NORTH CAROLINA STATE PORTS AUTHORITY

PORT OF WILMINGTON, NC

UPGRADES TO SOUTH GATE COMPLEX

NCSPA CONTRACT NO. C-1289(W)

SCO ID NO. 19-20013-01A

CITY OF WILMINGTON MAJOR SITE PLAN

1st SUBMITTAL TO CITY OF WILMINGTON - OCTOBER 23, 2019

2nd SUBMITTAL TO CITY OF WILMINGTON - MAY 6, 2020

3rd SUBMITTAL TO CITY OF WILMINGTON - JUNE 10, 2020

SIGNATURE SET TO CITY OF WILMINGTON - JUNE 28, 2021

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

Plann
Traffi
Fire_

DRAWING INDEX

CITY OF WILMINGTON NOTES:

1. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
2. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING, GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS.
3. NO EQUIPMENT IS ALLOWED ON SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING IS INSTALLED AND APPROVED. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AND CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION METHODS.
4. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
5. ONCE STREETS ARE OPEN TO TRAFFIC, CONTACT TRAFFIC ENGINEERING REGARDING THE INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
6. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
7. CONTACT TRAFFIC ENGINEERING AT 910-341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
8. CONTACT 811 PRIOR TO CONTACTING TRAFFIC ENGINEERING. CONTACT TRAFFIC ENGINEERING AT 910-341-7888 FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
9. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING PRIOR TO ACTUAL STRIPING.
10. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
11. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
12. STOP SIGNS AND STREET SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION.
13. TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.
14. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET.
15. ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WILL BE REPLACED.
16. CONTACT TRAFFIC ENGINEERING AT 910-341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
17. WATER AND SEWER SERVICE SHALL MEET CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) DETAILS AND SPECIFICATIONS.
18. PROJECT SHALL COMPLY WITH CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND THE STATE HAS GIVEN THEIR FINAL APPROVAL. CALL 910-343-3910 FOR INFORMATION.
19. IF THE CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION, HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
20. ANY IRRIGATION SYSTEM SUPPLIED BY CFPUA WATER SHALL COMPLY WITH THE CFPUA CROSS CONNECTION CONTROL REGULATIONS. CALL 919-343-3910 FOR INFORMATION.
21. ANY IRRIGATION SYSTEM SHALL BE EQUIPPED WITH A RAIN AND FREEZER SENSOR.
22. ANY BACKFLOW PREVENTION DEVICES REQUIRED BY THE CFPUA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USCFCCCHR OR ASSE.
23. CONTRACTOR TO FIELD VERIFY EXISTING WATER AND SEWER SERVICE LOCATIONS, SIZES AND MATERIALS PRIOR TO CONSTRUCTION. ENGINEER TO BE NOTIFIED OF ANY CONFLICTS.
24. CONTRACTOR SHALL MAINTAIN ALL-WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
25. UNDERGROUND FIRE LINE(S) MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-341-0696.
26. NO OBSTRUCTIONS ARE PERMITTED IN THE SPACE BETWEEN THIRTY (30) INCHES AND TEN (10) FEET ABOVE THE GROUND WITHIN THE TRIANGULAR SIGHT DISTANCE.
27. CONTACT THE NORTH CAROLINA ONE CALL CENTER AT 1.800.632.4949 PRIOR TO DOING ANY DIGGING, CLEARING, OR GRADING

SITE DATA INFORMATION TABLE

DEVELOPMENT NAME:	UPGRADES TO SOUTH GATE COMPLEX
EXISTING PROPERTY OWNER NAME:	NC STATE PORT AUTHORITY
PROPOSED PROPERTY OWNER NAME:	NC STATE PORT AUTHORITY
PROJECT ADDRESS:	
STREET:	2202 BURNETT BOULEVARD
CITY:	WILMINGTON
STATE, ZIP:	NORTH CAROLINA, 28403
PARCEL IDENTIFICATION NUMBER (PIN):	R06400-001-007-000
ZONING:	IND
CAMA LAND USE CLASSIFICATION:	URBAN
DESIGN INFORMATION:	
INTERNATIONAL BUILDING CODE TYPE:	TYPE V-B
REQUIRED FRONT BUILDING SETBACK:	50 FEET
REQUIRED SIDE BUILDING SETBACK:	0 FEET
REQUIRED REAR BUILDING SETBACK:	0 FEET
BUILDING LOT CALCULATIONS:	
TOTAL PROPERTY AREA:	43.32 AC
TOTAL PROJECT AREA:	15.80 AC (DISTURBED AREA)
NUMBER OF BUILDINGS:	3
BUILDING SIZE:	
CONTROL BUILDING - PRIMARY:	8,165 SF
GUARD BUILDING - SECONDARY:	555 SF
CPB BOOTH - SECONDARY:	240 SF
PRIMARY BUILDING HEIGHT:	32-FT
NUMBER OF STORIES:	2
NUMBER OF SQUARE FEET PER FLOOR:	FIRST - 4,264 SF / SECOND - 3,901 SF
IMPERVIOUS SURFACE BREAKDOWN:	
EXISTING IMPERVIOUS SURFACE BREAKDOWN:	
TOTAL IMPERVIOUS SURFACE	332,366 SF (7.63 AC)
PERCENT IMPERVIOUS	7.63/11.40 = 66.93%
PROPOSED IMPERVIOUS SURFACE BREAKDOWN:	
TOTAL IMPERVIOUS SURFACE	431,332 SF (9.90 AC)
PERCENT IMPERVIOUS	9.90/11.40 = 86.8%
NET INCREASE	2.27 AC
OFF-STREET PARKING CALCULATIONS:	
MINIMUM PARKING REQUIRED	1.0 SPACE/300 S.F. (29 SPACES / 2 ADA)
MAXIMUM PARKING REQUIRED	1.0 SPACE/200 S.F. (43 SPACES / 2 ADA (VAN))
ACTUAL PARKING PROVIDED	36 SPACES
BICYCLE PARKING REQUIRED	5 SPACES
BICYCLE PARKING PROVIDED	5 SPACES
LOADING SPACE CALCULATION	
NUMBER OF LOADING SPACES REQUIRED	0
NUMBER OF LOADING SPACES PROVIDED	0
WATER & SEWER DEMAND CAPACITY:	
PROPOSED WATER DEMAND (GPD)	APPROXIMATELY 785 GPD
PROPOSED SEWER DEMAND (GPD)	APPROXIMATELY 625 GPD

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	10/05/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB09.01	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

COVER SHEET

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

C-000

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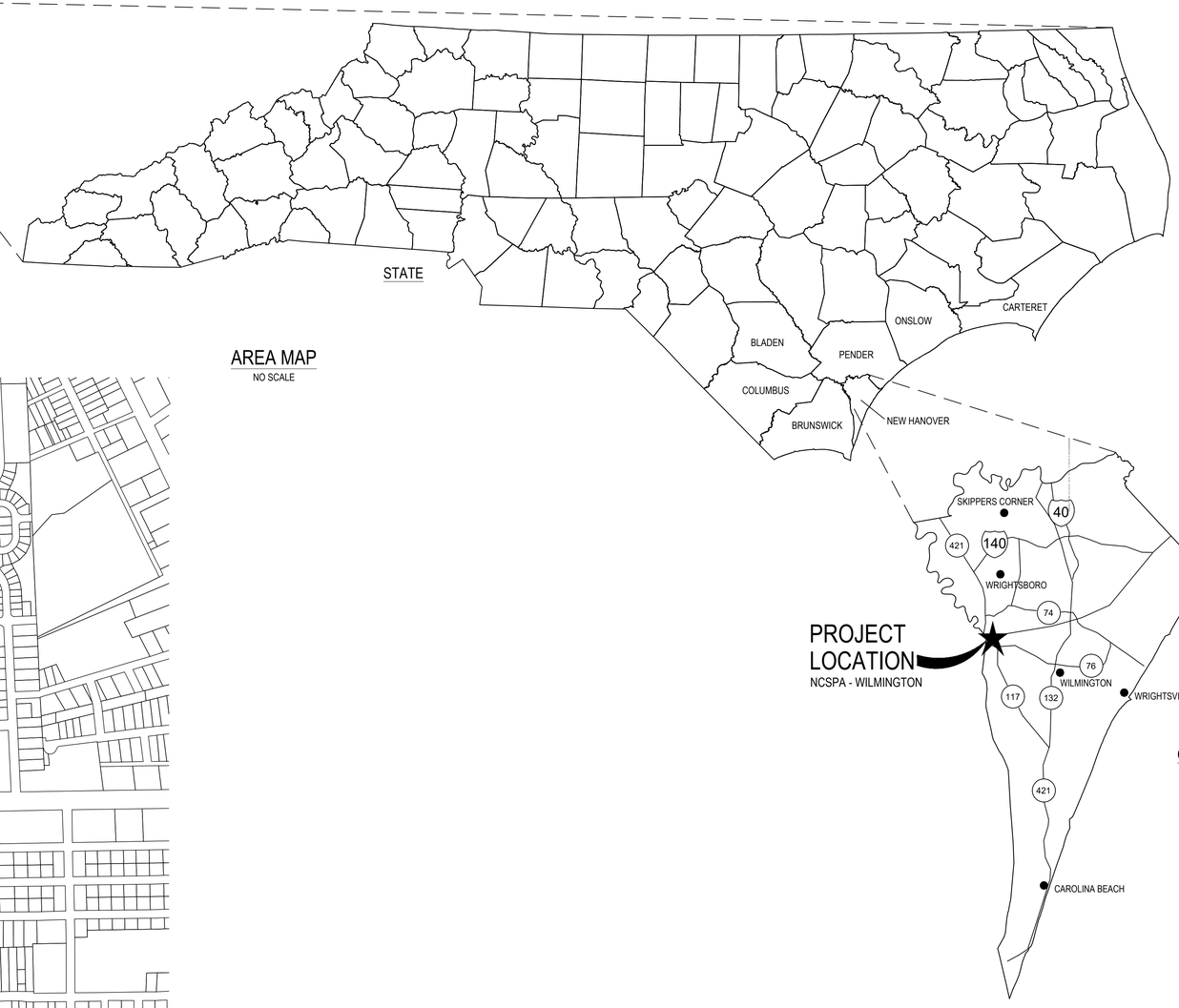
APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



AREA MAP
NO SCALE

VICINITY MAP
SCALE: 1"=500'

NORTH
N (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/1/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	10/09/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/10/2021	ASP
PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

LOCATION MAPS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

C-001

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CIVIL NOTES

1. BOUNDARY DATA PERFORMED BY CAPE FEAR ENGINEERING. SEVERAL TBMS ARE SHOWN ON THE SURVEY. SURVEY IS REFERENCED TO NC GRID NAD 83. REFER TO EXISTING CONDITIONS PLAN.
2. FLOOD PLAIN: PER MAP 3720311600L DATED AUGUST 28, 2018: 100 YEAR FLOODPLAIN AS MAPPED BY F.E.M.A. OR AS DEFINED BY ANY FEDERAL, STATE OR LOCAL AUTHORITY IS LOCATED ON THIS PROPERTY HOWEVER IT IS LOCATED OUTSIDE THE WORK LIMITS FOR THIS PROJECT.
3. ALL WORK, CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2018 NCDOT AND SCO STANDARDS AND SPECIFICATIONS, LATEST EDITION.
4. ALL WORK, CONSTRUCTION AND MATERIALS WITHIN NCDOT RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE 2018 NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. ALL WORK, CONSTRUCTION & MATERIALS WITHIN THE CITY OF WILMINGTON RIGHT-OF-WAY SHALL BE I.A.W. THE CITY OF WILMINGTON STANDARDS & SPECIFICATIONS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK ZONE TRAFFIC CONTROL IN OR ADJACENT TO NCDOT RIGHT-OF-WAY. TRAFFIC CONTROL SHALL BE MAINTAINED AT ALL TIMES WITH PROPER SIGNAGE, SIGNALS, LIGHTING, FLAGMEN. ALL SIGNS, PAVEMENT MARKINGS AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION.
6. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND MUST BE FIELD VERIFIED. CONTACT THE NC ONE CALL CENTER AT LEAST 48 HOURS PRIOR TO DIGGING @ 1.800.632.4949. UNDERGROUND LINES SHOWN HEREON ARE APPROXIMATE OR AS REPORTED BY VARIOUS RESPONSIBLE PARTIES. THE SURVEYOR DOES NOT GUARANTEE THAT ANY UNDERGROUND STRUCTURES SUCH AS UTILITIES, TANKS AND PIPES ARE LOCATED HEREON.
7. THE CONTRACTOR SHALL NOTIFY AND COOPERATE WITH ALL UTILITY COMPANIES OR FIRMS HAVING FACILITIES ON OR ADJACENT TO THE SITE BEFORE DISTURBING, ALTERING, REMOVING, RELOCATING, ADJUSTING OR CONNECTING TO SAID FACILITIES.
8. THE CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ANY NCSPA OR NCDOT DAMAGED PROPERTY. THE CONTRACTOR SHALL REPAIR THE DAMAGED PROPERTY TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE AGENCY HOLDING JURISDICTION AT NO COST TO THE OWNER.
9. CONTRACTOR IS RESPONSIBLE FOR FENCING AND SECURITY OF HIS LAYDOWN AND STORAGE AREA.
10. CONTRACTOR SHALL KEEP ALL ROADS FREE OF DIRT AND DEBRIS AT ALL TIMES.
11. CONTRACTOR SHALL PROTECT EXISTING PAVEMENTS AND UTILITIES FROM HEAVY EARTH MOVING EQUIPMENT. PROVIDE TRAFFIC CONTROL AND ADEQUATE PROTECTION METHODS AT ALL EQUIPMENT CROSSINGS.
12. ALL STRUCTURAL FILL MATERIAL SHALL BE FREE OF ALL STICKS, ROCKS, AND CLUMPS OF MUD. ALL ROCKS GREATER THAN 3" DURING EXCAVATION SHALL BE REMOVED.
13. UNUSABLE EXCAVATED MATERIALS AND ALL WASTE RESULTING FROM CLEARING AND GRUBBING SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR IN AN APPROVED, LEGAL DISPOSAL SITE. UNSUITABLE MATERIAL IS DEFINED AS ANY SOIL MATERIAL WHICH CONTAINS MORE THAN 5% BY WEIGHT ORGANIC MATTER, HAS AN UNSTABLE BEARING CAPACITY, CONTAINS DELETERIOUS DEBRIS (WOOD, PLASTIC, COAL, ETC.), HAS AN EXCESSIVE MOISTURE CONTENT (A MOISTURE CONTENT THAT PROHIBITS PROPER COMPACTION), OR SOILS WITH A LIQUID LIMIT (LL) GREATER THAN40% AND A PLASTICITY INDEX (PI) GREATER THAN 12%.
14. CONCRETE AREAS THAT ARE TO BE REMOVED SHALL BE CUT BACK TO NEAREST EXPANSION OR CONTROL JOINT AND REPLACED AS SHOWN ON THE PLANS AND FINISHED TO MATCH EXISTING GRADES.
15. THE TRANSITION OF PROPOSED ROADWAY TO EXISTING ROADWAY SHALL BE DONE PER DETAIL ON CP-102.
16. ALL PAVEMENT SAW CUTS SHALL BE NEAT, STRAIGHT AND FULL DEPTH.
17. ALL RIP-RAP IS TO BE INSTALLED WITH NON-WOVEN FILTER FABRIC BENEATH (MIRAFI 14ON OR APPROVED EQUAL).
18. ALL EXCESS TOPSOIL AND UNCLASSIFIED EXCAVATION IS TO BE HAULED OFF-SITE, UNLESS OTHERWISE DIRECTED BY THE OWNER TO AN APPROVED NCDENR LOCATION.
19. ALL SITE CONSTRUCTION MUST BE INSPECTED BY A THIRD PARTY GEOTECHNICAL ENGINEER AND APPROVED BY THE ENGINEER OF RECORD AT THE FOLLOWING STAGES:
    - COMPLETION OF GRADING SUBGRADE PRIOR TO PLACING STONE BASE.
    - COMPLETION OF STONE PLACEMENT PRIOR TO PAVING.
    - FINAL INSPECTION WHEN ALL WORK IS COMPLETE.
21. PRIOR TO PLACING CABC STONE BASE, THE CONTRACTOR SHOULD NOTIFY THE GEOTECHNICAL ENGINEER TO INSPECT THE PROOF ROLL OF THE SUBGRADE. ANY STONE PLACED WITHOUT PRIOR APPROVAL WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBJECT TO RE-CONSTRUCTION IF SUBGRADE DOES NOT MEET NCSPA AND NCDOT STANDARDS & SPECIFICATIONS.
22. ALL UTILITY SERVICES, (POWER, TELEPHONE, CABLE, ETC.) ARE PROPOSED TO BE UNDERGROUND. DO NOT SEED OR MULCH DISTURBED AREAS UNTIL ALL UNDERGROUND UTILITIES HAVE BEEN INSTALLED. THE CONTRACTOR SHALL COORDINATE WITH THE PRIVATE UTILITY SERVICE COMPANIES FOR ANY REQUIRED CONDUITS OR POINT OF CONTACT CONDITIONS.
23. ALL PUBLIC UTILITIES THAT REQUIRE AN ENGINEERING CERTIFICATION MUST BE INSPECTED BY A PROFESSIONAL ENGINEER ON A PERIODIC BASIS. THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER WHEN INSTALLING UTILITIES FOR PERIODIC INSPECTIONS. THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER AT THE TIME OF PRESSURE TESTING AND WATER LINE DISINFECTION. THE CONTRACTOR SHALL SUPPLY THE PROJECT ENGINEER PRESSURE TEST RESULTS.
24. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS AND FIELD CONDITIONS WHEN POSSIBLE, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATION OF ALL EXISTING UTILITIES BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF THE CLEARANCES ARE LESS THAN SPECIFIED ON THE PLANS OR 12 INCHES, WHICH EVER IS LESS, CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION. .
25. DISTURBED AREA IS IN EXCESS OF 1 ACRE AND FORMAL SEDIMENTATION & EROSION CONTROL PLAN APPROVAL IS REQUIRED AS A CONDITION OF CONSTRUCTION PLAN APPROVAL. A COPY OF THE APPROVED EROSION CONTROL PLAN MUST BE KEPT ON SITE AT ALL TIMES. THE APPROVED SEDIMENTATION & EROSION CONTROL PLAN SHOULD BE REGARDED AS MINIMUM REQUIREMENTS; ADDITIONAL MEASURES SHALL BE PUT IN PLACE AS NEEDED TO ENSURE THAT NO SEDIMENT IS RELEASED FROM THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR PICKING UP AND PAYING FOR GRADING PERMIT ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY - DIVISION OF ENERGY, MINERAL AND LAND RESOURCES .
26. DESIGN/FIELD CONDITIONS QUITE EASILY MAY VARY FROM THAT REPRESENTED IN THE INITIAL SOILS REPORT AND/OR TOPOGRAPHICAL REPORT. ISOLATED AREAS MAY SHOW UP WEAK AND ADVERSE SOILS OR GROUNDWATER CONDITIONS MAY BE DISCOVERED THAT WERE NOT REVEALED DURING THE INITIAL SOILS INVESTIGATION. THEREFORE, THE OWNER/CLIENT IS TO BE AWARE THAT CURRY ENGINEERING GROUP, PLLC WILL NOT AND CANNOT BE HELD RESPONSIBLE FOR ANY FAILURES TO EITHER A STREET OR PARKING LOT PAVEMENT DESIGN UNLESS WE CAN BE FULLY AND TOTALLY INVOLVED IN THE CONSTRUCTION PROCESS WHICH MAY INCLUDE, BUT MAY NOT NECESSARILY BE LIMITED TO, TESTING SUBGRADE AND BASE DENSITY, ENGAGING THE GEOTECHNICAL ENGINEER FOR THE EVALUATION OF THE SUBGRADE AND FOR THE OBSERVATION OF PROOF ROLLING SUBGRADE AND BASE AT VARIOUS STEPS OF CONSTRUCTION, OPPORTUNITY FOR THE DESIGN ENGINEER TO CALL IN A GEOTECHNICAL ENGINEER FOR CONSULTATION AND ADVICE, ETC. - STEPS WHICH TAKEN ALTOGETHER WITH THE INITIAL DESIGN SHOWN ON THE PLANS, CONSTITUTE THE COMPLETE DESIGN OF THE ROAD, STREET OF PARKING AREA (PRIVATE OR PUBLIC). THE DESIGN ENGINEER MUST BE GIVEN THE FULL LATITUDE AND OPPORTUNITY TO COMPLETE THE DESIGN BY FULLY PARTICIPATING IN THE CONSTRUCTION PROCESS. PLAN DESIGN IS A SMALL PORTION OF THE DESIGN AND CANNOT BE SEPARATED FROM THE CONSTRUCTION PROCESS IF THE OWNER'S/CLIENT'S DESIRE IS TO HAVE THE DESIGN ENGINEER STAND BEHIND THE COMPLETED DESIGNED PROJECT.
27. COORDINATION OF WORK: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE HIS WORK WITH ANY PUBLIC OR PRIVATE UTILITY ENGAGED IN INSTALLATION OF NEW OR ADJUSTMENT OF EXISTING FACILITIES ON THE PROJECT SITE.
28. BARRICADES AND WARNING SIGNS: BARRICADES AND WARNING SIGNS SHALL BE PLACED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH BY THE MUTCD AND NCDOT STANDARDS AND/OR AS DIRECTED BY THE ENGINEER OF RECORD.
29. DRAINAGE CONVEYANCES: WHERE SURFACE DRAINAGE CONVEYANCES ARE TEMPORARILY DISTURBED OR BLOCKED DURING CONSTRUCTION, THEY SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR GRADE AND CROSS SECTION AFTER THE WORK OF CONSTRUCTION IS COMPLETED.
30. VENDOR'S CERTIFICATION: ALL MATERIALS USED IN CONSTRUCTION SHALL HAVE A VENDOR'S CERTIFIED TEST REPORT. TEST REPORTS SHALL BE DELIVERED TO THE ENGINEER BEFORE PERMISSION WILL BE GRANTED FOR USE OF THE MATERIAL. ALL VENDOR'S TEST REPORTS SHALL BE SUBJECT TO REVIEW BY THE ENGINEER, AND SHALL BE SUBJECT TO VERIFICATION BY TESTING OF SAMPLES OF MATERIALS AS RECEIVED FOR USE ON THE PROJECT. IN THE EVENT ADDITIONAL TESTS ARE REQUIRED, THEY SHALL BE PERFORMED BY AN APPROVED INDEPENDENT TESTING LABORATORY AND SHALL BE PAID FOR BY THE CONTRACTOR.
31. CLEAN-UP FOR FINAL ACCEPTANCE: THE CONTRACTOR SHALL MAKE A FINAL CLEAN-UP OF ALL PARTS OF THE WORK BEFORE ACCEPTANCE BY THE OWNER OR HIS REPRESENTATIVE. THIS CLEAN-UP SHALL INCLUDE REMOVAL OF ALL OBJECTIONABLE MATERIALS AND, IN GENERAL, PREPARING THE SITE OF THE WORK IN AN ORDERLY MANNER OF APPEARANCE.
32. PROTECTION OF EXISTING UTILITIES AND IMPROVEMENTS: THE CONTRACTOR SHALL TAKE ADEQUATE MEASURES TO PROTECT ALL EXISTING STRUCTURES, IMPROVEMENTS AND UTILITIES WHICH MAY BE ENCOUNTERED.
33. PROPERTY LINES AND MONUMENTS: THE CONTRACTOR SHALL PROTECT ALL PROPERTY CORNER MARKERS, AND WHEN ANY SUCH MARKERS OR MONUMENTS ARE IN DANGER OF BEING DISTURBED, THEY SHALL BE PROPERLY REFERENCED AND IF DISTURBED SHALL BE RESET AT THE EXPENSE OF THE CONTRACTOR.
34. THE CONTRACTOR WILL BE RESPONSIBLE FOR FURNISHING, AT HIS OWN EXPENSE, ALL NECESSARY POTABLE WATER AND ELECTRICAL POWER, INCLUDING UTILITY CONNECTIONS. METERED CONNECTIONS TO PORT POTABLE WATER UTILITIES MAY BE AVAILABLE UPON REQUEST.
35. PARKING OF CONSTRUCTION EQUIPMENT: AT NIGHT AND DURING ALL OTHER PERIODS OF TIME WHEN EQUIPMENT IS NOT BEING ACTIVELY USED ON THE CONSTRUCTION WORK, THE CONTRACTOR SHALL PARK THE EQUIPMENT AT LOCATIONS WHICH ARE APPROVED BY THE OWNER. THE CONTRACTOR SHALL PROVIDE ADEQUATE BARRICADES, MARKERS AND LIGHTS TO PROTECT THE OWNER, THE CITY, THE PUBLIC AND THE OTHER WORK. ALL BARRICADES, LIGHTS, AND MARKERS MUST MEET THE REQUIREMENTS OF CITY, STATE AND FEDERAL REGULATIONS.
36. ACCESS ROUTES, STAGING AREAS AND STORAGE AREAS: ALL HAUL ROADS AND ACCESS ROUTES AND THE LOCATION OF ALL STAGING AREAS AND STORAGE AREAS SHALL BE SUBJECT TO THE APPROVAL OF NCPA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND REPAIRING ALL ROADS AND OTHER FACILITIES USED DURING CONSTRUCTION. UPON COMPLETION OF THE PROJECT ALL EXISTING ROADS SHALL BE LEFT IN A CONDITION EQUAL TO THAT AT THE TIME THE CONTRACTOR COMMENCES WORK ON THIS PROJECT OR TO THE PAVEMENT DESIGN CALLED OUT ON THE PLANS, WHICHEVER IS GREATER.
37. EXISTING UTILITIES: THE LOCATION AND DIMENSIONS SHOWN ON THE PLANS RELATIVE TO EXISTING UTILITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT HE MAY NEGOTIATE SUCH LOCAL ADJUSTMENTS AS NECESSARY IN THE CONSTRUCTION PROCESS TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL SERVICES ENCOUNTERED. ANY DAMAGE TO UTILITIES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT HIS/HER EXPENSE.
38. EXCESS MATERIAL: SUITABLE EXCAVATED MATERIAL SHALL BE DISPOSED OF ON THE SITE AT LOCATIONS DIRECTED BY THE NCSPA. UNSUITABLE MATERIAL IS DEFINED AS ROCKS MEASURING LARGER THAN 9" IN THE LARGEST DIMENSION. UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.
39. COORDINATION WITH OTHERS: IN THE EVENT THAT OTHER CONTRACTORS ARE DOING WORK IN THE SAME AREA SIMULTANEOUSLY WITH THIS PROJECT, THE CONTRACTOR SHALL COORDINATE HIS PROPOSED CONSTRUCTION WITH THAT OF THE OTHER CONTRACTORS.
40. COMPLIANCE WITH LAWS: THE CONTRACTOR SHALL FULLY COMPLY WITH ALL LOCAL, STATE AND FEDERAL LAWS, INCLUDING ALL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS CONTRACT AND THE WORK TO BE DONE THEREUNDER, WHICH EXIST OR WHICH MAY BE ACTED LATER BY GOVERNMENTAL BODIES HAVING JURISDICTION OR AUTHORITY FOR SUCH ENACTMENT. ALL WORK REQUIRED UNDER THIS CONTRACT SHALL COMPLY WITH ALL REQUIREMENTS OF LAW, REGULATION, PERMIT OR LICENSE. IF THE CONTRACTOR FINDS THAT THERE IS A VARIANCE, HE SHALL IMMEDIATELY REPORT THIS TO THE OWNER FOR RESOLUTION.
41. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, IMPACT AND INSPECTION FEES, ANY CITY FEES AND LICENSES NECESSARY FOR THE EXECUTION OF THE WORK AND SHALL FULLY COMPLY WITH ALL THEIR TERMS AND CONDITIONS. WHEREVER THE WORK UNDER THIS CONTRACT REQUIRES THE OBTAINING OF PERMITS FROM THE STATE OF NORTH CAROLINA OR OTHER PUBLIC AUTHORITIES, DUPLICATE COPIES OF SUCH PERMITS SHALL BE FURNISHED TO THE ENGINEER BY THE CONTRACTOR HEREUNDER BEFORE THE WORK COVERED THEREBY IS STARTED. NO WORK WILL BE ALLOWED TO PROCEED BEFORE SUCH PERMITS ARE OBTAINED.
42. REMOVAL OF DEFECTIVE AND UNAUTHORIZED WORK: ALL WORK WHICH HAS BEEN REJECTED OR CONDEMNED SHALL BE REPAIRED; OR IF IT CANNOT BE REPAIRED SATISFACTORILY, IT SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. DEFECTIVE MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE WORK SITE. WORK DONE BEYOND THE LINE OR NOT IN CONFORMITY WITH THE GRADES SHOWN ON THE DRAWINGS OR AS PROVIDED, WORK DONE WITHOUT PROPER INSPECTION, OR ANY EXTRA OR UNCLASSIFIED WORK DONE WITHOUT WRITTEN AUTHORITY AND PRIOR AGREEMENT IN WRITING AS TO PRICES, SHALL BE AT THE CONTRACTOR'S RISK, AND WILL BE CONSIDERED UNAUTHORIZED, AND AT THE OPTION OF THE OWNER MAY NOT BE MEASURED AND PAID FOR AND MAY BE ORDERED REMOVED AT THE CONTRACTOR'S EXPENSE. UPON FAILURE OF THE CONTRACTOR TO REPAIR SATISFACTORILY OR TO REMOVE AND REPLACE, IF SO DIRECTED, REJECTED, UNAUTHORIZED OR CONDEMNED WORK OR MATERIALS IMMEDIATELY AFTER RECEIVING NOTICE FROM THE OWNER, THE OWNER WILL, AFTER GIVING WRITTEN NOTICE TO THE CONTRACTOR, HAVE THE AUTHORITY TO CAUSE DEFECTIVE WORK TO BE REMEDIED OR REMOVED AND REPLACED, OR TO CAUSE UNAUTHORIZED WORK TO BE REMOVED AND TO DEDUCT THE COST THEREOF FROM ANY MONIES DUE OR TO BECOME DUE THE CONTRACTOR.
43. DURING CONSTRUCTION: DURING CONSTRUCTION OF THE WORK, THE CONTRACTOR SHALL, AT ALL TIMES, KEEP THE SITE OF THE WORK AND ADJACENT PREMISES AS FREE FROM MATERIAL, DEBRIS AND RUBBISH AS IS PRACTICABLE AND SHALL REMOVE SAME FROM ANY PORTION OF THE SITE IF, IN THE OPINION OF THE OWNER, SUCH MATERIAL, DEBRIS OR RUBBISH CONSTITUTES A NUISANCE OR IS OBJECTIONABLE. IN CASE OF FAILURE ON THE PART OF THE CONTRACTOR TO MAINTAIN A CLEAN SITE, THE OWNER MAY, UPON 24 HOUR WRITTEN NOTICE, CLEAN THE SITE, AND THE COST THEREOF SHALL BE DEDUCTED FROM ANY MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR UNDER HIS CONTRACT; OR WHERE SUFFICIENT CONTRACT FUNDS ARE UNAVAILABLE FOR THIS PURPOSE, THE CONTRACTOR OR HIS SURETY SHALL REIMBURSE THE OWNER FOR ALL SUCH COSTS.
44. RECORD DRAWINGS: EACH CONTRACTOR SHALL MAINTAIN AN ACCURATE RECORD OF THE INSTALLATION OF ALL MATERIALS AND SYSTEMS COVERED BY HIS CONTRACTUAL AGREEMENT. THESE RECORD PRINTS WILL BE REVIEWED BY THE OWNER EACH MONTH PRIOR TO THE PRELIMINARY REVIEW OF CONTRACTOR'S REQUEST FOR PAYMENT. IF THE DRAWINGS ARE NOT COMPLETE, ACCURATE AND UP-TO-DATE, THE PAYMENT REQUEST WILL NOT BE ACCEPTED BY THE OWNER. THE COMPLETED SET OF "RECORD" DRAWINGS MUST BE DELIVERED TO THE OWNER BEFORE REQUESTING FINAL PAYMENT.
45. CONTRACTOR SHALL PROVIDE SHORING AND UTILITY SUPPORT PLAN WHERE REQUIRED. ALL UNRESTRAINED PIPE WITHIN A SET DISTANCE (SET BY THE UTILITY OWNER, USUALLY 5 FT OR LESS) WILL NEED TO BE RESTRAINED PRIOR TO EXCAVATION. A COMPLETE SHORING AND RESTRAINING PLAN IS TO BE SUBMITTED TO THE A/E, NCPA, AND/OR THE STATE OF NORTH CAROLINA AS EACH CASE WARRANTS PRIOR TO EXCAVATION.

WASTE DISPOSAL NOTES

ALL WASTE MATERIALS EXCEPT LAND CLEARING DEBRIS SHALL BE COLLECTED AND STORED IN A METAL DUMPSTER. THE DUMPSTER WILL MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS. THE DUMPSTER WILL BE EMPTIED AS NEEDED AND THE TRASH WILL BE HAULED TO A STATE APPROVED LANDFILL. ALL PERSONNEL WILL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. NOTICES STATING THESE PRACTICES WILL BE POSTED AT THE CONSTRUCTION SITE BY THE CONSTRUCTION SUPERINTENDENT, THE INDIVIDUAL WHO MANAGES THE DAY-TO-DAY SITE OPERATIONS, WILL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED.

HAZARDOUS WASTE

ALL HAZARDOUS WASTE MATERIALS WILL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER. SITE PERSONNEL WILL BE INSTRUCTED IN THESE PRACTICES AND THE SITE SUPERINTENDENT, THE INDIVIDUAL WHO MANAGES DAY-TO-DAY SITE OPERATIONS, WILL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED.

SANITARY WASTE

ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NEEDED TO PREVENT POSSIBLE SPILLAGE. THE WASTE WILL BE COLLECTED AND DEPOSED OF IN ACCORDANCE WITH STATE AND LOCAL WASTE DISPOSAL REGULATIONS FOR SANITARY SEWER OR SEPTIC SYSTEMS.

OFFSITE VEHICLE TRACKING

A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED STREET ADJACENT TO THE SITE ENTRANCE WILL BE SWEPT DAILY TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARPAULIN.

GOOD HOUSEKEEPING

THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.

- AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.
- ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
- PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
- MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
- THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE MATERIALS ONSITE RECEIVE PROPER USE AND DISPOSAL.

HAZARDOUS PRODUCTS NOTES

THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.

- PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESALABLE.
- ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION.
- IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

PRODUCT SPECIFIC PRACTICES

THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ONSITE:

PETROLEUM PRODUCTS

ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

FERTILIZERS

FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED AREA. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SALABLE PLASTIC BIN TO AVOID SPILLS.

PAINTS

ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURERS' INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

SPILL CONTROL PRACTICES

IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN AND THE CONTRACTORS SPILL PREVENTION CONTROL PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:

- MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED ON SITE AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
- MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, LIQUID ABSORBENT (i.e. KITTY LITTER OR EQUAL), SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
- THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
- SPILL OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO NCSU ENVIRONMENTAL HEALTH & PUBLIC SAFETY AND THE APPROPRIATE STATE AGENCY, REGARDLESS OF THE SIZE OF THE SPILL.
- THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.
- THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS, WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. HE/SHE WILL DESIGNATE AT LEAST ONE OTHER SITE PERSONNEL WHO WILL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IF APPLICABLE, IN THE OFFICE TRAILER ONSITE.

CIVIL ABBREVIATIONS

IDENTIFIER	DESCRIPTION
&	AND
℄	CENTERLINE
Ø	DIAMETER OR ROUND
ℙ	PROPERTY LINE
-- A --	
ABC	AGGREGATE BASE ASPH ASPHALT
AVE	AVENUE
-- B --	
BLVD	BOULEVARD
BLDG	BUILDING
BOC	BACK OF CURB
BW	BOTTOM OF WALL
-- C --	
CB	CATCH BASIN
CI	CURB INLET
CIP	CAST IRON PIPE
CLS	CLASS
CJ	CONTROL JOINT
CO	CLEANOUT
CONC	CONCRETE
-- D --	
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DOM	DOMESTIC
DR	DRIVE
-- E --	
(XX)	EXISTING ELEVATION
E	EAST, EASTING
EL	ELEVATION
EJ	EXPANSION JOINT
EOP	EDGE OF PAVEMENT
EX	EXISTING
EVAP	EVAPORATIVE
-- F --	
FDC	FIRE DEPARTMENT CONNECTION
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FHA	FIRE HYDRANT ASSEMBLY
FL	FLOW LINE
FT	FOOT OR FEET
-- G --	
G	GAS
GALV	GALVANIZED
GB	GRADE BREAK
GE	GENERAL ELECTRIC
GR	GRADE
-- H --	
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HOV	HIGH OCCUPANCY VEHICLE
HP	HIGH POINT
-- I --	
IAW	IN ACCORDANCE WITH
I.H.	INTERSTATE HIGHWAY
INV	INVERT
-- L --	
LEN	LENGTH
LEV	LOW EMISSION VEHICLE
LF	LINEAR FEET
LP	LOW POINT

IDENTIFIER	DESCRIPTION
-- M --	
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
-- N --	
N	NORTH, NORTHING
NCDENR	NORTH CAROLINA DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
NCDOT	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
NCSPA	NORTH CAROLINA STATE PORT AUTHORITY
NTS	NOT TO SCALE
-- O --	
OH	OVERHEAD
OHE	OVERHEAD ELECTRICAL
OCB	OFF-SET CATCH BASIN
-- P --	
PCC	PORTLAND CEMENT CONCRETE
PE	POLYETHYLENE
PKWY	PARKWAY
POC	POINT OF CONNECTION
PVC	POLYVINYL CHLORIDE
-- R --	
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
R.O.W.	RIGHT OF WAY
RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
RPZ	REDUCED PRESSURE ZONE
-- S --	
S	SOUTH
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SDE	SIGHT DISTANCE EASEMENT
SSMH	SANITARY SEWER MANHOLE
SS	SANITARY SEWER
STA	STATION
STD	STANDARD
ST.STL	STAINLESS STEEL
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
-- T --	
TB	TOP OF BARRIER
TC/TOC	TOP OF CURB
TD	TEMPORARY DIVERSION
TH	TEST HEADER
TOP	TOP OF PIPE
TP	TOP OF PAD
TYP	TYPICAL
TW	TOP OF WALL
-- U --	
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRICAL
UKN	UNKNOWN UTILITY
-- V --	
VEG	VEGETATED
VERT	VERTICAL
-- W --	
W	WEST
W/	WITH
W/O	WITHOUT
-- Y --	
YI	YARD INLET

** ALL SYMBOLS & ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS DRAWING PACKAGE **

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APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

NO WATERCOURSE OR 100 YEAR FLOOD PLAIN AS MAPPED BY FEMA OR AS DEFINED BY ANY FEDERAL, STATE OR LOCAL AUTHORITY IS LOCATED IN THIS PROJECT AREA. REFER TO CIVIL NOTE #2

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REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION RFI'S	3/4/2020	ASP
2	PERMITTING COMMENTS	6/1/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB06	CONSTRUCTION REVISION	10/09/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB010	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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[redacted]

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

CIVIL NOTES

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

C-002

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\C-002 CIVIL NOTES.dwg
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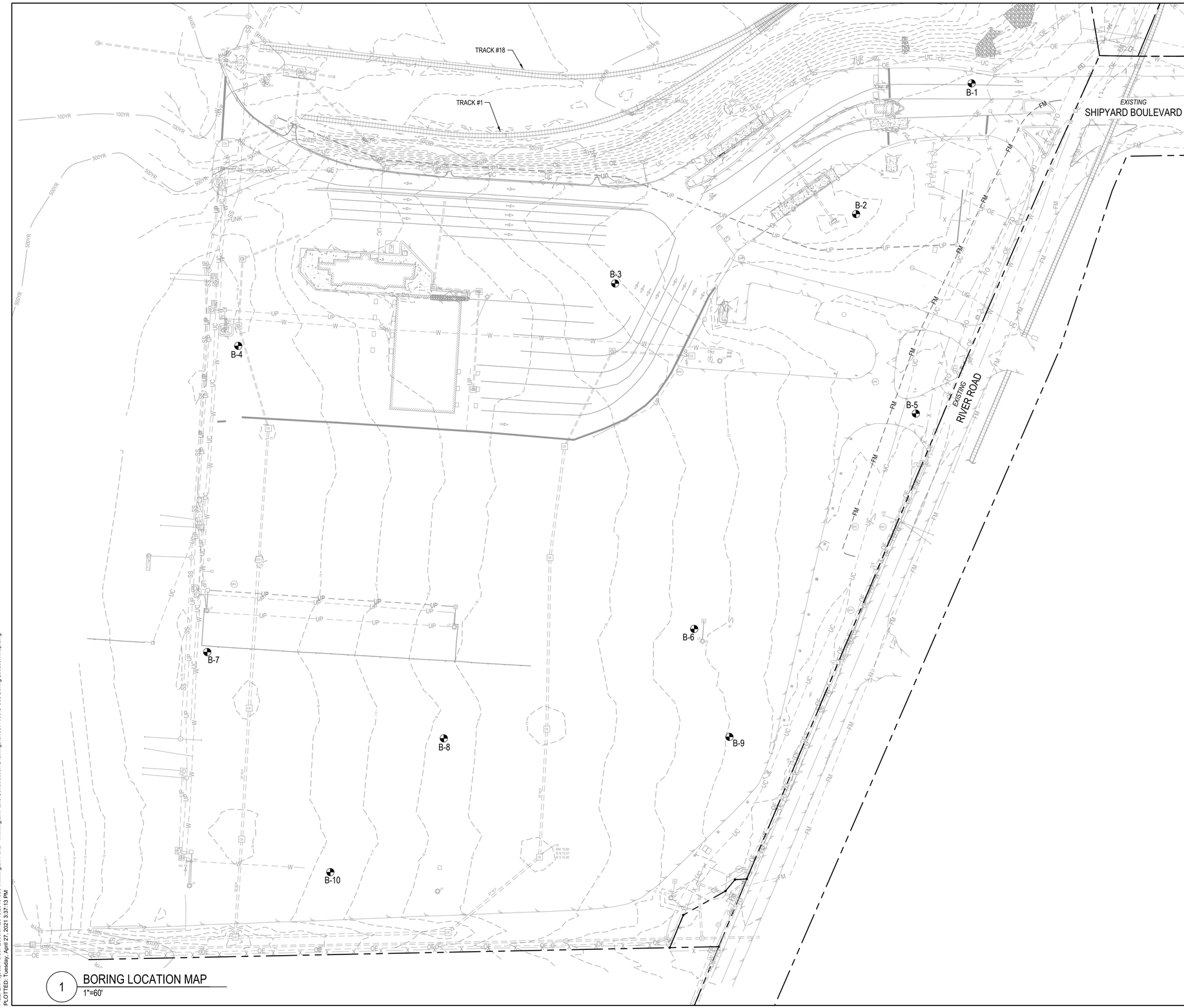

1 BORING LOCATION MAP
1"=60'

GENERAL NOTES

1. BORING LOCATIONS AND LOGS SHOWN ON C-004 AND C-005 TAKEN FROM REPORT BY GET SOLUTIONS ENTITLED "REPORT OF SUBSURFACE EXPLORATION AND GEOTECHINCAL ENGINEERING SERVICES - PORT OF WILMINGTON SOUTH GATE PAVEMENT IMPROVEMENTS" DATED APRIL 1, 2019.

LEGEND

BORING LOCATION

APPROVED
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City SW# 2021027
JW, RC, BM, MB, CW

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PB03	CONSTRUCTION REVISION	10/06/2020	ASP
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PB07	CONSTRUCTION REVISION	12/03/2020	ASP
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PB09.1	CONSTRUCTION REVISION	03/09/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

BORING LOCATION MAP

0 30' 60' 1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

NORTH (NAD 83)
N

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C-003

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\C-003 Boring Location Map.dwg
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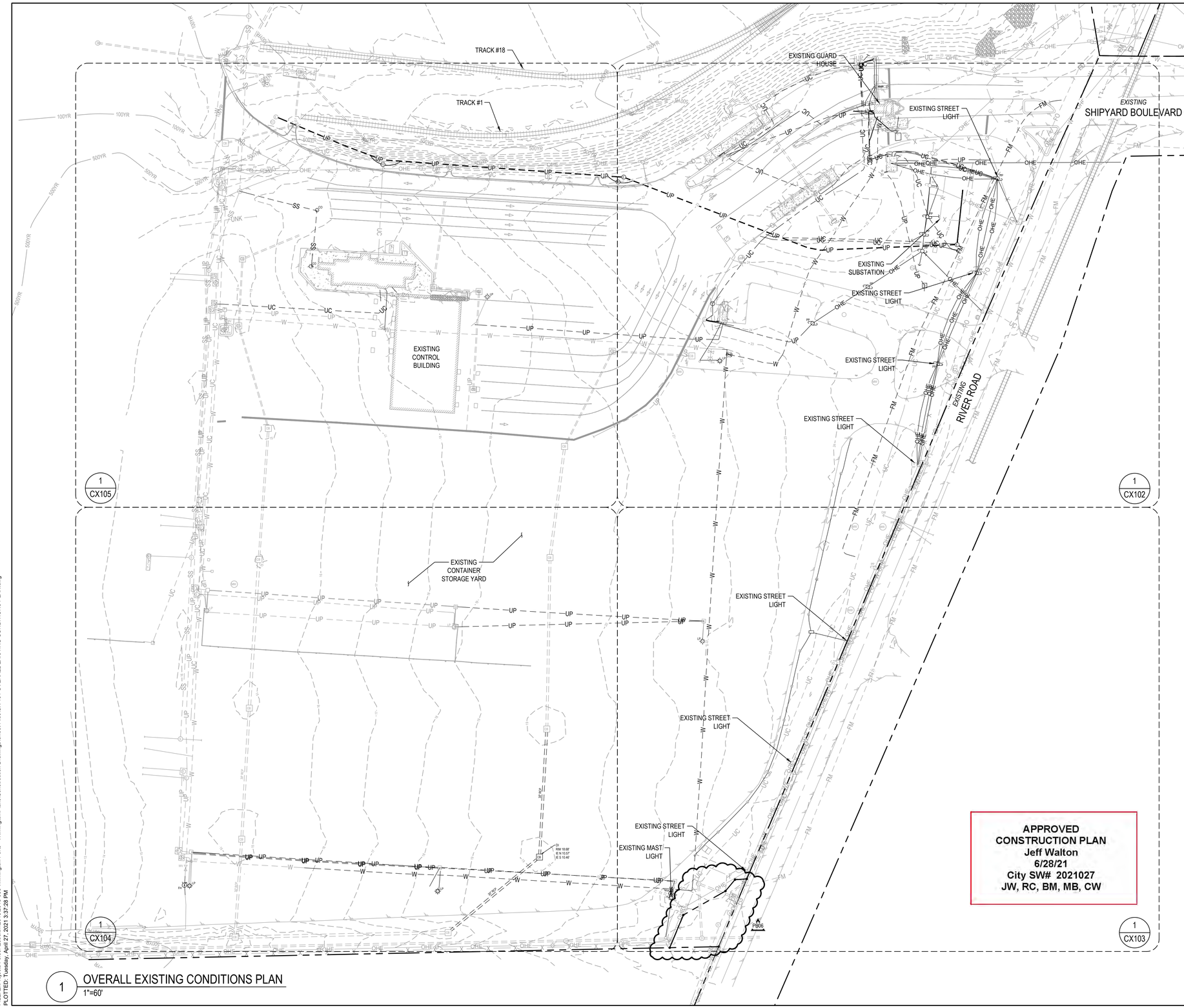

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

1 OVERALL EXISTING CONDITIONS PLAN
1"=60'

GENERAL NOTES

****THE FOLLOW NOTES SHALL BE RELEVANT FOR ALL EXISTING CONDITION (CX) SHEETS****

1. THIS PLAN IS NOT INTEND FOR PLATTING OR RECORDATION. THE INTENT OF THIS PLAN IS TO ILLUSTRATE THE EXISTING FEATURES, STRUCTURES AND TOPOGRAPHY OF THE PROPERTY.
2. THE INFORMATION SHOWN ON THIS PLAN INSIDE THE SURVEY LIMITS WAS DEVELOPED FROM AERIAL AND FIELD DATA OBTAINED BY CURRY ENGINEERING GROUP IN FEBRUARY 2019 BASED ON FIELD SURVEY BY CAPE FEAR ENGINEERING, INC. ON NOVEMBER 19, 2018 THRU JANUARY 15, 2019. THE ENGINEER'S SEAL ONLY REPRESENTS THAT THIS INFORMATION HAS BEEN REVIEWED BY THE ENGINEER, NOT TO CERTIFY THE DATA. THE ENGINEER UNDERSTANDS THE SURVEY TO HAVE THE FOLLOWING CRITERIA:
   - ELEVATIONS ARE BASED ON VERTICAL DATUM NAVD88.
   - SURVEY BASED ON HORIZONTAL DATUM NAD83 (2011) AND NAVD 88 PER EXISTING NCGS MONUMENTS LISTED BELOW

     NCGS MONUMENT PORT: N=162523.85, E=2318381.09, ELEV: 32.40
     NCGS MONUMENT LENFESTEY: N=163894.21, E=2318057.75, ELEV: 18.40
   - UNDERGROUND UTILITIES WERE MARKED BY TOP MARK LOCATES, INC.
   - WATER SIZE & MATERIAL SHOWN IS TAKEN FROM NCPORTS AND CFPUA GIS. IF SIZE AND MATERIAL NOT ON DRAWING IS UNKNOWN THROUGH AVAILABLE DATA.
   - PROPERTY LINES SHOWN FROM NEW HANOVER COUNTY GIS PARCELS. NO BOUNDARY WORK PERFORMED AS PART OF THIS SURVEY.
3. EXISTING CONDITIONS SHOWN DOES NOT CERTIFY TO THE EXISTENCE OR NON-EXISTENCE OF UNDERGROUND UTILITIES THAT MAY OR MAY NOT BE PRESENT ON SITE. CONTRACTOR TO FIELD VERIFY AND LOCATE ALL UNDERGROUND UTILITIES PRIOR TO START OF EXCAVATION.
4. A WETLAND DELINEATION HAS NOT YET BEEN PREFORMED ON THIS SITE HOWEVER IT IS NOT ANTICIPATED THAT WETLANDS ARE PRESENT WITH IN THE WORK LIMITS.

LEGEND

- BOLLARD
- SIGN
- ELECTRICAL MANHOLE
- MW — MONITORING WELL
- FO — FIBER OPTIC MANHOLE
- T — TELEPHONE PEDESTAL
- PP — POWER POLE
- LP — LIGHT POLE
- GUY WIRE
- UTILITY VAULT
- STORMDRAIN INLET
- D — STORMDRAIN JUNCTION BOX
- S — SANITARY SEWER MANHOLE
- WV — WATER VALVE
- FH — FIRE HYDRANT
- 25.56 — SPOT ELEVATION
- BUILDING
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- RIP RAP
- EXISTING RAILS
- X — CHAIN LINK FENCE
- O — GUARDRAIL
- OHE — OVERHEAD POWER
- UP — UNDERGROUND POWER
- FO — FIBER OPTIC
- STORMDRAIN
- SS — SANITARY SEWER
- FM — FORCEMAIN
- W — WATERLINE
- G — GAS LINE
- UNK — UNKNOWN LINE
- 500YR — 500 YR FLOOD PLAIN
- 100YR — 100 YR FLOOD PLAIN
- 25 — MAJOR CONTOUR
- 22 — MINOR CONTOUR

NORTH (NAD 83)

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1	CONSTING COMMENTS	3/4/2020	ASP
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3	CFPUA DETAIL DATES	7/14/2020	ASP
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Curry ENGINEERING

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A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

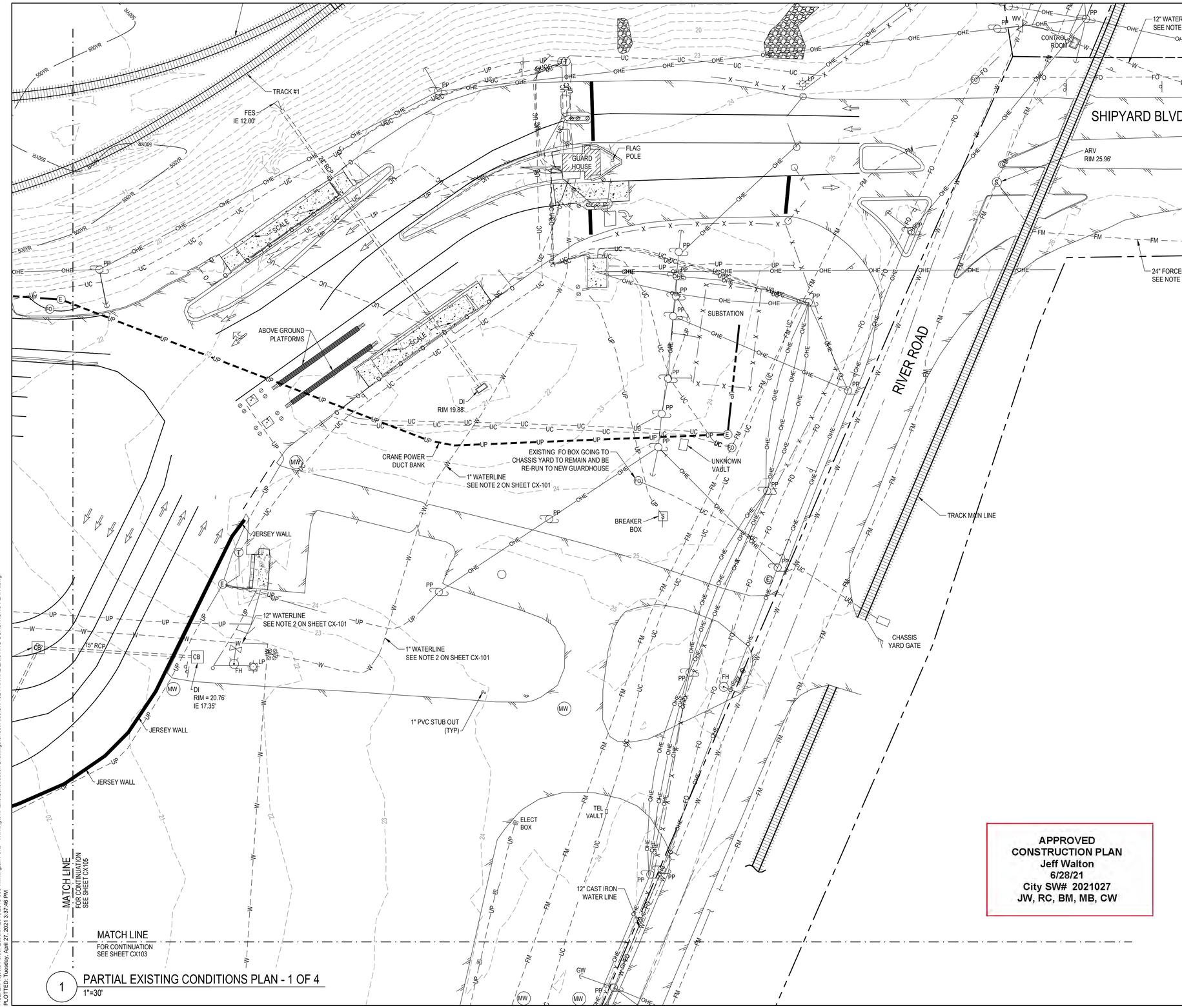
OVERALL EXISTING CONDITIONS PLAN

0 30' 60' 1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CX-101

FILE: Z:\Projects Folder-Zabulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CX-101 OVERALL EXISTING CONDITIONS PLAN.dwg
PLOTTED: Tuesday, April 27, 2021 3:37:28 PM

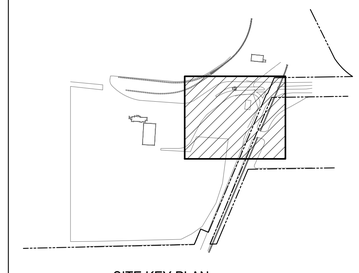


1 PARTIAL EXISTING CONDITIONS PLAN - 1 OF 4
1"=30'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

LEGEND

- BOLLARD
- SIGN
- ELECTRICAL MANHOLE
- MONITORING WELL
- FIBER OPTIC MANHOLE
- TELEPHONE PEDESTAL
- POWER POLE
- LIGHT POLE
- GUY WIRE
- UTILITY VAULT
- STORMDRAIN INLET
- STORMDRAIN JUNCTION BOX
- SANITARY SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- SPOT ELEVATION
- BUILDING
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- RIP RAP
- EXISTING RAILS
- CHAIN LINK FENCE
- GUARDRAIL
- OVERHEAD POWER
- UNDERGROUND POWER
- FIBER OPTIC
- STORMDRAIN
- SANITARY SEWER
- FORCEMAIN
- WATERLINE
- GAS LINE
- UNKNOWN LINE
- 500 YR FLOOD PLAIN
- 100 YR FLOOD PLAIN
- MAJOR CONTOUR
- MINOR CONTOUR



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/12/2020	ASP
2	PERMITTING COMMENTS	6/1/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
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PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/12/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE
PARTIAL EXISTING CONDITIONS PLAN - 1 OF 4

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CX-102

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CX-102 PARTIAL EXISTING CONDITIONS PLAN I.dwg
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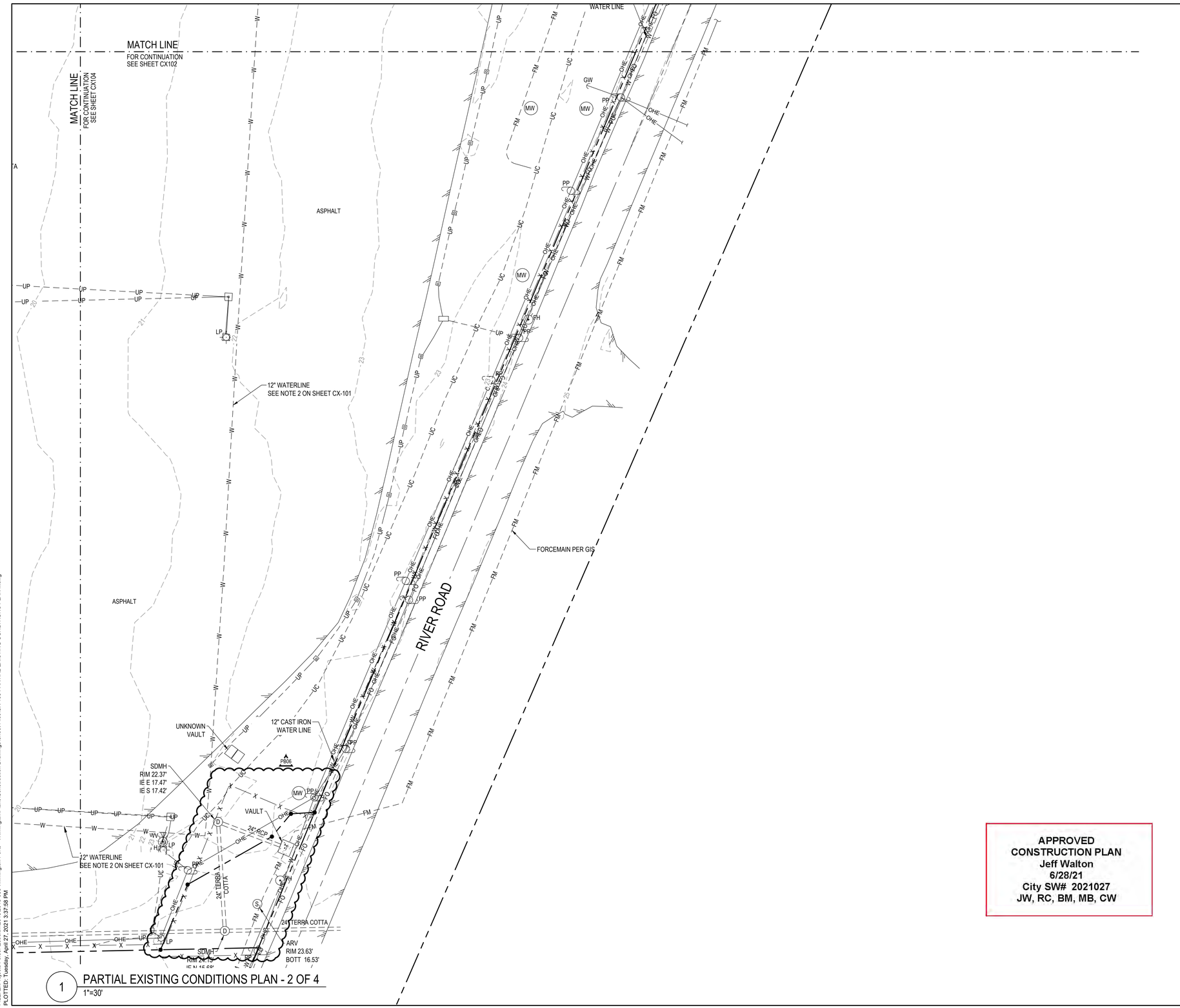
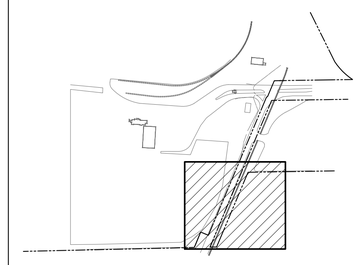


1 PARTIAL EXISTING CONDITIONS PLAN - 2 OF 4
1"=30'

LEGEND

	BOLLARD
	SIGN
E	ELECTRICAL MANHOLE
MW	MONITORING WELL
FO	FIBER OPTIC MANHOLE
T	TELEPHONE PEDESTAL
PP	POWER POLE
LP	LIGHT POLE
	GUY WIRE
	UTILITY VAULT
CB	STORMDRAIN INLET
D	STORMDRAIN JUNCTION BOX
S	SANITARY SEWER MANHOLE
WV	WATER VALVE
FH	FIRE HYDRANT
25.56	SPOT ELEVATION
	BUILDING
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	RIP RAP
	EXISTING RAILS
X	CHAIN LINK FENCE
O	GUARDRAIL
OHE	OVERHEAD POWER
UP	UNDERGROUND POWER
FO	FIBER OPTIC
	STORMDRAIN
SS	SANITARY SEWER
FM	FORCEMAIN
W	WATERLINE
G	GAS LINE
UNK	UNKNOWN LINE
500YR	500 YR FLOOD PLAIN
100YR	100 YR FLOOD PLAIN
25	MAJOR CONTOUR
22	MINOR CONTOUR

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/1/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	9/08/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/10/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

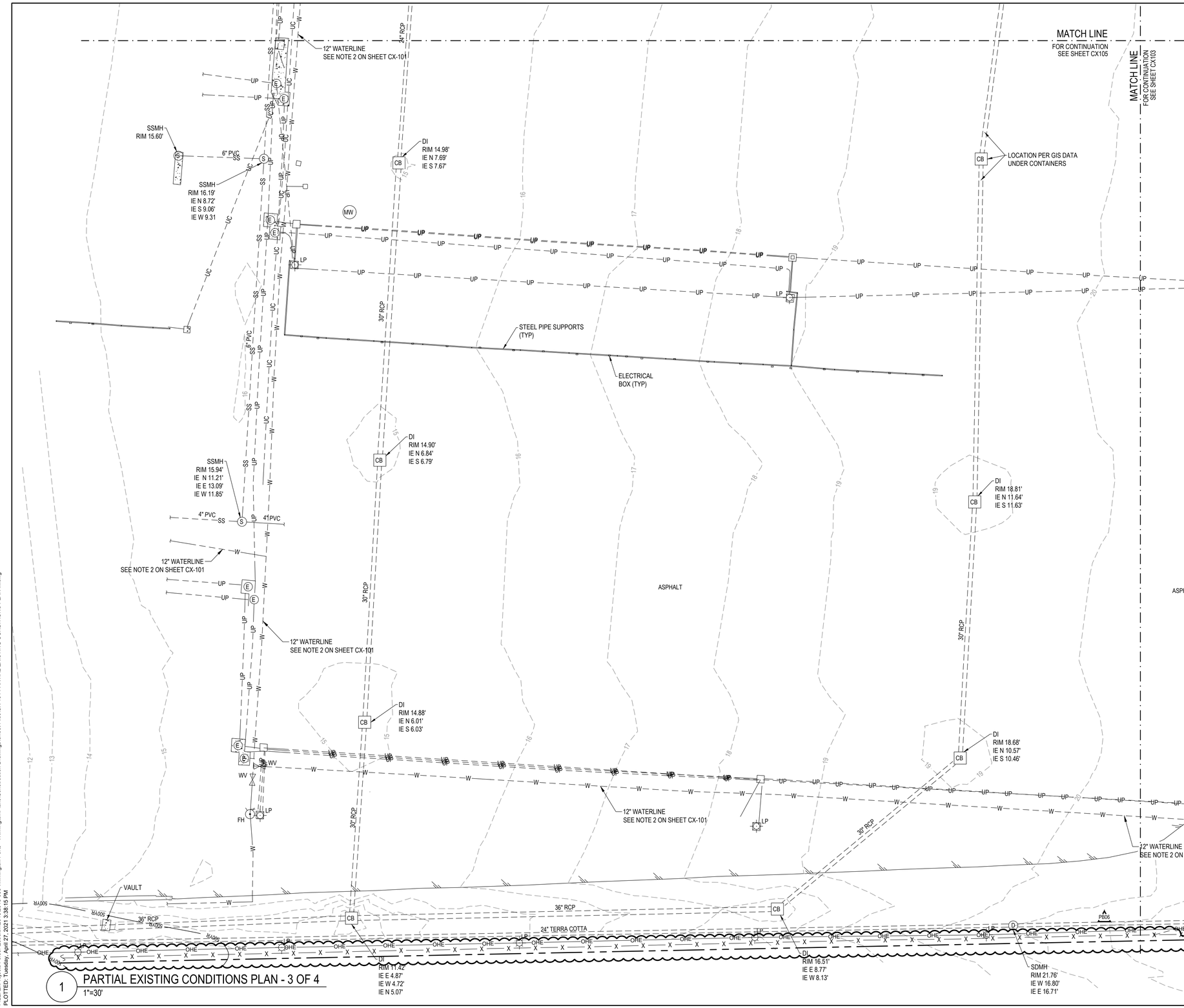
NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE
PARTIAL EXISTING CONDITIONS PLAN - 2 OF 4

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CX-103

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CX-103 PARTIAL EXISTING CONDITIONS PLAN II.dwg
PLOTTED: Tuesday, April 27, 2021 3:37:58 PM



1 PARTIAL EXISTING CONDITIONS PLAN - 3 OF 4
1"=30'

LEGEND

- BOLLARD
- SIGN
- ELECTRICAL MANHOLE
- MONITORING WELL
- FIBER OPTIC MANHOLE
- TELEPHONE PEDESTAL
- POWER POLE
- LIGHT POLE
- GUY WIRE
- UTILITY VAULT
- STORMDRAIN INLET
- STORMDRAIN JUNCTION BOX
- SANITARY SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- SPOT ELEVATION
- BUILDING
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- RIP RAP
- EXISTING RAILS
- CHAIN LINK FENCE
- GUARDRAIL
- OVERHEAD POWER
- UNDERGROUND POWER
- FIBER OPTIC
- STORMDRAIN
- SANITARY SEWER
- FORCEMAIN
- WATERLINE
- GAS LINE
- UNKNOWN LINE
- 500 YR FLOOD PLAIN
- 100 YR FLOOD PLAIN
- MAJOR CONTOUR
- MINOR CONTOUR

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
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PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

[redacted]

NORTH CAROLINA PORTS

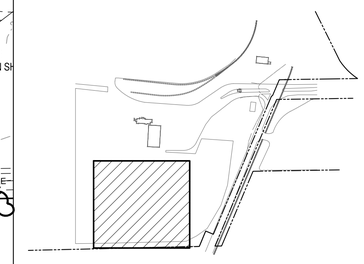
NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.

NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL EXISTING CONDITIONS PLAN - 3 OF 4

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CX-104

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CX-104 PARTIAL EXISTING CONDITIONS PLAN III.dwg
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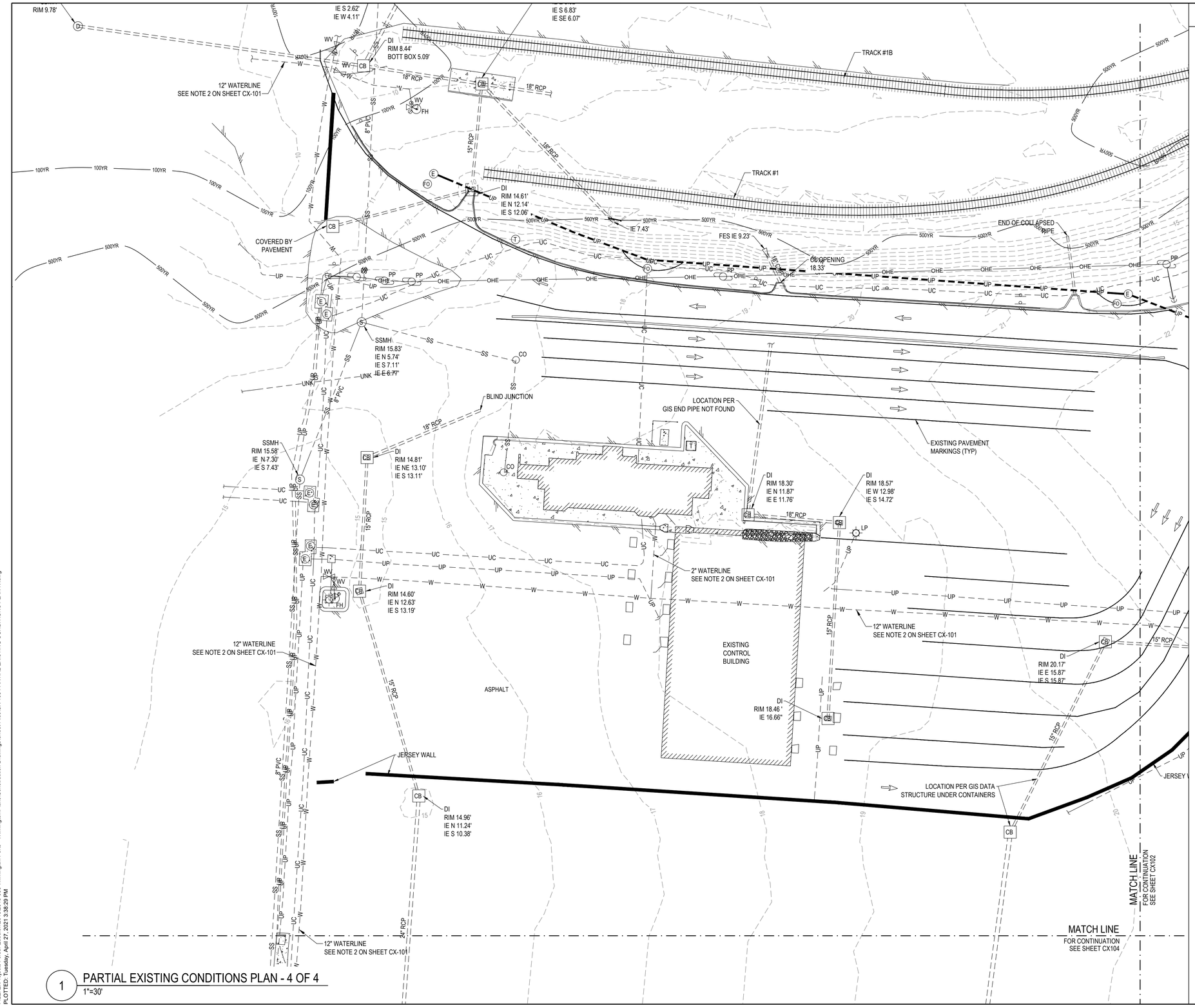

1 PARTIAL EXISTING CONDITIONS PLAN - 4 OF 4
1"=30'

LEGEND

- BOLLARD
- SIGN
- ELECTRICAL MANHOLE
- MONITORING WELL
- FIBER OPTIC MANHOLE
- TELEPHONE PEDESTAL
- POWER POLE
- LIGHT POLE
- GUY WIRE
- UTILITY VAULT
- STORMDRAIN INLET
- STORMDRAIN JUNCTION BOX
- SANITARY SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
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- WATERLINE
- GAS LINE
- UNKNOWN LINE
- 500 YR FLOOD PLAIN
- 100 YR FLOOD PLAIN
- MAJOR CONTOUR
- MINOR CONTOUR

REV	DESCRIPTION	DATE	APP BY
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PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

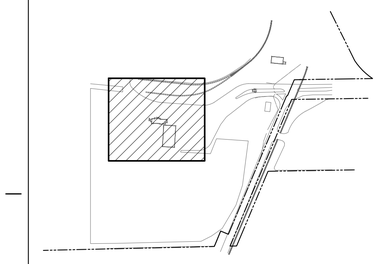
PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

[redacted]

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE
PARTIAL EXISTING CONDITIONS PLAN - 4 OF 4

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

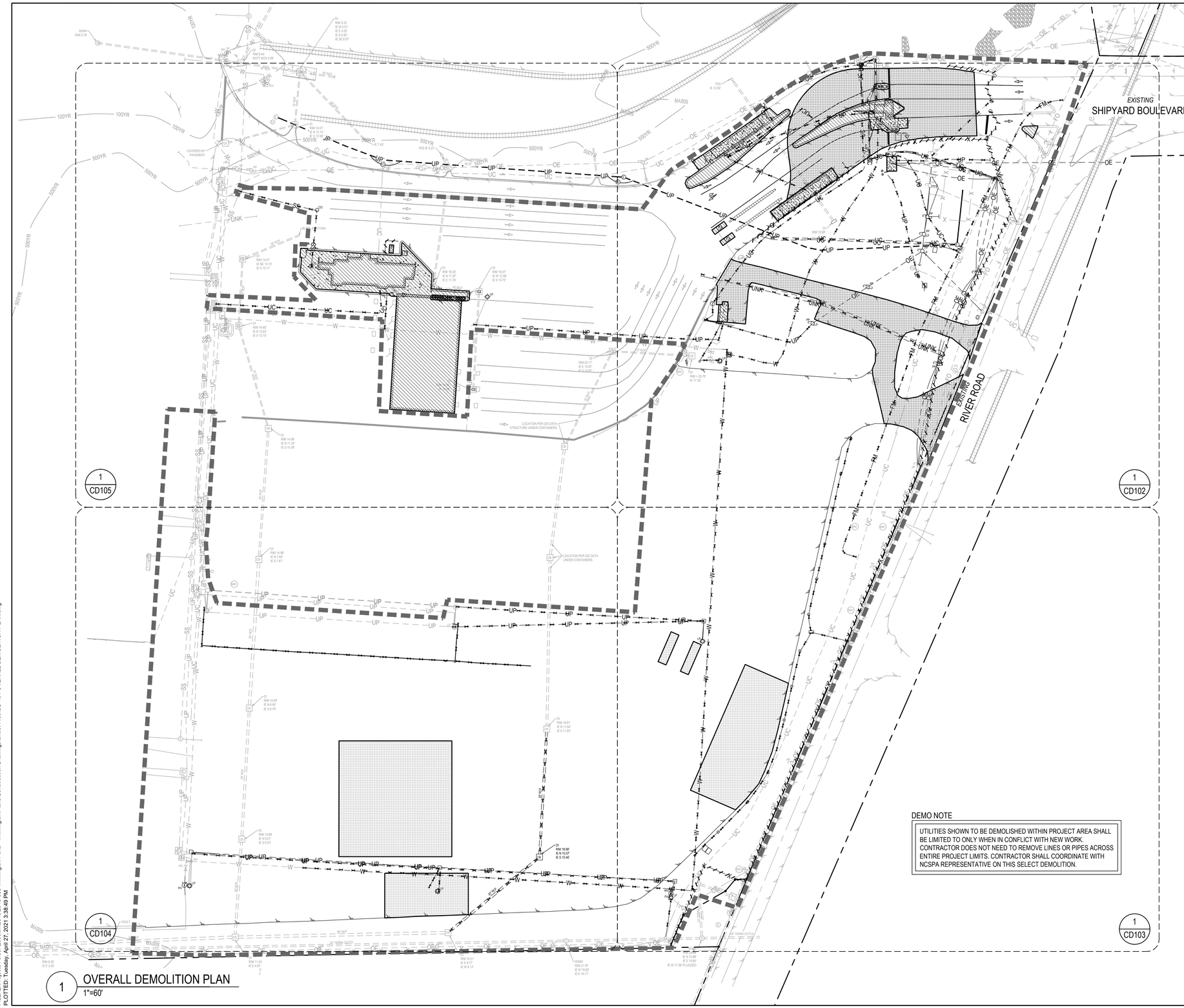
0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CX-105

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CX-105 PARTIAL EXISTING CONDITIONS PLAN IV.dwg
PLOTTED: Tuesday, April 27, 2021 3:38:29 PM



1 OVERALL DEMOLITION PLAN
1"=60'

DEMO NOTE

UTILITIES SHOWN TO BE DEMOLISHED WITHIN PROJECT AREA SHALL BE LIMITED TO ONLY WHEN IN CONFLICT WITH NEW WORK. CONTRACTOR DOES NOT NEED TO REMOVE LINES OR PIPES ACROSS ENTIRE PROJECT LIMITS. CONTRACTOR SHALL COORDINATE WITH NCSPA REPRESENTATIVE ON THIS SELECT DEMOLITION.

GENERAL NOTES

THE FOLLOWING NOTES SHALL BE RELEVANT FOR ALL DEMOLITION (CD) SHEETS

1. CONTRACTOR SHALL NOT BEGIN ANY DEMOLITION WORK PRIOR TO OBTAINING NPDES PERMIT & PREPARING A SWPPP.
2. CONTRACTOR SHALL NOT REMOVE ANY EXISTING VEGETATION OUTSIDE THE DISTURBANCE AREA.
3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DONE TO EXISTING NCSPA PROPERTY, STRUCTURES AND UTILITIES.
4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING TRAFFIC CONTROL AROUND THE CONSTRUCTION AREA DURING IMPROVEMENTS OF AREA.
5. NO DISTURBANCE IS PERMITTED ON ADJACENT PROPERTIES, THE VERNAL WASH BUFFER OR WITHIN THE VERNAL WASH POLYGON BEYOND THAT SHOWN ON THE DRAWINGS.
6. THE CONTRACTOR SHALL COORDINATE WITH THE NC PORT AUTHORITY REPRESENTATIVE FOR ANY TRENCHING, PAVEMENT REMOVAL OR REPAIR, TEMPORARY PARKING LOSS, AND/OR ANY DISRUPTIONS IN TRAFFIC PATTERNS WITHIN THE PARKING AREA OR ACCESS ROAD TO AVOID CONFLICT WITH THE DAY TO DAY OPERATIONS. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 7 DAYS NOTICE AND OBTAIN APPROVAL PRIOR TO COMMENCING WITH CONSTRUCTION ACTIVITIES.
7. CONTRACTOR IS RESPONSIBLE FOR SECURITY AND FENCING OF SITE.
8. ALL PAVEMENT SAW CUTS SHALL BE FULL DEPTH CUTS.
9. SALVAGE PEDESTALS AND LIGHTING MAST POLES, RETURN TO NCSPA
10. THE CONTRACTOR SHALL COORDINATE WITH NCSPA ON ANY AND ALL UNDERGROUND COMMUNICATION AND/OR FIBER OPTIC LINES WITHIN THE PROJECT AREA THAT NEED REMOVAL OR RELOCATION PRIOR TO DISRUPTING SERVICE. ALL LINES MAY NOT BE SHOWN IN AREA DUE TO LACK OF RECORDS OR PHYSICAL EVIDENCE IN THE FIELD.
11. THE CONTRACTOR SHALL COORDINATE W/ NCSPA & DUKE ENERGY ON ANY POWER THAT NEEDS RELOCATING. SOME LINES & POLES SHOWN ON THESE PLANS MAY NOT SHOW IN THE FIELD. DUKE ENERGY OWNS THE POWER LINES ALONG RIVER ROAD AND THE SUBSTATION. ALL OTHER POWER SHOULD BE COORDINATED WITH BOTH ENTITIES TO ENSURE PROPER AUTHORITY IS GIVEN FOR SERVICE INTERRUPTIONS.
12. REMOVE CONFLICTING UTILITIES AS NEEDED.

LEGEND

- FULL PAVEMENT REMOVAL
- CONCRETE/ STRUCTURE REMOVAL
- UTILITY DEMOLITION
- FENCE DEMOLITION
- TP — TEMPORARY TREE PROTECTION FENCE
- TEMPORARY CHAINLINK PROTECTION FENCE
- DISTURBANCE / CONSTRUCTION LIMITS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

NORTH (NAD 83)
N

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
2	PERMITTING COMMENTS	8/14/2020	ASP
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PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

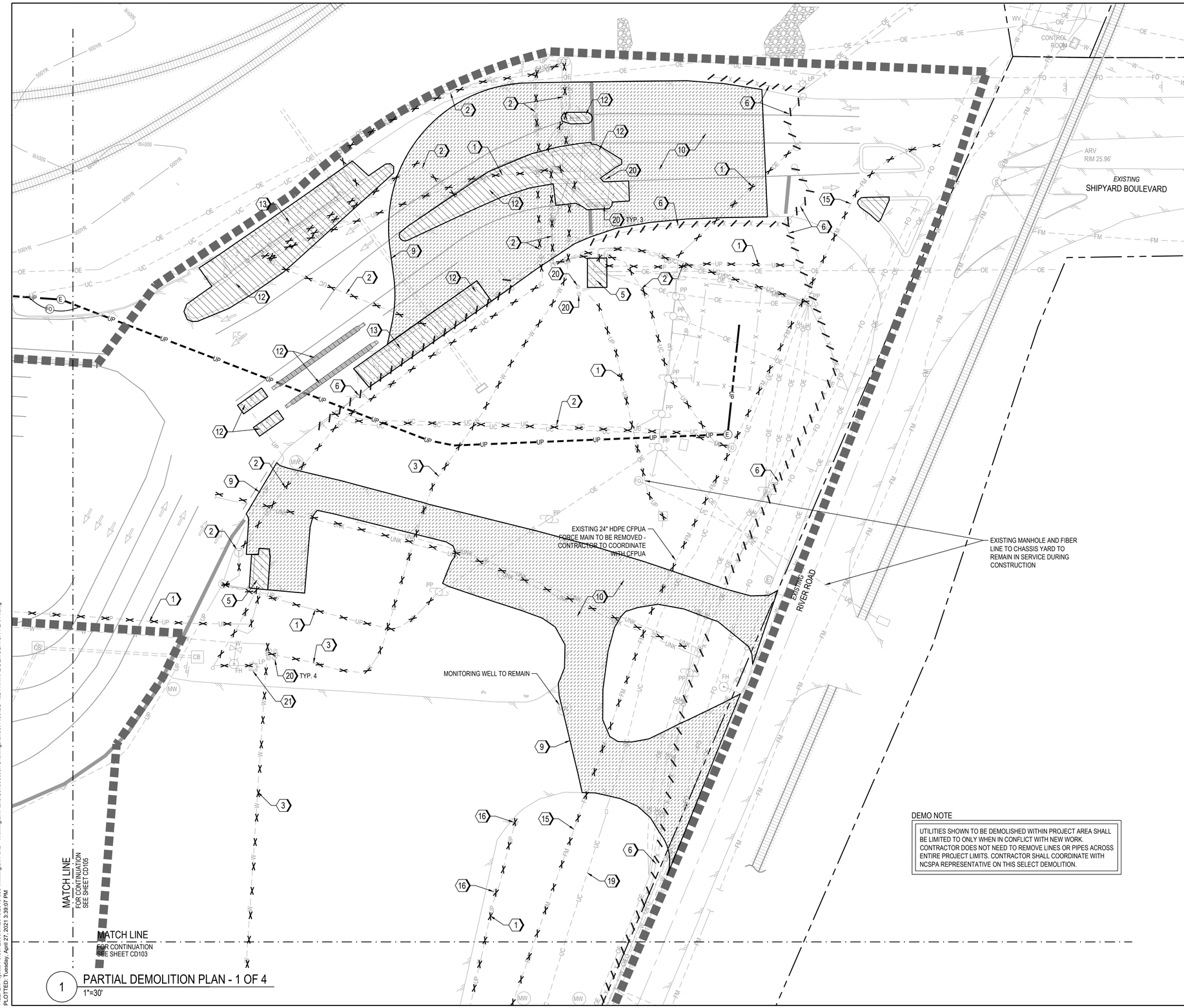
OVERALL DEMOLITION PLAN

0 30' 60'
1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CD-101

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CD-101 OVERALL DEMOLITION PLAN.dwg
PLOTTED: Tuesday, April 27, 2021 3:38:49 PM



1 PARTIAL DEMOLITION PLAN - 1 OF 4
1"=30'

LEGEND

- FULL PAVEMENT REMOVAL
- CONCRETE/ STRUCTURE REMOVAL
- UTILITY DEMOLITION
- FENCE DEMOLITION
- TP — TEMPORARY TREE PROTECTION FENCE
- TEMPORARY CHAINLINK PROTECTION FENCE
- DISTURBANCE / CONSTRUCTION LIMITS

DEMOLITION KEYNOTES

1. REMOVE EXISTING UNDERGROUND POWER AND/OR MANHOLE/HANDHOLE & PATCH PAVEMENT.
2. REMOVE EXISTING UNDERGROUND COMMUNICATION LINE AND/OR MANHOLE & PATCH PAVEMENT.
3. REMOVE EXISTING UNDERGROUND WATER & PATCH PAVEMENT.
4. REMOVE EXISTING UNDERGROUND STORM DRAINAGE & PATCH PAVEMENT.
5. REMOVE EXISTING CONCRETE PADS AND DEBRIS
6. REMOVE EXISTING FENCE & GATE W/ POST FOUNDATIONS.
7. OVERHEAD POWER TO BE RELOCATED BY DUKE ENERGY
8. REMOVE EXISTING SANITARY SEWER & PATCH PAVEMENT.
9. SAW CUT PAVEMENT TO FULL DEPTH
10. REMOVE FULL DEPTH ASPHALT AND AGGREGATE BASE COURSE. REFER TO PAVING PLANS FOR HEAVY DUTY PAVEMENT SECTION
11. PAVEMENT PATCH REPAIR. TRENCH WIDTH WILL VARY DEPENDING ON UTILITY. REFER TO 5/CP501
12. REMOVE EXISTING STRUCTURE AND REPAIR PAVEMENT BENEATH
13. REMOVE EXISTING SCALE AND RETURN TO NCSPA. REMOVE CONDUITS AND ELECTRICAL COMPONENTS ASSOCIATED WITH SCALES. AREA TO IS TO BE PREPARED FOR FINAL SITE PLAN AND PAVING.
14. JERSEY BARRIERS TO BE SALVAGED AND RETURNED TO NCSPA
15. 24" HDPE TEMPORARY FM LINE TO BE REMOVED, COORDINATE WITH CFPU
16. PEDESTAL AND PLUG TO BE SALVAGED AND RETURNED TO NCSPA
17. REMOVE GENERATOR AND RETURN TO NCSPA
18. REMOVE AND SALVAGE ANY BOOTHS AND RETURN TO NCSPA
19. UNDERGROUND COMMUNICATIONS LINE TO BE RELOCATED
20. REMOVE EXISTING BOLLARD.
21. REMOVE EXISTING LIGHT, POLE, & FOUNDATION. COORDINATE W/ NCSPA ON SALVAGING.
22. RELOCATE EXISTING FIRE HYDRANT. REFER TO UTILITY PLAN FOR PROPOSED LOCATION.

DEMO NOTE

UTILITIES SHOWN TO BE DEMOLISHED WITHIN PROJECT AREA SHALL BE LIMITED TO ONLY WHEN IN CONFLICT WITH NEW WORK. CONTRACTOR DOES NOT NEED TO REMOVE LINES OR PIPES ACROSS ENTIRE PROJECT LIMITS. CONTRACTOR SHALL COORDINATE WITH NCSPA REPRESENTATIVE ON THIS SELECT DEMOLITION.

APPROVED
CONSTRUCTION PLAN
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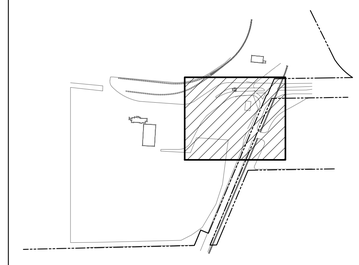
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/12/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
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PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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THE CURRY ENGINEERING GROUP, PLLC
2021 SILAS DEANS HIGHWAY
FUQUAY-VARINA, NC 27526
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NC LIC. NO. P-0709

Curry ENGINEERING

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL DEMOLITION PLAN - 1 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CD-102

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CD-102 PARTIAL DEMOLITION PLAN I.dwg
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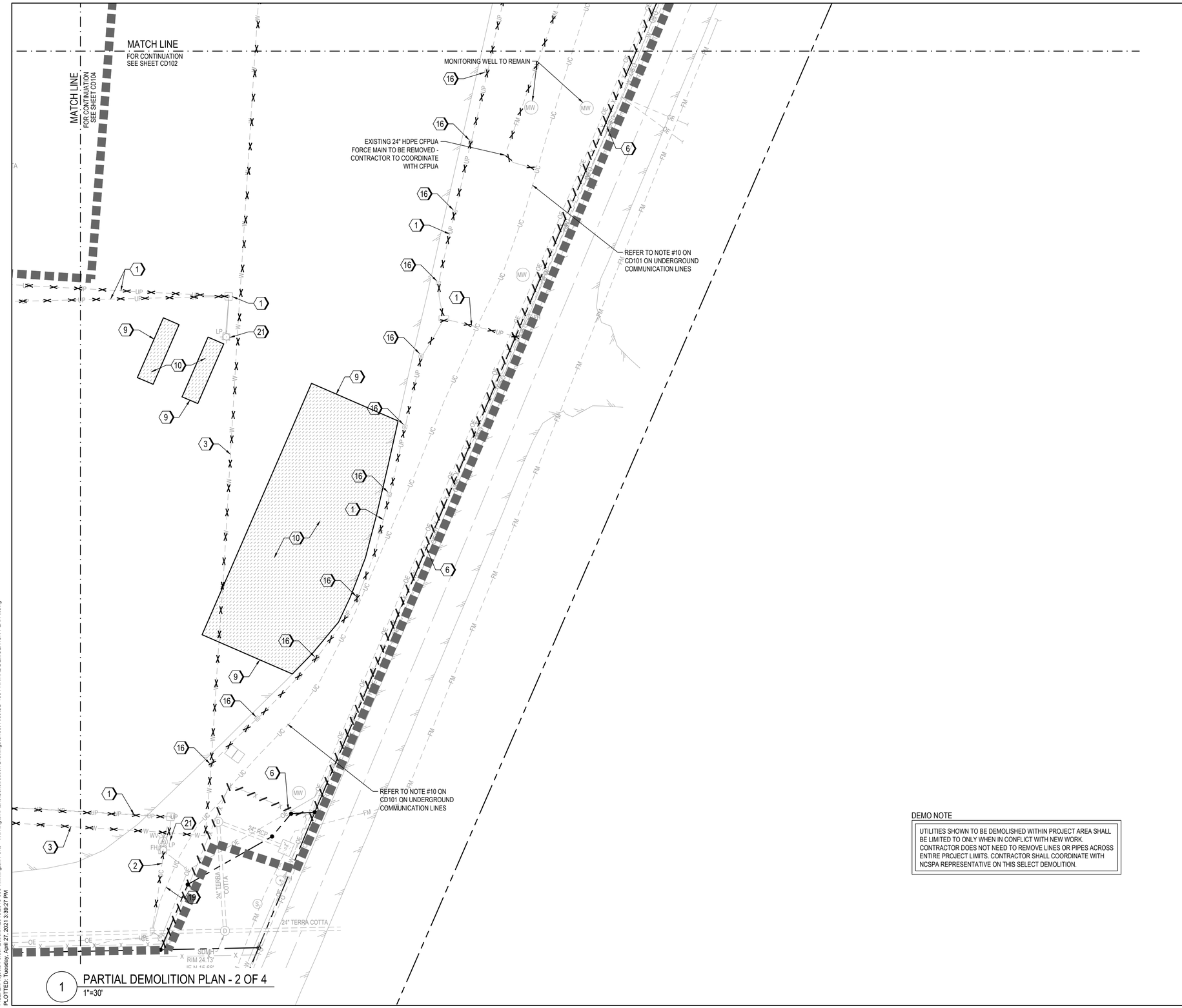

1 PARTIAL DEMOLITION PLAN - 2 OF 4
1"=30'

LEGEND

- FULL PAVEMENT REMOVAL
- CONCRETE/ STRUCTURE REMOVAL
- UTILITY DEMOLITION
- FENCE DEMOLITION
- TP — TEMPORARY TREE PROTECTION FENCE
- TEMPORARY CHAINLINK PROTECTION FENCE
- DISTURBANCE / CONSTRUCTION LIMITS

DEMOLITION KEYNOTES

1. REMOVE EXISTING UNDERGROUND POWER AND/OR MANHOLE/HANDHOLE & PATCH PAVEMENT.
2. REMOVE EXISTING UNDERGROUND COMMUNICATION LINE AND/OR MANHOLE & PATCH PAVEMENT.
3. REMOVE EXISTING UNDERGROUND WATER & PATCH PAVEMENT.
4. REMOVE EXISTING UNDERGROUND STORM DRAINAGE & PATCH PAVEMENT.
5. REMOVE EXISTING CONCRETE PADS AND DEBRIS
6. REMOVE EXISTING FENCE & GATE W/ POST FOUNDATIONS.
7. OVERHEAD POWER TO BE RELOCATED BY DUKE ENERGY
8. REMOVE EXISTING SANITARY SEWER & PATCH PAVEMENT.
9. SAW CUT PAVEMENT TO FULL DEPTH
10. REMOVE FULL DEPTH ASPHALT AND AGGREGATE BASE COURSE. REFER TO PAVING PLANS FOR HEAVY DUTY PAVEMENT SECTION
11. PAVEMENT PATCH REPAIR. TRENCH WIDTH WILL VARY DEPENDING ON UTILITY. REFER TO 5/CP501
12. REMOVE EXISTING STRUCTURE AND REPAIR PAVEMENT BENEATH
13. REMOVE EXISTING SCALE AND RETURN TO NCSPA. REMOVE CONDUITS AND ELECTRICAL COMPONENTS ASSOCIATED WITH SCALES. AREA TO IS TO BE PREPARED FOR FINAL SITE PLAN AND PAVING.
14. JERSEY BARRIERS TO BE SALVAGED AND RETURNED TO NCSPA
15. 24" HDPE TEMPORARY FM LINE TO BE REMOVED, COORDINATE WITH CFPU
16. PEDESTAL AND PLUG TO BE SALVAGED AND RETURNED TO NCSPA
17. REMOVE GENERATOR AND RETURN TO NCSPA
18. REMOVE AND SALVAGE ANY BOOTHS AND RETURN TO NCSPA
19. UNDERGROUND COMMUNICATIONS LINE TO BE RELOCATED
20. REMOVE EXISTING BOLLARD.
21. REMOVE EXISTING LIGHT, POLE, & FOUNDATION. COORDINATE W/ NCSPA ON SALVAGING.
22. RELOCATE EXISTING FIRE HYDRANT. REFER TO UTILITY PLAN FOR PROPOSED LOCATION.

DEMO NOTE

UTILITIES SHOWN TO BE DEMOLISHED WITHIN PROJECT AREA SHALL BE LIMITED TO ONLY WHEN IN CONFLICT WITH NEW WORK. CONTRACTOR DOES NOT NEED TO REMOVE LINES OR PIPES ACROSS ENTIRE PROJECT LIMITS. CONTRACTOR SHALL COORDINATE WITH NCSPA REPRESENTATIVE ON THIS SELECT DEMOLITION.

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
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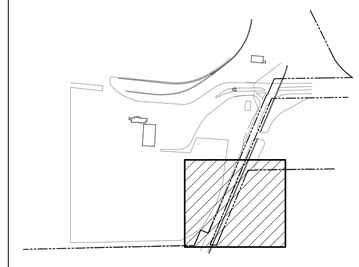
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
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NC LIC. NO. P-0799

Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL DEMOLITION PLAN - 2 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CD-103

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CD-103 PARTIAL DEMOLITION PLAN II.dwg
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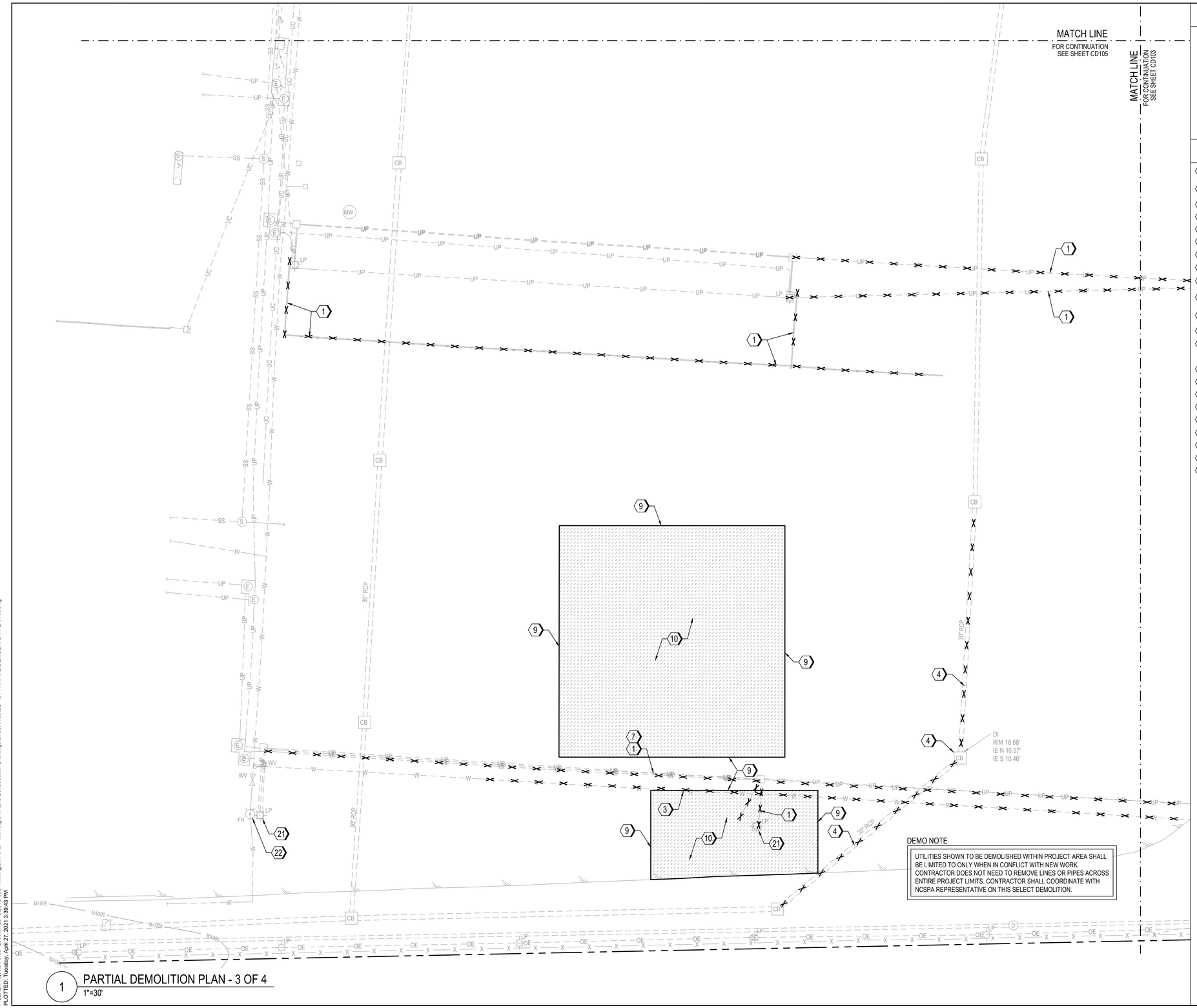

1 PARTIAL DEMOLITION PLAN - 3 OF 4
1"=30'

LEGEND

- FULL PAVEMENT REMOVAL
- CONCRETE/ STRUCTURE REMOVAL
- UTILITY DEMOLITION
- FENCE DEMOLITION
- TP — TEMPORARY TREE PROTECTION FENCE
- TEMPORARY CHAINLINK PROTECTION FENCE
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10. REMOVE FULL DEPTH ASPHALT AND AGGREGATE BASE COURSE. REFER TO PAVING PLANS FOR HEAVY DUTY PAVEMENT SECTION
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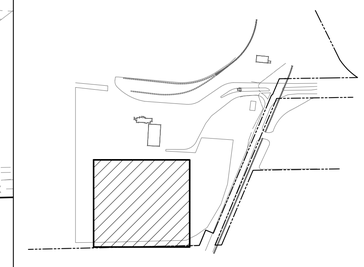
Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
CIVIL SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL DEMOLITION PLAN - 3 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CD-104

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CD-104 PARTIAL DEMOLITION PLAN III.dwg
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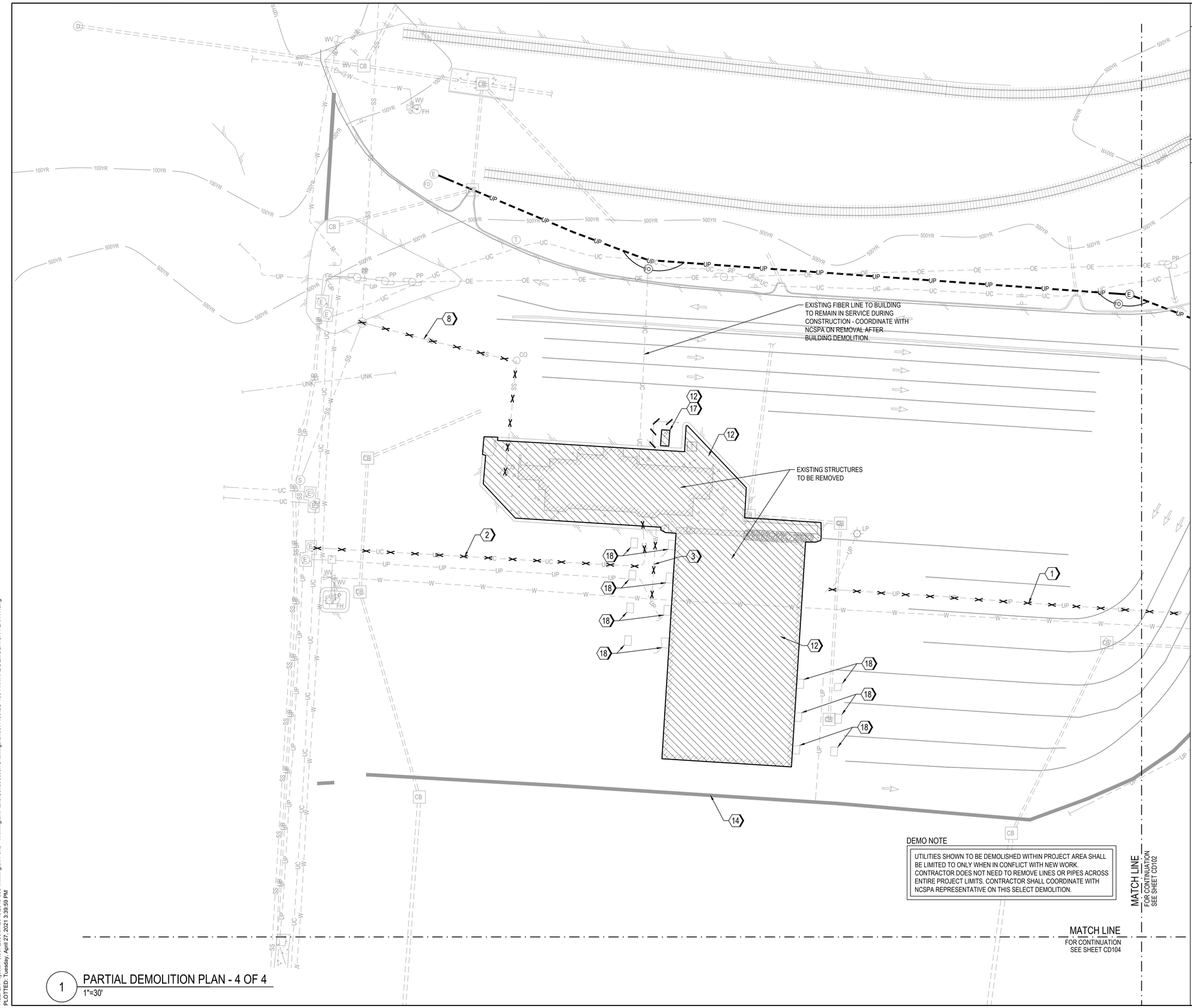

1 PARTIAL DEMOLITION PLAN - 4 OF 4
1"=30'

LEGEND

- FULL PAVEMENT REMOVAL
- CONCRETE/ STRUCTURE REMOVAL
- UTILITY DEMOLITION
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Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
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PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE
PARTIAL DEMOLITION PLAN - 4 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CD-105

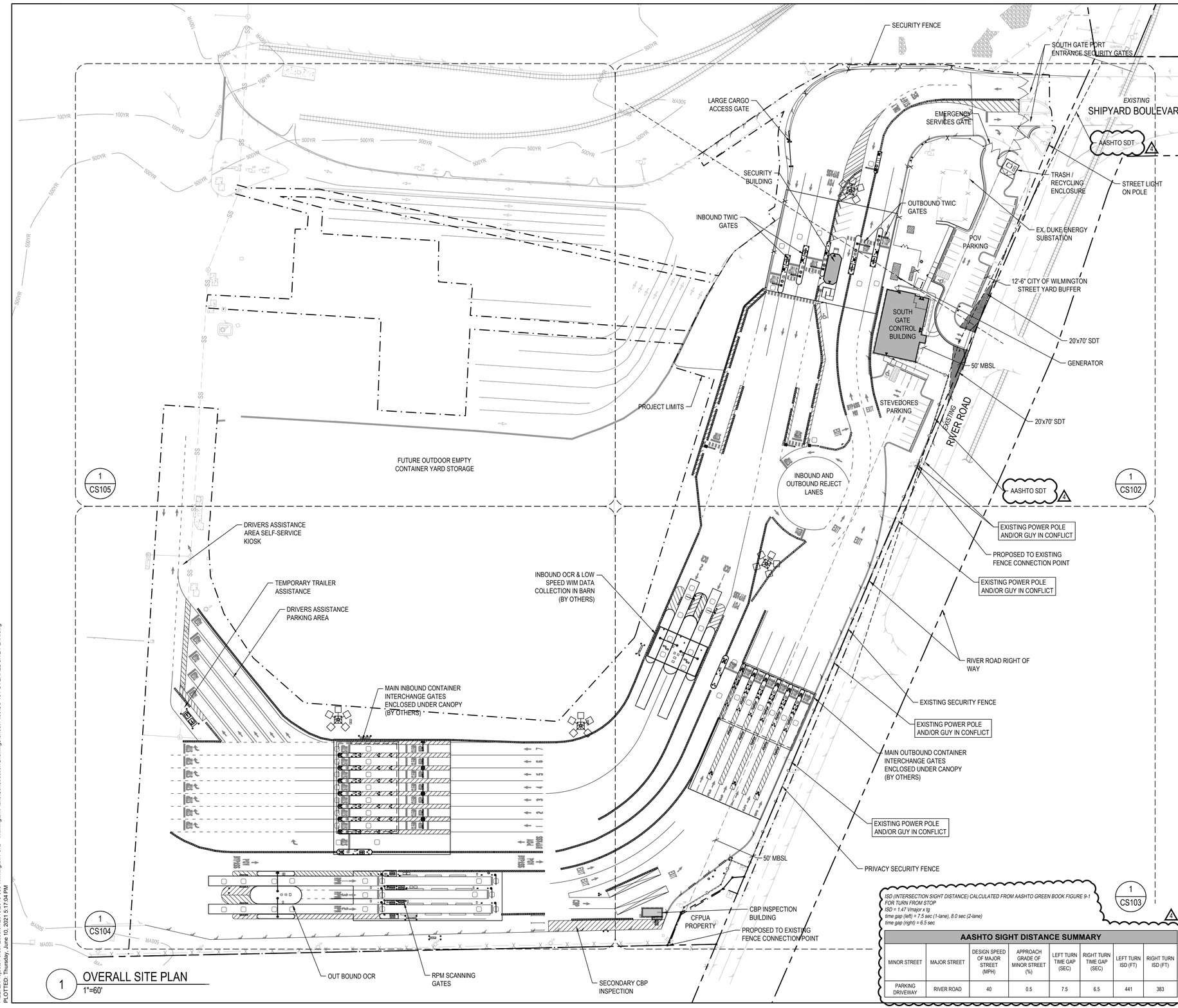
APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

FILE: Z:\Projects Folder-Zebulon\20182018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CD-105 PARTIAL DEMOLITION PLAN IV.dwg
PLOTTED: Tuesday, April 27, 2021 3:39:59 PM



1 OVERALL SITE PLAN
1"=60'

ISD (INTERSECTION SIGHT DISTANCE) CALCULATED FROM AASHTO GREEN BOOK FIGURE 9-1 FOR TURN FROM STOP
ISD = 1.47 Vmajor x tg
time gap (left) = 7.5 sec (1-lane), 8.0 sec (2-lane)
time gap (right) = 6.5 sec

AASHTO SIGHT DISTANCE SUMMARY

MINOR STREET	MAJOR STREET	DESIGN SPEED OF MAJOR STREET (MPH)	APPROACH GRADE OF MINOR STREET (%)	LEFT TURN TIME GAP (SEC)	RIGHT TURN TIME GAP (SEC)	LEFT TURN ISD (FT)	RIGHT TURN ISD (FT)
PARKING DRIVEWAY	RIVER ROAD	40	0.5	7.5	6.5	441	383

GENERAL NOTES

****THE FOLLOW NOTES SHALL BE RELEVANT FOR ALL SITE PLAN (CS) SHEETS****

1. ALL DIMENSIONS SHALL BE IN FEET AND TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. ALL RADII TO BE 5-FT UNLESS OTHERWISE NOTED.
2. ALL SITE ELEMENTS ARE PERPENDICULAR TO ONE ANOTHER UNLESS OTHERWISE NOTED.
3. ANY SAW CUTTING OF EXISTING PAVEMENT SHALL BE DONE BY SAW CUTTING FULL DEPTH. SAW CUTS SHALL BE NEAT AND STRAIGHT.
4. ALL NEW ASPHALT SHALL BE TRANSITION TO EXISTING ASPHALT WITH A BUTT TYPE JOINT WITH A SMOOTH TRANSITION.
5. REFER TO ARCHITECTURE PLANS FOR BOLLARDS AT BUILDING DOORS AND CORNERS.
6. SECURITY GATES SHALL HAVE THE FOLLOWING REQUIREMENTS:
   - A. MANUAL LOCKING MECHANISMS, SUCH AS PADLOCKS, SHALL BE KNOX BRAND OR APPROVED EQUAL (APPROVAL MUST COME FROM NC PORT AUTHORITY).
   - B. ALL MANUALLY OPERATED GATES SHALL REMAIN IN THE OPEN POSITION WHEN LEFT UNATTENDED. ACTIVATION OF AN APPROVED KEY SWITCH FOR ELECTRONICALLY CONTROLLED GATE SHALL OPEN THE GATE AND CAUSE IT TO REMAIN IN THE OPEN POSITION UNTIL RESET BY THE EMERGENCY RESPONSE PERSONNEL.
   - C. WHEN OPEN, GATES SHALL NOT OBSTRUCT ANY PORTION OF THE REQUIRED WIDTH OF THE DRIVEWAY OR ACCESS ROAD, SHALL BE ADEQUATELY SUPPORTED TO PREVENT DRAGGING, AND SHALL BE OPERABLE BY ONE PERSON. SLIDING GATES SHALL SLIDE PARALLEL TO THE SECURITY FENCE. SWING STYLE GATES SHALL OPEN A FULL 90 DEGREES (MINIMUM) AND MAY SWING IN EITHER DIRECTION.
   - D. GATE COMPONENTS SHALL BE MAINTAINED IN AN OPERATIVE CONDITION AT ALL TIMES AND BE REPLACE OR REPAIRED WHEN DEFECTIVE.
7. REFER TO SHEET CM-101 FOR PAVEMENT MARKING PLAN.
8. BUILDING CANOPIES AND SHELTERS AS SHOWN ON THE PLANS ARE SHOWN GENERAL IN NATURE. FINAL DIMENSIONS, ELEVATIONS, AND MATERIALS OF CANOPIES AND SHELTERS ARE DETERMINED BY ACTUAL MANUFACTURER BASED ON PERFORMANCE BASED SPECIFICATIONS AND BASIS OF DESIGN DOCUMENT. REFER TO SHEETS CS-505 & CS-506 FOR GENERIC DETAILS.
9. ALL MEDIANS WITH BOOTHS & KIOSKS SHALL BE FILLED WITH #57 WASHED STONE UNTIL ALL KIOSKS, BOOTHS, BOLLARDS, LIGHTS, CONDUITS, OR OTHER EQUIPMENT IS INSTALLED.

LEGEND

- DOOR LOCATION
- ADA PARKING SPACE
- SITE LIGHTING
- BOLLARD
- CONCRETE WHEEL STOP
- SIGN
- TRAFFIC FLOW ARROWS
- SWING GATES
- SLIDING GATE
- JERSEY BARRIER
- BARRIER ARM
- PARKING STRIPE
- CROSS WALK
- BUILDING
- PROPERTY BOUNDARY / RIGHT OF WAY
- PROJECT LIMITS
- YARD SETBACK / BUFFER
- CHAIN LINK SECURITY FENCE
- PRIVACY SECURITY FENCE
- EDGE OF PAVEMENT
- RIBBON CURB
- CURB & GUTTER
- SPILL CURB & GUTTER
- SIDEWALK

LIFE SAFETY NOTES

A. CONTRACTOR WILL MAINTAIN AN ALL-WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION

B. A HYDRANT MUST BE WITHIN 150' OF THE FDC (MEASURED AS THE TRUCK DRIVES FOR PRACTICAL USE)

C. FDC MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT

D. LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC

E. ADDITIONAL FIRE PROTECTION AND/OR ACCESSIBILITY REQUIREMENTS MAY BE REQUIRED DUE TO

F. ANY SPECIAL CIRCUMSTANCES CONCERNING THE PROJECT.

G. PRIVATE UNDERGROUND FIRE LINES REQUIRE A SEPARATE UNDERGROUND FIRE LINE PERMIT FROM THE WILMINGTON FIRE AND LIFE SAFETY DIVISION 910-343-0696

H. CONTRACTOR SHALL SUBMIT A RADIO SIGNAL STRENGTH STUDY FOR ALL COMMERCIAL BUILDINGS THAT DEMONSTRATES THAT EXISTING EMERGENCY RESPONDER RADIO SIGNAL LEVELS MEET THE REQUIREMENTS OF SECTION 510 OF THE 2018 NC FIRE CODE.

I. ALL ISOLATION VALVES WITHIN THE "HOT BOX" AND BETWEEN THE "HOT BOX" AND THE RISER ROOM, MUST BE ELECTRICALLY SUPERVISED.

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

NORTH (NAD 83)

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OVERALL SITE PLAN

0 30' 60' 1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CS-101

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CS-101 OVERALL SITE PLAN.dwg
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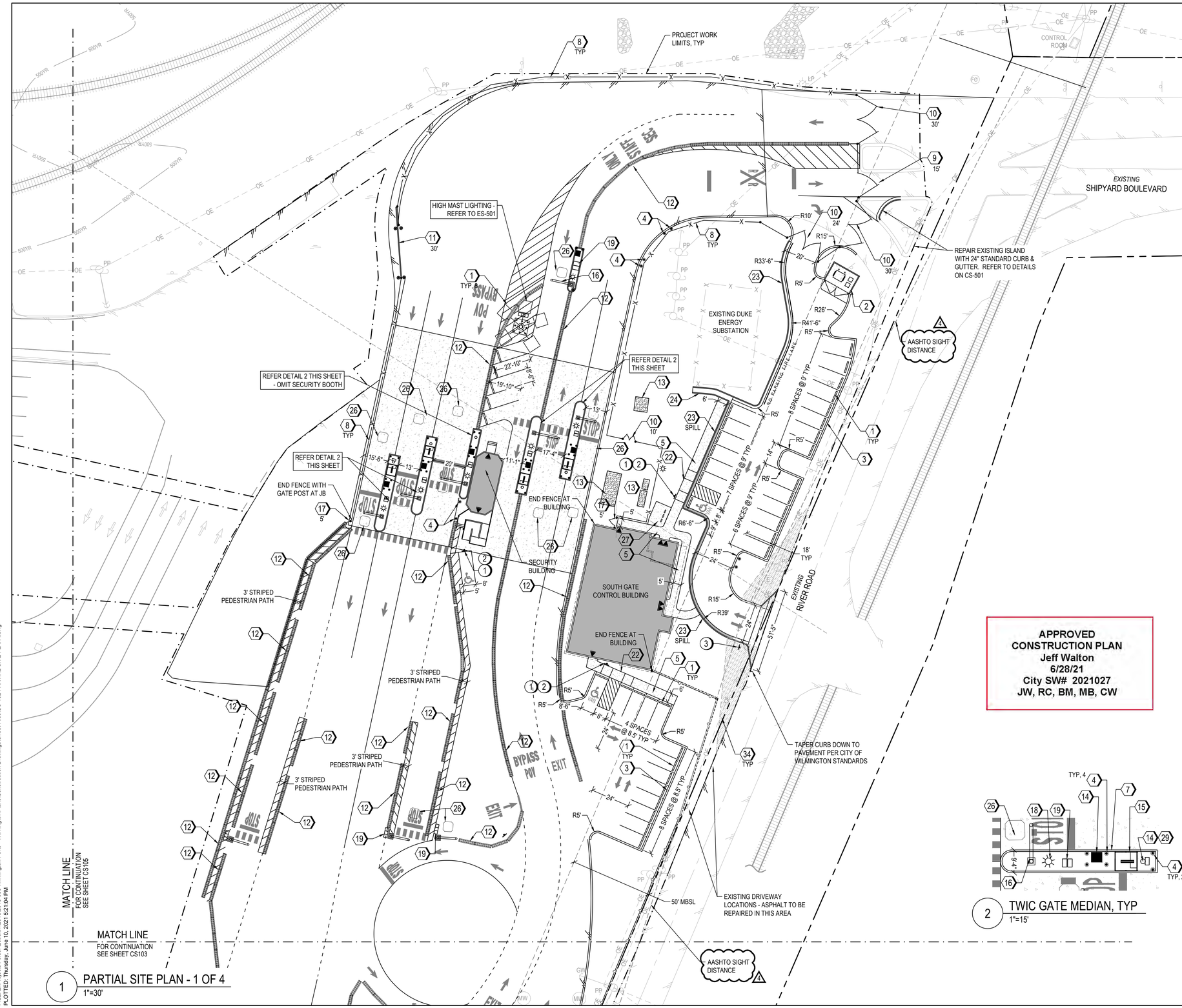

1 PARTIAL SITE PLAN - 1 OF 4
1"=30'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

2 TWIC GATE MEDIAN, TYP
1"=15'

LEGEND

- DOOR LOCATION
- ADA PARKING SPACE
- SITE LIGHTING
- BOLLARD
- CONCRETE WHEEL STOP
- SIGN
- TRAFFIC FLOW ARROWS
- SWING GATES
- SLIDING GATE
- JERSEY BARRIER
- BARRIER ARM
- PARKING STRIPE
- CROSS WALK
- BUILDING
- PROPERTY BOUNDARY / RIGHT OF WAY
- PROJECT LIMITS
- YARD SETBACK / BUFFER
- CHAIN LINK SECURITY FENCE
- PRIVACY SECURITY FENCE
- EDGE OF PAVEMENT
- RIBBON CURB
- CURB & GUTTER
- SPILL CURB & GUTTER
- SIDEWALK

KEYNOTES

SITE ELEMENTS

1. CONCRETE WHEEL STOP. REFER TO 3/CS-501
2. DUMPSTER ENCLOSURE. REFER TO 7/CS-501
3. CONCRETE RIBBON CURB. REFER TO 4/CS-501
4. CONCRETE FILLED BOLLARD. REFER TO 4/CS-509. 8" DIA / 5' TALL UNLESS OTHERWISE NOTED.
5. CONCRETE SIDEWALK. REFER TO 6/CP501
6. INTEGRAL CONCRETE SIDEWALK & CURB. REFER TO 6/CP501
7. CONCRETE HEADER CURB. REFER TO 5/CS-501
8. CHAIN LINK SECURITY FENCE. REFER TO 1/CS-502
9. SINGLE SWING GATE. REFER TO 2/CS-504
10. DOUBLE WIDE SWING GATES. REFER TO 1/CS-503
11. SLIDING GATE. REFER TO 1/CS-504
12. CONCRETE JERSEY BARRIERS. REFER TO 9/CS-501
13. CONCRETE PAD FOR GENERATOR / TRANSFORMER / ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL PLANS.
14. SYSTEM EQUIPMENT, BY OTHERS
15. MARSEC SECURITY BOOTH. REFER TO SPECIFICATIONS
16. BARRIER ARM. REFER TO SPECIFICATIONS
17. 5-FT PERSONNEL GATE - BIOMETRIC CARD READERS & AUTOLOCKS. REFER TO 2/CS-504
18. TRAFFIC LIGHT & CAMERAS. REFER TO ELECTRICAL PLANS
19. POWER & COMMUNICATIONS HAND HOLES. REFER TO ELECTRICAL PLANS
20. SITE LIGHT. REFER TO ELECTRICAL PLANS
21. TEMPORARY SUPPORT TRAILER
22. INSTALL INLINE RAMP WITH DETECTABLE DOMES. REFER TO 7/CP501
23. CONCRETE CURB & GUTTER - 24" WIDE. REFER TO 5/CS-501
24. CONCRETE FLUME - 36" WIDE. REFER TO 8/CS501
25. OPEN SHELTER - REFER TO ARCHITECTURAL PLANS
26. DETECTOR LOOP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
27. U-SHAPED BIKE RACKS - QTY 3 WITH 2 BIKE PER RACK CAPACITY
28. WEIGH IN MOTION (WIM) SCALES. REFER TO SPECIFICATIONS.
29. NEMA CABINET BY OTHERS
30. ELECTRICAL RACK PROTECT WITH BOLLARDS
31. ELECTRICAL TRANSFORMER. REFER TO ELECTRICAL PLANS
32. SIGNAL CONTROL T-POLE / L-POLE. PROTECT WITH 4 BOLLARDS. REFER TO S-706
33. CAVSS CAMERA - ROHN TOWER. REFER TO S-704.
34. PRIVACY SECURITY FENCE. REFER TO 3/CS-504.

SIGN ELEMENTS

1. ACCESSIBILITY PARKING SIGN. REFER TO 1/CS-501
2. VAN ACCESSIBILITY PARKING SIGN. REFER TO 1/CS-501
3. HIGH INTENSITY SHEETING STOP SIGN. REFER TO 1/CS-501

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	8/4/2020	ASP
2	PERMITTING COMMENTS	8/07/2020	ASP
3	CFPUA DETAIL DATES, COW COMMENTS	7/14/2020	ASP
4		6/10/2021	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/18/2020	ASP
PB05	CONSTRUCTION REVISION	10/09/2020	ASP
PB06	CONSTRUCTION REVISION	10/27/2020	ASP
PB06.1	CONSTRUCTION REVISION	12/03/2020	ASP
PB07	CONSTRUCTION REVISION	02/26/2021	ASP
PB09	CONSTRUCTION REVISION	03/10/2021	ASP
PB010	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	04/27/2021	ASP
PB012	CONSTRUCTION REVISION		

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NC LIC. NO. P-0799

Curry ENGINEERING

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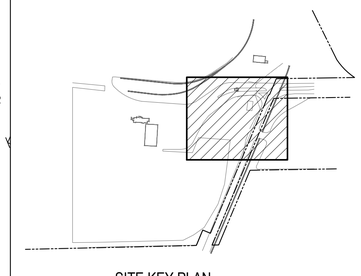
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL SITE PLAN - 1 OF 4



SITE KEY PLAN

NORTH (NAD 83)

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CS-102

FILE: Z:\Projects Folder-Zabulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CS-102 PARTIAL SITE PLAN 1.dwg
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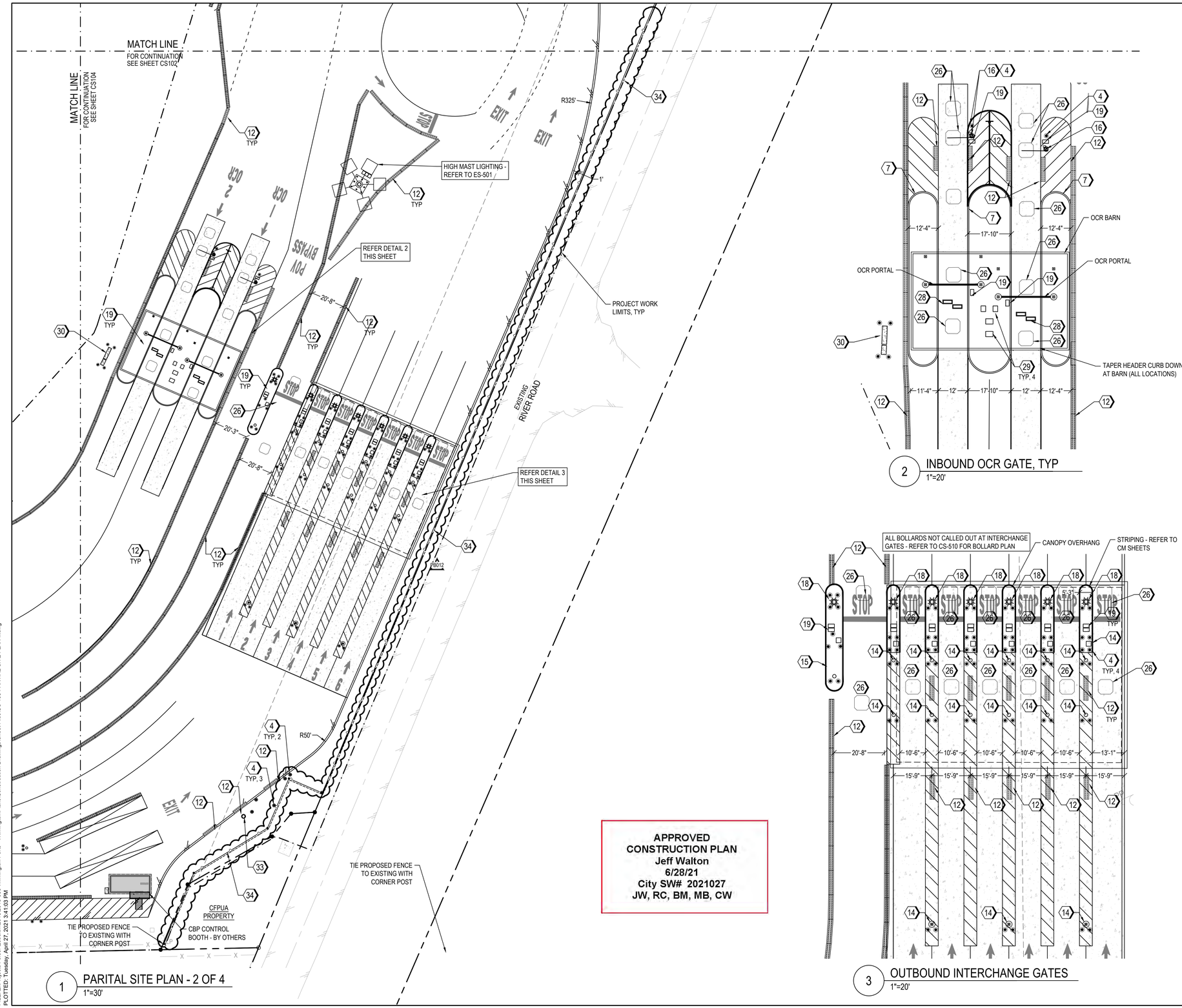

1 PARITAL SITE PLAN - 2 OF 4
1"=30'

2 INBOUND OCR GATE, TYP
1"=20'

3 OUTBOUND INTERCHANGE GATES
1"=20'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

LEGEND

- DOOR LOCATION
- ADA PARKING SPACE
- SITE LIGHTING
- BOLLARD
- CONCRETE WHEEL STOP
- SIGN
- TRAFFIC FLOW ARROWS
- SWING GATES
- SLIDING GATE
- JERSEY BARRIER
- BARRIER ARM
- PARKING STRIPE
- CROSS WALK
- BUILDING
- PROPERTY BOUNDARY / RIGHT OF WAY
- PROJECT LIMITS
- YARD SETBACK / BUFFER
- CHAIN LINK SECURITY FENCE
- PRIVACY SECURITY FENCE (PB012)
- EDGE OF PAVEMENT
- RIBBON CURB
- CURB & GUTTER
- SPILL CURB & GUTTER
- SIDEWALK

KEYNOTES

SITE ELEMENTS

1. CONCRETE WHEEL STOP. REFER TO 3/CS-501
2. DUMPSTER ENCLOSURE. REFER TO 7/CS-501
3. CONCRETE RIBBON CURB. REFER TO 4/CS-501
4. CONCRETE FILLED BOLLARD. REFER TO 4/CS-509. 8" DIA / 5' TALL UNLESS OTHERWISE NOTED.
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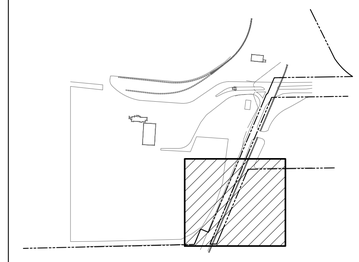
6. INTEGRAL CONCRETE SIDEWALK & CURB. REFER TO 6/CP501
7. CONCRETE HEADER CURB. REFER TO 5/CS-501
8. CHAIN LINK SECURITY FENCE. REFER TO 1/CS-502
9. SINGLE SWING GATE. REFER TO 2/CS-504
10. DOUBLE WIDE SWING GATES. REFER TO 1/CS-503
11. SLIDING GATE. REFER TO 1/CS-504
12. CONCRETE JERSEY BARRIERS. REFER TO 9/CS-501
13. CONCRETE PAD FOR GENERATOR / TRANSFORMER / ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL PLANS.
14. SYSTEM EQUIPMENT, BY OTHERS
15. MARSEC SECURITY BOOTH. REFER TO SPECIFICATIONS
16. BARRIER ARM. REFER TO SPECIFICATIONS
17. 5-FT PERSONNEL GATE - BIOMETRIC CARD READERS & AUTOLOCKS. REFER TO 2/CS-504
18. TRAFFIC LIGHT & CAMERAS. REFER TO ELECTRICAL PLANS
19. POWER & COMMUNICATIONS HAND HOLES. REFER TO ELECTRICAL PLANS
20. SITE LIGHT. REFER TO ELECTRICAL PLANS
21. TEMPORARY SUPPORT TRAILER
22. INSTALL INLINE RAMP WITH DETECTABLE DOMES. REFER TO 7/CP501
23. CONCRETE CURB & GUTTER - 24" WIDE. REFER TO 5/CS-501
24. CONCRETE FLUME - 36" WIDE. REFER TO 8/CS501
25. OPEN SHELTER - REFER TO ARCHITECTURAL PLANS
26. DETECTOR LOOP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
27. U-SHAPED BIKE RACKS - QTY 3 WITH 2 BIKE PER RACK CAPACITY
28. WEIGH IN MOTION (WIM) SCALES. REFER TO SPECIFICATIONS.
29. NEMA CABINET BY OTHERS
30. ELECTRICAL RACK. PROTECT WITH BOLLARDS
31. ELECTRICAL TRANSFORMER. REFER TO ELECTRICAL PLANS
32. SIGNAL CONTROL T-POLE / L-POLE. PROTECT WITH 4 BOLLARDS. REFER TO S-706
33. CAVSS CAMERA - ROHN TOWER. REFER TO S-704.
34. PRIVACY SECURITY FENCE. REFER TO 3/CS-504. (PB012)

SIGN ELEMENTS

1. ACCESSIBILITY PARKING SIGN. REFER TO 1/CS-501
2. VAN ACCESSIBILITY PARKING SIGN. REFER TO 1/CS-501
3. HIGH INTENSITY SHEETING STOP SIGN. REFER TO 1/CS-501



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
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Curry ENGINEERING

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CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

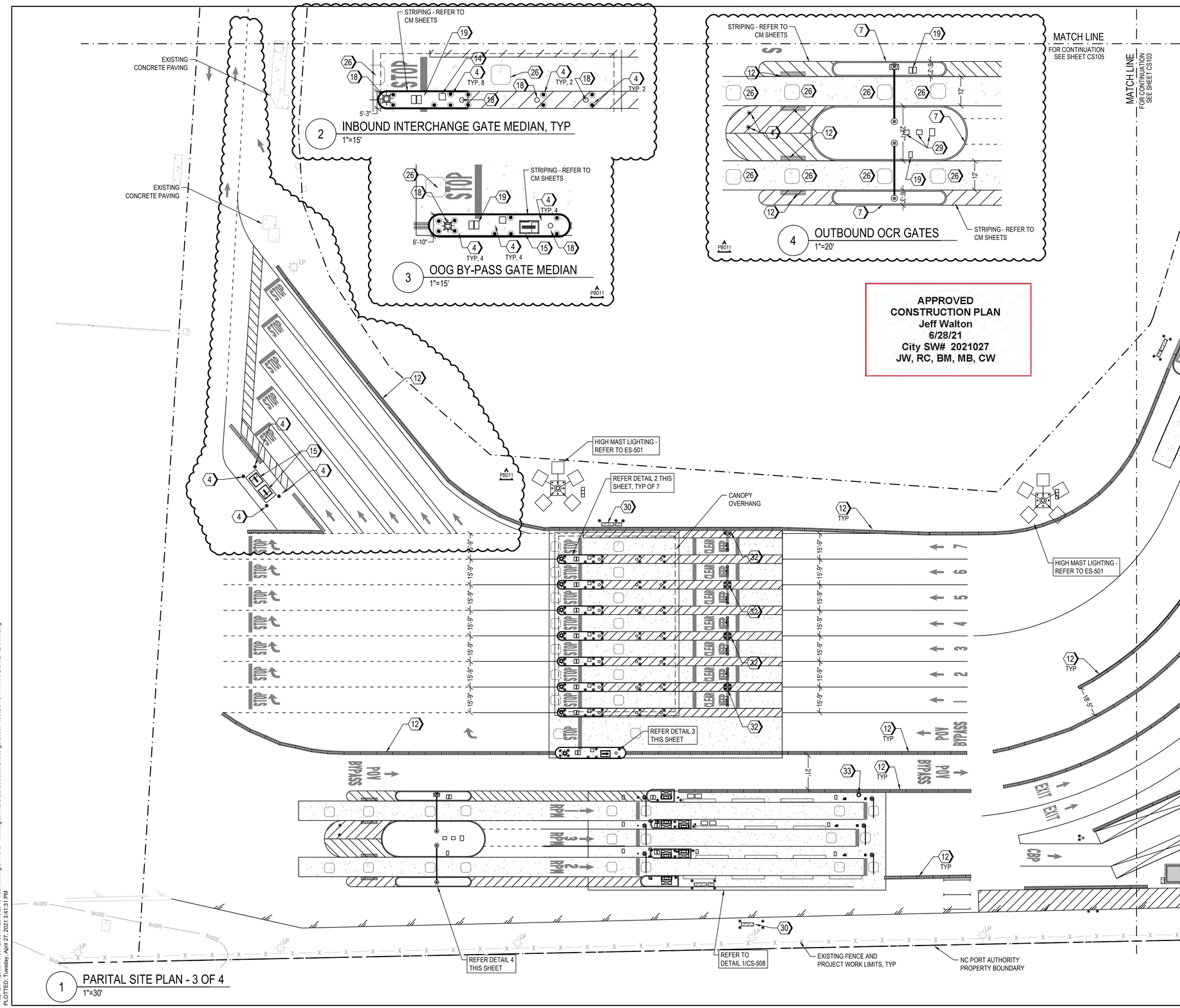
PARITAL SITE PLAN - 2 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CS-103

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CS-103 PARTIAL SITE PLAN II.dwg
PLOTTED: Tuesday, April 27, 2021 3:41:03 PM



1 PARITAL SITE PLAN - 3 OF 4
1"=30'

LEGEND

- DOOR LOCATION
- ADA PARKING SPACE
- SITE LIGHTING
- BOLLARD
- CONCRETE WHEEL STOP
- SIGN
- TRAFFIC FLOW ARROWS
- SWING GATES
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- CURB & GUTTER
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14. SYSTEM EQUIPMENT, BY OTHERS
15. MARSEC SECURITY BOOTH. REFER TO SPECIFICATIONS
16. BARRIER ARM. REFER TO SPECIFICATIONS
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32. SIGNAL CONTROL T-POLE / L-POLE. PROTECT WITH 4 BOLLARDS. REFER TO S-706
33. CAVSS CAMERA - ROHN TOWER. REFER TO S-704.
34. PRIVACY SECURITY FENCE. REFER TO 3/CS-504.

SIGN ELEMENTS

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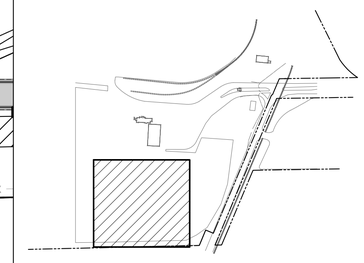

SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	9/25/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/12/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
CIVIL SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARITAL SITE PLAN - 3 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CS-104

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CS-104 PARTIAL SITE PLAN III.dwg
PLOTTED: Tuesday, April 27, 2021 3:41:31 PM

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

1 PARTIAL SITE PLAN - 4 OF 4
1"=30'

LEGEND

- DOOR LOCATION
- ADA PARKING SPACE
- SITE LIGHTING
- BOLLARD
- CONCRETE WHEEL STOP
- SIGN
- TRAFFIC FLOW ARROWS
- SWING GATES
- SLIDING GATE
- JERSEY BARRIER
- BARRIER ARM
- PARKING STRIPE
- CROSS WALK
- BUILDING
- PROPERTY BOUNDARY / RIGHT OF WAY
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- EDGE OF PAVEMENT
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- CURB & GUTTER
- SPILL CURB & GUTTER
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KEYNOTES

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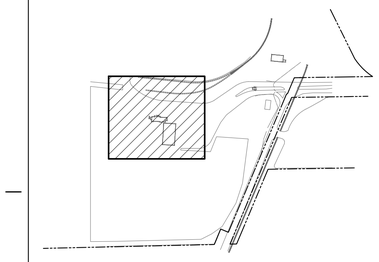

SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

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PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/10/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

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UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.

NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL SITE PLAN - 4 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CS-105

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CS-105 PARTIAL SITE PLAN IV.dwg
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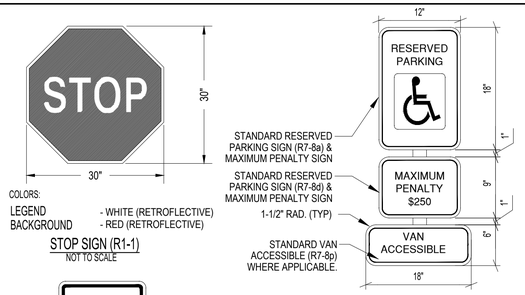


COLORS:
LEGEND - WHITE (RETROFLECTIVE)
BACKGROUND - RED (RETROFLECTIVE)

STOP SIGN (R1-1)
NOT TO SCALE

COLORS:
LETTERING - GREEN (RETROFLECTIVE)
SYMBOL - WHITE ON BLUE (RETROFLECTIVE)
STRIPE - GREEN (RETROFLECTIVE)
BACKGROUND - WHITE (RETROFLECTIVE)

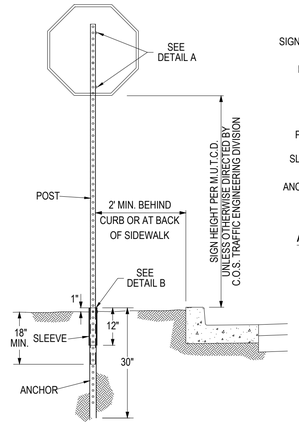
ACCESSIBLITY PARKING SIGN (R7-8)
NOT TO SCALE

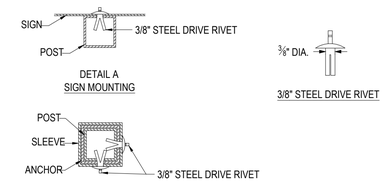
COLORS:
LEGEND - BLACK
BACKGROUND - WHITE (RETROFLECTIVE)

SPEED LIMIT SIGN (R2-1)
NOT TO SCALE

NOTES:
1. MUTCD STANDARD SIGN DESIGNATION SHOW AS (X-1)
2. MOUNTING HEIGHT - 60" FROM BOTTOM OF SIGN TO PAVEMENT IN NON-PEDISTRIAN AREAS AND 84" IN PEDISTRIAN AREAS.
3. ALL SIGN SHALL BE MOUNTED TO 3LB "U-CHANNEL" POST.
4. ALL ROAD WAY SIGNAGE SHALL BE HIGH INTENSITY SHEETING SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
5. SIGNS SHALL BE FABRICATED FROM ALUMINUM ALLOY SHEETS.
6. ALL MOUNTING HARDWARE SHALL BE GALVANIZED.

1 PARKING & ROADWAY SIGNAGE
NTS

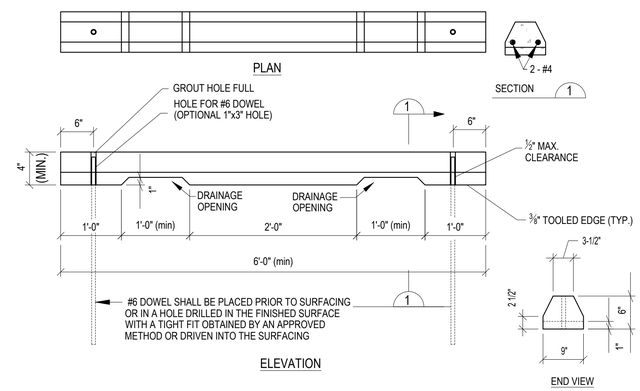




DETAIL B
ANCHOR ASSEMBLY

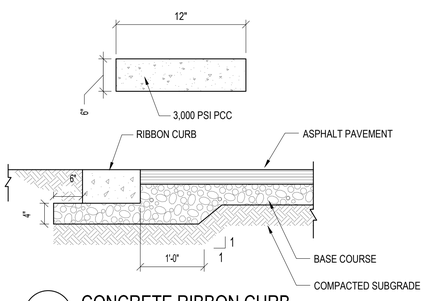
NOTES:
1. POST - 1-3/4" X 1-3/4" SQUARE PERFORATED 0.105" GALVANIZED STEEL TUBING
2. SLEEVE - 2-1/4" X 2-1/4" X 12", SQUARE PERFORATED 0.105 GALVANIZED STEEL TUBING
3. ANCHOR - 2" X 2" X 30", SQUARE PERFORATED 0.105" GALVANIZED STEEL TUBING
4. STOP SIGNS & STREET SIGN SHALL BE INSTALLED ON SAME POST.

2 SIGNAGE MOUNTING & INSTALLATION
NTS

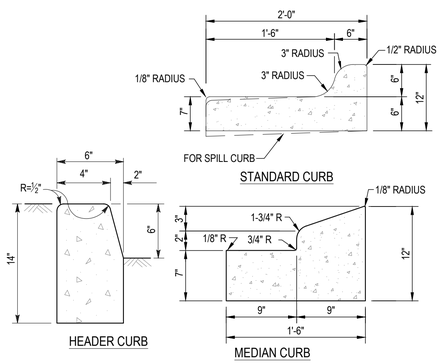


3 CONCRETE WHEEL STOP
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

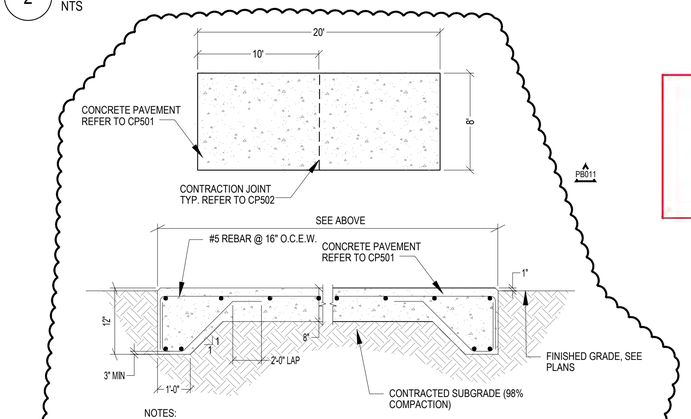


4 CONCRETE RIBBON CURB
NTS



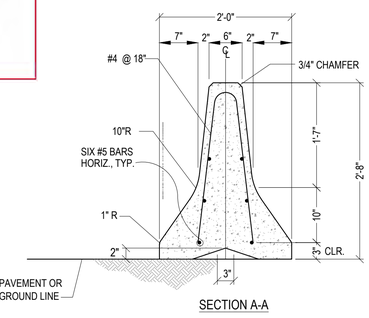
NOTES:
1. CONCRETE SHALL BE 3,000 P.S.I.
2. CONTRACTION JOINTS SHALL BE SPACED AT 10' INTERVALS. (A 15' SPACING WILL BE ALLOWED WHEN A MACHINE IS USED.)
3. FINISH ALL CONCRETE WITH CURING COMPOUND.

5 CONCRETE CURBING
NTS

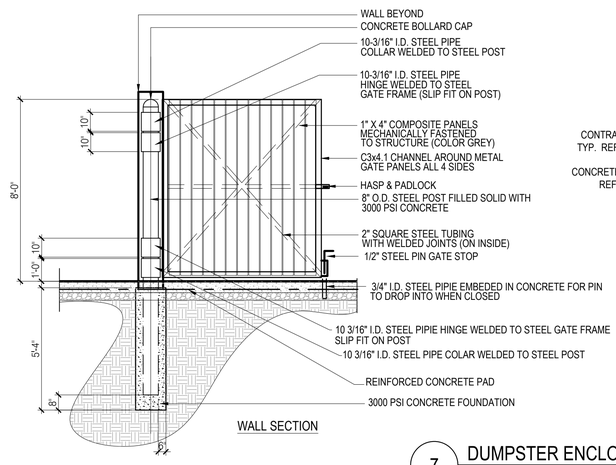


NOTES:
1. TOP 12 INCHES OF SUBGRADE COMPACTED TO 98% MODIFIED PROCTOR MAX DRY DENSITY (ASTM D1557)
2. PCC SHALL BE 4000 PSI COMPRESSIVE STRENGTH AND 650 PSI FLEXURAL STRENGTH PROPERLY JOINTED PER CURRENT ACI GUIDELINES
3. CHAMFER EXPOSED EDGES 1 INCH.
4. PROVIDE 1 INCH LIP WHEN ABUTTING LANDSCAPE OR OPEN AREAS. PAD TO BE FLUSH ABUTTING CONCRETE PAVEMENT OR SIDEWALKS.

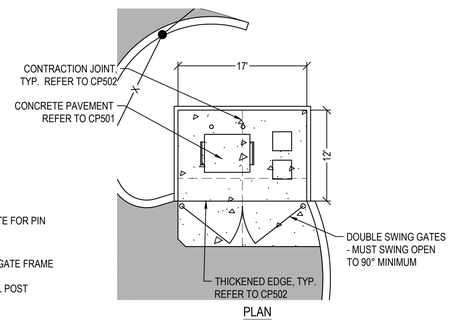
6 DRIVERS ASSISTANCE MARSEC SLAB
NTS



SECTION A-A

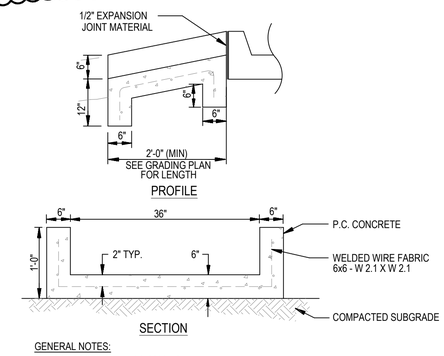


WALL SECTION



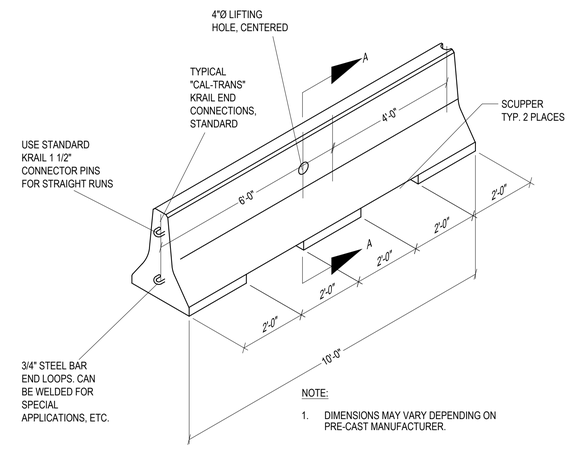
PLAN

7 DUMPSTER ENCLOSURE
NTS



GENERAL NOTES:
1. CONCRETE SHALL BE 3000 PSI MIN.
2. SEE GRADING PLAN FOR LOCATION AND ELEVATIONS.

8 CONCRETE FLUME
NTS



NOTE:
1. DIMENSIONS MAY VARY DEPENDING ON PRE-CAST MANUFACTURER.

9 PRE-CAST JERSEY BARRIER
NTS

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTING COMMENTS	3/4/2020	ASP
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CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
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SITE DETAILS

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17 JANUARY 2020

CS-501

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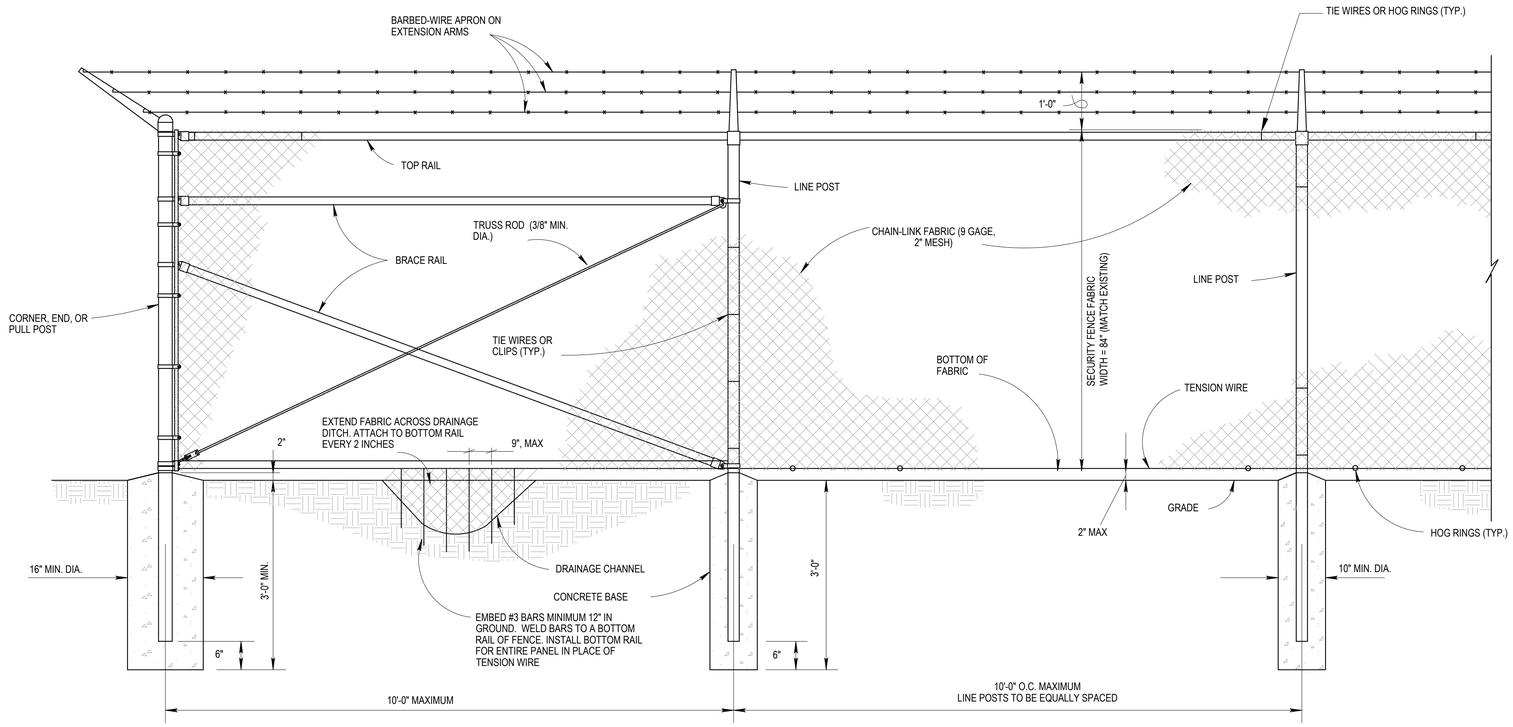
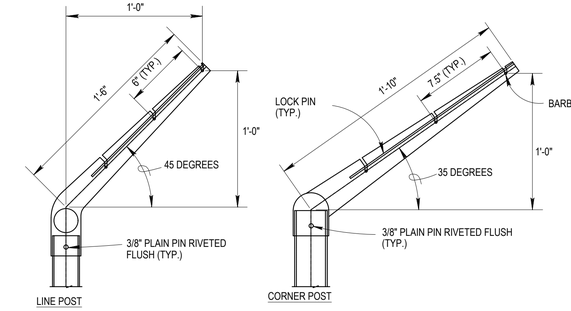


CHAIN-LINK SECURITY FENCE DETAIL
NO SCALE



EXTENSION ARM DETAILS
NO SCALE

STEEL POST SCHEDULE			
USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FABRIC WIDTH 72" OR LESS	FABRIC WIDTH 84" TO 96"	FABRIC WIDTH 108" AND OVER
CORNER, END & PULL POSTS			
TUBULAR - ROUND	2.375" O.D.	2.875" O.D.	4.00" O.D. 3.00"
TUBULAR - SQUARE	2.00" SQ.	2.50" SQ.	SQ.
C-SECTION (ROLL-FORMED)	3.50" X 3.50"	3.50" X 3.50"	
LINE POSTS			
TUBULAR - ROUND	1.90" O.D.	2.375" O.D.	2.875" O.D. 2.25" X 1.70"
H-SECTION	2.25" X 1.70" 1.875" X 1.625"	2.25" X 1.70"	
C-SECTION (ROLL-FORMED)		2.25" X 1.70"	
TOP, BOTTOM & BRACE RAILS			
TUBULAR - ROUND	1.66" O.D.		
TUBULAR - SQUARE	1.50" SQ.		
H-SECTION	1.625" X 1.50"		
C-SECTION (ROLL-FORMED)	1.625" X 1.25"		

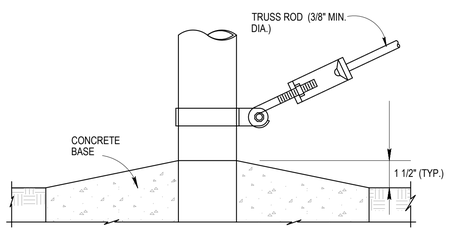
NOTES:
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.

2. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE

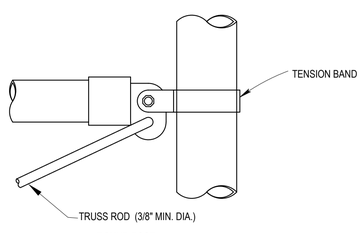
3. UNLESS SPECIFICALLY SHOWN OR SPECIFIED, ALL FE6 FENCE SHALL HAVE AN APRON EXTENDED OUTWARD FROM THE AREA BEING PROTECTED.

4. C-SECTION POSTS SHALL BE INSTALLED SO THAT THE VOID INSIDE THE POST IS COMPLETELY FILLED WITH CONCRETE UP TO THE TOP OF THE FOUNDATION.

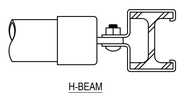
FENCE LEGEND:
TR - FENCE WITH TOP RAIL AND TENSION WIRE AT BOTTOM
TBR - FENCE WITH TOP AND BOTTOM RAILS
TWB - TENSION WIRE TOP AND BOTTOM
TWBR - FENCE WITH TOP TENSION WIRE AND BOTTOM RAIL
FINAL NUMBER IS FABRIC WIDTH IN INCHES.



TRUSS ROD AND BAND
NO SCALE

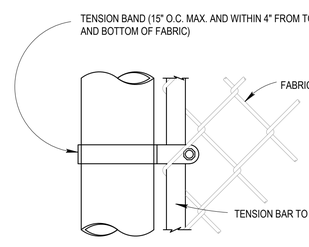


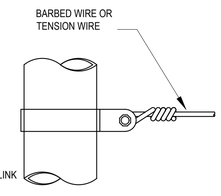
ROUND POST



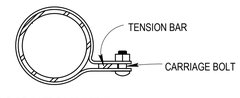
H-BEAM

BRACE RAIL CLAMP DETAILS



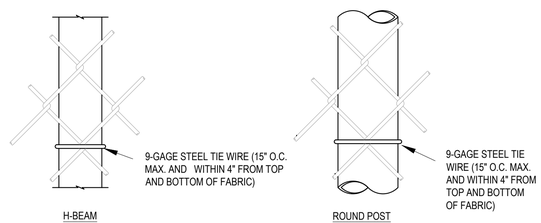


TENSION BAND DETAIL

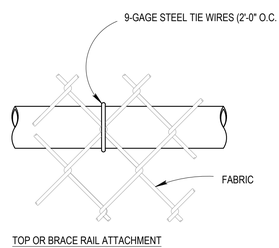


END OR GATE POST DETAIL

FASTENING DETAILS
NO SCALE



LINE POST ATTACHMENTS
NO SCALE



TOP OR BRACE RAIL ATTACHMENT
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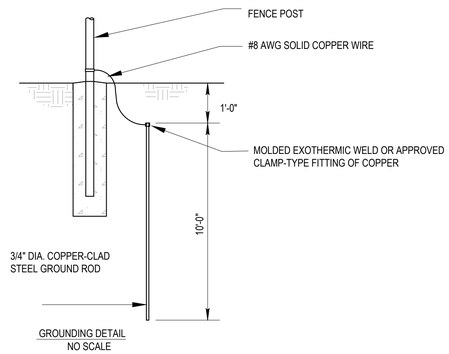
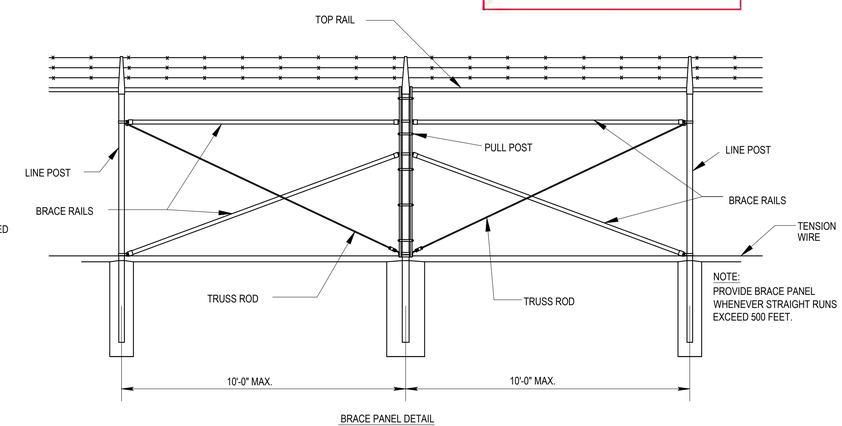


GROUNDING DETAIL
NO SCALE

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



NOTE:
PROVIDE BRACE PANEL WHENEVER STRAIGHT RUNS EXCEED 500 FEET.

BRACE PANEL DETAIL
NO SCALE

1 SECURITY FENCE
NTS

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/17/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
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Curry ENGINEERING

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CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
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CS-502

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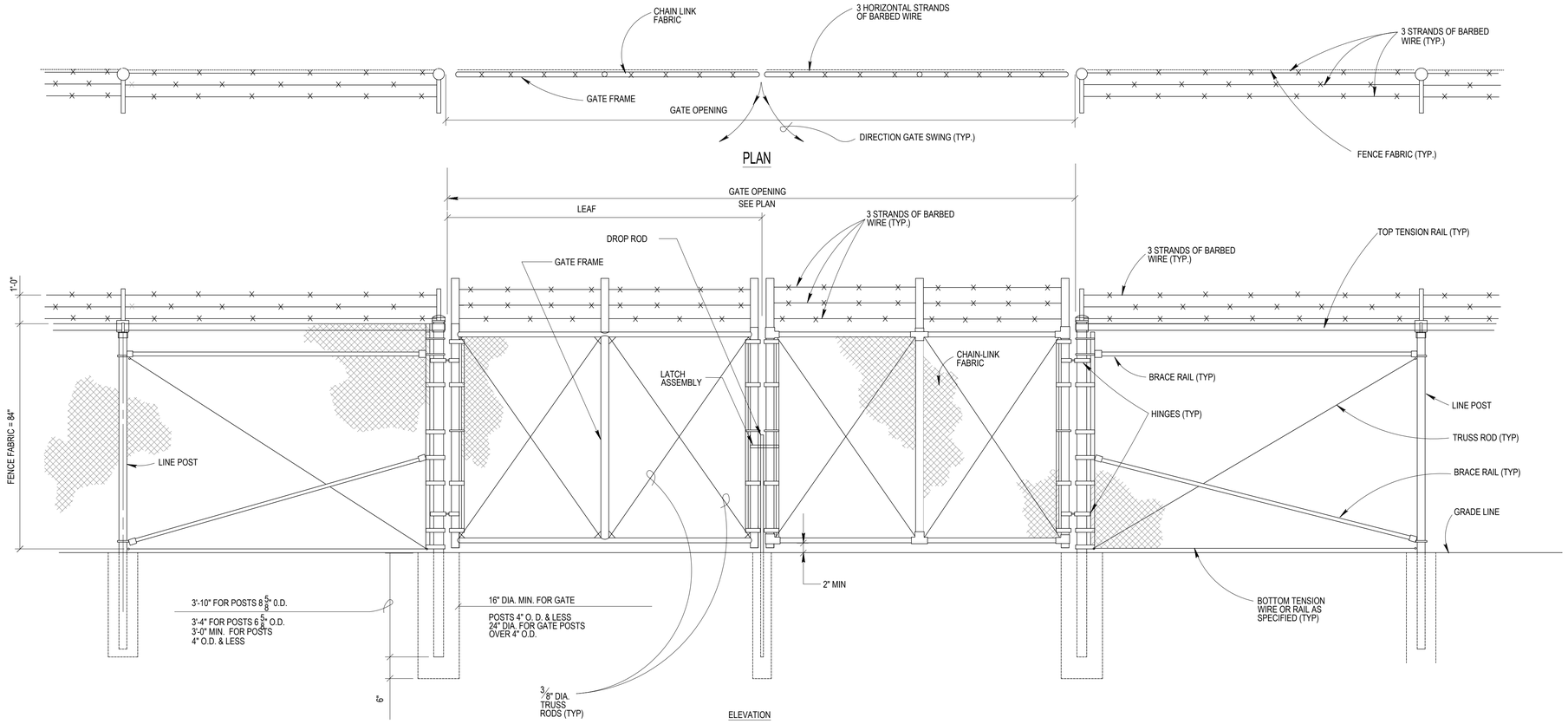


1 DOUBLE SWING GATES
NTS

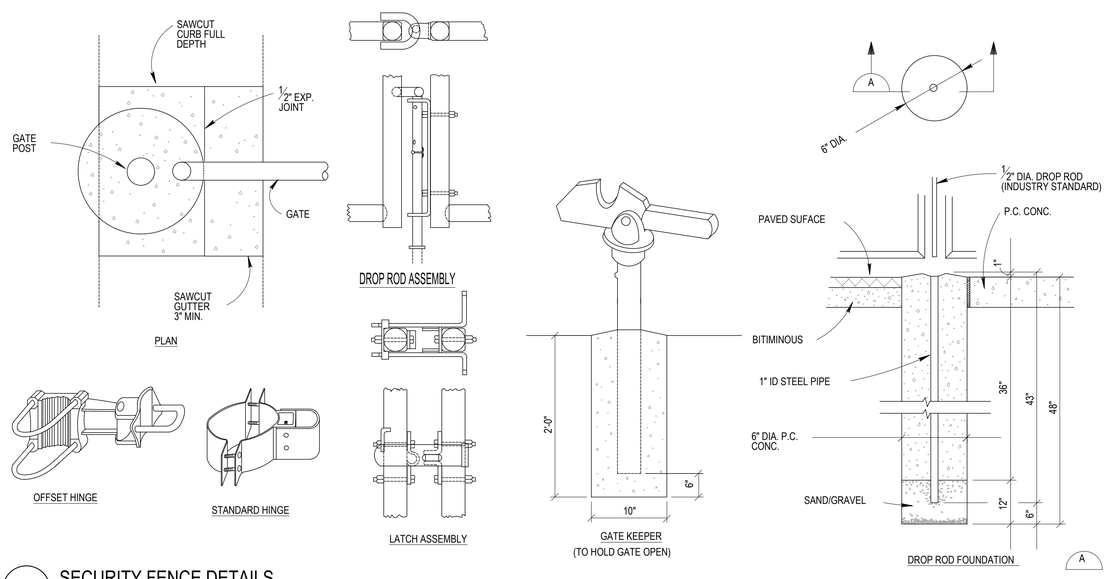
GATE POST SCHEDULE	
GATE LEAF WIDTH (NOMINAL)	OUTSIDE DIMENSION (NOMINAL)
6' OR LESS	2.875" OD 2.5" SQ
GREATER THAN 6' TO 12'	4.0" OD
GREATER THAN 12' TO 18'	6.625" OD
MORE THAN 18'	8.625" OD

NOTES:

1. FOR NON-SENSORED FENCES, DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPE OF FENCE SECTIONS AND METHODS OF INSTALLATION THAT COMPLY WITH THE SPECIFICATIONS.

2. SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY AND GATE KEEPERS EXCEPT AS NOTED OR DIRECTED BY CONTRACTING OFFICER.

3. ALL GATE FRAMES SHALL MEET THE MINIMUM REQUIREMENTS OF ASTM F900 1.90" NOMINAL (ROUND). GATE FRAMES SHALL BE OF WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT CONTRACTOR'S OPTION A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL-WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.



2 SECURITY FENCE DETAILS
NTS

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PROJ. MANAGER: R. THOMPSON

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CS-503

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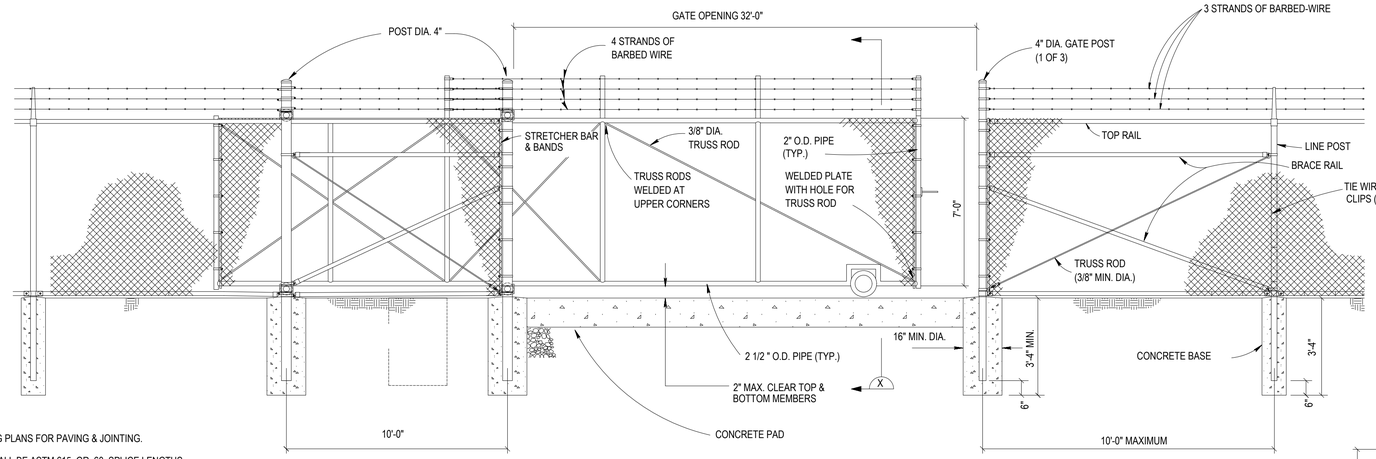
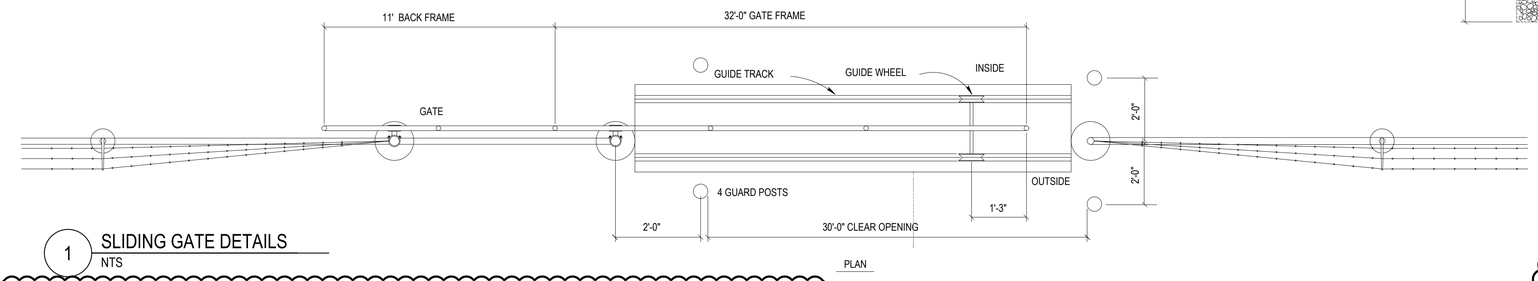


ELEVATION

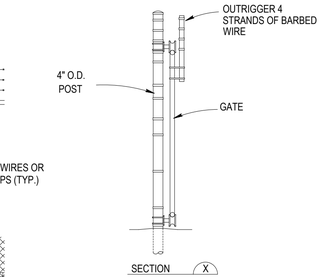
NOTES:

1. REFER TO PAVING PLANS FOR PAVING & JOINTING.
2. REINFORCING SHALL BE ASTM 615, GR. 60. SPLICE LENGTHS SHALL BE CLASS B.
3. GRIND ALL WELDS SMOOTH.
4. GATE DIMENSIONS MAY VARY, DEPENDING ON GATE MANUFACTURER.



PLAN

1 SLIDING GATE DETAILS
NTS



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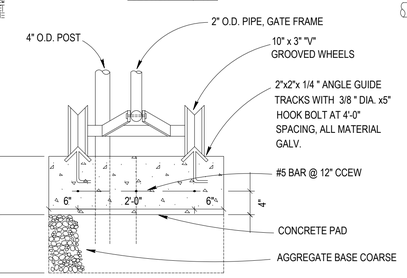
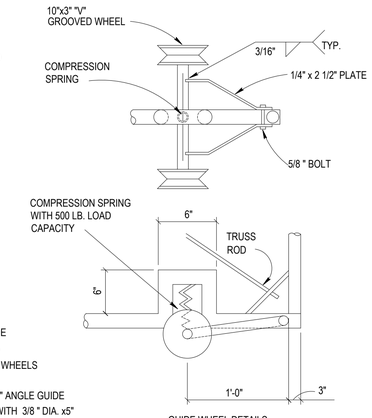
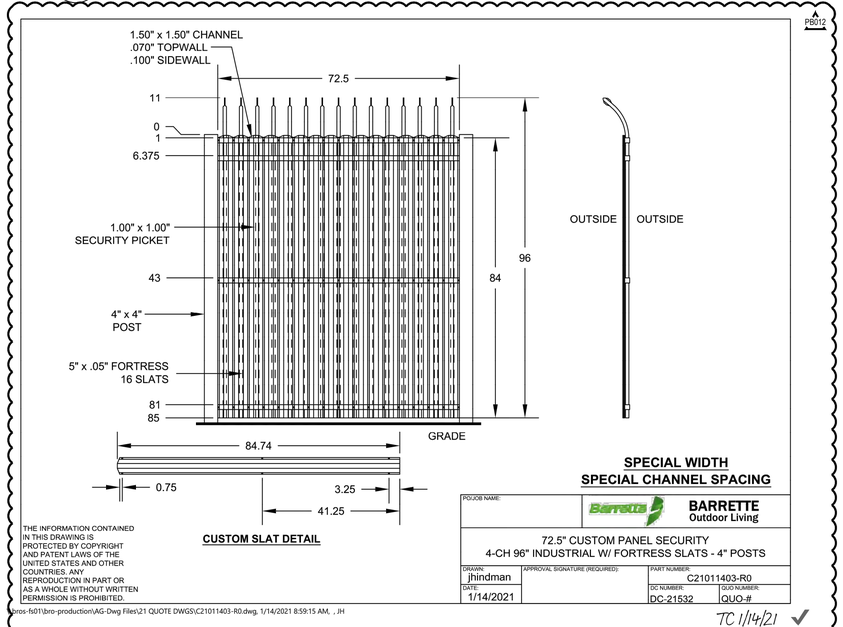


SLIDE GATE DETAILS

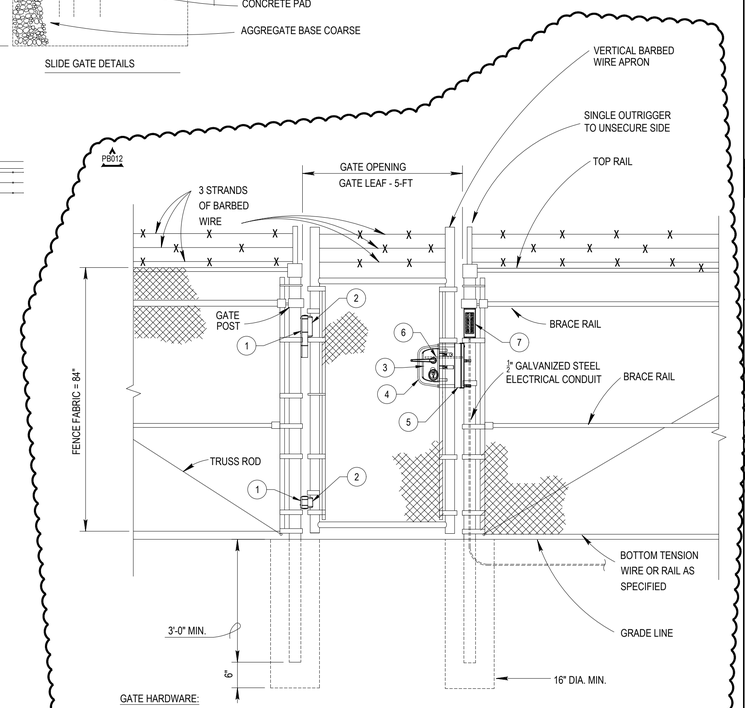


GUIDE WHEEL DETAILS



3 PRIVACY SECURITY FENCE
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



GATE HARDWARE:

1. POWERFUL 180° HYDRAULIC GATE CLOSER AND HINGE IN ONE, FOR GATES UP TO 330 LBS
2. CHAIN LINK BRACKET FOR GATE CLOSER
3. GATE LOCK WITH HANDLES – INCLUDES 2 US MORTISE CYLINDERS WITH ROUND ADAPTER
4. CHAIN LINK TENSION BAR ADAPTER
5. PREMIUM SURFACE MOUNTED ELECTRIC STRIKE WITH ROUND ADAPTER
6. FREE EXIT PUSH PADDLE
7. ROBUST, WEATHERPROOF AND FROST-FREE KEYPAD

NOTES:

1. SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY AND GATE KEEPERS EXCEPT AS NOTED.
2. ALL GATE FRAMES SHALL MEET THE MINIMUM REQUIREMENTS OF ASTM F900 1.90" NOMINAL (ROUND). GATE FRAMES SHALL BE OF WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT CONTRACTOR'S OPTION A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL-WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.
3. GATE DIMENSIONS MAY VARY DEPENDING ON MANUFACTURER.

2 PERSONNEL GATE DETAIL
NTS

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION RFI'S	3/4/2020	ASP
2	PERMITTING COMMENTS	6/1/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB011	CONSTRUCTION REVISION	7/14/2020	ASP
PB021	CONSTRUCTION REVISION	8/06/2020	ASP
PB06	CONSTRUCTION REVISION	10/09/2020	ASP
PB061	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB010	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

SITE DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CS-504

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CS-504 SITE DETAILS.dwg
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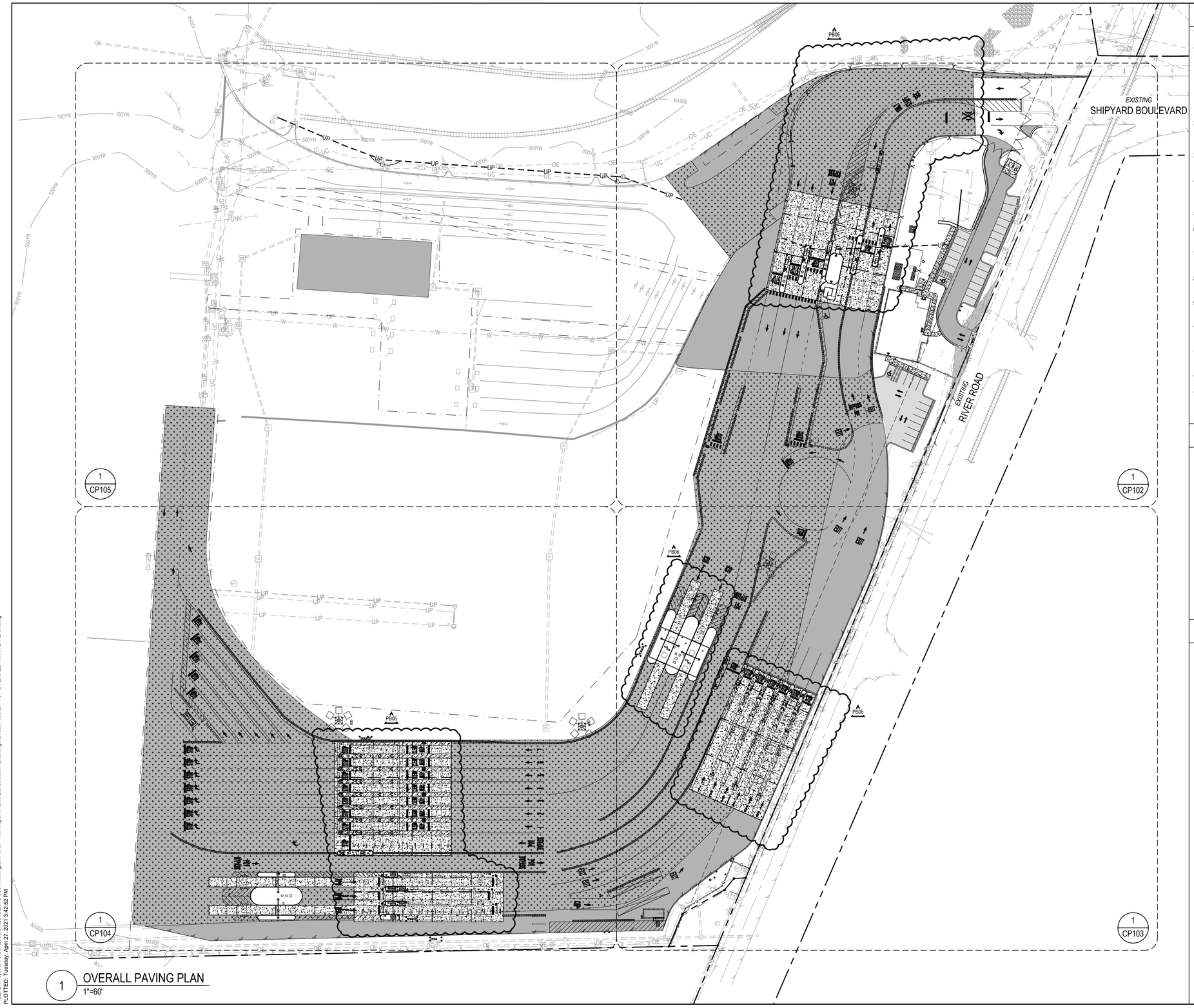

1 OVERALL PAVING PLAN
1"=60'

GENERAL NOTES

THE FOLLOWING NOTES SHALL BE RELEVANT FOR ALL PAVING (CP) SHEETS

1. JOINT SPACING SHALL TYPICALLY FOLLOWING THE BELOW GUIDELINES
   - CONTRACTION JOINTS SHALL BE MAX 12' O.C. IN 6" THICK CONCRETE AND 15' O.C. FOR 8" THICK CONCRETE BUT IN NO CASE SHALL THEY BE SPACED MORE THAN 3 TIMES IN FEET THE THICKNESS OF THE CONCRETE IN INCHES.
   - CONSTRUCTION JOINTS SHALL BE MAX 48' O.C. IN 6" THICK CONCRETE AND 60' O.C. FOR 8" THICK CONCRETE.
2. TRANSVERSE JOINTS ARE DEFINED AS JOINTS THAT RUN PERPENDICULAR TO THE DIRECTION OF TRAVEL. LONGITUDINAL JOINTS ARE DEFINED AS JOINTS THAT RUN PARALLEL TO THE DIRECTION OF TRAVEL.
3. TRANSVERSE JOINTS SHALL BE DOWELED AT THE JOINT. LONGITUDINAL JOINTS SHALL BE DEFORMED BARS. REFER TO DETAILS FOR MORE INFORMATION.
4. EXPANSION JOINTS ARE REQUIRED WHERE CONCRETE PAVING ABUTS EXISTING CONCRETE, BUILDING FACES, AT GRADE UTILITY BOXES (VALVES, MANHOLES, VAULTS, ETC.) AND AS SHOWN ON THE PLANS BETWEEN NEW CONCRETE SECTIONS.
5. NO JOINT DIMENSION SHALL BE LESS THAN 75 PERCENT OF THE PERPENDICULAR DIMENSION.
6. SAW CUTTING SHALL BE DONE WITHIN 8 HOURS OF A POUR OR AS SOON AS CONCRETE CAN SUPPORT WEIGHT AND PROVIDE A NEAT CUT WHICH IS TRUE IN ALIGNMENT.
7. ALL CONSTRUCTION JOINTS SHALL BE SAW CUT, CLEANED OF DEBRIS, BLOWN DRY AND IMMEDIATELY SEALED WITH JOINT SEALANT.
8. JOINTS WHICH INTERSECT RADII SHALL BE CONSTRUCTED PERPENDICULAR TO THE CURVE FOR 2' PRIOR TO RESUMING THEIR TYPICAL DIRECTION.
9. CONSTRUCTION JOINTS SHALL BE REQUIRED AT THE END OF A DAY'S WORK UNLESS IT ENDS AT ANOTHER CONSTRUCTION JOINT.
10. CONSTRUCTION JOINTS MAY BE PLACED MORE FREQUENTLY IF NEEDED DUE TO QUANTITY OF CONCRETE PER POUR.
11. JOINTS WITHIN 15' OF THE EDGE OF PAVEMENT SHALL BE CONSIDERED LONGITUDINAL JOINTS WITH DEFORMED BAR CONNECTIONS.
12. ALL EDGES OF CONCRETE SHALL BE THICKENED.
13. CONTRACTOR SHALL BE PERMITTED TO ALTER JOINTING PLAN TO MEET CONCRETE SCHEDULES OR SEQUENCING HOWEVER THE CONTRACTOR MUST ADHERE TO THE CRITERIA AS OUTLINED IN SPECIFICATION 32 13 13.06.

JOINTING NOTES

1. DRILLING METHODS FOR DOWELS SHALL BE CAPABLE OF MAINTAINING DRILL HOLES PARALLEL TO THE CONCRETE SURFACE AND NORMAL TO THE JOINT LINE WITHIN 1/4" +/- AT THE END OF THE DOWEL BAR. DRILL HOLES SHALL BE ACCURATELY LAID OUT SO THAT THE MAXIMUM DEVIATION DOES NOT EXCEED 1". DRILL HOLE DIAMETER TO BE SUFFICIENT SIZE TO ACCEPT THE TYPE AND SIZE DOWEL REQUIRED.
2. AFTER THE DRILLING IS COMPLETE AND PRIOR TO THE INSTALLATION OF THE DOWELS THE HOLES SHALL BE THOROUGHLY CLEANED TO REMOVE DRILLING DUST, CONCRETE CHIPS AND ANY MATERIAL DETRIMENTAL TO DEVELOPING BOND.
3. BONDING MATERIAL SHALL BE APPLIED TO THE ENTIRE CIRCUMFERENCE OF THE DOWEL HOLE SURFACE, AND SUFFICIENT MATERIAL PLACED IN THE HOLE SO THAT A SLIGHT AMOUNT WILL BE FORCED FROM AROUND THE ENTIRE CIRCUMFERENCE WHEN THE DOWEL IS INSERTED AND TAPPED TO THE CORRECT POSITION. SMALL WEDGES MAY BE USED TO SUPPORT THE DOWEL IN CORRECT ALIGNMENT UNTIL THE MATERIAL HARDENS.
4. THE TOLERANCE FOR DOWEL ALIGNMENT IN EITHER THE HORIZONTAL OR VERTICAL PLANE IS 1/4" INCH PER FOOT.

LEGEND

- CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT
- LONGITUDINAL JOINT
- CONCRETE SIDEWALK
- REINFORCED CONCRETE PAVEMENT
- REGULAR DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- MILL & OVERLAY LIMITS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

NORTH (NAD 83)
N

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	10/06/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/12/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

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NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

OVERALL PAVING PLAN

0 30' 60' 1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CP-101

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-101 OVERALL PAVING PLAN.dwg
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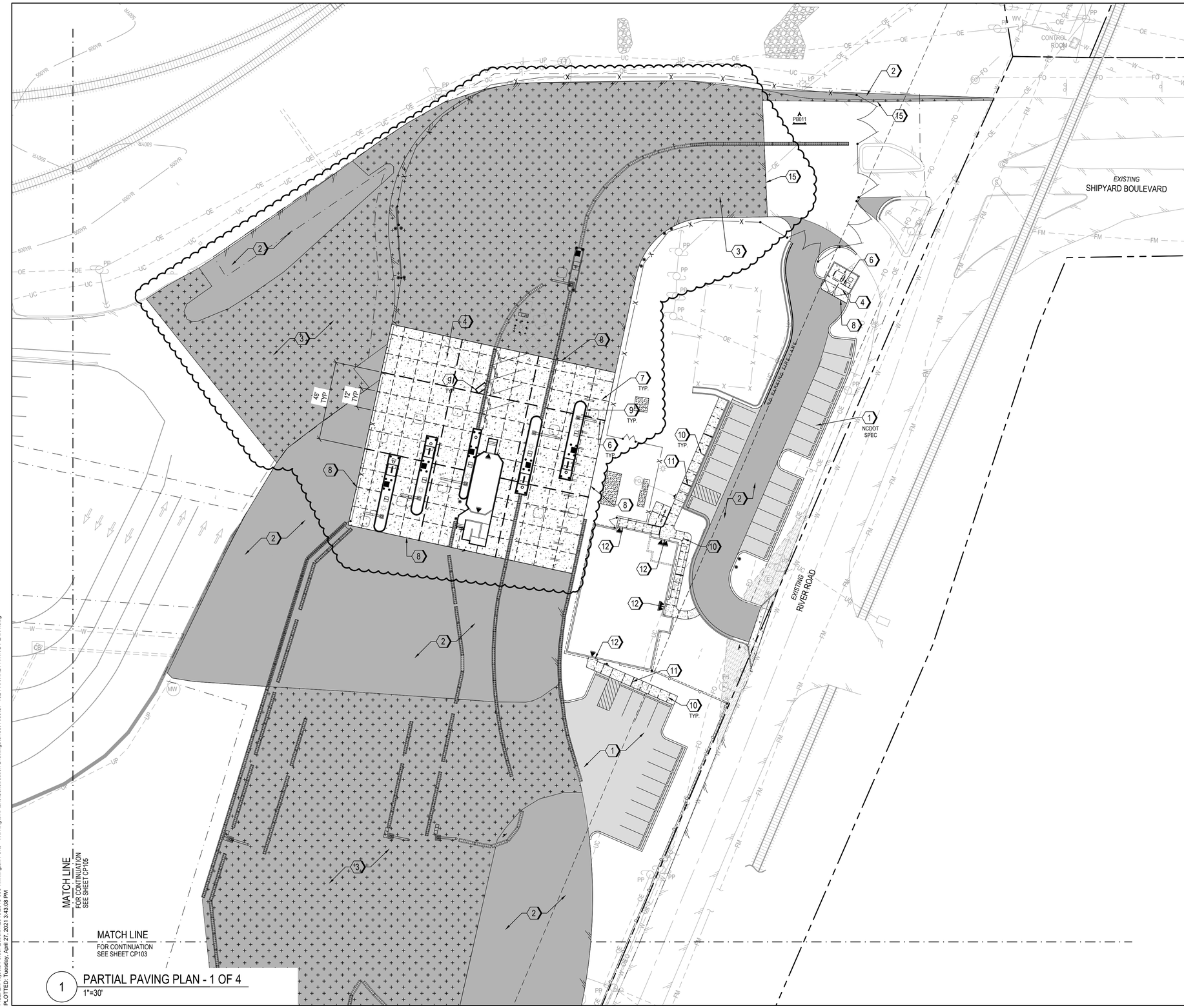

1 PARTIAL PAVING PLAN - 1 OF 4
1"=30'

LEGEND

- CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT
- LONGITUDINAL JOINT
- CONCRETE SIDEWALK
- REINFORCED CONCRETE PAVEMENT
- REGULAR DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- MILL & OVERLAY LIMITS

PAVING KEYNOTES

1. REGULAR DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
2. HEAVY DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
3. MILL & OVERLAY ASPHALT PAVEMENT. REFER TO 3/CP501
4. REINFORCED CONCRETE PAVEMENT. REFER TO 2/CP501
5. CONCRETE SIDEWALK. REFER TO 6/CP501
6. CONCRETE PAVEMENT CONTRACTION JOINT. REFER TO 2/CP502
7. CONCRETE PAVEMENT CONSTRUCTION JOINT. REFER TO 1/CP502
8. CONCRETE PAVEMENT THICKENED EDGE. REFER TO 4/CP502
9. CONCRETE PAVEMENT EXPANSION JOINT. REFER TO 3/CP502
10. CONCRETE SIDEWALK CONTRACTION JOINT. REFER TO 5/CP502
11. CONCRETE SIDEWALK EXPANSION JOINT. REFER TO 5/CP502
12. CONCRETE SIDEWALK THICKENED EDGE AT DOORWAY. REFER TO 6/CP501
13. ACCESSIBILITY RAMP. REFER TO 6/CP501
14. PAVEMENT PATCH REPAIR. REFER TO WS-1/CU501 & WS-3/CU501
15. PAVEMENT LAP JOINT. REFER TO 8/CP502

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
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PB05	CONSTRUCTION REVISION	10/05/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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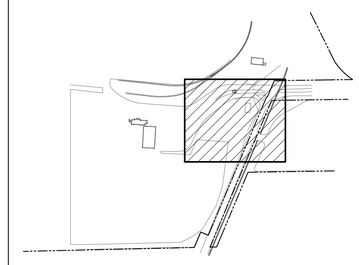
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL PAVING PLAN - 1 OF 4

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CP-102

FILE: Z:\Projects Folder-Zabulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-102 PARTIAL PAVING PLAN I.dwg
PLOTTED: Tuesday, April 27, 2021 3:43:08 PM

1 PARTIAL PAVING PLAN - 2 OF 4
1"=30'

LEGEND

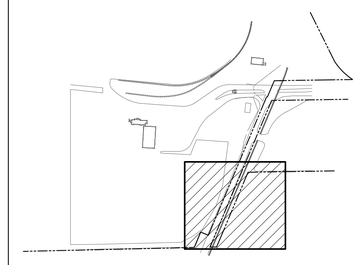
- CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT
- LONGITUDINAL JOINT
- CONCRETE SIDEWALK
- REINFORCED CONCRETE PAVEMENT
- REGULAR DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- MILL & OVERLAY LIMITS

PAVING KEYNOTES

1. REGULAR DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
2. HEAVY DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
3. MILL & OVERLAY ASPHALT PAVEMENT. REFER TO 3/CP501
4. REINFORCED CONCRETE PAVEMENT. REFER TO 2/CP501
5. CONCRETE SIDEWALK. REFER TO 6/CP501
6. CONCRETE PAVEMENT CONTRACTION JOINT. REFER TO 2/CP502
7. CONCRETE PAVEMENT CONSTRUCTION JOINT. REFER TO 1/CP502
8. CONCRETE PAVEMENT THICKENED EDGE. REFER TO 4/CP502
9. CONCRETE PAVEMENT EXPANSION JOINT. REFER TO 3/CP502
10. CONCRETE SIDEWALK CONTRACTION JOINT. REFER TO 5/CP502
11. CONCRETE SIDEWALK EXPANSION JOINT. REFER TO 5/CP502
12. CONCRETE SIDEWALK THICKENED EDGE AT DOORWAY. REFER TO 6/CP501
13. ACCESSIBILITY RAMP. REFER TO 6/CP501
14. PAVEMENT PATCH REPAIR. REFER TO WS-1/CU501 & WS-3/CU501
15. PAVEMENT LAP JOINT. REFER TO 8/CP502

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	10/05/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

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Curry ENGINEERING

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DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL PAVING PLAN - 2 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CP-103

FILE: Z:\Projects Folder-Zabulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-103 PARTIAL PAVING PLAN II.dwg
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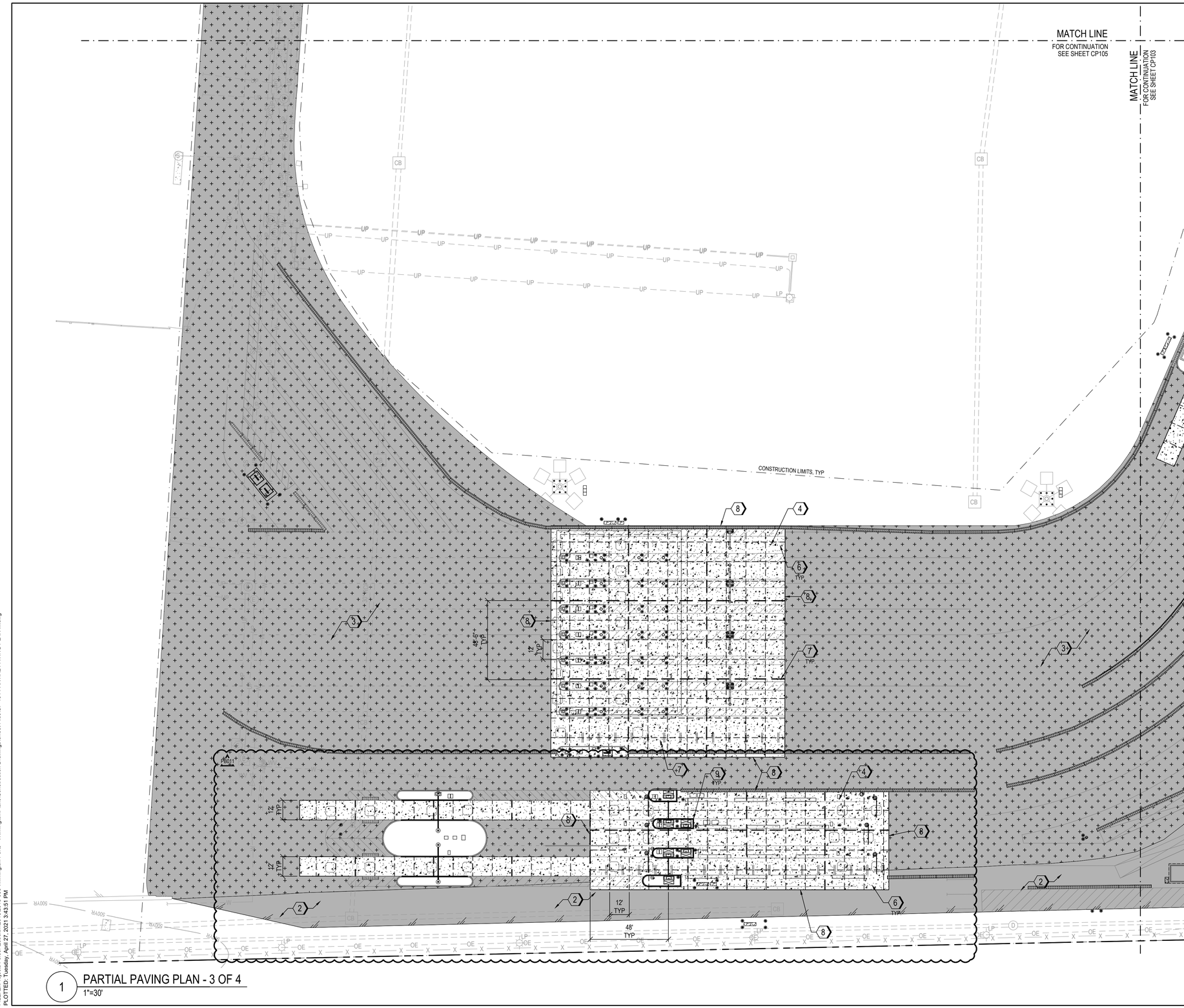

1 PARTIAL PAVING PLAN - 3 OF 4
1"=30'

LEGEND

- CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT
- LONGITUDINAL JOINT
- CONCRETE SIDEWALK
- REINFORCED CONCRETE PAVEMENT
- REGULAR DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- MILL & OVERLAY LIMITS

PAVING KEYNOTES

1. REGULAR DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
2. HEAVY DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
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4. REINFORCED CONCRETE PAVEMENT. REFER TO 2/CP501
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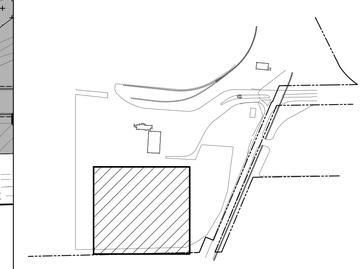
12. CONCRETE SIDEWALK THICKENED EDGE AT DOORWAY. REFER TO 6/CP501
13. ACCESSIBILITY RAMP. REFER TO 6/CP501
14. PAVEMENT PATCH REPAIR. REFER TO WS-1/CU501 & WS-3/CU501
15. PAVEMENT LAP JOINT. REFER TO 8/CP502

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH
N (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/1/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
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Curry ENGINEERING

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NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
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PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
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MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL PAVING PLAN - 3 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CP-104

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-104 PARTIAL PAVING PLAN III.dwg
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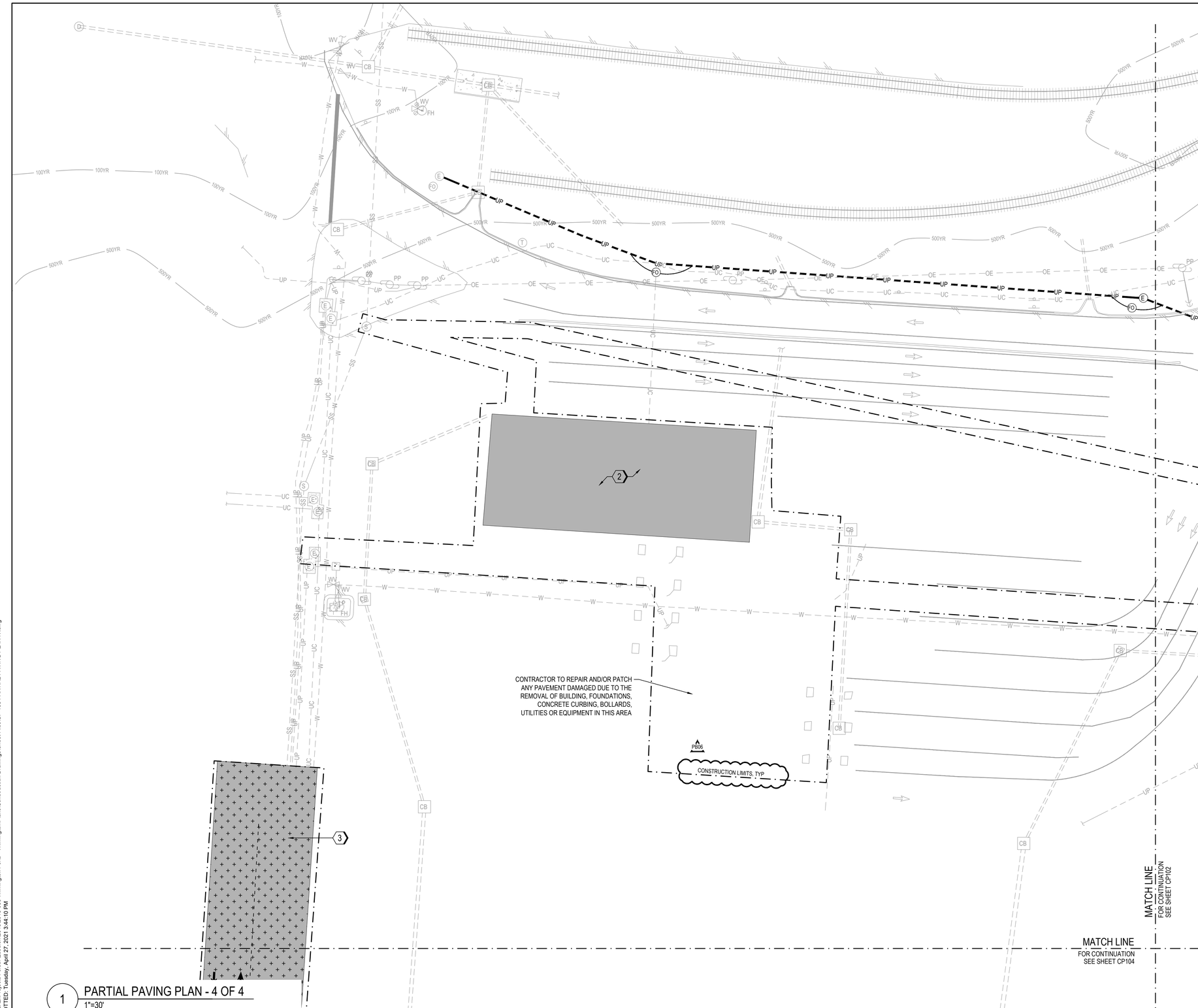

1 PARTIAL PAVING PLAN - 4 OF 4
1"=30'

LEGEND

- CONTRACTION JOINT
- CONSTRUCTION JOINT
- EXPANSION JOINT
- LONGITUDINAL JOINT
- CONCRETE SIDEWALK
- REINFORCED CONCRETE PAVEMENT
- REGULAR DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- MILL & OVERLAY LIMITS

PAVING KEYNOTES

1. REGULAR DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
2. HEAVY DUTY ASPHALT PAVEMENT. REFER TO 1/CP501
3. MILL & OVERLAY ASPHALT PAVEMENT. REFER TO 3/CP501
4. REINFORCED CONCRETE PAVEMENT. REFER TO 2/CP501
5. CONCRETE SIDEWALK. REFER TO 6/CP501
6. CONCRETE PAVEMENT CONTRACTION JOINT. REFER TO 2/CP502
7. CONCRETE PAVEMENT CONSTRUCTION JOINT. REFER TO 1/CP502
8. CONCRETE PAVEMENT THICKENED EDGE. REFER TO 4/CP502
9. CONCRETE PAVEMENT EXPANSION JOINT. REFER TO 3/CP502
10. CONCRETE SIDEWALK CONTRACTION JOINT. REFER TO 5/CP502
11. CONCRETE SIDEWALK EXPANSION JOINT. REFER TO 5/CP502
12. CONCRETE SIDEWALK THICKENED EDGE AT DOORWAY. REFER TO 6/CP501
13. ACCESSIBILITY RAMP. REFER TO 6/CP501
14. PAVEMENT PATCH REPAIR. REFER TO WS-1/CU501 & WS-3/CU501
15. PAVEMENT LAP JOINT. REFER TO 8/CP502

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
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PB03	CONSTRUCTION REVISION	10/09/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/12/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

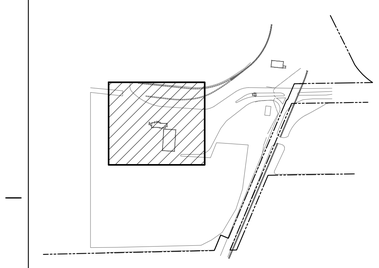
DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL PAVING PLAN - 4 OF 4

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CP-105

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-105 PARTIAL PAVING PLAN IV.dwg
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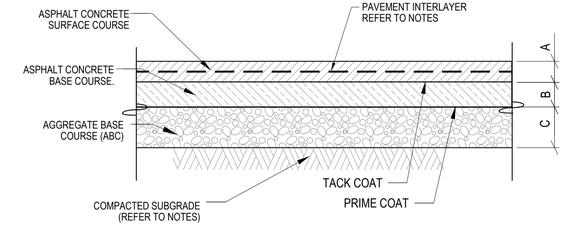


ASPHALT THICKNESS TABLE

	PAVEMENT SECTION	PAVEMENT TYPE	PARKING AREAS		YARD & GATE
			REGULAR DUTY	HEAVY DUTY	HEAVY DUTY
			THICKNESS (IN)	THICKNESS (IN)	THICKNESS (IN)
A	A/C SURFACE	S9.5C	2"	3"	2"
B	A/C BASE	I19.C	3"	4"	6"
C	AGGREGATE BASE	CABC	8"	10"	12"

* SUBSTITUTE 10" ABC WITH 5" ASPHALT BASE (B-25.0C) WHEN WIDTH OF PAVEMENT IS 6 FEET OR LESS

SINGLE LIFT DEPTHS TABLE*

PAVEMENT TYPE	MINIMUM LIFT (IN)	MAXIMUM LIFT (IN)
S 4.75A	0.5	1.0
SF 9.5A	1.0	2.0
S 9.5X**	1.5	2.0
I 19.0X**	2.5	4.0
B 25.0X**	3.0	5.5
B 37.5C	4.5	6.0

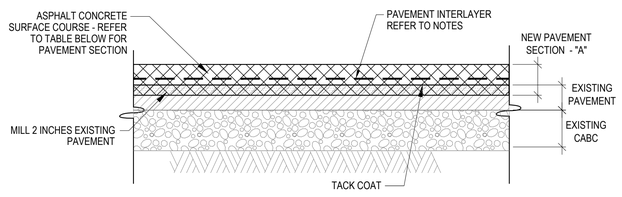
*MINIMUM LAYER THICKNESS IS APPROXIMATELY 3 TIMES THE NOMINAL MAXIMUM AGGREGATE SIZE.

**CAN BE TYPE B,C OR D.

NOTES:

1. THIS DETAIL PERTAINS TO PAVING IN PARKING AREAS.
2. ASPHALT CONCRETE SHALL CONFORM TO NCDOT SPECIFICATIONS.
3. ABC STONE SHALL CONFORM TO NCDOT SPECIFICATION SECTION 520. CABC TO BE COMPACTED TO MIN. 95% MODIFIED PROCTOR MAX. DRY DENSITY (ASTM D1557) NEAR TO SLIGHTLY ABOVE OPTIMUM MOISTURE CONTENT.
4. PRIOR TO PLACING BASE MATERIALS, THE SUBGRADE SOIL SHALL BE SCARIFIED, MOISTURE CONDITIONED AS NECESSARY, AND RECOMPACTED TO A MIN. 95% MODIFIED PROCTOR MAX. DRY DENSITY (ASTM D1557) NEAR TO SLIGHTLY ABOVE OPTIMUM MOISTURE CONTENT. THE DEPTH OF COMPACTION SHALL BE MIN. 12 INCHES.
5. PRIME COATS AND TACK COATS TO BE APPLIED AT EACH LIFT PER NCDOT STANDARDS.
6. CONTRACTOR SHALL USE PAVEMENT INTERLAYER - TENSAR GLASGRID 8511 OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

1 ASPHALT PAVEMENT SECTION
NTS



ASPHALT THICKNESS TABLE

	PAVEMENT SECTION	PAVEMENT TYPE	GATE & STACKING YARD
			THICKNESS (IN)
A	A/C SURFACE	S9.5C	2"
		I19.C	4"

SINGLE LIFT DEPTHS TABLE*

PAVEMENT TYPE	MINIMUM LIFT (IN)	MAXIMUM LIFT (IN)
S 4.75A	0.5	1.0
SF 9.5A	1.0	2.0
S 9.5X**	1.5	2.0
I 19.0X**	2.5	4.0
B 25.0X**	3.0	5.5
B 37.5C	4.5	6.0

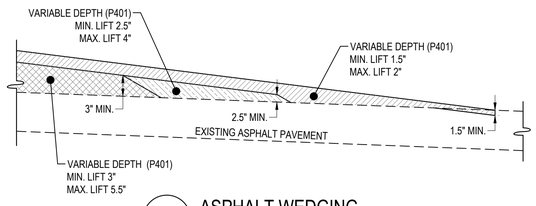
*MINIMUM LAYER THICKNESS IS APPROXIMATELY 3 TIMES THE NOMINAL MAXIMUM AGGREGATE SIZE.

**CAN BE TYPE B,C OR D.

NOTES:

1. THIS DETAIL PERTAINS TO AREAS INSIDE THE SECURE AREA OUTSIDE OF PARKING AREAS FOR PRIVATELY OWNED VEHICLES.
2. ASPHALT CONCRETE SHALL CONFORM TO NCDOT SPECIFICATIONS.
3. ABC STONE SHALL CONFORM TO NCDOT SPECIFICATION SECTION 520. CABC TO BE COMPACTED TO MIN. 95% MODIFIED PROCTOR MAX. DRY DENSITY (ASTM D1557) NEAR TO SLIGHTLY ABOVE OPTIMUM MOISTURE CONTENT.
4. PRIOR TO PLACING BASE MATERIALS, THE SUBGRADE SOIL SHALL BE SCARIFIED, MOISTURE CONDITIONED AS NECESSARY, AND RECOMPACTED TO A MIN. 95% MODIFIED PROCTOR MAX. DRY DENSITY (ASTM D1557) NEAR TO SLIGHTLY ABOVE OPTIMUM MOISTURE CONTENT. THE DEPTH OF COMPACTION SHALL BE MIN. 12 INCHES.
5. PRIME COATS AND TACK COATS TO BE APPLIED AT EACH LIFT PER NCDOT STANDARDS.
6. CONTRACTOR SHALL USE PAVEMENT INTERLAYER - TENSAR GLASGRID 8511 OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3 ASPHALT MILLING SECTION - GATE & YARD AREA
NTS



4 ASPHALT WEDGING
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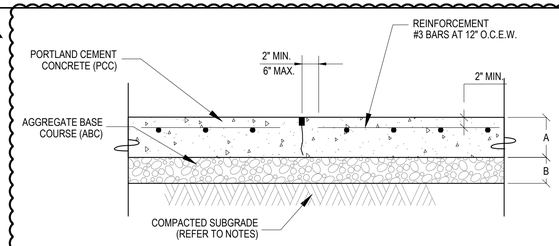


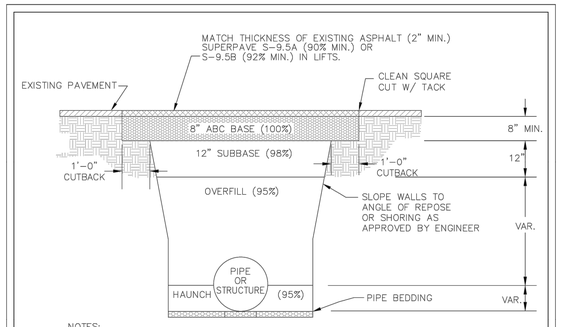
CONCRETE THICKNESS TABLE

	PAVEMENT SECTION	HEAVY DUTY	
		THICKNESS	TYPE
A	CONCRETE	6"	PORTLAND CEMENT
B	AGGREGATE BASE	8"	CABC

NOTES:

1. PORTLAND CEMENT CONCRETE SHALL BE MIN. 4500 PSI COMPRESSIVE STRENGTH AND 650 PSI FLEXURAL STRENGTH PROPERLY JOINTED PER CURRENT ACI GUIDELINES
2. ABC STONE SHALL CONFORM TO NCDOT SPECIFICATION SECTION 520. CABC TO BE COMPACTED TO MIN. 95% MODIFIED PROCTOR MAX. DRY DENSITY (ASTM D1557) NEAR TO SLIGHTLY ABOVE OPTIMUM MOISTURE CONTENT.
3. PRIOR TO PLACING BASE MATERIALS, THE SUBGRADE SOIL SHALL BE SCARIFIED, MOISTURE CONDITIONED AS NECESSARY, AND RECOMPACTED TO A MIN. 95% MODIFIED PROCTOR MAX. DRY DENSITY (ASTM D1557) NEAR TO SLIGHTLY ABOVE OPTIMUM MOISTURE CONTENT. THE DEPTH OF COMPACTION SHALL BE MIN. 12 INCHES.

2 CONCRETE PAVEMENT SECTION
NTS

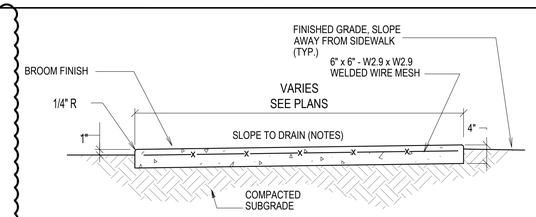


NOTES:

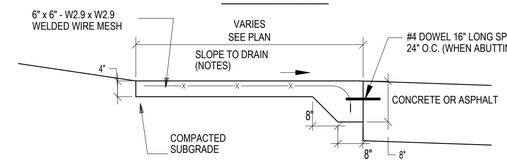
1. CONTRACTOR SHALL ENSURE BOTTOM OF TRENCH IS SUITABLE FOR INSTALLATION AND DOES NOT REQUIRE FOUNDATION CONDITIONING STONE.
2. FILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
3. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
4. SOIL SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED BY A MECHANIZED TAMPER (I.E JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
5. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
6. COMPACT MATERIALS TO MINIMUM % DENSITY SHOWN IN DIAGRAM AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D-698-A FOR SOILS; AND ASTM D-698-C FOR ABC STONE; AND BY NUCLEAR GAUGE OR CORE SAMPLE FOR ASPHALT.
7. CUTBACKS OF ASPHALT SHALL BE PREPARED ON EDGE OF EXCAVATION OVER TOP OF UNDISTURBED SOIL.

	STANDARD DETAIL	CITY OF WILMINGTON NORTH CAROLINA
DATE: MAY, 2013	PAVEMENT REPAIRS- UTILITY CUTS	CITY OF WILMINGTON ENGINEERING OFFICE 212 OPERATIONS CENTER DRIVE WILMINGTON N.C. 28412 (910) 341-7807
DRAWN BY JSR		
CHECKED BY D.E.C., P.E.		
SCALE NOT TO SCALE		SD 1-05

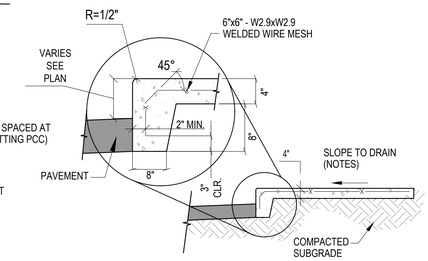
5 PAVEMENT REPAIR
NTS



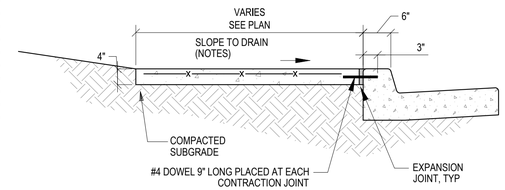
STANDARD SECTION



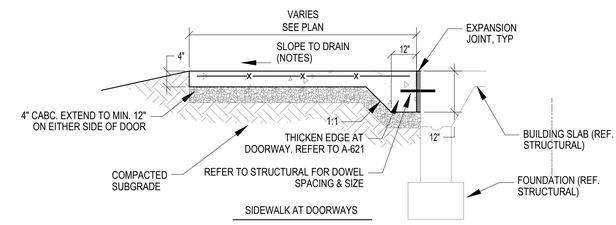
SIDEWALK ABUTTING PAVEMENT SECTION



INTEGRAL CURB & SIDEWALK



SIDEWALK ABUTTING CURB SECTION

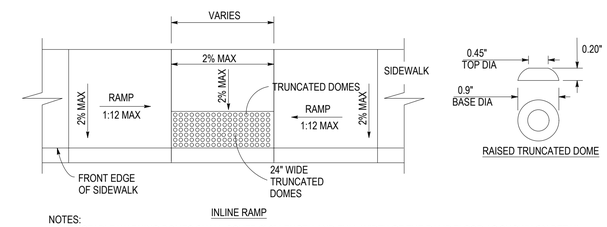


SIDEWALK AT DOORWAYS

NOTES:

1. MINIMUM 3000 PSI CONCRETE.
2. SEE PLANS FOR JOINT SPACING AND SLOPES.
3. WELDED WIRE MESH (WWM) SHALL BE PLACED IN THE UPPER ONE THIRD OF THE SLAB. NO WWM SHALL BE VISABLE AT THE SURFACE. DOWELS SHALL BE PLACED IN THE CENTER OF THE SLAB.
4. DOWELS THAT ARE PLACED INTO DRILLED CONCRETE SHALL BE INSTALLED WITH BONDING MATERIAL.
5. COMPACTED SUBGRADE SHALL BE COMPACTED TO MODIFIDED PROCTOR 90% MAX. DRY DENSITY AT OPTIMUM MOISTURE CONTENT

6 CONCRETE SIDEWALK
NTS



INLINE RAMP

NOTES:

1. DETECTABLE WARNING DOMES SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON DETAIL.
2. OBTAIN 70% CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT ON DARK, OR DARK ON LIGHT SEQUENCE COVERING THE DETECTABLE WARNING AREA.

7 INLINE ADA RAMP
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
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PB011	CONSTRUCTION REVISION	03/17/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

DESIGNED BY: A. PETTY	DRAWN BY: D. READ
CHECKED BY: D. CURRY	PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
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PAVING DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CP-501

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-501 PAVING DETAILS.dwg
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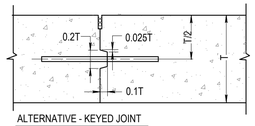
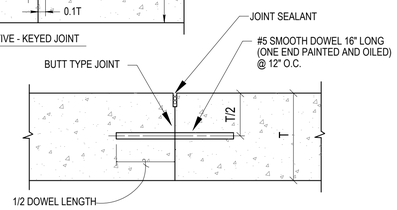


ALTERNATIVE - KEYED JOINT

T = PAVEMENT THICKNESS



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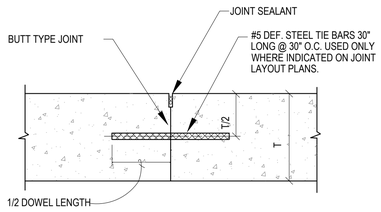
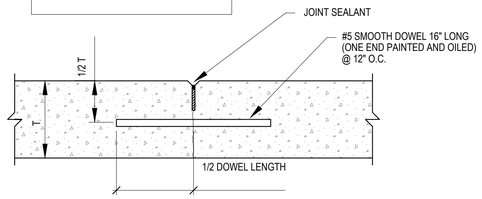


LONGITUDINAL

1 CONCRETE CONSTRUCTION JOINT
NTS

T = PAVEMENT THICKNESS



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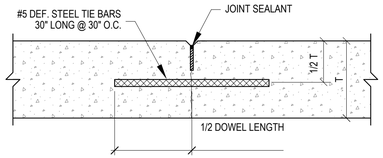
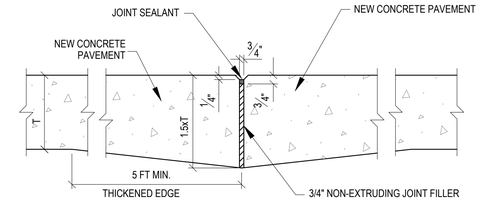
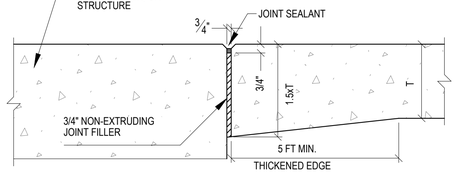


LONGITUDINAL

2 CONCRETE CONTRACTION JOINT
NTS

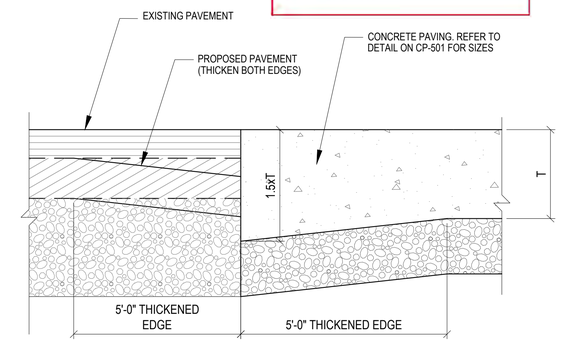


T = PAVEMENT THICKNESS



3 CONCRETE EXPANSION JOINT
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

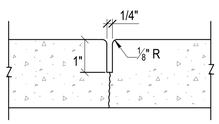


T = PAVEMENT THICKNESS

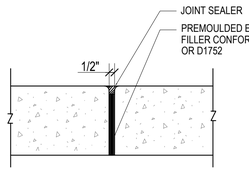
NOTES:

1. THICKEN EDGE OF ABUTTING PAVEMENT IF PROPOSED.

4 CONCRETE THICKENED EDGE
NTS

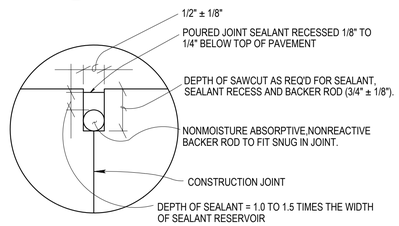


CONTRACTION JOINT

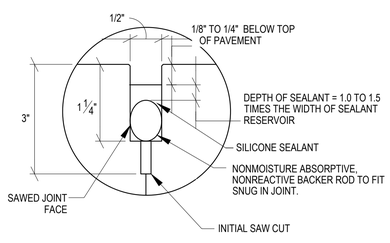


EXPANSION JOINT

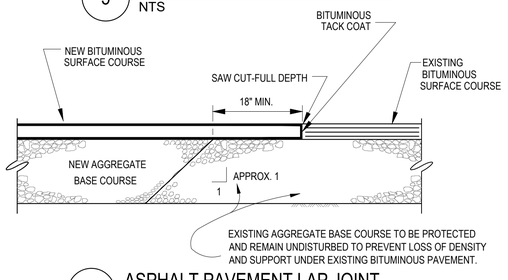
5 CONCRETE SIDEWALK JOINTS
NTS



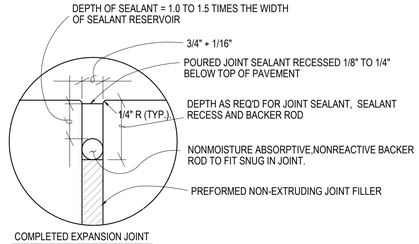
COMPLETED CONSTRUCTION JOINT
SEALANT DETAIL



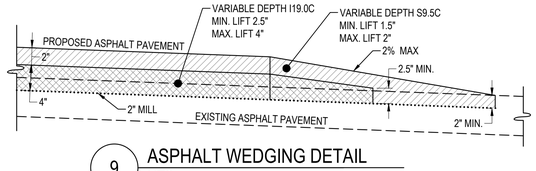
COMPLETED CONTRACTION JOINT
SEALANT DETAIL



8 ASPHALT PAVEMENT LAP JOINT
NTS

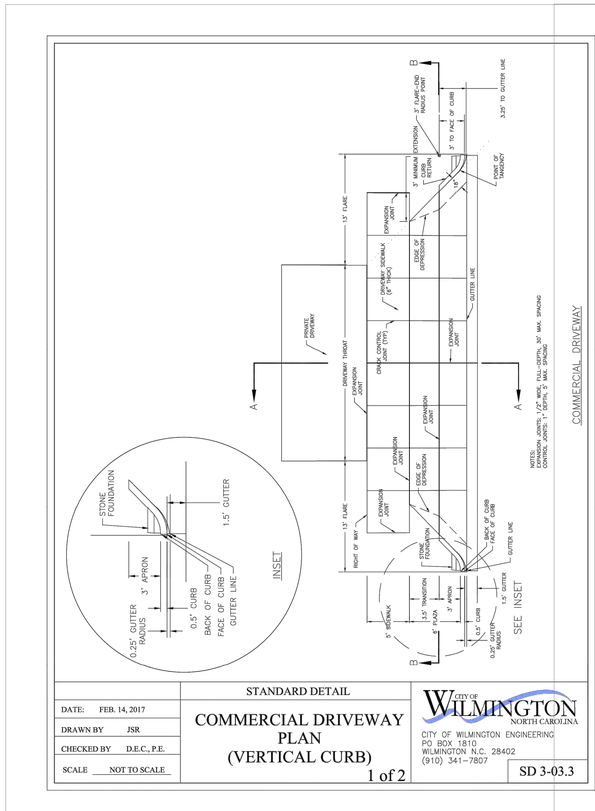


COMPLETED EXPANSION JOINT
SEALANT DETAIL

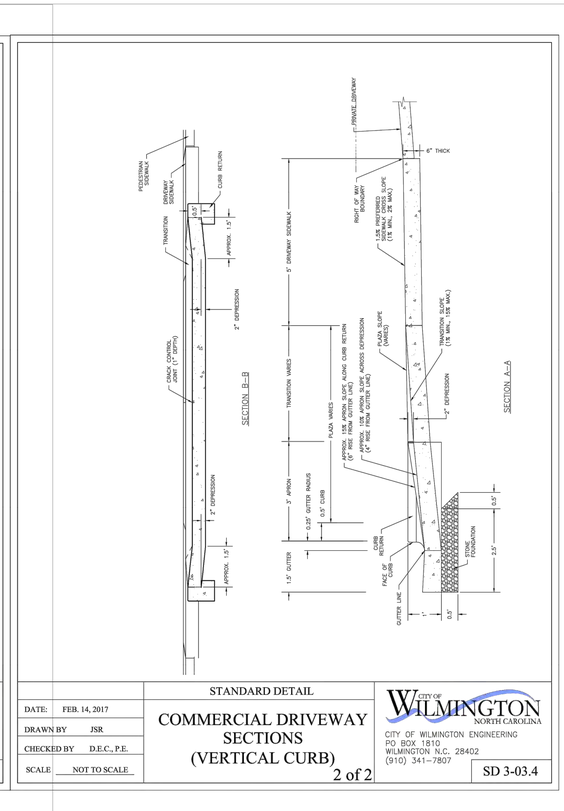


9 ASPHALT WEDGING DETAIL
NTS

7 COMPLETED JOINT SEAL
NTS



DATE: FEB. 14, 2017	STANDARD DETAIL	CITY OF WILMINGTON NORTH CAROLINA
DRAWN BY JSR	COMMERCIAL DRIVEWAY PLAN (VERTICAL CURB)	CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON N.C. 28402 (910) 341-7807
CHECKED BY D.E.C., P.E.	1 of 2	SD 3-03.3
SCALE NOT TO SCALE		



DATE: FEB. 14, 2017	STANDARD DETAIL	CITY OF WILMINGTON NORTH CAROLINA
DRAWN BY JSR	COMMERCIAL DRIVEWAY SECTIONS (VERTICAL CURB)	CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON N.C. 28402 (910) 341-7807
CHECKED BY D.E.C., P.E.	2 of 2	SD 3-03.4
SCALE NOT TO SCALE		

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTIONS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB06	CONSTRUCTION REVISION	10/06/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/10/2021	ASP
PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PAVING DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CP-502

100% SUBMISSION

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CP-502 PAVING DETAILS.dwg
PLOTTED: Tuesday, April 27, 2021 3:44:30 PM

1 OVERALL GRADING & DRAINAGE PLAN
1"=60'

GENERAL NOTES

THE FOLLOWING NOTES SHALL BE RELEVANT FOR ALL GRADING (CG) SHEETS

1. ALL STORM DRAINAGE PIPING SHALL BE CLASS IV REINFORCED CONCRETE PIPE (RCP) WITH GASKETTED JOINTS, UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL COORDINATE STORM DRAINAGE INSTALLATION WITH PRIVATE UTILITY COMPANIES TO AVOID UTILITY CONFLICTS.
3. ALL SIDEWALKS SHALL BE CONSTRUCTED WITH A 2% CROSS SLOPE UNLESS OTHERWISE INDICATED. SIDEWALKS SHALL SLOPE AWAY FROM BUILDINGS WHERE APPLICABLE.
4. "RIM" OF STORM YARD INLETS REFERS TO THE CENTER OF THE TOP OF GRATE. "RIM" OF MANHOLES REFERS TO THE CENTER OF THE TOP OF MANHOLE COVER. "RIM" OF STORM CATCH BASINS REFERS TO THE CENTER, FACE OF CURB GRATE ELEVATION.
5. CUT/FILL SLOPES SHALL BE GRADED AT 3H:1V MAXIMUM UNLESS OTHERWISE INDICATED OR APPROVED.
6. ADA PARKING SPACES SHALL HAVE A MAXIMUM SLOPE OF 2% AS MEASURED FROM ANY DIRECTION.
7. NO GRADING EQUIPMENT IS ALLOWED ON-SITE UNTIL CONSTRUCTION ACTIVITIES NPDES PERMIT HAS BEEN OBTAINED THROUGH THE STATE OF NORTH CAROLINA. AN APPROVED SWPPP MUST BE ON-SITE DURING ALL PHASES OF CONSTRUCTION.
8. ALL RIP-RAP IS TO BE INSTALLED WITH FILTER FABRIC BENEATH.
9. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE WITHIN PAVEMENT AREAS TO AVOID ANY PONDING.
10. WHERE ANY PROPOSED EDGE OF PAVEMENT TIES INTO EXISTING, CONTRACTOR IS TO MATCH THAT ELEVATION TO CREATE A SMOOTH TRANSITION.
11. CONTRACTOR SHALL RAISE ALL STRUCTURES TO FINISHED GRADE ELEVATIONS.
12. ALL SPOT ELEVATIONS ARE TO FACE OF CURB/WALL UNLESS OTHERWISE NOTED.
13. FINISHED GRADE ELEVATIONS AND CONTOURS AS SHOWN ARE TO THE TOP OF PAVEMENT, SLAB, RIP-RAP, CURB OR OTHER STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING PROPER SUBGRADE DEPTH FROM FINISHED GRADE.
14. FINISHED GRADE (FG) ELEVATIONS SHOWN ON CIVIL PLANS ARE ELEVATIONS OF FINISHED GRADE NEAR WALL, NOT TOP OF FOOTING.
15. THE INTENT IS THAT EXCAVATED SOILS ARE TO BE REUSED ON-SITE TO THE GREATEST EXTENT PRACTICABLE AND ECONOMICALLY JUSTIFIED PER APPROVAL OF A REGISTERED GEOTECHNICAL ENGINEER. IF REUSE IS NOT PRACTICAL OR ECONOMICAL AND DISPOSAL ON THE GOVERNMENT INSTALLATION IS NOT AVAILABLE, ANY SOIL REMOVED FROM THE CONSTRUCTION SITE SHALL BE TAKEN TO A LICENSED LANDFILL OR DISPOSAL SITE. ANY OTHER LOCATION MUST BE APPROVED BY THE CONTRACTING OFFICER.
16. REFER TO EROSION CONTROL PLANS FOR FINAL GROUND COVER.

LEGEND

- FLARED END SECTION
- CB CATCH BASIN
- YI YARD INLET
- SD STORM DRAIN MANHOLE
- 4.0% FLOW DIRECTION
- RIP-RAP
- TC: XXX.XX SPOT ELEVATION
- SLOT DRAIN
- STORM DRAIN LINE
- 15 MAJOR CONTOUR
- 11 MINOR CONTOUR
- INTERMEDIATE CONTOUR
- DRAINAGE SWALE

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

NORTH (NAD 83)
N

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTIONS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/16/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	9/08/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
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PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

OVERALL GRADING & DRAINAGE PLAN

0 30' 60' 1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-101

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-101 OVERALL GRADING & DRAINAGE PLAN.dwg
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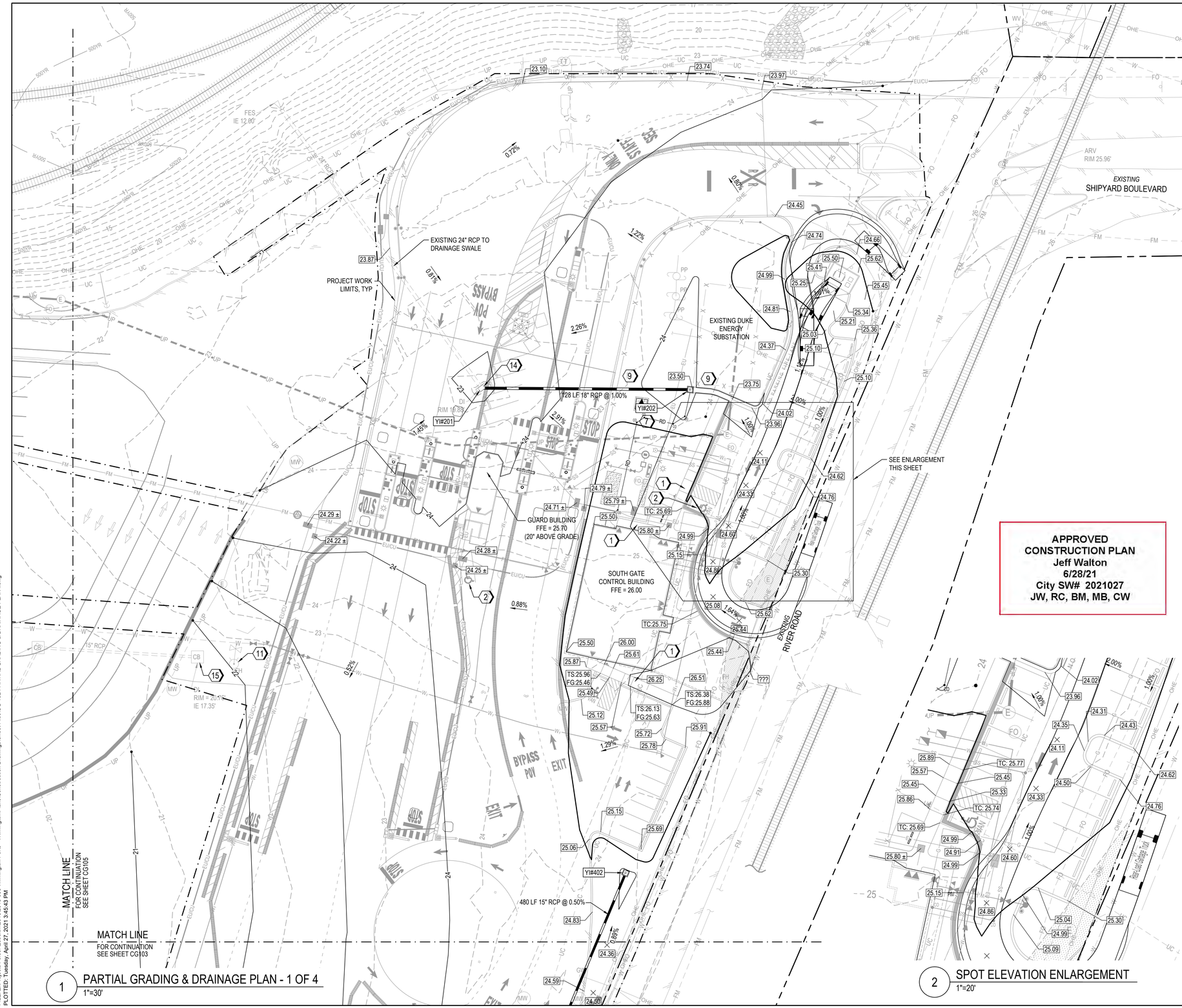


1 PARTIAL GRADING & DRAINAGE PLAN - 1 OF 4
1"=30'

2 SPOT ELEVATION ENLARGEMENT
1"=20'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

LEGEND

- FLARED END SECTION
- CB CATCH BASIN
- YI YARD INLET
- SD STORM DRAIN MANHOLE
- 4.0% FLOW DIRECTION
- RIP-RAP
- TC: XXX.XX SPOT ELEVATION
- SLOT DRAIN
- STORM DRAIN LINE
- 15 MAJOR CONTOUR
- 11 MINOR CONTOUR
- INTERMEDIATE CONTOUR
- DRAINAGE SWALE

KEYNOTES

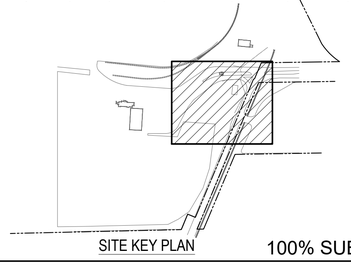
1. ALL SIDEWALKS SHALL HAVE 2% MAX CROSS SLOPE. LONGITUDINAL SLOPE SHALL VARY. MAX 5% ALONG ADA PATHS.
2. ACCESSIBILITY PARKING SPACES. MAXIMUM SLOPE IS 2% IN ANY DIRECTION
3. GRADE SHOULDER AT 1:12 (8.33%)
4. 3:1 SLOPE - REFER TO EROSION CONTROL PLANS FOR GROUND COVER & STABILIZATION
5. CONCRETE YARD INLET. REFER TO 3/CG-501
6. CONCRETE STORM DRAINAGE MANHOLE. REFER TO 5/CG-501
7. CONCRETE CATCH BASIN. REFER TO 3/CG-501
8. SLOT DRAIN WITH CONCRETE APRON. MINIMUM SLOPE=0.5%. REFER TO 1/CG-502
9. STORM DRAIN BEDDING/TRENCH. REFER TO 1/CG-501.
10. REPLACE EXISTING INLET WITH SOLID MANHOLE COVER AND BRING TO FINISHED GRADE
11. RAISE EXISTING STRUCTURE TO GRADE
12. ADS BAYFILTER STORM WATER MANAGEMENT IN CONCRETE VAULT. REFER TO CG-503
13. ADS STORMTECH STORM WATER MANAGEMENT. REFER TO CG-503 AND CG-504
14. CORE INTO EXISTING STRUCTURE. ENSURE WATERTIGHT CONNECTION.
15. RAISE GRATE OF EXISTING INLET TO CREATE SMOOTH TRANSITION.

STORM DRAINAGE TABLE

INLET#	TYPE	RIM ELEV	INV IN (FROM-SIZE)	INV OUT (TO-SIZE)	NORTHING	EASTING
100	EXDI	15.50	5.07 (101-36")	4.72 (-36")	161346.95	2316926.80
101	EXDI	14.88	6.01 (102-30") 6.05 (-18")	6.03 (100-36")	161467.11	2316934.85
102	EXDI	14.90	7.98 (103-30") 6.84 (-36")	6.79 (101-30")	161627.91	2316944.15
103	EXYI	18.81	11.64 (-30")	11.64 (102-30")	161602.28	2317309.04
201	YI	22.81	15.00 (202-18")	14.10 (-24")	162225.05	2317661.31
202	YI	23.50		16.28 (201-18")	162224.16	2317789.33

STORM DRAINAGE TABLE

INLET#	TYPE	RIM ELEV	INV IN (FROM-SIZE)	INV OUT (TO-SIZE)	NORTHING	EASTING
400A	EXCB	16.52	12.20 (400-15")		161352.52	2317188.00
400	SDMH	20.66	16.80 (401-15")	16.70 (400A-15")	161353.68	2317337.16
401	SDMH	23.21	18.10 (402-15")	18.10 (400-15")	161484.69	2317564.17



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	9/25/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL GRADING & DRAINAGE PLAN - 1 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-102

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-102 PARTIAL GRADING & DRAINAGE PLAN I.dwg
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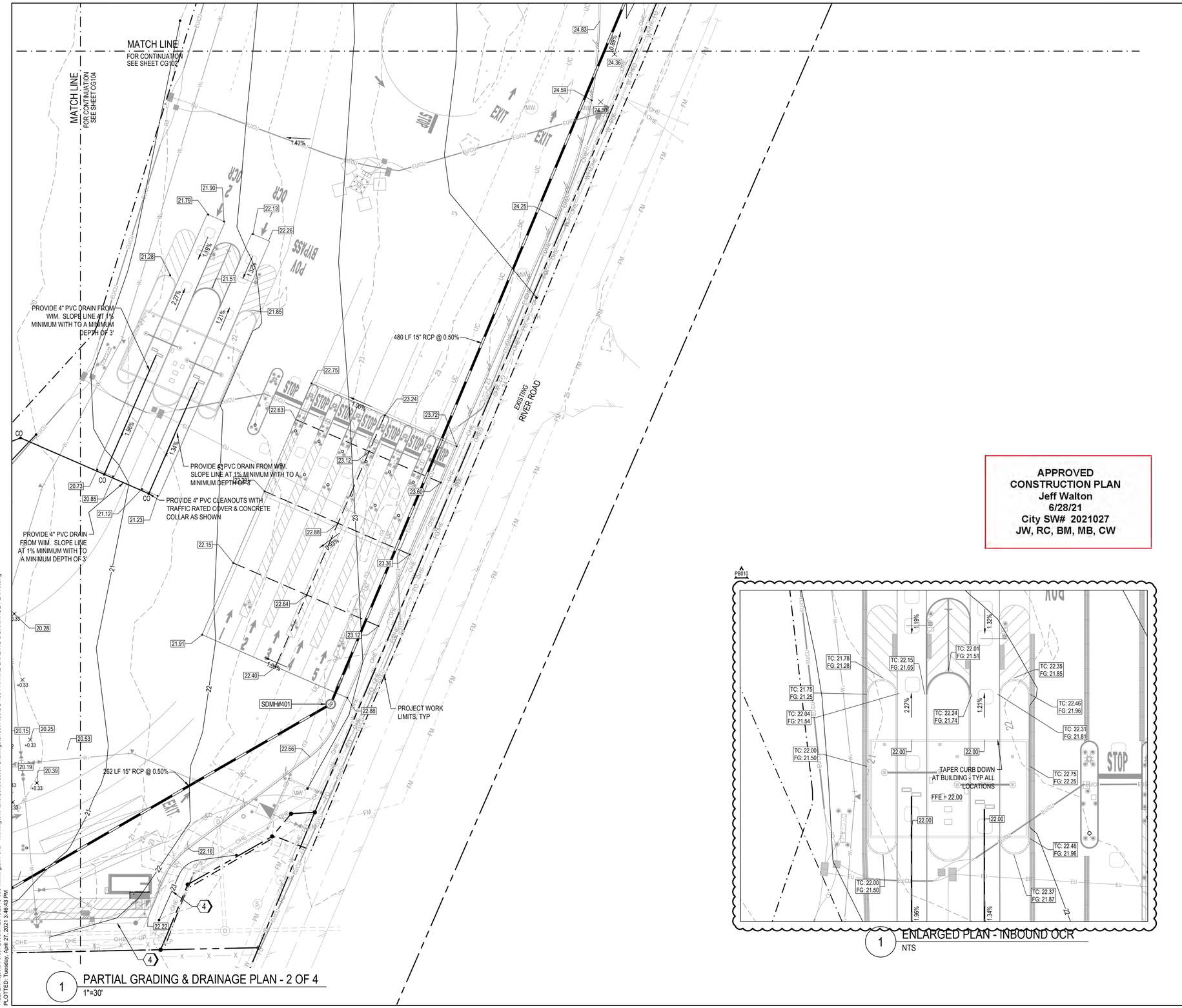

1 PARTIAL GRADING & DRAINAGE PLAN - 2 OF 4
1"=30'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

1 ENLARGED PLAN - INBOUND OCR
NTS

LEGEND

- FLARED END SECTION
- CB CATCH BASIN
- YI YARD INLET
- SD STORM DRAIN MANHOLE
- 4.0% FLOW DIRECTION
- RIP-RAP
- TC: XXX.XX SPOT ELEVATION
- SLOT DRAIN
- STORM DRAIN LINE
- 15 MAJOR CONTOUR
- 11 MINOR CONTOUR
- INTERMEDIATE CONTOUR
- DRAINAGE SWALE

KEYNOTES

1. ALL SIDEWALKS SHALL HAVE 2% MAX CROSS SLOPE. LONGITUDINAL SLOPE SHALL VARY. MAX 5% ALONG ADA PATHS.
2. ACCESSIBILITY PARKING SPACES. MAXIMUM SLOPE IS 2% IN ANY DIRECTION
3. GRADE SHOULDER AT 1:12 (8.33%)
4. 3:1 SLOPE - REFER TO EROSION CONTROL PLANS FOR GROUND COVER & STABILIZATION
5. CONCRETE YARD INLET. REFER TO 3/CG-501
6. CONCRETE STORM DRAINAGE MANHOLE. REFER TO 5/CG-501
7. CONCRETE CATCH BASIN. REFER TO 3/CG-501
8. SLOT DRAIN WITH CONCRETE APRON. MINIMUM SLOPE=0.5%. REFER TO 1/CG-502
9. STORM DRAIN BEDDING/TRENCH. REFER TO 1/CG-501.
10. REPLACE EXISTING INLET WITH SOLID MANHOLE COVER AND BRING TO FINISHED GRADE
11. RAISE EXISTING STRUCTURE TO GRADE
12. ADS BAYFILTER STORM WATER MANAGEMENT IN CONCRETE VAULT. REFER TO CG-503
13. ADS STORMTECH STORM WATER MANAGEMENT. REFER TO CG-503 AND CG-504
14. CORE INTO EXISTING STRUCTURE. ENSURE WATERTIGHT CONNECTION.
15. RAISE GRATE OF EXISTING INLET TO CREATE SMOOTH TRANSITION.
16. PRE-CAST CONCRETE FLOW CONTROL STRUCTURE. REFER TO CG-504

STORM DRAINAGE TABLE

INLET#	TYPE	RIM ELEV	INV IN (FROM-SIZE)	INV OUT (TO-SIZE)	NORTHING	EASTING
100	EXDI	15.50	5.07 (101-36")	4.72 (-36")	161346.95	2316926.80
101	EXDI	14.88	6.01 (102-30") 6.05 (-18")	6.03 (100-36")	161467.11	2316934.85
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STORM DRAINAGE TABLE

INLET#	TYPE	RIM ELEV	INV IN (FROM-SIZE)	INV OUT (TO-SIZE)	NORTHING	EASTING
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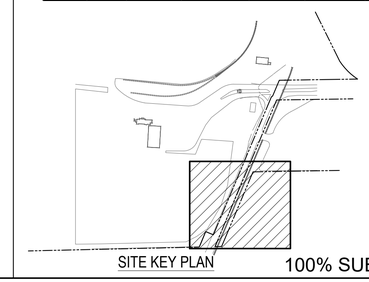
400	SDMH	20.66	16.80 (401-15")	16.70 (400A-15")	161353.68	2317337.16
401	SDMH	23.21	18.10 (402-15")	18.10 (400-15")	161484.69	2317564.17
402	YI	23.80		20.50 (401-15")	161927.66	2317749.75



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	9/08/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
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PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL GRADING & DRAINAGE PLAN - 2 OF 4

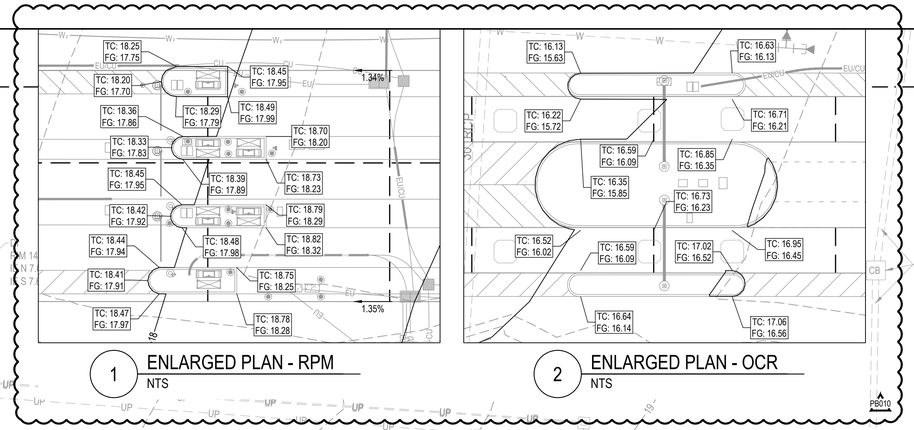
0 15' 30'
1" = 30'-0"

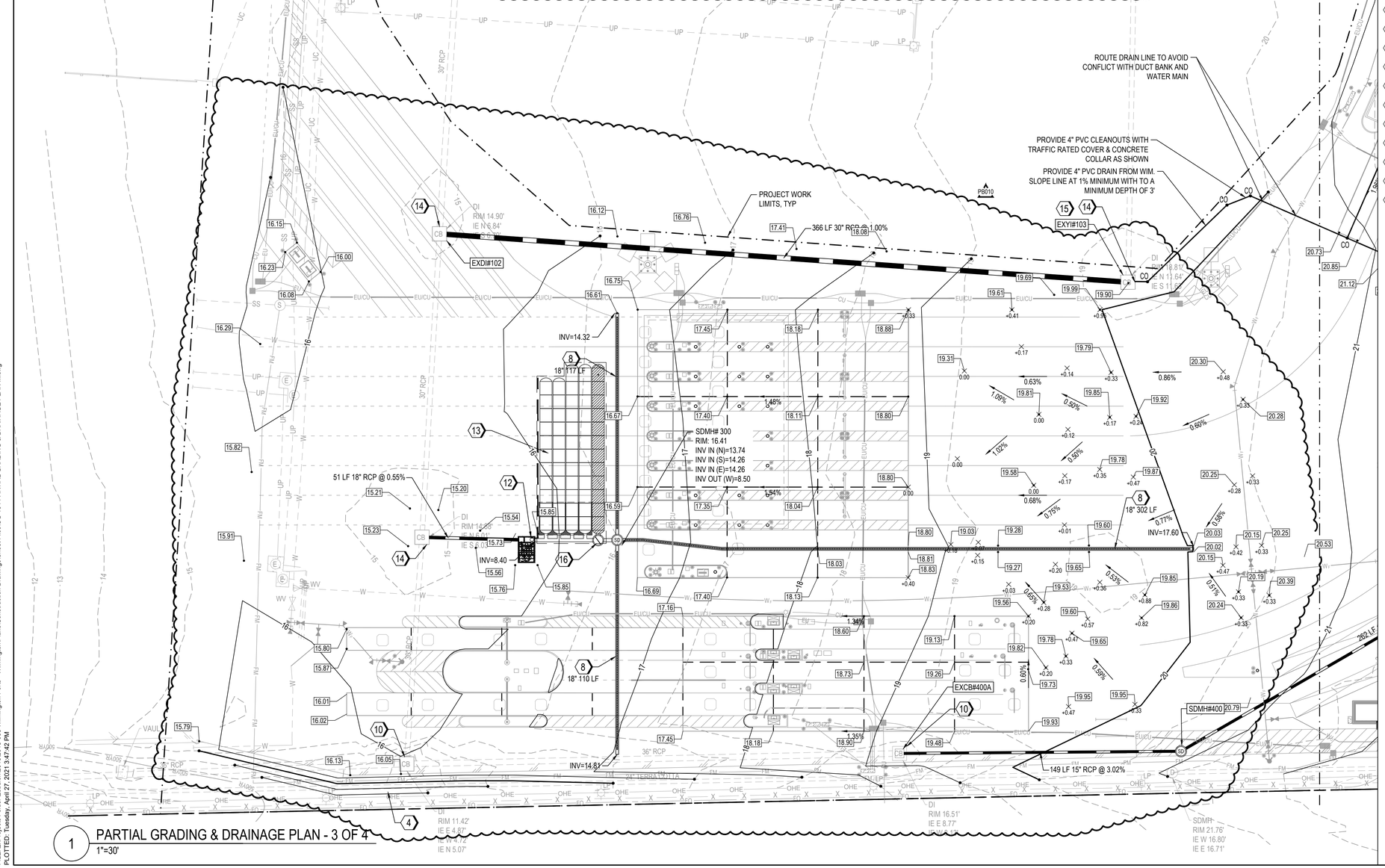
NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-103

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-103 PARTIAL GRADING & DRAINAGE PLAN II.dwg
PLOTTED: Tuesday, April 27, 2021 3:46:43 PM

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW





1 PARTIAL GRADING & DRAINAGE PLAN - 3 OF 4
1"=30'

LEGEND

- FLARED END SECTION
- CB CATCH BASIN
- YI YARD INLET
- SD STORM DRAIN MANHOLE
- 4.0% FLOW DIRECTION
- RIP-RAP
- TC: XXX.XX SPOT ELEVATION
- SLOT DRAIN
- STORM DRAIN LINE
- 15 MAJOR CONTOUR
- 11 MINOR CONTOUR
- INTERMEDIATE CONTOUR
- DRAINAGE SWALE

KEYNOTES

1. ALL SIDEWALKS SHALL HAVE 2% MAX CROSS SLOPE. LONGITUDINAL SLOPE SHALL VARY. MAX 5% ALONG ADA PATHS.
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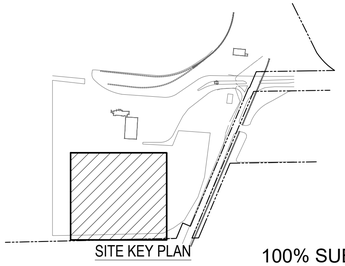
10. REPLACE EXISTING INLET WITH SOLID MANHOLE COVER AND BRING TO FINISHED GRADE
11. RAISE EXISTING STRUCTURE TO GRADE
12. ADS BAYFILTER STORM WATER MANAGEMENT IN CONCRETE VAULT. REFER TO CG-503
13. ADS STORMTECH STORM WATER MANAGEMENT. REFER TO CG-503 AND CG-504
14. CORE INTO EXISTING STRUCTURE. ENSURE WATERTIGHT CONNECTION.
15. RAISE GRATE OF EXISTING INLET TO CREATE SMOOTH TRANSITION.
16. PRE-CAST CONCRETE FLOW CONTROL STRUCTURE. REFER TO CG-504

STORM DRAINAGE TABLE

INLET#	TYPE	RIM ELEV	INV IN (FROM-SIZE)	INV OUT (TO-SIZE)	NORTHING	EASTING
100	EXDI	15.50	5.07 (101-36")	4.72 (-36")	161346.95	2316926.80
101	EXDI	14.88	6.01 (102-30") 6.05 (-18")	6.03 (100-36")	161467.11	2316934.85
102	EXDI	14.90	7.98 (103-30") 6.84 (-36")	6.79 (101-30")	161627.91	2316944.15
103	EXYI	18.81	11.64 (-30")	11.64 (102-30")	161602.28	2317309.04
201	YI	22.81	15.00 (202-18")	14.10 (-24")	162225.05	2317661.31
202	YI	23.50		16.28 (201-18")	162224.16	2317789.33

STORM DRAINAGE TABLE

INLET#	TYPE	RIM ELEV	INV IN (FROM-SIZE)	INV OUT (TO-SIZE)	NORTHING	EASTING
400A	EXCB	16.52	12.20 (400-15")		161352.52	2317188.00
400	SDMH	20.66	16.80 (401-15")	16.70 (400A-15")	161353.68	2317337.16
401	SDMH	23.21	18.10 (402-15")	18.10 (400-15")	161484.69	2317564.17
402	YI	23.80		20.50 (401-15")	161927.66	2317749.75



NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
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PB03	CONSTRUCTION REVISION	10/02/2020	ASP
PB06.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/12/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL GRADING & DRAINAGE PLAN - 3 OF 4

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-104

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-104 PARTIAL GRADING & DRAINAGE PLAN III.dwg
PLOTTED: Tuesday, April 27, 2021 3:47:42 PM

1 PARTIAL GRADING & DRAINAGE PLAN - 4 OF 4
1"=30'

LEGEND

- FLARED END SECTION
- CB CATCH BASIN
- YI YARD INLET
- SD STORM DRAIN MANHOLE
- 4.0% FLOW DIRECTION
- RIP-RAP
- TC: XXX.XX SPOT ELEVATION
- SLOT DRAIN
- STORM DRAIN LINE
- 15 MAJOR CONTOUR
- 11 MINOR CONTOUR
- INTERMEDIATE CONTOUR
- DRAINAGE SWALE

KEYNOTES

1. ALL SIDEWALKS SHALL HAVE 2% MAX CROSS SLOPE. LONGITUDINAL SLOPE SHALL VARY. MAX 5% ALONG ADA PATHS.
2. ACCESSIBILITY PARKING SPACES. MAXIMUM SLOPE IS 2% IN ANY DIRECTION
3. GRADE SHOULDER AT 1:12 (8.33%)
4. 3:1 SLOPE - REFER TO EROSION CONTROL PLANS FOR GROUND COVER & STABILIZATION
5. CONCRETE YARD INLET. REFER TO 3/CG-501
6. CONCRETE STORM DRAINAGE MANHOLE. REFER TO 5/CG-501
7. CONCRETE CATCH BASIN. REFER TO 3/CG-501
8. SLOT DRAIN WITH CONCRETE APRON. MINIMUM SLOPE=0.5%. REFER TO 1/CG-502
9. STORM DRAIN BEDDING/TRENCH. REFER TO 1/CG-501.
10. REPLACE EXISTING INLET WITH SOLID MANHOLE COVER AND BRING TO FINISHED GRADE
11. RAISE EXISTING STRUCTURE TO GRADE
12. ADS BAYFILTER STORM WATER MANAGEMENT IN CONCRETE VAULT. REFER TO CG-503
13. ADS STORMTECH STORM WATER MANAGEMENT. REFER TO CG-503 AND CG-504
14. CORE INTO EXISTING STRUCTURE. ENSURE WATERTIGHT CONNECTION.
15. RAISE GRATE OF EXISTING INLET TO CREATE SMOOTH TRANSITION.
16. PRE-CAST CONCRETE FLOW CONTROL STRUCTURE. REFER TO CG-504

REV	DESCRIPTION	DATE	APP BY
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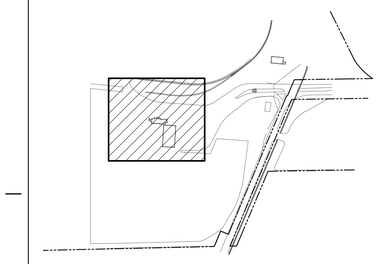
Curry ENGINEERING

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE
PARTIAL GRADING & DRAINAGE PLAN - 4 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-105

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-105 PARTIAL GRADING & DRAINAGE PLAN IV.dwg
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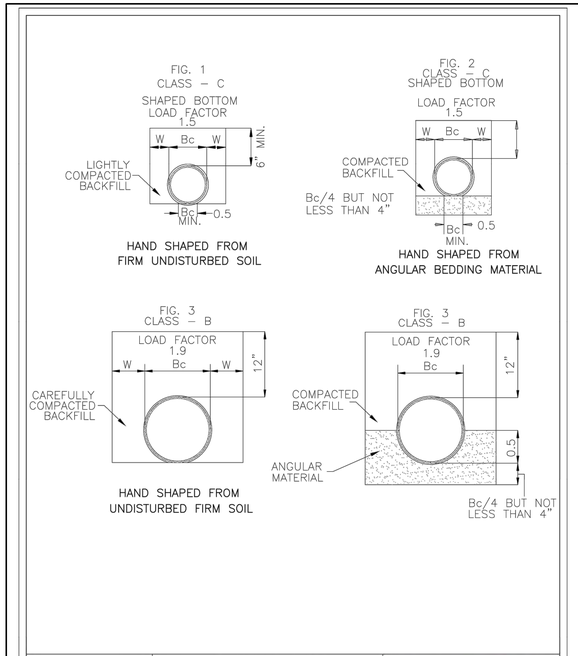


STANDARD DETAIL

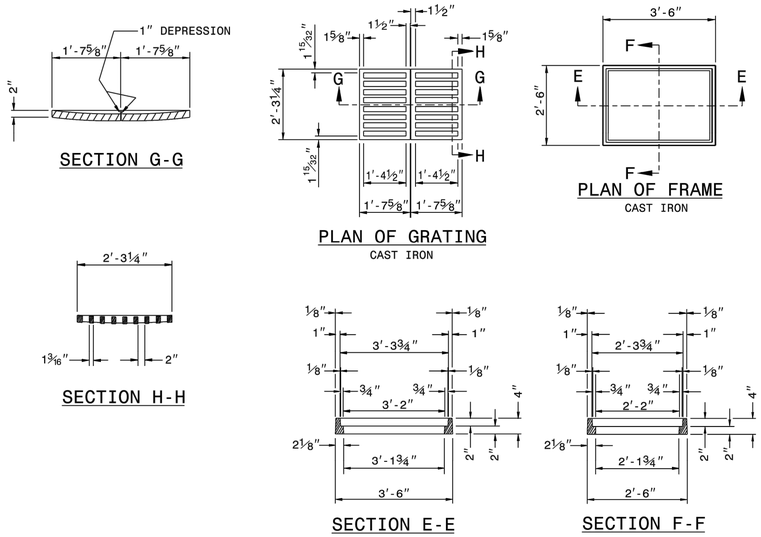
GUIDELINES FOR BEDDING DETAILS, STORM SEWER CLASSES (B & C)

CITY OF WILMINGTON NORTH CAROLINA
CITY OF WILMINGTON ENGINEERING
PO BOX 1810
WILMINGTON, NC 28402
(910) 341-7807

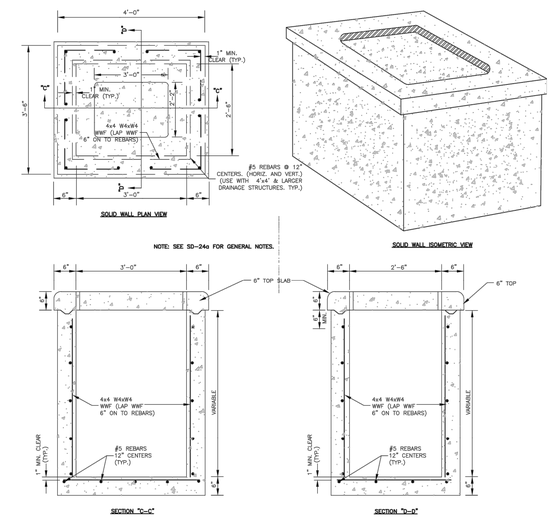
DATE:	2001
DRAWN BY	JSR/CMR
CHECKED BY	B.P., P.E.
SCALE	NOT TO SCALE

SD 2-17

1 STORM DRAIN PIPE BEDDING
NTS



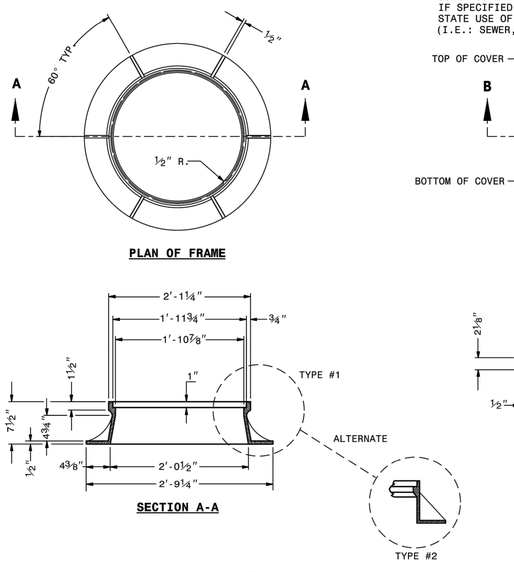
2 TRAFFIC BEARING CASTING
NTS



3 TRAFFIC BEARING DRAINAGE STRUCTURE
NTS

GENERAL NOTES:

* USE 4000 PSI CONCRETE, PROVIDE FOR HL-93 TRAFFIC LOADING.
* PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FAVRIC CONFORMING TO ASTM A185,
* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704
* PROVIDE FORMED OPENINGS, FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. SEAL OPENINGS WITH HYDRAULIC CEMENT.
* ALL ELEMENTS PRECAST TO MEET ASTM C913.
* SET ON 6" WASHED STONE
* FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH BRICK.
* PROVIDE PRECAST STURCTURES OVER 4'-0" IN DEPTH WITH STEPS/LADDER INSTALLED IN ACCORDANCE WITH ASHA STANDARD 1910.27 AND AS FIELD CONDITIONS DICTATE.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
* SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-19B, TYPE B – BUTYL RUBBER
* USE FRAME AND GRATE AS PER SD-19.
* GROUT INVERT TO PROVIDE SMOOTH FLOW



MINIMUM WEIGHTS - LBS.
FRAME - 180
COVER - 120
TOTAL - 300

4 STORM DRAINAGE MANHOLE CASTINGS
NTS

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A1064 WELDED WIRE FABRIC (WWF).

FABRICATE, ASSEMBLE AND DESIGN PRECAST MANHOLE COMPONENTS ACCORDANCE WITH AASHTO M199.

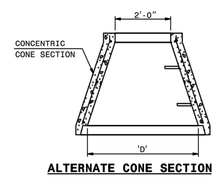
ASSEMBLE RISER AND GRADE RINGS WITH THE STEPS SPACED 12" FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, CONSTRUCT THE TOP OF THE MANHOLE FLUSH WITH THE GROUND AND A MINIMUM OF 9" ABOVE THE GROUND AT OTHER LOCATIONS.

LIMIT DEPTH OF FILL TO 30'-0" FROM FINISH GRADE TO TOP OF BOTTOM SLAB.

THE MIN. SLAB THICKNESS 'T' IS THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

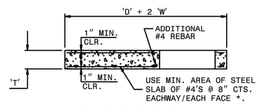
* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.



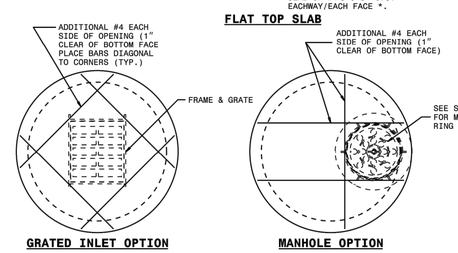
ALTERNATE CONE SECTION

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
4	4	6	0.12
5	5	8	0.15
6	6	8	0.18

FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING:	840.22
	840.24
	840.25
	840.29
	840.33

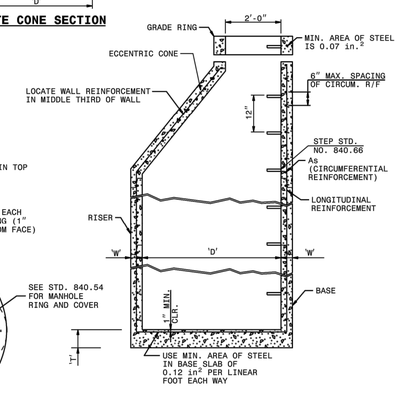


FLAT TOP SLAB



GRATED INLET OPTION

MANHOLE OPTION



TYPICAL MANHOLE SECTION

5 STORM DRAINAGE MANHOLE
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

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DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

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MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

GRADING & DRAINAGE DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

100% SUBMISSION

CG-501

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-501 GRADING & DRAINAGE DETAILS.dwg
PLOTTED: Tuesday, April 27, 2021 3:48:20 PM

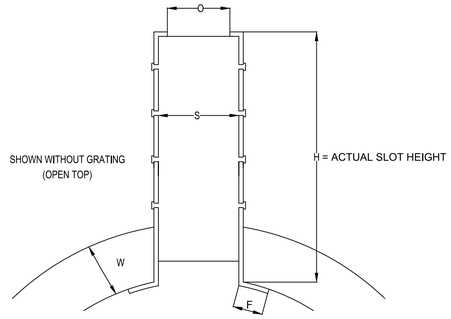
BASIS OF DESIGN

SLOT DRAIN: DURASLOT SURFACE DRAINS VARIABLE HEIGHT RISERS - ADS PIPE

MANUFACTURER'S NAME AND/OR MODEL NUMBERS ARE BEING UTILIZED FOR BASIS OF DESIGN ONLY. THE CONTRACT DOCUMENTS OUTLINE THE SPECIFIC CRITERIA FOR THE MATERIAL/EQUIPMENT AND IS NON-PROPRIETARY.

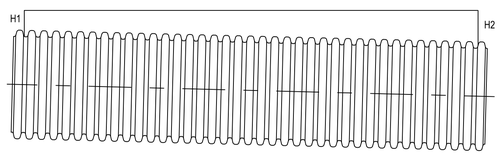
NOTES:

1. SLOT HEIGHTS TO CONFORM TO DIMENSIONS ON PROJECT PLANS. 'H' AT EACH END OF EACH LENGTH OF DURASLOT® TO BE DETAILED ON SLOT DIMENSIONS LAYOUTS FOR APPROVAL BEFORE PRODUCTION.
2. DIMENSION FROM GRADE TO PIPE INVERT: H (ACTUAL SLOT HEIGHT) + PIPE DIAMETER + RECESS (7/8"-1 1/2")
3. H1 AND H2 VARY BASED ON PROJECT SPECIFICATIONS.



12" - 36" PIPE WITH 6" SLOT RISER

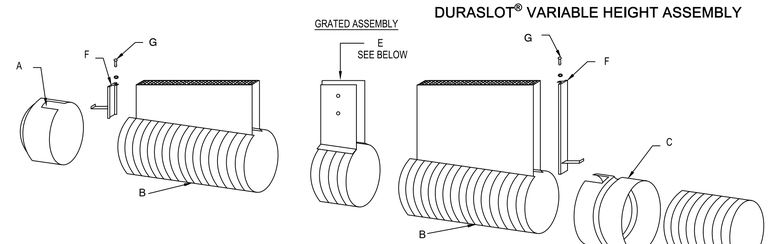
PIPE DIAM.	H	W	F	O	S	PRODUCT # (GRATED)	PRODUCT # (OPEN TOP)
12" (300mm)	7.0" (178mm)	1.125" (29mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1260DS	1260DSOT
15" (375mm)	7.0" (178mm)	1.25" (32mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1560DS	1560DSOT
18" (450mm)	7.0" (178mm)	1.5" 38mm)	0.75" (19mm)	1.75" (44mm)	2.25" (57mm)	1860DS	1860DSOT
24" (600mm)	7.25" (184mm)	1.875" (48mm)	1.0" (25mm)	1.75" (44mm)	2.25" (57mm)	2460DS	2460DSOT
30" (750mm)	8.25" (210mm)	2.55" (65mm)	1" (25mm)	1.75" (45mm)	2.25" (57mm)	3060DS	3060DSOT
36" (900mm)	8.25" (210mm)	2.85" (72mm)	1" (25mm)	1.75" (45mm)	2.25" (57mm)	3660DS	3660DSOT



ELEVATION VIEW

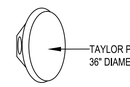
DURASLOT® VARIABLE HEIGHT ASSEMBLY

GRATED ASSEMBLY

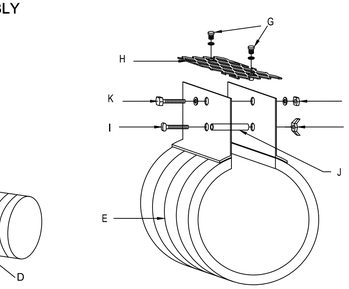


A. DURASLOT END CAP OR TAYLOR PLUG FOR 30" & 36" PIPE
B. DURASLOT PIPE
C. DURASLOT ADAPTER
D. N-12 PIPE
E. DURASLOT COUPLER BAND
F. DURASLOT GRATE ANCHOR

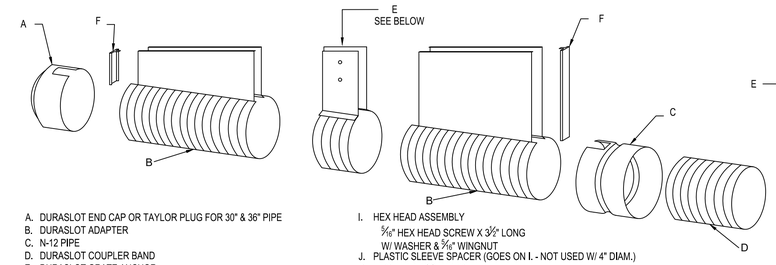
G. 7/8" SPHS X 1" LONG W/ WASHER
H. DURASLOT GRATE CONNECTOR
I. 5/16" HEX HEAD SCREW X 3 1/2" LONG W/ WASHER & 5/16" WINGNUT
J. PLASTIC SLEEVE SPACER (GOES ON I. - NOT USED W/ 4" DIAM.)
K. HEX HEAD ASSEMBLY:
5/16" HEX HEAD SCREW X 3 1/2" LONG
W/ (2) WASHERS AND 5/16" HEX NUT



NOTES:
1. EACH CAP (A) & ADAPTER (C) COMES WITH AN ANCHOR (F)
2. EACH COUPLER BAND (E) COMES WITH HARDWARE - I,J,K, & L



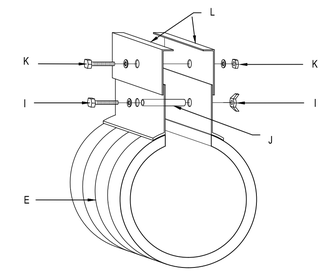
OPEN TOP ASSEMBLY



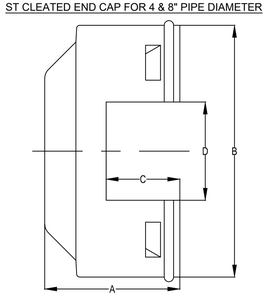
A. DURASLOT END CAP OR TAYLOR PLUG FOR 30" & 36" PIPE
B. DURASLOT ADAPTER
C. N-12 PIPE
D. DURASLOT COUPLER BAND
E. DURASLOT GRATE ANCHOR

I. HEX HEAD ASSEMBLY
5/16" HEX HEAD SCREW X 3 1/2" LONG
W/ WASHER & 5/16" WINGNUT
J. PLASTIC SLEEVE SPACER (GOES ON I. - NOT USED W/ 4" DIAM.)
K. HEX HEAD ASSEMBLY:
5/16" HEX HEAD SCREW X 3 1/2" LONG
W/ (2) WASHERS AND 5/16" HEX NUT
L. DURASLOT BAND FLANGES

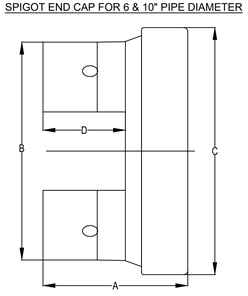
NOTES:
1. EACH CAP (A) & ADAPTER (C) COMES WITH A CAP (F)
2. EACH COUPLER BAND (E) COMES WITH HARDWARE (I,J,K, & L)



ST CLEATED END CAP FOR 4 & 8" PIPE DIAMETER



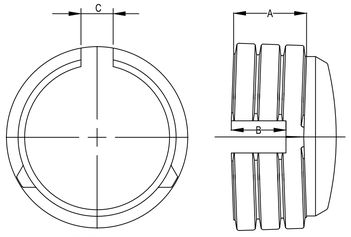
SPIGOT END CAP FOR 6 & 10" PIPE DIAMETER



STANDARD & VARIABLE SLOT RISER END CAP DIMENSIONS

PIPE DIAM.	A	B	C	D	PRODUCT #
12" (300mm)	5.76" (146mm)	4.25" (108mm)	2.5" (64mm)	NA	1233DS
15" (375mm)	7.77" (197mm)	6.25" (159mm)	2.5" (64mm)	NA	1533DS
18" (450mm)	8.04" (204mm)	6.50" (165mm)	2.5" (64mm)	NA	1833DS
24" (600mm)	9.45" (240mm)	8" (200mm)	2.5" (64mm)	NA	2433DS
30" (750mm)	NA	NA	NA	NA	3033AA
36" (900mm)	NA	NA	NA	NA	3633AA

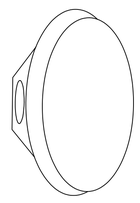
SPLIT END CAP FOR 12" - 24" PIPE DIAMETER



END VIEW

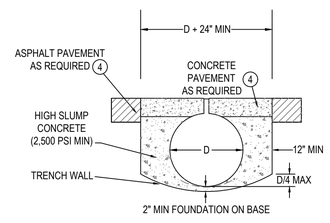
TOP VIEW

TAYLOR END PLUG FOR 30 & 36" PIPE DIAMETER



NOTES:
1. ALL FITTINGS DIMENSIONS ARE FOR REFERENCE ONLY
2. THE TAYLOR END PLUG IS UTILIZED AS A PERMANENT END TREATMENT WITH DURASLOT PIPE BECAUSE THE ENTIRE SYSTEM IS ENCASED IN CONCRETE

1 SURFACE SLOT DRAINS
NTS



1. 6" MINIMUM GRATE DEPTH, WITH DOUBLE THE STANDARD WELDING TO PIPE AND ANY PLATE EXTENDERS.
2. GRATE RECESSED 1/4" MINIMUM BELOW TRAFFIC SURFACE.
3. DETAILS APPLY TO AIRCRAFT, OFF HIGHWAY, AND LOADS WHERE TIRE PRESSURES EXCEED 185 psi. SOME SITE CONDITIONS AND LEADING/DRAIN SIZE COMBINATIONS MAY HAVE ADDITIONAL REQUIREMENTS.
4. 8" THICK CONCRETE PAVEMENT. MINIMUM 4,000 PSI. IF CONCRETE PAVEMENT ELSEWHERE IS REINFORCED, CONTINUE THIS SAME REINFORCEMENT INTO THE SLOTTED DRAIN ZONE. MINIMUM STEEL REINFORCEMENT AS REQUIRED TO MINIMIZE TEMPERATURE CRACKING OF THE CONCRETE IS RECOMMENDED IN THE SLOTTED DRAIN ZONE. INSTALL EXPANSION JOINT IF ABUTTING WITH EXISTING OR PROPOSED PAVEMENT.

2 CONCRETE ENCASEMENT
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
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Curry ENGINEERING

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CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

GRADING & DRAINAGE DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-502

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-502 GRADING & DRAINAGE DETAILS.dwg
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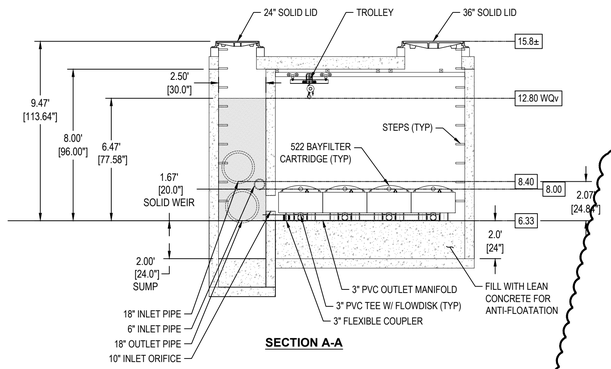
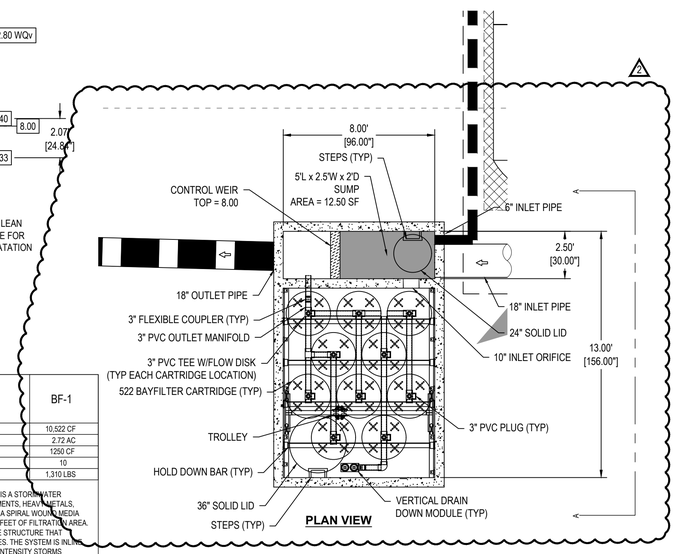
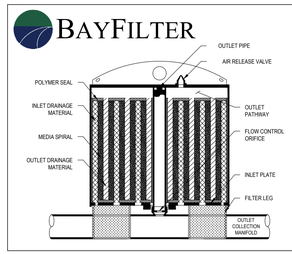


SECTION A-A



PLAN VIEW



522 BAYFILTER 8-13-10	BF-1
WATER QUALITY VOLUME	10.522 CF
DRAINAGE AREA	2.72 AC
CARTRIDGE DESIGN VOLUME	1250 CF
# BAYFILTER CARTRIDGES	10
CAPTURED SEDIMENT CAPACITY*	1,310 LBS

THE BAYFILTER STORMWATER MANAGEMENT SYSTEM IS A STORMWATER FILTRATION DEVICE DESIGNED TO REMOVE FINE SEDIMENTS, HEAVY METALS, AND PHOSPORUS. THE BAYFILTER SYSTEM RELIES ON A SPIRAL WOUND MEDIA FILTER CARTRIDGE WITH APPROXIMATELY 45 SQUARE FEET OF FILTRATION AREA. THE FILTER CARTRIDGES ARE HOUSED IN A CONCRETE STRUCTURE THAT EVENLY DISTRIBUTES THE FLOW BETWEEN CARTRIDGES. THE SYSTEM IS INLINE WITH AN INTERNAL BYPASS WEIR THAT ROUTES HIGH INTENSITY STORMS AROUND THE CARTRIDGES. THE FILTER CARTRIDGES REMOVE POLLUTANTS FROM RUNOFF BY FILTRATION (INTERCEPTION/ATTACHMENT) AND ADSORPTION.

*SEDIMENT CAPTURE PER CURRENT NCDENR APPROVAL

BAYSAVER BAYFILTER SPECIFICATIONS

PRODUCTS

A. INTERNAL COMPONENTS: ALL COMPONENTS INCLUDING CONCRETE STRUCTURE(S), PVC MANIFOLD PIPING AND FILTER CARTRIDGES, SHALL BE PROVIDED BY BAYSAVER TECHNOLOGIES LLC, 1030 DEER HOLLOW DRIVE, MOUNT AIRY, MD (800.229.7283).

B. PVC MANIFOLD PIPING: ALL INTERNAL PVC PIPE AND FITTINGS SHALL MEET ASTM D1785. MANIFOLD PIPING SHALL BE PROVIDED TO THE CONTRACTOR PARTIALLY PRE-CUT AND PRE-ASSEMBLED.

C. FILTER CARTRIDGES: EXTERNAL SHELL OF THE FILTER CARTRIDGES SHALL BE SUBSTANTIALLY CONSTRUCTED OF POLYETHYLENE OR EQUIVALENT MATERIAL ACCEPTABLE TO THE MANUFACTURER. FILTRATION MEDIA SHALL BE ARRANGED IN A SPIRAL LAYERED FASHION TO MAXIMIZE AVAILABLE FILTRATION AREA. AN ORIFICE PLATE SHALL BE SUPPLIED WITH EACH CARTRIDGE TO RESTRICT THE FLOW RATE TO A MAXIMUM OF 45 GPM.

D. FILTER MEDIA: FILTER MEDIA SHALL BE BY BAYSAVER TECHNOLOGIES LLC AND SHALL CONSIST OF THE FOLLOWING MIX: A BLEND OF ZEOLITE, PERLITE AND ACTIVATED ALUMINA.

E. PRECAST CONCRETE VAULT: CONCRETE STRUCTURES SHALL BE PROVIDED ACCORDING TO ASTM C. THE MATERIALS AND STRUCTURAL DESIGN OF THE DEVICES SHALL BE PER ASTM C478, C857 AND C858. PRECAST CONCRETE SHALL BE PROVIDED BY BAYSAVER TECHNOLOGIES, LLC.

PERFORMANCE

A. THE STORMWATER FILTER SYSTEM SHALL BE AN OFFLINE DESIGN CAPABLE OF TREATING 100% OF THE REQUIRED TREATMENT FLOW AT FULL SEDIMENT LOAD CONDITIONS.
B. THE STORMWATER FILTER SYSTEM'S CARTRIDGES SHALL HAVE NO MOVING PARTS.
C. THE STORMWATER TREATMENT UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 85% OF SUSPENDED SOLIDS, 65% OF TOTAL PHOSPHORUS, 65% OF TURBIDITY, 40% OF TOTAL COPPER, AND 40% OF TOTAL ZINC BASED ON FIELD DATA COLLECTED IN COMPLIANCE WITH THE TECHNOLOGY ACCEPTANCE RECIPROCITY PARTNERSHIP TIER II TEST PROTOCOL.
D. THE STORMWATER FILTRATION SYSTEM SHALL REDUCE INCOMING TURBIDITY (MEASURED AS NTUs) BY 50% OR MORE AND SHALL NOT HAVE ANY COMPONENTS THAT LEACH NITRATES OR PHOSPHATES.
E. THE STORMWATER FILTRATION CARTRIDGE SHALL BE EQUIPPED WITH A HYDRODYNAMIC BACKWASH MECHANISM TO EXTEND THE FILTER'S LIFE AND OPTIMIZE ITS PERFORMANCE.
F. THE STORMWATER FILTRATION SYSTEM SHALL BE DESIGNED TO REMOVE A MINIMUM OF 65% OF THE INCOMING TOTAL PHOSPHORUS (TP) LOAD.
G. THE STORMWATER FILTRATION SYSTEM'S CARTRIDGES SHALL HAVE A TREATED SEDIMENT CAPACITY FOR 80% TSS REMOVAL BETWEEN 150-350 LBS.

MANUFACTURER'S NAME AND/OR MODEL NUMBERS ARE BEING UTILIZED FOR BASIS OF DESIGN ONLY. THESE CONTRACT DOCUMENTS OUTLINE THE SPECIFIC CRITERIA FOR THE MATERIAL/EQUIPMENT AND IS NON-PROPRIETARY. ALL PRODUCTS SHALL BE CONSIDERED "OR APPROVED EQUAL".

STORMTECH CHAMBER SHALL BE CLEANED OF ANY SEDIMENT PRIOR TO BEING PLACED INTO OPERATION FOR STORMWATER MANAGEMENT. ALL SEDIMENT MUST BE REMOVED FROM STORMTECH CHAMBERS AND ALL AREAS UPSTREAM OF THE SYSTEM SHALL BE FULL STABILIZED PRIOR TO INSTALLATION OF THE BAYFILTER CARTRIDGES. ANY SEDIMENT IN BAYFILTER VAULT SHALL BE REMOVED PRIOR TO INSTALLATION OF CARTERIDGES.

1 BAY FILTER
NTS

BAYFILTER MAINTENANCE

THE BAYFILTER SYSTEM REQUIRES PERIODIC MAINTENANCE TO CONTINUE OPERATING AT ITS PEAK EFFICIENCY DESIGN. THE MAINTENANCE PROCESS COMPRISES THE REMOVAL AND REPLACEMENT OF EACH BAYFILTER CARTRIDGE AND THE CLEANING OF THE VAULT OR MANHOLE WITH A VACUUM TRUCK. FOR BEST RESULTS, BAYFILTER MAINTENANCE SHOULD BE PERFORMED BY A CERTIFIED MAINTENANCE CONTRACTOR. A QUICK CALL TO AN ADS ENGINEER OR CUSTOMER SERVICE REPRESENTATIVE WILL PROVIDE YOU WITH A LIST OF RELIABLE CONTRACTORS IN YOUR AREA.

WHEN BAYFILTER IS INITIALLY INSTALLED, WE RECOMMEND THAT AN INSPECTION BE PERFORMED ON THE SYSTEM IN THE FIRST SIX (6) MONTHS. AFTER THAT, THE INSPECTION CYCLE TYPICALLY FALLS INTO A BIANNUAL PATTERN GIVEN NORMAL STORM OCCURRENCE AND ACTUAL SOLIDS LOADS.

WHEN BAYFILTER EXHIBITS FLOWS BELOW DESIGN LEVELS, THE SYSTEM SHOULD BE INSPECTED AND MAINTAINED AS SOON AS PRACTICAL. REPLACING A BAYFILTER CARTRIDGE SHOULD BE CONSIDERED AT OR ABOVE THE LEVEL OF THE MANIFOLD.

MAINTENANCE PROCEDURES

1. REMOVE THE MANHOLE COVERS AND OPEN ALL ACCESS HATCHES.
2. BEFORE ENTERING THE SYSTEM MAKE SURE THE AIR IS SAFE PER OSHA STANDARDS OR USE A BREATHING APPARATUS. USE LOW O2, HIGH CO, OR OTHER APPLICABLE WARNING DEVICES PER REGULATORY REQUIREMENTS.
3. USING A VACUUM TRUCK, REMOVE ANY LIQUID AND SEDIMENTS THAT CAN BE REMOVED PRIOR TO ENTRY.
4. USING A SMALL LIFT OR THE BOOM OF THE VACUUM TRUCK, REMOVE THE USED CARTRIDGES BY LIFTING THEM OUT.
5. ANY CARTRIDGES THAT CANNOT BE READILY LIFTED CAN BE EASILY SLID ALONG THE FLOOR TO A LOCATION THEY CAN BE LIFTED VIA A BOOM LIFT.
6. WHEN ALL THE CARTRIDGES HAVE BEEN REMOVED, IT IS NOW PRACTICAL TO REMOVE THE BALANCE OF THE SOLIDS AND WATER. LOOSEN THE STAINLESS CLAMPS ON THE FERNCO COUPLINGS FOR THE MANIFOLD AND REMOVE THE DRAINPIPES AS WELL. CAREFULLY CAP THE MANIFOLD AND THE FERNCO'S AND RINSE THE FLOOR, WASHING AWAY THE BALANCE OF ANY REMAINING COLLECTED SOLIDS.
7. CLEAN THE MANIFOLD PIPES, INSPECT, AND REINSTALL.
8. INSTALL THE EXCHANGE CARTRIDGES AND CLOSE ALL COVERS.
9. THE USED CARTRIDGES MUST BE SENT BACK TO ADS FOR EXCHANGE/RECYCLING AND CREDIT ON UNDAMAGED UNITS.

BAYFILTER INSTALLATION NOTES

1. CONTACT UTILITY LOCATOR TO MARK ANY NEARBY UNDERGROUND UTILITIES AND MAKE SURE IT IS SAFE TO EXCAVATE.
2. REFERENCE THE SITE PLAN AND STAKE OUT THE LOCATION OF THE BAYFILTER VAULT.
3. EXCAVATE THE HOLE, PROVIDING ANY SHEETING AND SHORING NECESSARY TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY REGULATIONS.
4. LEVEL THE SUB-GRADE TO THE PROPER ELEVATION. VERIFY THE ELEVATION AGAINST THE MANHOLE DIMENSIONS, THE INVERT ELEVATIONS, AND THE SITE PLANS. ADJUST THE BASE AGGREGATE, IF NECESSARY.
5. HAVE THE SOIL BEARING CAPACITY VERIFIED BY A LICENSED/ENGINEER FOR THE REQUIRED LOAD BEARING CAPACITY. ON SOLID SUB-GRADE, SET THE FIRST SECTION OF THE BAYFILTER PRE-CAST VAULT.
6. CHECK THE LEVEL AND ELEVATION OF THE FIRST SECTION TO ENSURE IT IS CORRECT BEFORE ADDING ANY RISER SECTIONS.
7. IF ADDITIONAL SECTION(S) ARE REQUIRED, ADD A WATERTIGHT SEAL TO THE FIRST SECTION OF THE BAYFILTER VAULT. SET ADDITIONAL SECTION(S) OF THE VAULT, ADDING A WATERTIGHT SEAL TO EACH JOINT.
8. INSTALL THE PVC OUTLET MANIFOLD.
9. INSTALL THE PVC OUTLET PIPE IN BAYFILTER VAULT.
10. INSTALL THE INLET PIPE TO THE BAYFILTER VAULT.
11. AFTER THE SITE IS STABILIZED, REMOVE ANY ACCUMULATED SEDIMENT OR DEBRIS FROM THE VAULT AND INSTALL THE FLOW DISKS, DRAINDOWN MODULES (IF APPLICABLE), AND THE BAYFILTER CARTRIDGES.
12. PLACE FULL SET OF HOLD DOWN BARS AND BRACKETS INTO PLACE.

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

Project Data		Revisions		
Project #	2018-053	No	Date	Description
Project Name	NCSPA			
Date	1/22/2020			

Standard Drainage Structure
AntiFloatation - BayFilter VLT

Step 1. DETERMINE BOUYANT FORCES
Volume = Depth * Area
Depth = Structure Top Elev - Structure Bottom Elev

Structure Top Elev. =	14.33	ft
Bottom of Structure Elev. =	6.33	ft
Structure Wall Thickness =	0.50	ft
Inside Width =	8.00	ft
Inside Length =	13.00	ft
Area = LxW =		
Area (@ outside dim)=	126.00	sf
Volume =	1,008.00	cf
times wt of water	62.4	lbs/cf
Bouyant Force =	62,899	lbs

Step 2. DETERMINE COUNTERWEIGHT REQUIREMENTS

Structure Top		
Top Elevation =	14.33	
Thickness =	1	ft
Outside Width =	9.00	ft
Outside Length=	14.00	ft
Volume =	126.00	cf
Structure Walls		
Inside Width =	8.00	ft
Inside Length =	13.00	ft
Wall Thickness =	0.50	ft
Height =	7.92	ft
Volume =	174.17	cf
Structure Bottom		
Bottom Elevation =	6.33	
Outside Width =	9.00	ft
Outside Length =	14.00	
Thickness=	0.50	ft
Volume =	63.00	cf
Concrete Weir Wall		
Width =	0.50	ft
Length =	13.00	ft
Height =	6.50	ft
Volume =	42.25	cf
Total Volume =	405.42	cf
x unit weight of reinforced conc.	150	lbs/cf
Concrete Counterweight =	60,813	lbs
Factor of Safety Provided [FSP] =	0.97	
Additional Concrete Required [Y/N] =	Y	
Amount of Concrete Required =	20,956	lbs

Summary
Add minimum 24 inches below invert of pond

Step 3. *ADD CONCRETE BELOW INVERT IN Structure*

Area of Structure (@inside diam) =	104.00	sf
Volume Required =	239.23	cf
Estimated Depth of Concrete =	2.30	ft
Actual Depth Used =	24	in
Backcheck Volume =	208.00	cf
Backcheck Weight of Added Conc	18221	lb
Factor of Safety =	1.26	
Factor of Safety > 1.30 [Y/N] =	Y	

2 ANTIFLOATATION CALCULATIONS
NTS

Project Data		Revisions		
Project #	2018-053	No	Date	Description
Project Name	NCSPA			
Date	1/22/2020			

Standard Drainage Structure
AntiFloatation - SD Catch Basin

Step 1. DETERMINE BOUYANT FORCES
Volume = Depth * Area
Depth = Structure Top Elev - Structure Bottom Elev

Structure Top Elev. =	15	ft
Bottom of Structure Elev. =	7.00	ft
Structure Wall Thickness =	0.50	ft
Inside Width =	2.50	ft
Inside Length =	3.00	ft
Area = LxW =		
Area (@ outside dim)=	14.00	sf
Volume =	112.00	cf
times wt of water	62.4	lbs/cf
Bouyant Force =	6,989	lbs

Step 2. DETERMINE COUNTERWEIGHT REQUIREMENTS

Structure Top		
Top Elevation =	15	
Thickness =	0.5	ft
Outside Width =	3.50	ft
Outside Length=	4.00	ft
Volume =	7.00	cf
Structure Walls		
Inside Width =	2.50	ft
Inside Length =	3.00	ft
Wall Thickness =	0.50	ft
Height =	7.96	ft
Volume =	51.73	cf
Structure Bottom		
Bottom Elevation =	7.00	
Outside Width =	3.50	ft
Outside Length =	4.00	
Thickness=	0.50	ft
Volume =	7.00	cf
Total Volume =	65.73	cf
x unit weight of reinforced conc.	150	lbs/cf
Counterweight =	9,859	lbs
Factor of Safety Provided [FSP] =	1.41	
Additional Concrete Required [Y/N] =	N	
Amount of Concrete Required =	(774)	lbs

Summary
Add minimum 0 inches below invert of pond

Step 3. *ADD CONCRETE BELOW INVERT IN Structure*

Area of Structure (@inside diam) =	7.50	sf
Volume Required =	-8.83	cf
Estimated Depth of Concrete =	-1.18	ft
Actual Depth Used =	0	in
Backcheck Volume =	0.00	cf
Backcheck Weight of Added Conc		
[150-62.4] =	0	lb
Factor of Safety =	1.41	
Factor of Safety > 1.30 [Y/N] =	Y	

Project Data		Revisions		
Project #	2018-053	No	Date	Description
Project Name	NCSPA			
Date	1/22/2020			

Standard Drainage Structure
Antifloatation - SD Manholes

Step 1. DETERMINE BOUYANT FORCES
Volume = Depth * Area
Depth = Structure Top Elev - Structure Bottom Elev

Structure Top Elev. =	16.4	ft
Bottom of Structure Elev. =	8.50	ft
Structure Wall Thickness =	8.00	in
Diameter of Manhole =	5.00	ft
Area = pi * diameter^2 / 4		
Area (@ outside diam)=	31.50	sf
Volume =	248.88	cf
times wt of water	62.4	lbs/cf
Bouyant Force =	15,530	lbs

Step 2. DETERMINE COUNTERWEIGHT REQUIREMENTS

Structure Top		
Top Elevation =	16.4	
Thickness =	8	inches
Outside Diam =	6.33	ft
Volume =	21.00	cf
Structure Walls		
Inside Diam =	5.00	ft
Wall Thickness =	8.00	in
Height =	7.23	ft
Volume =	85.85	cf
Structure Bottom - Extended Base		
Bottom Elevation =	8.50	
Diameter =	6.00	ft
Thickness=	8.00	in
Volume =	18.85	cf
Total Volume =	125.70	cf
x unit weight of reinforced conc.	150	lbs/cf
Counterweight =	18,855	lbs
Factor of Safety Provided [FSP] =	1.21	
Additional Concrete Required [Y/N] =	Y	
Amount of Concrete Required =	1,334	lbs

Summary
Add minimum 0 inches below invert of pond

Step 3. *ADD CONCRETE BELOW INVERT IN Structure*

Area of Structure (@inside diam) =	19.63	sf
Volume Required =	15.23	cf
Calculated Depth of Concrete =	0.78	ft
Actual Depth Used =	0	in
Backcheck Volume =	0.00	cf
Backcheck Weight of Added Conc		
[150-62.4] =	0	lb
Factor of Safety =	1.21	
Factor of Safety > 1.30 [Y/N] =	N	

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
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PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/17/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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ENGINEERING
DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
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GRADING & DRAINAGE DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-503

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MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

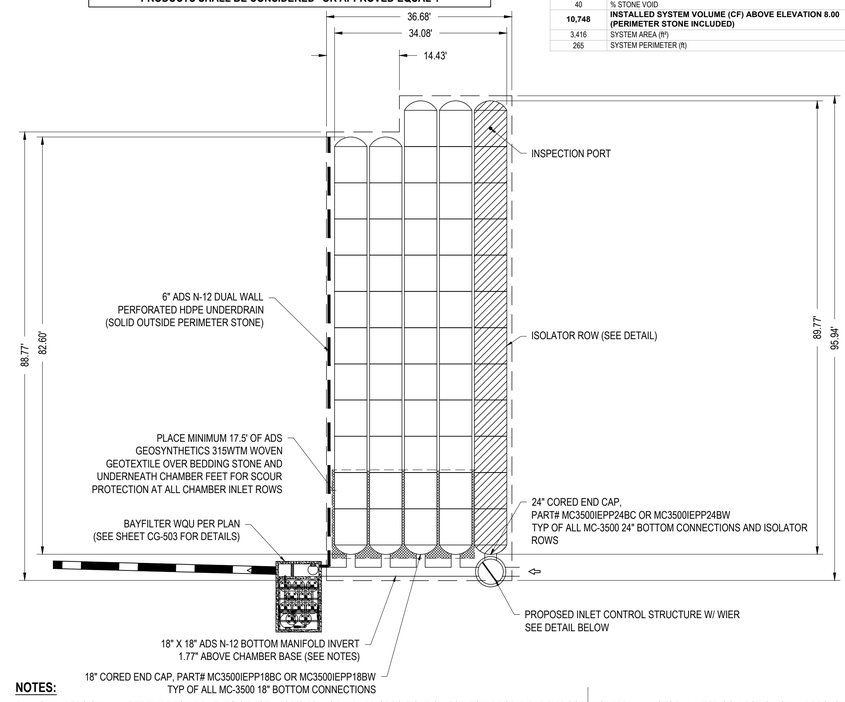
USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

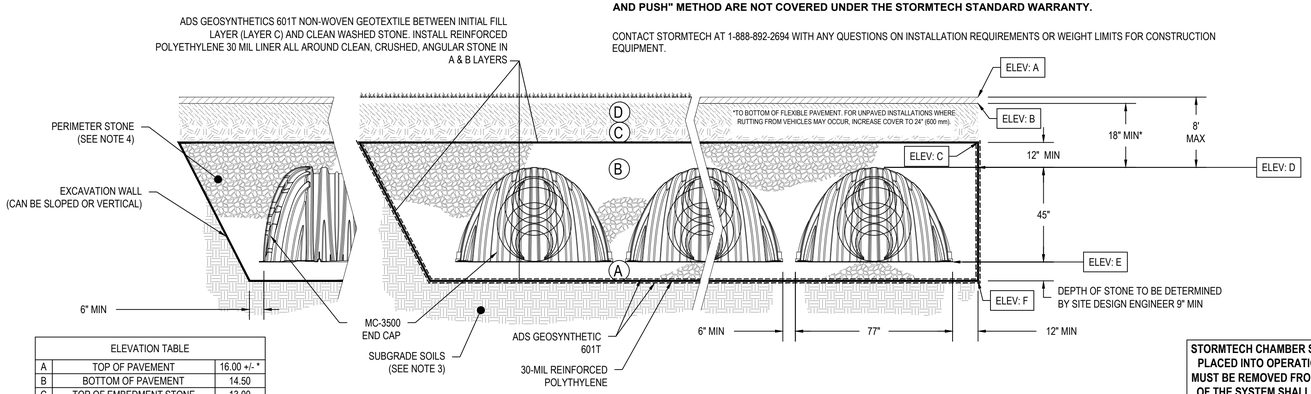
CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

MANUFACTURER'S NAME AND/OR MODEL NUMBERS ARE BEING UTILIZED FOR BASIS OF DESIGN ONLY. THESE CONTRACT DOCUMENTS OUTLINE THE SPECIFIC CRITERIA FOR THE MATERIAL/EQUIPMENT AND IS NON-PROPRIETARY. ALL PRODUCTS SHALL BE CONSIDERED "OR APPROVED EQUAL".

PROPOSED LAYOUT

58	STORMTECH MC-3500 CHAMBERS
10	STORMTECH MC-3500 END CAPS
12	STONE ABOVE (in)
15	STONE BELOW (in)
40	% STONE VOID
10,748	**INSTALLED SYSTEM VOLUME (CF) ABOVE ELEVATION 8.00 (PERIMETER STONE INCLUDED)**
3,416	SYSTEM AREA (ft²)
265	SYSTEM PERIMETER (ft)





ELEVATION TABLE		
A	TOP OF PAVEMENT	16.00 +/- *
B	BOTTOM OF PAVEMENT	14.50
C	TOP OF EMBEDMENT STONE	13.00
D	CROWN OF STORMTECH CHAMBER	12.00
E	INV OF STORMTECH	8.25
F	BOTTOM OF FOUNDATION STONE	7

* SEE GRADING PLAN

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
   - DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.

STORMTECH CHAMBER SHALL BE CLEANED OF ANY SEDIMENT PRIOR TO BEING PLACED INTO OPERATION FOR STORMWATER MANAGEMENT. ALL SEDIMENT MUST BE REMOVED FROM STORMTECH CHAMBERS AND ALL AREAS UPSTREAM OF THE SYSTEM SHALL BE FULL STABILIZED PRIOR TO INSTALLATION OF THE BAYFILTER CARTRIDGES. ANY SEDIMENT IN BAYFILTER VAULT SHALL BE REMOVED PRIOR TO INSTALLATION OF CARTERIDGES.

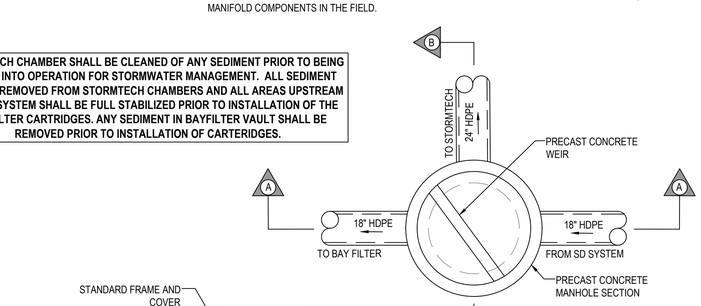
APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

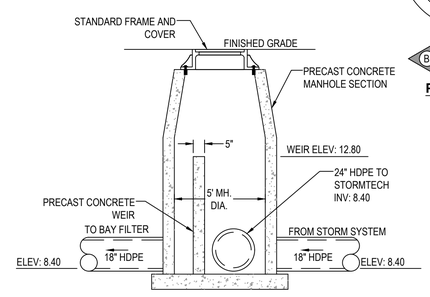
MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

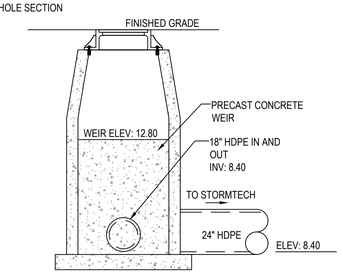
1 STORMTECH CHAMBERS
NTS



PLAN VIEW



SECTION A



SECTION B

INLET CONTROL STRUCTURE

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION COMMENTS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
PB02	CONSTRUCTION REVISION	8/06/2020	ASP
PB03	CONSTRUCTION REVISION	10/05/2020	ASP
PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB011	CONSTRUCTION REVISION	03/11/2021	ASP
PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

GRADING & DRAINAGE DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-504

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-504 GRADING & DRAINAGE DETAILS.dwg
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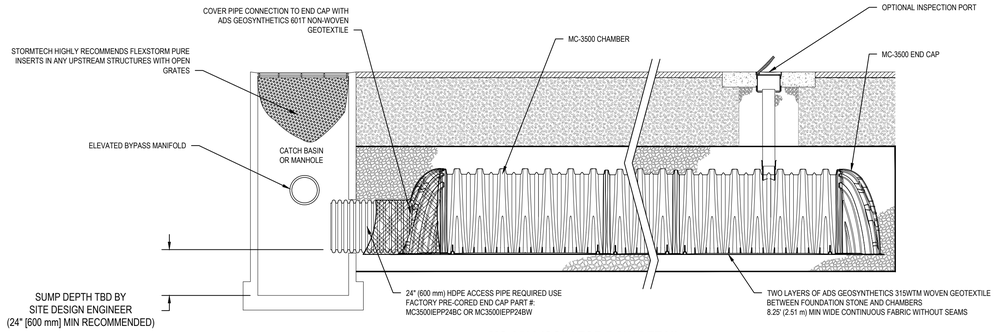


MC-3500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

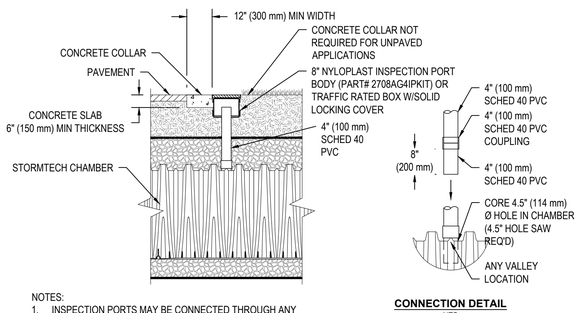
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

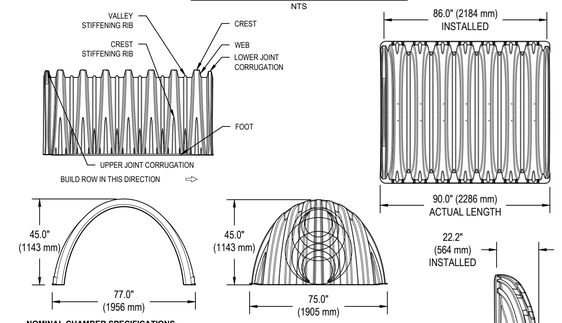


NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED (4" PVC NOT PROVIDED BY ADS)

4" PVC INSPECTION PORT DETAIL
NTS

CONNECTION DETAIL
NTS

MC-3500 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

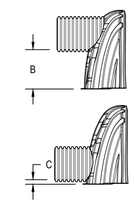
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

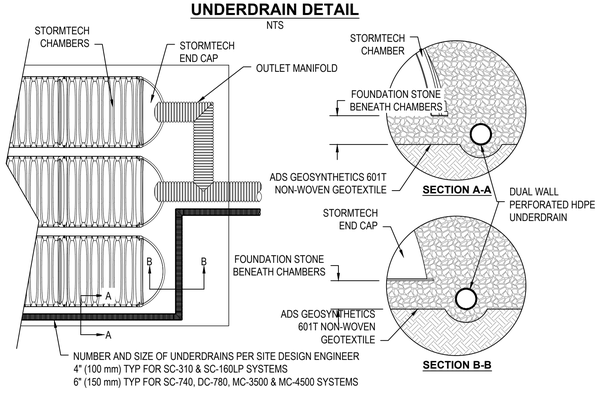
PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

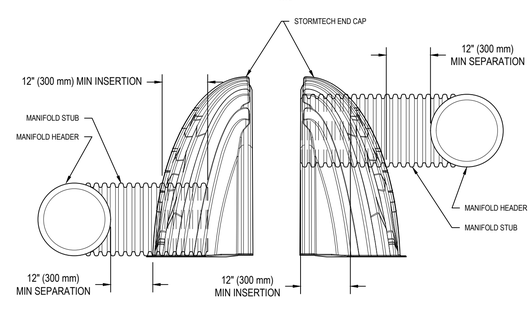


CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

UNDERDRAIN DETAIL
NTS



MC-SERIES END CAP INSERTION DETAIL
NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

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1 STORMTECH CHAMBERS
NTS

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

100% SUBMISSION

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PB05.1	CONSTRUCTION REVISION	10/27/2020	ASP
PB07	CONSTRUCTION REVISION	12/03/2020	ASP
PB09	CONSTRUCTION REVISION	02/26/2021	ASP
PB10	CONSTRUCTION REVISION	03/11/2021	ASP
PB11	CONSTRUCTION REVISION	03/11/2021	ASP
PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

GRADING & DRAINAGE DETAILS

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CG-505

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CG-505 GRADING & DRAINAGE DETAILS.dwg
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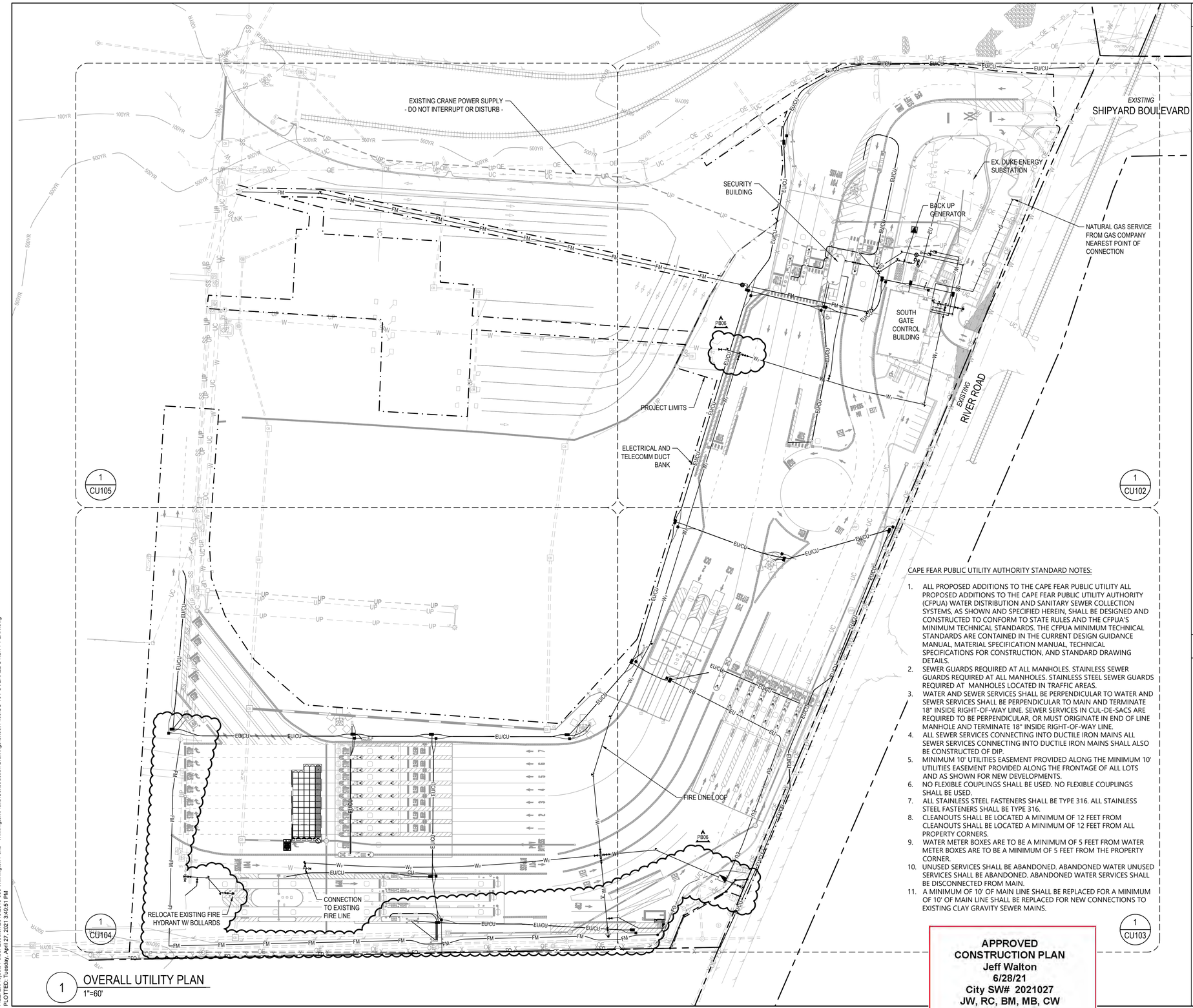

1 OVERALL UTILITY PLAN
1"=60'

GENERAL NOTES

THE FOLLOW NOTES SHALL BE RELEVANT FOR ALL UTILITY PLAN (CU) SHEETS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ALL CLEANOUTS, MANHOLE LIDS, VALVE BOX COVERS MEET FINISHED GRADES WHERE IN PAVEMENT AREAS. WHERE COVERS ARE LOCATED IN OPEN SPACE, THE CONTRACTOR SHALL ENSURE THEY ARE VISIBLE FROM THE SURFACE. UNDER NO CIRCUMSTANCES SHALL A UTILITY COVER BE BURIED.
2. ALL YARD HYDRANTS SHALL BE BACKFLOW PROTECTED, FREEZE LESS, AND SELF CLOSING.
8. BACKFLOW PREVENTORS FOR BOTH THE FIRE AND DOMESTIC WATER DISTRIBUTION WILL BE INSIDE THE BUILDING. BACKFLOW PREVENTORS WILL BE DETAILED ON M,E,P PLANS ON CONSTRUCTION DRAWINGS. BFP'S TO BE RPZ'S.
9. PROVIDE BOLLARDS AROUND ALL FDC, TH, FIRE HYDRANTS, ABOVE GROUND VENT RISERS AND ABOVE GROUND HOSE BIBS AND PIV STANDPIPES NEAR TRAVEL WAYS THAT ARE VULNERABLE TO DAMAGE.
10. GRAVITY SANITARY SEWER LINES ON SITE TO BE PRIVATELY MAINTAINED.
11. GAS DISTRIBUTION BY LOCAL GAS COMPANY, SHOWN ON PLANS FOR REFERENCE.
12. FLOW TEST WAS PERFORMED ON MAY 10, 2019 BY AFP, INC.
13. CONTRACTOR SHALL PROVIDE ALL NECESSARY PIPE SIZE AND MATERIAL ADAPTERS FOR CONNECTION FROM SITE UTILITY PIPING TO BUILDING SERVICE PIPING.
14. WHEN WATER MAINS CROSS SEWER MAINS AT PROPER VERTICAL SEPARATION AS STIPULATED, THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.
15. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER VERTICAL SEPARATION AS STIPULATED THE FOLLOWING REQUIREMENTS SHALL BE USED:
    A. WATER MAIN CROSSING ABOVE THE SANITARY SEWER MAIN - THE SANITARY SEWER MAIN SHOULD HAVE NO JOINTS WITHIN FOUR FEET FROM EITHER SIDE OF THE WATER MAIN AND BE CONSTRUCTED OF DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING AND MECHANICAL JOINTS (GASKETED, BOLTED JOINTS).
    B. WATER MAIN CROSSING BELOW THE SANITARY SEWER MAIN - THE SANITARY SEWER MAIN SHOULD HAVE NO JOINTS WITHIN TEN FEET FROM EITHER SIDE OF THE WATER MAIN AND BE CONSTRUCTED OF A CONTINUOUS DUCTILE IRON PIPE WITH HOT DIP BITUMINOUS COATING.
10. REFER TO ELECTRICAL SITE PLAN FOR MORE INFORMATION ON THE ELECTRICAL AND TELECOMMUNICATION DUCT BANK.
11. ALL UNDERGROUND UTILITIES OUTSIDE BUILDING FOOTPRINT, EXCEPT LAWN IRRIGATION LINES, SHALL BE REQUIRED TO HAVE A WARNING TAPE INSTALLED IN THE BACKFILL BETWEEN 6 INCHES TO 24 INCHES BELOW FINISHED GRADE, DIRECTLY OVER PIPING.
    A. METALLIC LINES SHALL BE IDENTIFIED WITH PRINTED DURABLE PLASTIC WARNING TAPES, MINIMUM 3" WIDE, WITH LETTERING TO IDENTIFY BURIED LINE BELOW.
    B. IN ADDITION TO TAPE IDENTIFICATION, NON-METALLIC SEWER AND WATER PIPING SHALL BE INSTALLED WITH AN INSULATED COPPER TRACER WIRE, DETECTABLE TAPE OR OTHER APPROVED CONDUCTOR ADJACENT TO AND OVER THE FULL LENGTH OF THE PIPES AS REQUIRED BY NCPC. 306.2.4 TRACER WIRE. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE AT THE CLEANOUT BETWEEN THE BUILDING DRAIN AND BUILDING SEWER. THE TRACER WIRE SIZE SHALL BE NOT LESS THAN 14 AWG AND THE INSULATION TYPE SHALL BE LISTED FOR DIRECT BURIAL.
    C. UNDERGROUND GAS SHALL BE IDENTIFIED IN ACCORDANCE WITH NC GAS CODE, SECTION 404.15.3 TRACER: AN INSULATED COPPER TRACER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO UNDERGROUND NONMETALLIC PIPING. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVEGROUND AT THE END OF THE NONMETALLIC PIPING. THE TRACER WIRE SIZE SHALL NOT BE LESS THAN18AWG AND THE INSULATION TYPE SUITABLE FOR DIRECT BURIAL.

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:

1. ALL PROPOSED ADDITIONS TO THE CAPE FEAR PUBLIC UTILITY ALL PROPOSED ADDITIONS TO THE CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) WATER DISTRIBUTION AND SANITARY SEWER COLLECTION SYSTEMS, AS SHOWN AND SPECIFIED HEREIN, SHALL BE DESIGNED AND CONSTRUCTED TO CONFORM TO STATE RULES AND THE CFPUA'S MINIMUM TECHNICAL STANDARDS. THE CFPUA MINIMUM TECHNICAL STANDARDS ARE CONTAINED IN THE CURRENT DESIGN GUIDANCE MANUAL, MATERIAL SPECIFICATION MANUAL, TECHNICAL SPECIFICATIONS FOR CONSTRUCTION, AND STANDARD DRAWING DETAILS.
2. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
3. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE 18" INSIDE RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE 18" INSIDE RIGHT-OF-WAY LINE.
4. ALL SEWER SERVICES CONNECTING INTO DUCTILE IRON MAINS ALL SEWER SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL ALSO BE CONSTRUCTED OF DIP.
5. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
6. NO FLEXIBLE COUPLINGS SHALL BE USED. NO FLEXIBLE COUPLINGS SHALL BE USED.
7. ALL STAINLESS STEEL FASTENERS SHALL BE TYPE 316. ALL STAINLESS STEEL FASTENERS SHALL BE TYPE 316.
8. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS.
9. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.
10. UNUSED SERVICES SHALL BE ABANDONED. ABANDONED WATER UNUSED SERVICES SHALL BE ABANDONED. ABANDONED WATER SERVICES SHALL BE DISCONNECTED FROM MAIN.
11. A MINIMUM OF 10' OF MAIN LINE SHALL BE REPLACED FOR A MINIMUM OF 10' OF MAIN LINE SHALL BE REPLACED FOR NEW CONNECTIONS TO EXISTING CLAY GRAVITY SEWER MAINS.

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

LEGEND

- FIRE HYDRANT ASSEMBLY (FHA)
- GATE VALVE (GV)
- TEE
- THRUST (REACTION) BLOCKING
- POST INDICATOR VALVE (PIV)
- BLOW OFF VALVE
- WATER METER
- BACKFLOW PREVENTER
- ELECTRICAL MANHOLE
- TELECOMM MANHOLE
- WETWELL / PUMP STATION
- CLEANOUT
- SANITARY MANHOLE
- FLARED END SECTION
- CATCH BASIN
- YARD INLET
- W_D — DOMESTIC WATER LINE
- W_F — FIRE LINE
- FM — FORCE MAIN LINE
- SS — SANITARY SEWER LINE
- STORM DRAIN LINE
- CU — COMMUNICATIONS LINE
- EU — ELECTRICAL LINE
- EU/CU — ELECTRICAL AND COMM DUCT BANK
- FO — DIRECT BURY CONDUIT
- G — NATURAL GAS SERVICE
- RD — ROOF DRAIN LINE

UTILITY CONTACT INFORMATION

UTILITY SERVICE TYPE	SERVICE COMPANY	TELEPHONE #
NATURAL GAS SERVICE	PIEDMONT	(910) 251-2818
ELECTRICITY SERVICE	DUKE ENERGY	(800) 452-2777
TELEPHONE SERVICE	BELLSOUTH	(877) 253-0009
CABLE SERVICE	TIME WARNER	(866) 892-4249
WATER SERVICE	CFPUA*	(910) 332-6672
SANITARY SERVICE	CFPUA	(910) 332-6672

*CFPUA - CAPE FEAR PUBLIC UTILITY AUTHORITY

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTIONS	3/4/2020	ASP
2	PERMITTING COMMENTS	6/12/2020	ASP
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PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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Curry ENGINEERING

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

OVERALL UTILITY PLAN

0 30' 60' 1" = 60'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CU-101

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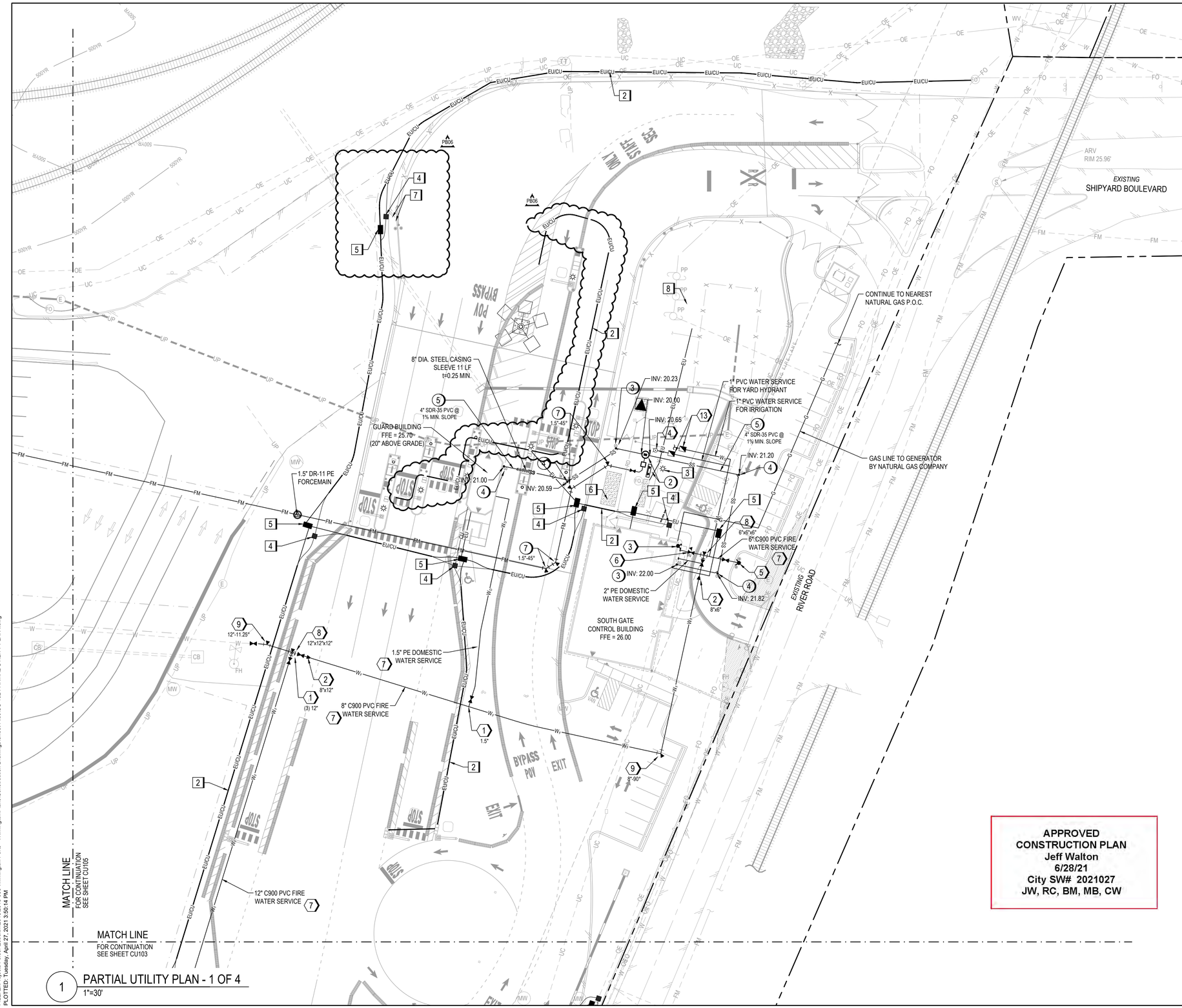

1 PARTIAL UTILITY PLAN - 1 OF 4
1"=30'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

LEGEND

- FIRE HYDRANT ASSEMBLY (FHA)
- GATE VALVE (GV)
- TEE
- THRUST (REACTION) BLOCKING
- POST INDICATOR VALVE (PIV)
- BLOW OFF VALVE
- WATER METER
- BACKFLOW PREVENTER
- ELECTRICAL MANHOLE
- TELECOMM MANHOLE
- WETWELL / PUMP STATION
- CLEANOUT
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- FO — DIRECT BURY CONDUIT
- G — NATURAL GAS SERVICE
- RD — ROOF DRAIN LINE

WATER KEYNOTES

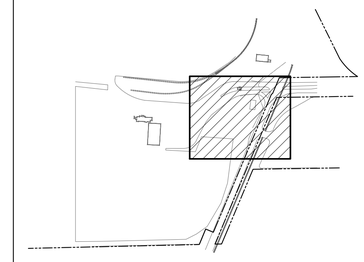
1. WATER VALVE IN VALVE BOX. REFER TO WS-5/CU501.
2. WATER LINE REDUCER / ENLARGER.
3. 2-WAY FIRE DEPT. CONNECTION ON BUILDING. REFER TO FP PLANS.
4. DOMESTIC WATER YARD HYDRANT. REFER TO 2/CU-502.
5. FIRE HYDRANT ASSEMBLY. REFER TO W-9/CU-501.
6. POST INDICATOR VALVE. REFER TO 1/CU-501.
7. WATER MAIN PIPE BEDDING/TRENCHING. REFER TO WS-4/CU-501.
8. WATER MAIN TEE W/ THRUST BLOCK. REFER TO WS-13/CU-502.
9. WATER MAIN ELBOW W/ THRUST BLOCK. REFER TO WS-13/CU-502.
10. TAPPING SLEEVE & VALVE. COORDINATE TAP W/ CFPUA IF APPLICABLE.
11. 8" WATER METER VAULT W/ 4" BY-PASS & 8" ABOVE GROUND RPZ INSIDE HOT BOX. SURROUND W/ CONCRETE FILLED BOLLARDS.
12. MECHANICAL CAP & T.B.
13. 1" RPZ IN HOT BOX.
14. 2" TAP WITH GATE VALVE IN VALVE BOX (PB06)

SEWER KEYNOTES

1. SANITARY SEWER MANHOLE.
2. PUMP STATION, WET WELL, VALVE BOX & CONTROL PANEL.
3. SANITARY SEWER CLEANOUT.
4. SANITARY SEWER TRAFFIC RATED CLEANOUT.
5. SANITARY SEWER PIPE BEDDING/TRENCH.
6. FORCE MAIN GATE VALVE.
7. FORCE MAIN ELBOW W/THRUST BLOCK. REFER TO 1/CU-502.
8. AIR RELEASE VALVE IN MANHOLE.
9. CONNECT FORCE MAIN TO EXISTING MANHOLE. REFER TO 2/CU-502
10. SIMPLEX PUMP STATION (PB06)

UTILITY KEYNOTES

1. CONNECTION TO EXISTING GAS MAIN BY GAS COMPANY.
2. ELECTRICAL & TELECOMM DUCT BANK. REFER TO ELECTRICAL PLANS.
3. LIGHT POLE. REFER TO PLANS BY OTHERS.
4. TELECOMMUNICATIONS MANHOLE. REFER TO ELECTRICAL PLANS.
5. ELECTRICAL HANDHOLE. REFER TO ELECTRICAL PLANS
6. ELECTRICAL GENERATOR - DIESEL FUEL. REFER TO ELECTRICAL PLANS.
7. CONDUITS FOR ELECTRICAL & COMM. REFER TO ELECTRICAL FOR SIZES.
8. UTILITY TRANSFORMER. REFER TO ELECTRICAL PLANS.



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
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PB12	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

PROJ. MANAGER: R. THOMPSON
CHECKED BY: D. CURRY
DRAWN BY: D. READ
DESIGNED BY: A. PETTY

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.

NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL UTILITY PLAN - 1 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CU-102 (PB06)

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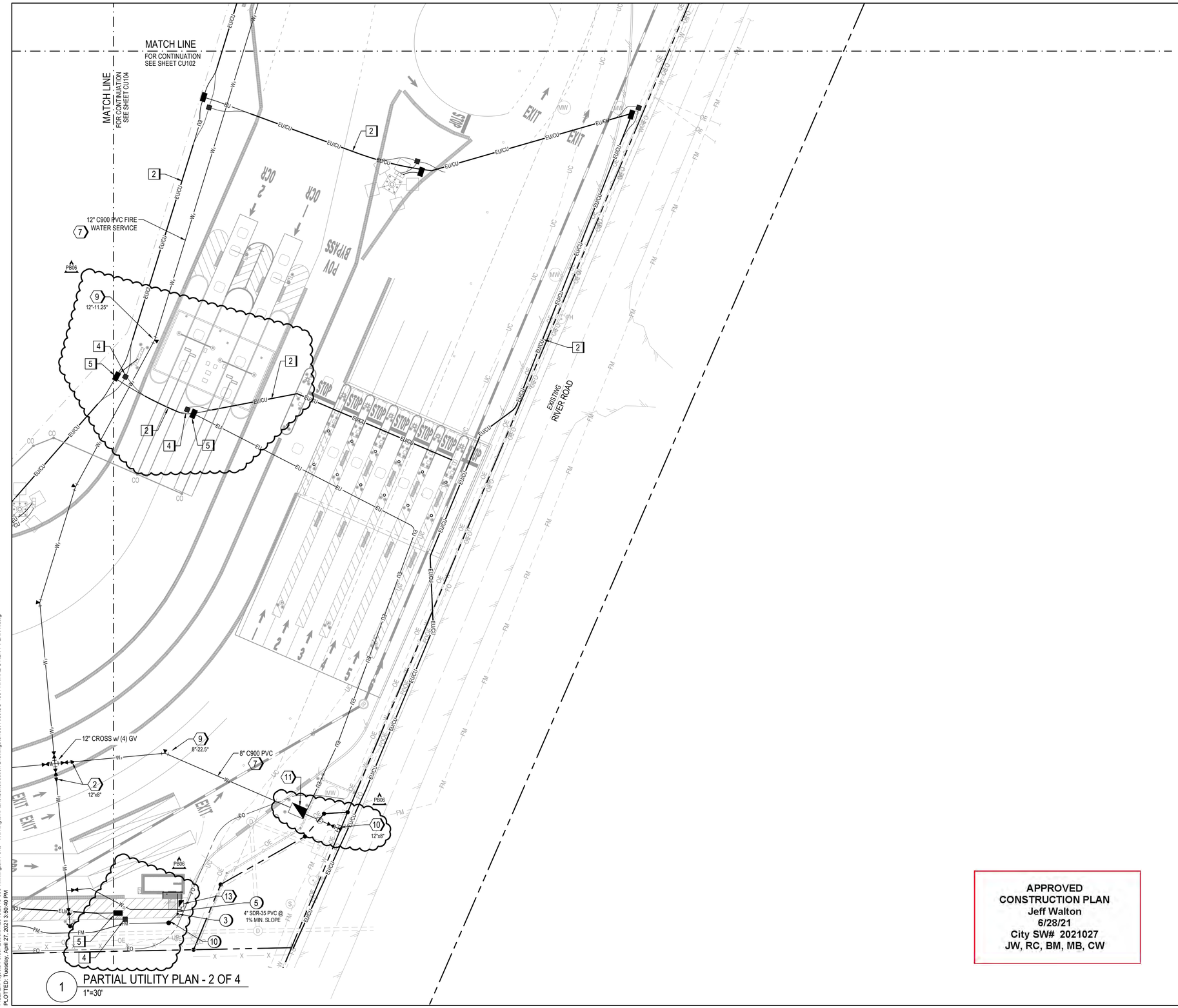

1 PARTIAL UTILITY PLAN - 2 OF 4
1"=30'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

LEGEND

- FIRE HYDRANT ASSEMBLY (FHA)
- GATE VALVE (GV)
- TEE
- THRUST (REACTION) BLOCKING
- POST INDICATOR VALVE (PIV)
- BLOW OFF VALVE
- WATER METER
- BACKFLOW PREVENTER
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- TELECOMM MANHOLE
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WATER KEYNOTES

1. WATER VALVE IN VALVE BOX. REFER TO WS-5/CU501.
2. WATER LINE REDUCER / ENLARGER.
3. 2-WAY FIRE DEPT. CONNECTION ON BUILDING. REFER TO FP PLANS.
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5. FIRE HYDRANT ASSEMBLY. REFER TO W-9/CU-501.
6. POST INDICATOR VALVE. REFER TO 1/CU-501.
7. WATER MAIN PIPE BEDDING/TRENCHING. REFER TO WS-4/CU-501.
8. WATER MAIN TEE W/ THRUST BLOCK. REFER TO WS-13/CU-502.
9. WATER MAIN ELBOW W/ THRUST BLOCK. REFER TO WS-13/CU-502.
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12. MECHANICAL CAP & T.B.
13. 1" RPZ IN HOT BOX
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SEWER KEYNOTES

1. SANITARY SEWER MANHOLE.
2. PUMP STATION, WET WELL, VALVE BOX & CONTROL PANEL.
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UTILITY KEYNOTES

1. CONNECTION TO EXISTING GAS MAIN BY GAS COMPANY.
2. ELECTRICAL & TELECOMM DUCT BANK. REFER TO ELECTRICAL PLANS.
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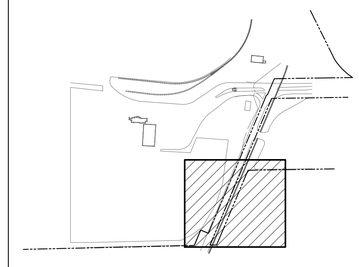

SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

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MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL UTILITY PLAN - 2 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CU-103

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CU-103 PARTIAL UTILITY PLAN II.dwg
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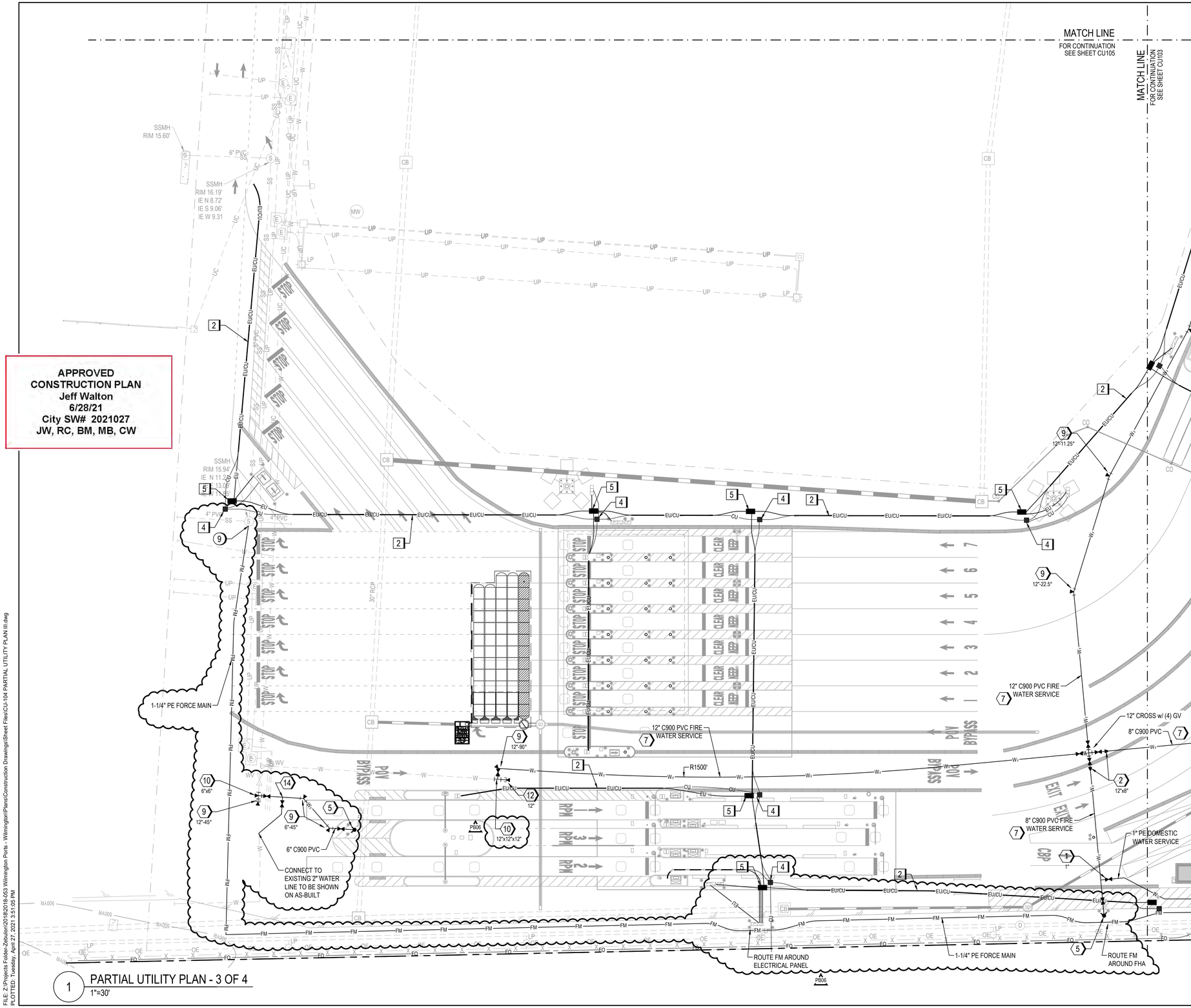

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

1 PARTIAL UTILITY PLAN - 3 OF 4
1"=30'

LEGEND

- FIRE HYDRANT ASSEMBLY (FHA)
- GATE VALVE (GV)
- TEE
- THRUST (REACTION) BLOCKING
- POST INDICATOR VALVE (PIV)
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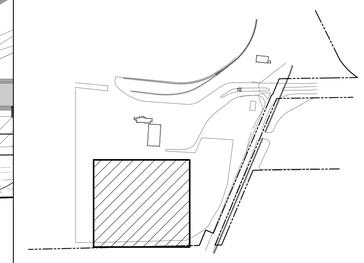
3. 2-WAY FIRE DEPT. CONNECTION ON BUILDING. REFER TO FP PLANS.
4. DOMESTIC WATER YARD HYDRANT. REFER TO 2/CU-502.
5. FIRE HYDRANT ASSEMBLY. REFER TO W-9/CU-501.
6. POST INDICATOR VALVE. REFER TO 1/CU-501.
7. WATER MAIN PIPE BEDDING/TRENCHING. REFER TO WS-4/CU-501.
8. WATER MAIN TEE W/ THRUST BLOCK. REFER TO WS-13/CU-502.
9. WATER MAIN ELBOW W/ THRUST BLOCK. REFER TO WS-13/CU-502.
10. TAPPING SLEEVE & VALVE. COORDINATE TAP W/ CFPUA IF APPLICABLE.
11. 8" WATER METER VAULT W/ 4" BY-PASS & 8" ABOVE GROUND RPZ INSIDE HOT BOX. SURROUND W/ CONCRETE FILLED BOLLARDS.
12. MECHANICAL CAP & T.B.
13. 1" RPZ IN HOT BOX
14. 2" TAP WITH GATE VALVE IN VALVE BOX (PB06)

SEWER KEYNOTES

1. SANITARY SEWER MANHOLE.
2. PUMP STATION, WET WELL, VALVE BOX & CONTROL PANEL.
3. SANITARY SEWER CLEANOUT.
4. SANITARY SEWER TRAFFIC RATED CLEANOUT.
5. SANITARY SEWER PIPE BEDDING/TRENCH.
6. FORCE MAIN GATE VALVE.
7. FORCE MAIN ELBOW W/THRUST BLOCK. REFER TO 1/CU-502.
8. AIR RELEASE VALVE IN MANHOLE.
9. CONNECT FORCE MAIN TO EXISTING MANHOLE. REFER TO 2/CU-502
10. SIMPLEX PUMP STATION (PB06)

UTILITY KEYNOTES

1. CONNECTION TO EXISTING GAS MAIN BY GAS COMPANY.
2. ELECTRICAL & TELECOMM DUCT BANK. REFER TO ELECTRICAL PLANS.
3. LIGHT POLE. REFER TO PLANS BY OTHERS.
4. TELECOMMUNICATIONS MANHOLE. REFER TO ELECTRICAL PLANS.
5. ELECTRICAL HANDHOLE. REFER TO ELECTRICAL PLANS
6. ELECTRICAL GENERATOR - DIESEL FUEL. REFER TO ELECTRICAL PLANS.
7. CONDUITS FOR ELECTRICAL & COMM. REFER TO ELECTRICAL FOR SIZES.
8. UTILITY TRANSFORMER. REFER TO ELECTRICAL PLANS.



SITE KEY PLAN

NORTH
N (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	CONSTRUCTION NOTES	3/4/2020	ASP
2	PERMITTING COMMENTS	6/5/2020	ASP
3	CFPUA DETAIL DATES	7/14/2020	ASP
PB01	CONSTRUCTION REVISION	7/14/2020	ASP
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PB012	CONSTRUCTION REVISION	04/27/2021	ASP

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NC LIC. NO. P-0799

Curry ENGINEERING

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.

NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E. DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL UTILITY PLAN - 3 OF 4

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CU-104

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CU-104 PARTIAL UTILITY PLAN III.dwg
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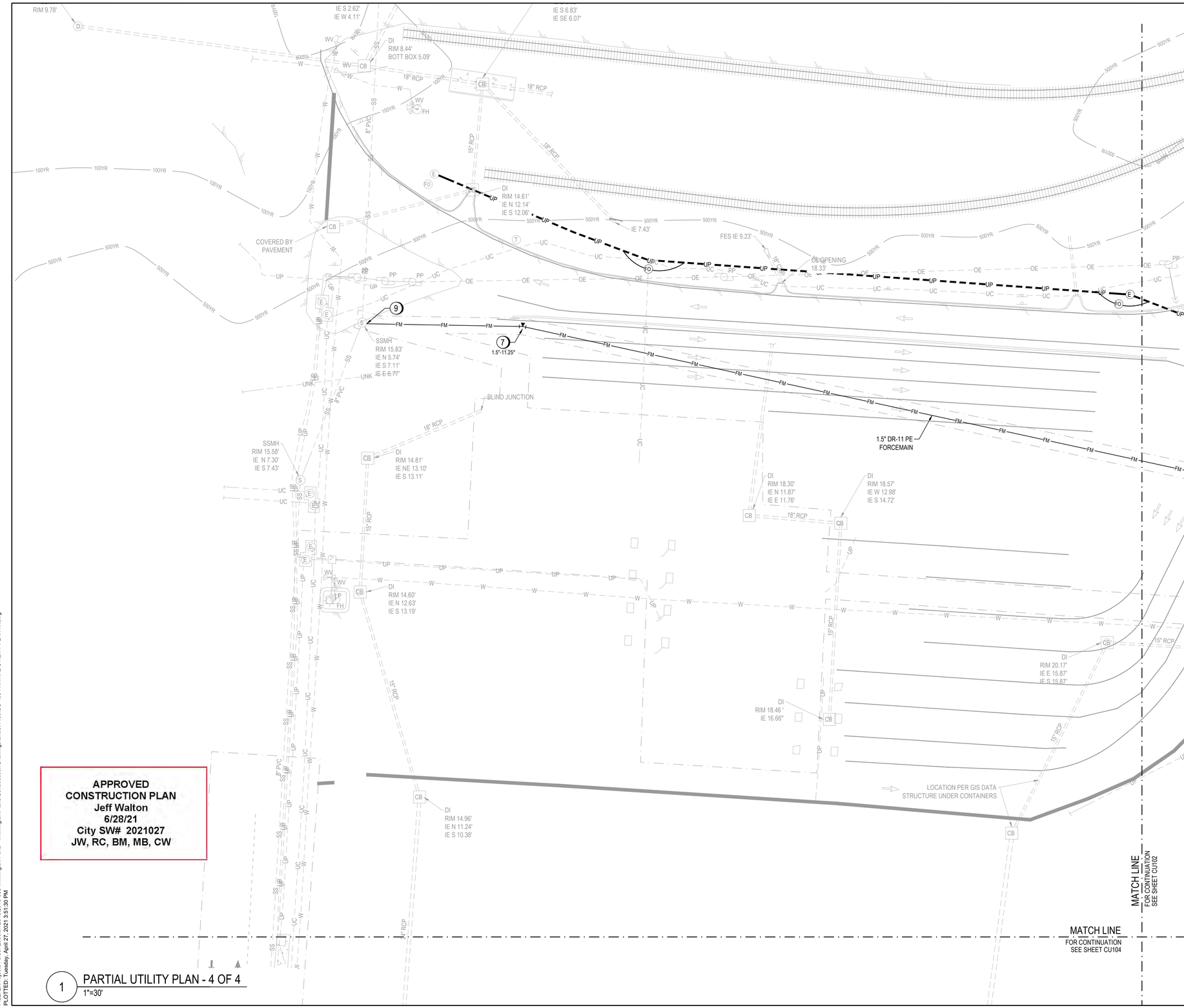

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

1 PARTIAL UTILITY PLAN - 4 OF 4
1"=30'

LEGEND

- FIRE HYDRANT ASSEMBLY (FHA)
- GATE VALVE (GV)
- TEE
- THRUST (REACTION) BLOCKING
- POST INDICATOR VALVE (PIV)
- BLOW OFF VALVE
- WATER METER
- BACKFLOW PREVENTER
- ELECTRICAL MANHOLE
- TELECOMM MANHOLE
- WETWELL / PUMP STATION
- CLEANOUT
- SANITARY MANHOLE
- FLARED END SECTION
- CATCH BASIN
- YARD INLET
- W_D — DOMESTIC WATER LINE
- W_F — FIRE LINE
- FM — FORCE MAIN LINE
- SS — SANITARY SEWER LINE
- STORM DRAIN LINE
- CU — COMMUNICATIONS LINE
- EU — ELECTRICAL LINE
- EU/CU — ELECTRICAL AND COMM DUCT BANK
- FO — DIRECT BURY CONDUIT
- G — NATURAL GAS SERVICE
- RD — ROOF DRAIN LINE

WATER KEYNOTES

1. WATER VALVE IN VALVE BOX. REFER TO WS-5/CU501.
2. WATER LINE REDUCER / ENLARGER.
3. 2-WAY FIRE DEPT. CONNECTION ON BUILDING. REFER TO FP PLANS.
4. DOMESTIC WATER YARD HYDRANT. REFER TO 2/CU-502.
5. FIRE HYDRANT ASSEMBLY. REFER TO W-9/CU-501.
6. POST INDICATOR VALVE. REFER TO 1/CU-501.
7. WATER MAIN PIPE BEDDING/TRENCHING. REFER TO WS-4/CU-501.
8. WATER MAIN TEE W/ THRUST BLOCK. REFER TO WS-13/CU-502.
9. WATER MAIN ELBOW W/ THRUST BLOCK. REFER TO WS-13/CU-502.
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11. 8" WATER METER VAULT W/ 4" BY-PASS & 8" ABOVE GROUND RPZ INSIDE HOT BOX. SURROUND W/ CONCRETE FILLED BOLLARDS.
12. MECHANICAL CAP & T.B.
13. 1" RPZ IN HOT BOX.
14. 2" TAP WITH GATE VALVE IN VALVE BOX — PB06

SEWER KEYNOTES

1. SANITARY SEWER MANHOLE.
2. PUMP STATION, WET WELL, VALVE BOX & CONTROL PANEL.
3. SANITARY SEWER CLEANOUT.
4. SANITARY SEWER TRAFFIC RATED CLEANOUT.
5. SANITARY SEWER PIPE BEDDING/TRENCH.
6. FORCE MAIN GATE VALVE.
7. FORCE MAIN ELBOW W/THRUST BLOCK. REFER TO 1/CU-502.
8. AIR RELEASE VALVE IN MANHOLE.
9. CONNECT FORCE MAIN TO EXISTING MANHOLE. REFER TO 2/CU-502
10. SIMPLEX PUMP STATION — PB06

UTILITY KEYNOTES

1. CONNECTION TO EXISTING GAS MAIN BY GAS COMPANY.
2. ELECTRICAL & TELECOMM DUCT BANK. REFER TO ELECTRICAL PLANS.
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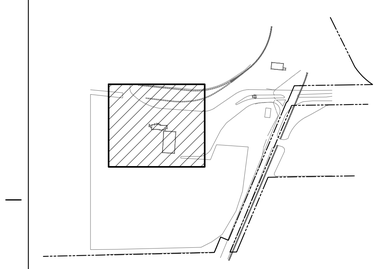
8. UTILITY TRANSFORMER. REFER TO ELECTRICAL PLANS.



SITE KEY PLAN

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
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NC LIC. NO. P-0799

Curry ENGINEERING

DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJ. MANAGER
A. PETTY	D. READ	D. CURRY	R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

PARTIAL UTILITY PLAN - 4 OF 4

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

CU-105

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\CU-105 PARTIAL UTILITY PLAN IV.dwg
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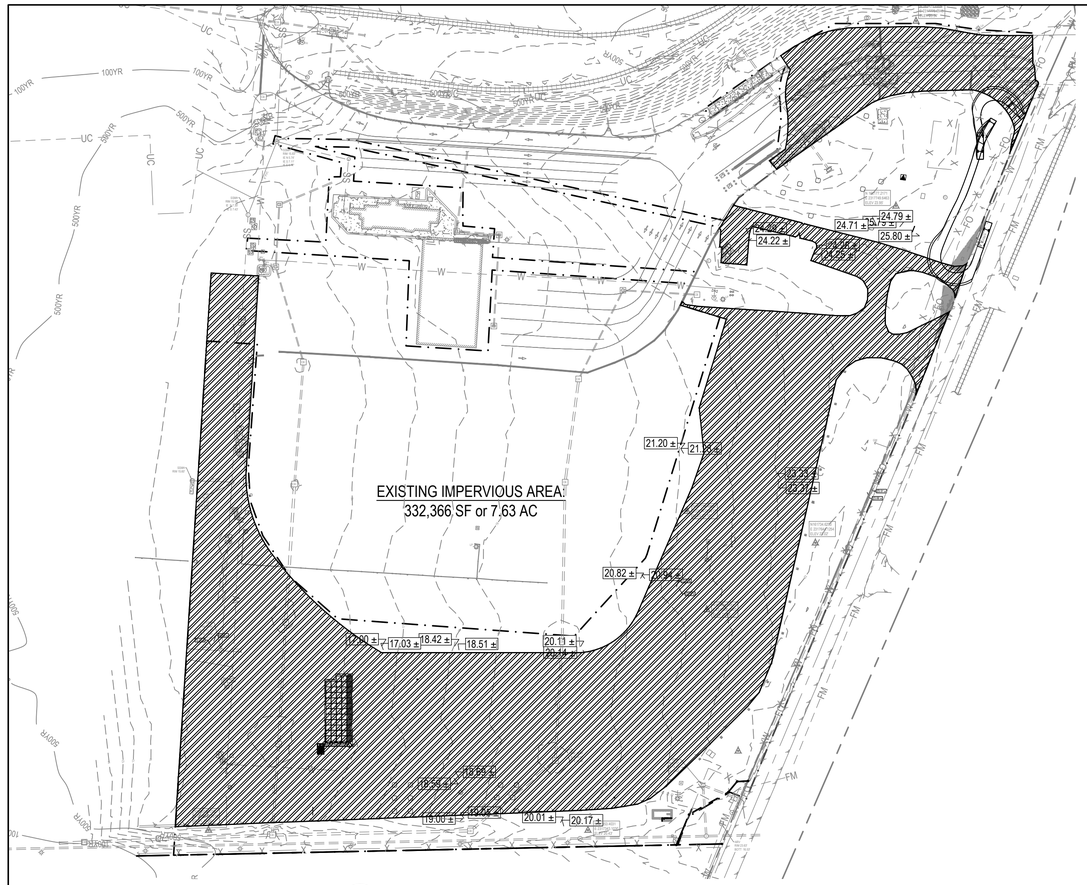
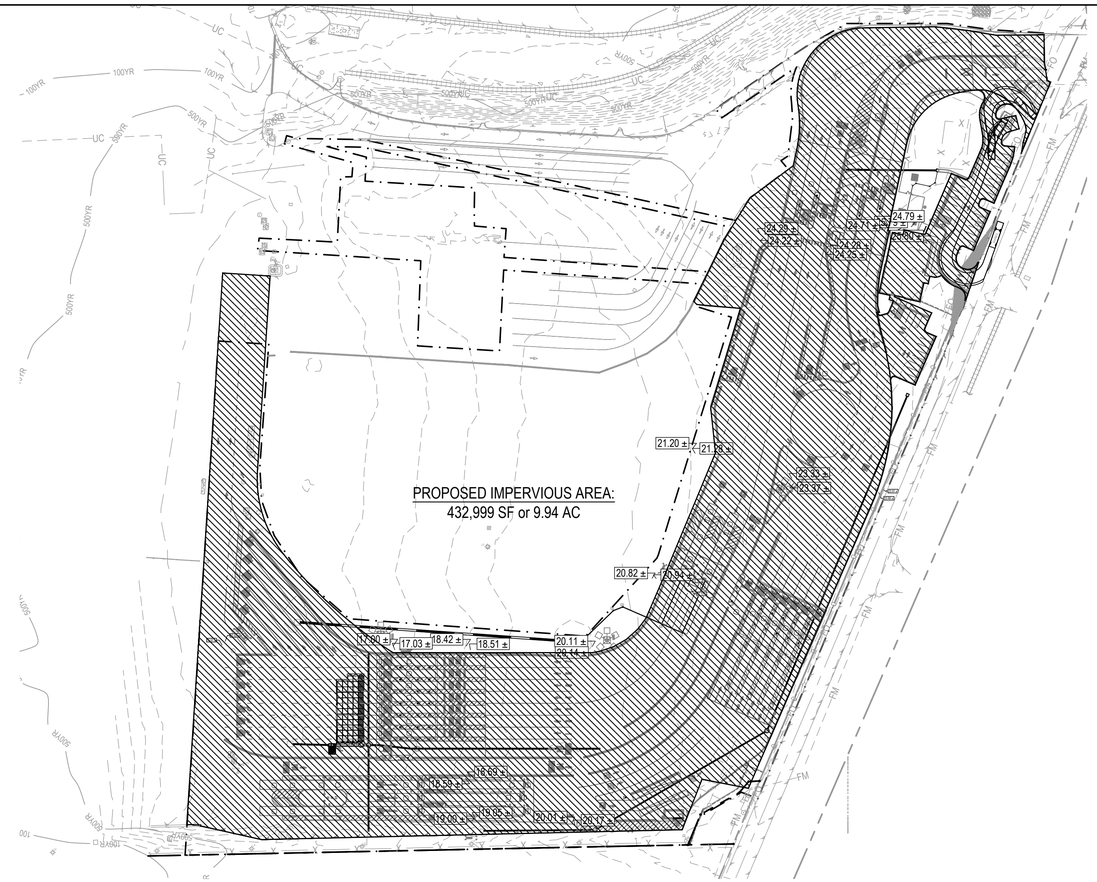
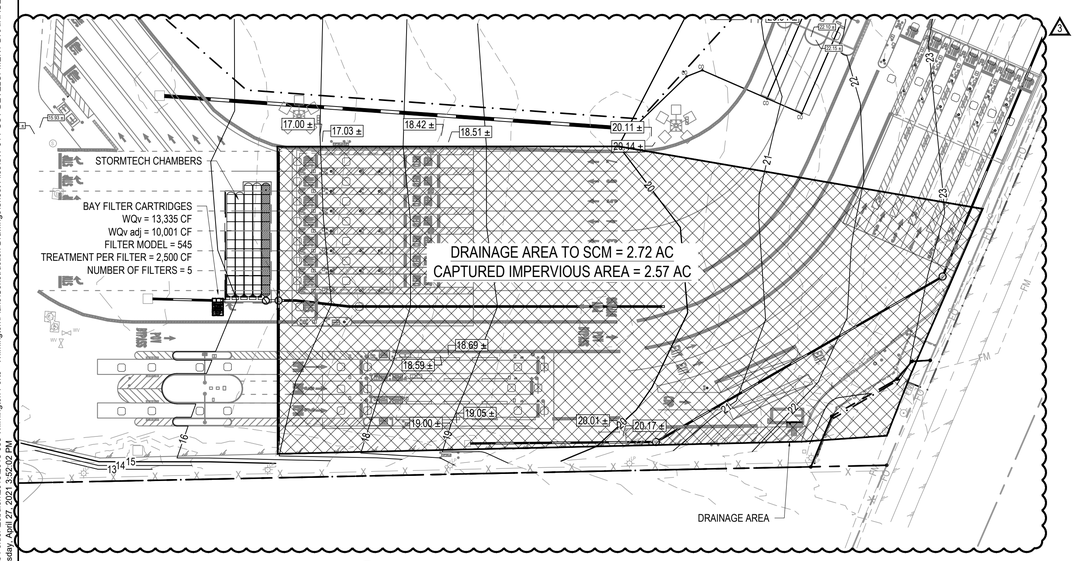


1 PRE-DEVELOPED LAND USE PLAN
1"=100'



2 POST-DEVELOPED LAND USE PLAN
1"=100'



3 POST-DEVELOPED - DRAINAGE AREA PLAN
1"=60'

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
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F (919) 552-2043
NC LIC. NO. P-0799

DESIGNED BY: A. PETTY
DRAWN BY: D. READ
CHECKED BY: D. CURRY
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE
STORMWATER MANAGEMENT PLAN

NCSPA PROJECT NO. 10428
SCO ID NO. 19-20013-01A
17 JANUARY 2020

SW-501

FILE: Z:\Projects Folder-Zebulon\2018\2018-053 Wilmington Ports - Wilmington\Plans\Construction Drawings\Sheet Files\SW-01 POST-DEVELOPMENT DRAINAGE AREA MAP.dwg
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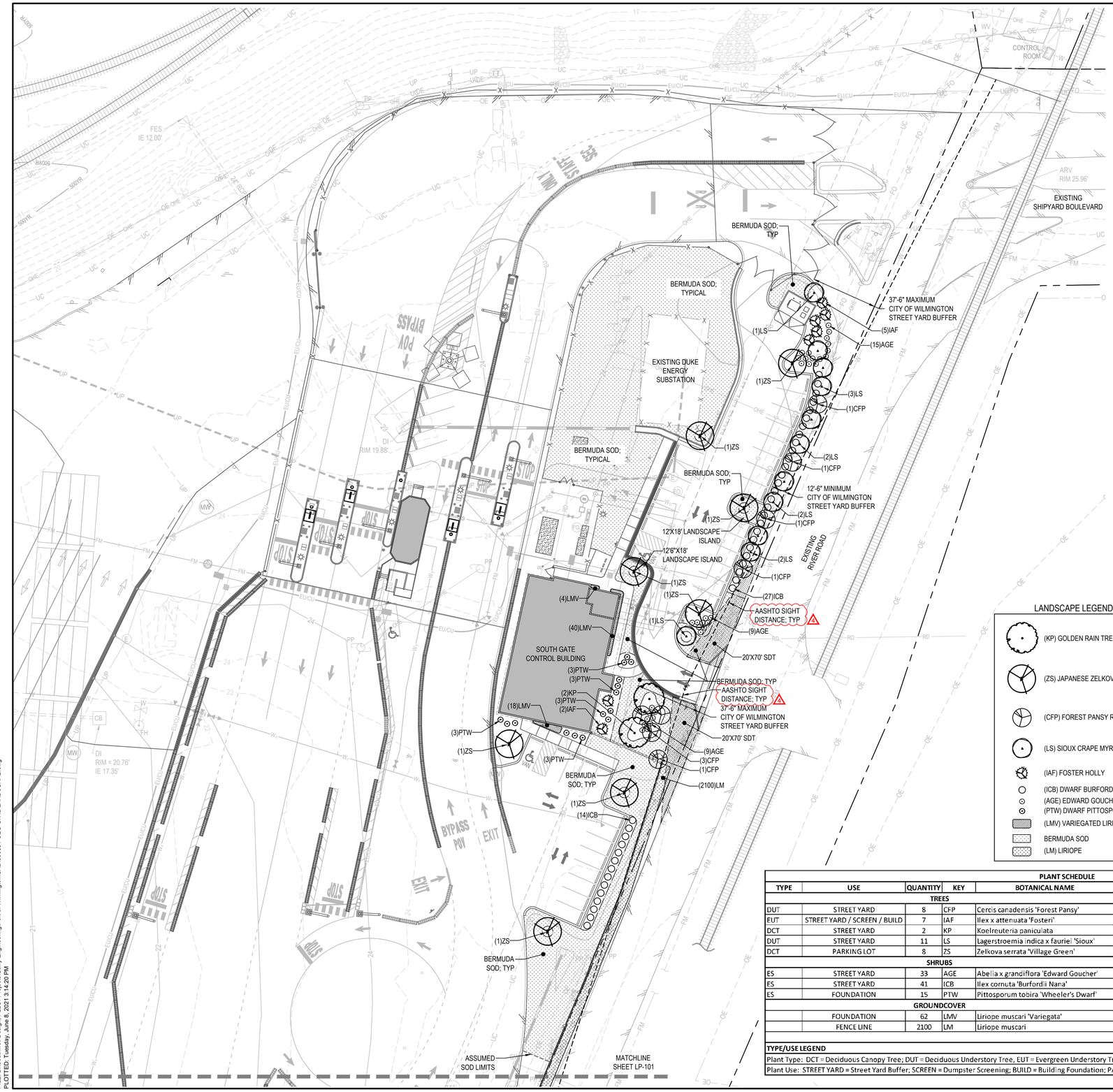

1. No plantings over thirty (30) inches in height allowed in vision clearance.
2. Protection from vehicular traffic provided around all landscaping with a minimum height of six (6) inches.
3. Owner is responsible for maintenance to ensure plant material lives and prospers.
4. Planting plans shall be approved by Landscape Designer prior to installation.
5. Landscaping shall be required at the ends of all parking rows.
6. A low buffer shall be required where parking is within fifty (50) feet of the Right-of-Way.
7. Landscaped islands shall be a minimun width of twelve (12) feet (back of curb to back of curb) and a minimum of two hundred and sixteen (216) square feet.
8. A minimum of fifteen (15) trees 2 inches or greater in diameter as measured 6 inches above ground per disturbed acre.
9. For recommended Plant List see "Landscape" T-10.4.

	STANDARD DETAIL	CITY OF WILMINGTON NORTH CAROLINA
DATE: APRIL, 2008	LANDSCAPE NOTES	CITY OF WILMINGTON ENGINEERING P.O. BOX 1810 WILMINGTON, NC 28402 (910) 341-7807
DRAWN BY: JSR		
CHECKED BY: B.F., P.E.		
SCALE: NOT TO SCALE		SD 15-14

LANDSCAPE CALCULATIONS

STREET YARD LANDSCAPING

REQUIREMENT: 1 CANOPY TREE OR 3 UNDERSTORY TREES (IF OVERHEAD UTILITIES PRESENT) & 6 SHRUBS PER 600 SF OF STREET YARD
264 LF - 26' DRIVEWAY = 239 LF X 25 (MULTIPLIER) = 5,975 SF
REQUIRED: 5,975 SF / 600 SF X 3 = 10 CANOPY TREES OR 30 UNDERSTORY TREES (IF OVERHEAD UTILITIES PRESENT)
5,975 SF / 600 SF X 6 = 60 SHRUBS
PROVIDED: 2 CANOPY TREES & 24 UNDERSTORY TREES (WHERE OVERHEAD UTILITIES PRESENT)
[2 GOLDEN RAIN TREE, 8 REDBUD, 5 FOSTER HOLLY, 11 CRAPE MYRTLE]
60 SHRUBS
[33 ABELIA, 27 DWARF BURFORD HOLLY]

PARKING LOT LANDSCAPING

INTERIOR AREA LANDSCAPING
REQUIREMENT: 1 CANOPY TREE PER LANDSCAPE ISLAND & 20% OR GREATER CANOPY COVERAGE
POV PARKING
LANDSCAPE ISLAND = 5
REQUIRED: 5 CANOPY TREES
PROVIDED: 5 CANOPY TREES
PARKING LOT & DRIVEWAY = 10,330 SF
REQUIRED: 10,330 SF X 0.2 = 2,066 SF CANOPY COVERAGE
PROVIDED: 5 CANOPY TREES X 707 SF = 3,535 SF CANOPY COVERAGE
PERIMETER LANDSCAPING - N/A SEE STREET YARD
PARKING AREA SCREENING
REQUIREMENT: 36" HT EVERGREEN BUFFER
PROVIDED: 36" HT EVERGREEN BUFFER
STEVEDORES PARKING
LANDSCAPE ISLANDS = 3
REQUIRED: 3 CANOPY TREES
PROVIDED: 3 CANOPY TREES
PARKING LOT = 4,978 SF
REQUIRED: 4,978 SF X 0.2 = 996 SF CANOPY COVERAGE
PROVIDED: 3 CANOPY TREES X 707 SF = 2,121 SF CANOPY COVERAGE
PARKING AREA SCREENING
REQUIREMENT: 36" HT EVERGREEN BUFFER
PROVIDED: 36" HT EVERGREEN BUFFER

FOUNDATION LANDSCAPING

REQUIREMENT: AREA OF BUILDING FACE ADJACENT TO PARKING OR DRIVE AISLE X 12% = MINIMUM AREA OF LANDSCAPING
BUILDING FACING PARKING OR DRIVE AISLE = 188 LF X 32' HT
REQUIRED: 188 LF X 32' HT = 6,016 SF X 0.12 = 722 SF LANDSCAPE AREA
PROVIDED: 780 SF LANDSCAPE AREA

DUMPSTER SCREENING

REQUIRED: 6' HT SCREENING ADJACENT TO R/W
PROVIDED: 8' HT EVERGREEN SCREENING ADJACENT TO R/W

LANDSCAPE LEGEND

- (KP) GOLDEN RAIN TREE
- (ZS) JAPANESE ZELKOVA
- (CFP) FOREST PANSY REDBUD
- (LS) SIOUX CRAPE MYRTLE
- (IAF) FOSTER HOLLY
- (ICB) DWARF BURFORD HOLLY
- (AGE) EDWARD GOUCHER ABELIA
- (PTW) DWARF PITTOSPORUM
- (LMV) VARIEGATED LIRIOPE
- BERMUDA SOD
- (LM) LIRIOPE

APPROVED CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

PLANT SCHEDULE

TYPE	USE	QUANTITY	KEY	BOTANICAL NAME	COMMON NAME	PLANTING SIZE	COMMENTS
TREES							
DUT	STREET YARD	8	CFP	Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	8' ht MIN	B&B
EUT	STREET YARD / SCREEN / BUILD	7	IAF	Ilex x attenuata 'Fosteri'	Foster Holly	8' ht MIN	B&B; Full to ground
DCT	STREET YARD	2	KP	Koelreuteria paniculata	Golden Rain Tree	2" cal MIN	B&B
DUT	STREET YARD	11	LS	Lagerstroemia indica x fauriei 'Sioux'	Sioux Crape Myrtle	8' ht MIN	B&B; 3-5 stem
DCT	PARKING LOT	8	ZS	Zelkova serrata 'Village Green'	Village Green Japanese Zelkova	2" cal MIN	B&B
SHRUBS							
ES	STREET YARD	33	AGE	Abelia x grandiflora 'Edward Goucher'	Edward Goucher Abelia	12" ht MIN	Container
ES	STREET YARD	41	ICB	Ilex cornuta 'Burfordii Nana'	Dwarf Burford Holly	36" ht MIN	Container
ES	FOUNDATION	15	PTW	Pittosporum tobira 'Wheeler's Dwarf'	Dwarf Pittosporum	12" ht MIN	Container
GROUNDCOVER							
	FOUNDATION	62	LMV	Liriope muscari 'Variegata'	Variegated Liriope	1 gallon	18"o.c.
	FENCE LINE	2100	LM	Liriope muscari	Liriope	2.5" plug	18"o.c.

TYPE/USE LEGEND

Plant Type: DCT = Deciduous Canopy Tree; DUT = Deciduous Understory Tree, EUT = Evergreen Understory Tree; ES = Evergreen Shrub
Plant Use: STREET YARD = Street Yard Buffer; SCREEN = Dumpster Screening; BUILD = Building Foundation; PARKING LOT = Parking Lot Landscaping

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

NORTH (NAD 83)

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	RESPONSE TO COMMENTS	2020-06-09	RAS
2	RESPONSE TO COMMENTS	2021-03-23	RAS
3	RESPONSE TO COMMENTS	2021-04-16	RAS
4	RESPONSE TO COMMENTS	2021-06-08	RAS

Curry ENGINEERING
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NC LIC. NO. P-0799

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DRAWN BY: A. SOUTHWELL
CHECKED BY: A. SOUTHWELL
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.
NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A
MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

LANDSCAPE PLAN

0 15' 30' 1" = 30'-0"

NCSPA PROJECT NO. 10428
NCSPA CONTRACT C-1289(W)
17 JANUARY 2020

LP-100

FILE: D:\Southwell Design, PLLC\Projects\Curry Engineering\Port of Wilmington\CAD\390851-CEG-CIVIL-LANDSCAPE.dwg
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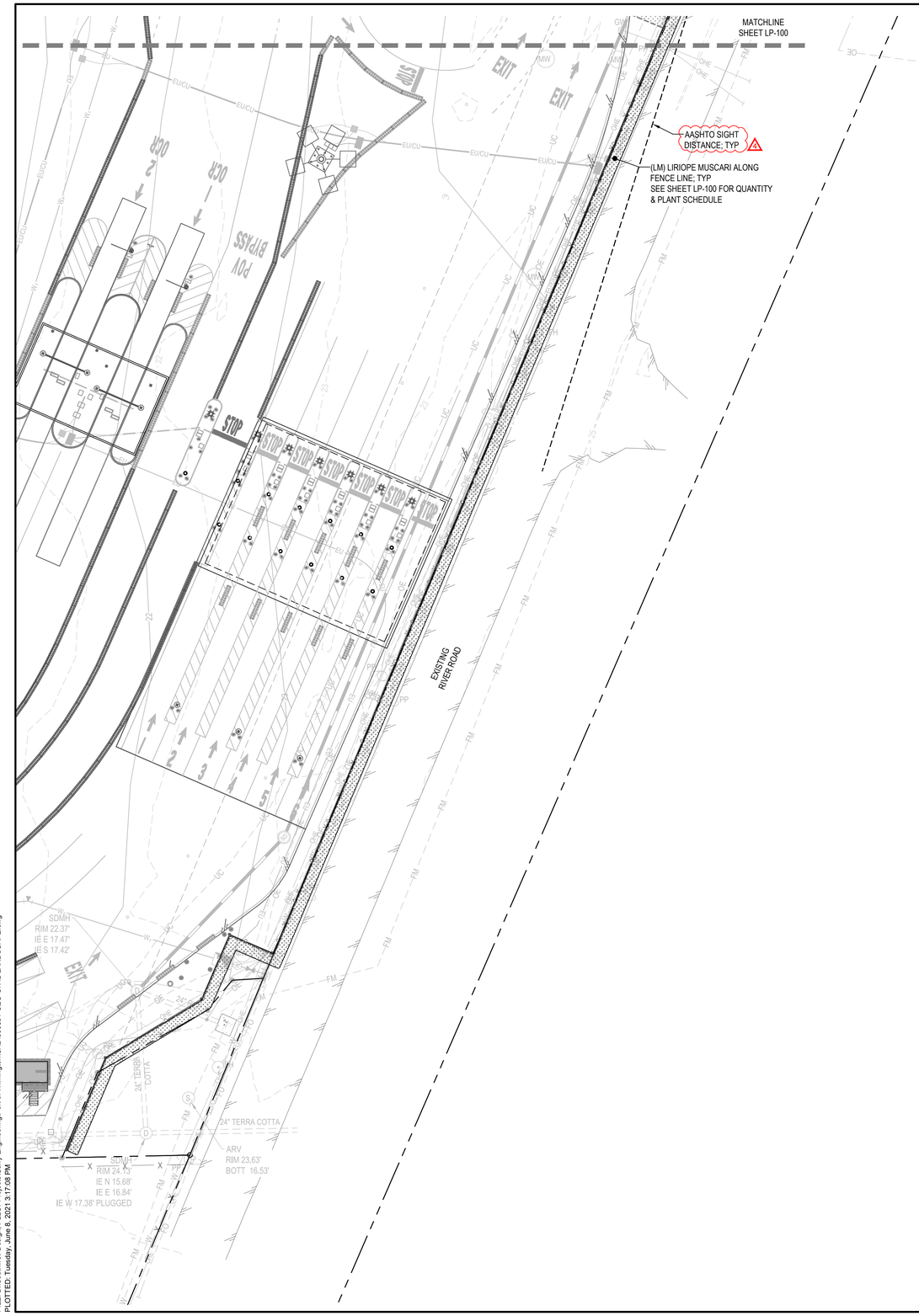

LANDSCAPE LEGEND

(LM) LIRIOPE

APPROVED
CONSTRUCTION PLAN
Jeff Walton
6/28/21
City SW# 2021027
JW, RC, BM, MB, CW

NORTH
(NAD 83)
N

100% SUBMISSION

REV	DESCRIPTION	DATE	APP BY
1	RESPONSE TO COMMENTS	2020-05-09	RAS
2	RESPONSE TO COMMENTS	2020-12-21	RAS
3	RESPONSE TO COMMENTS	2021-04-16	RAS
4	RESPONSE TO COMMENTS	2021-06-08	RAS

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NC LIC. NO. P-0799

DESIGNED BY: A. SOUTHWELL
DRAWN BY: A. SOUTHWELL
CHECKED BY: A. SOUTHWELL
PROJ. MANAGER: R. THOMPSON

NORTH CAROLINA PORTS

NORTH CAROLINA STATE PORTS AUTHORITY
UPGRADES TO SOUTH GATE COMPLEX
PORT OF WILMINGTON - 2202 BURNETT BLVD.

NCSPA CONTRACT NO. C-1289(W)
SCO ID NO. 19-20013-01A

MARK A. BLAKE, P.E., DIRECTOR of ENGINEERING and MAINTENANCE

LANDSCAPE PLAN

0 15' 30'
1" = 30'-0"

NCSPA PROJECT NO. 10428
NCSPA CONTRACT C-1289(W)
17 JANUARY 2020

LP-101

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