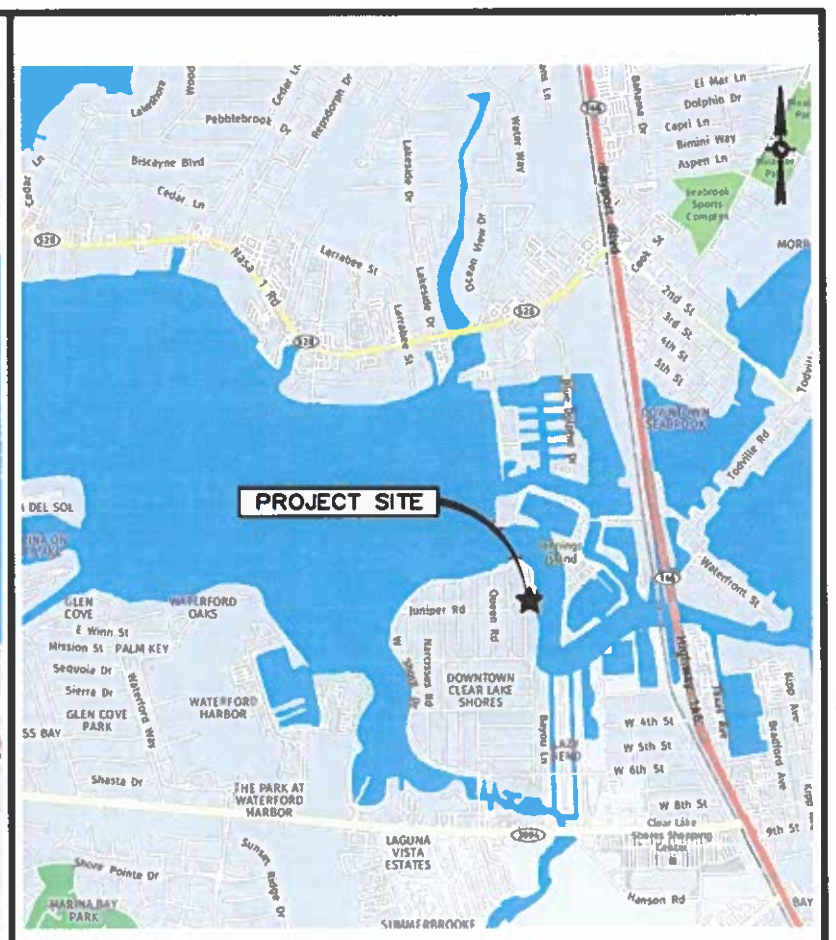
PROPOSED BOAT RAMP IMPROVEMENTS

TPWD BOAT ACCESS GRANT

CLEAR LAKE SHORES, TEXAS

LOCATION MAP



VICINITY MAP

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

REVISION		
REV	DATE	DESCRIPTION
A	8/16/2021	50% REVIEW SET
B	12/10/2021	95% REVIEW SET

PROJ NO.: 20-244

GENERAL NOTES

1. NOTIFICATIONS

1.1. CONTRACTOR SHALL NOTIFY OWNER 48 HOURS BEFORE COMMENCEMENT OF WORK AND KEEP ENGINEER UPDATED REGARDING CONSTRUCTION SCHEDULE.

2. REFERENCES

2.1. REFERENCE LINES AND GRADES. THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.

3. GENERAL CONSTRUCTION NOTES

3.1. WORKING HOURS. NO WORK SHALL COMMENCED BEFORE 7:00 AM OR AFTER 7:00 PM ON WEEKDAY AND WEEKENDS. WORK MAY BE ACCOMPLISHED SEVEN (7) DAYS OF THE WEEK.
3.2. DEMOLITION. REMOVE EXISTING STRUCTURES TO THE EXTENT INDICATED AND AS REQUIRED FOR NEW WORK PREPARATION. ALL LOCATIONS AND AREAS OF REMOVALS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN ARE APPROXIMATE.
3.3. SALVAGE OF MATERIALS. CONTRACTOR SHALL CAREFULLY REMOVE AND PROTECT SALVAGED ITEMS WHICH ARE TO BE REUSED OR REMAIN THE PROPERTY OF THE DISTRICT. SALVAGED ITEMS NOT TO BE REUSED IN THE WORK, BUT TO REMAIN DISTRICT'S PROPERTY, SHALL BE DELIVERED BY CONTRACTOR TO A SITE DESIGNATED BY THE DISTRICT.
3.4. EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF AS DIRECTED BY THE OWNER OR AS SPECIFIED ON THE DRAWINGS. SOIL SHALL NOT BE DEPOSITED IN LIFTS GREATER THAN 4" WITHOUT PERMISSION FROM THE OWNER.

4. EXISTING UTILITIES

4.1. VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
4.2. AT LEAST 30 DAYS PRIOR TO COMMENCING ANY EXCAVATING OR OTHER CONSTRUCTION ACTIVITY IN THE VICINITY OF THE UTILITY, NOTIFY THE TEXAS EXCAVATION SAFETY SYSTEM AT 1-800-DIG-TESS (344-8377).
4.3. NO EXCAVATING OR OTHER CONSTRUCTION ACTIVITY SHALL BE CONDUCTED IN THE IMMEDIATE VICINITY OF A PIPELINE IN THE ABSENCE OF A PIPELINE REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
4.4. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THEY HAVE NOT BEEN MARKED SINCE THEY ARE CLEARLY VISIBLE. THE CONTRACTOR SHALL LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 6 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY.

5. EXISTING CONDITIONS

5.1. SHELMARK ENGINEERING, LLC SHALL NOT BE HELP ACCOUNTABLE FOR THE ACCURACY OF THESE DRAWINGS. REASONABLE EFFORTS WERE MADE TO INCLUDE ACCURATE AND UP TO DATE INFORMATION ON THE EXISTING SITE CONDITIONS, BUT NO FORMAL SURVEY WAS AVAILABLE. CONTRACTOR WILL NEED TO FIELD VERIFY ALL DIMENSIONS AND LOCATION OF EXISTING AND PROPOSED ELEMENTS ON SITE.
5.2. SPECIAL CARE SHALL BE TAKEN TO NOT DISTURB EXISTING UTILITIES AND DISTURB EXISTING DRAINAGE PATTERNS.

6. PERMITS

6.1. CONTRACTOR SHALL ASSURE HIMSELF THAT ALL CONSTRUCTION PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCEMENT OF WORK. REQUIRED PERMITS THAT CAN ONLY BE ISSUED TO CONTRACTOR SHALL BE OBTAINED AT HIS EXPENSE.

7. CONTRACTOR'S GENERAL WARRANTY AND GUARANTEE:

7.1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF CONSTRUCTION, INCLUDING THE DESIGN, CONSTRUCTION, SEQUENCING AND MAINTENANCE OF ANY SHORING, BRACING, OR OTHER TEMPORARY SUPPORTS OR ERECTION DEVICES AS MAY BE REQUIRED TO PROPERLY BRACE, SUPPORT AND ERECT ANY ELEMENT DURING CONSTRUCTION.
7.2. CONTRACTOR WARRANTS AND GUARANTEES TO OWNER THAT ALL WORK WILL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND WILL NOT BE DEFECTIVE. ENGINEER AND ITS RELATED ENTITIES SHALL BE ENTITLED TO RELY ON REPRESENTATION OF CONTRACTOR'S WARRANTY AND GUARANTEE.
7.3. CONTRACTOR'S WARRANTY AND GUARANTEE HEREUNDER EXCLUDES DEFECTS OR DAMAGE CAUSED BY:

7.3.1. ABUSE, MODIFICATION, OR IMPROPER MAINTENANCE OR OPERATION BY PERSONS OTHER THAN CONTRACTOR, SUBCONTRACTORS, SUPPLIERS, OR ANY OTHER INDIVIDUAL OR ENTITY FOR WHOM CONTRACTOR IS RESPONSIBLE;
7.3.2. NORMAL WEAR AND TEAR UNDER NORMAL USAGE.

7.4. IF WITHIN ONE YEAR AFTER THE DATE OF FINAL COMPLETION, ANY WORK IS FOUND TO BE DEFECTIVE, CONTRACTOR SHALL PROMPTLY, WITHOUT COST TO OWNER, SATISFACTORILY CORRECT OR REPAIR OR REMOVE AND REPLACE ANY DAMAGE TO SUCH DEFECTIVE WORK.

8. SITE SAFETY

8.1. CONTRACTOR SHALL PROVIDE A SECURE AND SAFE AND STABILE JOBSITE DURING CONSTRUCTION AND AT THE END OF WORK DAY.
8.2. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS TO HIS SATISFACTION BEFORE PROCEEDING WITH CONSTRUCTION. CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES, CONDUIT, CABLE, PIPELINES, GAS LINES, TELEPHONE AND POWERLINES.
8.3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE SAFETY AND CONFORMANCE TO ALL SAFETY REGULATIONS PRESCRIBED BY FEDERAL, STATE AND LOCAL AUTHORITIES, INCLUDING ADHERENCE TO ALL OSHA REQUIREMENTS IN EFFECT AT THE TIME OF CONSTRUCTION.
8.4. THE DESIGN, CONSTRUCTION AND MAINTENANCE OF ALL ERECTION OR TEMPORARY SAFETY DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8.5. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.

9. HURRICANE PREPARENESS PLAN

9.1. HURRICANE CONDITIONS OF READINESS: THE TEXAS COAST IS SUBJECT TO HURRICANE STORMS AT VARIOUS TIMES DURING THE YEAR. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS FOR HURRICANE READINESS UNLESS SPECIFICALLY DIRECTED OTHERWISE.

9.2. CONDITION FOUR: (SUSTAINED WIND OF 50 KNOTS OR GREATER EXPECTED WITHIN 72 HOURS)

9.2.1. NORMAL DAILY JOB SITE CLEANUP AND GOOD HOUSEKEEPING PRACTICES. COLLECT AND STORE IN PILES OR CONTAINERS ALL SCRAP LUMBER, WASTE MATERIAL, AND RUBBISH FOR REMOVAL AND DISPOSAL AT THE CLOSE OF EACH WORKDAY.
9.2.2. MAINTAIN THE CONSTRUCTION SITE AT THE CLOSE OF EACH WORKDAY. MAINTAIN THE CONSTRUCTION SITE INCLUDING STORAGE AREA, FREE OF ACCUMULATION OF DEBRIS.
9.2.3. STACK FORM LUMBER IN NEAT PILES LESS THAN 4 FEET HIGH. REMOVE ALL DEBRIS, TRASH, OR OBJECTS THAT COULD BECOME MISSILE HAZARDS.
9.2.4. CONTACT ENGINEER FOR CONDITION OF READINESS UPDATES AND COMPLETION OF REQUIRED ACTION.

9.3. CONDITION 3: (SUSTAINED WINDS OF 50 KNOTS OR GREATER EXPECTED WITHIN 48 HOURS)

9.3.1. MAINTAIN "CONDITION FOUR" REQUIREMENTS AND COMMENCE SECURING OPERATIONS AS NECESSARY FOR "CONDITION ONE" WHICH CANNOT BE COMPLETED WITHIN 18 HOURS.
9.3.2. CEASE ALL ROUTINE ACTIVITIES THAT MIGHT INTERFERE WITH SECURING OPERATIONS. COMMENCE SECURING AND STOW ALL GEAR AND PORTABLE EQUIPMENT.
9.3.3. MAKE PREPARATIONS FOR SECURING BUILDINGS.
9.3.4. REVIEW REQUIREMENT PERTAINING TO "CONDITION TWO" AND CONTINUE ACTION AS NECESSARY TO ATTAIN "CONDITION THREE" READINESS. CONTACT THE SHELMARK ENGINEERING FOR WEATHER AND CONDITION OF READINESS UPDATES AND COMPLETION OF REQUIRED ACTIONS.

9.4. CONDITION 2: (SUSTAINED WINDS OF 50 KNOTS OR GREATER EXPECTED WITHIN 24 HOURS)

9.4.1. CURTAIL OR CEASE ROUTINE ACTIVITIES UNTIL SECURING OPERATIONS IS COMPLETE. REINFORCE OR REMOVE FORMWORK AND SCAFFOLDING. SECURE MACHINERY, TOOLS, EQUIPMENT, MATERIALS, OR REMOVE FROM THE JOB SITE.
9.4.2. EXPEND EVERY EFFORT TO CLEAR ALL MISSILE HAZARDS AND LOOSE EQUIPMENT FROM PROJECT SITE.
9.4.3. SECURE THE JOB SITE AND LEAVE PREMISES.

9.5. CONDITION 1: (SUSTAINED WINDS OF 50 KNOTS OR GREATER EXPECTED WITHIN 12 HOURS). SAME AS REQUIREMENTS PERTAINING TO "CONDITION TWO".

9.6. DUE TO THE POTENTIAL DAMAGES THAT WOULD RESULT FROM A HURRICANE OR STORM EQUIPMENT. SUCH EQUIPMENT SHALL BE REMOVED FROM THE SITE WITHIN 24 HOURS OF THE SETTING OF STORM CONDITION THREE.

10. SUBMITTALS

10.1. PILING MATERIALS, TIMBERS, DECKING, HARDWARE AND FASTENER INFORMATION SHALL BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
10.2. DESIGN MIX: FOR EACH CONCRETE MIX.
10.3. PRECAST MEMBERS:

10.3.1. SUBMIT SHOP DRAWING AND/OR MANUFACTURER'S LITERATURE FOR PRODUCTS AND METHODS, WHICH DIFFER FROM THOSE SHOWN ON THE PLANS OR IN THE SPECIFICATIONS. DRAWINGS OR LITERATURE MUST BE MARKED TO SHOW THE EXACT NUMBER, SIZE, ETC. THE CONTRACTOR PROPOSES FOR USE.
10.3.2. SUBMIT CONCRETE MIX DESIGN WITH ALL PROPOSED CONCRETE ADDITIVES TO THE ENGINEER FOR APPROVAL. IF THE CONCRETE SUPPLIER, AGGREGATE SOURCE, OR ANY ADDITIVES CHANGE AT ANY TIME, SUBMIT A NEW CONCRETE DESIGN TO THE ENGINEER FOR APPROVAL.

10.4. SCHEDULE TO WORK ACTIVITIES.

DESIGN DATA GOVERNING BUILDING CODE:

REFERENCE: INTERNATIONAL BUILDING CODE (IBC) 2018

DESIGN WIND LOADS

DESIGN CODE REFERENCE DOCUMENT	ASCE 7-10
WIND SPEED - ULTIMATE (3 SEC GUST)	120 MPH
EXPOSURE CATEGORY	C
RISK CATEGORY	II
IMPORTANCE FACTOR (Iw)	1.0

DESIGN FLOOD LOADS

DESIGN CODE REFERENCE DOCUMENT	ASCE 7-10
BASE FLOOD ELEVATION (NAVD88)	17.0'
DESIGN FLOOD ELEVATION (NAVD88)	17.0'

DESIGN LIVE LOADS

DESIGN CODE REFERENCE DOCUMENT	ASCE 7-10
GUARDRAIL AND HANDRAIL	200 PSF
STAIRS (A)	40 PSF

NOTE: (A). INDIVIDUAL STAIR TREADS SHALL BE DESIGNED FOR THE UNIFORMLY DISTRIBUTED LIVE LOAD OR A 300-POUND CONCENTRATED LOAD ACTING OVER AREA OF A FOUR (4) SQUARE INCHES, WHICHEVER PRODUCES THE GREATER STRESSES.

DESIGN LIVE LOADS (UFC 4-150-07)

MAIN PIERS (UNRESTRICTED ACCESS)	100 PSF
PIERS (RESTRICTED ACCESS)	40 PSF

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

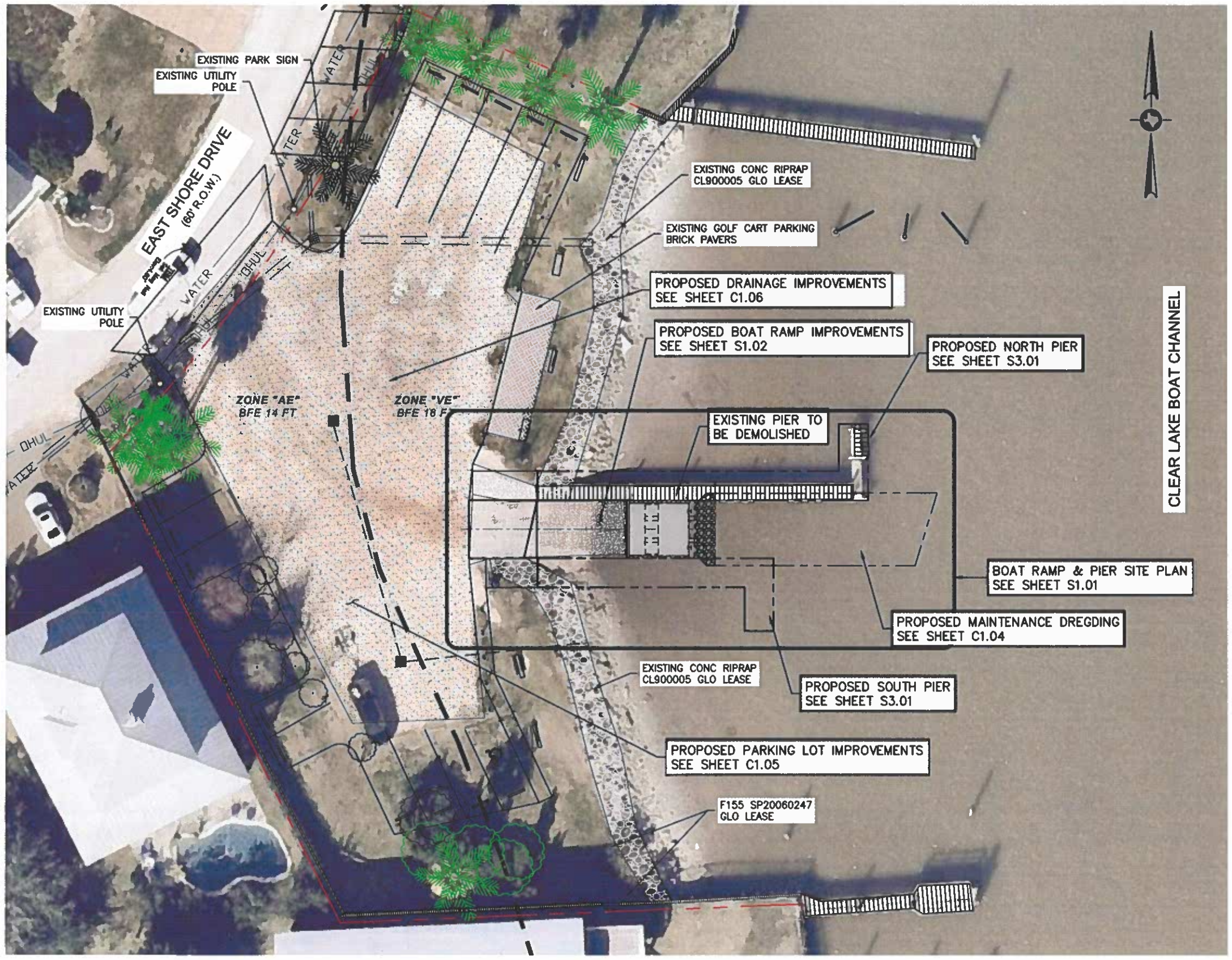
DATE: 12/10/2021

SHEET: ##########

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: NTS
SHEET NO: C0.01
JOB NO: 20-244
REV: B



SITE PLAN

SCALE: 1" = 30'

30 0 15 30 Feet

SCALE: 1"= 30'

GENERAL NOTES:

1. REFERENCE LINES AND GRADES. THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.
2. EXISTING UTILITIES. VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
3. PIPELINES. NO EXCAVATING OR OTHER CONSTRUCTION ACTIVITY SHALL BE CONDUCTED IN THE IMMEDIATE VICINITY OF A PIPELINE IN THE ABSENCE OF A PIPELINE REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
4. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LINES HAVE NOT BEEN MARKED SINCE THEY ARE CLEARLY VISIBLE. THE CONTRACTOR SHALL LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 6 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL & CIVIL LIABILITY.
5. SPECIAL CARE SHALL BE TAKEN TO NOT DAMAGE ANY WETLAND VEGETATION OR DISTURB DRAINAGE PATTERNS.
6. PERMITS. OWNER TO OBTAIN ALL PERMITS REQUIRED BY CITY, COUNTY, AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION. REQUIRED PERMITS THAT CAN ONLY BE ISSUED TO CONTRACTOR SHALL BE OBTAINED AT HIS EXPENSE.
7. SAFETY: OBSERVE ALL FEDERAL, STATE, AND LOCAL SAFETY REGULATIONS WHEN WORKING IN OR NEAR PUBLIC ROAD R.O.W.S.
8. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.
9. FLOOD STATEMENT: THE SUBJECT PROPERTY APPEARS TO BE PRIMARILY LOCATED WITHIN THE 100-YEAR FLOODPLAIN (ZONE VE 15) AS PER FIRM MAP COMMUNITY PANEL NUMBER 485469 0013 E (MAP REVISION DATE: DECEMBER 6, 2002).
10. IMAGERY PROVIDED BY NEARMAP ON JUNE 6, 2019.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: SITE PLAN

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
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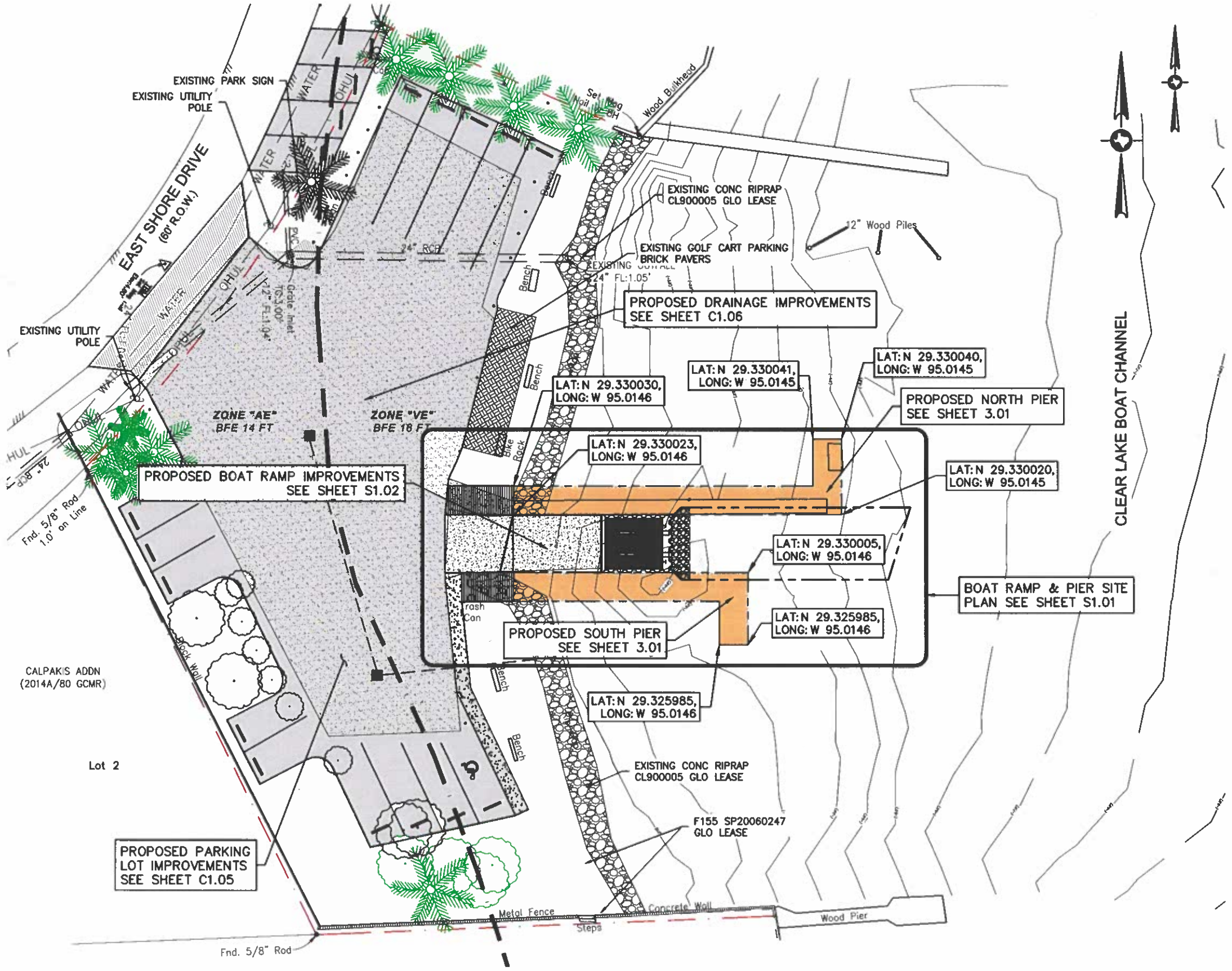

SITE PLAN

SCALE: 1" = 30'

0 30 60 Feet

SCALE: 1"= 30'

GENERAL NOTES:

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2. EXISTING UTILITIES. VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES AND PROTECT ALL EXISTING UTILITIES DURING CONSTRUCTION.
3. PIPELINES. NO EXCAVATING OR OTHER CONSTRUCTION ACTIVITY SHALL BE CONDUCTED IN THE IMMEDIATE VICINITY OF A PIPELINE IN THE ABSENCE OF A PIPELINE REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK, AND SHALL BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.
4. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LINES HAVE NOT BEEN MARKED SINCE THEY ARE CLEARLY VISIBLE. THE CONTRACTOR SHALL LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 6 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL & CIVIL LIABILITY.
5. SPECIAL CARE SHALL BE TAKEN TO NOT DAMAGE ANY WETLAND VEGETATION OR DISTURB DRAINAGE PATTERNS.
6. PERMITS. OWNER TO OBTAIN ALL PERMITS REQUIRED BY CITY, COUNTY, AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION. REQUIRED PERMITS THAT CAN ONLY BE ISSUED TO CONTRACTOR SHALL BE OBTAINED AT HIS EXPENSE.
7. SAFETY: OBSERVE ALL FEDERAL, STATE, AND LOCAL SAFETY REGULATIONS WHEN WORKING IN OR NEAR PUBLIC ROAD R.O.W.S.
8. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.
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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: DIMENSIONAL SITE PLAN

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
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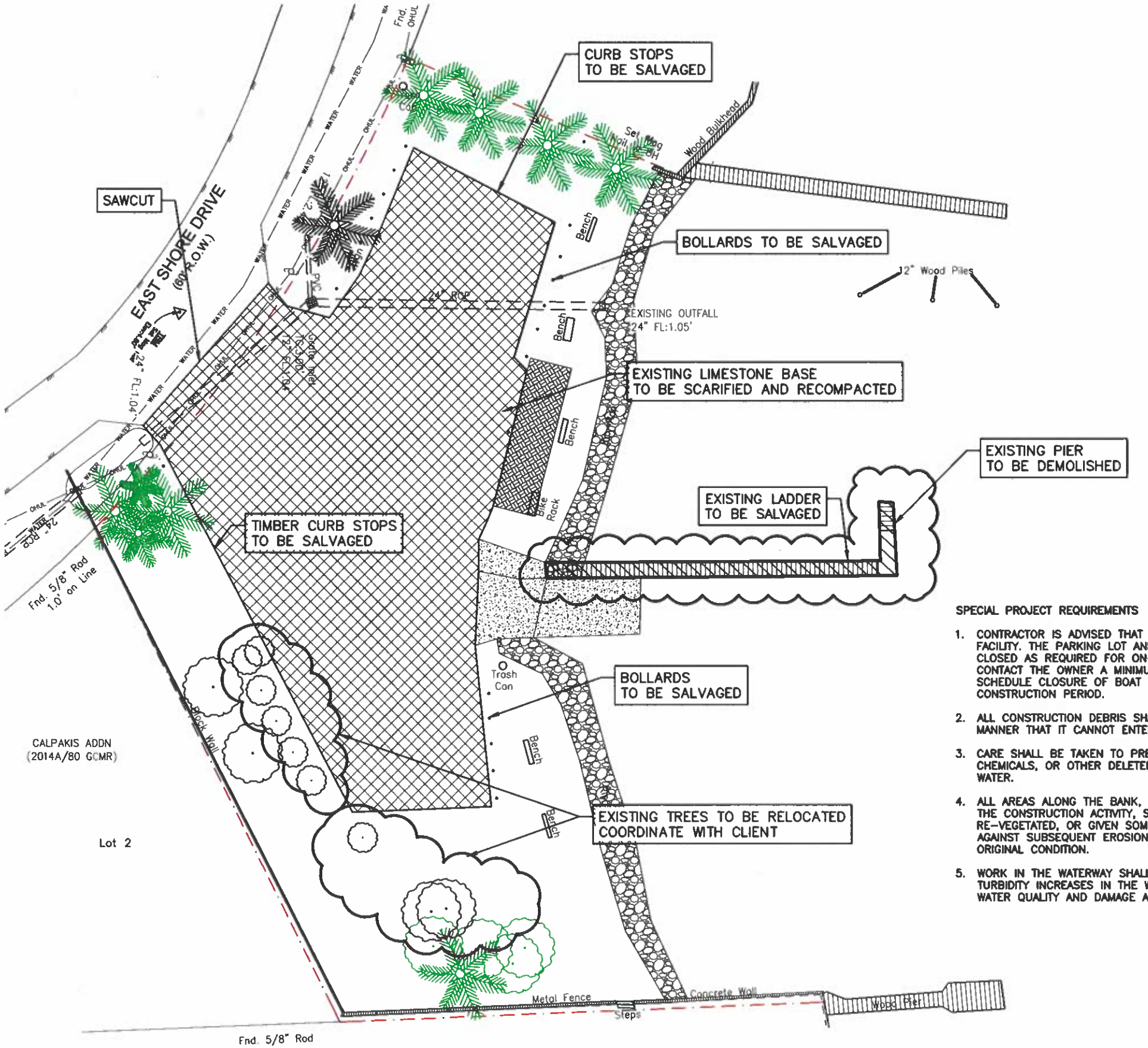
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: 1" = 30'
SHEET NO: C1.02
JOB NO: 20-244
REV: B



DEMOLITION PLAN

SCALE: 1" = 30'

0 30 60 Feet

SCALE: 1"= 30'

CLEAR LAKE BOAT CHANNEL

DEMOLITION NOTES:

1. SAFETY: CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING, AND SHORING.
2. COLLECTION AND DISPOSAL OF DEMOLISHED MATERIALS AND CLEANUP. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE RECYCLED, SALVAGED, OR OTHERWISE INDICATED TO REMAIN THE OWNER'S PROPERTY, REMOVE DEMOLISHED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM.
3. DAMAGE TO EXISTING WORK NOT TO BE REMOVED: DO NOT DISTURB OR DAMAGE ITEMS TO REMAIN IN ANY WAY EXCEPT WHERE SPECIFICALLY REQUIRED BY THE CONTRACT IN ORDER TO ACCOMPLISH THE REMOVALS. IF DISTURBANCE OR DAMAGE OCCURS TO WORK TO REMAIN OR BE SALVAGED, PROMPTLY REPAIR AND RESTORE OR REPLACE THE DAMAGED ITEMS AT NO ADDITIONAL COST TO THE OWNER TO THE SATISFACTION OF THE ENGINEER.
4. REMOVE EXISTING STRUCTURES TO THE EXTENT INDICATED AND AS REQUIRED FOR NEW WORK PREPARATION. ALL LOCATIONS AND AREAS OF REMOVALS INDICATED ON THE CONTRACT DRAWINGS ARE APPROXIMATE.
5. DEMOLITION INCLUDES THE CUTTING OUT, DESTRUCTION, AND COMPLETE REMOVAL OF THE ITEM OR PORTION OF ITEM SO DESIGNATED.
6. REMOVE EXISTING SITE ELEMENTS, SURFACE FINISHES, AND STRUCTURAL COMPONENTS TO THE LEVEL AND EXTENT INDICATED AND REQUIRED TO COMPLETE THE REMOVAL OF SYSTEM OR ITEM.
7. DEMOLISH STRUCTURES IN A SYSTEMATIC MANNER FROM THE TOP DOWN.
8. PILING REMOVAL BY EXTRACTION. WHEN EXTRACTING DESIGNATED PILES, PULL OUT USING BEST EFFORT TO REMOVE THE PILES INTACT IN THEIR FULL LENGTH. BE RESPONSIBLE FOR CLEARING ALL PILES WHICH BREAK DURING EXTRACTION AND THAT INTERFERE WITH NEW WORK INCLUDING, BUT NOT LIMITED TO, SHOULD A PILE BREAK DURING EXTRACTION AND THE REMAINING PORTION BECOMES AN OBSTRUCTION TO NEW WORK, IT MUST BE CLEARED PRIOR TO PILE DRIVING.

SPECIAL PROJECT REQUIREMENTS

1. CONTRACTOR IS ADVISED THAT THIS IS A PUBLIC RECREATION FACILITY. THE PARKING LOT AND LAUNCHING FACILITY WILL BE CLOSED AS REQUIRED FOR ON-SITE CONSTRUCTION OPERATIONS. CONTACT THE OWNER A MINIMUM OF 30 DAYS IN ADVANCE, TO SCHEDULE CLOSURE OF BOAT RAMP TO THE PUBLIC DURING THE CONSTRUCTION PERIOD.
2. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN SUCH A MANNER THAT IT CANNOT ENTER THE WATERWAY.
3. CARE SHALL BE TAKEN TO PREVENT ANY PETROLEUM PRODUCTS, CHEMICALS, OR OTHER DELETERIOUS MATERIAL FROM ENTERING THE WATER.
4. ALL AREAS ALONG THE BANK, DISTURBED OR NEWLY CREATED BY THE CONSTRUCTION ACTIVITY, SHALL BE SEEDED, SODDED, RE-VEGETATED, OR GIVEN SOME OTHER TYPE OF PROTECTION AGAINST SUBSEQUENT EROSION AND RETURNED BACK TO ITS ORIGINAL CONDITION.
5. WORK IN THE WATERWAY SHALL BE DONE SO AS TO MINIMIZE TURBIDITY INCREASES IN THE WATER THAT TEND TO DEGRADE WATER QUALITY AND DAMAGE AQUATIC LIFE

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: DEMOLITION PLAN

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
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CLEAR LAKE SHORES, TX

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DATE: 07/14/2021
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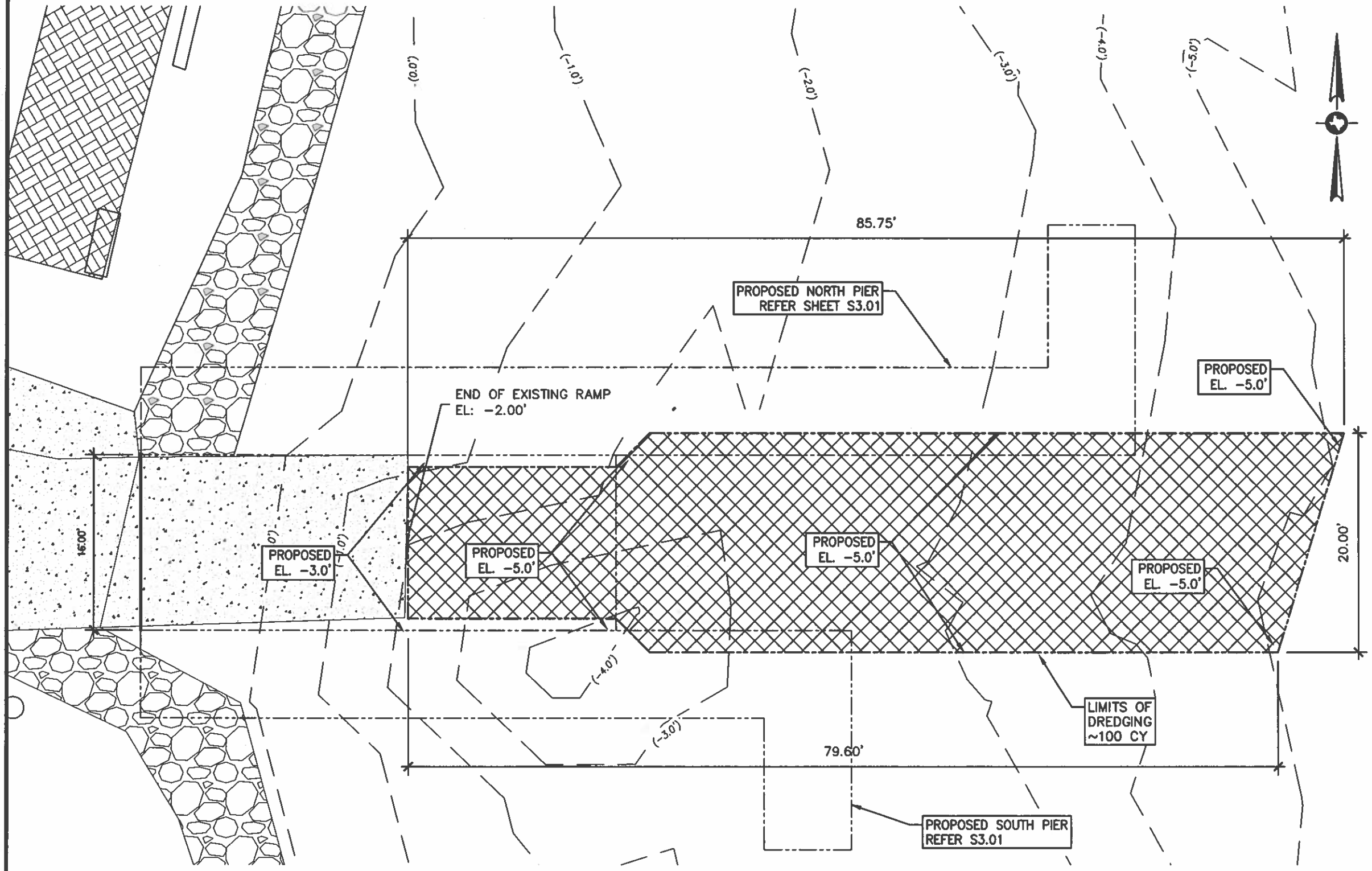

DREDGING PLAN

SCALE: 1" = 10'

0 10 20 Feet

SCALE: 1"= 10'

DREDGING NOTES:

1. CONTRACTOR IS ADVISED THAT THIS IS A PUBLIC RECREATION FACILITY. THE PARKING LOT AND LAUNCHING FACILITY WILL BE CLOSED AS REQUIRED FOR ON-SITE CONSTRUCTION OPERATIONS, CONTACT THE OWNER A MINIMUM OF 30 DAYS IN ADVANCE, TO SCHEDULE CLOSURE OF BOAT RAMP TO THE PUBLIC DURING THE CONSTRUCTION PERIOD.
2. MATERIAL SHALL BE MECHANICALLY EXCAVATED AND REMOVED FROM SITE. COORDINATE WITH OWNER FOR PLACEMENT LOCATION.
3. WORK IN THE WATERWAY SHALL BE DONE SO AS TO MINIMIZE TURBIDITY INCREASES IN THE WATER THAT TEND TO DEGRADE WATER QUALITY AND DAMAGE AQUATIC LIFE
5. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN SUCH A MANNER THAT IT CANNOT ENTER THE WATERWAY.
6. CARE SHALL BE TAKEN TO PREVENT ANY PETROLEUM PRODUCTS, CHEMICALS, OR OTHER DELETERIOUS MATERIAL FROM ENTERING THE WATER.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

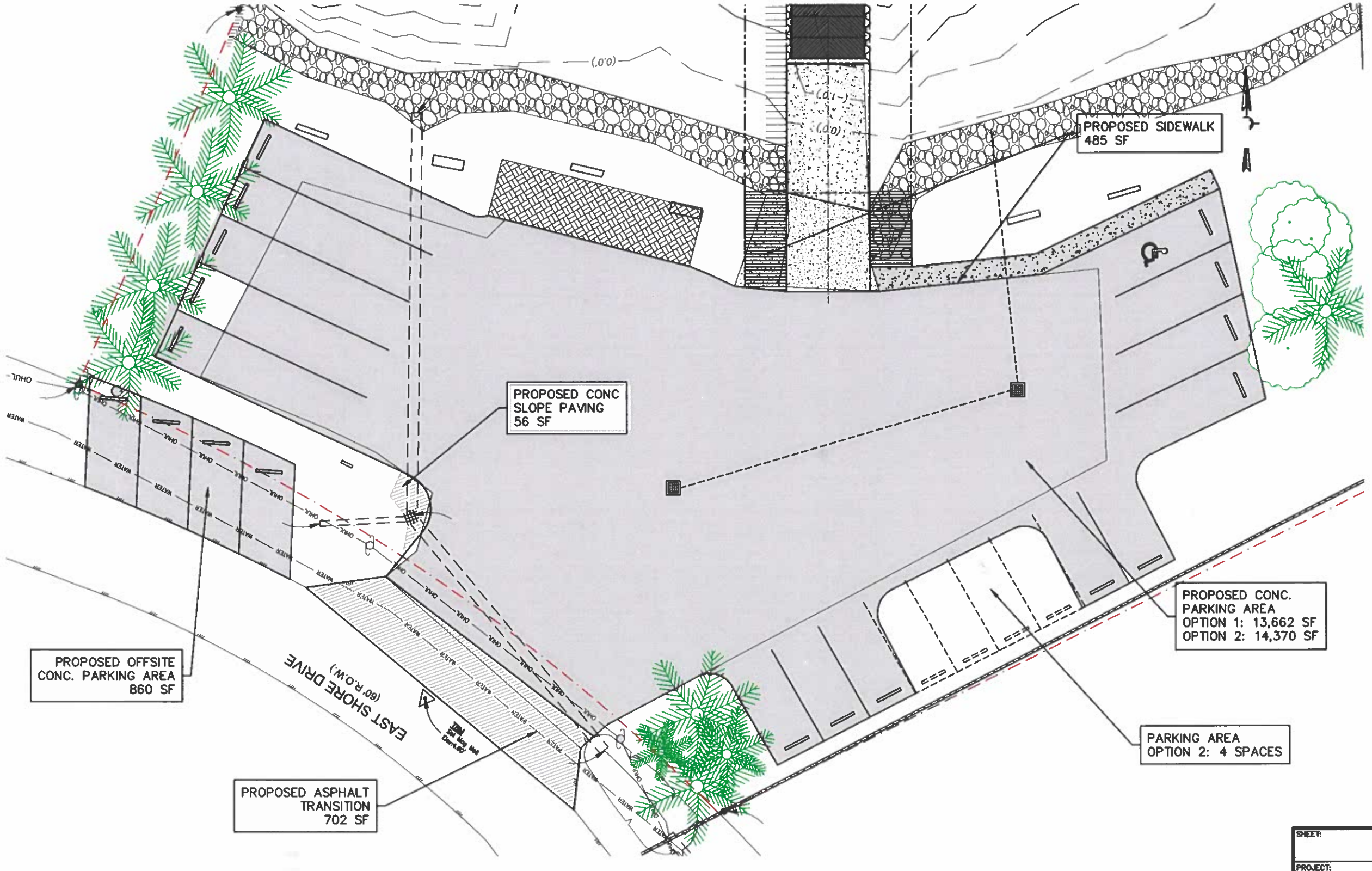
DATE: 12/10/2021

SHEET: DREDGING PLAN

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
821 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: 1' = 10'
SHEET NO: C1.04
JOB NO: 20-244
REV: B



0 20 40 Feet

SCALE: 1"= 20'

PAVING LEGEND

- PROPOSED TYPE "A" CATCH BASIN
- PAVEMENT SLOPE
- PROP ASPHALT PAVING
- PROP CONCRETE SIDEWALKS
- 6-INCH THICK CONCRETE PAVING

FG	FINISHED GRADE
TP	TOP OF PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE
G	GUTTER

PARKING SUMMARY	
TRUCK AND BOAT TRAILER	5
PARKING LOT (OPTION 1)	8
ADA PARKING SPACE	1
OFFSITE PARKING	4
TOTAL SPACES	18

PARKING SUMMARY (OPTION 2)	
TRUCK AND BOAT TRAILER	5
PARKING LOT (OPTION 2)	12
ADA PARKING SPACE	1
OFFSITE PARKING	4
TOTAL SPACES	22

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

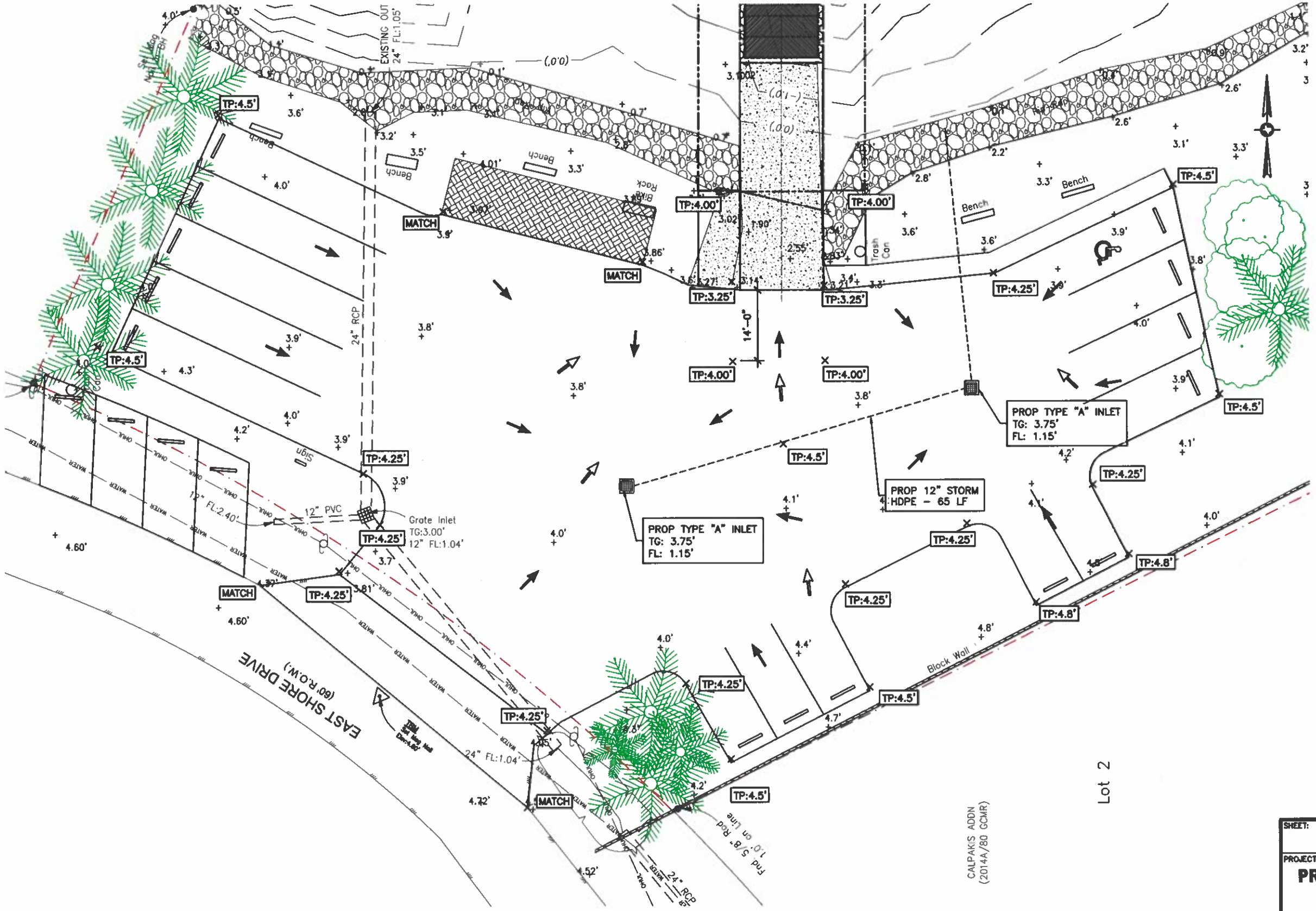
DATE: 12/10/2021

SHEET: PAVING PLAN

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: 1" = 20'
SHEET NO: C1.05
JOB NO: 20-244
REV: B



0 20 40 Feet

SCALE: 1"= 20'

GRADING & DRAINAGE LEGEND

TP:4.5'	PROPOSED SPOT ELEVATION
	PROPOSED TYPE "A" CATCH BASIN
	PROPOSED STORM SEWER
	DRAINAGE AREA LINE
	EXISTING STORM SEWER LINE
	PROPOSED FLOW ARROW
	EXISTING FLOW ARROW
1	DRAINAGE AREA NUMBER

FL	FLOWLINE
FG	FINISHED GRADE
TP	TOP OF PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE
G	GUTTER

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: DRAINAGE PLAN

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

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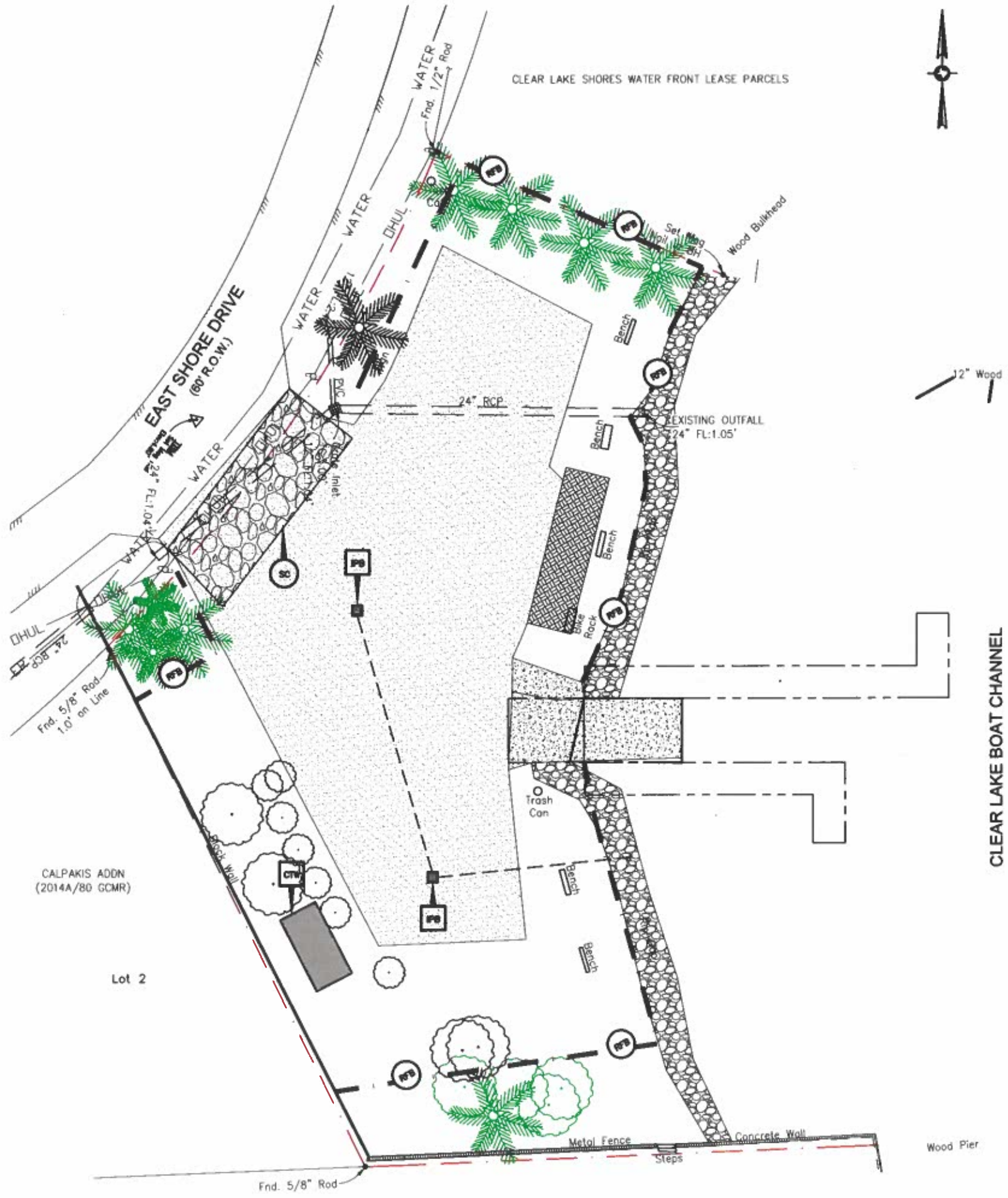
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE:	07/14/2021
SCALE:	1" = 20'
SHEET NO:	C1.06
JOB NO:	20-244
REV:	B



SWPPP LEGEND

- RFB — REINFORCED FILTER FABRIC FENCE
- SC — STABILIZED CONSTRUCTION ACCESS
- IPB — INLET PROTECTION BARRIERS
- CTW — CONCRETE TRUCK WASH

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REGISTRATION NO. 84739

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SHEET: SWPPP PLAN

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PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

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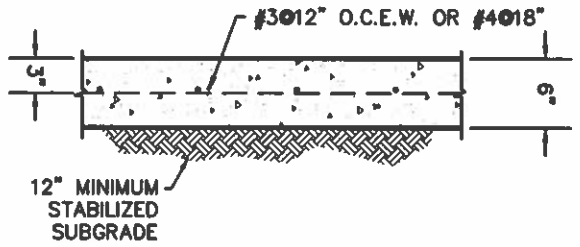
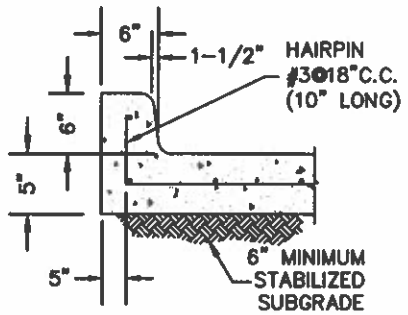
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: 1" = 30'
SHEET NO: C1.07
JOB NO: 20-244
REV: B



1 6" CURB AND GUTTER

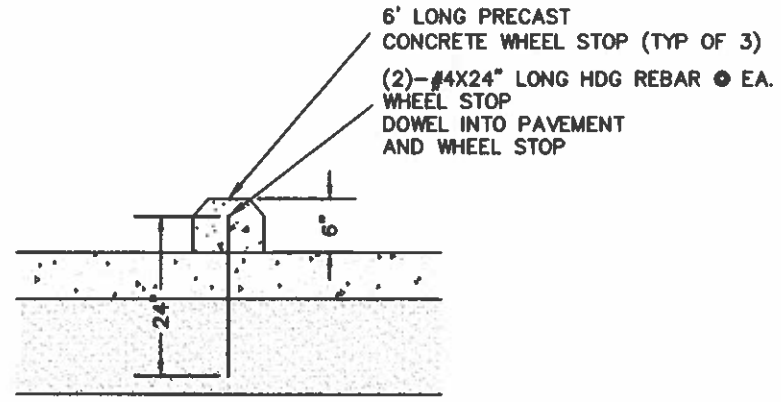


NOTES:

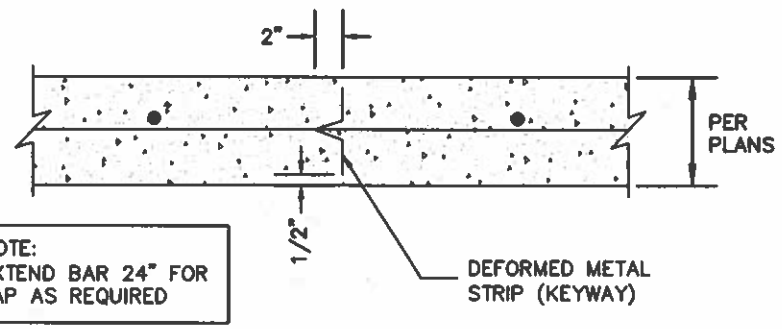
1. MORTAR FINISH NOT REQUIRED WHEN CURB IS POURED BY CURB MACHINE. CURB SHALL HAVE THE SAME OUTSIDE DIMENSIONS.

2. EXPANSION JOINTS SHALL BE INSTALLED AT ALL PAVEMENT EXPANSION JOINTS.

2 6" CURB AND GUTTER

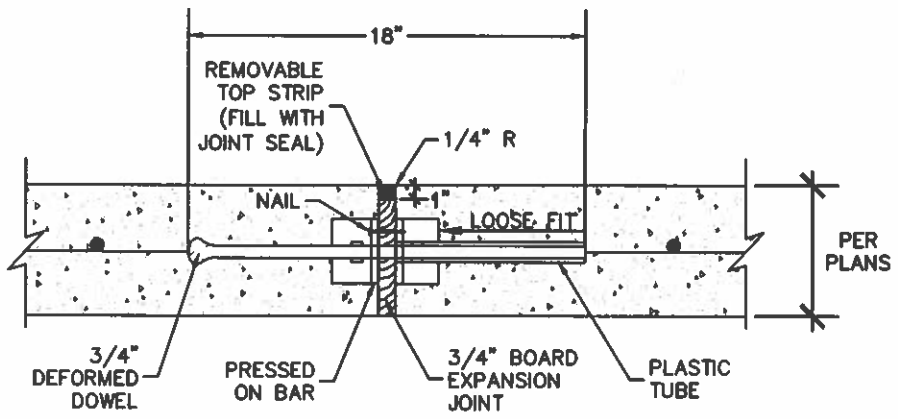


3 CONCRETE WHEEL STOP



NOTE:
EXTEND BAR 24" FOR LAP AS REQUIRED

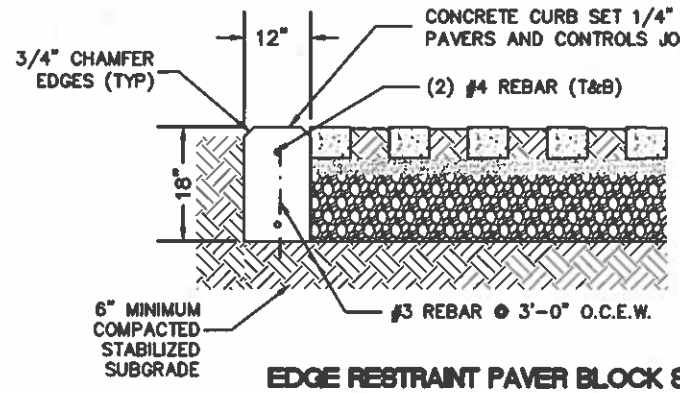
CONTROL JOINT



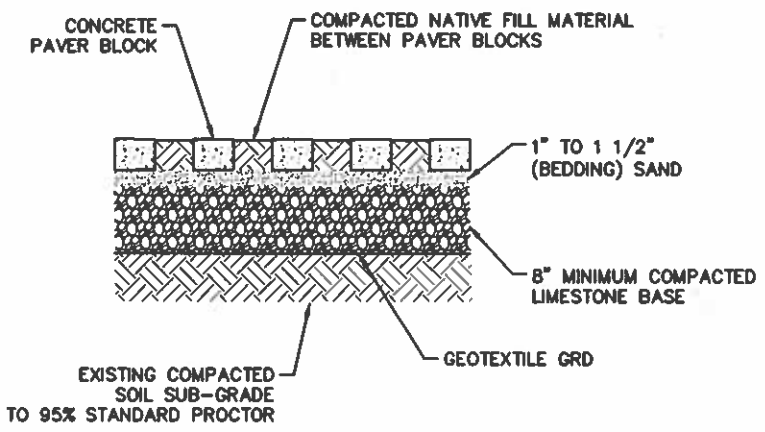
NOTE:
DOWEL END NEEDS TO BE CLEANED AND LUBRICATED WITH APPROVED PRODUCT PRIOR TO INSERTION OF PLASTIC TUBE.

EXPANSION JOINT

4 PAVING JOINTS



EDGE RESTRAINT PAVER BLOCK SECTION



CONCRETE PAVER BLOCK DETAIL

5 PAVER DETAILS

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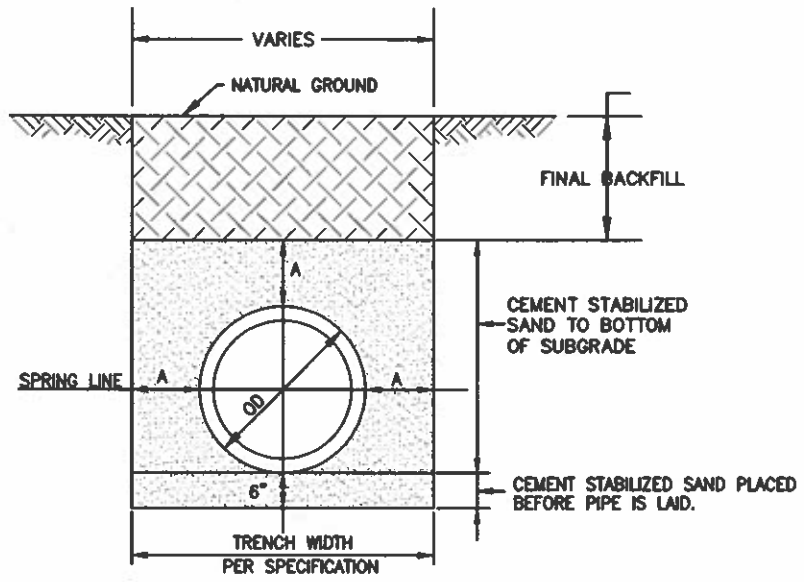
DATE: 12/10/2021

SHEET:
PAVING DETAILS

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
621 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: AS NOTED
SHEET NO: C2.01
JOB NO: 20-244
REV: B



NOMINAL ø in (mm)	MIN. RECOMMENDED TRENCH WIDTH, in (mm)
4 (100)	21 (530)
6 (150)	23 (580)
8 (200)	25 (630)
10 (250)	28 (710)
12 (300)	31 (790)
15 (375)	34 (860)
18 (450)	39 (990)
24 (600)	48 (1220)

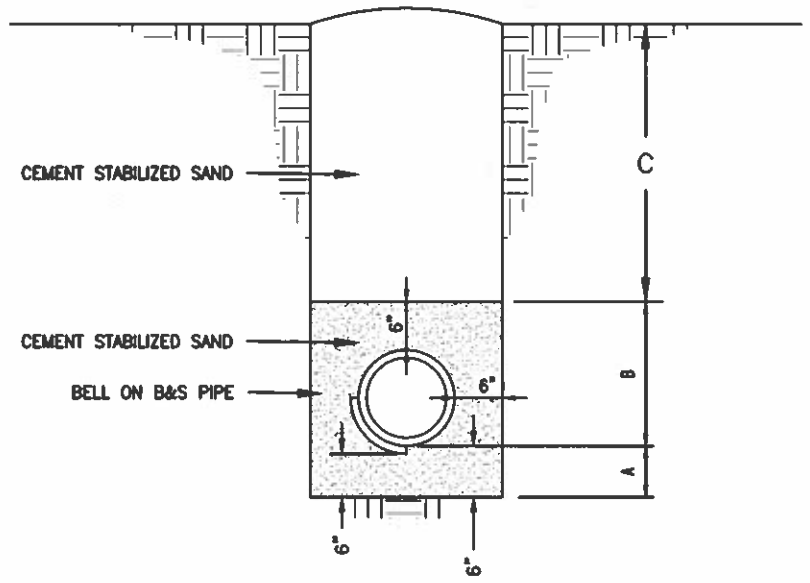
NOTES:

1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.
2. BEDDING: SUITABLE MATERIAL SHALL BE CEMENT STABILIZED SAND TO BOTTOM OF SUBGRADE.

   UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 6".
3. HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CEMENT STABILIZED SAND (SHAPE TO CONFORM TO BOTTOM OF PIPE).
4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:

1 HDPE TRENCH EMBEDMENT AND BACKFILL

N.T.S.



"A" CEMENT STABILIZED SAND (1 1/2 SACKS/TON) (UNDER PAVEMENT OR LESS THAN 1' FROM PAVEMENT EDGE) PLACED SAME DAY AS PIPE IS LAID.

"A" ON SITE SOIL BACKFILL TO BE PLACED IN 8" LAYERS & COMPACTED TO 95% MAX DRY DENSITY.

"B" CEMENT STABILIZED SAND (1 1/2 SACKS/TON) (UNDER PAVEMENT OR LESS THAN 1' FROM PAVEMENT EDGE) PLACED SAME DAY AS PIPE IS LAID.

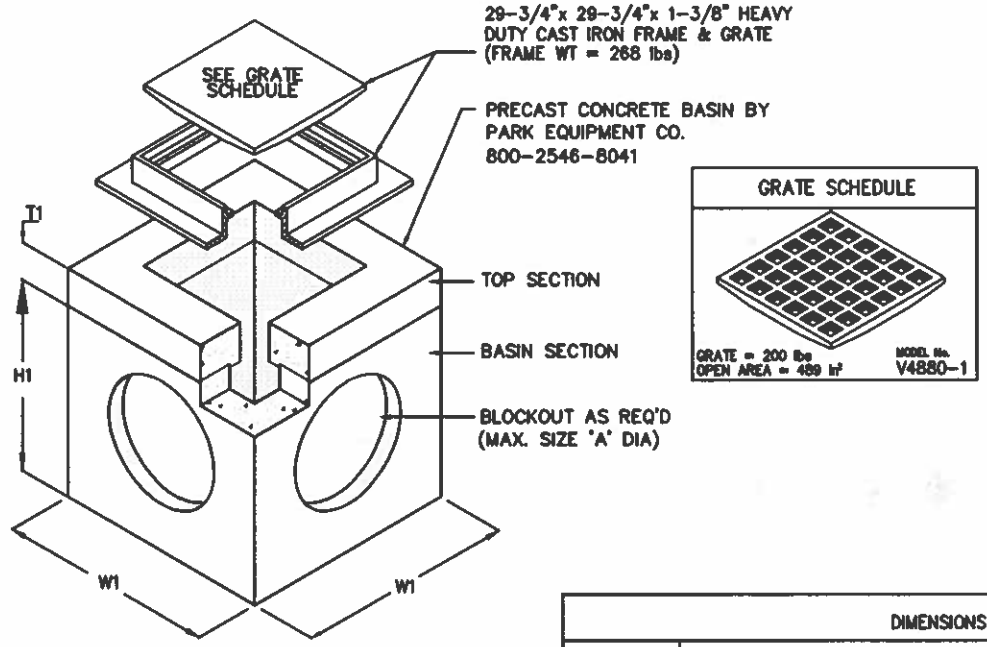
"B" ON SITE SOIL BACKFILL TO BE PLACED IN 8" LAYERS & COMPACTED TO 95% MAX DRY DENSITY.

"C" CEMENT STABILIZED SAND (1 1/2 SACKS/TON) (UNDER PAVEMENT OR LESS THAN 1' FROM PAVEMENT EDGE) PLACED SAME DAY AS PIPE IS LAID.

"C" ON SITE SOIL BACKFILL TO BE PLACED IN 8" LAYERS & COMPACTED TO 95% MAX DRY DENSITY.

2 RCP TRENCH EMBEDMENT AND BACKFILL

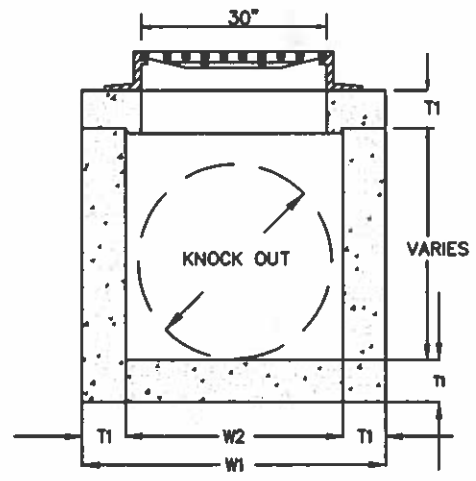
N.T.S.



GRATE SCHEDULE

GRATE = 200 lbs
OPEN AREA = 489 in²
MODEL No. V4880-1

MODEL #	DIMENSIONS						
	W1	W2	H1	H2	T1	K.O.	
CBTA36	48"	36"	42"	36"	6"	36"	30"X30"
CBTA48	60"	48"	54"	48"	6"	48"	30"X30"



SECTION

3 TYPE 'A' INLET / CATCH BASIN

N.T.S.

SPECIFICATIONS

CONCRETE : CLASS 1 CONCRETE WITH OF DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH. RATED FOR H-20 LOADING.

REINFORCEMENT: GRADE 60 REINFORCED WITH STEEL REBAR TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

C.I. CASTINGS: CAST IRON FRAMES AND GRATES ARE MANUFACTURED OF GRAY CAST IRON CONFORMING TO ASTM A48-76 CLASS 30.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

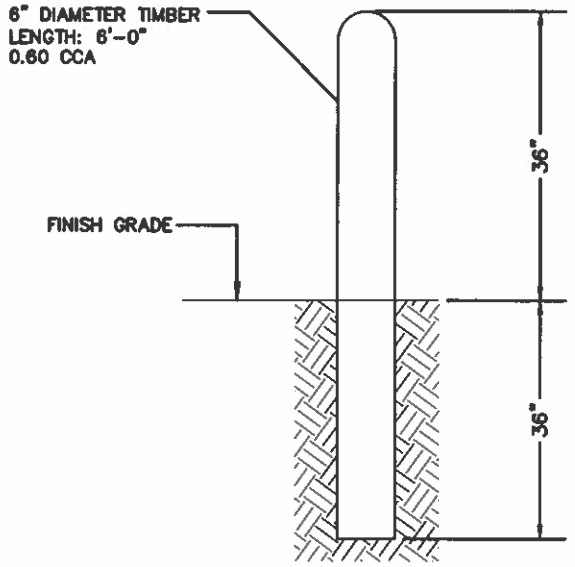
DATE: 12/10/2021

SHEET: STORM SEWER DETAILS

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

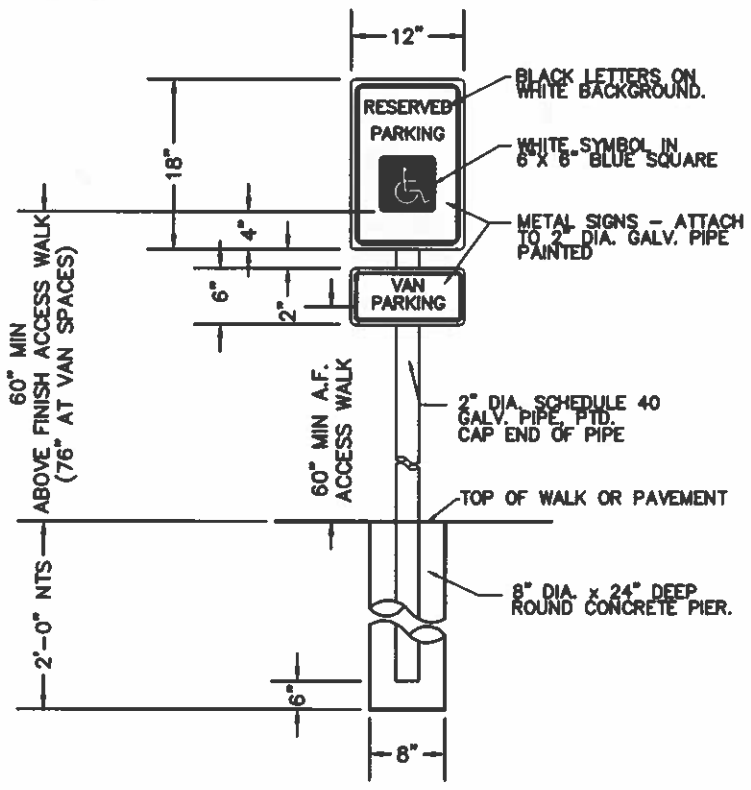
DATE: 07/14/2021
SCALE: NTS
SHEET NO: C2.02
JOB NO: 20-244
REV: B



1 BOLLARD (TYP.)

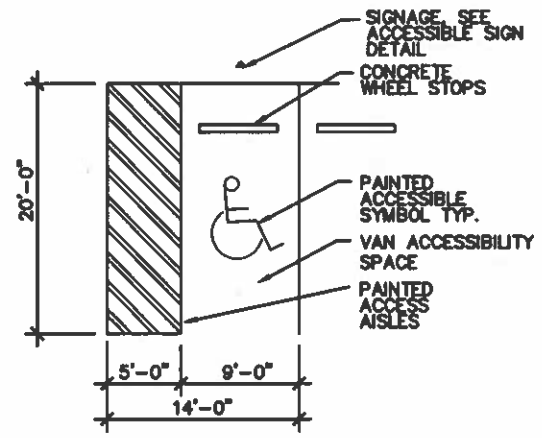
ACCESSIBLE PARKING SPACE SIGNS SHALL BE DESIGNATED AS RESERVED BY A VERTICALLY MOUNTED OR SUSPENDED SIGN SHOWING THE SYMBOL OF ACCESSIBILITY.

- VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN MOUNTED BELOW THE SYMBOL OF ACCESSIBILITY.
- CHARACTERS AND SYMBOLS ON SUCH SIGNS SHALL BE LOCATED 60" MINIMUM ABOVE THE GROUND, FLOOR, OR PAVING SURFACE SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.



2 ACCESSIBLE PARKING SIGN (TYP.)

NOTE:
ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.



3 ACCESSIBLE PARKING LAYOUT

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SHEET: MISC DETAILS

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TPWD BOAT ACCESS GRANT
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CIVIL | MARINE | PLANNING | STRUCTURAL
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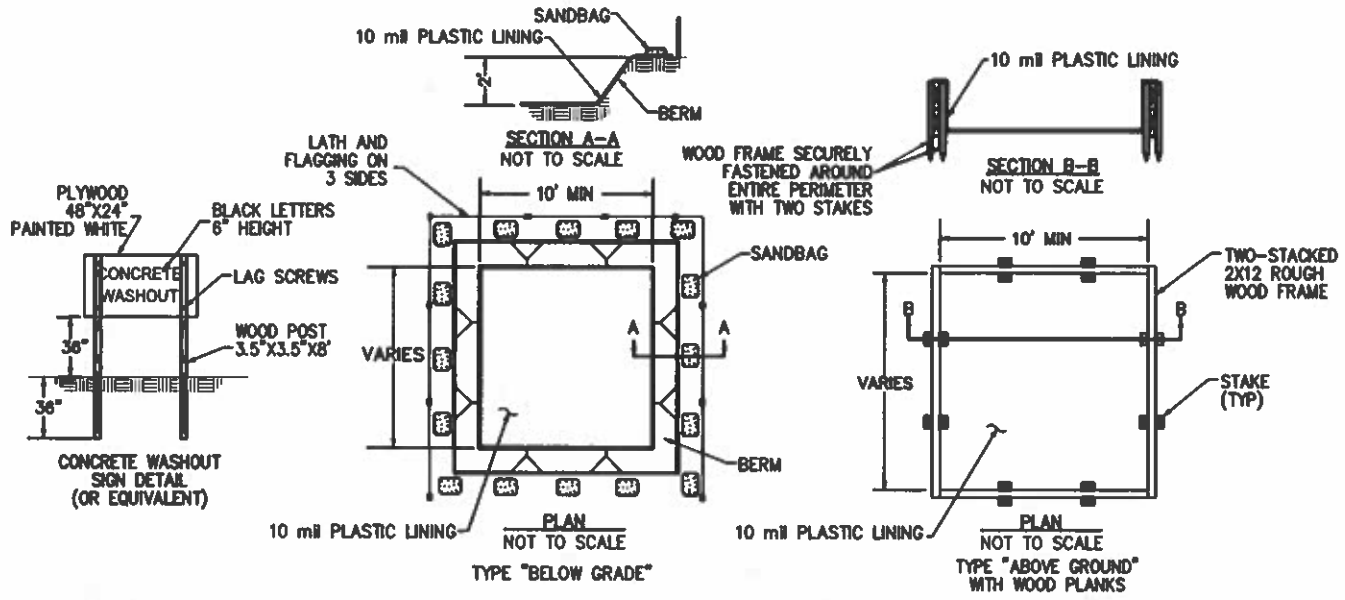
JOB NO: 20-244
REV: B

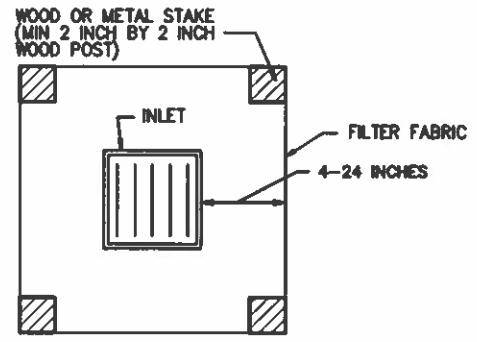


CONSTRUCTION NOTES:

1. CONCRETE WASHOUT FACILITIES ARE TO BE LOCATED AT LEAST 50' FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, OR WATER BODIES.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE CONCRETE WASHOUT FACILITY.
3. ONCE 75% OF THE ORIGINAL VOLUME OF THE WASHOUT PIT IS FILLED OR IF THE LINER IS TORN, THE MATERIAL MUST BE REMOVED AND PROPERLY DISPOSED OF ONCE IT IS COMPLETELY HARDENED. ONCE THE HARDENED CONCRETE IS REMOVED, THE LINER MUST BE REPLACED (IF TORN). A NEW PIT MUST BE CONSTRUCTED IF THE ORIGINAL STRUCTURE IS NO LONGER SUITABLE.
4. ONCE THE PIT IS NO LONGER NEEDED, ENSURE ALL WASHOUT MATERIAL HAS COMPLETELY HARDENED, THEN REMOVE AND PROPERLY DISPOSE OF ALL MATERIALS.

CTW
SYMBOL

1 CONCRETE TRUCK WASHOUT

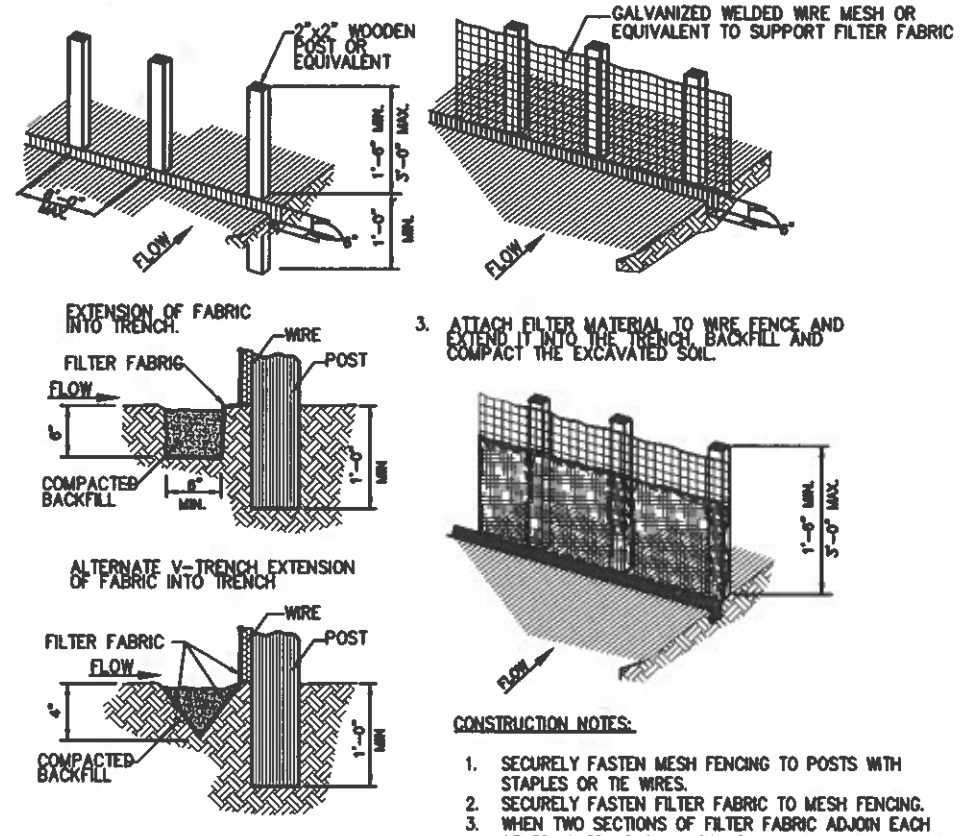


PLAN

1. SEE CONSTRUCTION NOTES FOR RFB.

IPB
SYMBOL

2 INLET PROTECTION BARRIER

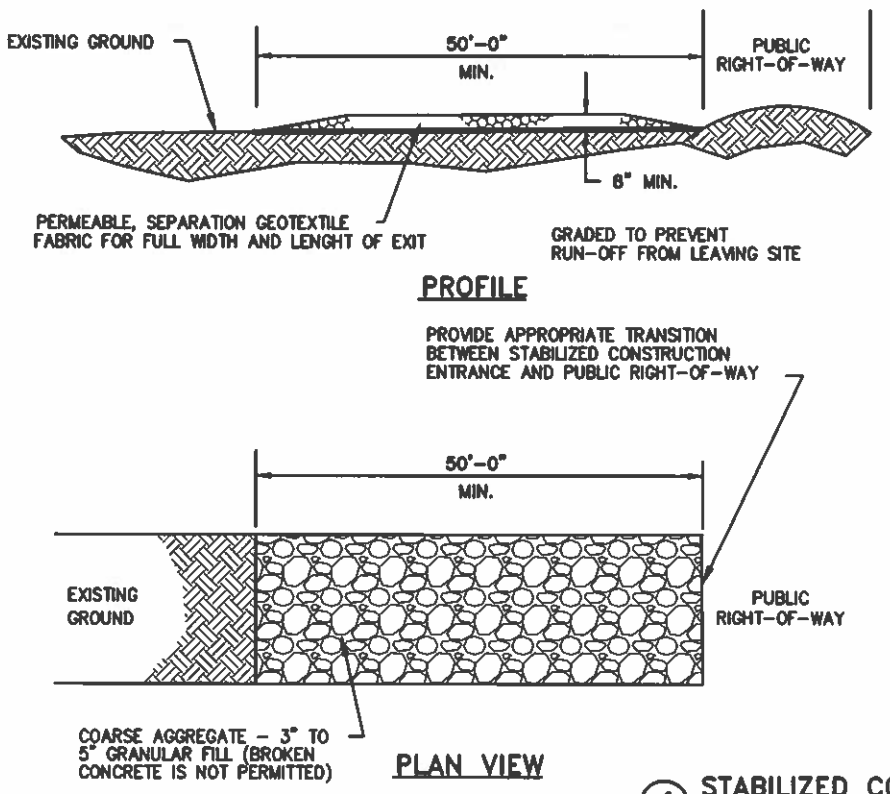


CONSTRUCTION NOTES:

1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD TOGETHER, AND ATTACH TO A POST.
4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.

RFB
SYMBOL

3 REINFORCED FILTER FABRIC BARRIER



CONSTRUCTION NOTES:

1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
7. ALTERNATIVE METHODS OF CONSTRUCTION INCLUDE

A. CEMENT STABILIZED SOIL: COMPACTED CEMENT STABILIZED SOIL, LIMESTONE AGGREGATE, OR OTHER FILL MATERIAL IN AN APPLICATION OF THICKNESS OF 8 INCHES.
B. WOOD MATS: OAK OR OTHER HARDWOOD TIMBERS PLACED EDGE TO EDGE AND ACROSS SUPPORT WOODEN BEAMS WHICH ARE PLACED ON TOP OF EXISTING SOIL IN AN APPLICATION THICKNESS OF 6 INCHES.
C. STEEL MATS: PERFORATED MATS PLACED ACROSS PERPENDICULAR SUPPORT MEMBERS.

SC
SYMBOL

4 STABILIZED CONSTRUCTION ACCESS

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SHEET: SWPPP DETAILS

PROJECT:
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TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
821 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
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DATE: 07/14/2021
SCALE: AS NOTED
SHEET NO: C2.04
JOB NO: 20-244
REV: B

MATERIALS

1. CONCRETE:

1.1. ALL CONCRETE SHALL BE NORMAL WEIGHT (NW) AGGREGATE UNLESS NOTED ON THE PLANS OR SCHEDULES.
1.2. CEMENT FOR ALL CONCRETE IN CONTACT WITH SOILS USE TYPE: I/II
1.3. CONCRETE CLASSIFICATION AND STRENGTH:

USE	28 DAY STRENGTH	WEIGHT CLASS	SLUMP ± 1"	MAX AGGR SIZE	AIR
	PSI		INCHES	INCHES	%
PRECAST PANELS	5,000	NW	4	1	0-2
FOOTINGS/PIER CAPS	3,000	NW	4	1	0-2
WALLS AND COLUMNS	3,000	NW	4	1	0-2

NOTES: NW = NORMAL WEIGHT

1.4. MAXIMUM ALLOWABLE WATER-CEMENT RATIO: CONCRETE SUBJECTED TO BRACKISH WATER, SALT SPRAY, DEICERS: 0.40

2. STRUCTURAL PRECAST CONCRETE

2.1. DESIGN OF THE PRECAST SYSTEM IS THE RESPONSIBILITY OF THE PRECAST MANUFACTURER'S ENGINEER WHO SHALL BE REGISTERED IN THE PROJECT'S JURISDICTION. ALL SHOP DRAWINGS, ERECTION DRAWINGS AND DESIGN CALCULATIONS SHALL BE SIGNED AND SEALED BY THIS ENGINEER AND SHALL BE SUBMITTED FOR REVIEW.
2.2. CONCRETE: CLASS 5,000 UNLESS OTHERWISE SHOWN; SLUMP OF 3-1/2 INCHES PLUS OR-MINUS 1/2 INCH AS DETERMINED BY ASTM C143.
2.3. REINFORCEMENT: WELDED-WIRE FABRIC SHALL BE GALVANIZED.
2.4. GASKETS: ASTM C509, PREFORMED, EXPANDED CLOSED-CELL NEOPRENE SPONGE, ACID-RESISTANT, NONSTAINING, INERT TO TEMPERATURE CHANGES, SIZED TO PROVIDE CONSTANT COMPRESSION IN JOINT AND IN PIECES AS LONG AS PRACTICABLE TO MINIMIZE FIELD SPLICES.
2.5. GASKET CEMENT: TYPE RECOMMENDED BY GASKET MANUFACTURER.
2.6. ANCHORS, DOWELS AND ACCESSORIES CAST INTO PRECAST UNITS: STEEL, HOT-DIP GALVANIZED.
2.7. JOINT CONNECTIONS: STAINLESS STEEL, ASTM A666.

3. MISC CONCRETE MATERIALS

3.1. PREFORMED JOINT FILLER: ASTM D1752 TYPE I NON-EXTRUDING TYPE; NEOPRENE SPONGE OR POLYURETHANE OF FIRM TEXTURE, EXCEPT AS OTHERWISE SPECIFIED. BITUMINOUS FIBER TYPE WILL NOT BE PERMITTED.
3.2. CONTROL JOINT FORMER: CONTINUOUS PLASTIC INSERT STRIPS WITH ANCHORAGE RIBS LOCATED AT THE BOTTOM AND AN ENLARGED UPPER PORTION THAT IS READILY REMOVABLE WITHOUT DAMAGE TO THE CONCRETE, AND IS SIZED TO FORM SEALANT GROOVE. SIZE TO EXTEND TO AT LEAST 1/4 SLAB DEPTH.
3.3. BACKING ROD: EXTRUDED CLOSED-CELL POLYETHYLENE FOAM ROD, COMPATIBLE WITH JOINT SEALANT MATERIALS USED, WITH A TENSILE STRENGTH NOT LESS THAN 40 PSI, AND COMPRESSION DEFLECTION APPROXIMATELY 25 PERCENT AT 8 PSI. SIZE: 1/8-INCH LARGER IN DIAMETER THAN JOINT WIDTH, EXCEPT USE ONE-INCH DIAMETER ROD FOR 3/4-INCH WIDE JOINTS.
3.4. BOND BREAKER: "SUPER BOND BREAKER" MANUFACTURED BY BURKE COMPANY, SAN MATEO, CALIFORNIA; "SELECT CURE CRB", MANUFACTURED BY SELECT PRODUCTS CO., UPLAND, CALIFORNIA, OR EQUAL ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. BOND BREAKER SHALL CONTAIN A FUGITIVE DYE SO AREAS OF APPLICATION WILL BE READILY DISTINGUISHABLE.
3.5. SLIP DOWELS: SMOOTH EPOXY-COATED BARS CONFORMING TO ASTM A775.
3.6. PVC TUBING: ASTM D2241, SCHEDULE SDR 13.5.

4. CONCRETE REINFORCEMENT

4.1. DETAIL BARS IN ACCORDANCE WITH "ACI DETAILING MANUAL", PUBLICATION SP-66, AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, "ACI 318, LATEST EDITIONS, PROVIDE DETAILS INDICATING REINFORCING CONTINUITY AT CONSTRUCTION JOINTS.
4.2. REINFORCEMENT PROTECTION

LOCATION	MIN DISTANCE CLEAR
CONCRETE PLACED AGAINST EARTH	3"
CONCRETE PLACED IN FORMS - EXPOSED TO WEATHER/EARTH:	
BARS #5 AND SMALLER	1-1/2"
BARS #6 AND LARGER	2"
COLUMNS, GIRDERS, BEAMS	1-1/2"
SLABS OR WALLS NOT EXPOSED TO WEATHER OR EARTH	1"

4.3. SPLICES IN REINFORCEMENT ARE NOT PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY STRUCTURAL ENGINEER.
4.4. LAP ALL CONTINUOUS REINFORCING BARS 36 DIAMETERS AT SPLICES, TEES, AND CORNERS.
4.5. SPLICE CONTINUOUS TOP BARS AT MIDSPAN, SPLICE CONTINUOUS BOTTOM BARS OVER THE SUPPORT.
4.6. PROVIDE ACCESSORIES NECESSARY TO PROPERLY SUPPORT REINFORCING AT POSITIONS SHOWN ON PLANS AND DETAILS.
4.7. ENSURE HORIZONTAL CONTINUITY IN WALLS, FOOTINGS AND GRADE BEAMS, BY PROVIDING CORNER BARS AT ALL CORNERS AND INTERSECTIONS, CORNER BARS SHALL MATCH SIZE AND SPACING OF HORIZONTAL REINFORCING AND EXTEND A MINIMUM OF 36 BAR DIAMETERS BEYOND THE CORNER.
4.8. PLACE 2-#5 (1 EACH FACE) WITH 2'-0" PROJECTION AROUND OPENINGS THROUGH FLOOR TOPPING SLABS, UNLESS NOTED.
4.9. WELDING OF REINFORCING SHALL NOT BE PERMITTED UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY THE STRUCTURAL ENGINEER.
4.10. DO NOT RE-BEND ANY BARS WITH A YIELD STRESS GREATER THAN 40 KSI. THE USE OF HEAT TO FACILITATE BENDING OF REINFORCING BARS WILL NOT BE PERMITTED.
4.11. RUSTED REINFORCEMENT WILL NOT BE REJECTED PROVIDED THE MINIMUM DIMENSIONS AND CROSS SECTIONAL AREA OF A HARD WIRE BRUSH SPECIMEN MEET THE PHYSICAL REQUIREMENTS FOR THE SIZE AND GRADE OF THE STEEL SPECIFIED.
4.12. CONCRETE REINFORCING SHALL CONFORM TO THE FOLLOWING TABLE:

USE	ASTM	YIELD, KSI	NOTES
MILD REINFORCING	A615	60	
COLUMN TIES	A615	60	#3 BARS, 40 KSI
BEAM STIRRUPS	A615	60	#3 BARS, 40 KSI
WELDABLE	A715	60	

5. TIMBER TREATED PILING:

5.1. UNLESS OTHERWISE REQUIRED, TIMBER PILING SHALL MEET THE REQUIREMENTS OF ASTM D25.
5.2. THE MINIMUM CIRCUMFERENCE OF ROUND PILING AT A SECTION 3 FEET FROM THE BUTT, MEASURED UNDER THE BARK, SHALL BE AS FOLLOWS:

LENGTH OF PILING	MIN CIRCUMFERENCE 3 FEET FROM BUTT
40' AND UNDER	38"

6. TIMBERS AND TREATMENT SYSTEMS

6.1. INDIVIDUAL PIECES SHALL BE SELECTED SO THAT KNOTS AND OBVIOUS MINOR DEFECTS ARE NOT LOCATED IN THE CENTER OF SPANS AND WILL NOT INTERFERE WITH THE PLACING OF BOLTS, PROPER NAILING, OR THE MAKING OF SOUND CONNECTIONS.
6.2. LUMBER MAY BE REJECTED BY THE ENGINEER FOR EXCESSIVE WARP, TWIST, BOW OR CROOK, MILDEW, FUNGUS OR MOLD AS WELL AS FOR IMPROPER GRADE MARKING.

BULKHEAD MATERIAL (SALTWATER)

MEMBER/ LOCATION	MEMBER SIZE (TYP)	LUMBER GRADE	SURFACE TEXTURE	TREATMENT LEVEL
TIMBER FACE PILING (ROUND)	PLANS	ASTM D25	ROUND PILING	2.50 CCA
TIMBER PILING SQUARE	PLANS	SYP-NO.1	S4S OR ROUGH	2.50 CCA
DECK STRINGERS BEAMS (2"-4")	PLANS	SYP-NO.2	S4S OR ROUGH	0.60 ACQ
DECKING CAP	2X6	SYP-NO.1	S4S	0.60 CCA
RAILING, POSTS BALUSTERS	PLANS	SYP-NO.1	S4S	0.25 ACQ

NOTES: S4S = SURFACE FOUR SIZED (ALL FOUR FACES)

7. VINYL (PVC)SHEETPILING:

7.1. ALL VINYL SHEET PILING SHALL BE TIDEWALL VINYL SHEET PILING SERIES OR AN ENGINEER APPROVED EQUAL MEETING THE FOLLOWING REQUIREMENTS.
7.2. THE LENGTH OF SHEET PILING FURNISHED ARE INDICATED ON THE PLANS OR AS AUTHORIZED BY THE ENGINEER.

PHYSICAL PROPERTIES	UNIT	SPECIFICATION
MATERIAL SERIES		TW50
WEIGHT	LB/LF	3.25
THICKNESS	IN	0.25
LINEAR COVERAGE/SHEET	IN	12.00
DEPTH OF CROSS SECTION	IN	7.0
MECHANICAL PROPERTIES	UNIT	SPECIFICATION
TENSILE STRENGTH	PSI	6,300
FLEXURAL STRENGTH	PSI	13,000
FLEXURAL MODULUS	PSI	380,000
SECTION MODULUS (SX)	IN^3	10.9
ALLOWABLE MOMENT	FT-LB	2,150

7.3. STORING AND HANDLING. AT ALL POINTS, SUITABLE PRECAUTIONS SHALL BE TAKEN TO PREVENT BREAKAGE, SPLITTING, WARPING, DISTORTION OR ANY DAMAGE THAT MAY CAUSE THE PILING TO BE REJECTED. THE PILING SHALL BE HANDLED WITH NYLON ROPE SLINGS OR BY HAND.

8. COMPOSITE DECKING SPECIFICATIONS:

8.1. MANUFACTURER

MANUFACTURER	SIZE	ACTUAL	COLOR
MOISTURE SHIELD VANTAGE	2"X6"	1.35"X5.5"	CAPE COD GRAY
WEARDECK SYSTEMS	2"X6"	1.35"X5.5"	GRAY
TREX SELECT	2"X6"	1.3"X5.5"	GREY
TITEN-X SERIES	12"Wx	12"	GREY

9. HARDWARE:

9.1. MACHINE BOLTS, DRIFT BOLTS, DOWELS, ETC., SHALL BE GALVANIZED WROUGHT IRON OR GALVANIZED STEEL WITH SQUARE HEADS AND HEX NUTS. BOLTS SHALL BE THE REQUIREMENTS OF THE LATEST EDITION OF ASTM SPECIFICATION A307. SIZE SHALL BE AS SHOWN ON THE PLANS.
9.2. FASTENERS. ALL FASTENERS SHALL BE STAINLESS STEEL (SS 316). THIS INCLUDES ALL THREADS, WASHERS, NUTS, CARRIAGE BOLTS, LAG SCREWS, AND SCREWS. NO MIXING OF STEEL TYPES WILL BE ALLOWED.

9.3. CONNECTORS IN OR BELOW SPLASH ZONE.

SPLASH ZONE	BOLTS DIA (IN)	PLATE THICKNESS (IN)	WASHERS (1)
IN OR ABOVE	1"	0.5"	OGEE
ABOVE	3/4"	0.375"	0.25" PLATE OR OGEE

(1) PLATE WASHER SHALL BE SQUARE WITH SIDES EQUAL TO 4XS THE DIAMETER OF THE BOLT.

9.4. BEVELED WASHERS SHALL BE PROVIDED AT DESIGNATED INSTALLATIONS.

9.5. ROUGH HARDWARE: JOIST HANGERS, STRAPS, HOLDOWNS, ETC., SHALL BE AS MANUFACTURED BY SIMPSON COMPANY OR EQUAL. THE MAXIMUM SIZE AND NUMBER OF FASTENERS SPECIFIED BY THE MANUFACTURER SHALL BE USED UNLESS NOTED OTHERWISE.

10. CORROSION PROTECTION

10.1. FASTENERS, INCLUDING NUTS AND WASHERS, IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE OF HOT-DIPPED ZINC-COATED GALVANIZED (HDG) STEEL, STAINLESS STEEL (TYPE 304 OR 316), SILICON BRONZE OR COPPER. FASTENERS OTHER THAN NAILS, TIMBER RIVETS, WOOD SCREWS AND LAG SCREWS SHALL BE PERMITTED TO BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B-695, CLASS 55 MINIMUM.
10.2. CONNECTORS THAT ARE USED IN EXTERIOR APPLICATIONS AND IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL HAVE COATING TYPES AND WEIGHTS IN ACCORDANCE WITH THE TREATED WOOD OR CONNECTOR MANUFACTURER'S RECOMMENDATIONS. IN THE ABSENCE OF MANUFACTURER'S RECOMMENDATIONS, A MINIMUM OF ASTM A653, TYPE G185 ZINC-COATED GALVANIZED STEEL, OR EQUIVALENT, SHALL BE USED.
10.3. FASTENINGS FOR WOOD FOUNDATIONS. FASTENINGS, INCLUDING NUTS AND WASHERS, FOR WOOD FOUNDATIONS SHALL BE OF TYPE 304 OR 316 STAINLESS STEEL. EXCEPTION: WHEN FRAMING LUMBER IS TREATED WITH CHROMATED COPPER ARSENATE (CCA) AND THE MOISTURE CONTENT OF THE FRAMING REMAINS AT 19 PERCENT OR LESS (SUCH AS STUDS, BLOCKING, AND TOP PLATES OF EXTERIOR AND INTERIOR BASEMENT WALLS), HOT-DIPPED GALVANIZED (ZINC-COATED) STEEL FASTENERS CONFORMING TO THE REQUIREMENTS OF ASTM A153 SHALL BE PERMITTED IN LUMBER-TO-LUMBER CONNECTIONS.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: MATERIAL NOTES

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: NTS
SHEET NO: S0.01
JOB NO: 20-244
REV: B

MATERIALS – CONTINUED

11. GEOTEXTILE/GEOGRID

11.1. THE FABRIC MUST CONFORM TO THE REQUIREMENTS LISTED BELOW WHEN TESTED IN ACCORDANCE WITH THE TEST METHODS SPECIFIED.

PHYSICAL PROPERTIES	TEST METHOD	TYPE1	TYPE2
FABRIC WEIGHT (OZ./SQ. YD.)	TEX-616-J	4	6
PREMITTIVITY (1/SEC)	D4491	1.0, MIN	0.5, MIN
TENSILE STRENGTH (LBS.)	D4632	100	200
APPARENT OPENING SIZE	D4751	70-100	8-120
ELONGATION AT YIELD (%)	D4632	20-100	20-100
TRAPEZOID TEAR (LBS.)	D4533	35	75

11.2. PACKAGING. PROVIDE FABRIC IN THE LENGTH AND WIDTH SPECIFIED ON THE PLANS, SPECIFIED IN THE PURCHASE ORDER AWARDED BY THE STATE OR AS APPROVED. WIND FABRIC ONTO SUITABLE CYLINDRICAL FORMS OR CORES TO AID IN HANDLING AND UNROLLING.

8. CONCRETE RIPRAP

8.1. RIPRAP SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS. PERCENTAGES ARE BY MASS. THE RIPRAP SHALL BE CLEAN AND FREE OF DIRT, SAND AND CLAY OR OTHER OBJECTIONABLE MATERIALS. MATERIALS NOT MEETING THE ABOVE REQUIREMENTS AS DELIVERED AT THE SITE SHALL BE REJECTED.

TABLE 1 – RIPRAP GRADATION NO.2

PERCENT LIGHTER BY WEIGHT	STONE WEIGHT LBS LOWER LIMIT	STONE WEIGHT LBS UPPER LIMIT	VOLUME CUBIC FT(2) LOWER LIMIT	VOLUME CUBIC FT(2) UPPER LIMIT	CUBICAL SHAPE FT EACH SIDE) LOWER LIMIT	CUBICAL SHAPE FT EACH SIDE) UPPER LIMIT	SPHERICAL SHAPE FT (DIAMETER) LOWER LIMIT	SPHERICAL SHAPE FT (DIAMETER) UPPER LIMIT
100	260	640	1.73	4.27	1.20	1.62	1.49	2.01
50	130	200	0.87	1.33	0.95	1.10	1.18	1.37
15	40	150	0.27	1.00	0.64	1.00	0.80	1.24

NOTES:
1. VOLUME IS BASED ON 150 PCF, UNIT WEIGHT.
2. RIPRAP GRADATION NO. 2 IS TO BE USED WHERE AN 24" THICK RIPRAP MAT IS NOTED ON THE PLANS.

8.2. RIPRAP GRADATION NO. 2 IS USED FOR VELOCITIES BETWEEN 7 FEET PER SECOND (FPS) AND 9 FPS.

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SCALE: 1/4" = 1'-0"
SHEET NO: S0.02
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REV: B

CONSTRUCTION NOTES:

1. REFERENCES

1.1. REFERENCE LINES AND GRADES. THE OWNER SHALL PROVIDE REFERENCES FOR LINE AND GRADE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE REFERENCE POINTS AND REPLACE THEM IF LOST OR DAMAGED.

2. DEMOLITION

2.1. PILE REMOVAL: THREE METHODS ARE USED TO REPAIR OR REPLACE PILING: PARTIAL CUTTING WITH NEW PILE SECURED DIRECTLY ON TOP, FULL EXTRACTION, OR CUTTING AT THE MUDLINE.

2.2. FULL EXTRACTION: IF PARTIAL CUTTING IS NOT AN OPTION AND THE PILE IS NOT TOO DETERIORATED OR ROTTED, THEN THE PILE IS REMOVED IN ITS ENTIRETY. CONSTRAINTS TO REMOVAL ARE IF THE PILE IS SO ROTTED THAT IT FALLS APART OR BREAKS DURING REMOVAL OR IF THE PILE IS DRIVEN FIRMLY AND DEEP INTO THE SUBSTRATE WHERE THE PILE WILL BREAK UPON ATTEMPTS AT FULL EXTRACTION. FOR FULL EXTRACTION, THE PILE IS REMOVED EITHER BY USE OF A "CHOKER" CHAIN AND CRANE OR WITH A VIBRATORY PILE DRIVE. FOR THE "CHOKER" METHOD, THE "CHOKER" CHAIN IS PLACED SECURELY AROUND THE PILE AND THEN BY USING A CRANE MOUNTED ON A BARGE, THE PILE IS PULLED DIRECTLY UP UNTIL IT IS COMPLETELY OUT OF THE SUBSTRATE. FOR THE VIBRATORY PILE DRIVING METHOD, THE VIBRATORY PILE DRIVER IS MOUNTED ON A BARGE AND THE VIBRATORY HAMMER IS CLAMPED ONTO THE TOP OF THE PILE. THE VIBRATION OF THE PILE DRIVER LOOSENS THE PILE FROM THE SUBSTRATE. THE VIBRATORY HAMMER IS RAISED DIRECTLY UPWARD AS THE PILE LOOSENS UNTIL THE PILE IS COMPLETELY FREE FROM THE SUBSTRATE. THE VIBRATORY METHOD IS THE PREFERRED METHOD, ESPECIALLY WHEN THE PILE IS FIRMLY SECURED IN THE SUBSTRATE. THERE IS LESS LIKELIHOOD FOR THE PILE TO BREAK. ONCE REMOVED, THE PILE IS PLACED ON THE BARGE AND DISPOSED OF AT AN APPROPRIATE UPLAND LOCATION (DISPOSAL DEPENDS ON CHEMICAL TREATMENT OF PILING). HYDRAULIC WATER JETS ARE SOMETIMES USED TO LOOSEN PILES, BUT ARE NOT COVERED UNDER THIS PROGRAMMATIC BIOLOGICAL EVALUATION.

2.3. PILE CUT AT THE MUDLINE: WHEN THE PILE IS EITHER TOO DETERIORATED OR ROTTED TO THE EXTENT THAT EXTRACTION WOULD CAUSE GREATER IMPACTS BECAUSE OF THE PILE BREAKING AND SUBSEQUENT NEEDS TO REMOVAL ALL MATERIAL DISPERSED IN THE WATER COLUMN, THEN THE PILE IS CUT AT THE MUDLINE. IF THE PILE INADVERTENTLY BREAKS DURING EXTRACTION, CUTTING WILL ALSO THEN OCCUR ALONG WITH REMOVAL OF THE BROKEN PORTIONS WITHIN THE WATER COLUMN. THE PILES ARE CUT BY A DIVER UNDERWATER USING A PNEUMATIC SAW. DEPENDING ON THE HEIGHT OF THE PILES, THEY MAY BE CUT IN SECTIONS.

3. VINYL (PVC) SHEET PILING INSTALLATION

3.1. DRIVING EQUIPMENT SHALL BE ANY OF THE FOLLOWING EQUIPMENT: 500 TO 3,500 POUND DROP HAMMER, APE, VULCAN, OR ICE VIBRATORY HAMMER, VIBRATORY PLATE COMPACTOR, CONCRETE BREAKER WITH DRIVING HELMET, WATER JET, RAIL JET, OR 90 LB. JACKHAMMER. NO OTHER EQUIPMENT WILL BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
3.2. TOLERANCE FOR DRIVING. ALL SHEET PILING SHEETS SHALL BE PLUMB IN BOTH DIRECTIONS USING A CARPENTER'S LEVEL
3.3. A TEMPORARY TIMBER WALL TEMPLATE SHALL BE USED TO MAINTAIN PLUMBNESS OF THE SHEET PILE WALL.
3.4. PROTECTION OF SHEET PILING. A STEEL DRIVING HEAD SUITABLE FOR VINYL SHEET PILING SHALL BE USED. IF THE TOP OF THE SHEET PILING IS BEING DAMAGED DURING DRIVING, TIMBER CUSHION BLOCKS SHALL BE USED TO PROTECT THE SHEET PILING FROM DAMAGE DURING DRIVING. THE THICKNESS OF THE CUSHION BLOCK AND THE NUMBER OF DRIVES PER CUSHION BLOCK SHALL BE DETERMINED BY THE ENGINEER.
3.5. CUT-OFFS. ALL SHEET PILING SHALL BE DRIVEN TO THE ELEVATIONS AS SHOWN ON THE PLANS. NO CUTOFFS SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
3.6. PULLING AND REDRIVING PVC PILES. OCCASIONALLY, PILES NEED TO BE PULLED OUT OF THE GROUND. A PLAN FOR PULLING SHEETS MUST BE DEVELOPED IN ADVANCE OF STARTING THE PROJECT BY THE CONTRACTOR AS THE PLAN WILL BE DEPENDENT ON THE LENGTH OF THE PILES AND THE EQUIPMENT AVAILABLE. REDRIVING OF PVC PILES IS GENERALLY DISCOURAGED BUT MAY BE POSSIBLE IF THE PILES ARE NOT DAMAGED FROM THE PULLING PROCESS. THE DESIGN ENGINEER FOR THE PROJECT SHALL ESTABLISH CRITERIA FOR THE EVALUATION OF THE PULLED PILES.

4. TIMBER PILING INSTALLATION

4.1. TIMBER PILING SHALL BE DRIVEN OR AUGERED AT THE LOCATION AND TO THE ELEVATION SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.
4.2. PENETRATION: THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS UNLESS PROPER BEARING RESISTANCE IS ACHIEVED AND APPROVED BY THE ENGINEER.
4.3. CUT-OFFS. AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN 2-INCHES OF THE ESTABLISHED ELEVATION.
4.4. DRIVING EQUIPMENT. TIMBER PILING SHALL BE DRIVEN WITH GRAVITY OR POWER HAMMERS, AS DESCRIBED HEREIN.

4.4.1. GRAVITY HAMMER – CONTRACTOR SHALL FURNISH A CERTIFIED SCALE WEIGHT OF THE HAMMER TO BE USED. GRAVITY HAMMERS FOR DRIVING TIMBER PILING SHALL WEIGH NOT LESS THAN 2000 POUNDS AND NOT MORE THAN 3500 POUNDS. THE DROP SHALL BE REGULATED SO AS TO AVOID INJURY TO THE PILE, AND IN NO CASE SHALL EXCEED 15 FEET.
4.4.2. POWER HAMMERS SHALL ENSURE THE DESIGNATED STROKE LENGTH AND NUMBER OF BLOWS PER MINUTE. POWER HAMMERS SHALL OPERATE AT NOT LESS THAN 80 PERCENT OF THE MANUFACTURER'S RATED CAPACITY. THE WEIGHT OF THE RAM SHALL BE NOT LESS THAN 2000 POUNDS. POWER HAMMERS SHALL DEVELOP NOT LESS THAN 6000 AND NOT MORE THAN 9000 FOOT POUNDS OF ENERGY PER BLOW AT EACH FULL STROKE OF THE PISTON.

4.5. PILOT HOLE: IF NECESSARY, IN ORDER TO ALLOW PENETRATION OF THE PILES TO THE DESIGN DEPTHS, DRILLED OR PRE-JETTED PILOT HOLES SHALL BE MADE IMMEDIATELY BEFORE PILES ARE DRIVEN. PILOT HOLES ARE NOT TO BE EMPLOYED UNLESS IT IS FOUND IMPRACTICAL TO DRIVE THE PILINGS ACCORDING TO THE PLANS AND ABOVE SPECIFICATIONS WITHOUT SUCH PILOT HOLES. NO PILOT HOLES SHALL BE MADE WITHOUT PRIOR APPROVAL AND CONSENT OF THE ENGINEER AS TO THE NATURE AND EXTENT OF THE METHODS TO BE USED. DRILLING OR JETTING FOR HOLES SHALL NOT BE MORE THAN ABSOLUTELY NECESSARY TO ALLOW THE PILINGS TO REACH DESIGN DEPTHS WITHOUT REFUSAL, BASED ON OBSERVED RESULTS OF THE DRIVING OPERATIONS. DRILLED PILOT HOLES SHALL NOT BE LARGER IN DIAMETER THAN 2/3 OF THE DIAMETER, OR DIAGONAL OF THE PILE SECTION. PILOT HOLES SHALL NOT IN ANY INSTANCE EXTEND BELLOW GROUND MORE THAN 2/3 OF THE DESIGN PENETRATION FOR THE PILING.
4.6. NOTCHING: THE PILE SHALL BE NOTCHED AT THE TOP ONLY ENOUGH TO PROVIDE A SHELF FOR SUPPORTING THE BEAMS. THE NOTCH LENGTH SHALL BE LONG ENOUGH SO THAT ALL REQUIRED BOLTS PASS THROUGH BOTH THE BEAM AND THE PILE. NO MORE THAN 1/2 OF THE PILE THICKNESS SHALL BE REMOVED. THE PILES SHALL NOT BE NOTCHED AT ANY OTHER LOCATION.
4.7. DRIVING TOLERANCES: DRIVE PILING TO THE VERTICAL OR BATTER LINE INDICATED. USE TEMPLATES, WHEN NECESSARY, TO COMPLY WITH ALLOWABLE TOLERANCES AND VARIATION FROM PLAN ALIGNMENT AS FOLLOWS:

4.7.1. PERPENDICULAR TO THE LONGITUDINAL CENTERLINE OF THE PILING, TOP OF PILING TO BE NOT MORE THAN 1 1/2-INCHES FROM TRUE POSITION INDICATED ON THE PLANS FOR BOATHOUSE PILING.
4.7.2. PARALLEL TO THE LONGITUDINAL CENTERLINE OF THE PILING, TOP OF PILING TO BE NOT MORE THAN 1/8-INCHES/FOOT FROM TRUE POSITION INDICATED ON PLANS FOR BOATHOUSE PILING.

5. DRIVEN PILE CAPACITY

5.1. THE ULTIMATE PILE CAPACITY WILL BE DETERMINED BY THE DESIGN ENGINEER. DRIVE PILES WITH APPROVED DRIVING EQUIPMENT TO THE ORDERED LINKED OR OTHER LINKS NECESSARY TO OBTAIN THE REQUIRED ULTIMATE PILE CAPACITY. JETTING, PRE-DRILLING OR OTHER METHODS TO FACILITATE PILE PENETRATIONS SHALL NOT BE USED UNLESS SPECIFICALLY PERMITTED BY THE DESIGN ENGINEER.
5.2. PENETRATION PER BELOW MAY BE MEASURED EITHER DURING INITIAL DRIVING OR DURING RE-DRIVING FOLLOWING A SET PERIOD OF TIME AS DETERMINED BY THE DESIGN ENGINEER.
5.3. PRACTICAL REFUSAL. PRACTICAL REFUSAL WILL BE DETERMINED BY THE DESIGN ENGINEER, AND WILL BE A CONDITION WHERE THE BELOW COUNT EXCEEDS EITHER TWO TIMES THE NUMBER OF BLOWS REQUIRED IN 1 FOOT OR THREE TIMES THE NUMBER OF BLOWS REQUIRED IN 3 INCHES TO ACHIEVE THE REQUIRED BEARING VALUE, NOT TO EXCEED FIVE BLOWS PER INCH. PILES REACHING PRACTICAL REFUSAL SHALL NOT BE DRIVEN FURTHER.

6. PIER FRAMING NOTES:

6.7. INDIVIDUAL PIECES SHALL BE SELECTED SO THAT KNOTS AND OBVIOUS MINOR DEFECTS WILL NOT INTERFERE WITH THE PLACING OF BOLTS, OR PROPER NAILING, OR THE MAKING OF SOUND CONNECTIONS.
6.8. LUMBER MAY BE REJECTED BY THE ENGINEER FOR EXCESSIVE WARP, TWIST, BOW OR CROOK, MILDEW, FUNGUS OR MOLD AS WELL AS FOR IMPROPER GRADE MARKING.
6.9. STORAGE OF MATERIALS. LUMBER AND TIMBER AT THE SITE OF THE WORK SHALL BE STORED IN PILES. UNTREATED MATERIAL SHALL BE OPEN-STACKED AT LEAST 12 INCHES ABOVE THE GROUND SURFACE TO PREVENT WARPING. IT SHALL BE PROTECTED FROM THE WEATHER BY SUITABLE COVERING. TREATED TIMBER SHALL BE CLOSE-STACKED AND PILED TO SHED WATER AND PREVENT WARPING.
6.10. STORING & HANDLING. AT ALL POINTS, SUITABLE PRECAUTIONS SHALL BE TAKEN TO PREVENT EXCESSIVE SPLITTING, CHECKING, WARPING, DISTORTION OR ANY OTHER DAMAGE WHICH MAY CAUSE THE PILING TO BE REJECTED. TREATED TIMBER PILING SHALL BE CAREFULLY HANDLED WITHOUT DROPPING, BREAKING OF OUTER FIBERS, BRUISING OR PENETRATING THE SURFACE WITH TOOLS. THE PILING SHALL BE HANDLED WITH ROPE SLINGS. CANT DOGS, HOOKS OR PIKE HOLES SHALL NOT BE USED WHERE SUCH TOOL WILL PENETRATE UNTREATED WOOD.
6.11. HANDLING. TIMBER SHALL BE CAREFULLY HANDLED WITHOUT SUDDEN DROPPING, BREAKING OF OUTER FIBERS OR BRUISING. THE SURFACE OF TREATED TIMBERS SHALL NOT BE PENETRATED WITH TOOLS. TREATED TIMBERS SHALL BE HANDLED WITH ROPE SLINGS OR OTHER APPROVED METHODS. USE OF CANT DOGS, HOOKS, OR PIKE POLES SHALL NOT BE PERMITTED.
6.12. WORKMANSHIP. WORKMANSHIP SHALL BE FIRST CLASS THROUGHOUT. NAILS AND SPIKES SHALL BE DRIVEN WITH SUFFICIENT FORCE TO SET THE HEADS FLUSH WITH THE SURFACE OF THE WOOD. FRAMING SHALL BE TRUE AND EXACT. DEEP HAMMER MARKS IN WOOD SURFACES SHALL BE CONSIDERED EVIDENCE OF POOR WORKMANSHIP AND SUFFICIENT CAUSE FOR THE REMOVAL OF THE WORKMAN CAUSING THEM. ALL LUMBER AND TIMBER SHALL BE ACCURATELY CUT AND FRAMED TO A CLOSE FIT, IN SUCH A MANNER THAT THE JOINTS WILL HAVE EVEN BEARING. MORTISES SHALL BE TRUE TO SIZE FOR THEIR FULL DEPTH AND SHALL MAKE A SNUG FIT. COUNTERSINKING SHALL BE DONE WHENEVER SMOOTH FACES ARE REQUIRED.

7. PRIMARY FRAMING – STRINGERS/BEAMS

7.1. STRINGERS SHALL BE PLACED IN A POSITION SO THAT KNOTS NEAR THE EDGES WILL BE IN THE TOP PORTIONS OF THE STRINGERS.
7.2. STRINGERS MAY HAVE BUTT JOINTS OR LAPPED JOINTS AS SHOWN ON THE PLANS.
7.3. ADJACENT STRINGERS SHALL BE LAPPED AT ALTERNATING LOCATIONS.
7.4. ALL STRINGERS SHALL BE SECURELY FASTENED BY BOLTS AS SHOWN ON THE PLANS.

8. TIMBER DECK BOARD INSTALLATION:

8.1. DECK SPACING CHART:

WIDTH AT INSTALLATION	DECKING GAP (MIN – MAX)
5-1/2"	1/8" – 1/4"
5-5/8"	1/16" – 1/8"
5-3/4"	BUTT PIECES TOGETHER
>5-3/4"	NOT PERMITTED

9. COMPOSITE DECK BOARD INSTALLATION:

9.1. JOIST SPACING: WHEN INSTALLING DECK BOARDS PERPENDICULAR TO THE JOISTS IN RESIDENTIAL APPLICATIONS, SPACING IS 16" ON CENTER. WHEN THE DECKING IS TO BE LAID DIAGONALLY, REDUCE THE ON CENTER JOIST SPACE BY 4".
9.2. SOLID BLOCKING LAID ON THE FLAT WILL INHIBIT WATER FLOW AND RESULT IN BUILDUP OF ORGANIC MATERIALS OVER TIME, WHICH WILL MAKE CLEANING MORE DIFFICULT.
9.3. WHEN BLOCKING IS REQUIRED, IT SHOULD BE INSTALLED LADDER STYLE.
9.4. BOARD SPACING: TO COMPENSATE FOR THE EFFECTS OF CONTRACTION AND EXPANSION, THE FOLLOWING INSTALLATION STANDARDS MUST BE MAINTAINED:

9.5. GAPPING:

9.5.1. SIDE BOARD SPACING 1/4";
9.5.2. BETWEEN BOARD AND ANY PERMANENT STRUCTURE OR POST 1/8".
9.5.3. BETWEEN BOARD ENDS: AT 70°F SPACING 1/8"; AT 90° SPACING 1/16".

9.6. THE FOLLOWING PROCEDURES WILL RESULT IN LESS VISIBLE GAPPING:

9.6.1. KEEP BOARDS OUT OF DIRECT SUN DURING STORAGE AND CUTTING PROCESSES, AND THROUGH TO INSTALLATION IF POSSIBLE. NEVER CUT AND INSTALL BOARDS IN DIRECT SUN ASSUMING THEM TO BE AT AMBIENT TEMPERATURE.
9.6.2. USE SPLITTER/DIVIDER BOARDS BETWEEN EACH CONTINUOUS RUN OF BOARDS.
9.6.3. SURFACE FASTEN USING HEAVY GAUGE (#7 X 2 1/4") QUALITY COMPOSITE DECK SCREWS.

9.7. SURFACE FASTENERS: THE USE OF STAINLESS STEEL COMPOSITE DECK SCREWS IS STRONGLY RECOMMENDED.

9.7.1. COMPOSITE SURFACE FASTENERS MAY BE USED – CHECK WITH MANUFACTURER FOR COATING WARRANTY.
9.7.2. PRE-DRILLING IS RECOMMENDED.
9.7.3. PLAIN, GALVANIZED SURFACE FASTENERS ARE NOT RECOMMENDED.
9.7.4. SCREW HEADS MUST BE FLUSH WITH BOARD SURFACE. USE CAUTION TO AVOID OVER-TIGHTENING FASTENERS.
9.7.5. EXCESS TIGHTENING MAY CAUSE IMMEDIATE OR EVENTUAL CRACKING OF THE FASTENER LOCATIONS.
9.7.6. DO NOT SURFACE FASTEN WITHIN 1/2" OF THE END OF A BOARD OR 1" FROM THE SIDE OF THE BOARD.
9.7.7. FASTENING BOARDS: COMPOSITE DECKING REQUIRES TWO (2) FASTENERS AT EVERY JOIST LOCATION.

10. CUTTING, FRAMING HOLES FOR BOLTS, DOWELS, RODS AND LAG SCREWS.

10.1. NOTCHING: THE PILE SHALL BE NOTCHED AT THE TOP ONLY ENOUGH TO PROVIDE A SHELF FOR SUPPORTING THE BEAMS. THE NOTCH LENGTH SHALL BE LONG ENOUGH SO THAT ALL REQUIRED BOLTS PASS THROUGH BOTH THE BEAM AND THE PILE. NO MORE THAN 1/2 OF THE PILE THICKNESS SHALL BE REMOVED. THE PILES SHALL NOT BE NOTCHED AT ANY OTHER LOCATION.

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: CONSTRUCTION NOTES

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
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JOB NO: 20-244
REV: B

10.2. ANY COUNTERSINKING DEPTHS MUST BE LIMITED TO THE ACTUAL SPACE REQUIRED FOR THE WASHER AND BOLT HEAD WITH A SMALL ALLOWANCE. VERTICAL ORIENTED COUNTERSINKING SHOULD BE FILLED COMPLETELY WITH A BITUMINOUS MASTIC TO PREVENT WATER INTRUSION.
10.3. ALL CUTTING, FRAMING AND BORING OF TREATED TIMBERS SHALL BE DONE BEFORE TREATMENT INSOFAR AS PRACTICABLE.
10.4. HOLES FOR ROUND DRIFT BOLTS AND DOWELS SHALL BE BORED WITH A BIT 1/16-INCH LESS THAN IN DIAMETER THAN THE BOLTS OR DOWELS TO BE USED. THE DIAMETER OF HOLES FOR SQUARE DRIFT BOLTS OR DOWELS SHALL BE EQUAL TO THE LEAST DIMENSION OF THE BOLT OR DOWEL.
10.5. HOLES FOR MACHINE BOLTS SHALL BE BORED WITH A BIT OF THE SAME DIAMETER AS THE BOLT.
10.6. HOLES FOR RODS SHALL BE BORED WITH A BIT 1/16-INCH GREATER IN DIAMETER THAN THE ROD.
10.7. HOLES FOR LAG SCREWS SHALL BE BORED WITH A BIT NO LARGER THAN THE ROOT OF THE THREAD AND SHALL BE 1/2- INCH DEEPER THAN THE PENETRATION OF THE LAG SCREWS.
10.8. FOR TREATED TIMBER, HOT CREOSOTE OIL SHALL BE INJECTED UNDER PRESSURE INTO THE BOLT HOLE IN SUCH A MANNER THAT THE ENTIRE SURFACE OF THE HOLE SHALL RECEIVE A COATING OF OIL BEFORE THE INSERTION OF THE BOLT.

11. COATINGS FOR CORROSION PROTECTION:

11.1. AFTER COMPLETION OF THE STRUCTURE, ALL LAP WELDED RODS, BOLT HEADS, THREADS, NUTS, WASHERS AND EXPOSED PORTIONS OF THE BOLTS SHALL BE GIVEN A THOROUGH COATING OF COAL TAR EPOXY (RUSTOLEUM C9578 SYSTEM OR APPROVED EQUAL).
11.2. PLATFORM LADDERS AND HANDRAILS, IN ADDITION TO MISCELLANEOUS CARBON STEEL COMPONENTS SUCH AS BEARING PLATES, ANCHOR BRACKETS, CHAINS AND ALL OTHER COMPONENTS NOT RECEIVING COAL TAR EPOXY COATING, SHALL BE GALVANIZED PER ASTM A-123, A-153.
11.3. FIELD PAINT ALL DAMAGED COATED AREAS OF PILING, FENDER FRAME, ETC. AFTER ERECTION.

12. TREATMENT OF CUTS.

12.1. WHEN IT IS NECESSARY TO BORE HOLES OR TO CUT PRESSURE TREATED MATERIAL AFTER TREATMENT, OR WHEN ANY TREATED SURFACE IS BADLY SCARRED, THE HOLE, CUT OR SCARRED SURFACE SHALL BE GIVEN A MULTI-APPLICATION OF A CONCENTRATED SOLUTION OF THE SAME TYPE PRESERVATIVE AS THAT USED IN THE ORIGINAL TREATMENT AS SPECIFIED IN AWPA STANDARD M4.
12.2. THE SUPPLIER OF THE TIMBER PRODUCTS SHALL FURNISH SUITABLE LIQUID PRESERVATIVE FOR FIELD TREATMENT UPON REQUEST FROM THE ENGINEER.
12.3. HEATING OF THE PRESERVATIVE AND THE METHOD OF APPLICATION TO THE DAMAGED OR CUT AREAS SHALL BE AS SPECIFIED IN AWPA STANDARD M4.

13. GEOSYNTHETIC PLACEMENT.

13.1. THE FILTER CLOTH SHALL BE LAID AS DESCRIBED BELOW HOWEVER, FOLDS AND WRINKLES IN THE FILTER CLOTH MUST BE AVOIDED.
13.2. CLEAR THE SITE OF ALL LARGE STONES, ROOTS, AND DEBRIS. EXCAVATE AND SHAPE THE SITE TO THE LINES AND GRADES AS DIRECTED BY THE ENGINEER.
13.3. FILL DEPRESSIONS OR HOLES TO PERMIT CLOSE CONTACT BETWEEN THE GEOSYNTHETIC AND THE PREPARED SURFACE.
13.4. PLACE THE GEOSYNTHETIC IN CLOSE CONTACT WITH THE SOIL, ELIMINATING FOLDS OR EXCESSIVE WRINKLES BOTH LONGITUDINALLY AND TRANSVERSELY. THE GEOSYNTHETIC NEED NOT BE PLACED IN TENSION BEFORE COVERING WITH RIPRAP OR OTHER MATERIALS.
13.5. DURING PLACEMENT OF THE BACKFILL, CARE SHOULD BE TAKEN TO AVOID PUNCTURING OR TEARING. THE BACKFILL SHOULD BE PLACED OVER THE FILTER CLOTH IN SUFFICIENT TIME TO PREVENT UV DAMAGE TO THE FABRIC.
13.6. THE GEOSYNTHETIC MAY BE JOINED BY OVERLAPPING OR SEWING. THE MINIMUM OVERLAP DISTANCE IN THE TRANSVERSE OR LONGITUDINAL DIRECTION IS 2 FEET, EXCEPT IN UNDERWATER INSTALLATIONS WHERE THE MINIMUM OVERLAP IS 3 FEET. SEWN SEAMS ARE ALLOWED IF THE OVERLAP IN THE TRANSVERSE OR LONGITUDINAL DIRECTION IS AT LEAST 6".
13.7. ANCHOR THE GEOSYNTHETIC FIRMLY AT THE TOP OF THE SLOPE USING AN ANCHOR TRENCH. FOR MAXIMUM EFFECTIVENESS, THE TRENCH SHOULD BE AT LEAST 3 FEET FROM THE CREST OF THE SLOPE AND AT LEAST 2 FEET DEEP. CAREFULLY COMPACT THE TRENCH TO ENSURE GOOD ANCHORAGE.
13.8. WHEN PLACING GEOSYNTHETIC ALONG A STREAM OR OTHER PLACES WHERE WATER MOVEMENTS ARE EXPECTED, ANCHOR THE TOE OF THE GEOSYNTHETIC IN A SIMILAR FASHION AS AT THE TOP TO PREVENT SCOUR BENEATH IT.
13.9. THE BACKFILL SHOULD BE PLACED FROM THE CENTER OUTWARD. THE MAXIMUM HEIGHT OF DROP OF THE BACKFILL SHALL BE LIMITED TO THREE (3) FEET.

14. BOAT RAMP CONSTRUCTION:

14.1. IDEAL SLOPE: 12 TO 15% (7' TO 8.5')
14.2. ALL MIXING, TRANSPORTATION, PLACING, AND CURING OF CONCRETE SHALL COMPLY WITH ACI 318-89.
14.3. REINFORCED CONCRETE PAVING SHALL CONSIST OF 5-INCH THICK CONCRETE SLAB WITH NO. 4 REBAR @ 12" C.C. EACH WAY.
14.4. MINIMUM REINFORCEMENT LAP LENGTHS = 22 INCHES FOR (#3 REBAR).
14.5. CONCRETE SHALL HAVE 28-DAY STRENGTH OF 3,000 PSI MINIMUM WITH A 4-INCH TO 5-INCH SLUMP.
14.6. REINFORCEMENT: ASTM A615 GRADE 60 KSI MINIMUM.
14.7. EXPANSION JOINTS (EJ) SHALL BE PROVIDED EVERY 20' MAXIMUM.

15. CONCRETE RIPRAP PLACEMENT

15.1. ADEQUATE PRECAUTIONS SHALL BE TAKEN DURING THE PLACING OPERATION TO PREVENT DAMAGE TO THE EXISTING FOUNDATIONS.
15.2. THE CONTRACTOR SHALL, WHERE NECESSARY, TRIM AND SHAPE THE AREA TO BE RIPRAPPED. ALL EXISTING DEBRIS SHALL BE REMOVED AND STOCKPILED.
15.3. A GEOTEXTILE FABRIC SHALL BE PLACED IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS BENEATH THE ROCK RIPRAP TO PREVENT SOIL LOSS THROUGH THE RIPRAP OPENINGS. RIPRAP SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DISTURBING THE FILTER BLANKET.
15.4. IN ORDER TO PREVENT PUNCTURES, PLENTY OF SLACK SHOULD BE PROVIDED OVER PROTRUDING OBJECTS THAT CANNOT BE REMOVED. A LAYER OF SAND OR FINE GRAVEL CAN BE PLACED ON THE FABRIC FOR EXTRA PROTECTION AGAINST PUNCTURE.
15.5. RIPRAP MAY BE PLACED BY DUMPING. ADEQUATE CONTROLS SHALL BE TAKEN TO ENSURE A REASONABLY UNIFORM THICKNESS AND A WELL-GRADED DISTRIBUTION OF STONE SIZES WITHOUT PROTRUSION OF ISOLATED LARGE STONES. REARRANGING OF INDIVIDUAL STONES BY MECHANICAL EQUIPMENT OR BY HAND MAY BE REQUIRED.
15.6. STONE FOR RIPRAP SHALL BE PLACED ON THE PREPARED BASE IN SUCH MANNER AS TO PRODUCE A REASONABLY WELL-GRADED MASS OF ROCK WITH THE MINIMUM PRACTICABLE PERCENTAGE OF VOIDS, AND SHALL BE CONSTRUCTED TO THE DESIRED SLOPES BY THE OWNER.
15.7. RIPRAP SHALL BE PLACED TO ITS FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACING THE BEDDING MATERIAL.
15.8. SUFFICIENT ROCK MUST BE PLACED AT THE BASE OF THE RIP-RAP FOR TOE PROTECTION.
15.9. STONE (ARMOR) PLACEMENT STONE OR ARMOR BLOCK SHALL BE PLACED DIRECTLY ON THE GEOSYNTHETIC MATERIAL AS DIRECTED BY THE ENGINEER.
15.10. RIPRAP AND HEAVY STONE FILLING SHALL NOT BE DROPPED ONTO THE GEOSYNTHETIC FROM A HEIGHT OF MORE THAN 1 FOOT.
15.11. SLOPE PROTECTION AND SMALLER SIZES OF STONE FILLING SHALL NOT BE DROPPED ONTO THE GEOSYNTHETIC FROM A HEIGHT EXCEEDING 3 FEET.
15.12. ANY GEOSYNTHETIC DAMAGED DURING PLACEMENT SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.

16. CONCRETE PAVING

16.1. ALL MIXING, TRANSPORTATION, PLACING, AND CURING OF CONCRETE SHALL COMPLY WITH ACI 318-89.
16.2. REINFORCED CONCRETE PAVING SHALL CONSIST OF 6-INCH THICK CONCRETE SLAB WITH NO. 4 REBAR @18" C.C. EACH WAY.
16.3. SUBGRADE SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D698) WITH IN -1 TO +3% OF OPTIMUM MOISTURE CONTENT.
16.4. MINIMUM REINFORCEMENT LAP LENGTHS = 24 INCHES FOR (#4 REBAR).
16.5. CONCRETE SHALL HAVE 28-DAY STRENGTH OF 3,000 PSI MINIMUM WITH A 4-INCH TO 5-INCH SLUMP.
16.6. REINFORCEMENT: ASTM A615 GRADE 60 KSI MINIMUM.
16.7. EXPANSION JOINTS (EJ) SHALL BE PROVIDED EVERY 40' MAXIMUM.
16.8. CONTROL JOINT (CJ) WITH METAL KEYWAY SHALL BE PROVIDED ON CENTERLINE OF ROAD (LONGITUDINALLY).
16.9. CONTROL JOINTS (CJ) WITH TOOLED JOINT OR METAL KEYWAY SHALL BE PROVIDED AT 20' MAXIMUM SPACING ON CENTER (TRANSVERSLEY).

17. SITE CLEAN-UP:

17.1. CONTRACTOR SHALL RESTORE WORK SITE TO ORIGINAL OR BETTER CONDITION AFTER COMPLETION OF WORK INCLUDING GRADING, TOPSOIL, AND SOD.
17.2. COORDINATE WITH OWNER REGARDING RESTORATION OF IRRIGATION OR ELECTRICAL SERVICES, ELECTRICAL, RECONSTRUCTION OF FENCING. ETC.
17.3. SOD REQUIREMENTS. ALL DISTURBED AREAS SHALL BE COMPLETELY SODDED WITH SOD THAT MATCHES EXISTING.
17.4. CLEANUP. THE CONTRACTOR SHALL REMOVE CONSTRUCTION DEBRIS, WASTE MATERIALS, PACKAGING MATERIAL AND OTHER TRASH FROM THE WORKSITE.

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REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET:
CONSTRUCTION NOTES

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
821 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

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SCALE: NTS
SHEET NO: S0.04
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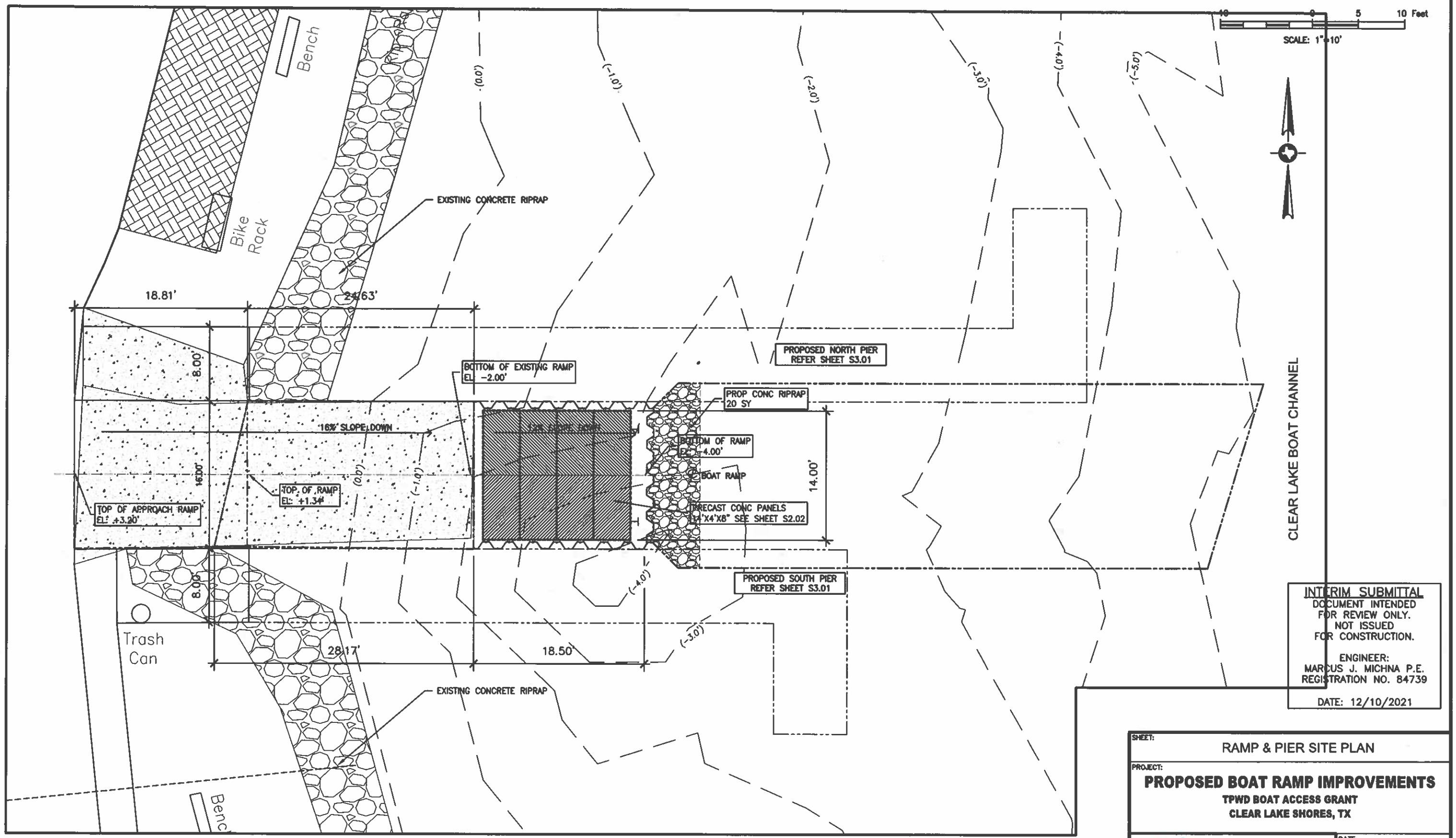

BOAT RAMP SITE PLAN

SCALE: 1" = 10'

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RAMP & PIER SITE PLAN

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DATE:	07/14/2021
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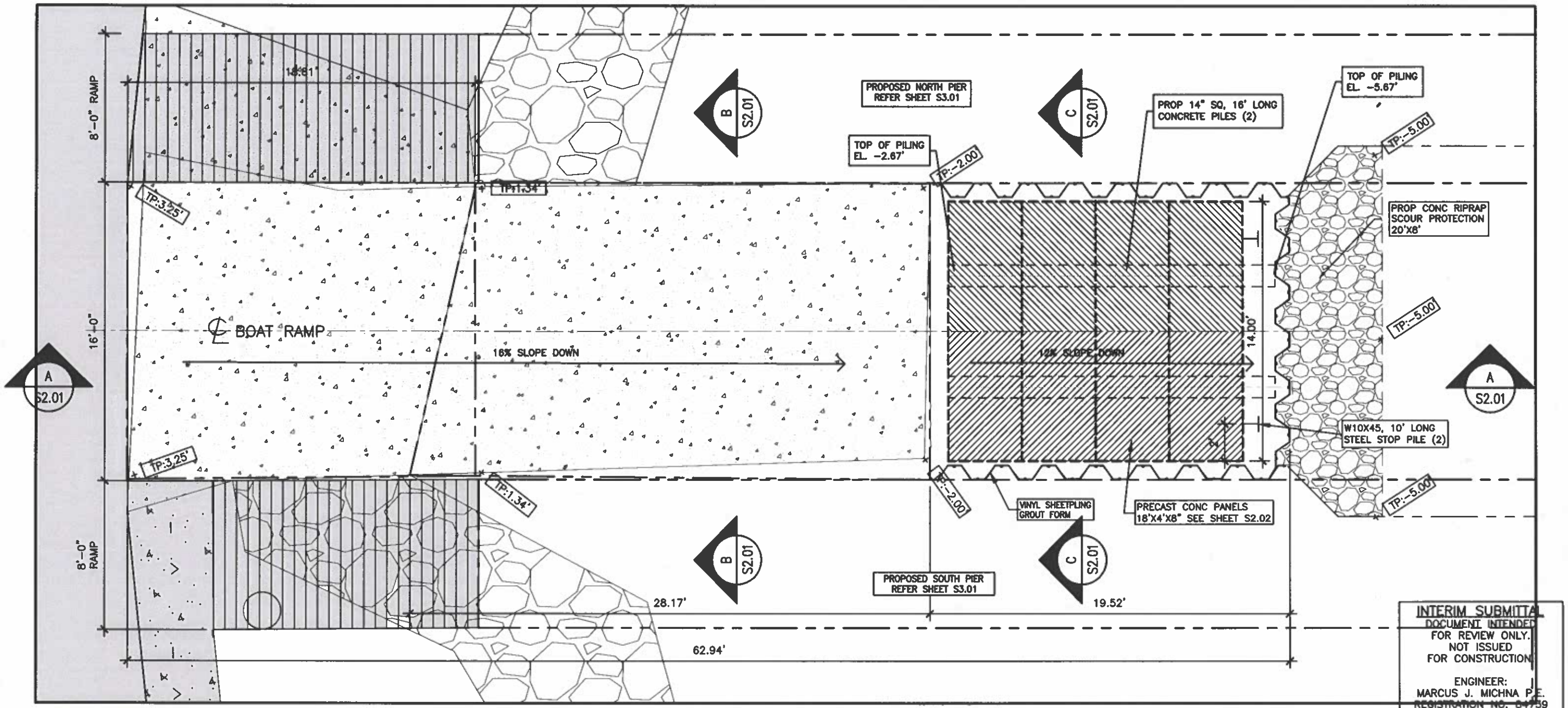
SHEET NO:	S1.01
JOB NO:	20-244
REV:	B



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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84759

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BOAT RAMP NOTES

1. VINYL SHEET PILES SHALL BE USED AS FORMS FOR PUMPING GROUT. MINIMUM LENGTH OF SHEET PILES SHALL BE 6 FEET. CONTRACTOR IS RESPONSIBLE FOR STABILITY OF SHEET PILES WHILE PUMPING GROUT. VINYL SHEET PILE SHALL BE CUT FLUSH WITH RAMP SLABS.
2. CONTRACTOR SHALL SELECT SUITABLE VINYL SHEET PILE PRODUCT TO BE USED AS GROUT FORM.
3. REMOVE 3" PVC INSERTS FROM PANELS PRIOR TO PUMPING GROUT.
4. PUMP 3,000 PSI CONCRETE INTO GROUT HOLES TO FILL VOIDS BENEATH SLABS. MAINTAIN END OF DISCHARGE HOSE BELOW SURFACE OF NEW CONCRETE THROUGHOUT PUMPING OPERATIONS.
5. BEGIN FILLING VOIDS AT TOE OF RAMP AND PROGRESS LANDWARD. COUNTY REPRESENTATIVE MUST BE PRESENT DURING INSTALLATION.
6. FILL VOIDS AT EACH PANEL ALLOWING GROUT TO RISE TO THE LEVEL OF THE NEXT HIGHER PANEL BEFORE MOVING GROUT NOZZLE. TROWEL EXCESS CONCRETE FLUSH WITH SLABS AFTER ALLOWING TIME FOR CONCRETE TO CURE. REMOVE AND DISPOSE OF EXCESS CONCRETE.
7. GROUT SHALL COMPLETELY FILL GROUT HOLES. TO ENSURE COVER OVER REINFORCING STEEL CONTRACTOR SHALL FILL GROUT HOLES WITH EPOXY NOT FLUSH WITH PANEL SURFACE.

BOAT RAMP LAYOUT

SCALE: 3/16"=1'-0"

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SCALE: 3/16"=1-0"
SHEET NO: S1.02
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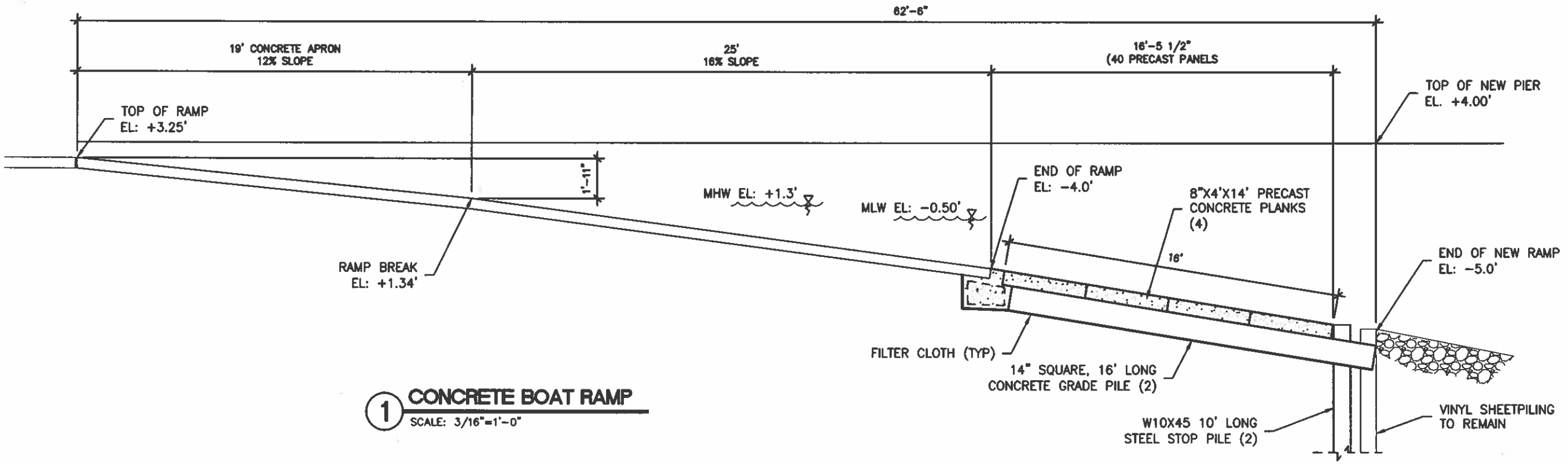
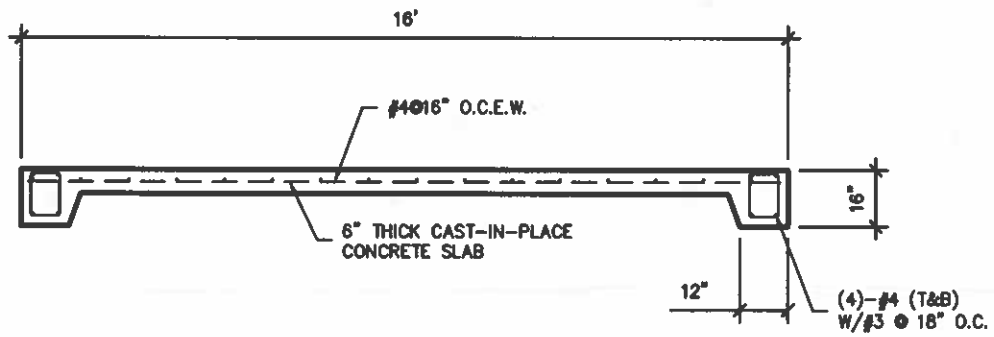


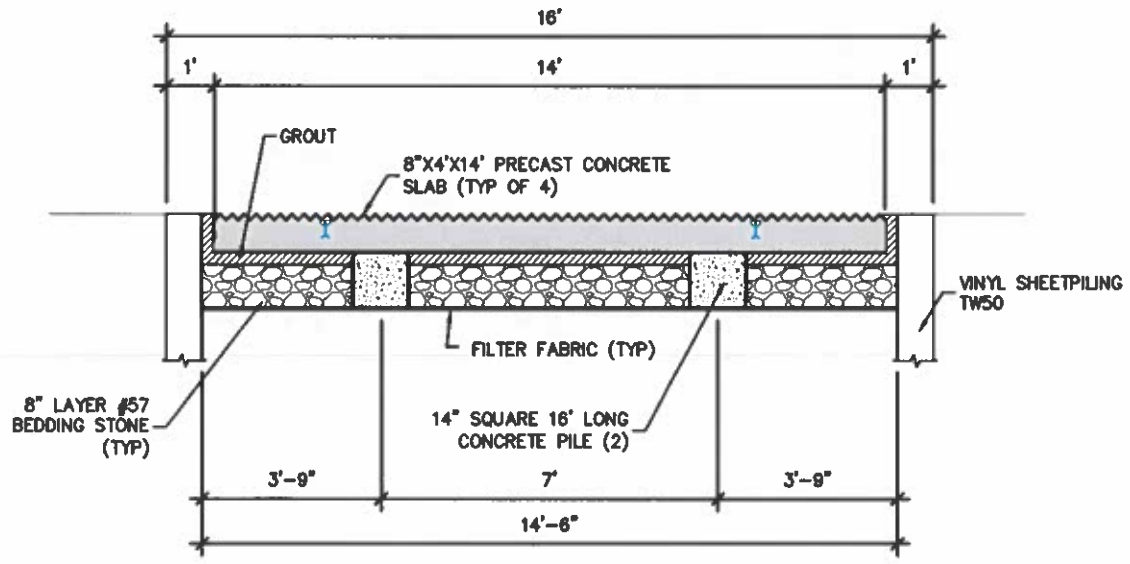
1 CONCRETE BOAT RAMP

SCALE: 3/16"=1'-0"



B SECTION - BOAT RAMP - PAVING

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



C SECTION - BOAT RAMP PANELS

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

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SHEET:
BOAT RAMP DETAILS & NOTES

PROJECT:
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TPWD BOAT ACCESS GRANT
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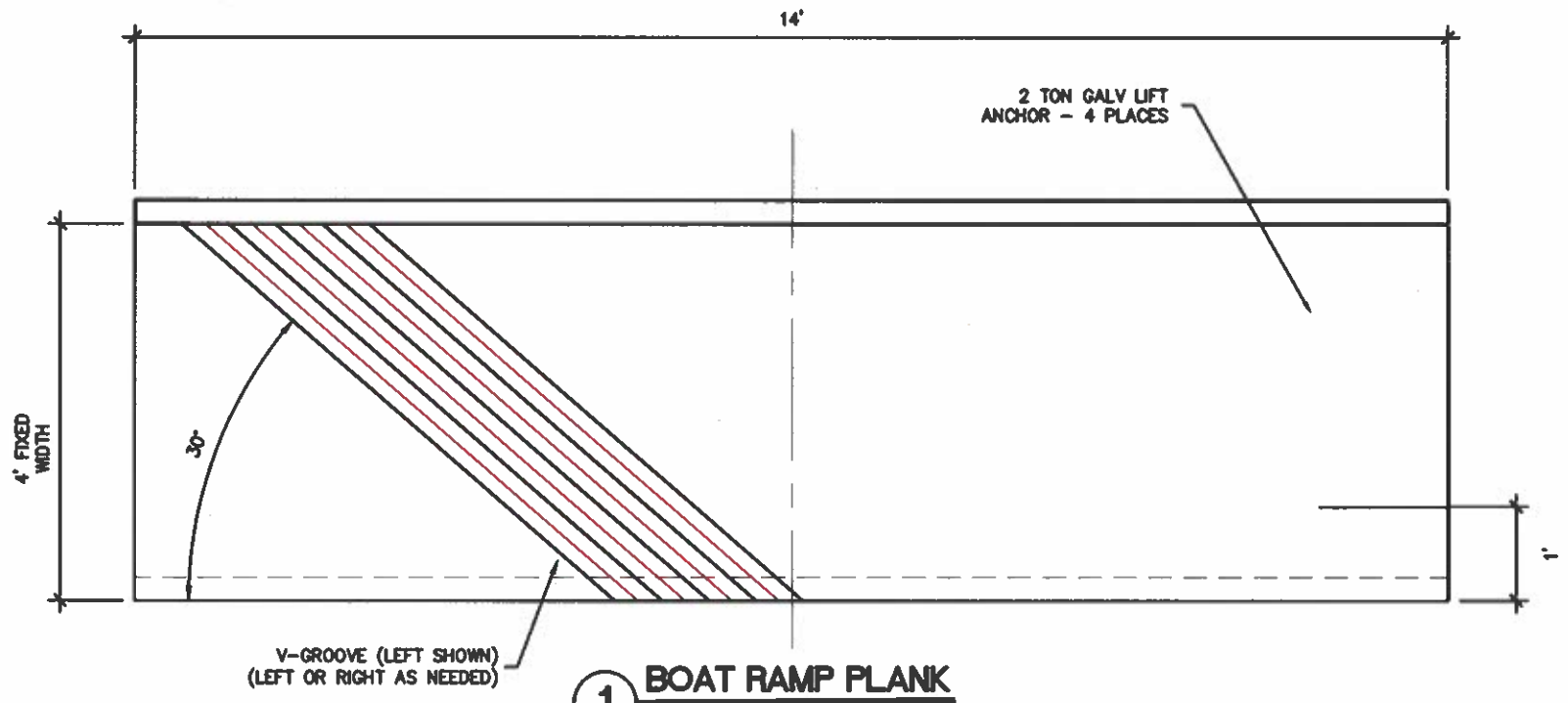
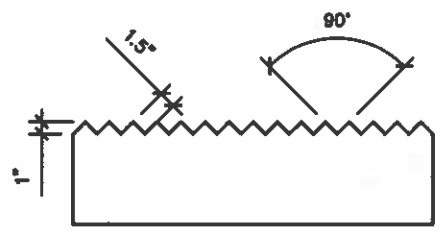
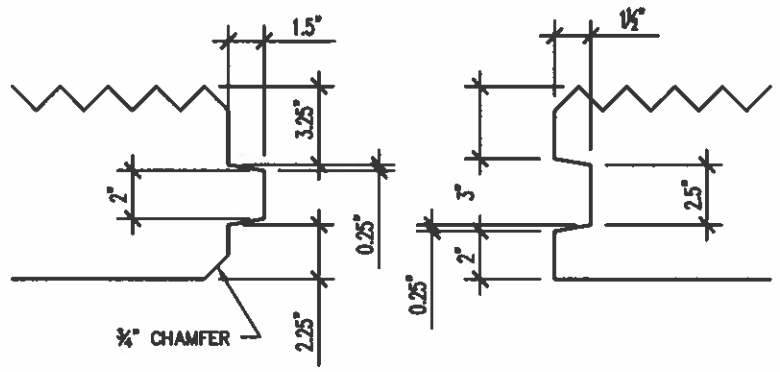


1 BOAT RAMP PLANK
SCALE: 1/2"=1'-0"



2 GROOVE DETAIL
SCALE: 3/4"=1'-0"

3 PANEL END
SCALE: 3/4"=1'-0"



5 KEYWAY DETAIL
SCALE: 1 1/2"=1'-0"

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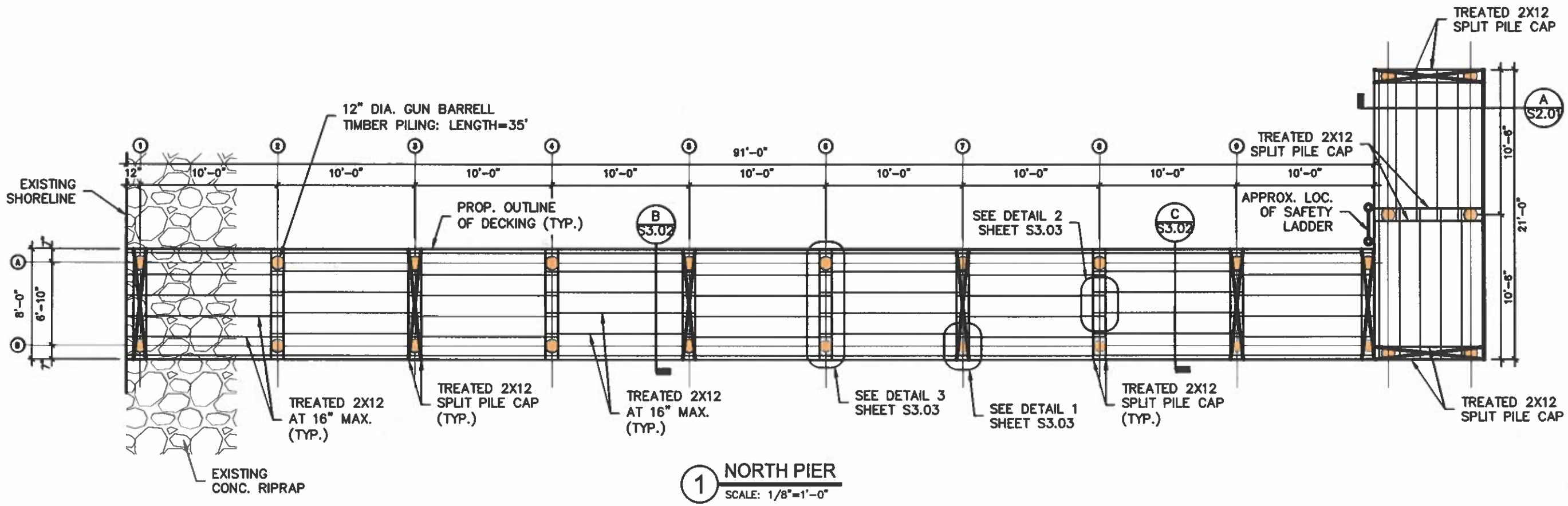
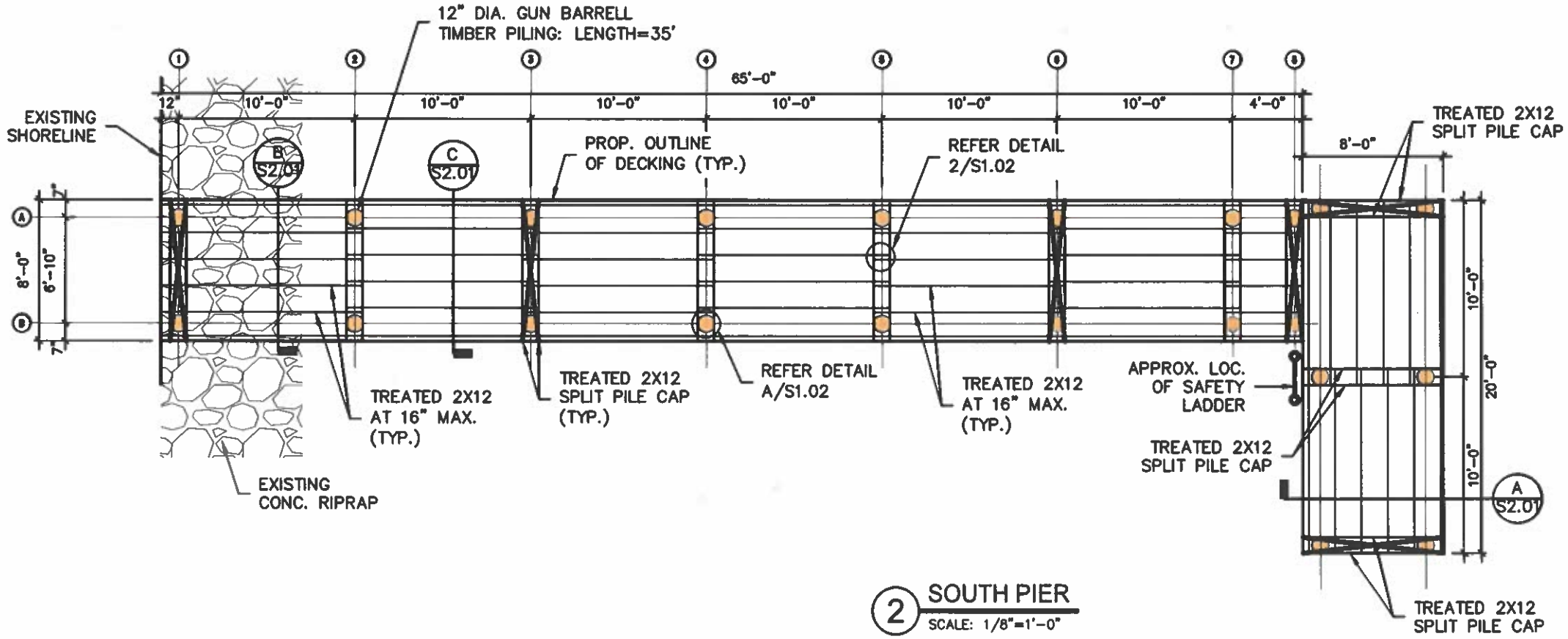


1 NORTH PIER
SCALE: 1/8"=1'-0"



2 SOUTH PIER
SCALE: 1/8"=1'-0"

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

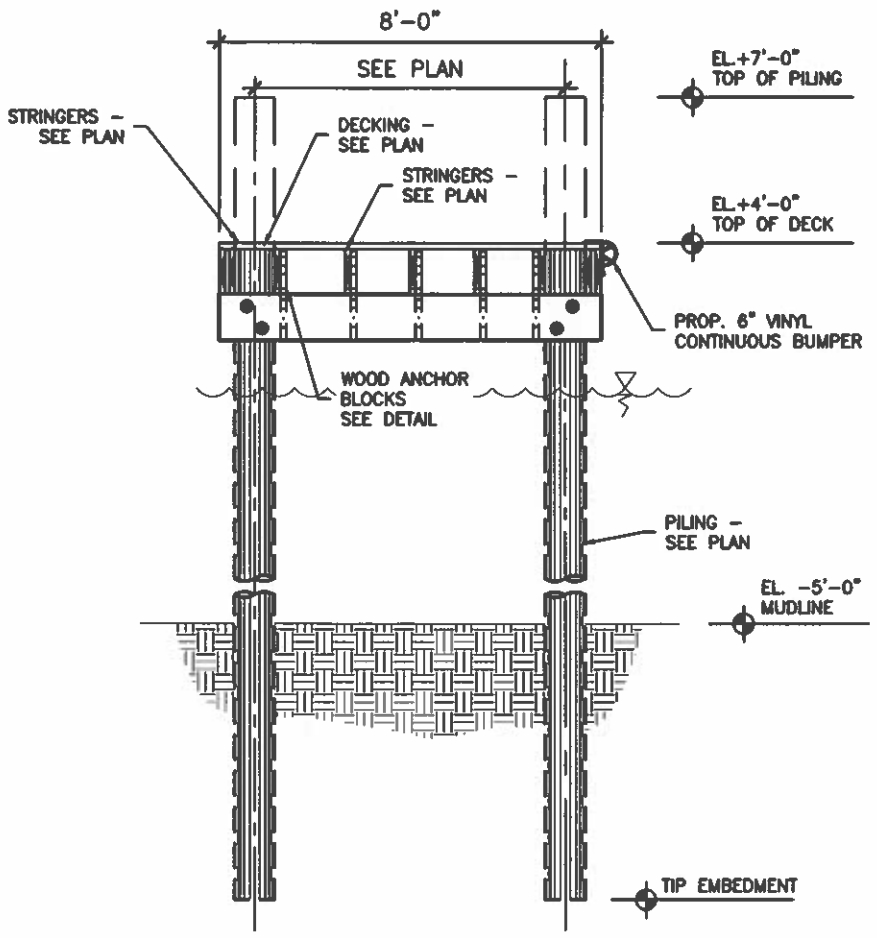
DATE: 12/10/2021

SHEET:
FIXED PIER LAYOUT

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

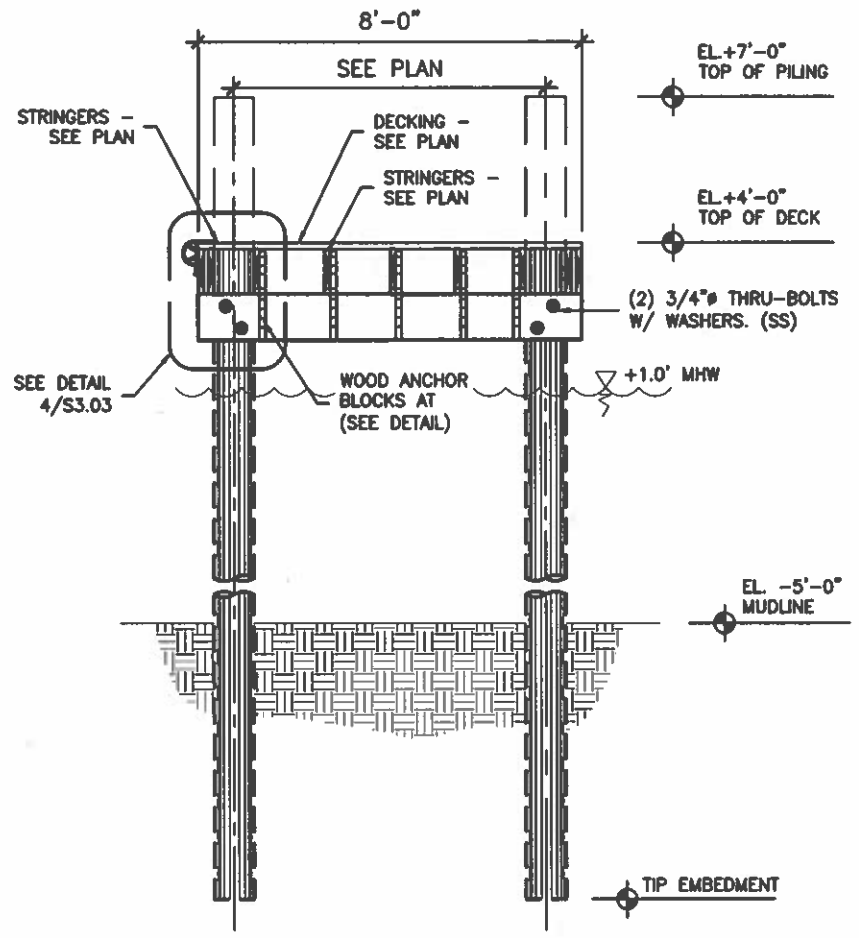
SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
821 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-3715

DATE: 07/14/2021
SCALE: 1/8" = 1'-0"
SHEET NO: S3.01
JOB NO: 20-244
REV: B



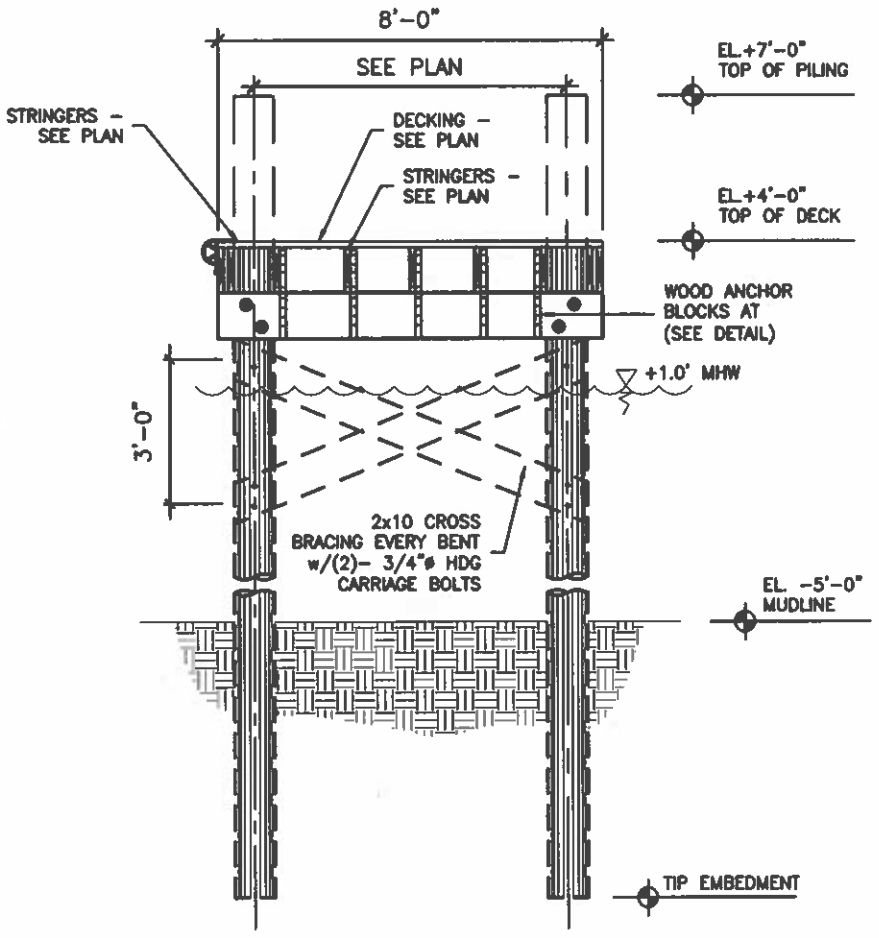
A SECTION - L-HEAD

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



B SECTION - PIER

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



C SECTION - PIER

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

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

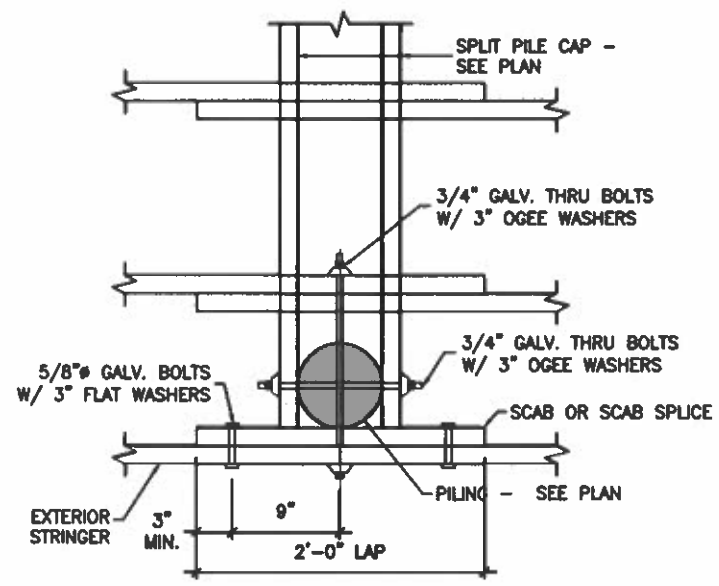
DATE: 12/10/2021

SHEET:
DOCK FRAMING DETAILS

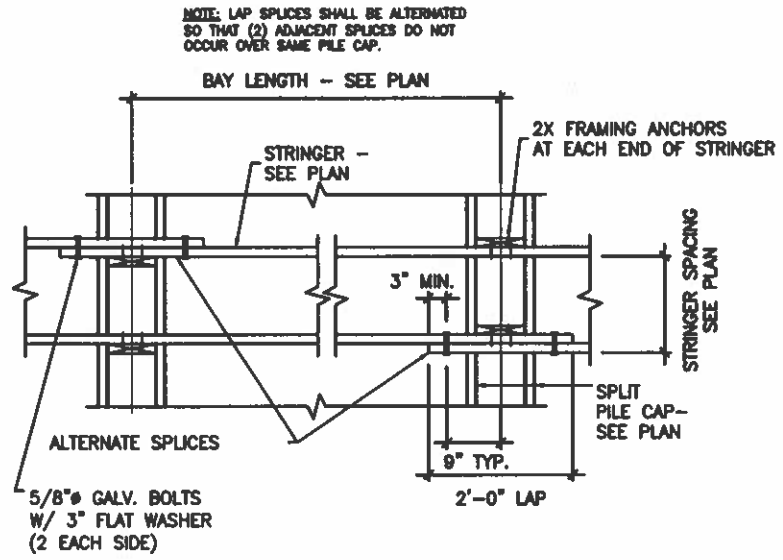
PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

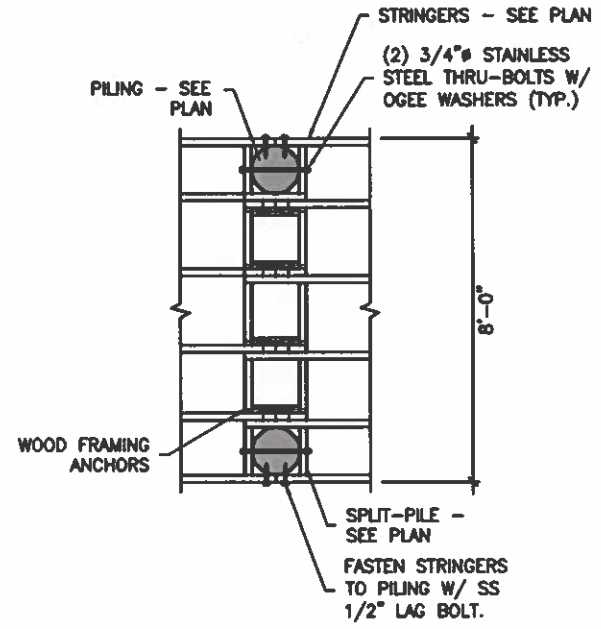
DATE: 07/14/2021
SCALE: 1/4" = 1'-0"
SHEET NO: S3.02
JOB NO: 20-244
REV: B



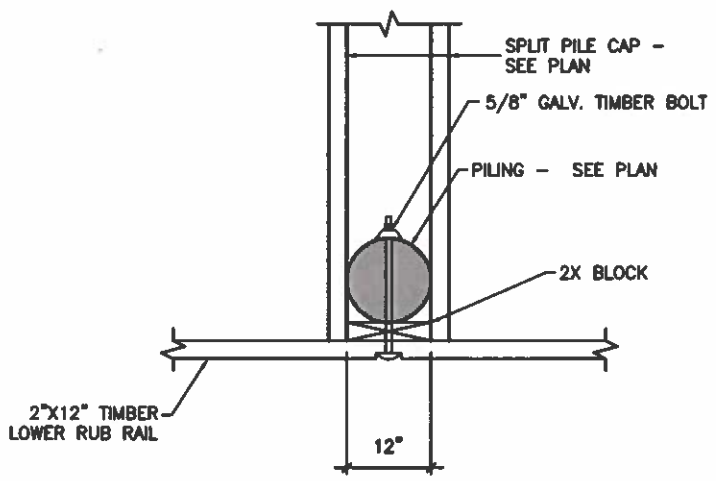
1 PILING CONNECTION
SCALE: NTS



2 ALTERNATING LAP SPLICE
SCALE: NTS



3 PIER BLOCKING
SCALE: NTS



4 LOWER TIMBER FENDER CONNECTION
SCALE: NTS

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ENGINEER:
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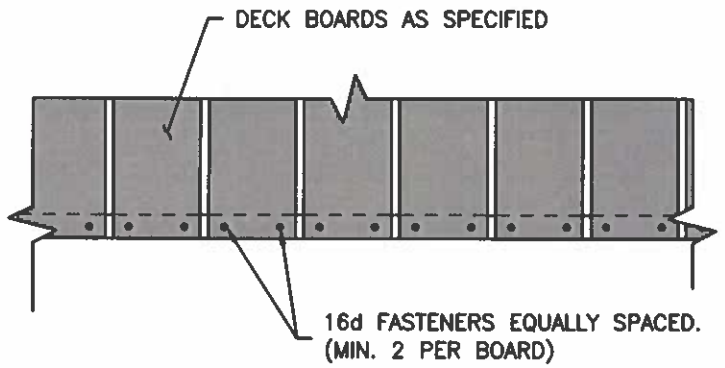
DATE: 12/10/2021

SHEET: FIXED PIER DETAILS

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
521 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

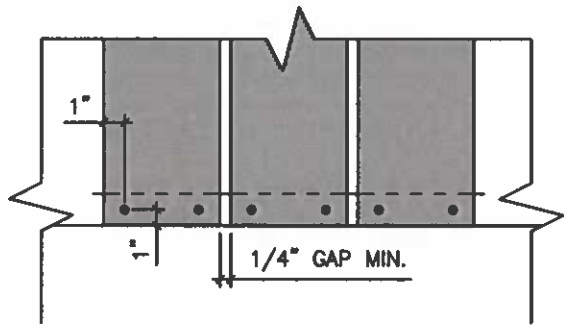
DATE: 07/14/2021
SCALE: AS NOTED
SHEET NO: S3.03
JOB NO: 20-244
REV: B



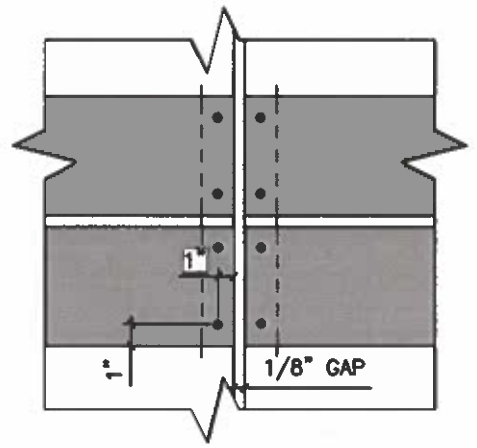
DECKING SPACING CHART

WIDTH AT INSTALLATION	DECKING GAP
5-1/2"	1/8"-1/4"
5-5/8"	1/16"-1/8"
5-3/4"	BUTT PIECES TOGETHER
>5-3/4"	ALLOW TO DRY BEFORE FURTHER INSTALLATION

1 TIMBER DECK CONNECTION
SCALE: 1/4"=1'-0"

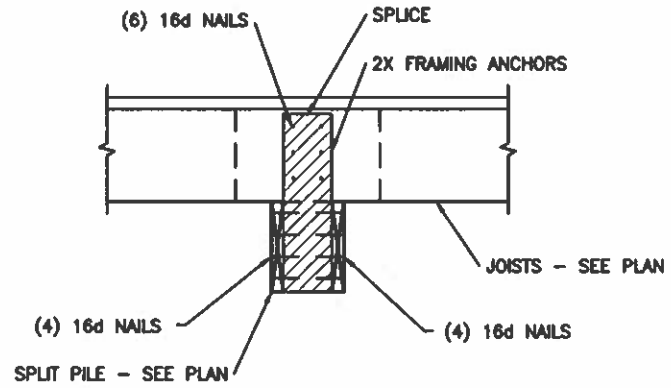


WIDTH TO WIDTH



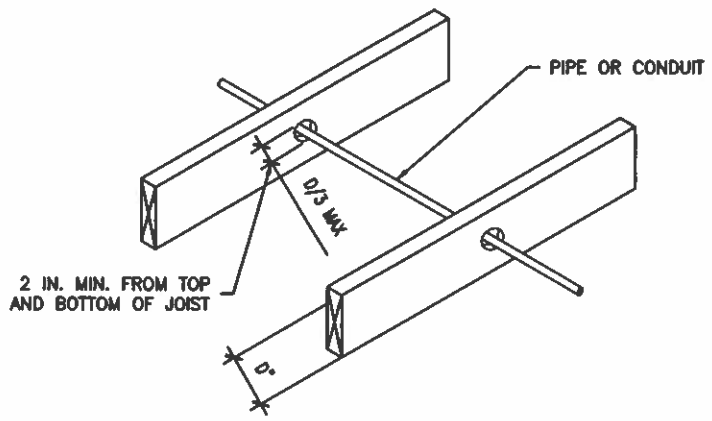
END TO END

2 COMPOSITE DECK CONNECTION
SCALE: 1/4"=1'-0"

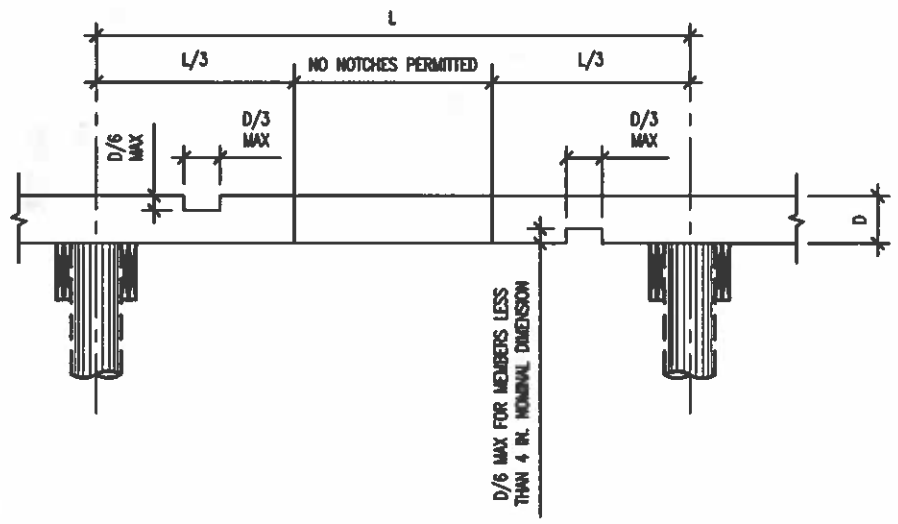


ALTERNATE:
PROVIDE (2) H2.5A SIMPSON ANCHORS (SST300) PER SPLICE (FILL ALL NAILS HOLES)

3 WOOD ANCHOR BLOCKS
SCALE: 1/4"=1'-0"



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



5 DETAIL - CUTTING AND DRILLING
SCALE: 1/4"=1'-0"

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ENGINEER:
MARCUS J. MICHNA P.E.
REGISTRATION NO. 84739

DATE: 12/10/2021

SHEET: MISC FRAMING DETAILS

PROJECT:
PROPOSED BOAT RAMP IMPROVEMENTS
TPWD BOAT ACCESS GRANT
CLEAR LAKE SHORES, TX

SHELMARK ENGINEERING, L.L.C.
CIVIL | MARINE | PLANNING | STRUCTURAL
921 FM 517 ROAD EAST | DICKINSON, TEXAS 77539
TX FIRM NO. F-2115

DATE: 07/14/2021
SCALE: 1/4" = 1'-0"
SHEET NO: S3.04
JOB NO: 20-244
REV: B