

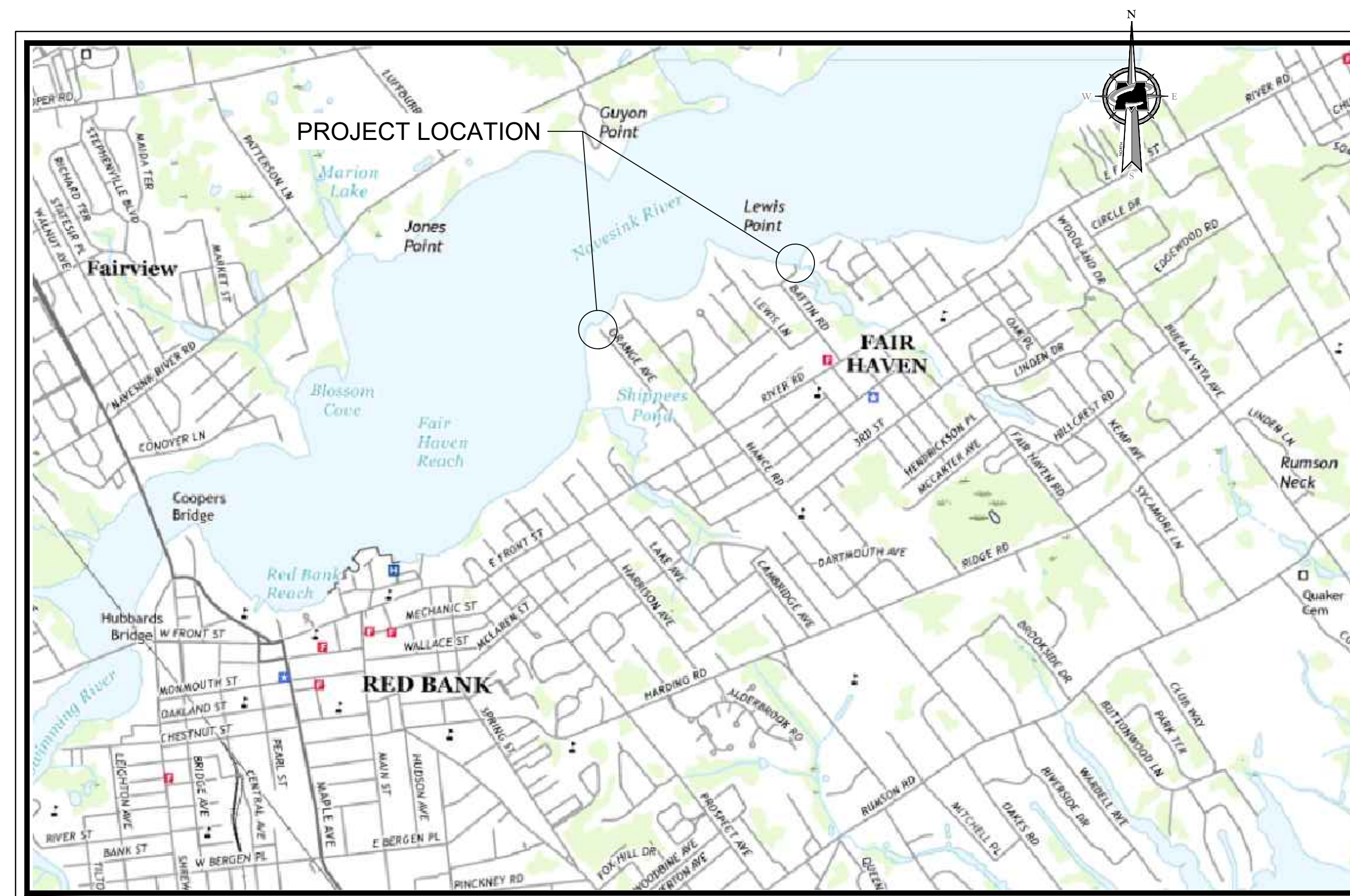
CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK AND BATTIN ROAD AND BATTIN ROAD BOAT RAMP REPLACEMENT BOROUGH OF FAIR HAVEN MONMOUTH COUNTY, NEW JERSEY

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■	KRISTEN HOEY, COUNCILWOMAN
■	ANDREW LABARBERA, COUNCILMAN
■	LALINE NEFF, COUNCILWOMAN
■	CHRISTOPHER RODRIGUEZ, COUNCILMAN

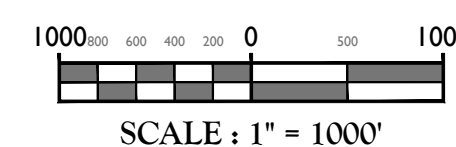
PUBLIC UTILITIES	
ELECTRIC	JCP & L 101 CRAWFORDS CORNER ROAD HOLMDEL, NJ, 07733 TEL: (800) 662-3115
GAS	NEW JERSEY NATURAL GAS 10 WEST LINCOLN AVENUE ATLANTIC HIGHLANDS, NJ, 07716 TEL: (800) 221-0051
WATER	NEW JERSEY AMERICAN WATER COMPANY 661 SHREWSBURY AVENUE SHREWSBURY, NJ, 07702 TEL: (800) 987-5325
TELEPHONE	VERIZON, INC. 180 BROAD STREET RED BANK, NJ, 07701 TEL: (800) 922-0204
CABLE	COMCAST CABLE OF NEW JERSEY 403 SOUTH STREET EATONTOWN, NJ, 07724 TEL: (800) 266-2278
SEWER	TWO RIVER WATER RECLAMATION AUTHORITY 1 HIGHLAND AVENUE MONMOUTH BEACH, NJ 07750 TEL: (732) 229-8578
FIBER OPTIC	VERIZON, INC. 180 BROAD STREET RED BANK, NJ, 07701 TEL: (800) 266-2278

LOCATION OF UTILITIES SHOWN ON THE PLANS ARE PLOTTED FROM AVAILABLE DATA ON FILE WITH THE UTILITY COMPANIES AND ARE NOT WARRANTED AS TO EXACTNESS. CONTRACTOR IS TO DETERMINE EXACT LOCATION AND DEPTH OF UTILITIES AT ALL CROSSINGS PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

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REV	DATE	DRAWN BY	DESCRIPTION
1	07/21/19	TEK	FINAL PLAN SUBMITTAL
2	01/17/20	TEK	REVISED PER BOROUGH & NJDEP COMMENTS

Richard C. Maloney

RICHARD C. MALONEY
NEW JERSEY PROFESSIONAL
ENGINEER - LICENSE NUMBER: GE37023

CONSTRUCTION PLANS
FOR
BULKHEAD
REPLACEMENT
GRANGE AVENUE
POCKET PARK &
BATTIN ROAD BOAT
RAMP

BOROUGH OF FAIR HAVEN
MONMOUTH COUNTY
NEW JERSEY

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
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Phone: 732.383.1950
Fax: 732.383.1984

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN:	4/02/19	TEK	RCM
PROJECT NUMBER:		DRAWING NAME:	
170049028		C-COVER	

COVER SHEET

SHEET NUMBER:
T-1

GENERAL NOTES:

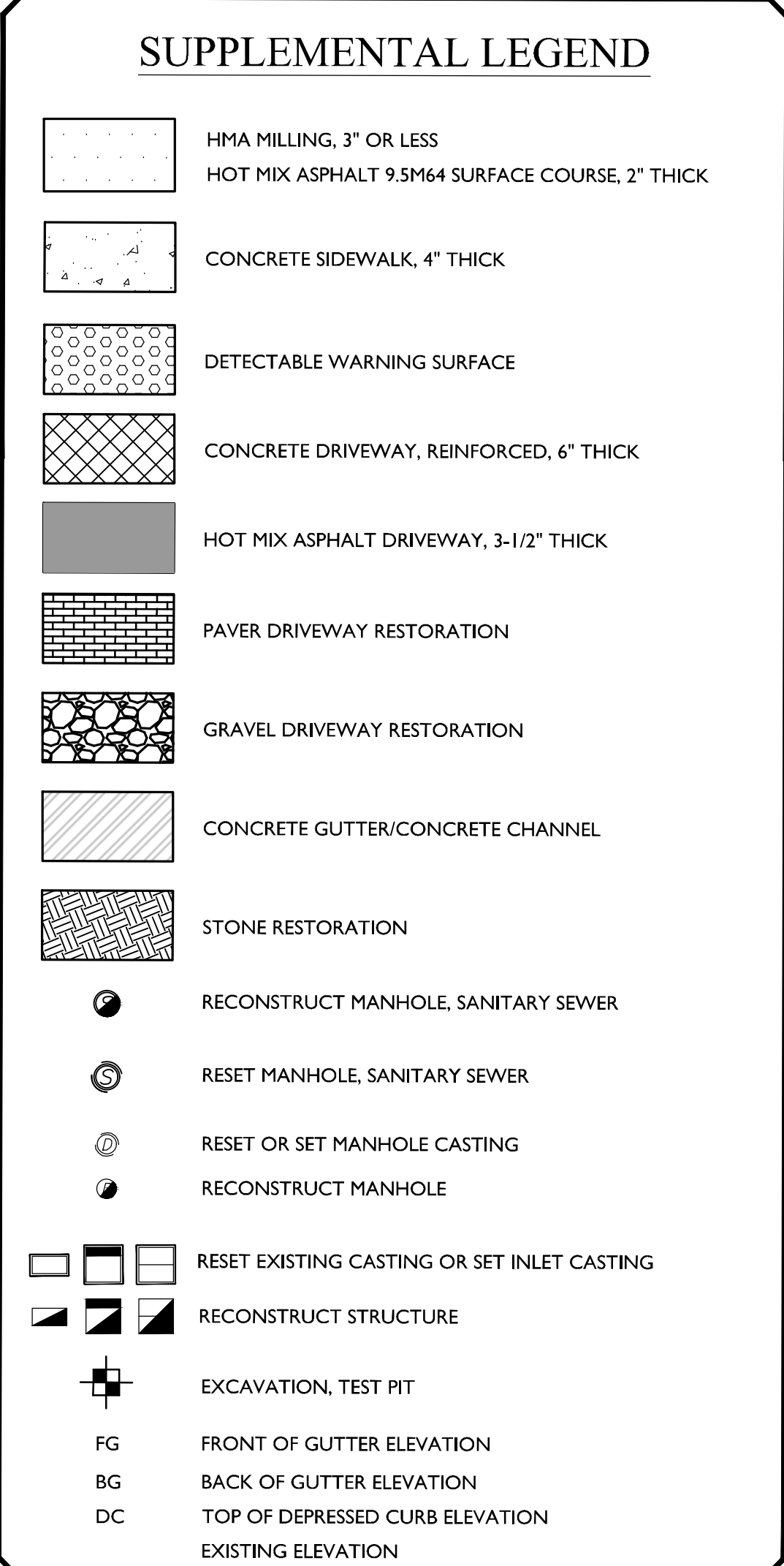
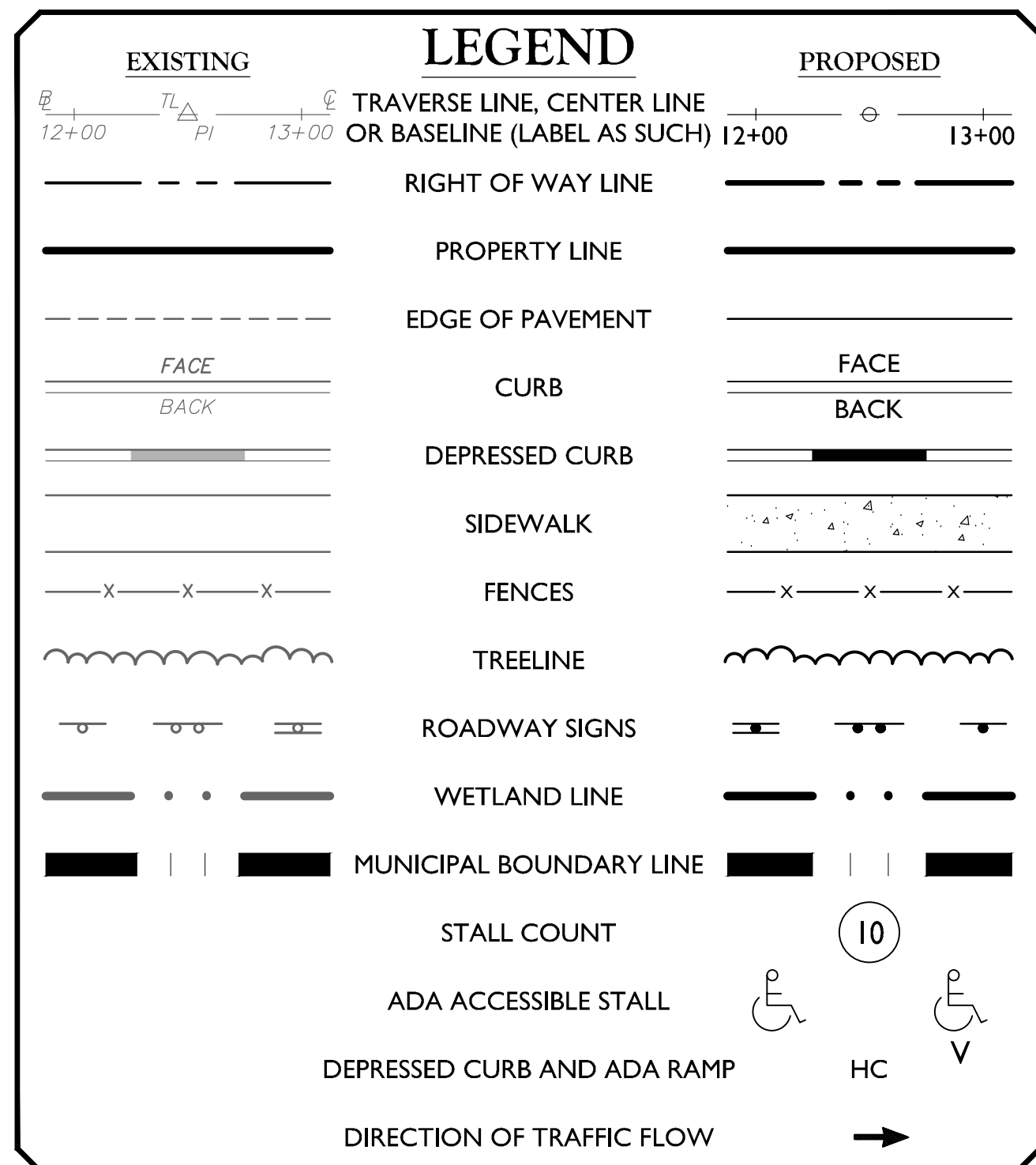
- ALL WORK AND MATERIALS SHALL COMPLY WITH ALL MUNICIPAL/COUNTY/STATE REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, MAILBOXES, FENCES, LANDSCAPING, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN THE PRICE BID FOR "CLEARING SITE".
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED.
- THESE PLANS ARE BASED ON SURVEY PERFORMED BY VALLEE SURVEYING, INC. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY THE BOROUGH ENGINEER IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK WOULD BE INHIBITED BY ANY OTHER SITE FEATURES.
- EXISTING BATTIN ROAD SOUNDING TOPOGRAPHIC INFORMATION AS SHOWN HEREON IS BASED UPON NAVD 88 (NORTH AMERICAN VERTICAL DATUM OF 1988) PER GPS OBSERVATION BY MASER CONSULTING, INC., UTILIZING KEYNET GPS.
- SURVEY LAYOUT AND STAKEOUT SHALL BE PROVIDED BY THE CONTRACTOR FOR ALL IMPROVEMENTS. ALL WORK SHALL BE COMPLETED BY A NEW JERSEY LICENSED PROFESSIONAL LAND SURVEYOR AND ALL COSTS FOR SHALL BE INCLUDED IN THE VARIOUS ITEMS IN THE PROPOSAL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONSTRUCTION LAYOUT.
- THE CONTRACTOR SHALL PROVIDE SURVEY AS-BUILT PLANS WITH ELEVATIONS FOR ALL IMPROVEMENTS AS DIRECTED BY THE ENGINEER. THE AS-BUILT PLAN SHALL CONSIST OF THE CENTERLINE, FRONT AND BACK OF GUTTER LINE, ELEVATIONS OF RIMS AND GRATES OF ALL STRUCTURES, AND AREAS OF ADA IMPROVEMENTS WHERE CURB, SIDEWALK, AND DETECTABLE WARNING SURFACES ARE INSTALLED. ALL SURVEY WORK SHALL BE COMPLETED BY A NEW JERSEY LICENSED PROFESSIONAL LAND SURVEYOR AND ALL COSTS ASSOCIATED FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR THE LINE ITEM AS-BUILT SURVEY.
- ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE AND ALL UNSUITABLE EXCAVATED MATERIAL AND DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL MUNICIPAL, COUNTY, STATE AND FEDERAL LAW AND APPLICABLE CODES.
- CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PROVISIONS TO ASSURE STABILITY OF EXCAVATIONS, AS FIELD CONDITIONS DICTATE.
- CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE MEASURES AS NECESSARY TO ENSURE THE STRUCTURAL STABILITY OF ITEMS TO REMAIN, AND TO PROVIDE A SAFE WORK AREA.
- CONTRACTOR IS RESPONSIBLE FOR REPAIRING THE DAMAGE DONE TO ANY EXISTING ITEMS DURING CONSTRUCTION SUCH AS BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, LANDSCAPING, FENCES, MAILBOXES, WALLS, WALKWAYS, IRRIGATION SYSTEMS, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPLACE ALL AMENITIES DAMAGED DURING CONSTRUCTION. REPAIR SHALL BE EQUAL OR BETTER THAN EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND NOTIFY CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION START.
- ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS/MEANS FOR COMPLETION OF THE WORK DEPICTED ON THESE PLANS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING METHODS/ MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND MUST NOTIFY THE OWNER AND ENGINEER IF A CONFLICT IS IDENTIFIED.
- THE CONTRACTOR IS RESPONSIBLE TO CLEAR ANY AND ALL ITEMS REQUIRED TO BUILD THE PROJECT AS SHOWN ON THE PLANS. THE NOTES SHOWN ON THE PLANS MAY NOT BE ALL-INCLUSIVE. ANY ITEMS NOT SPECIFICALLY SHOWN FOR REMOVAL ON THE PLANS, BUT REQUIRED TO BUILD THE PROPOSED IMPROVEMENTS SHALL BE REMOVED AND DISPOSED OF. PAYMENT SHALL BE INCLUDED IN THE "CLEARING SITE" PAY ITEM.
- THE LOCATION OF ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON VISIBLE SURFACE STRUCTURES AND ANY UTILITY MAPS PROVIDED BY UTILITY COMPANIES REFERENCED HEREON. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/STRUCTURES. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY HAVE BEEN ENCOUNTERED. THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES FIELD-VERIFIED BY THE PROPER UTILITY COMPANIES BEFORE ANY CONSTRUCTION BEGINS.
- THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL UTILITIES BY CONTACTING THE APPROPRIATE UTILITY COMPANIES AND CONTACTING THE NJ ONE-CALL SYSTEM (1-800-272-1000). THE LOCATION OF ALL EXISTING UTILITIES MAY NOT BE ACCURATELY SHOWN ON THE PLANS.
- DO NOT INTERRUPT EXISTING UTILITIES SERVING ADJACENT OCCUPIED OR OPERATING FACILITIES UNLESS AUTHORIZED IN WRITING BY OWNER AND AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL PROVIDE PROTECTION FOR THE GENERAL PUBLIC AND CONSTRUCTION WORKERS IN AND AROUND THE CONSTRUCTION AREA, AND FOR THE ADJACENT PROPERTY AND PERSONS. ADEQUATE BARRIERS SHALL BE PROVIDED TO EXERCISE CONTROL OF SAFE INGRESS AND EGRESS AT ALL ROADWAY INTERSECTIONS. THE CONTRACTOR SHALL BARRICADE ALL UNSAFE OR INJURIOUS CONDITIONS.
- THE CONTRACTOR SHALL ENSURE FREE AND SAFE PASSAGE OF PERSONS AROUND THE AREA OF CONSTRUCTION. ALL OPERATIONS SHALL BE CONDUCTED SO AS TO PREVENT DAMAGE TO ADJACENT BUILDINGS, STRUCTURES, AND OTHER FACILITIES AND INJURY TO PERSONS, BOTH PEDESTRIAN AND WORKERS ALIKE.
- ALL ITEMS TO BE PARTIALLY REMOVED OR REMOVED AND RESET SHALL BE REMOVED TO THE NEAREST POST OR JOINT.
- THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE SITE TO A CLEAN, SAFE AND PASSABLE CONDITION AT THE END OF EACH WORK DAY. NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR DAILY RESTORATION OF THE SITE. NO MATERIALS OR EQUIPMENT MAY BE STAGED IN THE WORK ZONE OVERNIGHT UNLESS SPECIFICALLY PERMITTED BY THE OWNER. A STAGING AREA MAY BE PROVIDED AT THE DISCRETION OF THE OWNER, THE LOCATION OF WHICH SHALL BE IDENTIFIED AT THE PRE-CONSTRUCTION MEETING.
- THE CONTRACTOR SHALL MEET THE ELEVATION OF THE EXISTING PAVEMENT AND SIDEWALK AT THE LIMITS OF PROPOSED WORK.
- CONTRACTOR SHALL VERIFY ALL GRADES, INLET ELEVATIONS AND LOCATIONS IN THE FIELD PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL ADJUST GRADING AS NECESSARY TO PROVIDE POSITIVE DRAINAGE TO EXISTING AND PROPOSED INLETS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
- NO SEPARATE PAYMENT WILL BE MADE FOR EXCAVATION, DEWATERING OR TRENCH RESTORATION REQUIRED TO INSTALL THE PIPES AND STRUCTURES SPECIFIED TO BE CONSTRUCTED. PAYMENT FOR EXCAVATION, DEWATERING, AND TRENCH RESTORATION SHALL BE INCLUDED IN THE PRICES BID FOR EACH RESPECTIVE ITEM.
- TRENCH RESTORATION SHALL BE AS SHOWN ON THE CONSTRUCTION DETAILS. NO SEPARATE PAYMENT WILL BE MADE FOR TRENCH RESTORATION, INCLUDING THE INSTALLATION OF SUBBASE, AND HOT MIX ASPHALT BASE COURSE. PAYMENT FOR TRENCH RESTORATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS SIZE PIPES IN THE PROPOSAL.
- ALL PAVEMENT STRIPING, MARKINGS, REGULATORY AND WARNING SIGNS SHALL CONFORM WITH THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- CONTRACTOR SHALL EXERCISE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION OF ADA ACCESSIBLE COMPONENTS FOR THE SITE. THESE COMPONENTS, AS CONSTRUCTED, MUST COMPLY WITH THE LATEST ADA STANDARDS FOR ACCESSIBLE DESIGN.
- CONTRACTOR TO MAINTAIN ACCESS FOR PEDESTRIANS AND EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY RELOCATION WITH EACH

RESPECTIVE UTILITY COMPANY. NO SEPARATE PAYMENT SHALL BE MADE FOR COORDINATION. WATER UTILITY RELOCATION REQUIRED TO CONSTRUCT THE IMPROVEMENTS SHOWN SHALL BE INCLUDED IN THE COST OF VARIOUS BID ITEMS.

- THE 2019 NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ALL AMENDMENTS, INCLUDING THE 2009 SPECIAL PROVISIONS FOR LOCAL AID PROJECTS, THERETO OR MODIFIED HEREIN SHALL GOVERN THE CONSTRUCTION OF THIS PROJECT.
- CONTRACTOR IS HEREBY NOTIFIED THAT THE ENTIRE PROJECT IS SUBJECT TO TIDAL CONDITIONS. NO ADDITIONAL TIME SHALL BE ADDED TO THE CONTRACT UNLESS WRITTEN AUTHORIZATION IS PROVIDED BY THE BOROUGH. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ANY ADDITIONAL EFFORT OR MATERIAL RELATED TO WORKING IN TIDAL CONDITIONS.
- CONTRACTOR TO EXERCISE CAUTION WHEN PERFORMING WORK ADJACENT TO EXISTING RETAINING WALLS AND LANDSCAPE STRUCTURES AND FEATURES. ANY RETAINING WALLS OR LANDSCAPE STRUCTURES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR IS ENCOURAGED TO TAKE PRECONSTRUCTION PHOTOGRAPHS TO AVOID INCONCLUSIVE DISPUTES DURING OR AFTER CONSTRUCTION.
- ALL TRAFFIC STRIPES AND MARKINGS SHALL BE LONG-LIFE THERMOPLASTIC.
- CONTRACTOR SHALL SUBMIT SEED BAG TICKETS TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING SEED.
- CONTRACTOR SHALL ESTABLISH A FULL STAND OF GRASS WITH NO BARE PATCHES, CRABGRASS, OR WEEDS.
- PAVEMENT SHALL BE SAWCUT TO FULL DEPTH OF EXISTING PAVEMENT AT THE TIME OF CONSTRUCTION. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
- TACK COAT SHALL BE IN ACCORDANCE WITH SECTION 401.03.02.
- INSTALLATION OF HOT MIX ASPHALT SURFACE COURSE SHALL NOT BE PERMITTED UNTIL THE BASE COURSE IS APPROVED BY THE ENGINEER. THE ENGINEER MAY DIRECT THE CONTRACTOR TO MAKE CORRECTIVE MEASURES TO THE BASE COURSE PRIOR TO THE INSTALLATION OF THE SURFACE COURSE AT NO ADDITIONAL COST TO THE OWNER.
- UNLESS ECHELON PAVING IS USED, ALL JOINTS RESULTING FROM THE PAVING OPERATIONS SHALL BE CONSIDERED COLD JOINTS AND POLYMERIZED JOINT ADHESIVE SHALL BE APPLIED IN ACCORDANCE WITH THE NJDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2019, UNDER SUBSECTION 401.03.03 E.I. COLD JOINT PAVING.
- THE MAXIMUM LENGTH OF LONGITUDINAL COLD JOINT IS 300 FEET OR UP TO 500 FEET IF DIRECTED BY THE ENGINEER. NO LONGITUDINAL COLD JOINTS ARE TO BE LEFT EXPOSED AT THE END OF THE DAY'S WORK OR OVERNIGHT.
- CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE PATTERNS WHEN RECONSTRUCTING OR OVERLAYING UNLESS OTHERWISE SHOWN OR DIRECTED BY THE ENGINEER. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY QUESTIONABLE DRAINAGE AREAS SO THAT FIELD ADJUSTMENTS CAN BE MADE TO ELIMINATE PONDING.
- EXISTING GUTTERLINE GRADES ARE TO BE MAINTAINED EXCEPT AS OTHERWISE SHOWN ON PLAN OR DIRECTED BY THE ENGINEER.
- THE EDGES OF THE BASE COURSE ITEMS SHALL BE PARALLEL TO THE ROADWAY CENTERLINE AND RECTANGULAR IN SHAPE. ALL EDGES SHALL BE VERTICAL.

BASE BID NO. 1			
PAY ITEM NO.	DESCRIPTION	UNIT	CONTRACT TOTAL QUANTITY
1	MOBILIZATION	LS	1
1A	BONDS/PERMITS/SURVEY ETC.	LS	1
2	CLEARING SITE	LS	1
3	EXCAVATION UNCLASSIFIED, BORROW EXCAVATION, AND GRADING	LS	1
4	FUEL PRICE ADJUSTMENT	LS	1
5	ASPHALT PRICE ADJUSTMENT	LS	1
6	SOIL EROSION AND SEDIMENT CONTROL MEASURES	LS	1
7	HMA MILLING, 3" OR LESS	SY	205
8	DENSE-GRADED AGGREGATE BASE COURSE, 6" THICK	SY	25
9	HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK	TON	25
10	HOT MIX ASPHALT 19M64 BASE COURSE, 4" THICK	TON	55
11	BRICK PAVERS (WITH DENSE-GRADED AGGREGATE UNDERNEATH)	SF	130
12	BRICK PAVERS (WITH CONC PAD UNDERNEATH)	SF	580
13	RIPRAP STONE SLOPE PROTECTION, 12" THICK (D50 = 6")	SY	30
14	DOGHOUSE MANHOLE, 5' DIAMETER	UNIT	1
15	8" CLEANOUTS W/LID	UNIT	2
16	24" X 24" X 8" TEE	UNIT	1
17	8" HIGH DENSITY POLYETHYLENE PIPE	LF	30
18	24" HIGH DENSITY POLYETHYLENE PIPE	LF	35
19	TRENCH DRAIN, 12" WIDE, W/CONCRETE COLLAR	LF	45
20	8" X 18" CONCRETE VERTICAL CURB	LF	15
21	CONCRETE STEPS	SF	250
22	CONCRETE SIDEWALK, 4" THICK	SY	30
23	DETECTABLE WARNING SURFACE	SY	5
24	BULKHEAD PZ35 CANTILEVER	LF	65
25	BULKHEAD PZ22 CANTILEVER RETURNS W/ CAP	LF	35
26	BULKHEAD PZ22 ANCHORED W/ CAP	LF	50
27	BULKHEAD RAILING	LF	80
28	TIMBER GUIDE RAIL	LF	30
29	STAIR RAILING	LF	90
30	4" X 4" PRESSURE TREATED TIMBER BORDER	LF	65
31	SOLAR LIGHTS	UNIT	7
32	RELOCATE EXISTING BENCH W/ NEW FOOTING	UNIT	2
33	BENCH ON CONCRETE PAD, 6" THICK	UNIT	3
34	BIKE RACK	UNIT	1
35	TRASH RECEPTACLE	UNIT	1
36	RECYCLE BIN	UNIT	1
37	CHAIN-LINK FENCE, 6' HIGH	LF	55
38	WELCOME SIGN	UNIT	1
39	RESET SIGN	UNIT	1
40	TOPSOILING, 6" THICK	SY	255
41	FERTILIZING AND SEEDING	SY	255
42	STRAW MULCHING	SY	255
43	CONTINGENCY	ALLOWANCE	1

ALTERNATE BID NO. A			
PAY ITEM NO.	DESCRIPTION	UNIT	CONTRACT TOTAL QUANTITY
1	MOBILIZATION	LS	1
1A	BONDS/PERMITS/SURVEY ETC.	LS	1
2	CLEARING SITE	LS	1
3	EXCAVATION UNCLASSIFIED, BORROW EXCAVATION, AND GRADING	LS	1
4	FUEL PRICE ADJUSTMENT	LS	1
5	ASPHALT PRICE ADJUSTMENT	LS	1
6	SOIL EROSION AND SEDIMENT CONTROL MEASURES	LS	1
7	HMA MILLING, 3" OR LESS	SY	140
8	HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK	TON	20
9	RIPRAP STONE SLOPE PROTECTION, 30" THICK (D50 = 15")	SY	15
10	RIPRAP STONE SLOPE PROTECTION, 12" THICK (D50 = 6")	SY	15
11	RIPRAP STONE SLOPE PROTECTION, 6" THICK (D50 = 3")	SY	20
12	8" CONCRETE BOAT RAMP	SY	130
13	COARSE AGGREGATE, 12" THICK	CY	45
14	REGULATORY SIGN	UNIT	2
15	TEMPORARY COFFERDAM	LS	1
16	DREDGE	LS	1
17	SOLAR LIGHTS	UNIT	9
18	CONTINGENCY	ALLOWANCE	1



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2	01/17/20	TEK	REVISED PER BOROUGH & NDRP COMMENTS

Richard C. Maloney

Richard C. Maloney
NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE39023

CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP

BOROUGH OF FAIR HAVEN
MONMOUTH COUNTY
NEW JERSEY

RED BANK OFFICE
Corporate Headquarters
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701

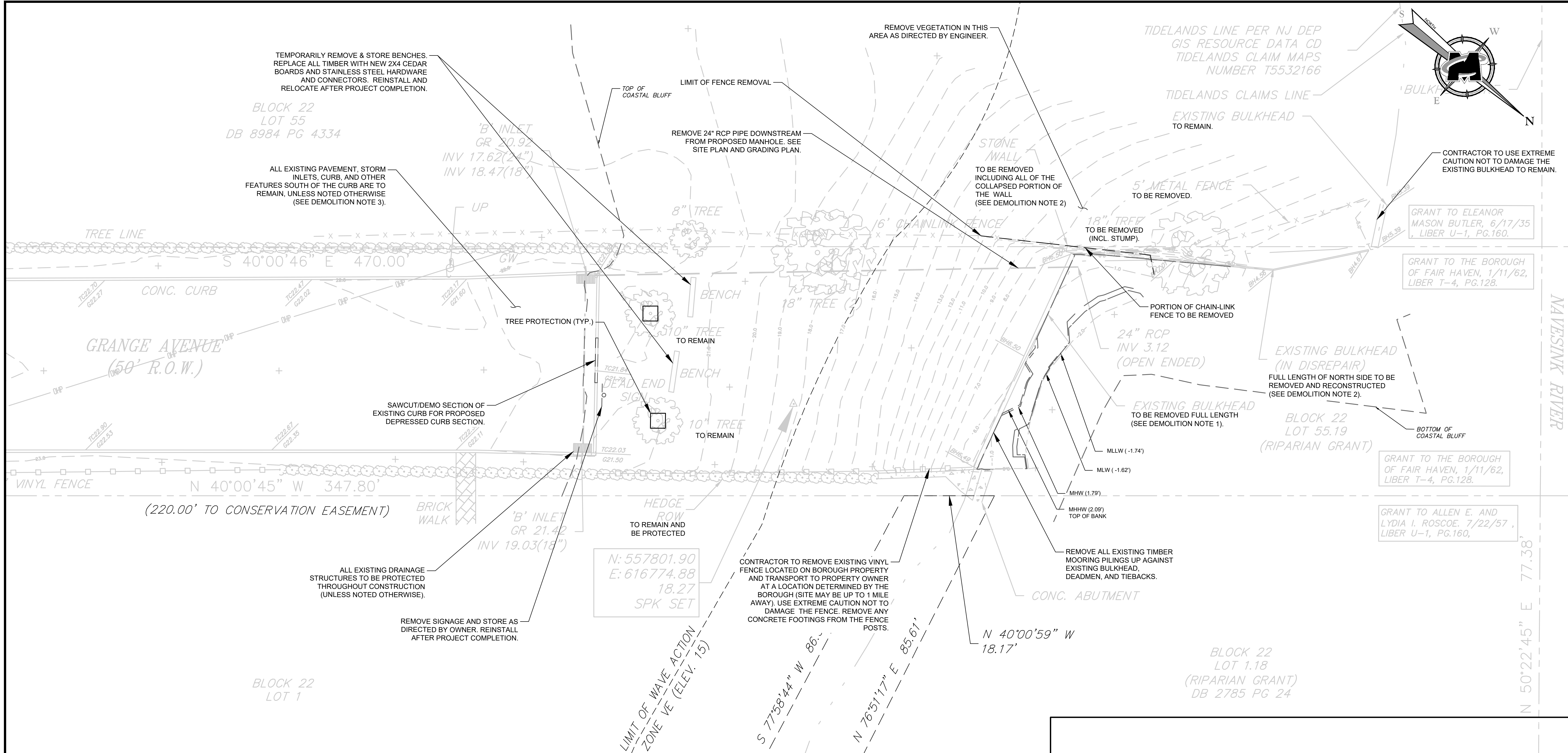
Phone: 732.383.1950
Fax: 732.383.1984

SCALE: AS SHOWN DATE: 4/02/19 DRAWN BY: TEK CHECKED BY: RCM

PROJECT NUMBER: 17004928 DRAWING NAME: C-COVER

SHEET TITLE: **GENERAL NOTES & LEGEND**

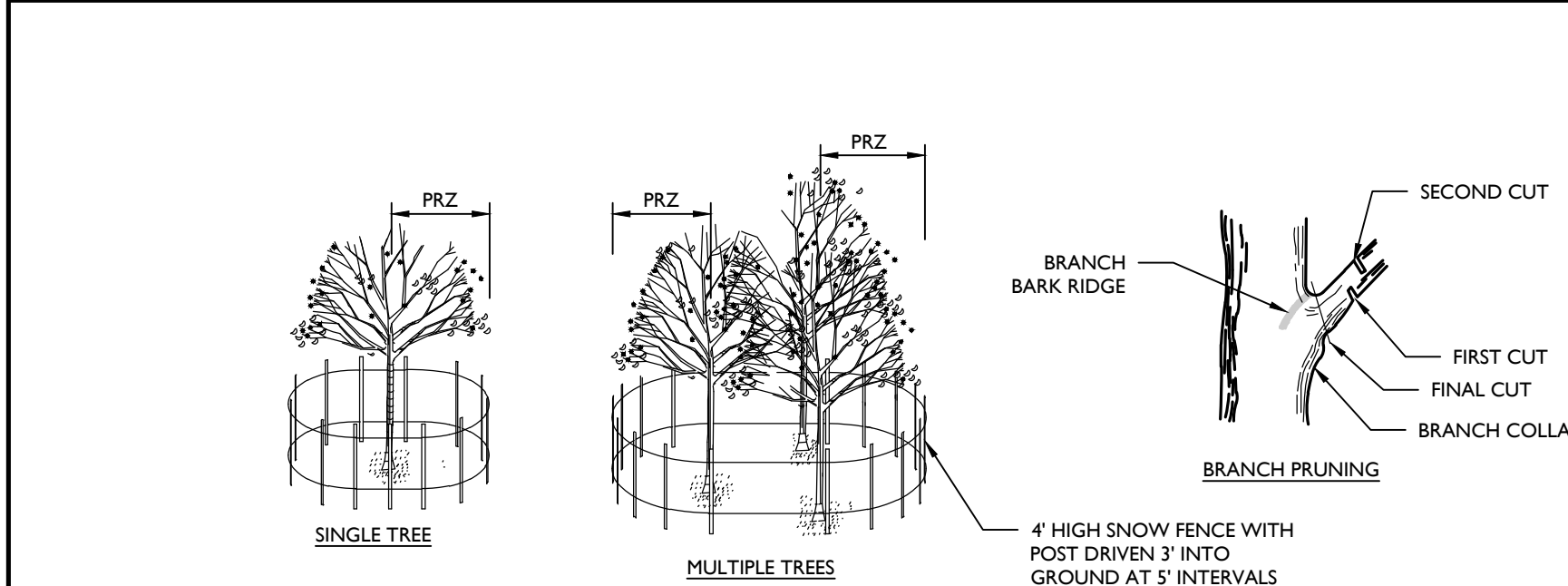
SHEET NUMBER: **T-2**



GRANGE AVENUE EXISTING CONDITIONS & DEMOLITION PLAN

SCALE: 1" = 10'

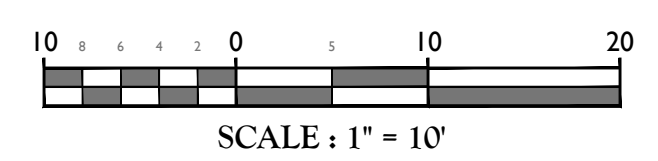
- DEMOLITION NOTES:**
- STONE WALL AND BULKHEAD REMOVAL SHALL INCLUDE ALL BULKHEAD AND WALL MATERIALS. FULL DEPTH OF BULKHEAD AND WALL SHALL BE REMOVED. IT IS CONTRACTOR'S RESPONSIBILITY TO STABILIZE UPWARD SLOPE DURING CONSTRUCTION.
 - STONE WALL AND BULKHEAD REMOVAL SHALL ALSO INCLUDE ALL FILL AND OTHER DEBRIS THAT HAS COLLAPSED AND WHICH NEEDS TO BE REMOVED TO ALLOW PROPER CONSTRUCTION OF NEW UNIFORM AND STRAIGHT BULKHEAD.
 - ALL AREAS THAT ARE NOT DESIGNATED FOR REMOVAL OR ARE LISTED TO REMAIN, SHALL BE MAINTAINED IN PRECONSTRUCTION CONDITIONS. CONTRACTOR SHALL SUBMIT PHOTOS AND VIDEO OF ENTIRE PROJECT AREA AND SURROUNDING AREA. ANY DAMAGE SHALL BE REPAIRED AT NO COST TO OWNER.
 - ALL VEGETATION AND TREES NOT DESIGNATED FOR REMOVAL SHALL BE PROTECTED PER INCLUDED DETAILS.
 - ALL COSTS FOR DEMOLITION SHALL BE INCLUDED IN BID PAY ITEM "CLEARING SITE".



- NOTES:**
- PROTECTIVE FENCING IS TO BE ERECTED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION AS DIRECTED BY THE LANDSCAPE ARCHITECT, SOIL CONSERVATION DISTRICT AND/OR MUNICIPAL ENGINEER.
 - NO CONSTRUCTION ACTIVITY IS PERMITTED WITHIN THE PROTECTIVE FENCING.
 - AS CONSTRUCTION NEARS COMPLETION THE FENCING WILL BE REMOVED AS DIRECTED.
 - AT THE COMPLETION OF CONSTRUCTION, ALL TREES WILL BE PRUNED AS NECESSARY TO CORRECT ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITY.
 - GENERAL MECHANICAL DAMAGE - SEE CRITICAL ROOT ZONE CALCULATION (CRZ) FOR CORRECT PLACEMENT OF TREE PROTECTION.
 - BOX TREES WITHIN 25 FEET OF A BUILDING SITE TO PREVENT MECHANICAL INJURY. FENCING OR OTHER BARRIER SHOULD BE INSTALLED BEYOND THE CRITICAL ROOT ZONE.
 - BOARDS WILL NOT BE NAILED TO TREES DURING BUILDING OPERATIONS.
 - FEEDER ROOTS SHOULD NOT BE CUT IN AN AREA INSIDE THE PROTECTED ROOT ZONE (PRZ) OR CRITICAL ROOT ZONE (CRZ). TREE ROOT SYSTEM COMMONLY EXTEND BEYOND THE DRIP LINE.
 - DAMAGED TRUNKS OR EXPOSED ROOTS SHOULD HAVE DAMAGED BARK REMOVED IMMEDIATELY AND NO PAINT SHALL BE APPLIED. EXPOSED ROOTS SHOULD BE COVERED WITH TOPSOIL IMMEDIATELY AFTER EXCAVATION IS COMPLETE. ROOTS SHOULD BE HEALED. ROOTS EXPOSED DURING HOT WEATHER SHOULD BE IRRIGATED TO PREVENT PERMANENT TREE INJURY. CARE FOR SERIOUS INJURY SHOULD BE PRESCRIBED BY A PROFESSIONAL FORESTER OR CERTIFIED TREE EXPERT.
 - TREE LIMB REMOVAL WHERE NECESSARY, WILL BE DONE AS NATURAL TARGET PRUNING TO REMOVE THE DESIRED BRANCH COLLAR. THERE SHOULD BE NO FLUSH CUTS. FLUSH CUTS DESTROY A MAJOR DEFENSE SYSTEM OF THE TREE. NO TREE PAINT SHALL BE APPLIED. ALL CUTS SHALL BE MADE AT THE OUTSIDE EDGE OF THE BRANCH COLLAR. CUTS MADE TOO FAR BEYOND THE BRANCH COLLAR MAY LEAD TO EXCESS SPROUTING, CRACKS AND ROT. REMOVAL OF A "Y" CROTCH SHOULD BE CONSIDERED FOR FREE STANDING SPECIMEN TREES TO AVOID FUTURE SPLITTING DAMAGE.
 - CRITICAL ROOT ZONE (CRZ) OR PROTECTED ROOT ZONE (PRZ) CALCULATION: MEASURE DBH OF THE TREE (DIAMETER OF TREE IN BREAST HEIGHT OR 4.5' ABOVE GROUND ON THE UPHILL SIDE) IN INCHES. CRZ OR PRZ = DBH TIMES 1.5 (FOR OLD/UNHEALTHY/SENSITIVE TREES) OR DBH X 1.0 (FOR YOUNG/HEALTHY/TOLERANT TREES). EXPRESS IN FEET.

TIDAL RANGE		
	NAVD	MLW
MHHW	2.09'	3.71'
MHW	1.79'	3.41'
MTL	0.9'	1.71'
NAVD88	0.00'	1.62'
MLW	-1.62'	0.00'
MLLW	-1.74'	-0.12'

LEGEND	
MEAN HIGHER HIGH WATER LINE	-----
MEAN HIGH WATER LINE	-----
MEAN LOW WATER LINE	-----
MEAN LOWER LOW WATER LINE	-----
PROPERTY/GRANT BOUNDARY LINE	-----



REV	DATE	DRAWN BY	DESCRIPTION
1	07/28/19	TEK	FINAL PLAN SUBMITTAL
2	01/17/20	TEK	REVISED PER BOROUGH & NDEP COMMENTS

Richard C. Maloney

RICHARD C. MALONEY
 NEW JERSEY PROFESSIONAL
 ENGINEER - LICENSE NUMBER: GE37923

**CONSTRUCTION PLANS
FOR
BULKHEAD
REPLACEMENT
GRANGE AVENUE
POCKET PARK &
BATTIN ROAD BOAT
RAMP**

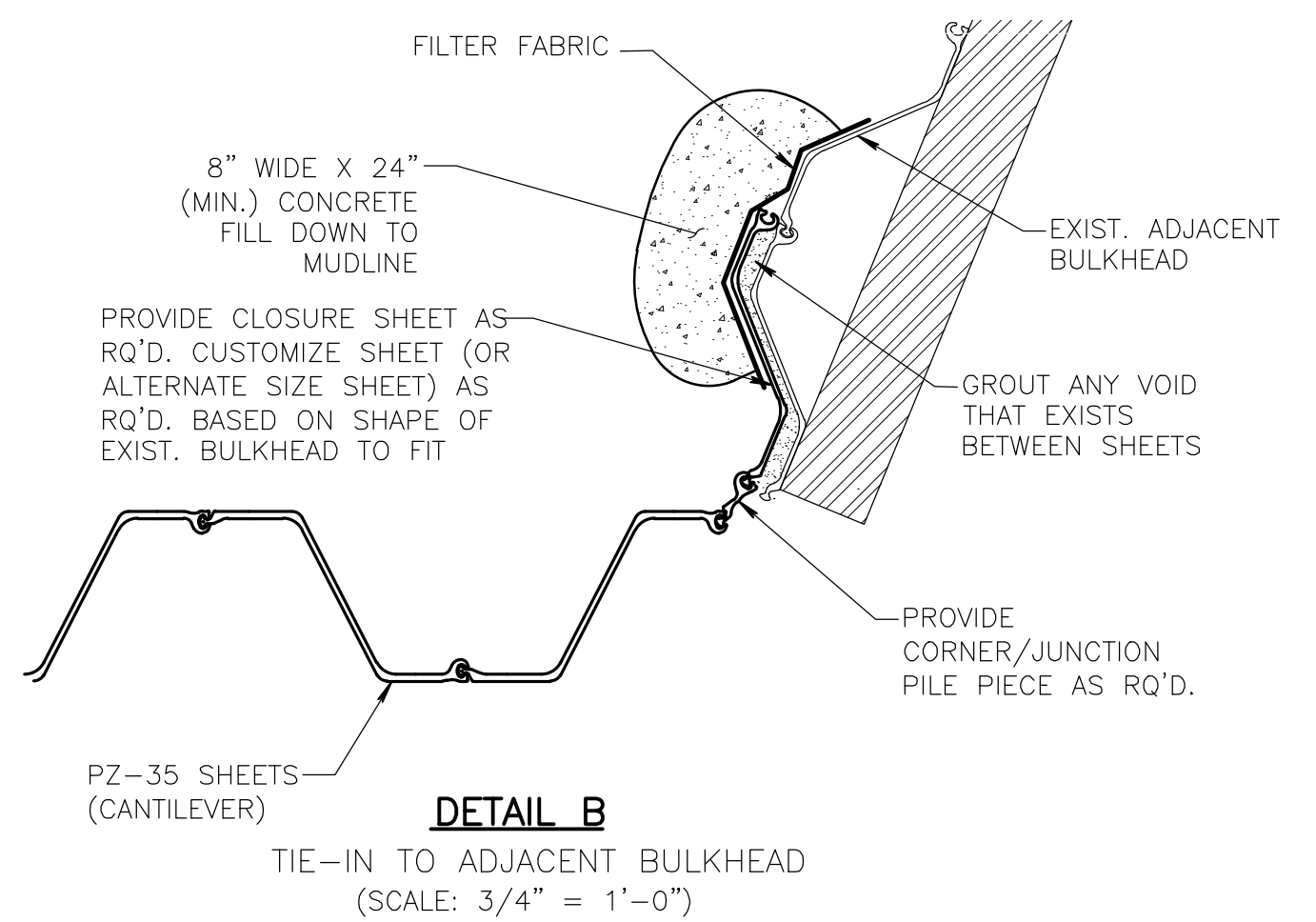
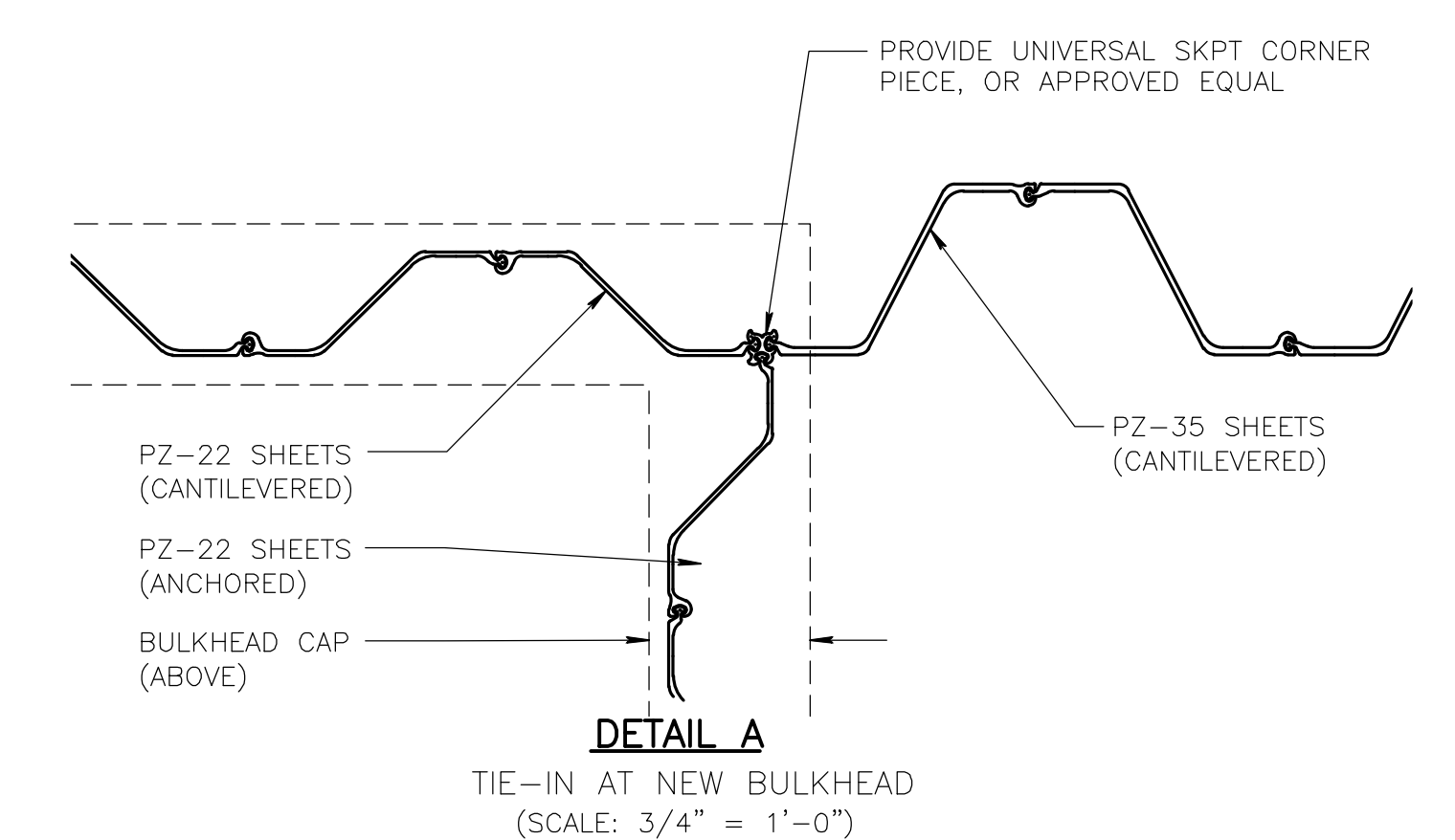
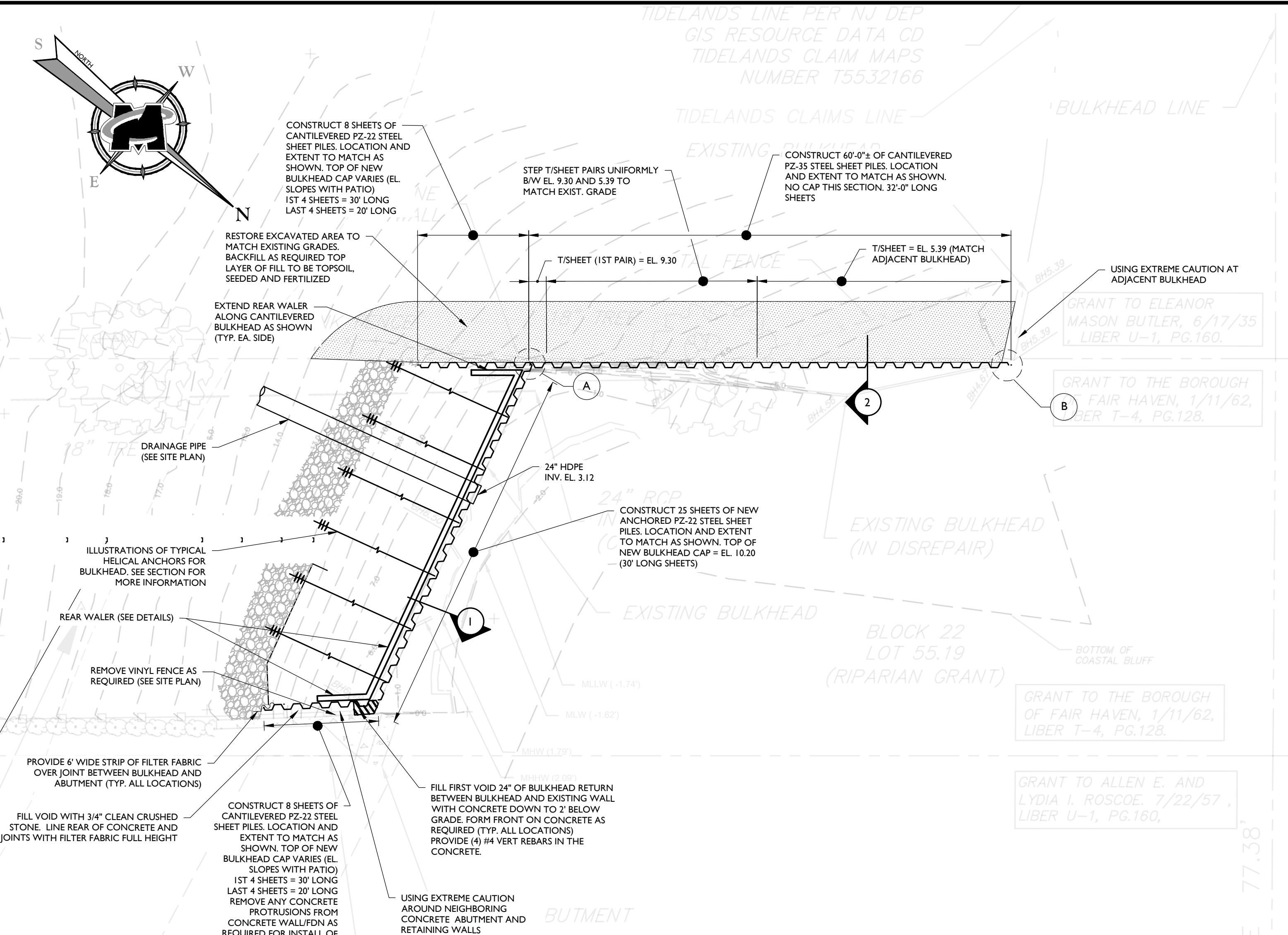
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SCALE: AS SHOWN DATE: 4/02/19 DRAWN BY: TEK CHECKED BY: RCM
 PROJECT NUMBER: 17004928 DRAWING NAME: C-DEMO

**GRANGE AVENUE
EXISTING CONDITIONS &
DEMOLITION PLAN**

SHEET NUMBER: **S-1.1**



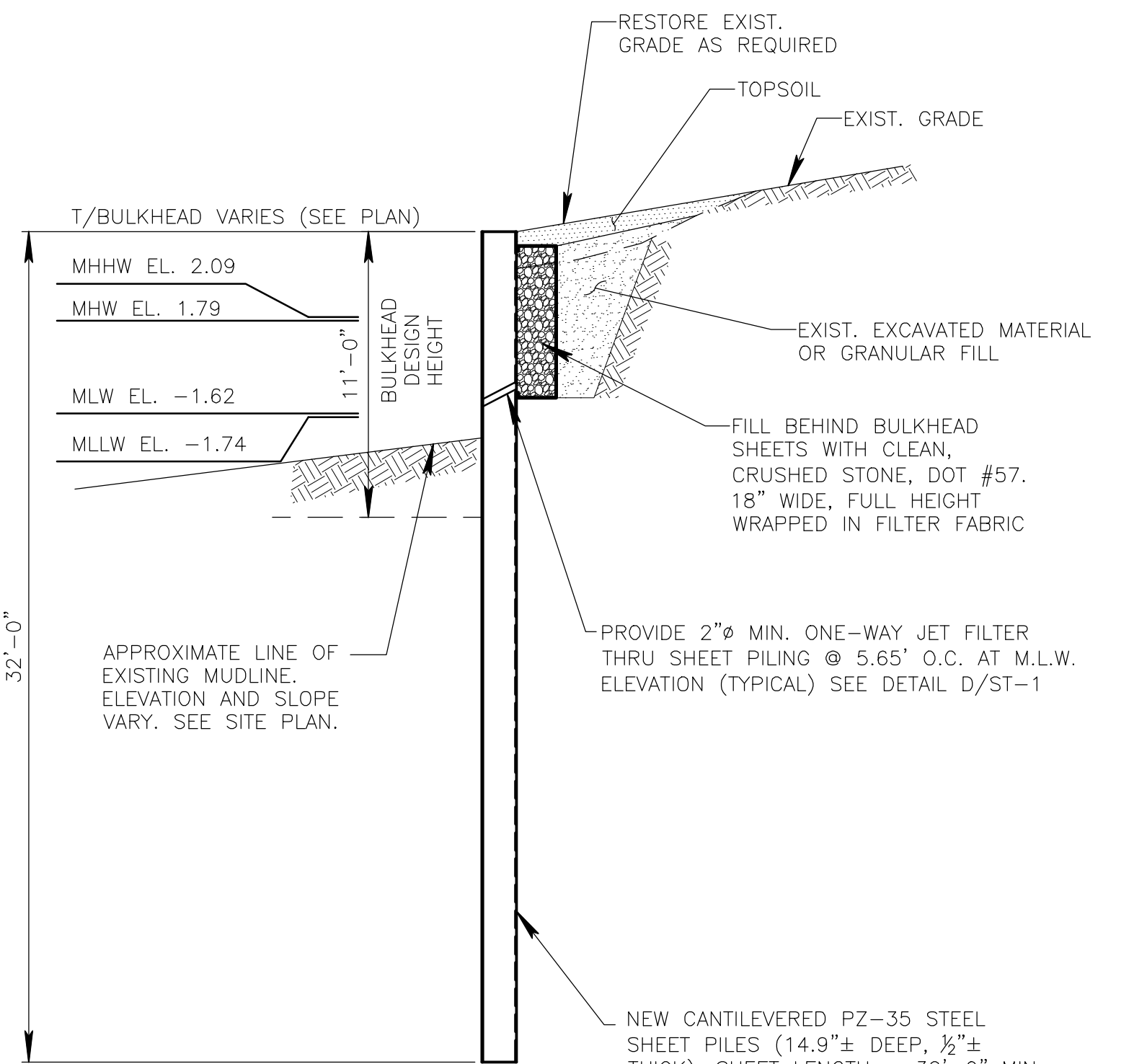
NOTE:
TIE IN/CLOSURE DETAIL IS SCHEMATIC BASED ON VISIBLE FIELD CONDITIONS. CONTRACTOR TO FIELD MEASURE AFTER DEMOLITION AND PROVIDE TO SCALE SHOP DRAWINGS OF ACTUAL DIMENSIONS OF EXISTING AND PROPOSED MATERIALS FOR APPROVAL BY THE ENGINEER. CONTRACTOR COSTS TO INCLUDE CUSTOMIZED LAST SHEET AS REQUIRED FOR TIGHT FIT.

BULKHEAD PLAN GRANGE AVENUE

SCALE: 1" = 10'

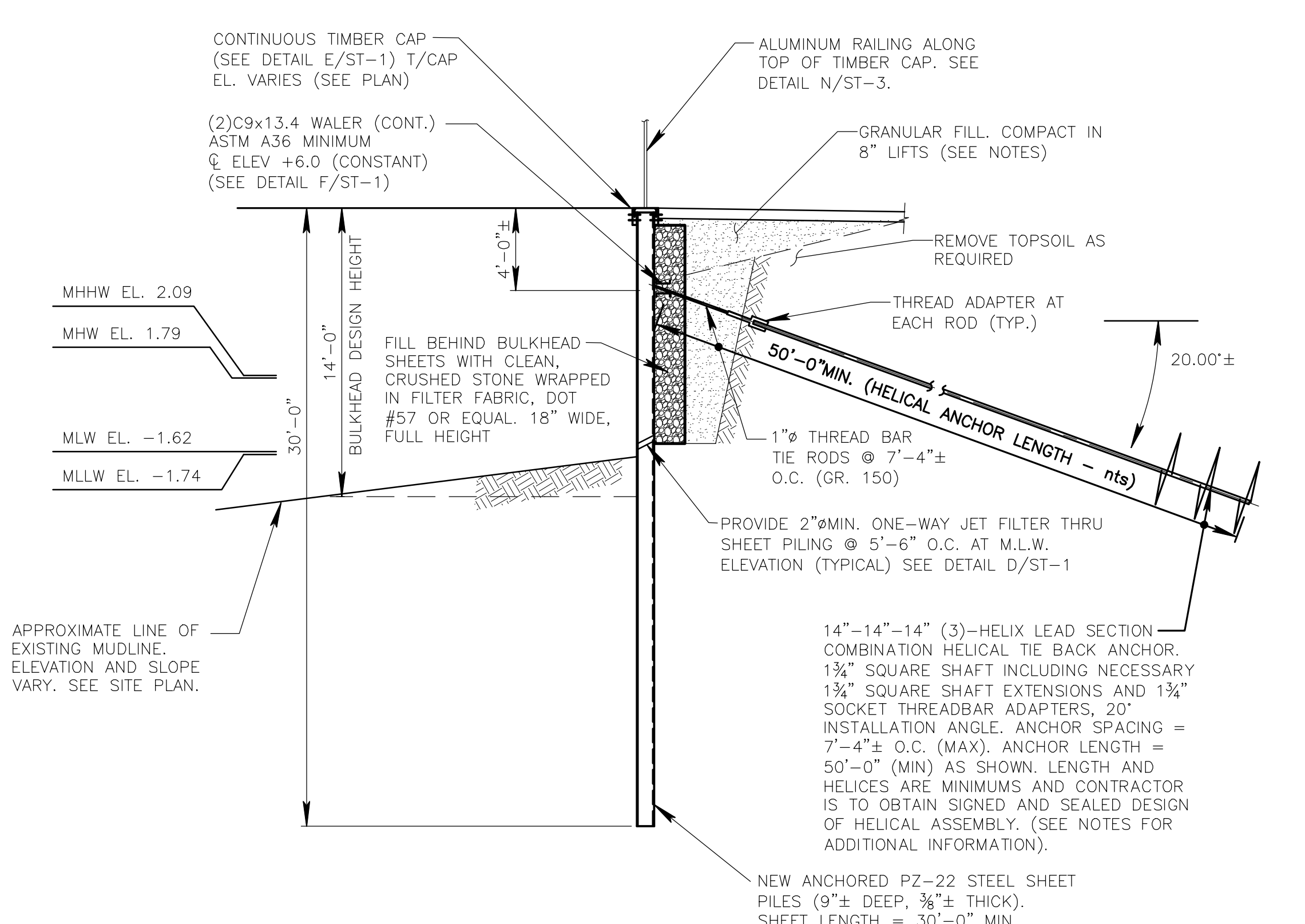
- NOTES:**
- STEEL SHEET PILING SHALL BE AS SHOWN ON PLANS. ALL STEEL SHEET PILING SHALL BE ASTM A572 GRADE 50 STEEL (MINIMUM).
 - CONTRACTOR SHALL USE A DRIVING TEMPLATE FOR DRIVING STEEL SHEET PILING.
 - DRIVING OF PILES IN PAIRS IS RECOMMENDED TO FACILITATE DRIVING AND HELP MAINTAIN VERTICALITY OF PILES.
 - PILING SHOULD BE DRIVEN WITH THE BALL EDGE (IF ANY) LEADING WHERE POSSIBLE TO AVOID CLOGGING OF SOCKET END DURING DRIVING. WHEN CONDITIONS REQUIRE THAT SOCKET END LEAD, OR IF SPECIFIED SECTION DOES NOT INCLUDE BALL END, A BOLT OR SIMILAR OBJECT SHOULD BE PLACED IN BOTTOM OF SOCKET TO MINIMIZE CLOGGING.
 - PROVIDE CORNER PIECES FOR BULKHEAD AS REQUIRED.
 - ALL STEEL ELEMENTS OF THE BULKHEAD SYSTEM SHALL BE COATED FOR PROTECTION AS FOLLOWS:
 - STEEL SHEET PILES SHALL RECEIVE A THREE-COAT SYSTEM CONSISTING OF A TWO-COAT-FIRST COAT OF AMERCOAT 240 BY PPG (MIN. 10-12 MILS PER COAT) AND A THIRD COAT OF AMERCOAT 450H BY PPG OR APPROVED EQUAL. COLOR PER OWNER. ALL COATS SHALL BE THE SAME COLOR. COAL-TAR EPOXY MAY NOT BE SUBSTITUTED.
 - REMAINDER OF STEEL ELEMENTS, INCLUDING (BUT NOT LIMITED TO) WALERS, HARDWARE, HELICAL ANCHORS, AND THE RODS (EXCEPT THREADED PORTIONS) SHALL RECEIVE A COAL-TAR EPOXY COATING OF 16 MILS MIN. DFT.
 - SURFACE PREPARATION, APPLICATION OF COATINGS, AND CURING SHALL BE IN STRICT ACCORDANCE WITH THE COATING MANUFACTURERS' WRITTEN INSTRUCTIONS AND RECOMMENDATIONS.
 - THREADED PARTS SHALL BE HOT-DIP GALVANIZED IN SHOP AND FIELD-COATED WITH COAL-TAR EPOXY AFTER INSTALLATION AND FINAL ADJUSTMENT.
 - ALL NEW FILL, BACKFILL & DISTURBED SOIL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST IN ACCORDANCE WITH ASTM D-1557. COMPLIANCE MUST BE SHOWN THROUGH TESTING PERFORMED BY A CERTIFIED COMPACTION TESTING PROVIDER. A MINIMUM OF 2 TESTS MUST BE PERFORMED AT EACH LIFT. ALL TESTING MUST BE PROVIDED TO AND APPROVED BY ENGINEER PRIOR TO FURTHER LIFTS BEING INSTALLED. ALL TESTING IS AT CONTRACTOR'S EXPENSE.
 - INNER AND OUTER THREADED TIE ROD SECTIONS AND ADAPTERS SHALL BE SUPPLIED WITH OPPOSITE-HAND THREADS TO PERMIT TENSIONING OF THE RODS AFTER INSTALLATION OF BULKHEAD, WALER AND HELICAL ANCHORS.
 - PROVIDE TIE RODS/HELICAL ANCHORS IN 1ST CORRUPTION AT EACH END OF PROJECT. HELICAL LENGTH AND HELICES ASSEMBLY ARE MINIMUM REQUIRED. CONTRACTOR SHALL PROVIDE SIGNED AND SEALED DESIGN OF HELICAL ANCHORAGE SYSTEM. ALL HELICALS MUST BE LOAD TESTED IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S RECOMMENDATION. ALL ASPECTS OF ANCHOR TESTING, INCLUDING NUMBER/FREQUENCY OF ANCHOR TESTS, TEST PROCEDURES, MAGNITUDE OF TEST LOADS, AND METHOD OF TEST LOAD APPLICATION SHALL BE IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL WAIT A MINIMUM OF TWO (2) DAYS AFTER INSTALLATION BEFORE CONDUCTING LOAD TESTING ON ANY HELICAL ANCHOR. ALL TESTING MUST BE PROVIDED TO THE ENGINEER WITHIN 48 HOURS OF COMPLETION OF TESTING. NO BACKFILL OPERATIONS MAY BEGIN UNTIL HELICAL TEST RESULTS ARE APPROVED BY THE ENGINEER.
 - STEEL SHEET PILING LINE SYMBOL SHOWN ON BULKHEAD PLAN IS SCHEMATIC ONLY AND NOT NECESSARILY TO SCALE.
 - NO SOILS REPORT WAS PERFORMED AS PART OF THE BULKHEAD/HELICAL ANCHOR DESIGN. STANDARD CODE VALUES WERE USED ON THE DESIGN. THE HELICAL SYSTEM IS SPECIFIED TO BE FINAL DESIGN AND SIGNED AND SEALED BY THE CONTRACTOR'S ENGINEER. THE CONTRACTOR SHALL INCLUDE ALL COSTS FOR SOIL TESTING AS DEEMED REQUIRED BY HIS ENGINEER TO PROVIDE SIGNED AND SEALED DESIGN AND CALCULATIONS FOR THE HELICAL ANCHOR DESIGN.

TIDAL RANGE		
	NAVD	MLW
MHHW	2.09'	3.71'
MHW	1.79'	3.41'
MTL	0.9'	1.71'
NAVD88	0.00'	1.62'
MLW	-1.62'	0.00'
MLLW	-1.74'	-0.12'



SECTION 2
TYPICAL CANTILEVERED BULKHEAD SECTION AT GRANGE AVENUE
(SCALE: 3/16" = 1'-0")

NOTE:
1. NO BULKHEAD CAP THIS SECTION.
2. RECOAT TOP 6" MINIMUM OF STEEL SHEET AFTER DRIVING (REFERENCE STRUCTURAL NOTES).



SECTION 1
TYPICAL BULKHEAD SECTION WITH HELICAL ANCHORS AT GRANGE AVENUE
(SCALE: 3/16" = 1'-0")

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1	07/21/19	FINAL PLAN SUBMITTAL	TEK		
2	01/17/20	REVISED PER BOROUGH & NJDEP COMMENTS	TEK		

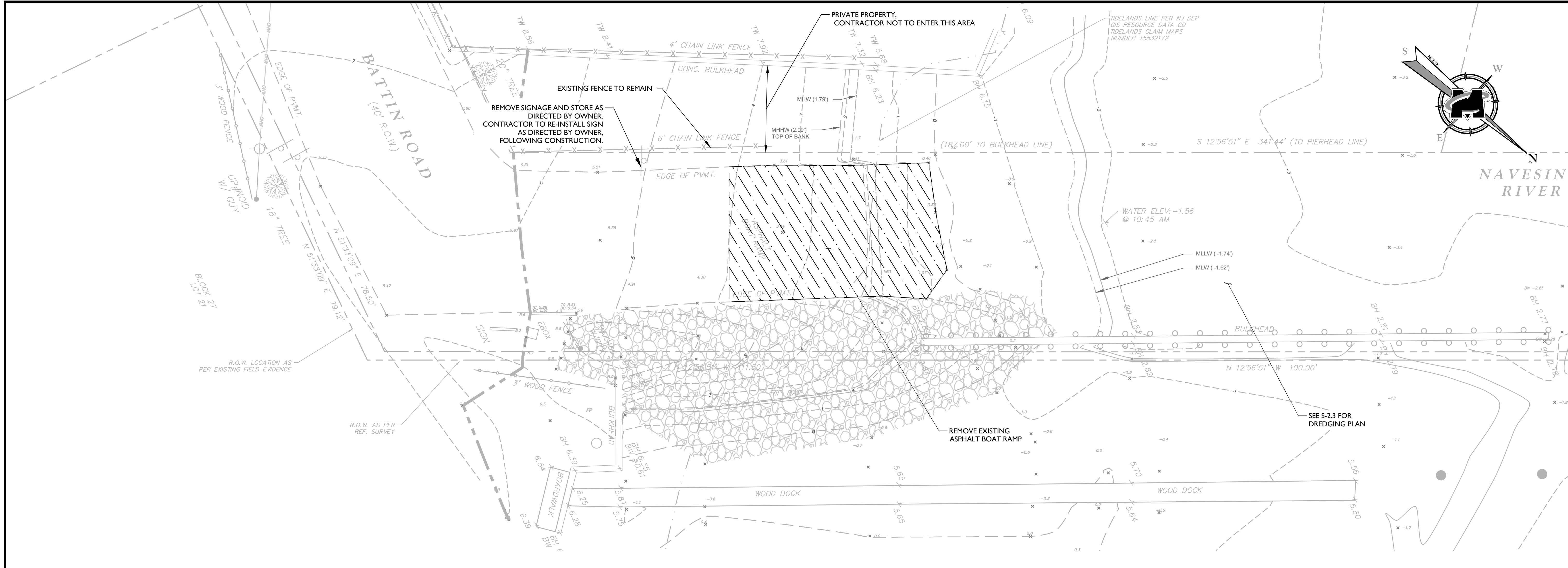
RICHARD C. MALONEY
NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE37923

CONSTRUCTION PLANS
FOR
BULKHEAD REPLACEMENT
GRANGE AVENUE
POCKET PARK & BATTIN ROAD BOAT RAMP

BOROUGH OF FAIR HAVEN
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NEW JERSEY

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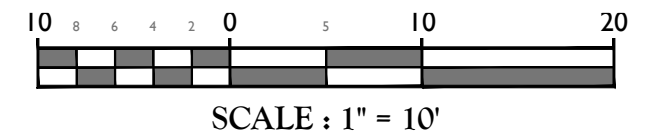
SCALE: AS SHOWN DATE: 4/02/19 DRAWN BY: TEK CHECKED BY: RCM
PROJECT NUMBER: 17004928 DRAWING NAME: S-BULK-GRNG
SHEET TITLE: **BULKHEAD PLAN GRANGE AVENUE**
SHEET NUMBER: **S-1.3**



- NOTES:**
1. ALL UPLAND PROJECT ACTIVITIES WITHIN 300' RIPARIAN ZONE.
 2. ALL EXISTING TOPOGRAPHIC INFORMATION SHOWN REFERS TO NAD 1983/NGVD1988 DATUMS.
 3. TIDAL INFORMATION OBTAINED FROM NOAA OCEANIC, NAVESINK RIVER, NJ, STATION ID 8531753.
 4. AE, VE, AND WAVE ACTION ZONES ARE BASED ON PRELIMINARY FEMA FLOOD INSURANCE RATE MAP REVISED JANUARY 30, 2015, MAP NUMBER 34025C0181G.

EXISTING CONDITIONS & DEMOLITION PLAN BATTIN ROAD

SCALE: 1" = 10'



EXISTING		PROPOSED	
TRAVERSE LINE, CENTER LINE OR BASELINE (LABEL AS SUCH)			
---		---	
RIGHT OF WAY LINE			
---		---	
PROPERTY LINE			
---		---	
EDGE OF PAVEMENT			
---		---	
FACE			
---		---	
CURB			
---		---	
DEPRESSED CURB			
---		---	
SIDEWALK			
---		---	
FENCES			
---		---	
TREELINE			
---		---	
ROADWAY SIGNS			
---		---	
WETLAND LINE			
---		---	
MUNICIPAL BOUNDARY LINE			
---		---	
'B' INLET			
---		---	
'E' INLET			
---		---	
STORM MANHOLE			
---		---	
SANITARY MANHOLE			
---		---	
FLARED END SECTION			
---		---	
HEADWALL			
---		---	
HYDRANT			
---		---	
POLE MOUNTED LIGHT			
---		---	
CONTOURS			
---		---	
SPOT ELEVATION			
---		---	
DIRECTION OF OVERLAND FLOW			
---		---	
TOP OF CURB ELEVATION			
---		---	
BOTTOM OF CURB ELEVATION			
---		---	
TOP OF DEPRESSED CURB ELEVATION			
---		---	
MEAN HIGHER HIGH WATER LINE			
---		---	
MEAN HIGH WATER LINE			
---		---	
MEAN LOW WATER LINE			
---		---	
MEAN LOWER LOW WATER LINE			
---		---	

TIDAL RANGE REFERENCED TO NAVD88	
MHHW	2.09'
MHW	1.79'
MTL	09'
MLW	-1.62'
MLLW	-1.74'

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2	01/17/20	TEK	REVISED PER BOROUGH & NDEP COMMENTS

Richard C. Maloney

Richard C. Maloney
 NEW JERSEY PROFESSIONAL
 ENGINEER - LICENSE NUMBER: GE37023

CONSTRUCTION PLANS
 FOR
**BULKHEAD
 REPLACEMENT
 GRANGE AVENUE
 POCKET PARK &
 BATTIN ROAD BOAT
 RAMP**

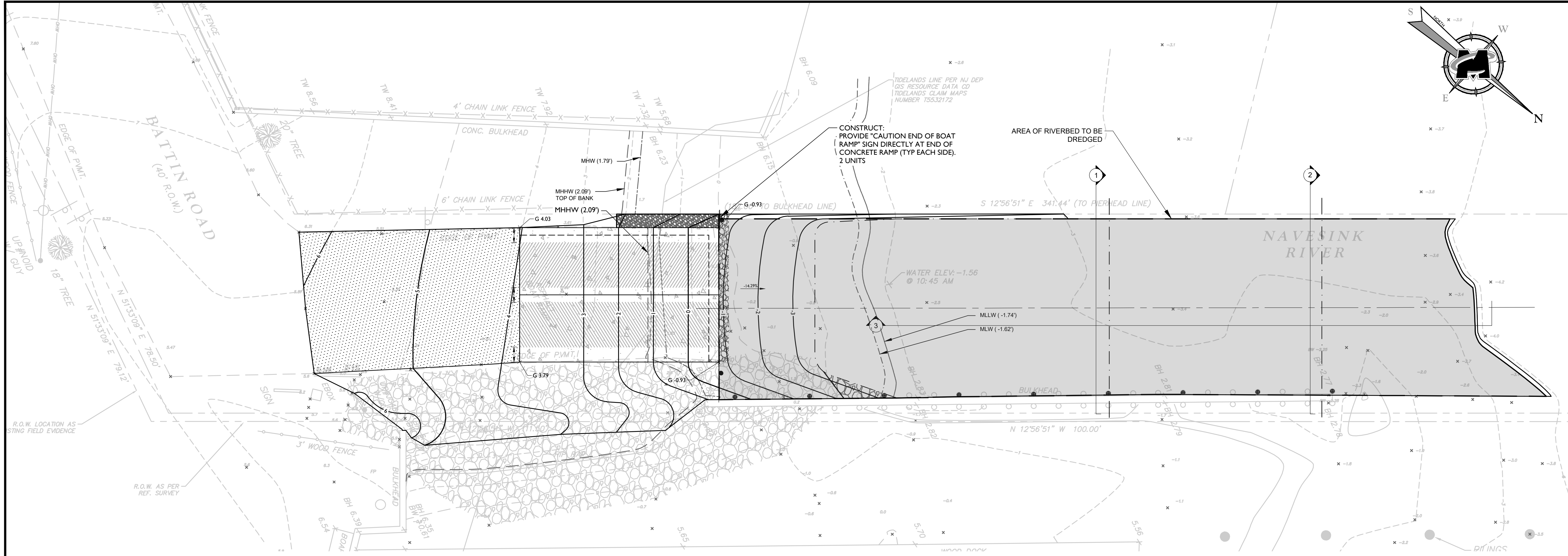
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	4/02/19	TEK	RCM
PROJECT NUMBER:		DRAWING NAME:	
17004928		C-DEMO-BATT	

SHEET TITLE
**EXISTING CONDITIONS &
 DEMOLITION PLAN
 BATTIN ROAD**

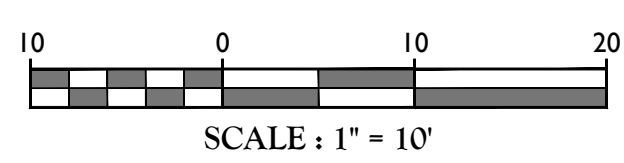
SHEET NUMBER:
S-2.1



- NOTES:**
1. ALL UPLAND PROJECT ACTIVITIES WITHIN 300' RIPARIAN ZONE.
 2. ALL EXISTING TOPOGRAPHIC/HYDROGRAPHIC INFORMATION SHOWN REFERS TO NAD 1983/NGVD 1988 DATUMS.
 3. TIDAL INFORMATION OBTAINED FROM NOAA OCEANIC, NAVESINK RIVER, NJ, STATION ID 8531753.
 4. AE VE AND WAVE ACTION ZONES ARE BASED ON PRELIMINARY FEMA FLOOD INSURANCE RATE MAP REVISED SEPTEMBER 25, 2009, MAP NUMBER 34025C0181F.
 5. THE SITE IS LOCATED IN THE AE FLOOD ZONE EL. 9'.

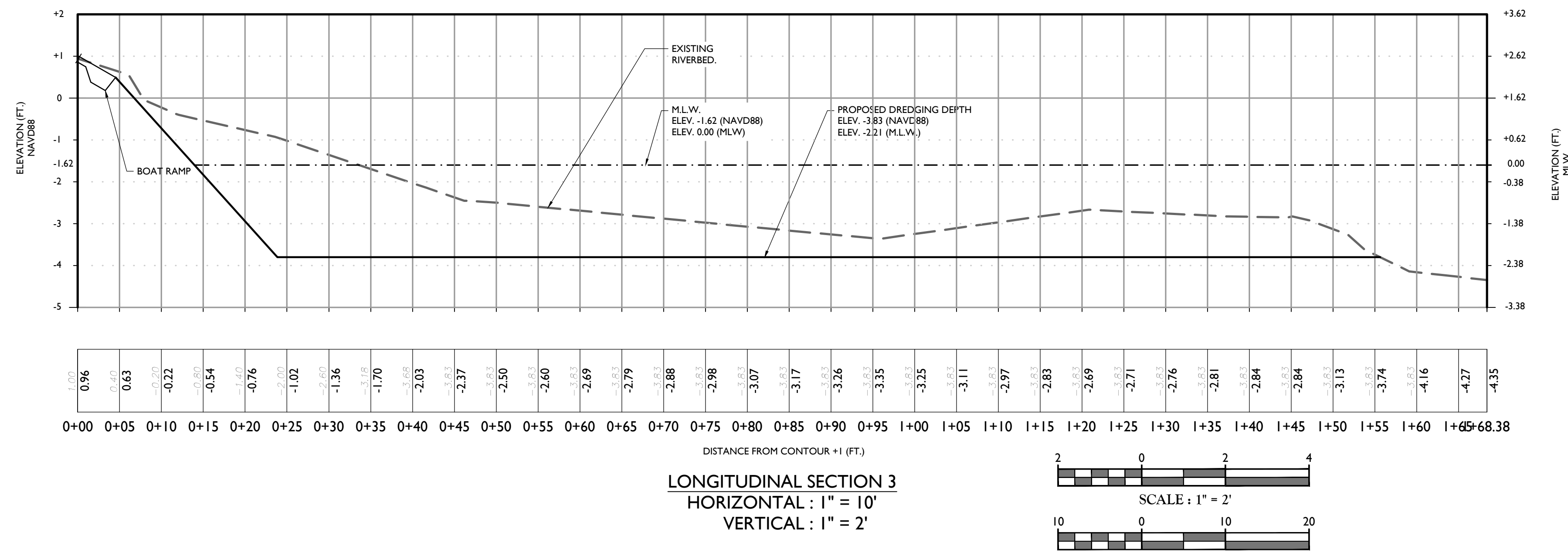
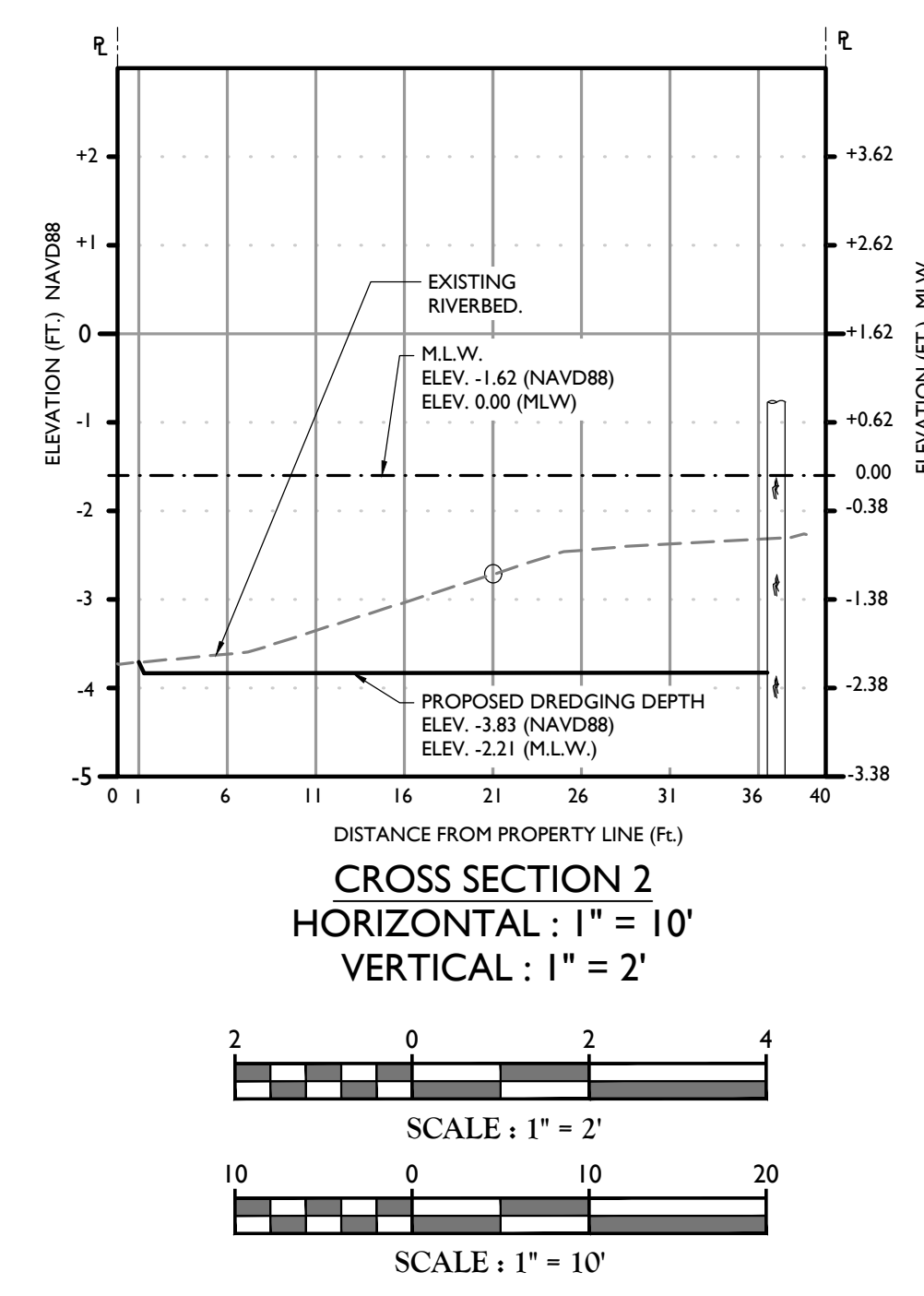
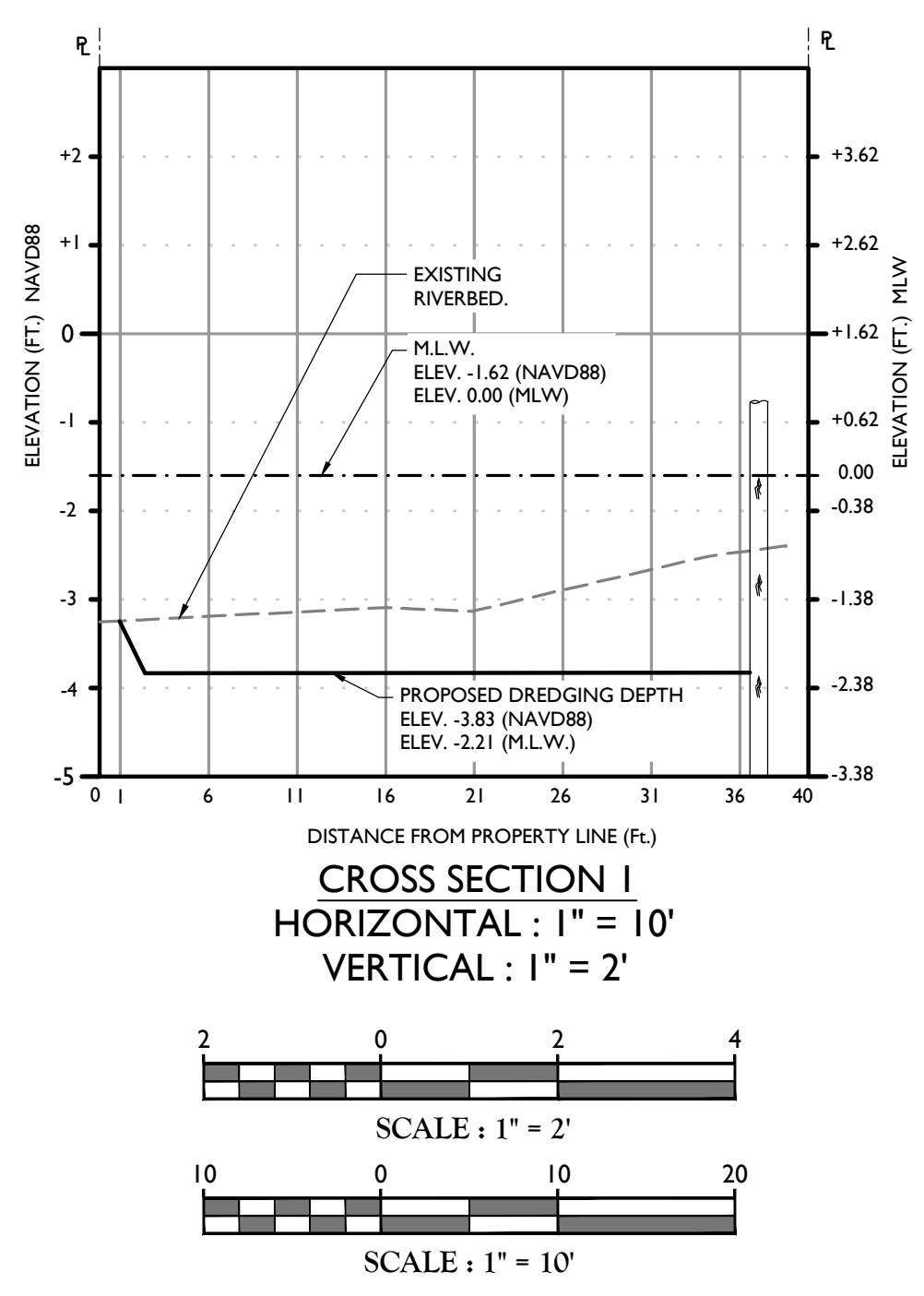
TIDAL RANGE		
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MHW	1.79'	3.41'
MTL	0.9'	1.71'
NAVD88	0.00'	1.62'
MLW	-1.62'	0.00'
MLLW	-1.74'	-0.12'

**BATTIN ROAD BOAT RAMP
 DREDGING PLAN**
 SCALE: 1" = 10"



TOTAL DREDGING VOLUME = 300 CY*

***DREDGE VOLUME BASED ON HYDRO SURVEY WITH CONSIDERATION FOR SEASONAL VARIATION. RIVERBED IN DREDGE AREAS VARIES SEASONALLY. CONTRACTOR SHALL INSPECT AREA PRIOR TO BID TO CONFIRM ACTUAL QUANTITIES AT TIME OF BID. PAYMENT FOR THIS ITEM WILL BE LUMP SUM FOR DREDGING DOWN TO ELEVATION -3.83 AS SHOWN ON PLAN.**



REV	DATE	DRAWN BY	DESCRIPTION
1	07/28/19	TEK	FINAL PLAN SUBMITTAL
2	01/22/20	TEK	REVISED PER BOROUGH & RIDGE COMMENTS

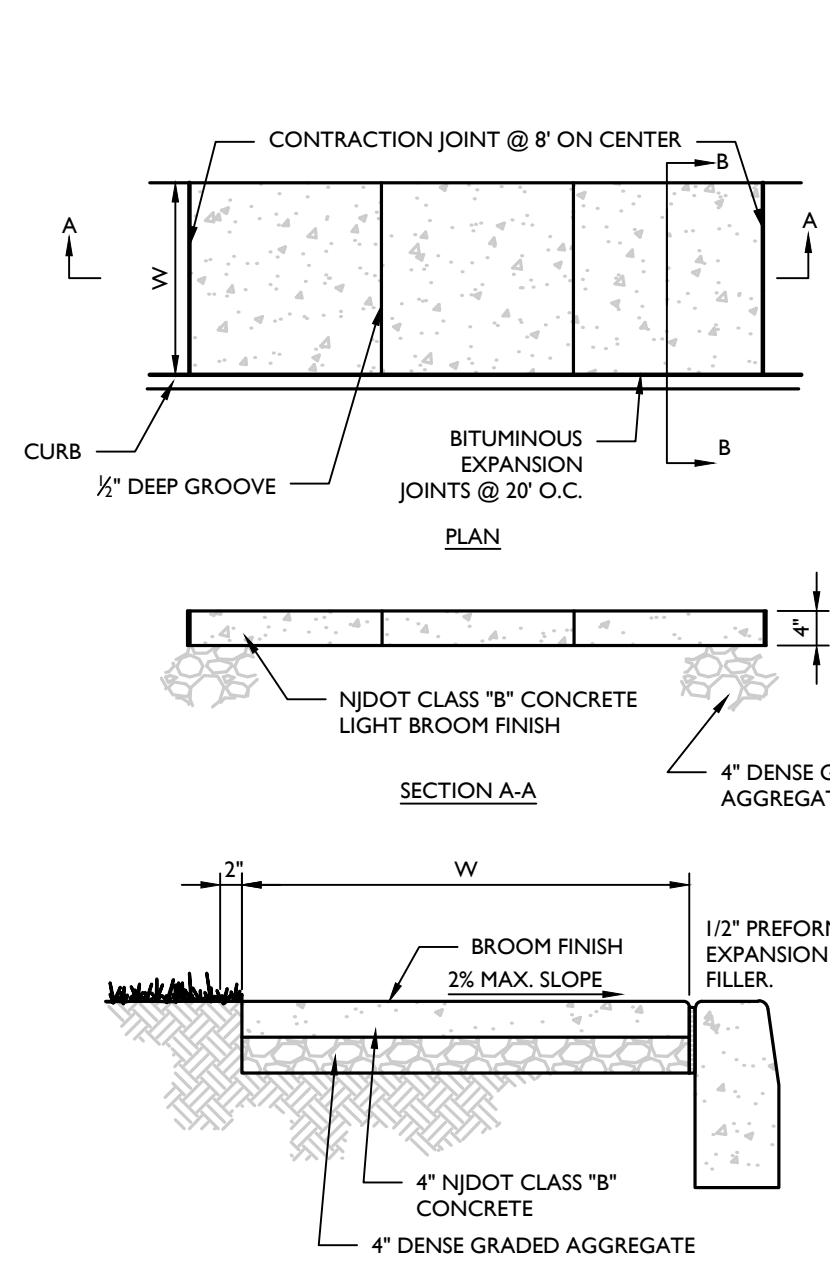
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 RICHARD C. MALONEY
 NEW JERSEY PROFESSIONAL
 ENGINEER - LICENSE NUMBER: GE37923

CONSTRUCTION PLANS
 FOR
**BULKHEAD
 GRANGE AVENUE
 POCKET PARK &
 BATTIN ROAD BOAT
 RAMP**

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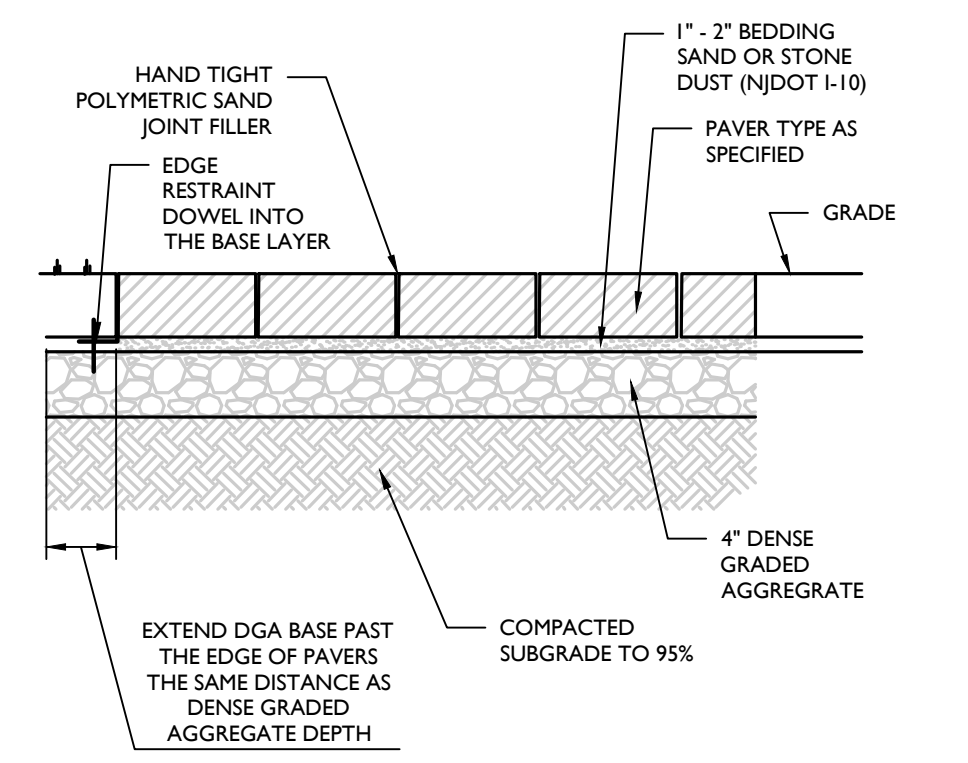
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 PROJECT NUMBER: 170049828 DRAWING NAME: C-DREDGE-BATT
 SHEET TITLE: **DREDGE PLAN:
 BATTIN ROAD**
 SHEET NUMBER: **S-2.3**

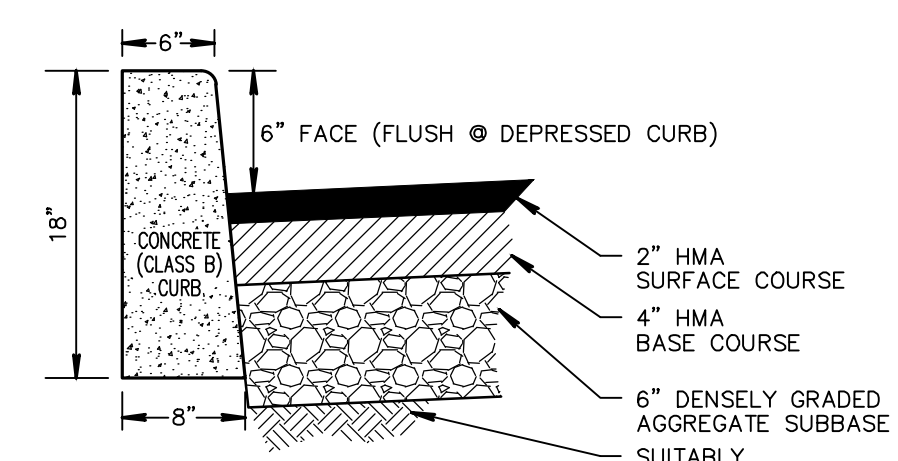


- NOTES:**
- 1/2" EXPANSION JOINT FILLER INSTALLED BETWEEN THE CURB AND CONCRETE SIDEWALK AT 10' MAXIMUM SPACING, RECESS TO 1/4" FROM THE TOP OF SIDEWALK.
 - 1/2" CONTRACTION JOINTS INSTALLED AT AN INTERVAL 24 TO 30 TIMES THE THICKNESS OF THE SLAB, TO A DEPTH OF 1/4" OF THE THICKNESS OF THE SLAB, RECESS TO 1/4" FROM THE TOP OF SIDEWALK, FOR THE FULL WIDTH OF THE SIDEWALK. SCORE A 1/4" GROOVED JOINT HALF WAY BETWEEN THE CONTRACTION JOINTS.
 - JOINT FILLER SHALL CONFORM TO AASHTO M-33. SURFACE OF CONCRETE SHALL BE BROOM FINISH, ROUND EDGES USING AN EDGING TOOL WITH A 1/2" RADIUS.
 - CONCRETE SIDEWALK SHALL BE CONSTRUCTED PER THE LATEST ADA REQUIREMENTS.

**CONCRETE SIDEWALK
(NEXT TO CURB) DETAIL**
NOT TO SCALE

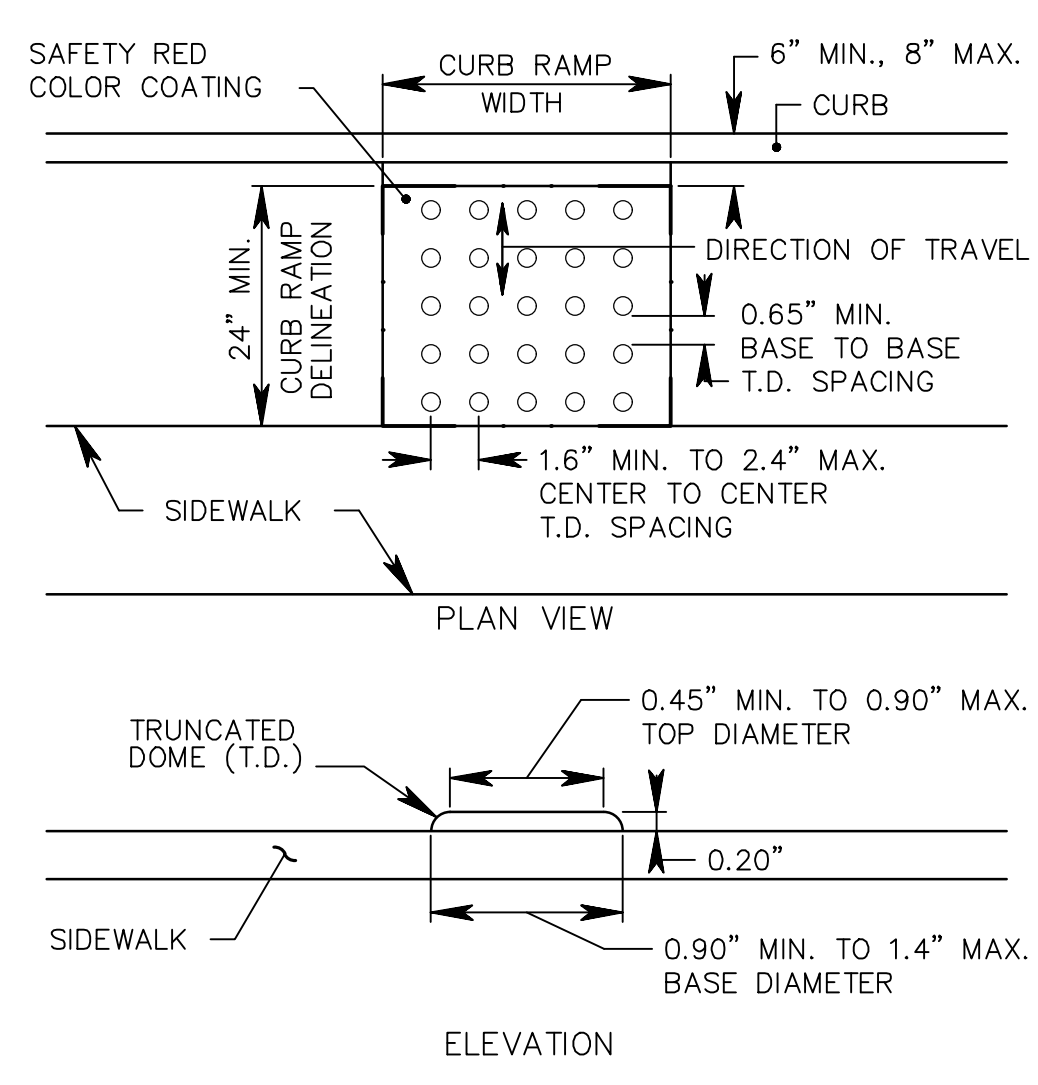


**TYPICAL STANDARD PAVER SECTION
(WITH DGA UNDERNEATH) DETAIL**
NOT TO SCALE

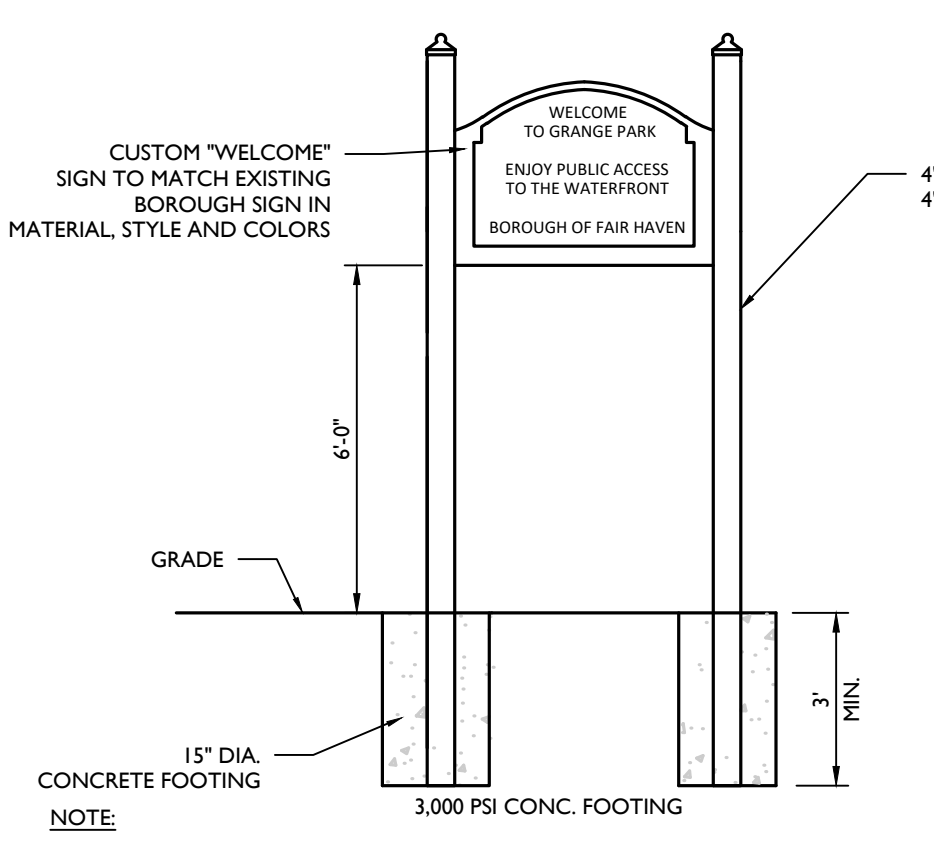


- NOTES:**
- CONCRETE FOR CURB CONSTRUCTION TO BE A.E. CLASS B PORTLAND CEMENT CONCRETE HAVING A 28-DAY STRENGTH OF 4,500 P.S.I.
 - 1/2" THICK PREFORMED BITUMINOUS JOINT FILLER SHALL BE USED TO CONSTRUCT EXPANSION JOINTS AT 20' O.C.
 - CONSTRUCTION JOINTS SHALL BE CONSTRUCTED AT 20' O.C. AND OFFSET 10' O.C. FROM EXPANSION JOINTS.
 - 2" WIDE PAVEMENT REPAIR STRIP REQUIRED AT LOCATIONS OF PROPOSED CONCRETE CURB. PAYMENT SHALL BE INCLUDED UNDER CONCRETE CURB PAY ITEM.

PAVEMENT REPAIR
NOT TO SCALE

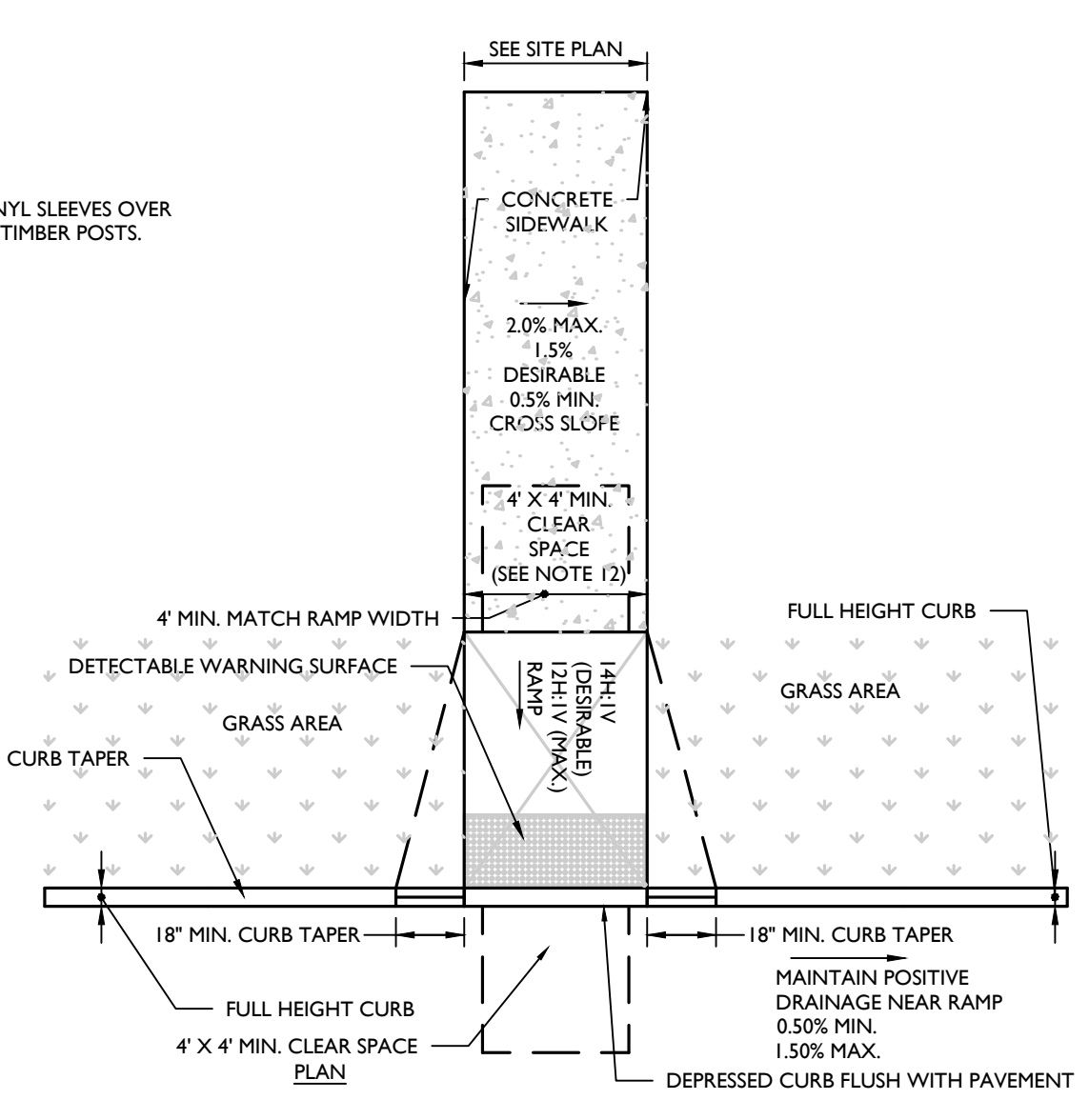


DETECTABLE WARNING SURFACE
MATERIALS SHALL BE IN ACCORDANCE WITH SECTION 606

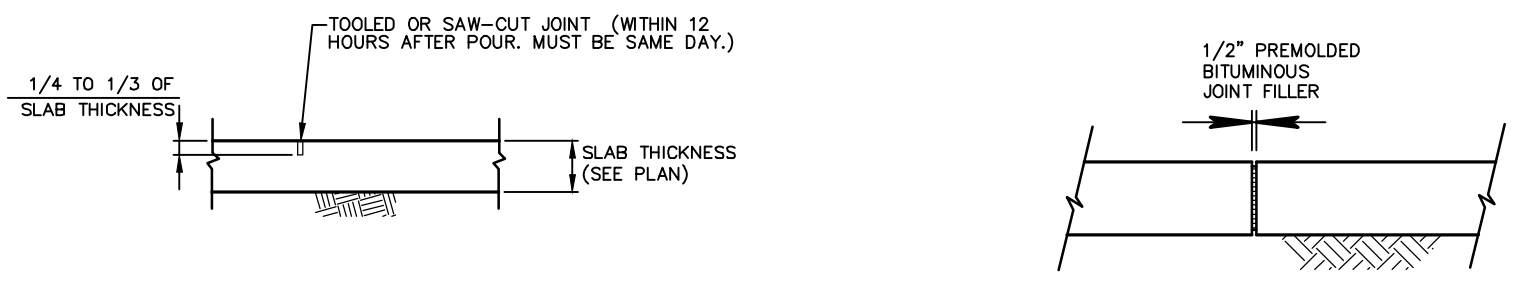


- NOTE:**
- ALL SIGNS SHALL CONFORM TO THE CURRENT MANUAL ON 'UNIFORM TRAFFIC CONTROL DEVICES' FOR STREETS AND HIGHWAYS AND CURRENT MUNICIPAL SPECIFICATIONS FOR COLOR, DESIGN AND EXACT WORDING.
 - CUSTOM PUBLIC ACCESS SIGN SHALL READ, "WELCOME TO GRANGE PARK, ENJOY PUBLIC ACCESS TO THE RIVERFRONT, BOROUGH OF FAIR HAVEN"
 - CONTRACTOR SHALL SUBMIT SAMPLE SIGN GRAPHIC AND DETAILS TO BOROUGH (INCLUDING COLORS, FONT, STYLE, MATERIALS) FOR APPROVAL PRIOR TO PRODUCTION.

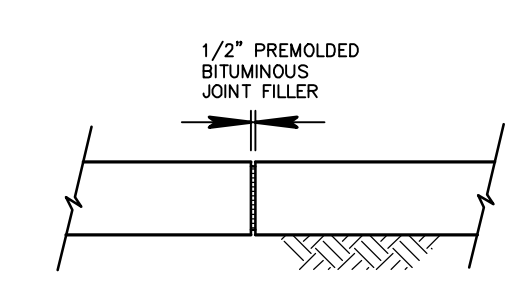
**PUBLIC ACCESS
SIGN DETAIL**
NOT TO SCALE



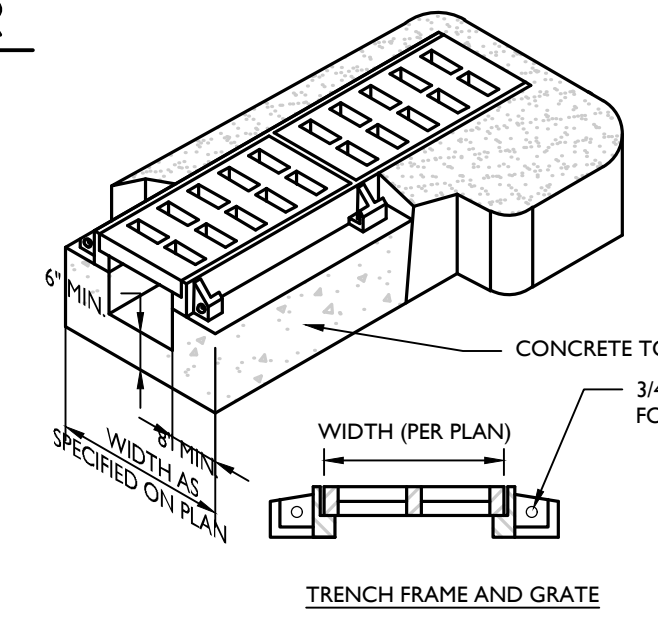
**CURB RAMP
TYPE 2 DETAIL**
NOT TO SCALE



TYPICAL CONTROL JOINT DETAIL (SAWCUT)
NOT TO SCALE

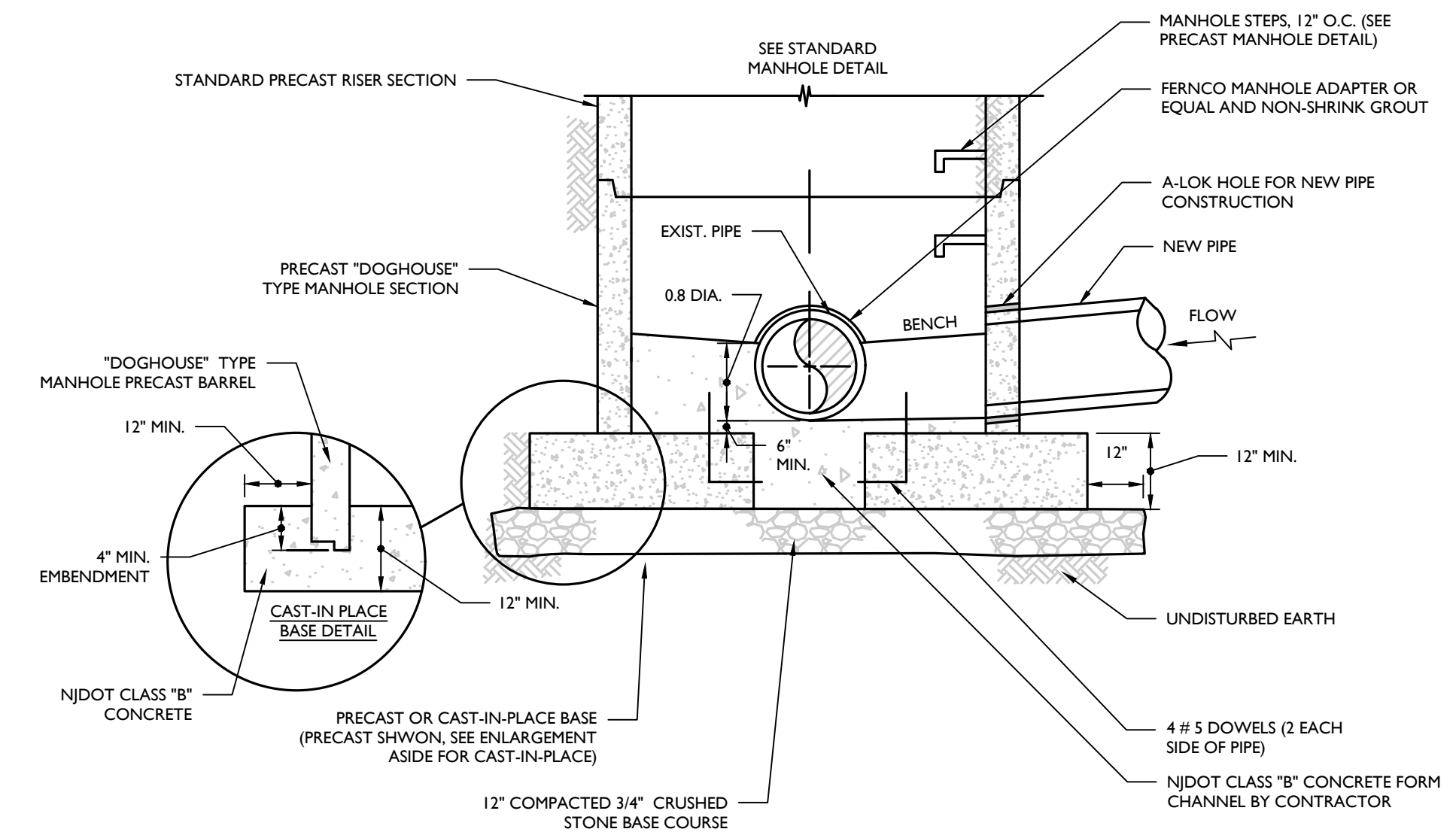
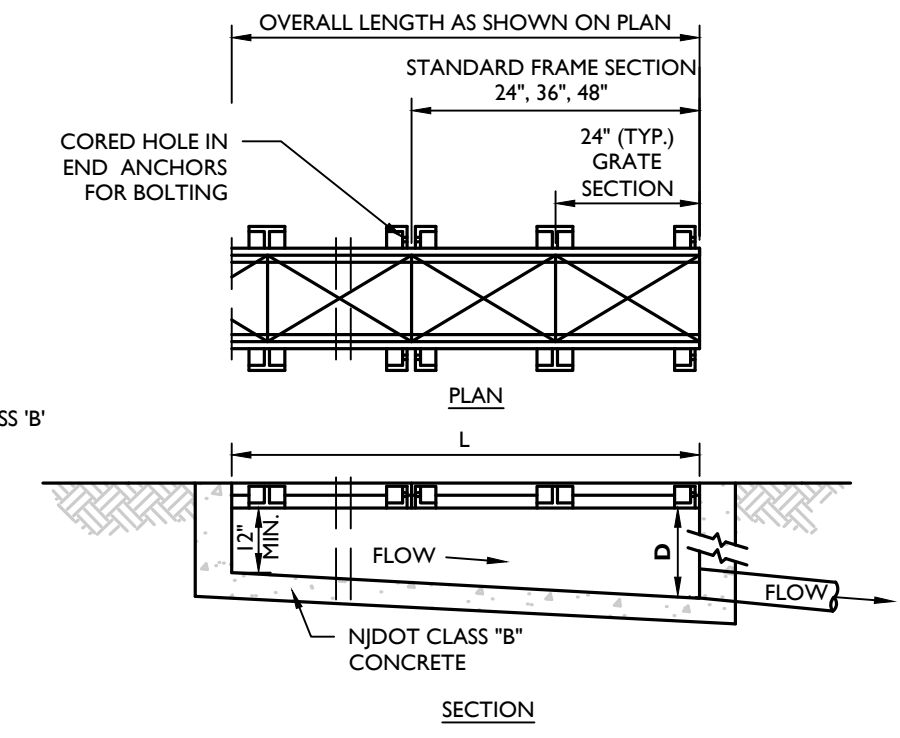


TYPICAL EXPANSION JOINT DETAIL
NOT TO SCALE

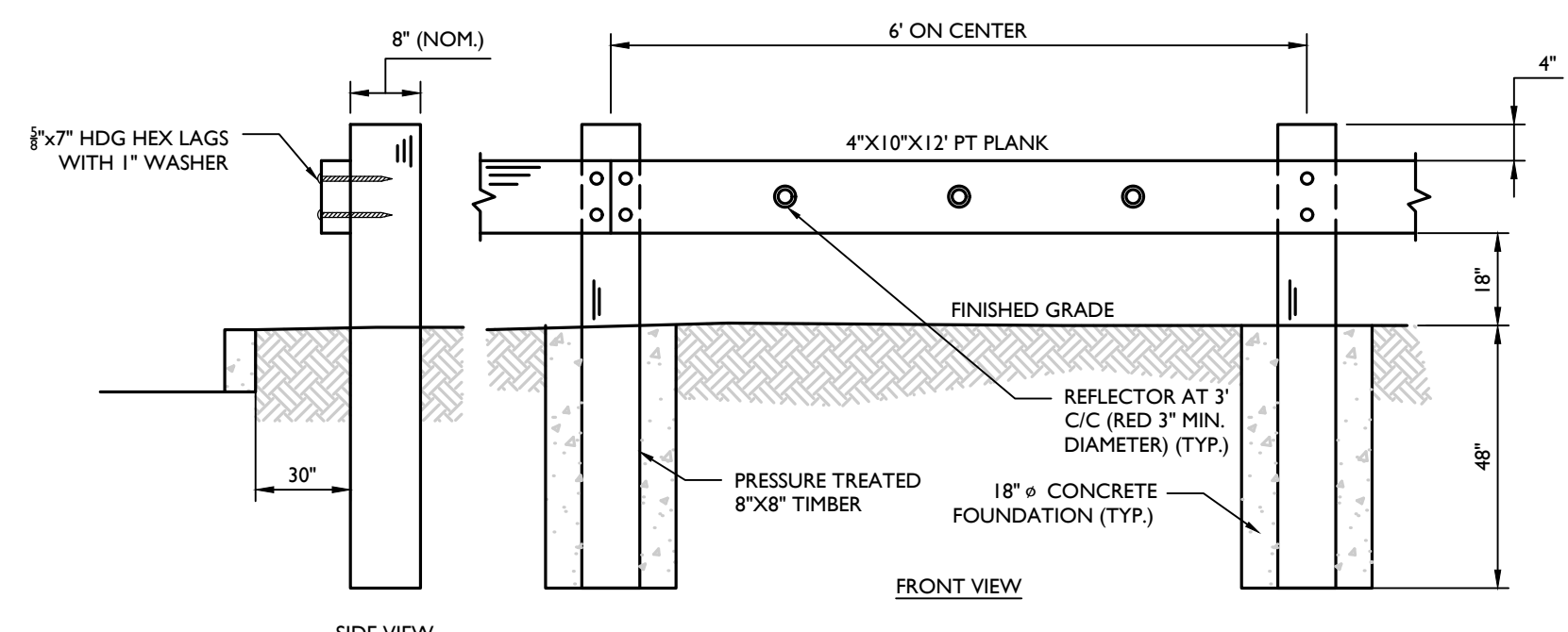


- NOTES:**
- TRENCH DRAINS TO BE HEAVY DUTY CAST IRON TYPE AS MANUFACTURED BY CAMPBELL CORPORATION, PATTERN # 4504 (COVER) & # 4529 (GRATE) FOR H-20 LOADING OR APPROVED EQUAL.
 - WIDTH, DEPTH AND BOTTOM SLOPE OF TRENCH AS SPECIFIED ON THE PLANS.
 - MINIMUM BOTTOM SLOPE = 0.50%

HEAVY DUTY TRENCH DRAIN DETAIL
NOT TO SCALE

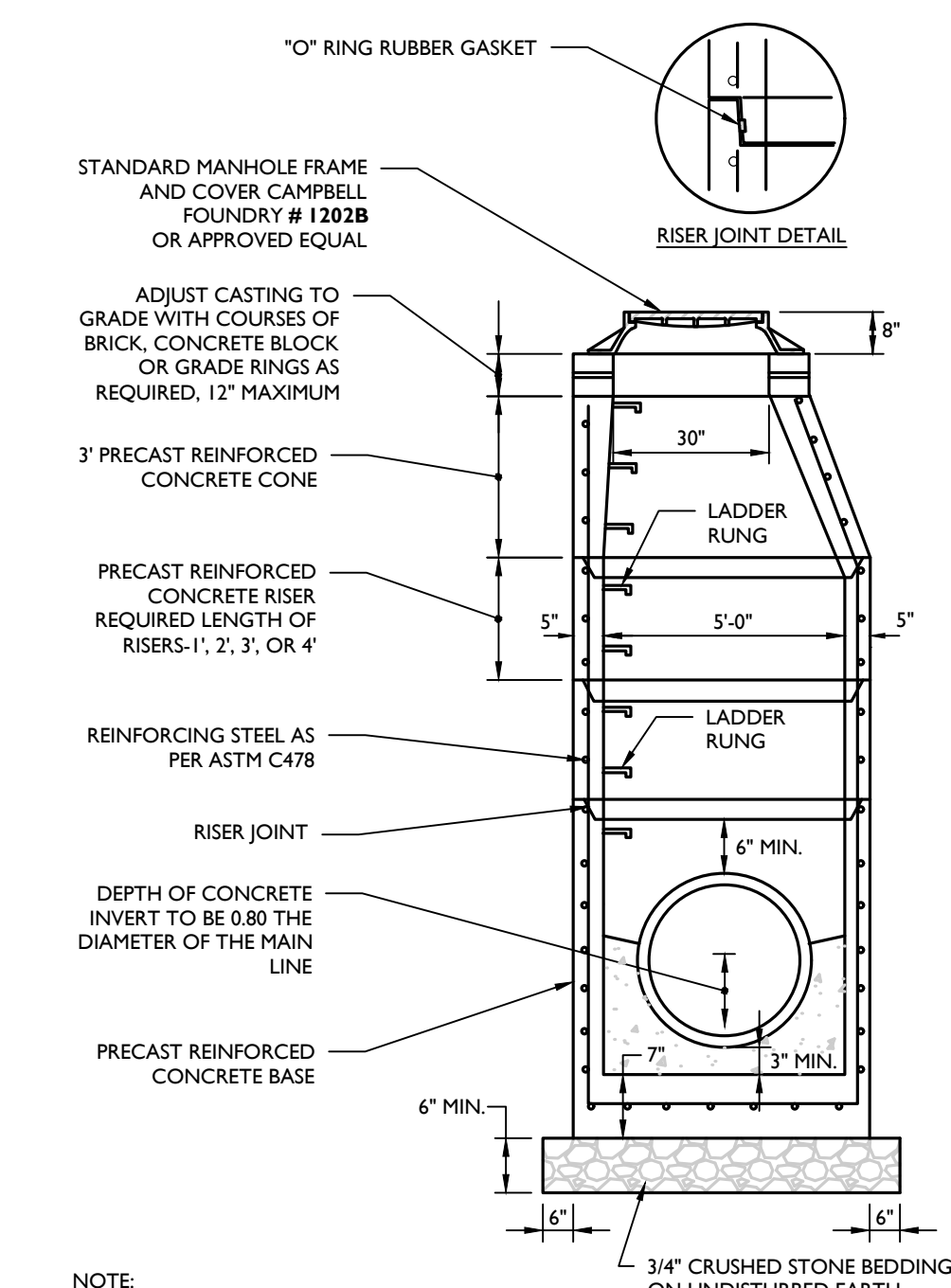


DOGHOUSE MANHOLE DETAIL
NOT TO SCALE



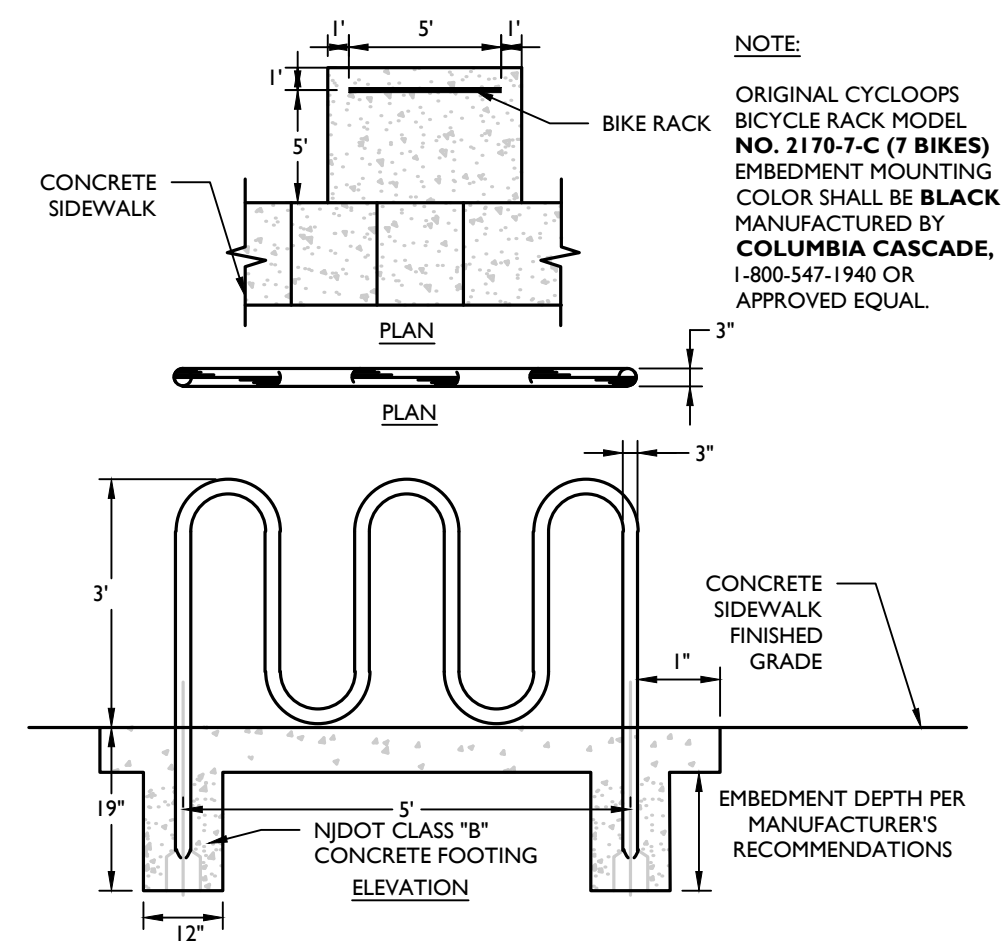
- NOTE:**
- ALL WOOD SHALL BE PRESSURE TREATED ACQ 0.60.
 - ALL HARDWARE TO BE HDG.

TIMBER GUIDE RAIL DETAIL
NOT TO SCALE



- NOTE:**
- IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
 - ALL CONCRETE TO BE NJDOT CLASS 'B'.
 - MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH HS-25 LOADING REQUIREMENTS.

**PRECAST CONCRETE STORM
MANHOLE 5' DIA. DETAIL**
NOT TO SCALE



BICYCLE RACK DETAIL
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NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE39023

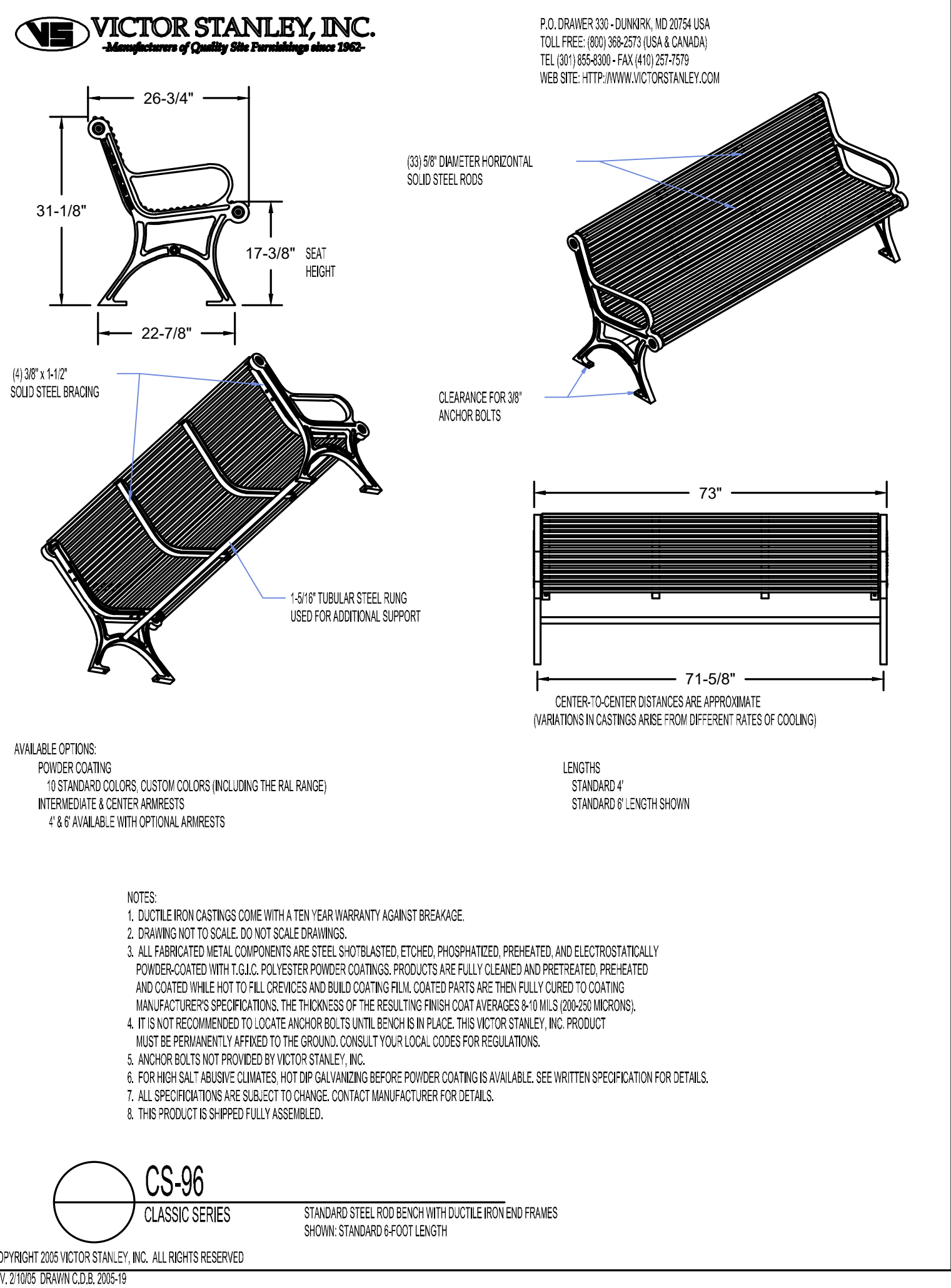
**CONSTRUCTION PLANS
FOR
BULKHEAD
REPLACEMENT
GRANGE AVENUE
POCKET PARK &
BATTIN ROAD BOAT
RAMP**

**BOROUGH OF FAIR HAVEN
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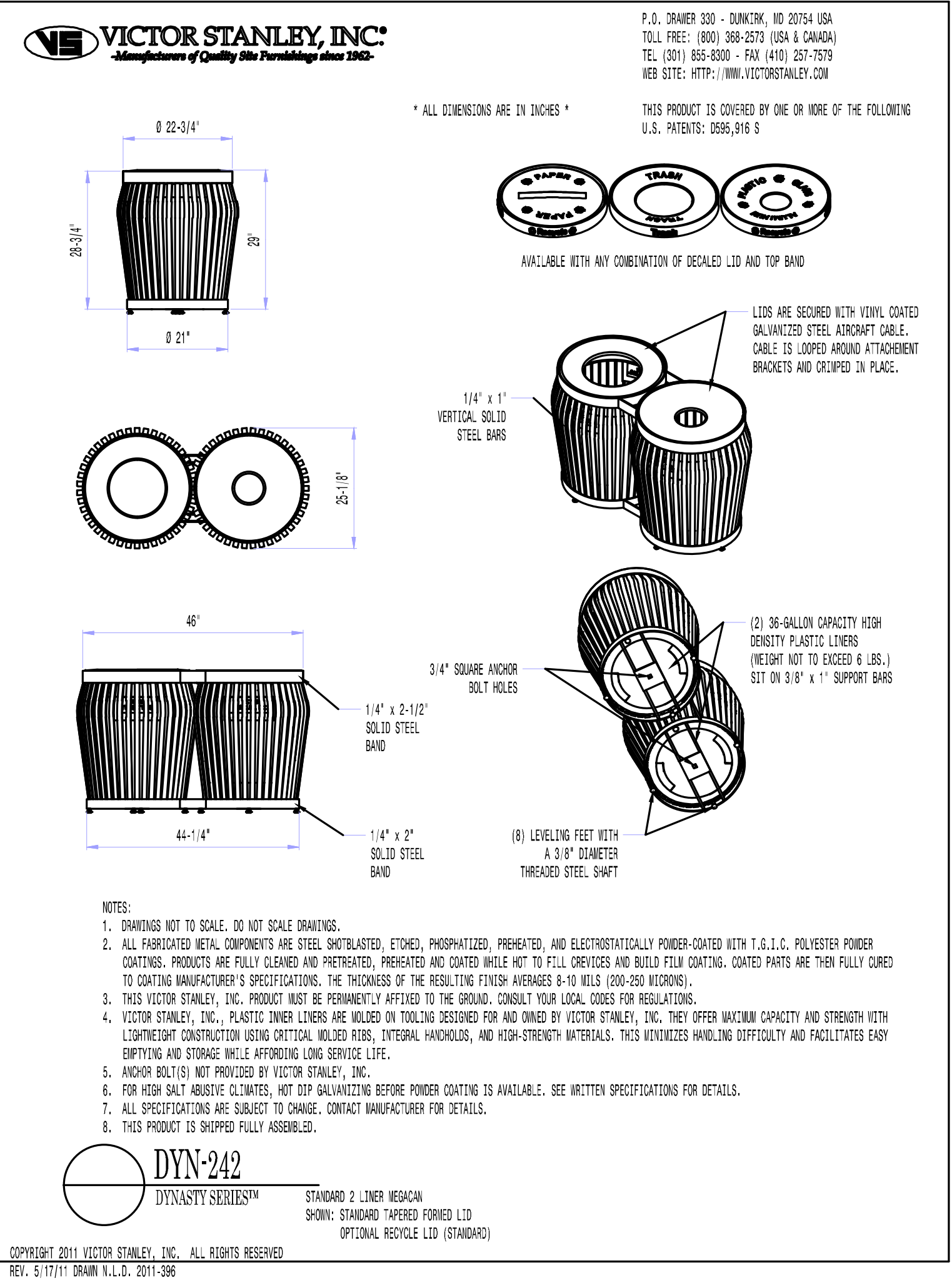
SCALE: AS SHOWN DATE: 4/02/19 DRAWN BY: TEK CHECKED BY: RCM
PROJECT NUMBER: 1700492B DRAWING NAME: C-DTLS SHEET NUMBER: C-1

CONSTRUCTION DETAILS



BENCH DETAIL

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TRASH RECEPTACLE AND RECYCLE BIN DETAIL

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Richard C. Maloney
NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE37023

CONSTRUCTION PLANS FOR
BULKHEAD REPLACEMENT
GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP

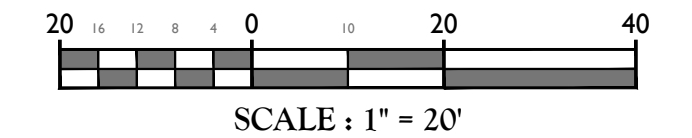
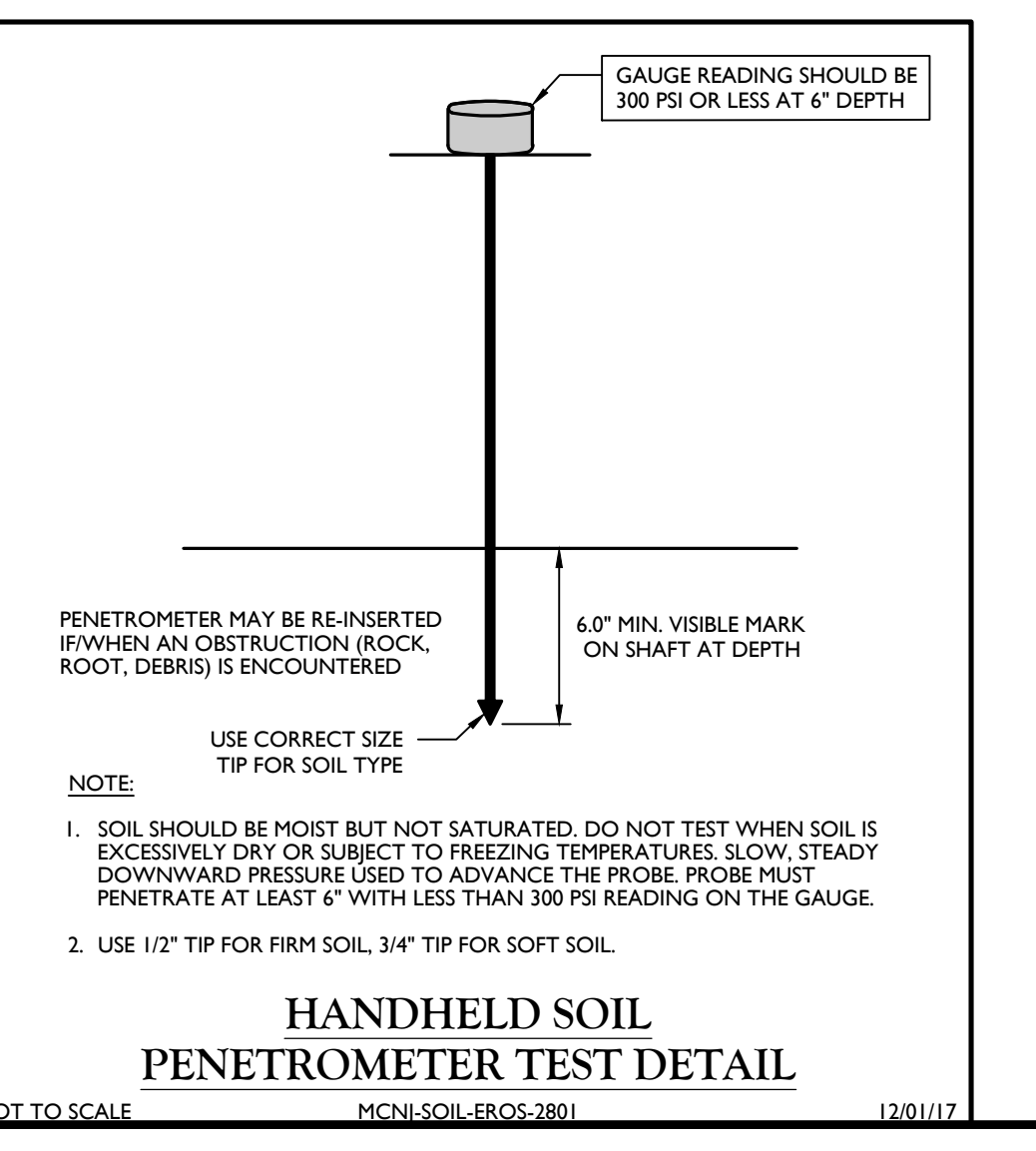
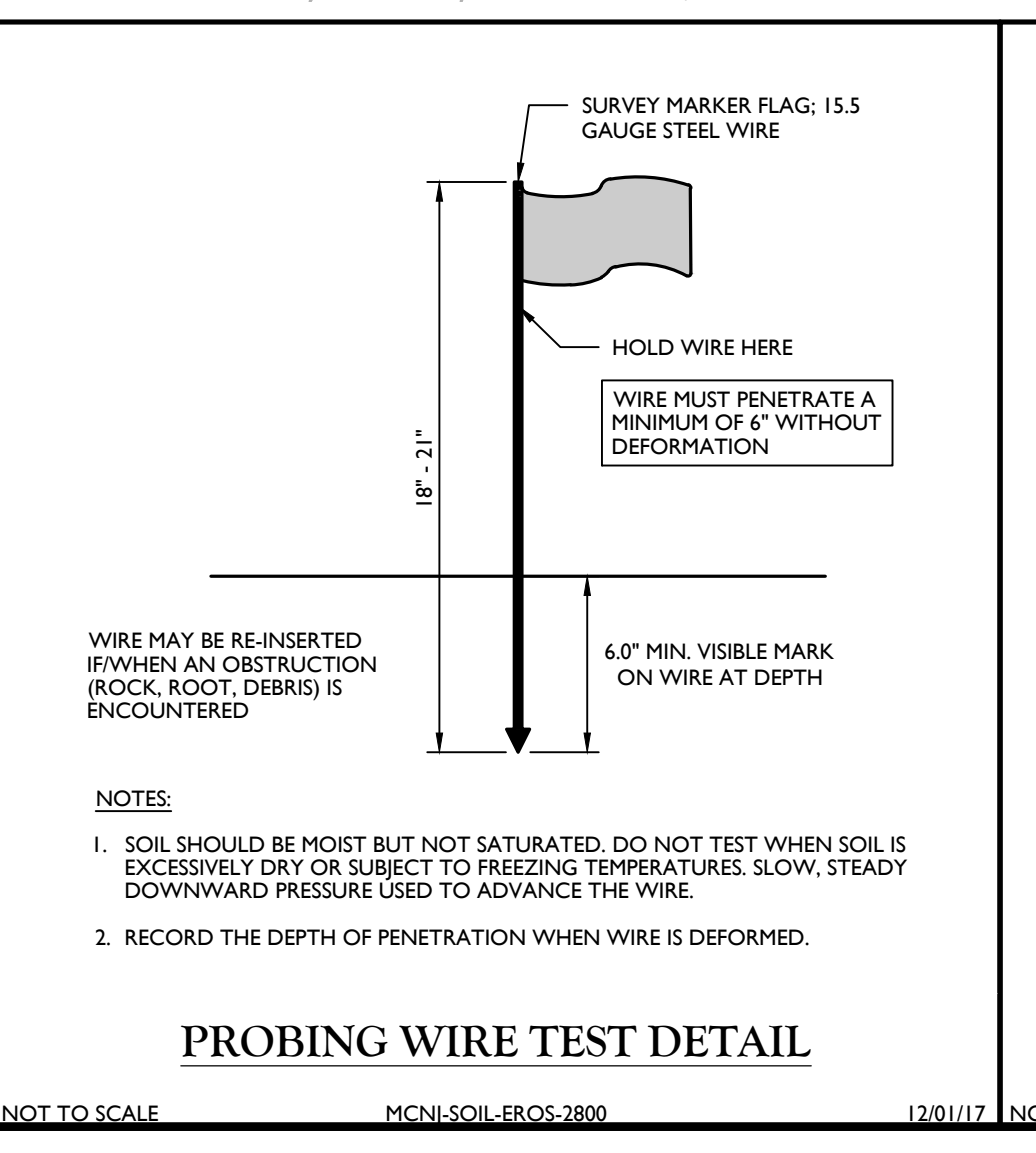
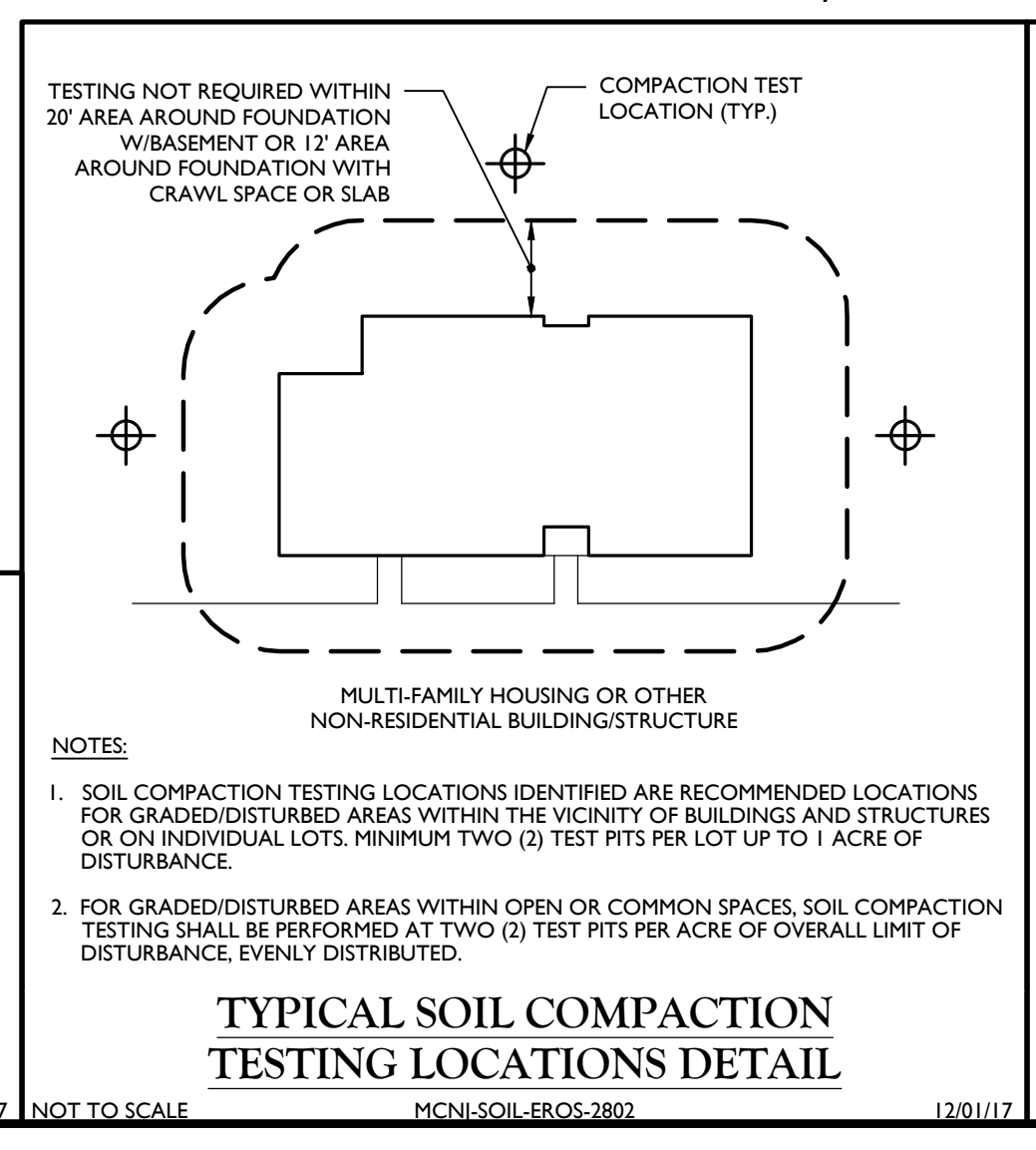
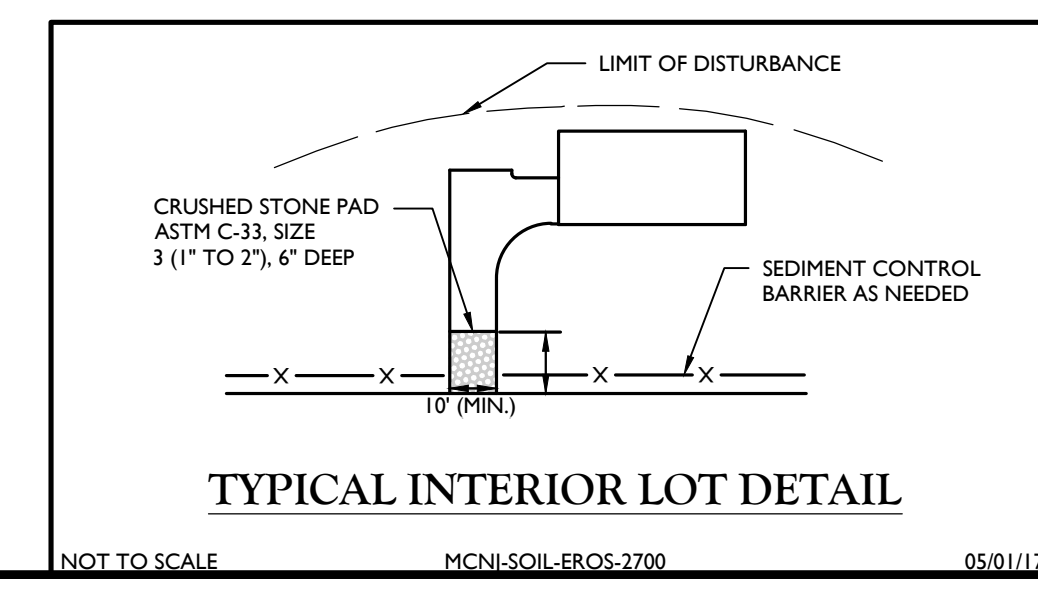
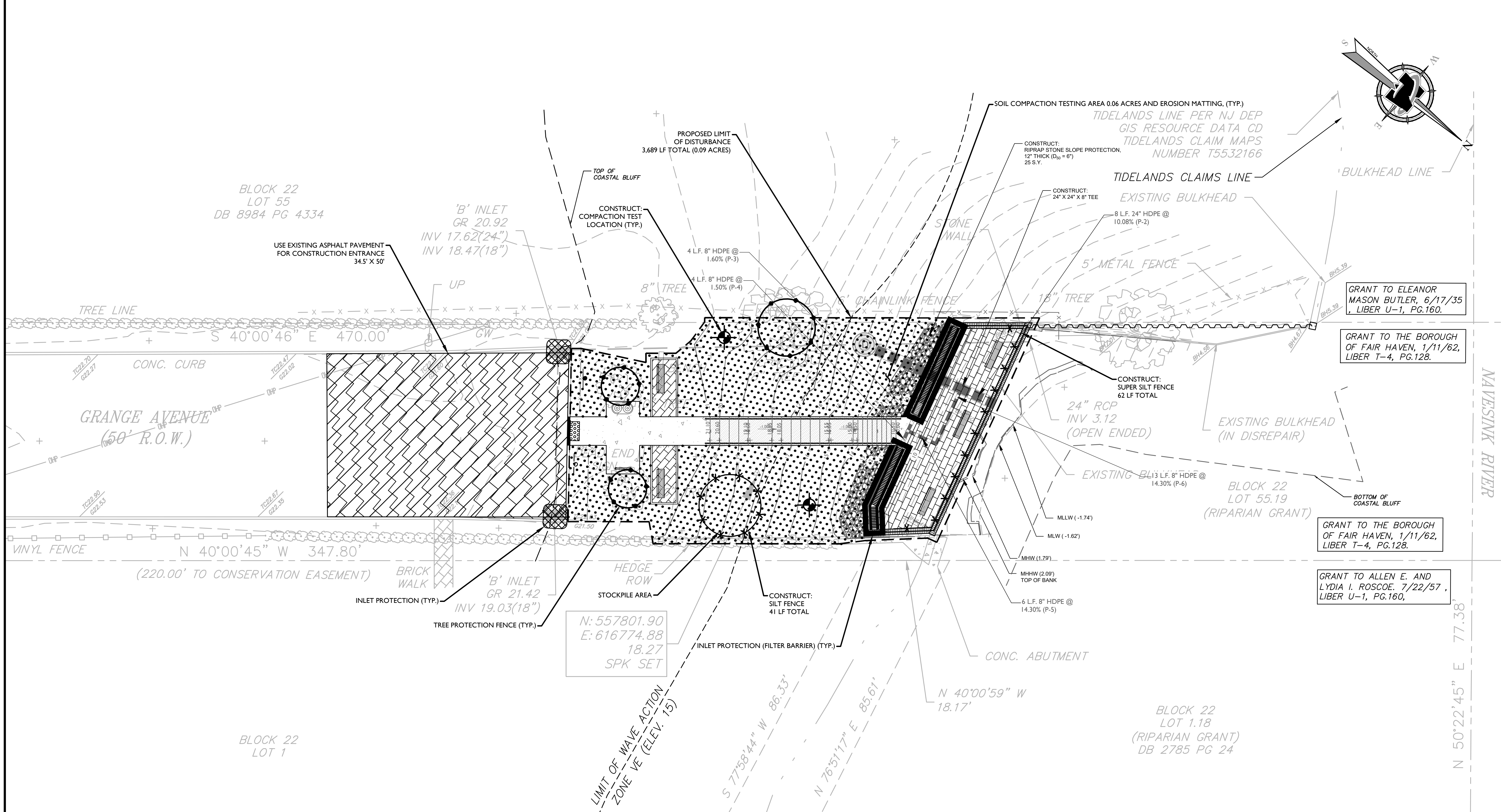
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SHEET TITLE: CONSTRUCTION DETAILS

SHEET NUMBER: C-2



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 NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE37023

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BOROUGH OF FAIR HAVEN MONMOUTH COUNTY NEW JERSEY

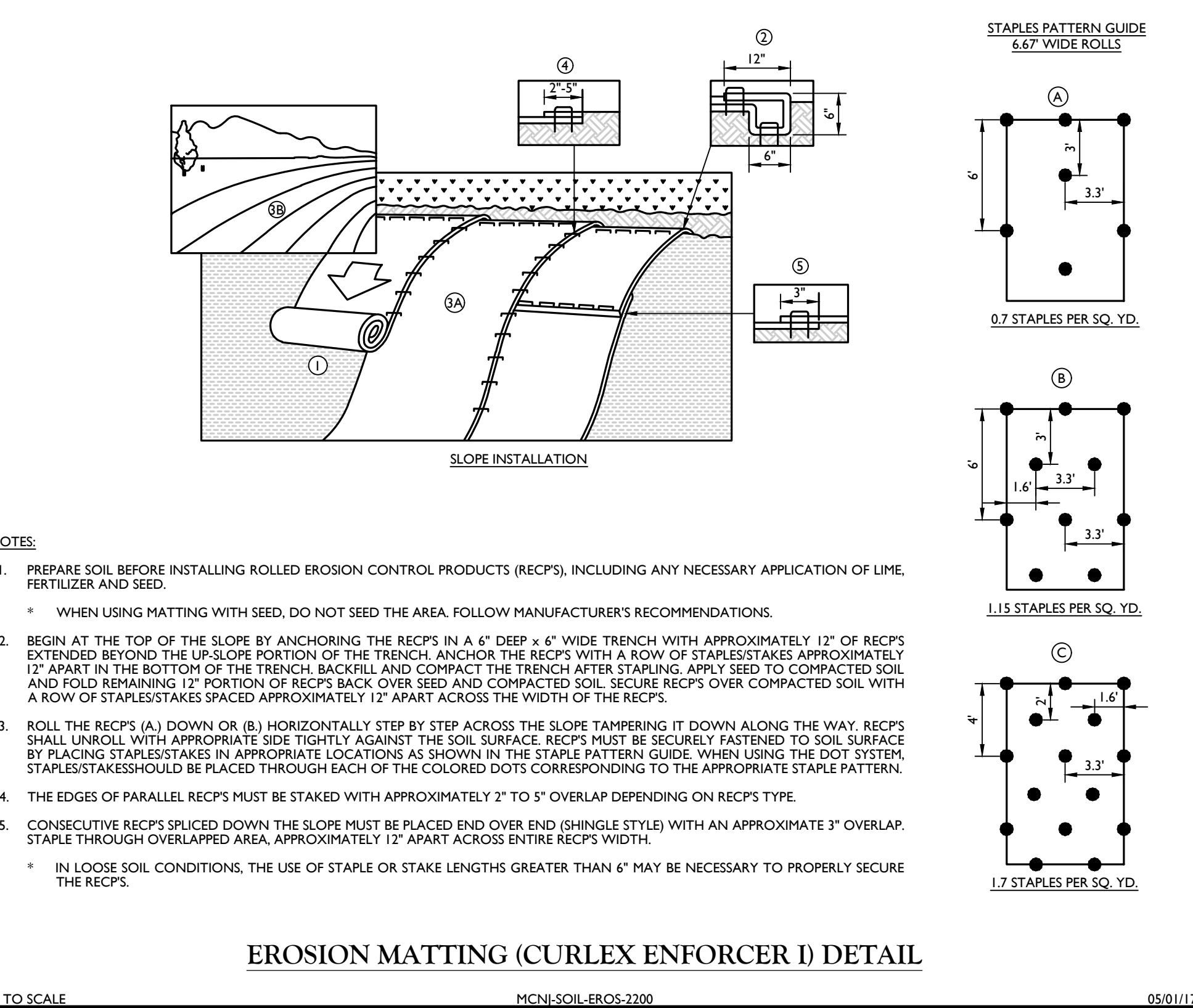
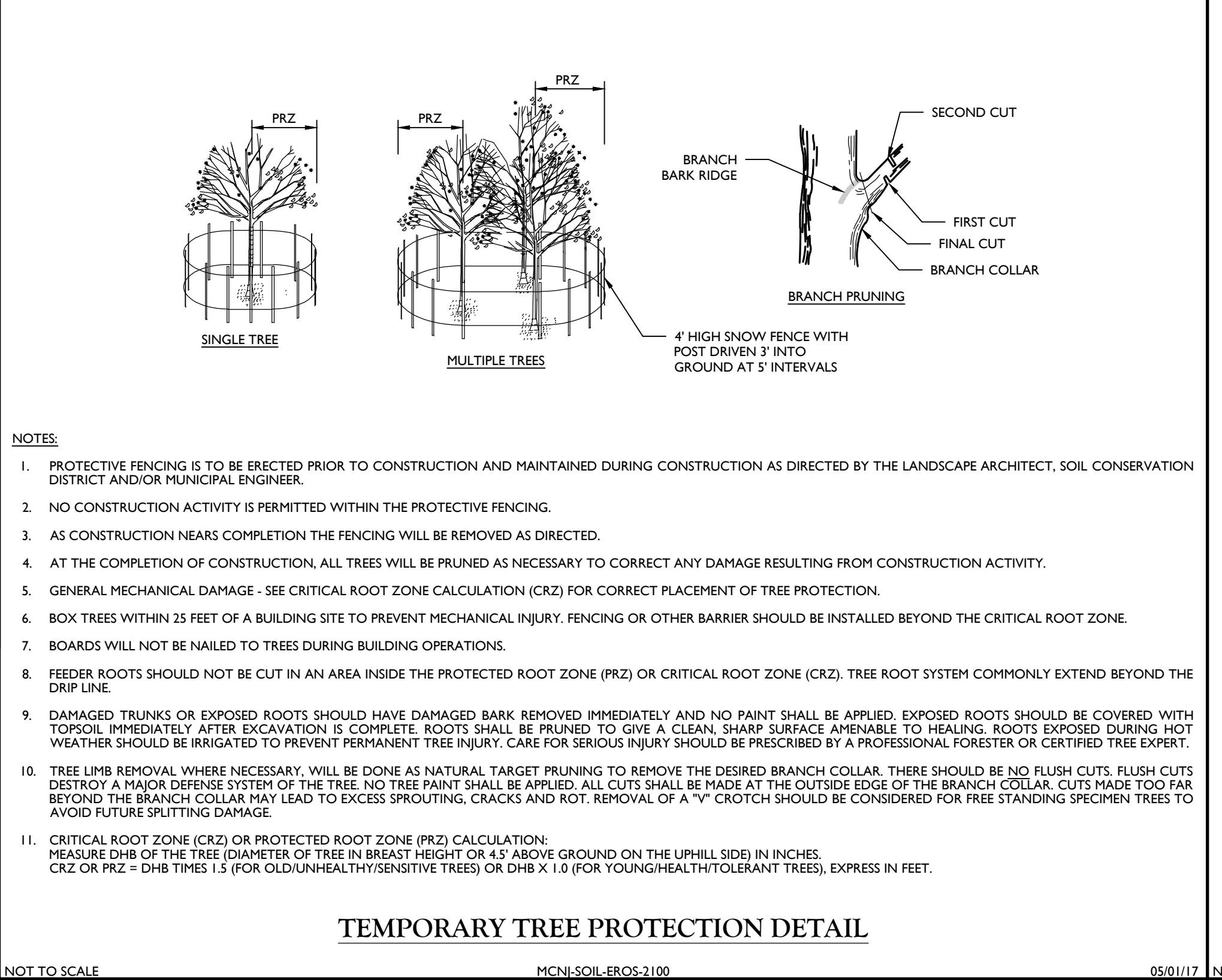
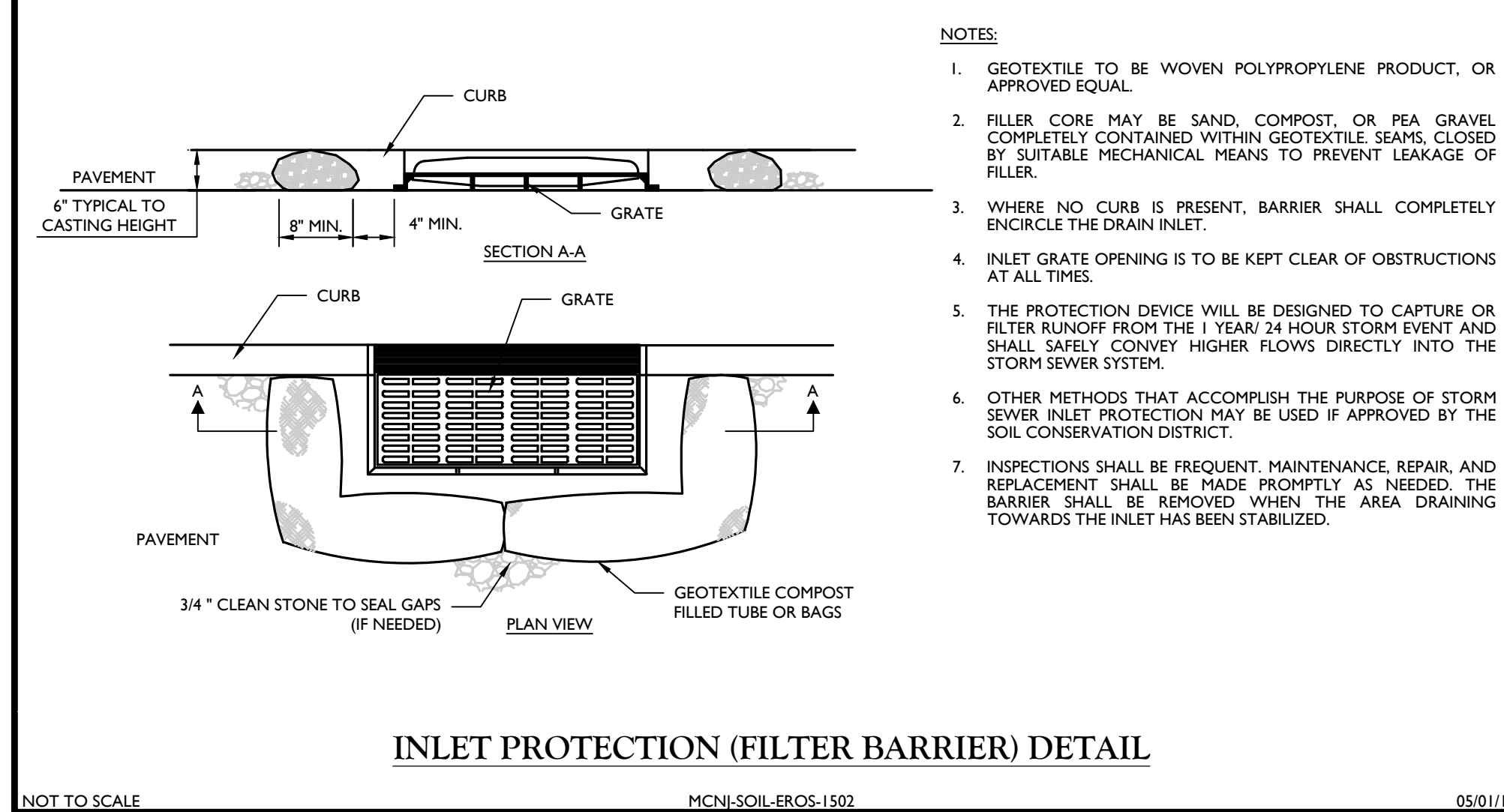
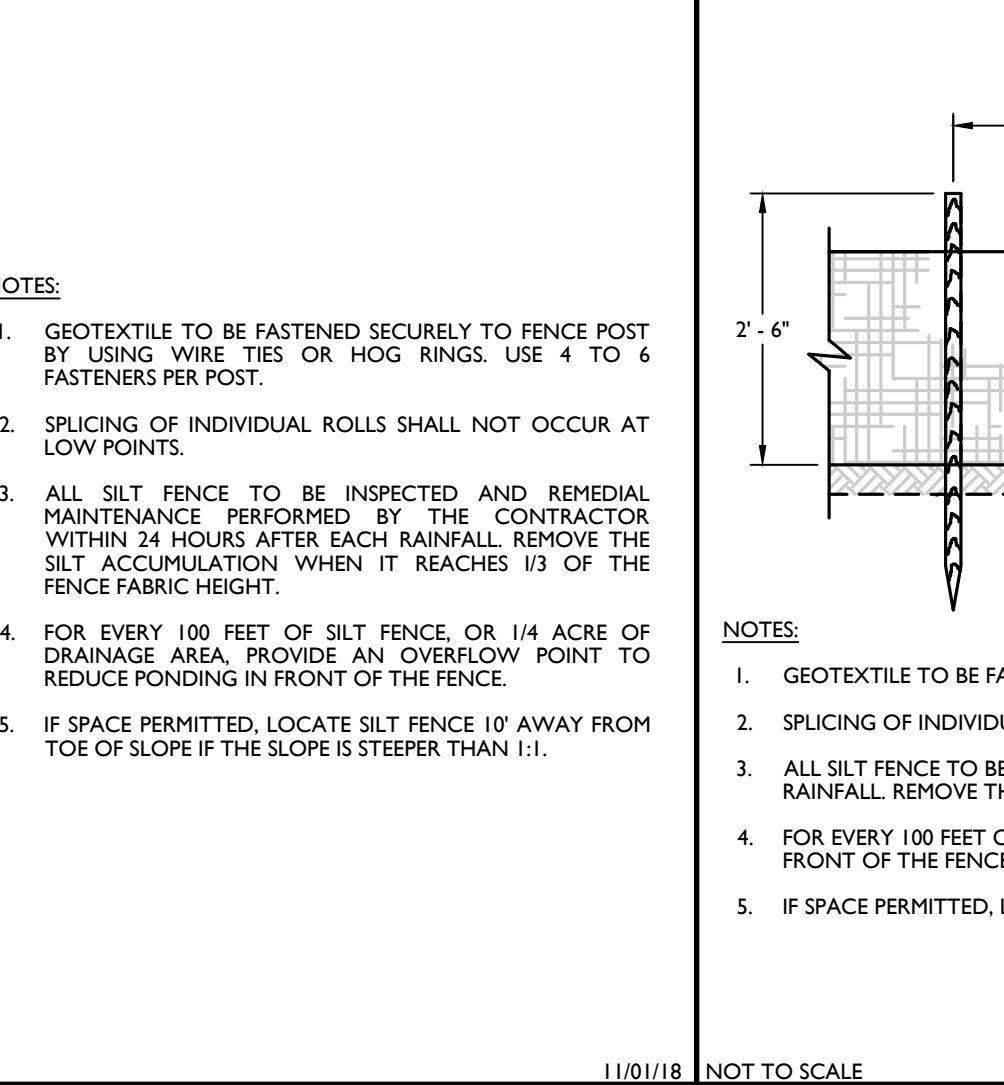
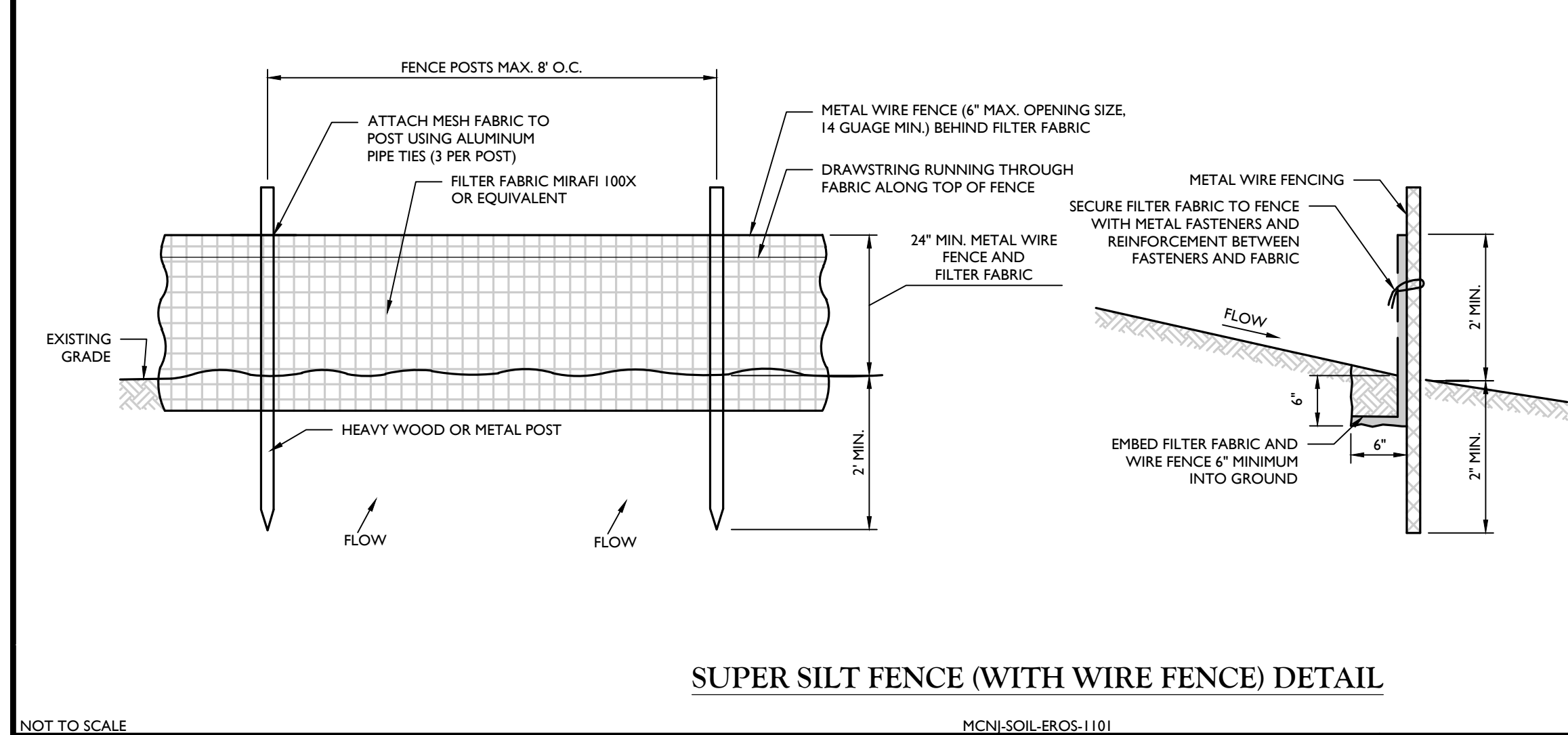
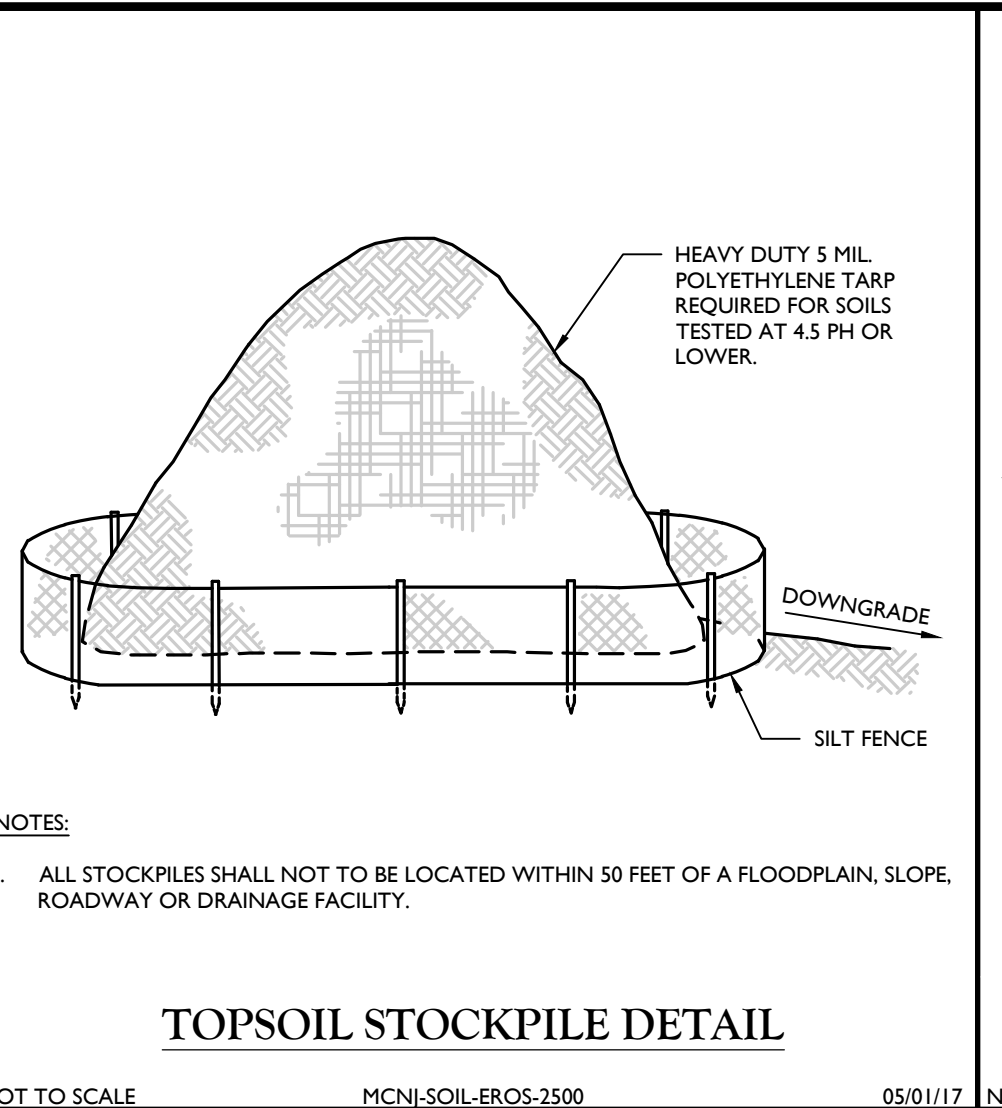
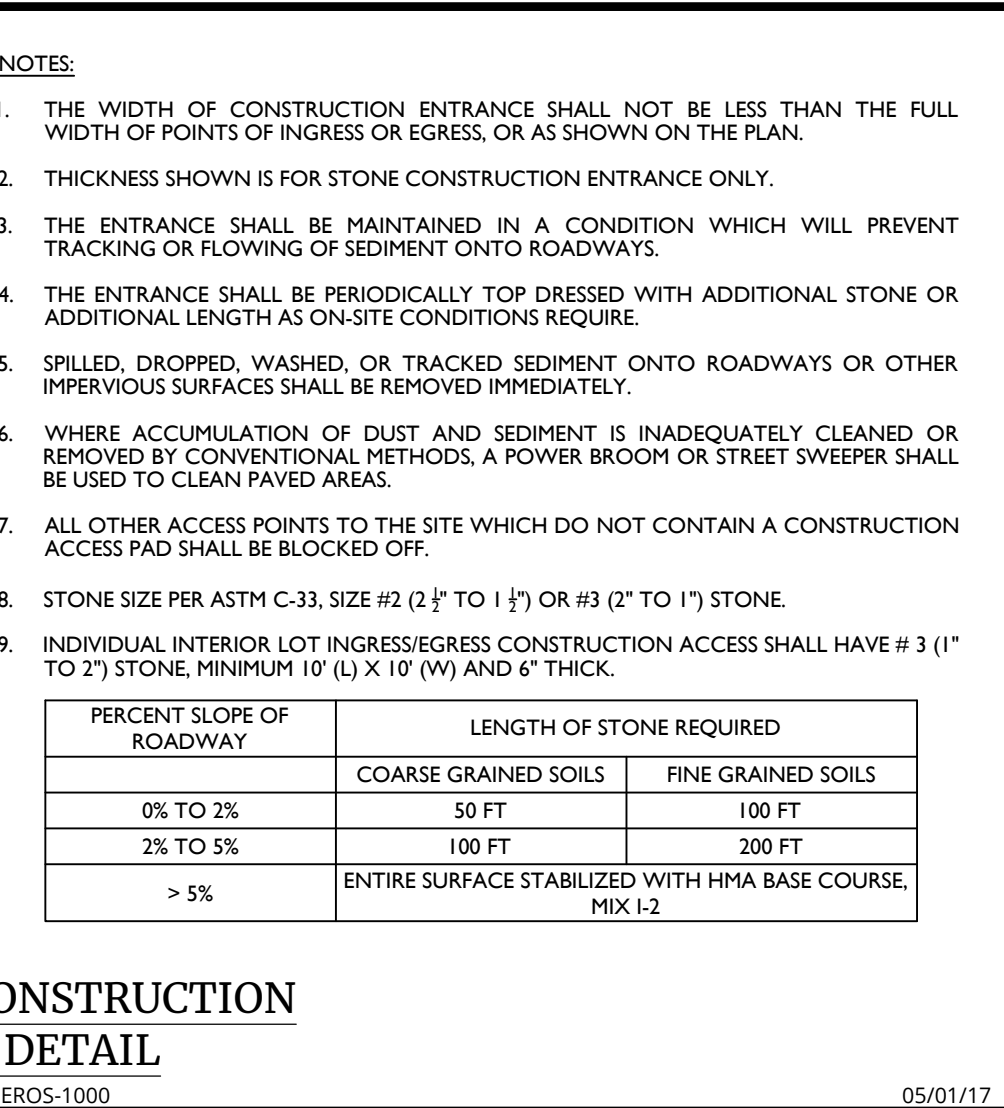
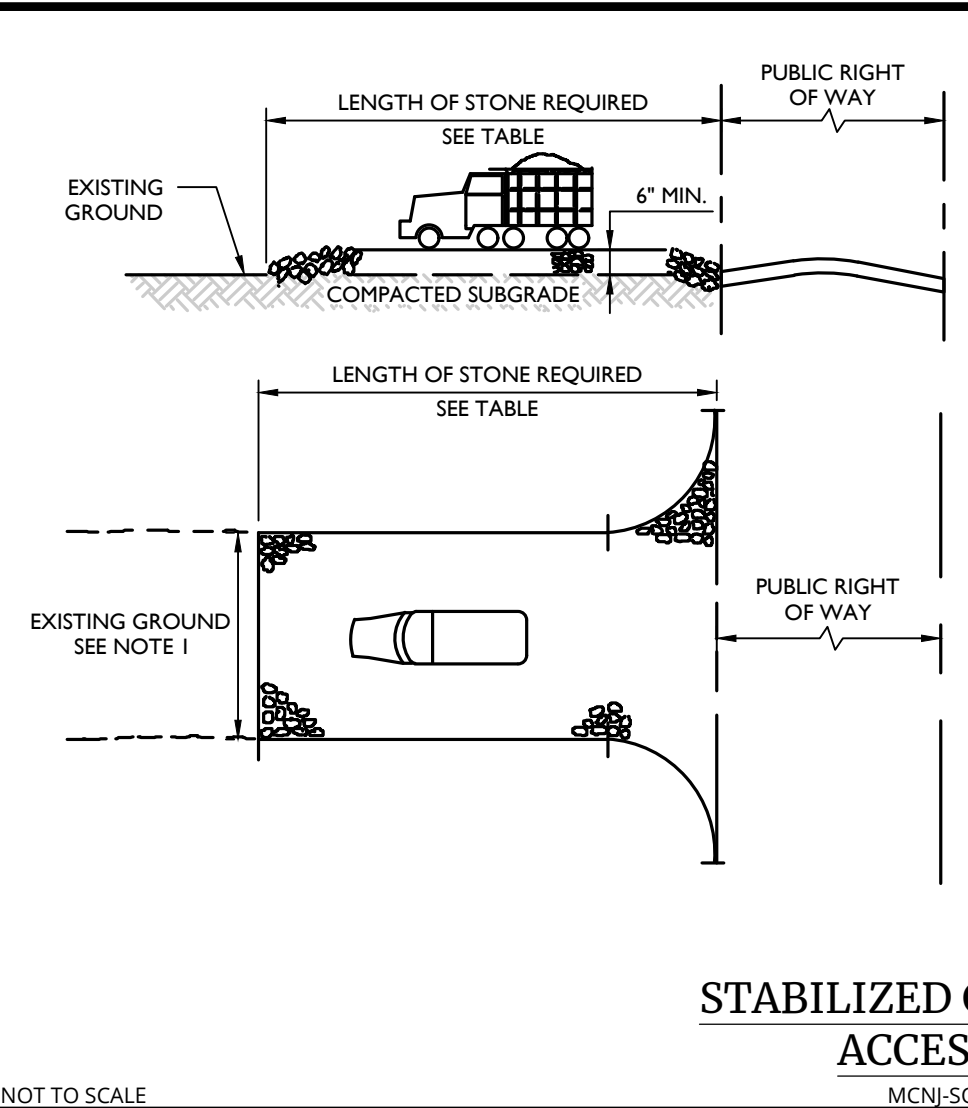
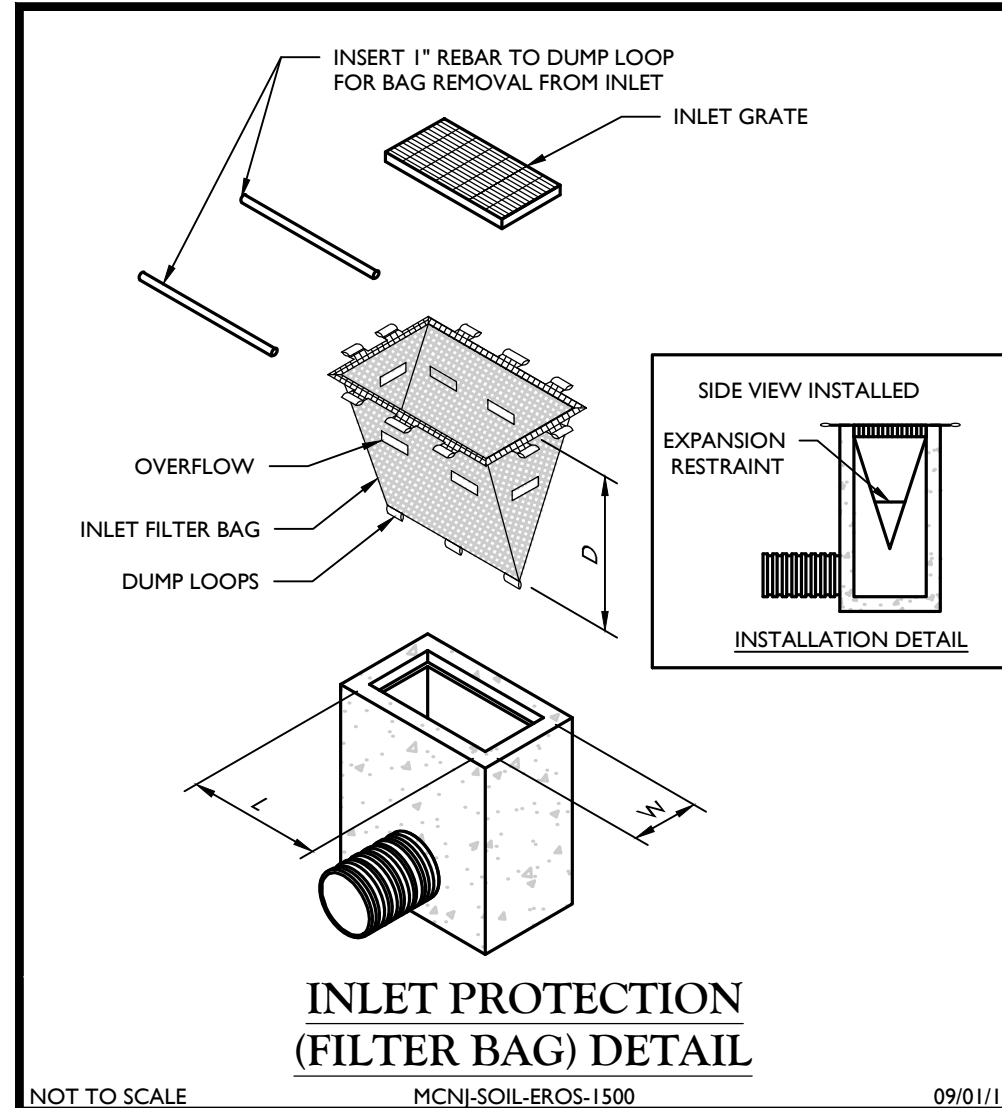
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 PROJECT NUMBER: 17004928 DRAWING NAME: C-SECC

SOIL EROSION & SEDIMENT CONTROL PLAN: GRANGE AVENUE

SHEET NUMBER: SE-1

3/17/2024 10:41 AM C:\Users\jmc\OneDrive\Documents\Projects\2024\04\Grange Ave\Grange Ave\Grange Ave.dwg



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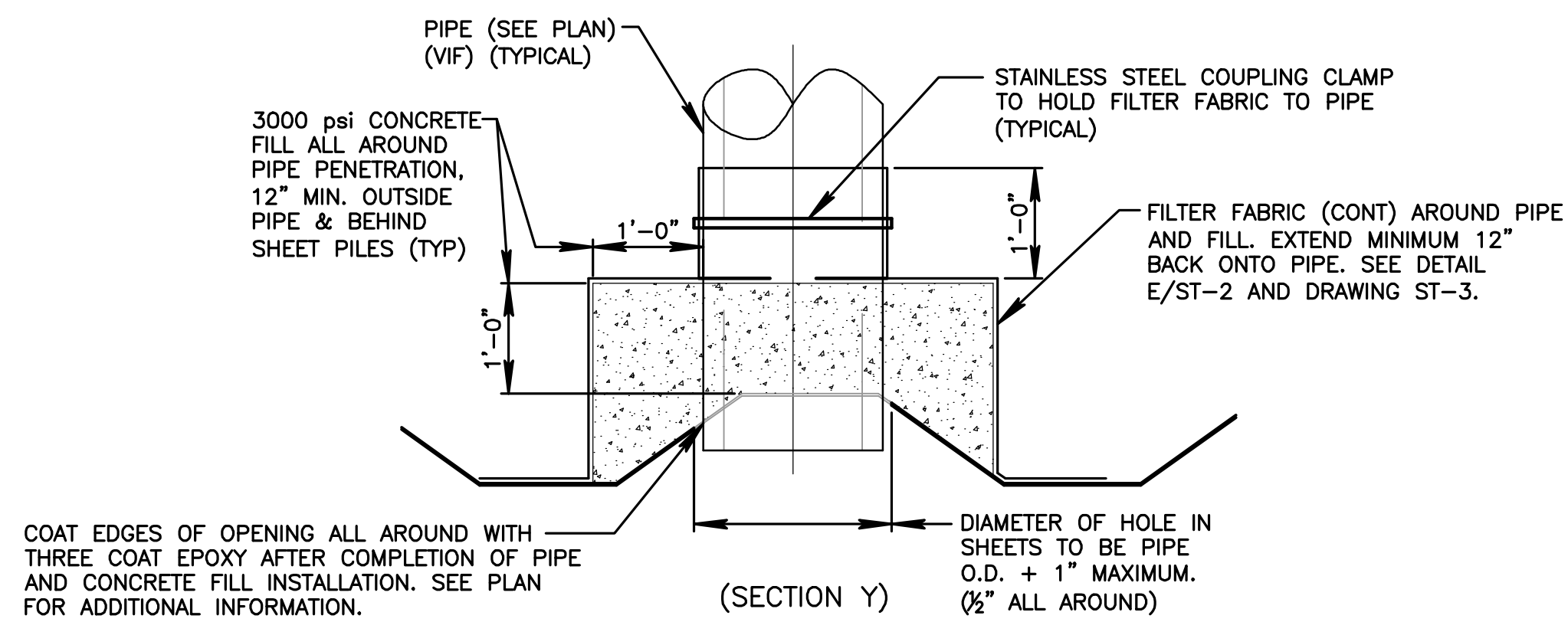
CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP

BOROUGH OF FAIR HAVEN
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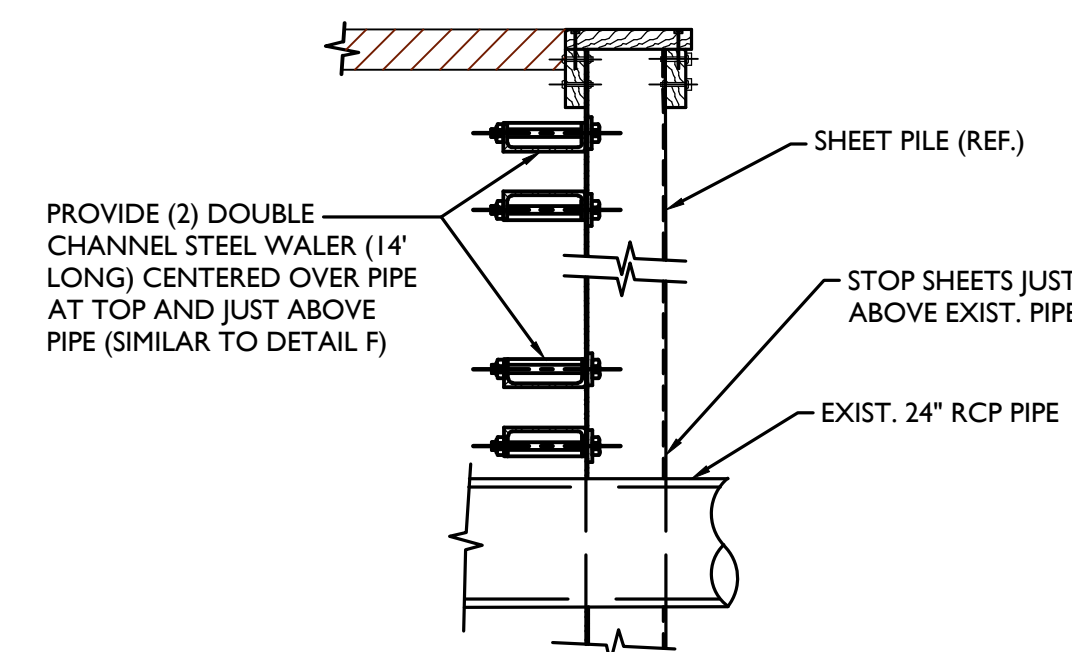
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PROJECT NUMBER: 17004982B DRAWING NUMBER: C-55C

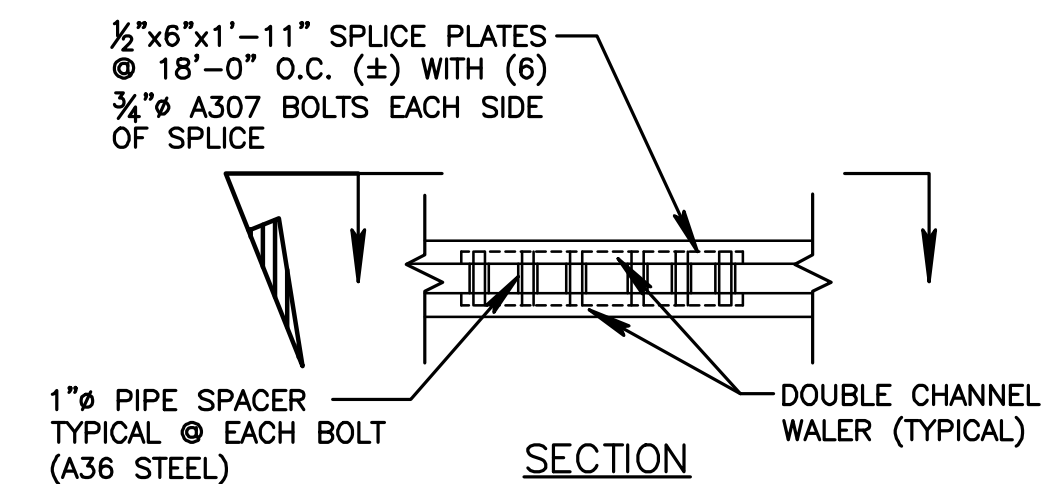
SHEET TITLE: SOIL EROSION & SEDIMENT CONTROL DETAILS & NOTES
SHEET NUMBER: SE-3



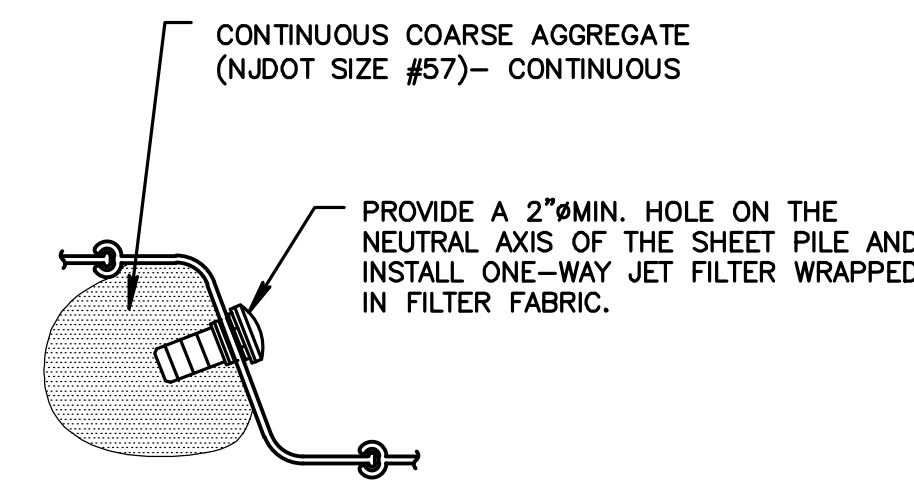
DETAIL A
TYPICAL STORM DRAIN PENETRATION DETAIL
NOT TO SCALE



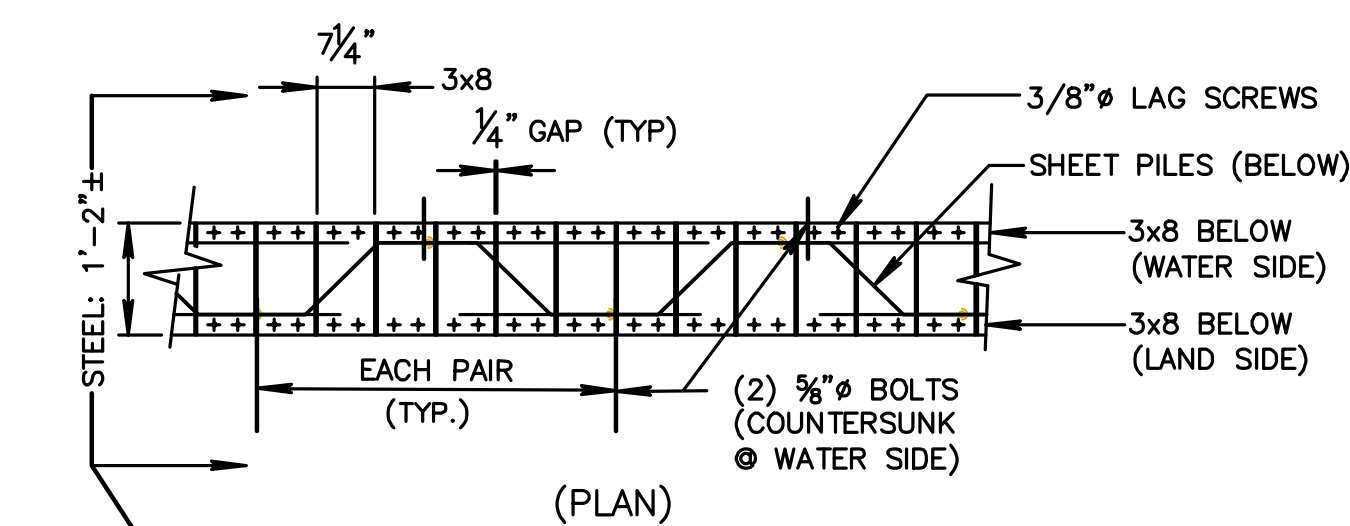
DETAIL B
WALER DETAIL AT HANCE
(SCALE: N.T.S.)



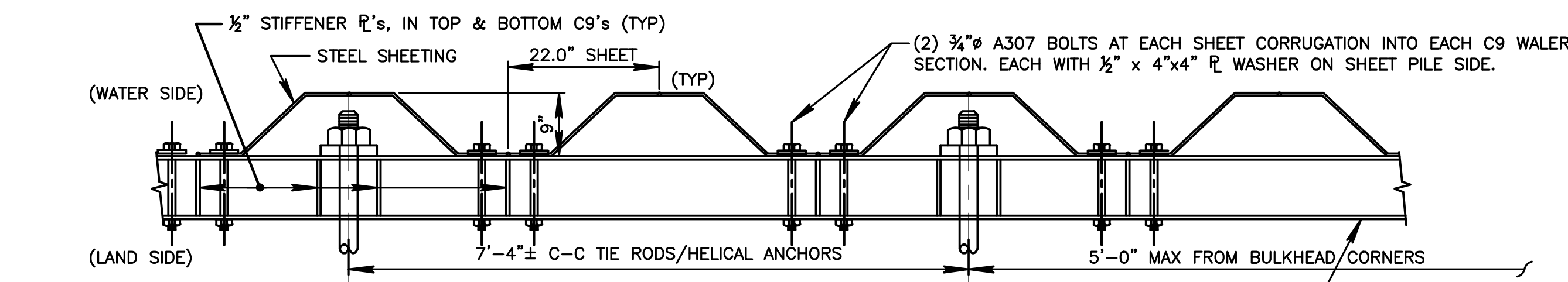
DETAIL C
TYPICAL WALER SPLICE PLATE DETAIL
(SCALE: 3/4" = 1'-0")



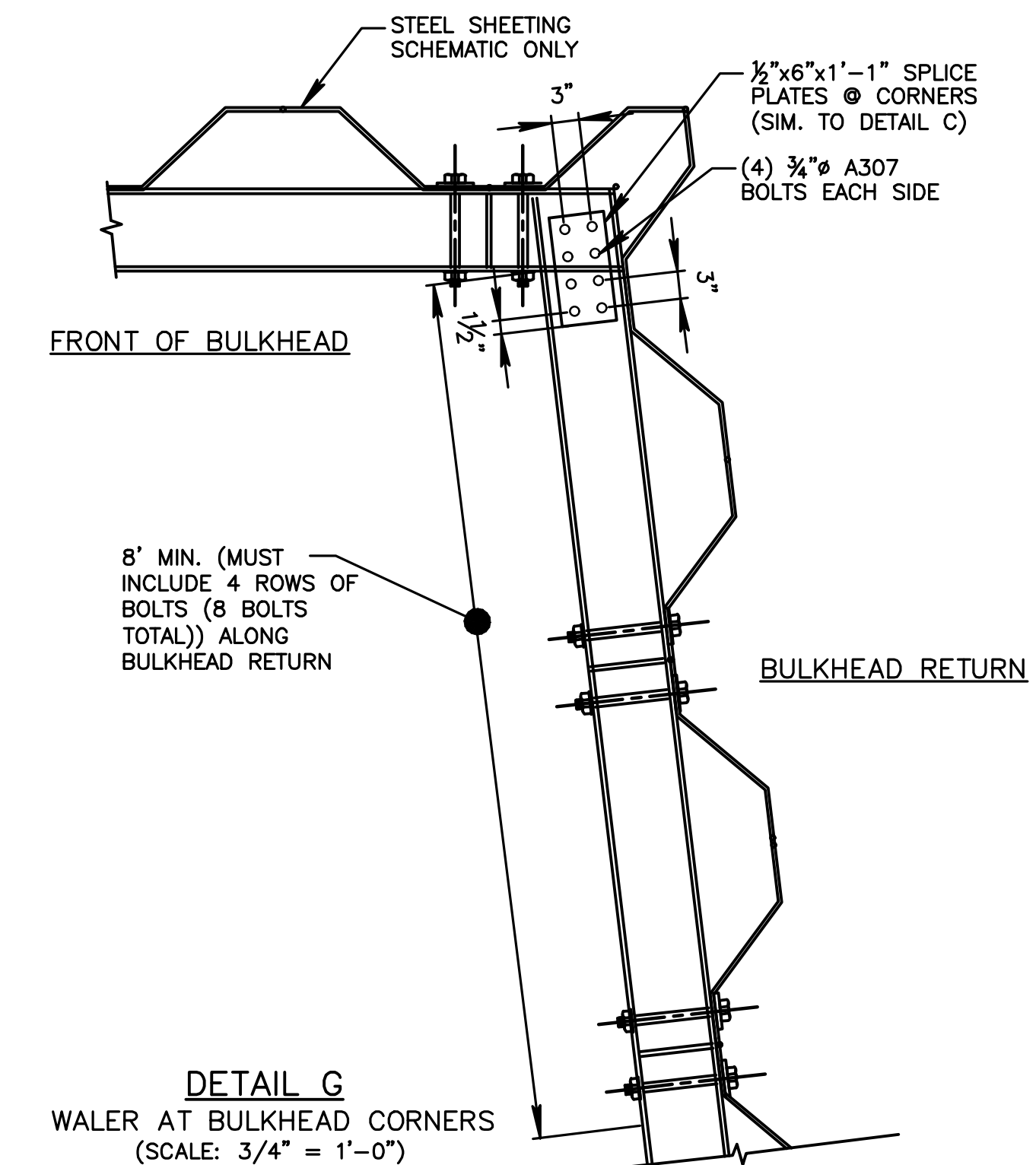
DETAIL D
TYPICAL SHEET PILE JET FILTER DETAIL
(NOT TO SCALE)



DETAIL E
TYPICAL TIMBER CAP AT BULKHEAD
(SCALE: 1/2" = 1'-0")



DETAIL F
WALER & ANCHOR ROD DETAIL
(SCALE: 3/4" = 1'-0")



DETAIL G
WALER AT BULKHEAD CORNERS
(SCALE: 3/4" = 1'-0")

TIDAL RANGE		
	NAVD	MLW
MHHW	2.09'	3.71'
MHW	1.79'	3.41'
MTL	0.9'	1.71'
NAVD88	0.00'	1.62'
MLW	-1.62'	0.00'
MLLW	-1.74'	-0.12'

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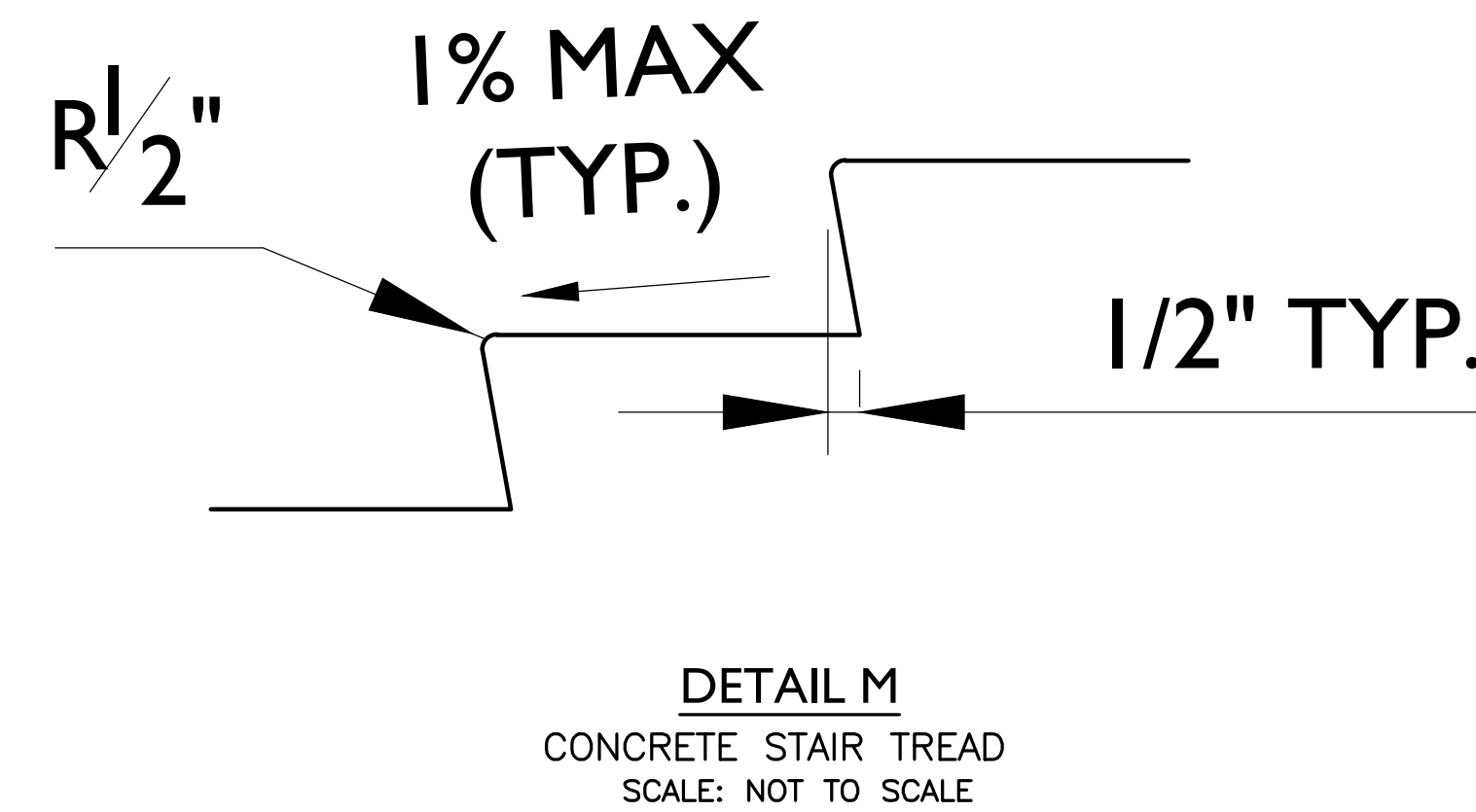
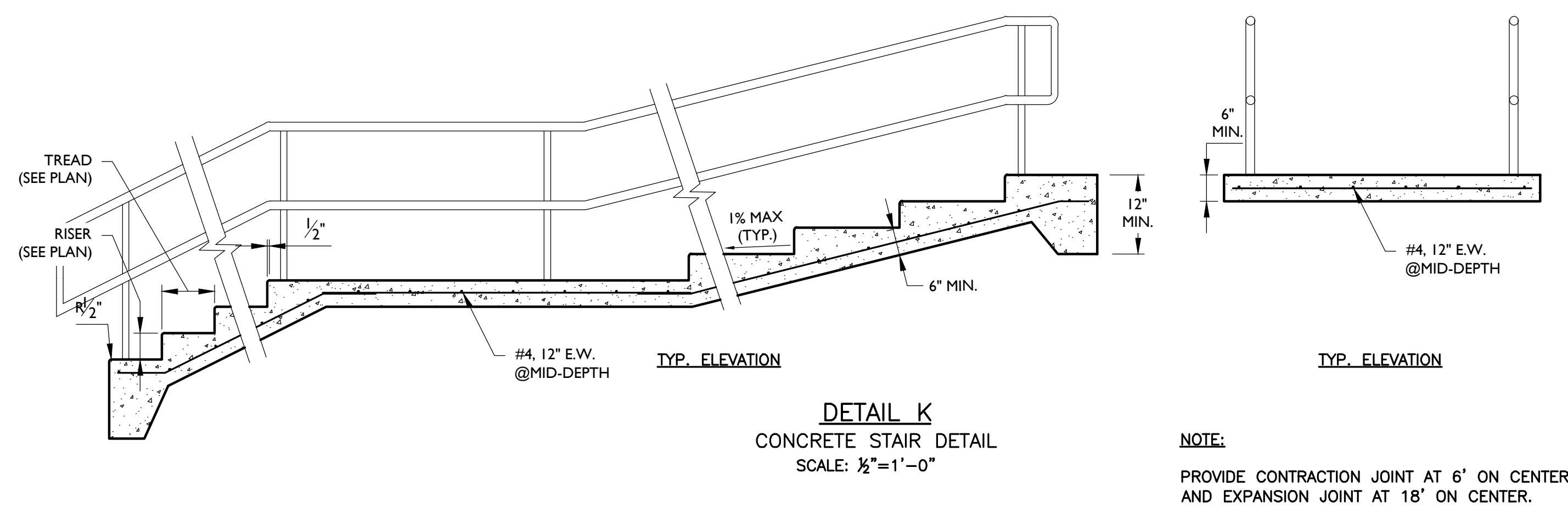
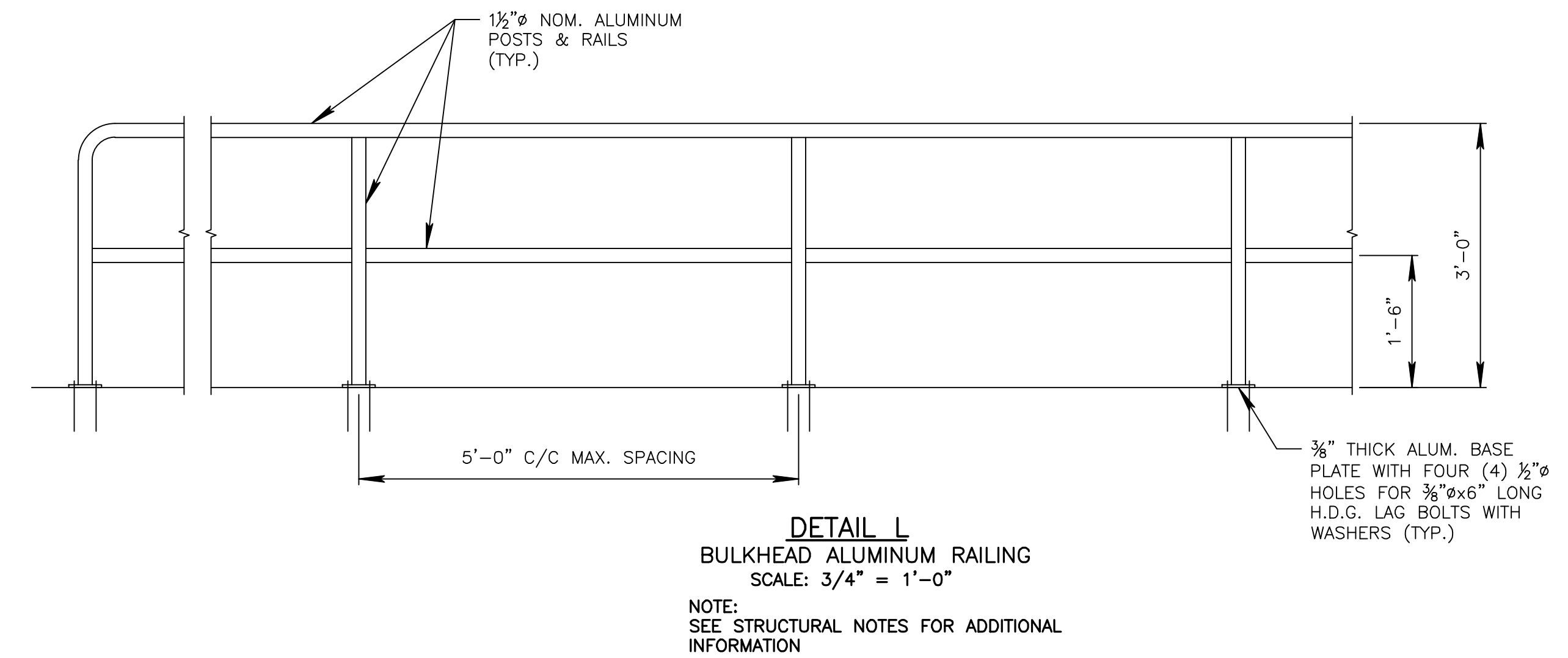
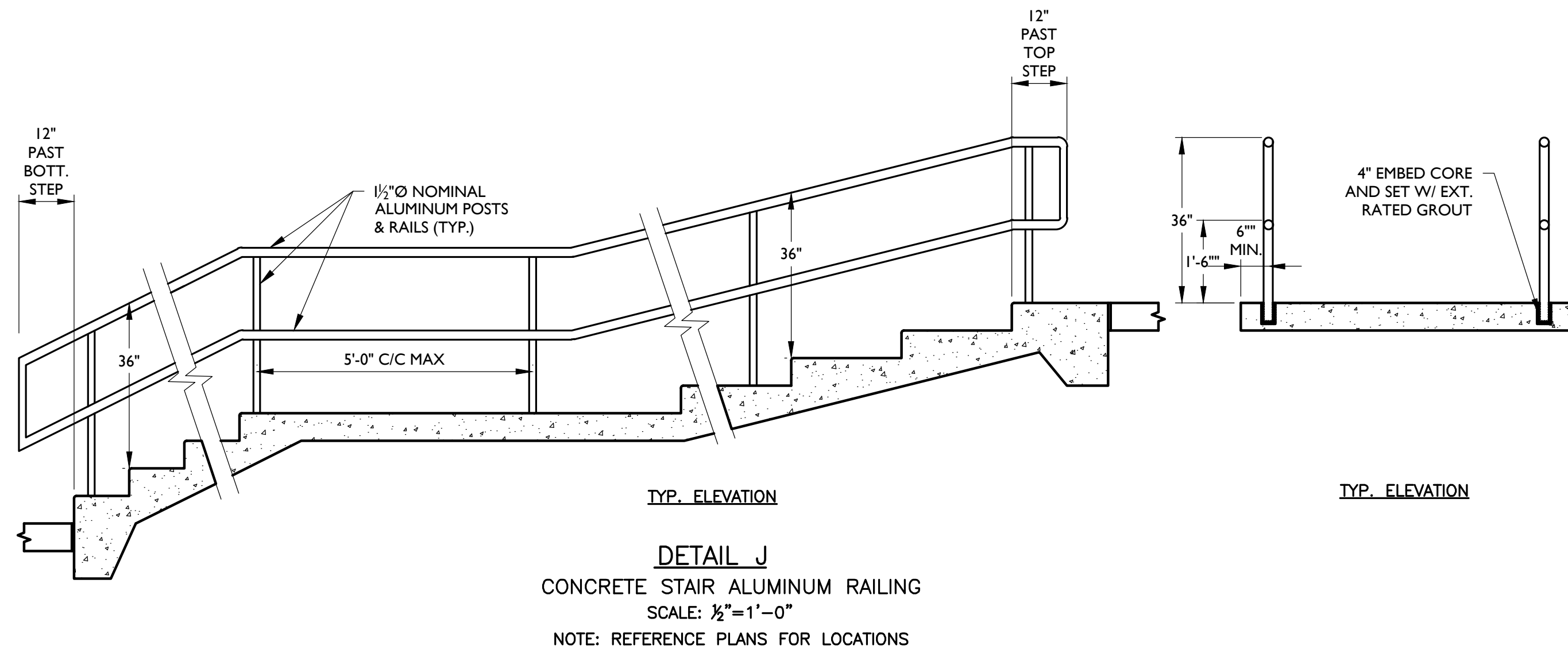
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NEW JERSEY PROFESSIONAL
ENGINEER - LICENSE NUMBER: GE379023

CONSTRUCTION PLANS
FOR
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GRANGE AVENUE
POCKET PARK &
BATTIN ROAD BOAT
RAMP**

BOROUGH OF FAIR HAVEN
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SHEET TITLE: BULKHEAD DETAILS
SHEET NUMBER: ST-1



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 RICHARD C. MALONEY
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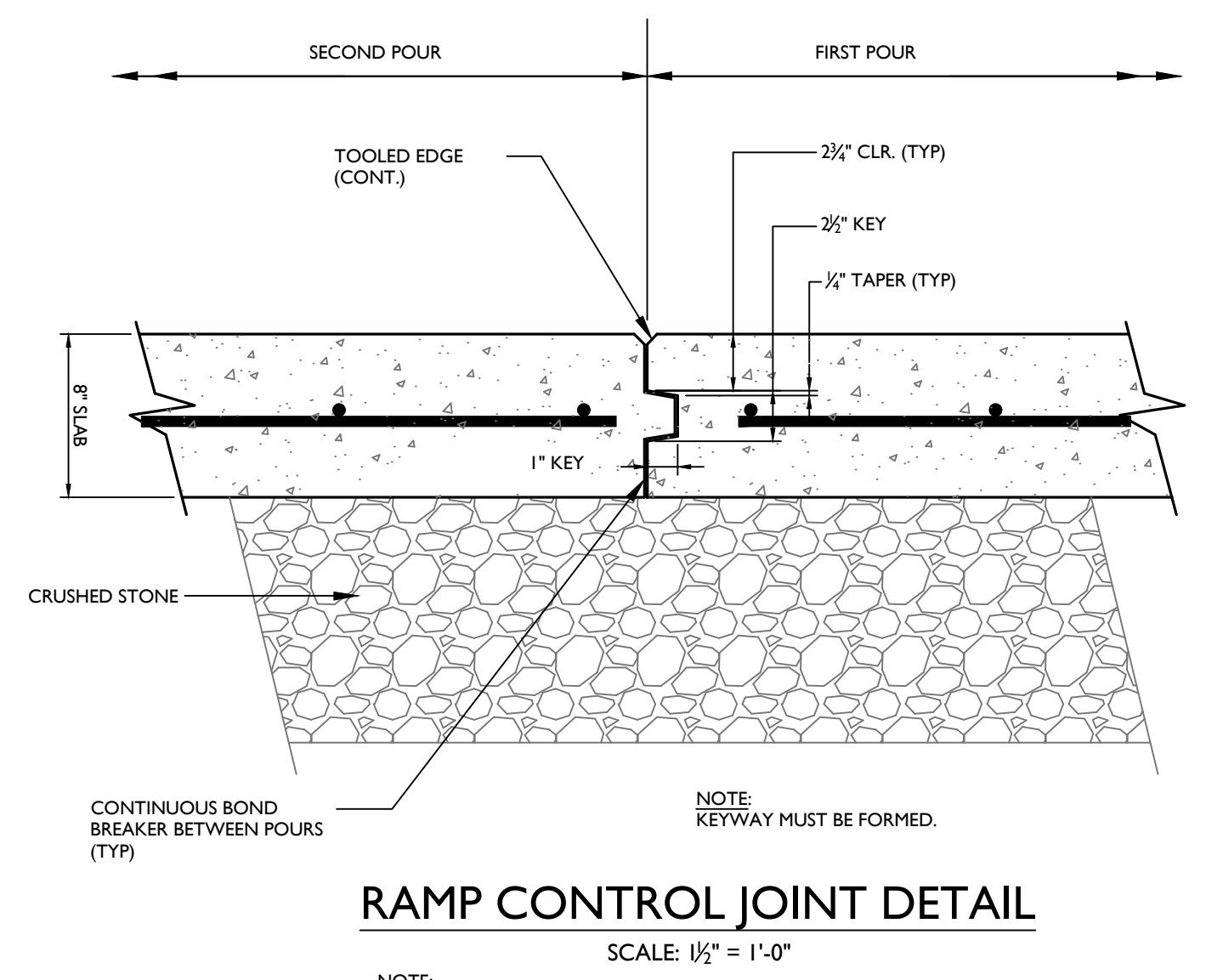
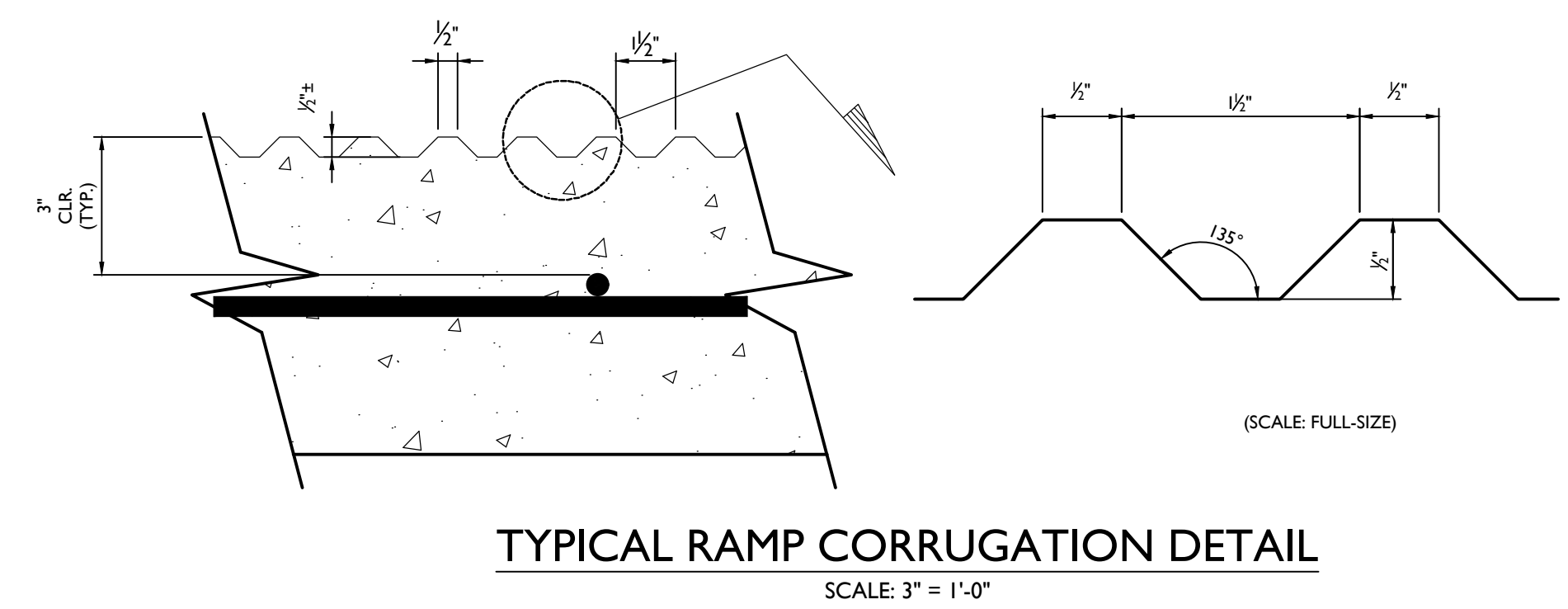
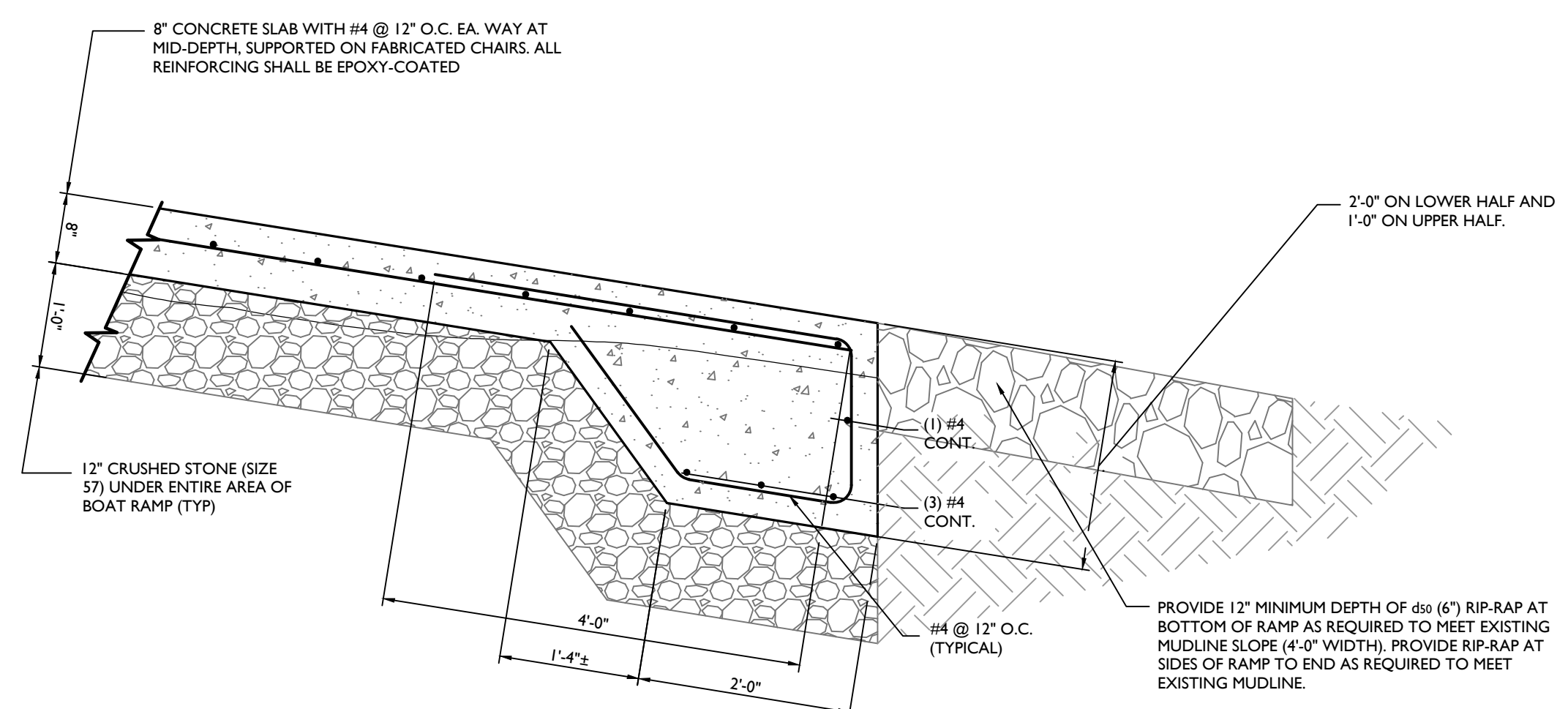
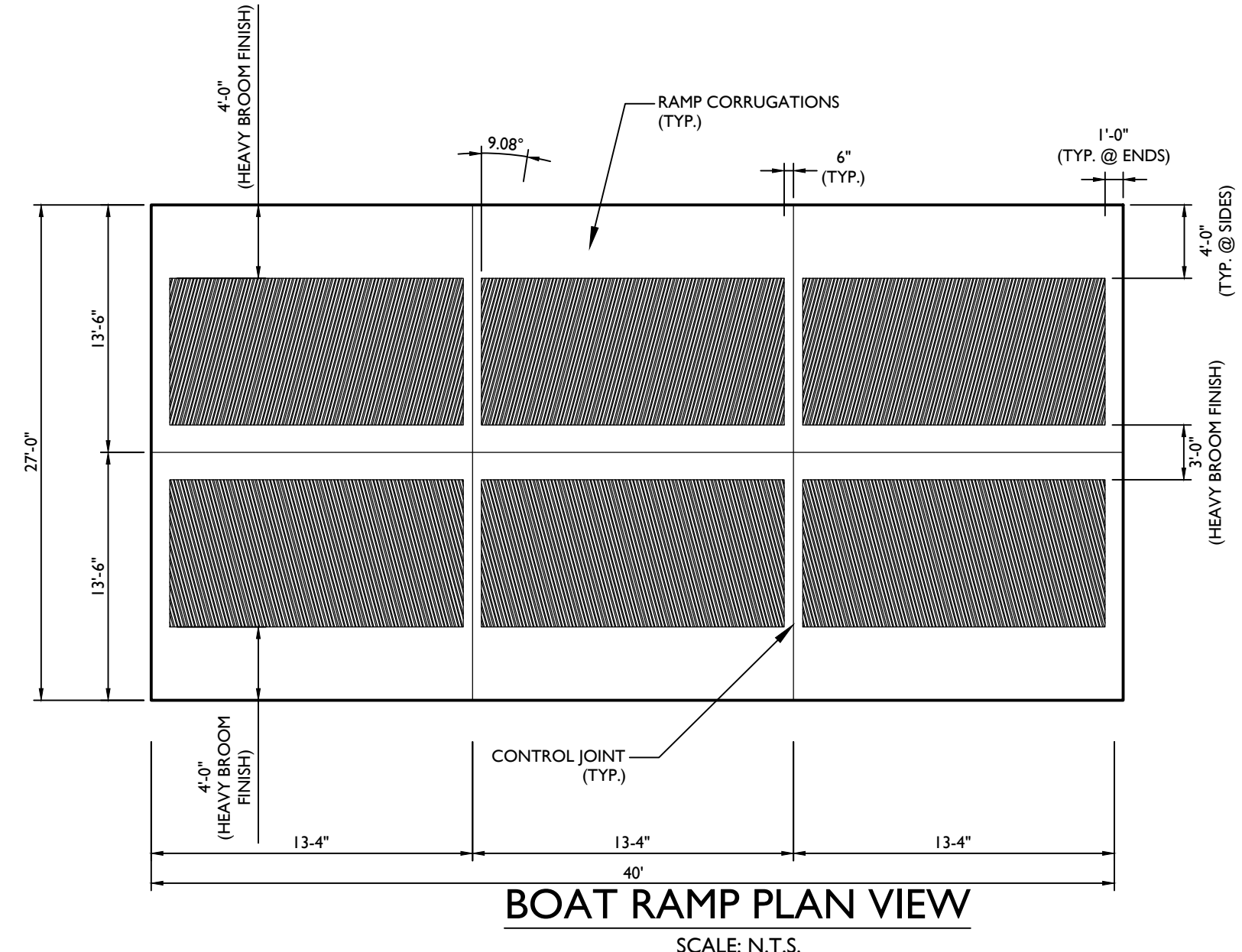
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 FOR
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SHEET TITLE: STAIR DETAILS

SHEET NUMBER: ST-3



NOTE:
PRIOR TO START OF RAMP CONSTRUCTION, CONTRACTOR SHALL SUBMIT TO ENGINEER FOR APPROVAL A SAMPLE OF THE SCREED PROPOSED FOR USE TO CREATE RAMP CORRUGATED SURFACE. CONTRACTOR SHALL PREPARE AT SITE A 6'-0"x6'-0" MIN. SAMPLE MOCK-UP OF CONCRETE SURFACE AS FORMED WITH SCREED FOR ENGINEER'S ACCEPTANCE AND APPROVAL. PRIOR TO POURING RAMP.

NOTE:
ALL RAMP JOINTS ARE COLD JOINTS FROM 2 SEPARATE POURS. CONCRETE BOAT RAMP MAY BE POURED IN A CHECKER BOARD POUR SEQUENCE.

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RICHARD C. MALONEY
NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE37923

CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP
BOROUGH OF FAIR HAVEN
MONMOUTH COUNTY
NEW JERSEY

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SCALE: AS SHOWN	DATE: 4/02/19	DRAWN BY: TEK	CHECKED BY: RCM
PROJECT NUMBER: 170049828	DRAWING NAME: C-DTLS		

SHEET TITLE: **BOAT RAMP DETAILS**

SHEET NUMBER: **ST-4**

GENERAL NOTES

- 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE NEW JERSEY UNIFORM CONSTRUCTION CODE (NUCC), CURRENT EDITION, WHICH IS THE ADOPTED BUILDING CODE FOR THE PROJECT SITE, AND ITS REFERENCE DOCUMENT, ASCE 7-22, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".

EXCAVATION, FOUNDATION AND BACKFILLING

- 1. ALL FOUNDATIONS SHALL BE FOUNDED ON FIRM, UNDISTURBED SOIL. ALL SOFT SPOTS OR OVER EXCAVATION OF FOOTINGS SHALL BE FILLED WITH ACCEPTABLE FILL MATERIAL AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY. ALL FOOTING EXCAVATIONS SHALL BE FINISHED BY HAND.

FILTER FABRIC FOR BULKHEAD CONSTRUCTION

- 1. FILTER FABRIC SHALL BE PROVIDED FOR CONSTRUCTION OF BULKHEAD AT AREAS AS SHOWN ON THE DESIGN DRAWINGS, INCLUDING BUT NOT LIMITED TO:
1.1. ISOLATION AND CONTROL OF GRANULAR FILL MATERIALS BEHIND NEW BULKHEAD SHEET PILES.
1.2. CLOSURE AT INTERFACES BETWEEN NEW SHEET PILE BULKHEAD CONSTRUCTION AND EXISTING BULKHEADS.

SOLAR STAIR LIGHTS

- 1. LIGHT FIXTURE ALONG STAIRS SHALL BE SOLAR-POWERED STAINLESS STEEL DECK LIGHTS.
2. FIXTURE SHALL BE "SOLAR POWER 5 3/4"W STAINLESS STEEL DECK LIGHTS" STYLE #6V956" BY LAPS PLUS, (www.lapsplus.com), OR EQUAL AS APPROVED BY THE ENGINEER.
3. LIGHTS SHALL BE AFFIXED TO THE STEPS USING STAINLESS STEEL MOUNTING SCREWS AS DIRECTED BY THE MANUFACTURER.

TIMBER FRAMING:

- 1. ALL ASPECTS OF TIMBER CONSTRUCTION SHALL BE IN COMPLETE ACCORDANCE WITH THE REQUIREMENTS OF THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" (NDS), LATEST EDITION, AS PUBLISHED BY THE AMERICAN FOREST & PAPER ASSOCIATION AND THE AMERICAN WOOD COUNCIL.
2. MATERIALS:
A. TIMBER - SOUTHERN YELLOW PINE, No.2 GRADE OR BETTER FOR ALL TIMBER FRAMING, INCLUDING STAIRS, AND BULKHEAD CAP. ALL TIMBER FRAMING SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH NOTE #3, BELOW.
B. HARDWARE - ALL STUDS, BOLTS, NUTS, AND WASHERS FOR TIMBER FRAMING SHALL BE ASTM A307, HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153, UNLESS OTHERWISE NOTED. PLATES, STRAPS, AND ANGLES SHALL BE ASTM A36 STEEL, HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, UNLESS OTHERWISE NOTED.

- 3. ALL TIMBER FRAMING SHALL BE PRESERVATIVE TREATED IN ACCORDANCE WITH "AMERICAN WOOD PRESERVERS ASS'N. (AWPA) STANDARDS 2005", STANDARD U1-05, AS FOLLOWS:
A. ALL TIMBER FRAMING AT BULKHEAD CAPS, EXCEPT AS SPECIFICALLY NOTED IN "B", BELOW:
(1) AWPA USE CATEGORY: UC-5B
(SALT WATER EXPOSURE)
(2) COMMODITY (U1-05, TABLE 3-1): LUMBER / TIMBERS
(3) CCA PRESERVATIVE TREATMENT WITH A RETENTION OF 2.5 LBS./CUFT SHALL BE PROVIDED PER U1-05, TABLE 3.0
(4) NO SUBSTITUTIONS OF OTHER TREATMENTS SHALL BE PERMITTED.
B. TIMBER CAP TOP PLANK SECTIONS AT BULKHEAD: UC-4B
(1) AWPA USE CATEGORY: UC-4B
(SALT WATER SPRAY)
(2) COMMODITY (U1-05, TABLE 3-1): LUMBER / TIMBERS
(3) ACO PRESERVATIVE TREATMENT WITH A RETENTION OF 0.6 LBS./CUFT SHALL BE PROVIDED PER U1-05, TABLE 3.0
(4) NO SUBSTITUTIONS OF OTHER TREATMENTS SHALL BE PERMITTED.
4. ALL FIELD CUTS SHALL BE FIELD-TREATED WITH PRESERVATIVE TREATMENT IN ACCORDANCE WITH APPLICABLE AWPA STANDARDS AND PROCEDURES.
5. ALL STEEL HARDWARE, NAILS, SCREWS AND BOLTS SHALL BE OF SUFFICIENT LENGTH FOR THEIR INTENDED USE. ALL BOLTS SHALL INCLUDE FLAT WASHERS AND HEAVY HEX NUTS.
6. ALL STEEL FASTENERS, BOLTS, WASHERS, NUTS, LAG BOLTS, PLATES, ANGLES AND OTHER CONNECTION HARDWARE SHALL BE HOT-DIP GALVANIZED PER ASTM STANDARDS A123 OR A153, WITH 20 OZ. OF ZINC PER SQUARE FOOT, UNLESS OTHERWISE SPECIFIED TO BE STAINLESS STEEL.
7. ALL LAG BOLTS SHALL BE INSTALLED USING PILOT AND CLEARANCE HOLES IN CONNECTED TIMBER ELEMENTS IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF NDS SECTION 11.1.3. (G = 0.55)
8. ALL SCREWS SHALL BE STAINLESS STEEL SIZES AS SHOWN, OR SUITABLE FOR THE CONNECTED ELEMENTS.
9. PREFABRICATED TIMBER CONNECTORS:
A. CONTRACTOR SHALL SUBMIT COMPLETE DATA ON ALL PREFABRICATED TIMBER CONNECTORS FOR REVIEW BY THE ENGINEER. SUBMITTED DATA SHALL INCLUDE LOAD CAPACITIES FOR ALL CONNECTORS.
B. CONNECTOR SIZES AND TYPES SHALL BE AS SHOWN ON THE DESIGN DRAWINGS AND DETAILS.
C. CONNECTORS SHALL BE INSTALLED USING ALL FASTENERS AS RECOMMENDED BY THE MANUFACTURER FOR THE PUBLISHED LOAD CAPACITIES.
D. TWIST STRAPS FOR CONNECTION OF PIER JOISTS TO GIRDS SHALL BE 14 ga. STAINLESS STEEL, TYPE 304. MANUFACTURER'S STANDARD ELECTRO-GALVANIZED OR HOT-DIP GALVANIZED CONNECTORS WILL NOT BE ACCEPTED.
(1) AT CONTRACTOR'S OPTION, AND WITH SPECIFIC APPROVAL OF THE ENGINEER, 1/2" THICK x 1 1/4" WIDE HOT-DIP GALVANIZED STEEL TWIST STRAPS MAY BE SUBSTITUTED FOR PREFABRICATED STAINLESS STEEL STRAPS.
(a) STRAPS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM STANDARD A123.
(b) HOT-DIP GALVANIZED TWIST STRAPS SHALL BE SECURED WITH A TOTAL OF (4) 3/8"Ø x 2" LAG BOLTS. (2) INTO EACH WOOD MEMBER. LAG BOLTS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM STANDARD A153.
10. BOLTS LOCATED TOWARDS THE WATER SHALL BE RECESSED OR OTHERWISE PROTECTED AND SHALL NOT BE EXPOSED OR EXTEND PAST THE FACES OF THE TIMBER FRAMING TO REDUCE THE POSSIBILITY OF DAMAGE TO BOATS. SEE STRUCTURAL DETAILS FOR RECESSES AND BOLT PROTECTION.

CONCRETE AND REINFORCING

- 1. ALL CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENTS OF ACI 318 AND "SPECIFICATIONS FOR CONCRETE BUILDINGS" ACI 301, LATEST EDITIONS.
2. ALL CONCRETE SHALL HAVE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,500 PSI, UNLESS OTHERWISE NOTED. CONCRETE BOAT RAMP TO BE 5,000 PSI. CONCRETE SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI STANDARDS. MAXIMUM SLUMP SHALL BE 4 INCHES. ALL CONCRETE SHALL BE NORMAL WEIGHT, U.N.O.
3. ALL REINFORCING STEEL FOR CONCRETE AND MASONRY CONSTRUCTION SHALL CONFORM WITH ASTM A615, GRADE 60. ALL REINFORCING STEEL SHALL BE HOT DIPPED GALVANIZED OR EPOXY-COATED IN ACCORDANCE WITH ASTM A775.
4. ALL REINFORCING BARS SHALL BE SPICED A MINIMUM OF 40 BAR DIAMETERS. ALL REINFORCING BARS SHALL BE CONTINUOUS AROUND CORNERS.
5. WELDED WIRE FABRIC (WWF) SHALL CONFORM WITH ASTM A185. WIRE FABRIC SHALL BE TIED WITH WIRE AND OVERLAPPED TWO SQUARES AT EDGES. ALL WWF SHALL BE HOT DIPPED GALVANIZED OR EPOXY-COATED IN ACCORDANCE WITH ASTM A884.
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED OVER REINFORCEMENT, UNLESS OTHERWISE NOTED ON THE DRAWINGS:
A. CONCRETE CAST AGAINST EARTH: 3 INCHES
B. CONCRETE EXPOSED TO EARTH OR WEATHER: 2 INCHES
C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER: 1 INCH
7. ALL REINFORCING SHALL BE DETAILED, FABRICATED, AND SUPPORTED IN FORMS AND SPACED WITH ACCESSORIES FOLLOWING THE REQUIREMENTS OF THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315. PLACING OF BARS SHALL CONFORM TO THE LATEST CRSI RECOMMENDED PRACTICES FOR PLACING REINFORCING BARS.
8. NO ADMIXTURE SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER. THE USE OF CALCIUM CHLORIDE IS PROHIBITED.
9. AFTER CONCRETING HAS STARTED, IT SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL PLACING OF A PANEL OR SECTION, AS DEFINED BY ITS BOUNDARIES OR PREDETERMINED JOINTS, IS COMPLETED.
10. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED BY SUITABLE MEANS SUCH AS MECHANICAL VIBRATION DURING PLACEMENT AND THOROUGHLY WORKED AROUND REINFORCEMENT.
11. FINISH CONCRETE IN ACCORDANCE WITH "FINISHING OF FORMED SURFACES", OF ACI 301. FOUNDATION WALL SHALL BE SMOOTH-FORMED FINISH, UNLESS OTHERWISE NOTED. SEE NOTE #14, BELOW.
12. GROUT SHALL BE A NON-SHRINK, NON-METALLIC, CEMENTITIOUS GROUT, AS APPROVED BY THE ENGINEER.
13. ALL BOLTS, SLEEVES, AND OTHER EMBEDDED ITEMS SHALL BE SET BEFORE CONCRETE IS PLACED. SEE MECHANICAL, ELECTRICAL, AND VENDORS' DRAWINGS FOR SIZES AND LOCATIONS.

CONCRETE CURING

- 1. PROPER CURING OF CONCRETE IS OF THE UTMOST IMPORTANCE. BEGINNING IMMEDIATELY AFTER PLACEMENT, CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY AND SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT A RELATIVELY CONSTANT TEMPERATURE FOR AT LEAST 7 DAYS. THE MATERIALS AND METHODS OF CURING SHALL BE SUBJECT TO ACCEPTANCE BY THE ENGINEER. UNSATISFACTORY FINISHED CONCRETE THAT RESULTS FROM FAILURE TO FOLLOW THE SPECIFIED CURING PROCEDURES MAY BE REQUESTED BY THE OWNER OR ENGINEER TO BE REMOVED AND REPLACED. ALL COSTS ASSOCIATED WITH REMOVAL AND REPLACEMENT OF CONCRETE WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
2. SLABS - IT IS MANDATORY THAT 7 DAYS OF WET CURING ON ALL MAT SLABS AND FORMED SLABS BE PERFORMED. USE SOAKER HOSE, WET BURLAP AND PLASTIC SHEETS OVER BURLAP ON ALL EXPOSED SURFACES FOR 7 DAYS MINIMUM.
3. COLD WEATHER - WHEN THE MEAN DAILY OUTDOOR TEMPERATURE IS LESS THAN 40°F, THE TEMPERATURE OF THE CONCRETE SHALL BE MAINTAINED BETWEEN 50°F AND 70°F FOR THE REQUIRED CURING PERIOD. WHEN NECESSARY, ARRANGEMENTS FOR HEATING, COVERING, INSULATING, OR HOUSING THE CONCRETE WORK SHALL BE MADE IN ADVANCE OF PLACEMENT AND SHALL BE ADEQUATE TO MAINTAIN THE REQUIRED TEMPERATURE WITHOUT INJURY TO THE CONCRETE DUE TO CONCENTRATION OF HEAT.
4. HOT WEATHER - WHEN NECESSARY, PROVISION FOR WINDBREAKS, SHADING, AND/OR COVERING WITH A LIGHT-COLORED MATERIAL SHALL BE MADE IN ADVANCE OF CONCRETE PLACEMENT. SUCH PROTECTIVE MEASURES SHALL BE TAKEN AS QUICKLY AS CONCRETE HARDENING AND FINISHING OPERATIONS WILL ALLOW. TEMPERATURE OF CONCRETE AT PLACEMENT SHALL NOT EXCEED 85°F.

STEEL SHEET PILES

- 1. STEEL SHEET PILING FROM NUCOR COMPANY SKYLINE STEEL OR EQUAL SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:
PZ-22: SHEET WIDTH (SINGLE) = 22.0 IN. SHEET CORRUGATION HEIGHT = 9.0 IN. SHEET THICKNESS = 0.375 IN.
PZ-35: SHEET WIDTH (SINGLE) = 22.6 IN. SHEET CORRUGATION HEIGHT = 14.9 IN. SHEET THICKNESS = 0.500 IN.
2. ALL STEEL SHEET PILES SHALL BE SHOP COATED WITH THE FOLLOWING COATING SYSTEM BY PPG OR EQUAL:
2.1. THE FIRST/SECOND COAT SHALL BE TWO COATS OF AMERCOAT 240 (MINIMUM 10-12mils PER COAT.
2.2. THE THIRD COAT SHALL BE ONE COAT OF AMERCOAT 450H (MINIMUM 3mils PER COAT).
3. AFTER BULKHEAD INSTALLATION, COAT TOP 6" OF ALL SHEETS (FRONT, TOP & REAR) WITH MINIMUM OF 16MIL BITUMINOUS COATING OVER EXISTING COATING, EXCEPT OF SECTION 2 BULKHEAD, WHERE TOP SHOULD BE REPAIRED PER NOTE BELOW.
4. REPAIR ALL OTHER AREAS OF COATING THAT WERE DAMAGED DURING DELIVERY AND INSTALLATION AT ALL PENETRATIONS AND BOLT HOLES IN SHEETING WITH ORIGINAL COATING SYSTEM (3 COATS).
5. ALL STEEL SHEET PILING SHALL BE ASTM A572 GRADE 50 STEEL (Fy = 50 KSI MINIMUM). ALL STEEL SHEET PILING SHALL BE HOT ROLLED.
6. CONTRACTOR SHALL USE A DRIVING TEMPLATE FOR DRIVING STEEL SHEET PILING.
7. DRIVING OF PILES IN PAIRS IS RECOMMENDED TO FACILITATE DRIVING AND HELP MAINTAIN VERTICALITY OF PILES.
8. PILING SHOULD BE DRIVEN WITH THE BALL EDGE LEADING WHERE POSSIBLE, TO AVOID CLOGGING OF SOCKET END DURING DRIVING. WHEN CONDITIONS REQUIRE THAT SOCKET END LEAD, A BOLT OR SIMILAR OBJECT SHOULD BE PLACED IN BOTTOM OF SOCKET TO MINIMIZE CLOGGING.
9. CUT OFF EXCESS MATERIAL ALONG TOP OF DRIVEN SHEET PILE AFTER INSTALLATION. HANDLING HOLES MUST BE IN THE TOP 8" OF SHEET IN AREAS WHERE A CAP IS SPECIFIED. IN AREAS WITHOUT A CAP, HOLES SHALL BE COVERED WITH A WELDED 1/2" THICK PLATE. COAT W/ 16mils BITUMINOUS COATING.
10. SHEET PILE ANCHORAGE SYSTEMS:
A. SHEET PILE ANCHORAGE SYSTEM SHALL INCLUDE STEEL CHANNEL WALER SECTIONS LOCATED BEHIND THE SHEET PILES (LANDWARD SIDE), ANCHOR TIE RODS AND HELICAL ANCHORS SHALL BE LOCATED TO OCCUR WITHIN THE CORRUGATIONS OF THE SELECTED SHEET PILE PROFILE. SEE DESIGN DRAWINGS FOR ADDITIONAL INFORMATION AND CONNECTION DETAILS.
B. TIE RODS FROM SHEET PILE WALERS TO HELICALS:
a. TYPICAL BULKHEAD TIE RODS SHALL BE 1"Ø THREAD BAR TIE-RODS, GRADE 150 STEEL.
b. EACH ROD (TYPICAL RODS OR DIAGONALS) SHALL INCLUDE A TREAD ADAPTER FOR TENSIONING AND ADJUSTMENT OF ROD AFTER INSTALLATION. ADAPTER AND INNER AND OUTER ROD SECTIONS, SHALL BE PROVIDED WITH OPPOSITE-HAND THREADS TO PERMIT TENSIONING AND ADJUSTMENT USING ADAPTER.
c. ALL ELEMENTS OF THE ROD SYSTEM, INCLUDING BUT NOT LIMITED TO RODS, ADAPTERS, WASHERS, HEX NUTS, SHIMS AND OTHER HARDWARE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 & A153 AS APPLICABLE, WITH 20 OUNCES OF ZINC PER SQUARE FOOT, MINIMUM, AFTER GALVANIZING. ALL ELEMENTS AS NOTED ABOVE SHALL ALSO BE FULLY COATED WITH COAL-TAR
C. THREADED ELEMENTS SHALL BE COATED WITH COAL-TAR EPOXY IN FIELD ONLY AFTER FINAL ADJUSTMENT AND TIGHTENING OF PARTS IS COMPLETED. SEE NOTES THIS SHEET FOR DETAILS OF COAL-TAR EPOXY COATING.
11. DRILLED-IN HELICAL SOIL ANCHORS
A. DESIGN LENGTH OF HELICAL ANCHORS FROM FACE OF BULKHEAD SHEET PILES SHALL BE 50"Ø MINIMUM, AS SHOWN IN THE DESIGN DRAWINGS.
B. HELICAL ANCHOR INSTALLATION ANGLE SHALL BE 20° FROM HORIZONTAL. ANCHORS SHALL BE PERPENDICULAR TO THE LINE OF THE BULKHEAD IN PLAN.
C. ENTIRE HELICAL ANCHOR SYSTEM SHALL BE SUPPLIED FROM THE SAME MANUFACTURER, INCLUDING SHAFTS, HELICES, AND ALL HARDWARE.
D. ALL DETAILS OF HELICAL ANCHOR INSTALLATION SHALL BE IN COMPLETE ACCORDANCE WITH THE DESIGN DRAWINGS, AND WITH THE MANUFACTURER'S RECOMMENDATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
a. ANCHOR LENGTH, LOCATION, INSTALLATION ANGLE AND SPACING ON BULKHEAD.
b. ANCHOR HELIX MATERIAL, DIAMETERS, THICKNESSES, AND SPACING ALONG SHAFT. NOMINAL SPACING BETWEEN HELIX PLATES SHALL BE FIVE TIMES THE DIAMETER OF THE LARGER HELIX. HELIX MATERIAL SHALL BE IN ACCORDANCE WITH ASTM A936 HOT-ROLLED HIGH STRENGTH LOW ALLOW STEEL SHEET, ASTM A656 HOT-ROLLED STRUCTURAL STEEL PLATE, OR MANUFACTURER'S STANDARD AS REQUIRED TO OBTAIN THE DESIGN LOAD CAPACITY. HELICES SHALL BE FORMED BY MATCHING METAL DIES.
c. ANCHOR SHAFT SIZE, CONNECTIONS, AND MATERIAL. SHAFT MATERIAL SHALL BE IN ACCORDANCE WITH ASTM A29, OR MANUFACTURER'S STANDARD AS REQUIRED TO OBTAIN THE DESIGN LOAD CAPACITY.
E. ALL HELICAL ANCHOR HELICES, DRIVE SHAFTS, ADAPTERS, RODS, NUTS, BOLTS, WASHERS, PLATE WASHERS, PIPE SPACERS, AND OTHER HARDWARE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 & A153 AS APPLICABLE, WITH 20 OUNCES OF ZINC PER SQUARE FOOT, MINIMUM, AFTER GALVANIZING. ALL EXPOSED ELEMENTS AT ADAPTER CONNECTION SHALL ALSO BE FULLY COATED WITH COAL-TAR EPOXY. SEE NOTES THIS SHEET FOR DETAILS OF COAL-TAR EPOXY COATING.
F. HELICAL ANCHORS SHALL HAVE THE FOLLOWING CAPACITIES:
a. ANCHOR DESIGN LOAD: 33.5 KIPS
b. ANCHOR ULTIMATE CAPACITY: 67.0 KIPS
G. INSTALLATION OF HELICAL ANCHORS SHALL BE PERFORMED BY A CONTRACTOR EXPERIENCED IN DRILLED HELICAL SOIL ANCHOR INSTALLATION, AND AS APPROVED BY THE ANCHOR MANUFACTURER.
H. HELICAL ANCHORS SHALL BE LOAD TESTED IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S RECOMMENDATIONS. ALL ASPECTS OF ANCHOR TESTING SHALL BE IN COMPLETE ACCORDANCE WITH THE MFG'R'S RECOMMENDATIONS, INCLUDING NUMBER/FREQUENCY OF ANCHOR TESTS, TEST PROCEDURES, MAGNITUDE OF TEST LOADS, METHOD OF TEST LOAD APPLICATION, AND DURATION OF TEST LOAD APPLICATION. CONTRACTOR SHALL WAIT MINIMUM OF TWO DAYS AFTER INSTALLATION TO CONDUCT LOAD TESTING ON ANY ANCHOR.
I. HELICAL ANCHOR DESIGN & SHOP DRAWINGS SHALL BE SUBMITTED FOR ENGINEER APPROVAL. DESIGN AND SHOP DRAWINGS SHALL BE NEW JERSEY SIGNED AND SEALED BY THE CONTRACTORS ENGINEER.

STRUCTURAL STEEL

- 1. ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN", LATEST EDITION.
2. ALL STRUCTURAL STEEL "W" SHAPES SHALL CONFORM TO ASTM A992 OR A572, GRADE 50. ALL STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE "E" OR "S", GRADE B. ALL OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36 OR A572, GRADE 50, AS NOTED. ALL PIPE SIZES ARE NOMINAL DIAMETER.
3. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING WELDS OR STANDARD, UNFINISHED BOLTS. CONNECTION MATERIALS SHALL BE AS FOLLOWS:
A. BOLTS SHALL CONFORM TO ASTM A325 OR EQUIVALENT.
B. WELDS SHALL BE IN ACCORDANCE WITH THE LATEST AMERICAN WELDING SOCIETY (AWS) SPECIFICATIONS. ALL WELDING ELECTRODES SHALL BE E70 SERIES, UNLESS OTHERWISE NOTED.
4. SHOP AND FIELD WELDING SHALL BE PERFORMED BY WELDERS WHO ARE CERTIFIED(AWS "STANDARD CERTIFICATION PROCEDURE") TO PERFORM THE TYPE OF WORK REQUIRED. WELDS SHALL CONFORM TO AWS D1.1, "STRUCTURAL WELDING CODE - STEEL", LATEST EDITION. PROVIDE MINIMUM WELD SIZES PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9th EDITION, WHEN WELD SIZES ARE NOT SHOWN.
5. STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
6. THE DRAWINGS REPRESENT THE PERMANENT FRAMING AND FINAL DETAILS WHERE SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, TEMPORARY BRACING, SHORING, AND RECOMMENDED ERECTION PROCEDURES.
7. PAINTING:
A. STEEL SHAPES, PLATES, AND FABRICATIONS SHALL BE COATED WITH COAL-TAR EPOXY IN ACCORDANCE WITH SSPC PAINT-16 AND THE U.S. ARMY CORPS OF ENGINEERS FORMULA C-200. ALL DETAILS OF SURFACE PREPARATION AND COATING APPLICATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
B. ALL HARDWARE (NUTS, BOLTS, WASHERS, ANCHOR PLATES, TIERODS, TURNBUCKLES, ETC.) SHALL BE HOT-DIP GALVANIZED AND THEN COATED WITH COAL-TAR EPOXY AS NOTED ABOVE. FIELD-INSTALLED AFTER INSTALLATION, TIGHTENING, AND ADJUSTMENT OF HARDWARE. EXPOSED TIE ROD END, NUT & PLATE SHALL NOT BE COATED WITH COAL-TAR; THESE ITEMS SHALL BE COATED WITH A PRIME & 2 COAT MARINE PRIME PAINT COATING (PPG OR SIMILAR) DESIGNED TO BE APPLIED OVER GALVANIZED STEEL. COLOR TO MATCH BULKHEAD COATING.
8. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
COAL-TAR EPOXY COATING
1. ALL STEEL PARTS OF BULKHEAD ANCHORAGE SYSTEM SHALL BE COATED WITH COAL-TAR EPOXY COATING. (SHEET PILES SHALL NOT RECEIVE COAL-TAR EPOXY COATING. SEE NOTES THIS SHEET FOR STEEL SHEET PILE COATING SYSTEM.)
2. THREADED PORTIONS OF THE RODS, TURNBUCKLES, AND SIMILAR ELEMENTS SHALL BE COATED WITH COAL-TAR EPOXY IN FIELD, AFTER FINAL TIGHTENING AND ADJUSTMENT OF ANCHORAGE SYSTEM. ALL OTHER PORTIONS OF BULKHEAD ANCHORAGE SYSTEM SHALL BE SHOP-COATED.
3. COAL-TAR EPOXY SHALL BE IN COMPLETE ACCORDANCE WITH THE REQUIREMENTS OF THE U.S. ARMY CORPS OF ENGINEERS FORMULA C-200, AND STEEL STRUCTURES PAINTING COUNCIL (SSPC) STANDARD "PAINT 16".
4. MINIMUM (NOT AVERAGE) DRY FILM THICKNESS (DFT) OF 16 mils IS REQUIRED ON ALL COATED ELEMENTS.
5. COAL-TAR EPOXY COATING MATERIAL SHALL BE A HIGH-BUILD, BLACK, GLOSS-FINISH SELF-PRIMING PRODUCT, WITH SOLIDS CONTENT OF 74% ±2% BY VOLUME.
6. COAL-TAR EPOXY MATERIAL SHALL MEET OR EXCEED THE FOLLOWING PERFORMANCE REQUIREMENTS:
A. ASTM D4060 (ABRASION): 130mg MAX LOSS AFTER 1000 CYCLES
B. ASTM D4541 (ADHESION): 1443 psi MINIMUM
C. ASTM D2794 (IMPACT): 100 in-lbs
D. ASTM B117 (SALT FOG): NO BLISTERING, RUSTING OR DELAMINATION AFTER 2000 HRS.
7. ALL ASPECTS OF COATING APPLICATION, INCLUDING PRODUCT STORAGE & HANDLING, SURFACE PREPARATION, MIXING, PRODUCT APPLICATION, CURING AND PROTECTION SHALL BE IN COMPLETE ACCORDANCE WITH THE COATING MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

ALUMINUM RAILING

- 1. ALL ALUMINUM MATERIALS AND FABRICATION SHALL COMPLY WITH THE REQUIREMENTS OF THE ALUMINUM DESIGN MANUAL 2005, AND WITH THE ALUMINUM ASSOCIATION, INC.
2. ALUMINUM MATERIALS SHALL BE TYPE 6063-T6, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ASTM B 221 AND B 308, AS APPLICABLE.
3. WELDING OF ALUMINUM SHALL COMPLY WITH THE REQUIREMENTS OF AMERICAN WELDING SOCIETY (AWS) STANDARD D1.2, "STRUCTURAL WELDING CODE - ALUMINUM". WELDING ELECTRODES FOR 6061 ALUMINUM SHALL BE ER4043, U.N.O.
4. ALL RAILING SHALL BE WELDED AND SHALL CONSIST OF ANODIZED ALUMINUM SCHEDULE 40 PIPE, 1 1/2" NOMINAL (1.90" O.D.) IN ACCORDANCE WITH ASTM B 241, TYPE 6063-T6. ALL PICKETS SHALL BE ANODIZED ALUMINUM SCHEDULE 40 PIPE, 1/2" NOMINAL (0.84" O.D.) IN ACCORDANCE WITH ASTM B 241, TYPE 6063-T6.
5. WELDING IS TO BE CONDUCTED PRIOR TO ANODIZING.
6. HANDRAILS SHALL BE DESIGNED TO WITHSTAND THE LOADS AS SPECIFIED IN NUCC SECTION 1607.7.1.
7. HANDRAILS SHALL BE FABRICATED IN THE LARGEST SECTIONS PRACTICAL FOR SHIPPING AND HANDLING IN FIELD FOR INSTALLATION.
8. HANDRAIL EXTENSIONS AT TOP, BOTTOM, TURNS AND SWITCHBACKS SHALL BE IN ACCORDANCE WITH THE HANDRAIL REQUIREMENTS OF ANSI A117.1.
9. POST TO BE MOUNTED TO 4 1/2"x4 1/2"x3/8" THICK ALUMINUM BASE PLATE. UTILIZE FOUR (4) 3/8"Ø HOT-DIPPED GALVANIZED LAG SCREWS (6" LONG) AND RE-DRILL ALL HOLES.
10. RAILING CONTRACTOR SHALL ADD TWO (2) 3x10 BLOCKING BETWEEN OUTER JOISTS AT ALL POST LOCATIONS. PROVIDE FOUR (4) 16d TOE NAILS EACH SIDE AT EACH END OF BLOCKING (16 TOTAL PER BLOCKING)

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Revision table with columns: REV, DATE, DRAWN BY, DESCRIPTION. Includes entries for final plan submission and revision per BOROUGH & NDEP COMMENTS.

Professional seal for RICHARD C. MALONEY, NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE39023.

CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP. BOROUGH OF FAIR HAVEN MONMOUTH COUNTY NEW JERSEY.

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SCALE: AS SHOWN DATE: 4/02/19 DRAWN BY: TEK CHECKED BY: RCM PROJECT NUMBER: 17004928 DRAWING NAME: C-DTLS SHEET TITLE: STRUCTURAL NOTES SHEET NUMBER: ST-5

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NOTE: REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION ON ALL STRUCTURAL MATERIALS. IF ANY CONFLICTS EXIST BETWEEN PLANS AND SPECIFICATIONS, THE MORE STRINGENT SHALL GOVERN.