



**GENERAL NOTES**

1. UNLESS OTHERWISE SPECIFIED, ALL WORK SHALL BE PERFORMED CONSISTENT WITH THE FOLLOWING SPECIFICATIONS:
  - CITY OF DAYTONA BEACH
  - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
  - ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
2. THIS DESIGN HAS BEEN BASED UPON GROUND-RUN TOPOGRAPHIC SURVEYS BY DRMP INC. GEOTECHNICAL EVALUATION HAS BEEN PERFORMED BY GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS INC., THE E.O.R. MAKES NO ASSURANCES REGARDING THE ACCURACY OF EITHER SUCH EVALUATION. STRUCTURE SHEETPILE DESIGNED BY INGENIUM, INC.
3. CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE SITE, INCLUDING ALL SURFACE AND SUBSURFACE CONDITIONS, THE WORK REQUIRED AND ALL OTHER CONDITIONS THAT MAY AFFECT THE SUCCESSFUL COMPLETION OF THE JOB PRIOR TO COMMENCEMENT OF WORK.
4. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND PERMIT CONDITIONS BEARING ON THE CONDUCT OF THE WORK, AS DRAWN AND SPECIFIED. IF THE CONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT VARIANCE THERewith, HE SHALL PROMPTLY NOTIFY THE ENGINEER, IN WRITING, AND ANY NECESSARY CHANGES SHALL BE ADJUSTED, AS PROVIDED IN THE AGREEMENT FOR CHANGES IN THE WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER AND THE ENGINEER FOR THE ACTS AND OMISSIONS OF CONTRACTOR'S EMPLOYEES AND ALL HIS SUBCONTRACTORS AND THEIR AGENTS AND EMPLOYEES AND OTHER PERSONS PERFORMING ANY OF THE WORK UNDER A CONTRACT WITH THE CONTRACTOR.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL NECESSARY ARRANGEMENTS WITH GOVERNMENTAL DEPARTMENTS, PUBLIC UTILITIES, PUBLIC CARRIERS, SERVICE COMPANIES, AND CORPORATIONS OWNING OR CONTROLLING ROADWAYS, RAILWAYS, WATER, SEWER, GAS, ELECTRICAL, TELEPHONE, AND TELEGRAPH FACILITIES SUCH AS PAVEMENTS, TRACKS, PIPING, WIRES, CABLES, CONDUITS, POLES, GUYS, OR OTHER SIMILAR FACILITIES, INCLUDING INCIDENTAL STRUCTURES CONNECTED THERewith THAT ARE ENCOUNTERED IN THE WORK IN ORDER THAT SUCH ITEMS MAY BE PROPERLY SUPPORTED, PROTECTED OR LOCATED.
7. UNLESS OTHERWISE SPECIFIED IN THE GENERAL CONDITIONS, ALL CONSTRUCTION IS TO BE GOVERNED BY THE PLANS, APPLICABLE PERMITS, AND SPECIFICATIONS HEREIN, AND ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING AND SAFETY CODES, LAWS AND ORDINANCES.
8. PRIOR TO PERFORMING ANY WORK WITHIN ANY PUBLIC OR UTILITY RIGHT-OF-WAY, CONTRACTOR SHALL OBTAIN AUTHORIZATION AND PERMIT FROM JURISDICTION RESPONSIBLE FOR SUCH RIGHT-OF-WAY. CONTRACTOR SHALL CALL SUN STATE ONE TO LOCATE ALL UTILITIES. IN ADDITION, CONTRACTOR SHALL OBTAIN GAS I.D. NUMBER FROM LOCAL GAS COMPANY AND NOTIFY UNDERGROUND UTILITIES, NOTIFICATION CENTER AT 1-800-432-4770 AT LEAST 72 HOURS PRIOR TO START OF WORK.
9. PRIOR TO PERFORMING ANY WORK WITHIN ANY PUBLIC RIGHT-OF-WAY, CONTRACTOR SHALL DEVELOP AND IMPLEMENT A TRAFFIC CONTROL PLAN CONSISTENT WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, AND SUBMIT TO THE ENGINEER FOR APPROVAL.
10. IN THE EVENT THE CONTRACTOR DISCOVERS ANY ERRORS OR OMISSIONS IN THE PLANS HE SHALL IMMEDIATELY NOTIFY THE OWNER OR OWNER'S AGENT.
11. CONTRACTOR SHALL PRESERVE AND PROTECT ALL PERMANENT REFERENCE MONUMENTS, PERMANENT CONTROL POINTS, PERMANENT BENCH MARKS AND PROPERTY CORNERS. IN THE EVENT THE MONUMENTS, POINTS OR MARKERS ARE DISTURBED THE CONTRACTOR SHALL EMPLOY A FLORIDA REGISTERED LAND SURVEYOR TO RESET OR REPLACE THEM.
12. THE OWNER, OWNER'S AGENT AND INSPECTORS OF APPLICABLE GOVERNMENT JURISDICTIONS, SHALL AT ALL TIMES HAVE ACCESS TO THE WORK WHEREVER AND WHENEVER IT IS IN PREPARATION OR PROGRESS; AND THE CONTRACTOR SHALL PROVIDE PROPER FACILITIES FOR SUCH ACCESS AND FOR THE INSPECTION.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE ALL REASONABLE AND PRUDENT PRECAUTIONS TO INSURE THAT ALL COMPLETED WORK, MATERIALS AND EQUIPMENT STORED ON SITE ARE SAFE AND SECURED FROM UNAUTHORIZED ACCESS OR USE. SUCH PRECAUTIONS MAY INCLUDE INSTALLATION OF SIGNS, FENCES, OR POSTING OF SECURITY GUARDS.
14. CONTRACTOR SHALL, AT ALL TIMES, UTILIZE ALL NORMALLY ACCEPTED AND REASONABLY EXPECTED SAFETY PRACTICES AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND GUIDELINES PERTAINING TO SAFE UTILIZATION OF EQUIPMENT OR MATERIALS AS PUBLISHED BY MANUFACTURER.
15. PRIOR TO INITIATING ANY EXCAVATION (INCLUDING BUT NOT LIMITED TO TUNNELS, DITCHES, STORM WATER PONDS, CANALS, ARTIFICIAL LAKES) CONTRACTOR SHALL INSTALL FENCES AND TAKE ALL OTHER REASONABLE AND PRUDENT STEPS TO INSURE THAT ACCESS TO EXCAVATION BY UNAUTHORIZED PERSONNEL IS PREVENTED.
16. CONTRACTOR SHALL COMPLY IN EVERY RESPECT WITH THE PROVISIONS OF THE FLORIDA STATE TRENCH SAFETY ACT.
- 17.1 THE CONTRACTOR SHALL TAKE ALL REASONABLE PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE ALL REASONABLE PROTECTION TO PREVENT DAMAGE, INJURY OR LOSS TO:
  - A. ALL EMPLOYEES ON THE WORK AND ALL OTHER PERSONS WHO MAY BE AFFECTED THEREBY;
  - B. ALL THE WORK AND ALL MATERIALS AND EQUIPMENT TO BE INCORPORATED THEREIN, WHETHER IN STORAGE ON OR OFF THE SITE, UNDER THE CARE, CUSTODY OR CONTROL OF THE CONTRACTOR OR ANY OF ITS SUBCONTRACTORS;
  - C. OTHER PROPERTY AT THE SITE OR ADJACENT THERETO, INCLUDING TREES, SHRUBS, LAWNS, WALKS, PAVEMENTS, ROADWAY, STRUCTURES AND UTILITIES NOT DESIGNATED FOR DEMOLITION IN THE COURSE OF CONSTRUCTION.
- 17.2 THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC, QUASI PUBLIC OR OTHER AUTHORITY HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR FOR THEIR PROTECTION AGAINST DAMAGE, INJURY OR LOSS, OR DESIGNED TO PROTECT THE ENVIRONMENT. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS AND NOTIFYING OWNERS AND USERS OF ADJACENT UTILITIES OF THE EXISTENCE OF HAZARDS AND OF THE SAFETY REGULATIONS.
- 17.3 ALL DAMAGE OR LOSS TO ANY PROPERTY REFERRED TO IN CLAUSES 17.1(B) AND 17.1(C) CAUSED IN WHOLE OR IN PART BY THE CONTRACTOR, A SUBCONTRACTOR, OR BY ANYONE FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, SHALL BE REMEDIED BY THE CONTRACTOR, EXCEPT DAMAGE OR LOSS PROPERLY ATTRIBUTABLE SOLELY TO THE ACTS OR OMISSIONS OF THE OWNER, OR THE ENGINEER OR ANYONE EMPLOYED BY THEM, OR

- FOR WHOSE ACTS ANY OF THEM MAY BE LIABLE, AND NOT PROPERLY ATTRIBUTABLE IN WHOLE OR IN PART, TO THE FAULT OR NEGLIGENCE OF THE CONTRACTOR.
- 17.4 UNTIL FINAL ACCEPTANCE OF THE WORK BY OWNER, THE CONTRACTOR SHALL HAVE THE CHARGE AND CARE OF AND SHALL BEAR THE RISK OF INJURY OR DAMAGE, LOSS OR EXPENSE TO ANY PART THEREOF, OR TO ANY MATERIALS STORED ON SITE, BY THE ACTION OF THE ELEMENTS OR FROM ANY OTHER CAUSE WHETHER ARISING FROM THE EXECUTION OR NON-EXECUTION OF THE WORK. THE CONTRACTOR SHALL REBUILD, REPAIR, RESTORE AND MAKE GOOD ALL INJURIES OR DAMAGES TO ANY PORTION OF THE WORK OCCASIONED BY ANY OF THE ABOVE CAUSES BEFORE FINAL ACCEPTANCE AND SHALL BEAR THE EXPENSES THEREOF.
  - 17.5 THOSE PARTS OF WORK IN PLACE WHICH ARE SUBJECT TO DAMAGE BECAUSE OF OPERATIONS BEING CARRIED ON ADJACENT THERETO SHALL BE COVERED, BOARDED UP OR SUBSTANTIALLY ENCLOSED WITH ADEQUATE PROTECTION BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
  - 17.6 ADEQUATE TRAFFIC CONTROL, BARRICADES AND FLAGMAN SERVICES SHALL BE FURNISHED AND MAINTAINED BY THE CONTRACTOR AT ALL POINTS WHERE CONVEYING EQUIPMENT ENGAGED ON THE WORK REGULARLY ENTERS ONTO OR CROSSES TRAFFIC-CARRYING ROADS, PARKING LOT, AND PARKING AREA.
  - 18.1 THE CONTRACTOR SHALL COMPLY IN EVERY RESPECT WITH THE FEDERAL OCCUPATIONAL HEALTH AND SAFETY ACT OF 1970 AND ALL RULES AND REGULATIONS NOW OR HEREAFTER IN EFFECT UNDER SAID ACT, AND THE CONTRACTOR FURTHER AGREES TO COMPLY WITH ANY AND ALL APPLICABLE STATE LAWS AND REGULATIONS PERTAINING TO JOB SAFETY AND HEALTH.
  - 18.2 THE CONTRACTOR SHALL PROTECT AND KEEP OWNER (INCLUDING THEIR AGENTS AND EMPLOYEES) FREE AND HARMLESS FROM ANY AND ALL LIABILITY, PUBLIC OR PRIVATE, PENALTIES, CONTRACTUAL OR OTHERWISE, LOSSES, DAMAGES, COSTS, ATTORNEY'S FEES, EXPENSES, CAUSES OF ACTION, CLAIMS OR JUDGMENTS RESULTING FROM THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AS AMENDED OR ANY RULE OR REGULATION PROMULGATED THEREUNDER OR OF ANY STATE LAWS OR REGULATIONS PERTAINING TO JOB SAFETY AND HEALTH ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF WORK OR WORK TO BE PERFORMED UNDER THIS CONTRACT, AND CONTRACTOR SHALL INDEMNIFY OWNER FROM ANY SUCH CLAIMS, PENALTIES, SUITS OR ACTIONS, PUBLIC OR PRIVATE, ADMINISTRATIVE OR JUDICIAL, INCLUDING ATTORNEY'S FEES PAID OR INCURRED BY OR ON BEHALF OF OWNER, JOINTLY OR SEVERALLY, AND/OR THEIR AGENTS AND EMPLOYEES. THE CONTRACTOR FURTHER AGREES, IN THE EVENT OF A CLAIMED VIOLATION OF ANY FEDERAL OR STATE SAFETY AND HEALTH LAW OR REGULATION ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF WORK OR WORK TO BE PERFORMED UNDER THIS CONTRACT, OWNER MAY IMMEDIATELY TAKE WHATEVER ACTION IS DEEMED NECESSARY BY OWNER TO REMEDY THE CLAIMED VIOLATION. ANY AND ALL COSTS OR EXPENSES PAID OR INCURRED BY OWNER IN TAKING SUCH ACTION SHALL BE BORNE BY CONTRACTOR, AND CONTRACTOR AGREES TO PROTECT, HOLD HARMLESS AND INDEMNIFY OWNER AGAINST ANY AND ALL SUCH COSTS OR EXPENSES.
  19. ALL WORK PERFORMED UNDER THE CONTRACT, AND ALL EQUIPMENT, APPLIANCES, TOOLS AND LIKE ITEMS USED IN THE WORK SHALL CONFORM TO APPLICABLE SAFETY CODES AND REGULATIONS OF ANY PUBLIC OR OTHER AUTHORITY HAVING JURISDICTION. IN THE EVENT OF CONFLICTING REQUIREMENTS, THE MORE STRINGENT INTERPRETATION OR REGULATION SHALL GOVERN.
  20. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT AN EROSION CONTROL PLAN TO MINIMIZE EROSION AND INSURE FUNCTIONING OF STORMWATER MANAGEMENT SYSTEM UPON COMPLETION OF CONSTRUCTION.
  - 21.1 CONTRACTOR AND ITS SUBCONTRACTORS SHALL USE, HANDLE, TRANSPORT, AND DISPOSE OF ALL HAZARDOUS MATERIALS IN COMPLIANCE WITH ALL PRESENT FEDERAL, STATE AND LOCAL ENVIRONMENTAL, HEALTH OR SAFETY LAW, INCLUDING, BUT NOT LIMITED TO, ALL SUCH STATUTES, REGULATIONS, RULES, ORDINANCES, CODES, AND RULES OF COMMON LAW.
  - 21.2 CONTRACTOR FURTHER AGREES THAT CONTRACTOR AND ITS SUBCONTRACTORS SHALL NOT CAUSE THE DISCHARGE, RELEASE OR DISPOSAL OF ANY HAZARDOUS MATERIAL CREATED BY ITS WORK ON OR ABOUT THE JOB SITE. IN THE EVENT OF ANY SPILL, RELEASE OR ANY OTHER REPORTABLE OCCURRENCE, CONTRACTOR SHALL NOTIFY FDEP AND THE CITY OF DAYTONA WITHIN 20 MINUTES OF DISCOVERY OF SPILL. FDEP SHALL BE NOTIFIED USING THE STATE WATCH OFFICE 1-800-320-0519 REPORTING LINE. CONTRACTOR SHALL TAKE SUCH ACTION AS MAY BE NECESSARY TO MINIMIZE THE DELETERIOUS EFFECT OF SUCH SPILL ON PERSONS OR PROPERTY.
  - 21.3 CONTRACTOR AND ITS SUBCONTRACTORS SHALL, UPON COMPLETION OF PERFORMANCE OF ALL DUTIES UNDER THIS CONTRACT, REMOVE ALL SUPPLIES, MATERIALS, AND WASTE CONTAINING AND HAZARDOUS MATERIAL FROM THE JOB SITE. CONTRACTOR SHALL BEAR FULL FINANCIAL RESPONSIBILITY, AS BETWEEN THE PARTIES OF THIS CONTRACT, FOR THE COMPLIANCE OF CONTRACTOR AND ITS SUBCONTRACTORS WITH THE PROVISIONS OF PARAGRAPH 21.7.
  - 21.4 CONTRACTOR AGREES TO INDEMNIFY, DEFEND, PROTECT AND HOLD THE OWNER HARMLESS FROM AND AGAINST ANY CLAIMS INCLUDING, WITHOUT LIMITATION, ACTUAL ATTORNEY'S FEES AND ANY COSTS OF INVESTIGATION, SOILS TESTING, GOVERNMENTAL APPROVALS, REMEDIATION AND CLEANUP ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE FAILURE OF CONTRACTOR OR ITS SUBCONTRACTORS, OR THEIR AGENTS, EMPLOYEES, OFFICERS, OR REPRESENTATIVES, TO COMPLY WITH THE GENERAL NOTES 20.1-20.8.
  - 21.5 SHOULD CONTRACTOR OR ITS SUBCONTRACTORS DISCHARGE, RELEASE OR DISPOSE OF ANY HAZARDOUS MATERIAL ON OR ABOUT THE JOB SITE IN VIOLATION OF THIS PARAGRAPH, CONTRACTOR SHALL INFORM OWNER IN WRITING WITHIN 48 HOURS.
  - 21.6 IN THE EVENT CONTRACTOR OR ITS SUBCONTRACTORS ENCOUNTER ON THE PREMISES ANY PIPELINE, UNDERGROUND STORAGE TANK OR OTHER CONTAINER, OF ANY KIND, THAT MAY CONTAIN A HAZARDOUS MATERIAL, OR ENCOUNTER MATERIAL REASONABLY BELIEVED TO BE A HAZARDOUS MATERIAL, CONTRACTOR SHALL IMMEDIATELY STOP WORK IN THE AREA AFFECTED AND REPORT THE CONDITION TO OWNER IN WRITING AND VERBALLY WITHIN 20 MINUTES.
  - 21.7 IF CONTRACTOR OR ITS SUBCONTRACTORS DO NOT COMPLY WITH THE REQUIREMENTS OF THIS PARAGRAPH, OWNER MAY, BUT IS NOT OBLIGATED TO, GIVE WRITTEN NOTICE OF VIOLATION TO CONTRACTOR. SHOULD CONTRACTOR OR ITS SUBCONTRACTORS FAIL TO COMPLY WITH THE REQUIREMENTS OF THE PARAGRAPH WITHIN TWENTY-FOUR (24) HOURS FROM THE TIME OWNER ISSUES SUCH WRITTEN NOTICE OF NONCOMPLIANCE OR WITHIN THE TIME OF AN ABATEMENT PERIOD SPECIFIED BY ANY GOVERNMENTAL AGENCY, WHICHEVER PERIOD IS SHORTER, CONTRACTOR SHALL BE IN MATERIAL DEFAULT OF THIS CONTRACT.
  - 21.8 "HAZARDOUS MATERIAL" MEANS ANY SUBSTANCE: (A) THE PRESENCE OF WHICH REQUIRES INVESTIGATION OR REMEDIATION UNDER ANY PRESENT FEDERAL, STATE OR LOCAL STATUTE, REGULATION, ORDINANCE, RULE, CODE, ORDER, ACTION, POLICY OR COMMON LAW, OR (B) WHICH IS OR BECOMES DEFINED AS A "HAZARDOUS WASTE," "HAZARDOUS SUBSTANCE," POLLUTANT OR CONTAMINANT UNDER ANY PRESENT FEDERAL, STATE OR LOCAL STATUTE, REGULATION, RULE OR ORDINANCE OR AMENDMENTS THERETO INCLUDING, WITHOUT LIMITATION, THE COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (42 U.S.C. SECTIONS 9601 ET SEQ.) AND/OR THE RESOURCE CONSERVATION AND RECOVERY ACT (42 U.S.C. SECTIONS 6901 ET SEQ.), OR (C) WHICH IS TOXIC, EXPLOSIVE, CORROSIVE, FLAMMABLE, INFECTIOUS, RADIOACTIVE, CARCINOGENIC, MUTAGENIC, OR OTHERWISE HAZARDOUS AND IS REGULATED BY ANY GOVERNMENTAL AUTHORITY, AGENCY, DEPARTMENT, COMMISSION, BOARD, AGENCY OR INSTRUMENTALITY OF THE UNITED STATES, THE STATE IN WHICH THE PREMISES ARE LOCATED OR ANY POLITICAL SUBDIVISION THEREOF, OR (D) THE PRESENCE OF WHICH ON THE PREMISES CAUSES OR THREATENS TO CAUSE A NUISANCE UPON THE

- PREMISES OR TO ADJACENT PROPERTIES OR POSES OR THREATENS TO POSE A HAZARD TO THE HEALTH OR SAFETY OF PERSONS ON OR ABOUT THE PREMISES, OR (E) WHICH CONTAINS GASOLINE, DIESEL FUEL OR OTHER PETROLEUM HYDROCARBONS, OR (F) WHICH CONTAINS POLYCHLORINATED BIPHENYLS (PCBS), ASBESTOS, LEAD OR UREA FORMALDEHYDE FOAM INSULATION.
22. THE EXISTING UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD LOCATE ALL EXISTING UTILITIES AS TO SIZE, LOCATION, AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY AND ALL CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.

SEA TURTLE AND SMALLTOOTH SAWFISH CONSTRUCTION CONDITIONS:

THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING PROTECTED SPECIES CONSTRUCTION CONDITIONS:

- A. THE CONTRACTOR SHALL INSTRUCT ALL PERSONNEL ASSOCIATED WITH THE PROJECT OF THE POTENTIAL PRESENCE OF THESE SPECIES AND THE NEED TO AVOID COLLISIONS WITH SEA TURTLES AND SMALLTOOTH SAWFISH. ALL CONSTRUCTION PERSONNEL ARE RESPONSIBLE FOR OBSERVING WATER-RELATED ACTIVITIES FOR THE PRESENCE OF THESE SPECIES.
- B. THE CONTRACTOR SHALL ADVISE ALL CONSTRUCTION PERSONNEL THAT THERE ARE CIVIL AND CRIMINAL PENALTIES FOR HARMING, HARASSING, OR KILLING SEA TURTLES OR SMALLTOOTH SAWFISH, WHICH ARE PROTECTED UNDER THE ENDANGERED SPECIES ACT OF 1973.
- C. SILTATION BARRIERS SHALL BE MADE OF MATERIAL IN WHICH A SEA TURTLE OR SMALLTOOTH SAWFISH CANNOT BECOME ENTANGLED, BE PROPERLY SECURED, AND BE REGULARLY MONITORED TO AVOID PROTECTED SPECIES ENTRAPMENT. BARRIERS MAY NOT BLOCK SEA TURTLE OR SMALLTOOTH SAWFISH ENTRY TO OR EXIT FROM DESIGNATED CRITICAL HABITAT WITHOUT PRIOR AGREEMENT FROM THE NATIONAL MARINE FISHERIES SERVICE'S PROTECTED RESOURCES DIVISION, ST. PETERSBURG, FLORIDA.
- D. ALL VESSELS ASSOCIATED WITH THE CONSTRUCTION PROJECT SHALL OPERATE AT "NO WAKE/IDLE" SPEEDS AT ALL TIMES WHILE IN THE CONSTRUCTION AREA AND WHILE IN WATER DEPTHS WHERE THE DRAFT OF THE VESSEL PROVIDES LESS THAN A FOUR-FOOT CLEARANCE FROM THE BOTTOM. ALL VESSELS WILL PREFERENTIALLY FOLLOW DEEP-WATER ROUTES (E.G., MARKED CHANNELS) WHENEVER POSSIBLE.
- E. IF A SEA TURTLE OR SMALLTOOTH SAWFISH IS SEEN WITHIN 100 YARDS OF THE ACTIVE DAILY CONSTRUCTION/DREDGING OPERATION OR VESSEL MOVEMENT, ALL APPROPRIATE PRECAUTIONS SHALL BE IMPLEMENTED TO ENSURE ITS PROTECTION. THESE PRECAUTIONS SHALL INCLUDE CESSATION OF OPERATION OF ANY MOVING EQUIPMENT CLOSER THAN 50 FEET OF A SEA TURTLE OR SMALLTOOTH SAWFISH. OPERATION OF ANY MECHANICAL CONSTRUCTION EQUIPMENT SHALL CEASE IMMEDIATELY IF A SEA TURTLE OR SMALLTOOTH SAWFISH IS SEEN WITHIN A 50-FT RADIUS OF THE EQUIPMENT. ACTIVITIES MAY NOT RESUME UNTIL THE PROTECTED SPECIES HAS DEPARTED THE PROJECT AREA OF ITS OWN VOLITION.
- F. ANY COLLISION WITH AND/OR INJURY TO A SEA TURTLE OR SMALLTOOTH SAWFISH SHALL BE REPORTED IMMEDIATELY TO THE NATIONAL MARINE FISHERIES SERVICE'S PROTECTED RESOURCES DIVISION (727-824-5312) AND THE LOCAL AUTHORIZED SEA TURTLE STRANDING/RESCUE ORGANIZATION.

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK:

THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING CONDITIONS INTENDED TO PROTECT MANATEES FROM DIRECT PROJECT EFFECTS:

- A. ALL PERSONNEL ASSOCIATED WITH THE PROJECT SHALL BE INSTRUCTED ABOUT THE PRESENCE OF MANATEES AND MANATEE SPEED ZONES, AND THE NEED TO AVOID COLLISIONS WITH AND INJURY TO MANATEES. THE CONTRACTOR SHALL ADVISE ALL CONSTRUCTION PERSONNEL THAT THERE ARE CIVIL AND CRIMINAL PENALTIES FOR HARMING, HARASSING, OR KILLING MANATEES WHICH ARE PROTECTED UNDER THE MARINE MAMMAL PROTECTION ACT, THE ENDANGERED SPECIES ACT, AND THE FLORIDA MANATEE SANCTUARY ACT.
- B. ALL VESSELS ASSOCIATED WITH THE CONSTRUCTION PROJECT SHALL OPERATE AT "IDLE SPEED/NO WAKE" AT ALL TIMES WHILE IN THE IMMEDIATE AREA AND WHILE IN WATER WHERE THE DRAFT OF THE VESSEL PROVIDES LESS THAN A FOUR-FOOT CLEARANCE FROM THE BOTTOM. ALL VESSELS WILL FOLLOW ROUTES OF DEEP WATER WHENEVER POSSIBLE.
- C. SILTATION OR TURBIDITY BARRIERS SHALL BE MADE OF MATERIAL IN WHICH MANATEES CANNOT BECOME ENTANGLED, SHALL BE PROPERLY SECURED, AND SHALL BE REGULARLY MONITORED TO AVOID MANATEE ENTANGLEMENT OR ENTRAPMENT. BARRIERS MUST NOT IMPEDE MANATEE MOVEMENT.
- D. ALL ON-SITE PROJECT PERSONNEL ARE RESPONSIBLE FOR OBSERVING WATER-RELATED ACTIVITIES FOR THE PRESENCE OF MANATEE(S). ALL IN-WATER OPERATIONS, INCLUDING VESSELS, MUST BE SHUTDOWN IF A MANATEE(S) COMES WITHIN 50 FEET OF THE OPERATION. ACTIVITIES WILL NOT RESUME UNTIL THE MANATEE(S) HAS MOVED BEYOND THE 50-FOOT RADIUS OF THE PROJECT OPERATION, OR UNTIL 30 MINUTES ELAPSES IF THE MANATEE(S) HAS NOT REAPPEARED WITHIN 50 FEET OF THE OPERATION. ANIMALS MUST NOT BE HERDED AWAY OR HARASSED INTO LEAVING.
- E. ANY COLLISION WITH OR INJURY TO A MANATEE SHALL BE REPORTED IMMEDIATELY TO THE FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION (FWC) HOTLINE AT 1-888-404-3922. COLLISION AND/OR INJURY SHOULD ALSO BE REPORTED TO THE U.S. FISH AND WILDLIFE SERVICE IN JACKSONVILLE (1-904-731-3336) FOR NORTH FLORIDA OR IN VERO BEACH (1-772-562-3909) FOR SOUTH FLORIDA, AND EMAILED TO FWC AT:IMPERLEDSPECIES@MYFWC.COM.
- F. TEMPORARY SIGNS CONCERNING MANATEES SHALL BE POSTED PRIOR TO AND DURING ALL IN-WATER PROJECT ACTIVITIES. ALL SIGNS ARE TO BE REMOVED BY THE CONTRACTOR UPON COMPLETION OF THE PROJECT. TEMPORARY SIGNS THAT HAVE ALREADY BEEN APPROVED FOR THIS USE BY THE FWC MUST BE USED. ONE SIGN WHICH READS CAUTION: BOATERS MUST BE POSTED. A SECOND SIGN MEASURING AT LEAST 81 2" BY 11" EXPLAINING THE REQUIREMENTS FOR "IDLE SPEED/NO WAKE" AND THE SHUT DOWN OF IN-WATER OPERATIONS MUST BE POSTED IN A LOCATION PROMINENTLY VISIBLE TO ALL PERSONNEL ENGAGED IN WATER-RELATED ACTIVITIES. THESE SIGNS CAN BE VIEWED AT:  
  
[HTTP://WWW.MYFWC.COM/WILDLIFEHABITATS/MANATEE\\_SIGN\\_VENDORS.HTM](http://www.myfwc.com/wildlifehabitats/manatee_sign_vendors.htm). QUESTIONS CONCERNING THESE SIGNS CAN BE FORWARDED TO THE EMAIL ADDRESS LISTED ABOVE.

CONSTRUCTION EQUIPMENT NOTES:

- A. IF BARGE, PLATFORM OR ANY AMPHIBIOUS EQUIPMENT IS TO BE USED, CONTRACTOR IS RESPONSIBLE FOR PERFORMING BATHYMETRIC SURVEY TO DEMONSTRATE THAT THERE IS NAVIGABLE ACCESS AND SUFFICIENT ON-SITE WATER DEPTHS SUCH THAT NO IMPACTS TO SUBMERGED RESOURCES RESULT FROM CONSTRUCTION OPERATIONS PRIOR TO COMMENCING USE. EQUIPMENT IS TO BE FULLY RELOCATED AT LEAST ONE WEEKLY TO ENSURE ADVERSE IMPACTS TO SUBMERGED RESOURCES ARE AVOIDED. A MINIMUM OF 4 FEET CLEARANCE WILL BE PROVIDED ON THE SIDE AND 1 FT. UNDERNEATH THE EQUIPMENT BETWEEN EXISTING GRADE AND SEAGRASS BEDS TO PREVENT ENTRAPMENT OF MANATEES.

<p><b>GENERAL NOTES</b></p>	<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">DATE</th> <th style="width: 80%;">DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	DESCRIPTION												
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<p><b>GENERAL NOTES</b></p>																
<p>CONSTRUCTION PLANS FOR <b>HALIFAX MARINA SEAWALL</b></p>																
<p>CITY OF DAYTONA BEACH, FLORIDA</p>																
<p>DO NOT SCALE THIS DRAWING - DIMENSIONS AND NOTES TAKE PREFERENCE</p>																
<p><b>DRMP, Inc.</b></p> <p>ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS</p>																
<p>Donald C. Bieger Jr., P.E. State of Florida # 60857</p>																
<p>PROJECT NO.: 18-0571.000</p>																
<p>SCALE: NONE</p>																
<p>DATE: JANUARY, 2019</p>																
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**TURBIDITY MONITORING PLAN:**

THE CONSTRUCTION OF THIS PROJECT WILL REQUIRE IN-WATER SOIL DISTURBING ACTIVITIES, WHICH MUST MEET THE STATE'S WATER QUALITY ANTI-DEGRADATION CRITERIA. THE HALIFAX RIVER IS DESIGNATED AS AN OUTSTANDING FLORIDA WATER (OFW). THE CONTRACTOR SHALL MEET THE FOLLOWING CONDITIONS:

EXISTING AMBIENT WATER QUALITY WITHIN THE CONSTRUCTION ZONE MAY BE DEGRADED TO ALLOW FOR IN-WATER CONSTRUCTION ACTIVITIES WITHIN THE OFW. TURBIDITY BARRIER PROTECTION MUST BE PROVIDED AND REMAIN IN PLACE UNTIL STABILIZATION AND RETURN OF THE NEPHELOMETRIC TURBIDITY UNITS (NTUs) INSIDE THE COMPLETED CONSTRUCTION ZONE NO LONGER EXCEED THE NATURAL BACKGROUND CONDITIONS WITHIN THE OFW. NO INCREASE IN TURBIDITY LEVELS ABOVE BACKGROUND IS ALLOWED OUTSIDE THE CONSTRUCTION ZONE.

1. WATER RELEASED FROM THE CONSTRUCTION AREA SHALL NOT HAVE TURBIDITY LEVELS THAT EXCEED ABOVE AMBIENT LEVELS OF THE SURROUNDING HALIFAX RIVER.
2. ALL CONSTRUCTION ACTIVITIES THAT HAVE A POTENTIAL TO CREATE TURBIDITY, SUCH AS IN-WATER SOIL DISTURBANCE, DREDGING, PILE DRIVING, AND FILLING SHALL REQUIRE MONITORING. SAMPLING SHALL COMMENCE FIVE DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AND CONTINUE TWICE DAILY, WITH A MAXIMUM OF FOUR-HOUR INTERVALS, DURING ONGOING POTENTIAL TURBIDITY CREATING CONSTRUCTION ACTIVITIES. SIX SAMPLE LOCATIONS SHALL BE DETERMINED AROUND THE CONSTRUCTION SITE - THREE OUTSIDE THE FLOATING TURBIDITY BARRIER AND THREE WITHIN THE CONSTRUCTION AREA. THE SAMPLING WITHIN THE MONITORING AREA IS TO BEGIN UPON COMPLETION OF CONSTRUCTION, PRIOR TO REMOVAL OF EROSION CONTROL MEASURES. SAMPLING WITHIN THE MONITORING AREA IS TO CONTINUE UNTIL ALL SEDIMENT HAS SETTLED OUT OF THE WATER COLUMNS TO WITHIN ACCEPTABLE LIMITS.
3. SAMPLES WILL BE COLLECTED FROM SURFACE AND ONE FOOT ABOVE BOTTOM.
4. ALL SAMPLES WILL BE COLLECTED WITH A KEMMERER, VAN DORN OR SIMILAR GRAB SAMPLER WHICH IS DESIGNATED TO COLLECT IN SITU WATER SAMPLES. SAMPLES MUST BE ANALYZED FOR TURBIDITY AS THEY ARE COLLECTED. THE FOLLOWING INFORMATION MUST BE RECORDED FOR EACH SAMPLE TAKEN AND SUBMITTED IN A MONITORING REPORT:
  - a. SITE NUMBER;
  - b. COLLECTOR'S NAME AND AFFILIATION
  - c. DATE AND TIME OF DAY WHEN SAMPLE WAS COLLECTED;
  - d. SAMPLE COLLECTION DEPTH AND TOTAL DEPTH;
  - e. ANTECEDENT WEATHER CONDITIONS, INCLUDING WIND DIRECTION AND VELOCITY;
  - f. TIDAL STAGE AND/OR FLOW DIRECTION, IF APPLICABLE; AND
  - g. SAMPLING RESULTS, THE NET DIFFERENCE BETWEEN COMPLIANCE AND BACKGROUND RESULTS, AND WHETHER THE TURBIDITY LEVEL IS IN COMPLIANCE.
6. IN ADDITION TO THE ABOVE MENTIONED, EACH MONITORING REPORT MUST INCLUDE THE FOLLOWING:
  - a. A STATEMENT OF METHODOLOGY INCLUDING TYPES OF SAMPLING EQUIPMENT AND
  - b. ANALYTICAL INSTRUMENTATION, PRESERVATION, AND HANDLING;
  - c. PERMIT NUMBER; AND
  - d. A MAP INDICATING NUMBERED LOCATIONS OF ALL SAMPLING SITES;
7. ALL TURBIDITY MONITORING REPORTS SHALL BE SUBMITTED TO THE CONTRACTING OFFICE WITHIN FOURTEEN (14) DAYS OF SAMPLE COLLECTION. THE CONTRACTING OFFICE WILL FORWARD THE TURBIDITY MONITORING REPORTS TO THE CITY OF DAYTONA.
8. THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING QA/QC REQUIREMENTS FOR EACH SAMPLE COLLECTED:
  - a. ALL TURBIDITY ANALYSIS SHALL BE PERFORMED ON INSTRUMENTS THAT CAN PERFORM NEPHELOMETRIC MEASUREMENTS;
  - b. THE INSTRUMENT MUST BE CALIBRATED EACH MORNING AND EACH TIME THE INSTRUMENT IS TURNED ON, AND RECALIBRATED EVERY FOUR HOURS THEREAFTER;
  - c. CALIBRATIONS MUST BE PERFORMED AGAINST A BLANK, AND AT LEAST ONE FORMALIN OR GEL-TYPE STANDARD. THE STANDARD VALUE SHOULD BE IN THE SAME RANGE AS THE SAMPLE READINGS.
  - d. ALL CALIBRATION PROCEDURES MUST BE RECORDED IN A PERMANENT LOG BOOK, AND COPIES MUST BE SUBMITTED WITH THE DATA; AND,
  - e. DATE AND TIME OF COLLECTION, DATE AND TIME OF ANALYSES, WARM-UP TIME, AND THE NAME OF THE ANALYST MUST BE INCLUDED IN THE LOG.
9. ALL IN-WATER SOIL DISTURBING CONSTRUCTION ACTIVITIES SHALL CEASE IMMEDIATELY WHENEVER WATER QUALITY SAMPLES EXCEED THRESHOLDS SPECIFIED IN ITEM #1 OUTSIDE OF THE CONSTRUCTION PROJECTS FLOATING TURBIDITY BARRIERS. THE VIOLATION SHALL BE REPORTED TO CONSTRUCTION OFFICER WITHIN 4 HOURS OF THE VIOLATION. THE VIOLATION REPORT SHALL INCLUDE THE DESCRIPTION OF THE CORRECTIVE ACTIONS BEING TAKEN OR PROPOSED TO BE TAKEN.
10. WHEN A TURBIDITY VIOLATION IS FOUND, IN-WATER SOIL DISTURBING CONSTRUCTION OPERATIONS MAY NOT RESUME UNTIL A COMPLIANCE INSPECTION BY CONTRACTING OFFICER HAS BEEN CONDUCTED AND A SET OF SAMPLES HAS BEEN TAKEN WHICH DEMONSTRATE THAT THE WATER QUALITY STANDARDS DESIGNATED ABOVE ARE BEING ACHIEVED. THE CONTRACTOR SHALL MODIFY THE WORK PROCEDURES THAT WERE RESPONSIBLE FOR THE VIOLATION SUCH AS REDUCING THE IN WATER CONSTRUCTION ACTIVITY AND/OR INSTALLING ADDITIONAL BMPs OR REPAIRING ANY NON-FUNCTIONING TURBIDITY CONTAINMENT DEVICES.

11. INTERIM SAMPLES TAKEN FOLLOWING THE VIOLATION SHALL BE TAKEN IN THE SAME MANNER AS THE ROUTINE MONITORING AND AT THE SAME LOCATIONS. IF SAMPLES DEMONSTRATE THE WATER QUALITY STANDARDS SPECIFIED FOR TURBIDITY SPECIFIED ABOVE ARE STILL BEING VIOLATED, SAMPLING SHALL CONTINUE UNTIL TWO (2) MONITORING EVENTS CONDUCTED AT LEAST ONE HOUR APART THAT INTERIM SAMPLE TURBIDITY READINGS DEMONSTRATE THAT WATER QUALITY STANDARDS ARE BEING ACHIEVED.
12. ALL TURBIDITY AND EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED AT THE BEGINNING AND END OF EACH WORK DAY.
13. BEFORE REMOVAL OF THE TURBIDITY CONTROL MEASURES, THE TURBIDITY LEVELS WITHIN THE AREA SURROUNDED BY THE TURBIDITY CONTROL MEASURES MUST BE SAMPLED TO ENSURE NO RELEASE OF TURBID WATER ONCE THE TURBIDITY CONTROL MEASURES ARE REMOVED. THIS SAMPLE DATA MUST BE INCLUDED WITHIN THE WEEKLY TURBIDITY DATA REPORT.

NO.	DATE	DESCRIPTION	BY
			OG
1	03/07/2019	NEW SHEET ADDED TO PLANS	

LAW	DESIGNED BY
DPC	DRAWN BY
DCL	CHECKED BY
DCB	APPROVED BY

**TURBIDITY BARRIER NOTES**

CONSTRUCTION PLANS FOR  
**HALIFAX MARINA SEAWALL**  
CITY OF DAYTONA BEACH, FLORIDA

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**DRMP, Inc.**

Donald C. Bieger Jr., P.E.  
State of Florida # 60857

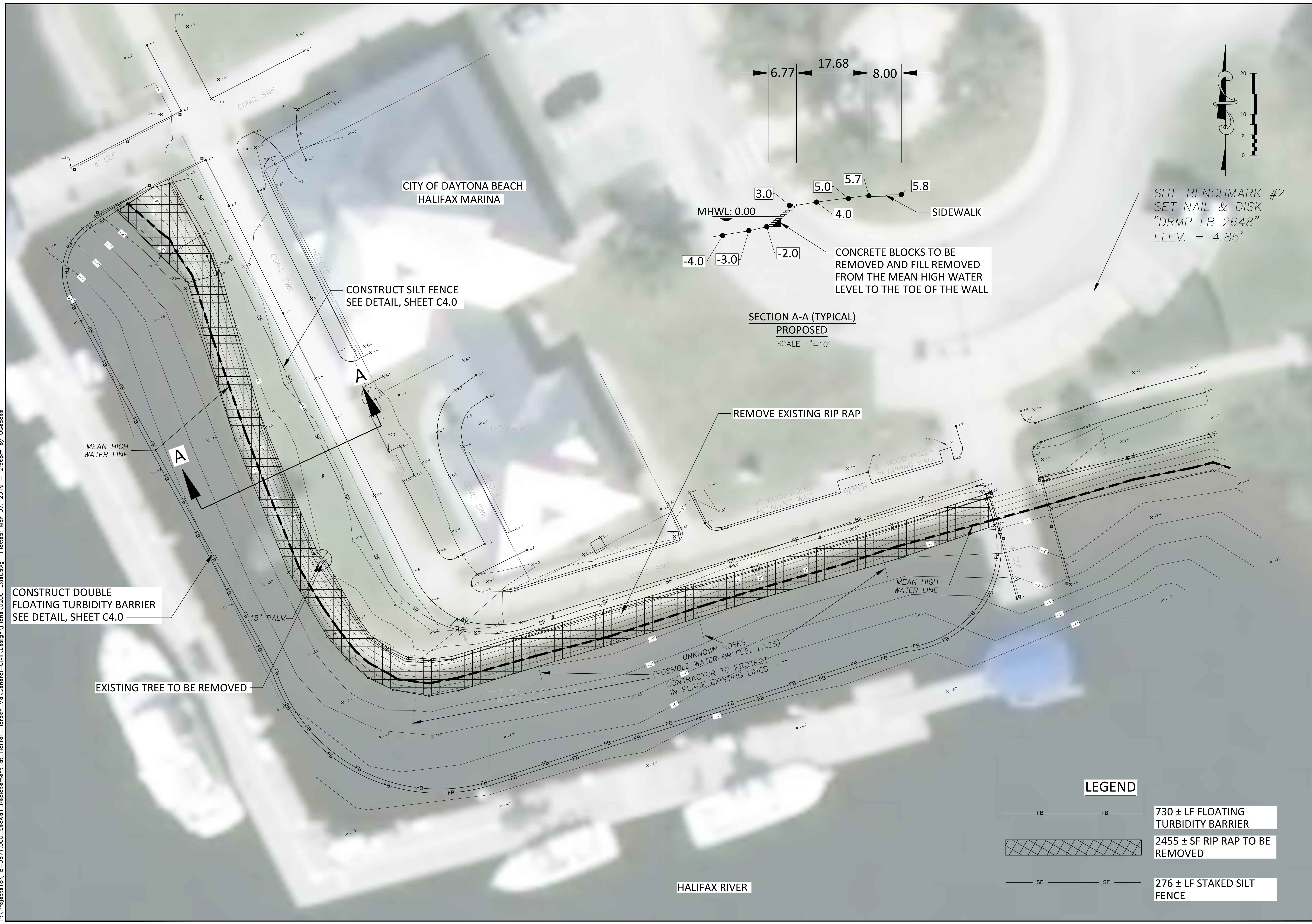
PROJECT NO.:  
**18-0571.000**

SCALE:  
NONE

DATE:  
JANUARY, 2019

DRAWING:  
**C1.2**

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REVISIONS	
NO.	DESCRIPTION

DESIGNED BY	LAW
DRAWN BY	DPC
CHECKED BY	DCL
APPROVED BY	DCB

**EXISTING CONDITIONS AND DEMOLITION PLAN**

CONSTRUCTION PLANS FOR  
**HALIFAX MARINA SEAWALL**  
 CITY OF DAYTONA BEACH, FLORIDA  
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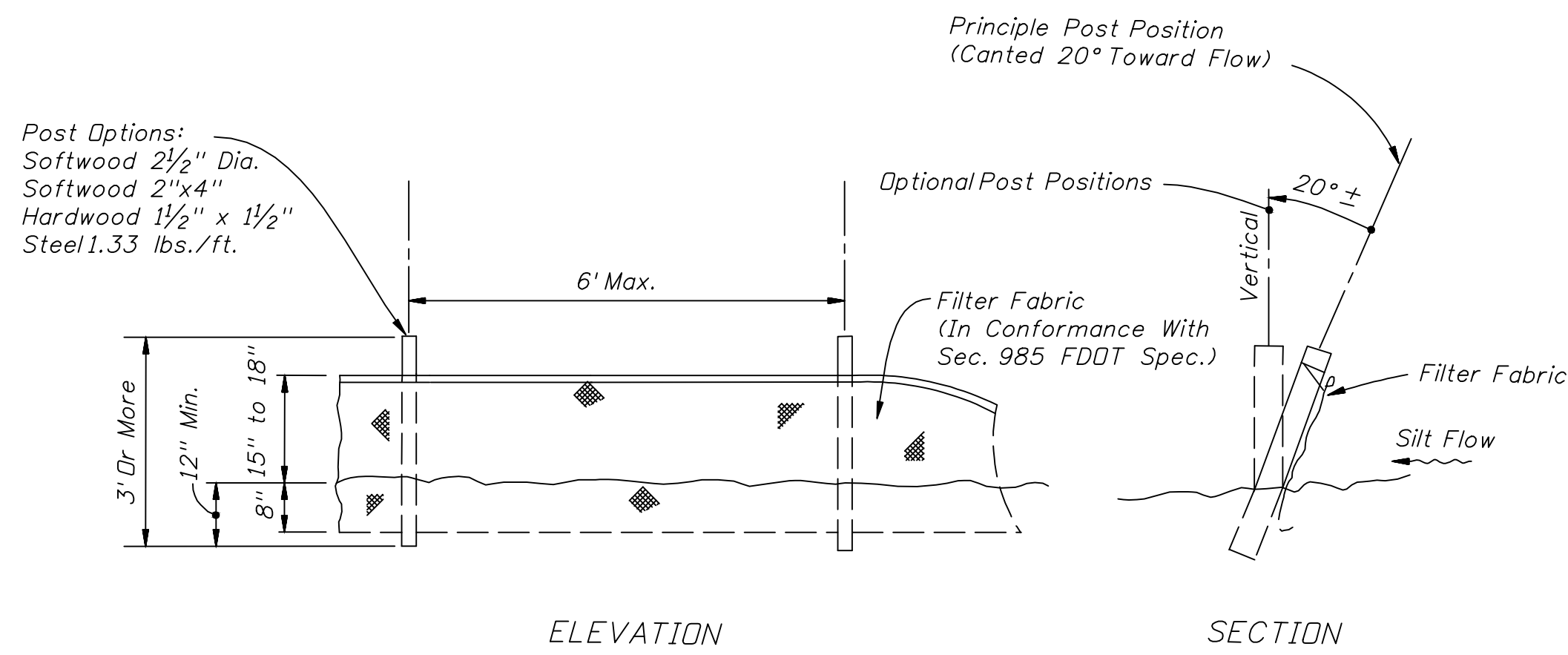
Donald C. Bieger Jr., P.E.  
 State of Florida # 60857  
 PROJECT NO.: 18-0571.000  
 SCALE: 1" = 10'  
 DATE: JANUARY, 2019  
 DRAWING: **C2.0**

**LEGEND**

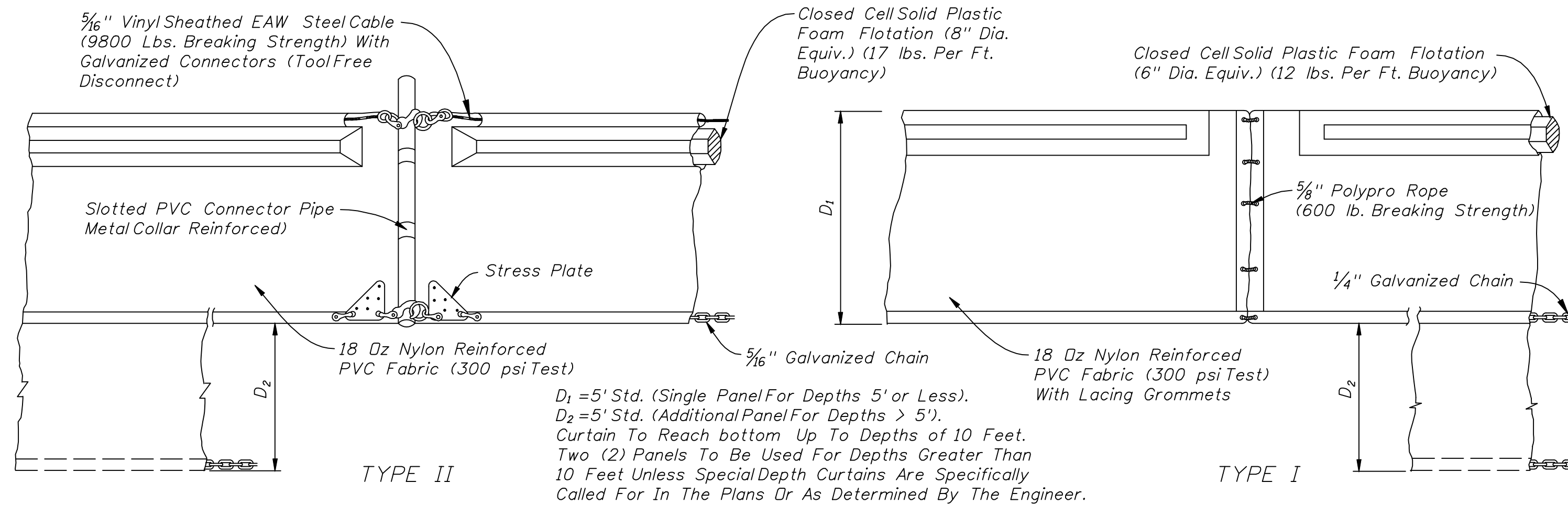
	730 ± LF FLOATING TURBIDITY BARRIER
	2455 ± SF RIP RAP TO BE REMOVED
	276 ± LF STAKED SILT FENCE



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**STAKED SILT FENCE DETAIL**  
NOT TO SCALE



NOTICE:  
COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

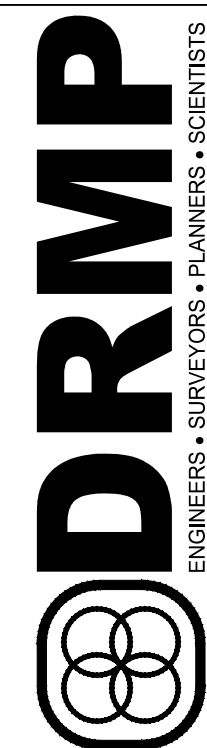
**FLOATING TURBIDITY BARRIER DETAIL**  
NOT TO SCALE

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY	LAY	NO.	DATE	DESCRIPTION	BY
				DPC				

**CONSTRUCTION DETAILS**

CONSTRUCTION PLANS FOR  
**HALIFAX MARINA SEAWALL**  
CITY OF DAYTONA BEACH, FLORIDA

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State of Florida # 60857  
PROJECT NO.:  
**18-0571.000**  
SCALE:  
AS SHOWN  
DATE:  
JANUARY, 2019  
DRAWING:  
**C4.0**

General Design & Construction Notes:

Material:

General Design:

- 1.) All materials shall be as noted unless local codes provide a stricter guideline i.e. greater strength, durability, etc. It is the contractor's responsibility to understand and comply with these codes.
- 2.) Utility penetrations under 8"Ø shall follow detail on sheet 9. Utility/pipe penetrations above 8"Ø require a detail be provided by contractor for engineer's approval.

Sheet Pile:

- 1.) Sheet pile material shall be ESP 8.5 as provided by Everlast Synthetic Products, LLC.
- 2.) This design is based on the specific properties of Everlast synthetic sheet piling which are proprietary to Everlast Synthetic Products, LLC 1000 Wyngate Parkway, Suite 100, Woodstock, GA 30189. Any substitution of the specified product will invalidate this design. This drawing is being furnished for use on this specific project only. Any party accepting this document does so in confidence and agrees that it shall not be duplicated whole or in part, nor disclosed to others without the consent of Everlast Synthetic Products, LLC.

Steel:

- 1.) All steel fasteners and tie-rods shall be hot dip galvanized per ASTM A-153 with 2 ounces of zinc per square foot or be stainless steel (grade 304 or 316).
- 2.) If bolts not stainless steel, exposed regions to be field treated with bitumastic coating.
- 3.) Washers (ogee, fender or New York dock) shall have a minimum outer diameter of four times the rod/bolt diameter. Beveled washers shall be used for tie-rods installed at an incline.
- 4.) All reinforcing steel to have a minimum yield strength of 60 ksi.

Dimensional Timber & Piles:

- 1.) All dimensional timber to be SYP No. 2 grade or better.
- 2.) Stagger joints of front and rear timber wales.
- 3.) All timber to meet or exceed AWPA standards (UC5C) for preservative treatment as applicable.

Concrete:

- 1.) Concrete to have a 28-day compressive strength of 5,000 psi.
- 2.) Concrete mix to have a max. w/c ratio of 0.5.
- 3.) Concrete to be vibrated to minimize air voids.



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Halifax Harbor Marina  
450 Basin Street  
Dayton Beach, FL

Revisions

Sheet 1 of 10

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**Backfill:**

- 1.) Backfill material is to be free-draining sand or gravel (SP, SW, GP or GW) per ASTM D-2487 and compacted a minimum of 95% per ASTM D-698.
- 2.) If a fine grained, non-cohesive soil (fine sands, "sugar sand", etc.) is to be used a geotextile is to be placed between sheet pile and soil before backfill installation.

**Geotextile (Required only if using backfill as noted in Backfill note #2):**

- 1.) Geotextile used behind sheet pile shall be Mirafi 140N or equal.

**Design:**

- 1.) Design was done based on Geotechnical and Environmental Consultants, Inc. Project No. 4323G, dated Jan. 8, 2019.
- 2.) Design is based on soil properties as noted in typical sections.
- 3.) If actual soil or site conditions differ from that noted in drawings, the engineer shall be notified immediately for a possible redesign.
- 4.) Design does not account for presence of underground springs, wells or excessive water from site runoff. If these conditions exist the engineer shall be notified immediately for the need of a redesign.

**Installation:**

**General Installation:**

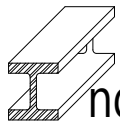
- 1.) Installation to be conducted according to all applicable OSHA and local codes. It is the contractors responsibility to understand and comply with these codes.

**Geotechnical:**

- 1.) Ingenium recommends that all projects have geotechnical investigation (borings and report) prior to installation.
- 2.) At a minimum, the contractor shall probe along the alignment of the sheet pile (approx. every 5') to determine the potential of any soil variation or obstructions.

**Sheet Pile:**

- 1.) Sheet piles shall be vibrated or driven. No jetting of sheet piles will be allowed without written approval from the engineer.
- 2.) Sheet pile shall penetrate to depth shown in the plans.
- 3.) After driving sheet pile and attaching wale, saw piling off at a true plane indicated on the plans. Final elevations are to be within one (1) inch of established elevation.
- 4.) Return walls to be provided at ends of all bulkheads to provide flanking protection.



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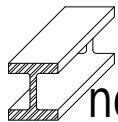


Concrete Cap/Wale:

- 1.)  $\frac{3}{4}$ " Expansion joint is to be located at approx. 50ft.
- 2.) Two contraction joints are to be evenly spaced each side of expansion joint.
- 3.) All reinforcing steel to have a minimum cover of 3".

Documentation:

- 1.) Contractor shall provide written documentation after the end of the work day certifying all piles (sheet & timber) have been driven to the required depths. If any piles are unable to be driven to the required depths, contractor shall notify the owner and engineer immediately.



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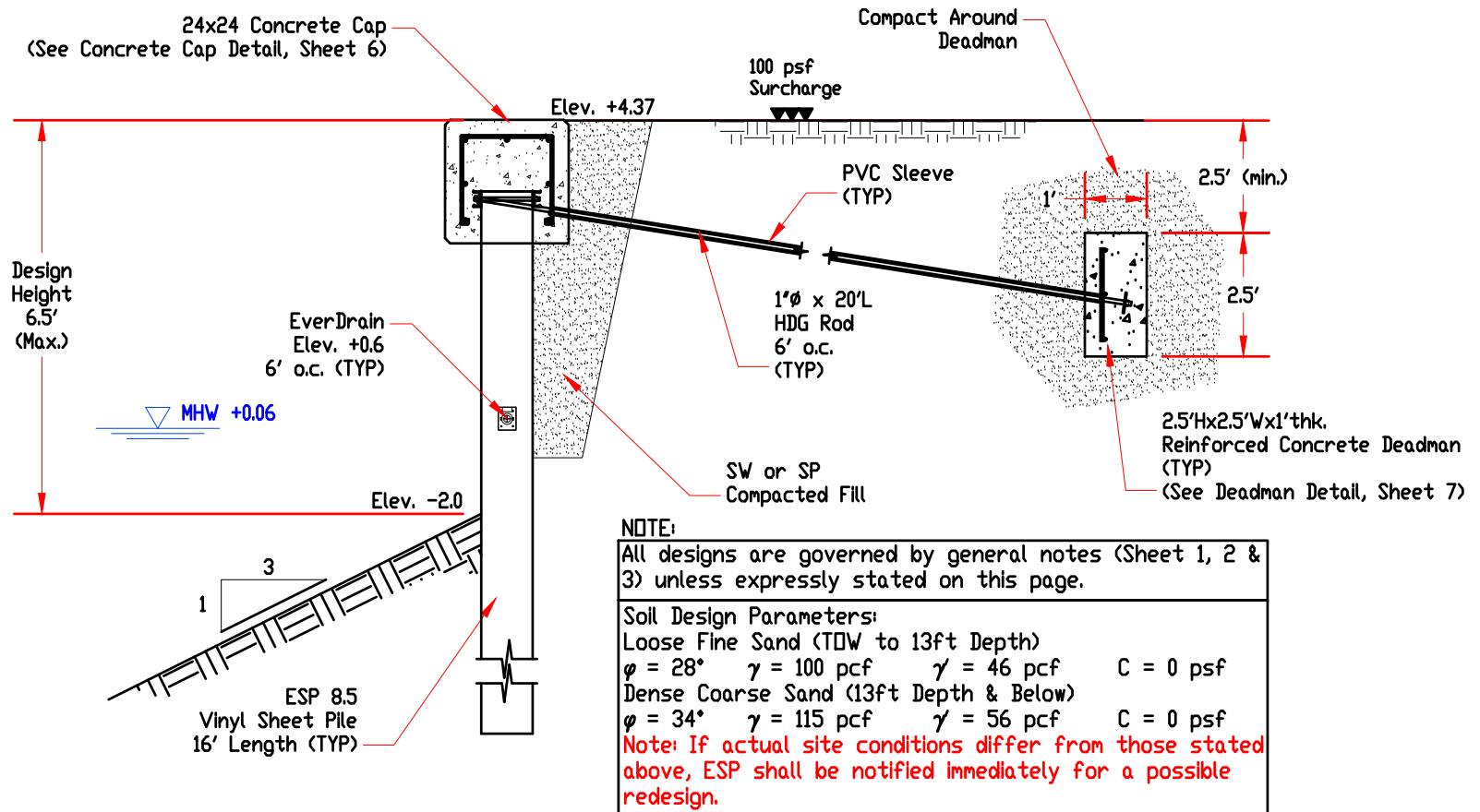
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Typical Section (View A-A)



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5x5x3/8  
Plate Washer  
w/ Nut Front & Rear  
(TYP)

Three #6 Rebar  
Horiz. & Vert.  
(TYP)

2.5'

1'

**NOTE:**  
All designs are governed by  
general notes (sheet 1, 2 & 3)  
unless expressly stated on  
this page.

6' (TYP)

C3x4  
(TYP)

HDG Tie-Rod  
PVC Sleeved  
(TYP)

1/2" Tee Washer  
w/ Nut  
(TYP)

ESP 8.5  
(TYP)

24"

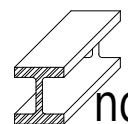
#6 Rebar (TYP)

5/8"  $\phi$  Bolt  
2' o.c.  
(TYP)

#4 Stirrup  
8' o.c. (TYP)

C5x6.7 (TYP)

Plan View (View B-B)



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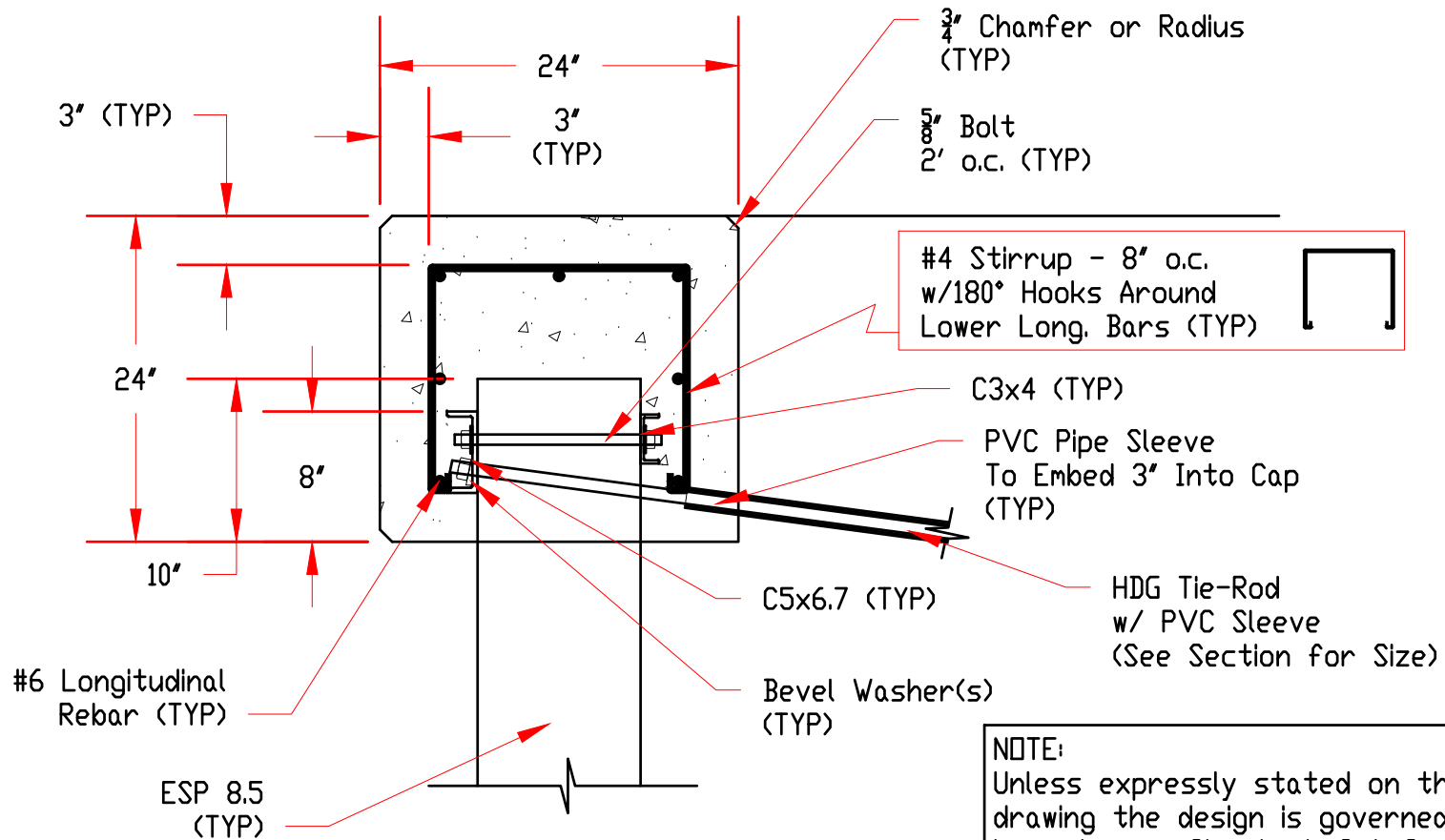
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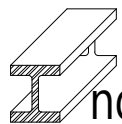
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## Concrete Cap Detail (C-C)



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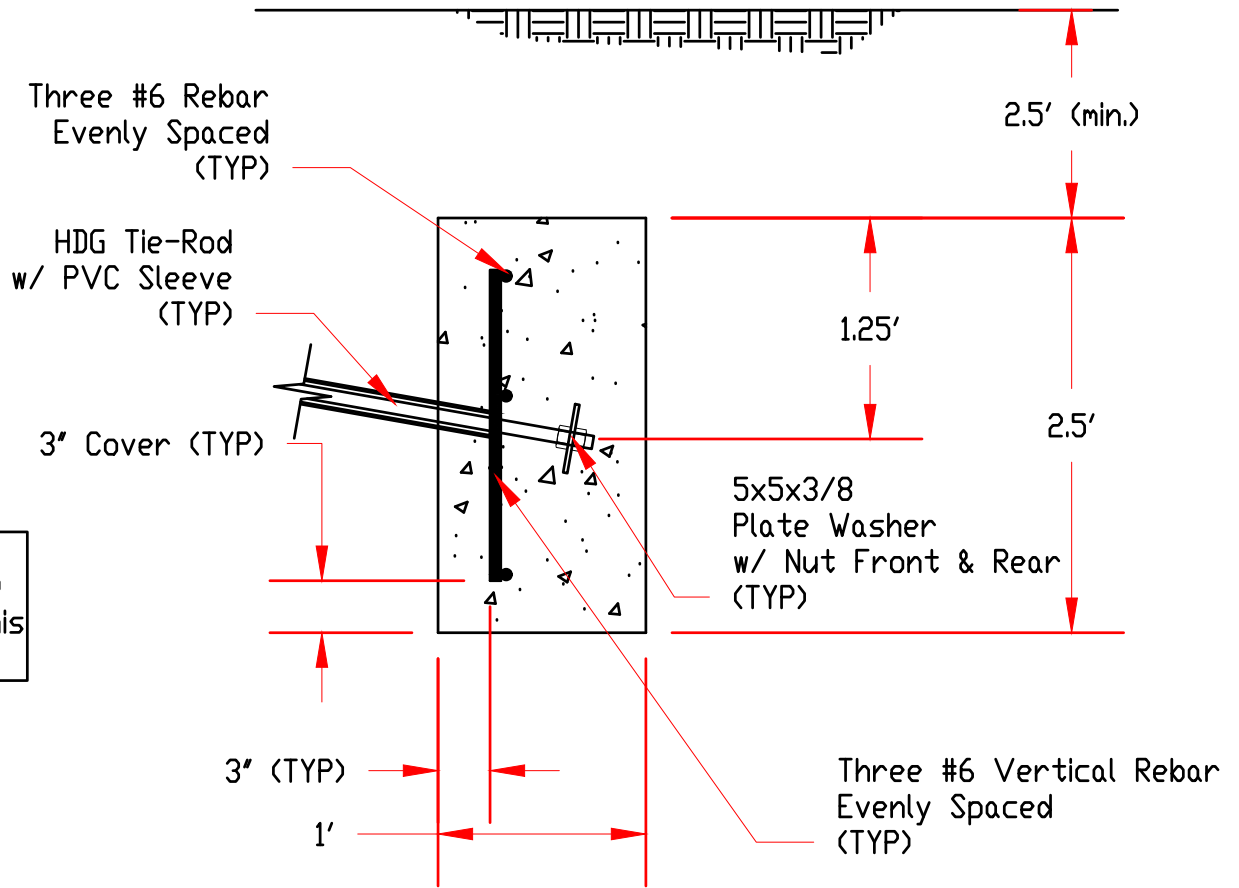
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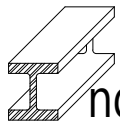
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## Concrete Deadman Detail



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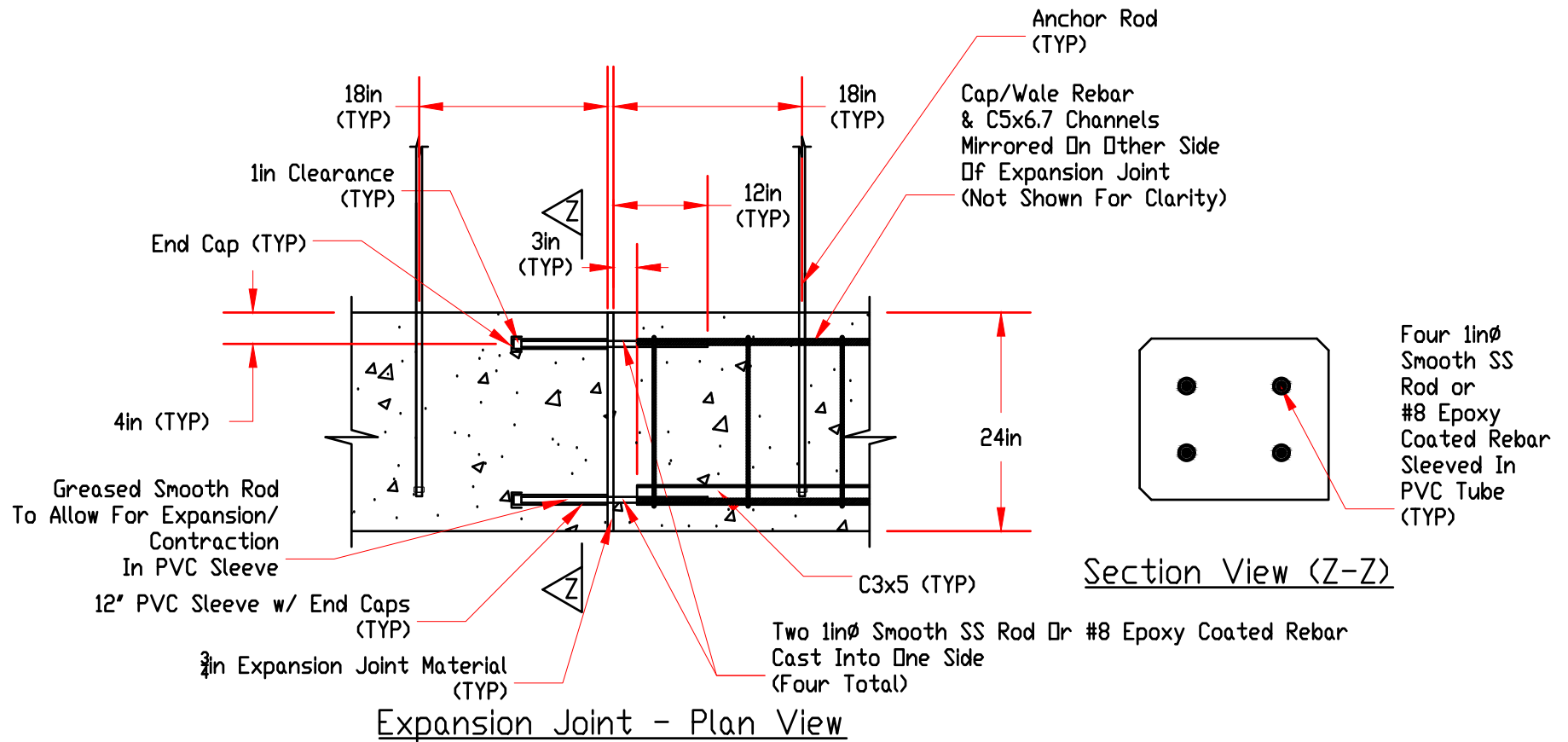
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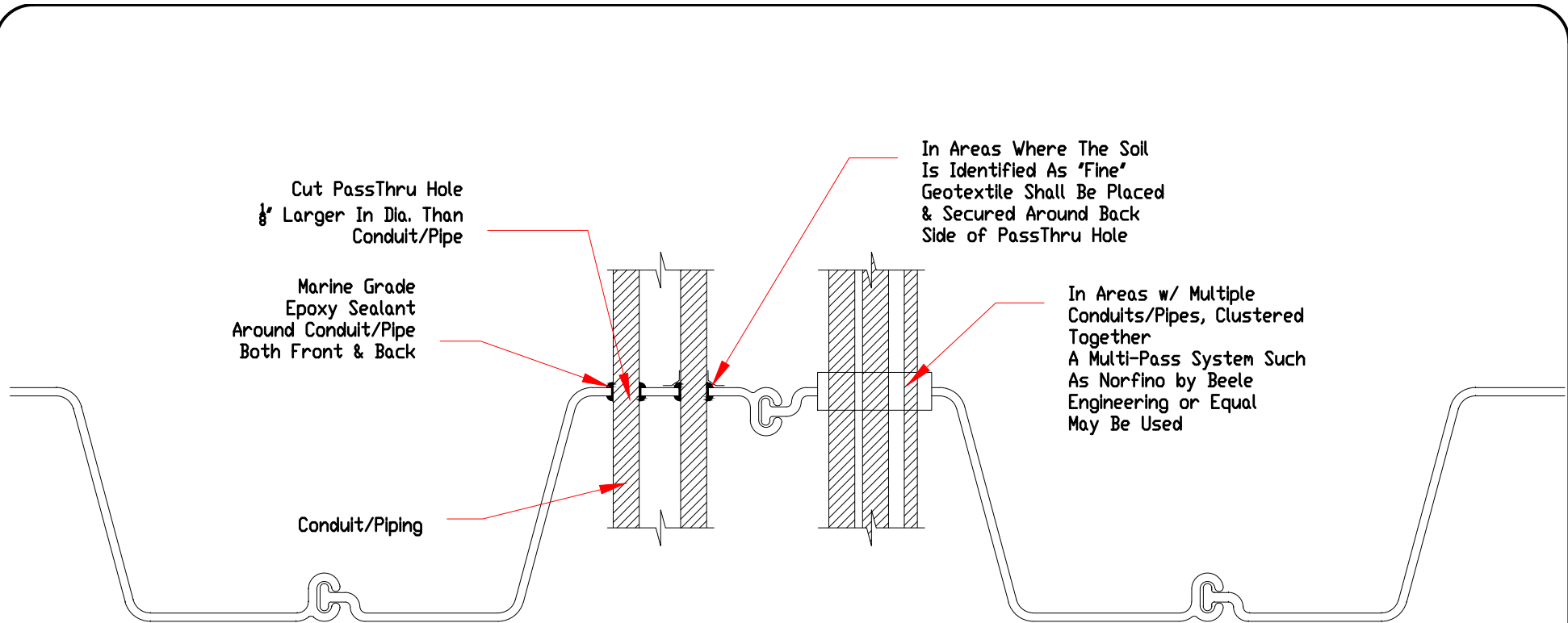
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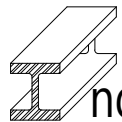
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Plan View - Small Utility PassThru



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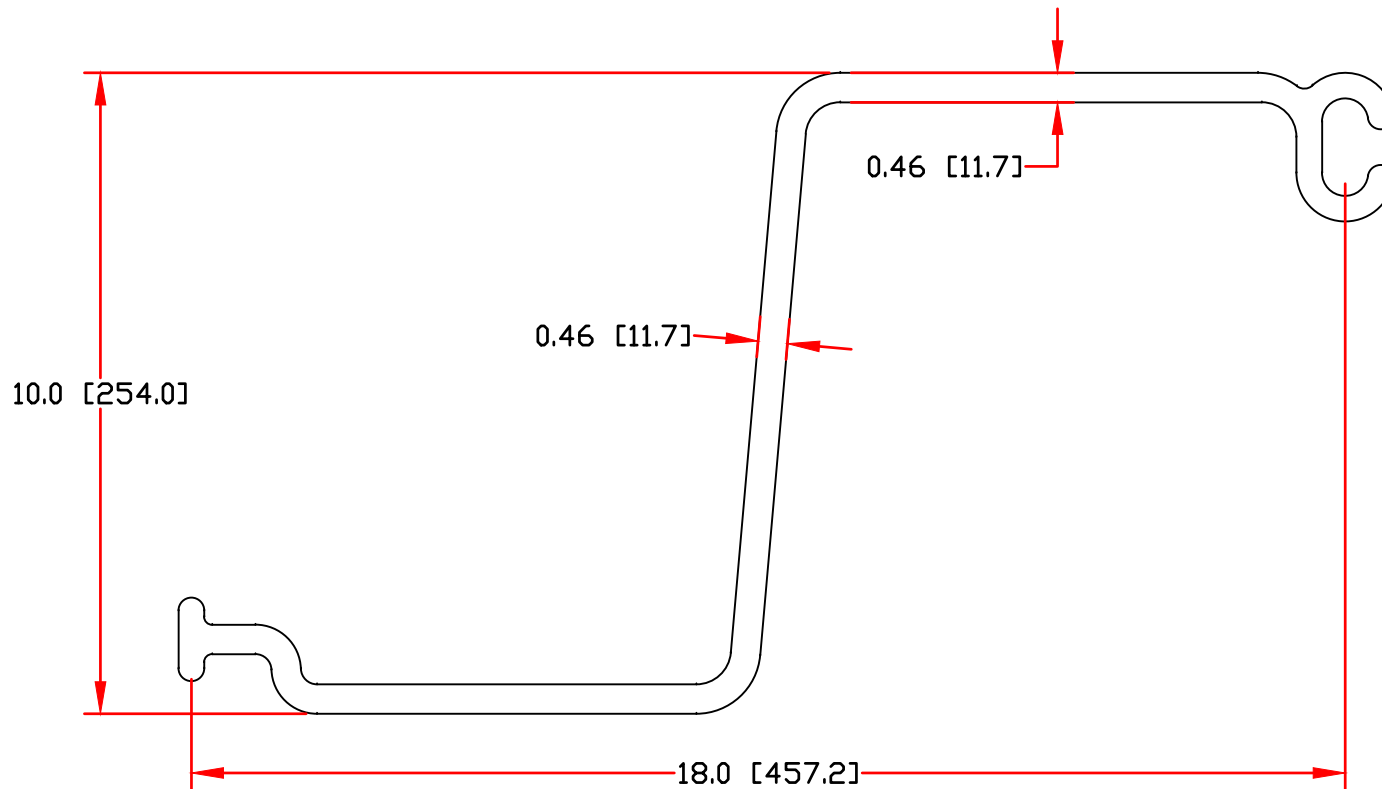
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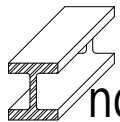

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ESP 8.5



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