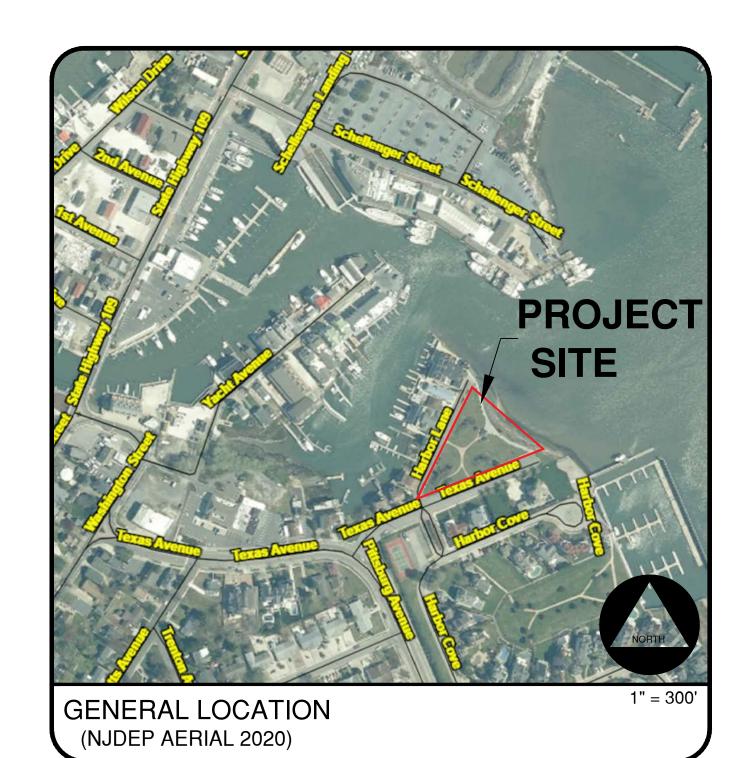
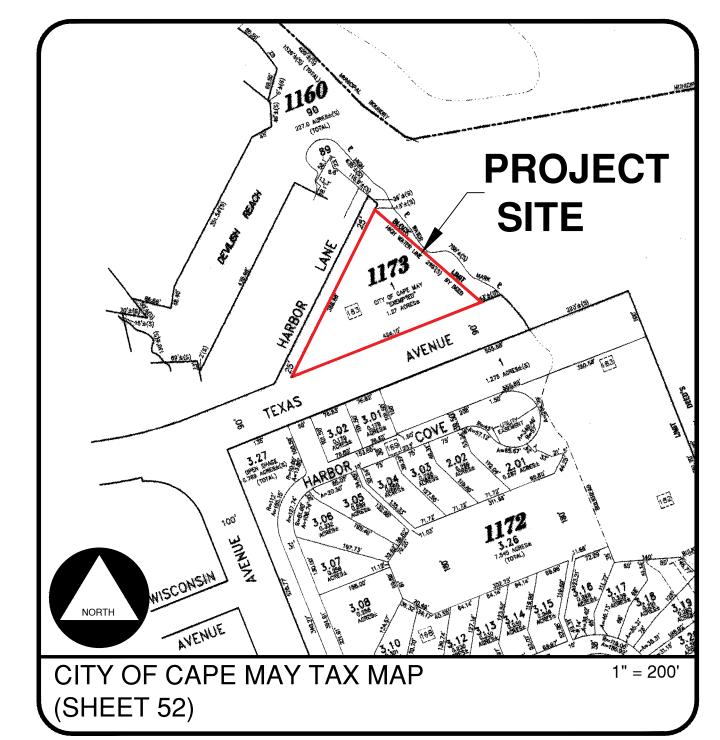
HARBORVIEW PARK IMPROVEMENTS

NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	AS - BUILT QUANTITY
1	MAINTENANCE & PROTECTION OF TRAFFIC	LS	1	
2	SITE CLEARING	LS	1	
3	SAWCUT EXISTING ASPHALT	LF	283	
4	REMOVE ASPHALT, 4" DEPTH	SY	460	
5	REMOVE CONCRETE SIDEWALK	SY	154	
6	REMOVE CONCRETE CURB	LF	310	
7	REMOVE BULKHEAD CAP	LF	420	
8	REMOVE RAILING	LF	300	
9	REMOVE BOARDWALK	SF	3,500	
10	REMOVE GAZEBOS	LS	1	
11	REMOVE TREES AND SHRUBS	LS	1	
12	HOT MIX ASPHALT 12.5 M64 SURFACE COURSE, 2" THICK	TON	73	
13	HOT MIX ASPHALT 19 M64 BASE COURSE, 2" THICK	TON	73	
14	TACK COAT	GAL	48	
15	4" WIDE WHITE PARKING STRIPING AND PARALLEL PARKING "T" & "L"	LF	357	
16	4" WIDE BLUE HANDICAP PARKING STRIPING & PAVEMENT MARKINGS	LS	1	
17	HANDICAP PARKING SIGN	EA	2	
18	DEPRESSED CURB & HANDICAP CURB RAMP WITH WARNING SURFACE	EA	5	
19	CONCRETE VERTICAL CURB	LF	300	
20a	4" THICK CONCRETE SIDEWALK & RAMPS	SY	942	
20a 20b	4" THICK CONCRETE SIDEWALK & HAWFS 4" THICK CONCRETE PAD	SY	104.5	
20b	4" THICK CONCRETE FAD 4" THICK CONCRETE SLAB FLOOR (GAZEBO)	SY	62	
200	RELOCATE GAS LAMP POST LIGHT	EA	2	
22	NEW "HARBORVIEW PARK" SIGN	EA	1	
			1	
23	RELOCATE AND SET ANCHOR	EA	l	
24	RELOCATE STREET SIGN	EA	1	
25	BULKHEAD CAP REPLACEMENT	LF	400	
26	CONCRETE PLANK BOARDWALK	SF	3,215	
27	IPE & STEEL MESH RAILING, COMPLETE	LF	370	
28	CONCRETE RETAINING WALL, 24" - 44" HIGH, VARYING	LF	108	
29	CONCRETE STEPS AT GAZEBO	LS	1	
30	GAZEBO, COMPLETE	LS	1	
31	REPAIR EXISTING STONE COMPASS	LS	1	
32	SOLID SKIRT BENCH WITH BACKREST (74 LF)	EA	1	
33	SOLID SKIRT BACKLESS BENCH (12 LF)	EA	2	
34	SOLID TREE ISLE - STEEL PLANTER WITH BENCH	LS	1	
35	SOLID MOBILE GREEN ISLE TERRACED SEATING	LS	1	
36	KINETIC SCULPTURES #1, #2 & #3	LS	1	
37	CREEKVIEW CLUSTER SEATING	EA	7	
38	ADA ACCESSIBLE PICNIC TABLE	EA	1	
39	CARSON 32 GALLON LITTER RECEPTACLE	EA	12	
40	CREEKVIEW BENCH WITH BACKREST	EA	8	
41	CREEKVIEW BACKLESS BENCH	EA	8	
41	SONANCE BIKE LOOP	EA	4	
43	FINCH ADIRONDACK LOUNCE CHAIR	EA	6	
44	FINCH ADIRONDACK LOUNGE CHAIR	EA	8	
45	FINCH ADIRONDACK CHAIR	EA	8	
46	USONIA LED BOLLARD LIGHT	EA	30	
47	ENCAPSULATED LED FLEXIBLE LIGHT	EA	140	
48	PROSPOT 3 LED ADJUSTABLE SPOT LIGHT	EA	6	
49	PROSPOT 3 LED ADJUSTABLE SIGN LIGHTER SPREAD LENS	EA	2	
50	PROSPOT 3 LED ADJUSTABLE SIGN LIGHTER	EA	2	
51	VISION3 LED IN-GRADE RECESSED UPLIGHT	EA	2	
52	PORTSIDE PENDANT LIGHT	EA	1	
53	ELECTRICAL SERVICE COMPLETE	LS	1	
54	IRRIGATION SYSTEM COMPLETE WITH BACKFLOW PREVENTER	LS	1	
55	LANDSCAPE COMPLETE	LS	1	
56	TOPSOIL, SEED & FERTILIZER	CY	730	
57	DENSE GRADED AGGREGATE BASE COURSE IF AND WHERE DIRECTED	CY	200	
58	SOIL EROSION & SEDIMENT CONTROL MEASURES	LS	1	
59	TREE PROTECTION FENCE	LS	1	
	FUEL PRICE ADJUSTMENT ALLOWANCE	DOLLAR	1	\$5,000
60	I OLL FRIOL ADJUSTIVIENT ALLOVVAINGE		I	φ5,000





HARBORVIEW PARK IMPROVEMENTS

CITY OF CAPE MAY CAPE MAY COUNTY, NJ

ZACHARY MULLOCK, MAYOR MAUREEN K. MCDADE, DEPUTY MAYOR SHAINE P. MEIER, COUNCILMEMBER MICHAEL YEAGER, COUNCILMEMBER LORRAINE BALDWIN, COUNCILMEMBER

SCHEDULE OF SHEETS	SHEET NUMBER	ORIGINAL DATE	LAST REVISED
COVER SHEET	1 OF 13	09/15/25	
EXISTING CONDITIONS & DEMOLITION PLAN	2 OF 13	09/15/25	
SITE PLAN	3 OF 13	09/15/25	
GRADING & DRAINAGE PLAN	4 OF 13	09/15/25	
LIGHTING PLAN	5 OF 13	09/15/25	
LANDSCAPE PLAN	6 OF 13	09/15/25	
ENGINEERING DETAILS	7 OF 13	09/15/25	
ENGINEERING DETAILS	8 OF 13	09/15/25	
ENGINEERING DETAILS	9 OF 13	09/15/25	
ENGINEERING DETAILS	10 OF 13	09/15/25	
ENGINEERING DETAILS	11 OF 13	09/15/25	
ENGINEERING DETAILS	12 OF 13	09/15/25	
SOIL EROSION & SEDIMENT CONTROL PLAN	13 OF 13	09/15/25	

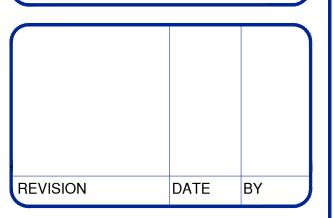
GENERAL NOTES:

- NJDOT Standard Roadway Construction/Traffic Control/Bridge Construction Details Booklet, 2019 are applicable to this project except for those details contained herein.
- NJDOT Standard Specs for Road & Bridge Construction 2019 Edition as amended by the supplementary specifications to govern.
- NJDOT standard construction details to govern over all materials, equipment and procedures.
- Contractor to visit site prior to Bid Submission.
- Contractor shall have all utilities located prior to construction and take all measures necessary to protect utilities during construction.
- All excess excavated materials or removal of site furnishings are to remain the property of the City and delivered to the City Public Works Yard (if requested).
- Horizontal datum is in feet and references the New Jersey State Plan Coordinate System, N.A.D. 1983
- SURVEY INFORMATION
 - Outbound and topographic information was taken from a plan entitled "Survey with Elevations situate in Block 1173, Lot 1, City of Cape May, Cape May County, NJ" prepared by Cape Land Surveying, LLC; George Swensen, NJPLS Lic. No. 43415, dated August 1, 2023. Vertical datum elevations are in feet and references N.A.V.D. 1988.





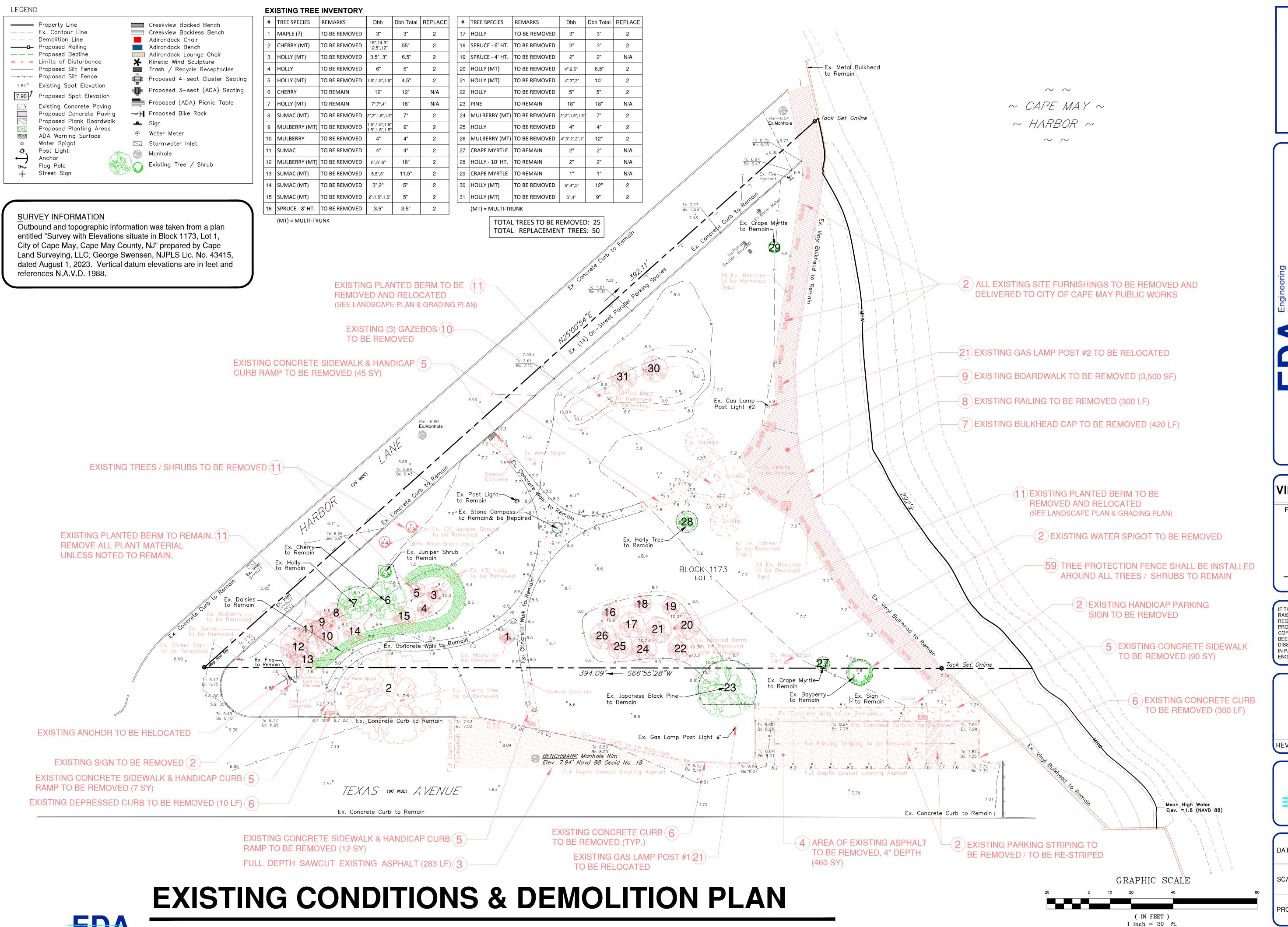
REGISTRATION NUMBER OF THE ABOVE SIGNED PROFESSIONAL, IT MAY NOT BE AN AUTHORIZED IN PART REQUIRES PERMISSION IN WRITING FROM ENGINEERING DESIGN ASSOCIATES, P.A.

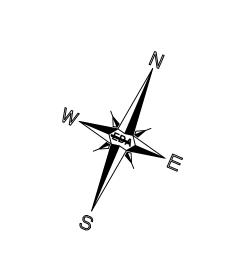




DATE: 09/15/25	DRAWN BY: NEW
SCALE: AS NOTED	CHECKED BY: VCO
PROJECT #: CM-124	SHEET: 1 OF 13



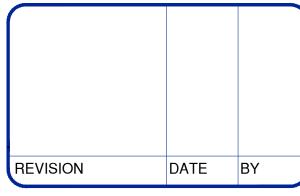




CONDITIONS
BLOCK 117
CITY OF CA
CITY OF CA

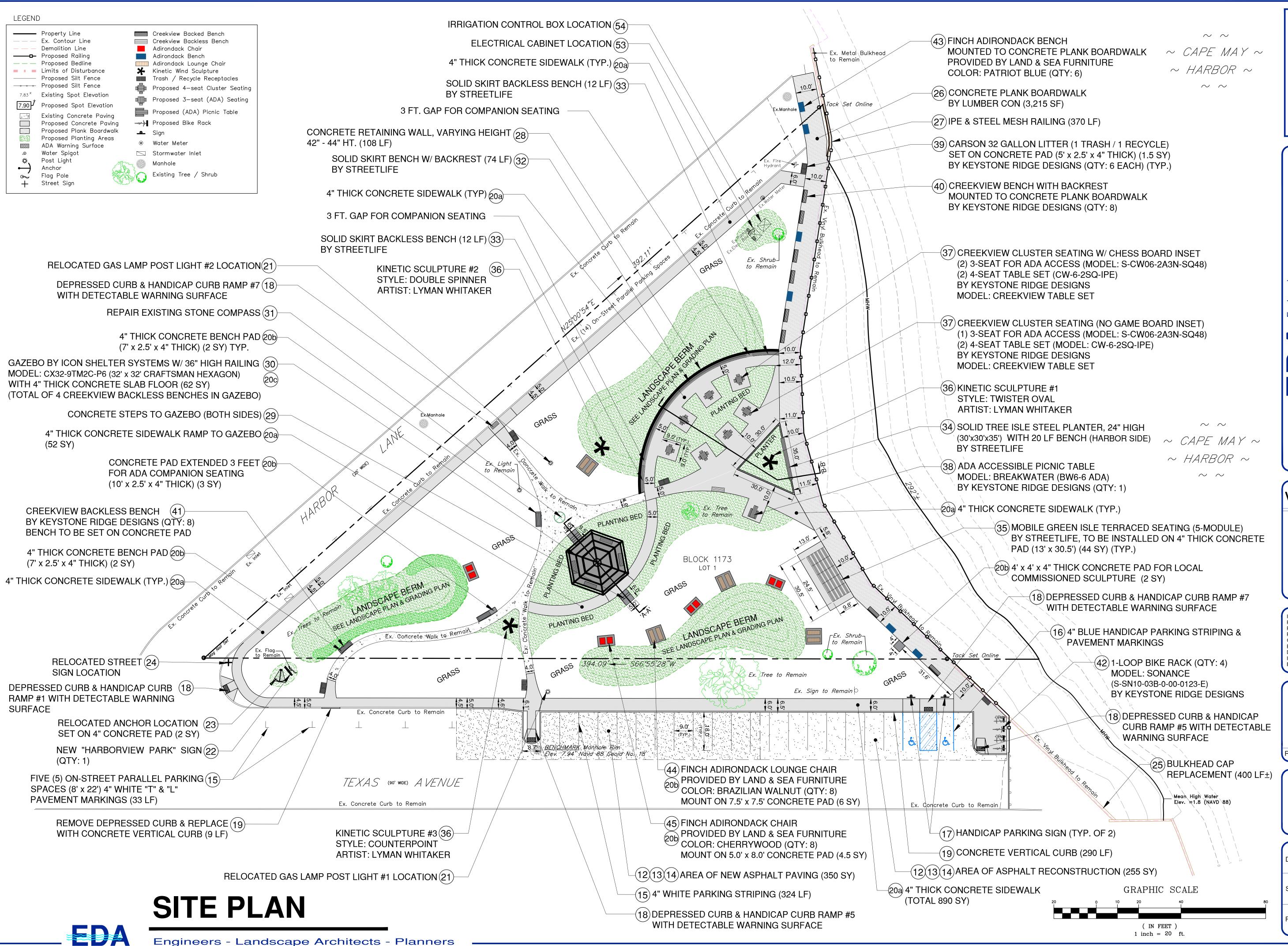
VINCENT C. ORLANDO

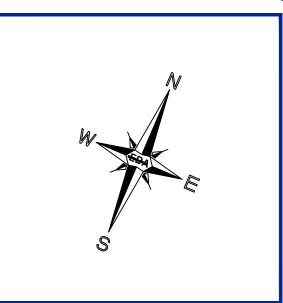
PROFESSIONAL ENGINEER N.J.P.E. LIC. #32498





:	DATE: 09/15/25	DRAWN BY: NEW
	SCALE: 1"=20'	CHECKED BY: VCO
	PROJECT #: CM-124	SHEET: 2 0F 13

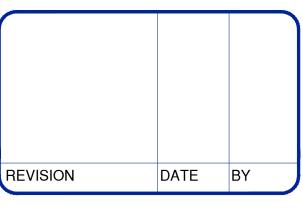






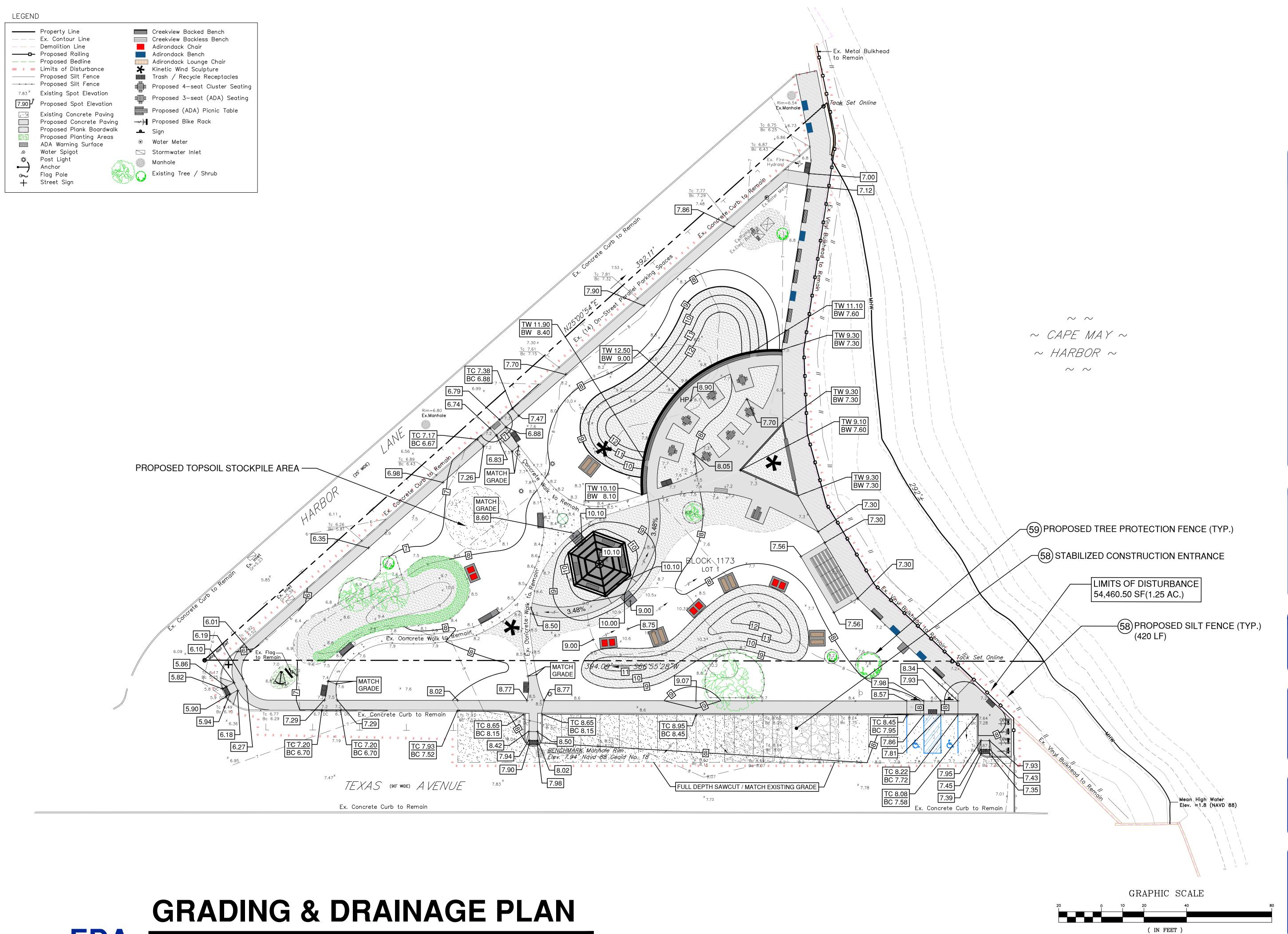


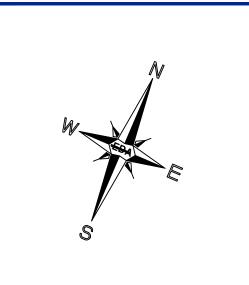
IF THIS PLAN OR DOCUMENT DOES NOT CONTAIN A RAISED SEAL IMPRESSION BEARING THE NAME AND REGISTRATION NUMBER OF THE ABOVE SIGNED PROFESSIONAL, IT MAY NOT BE AN AUTHORIZED COPY OF THE ORIGINAL DOCUMENT AND MAY HAVE BEEN ALTERED. REPRODUCTION OR FURTHER DISSEMINATION OF THE CONTENTS IN WHOLE OR IN PART REQUIRES PERMISSION IN WRITING FROM ENGINEERING DESIGN ASSOCIATES, P.A.





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	SCALE: 1"=20'	CHECKED BY: VCO
	PROJECT #: CM-124	SHEET: 3 OF 13

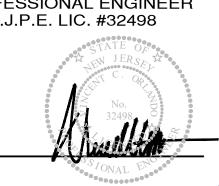




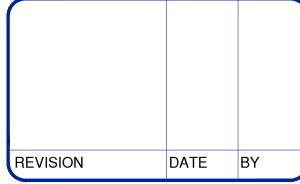
GRADING BLOC CITY CITY SAPE MAY C

VINCENT C. ORLANDO

PROFESSIONAL ENGINEER N.J.P.E. LIC. #32498



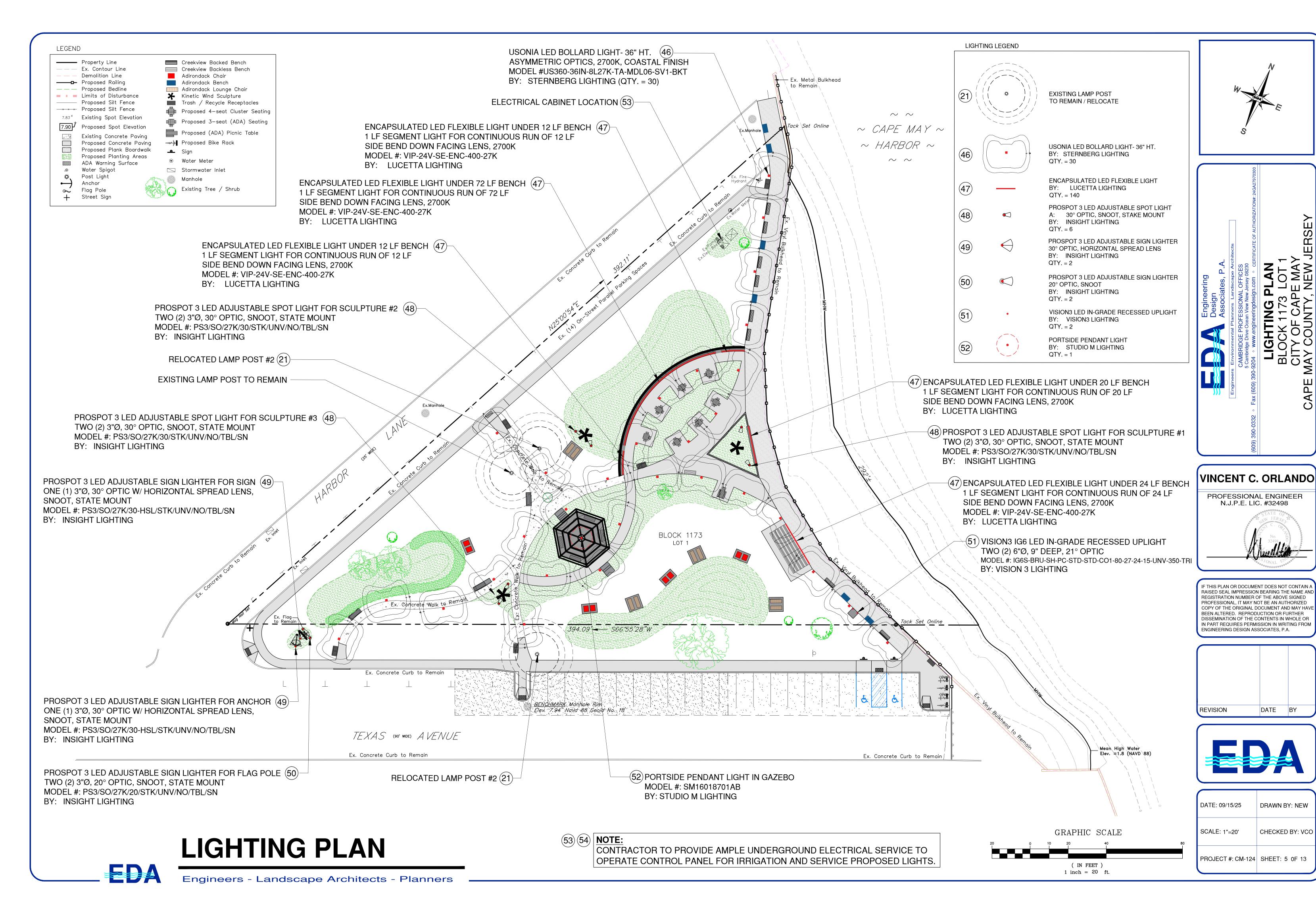
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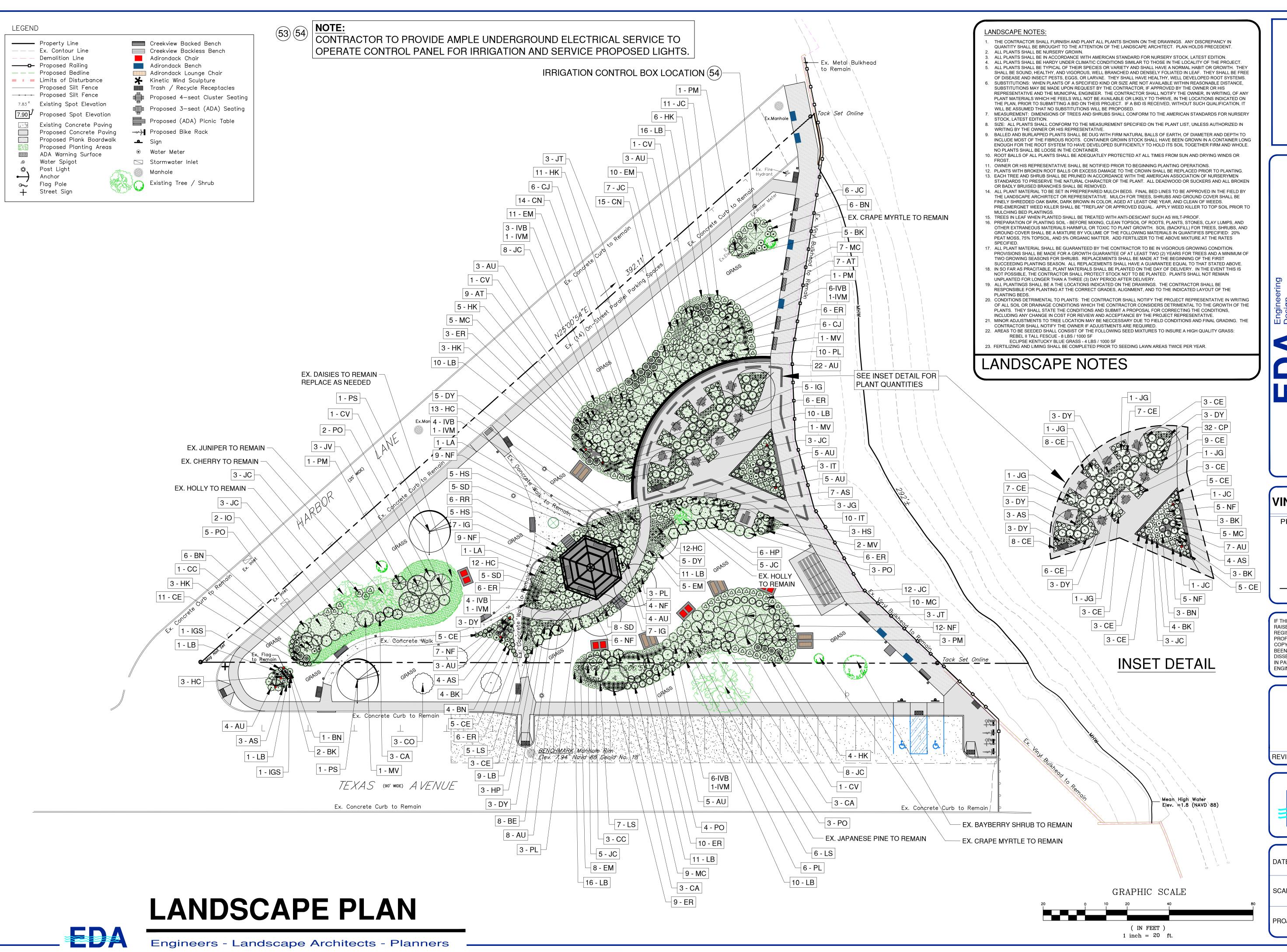


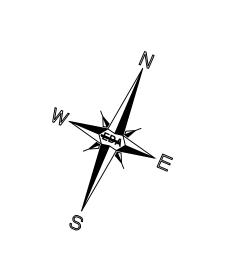


DATE: 09/15/25	DRAWN BY: NEW
SCALE: 1"=20'	CHECKED BY: VCO
PROJECT #: CM-124	SHEET: 4 0F 13

1 inch = 20 ft.



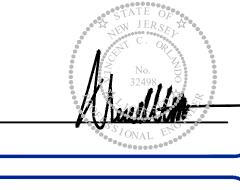




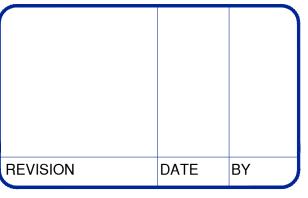


VINCENT C. ORLANDO

PROFESSIONAL ENGINEER N.J.P.E. LIC. #32498

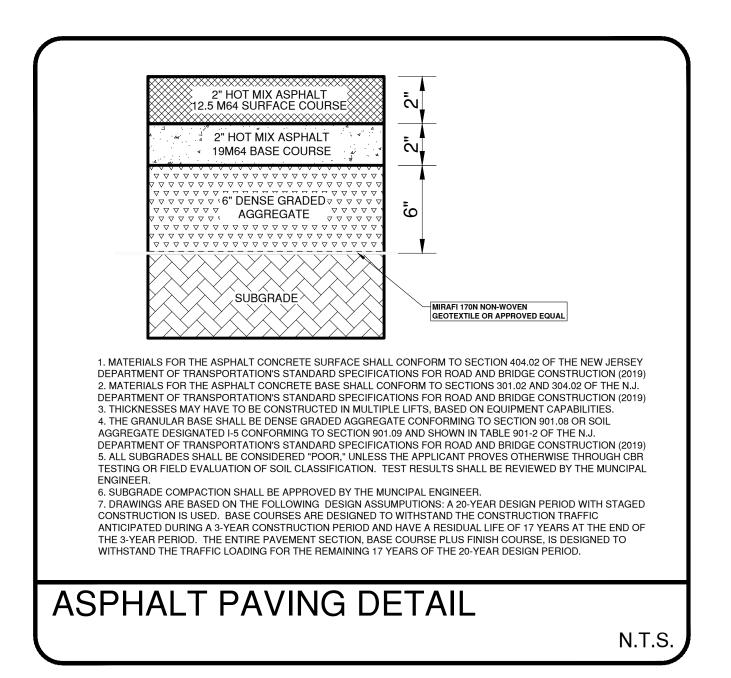


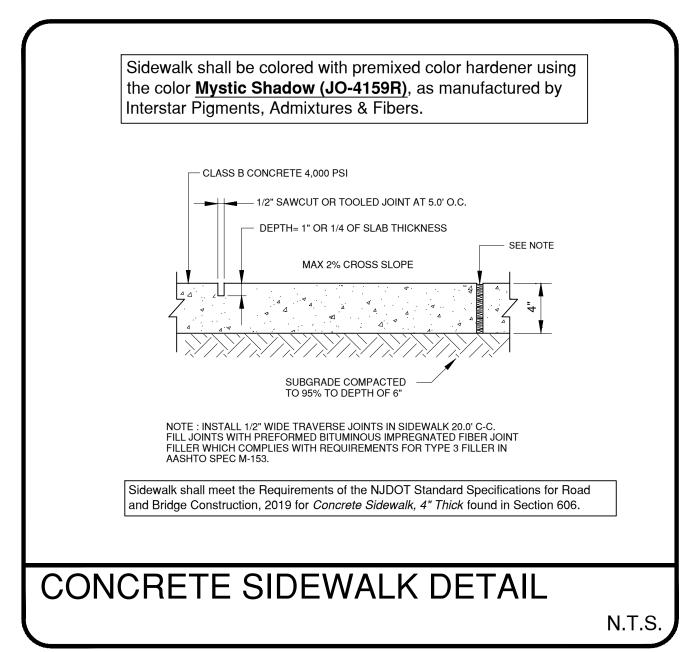
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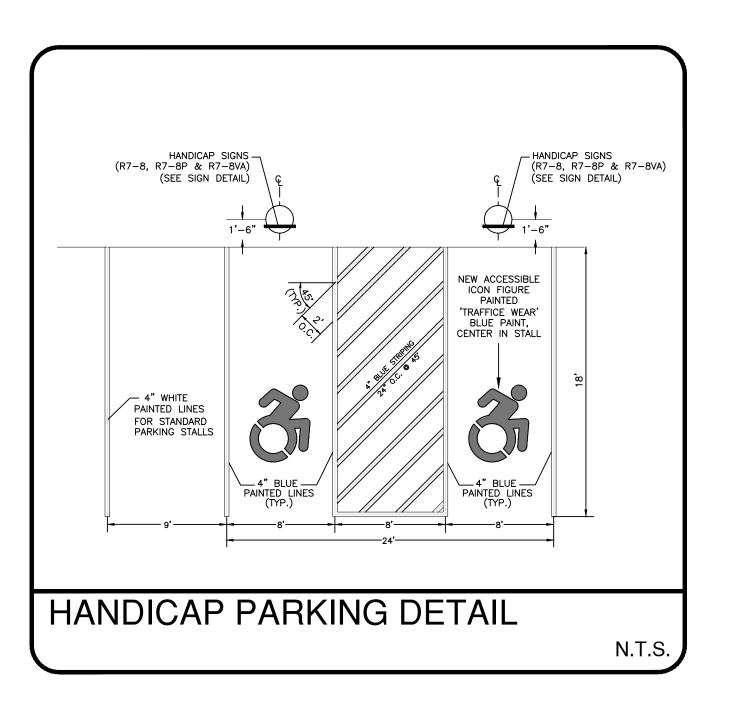


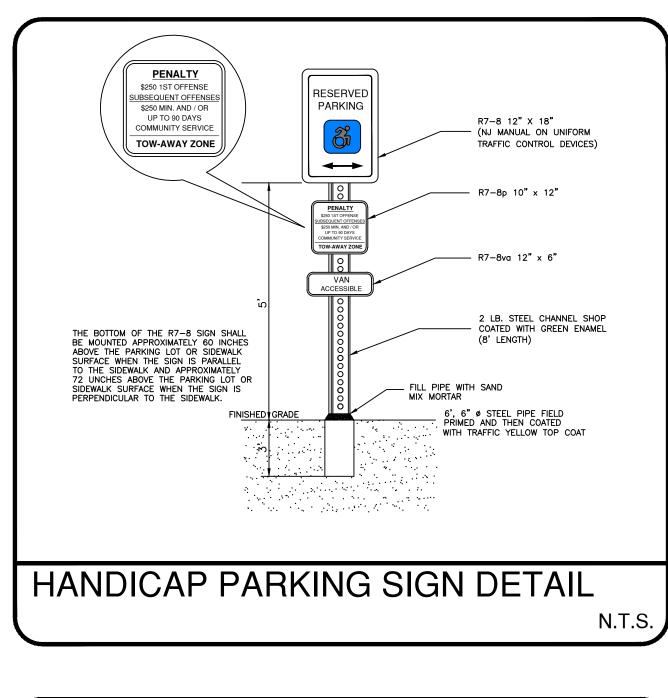


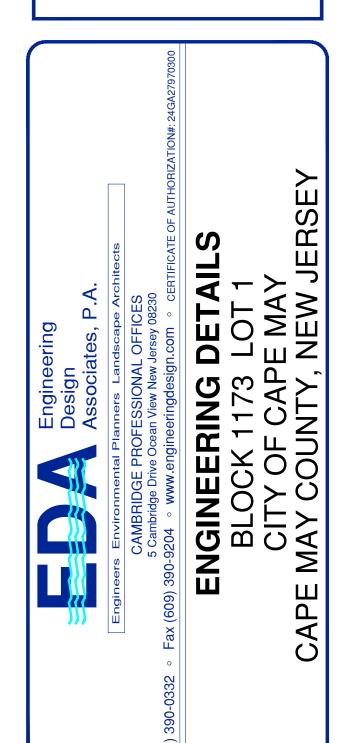
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PROJECT #: CM-124	SHEET: 6 0F 13

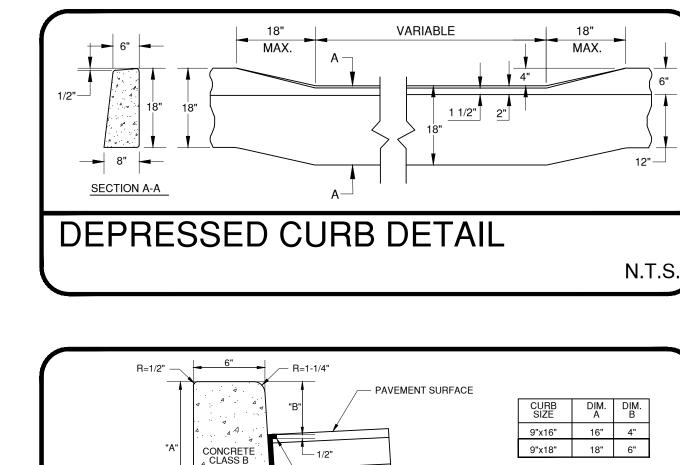


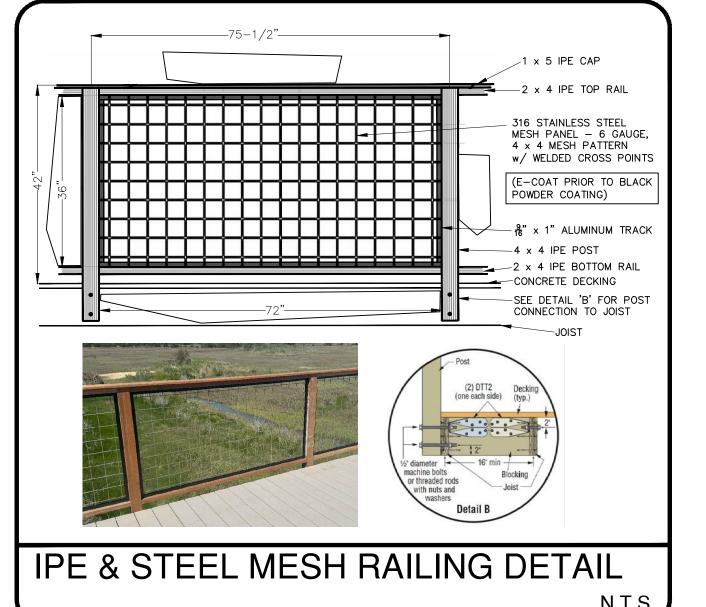


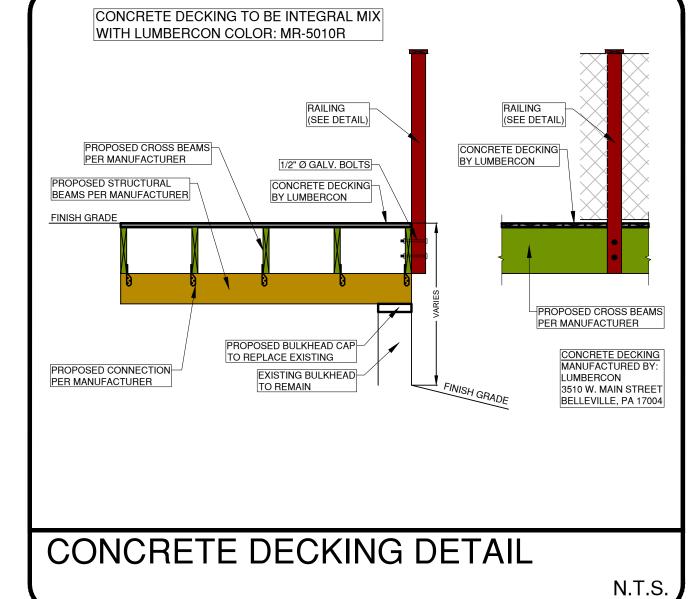


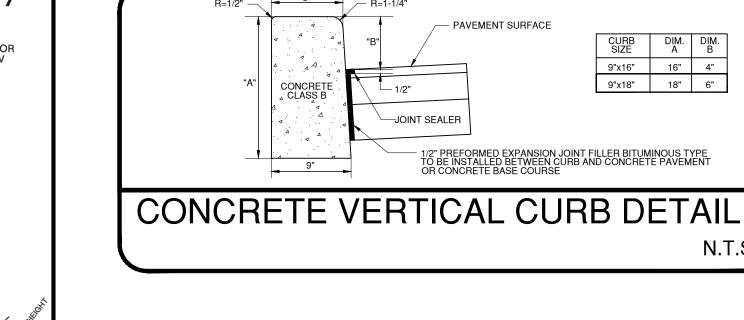


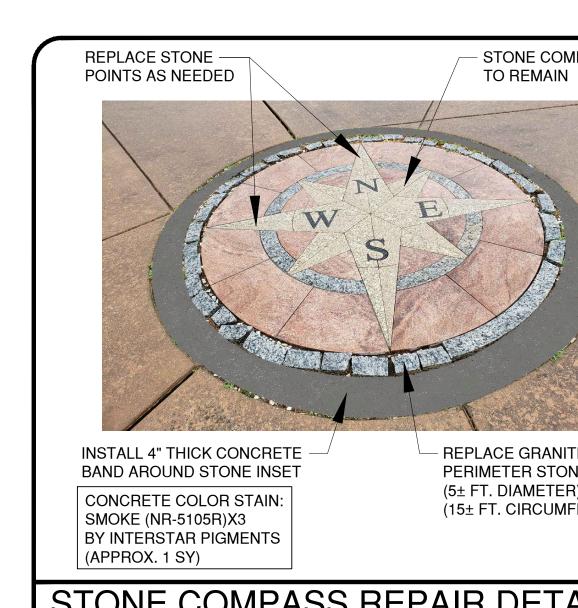


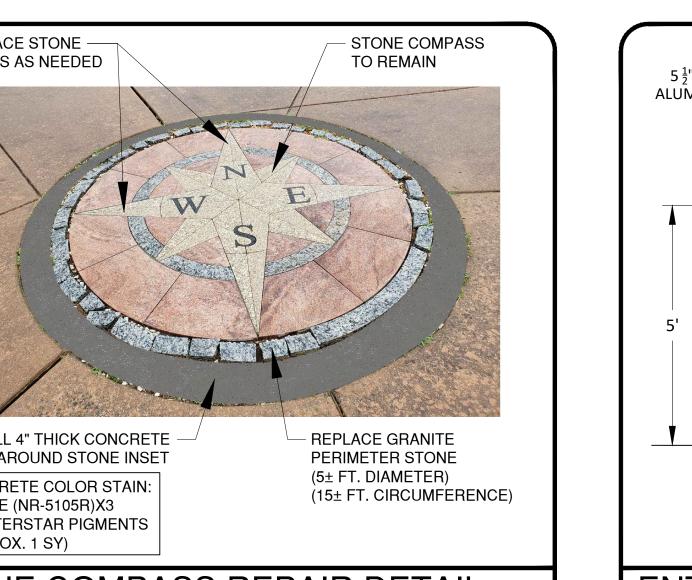


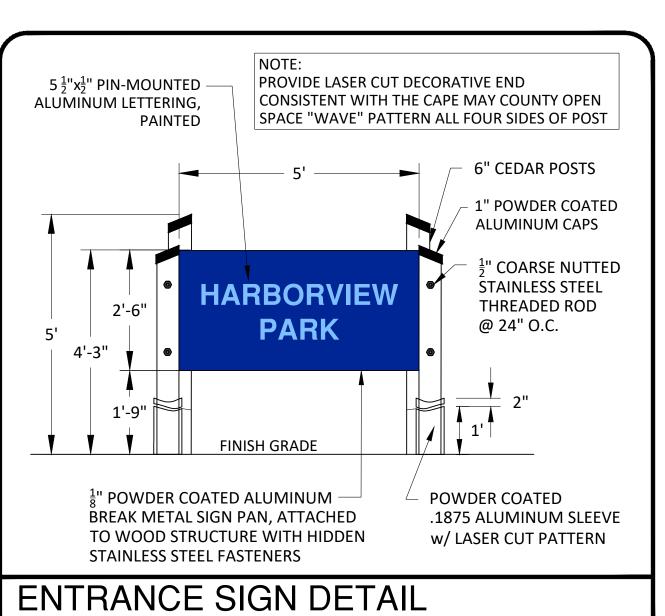




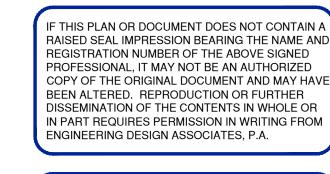


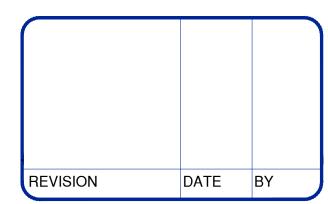








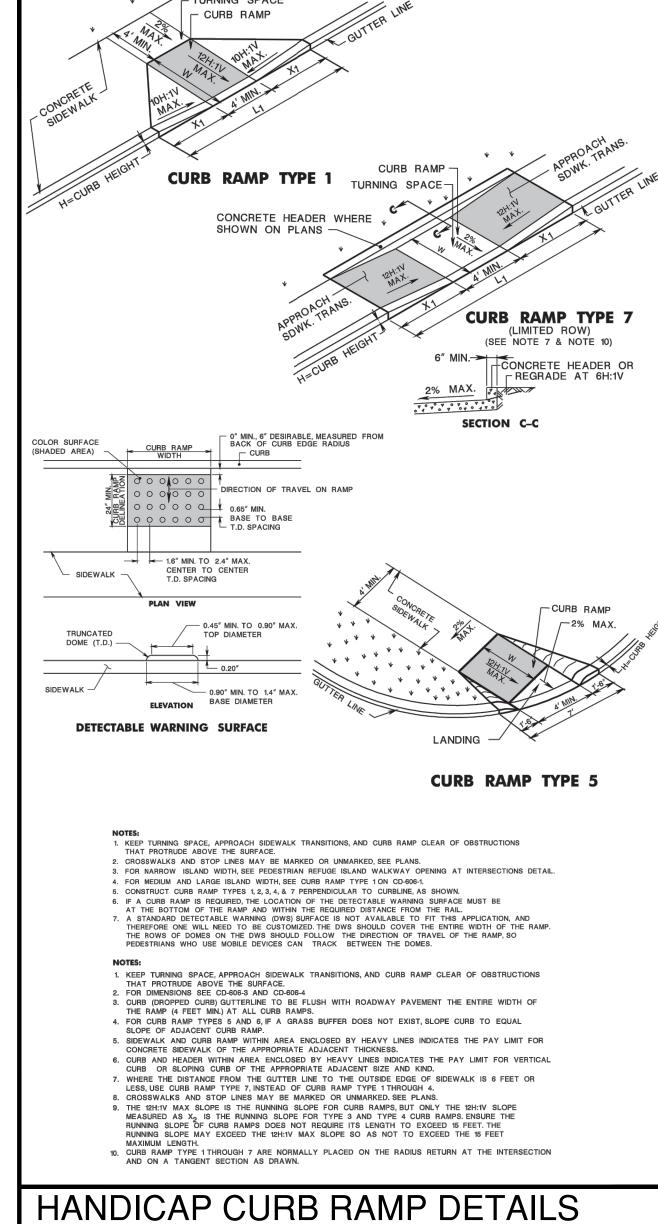


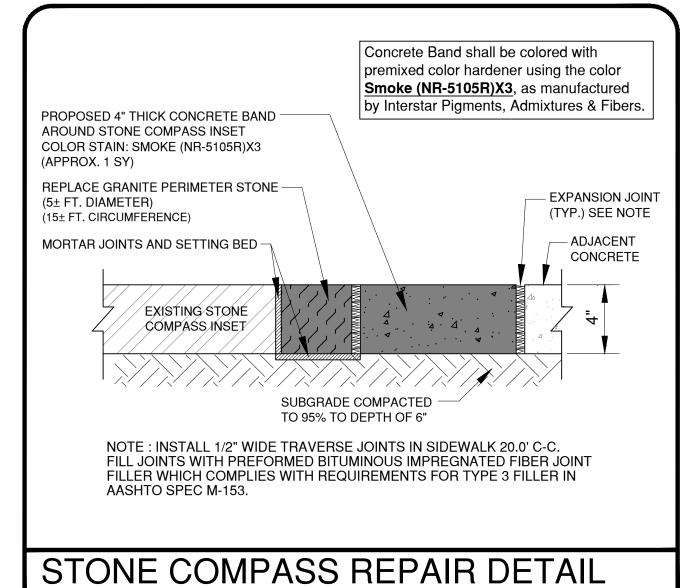




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SCALE: AS NOTED	CHECKED BY: VCO
PROJECT #: CM-124	SHEET: 7 OF 13

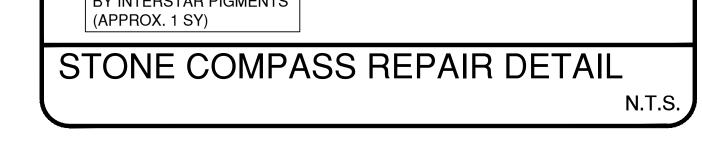
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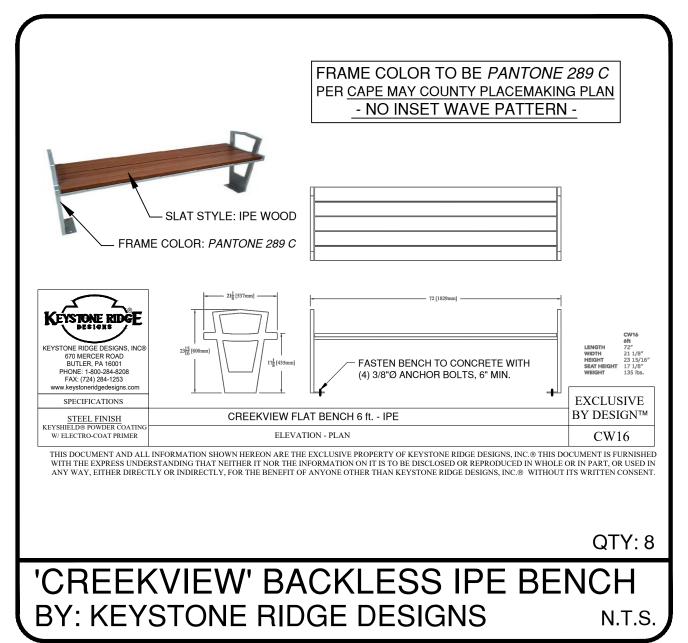
1/2" PREFORMED EXPANSION JOINT FILLER BITUMINOUS TYPE TO BE INSTALLED BETWEEN CURB AND CONCRETE PAVEMENT OR CONCRETE BASE COURSE

N.T.S.



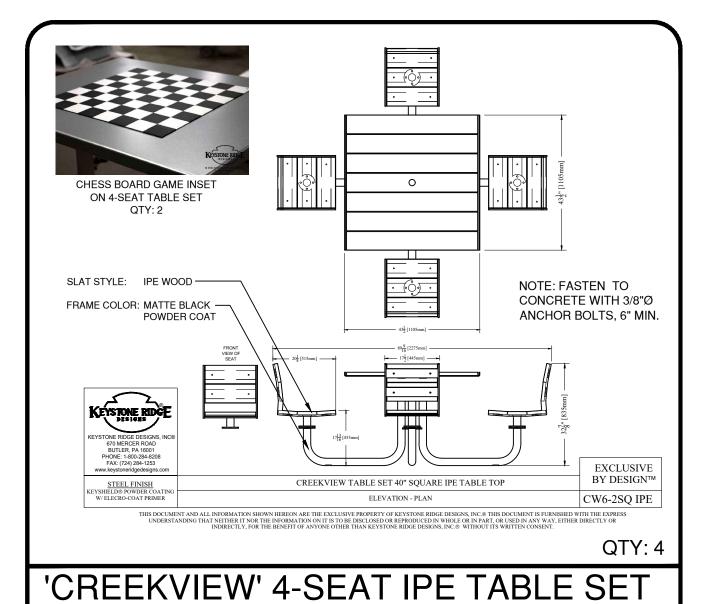
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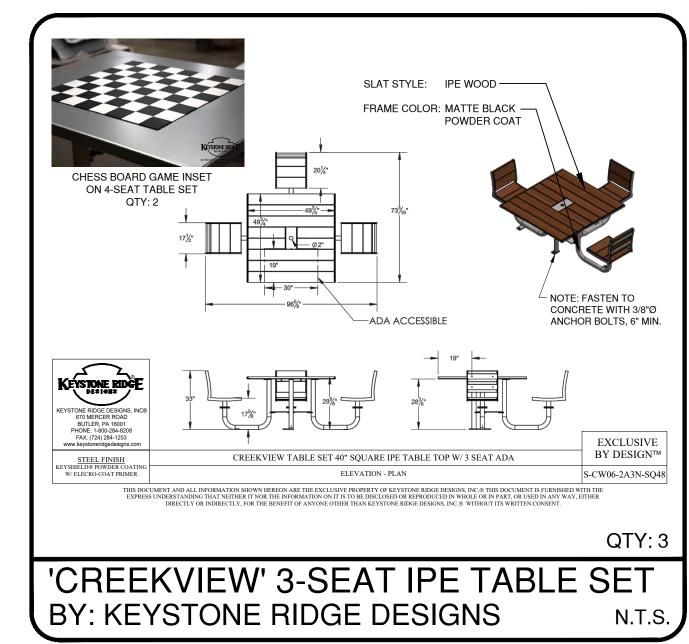


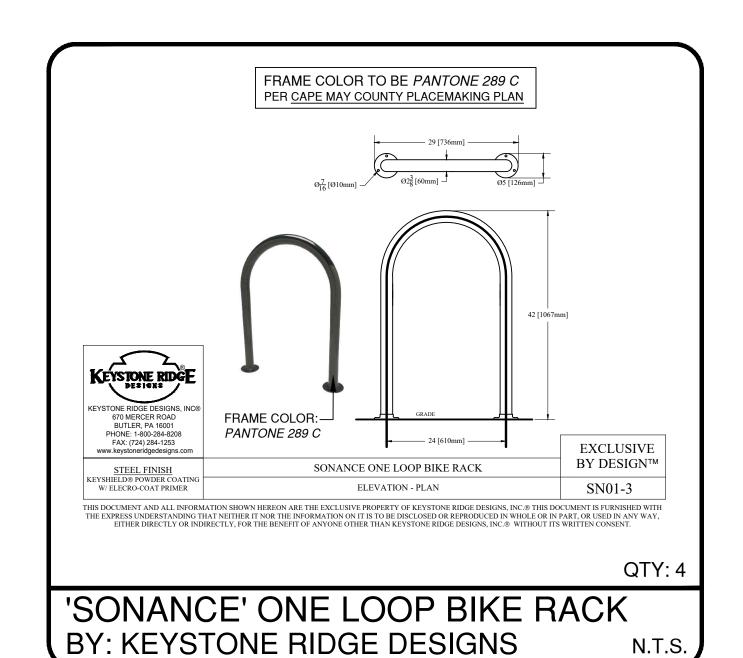


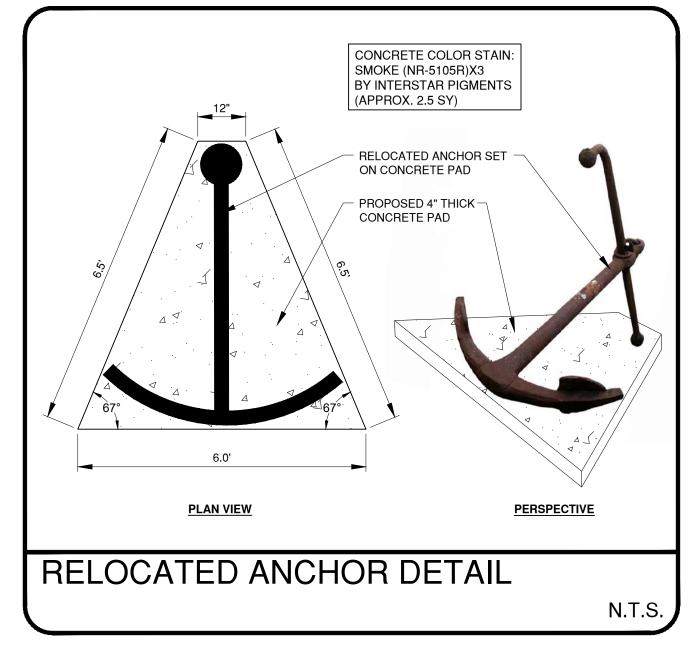


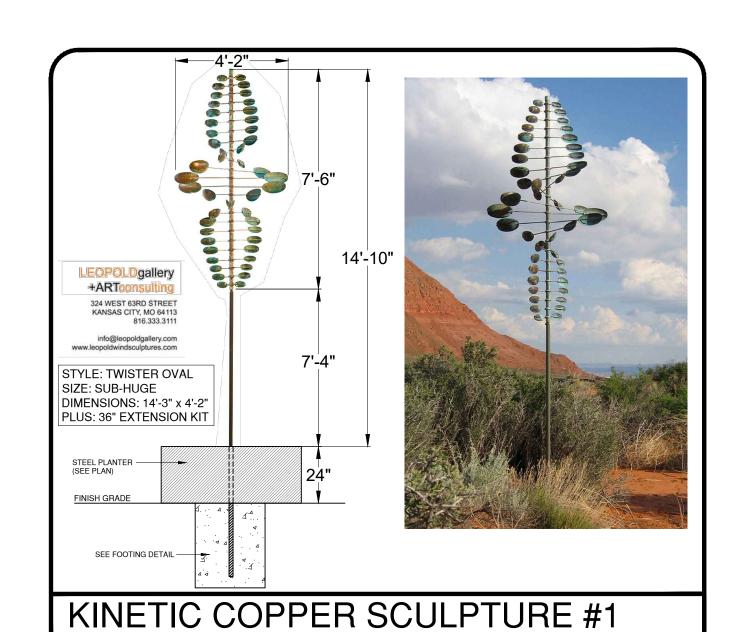




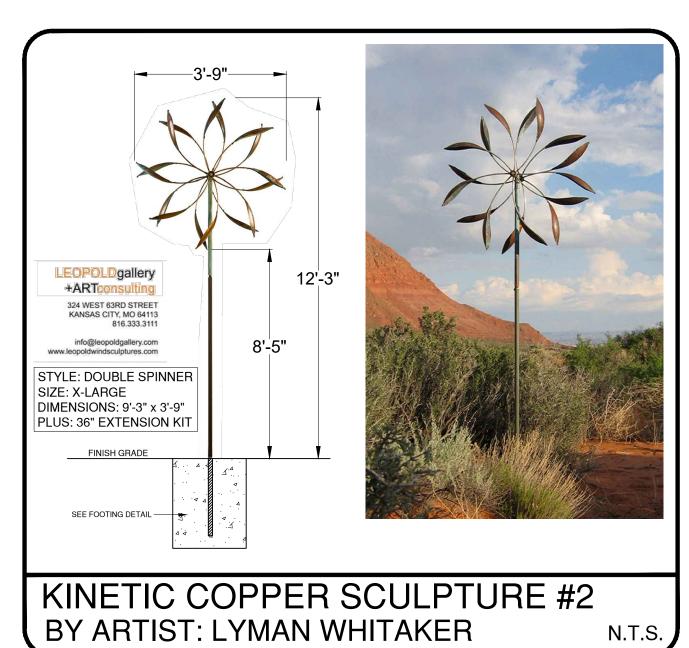


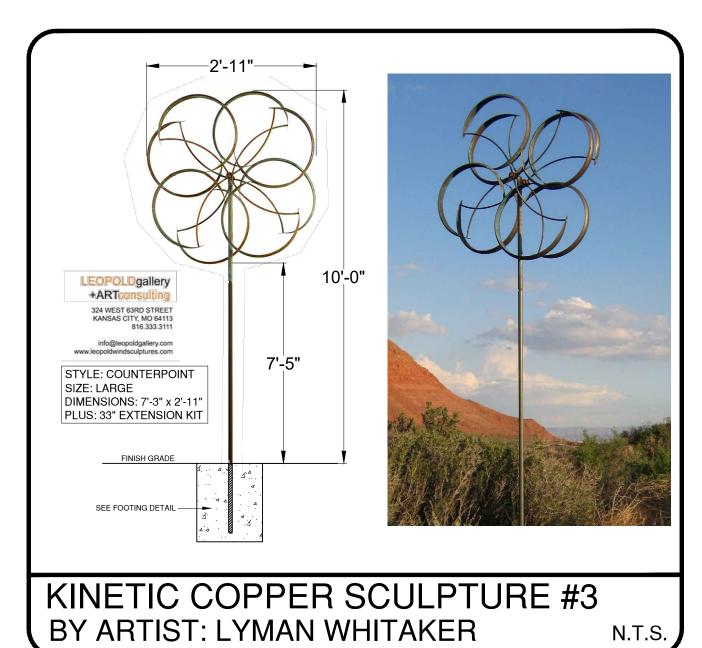


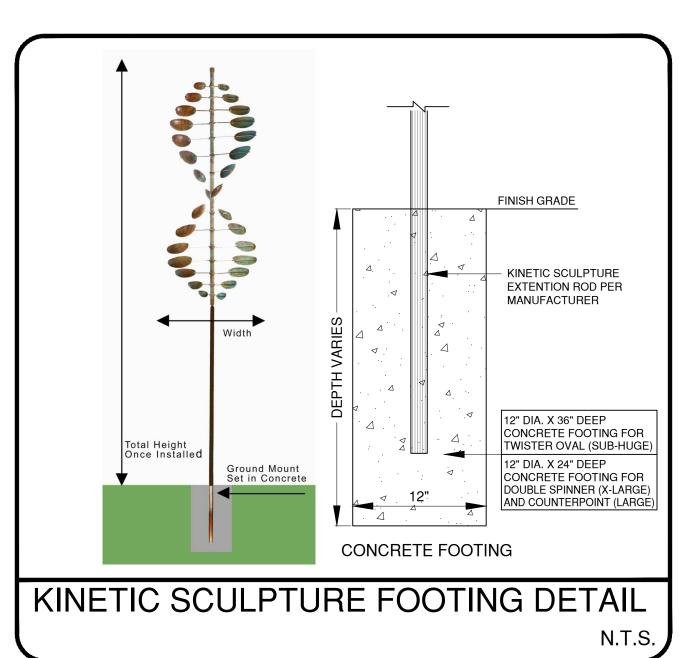




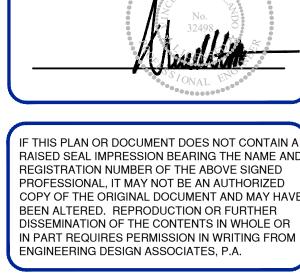
BY: KEYSTONE RIDGE DESIGNS

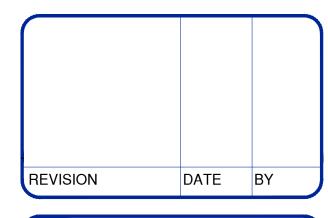




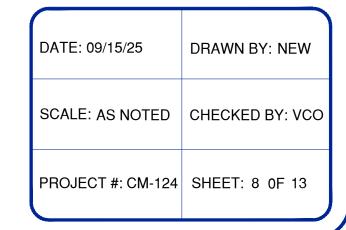




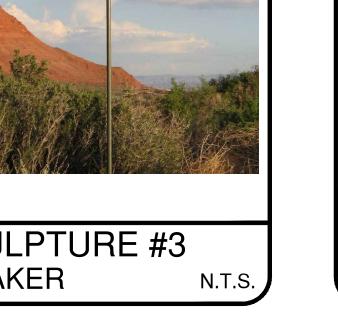








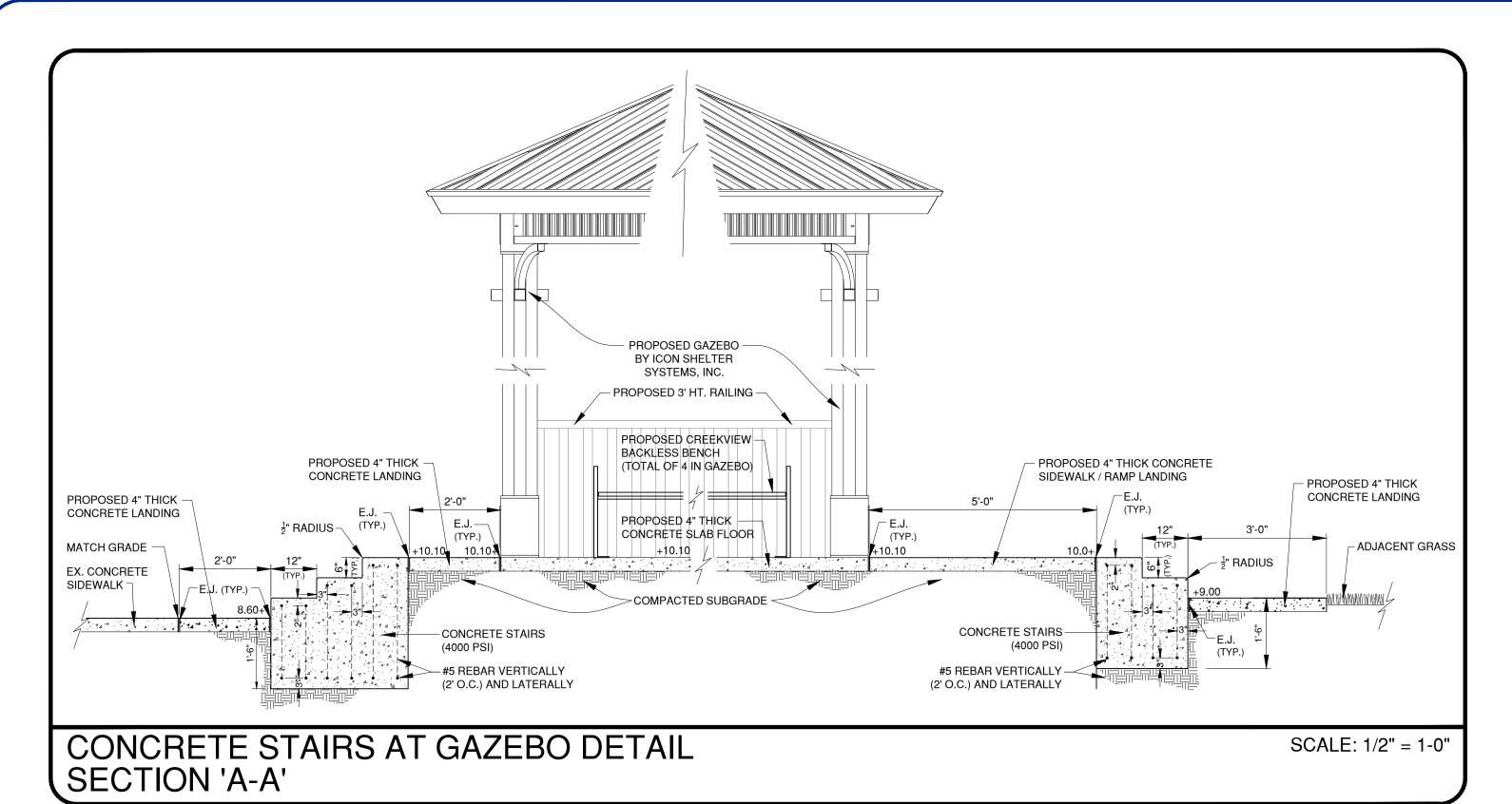


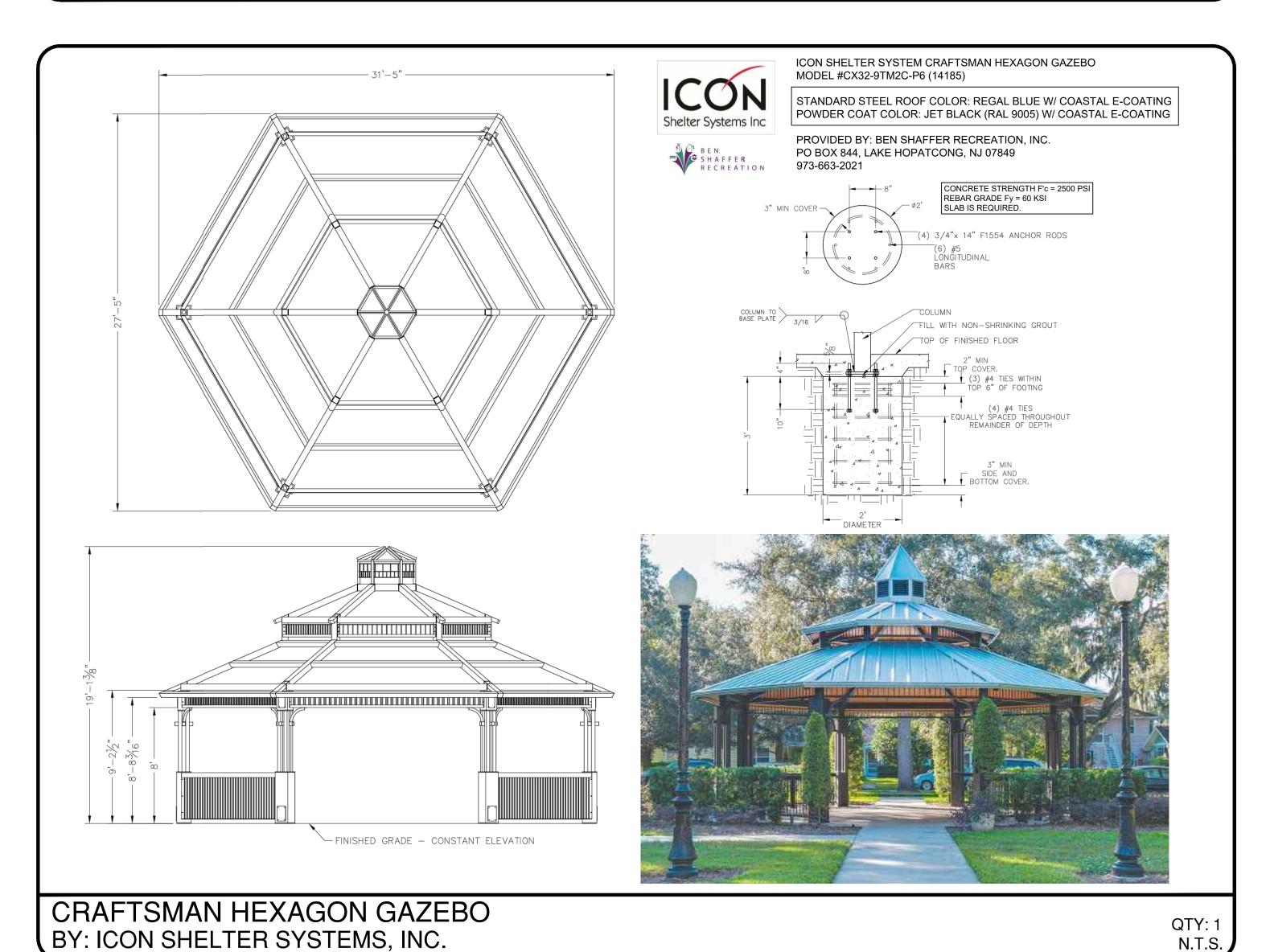


BY ARTIST: LYMAN WHITAKER

N.T.S.

N.T.S.



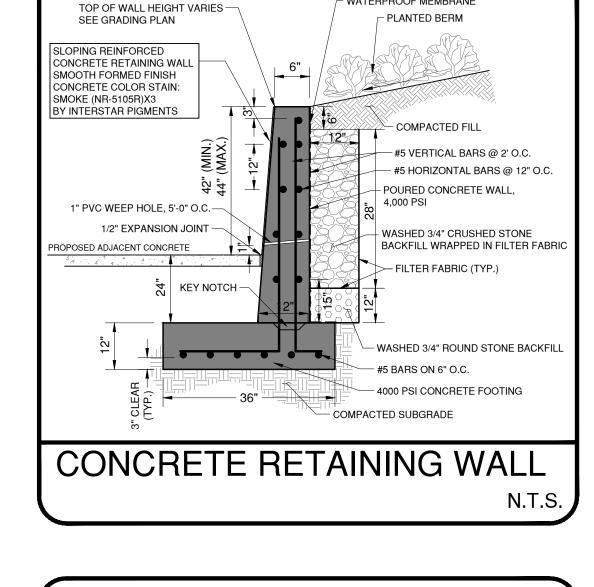




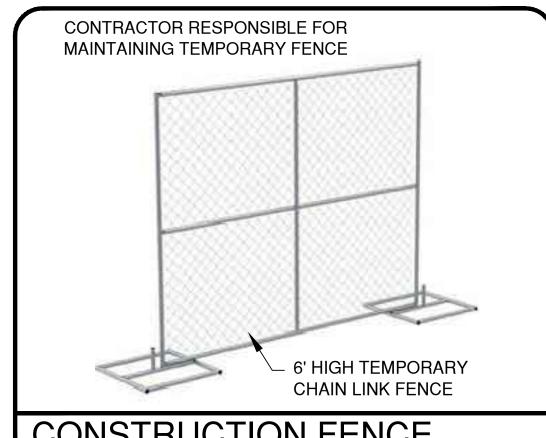
FINCH ADIRONDACK CHAIR BY: LAND & SEA FURNITURE

N.T.S.

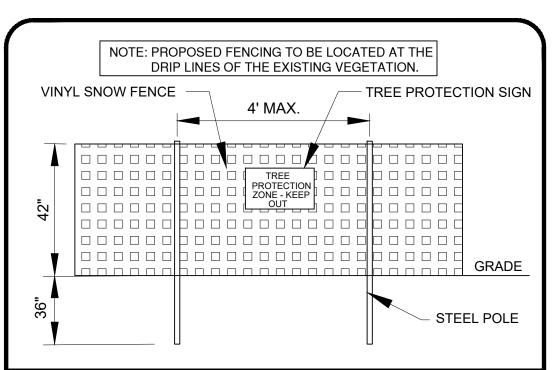
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WATERPROOF MEMBRANE

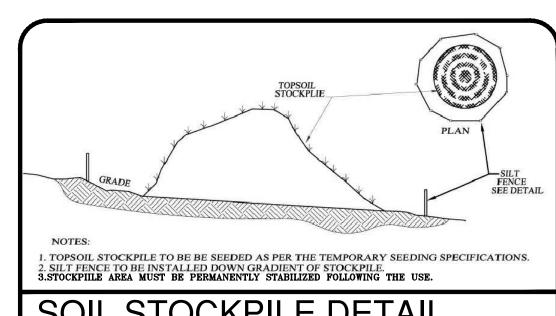






TREE PROTECTION FENCE

N.T.S.



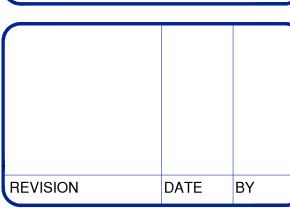
SOIL STOCKPILE DETAIL

REVISION





VINCENT C. ORLANDO



ENGINEERING DESIGN ASSOCIATES, P.A.

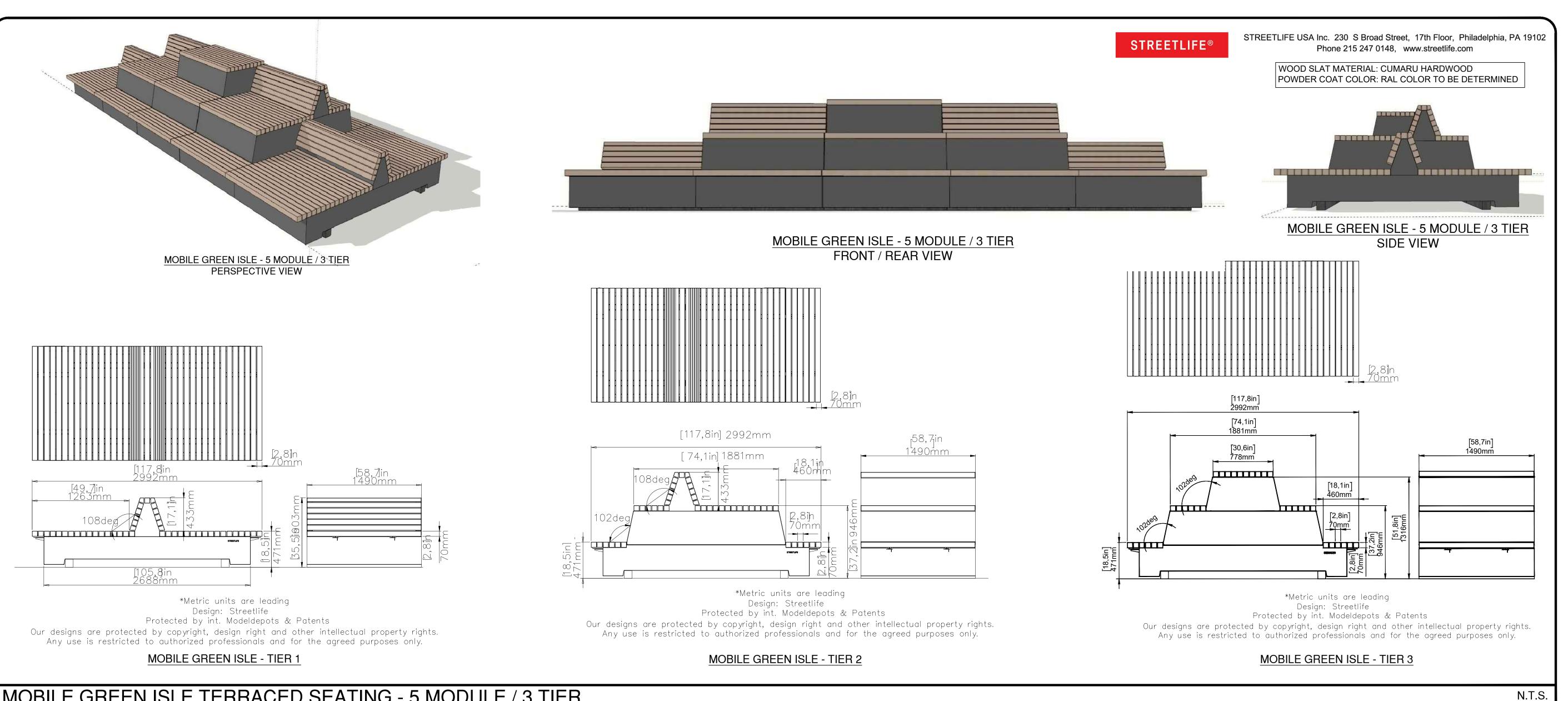


DATE: 09/15/25 DRAWN BY: NEW SCALE: AS NOTED | CHECKED BY: VCO PROJECT #: CM-124 SHEET: 9 0F 13





BY: LAND & SEA FURNITURE



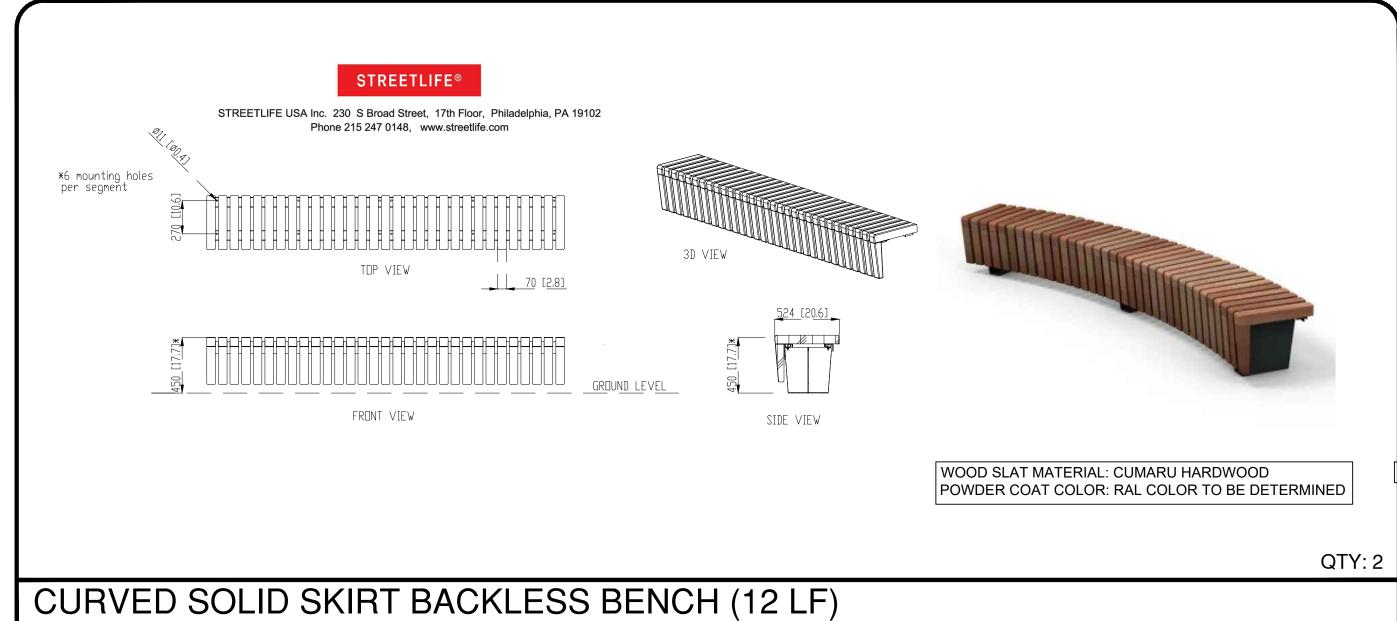
MOBILE GREEN ISLE TERRACED SEATING - 5 MODULE / 3 TIER BY: STREETLIFE

CURVED SOLID SKIRT BENCH WITH VARIED BACKREST (72 LF)

WOOD SLAT MATERIAL: CUMARU HARDWOOD
POWDER COAT COLOR: RAL COLOR TO BE DETERMINED

N.T.S.

BY: STREETLIFE



Engineers Environmental Planners Landscape Architects

Associates, P.A.

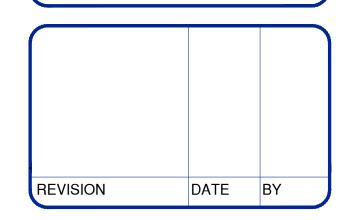
Engineers Environmental Planners Landscape Architects

Combridge Drive Ocean View New Jersey 08230

Compressional Compressional



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DATE: 09/15/25

DRAWN BY: NEW

SCALE: AS NOTED

CHECKED BY: VCO

PROJECT #: CM-124

SHEET: 10 0F 13

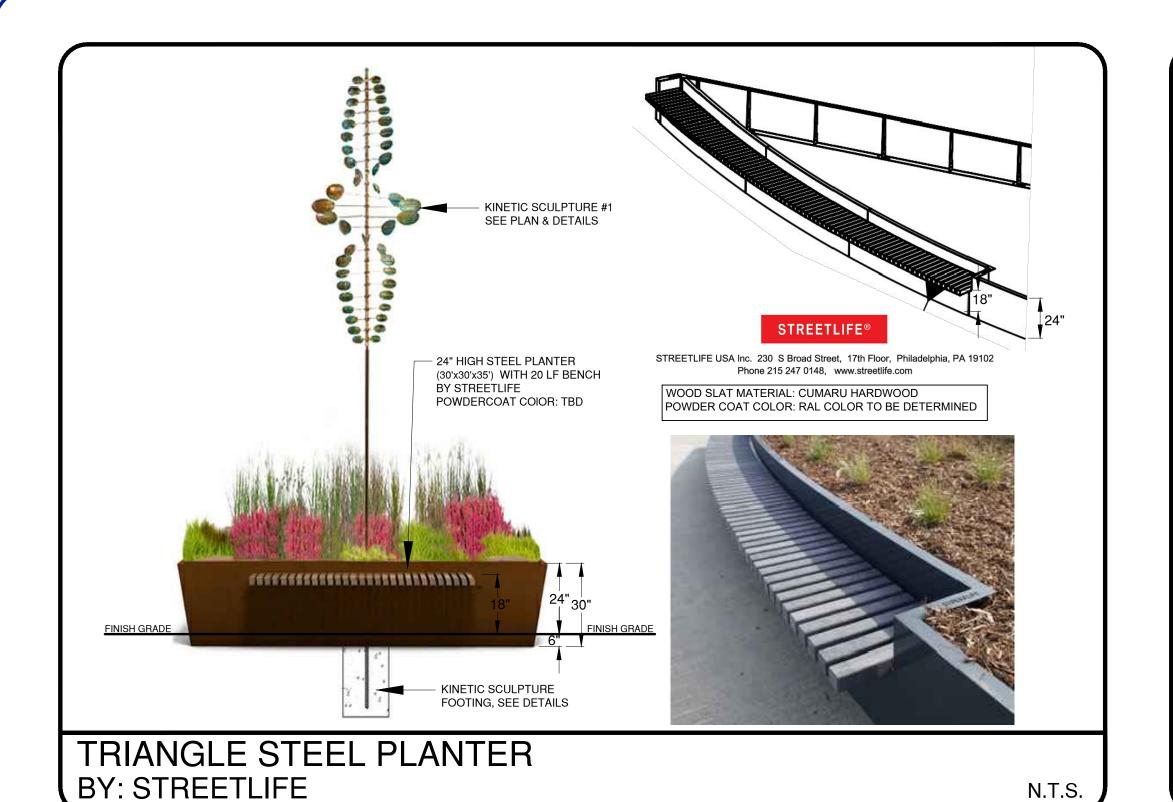


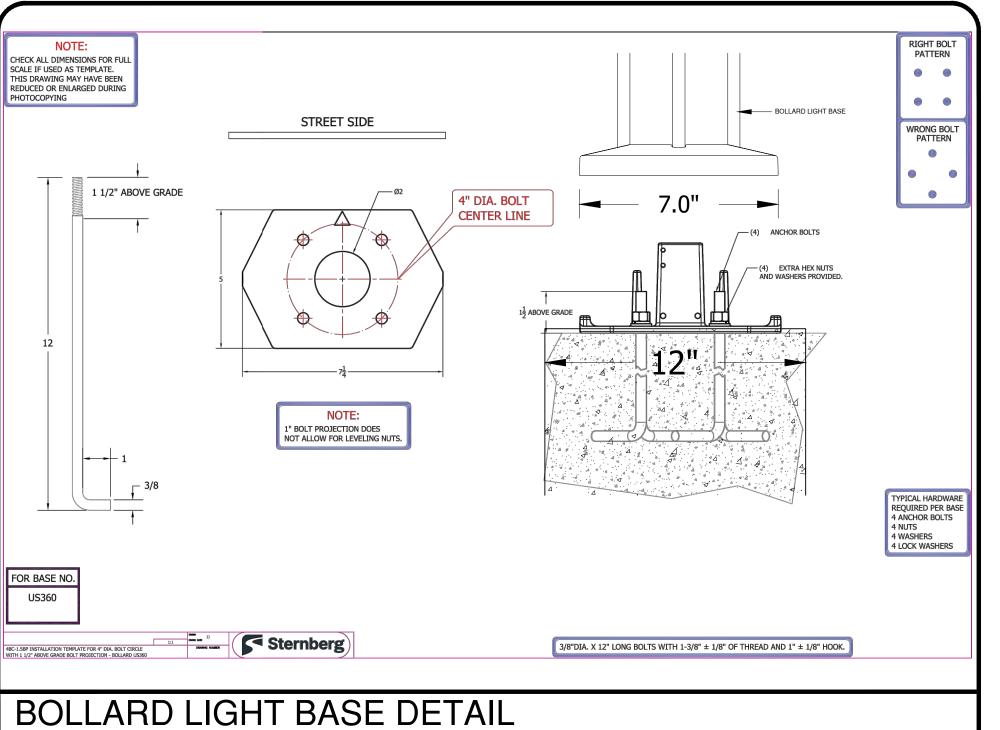
BY: STREETLIFE

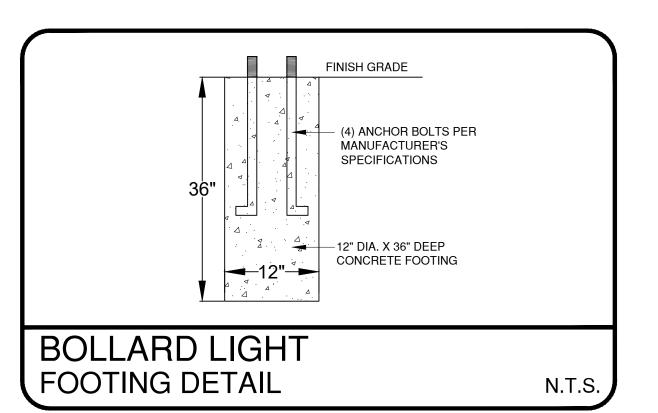
FRONT VIEW

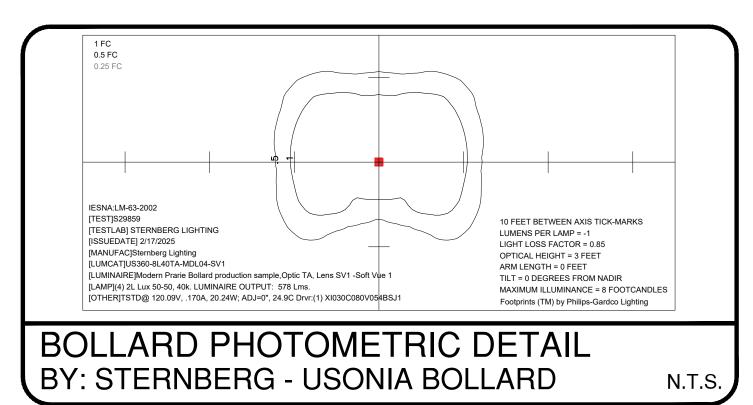
*6 mounting holes per segment STREETLIFE USA Inc. 230 S Broad Street, 17th Floor, Philadelphia, PA 19102 Phone 215 247 0148, www.streetlife.com

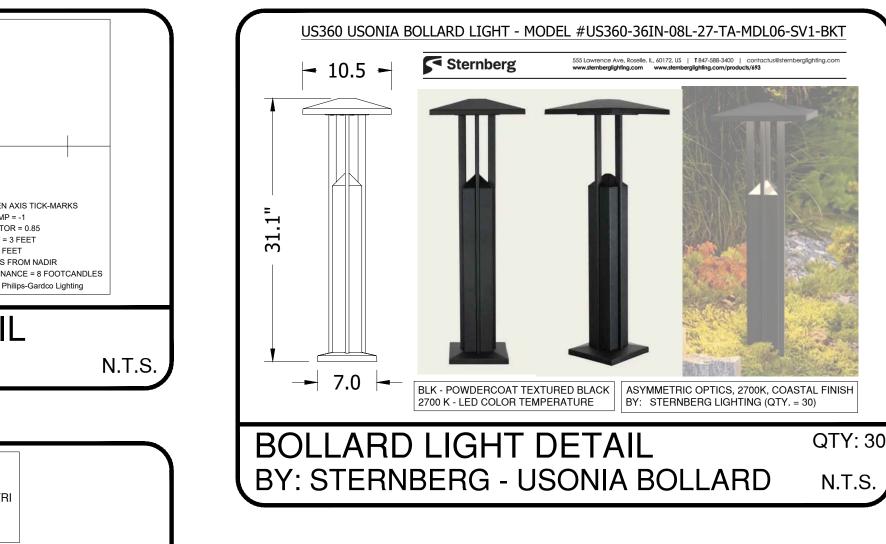
SIDE VIEW

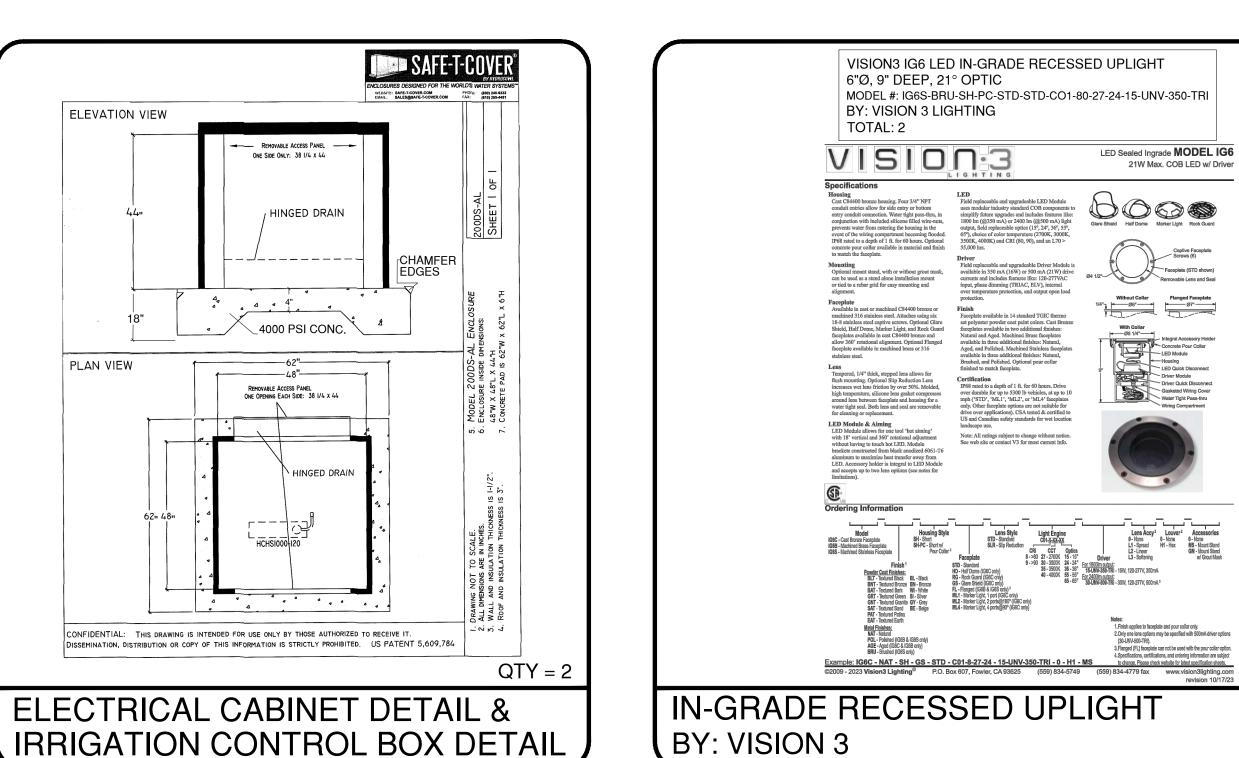






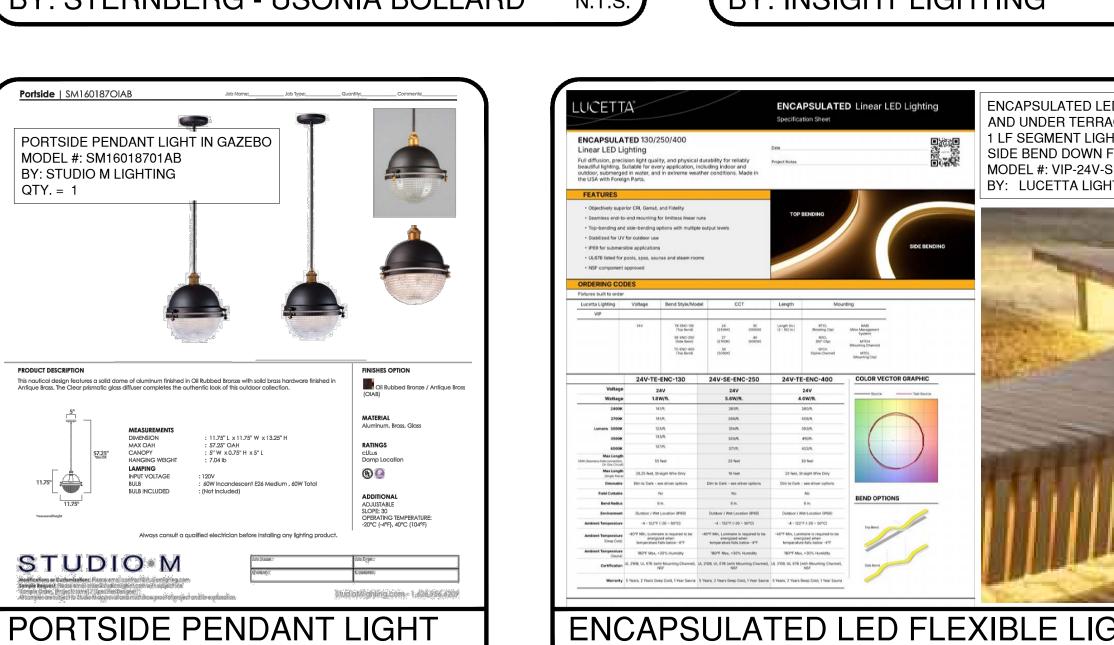








BY: STERNBERG - USONIA BOLLARD



N.T.S.

BY: LUCETTA



PROSPOT 3 LED ADJUSTABLE SPOT LIGHT KINETIC SCULPTURES

3"Ø, 30° OPTIC, SNOOT, STATE MOUNT

MODEL #: PS3/SO/27K/30/STK/120V/NO/TBL/SN/CRF

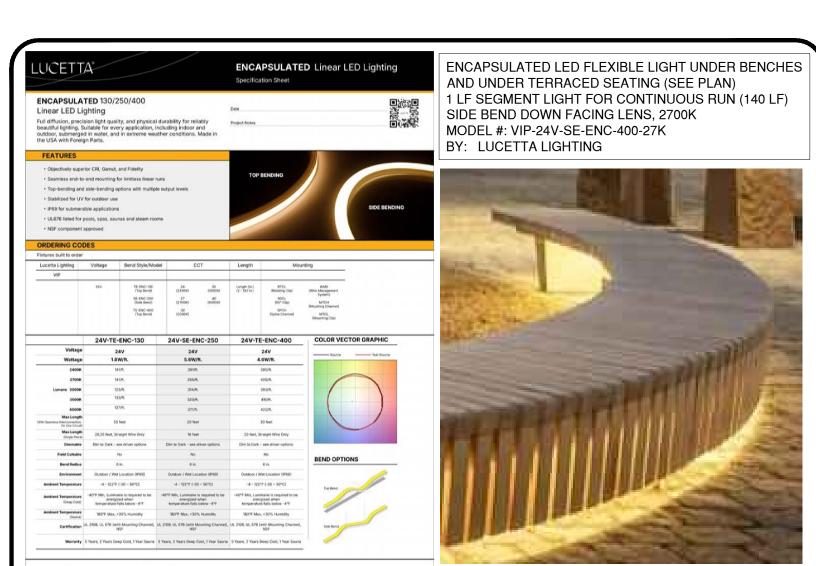
PERFORMANCE PROJECTOR | WHITE LIGHT AND STATIC C

insight lighting

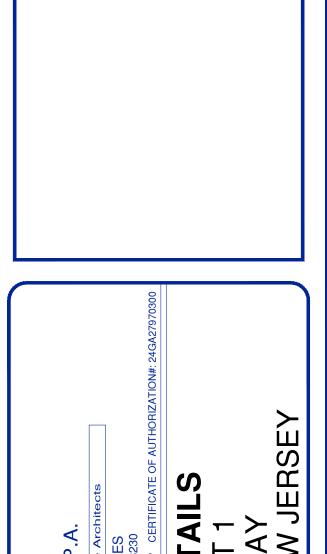
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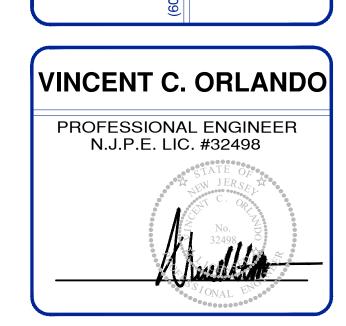
BY: INSIGHT LIGHTING



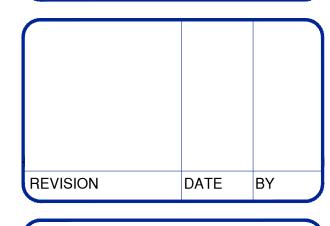








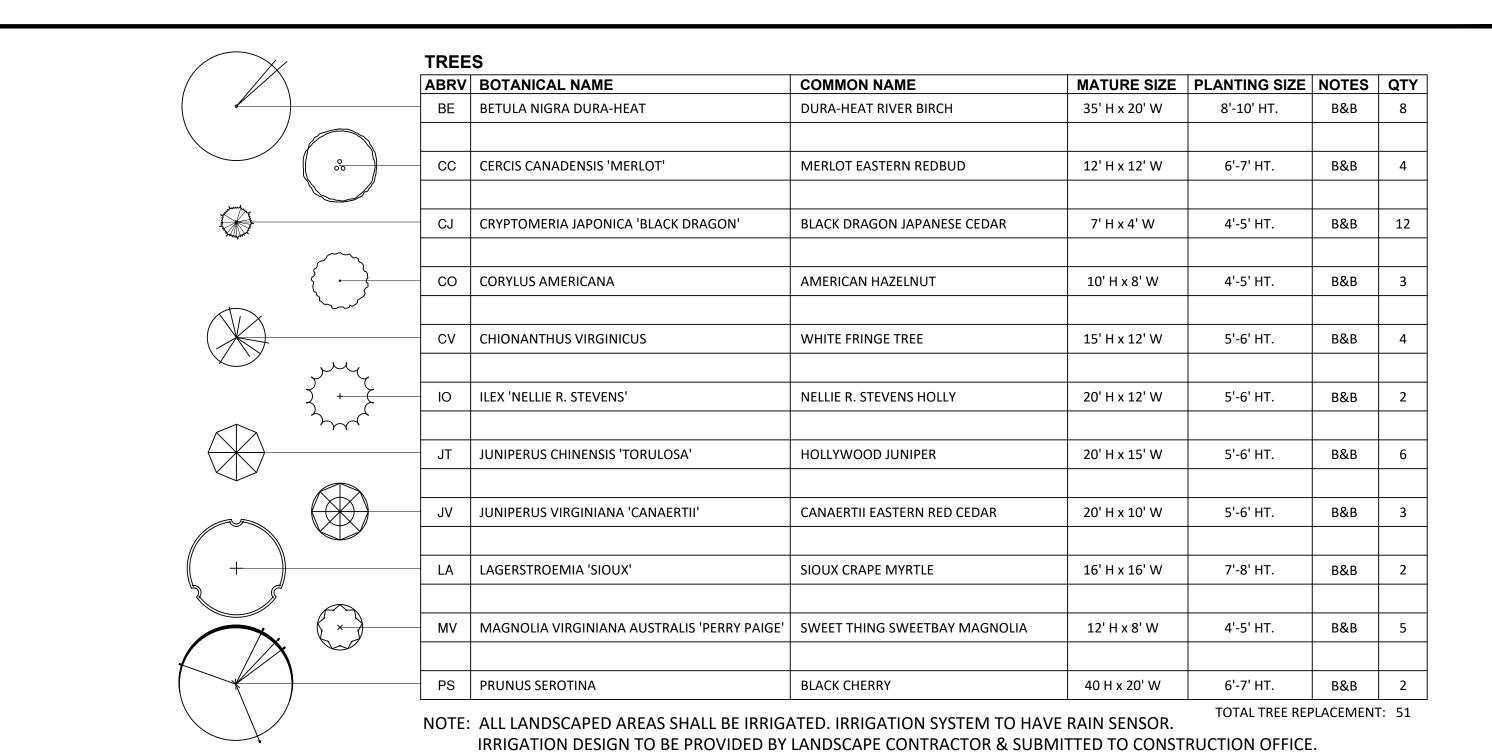
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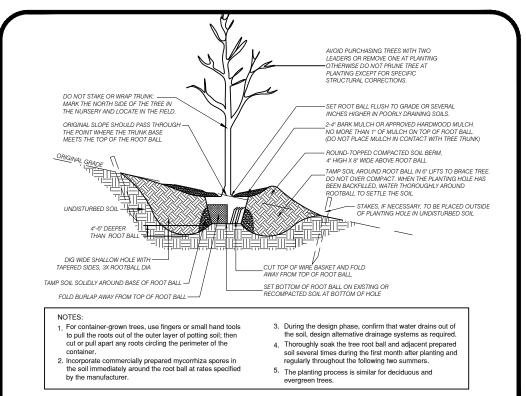


DATE: 09/15/25 DRAWN BY: NEW SCALE: AS NOTED | CHECKED BY: VCO PROJECT #: CM-124 SHEET: 11 0F 13





TREE PLANTING SCHEDULE





	AVOID PURCHASING TREES WITH TWO LEADERS OR REMOVE ONE AT PLANTING; OTHERWISE, DO NOT PRUNE TREE AT PLANTING EXCEPT FOR SPECIFIC STRUCTURAL CORRECTIONS
DO NOT STAKE OR WRAP TRUNK, MARK THE NORTH SIDE OF THE	FOLD BURLAP AWAY FROM TOP OF ROOT BALL
TREE IN THE NURSERY AND LOCATE TO THE NORTH IN THE FIELD	SET ROOT BALL FLUSH TO GRADE OR SEVER. INCHES HIGHER IN POORLY DRAINING SOILS
	4" BUILT-UP EARTH SAUCER
X = MINIMUM WIDTH OF PREPARED	2° BARK MULCH (CO NOT PLACE MULC IN CONTACT WITH TREE TRUNK)
SOIL FOR TREES	BEFORE PLANTING, ADD 3" TO 4" OF WELL-COMPOSTED LEAVES OR RECYCLED YARD WASTE TO BED AND TILL INTO TOP 6" OF PREPARED SOIL
	4" TO 6" DEEPER THAN ROOT BALL PREPARED SOIL FOR TREES
DIG WIDE, SHALLOW HOLE WITH TAMPERED SIDES	CUT TOP BANDS OF WIRE BASKET AND FOLD AWAY FROM TOP OF ROOT BALL
TAMP SOIL SOLIDLY AROUND BASE OF ROOT BALL	SET ROOT BALL ON FIRM PAD IN BOTTOM OF HOLE
NOTES: 1. For container-grown trees, use fingers or small hand tools to pull the roots out of the outer layer of potting soil; then cut or pull apart any roots circling the perimeter of the container. 2. Incorporate commercially prepared mycorrhiza spores in the soil	3. During the design phase, confirm that water drains out of the soil, design alternative drainage systems as required. 4. Thoroughly soak the tree root ball and adjacent prepared soil several times during the first month after planting and regularly throughout the following two summers.
immediately around the root ball at rates specified by the manufacturer	f. The planting process is similar for deciduous and evergreen trees.

LANTING NOTES

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING CORRECT GRADES AND ALIGNMENT.

3. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY: HAVE NORMAL GROWTH HABITS, WELL DEVELOPED BRANCHES, DENSELY FOLIATED; VIGOROUS ROOT SYSTEMS AND BE FREE FROM DETECTS AND INJURIES.

4. CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.

5. ALL PLANT MATERIAL. SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN VIGOROUS GROWING CONDITION, PROVISION SHALL BE MADE FOR A GROWTH GUARANTEE OF AT LEAST TWO (2) YEARS FOR TREES AND A MINIMUM OF TWO GROWING SEASONS FOR SHRUBS, REPLACEMENTS SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCEEDING PLANTING SEASON, ALL REPLACEMENTS SHALL HAVE A GUARANTEE OLD LAT OT THAT STATED ABOVE.

6. INS OF FARAS IT PRACTICABLE, PLANT MATERIALS SHALL BE PLANTED ON THE DAY OF DELIVERY, IN THE EVENT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT STOCK NOT TO BE PLANTED, PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE (3) DAY PERIOD AFTER DELIVERY.

7. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH ANSI 280 (REV 1980) "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN, INC.

8. ALL PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME AS TO DAMAGE THE BARK AND BREAK BRANCHES, PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE BALL ONLY.

10. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPT ABLE LOCAL PRACTICE.

11. NO PLANT, EXCEPT GROUND COVERS, SHALL BE PLANTED LESS THEN TWO (2) FEET FROM EXISTING STRUCTURES AND SIDEWALKS.

12. SET ALL PLANTS PLUMB AND STRAIGHT. SET AT SUCH LEVEL THAT, AFTER SETTLEMENT A NORMAL OR NATURAL RELATIONSHIP TO THE CROWN OF THE PLANT WITH THE GROUND SUPPRE LUGATE PROVIDED BRANCHES, THOSE WHICH RUN PARALLEL, ETC. MAIN LEADER OF THESE MUST NOT BE CUT BACK LONG SIDE BRANCHES, THOSE WHICH FROM SHILL BE PROWN OF THE PLANT. PREVIOUS SH

PLANT MATERIALS SHALL BE FURNISHED AND INSTALLED AS INDICATED INCLUDING ALL LABOR, MATERIALS, PLANTS, EQUIPMENT, INCIDENTALS AND CLEAN UF

PLANTING NOTES



PERENNIAL / GROUNDCOVER

AS	ALLIUM 'SERENDIPITY'	SERENDIPITY ORNAMENTAL ONION	#1	CONT.	21
AT	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	#1	CONT.	16
AU	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	#1	CONT.	69
CE	CAREX OSHIMENSIS 'EVERGOLD'	EVERGOLD SEDGE	#1	CONT.	94
EM	ECHINACEA DOUBLE CODED 'ONE IN A MELON'	ONE IN A MELON COLOR CODED CONEFLOWER	#1	CONT.	34
ER	ECHINACEA DOUBLE CODED 'RASPBERRY BERET'	RASPBERRY BERET COLOR CODED CONEFLOWER	#1	CONT.	52
НС	HEUCHERA 'PURPLE PALACE'	PURPLE PALACE CORAL BELLS	#1	CONT.	40
HS	HEMEROCALLIS 'STELLA DE ORO'	STELLA DE ORO DAYLILY	#1	CONT.	13
LB	LEUCANTHEMUM X SUPERBUM 'SNOWCAP'	SNOWCAP SHASTA DAISY	#1	CONT.	100
LS	LIATRIS SPICATA	BLAZING STAR	#1	CONT.	13
MC	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	#1	CONT.	36
NF	NEPETA X FAASSENII 'WALKER'S LOW'	WALKER'S LOW CATMINT	#1	CONT.	57
	AT AU CE EM ER HC HS LB LS MC	AT ASCLEPIAS TUBEROSA AU ARCTOSTAPHYLOS UVA-URSI CE CAREX OSHIMENSIS 'EVERGOLD' EM ECHINACEA DOUBLE CODED 'ONE IN A MELON' ER ECHINACEA DOUBLE CODED 'RASPBERRY BERET' HC HEUCHERA 'PURPLE PALACE' HS HEMEROCALLIS 'STELLA DE ORO' LB LEUCANTHEMUM X SUPERBUM 'SNOWCAP' LS LIATRIS SPICATA MC MUHLENBERGIA CAPILLARIS	AT ASCLEPIAS TUBEROSA BUTTERFLY WEED AU ARCTOSTAPHYLOS UVA-URSI CE CAREX OSHIMENSIS 'EVERGOLD' EVERGOLD SEDGE EM ECHINACEA DOUBLE CODED 'ONE IN A MELON' ONE IN A MELON COLOR CODED CONEFLOWER ER ECHINACEA DOUBLE CODED 'RASPBERRY BERET' RASPBERRY BERET COLOR CODED CONEFLOWER HC HEUCHERA 'PURPLE PALACE' PURPLE PALACE CORAL BELLS HS HEMEROCALLIS 'STELLA DE ORO' STELLA DE ORO DAYLILY LB LEUCANTHEMUM X SUPERBUM 'SNOWCAP' SNOWCAP SHASTA DAISY LS LIATRIS SPICATA MC MUHLENBERGIA CAPILLARIS PINK MUHLY GRASS	AT ASCLEPIAS TUBEROSA BUTTERFLY WEED #1 AU ARCTOSTAPHYLOS UVA-URSI CE CAREX OSHIMENSIS 'EVERGOLD' EVERGOLD SEDGE #1 EM ECHINACEA DOUBLE CODED 'ONE IN A MELON' CRE ECHINACEA DOUBLE CODED 'RASPBERRY BERET' ER ECHINACEA DOUBLE CODED 'RASPBERRY BERET' HC HEUCHERA 'PURPLE PALACE' HS HEMEROCALLIS 'STELLA DE ORO' LB LEUCANTHEMUM X SUPERBUM 'SNOWCAP' SNOWCAP SHASTA DAISY #1 MC MUHLENBERGIA CAPILLARIS BLAZING STAR #1 MC MUHLENBERGIA CAPILLARIS BLAZING STAR #1	AT ASCLEPIAS TUBEROSA BUTTERFLY WEED #1 CONT. AU ARCTOSTAPHYLOS UVA-URSI BEARBERRY #1 CONT. CE CAREX OSHIMENSIS 'EVERGOLD' EVERGOLD SEDGE #1 CONT. EM ECHINACEA DOUBLE CODED 'ONE IN A MELON' ONE IN A MELON COLOR CODED CONEFLOWER #1 CONT. ER ECHINACEA DOUBLE CODED 'RASPBERRY BERET' RASPBERRY BERET COLOR CODED CONEFLOWER #1 CONT. HC HEUCHERA 'PURPLE PALACE' PURPLE PALACE CORAL BELLS #1 CONT. HS HEMEROCALLIS 'STELLA DE ORO' STELLA DE ORO DAYLILY #1 CONT. LB LEUCANTHEMUM X SUPERBUM 'SNOWCAP' SNOWCAP SHASTA DAISY #1 CONT. LS LIATRIS SPICATA BLAZING STAR #1 CONT. MC MUHLENBERGIA CAPILLARIS PINK MUHLY GRASS #1 CONT.

NOTE: ALL LANDSCAPED AREAS SHALL BE IRRIGATED. IRRIGATION SYSTEM TO HAVE RAIN SENSOR.
IRRIGATION DESIGN TO BE PROVIDED BY LANDSCAPE CONTRACTOR & SUBMITTED TO CONSTRUCTION OFFICE.

SHRUB / PERENNIAL PLANTING SCHEDULE



METHODS AND MATERIALS

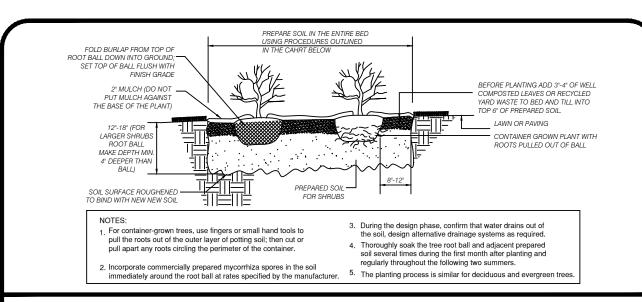
Topsoil shoild be friable and loamy, free of debris, objectionable weeds and stones, and contain no toxic substance that may be harmful to plant growth. a pH range of 5.0-7.5 is acceptable. Soluble salts should not be excessive (conductivity less than 0.5 millimhos per centimeter). Topsoil hauled in from off site should have a minimum organic matter content of 2.75 percent. Organic matter content may be raised by additives.

1. Stockpiling

- a. Stockpiles of topsoil should be situated so as not to obstruct natural drainage or cause off-site environmental damage.b. Stockpiles should be vegetated in accordance with temporary seeding specifications on soil erosion sheet.
- Stockpiles should be vegetated in accordance with temporary seeding specifications on soil erosion sheet.
- Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and application and application and application.
- b. Subsoil should be tested for lime requirement and limestone, if needed, should be applied to bring soil pH to 6.5 and incorporate into the soil as nearly as practical to a depth of 4inches.
- c. Immediately prior to topsoil distrubution, the surface should be scarified to provide a good bond with the topsoil.
 d. Employ needed erosion control practices such as diversions, grade stabilization structures, channel stabilization measures,
- 3. Applying Topsoil
 a. Topsoil should be handled only when it is dry enough to work without damaging soil structure; i.e., less than field capacity.
 b. A uniform application to a depth of 5 inches (unsettled) is recommended. Soils with a pH of 4.0 or less or containing iron sulfilid

shall be covered with a minimum depth of 12 inches of soil having a pH of 5.0 or more.

TOPSOIL NOTES



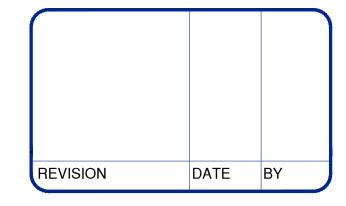
TREE PLANTING DETAIL

Engineers Environmental Planners Landscape A

CAMBRIDGE PROFESSIONAL OFFICES
5 Cambridge Drive Ocean View New Jersey 0823
5 Cambridge Drive Ocean View New J



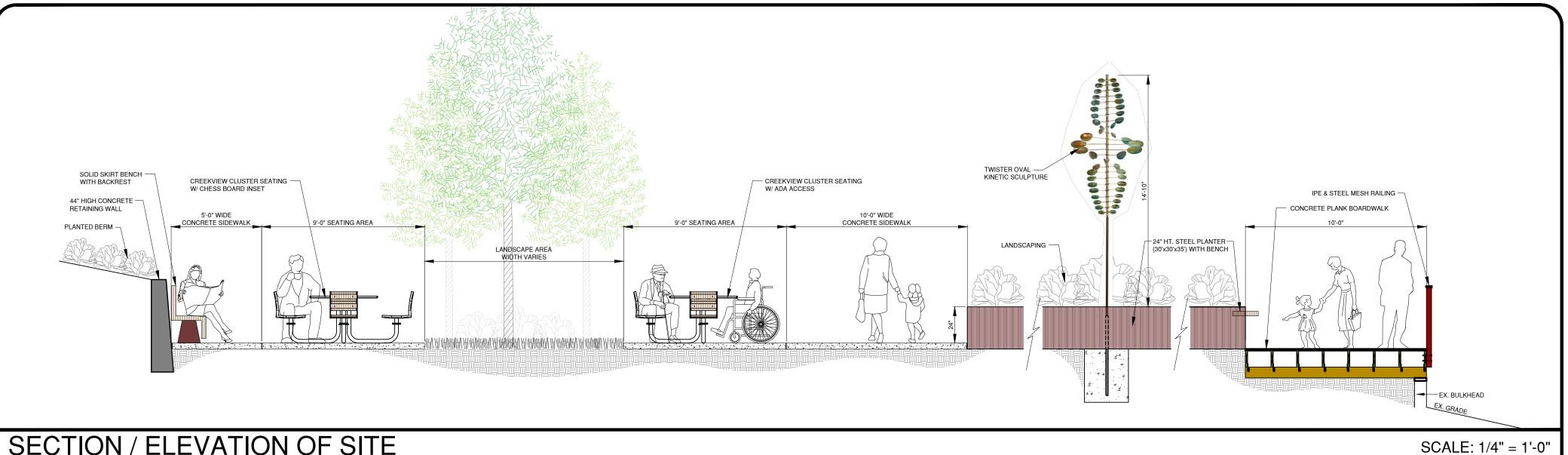
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PROJECT #: CM-124 SHEET: 12 0F 13	SCALE: AS NOTED	CHECKED BY: VCO
	PROJECT #: CM-124	SHEET:12 0F 13

N.T.S.



SECTION / ELEVATION OF SITE SECTION 'B-B'

SOIL EROSION AND SEDIMENT CONTROL PLAN

- ne property owner shall be responsible for any erosion or sedimentation that may occur below stormwater outfalls or offsite as a result of the construction projec soil conservation district shall be notified 48 hours prior to any land disturbance.
- all applicable erosion and sediment control practices shall be in place prior to any grading or installation of proposed structures or utilities Soil Erosion and Sediment Control practices on this plan shall be constructed in accordance with the standards for Soil Erosion and Sediment Control in New Jersey.
- Applicable erosion and sediment control practices shall be left in place until construction is completed and/or the area is stabilized. e contractor shall perform all work, furnish all materials and install all measures required to reasonably control soil erosion resulting from construction operations and prevent excessive flow of sediment from the
- and their rates should be included in the narrative. If the season prohibits temporary seeding, the disturbed areas will be mulched with salt hay or equivalent and anchored in accordance with the New Jersey Standard
- shall be the responsibility of the developer to provide confirmation of lime, fertilizer and seed and seed application and rates of application at the request of the Soil Conservation Ill critical areas subject to erosion will receive a temporary seeding in combination with straw mulch at a rate of 2 tons per acre, according to the New Jersey Standards immediately following rough grading. The site shall at all times be graded and maintained such that all storrmwater runoff is diverted to soil erosion and sediment control facilities.
- All sedimentation structures will be inspected and maintained on a regular basis and after every storm event. crushed stone, tire cleaning pad will be installed wherever a construction access exists. The stabilized pad will be installed according to the standards for stabilized construction access,
- emove any sediment that may be spilled, dropped, or tracked off the project site. All paved rights-of-way adjacent to the project site must be maintained in a clean, swept condition throughout construction
- All catch basin inlets will be protected according to the certified plan.

 All storm drainage outlets will be stabilized, as required, before the discharge points become operational.

 All devantage outlets will be stabilized, as required, before the discharge points become operational.

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 All devantage outlets will be protected according to the certified plan.
- days of the design storm.

 N.J..SA. 4:24-39, Est Seq. requires that no certificate of occupancy be issued before all provisions of the certified soil erosion and sediment control plan have been complied with for permanent measures. All site work for the project must be completed prior to the district issuing a report of compliance as a prerequisite to the issuance of a certificate of occupancy by the municipality.
- A copy of the certified Soil Erosion and Sediment Control Plan must be maintained on the project site during construction.

 Any conveyance of this project prior to its completion will transfer full responsibility for compliance with the certified plan to any subsequent owners. Immediately after the completion of stripping and stockpiling of topsoil, the stockpile must be stabilized according to the standard for temporary vegetative cover. Stabilize topsoil with straw mulch for protection if the eason does not permit the application and establishment of temporary seeding. All soil stockpiles are not to be located within fifty (50) feet of a floodplain, slope, roadway or drainage facility and the base must b
- ny changes to the site plan will require the submission of a revised Soil Erosion and Sediment Control Plan to the Soil Conservation District. The revised plan must be in accordance with the current New Jersey
- standards for Soil Erosion and Sediment Control.

 The thods for the management of high acid producing soils shall be in accordance with the standards. High acid producing soils are those found to contain iron sulfides or have a pH of 4 or less. Maximum side slopes of all exposed surfaces shall not be constructed steeper than 3:1 unless otherwise approved by the distric
- oust is to be controlled by an approved method according to the New Jersey Standards and may include watering with a solution of calcium chloride and water. Adjoining properties shall be protected from excavation and land filling operations on the proposed site. Use staged construction methods to minimize exposed surfaces, where applicable.
- All vegetative material shall be selected in accordance with American Standards for Nursery Stock of the American Association of the Nurseryman and in accordance with the New Jersey Standards for Soil Erosion and
- Natural vegetation and species shall be retained where specified on the Landscaping Plan.

 The permanent vegetative cover such as seeding or sodding on all areas shall be accomplished within 10 days after final grading operations have been completed.

 Excavated soli material shall not be placed adjacent to rivers, streams, or bodies of water in a a manner that will cause it to be washed away by high water or runoff. Excess borrow material removed from the construction site shall be stabilized at the site of placement.

STORMWATER MANAGEMENT MAINTENANCE PROGRAM

is certification is limited to the controls specified in this plan. It is not authorization to engage in the proposed land use unless such use has been previously approved by the municipality, county, State agency or other

BASIN MAINTENANCE In order to ensure that all retention and detention basins function properly, a maintenance program must be followed. The following are the minimum requirements for the maintenance of all basins.

- Inspection of outlet structures to include checking for obstructions of outfall pipes and the accumulation of silts and sediments.
- Inspection of basins to include the removal of debris and accumulated particles such as silts and sediments.
- To maintenance of vegetated dashis.

 Mowing of grass is required regularly to ensure the aesthetic quality of the site. All clippings shall be raked and bagged to avoid thatch buildup.

 A dense turf, with extensive root growth, is encouraged to reduce erosion and enhance infiltration throughout the bottom and the side of the basin. Well-established turf of the floor and sides will grow through sediment deposits, thus forming a porous turf and preventing the formation of an impermeable layer. Grasses of the fescue family are recommended for seeding, primarily due to their adaptability to dry sandy soils, drought resistance, hardiness, and ability to withstand brief inundations. Fescues will also
- Seed type: A mixture of the following special water-tolerant seed will ensure a high quality grass for retention basins.
- Fertilize with 10-20-10 at a rate of 11lbs./1,000 SF Lime with pulverized dolomite limestone at a rate of 90lbs./1,000 SF Long term Maintenance
- In order to ensure proper function of all basins, every seven years each basin bottom shall be scarified to a depth of 4" to remove sediments and silts. Then 4" of topsoil must be added and resided.

nance is the work required to keep structures in practice, or restore them to their original physical and functional condition. Maintenance as it applies to this situation shall be divided into two stages: that which is necessary to allow for continuing performance of storm water controls during the construction period and long term maintenance following construction. Both stages are necessary for the life of the stor

- Tenches/Swales to be inspected for rubbish or channel obstructions, bank failure, accumulation of silts and sediments, undesirable vegetation growth, rodents, and overall system failure. Inspection of outlet structures and conduit to include checking for obstruction of pipe, accumulation of silts and sediments, cracking, corrosion, deterioration from freezing, salt or chemicals, excessive wear
- Inspection to include checking for cracking, rodents, obstructions (silt-sediment, trash or other.) Check any gates, racks, or grates, for damage from corrosion, ice debris. Check for unauthorized
- As noted, any basin, pipe, pit, trench or inlet not functioning as designed will be thoroughly as prescribed. Any system that continues to remain inoperable after thorough cleaning must be removed and

RESPONSIBILITY All on-site retention facilities shall be the sole responsibility of the developer/owner, his assigns and/or heir. The responsibility shall include but not be limited to installation, inspection, and maintenance.

DETENTION FACILITY MAINTENANCE The primary mechanical equipment use in the Annual Maintenance of the Basins will be for lawn cutting. The exact type and size of this equipment is to be determined by the maintenance service under contract for

STANDARDS FOR STABILIZATION WITH MULCH METHODS AND MATERIALS

arade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance wit Standards fo

- erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42. Unrotted small-grain straw, at 2.0 to 2.5 tons per acre, is spread uniformly at 90 to 115 pounds per 1,000 square feet and anchored with a mulch anchoring tool, liquid mulch binders, or netting tie down. Other
- table materials may be used if approved by the Soil Conservation District. The approved rates above have been met when the mulch covers the ground completely upon visual inspection, i.e. the soil cannot be an below the mulch. Synthetic or organic soil stabilizers may be used under suitable conditions and in quantities as recommended by the manufacturer
- Wood-fiber or paper-fiber mulch at the rate of 1,500 pounds per acre (or according to the manufacturer's requirements) may be applied by a hydroseeder. Mulch netting, such as paper jute, excelsior, cotton, or plastic, may be used.
- D. Mulch Hetuning, such as paper jule, excessor, collor, or plastic, may be used.

 E. Woodchips applied uniformly to a minimum depth of 2 inches may be used. Woodchips will not be used on areas where flowing water could wash them into an inlet and plug it.

 F. Gravel, crushed stone, or slag at the rate of 9 cubic yards per 1,000 sq. ft. applied uniformly to a minimum depth of 3 inches may be used. Size 2 or 3 (ASTM C-33) is recommended.

 3. Mulch Anchoring should be accomplished immediately after placement of hay or straw mulch to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of Peg and Twing - Drive 8 to 10 inch wooden negs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by
- tching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.

 fulch Nettings Staple paper, cotton, or plastic nettings over mulch. Use degradable netting in areas to be mowed. Netting is usually available in rolls 4 feet wide and up to 300 feet long. Crimper Mulch Anchoring Coulter Tool - A tractor-drawn implement especially designed to punch and anchor mulch into the soil surface. This practice affords maximum erosion control, but its use is limited to ose slopes upon which the tractor can operate safely. Soil penetration should be about 3 to 4 inches. On sloping land, the operation should be on the contour.
- ould be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance a. Organic and Vegetable Based Binders - Naturally occurring, powder based, hydrophilic materials that mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions wil form membrane networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phyto-toxic effect or impede growth of turigrass. Vegetable based gels shall be applied
- Synthetic Binders High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates and weather conditions recommended by the manufacturer and remain tacky until germination of grass

STANDARDS FOR TOPSOILING

METHODS AND MATERIALS

- a. Topsoil should be friable1, loamy2, free of debris, objectionable weeds and stones, and contain no toxic substance or adverse chemical or physical condition that may be harmful to plant growth. Soluble salts should not be excessive (conductivity less than 0.5 millimhos per centimeter. More than 0.5 millimhos may desiccate seedlings and adversely impact growth). Imported topsoil shall have a minimum organic matter content of 2.75 percent. Organic matter content may be raised by additives.
- D. Topsoil substitute is a soil material which may have been amended with sand, silt, clay, organic matter, fertilizer or lime and has the appearance of topsoil. Topsoil substitutes may be utilized on sites with insufficient topsoil for establishing permanent vegetation. All topsoil substitute materials shall meet the requirements of topsoil noted above. Soil tests shall be performed to determine the components of sand, silt, clay, organic matter, soluble salts and pH level.
- Stripping and Stockpiling
- a. Field exploration should be made to determine whether quantity and or quality of surface soil justifies stripping.

 b. Stripping shall be confined to the immediate construction area. Where feasible, lime may be applied before stripping at a rate determined by soil tests to bring the soil pH to approximately 6.5.
- A. 4-6 inch stripping depth is common, but may vary depending on the particular soil.
 E. Stockpiles of topsoil should be situated so as not to obstruct natural drainage or cause off-site environmental damage.
- Stockpiles should be vegetated in accordance with standards previously described herein; see standards for Permanent (pg. 4-1) or Temporary (pg.7-1) Vegetative Cover for Soil Stabilization
- a. Grade at the onset of the optimal seeding period so as to minimize the duration and area of exposure of disturbed soil to erosion. Immediately proceed to establish vegetative cover in accordance with the specified seed mixture. Time is of the essence
- . Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance . As guidance for ideal conditions, subsoil should be tested for lime requirement. Limestone, if needed, should be applied to bring soil to a pH of approximately 6.5 and incorporated into the soi
- Prior to topsoiling, the subsoil shall be in compliance with the Standard for Land Grading, pg. 19-1.
- e. Employ needed erosion control practices such as diversions, grade stabilization structures, channel stabilization measures, sedimentation basins, and waterways. See Standards 11 through
- Applying Topsoil
- Topsoil should be handled only when it is dry enough to work without damaging soil structure; i.e., less than field capacity (see glossary) b. A uniform application to an average depth of 5.0 inches, minimum of 4 inches, firmed in place is required. Alternative depths may be considered where special regulatory and/or industry design standards are appropriate such as on golf courses, sports fields, landfill capping, etc.. Soils with a pH of 4.0 or less or containing iron sulfide shall be covered with a minimum depth of 12 inches of soil having a pH of 5.0 or more, in accordance with the Standard for Management of High Acid Producing Soil (pg. 1-1).

 Pursuant to the requirements in Section 7 of the Standard for Permanent Vegetative Stabilization, the contractor is responsible to ensure that permanent vegetative cover becomes established on at least 80% of the soils to be stabilized with vegetation. Failure to achieve the minimum coverage may require additional work to be performed by the contractor to include some or all of the

following: supplemental seeding, re-application of lime and fertilizers, and/or the addition of organic matter (i.e. compost) as a top dressing. Such additional measures shall be based on soil

tests such as those offered by Hutgers Cooperative Extension Service or other approved laboratory facilities qualified to test soil samples for agronomic properties. STANDARDS FOR PERMANENT VEGETATIVE COVER

METHODS AND MATERIALS

- Site Preparation Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance wit Standard for Land Grading.
- Immediately prior to seeding and topsoil application, the subsoil shall be evaluated for compaction in accordance with the Standard for Land Grading . Topsoil should be handled only when it is dry enough to work without damaging the soil structure. A uniform application to a depth of 5 inches (unsettled) is required on all sites. Topsoil shall be

the rate described above during seedbed preparation and repeat another one-half rate application of the same fertilizer within 3 to 5 weeks after seeding.

- amended with organic matter, as needed, in accordance with the Standard for Topsoiling. Install needed erosion control practices or facilities such as diversions, grade-stabilization structures, channel stabilization measures, sediment basins, and waterw
- Seedbed Preparation Uniformly apply ground limestone and fertilizer to topsoil which has been spread and firmed, according to soil test recommendations such as offered by Rutgers Co-operative Extension Soil sample mailers are available from the local Rutgers Cooperative Extension offices (http://njaes.rutgers.edu/county/). Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 quare feet of 10-10-10 or equivalent with 50% water insoluble nitrogen unless a soil test indicates otherwise and incorporated into the surface 4 inches. If fertilizer is not incorporated, apply one-hal
- Work lime and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, spring-tooth harrow, or other suitable equipment. The final harrowing or disking operation should be c the general contour. Continue tillage until a reasonable uniform seedbed is prepared.
- High acid producing soil. Soils having a pH of 4 or less or containing iron sulfide shall be covered with a minimum of 12 inches of soil having a pH of 5 or more before initiating seedbed reparation
- Seed germination shall have been tested within 12 months of the planting date. No seed shall be accepted with a germination test date more than 12 months old unless retested.
- Seeding rates specified are required when a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanen egetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage with the specified seed mixture for the seeded area and mowed once.
- Warm-season mixtures are grasses and legumes which maximize growth at high temperatures, generally 85° F and above. See Table 4-3 mixtures 1 to 7. Planting rates for warm-season grasses shall be the amount of Pure Live Seed (PLS) as determined by germination testing results.
- ool-season mixtures are grasses and legumes which maximize growth at temperatures below 85° F Many grasses become active at 65° F. See Table 4-3, mixtures 8-20. Adjustment of planting
- rates to compensate for the amount of PLS is not required for cool season grasses. onventional Seeding is performed by applying seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seeding seed shall be incorporated into the soil within 24 hours of seedbed preparation to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on
- After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillarity, and improve seedling emergence. This is the preferred method. When performed on the
- contour, sheet erosion will be minimized and water conservation on site will be maximized. ydroseeding is a broadcast seeding method usually involving a truck, or trailer-mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mi onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. (also see Section 4-Mulching below)

SOIL CONSERVATION NOTES

- Mulching is required on all seeding. Mulch will protect against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.
- Straw or Hay. Unrotted small grain straw, hay free of seeds, to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper-blowers must not grind the mulch. Hay mulch is not recommended fo Application - Spread mulch uniformly by hand or mechanically so that at least 85% of the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section
- Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area Peg and Twine, Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions, Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross and a square pattern. Secure twine around each peg with two or more round turns.

 Mulch Nettings - Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed.
- per (mulch anchoring coulter tool) A tractor-drawn implement, somewhat like a disc harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per acre. No tackifying or adhesive agent is required.
- Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.
- Organic and Vegetable Based Binders Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membraned networks of insoluble polymers. The vegetable get shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf grass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and, following application of mulch, drying and curing, shall no longer be soluble or dispersible in wat
- Binder shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass. Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products. . Wood-fiber or paper-fiber mulch - shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the product manufacturer) and may be applied by a hydroseeder. Mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding
- Pelletized mulch compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers, and coloring agents. The dry pellets, when applied to a seeded area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturer's recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60-75 lbs/1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawn or renovation areas, seeded areas where weed
- ed free mulch is desired, or on sites where straw mulch and tackifier agent are not practical or desirable. Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage. . Irrigation (where feasible) If soil moisture is deficient supply new seeding with adequate water (a minimum of 1/4 inch applied up to twice a day until vegetation is well established). This is especially true when seedings are made in abnormally dry or hot weather or on droughty sites.
- Since soil organic matter content and slow release nitrogen fertilizer (water insoluble) are prescribed in Section 2A Seedbed Preparation in this Standard, no follow-up of topdressing is mandatory. An exception may be made where gross nitrogen deficiency exists in the soil to the extent that turf failure may develop. In that instance, topdress with 10-10-10 or equivalent at 300 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency in the turf is ameliorated. Establishing Permanent Vegetative Stabilization

The quality of permanent vegetation rests with the contractor. The timing of seeding, preparing the seedbed, applying nutrients, mulch and other management are essential. The seed application rates in Table 4-3 are required when a Report of Compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in application rates may be used when permanent vegetation is established prior to requesting a Report of Compliance from the district. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative cover (of the seeded species) and mowed once. Note this designation of mowed once does not guarantee the permanency of the turf should other maintenance factors be neglected o

STANDARDS FOR TEMPORARY VEGETATIVE COVER

METHODS AND MATERIALS

- Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in
- Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground
- utilities (cables, irrigation systems, etc.). Seedbed Preparation Apply ground limestone and fertilizer according to soil test recommendations such as offered by Rutgers Co-operative Extension. Soil sample mailers are available from the local Rutgers
- Cooperative Extension offices. Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-20-10 or equivalent with 50% water insoluble nitroge unless a soil test indicates otherwise. Apply limestone at the rate of 2 tons/acre unless soil testing indicates otherwise. Calcium carbonate is the equivalent and standard for measuring the ability of liming materials to neutralize soil acidity and supply calcium and magnesium to grasses and legumes. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or disking operation should
- 7-1 Standards for Soil Erosion and Sediment Control in New Jersey January 2014 be on the general contour. Continue tillage until a reasonable uniform seedbed is prepared Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retilled in accordance with the above.
- Soils high in sulfides or having a pH of 4 or less refer to Standard for Management of High Acid Producing Soils, pg. 1-1.
- Conventional Seeding. Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or cultipacker seeder. Except for drilled, hydroseeded or cultipacked seedings, seed shall be incorporated into the soil, to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil. Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying
- the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseedire following seeding. (also see Section IV Mulching) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.
- After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillarity, and improve seedling emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.
- Mulching is required on all seeding. Mulch will insure against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control
- Straw or Hay. Unnrotted small grain straw, hay free of seeds, applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application is 3 tons per acre. Mulch chopper-blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed. Application. Spread mulch uniformly by hand or mechanically so that approximately 95% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into
- approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section. Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs. Peg and Twine. Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to
- Mulch Nettings, Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a degradable netting in areas to be mowed. Crimper (mulch anchoring tool). A tractor-drawn implement, somewhat like a disc harrow, especially designed to push or cut some of the broadcast long fiber mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Straw mulch rate must be 3 tons per
- Liquid Mulch-Binders. May be used to anchor hay or straw mulch. Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance . Use one of the following:
- conditions will form membraned networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further
- evaluation for use in this state. Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass. Note: All names give above are registered trade names. This does not constitute a commendation of these products to the exclusion of other products.

Wood-fiber or paper-fiber mulch. Shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 ponds per acre (or as

recommended by the project manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum Pelletized mulch. Compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, forma mulch mat. Pelletized mulch shall be applies in accordance with the manufacturers recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60-75 lbs./1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has bee found to be beneficial for use on small lawn or renovation areas,

The following methods should be considered for dust control at the request of the Township Construction Code Official, or upon inspection by an S.C.D. official.

seeded areas where weed-seed free mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable.

Spray - On Adhesive - On mineral soils (not effective on muck soils.) Keep traffic off these areas

Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely

mportant for sufficient activation and expansion of the mulch to provide soil coverage.

- Latex emulsion Resin in water Fine spray
- Tillage To roughen surface and bring clods to the surface. This is a temporary emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. I-type plows spaced about 12 inches apart, and spring-toothed harrows are examples of equipment which may produce the desired effect Sprinkling - Site is sprinkled until the surface is wet. Barriers - Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to crate walls, bales of hay and similar material can be used to control a
- Calcium Chloride Shall be in the form of loose dry granules at a rate that will keep surface moist but not cause or flakes fine enough to feed through commonly used spreaders pollution
- Stone Cover surface with crushed stone or coarse gravel. Mulch - Stabilization with approved mulches and vegetation cover being temporary of permanent.

graded. The plan should also include auxiliary practices for safe disposal of runoff water, slope stabilization, erosion control and drainage. Facilities such as waterways, ditches, diversions, grade stabilization structures, retaining walls and subsurface drains should be included where necessary Erosion control measures shall be designed and installed in accordance with the applicable standard contained herein.

STANDARD FOR LAND GRADING

- The cut face of earth excavations and fills shall be no steeper than the safe angle of repose for the materials encountered and flat enough for proper maintenance.
- The permanently exposed faces of earth cuts and fills shall be vegetated or otherwise protected from erosion. Provisions shall be made to safely conduct surface water to storm drains or suitable water courses and to prevent surface runoff from damaging cut faces and fill slopes
- Subsurface drainage is to be provided in areas having a high water table, to intercept seepage that would adversely affect slope stability, building foundations or create undesirable wetness See Standard for Subsurface Drainage, pg. 32-1. Adjoining property shall be protected from excavation and filling operation Fill shall not be placed adjacent to the bank of a stream or channel, unless provisions are made to protect the hydraulic, biological, aesthetic and other environmental functions of the stream

Soil Management and Preparation

This section of this Standard addresses the potential for excessive soil compaction in light of the intended land use, testing for excessive soil compaction where permanent vegetation is to be established and mitigation of excessive soil compaction when appropriate. Due to use or setting, certain disturbed areas will not require compaction remediation including, but not limited to the following: Within 20 feet of building foundations with basements, 12 feet from slab or crawl space constructio

Subgrade soils prior to the application of topsoil shall be free of excessive compaction to a depth of 6.0 inches to enhance the establishment of permanent vegetative cover.

- Where soils or gravel surfaces will be required to support post-construction vehicular traffic loads such as roads, parking lots and driveways (including gravel surfaces), bicycle Airports, railways or other transportation facilities
- Areas requiring industry or government specified soil designs, including golf courses, landfills, wetland restoration, septic disposal fields, wet/lined ponds, etc. Areas governed or regulated by other local, state or federal regulations which dictate soil conditions
- Brownfields (capped uses), urban redevelopment areas, , in-fill areas, , recycling yards, junk yards, quarries and Slopes determined to be inappropriate for safe operation of equipment
- Portions of a site where no heavy equipment travel or other disturbance has taken place Areas receiving temporary vegetative stabilization in accordance with the Standard Where the area available for remediation practices is 500 square feet or less in size.
- . Locations containing shallow (close to the surface) bedrock conditions.

Areas of the site which are subject to compaction testing and/or mitigation shall be graphically denoted on the certified soil erosion control plan Soil compaction remediation or testing to prove remediation is not necessary will be required in areas where permanent vegetation is to be established that are not otherwise exempted

bove. Testing method shall be selected, and soil compaction testing shall be performed by, the contractor or other project owner's representative (e.g. engineer). A minimum of two (2) tests shall be performed for projects with an overall limit of disturbance of up to one (1) acre and at a rate of two (2) tests per acre of the overall limit of disturbance for larger areas which shall be evenly distributed over the area of disturbance subject to testing. Tests shall be performed in areas representative of the construction activity prevailing in the area. In the event this testing indicates compaction in excess of the maximum thresholds indicated for the testing method, the contractor/owner shall have the option to perform compaction mitigation over the entire disturbed area (excluding exempt areas) or to perform additional testing to establish the limits of excessive compaction whereupon only the excessively

Soil compaction testing is not required if/when subsoil compaction remediation (scarification/tillage (6" minimum depth) or similar) is proposed as part of the sequence of construction

SOIL CONSERVATION NOTES

Soil Test Method Options

Probing Wire Test Method This test shall be conducted with a firm wire (15-1/2 gauge steel wire - e.g. survey marker flag, straight wire stock, etc.), 18 to 21 inches in length, with 6" inches from one end visibly marked on the wire. Conduct wire flag test by holding the wire flag near the flag end and push it vertically into the soil at several different locations in the field to the lesser of a 6 inch depth or the depth at which it bends due to resistance in the soil. Record the depth at which it bends due to resistance in the soil. The wire should penetrate without bending or deforming at least 6" into the ground by hand, without the use of tools. If penetration fails and an obstruction is suspected (rocks, root, debris, etc.) the test can be repeated in the same general area. If the test is successful the soil is not excessively compacted. If the wire is difficult to insert (wire bends or

deforms prior to reaching 6 inches in depth) the soil may be excessively compacted and compaction mitigation or further testing via method 3 or

the result is greater than 300 psi the soil may be excessively compacted and compaction mitigation or further testing via method 3 or 4 below is

Handheld Soil Penetrometer Test Method This test shall be conducted based on the Standard Operation Procedure (SOP) #RCE2010-001, prepared by the Rutgers Cooperative Extension, Implemented June 1, 2010, last revised February 28, 2011. A result of less than or equal to 300 psi shall be considered passing. If

required, the choice of which is at the contractor/owner's discretion. **Tube Bulk Density Test Method**

This test shall be certified by a New Jersey Licensed Professional Engineer utilizing only undisturbed samples (reconstitution of the sample not permitted) collected utilizing the procedure for Soil Bulk Density Tests as described in the USDA NRCS Soil Quality Test Kit Guide, Section 1-4, July 2001. When the texture of the soil to be tested is a sand or loamy sand and lack of soil cohesion or the presence of large amounts of

coarse fragments, roots or worm channels prevent the taking of undisturbed samples, this test shall not be used. Where the results of replicate tests differ by more than ten percent (10%), the samples shall be examined for the following defects: Cracks, worm channels, large root channels or poor soil tube contact within the samples;

Large pieces of gravel, roots or other foreign objects Smearing or compaction of the upper or lower surface of the samples If any of the defects described in 3 (i-iii) above are found, the defective core(s) shall be discarded

4 below is required, the choice of which is at the contractor/owner's discretion.

and the test repeated using a new replicate sample for each defective replicate sample. The bulk density (defined as the weight of dry soil per volume) results shall be compared with the Maximum Dry Bulk Densities in Table 19-1. A result of less than or equal to the applicable maximum bulk density shall be considered passing. If the result is greater than the maximum bulk density the soil shall be considered excessively compacted and compaction mitigation is required.

Nuclear Density Test Method

This test shall be certified by a New Jersey Licensed Professional Engineer and conducted by a nuclear gauge certified inspector pursuant to ASTM D6938 . The bulk density measurement results shall be compared with the Maximum Dry Bulk Densities in Table 19-1. A result of less than or equal to the applicable maximum bulk density shall be considered passing. If the result is greater than the maximum bulk density the soil shall be considered excessively compacted and compaction mitigation is required.

Maximum Dry Bulk Densities (grams/cubic centimeter) by soil type

Type/Texture	Bulk Density (g/cc)
rse, Medium and Fine Sands and Loamy Sands	1.80
Fine Sand and Loamy Very Fine Sand	1.77
dy Loam	1.75
m, Sandy Clay Loam	1.70
/ Loam	1.65
dy Clay	1.60
Silt Loam	1.55
Clay Loam	1.50
Clay	1.45
/	1.40

Source: USDA Natural Resource Conservation Service, Soil Quality Information Sheet, Soil Quality Resource Concerns: Compaction, April 1996 5.Additional testing methods which conform to ASTM standards and specifications, and which produce a dry weight, soil bulk density neasurement may be allowed subject to District approval.

Procedures for Soil Compaction Mitigation

If subgrade soils are determined to be excessively compacted by testing, as identified above, procedures shall be used to mitigate excessive soil compaction prior to placement of topsoil and establishment of permanent vegetative cover. Restoration of compacted soils shall be through deep scarification/tillage (6" minimum depth) where there is no danger to underground utilities (cables, irrigation systems, etc.) or in the alternative, another method as specified by a New Jersey Licensed Professional Engineer.

Timber, logs, brush, rubbish, rocks, stumps and vegetative matter which will interfere with the grading operation or affect the planned

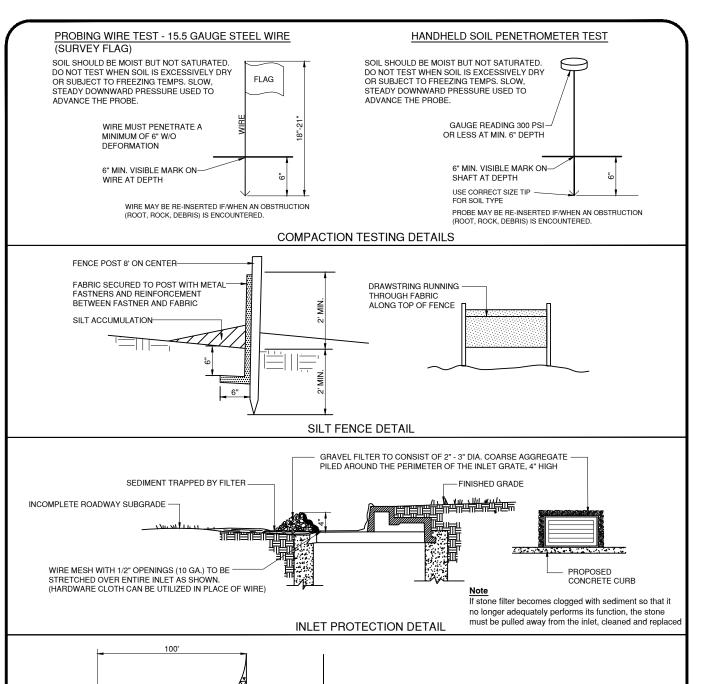
Vegetative Cover for Soil Stabilization.

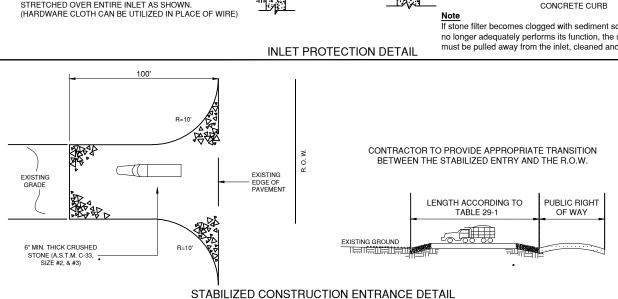
- stability or fill areas shall be removed and disposed of according to the plan. Topsoil is to be stripped and stockpiled in amounts necessary to complete finish grading of all exposed areas requiring topsoil. See
- Fill material is to be free of brush, rubbish, timber, logs, vegetative matter and stumps in amounts that will be detrimental to constructing All structural fills shall be compacted as determined by structural engineering requirements for their intended purpose and as required to reduce slipping, erosion or excessive saturation

All disturbed areas shall be left with a neat and finished appearance and shall be protected from erosion. See Standards for Permanent

Trees to be retained shall be protected if necessary in accordance with the Standard for Tree Protection During Construction.

SOIL CONSERVATION NOTES





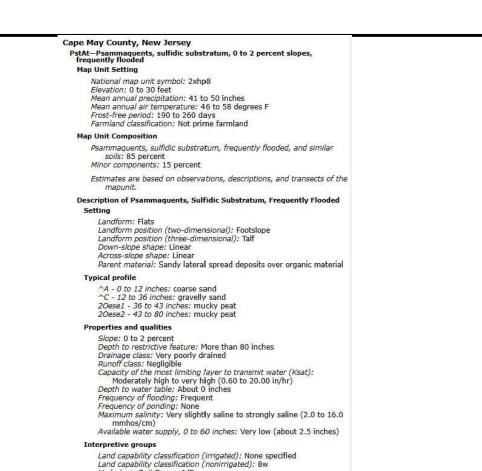
aintenance
he entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto roadways. This may require periodic dressing with additional stone or additional length as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto roadways public or private) or other impervious surfaces must be removed immediately.

Where accumulation of dust/sediment is inadequately cleaned or removed by conventional methods, a power broom or street sweeper will be required to clean paved or

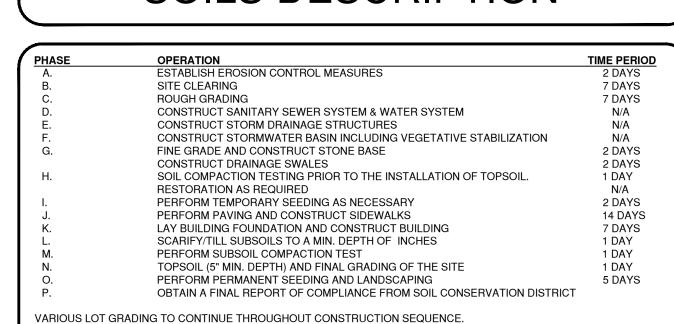
SOIL CONSERVATION DETAILS



S.C.D. SOILS MAP



SOILS DESCRIPTION



CONSTRUCTION SEQUENCE

1.25 Acres

Developed / Residential



RESPONSIBILITY

CONSTRUCTION WILL BEGIN FALL 2025.

All soil erosion and sediment control measures and facilities shall be the sole responsibility of the developer/owner. The responsibility shall include, but not be limited to installation, inspection, and maintenance of conditions during and following construction.

DURATION OF EACH SEQUENCE WILL VARY DUE TO SECTIONALIZATION AND MARKET CONDITIONS.

Applicant/Owner: City of Cape May 643 Washington Street

Cape May, NJ 08204

City Manager: Paul Dietrich

C. Total Area of Disturbance: .

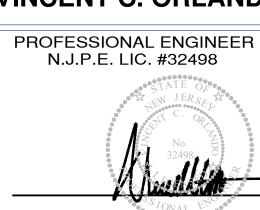
D. Adjacent Site Conditions:

1410 Harbor Lane City of Cape May Cape May County, NJ

GENERAL INFORMATION

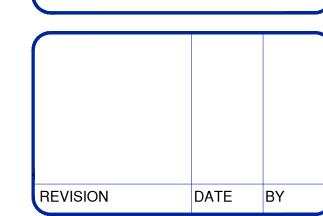


VINCENT C. ORLANDO



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