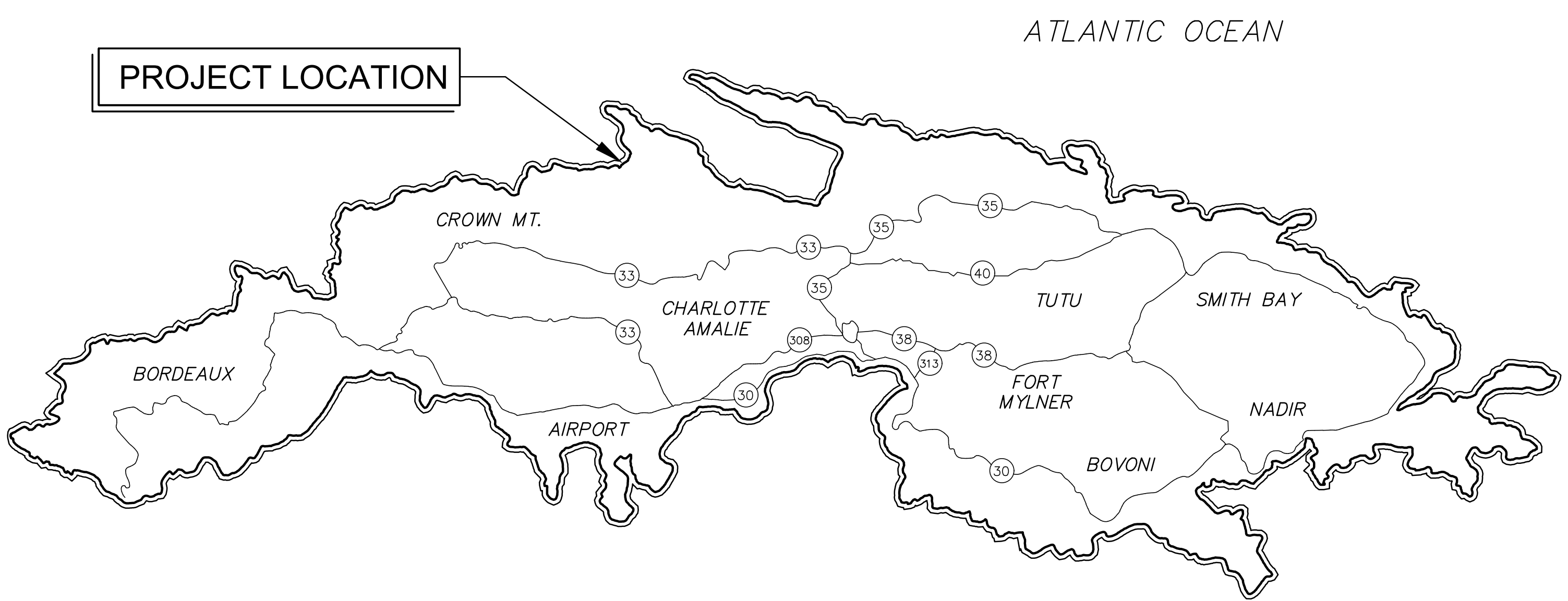


SITE DEVELOPMENT PLANS FOR THE **HULL BAY** **BOAT RAMP & PARKING IMPROVEMENT PROJECT**

**ESTATE HULL
SAINT THOMAS, USVI**

LAST REVISED: JUNE 28, 2023



LOCATION MAP
NOT TO SCALE

PROPERTY OWNER

GOVERNMENT OF THE V.I.
8100 LINDBERGH BAY 61
SAINT THOMAS, VI 00802

PROPERTY INFORMATION

PLOT: 4-2 & 4-3
AREA: 1.5± ACRES

LIST OF DRAWINGS

DWG #	SHEET#	DWG NAME
C1	1	COVER SHEET
C2	2	EXISTING CONDITIONS PLAN
C3	3	SITE DEMOLITION PLAN
C4	4	SITE LAYOUT & GRADING PLAN
C5	5	EROSION CONTROL NOTES & DETAILS
C6	6	SITE CONSTRUCTION DETAILS
C7	7	BOAT RAMP DETAILS 1
C8	8	BOAT RAMP DETAILS 2

**US VIRGIN ISLANDS
DEPARTMENT OF NATURAL RESOURCES**

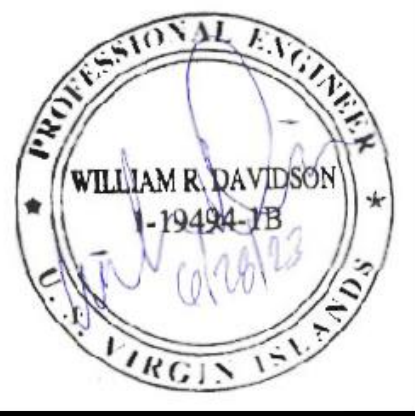
100% CONTRACT DOCUMENTS

SUMMARY OF PROPOSED WORK

THE PROJECT IS TO BE BID WITH A BASE BID AND ADD ALT 1 FOR THE WORK GENERALLY DESCRIBED BELOW AND DETAILED ON THE PLANS. THE BIDS SHALL INCLUDE ALL WORK SHOWN OR IMPLIED TO THOROUGHLY COMPLETE THE PROJECT.

BASE BID: CONCRETE BOAT RAMP, REMOVAL OF EXISTING BOAT RAMP, VEGETATION CLEARING, REMOVAL OF CONCRETE PAVING, GEOPAVE PARKING FOR PASSENGER VEHICLES AND BOAT TRAILERS, VEHICLE TURNAROUND, CONCRETE ROAD PAVING, RIPRAP DRAINAGE SWALE, PAD PREP FOR BUILDING AND CONCRETE PAD FOR FISH CLEANING STATION.

ADD ALT 1: CONCRETE ROAD PAVING & GEOPAVE PARKING FOR PASSENGER VEHICLES



NO.	DATE	REVISION DESCRIPTION
1	04/17/23	50% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT
2	06/12/23	90% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT
3	06/28/23	100% CONTRACT DOCUMENTS

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**HOYLE
TANNER**

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SCALE: AS SHOWN

DESIGNED BY: SMT/JHV
DRAWN BY: SMT/JHV
CHECKED BY: WRD/AML

ORIGINAL DATE: APRIL 17, 2023

CLIENT: US VIRGIN ISLANDS DEPARTMENT OF NATURAL RESOURCES

PROJECT: HULL BAY BOAT RAMP & PARKING IMPROVEMENT PROJECT SAINT THOMAS, USVI

EXISTING CONDITIONS NOTES:

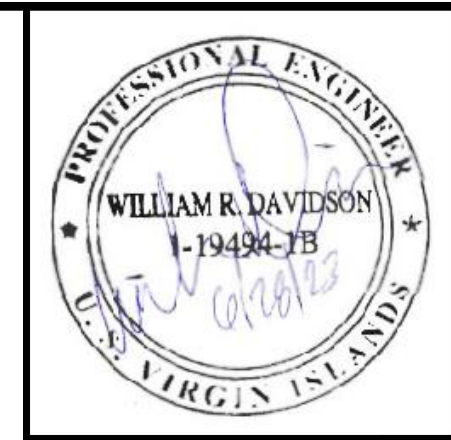
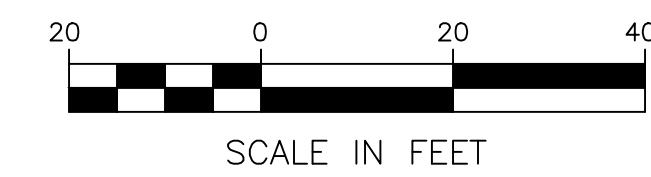
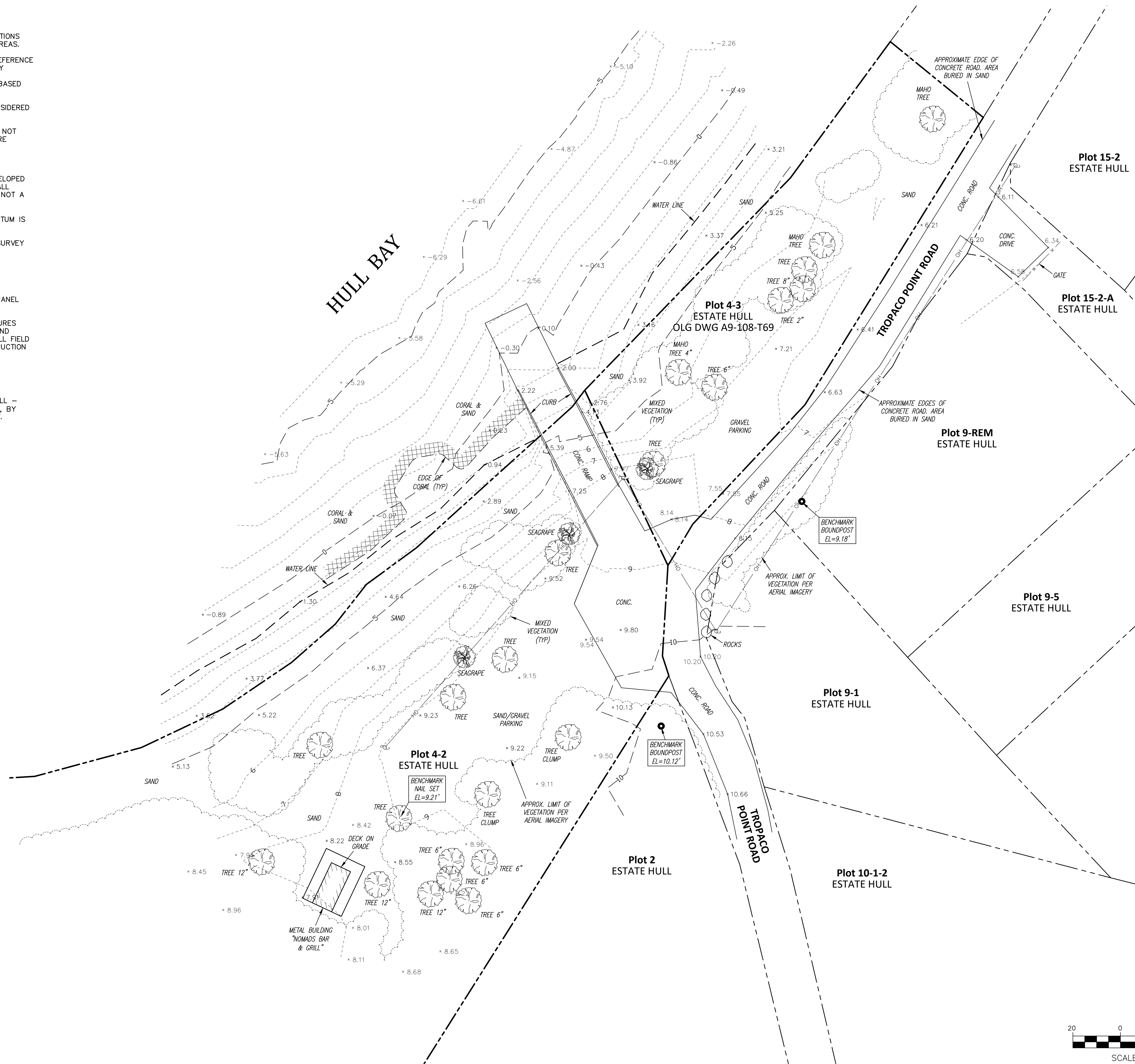
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS FOR THE HULL BAY BOAT RAMP AND SURROUNDING PARKING AREAS.
2. THE SURFACE FEATURES AND TOPOGRAPHY ARE SHOWN PER REFERENCE PLAN #1 AND ARE THE RESULT OF AN ON THE GROUND SURVEY CONDUCTED IN FEBRUARY BY BCSC DOSPIVA, THE GREEN PIECE ENGINEERING + ENVIRONMENT. ADDITIONAL DETAIL WAS ADDED BASED ON A VISUAL ASSESSMENT BY HOYLE TANNER IN MAY 2023.
3. THE LIMITS OF TROPACO POINT ROAD CONCRETE SHALL BE CONSIDERED APPROXIMATE DUE TO AREAS BURIED IN SAND.
4. ADDITIONAL TREES MAY BE PRESENT WITHIN THE SURVEY AREA NOT SHOWN ON THESE PLANS. APPROXIMATE VEGETATION LIMITS WERE ADDED PER AERIAL IMAGERY.
5. THE PARCELS APPEAR TO BE ZONED W-1 WATERFRONT.
6. RIGHT OF WAY AND BOUNDARY INFORMATION SHOWN WERE DEVELOPED ENTIRELY FROM USVI GIS AND BASED ON REFERENCE PLAN 1. ALL PROPERTY LINES SHALL BE CONSIDERED APPROXIMATE. THIS IS NOT A BOUNDARY SURVEY.
7. THE HORIZONTAL DATUM IS NAD 1983 (2011) AND VERTICAL DATUM IS VVDD09.
8. SURVEY IN U.S. UNITS AND CONDUCTED USING CONVENTIONAL SURVEY METHODS.
9. APPROXIMATE LIMITS OF VEGETATION ARE SHOWN PER HEXAGON IMAGERY DATED 2018.
10. THIS PROPERTY APPEARS TO LIE WITHIN "ZONES X, AE & VE", ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 780000 0010 G APRIL 16, 2007.
11. UTILITIES SHOWN ON THIS PLAN ARE BASED ON SURFACE FEATURES LOCATED IN THE FIELD. THERE MAY BE ADDITIONAL UNDERGROUND UTILITIES NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.

REFERENCE PLAN:

1. "TOPOGRAPHIC SURVEY - HULL BAY BOAT RAMP - ESTATE HULL - SAINT THOMAS US VIRGIN ISLANDS" DATED FEBRUARY 23, 2023, BY BCSC DOSPIVA, THE GREEN PIECE ENGINEERING + ENVIRONMENT.

EXISTING LEGEND

- SUBJECT PROPERTY LINE
- - - EDGE OF WATER
- ~ ~ ~ VEGETATION
- 5- MAJOR CONTOUR
- 4- MINOR CONTOUR
- * 4.64 SPOT GRADE
- EDGE OF CONCRETE
- CONCRETE CURBING
- OH — OVERHEAD UTILITY
- UTILITY POLE
- STRUCTURE
- TREES



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CHECKED BY: WRD/AML
 DRAWN BY: SMT/JHV

DESIGNED BY: SMT/JHV
 ORIGINAL DATE: APRIL 17, 2023
 SCALE: AS SHOWN

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HOYLE TANNER

CLIENT: US VIRGIN ISLANDS DEPARTMENT OF NATURAL RESOURCES

PROJECT: HULL BAY BOAT RAMP & PARKING IMPROVEMENT PROJECT SAINT THOMAS, USVI

EXISTING CONDITIONS PLAN
C2
 PROJECT NO. 23.145001.00
 SHEET 2 OF 8

REMOVAL / DEMOLITION NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL ITEMS TO BE REMOVED PRIOR TO ANY CONSTRUCTION. ALL TREES TO BE REMOVED SHALL BE MARKED, REVIEWED AND DOCUMENTED WITH THE DEPARTMENT OF PLANNING AND NATURAL RESOURCES (DPNR) PRIOR TO CUTTING. ADDITIONAL TREES WITHIN THE LIMITS OF VEGETATION REMOVAL THAT ARE NOT SHOWN ON THESE PLANS MAY NEED TO BE CUT.
2. PRESERVE AND PROTECT ALL UTILITIES, PAVEMENT AND TREES NOT SCHEDULED FOR DEMOLITION.
3. WHEN PREPARING THE SITE FOR PROPOSED DEVELOPMENT, ALL MATERIALS REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL GOVERNING AGENCIES AT NO ADDITIONAL COST TO THE OWNER.
4. THE CONTRACTOR TO COORDINATE THE UTILITY POLE RELOCATION WITH THE VIRGIN ISLAND WATER AND POWER AUTHORITY (WAPA).

DEMOLITION LEGEND

- PROPERTY LINES
- SILT FENCE
- SHEET PILE
- TURBIDITY CURTAIN
- PROPOSED TREELINE
- TREE TO BE REMOVED
- CONC. TO BE REMOVED
- STABILIZED CONSTRUCTION ENTRANCE
- R&D REMOVE & DISPOSE

EROSION & SEDIMENT CONTROL NOTES:

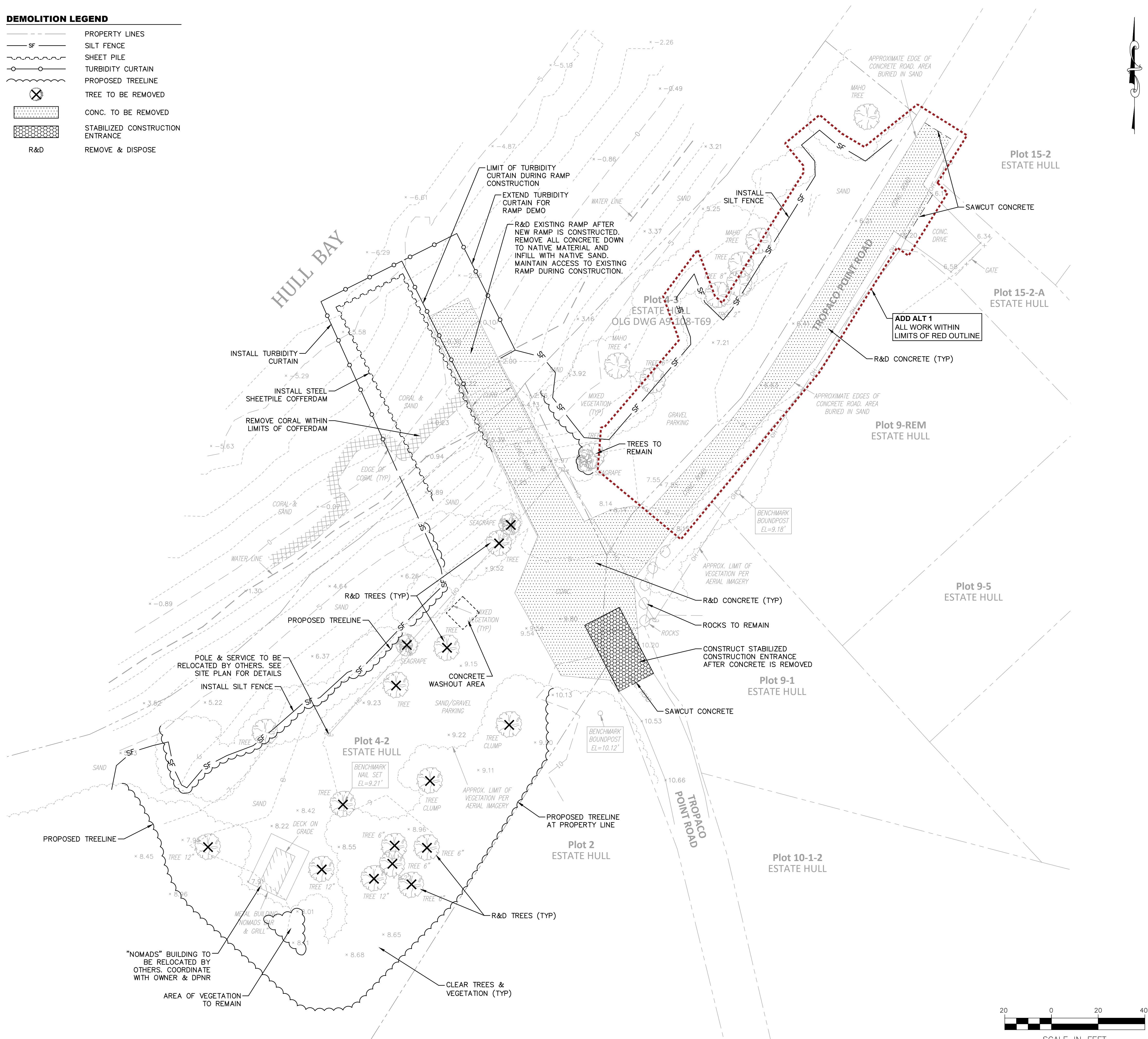
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING EROSION CONTROL MEASURES IN ORDER TO PREVENT OFF-SITE TRACKING OF EARTH, SEDIMENT AND DEBRIS.
2. DUST SHALL BE CONTROLLED THROUGH THE USE OF WATER.
3. ALL PERMANENT SEEDING SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS FP-03 SECTION 157 - SOIL EROSION CONTROL.
4. CONTRACTOR SHALL REPAIR, CLEAN, AND REPLACE ANY SEDIMENT CONTROLS DAMAGED DURING AND/OR AFTER RAINFALL EVENTS OR AS DIRECTED BY ENGINEER/PUBLIC WORKS DEPARTMENT OF ST. THOMAS.
5. DEWATERING OF WORK ZONES IF REQUIRED, SHALL BE DISCHARGED INTO APPROVED SEDIMENT RETENTION MEASURES. THE CONTRACTOR SHALL NOT DISCHARGE DIRECTLY INTO EXISTING STORM DRAINAGE SYSTEMS, WATERCOURSES OR WATERWAYS.
6. SEE DRAWING C5 FOR ADDITIONAL EROSION & SEDIMENT CONTROL NOTES AND DETAILS.

COFFERDAM NOTES:

1. THE COFFERDAM SYSTEM SHALL CONSIST OF STEEL SHEETING INSTALLED AS INDICATED HEREIN. A PORTION OF THE STEEL SHEETING MUST BE LEFT IN-PLACE AS PERMANENT SCOUR PROTECTION FOR THE RAMP STRUCTURE. CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF THE SHEETING SYSTEM FOR TEMPORARY EXCAVATION SUPPORT AND DEWATERING, AND FOR DETERMINING THE REQUIRED METHOD(S) OF CONSTRUCTION. REFER TO SHEET C7 FOR FURTHER REQUIREMENTS REGARDING THE SHEETING SYSTEM.
2. SHOP DRAWINGS AND DESIGN CALCULATIONS FOR THE COFFERDAMS SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE U.S. VIRGIN ISLANDS AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
3. COFFERDAMS SHALL BE REQUIRED TO CONTROL THE WATER INFLOW AND ADEQUATELY DEWATER THE RAMP EXCAVATION AREA. SUMP PUMPING AREAS AROUND THE ENTIRE PERIMETER IS ANTICIPATED TO BE REQUIRED TO ADEQUATELY CONTROL THE GROUNDWATER WITHIN THE EXCAVATION AREA.
4. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER DRAWINGS, SHOWING THE PROPOSED METHOD OF DEWATERING AND HANDLING THE WATER FROM THE EXCAVATION, FOR REVIEW AND APPROVAL, PRIOR TO BEGINNING EXCAVATION.
5. STEEL SHEETING SHALL BE INSTALLED TO A MINIMUM TIP OF -15.00', AND SHALL BE CUT 1'-0" BELOW OVERLYING CONSTRUCTION. CARE SHALL BE TAKEN TO NOT DISTURB THE SURROUNDING SOIL OR THE FINISHED WORK DURING THE REMOVAL OF THE UPPER PORTION OF THE SHEETING.
6. STEEL SHEETING SHALL BE INSTALLED 5'-0" FROM SIDES OF RAMP AND 10'-0" FROM END.
7. DEWATERING SHALL BE CONTINUOUS UNTIL RAMP FOUNDATIONS ARE BACKFILLED TO THE ELEVATIONS OF THE SURROUNDING WATER TABLE, UNLESS OTHERWISE REQUESTED. WATER PUMPED FROM DEWATERING LOCATIONS SHALL BE FILTERED ADEQUATELY TO REMOVE FINE MATERIALS PRIOR TO RETURNING THE WATER. CONSTRUCTION AND MAINTENANCE OF SEDIMENTATION BASIN OR OTHER SUCH METHODS TO CONTROL WATER POLLUTION AS WELL AS ALL OTHER ASPECTS OF THE DEWATERING PROCESS SHALL BE IN CONFORMANCE WITH THE MOST CURRENT USVI STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.

CONSTRUCTION GENERAL PERMIT NOTES:

1. THE OWNER IN CONJUNCTION WITH THE CONTRACTOR (OPERATOR) NEEDS TO OBTAIN A CONSTRUCTION GENERAL PERMIT (CGP) FOR LARGE CONSTRUCTION ACTIVITIES (FIVE OR MORE ACRES) OR SMALL CONSTRUCTION ACTIVITIES (GREATER THAN ONE ACRE BUT LESS THAN FIVE ACRES) FROM THE ENVIRONMENTAL PROTECTION AGENCY (EPA). AS PART OF THE CGP, A STORMWATER NOTICE OF INTENT (NOI) WILL NEED TO BE SUBMITTED TO THE EPA AT LEAST 14 DAYS PRIOR TO COMMENCING CONSTRUCTION. THE NOI WILL NEED TO BE SUBMITTED TO STORMWATER NOTICE OF INTENT (4203M), USEPA, 1200 PENNSYLVANIA, AVE. NW, WASHINGTON, DC 20460.
2. THE CGP OUTLINES A SET OF PROVISIONS MANDATING THE OWNER AND CONTRACTOR COMPLY WITH THE REQUIREMENTS OF THE TERRITORIAL VIRGIN ISLANDS STORMWATER POLLUTION PREVENTION PLANS (VI SWPPP) STORMWATER REGULATIONS, INCLUDING BUT NOT LIMITED TO, STORMWATER POLLUTION PREVENTION PLANS (SWPPPS), IMPLEMENTATION OR EROSION AND SEDIMENTATION CONTROLS, EQUIPMENT MAINTENANCE GUIDELINES, ETC. PLEASE CONTACT USEPA OFFICE OF WASTEWATER MANAGEMENT AT 202-564-9545 OR AT WWW.EPA.GOV/NPDES/STORMWATER FOR ADDITIONAL INFORMATION.
3. SEE SPECIFICATIONS FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.



GENERAL NOTES:

- UTILITIES SHOWN ON THIS PLAN ARE BASED ON SURFACE FEATURES LOCATED IN THE FIELD. THERE MAY BE ADDITIONAL UNDERGROUND UTILITIES NOT SHOWN ON THESE PLANS.
- THE CONTRACTOR SHALL VERIFY AND DETERMINE THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE AGREED TO BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE PLANS AND THE SITE OF THE PROPOSED WORK, PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES FOUND IN THE CONTRACT DOCUMENTS; OR WORK THAT CANNOT BE CONSTRUCTED AS SHOWN; OR ANY METHODS PROPOSED BY THE CONTRACTOR THAT ARE IN VARIANCE WITH THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE ENGINEER IN WRITING AT LEAST 10 DAYS PRIOR TO STARTING THE WORK.
- ALL WORK SHALL BE IN COMPLIANCE WITH THE US ARMY CORPS OF ENGINEERS AND DPNR PERMITS OBTAINED BY OTHERS.
- WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATIONS.
- ALL PROPOSED SITE FEATURES SHALL BE LAID OUT IN THE FIELD USING SURVEY EQUIPMENT. AN AUTOCAD FILE OF THE EXISTING AND PROPOSED FEATURES WITH CONTROL POINTS WILL BE PROVIDED TO THE CONTRACTOR FOR CONSTRUCTION LAYOUT.
- THIS PROJECT IS TO BE CONSTRUCTED TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE MOST CURRENT USVI STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
- WHEN PREPARING THE EXISTING SITE FOR THE PROPOSED DEVELOPMENT, ALL MATERIALS REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL GOVERNING AGENCIES AT NO ADDITIONAL COST.
- THE CONTRACTOR SHALL PERFORM ALL THE CLEARING AND GRUBBING NECESSARY WITHIN THE CONSTRUCTION AREA, LIMITING THE AMOUNT OF CLEARING AND GRUBBING TO THE GREATEST EXTENT POSSIBLE.
- CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC PROPERTY AFFECTED BY THIS WORK TO PRE-CONSTRUCTION CONDITIONS FOR PAVEMENTS, SURFACES, SIDEWALKS, CURBS, ETC UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF EXISTING UTILITIES AND STRUCTURES DAMAGED OR REMOVED BY THE CONTRACTOR DURING THEIR OPERATIONS.
- THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING BENCHMARKS AND BOUNDS. ALL BENCHMARKS AND BOUNDS DISTURBED BY THE CONTRACTOR SHALL BE RE-ESTABLISHED BY A REGISTERED LAND SURVEYOR AT NO EXPENSE TO THE OWNER.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY EXCAVATION SAFEGUARDS, NECESSARY BARRICADES, POLICE DETAILS, ETC., FOR TRAFFIC CONTROL AND SITE SAFETY. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION AND MAINTENANCE OF TRAFFIC DETOUR(S) AROUND THE WORK FOR VEHICLES AND PEDESTRIANS. WHILE WORKING IN THE PUBLIC ROW, SUITABLE BARRICADES, LIGHTS AND SIGNS SHALL BE PROVIDED BY THE CONTRACTOR AND MAINTAINED 24 HOURS A DAY UNTIL COMPLETION OF THE WORK. ALL TRAFFIC CONTROL DEVICES AND LAYOUT SHALL COMPLY WITH VI TRAFFIC CONTROL REQUIREMENTS AND FHWA'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS." THE CONTRACTOR SHALL A MAINTENANCE OF TRAFFIC PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO ALL RESIDENCES AFFECTED BY CONSTRUCTION. IF AT ANY TIME ACCESS WILL BE PROHIBITED FOR MORE THAN TWO HOURS, A 24 HOUR NOTICE SHALL BE PROVIDED TO THE AFFECTED PARTY. ALL STEPS NECESSARY SHALL BE TAKEN TO MINIMIZE ACCESS INTERRUPTIONS. TEMPORARY ACCESS SHALL MEET ADA REQUIREMENTS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR THE CONDITIONS OF THE SITE.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL WORK IS DONE IN ACCORDANCE WITH OSHA REQUIREMENTS.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, TEMPORARY UTILITIES AND COORDINATION WITH ALL AGENCIES IN OBTAINING ACCESS TO THE SITE AND PERFORMING ALL WORK REQUIRED FOR THIS PROJECT.
- CONTRACTOR TO PREPARE THE SWPPP, FILE A NPDES CONSTRUCTION GENERAL PERMIT NOI PRIOR TO CONSTRUCTION AND PROVIDE MONITORING FOR THE SWPPP DURING CONSTRUCTION.
- POROUS PARKING SYSTEM SHALL BE GEOSYSTEMS GEOPAVE OR APPROVED EQUAL. INSTALL PER MANUFACTURERS STANDARD SPECIFICATIONS AND DETAILS.

SUMMARY OF PROPOSED ACTIVITY:

- THE PURPOSE OF THIS PROJECT IS TO REPLACE THE EXISTING CONCRETE BOAT RAMP LOCATED AT HULL BAY, CONSTRUCT NEW BOAT TRAILER PARKING SPACES AND PASSENGER VEHICLE PARKING SPACES AND RECONSTRUCT A PORTION OF TROPACO POINT ROAD.
- THERE ARE NO KNOWN CRITICAL AREAS OR POSSIBLE TROUBLE SPOTS AS DESCRIBED IN A DPNR PERMIT LOCATED IN THE PROJECT VICINITY.
- THE NEW BOAT RAMP WILL BE CONSTRUCTED USING A SHEETPILE COFFERDAM. SEE BOAT RAMP DETAIL SHEETS FOR ADDITIONAL INFORMATION.
- THE NEW RAMP IS TO BE CONSTRUCTED WEST OF THE EXISTING EXISTING RAMP. THE EXISTING RAMP IS TO REMAIN OPERATIONAL DURING CONSTRUCTION AND BE REMOVED WHEN THE NEW RAMP IS OPEN.
- TEMPORARY EROSION CONTROL MEASURES SHALL BE IMPLEMENTED ON THE SITE BEFORE BEGINNING CONSTRUCTION. SILT FENCE SHALL BE INSTALLED PERPENDICULAR TO SLOPES AT THE EDGE OF PROPOSED GRADING LIMITS. AT ALL TIMES DURING CONSTRUCTION THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED TO LIMIT EROSION AND SEDIMENT RUNOFF.

CONSTRUCTION SEQUENCE:

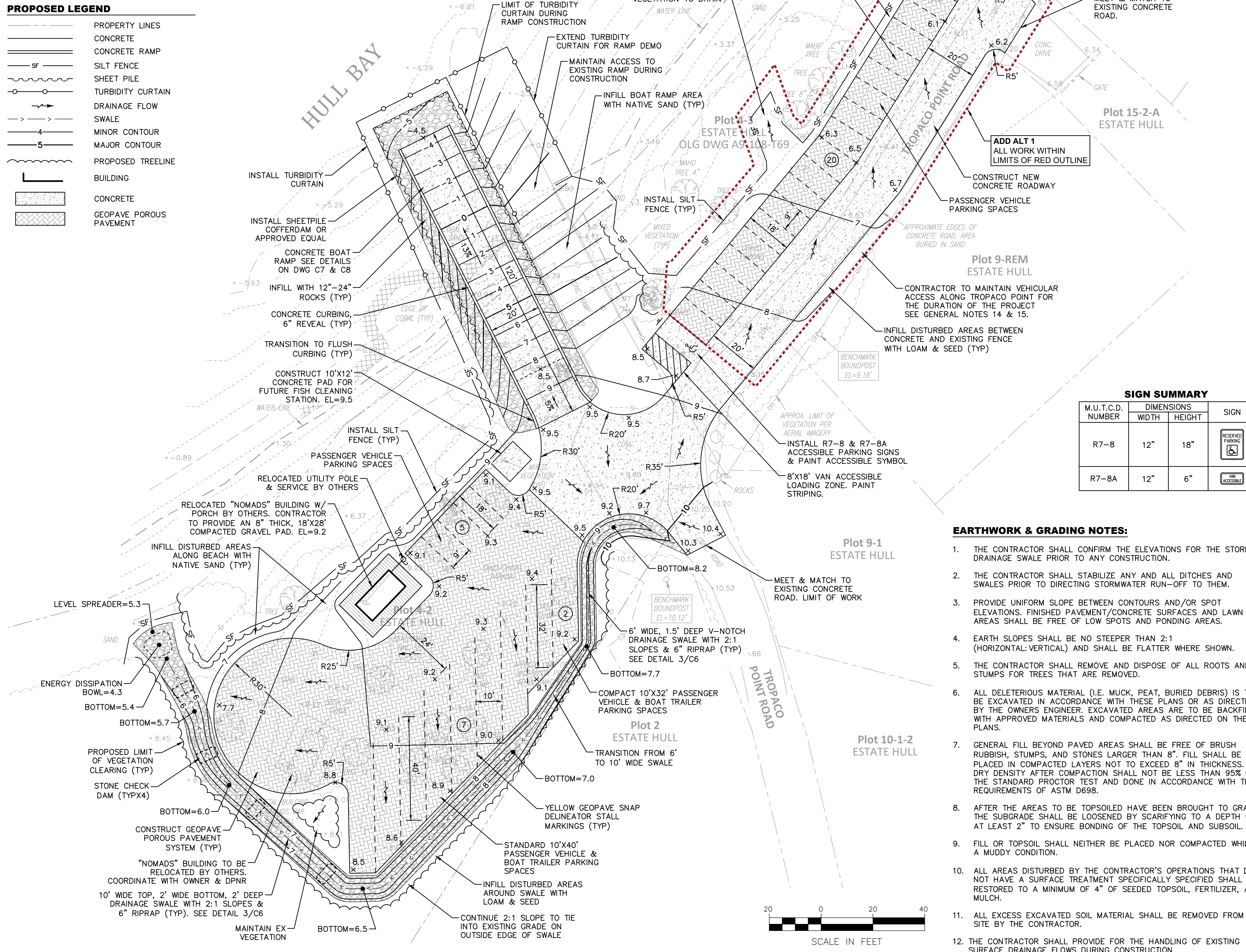
- INSTALL SILT FENCE AND TURBIDITY CURTAIN PRIOR TO START OF CONSTRUCTION AT LOCATIONS SHOWN ON THIS PLAN.
- INSTALL SHEET PILE COFFER DAM OR APPROVED EQUAL AND PUMP WATER OUT OF PROPOSED RAMP WORK AREA.
- REMOVE CORAL IN WORK AREA. CONSTRUCT NEW CONCRETE BOAT RAMP AND ROCK PROTECTION. ALL CONCRETE WORK IS TO BE DONE IN THE DRY.
- REMOVE COFFER DAM.
- CONSTRUCT NEW ROADWAY AND GEOPAVE PARKING AREAS.
- REMOVE AND DISPOSE OF EXISTING CONCRETE BOAT RAMP. CONCRETE SHALL BE DISPOSED OF IN ACCORDANCE WITH VIMWA REGULATIONS.
- REMOVE TRAPPED SEDIMENT FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

PROPOSED LEGEND

	PROPERTY LINES
	CONCRETE
	CONCRETE RAMP
	SILT FENCE
	SHEET PILE
	TURBIDITY CURTAIN
	DRAINAGE FLOW
	SWALE
	MINOR CONTOUR
	MAJOR CONTOUR
	PROPOSED TREELINE
	BUILDING
	CONCRETE
	GEOPAVE POROUS PAVEMENT

TREE NOTE:

- THE CONTRACTOR SHALL PLANT 10 NATIVE TREES 5'-6" IN HEIGHT ALONG THE PERIMETER OF THE PARKING AREAS. FINAL TREE SPECIES AND PLANTING LOCATIONS SHALL BE COORDINATED WITH DPNR. THE CONTRACTOR SHALL INCLUDE THE COST FOR PURCHASING AND PLANTING THE TREES IN THE BASE BID.

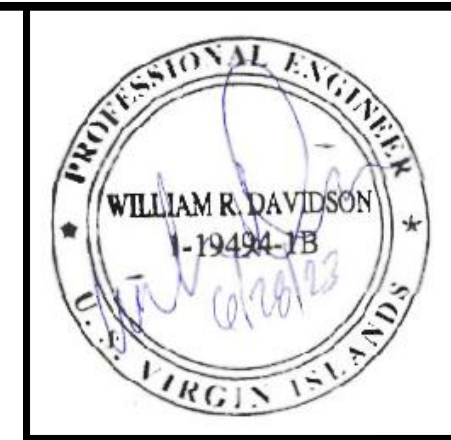


SIGN SUMMARY

M.U.T.C.D. NUMBER	DIMENSIONS		SIGN
	WIDTH	HEIGHT	
R7-8	12"	18"	
R7-8A	12"	6"	

EARTHWORK & GRADING NOTES:

- THE CONTRACTOR SHALL CONFIRM THE ELEVATIONS FOR THE STORM DRAINAGE SWALE PRIOR TO ANY CONSTRUCTION.
- THE CONTRACTOR SHALL STABILIZE ANY AND ALL DITCHES AND SWALES PRIOR TO DIRECTING STORMWATER RUN-OFF TO THEM.
- PROVIDE UNIFORM SLOPE BETWEEN CONTOURS AND/OR SPOT ELEVATIONS. FINISHED PAVEMENT/CONCRETE SURFACES AND LAWN AREAS SHALL BE FREE OF LOW SPOTS AND PONDING AREAS.
- EARTH SLOPES SHALL BE NO STEEPER THAN 2:1 (HORIZONTAL:VERTICAL) AND SHALL BE FLATTER WHERE SHOWN.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ROOTS AND STUMPS FOR TREES THAT ARE REMOVED.
- ALL DELETERIOUS MATERIAL (I.E. MUCK, PEAT, BURIED DEBRIS) IS TO BE EXCAVATED IN ACCORDANCE WITH THESE PLANS OR AS DIRECTED BY THE OWNERS ENGINEER. EXCAVATED AREAS ARE TO BE BACKFILLED WITH APPROVED MATERIALS AND COMPACTED AS DIRECTED ON THESE PLANS.
- GENERAL FILL BEYOND PAVED AREAS SHALL BE FREE OF BRUSH RUBBISH, STUMPS, AND STONES LARGER THAN 8". FILL SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 8" IN THICKNESS. THE DRY DENSITY AFTER COMPACTION SHALL NOT BE LESS THAN 95% OF THE STANDARD PROCTOR TEST AND DONE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D698.
- AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, THE SUBGRADE SHALL BE LOOSENEED BY SCARIFYING TO A DEPTH OF AT LEAST 2" TO ENSURE BONDING OF THE TOPSOIL AND SUBSOIL.
- FILL OR TOPSOIL SHALL NEITHER BE PLACED NOR COMPACTED WHILE IN A MUDDY CONDITION.
- ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS THAT DO NOT HAVE A SURFACE TREATMENT SPECIFICALLY SPECIFIED SHALL BE RESTORED TO A MINIMUM OF 4" OF SEEDED TOPSOIL, FERTILIZER, AND MULCH.
- ALL EXCESS EXCAVATED SOIL MATERIAL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE FOR THE HANDLING OF EXISTING SURFACE DRAINAGE FLOWS DURING CONSTRUCTION.



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US VIRGIN ISLANDS
 DEPARTMENT OF NATURAL RESOURCES

HULL BAY BOAT RAMP & PARKING
 IMPROVEMENT PROJECT
 SAINT THOMAS, USVI

SITE LAYOUT & GRADING PLAN

C4

PROJECT NO. 23.145001.00
 SHEET 4 OF 8

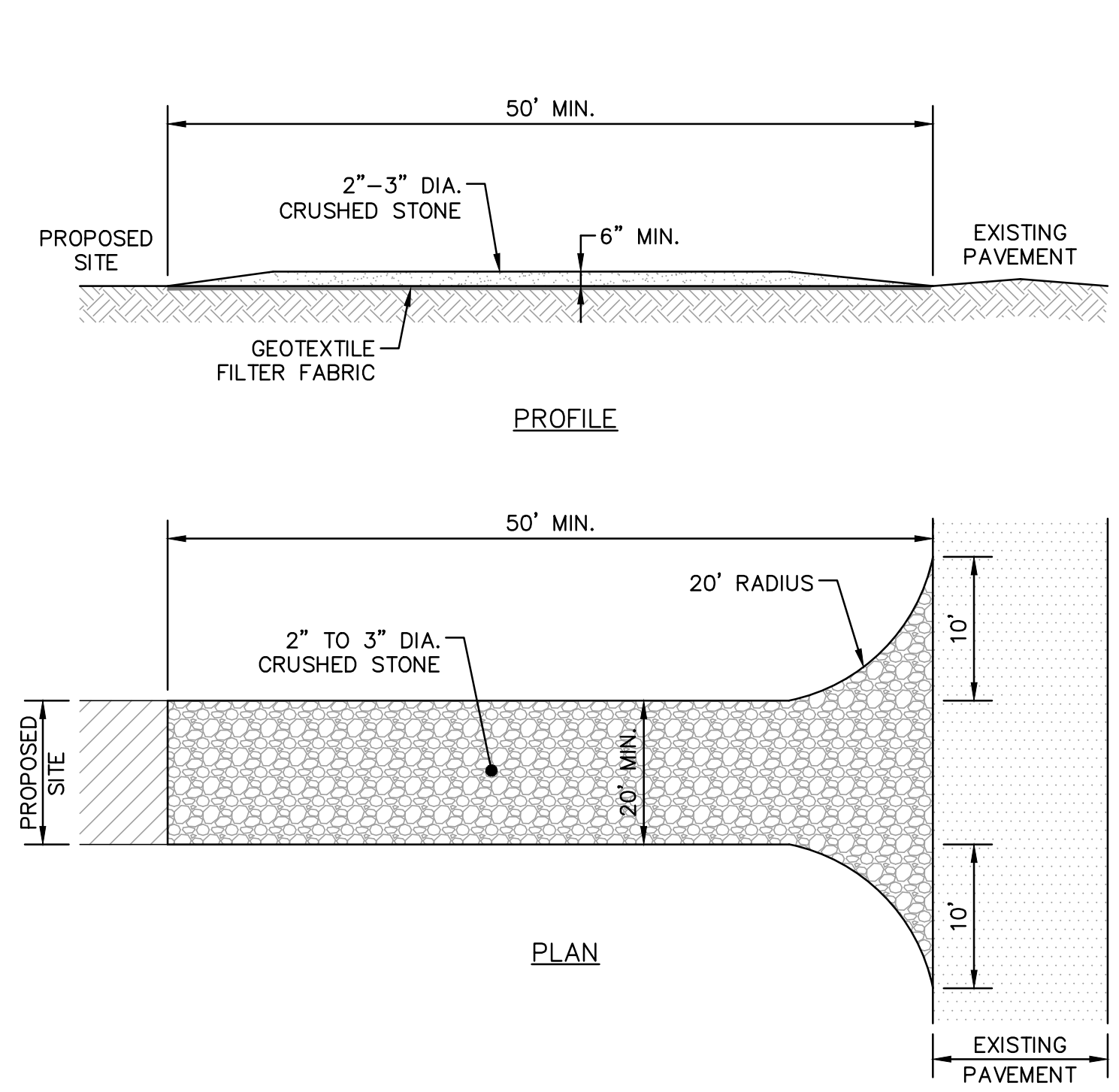
EROSION CONTROL NOTES:

- POLLUTION PREVENTION.** MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION. MINIMIZE THE DISTURBANCE OF STEEP SLOPES. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND VOLUME, TO MINIMIZE EROSION AT OUTLETS. THE DISCHARGE MAY NOT RESULT IN EROSION OF ANY OPEN DRAINAGE CHANNELS, SWALES, STREAM CHANNELS OR STREAM BANKS, UPLAND, OR COASTAL OR FRESHWATER WETLANDS OFF THE PROJECT SITE. WHENEVER PRACTICABLE, NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 50 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.
- SEDIMENT BARRIERS.** PRIOR TO CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWNGRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED FROM RUNNING ONTO THE STOCKPILE. MAINTAIN THE SEDIMENT BARRIERS BY REMOVING ACCUMULATED SEDIMENT, OR REMOVING AND REPLACING THE BARRIER, UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.
- STABILIZED CONSTRUCTION ENTRANCE.** PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZED PAD OF AGGREGATE, UNDERLAIN BY A GEOTEXTILE FILTER FABRIC, USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC ROWS. MAINTAIN THE SCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.
- TEMPORARY STABILIZATION.** WITHIN 7 DAYS OF THE CESSATION OF CONSTRUCTION ACTIVITIES IN AN AREA THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS, STABILIZE ANY EXPOSED SOIL WITH MULCH, OR OTHER NON-ERODIBLE COVER. STABILIZE AREAS WITHIN 75 FEET OF A WETLAND OR WATERBODY WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
- REMOVAL OF TEMPORARY MEASURES.** REMOVE ANY TEMPORARY CONTROL MEASURES SUCH AS MULCH BERMS OR SILT SOCKS, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.
- PERMANENT STABILIZATION.** IF THE AREA WILL NOT BE WORKED FOR MORE THAN ONE YEAR OR HAS BEEN BROUGHT TO FINAL GRADE, THEN PERMANENTLY STABILIZE THE AREA WITHIN 7 DAYS BY PLANTING VEGETATION, SEEDING, OR THROUGH THE USE OF PERMANENT MULCH, OR RIP-RAP, OR ROAD SUB-BASE. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS; AMEND AREAS OF DISTURBED SUBSOILS WITH TOPSOIL, COMPOST, OR FERTILIZERS; PROTECT SEEDING AREAS WITH MULCH OR, IF NECESSARY, EROSION CONTROL BLANKETS; AND SCHEDULE PLANTING, AND SEEDING SO TO AVOID DIE-OFF FROM DROUGHT. NEWLY SEEDING AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC, EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL-ESTABLISHED WITH 90% COVER BY HEALTHY VEGETATION. IF NECESSARY, AREAS MUST BE REWORKED AND RESTABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY, OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO A PARTICULAR SITE.
 - PERMANENT MULCH.** FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.
 - RIP-RAP.** FOR AREAS STABILIZED WITH RIP-RAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIP-RAP

- HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIP-RAP. STONE MUST BE SIZED APPROPRIATELY. IT IS RECOMMENDED THAT ANGULAR STONE BE USED.
- AGRICULTURAL USE.** FOR CONSTRUCTION PROJECTS ON LAND USED FOR AGRICULTURAL PURPOSES (E.G., PIPELINES ACROSS CROP LAND), PERMANENT STABILIZATION MAY BE ACCOMPLISHED BY RETURNING THE DISTURBED LAND TO AGRICULTURAL USE.
 - PAVED AREAS.** FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUB-BASE IS COMPLETED, PROVIDED IT IS FREE OF FINE MATERIALS THAT MAY RUNOFF WITH A RAIN EVENT
 - DITCHES, CHANNELS, AND SWALES.** FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH A 90% COVER OF HEALTHY VEGETATION, WITH A WELL-GRADED RIP-RAP LINING, TURF REINFORCEMENT MAT, OR WITH ANOTHER NON-EROSIVE LINING SUCH AS CONCRETE OR ASPHALT PAVEMENT. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE CHANNEL LINING, UNDERCUTTING OF THE CHANNEL BANKS, OR DOWN-CUTTING OF THE CHANNEL.

- THE CHANNEL SHOULD RECEIVE ADEQUATE ROUTINE MAINTENANCE TO MAINTAIN CAPACITY AND PREVENT OR CORRECT ANY EROSION OF THE CHANNEL'S BOTTOM OR SIDE SLOPES.
- WHEN THE WATERSHED DRAINING TO A DITCH OR SWALE IS LESS THAN 1 ACRE OF TOTAL DRAINAGE AND LESS THAN ¼ ACRE OF IMPERVIOUS AREA, DIVERSION OF RUNOFF TO ADJACENT WOODED OR OTHERWISE VEGETATED BUFFER AREAS IS ENCOURAGED WHERE THE OPPORTUNITY EXISTS.

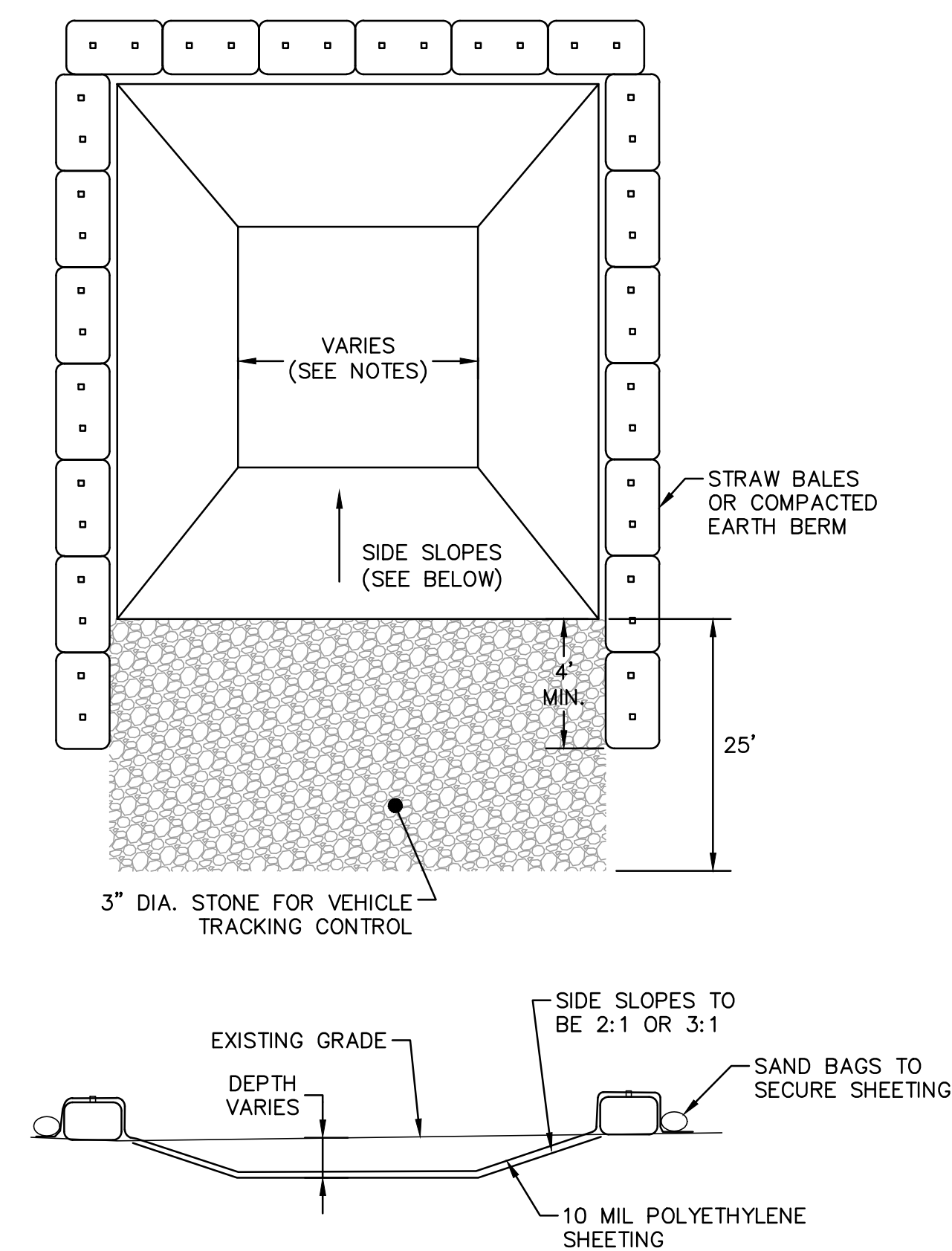
- SEDIMENT BASINS.** SEDIMENT BASINS MUST BE DESIGNED TO PROVIDE STORAGE FOR EITHER THE CALCULATED RUNOFF FROM A 2-YEAR, 24-HOUR STORM OR PROVIDE FOR 3,600 CUBIC FEET OF CAPACITY PER ACRE DRAINING TO THE BASIN. OUTLET STRUCTURES MUST DISCHARGE WATER FROM THE SURFACE OF THE BASIN WHENEVER POSSIBLE. EROSION CONTROLS AND VELOCITY DISSIPATION DEVICES MUST BE USED IF THE DISCHARGING WATERS ARE LIKELY TO CREATE EROSION. ACCUMULATED SEDIMENT MUST BE REMOVED AS NEEDED FROM THE BASIN TO MAINTAIN AT LEAST ½ OF THE DESIGN CAPACITY OF THE BASIN.
- ROADS, GRAVEL AND PAVED ROADS** MUST BE DESIGNED AND CONSTRUCTED WITH CROWNS OR OTHER MEASURES, SUCH AS WATER BARS, TO ENSURE THAT STORMWATER IS DELIVERED IMMEDIATELY TO ADJACENT STABLE DITCHES, VEGETATED BUFFER AREAS, CATCH BASIN INLETS, OR STREET GUTTERS.
- CULVERTS.** CULVERTS MUST BE SIZED TO AVOID UNINTENDED FLOODING OF UPSTREAM AREAS OR FREQUENT OVERTOPPING OF ROADWAYS. CULVERT INLETS MUST BE PROTECTED WITH APPROPRIATE MATERIALS FOR THE EXPECTED ENTRANCE VELOCITY, AND PROTECTION MUST EXTEND AT LEAST AS HIGH AS THE EXPECTED MAXIMUM ELEVATION OF STORAGE BEHIND THE CULVERT. CULVERT OUTLET DESIGN MUST INCORPORATE MEASURES, SUCH AS APRONS, TO PREVENT SCOUR OF THE STREAM CHANNEL. OUTLET PROTECTION MEASURES MUST BE DESIGNED TO STAY WITHIN THE CHANNEL LIMITS. THE DESIGN MUST TAKE ACCOUNT OF TAILWATER DEPTH.
- PARKING AREAS.** PARKING AREAS MUST BE CONSTRUCTED TO ENSURE RUNOFF IS DELIVERED TO ADJACENT SWALES, CATCH BASINS, CURB GUTTERS, OR BUFFER AREAS WITHOUT ERODING AREAS DOWNSLOPE. THE PARKING AREA'S SUB-BASE COMPACTION AND GRADING MUST BE DONE TO ENSURE RUNOFF IS EVENLY DISTRIBUTED TO ADJACENT BUFFERS OR SIDE SLOPES. CATCH BASINS MUST BE LOCATED AND SET TO PROVIDE ENOUGH STORAGE DEPTH AT THE INLET TO ALLOW INFLOW OF PEAK RUNOFF RATES WITHOUT BY-PASS OF RUNOFF TO OTHER AREAS.



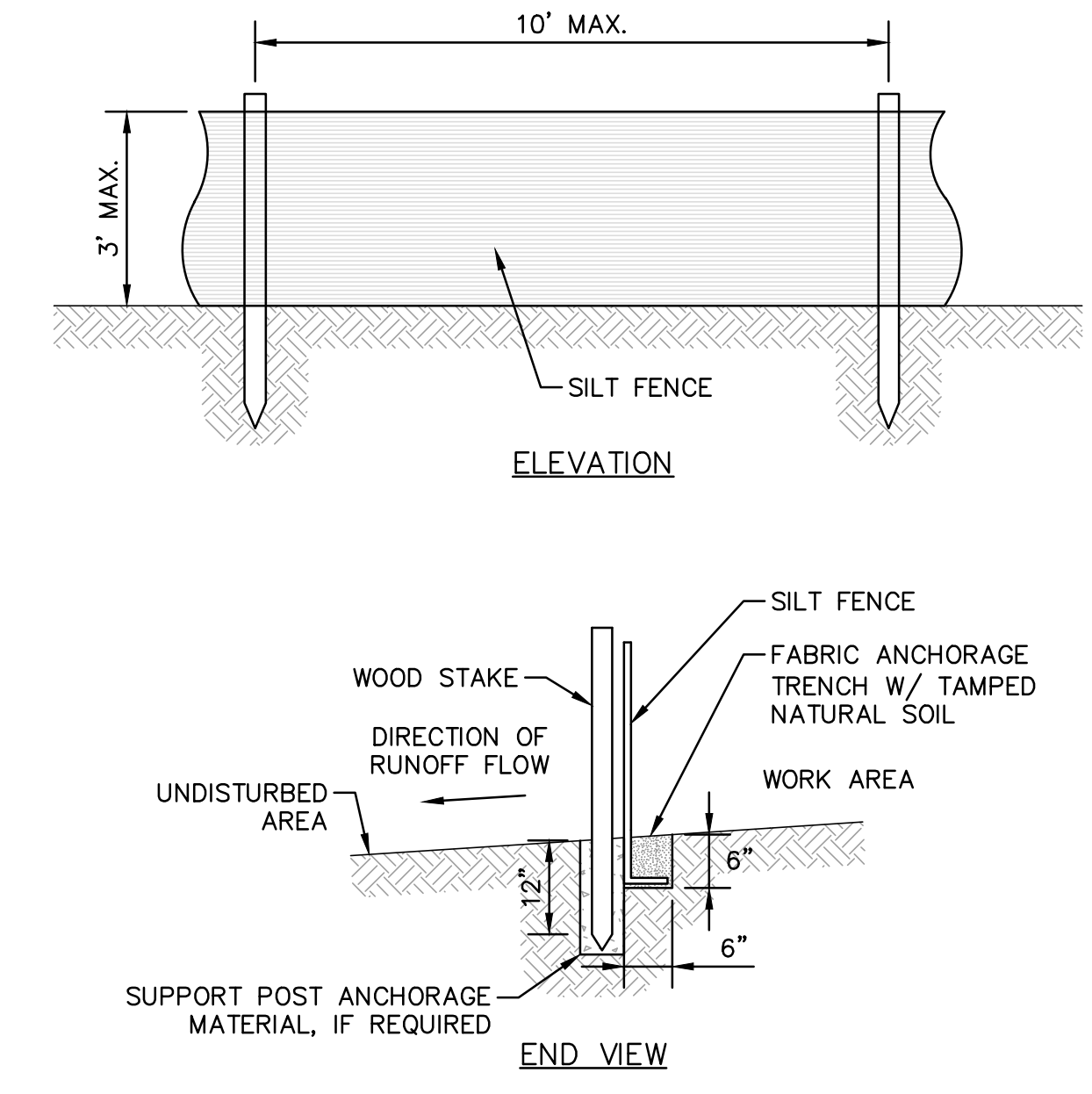
STABILIZED CONSTRUCTION ENTRANCE/EXIT NOTES:

- CONSTRUCT PAD AT THE SITE ENTRANCE(S) AS SHOWN ON THE PLANS.
- THE ENTRANCE/EXIT PAD SHALL BE A MINIMUM OF 50 FEET LONG AND 20 FT WIDE.
- THE PAD SHALL BE A MINIMUM OF 6 INCHES THICK WITH 2-3 INCH ANGULAR AGGREGATE.
- THE AGGREGATE SHALL BE PLACED OVER A GEOTEXTILE FABRIC TO PREVENT STONES FROM PUSHING INTO NATIVE SOIL.
- THE PAD SHALL BE INSPECTED WEEKLY AND BEFORE AND AFTER EACH STORM. THE PAD SHALL BE REPLACED IF THE VOIDS BECOME FILLED WITH SEDIMENT.

1 STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL
SCALE: NONE



4 CONCRETE WASHOUT AREA DETAIL
SCALE: NONE



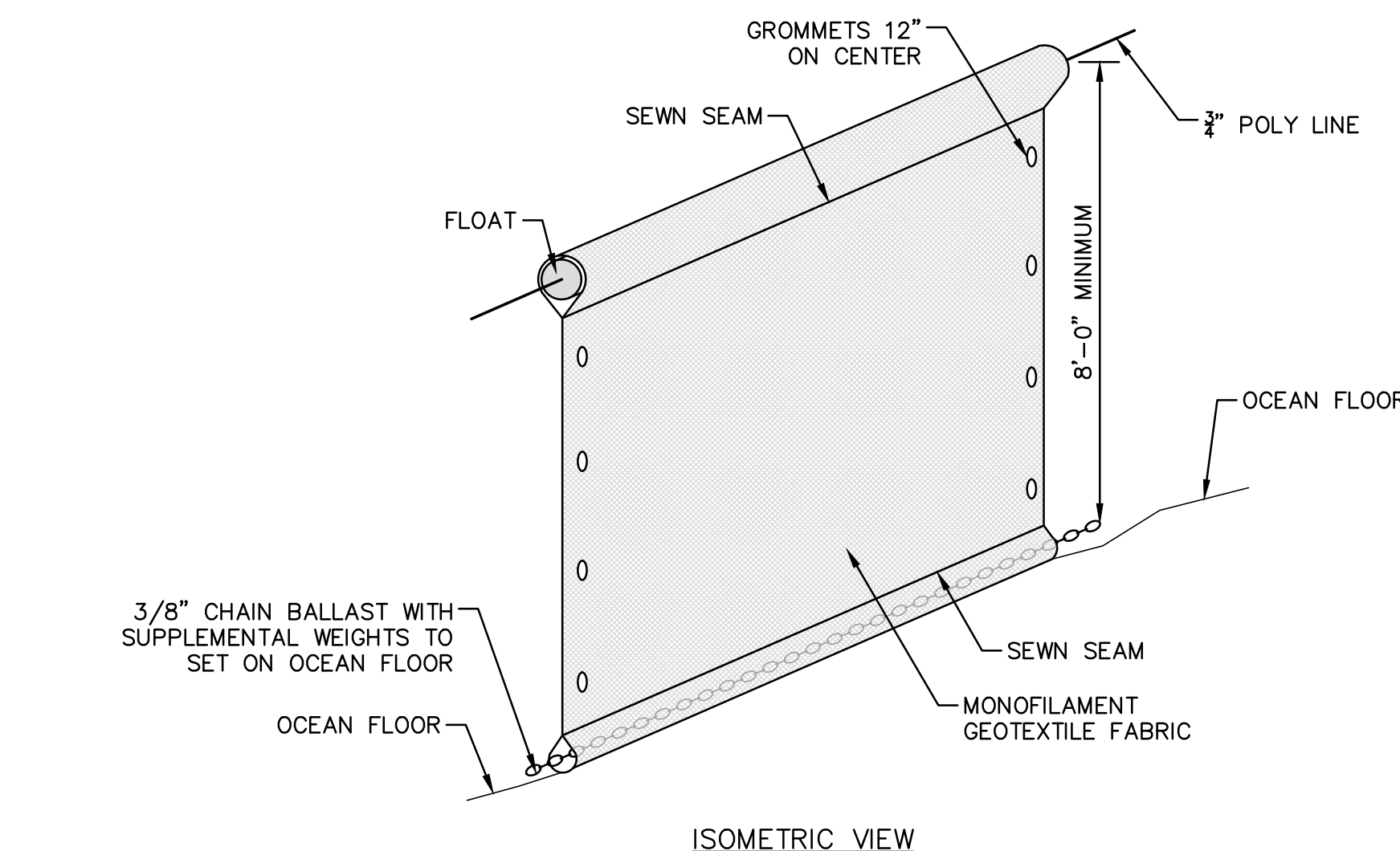
SILT FENCE NOTES:

- SPACING OF FENCE POSTS NOT TO EXCEED 10'-0".
- SILT FENCE SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
- FILTER FABRIC TO BE FASTENED SECURELY TO POSTS WITH WIRE TIES OR STAPLES AT TOP, MIDPOINT AND BOTTOM.
- OVERLAP BY 6". FOLD AND STAPLE ADJOINING SECTIONS OF FILTER FABRIC.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED, AND THE MATERIAL REMOVED WHEN "BULGES" DEVELOP. DO NOT DEPOSIT THE MATERIAL NEAR WETLANDS OR WATERCOURSES.
- FILTER FABRIC SHALL BE ENTRENCHED 6" MINIMUM BELOW EXISTING OR FINISHED GRADE.

2 SILT FENCE EROSION CONTROL DETAIL
SCALE: NONE

WASHOUT AREA NOTES:

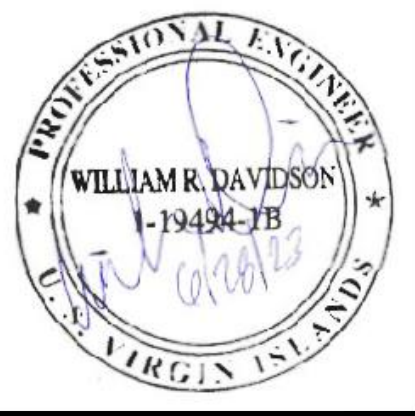
- CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. THE CONCRETE WASHOUT AREA SHALL BE ENTIRELY SELF-CONTAINED.
- THE CONTRACTOR SHALL SUBMIT THE DESIGN, LOCATION AND SIZING OF THE CONCRETE WASHOUT AREA(S) WITH THE PROJECT'S EROSION AND SEDIMENTATION CONTROL PLAN.
- LOCATION: WASHOUT AREA(S) ARE TO BE LOCATED A MINIMUM OF 50 FEET FROM ANY STREAM, WETLAND, STORM DRAIN, OR ANY OTHER SENSITIVE RESOURCE. ALL CONCRETE DRIVERS SHALL BE AWARE OF THE LOCATION OF THE WASHOUT AREA PRIOR TO ANY CONCRETE PLACEMENT.
- THE WASHOUT MUST HAVE SUFFICIENT VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS INCLUDING, BUT NOT LIMITED TO, OPERATIONS ASSOCIATED WITH GROUT AND MORTAR.
- SURFACE DISCHARGE IS UNACCEPTABLE. THEREFORE, STRAW BALES OR OTHER CONTROL MEASURES, SHOULD BE USED AROUND THE PERIMETER OF THE CONCRETE WASHOUT AREA FOR CONTAINMENT.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CONCRETE AREA(S) AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO CONCRETE TRUCK OPERATORS. WASHOUT AREA(S) SHOULD BE FLAGGED WITH SAFETY FENCING OR OTHER APPROVED METHODS.
- WASHOUT(S) ARE TO BE INSPECTED AT LEAST ONCE A WEEK FOR STRUCTURAL INTEGRITY, ADEQUATE HOLDING CAPACITY AND CHECKED FOR LEAKS, TEARS, OR OVERFLOWS. WASHOUT AREAS SHOULD BE CHECKED AFTER EVERY RAIN EVENT.
- HARDENED CONCRETE WASTE SHOULD BE REMOVED AND DISPOSED OF WHEN THE WASTE HAS ACCUMULATED TO HALF OF THE CONCRETE WASHOUT'S HEIGHT. ALL CONCRETE WASTE SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE LAWS, REGULATIONS, AND GUIDELINES



TURBIDITY CURTAIN NOTES:

- TURBIDITY CURTAIN SHALL BE INSTALLED AS SHOWN ON THE PLANS PRIOR TO COMMENCING ANY WORK WITHIN THE WATER.
- THE TURBIDITY CURTAIN SHALL BE INSPECTED AND MAINTAINED DAILY. ANY DEFICIENCIES SHALL BE CORRECTED IMMEDIATELY.

3 TURBIDITY CURTAIN DETAIL
SCALE: NONE



NO.	DATE	REVISION DESCRIPTION
1	06/28/23	100% CONTRACT DOCUMENTS
2	06/12/23	90% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT
3	04/17/23	50% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT

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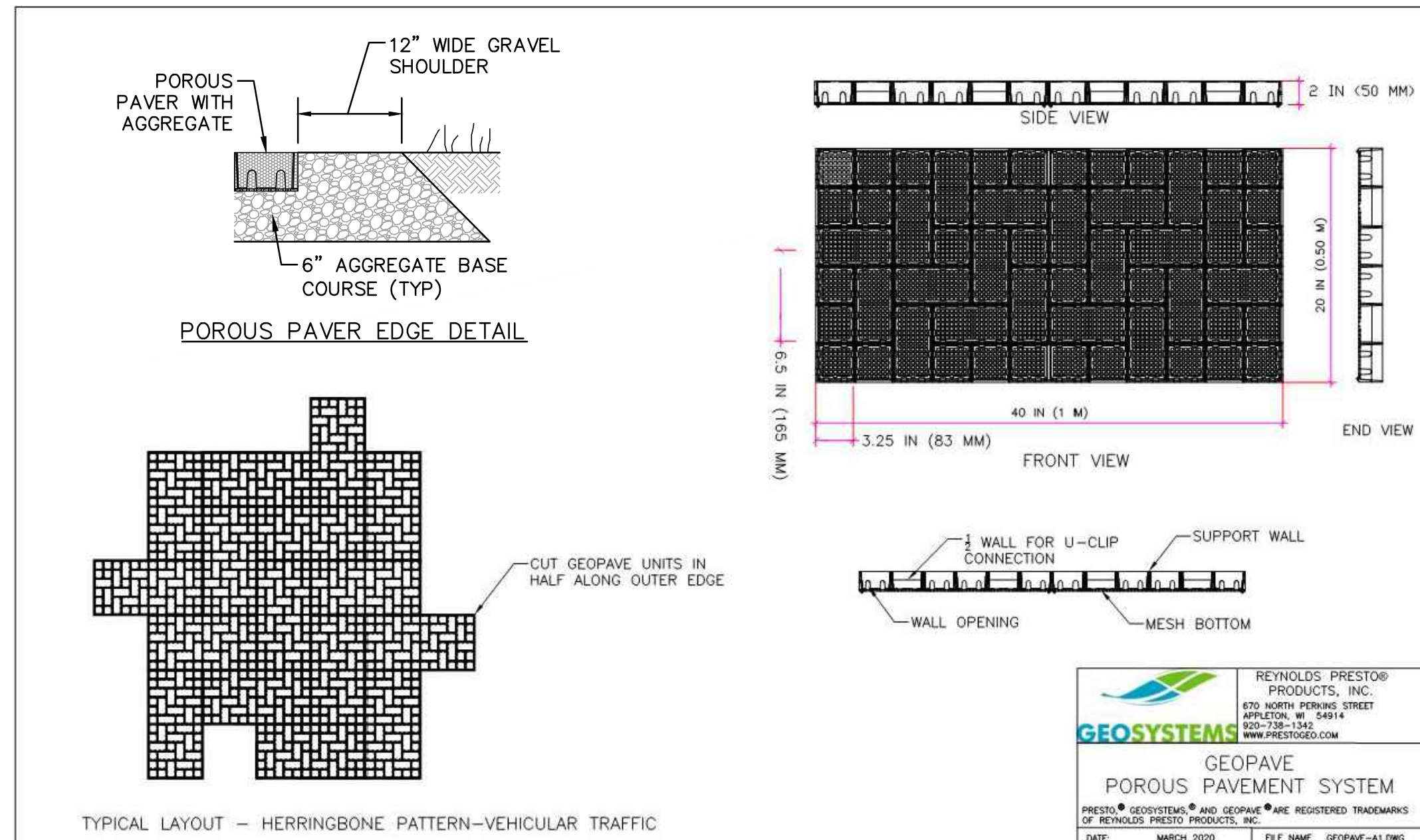
HOYLE TANNER

DESIGNED BY: SMT/JHV
CHECKED BY: WRD/AML
DRAWN BY: SMT/JHV

ORIGINAL DATE: APRIL 17, 2023
SCALE: AS SHOWN

CLIENT: US VIRGIN ISLANDS DEPARTMENT OF NATURAL RESOURCES

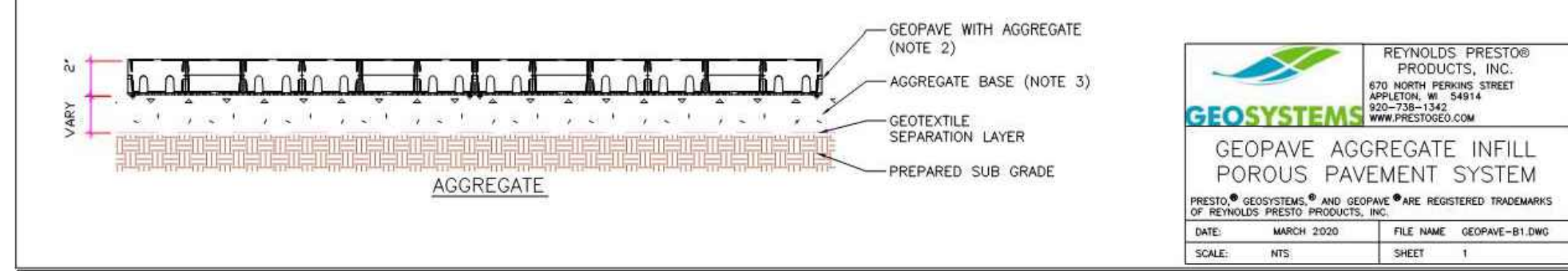
PROJECT: HULL BAY BOAT RAMP & PARKING IMPROVEMENT PROJECT SAINT THOMAS, USVI



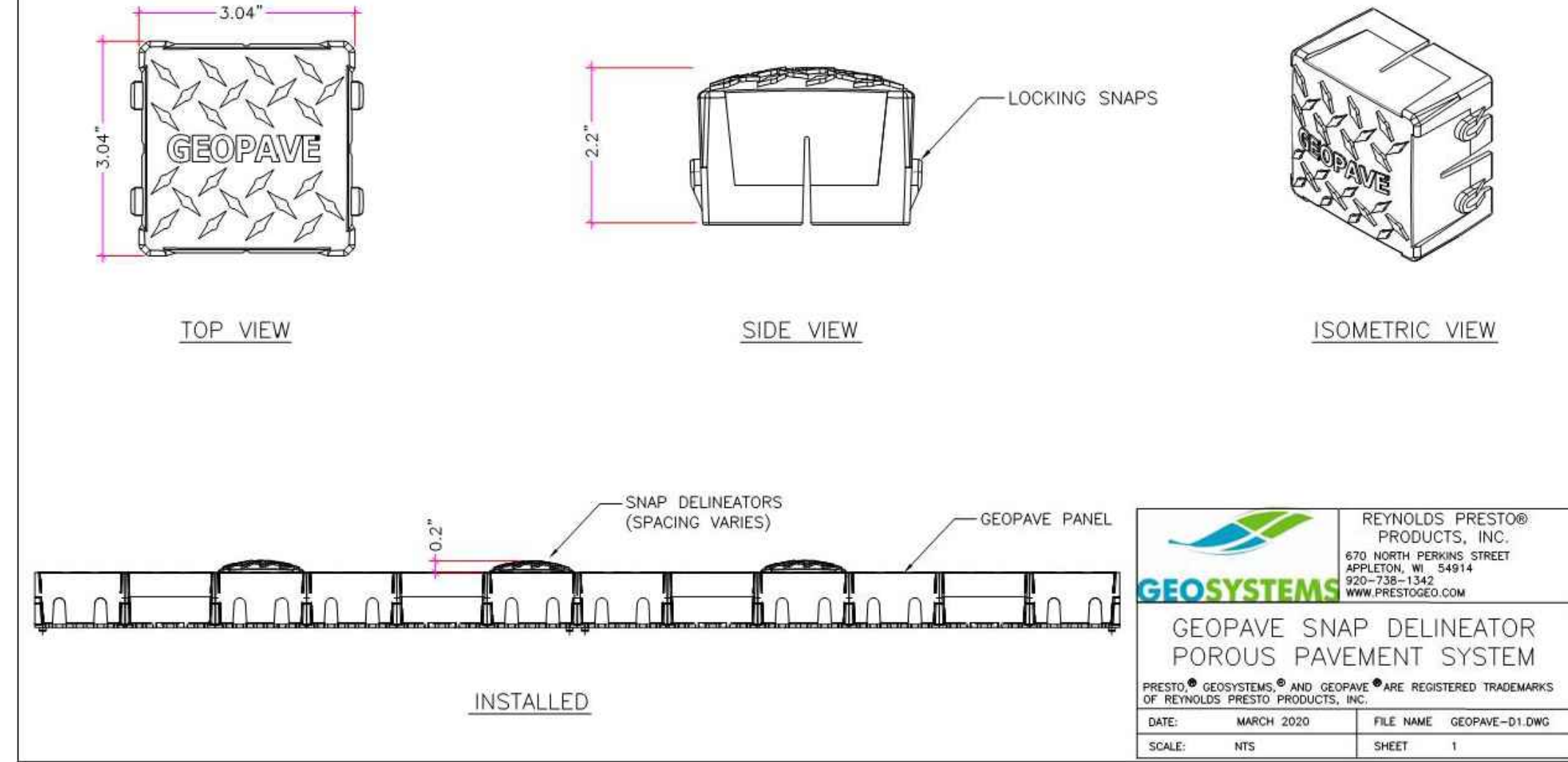
REYNOLDS PRESTO® PRODUCTS, INC. 670 NORTH PERKINS STREET APRISTON, NJ 08814 908-738-1342 WWW.PRESTOGO.COM	
GEO PavE POROUS PAVEMENT SYSTEM	
PRESTO® GEOSYSTEMS® AND GEOPAVE® ARE REGISTERED TRADEMARKS OF REYNOLDS PRESTO PRODUCTS, INC.	FILE NAME: GEOPAVE-A1.DWG
DATE: MARCH 2020	SHEET: 1

DESIGN GUIDELINES - BASE DEPTH			GEOPAVE MATERIAL SPECIFICATION	
LOAD DESCRIPTION	CBR 2 - 4%	CBR > 4%	MATERIAL COLOR	UP TO 100% RECYCLED POLYETHYLENE RANGES DARK SHADES GRAY TO BLACK
Heavy Fire Truck Access & H/HSD loading. Typical 110 psi (758 kPa) tire pressure. Single axle loadings of 40 kips (178 kN). Gross vehicle weight of 90,000 lbs (40.1 MT).	6 IN (150 MM)	6 IN (150 MM)	CHEMICAL RESISTANCE	SUPERIOR
Heavy Fire Truck Access & H/HSD loading. Typical 110 psi (758 kPa) tire pressure. Single axle loadings of 32 kips (145 kN). Gross vehicle weight of 80,000 lbs (36.3 MT).	6 IN (150 MM)	6 IN (150 MM)	CARBON BLACK FOR UV STABILIZATION, %	1.5 TO 2.0%
Light Fire Truck Access & H/HSD loading. Typical 85 psi (586 kPa) tire pressure. Single axle loadings of 24 kips (110 kN). Gross vehicle weight of 60,000 lbs (27.2 MT).	6 IN (150 MM)	4 IN (100 MM)	UNIT MIN CRUSH STRENGTH - EMPTY @ 70F (21C)	175 PSI (1,202 KPa)
Utility & Delivery Truck Access & H/HSD loading. Typical 80 psi (414 kPa) tire pressure. Single axle loadings of 16 kips (75 kN). Gross vehicle weight of 40,000 lbs (18.1 MT).	4 IN (100 MM)	2 IN (50 MM)	UNIT MIN CRUSH STRENGTH - FILLED @ 70F (21C)	5,160 PSI (35,625 KPa)
Cars & Pick-up Truck Access. Typical 45 psi (310 kPa) tire pressure. Single axle loadings of 4 kips (18 kN). Gross vehicle weight of 8,000 lbs (3.6 MT).	2 IN (50 MM)	NONE	FLEXURAL MODULUS @ 70F (21C)	35,000 PSI (240,000 KPa)
Trail Use. Loading for pedestrian, wheelchair, equestrian, bicycle, motorcycle and ATV traffic.	NONE	NONE	NOMINAL DIMENSIONS - WIDTH X LENGTH	20 X 40 IN (0.5 X 1.0 M)
			NOMINAL UNIT DEPTH	2.0 IN (50 MM)
			NOMINAL AREA	5.38 SQFT (0.5 SQMTR)
			CELLS PER UNIT	50
			SMALL CELL SIZE	3.25 X 3.25 IN (83 X 83 MM)
			LARGE CELL SIZE	3.25 X 6.5 IN (83 X 165 MM)
			TOP OPEN AREA PER UNIT	90.5%
			BOTTOM OPEN AREA PER UNIT	32.6%
			BOTTOM MESH OPENING SIZE	0.25 X 0.25 IN (6.35 X 6.35 MM)
			NOMINAL WEIGHT PER UNIT	7.6 LBS (3.4 KG)
			RUNOFF COEFFICIENT @ 2.5 IN/HR (64 MM) RAINFALL WITH AGGREGATE INFILL	0 - 0.15
			UNITS PER PALLET	46

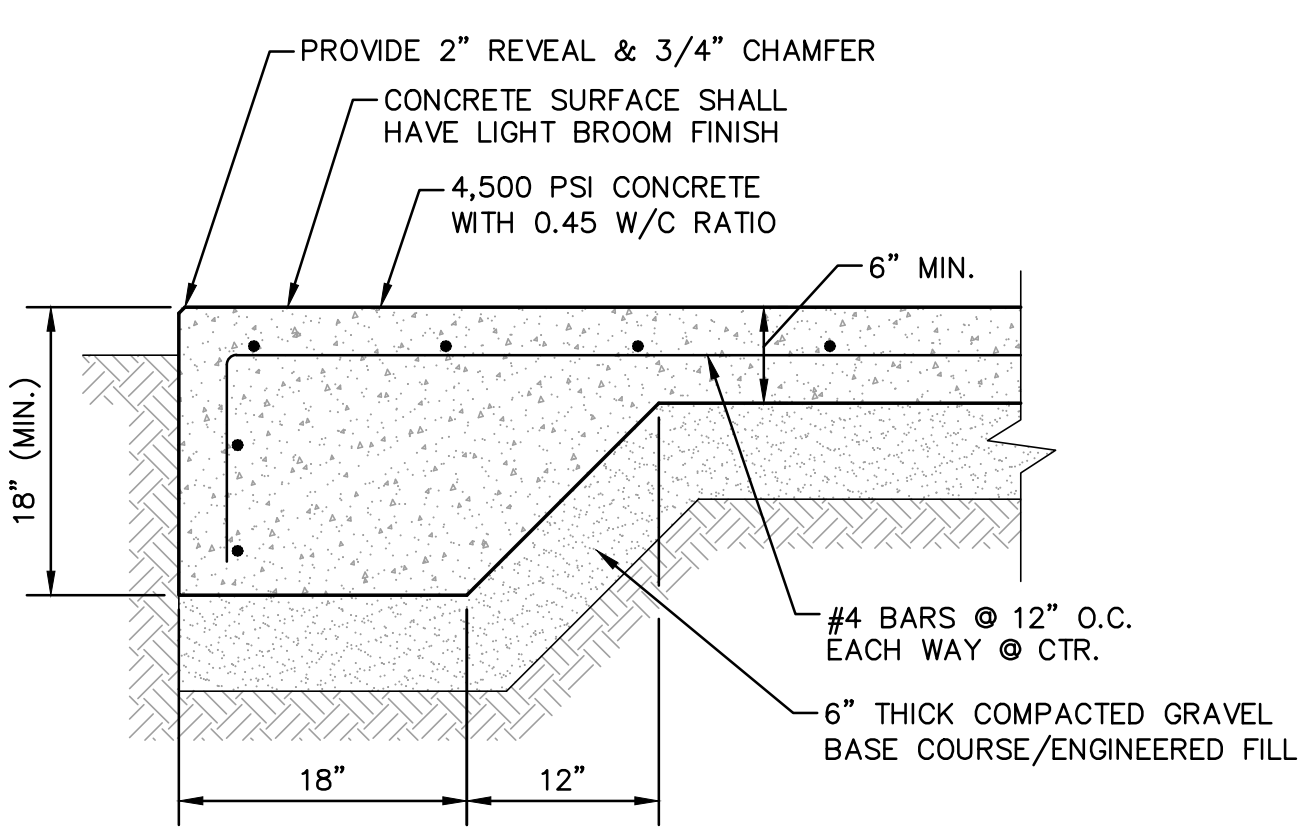
- Notes:
- This information is based on the use of GeoPave manufactured by Reynolds Presto Products, Inc. All rights reserved. Any use of this information for any rigid porous paver product other than that manufactured by Reynolds Presto Products, Inc. is strictly prohibited and makes this information invalid.
 - Aggregate infill shall be 0.375 to 0.5 inch (10 to 13 mm) open graded crushed aggregate with fine content less than 5% to allow for free drainage.
 - Aggregate base shall be 0.375 to 1.0 inch (10 to 25 mm) open graded crushed aggregate with fine content less than 5% to allow for free drainage.
 - A minimum 2 inch (50 mm) of aggregate base should be placed below the units to act as drainage layer and infiltration area. The Engineer of Record shall be responsible for the design and stability of the open graded base course.
 - Provide a non-woven geotextile separation layer and install in accordance with Manufacturer recommendations including overlaps based on sub grade CBR.
 - Connect GeoPave panels with the U-CLIP connection device at all half wall locations, and driven completely so that adjacent sections have horizontally level profiles.
 - Refer to the GeoPave Design and Construction Overview for a complete description of the design and construction methods.



- Notes:
- This information is based on the use of GeoPave and GeoPave SNAP Delineators manufactured by Reynolds Presto Products, Inc. All rights reserved. Any use of this information for any rigid porous paver product other than that manufactured by Reynolds Presto Products, Inc. is strictly prohibited and makes this information invalid.
 - Produced in high visibility colors to mark parking spaces, drive lanes, center lines or other delineation.
 - SNAP Delineators integral locking snaps function in the GeoPave unit's square or rectangular cells at the placement density to meet visual and local agency requirements.
 - SNAP Delineators are compatible with aggregate and engineered fill materials.
 - Raised profile with diamond grid pattern aids in driver visibility and vehicle traction.
 - Refer to the GeoPave Design and Construction Overview for a complete description of the design and construction methods.

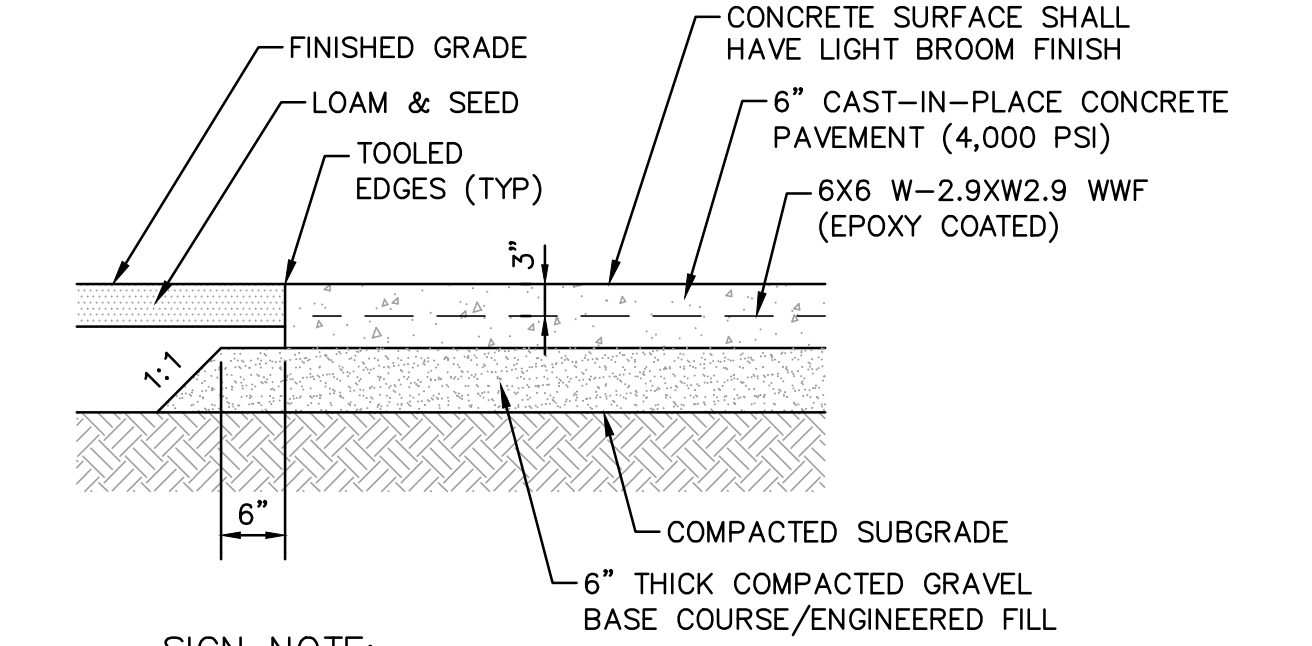


1 GEOSYSTEMS GEOPAVE DETAILS
SCALE: NONE



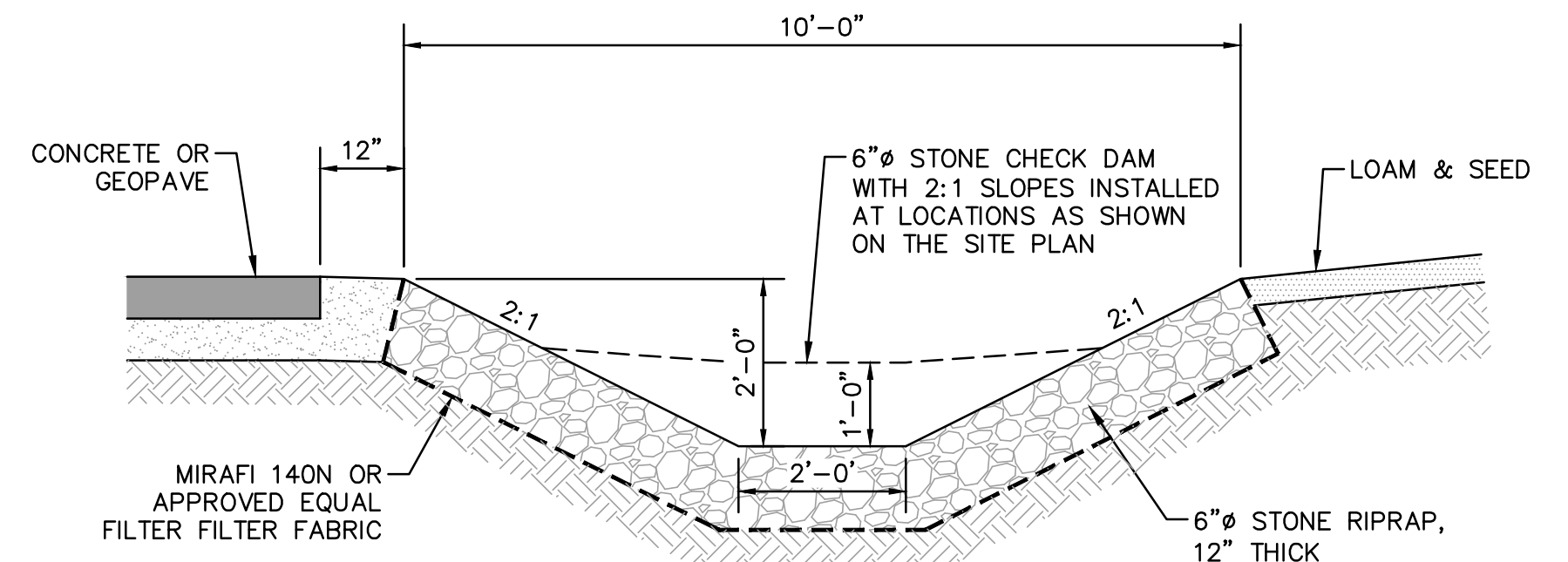
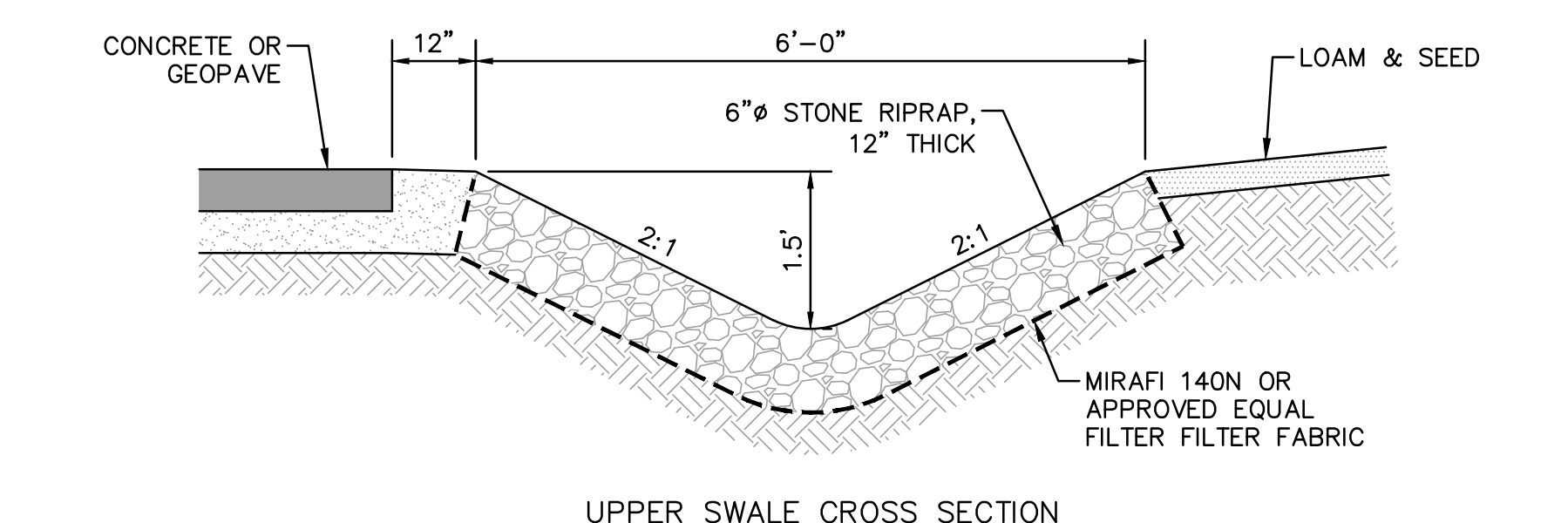
- PAD NOTES:
- REFER TO SITE PLAN FOR PAD DIMENSIONS.
 - AT THIS TIME THERE IS NO DESIGN PROVIDED FOR THE FISH CLEANING STATION STRUCTURE. WHEN A DESIGN IS CHOSEN, THE PROPOSED STRUCTURAL ENGINEER FOR THE FISH CLEANING STATION STRUCTURE SHALL REVIEW THIS DETAIL TO ENSURE IT IS SUITABLE FOR THE PROPOSED DESIGN.

2 FISH CLEANING STATION PAD
SCALE: NONE

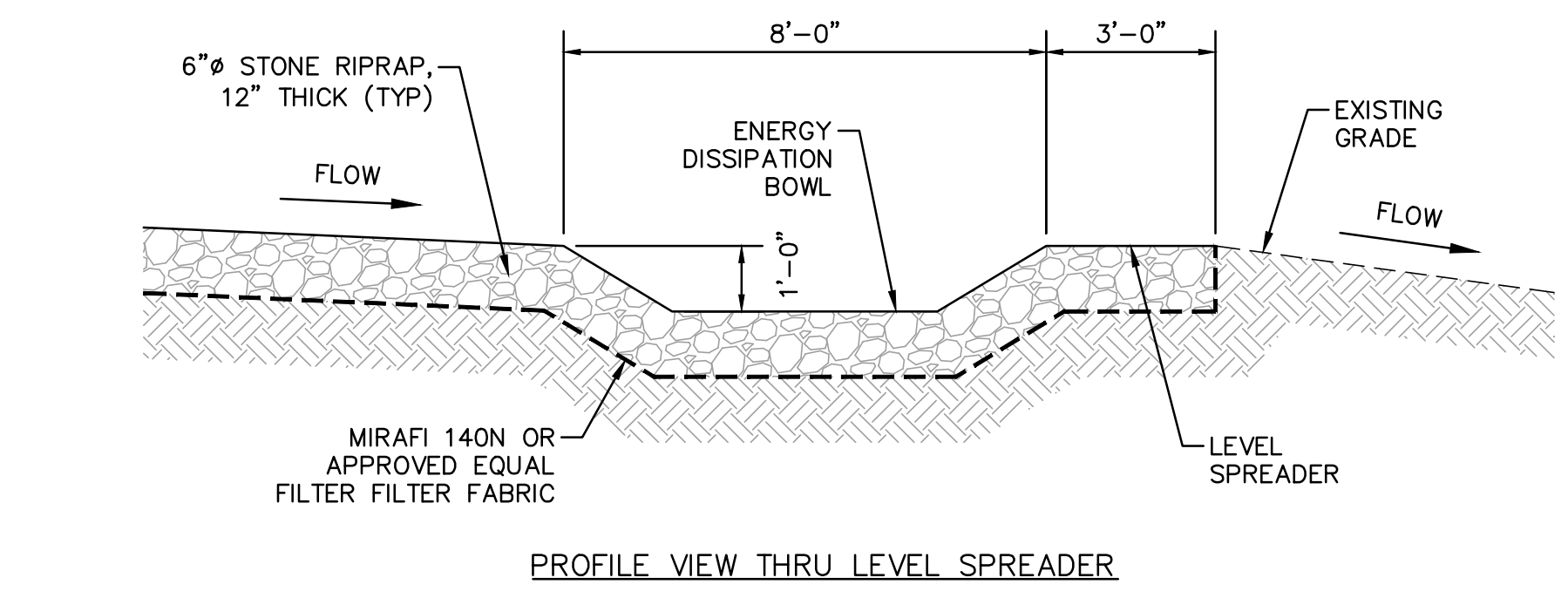


- SIGN NOTE:
- REFER TO SITE PLAN FOR ROADWAY WIDTH.
 - CONTRACTOR SHALL PROVIDE TOOLED CONTROL JOINTS 10'-0" O.C. IN CONCRETE.

3 TYPICAL CONCRETE PAVING DETAIL
SCALE: NONE

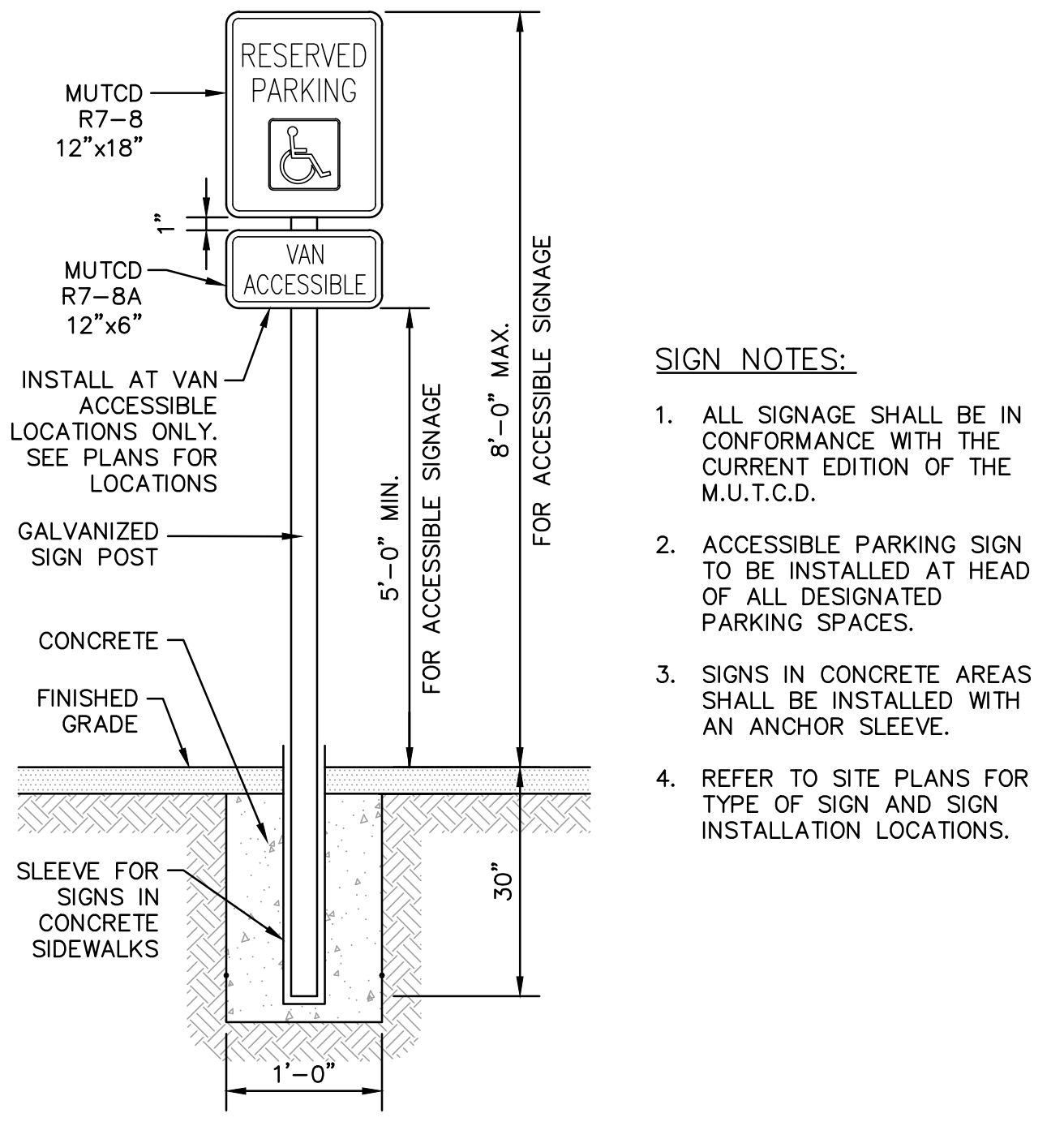


UPPER SWALE CROSS SECTION
LOWER SWALE CROSS SECTION

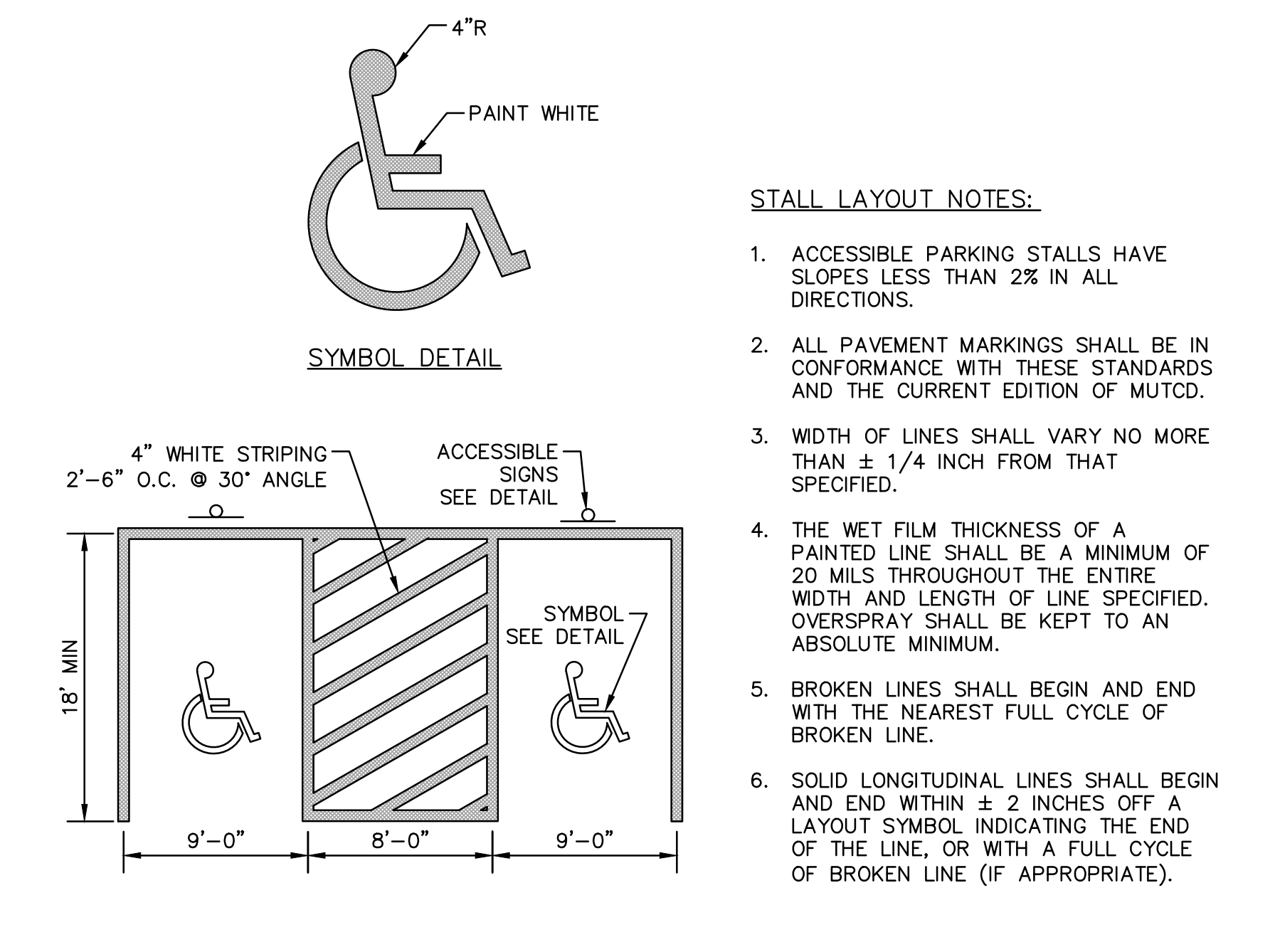


- SWALE NOTE:
- REFER TO SITE PLAN FOR SWALE WIDTH, DEPTH AND INVERTS.

5 TYPICAL DRAINAGE SWALE SECTION & DETAILS
SCALE: NONE

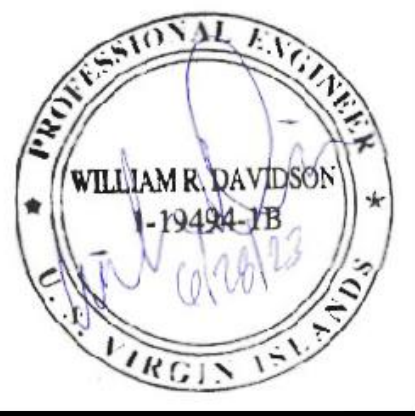


4 ACCESSIBLE SIGN MOUNTING DETAILS
SCALE: NONE



6 ACCESSIBLE PARKING STALL LAYOUT
SCALE: NONE

- STALL LAYOUT NOTES:
- ACCESSIBLE PARKING STALLS HAVE SLOPES LESS THAN 2% IN ALL DIRECTIONS.
 - ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THESE STANDARDS AND THE CURRENT EDITION OF MUTCD.
 - WIDTH OF LINES SHALL VARY NO MORE THAN ± 1/4 INCH FROM THAT SPECIFIED.
 - THE WET FILM THICKNESS OF A PAINTED LINE SHALL BE A MINIMUM OF 20 MILS THROUGHOUT THE ENTIRE WIDTH AND LENGTH OF LINE SPECIFIED. OVERSPRAY SHALL BE KEPT TO AN ABSOLUTE MINIMUM.
 - BROKEN LINES SHALL BEGIN AND END WITH THE NEAREST FULL CYCLE OF BROKEN LINE.
 - SOLID LONGITUDINAL LINES SHALL BEGIN AND END WITHIN ± 2 INCHES OFF A LAYOUT SYMBOL INDICATING THE END OF THE LINE, OR WITH A FULL CYCLE OF BROKEN LINE (IF APPROPRIATE).



06/28/23	100% CONTRACT DOCUMENTS	06/12/23	DATE
06/12/23	ISSUED FOR REVIEW AND COMMENT	04/17/23	REVISION DESCRIPTION
3	50% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT	1	REV.
2	50% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT	1	REV.

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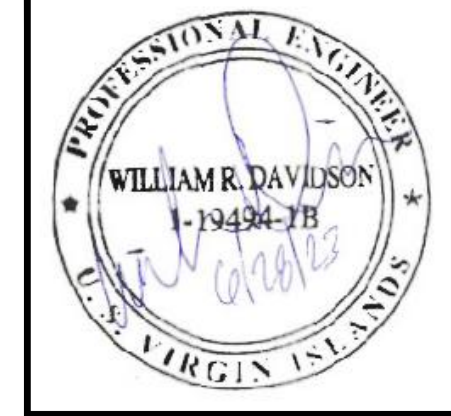
HOYLE TANNER

DESIGNED BY: SMT/JHV
DRAWN BY: SMT/JHV
CHECKED BY: WRD/AML
ORIGINAL DATE: APRIL 17, 2023
SCALE: AS SHOWN

US VIRGIN ISLANDS
DEPARTMENT OF NATURAL RESOURCES

HULL BAY BOAT RAMP & PARKING
IMPROVEMENT PROJECT
SAINT THOMAS, USVI

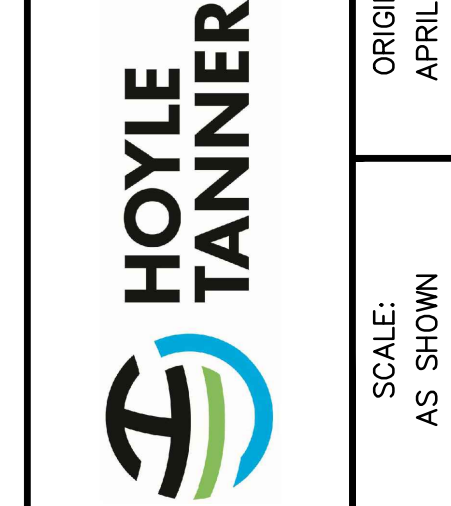
SITE CONSTRUCTION DETAILS
C6
PROJECT NO. 23.145001.00
SHEET 6 OF 8



NO.	DATE	REVISION DESCRIPTION
1	06/28/23	100% CONTRACT DOCUMENTS
2	06/12/23	90% DESIGN PLANS - ISSUED FOR REVIEW AND COMMENT
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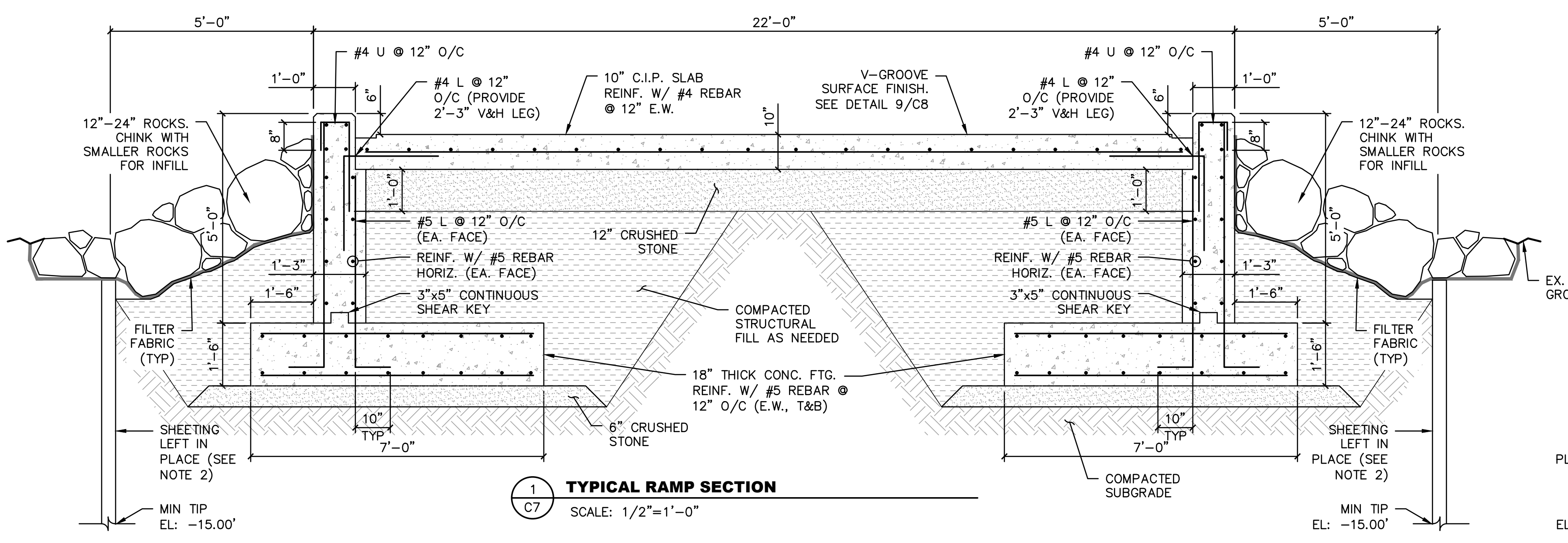
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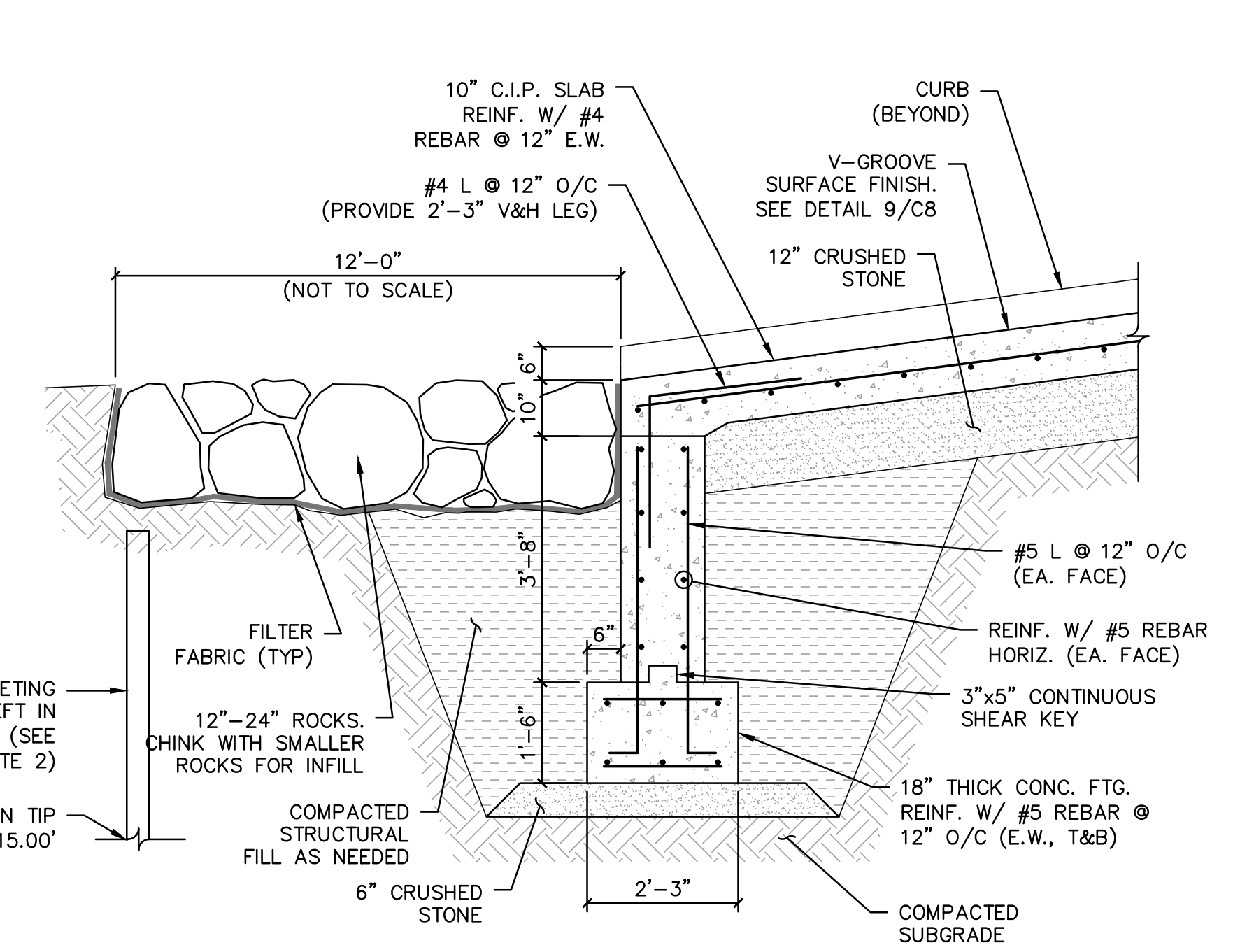
CLIENT: US VIRGIN ISLANDS DEPARTMENT OF NATURAL RESOURCES
PROJECT: HULL BAY BOAT RAMP & PARKING IMPROVEMENT PROJECT SAINT THOMAS, USVI

BOAT RAMP DETAILS I
C7
PROJECT NO. 23.145001.00
SHEET 7 OF 8

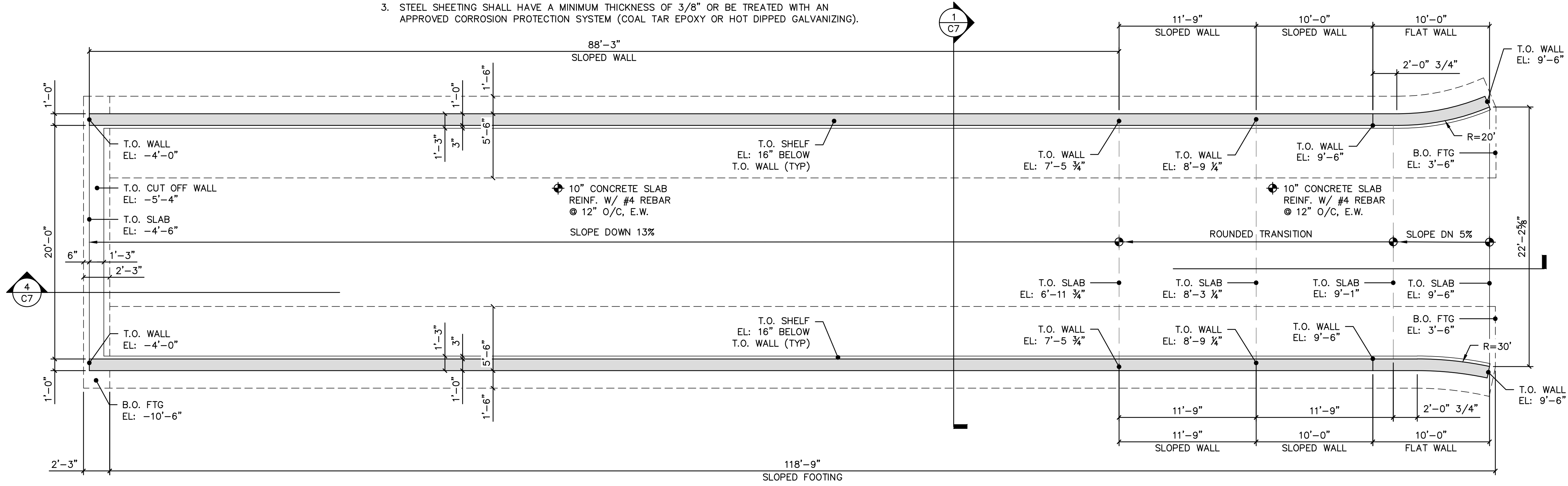


1 TYPICAL RAMP SECTION
SCALE: 1/2"=1'-0"

- NOTES:
- REINFORCING STEEL SHALL BE GRADE 60 AND SHALL BE GALVANIZED STEEL (ASTM A767), STAINLESS STEEL (ASTM A955) OR LOW-CARBON CHROMIUM STEEL (MMFX) (ASTM A1035). EPOXY COATED STEEL SHALL NOT BE PERMITTED.
 - STEEL SHEETING SHALL BE CUT 1'-0" BELOW EXISTING GROUND. CARE SHALL BE TAKEN TO INSTALL RIPRAP AGAINST AND ABOVE THE CUT EDGE OF SHEETING TO PROTECT FROM FUTURE EXPOSURE.
 - STEEL SHEETING SHALL HAVE A MINIMUM THICKNESS OF 3/8" OR BE TREATED WITH AN APPROVED CORROSION PROTECTION SYSTEM (COAL TAR EPOXY OR HOT DIPPED GALVANIZING).



2 FOOTING AT LOW END OF RAMP DETAIL
SCALE: 1/2"=1'-0"



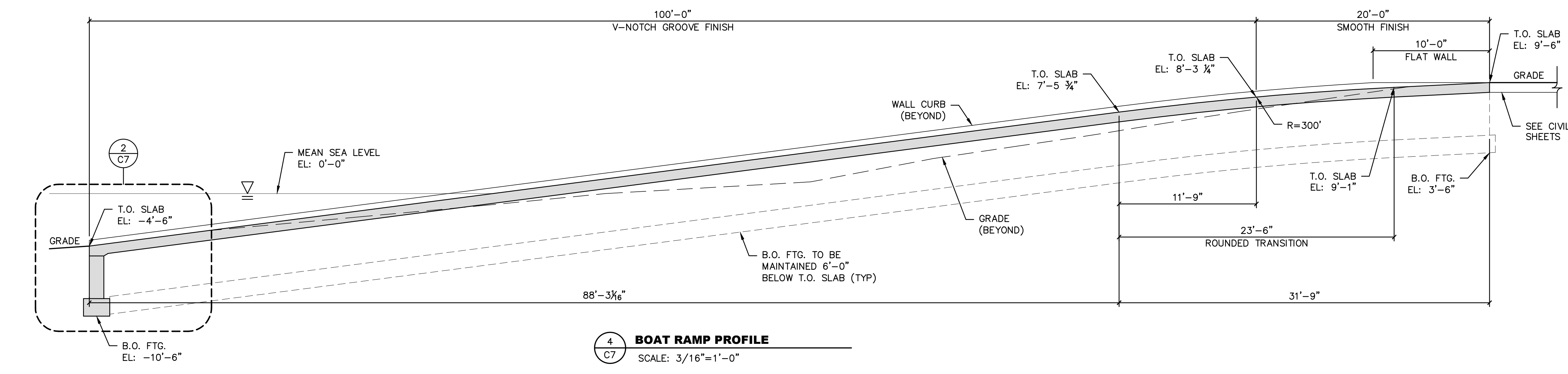
3 BOAT RAMP PLAN
SCALE: 3/16"=1'-0"

CONCRETE NOTES:

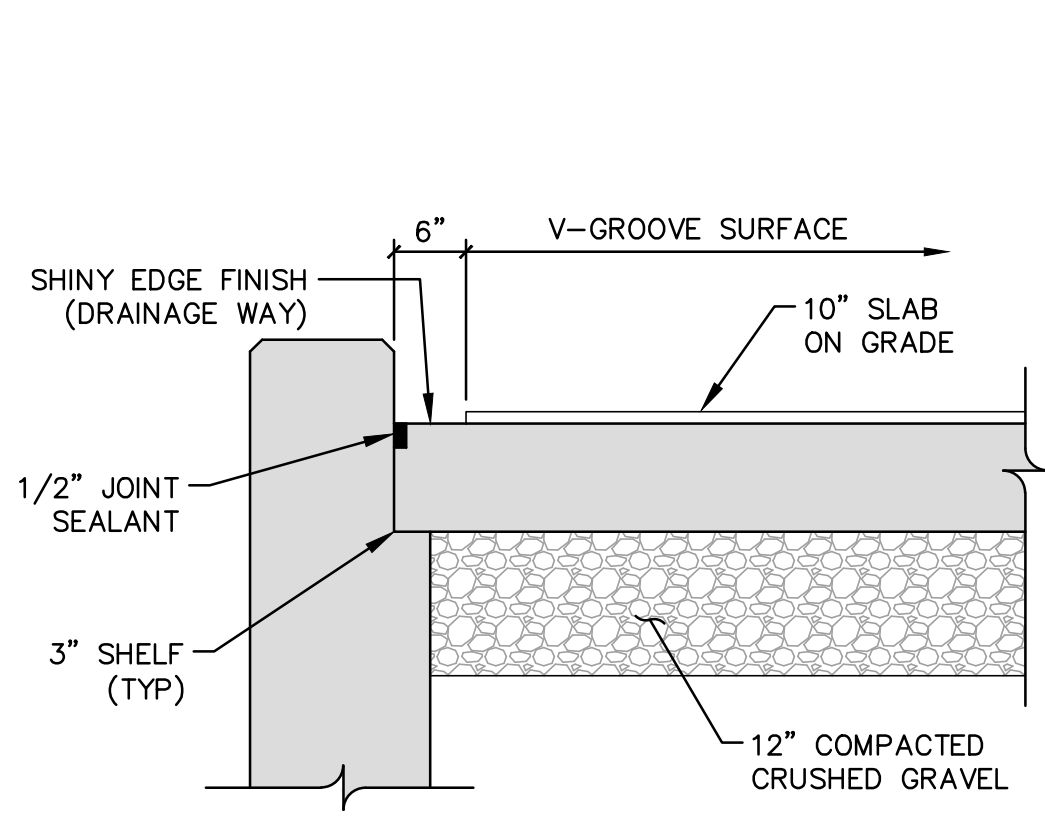
- PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE II.
- WATER/CEMENT RATIO SHALL BE A MINIMUM OF 0.4.
- 5% AIR ENTRAINMENT.
- 5,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- CONCRETE MIX SHALL BE BETWEEN 3 AND 4 INCH SLUMP.
- AGGREGATE SIZE SHALL NOT EXCEED 3/4" INCHES.
- CONCRETE SHALL BE CAST IN THE DRY WITH THE USE OF THE STEEL SHEETING.
- EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER, UNLESS OTHERWISE NOTED.
- CONCRETE SHALL BE MOIST CURED FOR A PERIOD OF 7 DAYS. CURING SHALL BEGIN IMMEDIATELY AFTER FINISHING.
- CONCRETE CAST ON SLOPED SURFACES SHALL BEGIN AT THE LOWEST ELEVATION AND CONTINUE MONOLITHICALLY TO THE HIGHEST ELEVATION.
- SEE PLAN FOR CONCRETE RAMP FINISH.

REINFORCING NOTES:

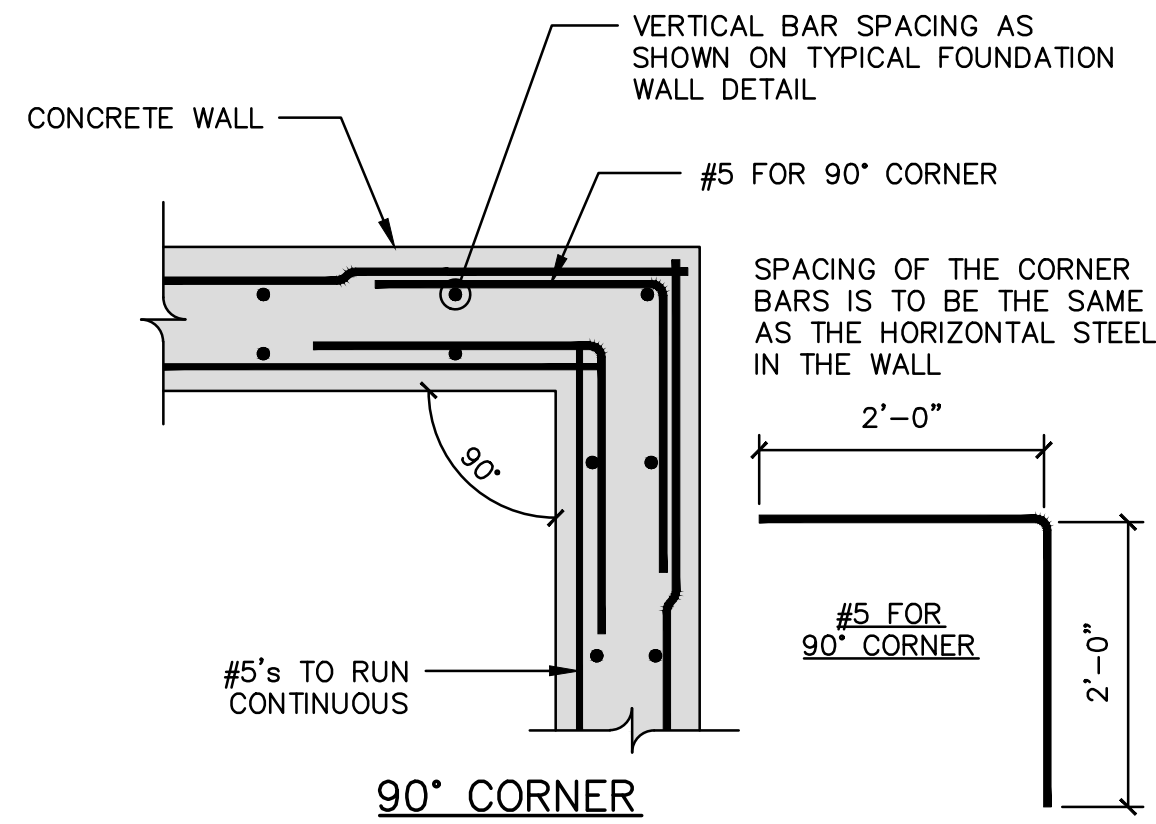
- ALL REINFORCING STEEL SHALL BE CORROSION RESISTANT AS INDICATED IN TYPICAL RAMP SECTION NOTE #1. GRADE 60 DEFORMED AND SHALL BE DETAILED, FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST A.C.I. SPECIFICATIONS.
- UNLESS OTHERWISE NOTED, REINFORCEMENT LAP SPLICE LENGTH SHALL BE AS DEFINED IN ACI 318 (SPLICE TYPE B) BUT NOT LESS THAN:
BAR SIZE LAP SIZE
#4 24"
#5 27"
- PROVIDE A CLEAR COVERING FROM REINFORCING STEEL TO ADJACENT CONCRETE SURFACES AS FOLLOWS:
i. RETAINING WALL STEM AND FOOTING AND ALL OTHER CONCRETE CAST AGAINST AND PERMANENTLY EXPOSE TO EARTH OR SALT WATER = 3"
ii. THESE DIMENSIONS ARE TO BE CONSIDERED ACTUAL AND ARE NOT TO BE ADJUSTED IN EITHER DIRECTION.
- ALL REINFORCING AND DOWELS SHALL BE SECURED IN PROPER POSITION ON CHAIRS OR BOLSTERS.



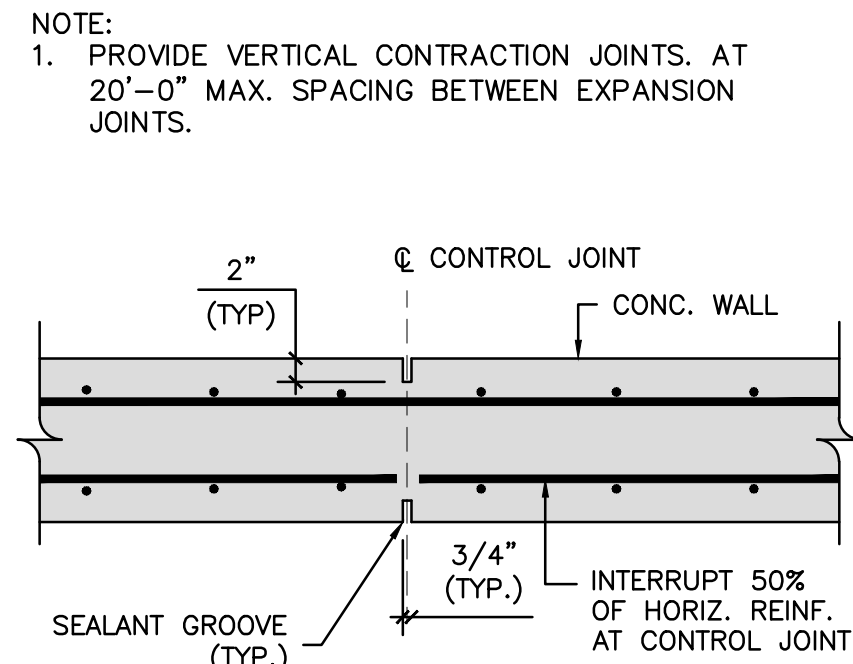
4 BOAT RAMP PROFILE
SCALE: 3/16"=1'-0"



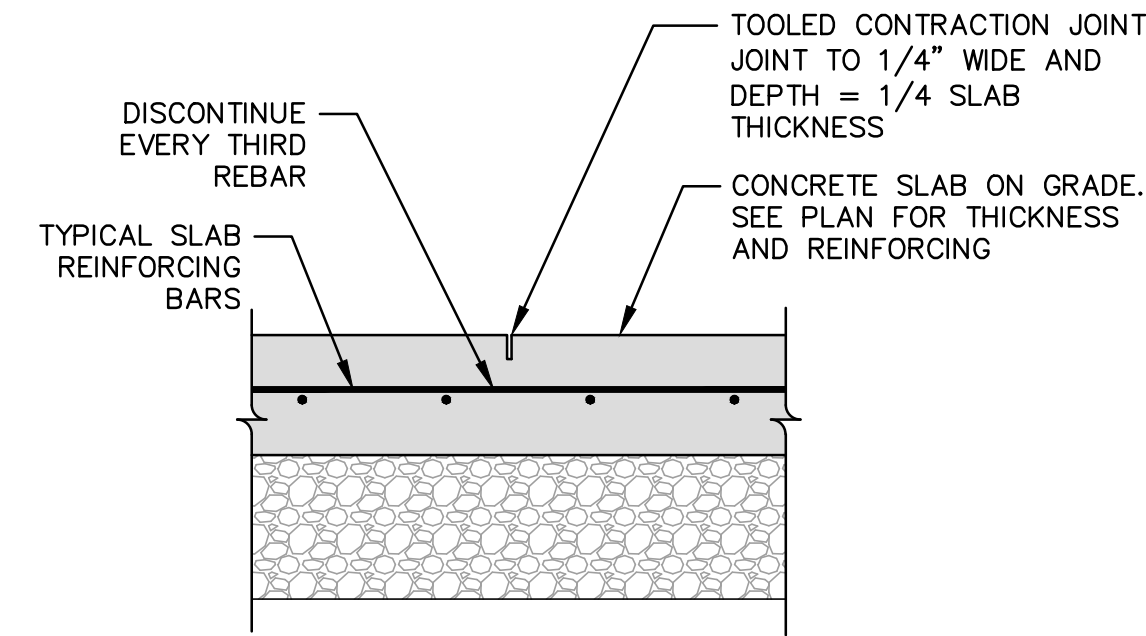
1
C8 **TYPICAL JOINT DETAIL AT SLAB / WALL JOINT**
SCALE: 3/4"=1'-0"



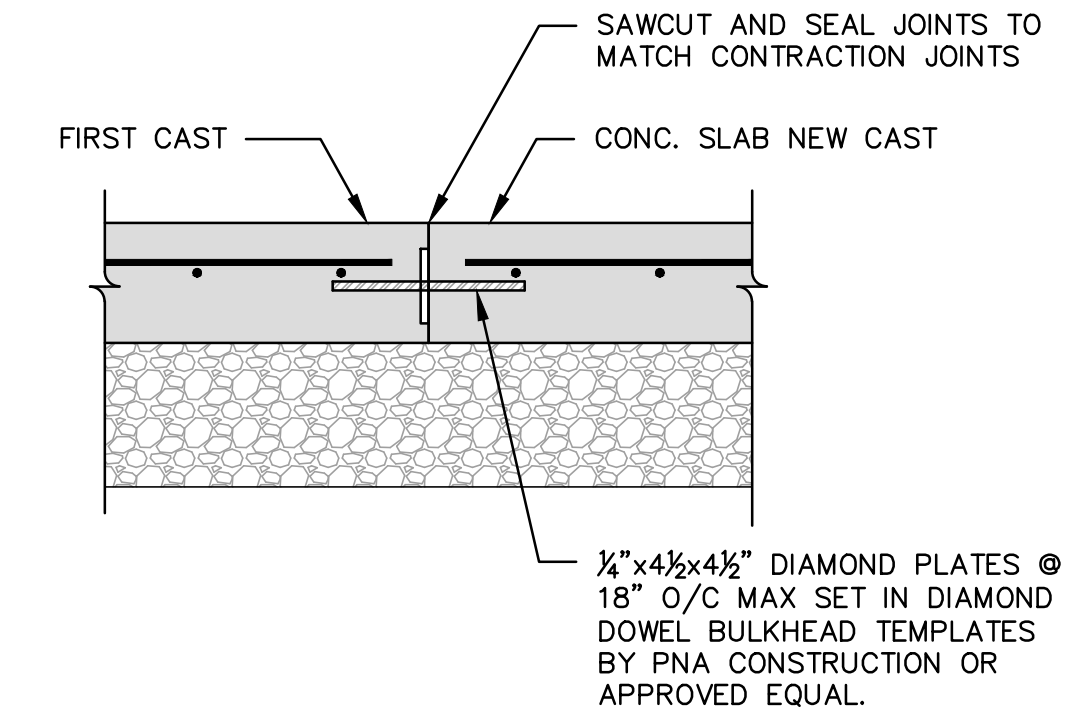
2
C8 **TYPICAL CORNER REINFORCEMENT**
SCALE: N.T.S.



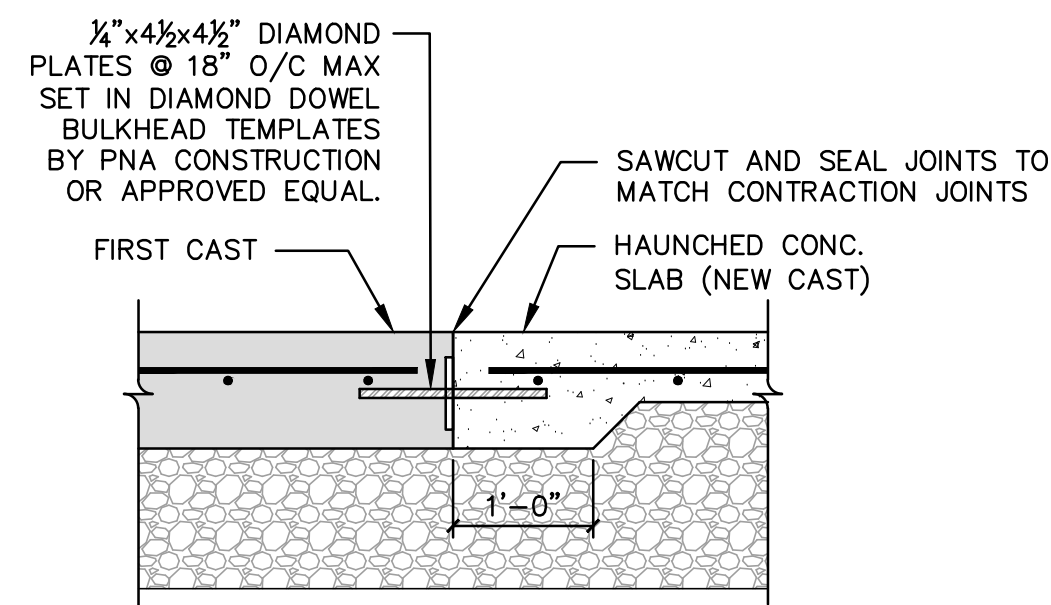
3
C8 **VERTICAL CONTRACTION JOINT FOR CONCRETE WALL**
SCALE: N.T.S.



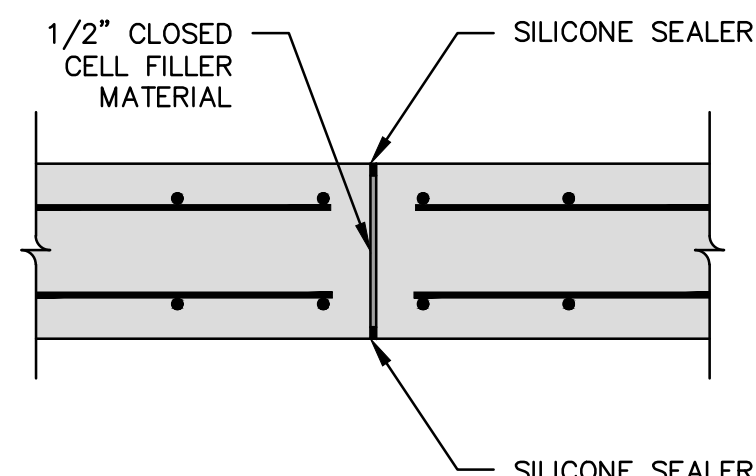
4
C8 **SLAB ON GRADE CONTRACTION JOINT**
SCALE: N.T.S.



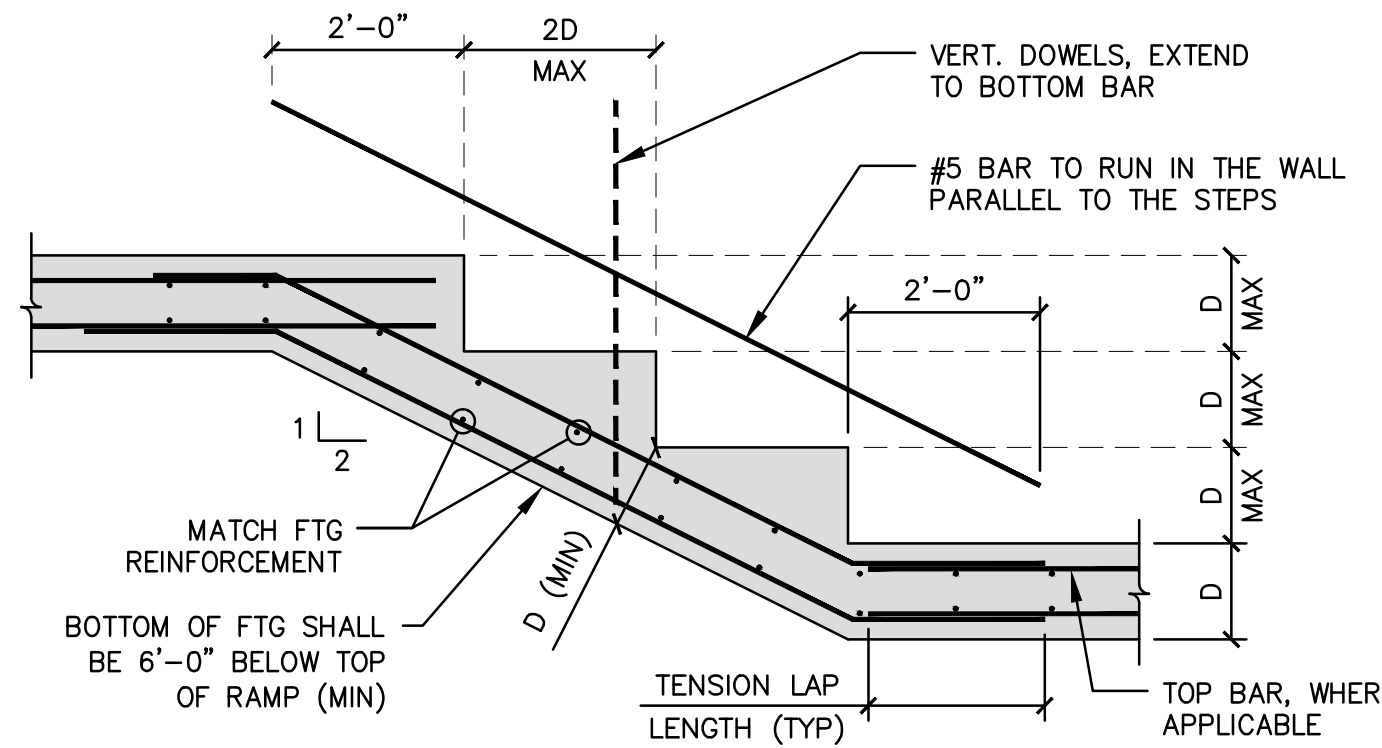
5
C8 **SLAB ON GRADE EXPANSION JOINT**
SCALE: N.T.S.



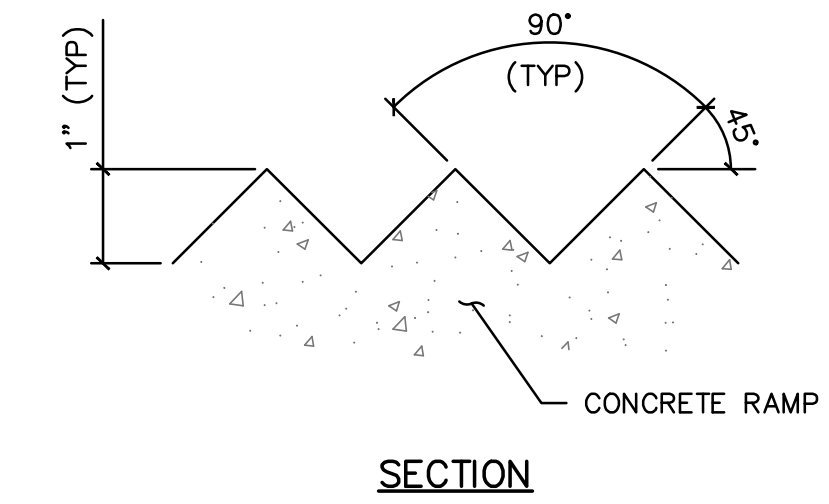
6
C8 **SLAB CONSTRUCTION JOINT**
SCALE: N.T.S.



7
C8 **TYPICAL WALL EXPANSION JOINT**
SCALE: N.T.S.



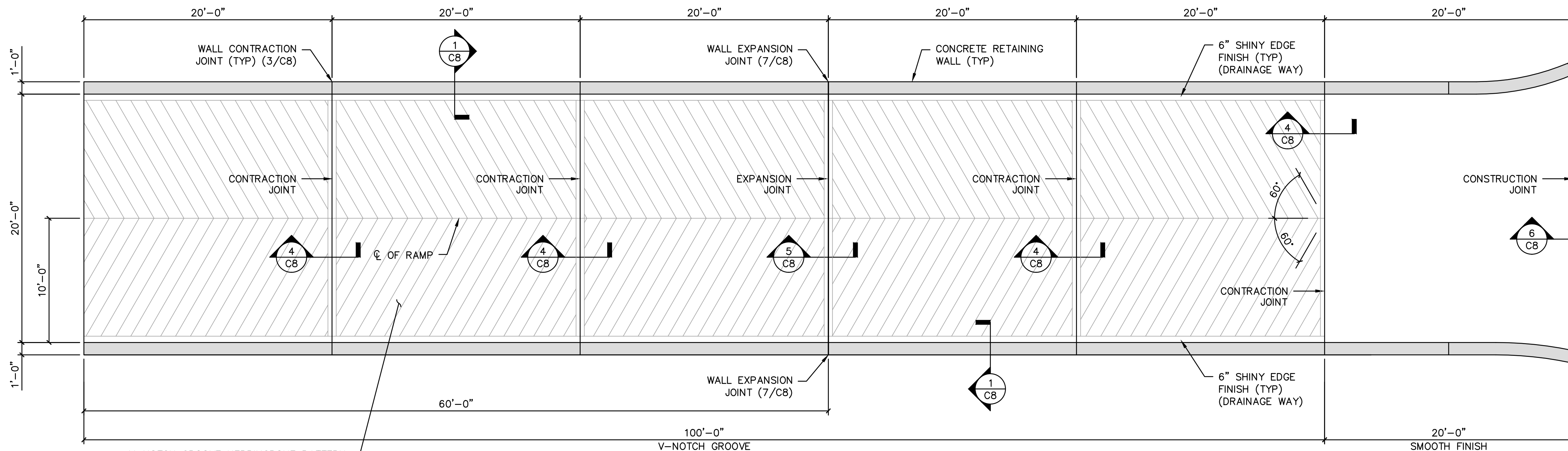
8
C8 **TYPICAL FOOTING STEP**
SCALE: N.T.S.



NOTE:
GROOVES SHALL BE 30 DEGREES MEASURED FROM THE HORIZONTAL OF RAMP LANE.

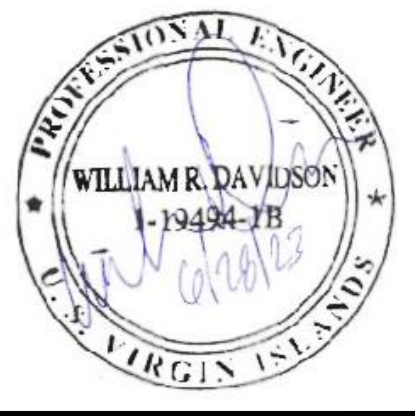
9
C8 **V-NOTCH GROOVE DETAIL**
SCALE: 6"=1'-0"

NOTE:
1. THIS PROJECT IS DESIGNED WITH SLOPED FOOTINGS. CONTRACTOR MAY ELECT TO STEP THE FOOTING AT 1'-6" INCREMENTS. LOCATIONS OF STEPS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW PRIOR TO FORM WORK.



V-NOTCH GROOVE HERRINGBONE PATTERN OR CONTINUOUS V-NOTCH 60° ANGLE. CONTRACTOR TO PROVIDE V-NOTCH LAYOUT FOR REVIEW AND APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION (SEE DETAIL 9/C8)

10
C8 **BOAT RAMP SLAB FINISH PLAN**
SCALE: 3/16"=1'-0"



NO.	DATE	REVISION DESCRIPTION
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SCALE: AS SHOWN
DESIGNED BY: SMT/JHV
CHECKED BY: WRD/AHL
DRAWN BY: SMT/JHV

ORIGINAL DATE: APRIL 17, 2023

CLIENT: US VIRGIN ISLANDS DEPARTMENT OF NATURAL RESOURCES
PROJECT: HULL BAY BOAT RAMP & PARKING IMPROVEMENT PROJECT SAINT THOMAS, USVI