RETAINING COVER PER ASTM C171.
9. EXPANSION JOINT FILTER: ASTM D1751, ASPHALT-SATURATED, CELLULOSIC FIBER.
10. LIQUID JOINT FILLER: SINGLE COMPONENT, EXTERIOR UV INHIBITED, SILICONE SEALANT MEETING ASTM D5893.
11. UNDER NO CIRCUMSTANCES SHALL "LIVE" CONCRETE BE PLACED IN WATER.
12. IN LIEU OF USING A CORROSION INHIBITOR ADDITIVE WITH THE CONCRETE MIX DESIGN, CONTRACTOR MAY ELIMINATE CORROSION INHIBITOR & USE EPOXY-COATED REBAR PER ASTM A615 WITH LESS THAN 2% DAMAGED COATING IN EACH 12-INCH BAR LENGTH. TOUCH UP ALL CUT & DAMAGED COATINGS WITH EPOXY REPAIR COATING, COMPLYING WITH ASTM A775 & IN ACCORDANCE WITH ASTM D3963. USE EPOXY COATED STEEL WIRE TIES (ASTM A884, CLASS A, TYPE 1) TO FASTEN EPOXY-COATED STEEL REINFORCEMENT. USE EPOXY-COATED OR OTHER DIELECTRIC-POLYMER COATED WIRE BAR SUPPORTS.
13. CONTRACTOR SHALL INSTALL A TURBIDITY CURTAIN IN CANAL TO ENCOMPASS WALL BEING REPAIRED PRIOR TO POURING ANY CONCRETE.

MECHANICAL ANCHORS:

1. ANCHORS SHALL BE PLATIPUS BAT B08T OR B06T OR STEALTH S8 CAST IRON HD GALV. EARTH ANCHORS CAPABLE OF RESISTING A WORKING HORIZONTAL ANCHOR PULL (PROOF LOAD) OF 8,400 LBS. WITH FS=2.0 AND ANCHOR RODS AT 4' O.C.
2. HOLD PROOF LOAD FOR A DURATION OF 5 MINUTES FOR EACH ANCHOR PRIOR TO RELEASE. IF ANCHOR DOES NOT HOLD, ADDITIONAL ANCHOR(S) SHALL BE DRIVEN AND PROOF LOADED. PROVIDE PROOF LOAD LOG SHEET TO TOWN.
3. PLATE AND BEVELED WASHERS: ASTM A36, H.D. GALV.
4. ANCHOR RODS: ASTM A193, GRADE B7 RODS WITH STD. THREADS, OR ASTM A615/A772 GRADE 75 & AASHTO NO. M31 ALL-THREAD REBAR-H.D. GALV. ALTERNATIVELY, 12 mm, 7x19 316 STAINLESS STEEL WIRE ROPE CABLE TENDON ANCHORS MAY BE USED WITH A MINIMUM ULTIMATE BREAK STRENGTH OF 16,500 LBS. ANCHOR PLATE MAY BE ELIMINATED BY ADDING A VERTICAL #6 REBAR AT ANCHOR LOCATIONS AND TERMINATING TENDON END WITH A THIMBAL EYE TERMINATION (LOOP) BY INSTALLING A STAINLESS STEEL THIMBAL AND FOUR (4) STAINLESS STEEL WIRE CLIPS/CLAMPS.

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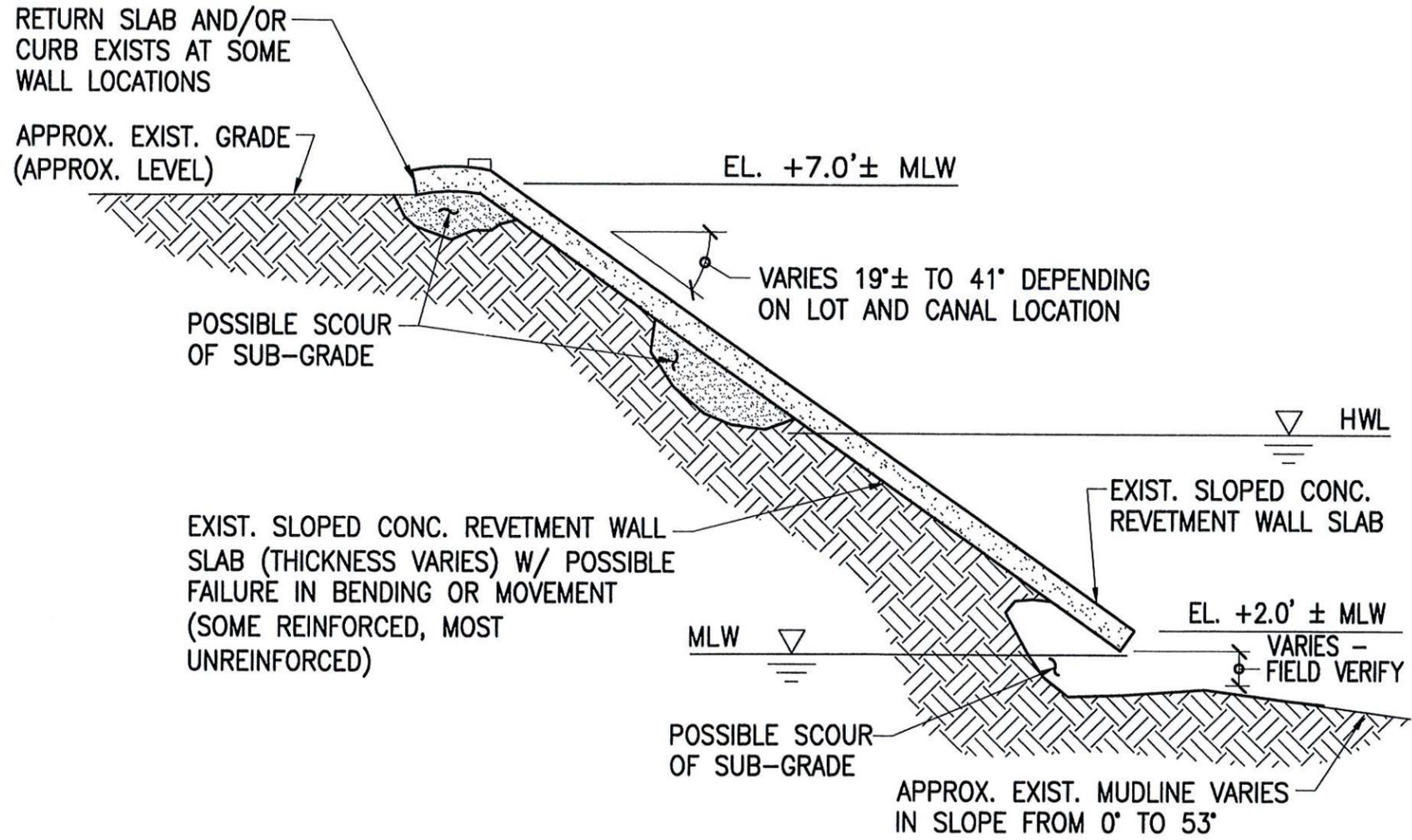


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JOB NAME: Alternate Concrete Revetment Wall Retrofit/Repairs "Concrete" Canals - Emergency Repairs Town of Ocean Isle Beach, NC	DESCRIPTION: STRUCTURAL NOTES	DESIGN: JRT	DRAWN: SKS	JOB NO.: 5490.05	DATE: 09.03.09	SHEET: S1A of 6
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MAT'L TYPE	SHEET PILE SCHEDULE						
	SHEET PILE MFR'S/SERIES	MIN. EMBED.*	DESIGN EXPOSED HEIGHT RANGE	OVERALL SHEET LENGTH (MIN.)	BULKHEAD TYPE	DESIGN DREDGE LINE ELEV. (MAX.)	DESIGN LOADS
VINYL	CMI CL9900 CMI SG 625 ESP 6.5 SERIES	11'-0"	4'-9"	16'-0"	ANCHORED	-2 MLW	SEE GEN. NOTE 1

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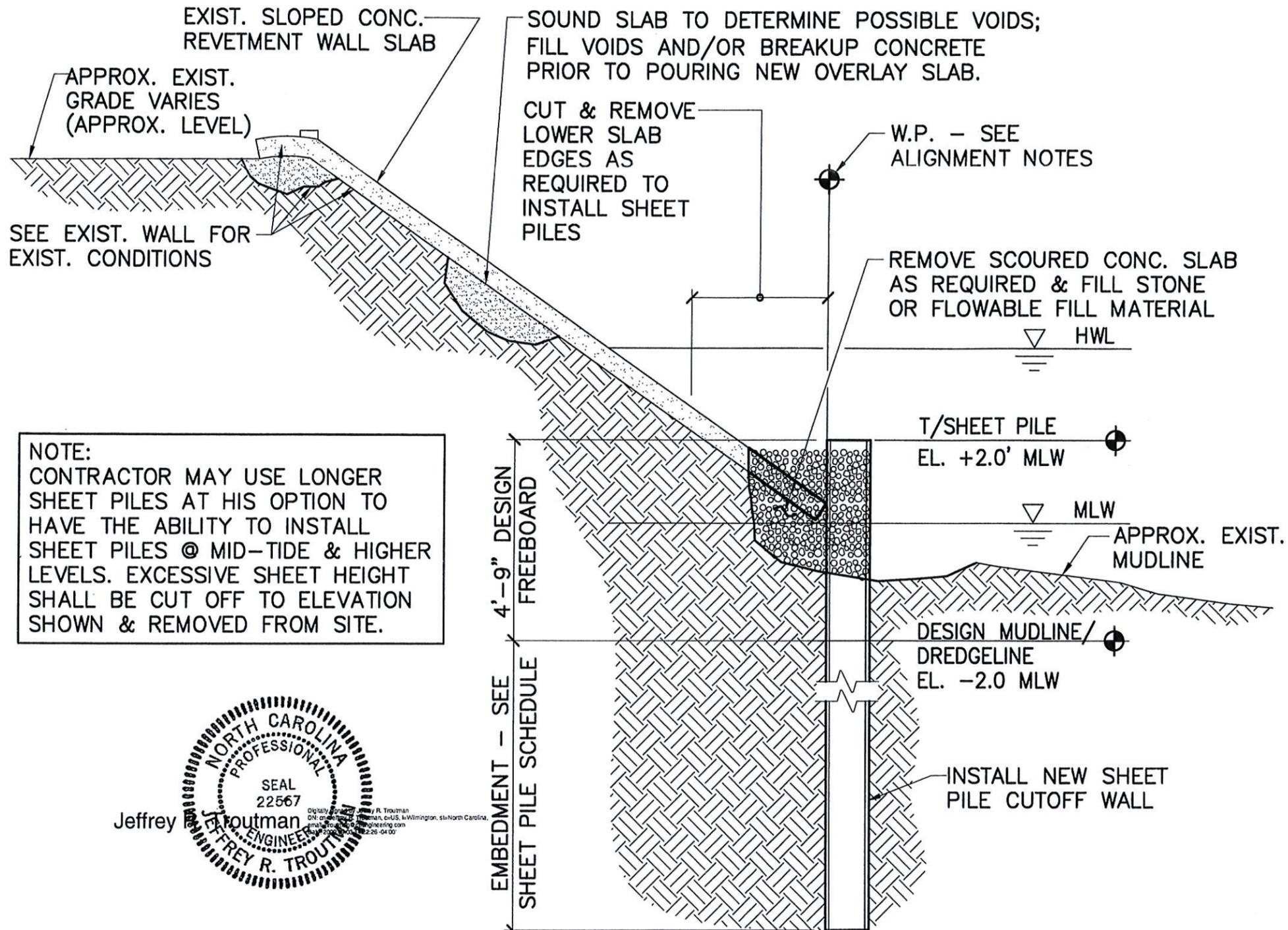


1/S2A EXISTING REVETMENT WALL (ALONG "CONCRETE" CANALS)
 SCALE: 1/2" = 1'-0"



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JOB NAME: Alternate Concrete Revetment Wall Retrofit/Repairs 'Concrete' Canals - Emergency Repairs Town of Ocean Isle Beach, NC	DESCRIPTION: SHEET PILE SCHEDULE & EXISTING WALL SECTION	DESIGN: JRT	DRAWN: SKS	JOB NO.: 5490.05	DATE: 09.03.09	SHEET: S2A of 6
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NOTE:
 CONTRACTOR MAY USE LONGER SHEET PILES AT HIS OPTION TO HAVE THE ABILITY TO INSTALL SHEET PILES @ MID-TIDE & HIGHER LEVELS. EXCESSIVE SHEET HEIGHT SHALL BE CUT OFF TO ELEVATION SHOWN & REMOVED FROM SITE.

HORIZONTAL ALIGNMENT NOTES:

1. CONTRACTOR SHALL INSTALL CUTOFF WALL SHEET PILES SUCH THAT INBOARD FACE OF SHEET PILE IS HORIZONTALLY ALIGNED AS NOTED BELOW.
2. CANAL WATERFRONT WITHOUT ANY PREVIOUSLY INSTALLED WALL REPAIR(S): CONTRACTOR SHALL FIELD LAYOUT HORIZONTAL ALIGNMENT OF PROPOSED REPAIR WALL(S), WHICH SHALL BE CREATED BY STAKING THE LOWER EDGE OF THE EXISTING CONCRETE SLAB AT THE NORTHERNMOST AND SOUTHERNMOST (NOT WITHIN TEES) ENDS OF THE CANAL AND SURVEYING A LINE BETWEEN THESE POINTS. SHEET PILES SHALL ALIGN AND NOT PROTRUDE PAST THIS ALIGNMENT. CONTRACTOR SHALL HAVE TOWN APPROVE OF THIS ALIGNMENT PRIOR TO BEGINNING WORK.
3. CANAL WATERFRONT WITH PREVIOUSLY INSTALLED WALL REPAIRS: CONTRACTOR SHALL CONFIRM ALIGNMENT OF PREVIOUSLY INSTALLED WALL REPAIR(S) AND ALIGNMENT PER ITEM 2 ABOVE AND SHALL ALIGN WITH THE EXISTING WALL REPAIR. IN NO CASE SHALL NEW WALL REPAIR(S) PROTRUDE PAST ALIGNMENT OF EXISTING WALL REPAIR(S). CONTRACTOR SHALL HAVE TOWN APPROVE OF THIS ALIGNMENT PRIOR TO BEGINNING WORK.

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1/S3A SECTION - CUTOFF WALL INSTALLATION

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



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JOB NAME: **Alternate Concrete Revetment Wall Retrofit/Repairs
 'Concrete' Canals - Emergency Repairs
 Town of Ocean Isle Beach, NC**

DESCRIPTION: **CUTOFF WALL INSTALLATION SECTION**

DESIGN: **JRT**

DRAWN: **SKS**

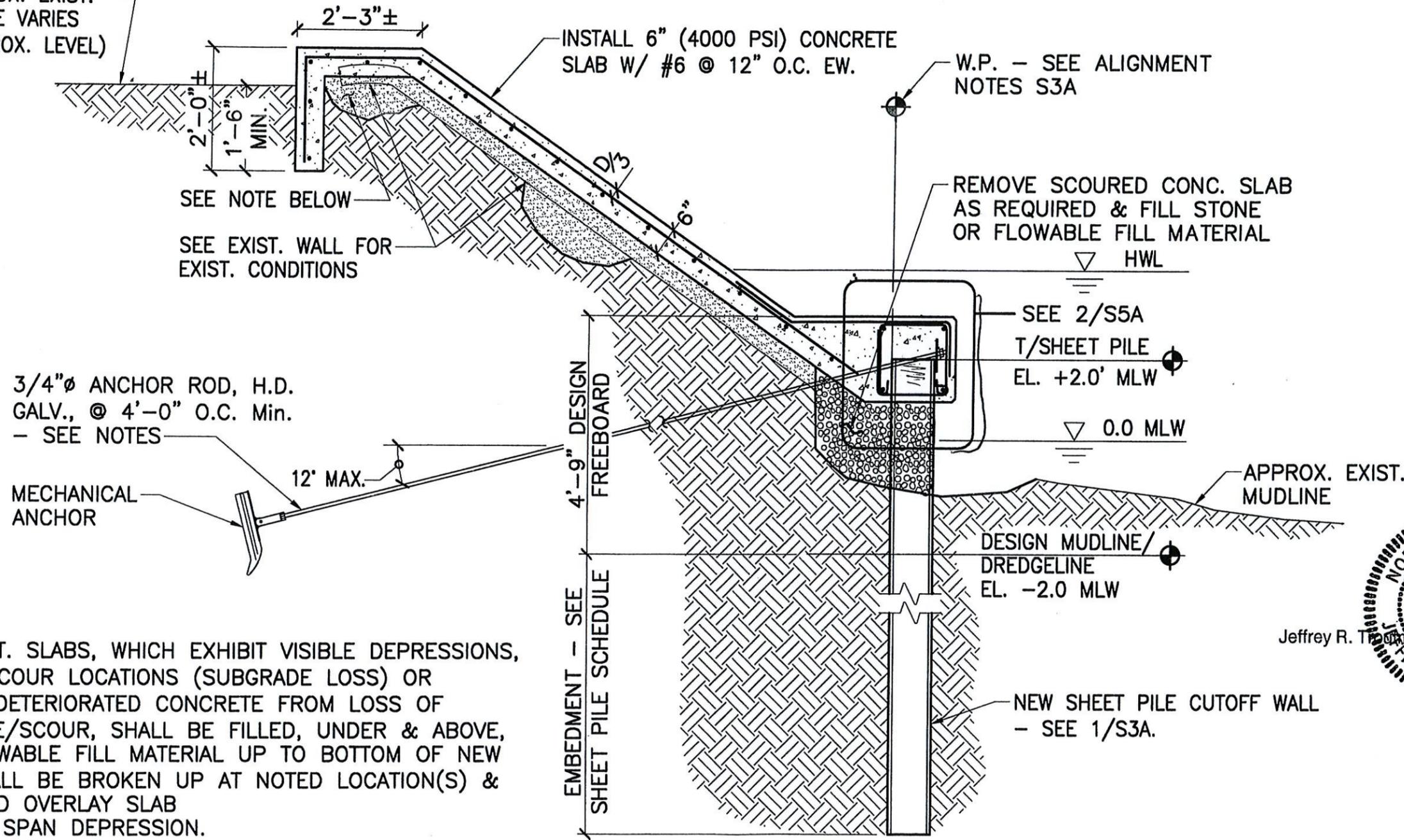
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APPROX. EXIST. GRADE VARIES (APPROX. LEVEL)



3/4"Ø ANCHOR ROD, H.D. GALV., @ 4'-0" O.C. Min. - SEE NOTES

MECHANICAL ANCHOR

12' MAX.

4'-9" DESIGN FREEBOARD
 SHEET PILE SCHEDULE - SEE

SEE 2/S5A T/SHEET PILE EL. +2.0' MLW

0.0 MLW

DESIGN MUDLINE/DREDGELINE EL. -2.0 MLW

NEW SHEET PILE CUTOFF WALL - SEE 1/S3A.

APPROX. EXIST. MUDLINE

NOTE:
 ANY EXIST. SLABS, WHICH EXHIBIT VISIBLE DEPRESSIONS, KNOWN SCOUR LOCATIONS (SUBGRADE LOSS) OR BROKEN/DETERIORATED CONCRETE FROM LOSS OF SUBGRADE/SCOUR, SHALL BE FILLED, UNDER & ABOVE, WITH FLOWABLE FILL MATERIAL UP TO BOTTOM OF NEW SLAB SHALL BE BROKEN UP AT NOTED LOCATION(S) & THICKENED OVERLAY SLAB USED TO SPAN DEPRESSION.



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1/S4A SECTION - CONCRETE OVERLAY & CAP INSTALLATION

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



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DESCRIPTION: **CONCRETE OVERLAY & CAP INSTALLATION**
 SECTION

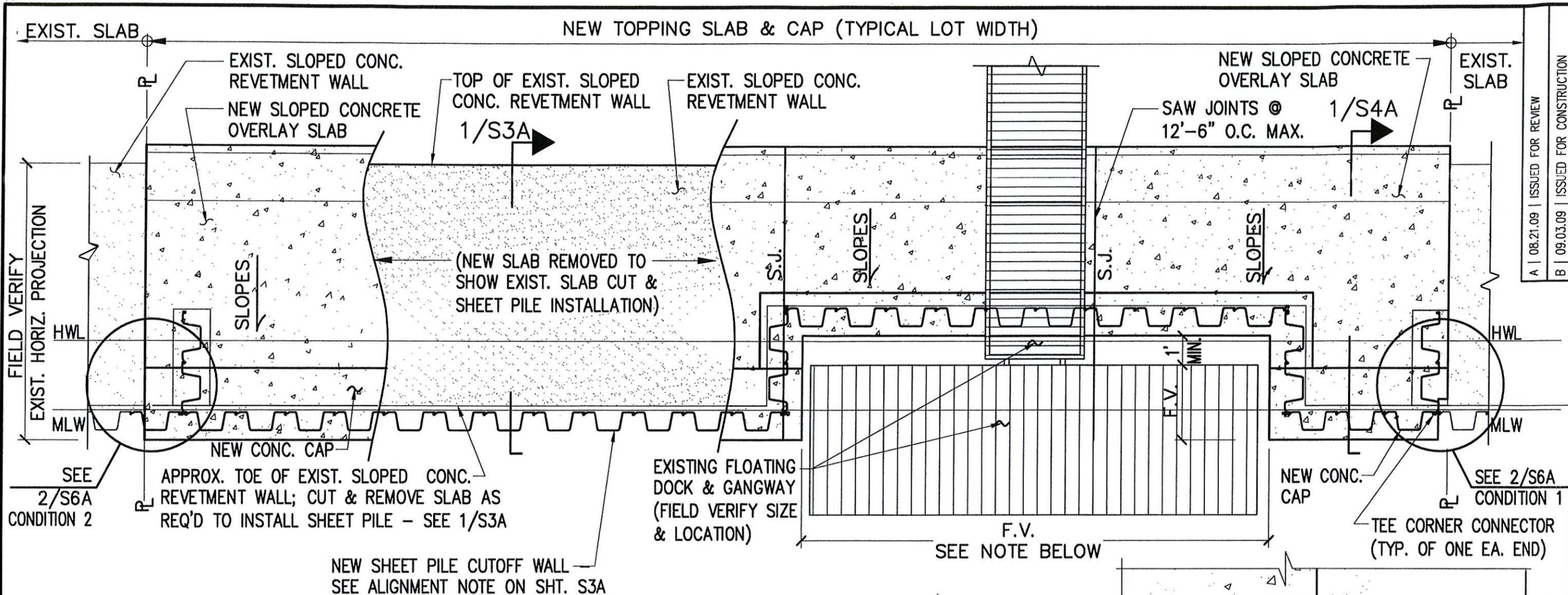
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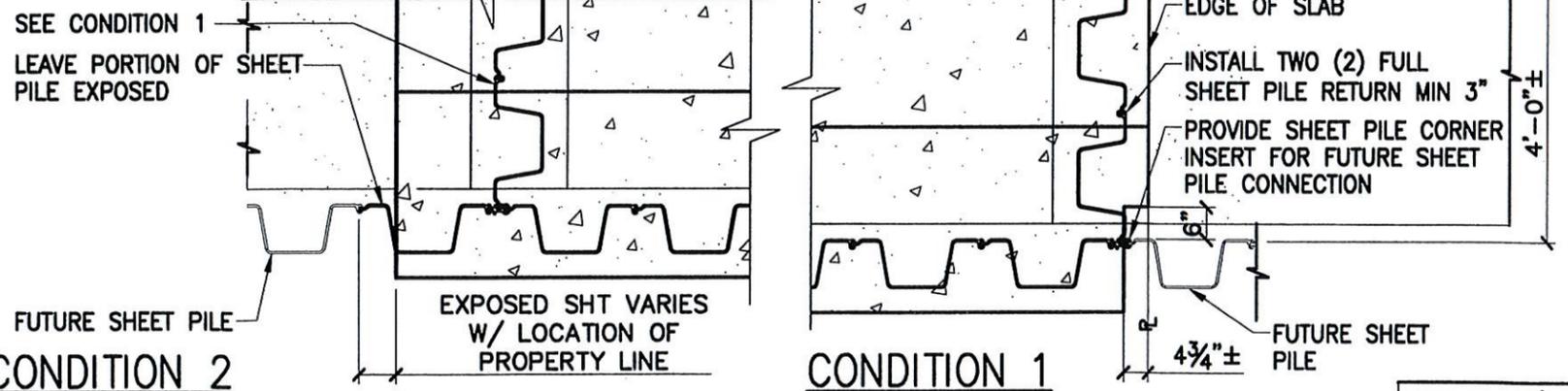
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1/S6A ENLARGED PLAN - CUTOFF WALL
 SCALE: 1/4" = 1'-0"

NOTE:
 CONTRACTOR SHALL FIELD VERIFY TO STEP WALL BACK TO "BLOCK OUT" AS REQUIRED FOR EXISTING FLOATING DOCKS. ALSO, CONTRACTOR MAY HAVE TO MAKE FIELD MODIFICATIONS TO EXISTING GANGWAY TO PREVENT INTERFERENCE WITH NEW TOPPING SLAB/CUTOFF WALL, FOR FULL TIDAL MOVEMENT OF DOCK.



2/S6A PLAN - CORNER CUTOFF WALL
 SCALE: 1/2" = 1'-0"

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DESCRIPTION: **DETAILS & CONDITIONS**

DESIGN: **JRT**

DRAWN: **SKS**

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DATE: **09.03.09**

SHEET: **S6A of 6**

