PLANS FOR

UMBRELLA MITIGATION BANK AND PERMITTING BUSH TERMINAL PIER 7

1ST AVENUE & 43RD STREET BROOKLYN, NY 11232 DECEMBER 12, 2022



LOCATION MAP

OWNER:

NEW YORK CITY ECONOMIC DEVELOPMENT CORP.
ONE LIBERTY PLAZA, 14TH FLOOR
NEW YORK, NY 10006

PREPARED BY
JACLYN J. FLOR, P.E., P.P., C.M.E.
CONSULTING ENGINEER

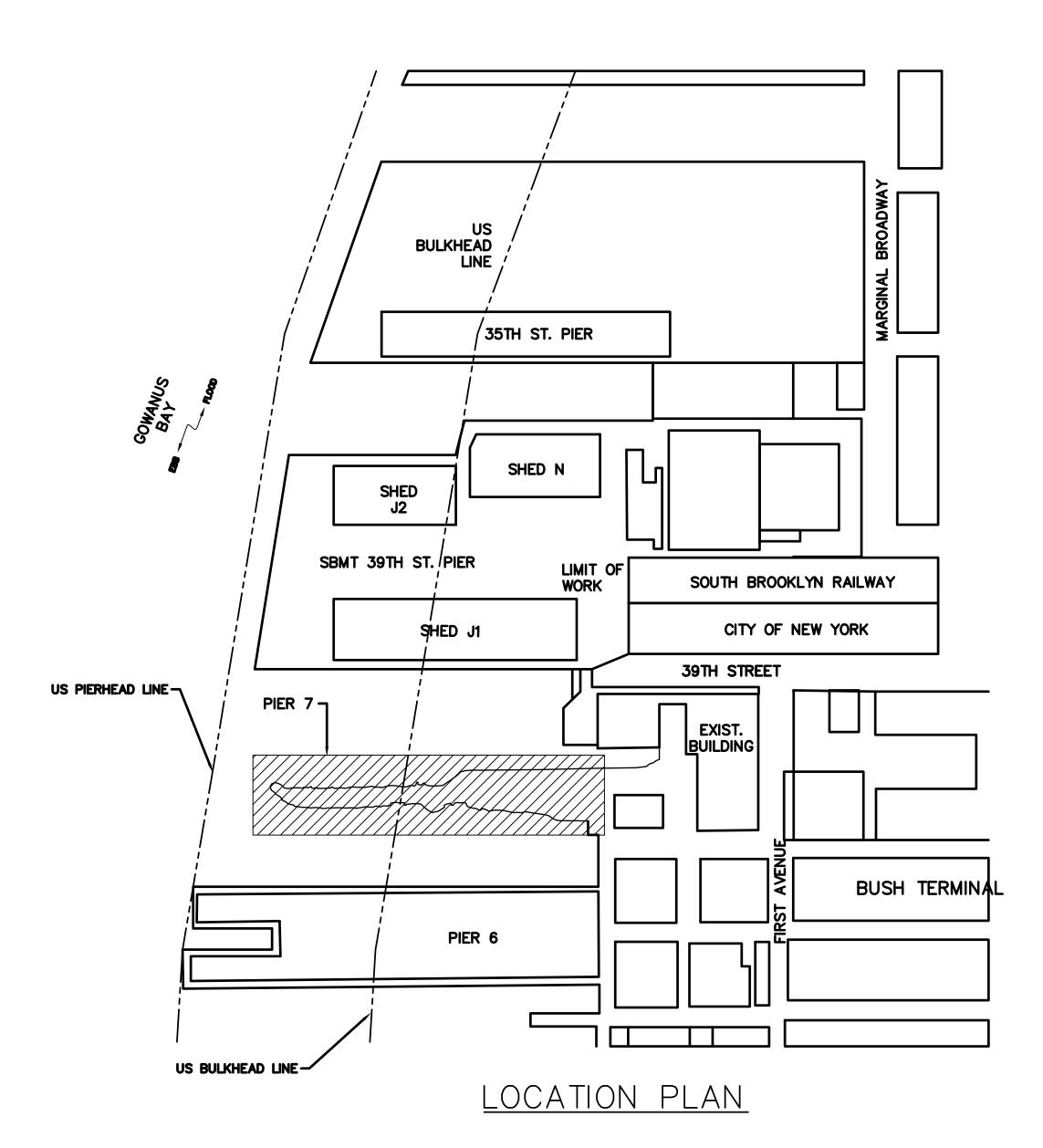
LICENSED PROFESSIONAL ENGINEER
STATE OF N.Y. LICENSE No. G101540
ENGENUITY INFRASTRUCTURE
CERTIFICATE OF AUTHORIZATION 0017153



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

PRIOR TO DIGGING CALL 1-800-962-7962

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PROJECT NO. WSPG-00020
DRAWING
CVR
SHEET NO.
1 OF 11

- 2. RTK GNSS TIED INTO LEICA'S SMARTNET CONTINUOUSLY OPERATING
- 3. THE EXISTING CONDITIONS SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY MATRIX NEW WORLD USING GNSS EQUIPMENT.

REFERENCE STATIONS (CORS) NETWORK.

- 4. VERTICAL WATER DATUM RELATIVE TO NAVD88 WERE DERIVED FROM NOAA'S ONLINE VERTICAL DATUM TRANSFORMATION SOFTWARE.
- 5. BATHYMETRIC SURVEY DATA SHOWN ON THIS MAP WAS COLLECTED USING MULTI-BEAM SONAR METHOD, IN ACCORDANCE WITH US ARMY CORPS OF ENGINEERS HYDROGRAPHIC SURVEY MANUAL (EM 1110 -2-1003)
- 6. ALL SOUNDING DATA WAS CORRECTED FOR TIDE AND WATER-BODY SOUND VELOCITY VARIATIONS.
- 7. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH WILL BE ENCOUNTERED DURING WORK.
- 8. NO RESPONSIBILITY IS ASSUMED BY THE ENGINEER REGARDING THE NATURE AND COMPOSITION OF UNDERWATER CONDITIONS AND MATERIALS. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH THE NATURE AND COMPOSITION OF REMOVALS. IT IS UNKNOWN IF, OR TO WHAT DEGREE, THE MATERIALS MAY OR MAY NOT BE CONTAMINATED OR CONTAIN HAZARDOUS SUBSTANCES. CONTRACTOR SHALL CONDUCT PROBES, SAMPLING, AND TESTING OF MATERIALS IN ORDER TO ESTABLISH PROTOCOLS FOR MATERIAL SEGREGATION AND LEGAL DISPOSAL AT AN APPROVED OFF-SITE DISPOSAL FACILITY.
- 9. THIS SCOPE OF THE WORK SHALL INCLUDE ALL LABOR, MATERIALS, TAXES, EQUIPMENT, TRANSPORTATION, HOISTING, SUPERVISION, SCAFFOLDING, TEMPLATES, LAYOUT, CLEAN-UP, SHOP DRAWINGS, INSURANCE, BOND, PERMITS, ETC., FOR THE COMPLETE PERFORMANCE OF THE WORK IN ITS ENTIRETY AS INDICATED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PERFORM ALL WORK AS ILLUSTRATED ON THE DRAWINGS AND SPECIFICATIONS AND AS SPECIFIED IN THE NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION CONTRACT, WHICH IS NOT NECESSARILY LIMITED TO THE FOLLOWING: THERE SHALL BE ONE (1) PRIME CONTRACT AWARDED FOR THE BUSH TERMINAL PIER 7 MITIGATION MARINE DEMOLITION PROJECT. THIS CONTRACT IS FOR MARINE DEMOLITION AND REMOVAL OF A DILAPIDATED

SCHEDULE AND COORDINATION:

- 10. REGULAR WORKING HOURS IN THE BOROUGH OF BROOKLYN FOR THIS PROJECT ARE DEFINED AS MONDAY THROUGH FRIDAY: WORK HOURS: 7:00AM TO 6:00PM
- ROAD CLOSURE: NOT ANTICIPATED
- 11. CONTRACTOR SHALL NOTIFY THE ENGINEER, OWNER, CITY, AND ALL UTILITIES PRIOR TO STARTING WORK. CONTRACTOR SHALL NOTIFY THE POLICE DEPARTMENT, FIRE DEPARTMENT, AND RESCUE SQUADS AT LEAST 7 DAYS IN ADVANCE AND 24 HOURS PRIOR TO THE BEGINNING OF WORK.
- 12. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PREPARE AND DISTRIBUTE TO ALL PROPERTY OWNERS AND TENANTS AFFECTED BY THE PROJECT A LETTER OUTLINING THE PROPOSED IMPROVEMENTS AND THE ANTICIPATED DURATION OF THE CONSTRUCTION. THIS LETTER WILL BE REVIEWED BY THE ENGINEER PRIOR TO DISTRIBUTION AND WILL BE DISTRIBUTED BY THE CONTRACTOR NOT LESS THAN SEVEN (7) DAYS PRIOR TO THE BEGINNING OF WORK OR WITHIN SUCH OTHER TIME AS THE ENGINEER MAY DIRECT. THE WORK SCHEDULE MUST BE APPROVED BY THE ENGINEER, PRIOR TO ANY NOTIFICATIONS BEING DISTRIBUTED TO HOMEOWNERS/BUSINESS OWNERS.
- 13. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SCHEDULE WITH PROPOSED WORKING HOURS TO THE OWNER'S FIELD REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO ANY CONSTRUCTION AT THE SITE. THE FIELD REPRESENTATIVE SHALL COORDINATE SCHEDULE WITH APPLICABLE REGULATORY AGENCIES.
- 14. A PRE-CONSTRUCTION MEETING WILL BE HELD WITH THE NYEDC AND THE ENGINEER PRIOR TO BEGINNING ANY CONSTRUCTION ON THE PROJECT.
- 15. ANY CHANGES TO CONSTRUCTION SEQUENCING MUST BE SUBMITTED TO THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.
- 16. THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY ON ANY CONFLICTS ARISING DURING CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THESE DRAWINGS.

PREPARATION:

- 17. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXISTENCE OF ALL ABOVE GROUND AND UNDERGROUND UTILITIES IN THE PROJECT AREA.
- 18. LOCATION ELEVATION AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN PER THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE CORRECT, CONTRACTOR SHALL FOLLOW PROPER NOTIFICATION PROCEDURES, INCLUDING CONTACTING THE STATE "ONE CALL" SYSTEM (DIG SAFE NY) BY CALLING 1-800-962-7962. NO WORK SHALL BEGIN UNTIL THE CONTRACTOR PROVIDES THE ENGINEER WITH THE CONFIRMATION NUMBER OBTAINED FROM THE ON-CALL SYSTEM IN ACCORDANCE WITH THE UNDERGROUND FACILITY PROTECTION ACT.
- 19. IN PREPARATION OF THE BID, THE CONTRACTOR SHALL MAKE EXAMINATION IN THE FIELD TO OBTAIN INFORMATION ABOUT ON-SITE CONDITIONS. IF FIELD CONDITIONS AND DIMENSIONS DIFFER FROM THOSE

- SHOWN ON THE PLANS, THE CONTRACTOR SHALL USE THE FIELD PLANS AS APPROVED BY THE ENGINEER. THE RESULTS OF THIS CHECK OF CONDITIONS AND DIMENSIONS SHALL BE SO NOTED ON THE DRAWINGS SUBMITTED FOR APPROVAL.THERE SHALL BE NO CLAIM AGAINST THE OWNER MADE BY THE CONTRACTOR FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCES BETWEEN ACTUAL FIELD CONDITIONS AND THE DETAILS AND DIMENSIONS SHOWN ON THE CONTRACT PLANS. AREAS DISTURBED BY THE WORK SHALL BE RESTORED TO EQUAL OR EXCEED EXISTING CONDITIONS OR AS DIRECTED BY THE ENGINEER.
- 20. CONTRACTOR SHALL VIDEO AND TAKE PHOTOGRAPHS OF ALL AREAS WITHIN THE LIMIT OF WORK PRIOR TO BEGINNING CONSTRUCTION. THE VIDEO SHALL BE PROVIDED ON USB FLASH DRIVE. PHOTOGRAPHS SHALL BE DIGITAL, PRINTED AND ELECTRONIC COPIES TO BE PROVIDED. THE FLASH DRIVE AND PHOTOS WILL BE PROVIDED TO THE ENGINEER PRIOR TO CONSTRUCTION. THE COST FOR THE FLASH DRIVE AND PHOTOGRAPHS SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS SCHEDULED IN THE BID FORM.
- 21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING SECURING AND REHABILITATING TEMPORARY STAGING, STORAGE AND/OR STOCKPILING AREAS, IF NEEDED, DURING CONSTRUCTION. NO STOCKPILING OF EXCAVATED MATERIAL ALLOWED WITHIN PROJECT LIMITS. TEMPORARY STORAGE AREA MUST BE SECURED BY THE CONTRACTOR OUTSIDE PROJECT LIMITS. ALL COSTS TO BE INCLUDED IN CLEARING
- 22. CONTRACTOR IS RESPONSIBLE FOR ALL WORKER SAFETY, TRAINING, AND SAFETY DEVICE USAGE FOR AND DURING THE CONSTRUCTION OF THE IMPROVEMENTS SHOWN ON THIS PLAN. THE CONTRACTOR IS DESIGNATED AS RESPONSIBLE PARTY DURING CONSTRUCTION OF THE IMPROVEMENTS HEREON. AS SUCH, CONTRACTOR WILL PROVIDE ADEQUATE SAFETY TRAINING, EQUIPMENT AND OVERSIGHT.
- 23. CONTRACTOR TO NOTIFY THE UNDERSIGNED PROFESSIONAL IF FIELD CONDITIONS VARY FROM THAT WHICH IS SHOWN HEREON.
- 24. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS, AND SHALL TAKE THE NECESSARY PRECAUTIONS TO ENSURE SITE SAFETY. ALL WORK AREAS SHALL BE RESTRICTED FROM UNAUTHORIZED ACCESS.

GENERAL CONSTRUCTION:

- 25. THE CONTRACTOR SHALL LEGALLY REMOVE REMNANT PIER DEBRIS DOWN TO THE LITTORAL ZONE LOWER LIMIT TAKEN AT ELEVATION -8.61 FT (NAVD88), INCLUDING DEBRIS WHICH HAS COLLAPSED OUTSIDE OF THE LIMITS OF THE ORIGINAL PIER OUTLINE AS INDICATED. DEBRIS TO BE REMOVED SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO ALL MANNER OF REMNANT FILL INCLUDING:
- CONCRETE: DEBRIS, SLABS, GRADE BEAMS, PEDESTALS, PIERS, SEAWALLS, FOUNDATIONS, DEADMEN, DRAINAGE STRUCTURES, ETC. FILL: EARTHEN FILL, ASPHALT, BRICKS, COBBLES, VEGETATION, ETC. TIMBER: REMNANT TIMBER CUT-OFF WALLS, SHEETING, WALES,
- <u>STEEL/IRON:</u> TIE-RODS, MOORING DEVICES, TRACK, RAILS, PILES, STUBS, SHEET PILES, FENDER COMPONENTS, UTILITY STRUCTURES, DRAINAGE STRUCTURES, CONDUIT, PIPES, ABANDONED BURIED FUEL OIL TANKS, FENCES, AND OTHER MISCELLANEOUS DEBRIS, AS THE CASE

BULKHEAD, PILES, STUBS, BRACES, DECKING, FENDER REMNANTS, ETC.

- THE WORK ALSO INCLUDES INSTALLATION OF AN ARMOR STONE REVETMENT AT THE INSHORE END OF PIER 7 IN ORDER TO STABILIZE THE SHORELINE.
- 21. OBSTRUCTIONS AND INTERFERENCES IN PERFORMANCE OF THE WORK SHALL BE REMOVED AND LEGALLY DISPOSED. BURIED REMNANT DEBRIS SHALL NOT BE DEEMED AS AN OBSTRUCTION. NO CONSIDERATION WILL BE GIVEN FOR ADDITIONAL COMPENSATION ON THIS ACCOUNT.
- 22. THE CONTRACTOR SHALL SORT AND CLASSIFY MATERIALS TO BE DISPOSED OF, DOCUMENT THE AMOUNT OF MATERIAL (IN CUBIC YARDS) THAT WAS REMOVED AND DISPOSED OF, DOCUMENT HOW THE MATERIAL WAS TRANSPORTED. DOCUMENT WASTE STREAM MANIFESTS OF WHERE THE MATERIAL WAS TRANSPORTED TO AND WHERE THE MATERIAL WAS DISPOSED OF.
- 23. THE CONTRACTOR SHALL NOT INTERFERE WITH NAVIGATION IN PERFORMANCE OF THE WORK. THE MEANS AND METHODS OF REMOVING AND TRANSPORTING THE DESIGNATED MATERIALS ARE THE CONTRACTOR'S SOLE RESPONSIBILITY.
- 24. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY NAVIGATION LIGHTING AND OTHER SIGNALS NECESSARY FOR PROTECTING THE NAVIGABLE WATERWAYS DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY SITE MAINTENANCE, TRAFFIC CONTROLS, AND PERSONNEL PROTECTION REQUIRED TO PROPERLY SEPARATE ALL WORK FROM THE PUBLIC. THIS INCLUDES BUT IS NOT LIMITED TO "JERSEY" BARRIERS, FENCING, SIGNAGE, TRAFFIC CONES, AND FLAGMEN.
- 25. THE CONTRACTOR MUST NOTIFY THE NEW YORK STATE DEPARTMENT OF CONSERVATION, THE UNITED STATES COAST GUARD, AND ARMY CORPS OF ENGINEERS PRIOR TO THE COMMENCEMENT OF WORK. FOR ALL OPERATIONS TO BE PERFORMED IN OR OVER OR ADJACENT TO THE WATERWAYS, THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNMENTAL REQUIREMENTS, AND REGULATIONS PERTAINING TO THE WORK. OWNER SHALL PROVIDE ARMY CORP OF ENGINEERS AND NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION PERMITS. CONTRACTOR SHALL SECURE ALL OTHER PERMITS NECESSARY FOR THE LEGAL PERFORMANCE OF THIS WORK.
- 26. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL PERMIT REQUIREMENTS. UNDER NO CIRCUMSTANCE SHALL THE CONTRACTOR DEVIATE FROM THE PERMIT REQUIREMENTS, REGULATIONS, OR STIPULATIONS WITHOUT FIRST LEGALLY OBTAINING AN AMENDMENT OR MODIFICATION TO THE PERMIT(S). THE CONTRACTOR SHALL BEAR THE FULL RISK AND LIABILITY IN ALL RESPECTS, INCLUDING PUNITIVE, COMPENSATORY, AND CRIMINAL DAMAGES, DUE TO ANY ILLEGAL ACTIONS OR NEGLIGENCE ARISING FROM ANY DEVIATION FROM THE PERMIT REQUIREMENTS, OR OTHER NYS REGULATION(S), FEDERAL REGULATION(S), OR OTHER STIPULATIONS IN PERFORMING ANY ASPECT OF THE WORK. THE CONTRACTOR SHALL

- RECEIVE ALL DIRECTIONS OR INSTRUCTIONS IN WRITING. VERBAL DIRECTION FROM THE OWNER, OWNER'S REPRESENTATIVE, OR THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY.
- 27. THE CONTRACTOR SHALL NOTIFY THE USCG AND THE NYPD HARBOR PATROL FOR ALL WORK ON OR IN THE WATER. THE CONTRACTOR SHALL ISSUE A DAILY NOTICE TO MARINERS THROUGHOUT THE COURSE OF THE
- 28. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THE PROTECTION OF THE SURROUNDING WATERWAY AND TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY SPILLAGE OR DEBRIS FROM ENTERING THE WATER AS A RESULT OF ITS WORK. NEITHER CONCRETE, CONCRETE DEBRIS, NOR OTHER MATERIALS SHALL ESCAPE OR BE DISCHARGED OR ALLOWED TO ENTER THE WATERWAY. SHOULD ANY DEMOLITION OR CONSTRUCTION DEBRIS FALL INTO THE WATERWAY, IT SHALL BE REMOVED IMMEDIATELY. ANY FINES, PENALTIES OR COSTS INCURRED BY THE PROJECT AS A RESULT OF DEBRIS ENTERING THE RIVER SHALL BE INCURRED BY THE CONTRACTOR.
- 29. WHERE TEMPORARY UPLAND STOCKPILED MATERIALS ARE REQUIRED, THE CONTRACTOR SHALL COVER STOCKPILES WITH WEIGHTED TARPS AND ENCLOSE THE BASE OF STOCKPILES TO ARREST SOIL MIGRATION OR EROSION. USE HAY BALES AND SILT FENCES TO ENSURE SOIL CONTAINMENT. THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THE EROSION CONTROL DEVICES AND TARPS THROUGHOUT THE DURATION OF CONSTRUCTION.
- 30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY, HANDLING AND HOISTING OF MATERIAL AND EQUIPMENT REQUIRED FOR ITS WORK, ON OVERTIME IF NECESSARY, AT ITS SOLE EXPENSE.
- 31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY CLEAN-UP AND DISPOSAL OF DEBRIS GENERATED BY ITS WORK AND FINAL DISPOSAL AND FOR ANY WASTE IT GENERATES.
- 32. THE SITE IS IN CLOSE PROXIMITY TO EXISTING STRUCTURES SUCH AS BULKHEADS, ROADWAYS, SIDEWALKS, BARGES, PIERS, FERRIES, ETC. THE CONTRACTOR SHALL TAKE PRECAUTIONS NECESSARY TO PRESERVE THE INTEGRITY OF THE SAME IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, AND GOOD CONSTRUCTION PRACTICE. ANY DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S SOLE EXPENSE.
- 33. THE CONTRACTOR SHALL EXERCISE CAUTION TO PREVENT DAMAGE TO, OR DESTABILIZATION OF, THE EXISTING IMMEDIATELY ADJACENT INSHORE BULKHEAD (THAT SEPARATES THE UPLAND PAVEMENT FROM THE WATERWAY/PIER). THE CONTRACTOR SHALL NOT CAUSE DAMAGE OR INSTABILITY TO THIS STRUCTURE. ANY DAMAGE OR INSTABILITY RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE.
- 34. THE CONTRACTOR SHALL MARK OUT ALL UTILITIES WITHIN THE JOBSITE, IF ANY, OR ANY UTILITIES WHICH MAY BE AFFECTED BY THE WORK PRIOR TO THE START OF WORK, AND SHALL TAKE PRECAUTIONS TO PROTECT EXISTING UTILITIES AND PREVENT DAMAGE OR INTERRUPTION OF SERVICE. WHERE DAMAGE OR DISRUPTION OCCURS. THE CONTRACTOR SHALL REPAIR AND RESTORE UTILITIES AT HIS SOLE EXPENSE.
- 35. THE CONTRACTOR SHALL MAINTAIN FULL OPERATION OF OUTFALL STRUCTURES, IF ANY, DURING DEMOLITION.
- 36. THE CONTRACTOR SHALL SUPPLY ALL TEMPORARY UTILITIES REQUIRED TO PERFORM THE WORK INCLUDING, BUT NOT LIMITED TO, ELECTRIC POWER, WATER, COMPRESSED AIR, TELEPHONE, AND LIGHTING.
- 37. ONSITE AND CLOSELY ADJACENT PARKING IS SEVERELY LIMITED. OBSTRUCTION OF ADJACENT ROADWAYS, WALKWAYS, AND BIKEWAYS WILL NOT BE PERMITTED. THIS POLICY SHALL BE STRICTLY ENFORCED.
- 38. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS, APPROVALS, SAMPLES, ETC. AS SPECIFIED AND IN A TIMELY MANNER SO AS TO NOT DELAY THE PROJECT.
- 39. THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE OWNER'S REPRESENTATIVE WITHIN 30 CALENDAR DAYS AFTER SUBSTANTIAL COMPLETION. AS-BUILT DRAWINGS SHALL BE PREPARED BY A LICENSED PROFESSIONAL HYDROGRAPHER REGISTERED IN NEW YORK STATE, WHO SHALL CERTIFY AND SEAL THE DRAWINGS. AS-BUILT DOCUMENTS SHALL BE SUBMITTED IN THE FORM OF USB FLASH DRIVE.
- 40. THE CONTRACTOR SHALL FULLY COOPERATE WITH ANY TESTING AND INSPECTION AGENCY ACTING ON THE BEHALF OF NYCEDC AND SHALL PROVIDE AT NO ADDITIONAL COST ALL REASONABLE MANPOWER, FACILITIES, BOATS, TOOLS, ETC., AS MAY BE REQUIRED TO PROPERLY INSPECT THE WORK ON OR OFF SITE.
- 41. THE CONTRACTOR SHALL PROVIDE FINAL CLEANING/WASH DOWN OF ALL WORK. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ITS WORK UNTIL FINAL ACCEPTANCE BY NYCEDC. ANY DAMAGE DONE TO MATERIALS UNTIL ACCEPTED SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S SOLE EXPENSE.
- 42. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ALL DAMAGES WHICH HAVE OCCURRED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS WORK. ITEMS SHALL BE REPLACED WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED OR DAMAGED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.

DESIGN GUIDE:

- 43. CONTRACTOR IS RESPONSIBLE FOR ALL WORKER SAFETY, TRAINING, AND SAFETY DEVICE USAGE FOR AND DURING THE CONSTRUCTION OF THE IMPROVEMENTS SHOWN ON THIS PLAN.
- 44. THE CONTRACTOR IS DESIGNATED AS RESPONSIBLE PARTY DURING CONSTRUCTION OF THE IMPROVEMENTS HEREON. AS SUCH, CONTRACTOR WILL PROVIDE ADEQUATE SAFETY TRAINING, EQUIPMENT AND OVERSIGHT.
- 45. CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED PERMITS AND APPROVALS FOR CONSTRUCTION OF THE DEPICTED SITE IMPROVEMENTS.
- 46. THE NEW YORK CALL SYSTEM SHOULD BE CONTACTED PRIOR TO

- EXCAVATION ON-SITE OR WITHIN R.O.W. (800) 962-7962
- 47. ALL UTILITY CONNECTIONS ARE SHOWN SCHEMATICALLY. THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH EACH UTILITY COMPANY / AUTHORITY PROVIDING SERVICE TO DETERMINE THE MOST APPROPRIATE LOCATIONS FOR UTILITY CONNECTIONS.
- 48. EXISTING SITE AND UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS.
- 49. ANY DAMAGE TO EXISTING FEATURES AS A RESULT OF THE PROPOSED CONSTRUCTION SHALL BE REPAIRED AT THE SOLE EXPENSE OF THE CONTRACTOR.

<u>ARMOR STONE REVETMENT</u>

- 50. BEDDING MATERIAL SHALL CONSIST OF WASHED CRUSHED STONE AND SHALL BE FREE OF ORGANIC MATTER, BITUMINOUS MATERIALS, AND OTHER DELETERIOUS PARTICLES.
- 51. ARMOR AND TOE STONE SHALL CONSIST OF QUARRIED ANGULAR STONE AND SHALL BE FREE OF ORGANIC MATTER, BITUMINOUS MATERIALS, AND OTHER DELETERIOUS PARTICLES. EACH PIECE OF STONE SHALL BE OF A HARD STRONG DURABLE MATERIAL THAT WILL NOT BREAK OR DETERIORATE UNDER THE MECHANICAL ACTION OF WAVES IN SEAWATER.
- 52. ALL STONE SHALL MEET THE FOLLOWING SPECIFICATIONS:
- A. UNIT WEIGHT: ALL STONE SHALL HAVE A MINIMUM UNIT WEIGHT OF 165 LB/CU. FT BASED UPON WATER HAVING A UNIT WEIGHT OF 64 PCF, AND IN ACCORDANCE WITH ASTM C 127.
- ABSORPTION: THE STONE SHALL HAVE ABSORPTION LESS THAN 2 PERCENT UNLESS OTHER TESTS AND SERVICE RECORDS SHOW THAT THE STONE IS SATISFACTORY.
- C. PETROGRAPHIC EXAMINATION: STONE SHALL BE EVALUATED ACCORDING TO THE INFORMATION REQUIRED IN ASTM D 4992.
- RESISTANCE TO FREEZING AND THAWING: STONES SHALL HAVE A MAXIMUM LOSS OF 10 PERCENT AFTER THE NUMBER OF CYCLES SPECIFIED BY ASTM D 5312.
- RESISTANCE OF ROCK TO WETTING AND DRYING: STONE SHALL HAVE A MAXIMUM LOSS OF 1 PERCENT WHEN DETERMINING THE DURABILITY WHEN SUBJECT TO WETTING AND DRYING IN ACCORDANCE WITH ASTM D 5313.
- F. SIZE AND SHAPE: STONES SHALL BE ANGULAR IN SHAPE; THE LEAST DIMENSION OF ANY STONE SHALL NOT BE LESS THAT ONE-THIRD THE GREATEST DIMENSION OF THE FRAGMENT.
- 58. BEDDING LAYERS SHALL BE SPREAD UNIFORMLY ON THE GEOTEXTILE LAYER PER THE LINES AND GRADES INDICATED IN THE DRAWINGS. AVOID DAMAGE TO THE GEOTEXTILE LAYER. ANY DAMAGE TO THE GEOTEXTILE SHALL BE REPAIRED OR REPLACED.
- 59. BEDDING SHALL BEGIN AT THE TOE AND CONTINUE UP THE SLOPE SO AS TO CREATE A UNIFORM AND HOMOGENEOUS MASS.
- 60. ARMOR AND TOE STONE SHALL BE MACHINE-PLACED TO THE LINES AND GRADES SHOWN IN THE DRAWINGS. STONES SHALL BE PLACED FROM THE TOE AND CONTINUE UP THE SLOPE. PLACE STONES AT LOW TIDE SO AS TO ENSURE PROPER PLACEMENT AND VISIBILITY. STONES SHALL NOT BE DROPPED THROUGH AIR OVER A HEIGHT GREATER THAN 2 FT FOR STONES HEAVIER THAN 500 LBS AND 1 FT FOR STONES HEAVIER THAN 1,000 LBS.
- 61. STONES SHALL BE PLACED TO ITS FULL COURSE THICKNESS AND IN SUCH A MANNER AS TO AVOID DISPLACING BEDDING STONES. LARGE STONES SHALL BE WELL DISTRIBUTED TO ACHIEVE A UNIFORM AND HOMOGENEOUS MASS. THE W50 STONE SHALL OCCUPY 50 PERCENT OF THE MASS AND SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT THE SURFACE.
- 62. STONES SHALL BE PLACED IN TWO PASSES, WITH THE SECOND PASS PERPENDICULAR TO THE FIRST PASS. GEOTEXTILE FABRIC AT THE TOE SHALL BE PULLED OVER THE FIRST PASS. THE GEOTEXTILE SHALL WRAP OVER THE BOTTOM LAYER AND RETURN A MINIMUM DISTANCE OF 4 FT ATOP THE LAYER.
- 63. THE FINISHED SLOPE SHALL NOT CONTAIN VOIDS, HOLES, POCKETS, DIPS, DEPRESSIONS, SUBSIDENCE, OR OTHER SURFACE IRREGULARITY.
- 64. THE CONTRACTOR SHALL NOT BE PERMITTED TO PLACE STONES BY (A) DUMPING INTO CHUTES, OR BY SOME OTHER SIMILAR METHOD LIKELY TO CAUSE SEGREGATION OF THE VARIOUS SIZES, OR (B) DUMPING AT THE TOP OF SLOPE AND PUSHING IT DOWN THE SLOPE.
- 65. THE CONTRACTOR SHALL SUBMIT ONE GRADATION FIELD TEST PER 5,000 TONS OF STONE IN ACCORDANCE WITH ASTM D5519 AND ASTM C 136, BUT NOT LESS THAN ONE FIELD TEST.
- 66. AN ENGINEERED FILTRATION GEOTEXTILE FABRIC SHALL LINE THE REVETMENT SLOPE BELOW THE BEDDING LAYER. PROVIDE MIRAFI 1100N OR EQUIVALENT MEETING THE MINIMUM REQUIREMENTS INDICATED BELOW. THE FABRIC SHALL BE PLACED AHEAD OF FILLING OPERATIONS. THE FABRIC SHALL BE WOVEN FABRIC OF MONOFILAMENT AND MULTIFILAMENT YARN CONSTRUCTION. INSTALL FABRIC IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. SUBMIT MATERIAL SAMPLE OF GEOTEXTILE FABRIC.
- A. PERCENT OPEN AREA: GREATER THAN 4 PERCENT
- APPARENT OPENING SIZE: SIEVE NO. 100 (.15 mm)
- GRAB TENSILE STRENGTH: 250 LBS
- D. PUNCTURE OR TEAR STRENGTH: 155 LBS
- PERMITTIVITY: GREATER THAN FIVE TIMES THAN THAT OF THE FILL, BUT NOT LESS THAN 1.0/SEC

DESIGNED BY: JWP DRAWN BY: SHEET CHK'D BY: 2 |12/12/22| MPK | STA REVISED NYEDC ADDRESS <u>STA</u> CROSS CHK'D BY: REVISED TIDAL DATUMS 1 |11/2/22| MPK | STA APPROVED BY: REV. DRWN CHKD NOVEMBER 2, 2022



ENGENUITY INFRASTRUCTURE GALLERIA: 2 BRIDGE AVE., SUITE 323 RED BANK, NJ 07701 732.741.3176 **ENGENUITYNJ.COM**

GENERAL NOTES AND LEGEND BLOCK 715 LOT 1

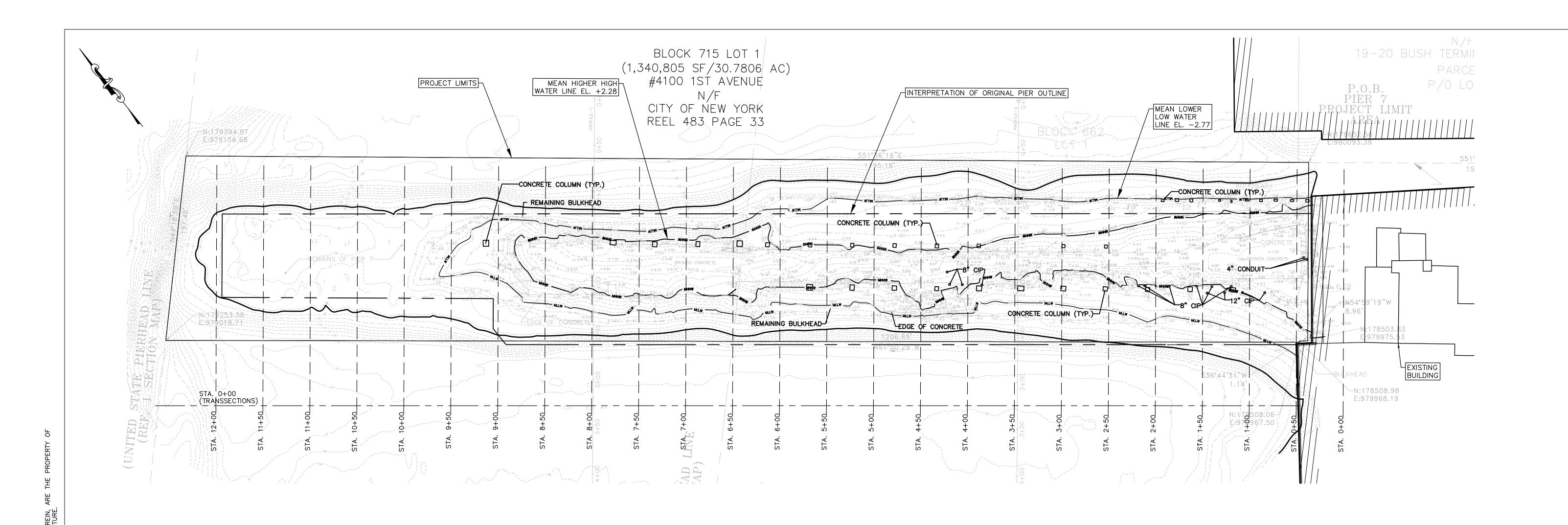
1ST AVENUE & 43RD STREET

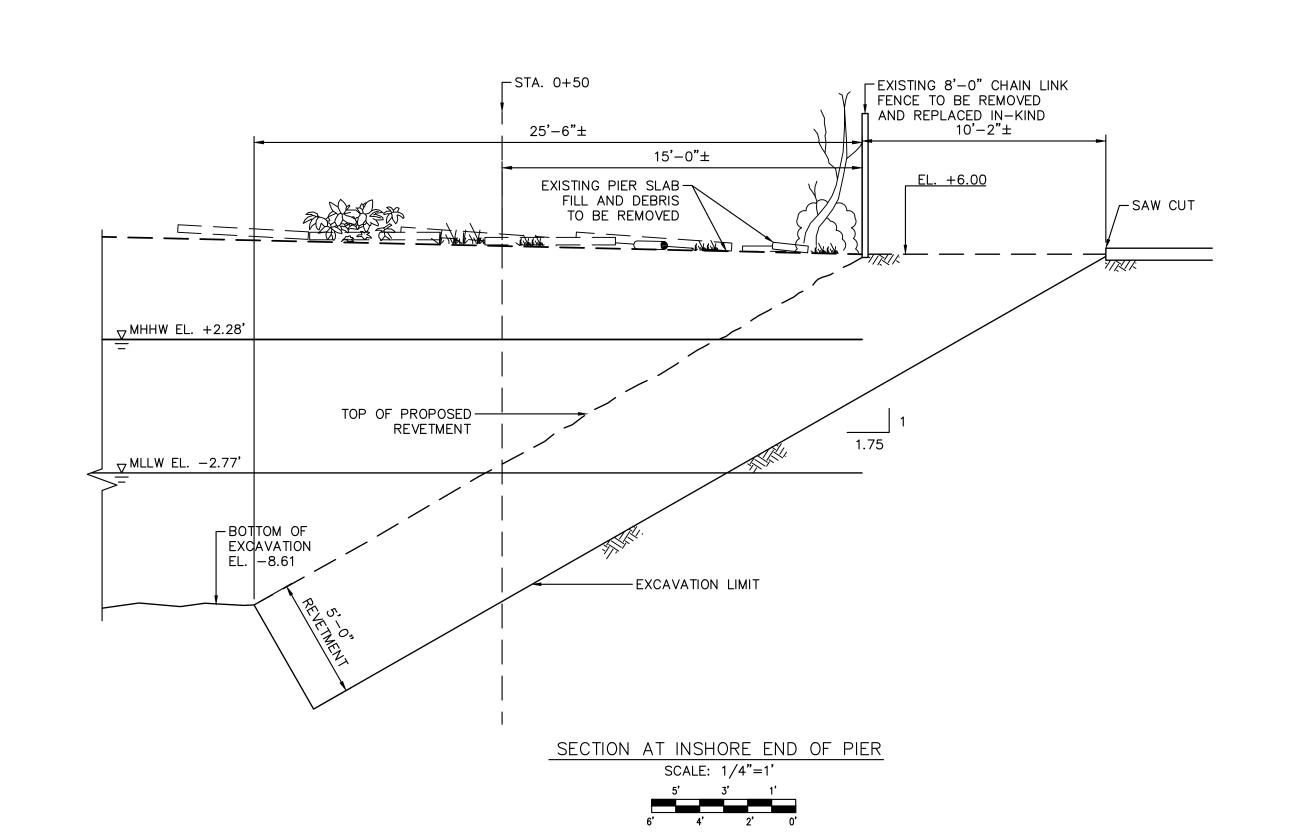
BROOKLYN, NY 11232

BUSH TERMINAL PIER 7 NEW YORK ECONOMIC DEVELOPMENT CORP. ONE LIBERTY PLAZA, 14TH FLOOR NEW YORK, NY 10006

JACLYN J. FLOR, P.E., P.P., C.M.E. CONSULTING ENGINEER 11/2/2022 LICENSED PRÓFESSIONAL ENGINEER DATE STATE OF NY LICENSE NO. G101540 C∉RTIFICATE OF AUTHORIZATION 0017153

PROJECT NO. WSPG-00020 DRAWING GN SHEET NO. 2 OF 11





GRAPHIC SCALE

O 25 50

(IN FEET)

1 inch = 50 ft.

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E N						DESIGNED BY:	JJF	
>						DRAWN BY:	JWP	
IGENUIT						SHEET CHK'D BY:	JJF	
GE .	2	12/12/22	MPK	STA	REVISED NYEDC ADDRESS	CROSS CHK'D BY:	STA	
Ш И	1	11/2/22	MPK	STA	REVISED TIDAL DATLIMS	APPROVED BY:	JJF	
	REV. NO.	DATE	DRWN	CHKD		-	EMBER 2, 2022	

ENGENUITY

ENGENUITY INFRASTRUCTURE
GALLERIA: 2 BRIDGE AVE., SUITE 323
RED BANK, NJ 07701
732.741.3176
ENGENUITYNJ.COM

EXISTING CONDITIONS

BLOCK 715 LOT 1

1ST AVENUE & 43RD STREET

BROOKLYN, NY 11232

BUSH TERMINAL PIER 7
NEW YORK ECONOMIC DEVELOPMENT CORP.
ONE LIBERTY PLAZA, 14TH FLOOR
NEW YORK, NY 10006

JACLYN J. FLOR, P.E., P.P., C.M.E		PROJECT NO. WSPG-00020
CONSULTING ENGINEER		DRAWING
Cally MADO	11/2/2022	EX
LICENSED PRÓFESSIONAL ENGINEER	DATE	SHEET NO.
STATE OF/NY LICENSE NO. G101540 CFRTIFICATE OF AUTHORIZATION 0017153		3 OF 11

LEVEL

MHHW

MLLW

LOWER LITTORAL LIMIT

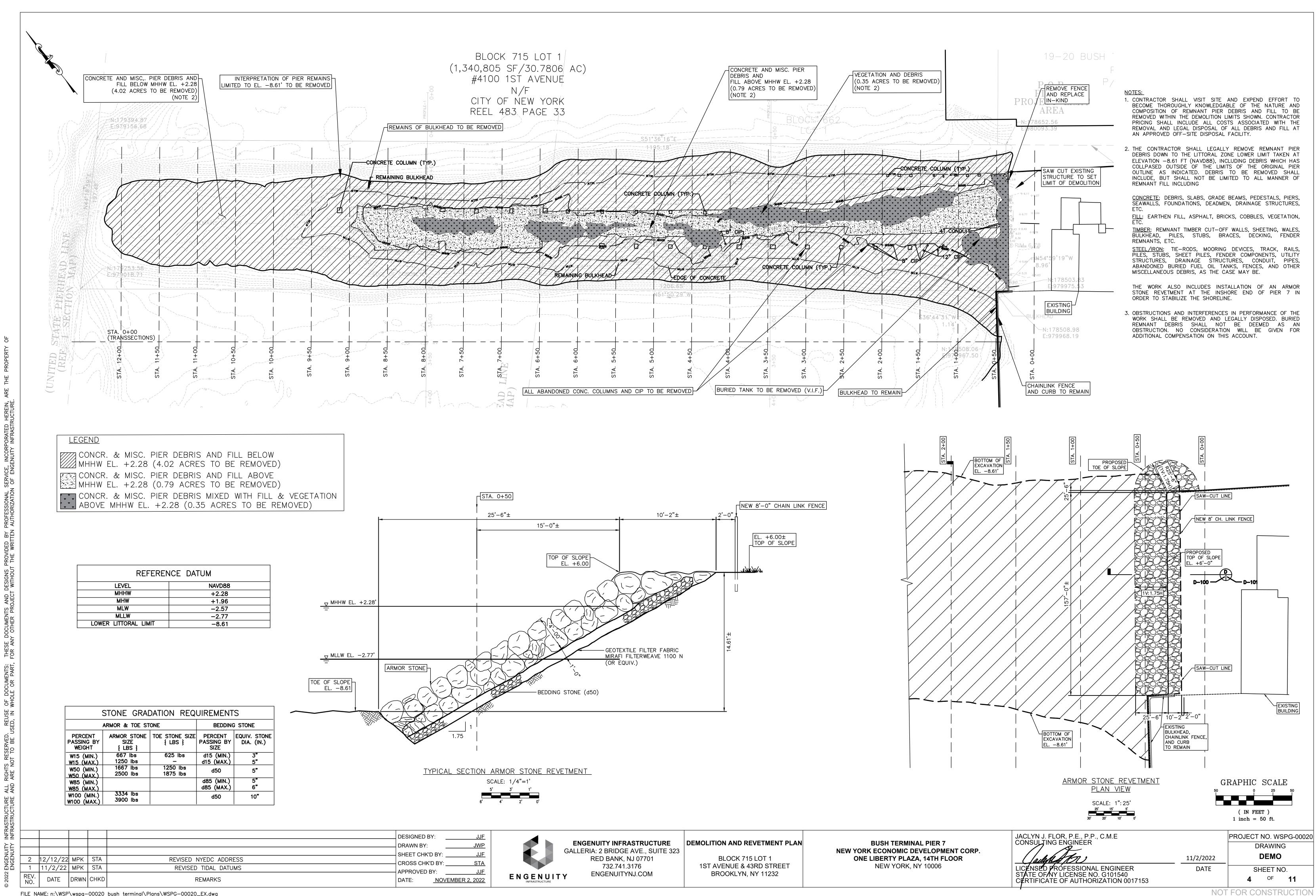
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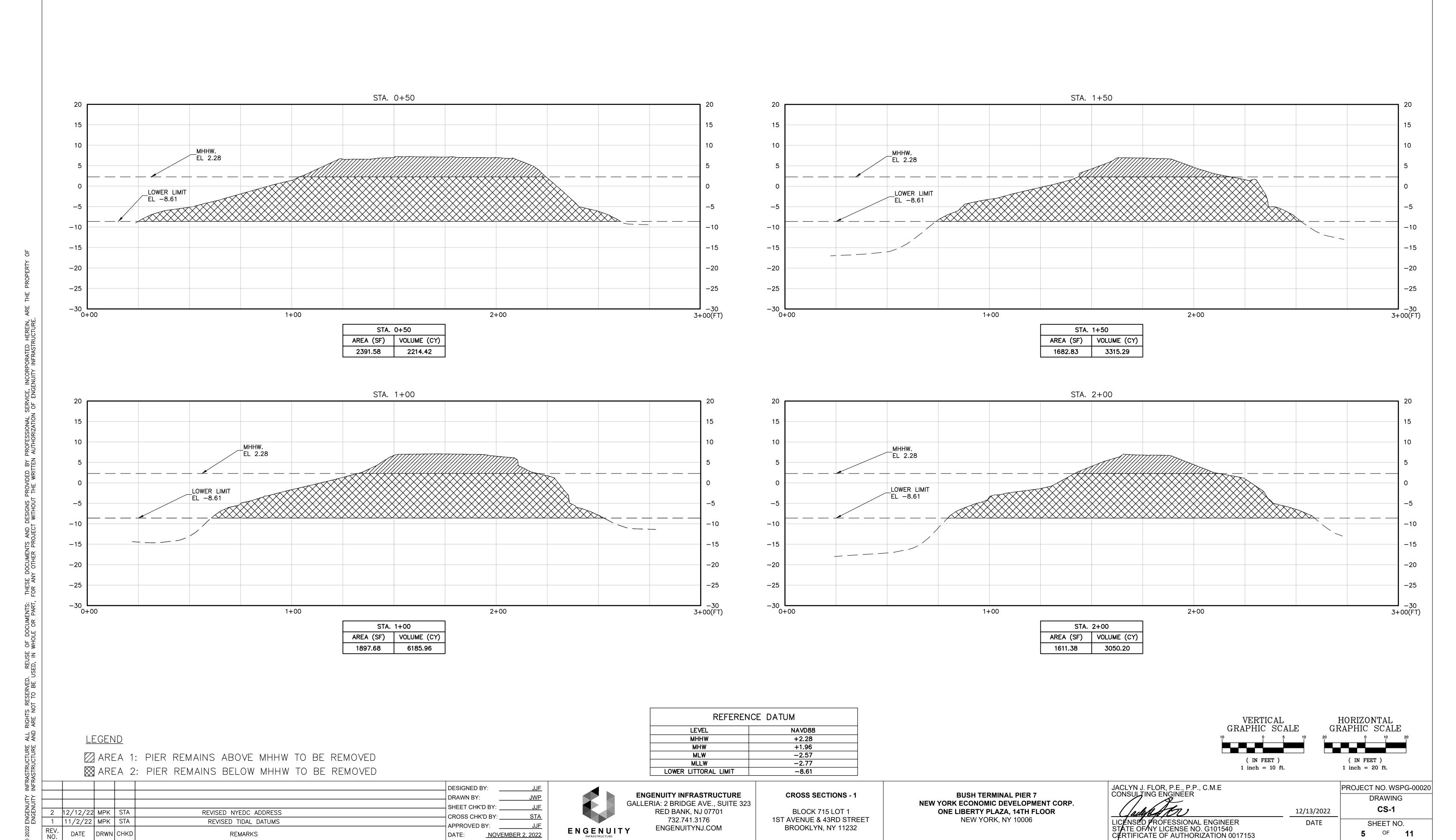
NAVD88

+2.28 +1.96 -2.57

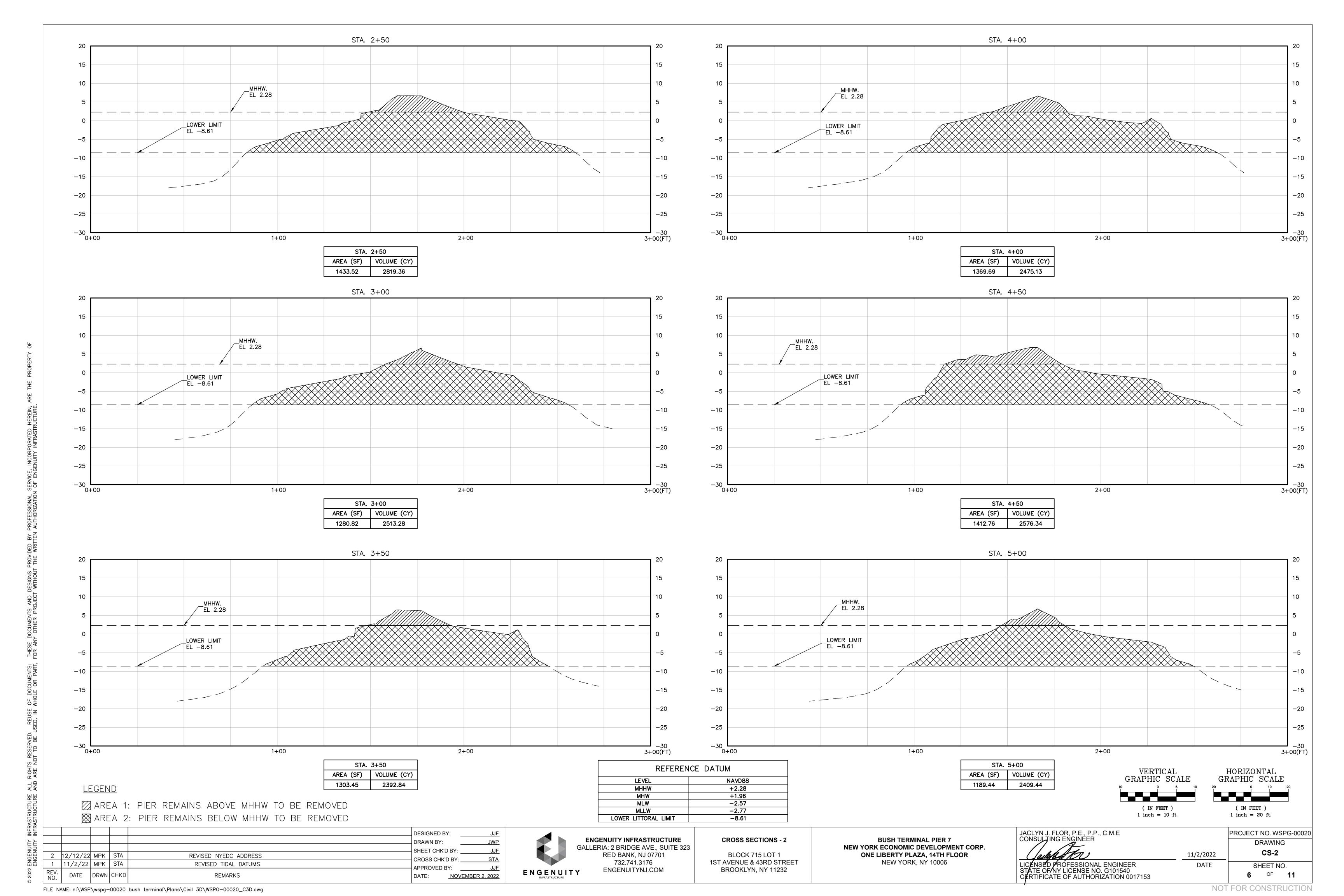
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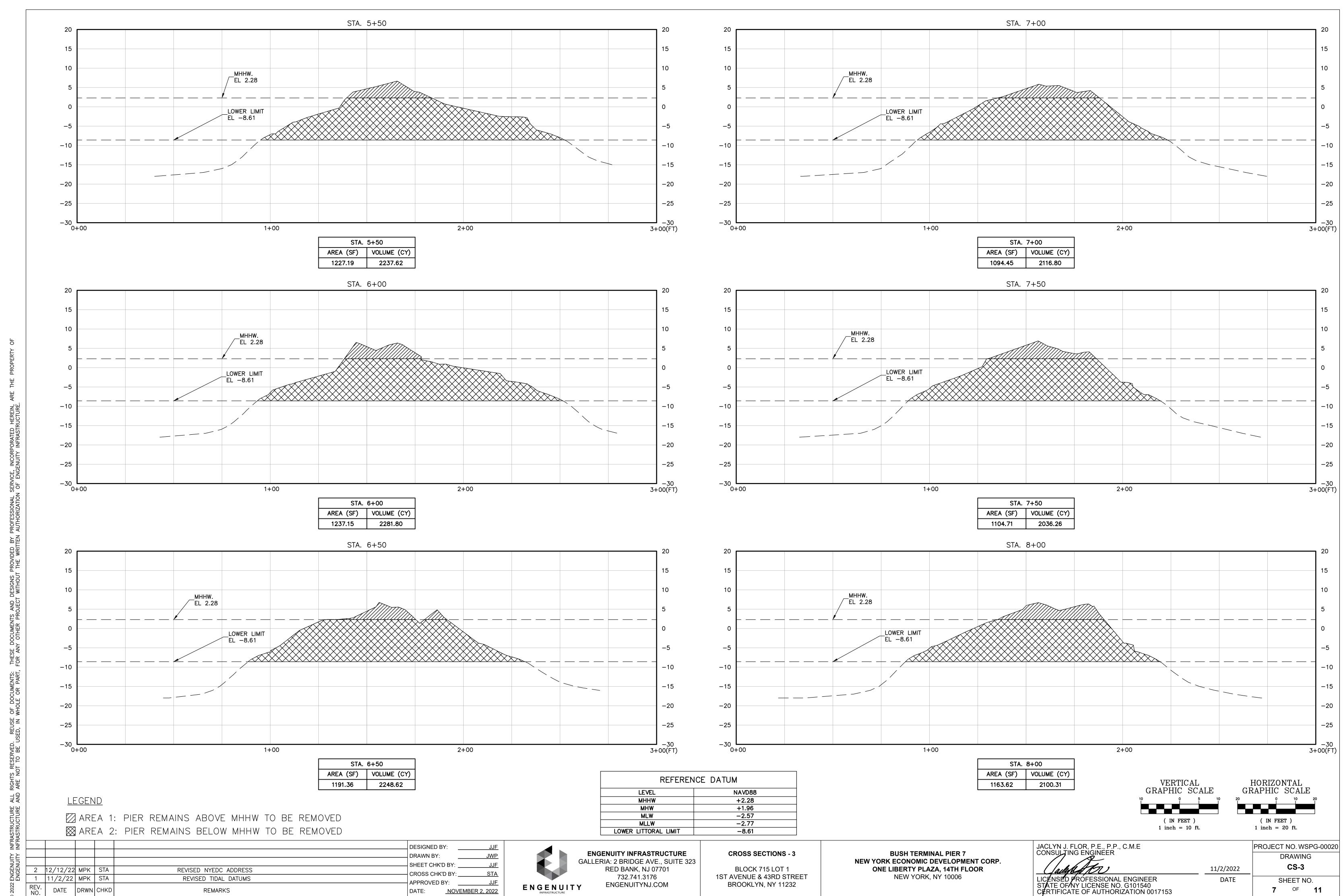
-8.61



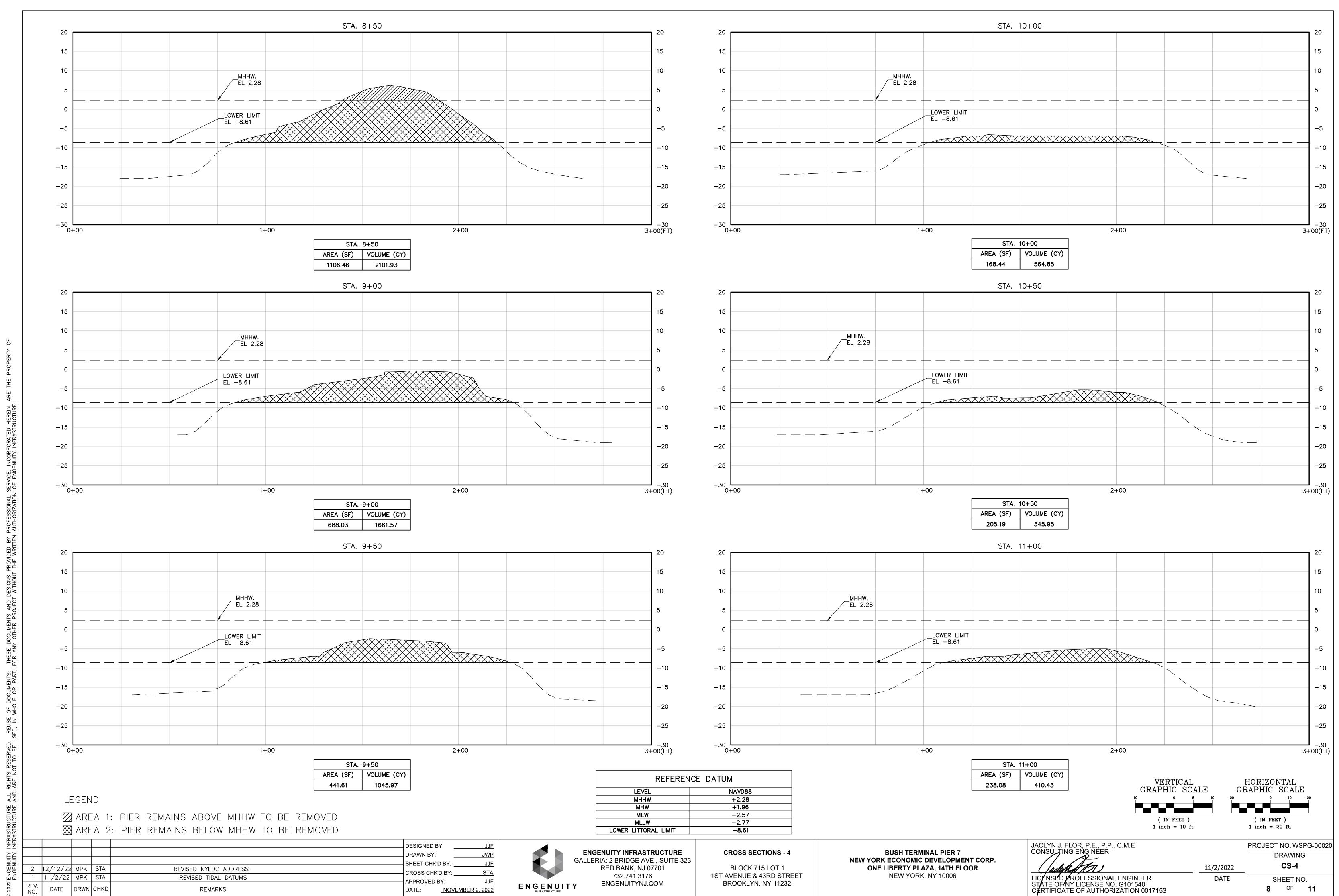


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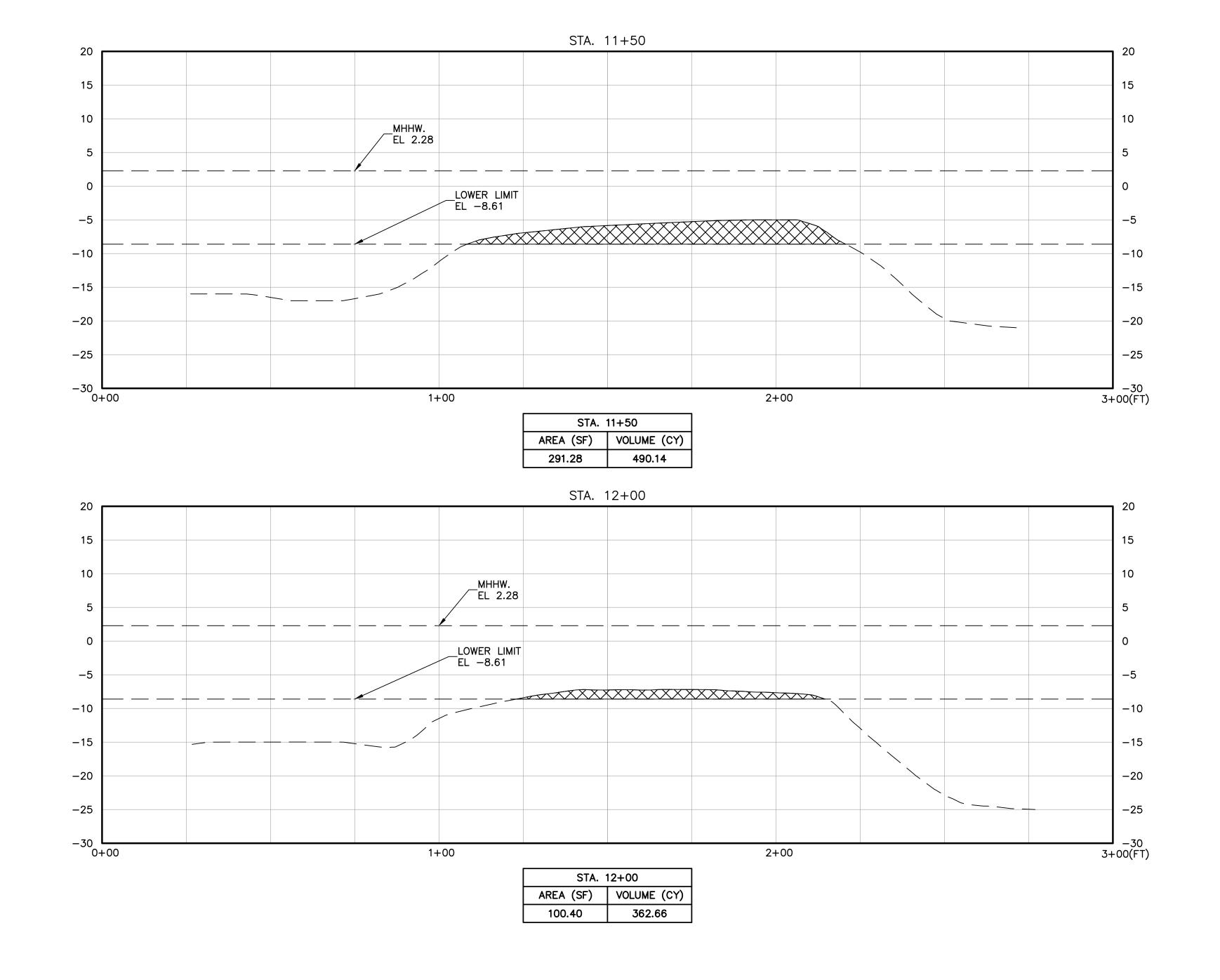




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FILE NAME: n:\WSP\wspg-00020 bush terminal\Plans\Civil 3D\WSPG-00020_C3D.dwg



Total Volume Table								
Station	Cut Area	Cut Vol	Cum Cut Vol					
0+00.00	0.00	0.00	0.00					
0+50.00	2391.58	2214.42	2214.42					
1+00.00	1897.68	3971.53	6185.96					
1+50.00	1682.83	3315.29	9501.24					
2+00.00	1611.38	3050.20	12551.44					
2+50.00	1433.52	2819.36	15370.79					
3+00.00	1280.82	2513.28	17884.08					
3+50.00	1303.45	2392.84	20276.92					
4+00.00	1369.69	2475.13	22752.05					
4+50.00	1412.76	2576.34	25328.39					
5+00.00	1189.44	2409.44	27737.83					
5+50.00	1227.19	2237.62	29975.45					
6+00.00	1237.15	2281.80	32257.24					
6+50.00	1191.36	2248.62	34505.87					
7+00.00	1094.45	2116.49	36622.36					
7+50.00	1104.71	2036.26	38658.61					
8+00.00	1163.62	2100.31	40758.92					
8+50.00	1106.46	2101.93	42860.86					
9+00.00	688.03	1661.57	44522.43					
9+50.00	441.61	1045.97	45568.40					
10+00.00	168.44	564.86	46133.26					
10+50.00	205.19	345.95	46479.21					
11+00.00	238.08	410.43	46889.64					
11+50.00	291.28	490.14	47379.78					
12+00.00	100.40	362.66	47742.44					
12+50.00	0.00	92.96	47835.40					

<u>LEGEND</u>

AREA 1: PIER REMAINS ABOVE MHHW TO BE REMOVED

MAREA 2: PIER REMAINS BELOW MHHW TO BE REMOVED

					DESIGNED BY:	JJF
					DRAWN BY:	JWP
					SHEET CHK'D BY:	JJF
2	12/12/22	MPK	STA	REVISED NYEDC ADDRESS	CROSS CHK'D BY: _	STA
1	11/2/22	MPK	STA	REVISED TIDAL DATUMS	_	
REV.	DATE	DRWN	CHKD	REMARKS	APPROVED BY: _ DATE: NOVE	JJF EMBER 2, 2022



MHW
MLW
LOWER LITTORAL LIMIT

ENGENUITY INFRASTRUCTURE
GALLERIA: 2 BRIDGE AVE., SUITE 323

RED BANK, NJ 07701

732.741.3176

ENGENUITYNJ.COM

LEVEL

MHHW

REFERENCE DATUM

CROSS SECTIONS - 5

BLOCK 715 LOT 1

1ST AVENUE & 43RD STREET
BROOKLYN, NY 11232

NAVD88

+2.28

+1.96

-2.57

-2.77

-8.61

BUSH TERMINAL PIER 7
NEW YORK ECONOMIC DEVELOPMENT CORP.
ONE LIBERTY PLAZA, 14TH FLOOR
NEW YORK, NY 10006

10	VERT APHI	 CAL SCAL	E
	(IN 1 1 inch	•	
JACLYN J. FLOR, P.E., P.P., C.M.E CONSULTING ENGINEER			

HORIZONTAL
GRAPHIC SCALE

O 10 20

(IN FEET)
1 inch = 20 ft.

JACLYN J. FLOR, P.E., P.P., C.M.E
CONSULTING ENGINEER

DRAWING

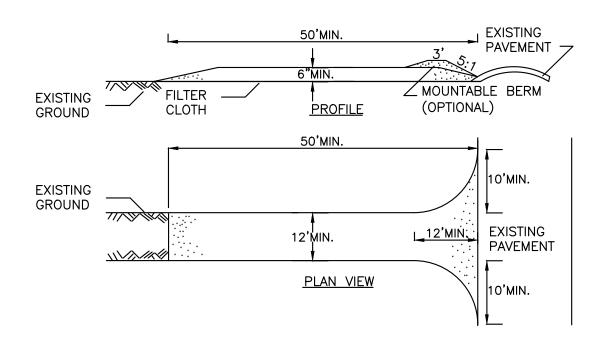
LICENSED PROFESSIONAL ENGINEER
STATE OF NY LICENSE NO. G101540
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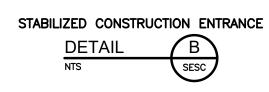
STATE OF NY LICENSE NO. G101540
OF 11

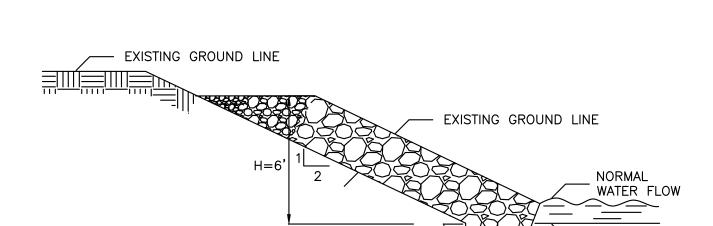
HIGHWAY SURFACE



CONSTRUCTION SPECIFICATIONS

- 1. STONE SIZE USE 1—4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- 2. LENGTH NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
- 3. THICKNESS NOT LESS THAN SIX (6) INCHES.
- 4. WIDTH TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY—FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
- 5. GEOTEXTILE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- 6. SURFACE WATER ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CON— STRUCTION ACCESS SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- 7. MAINTENANCE THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS—OF—WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS—OF—WAY MUST BE REMOVED IMMEDIATELY.
- 8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- 9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH





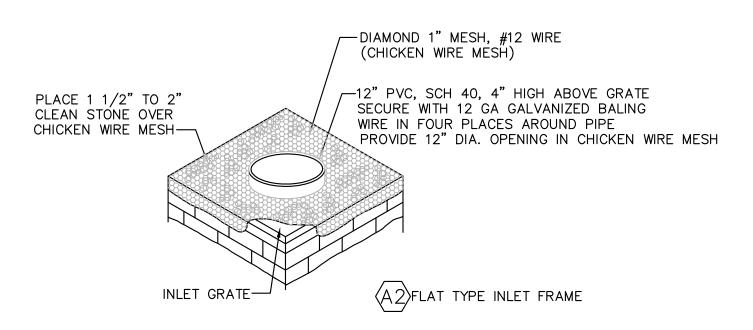
CONSTRUCTION SPECIFICATIONS

- 1. SLOPE SHALL BE GRADED TO 2:1 OR FLATTER PRIOR TO PLACING FILTER, FILTER FABRIC, OR RIPRAP.
- 2. RIPRAP SHALL BE PLACED TO MAINTAIN A UNIFORM GRADATION. LARGER STONE SHALL
- BE PLACED AT THE TOE.
- 3. ENDS OF THE RIPRAP SHALL BE KEYED INTO A STABLE BANK. WHEN TYING INTO OTHER STRUCTURES, LARGER RIPRAP CAN BE LAID IN STEPS OR STACKED AS NEEDED TO FIT. STONES LARGER THAN THOSE DESIGNED FOR FLOW SHALL BE USED FOR THIS PURPOSE.
- 4. REMAINING DISTURBED AREAS SHALL BE GRADED AND PERMANENTLY SEEDED AND MULCHED.

RIPRAP CHANNEL PROTECTION AND STABILIZATION

DETAIL

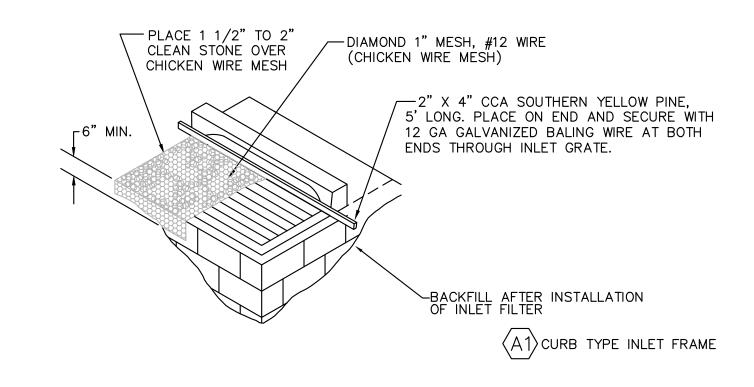
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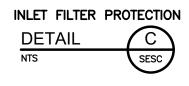


GENERAL NOTES:

1. CONTRACTOR TO CLEAN INLET FILTER AFTER EVERY STORM.

2. FILTER FABRIC, WOOD PIECE OR PVC PIPE TO BE REMOVED AFTER PAVING OR FINAL GRADING AND ESTABLISHMENT OF VEGETATION.





SOIL EROSION LEGEND

- (A1) INLET FILTER, CURB TYPE
- (A2) INLET FILTER, FLAT GRATE TYPE
- (£2) STABILIZED CONSTRUCTION ACCESS

— — — LIMIT OF DISTURBANCE



ENGENUITY INFRASTRUCTURE
GALLERIA: 2 BRIDGE AVE., SUITE 323
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DRAWING

SESC-1

SHEET NO.
10 OF 11

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.

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

PROVIDES TEMPORARY PROTECTION AGAINST THE IMPACTS OF WIND AND RAIN, SLOWS THE OVERLAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

WHERE APPLICABLE

WATER QUALITY ENHANCEMENT

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

- METHODS AND MATERIALS I. SITE PREPARATION
- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, P. 19-1.
- B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATER— WAYS. 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

A. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCA RUTGERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE 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 TONS/ACRE UNLESS SOIL TEST 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. TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION.

SOIL TEXTURE	TONS/ACRE	LBS./1,000 SQ. FT.
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.

- 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 DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TLLIAGE UNTIL A REASONABLY
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AS ABOVE
- SOILS HIGH ON SULFIDES OR HAVING A PH OF 4 OR LESS REFER TO STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, PG. 1-1 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.

A. SELECT SEED FROM RECOMMENDATIONS IN TABLE.

	(pc	G RATES 1/ ounds)	OPTIMU Based on P	OPTIMUM SEED		
SEED TYPES	Per Acre	Per 1,000 Sq. Ft.	ZONE 5	ZONE 6	ZONE 7	DEPTH <u>4</u> / (inches)
COOL SEASON GRASSES						
Perennial ryegrass	100	1.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	0.5
Spring Oats	86	2.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	1.0
Winter Barley	96	2.2	8/1-9/15	8/15-10/1	8/15–10/15	1.0
Winter Cereal Rye	112	2. 8	8/1-11/1	8/1–11/15	8/1-12/15	1.0
<u>WARM SEASON</u> GRASSES						
Pearl millet	20	0.5	6/1-8/1	5/15-8/15	5/1-9/1	1.0
Millet (German or Hungarian)	30	0.7	6/1-8/1	5/15-8/15	5/1-9/1	1.0
Weeping lovegrass	5	0.2	6/1-8/1	5/15–8/15	5/1-9/1	0.25

1/ Seeding rate for warm season grass, shall be adjusted to reflect the amount of Pure Line Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses. / May be planted throughout summer if soil moisture is adequate or can be irrigated

/ Plant Hardiness Zone (see below) 4/ Twice the depth for sandy soils

Zone 5b (-10 to -15)

Zone 6a (-5 to -10)

Zone 6b (0 to -5)

Zone 7a (5 to 0) Zone 7b (10 to 5)

- CONVENTIONAL SEEDING APPLY SEED UNIFORMITY 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, 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.
- 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. 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 GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
- AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT. RESTORE CAPILLARITY, AND IMPROVE SEEDING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

IV. <u>MULCHING</u>

MULCHING IS REQUIRED ON AII 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

A. STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF 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 UNIFORMLY BY HAND MECHANICALLY SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH

ANCHORING SHOULD 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 CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE
- 2. <u>MULCH NETTINGS</u> STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.
- 3. 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. <u>LIQUID MULCH-BINDERS</u> MAY BE USED TO ANCHOR SALT HAY OR STRAW MULCHES. a. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN
- b. USE ONE OF THE FOLLOWING:

APPEARANCE.

- (1) 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 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 IN THIS STATE.
- (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.
- WOOD-FIBER OR PAPER-FIBER MULCH. SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT HE 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 THE SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING
- C. 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 IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE 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 WEED-SEED FREE MULCH IS DESIRED OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL

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

ESTABLISHMENT OF PERMANENT VEGATATIVE COVER ON EXPOSED SOILS WHERE PERENNIAL VEGETATION IS NEEDED FOR LONG TERM PROTECTION.

PURPOSE

TO PERMANENTLY STABILIZE THE SOIL, ASSURING CONSERVATION OF SOIL AND WATER, AND TO ENHANCE THE ENVIRONMENT.

WATER QUALITY ENHANCEMENT

SLOWS THE OVERLAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

ON EXPOSED SOILS THAT HAVE A POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.

METHODS AND MATERIALS

- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, P. 19-1.
- B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATER-WAYS. 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.).

II. <u>SEEDBED PREPARATION</u>

A. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE IN ACCORDANCE WITH THE TABLE BELOW AND THE THE RESULTS OF SOIL TESTING. 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. TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION RATES.

SOIL TEXTURE	TONS/ACRE	LBS./1,000 SQ. FT.
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM, LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOIIS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.

- B. 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 FINIAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEEDBED IS PREPARED.
- C. 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.).
- D. 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 PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS.

SEED MIX SHALL BE AS FOLLOWS:

TYPE 'G' SEED MIXTURE

KIND OF SEED	Minmum PÜRTY_%	Minimum Germination—%	% Of Total <u>Weight of Mixture</u>	Application <u>Rate Lb./acre</u>
'Arid 3' Tall Fescue	95	80	20	40
'Jamestown 2' Chewing Fescue	95	85	20	40
'Award' Kentucky Bluegrass	95	85	50	100
'Monterey 2' Perennial Ryegrass	95	85	10	20
				200 Lb./acre

- 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 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.
- 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. 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 GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
- D. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

IV. 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

A. STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF 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 UNIFORMLY BY HAND MECHANICALLY SO THAT APPROXIMATELY 85% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH

ANCHORING SHOULD 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 CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE
- 2. MULCH NETTINGS STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.
- 3. 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 SALT HAY OR STRAW MULCHES.
- A. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN
- b. USE ONE OF THE FOLLOWING:

APPEARANCE.

- (1) 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 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 IN THIS STATE.
- (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.
- 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 THE SEED. USÉ IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING
- C. 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 IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE 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 WEED-SEED FREE MULCH IS DESIRED OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELIETIZED MULCH ON THE SEED BED IS
- EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.
- V. IRRIGATION (WHERE FEASIBLE) IF SOIL MOISTURE IS DEFICIENT. AND MULCH IS NOT USED, SUPPLY NEW SEEDLINGS WITH ADEQUATE
- WATER (A MINIMUM OF 1/4 INCH TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDLINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES VI. <u>TOPDRESSING</u>
- SINCE SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE IS PRESCRIBED IN SECTION II.A. SEEDBED PREPARATION IN THIS STANDARD, NO FOLLOW-UP OF TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE GROSS NITROGEN DEFICIENCY EXISTS TO THE EXTENT THAT TURF FAILURE MAY DEVELOP. IN THAT INSTANCE, TOPDRESS WITH 10-10-10 OR EQUIVALENT AT 400 POUNDS PER 1,000 SQUARE FEET.
- VII. <u>ESTABLISHING PERMANENT VEGETATIVE STABILIZATION</u> THE QUALITY 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 RATE IS 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. THIS RATE APPLIES TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVER (OF THE SEEDED

STANDARD STABILIZATION WITH MULCH ONLY

STABILIZING EXPOSED SOILS WITH NON-VEGETATIVE MATERIAL

TO PROTECT EXPOSED SOIL SURFACES FROM EROSION DAMAGE AND TO REDUCE OFFSITE ENVIRONMENTAL DAMAGE.

WATER QUALITY ENHANCEMENT

PROVIDES TEMPORARY MECHANICAL PROTECTION AGAINST WIND OR RAINFALL INDUCED SOIL EROSION UNTIL PERMANENT VEGETATIVE COVER MAY BE ESTABLISHED.

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO EROSION, WHERE THE SEASON AND OTHER CONDITIONS MAY NOT BE SUITABLE FOR GROWING AN EROSION RESISTANT COVER OR WHERE STABILIZATION IS NEEDED FOR A SHORT PERIOD UNTIL MORE SUITABLE PROTECTION CAN BE APPLIED.

METHOD AND MATERIALS 1. SITE PREPARATION

- A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE. IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, PG. 19-1.
- B. 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.

2. PROTECTIVE MATERIALS

- A. UNROTTED SMALL-GRAIN STRAW, OR SALT HAY 2.0 TO 2.5 TONS PER ACRE IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH BINDERS, OR NETTING TIE DOWN. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONVERSATION
- B. ASPHALT EMULSIONS RECOMMENDED AT THE RATE OF 600 TO 1,200 GALLONS PER ACRE. THIS IS SUITABLE FOR A LIMITED PERIOD OF TIME WHERE TRAVEL BY PEOPLE, ANIMALS, OR MACHINES IS NOT A PROBLEM.
- C. SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED UNDER SUITABLE CONDITIONS AND IN QUANTITIES AS RECOMMENDED BY THE MANUFACTURER.
- D. WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE (OR ACCORDING TO THE MANUFACTURER'S REQUIREMENTS) MAY BE APPLIED BY A
- E. MULCH NETTING, SUCH AS PAPER JUTE, EXCELSIOR, COTTON, OR PLASTIC, MAY BE USED.
- F. WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED. WOODCHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WASH THEM INTO AN INLET AND PLUG IT.
- G. GRAVEL, CRUSH STONE, OR SLAG AT THE RATE OF 9 CUBIC YARDS PER 1,000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM C-33) IS RECOMMENDED.
- 3. MULCH ANCHORING SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA AND STEEPNESS

- A. PEG AND DRIVE DRIVE 8 TO 10 INCH PEG TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OF AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRIS-CROSS AND SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO
- B. MULCH NETTINGS STAPLE PAPER, COTTON, AND PLASTIC NETTINGS OVER MULCH. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED. NETTING IS USUALLY AVAILABLE IN ROLLS 4 FEET WIDE AND 300 FEET LONG.
- C. CRIMPER MULCH ANCHORING COULTER TOOL A TRACTOR-DRAWN IMPLEMENT ESPECIALLY DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THIS PRACTICE AFFORDS MAXIMUM EROSION CONTROL, BUT ITS USE IS LIMITED TO THOSE SLOPES UPON WHICH THE TRACTOR CAN OPERATE SAFELY. SOIL PENETRATION SHOULD BE ABOUT 3 TO 4 INCHES. ON SLOPING LAND, THE OPERATION SHOULD BE ON THE CONTOUR.

D. LIQUID MULCH — BINDERS

1. APPLICATION SHOULD BE HEAVIER AT EDGE WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.

2. USE ONE OF THE FOLLOWING:

- a. EMULSIFIED ASPHALT (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, AND CRS-2). APPLY 0.04 GAL/SQ/YD OR 194 GAL/ACRE ON FIAT AREAS AND ON SLOPES LESS THAN 8FT OF MORE HIGH, USE 0.075 GAL/SQ/YD OR 363 GAL/ACRE. THIS MATERIALS MAY BE DIFFICULT TO APPLY UNIFORMLY AND WILL DISCOLOR SURFACES.
- b. ORGANIC AND VEGETABLE BASED BINDERS NATURALLY OCCURRING, POWDER BASED HYDROPHILIC MATERIAL THAT MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANE NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOTOXIC EFFECT OF IMPEDE GROWTH OF TURFGRASS. VEGETABLE BASED GELS SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER.
- C. 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 AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

DESIGNED BY: DRAWN BY: SHEET CHK'D BY: |12/12/22| MPK | STA REVISED NYEDC ADDRESS CROSS CHK'D BY: |11/2/22| MPK | STA REVISED TIDAL DATUMS APPROVED BY: DRWN CHKD NOVEMBER 2, 2022



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SESC NOTES

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JACLYN J. FLOR, P.E., P.P., C.M.E. PROJECT NO. WSPG-00020 CONSULTING ENGINEER DRAWING 11/2/2022 LICENSED PROFESSIONAL ENGINEER DATE SHEET NO. STATE OF NY LICENSE NO. G101540 11 OF 11 CÆRTIFICATE OF AUTHORIZATION 0017153

NOT FOR CONSTRUCTION

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