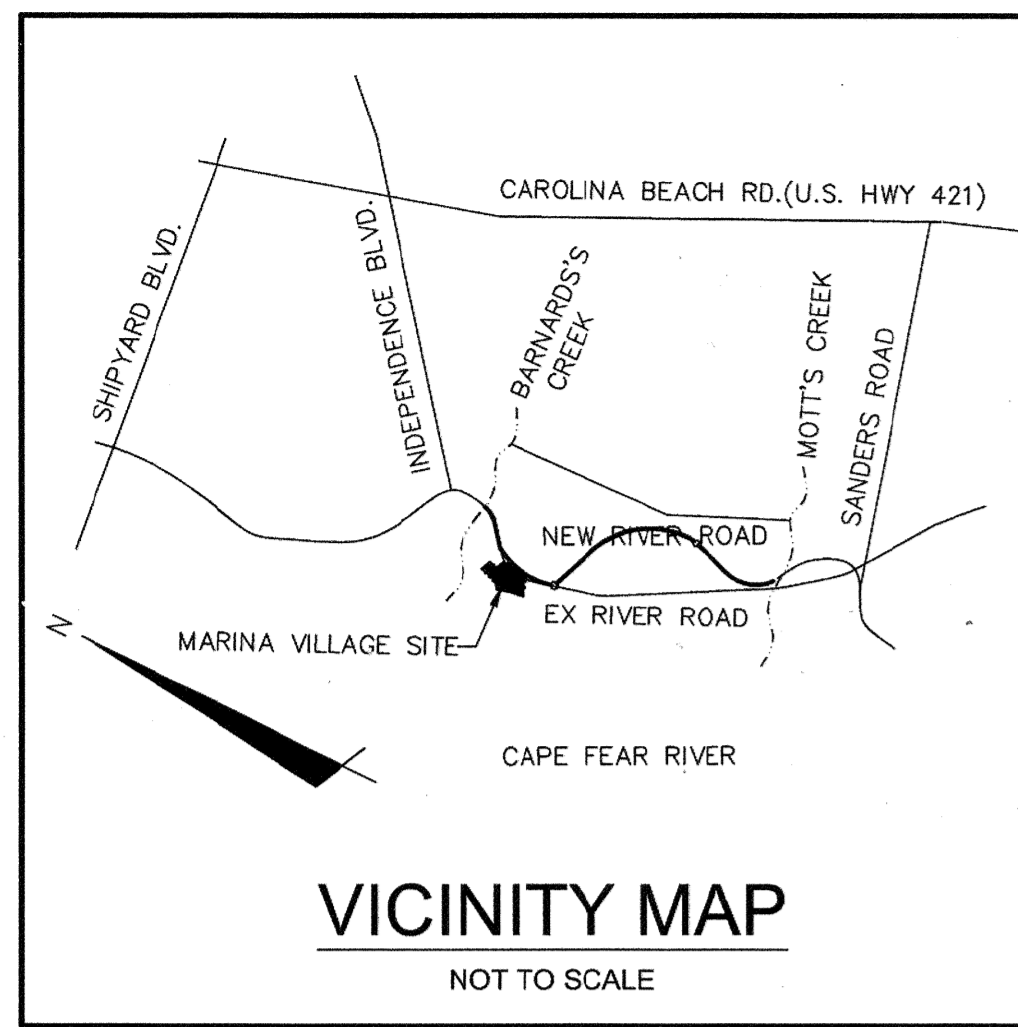


RIVERLIGHTS MARINA VILLAGE - PHASE 1

CITY OF WILMINGTON, NC

JUNE 1, 2015

TRC SUBMITTAL



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch

Approved Construction Plan

Name: _____ Date: _____

Planning: _____

Traffic: _____

Fire: _____

CITY OF WILMINGTON
NORTH CAROLINA

Public Services Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit #: _____

Signed: _____

CITY AND AGENCY CONTACTS

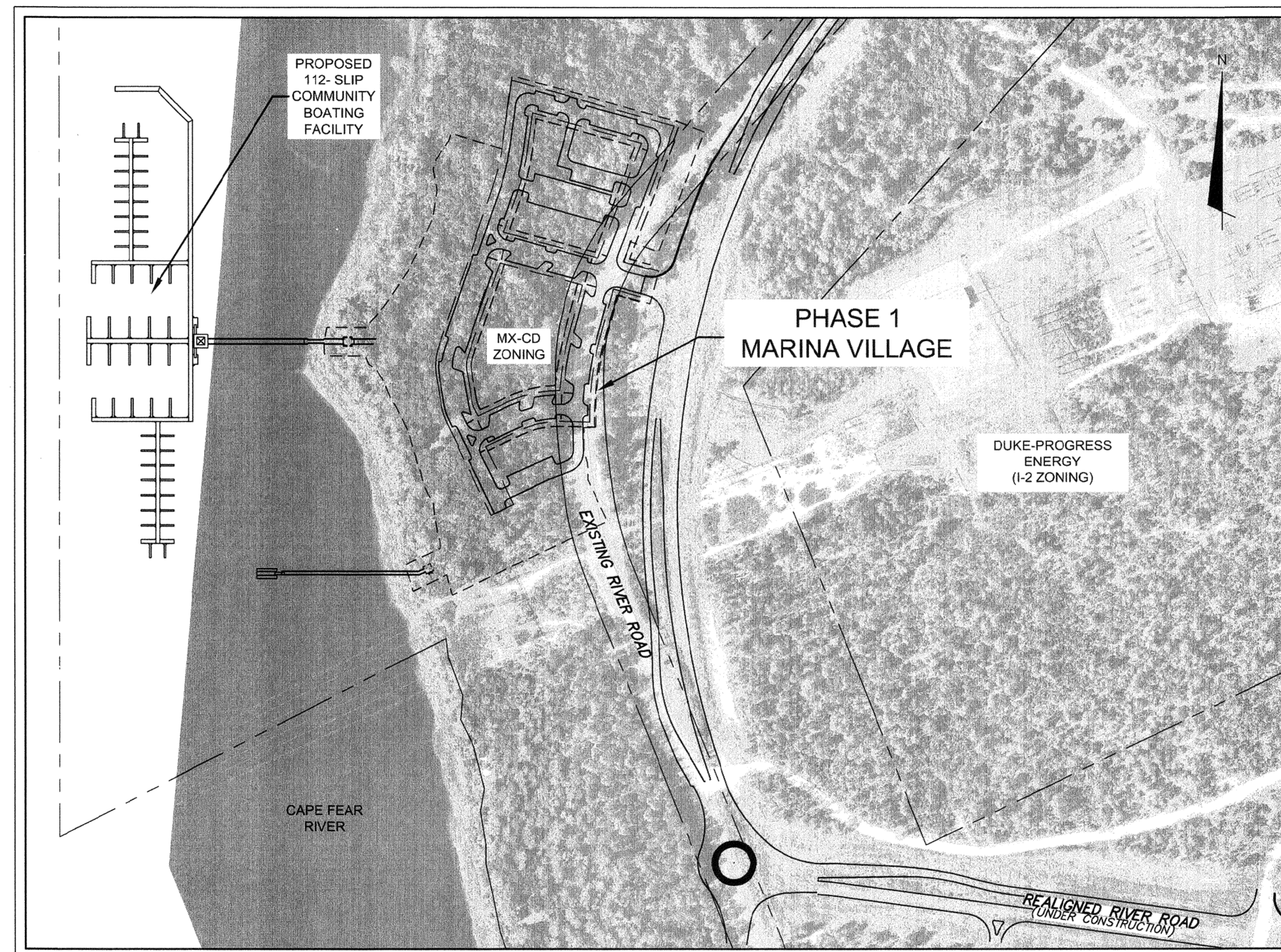
A. City of Wilmington
Planning Department
102 North Third Street
PO BOX 1810
Wilmington, NC 28402-1810
(910)341-7800
Contact: Ron Satterfield
Email: Ron.Satterfield@wilmingtonnc.gov

B. City of Wilmington
Engineering
212 Operations Center Drive
PO BOX 1810
Wilmington, NC 28402-1810
(910) 341-7807
Contact: Rob Gordon
Email: Rob.Gordon@wilmingtonnc.gov

C. New Hanover County
Sediment and Erosion Control
230 Government Center Drive, Suite 160
Wilmington, NC 28403
(910) 798-7432
Contact: Beth Wetherill
Email: BWetherill@nhc.gov.com

D. Cape Fear Public Utility Authority
235 Government Center Drive
Wilmington, NC 28403
(910) 332-6626
Contact: David Dailey
Email: David.Dailey@cfpua.org

E. NCDENR
Division of Environmental Health
Public Water Supply Section
1634 Mail Service Center
Raleigh, NC 27699-1634
(919) 715-3226
Contact: Henri Ou
Email: heinrich.ou@ncdenr.gov



ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

PROJECT DATA

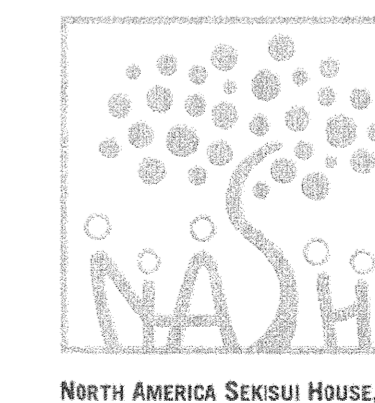
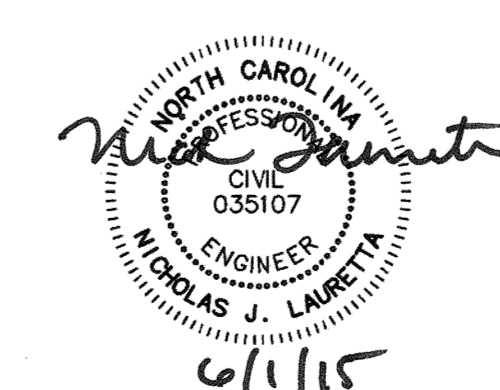
NAME OF PROJECT:
RIVERLIGHTS - MARINA VILLAGE PHASE 1
WILMINGTON, NORTH CAROLINA

OWNER/DEVELOPER:
NNP IV-CAPE FEAR RIVER, LLC
3410 RIVER ROAD, SUITE 103
WILMINGTON, NC 28412

PREPARED BY:
MCKIM & CREED, INC
243 NORTH FRONT ST
WILMINGTON, NC 28401
PHONE: (910)343-1048
FAX: (910)251-8282
CONTACT: NICK LAURETTA, PE, LEED AP
EMAIL: NLAURETTA@MCKIMCREED.COM



243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048, Fax: (910)251-8282
License: F-1222
www.mckimcreed.com



SHEET INDEX		
SHEET NUMBER	SHEET TITLE	SHEET DESCRIPTION
1	G-001	COVER SHEET
2	G-002	ABBREVIATIONS & LEGEND
3	G-003	GENERAL NOTES
4	CX-101	EXISTING CONDITIONS SITE INVENTORY MAP
5	CX-102	TREE REMOVAL PLAN
6	CE-101	PHASE 1 SEDIMENT & EROSION CONTROL PLAN
7	CE-102	PHASE 1 SEDIMENT & EROSION CONTROL PLAN
8	CE-103	PHASE 2 SEDIMENT & EROSION CONTROL PLAN
9	CS-100	OVERALL SITE PLAN
10	CS-101	SITE PLAN
11	CS-102	SITE PLAN
12	CS-103	SITE PLAN
13	CG-101	STORM DRAINAGE & GRADING PLAN
14	CU-101	UTILITY PLAN
15	CU-102	MARINA VILLAGE SANITARY SEWER OUTFALL UTILITY PLAN
16	CU-701	MARINA VILLAGE SANITARY SEWER OUTFALL PLAN & PROFILE
17	CU-702	MARINA VILLAGE SANITARY SEWER OUTFALL PLAN & PROFILE
18	CU-703	UTILITY PLAN & PROFILE
19	CU-704	UTILITY PLAN & PROFILE
20	CT-301	ROADWAY SECTIONS
21	CN-501	STORMWATER MANAGEMENT DETAILS
22	CN-502	STORMWATER MANAGEMENT DETAILS
23	CE-501	SEDIMENT & EROSION CONTROL DETAILS
24	CE-502	SEDIMENT AND EROSION CONTROL DETAILS
25	CS-501	SITE DETAILS
26	CS-502	SITE DETAILS
27	CG-501	STORM DRAINAGE DETAILS
28	CG-502	STORM DRAINAGE DETAILS
29	CU-501	UTILITY DETAILS
30	CU-502	UTILITY DETAILS
31	CU-503	UTILITY DETAILS
32	CU-504	UTILITY DETAILS
33	CU-505	UTILITY DETAILS
34	CU-506	UTILITY DETAILS
35	L-110	OVERALL CONTEXT PLAN
36	L-131	LANDSCAPE PLAN
37	L-151	LANDSCAPE GRADING PLAN
38	L-161	PLANTING PLAN
39	L-501	PLANTING DETAILS
40	L-502	LANDSCAPE DETAILS
41	L-503	LANDSCAPE DETAILS
42	L-504	LANDSCAPE DETAILS

ABBREVIATIONS

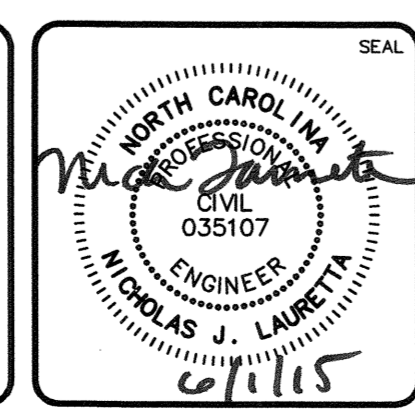
ALT	ALTERNATE
AMP	AMPERE
ANCH	ANCHOR
Ac.	ACRE
BIT	BITUMINOUS
BLDG	BUILDING
BM	BEAM, BENCH MARK
BOTT	BOTTOM
CB	CATCH BASIN
C/C	CENTER TO CENTER
CDI	CURB DROP INLET
CFM	CUBIC FEET PER MINUTE
C&G	CURB & GUTTER
CI	CAST IRON
CIP	CAST IN PLACE
CL	CENTERLINE, CLASS
COMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONC PWMT	CONCRETE PAVEMENT
COND	CONDUIT
CONST	CONSTRUCT, CONSTRUCTION
CTR	CENTER
CTV	CABLE TELEVISION
DB	DEED BOOK
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DISCH	DISCHARGE
DWG	DRAWING
E	EAST
EA	EACH
EAP	EXPOSED AGGREGATE PAVING
EL, ELEV	ELEVATION
ELEC	ELECTRIC, ELECTRICAL
EMER	EMERGENCY
EOP, EP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
ESMT	EASEMENT
EW	EACH WAY, END WALL
EXIST, EX	EXISTING
FL	FLOW LINE
FLG	FLANGE
FLR	FLOOR
FM	FORCE MAIN
FT	FOOT, FEET
G	GAS LINE, GUTTER
GA	GAGE
GAL	GALLON
GALV	GALVANIZED
GEN	GENERATOR
GPM	GALLONS PER MINUTE
h	HEIGHT
HP	HORSEPOWER
HWY	HIGHWAY
ID	INSIDE DIAMETER
INV	INVERT
IP	IRON PIPE, IRON PIN
IPF	IRON PIN FOUND
IR	IRON ROD
JB	JUNCTION BOX
KW	KILOWATTS
M	METER
MANUF, MFR	MANUFACTURER
MATL	MATERIAL
MAX	MAXIMUM
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MON	MONUMENT
N	NORTH
N&C	NAIL AND CAP
NEC	NATIONAL ELECTRIC CODE
NCS	NATIONAL GEODETIC SURVEY
NIC	NOT IN CONTRACT
NO., #	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PNL	PANEL LINE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE/ POINT OF VERTICAL CURVE
PWMT	PAVEMENT
QTY, QUAN	QUANTITY
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RCM	RECLAIMED WATER MAIN
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
REF	REFERENCE
REINF	REINFORCED, REINFORCING
REQ'D	REQUIRED
REV	REVISION
ROW, R/W	RIGHT OF WAY
RT	RIGHT
RU	REUSE WATER MAIN
RW	RAW WATER
S	SOUTH
SAN	SANITARY
SCHED	SCHEDULE
SD	STORM DRAIN
S.F.	SQUARE FEET
SHT	SHEET
SR	STATE ROUTE
STA	STATION
STD	STANDARD
S/W	SIDEWALK
TELE, TEL	TELEPHONE
TOB	TOP OF BANK
TOS	TOE OF SLOPE
TFS	TURN POINT SET
TS & V	TAPPING SLEEVE & VALVE
TYP	TYPICAL
UL	UNDERWRITERS LAB
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VC	VITRIFIED CLAY
VERT	VERTICAL
VOL	VOLUME
w	WIDTH
WTH	WITH
WM	WATER METER, WATER MAIN
WP	WEATHERPROOF, WEATHERPROOF
WSL	WATER SERVICE LINE
WV	WATER VALVE

LEGEND

DESCRIPTION	EXISTING	NEW
PROPERTY LINE	---	---
ROAD RIGHT-OF-WAY	---	---
UTILITY EASEMENT	---	---
PAVED ROADWAY	---	---
DIRT OR CRUSHED STONE ROADWAY	---	---
STORM DRAINAGE	12"RCP	12"RCP
GAS LINE	12"G	12"G
OVERHEAD ELECTRIC	OE	OE
OVERHEAD TELEPHONE	OHT	OHT
OVERHEAD TELEVISION	OHTV	OHTV
UNDERGROUND ELECTRIC	UGE	UGE
UNDERGROUND TELEPHONE	UGT	UGT
UNDERGROUND TELEVISION	UGTV	UGTV
DIRECTION OF FLOW	→	→
GROUND ELEVATION	7.26	7.64 (TOP OF CURB) 7.26 (EDGE OF PAVEMENT)
CONTOUR (MAJOR)	15	15
CONTOUR (MINOR)	12	12
MANHOLE	●	●
CATCH BASIN	■	■
INLETS	□	□
DROP INLET (THROAT OPENING)	□	□
UTILITY POLE	⊕	⊕
LIGHT POLE	⊕	⊕
SUPPORT POLE	⊕	⊕
LANDSCAPE LIGHTING	⊕	⊕
UTILITY PEDESTAL	⊕	⊕
GUY WIRE	—	—
BOLLARD	⊕	⊕
MAILBOX	MB	MB
SIGN	—	—
BENCHMARK	⊕	⊕
TREE LINE	~	~
SHRUB	⊕	⊕
EXISTING IRON ROD (DISTURBED)	⊕ (D)	⊕ (D)
EXISTING IRON ROD	⊕	⊕
LIMITS OF DISTURBANCE	---	---
SILT FENCE	---	---
TREE PROTECTION FENCE	---	---
TEMPORARY DIVERSION DITCH	---	---
SANITARY SEWER LINE	---	---
SANITARY SEWER MANHOLE	⊕	⊕
WATER LINE	---	---
FIRE HYDRANT	⊕	⊕
VALVE	⊕	⊕
STORMWATER PIPE	---	---

REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
DO NOT USE FOR
CONSTRUCTION



MCKIM & CREED
 243 North Front Street
 Wilmington, North Carolina 28401
 Phone: (910)343-1048, Fax: (910)251-8282
 License: F-1222
 www.mckimcreed.com

RIVERLIGHTS
 NORTH AMERICA SERVICES HOUSE, LLC
 by
 Newland COMMUNITIES

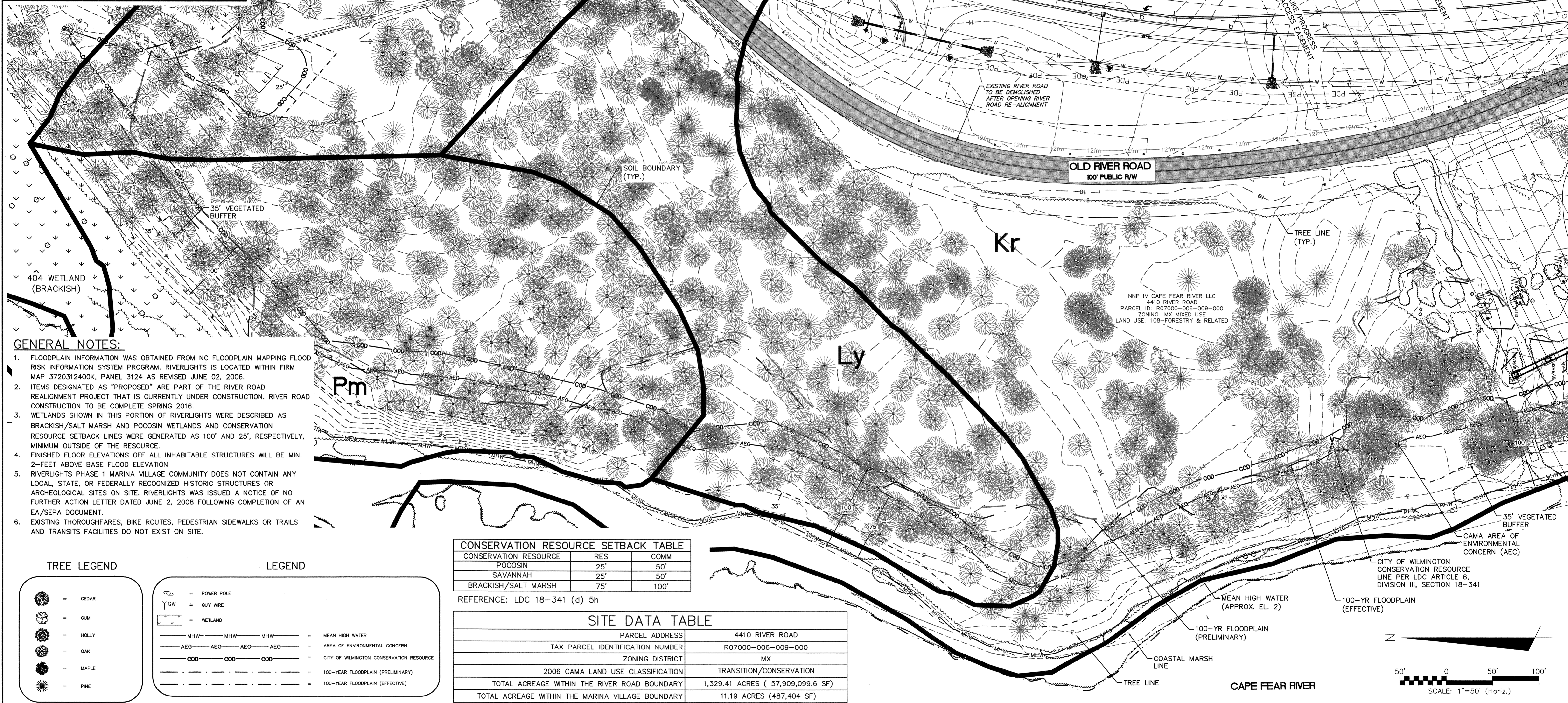
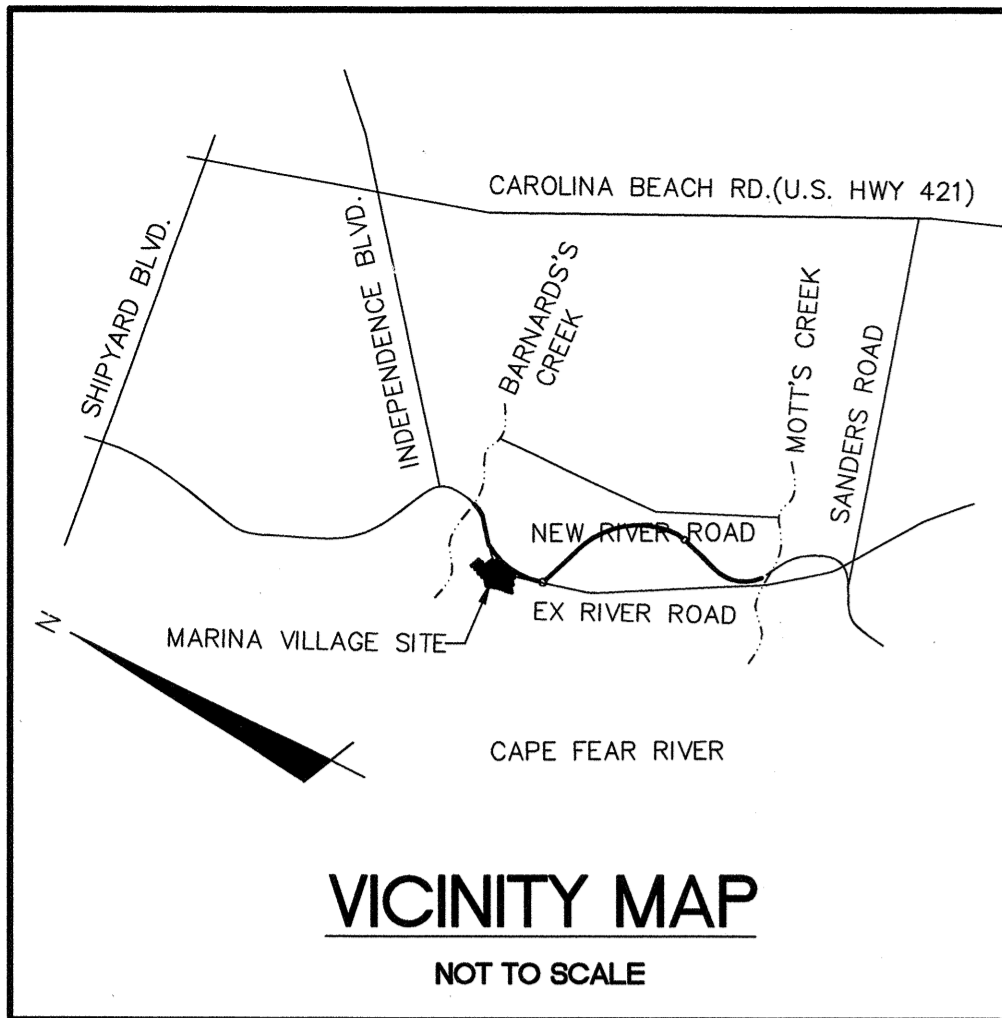
RIVERLIGHTS MARINA VILLAGE
ABBREVIATIONS & LEGEND

DATE: 08APR15
 MCE PROJ. #: 2735-0124
 DRAWN: EEM
 DESIGNED: EEM
 CHECKED: RMC
 PROJ. MGR.: NJL

SCALE: HORIZONTAL: ---
 VERTICAL: ---

MAC FILE NUMBER: **G-002**
 DRAWING NUMBER: **2**
 REVISION: **D**

STATUS: **FINAL DESIGN**
 NOT FOR CONSTRUCTION



GENERAL NOTES:

- FLOODPLAIN INFORMATION WAS OBTAINED FROM NC FLOODPLAIN MAPPING FLOOD RISK INFORMATION SYSTEM PROGRAM. RIVERLIGHTS IS LOCATED WITHIN FIRM MAP 3720312400K, PANEL 3124 AS REVISED JUNE 02, 2006.
- ITEMS DESIGNATED AS "PROPOSED" ARE PART OF THE RIVER ROAD REALIGNMENT PROJECT THAT IS CURRENTLY UNDER CONSTRUCTION. RIVER ROAD CONSTRUCTION TO BE COMPLETE SPRING 2016.
- WETLANDS SHOWN IN THIS PORTION OF RIVERLIGHTS WERE DESCRIBED AS BRACKISH/SALT MARSH AND POCOSIN WETLANDS AND CONSERVATION RESOURCE SETBACK LINES WERE GENERATED AS 100' AND 25', RESPECTIVELY, MINIMUM OUTSIDE OF THE RESOURCE.
- FINISHED FLOOR ELEVATIONS OFF ALL INHABITABLE STRUCTURES WILL BE MIN. 2'-FEET ABOVE BASE FLOOD ELEVATION
- RIVERLIGHTS PHASE 1 MARINA VILLAGE COMMUNITY DOES NOT CONTAIN ANY LOCAL, STATE, OR FEDERALLY RECOGNIZED HISTORIC STRUCTURES OR ARCHEOLOGICAL SITES ON SITE. RIVERLIGHTS WAS ISSUED A NOTICE OF NO FURTHER ACTION LETTER DATED JUNE 2, 2008 FOLLOWING COMPLETION OF AN EA/SEPA DOCUMENT.
- EXISTING THOROUGHFARES, BIKE ROUTES, PEDESTRIAN SIDEWALKS OR TRAILS AND TRANSITS FACILITIES DO NOT EXIST ON SITE.

TREE LEGEND

- CEDAR
- GUM
- HOLLY
- OAK
- MAPLE
- PINE

LEGEND

- POWER POLE
- GUY WIRE
- WETLAND
- MHW — MHW — MHW — MHW — MEAN HIGH WATER
- AEC — AEC — AEC — AEC — AREA OF ENVIRONMENTAL CONCERN
- COW — COW — COW — COW — CITY OF WILMINGTON CONSERVATION RESOURCE
- 100-YR FLOODPLAIN (PRELIMINARY)
- 100-YR FLOODPLAIN (EFFECTIVE)

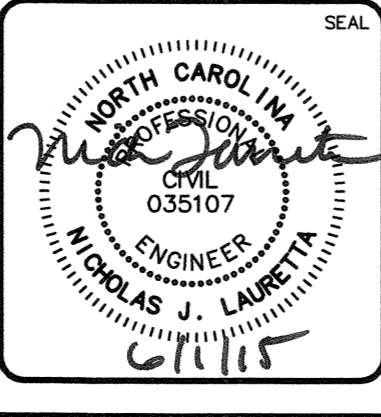
CONSERVATION RESOURCE SETBACK TABLE		
CONSERVATION RESOURCE	RES	COMM
POCOSIN	25'	50'
SAVANNAH	25'	50'
BRACKISH/SALT MARSH	75'	100'

REFERENCE: LDC 18-341 (d) 5h

SITE DATA TABLE	
PARCEL ADDRESS	4410 RIVER ROAD
TAX PARCEL IDENTIFICATION NUMBER	RO7000-006-009-000
ZONING DISTRICT	MX
2006 CAMA LAND USE CLASSIFICATION	TRANSITION/CONSERVATION
TOTAL ACREAGE WITHIN THE RIVER ROAD BOUNDARY	1,329.41 ACRES (57,909,099.6 SF)
TOTAL ACREAGE WITHIN THE MARINA VILLAGE BOUNDARY	11.19 ACRES (487,404 SF)

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
DO NOT USE FOR
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Wilmington, North Carolina 28401
Phone: (910)343-1048, Fax: (910)251-8282
License: F-1222
www.mckimcreed.com

RIVERLIGHTS MARINA VILLAGE

**EXISTING CONDITIONS
SITE INVENTORY MAP**

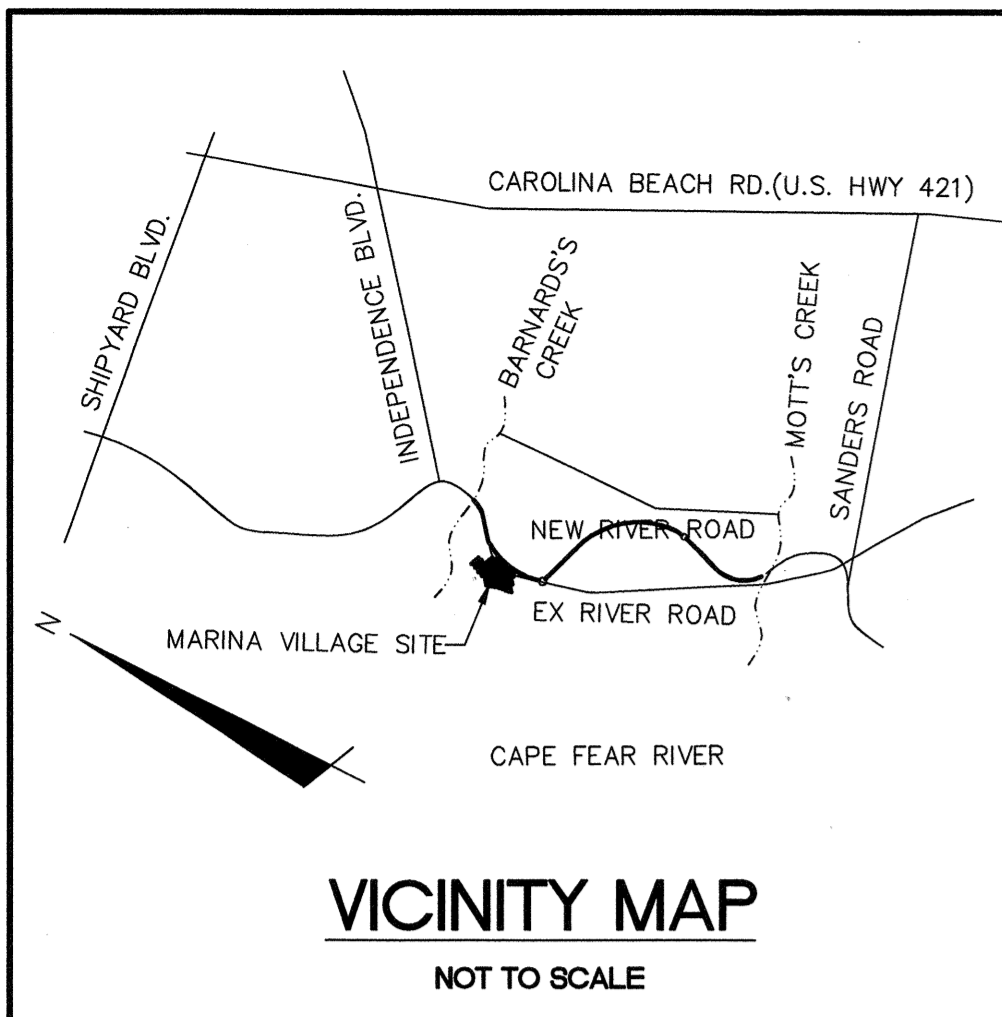
DATE: 08APR15
MCE PROJ. #: 2735-0124
DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR.: NJL

SCALE: HORIZONTAL: 1"=50'
VERTICAL: ---

MAC FILE NUMBER: CX-101
DRAWING NUMBER: 4
REVISION: 4 OF 28
D

STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION

S:\27350124 Marina Village\Drawings\CX-101-027350124.dwg, 01/20/15 8:30:37 AM, rlsuretha



TREE LEGEND

- CEDAR
- GUM
- HOLLY
- OAK
- MAPLE
- PINE
- TREE TO BE REMOVED

LEGEND

- POWER POLE
- GUY WIRE
- WETLAND
- MHW — MHW — MHW — MHW = MEAN HIGH WATER
- AEG — AEG — AEG — AEG = AREA OF ENVIRONMENTAL CONCERN
- — — — — = CITY OF WILMINGTON CONSERVATION RESOURCE
- — — — — = 100-YEAR FLOODPLAIN (PRELIMINARY)
- — — — — = 100-YEAR FLOODPLAIN (EFFECTIVE)
- — — — — = TREE PROTECTION FENCE
- LOD — LOD — LOD = LIMITS OF DISTURBANCE
- SS = GRAVITY SANITARY SEWER MAIN

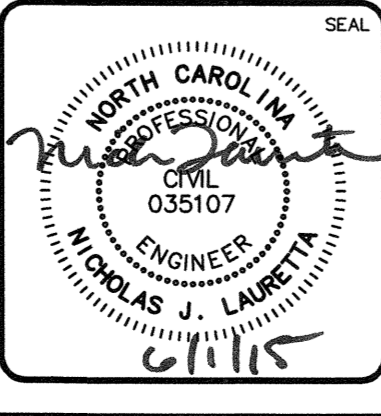
CONSERVATION RESOURCE SETBACK TABLE

CONSERVATION RESOURCE	RES	COMM
POCOSIN	25'	50'
SAVANNAH	25'	50'
BRACKISH/SALT MARSH	75'	100'

REFERENCE: LDC 18-341 (d) 5h

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/28/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/09/2015

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RIVERLIGHTS
 by Newland COMMUNITIES

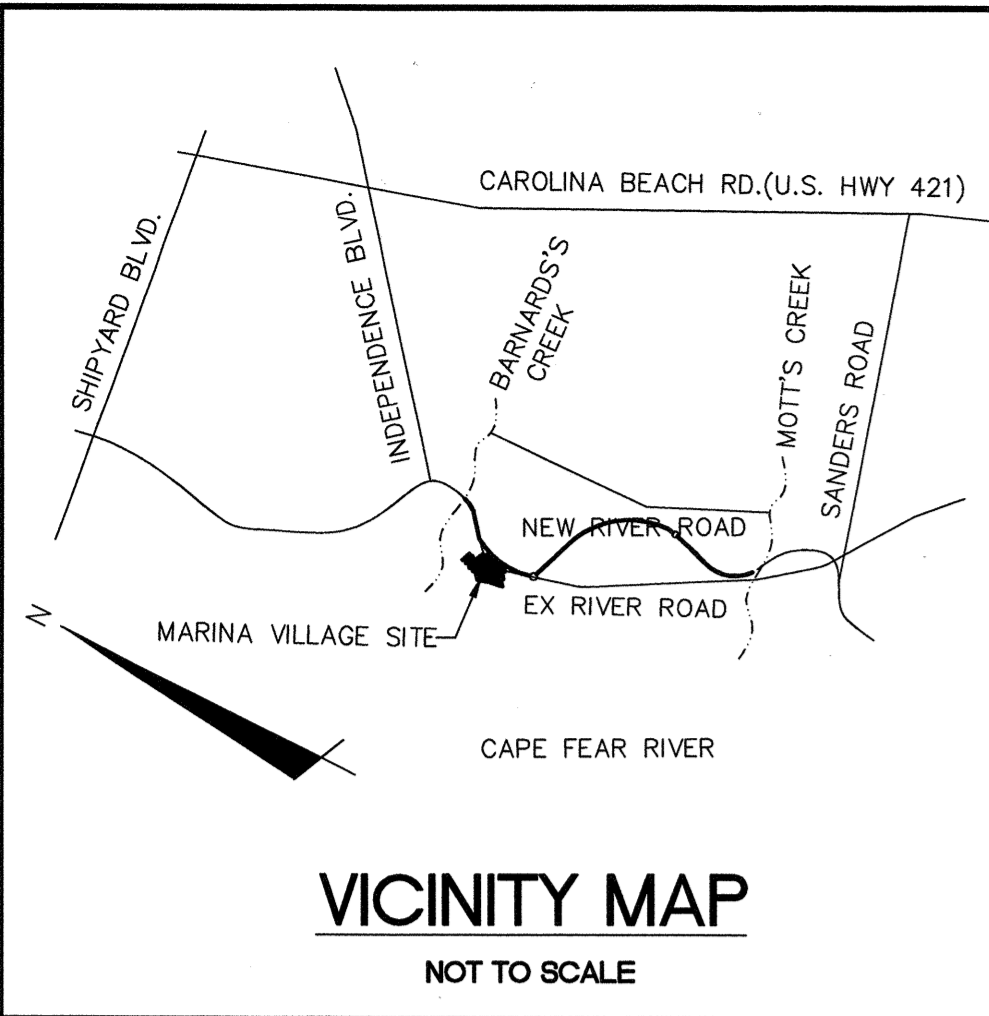
RIVERLIGHTS MARINA VILLAGE
TREE REMOVAL PLAN

DATE: 08APR15
 MCE PROJ. # 2735-0124
 DRAWN: EEM
 DESIGNED: EEM
 CHECKED: RMC
 PROJ. MGR. N.J.L.

SCALE: HORIZONTAL: ---
 VERTICAL: ---

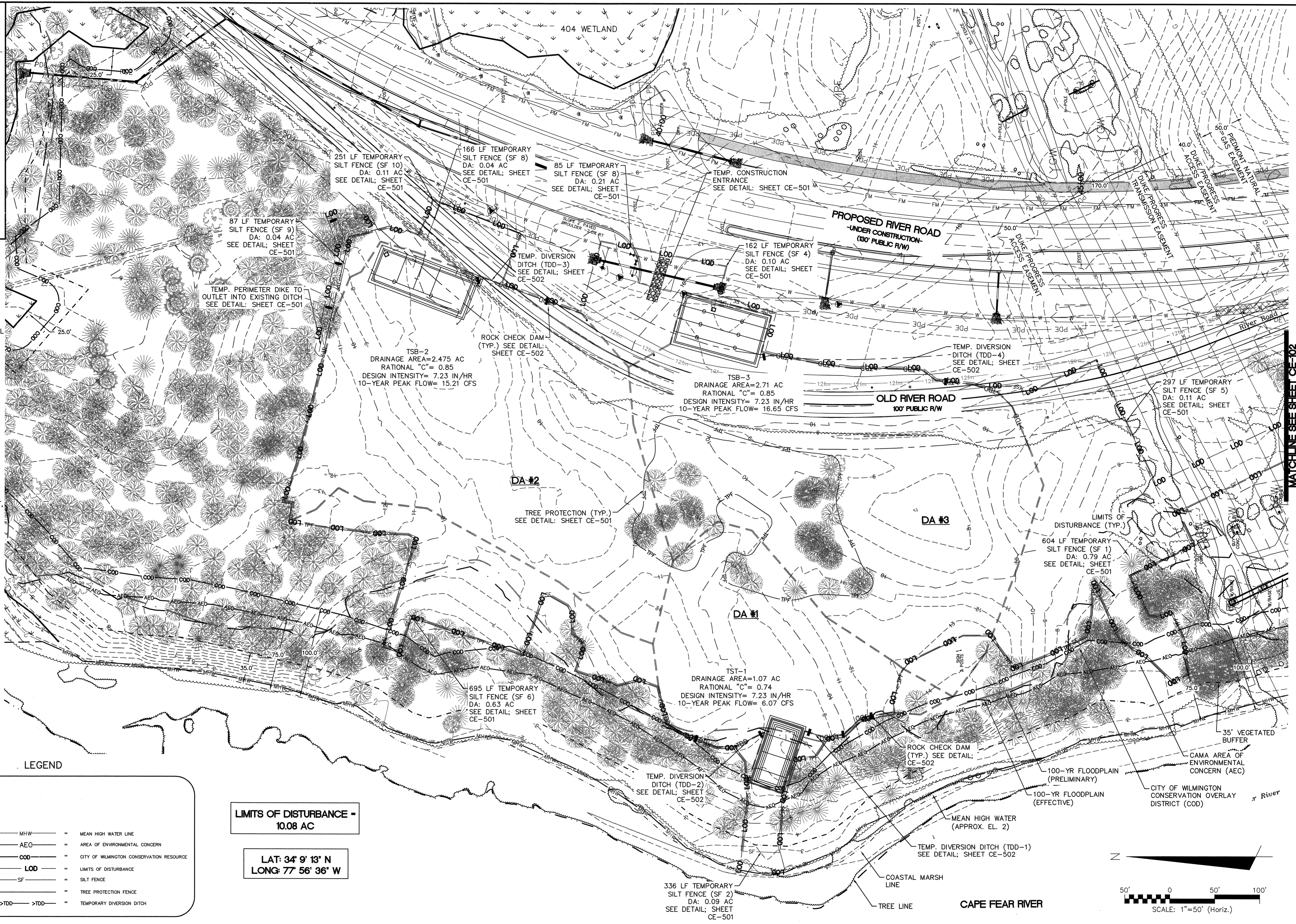
MAC FILE NUMBER: CX-102
 DRAWING NUMBER: 5
 REVISION: 5 OF 28
 STATUS: FINAL DESIGN
 NOT FOR CONSTRUCTION

S:\27350124 Marina Village\04 Drawings\04 Drawings\CX-101-027350124.dwg, 6/1/2015 8:31:24 AM, nlanetta



PHASE 1 CONSTRUCTION SEQUENCE

1. ESTABLISH LIMITS OF DISTURBANCE AS SHOWN.
2. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE EROSION CONTROL INSPECTOR, ENGINEER, AND CONTRACTOR SHALL MEET AT THE NEW HANOVER COUNTY EROSION CONTROL INSPECTOR'S OFFICE.
3. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCES AS SHOWN. CONTRACTOR SHALL MAINTAIN A SUFFICIENT GRAVEL ENTRANCE UNTIL FINAL SUB-GRADE IS ESTABLISHED. IF DIRT/MUD GETS ON THE STREET, THEN A WASH RACK WILL NEED TO BE INSTALLED.
4. INSTALL TREE PROTECTION FENCING AND SILT FENCING AS NOTED ON PLANS BEFORE COMMENCING ANY LAND DISTURBANCE ACTIVITY. ADDITIONAL TREE PROTECTION FENCING AND SILT FENCE MAY BE REQUIRED.
5. INSTALL TEMPORARY SKIMMER BASINS WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE PLANS IN ORDER TO TREAT SEDIMENT LADEN WATER. BASINS SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTION OF ANY DIVERSION DITCHES THAT CONVEY WATER TO THE BASINS. CONTRACTOR TO FIELD ADJUST TEMPORARY DIVERSION DITCHES AS REQUIRED TO MAINTAIN THE DIVERSION TO THE BASINS.
6. COMMENCE GRUBBING AND ROUGH GRADING WITHIN THE LIMITS OF CONSTRUCTION.
7. COMMENCE DEMOLITION OF EXISTING BUILDINGS, DRIVES, FENCES, GATES, WELLS, GARDENS AND EXISTING UTILITY SERVICES. ALL DEMOLITION MATERIAL SHALL BE DISPOSED OF, SALVAGED, OR RECYCLED PER THE PROJECT SPECIFICATIONS.
8. COORDINATE DISCONNECTION OF EXISTING UTILITIES:
 - ELECTRICAL SERVICES AND POLES WITH PROGRESS ENERGY
 - TELEPHONE SERVICES AND POLES WITH BELL SOUTH
 - CABLE WITH TIME WARNER CABLE
 - SEWER AND WATER SERVICES WITH CAPE FEAR PUBLIC UTILITY AUTHORITY
 - STORM DRAINAGE SYSTEM WITH CITY OF WILMINGTON
9. PROVIDE TEMPORARY STABILIZATION AND SEEDING AS NECESSARY TO PREVENT EROSION. REFER TO SHEET CE-501 FOR GROUND STABILIZATION CRITERIA AND SEEDING SCHEDULE.



TREE LEGEND

	CE	CE	CE
	GU	GU	GU
	HO	HO	HO
	OA	OA	OA
	MA	MA	MA
	PI	PI	PI

LEGEND

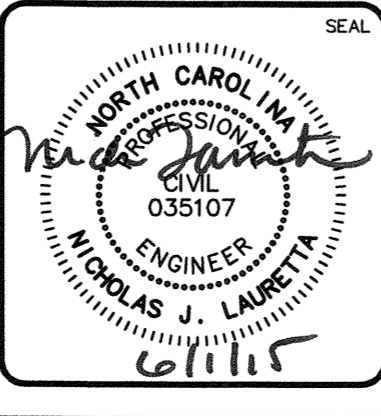
	CP	CP	CP
	GW	GW	GW
	W	W	W
	MHW	MHW	MHW
	AEC	AEC	AEC
	COD	COD	COD
	LOD	LOD	LOD
	SF	SF	SF
	TPF	TPF	TPF
	TDD	TDD	TDD
	MHW	MHW	MHW
	AEC	AEC	AEC
	COD	COD	COD
	LOD	LOD	LOD
	SF	SF	SF
	TPF	TPF	TPF
	TDD	TDD	TDD

LIMITS OF DISTURBANCE - 10.08 AC

**LAT: 34° 9' 13" N
LONG: 77° 56' 36" W**

REV.	NO.	DESCRIPTION	DATE
D	1	CITY OF WILMINGTON SUBMITTAL 2	05/28/2015
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B	1	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	1	CITY OF WILMINGTON TRC SUBMITTAL	04/29/2015

**FINAL DRAWINGS
DO NOT USE FOR
CONSTRUCTION**



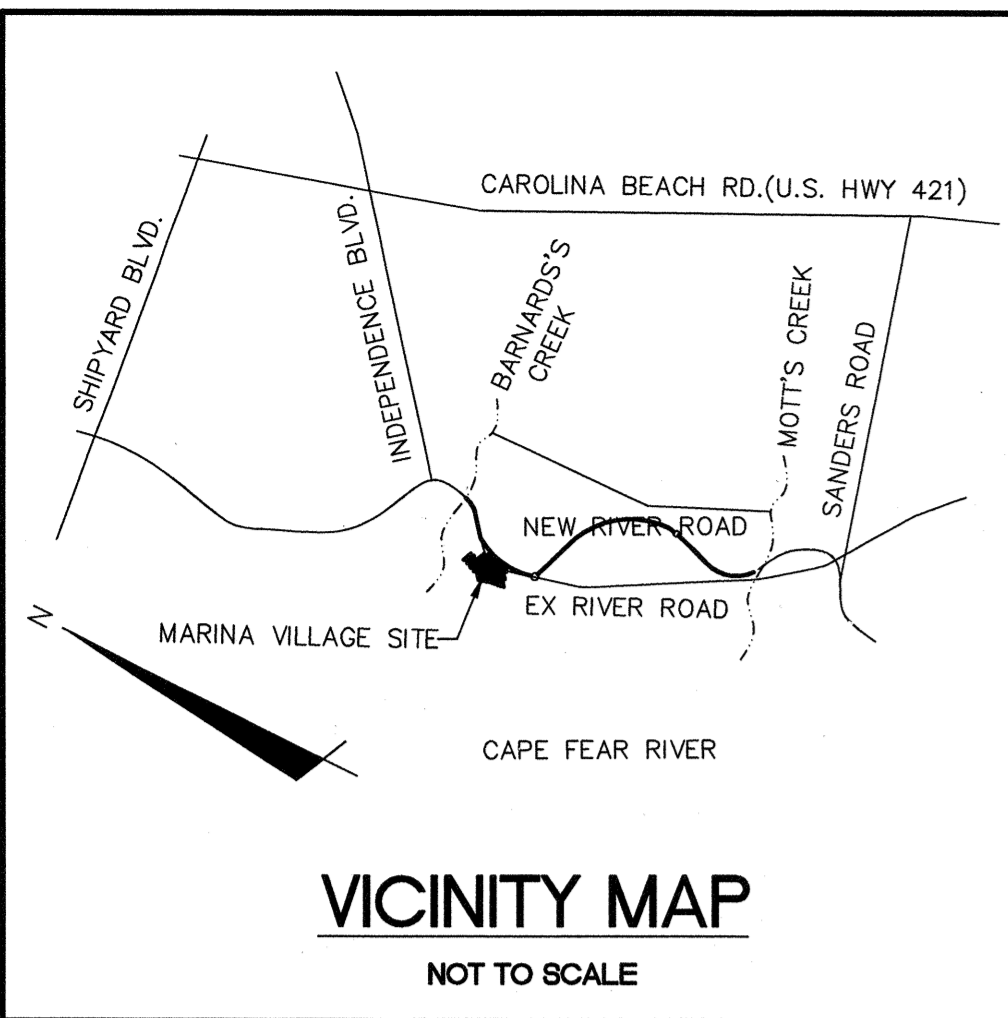
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www.mckimcreed.com

RIVERLIGHTS
by
Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
PHASE 1 SEDIMENT & EROSION CONTROL PLAN

DATE: 08APR15	SCALE: HORIZONTAL	MAC FILE NUMBER: CE-101
MCE PROJ. # 2735-0124	VERTICAL	DRAWING NUMBER: 6
DRAWN: EEM		6 OF 28
DESIGNED: EEM		
CHECKED: RMC		
PROJ. MGR. NJL		
STATUS: FINAL DESIGN	REVISION: D	
NOT FOR CONSTRUCTION		

MATCHLINE SEE SHEET CE-102



**PHASE 1 LIMITS OF DISTURBANCE
AREA= 10.08 ACRES (SQ.FT.)**

LEGEND

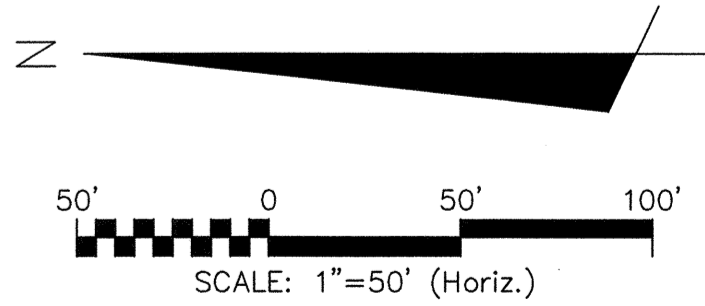
- ☉ = POWER POLE
- GW — = GUY WIRE
- ▨ = WETLAND
- MHW — MHW — MHW = MEAN HIGH WATER LINE
- AEC — AEC — AEC = AREA OF ENVIRONMENTAL CONCERN
- COD — COD — COD = CITY OF WILMINGTON CONSERVATION RESOURCE
- LOD — LOD — LOD = LIMITS OF DISTURBANCE
- SF — SF — SF = SILT FENCE
- TPF — TPF — TPF = TREE PROTECTION FENCE
- TDD — TDD — TDD — TDD = TEMPORARY DIVERSION DITCH

TREE LEGEND

- ☉ = CEDAR
- ☉ = GUM
- ☉ = HOLLY
- ☉ = OAK
- ☉ = MAPLE
- ☉ = PINE

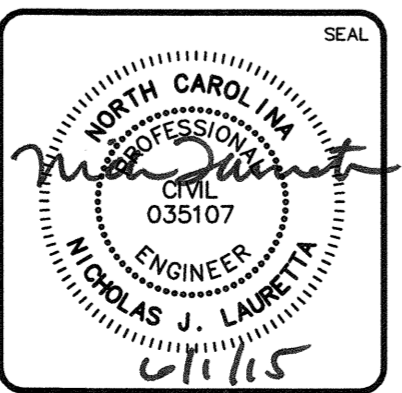


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REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HAMOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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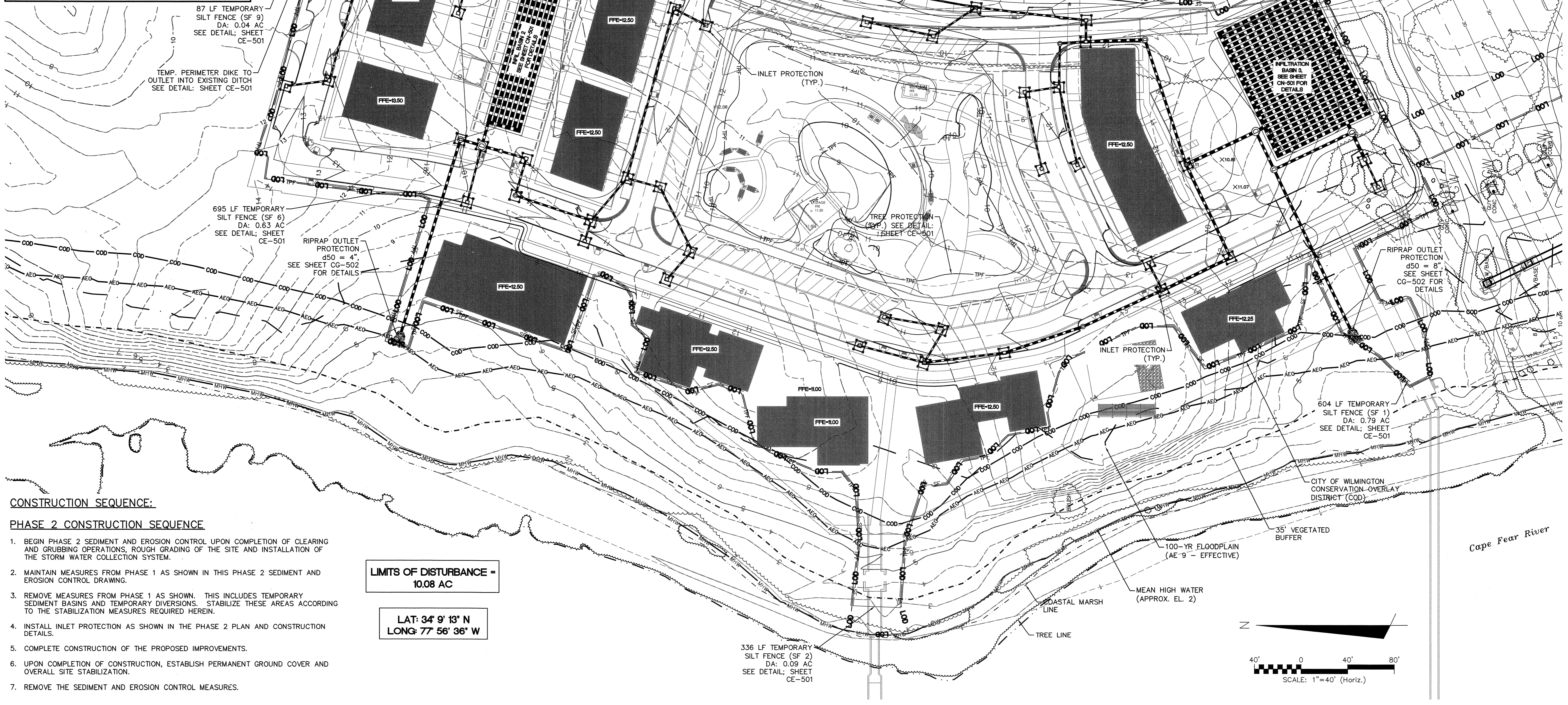
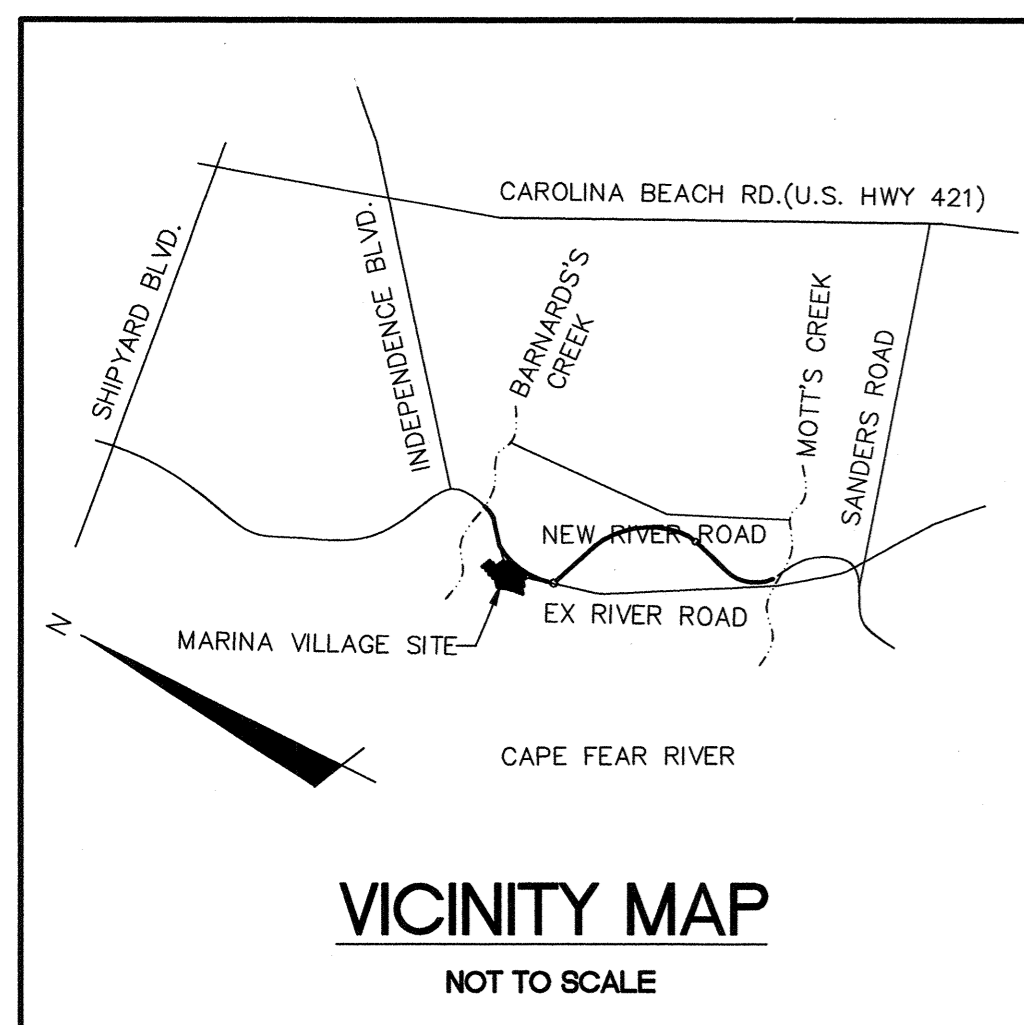
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RIVERLIGHTS MARINA VILLAGE
PHASE 1 SEDIMENT & EROSION CONTROL PLAN

DATE: 08APR15	SCALE: 1"=50'	MAC FILE NUMBER: CE-102
MCE PROJ. # 2735-0124	HORIZONTAL: ---	DRAWING NUMBER: 7
DRAWN: EEM	VERTICAL: ---	7 OF 28
DESIGNED: EEM		
CHECKED: RMC		
PROJ. MGR.: N.J.		
STATUS: FINAL DESIGN		REVISION: D
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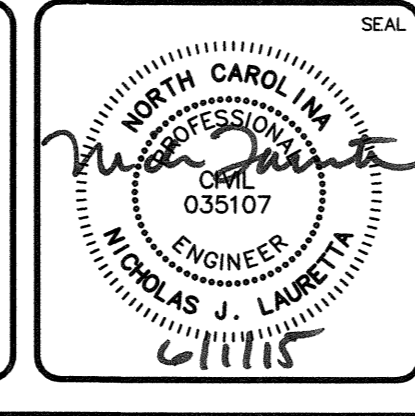
- PHASE 2 CONSTRUCTION SEQUENCE**
- BEGIN PHASE 2 SEDIMENT AND EROSION CONTROL UPON COMPLETION OF CLEARING AND GRUBBING OPERATIONS, ROUGH GRADING OF THE SITE AND INSTALLATION OF THE STORM WATER COLLECTION SYSTEM.
 - MAINTAIN MEASURES FROM PHASE 1 AS SHOWN IN THIS PHASE 2 SEDIMENT AND EROSION CONTROL DRAWING.
 - REMOVE MEASURES FROM PHASE 1 AS SHOWN. THIS INCLUDES TEMPORARY SEDIMENT BASINS AND TEMPORARY DIVERSIONS. STABILIZE THESE AREAS ACCORDING TO THE STABILIZATION MEASURES REQUIRED HEREIN.
 - INSTALL INLET PROTECTION AS SHOWN IN THE PHASE 2 PLAN AND CONSTRUCTION DETAILS.
 - COMPLETE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
 - UPON COMPLETION OF CONSTRUCTION, ESTABLISH PERMANENT GROUND COVER AND OVERALL SITE STABILIZATION.
 - REMOVE THE SEDIMENT AND EROSION CONTROL MEASURES.

LIMITS OF DISTURBANCE = 10.08 AC

**LAT: 34° 9' 13" N
LONG: 77° 56' 36" W**

REV.	DESCRIPTION	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANCOCK COUNTY EROSION CONTROL SUBMITTAL	05/17/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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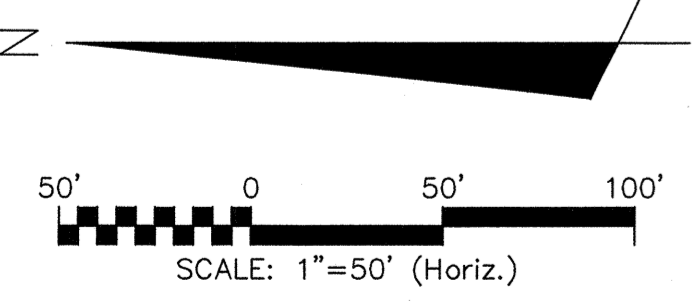
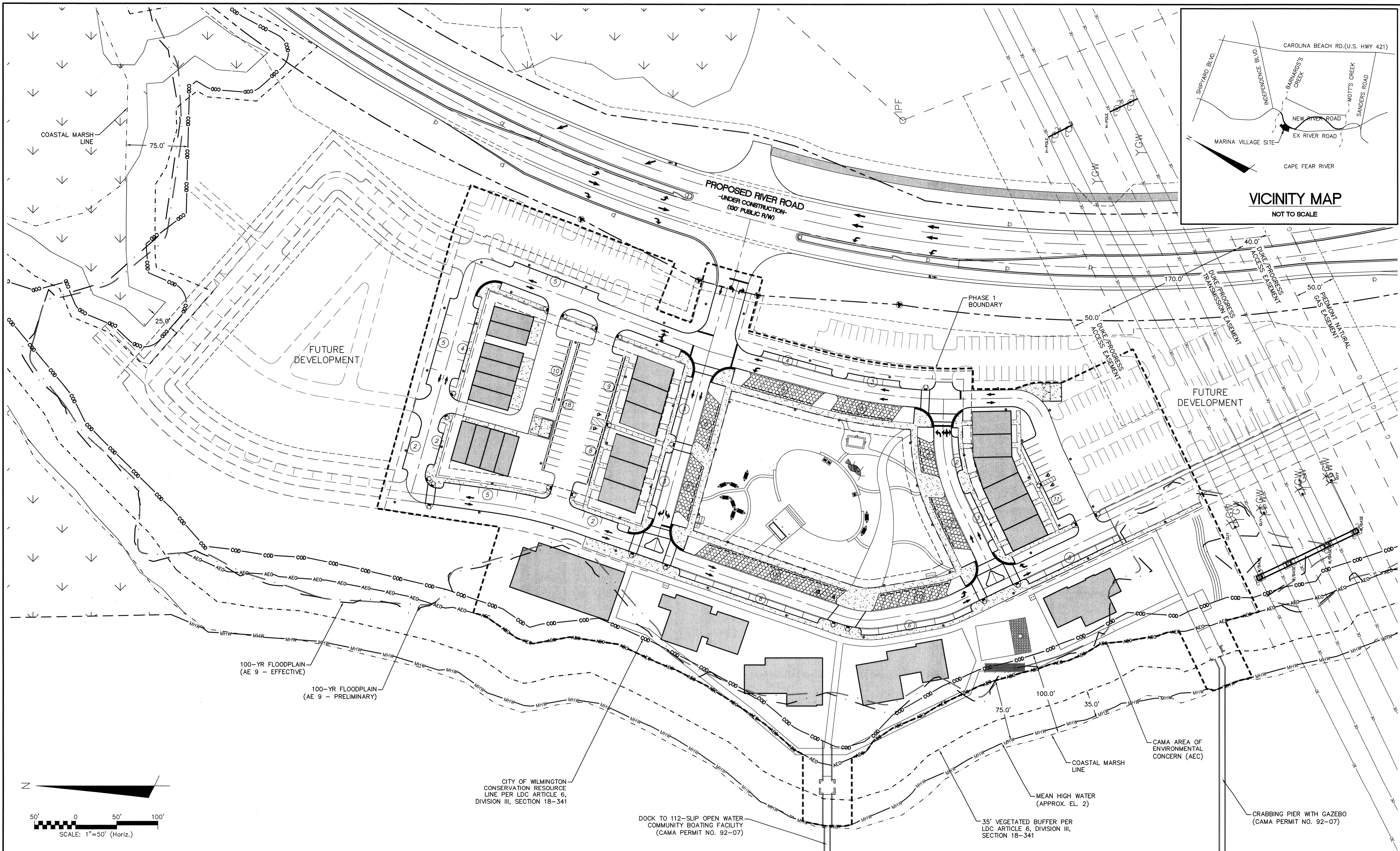
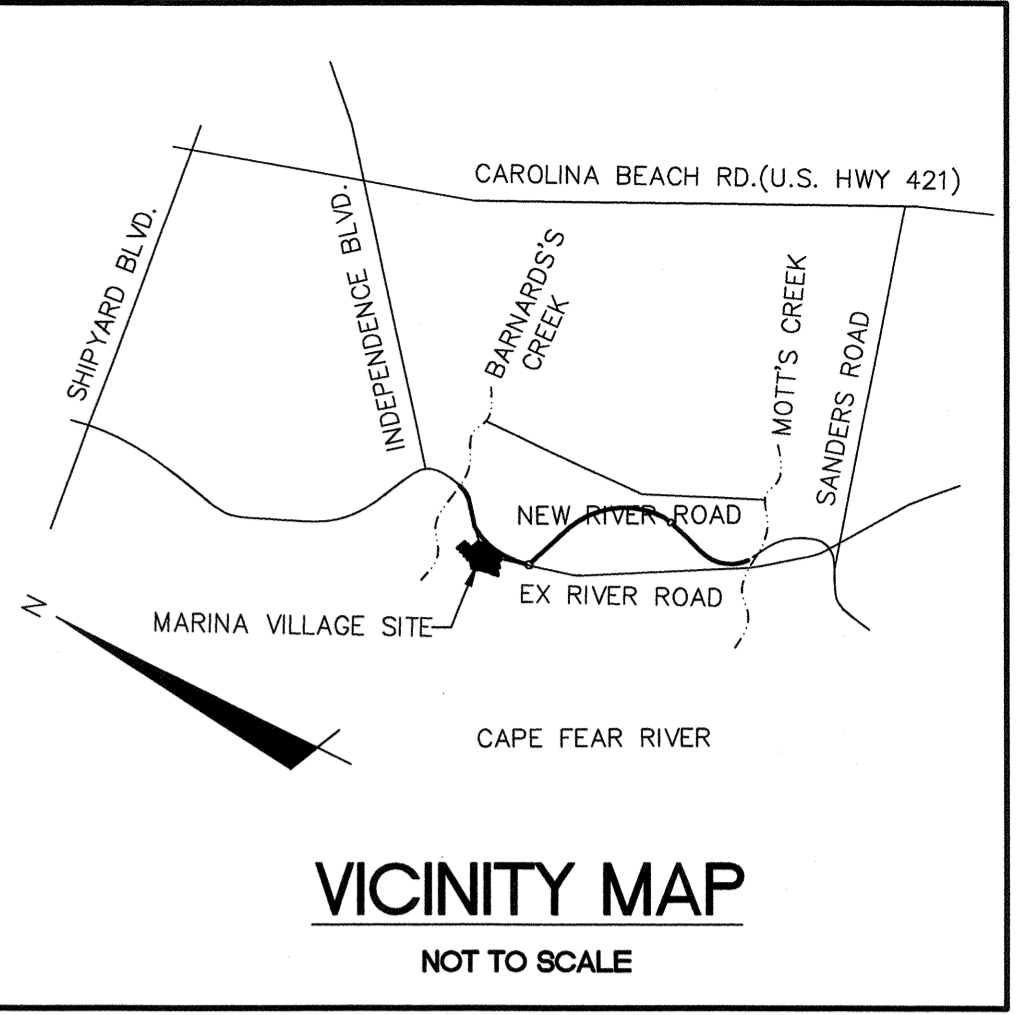
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RIVERLIGHTS MARINA VILLAGE
PHASE 2 SEDIMENT & EROSION CONTROL PLAN

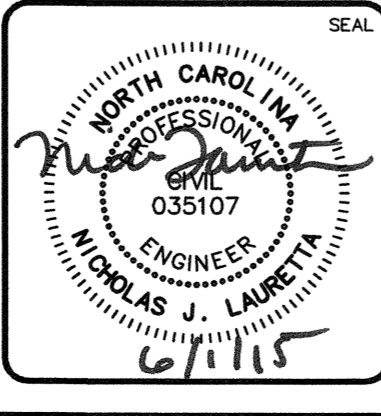
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A	CITY OF WILMINGTON TRC SUBMITTAL	04/28/2015

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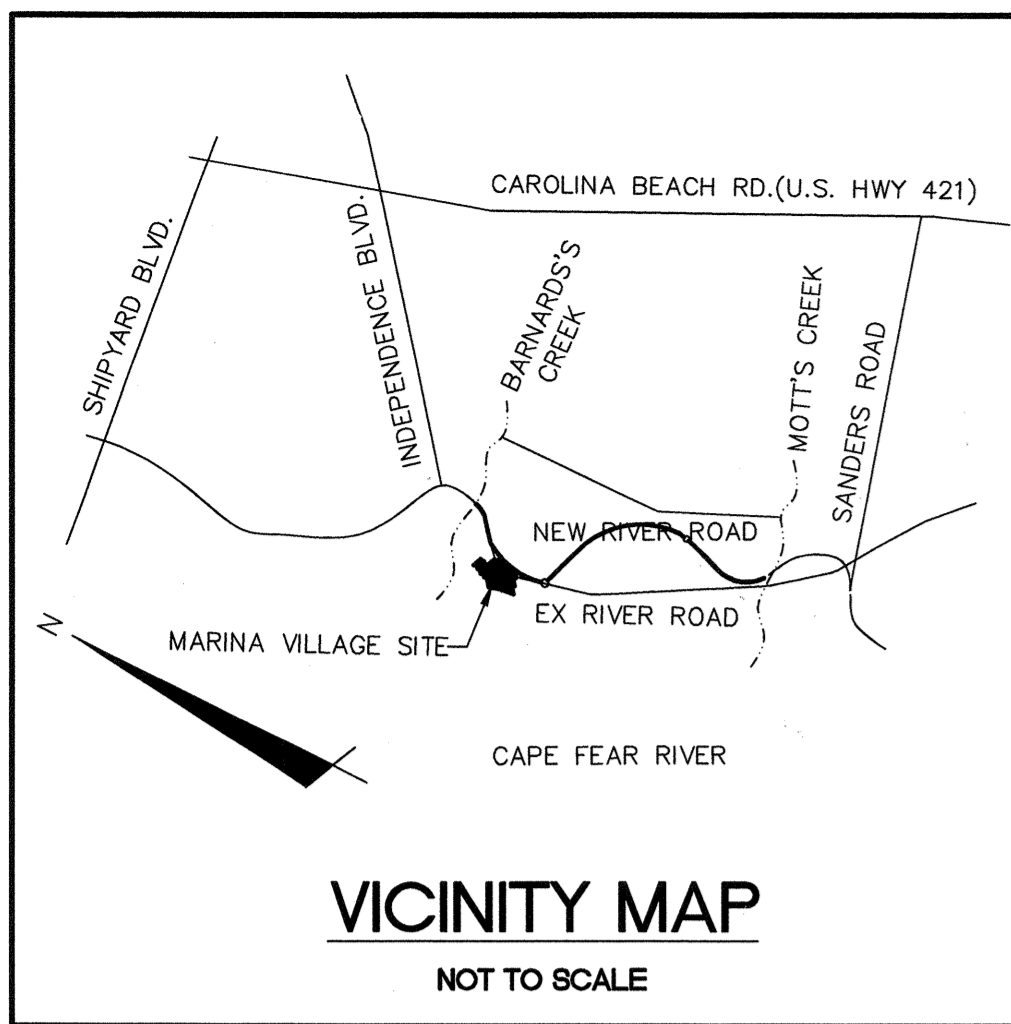
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RIVERLIGHTS MARINA VILLAGE

OVERALL SITE PLAN

DATE: 08APR15	SCALE: 1"=50'	MAC FILE NUMBER: CS-100
MCE PROJ. # 2735-0124	HORIZONTAL: ---	DRAWING NUMBER: 9
DRAWN: EEM	VERTICAL: ---	REVISION: D
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- KEYNOTES:**
- ① 60° ANGLED PARKING – PVIOUS PAVEMENT
 - ② RAISED CROSSWALK
 - ③ LOADING/UNLOADING AREA
 - ④ DUMPSTER PAD AND ENCLOSURE
- ▲ 46'x46' STREET CORNER SIGHT DISTANCE TRIANGLE
- ▲ 20'x70' DRIVEWAY SIGHT DISTANCE TRIANGLE

LOADING, UNLOADING AND DELIVERIES TO THE RETAIL/RESTAURANT FACILITIES IS PROVIDED IN THE PARALLEL PARKING SPACES ALONG WATERCRAFT FERRY AVENUE. SIGNS SHALL BE PROVIDED DELINEATING TIMES WHEN THE PARKING SPACES ARE RESERVED FOR DELIVERY VEHICLES.

OPEN SPACE CALCULATIONS*

TOTAL OPEN SPACE REQUIRED	46.18 ACRES (2,011,601 SF)*
TOTAL OPEN SPACE PROPOSED	2.00 ACRES (87,102 SF)

*PROPOSED MX-CD CLUSTER FOR ENTIRE RIVER LIGHTS DEVELOPMENT = 184.7 ACRES
OPEN SPACE ACRES REQUIRED FOR ENTIRE RIVER LIGHTS DEVELOPMENT(25% OPEN SPACE) = 46.18

SITE DATA TABLE		MARINA VILLAGE – PHASE 1	
PARCEL ADDRESS	4410 RIVER ROAD		
TAX PARCEL IDENTIFICATION NUMBER	R07000-006-009-000		
ZONING DISTRICT	MX		
CAMA LAND USE CLASSIFICATION	TRANSITION AND CONSERVATION		
TOTAL ACREAGE WITHIN THE RIVERLIGHTS BOUNDARY	1,329.41 ACRES (57,909,100 SF)		
TOTAL ACREAGE WITHIN THE MARINA VILLAGE BOUNDARY	9.68 ACRES (421,836 SF)		
BUILDING SETBACKS AND SEPARATIONS (MX ZONING)	REQUIRED	PROPOSED	
FRONT	N/A	N/A	
REAR	N/A	N/A	
SIDE (INTERIOR)	N/A	N/A	
SIDE (CORNER)	N/A	N/A	
TOTAL BUILDING(S) SIZE (SQUARE FOOTAGE)	46,380 SF		
NC BUILDING CODE CONSTRUCTION TYPE	VB		
BUILDING LOT COVERAGE	30%		
NUMBER OF BUILDINGS	17		
TOTAL AMOUNT OF DISTURBED AREA	10.08 AC (439,069 SF)		
TOTAL ACRES OF WETLANDS	0 ACRES (0 SF)		
TOTAL ACRES WITHIN 100-YR FLOODPLAIN/BELOW MHW MARK	1.38 ACRES (60,017 SF)		

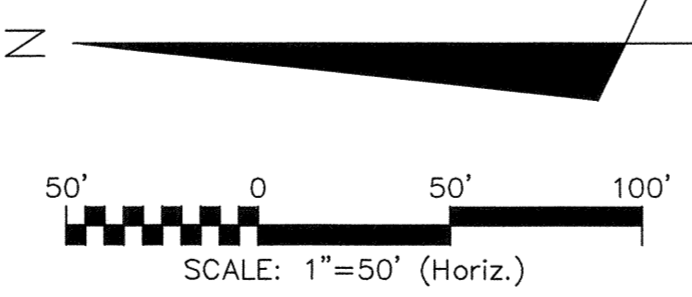
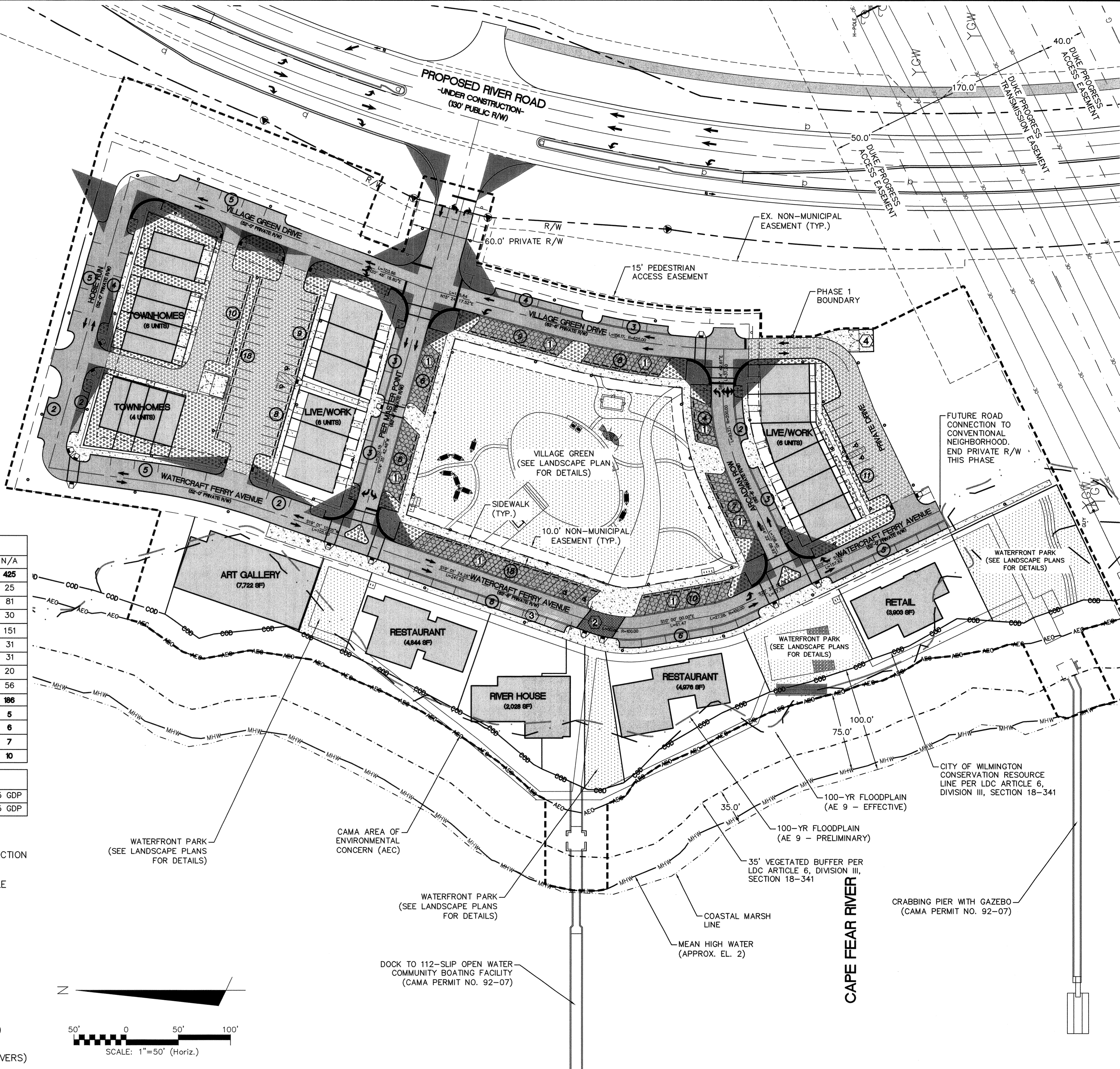
IMPERVIOUS AREA (EXISTING)		
ROOF TOPS	0	SF
ROADWAYS	19,549	SF
PARKING	0	SF
SIDEWALKS	0	SF
OTHER	0	SF
TOTAL PRE DEVELOPMENT/%	19,549/4.0	SF/%

IMPERVIOUS AREA (PROPOSED)		
ROOF TOPS	52,249	SF
ROADWAYS	72,876	SF
PARKING	16,732	SF
PERVIOUS PARKING	12,734	SF
PERVIOUS PARKING (75% REDUCTION)	3,184	SF
SIDEWALKS	35,408	SF
PERVIOUS SIDEWALK	0	SF
PERVIOUS SIDEWALK (75% REDUCTION)	0	SF
FUTURE ALLOTMENT	75,541	SF
OTHER	0	SF
TOTAL S.F. (ONSITE IMPERVIOUS AREA)	255,990	SF
PERCENTAGE (ONSITE IMPERVIOUS AREA/ONSITE AREA)	49.9	%
PERCENTAGE (EXIST. ONSITE IMPERVIOUS AREA/ONSITE AREA)	4	%
TOTAL SQUARE FOOTAGE OF IMPERVIOUS SURFACES SHOWN IN THE STREET YARD	0	SF

PARKING CALCULATIONS	
MINIMUM NUMBER OF SPACES REQUIRED	N/A
MAXIMUM NUMBER OF SPACES ALLOWED	425
TOWNHOMES (2.5 SPACES/UNIT)	25
OFFICES (1 SPACE / 200 SF GFA)	81
APARTMENTS (2.5 SPACES/UNIT)	30
RESTAURANTS (1 SPACE / 65 SF GFA)	151
ART GALLERY (1 SPACE / 250 SF GFA)	31
RIVER HOUSE (1 SPACE / 65 SF GFA)	31
RETAIL (1 SPACE / 200 SF GFA)	20
MARINA (1 SPACE / 2 WET SLIPS)	56
PARKING SPACES PROVIDED (PHASE 1)	186
ACCESSIBLE SPACES REQUIRED (PHASE 1)	5
ACCESSIBLE SPACES PROVIDED (PHASE 1)	6
BICYCLE PARKING SPACES REQUIRED	7
BICYCLE PARKING SPACES PROVIDED	10

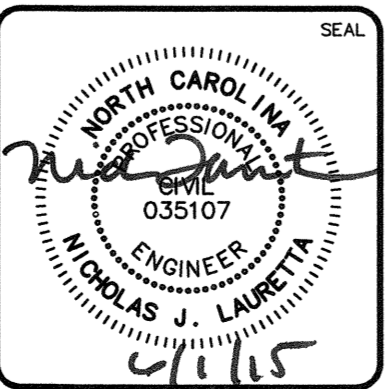
WATER & SEWER DEMAND	
WATER DEMAND	21,465 GDP
SANITARY SEWER DEMAND	21,465 GDP

SURFACE MATERIAL LEGEND	
	ASPHALT – STREET SECTION
	ASPHALT – DRIVE AISLE
	ROOFTOP
	PERVIOUS PAVEMENT
	SIDEWALK
	OPEN SPACE (ACTIVE)
	OPEN SPACE (PASSIVE)
	CROSSWALK (BRICK PAVERS)



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A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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RIVERLIGHTS MARINA VILLAGE

SITE PLAN

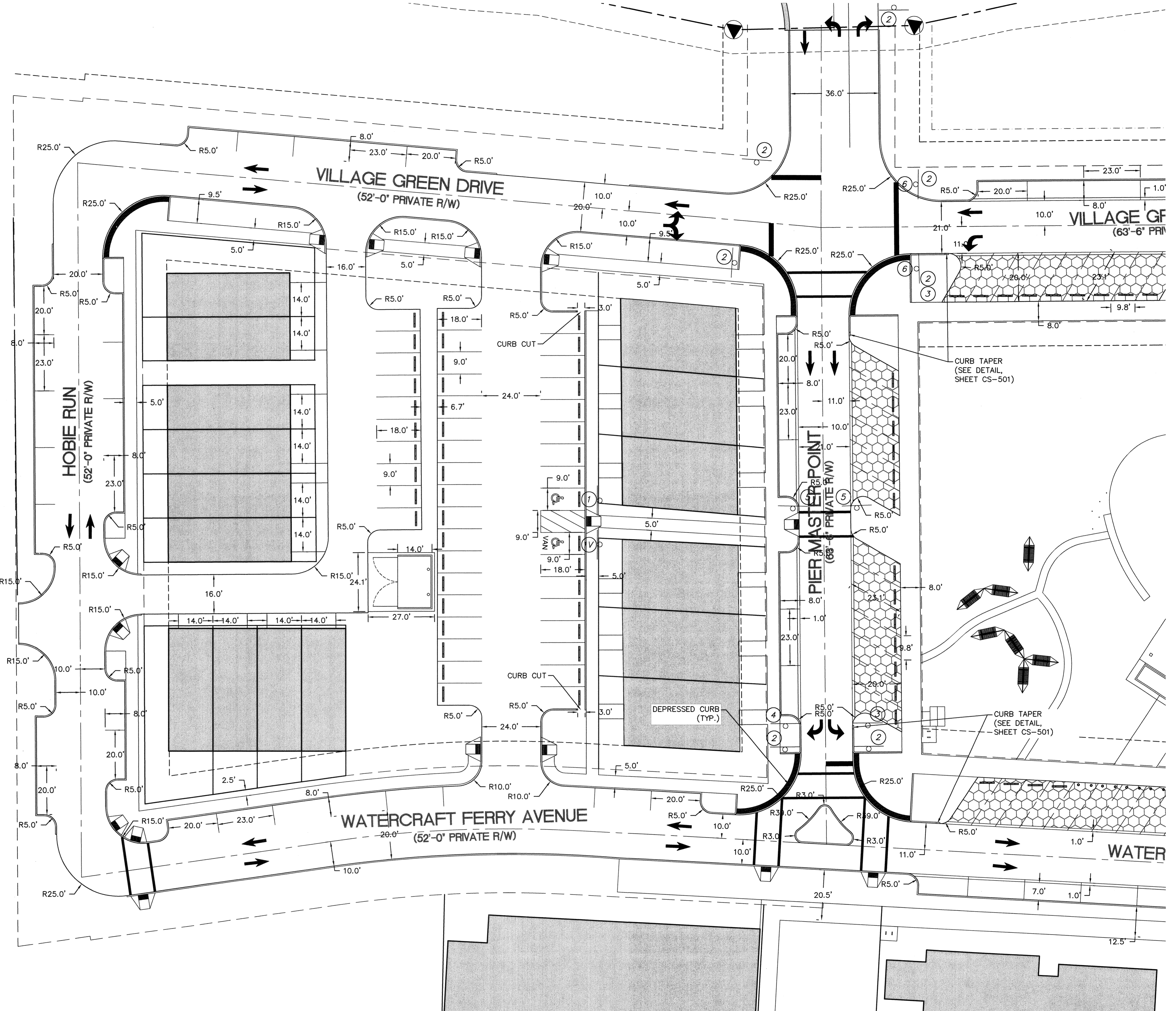
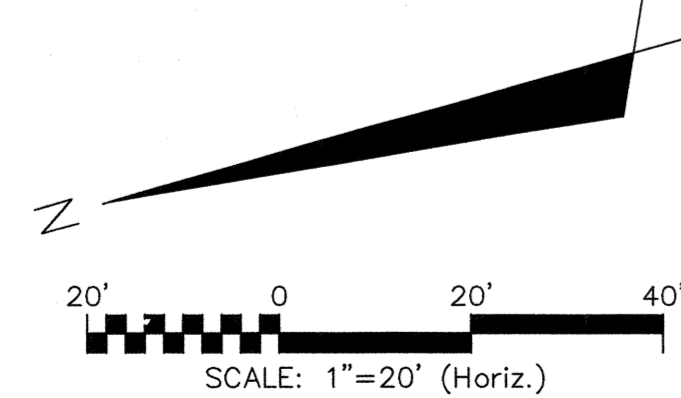
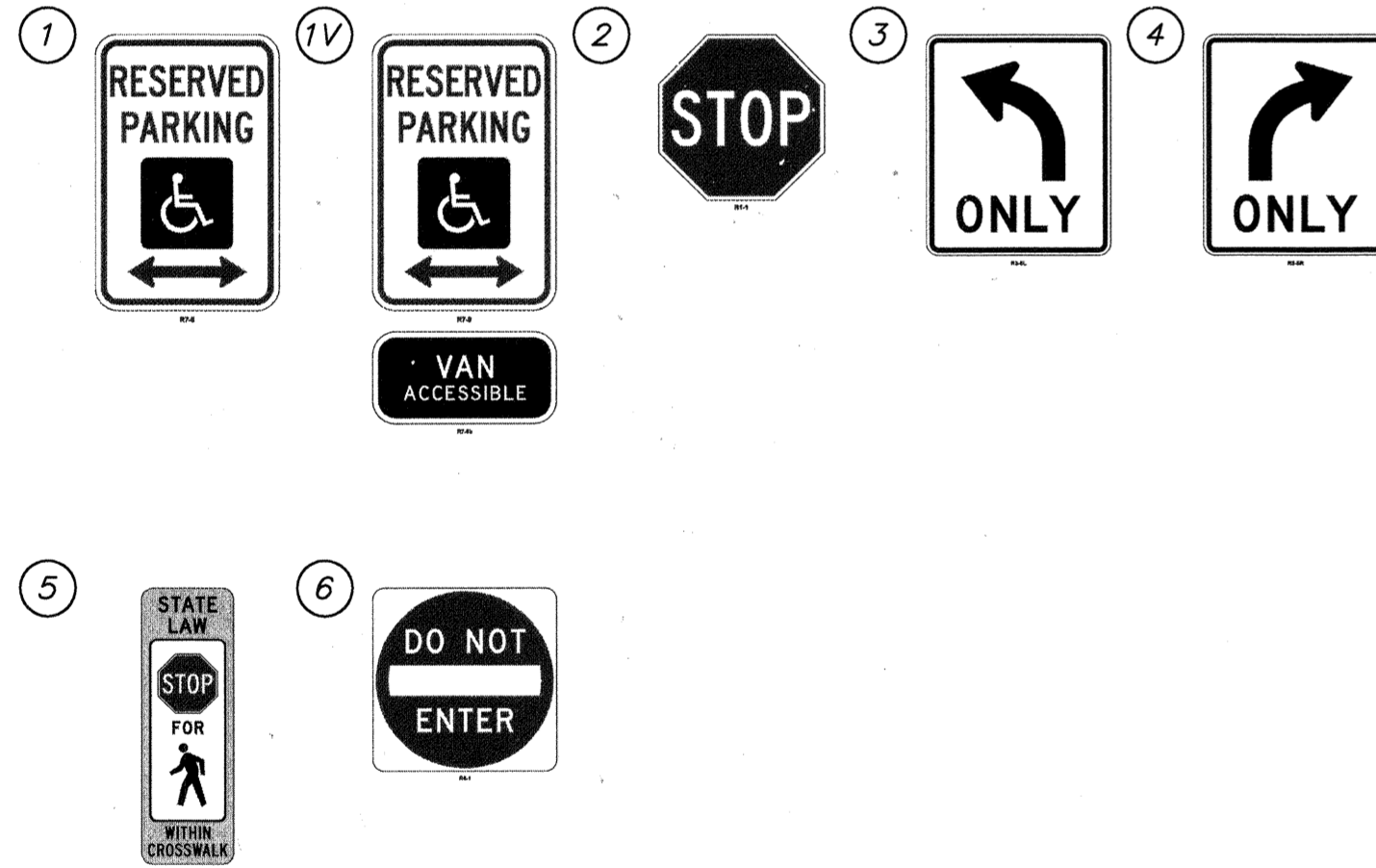
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DRAWN: EEM		10 OF 28
DESIGNED: EEM		
CHECKED: RMC		
PROJ. MGR.: NJL		
STATUS: FINAL DESIGN		REVISION: D
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CITY OF WILMINGTON NOTES:

- ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
- ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
- A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
- A LANDSCAPING PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT.
- ZERO LOT LINES ARE PERMITTED.
- BUILDINGS LOCATED ON THE PERIPHERY OF THE MX DISTRICT SHALL BE SET BACK A MINIMUM OF 20 (TWENTY) FEET FROM THE MX DISTRICT BOUNDARY.
- ZONING AND LAND USE OF ADJACENT PROPERTIES IS AS FOLLOWS:
 NORTH - FUTURE MX-CD / TRANSITION
 SOUTH - FUTURE MX-CD / TRANSITION AND CONSERVATION AREA
 WEST - FUTURE MX-CD / TRANSITION
 EAST - I-2 / TRANSITION AND CONSERVATION AREA
- INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.
- IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE TECHNICAL STANDARDS AND SPECIFICATION MANUAL. THE SUBDIVIDER MAY ACQUIRE AND ERECT OFFICIAL STREET NAME SIGNS OR CHOOSE TO CONTRACT WITH THE CITY TO INSTALL THE STREET SIGNS AND THE SUBDIVIDER SHALL PAY THE COSTS OF SUCH INSTALLATION. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
- CONTACT TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.
- IF THESE UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT.

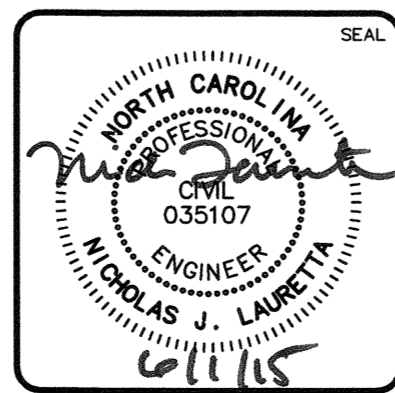
GENERAL NOTES:

- FLOODPLAIN INFORMATION WAS OBTAINED FROM NC FLOODPLAIN MAPPING FLOOD RISK INFORMATION SYSTEM PROGRAM. RIVERLIGHTS IS LOCATED WITHIN FIRM MAP 3720312400K, PANEL 3124 AS REVISED JUNE 02, 2006.
- ITEMS DESIGNATED AS "PROPOSED" ARE PART OF THE RIVER ROAD REALIGNMENT PROJECT THAT IS CURRENTLY UNDER CONSTRUCTION. RIVER ROAD CONSTRUCTION TO BE COMPLETE SPRING 2016.
- WETLANDS SHOWN IN THIS PORTION OF RIVERLIGHTS WERE DESCRIBED AS BRACKISH/SALT MARSH AND POCOSIN WETLANDS AND CONSERVATION RESOURCE SETBACK LINES WERE GENERATED AS 100' AND 25', RESPECTIVELY, MINIMUM OUTSIDE OF THE RESOURCE.
- FINISHED FLOOR ELEVATIONS OFF ALL INHABITABLE STRUCTURES WILL BE MIN. 2- FEET ABOVE BASE FLOOD ELEVATION
- RIVERLIGHTS PHASE 1 MARINA VILLAGE COMMUNITY DOES NOT CONTAIN ANY LOCAL, STATE, OR FEDERALLY RECOGNIZED HISTORIC STRUCTURES OR ARCHEOLOGICAL SITES ON SITE. RIVERLIGHTS WAS ISSUED A NOTICE OF NO FURTHER ACTION LETTER DATED JUNE 2, 2008 FOLLOWING COMPLETION OF AN EA/SEPA DOCUMENT.
- EXISTING THOROUGHFARES, BIKE ROUTES, PEDESTRIAN SIDEWALKS OR TRAILS AND TRANSITS FACILITIES DO NOT EXIST ON SITE.



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A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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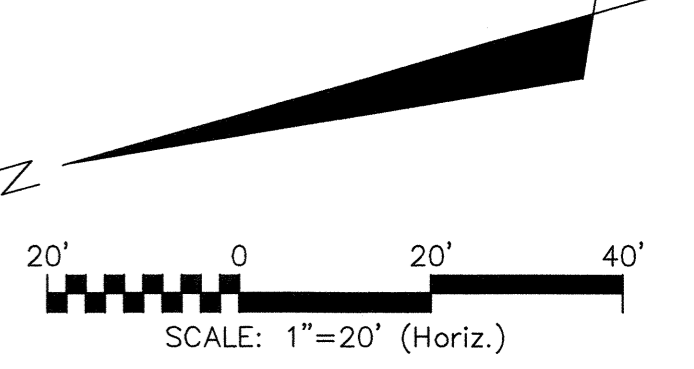
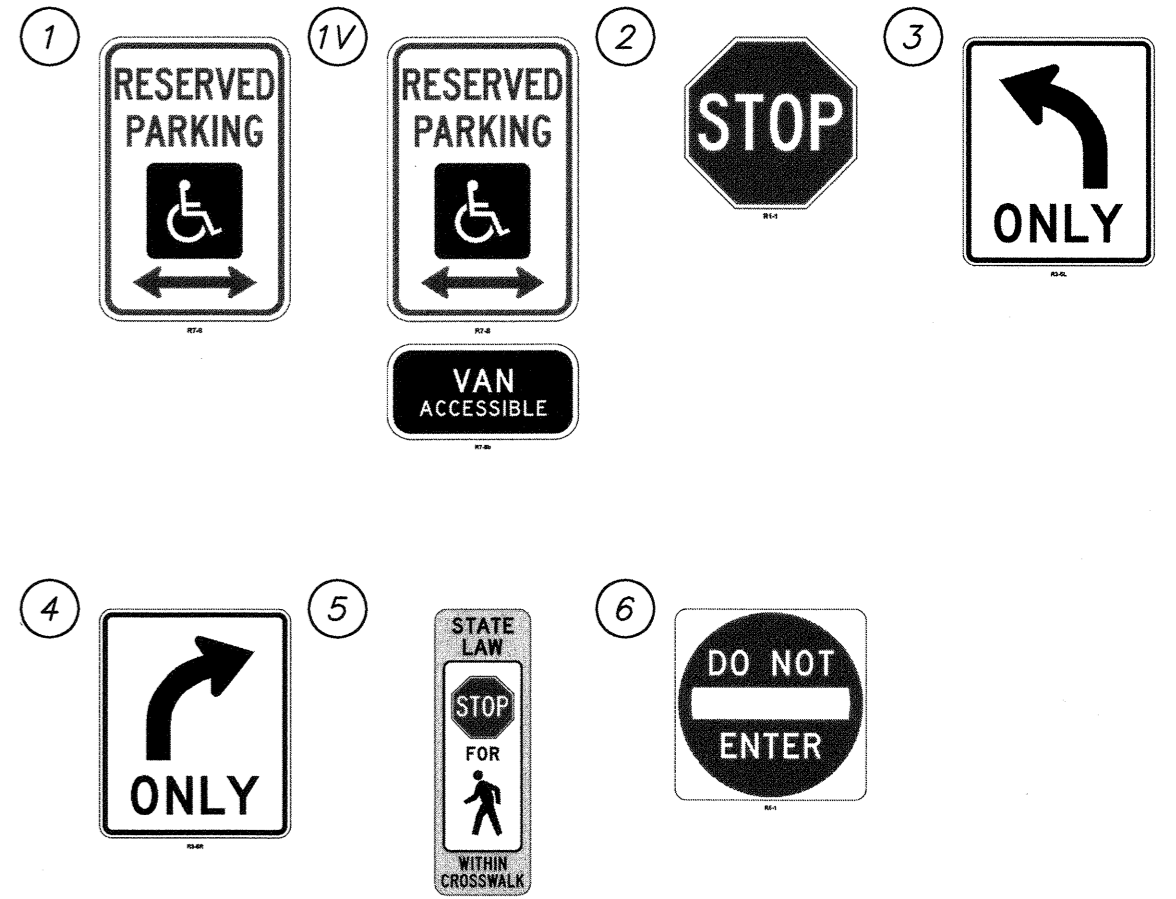
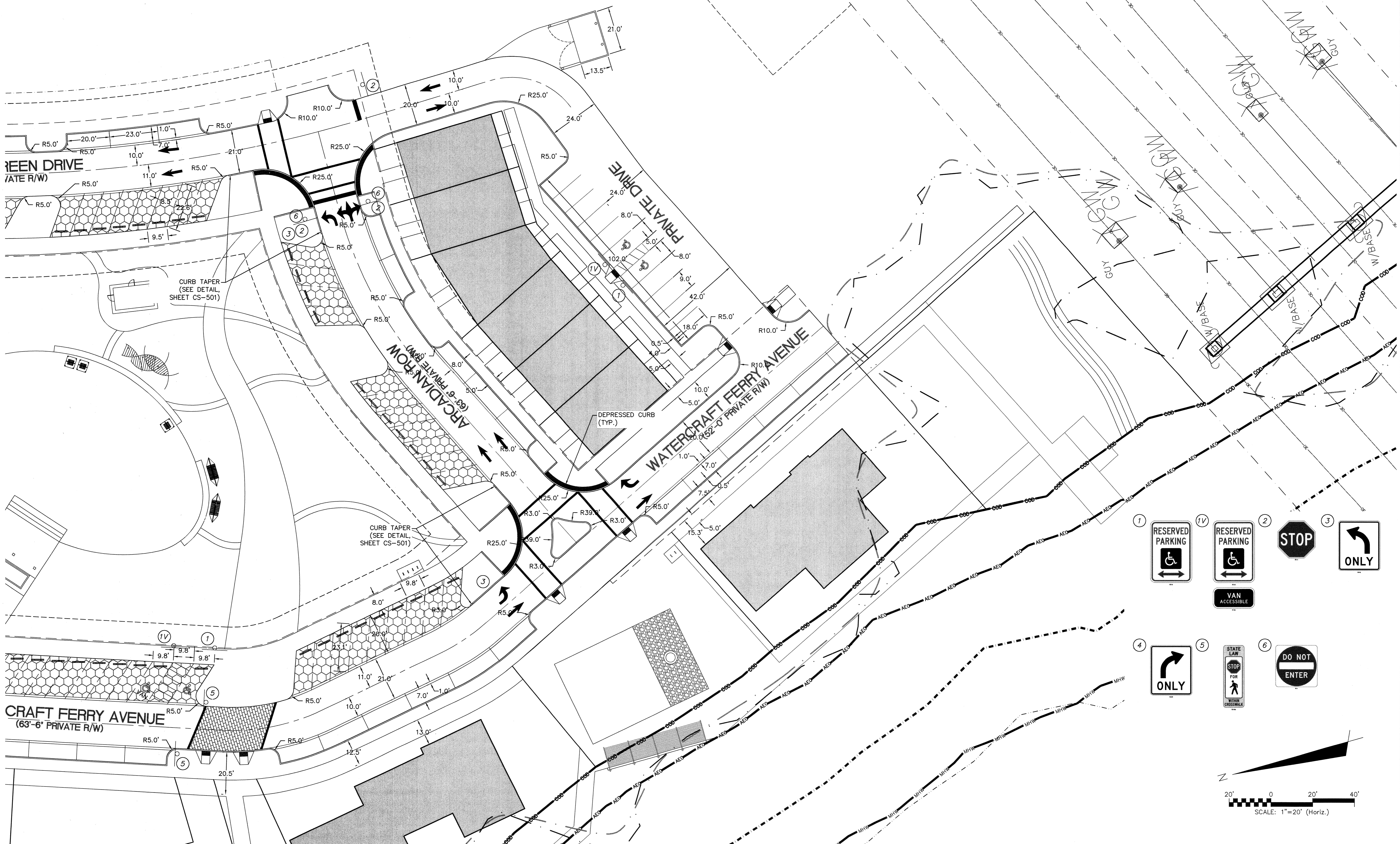
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RIVERLIGHTS MARINA VILLAGE
SITE PLAN

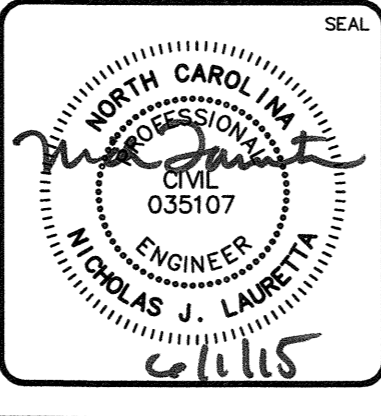
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REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/28/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HAMPSHIRE COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/09/2015

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SITE PLAN

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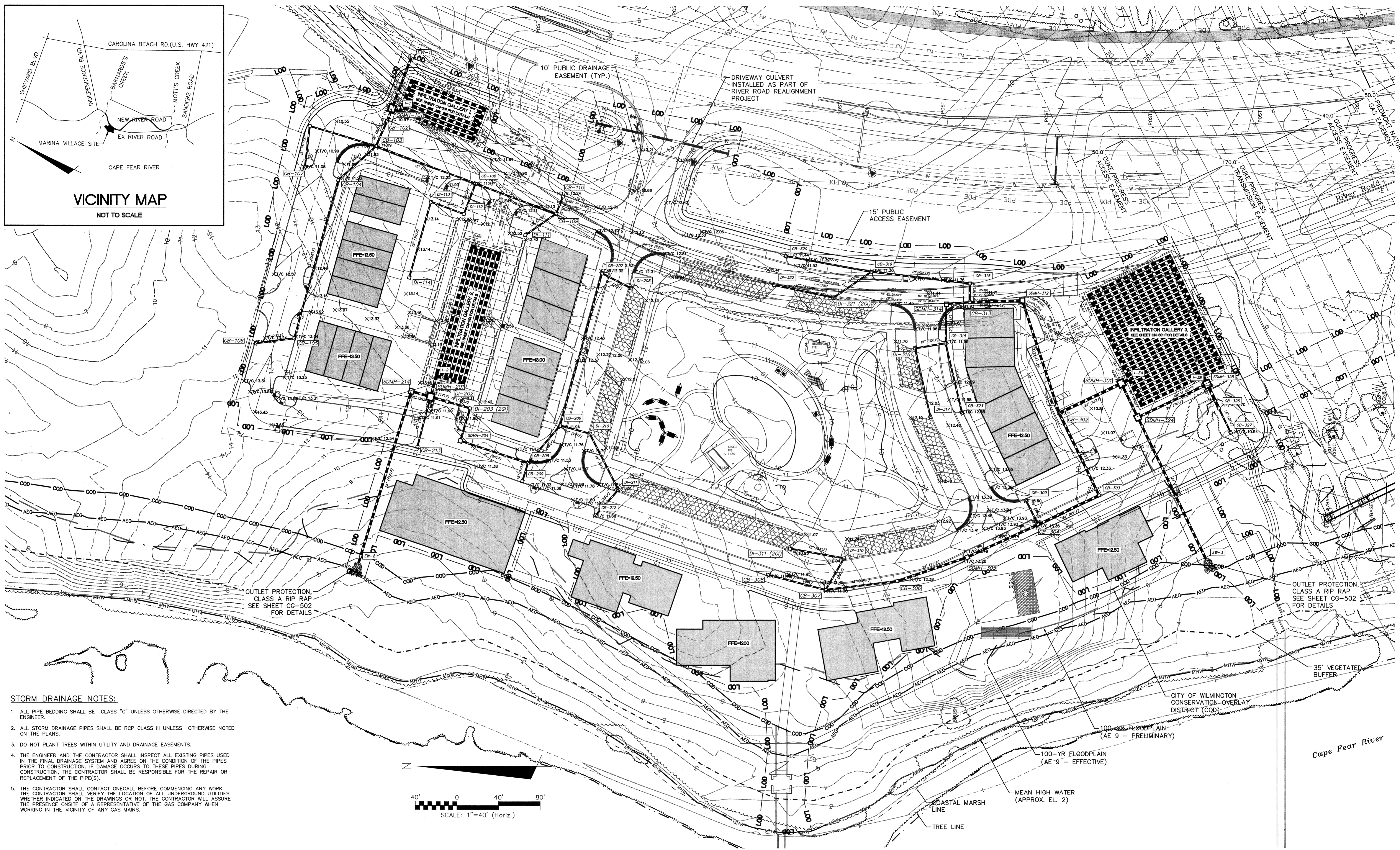
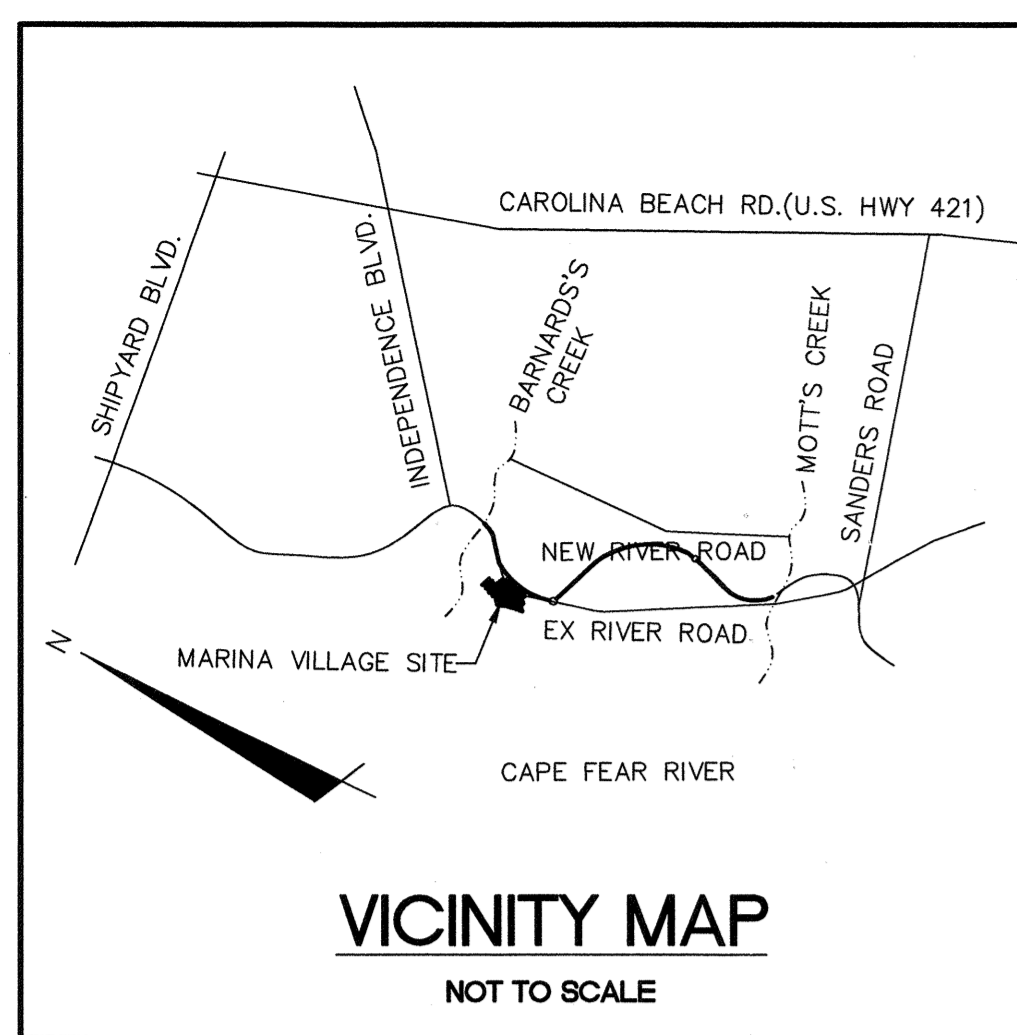
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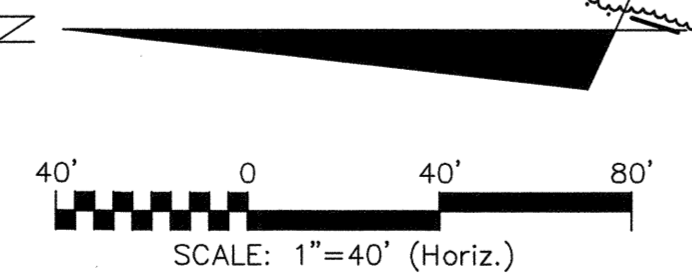
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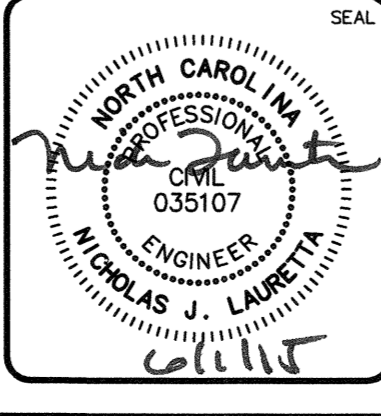


- STORM DRAINAGE NOTES:**
1. ALL PIPE BEDDING SHALL BE CLASS "C" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 2. ALL STORM DRAINAGE PIPES SHALL BE RCP CLASS III UNLESS OTHERWISE NOTED ON THE PLANS.
 3. DO NOT PLANT TREES WITHIN UTILITY AND DRAINAGE EASEMENTS.
 4. THE ENGINEER AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION OF THE PIPES PRIOR TO CONSTRUCTION. IF DAMAGE OCCURS TO THESE PIPES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE PIPE(S).
 5. THE CONTRACTOR SHALL CONTACT ONECALL BEFORE COMMENCING ANY WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WHETHER INDICATED ON THE DRAWINGS OR NOT. THE CONTRACTOR WILL ASSURE THE PRESENCE ON-SITE OF A REPRESENTATIVE OF THE GAS COMPANY WHEN WORKING IN THE VICINITY OF ANY GAS MAINS.



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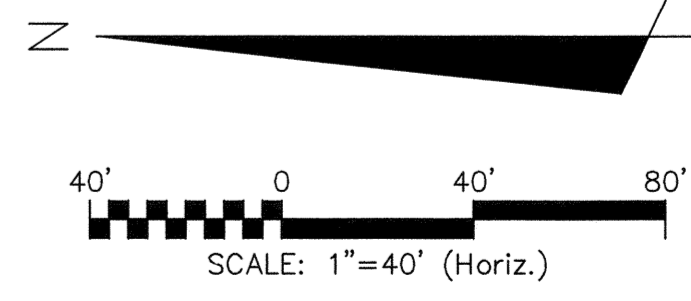
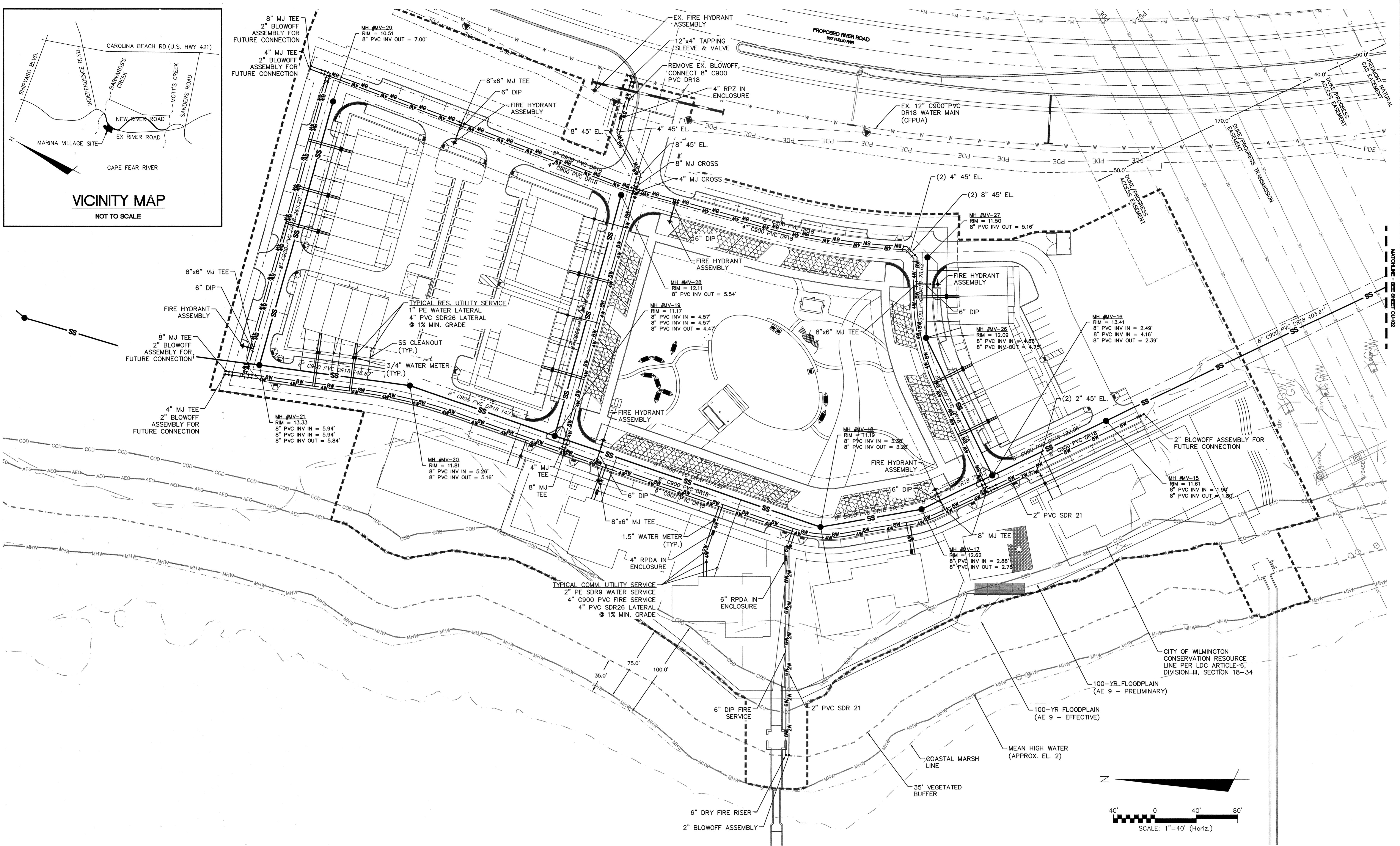
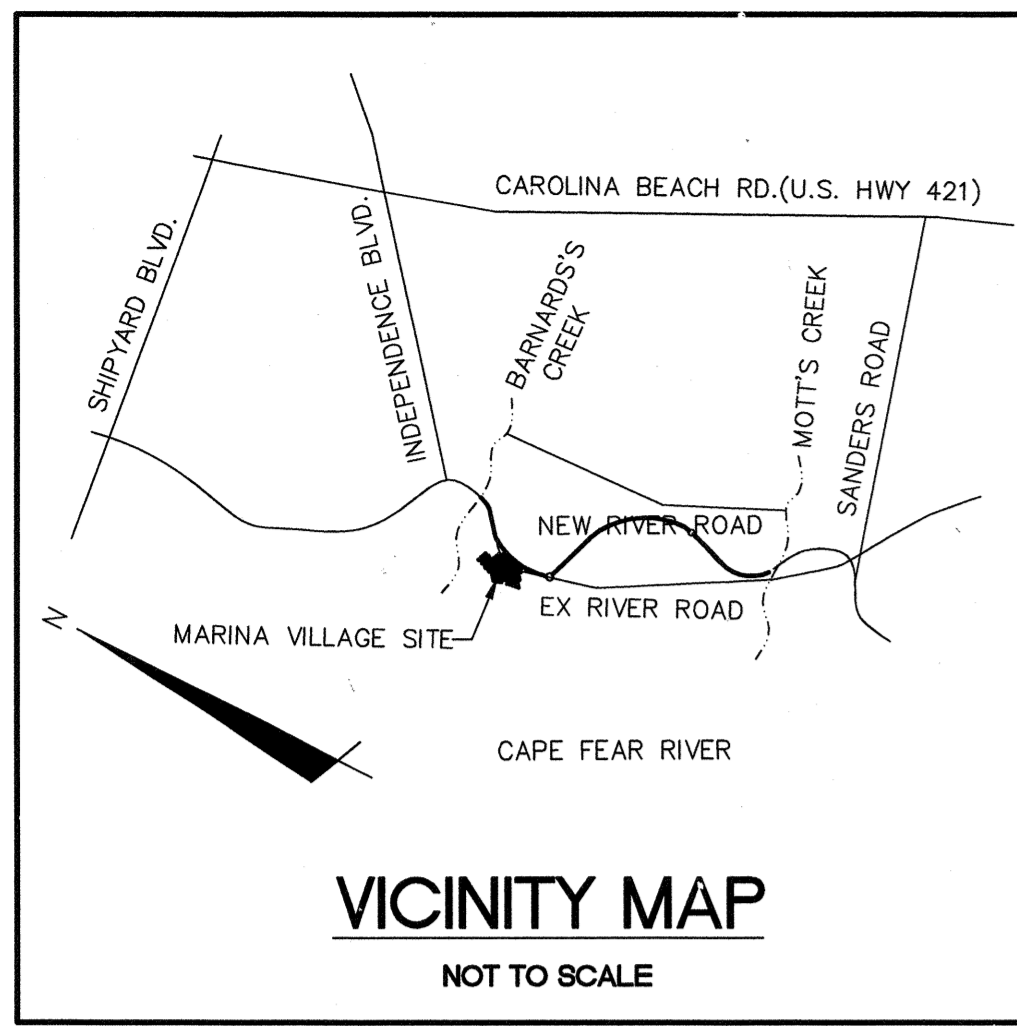
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 by
 Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
STORM DRAINAGE & GRADING PLAN

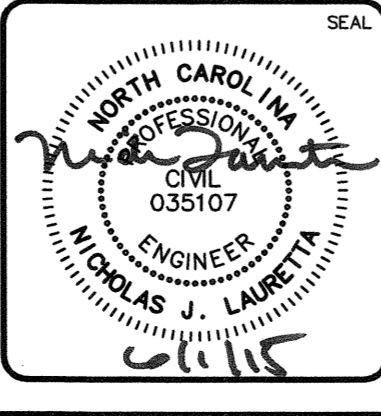
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MCE PROJ. # 2735-0124	VERTICAL: -	DRAWING NUMBER: 13
DRAWN: EEM		13 OF 28
DESIGNED: EEM		
CHECKED: RMC		
PROJ. MGR. NJL		
STATUS: FINAL DESIGN		REVISION: D
NOT FOR CONSTRUCTION		

S:\27350124 Marina Village\65 Drawings\CG101-427350124.dwg, 6/11/2015 8:44:05 AM, nlsarens



REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/19/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/28/2015

FINAL DRAWINGS
DO NOT USE FOR
CONSTRUCTION



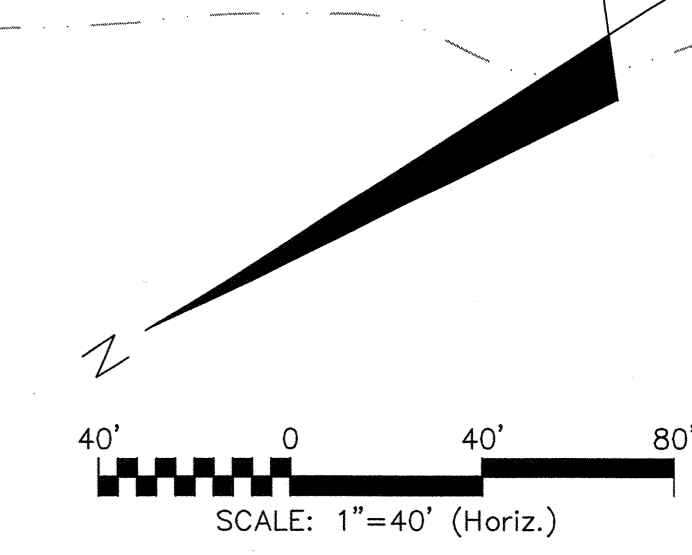
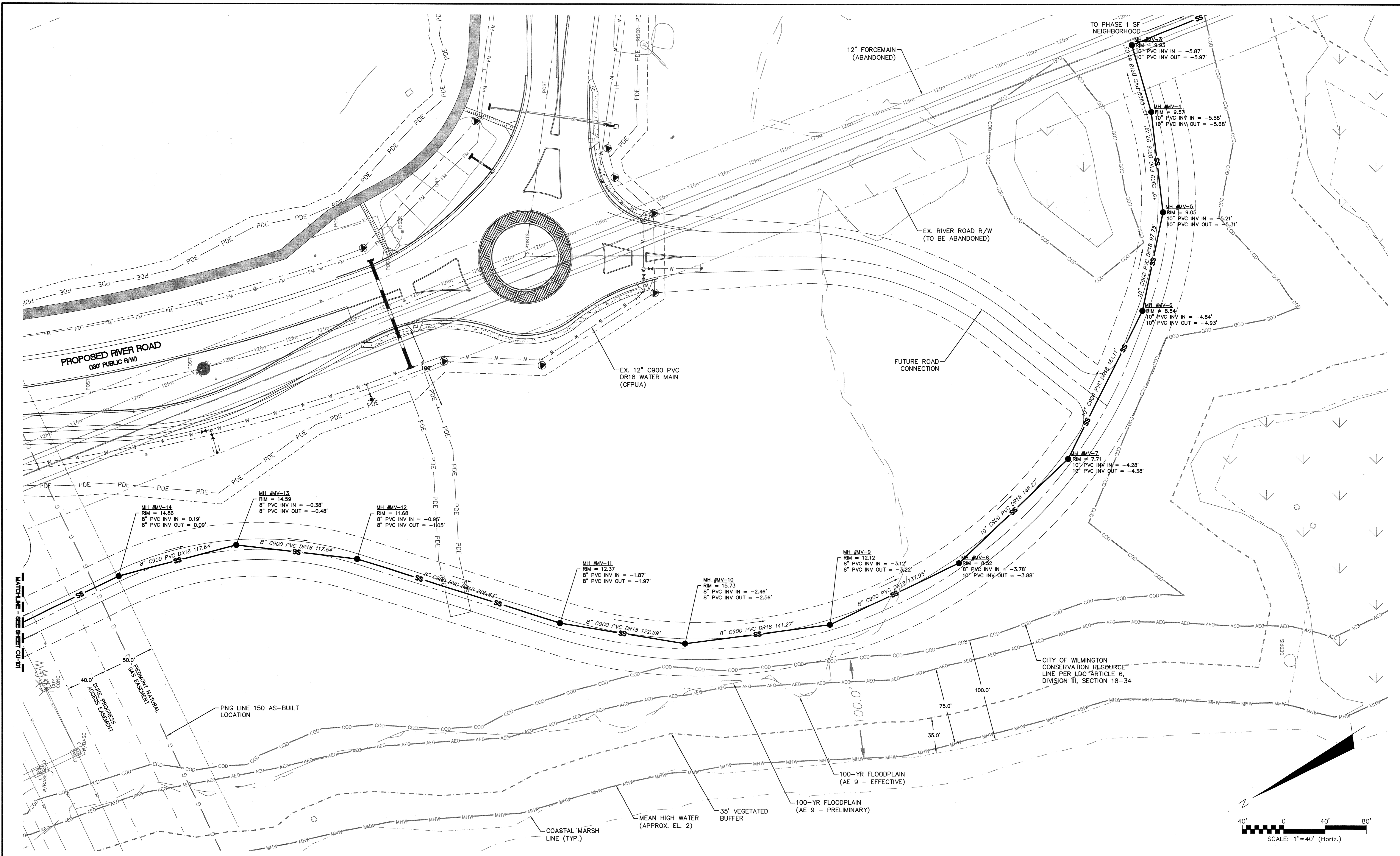
MCKIM & CREED
 243 North Front Street
 Wilmington, North Carolina 28401
 Phone: (910)343-1048, Fax: (910)251-8282
 License: F-1222
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RIVERLIGHTS
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RIVERLIGHTS MARINA VILLAGE
UTILITY PLAN

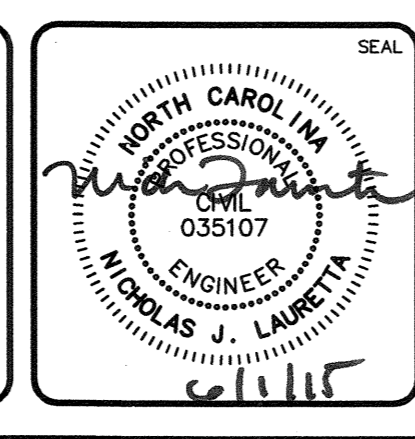
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CHECKED: RMC	PROJ. MGR.: NJL	REVISION: 14 OF 28
STATUS: FINAL DESIGN		REVISION: D
NOT FOR CONSTRUCTION		

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REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/28/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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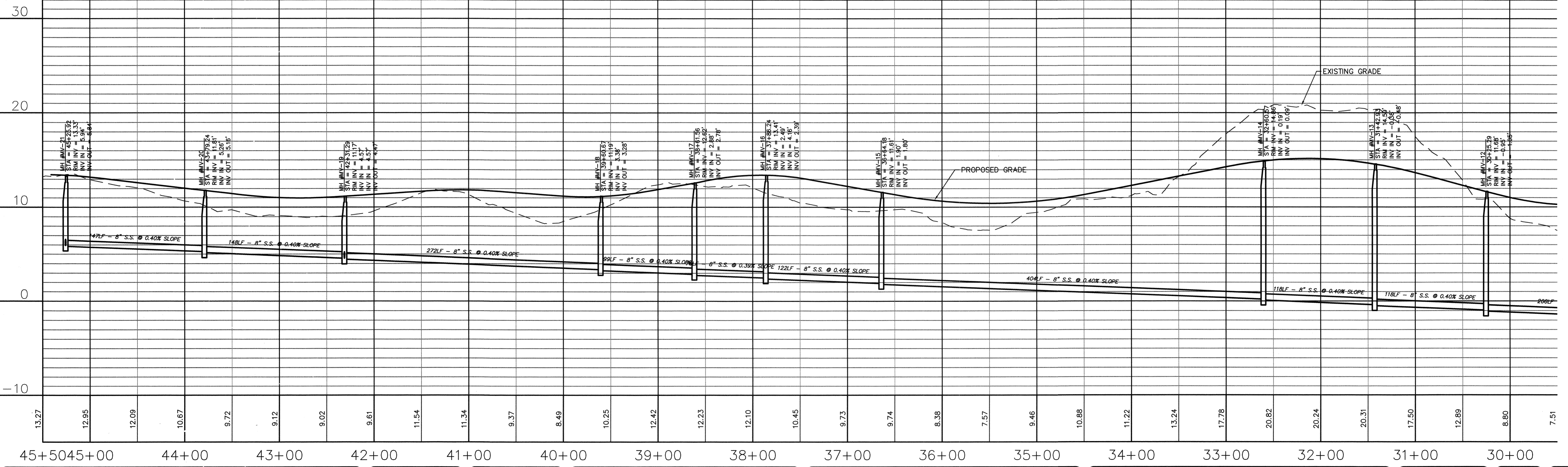
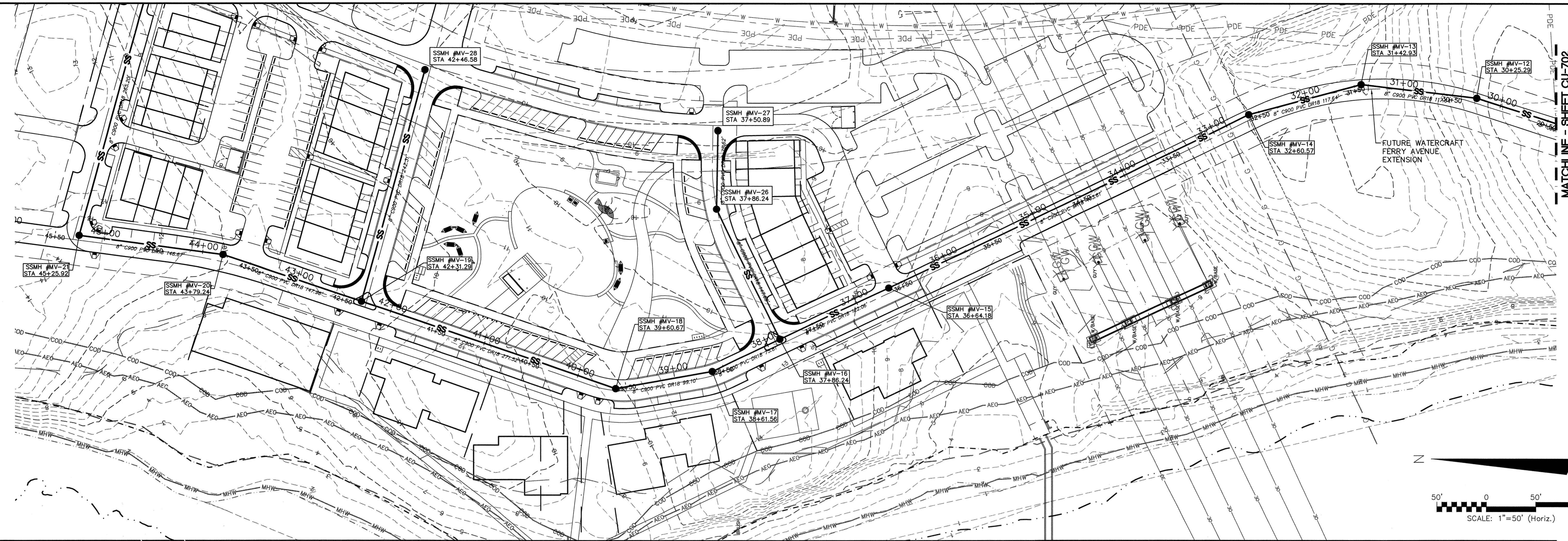
RIVERLIGHTS MARINA VILLAGE
MARINA VILLAGE SANITARY SEWER
OUTFALL UTILITY PLAN

DATE: 08APR15
 MCE PROJ. #: 2735-0124
 DRAWN: EEM
 DESIGNED: EEM
 CHECKED: RMC
 PROJ. MGR.: NJL

SCALE: 1"=50'
 HORIZONTAL: 1"=50'
 VERTICAL: --

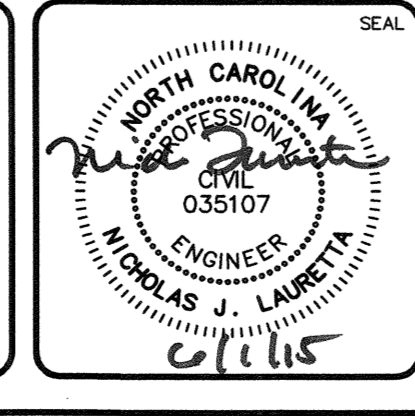
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 DRAWING NUMBER: 15
 REVISION: 15 OF 28

STATUS: FINAL DESIGN
 NOT FOR CONSTRUCTION
 REVISION: D



REV.	DESCRIPTION	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/28/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/28/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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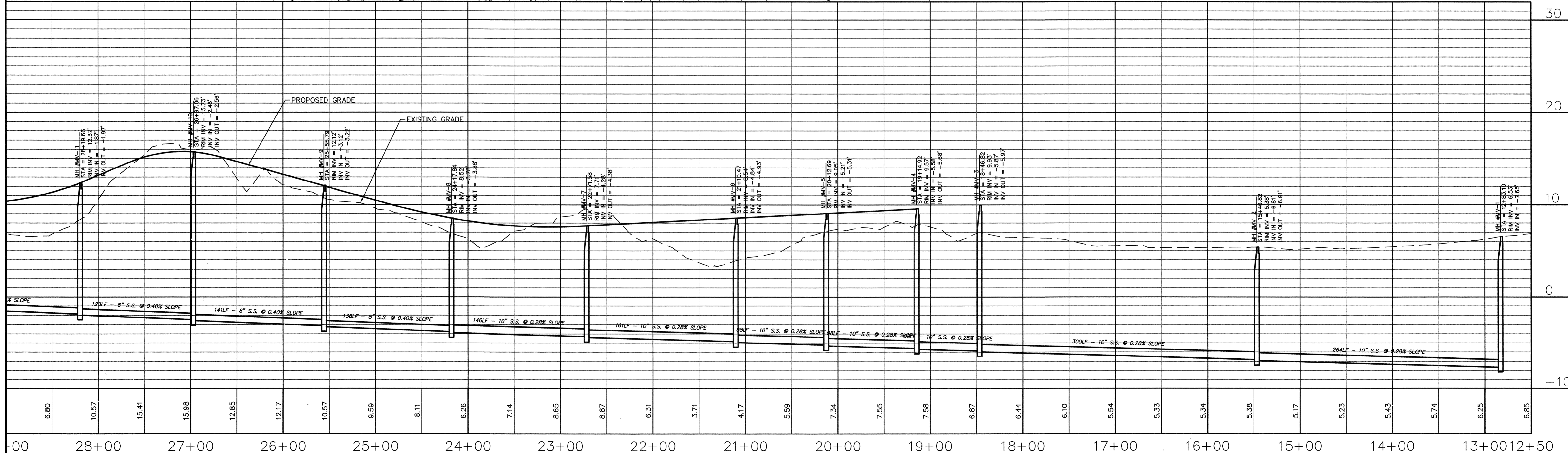
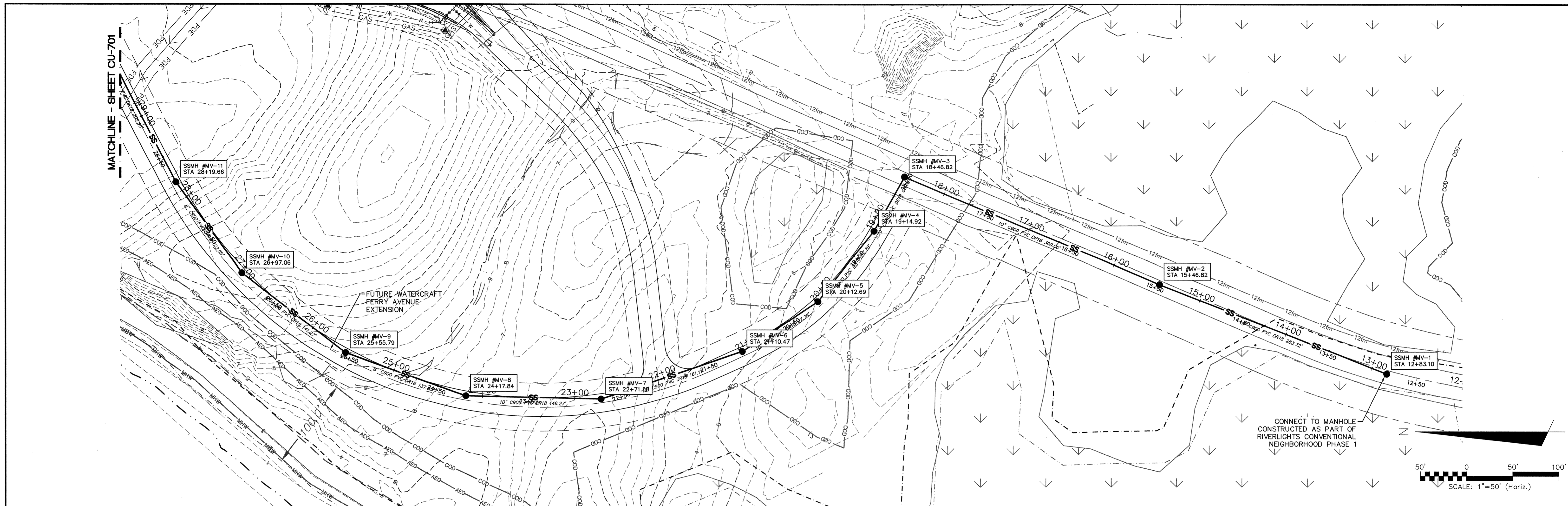
RIVERLIGHTS
by Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
MARINA VILLAGE SANITARY SEWER
OUTFALL PLAN & PROFILE

DATE: 08APR15
MCE PROJ. #: 2735-0124
DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR. NJL

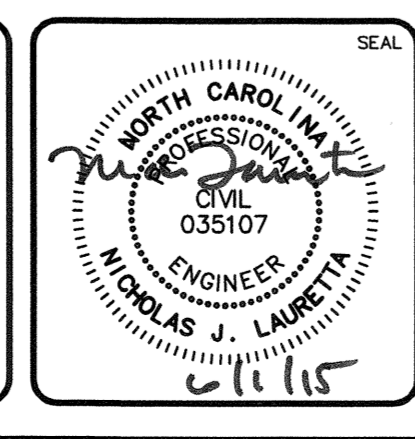
SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=10'

MAC FILE NUMBER: CU-701
DRAWING NUMBER: 16
REVISION: 16 OF 28
STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION



REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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RIVERLIGHTS
by Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE

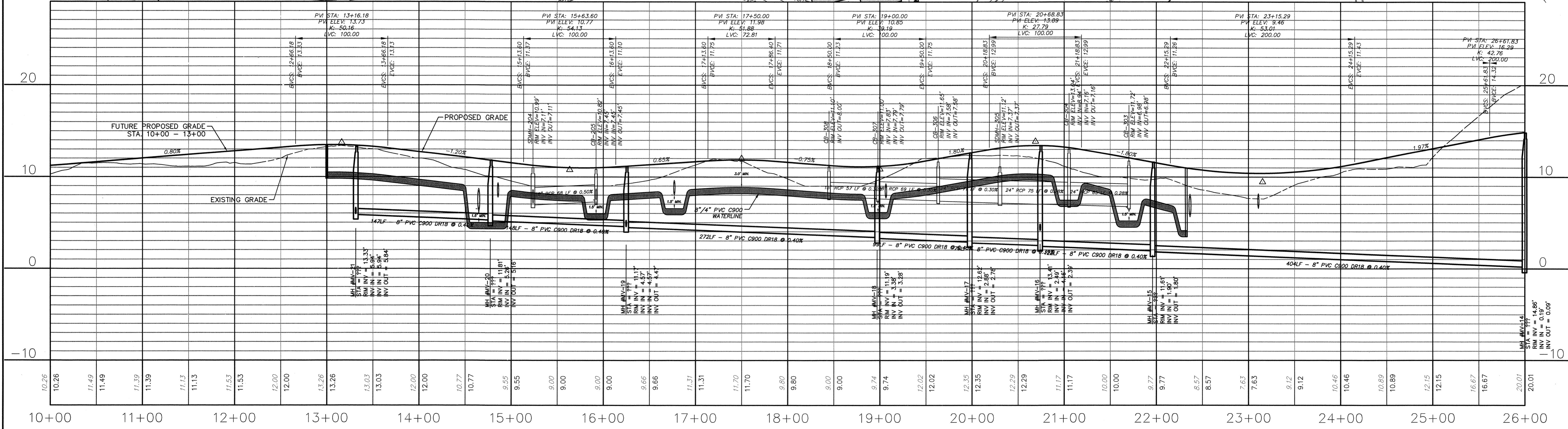
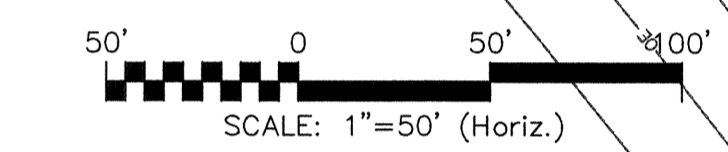
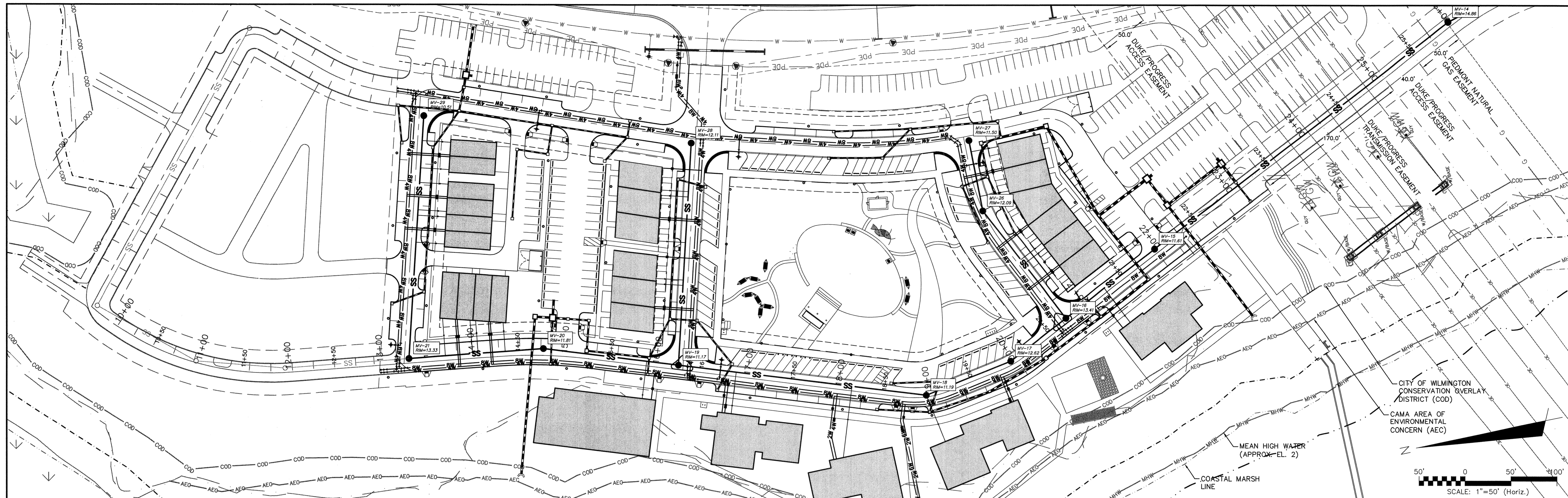
MARINA VILLAGE SANITARY SEWER
OUTFALL PLAN & PROFILE

DATE: 08APR15
MCE PROJ. # 2735-0124
DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR.: NJL

SCALE: HORIZONTAL: -- VERTICAL: --

MAC FILE NUMBER: CU-702
DRAWING NUMBER: 17
REVISION: 17 OF 28
STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION
REVISION: D

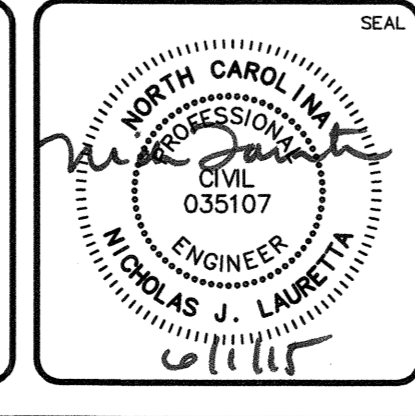
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WATERCRAFT FERRY AVENUE
SCALE: HOR. 1"=50', VERT. 1"=5'

REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HAMPSHIRE COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/28/2015

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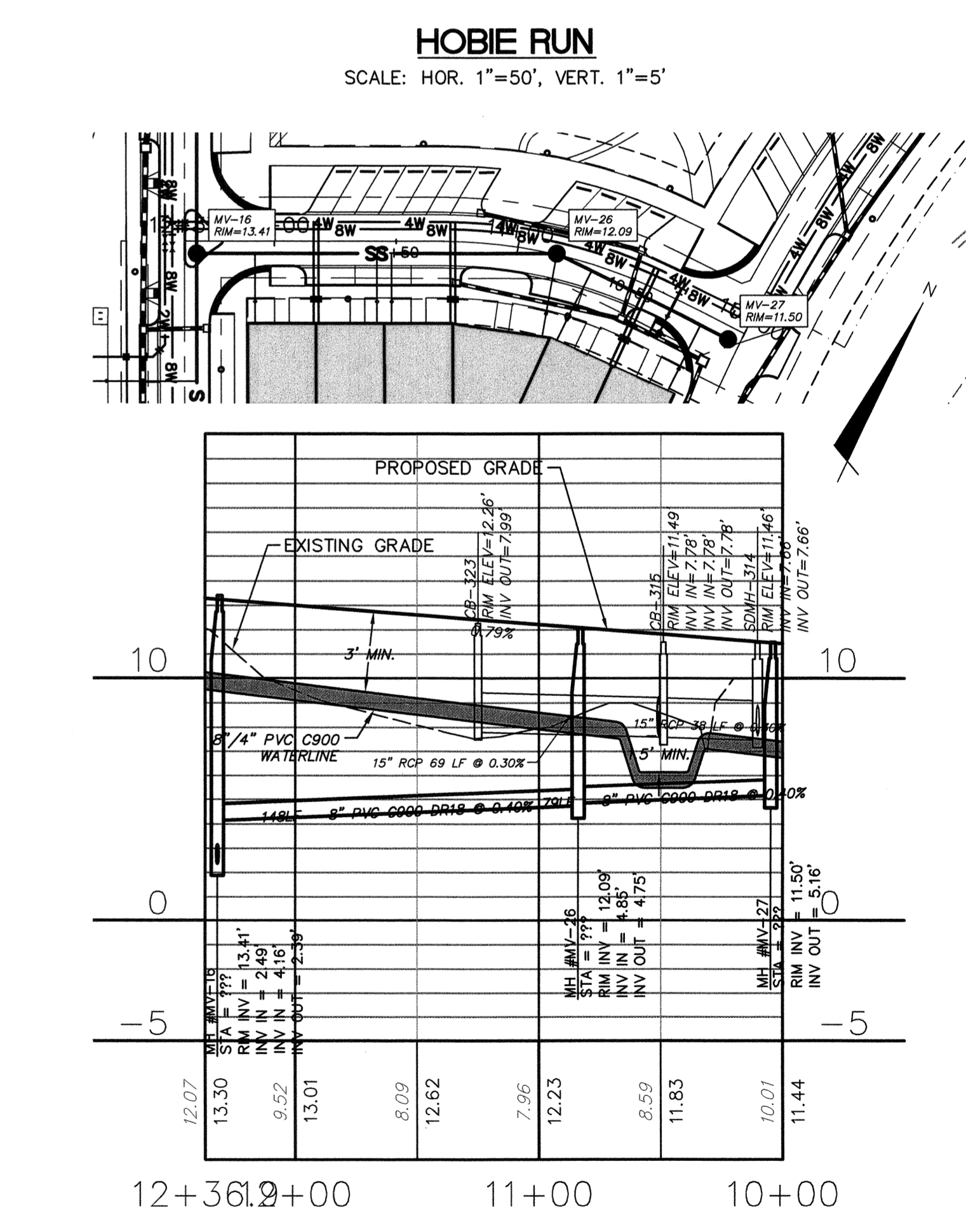
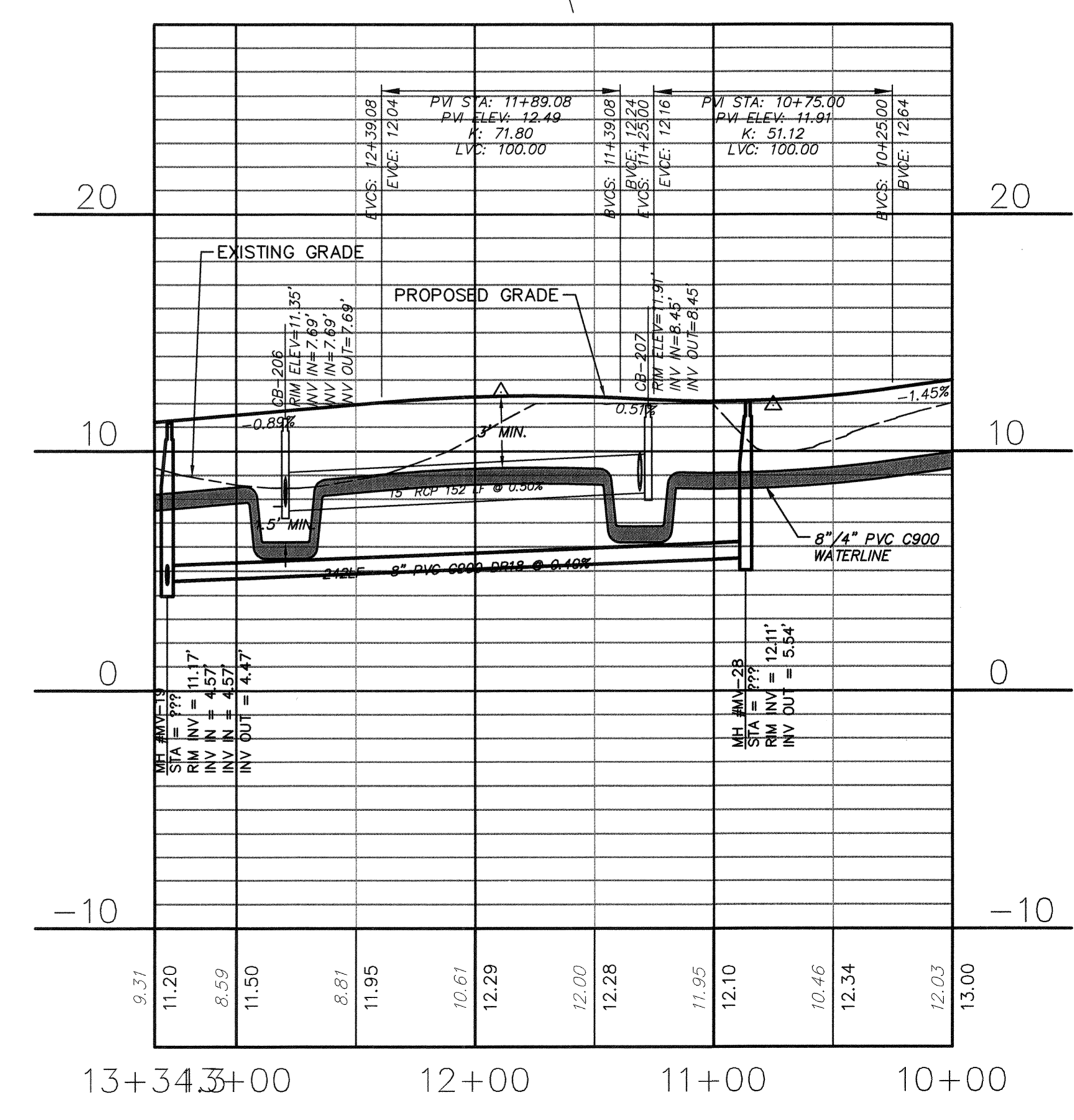
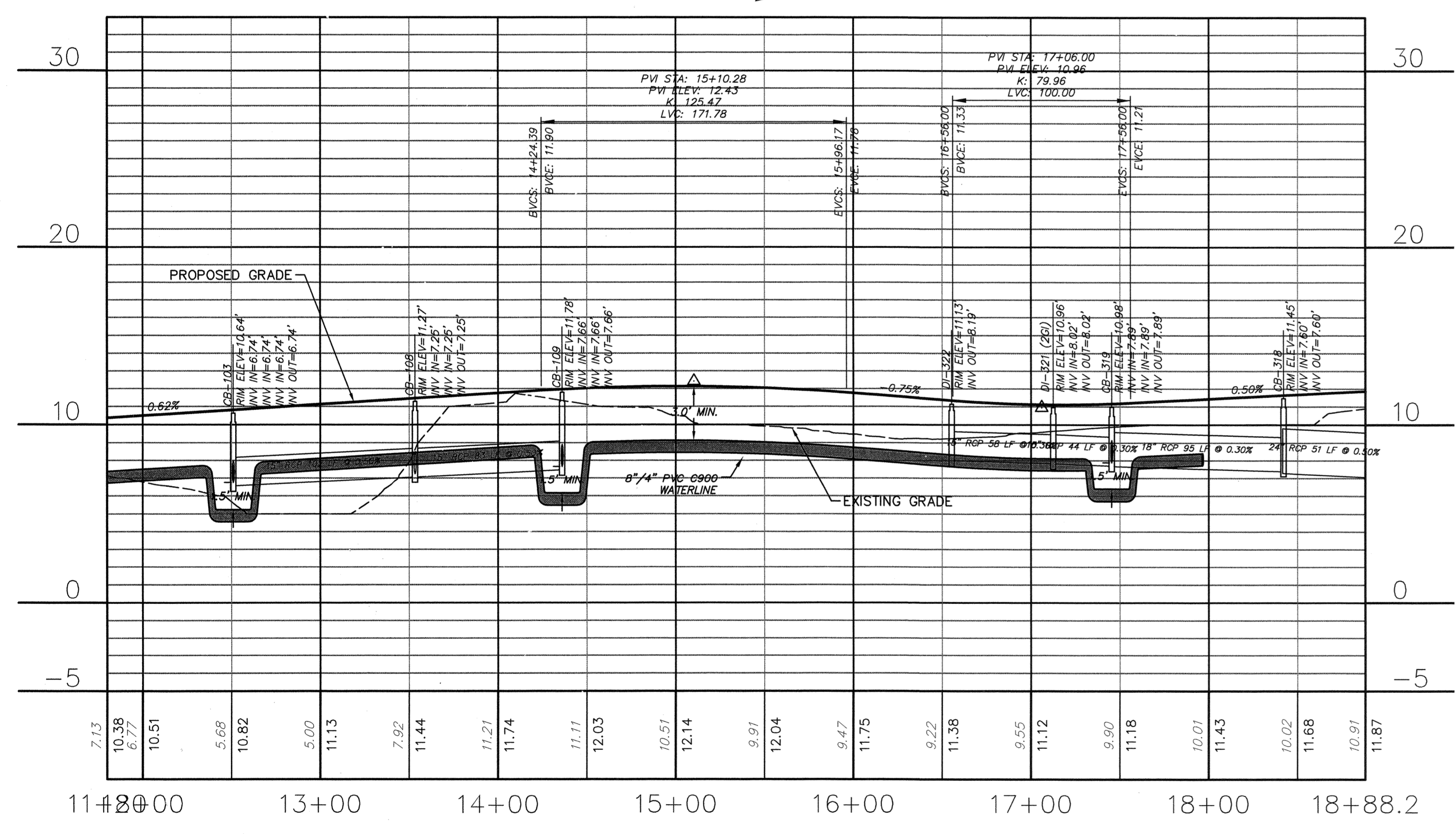
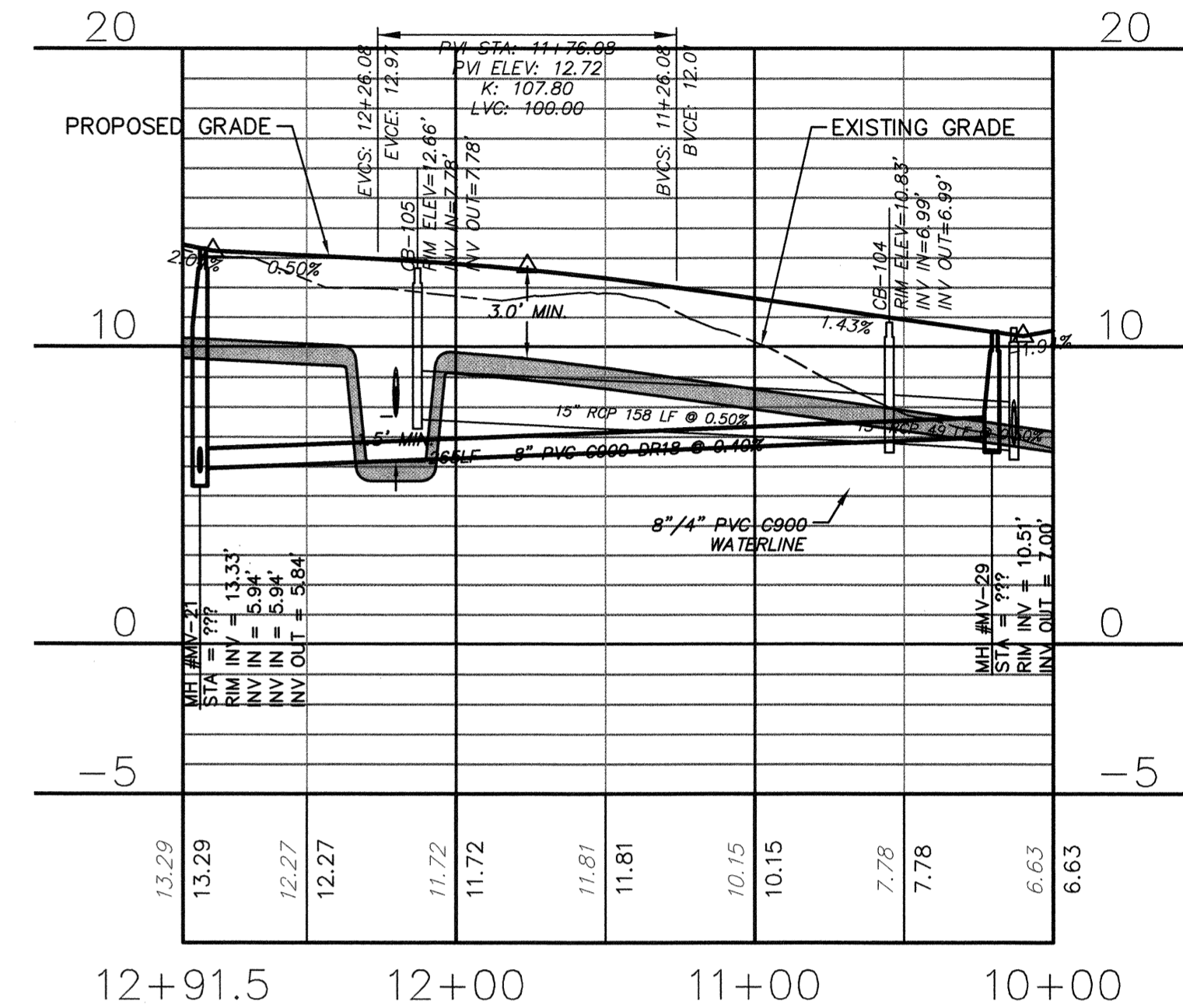
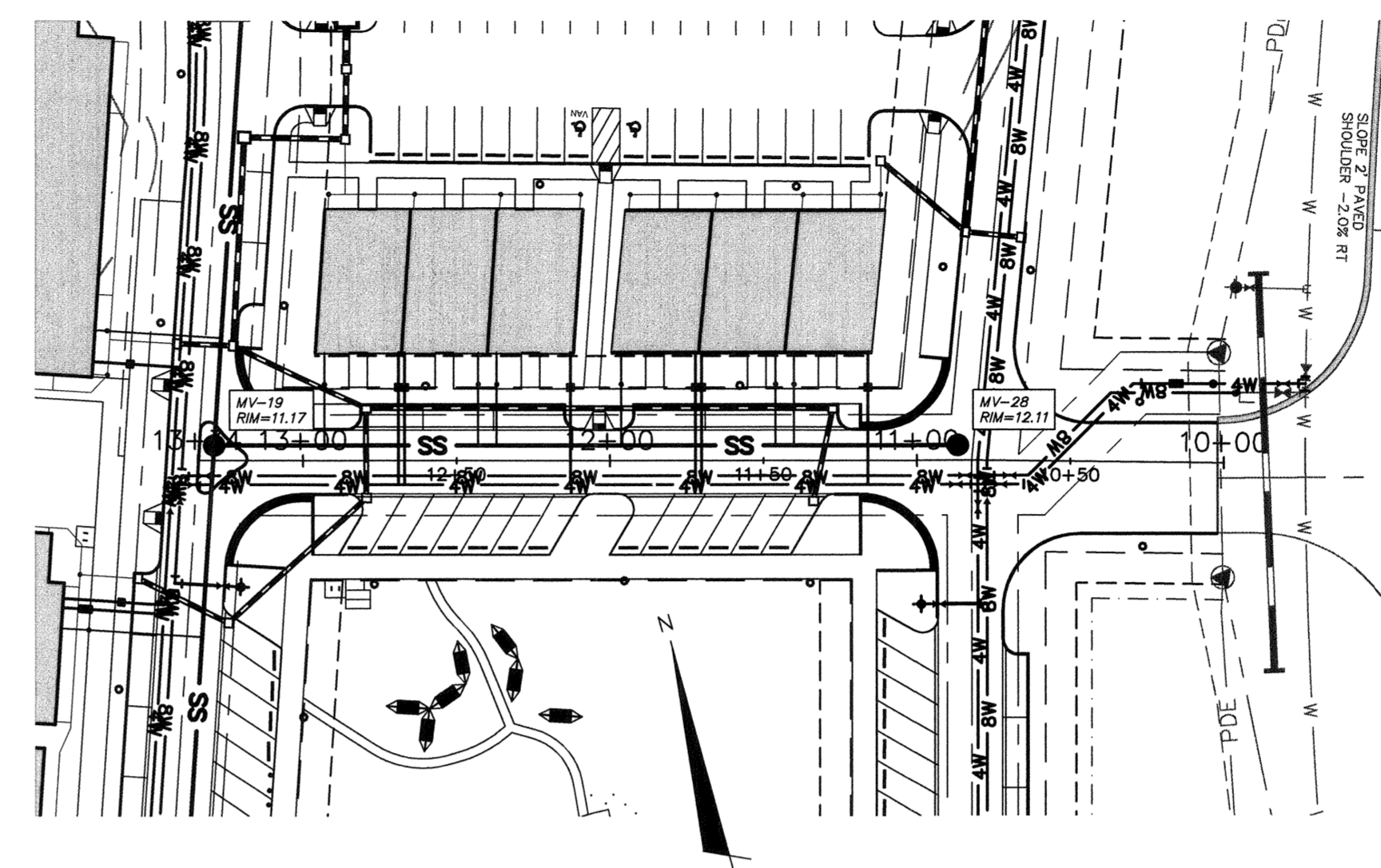
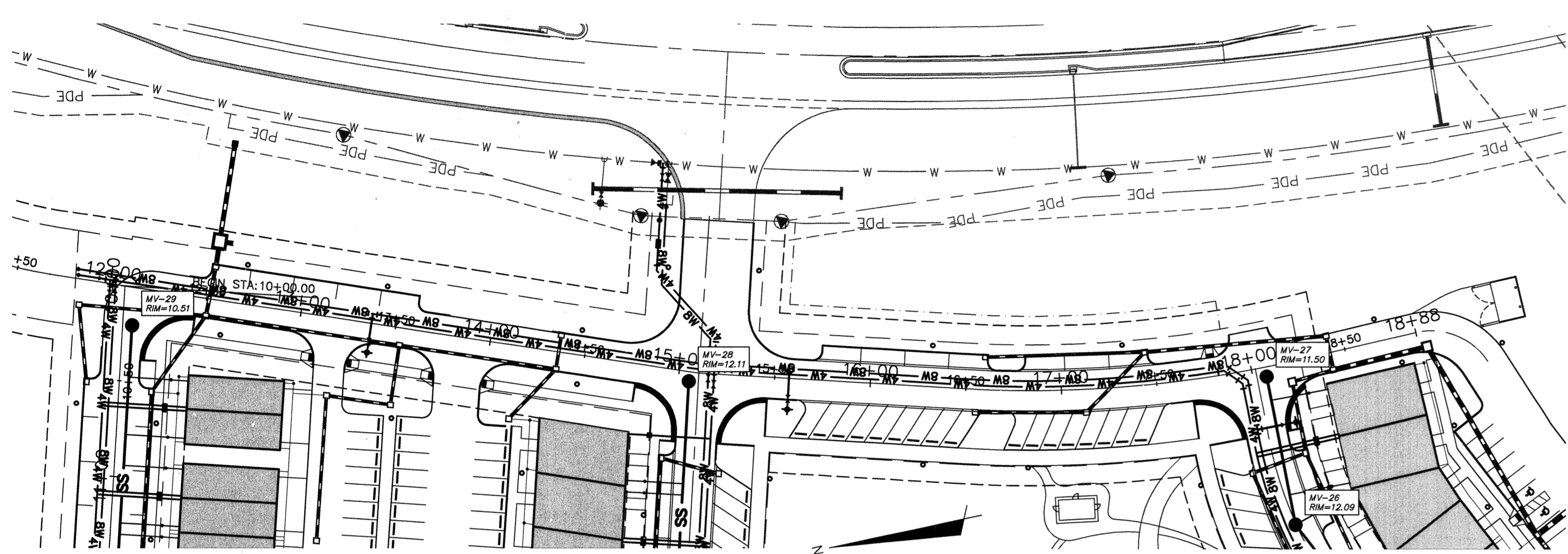
RIVERLIGHTS
by
Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE

UTILITY PLAN & PROFILE

DATE: 08APR15	SCALE: HORIZONTAL: 1"=50'	MAC FILE NUMBER: CU-703
MCE PROJ. # 2735-0124	DESIGNED: EEM	DRAWING NUMBER: 18
CHECKED: RJC	PROJ. MGR. N.J.	REVISION: 18 OF 28
STATUS: FINAL DESIGN		REVISION: D
NOT FOR CONSTRUCTION		

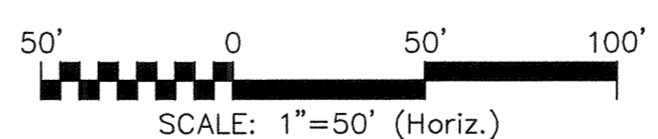
S:\27350124 Marina Village\06 Drawings\CU703-027350124.dwg, 6/1/2015 8:53:06 AM, nlsuretta



VILLAGE GREEN DRIVE
SCALE: HOR. 1"=50', VERT. 1"=5'

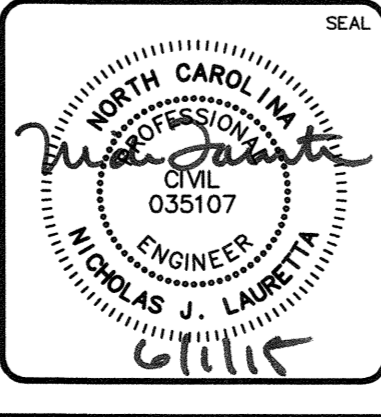
PIER MASTER POINT
SCALE: HOR. 1"=50', VERT. 1"=5'

ARCADIAN ROW
SCALE: HOR. 1"=50', VERT. 1"=5'



REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/20/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HANCOCK COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
DO NOT USE FOR
CONSTRUCTION



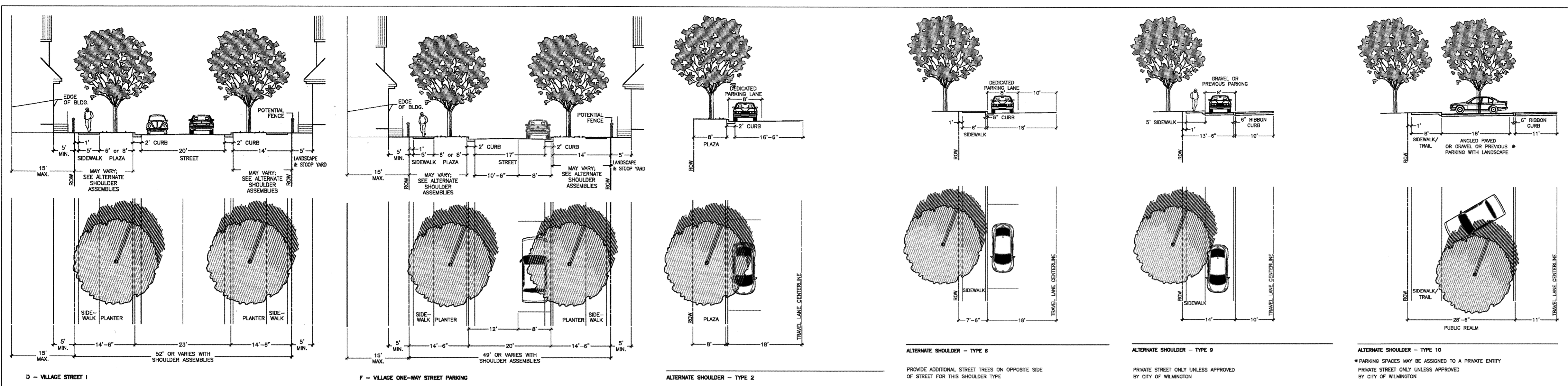
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Wilmington, North Carolina 28401
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License: F-1222
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RIVERLIGHTS
by
Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE

UTILITY PLAN & PROFILE

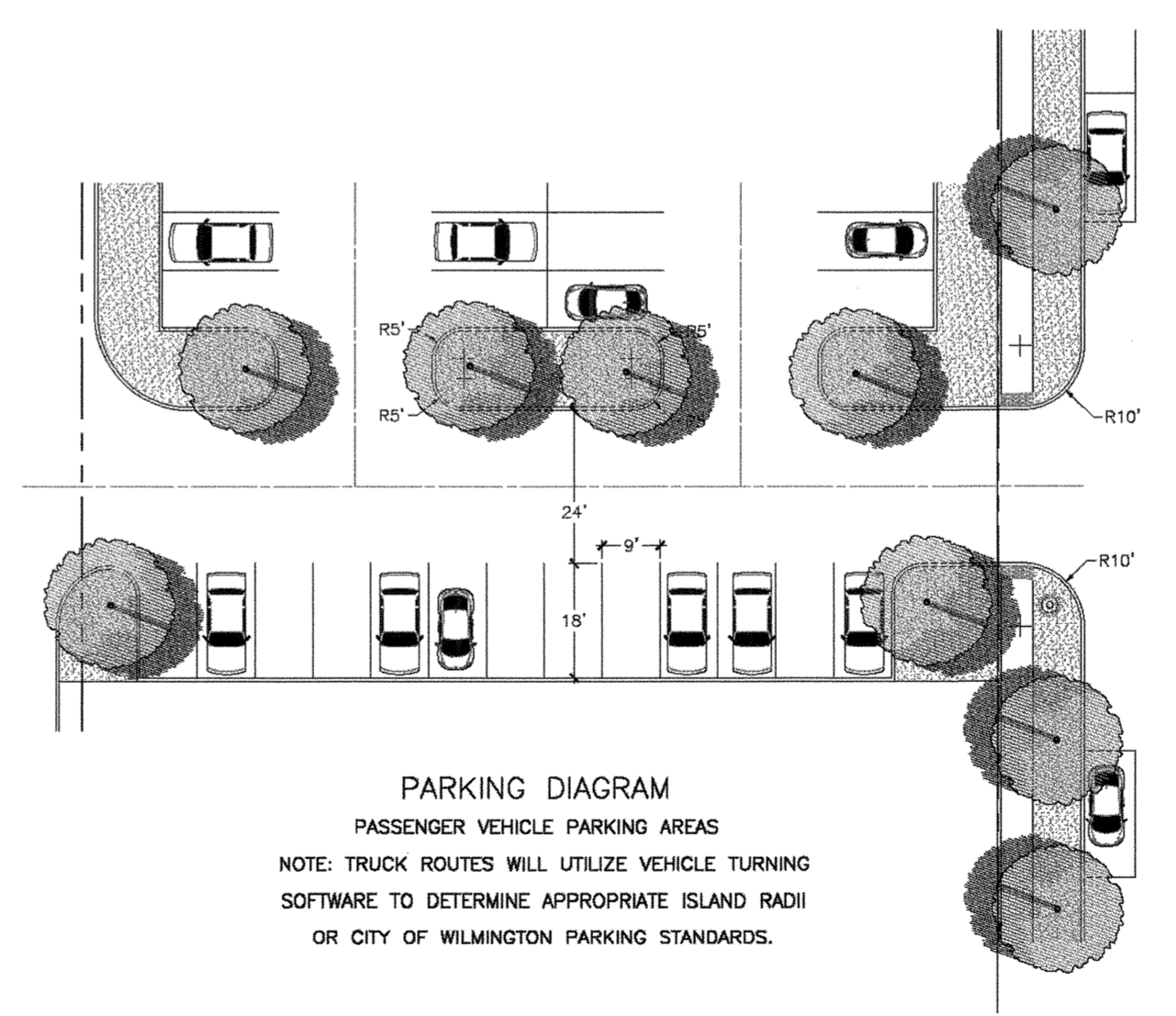
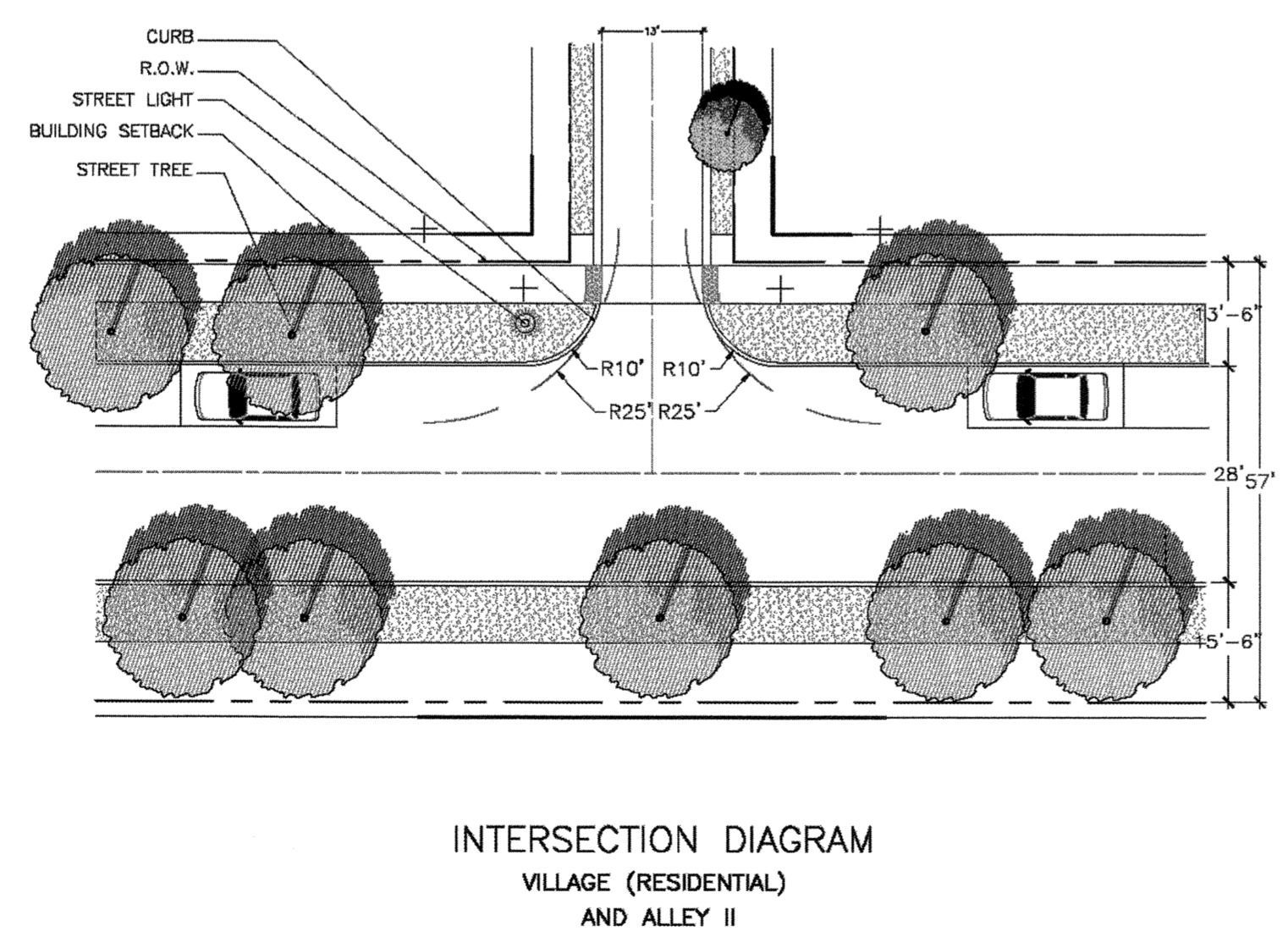
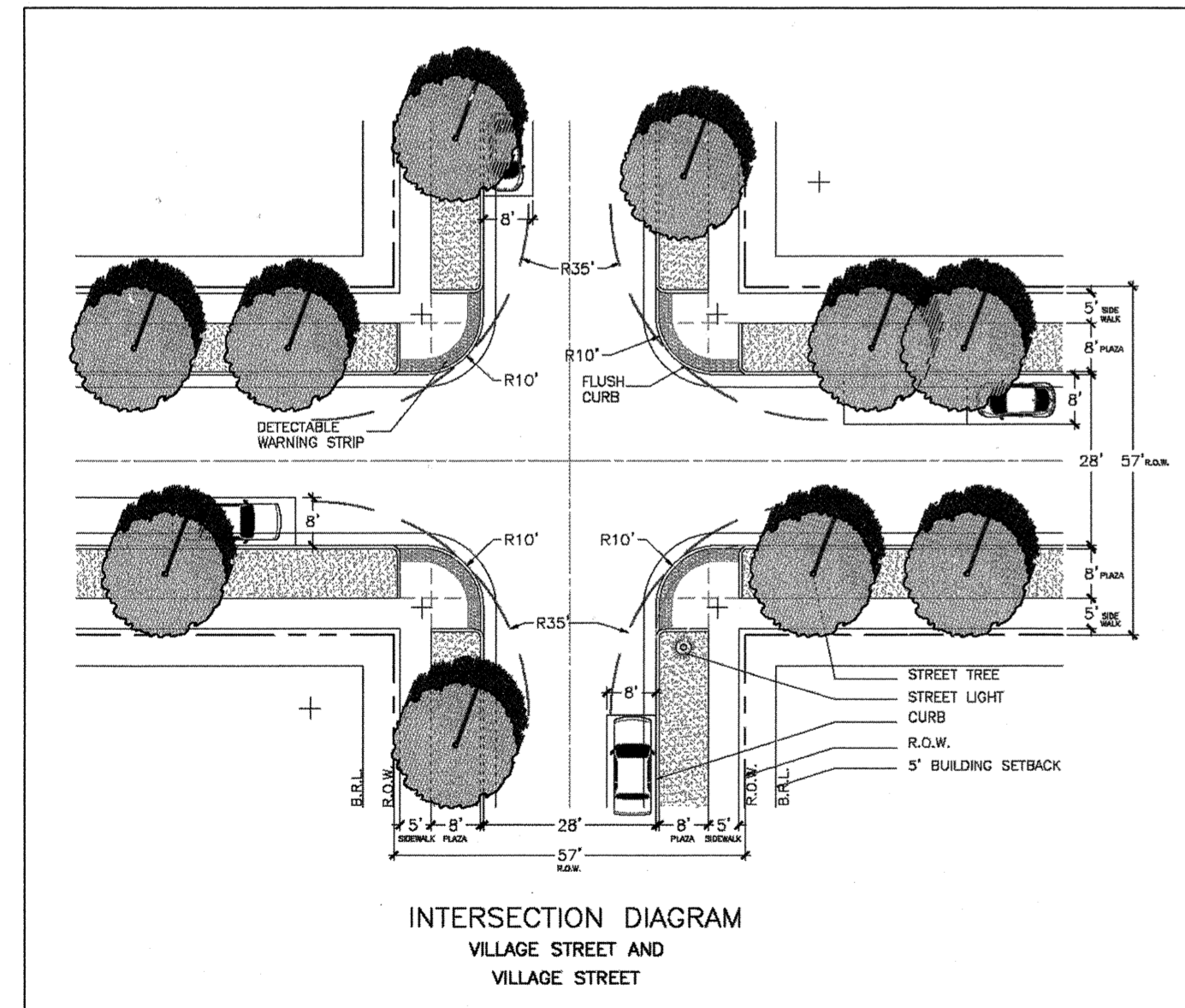
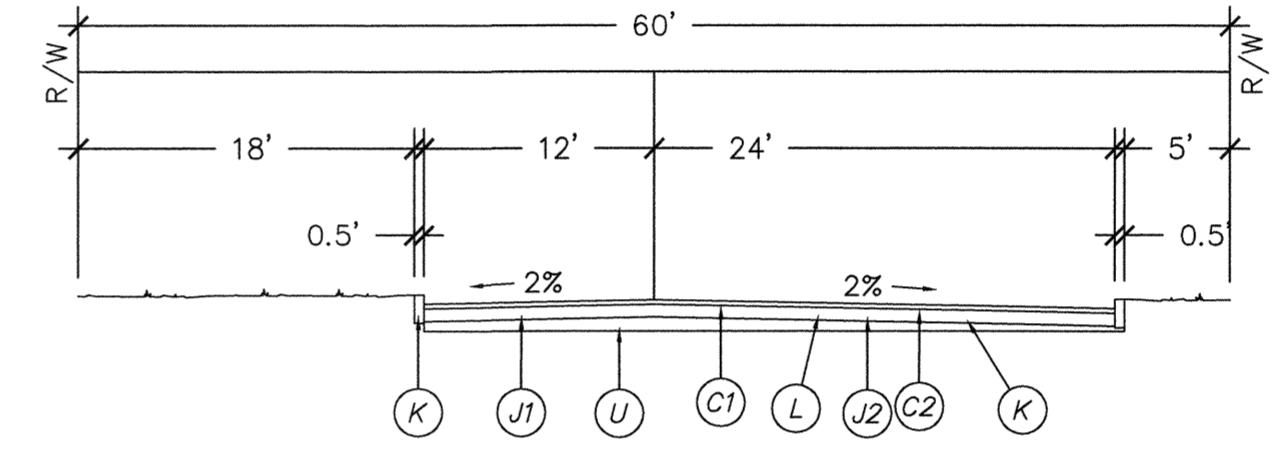
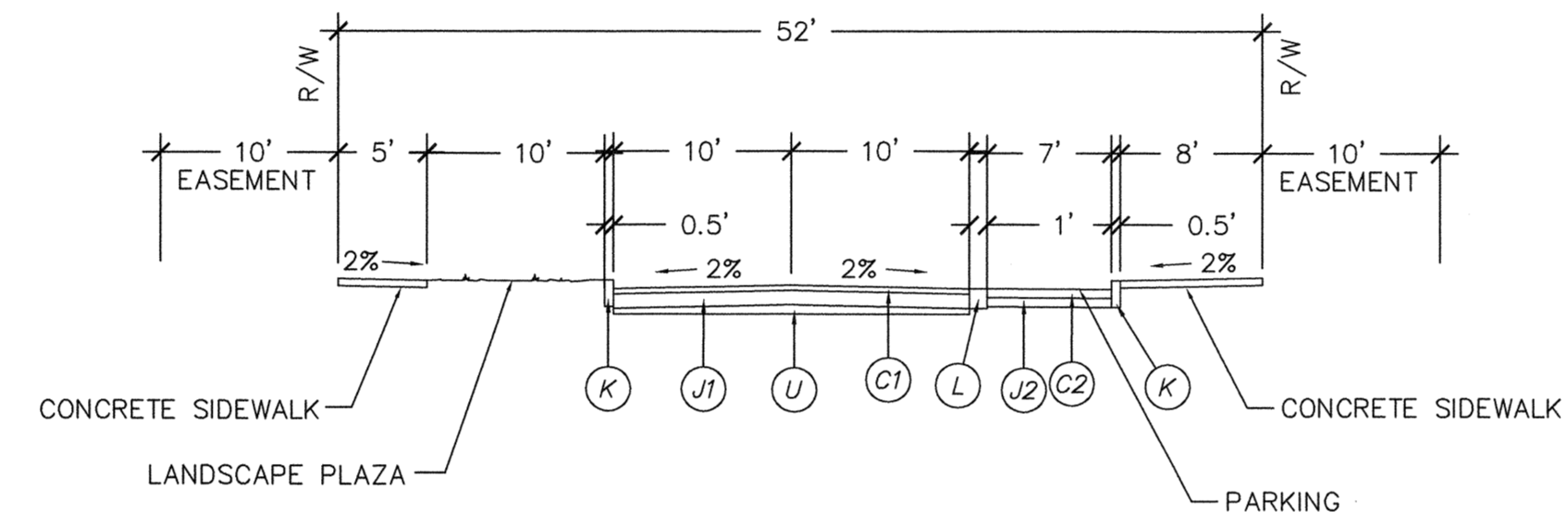
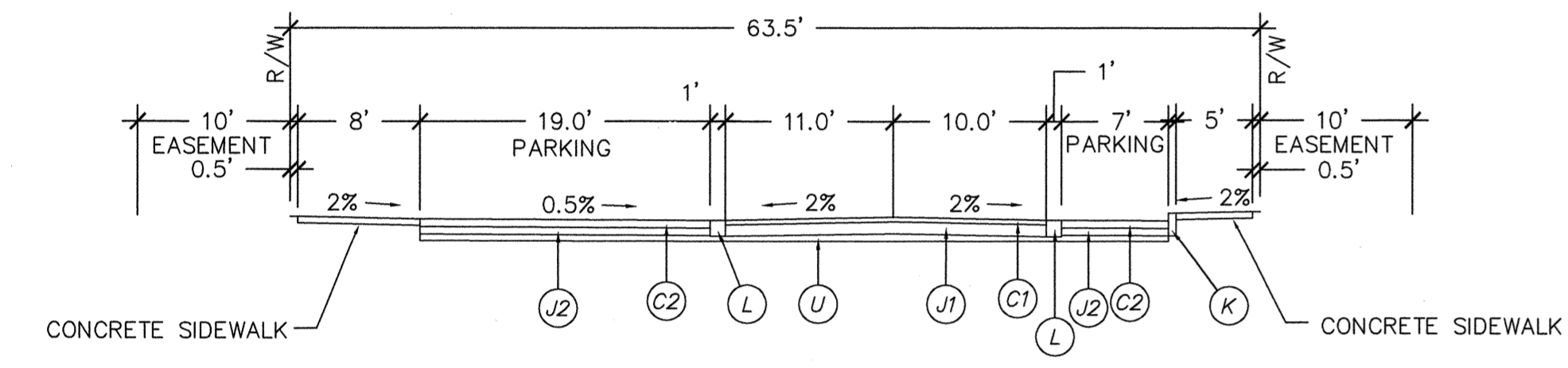
DATE: 08APR15	SCALE: CU-704
MCE PROJ. # 2735-0124	HORIZONTAL: -
DRAWN: EEM	VERTICAL: -
DESIGNED: EEM	REVISION: 19
CHECKED: RMC	19 OF 28
PROJ. MGR. NJL	D
STATUS: FINAL DESIGN	
NOT FOR CONSTRUCTION	



PAVEMENT SCHEDULE	
C1	3" ASPHALT CONCRETE SURFACE COARSE, TYPE S9.5B AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	6" PERVIOUS CONCRETE (1000 PSI = 28 DAY COMPRESSIVE STRENGTH OF FIELD CORES)
J1	8.0" COMPACTED ABC STONE BASE COURSE
J2	6.0" COMPACTED ABC STONE BASE COURSE
K	6.0" HEADER CURB
L	12.0" RIBBON CURB
U	COMPACTED SUBGRADE

* SEE SHEET CS-501 (14) FOR ADDITIONAL DETAILS AND SECTIONS FOR CURBING, PAVEMENT, STONE, AND SUBGRADE.

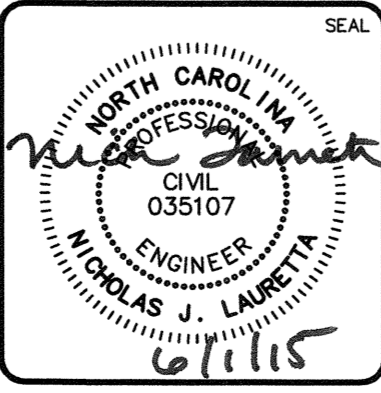
ILLUSTRATIVE STREET SECTIONS FROM DEVELOPMENT AGREEMENT



ILLUSTRATIVE INTERSECTION DIAGRAMS FROM DEVELOPMENT AGREEMENT

REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/28/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HAMPSHIRE COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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RIVERLIGHTS
 by
 Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
ROADWAY SECTIONS

DATE: 08APR15
 MCE PROJ. # 2735-0124
 DRAWN: EEM
 DESIGNED: EEM
 CHECKED: RMC
 PROJ. MGR. N.J.L.

SCALE: HORIZONTAL: --- VERTICAL: ---

MAC FILE NUMBER: CT-301
 DRAWING NUMBER: 20
 20 OF 28

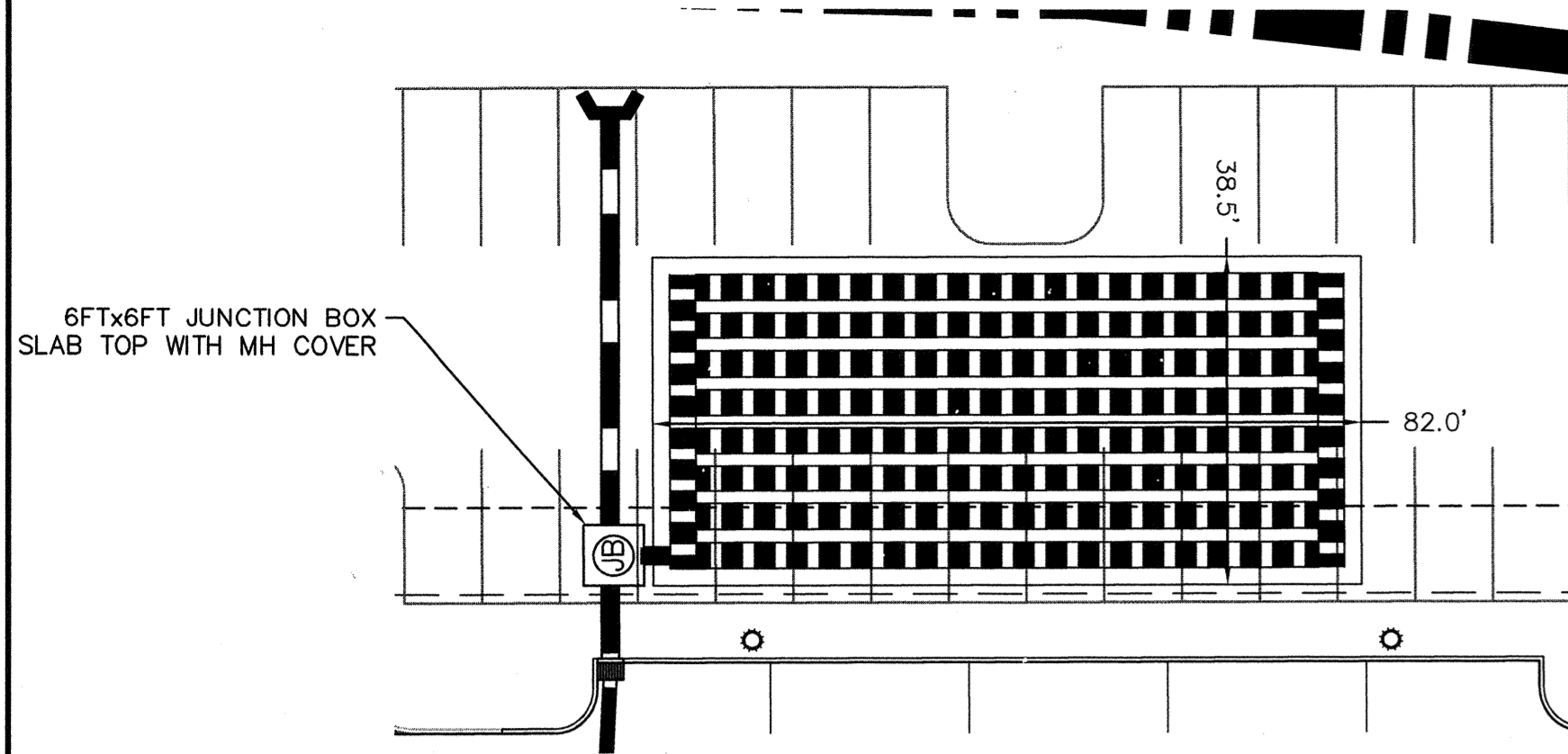
STATUS: FINAL DESIGN
 NOT FOR CONSTRUCTION

REVISION: D

INFILTRATION GALLERY 1

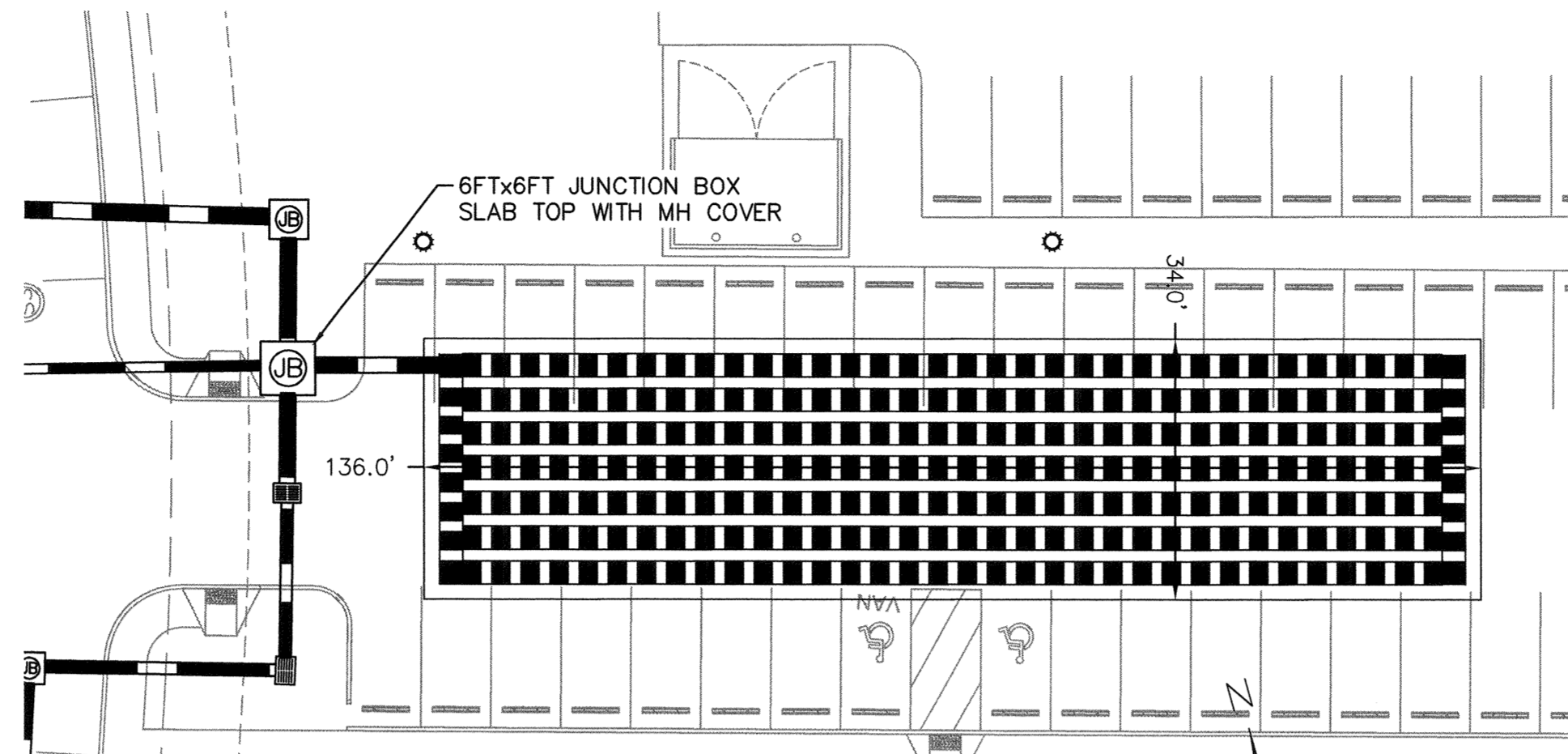
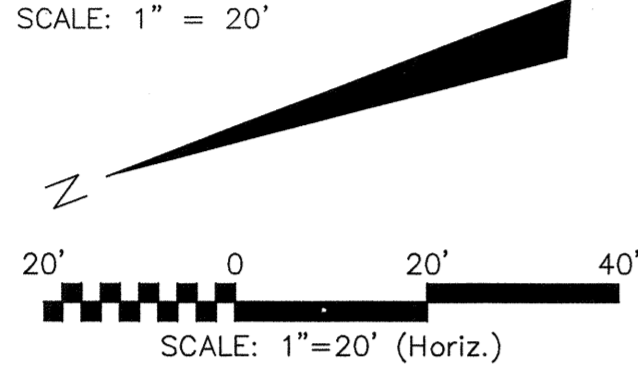
INFILTRATION GALLERY 2

INFILTRATION GALLERY 3



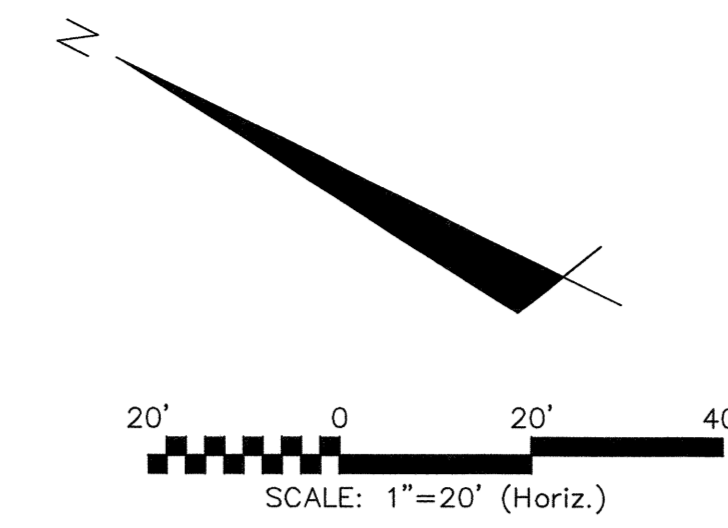
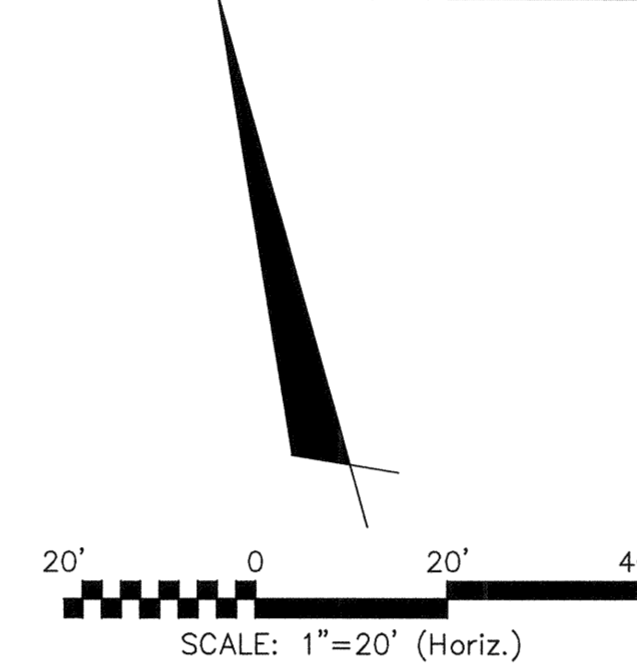
INFILTRATION GALLERY 1
DA= 2.02 AC
STORAGE REQD.= 5,184 CF
STORAGE PROV.= 7,698 CF

PLAN VIEW
SCALE: 1" = 20'

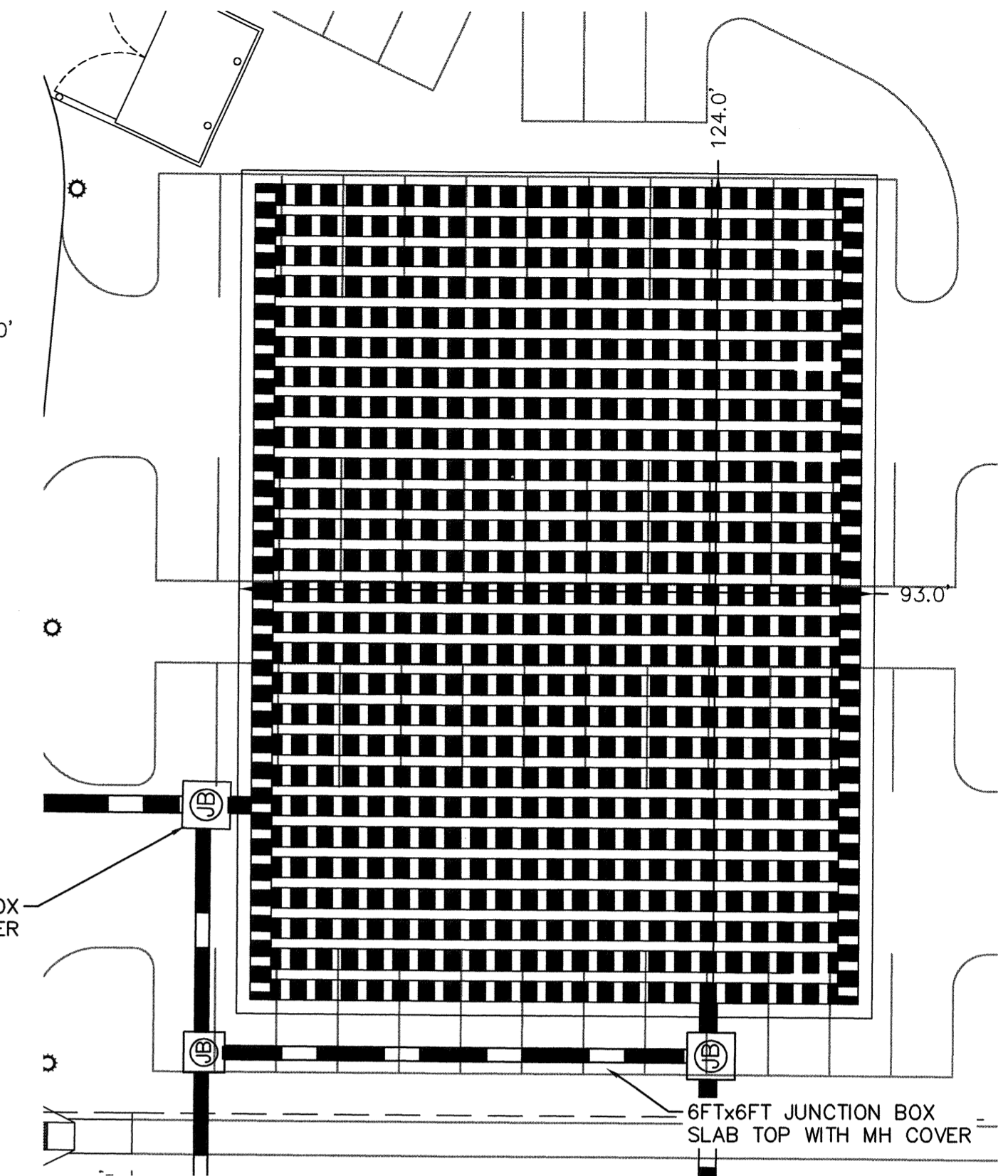


INFILTRATION GALLERY 2
DA= 2.35 AC
STORAGE REQD.= 4,841 CF
STORAGE PROV.= 11,317 CF

PLAN VIEW
SCALE: 1" = 20'



INFILTRATION GALLERY 3
DA= 7.51 AC
STORAGE REQD.= 11,263 CF
STORAGE PROV.= 28,643 CF

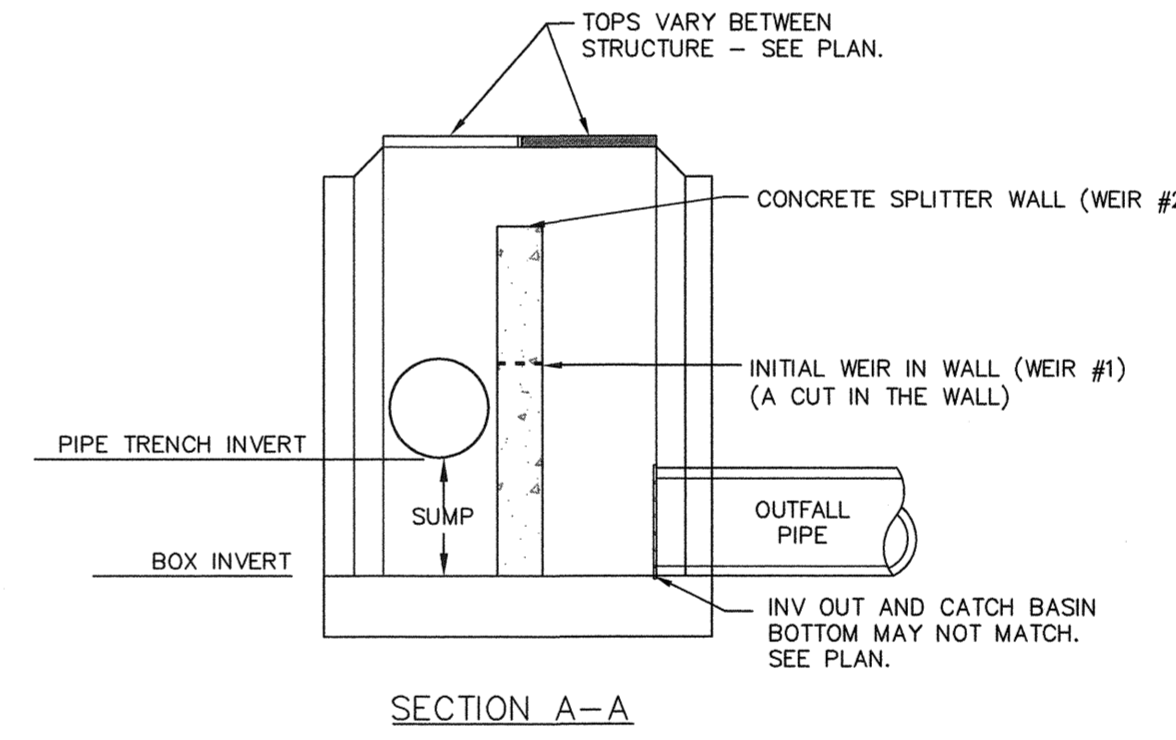
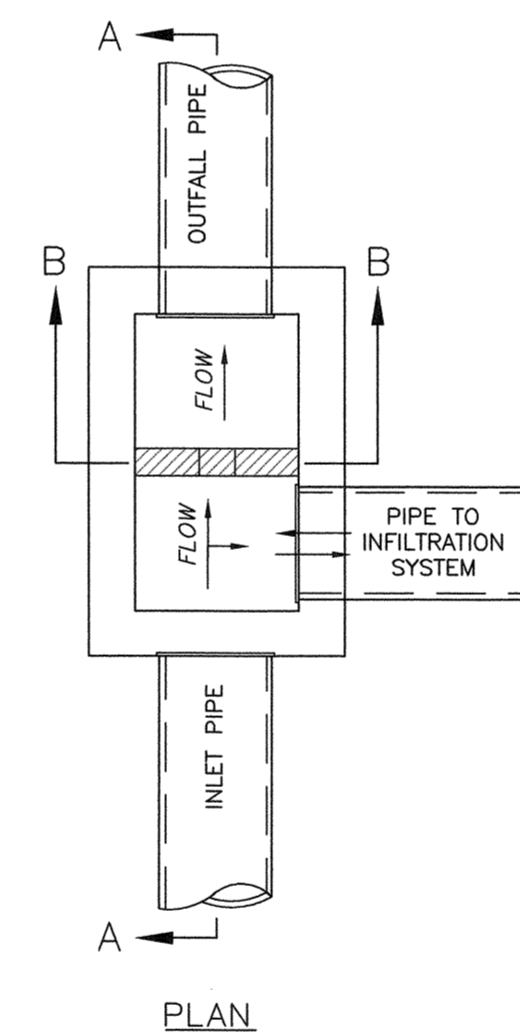


PLAN VIEW
SCALE: 1" = 20'

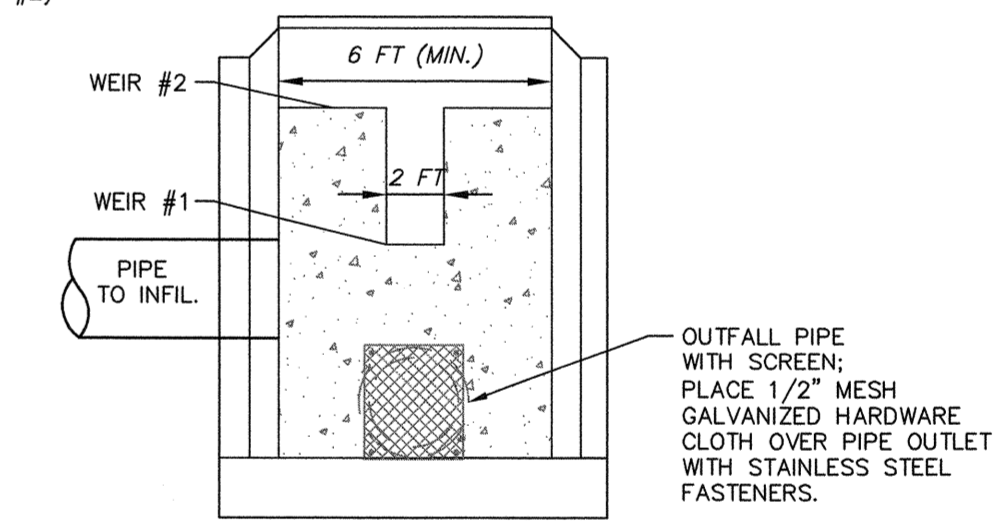
DESIGN	SDMH-101	SDMH-201	SDMH-301
RIM ELEVATION	12.00'	11.84'	12.00'
WEIR #2 ELEVATION	10.00'	10.00'	10.00'
WEIR #1 ELEVATION	9.50'	9.50'	9.50'
SUMP ELEVATION	6.54'	6.68'	6.54'
OUTFALL PIPE INVERT	6.54'	6.68'	6.58'

DESIGN	INFILTRATION GALLERY 1	INFILTRATION GALLERY 2	INFILTRATION GALLERY 3
# OF RUNS	8	7	27
LENGTH PER RUN	72'	126'	83'
PIPE DIAMETER (IN)	36" CMP	36" CMP	36" CMP
MIN. X (IN)	2'	2'	2'
MIN. S (IN)	1/2 DIA. OF PIPE	1/2 DIA. OF PIPE	1/2 DIA. OF PIPE
TRENCH WIDTH (FT)	38.5'	34'	124'
TRENCH LENGTH (FT)	82'	136'	93'
SHWT ELEVATION	4.22	4.22'	4.52'
TRENCH BOTTOM ELEVATION	6.50'	6.50'	6.50'
PIPE TRENCH INVERT	7.00'	7.00'	7.00'
TRENCH TOP ELEVATION	10.50'	10.50'	10.50'
10-YR WSEL	10.19'	10.05'	9.85'
25-YR WSEL	10.37'	10.46'	10.50'
50-YR WSEL	10.50'	10.50'	10.50'
100-YR WSEL	10.50'	10.50'	10.50'

- NOTES:
- SHWT AND HIGH RIVER ELEVATIONS TAKEN FROM SITE & SOILS EVALUATION REPORT BY ECS CAROLINAS, LLP DATED FEBRUARY 18, 2015 FOR NEWLAND COMMUNITIES, LLC.
 - EXISTING ELEVATIONS TAKEN FROM COMBINATION OF FIELD MEASUREMENTS AND TOPOGRAPHY SURVEY BY MCKIM & CREED, INC.



SPLITTER OUTLET BOX (TYP.)
NOT TO SCALE



SECTION B-B

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

STORMWATER MANAGEMENT PLAN
APPROVED

CITY OF WILMINGTON
ENGINEERING DEPARTMENT

DATE _____ PERMIT # _____

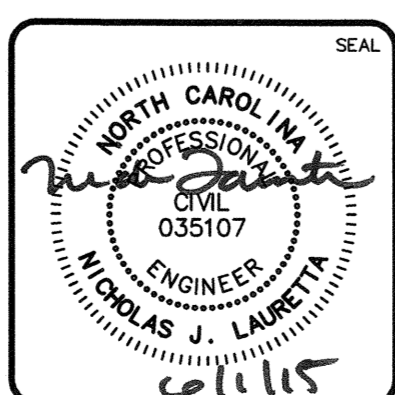
SIGNED _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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RIVERLIGHTS
by Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE

STORMWATER MANAGEMENT DETAILS

DATE: 08APR15
MCE PROJ. #: 2735-0124
DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR.: NJL

SCALE: HORIZONTAL: --- VERTICAL: ---

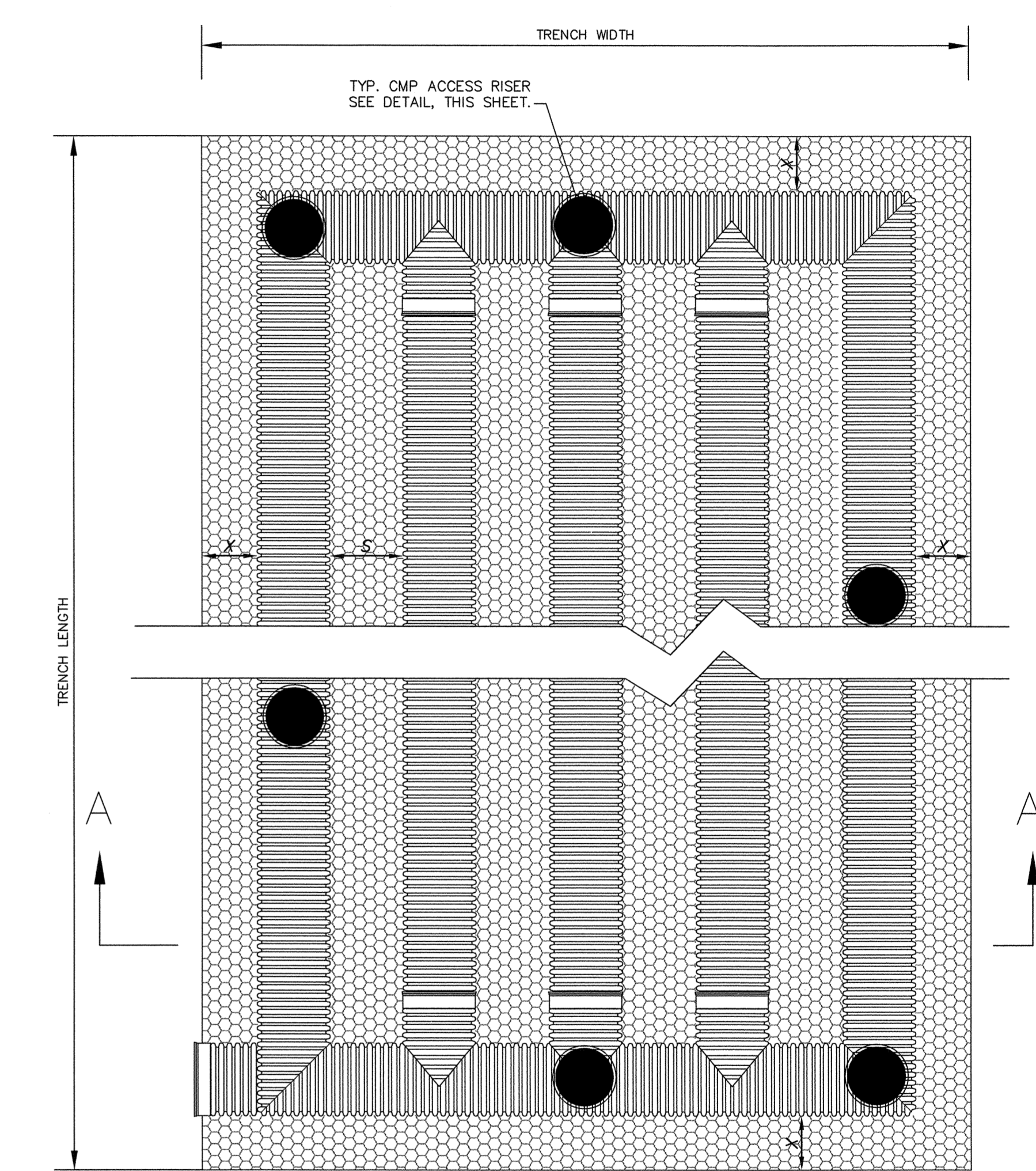
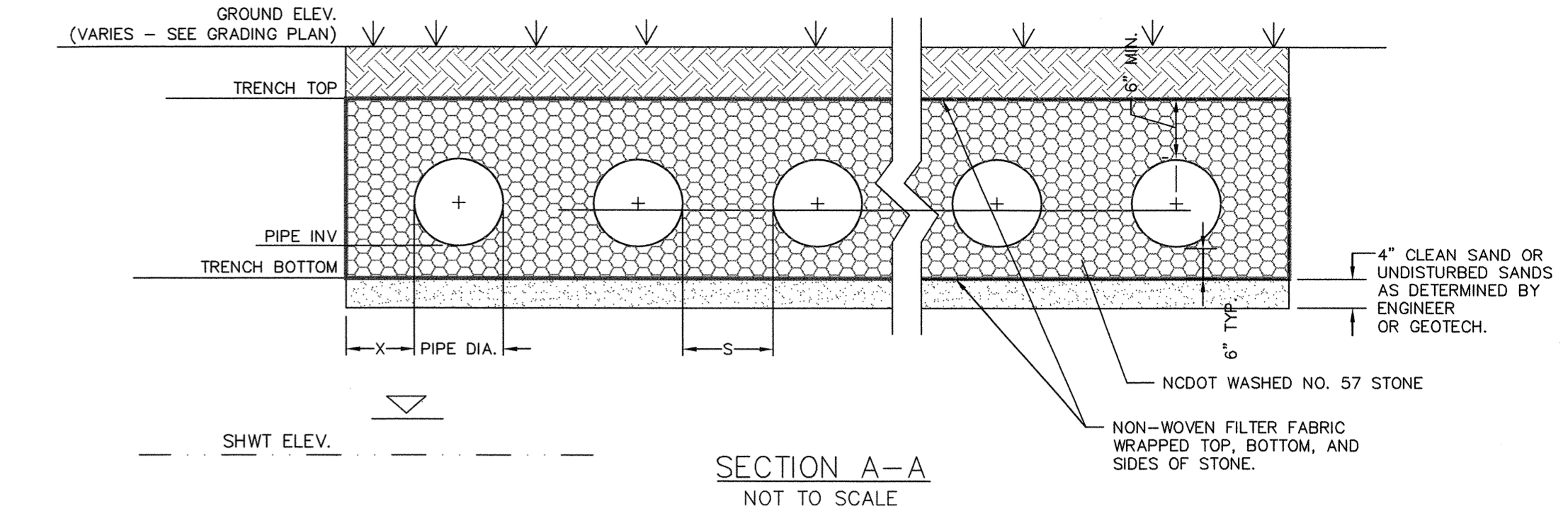
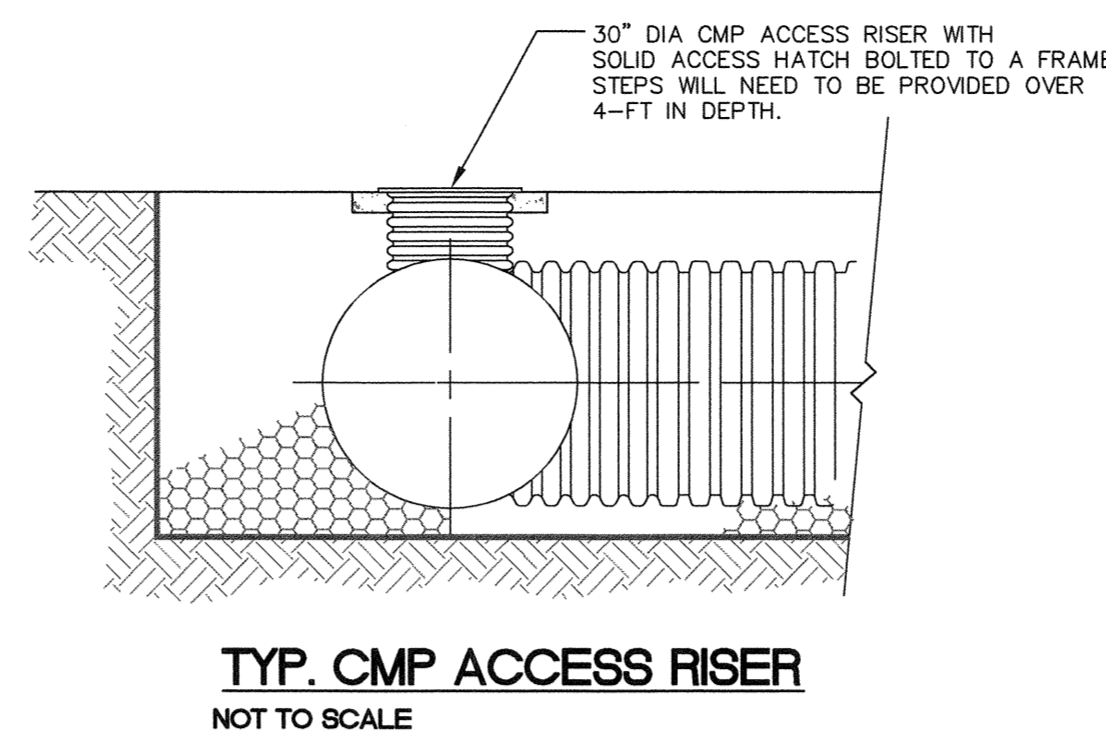
MAC FILE NUMBER: CN-501
DRAWING NUMBER: 21
REVISION: 21 OF 28
STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION

STORM DRAINAGE PIPE DATA TABLE -- STRM -- 11							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
SDMH-101	EW-1	51.60'	24"	RCP	0.50%	7.76'	7.50'
SDMH-101	I-1	7.00'	24"	RCP	0.50%	6.54'	6.50'
DI-114	DI-113	75.85'	15"	RCP	0.50%	7.96'	7.58'
DI-113	DI-112	33.76'	15"	RCP	0.50%	7.58'	7.41'
DI-112	CB-108	31.86'	15"	RCP	0.50%	7.41'	7.25'
DI-111	CB-109	36.01'	15"	RCP	0.50%	7.84'	7.66'
CB-110	CB-109	18.30'	15"	RCP	0.50%	7.75'	7.66'
CB-109	CB-108	82.81'	15"	RCP	0.50%	7.66'	7.25'
CB-108	CB-103	102.32'	15"	RCP	0.50%	7.25'	6.74'
CB-107A	CB-103	66.52'	15"	RCP	0.50%	7.07'	6.74'
CB-107	CB-107A	40.72'	15"	RCP	1.50%	7.68'	7.07'
CB-106	CB-105	37.26'	15"	RCP	0.50%	7.97'	7.78'
CB-105	CB-104	158.00'	15"	RCP	0.50%	7.78'	6.99'
CB-104	CB-103	49.11'	15"	RCP	0.50%	6.99'	6.74'
CB-103	CB-102	26.32'	18"	RCP	0.50%	6.74'	6.61'

STORM DRAINAGE PIPE DATA TABLE -- STRM -- 12							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
SDMH-214	EW-2	173.73'	24"	RCP	0.48%	6.67'	5.84'
SDMH-204	DI-203 (2GI)	32.94'	18"	RCP	0.50%	7.11'	6.94'
SDMH-201	SDMH-214	19.18'	24"	RCP	0.50%	6.75'	6.65'
SDMH-201	I-2	19.49'	24"	RCP	0.92%	6.68'	6.50'
SDMH-201	DI-202	16.76'	24"	RCP	0.91%	6.68'	6.83'
DI-211	DI-210	60.89'	15"	RCP	0.50%	8.14'	7.84'
DI-210	CB-206	29.44'	15"	RCP	0.50%	7.84'	7.69'
DI-208	CB-207	31.10'	15"	RCP	0.50%	8.60'	8.45'
DI-202	DI-203 (2GI)	22.78'	18"	RCP	0.50%	6.83'	6.94'
CB-213	SDMH-201	50.26'	15"	RCP	1.00%	8.02'	7.52'
CB-212	DI-211	32.93'	15"	RCP	0.50%	8.30'	8.14'
CB-209	CB-205	18.30'	15"	RCP	0.50%	7.54'	7.45'
CB-207	CB-206	152.06'	15"	RCP	0.50%	8.45'	7.69'
CB-206	CB-205	47.75'	15"	RCP	0.50%	7.69'	7.45'
CB-205	SDMH-204	68.40'	18"	RCP	0.50%	7.45'	7.11'

STORM DRAINAGE PIPE DATA TABLE -- STRM -- 13							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
SDMH-325	SDMH-324	74.15'	24"	RCP	0.46%	6.54'	6.20'
SDMH-325		7.79'	30"	RCP	0.30%	6.54'	6.52'
SDMH-324	EW-3	152.59'	24"	RCP	0.95%	6.20'	4.75'
SDMH-314	CB-315	37.59'	15"	RCP	0.30%	7.66'	7.78'
SDMH-312	CB-313	50.65'	24"	RCP	0.50%	7.30'	7.55'
SDMH-305	CB-304	75.07'	24"	RCP	0.28%	7.37'	7.16'
SDMH-301	I-3A	7.02'	30"	RCP	0.28%	6.54'	6.52'
SDMH-301	SDMH-324	36.27'	24"	RCP	0.95%	6.54'	6.20'
SDMH-301	CB-302	66.29'	30"	RCP	0.28%	6.54'	6.73'
DI-322	DI-321 (2GI)	58.19'	15"	RCP	0.30%	8.19'	8.02'
DI-321 (2GI)	CB-319	44.10'	15"	RCP	0.30%	8.02'	7.89'
DI-317	DI-316	67.83'	15"	RCP	0.50%	8.21'	7.87'
DI-316	CB-315	29.69'	15"	RCP	0.30%	7.87'	7.78'
DI-311 (2GI)	DI-310	52.85'	15"	RCP	0.30%	8.06'	7.90'
DI-310	CB-307	35.51'	15"	RCP	0.30%	7.90'	7.79'

FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
CB-326	SDMH-325	25.66'	30"	RCP	0.30%	6.62'	6.54'
CB-326	CB-327	26.33'	15"	RCP	0.50%	6.69'	6.82'
CB-320	CB-319	83.32'	15"	RCP	0.30%	8.14'	7.89'
CB-319	CB-318	95.08'	18"	RCP	0.30%	7.89'	7.60'
CB-318	CB-313	18.26'	18"	RCP	0.30%	7.60'	7.55'
CB-315	CB-323	69.16'	15"	RCP	0.30%	7.78'	7.99'
CB-313	SDMH-314	22.39'	15"	RCP	0.50%	7.55'	7.66'
CB-309	CB-304	26.26'	15"	RCP	1.00%	9.20'	8.94'
CB-308	CB-307	57.31'	15"	RCP	0.30%	8.00'	7.83'
CB-307	CB-306	69.44'	18"	RCP	0.30%	7.79'	7.58'
CB-306	SDMH-305	71.03'	24"	RCP	0.30%	7.58'	7.37'
CB-303	CB-304	64.92'	24"	RCP	0.28%	6.98'	7.16'
CB-302	SDMH-312	113.81'	24"	RCP	0.50%	6.73'	7.30'
CB-302	CB-303	88.39'	24"	RCP	0.28%	6.73'	6.98'



- NOTES:**
- INFILTRATION TRENCH PIPE SHALL BE CONTECH PERFORATED ALUMINIZED OR ALUMINUM CMP PIPE MEETING AASHTO M-36, CLASS 2 PERFORATIONS (3/8" DIA); OR PERFORATED HDPE MEETING AASHTO CLASS 2, TYPE S PERFORATIONS. CONTRACTOR TO SUBMIT INFILTRATION TRENCH SPECIFICATION FOR ENGINEER APPROVAL.
 - CMP OR HDPE PIPE TO BE INSTALLED PER ASTM & MANUFACTURER'S RECOMMENDATIONS. PIPE JOINTS TO BE PER MANUFACTURER'S RECOMMENDATIONS AS AN UNDERGROUND INFILTRATION SYSTEM.
 - SEE TABLE FOR NUMBER OF PIPE RUNS AND DIMENSIONS.
 - IT IS IMPORTANT THAT FILL MATERIAL FOR THE INFILTRATION TRENCHES SHALL BE SAME MATERIAL AS EXISTING SOILS UNDERLYING THE TRENCH. BE SURE NOT TO COMPACT THE SAND UNDER THE TRENCH SO THAT PROPER INFILTRATION RATES CAN OCCUR BELOW THE TRENCHES.

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

STORMWATER MANAGEMENT PLAN

APPROVED

CITY OF WILMINGTON

ENGINEERING DEPARTMENT

DATE _____ PERMIT # _____

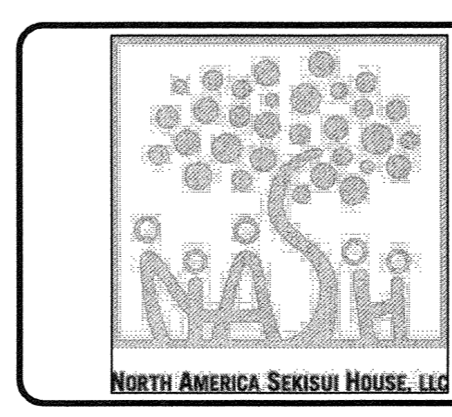
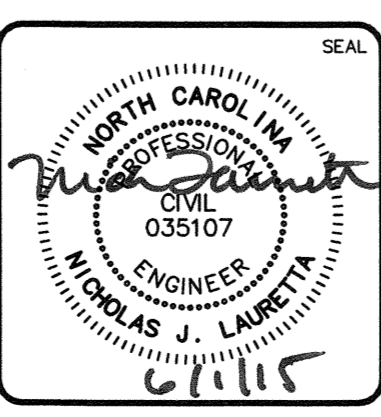
SIGNED _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch

REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
DO NOT USE FOR
CONSTRUCTION

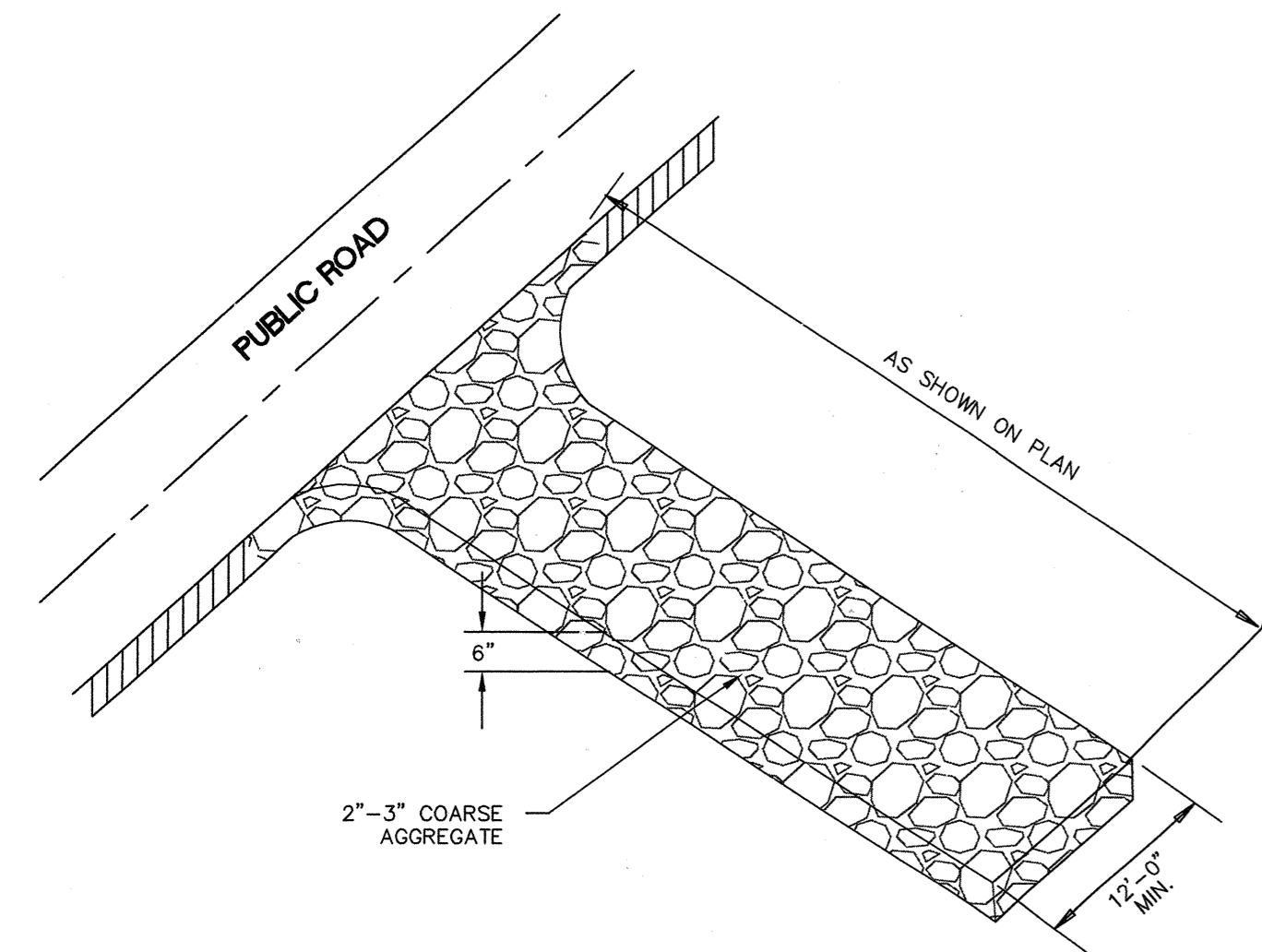


RIVERLIGHTS MARINA VILLAGE

STORMWATER MANAGEMENT DETAILS

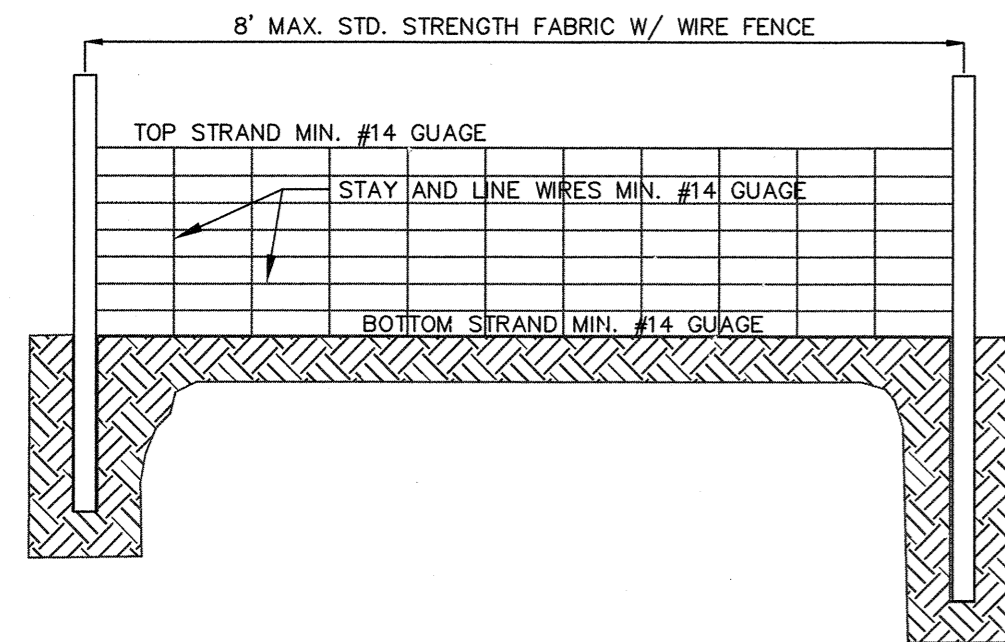
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DESIGNED: EEM		
CHECKED: RMC		
PROJ. MGR.: NJL		
STATUS: FINAL DESIGN NOT FOR CONSTRUCTION		

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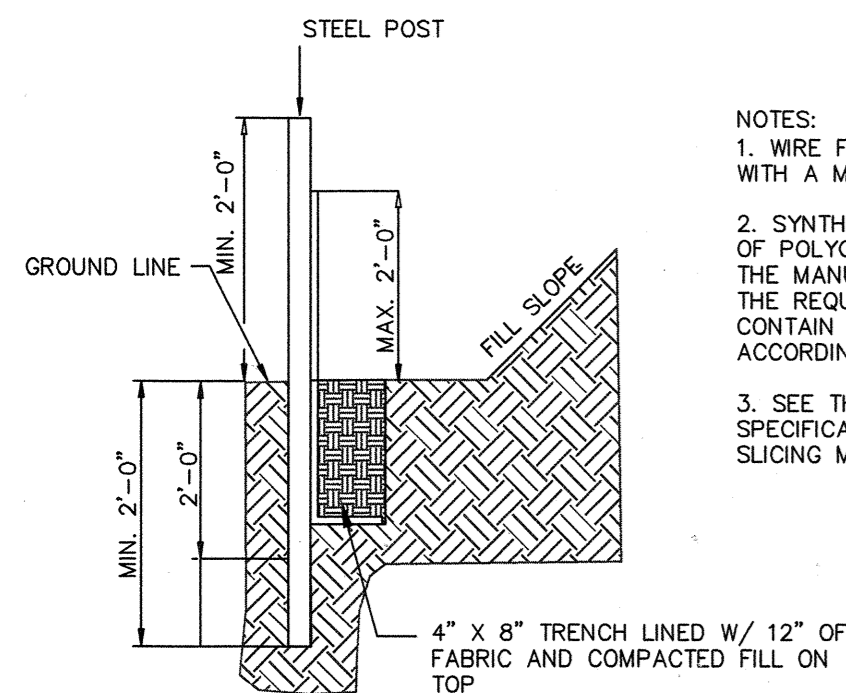
CONSTRUCTION ENTRANCE/EXIT

SD 13-03
NOT TO SCALE



TEMPORARY SILT FENCE

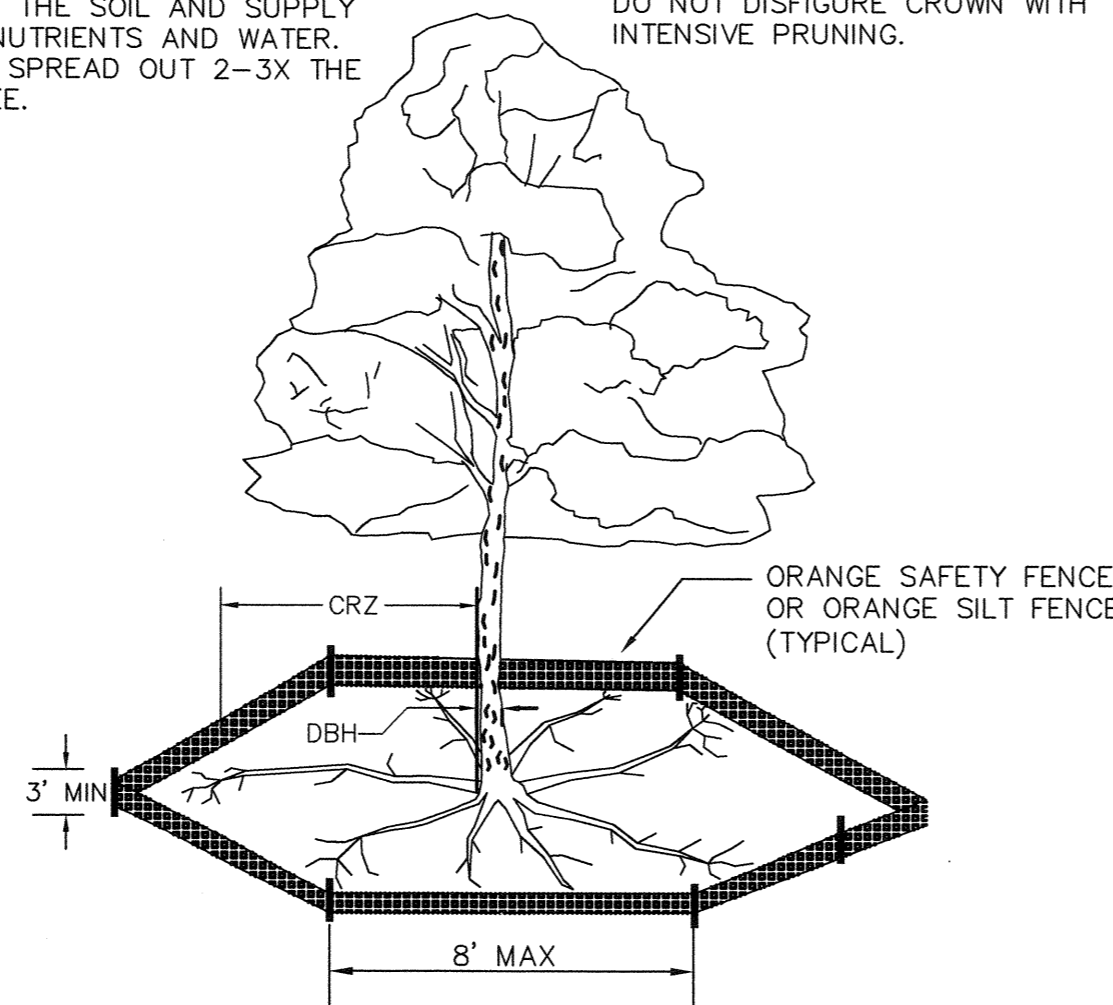
NOT TO SCALE



- NOTES:
1. WIRE FENCE (IF USED) SHALL BE MINIMUM 14 GAUGE WITH A MAXIMUM MESH OPENING OF 6-INCHES.
 2. SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461 AND ALSO SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS ACCORDING TO ASTM D 4355.
 3. SEE THE NC EROSION CONTROL MANUAL FOR SPECIFICATIONS INSTALLING SEDIMENT FENCE USING THE SLICING METHOD MACHINERY.

SILT FENCE	DRAINAGE AREA		LENGTH (LF)	AC per 100 LF	1/4-AC per 100 LF "yes" or "no"
	SF	AC			
SF 1	34272	0.79	604	0.13	yes
SF 2	4105	0.09	336	0.03	yes
SF 3	9173	0.21	85	0.25	yes
SF 4	4389	0.10	162	0.06	yes
SF 5	4651	0.11	297	0.04	yes
SF 6	27460	0.63	695	0.09	yes
SF 8	1592	0.04	166	0.02	yes
SF 9	1526	0.04	87	0.04	yes
SF 10	4999	0.11	251	0.05	yes
SF 11	44264	1.02	1136	0.09	yes
SF 12	15455	0.35	387	0.09	yes
SF 13	3396	0.08	148	0.05	yes
SF 14	1951	0.04	52	0.09	yes

NOTE: THE CRITICAL ROOT ZONE (CRZ) OF A TREE IS WHERE THE MAJORITY OF A TREE'S ROOTS LAY. 85% OF MOST TREE ROOTS ARE FOUND IN THE TOP 24" OF THE SOIL AND SUPPLY THE MAJORITY OF NUTRIENTS AND WATER. GENERALLY, ROOTS SPREAD OUT 2-3X THE HEIGHT OF THE TREE.



NOTE: CROWN OF THE TREE IS NEEDED FOR LEAF GROWTH TO PRODUCE OXYGEN, FILTER THE AIR, REDUCE WIND AND SOFTEN NOISE. DO NOT DISFIGURE CROWN WITH INTENSIVE PRUNING.

- NOTES:
1. PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
 2. CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
 3. IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
 4. WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
 5. FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
 6. FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF \$500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

METHOD OF TREE PROTECTION DURING CONSTRUCTION

SD 15-09
NOT TO SCALE

SEEDBED PREPARATION:

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTRANCE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELOW*).
5. CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
10. APPLY:
 - AGRICULTURAL LIMESTONE - 2 TONS/ACRE
 - FERTILIZER - 1000 LBS/ACRE (10-10-10)
 - SUPERPHOSPHATE - 500 LBS/ACRE (20%)
 - MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW)
 - ANCHOR - ASPHALT EMULSION AT 450 GAL/ACRE

TREE PROTECTION NOTES:

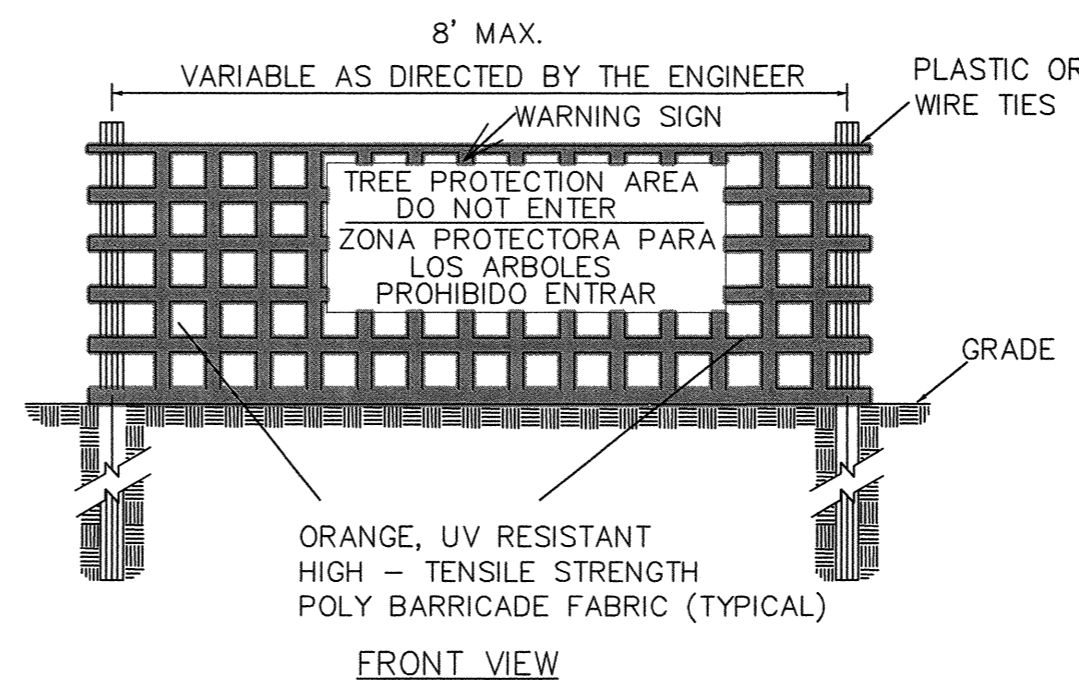
1. NO LAND DISTURBANCE INCLUDING TREE REMOVAL IS TO OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS. [18-457(b)]
2. PROTECTIVE FENCING IS TO BE PROPERLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. [18-458]
3. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS. [18-457(d)]
4. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING AND GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS. [18-458]
5. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED. [18-458]
6. REGULATED AND SIGNIFICANT TREES IN THE STREET YARD [18-456(c)] AND ANY TREES IN ANY REQUIRED BUFFERS [18-456(b)] ARE REQUIRED TO BE RETAINED.

TEMPORARY SEEDING

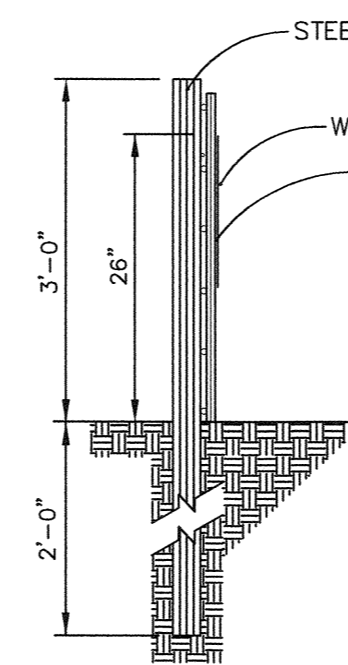
GRASS TYPE	AMOUNT/1000 S.F.	TIME OF SEEDING	INITIAL
RYE GRAIN	1-2 LBS.	APRIL - JUNE	25 LBS. 10-10-10
BROWNTOP MILLET	1-2 LBS.	JUNE - AUGUST	25 LBS 10-10-10

PERMANENT SEEDING

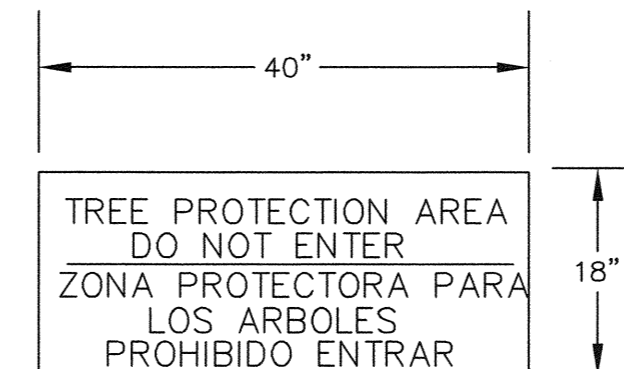
GRASS TYPE	AMOUNT/1000 S.F.	TIME OF SEEDING	INITIAL
BERMUDA, COMMON	1-2 LBS.	APRIL - JUNE	25 LBS. 10-10-10
FESCUE, TALL (KENTUCKY 31)	5-7 LBS.	JUNE - AUGUST FEB. - OCT.	25 LBS 10-10-10
SERICEA LESPEDEZA (SLOPES)	1-2 LBS.	MARCH - APRIL	25 LBS 10-10-10



FRONT VIEW

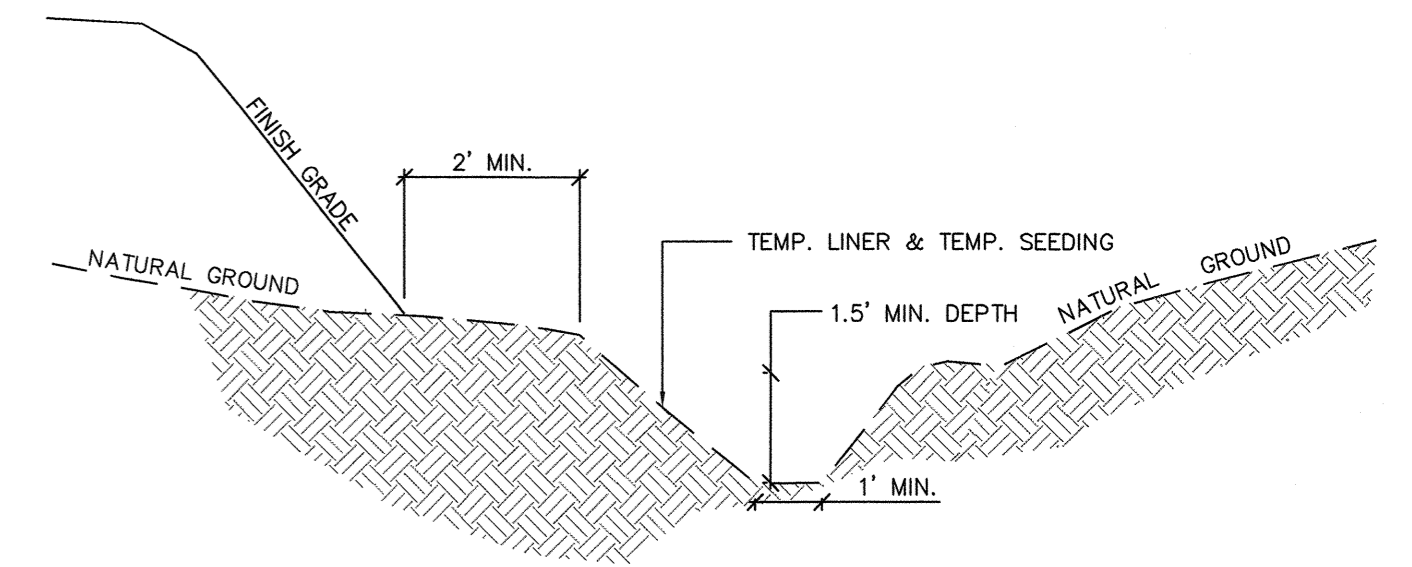


SIDE VIEW



WARNING SIGN DETAIL

- NOTES:
1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
 2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
 3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
 4. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
 5. TREE PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
 6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.



* TEMPORARY PERIMETER DIKE TO BE LINED WITH STRAW WITH NET AS A TEMPORARY LINER

TEMPORARY CHANNEL LINER SPECIFICATION:

1. SEE TEMPORARY PERIMETER DIKE CHART FOR LINER TYPE AND CHECK DAM SPACING.
2. MIN. SHEAR STRENGTH: STRAW WITH NET (OR APPROVED EQUAL) - 1.45 LBS/FT²

* ALL RATINGS ABOVE ARE MINIMUM SHEAR STRENGTH REQUIREMENTS FOR THE LINER BASED ON UNVEGETATED CONDITIONS.

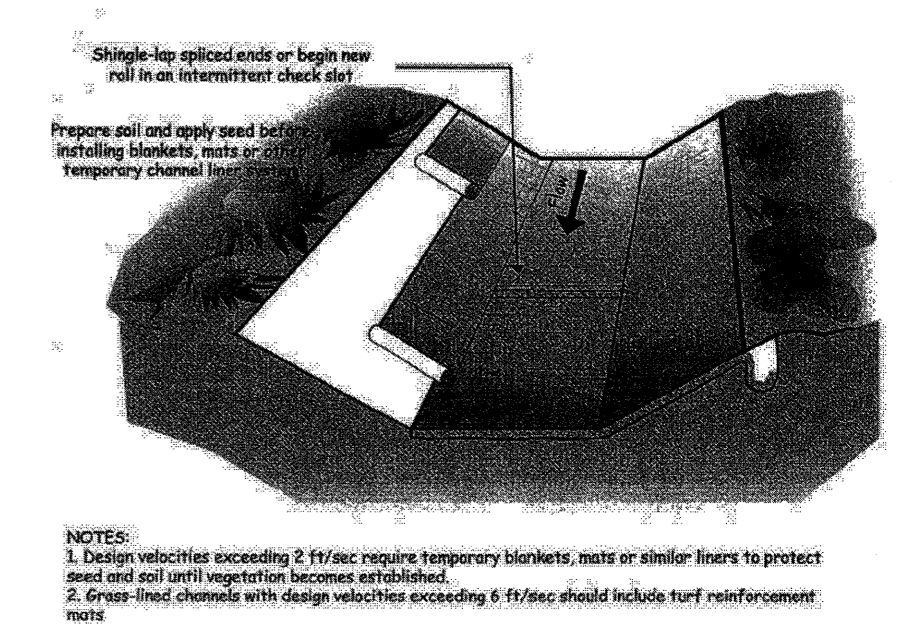
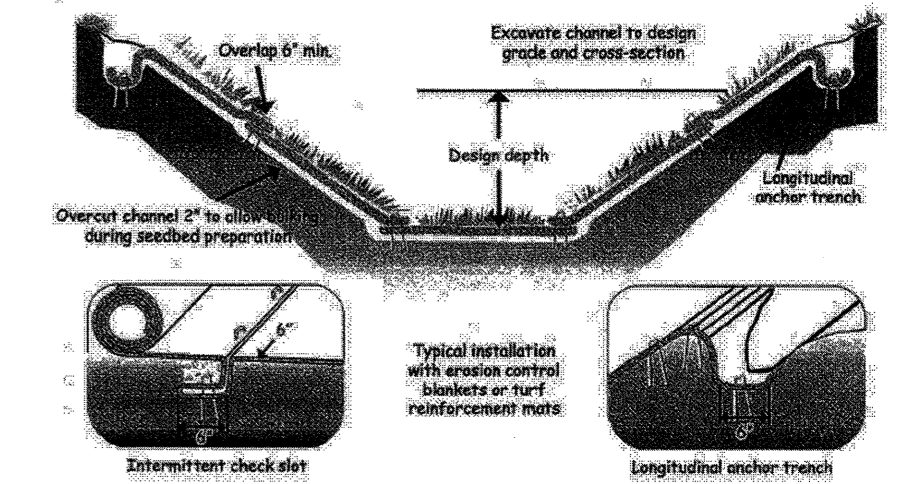
CONSTRUCTION SPECIFICATION

1. GRADE THE SURFACE OF INSTALLATION AREAS SO THAT THE GROUND IS SMOOTH AND LOOSE.
2. WHEN SEEDING PRIOR TO INSTALLATION, FOLLOW THE STEPS FOR SEED BED PREPARATION, SOIL AMENDMENTS, AND SEEDING AS NOTED IN "SURFACE STABILIZATION 6.1" (GENERAL NOTES) AND AS PER NCDENR STANDARDS.
3. SPREAD SEED BEFORE TEMPORARY LINER IS INSTALLED.
4. LINER SHALL BE INSTALLED FROM TOP OF BANK TO TOP OF BANK ALONG DIKE WITHIN DENUDED LIMITS.

MAINTENANCE

1. ALL EROSION CONTROL LINING SHALL BE INSPECTED EVERY SEVEN (7) DAYS OR AFTER EACH RAINFALL OCCURRENCE THAT EXCEEDS ONE-HALF (0.5) INCH.

Figure 6.17d Temporary Channel Liners, Washington State Department of Ecology



- NOTES:
1. Design velocities exceeding 2 ft/sec require temporary blankets, mats or other liners to protect seed and soil until vegetation becomes established.
 2. Grass-lined channels with design velocities exceeding 5 ft/sec should include turf reinforcement mats.

TEMPORARY PERIMETER DIKE

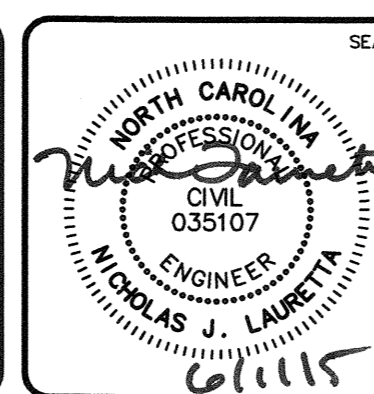
NOT TO SCALE

Temporary Perimeter Dike Calculations

Perm Dike NUMBER	LENGTH (FT)	HIGH (FT)	LOW (FT)	ELEVATION DIFF. (FT)	SLOPE (%)	VELOCITY (FPS)	LINING	TEMPORARY ROCK CHECK DAMS			
								Manning n	CHECK DAM SPACING (FT)	NUMBER REQUIRED	NUMBER PROVIDED
1	156	12.00	7.00	5.00	3.21	0.70	GRASS	0.035	62	3	3

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS SEAL
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MCKIM & CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048, Fax: (910)251-8282
License: F-1222
www.mckimcreed.com

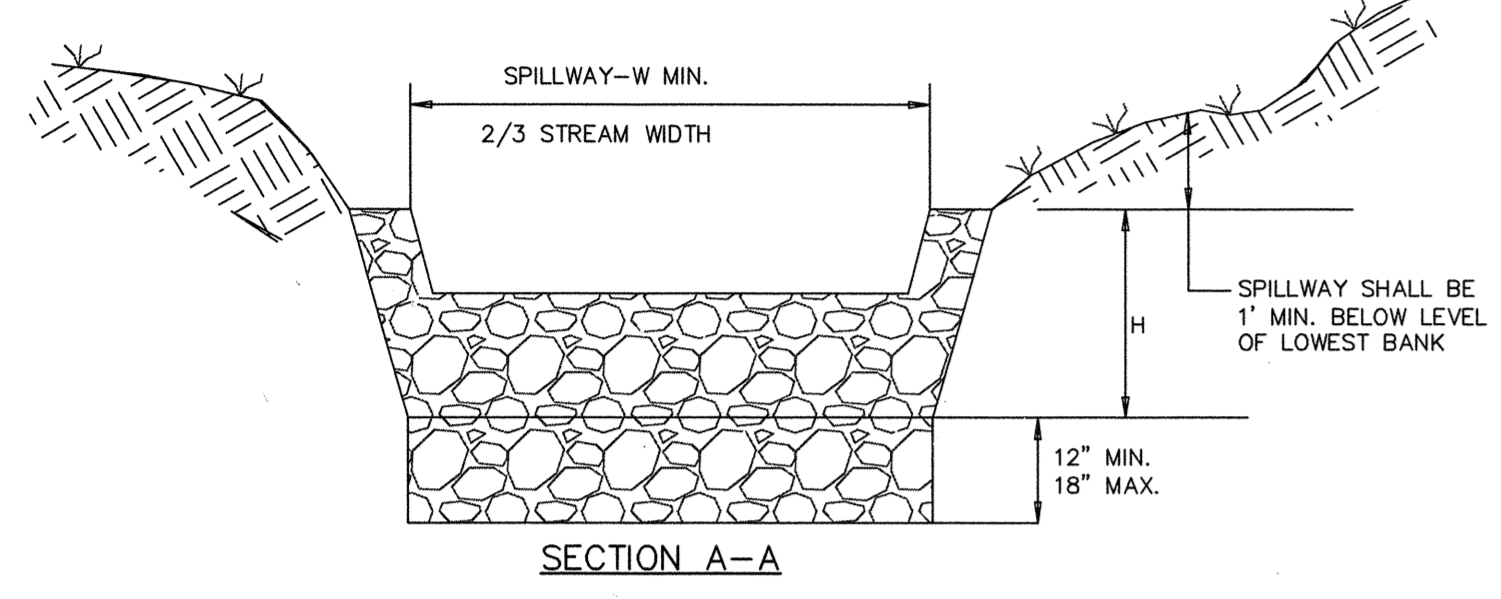
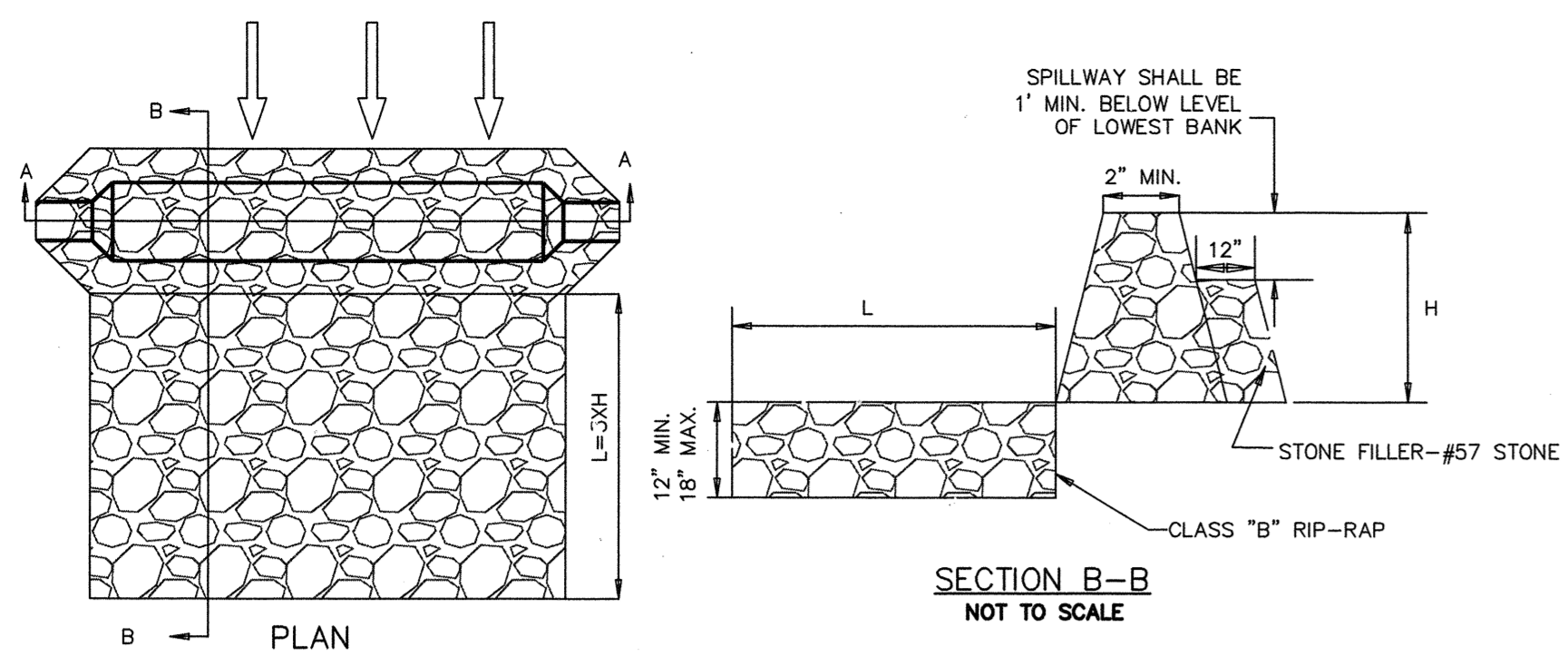
RIVERLIGHTS
Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
SEDIMENT & EROSION CONTROL DETAILS

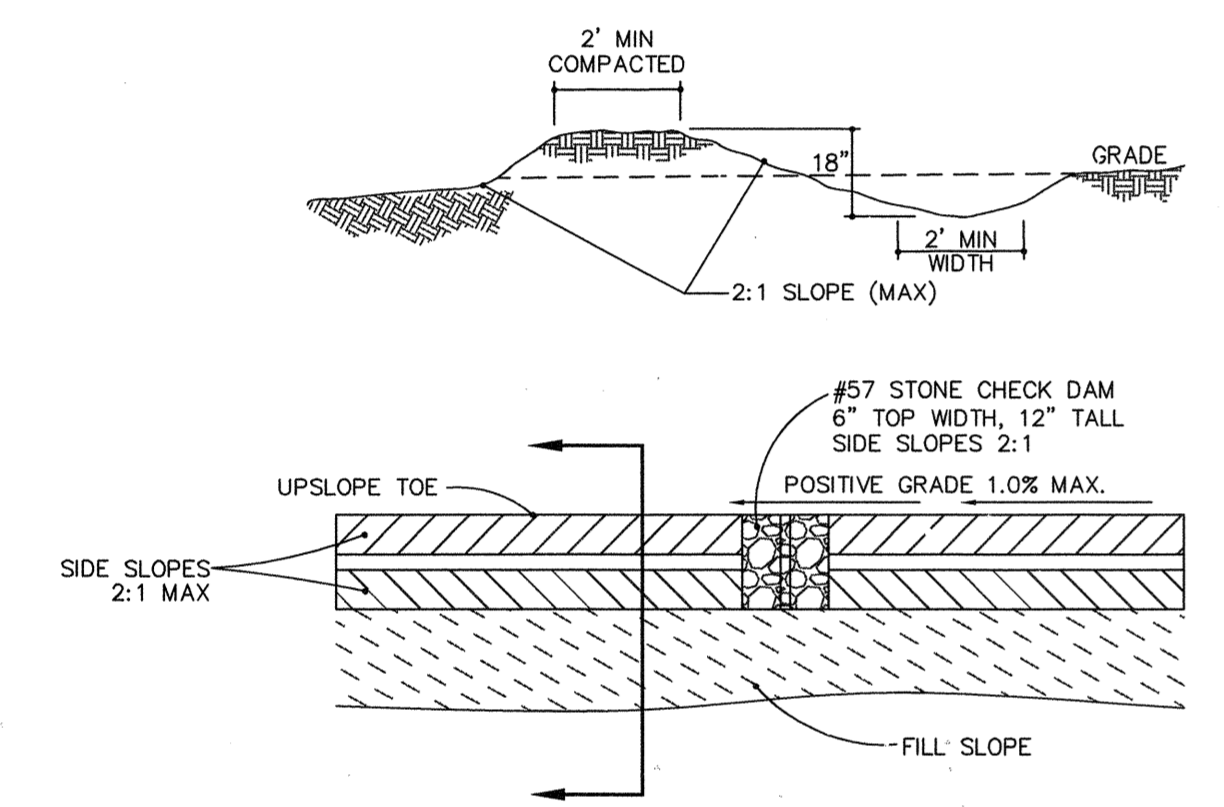
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DESIGNED: EEM
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PROJ. MGR.: NJL

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VERTICAL: N/A

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REVISION: 23 OF 28
STATUS: FINAL DESIGN
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REVISION: D



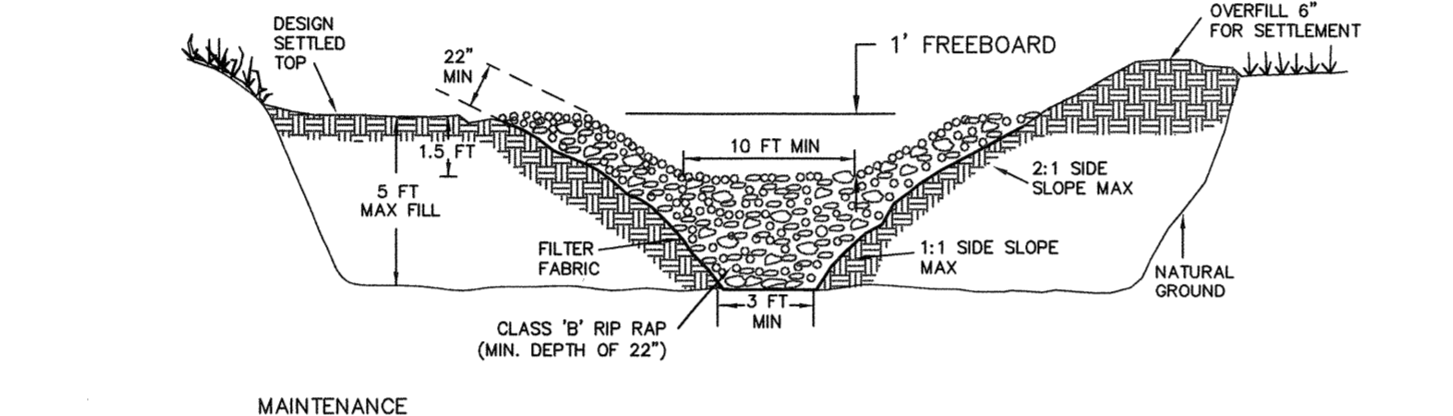
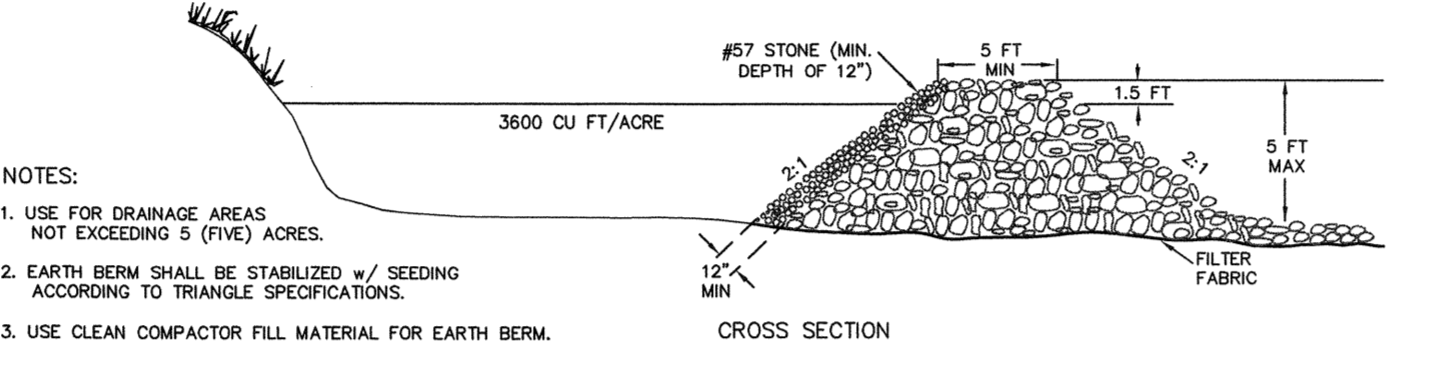
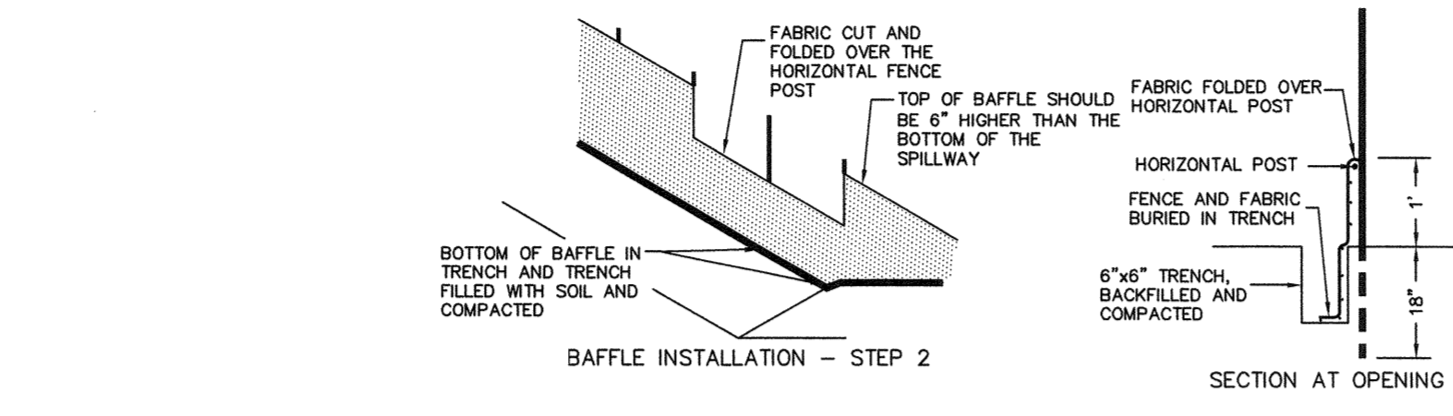
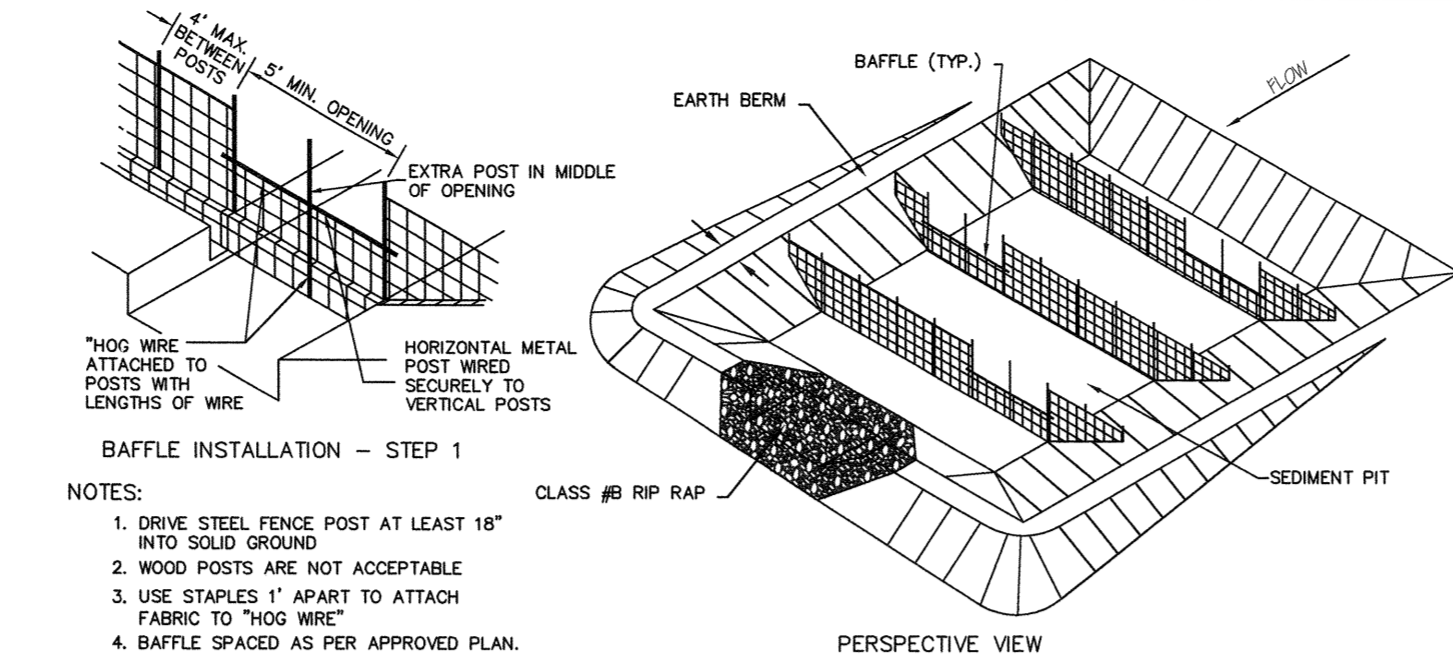
DITCH CHECK DAM
SD 13-04
NOT TO SCALE



TEMPORARY DIVERSION DITCH
NOT TO SCALE

DITCH	DA	A+1/2 DA	LENGTH	d	HIGH	LOW	SLOPE	SLOPE	LINING
1	0.71	0.69	108	0.53	13.40	8.00	0.0509	5.09%	EXCLSOR
2	0.35	0.60	161	0.48	12.20	8.00	0.0261	2.61%	EXCLSOR
3	0.22	0.50	124	0.38	11.00	5.00	0.0484	4.84%	EXCLSOR
4	2.08	0.00	346	1.22	11.00	9.00	0.0058	0.58%	EXCLSOR

DITCH	MANNING	VELOCITY	HEAD	CHECK DAM	NUMBER	NUMBER
	n	ft/s	ft	SPACING (ft)	REQUIRED	PROVIDED
1	0.066	2.08	1.75	39	3	3
2	0.066	1.36	0.78	77	2	2
3	0.066	1.58	1.15	41	3	3
4	0.066	1.19	0.44	346	1	2



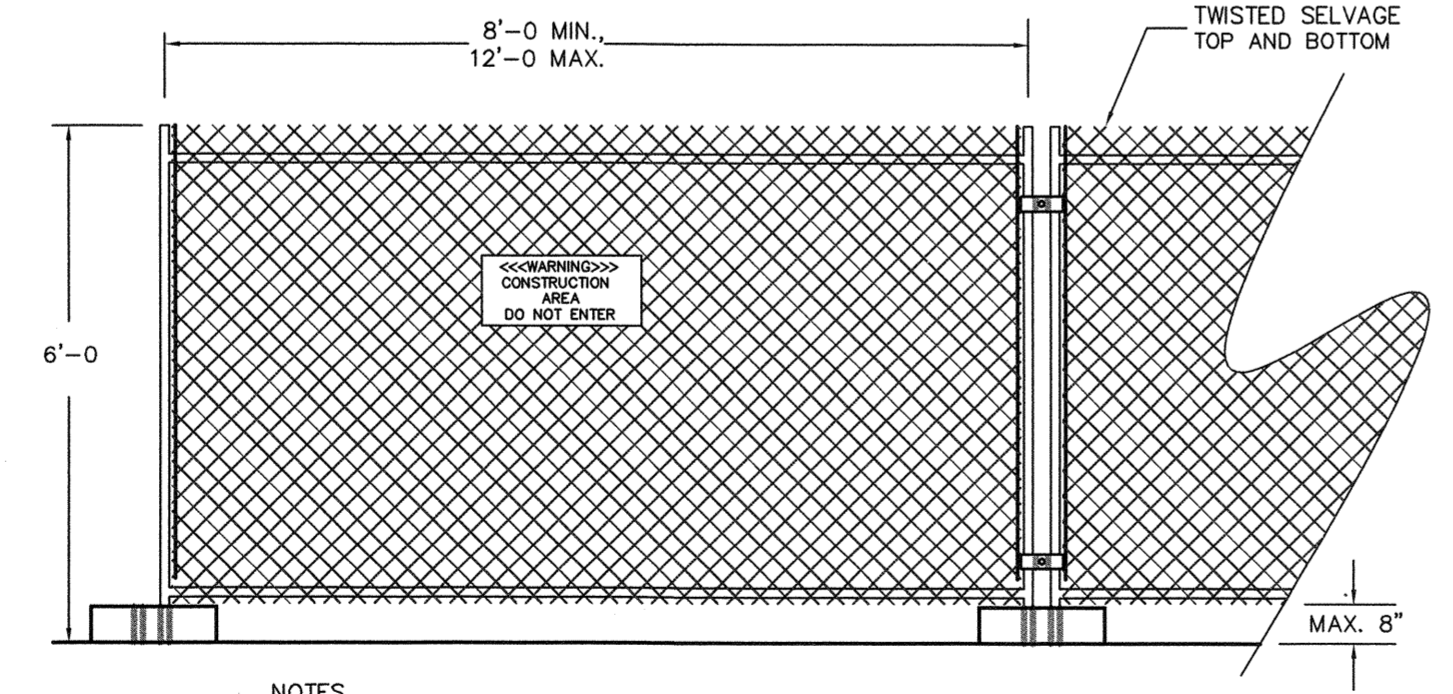
MAINTENANCE
INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN A DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.
CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 15 FT BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL, AND DOWNSTREAM FROM THE TRAP IMMEDIATELY AFTER CONSTRUCTION WITH SEEDING.

SEDIMENT TRAP
NOT TO SCALE

SEDIMENT TRAP #1 SUMMARY:

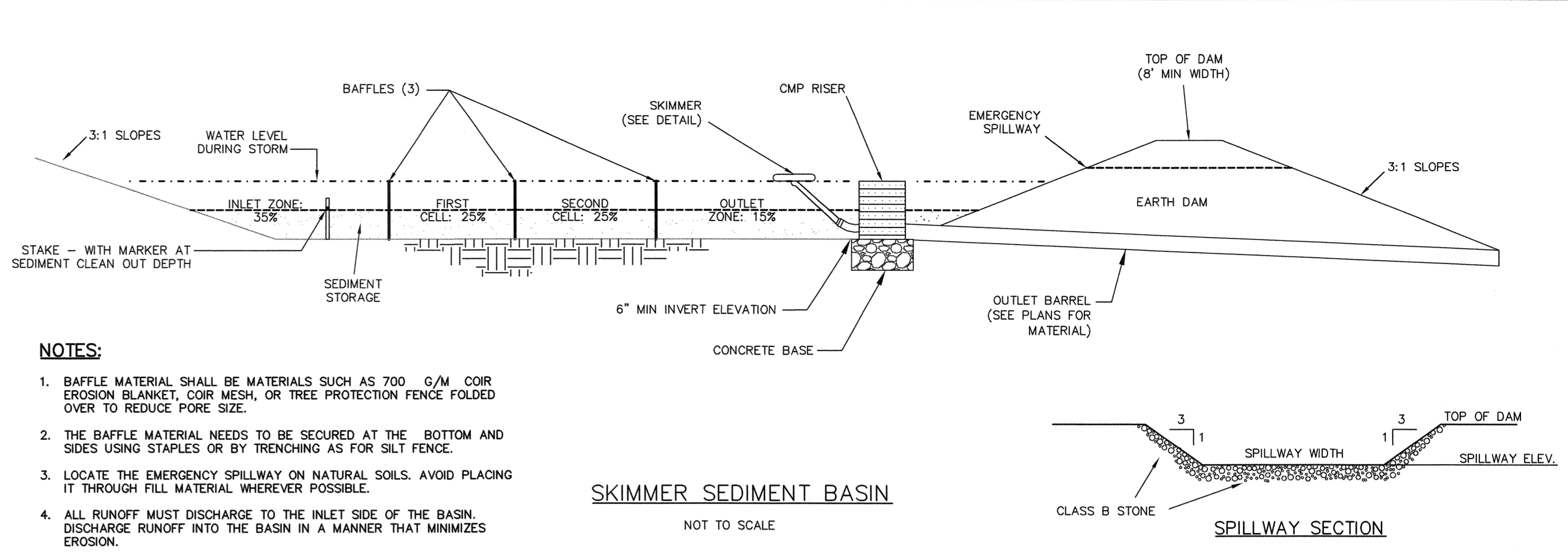
BOTTOM WIDTH	=	22 ft
BOTTOM LENGTH	=	62 ft
TOP WIDTH	=	42 ft
TOP LENGTH	=	82 ft
STONE OUTLET WIDTH	=	6 ft
OUTLET SIDESLOPE	=	2:1
STORAGE DEPTH	=	3.5 ft
DAM HEIGHT	=	5 ft
SIDESLOPES	=	2:1

All Calculations are based on a 10 year return rainfall and in accordance with the North Carolina Erosion and Sedimentation Planning and Design Manual.



NOTES:
1. CHAIN LINK FABRIC TO BE MIN. 11 GAUGE, GALVANIZED, NON RUSTED OR EXCESSIVELY MALFORMED FABRIC.
2. FENCE BASES SHALL BE OF SUFFICIENT WEIGHT and/or SPREAD TO ADEQUATELY SUPPORT EACH PANEL.
3. PANEL-TO-PANEL CONNECTIONS SHALL BE MADE AT A MIN. TWO LOCATIONS PER CONNECTION UNLESS OTHERWISE APPROVED.
4. PROVIDE CONSTRUCTION WARNING SIGNAGE 50' O.C. ALONG FENCING INSTALLATION.

TEMPORARY CONSTRUCTION FENCING
NOT TO SCALE



NOTES:
1. Baffle material shall be materials such as 700 G/M COIR erosion blanket, COIR MESH, OR TREE PROTECTION FENCE FOLDED OVER TO REDUCE PORE SIZE.
2. THE Baffle material needs to be secured at the bottom and sides using staples or by trenching as for silt fence.
3. LOCATE THE EMERGENCY SPILLWAY ON NATURAL SOILS. AVOID PLACING IT THROUGH FILL MATERIAL WHEREVER POSSIBLE.
4. ALL RUNOFF MUST DISCHARGE TO THE INLET SIDE OF THE BASIN. DISCHARGE RUNOFF INTO THE BASIN IN A MANNER THAT MINIMIZES EROSION.

SKIMMER SEDIMENT BASIN
NOT TO SCALE

SKIMMER BASIN CALCULATION TABLE

Skimmer No.	Drainage Area ac	Rational C	Time of Conc. Tc min	I10 Intensity in/hr	Q10 Peak Flow cfs	Required SA (325 x Q10) sf	Provided SA sf	Required Vol (1800cf/ac x DA) cf	Basin Depth D ft	Provided Vol Basin Depth cf	Weir Width ft
TSB-2	2.48	0.85	5.00	7.23	15.21	4,943	4,948	4,455	1.50	6,426	6.0
TSB-3	2.71	0.85	5.00	7.23	16.65	5,413	6,000	4,878	1.50	7,981	6.0

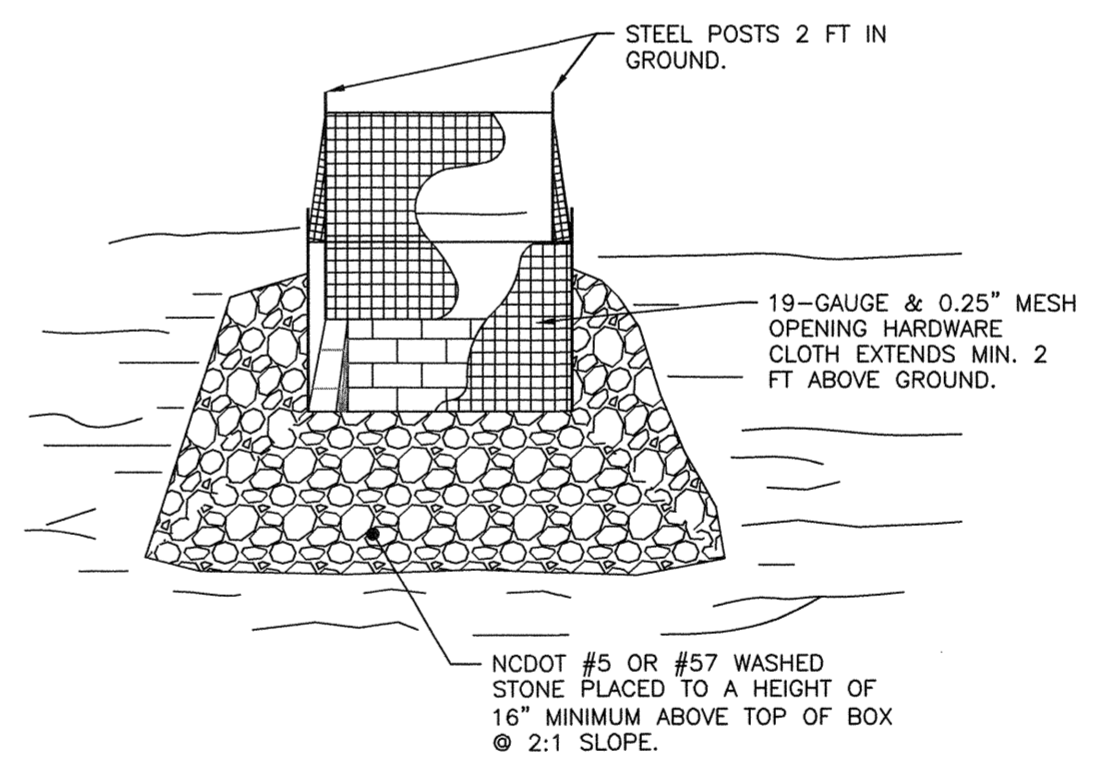
FAIRCLOTH SKIMMER SIZE CALCULATION - PHASE 1

Skimmer No.	Dewatering Time (days)	Skimmer Outflow cf/day	Skimmer Size in	Orifice		Barrel	
				Diameter in	Radius in	Outflow gpm	Pipe in
TSB-2	2	3,213	2.0	1.8	0.9	16.7	4.0
TSB-3	2	3,990	2.5	2.1	1.0	20.7	4.0

Faircloth Skimmer Selection Table

Skimmer Size in	Outflow Qmax cf/day	Head ft
1.5	1,728	0.125
2	3,283	0.167
2.5	6,234	0.208
3	9,774	0.250
4	20,109	0.333
5	32,832	0.333
6	51,840	0.417
8	97,978	0.500

NOTES:
1. Q10 Peak Flow were taken from Rational Method.
2. Required Surface Areas and Volumes were taken from NCDENR Sediment & Erosion Manual.
3. Faircloth Skimmer Selection Table taken from Table 4-2, NCDOT Level III-A Design of Sediment & Erosion Control Plans Manual



NOTES:
1. DRIVE 5-FOOT STEEL POSTS (1.25 lb/ft steel) 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
2. SURROUND THE POSTS WITH AT LEAST 19-GAUGE HARDWARE CLOTH WITH A 1/4-INCH MESH OPENING. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM FOR A MIN. 2 FEET ABOVE THE GROUND. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING AND REMOVAL IS RECOMMENDED.
3. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET. THE TOP ELEVATION OF THE STRUCTURE MUST BE AT LEAST 12-INCHES LOWER THAN THE SURROUNDING GROUND ELEVATION DOWNSLOPE FROM THE INLET TO ENSURE THAT STORM FLOWS GET INTO THE INTENDED INLET; UNLESS OTHER SEDIMENT-CONTROL DEVICES ARE INSTALLED TO PREVENT OFF-SITE SEDIMENT-RUNOFF.

TEMP. STORM DRAIN INLET PROTECTION
NOT TO SCALE

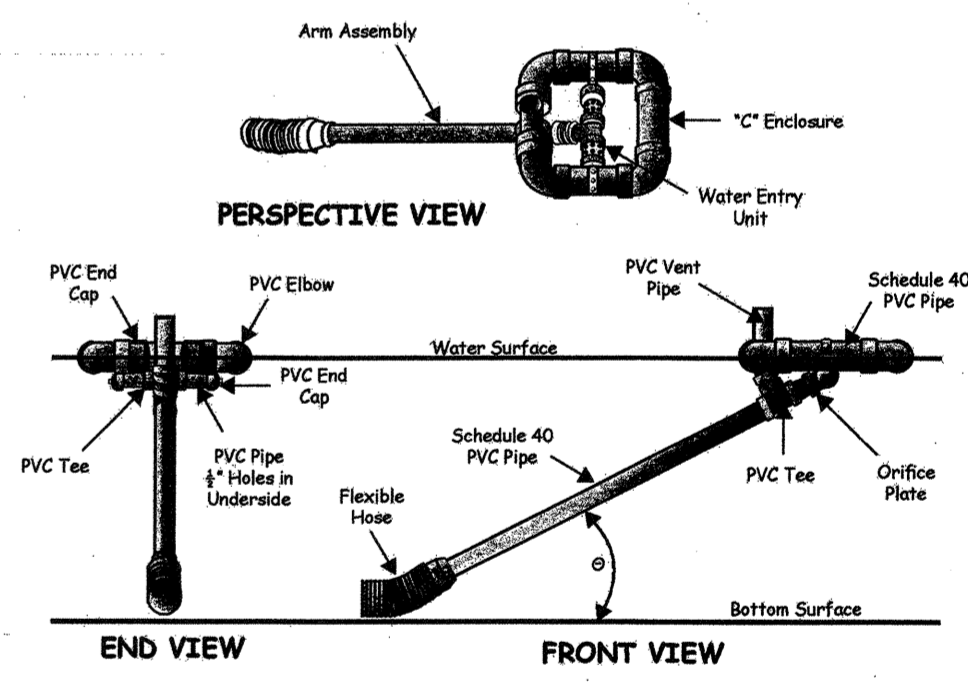


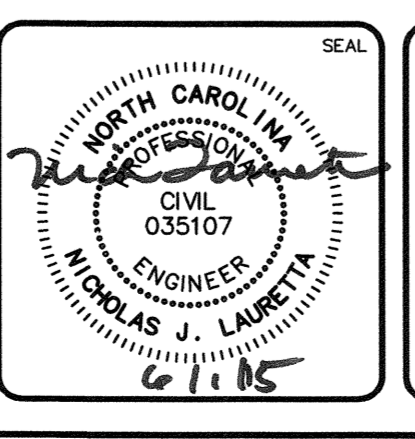
Figure 8.64e Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

NOTES:
ORIFICE SIZES ARE FOR THE FAIRCLOTH SKIMMER. IF ANOTHER TYPE OF SKIMMER IS USED THE DEVICE MUST BE ABLE TO DRAIN THE BASIN WITHIN 24 - 72 HOURS.

SKIMMER DETAIL
NOT TO SCALE

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
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RIVERLIGHTS
by Newland COMMUNITIES

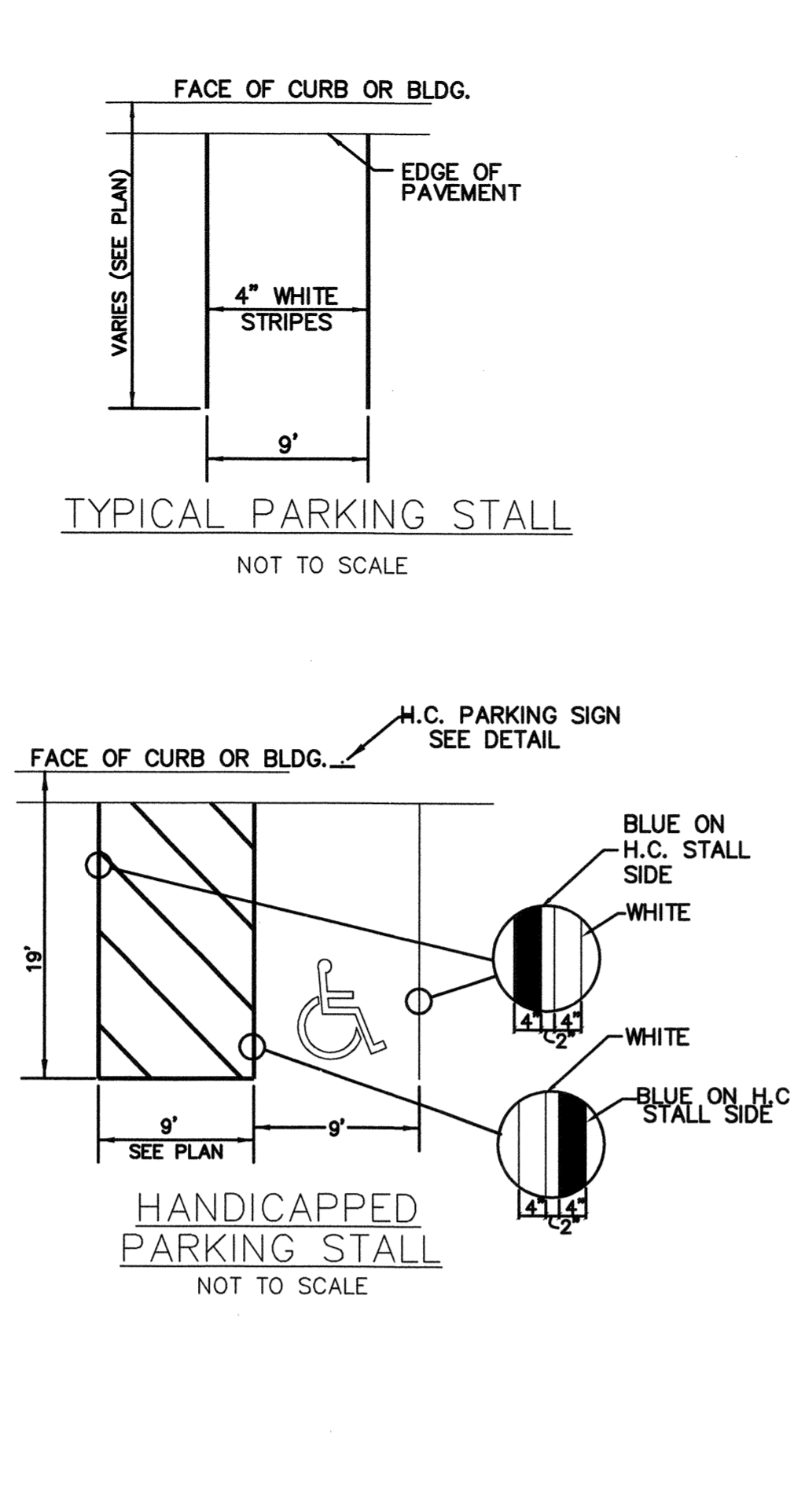
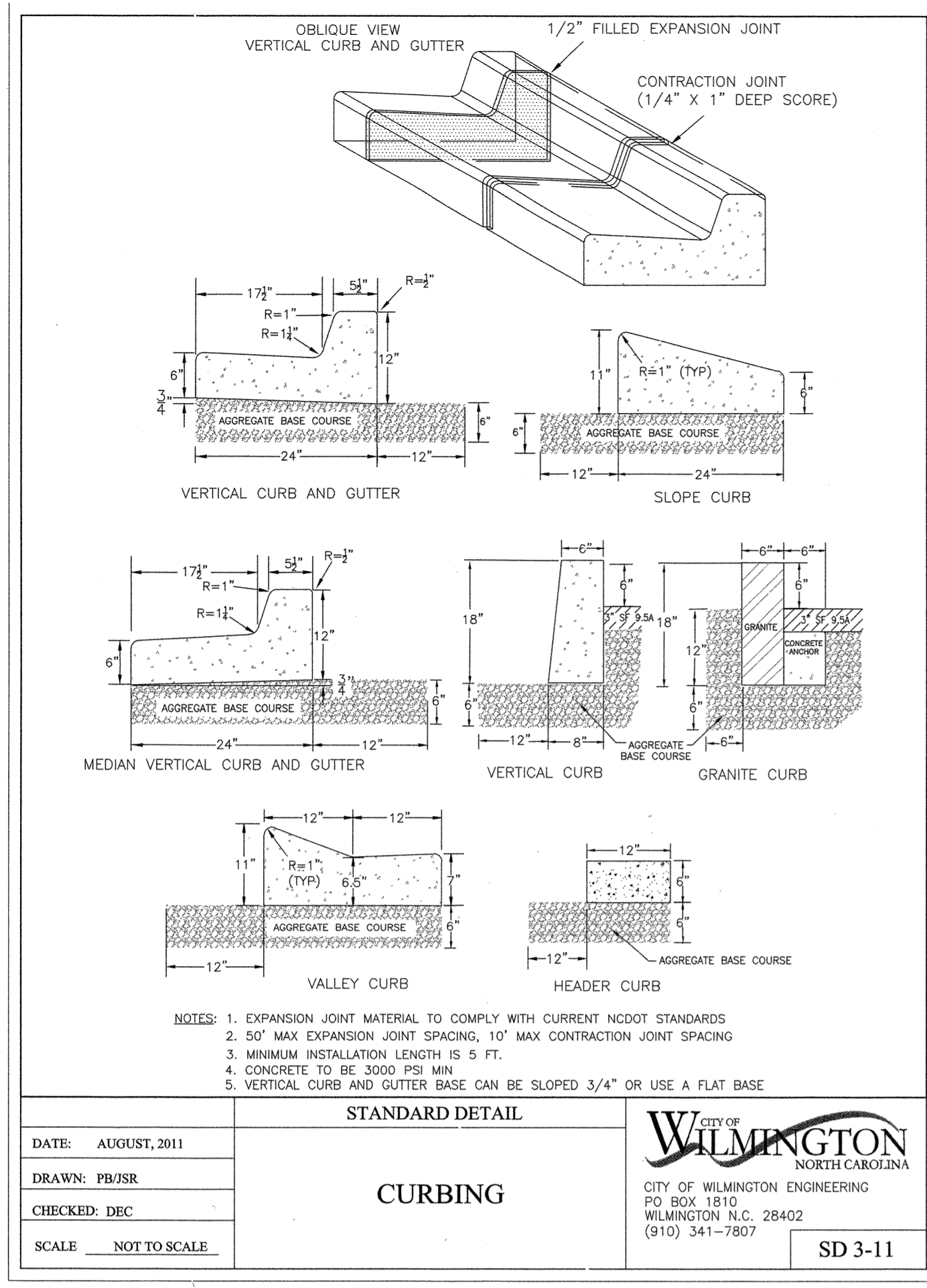
RIVERLIGHTS MARINA VILLAGE
SEDIMENT AND EROSION CONTROL DETAILS

DATE: 08APR15
MCE PROJ. # 2735-0124
DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR.: NJL

SCALE: HORIZONTAL: ---
VERTICAL: ---

M&C FILE NUMBER: CE-502
DRAWING NUMBER: 24
REVISION: 24 OF 28

STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION



GENERAL NOTES

- IN ACCORDANCE WITH N.C.G.S. 136-44.14, ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED ON EACH SIDE OF ANY STREET OR ROAD, WHERE CURBS AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
- WHEELCHAIR RAMPS SHALL BE CONSTRUCTED AS INDICATED IN DETAIL DRAWINGS; HOWEVER, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
- CURB RAMPS SHALL HAVE DETECTABLE WARNINGS EXTENDING THE FULL WIDTH OF THE RAMP AND A MINIMUM OF 2'-FT. IN LENGTH.

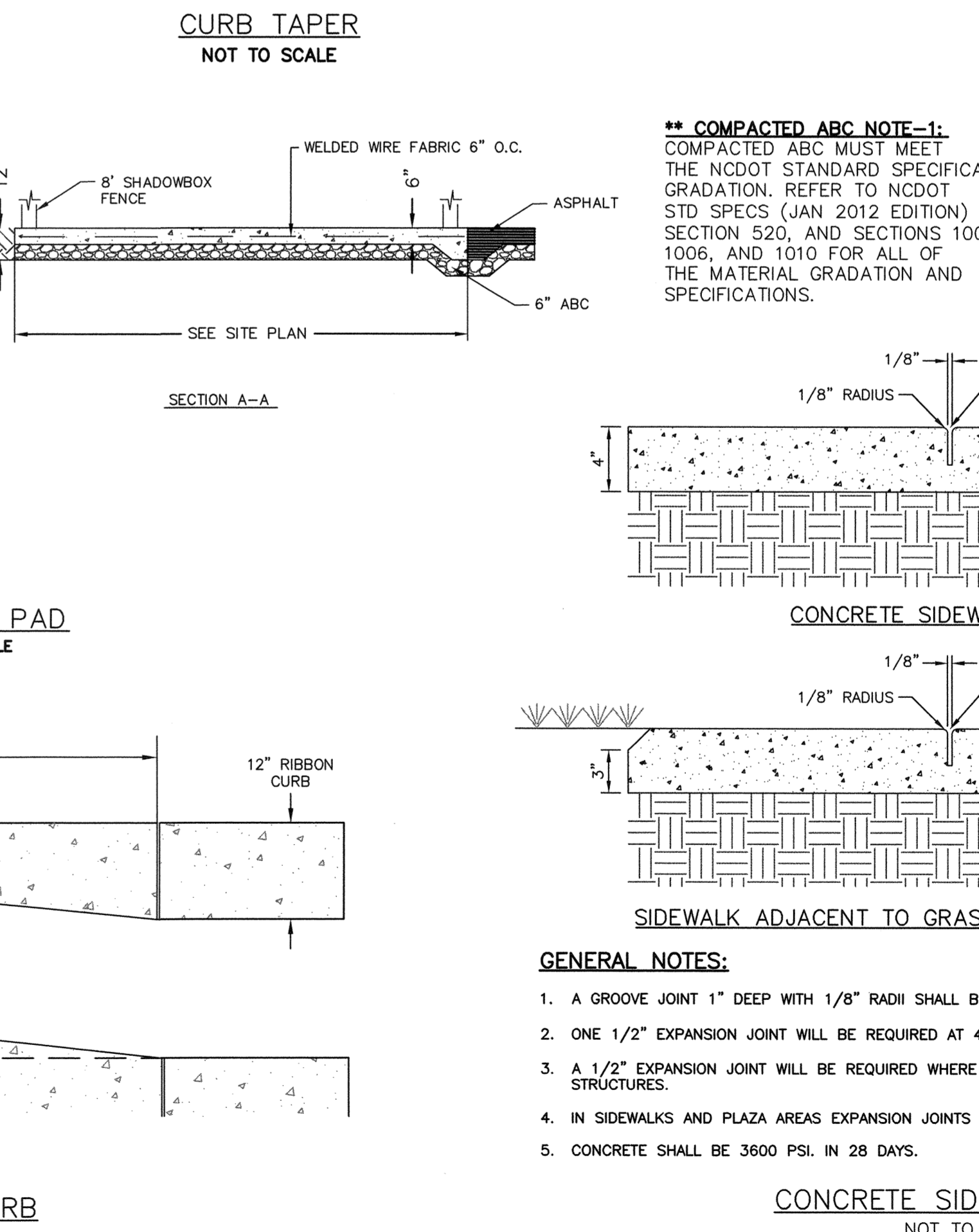
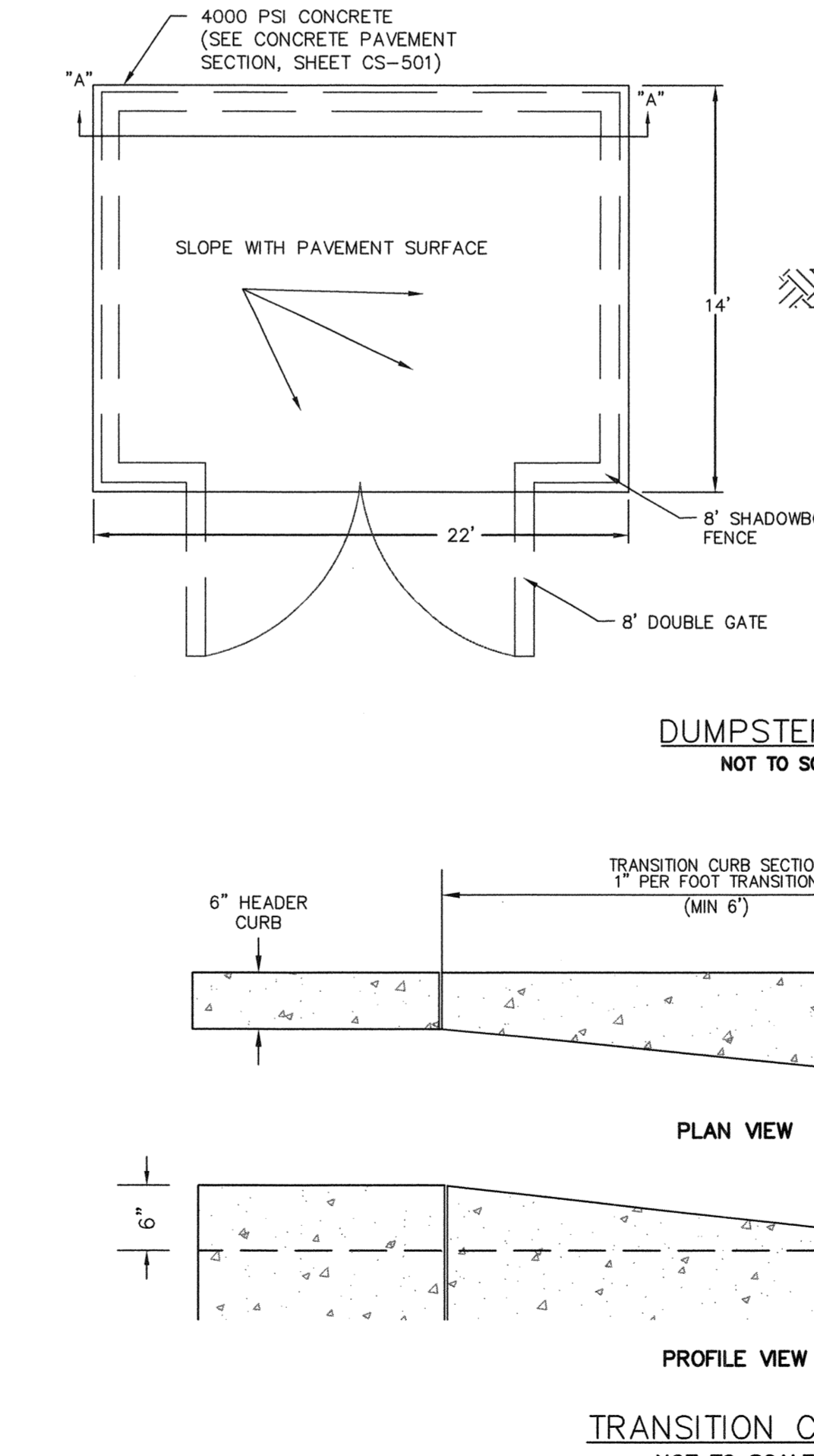
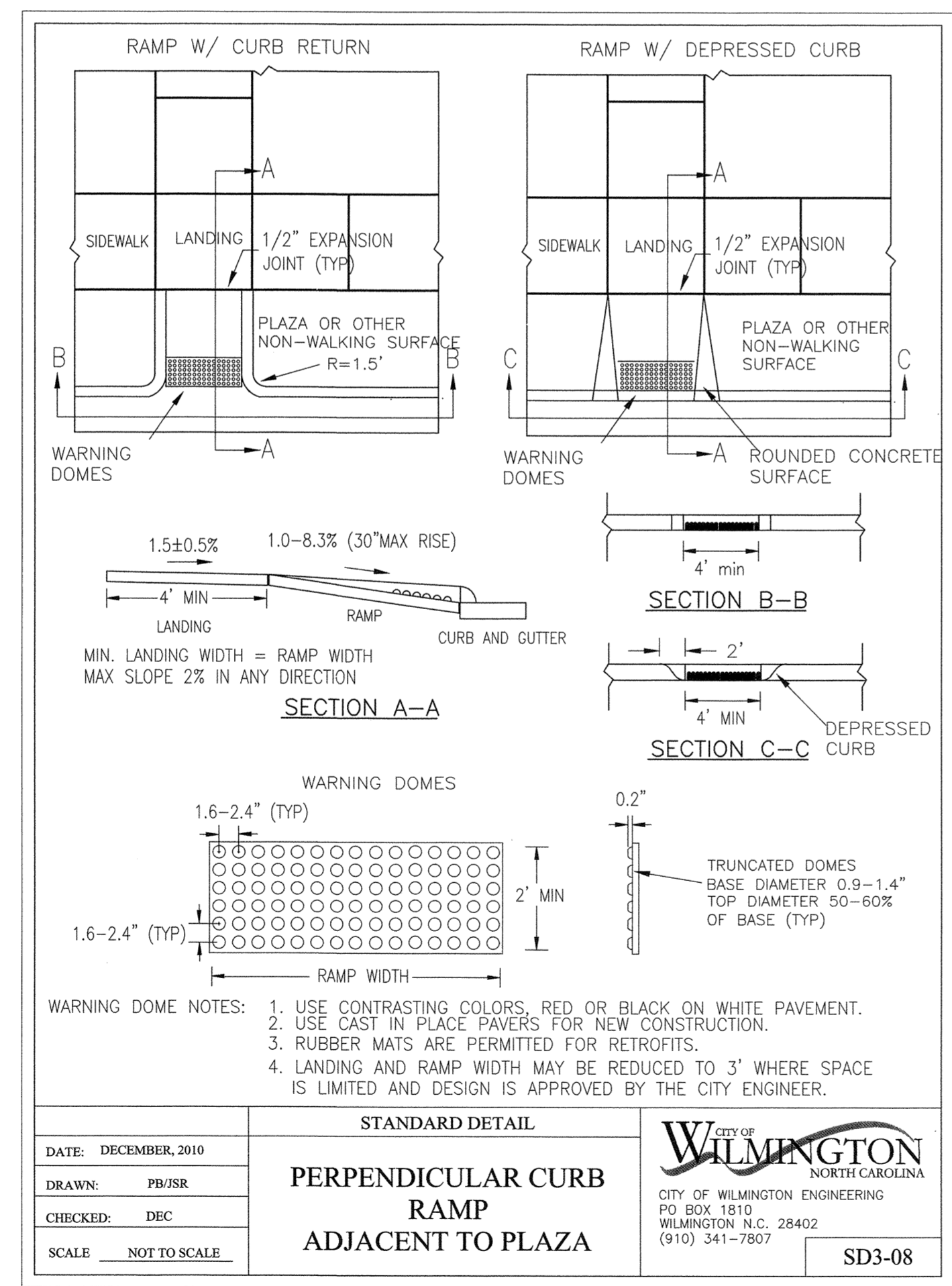
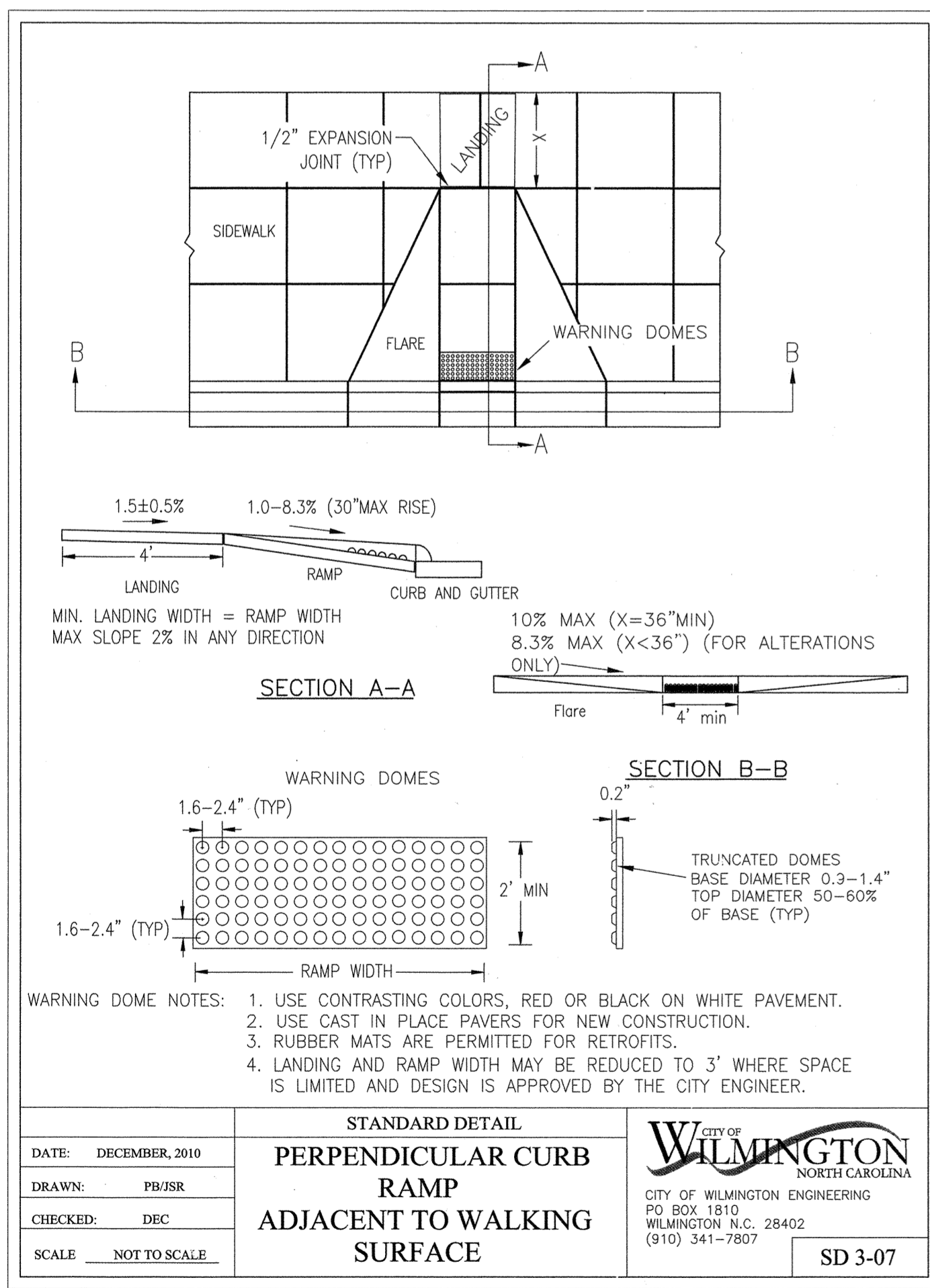
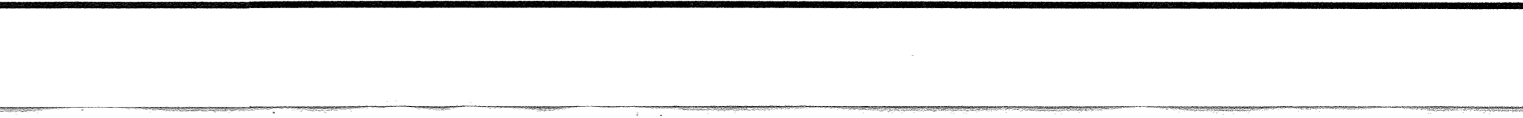
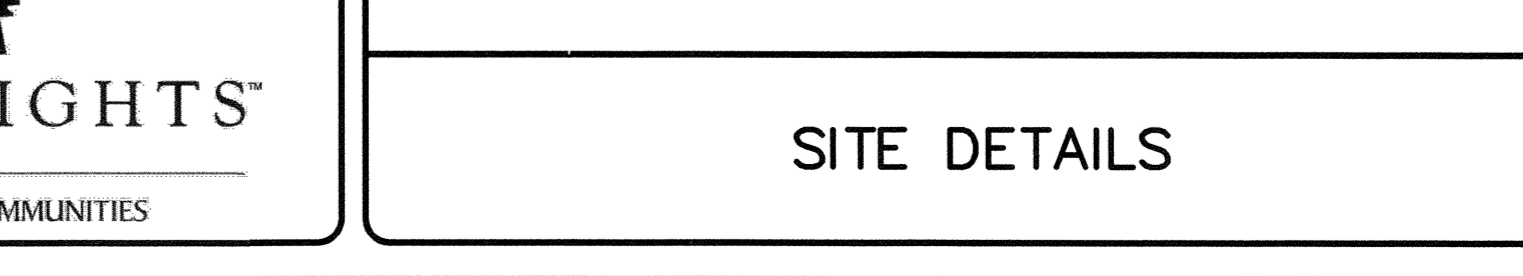
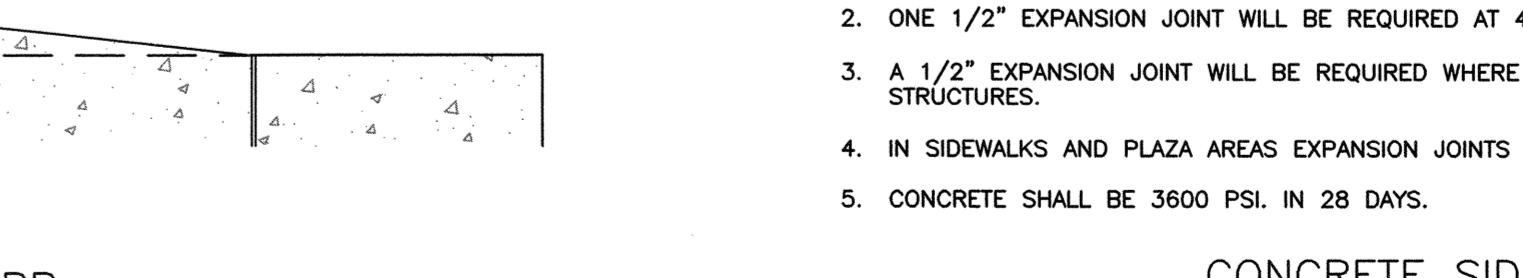
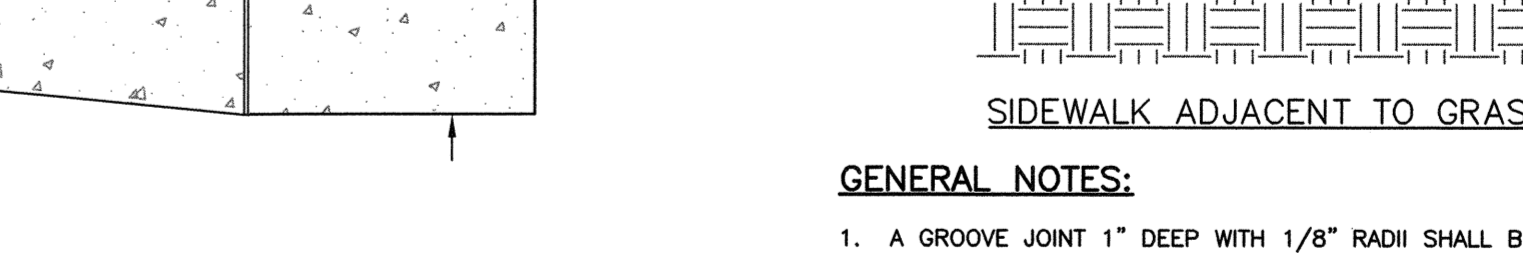
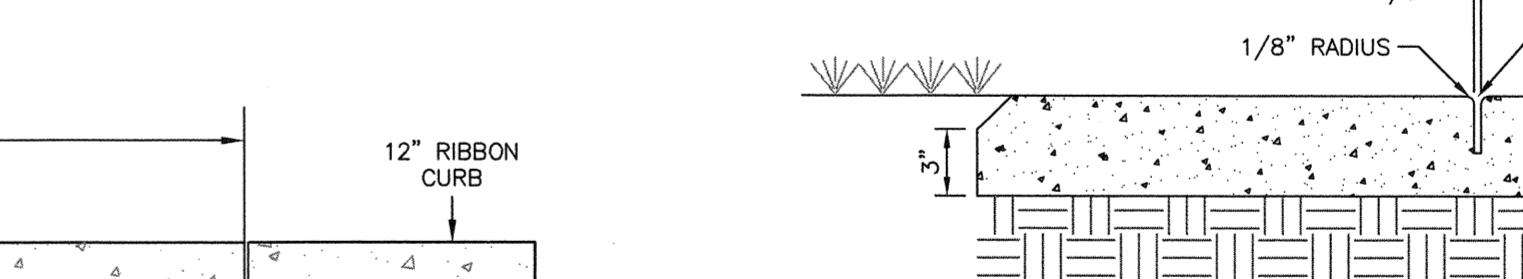
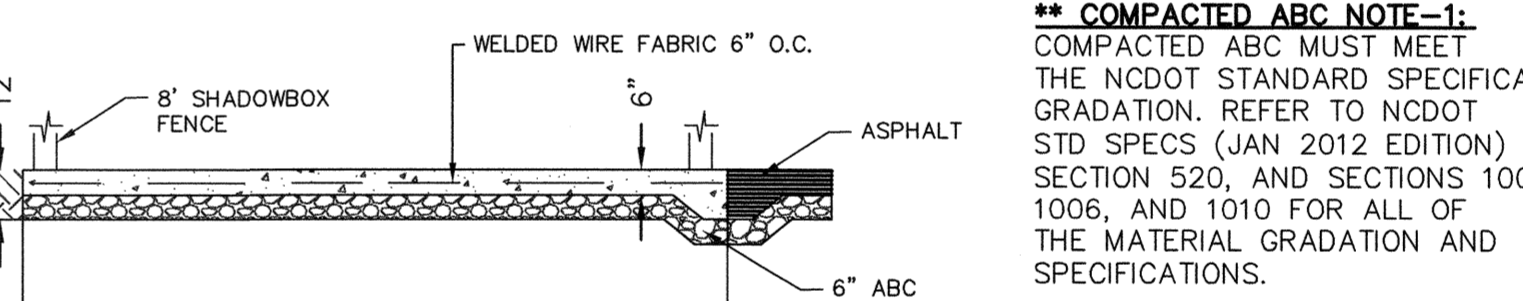
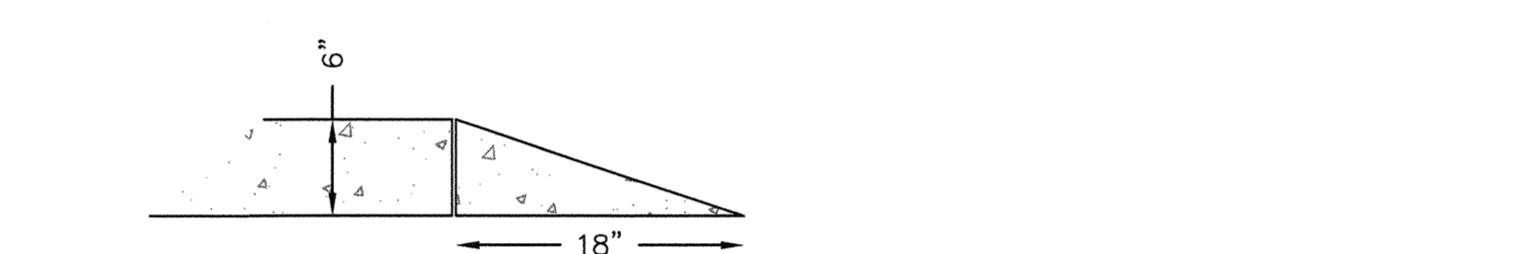
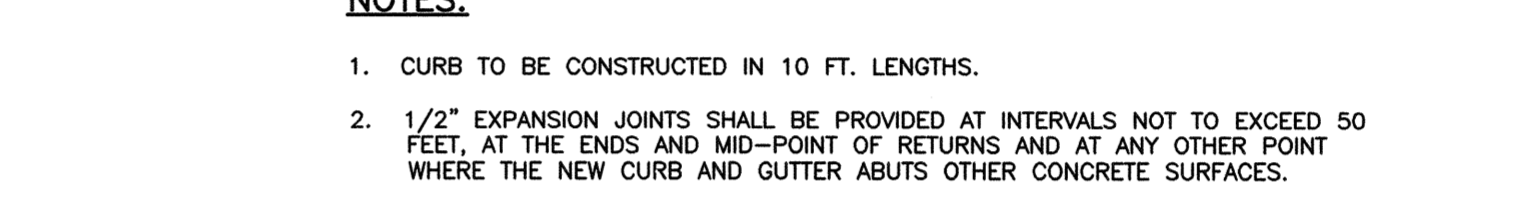
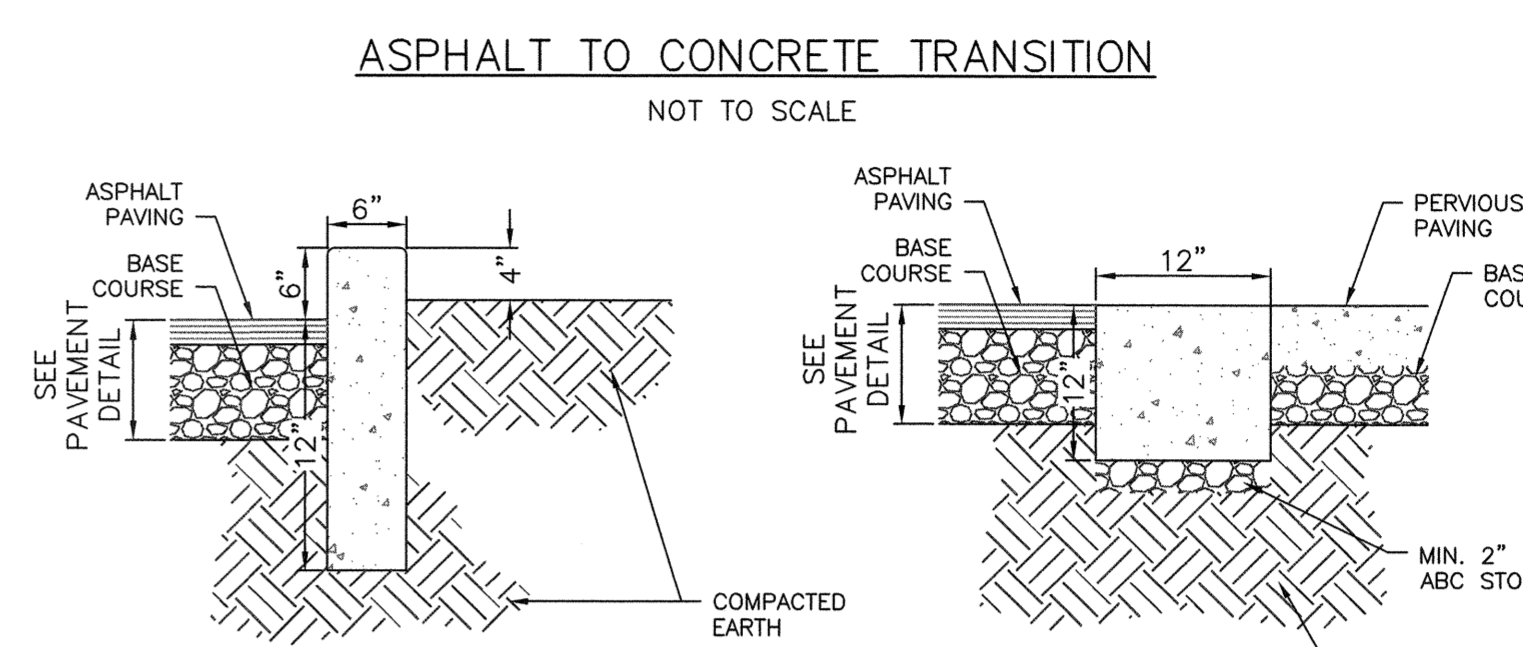
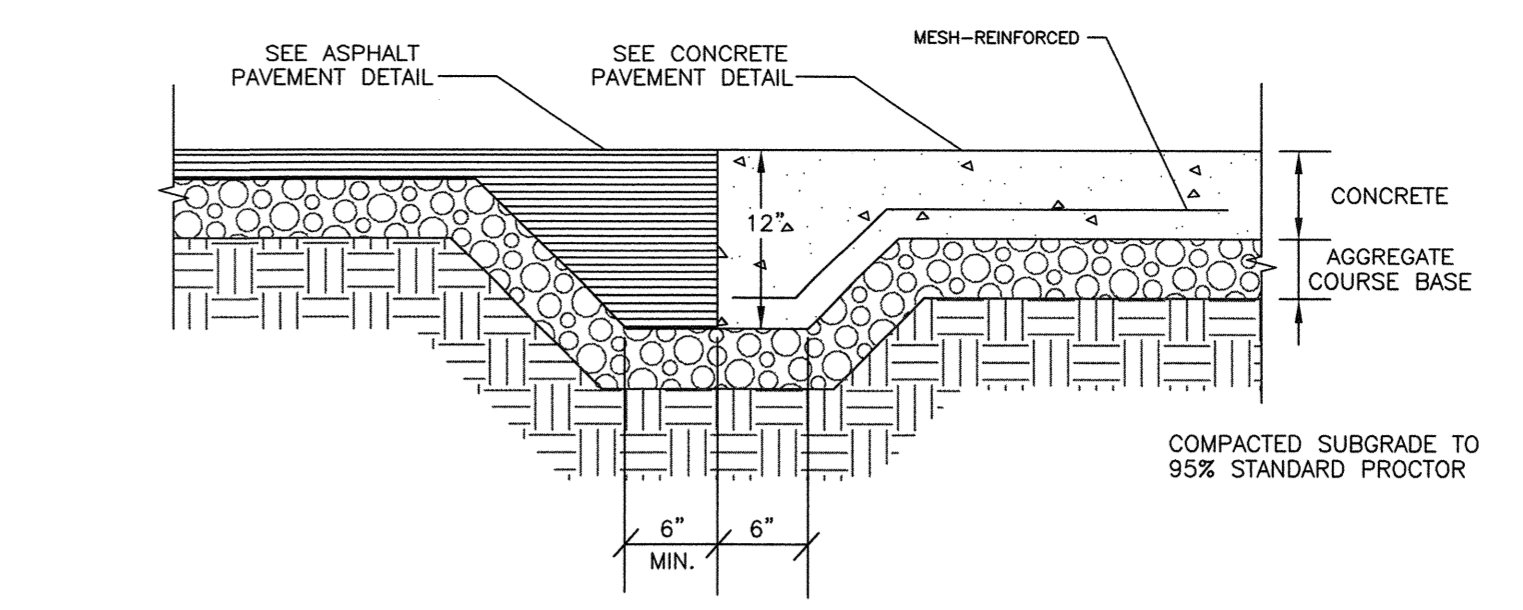
CONSTRUCTION NOTES

- CONSTRUCTION SHALL CONFORM WITH CONSTRUCTION STANDARDS OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.
- WHEELCHAIR RAMPS SHALL BE CONSTRUCTED OF CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SKID TYPE FINISH.
- A 1/2" EXPANSION JOINT SHALL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
- IN NO CASE SHALL THE WIDTH OF A CURB RAMP OR CURB CUT BE LESS THAN 40-IN. (3'-FT, 4-IN.), NOT INCLUDING THE FLARED SIDES.
- TRANSITIONS FROM RAMPS TO WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
- THE MAXIMUM SLOPE ON THE CURB RAMP RUN IS 1:12.
- THE MAXIMUM CROSS SLOPE OF THE CURB RAMP IS 1:50.
- MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
- ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE CURB RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48-IN. LONG BETWEEN THE CURB RAMPS.
- DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9-IN., A HEIGHT OF NOMINAL 0.2-IN. AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35-IN. AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

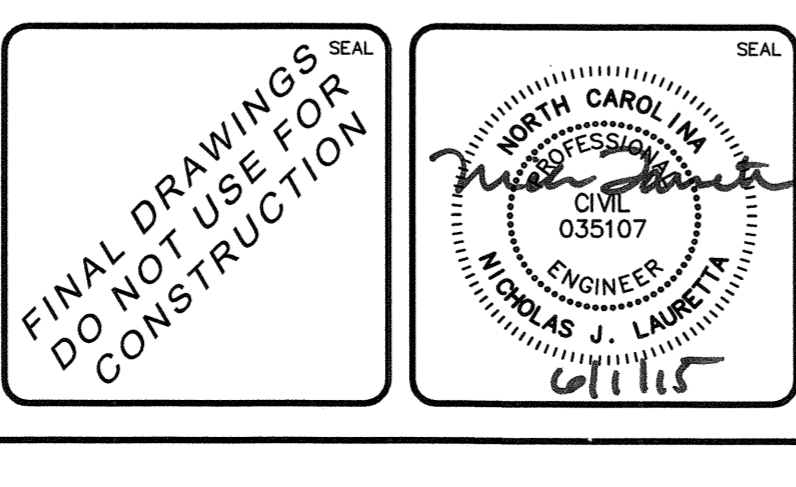
ADDITIONAL NOTES

- STOP BARS SHALL BE USED WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT.
- PARKING SHALL BE ELIMINATED A MINIMUM OF 20 FEET BACK OF THE PEDESTRIAN CROSSWALK.
- ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THIS DOCUMENT IS AVAILABLE FROM THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402.
- CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
- THE BOTTOM OF DIAGONAL (CORNER TYPE) CURB RAMPS AT MARKED CROSSINGS SHALL HAVE 48-IN. MINIMUM CLEAR SPACE WITHIN THE MARKINGS.
- IF DIAGONAL CURB RAMPS HAVE FLARED SIDES, THEY SHALL HAVE AT LEAST A 24-IN. LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.

SD 8-09



REV. NO.	DESCRIPTION	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015



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RIVERLIGHTS MARINA VILLAGE
SITE DETAILS

DATE: 08APR15
 MCE PROJ. # 2735-0124
 DRAWN: EEM
 DESIGNED: EEM
 CHECKED: RMC
 PROJ. MGR. NJL

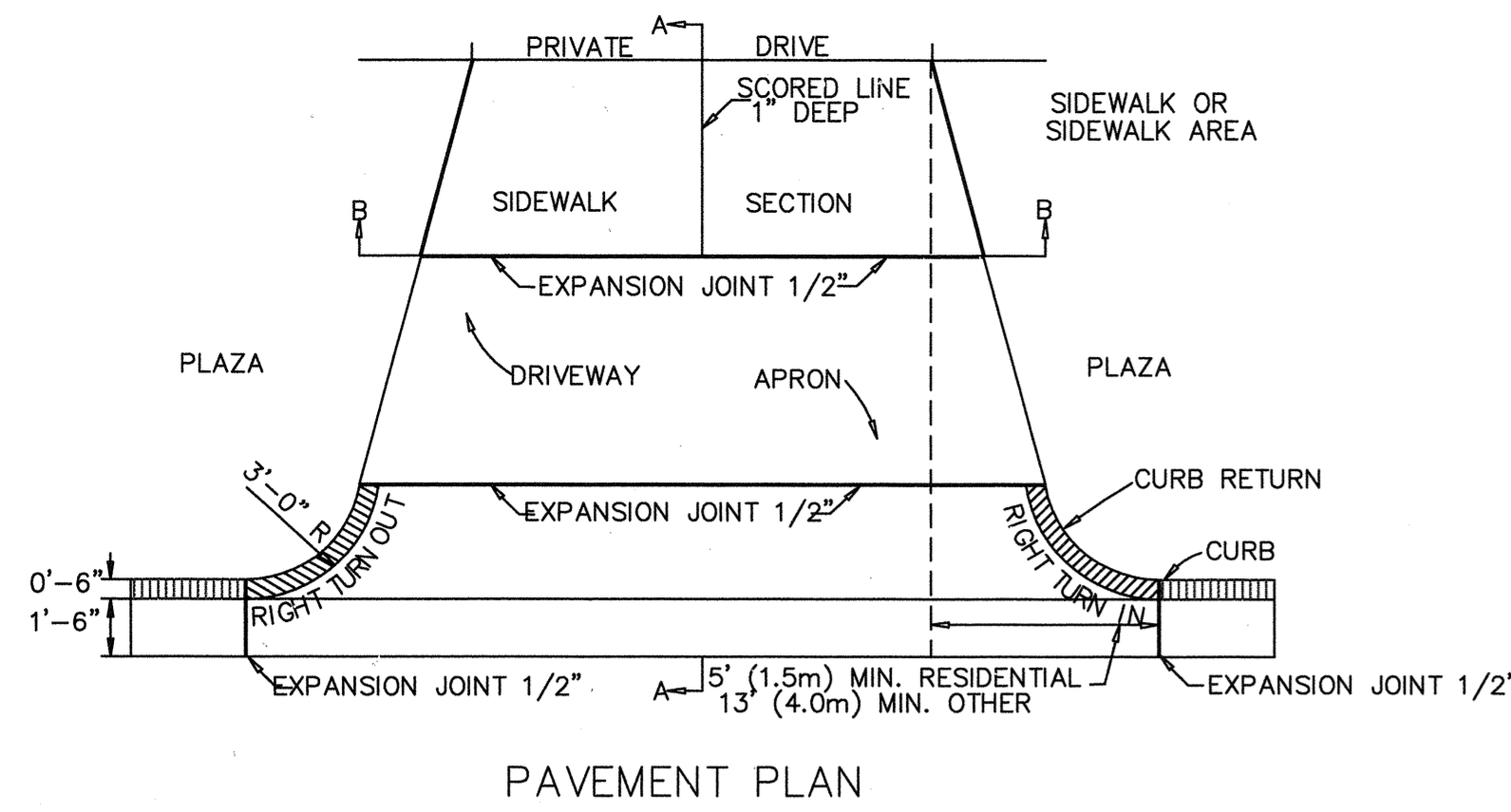
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 VERTICAL: ---

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 DRAWING NUMBER: 25
 REVISION: 25 OF 28

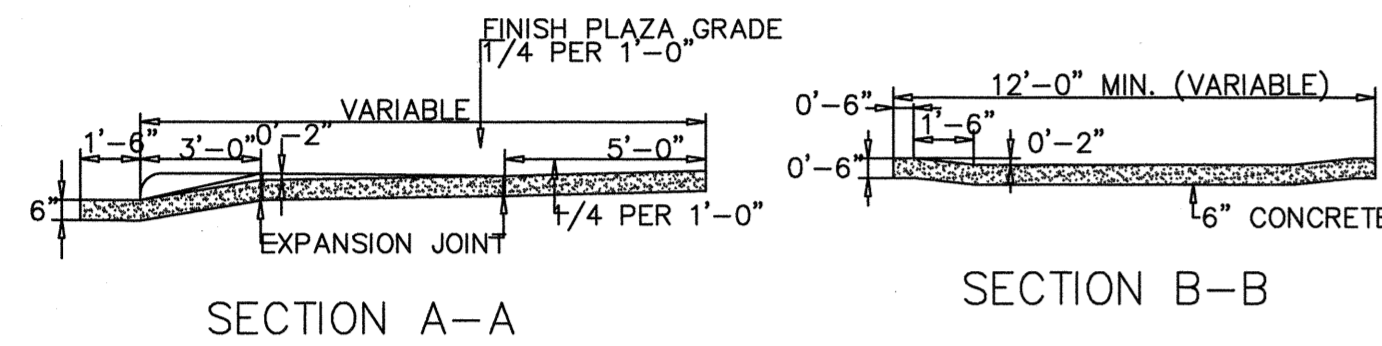
STATUS: FINAL DESIGN
 NOT FOR CONSTRUCTION

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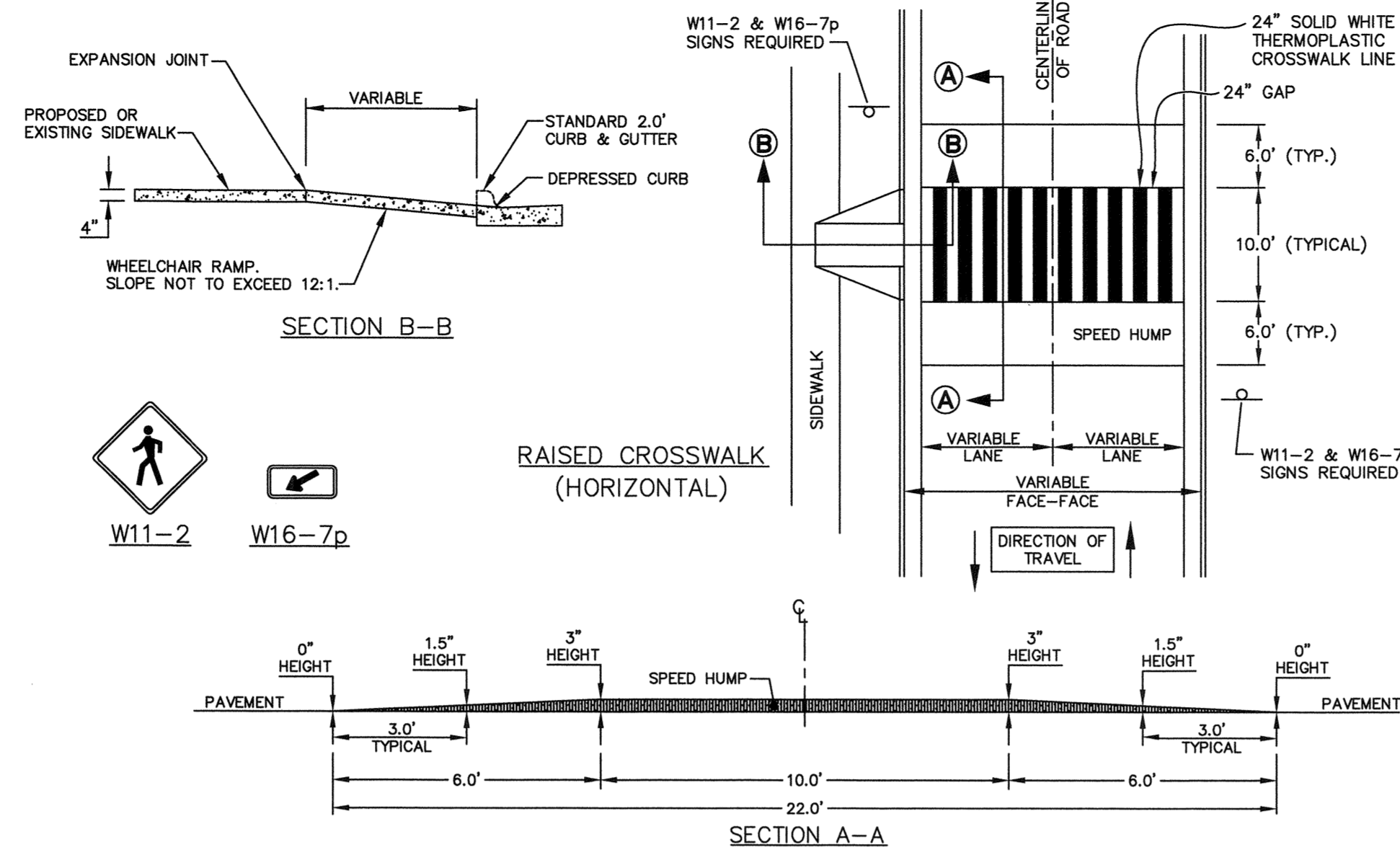


PAVEMENT PLAN



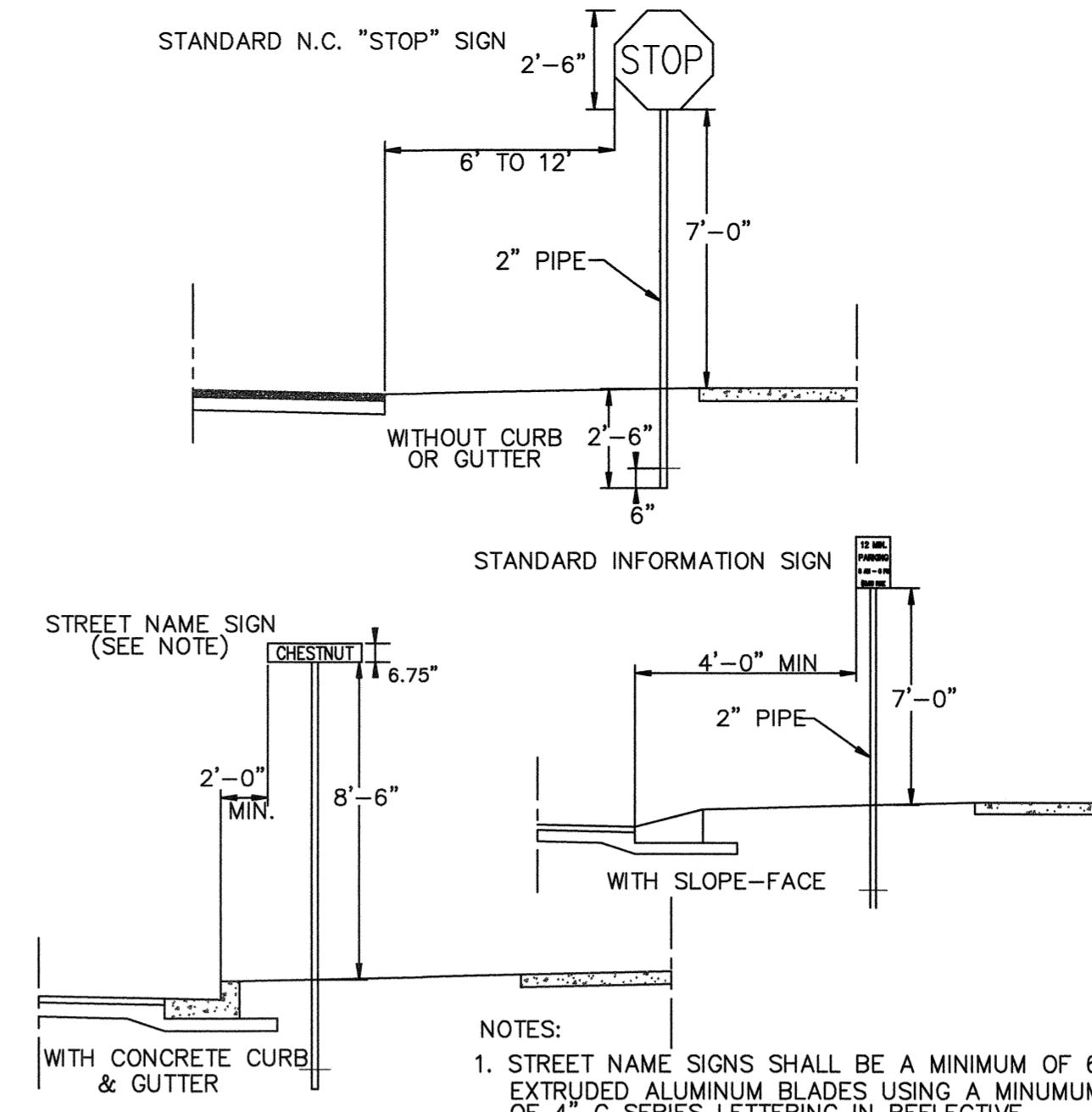
STANDARD DRIVEWAY DETAIL

SD 8-02
NOT TO SCALE



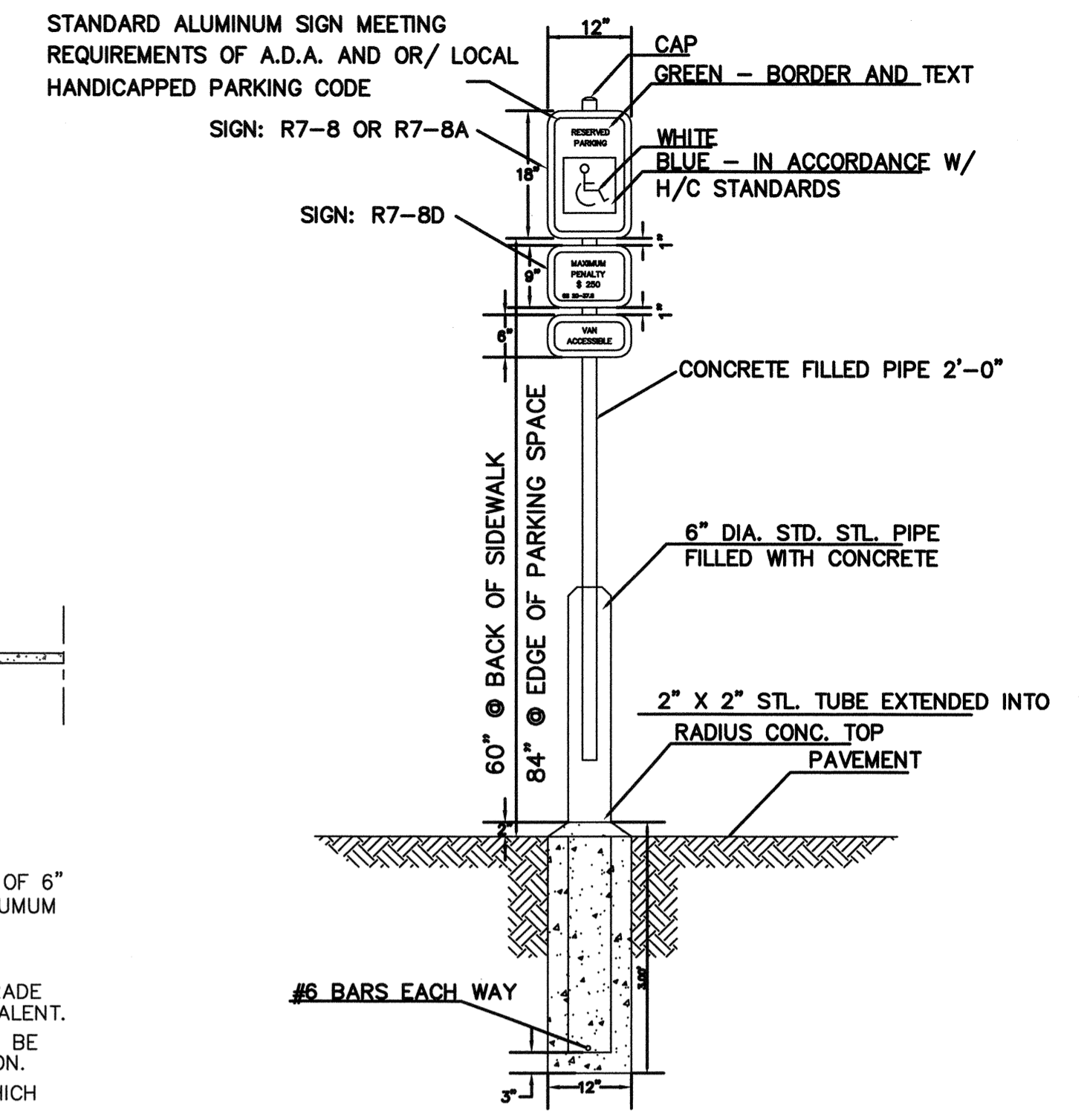
RAISED CROSSWALK (HORIZONTAL)

NOT TO SCALE



STANDARD SIGN INSTALLATION LOCATION

SD 15-04
NOT TO SCALE



HANDICAP PARKING SIGN

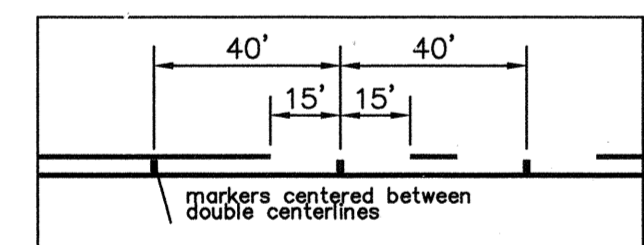
NOT TO SCALE

PAVEMENT MARKER SPACING CHART	
TYPE OF PAVEMENT MARKING	TYPICAL SPACING IN FT (speed limit <= 45mph)
Centerlines—along through lanes	40
Centerlines—along horizontal curves	per Traffic Engineering
Skip Lines—along through lanes	40
Turn Lanes—Skip Lines	40
Turn Lanes—Solid Lane Lines	20
Turn Lanes—Centerlines	40
Painted Islands—White	20
Painted Islands—Yellow	40
Raised Median Islands	40
Other Markings	per Traffic Engineering

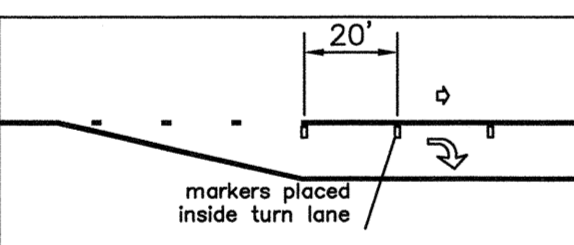
GENERAL NOTES

- CRYSTAL/RED MARKERS SHALL BE USED ALONG WHITE PAVEMENT MARKINGS UNLESS OTHERWISE DIRECTED BY TRAFFIC ENGINEERING. RED SIDE OF MARKER TO FACE "WRONG-WAY" TRAFFIC.
- PAVEMENT MARKERS SHOULD NOT BE PLACED CLOSER THAN 2 INCHES TO A PAVEMENT CONSTRUCTION JOINT, EXCEPT WHEN PLACED BETWEEN DOUBLE YELLOW CENTERLINES.
- PAVEMENT MARKERS SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKINGS.
- PAVEMENT MARKERS USED IN CONJUNCTION WITH DOUBLE YELLOW CENTERLINES SHALL BE PLACED MID-WAY BETWEEN THE LINES, WITH A GAP BETWEEN MARKER AND MARKINGS.

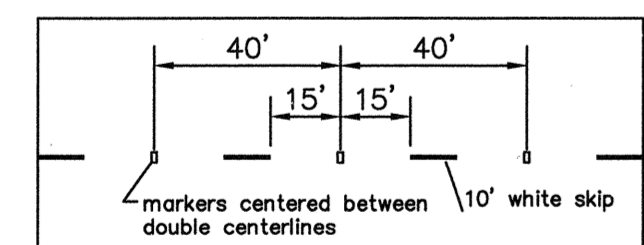
PLACEMENT ALONG YELLOW CENTERLINES



PLACEMENT ALONG TURN LANE LINES



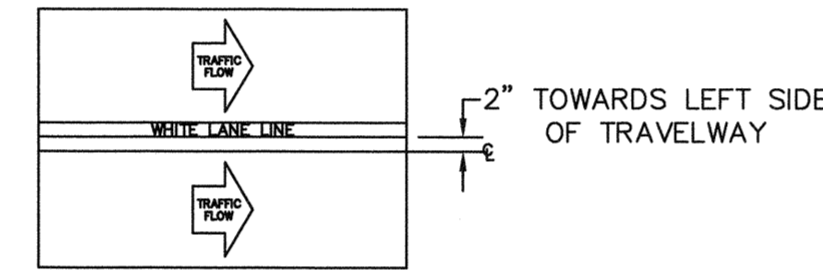
PLACEMENT ALONG WHITE SKIP LINES



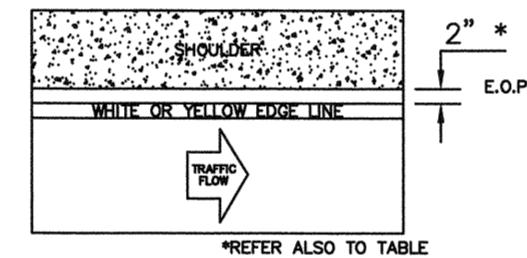
LEGEND	
↔	DIRECTION OF TRAFFIC FLOW
■	AMBER / AMBER MARKER
□	CRYSTAL / RED MARKER

PAVEMENT MARKINGS
RAISED PAVEMENT MARKERS
SD 11-10

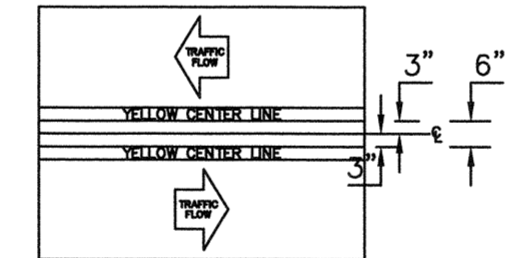
LANE LINE OFFSET DETAIL



EDGE LINE OFFSET DETAIL

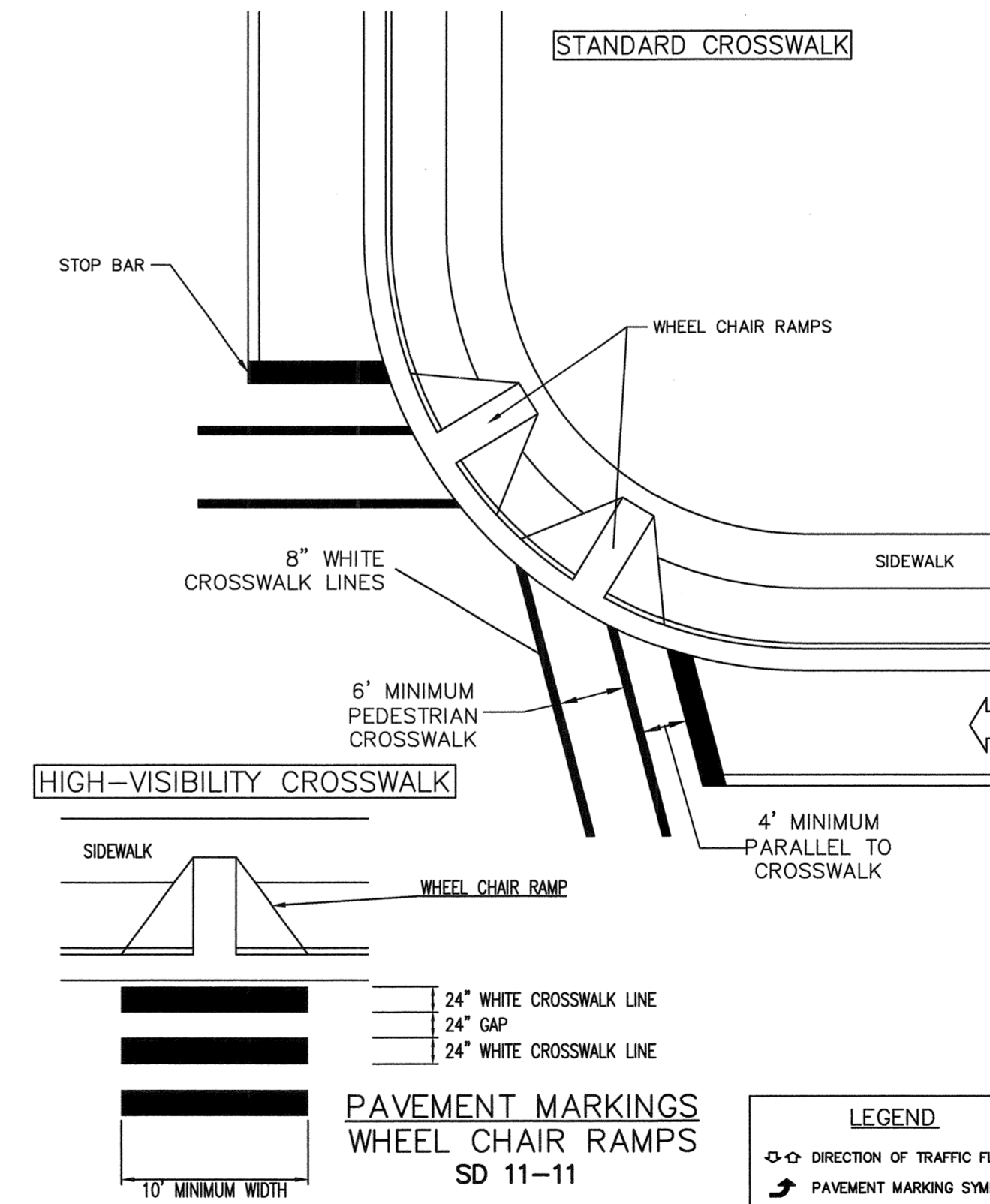


CENTER LINE OFFSET DETAIL



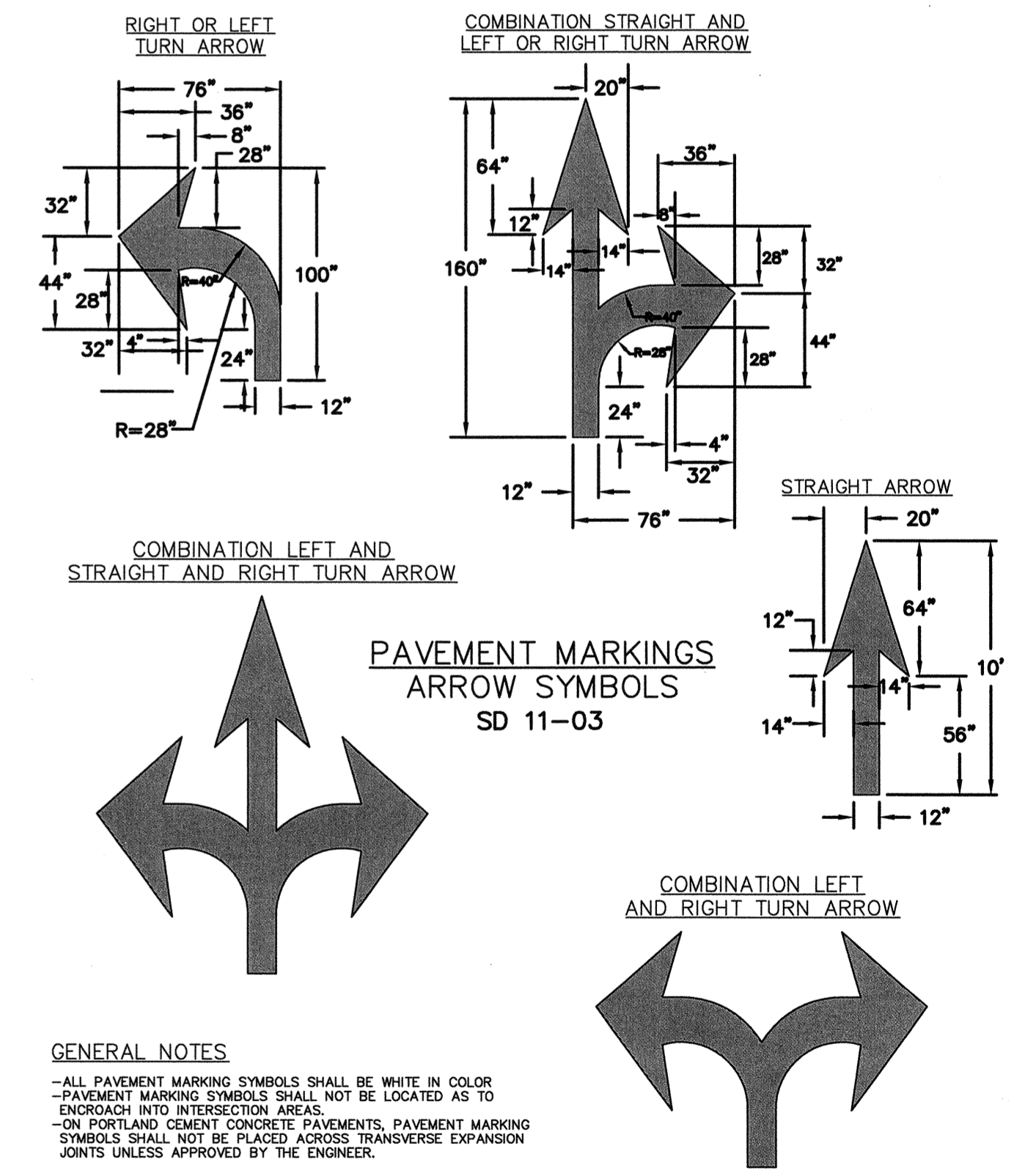
PAVEMENT MARKINGS
OFFSETS
SD 11-02

TABLE 1 EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS		
WIDTH OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E. O. P.	MINIMUM LANE WIDTH
16' - 20'	2'	8' - 10'
22'	2'	11'
24'	1'	11'
26'	2'	11'
28'	2'	12'
30'	3'	12'
32'	4'	12'



PAVEMENT MARKINGS
WHEEL CHAIR RAMPS
SD 11-11

LEGEND	
↔	DIRECTION OF TRAFFIC FLOW
➔	PAVEMENT MARKING SYMBOLS

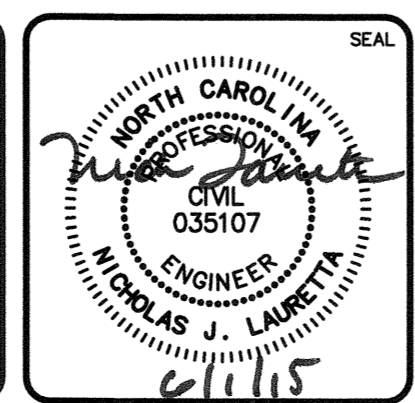


GENERAL NOTES

- ALL PAVEMENT MARKING SYMBOLS SHALL BE WHITE IN COLOR
- PAVEMENT MARKING SYMBOLS SHALL NOT BE LOCATED AS TO ENDOUCH INTO INTERSECTION AREAS.
- ON PORTLAND CEMENT CONCRETE PAVEMENTS, PAVEMENT MARKING SYMBOLS SHALL NOT BE PLACED ACROSS TRANSVERSE EXPANSION JOINTS UNLESS APPROVED BY THE ENGINEER.

REV. NO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

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RIVERLIGHTS
by
Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
SITE DETAILS

DATE: 08APR15	SCALE: ---	M&C FILE NUMBER: CS-502
MCE PROJ. # 2735-0124	HORIZONTAL: ---	DRAWING NUMBER: 26
DRAWN: EEM	VERTICAL: ---	26 OF 28
DESIGNED: EEM		
CHECKED: RMC		
PROJ. MGR.: N.J.		
STATUS: FINAL DESIGN		REVISION: D
NOT FOR CONSTRUCTION		

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.05.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
FOR 3'-0" TO 3'-6" IN HEIGHT OR LESS USE 4" WALLS AND BOTTOM SLAB. OVER 3'-6" TO 15'-0" IN HEIGHT USE 6" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
CONSTRUCT WITH PIPE CORINGS MATCHING.
COMPACT ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

DIMENSIONS OF BOX AND PIPE		COVER		CATCH BASIN		TOTAL		DEDUCTIONS	
PIPE DIA.	BOX WIDTH	MIN. HEN. HEIGHT	MIN. HEN. HEIGHT	NO. BARS	NO. BARS	NO. BARS	NO. BARS	CONC. IN BOX	CONC. IN PIPE
D	A	B	H	E	F	G	H	FT. HT.	C.W. R.C.
12"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
15"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
18"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
24"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
30"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
36"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
42"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
48"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
54"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033

SHEET 1 OF 2
840.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE CATCH BASIN
12" THRU 54" PIPE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.05.
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
FOR 3'-0" TO 3'-6" IN HEIGHT OR LESS USE 4" WALLS AND BOTTOM SLAB. OVER 3'-6" TO 15'-0" IN HEIGHT USE 6" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
CONSTRUCT WITH PIPE CORINGS MATCHING.
COMPACT ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

DIMENSIONS OF BOX AND PIPE		COVER		CATCH BASIN		TOTAL		DEDUCTIONS	
PIPE DIA.	BOX WIDTH	MIN. HEN. HEIGHT	MIN. HEN. HEIGHT	NO. BARS	NO. BARS	NO. BARS	NO. BARS	CONC. IN BOX	CONC. IN PIPE
D	A	B	H	E	F	G	H	FT. HT.	C.W. R.C.
12"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
15"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
18"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
24"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
30"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
36"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
42"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
48"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
54"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033

SHEET 2 OF 2
840.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
TRAFFIC BEARING PRECAST
DRAINAGE STRUCTURE

GENERAL NOTES:
THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS:
840.04, 840.05, 840.14, 840.15, 840.31, 840.32, 840.34, 840.35, 840.36 AND 840.41.
INSTALL AND PAY FOR PRECAST DRAINAGE STRUCTURES IN ACCORDANCE WITH NCOTD STANDARD SPECIFICATION SECTION 840.
PRECAST ALL ELEMENTS TO MEET ASTM C913.
USE ASTM A615 GRADE 60 REINFORCING STEEL. USE ASTM A185 WELDED WIRE FABRIC (WWF).
LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB TO 15'-0".
PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
ORIENT STRUCTURES SO THAT CORNERS WILL NOT BE CUT OR MODIFIED UNLESS ALLOWED BY DETAIL IN PLANS.
FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.29.
PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR IF THE SAME MIN. AREA OF STEEL IS PROVIDED.
SEAL JOINTS WITH AN APPROVED SEALANT (SEE SECTION 840 OF NCOTD STANDARD SPECIFICATIONS).
LIMIT MAXIMUM STRUCTURE SIZE INSIDE CLEAR DIMENSIONS TO 6'-0" X 6'-0".
THE OUTSIDE PIPE DIAMETER PLUS 2" IS THE MINIMUM STRUCTURE SIZE OR THE OPENING REQUIRED FOR GRATE AND FRAME W/CHEVER IS GREATER.
ROUND MANHOLE MAY BE USED IN LIEU OF SQUARE PROVIDED 2 EXTRA #5'S ARE PLACED ON EVERY SIDE NOT ADJACENT TO A WALL. SEE STD. DNG. 840.34 FOR MANHOLE INSTALLATION.

SHEET 1 OF 1
840.46

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

NOTE: USE TYPE "E", "F" AND "G" GRATE UNLESS OTHERWISE NOTED.

ALIGN FRAME WITH INSIDE EDGE OF WALL TO ALLOW FOR VERTICAL ADJUSTMENT

SHEET 1 OF 2
840.03

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
FRAME, GRATES, AND HOOD
FOR USE ON STANDARD CATCH BASIN

DETAIL SHOWING TYPES OF GRATES
USE ACCORDING TO WATER FLOW.

TYPE "G"
TYPE "E"
TYPE "F"

WATER FLOW → SAG → WATER FLOW

SECTION B-B

SECTION A-A

SECTION A-A

SECTION A-A

SHEET 2 OF 2
840.03

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY OR #4 BAR DOMELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.05.
CONSTRUCT WITH PIPE CORINGS MATCHING.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
INSTALL 2" WEEP HOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE DRAINAGE OF A MINIMUM OF 1 CUBIC FOOT OF NO. 10M STONE IN A FORGUS BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

DIMENSIONS OF BOX AND PIPE		COVER		CATCH BASIN		TOTAL		DEDUCTIONS	
PIPE DIA.	BOX WIDTH	MIN. HEN. HEIGHT	MIN. HEN. HEIGHT	NO. BARS	NO. BARS	NO. BARS	NO. BARS	CONC. IN BOX	CONC. IN PIPE
D	A	B	H	E	F	G	H	FT. HT.	C.W. R.C.
12"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
15"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
18"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
24"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033
30"	3'-0"	2'-0"	3'-0"	4	4	4	4	0.222	0.033

SHEET 1 OF 1
840.14

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DROP INLET FRAME AND GRATES
FOR USE WITH STD. DNG. S. 840.14 AND 840.15

SECTION G-G

PLAN OF GRATING
CAST IRON

SECTION E-E

SECTION F-F

SHEET 1 OF 1
840.16

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

BRICK MASONRY CONSTRUCTION

CONCRETE CONSTRUCTION

PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.

MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE

CONCRETE ANCHOR
3/8" DIA. BENT BAR

PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR

SHEET 1 OF 1
840.25

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DRAINAGE STRUCTURE STEPS

PLAN

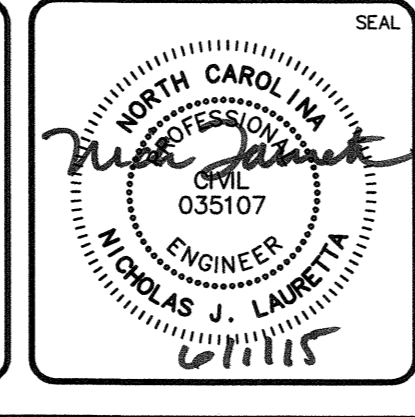
SIDE ELEVATION

SECTION A-A

SHEET 1 OF 1
840.66

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
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RIVERLIGHTS
by Newland COMMUNITIES

NORTH AMERICA SEXISUS HOUSE, LLC

RIVERLIGHTS MARINA VILLAGE

STORM DRAINAGE DETAILS

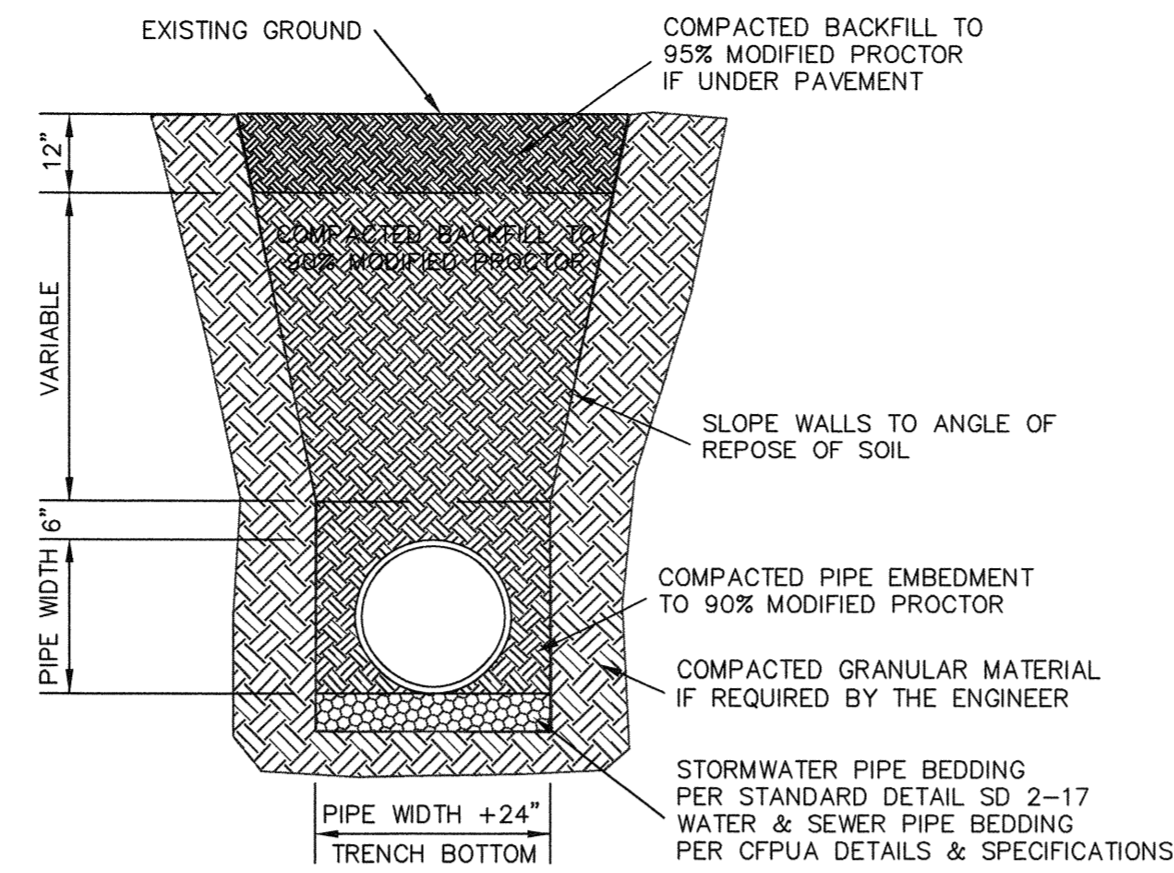
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DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR. NJL

SCALE: HORIZONTAL: ---
VERTICAL: ---

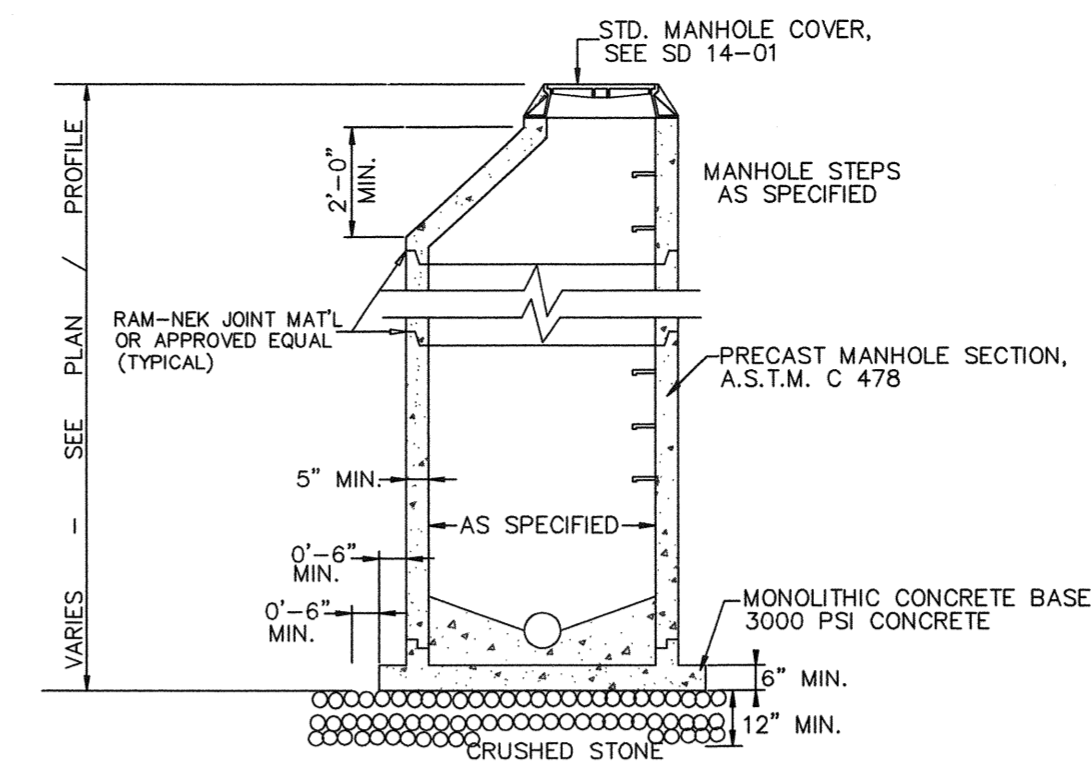
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DRAWING NUMBER: 27
REVISION: 27 OF 28

STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION

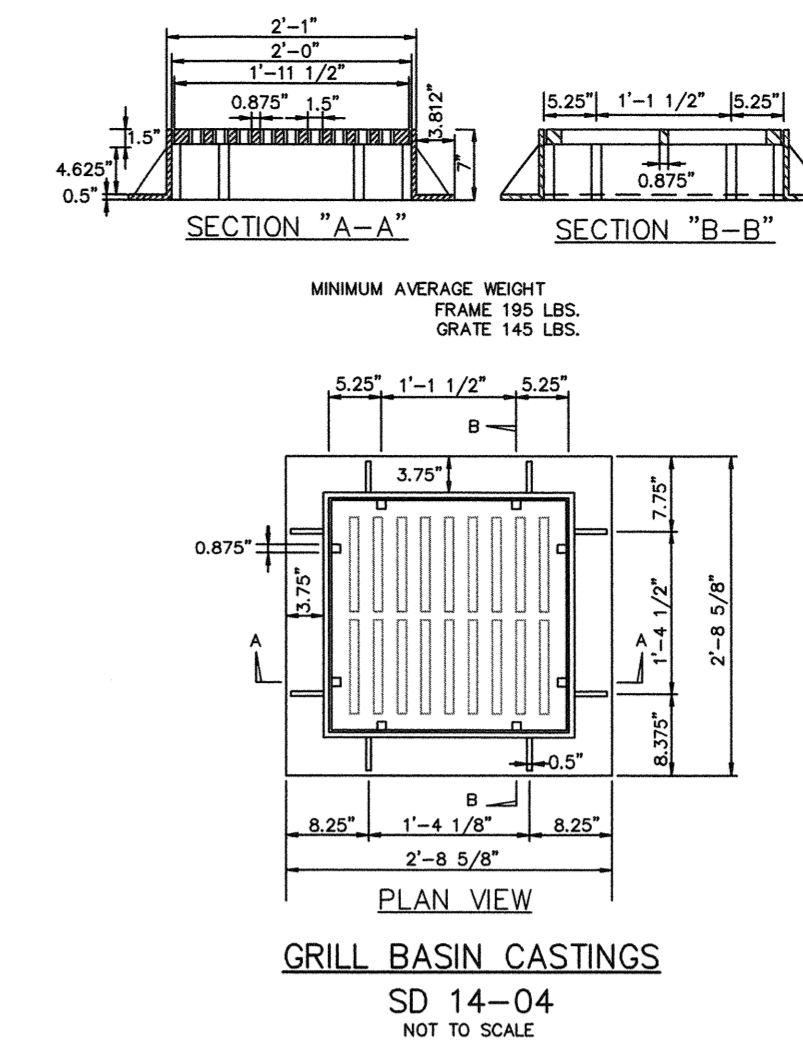
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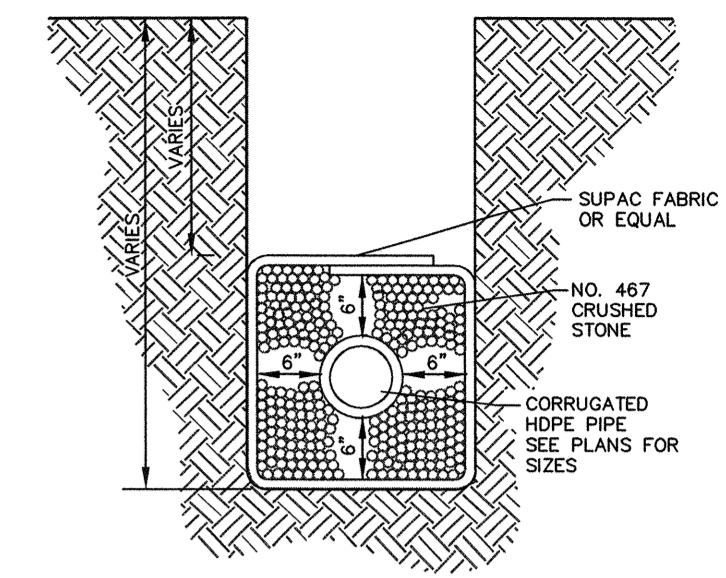
STANDARD PIPE TRENCH DETAIL
SD 1-07
NOT TO SCALE



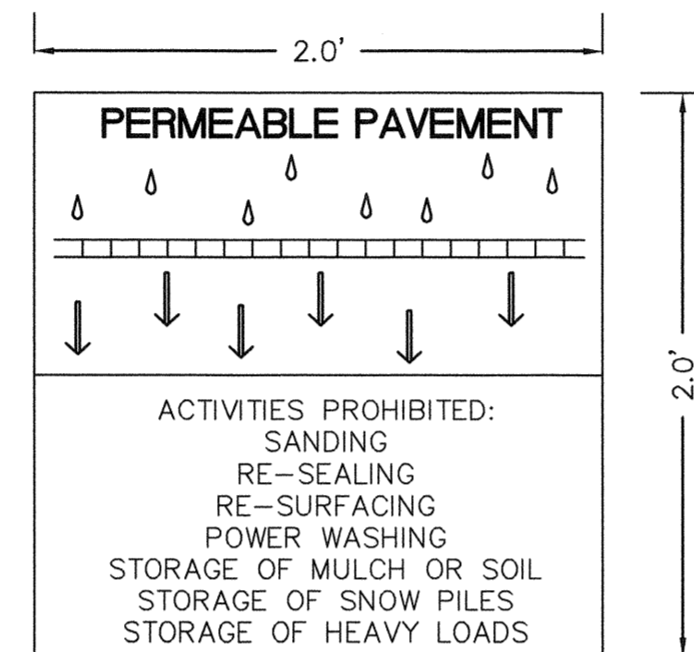
PRECAST MANHOLE
SD 14-11
NOT TO SCALE



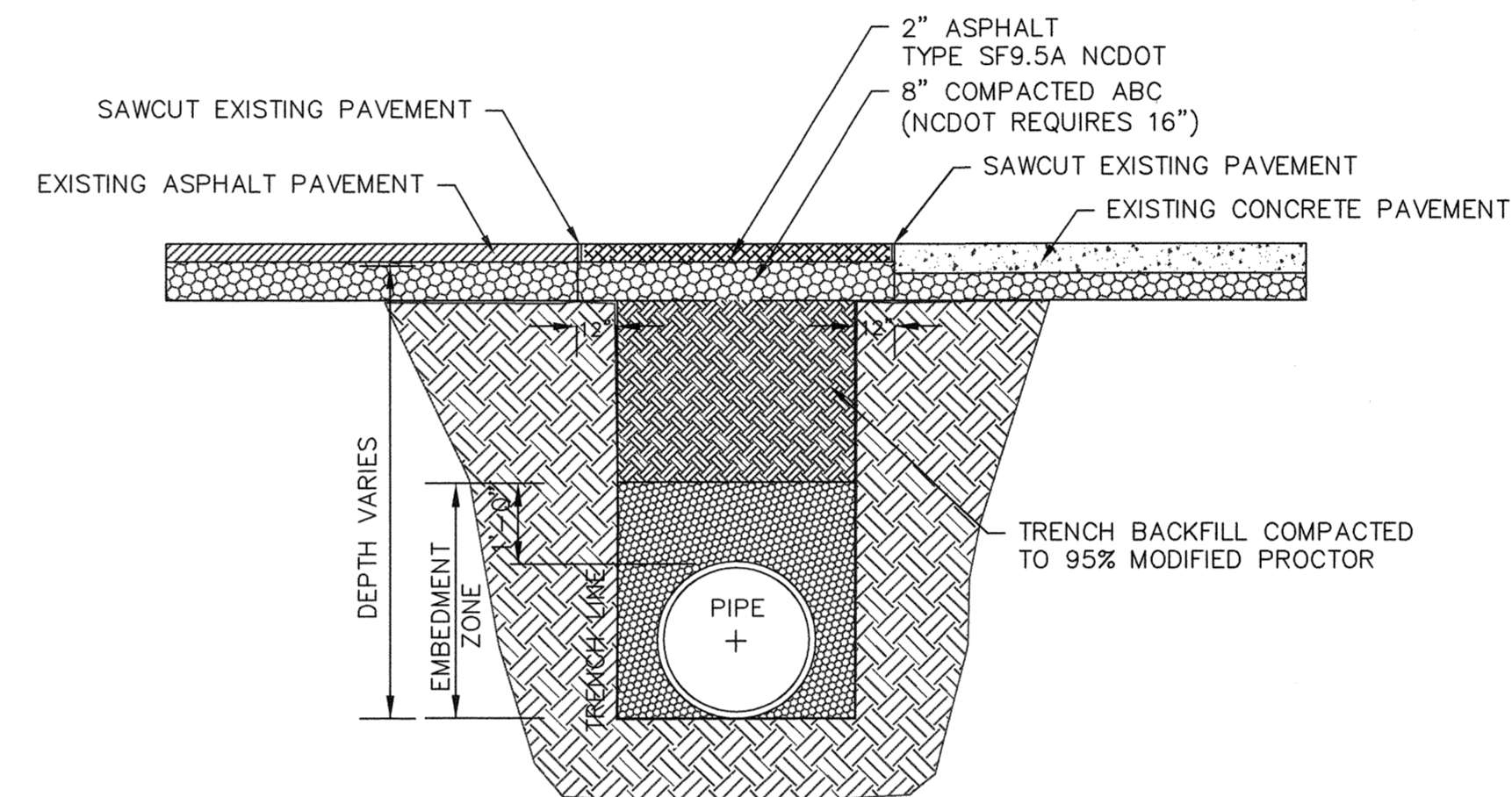
GRILL BASIN CASTINGS
SD 14-04
NOT TO SCALE



TYPICAL SECTION
GUIDELINES FOR SUB-DRAIN
SD 2-04
NOT TO SCALE

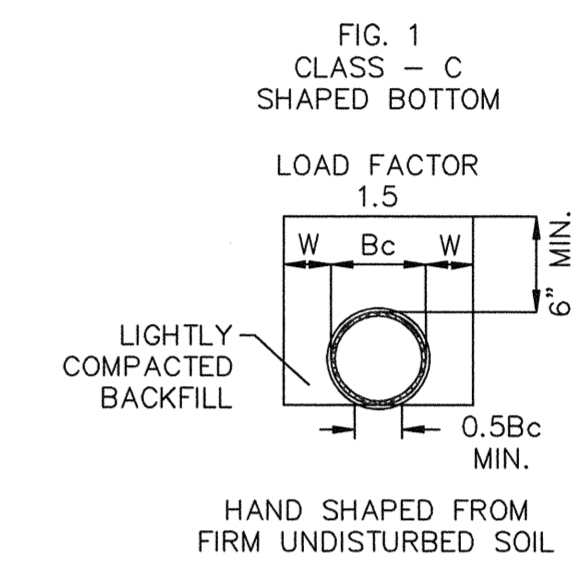


PERMEABLE PAVEMENT
SIGN DETAIL
NOT TO SCALE



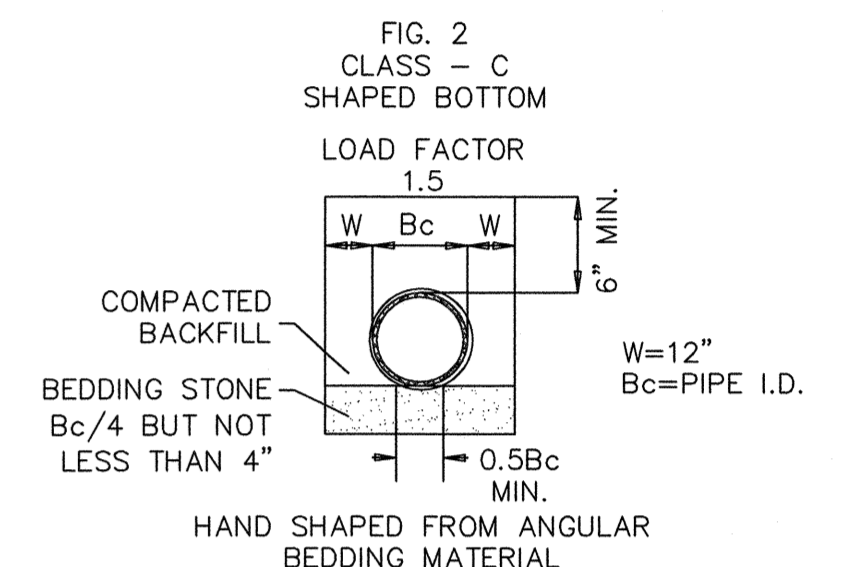
STANDARD SHOWING METHOD MAKING PAVEMENT
REPAIRS WHERE PIPE IS INSTALLED

PAVEMENT REPAIR DETAIL
SD 1-16
NOT TO SCALE



GUIDELINES FOR BEDDING DETAILS
STORM SEWER CLASS C

SD 2-17
NOT TO SCALE



STORM DRAINAGE NOTES:

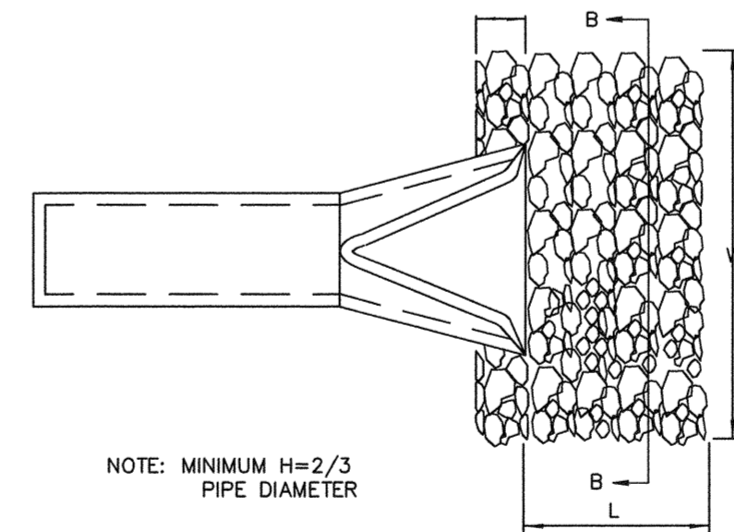
1. ALL PIPE BEDDING SHALL BE CLASS "C" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. ALL STORM DRAINAGE PIPES SHALL BE RCP CLASS III UNLESS OTHERWISE NOTED ON THE PLANS.
3. DO NOT PLANT TREES WITHIN UTILITY AND DRAINAGE EASEMENTS.
4. THE ENGINEER AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION OF THE PIPES PRIOR TO CONSTRUCTION. IF DAMAGE OCCURS TO THESE PIPES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE PIPE(S).
5. THE CONTRACTOR SHALL CONTACT ONECALL BEFORE COMMENCING ANY WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WHETHER INDICATED ON THE DRAWINGS OR NOT. THE CONTRACTOR WILL ASSURE THE PRESENCE ONSITE OF A REPRESENTATIVE OF THE GAS COMPANY WHEN WORKING IN THE VICINITY OF ANY GAS MAINS.

PERMEABLE PAVEMENT CONSTRUCTION SEQUENCE:

1. BEFORE CONSTRUCTION OF PERMEABLE PAVEMENT, MAKE SURE IMPERVIOUS AREA THAT WILL DRAIN TO THE PERMEABLE PAVEMENT HAS BEEN BE COMPLETED AND GRADED AND DISTURBED AREA ADJACENT TO OR DRAINING TOWARDS THE PERMEABLE PAVEMENT HAS BEEN STABILIZED.
2. CLEAR AND EXCAVATE THE AREA FOR PAVEMENT AND BASE COURSES.
3. SCAR THE SUBGRADE SURFACE TO A DEPTH OF 6-9 INCHES.
4. BEFORE PLACING THE AGGREGATE BASE, A DIRECT MEASUREMENT OF THE SOIL'S INFILTRATION RATE MUST BE CONDUCTED IMMEDIATELY AFTER EXCAVATION BY AN APPROPRIATELY LICENSED PROFESSIONAL. IF INFILTRATION RATES ARE LOWER THAN THE RATE USED IN THE FINAL DESIGN, THE DESIGN MAY HAVE TO BE ADJUSTED.
5. PLACE OBSERVATION WELL ACCORDING TO DESIGN PLANS.
6. SPREAD #57 STONE AGGREGATE TO A DEPTH OF 6 INCHES AND COMPACT IT LIGHTLY.
7. INSTALL EDGE RESTRAINTS AND BARRIERS BETWEEN PERMEABLE AND IMPERVIOUS PAVEMENT PER DESIGN.
8. CONSTRUCT PERVIOUS CONCRETE PAVEMENT IN ACCORDANCE TO ACI 522.1 SPECIFICATION FOR PERVIOUS CONCRETE.
9. PROTECT THE PERMEABLE PAVEMENT THROUGH PROJECT COMPLETION.
10. AFTER INSTALLATION, AN APPROPRIATELY LICENSED PROFESSIONAL MUST PERFORM A FINAL ASBUILT INSPECTION AND CERTIFICATION

PERMEABLE PAVEMENT NOTES:

- PERMEABLE PAVEMENT WILL BE INSTALLED AT THE END OF THE CONSTRUCTION TIMELINE
- CONSTRUCTION ACCESS TO OTHER PORTIONS OF THE SITE MUST BE ESTABLISHED SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE DURING AND AFTER INSTALLATION. INSTALL BARRIERS OR FENCES AS NEEDED.
- BEFORE CONSTRUCTION OF PERMEABLE PAVEMENT, MAKE SURE:
 - a. IMPERVIOUS AREA THAT WILL DRAIN TO THE PERMEABLE PAVEMENT MUST BE COMPLETED AND GRADED SO THAT THEY DO NOT DISCHARGE TO THE PERMEABLE PAVEMENT
 - b. AREAS OF THE SITE ADJACENT TO OR DRAINING TOWARDS THE PERMEABLE PAVEMENT MUST BE STABILIZED WITH VEGETATION, MULCH, STRAW, SEED, SOIL, FIBER BLANKETS, OR OTHER APPROPRIATE COVER IN ORDER TO PREVENT EROSION AND POSSIBLE CONTAMINATION WITH SEDIMENT.
 - c. THE FORECAST SHOULD BE FOR A WINDOW OF DRY WEATHER TO PREVENT EXCESS COMPACTION OR SMEARING OF THE SUBGRADE WHILE IT IS EXPOSED.
- IN ORDER TO PRESERVE SUBGRADE INFILTRATION RATES:
 - a. DO NOT ALLOW EQUIPMENT TO CROSS THE PAVEMENT AREA
 - b. USE EQUIPMENT WITH TRACKS RATHER THAN TIRES TO MINIMIZE SOIL COMPACTION
- THE FINAL SUBGRADE SLOPE SHALL NOT EXCEED 0.5%
- INSPECT ALL #57 STONE TO INSURE THAT IT IS CLEAN, FREE OF FINES, AND CONFORMS TO THE SPECIFICATIONS IN THE DESIGN PLANS. IF AGGREGATED BECOME CONTAMINATED WITH SEDIMENT, THEN IT SHALL BE REPLACED WITH CLEAN MATERIALS.
- IF THE EXCAVATED SUBGRADE SURFACE IS SUBJECTED TO RAINFALL BEFORE THE PLACEMENT OF THE AGGREGATE BASE, THE RESULTING SURFACE CRUST MUST BE SCARIFIED BREAK UP THE CRUST
- ALL AGGREGATE SHOULD BE SPREAD, NOT DUMPED, BY A FRONT END LOADER

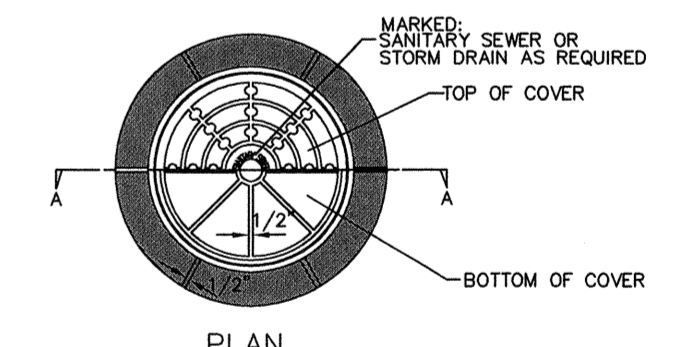


- NOTES:**
1. SEE OUTLET PROTECTION TABLE BELOW FOR RIP-RAP DIMENSIONS AND CLASSES.
 2. RIP-RAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
 3. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
 4. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1
 5. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
 6. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
 7. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.

RIP RAP APRON OUTLETS
NOT TO SCALE

PIPE NUMBER	OUTLET DIA.	APRON WIDTH	APRON LENGTH	APRON THICKNESS	APRON WEIGHT
1	24	2.84	3.5	4	A
2	24	2.84	3.5	4	A
3	24	1.37	3.5	4	A

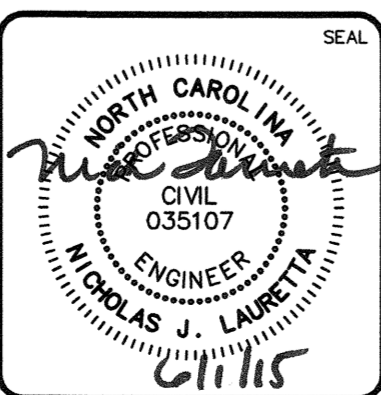
NOTES:
1.) Minimum apron width of 18" shall be installed.
2.) Class = 089 x 1.5
3.) Thickness = Dmax x 1.5
4.) Width = 3 x Pipe Dia.



STANDARD MANHOLE RING AND COVER
SD 14-01
NOT TO SCALE

REVNO.	DESCRIPTIONS	DATE
D	CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/2015
C	CITY OF WILMINGTON STORMWATER SUBMITTAL	05/29/2015
B	NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/2015
A	CITY OF WILMINGTON TRC SUBMITTAL	04/08/2015

FINAL DRAWINGS
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CONSTRUCTION



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243 North Front Street
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RIVERLIGHTS
by Newland COMMUNITIES

RIVERLIGHTS MARINA VILLAGE
STORM DRAINAGE DETAILS

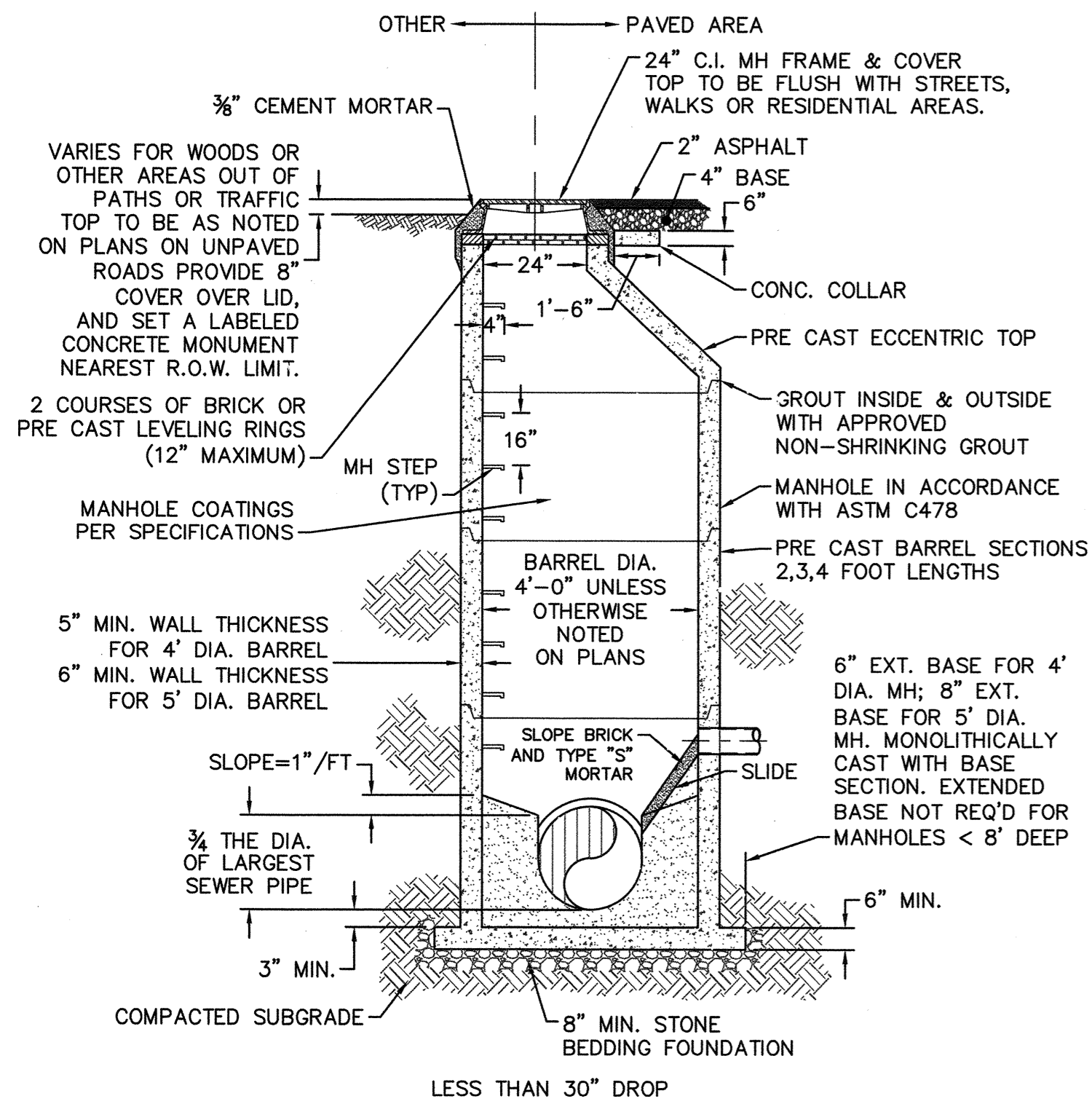
DATE: 08APR15
MCE PROJ. # 2735-0124
DRAWN: EEM
DESIGNED: EEM
CHECKED: RMC
PROJ. MGR. NJL

SCALE: HORIZONTAL: ---
VERTICAL: ---

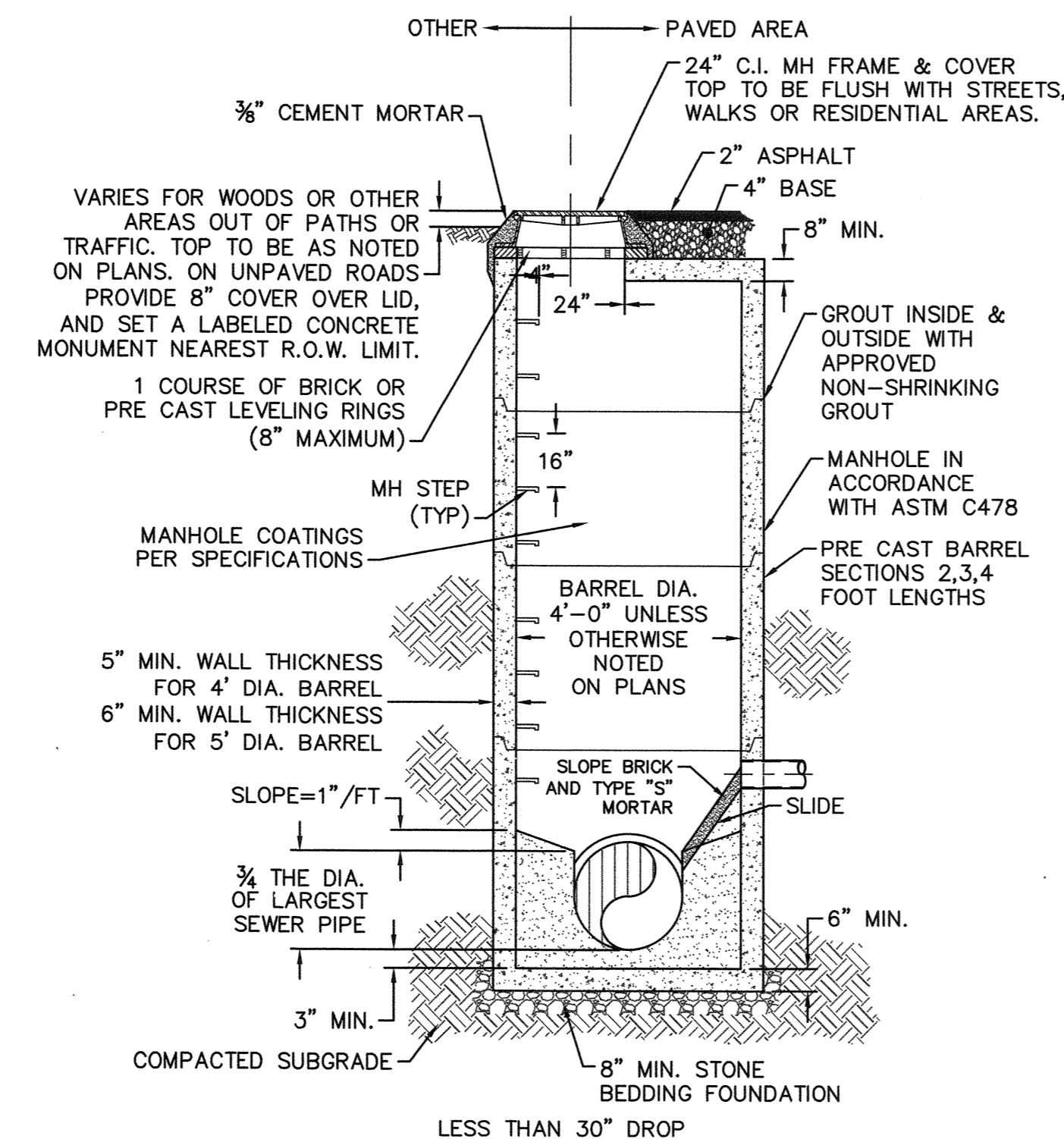
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STATUS: FINAL DESIGN
NOT FOR CONSTRUCTION

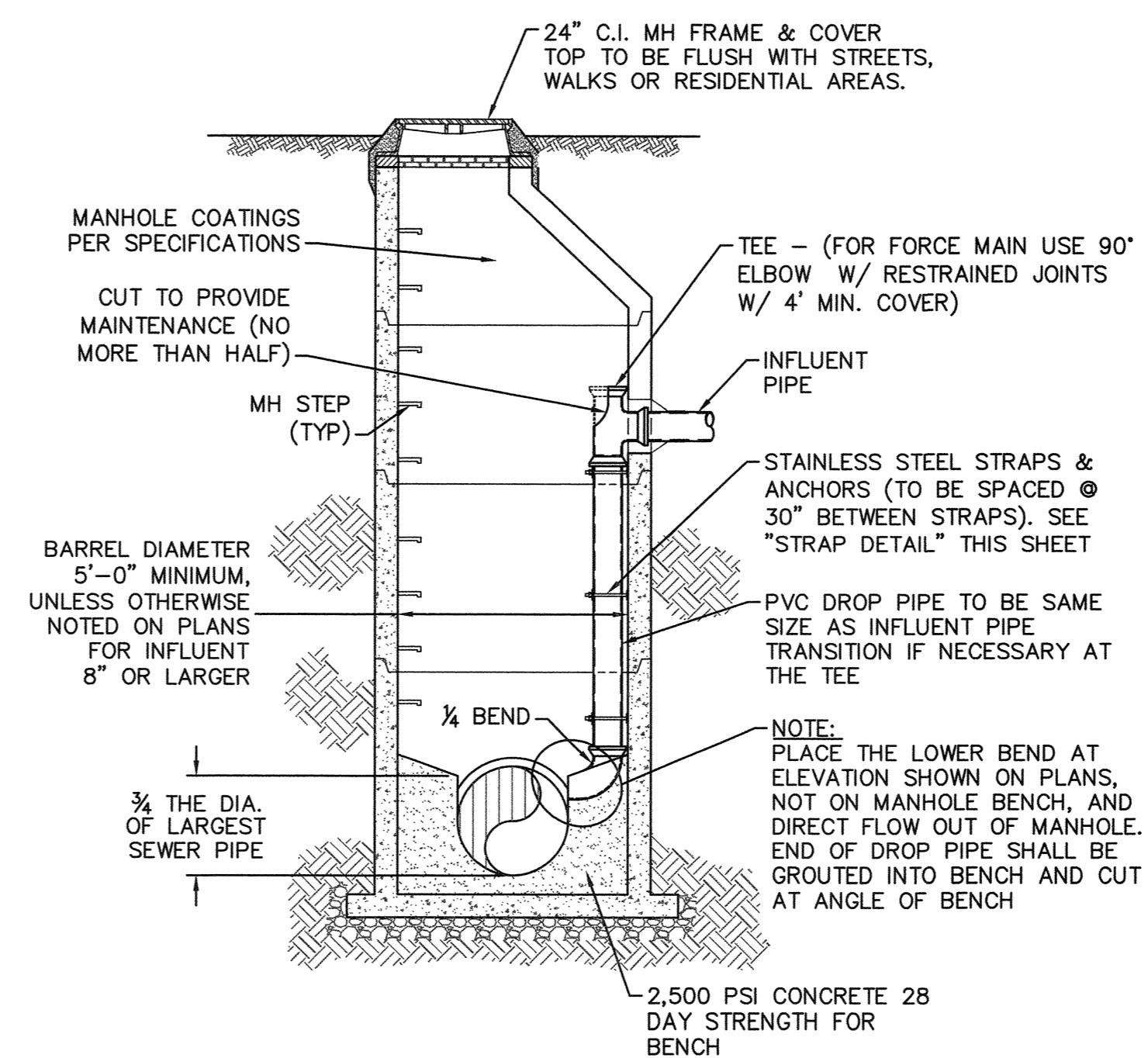
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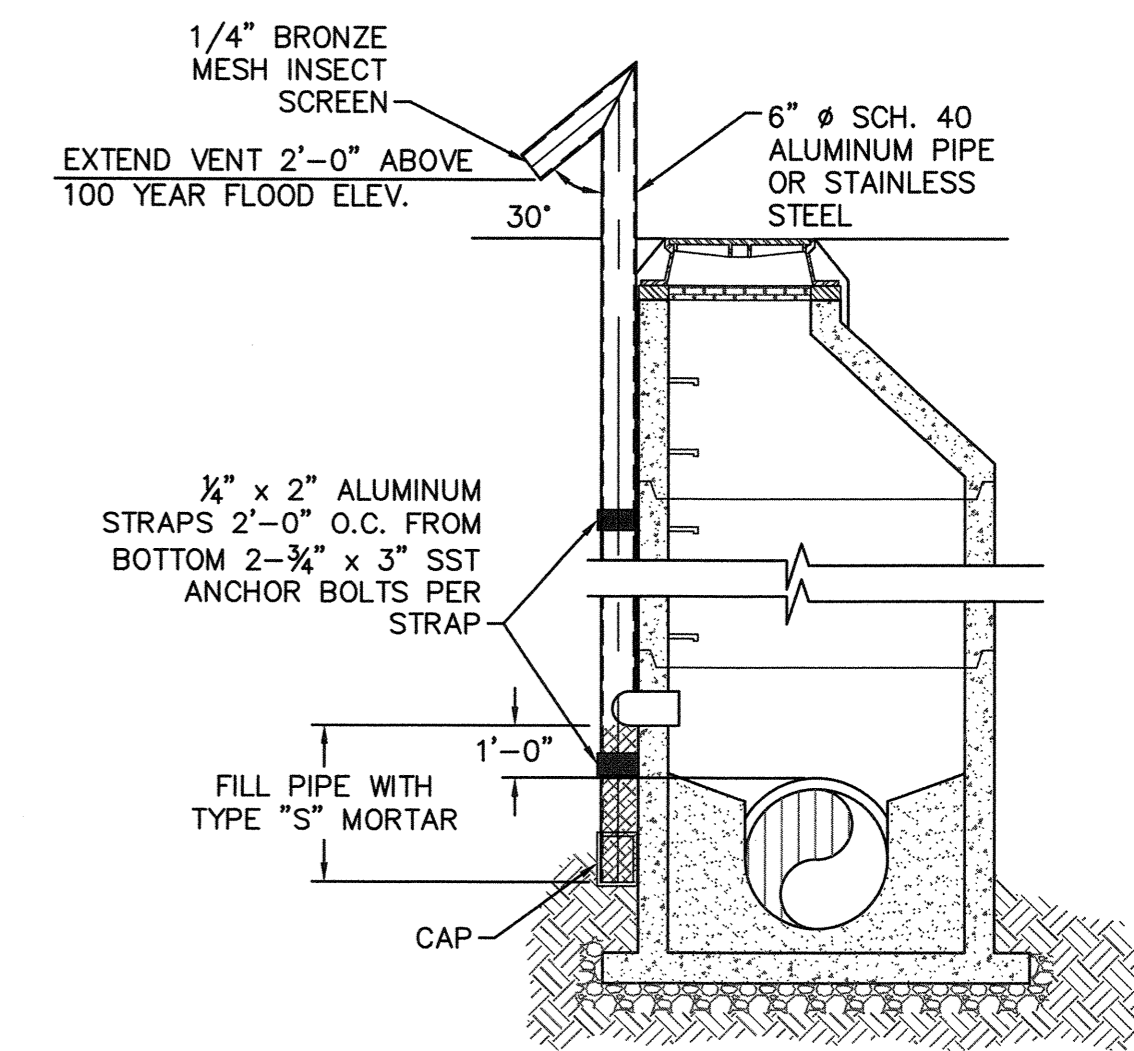
PRECAST CONCRETE OFFSET MANHOLE TYPICAL
NOT TO SCALE



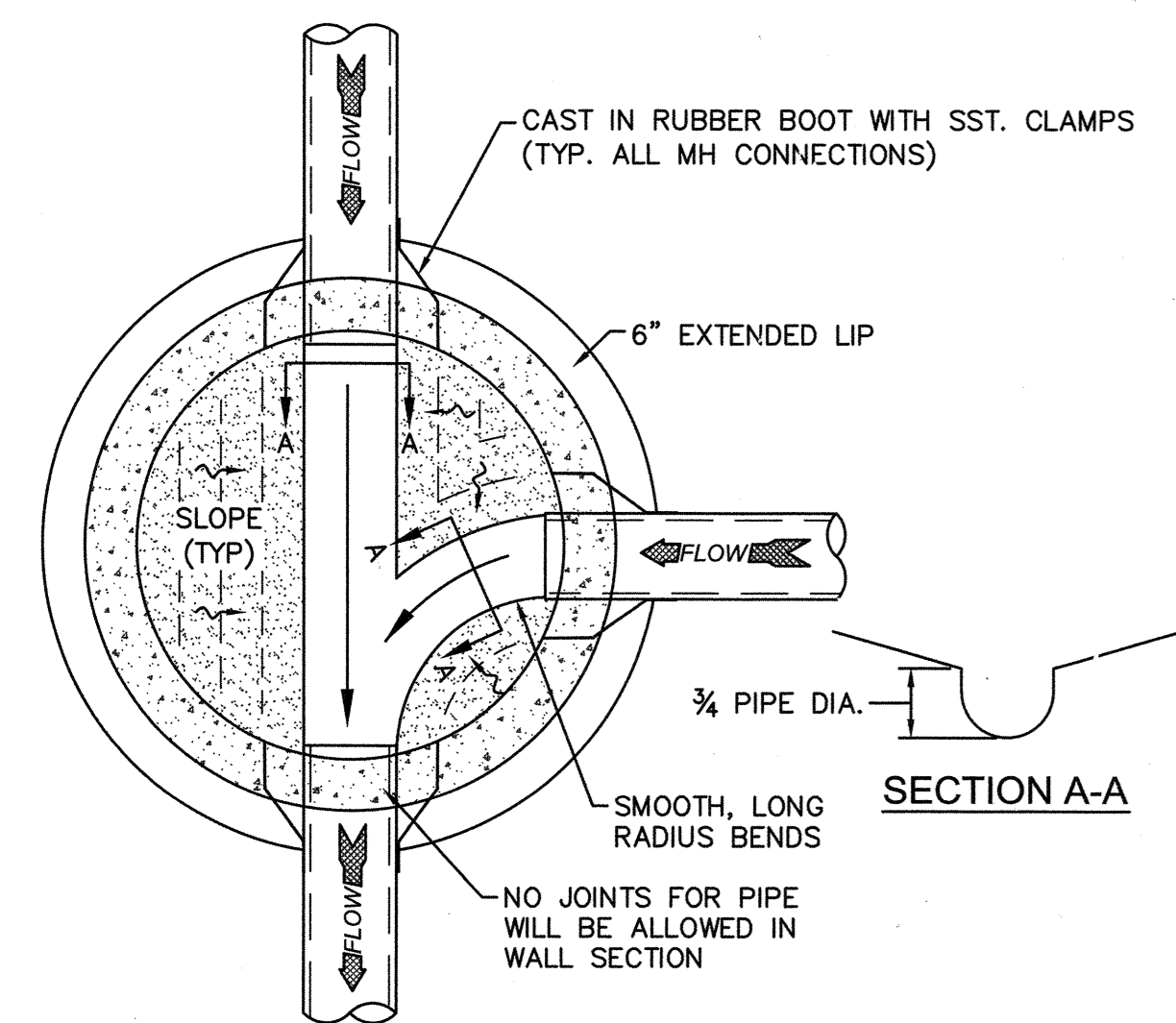
PRECAST CONCRETE FLAT TOP MANHOLE TYPICAL
NOT TO SCALE



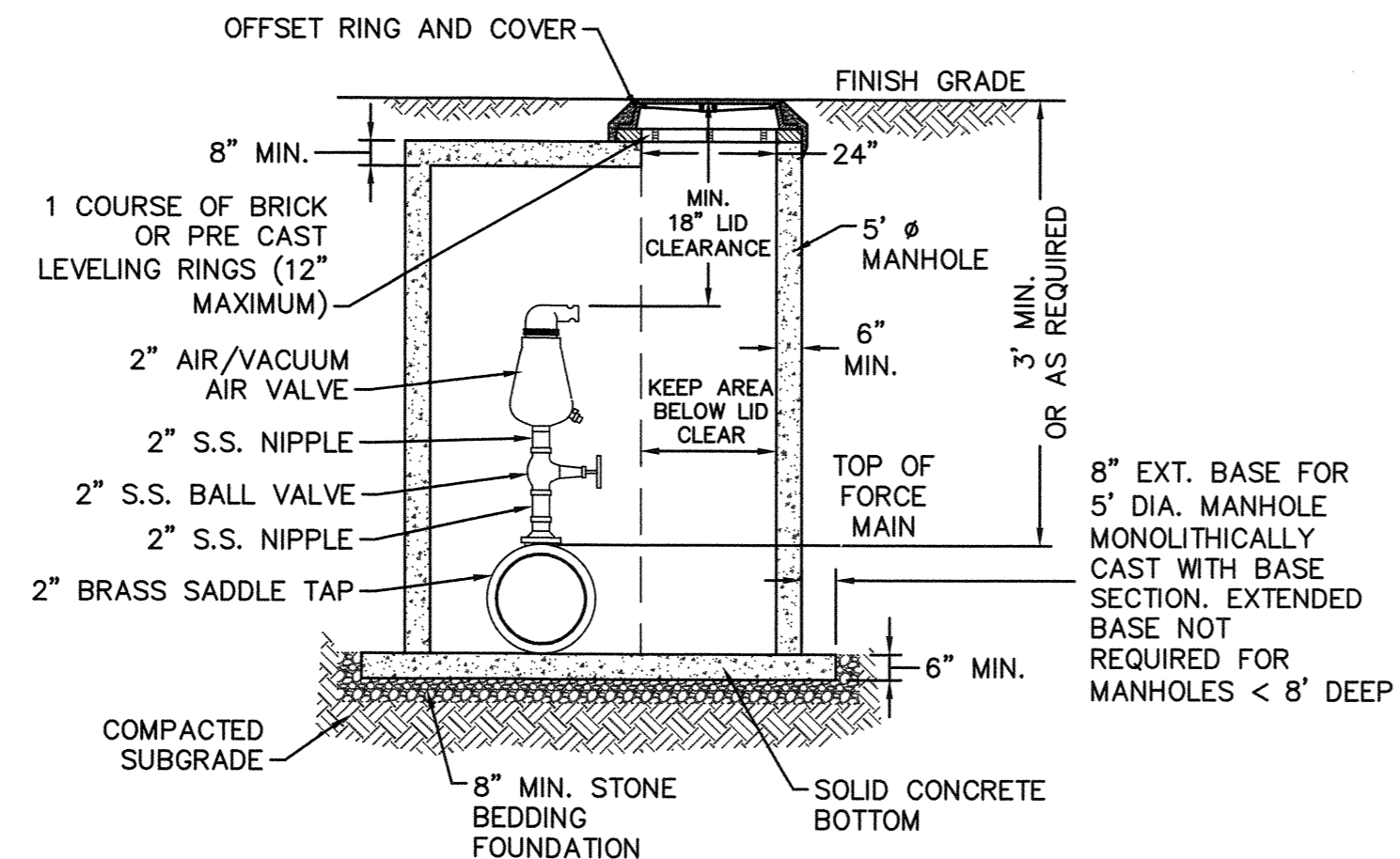
DROP MANHOLE
NOT TO SCALE



STANDARD VENT MANHOLE
NOT TO SCALE

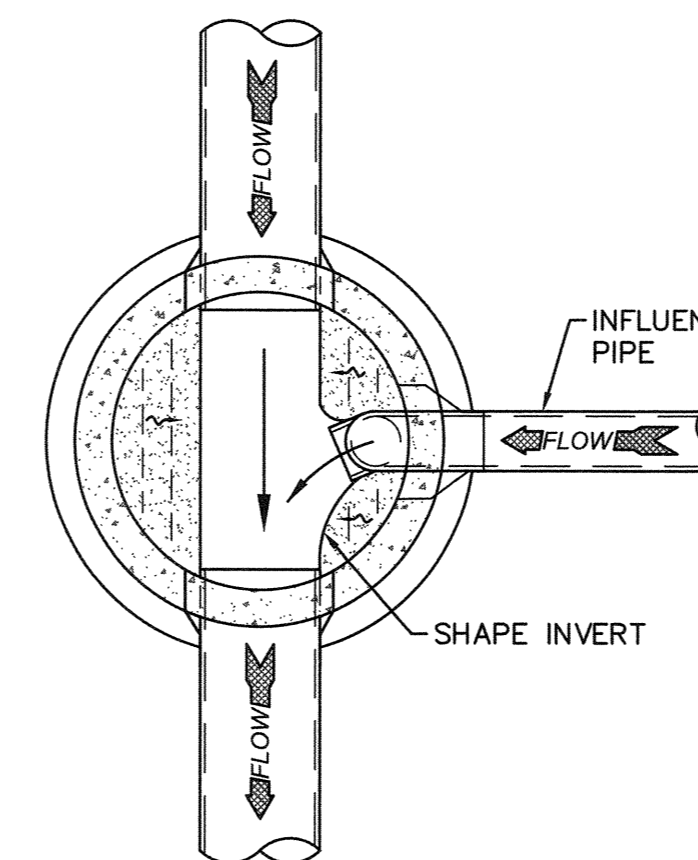


MANHOLE FLOOR PLAN
NOT TO SCALE

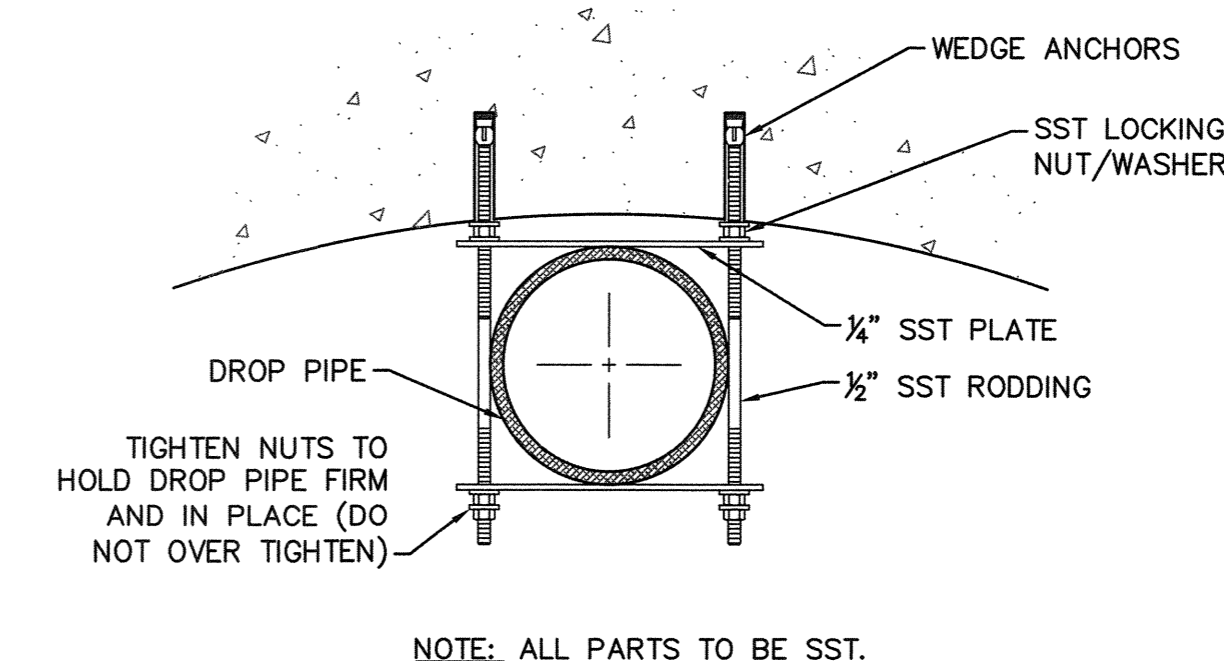


- NOTES:**
1. CONTRACTOR TO INSTALL VALVE AND MANHOLE AT SUFFICIENT DEPTH TO ALLOW FOR ACCESS.
 2. FORCE MAIN TO BE OFFSET IN MANHOLE TO KEEP AREA BELOW LID CLEAR.
 3. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
 4. USE CAST IN RUBBER BOOT WITH SST. CLAMPS FOR ALL MH CONNECTIONS, INCLUDING FORCE MAIN.

AIR/ VACUUM AND AIR RELEASE COMBINATION VALVE
NOT TO SCALE



DROP MANHOLE FLOOR PLAN
NOT TO SCALE



STRAP DETAIL
NOT TO SCALE

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES:

1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316.

STANDARD SEWER NOTES
(REQUIRED ON ALL SEWER PLAN AND PROFILE SHEETS)

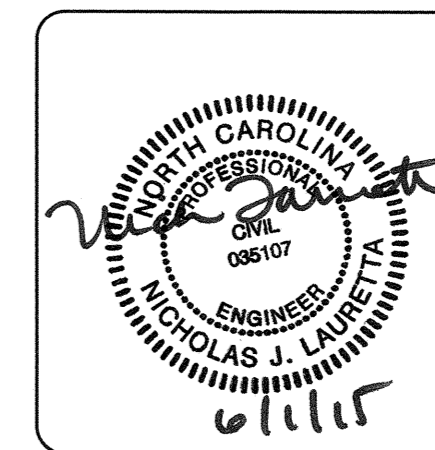
GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPWA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

CFPUA SANITARY SEWER

STANDARD DETAILS

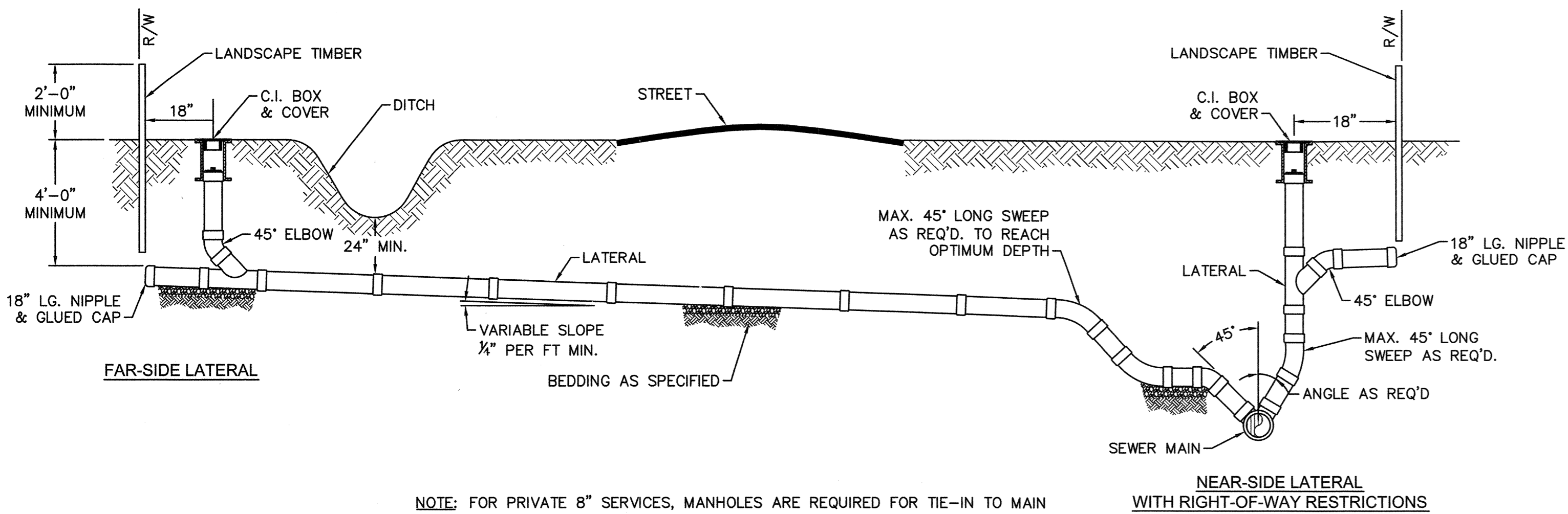


CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6560

DATE:
1/9/12
SCALE:
N/A
DRAWN BY:
CFPUA
CHECKED BY:
CFPUA
PROJECT NO.:

SHEET NO:
SSD-1

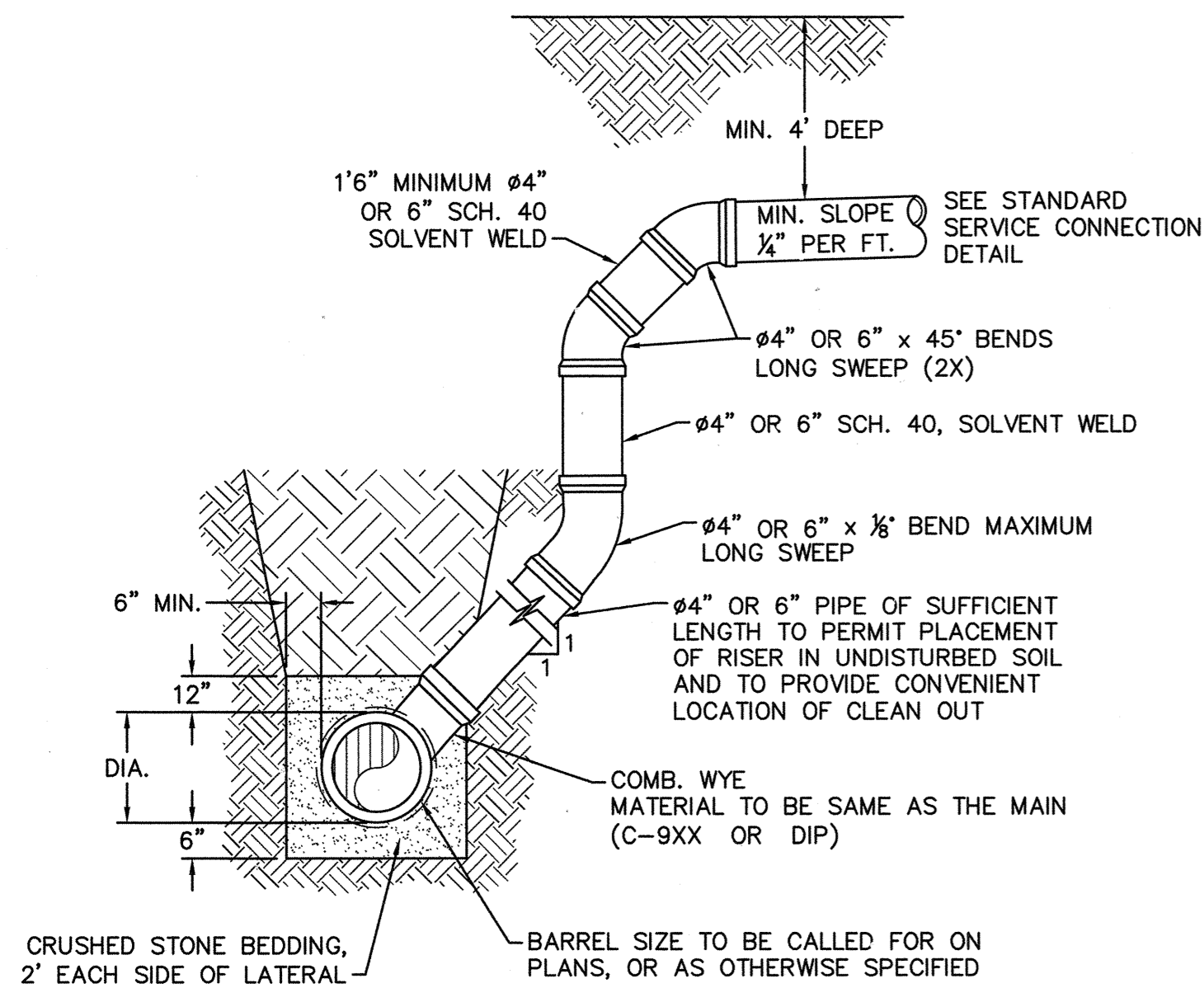
REV:	DESCRIPTION:	DATE:
1	AIR / VACUUM AND AIR RELEASE COMBINATION VALVE REVISED	10/26/12
2	STANDARD SEWER NOTE #6 REVISED	12/10/12
3	REVISED STANDARD VENT MANHOLE TO EXTEND VENT 2'-0" ABOVE 100 YR FLOOD	11/20/14



NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

STANDARD SERVICE CONNECTION TO SANITARY SEWER

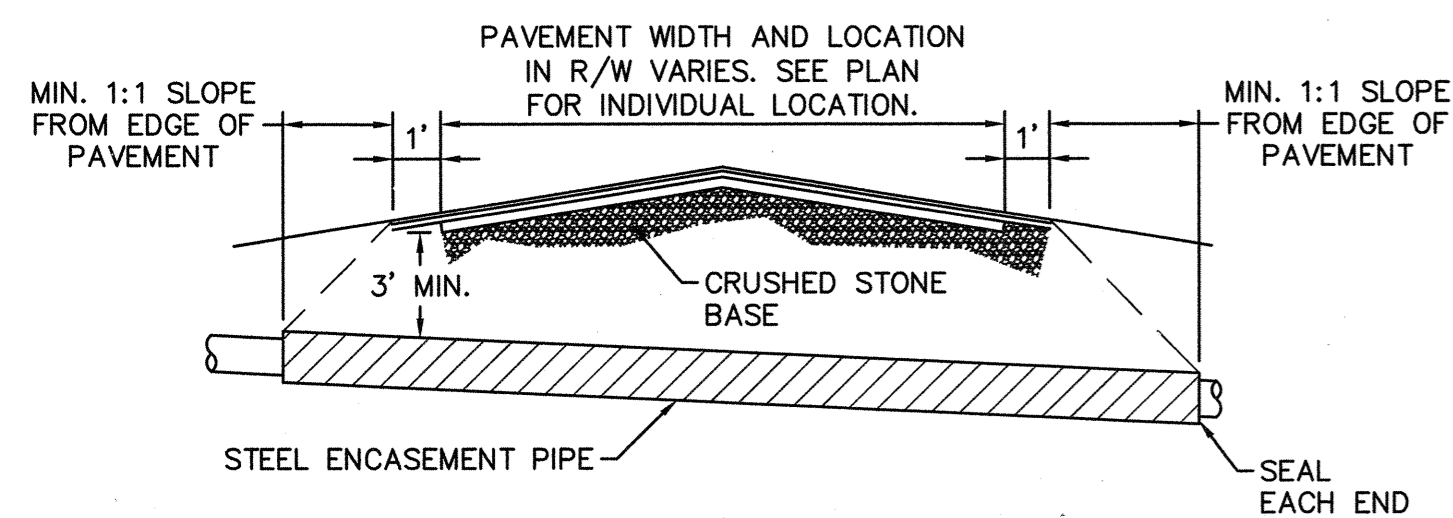
NOT TO SCALE



- NOTES:
- SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.
 - FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN.

DEEP SERVICE LATERAL

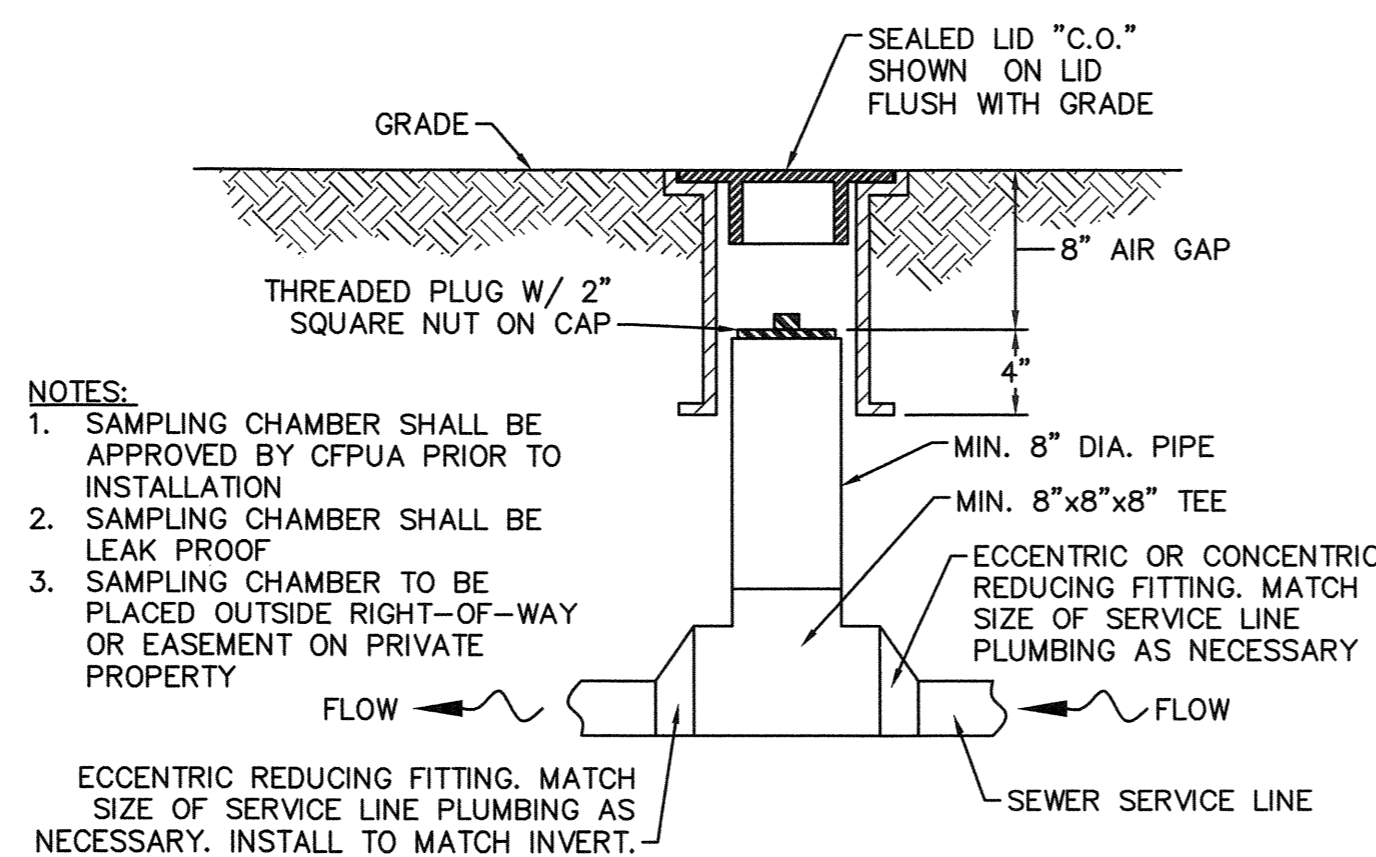
NOT TO SCALE



- NOTES:
- CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
 - TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

TYPICAL BORING/ JACKING DETAIL

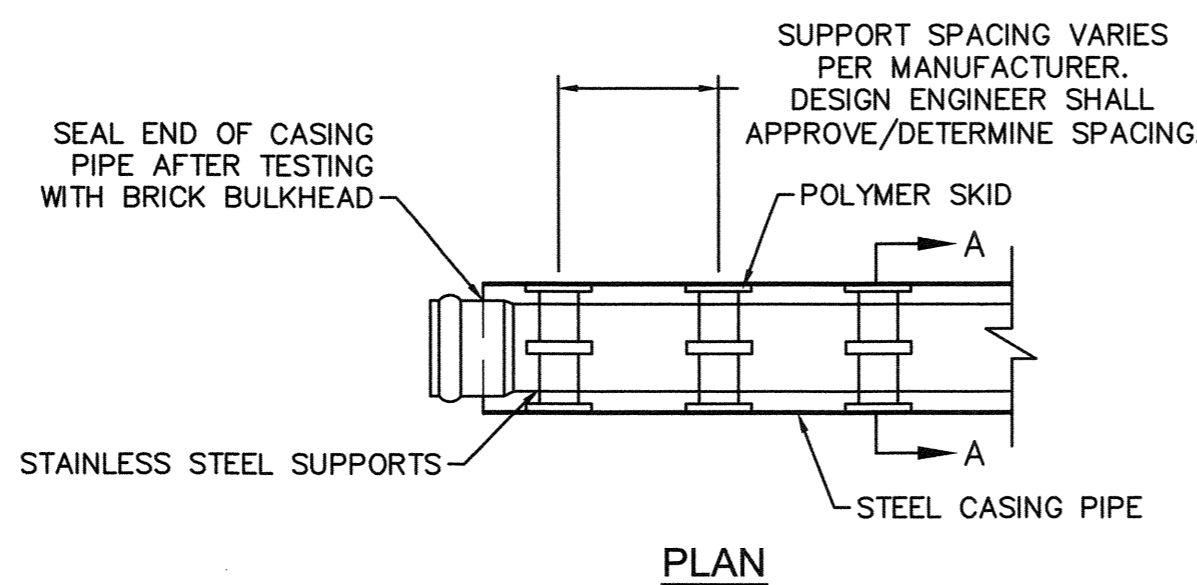
NOT TO SCALE



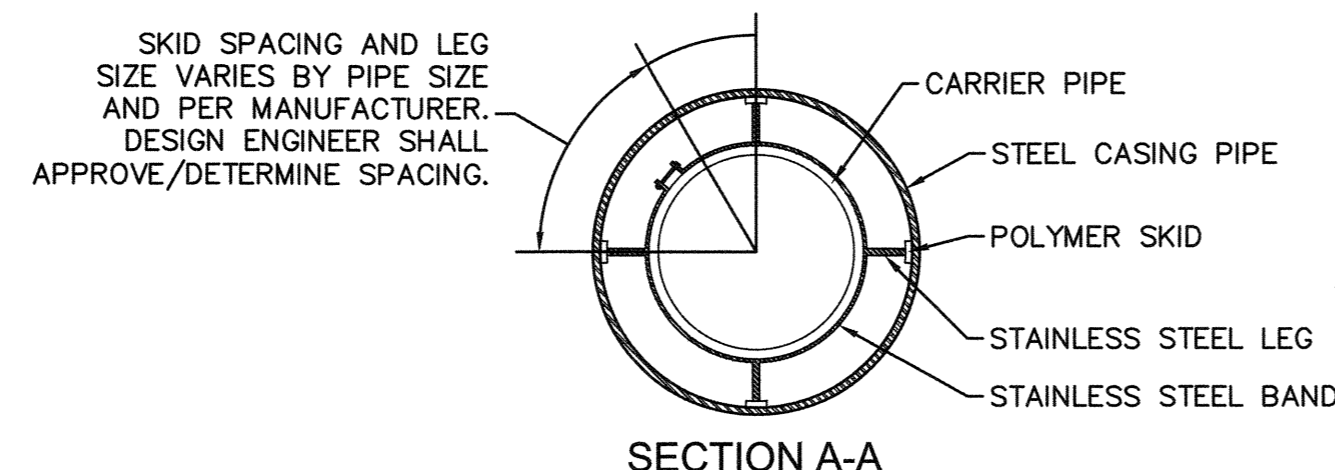
- NOTES:
- SAMPLING CHAMBER SHALL BE APPROVED BY CFPWA PRIOR TO INSTALLATION
 - SAMPLING CHAMBER SHALL BE LEAK PROOF
 - SAMPLING CHAMBER TO BE PLACED OUTSIDE RIGHT-OF-WAY OR EASEMENT ON PRIVATE PROPERTY

SAMPLING CHAMBER

NOT TO SCALE

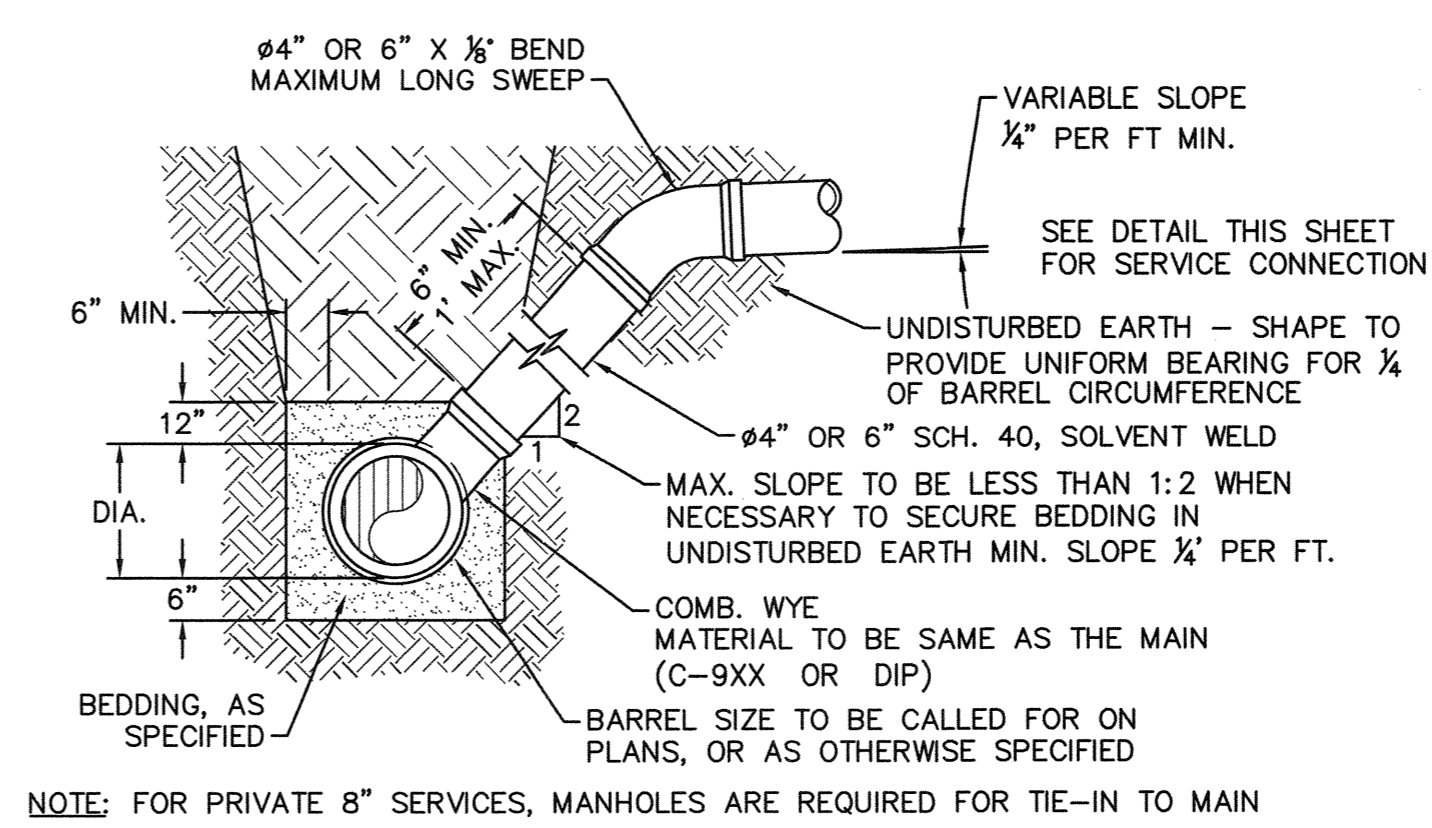


NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE. OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.



PIPE CASING SUPPORT DETAIL

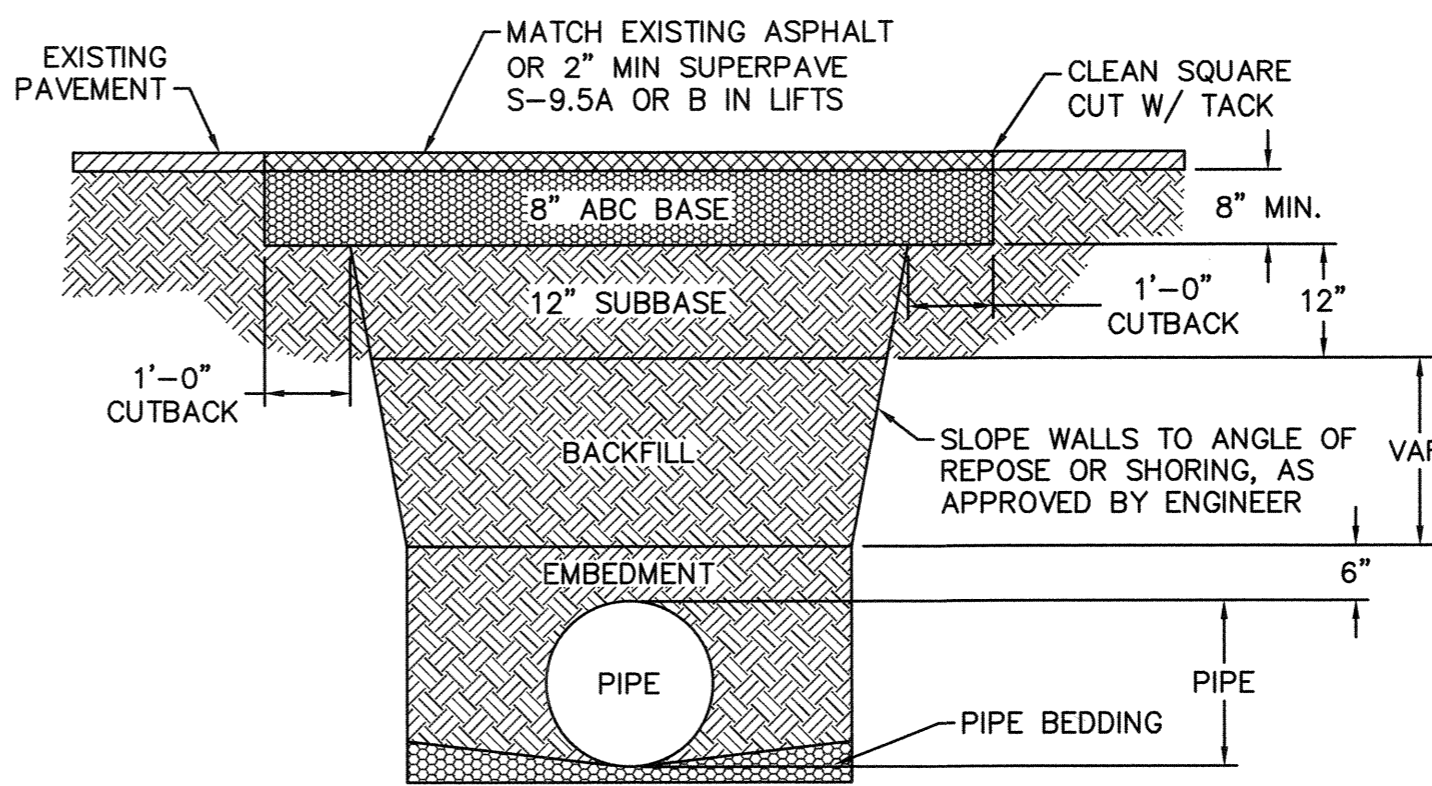
NOT TO SCALE



NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

STANDARD SERVICE LATERAL

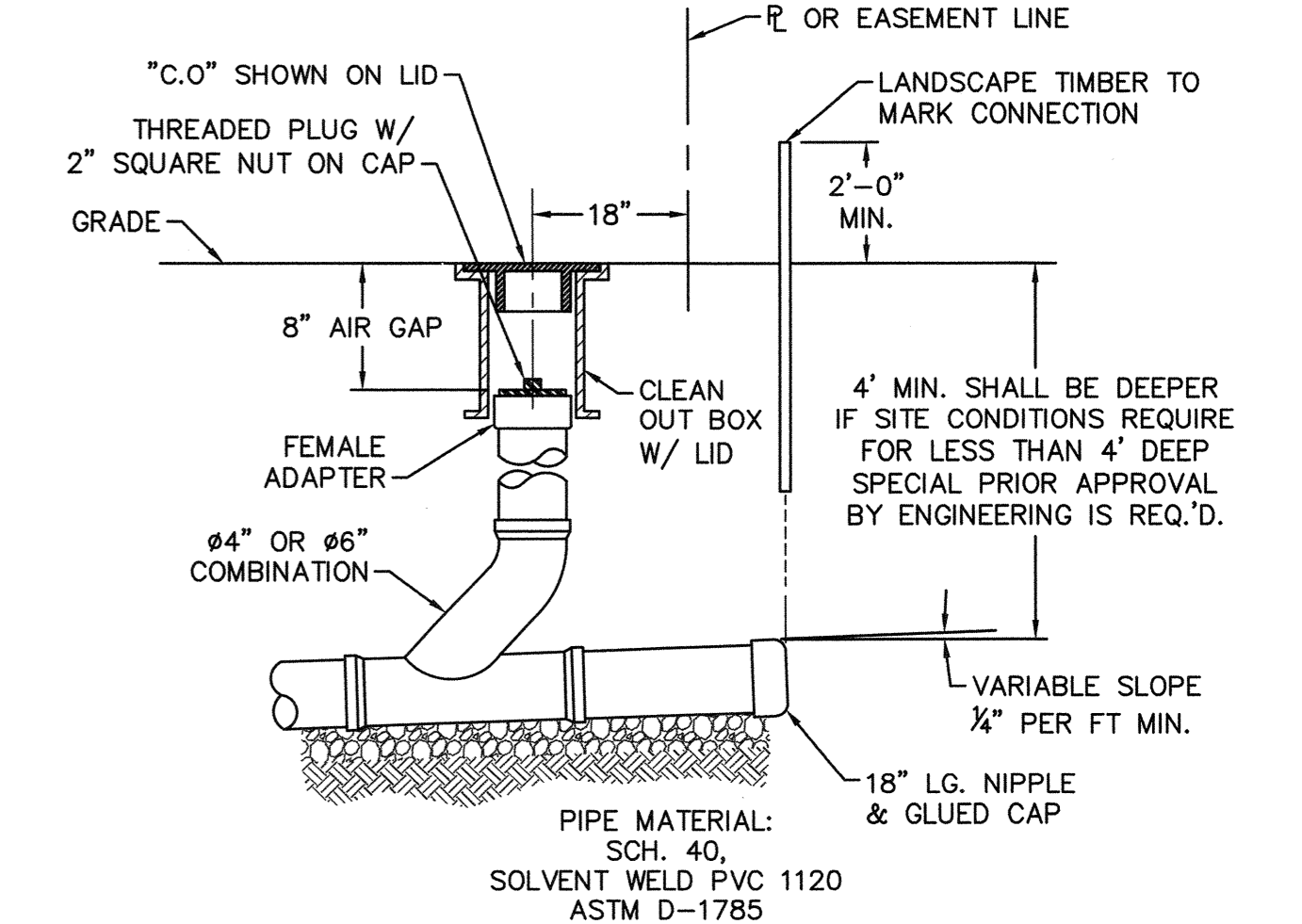
NOT TO SCALE



- NOTES:
- BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
 - SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION. (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC.)
 - 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
 - BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS
 - SOIL SHALL BE 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.
 - ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
 - ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
 - 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

PAVEMENT REPAIR WHERE PIPE INSTALLED

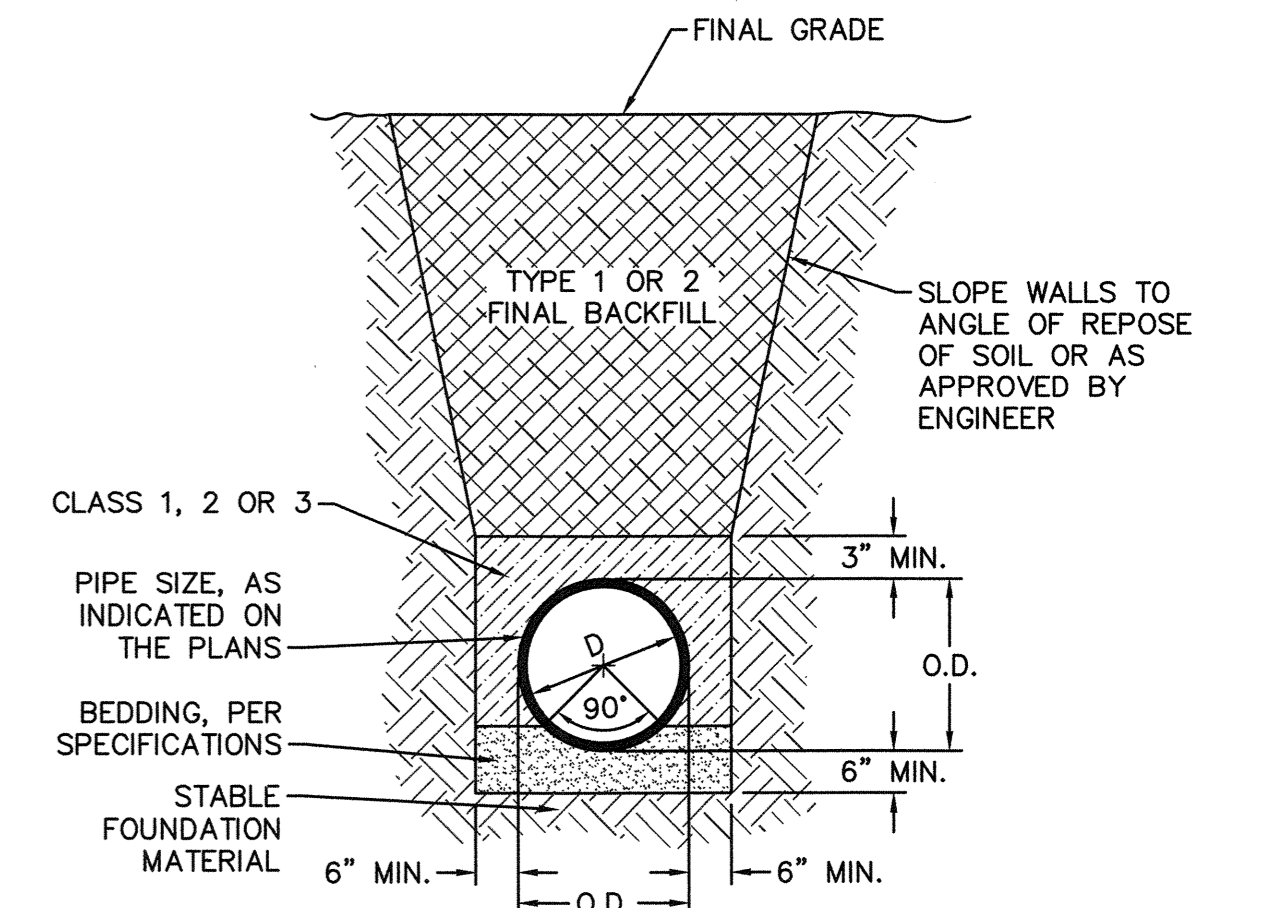
NOT TO SCALE



NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

SERVICE CONNECTION & CLEAN-OUT

NOT TO SCALE



TYPICAL TRENCH DETAIL

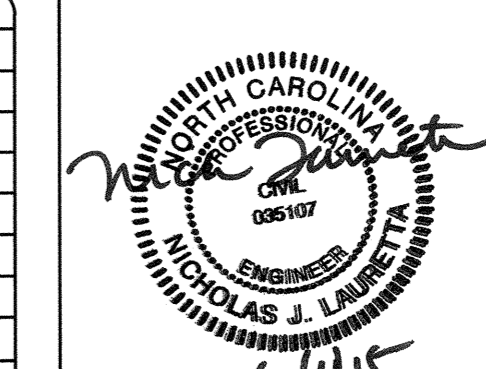
NOT TO SCALE

- GENERAL NOTES:
- NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
 - THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
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THE DETAILS SHOWN HEREON SUPERCEDE CFPWA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

CFPWA SANITARY SEWER

STANDARD DETAILS



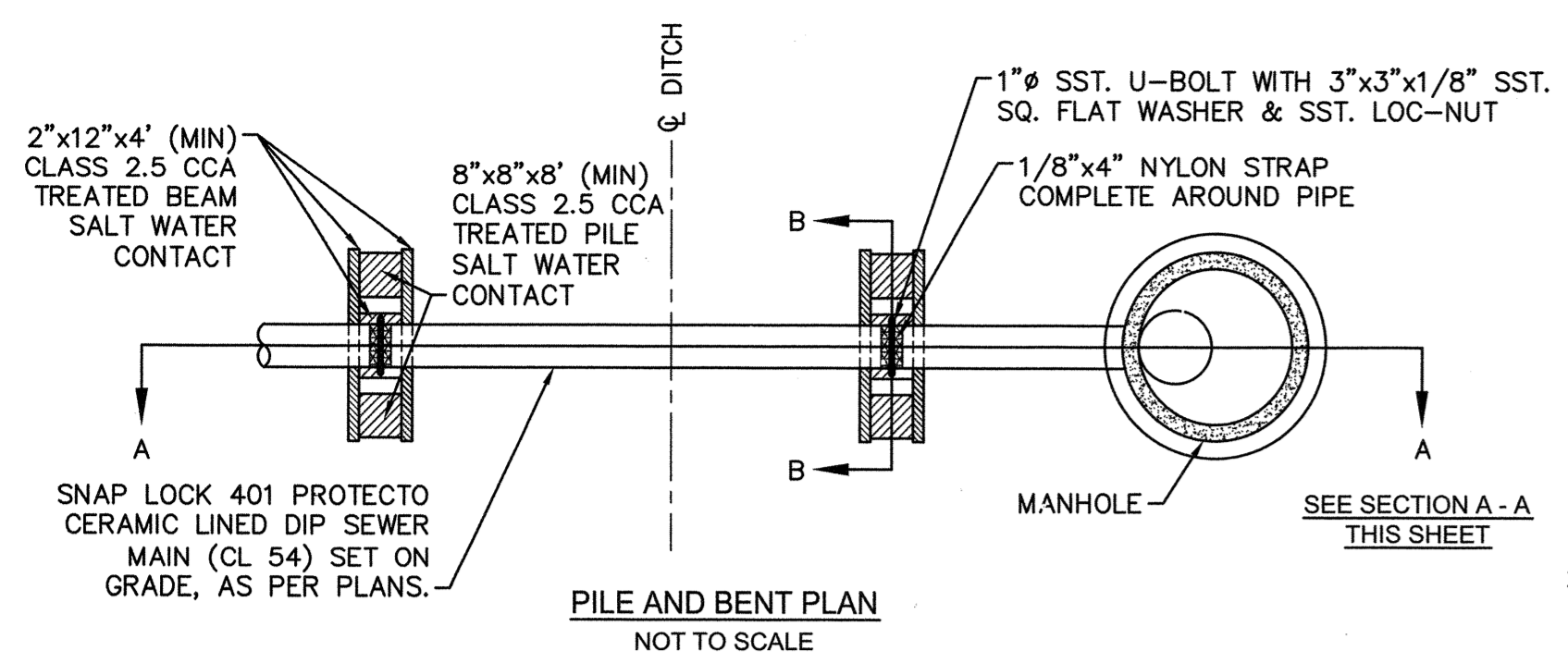
CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6560
Stewardship. Sustainability. Service.

DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPWA
CHECKED BY: CFPWA
PROJECT NO.:

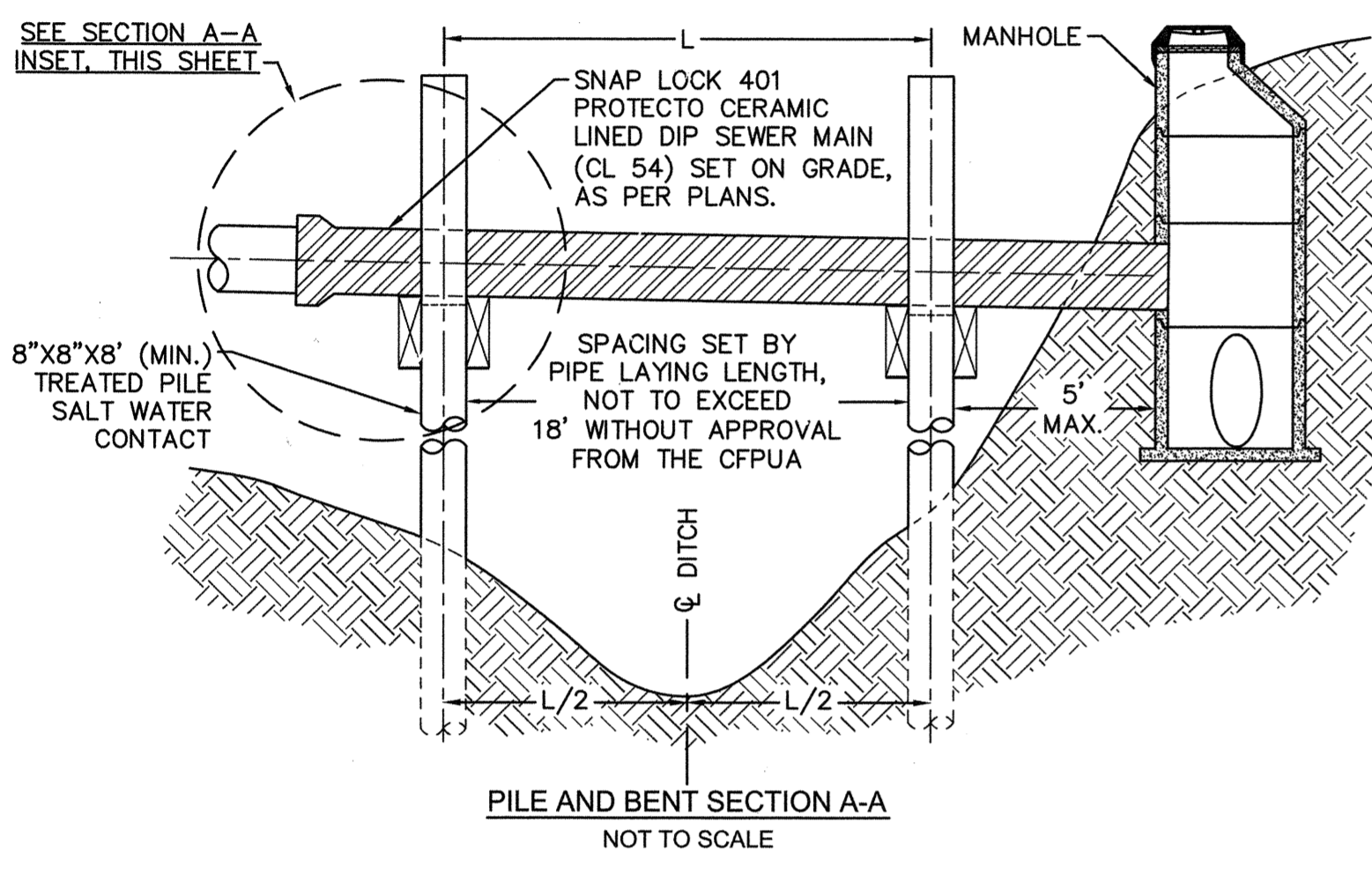
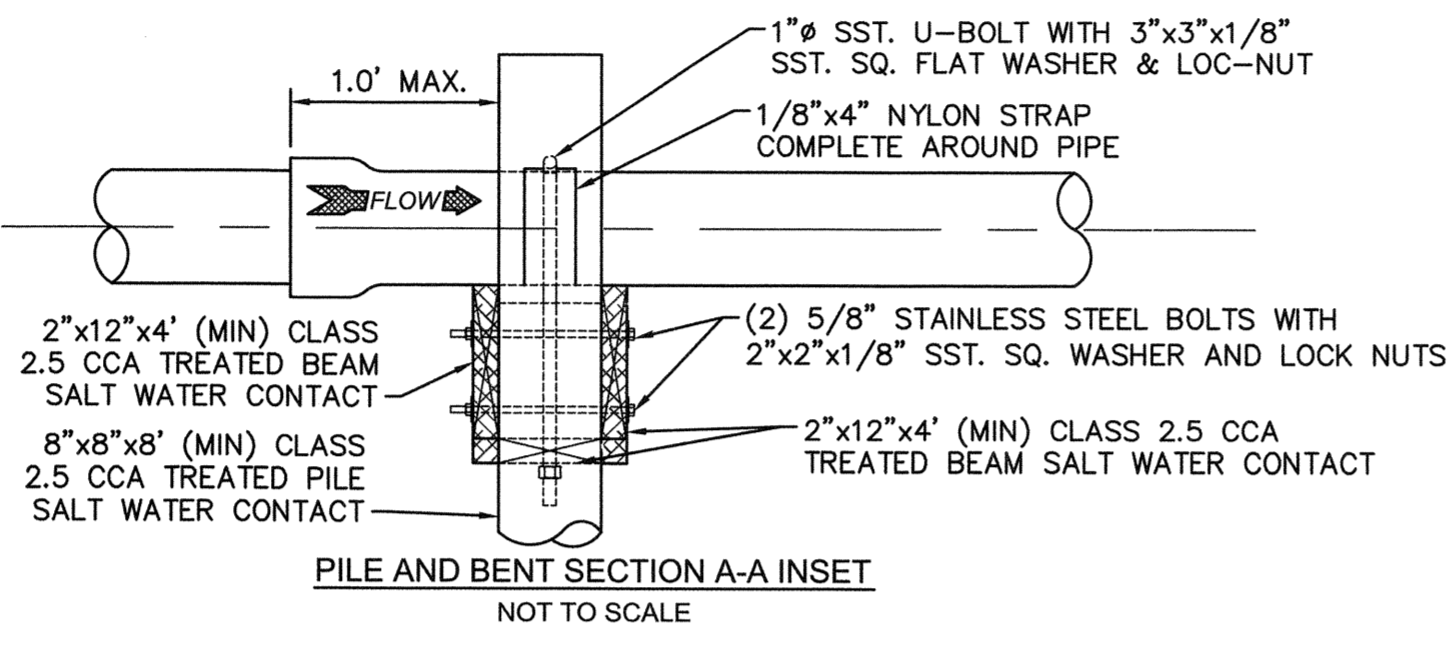
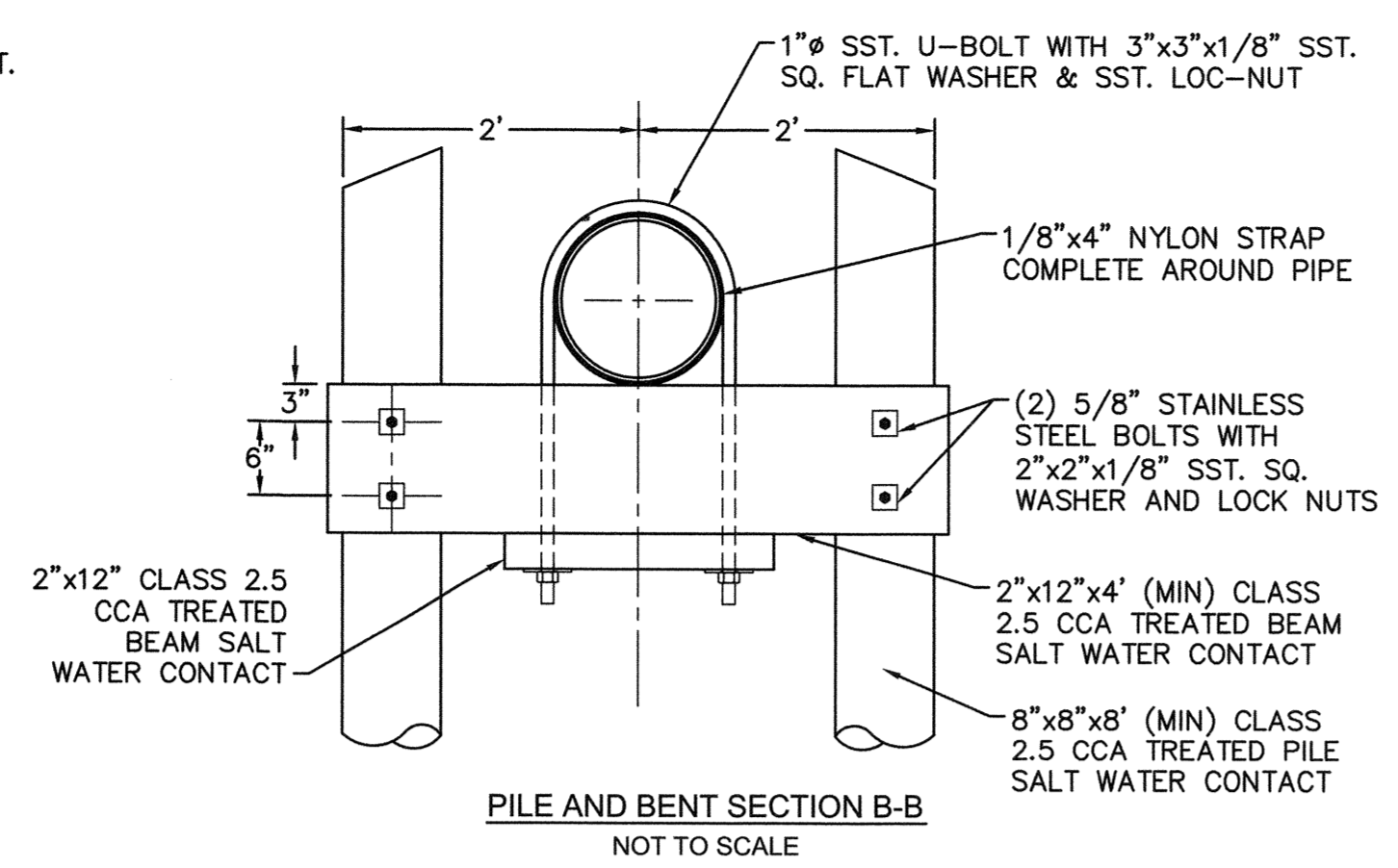
SHEET NO:
SSD-2

REV:	DESCRIPTION:	DATE:
1	SAMPLING CHAMBER REVISED	10/26/12

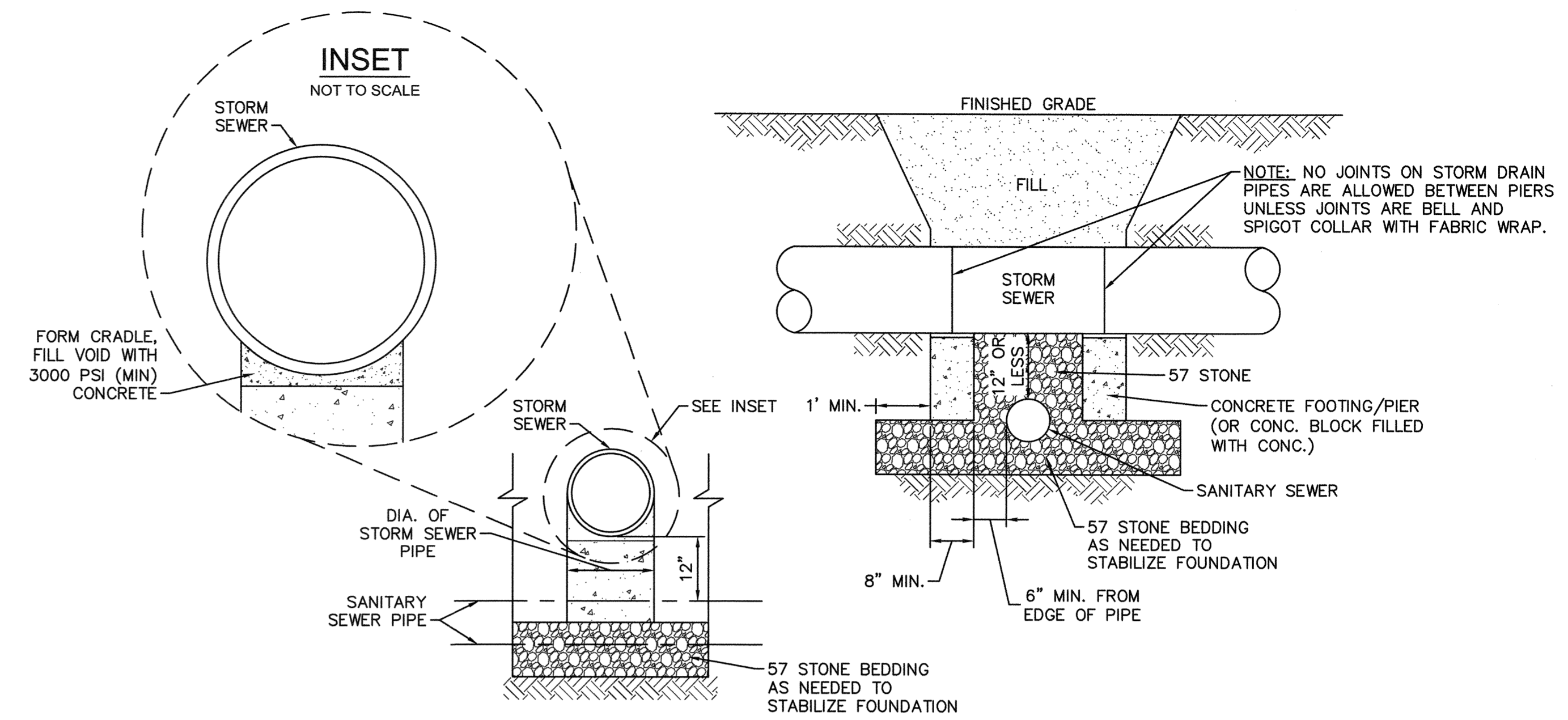
S:\2350124 Maina Village\04-Drawings\DETAILS-07350124.dwg, 8/1/2016 9:08:37 AM, mlaureth



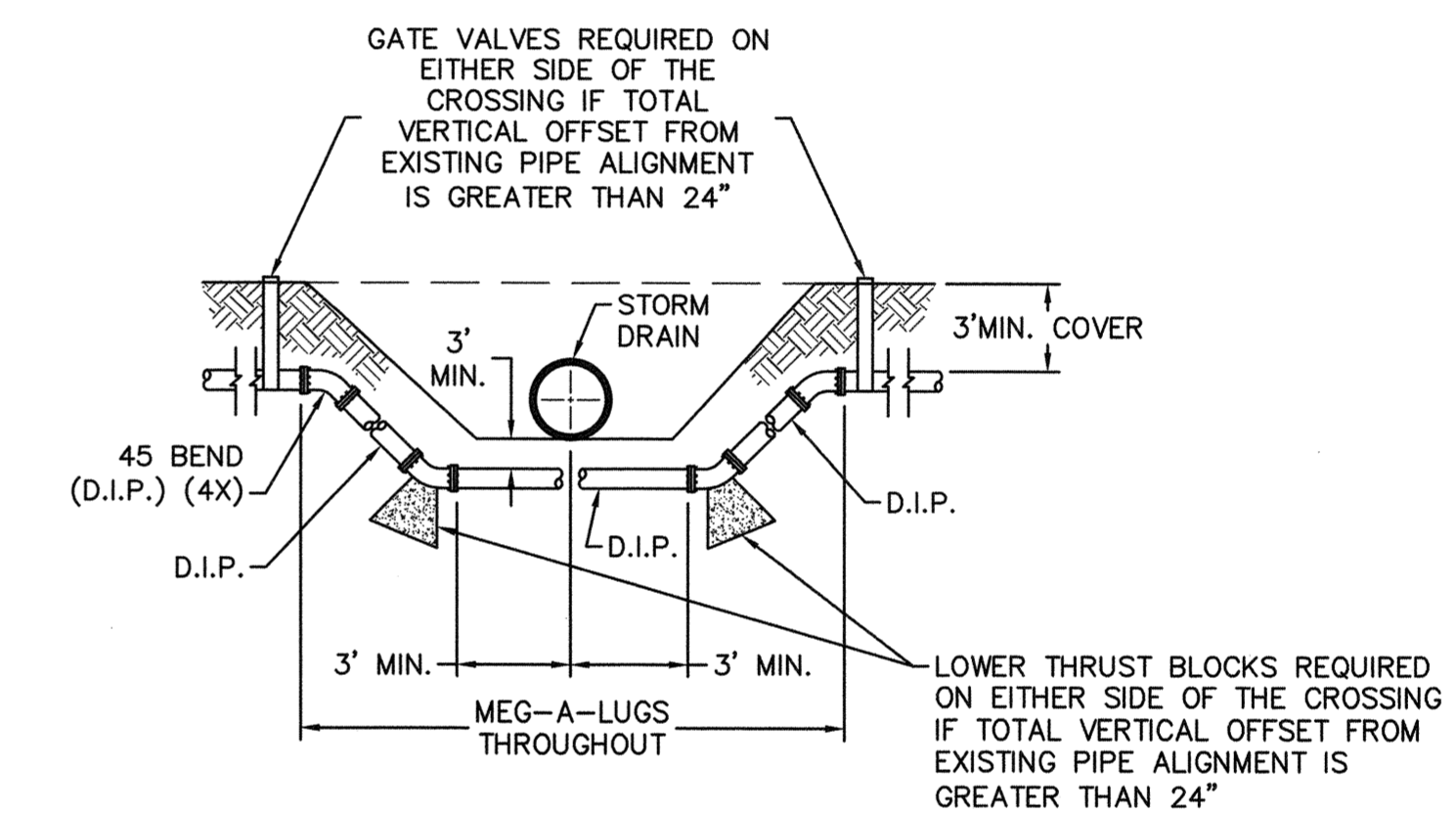
- NOTES:**
1. PILES AND PILE DRIVING SHALL CONFORM TO NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JANUARY 2002, SECTIONS 445, 450, 1082-2 & 1084-2.
 2. CENTERLINE OF BOLTS TO BE A MINIMUM OF 3" FROM OUTSIDE EDGE OF TIMBER. BOLTS TO BE A MINIMUM OF 3" CENTERLINE TO CENTERLINE.
 3. ALL STAINLESS STEEL SHALL BE 316. STAINLESS STRAP TO BE COLD FORMED.
 4. PILE SHALL NOT OBSTRUCT FLOW OR CAUSE EROSION OF DITCH/STREAM BANK.
 5. MIN. CLASS 54 DIP-ENGINEER MUST DESIGN LOADING.
 6. DESIGN SHALL BE APPROVED BY CFPUA.



PILE AND BENT DETAIL
NOT TO SCALE



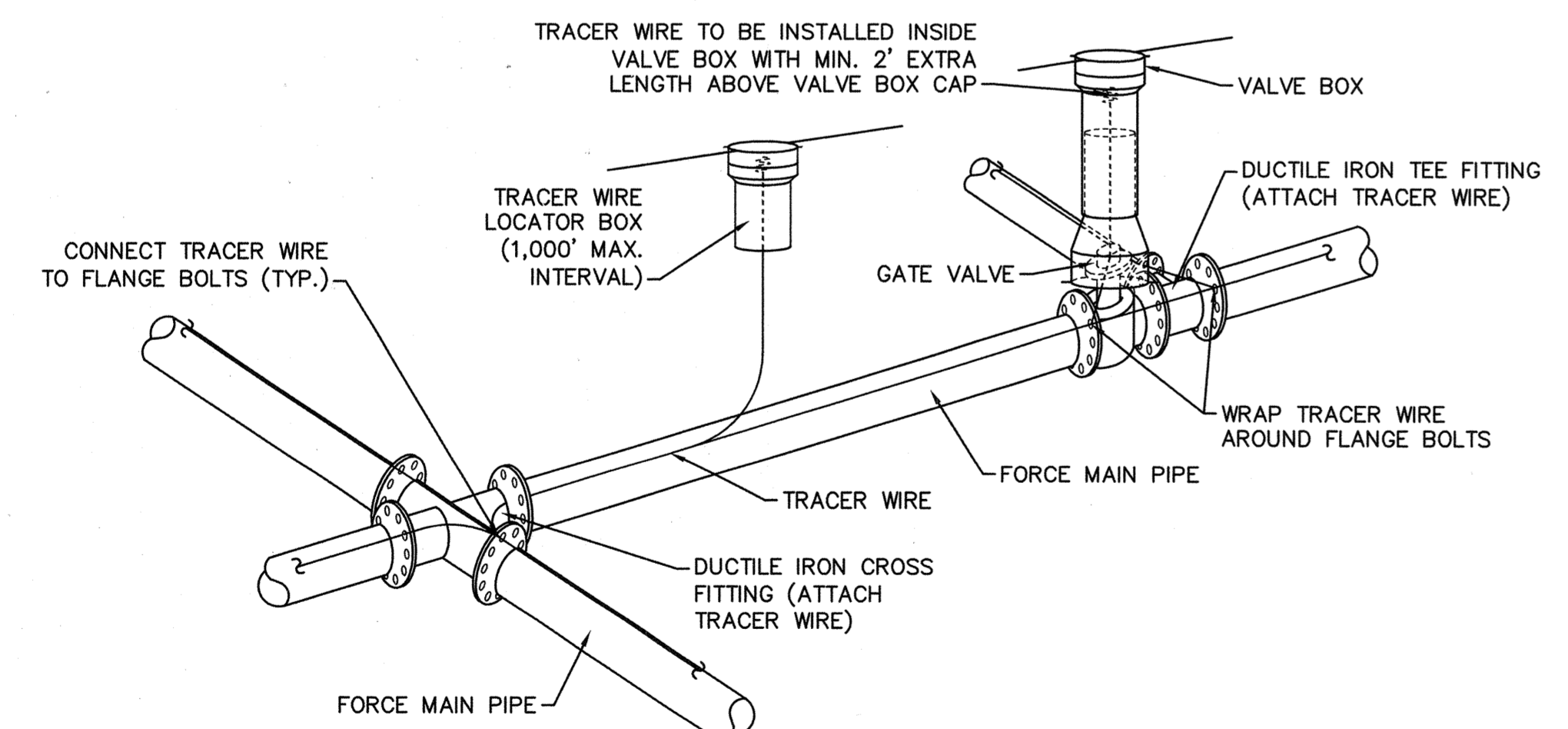
STRUCTURAL BRIDGING DETAIL FOR STORMWATER OVER GRAVITY SEWER INSTALLATIONS WITH LESS THAN 12" SEPARATION
NOT TO SCALE



FORCE MAIN DITCH AND STORM DRAIN CROSSING
NOT TO SCALE

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THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04



- NOTES:**
1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION.
 2. WIRE SHALL BE STRAPPED TO ALL PVC FORCE MAIN PIPING WITH DUCT TAPE AT 12-FT. INTERVALS.
 3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS.
 4. ALL WIRE SPLICES SHALL HAVE WATER PROOF WIRE CONNECTIONS.

TRACER WIRE DETAIL
NOT TO SCALE

REV:	DESCRIPTION:	DATE:

CFPUA SANITARY SEWER

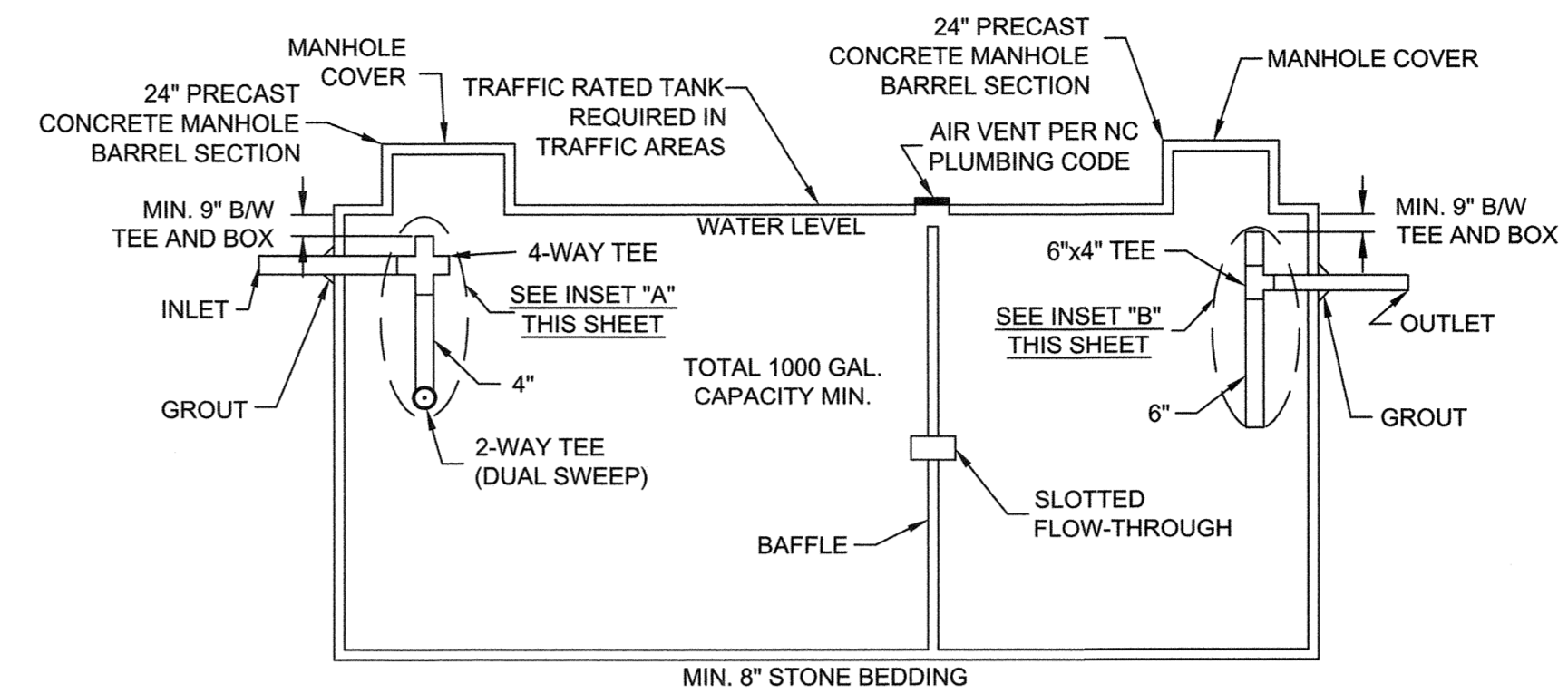
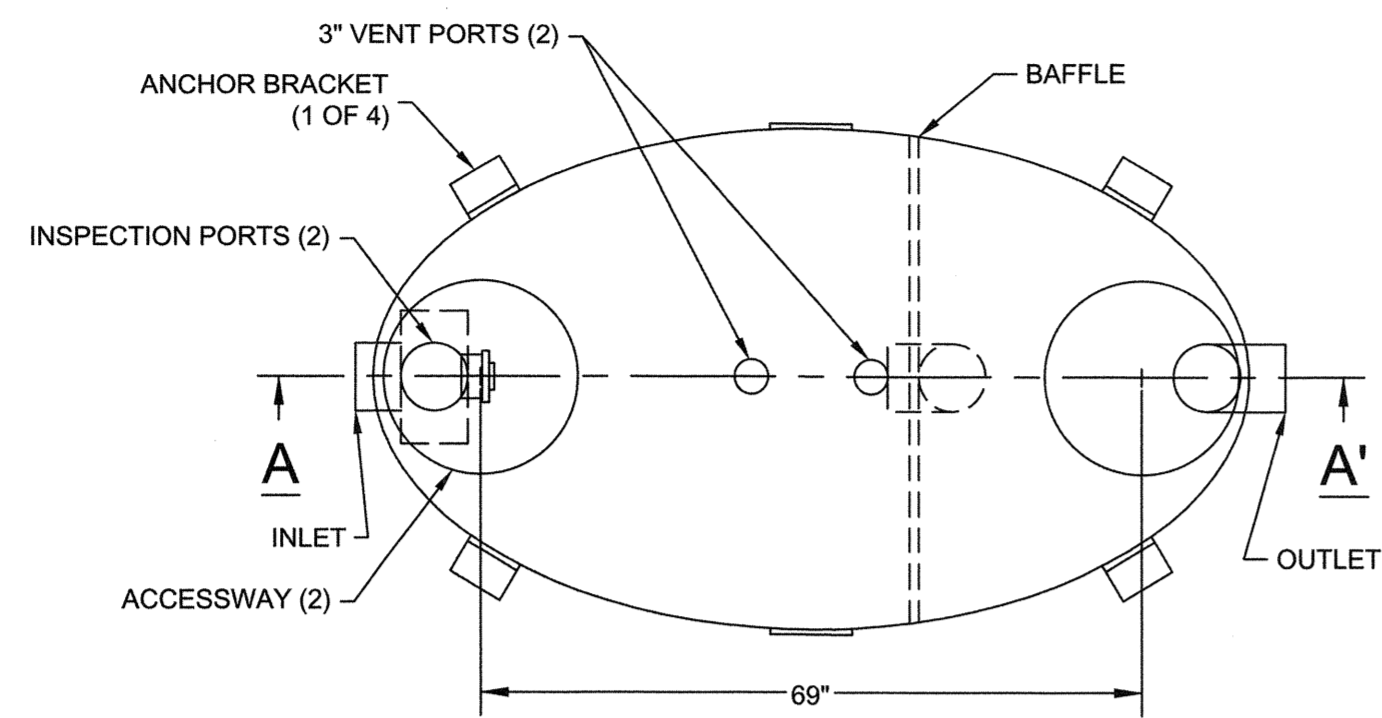
DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6560

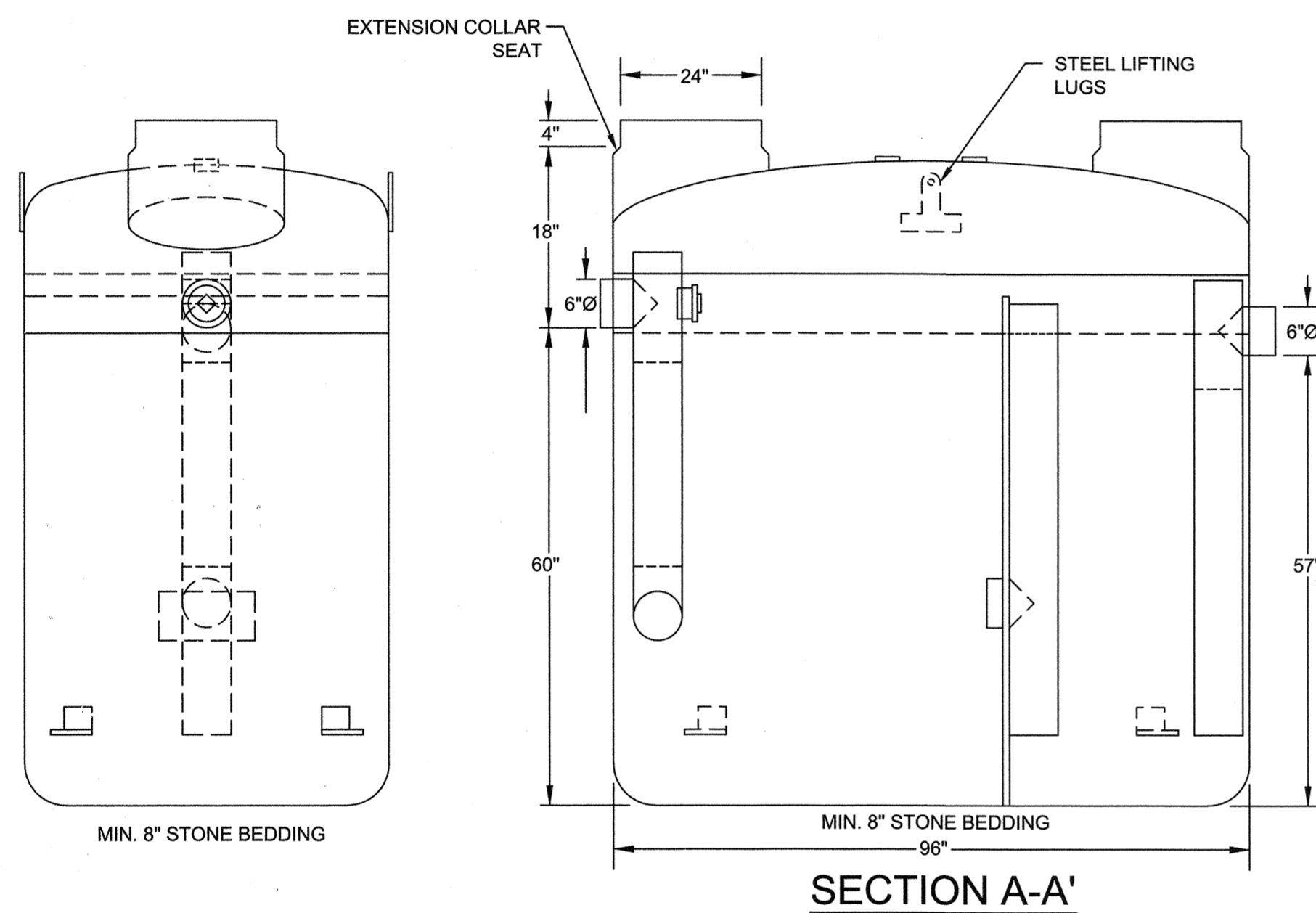
SHEET NO:
SSD-3

S:\2750124_Marina_Village\950-Drawing\DETAILS-027350124.dwg, 6/17/2016 9:07:07 AM, hhaurella



CONCRETE GREASE INTERCEPTOR

NOT TO SCALE

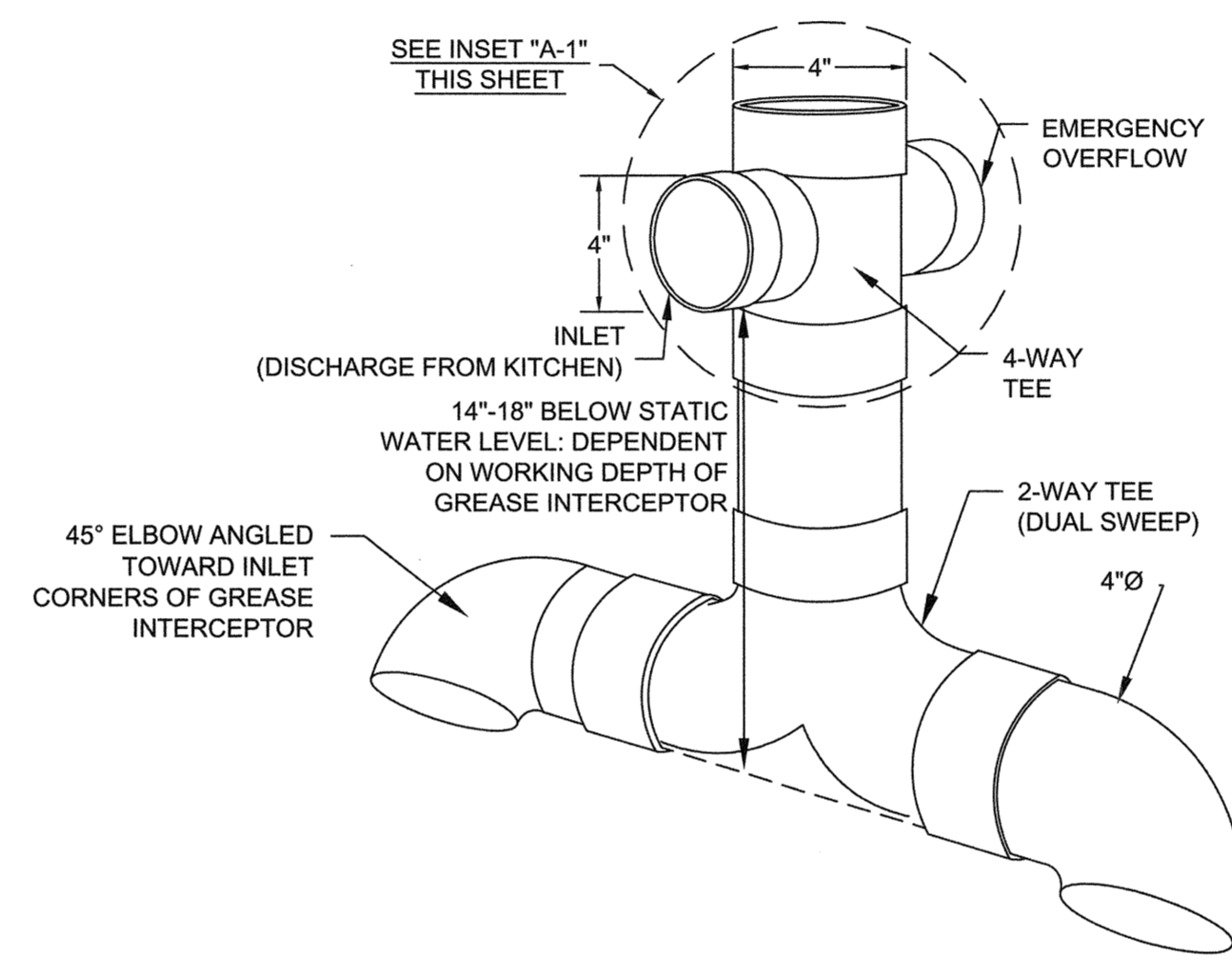


SECTION A-A'

- NOTES:
1. FOR GRAVITY APPLICATIONS ONLY
 2. MIN. THICKNESS: 1/4" WALL AND 3/8" TOP AND BOTTOM BOWLS
 3. STANDARD PIPE STUBS ARE SOCKET SDR 35 PVC
 4. EXTENSION COLLARS SHALL BE CAULKED WITH SIKAFLEX OR EQUIVALENT FOR WATERTIGHT SEAL
 5. FOLLOW MANUFACTURE'S SPECS FOR TRAFFIC OR PEDESTRIAN LOADING

FIBERGLASS GREASE INTERCEPTOR

NOT TO SCALE

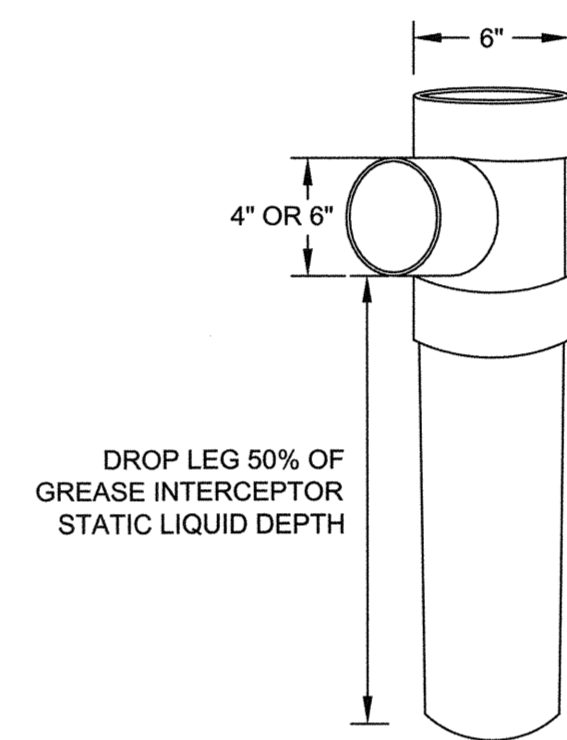


GREASE INTERCEPTOR

INSET "A"

4" SANITARY TEE

NOT TO SCALE



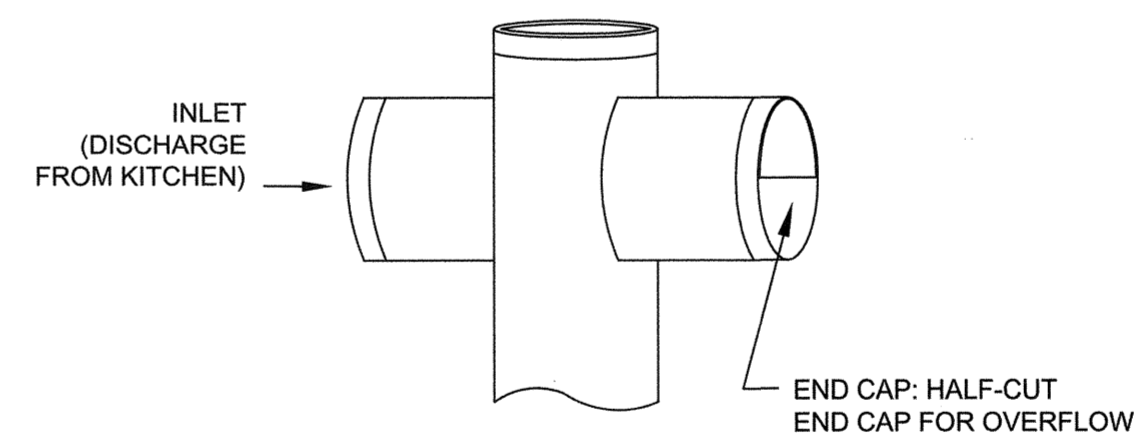
GREASE INTERCEPTOR

INSET "B"

6" X 6" X 4" OUTLET

SANITARY TEE

NOT TO SCALE



GREASE INTERCEPTOR INSET "A-1"

EMERGENCY OVERFLOW CLOSE-UP

NOT TO SCALE

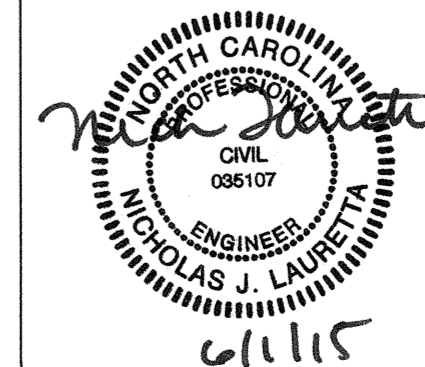
GENERAL NOTES:

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THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

CFPUA SANITARY SEWER

STANDARD DETAILS



CAPE FEAR PUBLIC UTILITY AUTHORITY
 235 GOVERNMENT CENTER DRIVE
 WILMINGTON, NC 28403
 OFFICE: (910) 332-6560
 Stewardship. Sustainability. Service.

DATE:
1/9/12
SCALE:
N/A
DRAWN BY:
CFPUA
CHECKED BY:
CFPUA
PROJECT NO.:

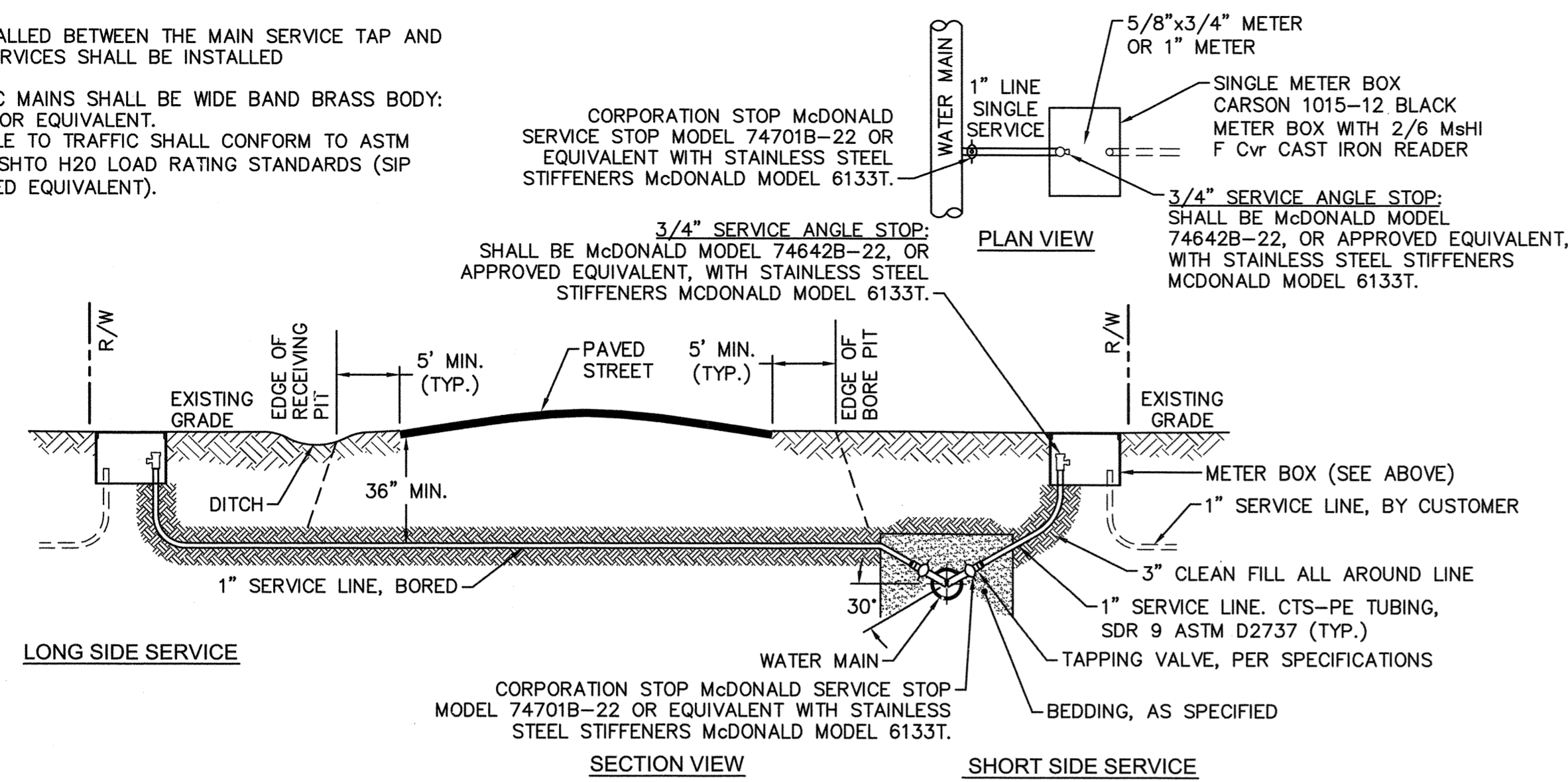
SHEET NO:
SSD-4

REV:	DESCRIPTION:	DATE:

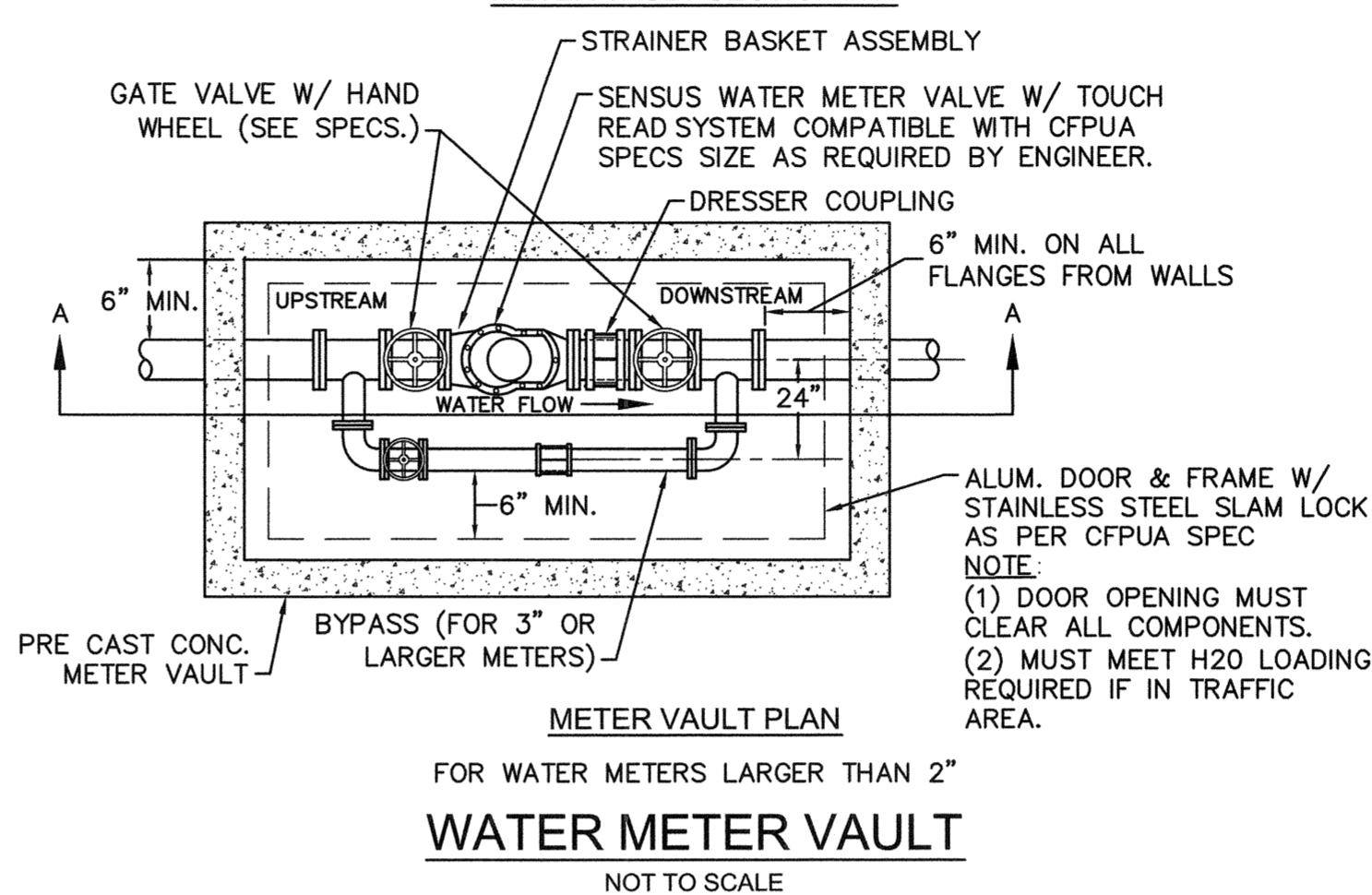
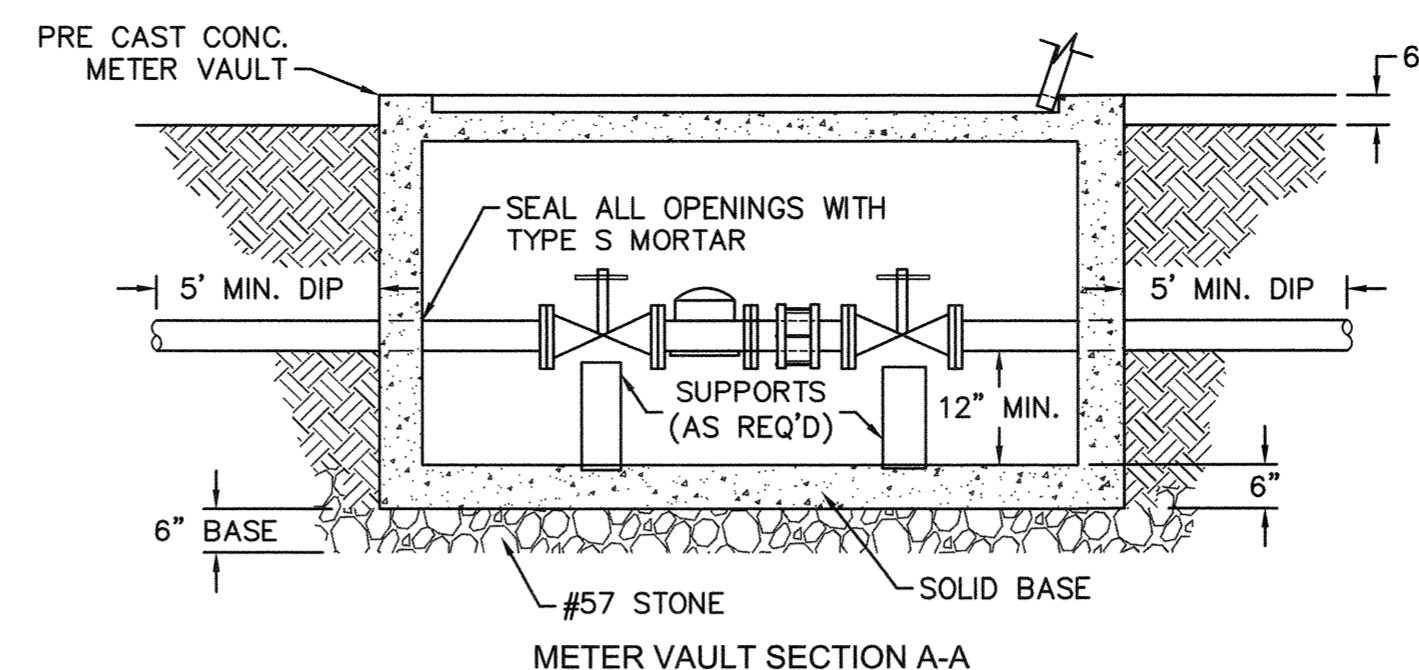
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NOTES:

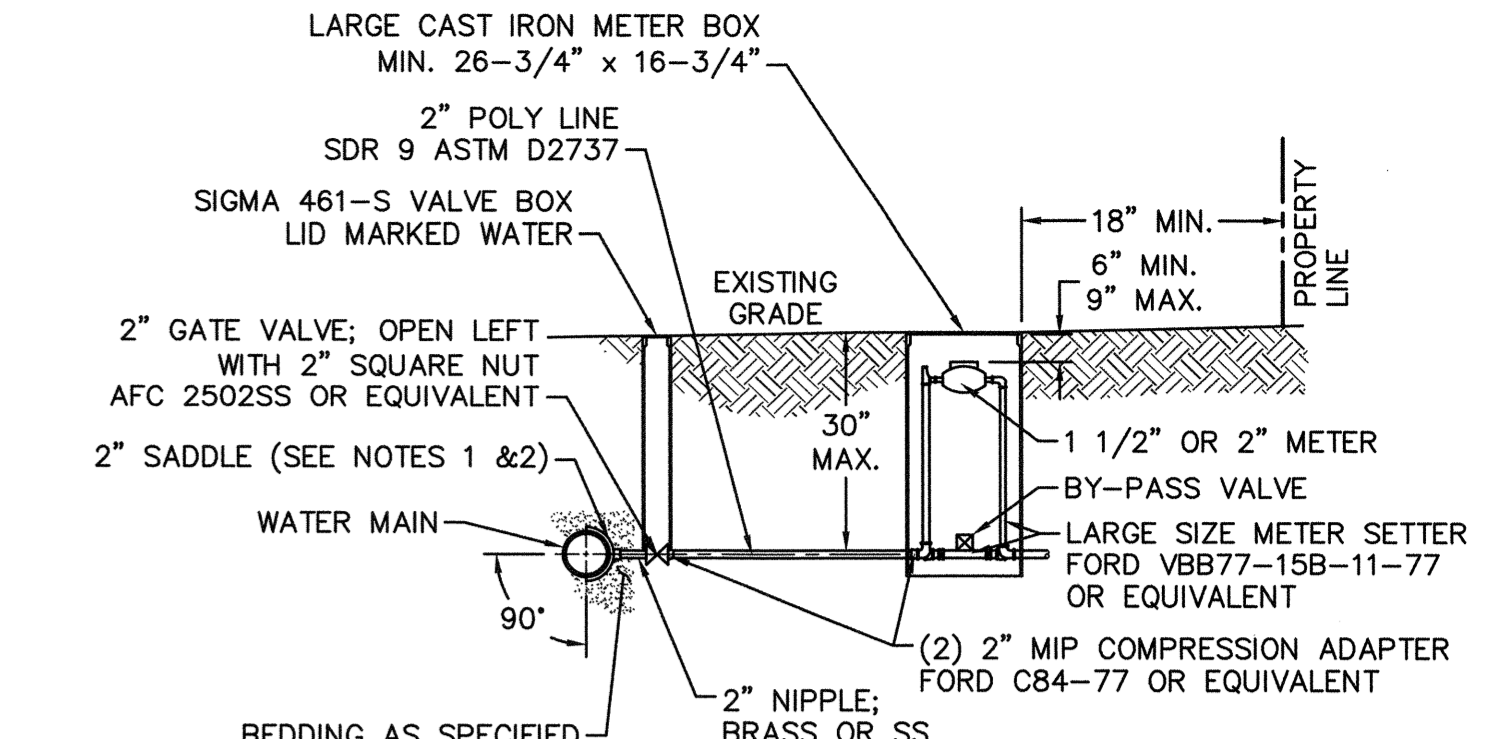
- NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
- SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: SADDLE McDONALD 3801 OR EQUIVALENT.
- METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (SIP MODEL 4240 OR APPROVED EQUIVALENT).



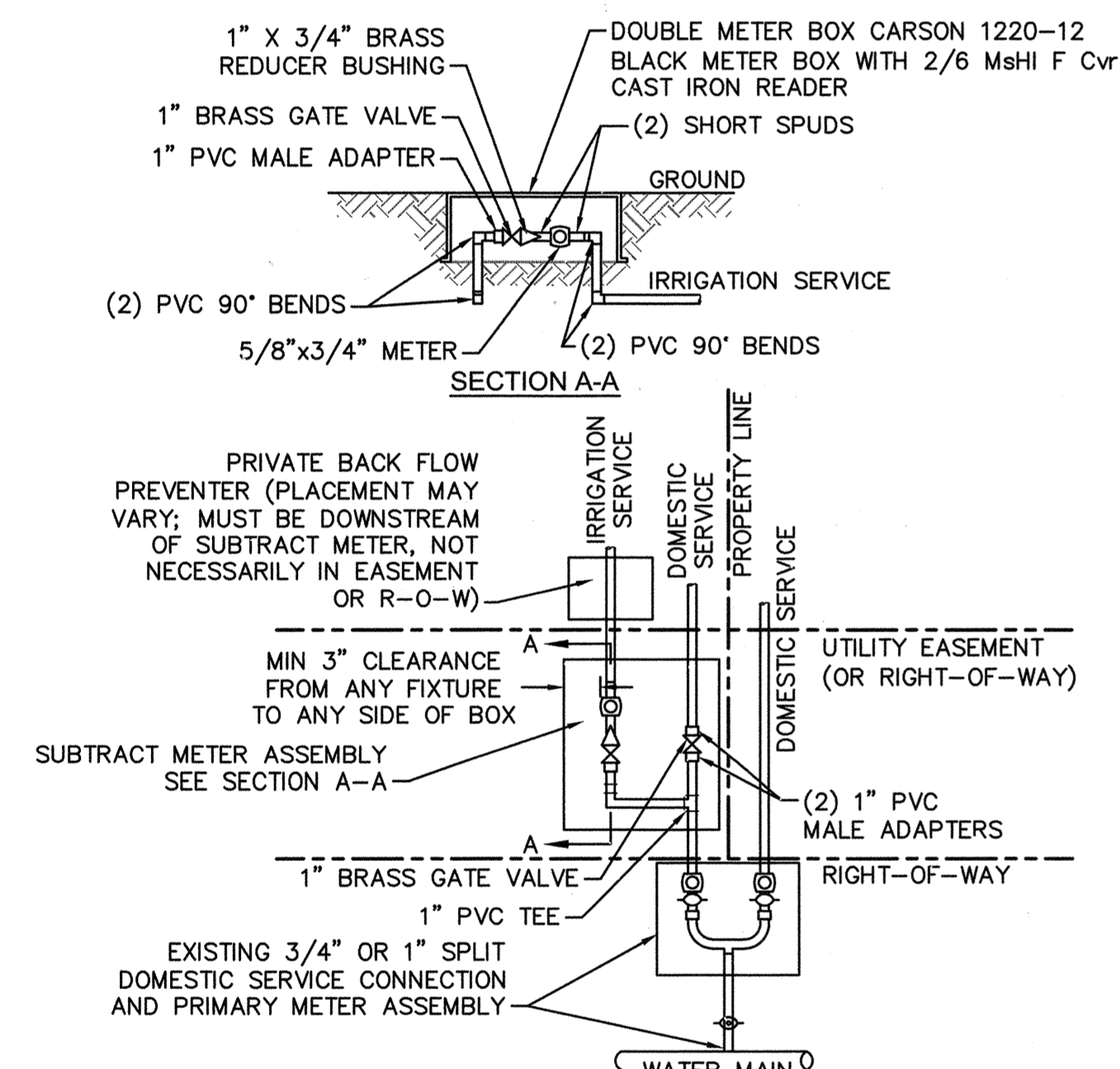
SINGLE SERVICE CONNECTION
NOT TO SCALE



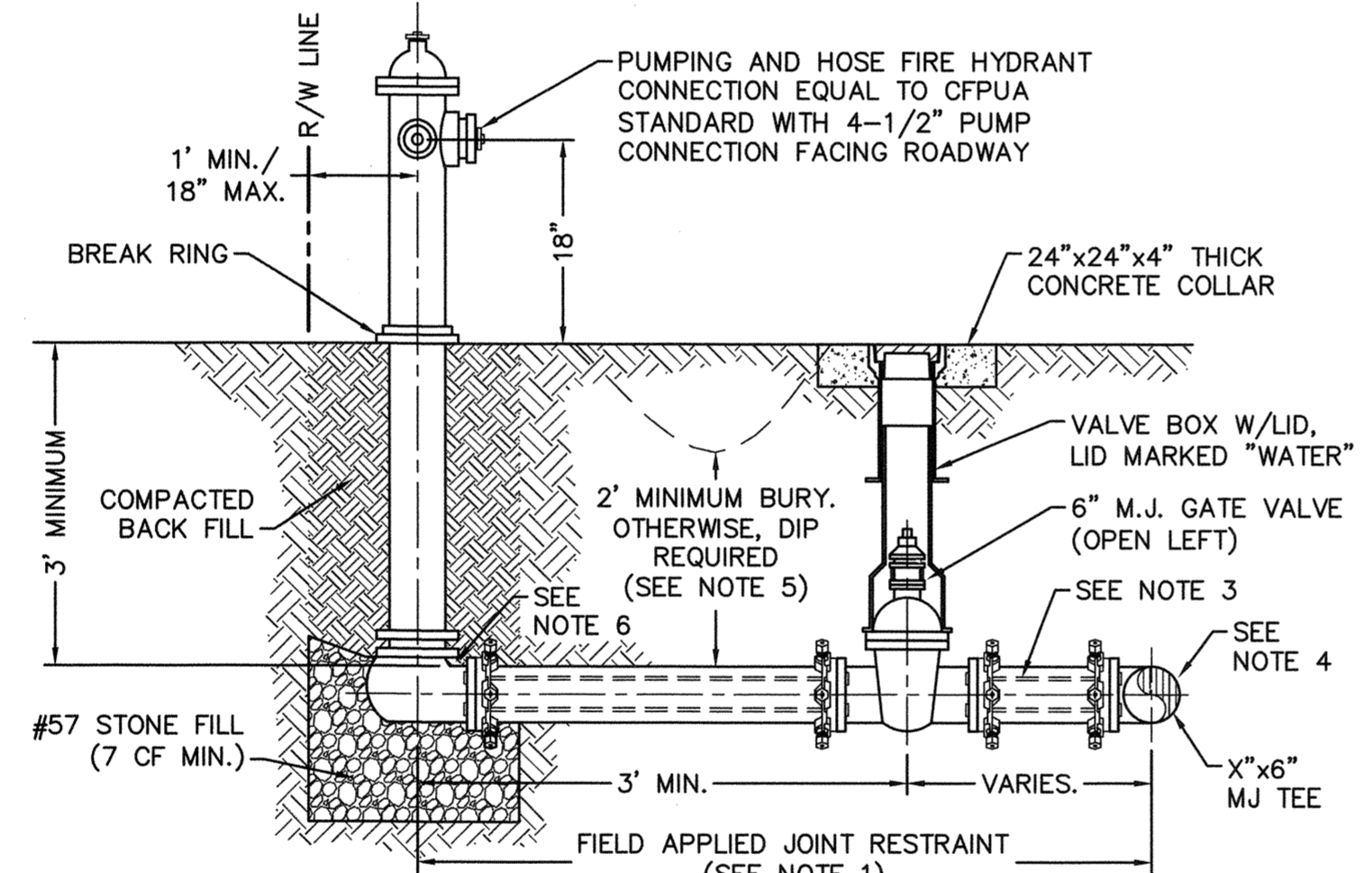
WATER METER VAULT
NOT TO SCALE



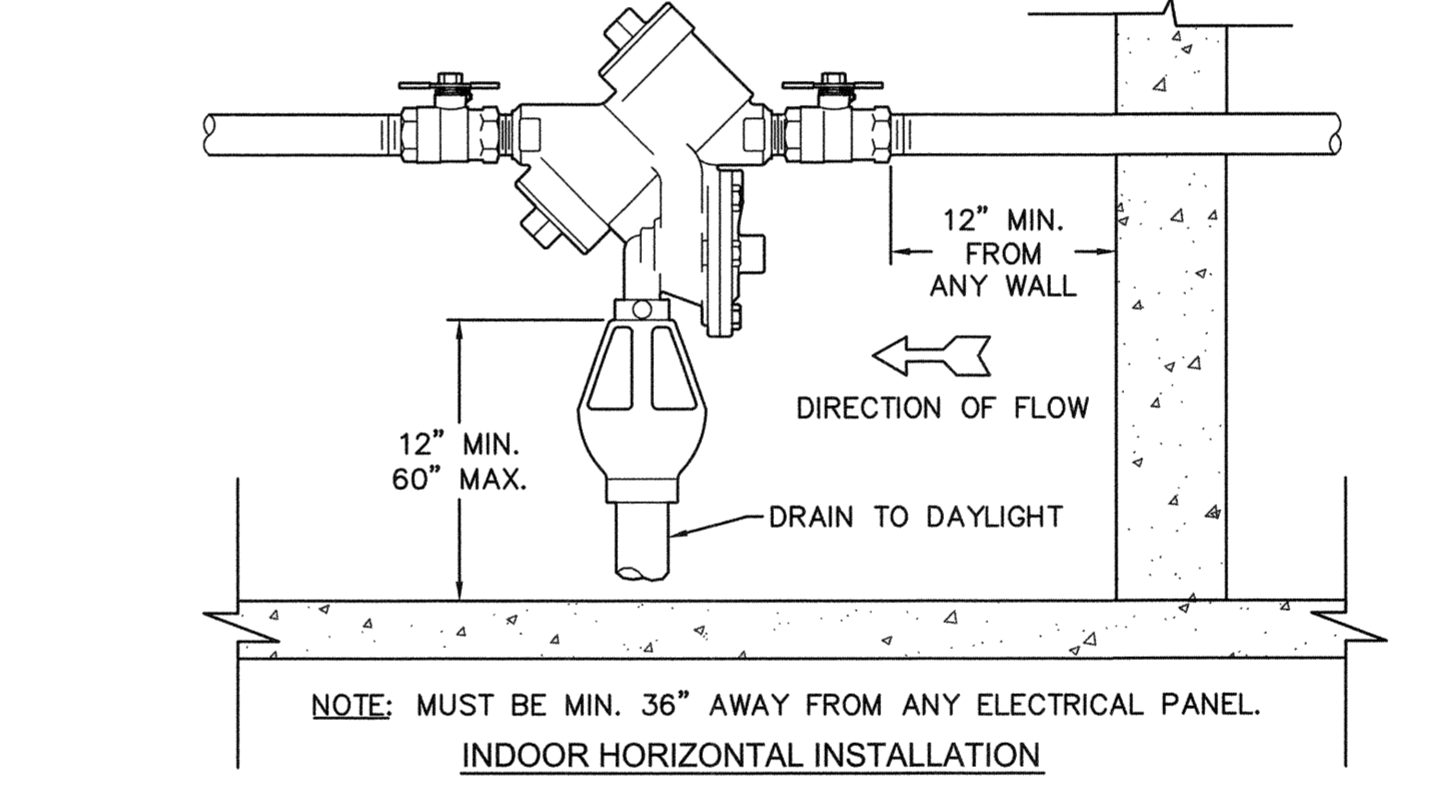
LARGE METER
NOT TO SCALE



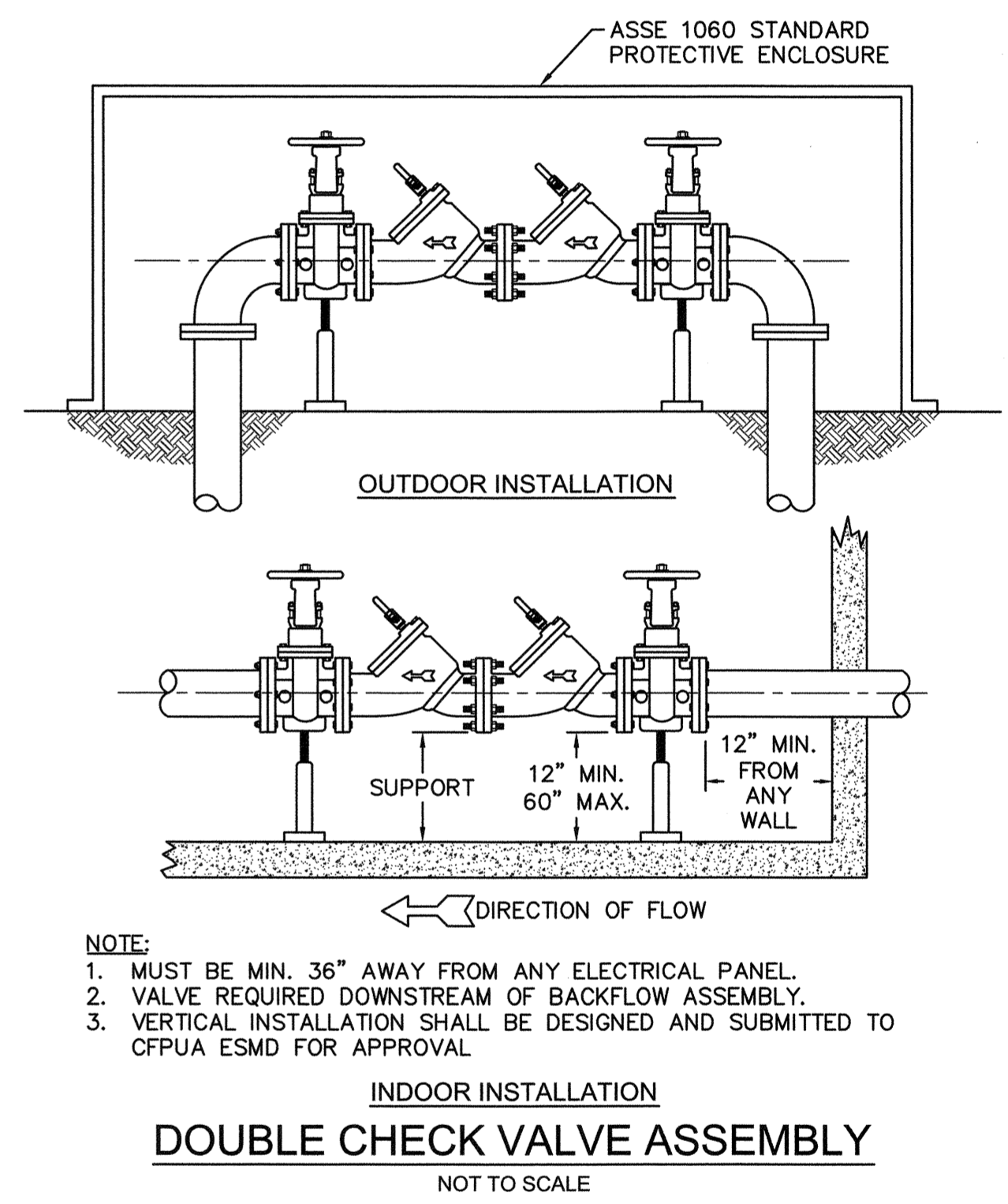
DOUBLE SERVICE CONNECTION USING SUBTRACT METER
NOT TO SCALE



FIRE HYDRANT ASSEMBLY
NOT TO SCALE



REDUCED PRESSURE PRINCIPLE ASSEMBLY
NOT TO SCALE



DOUBLE CHECK VALVE ASSEMBLY
NOT TO SCALE

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THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

REV.	DESCRIPTION:	DATE:
1	Single Service Connection, Double Service Connection, and Large Meter Revised	10/26/12
2	Single Service Connection and Fire Hydrant Details Revised	7/23/13
3	Fire Hydrant Detail Revised	01/03/14

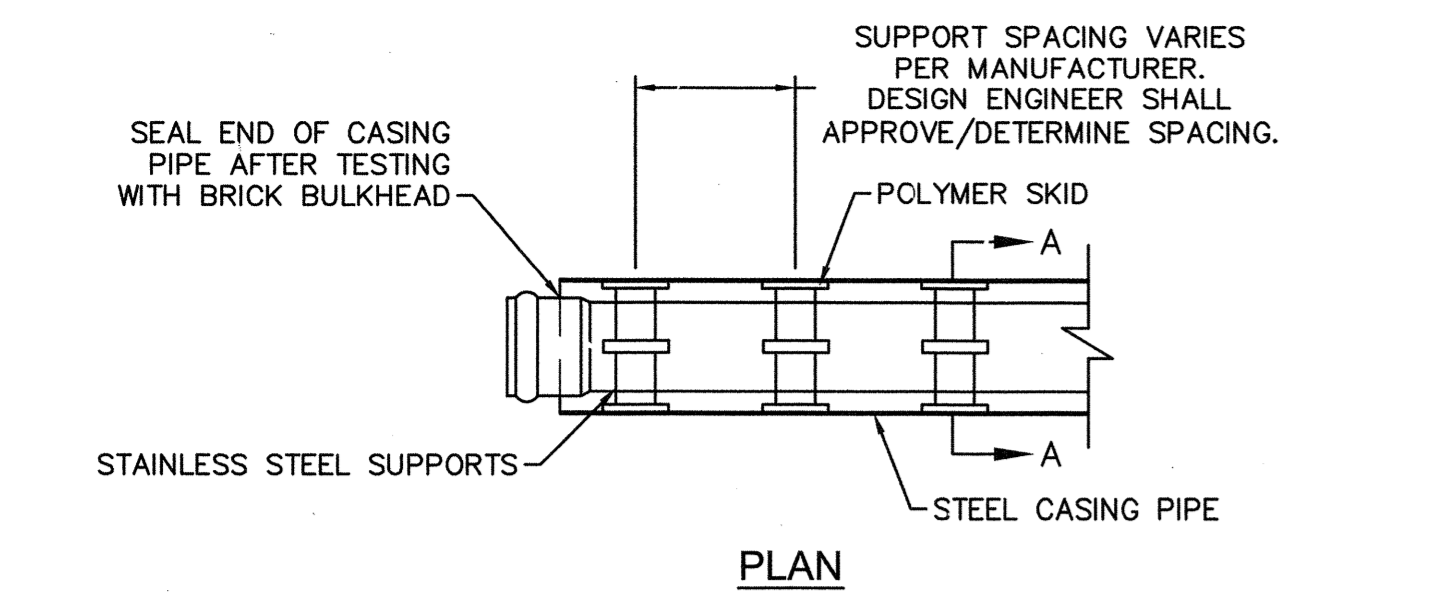
CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

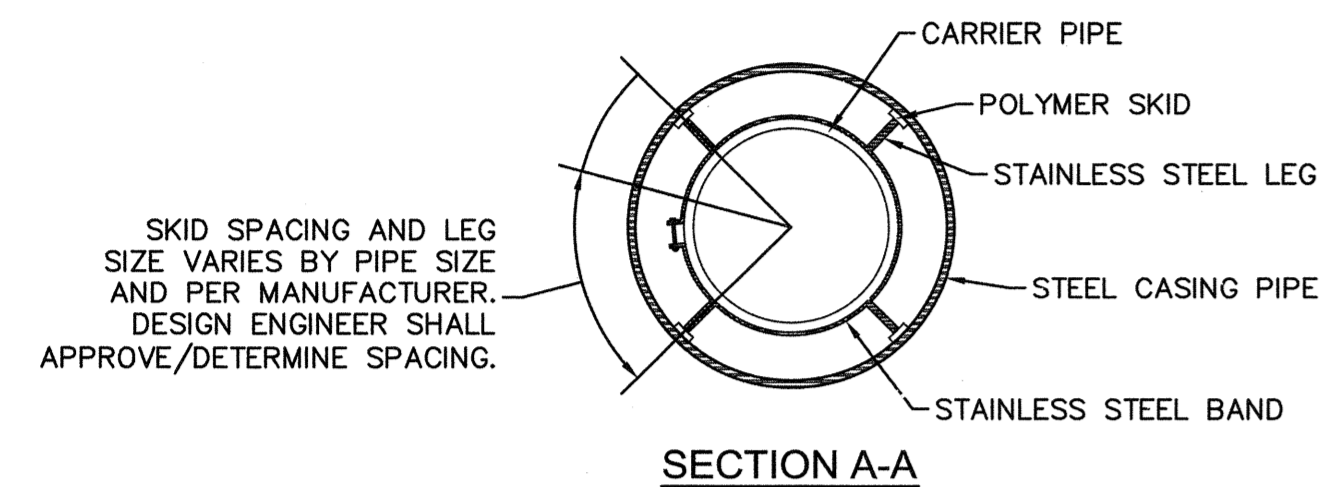
CAPE FEAR PUBLIC UTILITY AUTHORITY
235 GOVERNMENT CENTER DRIVE
WILMINGTON, NC 28403
OFFICE: (910)332-6560

DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:
SHEET NO: WSD-1

S:\27350124_Merina_Village\06-Drawing\DETAILS\027350124.dwg, 01/20/15 9:04:59 AM, hharrelt

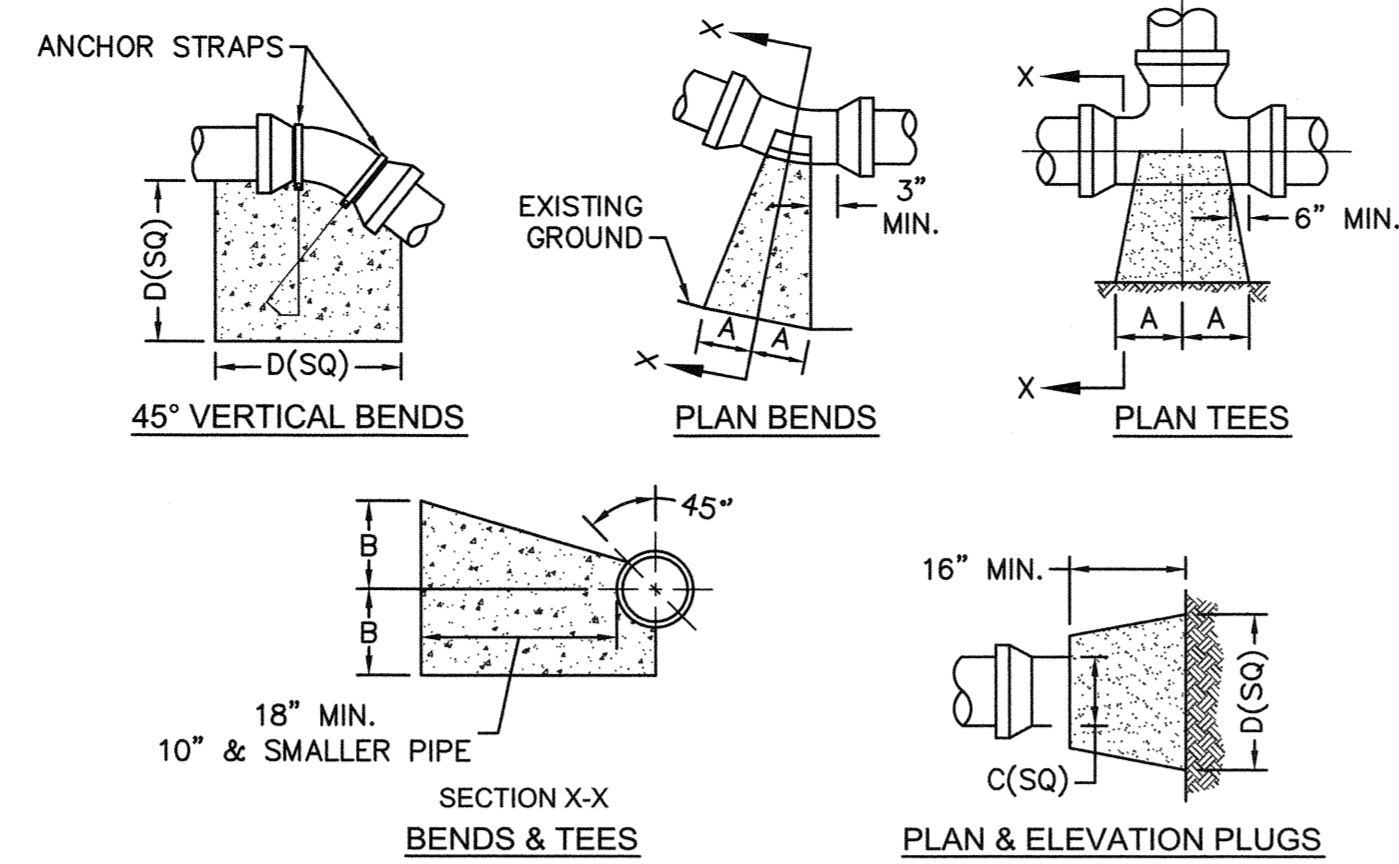


NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE. OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.



PIPE CASING SUPPORT DETAIL

NOT TO SCALE

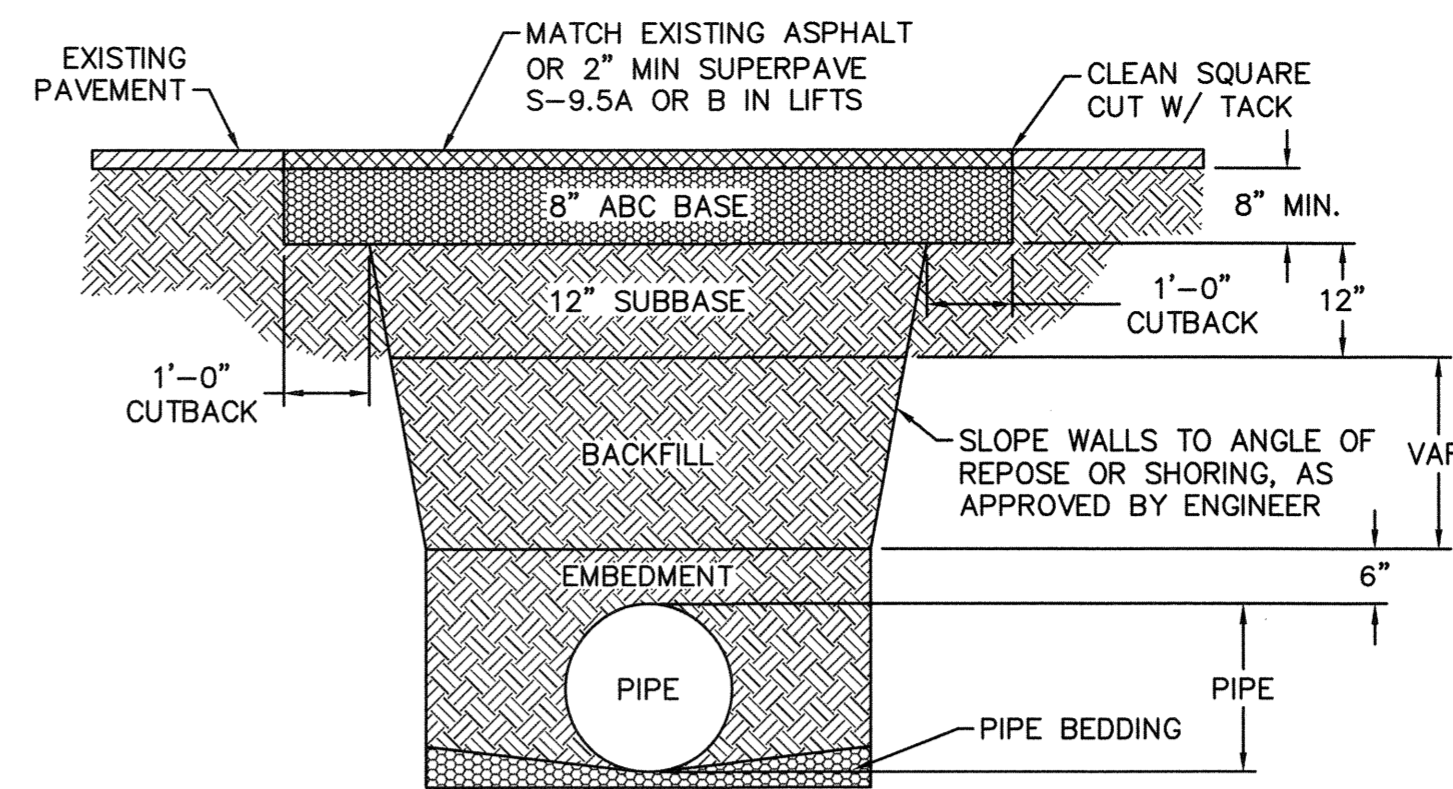


SIZE	90 BENDS		45 BENDS		22 1/2 BENDS		TEES/PLUGS		45 VERT. BENDS
	A	B	A	B	A	B	A	B	
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	8"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	62"
14"	26"	29"	21"	19"	18"	18"	26"	20"	72"
16"	33"	29"	25"	21"	20"	21"	32"	21"	83"
18"	40"	30"	28"	24"	22"	23"	36"	24"	88"

NOTES:
 1. BASED ON 160 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
 2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
 3. USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

THRUST BLOCK DETAIL

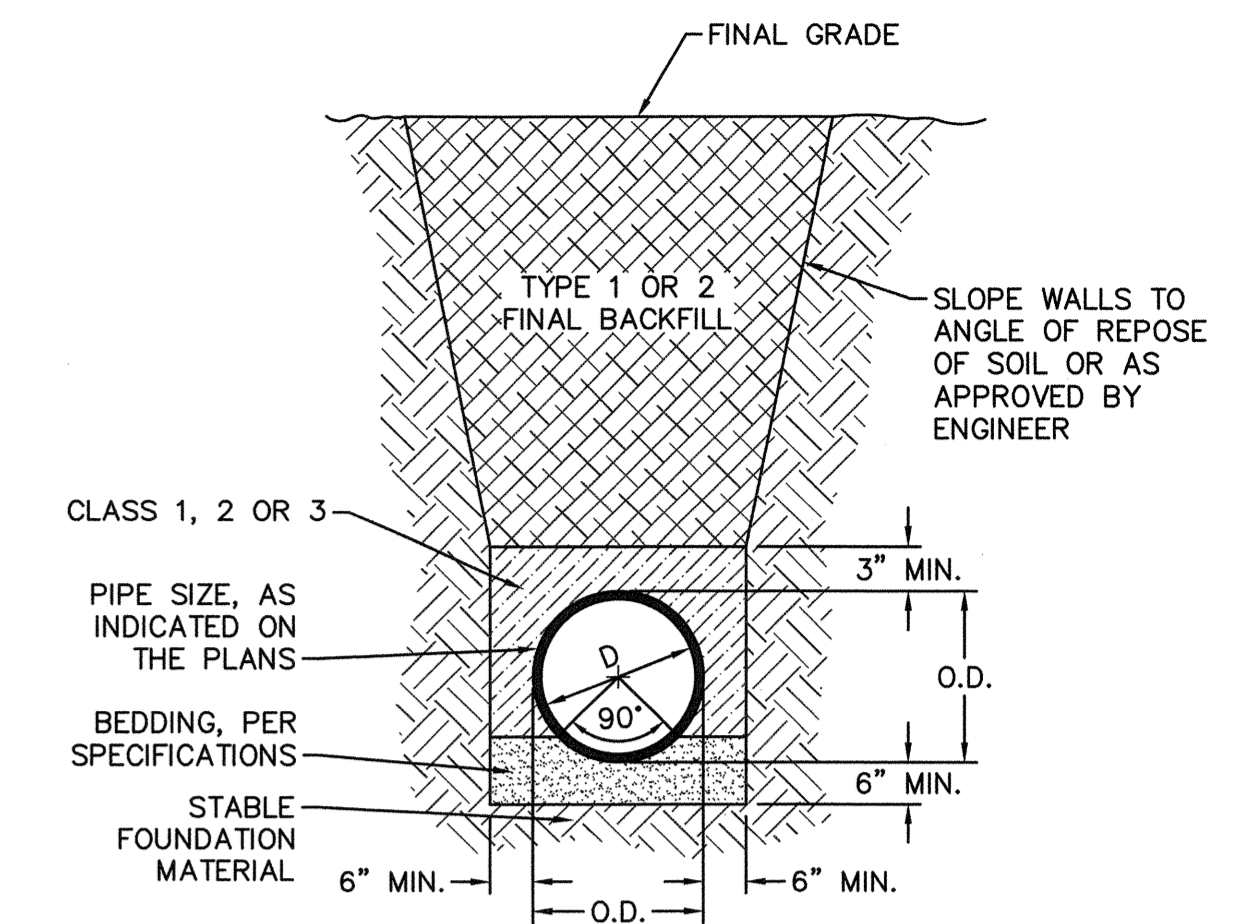
NOT TO SCALE



NOTES:
 1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
 2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
 3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
 4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS
 5. SOIL SHALL BE 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.
 6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
 7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
 8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

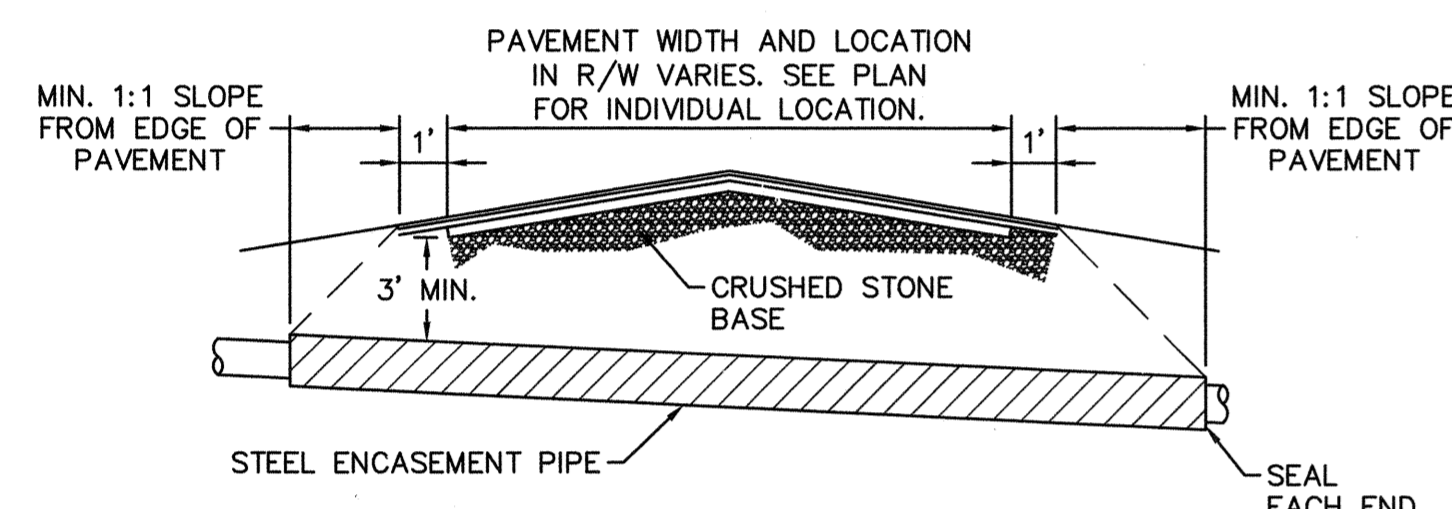
PAVEMENT REPAIR WHERE PIPE INSTALLED

NOT TO SCALE



TYPICAL TRENCH DETAIL

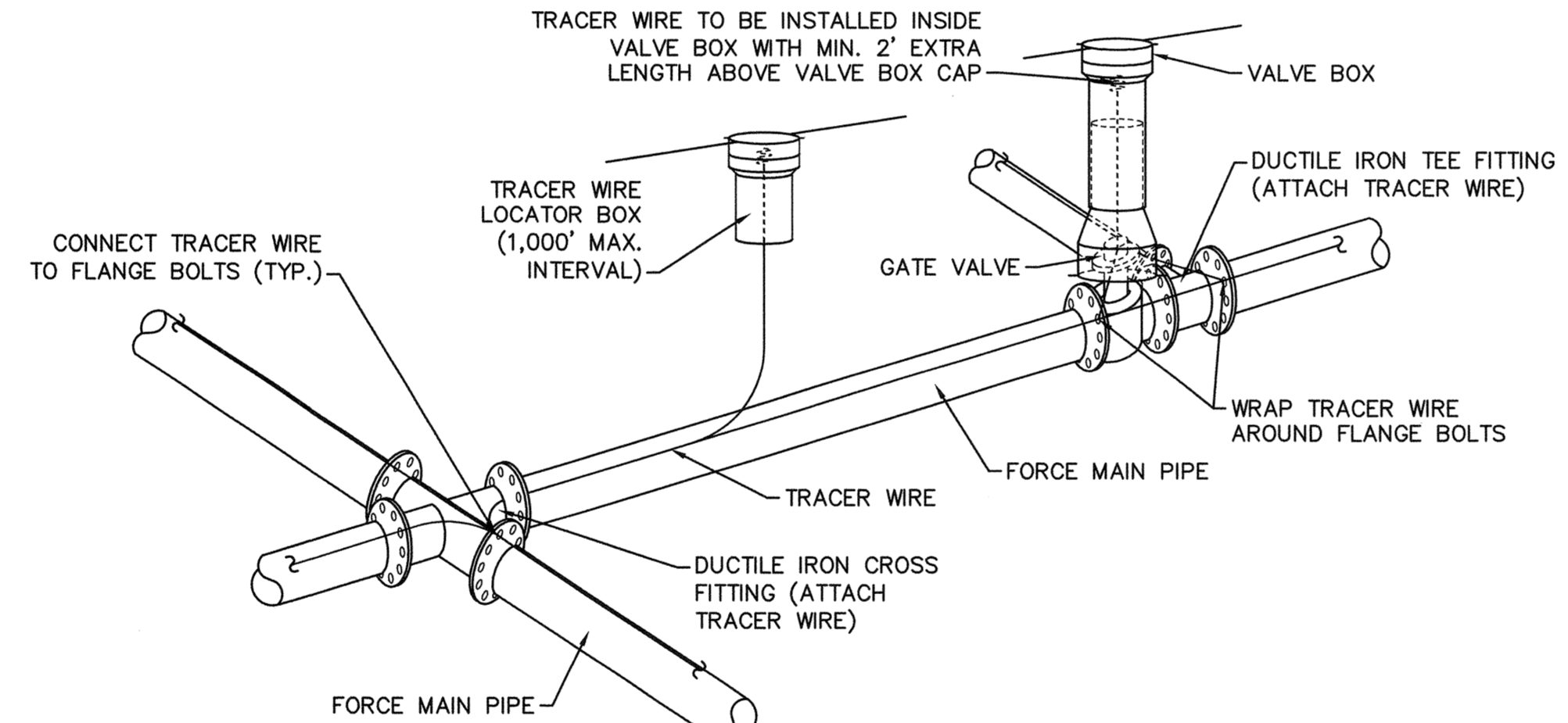
NOT TO SCALE



NOTES:
 1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
 2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

TYPICAL BORING/JACKING DETAIL

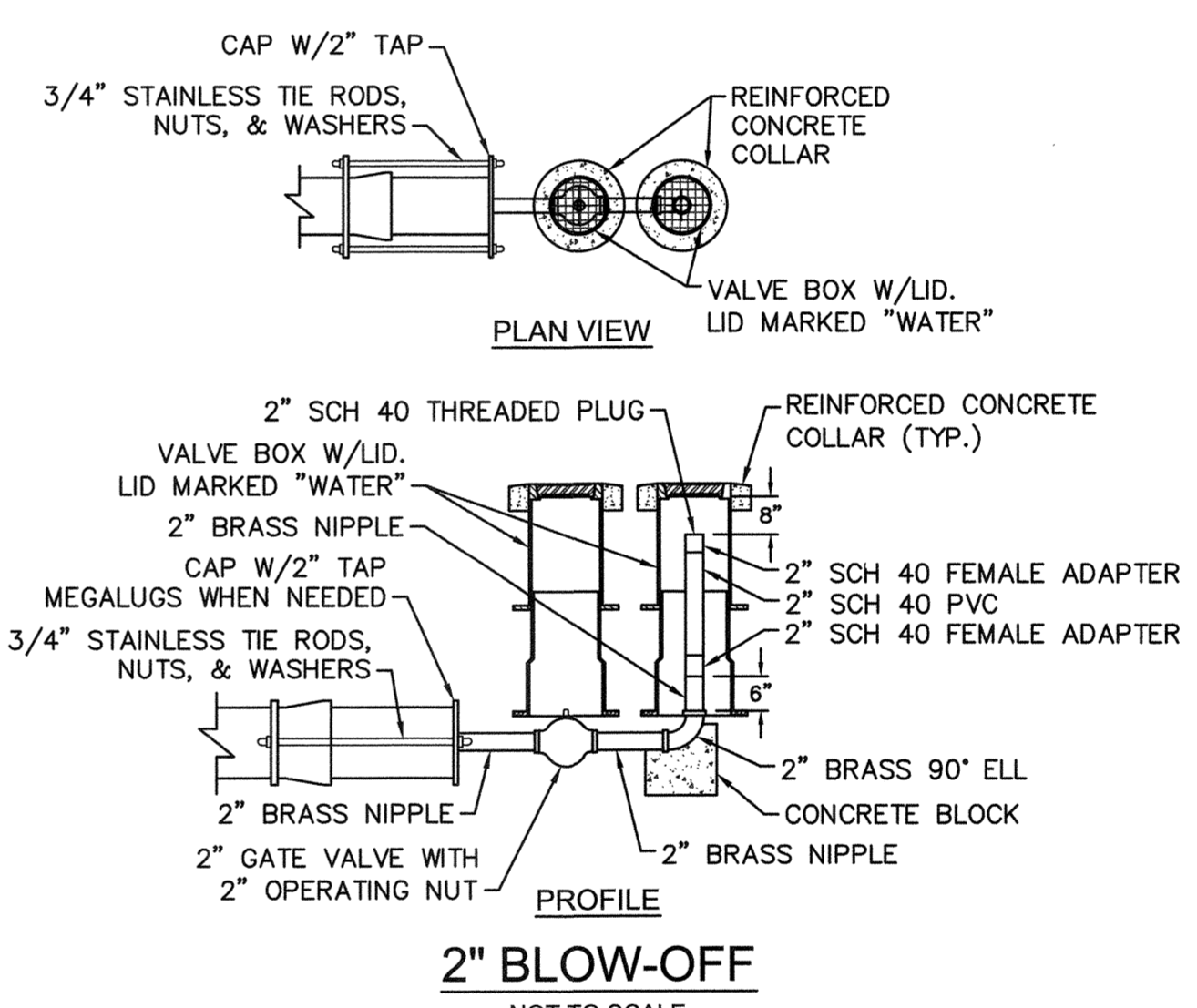
NOT TO SCALE



NOTES:
 1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION
 2. WIRE SHALL BE STRAPPED TO ALL PVC FORCE MAIN PIPING WITH DUCT TAPE AT 12-FT. INTERVALS.
 3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS.
 4. ALL WIRE SPLICES SHALL HAVE WATER PROOF WIRE CONNECTIONS.

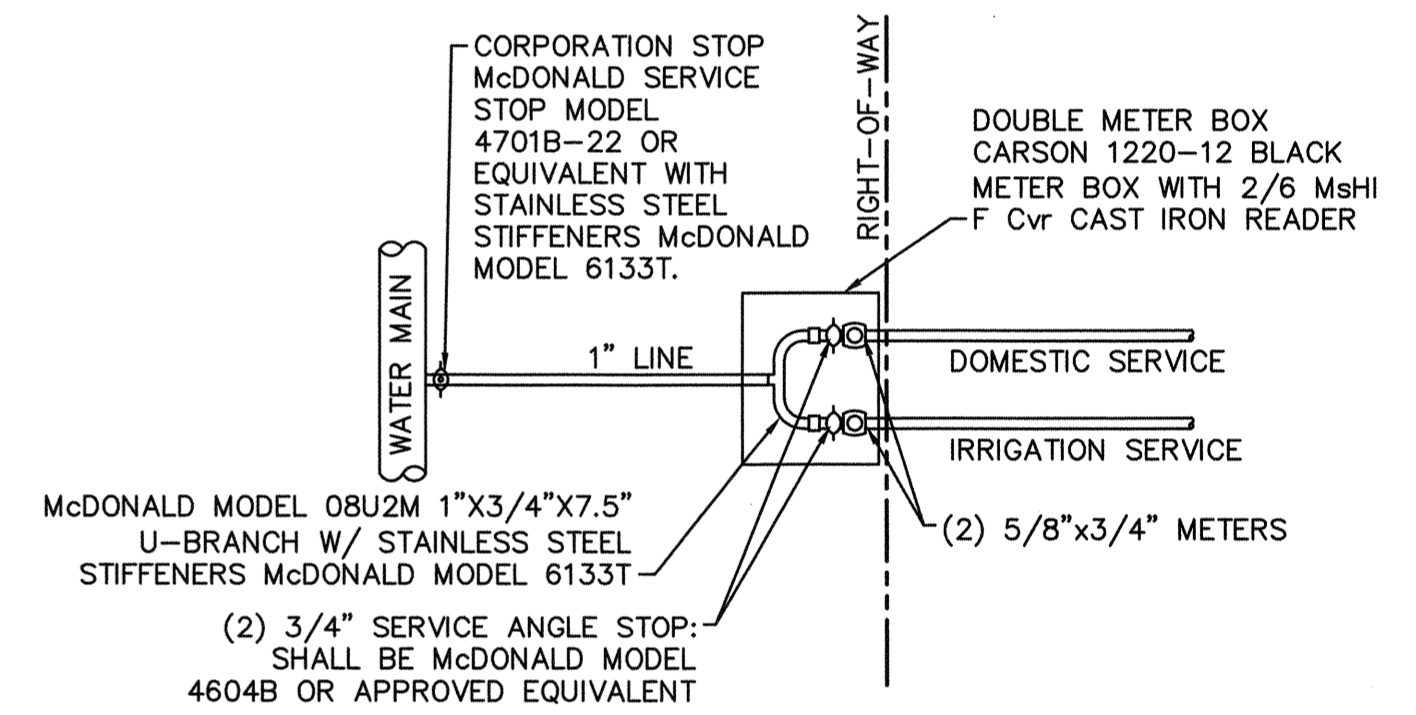
TRACER WIRE DETAIL

NOT TO SCALE



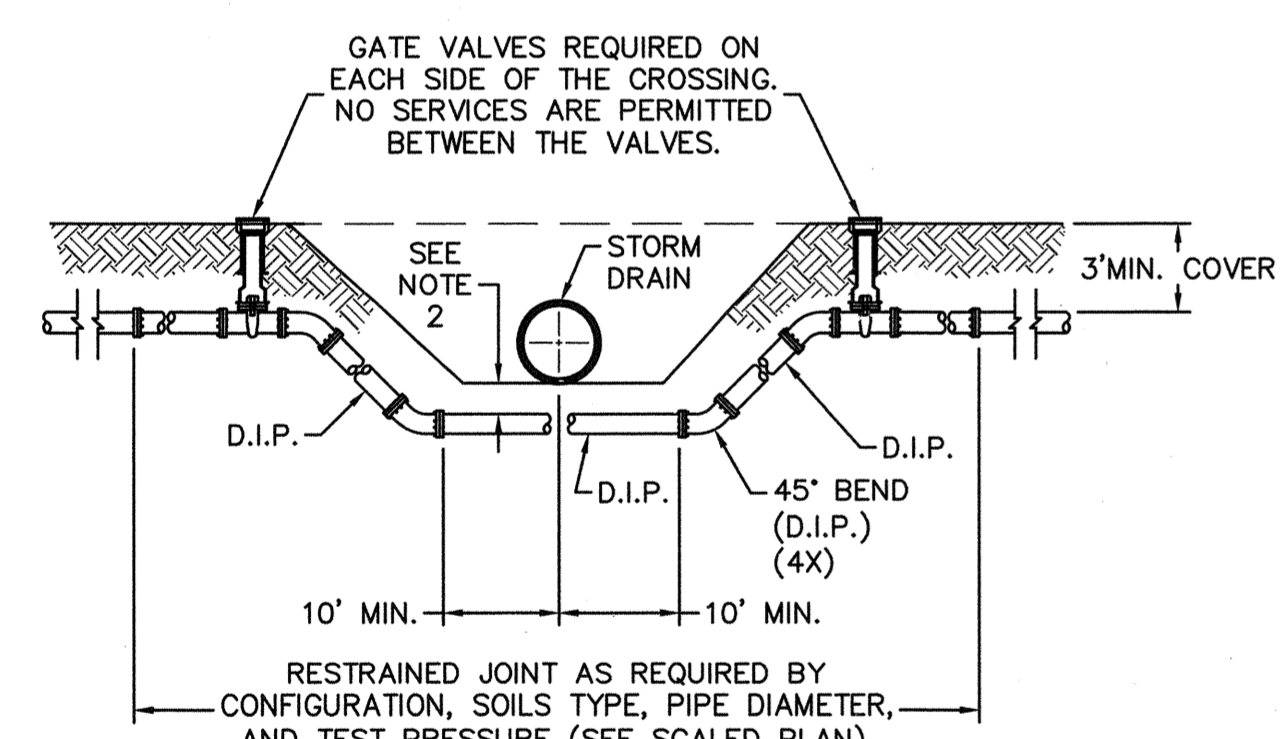
2" BLOW-OFF

NOT TO SCALE



DOUBLE SERVICE CONNECTION

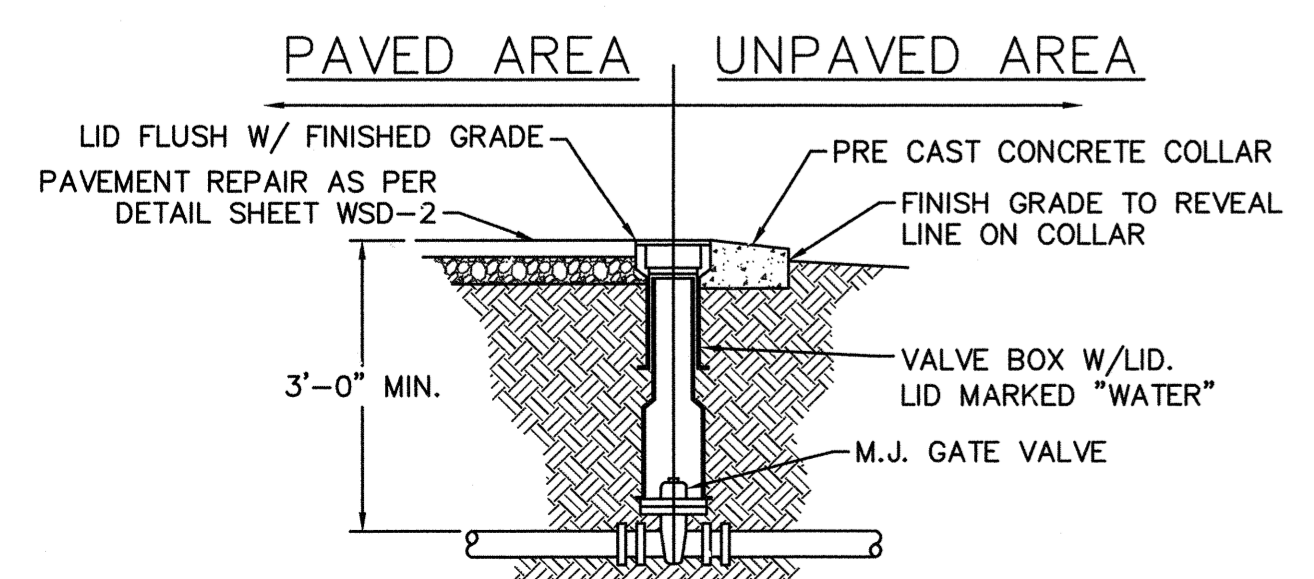
NOT TO SCALE



NOTES:
 1. USE PRESSURE CLASS 350 DIP, UNLESS SPECIFIED OTHERWISE.
 2. MINIMUM DEPTH REQUIRED, UNLESS SPECIFIED OTHERWISE BY CFPUA:
 a. IN DOT R/W, 36" MIN. TYPICAL, OR 24" MIN. WHEN CROSSING A DITCH LINE.
 b. ALL OTHER LOCATIONS, 30" MIN.
 c. WHEN STORM DRAIN INVERT IS BURIED AT OR BELOW ABOVE DEPTHS, 18" MIN. CLEARANCE IS REQUIRED.

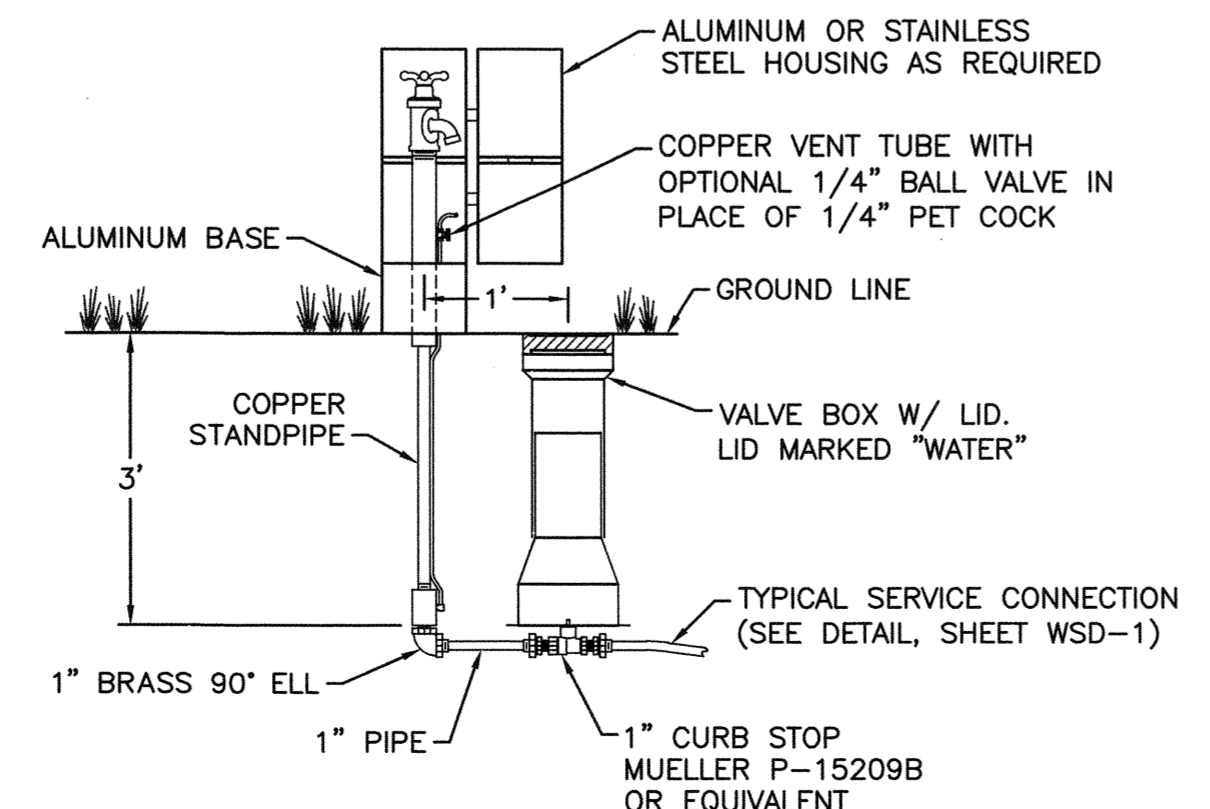
WATER MAIN DITCH AND STORM DRAIN CROSSING

NOT TO SCALE



VALVE DETAIL

NOT TO SCALE



SAMPLING STATION

NOT TO SCALE

GENERAL NOTES:
 1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
 2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
 3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
 4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
 5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

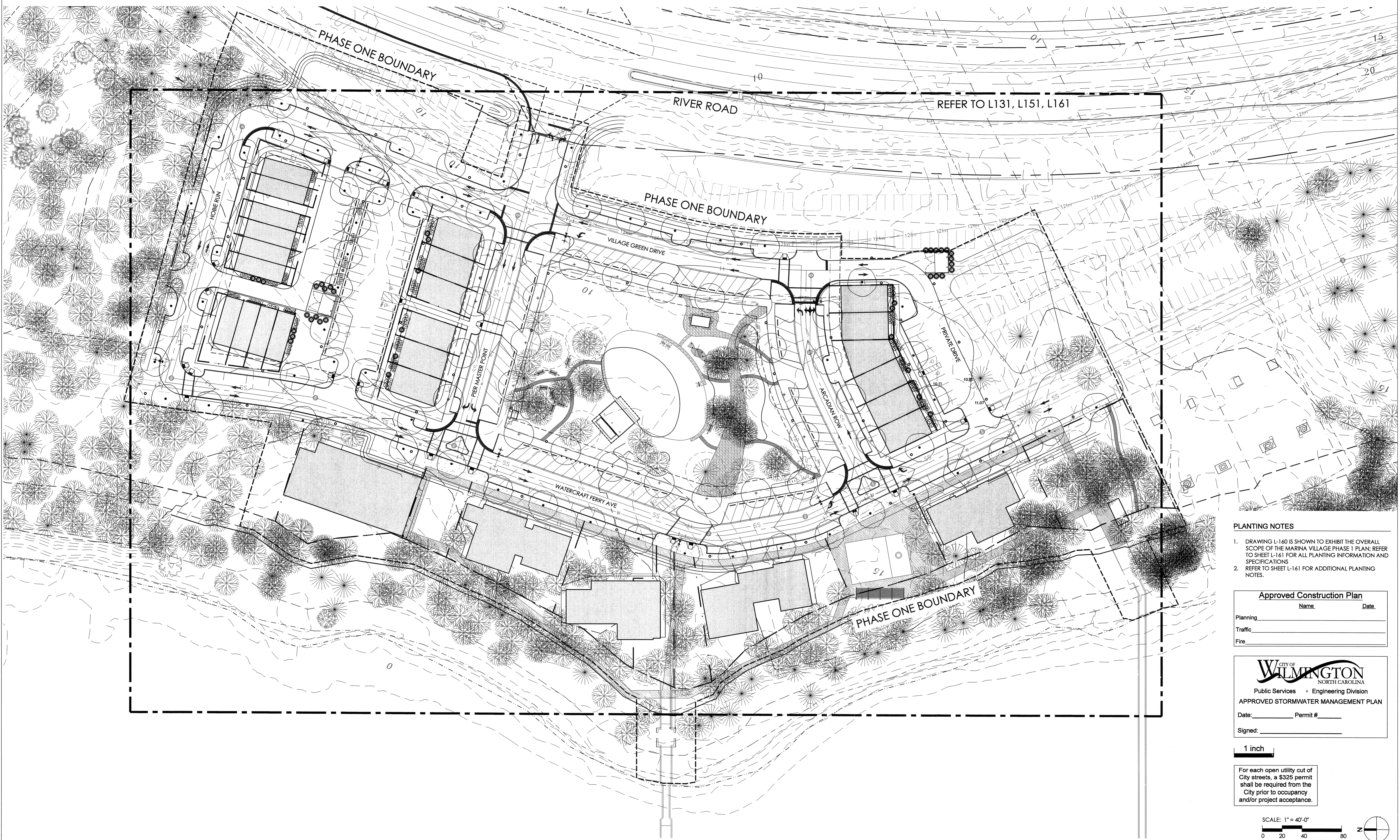
REV.	DESCRIPTION:	DATE:
1	Revised Water Main Ditch and Storm Crossing Detail	11/12/13
2	Revised Water Main Ditch and Storm Crossing Detail	05/05/14

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

CAPE FEAR PUBLIC UTILITY AUTHORITY
 235 GOVERNMENT CENTER DRIVE
 WILMINGTON, NC 28403
 OFFICE: (910)332-6560

DATE: 1/9/12
 SCALE: N/A
 DRAWN BY: CFPUA
 CHECKED BY: CFPUA
 PROJECT NO.:
 SHEET NO: WSD-2



PLANTING NOTES

1. DRAWING L-160 IS SHOWN TO EXHIBIT THE OVERALL SCOPE OF THE MARINA VILLAGE PHASE 1 PLAN; REFER TO SHEET L-161 FOR ALL PLANTING INFORMATION AND SPECIFICATIONS
2. REFER TO SHEET L-161 FOR ADDITIONAL PLANTING NOTES.

Approved Construction Plan

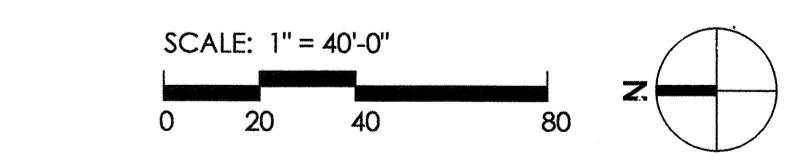
Name	Date
Planning	
Traffic	
Fire	

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

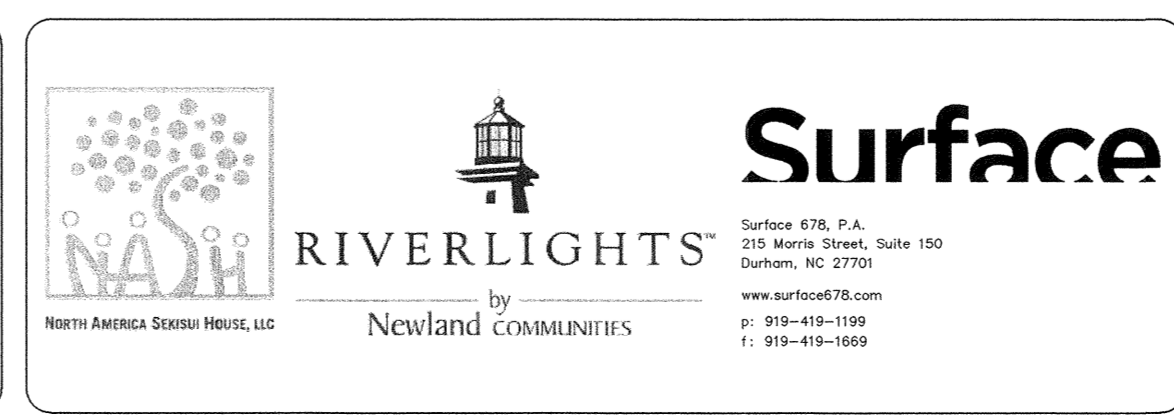
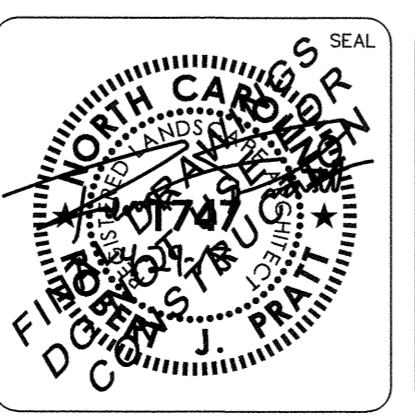
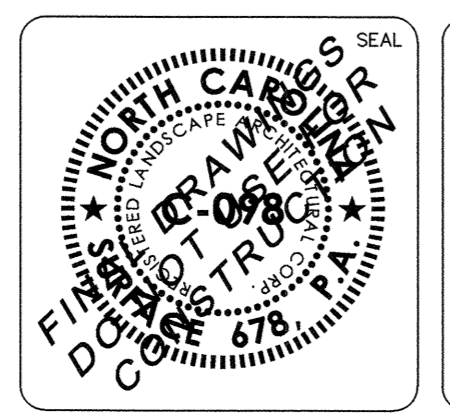
Date: _____ Permit # _____
Signed: _____

1 inch

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



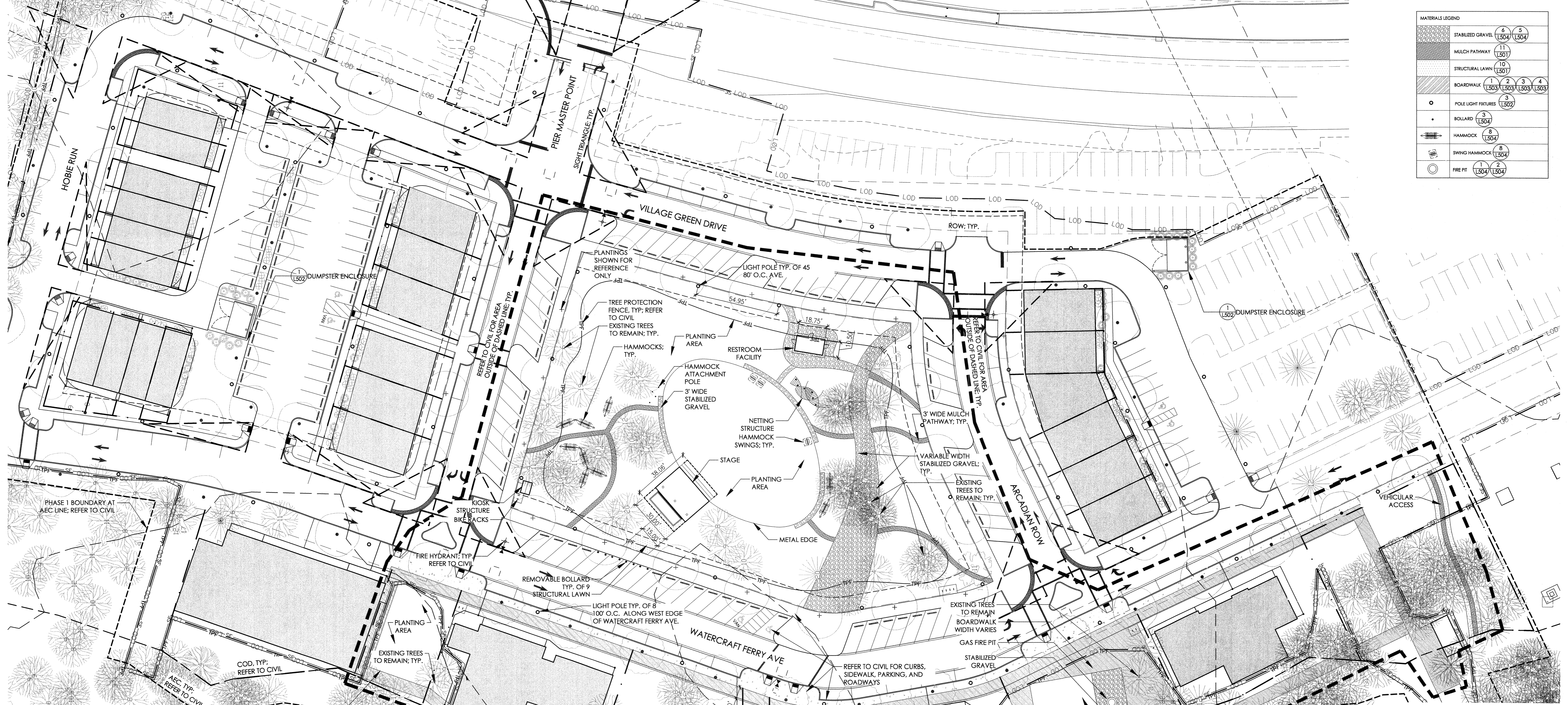
REV. NO.	DESCRIPTIONS	DATE



RIVERLIGHTS - MARINA VILLAGE

OVERALL CONTEXT PLAN

DATE: 05/29/2015	SCALE: 1"=40'-0"	M&C FILE NUMBER: L110
MCE PROJ. # 2735-0124	DRAWN: J. DP	DRAWING NUMBER: X
DESIGNED: RP, ED	CHECKED: RP, ED	PROJ. MGR.: RP
STATUS: NOT FOR CONSTRUCTION		REVISION: X OF XX



MATERIALS LEGEND

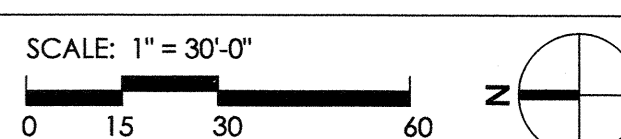
STABILIZED GRAVEL	6 (L504)	5 (L504)		
MULCH PATHWAY	11 (L501)			
STRUCTURAL LAWN	10 (L501)			
BOARDWALK	1 (L503)	2 (L503)	3 (L503)	4 (L503)
POLE LIGHT FIXTURES	3 (L502)			
BOLLARD	3 (L504)			
HAMMOCK	8 (L504)			
SWING HAMMOCK	8 (L504)			
FIRE PIT	1 (L504)	2 (L504)		

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch
Approved Construction Plan

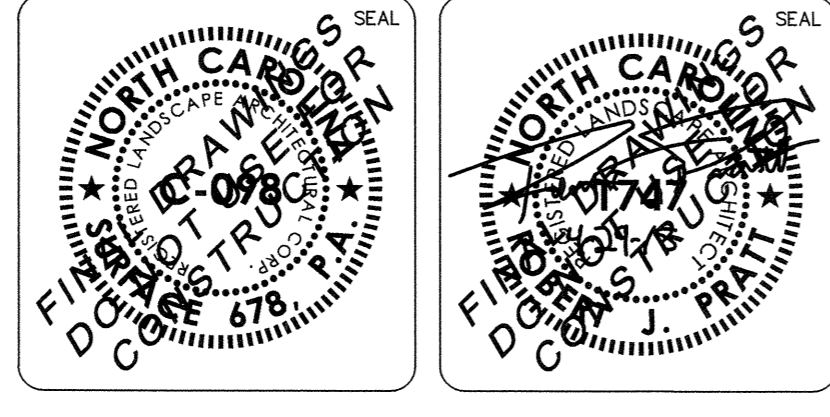
Approved Construction Plan	
Name	Date
Planning	
Traffic	
Fire	

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____



REVNO.	DESCRIPTIONS	DATE

CITY OF WILMINGTON TRC SUBMITTAL 2	05/29/15
CITY OF WILMINGTON STORMWATER SUBMITTAL	05/20/15
NEW HANOVER COUNTY EROSION CONTROL SUBMITTAL	05/13/15
CITY OF WILMINGTON TRC SUBMITTAL	04/08/15

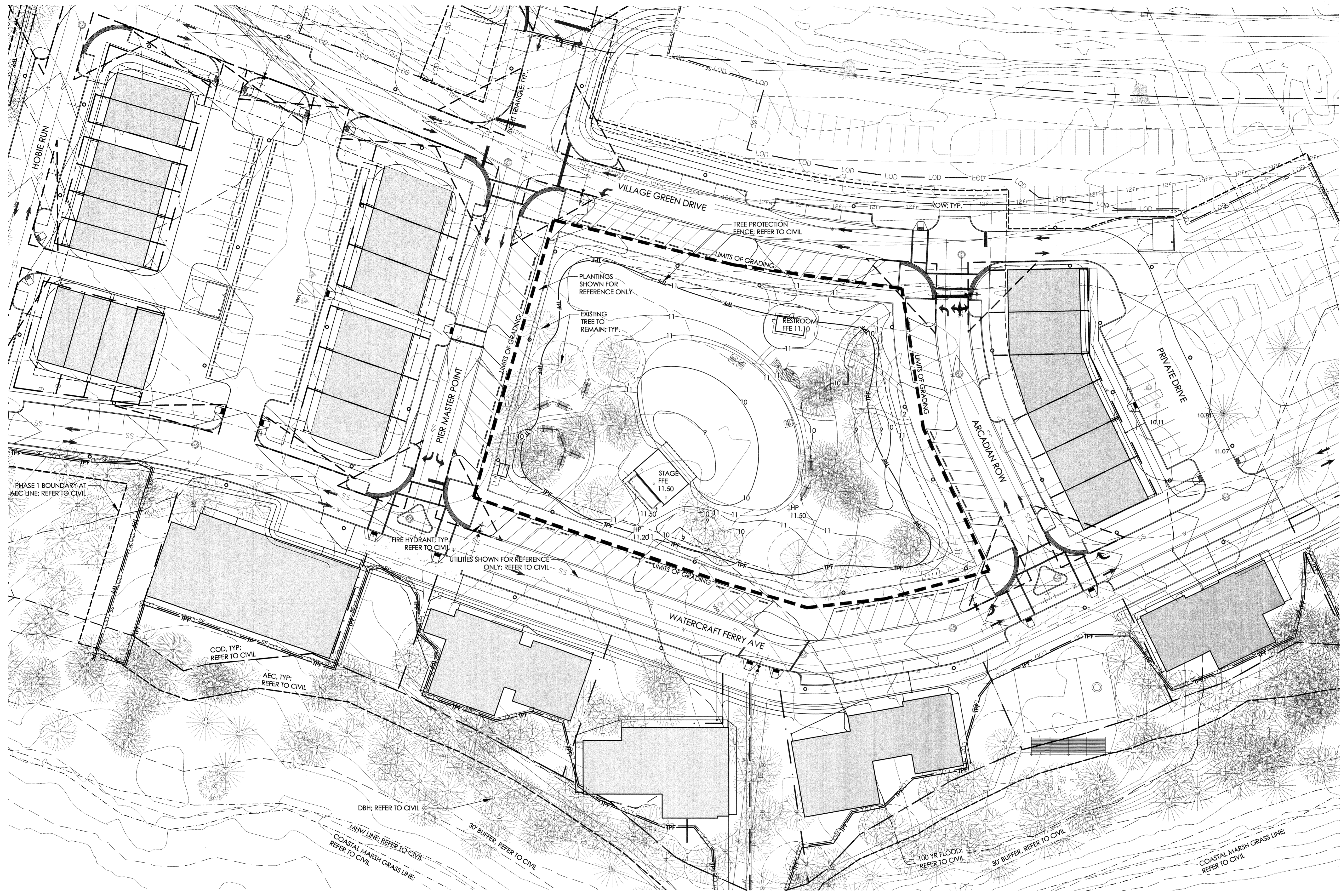


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Surface
NASH RIVERLIGHTS
Newland COMMUNITIES

RIVERLIGHTS - MARINA VILLAGE
LAYOUT AND MATERIALS PLAN

DATE: 05/29/2015	SCALE	MAC FILE NUMBER
MCE PROJ. # 2735-0124		L131
DRAWN J, DP		DRAWING NUMBER
DESIGNED RP, ED		X
CHECKED RP, ED		X OF XX
PROJ. MGR. RP		
STATUS: NOT FOR CONSTRUCTION		REVISION



Approved Construction Plan

Name	Date
Planning	
Traffic	
Fire	

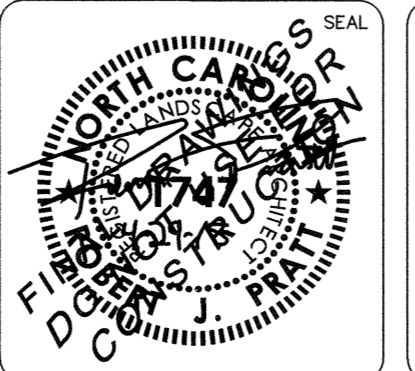
CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____



1 inch

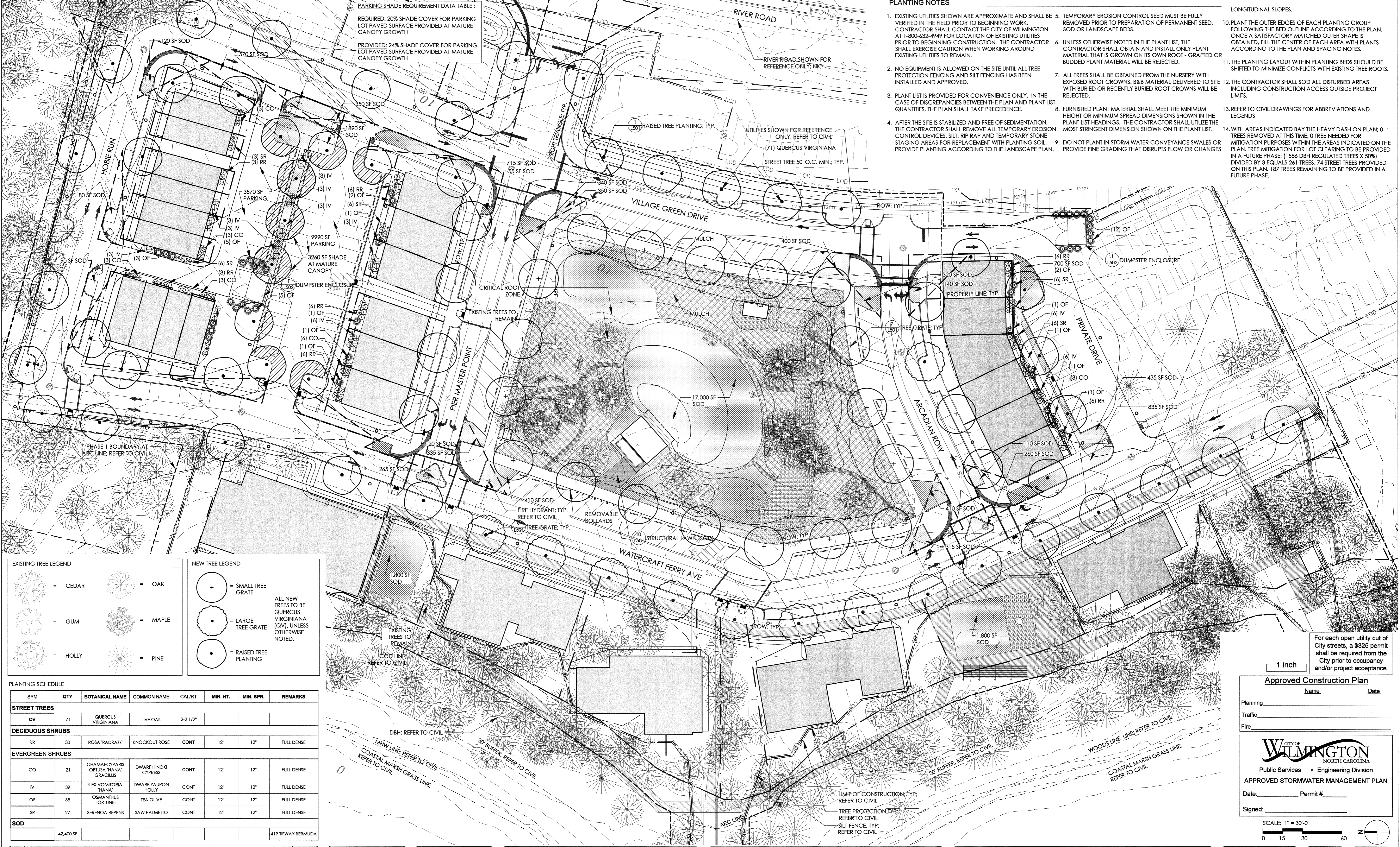
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

REV. NO.	DESCRIPTIONS / REVISIONS	DATE



RIVERLIGHTS - MARINA VILLAGE
VILLAGE GREEN GRADING PLAN

DATE: 05/29/2015	SCALE: 1" = 30'-0"	M&C FILE NUMBER: L151
M&C PROJ. # 2735-0124		DRAWING NUMBER: X
DRAWN: JI, DP		DESIGNED: RP, ED
CHECKED: RP, ED		PROJ. MGR: RP
STATUS: NOT FOR CONSTRUCTION		REVISION: X OF XX



PARKING SHADE REQUIREMENT DATA TABLE:
 REQUIRED: 20% SHADE COVER FOR PARKING LOT PAVED SURFACE PROVIDED AT MATURE CANOPY GROWTH
 PROVIDED: 24% SHADE COVER FOR PARKING LOT PAVED SURFACE PROVIDED AT MATURE CANOPY GROWTH

PLANTING NOTES

- EXISTING UTILITIES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD PRIOR TO BEGINNING WORK. CONTRACTOR SHALL CONTACT THE CITY OF WILMINGTON AT 1-800-432-4949 FOR LOCATION OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING UTILITIES TO REMAIN.
- NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.
- PLANT LIST IS PROVIDED FOR CONVENIENCE ONLY. IN THE CASE OF DISCREPANCIES BETWEEN THE PLAN AND PLANT LIST QUANTITIES, THE PLAN SHALL TAKE PRECEDENCE.
- AFTER THE SITE IS STABILIZED AND FREE OF SEDIMENTATION, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES, SILT, RIP RAP AND TEMPORARY STONE STAGING AREAS FOR REPLACEMENT WITH PLANTING SOIL. PROVIDE PLANTING ACCORDING TO THE LANDSCAPE PLAN.
- TEMPORARY EROSION CONTROL SEED MUST BE FULLY REMOVED PRIOR TO PREPARATION OF PERMANENT SEED, SOD OR LANDSCAPE BEDS.
- UNLESS OTHERWISE NOTED IN THE PLANT LIST, THE CONTRACTOR SHALL OBTAIN AND INSTALL ONLY PLANT MATERIAL THAT IS GROWN ON ITS OWN ROOT - GRAFTED OR BUDDED PLANT MATERIAL WILL BE REJECTED.
- ALL TREES SHALL BE OBTAINED FROM THE NURSERY WITH EXPOSED ROOT CROWNS. B&B MATERIAL DELIVERED TO SITE WITH BURIED OR RECENTLY BURIED ROOT CROWNS WILL BE REJECTED.
- FURNISHED PLANT MATERIAL SHALL MEET THE MINIMUM HEIGHT OR MINIMUM SPREAD DIMENSIONS SHOWN IN THE PLANT LIST HEADINGS. THE CONTRACTOR SHALL UTILIZE THE MOST STRINGENT DIMENSION SHOWN ON THE PLANT LIST.
- DO NOT PLANT IN STORM WATER CONVEYANCE SWALES OR PROVIDE FINE GRADING THAT DISRUPTS FLOW OR CHANGES LONGITUDINAL SLOPES.
- PLANT THE OUTER EDGES OF EACH PLANTING GROUP FOLLOWING THE BED OUTLINE ACCORDING TO THE PLAN. ONCE A SATISFACTORY MATCHED OUTER SHAPE IS OBTAINED, FILL THE CENTER OF EACH AREA WITH PLANTS ACCORDING TO THE PLAN AND SPACING NOTES.
- THE PLANTING LAYOUT WITHIN PLANTING BEDS SHOULD BE SHIFTED TO MINIMIZE CONFLICTS WITH EXISTING TREE ROOTS.
- THE CONTRACTOR SHALL SOD ALL DISTURBED AREAS INCLUDING CONSTRUCTION ACCESS OUTSIDE PROJECT LIMITS.
- REFER TO CIVIL DRAWINGS FOR ABBREVIATIONS AND LEGENDS
- WITH AREAS INDICATED BY THE HEAVY DASH ON PLAN; 0 TREES REMOVED AT THIS TIME, 0 TREE NEEDED FOR MITIGATION PURPOSES WITHIN THE AREAS INDICATED ON THE PLAN. TREE MITIGATION FOR LOT CLEARING TO BE PROVIDED IN A FUTURE PHASE; (1586 DBH REGULATED TREES X 50%) DIVIDED BY 3 EQUALS 261 TREES. 74 STREET TREES PROVIDED ON THIS PLAN. 187 TREES REMAINING TO BE PROVIDED IN A FUTURE PHASE.

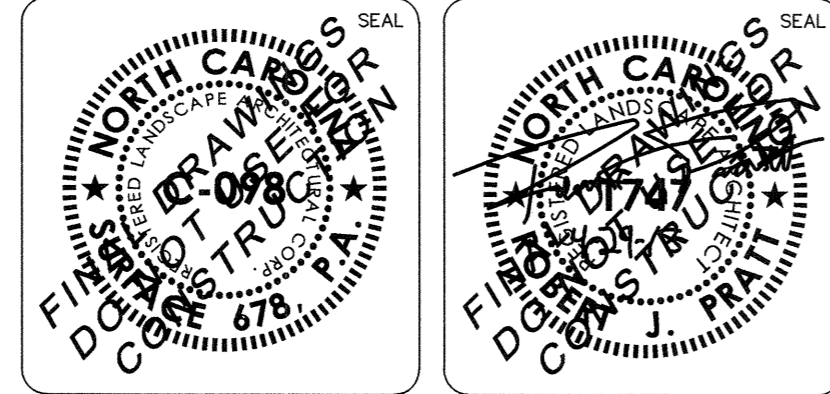
EXISTING TREE LEGEND		NEW TREE LEGEND	
	= CEDAR		= OAK
	= GUM		= MAPLE
	= HOLLY		= PINE
	= SMALL TREE GRATE		= LARGE TREE GRATE
	= RAISED TREE PLANTING		

ALL NEW TREES TO BE QUERCUS VIRGINIANA (QV), UNLESS OTHERWISE NOTED.

PLANTING SCHEDULE

SYM	QTY	BOTANICAL NAME	COMMON NAME	CAL/RT	MIN. HT.	MIN. SPR.	REMARKS
STREET TREES							
QV	71	QUERCUS VIRGINIANA	LIVE OAK	2-2 1/2'			
DECIDUOUS SHRUBS							
RR	30	ROSA 'RADRAZI'	KNOCKOUT ROSE	CONT	12'	12'	FULL DENSE
EVERGREEN SHRUBS							
CO	21	CHAMAECYPARIS OBUSA 'NANA' GRACILLIS	DWARF HINKO CYPRESS	CONT	12'	12'	FULL DENSE
IV	39	ILEX VOMITORIA 'NANA'	DWARF YAUPON HOLLY	CONT	12'	12'	FULL DENSE
OF	38	OSMANTHUS FORTUNEI	TEA OLIVE	CONT	12'	12'	FULL DENSE
SR	27	SERENOA REPENS	SAW PALMETO	CONT	12'	12'	FULL DENSE
SOD							419 TIFWAY BERMUDDA
	42,400 SF						

REVNO.	DESCRIPTIONS	DATE



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Surface
 RIVERLIGHTS
 Newland COMMUNITIES

RIVERLIGHTS - MARINA VILLAGE
PLANTING PLAN

Approved Construction Plan
 Name: _____ Date: _____
 Planning _____
 Traffic _____
 Fire _____

APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____

SCALE: 1" = 30'-0"
 0 15 30 60

DATE: 05/29/2015
 MCE PROJ. # 2735-0124
 DRAWN: JI, DP
 DESIGNED: RP, ED
 CHECKED: RP, ED
 PROJ. MGR.: RP

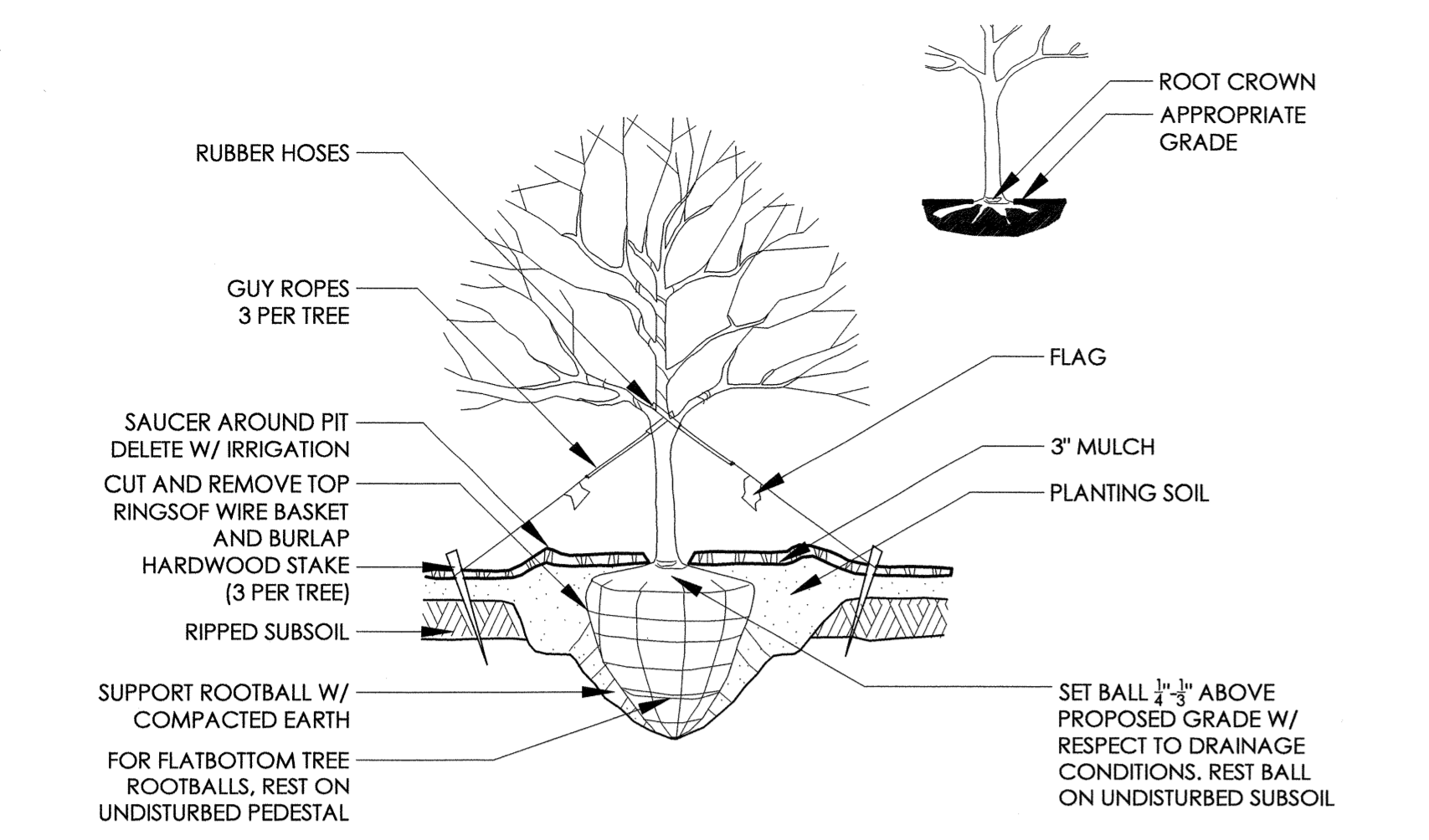
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 OF: XX

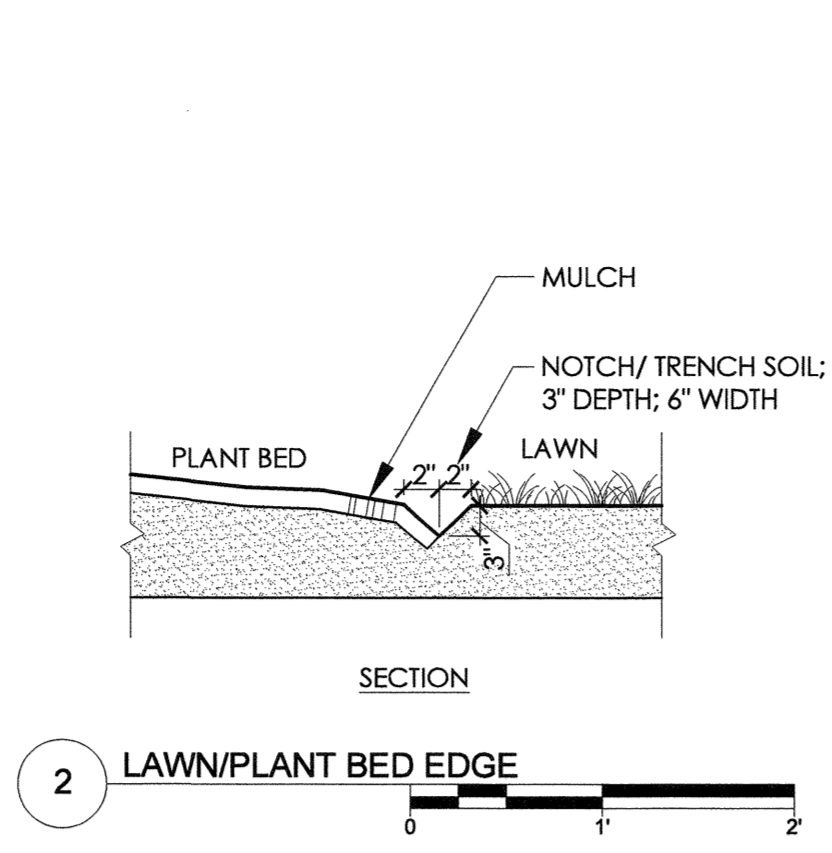
REVISION: _____

STATUS: NOT FOR CONSTRUCTION

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

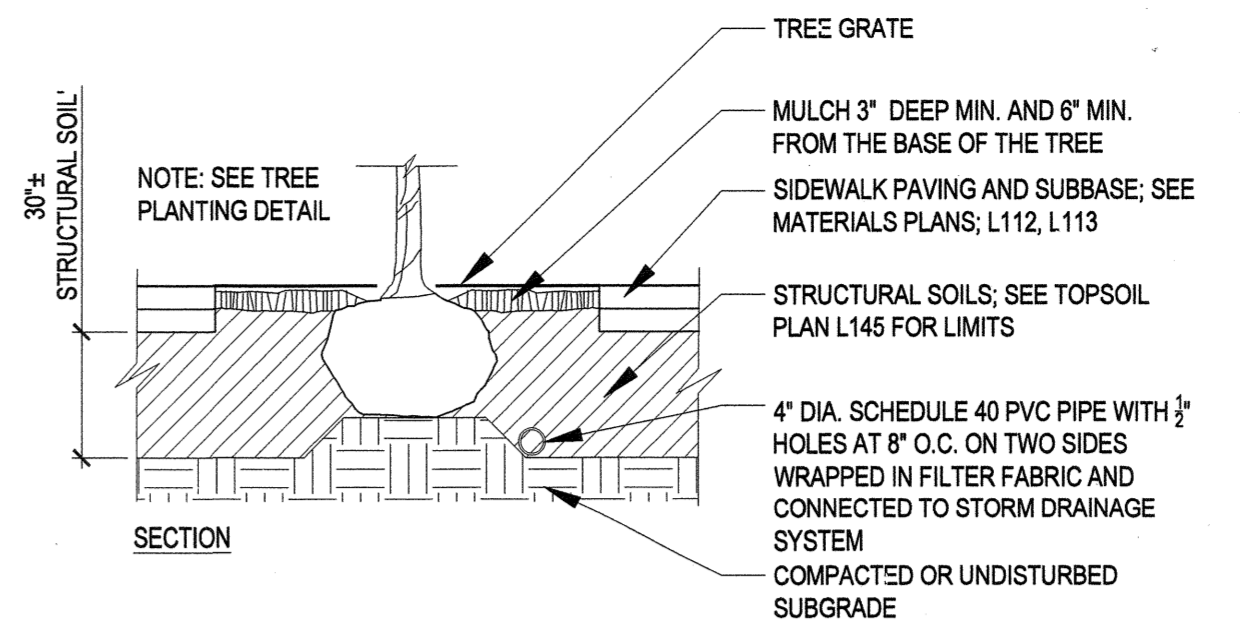


1 RAISED TREE PLANTING SCALE: NTS

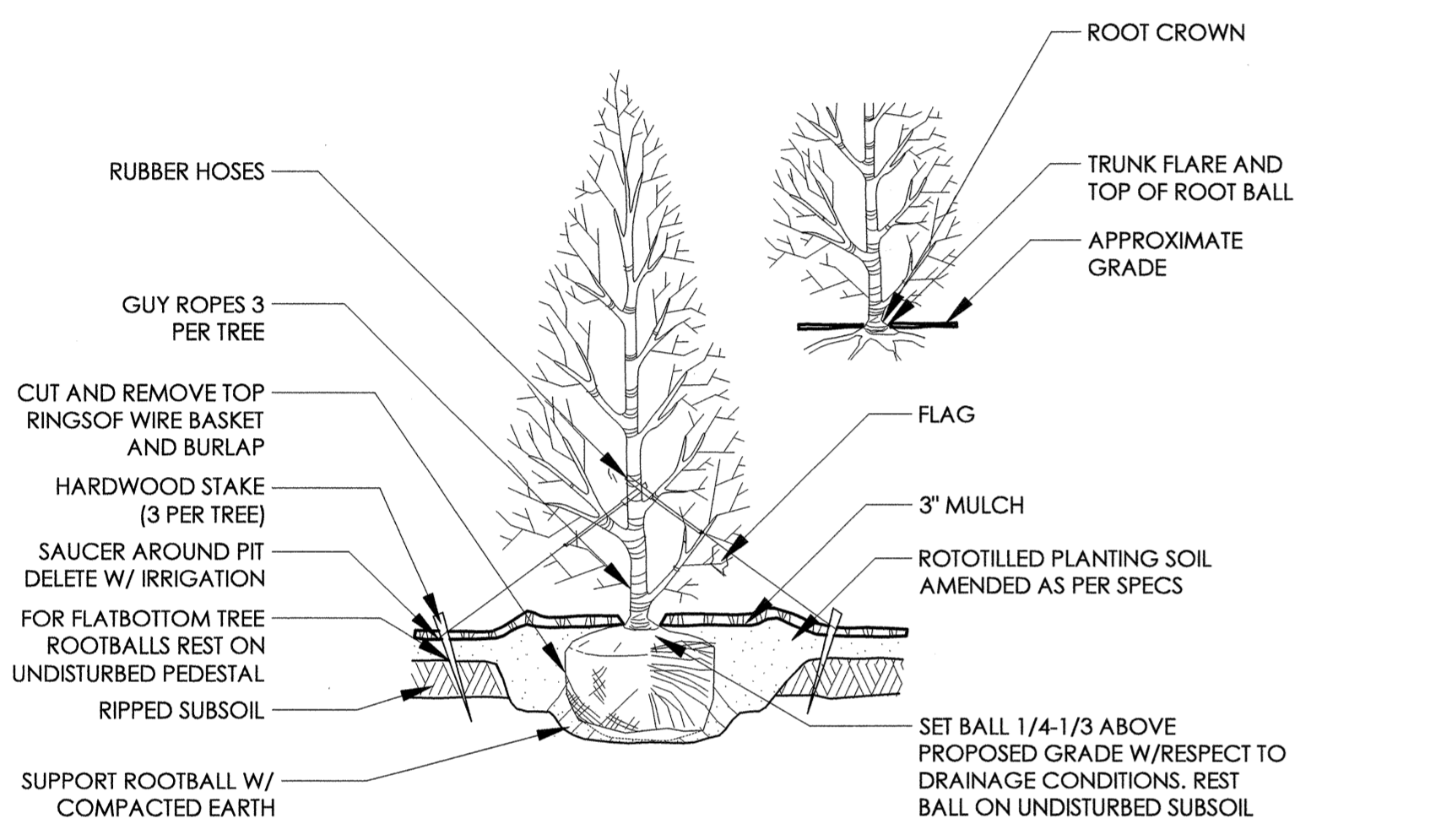
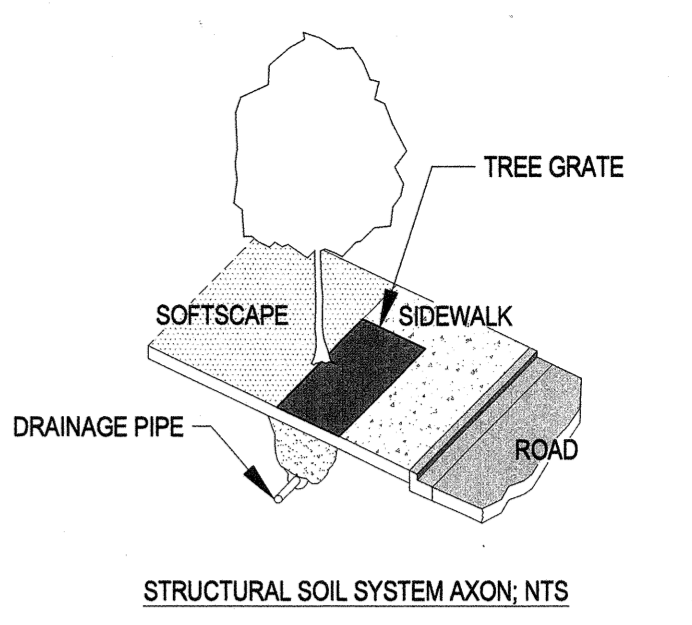


2 LAWN/PLANT BED EDGE

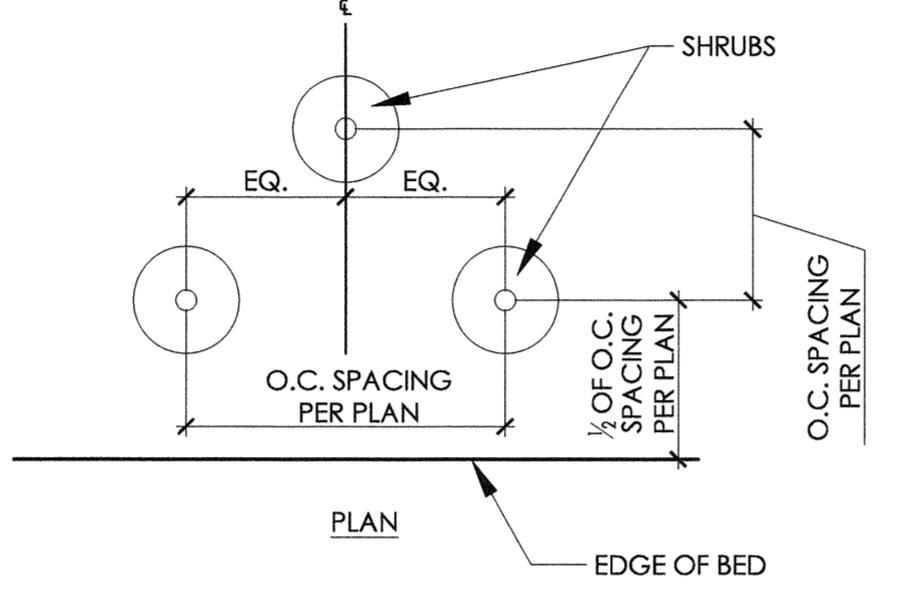
- NOTES:
1. A SITE SPECIFIC PLAN MUST BE DEVELOPED TO ENSURE THAT:
 - 1.1. EACH TREE IS PROVIDED A MIN. ROOT-ACCESSIBLE SOIL VOLUME OF 600 CUBIC FEET OR A MINIMUM OF 6 ROOT PATHS.
 - 1.2. THE TREE ROOT AREA BENEATH THE SIDEWALK IS EXPANDED TO MAXIMIZE ROOT ACCESSIBLE SOIL SPACE UNDER THE PAVEMENT.
 - 1.3. CONNECT SOIL SPACE FOR ROOT EXPANSION WHERE POSSIBLE TO ALLOW ROOT SYSTEMS OF TREES TO OVERLAP AND COLONIZE A SHARED SOIL SPACE.
 - 1.4. ANY COMBINATION OF STRUCTURAL SOILS, SOIL CONTAINMENT SYSTEM, OR ROOT CHANNELING (e.g., SOIL STRIP DRAIN/AERATION SYSTEM) THAT PERFORMS AS SPECIFIED IS ACCEPTABLE.
 2. 40\"/>



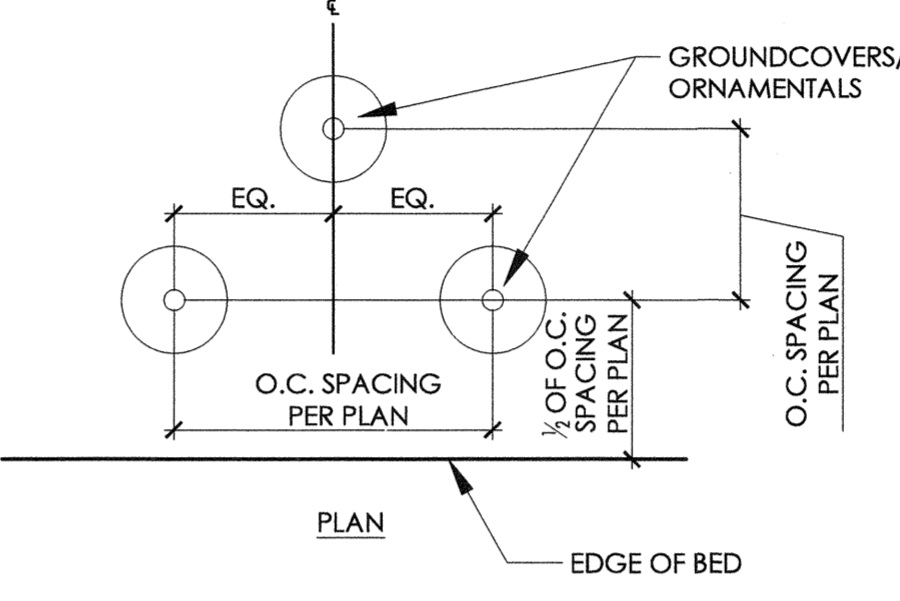
3 TREE GRATE SECTION Scale: NTS



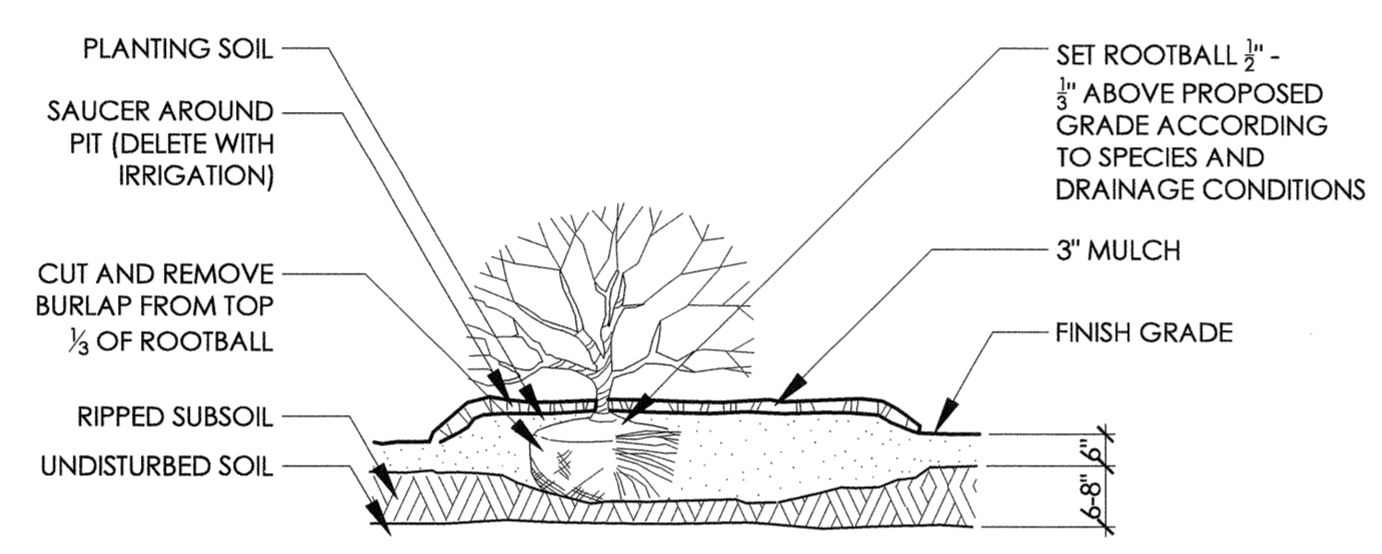
4 EVERGREEN TREE PLANTING SCALE: NTS



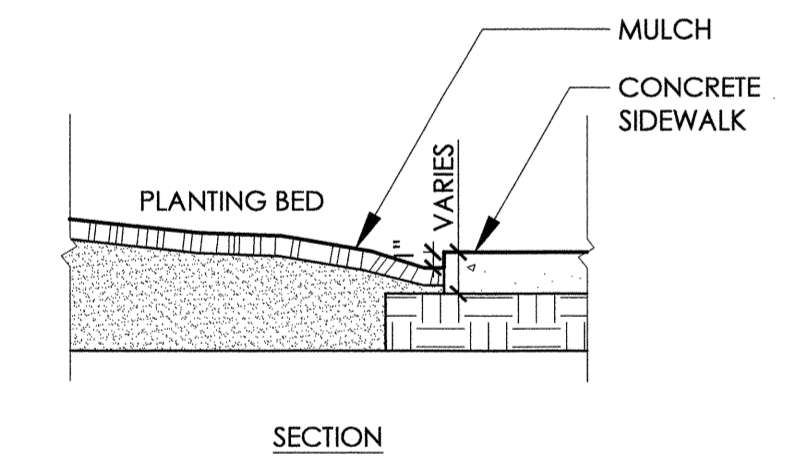
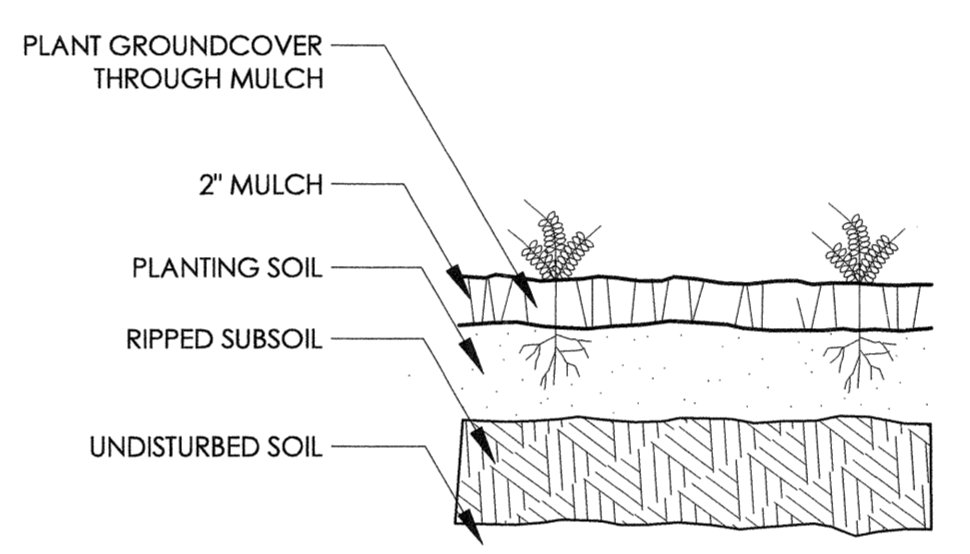
5 RAISED SHRUB PLANTING SCALE: NTS



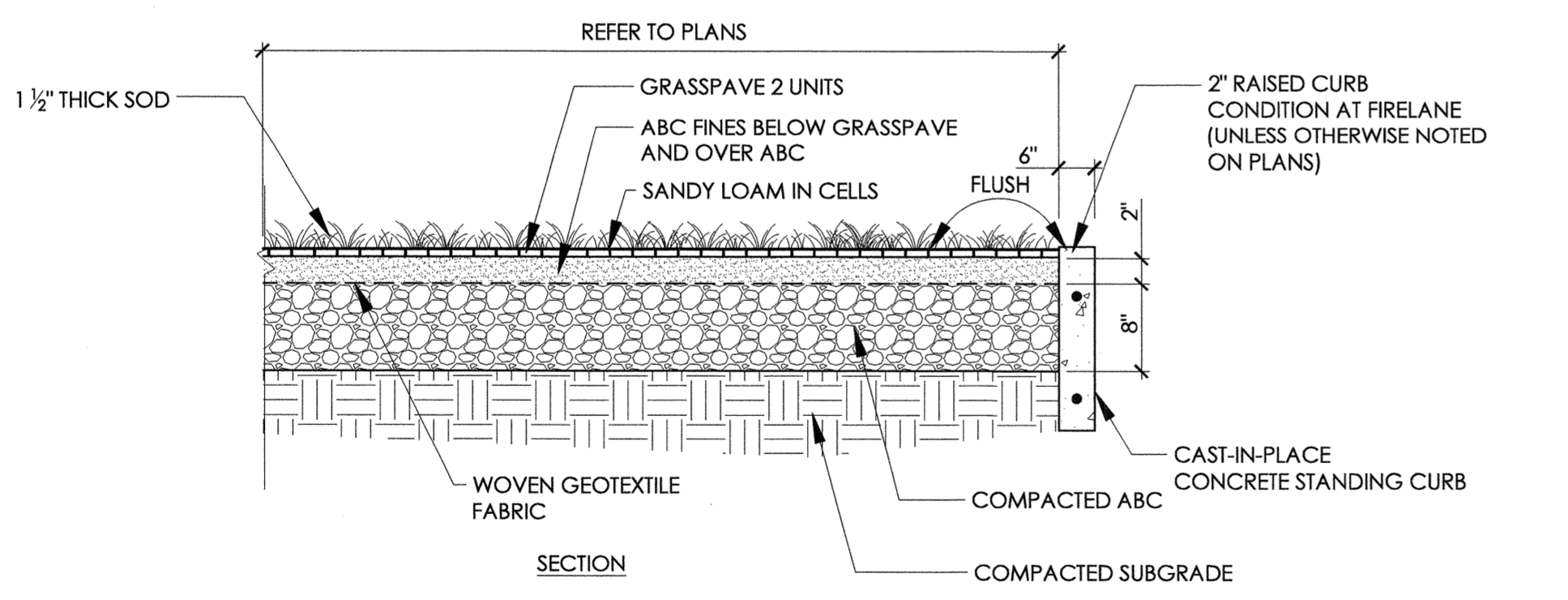
6 GROUNDCOVER PLANTING SCALE: NTS



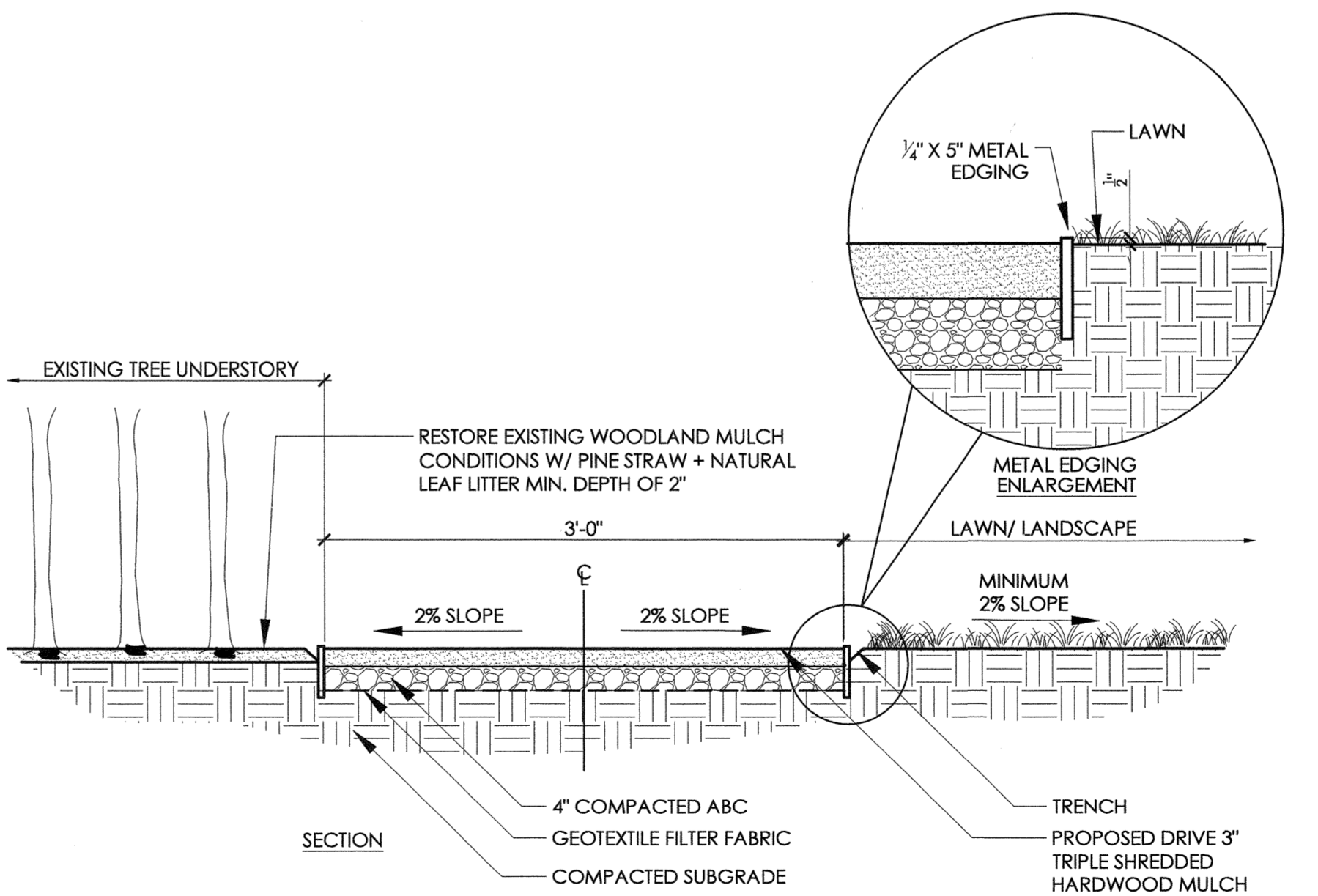
7 SMALL TREE GRATE Scale: NTS * NOTE: STYLE OF TREE GRATE TO BE DETERMINED



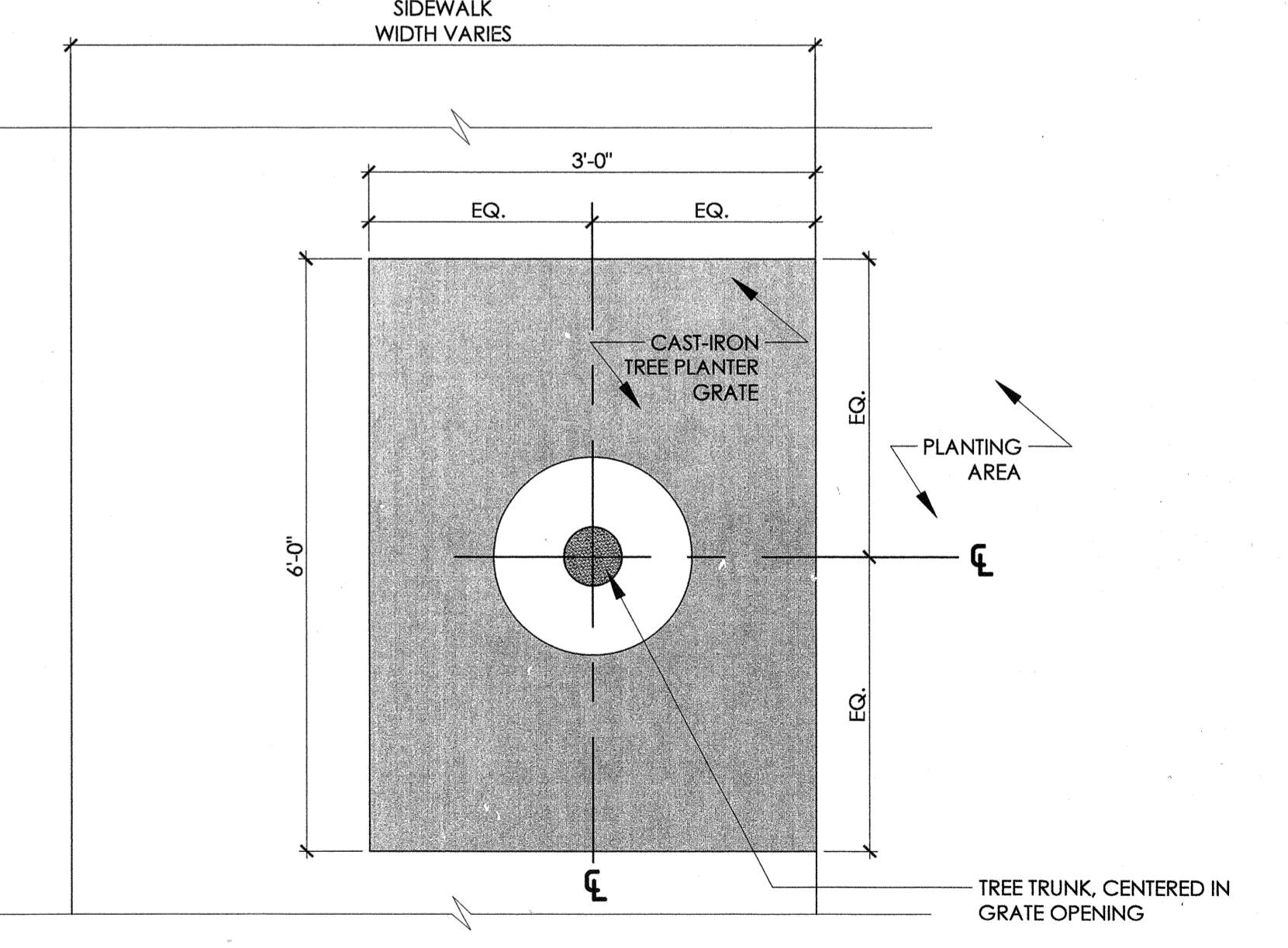
8 CONCRETE/PLANT BED EDGE



10 STRUCTURAL LAWN



11 MULCH PATHWAY WITH METAL EDGING



9 LARGE TREE GRATE Scale: NTS * NOTE: STYLE OF TREE GRATE TO BE DETERMINED

Approved Construction Plan

Name: _____ Date: _____

Planning: _____

Traffic: _____

Fire: _____

CITY OF WILMINGTON NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

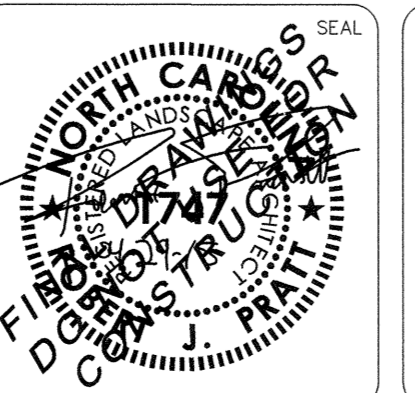
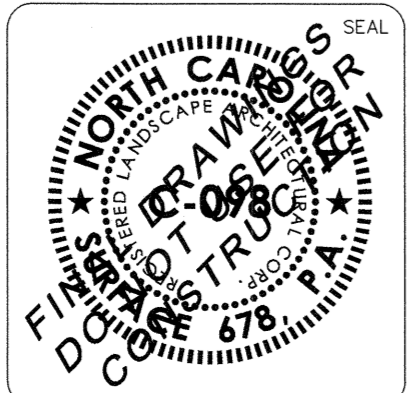
Date: _____ Permit # _____

Signed: _____

1 inch

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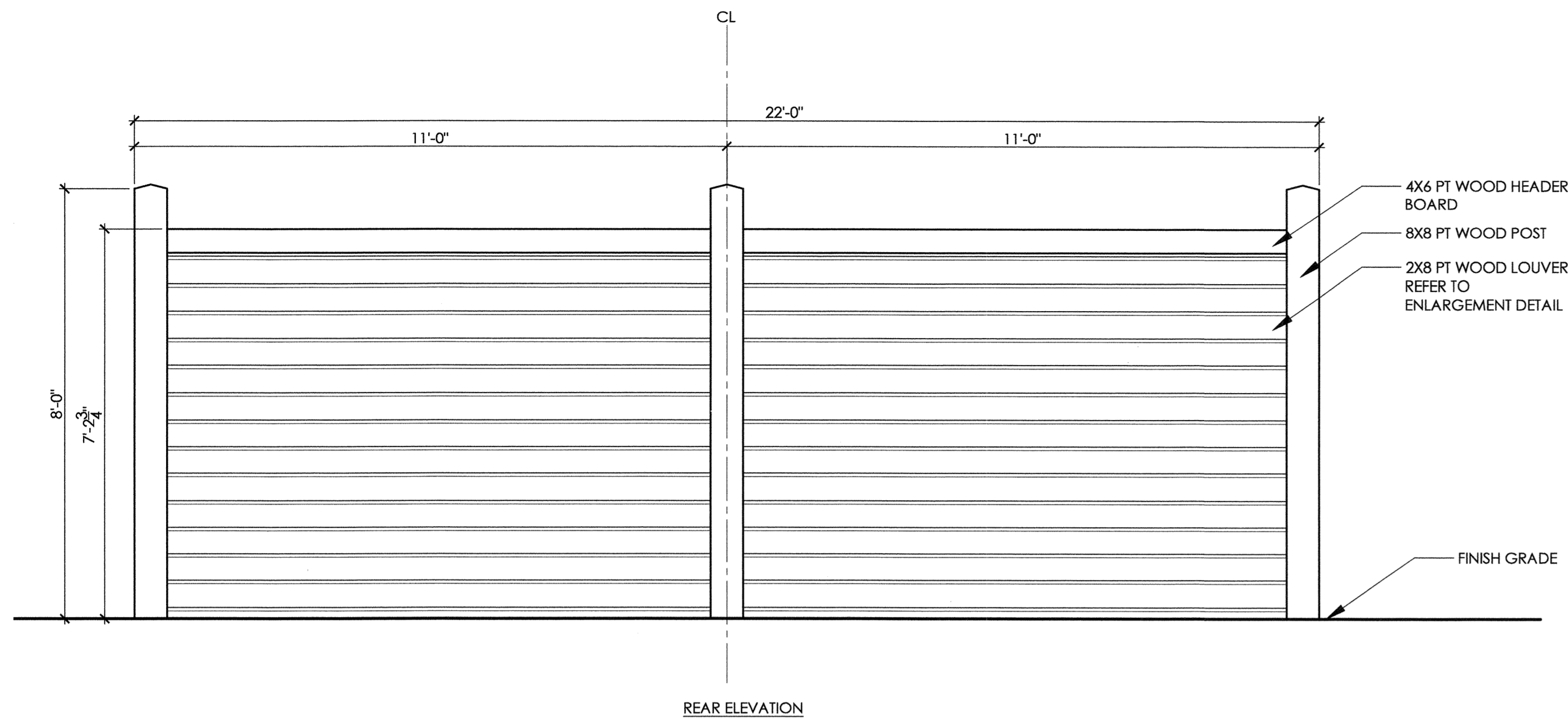
REVNO.	DESCRIPTIONS	DATE



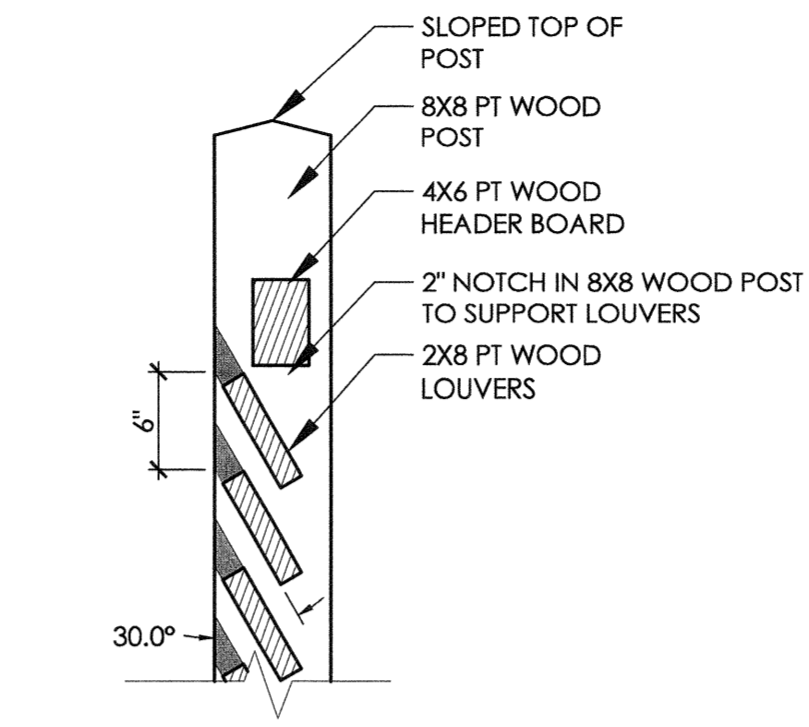
RIVERLIGHTS - MARINA VILLAGE

DETAILS

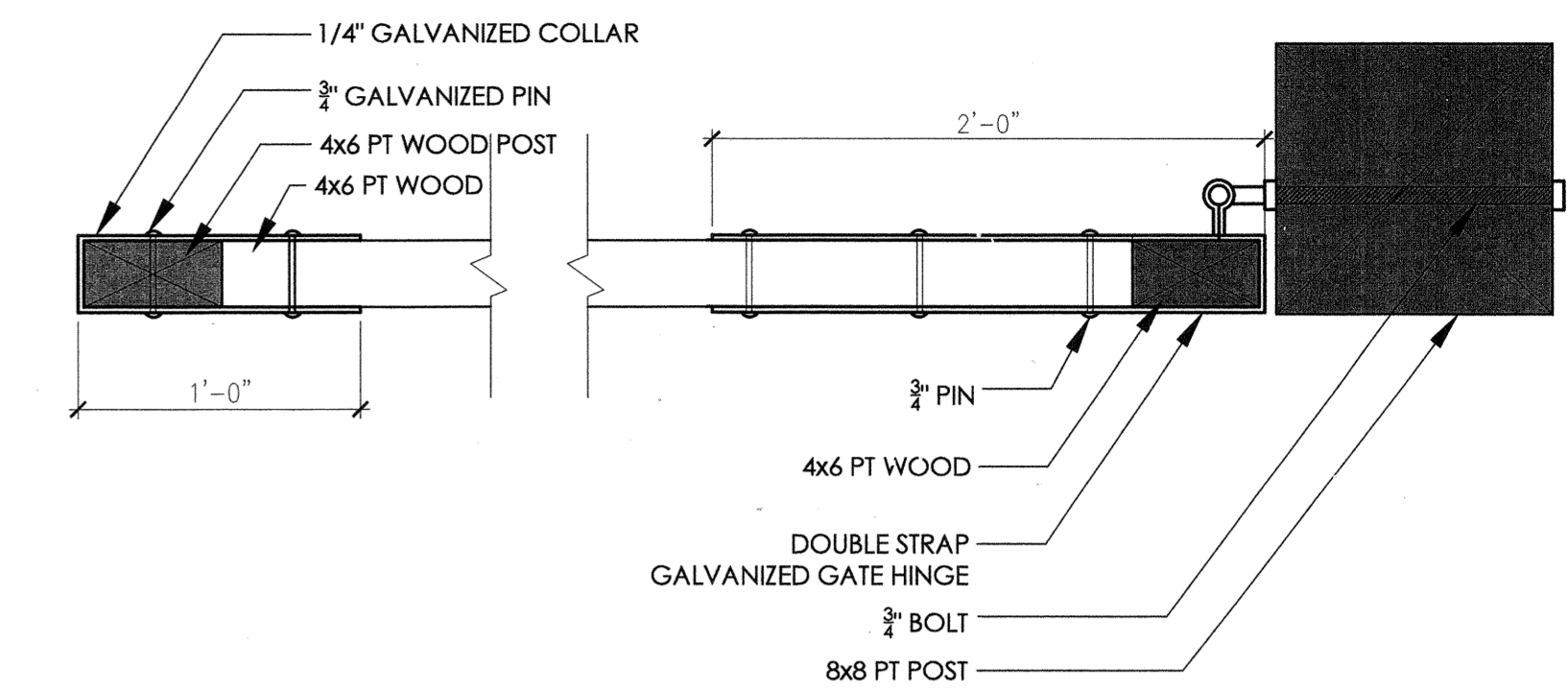
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MCE PROJ. # 2735-0124		DRAWING NUMBER: X
DRAWN: JI, DP		
DESIGNED: RP, ED		
CHECKED: RP, ED		
PROJ. MGR.: RP		
STATUS: NOT FOR CONSTRUCTION		REVISION: X OF XX



REAR ELEVATION



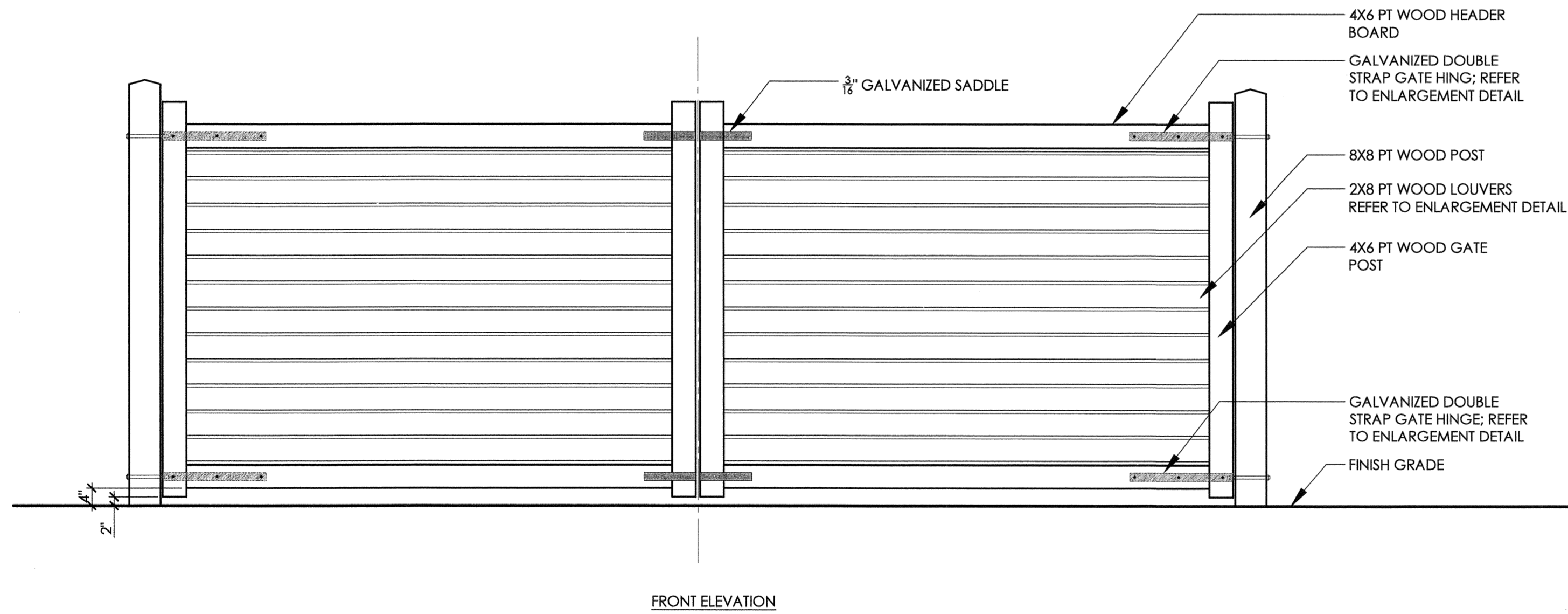
WOOD LOUVER ENLARGEMENT DETAIL



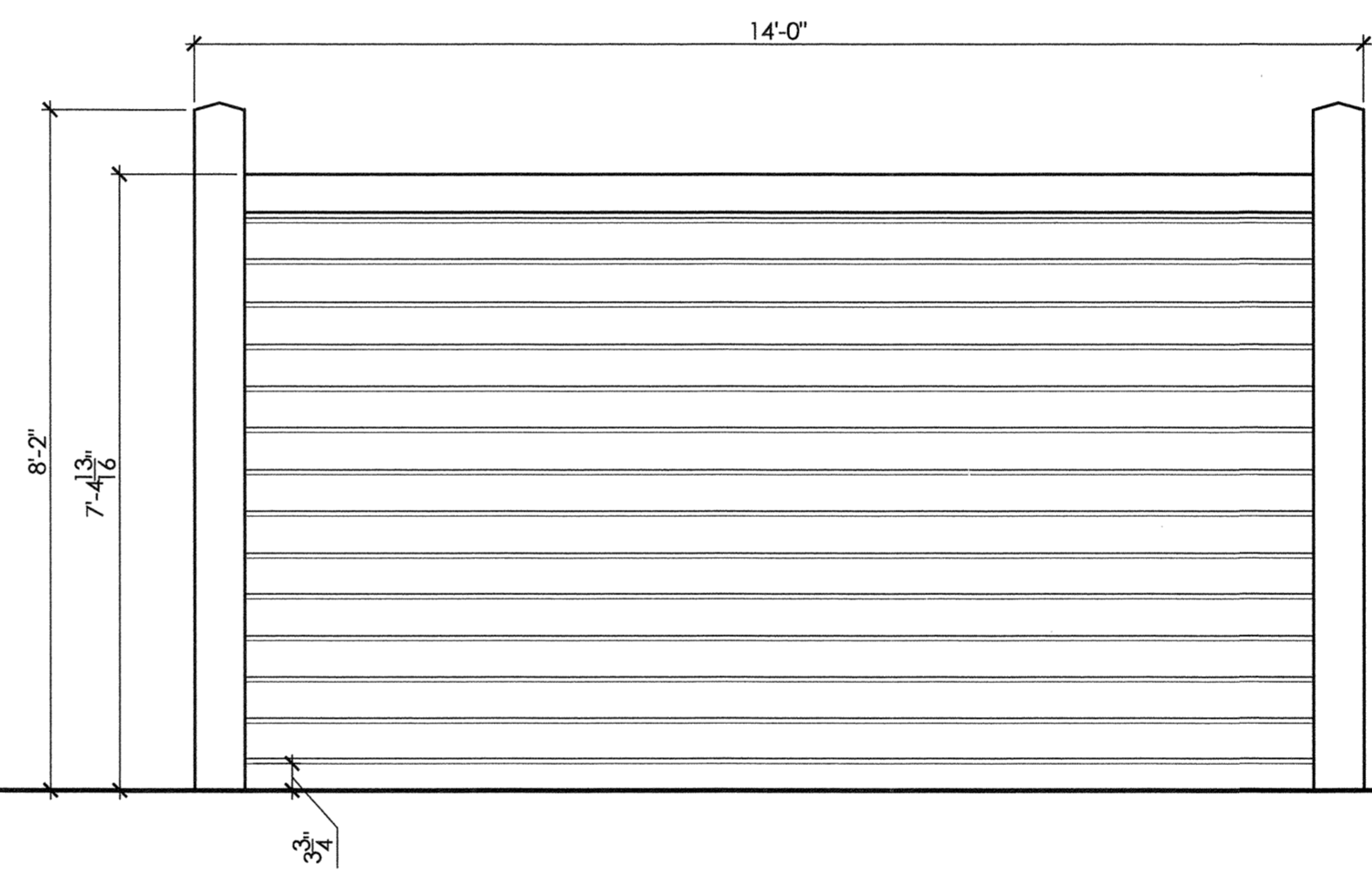
GATE HINGE AND SADDLE ENLARGEMENT DETAIL

2 HINGE DETAILS

NTS



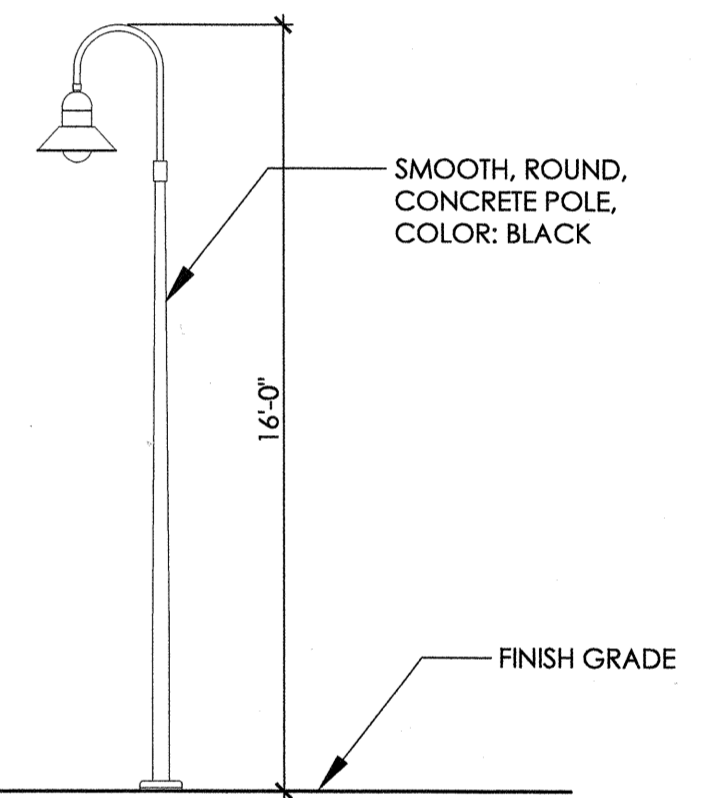
FRONT ELEVATION



SIDE ELEVATION

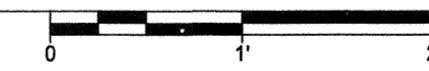


LIGHT FIXTURE DETAIL



LIGHT FIXTURE POLE ELEVATION

1 DUMPSTER ENCLOSURE



3 POLE LIGHT FIXTURE

NTS

Approved Construction Plan

Name	Date
Planning	
Traffic	
Fire	

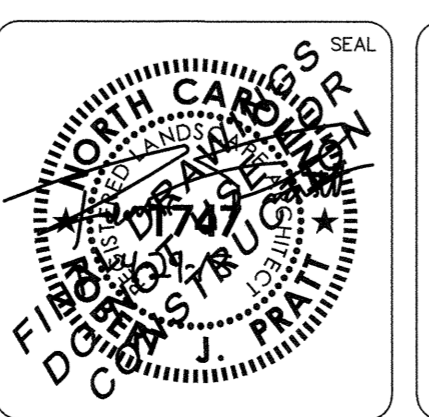
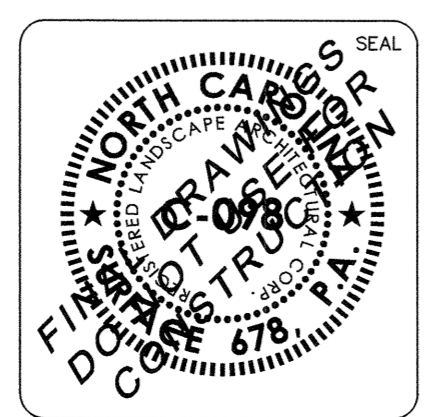
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

1 inch

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

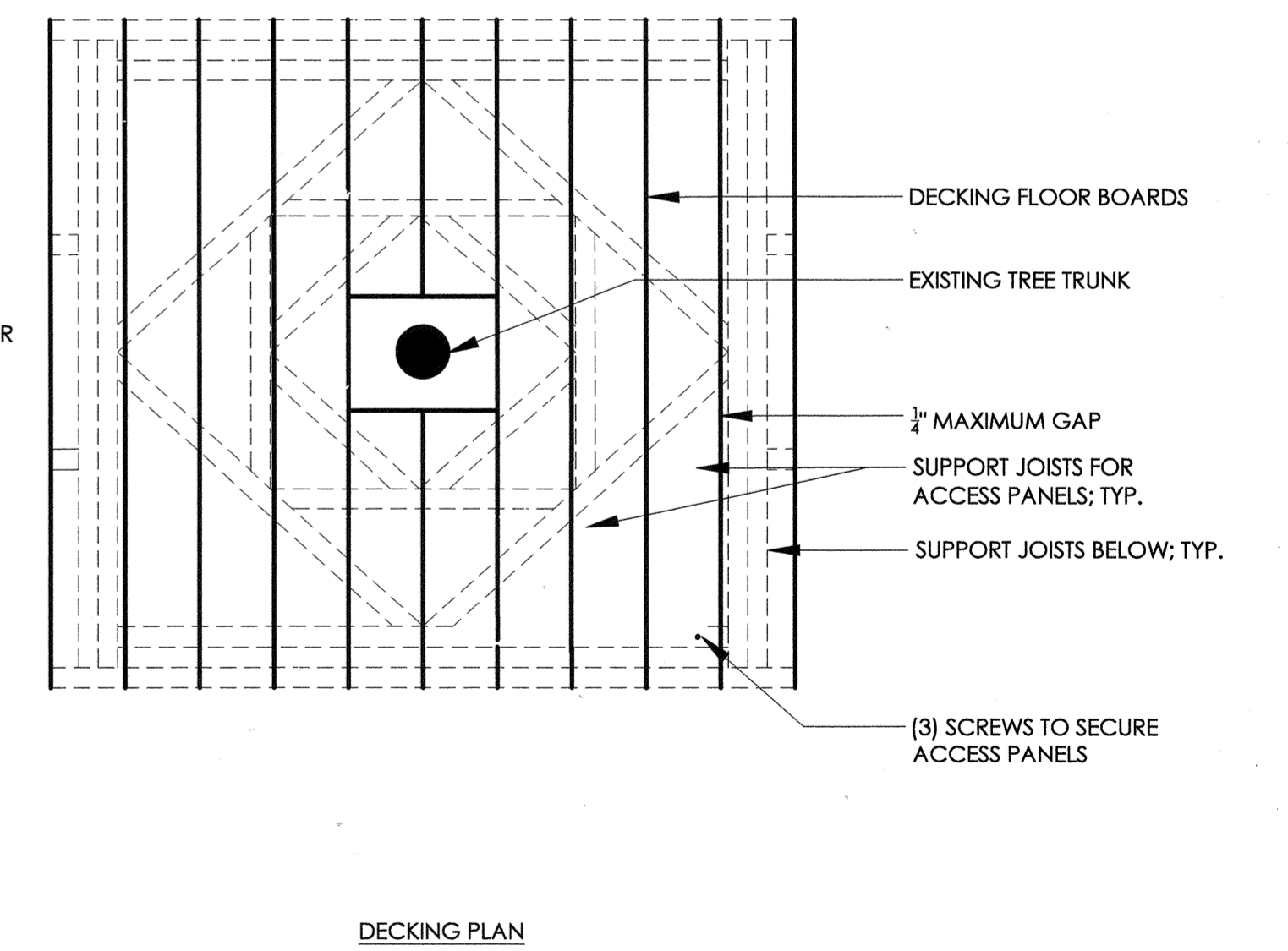
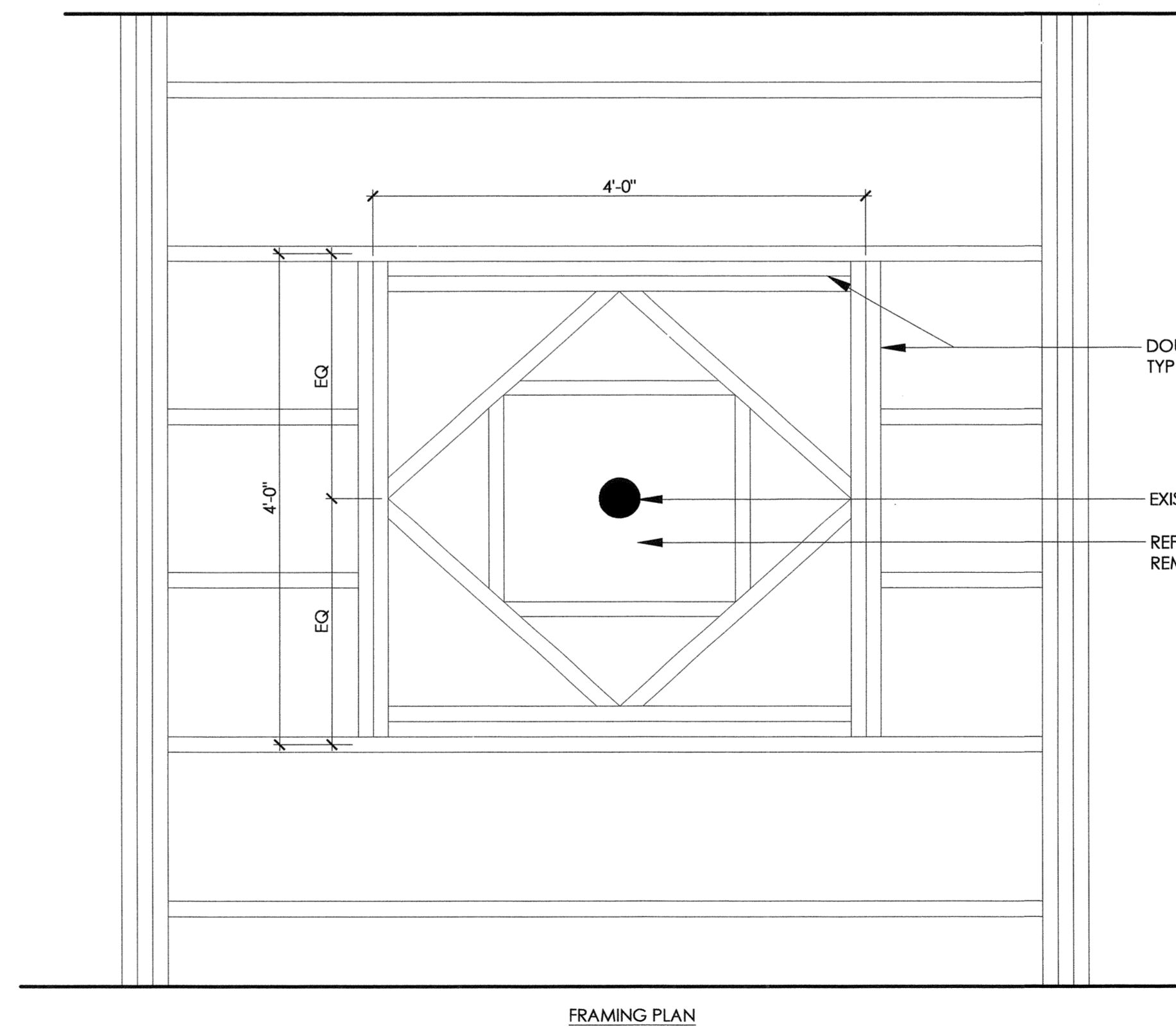
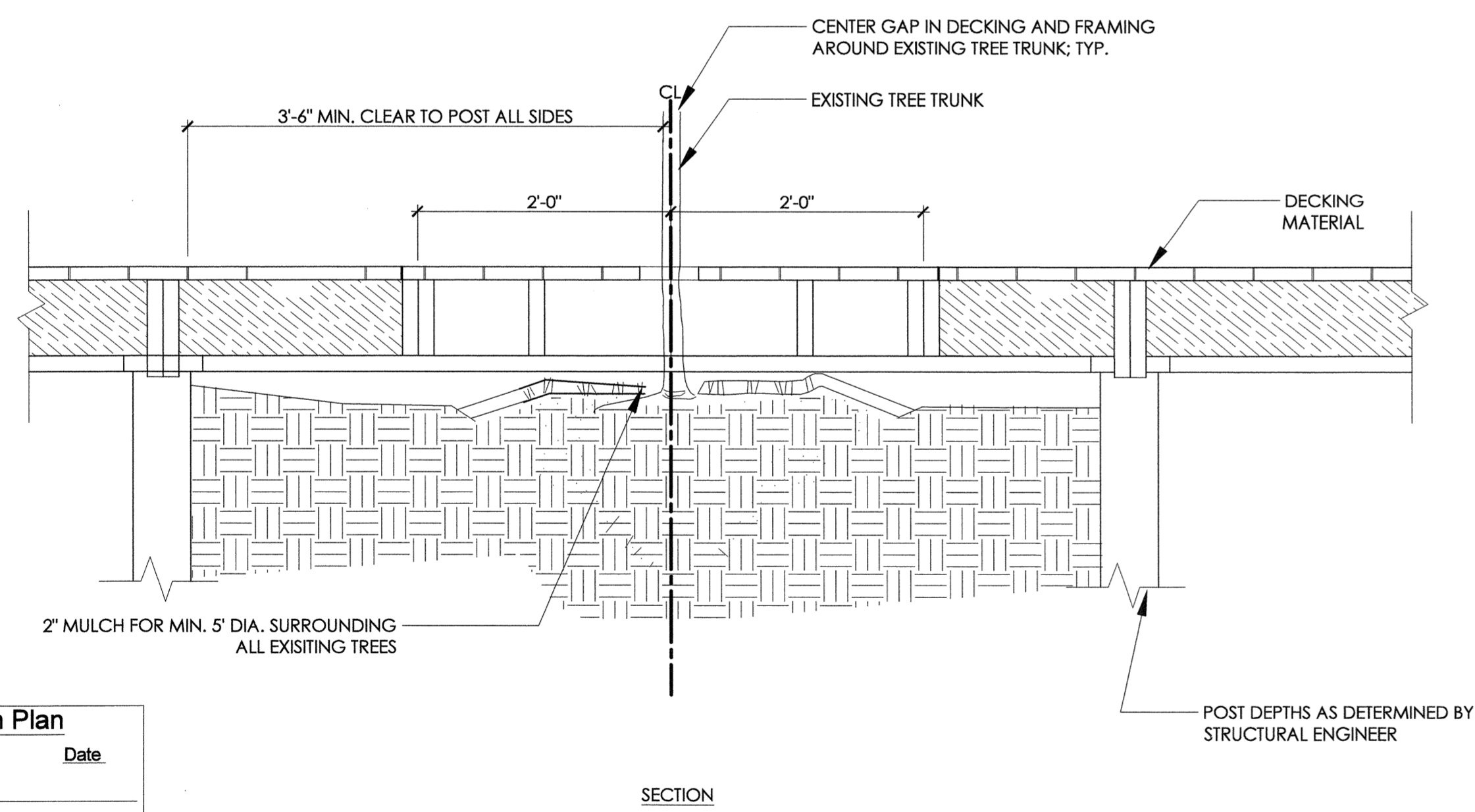
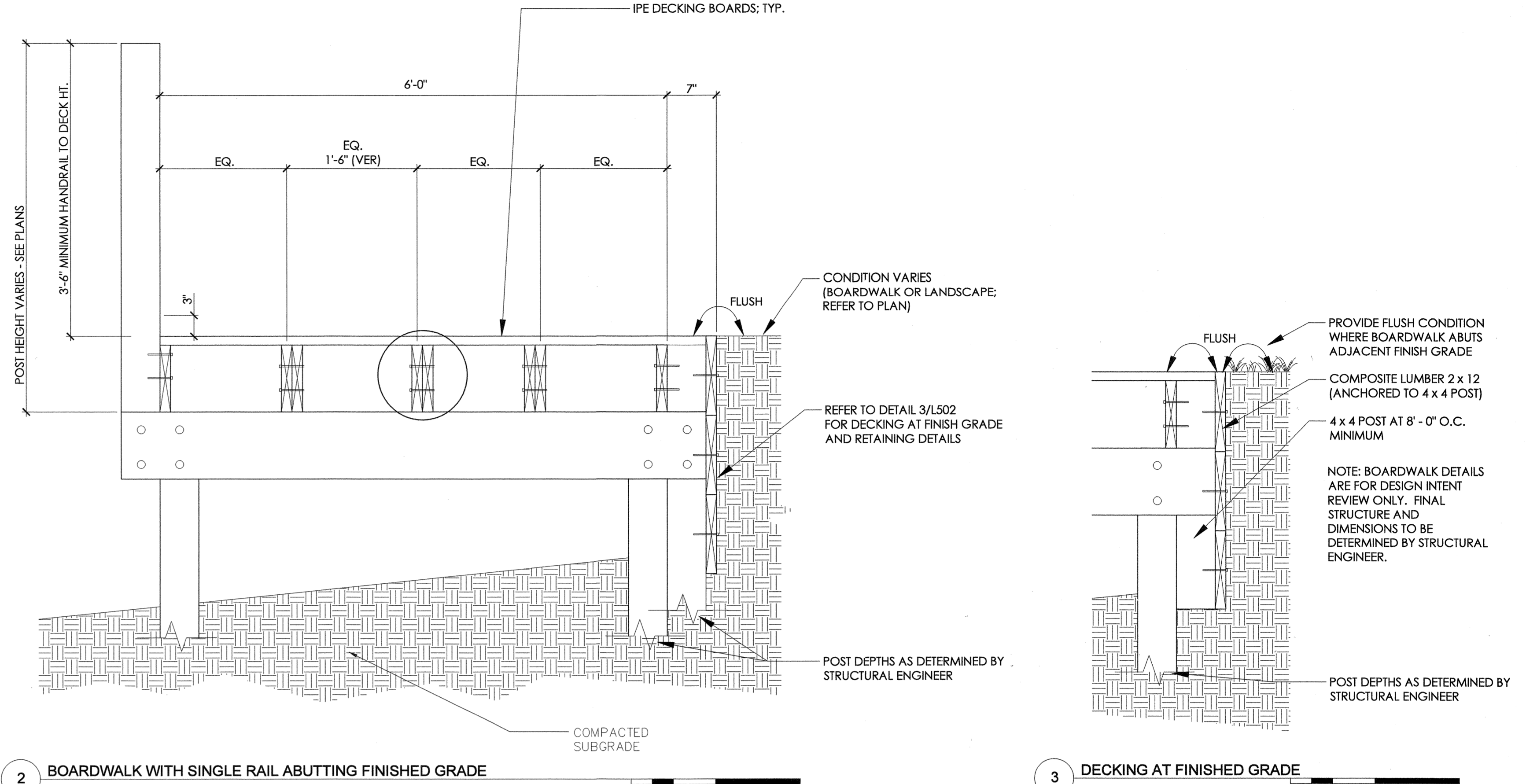
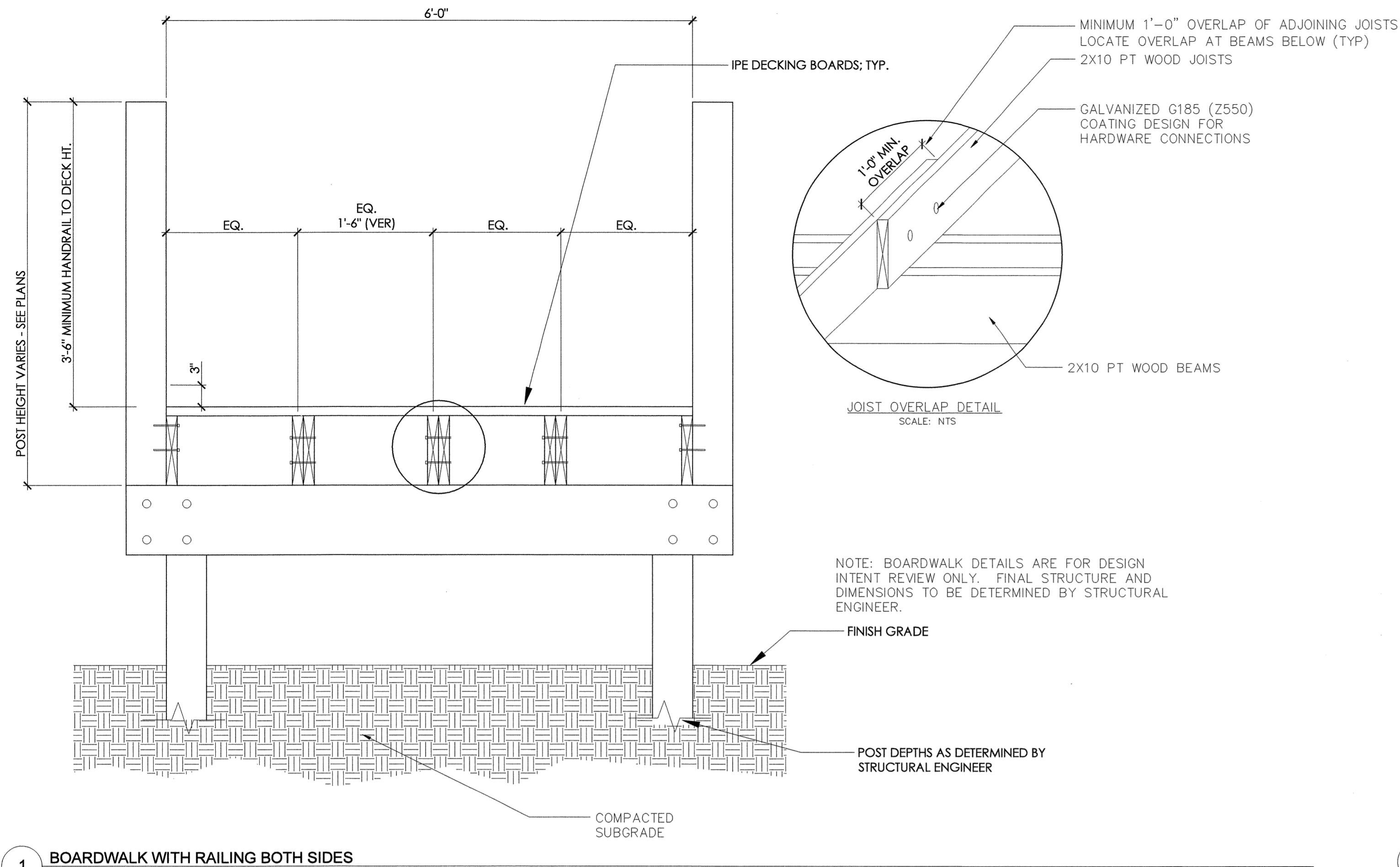
REV. NO.	DESCRIPTIONS / REVISIONS	DATE



RIVERLIGHTS - MARINA VILLAGE

DETAILS

DATE: 05/29/2015	SCALE: AS SHOWN	MAC FILE NUMBER: L502
MCE PROJ. # 2735-0124		DRAWING NUMBER: X
DRAWN: J. DP		X OF XX
DESIGNED: RP, ED		
CHECKED: RP, ED		
PROJ. MGR.: RP		
STATUS: NOT FOR CONSTRUCTION		REVISION:



Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

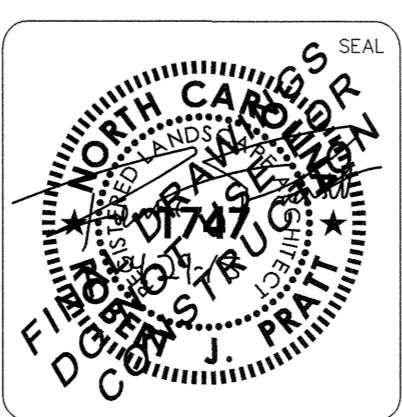
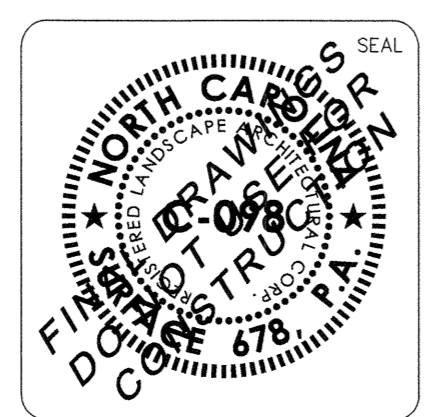
Signed: _____

1 inch

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SCALE: NTS

REV. NO.	DESCRIPTIONS	DATE



MCKIM & CREED

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Surface

RIVERLIGHTS
Newland COMMUNITIES

Surface 676, P.A.
215 Marina Street, Suite 150
Durham, NC 27701
www.surface76.com
P: 919-418-1199
F: 919-418-1000

RIVERLIGHTS - MARINA VILLAGE

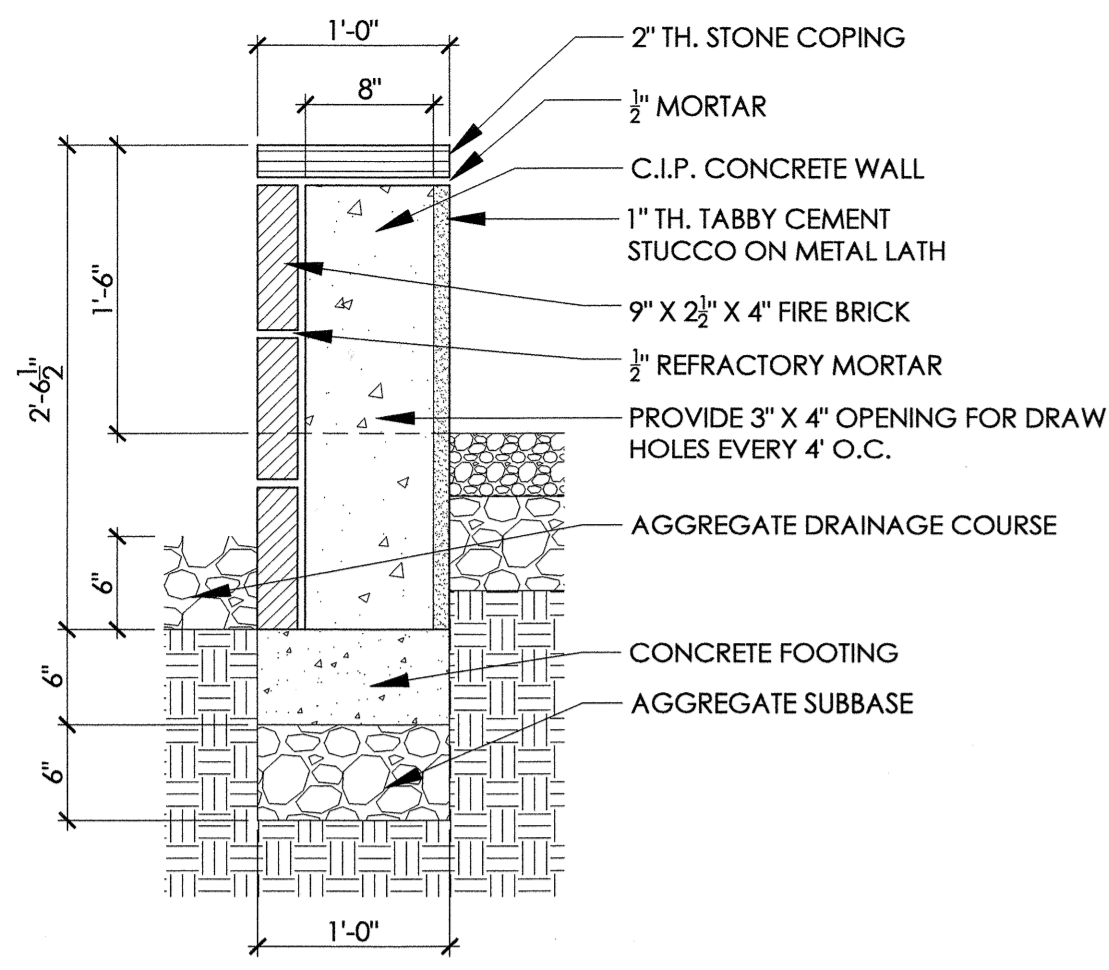
DETAILS

DATE: 05/29/2015
MCE PROJ. # 2735-0124
DRAWN: JI, DP
DESIGNED: RP, ED
CHECKED: RP, ED
PROJ. MGR.: RP

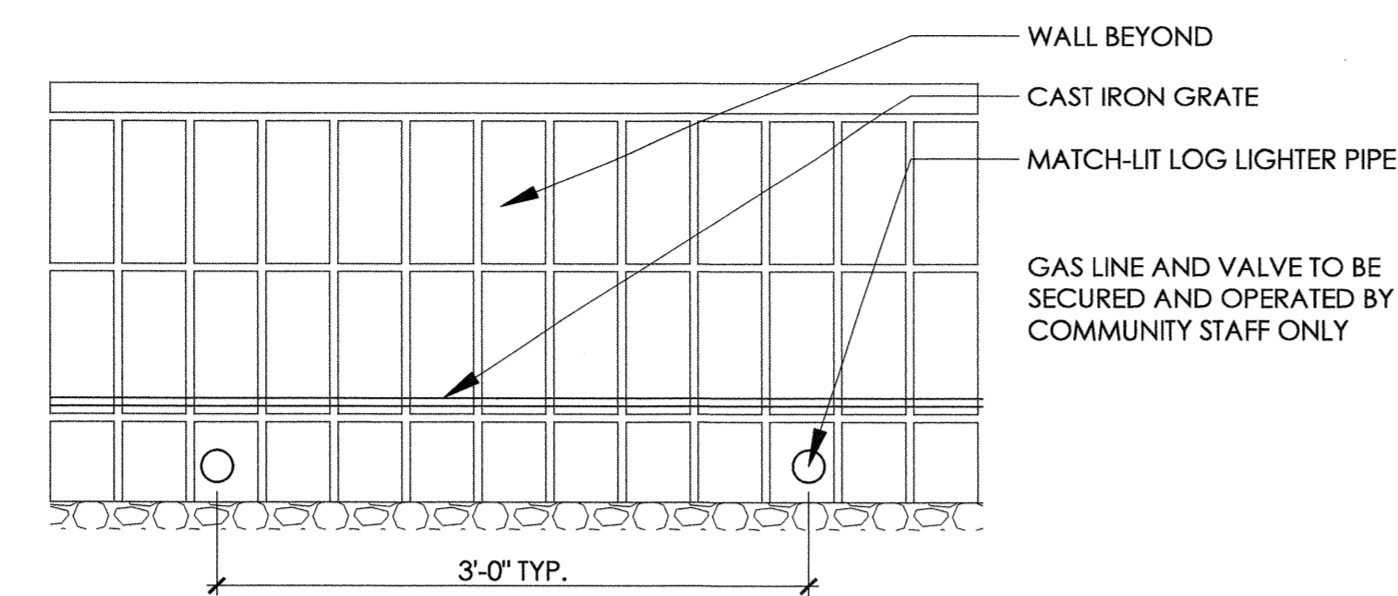
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MAC FILE NUMBER: L503
DRAWING NUMBER: X
X OF XX

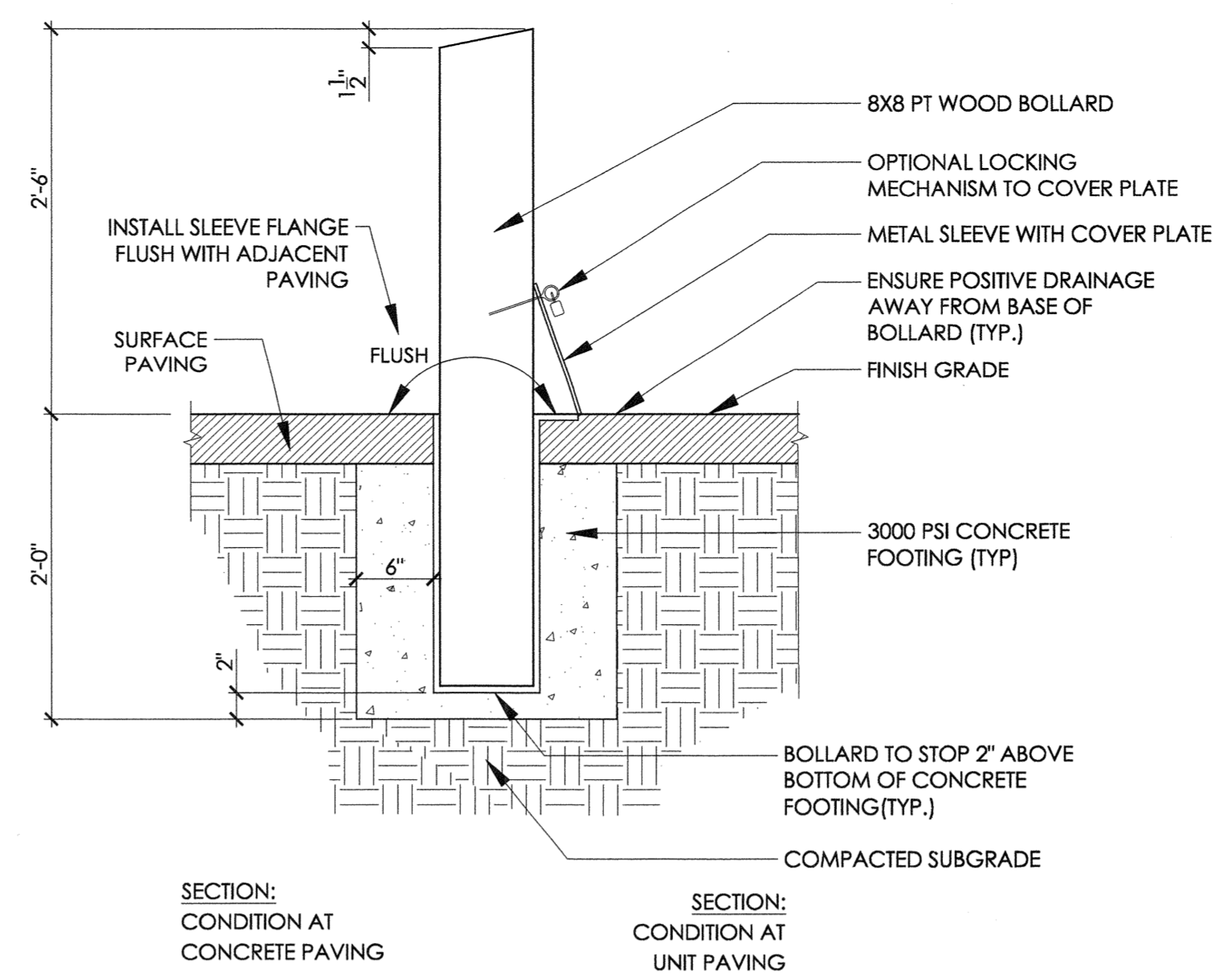
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REVISION:



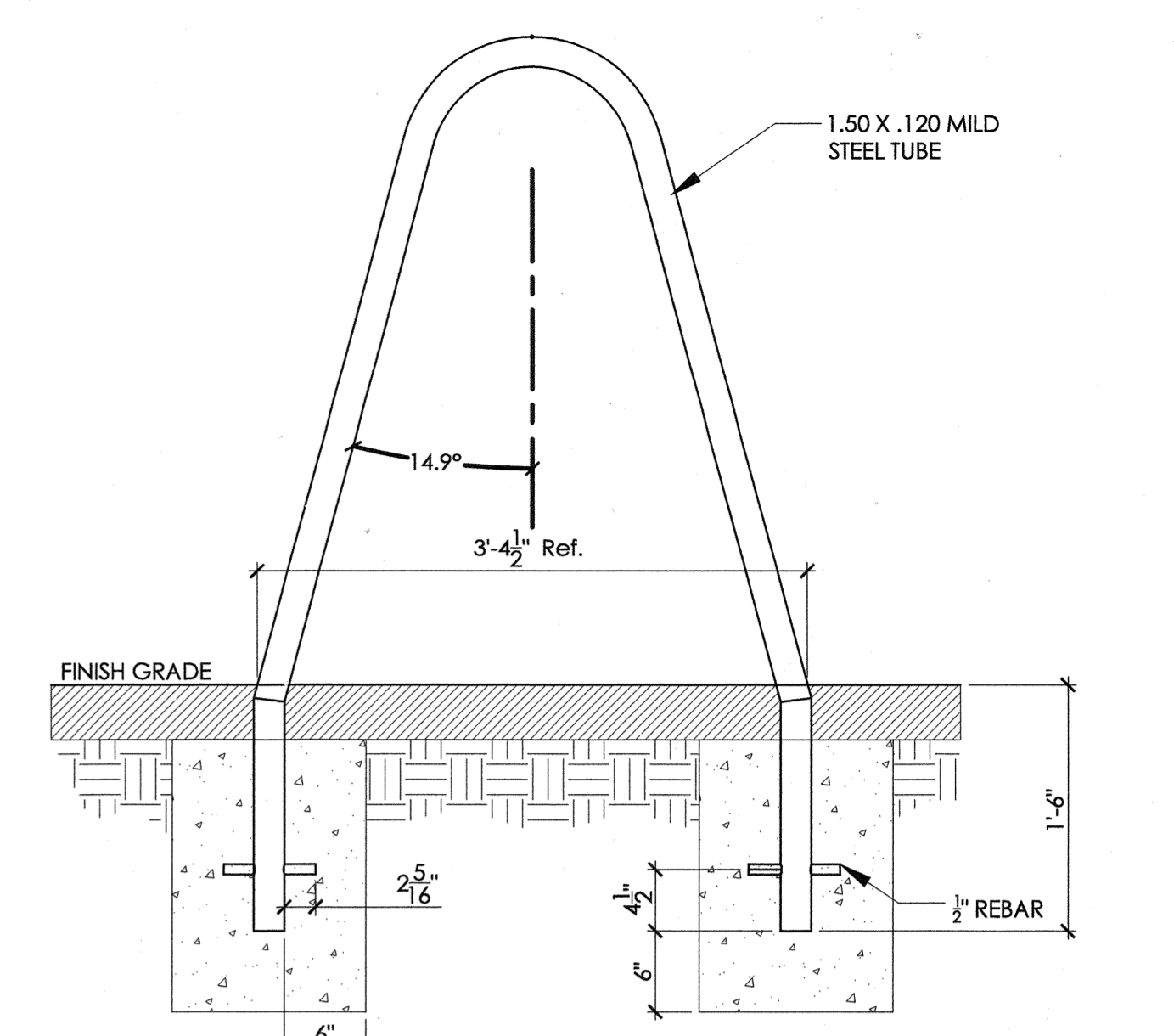
1 FIRE PIT WALL



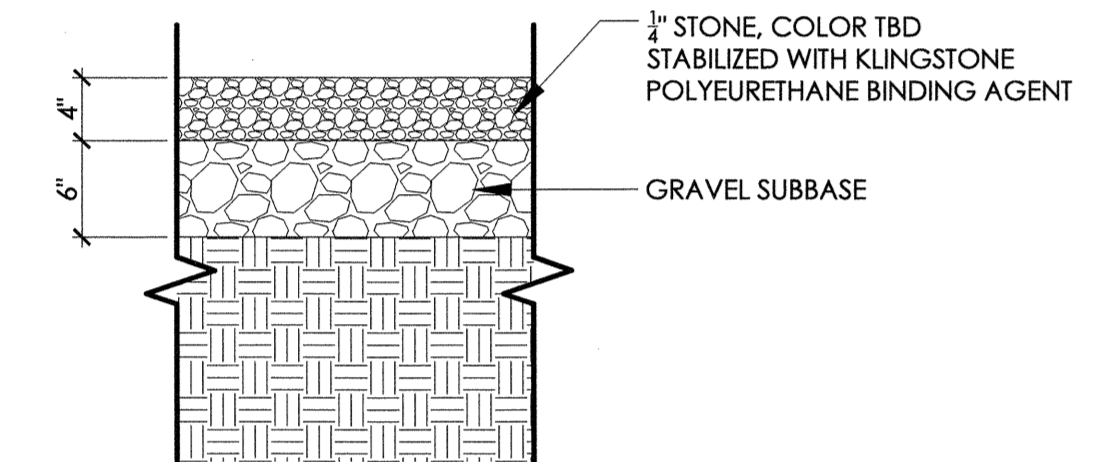
2 FIRE PIT GAS IGNITION BURNER



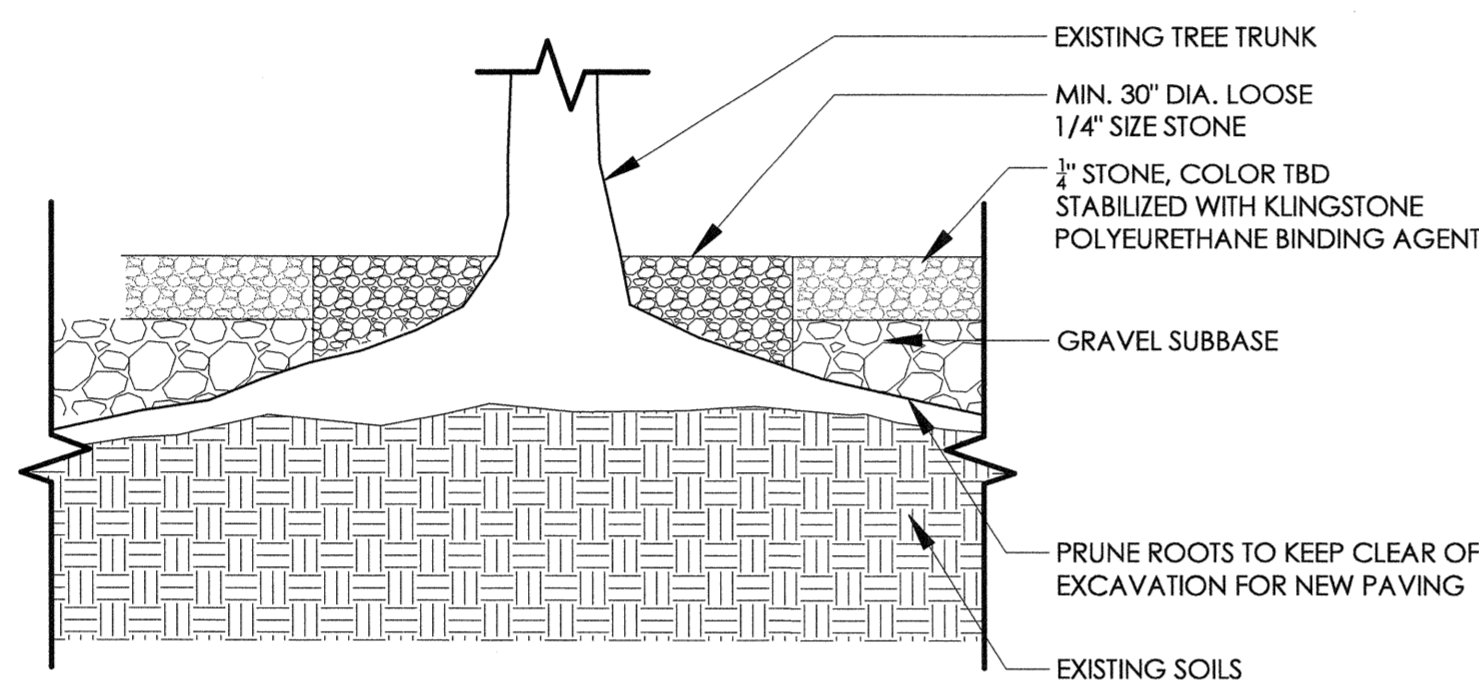
3 REMOVABLE WOOD BOLLARD
* CONTRACTOR TO PROVIDE SHOP DRAWINGS



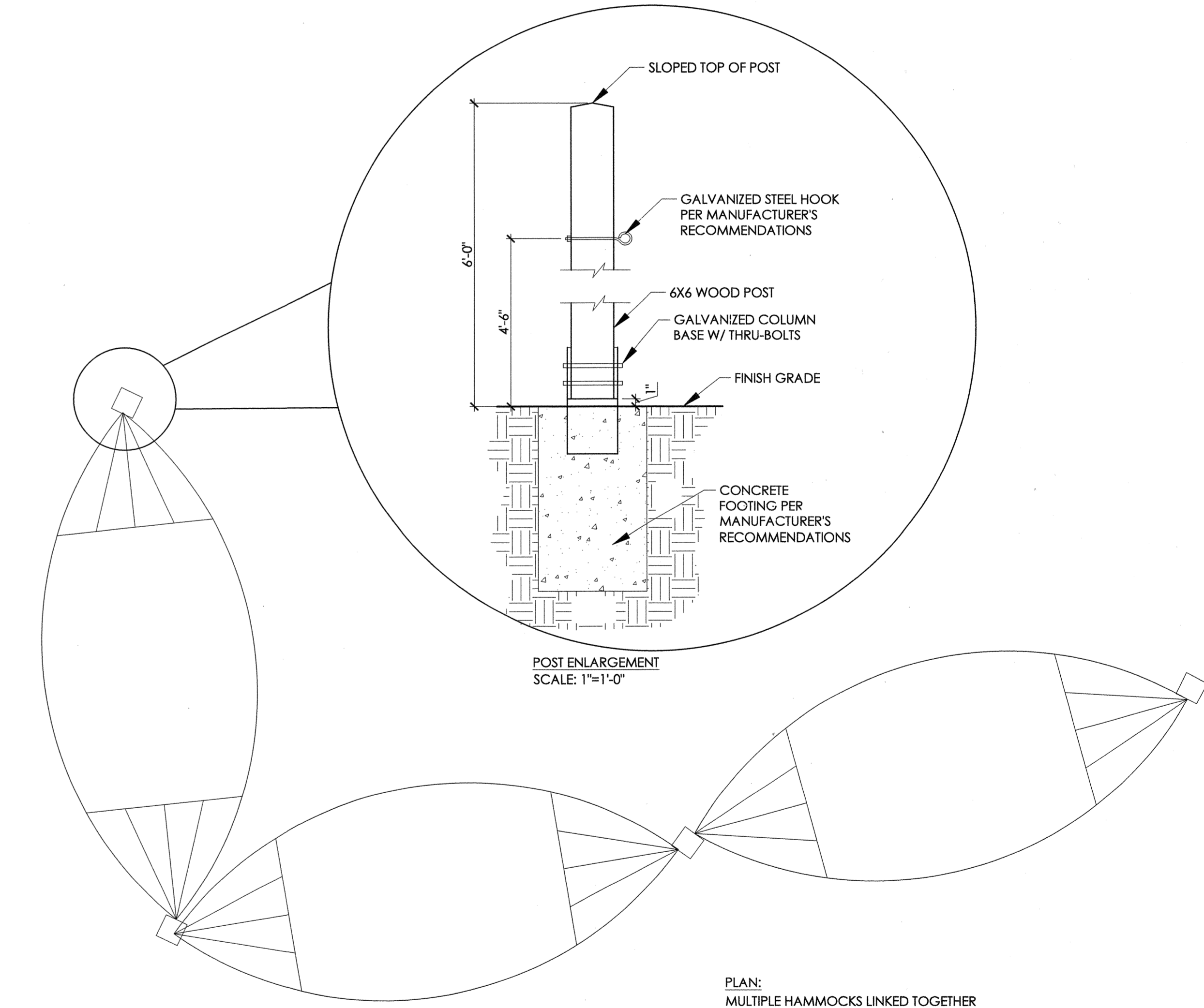
4 BICYCLE RACK
* CONTRACTOR TO PROVIDE SHOP DRAWINGS



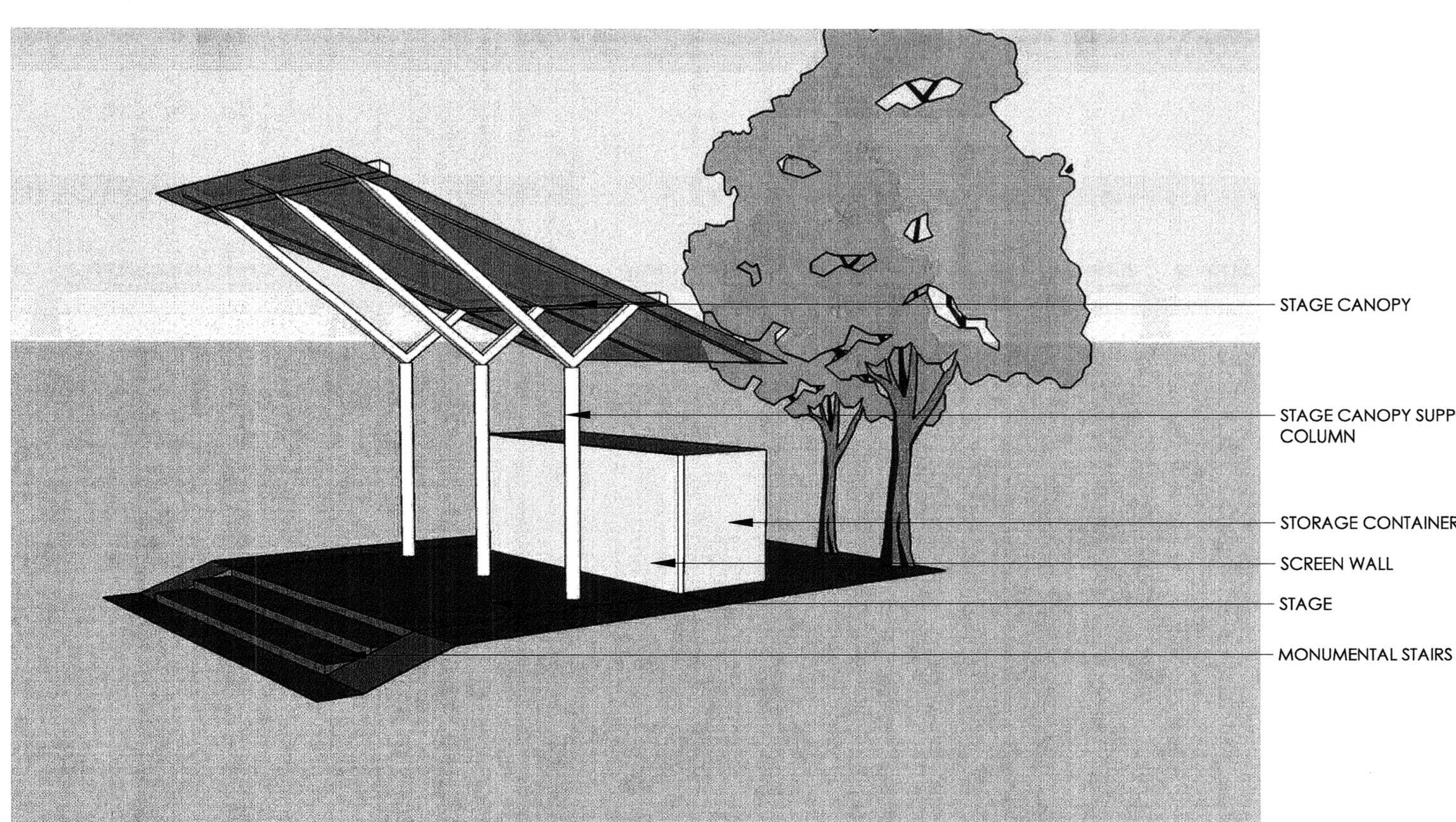
5 STABILIZED GRAVEL



6 STABILIZED GRAVEL AT EXISTING TREE TRUNK



8 HAMMOCKS



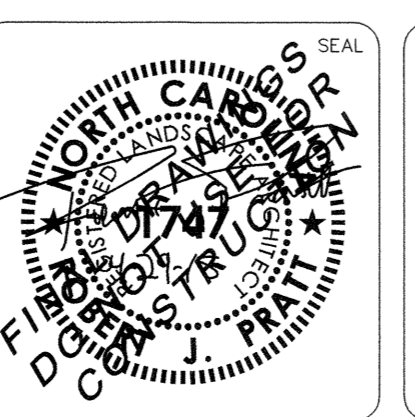
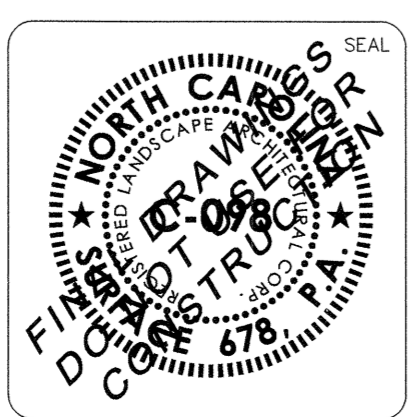
7 STAGE PERSPECTIVE

Approved Construction Plan	
Name	Date
Planning	
Traffic	
Fire	

CITY OF WILMINGTON
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 APPROVED STORMWATER MANAGEMENT PLAN
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RIVERLIGHTS - MARINA VILLAGE
DETAILS

DATE: 05/29/2015	SCALE: AS SHOWN	M&C FILE NUMBER: L504
MCE PROJ. # 2735-0124		DRAWING NUMBER: X
DRAWN: J, DP		X OF XX
DESIGNED: RP, ED		
CHECKED: RP, ED		
PROJ. MGR.: RP		
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