MAYOR AND COUNCIL

- JOSH HALPERN, MAYOR
- ELIZABETH KOCH, COUNCIL PRESIDENT
- TRACY COLE, COUNCILWOMAN
- KRISTEN HOEY, COUNCILWOMAN
- ANDREW LABARBERA, COUNCILMAN
- LALINE NEFF, COUNCILWOMAN
- CHRISTOPHER RODRIGUEZ, COUNCILMAN

PUBLIC UTILITIES

ELECTRIC	JCP & L 101 CRAWFORDS CORNER ROAD HOLMDEL, N.J. 07733 TEL: (800) 662-3115
GAS	NEW JERSEY NATURAL GAS 10 WEST LINCOLN AVENUE ATLANTIC HIGHLANDS, N.J. 07716 TEL: (800) 221-0051
WATER	NEW JERSEY AMERICAN WATER COMPANY 661 SHREWSBURY AVENUE SHREWSBURY, N.J. 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, N.J. 07724 TEL: (800) 266-2278
SEWER	TWO RIVER WATER RECLAMATION AUTHORITY I HIGHLAND AVENUE MONMOUTH BEACH, NJ 07750 TEL: (732) 229-8578
FIBER OPTIC	VERIZON, INC. 180 BROAD STREET RED BANK, N.J. 07701 TEL: (800) 266-2278
AVAILABLE DA NOT WARRAN	UTILITIES SHOWN ON THE PLANS ARE PLOTTED FROM TA ON FILE WITH THE UTILITY COMPANIES AND ARE ITED AS TO EXACTNESS. CONTRACTOR IS TO DETERMINE TON AND DEPTH OF UTILITIES AT ALL CROSSINGS PRIOR

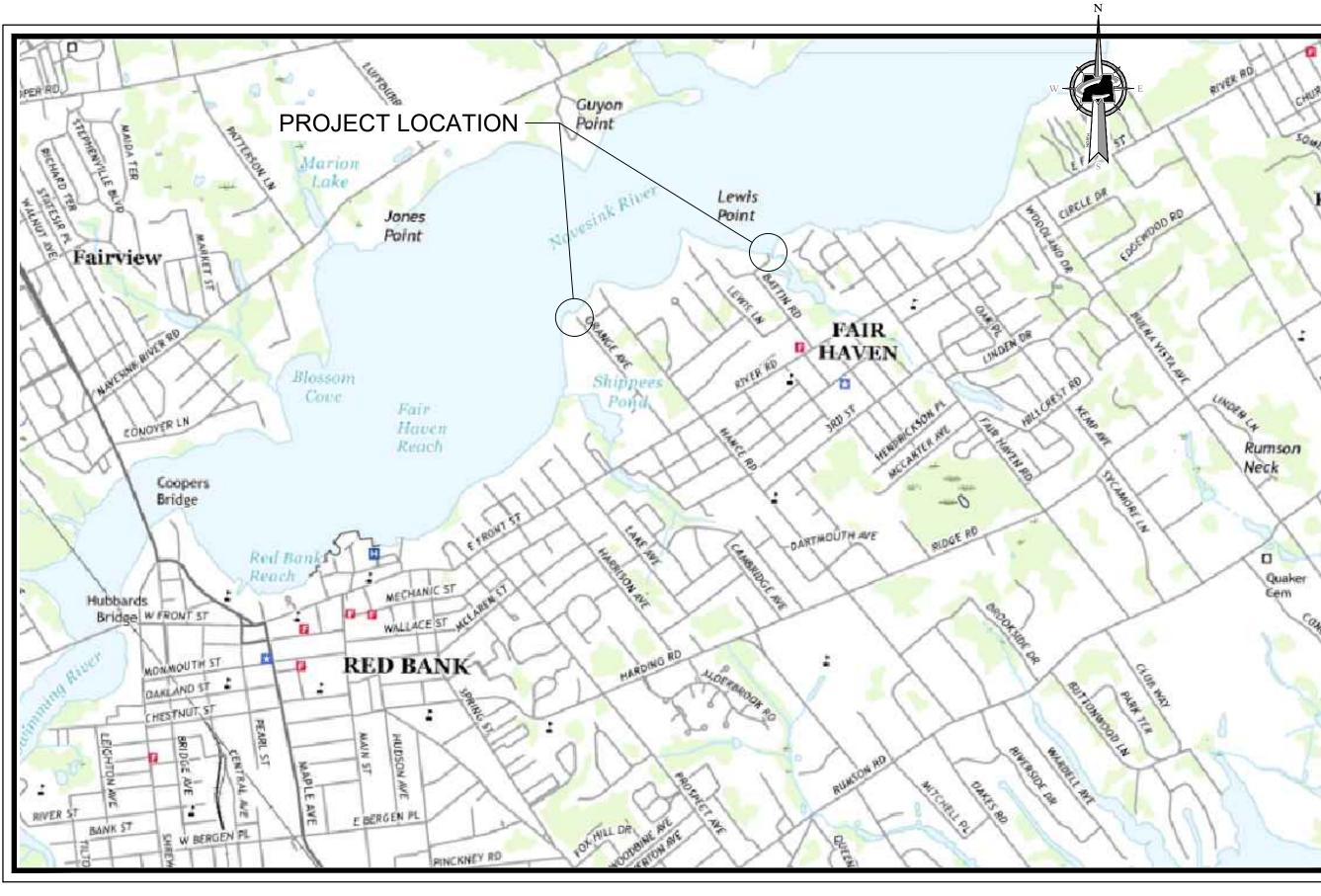
INDEX OF SHEETS

TO CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF

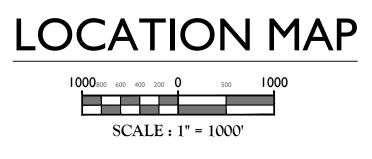
THE CONTRACT DOCUMENTS.

<u>SHEET NO.</u>	DESCRIPTION	LATEST REVISION
T-1	COVER SHEET	
T-2	GENERAL NOTES & LEGEND	
S-1.1	EXISTING CONDITIONS & DEMOLITION PLAN: GRANGE AVENUE	
S-1.2	SITE & GRADING PLAN: GRANGE AVENUE	
S-1.3	BULKHEAD PLAN: GRANGE AVENUE	
S-2.1	EXISTING CONDITIONS & DEMOLITION PLAN: BATTIN ROAD	
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S-2.3	DREDGE PLAN: BATTIN ROAD	
C-1,C-2	CONSTRUCTION DETAILS	
SE- I	SOIL EROSION AND SEDIMENT CONTROL PLAN: GRANGE AVENUE	
SE-2, SE-3	SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS	
ST-I	BULKHEAD SECTION & DETAILS	
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ST-4	BOAT RAMP DETAILS	
ST-5	STRUCTURAL NOTES	

CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK AND BATTIN ROAD **BOAT RAMP REPLACEMENT BOROUGH OF FAIR HAVEN**



MONMOUTH COUNTY, NEW JERSEY



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CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP BOROUGH OF FAIR HAVEN MONMOUTH COUNTY										
	MONMOUTH COUNTY NEW JERSEY									
RED BANK OFFICE Corporate Headquarters 331 Newman Springs Road Suite 203 Red Bank, NJ 07701 Phone: 732.383.1950 Fax: 732.383.1950 Fax: 732.383.1984 Scale: AS SHOWN 4/02/19 TEK RCM										
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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 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 8. 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 9. 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 10. 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 ADIACENT 11. 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.
- 12. 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.
- 13. 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 14. 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 15. 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 16. 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.
- 17. 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 18. WORKERS IN AND AROUND THE CONSTRUCTION AREAS, AND FOR THE ADJACENT PROPERTY AND ERS SHALL BE PRC 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 19. 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.
- 20. ALL ITEMS TO BE PARTIALLY REMOVED OR REMOVED AND RESET SHALL BE REMOVED TO THE NEAREST POST OR JOINT.
- 21. 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.
- 22. THE CONTRACTOR SHALL MEET THE ELEVATION OF THE EXISTING PAVEMENT AND SIDEWALK AT THE LIMITS OF PROPOSED WORK.
- 23. CONTRACTOR SHALL VERIFY ALL GRADES, INLET ELEVATIONS AND LOCATIONS IN THE FIELD PRIOR TO CONSTRUCTION. 24. CONTRACTOR SHALL ADJUST GRADING AS NECESSARY TO PROVIDE POSITIVE DRAINAGE TO EXISTING AND PROPOSED INLETS.
- 25. 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.
- 26. 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.
- 27. 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.
- 28. ALL PAVEMENT STRIPING, MARKINGS, REGULATORY AND WARNING SIGNS SHALL CONFORM WITH THE STANDARDS SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- 29. 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.
- 30. CONTRACTOR TO MAINTAIN ACCESS FOR PEDESTRIANS AND EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- 31. THE CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY RELOCATION WITH EACH

RESPECTIVE UTILITY COMPANY, NO SEPARATE PAYMENT SHALL BE MADE FOR CO UTILITY RELOCATION REQUIRED TO CONSTRUCT THE IMPROVEMENTS SHOWN S THE COST OF VARIOUS BID ITEMS.

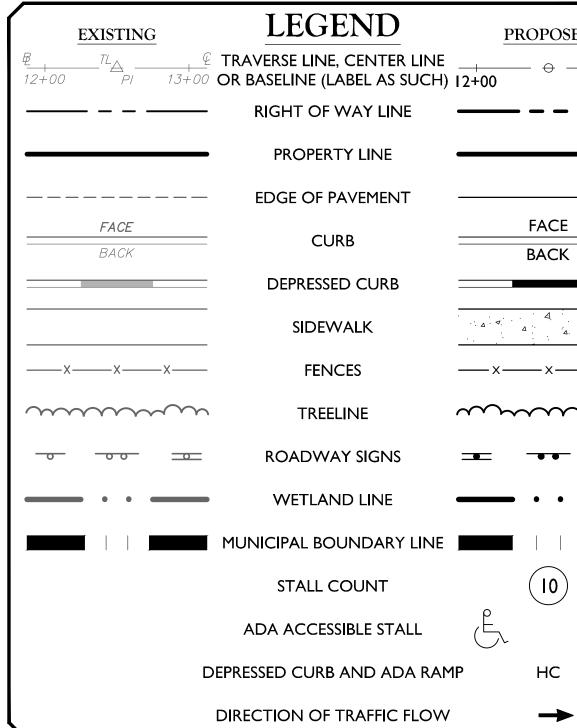
- THE 2019 NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ALL AMENDMENTS, INCLUDING THE 2009 SPECIAL PROVISIONS FOR LOCAL AID PROJECTS, THERETO OR MODIFIED HEREIN SHALL GOVERN THE COI PROIECT.
- CONTRACTOR IS HEREBY NOTIFIED THAT THE ENTIRE PROJECT IS SUBJECT TO THE ADDITIONAL TIME SHALL BE ADDED TO THE CONTRACT UNLESS WRITTEN PROVIDED BY THE BOROUGH. NO ADDITIONAL PAYMENT SHALL BE MADE 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.
- 35. ALL TRAFFIC STRIPES AND MARKINGS SHALL BE LONG-LIFE THERMOPLASTIC. 36. CONTRACTOR SHALL SUBMIT SEED BAG TICKETS TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING
- SEED. 37. CONTRACTOR SHALL ESTABLISH A FULL STAND OF GRASS WITH NO BARE PATCHES, CRABGRASS, OR
- PAVEMENT SHALL BE SAWCUT TO FULL DEPTH OF EXISTING PAVEMENT AT THE TIME OF 38. CONSTRUCTION. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
- 39. TACK COAT SHALL BE IN ACCORDANCE WITH SECTION 401.03.02.
- 40. 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.
- 41. UNLESS ECHELON PAVING IS USED, ALL IOINTS RESULTING FROM THE PAVING OPERATIONS SHALL BE CONSIDERED COLD IOINTS AND POLYMERIZED IOINT ADHESIVE SHALL BE APPLIED IN ACCORDANCE WITH THE NJDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2019, UNDER SUBSECTION 401.03.03 E.I.b COLD JOINTPAVING.
- 42. 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.
- 44. EXISTING GUTTERLINE GRADES ARE TO BE MAINTAINED EXCEPT AS OTHERWISE SHOWN ON PLAN OR DIRECTED BY THE ENGINEER.
- 45. THE EDGES OF THE BASE COURSE ITEMS SHALL BE PARALLEL TO THE ROADWAY CENTERLINE AND RECTANGULAR IN SHAPE. ALL EDGES SHALL BE VERTICAL.

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			

OORDINATION. WATER	
SHALL BE INCLUDED IN	

ONSTRUCTION OF THIS	
TIDAL CONDITIONS. NO EN AUTHORIZATION IS FOR ANY ADDITIONAL	

BASE BID NO. 1					
PAY ITEM NO.	DESCRIPTION	UNIT	CONTRAC T 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		
20	CONCRETE STEPS	SF	250		
22	CONCRETE SIDEWALK, 4" THICK	SY	30		
22	DETECTABLE WARNING SURFACE	SY	5		
23	BULKHEAD PZ35 CANTILEVER	LF	65		
24	BULKHEAD PZ22 CANTILEVER RETURNS W/ CAP	LF	35		
26	BULKHEAD PZ22 ANCHORED W/ CAP	LF	50		
20	BULKHEAD RAILING	LF	80		
28	TIMBER GUIDE RAIL	LF	30		
28	STAIR RAILING	LF	90		
30	4" x 4" PRESSURE TREATED TIMBER BORDER	LF	65		
30	SOLAR LIGHTS	UNIT	7		
32	RELOCATE EXISTING BENCH W/ NEW FOOTING	UNIT	2		
33	BENCH ON CONCRETE PAD, 6" THICK	UNIT	3		
33	BIKE RACK	UNIT			
			1		
35	TRASH RECEPTACLE	UNIT	1		
36	RECYCLE BIN CHAIN-LINK FENCE, 6' HIGH	UNIT	1		
37	, , , , , , , , , , , , , , , , , , ,	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		



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	CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP							Т			
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SUPPLEMENTAL LEGEND HMA MILLING, 3" OR LESS HOT MIX ASPHALT 9.5M64 SURFACE COURSE, 2" THICK CONCRETE SIDEWALK, 4" THICK DETECTABLE WARNING SURFACE CONCRETE DRIVEWAY, REINFORCED, 6" THICK HOT MIX ASPHALT DRIVEWAY, 3-1/2" THICK PAVER DRIVEWAY RESTORATION **GRAVEL DRIVEWAY RESTORATION** CONCRETE GUTTER/CONCRETE CHANNEL STONE RESTORATION RECONSTRUCT MANHOLE, SANITARY SEWER RESET MANHOLE, SANITARY SEWER RESET OR SET MANHOLE CASTING **RECONSTRUCT MANHOLE** RESET EXISTING CASTING OR SET INLET CASTING RECONSTRUCT STRUCTURE EXCAVATION, TEST PIT FRONT OF GUTTER ELEVATION FG BG BACK OF GUTTER ELEVATION

TOP OF DEPRESSED CURB ELEVATION

EXISTING ELEVATION

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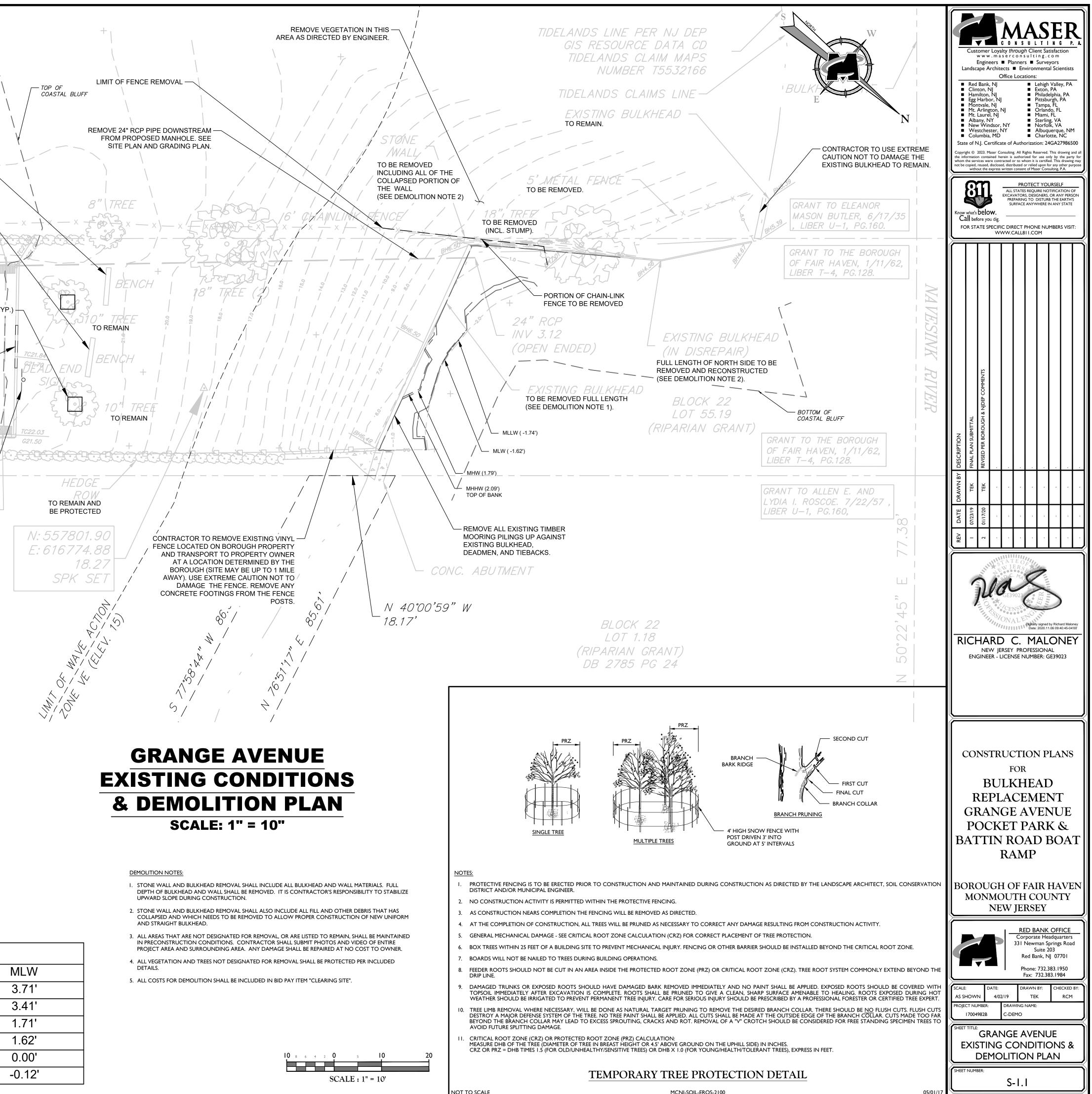
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REPL	PORARILY REMOVE & STORE BE ACE ALL TIMBER WITH NEW 2X4 RDS AND STAINLESS STEEL HAR	CEDAR RDWARE	(
RE	AND CONNECTORS. REINST		
BLOCK LOT			
DB 8984 A		BUNDET GR X0.97	
		INV 17.62(24")	
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	+		
<i>' VINYL FENCE</i> N 40°00'45"	W 347.80'		a
(220.00' TO CONSERVA	TION EASEMENT)	BRICK	
	<i>,</i>	WALK XA 'B' INI GR 21	
		INV 19.03(1	18")
	ALL EXISTING DRA STRUCTURES TO BE PROT		/
	THROUGHOUT CONSTRI (UNLESS NOTED OTHEI		
		REMOVE SIGNAGE AND STORE AS	
		DIRECTED BY OWNER. REINSTALL AFTER PROJECT COMPLETION.	
BLOCK	22		
LOT	1		
general notes:			
I. THE ENTIRE SITE IS WITHIN 300' RIPARIAN ZONE.			
<ol> <li>HORIZONTAL DATUM BASED UPON THE NEW JERSEY STATE PLANE COORDINATED SYSTE SURFACE DERIVED COORDINATES UTILIZING KEYNET GPS).</li> </ol>			
<ol> <li>EXISTING SITE TOPOGRAPHIC INFORMATION AS SHOWN HEREON IS BASED UPON NAVD AMERICAN VERTICAL DATUM OF 1988) PER GPS OBSERVATION BY MASER CONSULTING P.4 KEYNET GPS.</li> </ol>			
4. TIDAL INFORMATION OBTAINED FROM NOAA OCEANIC, NAVESINK RIVER, NJ, STATION IE 5. AE, VE, AND WAVE ACTION ZONES ARE BASED ON PRELIMINARY FEMA FLOOD INSURANC			
REVISED JANUARY 30, 2015, MAP NUMBER 34025C0181G. 6. ALL AREAS THAT ARE NOT DESIGNATED FOR REMOVAL SHALL BE MAINTAINED IN PRE-CC			
CONDITION. 7. THE LOCATION OF ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE APPROXIMAT			
ON VISIBLE SURFACE STRUCTURES AND ANY UTILITY MAPS PROVIDED BY UTILITY COMPAI HEREON. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LO UTILITIES/STRUCTURES. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTER CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES FIELD-VERIFIED BY THE PROPER	CATE BURIED ED. THE		
CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES FIELD-VERIFIED BY THE PROPER COMPANIES BEFORE ANY CONSTRUCTION BEGINS.			
	[		
LEGEND	MHHW	NAVD 2.09'	
MEAN HIGHER HIGH WATER LINE	MHW	1.79'	
MEAN HIGH WATER LINE    MEAN LOW WATER LINE	MTL	0.9'	

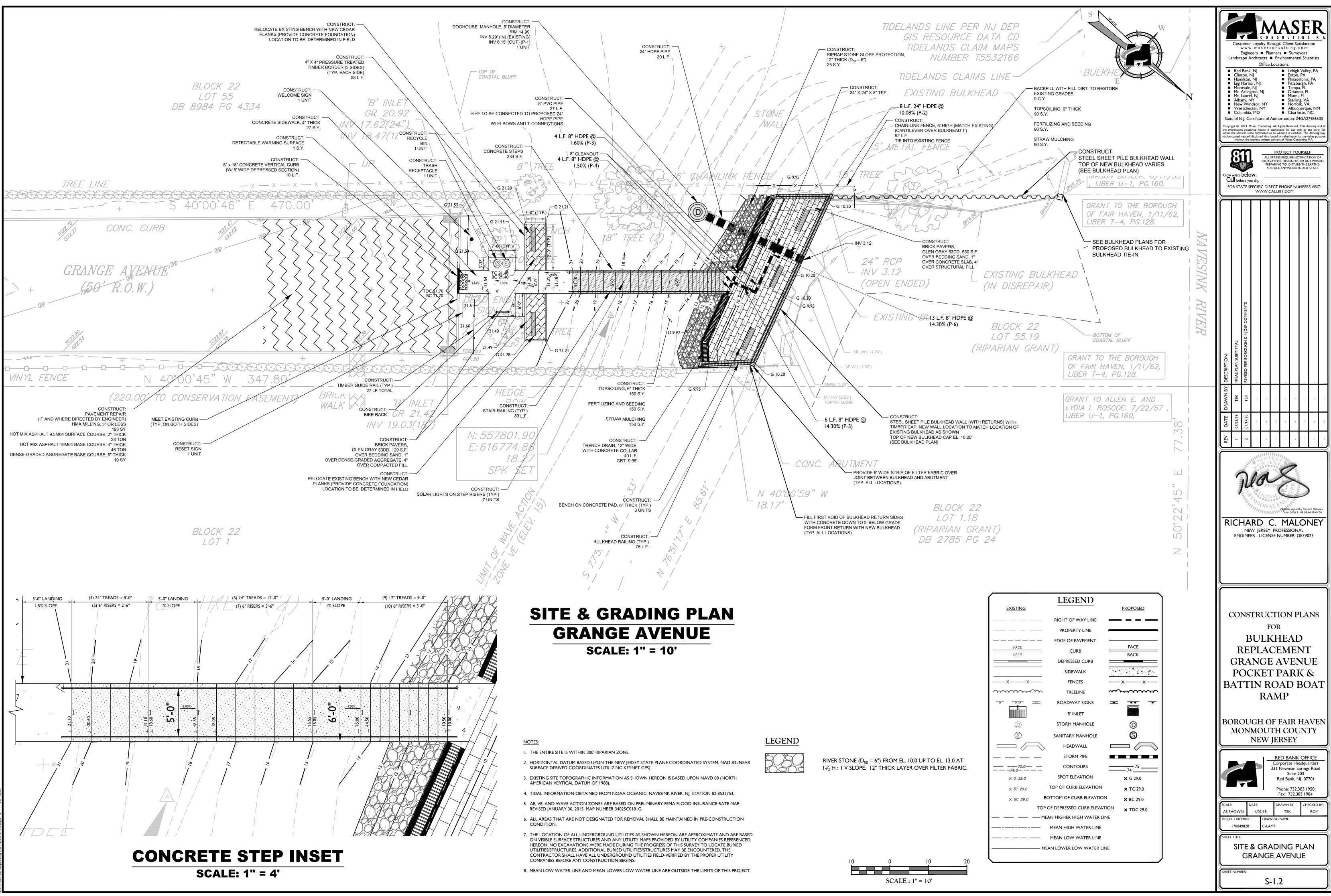
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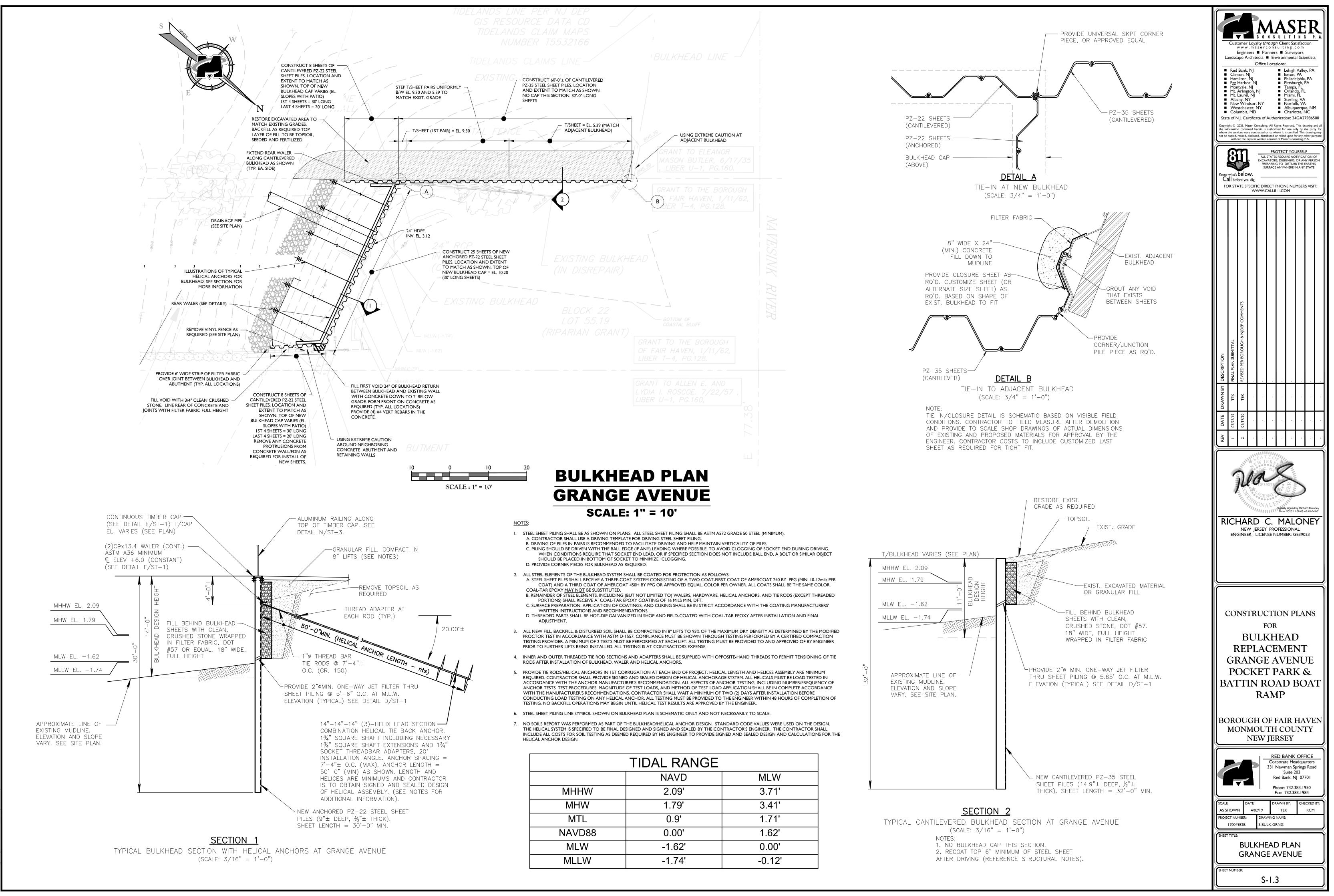
MEAN LOWER LOW W. PROPERTY/GRANT BOU

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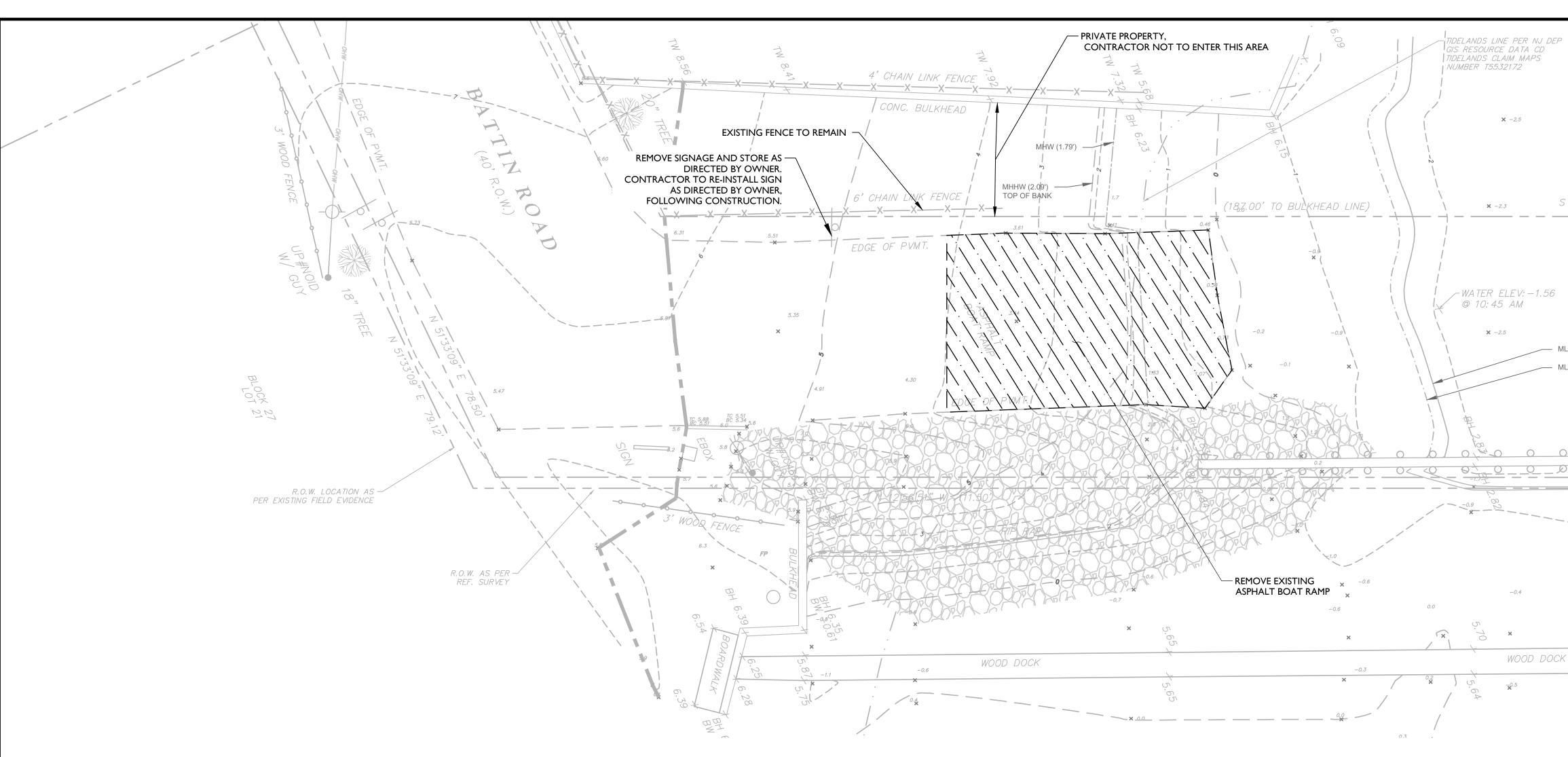
	TIDAL RANGE	
	NAVD	
MHHW	2.09'	
MHW	1.79'	
MTL	0.9'	
NAVD88	0.00'	
MLW	-1.62'	
MLLW	-1.74'	
	•	





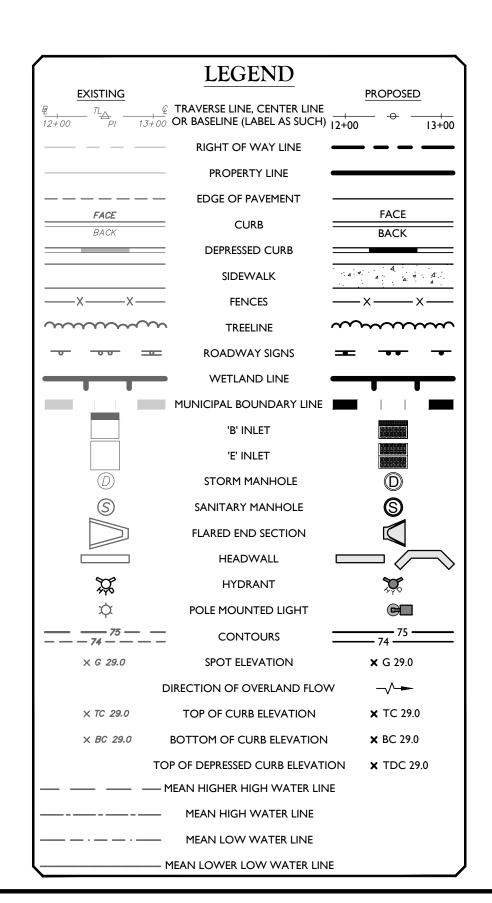


983A\Engineering\Site Plans\S-BULK-GRNG.dwg\S-I.3 By: TKIRK



NOTES:

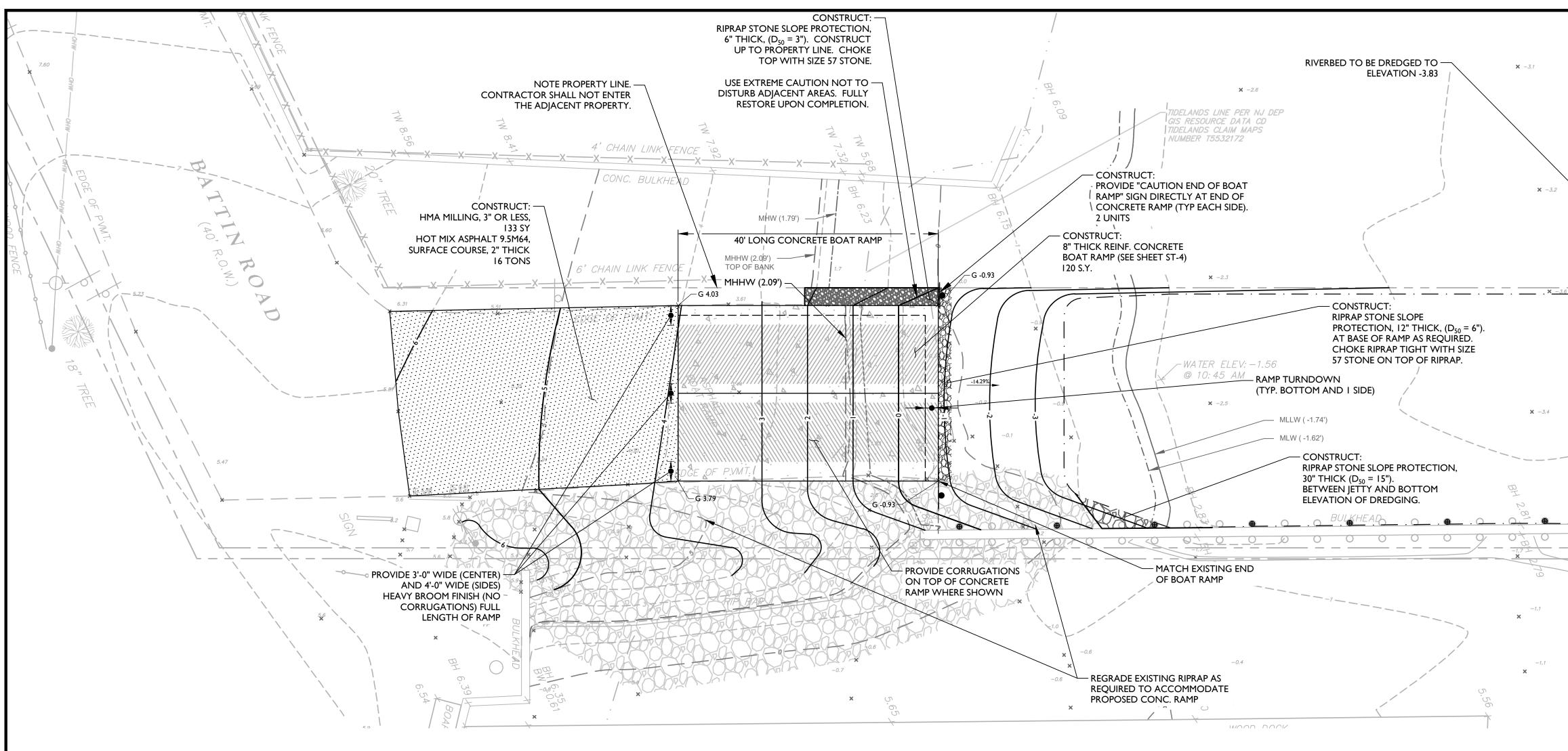
- I. ALL UPLAND PROJECT ACTIVITIES WITHIN 300' RIPARIAN ZONE.
- 2. ALL EXISTING TOPOGRAPHIC INFORMATION SHOWN REFERS TO NAD 1983/NGVD1988 DATUMS.
- 3. TIDAL INFORMATION OBTAINED FROM NOAA OCEANIC, NAVESINK RIVER, NJ, STATION ID 8531753.
- AE, VE, AND WAVE ACTION ZONES ARE BASED ON PRELIMINARY FEMA FLOOD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



## EXISTING CONDITIONS & DEMOLITION PLAN BATTIN ROAD SCALE: 1" = 10"

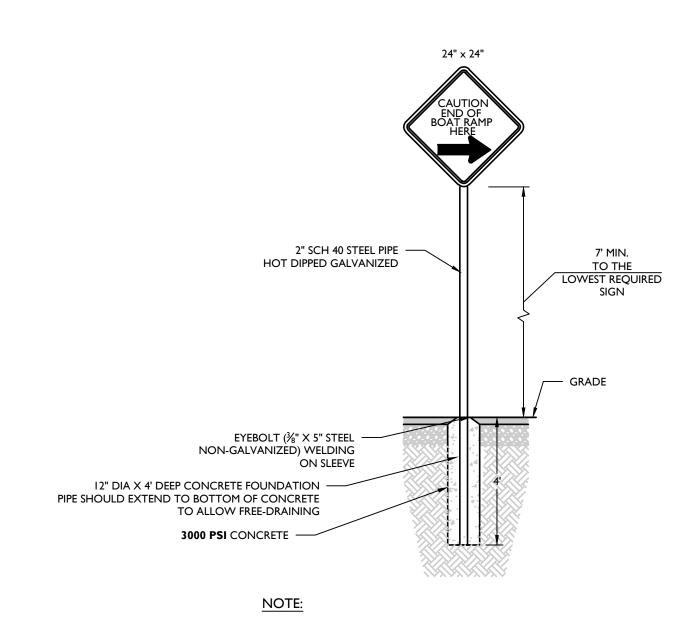
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	SCALE : 1" = 10'										

P $S = 12^{56}51^{7} E = 341.44^{7}$ (TO PIERHEAD LINE) x = 36	<ul> <li>And the expression of the expression of</li></ul>
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MW (1107)	Image: State of the state
TIDAL RANGEREFERENCED TO NAVD88MHW2.09'MHW1.79'MTL09'MLW-1.62'MLLW-1.74'	RAMP         BOROUGH OF FAIR HAVEN MONMOUTH COUNTY NEW JERSEY         Image: Composition of the system of the syste
	SHEET TITLE: EXISTING CONDITIONS & DEMOLITION PLAN BATTIN ROAD SHEET NUMBER: S-2.1



#### <u>NOTES:</u>

- I. 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 INSURACE RATE MAP REVISED SEPTEMBER 25, 2009, MAP NUMBER 34025C0181F.
- 5. THE SITE IS LOCATED IN THE AE FLOOD ZONE EL. 9'.



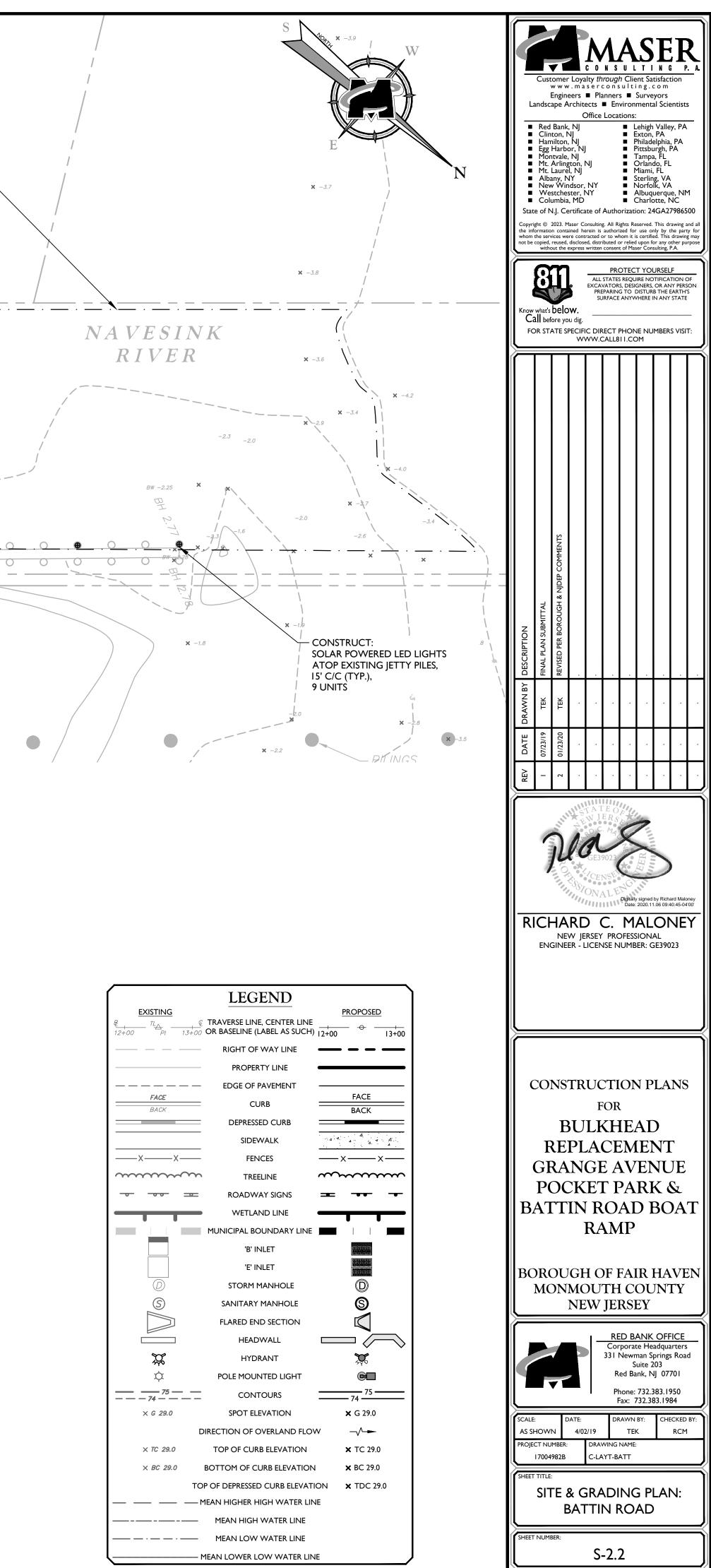
LEFT SIDE SHOWN. RIGHT SIDE SIMILAR.

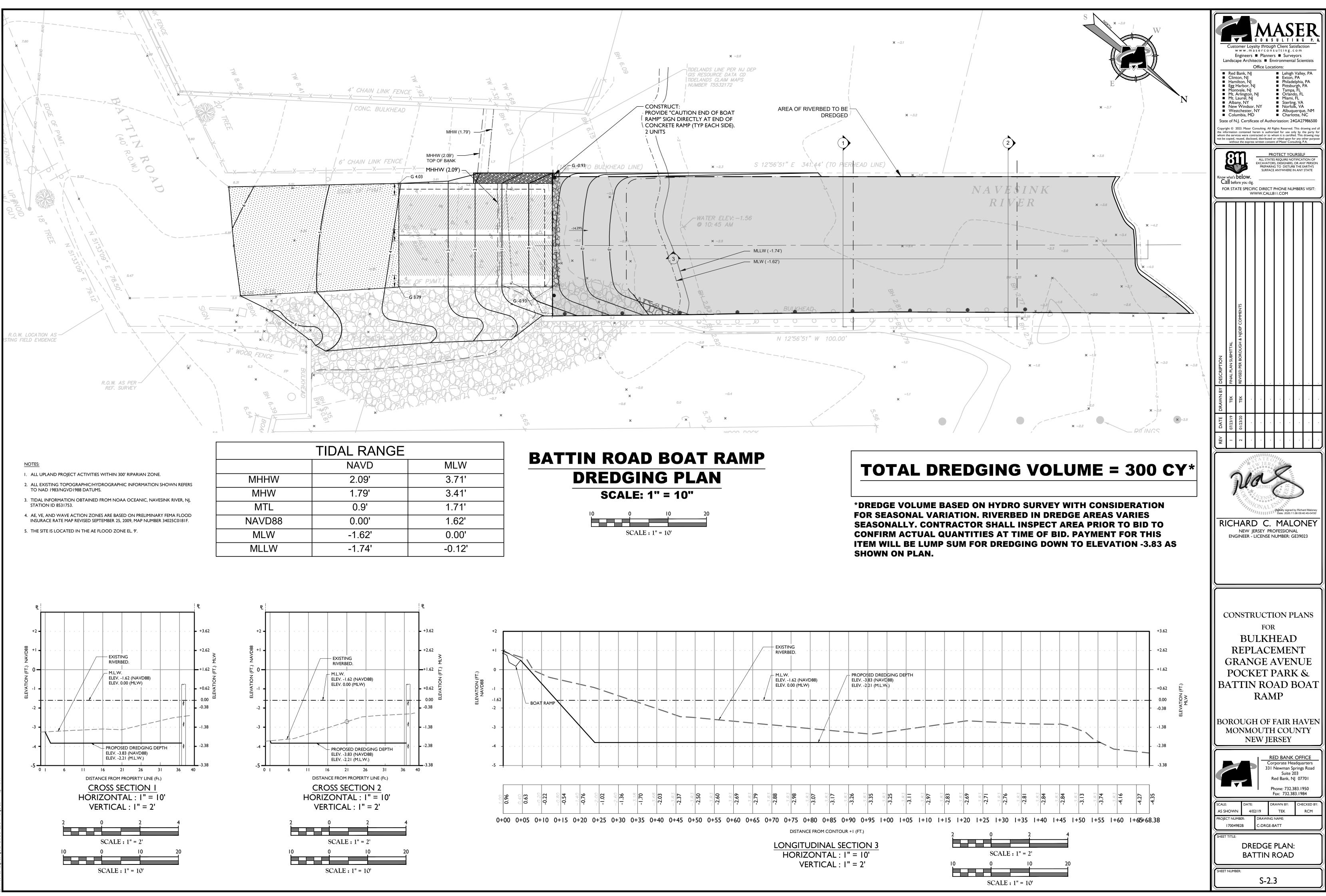


# BATTIN ROAD BOAT RAMP SITE AND GRADING PLAN

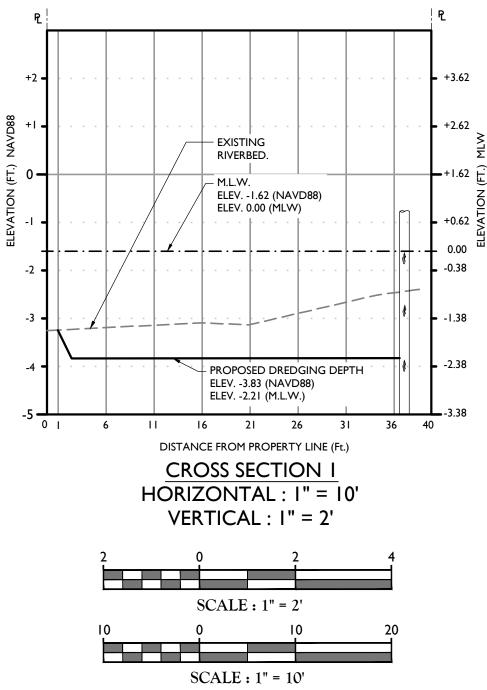
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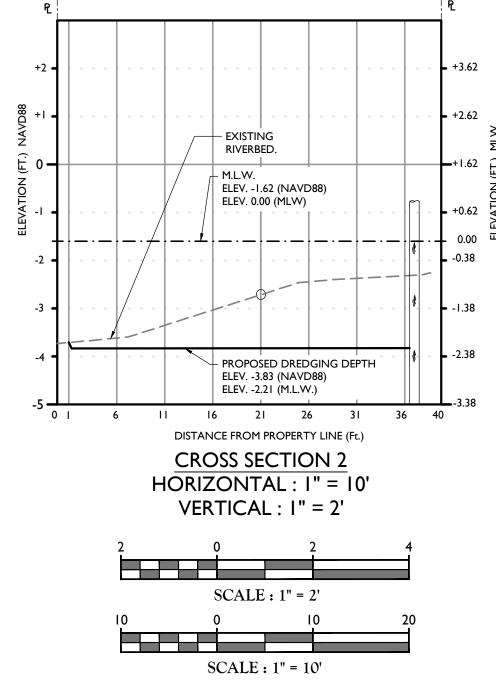
10 0 10 20 SCALE : 1" = 10'

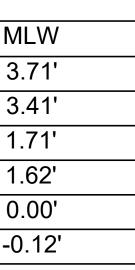


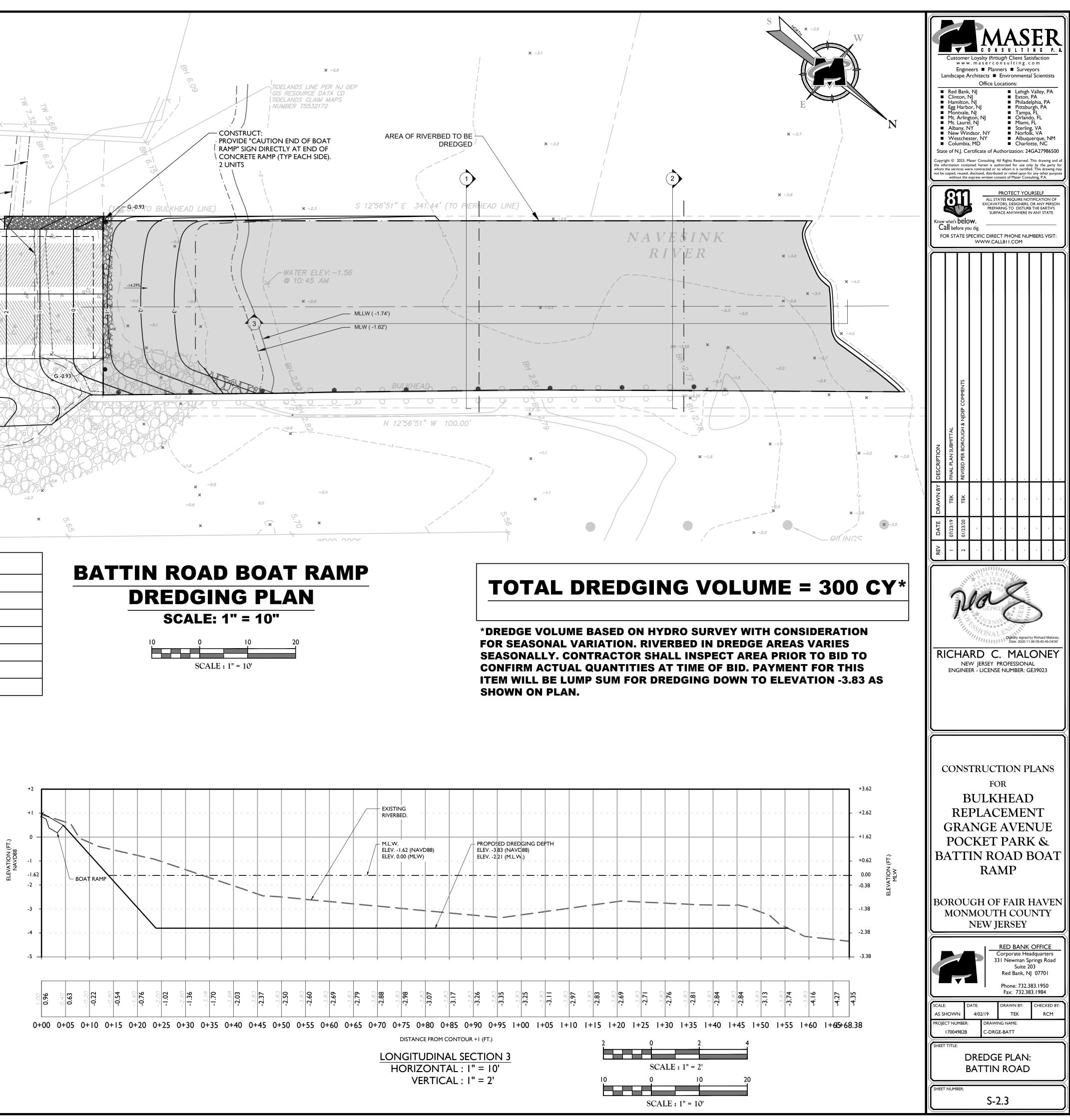


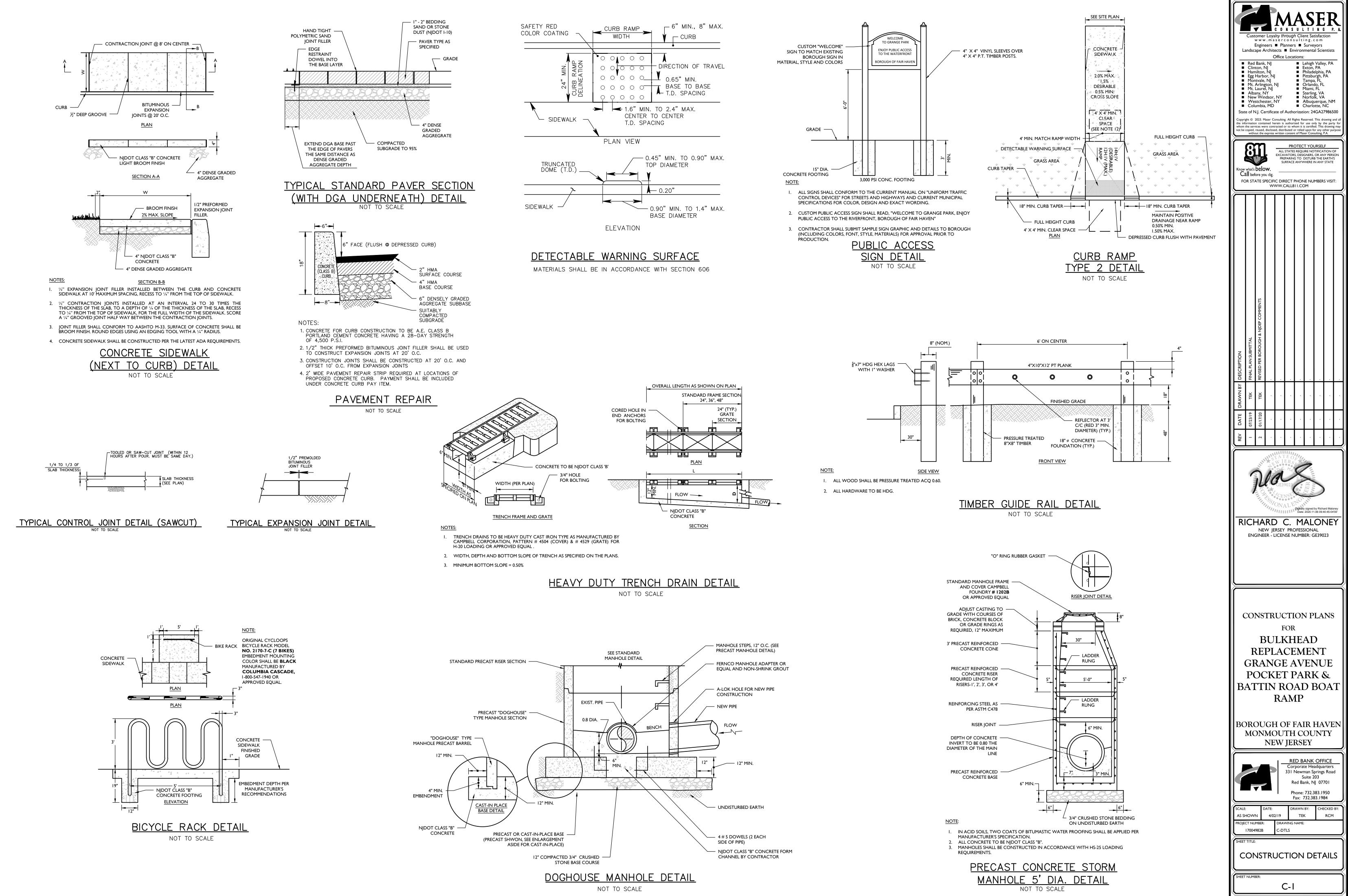
	TIDAL RANGE	
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MHHW	2.09'	
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MLW	-1.62'	
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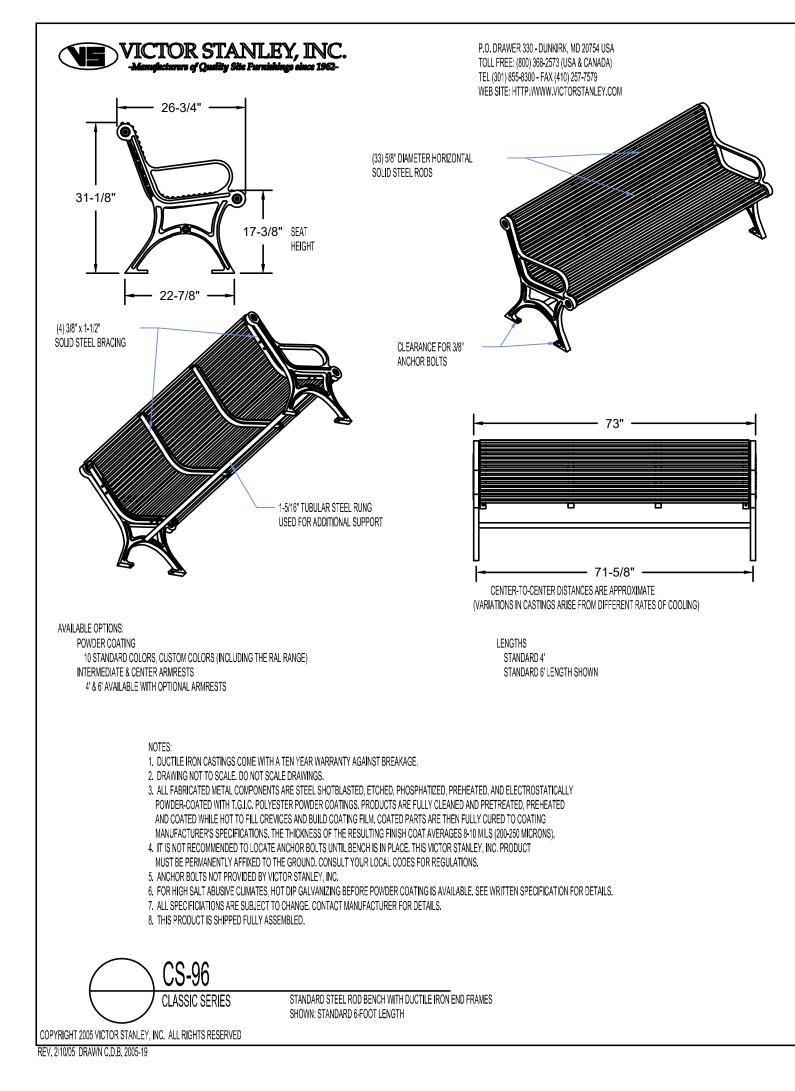






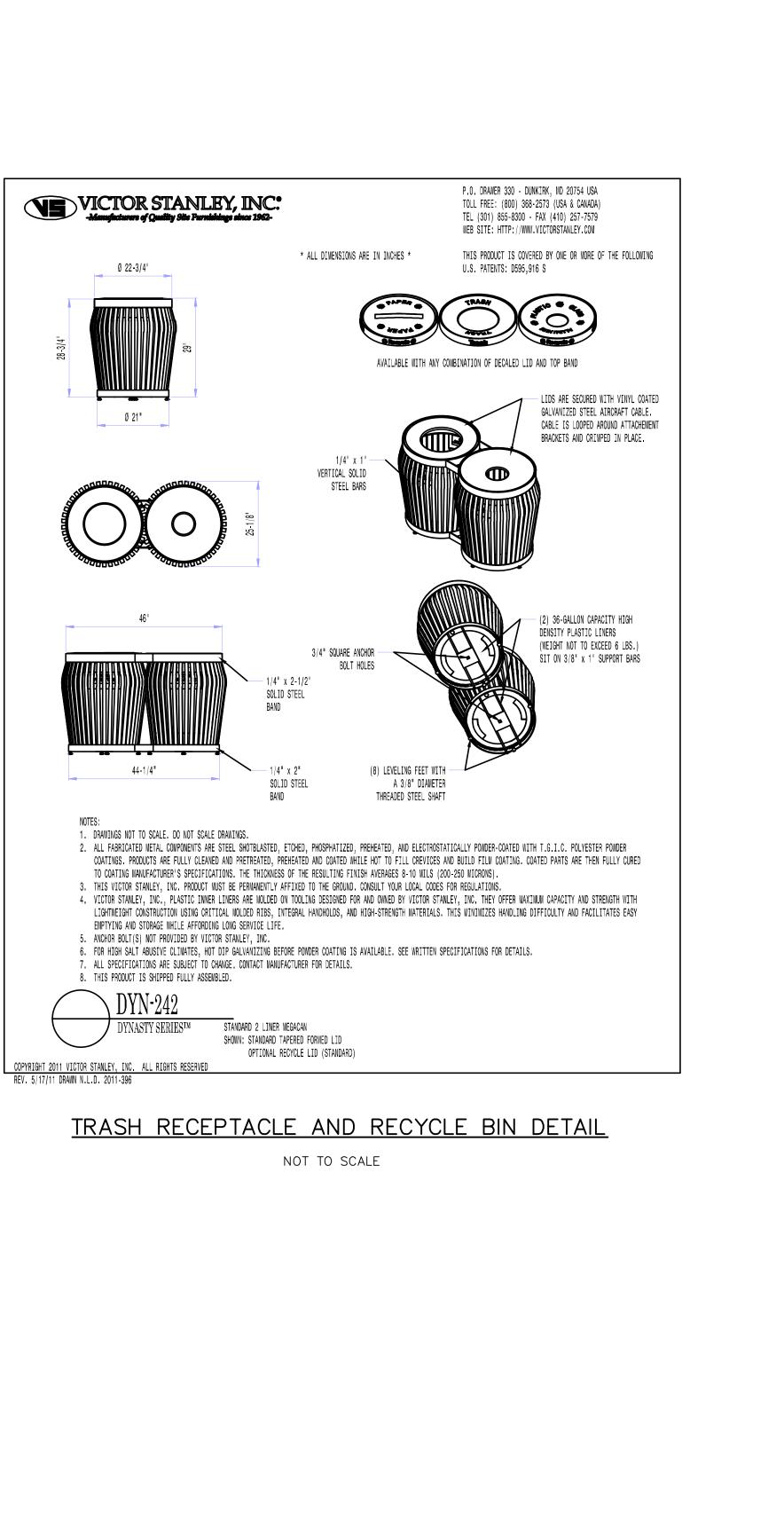




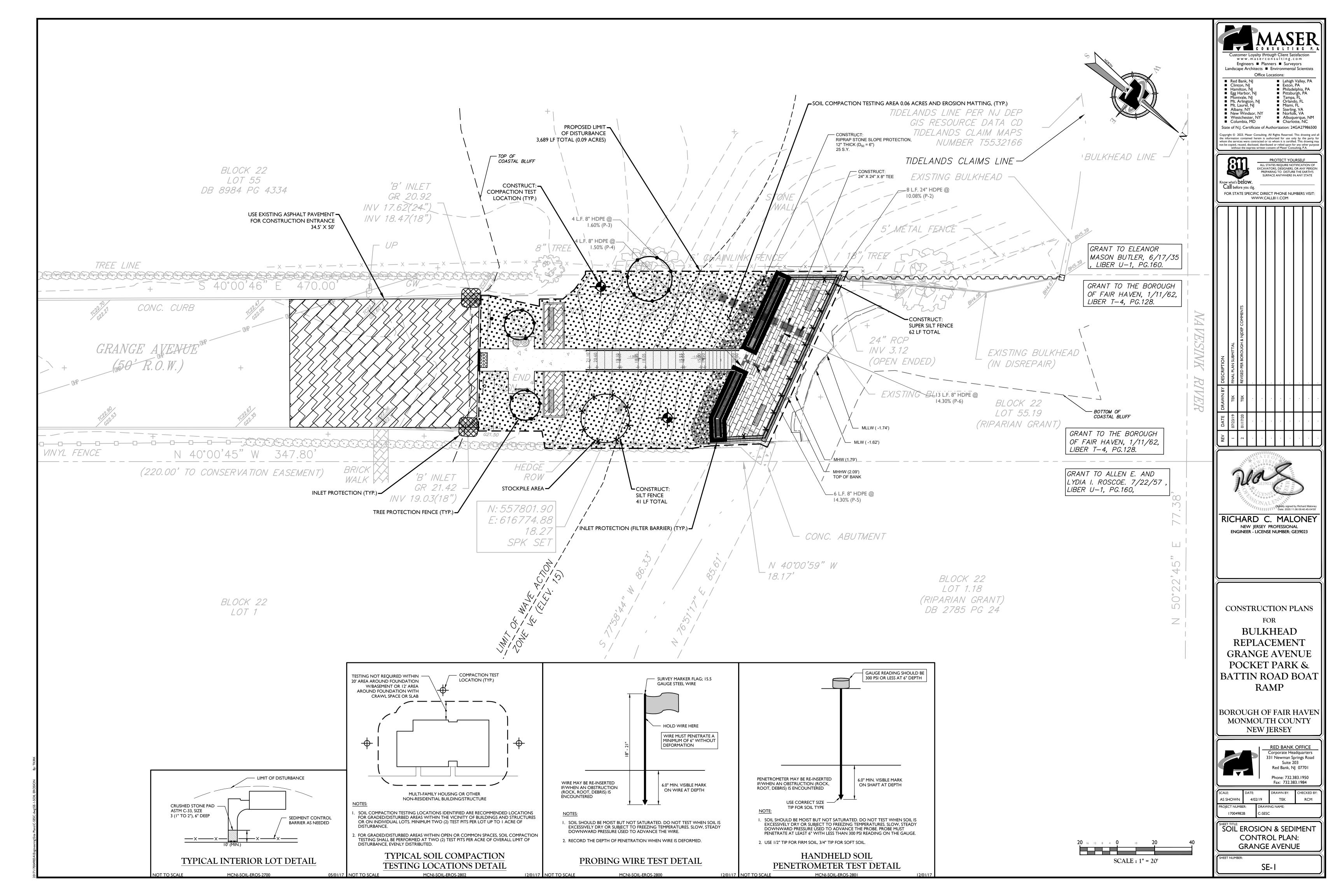


BENCH DETAIL

NOT TO SCALE



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CENSP	RICHARD C. MALONEY NEW JERSEY PROFESSIONAL	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	DATE DRAWN BY	I 07/23/19 TEK	2 01/17/20 TEK			E O O O O O O O O O O O O O O O O O O O					
FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP BOROUGH OF FAIR HAVEN MONMOUTH COUNTY NEW JERSEY	Corporate Headquarters 331 Newman Springs Road Suite 203 Red Bank, NJ 07701 Phone: 732.383.1950 Fax: 732.383.1984	SCALE: DATE: DRAWN BY: CHECKED BY:			V 1			R Pi F	S ed Ba hone: =ax: 7	uite 2 ink, N 732.3 732.3	203 4J 07 383.19 83.19	950 84	
FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP BOROUGH OF FAIR HAVEN MONMOUTH COUNTY NEW JERSEY	Corporate Headquarters 331 Newman Springs Road Suite 203 Red Bank, NJ 07701 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: 17004982B C-DTLS SHEET TITLE:	AS SHOWN 4/02/19 TEK RCM PROJECT NUMBER: DRAWING NAME: 17004982B C-DTLS SHEET TITLE:	AS S PROJE	HOW CT NU 17004	IMBER:	4/0	DRAV C-D	R PI F DF WING TLS	S ed Ba hone: Fax: 7 RAWN TEI NAME	uite 2 ink, N 732.3 732.3 BY: <	203 4J 07 383.19 83.19 CHI	950 84 ECKED RCM	BY:



#### FREEHOLD SOIL CONSERVATION DISTRICT NOTES

- THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY
- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHE
- ANY CHANGES TO THE CERTIFIED SOIL FROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS
- N.I.S.A. 4:24-39 ET, SEO, REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRIC DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE CERTIFIED PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW IERSEY AND A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH PROVIDES TEMPORARY PROTECTION AGAINST THE IMPACTS OF WIND AND RAIN, SLOWS THE OVER LAND MOVEMENT OF CONDITIONS ON A LOT-BY-LOT OR SECTION-BY-SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL OR OTHER STORMWATER CONVEYANCES. EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN FOURTEEN (14) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC. WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALEN MATERIAL, AT A RATE OF 2 TO 2 1/2 TONS PER ACRE, ACCORDING TO THE STANDARD FOR STABILIZATION WITH
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. SOIL STOCKPILES. STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS
- A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF 1PROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
- THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ACCESS CONSISTING OF ONE INCH D TWO INCH (1" - 2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
- ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY
- PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL
- AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED. ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
- IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS/ACRE, (OR 450 LBS/1,000 SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12" OF SETTLED SOIL WITH A PH OF 5 OR MORE, OR 24" WHERE TREES OR SHRUBS ARE TO BE PLANTED.
- CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL
- UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERIN
- SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY. THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
- STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. ERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
- ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT
- THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

FREEHOLD SOIL CONSERVATION DISTRICT 4000 KOZLOSKI ROAD, FREEHOLD, NJ 07728-5033, PHONE (732) 683-8500, FAX (732) 683-9140, EMAIL: INFO@FREEHOLDSCD.ORG.

#### STANDARD FOR STABILIZATION FOR MULCH ONLY

- SITE PREPARATION A. INSTALL EROSION CONTROL MEASURES AND FACILITIES SUCH AS SILT FENCE, DIVERSIONS, SEDIMENT BASINS, CHANNEL STABILIZATION, ETC. SEE STANDARDS IT THROUGH 42. B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR MULCH APPLICATION, MULCH ANCHORING AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
- A. MULCHING IS REQUIRED ON ALL SEEDING. B. STRAW OR HAY - UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 2 TO 2-1/2 TONS PER ACRE (90 TO 115 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER TACKIFYING OR ADHESIVE AGENT THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND TH HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER PLACEMENT USING PEG AND TWINE, MULCH NETTING, MECHANICAL CRIMPER OR LIQUID MULCH BINDERS IN ACCORDANCE WITH THE STANDARD
- WOOD-FIBER OR PAPER-FIBER MULCH SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.
- ACID PRODUCING SOILS I. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH AID PRODUCING SOILS ARE
- 2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED
- HIGH ACID PRODUCING SOILS. 3. STOCKPILES OF HIGH ACID PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS
- MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CO . TEMPORARILY STOCKPILED HIGH ACID PRODUCING SOIL MATERIAL TO BE EXPOSED MORE THAN 30 DAYS SHOULD BE COVERED WITH PROPERLY ANCHORED HEAVY GRADE SHEETS OF POLYETHYLENE
- WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID PRODUCING SOIL
- 5. HIGH ACID PRODUCING SOILS WITH A DH OF 4 OR LESS, OR CONTAINING IRON SULFIDE, (INCLUDING BORROW FROM CUTS) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT A RATE OF 6 TONS PER ACRE (OR 275 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5 OR MORE EXCEPT AS
- A. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A pH OF 5 OR MORE. B. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OF BANK, SUCH AS BERMS, STREAM BANKS, DITCHES AND OTHERS TO PREVENT POTENTIAL LATERAL
- 6 FOUIPMENT USED FOR MOVEMENT OF HIGH ACID PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID SOIL MATERIALS TO OTHER PARTS THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES AND TO PROTECT MACHINERY FROM
- 7. NON VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SILT FENCE, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID PRODUCING SOILS FROM, AROUND OR OFF THE SITE. 8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID PRODUCING SOIL, TOPSOILING AND SEEDING OF
- THE SITE, (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PG. 7-1, PERMANEN VEGETATIVE COVER FOR SOIL STABILIZATION, PG. 4-1 AND TOPSOILING, PG 8-1) MONITORING SHOULD CONTINUE FOR APPROXIMATELY 6 TO 12 MONTHS TO ASSURE THERE IS ADEOUATE ATION AND THAT NO HIGH ACID SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.
- MONITORING OF AREAS WHERE HIGH ACID PRODUCING SOIL HAS BEEN PLACED OR BURIED SHOULD BE PERFORMED FOR AT LEAST 2 YEARS OR LONGER IF PROBLEMS OCCURS, TO ASSURE THERE IS NO MIGRATION OF POTENTIAL ACID LEACHATE

## DUST CONTROL NOTE

DUST GENERATION SHALL BE CONTROLLED ON A CONSTANT BASIS BY WETTING THE SURFACE AND/OR APPLICATION OF CALCIUM CHLORIDE

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GAL/ACRE			
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1200			
LATEX EMULSION	12.5:1	FINE SPRAY	235			
RESIN IN WATER	4:1 FINE SPRAY 300					
Polyacrylamide (Pam) - Spray on Polyacrylamide (Pam) - Dry Spread	Apply according to manufacturer's instructions. also be used as an additive to sediment basin flocculate and precipiate suspended colloids. Se Sediment Basin standard, p. 26–1					
ACIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200			

TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EOUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT. SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.

BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING

CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL

#### STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION DEFINITION

#### ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER ON SOILS EXPOSED FOR PERIODS OF TWO TO 6 MONTHS WHICH ARE NOT BEING GRADED, NOT UNDER ACTIVE CONSTRUCTION OR NOT SCHEDULED FOR PERMANENT SEEDING WITHIN 60 DAYS.

#### PURPOSE

TO TEMPORARILY STABILIZE THE SOIL AND REDUCE DAMAGE FROM WIND AND WATER EROSION UNTIL PERMANENT STABILIZATION IS ACCOMPLISHED

WATER QUALITY ENHANCEMENT

#### WHERE APPLICABLE

ON EXPOSED SOILS THAT HAVE THE POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE. METHODS AND MATERIALS

- I. SITE PREPARATION
  - GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BI DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, PG. 19-1.
  - INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE stabilization structures, channel stabilization measures, sediment basins, and waterways. SEE STANDARDS 11 THROUGH 42.
  - IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

#### SEEDBED PREPARATION

- APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL GERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SOUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE AT THE RATE OF 2 ONS/ACRE UNLESS SOIL TESTING INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.
- WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC. SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT, THE FINAL HARROWING OR DISKING DPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE JNIFORM SEEDBED IS PREPARED
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED IN ACCORDANCE WITH THE ABOVE

SOILS HIGH IN SULFIDES OR HAVING A PH OF 4 OR LESS REFER TO STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, PG. 1-

- SELECT SEED FROM RECOMMENDATIONS IN TABLE 7-2. Α.
- OPTIMUM SEEDING DATE SEEDING RATE ASED ON PLANT HARDINESS PTIMUM (POUNDS) ZONE ³ SEED DEPTH⁴ SEED SELECTIONS (INCHES) ZONE ZONE 7A. B COOL SEASON GRASSES PERENNIAL RYEGRASS /1 - 5/15 2/15 - 5/ SPRING OATS 8/15 -8/15 WINTER BARLEY 96 2.2 8/1 - 9/15 1.0 /15 - 6/1 3/15 - 6/ ANNUAL RYEGRASS WINTER CEREAL TYE 2.8 112 WARM SEASON GRASSES PEARL MILLE 0.5 MILLE I (GERMAN OR HUNGARIAN) 30 0.5 6/1 - 8/1 8/15 5/1 - 9/1

MUI CHING

3. SEEDING

I. SITE PREPARATION

SEEDING RATE FOR WARM SEASON GRASS SELECTIONS 5 - 7 SHALL BE ADJUSTED TO REFLECT THE AMOUNT OF PURE INE SEED (PLS) AS DETERMINE BY A GERMINATION TEST RESULT. NO ADJÚSTMENT IS REQUIRED FOR COOL SEASON MAY BE PLANTED THROUGHOUT SUMMER IF SOIL MOISTURE IS ADEQUATE OR SEEDED AREA CAN BE IRRIGATED. PLANT HARDINESS ZONE (SEE FIGURE 7-1, PG. 7-4.) . TWICE THE DEPTH FOR SANDY SOILS

- B. CONVENTIONAL SEEDING. APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE NCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.
- C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION IV MULCHING) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED SERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL
- D. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT. RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE

EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC

4. MULCHING

- MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT
- A. STRAW OR HAY. UNNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SOUARE FEET). EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED
- APPLICATION. SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 95% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA IN APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.
- ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS. 1. PEG AND TWINE, DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE
- EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND A SQUARE ATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS. MULCH NETTINGS. STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A
- DEGRADABLE NETTING IN AREAS TO BE MOWED.
- CRIMPER (MULCH ANCHORING TOOL). A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED. 4. LIQUID MULCH-BINDERS. - MAY BE USED TO ANCHOR HAY OR STRAW MULCH.
- APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND MAY CATCH THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. THE REMAINDER OF THE AREA SHOULD BE UNIFORM IN APPEARANCE b. USE ONE OF THE FOLLOWING
- (1) ORGANIC AND VEGETABLE BASED BINDERS NATURALLY OCCURRING, POWDER BASED HÝDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOTOXIC EFFECT OR IMPEDE GROWTH OF TURFGRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE, SOME OF WHICH MAY NEED FURTHER EVALUATION FOR USE IF
- (2) SYNTHETIC BINDERS HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH. DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

NOTE: ALL NAMES GIVE ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A COMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

- B. WOOD-FIBER OR PAPER-FIBER MULCH. SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 PONDS PER ACRE (OR AS RECOMMENDED BY THE PROJECT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN
- CO-POLYMERS, TACKIFIERS, FERTILIZERS AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED FORMA MULCH MAT, PELLETIZED MULCH SHALL BE APPLIES IN ACCORDANCE WITH THE ANUFACTURERS RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS./1.000 SOUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEE FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS, SEEDED AREAS WHERE WEED-SEED FREE MULCH IS DESIRED OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE.

APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

### STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

METHODS AND MATERIALS

GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED EPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARD FOR LAND GRADING IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION. THE SUBSOIL SHALL BE EVALUATED FOR

OMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE TANDARD FOR TOPSOILING

INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS GRADE-STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.

2. SEEDBED PREPARATION UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND EXTENSION SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES (HTTP://NJAES.RUTGERS.EDU/COUNTY/). FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-10 OR EQUIVALENT WITH 50% WATER NSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES, IF FERTILIZER IS NOT INCORPORATED, APPLY ONE-HALF THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF RATE APPLICATION OF THE SAME

> WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE JNIFORM SEEDBED IS PREPARED

FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.

HIGH ACID PRODUCING SOIL. SOILS HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5 OR MORE BEFORE INITIATING SEEDBED REPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID-PRODUCING SOILS FOR SPECIFIC REQUIREMENTS.

SELECT A MIXTURE FROM TABLE 4-3 OR USE A MIXTURE RECOMMENDED BY RUTGERS COOPERATIVE EXTENSION OR NATURAL RESOURCES CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT. SEED GERMINATION SHALL HAVE BEEN TESTED WITHIN 12 MONTHS OF THE PLANTING DATE. NO SEED SHALL BE ACCEPTED WITH A GERMINATION TEST DATE MORE THAN 12 MONTHS OLD UNLESS RETESTED.

- SEEDING RATES SPECIFIED ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO A REPORT OF COMPLIANCE INSPECTION. THESE RATES APPLY TO ALL METHODS OF SEEDING ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVERAGE WITH THE SPECIFIED SEED MIXTURE FOR THE SEEDED AREA AND MOWED ONCE.
- WARM-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT TEMPERATURES GENERALLY 850 F AND ABOVE SEE TABLE 4-3 MIXTURES I TO 7 PLANTING RATES FOR WARM-SEASON GRASSES SHALL BE THE AMOUNT OF PURE LIVE SEED (PLS) AS DETERMINED BY GERMINATION TESTING RESULTS.
- COOL-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT TEMPERATURES BELOW 85°F. MANY GRASSES BECOME ACTIVE AT 65°F. SEE TABLE 4-3. MIXTURES 8-20. ADJUSTMENT OF PLANTING RATES TO COMPENSATE FOR THE AMOUNT OF PLS IS NOT REQUIRED FOR COOL SEASON GRASSES.
- CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER. DROP SEEDER. DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED. HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE-TEXTURED SOIL
- AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK, OR TRAILER-MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORTFIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING, (ALSO SEE SECTION 4-MULCHING BELOW), HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH.

MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL PROTECT AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND FARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT

> STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, TO BE APPLIED AT THE RATE OF I-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION - SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT AT LEAST 85% OF THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1.000 SOUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH

ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS.

- PEG AND TWINE. DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS. 2. MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE
- DEGRADABLE NETTING IN AREAS TO BE MOWED 3. CRIMPER (MULCH ANCHORING COULTER TOOL) - A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG IBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT, THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.
- 4. LIQUID MULCH-BINDERS MAY BE USED TO ANCHOR SALT HAY, HAY OR STRAW MULCH. a. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND MAY CATCH THE MULCH. IN VALLEYS, AND AT CRESTS OF BANKS. THE REMAINDER OF THE AREA SHOULD BE UNIFORM IN APPEARANCE.
- b. USE ONE OF THE FOLLOWING: ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING POWDER-BASED, HYDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOTOXIC EFFECT OR IMPEDE GROWTH OF TURF GRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE, SOME OF
  - WHICH MAY NEED FURTHER EVALUATION FOR USE IN THIS STATE. (2) SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND, FOLLOWING APPLICATION OF MULCH, DRYING AND CURING, SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. BINDER SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.
- NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS

WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER, MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL

PELLETIZED MULCH - COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS, AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED, FORM A MULCH MAT. PELLETIZED MULCH SHALL BE APPLIED N ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1.000 SOUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS SEEDED AREAS WHERE WEEDSEED FREE MULICH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE. APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE. IRRIGATION (WHERE FEASIBLE)

IF SOIL MOISTURE IS DEFICIENT SUPPLY NEW SEEDING WITH ADEOUATE WATER (A MINIMUM OF 1/4 INCH APPLIED UP TO TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES. TOPDRESSING SINCE SOIL ORGANIC MATTER CONTENT AND SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE) ARE

PRESCRIBED IN SECTION 2A - SEEDBED PREPARATION IN THIS STANDARD, NO FOLLOW-UP OF TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE GROSS NITROGEN DEFICIENCY EXISTS IN THE SOIL TO THE EXTENT THAT TURF FAILURE MAY DEVELOP. IN THAT INSTANCE, TOPDRESS WITH 10-10-10 OR EQUIVALENT AT 300 POUNDS PER ACRE OR 7 POUNDS PER 1,000 SQUARE FEET EVERY 3 TO 5 WEEKS UNTIL THE GROSS NITROGEN DEFICIENCY IN THE TURF IS AMELIORATED. ESTABLISHING PERMANENT VEGETATIVE STABILIZATION

THE OLIALITY OF PERMANENT VEGETATION RESTS WITH THE CONTRACTOR. THE TIMING OF SEEDING, PREPARING THE SEEDBED, APPLYING NUTRIENTS, MULCH AND OTHER MANAGEMENT ARE ESSENTIAL. THE SEED APPLICATION RATES IN TABLE 4-3 ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN APPLICATION RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO REQUESTING A REPORT OF COMPLIANCE FROM THE DISTRICT. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVER (OF THE SEEDED SPECIES) AND MOWED ONCE. NOTE THIS DESIGNATION OF MOWED ONCE DOES NOT GUARANTEE THE PERMANENCY OF THE TURF SHOULD OTHER MAINTENANCE FACTORS BE NEGLECTED OR OTHERWISE MISMANAGED.

## CONSTRUCTION SITE WASTE CONTROL

- I. THE CONSTRUCTION SITE WASTE CONTROL COMPONENT OF THE SPPP CONSISTS OF THE REQUIREMENTS IN 2., 3., AND 4. BELOW. THESE REQUIREMENTS BECAME OPERATIVE ON MARCH 3, 2004 AND APPLY TO CONSTRUCTION ACTIVITIES THAT COMMENCE ON OR AFTER MARCH 3, 2004. ANY NEW CONSTRUCTION ACTIVITY FOR WHICH AN RFA IS SUBMITTED ON OR AFTER MARCH 3, 2004 OR WHICH RECEIVE AUTOMATIC RENEWAL OF AUTHORIZATION UNDER THIS PERMIT AFTER MARCH 3, 2004 ALSO SHALL COMPLY WITH THESE REQUIREMENTS.
- 2. MATERIAL MANAGEMENT TO PREVENT OR REDUCE WASTE ANY PESTICIDES, FERTILIZERS, FUELS, LUBRICANTS, PETROLEUM PRODUCTS, ANTI-FREEZE, PAINTS AND PAINT THINNERS, CLEANING SOLVENTS AND ACIDS, DETERGENTS, CHEMICAL ADDITIVES, AND CONCRETE CURING COMPOUNDS SHALL BE STORED IN CONTAINERS IN A DRY COVERED AREA. MANUFACTURERS' RECOMMENDED APPLICATION RATES, USES, AND METHODS SHALL BE STRICTLY FOLLOWED TO THE EXTENT NECESSARY TO PREVENT OR MINIMIZE THE PRESENCE OF WASTE FROM SUCH MATERIALS IN THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT. (THE PRECEDING SENTENCE DOES NOT APPLY TO ANY MANUFACTURERS RECOMMENDATIONS ABOUT FERTILIZER OR OTHER MATERIAL THAT CONFLICT WITH THE EROSION AND SEDIMENT CONTROL COMPONENT OF THE FACILITY'S SPPP.
- WASTE HANDLING THE FOLLOWING REQUIREMENTS APPLY ONLY TO CONSTRUCTION SITE WAST THAT HAS THE POTENTIAL TO BE TRANSPORTED BY THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT. THE HANDLING AT THE CONSTRUCTION SITE OF WASTE BUILDING MATERIAL AND RUBBLE AND OTHER CONSTRUCTION SITE WASTES, INCLUDING LITTER AND HAZARDOUS AND SANITARY WASTES, SHALL CONFORM WITH THE STATE SOLID WASTE MANAGEMENT ACT, N.J.S.A. 13:1E-1 ET SEQ. AND ITS IMPLEMENTING RULES AT N.J.A.C. 7:26, 7:26A, AND 7:26G; THE NEW JERSEY PESTICIDE CONTRO CODE AT N.I.A.C. 7:30: THE STATE LITTER STATUTE (N.I.S.A. 13:1E-99.3); AND OSHA REOUIREMENTS FOR SANITATION AT 29 C.F.R. 1926 (EXCEPT WHERE SUCH CONFORMANCE IS NOT RELEVANT TO THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT). CONSTRUCTION SITES SHALL HAVE ONE OR MORE DESIGNATED WASTE COLLECTION AREAS ONSITE OR ADJACENT TO THE SITE, AND AN ADEOUATE NUMBER OF CONTAINERS (WITH LIDS OR COVERS) FOR WASTE, WASTE SHALL BE COLLECTED FROM SUCH CONTAINERS BEFORE THEY OVERFLOW, AND SPILLS AT SUCH CONTAINERS SHALL BE CLEANED UP IMMEDIATELY.
- a. CONSTRUCTION SITE WASTES INCLUDE BUT ARE NOT LIMITED TO: i. "CONSTRUCTION AND DEMOLITION WASTE," AS DEFINED IN N.J.A.C. 7:26-1.4 AS FOLLOWS: "WASTE BUILDING MATERIAL AND RUBBLE RESULTING FROM CONSTRUCTION, REMODELING, REPAIR, AND DEMOLITION OPERATIONS ON HOUSES, COMMERCIAL BUILDINGS, PAVEMENTS AND OTHER STRUCTURES. THE FOLLOWING MATERIALS MAY BE FOUND IN CONSTRUCTION AND DEMOLITION WASTE: TREATED AND UNTREATED WOOD SCRAP: TREE PARTS. TREE STUMPS AND RUSH; CONCRETE, ASPHALT, BRICKS, BLOCKS AND OTHER MASONRY; PLASTER AND WALLBOARD: ROOFING MATERIALS: CORRUGATED CARDBOARD AND MISCELLANEOUS PAPER: FERROUS AND NON-FERROUS METAL; NON-ASBESTOS BUILDING INSULATION; PLASTIC SCRAP; DIRT: CARPETS AND PADDING: GLASS (WINDOW AND DOOR); AND OTHER MISCELLANEOUS
- MATERIALS; BUT SHALL NOT INCLUDE OTHER SOLID WASTE TYPES. ii ANY WASTE BUILDING MATERIAL AND BUBBLE RESULTING FROM SUCH OPERATIONS THAT IS ZARDOUS FOR PURPOSES OF N.I.A.C. 7:26G (THE HAZARDOUS WASTE RULES iii. DISCARDED (INCLUDING SPILLED) PESTICIDES, FERTILIZERS, FUELS, LUBRICANTS, PETROLEUM
- PRODUCTS, ANTI-FREEZE, PAINTS AND PAINT THINNERS, PAINT CHIPS AND SANDBLASTING GRITS, CLEANING SOLVENTS, ACIDS FOR CLEANING MASONRY SURFACES, DETERGENTS, EMICAL ADDITIVES USED FOR SOIL STABILIZATION (E.G., CALCIUM CHLORIDE), AND CONCRETE CURING COMPOUNDS. V OTHER "LITTER." AS DEFINED AT N.I.S.A. 13:1E-215.D AS FOLLOWS: "ANY USED OR UNCONSUMED
- SUBSTANCE OR WASTE MATERIAL WHICH HAS BEEN DISCARDED WHETHER MADE OF ALUMINUM GLASS PLASTIC RUBBER PAPER OR OTHER NATURAL OR SYNTHETIC MATERIAL OR ANY COMBINATION THEREOF, INCLUDING, BUT NOT LIMITED TO, ANY BOTTLE, JAR OR CAN, OR ANY TOP, CAP OR DETACHABLE TAB OF ANY BOTTLE, JAR OR CAN, ANY UNLIGHTEE CIGARETTE, CIGAR, MATCH OR ANY FLAMING OR GLOWING MATERIAL OR ANY GARBAGE RASH, REFUSE, DEBRIS, RUBBISH, GRASS CLIPPINGS OR OTHER LAWN OR GARDEN WASTE NEWSPAPERS MAGAZINES GLASS METAL PLASTIC OR PAPER CONTAINERS OR OTHER PACKAGING OR CONSTRUCTION MATERIAL, BUT DOES NOT INCLUDE THE WASTE OF THE PRIMARY PROCESSES OF MINING OR OTHER EXTRACTION PROCESSES, LOGGING, SAWMILLING FARMING OR MANUFACTURING."
- V SANITARY SEWAGE AND SEPTAGE

SURVEY AND LAYOUT.

- vi. CONTAMINATED SOILS ENCOUNTERED OR DISCOVERED DURING EARTHMOVING ACTIVITIES OR DURING THE CLEANUP OF A LEAK OR DISCHARGE OF A HAZARDOUS SUBSTANCE. b. CONCRETE TRUCK WASHOUT - CONCRETE TRUCK WASHOUT ONSITE IS PROHIBITED OUTSIDE designated areas. Designated washout areas shall be lined and bermed to prevent
- DISCHARGES TO SURFACE AND GROUND WATER. HARDENED CONCRETE FROM CONCRETE RUCK WASHOUT SHALL BE REMOVED AND PROPERLY DISPOSED OF. c. SANITARY SEWAGE/SEPTAGE DISPOSAL - DISCHARGES OF RAW SANITARY SEWAGE OR SEPTAGE ONSITE ARE STRICTLY PROHIBITED. ADEQUATE FACILITIES WITH PROPER DISPOSAL SHALL BE PROVIDED AND MAINTAINED ONSITE OR ADJACENT TO THE SITE FOR ALL WORKERS AND
- OTHER SANITARY NEEDS 4. SPILLS; DISCHARGES OF HAZARDOUS SUBSTANCES; FEDERALLY REPORTABLE RELEASES. a. SPILL KITS SHALL BE AVAILABLE ONSITE OR ADJACENT TO THE SITE FOR ANY MATERIALS THAT
- ARE LISTED IN 2. ABOVE AND USED OR APPLIED ONSITE. ALL SPILLS OF SUCH MATERIAL SHALL BE CONTAINED AND CLEANED UP IMMEDIATELY. CLEANED UP MATERIALS SHALL BE PROPERLY DISPOSED OF
- b. DISCHARGES OF HAZARDOUS SUBSTANCES (AS DEFINED IN N.I.A.C. 7:1E-1.6) IN CONSTRUCTION SITE WASTES ARE SUBJECT TO THE PROVISIONS OF THE SPILL COMPENSATION AND CONTROL ACT, N.J.S.A. 58:10-23.11 ET SEQ., AND OF DEPARTMENT RULES FOR DISCHARGES OF PETROLEUM AND OTHER HAZARDOUS SUBSTANCES AT N.J.A.C. 7:1E. NO DISCHARGE OF HAZARDOUS SUBSTANCES RESULTING FROM AN ONSITE SPILL SHALL BE DEEMED TO BE "PURSUANT TO AND IN COMPLIANCE WITH [THIS] PERMIT" WITHIN THE MEANING OF THE SPILL COMPENSATION AND CONTROL ACT AT N.I.S.A. 58:10-23.11C.
- RELEASES IN EXCESS OF REPORTABLE QUANTITIES (RQ) ESTABLISHED UNDER 40 C.F.R. 110, 117, AND 302 THAT OCCUR WITHIN A 24-HR PERIOD MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER (800 424-8802)

STANDARD FOR LAND GRADING DEFINITION

SHAPING THE GROUND SURFACE BY GRADING TO PLANNED ELEVATIONS WHICH ARE DETERMINED BY TOPOGRAPHIC PURPOSE

THE PRACTICE IS FOR ONE OR MORE OF THE FOLLOWING: PROVIDE MORE SUITABLE SITES FOR LAND DEVELOPMENT; IMPROVE SURFACE DRAINAGE AND CONTROL FROSION

CONDITIONS WHERE PRACTICE APPLIES THIS PRACTICE IS APPLICABLE WHERE GRADING TO PLANNED ELEVATIONS IS PRACTICAL AND IT IS DETERMINED THAT

GRADING IS NEEDED. GRADING THAT INVOLVES THE DISTURBANCE OF VEGETATION OVER LARGE AREAS SHALL BE AVOIDED. IT MAY BE NECESSARY TO PROVIDE FOR TEMPORARY STABILIZATION OF LARGE AREAS. WATER OUALITY ENHANCEMENT

PROPER GRADING OF DISTURBED SITES WILL PROTECT AGAINST SOIL LOSS FROM EROSION, ENHANCE ESTABLISHMENT OF ALL DISTURBED AREAS SHALL BE LEFT WITH A NEAT AND FINISHED APPEARANCE AND SHALL BE PROTECTED FROM PERMANENT VEGETATIVE COVER AND HELP TO PROPERLY MANAGE STORMWATER RUNOFF ALL OF WHICH WILL REDUCE EROSION. SEE STANDARDS FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, PG. 4-1. OFF SITE DISCHARGE OF POLLUTANTS.

#### PLANNING CRITERIA

THE GRADING PLAN AND INSTALLATION SHALL BE BASED LIPON ADEOLIATE TOPOGRAPHIC SLIPVEYS AND NVESTIGATIONS. THE PLAN IS TO SHOW THE LOCATION, SLOPE, CUT, FILL AND FINISH ELEVATION OF THE SURFACES TO be graded. The plan should also include auxiliary practices for safe disposal of runoff water, slope ATION, EROSION CONTROL AND DRAINAGE. FACILITIES SUCH AS WATERWAYS, DITCHES, DIVE STABILIZATION STRUCTURES, RETAINING WALLS AND SUBSURFACE DRAINS SHOULD BE INCLUDED WHERE NECESSARY EROSION CONTROL MEASURES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE APPLICABLE STANDARD

CONTAINED HEREIN.

- THE DEVELOPMENT AND ESTABLISHMENT OF THE PLAN SHALL INCLUDE THE FOLLOWING: 1. THE CUT FACE OF EARTH EXCAVATIONS AND FILLS SHALL BE NO STEEPER THAN THE SAFE ANGLE OF REPOSE FOR THE MATERIALS ENCOUNTERED AND FLAT ENOUGH FOR PROPER MAINTENANCE
- 2. THE PERMANENTLY EXPOSED FACES OF EARTH CUTS AND FILLS SHALL BE VEGETATED OR OTHERWISE PROTECTED
- 3. PROVISIONS SHALL BE MADE TO SAFELY CONDUCT SURFACE WATER TO STORM DRAINS OR SUITABLE WATER COURSES AND TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
- SUBSURFACE DRAINAGE IS TO BE PROVIDED IN AREAS HAVING A HIGH WATER TABLE, TO INTERCEPT SEEPAGE THAT WOULD ADVERSELY AFFECT SLOPE STABILITY, BUILDING FOUNDATIONS OR CREATE UNDESIRABLE WETNESS. SEE STANDARD FOR SUBSURFACE DRAINAGE, PG. 32-1
- 5. ADJOINING PROPERTY SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS. 6. FILL SHALL NOT BE PLACED ADJACENT TO THE BANK OF A STREAM OR CHANNEL, UNLESS PROVISIONS ARE MADE O PROTECT THE HYDRAULIC, BIOLOGICAL, AESTHETIC AND OTHER ENVIRONMENTAL FUNCTIONS OF THE STREAM.

#### SOIL MANAGEMENT AND PREPARATION SUBGRADE SOILS PRIOR TO THE APPLICATION OF TOPSOIL SHALL BE FREE OF EXCESSIVE COMPACTION TO A DEPTH OF 6.0

VCHES TO ENHANCE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COV THIS SECTION OF THIS STANDARD ADDRESSES THE POTENTIAL FOR EXCESSIVE SOIL COMPACTION IN LIGHT OF THE IDED LAND USE, TESTING FOR EXCESSIVE SOIL COMPACTION WHERE PERMANENT VEGETATION IS TO BE ESTABLISHED AND MITIGATION OF EXCESSIVE SOIL COMPACTION WHEN APPROPRIATE. DUE TO USE OR SETTING, CERTAIN DISTURBED AREAS WILL NOT REQUIRE COMPACTION REMEDIATION INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

1. WITHIN 20 FEET OF BUILDING FOUNDATIONS WITH BASEMENTS, 12 FEET FROM SLAB OR CRAWL SPACE

- 2. WHERE SOILS OR GRAVEL SURFACES WILL BE REQUIRED TO SUPPORT POST-CONSTRUCTION VEHICULAR TRAFFIC LOADS SUCH AS ROADS, PARKING LOTS AND DRIVEWAYS (INCLUDING GRAVEL SURFACES), BICYCLE PATHS OR PEDESTRIAN WALKWAYS (SIDEWALKS ETC)
- 3. AIRPORTS, RAILWAYS OR OTHER TRANSPORTATION FACILITIES
- 4. AREAS REQUIRING INDUSTRY OR GOVERNMENT SPECIFIED SOIL DESIGNS, INCLUDING GOLF COURSES, LANDFILLS, WETLAND RESTORATION, SEPTIC DISPOSAL FIELDS, WET/LINED PONDS, ETC 5. AREAS GOVERNED OR REGULATED BY OTHER LOCAL, STATE OR FEDERAL REGULATIONS WHICH DICTATE SOIL
- 6. BROWNFIELDS (CAPPED USES), URBAN REDEVELOPMENT AREAS, , IN-FILL AREAS, , RECYCLING YARDS, JUNK YARDS,
- AND QUARRIES
- 7. SLOPES DETERMINED TO BE INAPPROPRIATE FOR SAFE OPERATION OF EQUIPMENT 8. PORTIONS OF A SITE WHERE NO HEAVY EQUIPMENT TRAVEL OR OTHER DISTURBANCE HAS TAKEN PLACE
- 9. AREAS RECEIVING TEMPORARY VEGETATIVE STABILIZATION IN ACCORDANCE WITH THE STANDARD.
- 10. WHERE THE AREA AVAILABLE FOR REMEDIATION PRACTICES IS 500 SQUARE FEET OR LESS IN SIZE.
- 11. LOCATIONS CONTAINING SHALLOW (CLOSE TO THE SURFACE) BEDROCK CONDITIONS AREAS OF THE SITE WHICH ARE SUBJECT TO COMPACTION TESTING AND/OR MITIGATION SHALL BE GRAPHICALLY

DENOTED ON THE CERTIFIED SOIL EROSION CONTROL PLAN. SOIL COMPACTION REMEDIATION OR TESTING TO PROVE REMEDIATION IS NOT NECESSARY WILL BE REQUIRED IN AREA VHERE PERMANENT VEGETATION IS TO BE ESTABLISHED THAT ARE NOT OTHERWISE EXEMPTED ABOVE. TESTING METHOD HALL BE SELECTED, AND SOIL COMPACTION TESTING SHALL BE PERFORMED BY, THE CONTRACTOR OR OTHER PROJEC WNER'S REPRESENTATIVE (E.G. ENGINEER). A MINIMUM OF TWO (2) TESTS SHALL BE PERFORMED FOR PROJECTS WITH AN OVERALL LIMIT OF DISTURBANCE OF UP TO ONE (1) ACRE AND AT A RATE OF TWO (2) TESTS PER ACRE OF THE OVERALL LIMIT OF DISTURBANCE FOR LARGER AREAS WHICH SHALL BE EVENLY DISTRIBUTED OVER THE AREA OF DISTURBANCE SUBJECT TO TESTING, TESTS SHALL BE PERFORMED IN AREAS REPRESENTATIVE OF THE CONSTRUCTION ACTIVITY

JLING IN THE AREA. IN THE EVENT THIS TESTING INDICATES COMPACTION IN EXCESS OF THE MAXIMUM THRESHOLDS INDICATED FOR THE TESTING METHOD. THE CONTRACTOR/OWNER SHALL HAVE THE OPTION TO PERFORM COMPACTION MITIGATION OVER THE ENTIRE DISTURBED AREA (EXCLIDING EXEMPT AREAS) OR TO PERFORM ADDITIONAL TESTING TO ESTABLISH THE LIMITS OF EXCESSIVE COMPACTION WHEREUPON ONLY THE EXCESSIVELY COMPACTED AREAS WOULD REQUIRE COMPACTION MITIGATION.

SOIL COMPACTION TESTING IS NOT REOUIRED IF/WHEN SUBSOIL COMPACTION REMEDIATION (SCARIFICATION/TILLAGE " MINIMUM OR SIMILAR) IS PROPOSED AS PART OF THE SEQUENCE OF CONSTRUCTIO

#### SOIL TEST METHOD OPTIONS

THIS TEST SHALL BE CONDUCTED WITH A FIRM WIRE (15-1/2 GAUGE STEEL WIRE - E.G. SURVEY MARKER FLAG STRAIGHT WIRE STOCK, ETC.), 18 TO 21 INCHES IN LENGTH, WITH 6" INCHES FROM ONE END VISIBLY MARKED ON THE WIRE. CONDUCT WIRE FLAG TEST BY HOLDING THE WIRE FLAG NEAR THE FLAG END AND PUSH IT VERTICALLY INTO THE SOIL AT SEVERAL DIFFERENT LOCATIONS IN THE FIELD TO THE LESSER OF A 6 INCH DEPTH OR THE DEPTH AT WHICH IT BENDS DUE TO RESISTANCE IN THE SOIL. RECORD THE DEPTH AT WHICH IT BENDS DUE TO RESISTANCE IN THE SOULTHE WIRE SHOULD PENETRATE WITHOUT RENDING OR DEFORMING AT LEAST 6" INTO THE GROUND BY HAND, WITHOUT THE USE OF TOOLS. IF PENETRATION FAILS AND AN OBSTRUCTION IS SUSPECTED (ROCKS, ROOT, DEBRIS, ETC.) THE TEST CAN BE REPEATED IN THE SAME GENERAL AREA. IF THE TEST IS SUCCESSFUL THE SOIL IS NOT EXCESSIVELY COMPACTED. IF THE WIRE IS DIFFICULT TO INSERT (WIRE BENDS OR DEFORMS PRIOR TO REACHING 6 INCHES IN DEPTH) THE SOIL MAY BE EXCESSIVELY COMPACTED AND COMPACTION MITIGATION OR FURTHER TESTING VIA METHOD 3 OR 4 BELOW IS REQUIRED, THE CHOICE OF WHICH IS AT THE CONTRACTOR/OWNER'S DISCRETION

HANDHELD SOIL PENETROMETER TEST METHOD THIS TEST SHALL BE CONDUCTED BASED ON THE STANDARD OPERATION PROCEDURE (SOP) #RCE2010-001, PREPARED BY THE RUTGERS COOPERATIVE EXTENSION, IMPLEMENTED JUNE 1, 2010, LAST REVISED FEBRUARY 28, 2011. A RESULT OF LESS THAN OR EQUAL TO 300 PSI SHALL BE CONSIDERED PASSING. IF THE RESULT IS GREATER HAN 300 PSI THE SOIL MAY BE EXCESSIVELY COMPACTED AND COMPACTION MITIGATION OR FURTHER TESTING VIA METHOD 3 OR 4 BELOW IS REQUIRED, THE CHOICE OF WHICH IS AT THE CONTRACTOR/OWNER'S DISCRETION.

TUBE BULK DENSITY TEST METHOD

PROBING WIRE TEST METHOD

THIS TEST SHALL BE CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER UTILIZING ONLY UNDISTURBED SAMPLES (RECONSTITUTION OF THE SAMPLE NOT PERMITTED) COLLECTED UTILIZING THE PROCEDURE FOR SOIL BULK DENSITY TESTS AS DESCRIBED IN THE USDA NRCS SOIL OUALITY TEST KIT GUIDE. SECTION 1-4, JULY 2001. WHEN THE TEXTURE OF THE SOIL TO BE TESTED IS A SAND OR LOAMY SAND AND LACK OF SOIL COHESION OR THE PRESENCE OF LARGE AMOUNTS OF COARSE FRAGMENTS, ROOTS OR WORM CHANNELS PREVENT THE TAKING OF UNDISTURBED SAMPLES, THIS TEST SHALL NOT BE USED.

WHERE THE RESULTS OF REPLICATE TESTS DIFFER BY MORE THAN TEN PERCENT (10%), THE SAMPLES SHALL BE FOR THE FOLLOWING DEFECTS: CRACKS, WORM CHANNELS, LARGE ROOT CHANNELS OR POOR SOIL TUBE CONTACT WITHIN THE SAMPLES:

LARGE PIECES OF GRAVEL, ROOTS OR OTHER FOREIGN OBJECTS SMEARING OR COMPACTION OF THE UPPER OR LOWER SURFACE OF THE SAMPLES IF ANY OF THE DEFECTS DESCRIBED IN 3 (I-III) ABOVE ARE FOUND. THE DEFECTIVE CORE(S) SHALL BE DISCARDED AND THE TEST REPEATED USING A NEW REPLICATE SAMPLE FOR EACH DEFECTIVE REPLICATE SAMPLE. THE BULK DENSITY (DEFINED AS THE WEIGHT OF DRY SOIL PER VOLUME) RESULTS SHALL BE COMPARED WITH THE MAXIMUM DRY BULK DENSITIES IN TABLE 19-1. A RESULT OF LÉSS THAN OR EQUAL TO THE APPLICABLE MAXIMUM BULK DENSITY SHALL BE CONSIDERED PASSING. IF THE RESULT IS GREATER THAN THE MAXIMUM BULK DENSITY

THE SOIL SHALL BE CONSIDERED EXCESSIVELY COMPACTED AND COMPACTION MITIGATION IS REQUIRED. NUCLEAR DENSITY TEST METHOD

THIS TEST SHALL BE CERTIFIED BY A NEW IERSEY LICENSED PROFESSIONAL ENGINEER AND CONDUCTED BY A NUCLEAR GAUGE CERTIFIED INSPECTOR PURSUANT TO ASTM D6938. THE BULK DENSITY MEASUREMENT RESULTS SHALL BE COMPARED WITH THE MAXIMUM DRY BULK DENSITIES IN TABLE 19-1. A RESULT OF LESS THAN OR EQUAL TO THE APPLICABLE MAXIMUM BULK DENSITY SHALL BE CONSIDERED PASSING. IF THE RESULT IS GREATER N THE MAXIMUM BULK DENSITY THE SOIL SHALL BE CONSIDERED EXCESSIVELY COMPACTED AND COMPACTION MITIGATION IS REQUIRED.

TABLE 19-1 - MAXIMUM DRY BULK DENSITIES (GRAMS/CUBIC CENTIMETER) BY SOIL TYPE

SOIL TYPE/TEXTURE	BULK DENSITY (G/CC)
COARSE, MEDIUM AND FINE SANDS AND LOAMY SANDS	1.80
VERY FINE SAND AND LOAMY VERY FINE SAND	1.77
SANDY LOAM	1.75
LOAM, SANDY CLAY LOAM	1.70
CLAY LOAM	1.65
SANDY CLAY	1.60
SILT, SILT LOAM	1.55
SILTY CLAY LOAM	1.50
SILTY CLAY	1.45
CLAY	1.40

SOURCE: USDA NATURAL RESOURCE CONSERVATION SERVICE, SOIL QUALITY INFORMATION SHEET, SOIL OUALITY RESOURCE CONCERNS: COMPACTION, APRIL 1996 ADDITIONAL TESTING METHODS WHICH COMFORM TO ASTM STANDARDS AND PECIFICAITONS, AND WHICH PRODUCE A DRY WEIGHT, SOIL BULK DENSITY MEASUREMENT MAY BE ALLOWED SUBJECT TO DISTRICT APPROVAL.

IF SUBGRADE SOILS ARE DETERMINED TO BE EXCESSIVELY COMPACTED BY TESTING, AS IDENTIFIED ABOVE, PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OI PERMANENT VEGETATIVE COVER. RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.) OR IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.

OPERATION OR AFFECT THE PLANNED STABILITY OR FILL AREAS SHALL BE REMOVED AND DISPOSED OF ACCORDING TO

S REOUIRING TOPSOIL. SEE STANDARD FOR TOPSOILING, PG. 8-FILL MATERIAL IS TO BE FREE OF BRUSH, RUBBISH, TIMBER, LOGS, VEGETATIVE MATTER AND STUMPS IN AMOUNTS THAT WILL BE DETRIMENTAL TO CONSTRUCTING STABLE FILLS. L STRUCTURAL FILLS SHALL BE COMPACTED AS DETERMINED BY STRUCTURAL ENGINEERING REQUIREMENTS FOR THEIR. INTENDED PURPOSE AND AS REQUIRED TO REDUCE SLIPPING, EROSION OR EXCESSIVE SATURATION. FREES TO BE RETAINED SHALL BE PROTECTED IF NECESSARY IN ACCORDANCE WITH THE STANDARD FOR TREE

## SEQUENCE OF CONSTRUCTION

- CLEARING OF ENTRANCE AND LIMIT OF DISTURBANCE FOR INSTALLATION OF SILT FENCE, TREE PROTECTION NET PROTECTION, CONSTRUCTION ENTRANCE PAD, AND OTHER SOIL EROSION MEASURES (1 WEEK).
- INSTALL BULKHEAD/RETAINING WALL (2 WEEKS).
- 4. INSTALL STORM DRAINAGE MODIFICATIONS, CONDUIT OUTLET PROTECTION AND ALL OTHER UTILITIES. INSTALL INLET PROTECTION (1 WEEK).
- BACKFILL AS REQUIRED. ESTABLISH FINISH GRADES. CONDUCT SOIL COMPACTION TESTING AS REQUIRED, OR SCARIFY/TILL 6" MINIMUM DEPTH OF SUBSOIL IN THE LANDSCAPED AND LAWN AREA (I WEEK)
- 6. CONSTRUCT SIDEWALKS, ASPHALT WALKS, PAVERS, ETC. (I WEEK). ALL SURFACES HAVING LAWN OR LANDSCAPING AS FINAL COVER ARE TO BE PROVIDED 5" OF TOPSOIL, FIRM
- IN PLACE, PRIOR TO SEEDING, SODDING, OR PLANTING. PLACE PERMANENT VEGETATIVE COVER (I WEEK) 8. REMOVE TEMPORARY ACCESS PROTECTION, SILT FENCE, AND INLET PROTECTION AFTER ALL DISTURBED
- AREAS HAVE BEEN STABILIZED (I WEEK) 9. PERFORM ANY ROADWAY PAVEMENT REPAIRS AND COMPLETE FINAL LANDSCAPING (I WEEK).

PROCEDURES FOR SOIL COMPACTION MITIGATION

INSTALLATION REQUIREMENTS

TOPSOIL IS TO BE STRIPPED AND STOCKPILED IN AMOUNTS NECESSARY TO COMPLETE FINISH GRADING OF ALL EXPOSED

CLEARING AND ROUGH GRADING AS NECESSARY. ALL EXPOSED SURFACES SHALL BE STABILIZED AS DEFINED IN SOIL EROSION AND SEDIMENT CONTROL NOTES (I WEEK).

#### CONSTRUCTION SITE WASTE CONTROL

I. THE CONSTRUCTION SITE WASTE CONTROL COMPONENT OF THE SPPP CONSISTS OF THE REQUIREMENTS IN 2., 3., AND 4. BELOW. THESE REQUIREMENTS BECAME OPERATIVE ON MARCH 3, 2004 AND APPLY TO CONSTRUCTION ACTIVITIES THAT COMMENCE ON OR AFTER MARCH 3, 2004. ANY NEW CONSTRUCTION ACTIVITY FOR WHICH AN REA IS SUBMITTED ON OR AFTER MARCH 3 2004 OR WHICH RECEIVE AUTOMATIC RENEWAL OF AUTHORIZATION UNDER THIS PERMIT AFTER MARCH 3, 2004 ALSO SHALL COMPLY WITH THESE REQUIREMENTS.

MATERIAL MANAGEMENT TO PREVENT OR REDUCE WASTE - ANY PESTICIDES, FERTILIZERS, FUELS, LUBRICANTS, PETROLEUM PRODUCTS, ANTI-FREEZE, PAINTS AND PAINT THINNERS, CLEANING SOLVENTS AND ACIDS, DETERGENTS, CHEMICAL ADDITIVES, AND CONCRETE CURING COMPOUNDS SHALL BE STORED IN CONTAINERS IN A DRY COVERED AREA. MANUFACTURERS RECOMMENDED APPLICATION RATES. USES. AND METHODS SHALL BE STRICTLY FOLLOWED TO THE EXTENT NECESSARY TO PREVENT OR MINIMIZE THE PRESENCE OF WASTE FROM SUCH MATERIALS IN THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT. (THE PRECEDING SENTENCE DOES NOT APPLY TO ANY MANUFACTURERS' RECOMMENDATIONS ABOUT FERTILIZER OR OTHER MATERIAL THAT CONFLICT WITH THE EROSION AND SEDIMENT CONTROL COMPONENT OF THE FACILITY'S SPPP.)

WASTE HANDLING - THE FOLLOWING REQUIREMENTS APPLY ONLY TO CONSTRUCTION SITE WASTE THAT HAS THE POTENTIAL TO BE TRANSPORTED BY THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT. THE HANDLING AT THE CONSTRUCTION SITE OF WASTE BUILDING MATERIAL AND RUBBLE AND OTHER CONSTRUCTION SITE WASTES, INCLUDING LITTER AND HAZARDOUS AND SANITARY WASTES, SHALL CONFORM WITH THE STATE SOLID WASTE MANAGEMENT ACT, N.I.S.A. 13:1E-1 ET SEQ., AND ITS IMPLEMENTING RULES AT N.J.A.C. 7:26, 7:26A, AND 7:26G; THE NEW JERSEY PESTICIDE CONTROL CODE AT N.I.A.C. 7:30; THE STATE LITTER STATUTE (N.I.S.A. 13:1E-99.3); AND OSHA REQUIREMENTS FOR SANITATION AT 29 C.F.R. 1926 (EXCEPT WHERE SUCH CONFORMANCE IS NOT RELEVANT TO THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT). CONSTRUCTION SITES SHALL HAVE ONE OR MORE DESIGNATED WASTE COLLECTION AREAS ONSITE OR ADJACENT TO THE SITE, AND AN ADEQUATE NUMBER OF CONTAINERS (WITH LIDS OR COVERS) FOR WASTE. WASTE SHALL BE COLLECTED FROM SUCH CONTAINER'S BEFORE THEY OVERFLOW, AND SPILLS AT SUCH CONTAINERS SHALL BE CLEANED UP IMMEDIATELY.

a. CONSTRUCTION SITE WASTES INCLUDE BUT ARE NOT LIMITED TO:

- i. "CONSTRUCTION AND DEMOLITION WASTE," AS DEFINED IN N.J.A.C. 7:26-1.4 AS FOLLOWS: "WASTE BUILDING MATERIAL AND RUBBLE RESULTING FROM CONSTRUCTION, REMODELING, REPAIR, AND DEMOLITION OPERATIONS ON HOUSES, COMMERCIAL BUILDINGS. PAVEMENTS AND OTHER STRUCTURES. THE FOLLOWING MATERIALS MAY BE FOUND IN CONSTRUCTION AND DEMOLITION WASTE: TREATED AND UNTREATED WOOD SCRAP; TREE PARTS, TREE STUMPS AND BRUSH; CONCRETE, ASPHALT, BRICKS, BLOCKS AND OTHER MASONRY: PLASTER AND WALLBOARD: ROOFING MATERIALS: CORRUGATED CARDROARD AND MISCELLANEOUS PAPER. FERROUS AND NON-FERROUS METAL; NON-ASBESTOS BUILDING INSULATION; PLASTIC SCRAP; DIRT; CARPETS AND PADDING; GLASS (WINDOW AND DOOR); AND OTHER MISCELLANEOUS MATERIALS; BUT SHALL NOT INCLUDE OTHER SOLID WASTE TYPES."
- ii. ANY WASTE BUILDING MATERIAL AND RUBBLE RESULTING FROM SUCH OPERATIONS THAT IS HAZARDOUS FOR PURPOSES OF N.J.A.C. 7:26G (THE HAZARDOUS WASTE RULES).
- iii. DISCARDED (INCLUDING SPILLED) PESTICIDES, FERTILIZERS, FUELS, LUBRICANTS, PETROLEUM PRODUCTS, ANTI-FREEZE, PAINTS AND PAINT THINNERS, PAINT CHIPS AND SANDBLASTING GRITS, CLEANING SOLVENTS, ACIDS FOR CLEANING MASONRY SURFACES, DETERGENTS, CHEMICAL ADDITIVES USED FOR SOIL STABILIZATION (E.G., CALCIUM CHLORIDE), AND CONCRETE CURING COMPOUNDS.
- iv. OTHER "LITTER," AS DEFINED AT N.J.S.A. 13:1E-215.D AS FOLLOWS: "ANY USED OR UNCONSUMED SUBSTANCE OR WASTE MATERIAL WHICH HAS BEEN DISCARDED WHETHER MADE OF ALUMINUM, GLASS, PLASTIC, RUBBER, PAPER, OR OTHER NATURAL OR SYNTHETIC MATERIAL, OR ANY COMBINATION THEREOF, INCLUDING, BUT NOT LIMITED TO, ANY BOTTLE, JAR OR CAN, OR ANY TOP, CAP OR DETACHABLE TAB OF ANY BOTTLE, JAR OR CAN, ANY UNLIGHTED CIGARETTE, CIGAR, MATCH OR ANY FLAMING OR GLOWING MATERIAL OR ANY GARBAGE, TRASH, REFUSE, DEBRIS, RUBBISH, GRASS CLIPPINGS OR OTHER LAWN OR GARDEN WASTE, NEWSPAPERS, MAGAZINES, GLASS, METAL, PLASTIC OR PAPER CONTAINERS OR OTHER PACKAGING OR CONSTRUCTION MATERIAL BUT DOES NOT INCLUDE THE WASTE OF THE PRIMARY PROCESSES OF MINING OR OTHER EXTRACTION PROCESSES, LOGGING, SAWMILLING, FARMING OR MANUFACTURING."
- V SANITARY SEWAGE AND SEPTAGE
- CONTAMINATED SOILS ENCOUNTERED OR DISCOVERED DURING EARTHMOVING ACTIVITIES OR DURING THE CLEANUP OF A LEAK OR DISCHARGE OF A HAZARDOUS SUBSTANCE.
- b. CONCRETE TRUCK WASHOUT CONCRETE TRUCK WASHOUT ONSITE IS PROHIBITED OUTSIDE DESIGNATED AREAS. DESIGNATED WASHOUT AREAS SHALL BE LINED AND BERMED TO PREVENT DISCHARGES TO SURFACE AND GROUND WATER. HARDENED CONCRETE FROM CONCRETE TRUCK WASHOUT SHALL BE REMOVED AND PROPERLY DISPOSED OF.
- SANITARY SEWAGE/SEPTAGE DISPOSAL DISCHARGES OF RAW SANITARY SEWAGE OR SEPTAGE ONSITE ARE STRICTLY PROHIBITED. ADEQUATE FACILITIES WITH PROPER DISPOSAL SHALL BE PROVIDED AND MAINTAINED ONSITE OR ADJACENT TO THE SITE FOR ALL WORKERS AND OTHER SANITARY NEEDS.

4. SPILLS; DISCHARGES OF HAZARDOUS SUBSTANCES; FEDERALLY REPORTABLE RELEASES

- a. SPILL KITS SHALL BE AVAILABLE ONSITE OR ADJACENT TO THE SITE FOR ANY MATERIALS THAT ARE LISTED IN 2. ABOVE AND USED OR APPLIED ONSITE, ALL SPILLS OF SUCH MATERIAL SHALL BE CONTAINED AND CLEANED UP IMMEDIATELY. CLEANED UP MATERIALS SHALL BE PROPERLY DISPOSED OF.
- DISCHARGES OF HAZARDOUS SUBSTANCES (AS DEFINED IN N.I.A.C. 7:1E-1.6) IN CONSTRUCTION SITE WASTES ARE SUBJECT TO THE PROVISIONS OF THE SPILL COMPENSATION AND CONTROL ACT, N.J.S.A. 58:10-23.11 ET SEQ., AND OF DEPARTMENT RULES FOR DISCHARGES OF PETROLEUM AND OTHER HAZARDOUS SUBSTANCES AT N.J.A.C. 7:1E. NO DISCHARGE OF HAZARDOUS SUBSTANCES RESULTING FROM AN ONSITE SPILL SHALL BE DEEMED TO BE "PURSUANT TO AND IN COMPLIANCE WITH ITHISI PERMIT" WITHIN THE MEANING OF THE SPILL COMPENSATION AND CONTROL ACT AT N.J.S.A. 58:10-23.11C.
- RELEASES IN EXCESS OF REPORTABLE QUANTITIES (RQ) ESTABLISHED UNDER 40 C.F.R. 110, 117, AND 302 THAT OCCUR WITHIN A 24-HR PERIOD MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER (800 424-8802).

DEFINITION A TEMPORARY BARRIER AND SETTLING FACILITY INSTALLED AT A STORM SEWER INLET.

#### PURPOSE

THE PURPOSE OF STORM SEWER INLET PROTECTION IS TO INTERCEPT AND RETAIN SEDIMENT, THUS PREVENTING THE ENTRANCE OF SEDIMENT INTO THE STORM SEWER SYSTEM. CONDITIONS WHERE PRACTICE APPLIES

GROWTH AND ESTABLISHMENT OF A VIGOROUS VEGETATIVE COVER IS FACILITATED BY TOPSOIL, PREVENTING SOIL LOSS BY WIND AND RAIN OFFSITE AND INTO STREAMS AND OTHER STORMWATER CONVEYANCES.

- CONTRIBUTING DRAINAGE AREA IS 3 ACRES OR LESS.
- 2. A STORM SEWER OR THE OUTLET CHANNEL OF A STORM SEWER NEEDS PROTECTION FROM
- 3. TRAFFIC WILL NOT DESTROY OR CAUSE CONSTANT MAINTENANCE OF THE STORM SEWER INLET
- 4. A TRAFFIC HAZARD WILL NOT BE CREATED. 5. A FLOODING PROBLEM WILL NOT BE CREATED.
  - WATER QUALITY ENHANCEMENT

THE PRIMARY BENEFIT TO WATER QUALITY IS THE REMOVAL OF SEDIMENT FROM STORMWATER RUNOFF PRIOR EWER SYSTEM. AS AN ADDED BENEFIT, OTHER FLOATABLE DEBRIS, SUCH AS VEGETATIVE MATTER AND LITTER MAY ALSO BE FILTERED OUT OF THE RUNOFF.

DESIGN CRITERIA

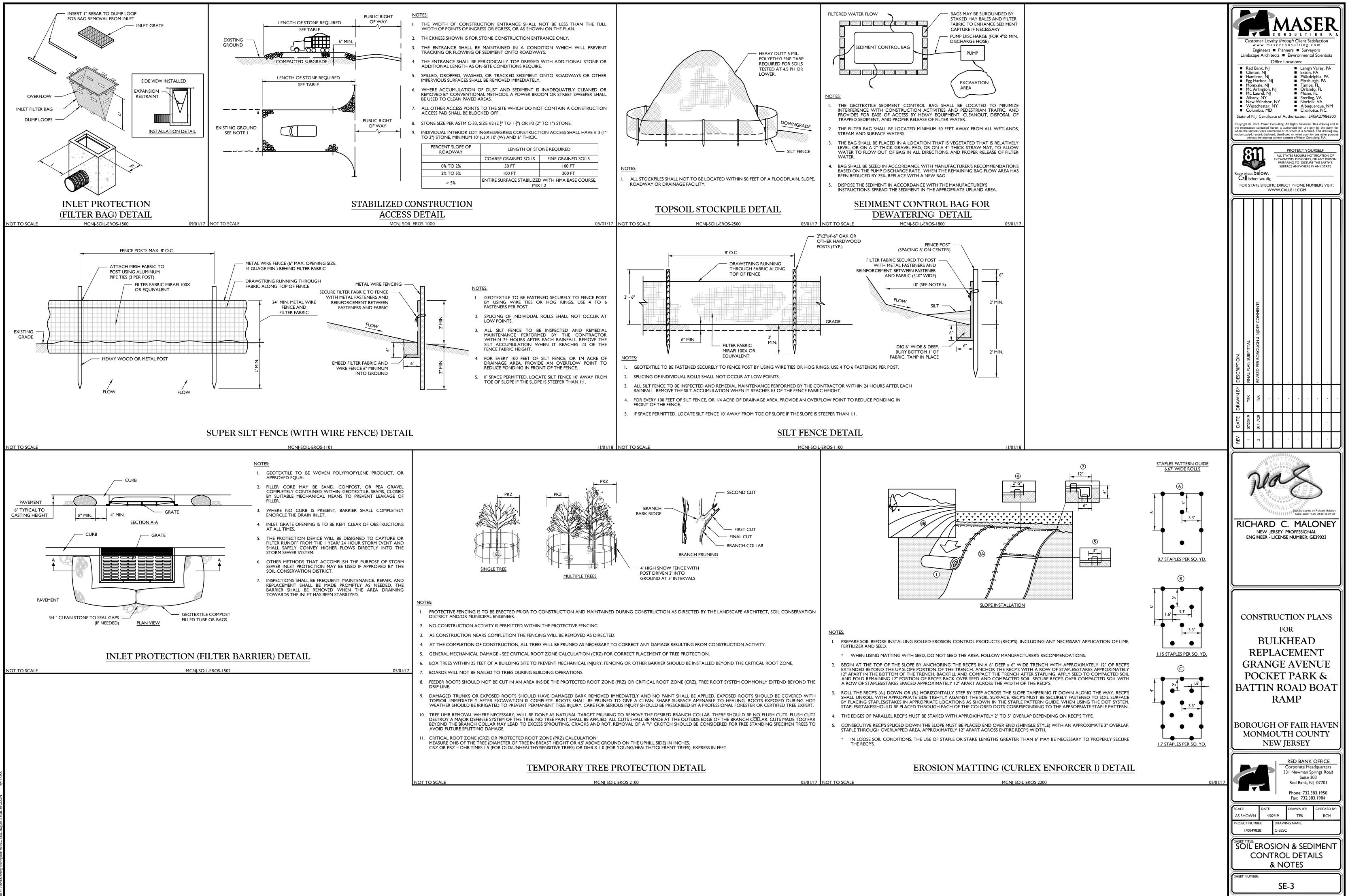
- THE FOLLOWING APPLIES TO ALL METHODS OF STORM SEWER INLET PROTECTION: I. MUST SLOW THE STORM WATER, PROVIDE THE COARSE SEDIMENT PARTICLES A CHANCE TO SETTLE, AND PROVIDE AN AREA TO RETAIN THE PARTICLES THAT HAVE SETTLED 2. IN ALL CASES, INLET PROTECTION SHOULD NOT COMPLETELY CLOSE OFF THE INLET. PROVISION
- MUST BE MADE TO ALLOW STORMWATER TO OVERFLOW OR BYPASS FILTER. THE PROTECTION DEVICE WILL BE DESIGNED TO CAPTURE OR FILTER RUNOFF FROM THE 1 YEAR
- 4 HOUR STORM EVENT AND SHALL SAFELY CONVEY HIGHER FLOWS DIRECTLY INTO THE STORM SEWER SYSTEM.

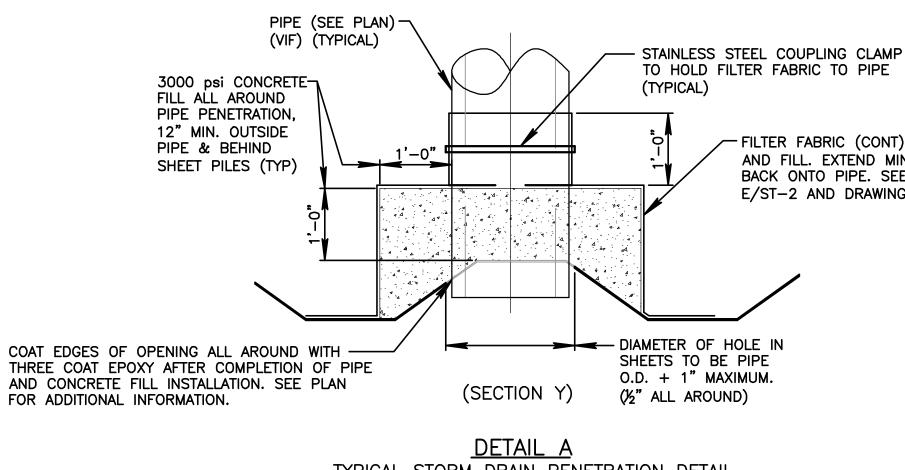
OTHER METHODS THAT ACCOMPLISH THE PURPOSE OF STORM SEWER INLET PROTECTION MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT

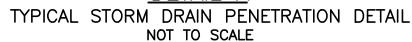
INSPECTIONS SHALL BE FREQUENT, MAINTENANCE, REPAIR, AND REPLACEMENT SHALL BE MADE PROMPTLY, AS NEEDED. THE BARRIER SHALL BE REMOVED WHEN THE AREA DRAINING TOWARD THE INLET HAS BEEN STABILIZED.

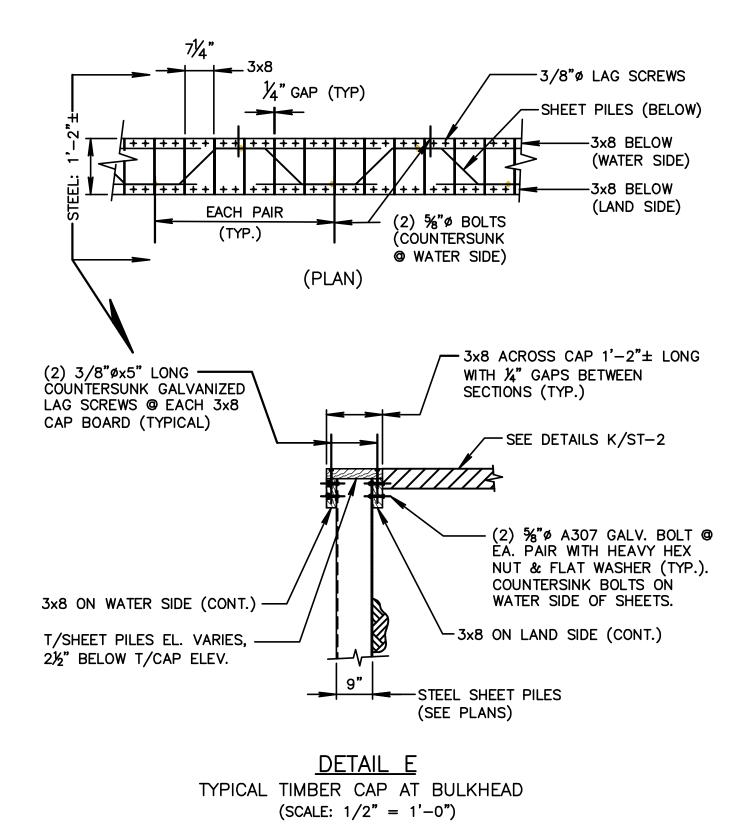
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CONSTRUCTION PLANS FOR BULKHEAD REPLACEMENT GRANGE AVENUE POCKET PARK & BATTIN ROAD BOAT RAMP									Т	
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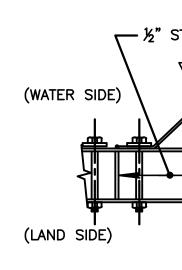
5E-2











PROVIDE (2) ½" STIFFENER — PLATES AT EACH TIE ROD LOCATION. (TOP AND BOTTOM)

HEAVY HEX NUT

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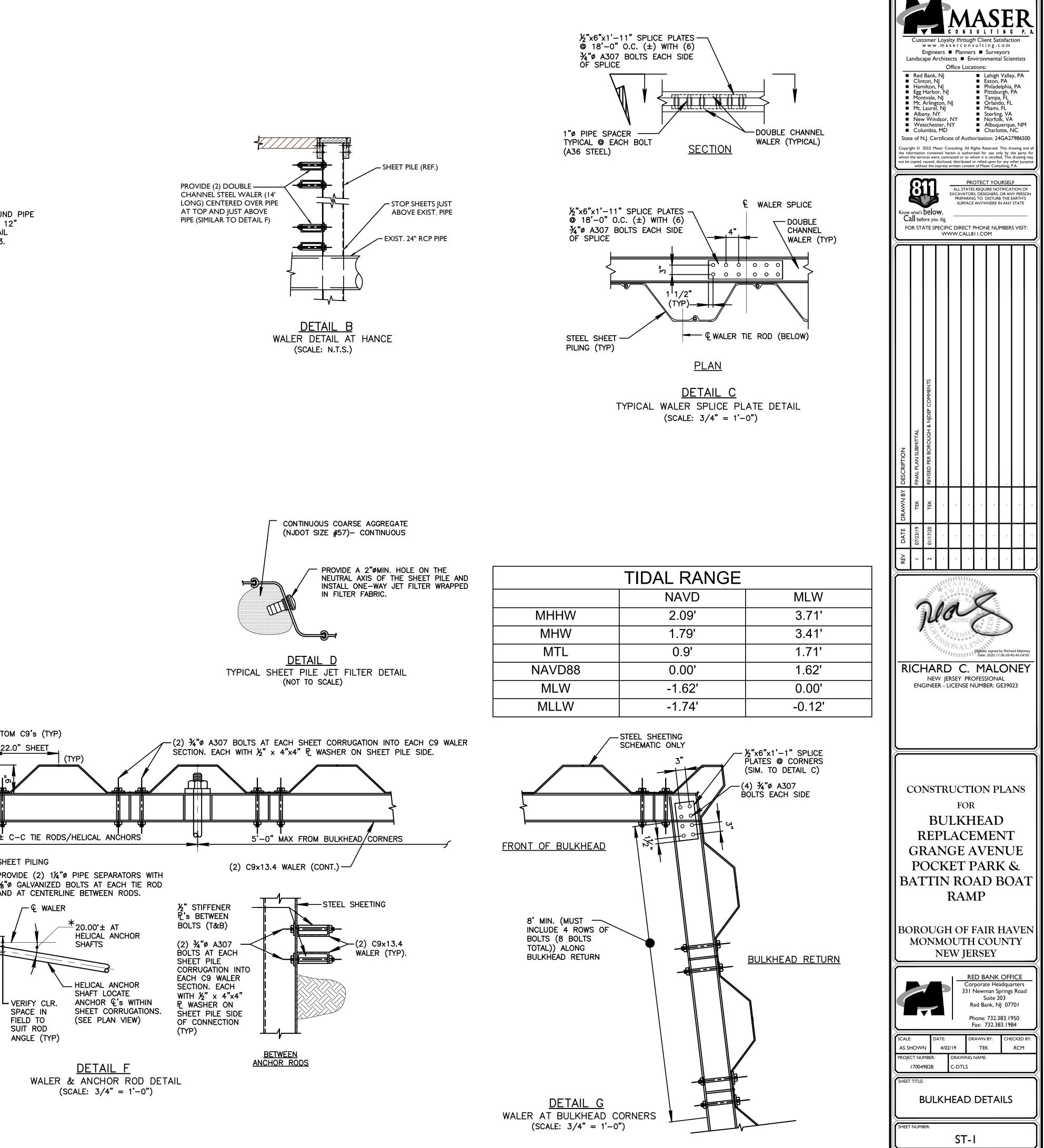
AT ANCHOR ROD

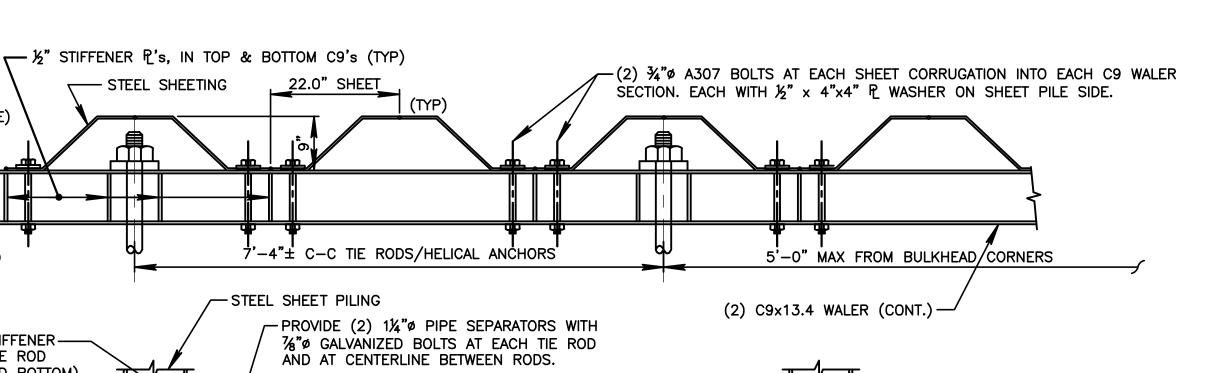
LOCATIONS

SOLID PLATE WASHER-SHIM, 9"x6" WEDGE 20°±^{*}AT HELICAL ANCHORS. 1" MINIMUM THICKNESS.

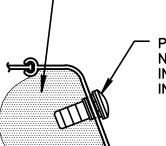
(2) C9x13.4 WALER (TYP).— ÀSTM A36 (MIN.) PROVIDE 1"Ø DRAIN HOLE IN TOP CHANNEL BETWEEN STIFFENER PLATES AND AT CENTERLINE BETWEEN HELICAL ANCHORS.

* VERIFY IN FIELD





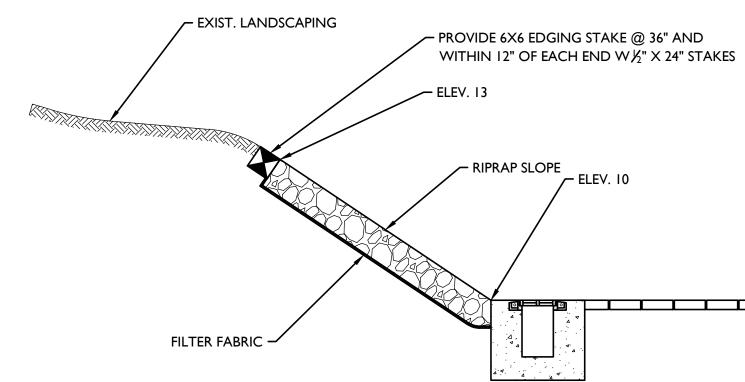


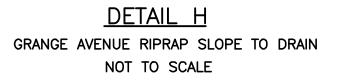


E/ST-2 AND DRAWING ST-3.

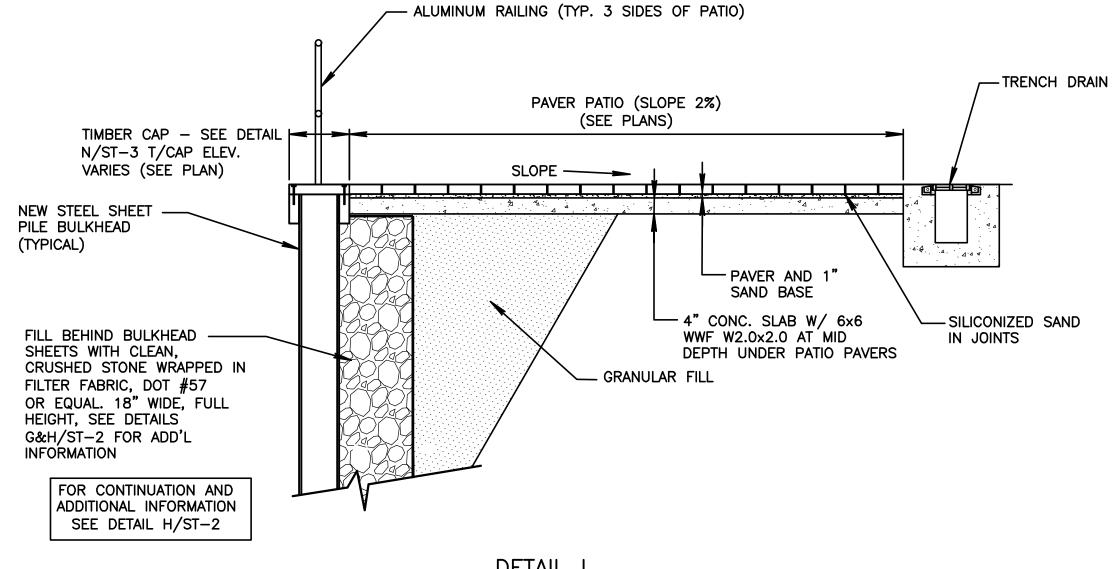
TO HOLD FILTER FABRIC TO PIPE

- FILTER FABRIC (CONT) AROUND PIPE AND FILL. EXTEND MINIMUM 12" BACK ONTO PIPE. SEE DETAIL





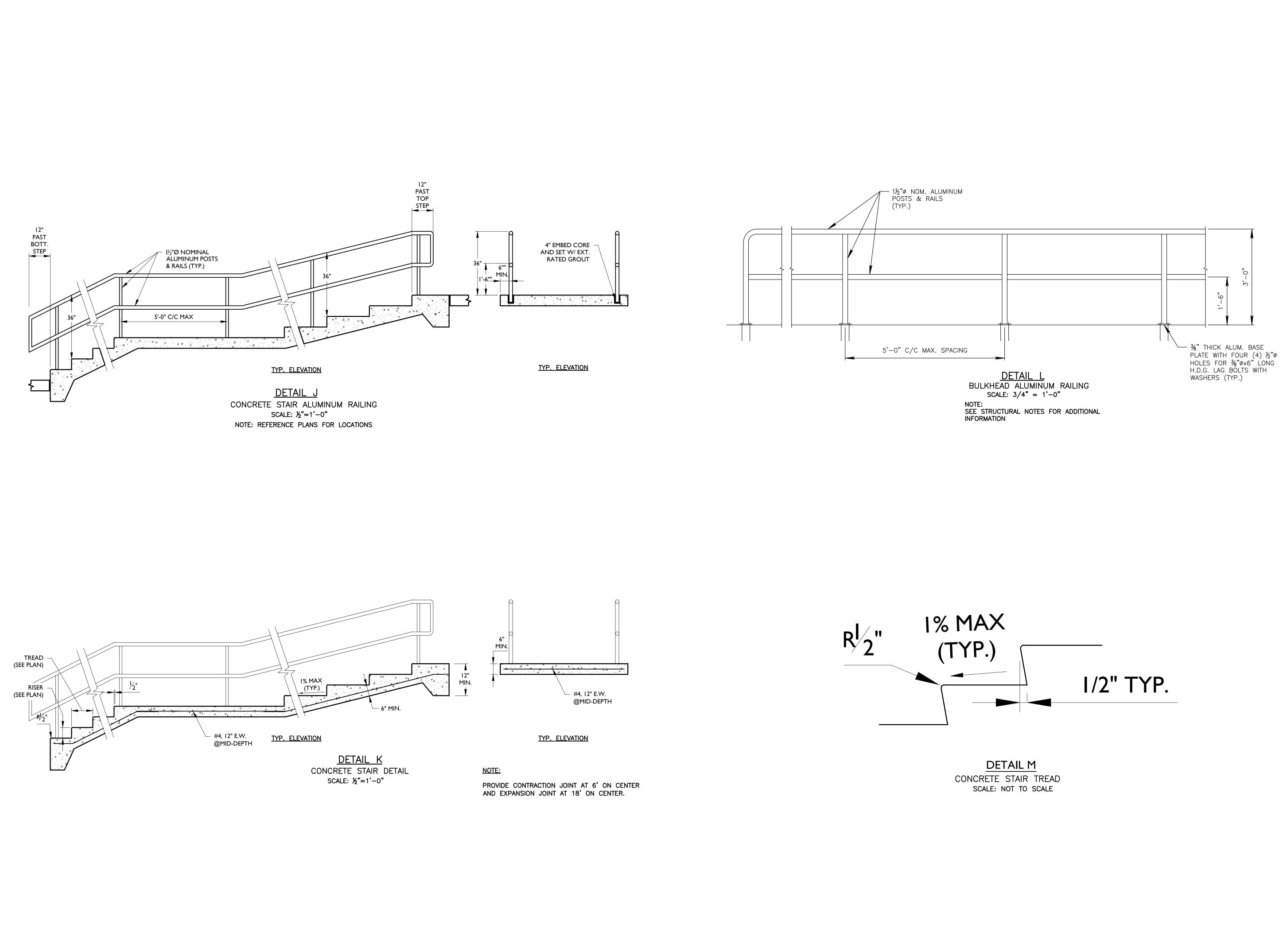
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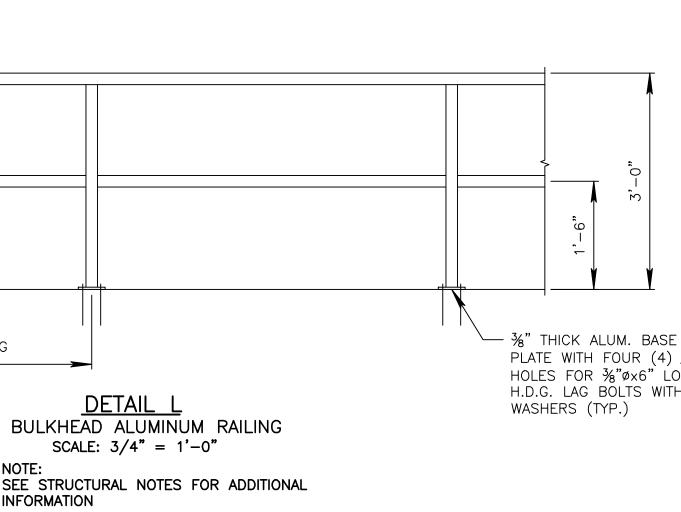


#### <u>DETAIL</u> TOP OF BULKHEAD & PATIO SECTION (SCALE: 1/2" = 1'-0")

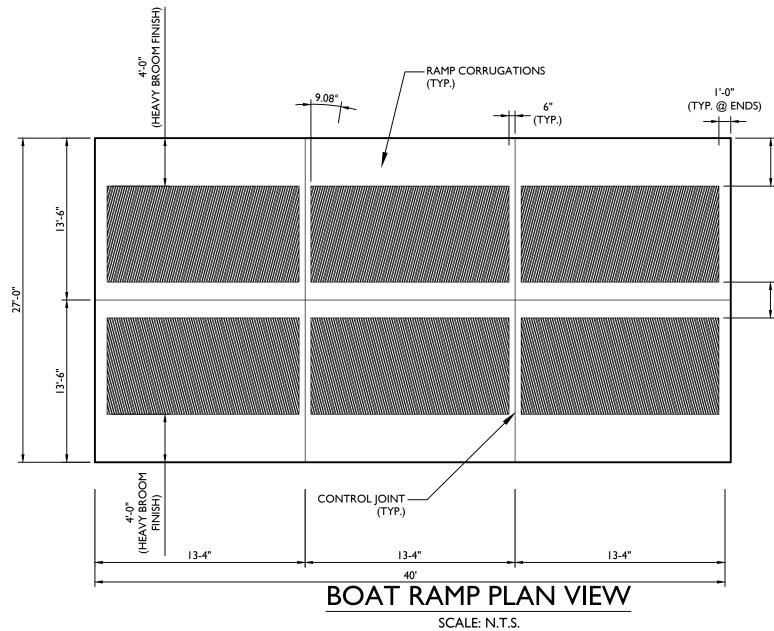
NOTES: 1. ALL NEW FILL, BACKFILL, & DISTURBED SOIL SHALL BE COMPACTED IN 8" LIFTS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST IN ACCORDANCE WITH ASTM D-1557. COMPLIANCE MUST BE SHOWN THROUGH TESTING PERFORMED BY A CERTIFIED COMPACTION TESTING PROVIDER. MINIMUM OF 2 TESTS MUST BE PERFORMED AT EACH LIFT. ALL TESTING MUST BE PROVIDED TO AND APPROVED OF BY ENGINEER PRIOR TO FURTHER LIFTS BEING INSTALLED. ALL TESTING IS AT CONTRACTORS EXPENSE.

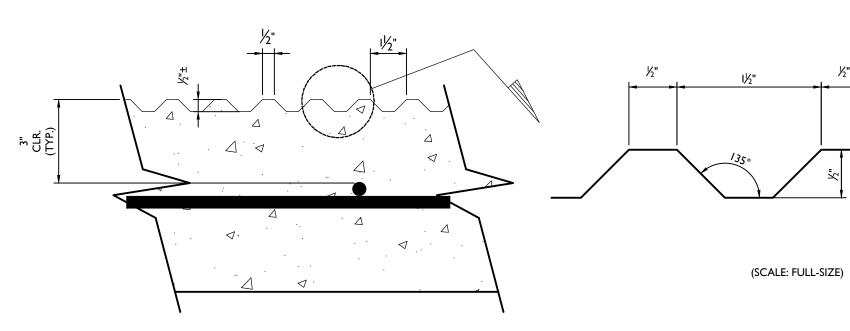
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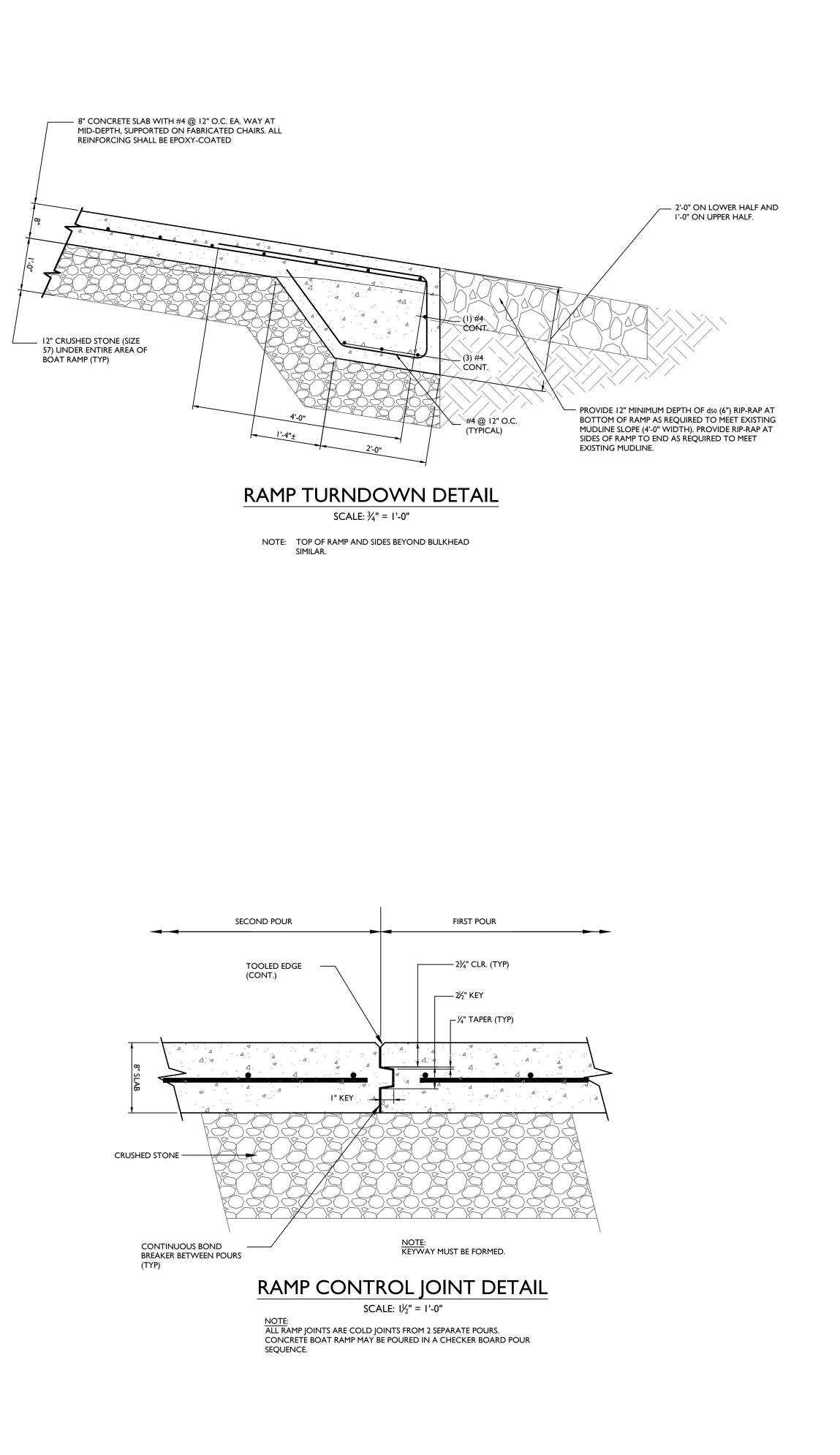


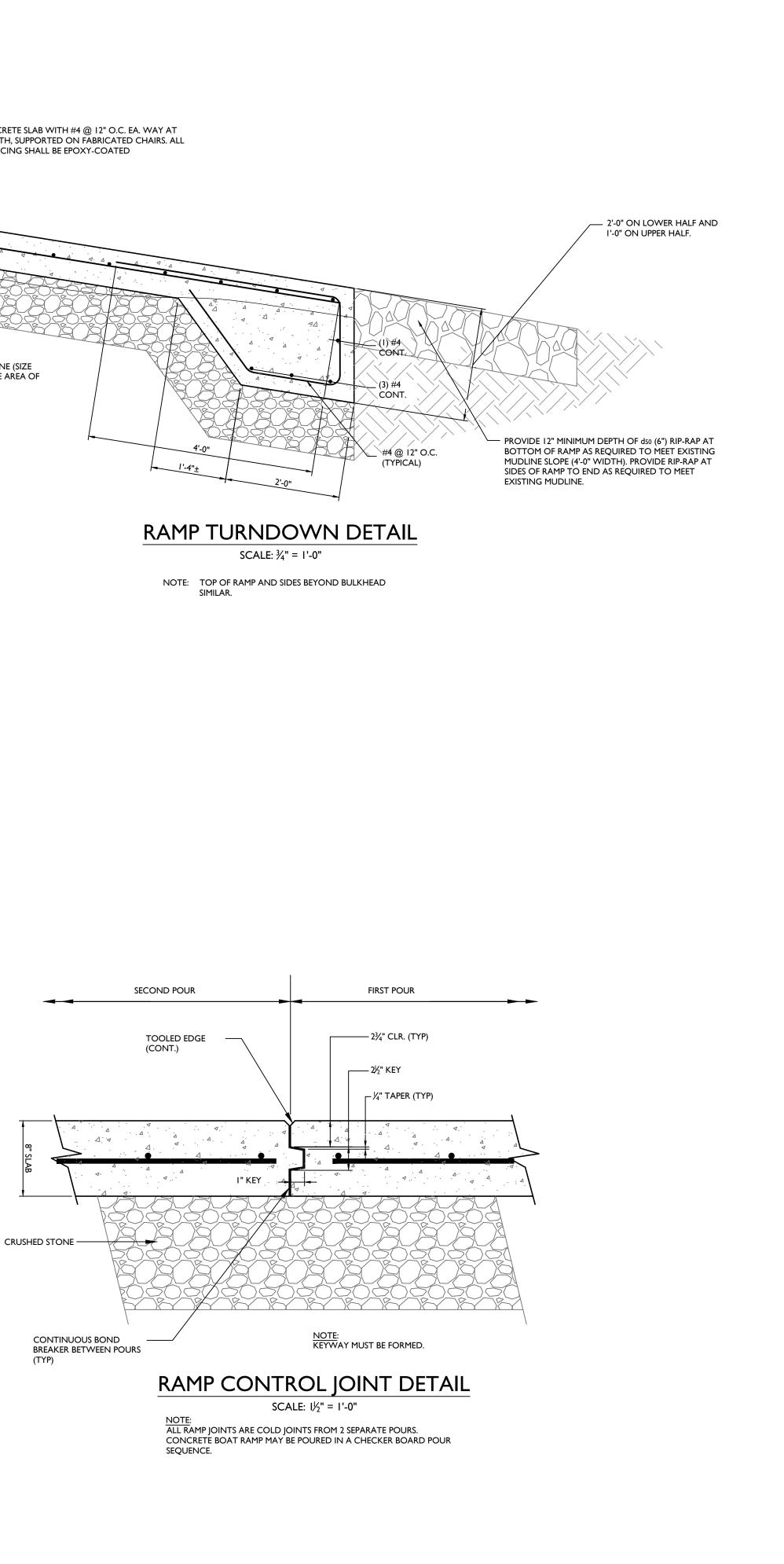
### TYPICAL RAMP CORRUGATION DETAIL SCALE: 3" = 1'-0"

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.







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#### GENERAL NOTES

I. ALL WORK SHALL BE IN ACCORDANCE WITH THE NEW JERSEY UNIFORM CONSTRUCTION CODE (NIUCC), 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".

- 2. ALL ASPECTS OF THE WORK ALSO SHALL BE IN COMPLETE ACCORDANCE WITH THE REQUIREMENTS AND DIRECTIVES OF THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND ALL GRANTED PERMITS (SEE SPECIFICATIONS).
- 3. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED TO SUPPORT LOADS WHICH NEW AND EXISTING STRUCTURES MAY BE SUBJECTED TO DURING CONSTRUCTION.
- 4. CONTRACTOR SHALL FIELD MEASURE AND VERIFY ALL EXISTING CONDITIONS. ELEVATIONS, ANGLES, AND DIMENSIONS IN FIELD. ANY UNUSUAL CONDITIONS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE PURCHASE, FABRICATION, OR ERECTION OF ANY MATERIALS.
- 5. CONTRACTOR SHALL SUBMIT FOR ENGINEER'S REVIEW, ERECTION DRAWINGS AND DETAILED SHOP DRAWINGS FOR ALL STRUCTURAL MATERIALS INCLUDING:
- A. SHEET PILE SECTIONS **B. SECTIONS AND FABRICATIONS**

C. DATA SHEETS ON ALL STRUCTURAL MATERIALS, COATINGS, TREATMENTS, AND ADHESIVES

D. ALL SITE IMPROVEMENT ITEMS

- **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.
- 2. BACKFILL SHALL BE PLACED IN 8-INCH MAXIMUM LIFTS AND COMPACTED TO A MINIMUM DENSITY OF 95% (UNDER SLABS-ON-GRADE NEW PAVEMENT AND FOOTINGS) AND 90% ELSEWHERE OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D1557 MODIFIED PROCTOR. UNLESS NOTED OTHERWISE.
- 3. COMPLIANCE MUST BE SHOWN THROUGH TESTING PERFORMED BY A CERTIFIED COMPACTION TESTING PROVIDER. A MINIMUM OF 2 TESTS PER LIFT MUST BE PERFORMED. ALL TEST RESULTS MUST BE PROVIDED TO AND APPROVED OF BY THE ENGINEER PRIOR TO FURTHER INSTALLATION OF LIFTS.
- 4. THE COMPACTION AND TESTING OF THE BACKFILL DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 5. BACKFILL SHALL CONSIST OF NON-EXPANSIVE, FREE-DRAINING, WELL GRADED SAND AND GRAVEL, FREE OF DEBRIS AND ORGANIC MATERIAL. EXCAVATED SITE MATERIALS MAY BE REUSED IF AT PROPER MOISTURE CONTENT AND FREE OF DEBRIS.
- 6. CONTRACTOR WILL BE RESPONSIBLE FOR, AND SHALL SAFEGUARD AND PROTECT, ALL EXCAVATIONS AND EXISTING STRUCTURES DURING CONSTRUCTION OF FOUNDATIONS BY PROPER SAFEGUARDS WHICH MAY INCLUDE BRACING.
- 7. ALL EXCAVATIONS SHALL CONFORM WITH CURRENT OSHA REQUIREMENTS AND standards.
- 8. THE DESIGN AND OPERATION OF THE GROUNDWATER CONTROLS DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 9. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

#### FILTER FABRIC FOR BULKHEAD CONSTRUCTION

- I. FILTER FABRIC SHALL BE PROVIDED FOR CONSTRUCTION OF BULKHEAD AT AREAS AS SHOWN ON THE DESIGN DRAWINGS, INCLUDING BUT NOT LIMITED TO
- I.I. ISOLATION AND CONTROL OF GRANULAR FILL MATERIALS BEHIND NEW BULKHEAD SHEET PILES.
- CLOSURE AT INTERFACES BETWEEN NEW SHEET PILE BULKHEAD 1.2. CONSTRUCTION AND EXISTING BULKHEADS.
- 2. FILTER FABRIC SHALL BE A NON-WOVEN CIVIL ENGINEERING FABRIC MATERIAL

(GE	OTEXTILE) WITH THE FOLLOWING MINIMUM MATERIAI	_ PROPERTIES:
2.1.	GRAB TENSILE STRENGTH (ASTM D4632):	80LB
2.2.	GRAB TENSILE ELONGATION (ASTM D4632):	50%
2.3.	MULLEN BURST (ASTM D3786):	I 50 PSI
2.4.	PUNCTURE (ASTM D4833):	45 LB
2.5.	TRAPEZOID TEAR (ASTM D4533):	35 LB
2.6.	UV RESISTANCE @ 500hr (ASTM D4355):	70%
27	ADDADENIT ODENIINIC SIZE (LIS SIEVE) (ÁSTM DAZEL)	70

- 2.7. APPARENT OPENING SIZE (US SIEVE) (ASTM D4751): 70
- 3. COMPLETE MANUFACTURER'S DATA ON FILTER FABRIC (GEOTEXTILE) MATERIAL SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO PROCUREMENT OR INSTALLATION OF MATERIAL.
- 4. ALL ASPECTS OF MATERIAL STORAGE, HANDLING, AND INSTALLATION SHALL BE IN COMPLETE ACCORDANCE WITH THE MANUFACTURER'S **RECOMMENDATIONS AND INSTRUCTIONS.**

#### SOLAR STAIR LIGHTS

- I. LIGHT FIXTURE ALONG STAIRS SHALL BE SOLAR-POWERED STAINLESS STEEL DECK LIGHTS.
- 2. FIXTURE SHALL BE "SOLAR POWER 5  $\frac{3}{4}$ "W STAINLESS STEEL DECK LIGHTS" STYLE #6V956" BY LAPS PLUS, (www.lampsplus.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**

- ALL ASPECTS OF TIMBER CONSTRUCTION SHALL BE IN COMPLETE WITH THE REQUIREMENTS OF THE "NATIONAL DESIGN SPECIFICA CONSTRUCTION" (NDS), LATEST EDITION, AS PUBLISHED BY THE & PAPER ASSOCIATION AND THE AMERICAN WOOD COUNCIL.
- MATERIALS:
- A. TIMBER SOUTHERN YELLOW PINE, No.2 GRADE OR BETTER FRAMING, INCLUDING STAIRS, AND BULKHEAD CAP. ALL TIMB BE PRESERVATIVE TREATED IN ACCORDANCE WITH NOTE #3,
- B. HARDWARE ALL STUDS, BOLTS, NUTS, AND WASHERS FOR TI SHALL BE ASTM A307, HOT-DIP GALVANIZED IN ACCORDANCE UNLESS OTHERWISE NOTED. PLATES, STRAPS, AND ANGLES SH STEEL, HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A OTHERWISE NOTED.
- ALL TIMBER FRAMING SHALL BE PRESERVATIVE TREATED IN ACCO WITH "AMERICAN WOOD PRESERVERS ASS'N. (AWPA) STANDARD UI-05, AS FOLLOWS:
- A. ALL TIMBER FRAMING AT BULKHEAD CAPS, EXCEPT AS SPECIF "B", BELOW: (I) AWPA USE CATEGORY: UC-5B
  - (SALT WATER EXPOSURE)
  - (2) COMMODITY (UI-05, TABLE 3-1): LUMBER / TIMBE
  - (3) CCA PRESERVATIVE TREATMENT WITH A RETENTION C LBS./CuFt SHALL BE PROVIDED PER UI-05, TABLE 3.0 (4) NO SUBSTITUTIONS OF OTHER TREATMENTS SHALL BE
- B. TIMBER CAP TOP PLANK SECTIONS AT BULKHEAD: (I) AWPA USE CATEGORY:
  - (SALT WATER SPRAY)
  - (2) COMMODITY (UI-05, TABLE 3-1): LUMBER / TIMBE (3) ACO PRESERVATIVE TREATMENT WITH A RETENTION O
  - LBS./CuFt SHALL BE PROVIDED PER UI-05, TABLE 3.0 (4) NO SUBSTITUTIONS OF OTHER TREATMENTS SHALL BE
- ALL FIELD CUTS SHALL BE FIELD-TREATED WITH PRESERVATIVE TR 4. ACCORDANCE WITH APPLICABLE AWPA STANDARDS AND PROC
- ALL STEEL HARDWARE, NAILS, SCREWS AND BOLTS SHALL BE OF S FOR THEIR INTENDED USE. ALL BOLTS SHALL INCLUDE FLAT WASI HEX NUTS.
- ALL STEEL FASTENERS, BOLTS, WASHERS, NUTS, LAG BOLTS, PLATE OTHER CONNECTION HARDWARE SHALL BE HOT-DIP GALVANIZ STANDARDS A123 OR A153, WITH 20 OZ. OF ZINC PER SQUARE FC OTHERWISE SPECIFIED TO BE STAINLESS STEEL.
- ALL LAG BOLTS SHALL BE INSTALLED USING PILOT AND CLEARAN CONNECTED TIMBER ELEMENTS IN STRICT ACCORDANCE WITH REQUIREMENTS OF NDS SECTION 11.1.3. (G = 0.55)
- 8. ALL SCREWS SHALL BE <u>STAINLESS STEEL</u> SIZES AS SHOWN, OR SUI CONNECTED ELEMENTS.
- 9. PREFABRICATED TIMBER CONNECTORS:
  - A. CONTRACTOR SHALL SUBMIT COMPLETE DATA ON ALL PREF. TIMBER CONNECTORS FOR REVIEW BY THE ENGINEER. SU DATA SHALL INCLUDE LOAD CAPACITIES FOR ALL CONNE B. CONNECTOR SIZES AND TYPES SHALL BE AS SHOWN ON THE DRAWINGS AND DETAILS.
  - C. CONNECTORS SHALL BE INSTALLED USING ALL FASTENERS AS BY THE MANUFACTURER FOR THE PUBLISHED LOAD CAPA
  - D. TWIST STRAPS FOR CONNECTION OF PIER JOISTS TO GIRDERS BE 14 ga. STAINLESS STEEL, TYPE 304. MANUFACTURER'S STANDARD ELECTRO-GALVANIZED OR HOT-DIP GALVAN CONNECTORS WILL NOT BE ACCEPTED.
    - (I) AT CONTRACTOR'S OPTION, AND WITH SPECIFIC APPR ENGINEER,  $\frac{1}{4}$ " THICK x  $\frac{1}{4}$ " WIDE HOT-DIP GALVANIZ STRAPS MAY BE SUBSTITUTED FOR PREFABRICATED STRAPS.
    - (a) STRAPS SHALL BE HOT-DIP GALVANIZED AFTER FA ACCORDANCE WITH ASTM STANDARD A123. (b) HOT-DIP GALVANIZED TWIST STRAPS SHALL BE S
      - WITH A TOTAL OF (4)  $\frac{3}{8}$  % x 2" LAG BOLTS, (2) EACH WOOD MEMBER. LAG BOLTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM S
- 10. BOLTS LOCATED TOWARDS THE WATER SHALL BE RECESSED OR PROTECTED AND SHALL NOT BE EXPOSED OR EXTEND PAST THE TIMBER FRAMING TO REDUCE THE POSSIBILITY OF DAMAGE TO BO STRUCTURAL DETAILS FOR RECESSES AND BOLT PROTECTION.

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

	CO	NCRETE AND REINFORCING	. –	ST
TE ACCORDANCE CATION FOR WOOD E AMERICAN FOREST		ALL CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENTS OF ACI 318 AND "SPECIFICATIONS FOR CONCRETE BUILDINGS" ACI 301, LATEST EDITIONS.	Ι.	S
	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.		
r for all timber 18er framing shali 9, below.	L	MAXIMUM SLUMP SHALL BE 4 INCHES. ALL CONCRETE SHALL BE NORMAL WEIGHT, U.N.O.		
TIMBER FRAMING CE WITH ASTM A153, HALL BE ASTM A36	3.	ALL REINFORCING STEEL FOR CONCRETE AND MASONRY CONSTRUCTION SHALL CONFORM WITH ASTM A615, GRADE 60. <u>ALL REINFORCING STEEL SHALL BE HOT</u> DIPPED GALVANIZED OR EPOXY-COATED IN ACCORDANCE WITH ASTM A775.	2.	A
A123, UNLESS	4.	ALL REINFORCING BARS SHALL BE SPLICED A MINIMUM OF 40 BAR DIAMETERS. ALL REINFORCING BARS SHALL BE CONTINUOUS AROUND CORNERS.	2.	S I.
ORDANCE DS 2005", STANDARE CIFICALLY NOTED IN		WELDED WIRE FABRIC (WWF) SHALL CONFORM WITH ASTM A185. WIRE FABRIC SHALL BE TIED WITH WIRE AND OVERLAPPED TWO SQUARES AT EDGES. <u>ALL WWF</u> <u>SHALL BE HOT DIPPED GALVANIZED OR EPOXY-COATED IN ACCORDANCE WITH</u> ASTM A884.	2.2 3.	2.
SERS OF 2.5 SE PERMITTED.	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: I INCH	<b>3</b> . <b>4</b> .	
SERS	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.	5.	C    
OF 0.6 BE PERMITTED.	8.	NO ADMIXTURE SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER. THE USE OF CALCIUM CHLORIDE IS PROHIBITED.	6. 7.	
REATMENT IN OCEDURES.	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	8.	► P
F SUFFICIENT LENGTI ASHERS AND HEAVY	H 10.	BOUNDARIES OR PREDETERMINED JOINTS, IS COMPLETED. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED BY SUITABLE MEANS SUCH AS MECHANICAL VIBRATION DURING PLACEMENT AND THOROUGHLY		R II
tes, angles and Ized per astm	11.	WORKED AROUND REINFORCEMENT. FINISH CONCRETE IN ACCORDANCE WITH "FINISHING OF FORMED SURFACES", OF	9.	
FOOT, UNLESS		ACI 301. FOUNDATION WALL SHALL BE SMOOTH-FORMED FINISH, UNLESS OTHERWISE NOTED. SEE NOTE #14, BELOW.	10.	<u>\</u> S
NCE HOLES IN THE	12.	GROUT SHALL BE A NON-SHRINK, NON-METALLIC, CEMENTITIOUS GROUT, AS APPROVED BY THE ENGINEER.		A
UITABLE FOR THE		ALL BOLTS, SLEEVES, AND OTHER EMBEDDED ITEMS SHALL BE SET BEFORE CONCRETE IS PLACED. SEE MECHANICAL, ELECTRICAL, AND VENDORS' DRAWINGS FOR SIZES AND LOCATIONS.		
FABRICATED	CO	NCRETE CURING		В
UBMITTED NECTORS. HE DESIGN	I. PR	OPER 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		
AS RECOMMENDED PACITIES. RS SHALL		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		
NIZED PROVAL OF THE		ENGINEER TO BE REMOVED AND REPLACED. ALL COSTS ASSOCIATED WITH REMOVAL AND REPLACEMENT OF CONCRETE WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.		
IZED STEEL TWIST	2. SL	ABS - IT IS MANDATORY THAT 7 DAYS OF WET CURING ON ALL MAT SLABS AND		C
FABRICATION IN 3. SECURED		FORMED SLABS BE PERFORMED. USE SOAKER HOSE, WET BURLAP AND PLASTIC SHEETS OVER BURLAP ON ALL EXPOSED SURFACES FOR 7 DAYS		_
(2) INTO HOT-DIP STANDARD A153.	3. C(	OLD WEATHER - WHEN THE MEAN DAILY OUTDOOR TEMPERATURE IS LESS THAN 40°F, THE	11.	A
R OTHERWISE HE FACES OF THE BOATS. SEE		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		В
- C, (10. JLL		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.		C
	4. H	OT 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		C

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.

TEEL SHEET PILES

STEEL SHEET PILING FROM NUCOR COMPANY SKY HAVE THE FOLLOWING MINIMUM PROPERTIES:	LINE STEEL OR EQUAL S
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.

ALL STEEL SHEET PILES SHALL BE SHOP COATED WITH THE FOLLOWING SYSTEM BY PPG OR EQUAL: THE FIRST/SECOND COAT SHALL BE TWO COATS OF AMERCOAT 24

10-12mils PER COAT.

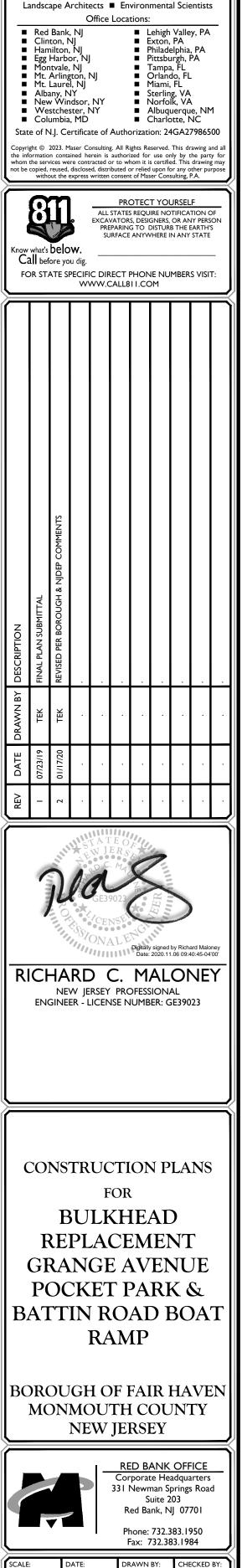
- THE THIRD COAT SHALL BE ONE COAT OF AMERCOAT 450H (MININ PER COAT).
- AFTER BULKHEAD INSTALLATION, COAT TOP 6" OF ALL SHEETS (FRONT REAR) WITH MINIMUM OF I6MIL BITUMINOUS COATING OVER EXISTING EXCEPT OF SECTION 2 BULKHEAD, WHERE TOP SHOULD BE REPAIRED PE BELOW.
- REPAIR ALL OTHER AREAS OF COATING THAT WERE DAMAGED DURING AND INSTALLATION AT ALL PENETRATIONS AND BOLT HOLES IN SHEETI ORIGINAL COATING SYSTEM (3 COATS).
- ALL STEEL SHEET PILING SHALL BE ASTM A572 GRADE 50 STEEL (Fy = 50 KS ALL STEEL SHEET PILING SHALL BE HOT ROLLED.
- CONTRACTOR SHALL USE A DRIVING TEMPLATE FOR DRIVING STEEL SH DRIVING OF PILES IN PAIRS IS RECOMMENDED TO FACILITATE DRIVING A
- MAINTAIN VERTICALITY OF PILES.

PILING SHOULD BE DRIVEN WITH THE BALL EDGE LEADING WHERE POSS AVOID CLOGGING OF SOCKET END DURING DRIVING. WHEN CONDIT REQUIRE THAT SOCKET END LEAD, A BOLT OR SIMILAR OBJECT SHOULD IN BOTTOM OF SOCKET TO MINIMIZE CLOGGING.

CUT OFF EXCESS MATERIAL ALONG TOP OF DRIVEN SHEET PILE AFTER INSTALLATION. HANDLING HOLES MUST BE IN THE TOP 8" OF SHEET IN WHERE A CAP IS SPECIFIED. IN AREAS WITHOUT A CAP, HOLES SHALL BE WITH A WELDED 1/4" THICK PLATE. COAT W/ 16mils BITUMINOUS COATI

- SHEET PILE ANCHORAGE SYSTEMS:
- A. SHEET PILE ANCHORAGE SYSTEM SHALL INCLUDE STEEL CHANNEL V SECTIONS LOCATED BEHIND THE SHEET PILES (LANDWARD SIDE). AI RODS AND HELICAL ANCHORS SHALL BE LOCATED TO OCCUR WITI CORRUGATIONS OF THE SELECTED SHEET PILE PROFILE. SEE DESIGN I FOR ADDITIONAL INFORMATION AND CONNECTION DETAILS.
- TIE RODS FROM SHEET PILE WALERS TO HELICALS:
- a. TYPICAL BULKHEAD TIE RODS SHALL BE I "Ø THREAD BAR TIE-RO GRADE 150 STEEL.
- b. EACH ROD (TYPICAL RODS OR DIAGONALS) SHALL INCLUDE A ADAPTER FOR TENSIONING AND ADJUSTMENT OF ROD AFTER INSTALLATION. ADAPTER AND INNER AND OUTER ROD SECTIO BE PROVIDED WITH OPPOSITE-HAND THREADS TO PERMIT TENS AND ADJUSTMENT USING ADAPTER.
- c. ALL ELEMENTS OF TIE ROD SYSTEM, INCLUDING BUT NOT LIMIT RODS, ADAPTERS, WASHERS, HEX NUTS, SHIMS AND OTHER HA SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 AS APPLICABLE, WITH 20 OUNCES OF ZINC PER SQUARE F MINIMUM. AFTER GALVANIZING, ALL ELEMENTS AS NOTED ABO ALSO BE FULLY COATED WITH COAL-TAR
- THREADED ELEMENTS SHALL BE COATED WITH COAL-TAR EPOXY IN ONLY AFTER FINAL ADJUSTMENT AND TIGHTENING OF PARTS IS CC SEE NOTES THIS SHEET FOR DETAILS OF COAL-TAR EPOXY COATING.
- DRILLED-IN HELICAL SOIL ANCHORS A. DESIGN LENGTH OF HELICAL ANCHORS FROM FACE OF BULKHEAD SHALL BE 50'-0" MINIMUM, AS SHOWN IN THE DESIGN DRAWINGS.
- B. HELICAL ANCHOR INSTALLATION ANGLE SHALL BE 20° FROM HORIZ ANCHORS SHALL BE PERPENDICULAR TO THE LINE OF THE BULKHEA
- C. ENTIRE HELICAL ANCHOR SYSTEM SHALL BE SUPPLIED FROM THE SAI MANUFACTURER, INCLUDING SHAFTS, HELICES, AND ALL HARDWAF
- D. ALL DETAILS OF HELICAL ANCHOR INSTALLATION SHALL BE IN COM ACCORDANCE WITH THE DESIGN DRAWINGS, AND WITH THE MANUFACTURER'S RECOMMENDATIONS, INCLUDING BUT NOT LIMI THE FOLLOWING:
- a. ANCHOR LENGTH, LOCATION, INSTALLATION ANGLE AND SPA BULKHEAD.
- b. ANCHOR HELIX MATERIAL, DIAMETERS, THICKNESSES, AND SPAC ALONG SHAFT. NOMINAL SPACING BETWEEN HELIX PLATES SHA TIMES THE DIAMETER OF THE LARGER HELIX. HELIX MATERIAL SI ACCORDANCE WITH ASTM A936 HOT-ROLLED HIGH STRENGT ALLOW STEEL SHEET, ASTM A656 HOT-ROLLED STRUCTURAL ST OR MANUFACTURER'S STANDARD AS REQUIRED TO OBTAIN TH LOAD CAPACITY. HELICES SHALL BE FORMED BY MATCHING ME
- c. ANCHOR SHAFT SIZE, CONNECTIONS, AND MATERIAL. SHAFT M SHALL BE IN ACCORDANCE WITH ASTM A29, OR MANUFACTUR STANDARD AS REQUIRED TO OBTAIN THE DESIGN LOAD CAPA
- ALL HELICAL ANCHOR HELICES, DRIVE SHAFTS, ADAPTERS, RODS, NU WASHERS, PLATE WASHERS, PIPE SPACERS, AND OTHER HARDWARE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 & A153 A APPLICABLE, WITH 20 OUNCES OF ZINC PER SQUARE FOOT, MINIMU GALVANIZING, ALL EXPOSED ELEMENTS AT ADAPTER CONNECTION ALSO BE FULLY COATED WITH COAL-TAR EPOXY. SEE NOTES THIS S 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 MANUFACTUR
- H. HELICAL ANCHORS SHALL BE LOAD TESTED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S RECOMMENDATIONS. ALL ASPECTS OF TESTING SHALL BE IN COMPLETE ACCORDANCE WITH THE MFGR'S RECOMMENDATIONS, INCLUDING NUMBER/FREQUENCY OF ANCHO TEST PROCEDURES, MAGNITUDE OF TEST LOADS, METHOD OF TEST APPLICATION, AND DURATION OF TEST LOAD APPLICATION, CON SHALL WAIT MINIMUM OF TWO DAYS AFTER INSTALLATION TO COM LOAD TESTING ON ANY ANCHOR.
- HELICAL ANCHOR DESIGN & SHOP DRAWINGS SHALL BE SUBMITTED ENGINEER APPROVAL. DESIGN AND SHOP DRAWINGS SHALL BE NEV SIGNED AND SEALED BY THE CONTRACTORS ENGINEER.

							A	<b>A</b>	Á	S	F	R
SHALL	<u>STI</u>	AISC "MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN", LATEST			w w v Engin	w.m.a neers	aser ■ Pl	nrougi c o n s	h Clie ulti s∎ :	nt Sat ng.c Survey	ors	on
	2	EDITION. 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.	║-	Red Clir Har Egg	l Banl nton, niltor Harb ntvale	k, NJ NJ	Office IJ	■ En ELoca	tions: L E E P P T	ehigh xton, hilade	lphia, l rgh, P/ , FL	, PA PA
	3	ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING WELDS OR STANDARD, UNFINISHED BOLTS. CONNECTION MATERIALS SHALL BE AS FOLLOWS:		Mt. Alb Nev We Col	Laure any, N w Wi estche lumbia	el, NJ NY ndsor ester, a, MD	, NY NY		<ul> <li>N</li> <li>S</li> <li>N</li> <li>A</li> <li>C</li> </ul>	1iami, iterling Norfoll Albuqu Charlo	FĹ	С
COATING 10 (MINIMUM		A. BOLTS SHALL CONFORM TO ASTM A325 OR EQUIVALENT. B. WELDS SHALL BE IN ACCORDANCE WITH THE LATEST AMERICAN WELDING SOCIETY (AWS) SPECIFICTIONS. ALL WELDING ELECTORDES SHALL BE E70 SERIES, UNLESS OTHERWISE NOTED.	the in whom	formation the ser copied,	on cont vices w , reused	tained h rere con I, disclos	nerein is itracted sed, disti	authori or to wl ributed o	zed for hom it is or relied	use onl s certified upon fo	This drav ly by the d. This de r any oth ulting, P.A	e party Irawing i her purp
1UM 3mils , TOP & COATING. ER NOTE	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 DI.I, "STRUCTURAL WELDING CODE - STEEL", LATEST EDITION. PROVIDE MINIMUM WELD SIZES PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9th EDITION, WHEN	PROTECT YOURSELF ALL STATES REQUIRE NOTIFICATIO EXCAVATORS, DESIGNERS, OR ANY T PREPARING TO DISTURB THE EAR SURFACE ANYWHERE IN ANY ST Call before you dig. FOR STATE SPECIFIC DIRECT PHONE NUMBERS N WWW.CALL811.COM							ION OF 7 PERSO ARTH'S TATE		
GDELIVERY	5	WELD SIZES ARE NOT SHOWN.										
SI MINIMUM).	-	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.										
EET PILING. AND HELP SIBLE, TO	7	PAINTING: A. STEEL SHAPES, PLATES, AND FABRICTIONS 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.										
IONS D BE PLACED AREAS COVERED NG.		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.		Υ	H & NJDEP COMMENTS							
VALER		SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.	NO	I SUBMITTAL	R BOROUGH							
NCHOR TIE THIN THE DRAWINGS	1.	<u>ALTAR EPOXY COATING</u> 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.)	BY DESCRIPTION	FINAL PLAN	REVISED PE		  -				_ <b> </b>	_
ods, thread	2.	THREADED PORTIONS OF TIE 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.	DATE DRAWN	07/23/19 TEK	01/17/20 TEK							
ons, shall sioning	3.	COAL-TAR EPOXY SHALL BE IN COMPLETE ACCORDANCE WITH THE REQUIREMENTS OF THE US ARMY CORPS OF ENGINEERS FORMULA C-200, AND STEEL STRUCTURES PAINTING COUNCIL (SSPC) STANDARD "PAINT 16".	REV D	-20	2 01/							
ED TO RDWARE A123 &	4.	MINIMUM (NOT AVERAGE) DRY FILM THICKNESS (DFT) OF 16 mils IS REQUIRED ON ALL COATED ELEMENTS.				14 S	TAT	ERS	F	2		
OOT, VE SHALL	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.		1	P	l		9023	X	UUUUUUUUUUU	>	
n field Ompleted. G. Sheet piles	6.	COAL-TAR EPOXY MATERIAL SHALL MEET OR EXCEED THE FOLLOWING PERFORMANCE REQUIREMENTS: A. ASTM D4060 (ABRASION): I30mg MAX LOSS AFTER 1000 CYCLES B. ASTM D4541 (ADHESION): I443 psi MINIMUM C. ASTM D2794 (IMPACT): I00 in-lbs D. ASTM B117 (SALT FOG): NO BLISTERING, RUSTING OR DELAMINATION	R		NE	w ji	ERSE	PRC	M. DFESS		oy Richard 06 09:40: ON AL E3902	1E)
ZONTAL. AD IN PLAN. ME RE.	7.	AFTER 2000 HRS. 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.										
	AL	UMINUM RAILING										
ACING ON CING	Ι.	ALL ALUMINUM MATERIALS AND FABRICATION SHALL COMPLY WITH THE REQUIREMENTS OF THE ALUMINUM DESIGN MANUAL 2005, AND WITH THE ALUMINUM ASSOCIATION, INC.		CO	NS	TR				<b>1</b> P]	LAI	NS
ALL BE FIVE HALL BE IN H LOW	2.	ALUMINUM MATERIALS SHALL BE TYPE 6063-T6, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ASTM B 221 AND B 308, AS APPLICABLE.			E	BU		FOR KH	-	AD	)	
EEL PLATE, HE DESIGN TAL DIES. MATERIAL RER'S	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.		GI	RA	N	[G]	E A	V	EN	NT JU ( 8	E
.CITY. JTS, BOLTS, SHALL BE	4.	ALL RAILING SHALL BE WELDED AND SHALL CONSIST OF ANODIZED ALUMINUM SCHEDULE 40 PIPE, $1\frac{1}{2}$ " NOMINAL (1.90" O.D.) IN ACCORDANCE WITH ASTM B 241, TYPE 6063-T6. ALL PICKETS SHALL BE ANODIZED ALUMINUM SCHEDULE 40 PIPE, $\frac{1}{2}$ " NOMINAL (0.84" O.D.) IN ACCORDANCE WITH ASTM B 241, TYPE 6063-T6.	B	AJ	ΓT			LO. AM		) E	30	A'.
AS JM. AFTER J SHALL		WELDING IS TO BE CONDUCTED PRIOR TO ANODIZING.									HA	
HEET FOR		HANDRAILS SHALL BE DESIGNED TO WITHSTAND THE LOADS AS SPECIFIED IN NJUCC SECTION 1607.7.1.		M				TH JE			NT	Y
	7.	HANDRAILS SHALL BE FABRICATED IN THE LARGEST SECTIONS PRACTICAL FOR SHIPPING AND HANDLING IN FIELD FOR INSTALLATION.									OFFI Idquar	
	8.	HANDRAIL EXTENSIONS AT TOP, BOTTOM, TURNS AND SWITCHBACKS SHALL BE IN ACCORDANCE WITH THE HANDRAIL REQUIREMENTS OF ANSI A117.1.						3311	Newn S	nan Sp uite 20	orings	Road
RER. H THE ANCHOR	9.	POST TO BE MOUNTED TO 4 ½"x4 ½"x3%" THICK ALUMINUM BASE PLATE. UTILIZE FOUR (4) ¾"Ø HOT-DIPPED GALVANIZED LAG SCREWS (6" LONG) AND RE-DRILL ALL HOLES.	SCAL		_ I	DATE:		F	ax: 7	<b>32.38</b> BY:		4 CKED B
DR TESTS, LOAD TRACTOR NDUCT	10.	RAILING CONTRACTOR SHALL ADD TWO (2) 3×10 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)	PROJE	HOW CT NU 17004	JMBER 1982B	:	02/19 DRA C-D	WING TLS	TEK NAME:		F	RCM
D FOR V JERSEY				S	TR	UC	TL	JRA		10.	TES	,
			SHEE	T NUM	BER:						-	



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