

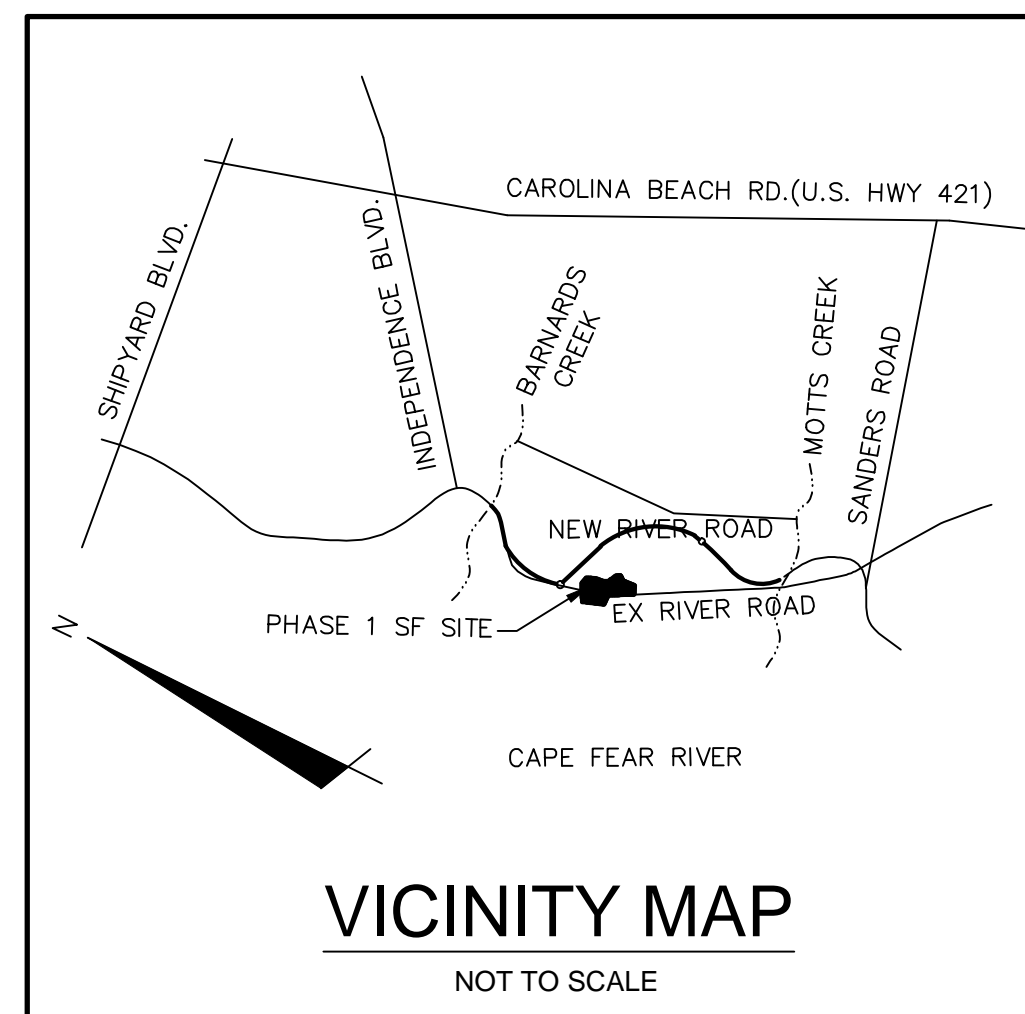
# RIVERLIGHTS

## PHASE I CONVENTIONAL

### CITY OF WILMINGTON, NC

MAY 2015

## TECHNICAL REVIEW COMMITTEE SUBMITTAL



### COUNTY AND AGENCY CONTACTS

**A. City of Wilmington**  
 Planning Department  
 102 North Third Street  
 PO BOX 1810  
 Wilmington, NC 28402-1810  
 (910)254-0900  
 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@nhcgov.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

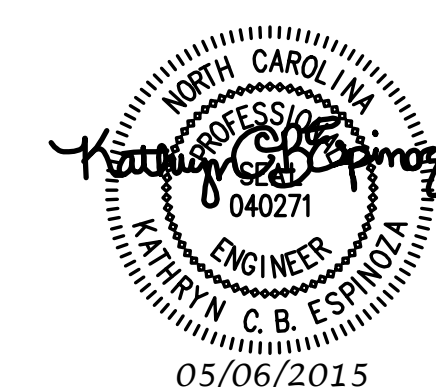
### PROJECT DATA

**NAME OF PROJECT:**  
 RIVERLIGHTS- PHASE 1 CONVENTIONAL NEIGHBORHOOD  
 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: KATHRYN ESPINOZA, PE  
 EMAIL: KESPINOZA@MCKIMCREED.COM

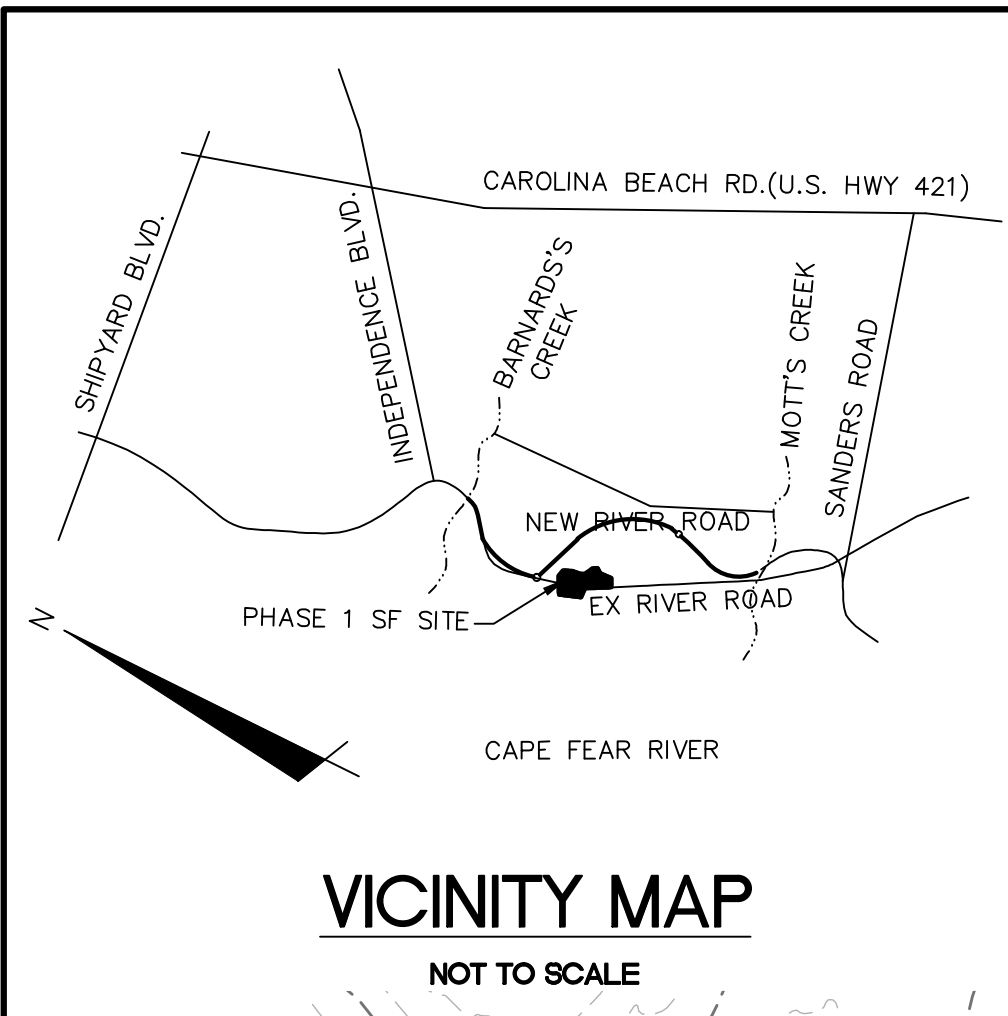
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4	CX-102	TREE REMOVAL PLAN
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9	CG-103	STORM DRAINAGE & GRADING PLAN
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21	CU-705	PLAN AND PROFILE STA 25+00 TO STA 28+35.63/STA 10+00 TO STA 17+50
22	CU-706	PLAN AND PROFILE STA 17+50 TO STA 26+07.14
23	CU-707	PLAN AND PROFILE STA 10+00 TO STA 17+74.33
24	CU-708	PLAN AND PROFILE STA 10+00 TO STA 18+72.99 / STA 10+00 TO STA 12+88.50
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29	CG-501	STORM DRAINAGE DETAILS
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40	PS SD-2	PUMP STATION DETAILS
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44	CN-502	STORMWATER MANAGEMENT DETAILS
45	CN-503	STORMWATER MANAGEMENT DETAILS
46	CN-504	STORMWATER MANAGEMENT DETAILS

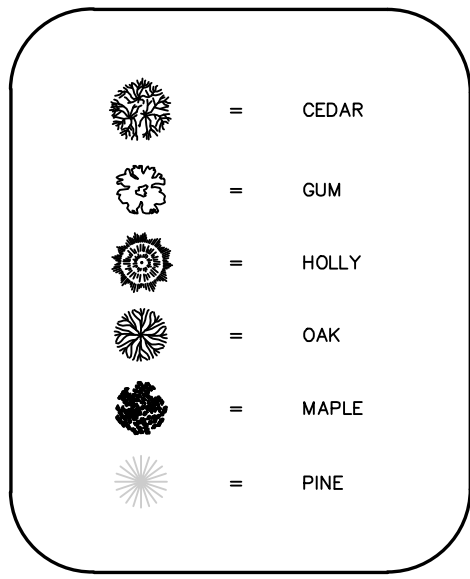




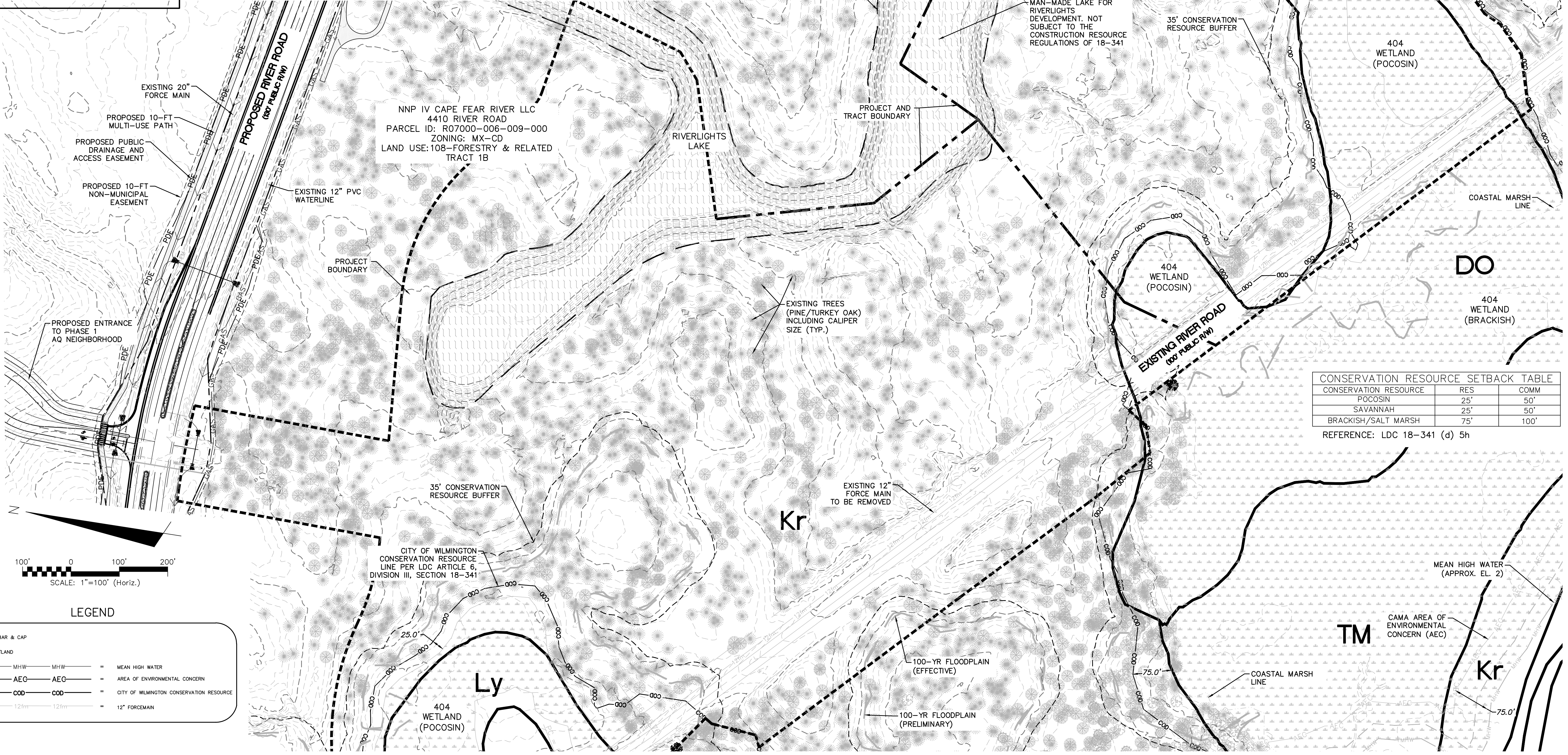
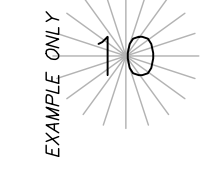
**GENERAL NOTES:**

1. 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.
2. 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.
3. WETLANDS SHOWN IN THIS PORTION OF RIVERLIGHTS WERE DESCRIBED AS POCOSIN WETLAND AND CONSERVATION RESOURCE SETBACK LINES WERE GENERATED AS 25' MINIMUM OUTSIDE OF THE RESOURCE.
4. FINISHED FLOOR ELEVATIONS OFF ALL INHABITABLE STRUCTURES WILL BE MIN. 2- FEET ABOVE BASE FLOOD ELEVATION
5. RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD 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.

**TREE LEGEND**



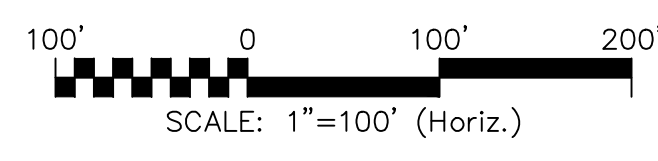
**NOTE:**  
EXISTING TREE CALIPER INCH SIZE IS SHOWN WITHIN THE TREE SYMBOL



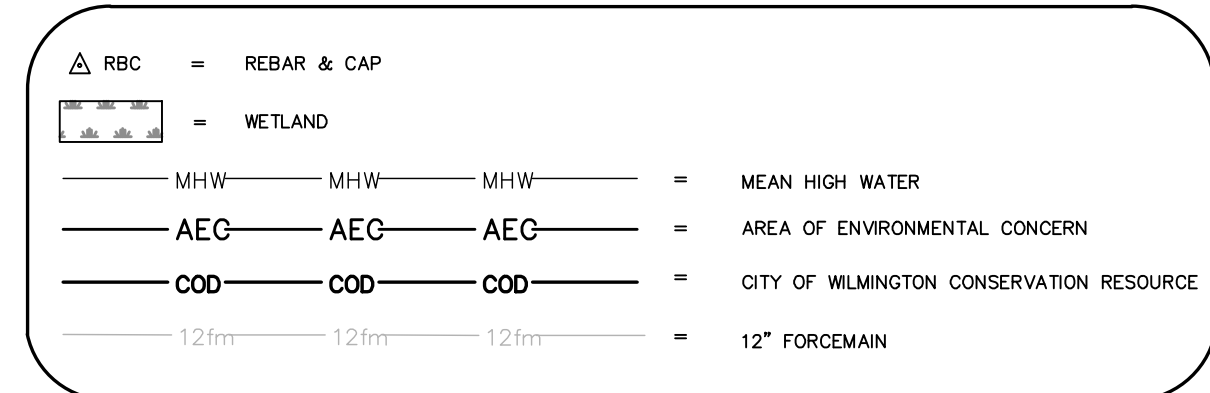
**CONSERVATION RESOURCE SETBACK TABLE**

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

REFERENCE: LDC 18-341 (d) 5h



**LEGEND**



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

FINAL DRAWINGS DO NOT USE FOR CONSTRUCTION

Professional Engineer Seal: KATHRYN C. B. ESPINOSA, ENCLINER, 040271, 05/06/2015

**MCKIM & CREED**

243 North Front Street  
Wilmington, North Carolina 28401  
Phone: (910)343-1048, Fax: (910)251-8282  
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**RIVERLIGHTS**  
Newland by COMMUNITIES

NORTH AMERICA SENIUS HOUSE, LLC

**RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1**

**EXISTING CONDITIONS/ SITE INVENTORY PLAN**

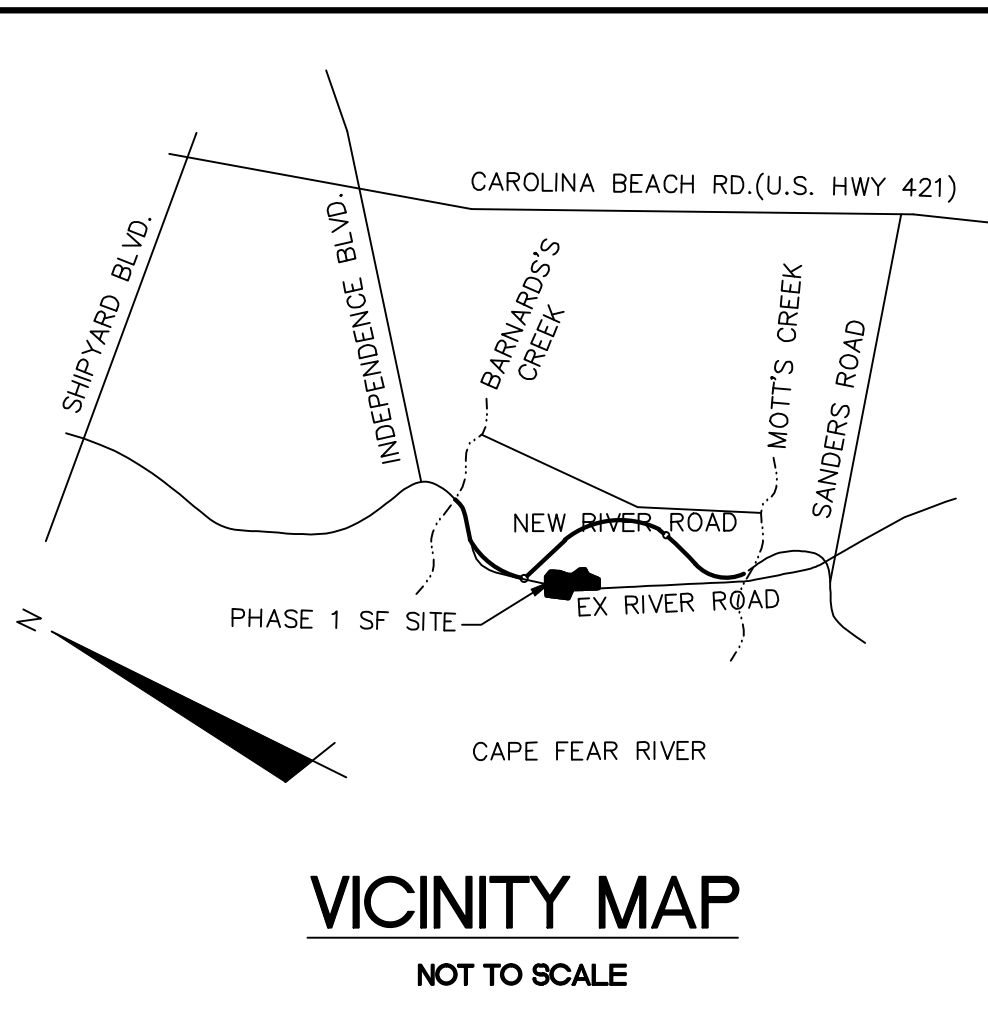
DATE: 04-29-2015  
MCE PROJ. #: 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR: RMC

SCALE: HORIZONTAL: 1"=100', VERTICAL: N/A

M&C FILE NUMBER: CX-101  
DRAWING NUMBER: 3  
REVISION: B

STATUS: FINAL DESIGN  
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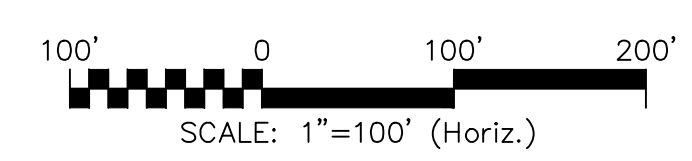
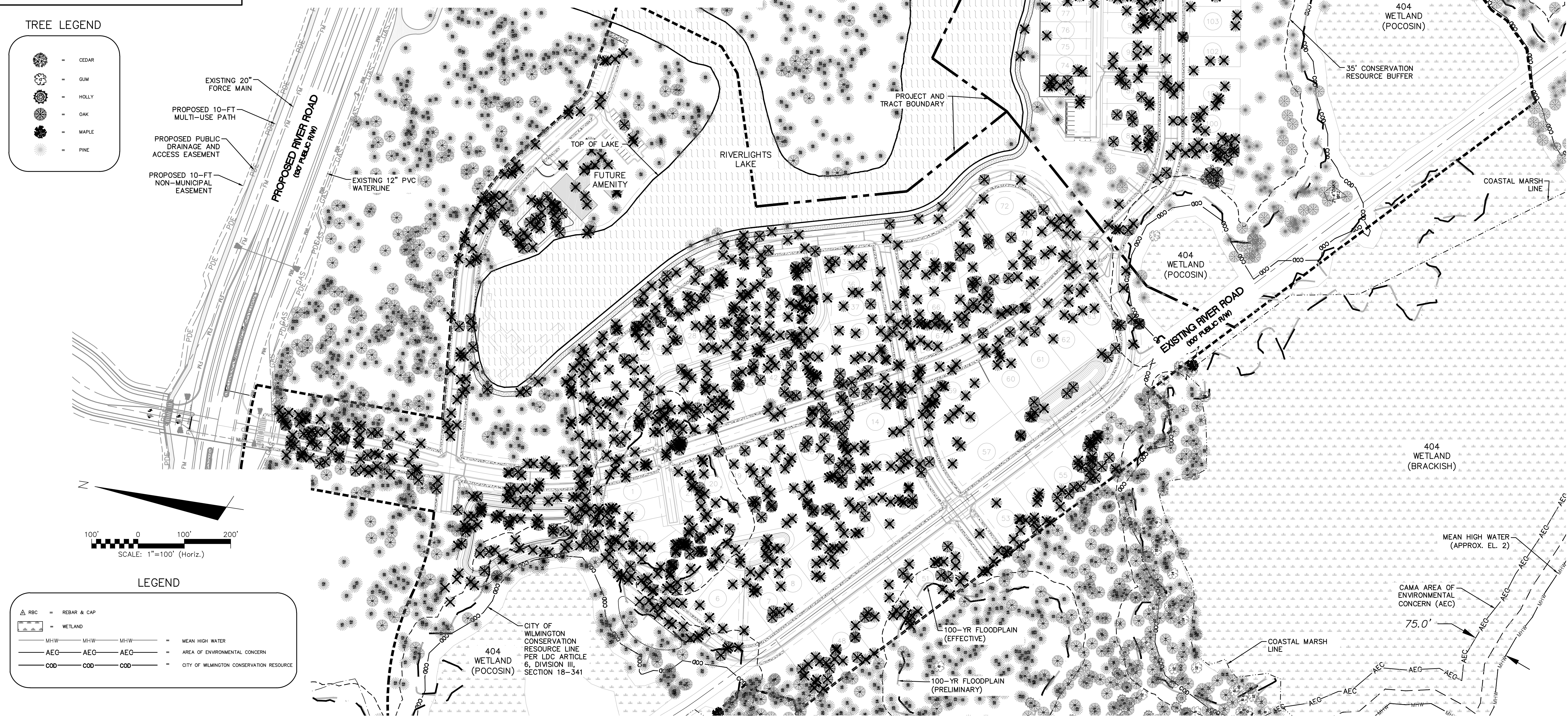


**DEMOLITION NOTES:**

1. NO EARTH DISTURBING ACTIVITIES SHALL COMMENCE UNTIL ALL PERIMETER EROSION CONTROL MEASURES ARE IN PLACE IN ACCORDANCE WITH THE EROSION CONTROL SEQUENCE SHOWN IN THESE PLANS.
2. NO EARTH-DISTURBING ACTIVITY OR OTHER WORK SHALL TAKE PLACE WITHIN WETLANDS AREAS NOTED ON SURVEY. CONTRACTOR SHALL FIELD VERIFY WETLAND LIMITS FLAGGING IS IN PLACE AND SHALL NOT ENTER WETLAND AREAS. IF WETLAND FLAGGING IS MISSING OR OTHERWISE DAMAGED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTE WETLAND LIMITS AND PREVENT DISTURBANCE OR OTHER ACTIVITY WITHIN WETLANDS.
3. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL PROPERTY CORNER MONUMENTS, AND SHALL HAVE, AT HIS EXPENSE, ALL CORNER MONUMENTS REPLACED WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS, AT HIS EXPENSE, DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
5. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL OF ALL DEMOLITION DEBRIS.
6. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS FOR EXCAVATION AND TRENCHING PROCEDURES. CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, ETC. AS NECESSARY FOR THESE OPERATIONS, AND SHALL COMPLY WITH ALL OSHA PERFORMANCE CRITERIA.
7. CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ALL UTILITIES AND APPURTENANCES TO REMAIN.

**TREE LEGEND**

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

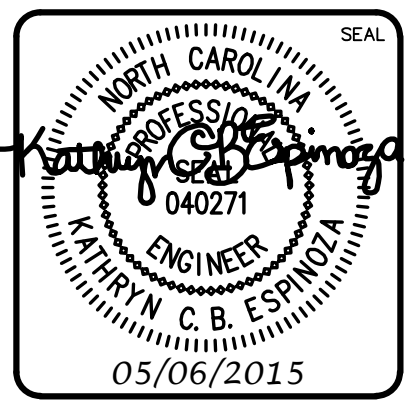


**LEGEND**

- REBAR & CAP
- WETLAND
- MHW — MHW — MHW — MEAN HIGH WATER
- AEC — AEC — AEC — AREA OF ENVIRONMENTAL CONCERN
- COO — COO — COO — CITY OF WILMINGTON CONSERVATION RESOURCE

REV. NO.	DESCRIPTIONS	DATE
1	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
2	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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www.mckimcreed.com

**RIVERLIGHTS**  
by Newland COMMUNITIES  
NORTH AMERICA SEKISUI HOUSE, LLC

**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**

**TREE REMOVAL PLAN**

DATE: 04-29-2015	SCALE: 1"=50'	MAC FILE NUMBER: CX-102
MCE PROJ. # 02735-0129	HORIZONTAL: 1"=50'	DRAWING NUMBER: 4
DRAWN: EEM/KCBE	VERTICAL: N/A	REVISION: B
DESIGNED: KCBE	STATUS: FINAL DESIGN	
CHECKED: NUL	NOT FOR CONSTRUCTION	
PROJ. MGR.: RMC		

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**PHASE 1 CONSTRUCTION SEQUENCE**

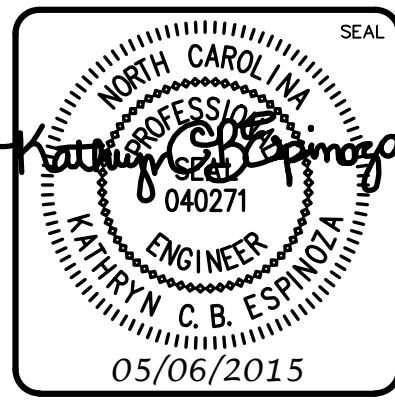
- ESTABLISH LIMITS OF DISTURBANCE AS SHOWN.
- A PRE-CONSTRUCTION CONFERENCE MUST BE HELD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE EROSION CONTROL INSPECTOR, ENGINEER, AND CONTRACTOR SHALL MEET AT THE NEW HANOVER COUNTY EROSION CONTROL INSPECTOR'S OFFICE.
- INSTALL TEMPORARY GRAVEL 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.
- 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.
- 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.
- COMMENCE GRUBBING AND ROUGH GRADING WITHIN THE LIMITS OF CONSTRUCTION.
- 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.
- 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
- PROVIDE TEMPORARY STABILIZATION AND SEEDING AS NECESSARY TO PREVENT EROSION. REFER TO SHEET CE-501 FOR GROUND STABILIZATION CRITERIA AND SEEDING SCHEDULE.

LIMITS OF DISTURBANCE = 47.51 AC

LAT: 34° 8' 50" N  
LONG: 77° 56' 11" W

REVNO.	DESCRIPTIONS	DATE
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A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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NORTH AMERICA SENIUS HOUSE, LLC

**RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1**  
**EROSION CONTROL PLAN PHASE 1**

DATE: 04-29-2015	SCALE: HORIZONTAL: 1"=100'	MAC FILE NUMBER: CE-101
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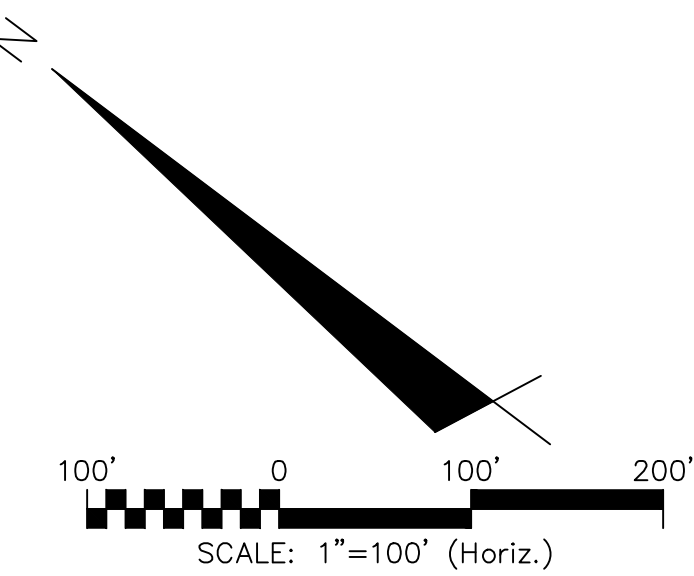


**PHASE 2 CONSTRUCTION SEQUENCE**

1. 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.
2. MAINTAIN MEASURES FROM PHASE 1 AS SHOWN IN THIS PHASE 2 SEDIMENT AND EROSION CONTROL DRAWING.
3. 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.
4. INSTALL INLET PROTECTION AS SHOWN IN THE PHASE 2 PLAN AND CONSTRUCTION DETAILS.
5. COMPLETE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
6. UPON COMPLETION OF CONSTRUCTION, ESTABLISH PERMANENT GROUND COVER AND OVERALL SITE STABILIZATION.
7. REMOVE THE SEDIMENT AND EROSION CONTROL MEASURES.

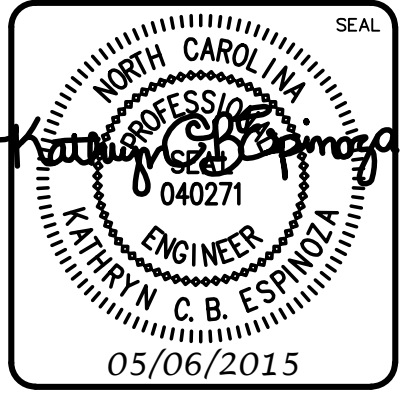
LIMITS OF DISTURBANCE = 47.51 AC

LAT: 34° 8' 50" N  
LONG: 77° 56' 11" W



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A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015
REVISIONS		

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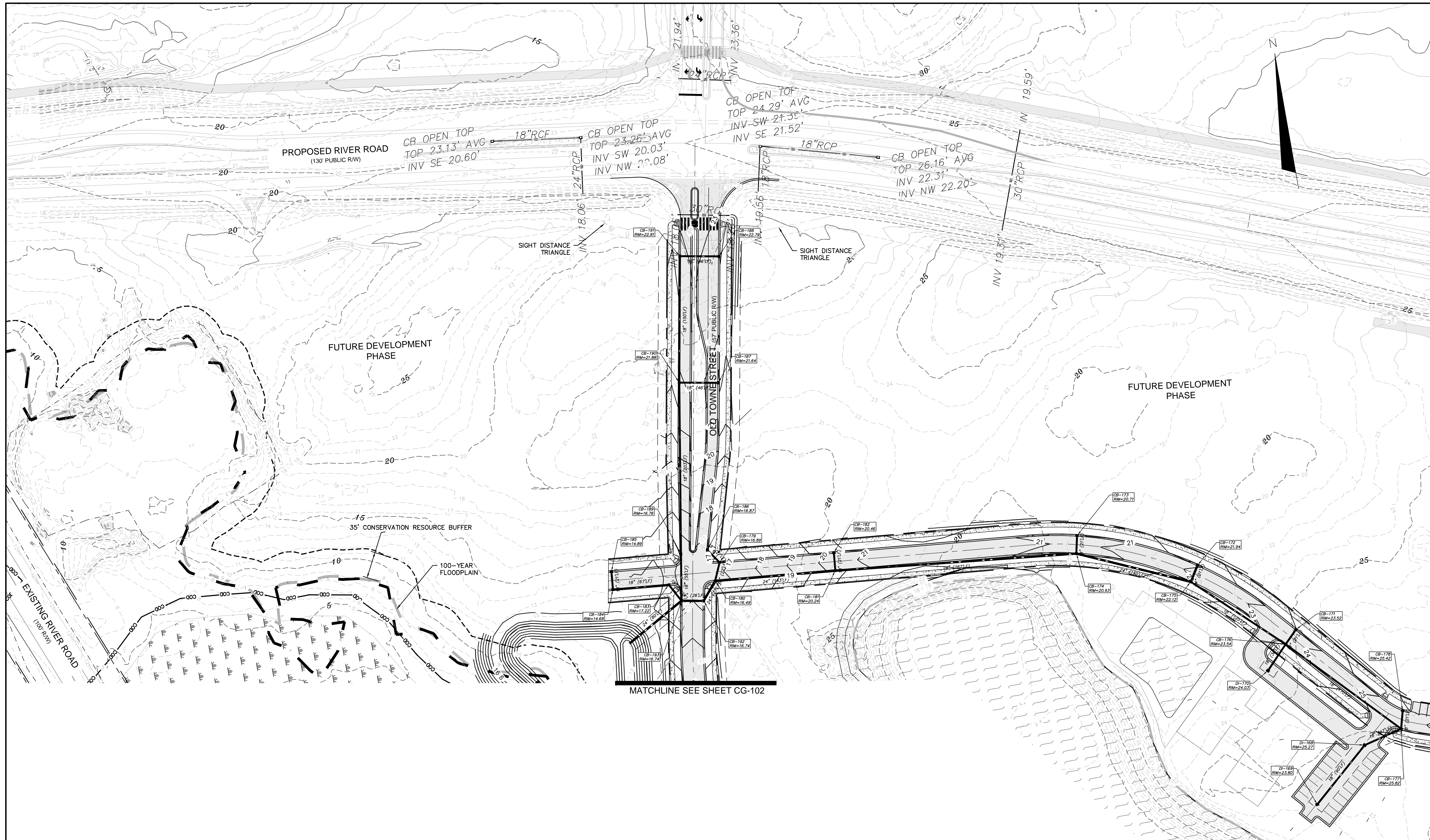


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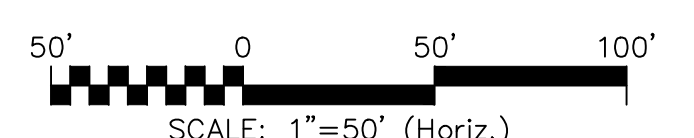
**RIVERLIGHTS**  
Newland COMMUNITIES  
NORTH AMERICA SEKISUI HOUSE, LLC

**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**  
**EROSION CONTROL PLAN  
PHASE 2**

DATE: 04-29-2015	SCALE: HORIZONTAL: 1"=100'	HMC FILE NUMBER: CE-102
MCE PROJ. # 02735-0129	DESIGNED: KCB/E	DRAWING NUMBER: 6
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STATUS: FINAL DESIGN NOT FOR CONSTRUCTION		

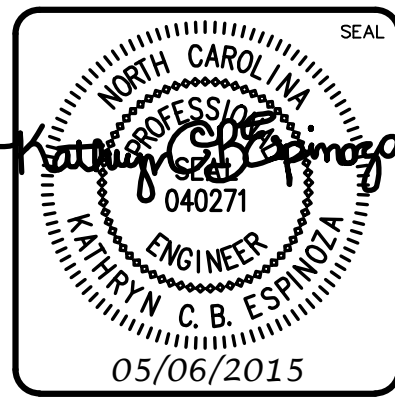


MATCHLINE SEE SHEET CG-102



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 NORTH AMERICA SERIES HOUSE, LLC

**RIVERLIGHTS  
 CONVENTIONAL NEIGHBORHOOD PH. 1**

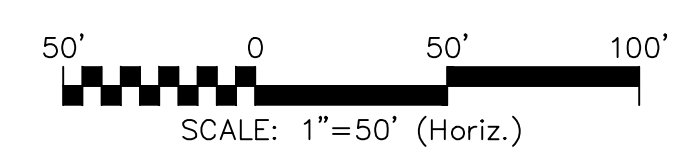
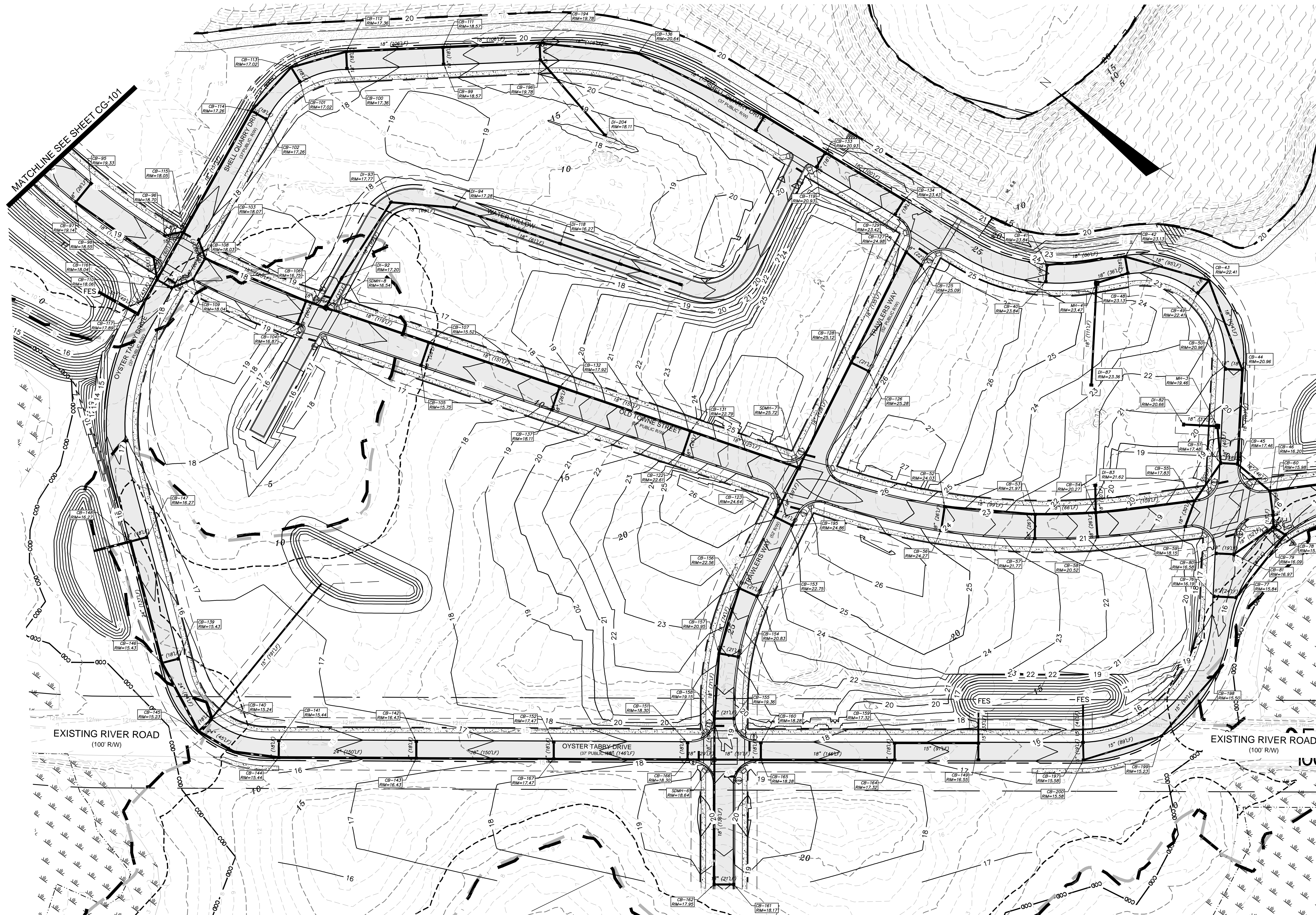
**STORM DRAINAGE & GRADING PLAN**

DATE:	04-29-2015
MCE PROJ. #	02735-0129
DRAWN	EEM/KCBE
DESIGNED	KCBE
CHECKED	NJL
PROJ. MGR.	RMC

SCALE	MAC FILE NUMBER
HORIZONTAL: 1"=50'	CG-101
VERTICAL: N/A	DRAWING NUMBER
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	B

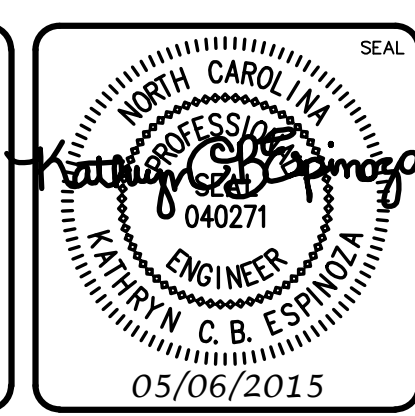
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 NORTH AMERICA SERIKISHI HOUSE, LLC

**RIVERLIGHTS  
 CONVENTIONAL NEIGHBORHOOD PH. 1**

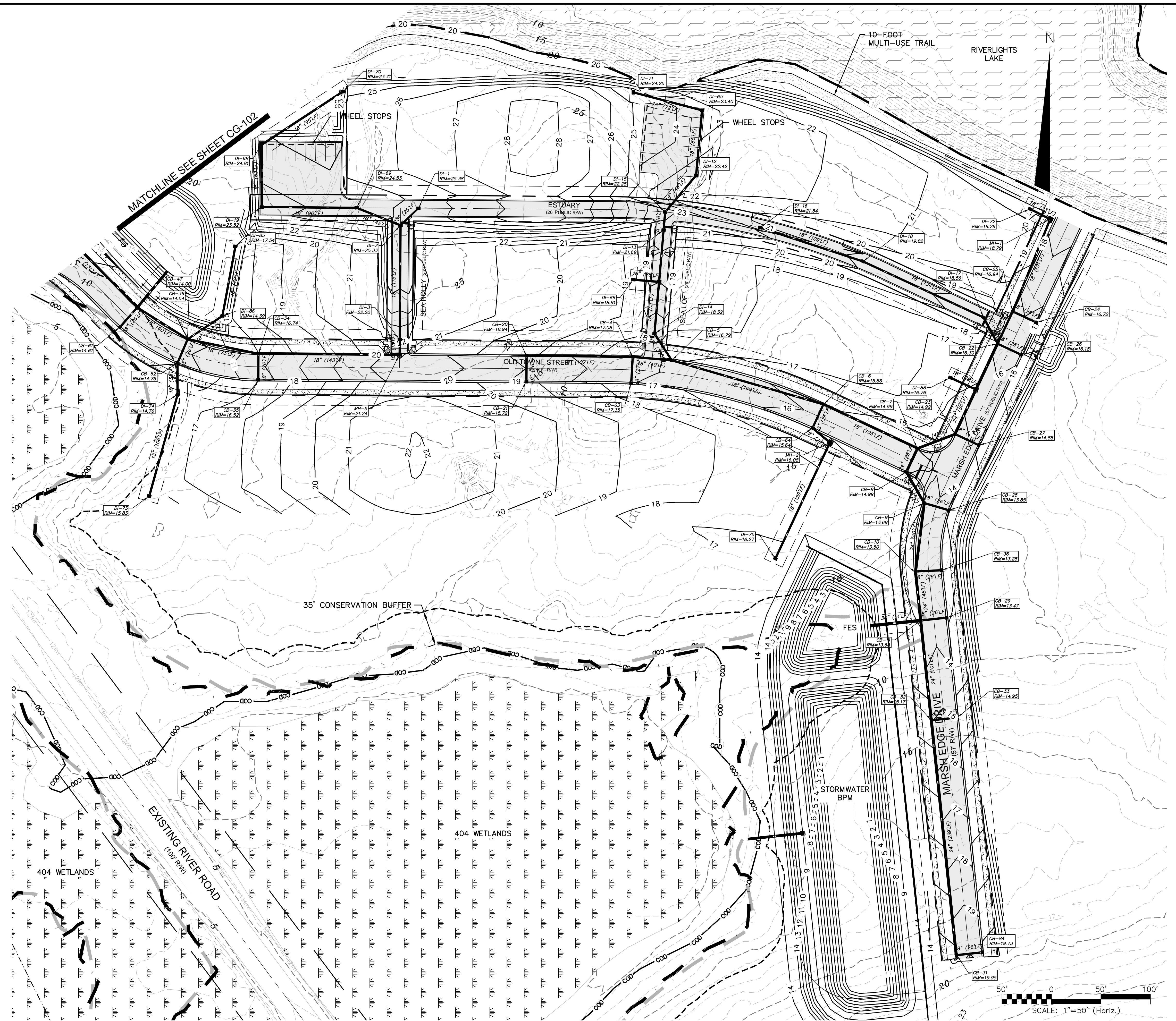
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CHECKED:	NJL				
PROJ. MGR.:	RMC				

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NOT FOR CONSTRUCTION

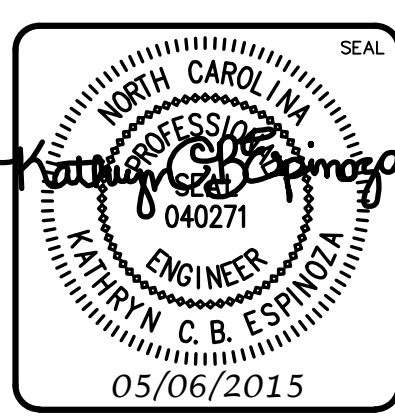
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**RIVERLIGHTS**  
 Newland by COMMUNITIES  
 NORTH AMERICA SERIES HOUSE, LLC

**RIVERLIGHTS  
 CONVENTIONAL NEIGHBORHOOD PH. 1**

**STORM DRAINAGE & GRADING PLAN**

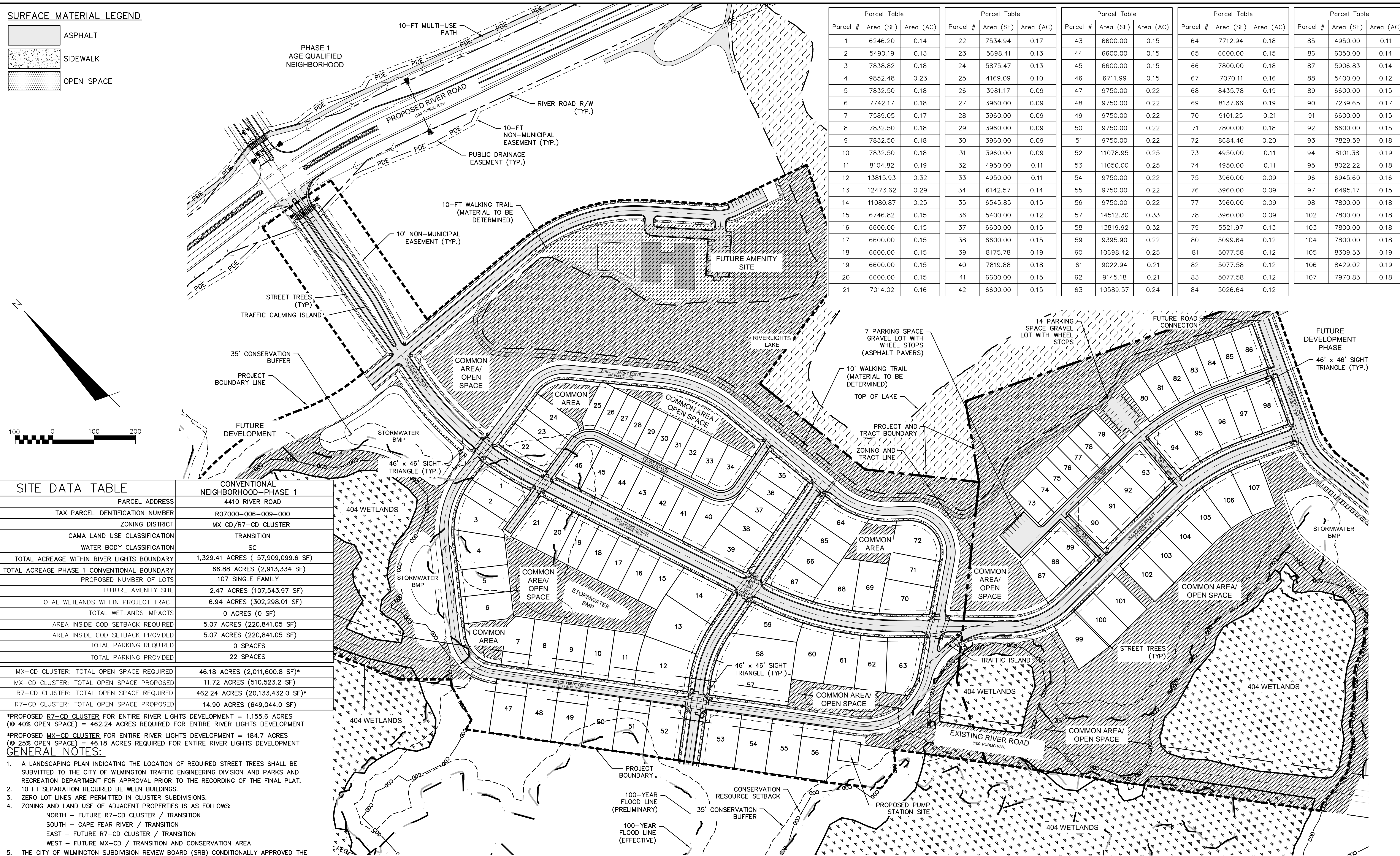
DATE:	04-29-2015
MCE PROJ. #	02735-0129
DRAWN	EEM/KCBE
DESIGNED	KCBE
CHECKED	NJL
PROJ. MGR.	RMC

SCALE	MAC FILE NUMBER
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VERTICAL: N/A	DRAWING NUMBER
	<b>9</b>
STATUS: <b>FINAL DESIGN</b>	REVISION
NOT FOR CONSTRUCTION	<b>B</b>

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**SURFACE MATERIAL LEGEND**

	ASPHALT
	SIDEWALK
	OPEN SPACE



Parcel Table			Parcel Table			Parcel Table			Parcel Table			Parcel Table		
Parcel #	Area (SF)	Area (AC)	Parcel #	Area (SF)	Area (AC)	Parcel #	Area (SF)	Area (AC)	Parcel #	Area (SF)	Area (AC)	Parcel #	Area (SF)	Area (AC)
1	6246.20	0.14	22	7534.94	0.17	43	6600.00	0.15	64	7712.94	0.18	85	4950.00	0.11
2	5490.19	0.13	23	5698.41	0.13	44	6600.00	0.15	65	6600.00	0.15	86	6050.00	0.14
3	7838.82	0.18	24	5875.47	0.13	45	6600.00	0.15	66	7800.00	0.18	87	5906.83	0.14
4	9852.48	0.23	25	4169.09	0.10	46	6711.99	0.15	67	7070.11	0.16	88	5400.00	0.12
5	7832.50	0.18	26	3981.17	0.09	47	9750.00	0.22	68	8435.78	0.19	89	6600.00	0.15
6	7742.17	0.18	27	3960.00	0.09	48	9750.00	0.22	69	8137.66	0.19	90	7239.65	0.17
7	7589.05	0.17	28	3960.00	0.09	49	9750.00	0.22	70	9101.25	0.21	91	6600.00	0.15
8	7832.50	0.18	29	3960.00	0.09	50	9750.00	0.22	71	7800.00	0.18	92	6600.00	0.15
9	7832.50	0.18	30	3960.00	0.09	51	9750.00	0.22	72	8684.46	0.20	93	7829.59	0.18
10	7832.50	0.18	31	3960.00	0.09	52	11078.95	0.25	73	4950.00	0.11	94	8101.38	0.19
11	8104.82	0.19	32	4950.00	0.11	53	11050.00	0.25	74	4950.00	0.11	95	8022.22	0.18
12	13815.93	0.32	33	4950.00	0.11	54	9750.00	0.22	75	3960.00	0.09	96	6945.60	0.16
13	12473.62	0.29	34	6142.57	0.14	55	9750.00	0.22	76	3960.00	0.09	97	6495.17	0.15
14	11080.87	0.25	35	6545.85	0.15	56	9750.00	0.22	77	3960.00	0.09	98	7800.00	0.18
15	6746.82	0.15	36	5400.00	0.12	57	14512.30	0.33	78	3960.00	0.09	102	7800.00	0.18
16	6600.00	0.15	37	6600.00	0.15	58	13819.92	0.32	79	5521.97	0.13	103	7800.00	0.18
17	6600.00	0.15	38	6600.00	0.15	59	9395.90	0.22	80	5099.64	0.12	104	7800.00	0.18
18	6600.00	0.15	39	8175.78	0.19	60	10698.42	0.25	81	5077.58	0.12	105	8309.53	0.19
19	6600.00	0.15	40	7819.88	0.18	61	9022.94	0.21	82	5077.58	0.12	106	8429.02	0.19
20	6600.00	0.15	41	6600.00	0.15	62	9145.18	0.21	83	5077.58	0.12	107	7970.83	0.18
21	7014.02	0.16	42	6600.00	0.15	63	10589.57	0.24	84	5026.64	0.12			

**SITE DATA TABLE**

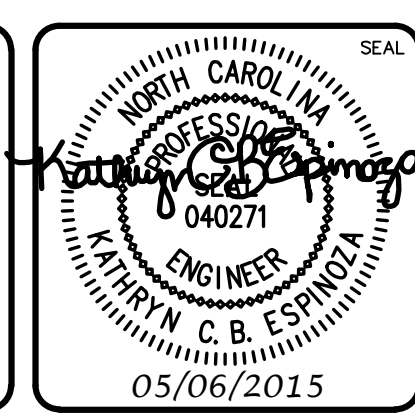
	CONVENTIONAL NEIGHBORHOOD—PHASE 1
PARCEL ADDRESS	4410 RIVER ROAD
TAX PARCEL IDENTIFICATION NUMBER	R07000-006-009-000
ZONING DISTRICT	MX CD/R7-CD CLUSTER
CAMA LAND USE CLASSIFICATION	TRANSITION
WATER BODY CLASSIFICATION	SC
TOTAL ACREAGE WITHIN RIVER LIGHTS BOUNDARY	1,329.41 ACRES ( 57,909,099.6 SF)
TOTAL ACREAGE PHASE 1 CONVENTIONAL BOUNDARY	66.88 ACRES (2,913,334 SF)
PROPOSED NUMBER OF LOTS	107 SINGLE FAMILY
FUTURE AMENITY SITE	2.47 ACRES (107,543.97 SF)
TOTAL WETLANDS WITHIN PROJECT TRACT	6.94 ACRES (302,298.01 SF)
TOTAL WETLANDS IMPACTS	0 ACRES (0 SF)
AREA INSIDE COD SETBACK REQUIRED	5.07 ACRES (220,841.05 SF)
AREA INSIDE COD SETBACK PROVIDED	5.07 ACRES (220,841.05 SF)
TOTAL PARKING REQUIRED	0 SPACES
TOTAL PARKING PROVIDED	22 SPACES
MX-CD CLUSTER: TOTAL OPEN SPACE REQUIRED	46.18 ACRES (2,011,600.8 SF)*
MX-CD CLUSTER: TOTAL OPEN SPACE PROPOSED	11.72 ACRES (510,523.2 SF)
R7-CD CLUSTER: TOTAL OPEN SPACE REQUIRED	462.24 ACRES (20,133,432.0 SF)*
R7-CD CLUSTER: TOTAL OPEN SPACE PROPOSED	14.90 ACRES (649,044.0 SF)

\*PROPOSED R7-CD CLUSTER FOR ENTIRE RIVER LIGHTS DEVELOPMENT = 1,155.6 ACRES (40% OPEN SPACE) = 462.24 ACRES REQUIRED FOR ENTIRE RIVER LIGHTS DEVELOPMENT  
 \*PROPOSED MX-CD CLUSTER FOR ENTIRE RIVER LIGHTS DEVELOPMENT = 184.7 ACRES (25% OPEN SPACE) = 46.18 ACRES REQUIRED FOR ENTIRE RIVER LIGHTS DEVELOPMENT

- GENERAL NOTES:**
- 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 APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT.
  - 10 FT SEPARATION REQUIRED BETWEEN BUILDINGS.
  - ZERO LOT LINES ARE PERMITTED IN CLUSTER SUBDIVISIONS.
  - ZONING AND LAND USE OF ADJACENT PROPERTIES IS AS FOLLOWS:  
 NORTH - FUTURE R7-CD CLUSTER / TRANSITION  
 SOUTH - CAPE FEAR RIVER / TRANSITION  
 EAST - FUTURE R7-CD CLUSTER / TRANSITION  
 WEST - FUTURE MX-CD / TRANSITION AND CONSERVATION AREA
  - THE CITY OF WILMINGTON SUBDIVISION REVIEW BOARD (SRB) CONDITIONALLY APPROVED THE PRELIMINARY PLAN FOR CONVENTIONAL NEIGHBORHOOD - PHASE 1 ON APRIL 15TH, 2015.

REVNO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

FINAL DRAWINGS  
DO NOT USE FOR  
CONSTRUCTION



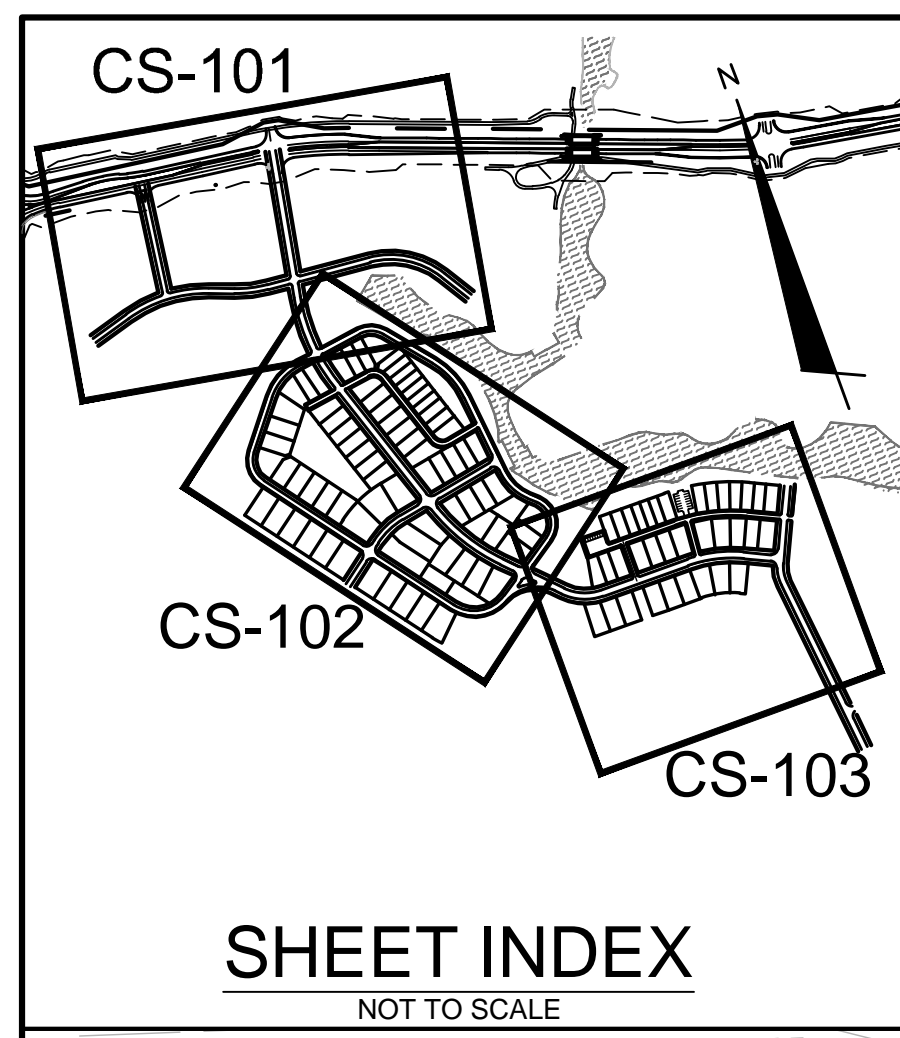
**MCKIM & CREED**  
 243 North Front Street  
 Wilmington, North Carolina 28401  
 Phone: (910)343-1048, Fax: (910)251-8282  
 License: F-1222  
 www.mckimcreed.com

**RIVERLIGHTS**  
 by Newland COMMUNITIES  
 NORTH AMERICA SERIKUI HOUSE, LLC

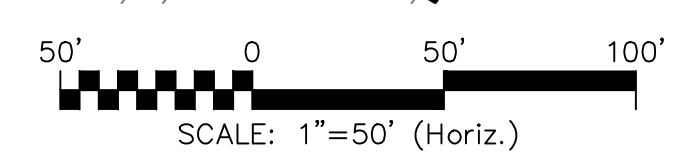
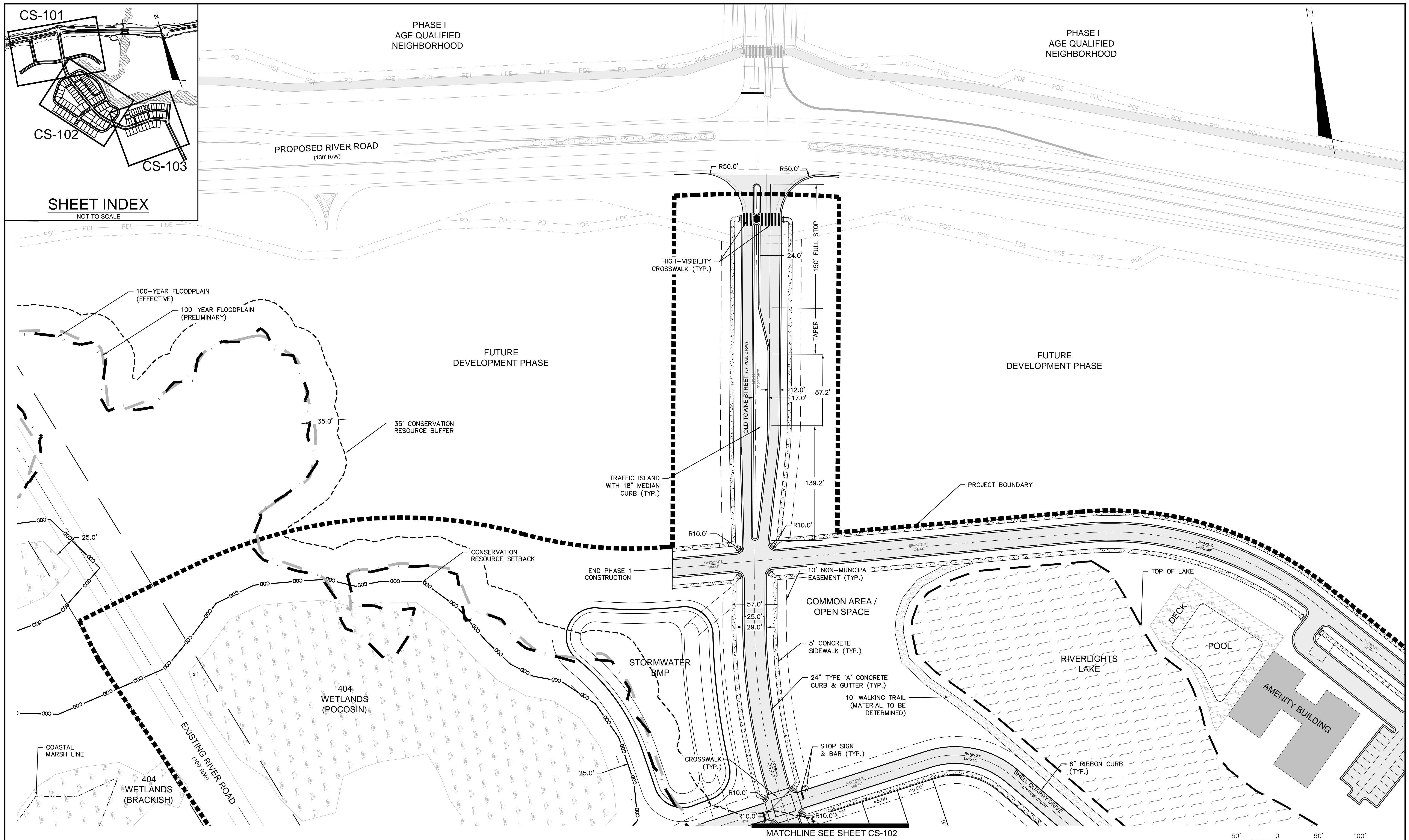
**RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1**  
**OVERALL SITE PLAN**

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DRAWN: EEM/KCBE	VERTICAL: N/A	REVISION: B
DESIGNED: KCBE	STATUS: FINAL DESIGN	
CHECKED: NJL	NOT FOR CONSTRUCTION	
PROJ. MGR: RMC		

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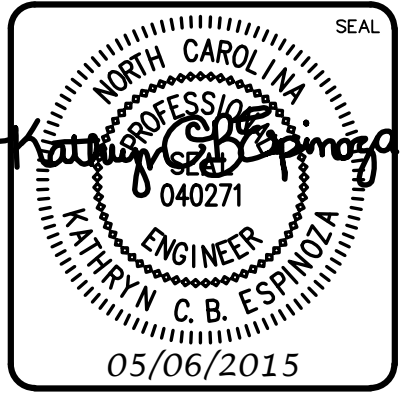


**SHEET INDEX**  
NOT TO SCALE



REVNO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015
REVISIONS		

FINAL DRAWINGS  
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CONSTRUCTION



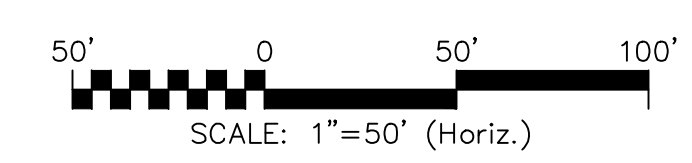
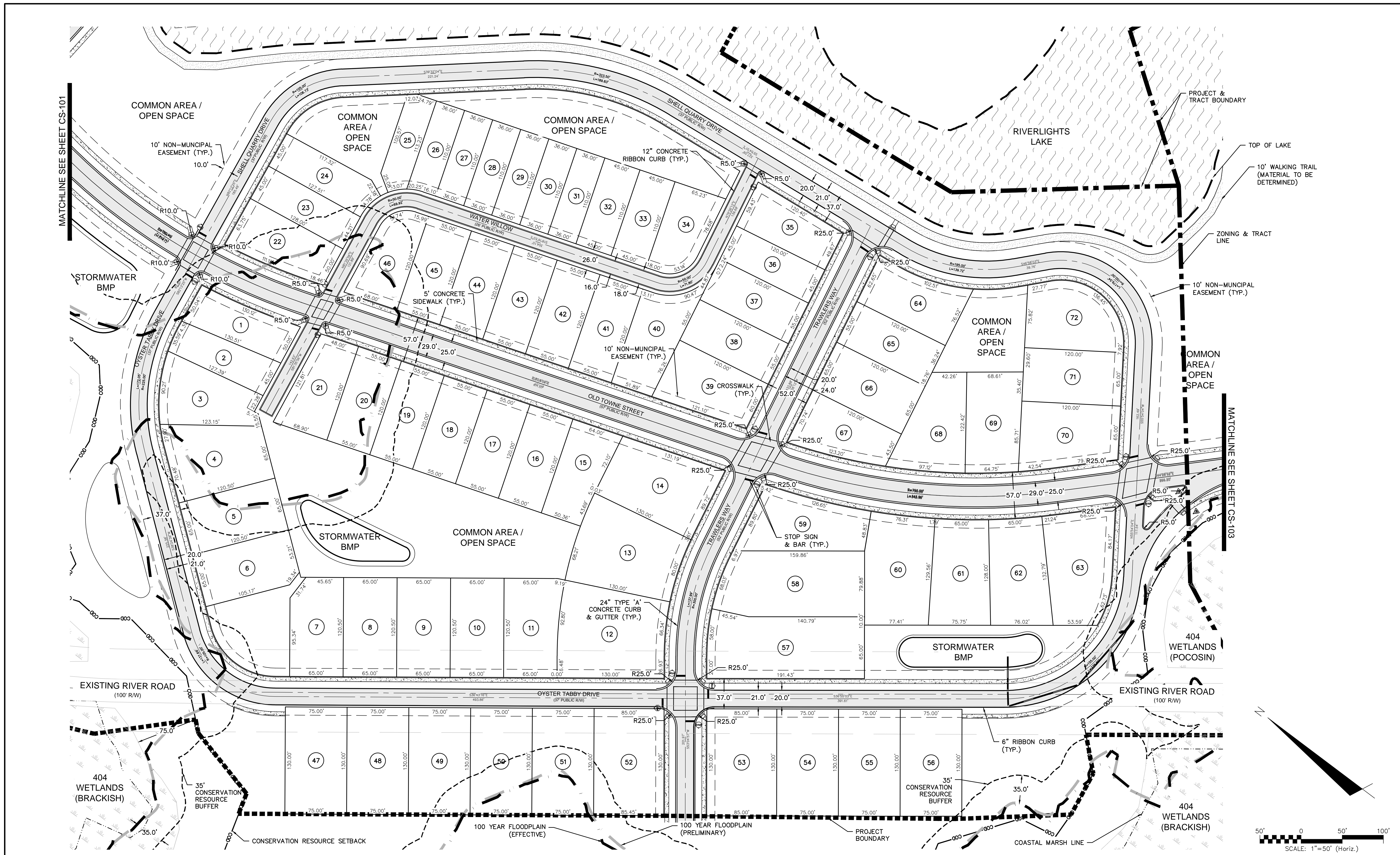
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**RIVERLIGHTS**  
by  
Newland COMMUNITIES

**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**

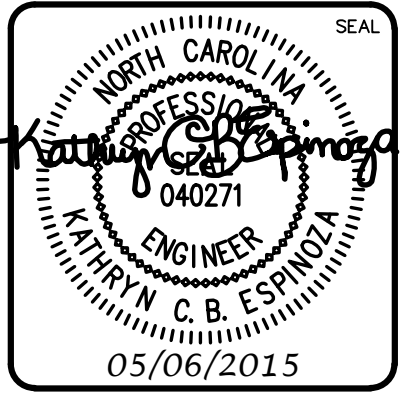
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DESIGNED: KCBE		
CHECKED: NLL		
PROJ. MGR: RMC		
STATUS: FINAL DESIGN		REVISION: B
NOT FOR CONSTRUCTION		



NO.	DESCRIPTION	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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CONSTRUCTION**



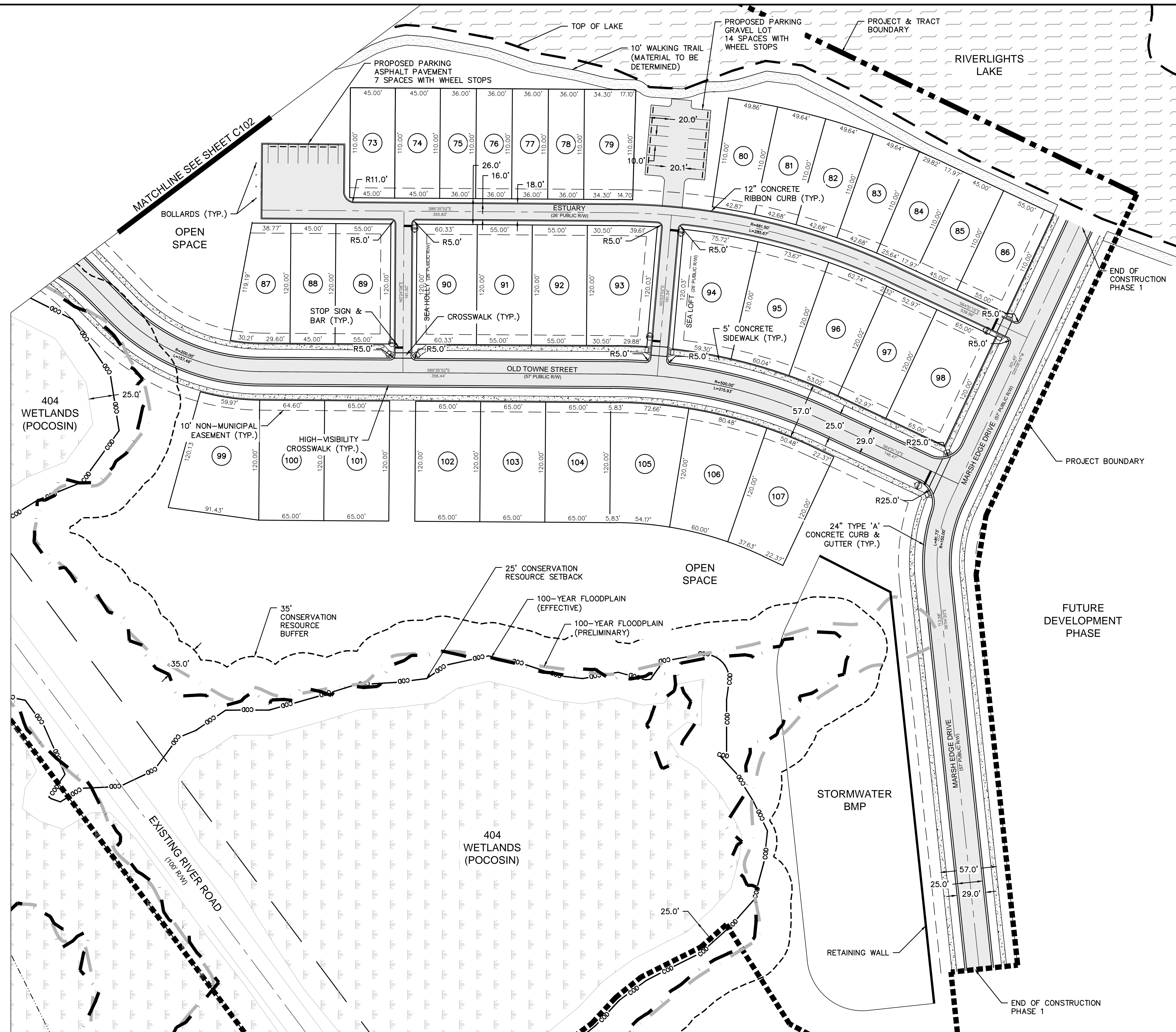
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**RIVERLIGHTS**  
 by  
 Newland COMMUNITIES

**RIVERLIGHTS  
 CONVENTIONAL NEIGHBORHOOD PH. 1**

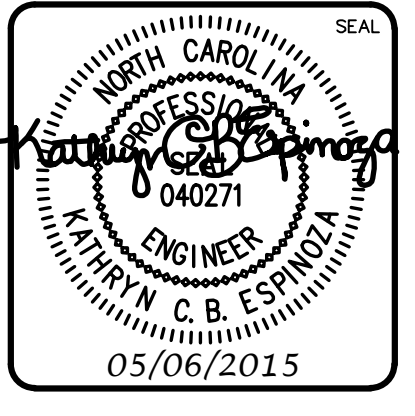
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CHECKED:	NJL	PROJ. MGR.:	RMC	REVISION:	<b>12</b>
STATUS: <b>FINAL DESIGN</b>					NOT FOR CONSTRUCTION



REVNO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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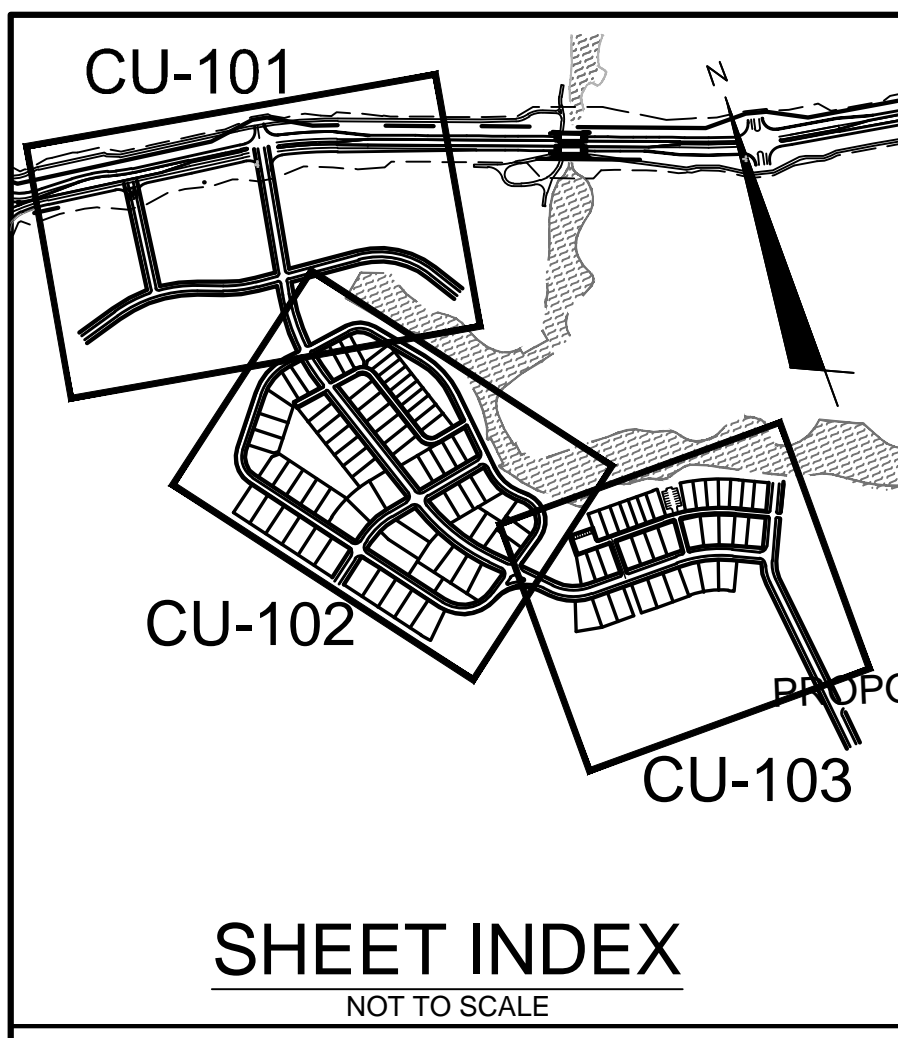
**RIVERLIGHTS**  
 by  
 Newland COMMUNITIES

NORTH AMERICA SEKISUI HOUSE, LLC

RIVERLIGHTS  
 CONVENTIONAL NEIGHBORHOOD PH. 1

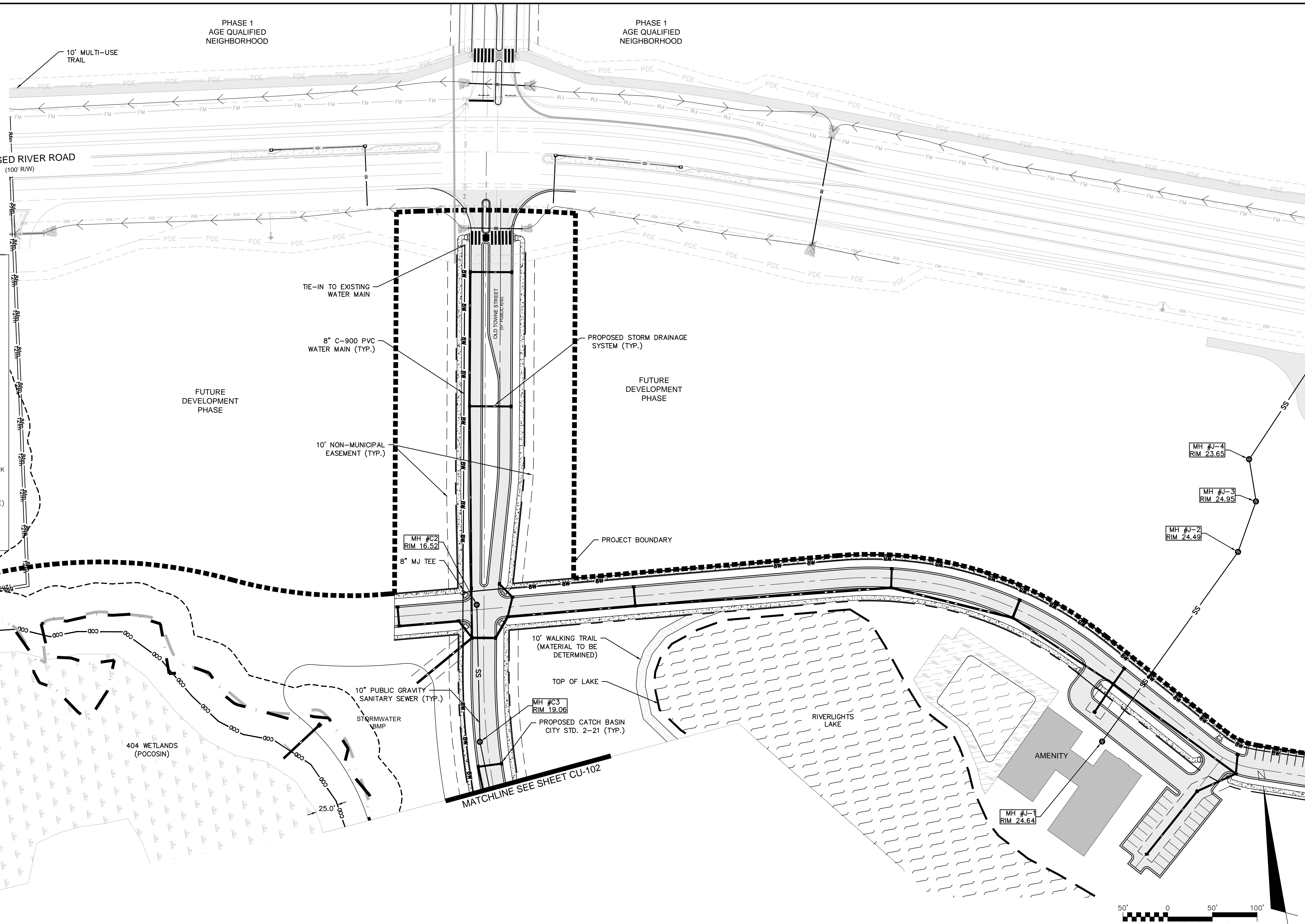
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CHECKED: NLL		
PROJ. MGR: RMC		
STATUS: FINAL DESIGN		REVISION: B
NOT FOR CONSTRUCTION		



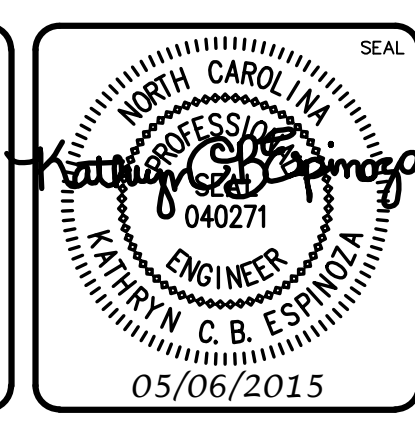
**LEGEND**

SS	SANITARY SEWER LINE
W	WATER MAIN
SS	EXISTING SANITARY SEWER LINE
W	EXISTING WATER MAIN
⊙	SANITARY SEWER MANHOLE
⊙	SANITARY SEWER CLEANOUT
⊙	WATER METER
⊙	FIRE HYDRANT ASSEMBLY (FHA)
—	ROADWAY CENTERLINE
---	ROW
---	LOT LINE
--- COD ---	CONSERVATION RESOURCE SETBACK
---	100-YEAR FLOODPLAIN (PRELIM)
---	100-YEAR FLOODPLAIN (EFFECTIVE)
---	EXISTING WETLANDS



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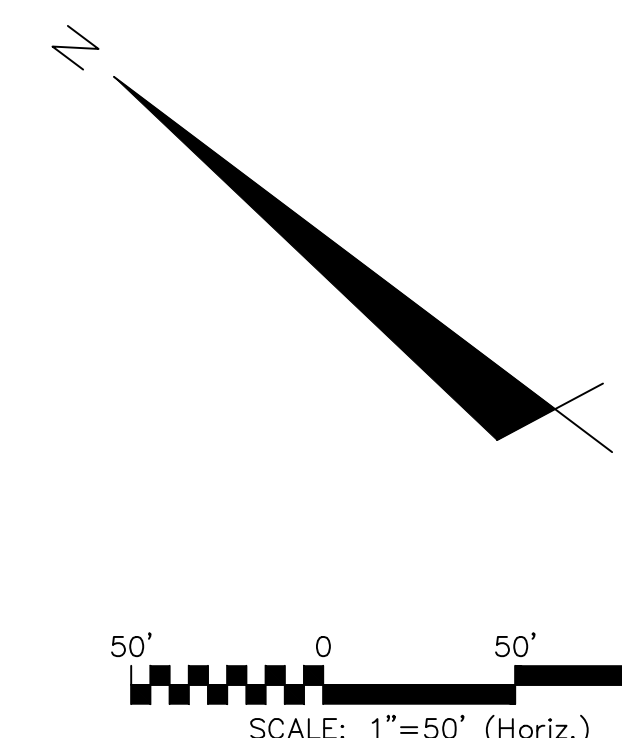
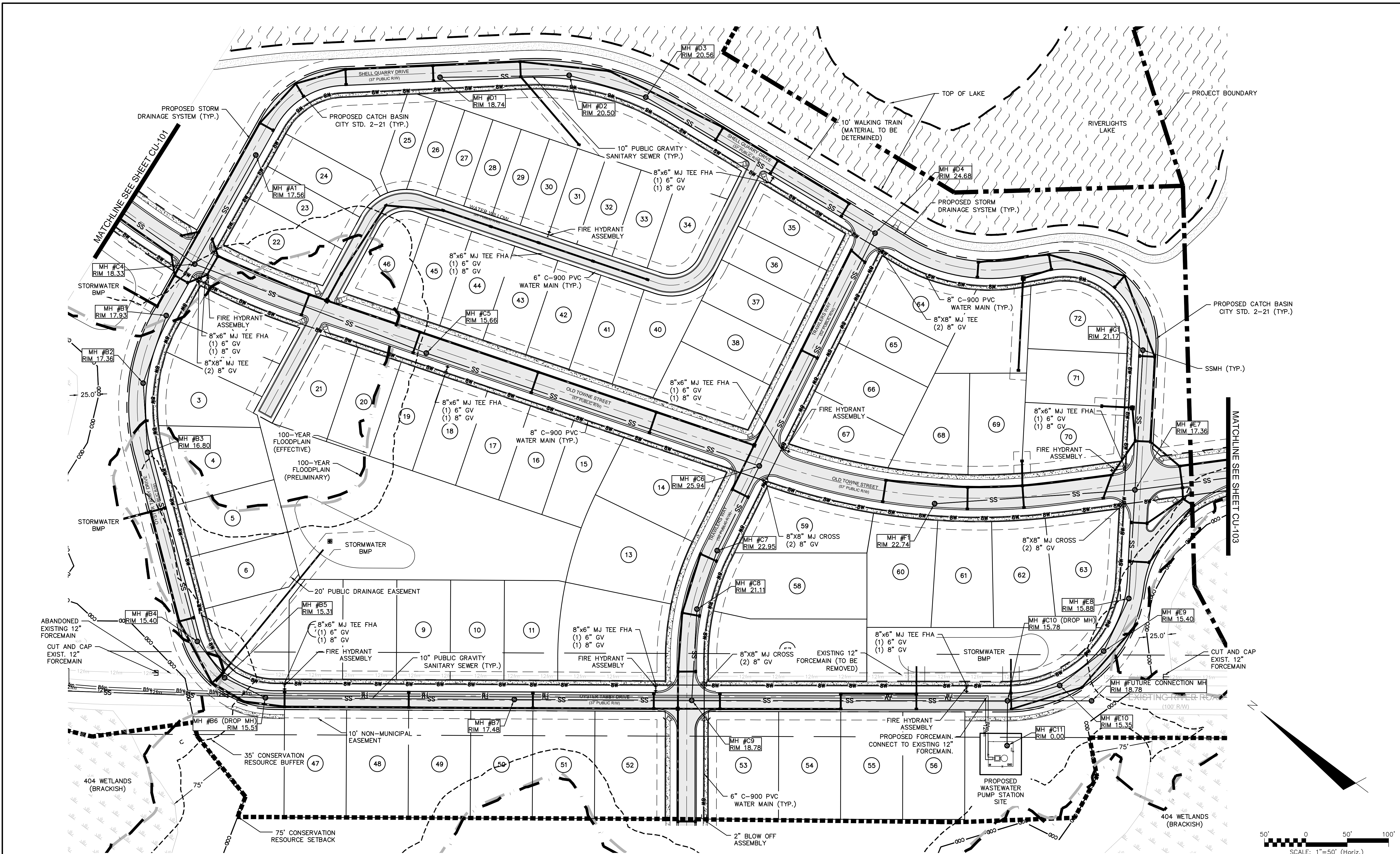
**RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1**

**UTILITY PLAN**

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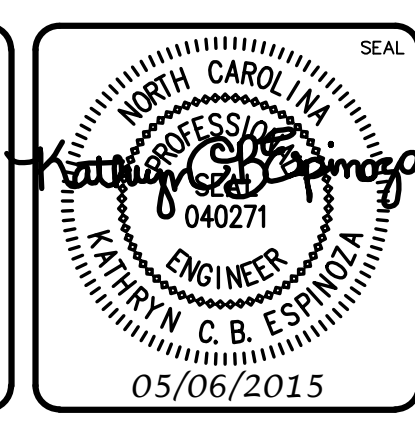
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DESIGNED: KCBE	STATUS: FINAL DESIGN	
CHECKED: NJL	NOT FOR CONSTRUCTION	
PROJ. MGR: RMC		

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REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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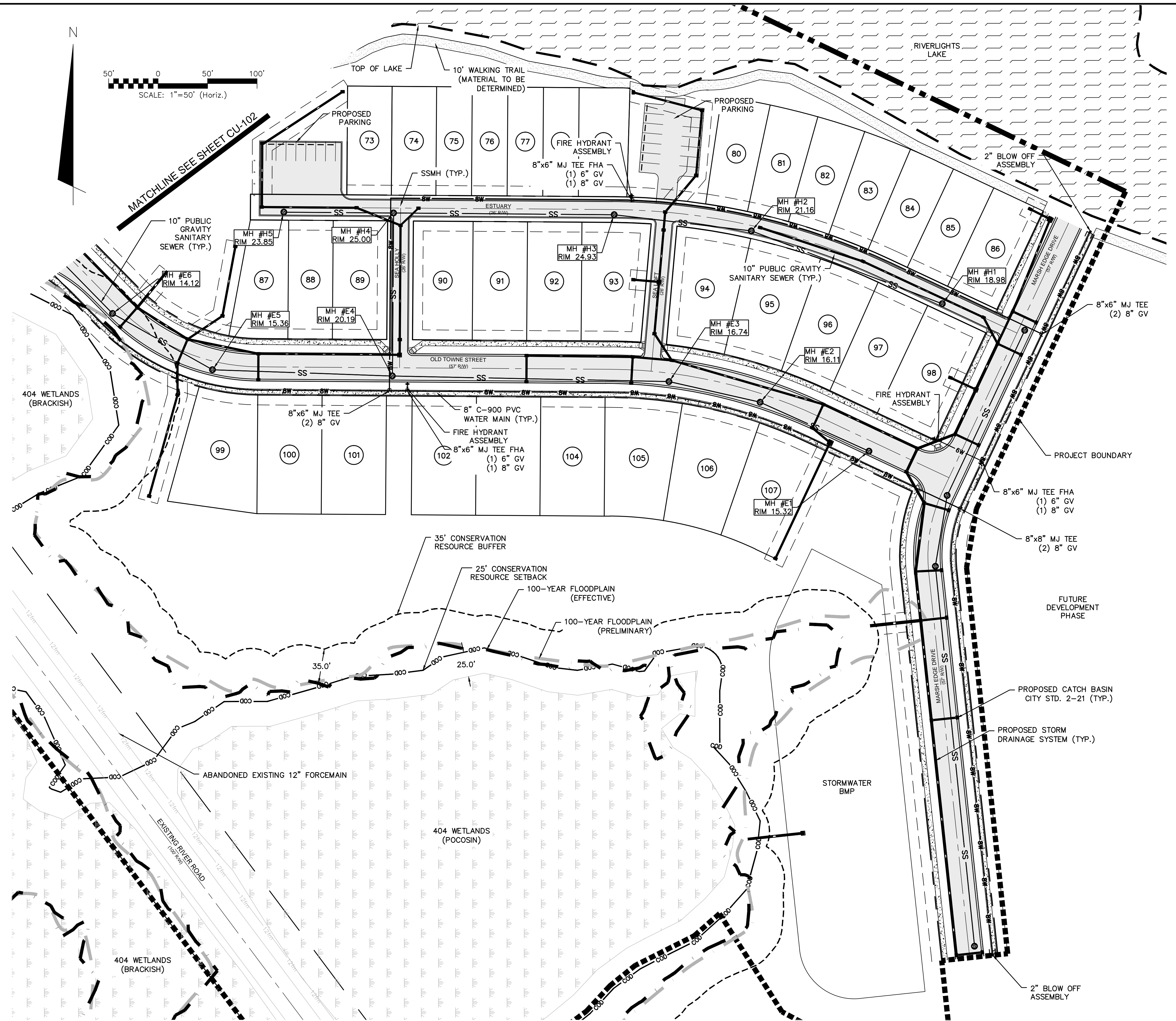
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**RIVERLIGHTS  
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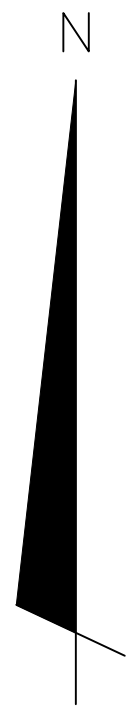
**UTILITY PLAN**

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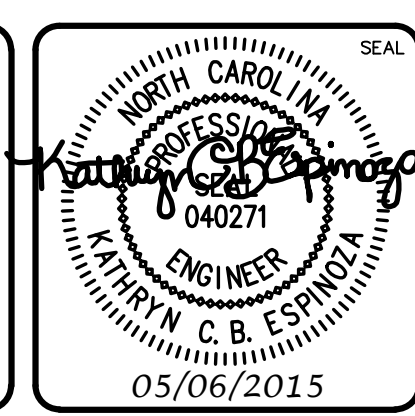


SCALE: 1"=50' (Horiz.)



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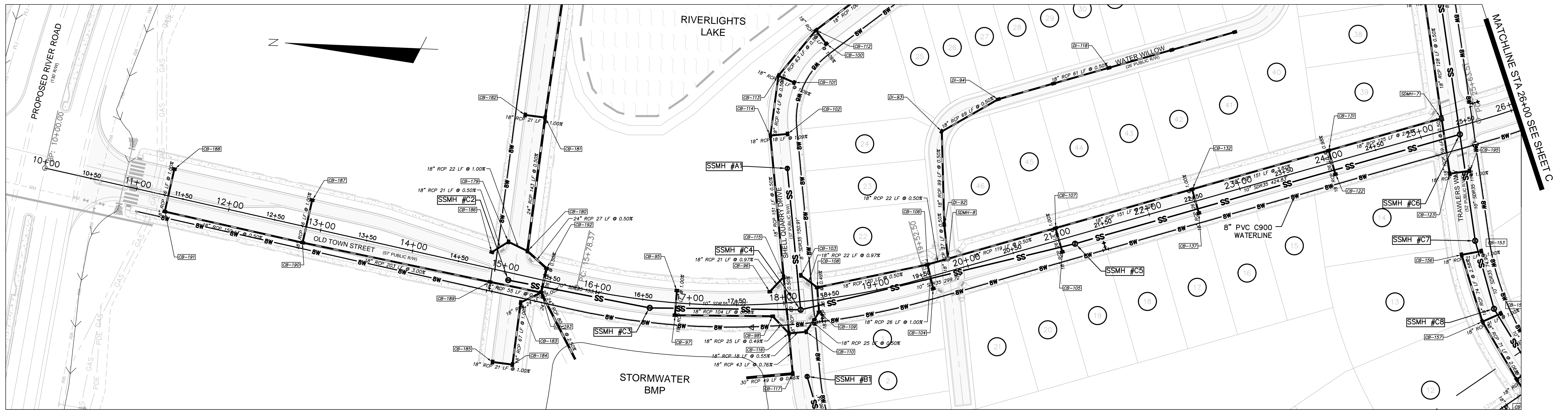
**RIVERLIGHTS  
 CONVENTIONAL NEIGHBORHOOD PH. 1**

**UTILITY PLAN**

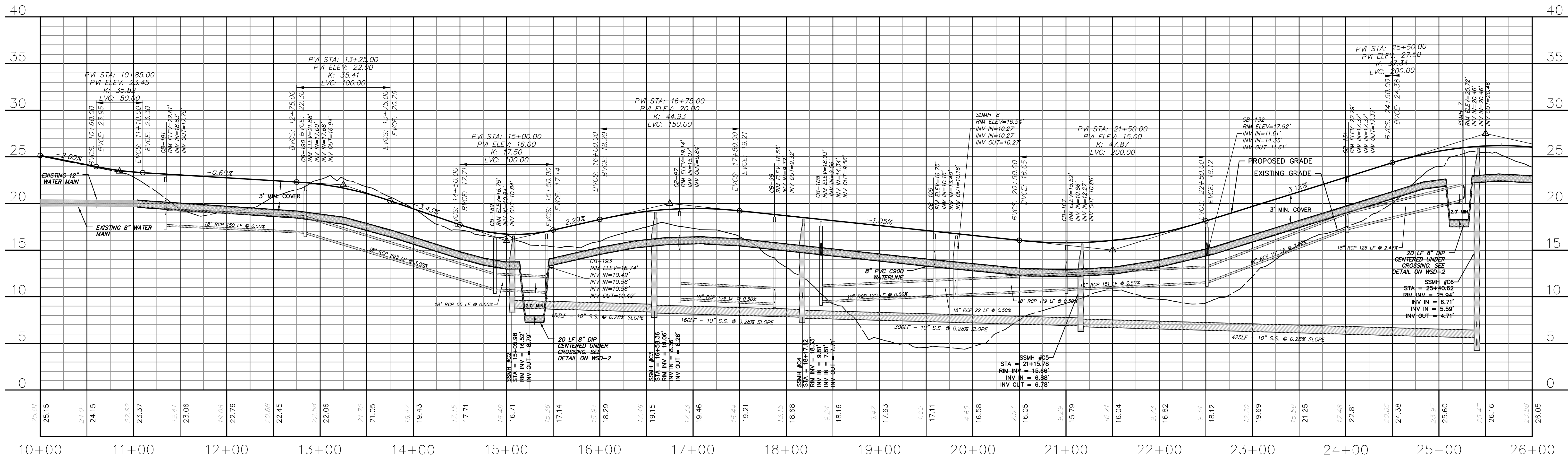
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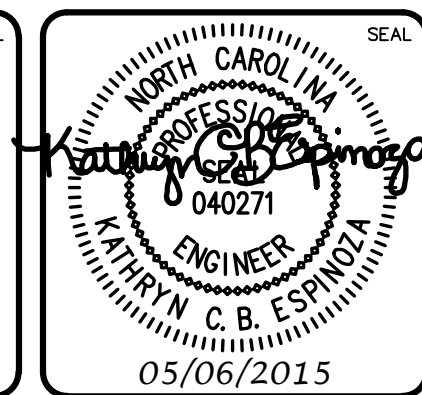
OLD TOWNE STREET  
(STA 10+00 TO 26+00)



OLD TOWNE STREET  
(STA 10+00 TO 26+00)

REV.	DESCRIPTION	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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**RIVERLIGHTS**  
Newland by COMMUNITIES  
NORTH AMERICA SENIUS HOUSE, LLC

**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**  
PLAN AND PROFILE STA 10+00 TO  
STA 26+00

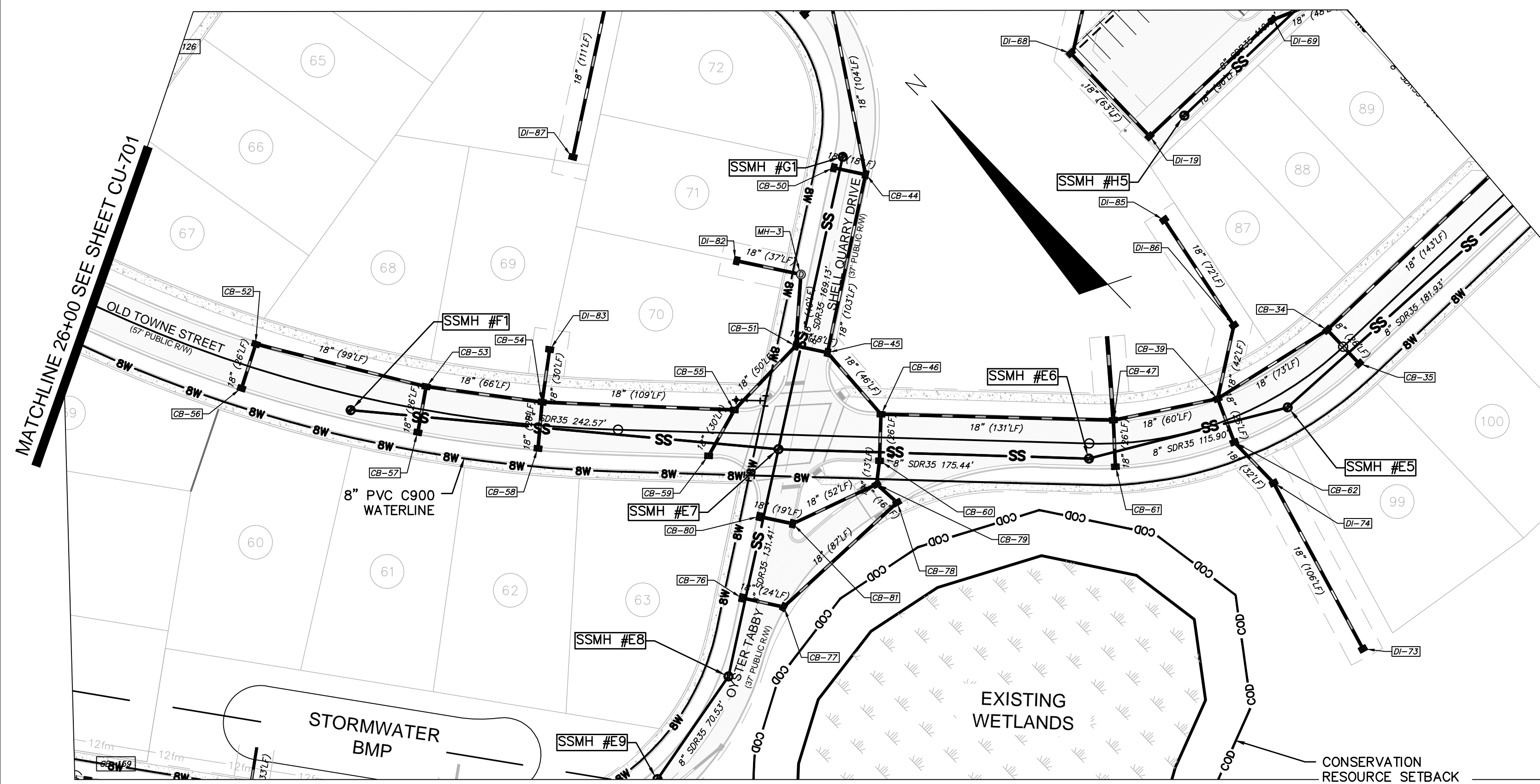
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PROJ. MGR.: RMC

SCALE: 1"=50' (Horiz.)  
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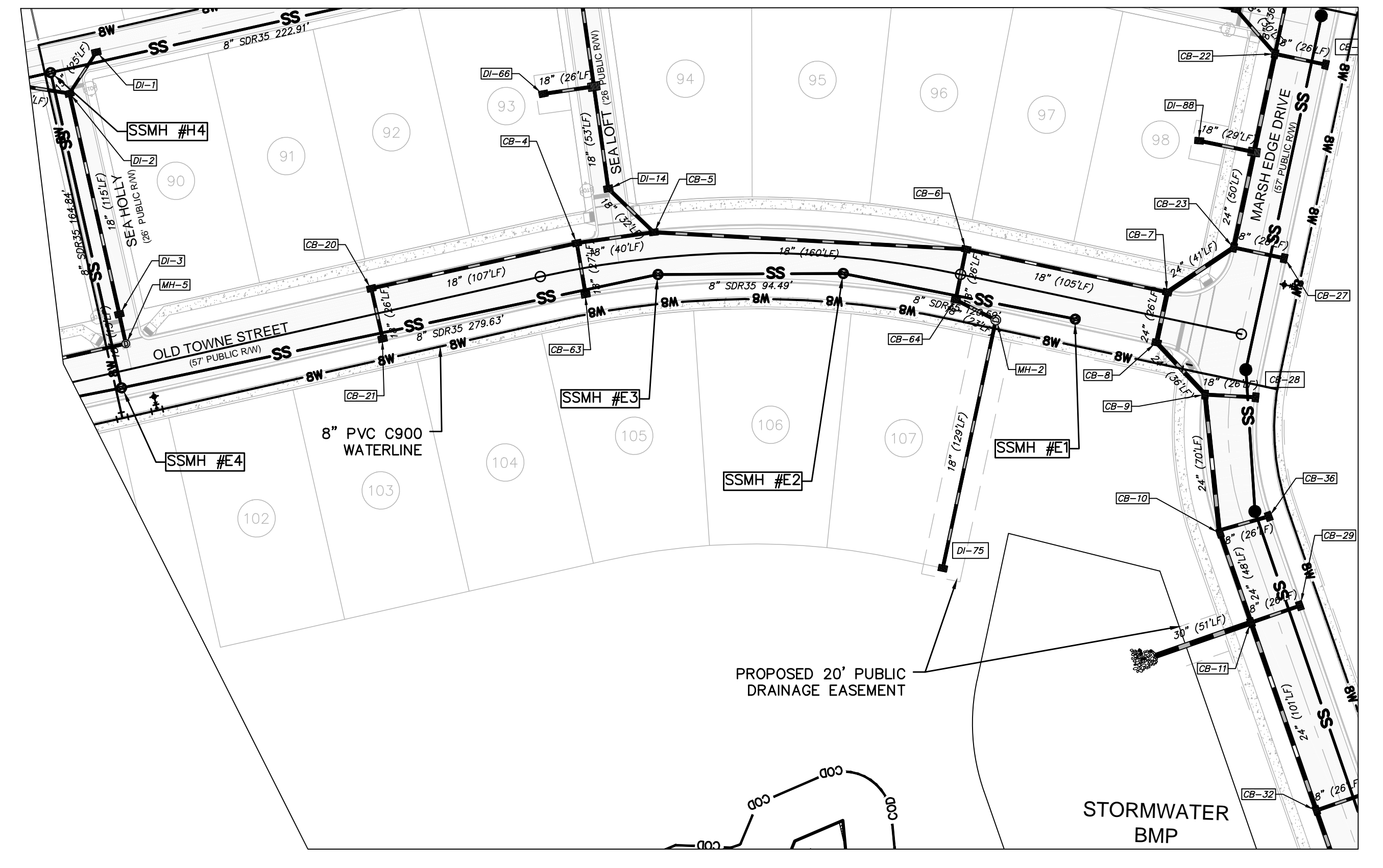
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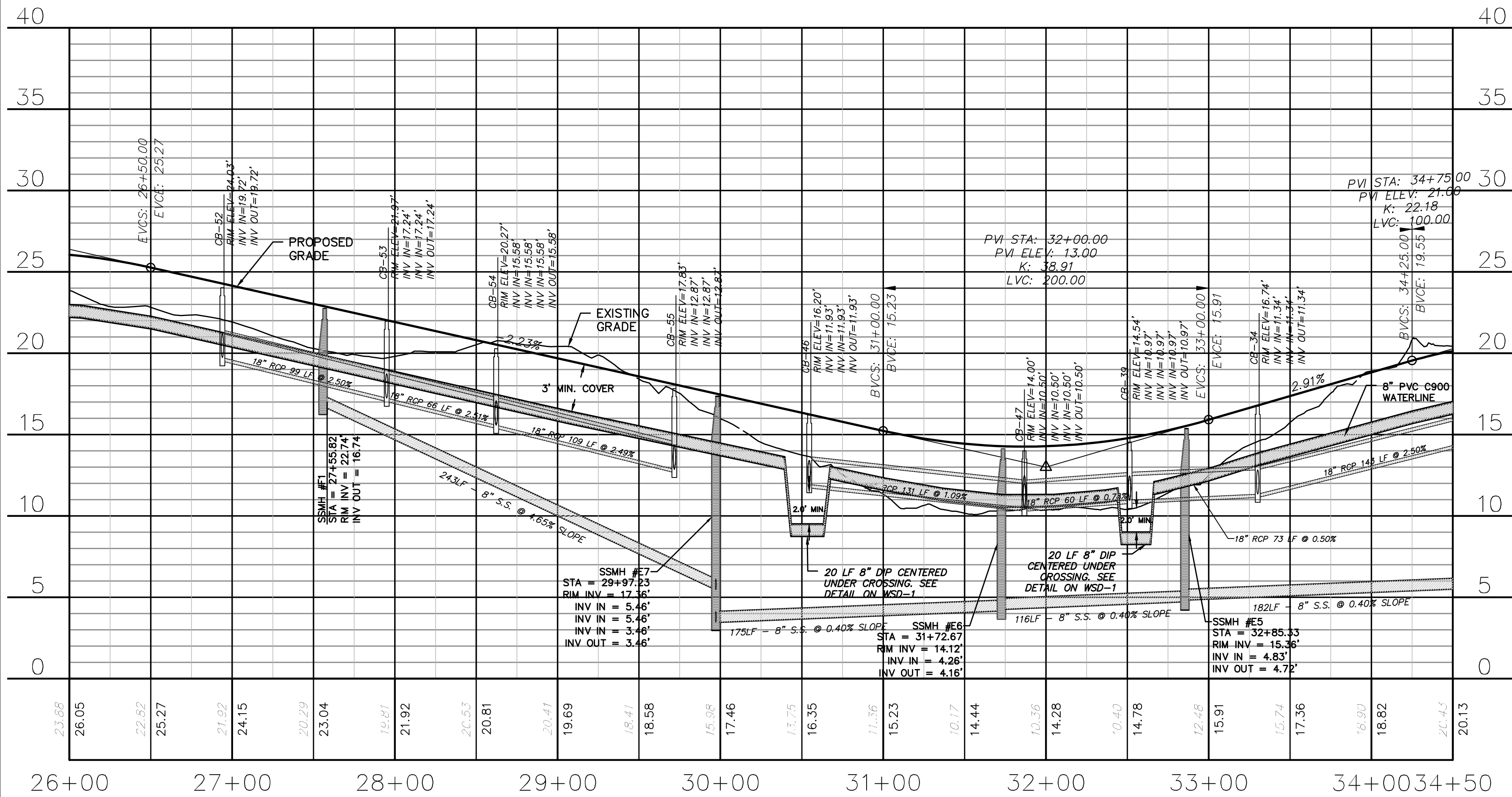
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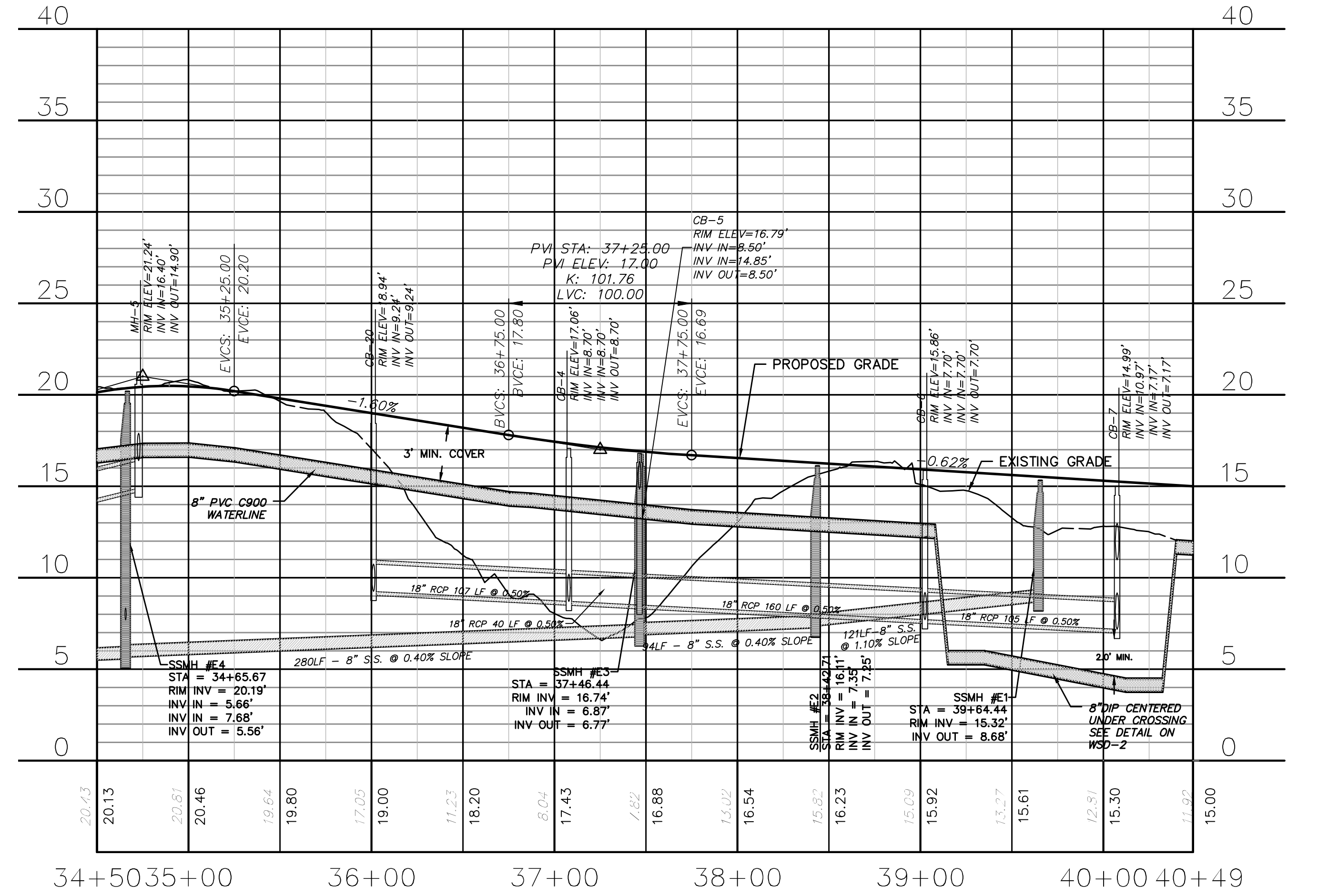
OLD TOWNE STREET  
(STA 26+00 TO 34+50)



OLD TOWNE STREET  
(STA 34+50 TO 40+57.83)



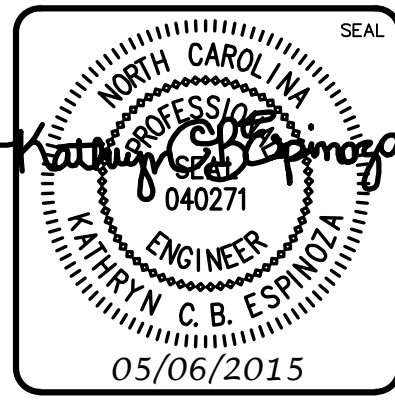
OLD TOWNE STREET  
(STA 26+00 TO 34+50)



OLD TOWNE STREET  
(STA 34+50 TO 40+57.83)

REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

FINAL DRAWINGS  
DO NOT USE FOR  
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Newland by COMMUNITIES  
NORTH AMERICA SENIUS HOUSE, LLC

**RIVERLIGHTS**  
CONVENTIONAL NEIGHBORHOOD PH. 1  
PLAN AND PROFILE STA 26+00 TO  
STA 40+57.83

DATE: 04-29-2015  
MCE PROJ. #: 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR.: RMC

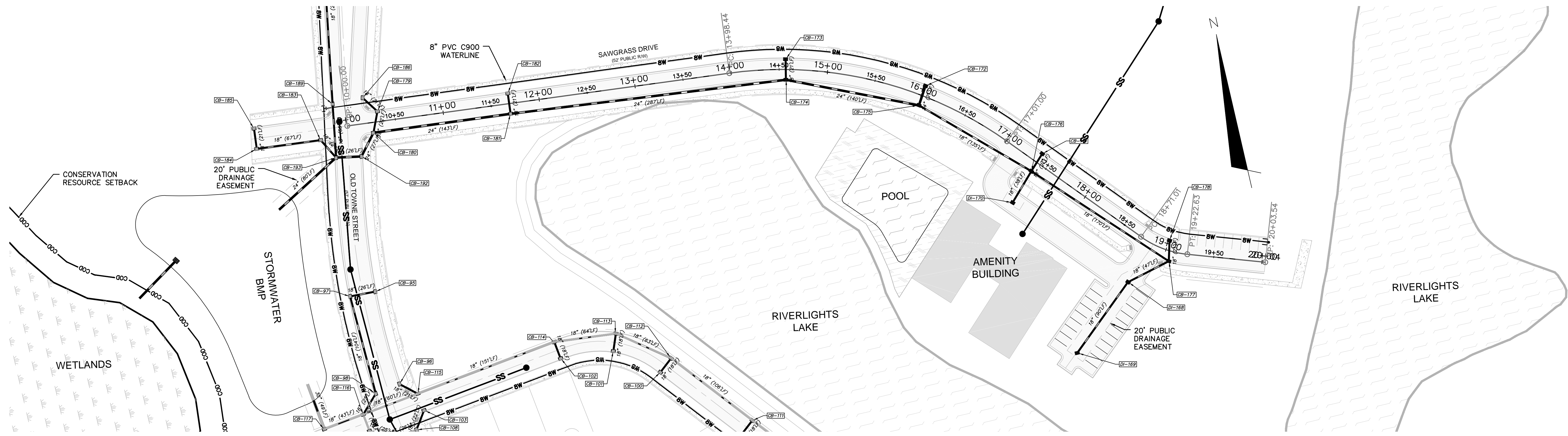
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HORIZONTAL: 1"=50'  
VERTICAL: 1"=5'

STATUS: FINAL DESIGN  
NOT FOR CONSTRUCTION

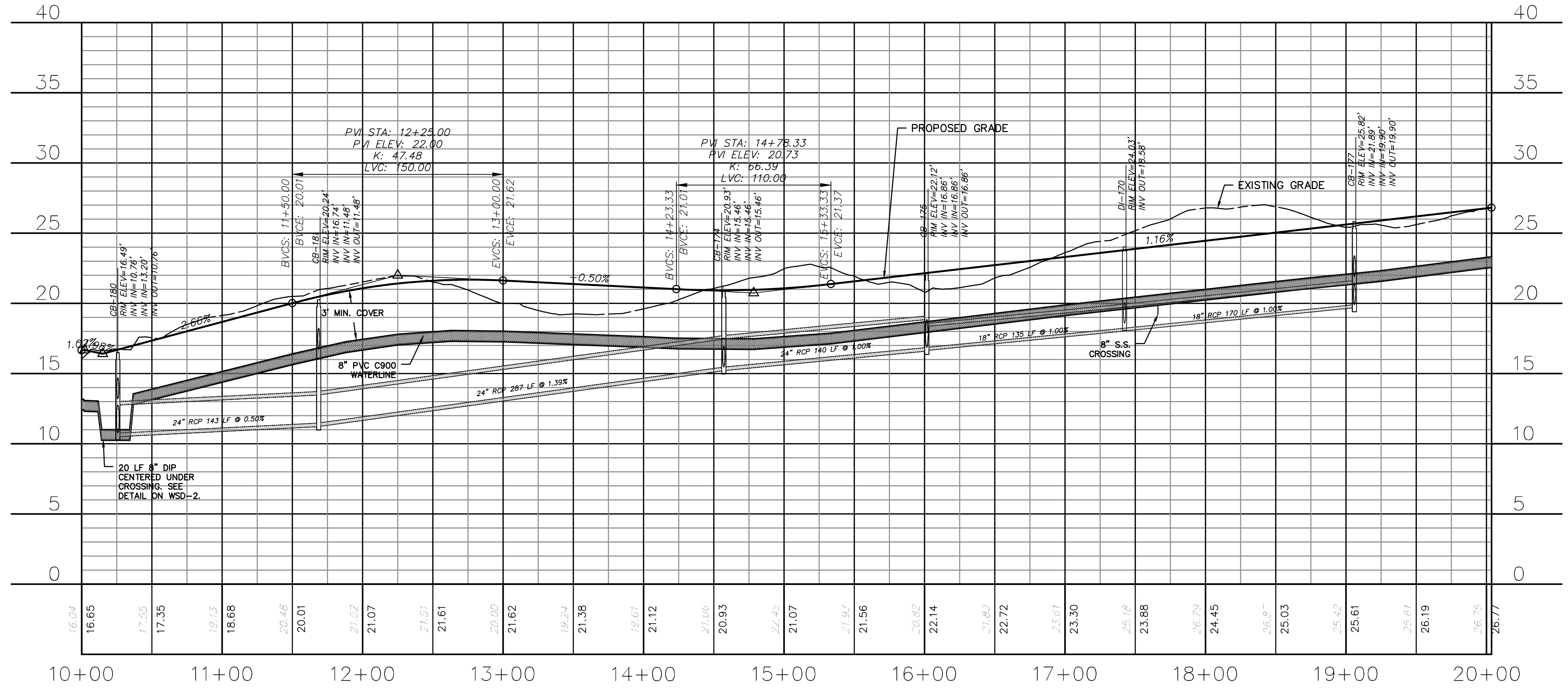
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DRAWING NUMBER: 18  
REVISION: B

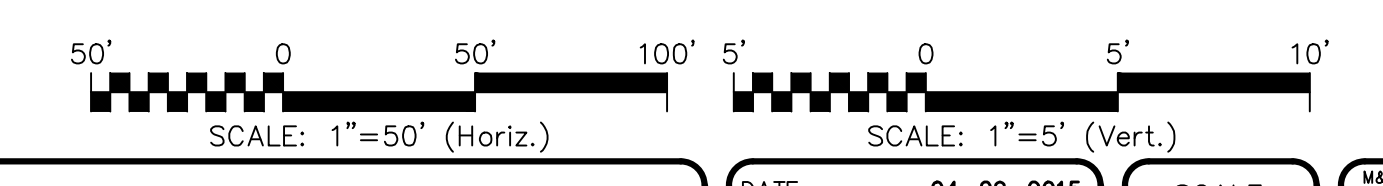
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SAWGRASS DRIVE PLAN  
(STA 10+00 TO 20+03.54)

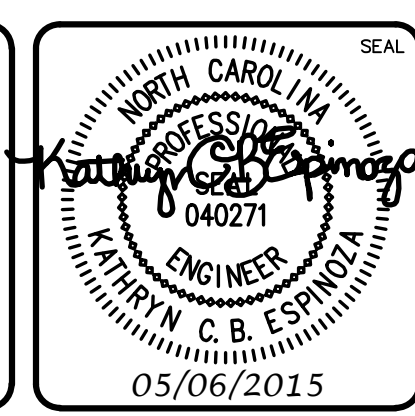


SAWGRASS DRIVE PROFILE  
(STA 10+00 TO 20+03.54)



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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**PLAN AND PROFILE STA 10+00 TO  
STA 20+03.54**

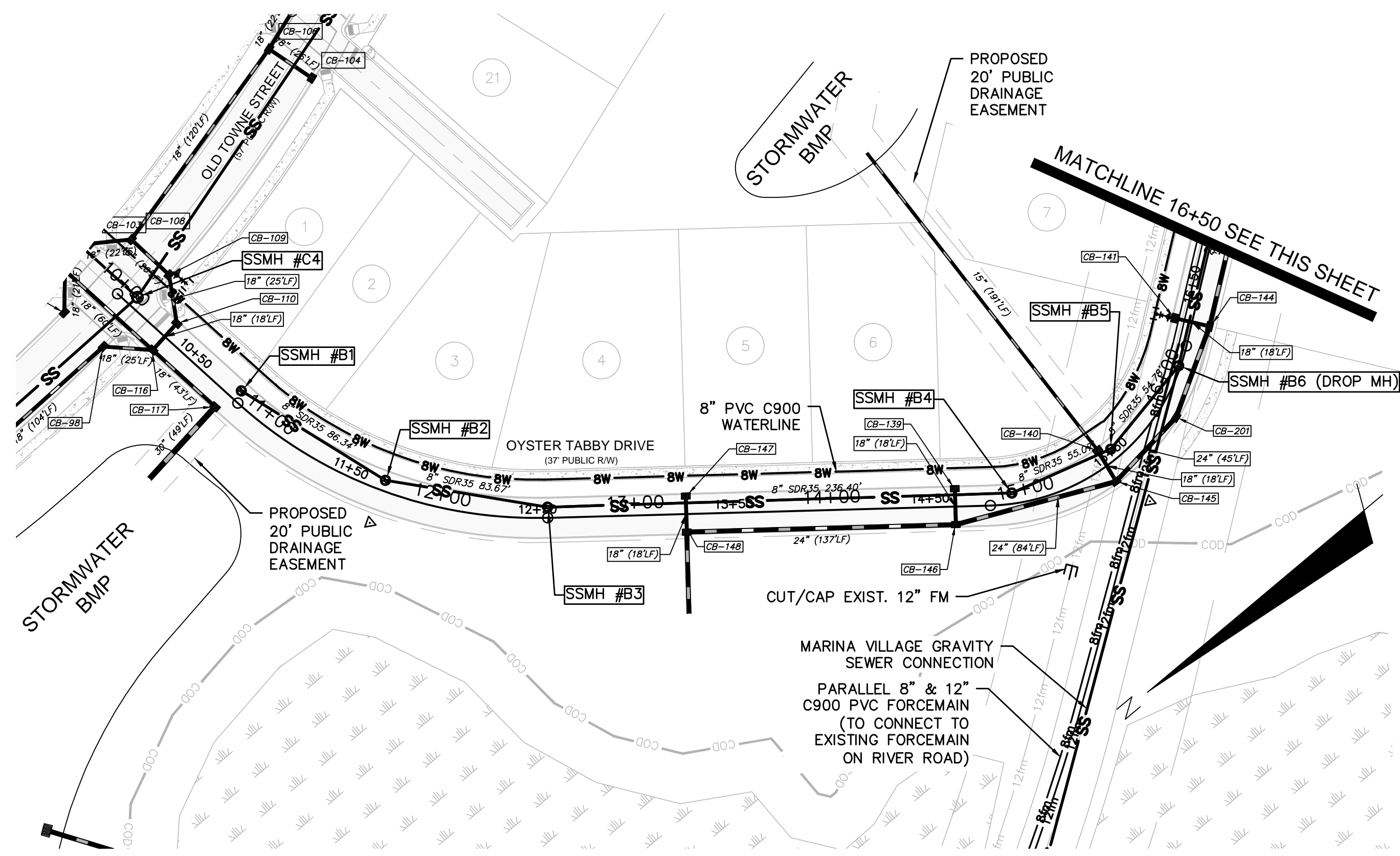
DATE: 04-29-2015  
MCE PROJ. # 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR: RMC

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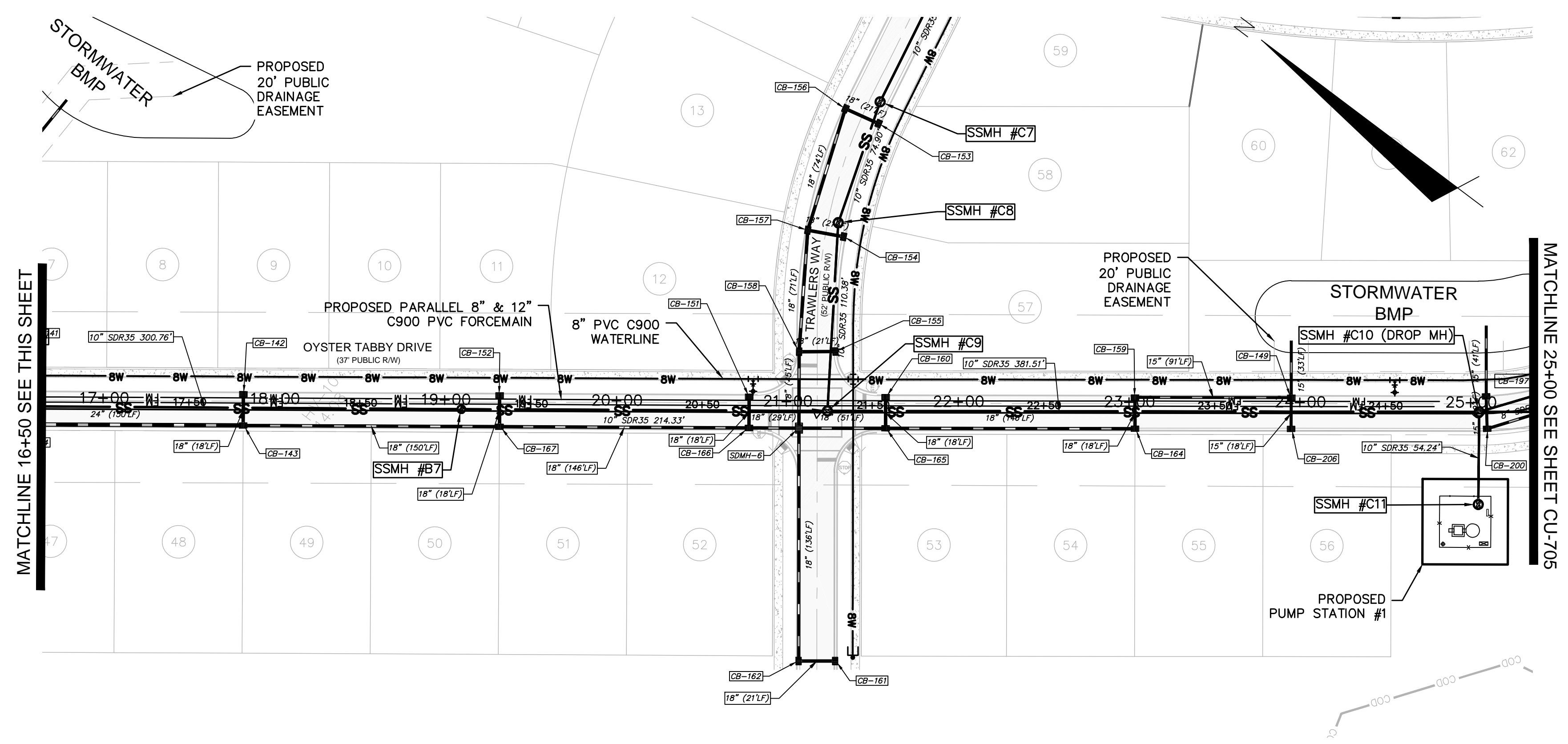
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DRAWING NUMBER: 19  
REVISION: B

STATUS: FINAL DESIGN  
NOT FOR CONSTRUCTION

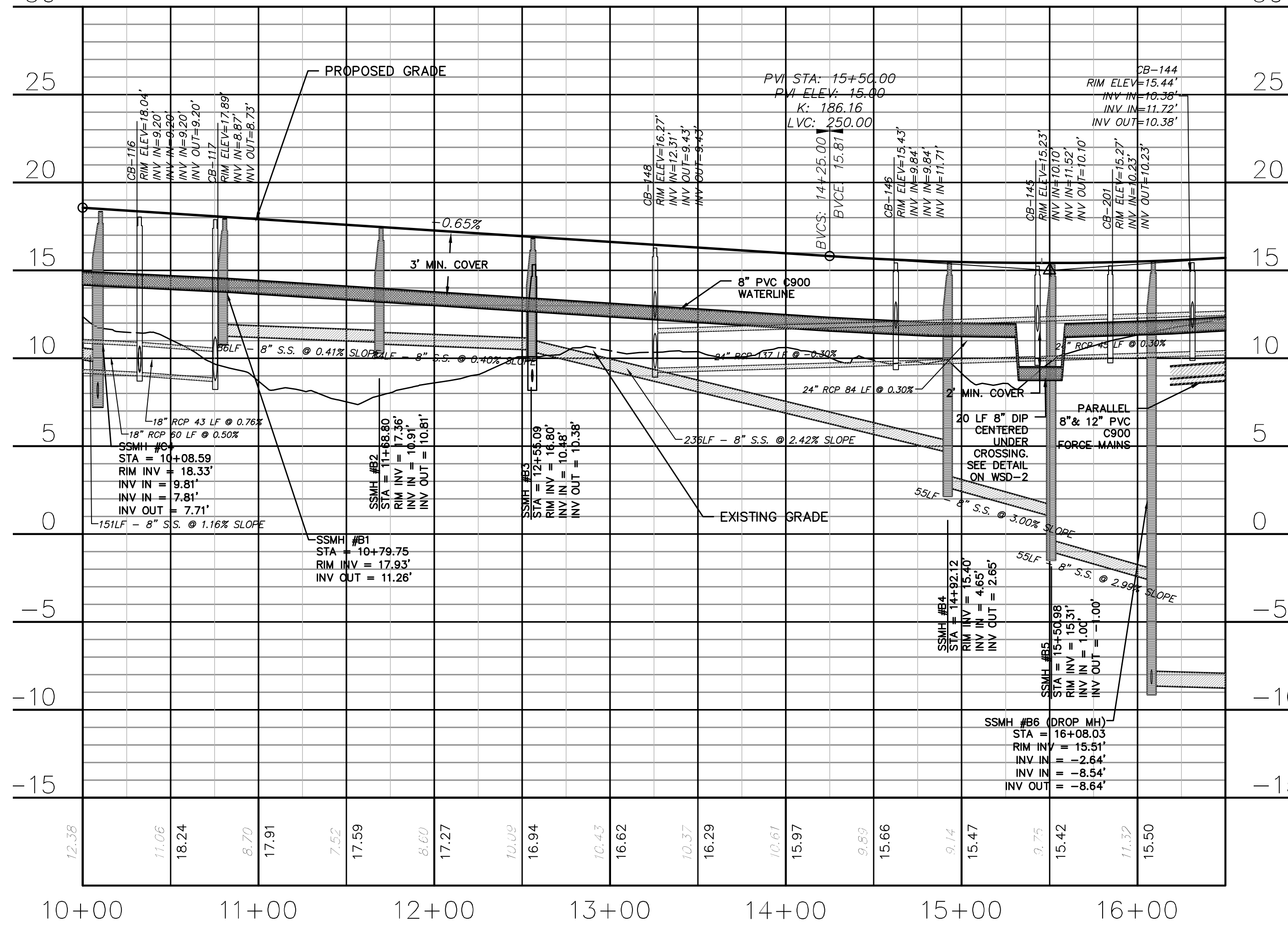
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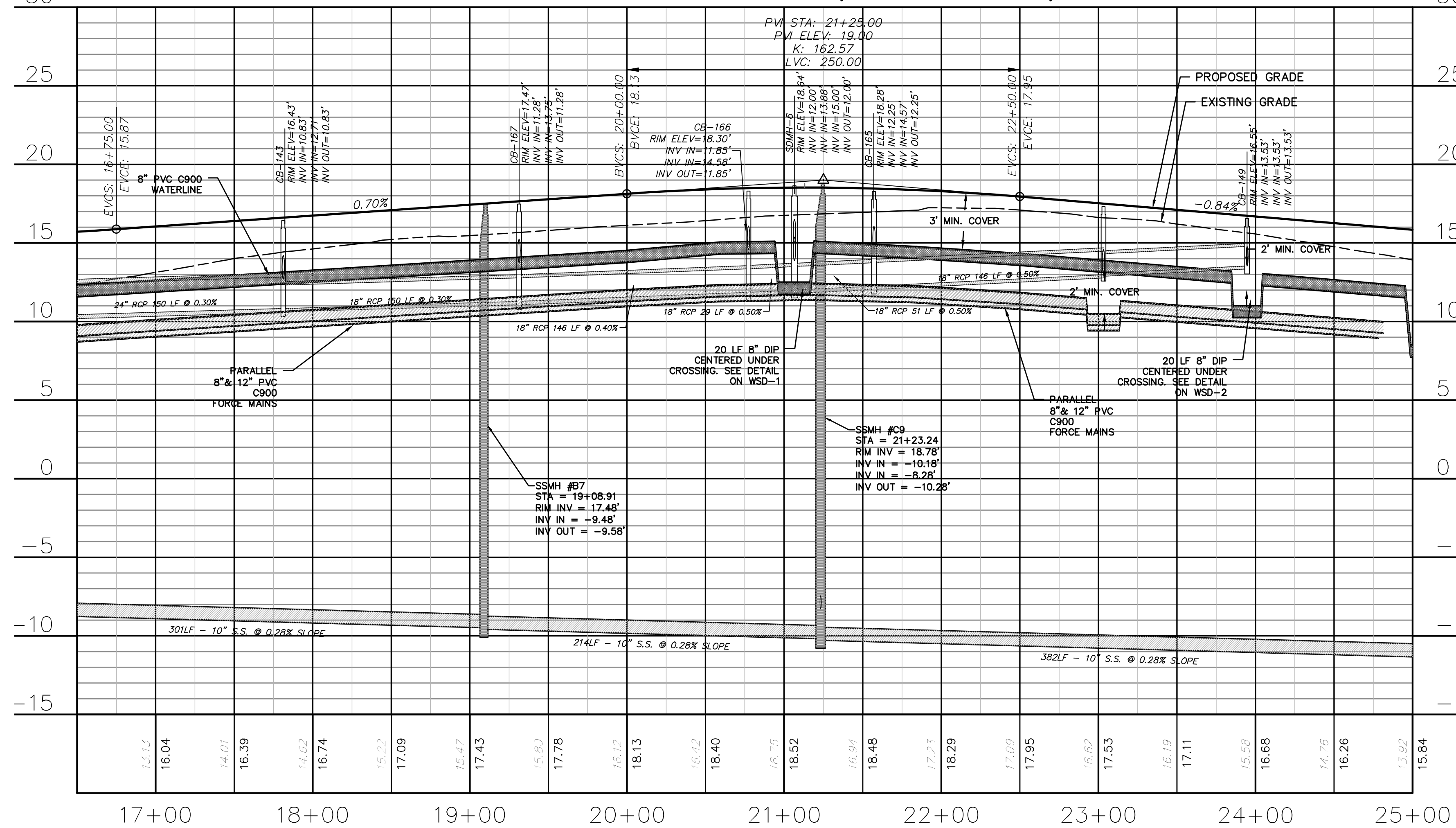
OYSTER TABBY DRIVE (STA 10+00 TO 16+50)



OYSTER TABBY DRIVE (STA 16+50 TO 25+00)



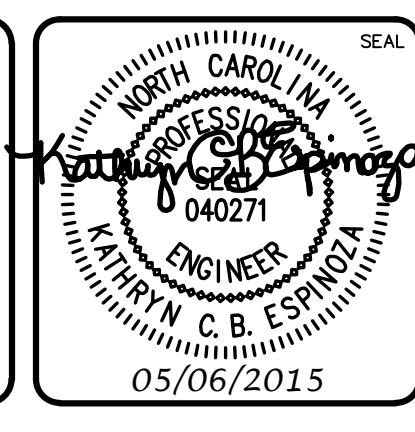
OYSTER TABBY DRIVE (STA 10+00 TO 16+50)



OYSTER TABBY DRIVE (STA 16+50 TO 25+00)

REV.	DESCRIPTION	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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PLAN AND PROFILE STA 10+00 TO  
STA 25+00

DATE: 04-29-2015  
MCE PROJ. #: 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR.: RMC

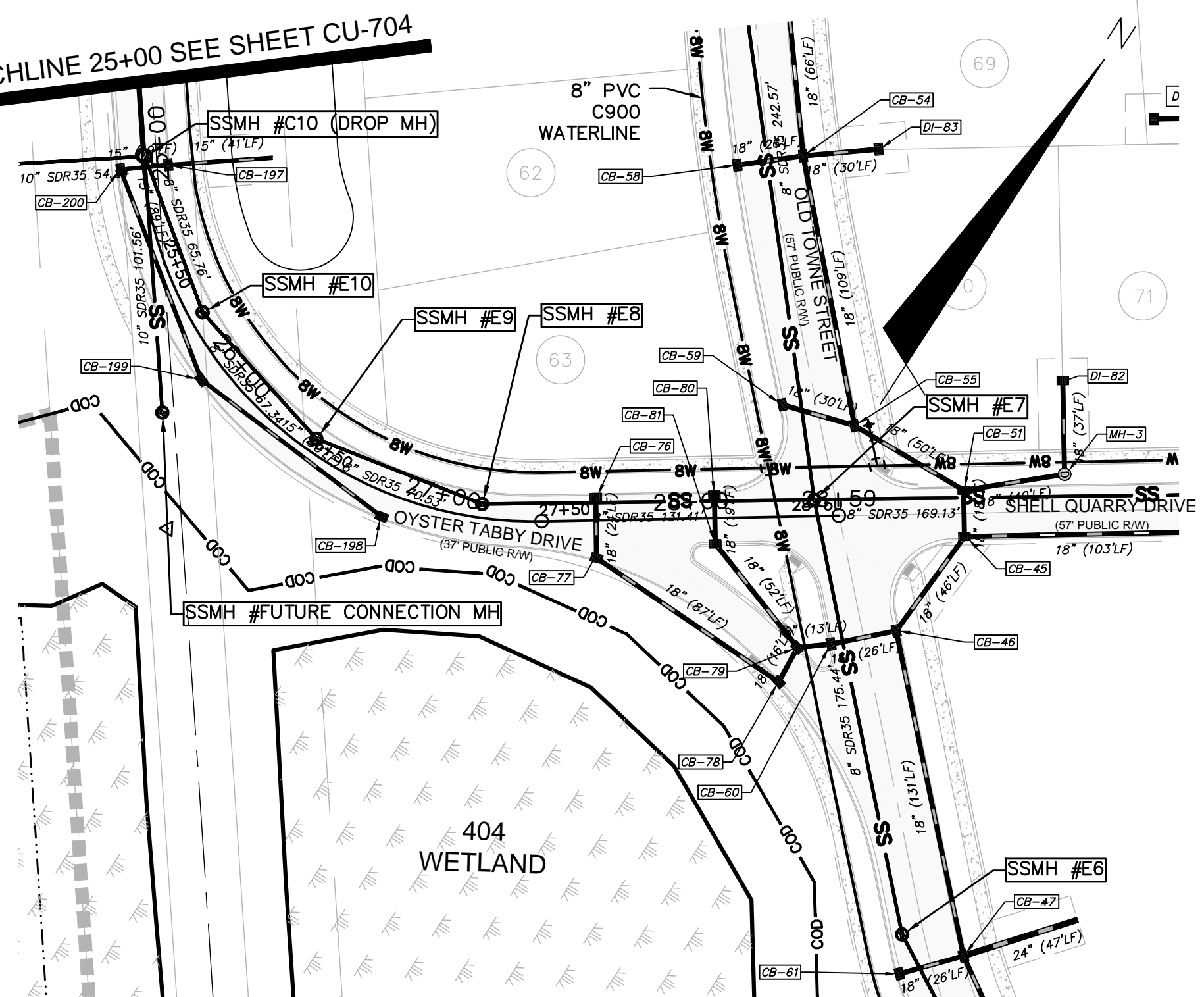
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VERTICAL: 1"=5'

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DRAWING NUMBER: 20  
REVISION: B

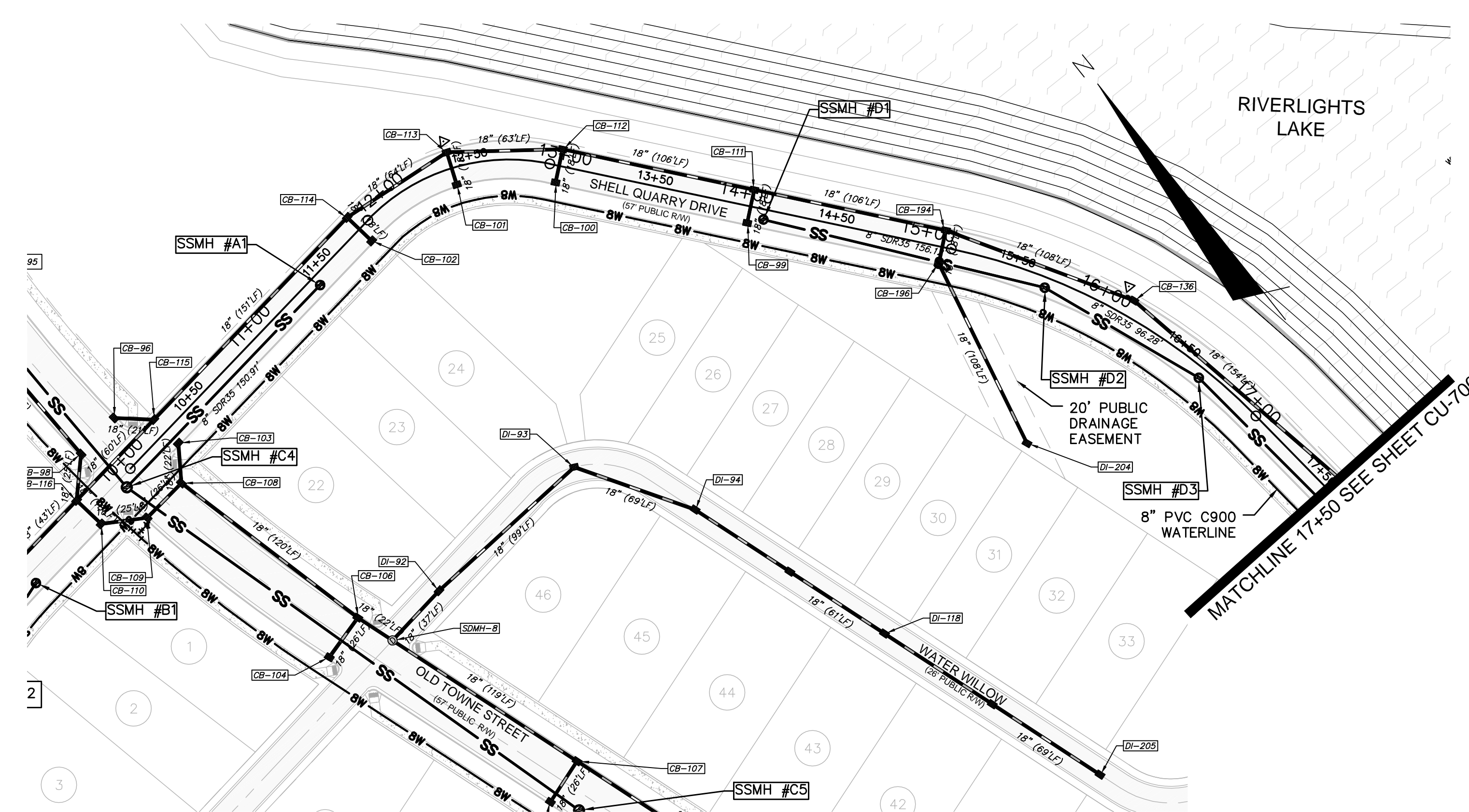
STATUS: FINAL DESIGN  
NOT FOR CONSTRUCTION

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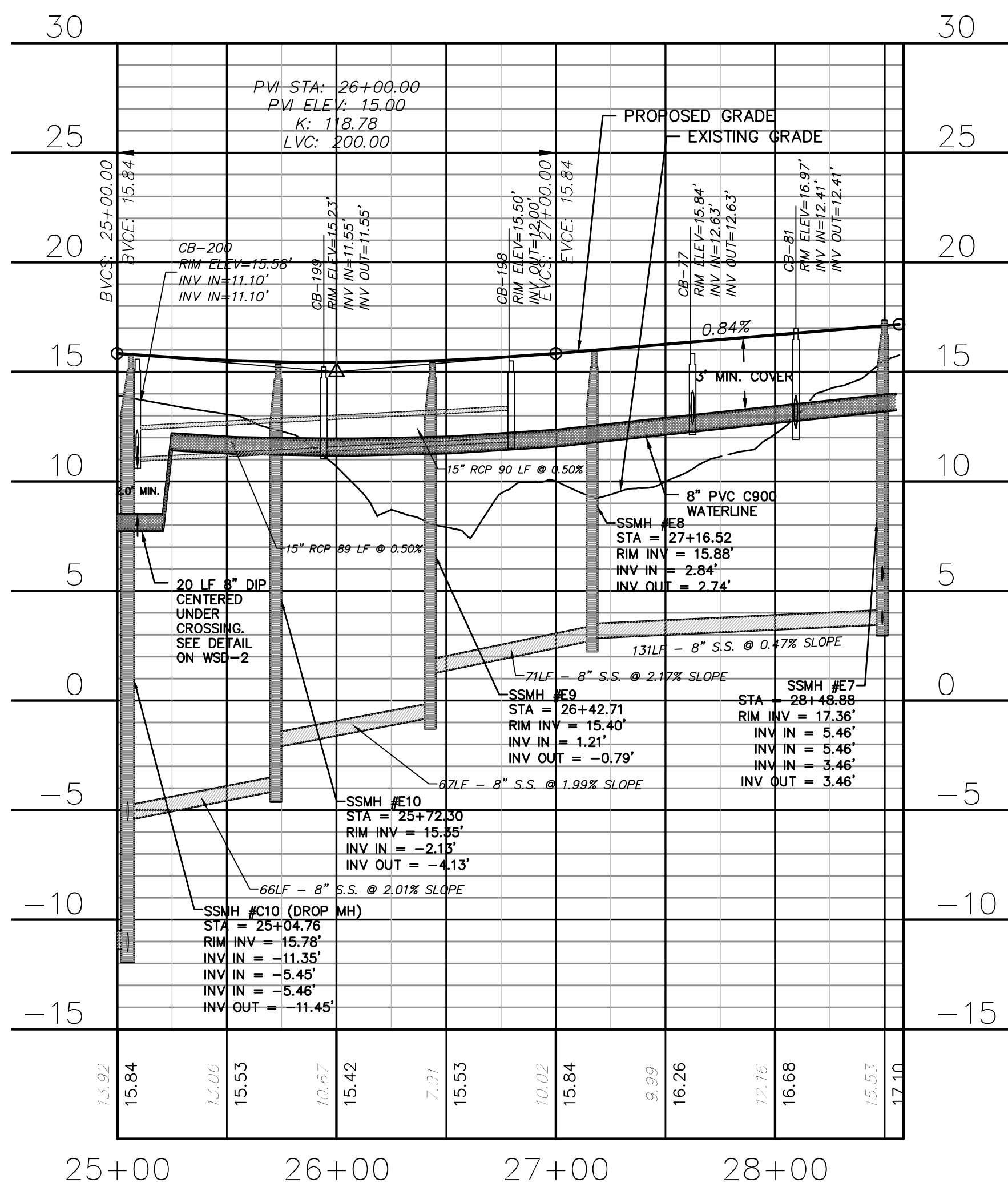
MATCHLINE 25+00 SEE SHEET CU-704



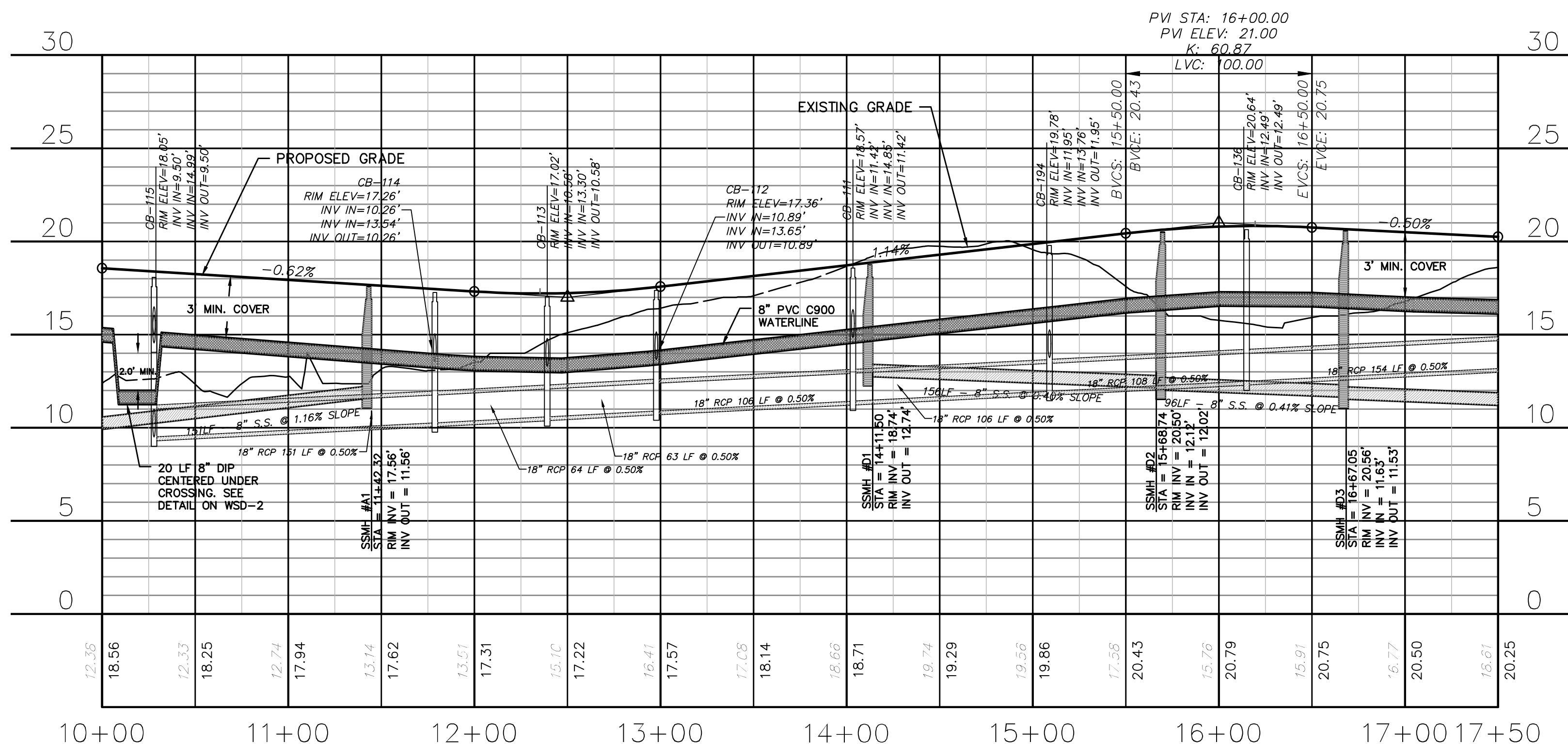
OYSTER TABBY DRIVE  
(STA 25+00 TO 28+35.63)



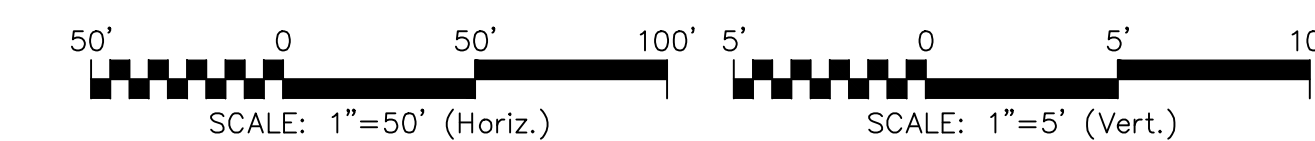
SHELL QUARRY DRIVE  
(STA 10+00 TO 17+50)



OYSTER TABBY DRIVE  
(STA 25+00 TO 28+35.63)

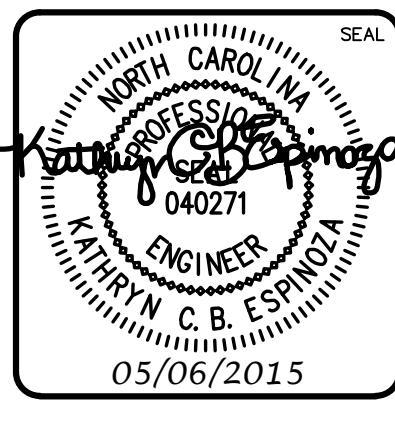


SHELL QUARRY DRIVE  
(STA 10+00 TO 17+50)



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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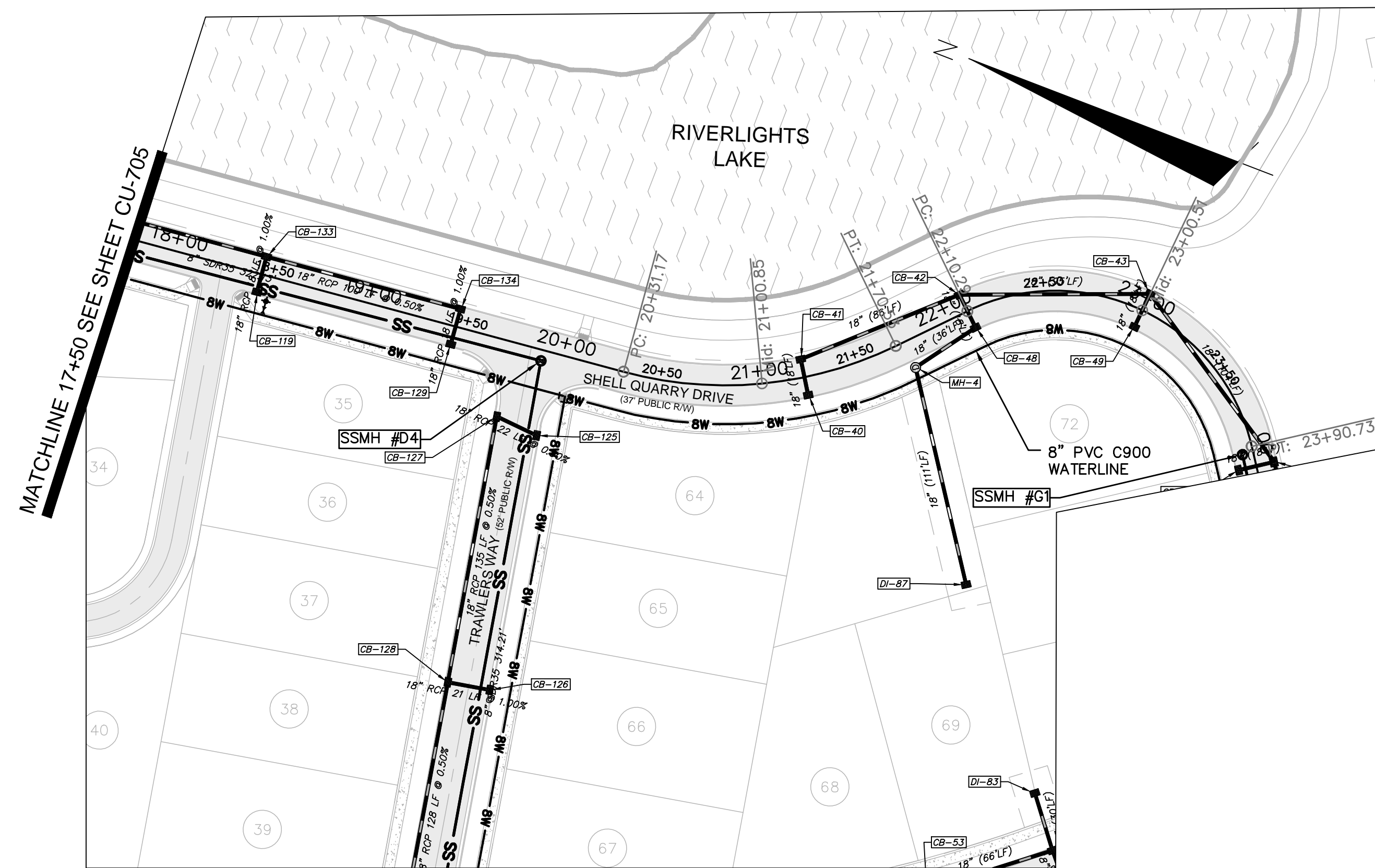
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**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**  
PLAN AND PROFILE STA 25+00 TO  
STA 28+35.63/STA 10+00 TO STA  
17+50

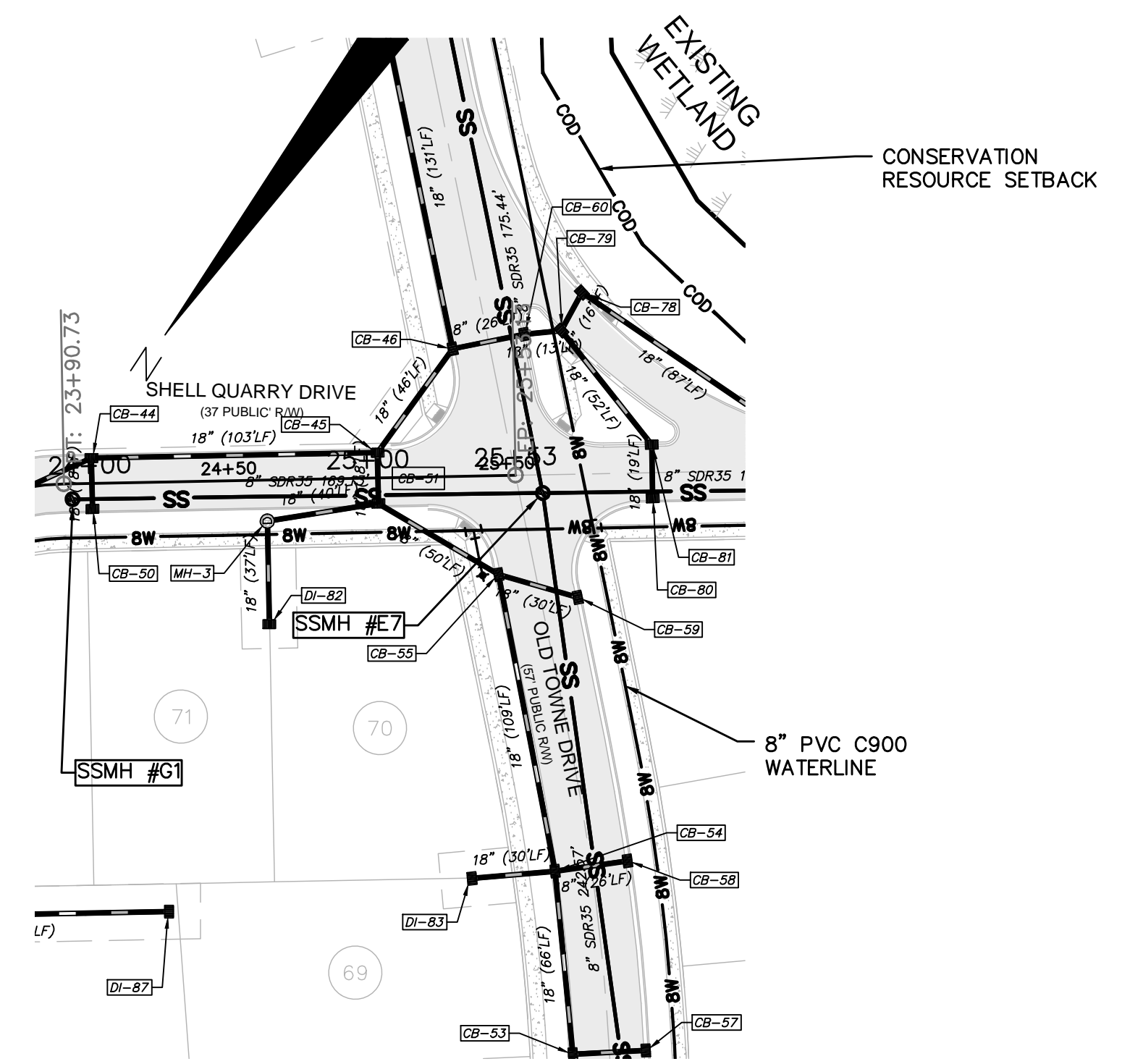
DATE:	04-29-2015
MCE PROJ. #	02735-0129
DRAWN	EEM/KCBE
DESIGNED	KCBE
CHECKED	NJL
PROJ. MGR.	RMC

SCALE	MAC FILE NUMBER
HORIZONTAL: 1"=50'	CU-705
VERTICAL: 1"=5'	DRAWING NUMBER
	21
STATUS: FINAL DESIGN	REVISION
NOT FOR CONSTRUCTION	B

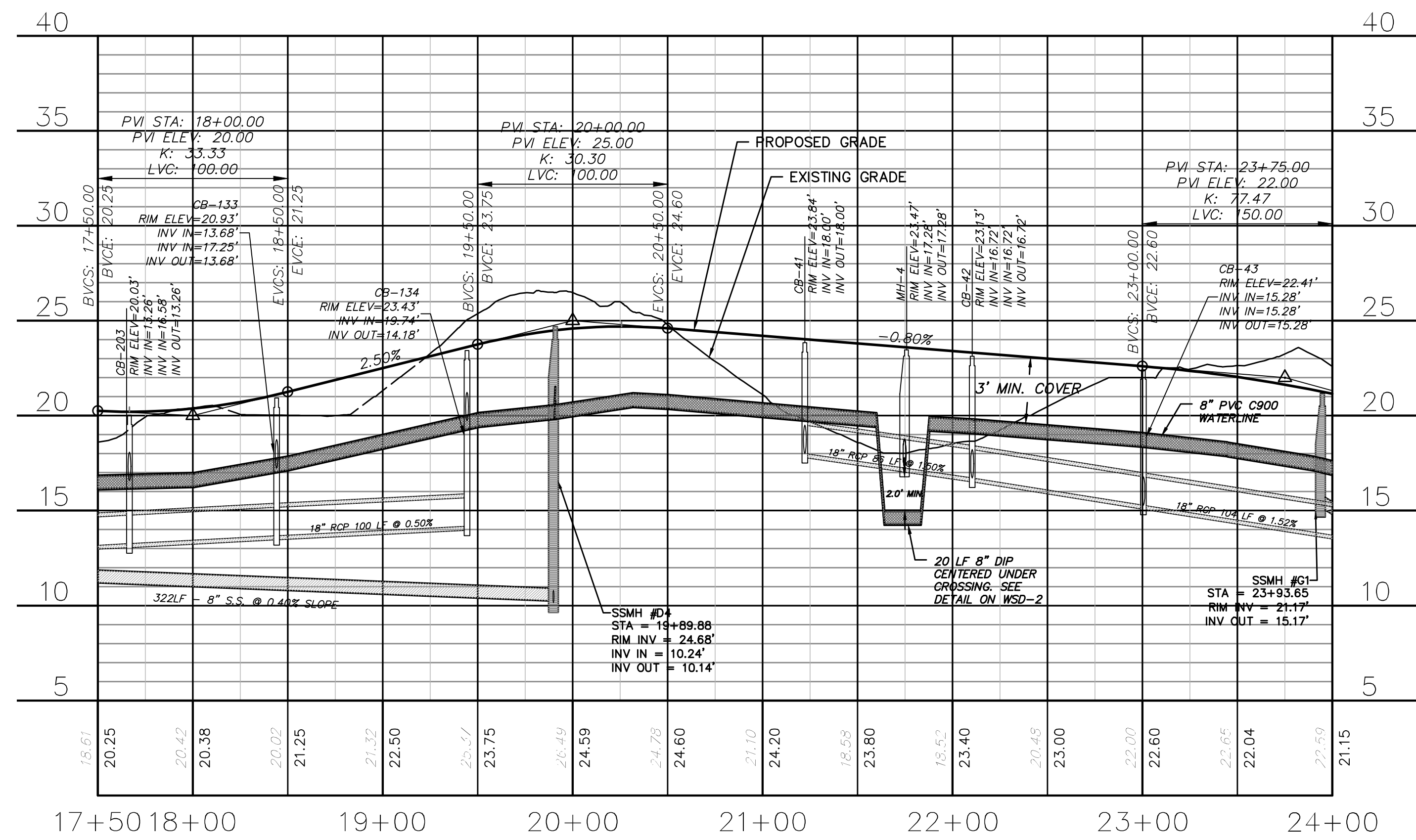
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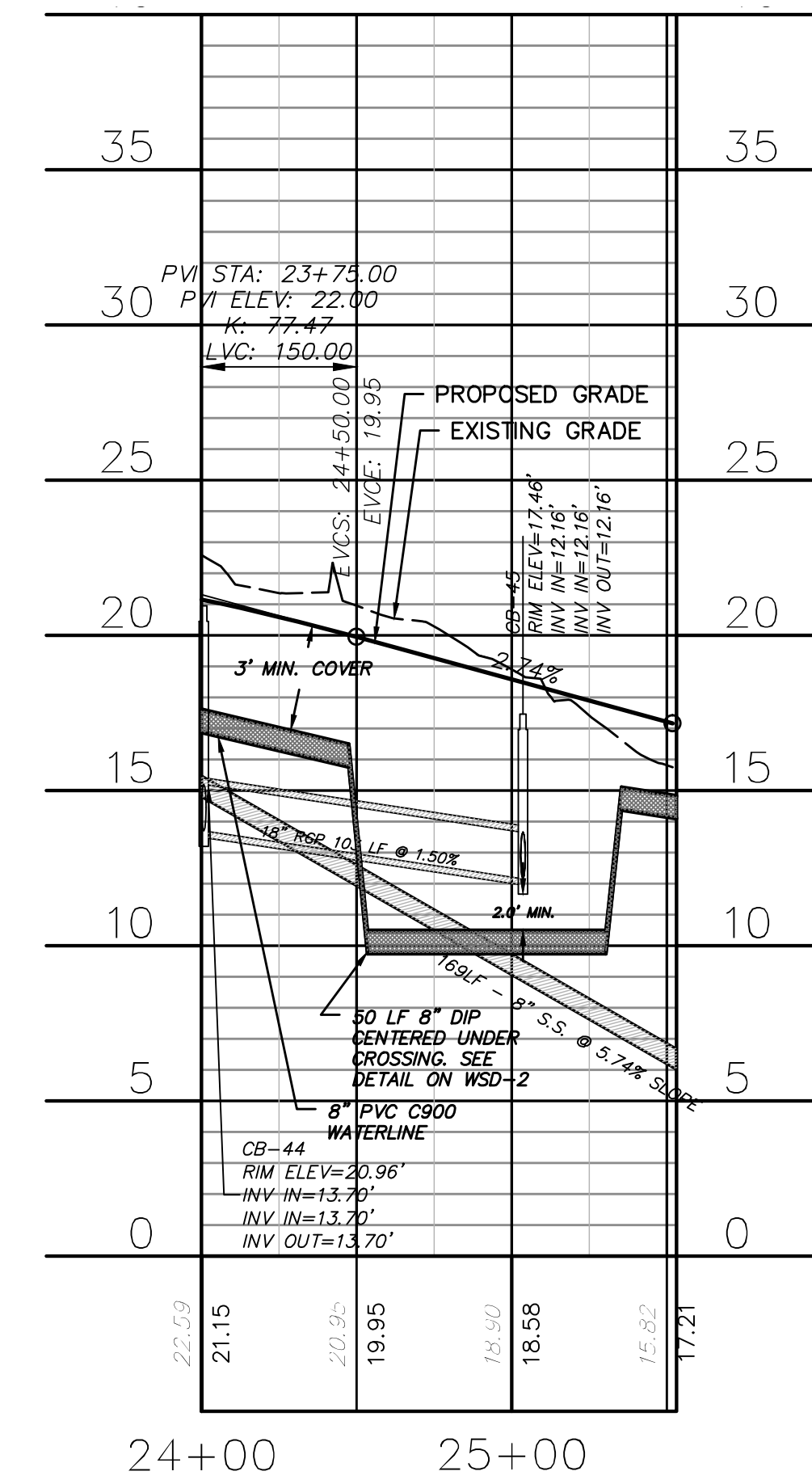
SHELL QUARRY DRIVE  
(STA 17+50 TO 24+00)



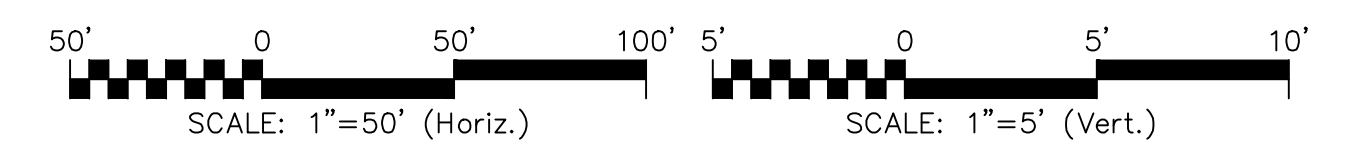
SHELL QUARRY DRIVE  
(STA 24+00 TO 26+07.14)



SHELL QUARRY DRIVE  
(STA 17+50 TO 24+00)

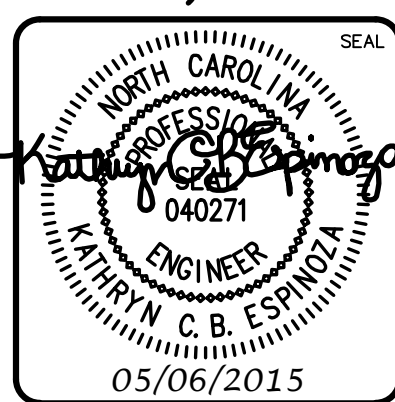


SHELL QUARRY DRIVE  
(STA 24+00 TO 26+07.14)



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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PLAN AND PROFILE STA 17+50 TO  
STA 26+07.14

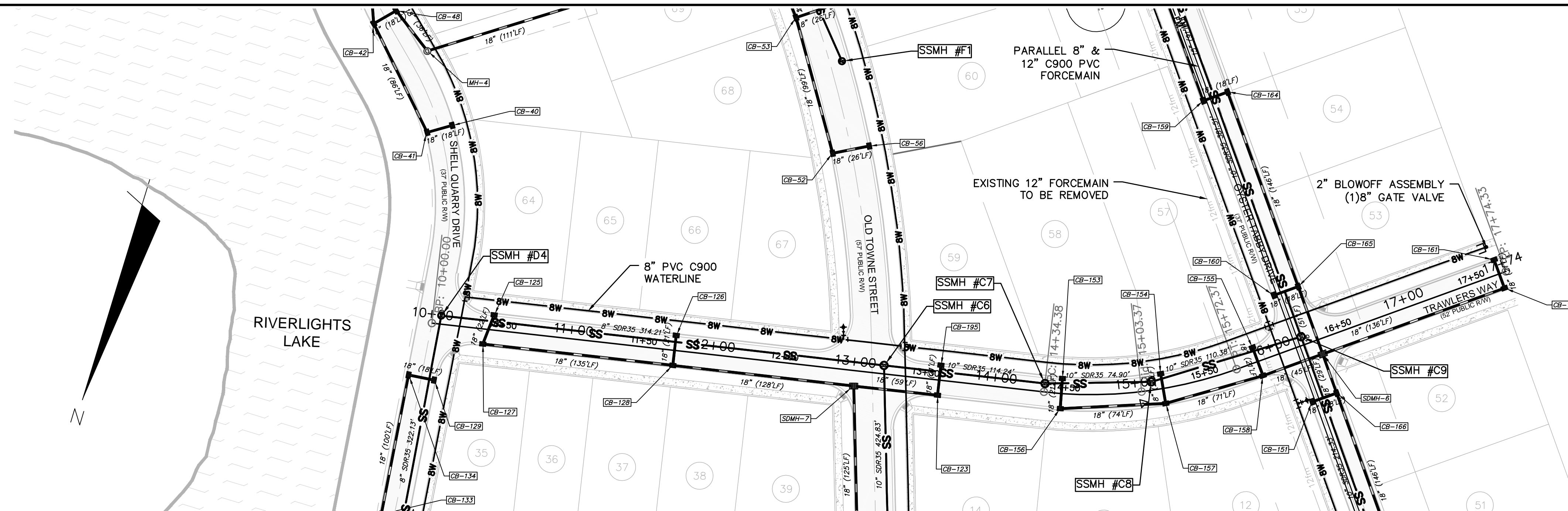
DATE: 04-29-2015  
MCE PROJ. #: 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR: RMC

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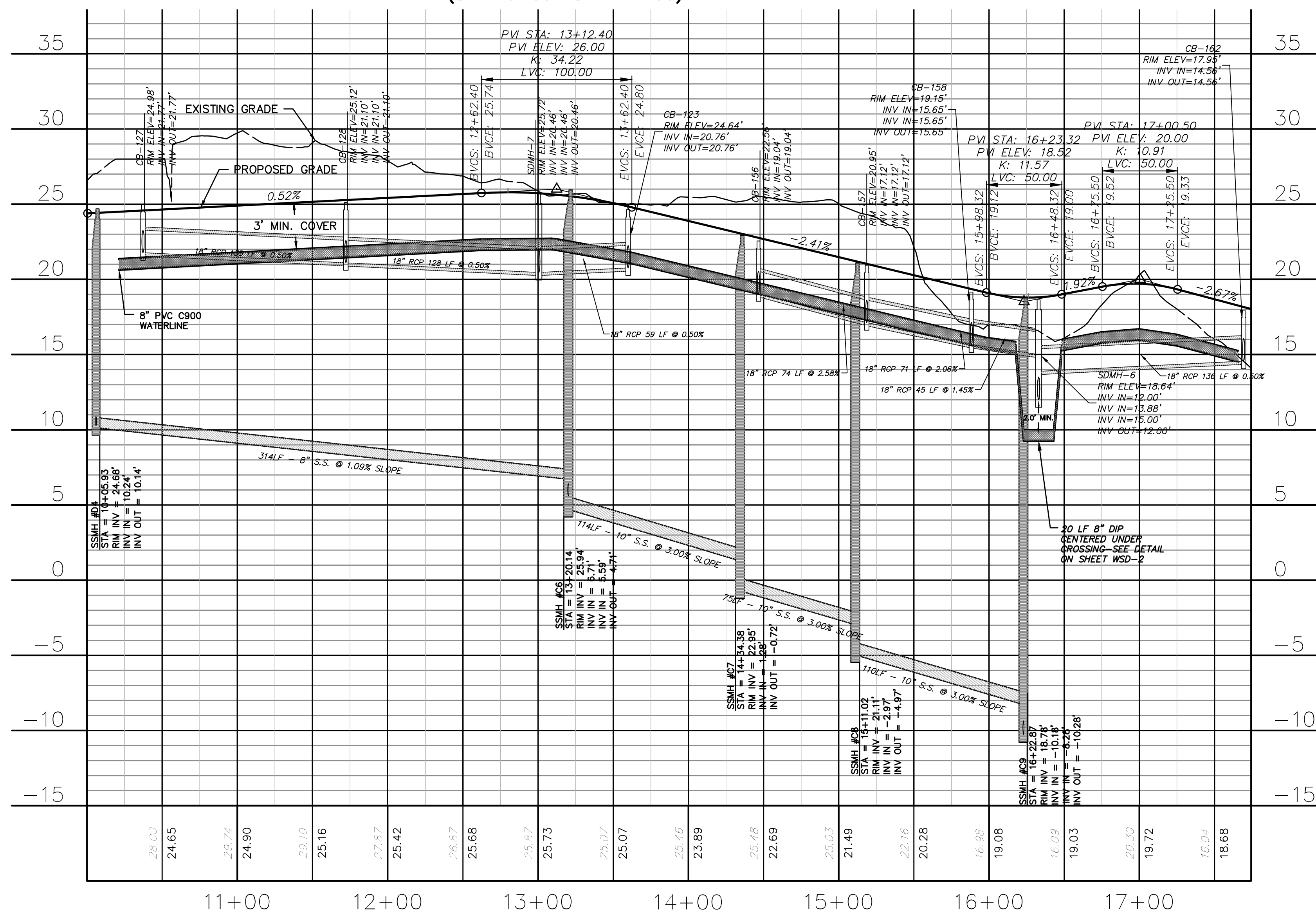
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NOT FOR CONSTRUCTION

MAC FILE NUMBER: CU-706  
DRAWING NUMBER: 22  
REVISION: B

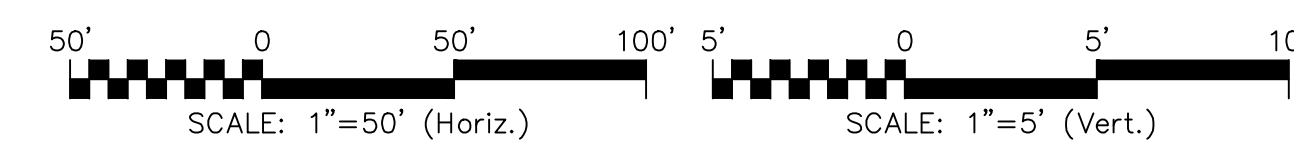
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TRAWLERS WAY  
(STA 10+00 TO 17+74.33)

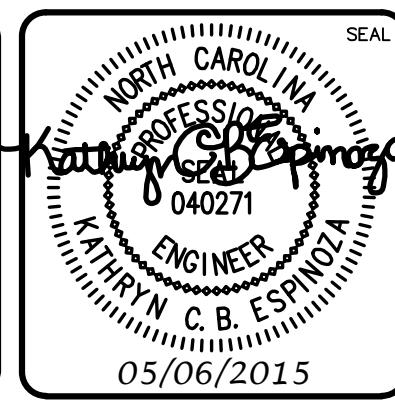


TRAWLERS WAY  
(STA 10+00 TO 17+74.33)



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1  
PLAN AND PROFILE STA 10+00 TO  
STA 17+74.33

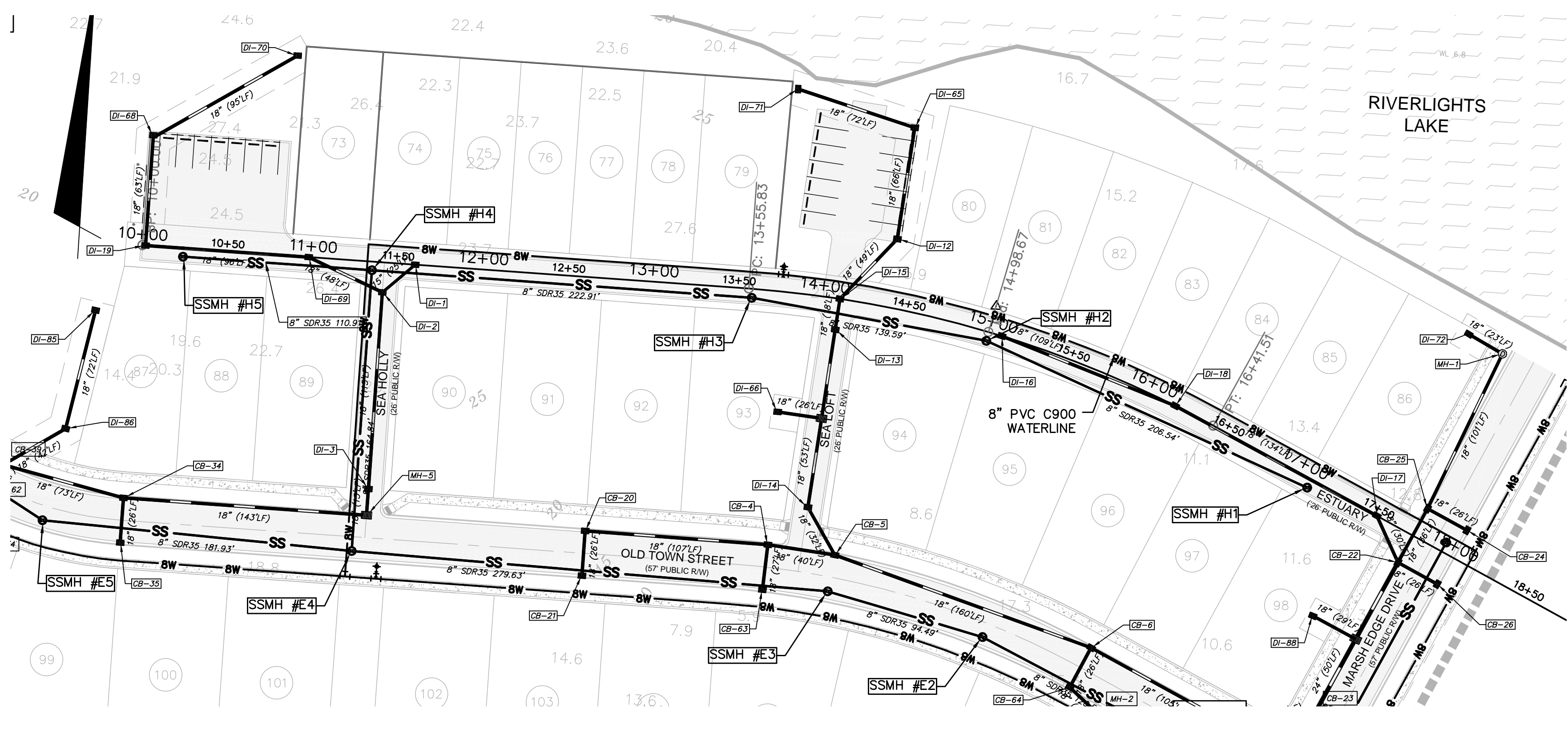
DATE: 04-29-2015  
MCE PROJ. # 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR: RMC

SCALE: 1"=50'  
HORIZONTAL: 1"=50'  
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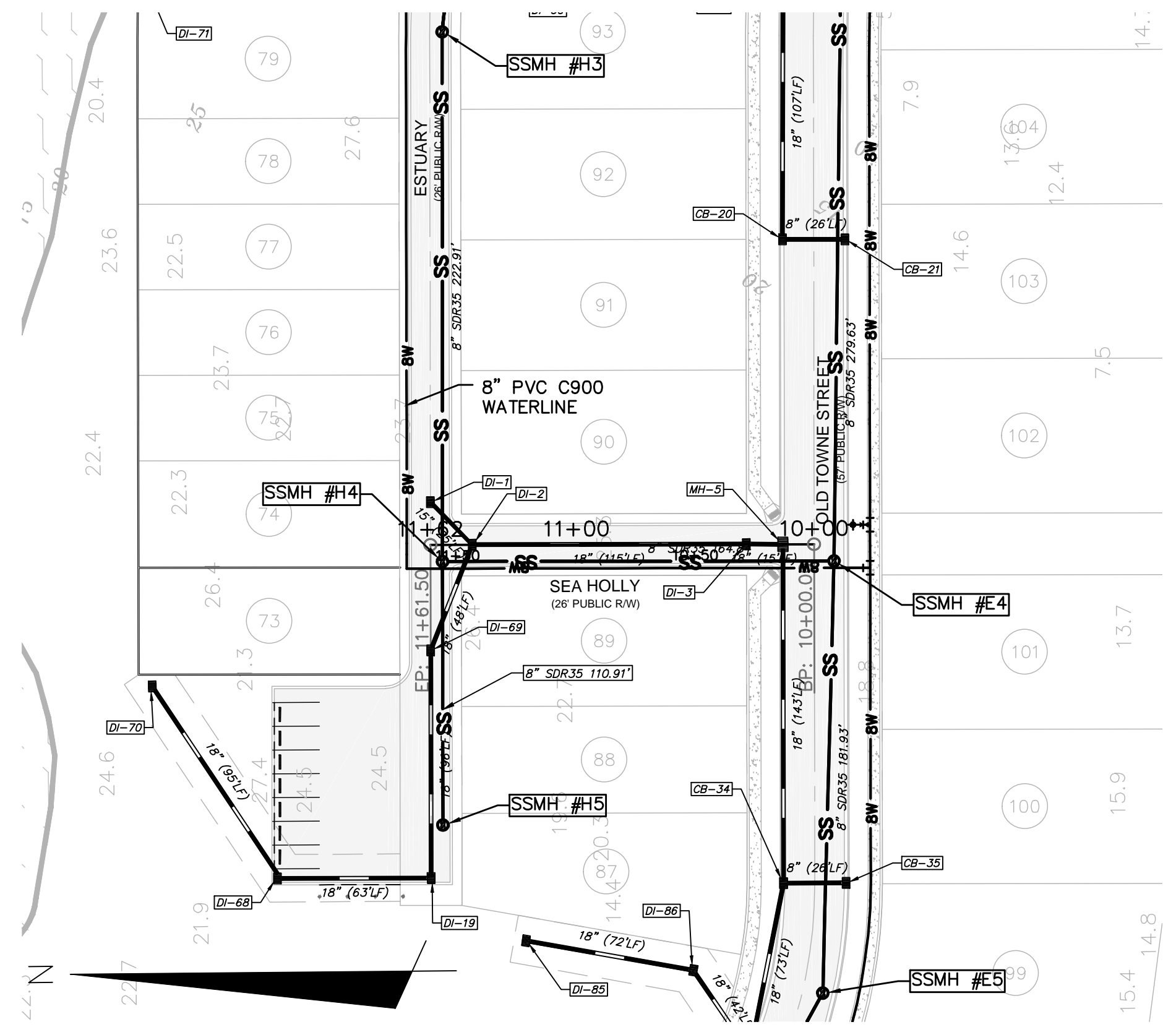
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DRAWING NUMBER: 23  
REVISION: B

STATUS: FINAL DESIGN  
NOT FOR CONSTRUCTION

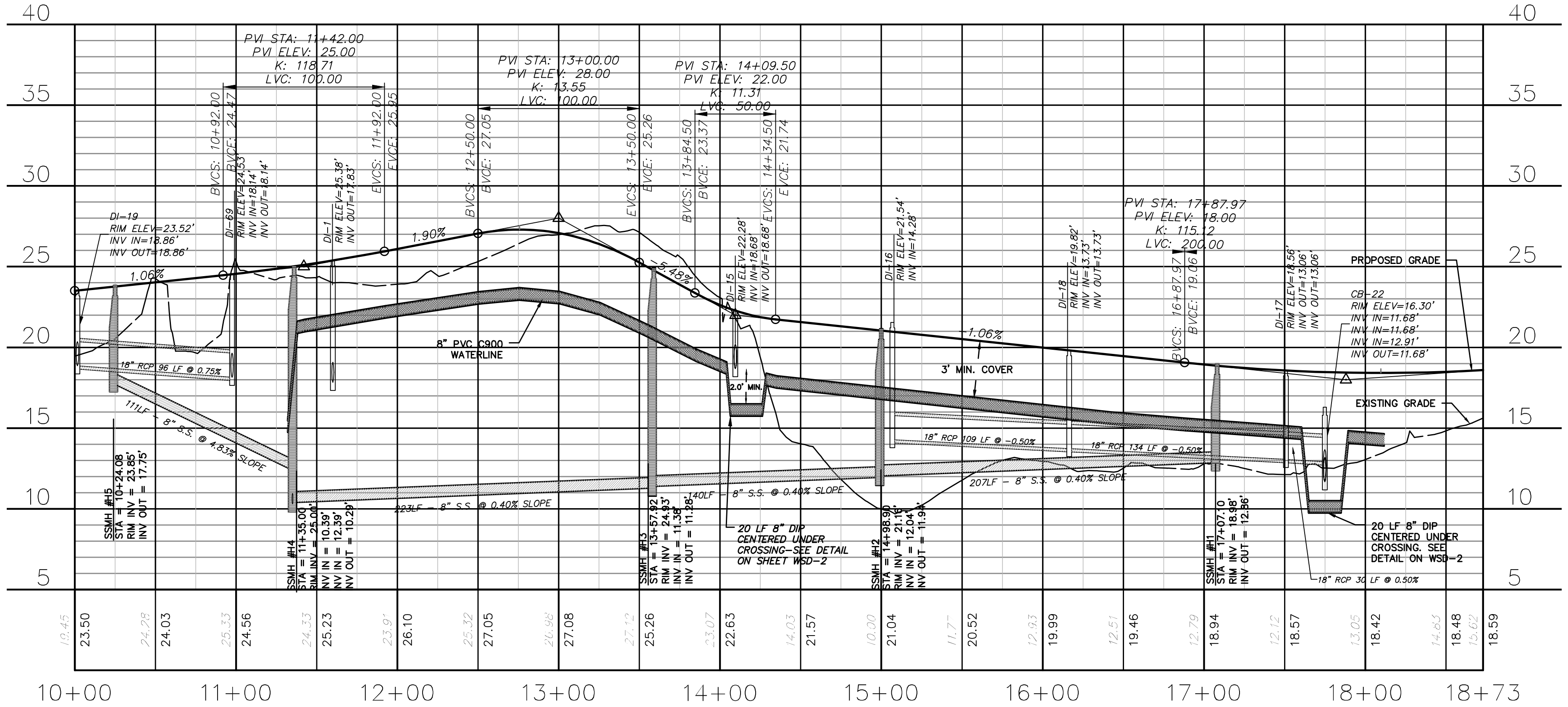
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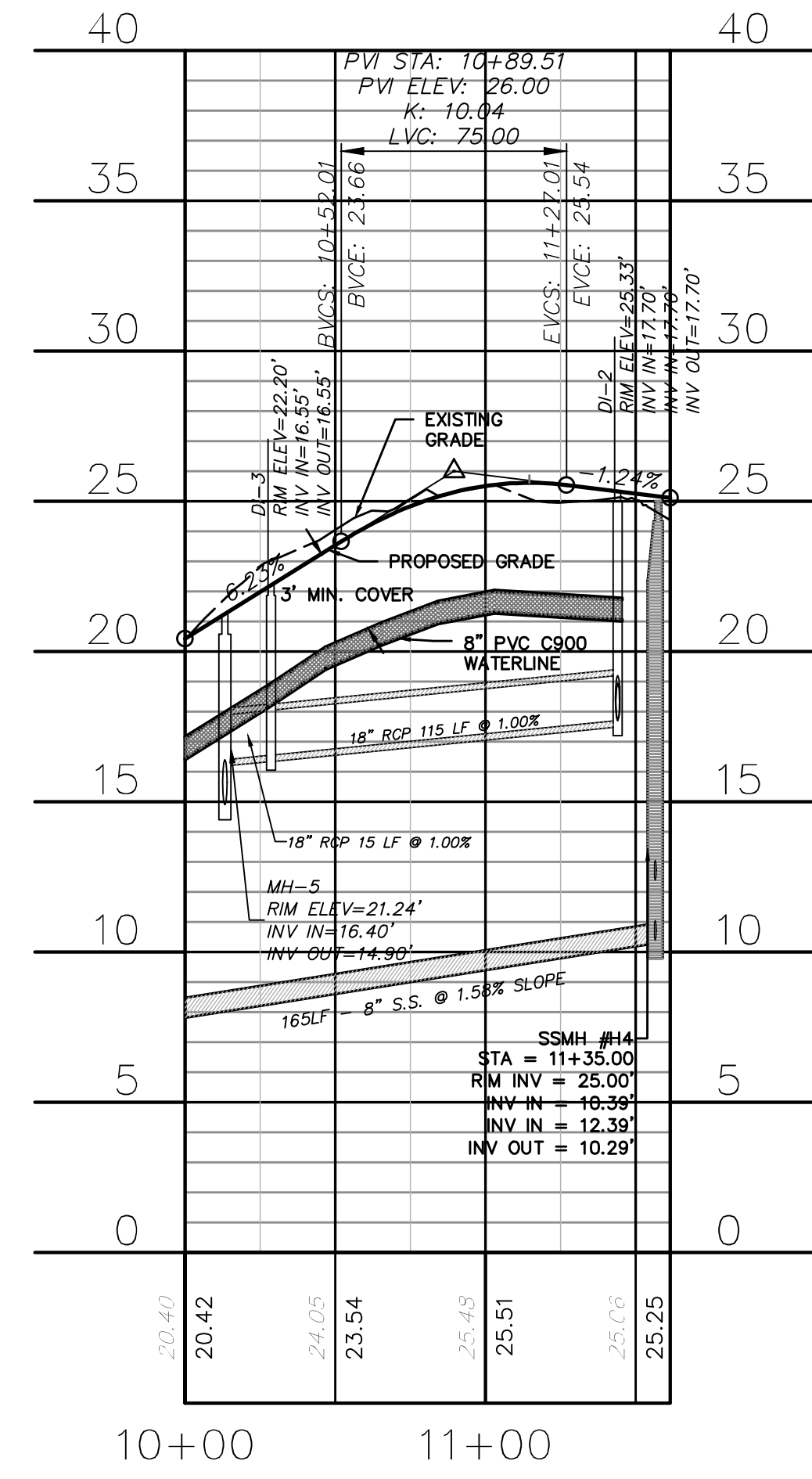
ESTUARY  
(STA 10+00 TO 18+72.99)



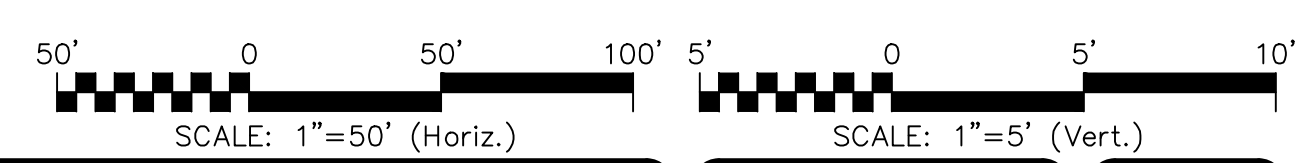
SEA HOLLY  
(STA 10+00 TO 12+88.50)



ESTUARY  
(STA 10+00 TO 18+72.99)

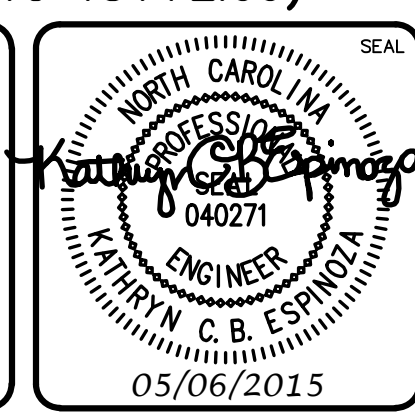


SEA HOLLY  
(STA 10+00 TO 12+88.50)



REV.	DESCRIPTION	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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PLAN AND PROFILE STA 10+00 TO  
STA 18+72.99 / STA 10+00 TO STA  
12+88.50

DATE: 04-29-2015  
MCE PROJ. #: 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR.: RMC

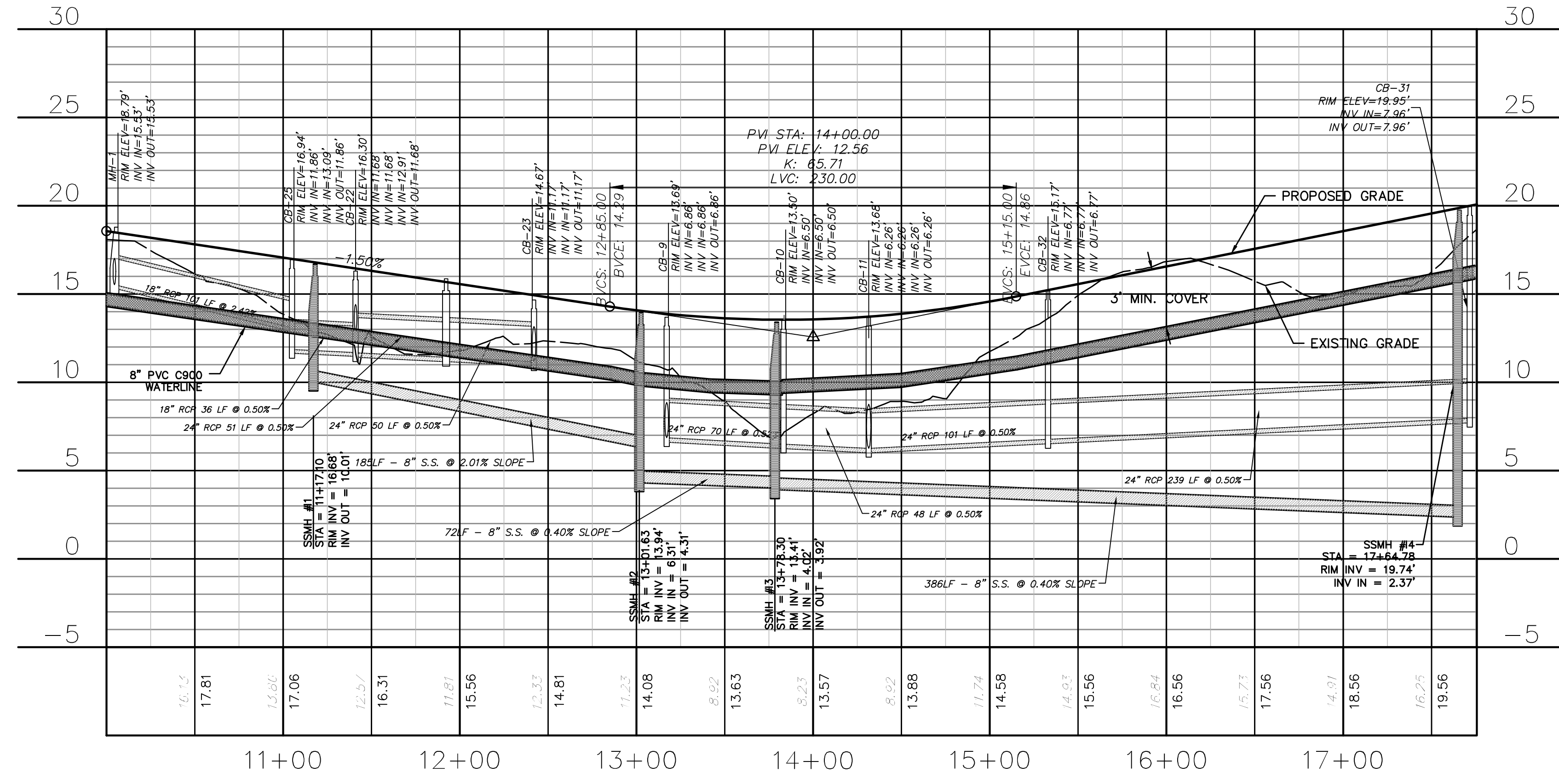
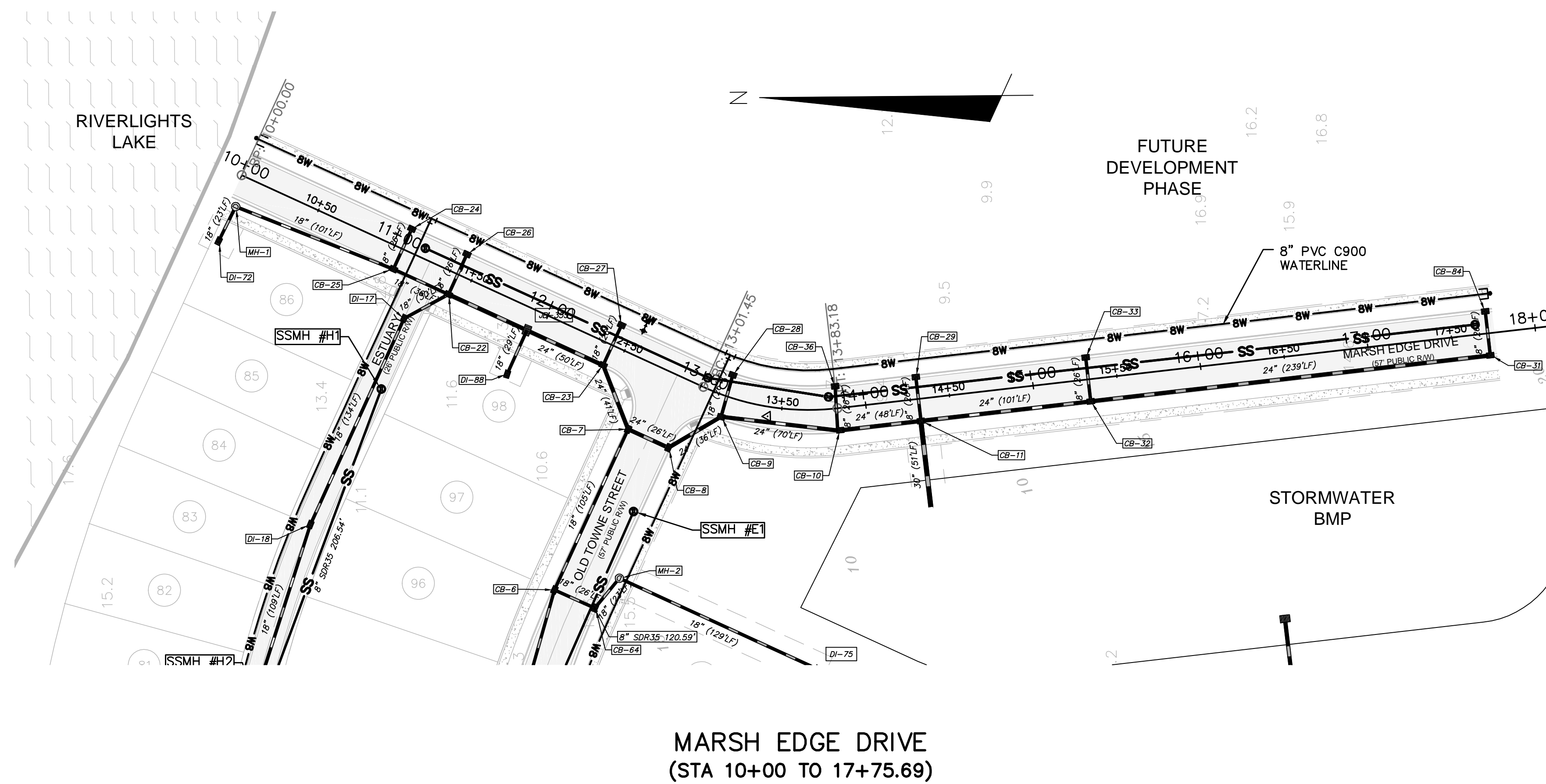
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STATUS: FINAL DESIGN  
NOT FOR CONSTRUCTION

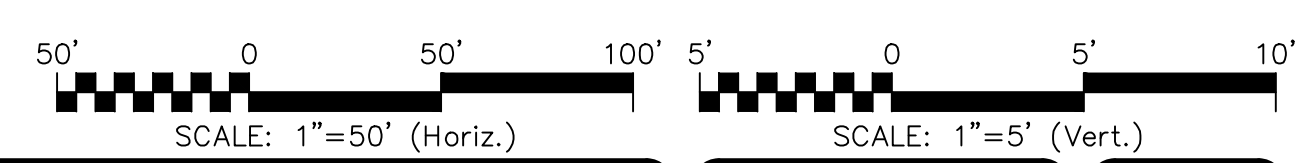
MAC FILE NUMBER: CU-708  
DRAWING NUMBER: 24  
REVISION: B

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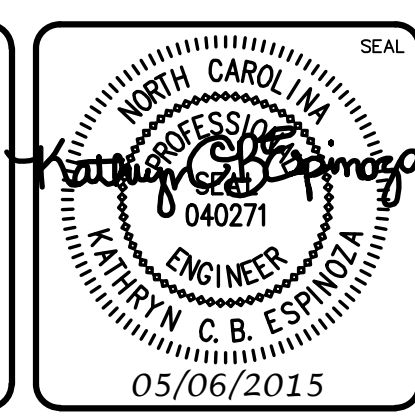


MARSH EDGE DRIVE  
(STA 10+00 TO 17+75.69)



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

FINAL DRAWINGS  
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CONSTRUCTION



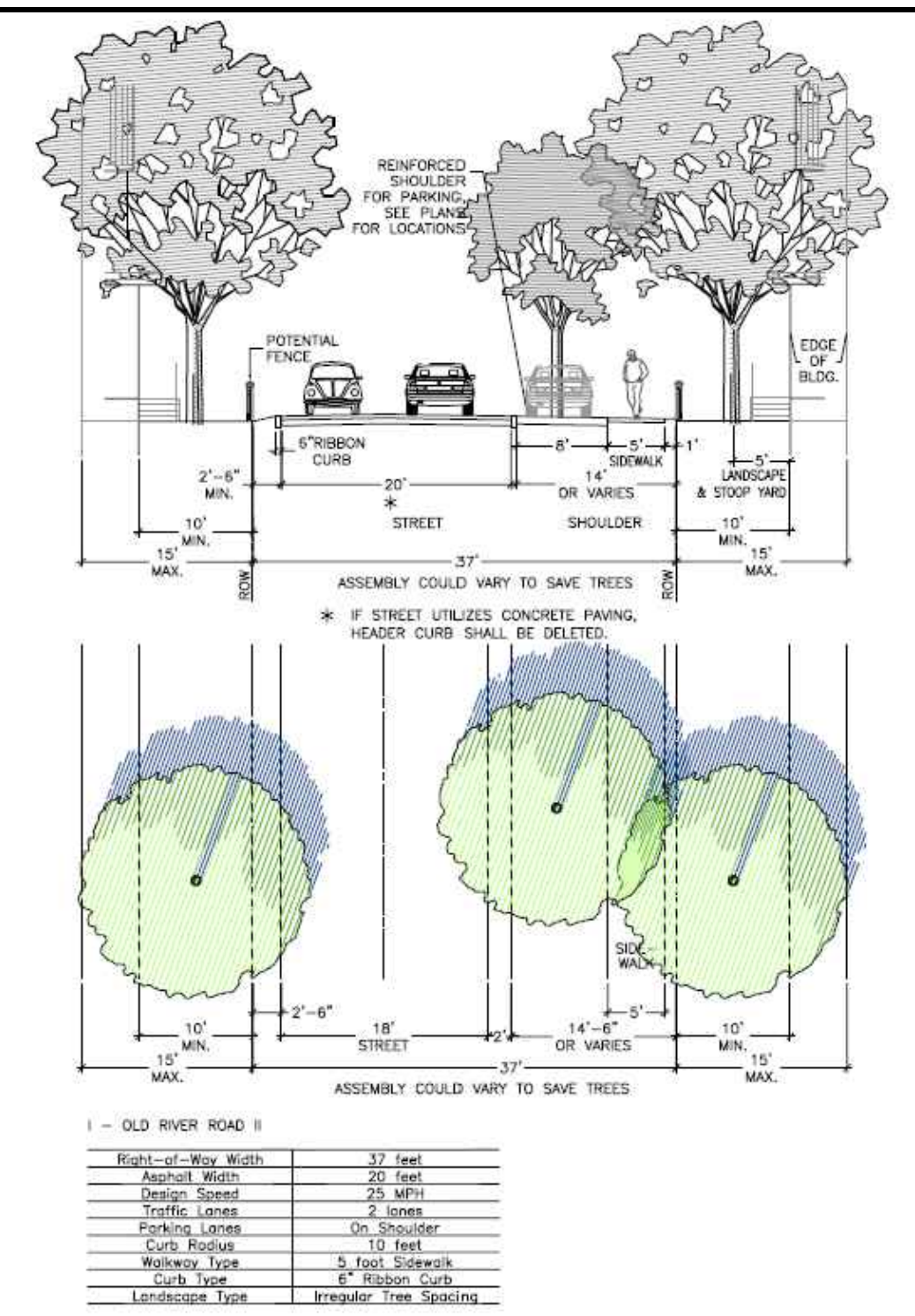
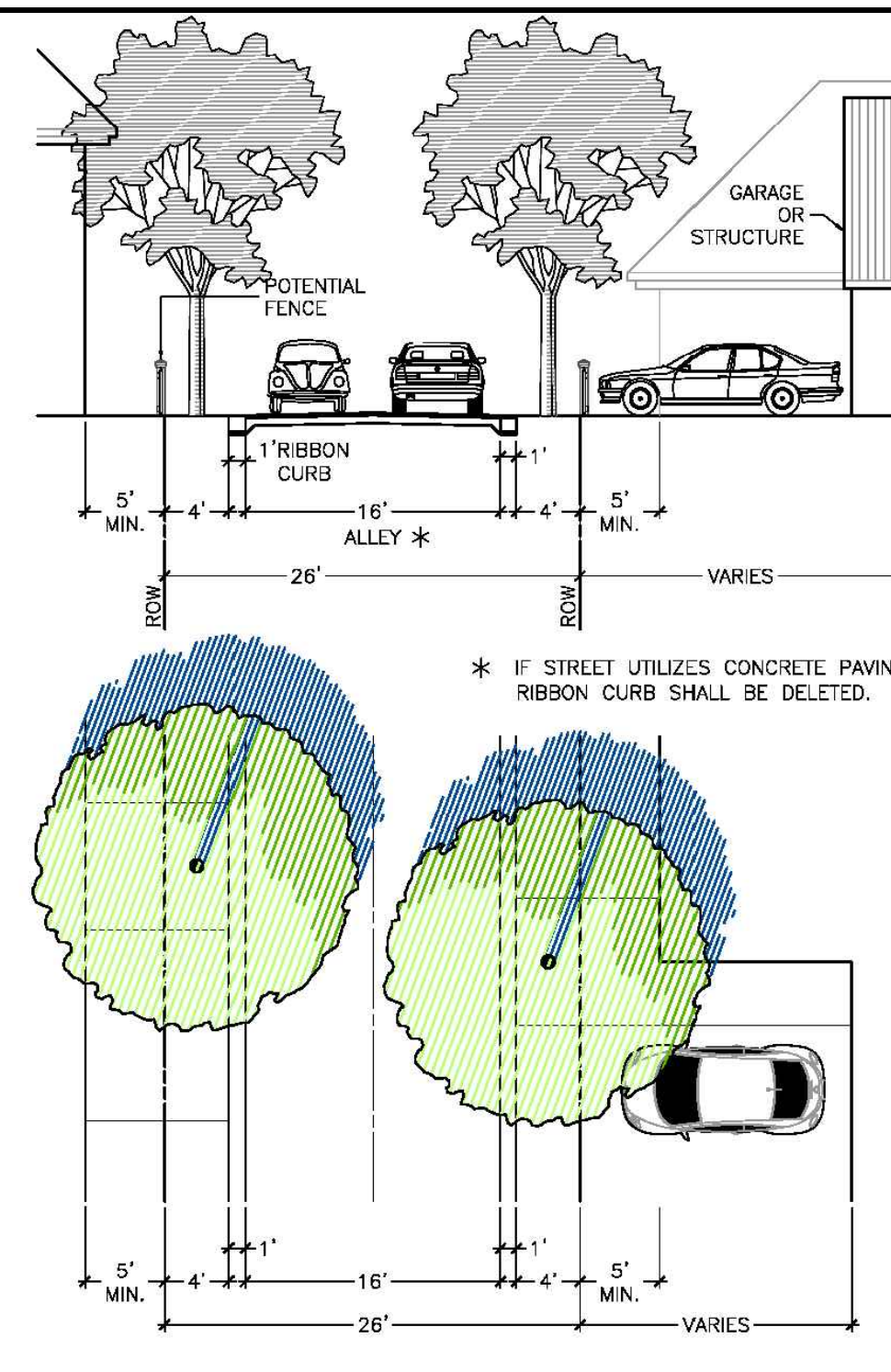
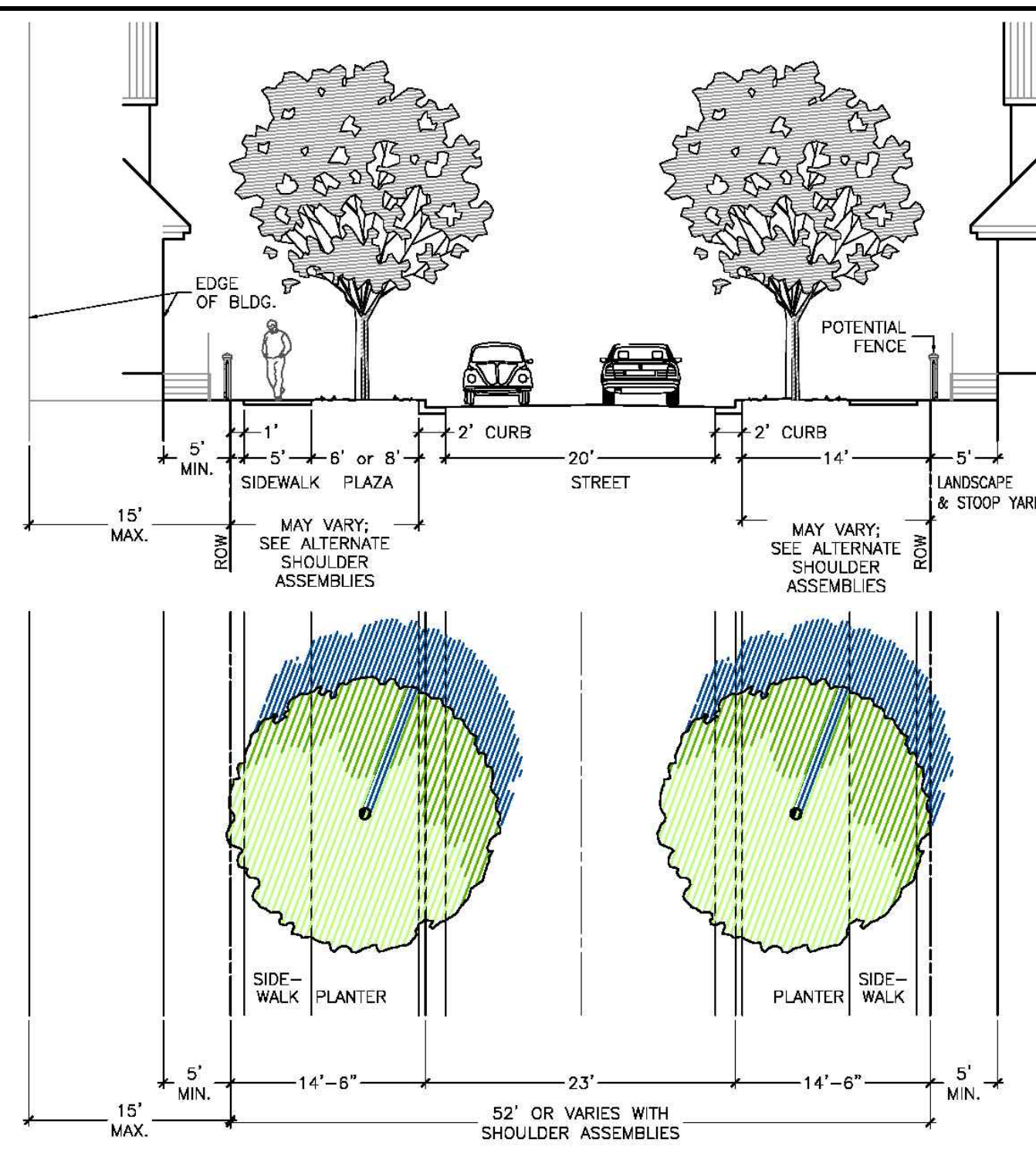
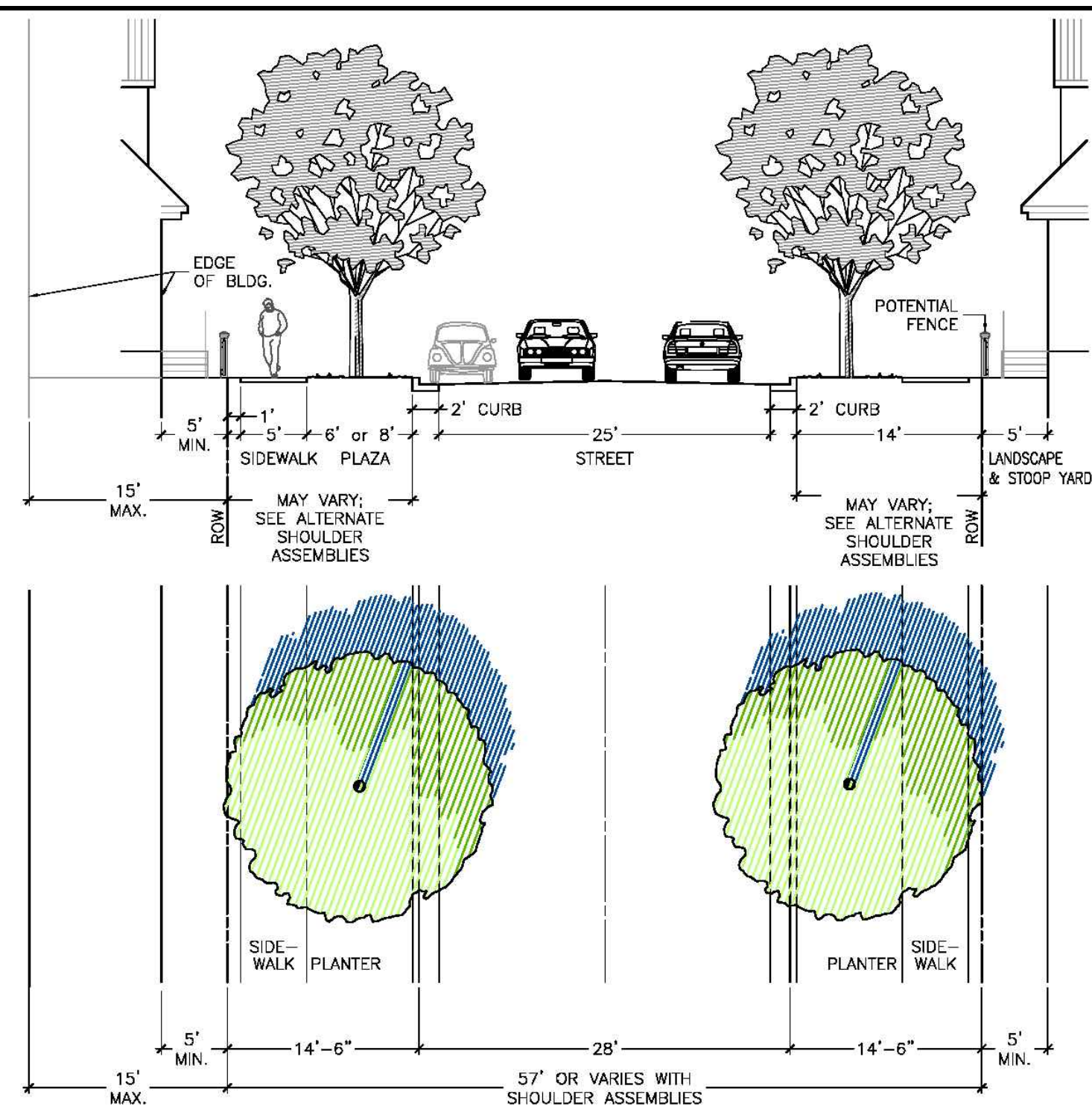
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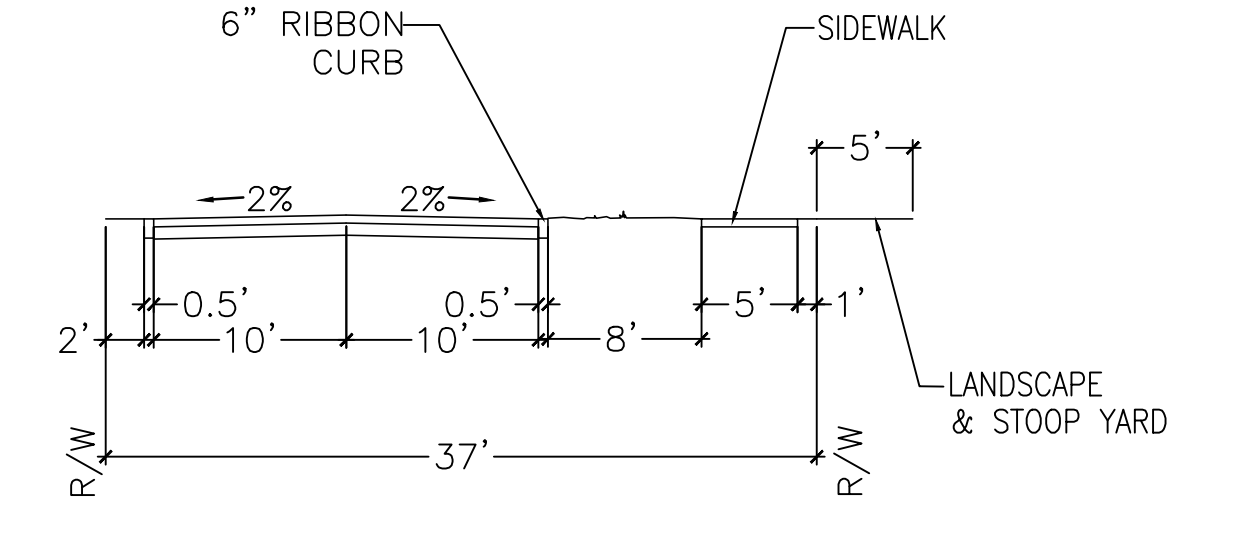
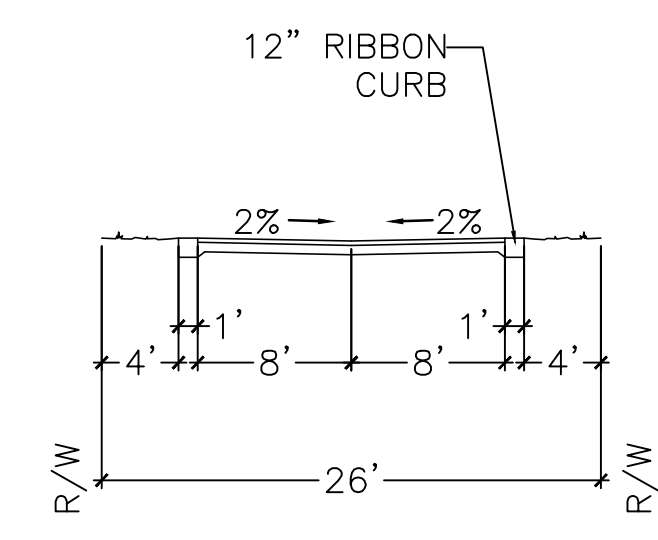
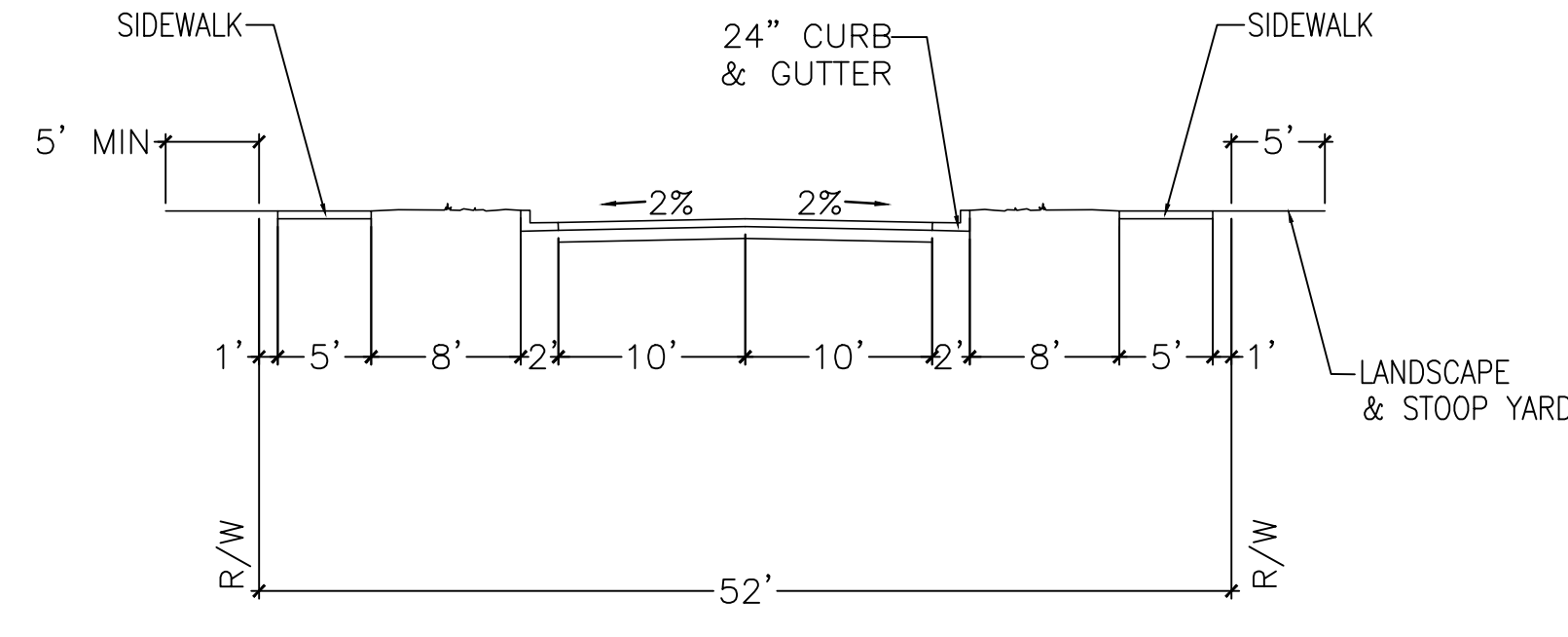
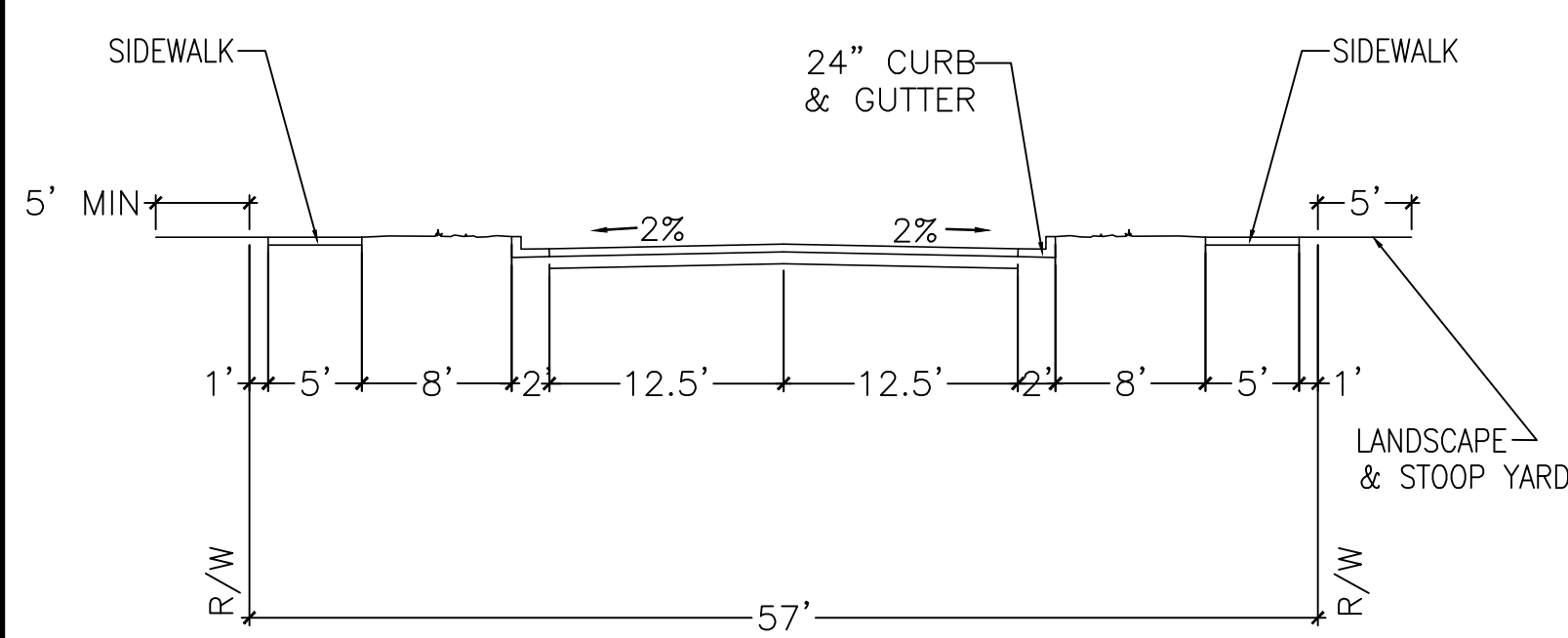
**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**  
PLAN AND PROFILE STATION 10+00  
TO STATION 17+76

DATE: 04-29-2015	SCALE: CU-709
MCE PROJ. # 02735-0129	HORIZONTAL: 1"=50'
DRAWN: EEM/KCBE	VERTICAL: N/A
DESIGNED: KCBE	REVISION: 25
CHECKED: NJL	REVISION: B
PROJ. MGR: RMC	STATUS: FINAL DESIGN
	NOT FOR CONSTRUCTION

S:\2726\0129 Ph. 1\_SFD\Drawings\CU709-02735\0129.dwg, 5/6/2015 11:21:46 PM, emcathur



I - OLD RIVER ROAD II	
Right-of-Way Width	37 feet
Asphalt Width	20 feet
Design Speed	25 MPH
Traffic Lanes	2 lanes
Parking Lanes	On Shoulder
Curb Radius	10 feet
Walkway Type	5 foot sidewalk
Curb Type	6" Ribbon Curb
Landscape Type	Irregular Tree Spacing



**57' RIGHT-OF-WAY**  
(PUBLIC)

**52' RIGHT-OF-WAY**  
(PUBLIC)

**26' RIGHT-OF-WAY**  
(PUBLIC)

**37' RIGHT-OF-WAY**  
(PUBLIC)

Right-of-Way Width	57 feet
Asphalt Width	25 feet
Design Speed	25 MPH
Traffic Lanes	2 lanes
Parking Lanes	One Side @ 8 feet, marked
Curb Radius	25 feet
Walkway Type	5 foot sidewalk
Curb Type	Curb A
Landscape Type	Irregular spacing-50'oc max

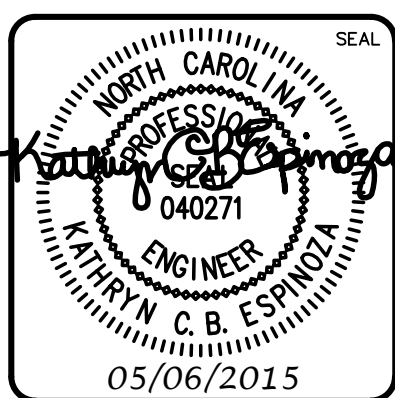
Right-of-Way Width	52 feet
Asphalt Width	20 feet
Design Speed	25 MPH
Traffic Lanes	2 lanes
Parking Lanes	No Parking
Curb Radius	25 feet
Walkway Type	5 foot sidewalk
Curb Type	Curb A
Landscape Type	Irregular spacing-50'oc max

Right-of-Way Width	26 feet
Asphalt Width	16 feet
Design Speed	25 MPH
Traffic Lanes	2 lanes
Parking Lanes	No Parking
Curb Radius	5 feet
Walkway Type	N/A
Curb Type	12" Ribbon Curb
Landscape Type	Irregular Tree Spacing

Right-of-Way Width	37 feet
Asphalt Width	20 feet
Design Speed	25 MPH
Traffic Lanes	2 lanes
Parking Lanes	On Shoulder
Curb Radius	10 feet
Walkway Type	5 foot sidewalk
Curb Type	6" Ribbon Curb
Landscape Type	Irregular Tree Spacing

REVNO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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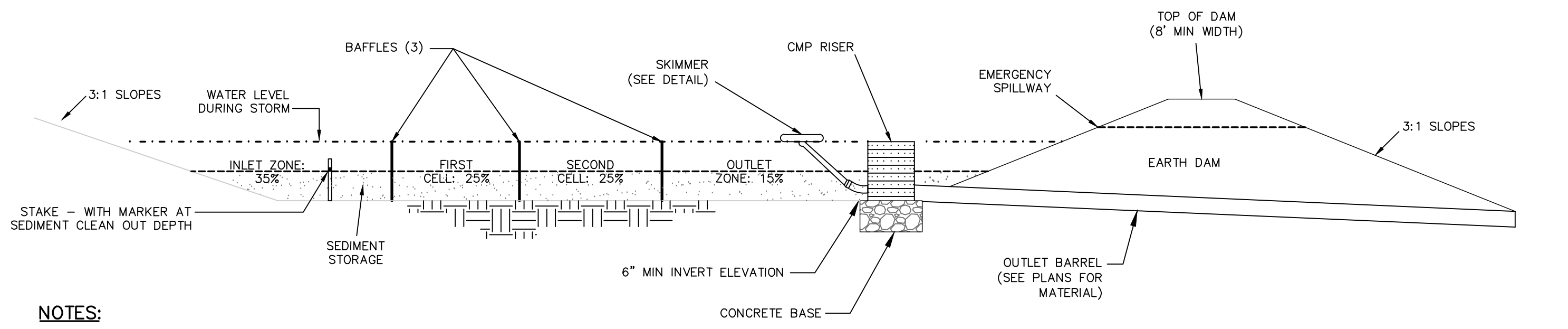
**RIVERLIGHTS  
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TYPICAL CROSS SECTIONS

DATE:	04-29-2015
MCE PROJ. #	02735-0129
DRAWN	EEM/KCBE
DESIGNED	KCBE
CHECKED	NAL
PROJ. MGR.	RMS

SCALE	HORIZONTAL: AS NOTED
	VERTICAL: AS NOTED
MAC FILE NUMBER	CT-301
DRAWING NUMBER	26
STATUS:	FINAL DESIGN
NOT FOR CONSTRUCTION	REVISION

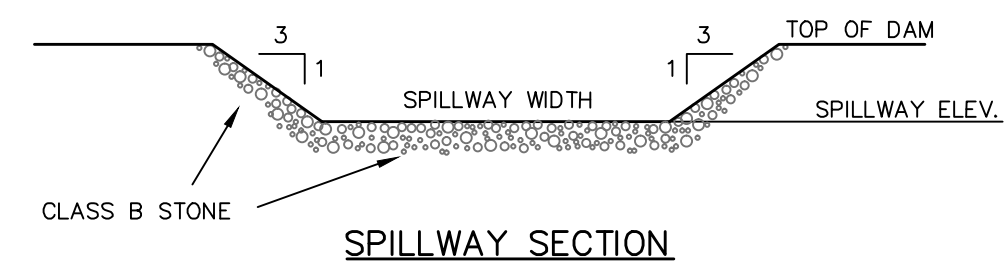
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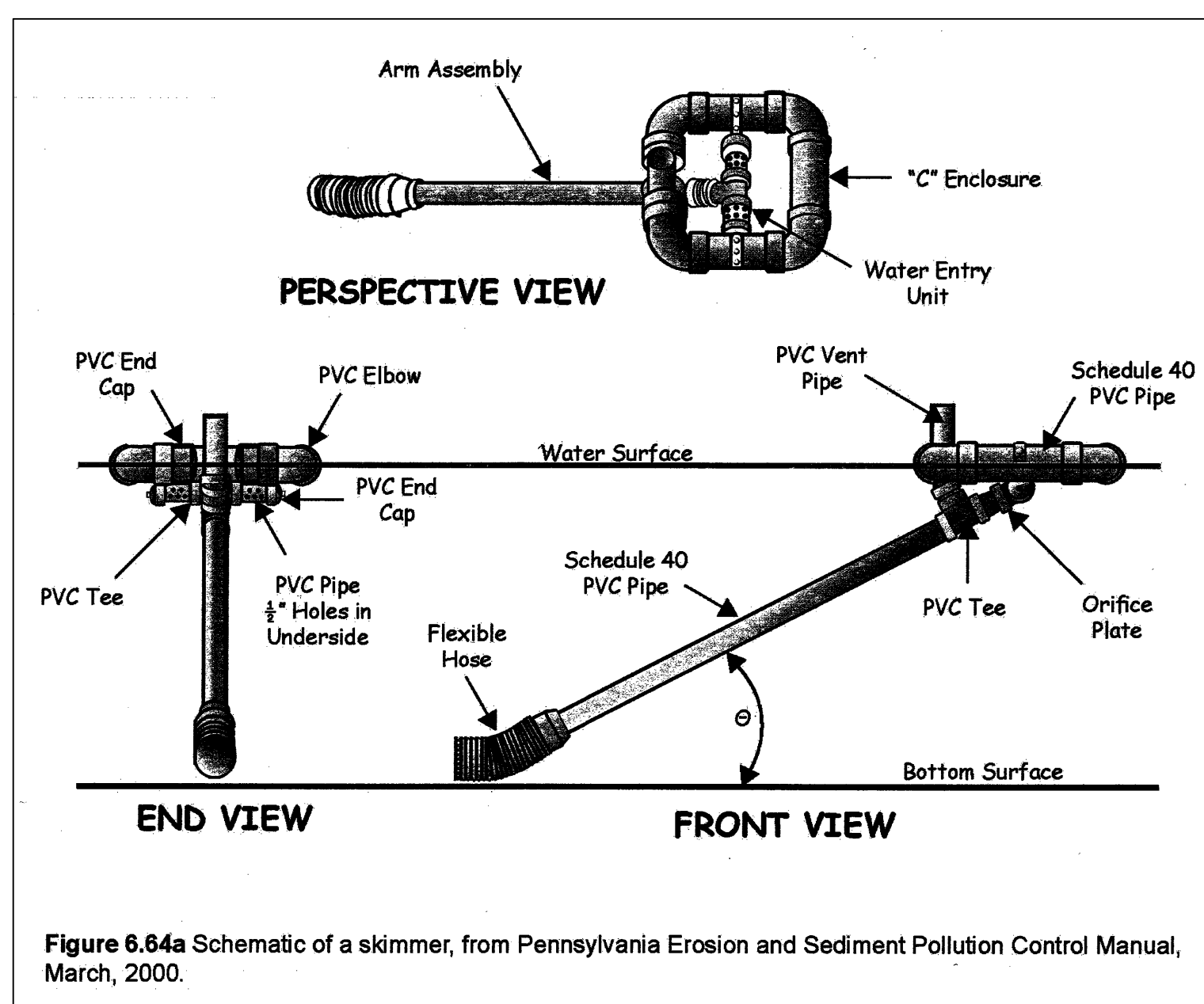
- NOTES:**
1. BAFFLE MATERIAL SHALL BE MATERIALS SUCH AS 700 G/M COIR EROSION BLANKET, COIR MESH, OR TREE PROTECTION FENCE FOLDED OVER TO REDUCE PORE SIZE.
  2. THE BAFFLE MATERIAL NEEDS TO BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
  3. LOCATE THE EMERGENCY SPILLWAY 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



**SPILLWAY SECTION**

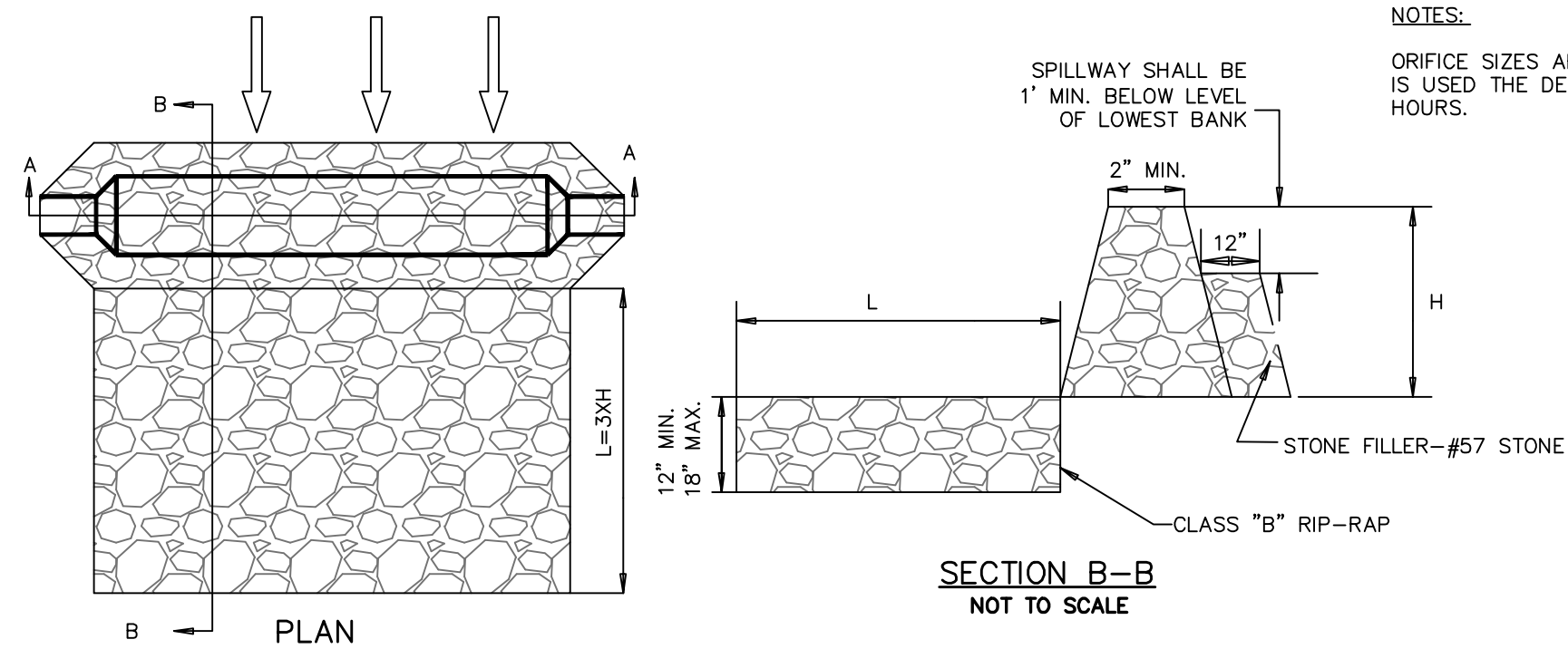


**Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.**

- 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

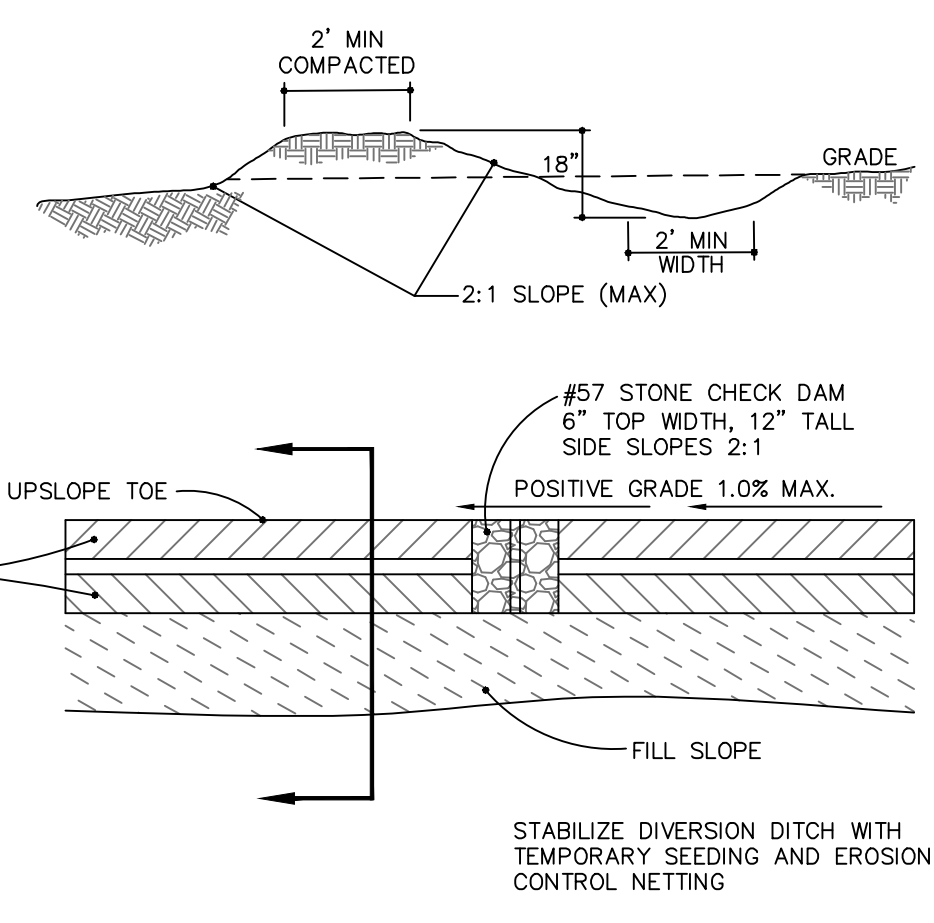
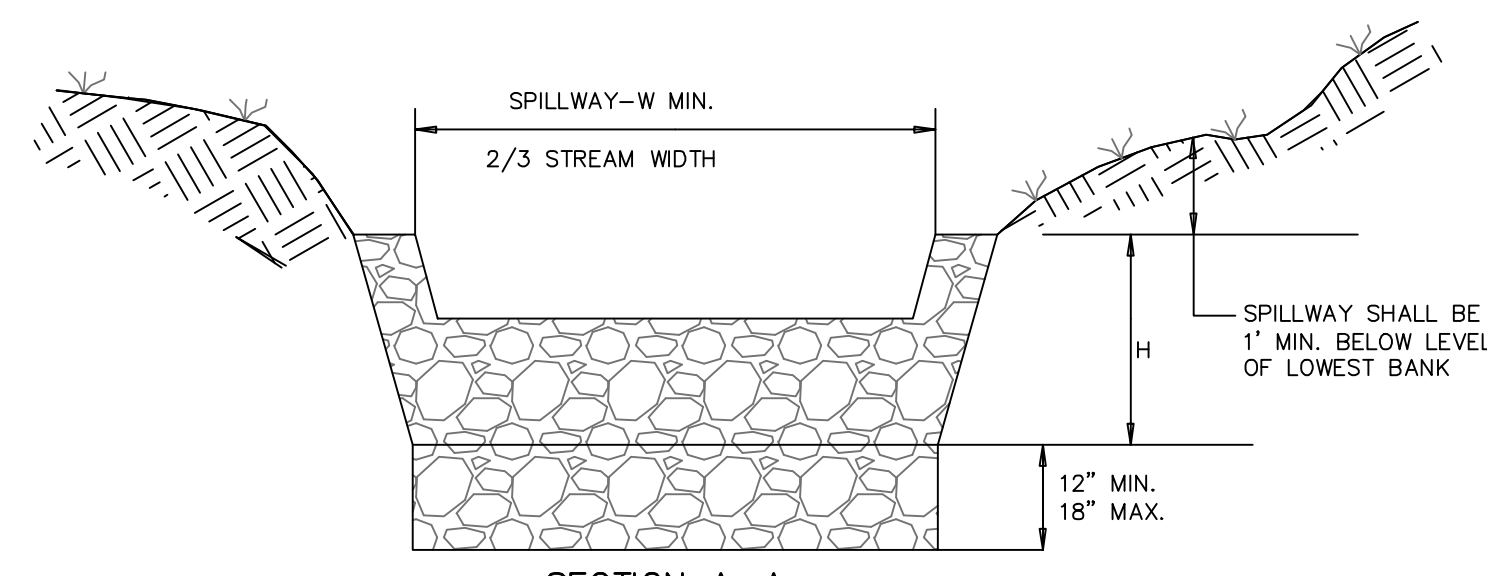


**SECTION A-A**

**DITCH CHECK DAM**

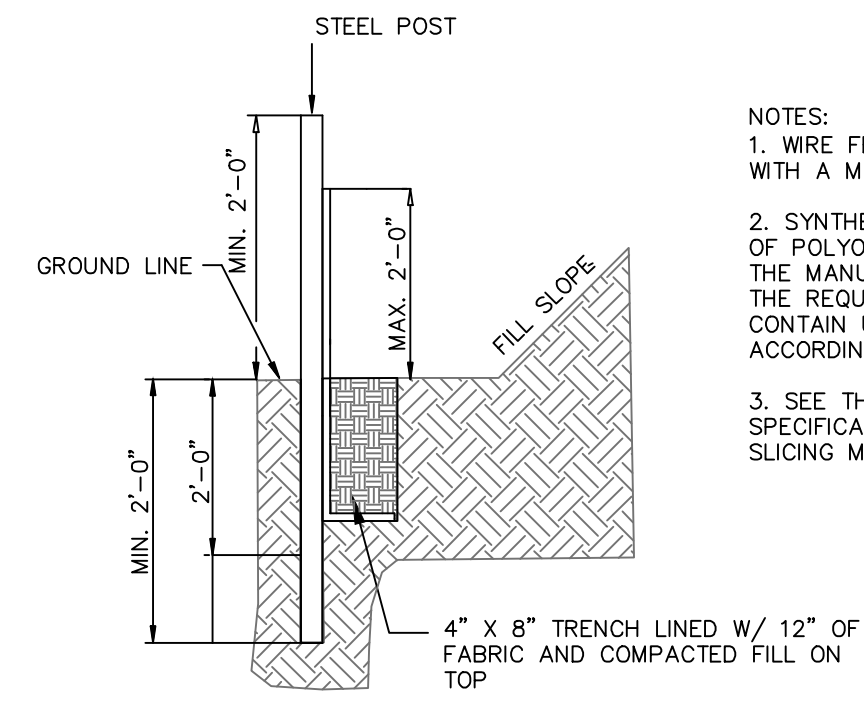
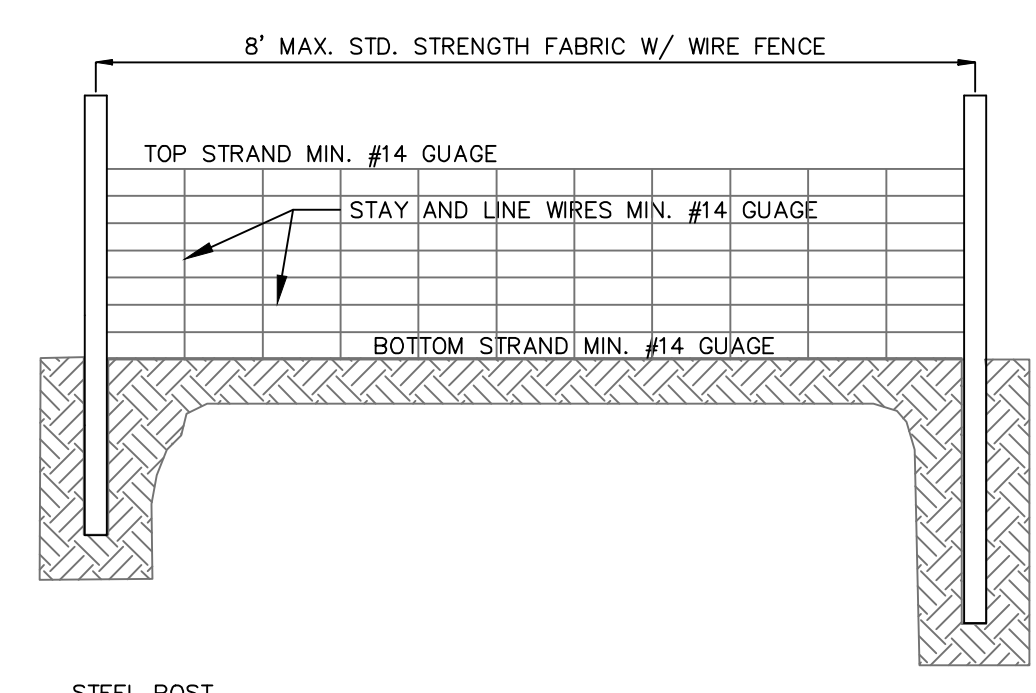
SD 13-04

NOT TO SCALE



**TEMPORARY DIVERSION DITCH**

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.

**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.

**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

**TEMPORARY SEEDING**

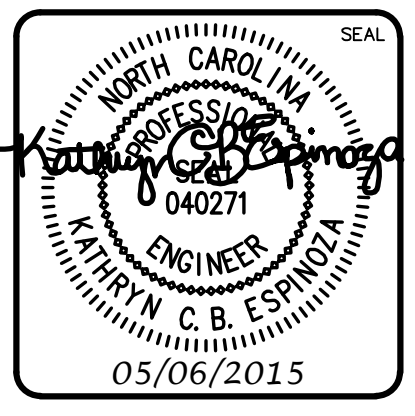
GRASS TYPE	AMOUNT/1000 S.F.	TIME OF SEEDING	INITIAL
RYE GRAIN	1-2 LBS.	APRIL - JUNE	25 LBS. 10-10-10
BROWNTOP MILLET	1-2 LBS	JUNE - AUGUST	25 LBS 10-10-10

**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

REVISION	DESCRIPTIONS	DATE
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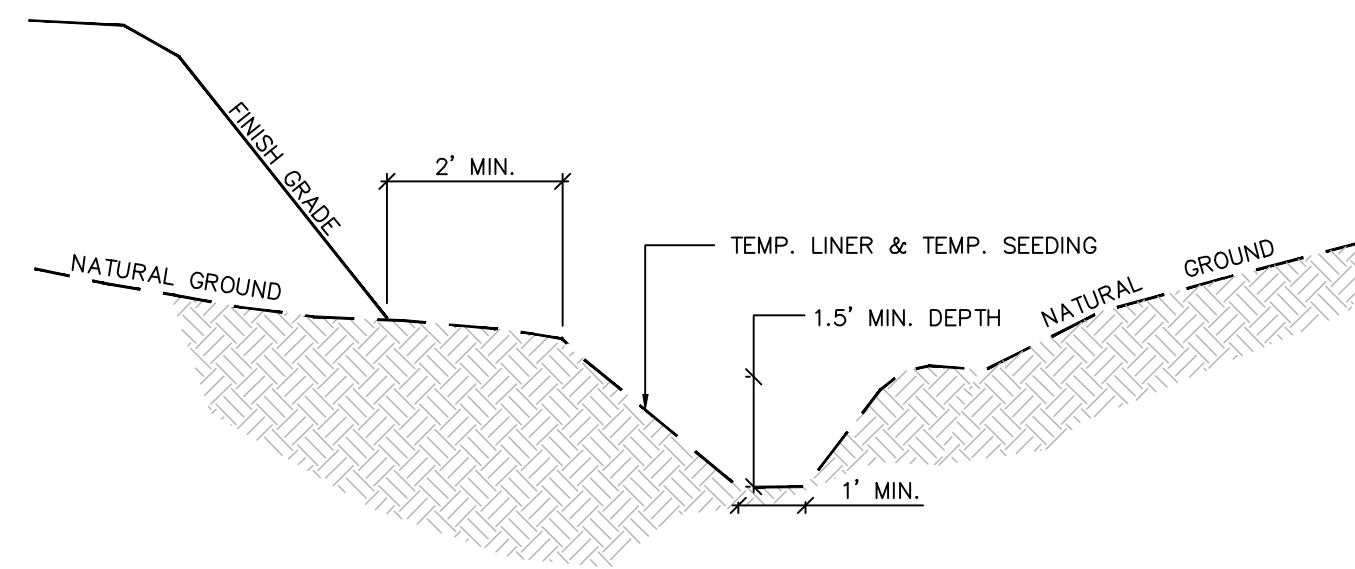
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**EROSION AND SEDIMENT CONTROL  
 DETAILS**

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DRAWN EEM/KCBE	VERTICAL: N/A
DESIGNED KCBE	
CHECKED NJL	
PROJ. MGR. RMC	

MAC FILE NUMBER: **CE-501**  
 DRAWING NUMBER: **27**  
 REVISION: **B**

STATUS: **FINAL DESIGN**  
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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/FT<sup>2</sup>

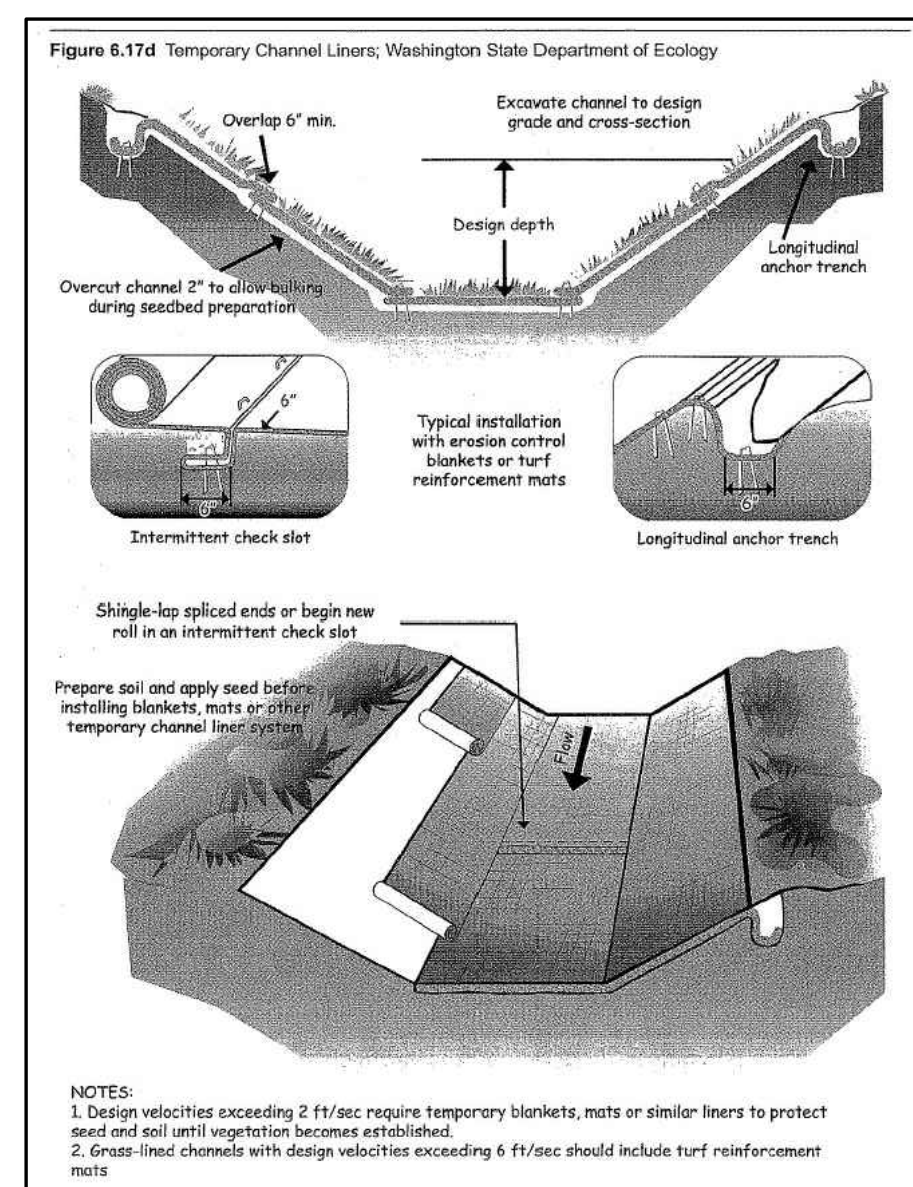
\* ALL RATINGS ABOVE ARE MINIMUM SHEAR STRENGTH REQUIREMENTS FOR THE LINER BASED ON UNVEGETATED CONDITIONS.

**CONSTRUCTION SPECIFICATION:**

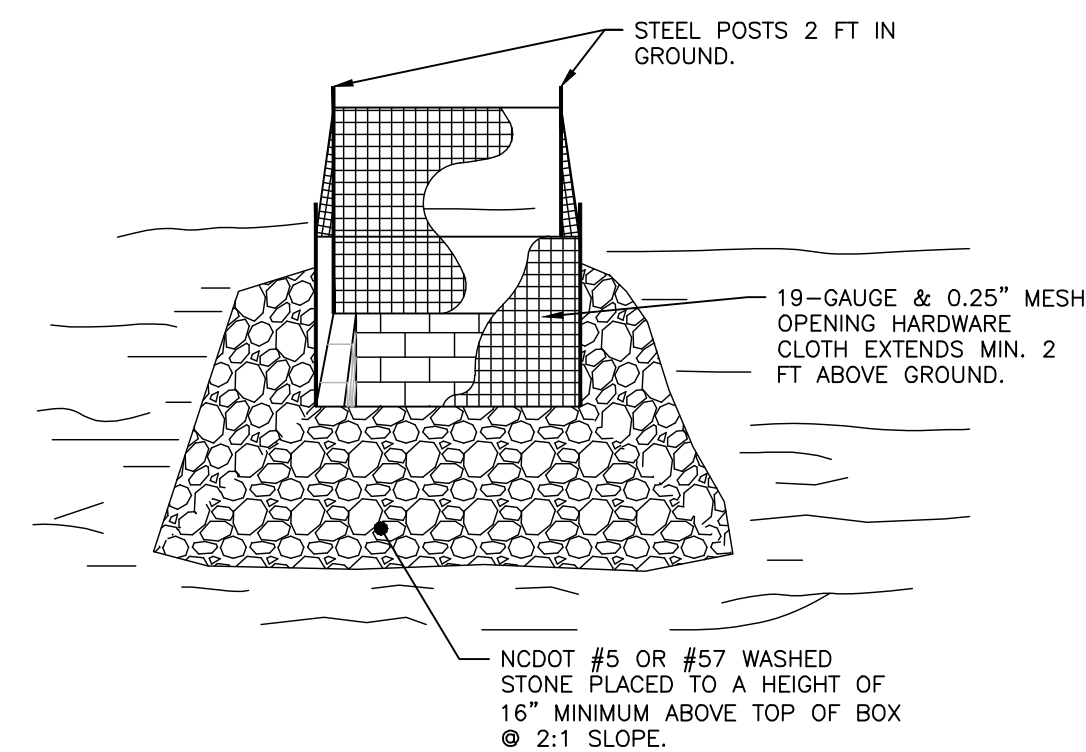
1. GRADE THE SURFACE OF INSTALLATION AREAS SO THAT THE GROUND IS SMOOTH AND LOOSE.
2. WHEN SEEDING PRIOR TO INSTALLATION, FOLLOW THE STEPS FOR SEED BED PREPARATION, SOIL AMENDMENTS, AND SEEDING AS NOTED IN "SURFACE STABILIZATION 6.1" (GENERAL NOTES) AND AS PER NCDNR STANDARDS.
3. SPREAD SEED BEFORE TEMPORARY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



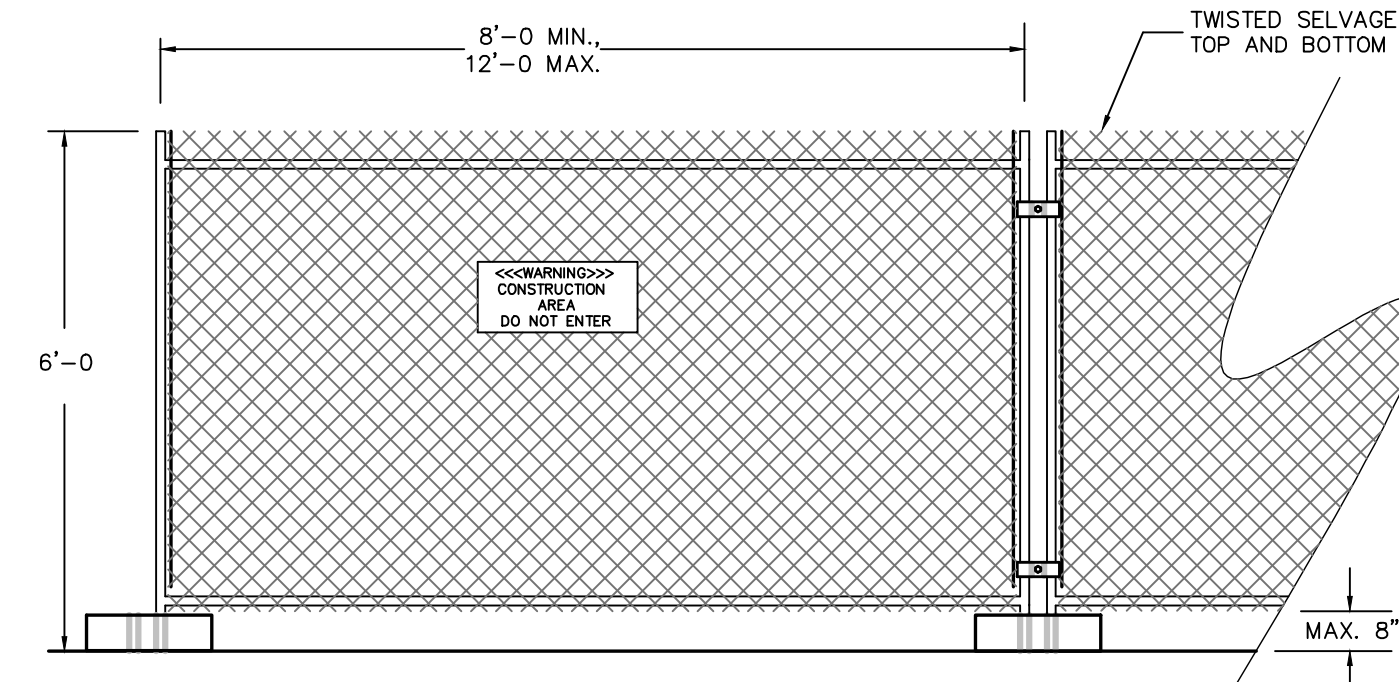
TEMPORARY PERIMETER DIKE  
NOT TO SCALE



**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.

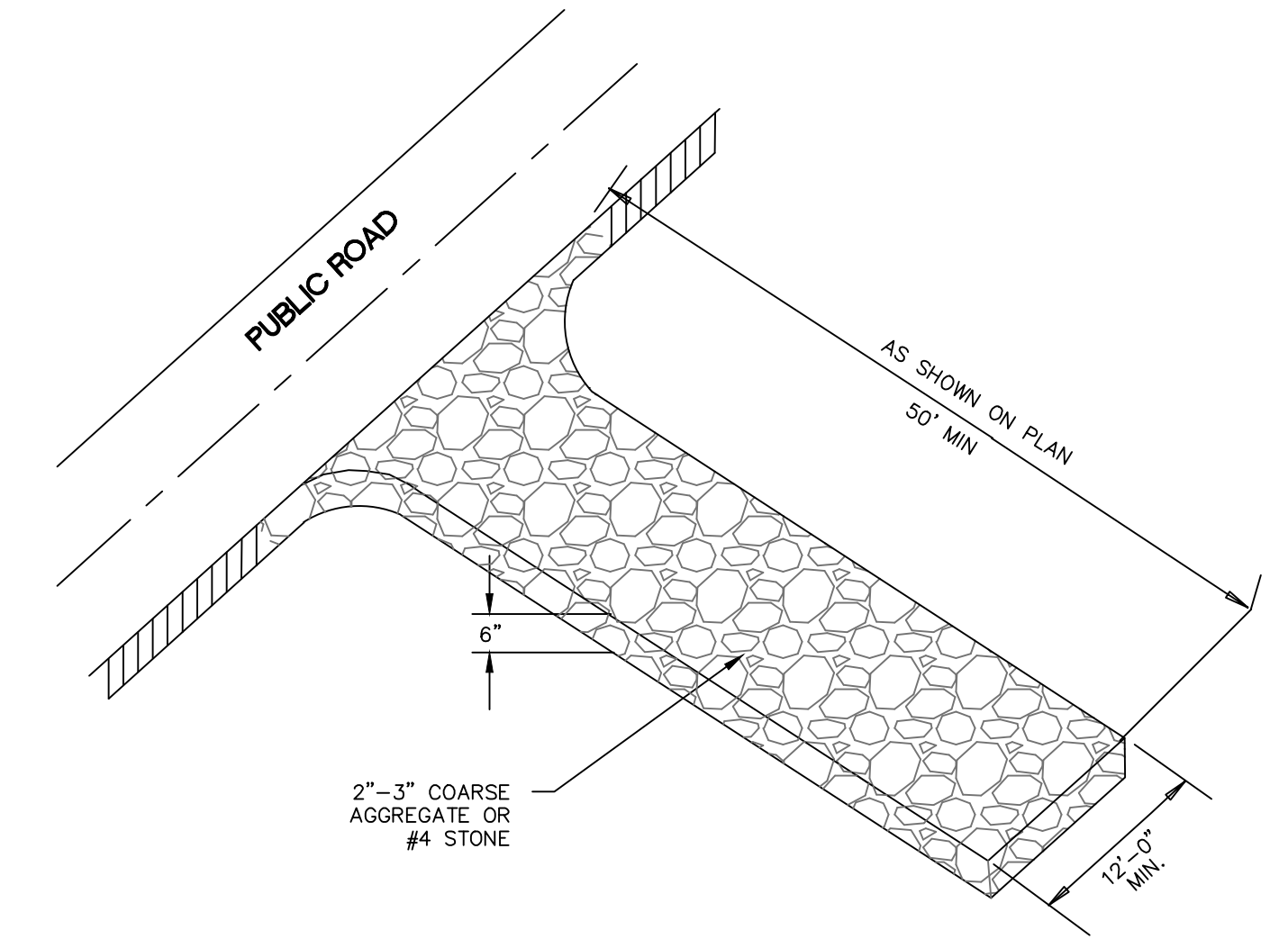
TEMP. STORM DRAIN INLET PROTECTION  
NOT TO SCALE



**NOTES:**

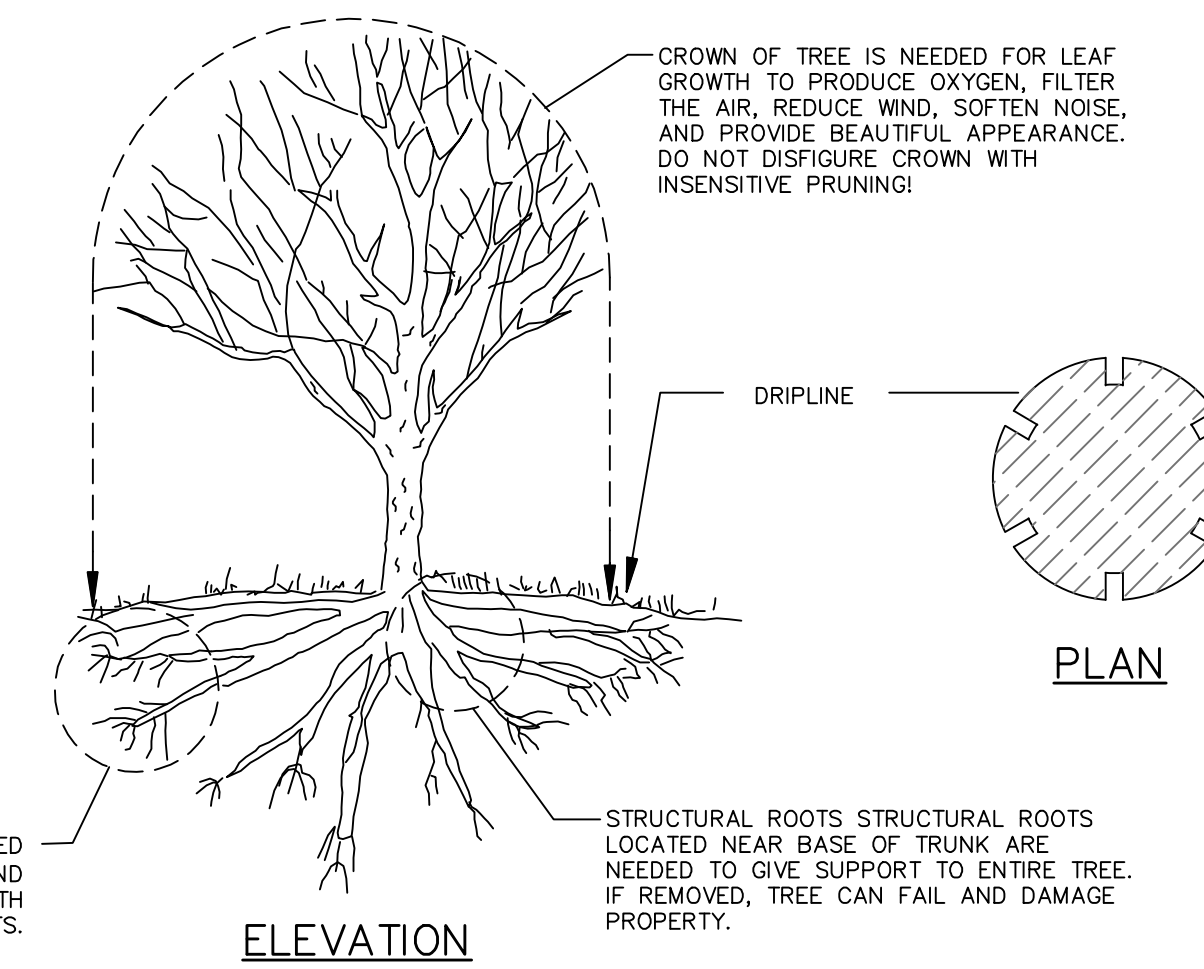
1. CHAIN LINK FABRIC TO BE MIN. 11 GAUGE, GALVANIZED. NO RUSTED OR EXCESSIVELY MALFORMED FABRIC.
2. FENCE BASES SHALL BE OF SUFFICIENT WEIGHT and/or SPREAD TO ADEQUATELY SUPPORT EACH PANEL.
3. PANEL-TO-PANEL CONNECTIONS SHALL BE MADE AT A MIN. TWO LOCATIONS PER CONNECTION UNLESS OTHERWISE APPROVED.
4. PROVIDE CONSTRUCTION WARNING SIGNAGE 50' O.C. ALONG FENCING INSTALLATION.

TEMPORARY CONSTRUCTION FENCING  
NOT TO SCALE



CONSTRUCTION ENTRANCE/EXIT

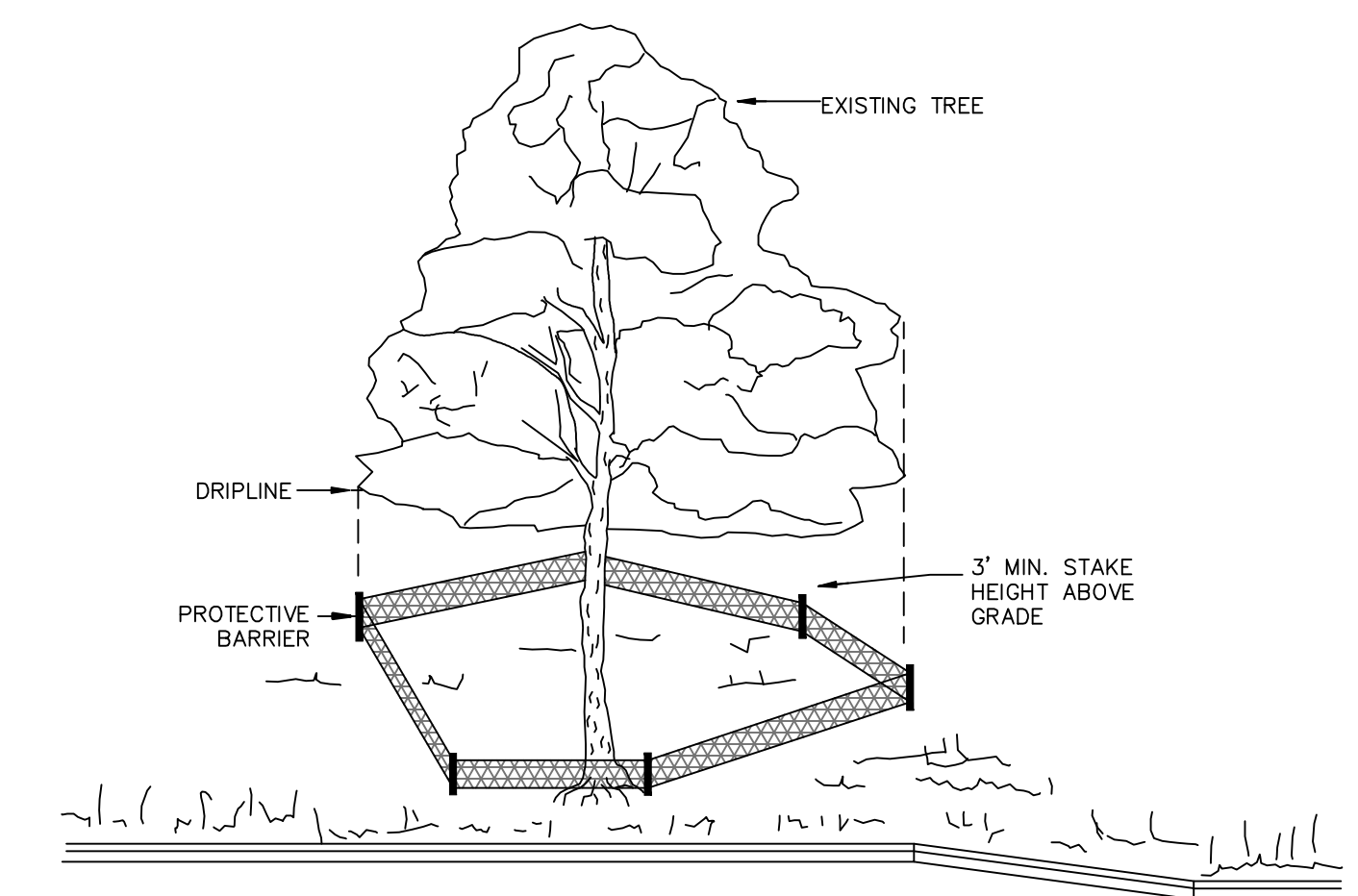
SD 13-03  
NOT TO SCALE



**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.

METHOD OF TREE PROTECTION DURING CONSTRUCTION  
SD 15-09  
NOT TO SCALE

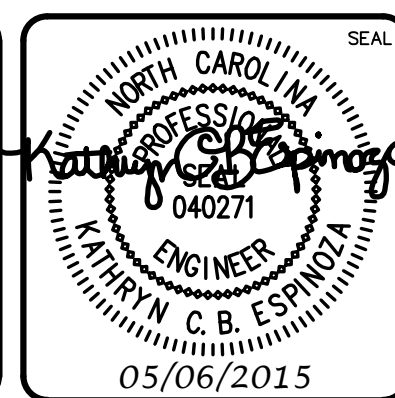


METHOD OF TREE PROTECTION DURING CONSTRUCTION

SD 15-08  
NOT TO SCALE

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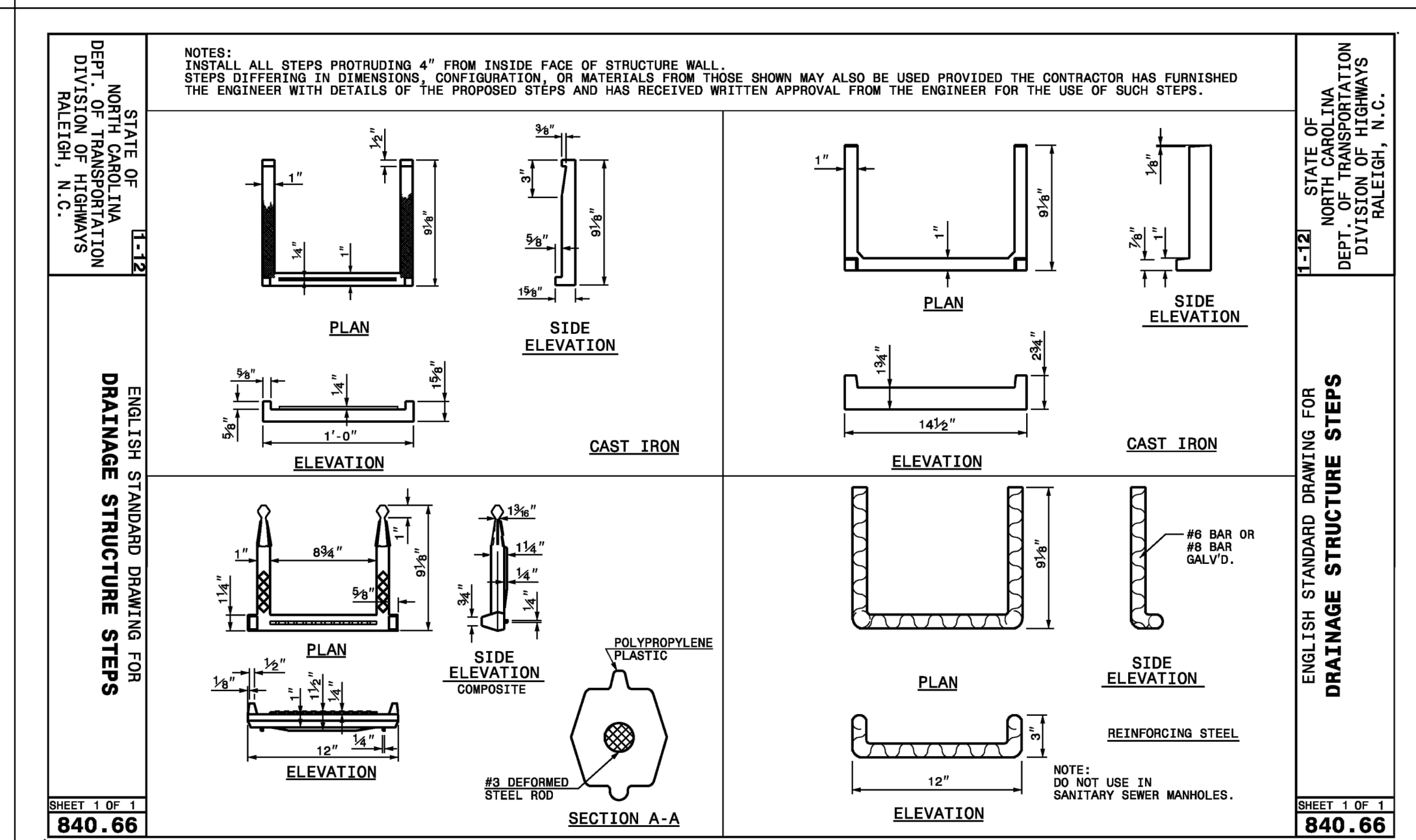
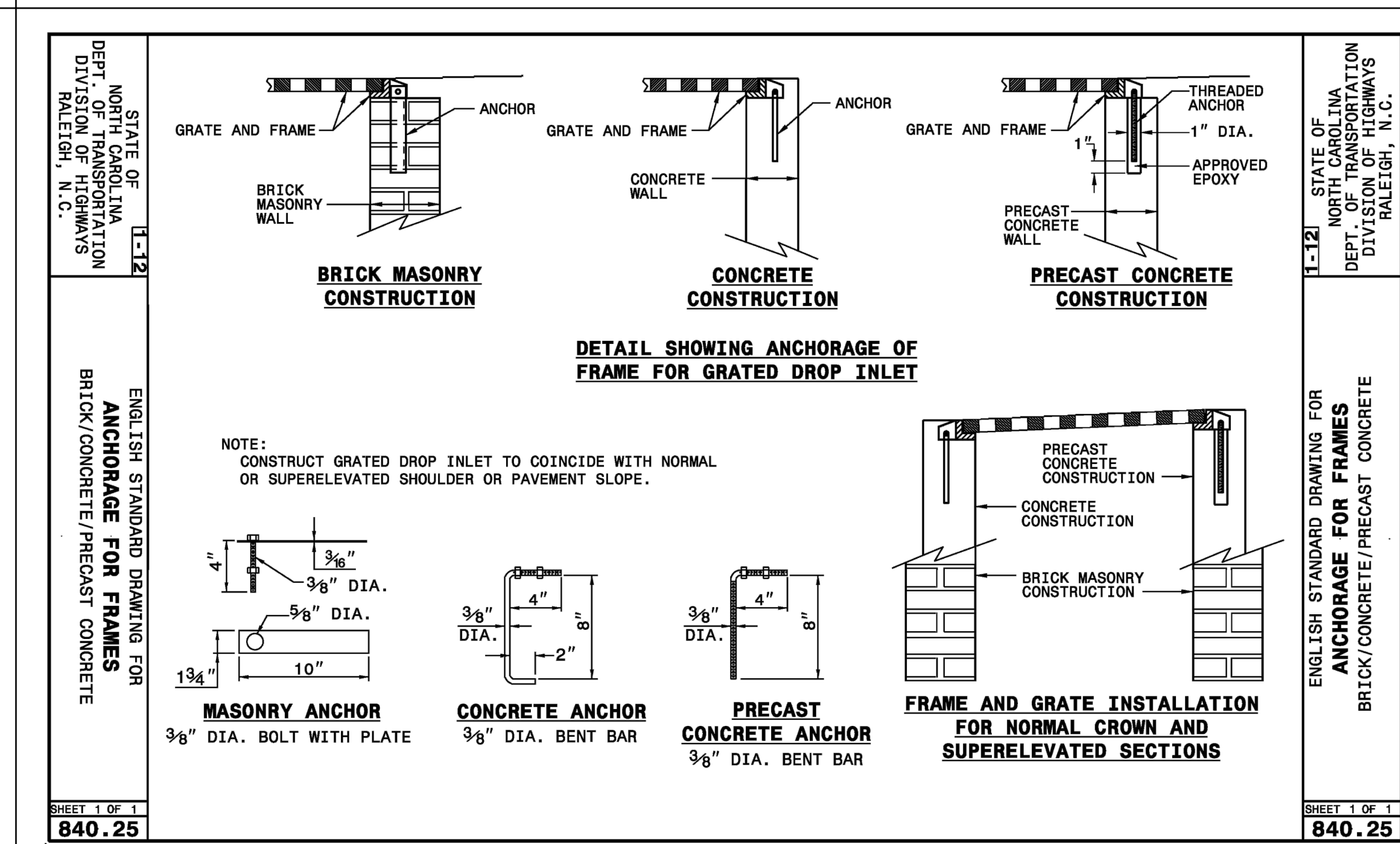
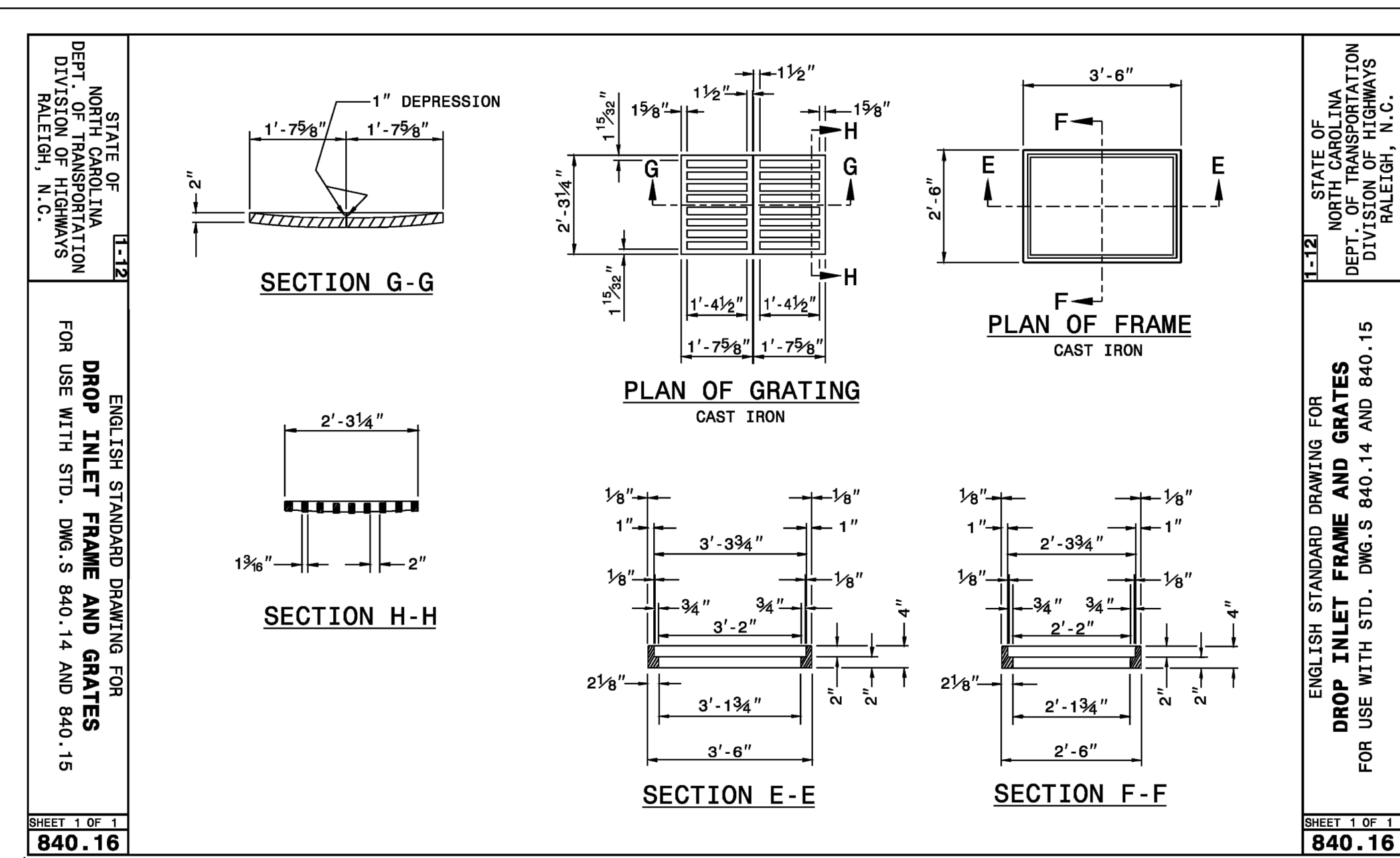
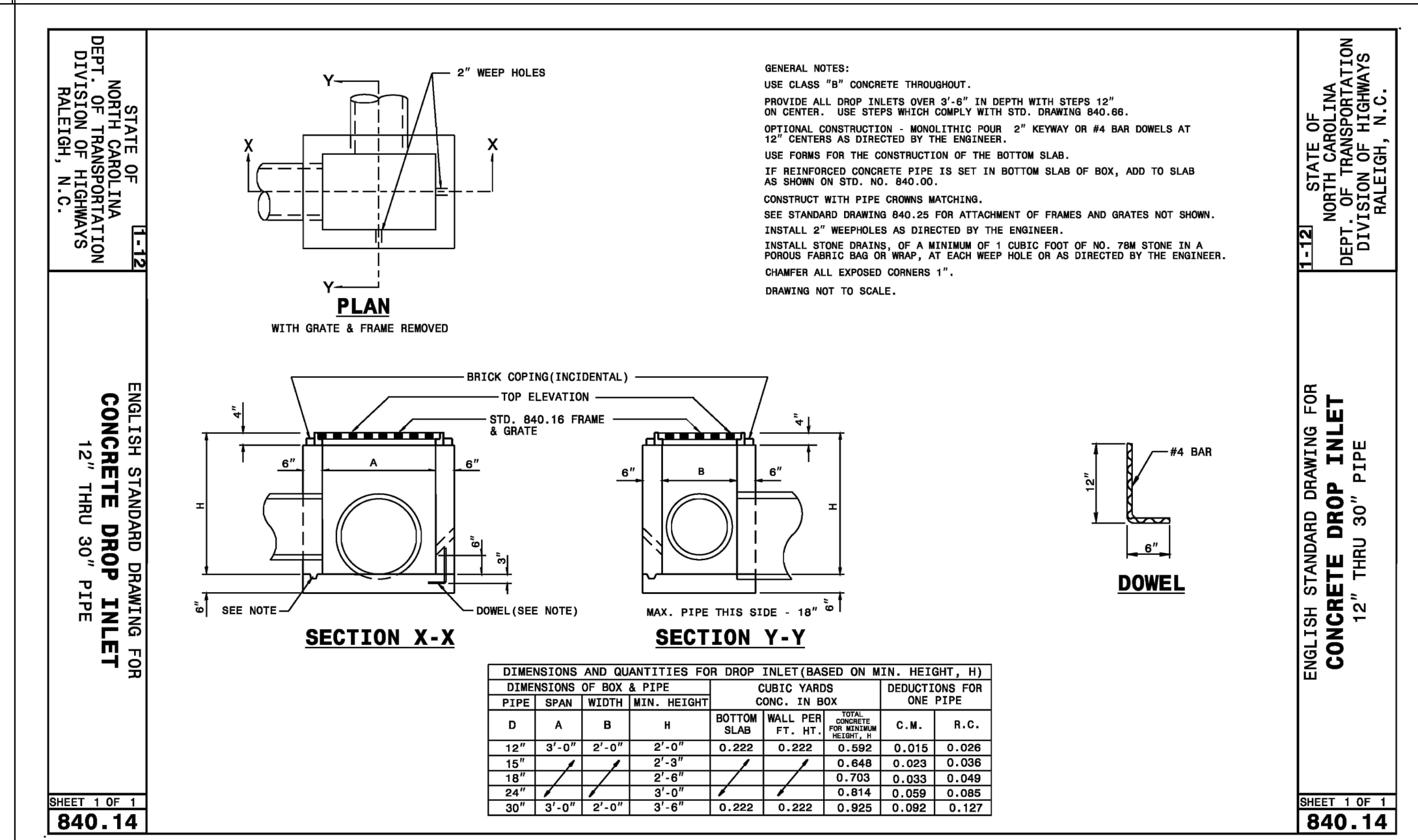
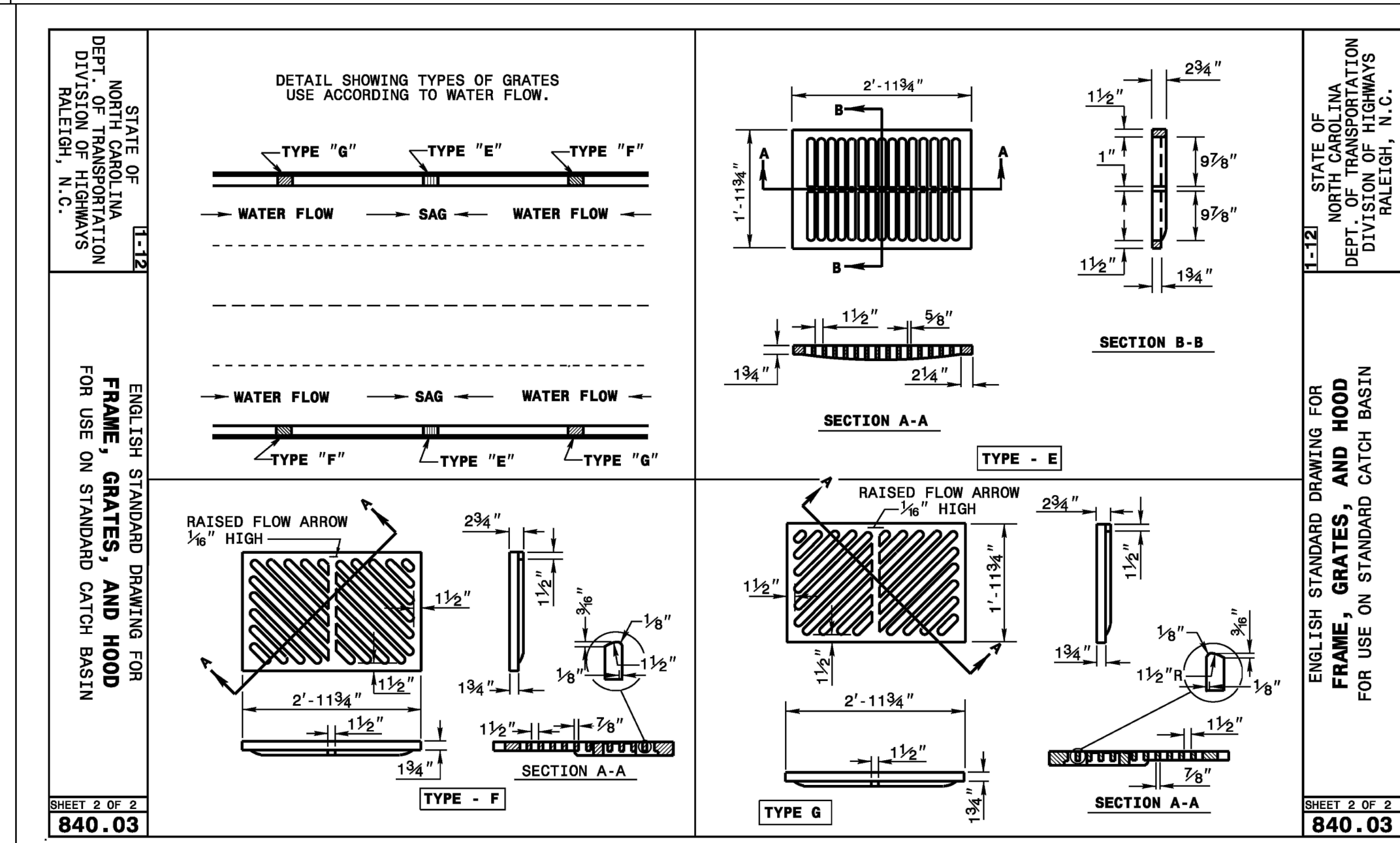
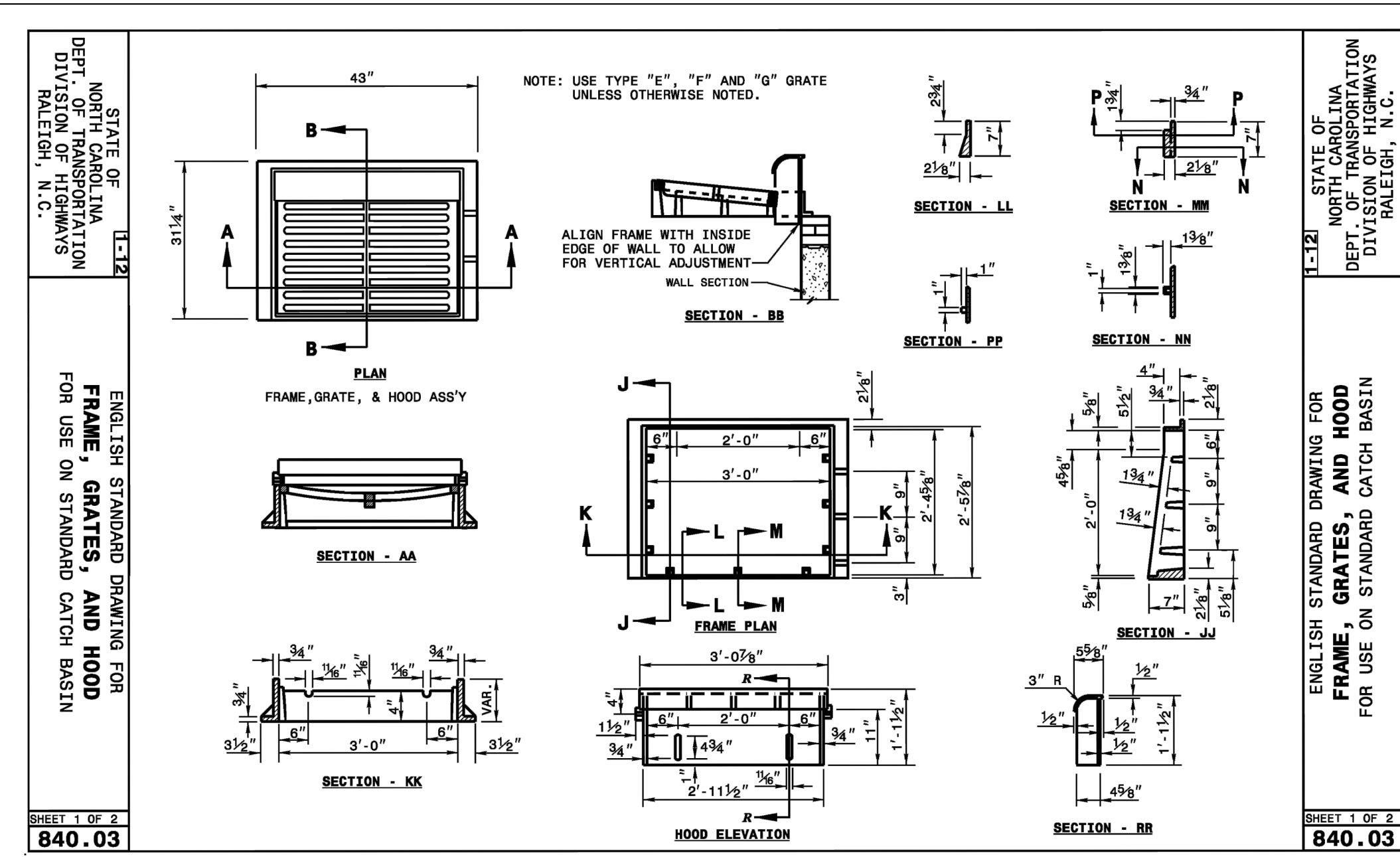
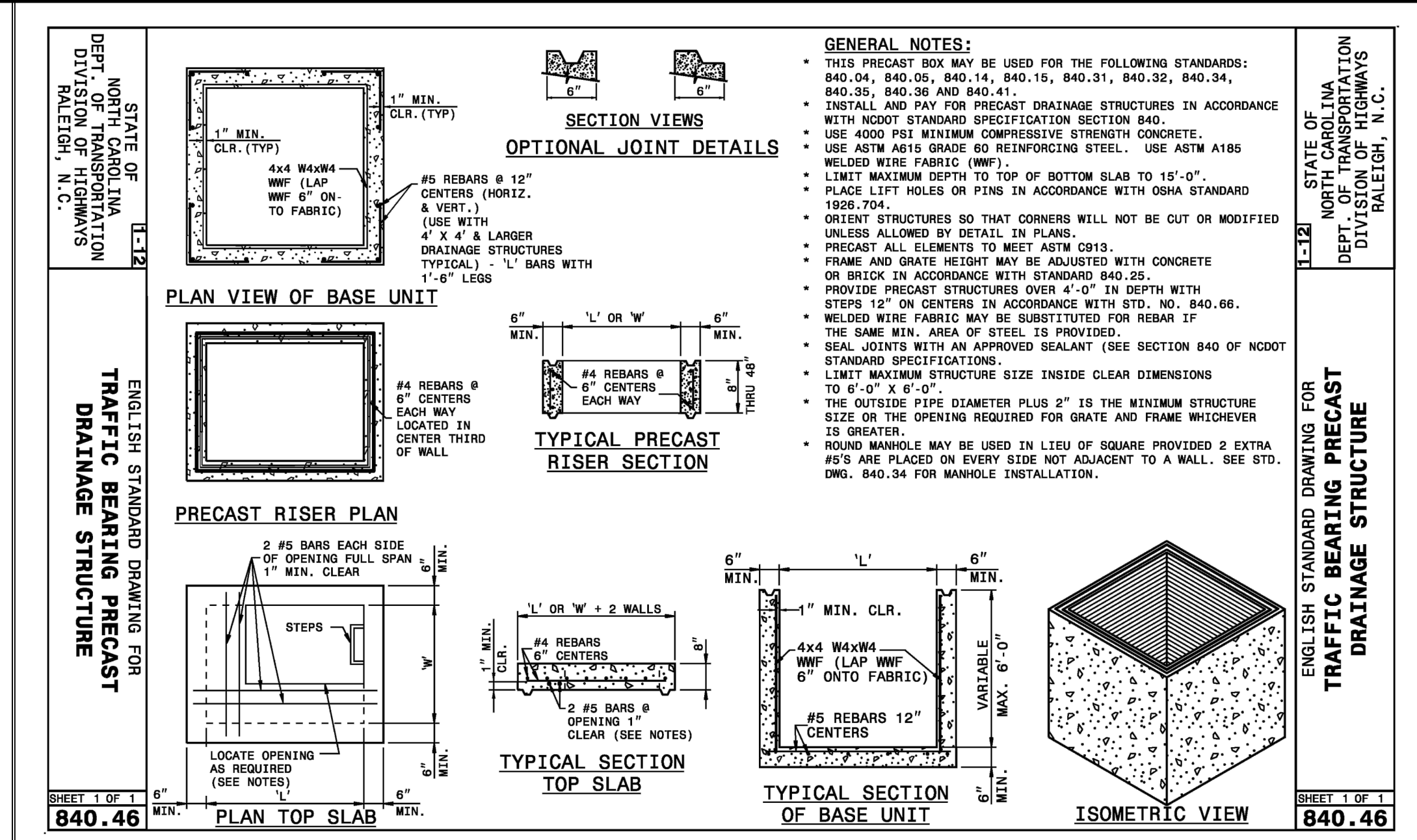
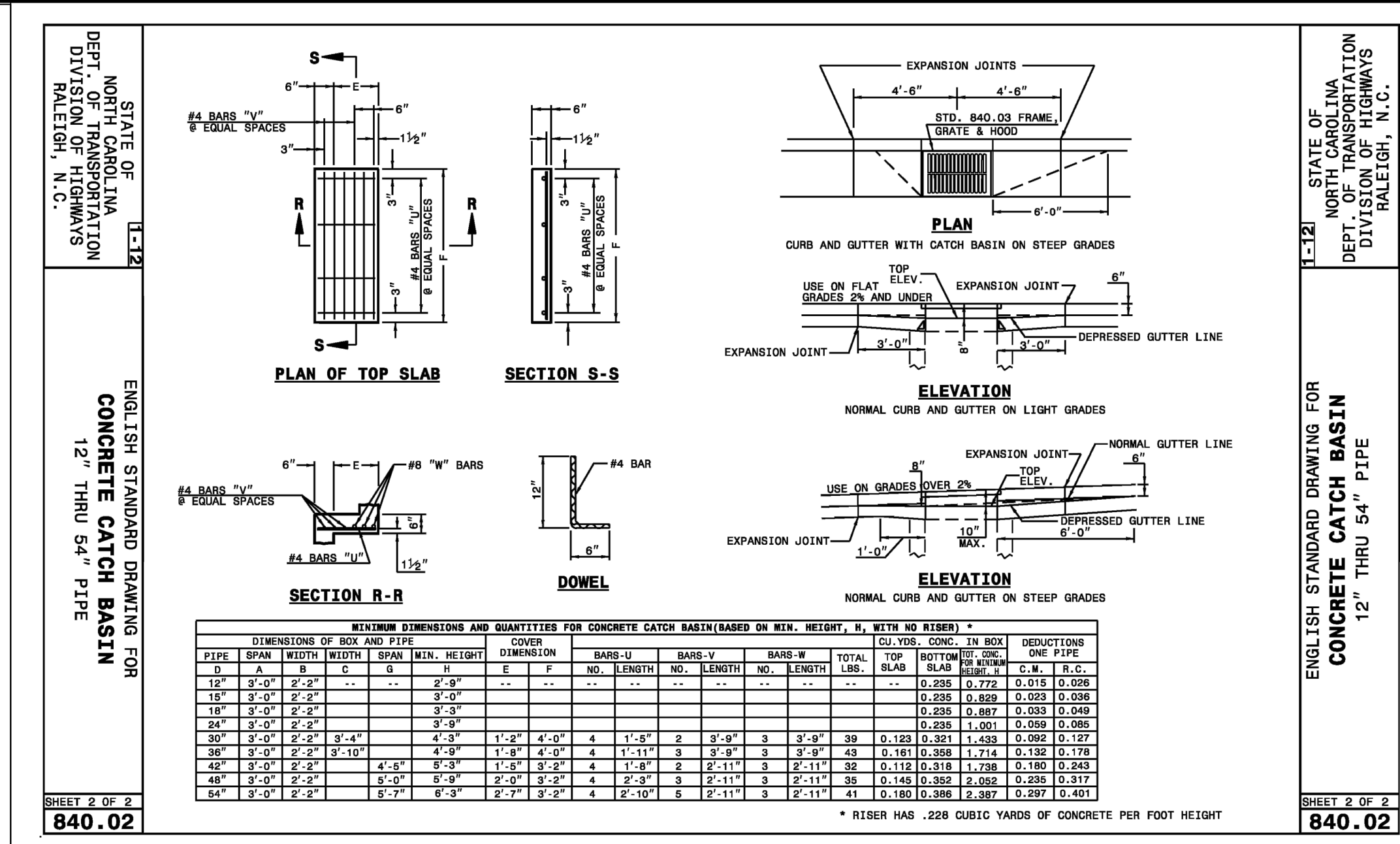
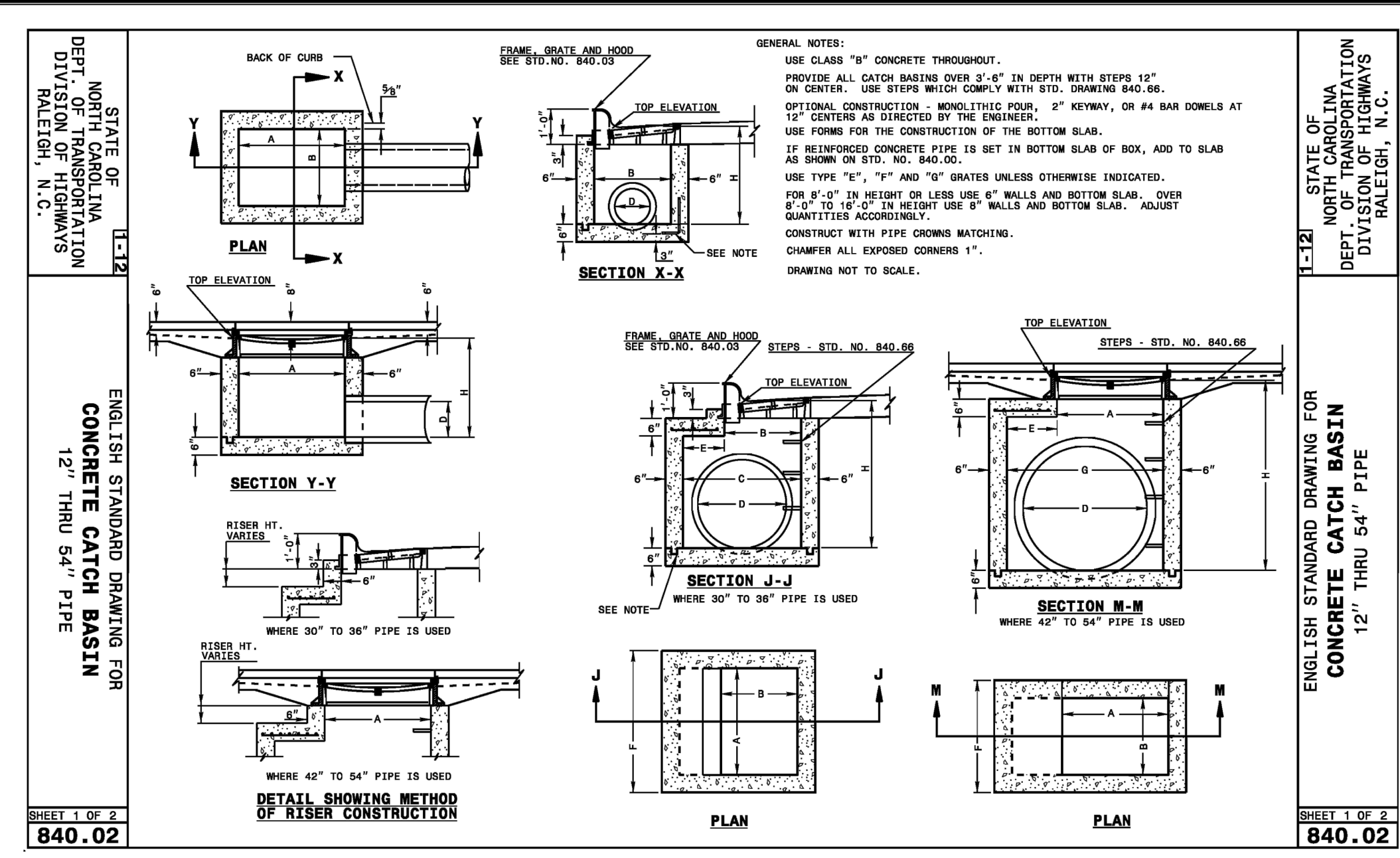


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EROSION AND SEDIMENT CONTROL  
DETAILS

DATE: 04-29-2015	SCALE: 1"=50'	MAC FILE NUMBER: CE-502
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DRAWN: EEM/KCBE	VERTICAL: N/A	REVISION: B
DESIGNED: KCBE		
CHECKED: NIL		
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STATUS: FINAL DESIGN NOT FOR CONSTRUCTION		



REV.	DESCRIPTION	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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STORM DRAINAGE DETAILS

by Newland COMMUNITIES

RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1

STORM DRAINAGE DETAILS

DATE: 04-29-2015  
 MCE PROJ. # 02735-0129  
 DRAWN: EEM/KCBE  
 DESIGNED: KCBE  
 CHECKED: NUL  
 PROJ. MGR: RMC

SCALE: HORIZONTAL: 1"=50'  
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MAC FILE NUMBER: CG-501  
 DRAWING NUMBER: 29  
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STATUS: FINAL DESIGN  
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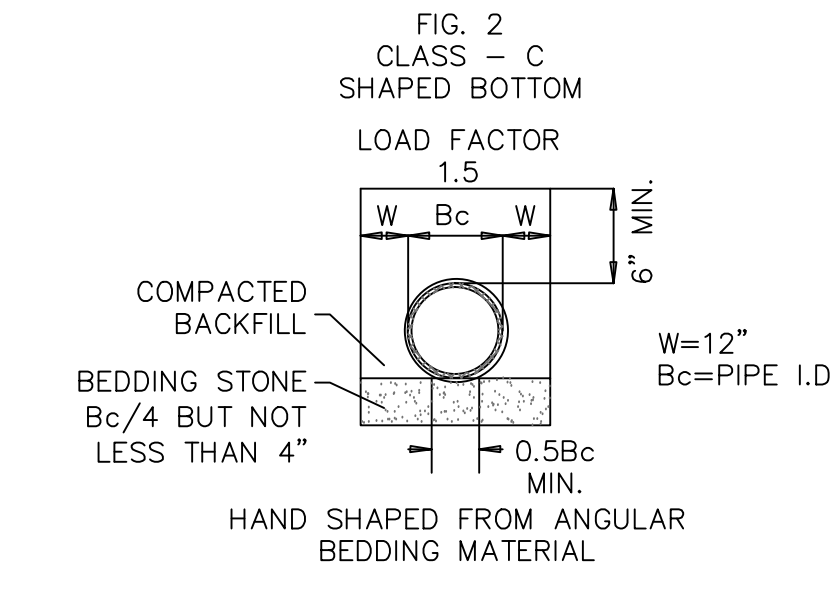
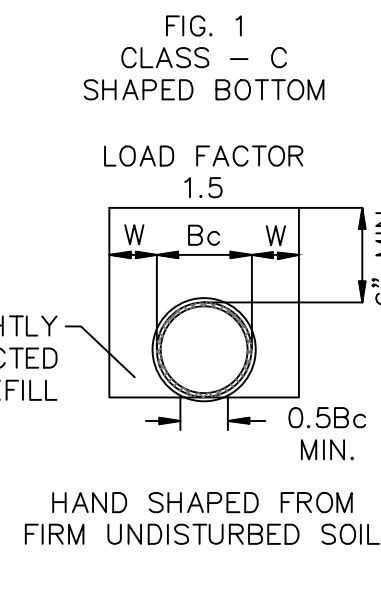
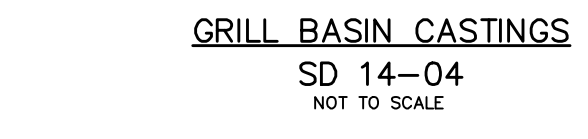
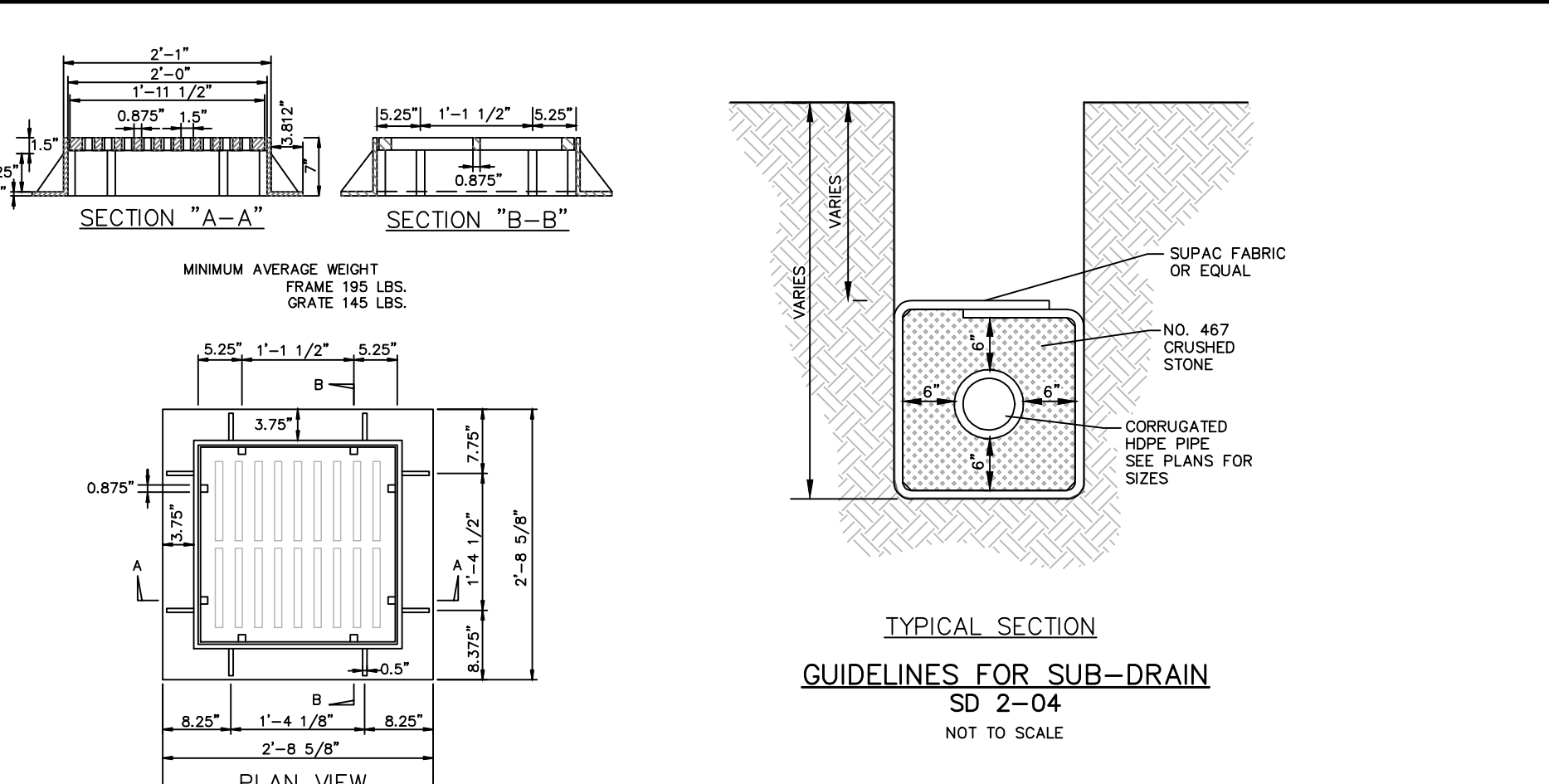
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PIPE TABLE with columns FROM, TO, INVERT UP, INVERT DN, DIA, LENGTH, SLOPE. Multiple tables containing various pipe segment data.

PIPE TABLE with columns FROM, TO, INVERT UP, INVERT DN, DIA, LENGTH, SLOPE. Multiple tables containing various pipe segment data.

PIPE TABLE with columns FROM, TO, INVERT UP, INVERT DN, DIA, LENGTH, SLOPE. Multiple tables containing various pipe segment data.

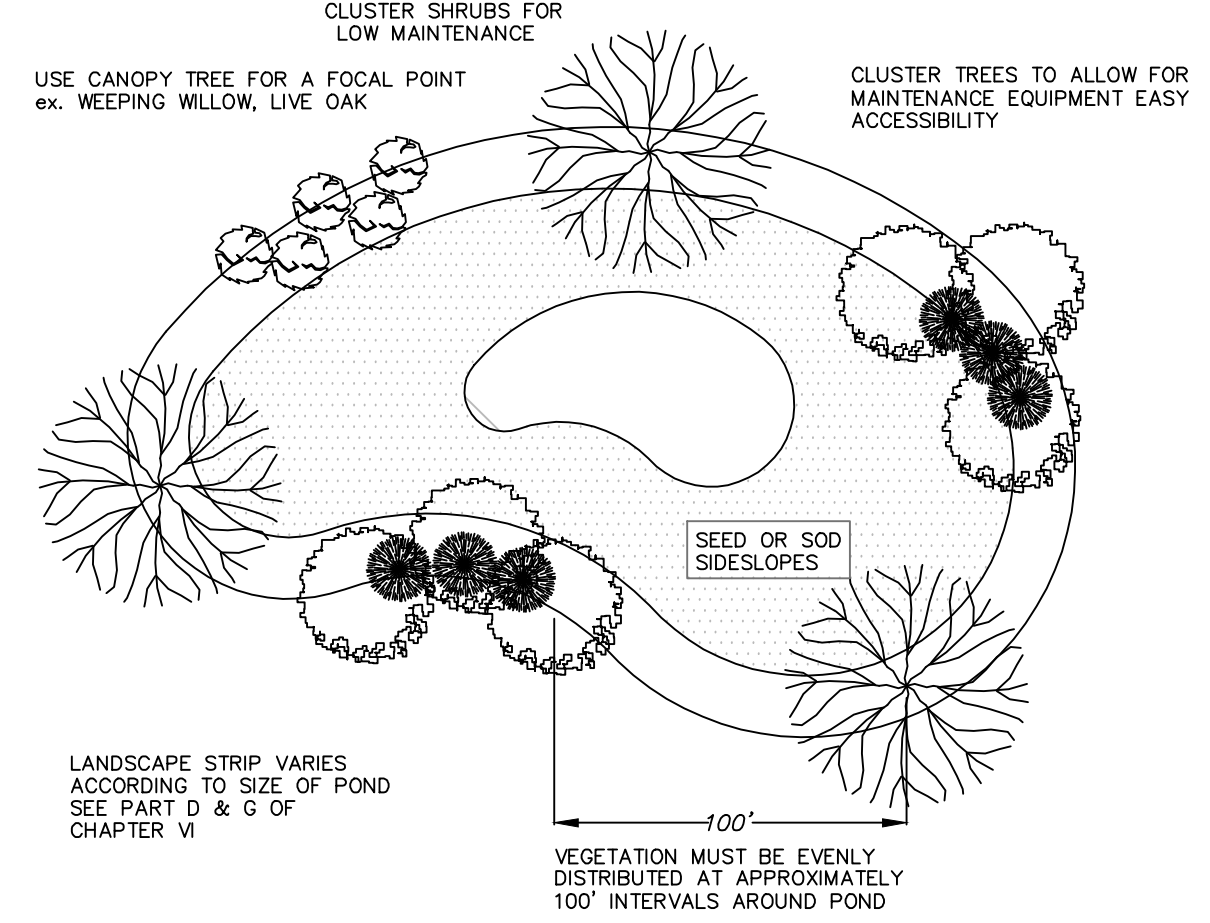
PIPE TABLE with columns FROM, TO, INVERT UP, INVERT DN, DIA, LENGTH, SLOPE. Multiple tables containing various pipe segment data.



GUIDELINES FOR BEDDING DETAILS, STORM SEWER CLASS C

SD 2-17 NOT TO SCALE

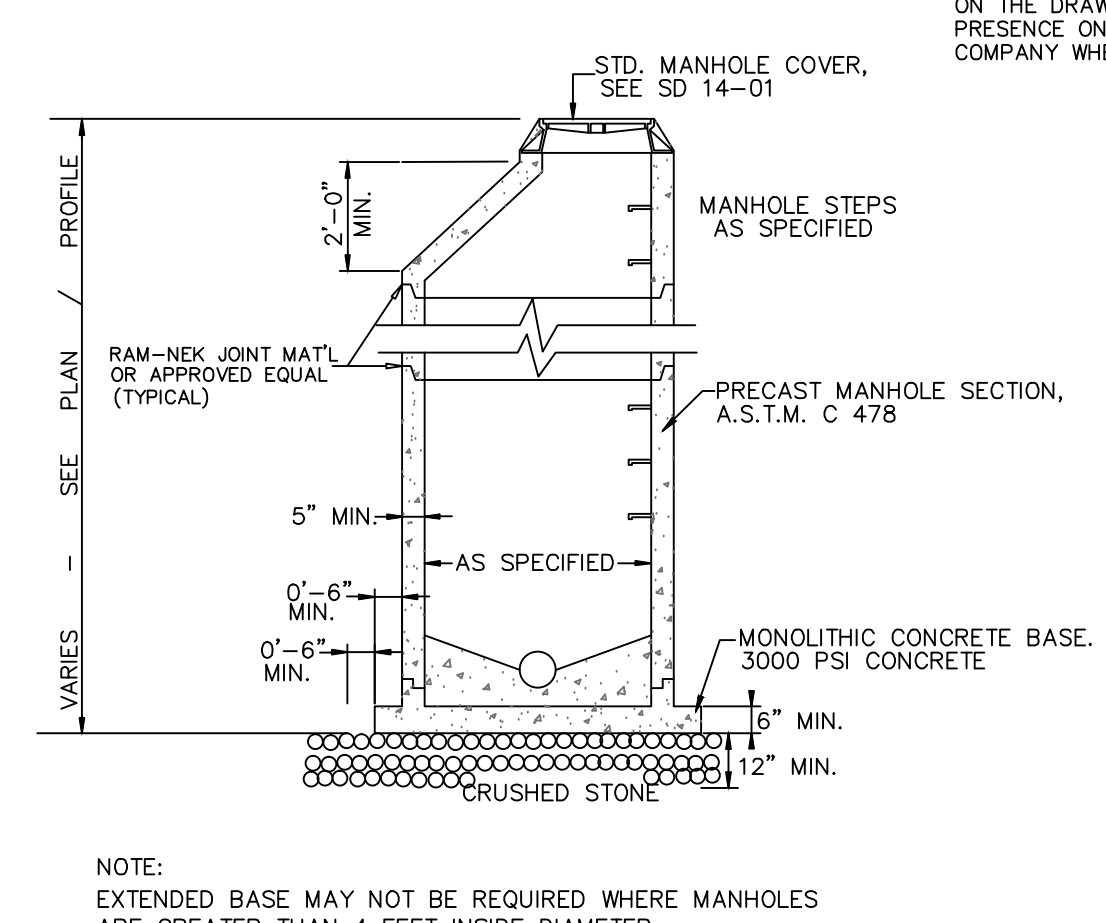
- EXCAVATION FOR STORM DRAINAGE PIPE SHALL BE TO THE LINES AND GRADES AS SHOWN ON THE PLANS.
THE BEDDING SHALL BE SHAPED IN ACCORDANCE WITH CLASS 'C' BEDDING AS SHOWN ON CITY STANDARD DETAIL SD 2-17.
THE BEDDING SHALL PROVIDE A FIRM FOUNDATION OF UNIFORM DENSITY ALONG THE ENTIRE LENGTH OF PIPE. RECESSES SHALL BE MADE TO ACCOMMODATE BELLS AND JOINTS.
WHERE UNSTABLE SOILS ARE ENCOUNTERED AS DETERMINED BY GEOTECHNICAL ENGINEER, A MINIMUM 4-INCH THICK BEDDING OF STONE SHALL BE PLACED, SEE FIGURE 2, SD 2-17.
THE STONE SHALL BE UNIFORMLY GRADED FROM 3/4 INCH TO NO. 4 IN ACCORDANCE WITH ASTM C-33. CARE SHALL BE TAKEN TO PREVENT UNDERCUTTING IN SUITABLE SOIL.
AREAS UNDERCUT SHALL BE FILLED WITH SUITABLE SOIL AND COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 STANDARD TEST METHOD.



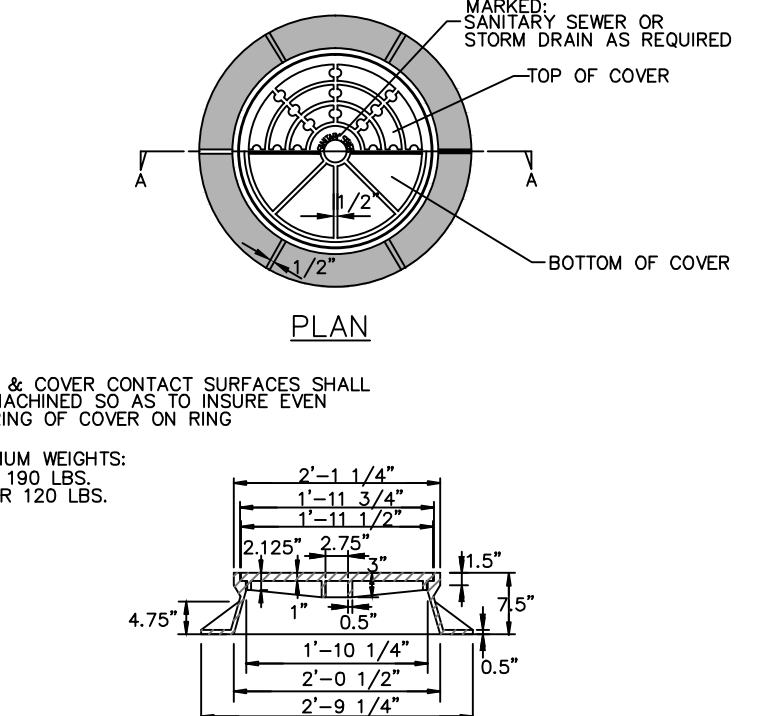
- IF POSSIBLE, LOCATE POND WHERE VEGETATION EXISTS.
SUGGEST MINIMAL CLEARING TO CONSERVE VISUAL QUALITY OF SITE AND MINIMIZE THE ADDITIONAL OF TREE PLANTING. AN IRREGULAR SHAPE PROVIDES A MORE NATURAL APPEARANCE.
LANDSCAPE STRIP SHALL BE A MAXIMUM SLOPE OF 7:1 IN ORDER TO PLANT VEGETATION.
PROVIDE A MINIMUM OF 3 INCHES OF MULCH AROUND ALL VEGETATION.

TYPICAL STORM WATER FACILITY LANDSCAPING PLAN

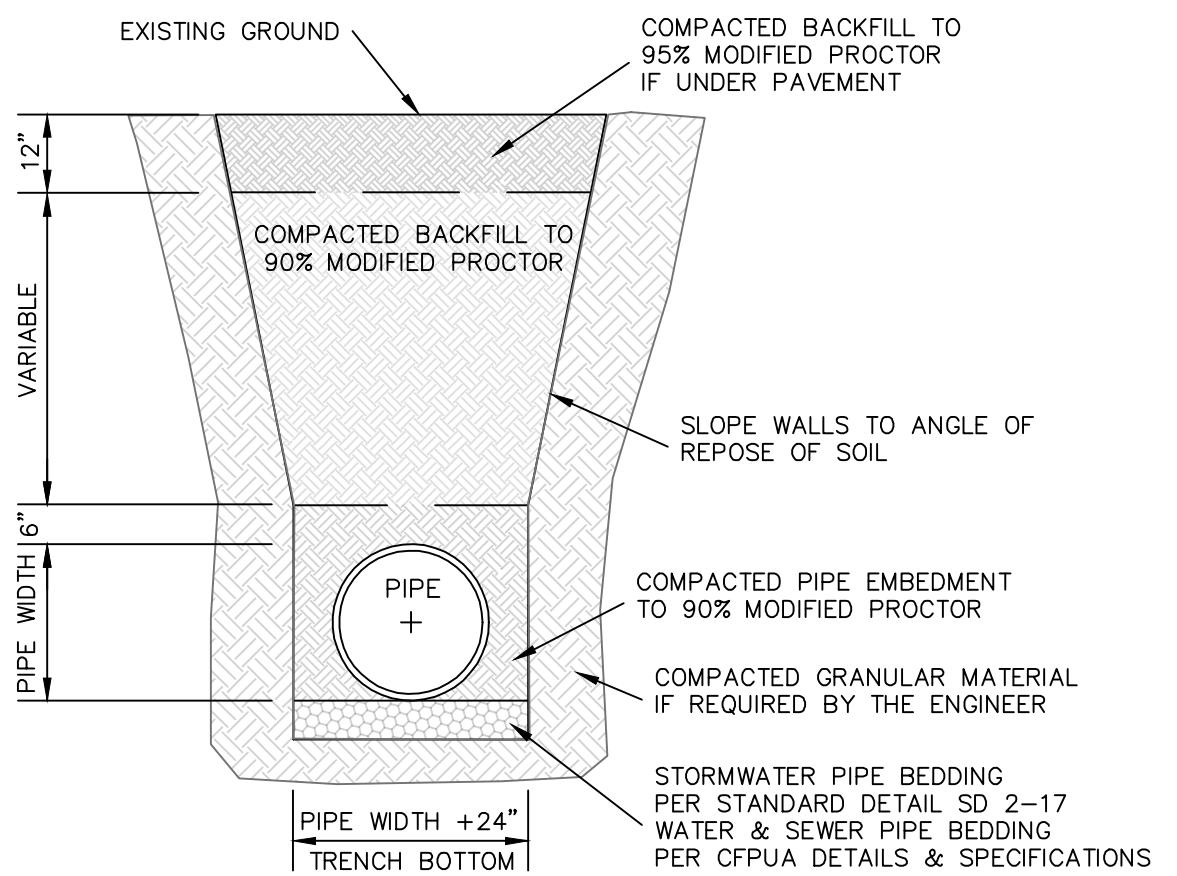
SD 15-16



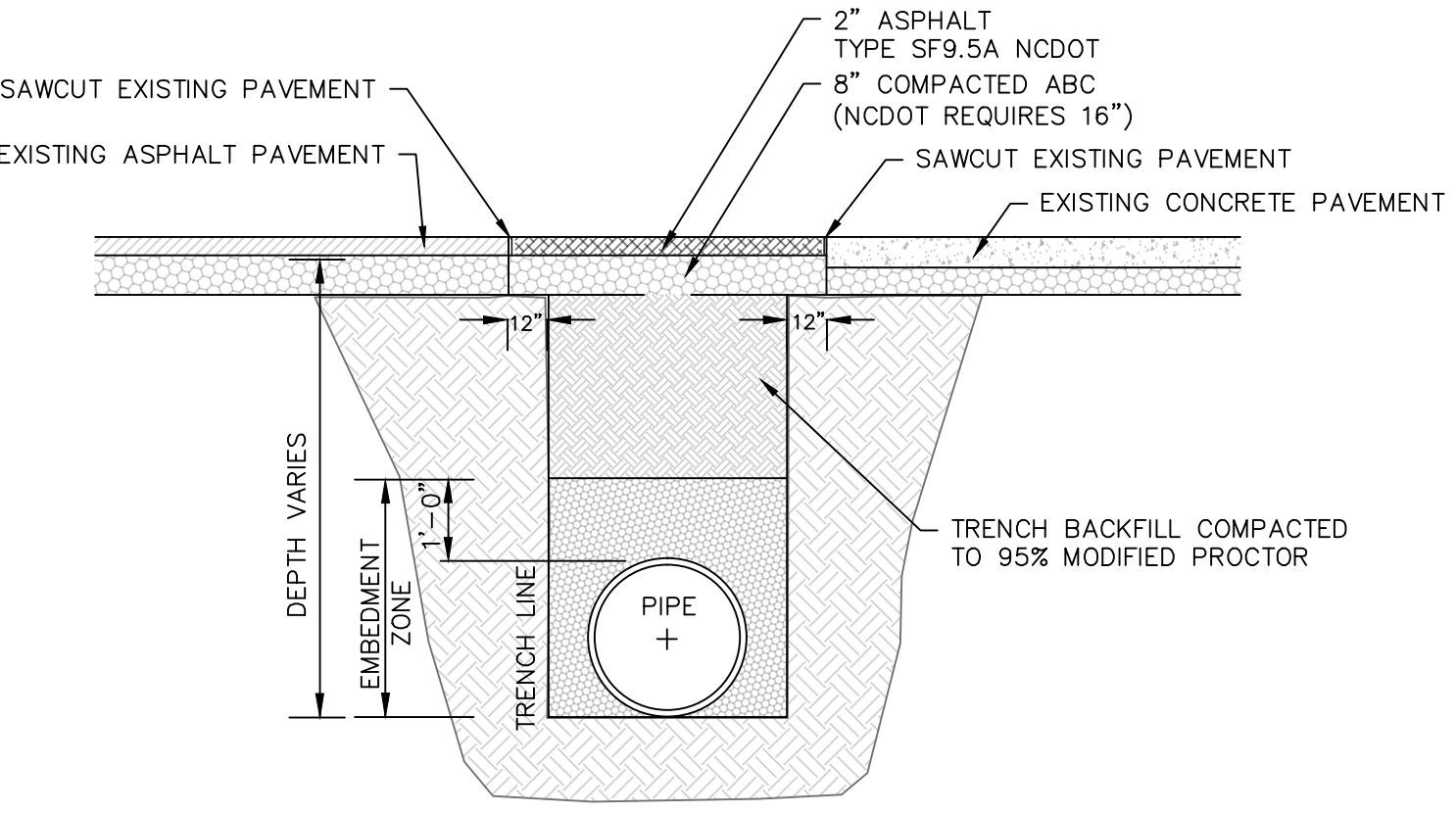
PRECAST MANHOLE SD 14-11 NOT TO SCALE



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

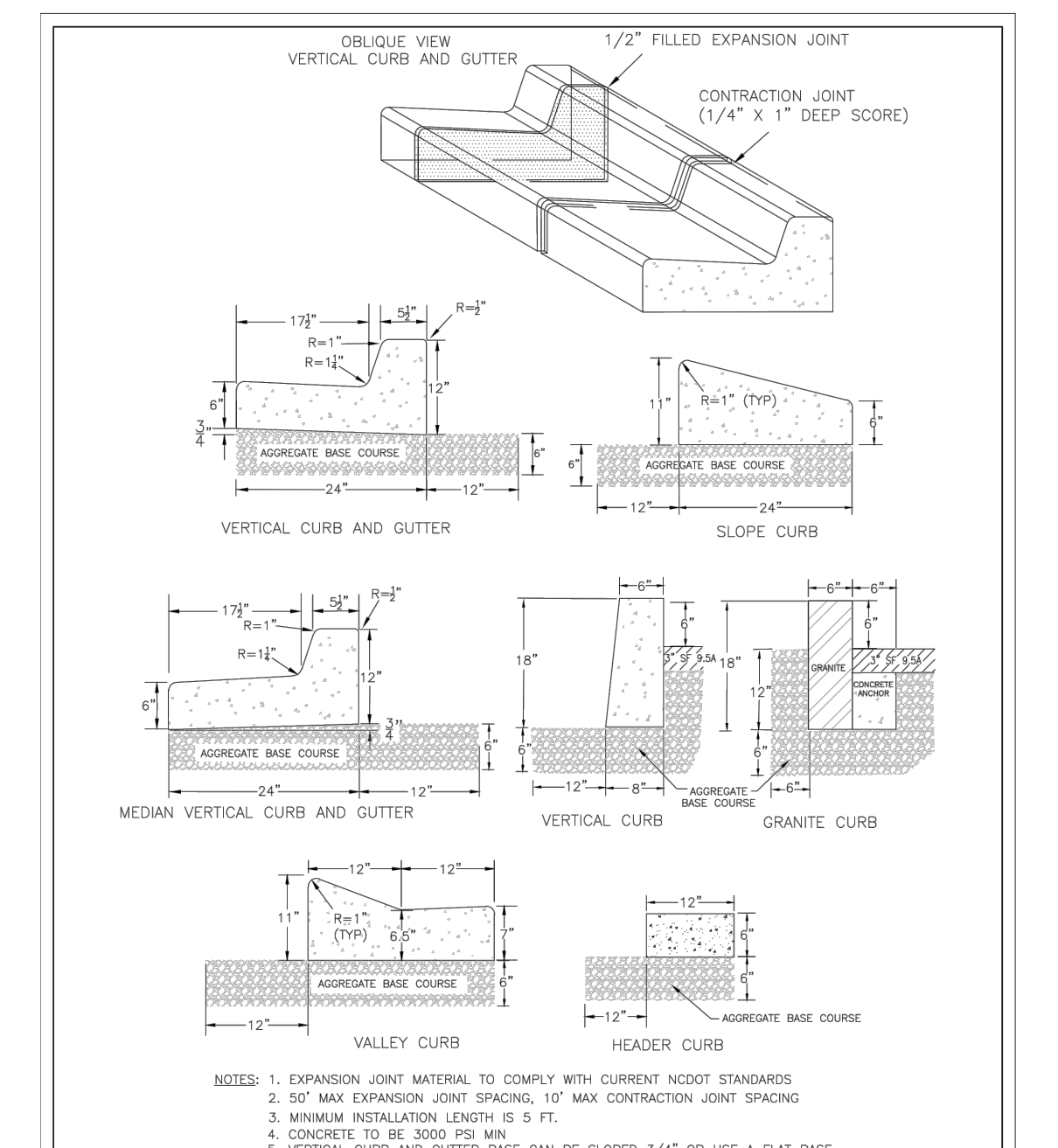


STANDARD PIPE TRENCH DETAIL SD 1-07 NOT TO SCALE



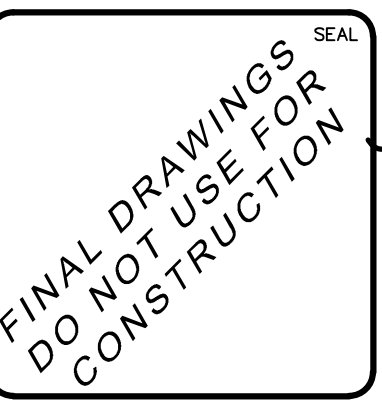
- BACKFILL TO BE INSTALLED IN 6" LIFTS (MAXIMUM) AND COMPACTED TO A MINIMUM DENSITY OF 95% AS DETERMINED BY THE MODIFIED A.A.S.H.T.O. STANDARD METHOD T-99
CUT - BACK TO BE PREPARED AFTER TRENCH BACKFILLING AND COMPACTION

STANDARD SHOWING METHOD MAKING PAVEMENT REPAIRS WHERE PIPE IS INSTALLED SD 1-16 NOT TO SCALE



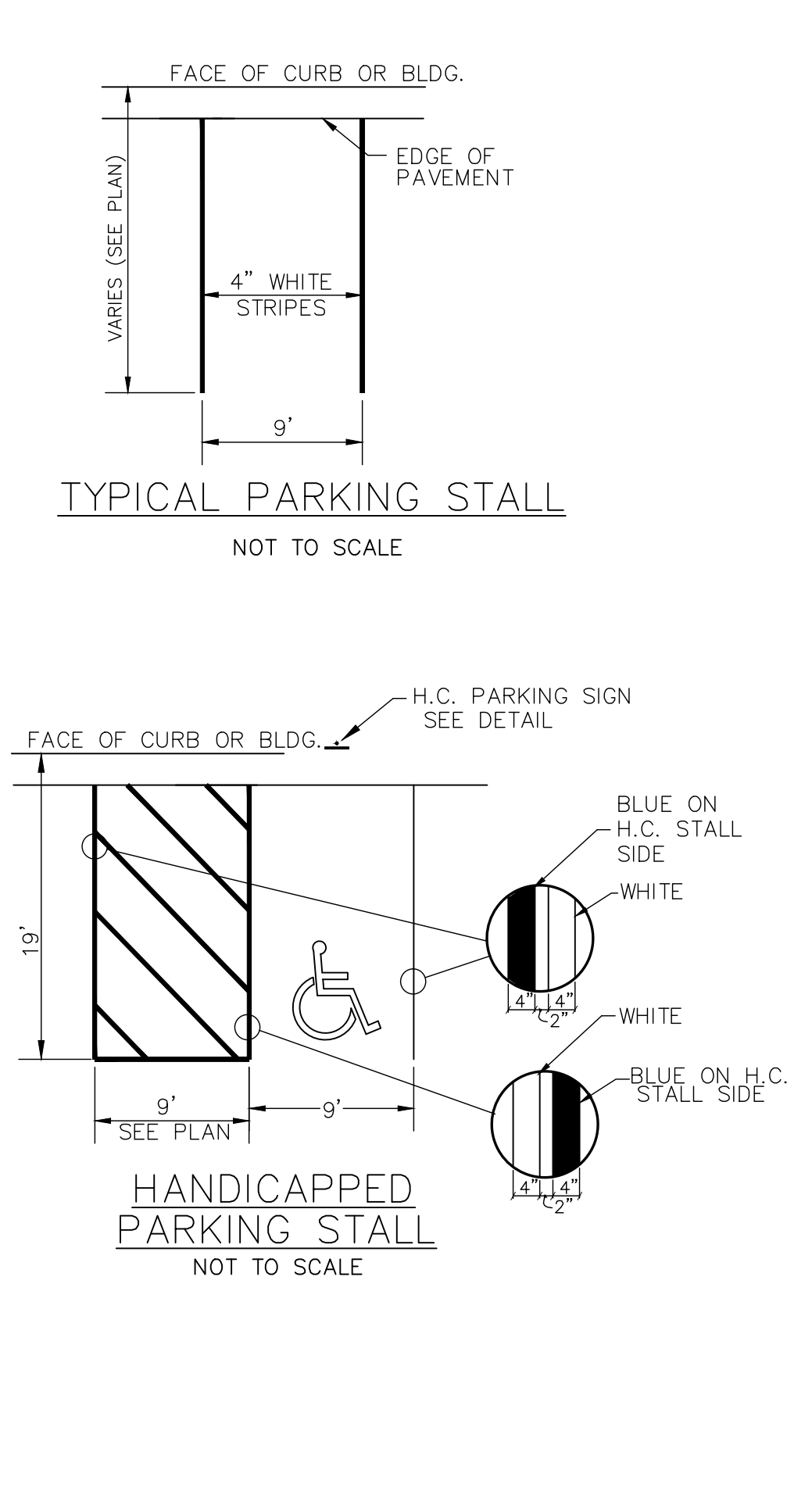
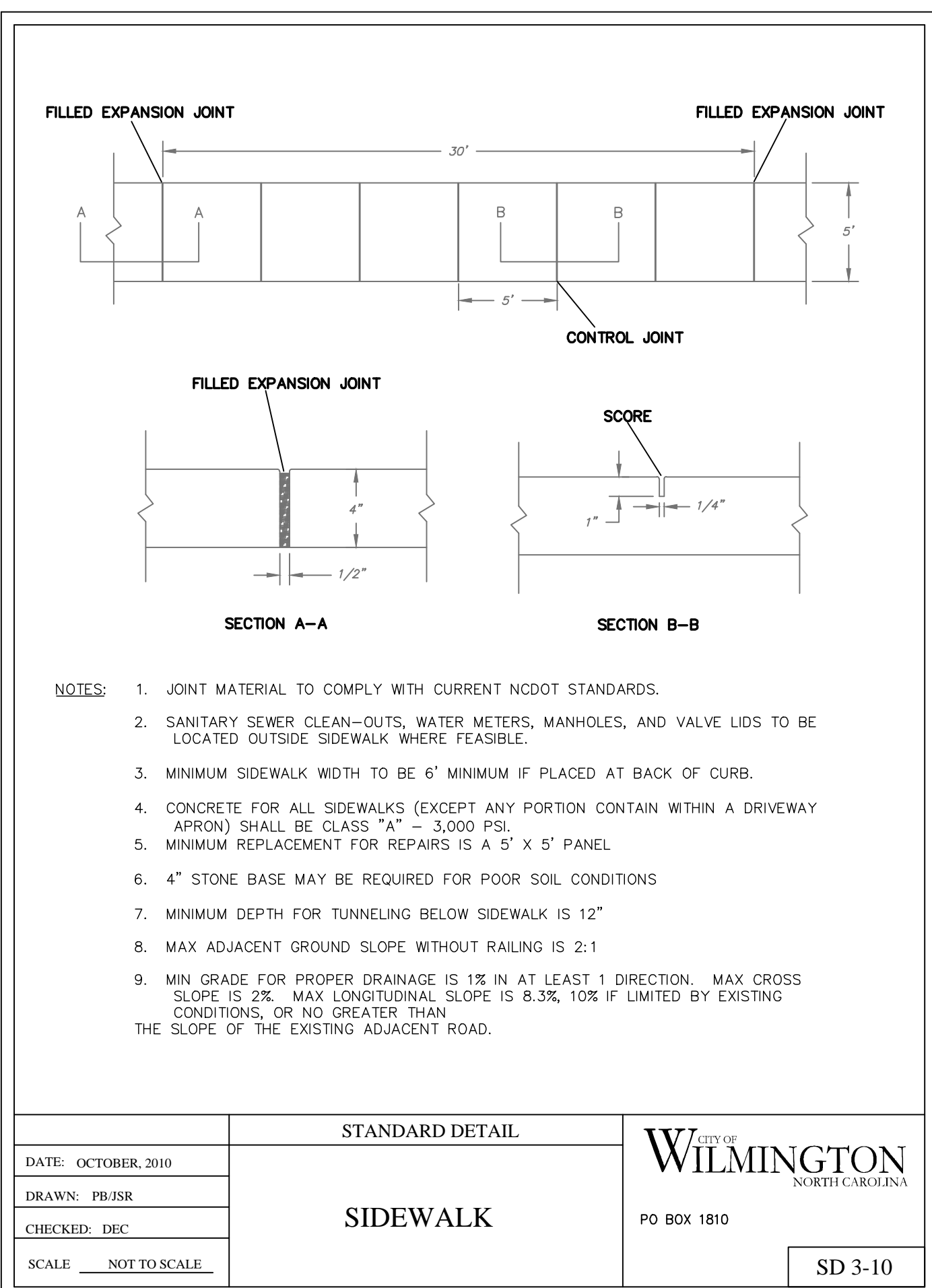
STANDARD DETAIL CURBING SD 3-11

Revision table with columns REVNO, DESCRIPTIONS, REVISIONS, DATE.



RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1 STORM DRAINAGE DETAILS

DATE: 04-29-2015, MCE PROJ. # 02735-0129, SCALE: 1"=50', DRAWN: EEM/KCBE, DESIGNED: KCBE, CHECKED: NUL, PROJ. MGR: RMC, STATUS: FINAL DESIGN, NOT FOR CONSTRUCTION, REVISION B



**GENERAL NOTES**

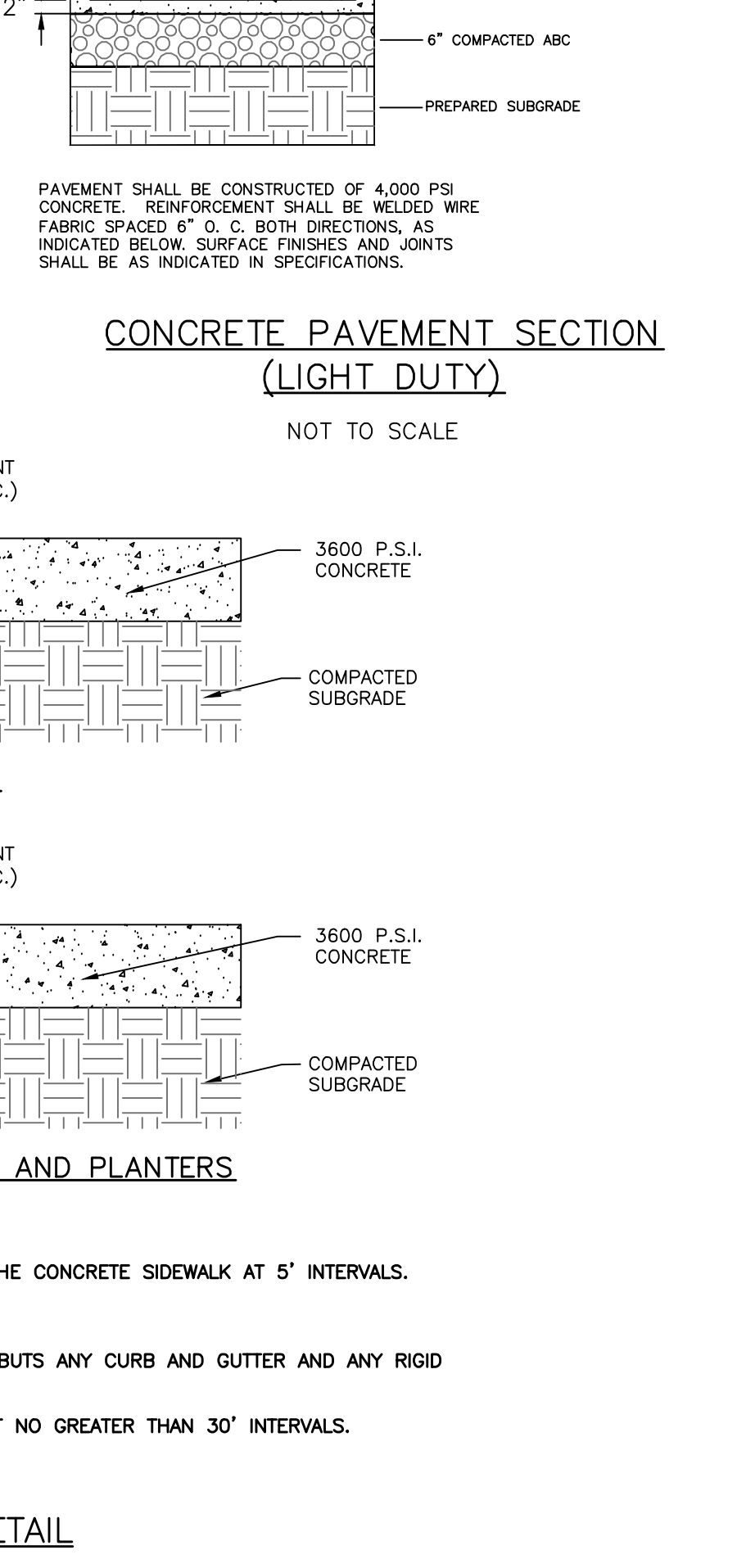
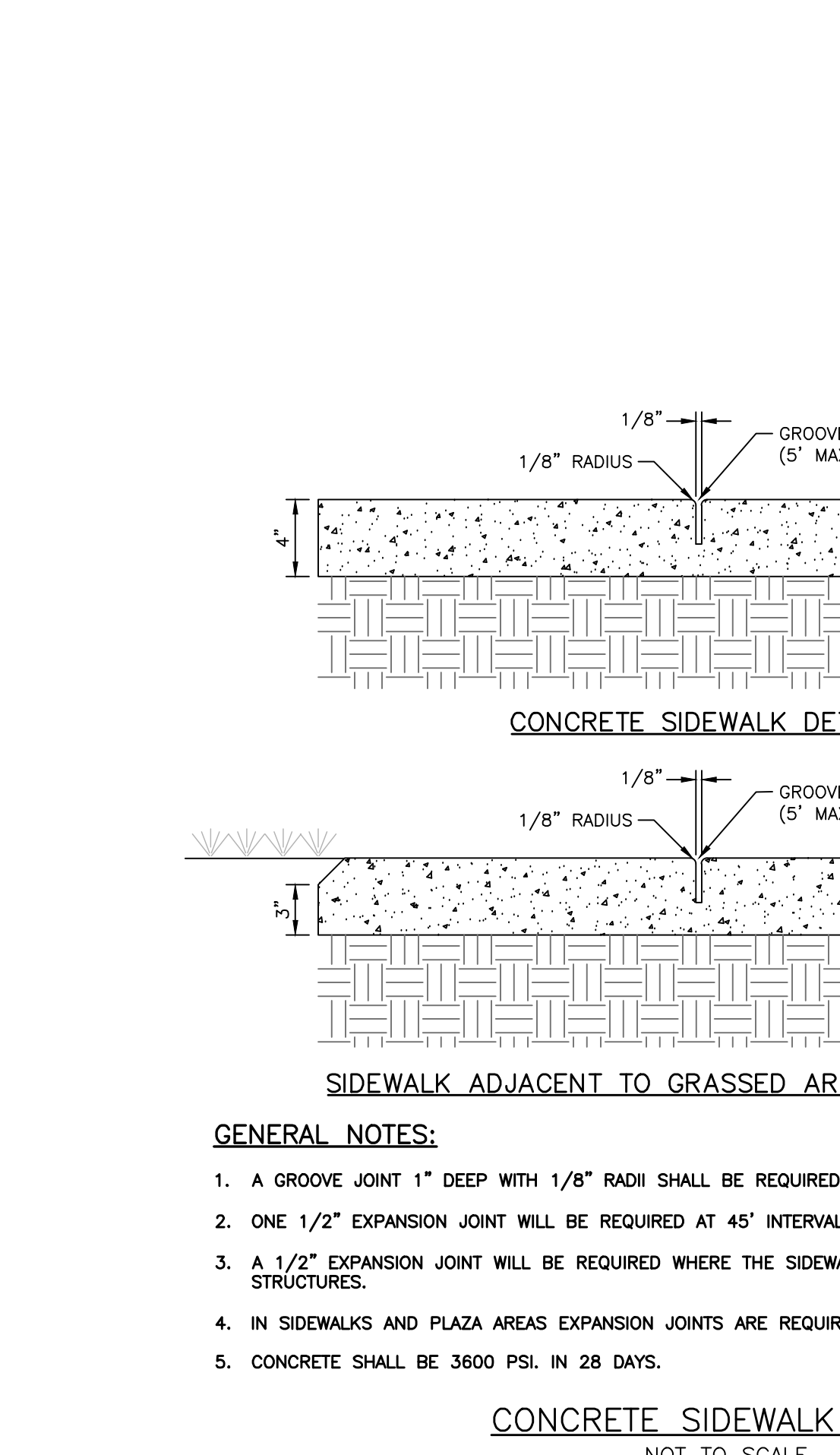
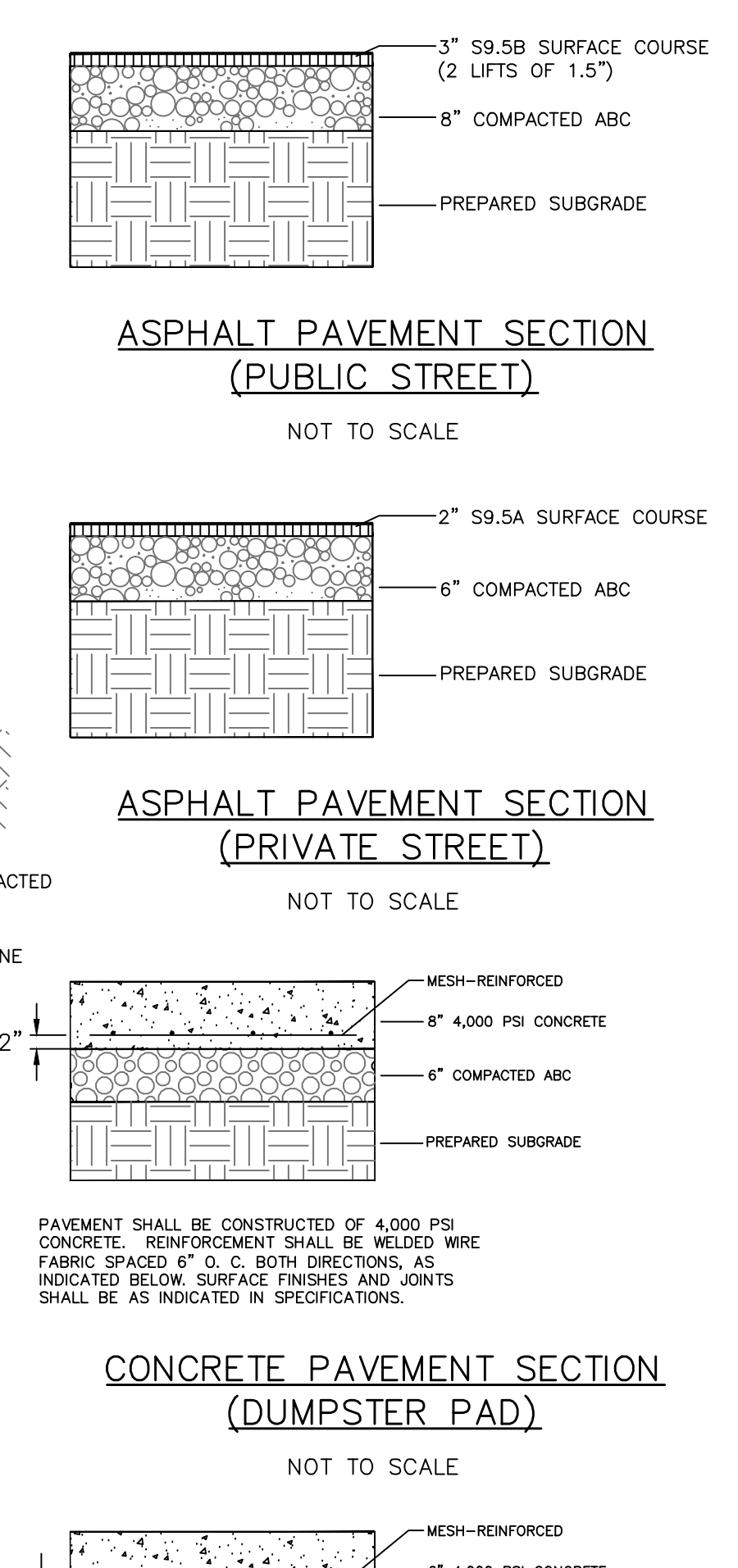
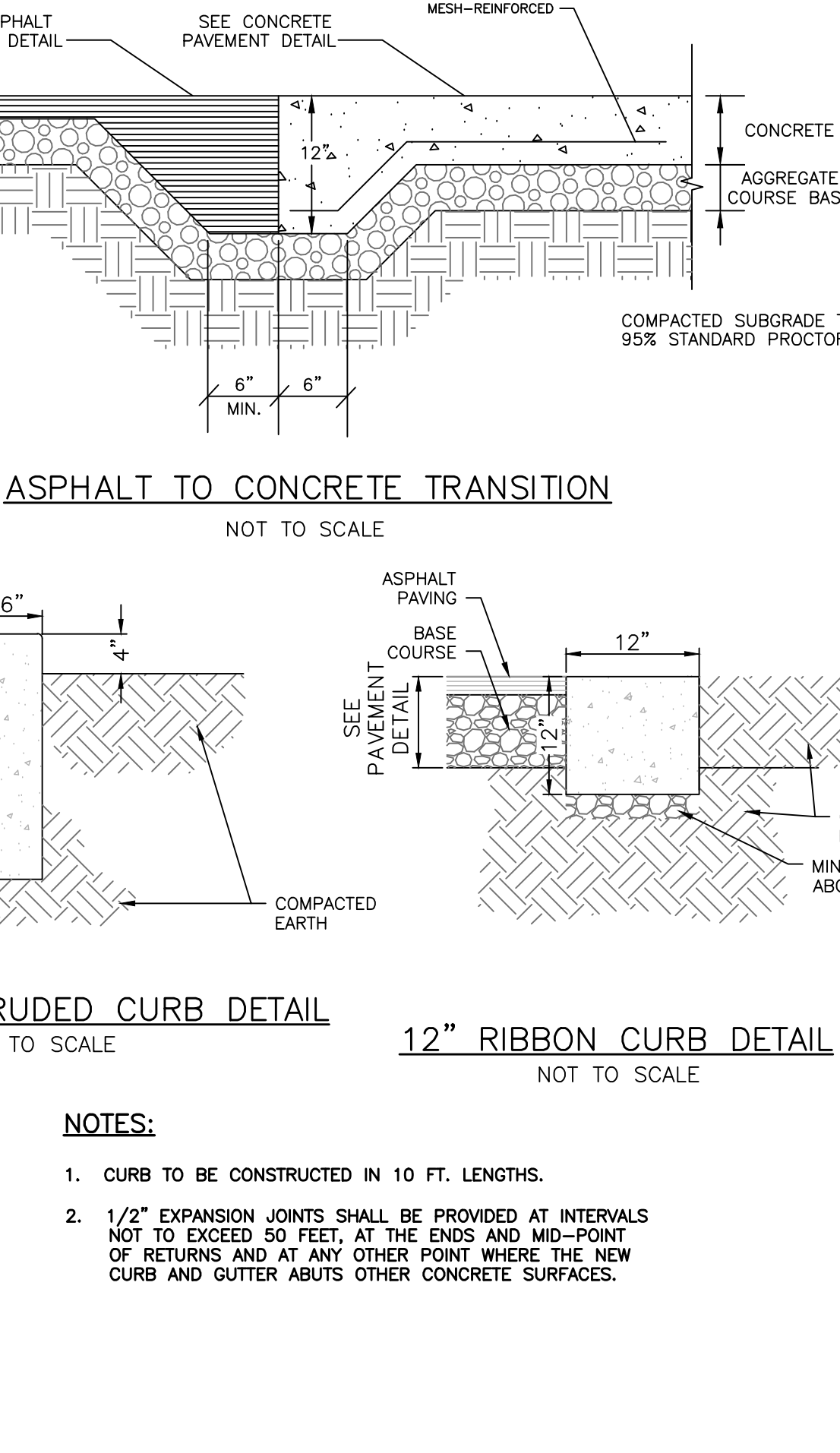
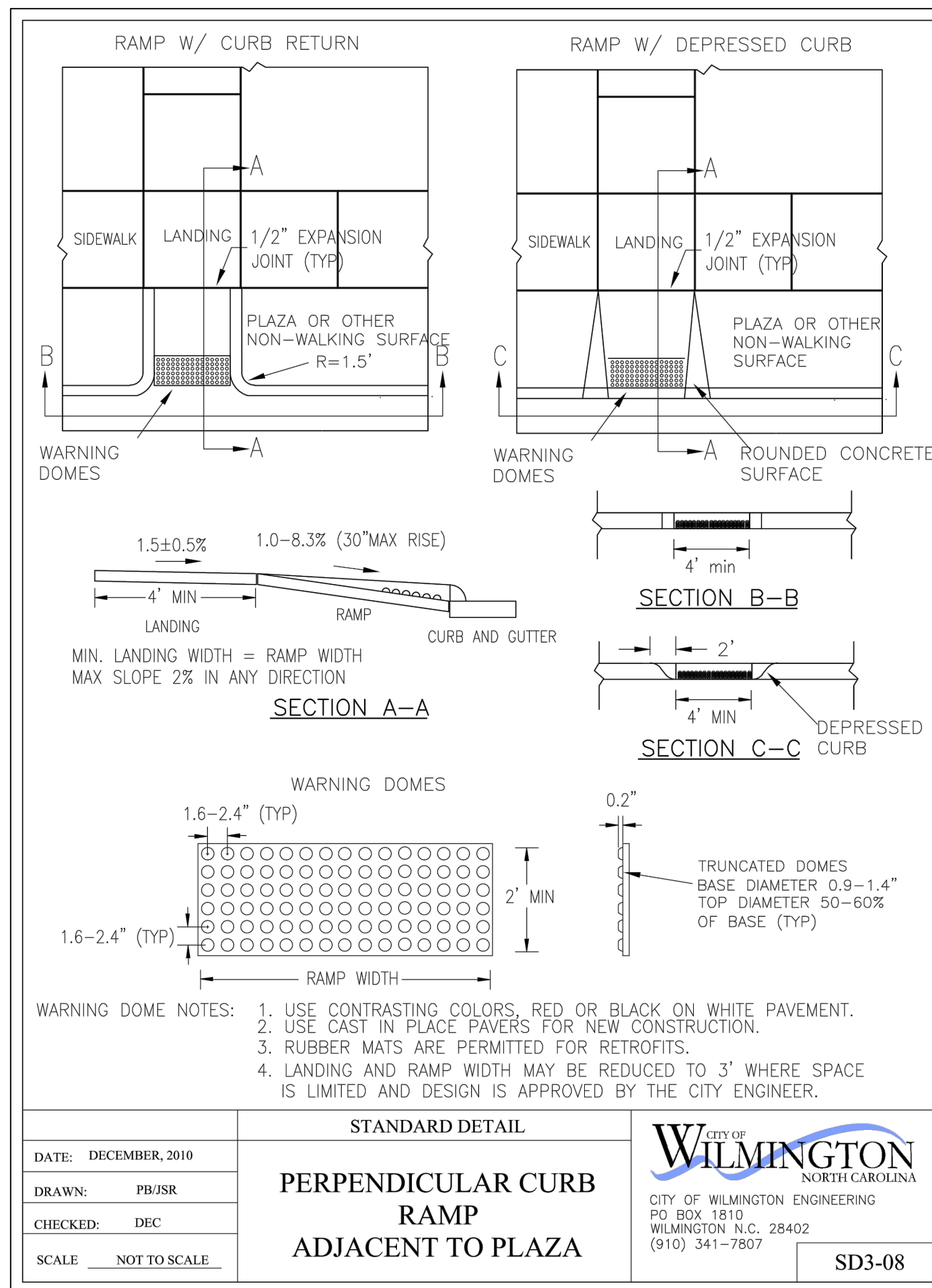
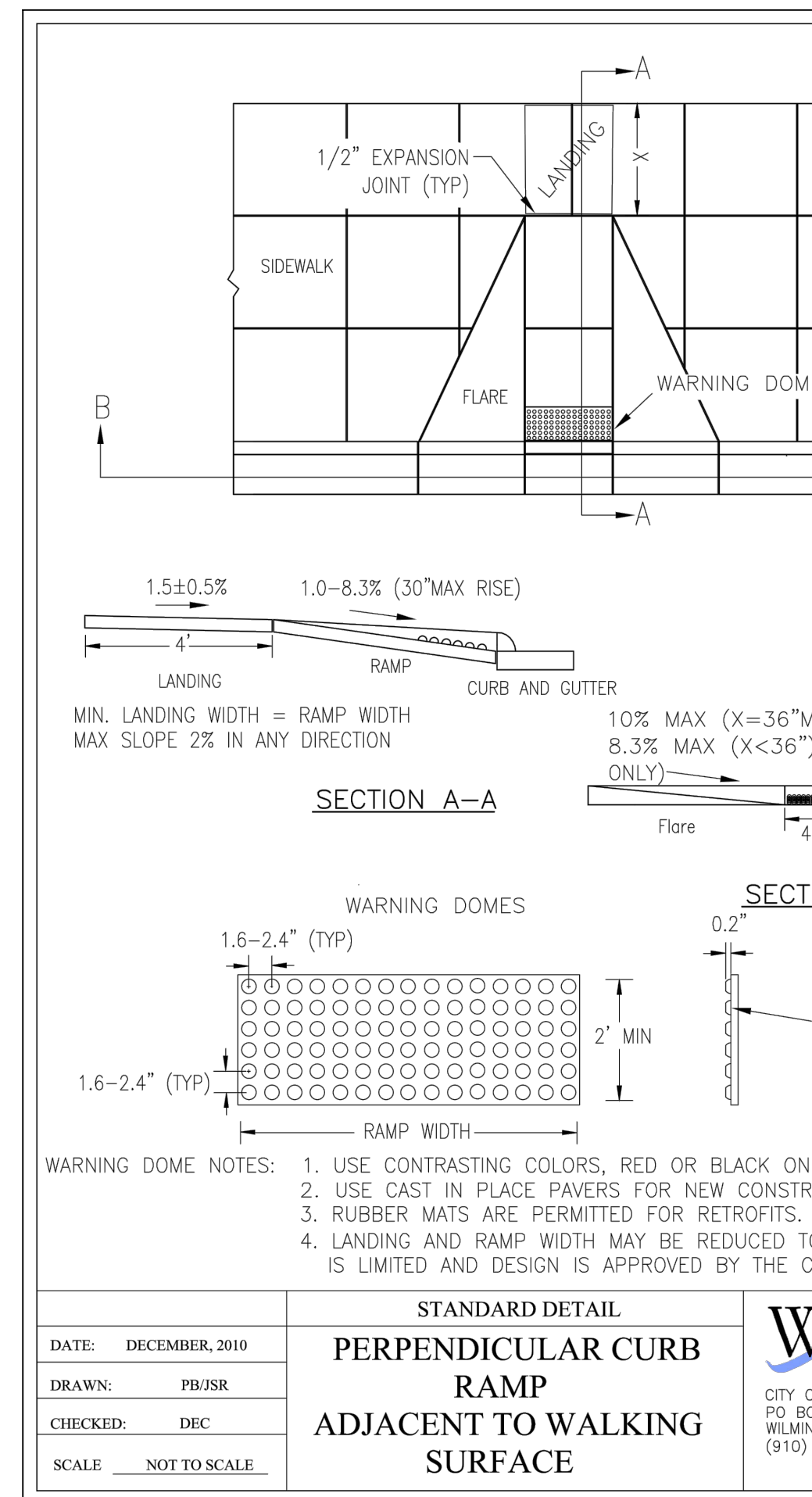
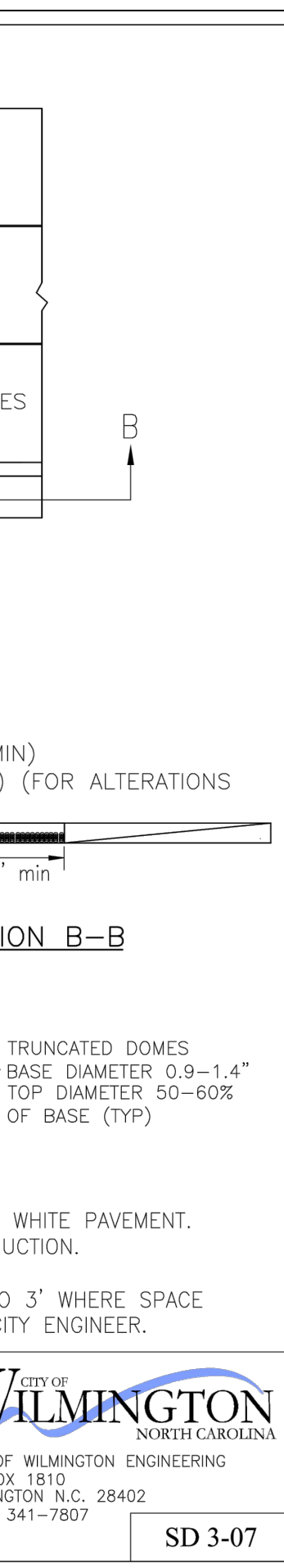
- IN ACCORDANCE WITH N.C.G.S. 136-44.14, ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED ON EACH SIDE OF ANY STREET OR ROAD, WHERE CURBS AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
- WHEELCHAIR RAMPS SHALL BE LOCATED 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"-IN. 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.

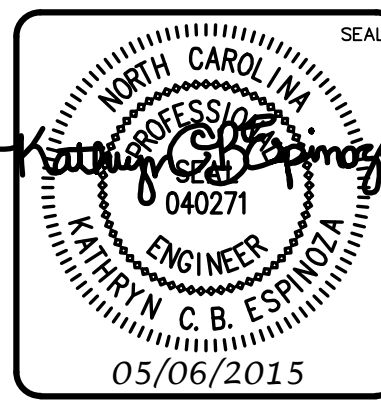
**ADDITIONAL NOTES**

- 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.



REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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**RIVERLIGHTS**  
 by Newland COMMUNITIES

**RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD PH. 1**

**SITE PLAN DETAILS**

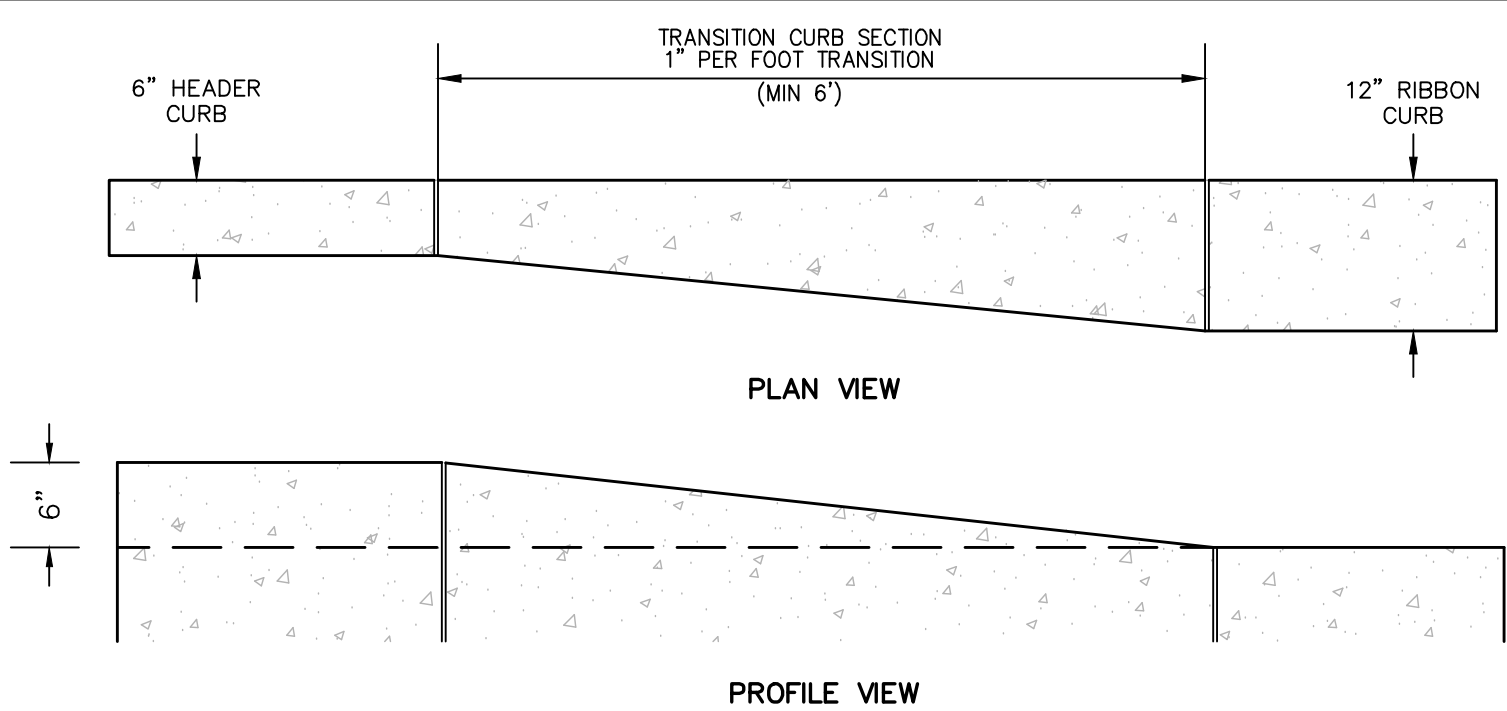
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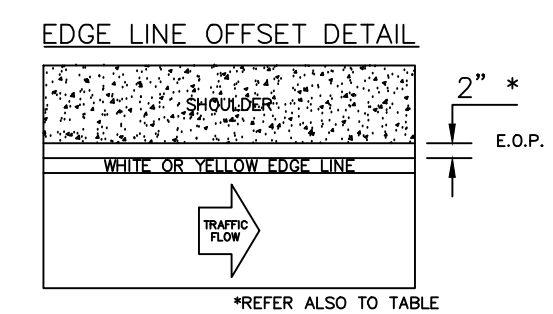
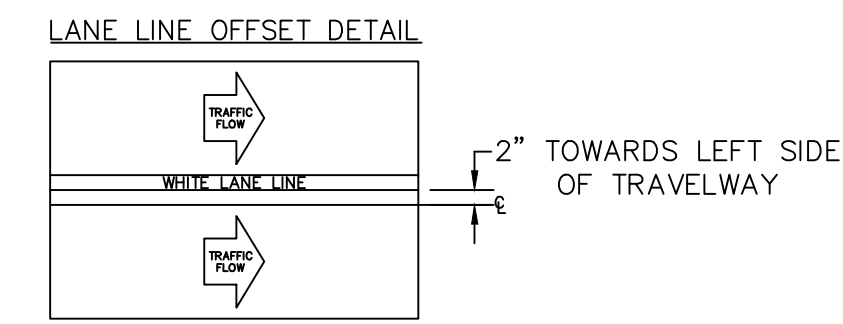
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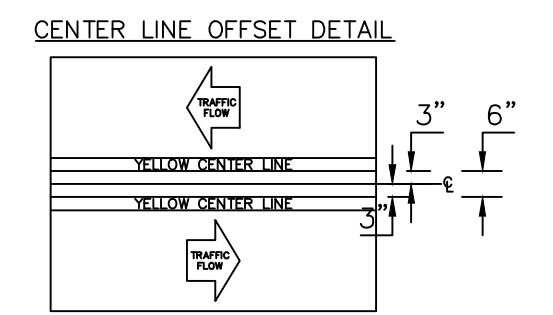
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TRANSITION CURB  
NOT TO SCALE



PAVEMENT MARKINGS  
OFFSETS  
SD 11-02



**TABLE 1**  
EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS

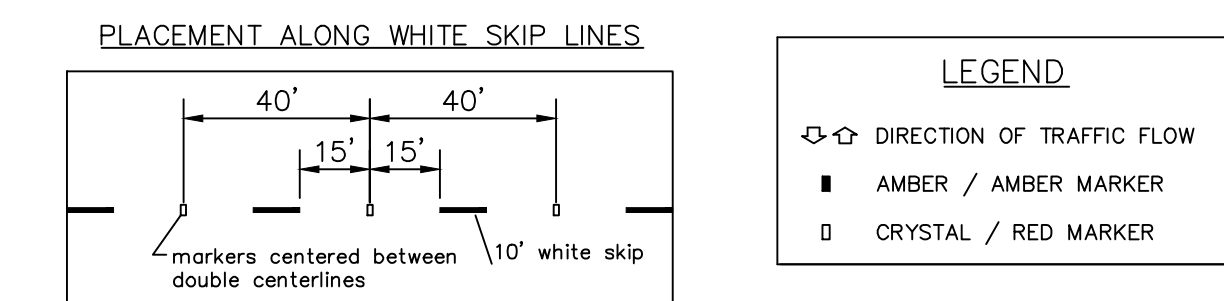
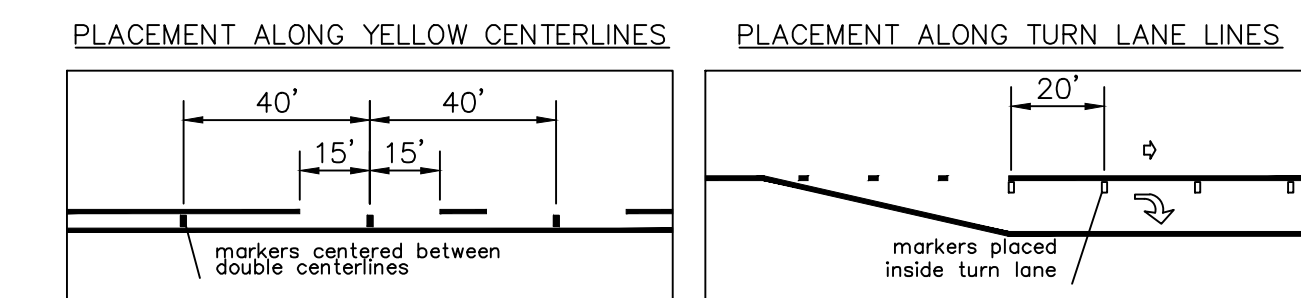
WIDTH OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E. O. P.	MINIMUM LANE WIDTH
16' - 20'	2"	8' - 10'
22'	2"	11'
24'	1"	11'
26'	2"	11'
28'	2"	12'
30'	3"	12'
32'	4"	12'

**PAVEMENT MARKER SPACING CHART**

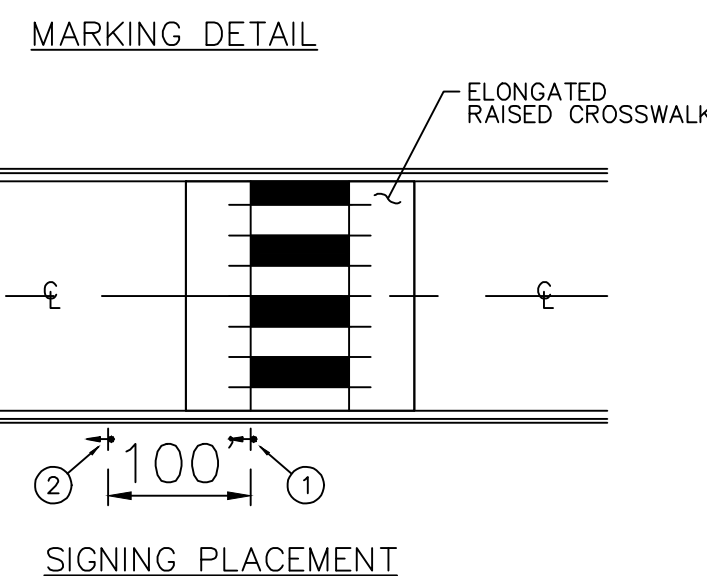
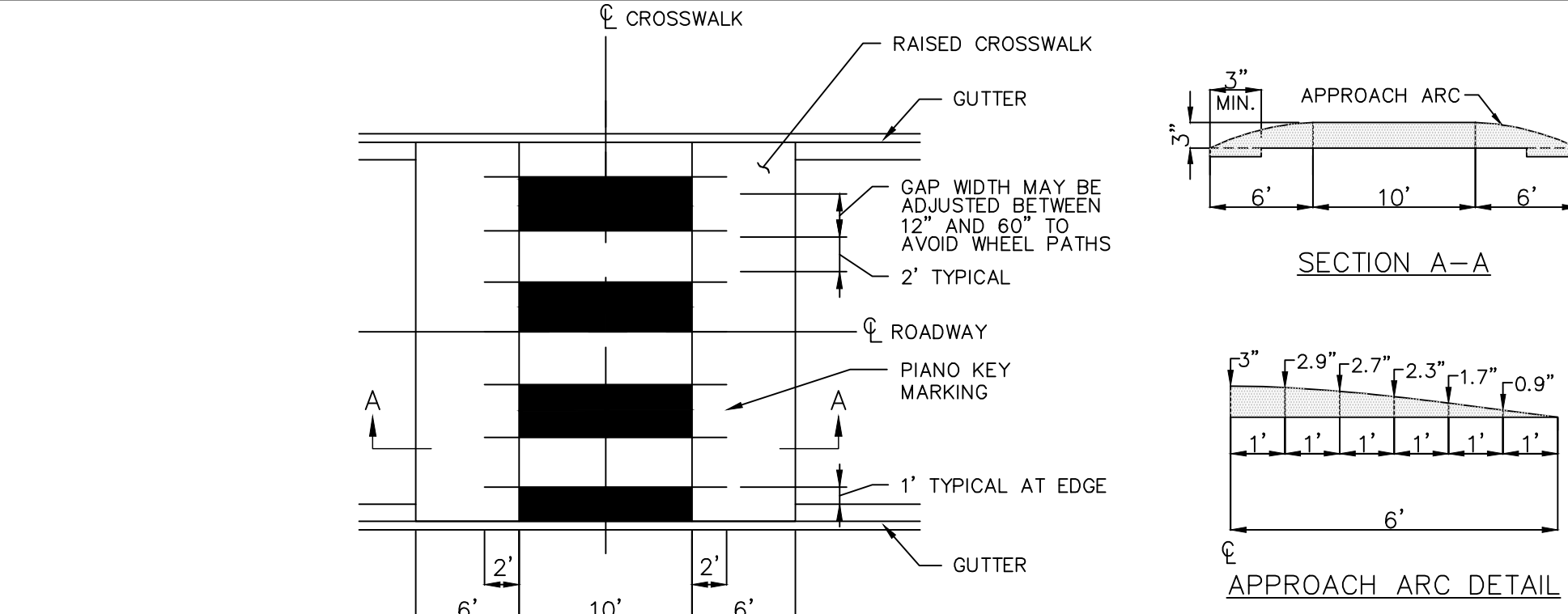
TYPE OF PAVEMENT MARKING	TYPICAL SPACING in FT (speed limit <= 45mph)
Centerlines--along through lanes	40
Centerlines--along horizontal curves	per Traffic Engineering
Skip Lines--along through lanes	40
Turn Lanes--Skip Lines	40
Turn Lanes--Solid Lane Lines	20
Turn Lanes--Centerlines	40
Pointed Islands--White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

**GENERAL NOTES**

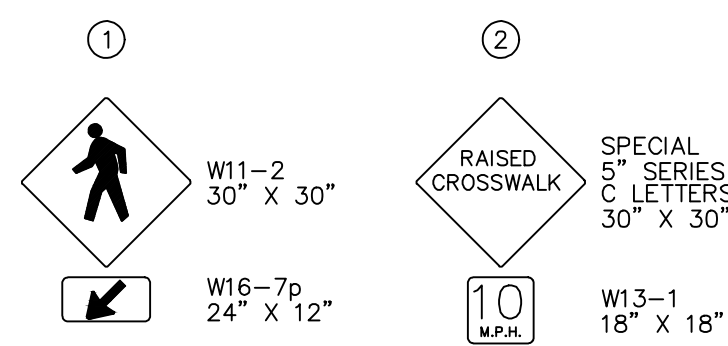
- CRYSTAL/RED MARKERS SHALL BE USED ALONG WHITE PAVEMENT MARKINGS UNLESS OTHERWISE DIRECTED BY TRAFFIC ENGINEERING. RED SIDE OF MARKER TO FACE.
- WRONG-WAY TRAFFIC.
- PAVEMENT MARKINGS SHOULD NOT BE PLACED CLOSER THAN 2 INCHES TO A PAVEMENT CONSTRUCTION JOINT, EXCEPT WHEN PLACED BETWEEN DOUBLE YELLOW 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.



PAVEMENT MARKINGS  
RAISED PAVEMENT MARKERS  
SD 11-10



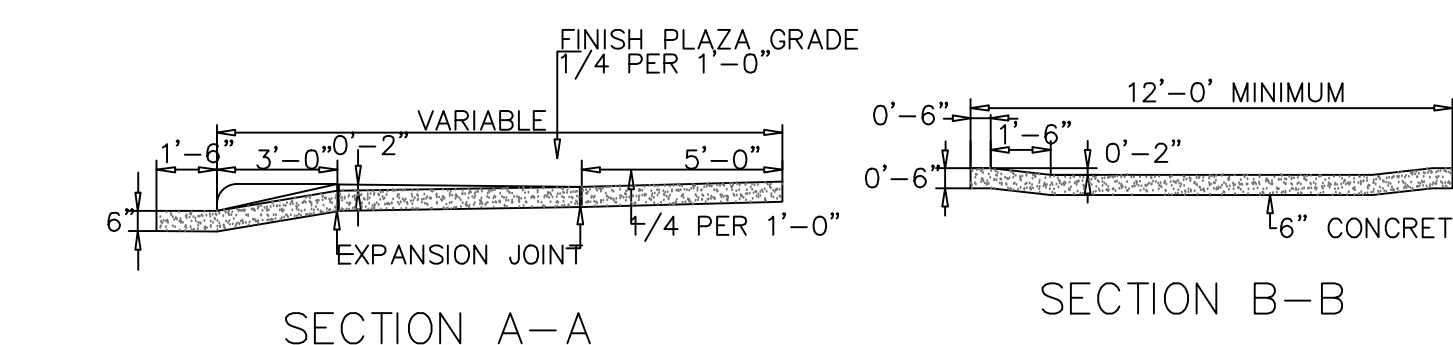
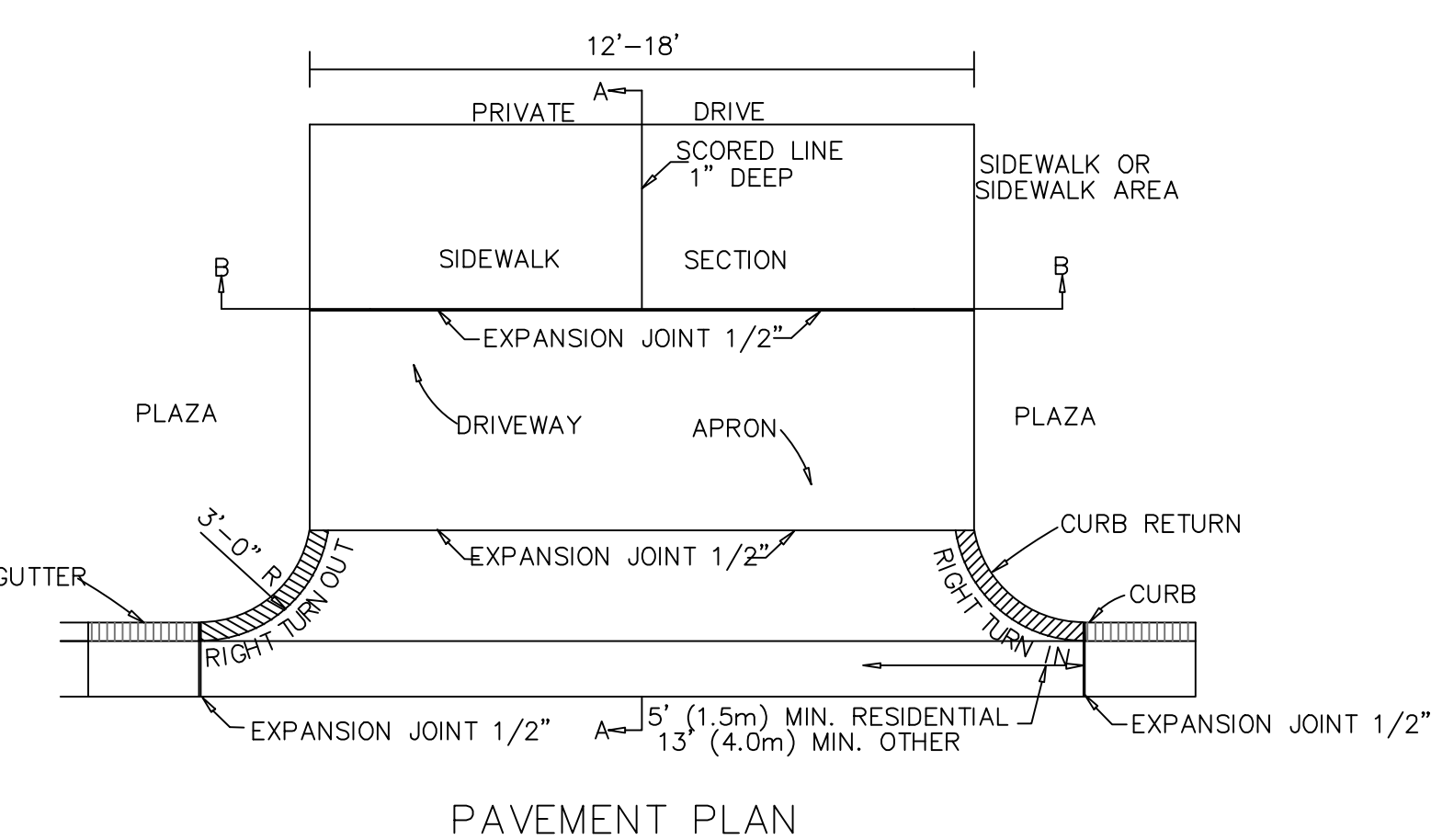
RAISED CROSSWALK  
NOT TO SCALE



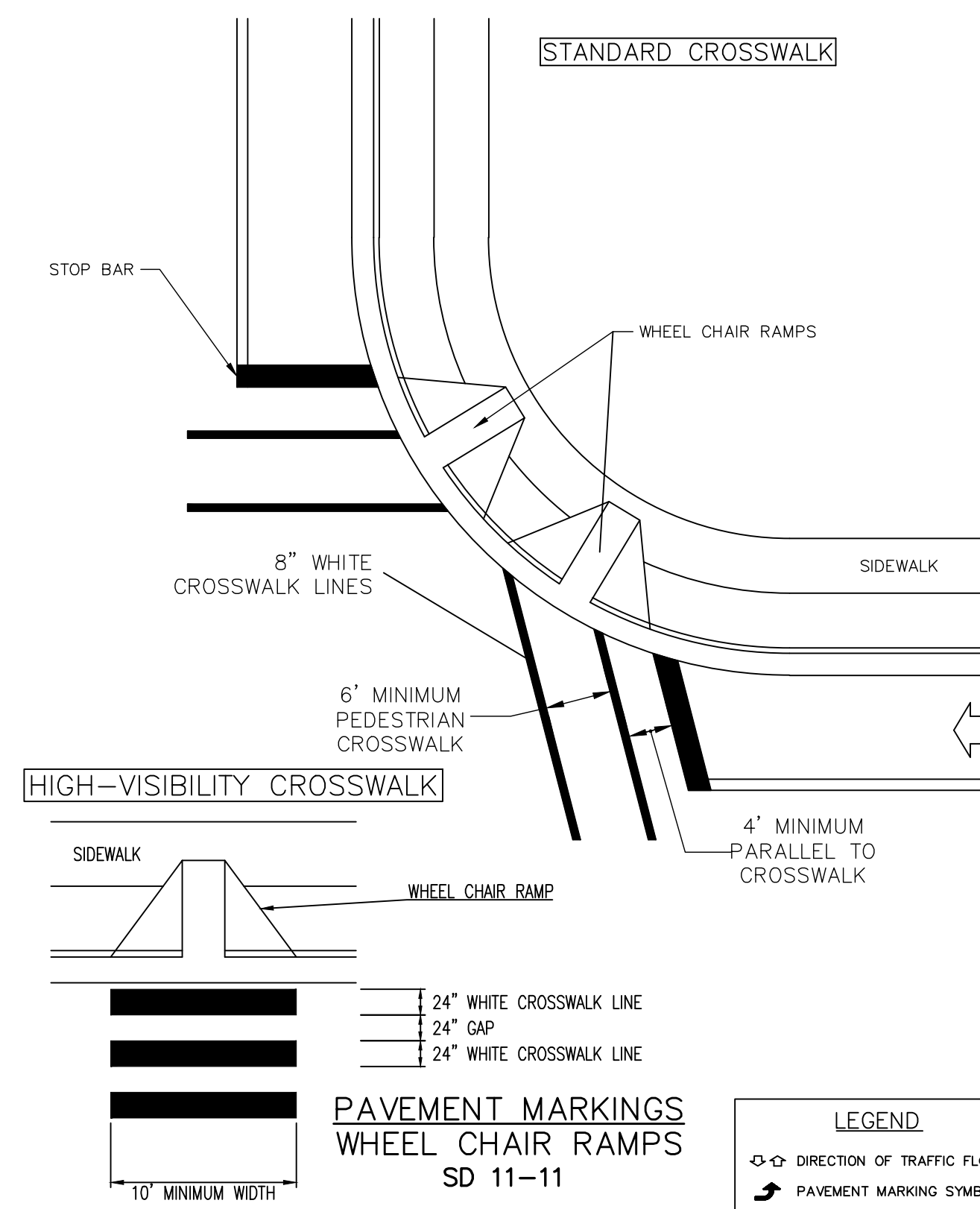
**NOTES:**

- SIGNS HAVE YELLOW BACKGROUND WITH BLACK LEGEND AND BORDER.

SIGNING DETAIL



MODIFIED STANDARD DRIVEWAY DETAIL  
SD 8-02  
NOT TO SCALE

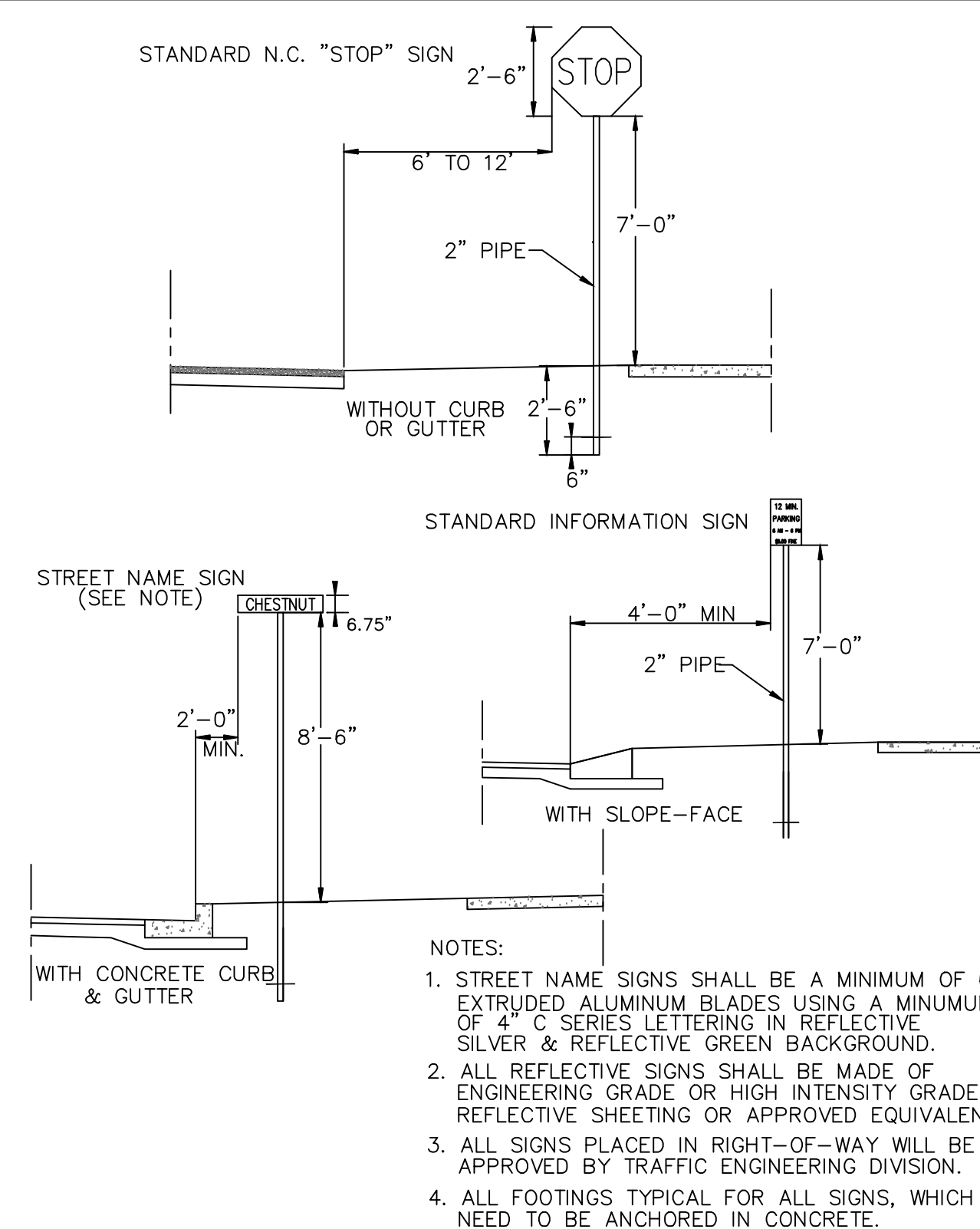


PAVEMENT MARKINGS  
WHEEL CHAIR RAMPS  
SD 11-11

**LEGEND**

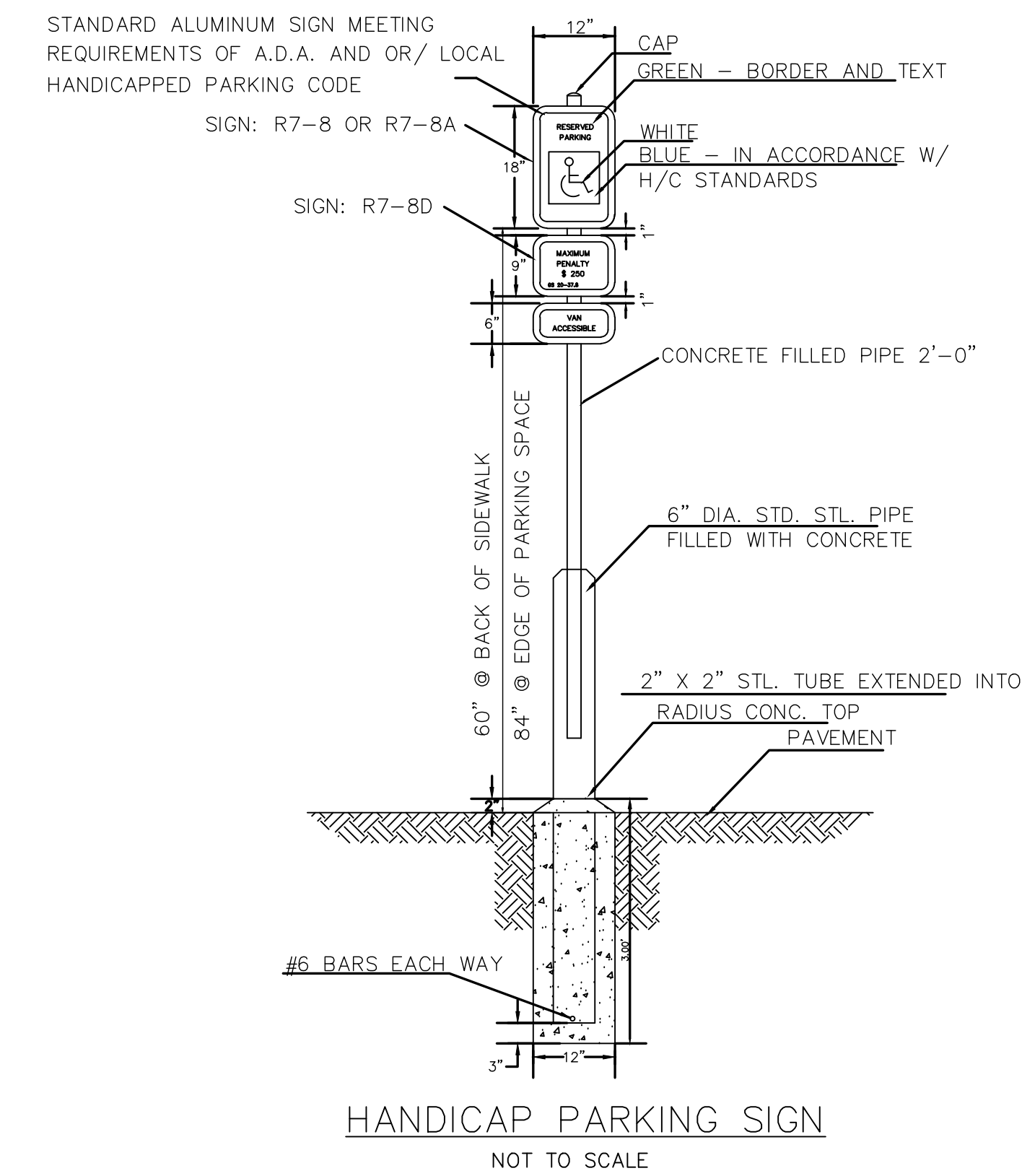
- DIRECTION OF TRAFFIC FLOW
- PAVEMENT MARKING SYMBOLS

STANDARD SIGN INSTALLATION LOCATION  
SD 15-04  
NOT TO SCALE

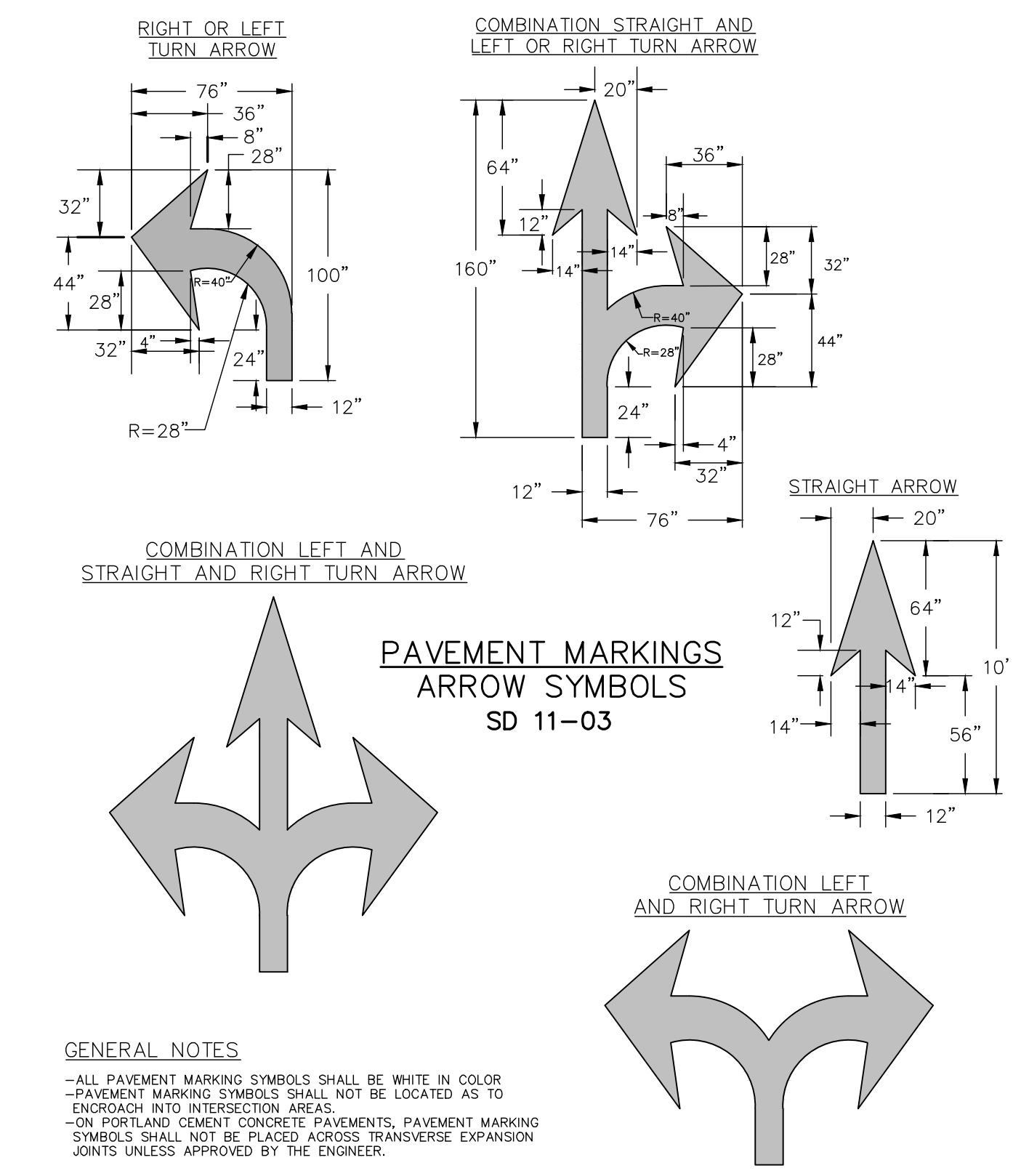


**NOTES:**

- STREET NAME SIGNS SHALL BE A MINIMUM OF 6" EXTRUDED ALUMINUM BLADES USING A MINIMUM OF 4" C SERIES LETTERING IN REFLECTIVE SILVER & REFLECTIVE GREEN BACKGROUND.
- ALL REFLECTIVE SIGNS SHALL BE MADE OF ENGINEERING GRADE OR HIGH INTENSITY GRADE REFLECTIVE SHEETING OR APPROVED EQUIVALENT.
- ALL SIGNS PLACED IN RIGHT-OF-WAY WILL BE APPROVED BY TRAFFIC ENGINEERING DIVISION.
- ALL FOOTINGS FOR ALL SIGNS, WHICH NEED TO BE ANCHORED IN CONCRETE.



HANDICAP PARKING SIGN  
NOT TO SCALE



PAVEMENT MARKINGS  
ARROW SYMBOLS  
SD 11-03

**GENERAL NOTES**

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

REVNO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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REGISTERED PROFESSIONAL  
ENGINEER  
MATHYAN Q. B. ESPINOZA  
040271  
05/06/2015

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**RIVERLIGHTS**  
by  
Newland COMMUNITIES

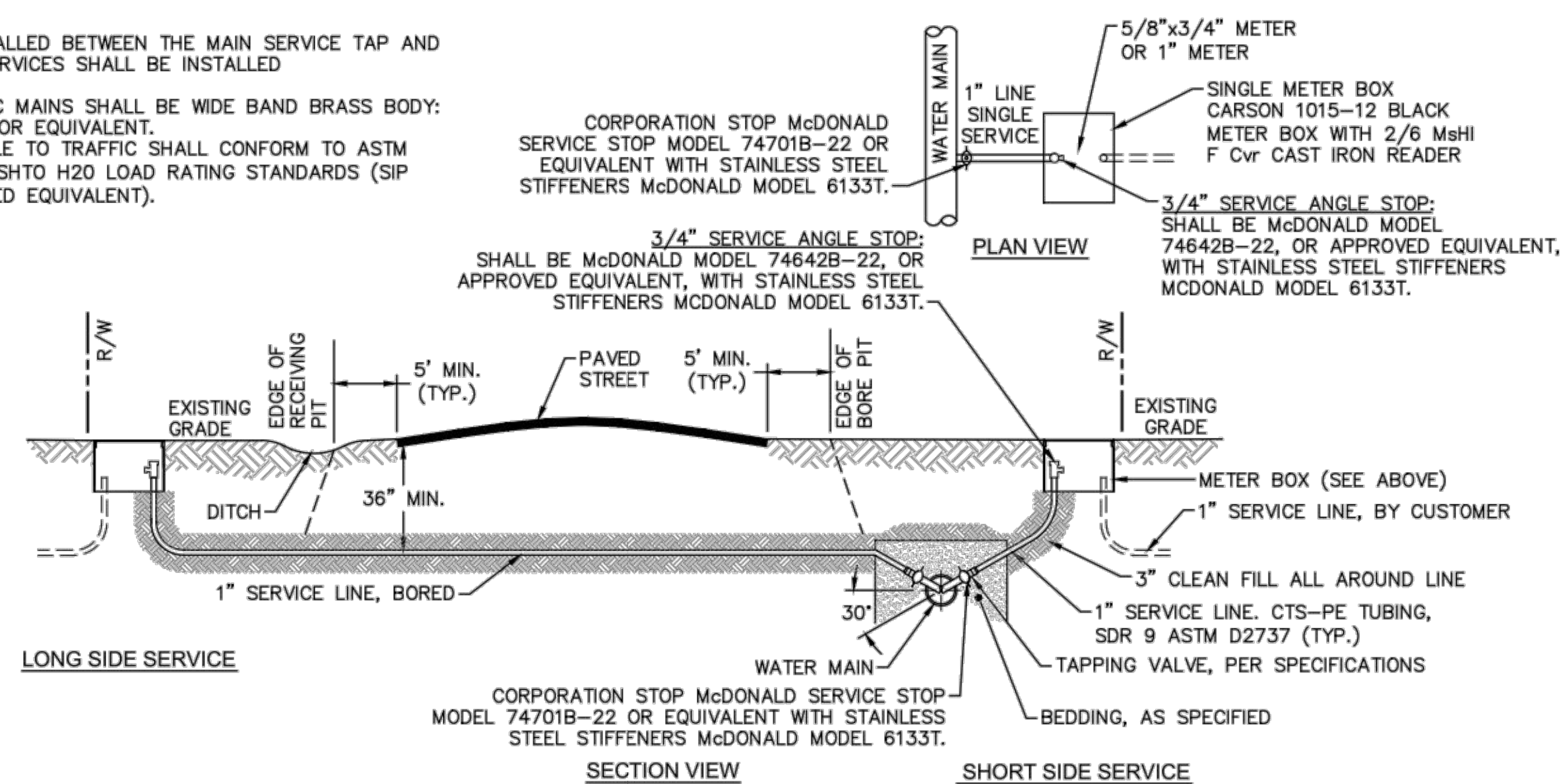
**RIVERLIGHTS**  
CONVENTIONAL NEIGHBORHOOD PH. 1  
SITE PLAN DETAILS

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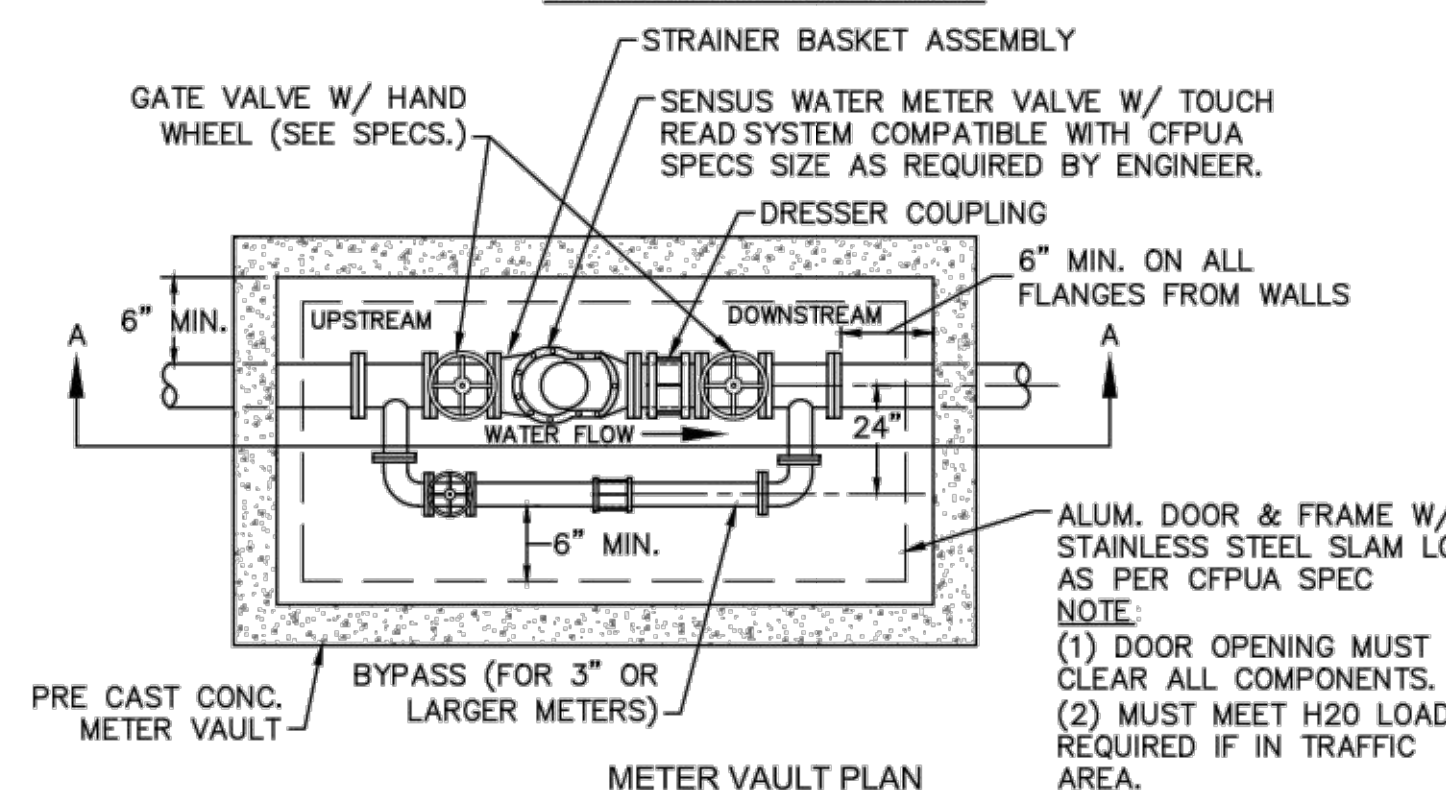
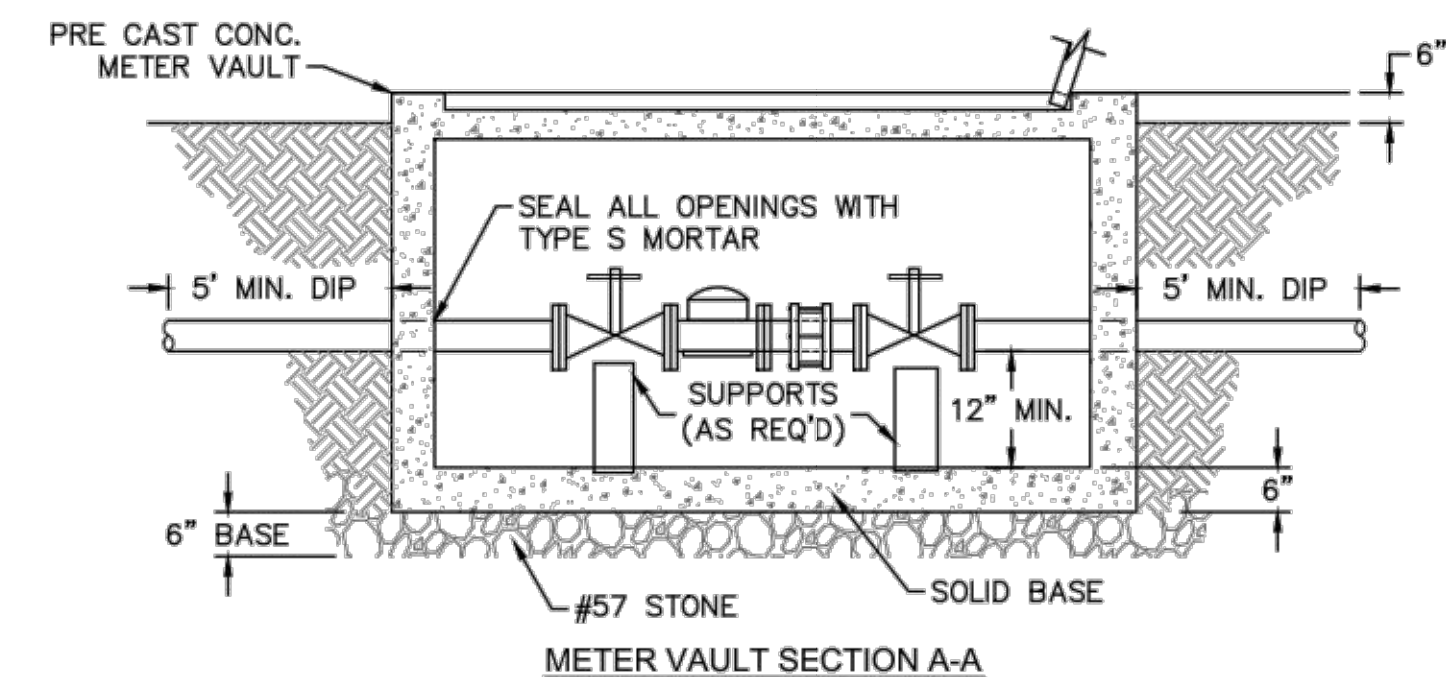
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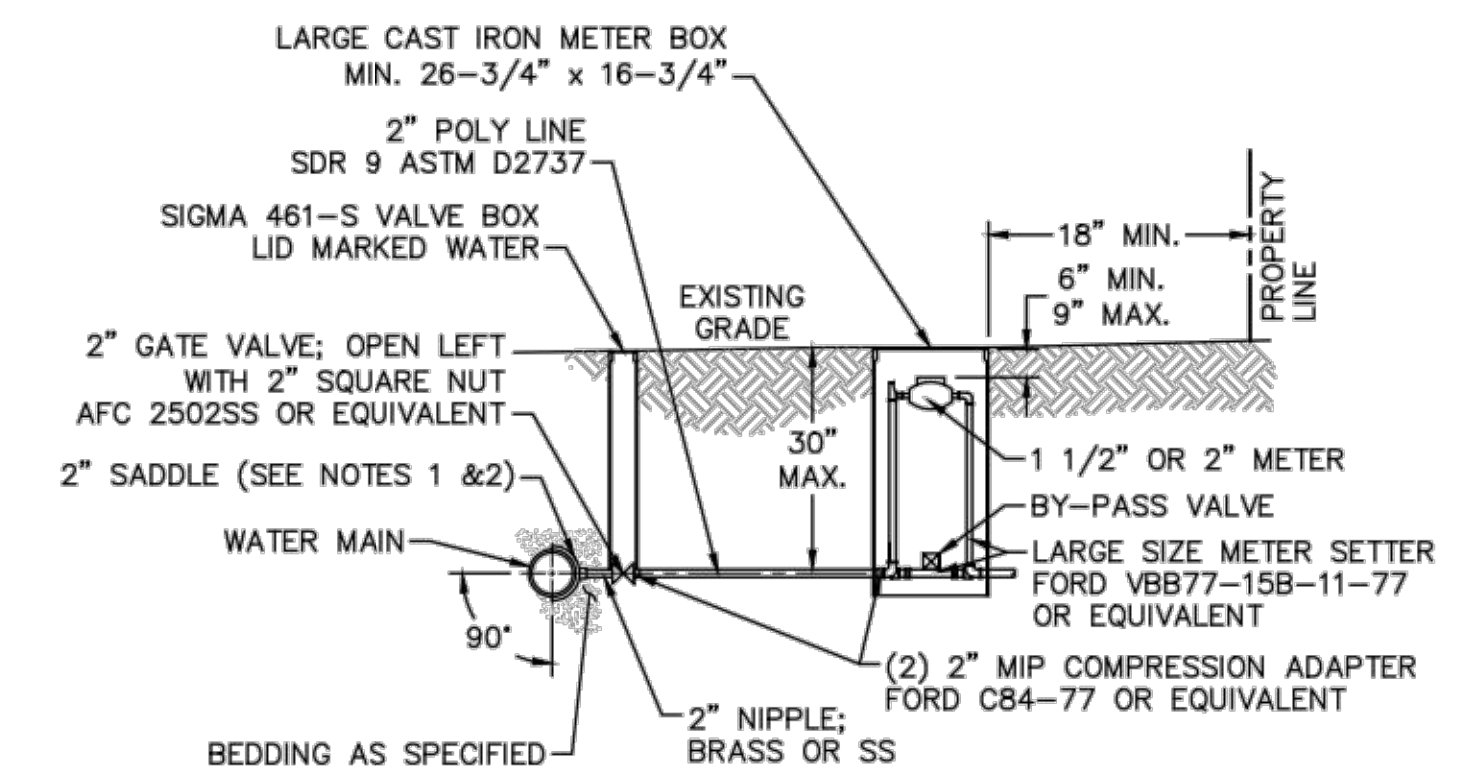
- NOTES:**
- NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
  - SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: SADDLE McDONALD 3801 OR EQUIVALENT.
  - METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO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



**SINGLE SERVICE CONNECTION**  
NOT TO SCALE

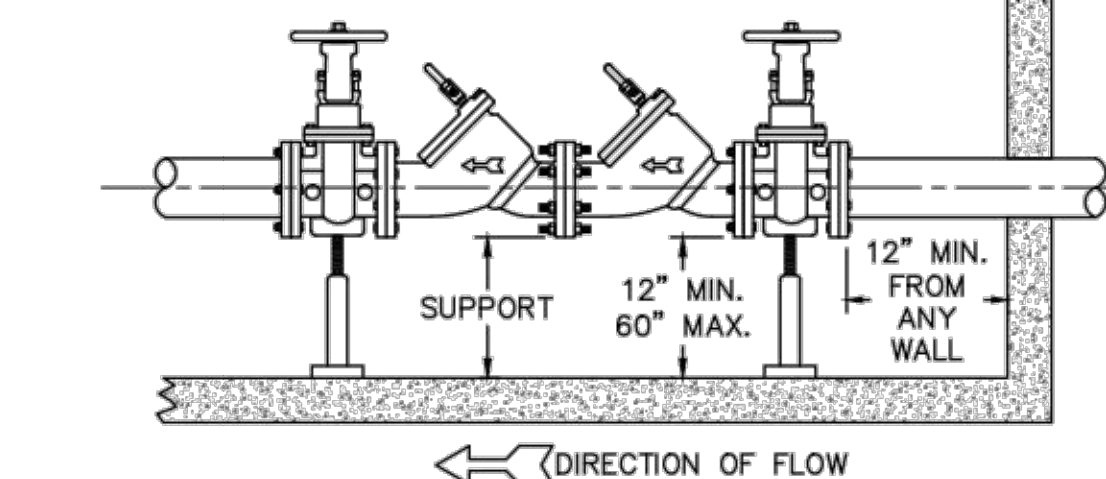
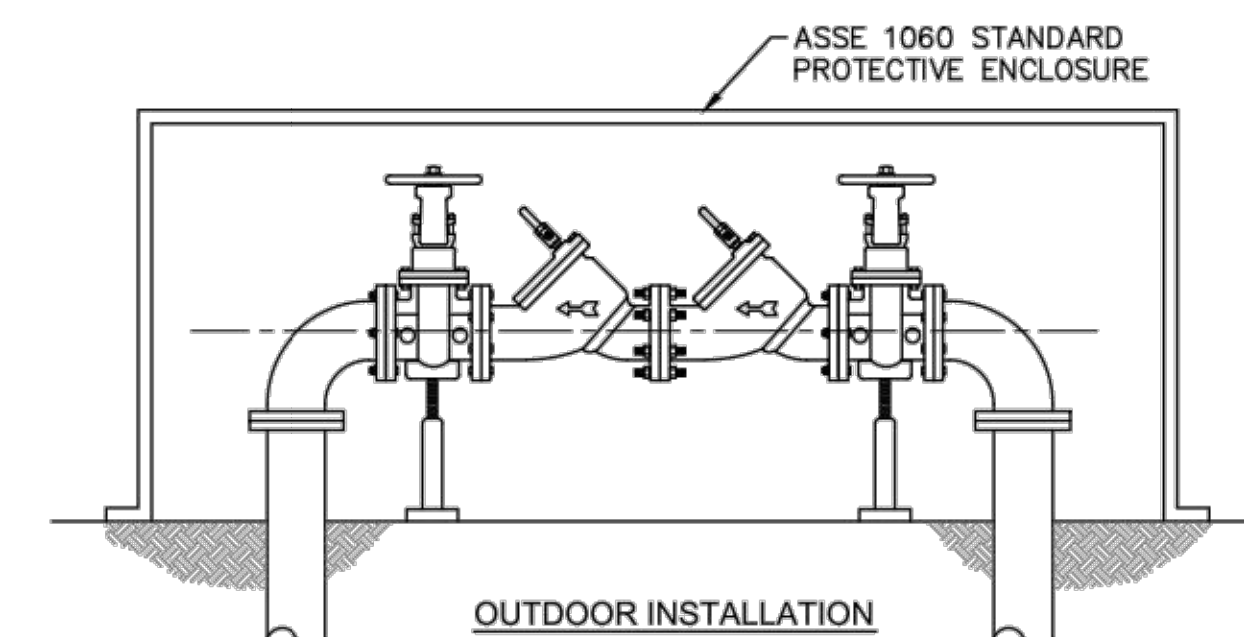


**WATER METER VAULT**  
NOT TO SCALE



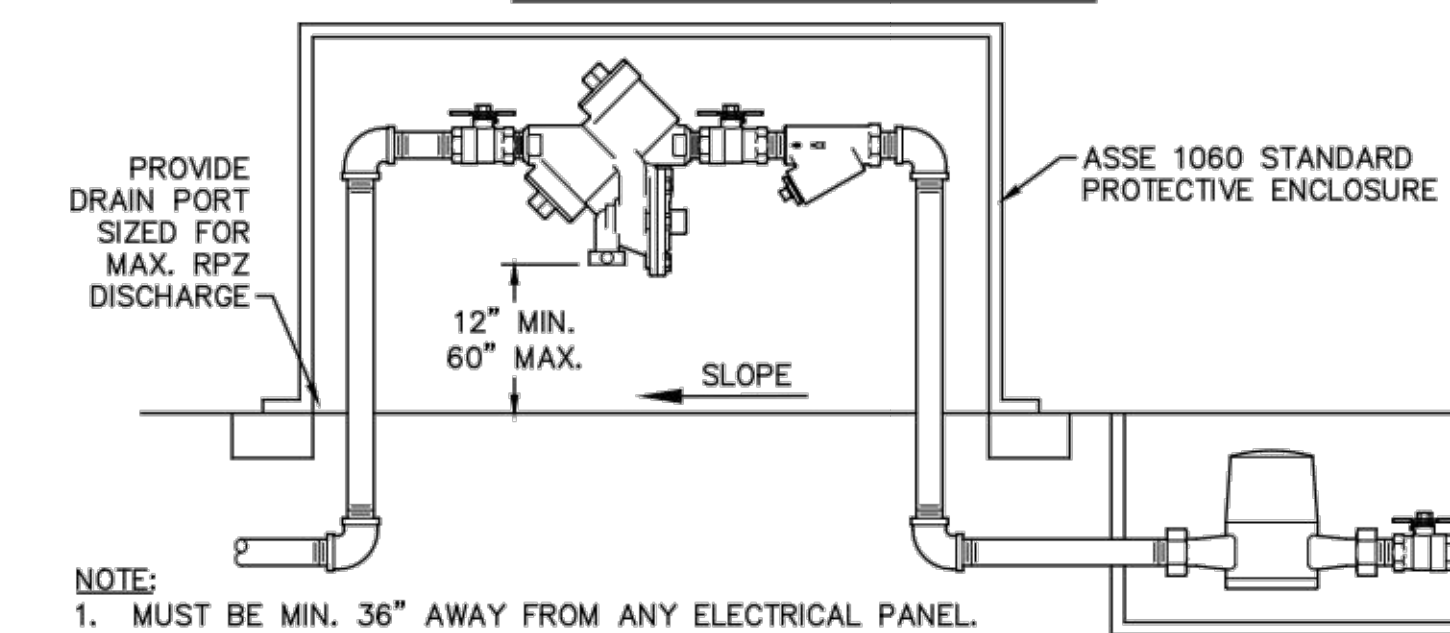
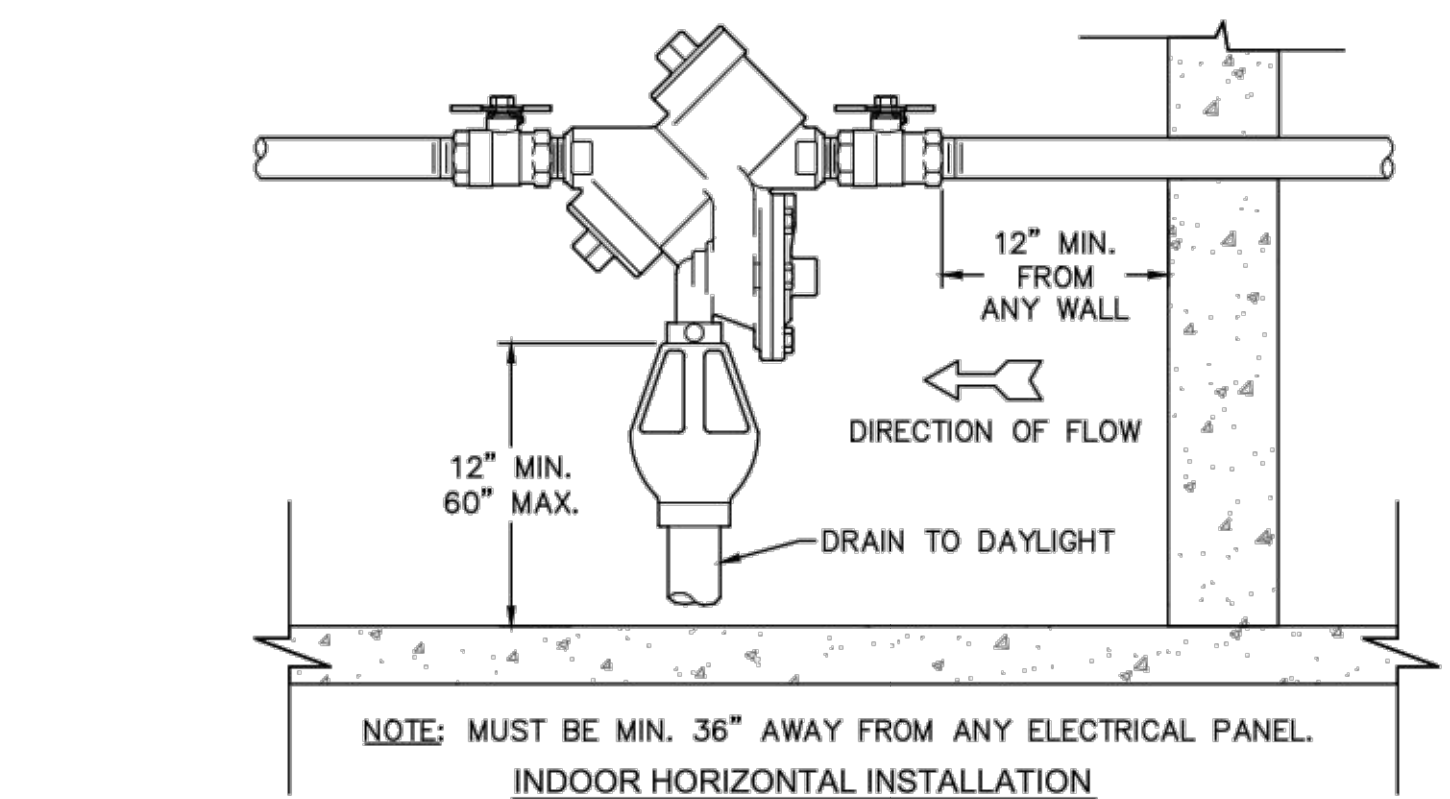
- NOTES:**
- ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
  - SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: McDONALD 3800, FORD S90 (DOUBLE STRAP) OR EQUIVALENT.
  - METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (OLDCASTLE PRECAST MODEL B1730 OR APPROVED EQUIVALENT).
  - METER BOXES SUSCEPTIBLE TO INCIDENTAL, NON-DELIBERATE TRAFFIC SHALL CONFORM TO ANSI/SCIE 77 TIER 15 LOAD RATING STANDARDS (SYNERTECH MODEL DUO 17x30 OR APPROVED EQUIVALENT).
  - NON-TRAFFIC METER BOXES SHALL BE SIGMA MB2203 OR APPROVED EQUIVALENT.
  - 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.

**FOR 1-1/2" OR 2" WATER SERVICES**  
**LARGE METER**  
NOT TO SCALE



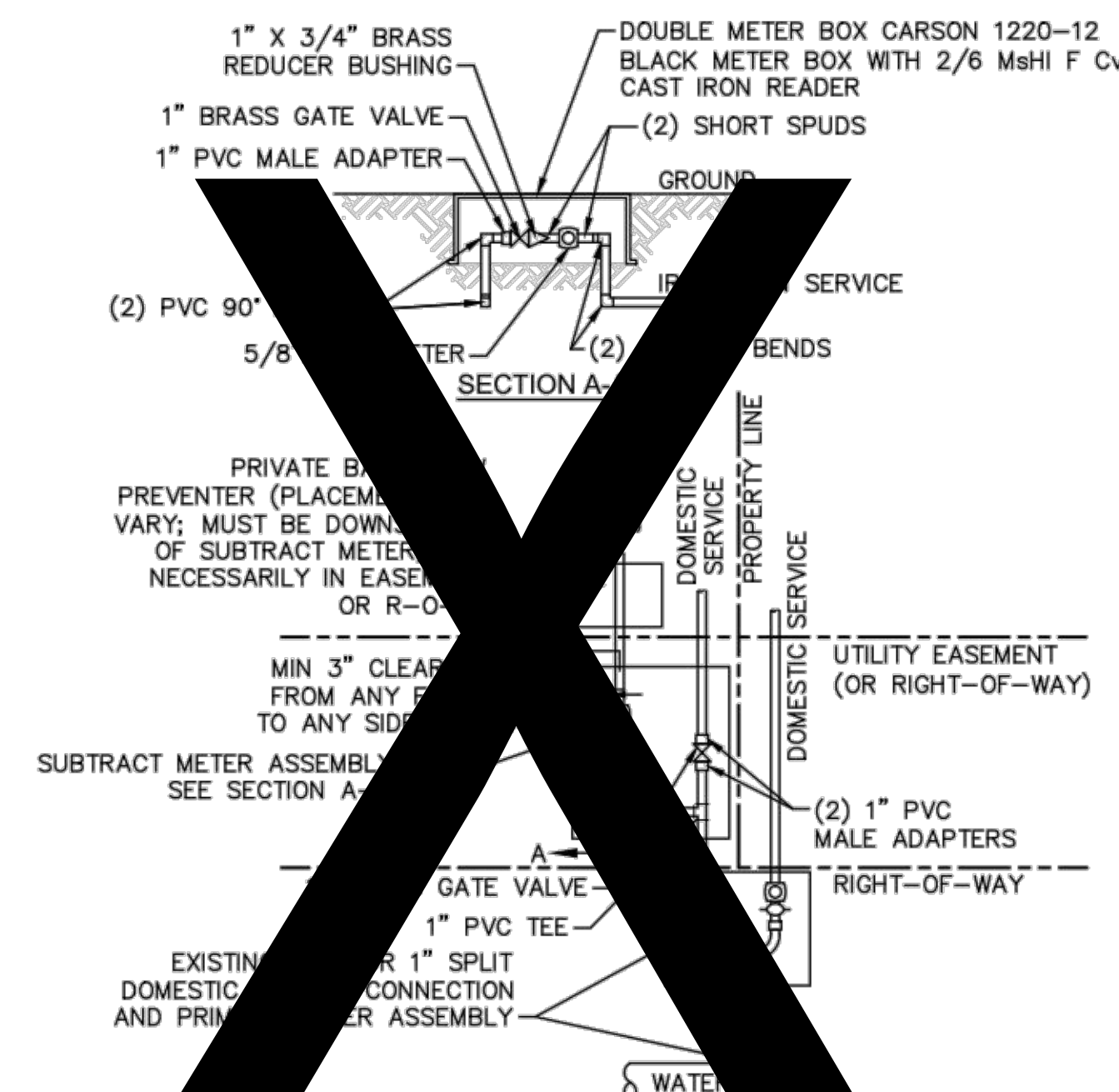
- NOTE:**
- MUST BE MIN. 36" AWAY FROM ANY ELECTRICAL PANEL.
  - VALVE REQUIRED DOWNSTREAM OF BACKFLOW ASSEMBLY.
  - VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESDM FOR APPROVAL.

**DOUBLE CHECK VALVE ASSEMBLY**  
NOT TO SCALE



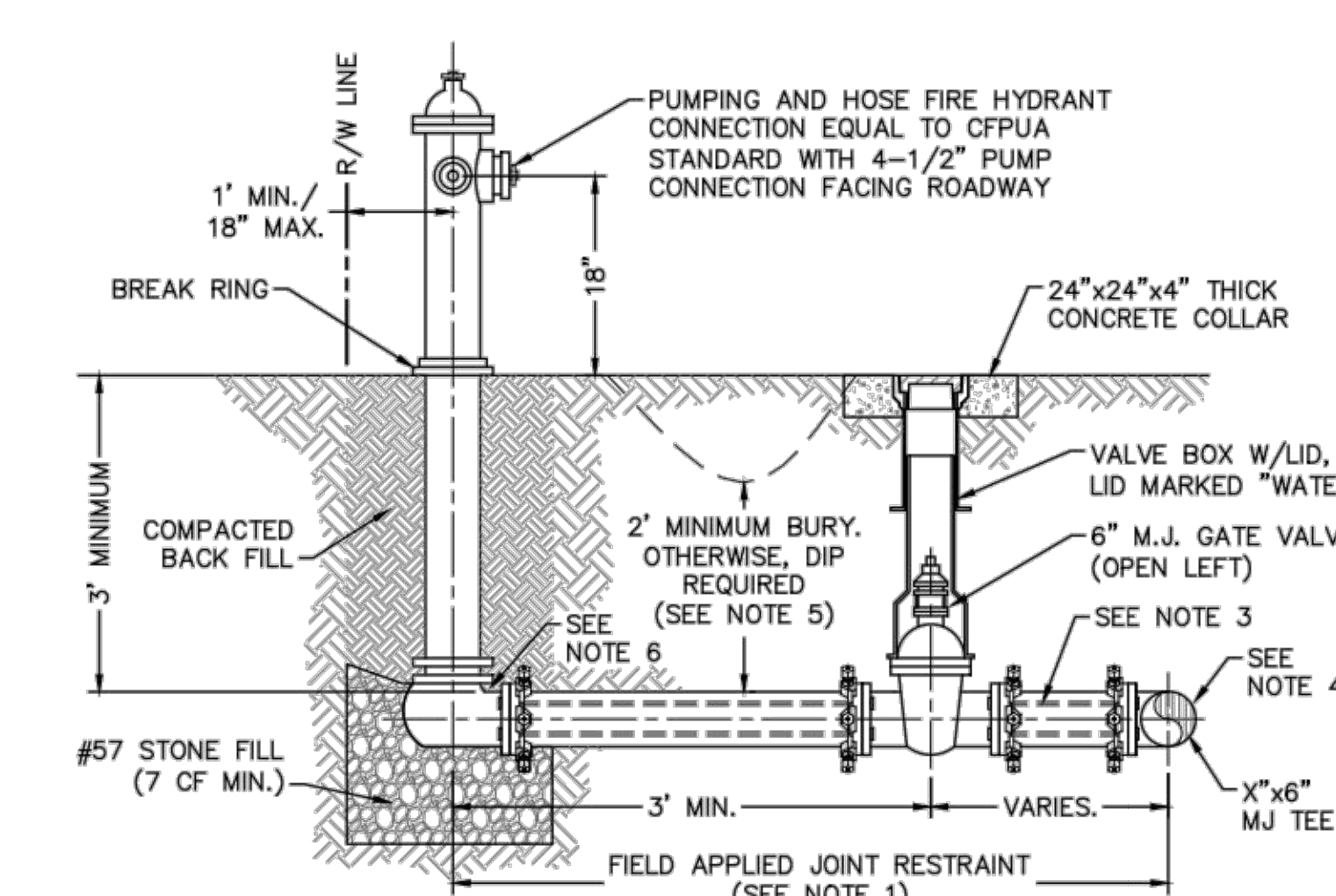
- NOTE:**
- MUST BE MIN. 36" AWAY FROM ANY ELECTRICAL PANEL.
  - VALVE REQUIRED DOWNSTREAM OF BACKFLOW ASSEMBLY.
  - VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESDM FOR APPROVAL.

**REDUCED PRESSURE PRINCIPLE ASSEMBLY**  
NOT TO SCALE



- NOTES:**
- BEYOND THE PRIMARY DOMESTIC METER ASSEMBLY, CFPUA IS ONLY RESPONSIBLE FOR METER AND WASHERS OF SUBTRACT METER ASSEMBLY.
  - ALL PIPE AND FITTINGS UP TO FINAL SERVICE LINE TO BE 1" EXCLUDING METERS.

**DOUBLE SERVICE CONNECTION USING SUBTRACT METER**  
NOT TO SCALE



- NOTES:**
- JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI OR C-900 PVC PIPE AS MANUFACTURED BY EBAA IRON, SIGMA, STAR PIPE PRODUCTS OR APPROVED EQUAL.
  - WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
  - CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH COR-BLUE MJ T-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
  - HYDRANT TEE SHALL BE RESTRAINED ON EACH SIDE OF MAIN PLUS ANY VALVE, FITTING, OR JOINT IN MAIN WITHIN 10- FEET OF HYDRANT TEE.
  - HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
  - WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.

**FIRE HYDRANT ASSEMBLY**  
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.
  - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
  - THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
  - 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	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**

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**STANDARD DETAILS**

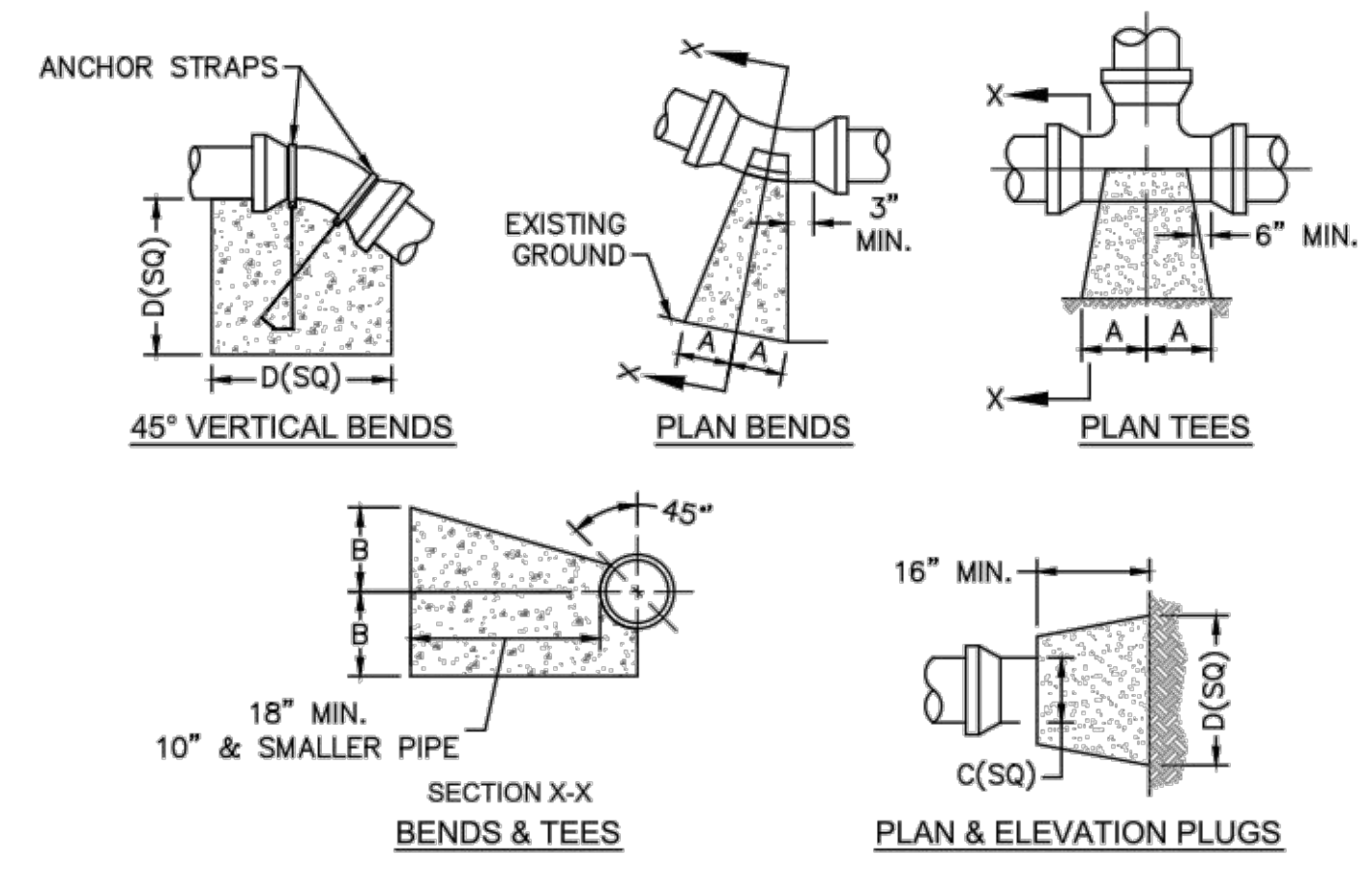
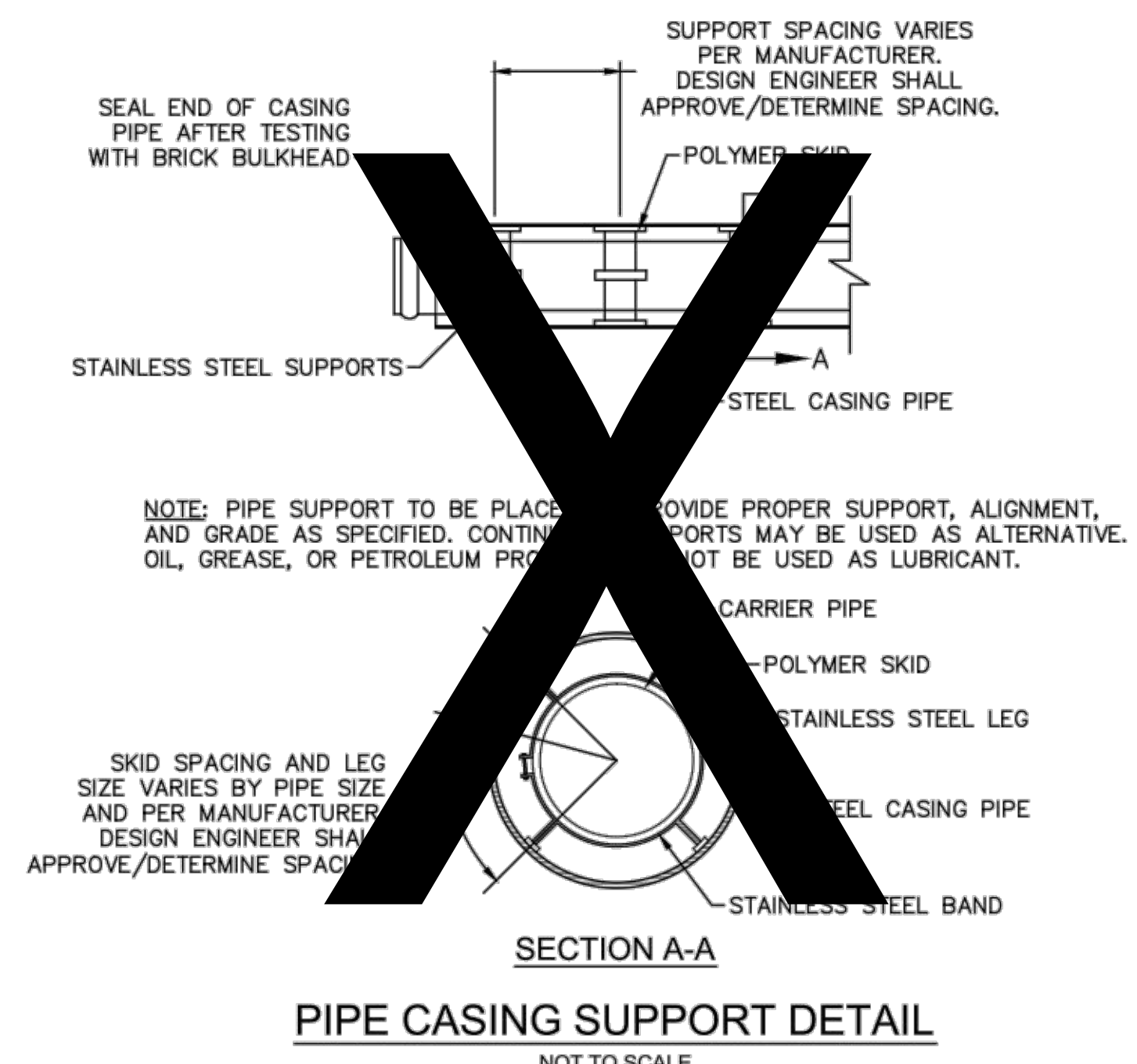
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**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
 235 GOVERNMENT CENTER DRIVE  
 WILMINGTON, NC 28403  
 OFFICE: (910)332-6560

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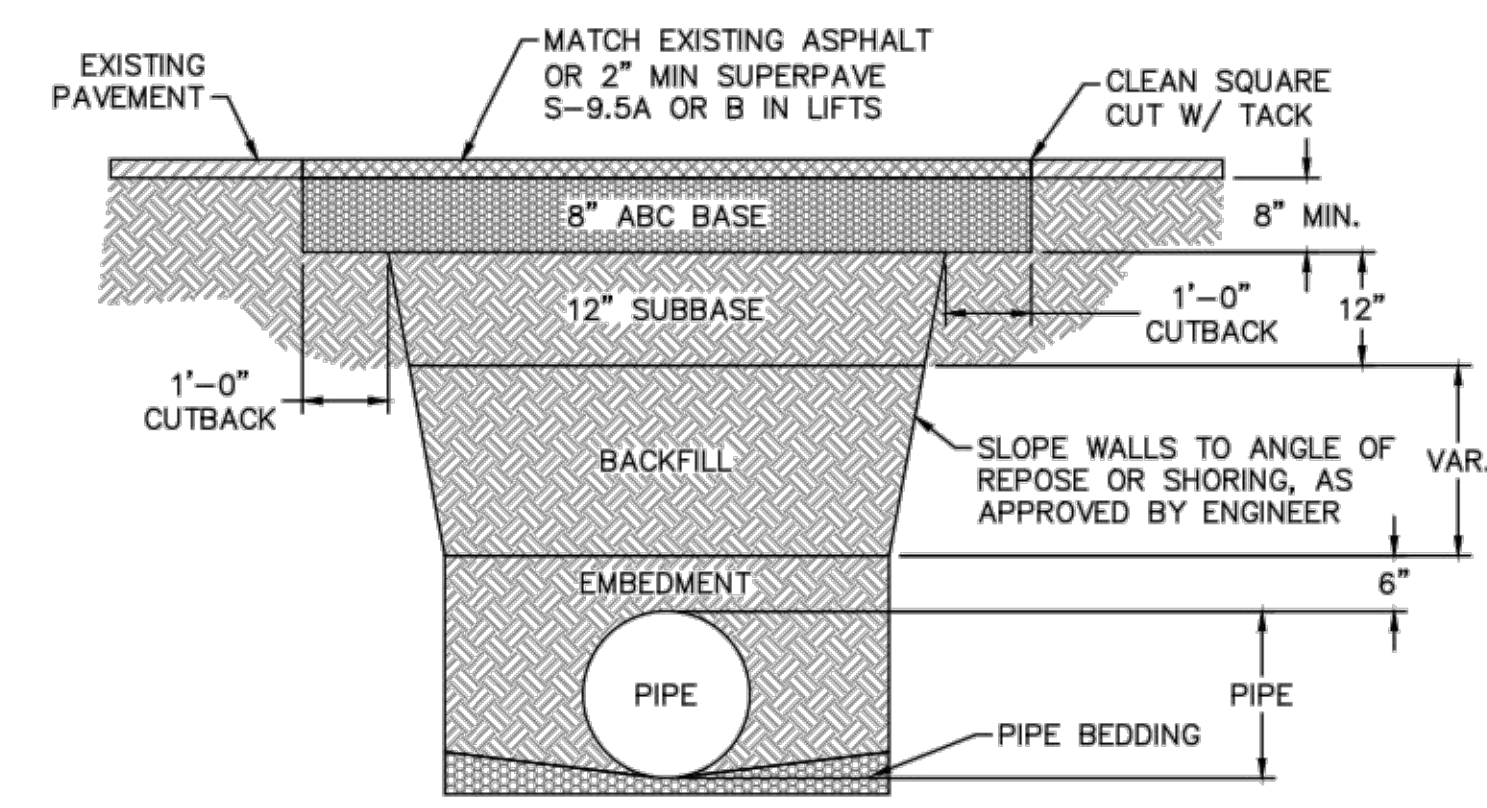
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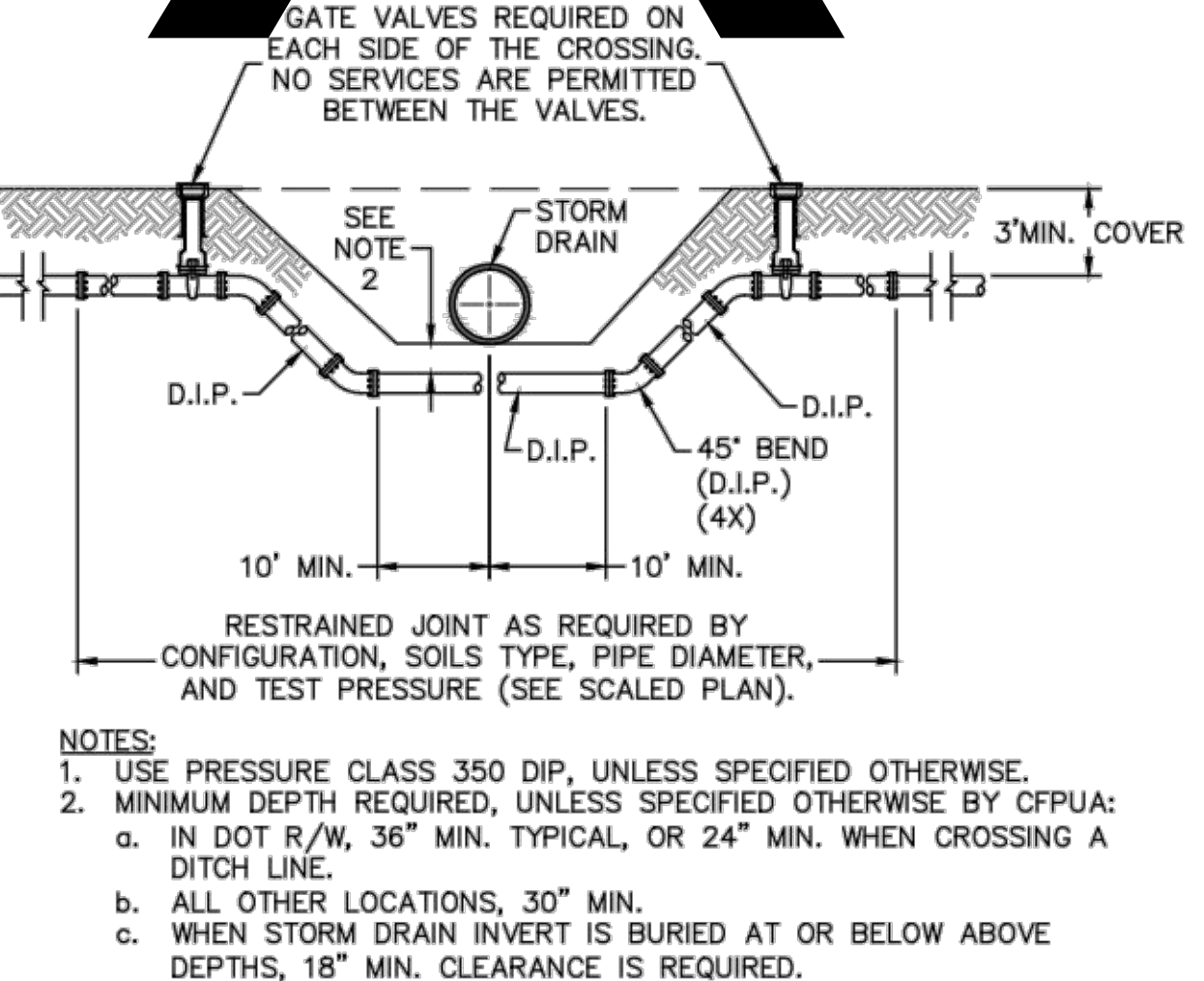
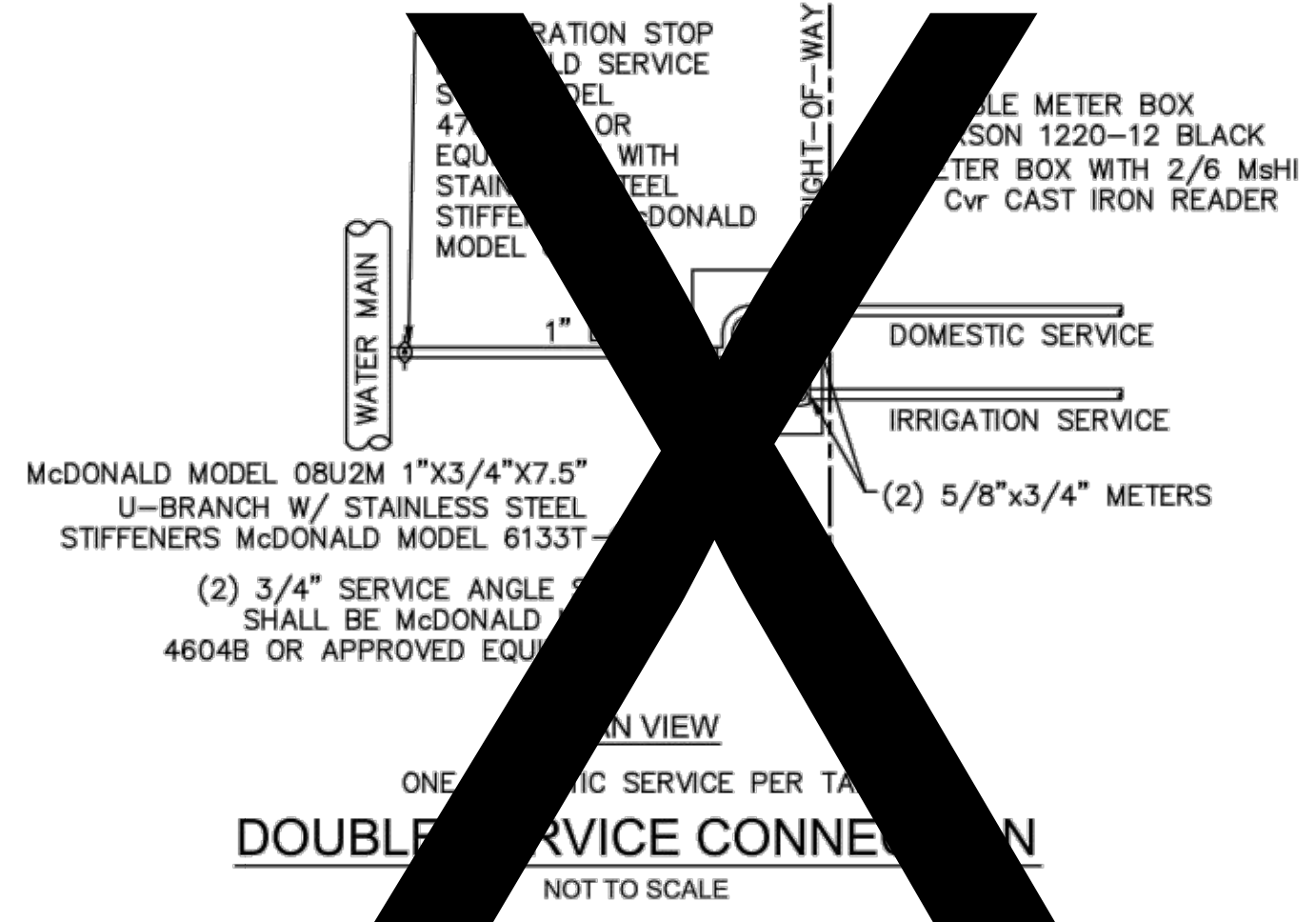
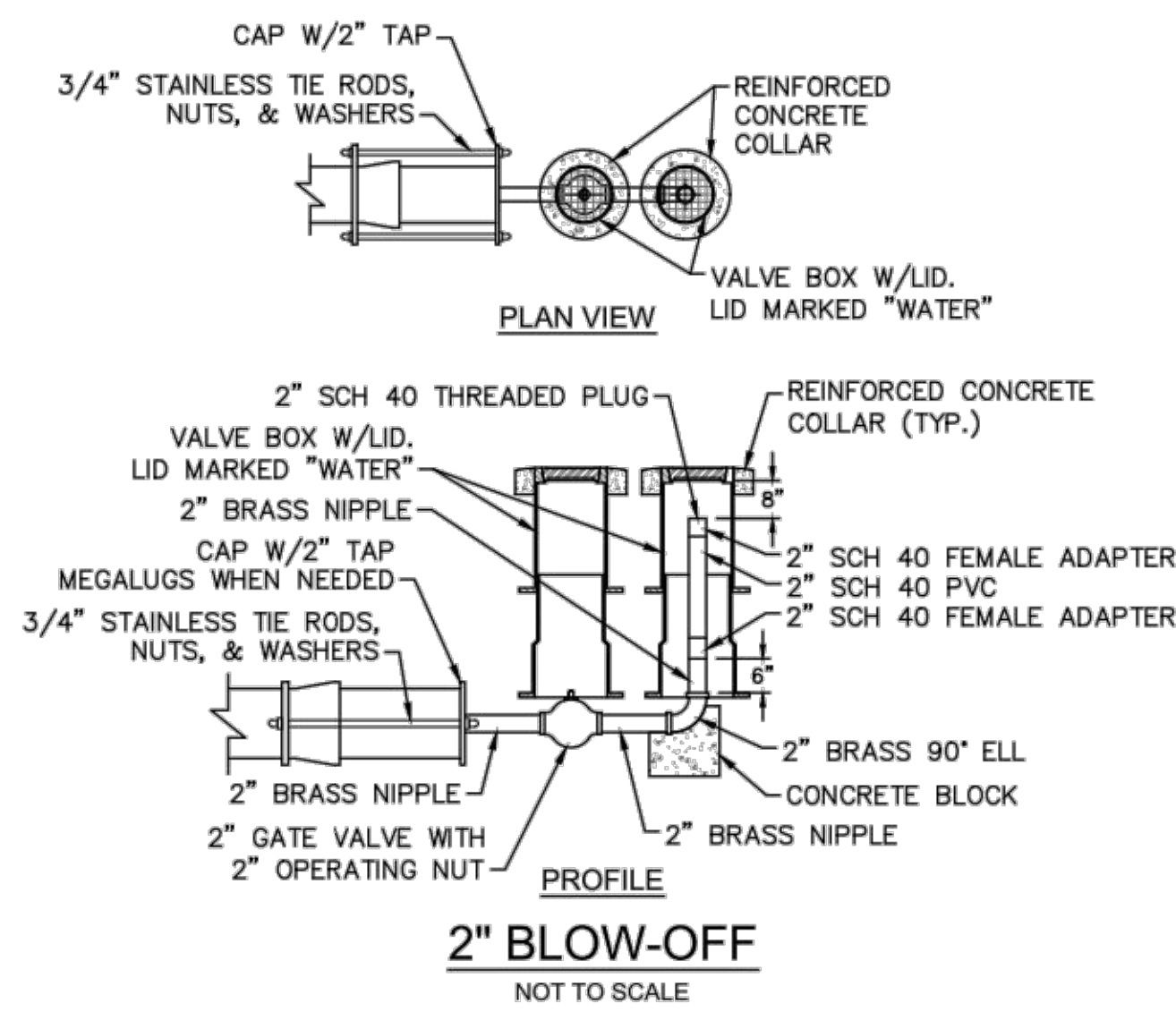
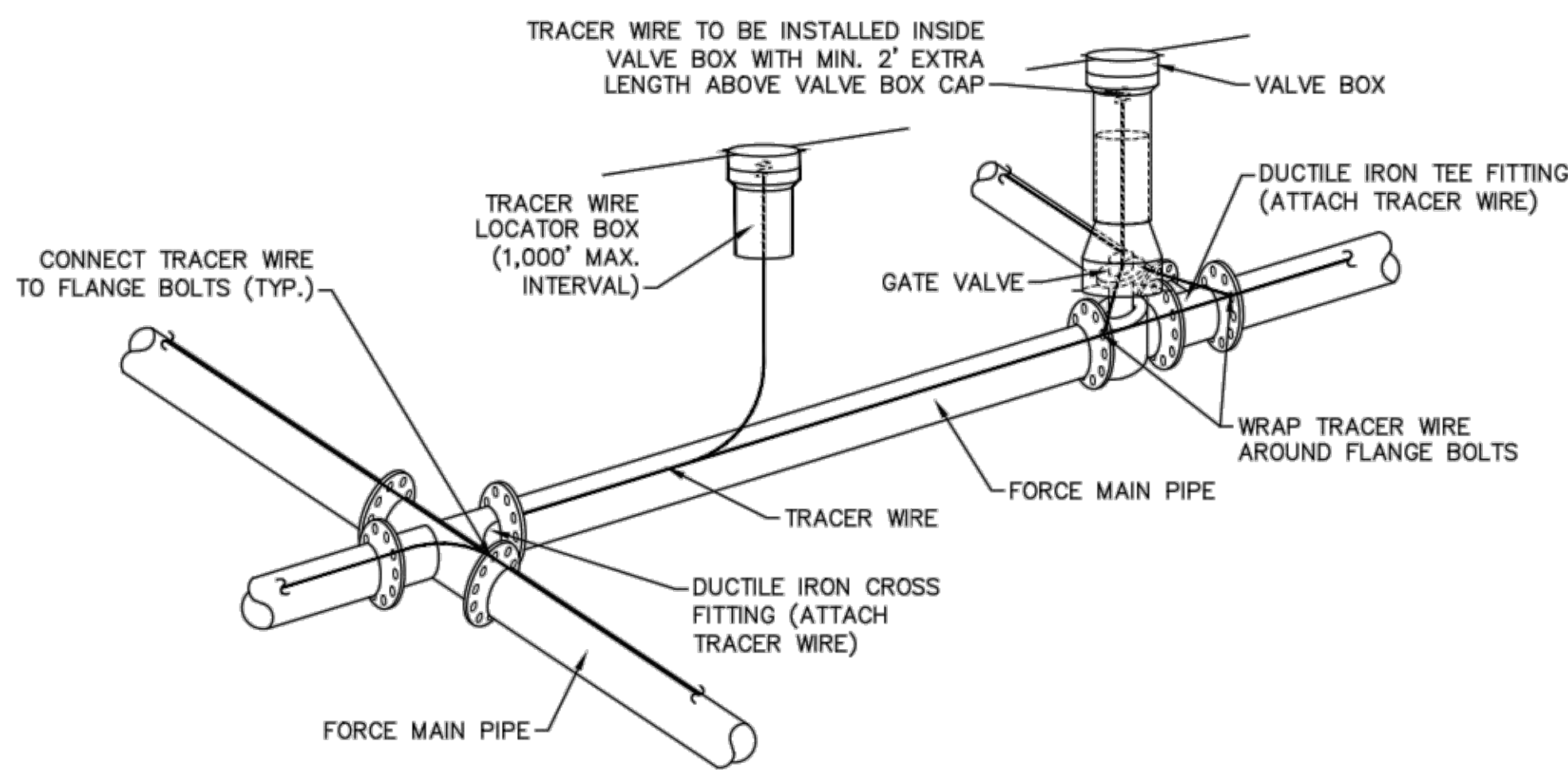
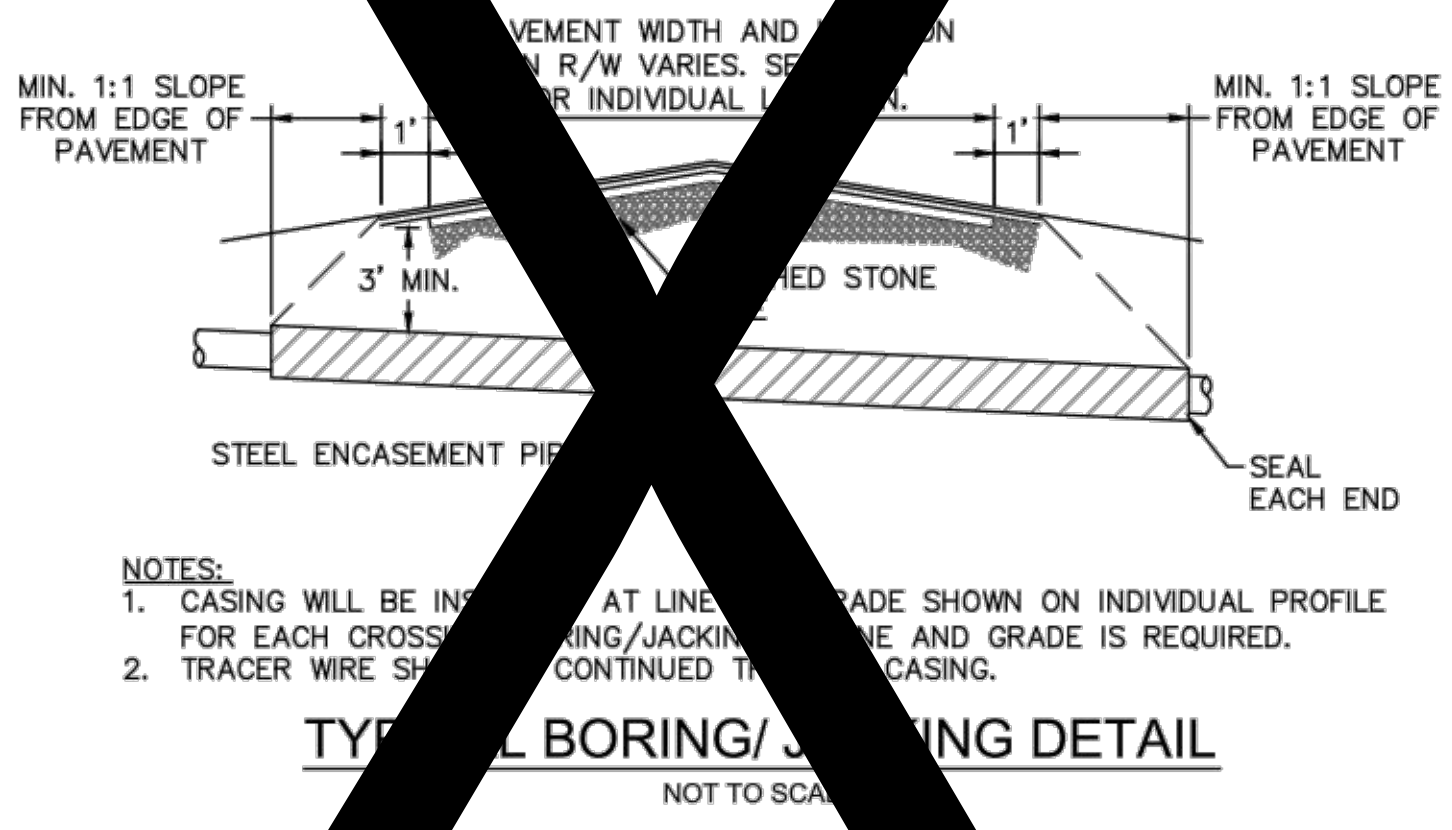
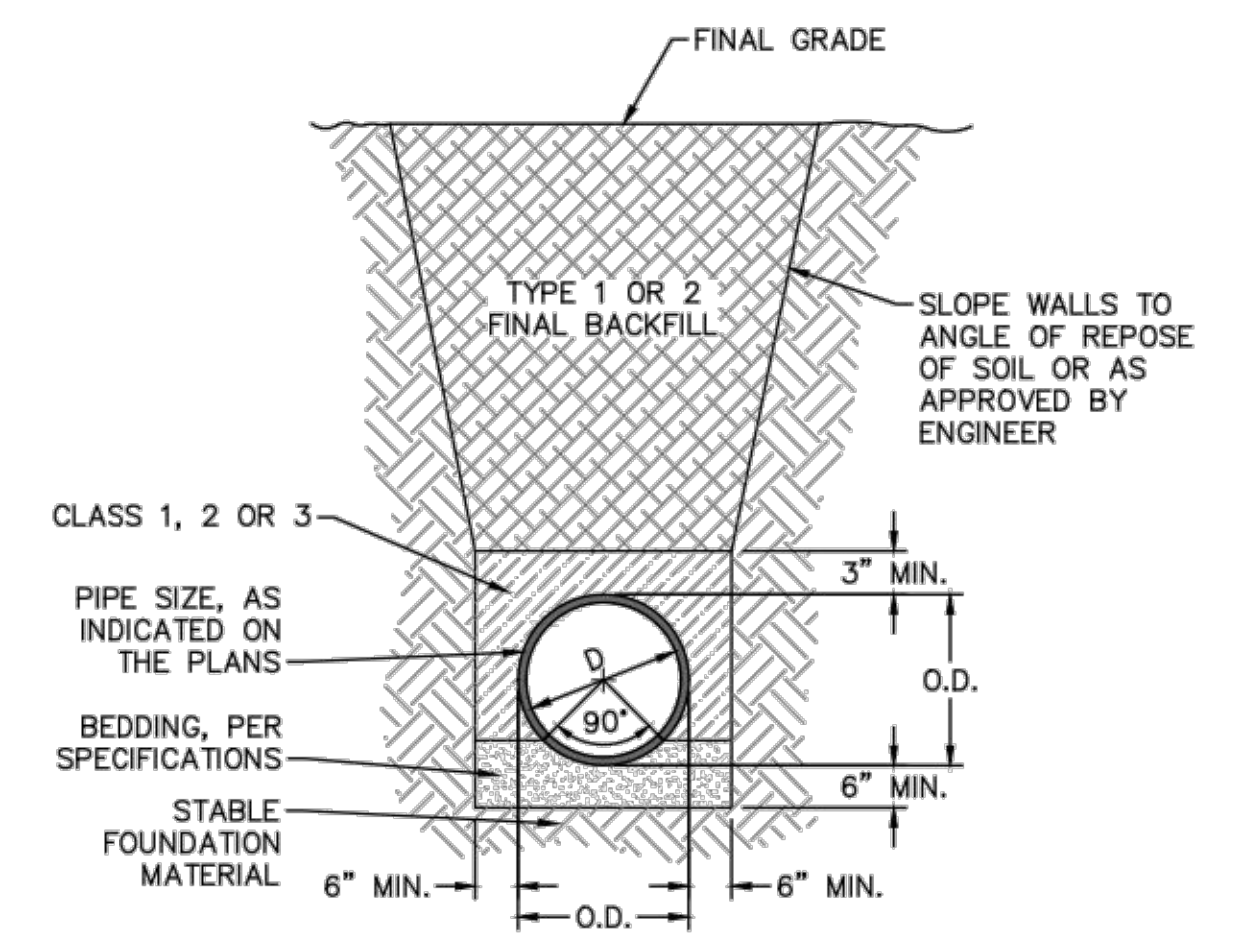


SIZE	90 BENDS		45 BENDS		22 1/2 BENDS		TEES/PLUGS		45 VERT. BENDS
	A	B	A	B	A	B	A	B	
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	8"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	62"
14"	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:**
- BASED ON 160 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
  - ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
  - USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

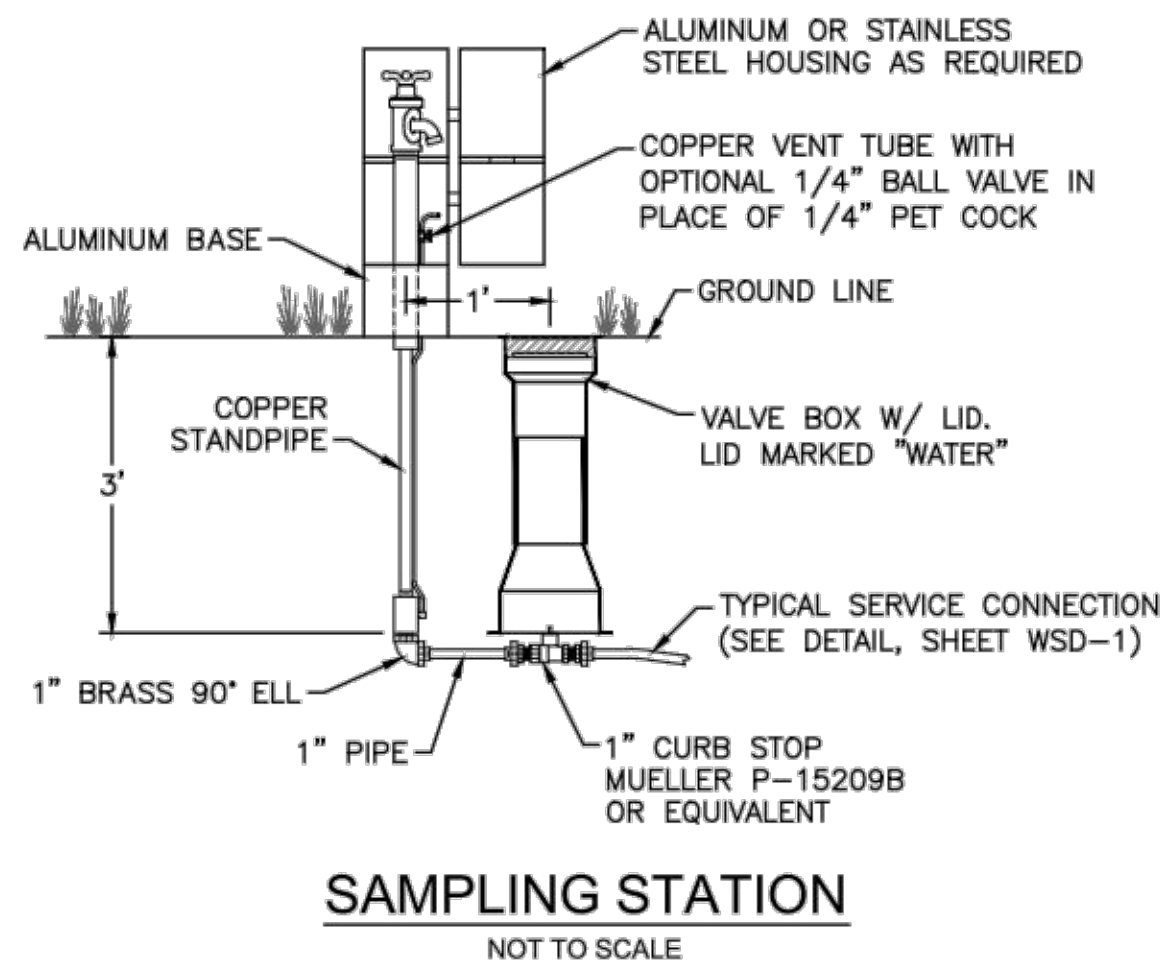
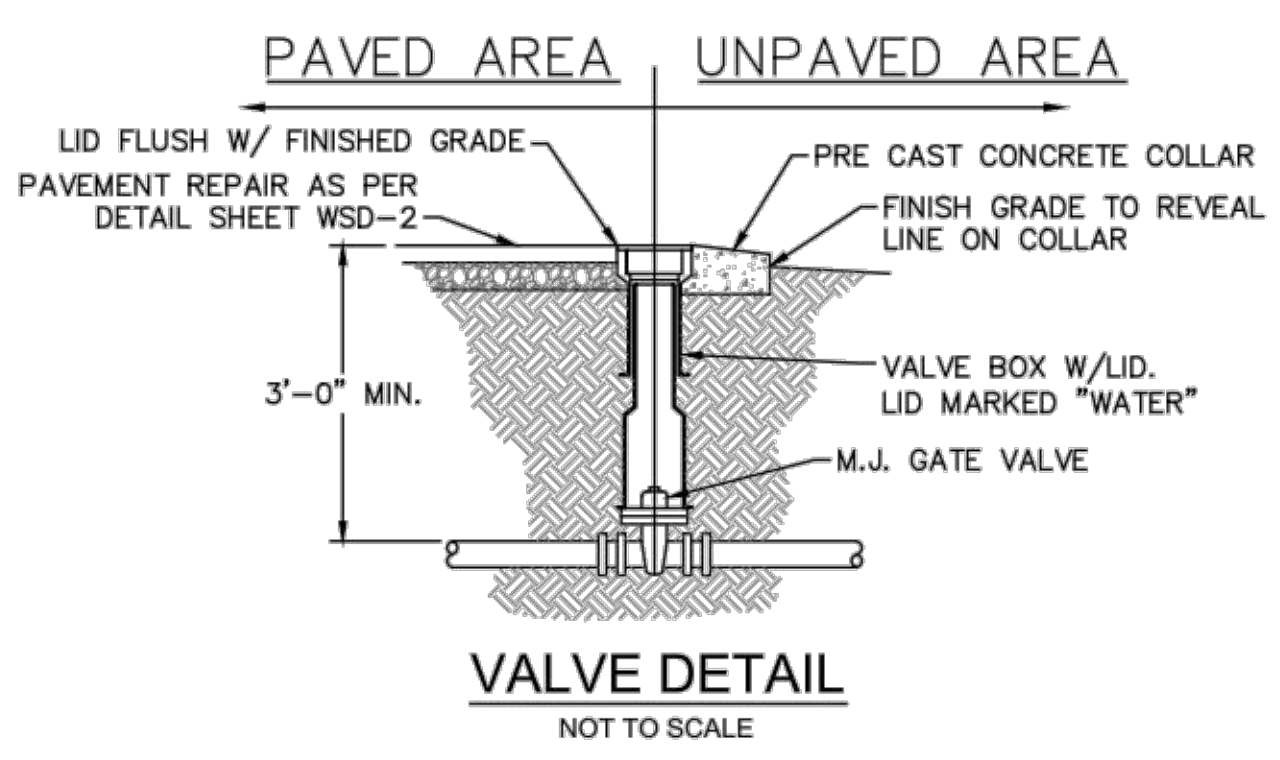


- NOTES:**
- BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
  - SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
  - 8-INCH OF 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'-0" CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.
- (FOR PRIVATE ROADS AND PAVED AREAS; CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)



- 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.
  - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
  - THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
  - 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**

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**STANDARD DETAILS**

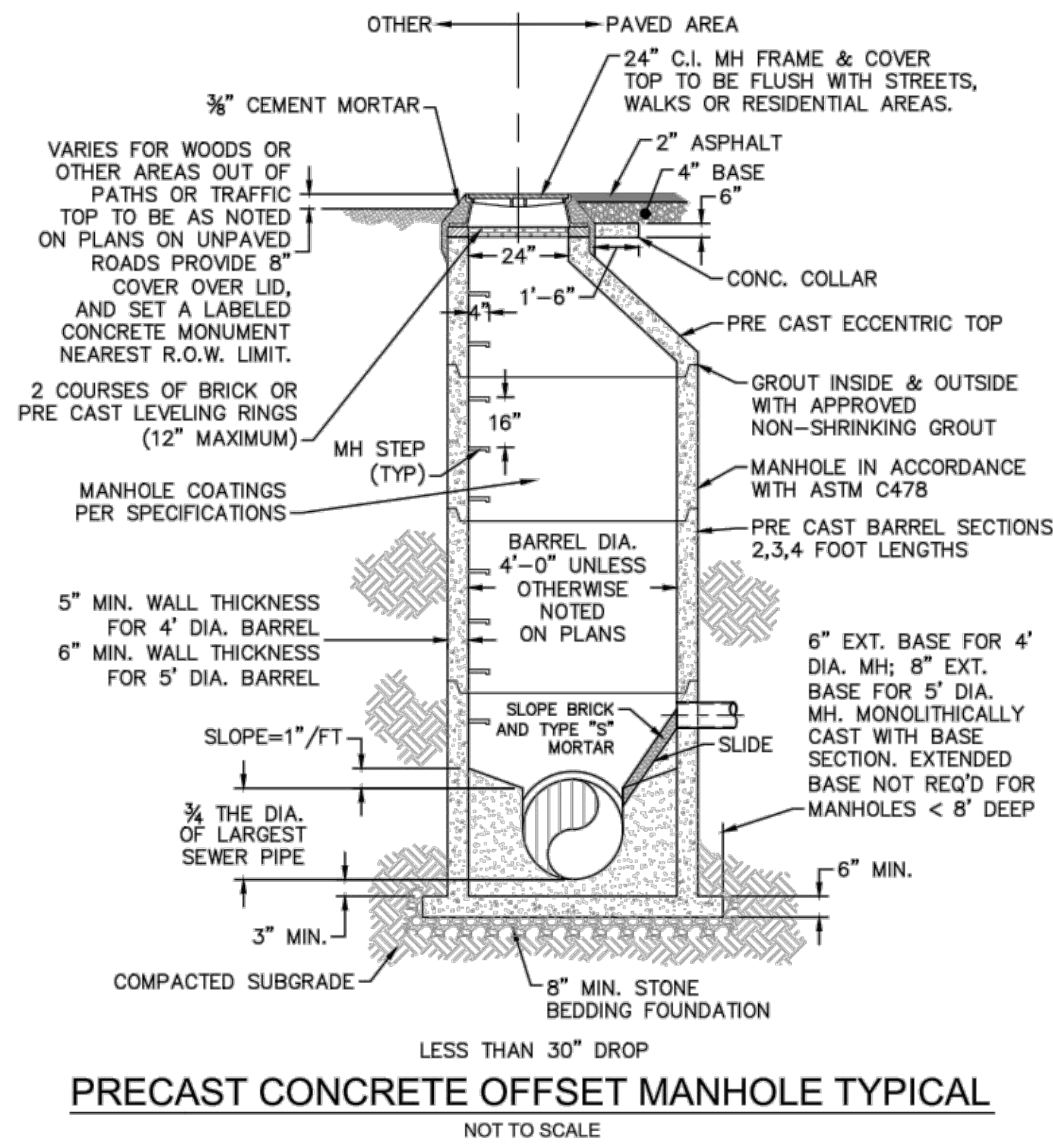
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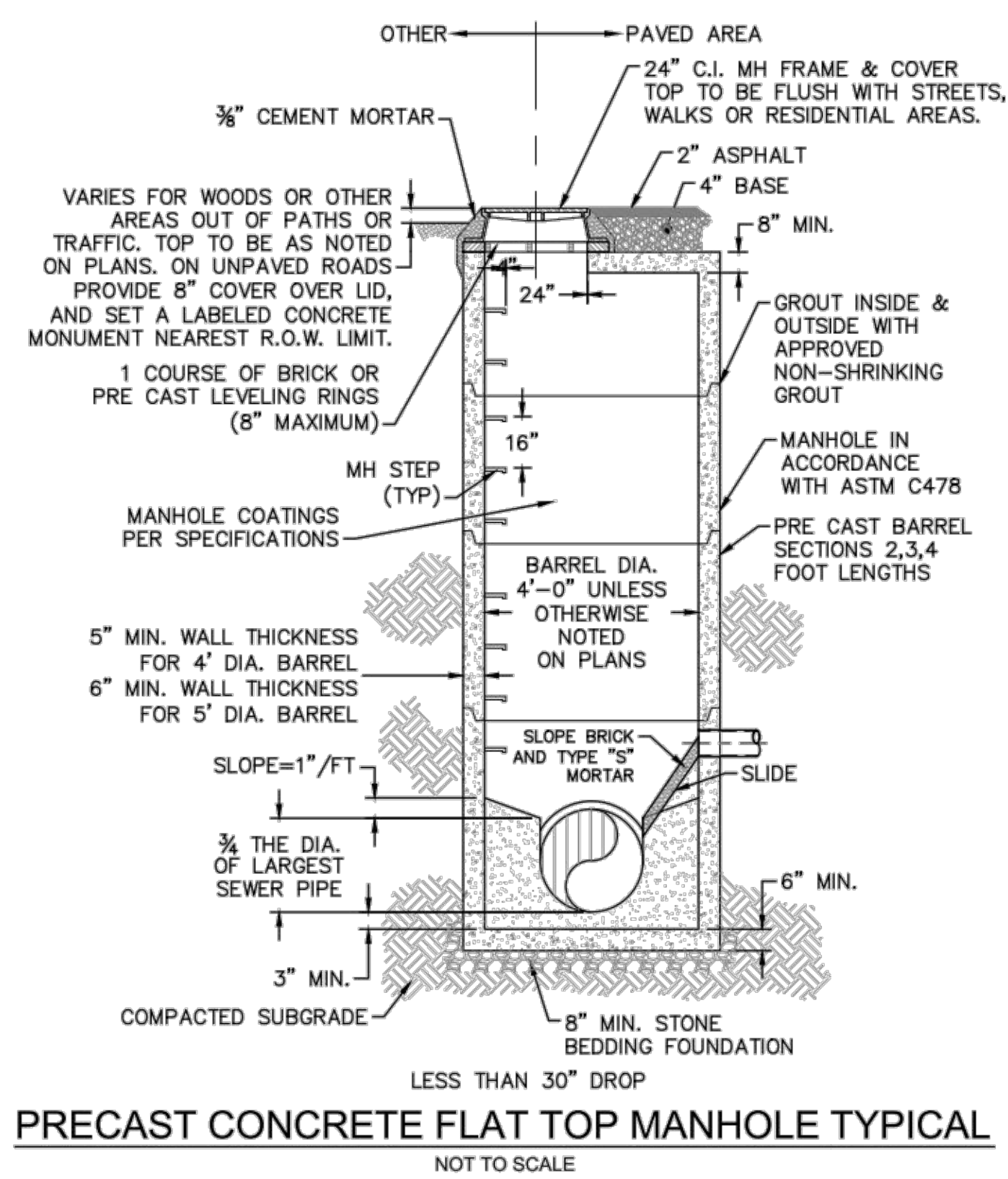
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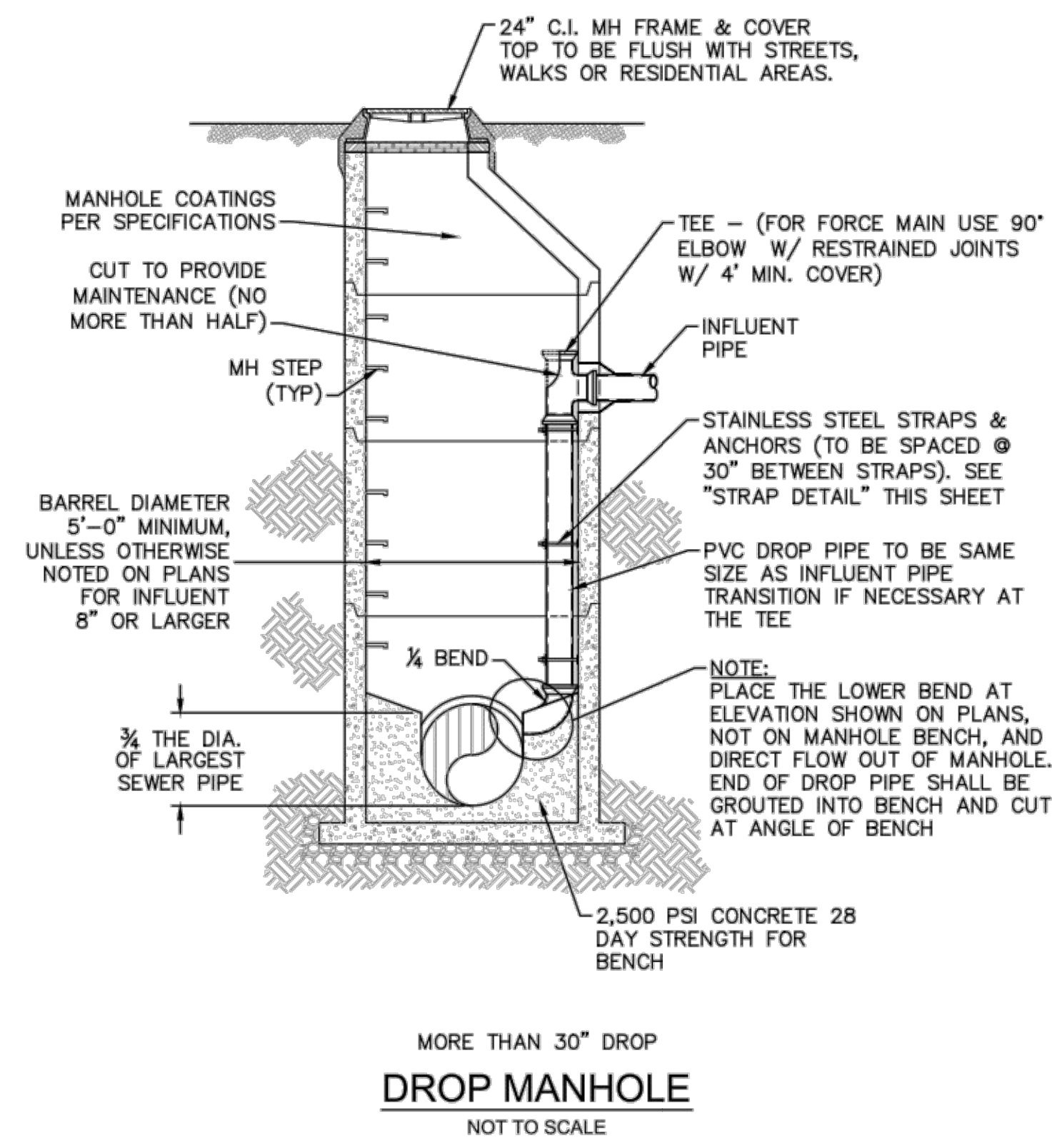
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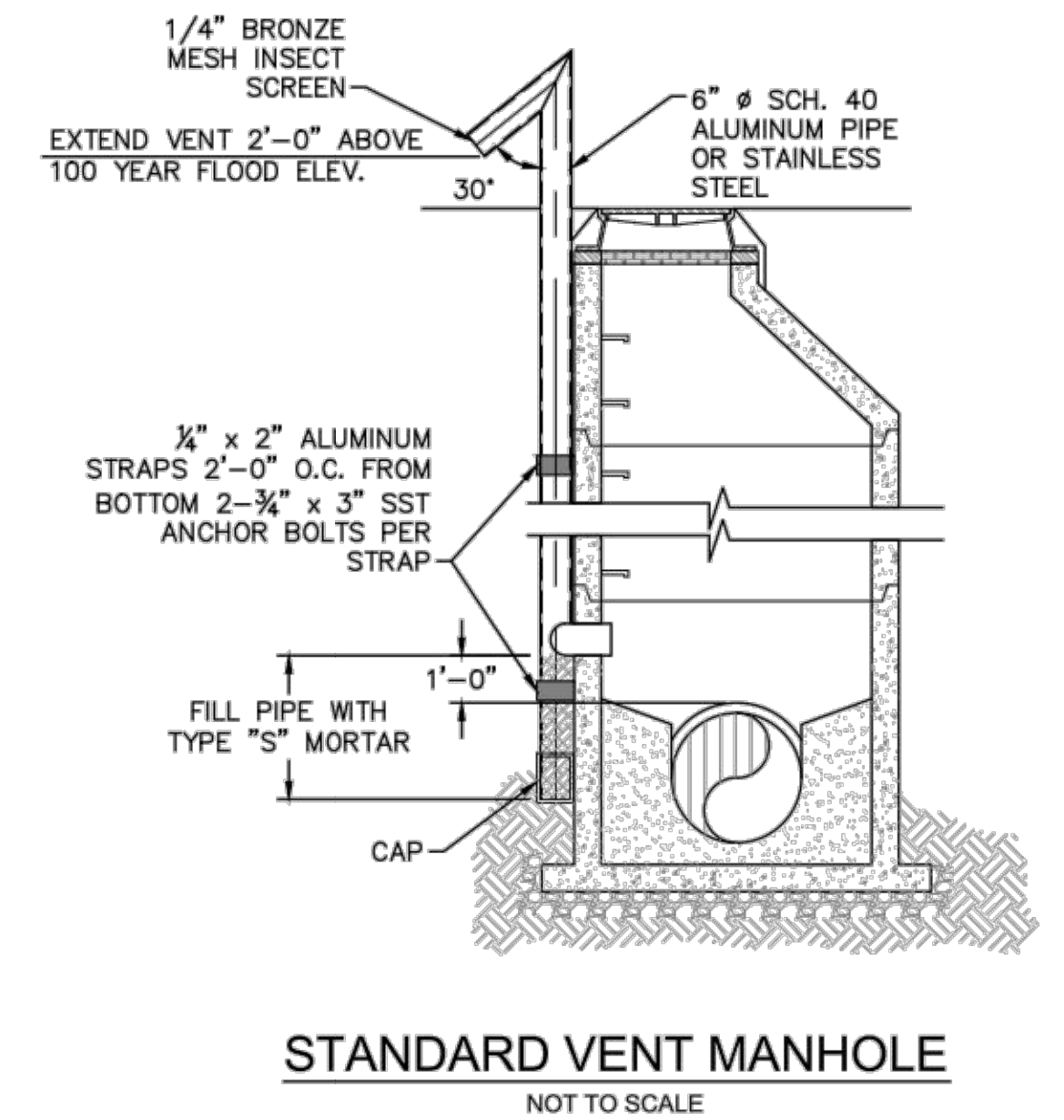
**PRECAST CONCRETE OFFSET MANHOLE TYPICAL**  
NOT TO SCALE



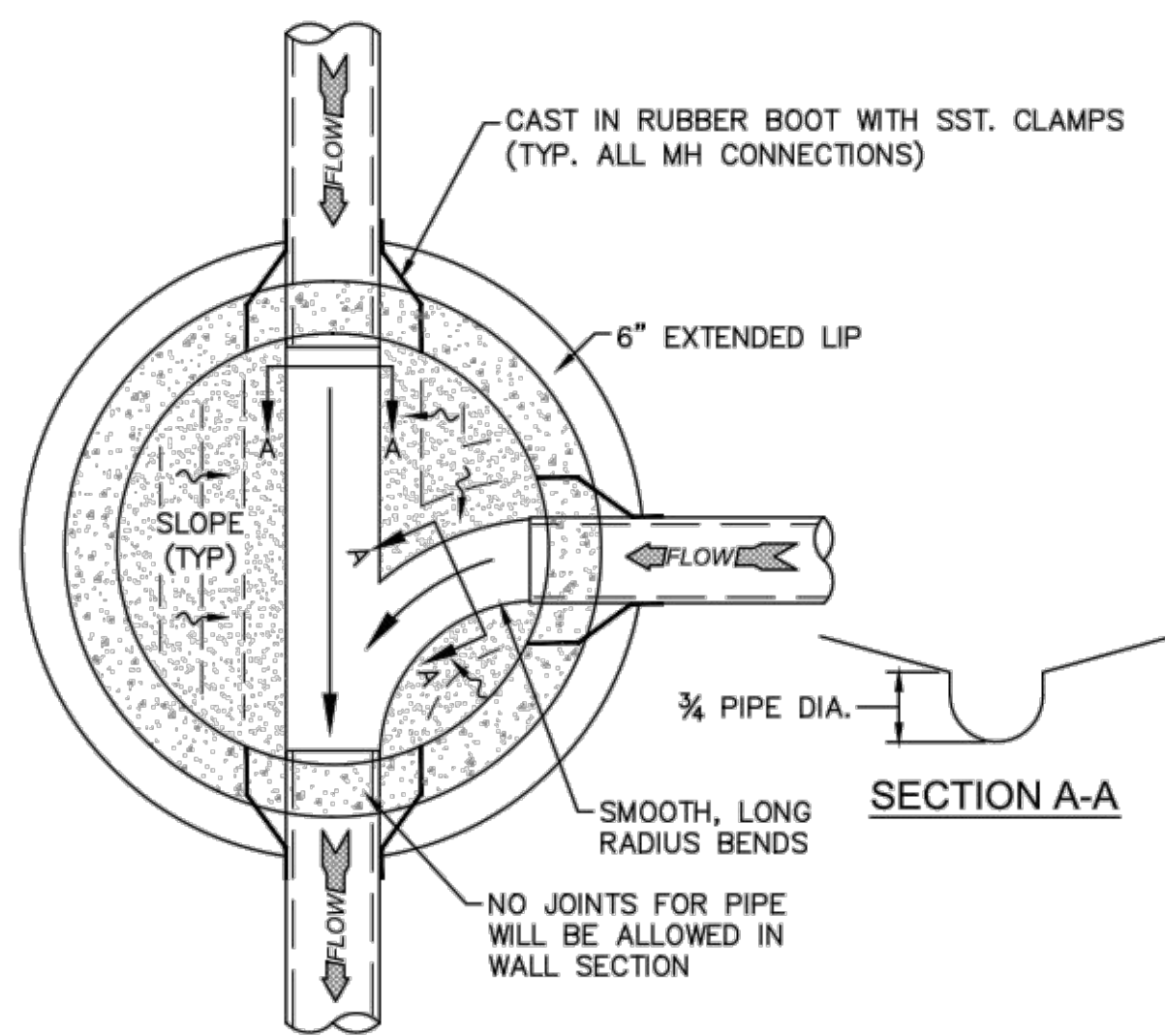
**PRECAST CONCRETE FLAT TOP MANHOLE TYPICAL**  
NOT TO SCALE



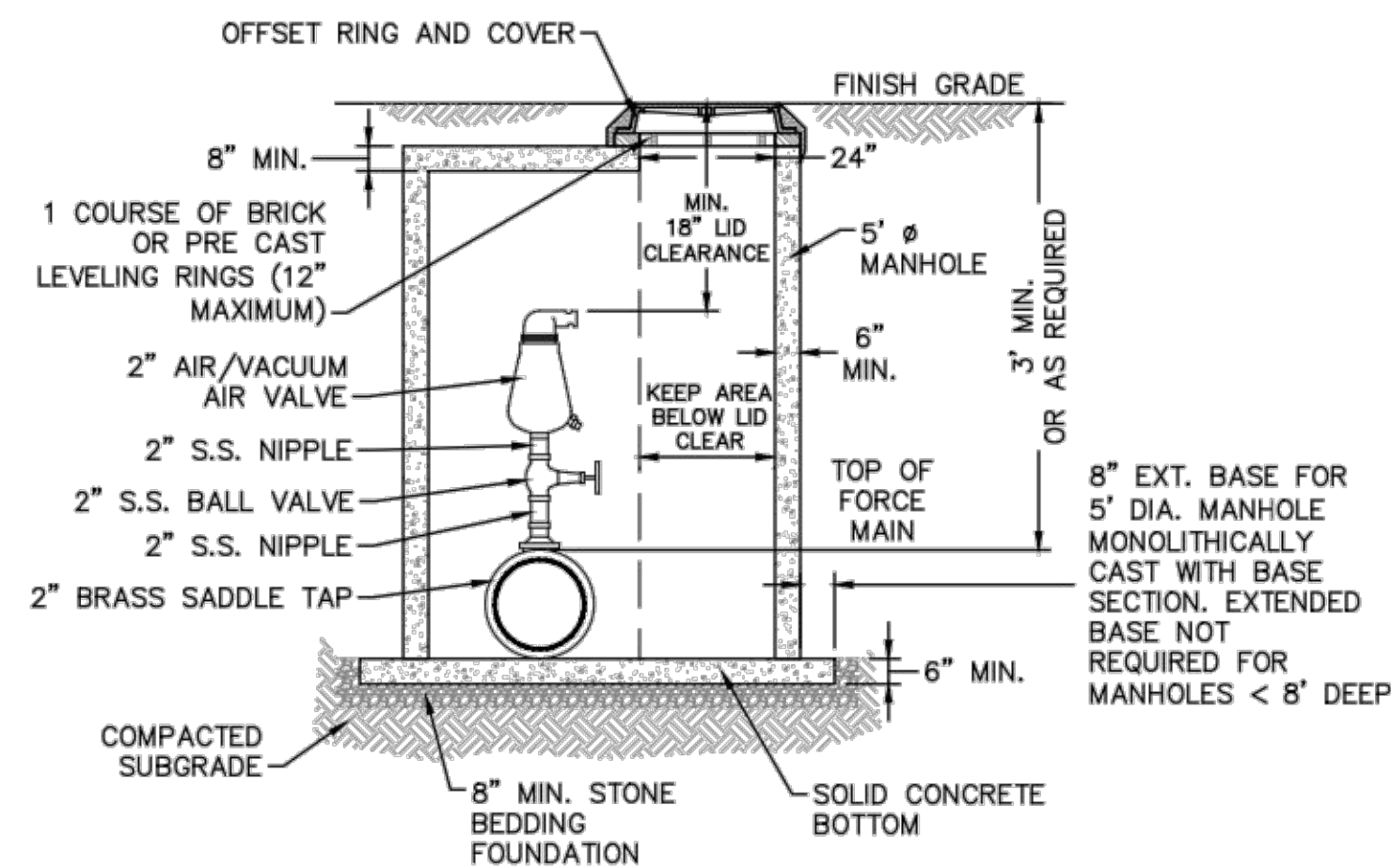
**DROP MANHOLE**  
NOT TO SCALE



**STANDARD VENT MANHOLE**  
NOT TO SCALE

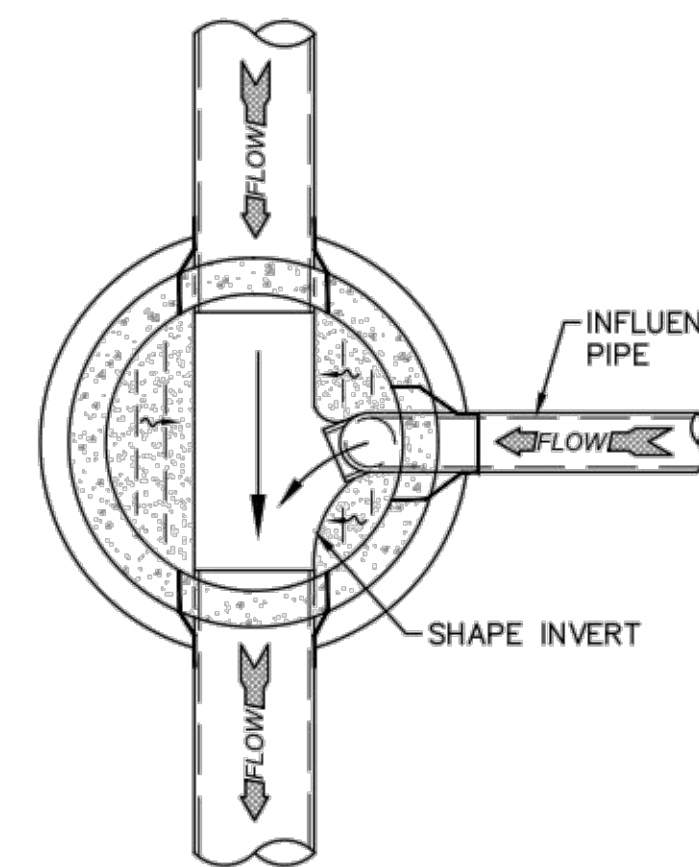


**MANHOLE FLOOR PLAN**  
NOT TO SCALE

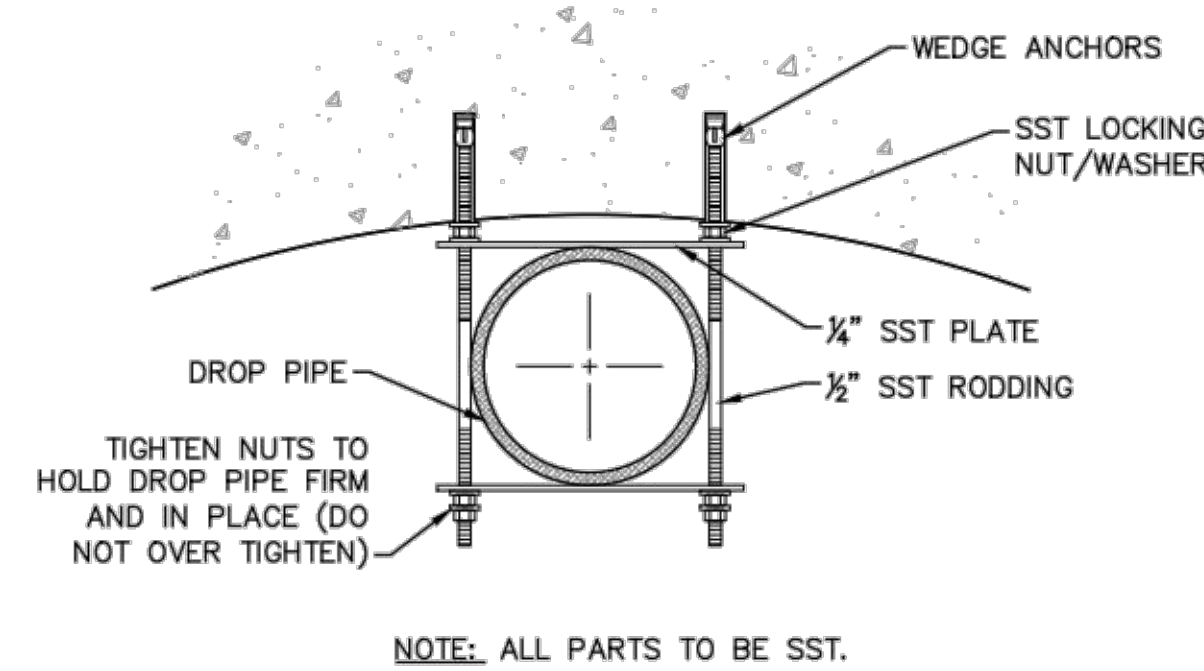


**NOTES:**  
1. CONTRACTOR TO INSTALL VALVE AND MANHOLE AT SUFFICIENT DEPTH TO ALLOW FOR ACCESS.  
2. FORCE MAIN TO BE OFFSET IN MANHOLE TO KEEP AREA BELOW LID CLEAR.  
3. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.  
4. USE CAST IN RUBBER BOOT WITH S.S.T. CLAMPS FOR ALL MH CONNECTIONS, INCLUDING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

- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
- 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.
- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL STAINLESS STEEL FASTENERS SHALL BE 316.

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

**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.
- THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
- THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
- 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**

**CFPUA SANITARY SEWER**

**STANDARD DETAILS**

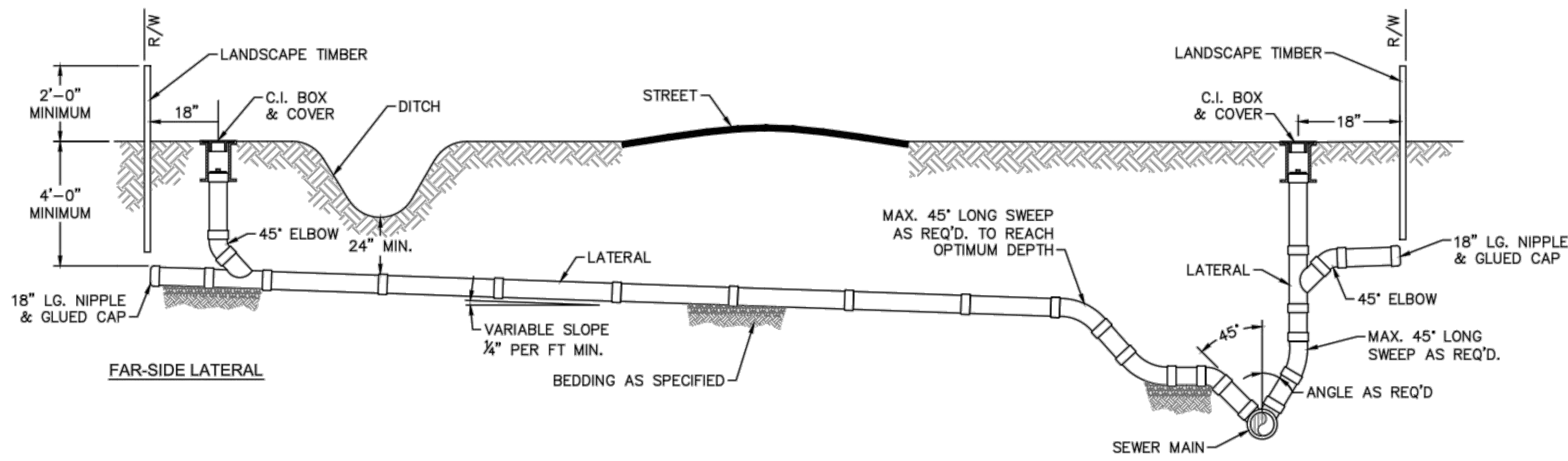


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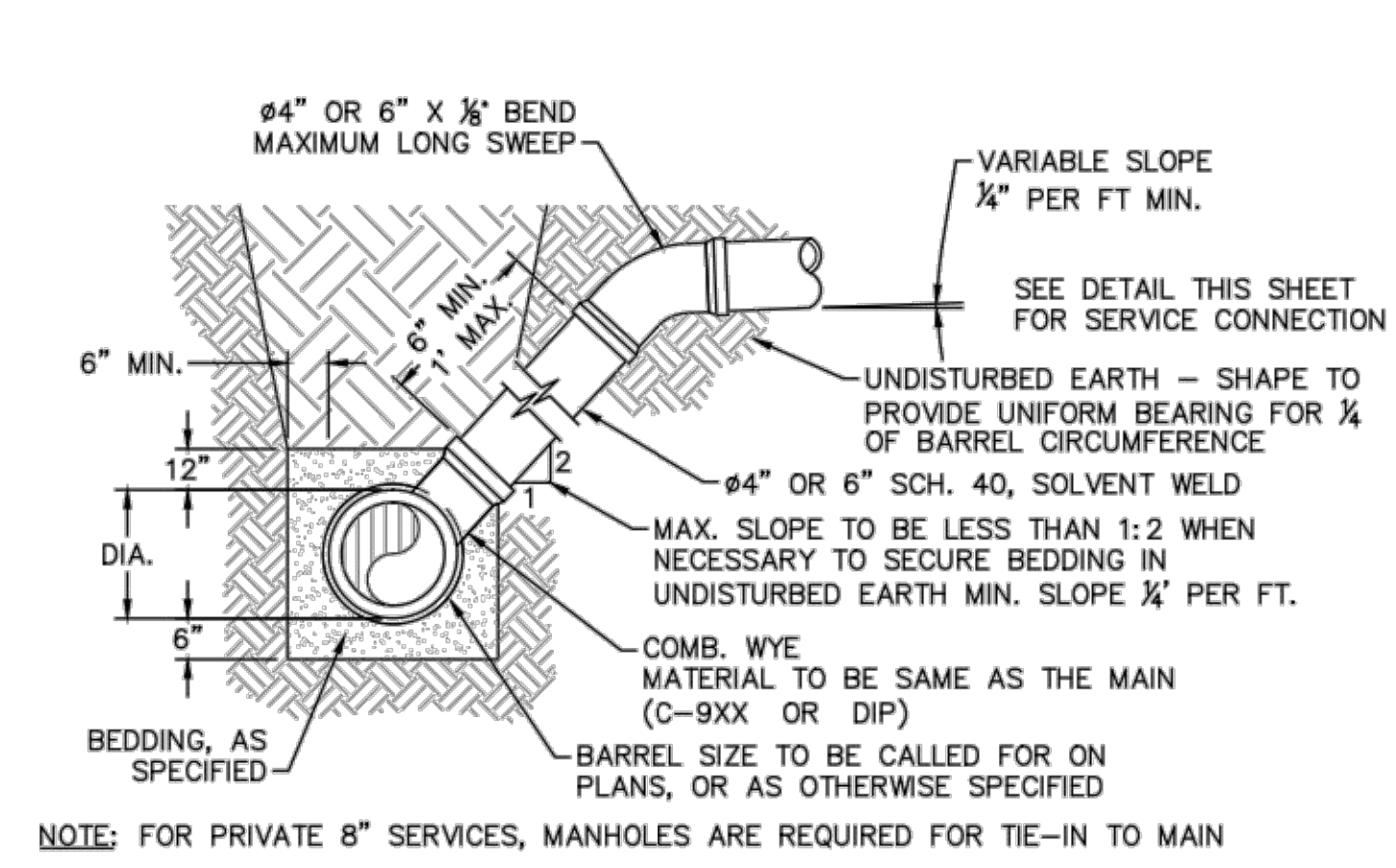
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PROJECT NO.:

**SHEET NO:**  
**SSD-1**

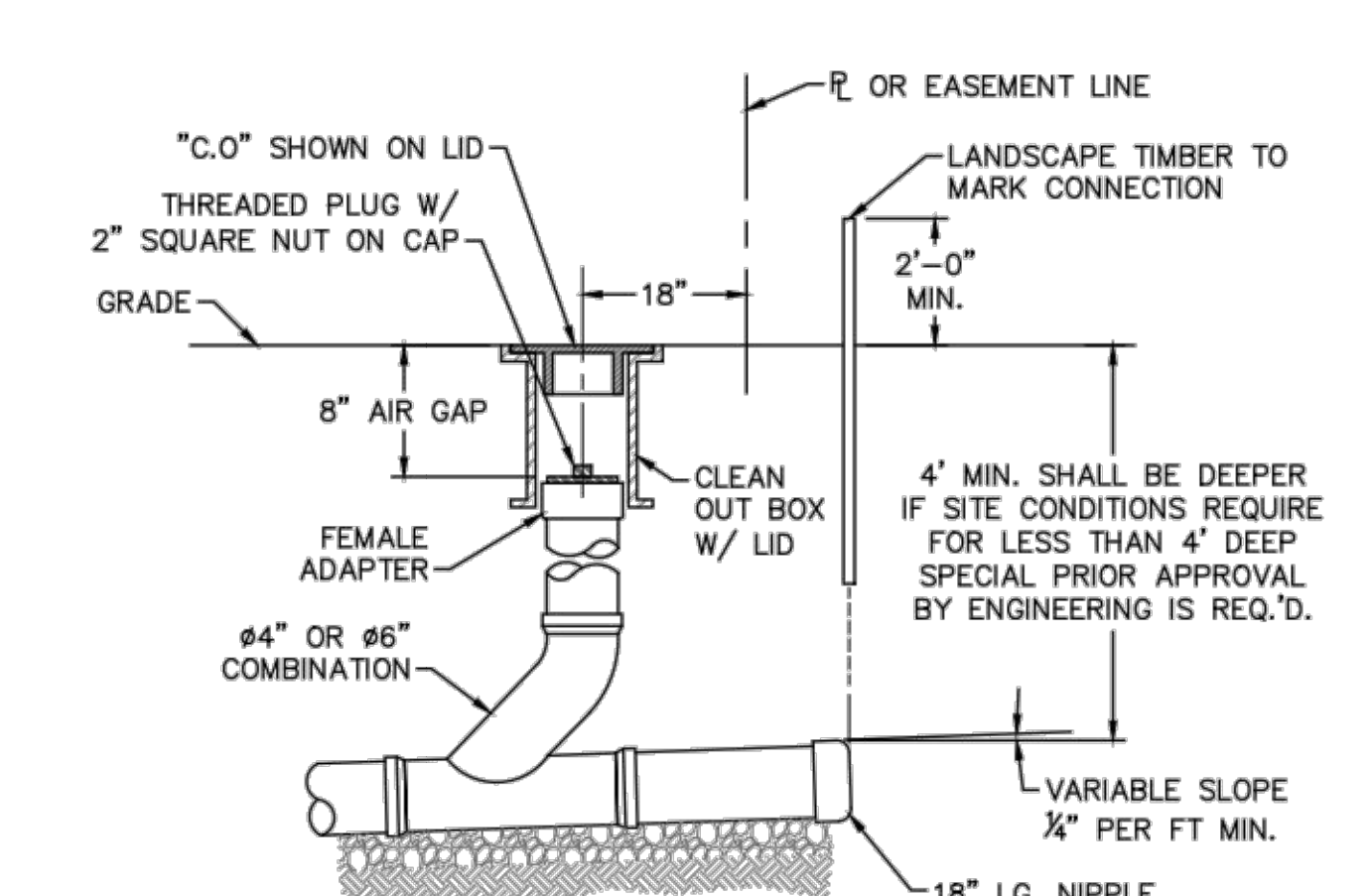
REV:	DESCRIPTION:	DATE:
1	AIR / VACUUM AND AIR RELEASE COMBINATION VALVE REVISED	10/26/12
2	STANDARD SEWER NOTE #6 REVISED	12/10/12
3	REVISED STANDARD VENT MANHOLE TO EXTEND VENT 2'-0" ABOVE 100 YR FLOOD	11/20/14



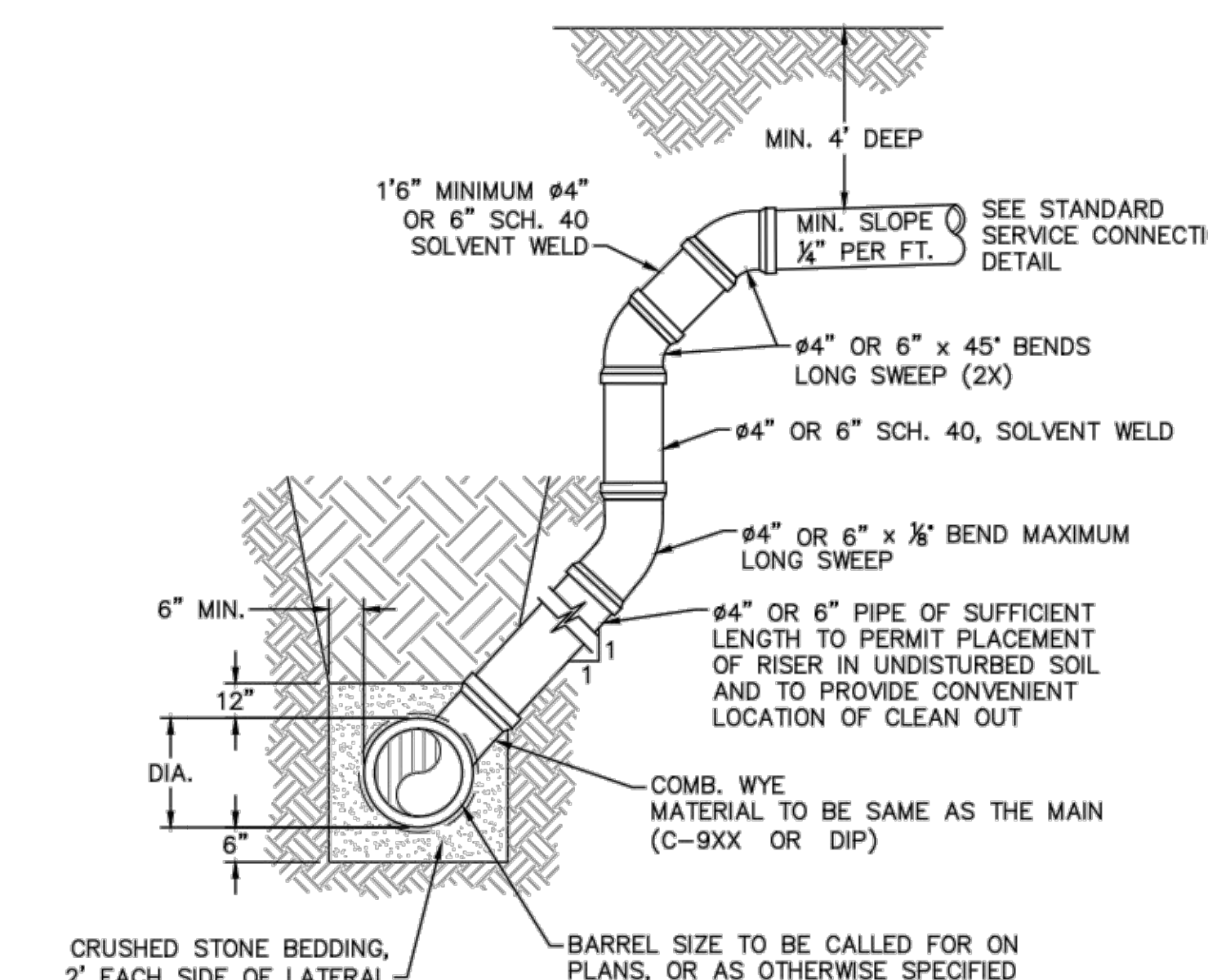
NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN  
**STANDARD SERVICE CONNECTION TO SANITARY SEWER**  
 NOT TO SCALE



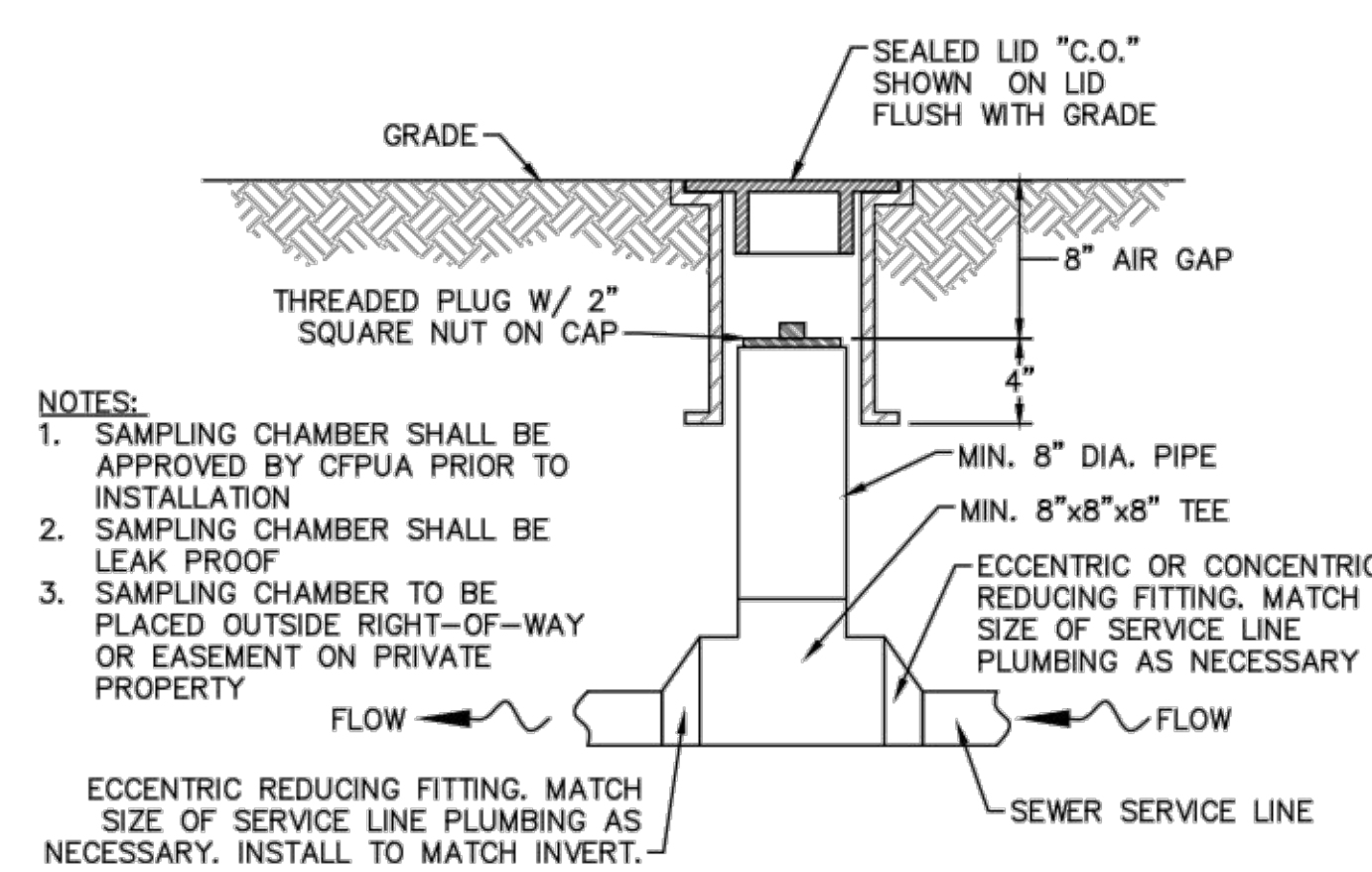
NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN  
**STANDARD SERVICE LATERAL**  
 NOT TO SCALE



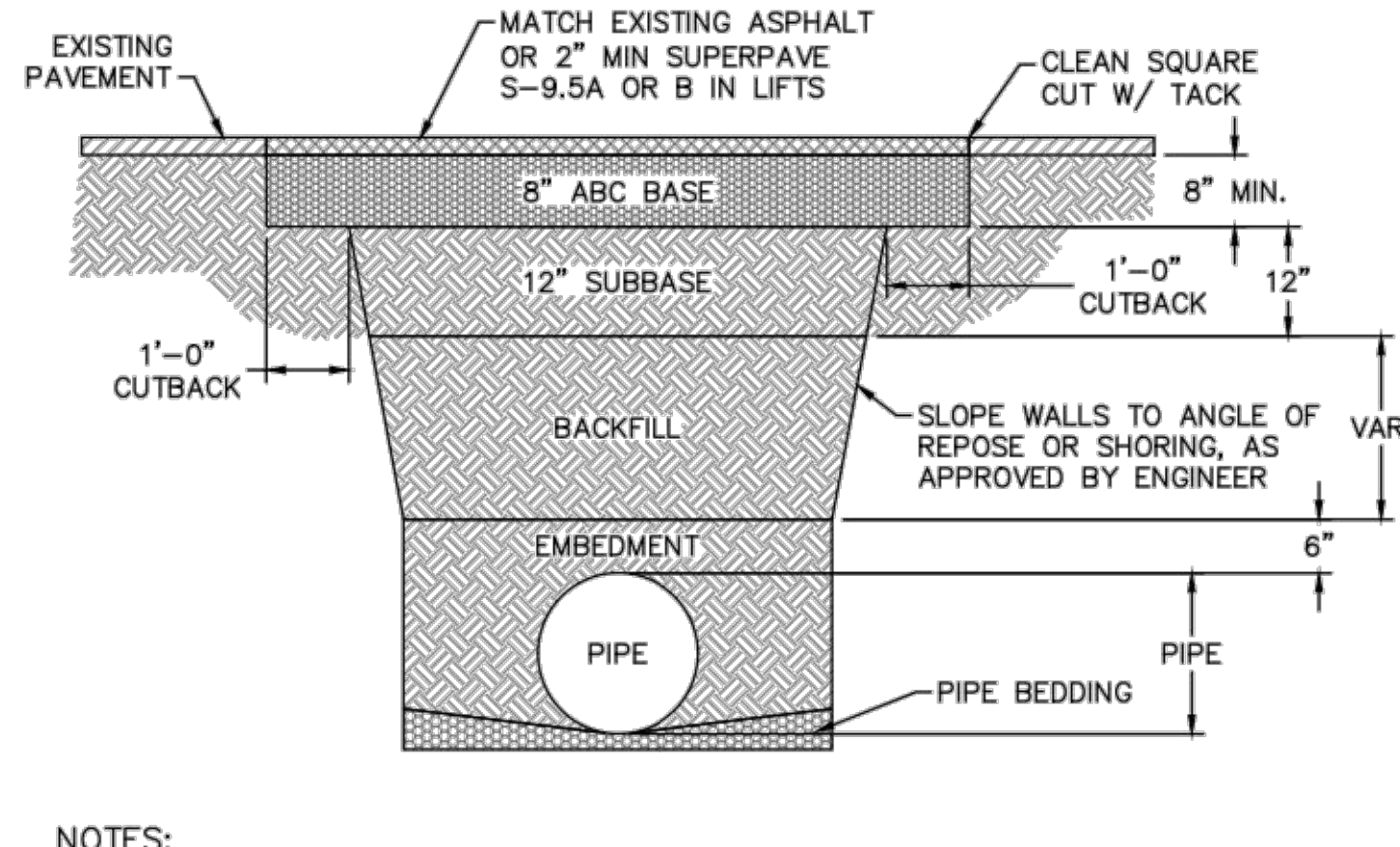
NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN  
**SERVICE CONNECTION & CLEAN-OUT**  
 NOT TO SCALE



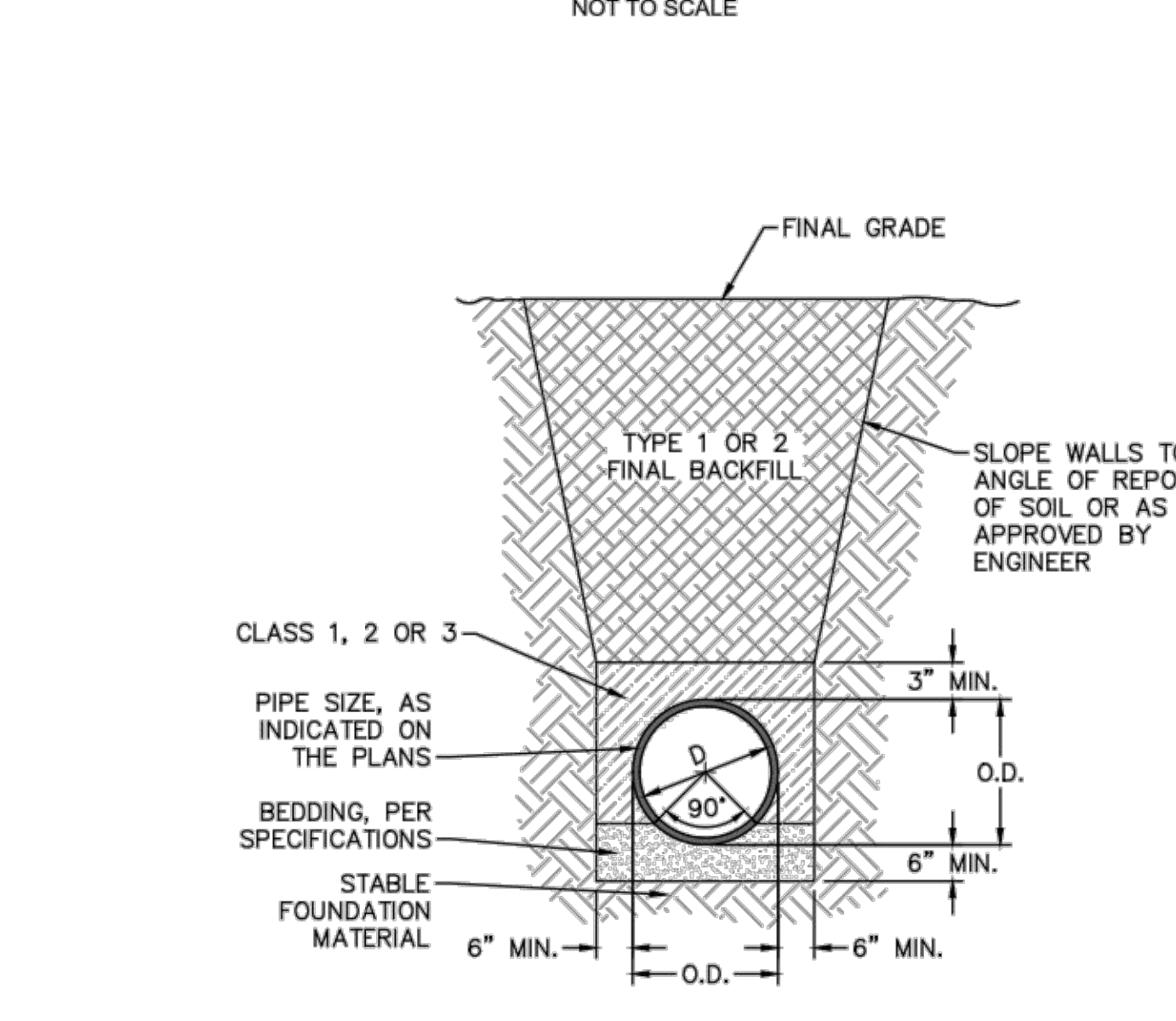
NOTE: 1. SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.  
 2. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN.  
**DEEP SERVICE LATERAL**  
 NOT TO SCALE



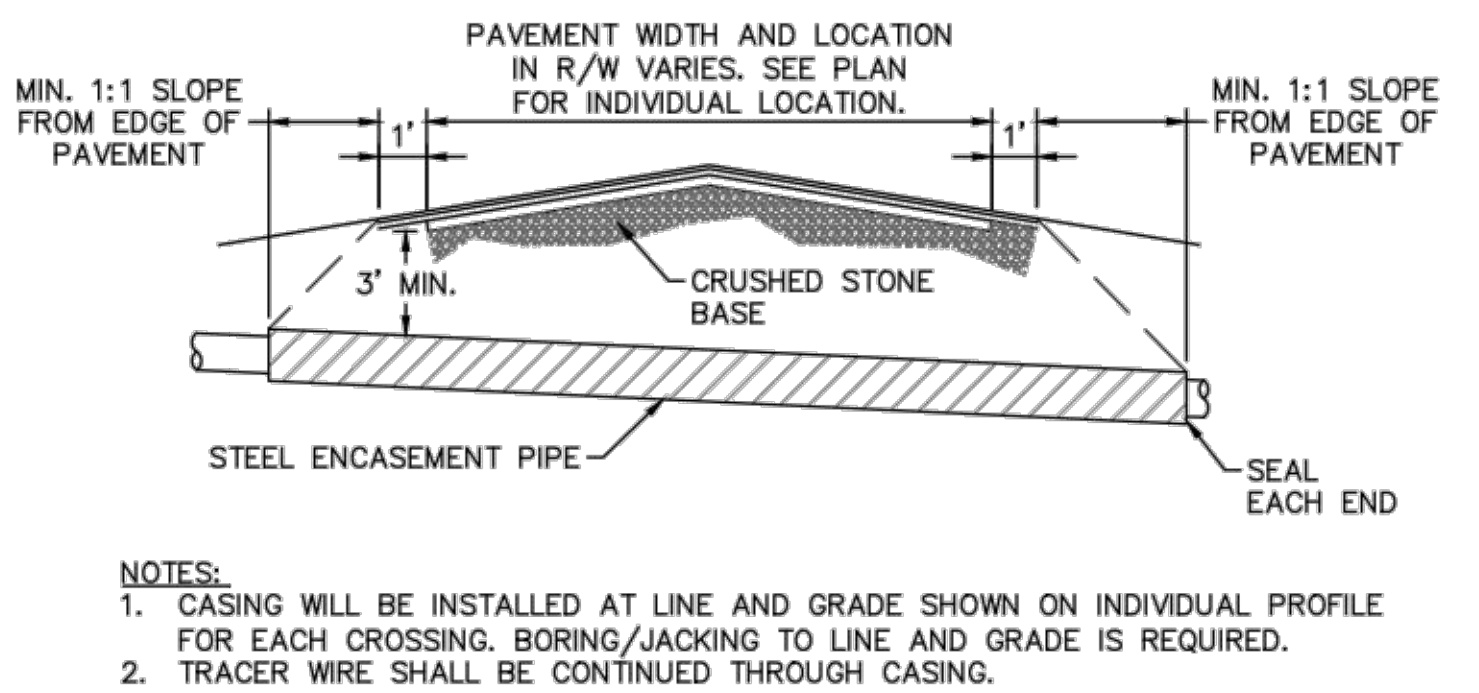
NOTE: 1. SAMPLING CHAMBER SHALL BE APPROVED BY CFPUA PRIOR TO INSTALLATION.  
 2. SAMPLING CHAMBER SHALL BE LEAK PROOF.  
 3. SAMPLING CHAMBER TO BE PLACED OUTSIDE RIGHT-OF-WAY OR EASEMENT ON PRIVATE PROPERTY.  
**SAMPLING CHAMBER**  
 NOT TO SCALE



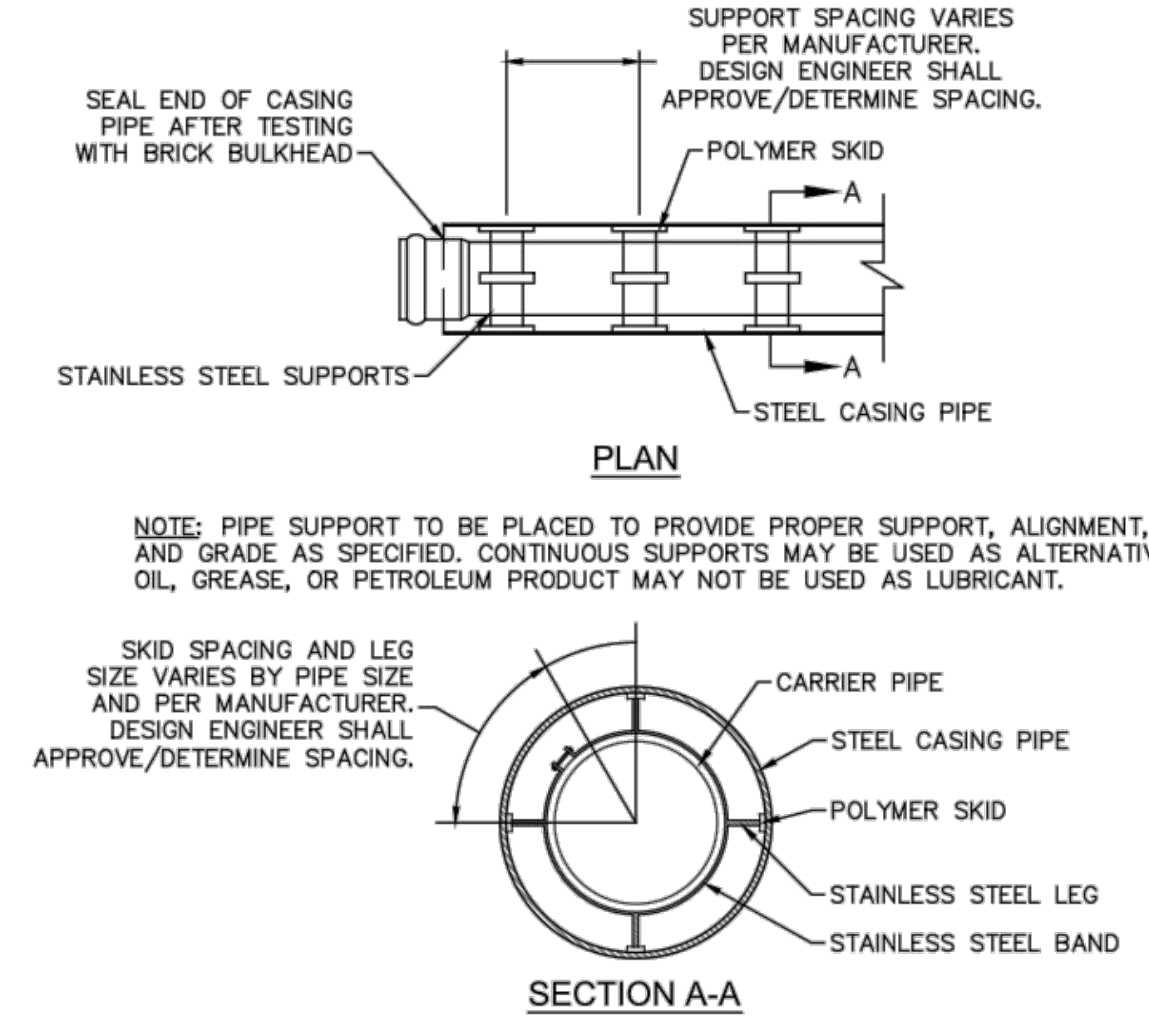
NOTE: 1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.  
 2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC.).  
 3. 8-INCH 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%.  
 (FOR PRIVATE ROADS AND PAVED AREAS; CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)  
**PAVEMENT REPAIR WHERE PIPE INSTALLED**  
 NOT TO SCALE



**TYPICAL TRENCH DETAIL**  
 NOT TO SCALE



NOTE: 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



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

- 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.
  - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
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**THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04**

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

**CFPUA SANITARY SEWER**

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**STANDARD DETAILS**

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

DATE:  
1/9/12

SCALE:  
N/A

DRAWN BY:  
CFPUA

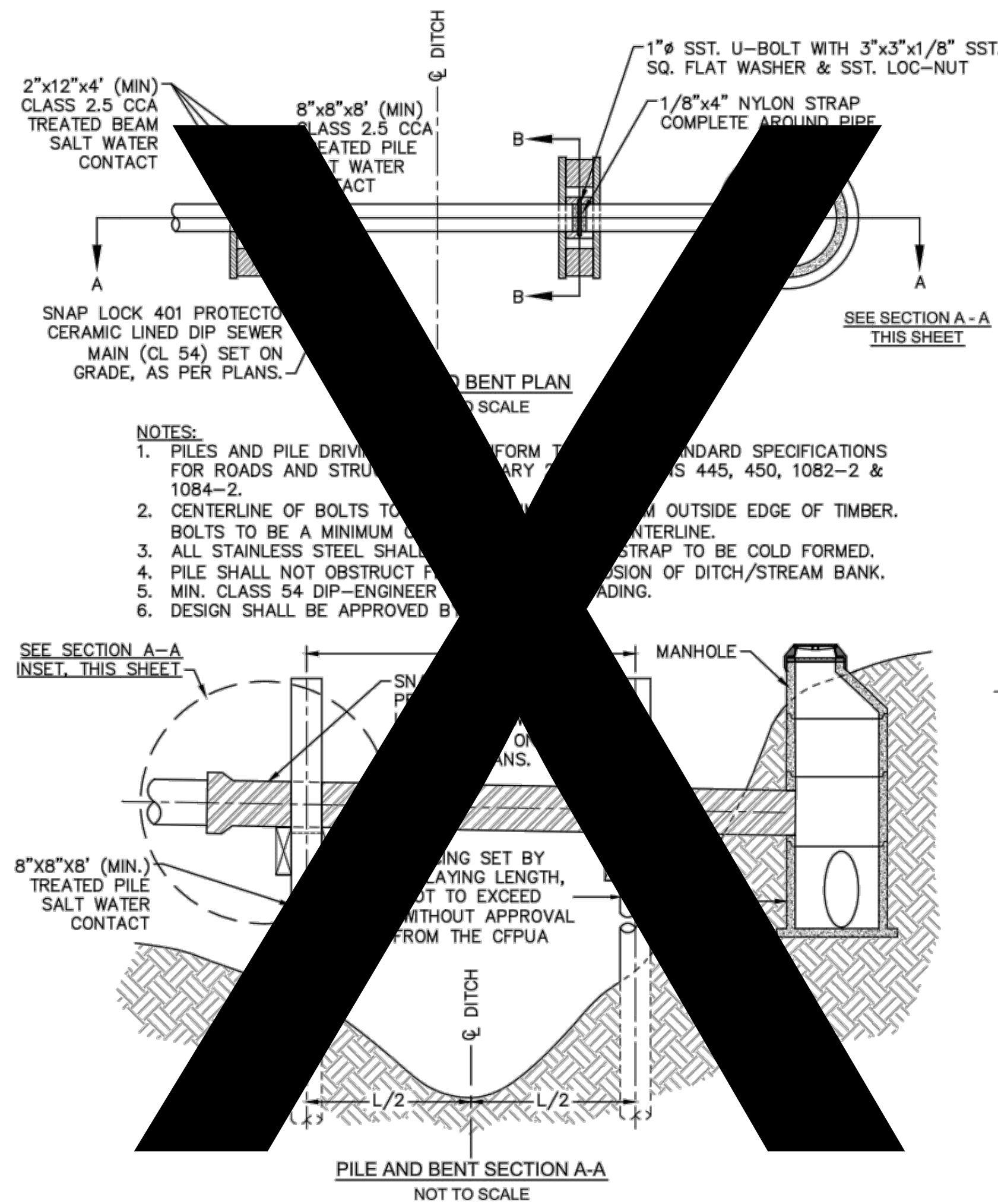
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PROJECT NO.:

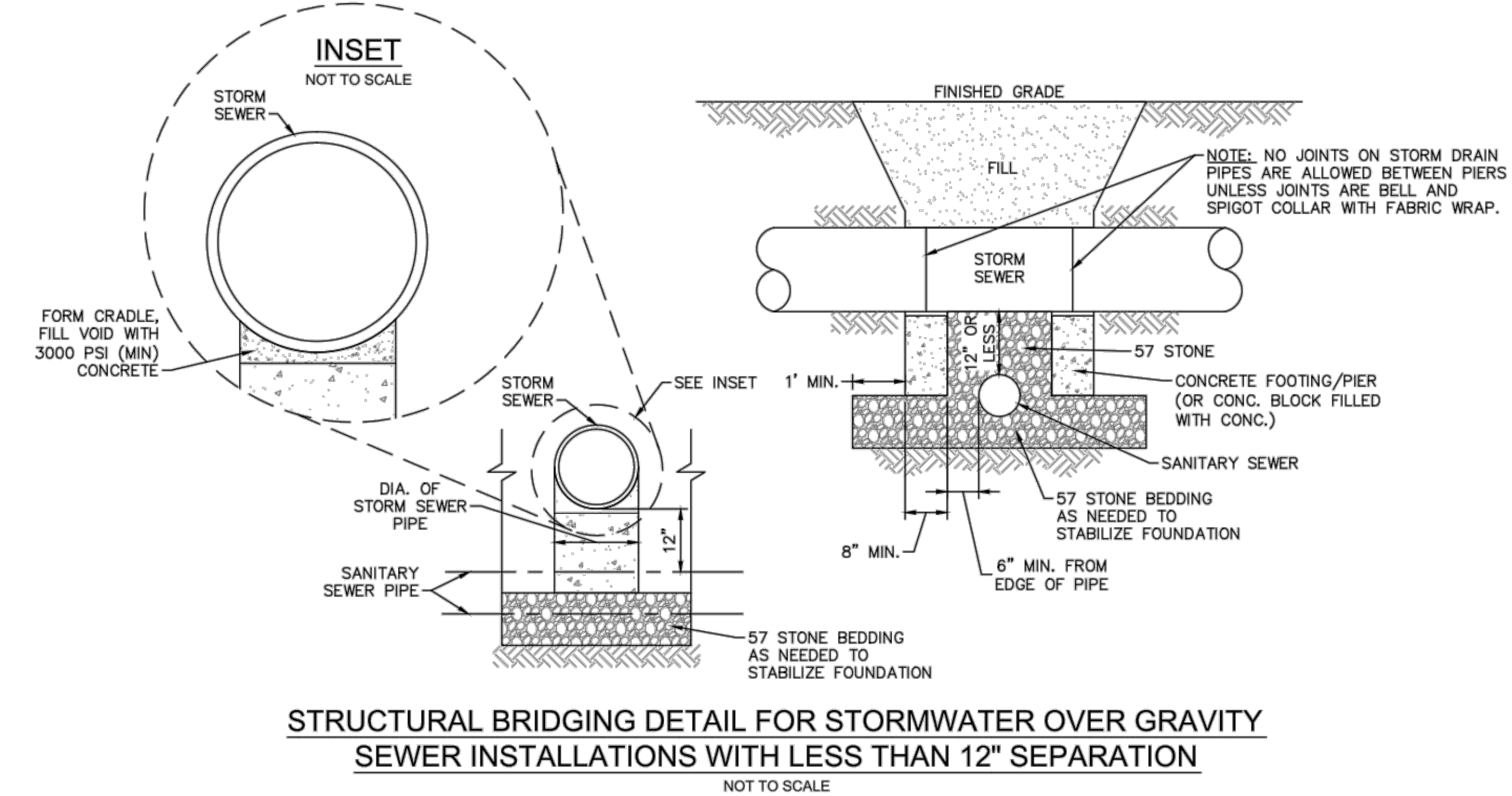
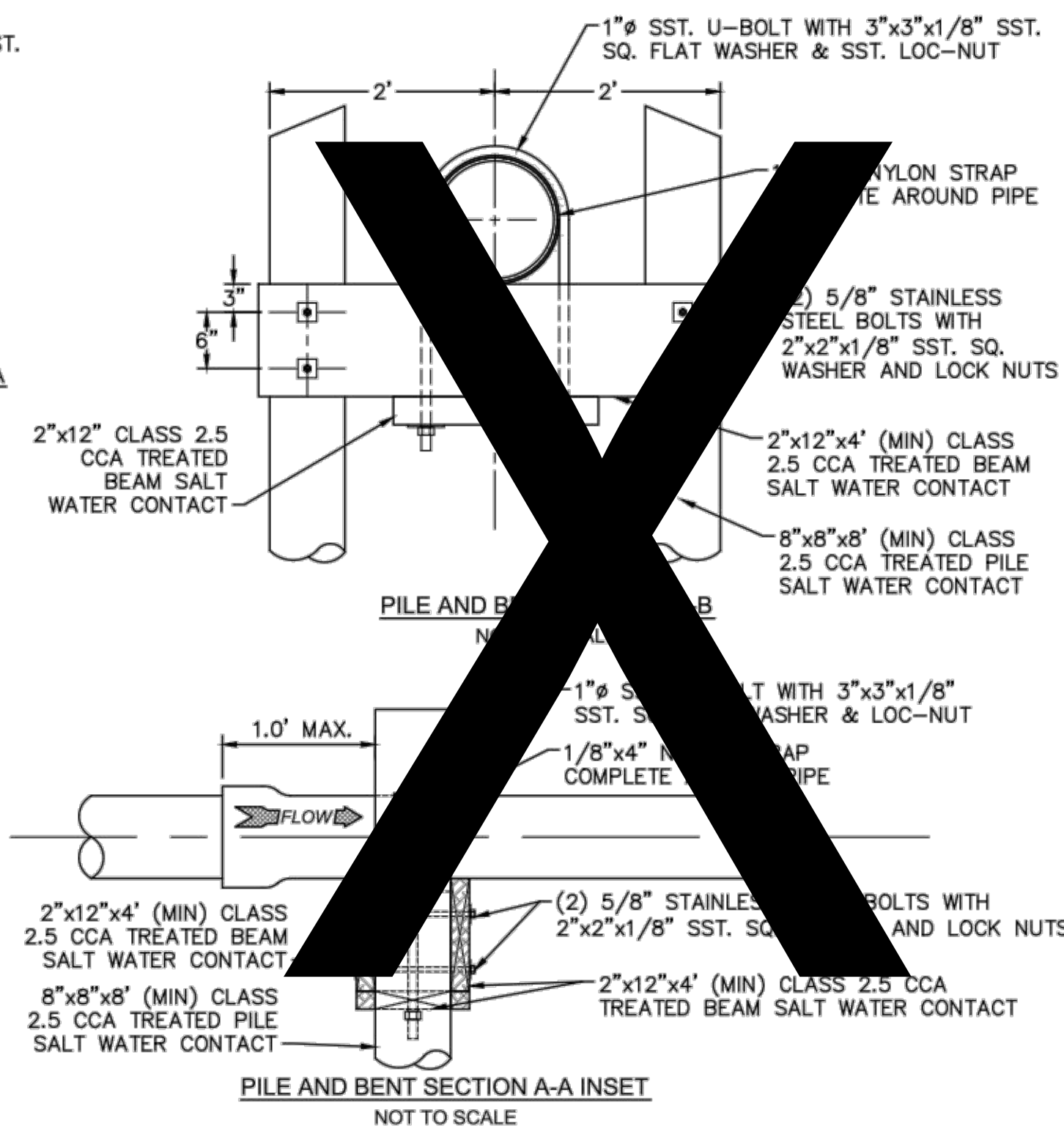
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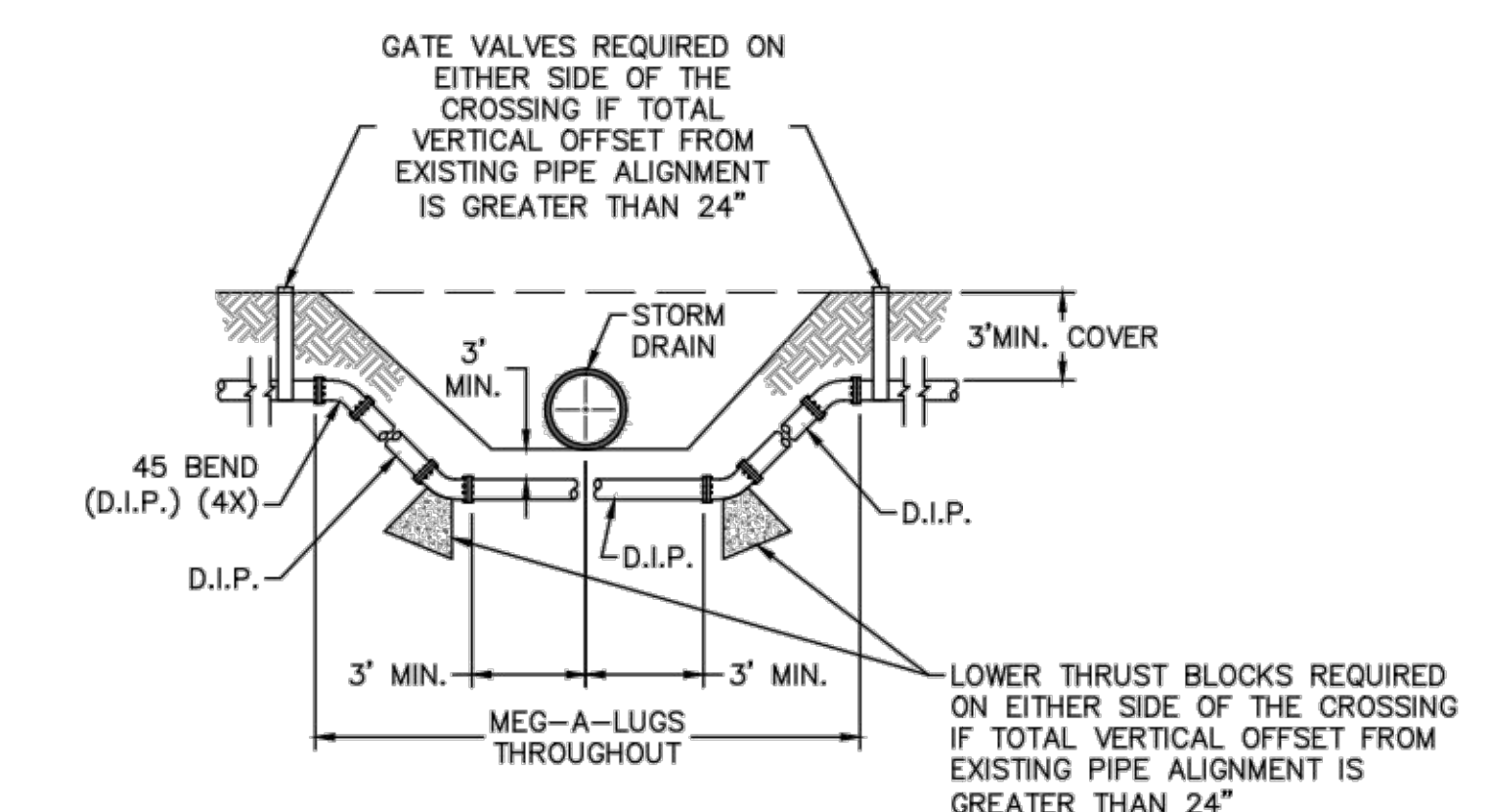
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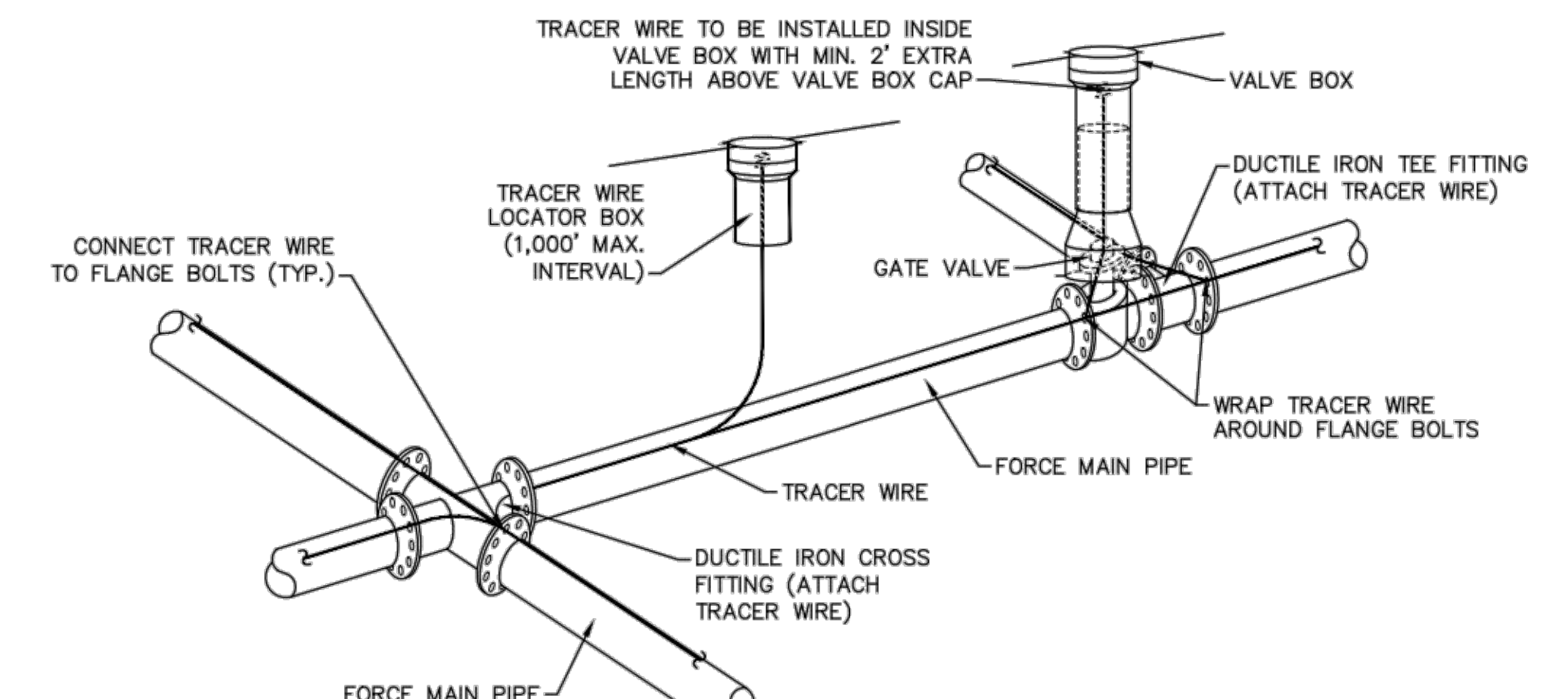
**PILE AND BENT DETAIL**  
NOT TO SCALE



**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



- 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

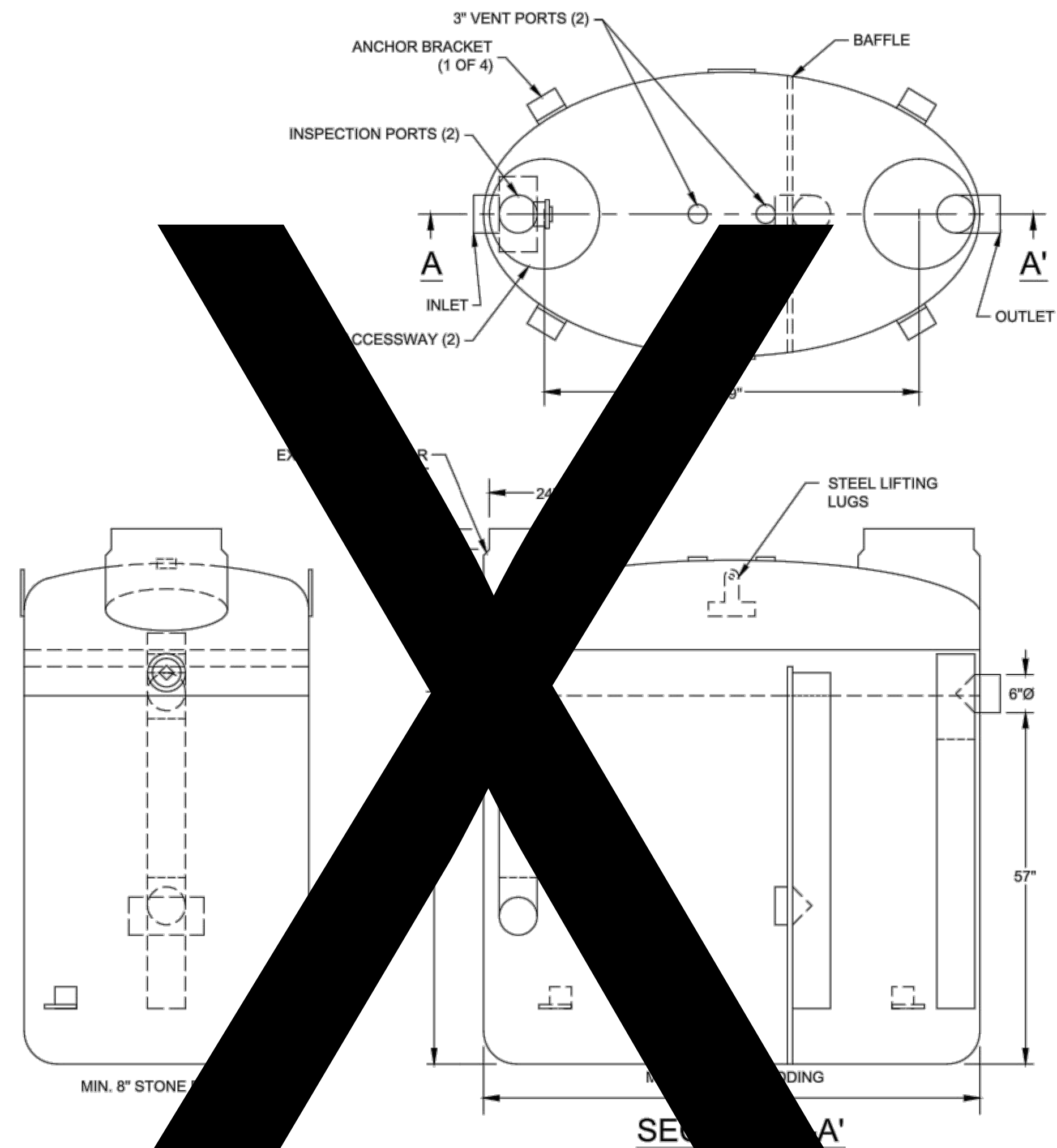
- GENERAL NOTES:**
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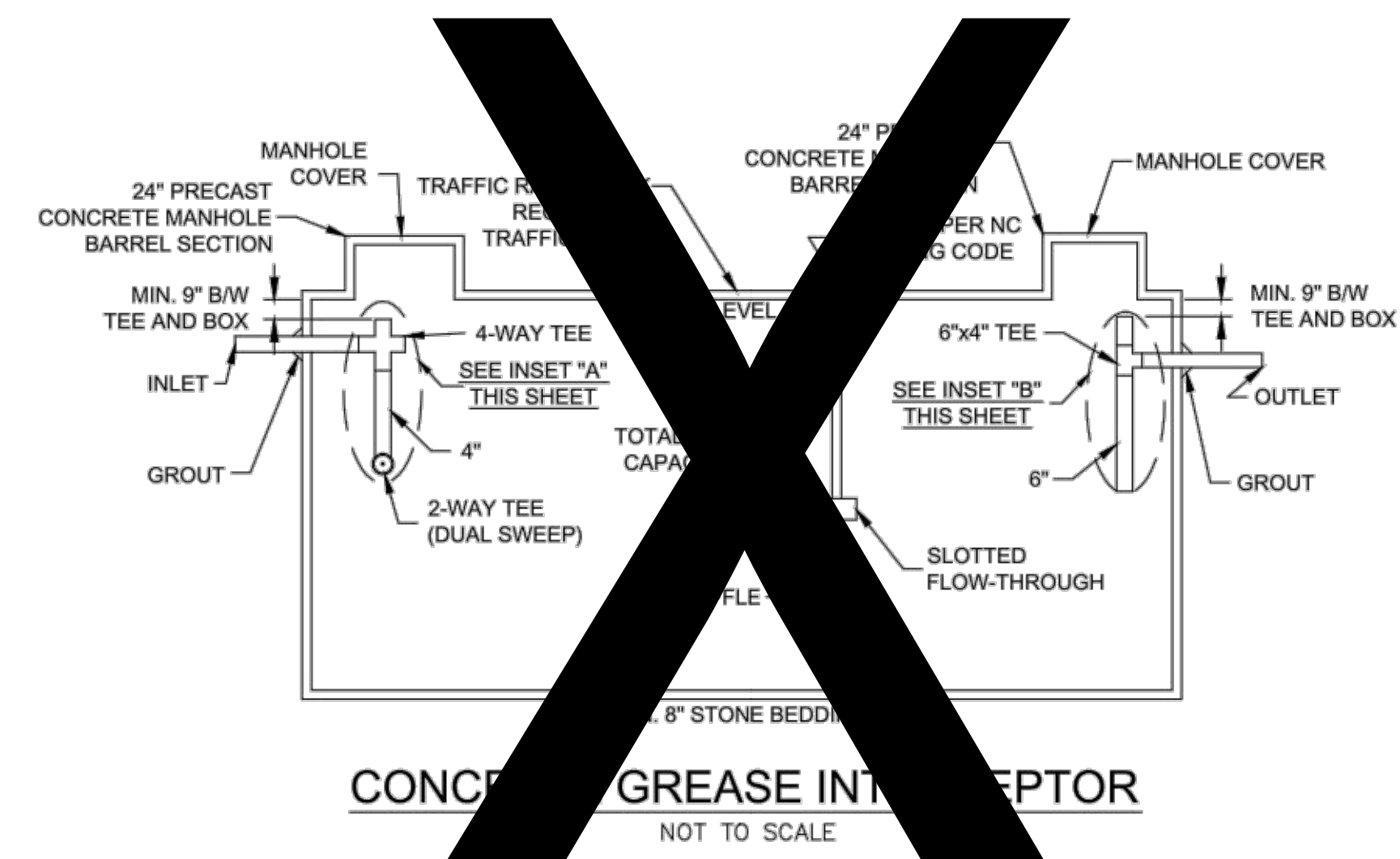
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 <b>CAPE FEAR PUBLIC UTILITY AUTHORITY</b> 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560		DRAWN BY: CFPUA
		CHECKED BY: CFPUA
PROJECT NO.:		<b>SHEET NO:</b> <b>SSD-3</b>

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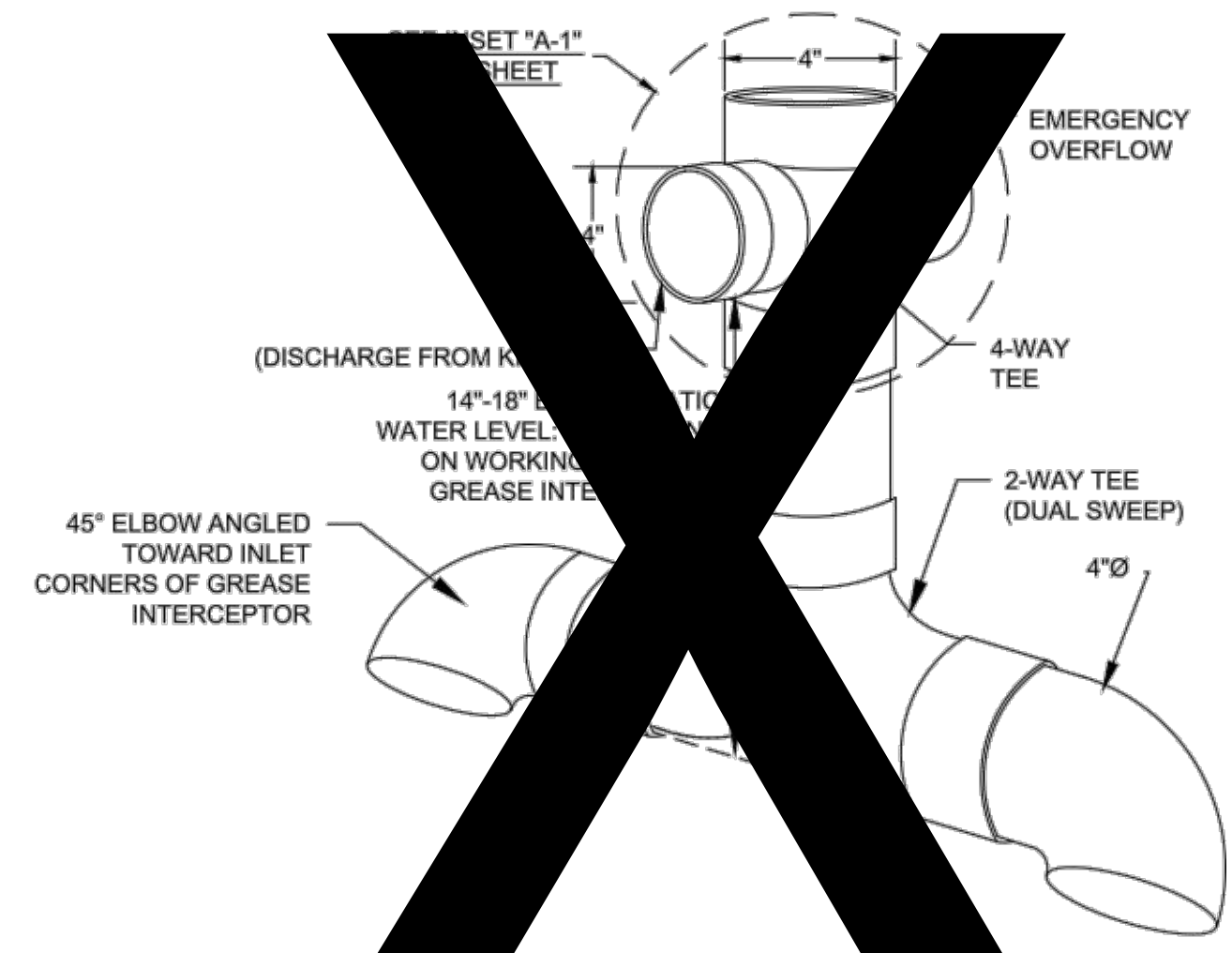


1. FOR APPLICATIONS ONLY
2. MIN. THICKNESS: 1/4\"/>
- 3. STANDARD PIPE STUBS ARE SOCKET SDR 35 PVC
- 4. EXTENSION COLLARS SHALL BE CAULKED WITH SIKAFLEX OR EQUIVALENT FOR WATERTIGHT SEAL
- 5. FOLLOW MANUFACTURE'S SPECS FOR TRAFFIC OR PEDESTRIAN LOADING

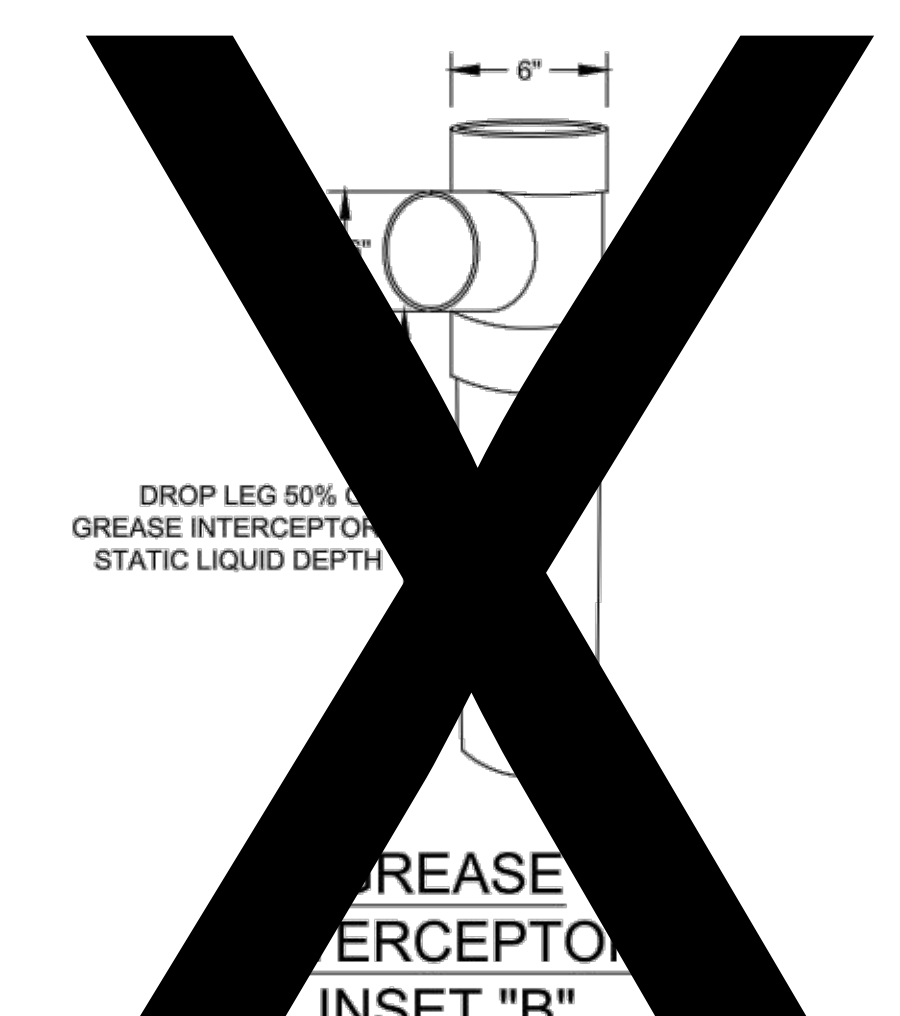
**FIBERGLASS GREASE INTERCEPTOR**  
NOT TO SCALE



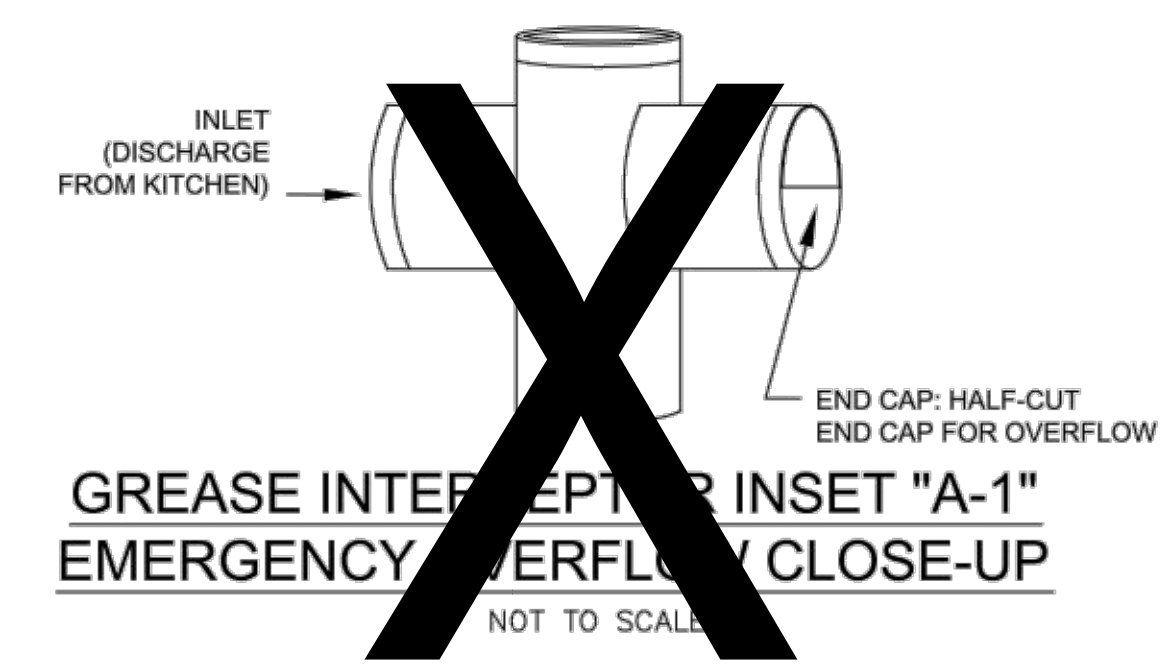
**CONCRETE GREASE INTERCEPTOR**  
NOT TO SCALE



**4\"/>**



**GREASE INTERCEPTOR INSET \"B\"**  
6\"/>



**GREASE INTERCEPTOR INSET \"A-1\"**  
**EMERGENCY OVERFLOW CLOSE-UP**  
NOT TO SCALE

**GENERAL NOTES:**

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
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**THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04**

**CFPUA SANITARY SEWER**

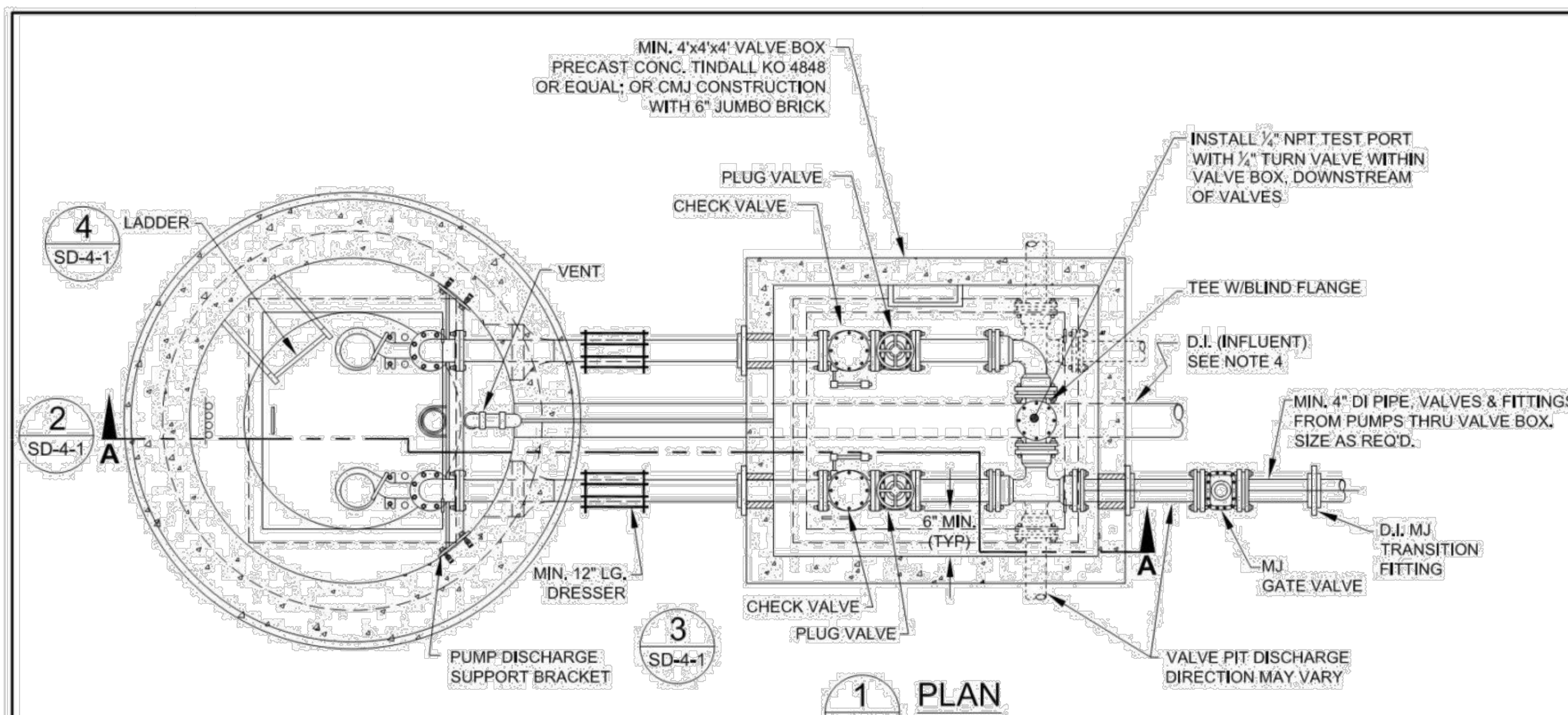
**STANDARD DETAILS**

**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.:

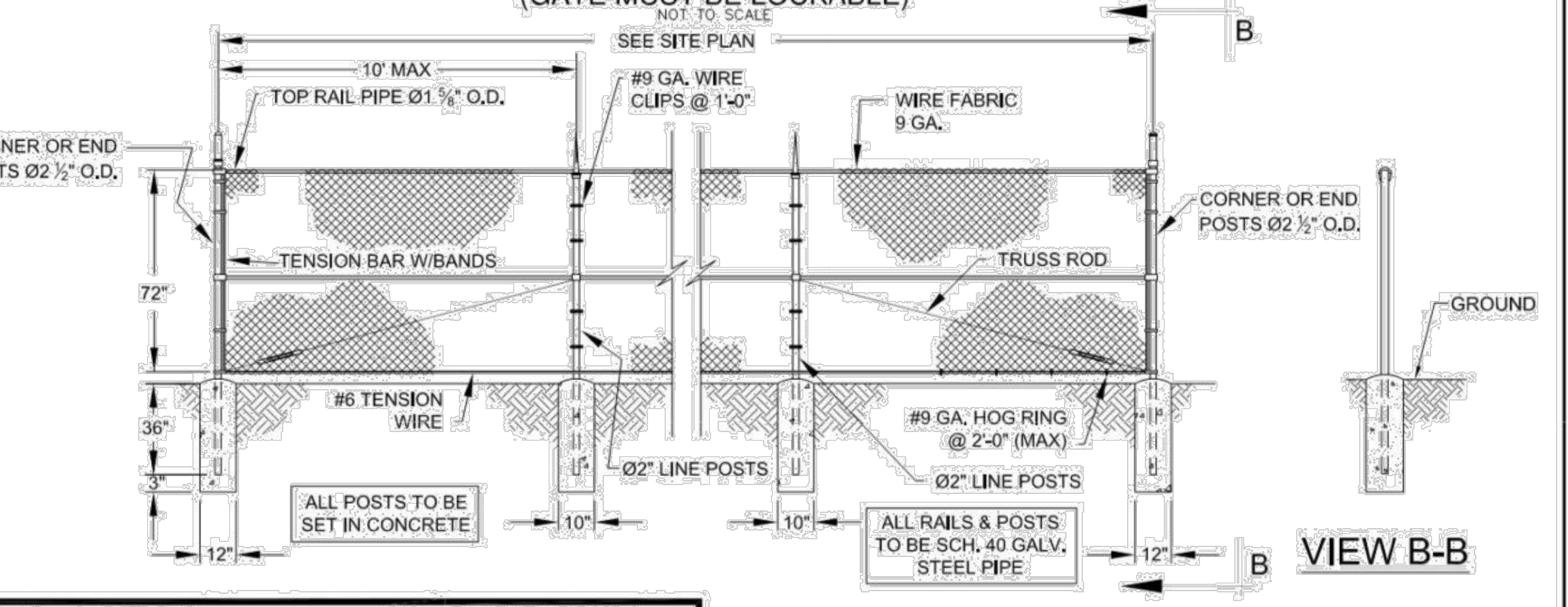
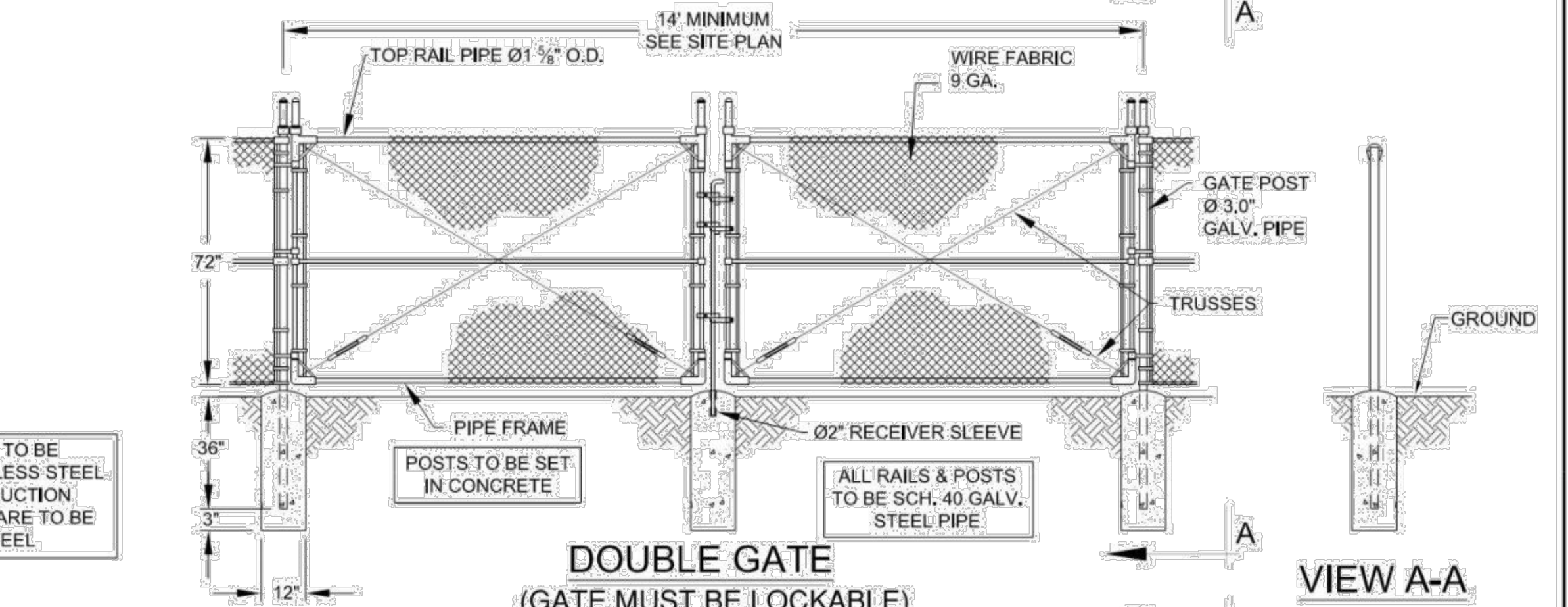
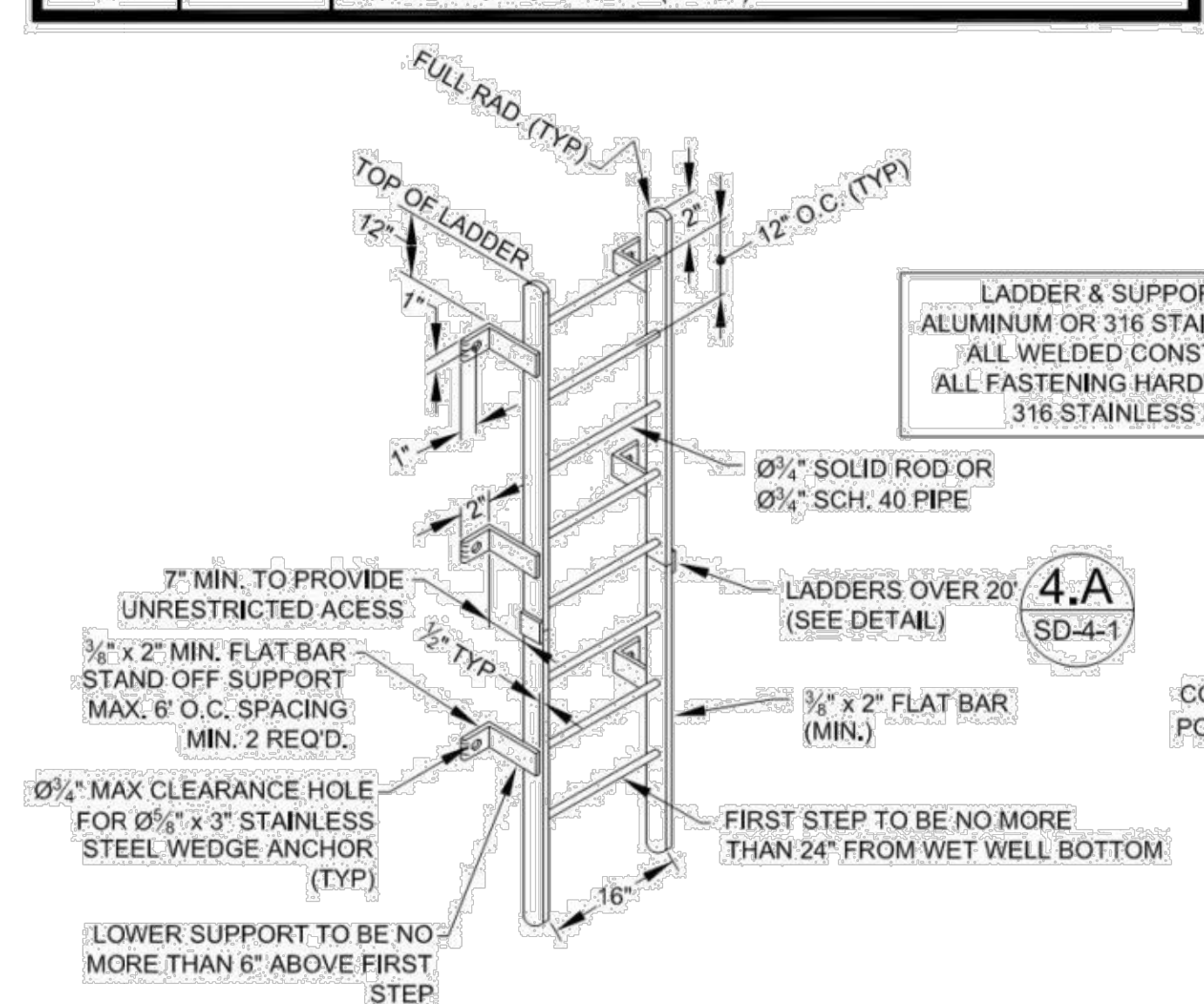
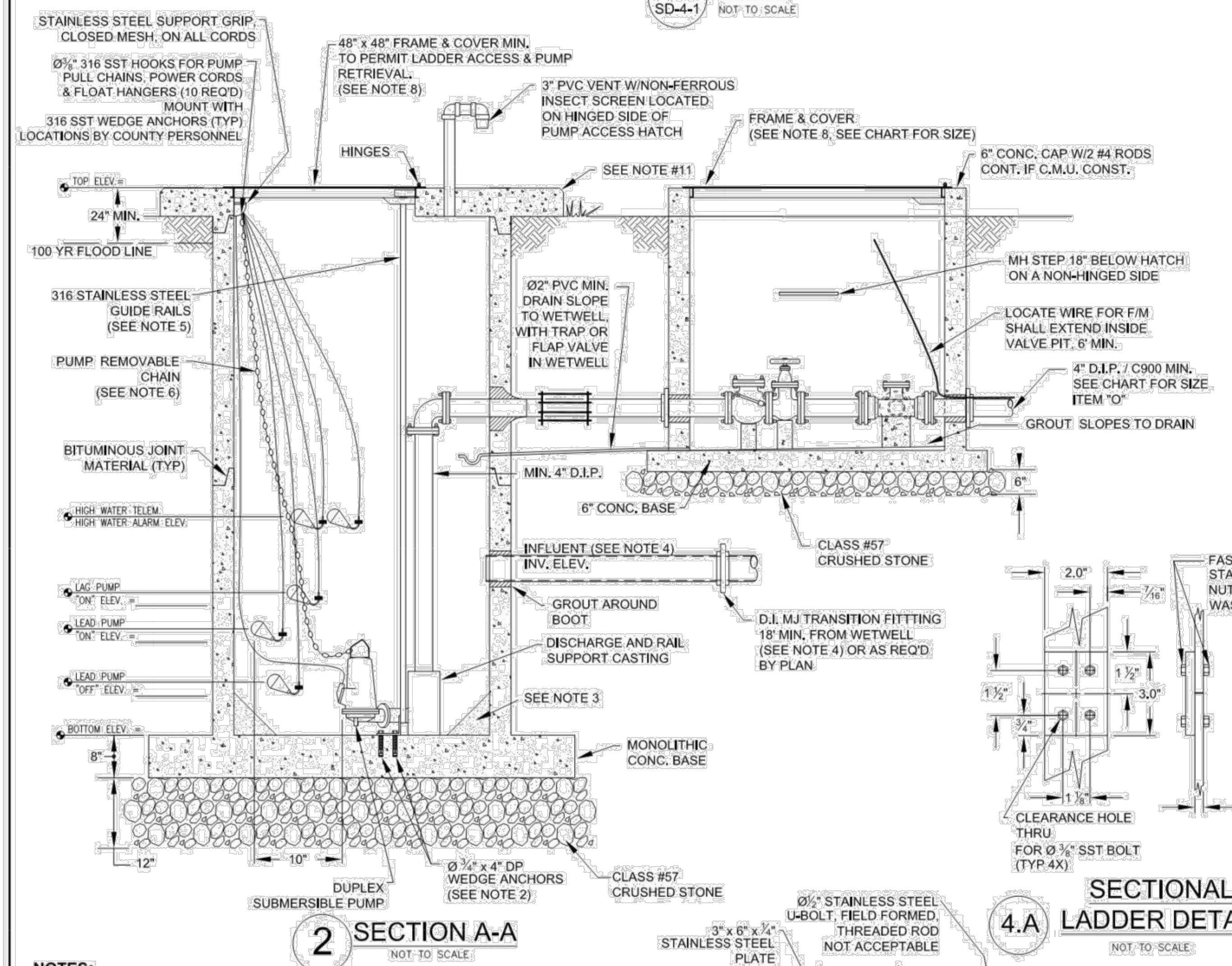
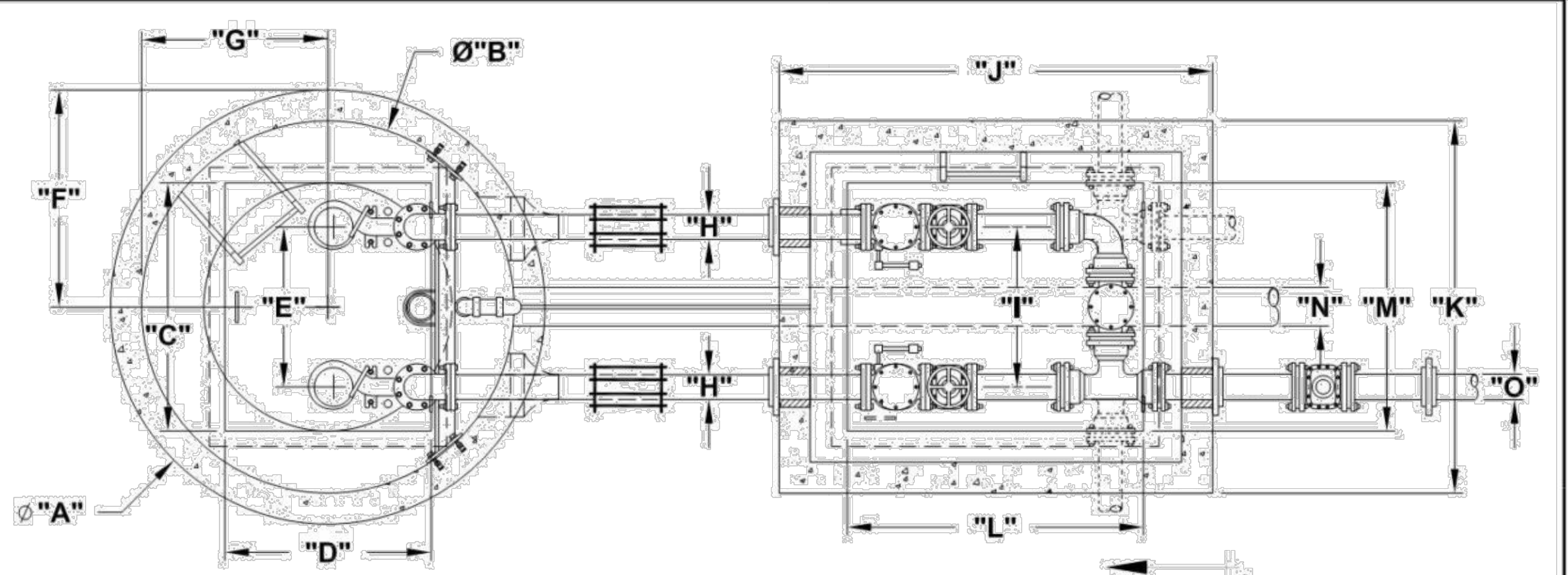
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REV:	DESCRIPTION:	DATE:

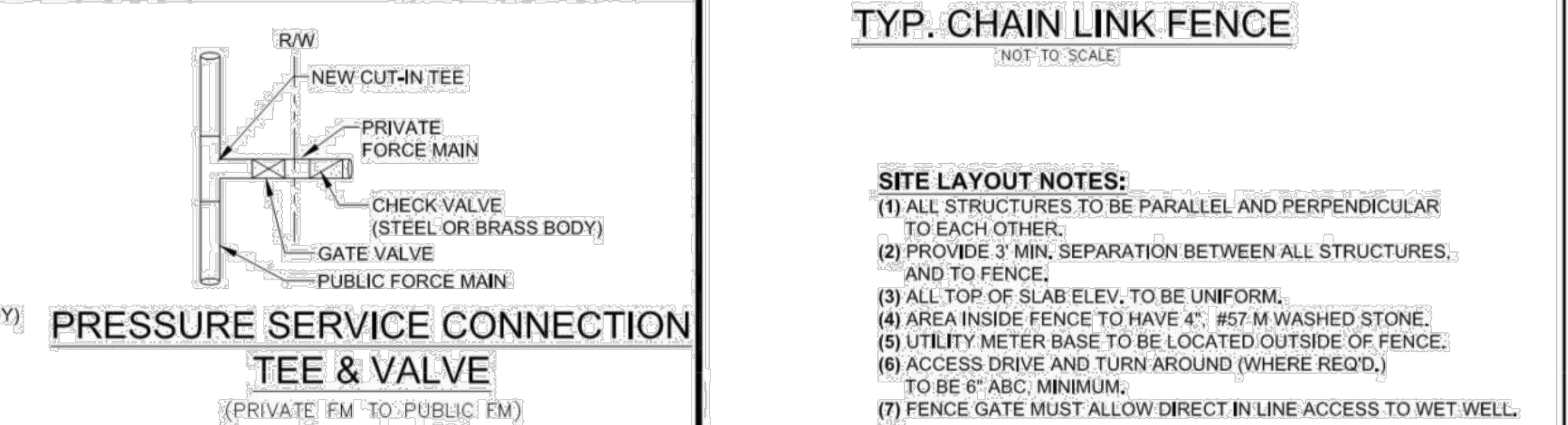
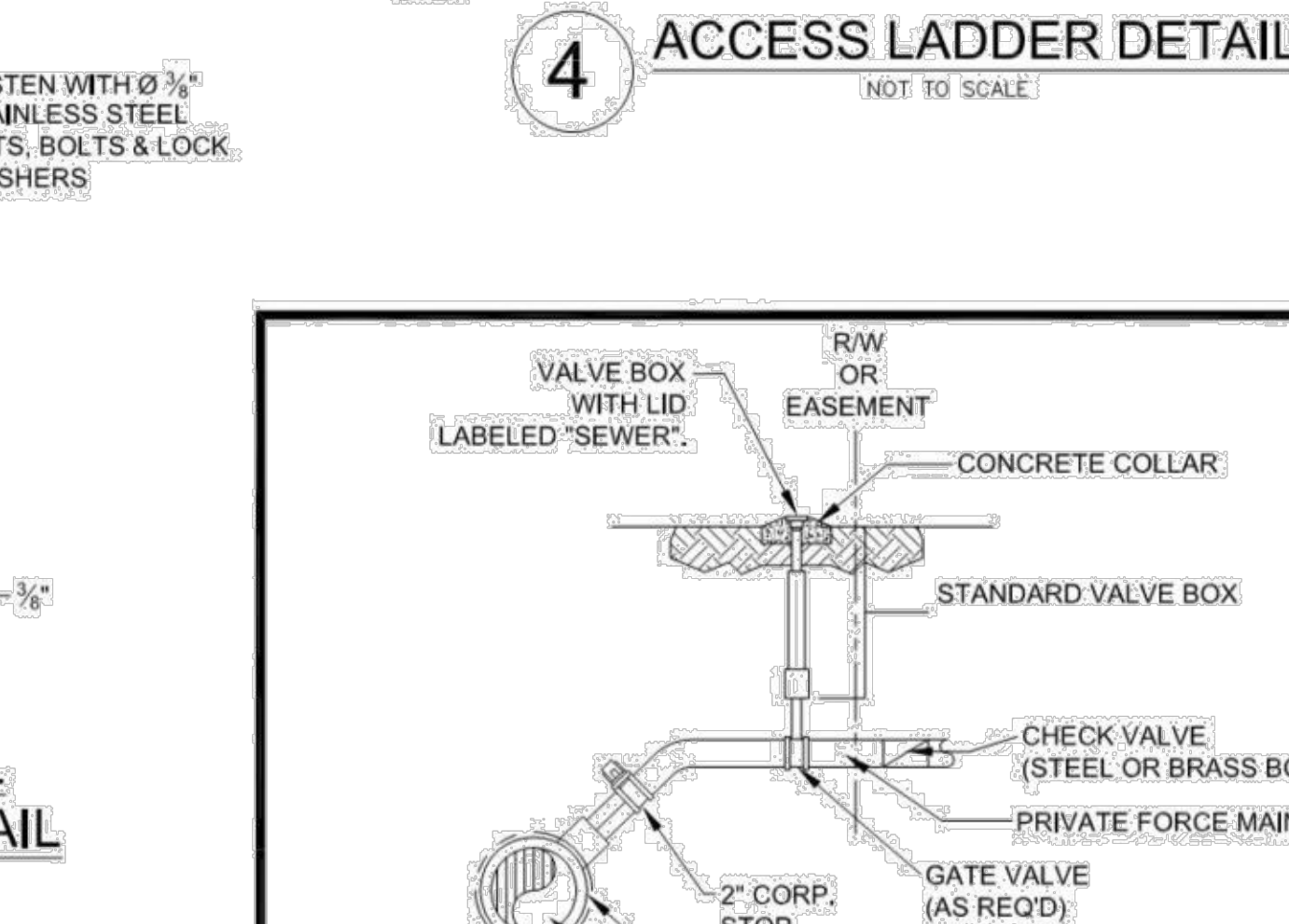
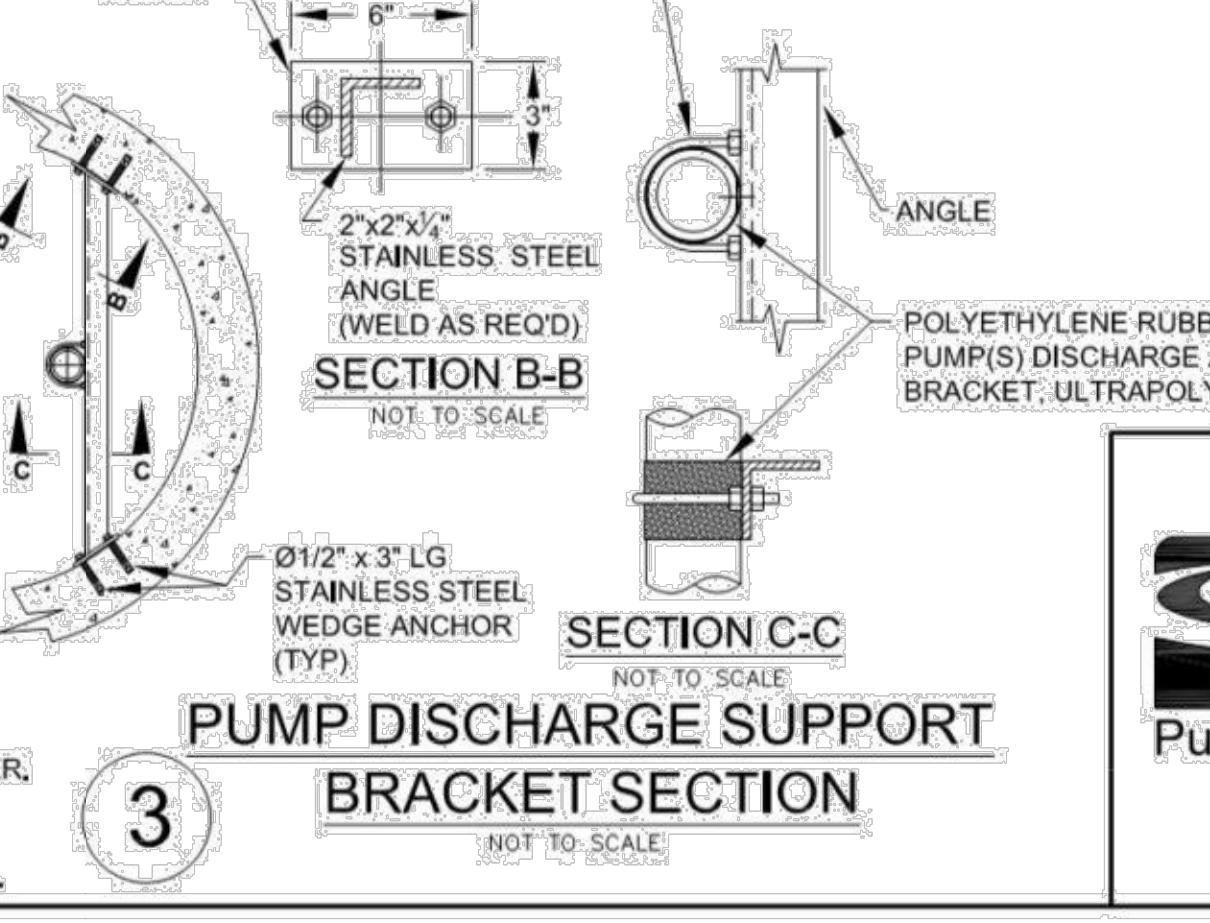


PUMP INFORMATION	
MANUFACTURER	_____
MODEL #	_____
HORSEPOWER	_____
PHASE	VOLTS _____ TDH _____
	GPM @ _____
	IMPELLER DIAMETER _____

ITEM	DIM.	DESCRIPTION
"A"		OUTSIDE DIAMETER OF WET WELL
"B"		INSIDE DIAMETER OF WET WELL
"C"		ACCESS HATCH LENGTH (48" MIN.)
"D"		ACCESS HATCH WIDTH (32" MIN.)
"E"		CL PUMP TO CL PUMP DIMENSION
"F"		CL HATCH TO OUTSIDE OF WET WELL
"G"		CL HATCH TO INSIDE OF WET WELL
"H"		PIPE DIAMETER
"I"		CL PIPE TO CL PIPE DIMENSION: 30" MIN (4") 36" MIN (6")
"J"		VALVE PIT WIDTH: 60" MIN (4") 84" MIN (6")
"K"		VALVE PIT LENGTH: 60" MIN (4") 84" MIN (6")
"L"		ACCESS HATCH LENGTH (48" MIN)
"M"		ACCESS HATCH WIDTH (48" MIN)
"N"		INFLUENT PIPE SIZE
"O"		FORCE MAIN PIPE SIZE (4" MIN)



- NOTES:**
- UNLESS OTHERWISE SPECIFIED, ALL METAL WET WELL COMPONENTS, HARDWARE, AND FASTENERS, SHALL BE CAST IRON, DUCTILE IRON, OR 316 STAINLESS STEEL OR BETTER.
  - UNLESS OTHERWISE SPECIFIED, ALL CONCRETE FASTENERS TO BE 316 STAINLESS STEEL WEDGE ANCHORS (TYP).
  - CONCRETE FILET IN BOTTOM OF WET WELL TO START 10" FROM THE ULTIMATE PUMP SIZE AND BASE AT 45° (TYP) ALL AROUND.
  - INFLUENT TO ENTER WET WELL CENTERED BETWEEN AND PARALLEL TO PUMP DISCHARGE PIPES, PROVIDE ONE 18" JOINT DIP AT WET WELL.
  - ONE PIECE SCHD. 40, 316 STAINLESS STEEL GUIDE RAILS, DIAMETER PER MANUFACTURERS RECOMMENDATIONS, TWO PIECE RAILS WITH INTERMEDIATE (MID 1/2) SUPPORT, FOR LENGTHS GREATER THAN 18 FEET.
  - PUMP REMOVABLE CHAIN AND RELATED LIFTING HARDWARE TO BE 3/8" MIN. 316L STAINLESS STEEL 2000 LB MIN. WORKLOAD LIMIT, LENGTH TO EXTEND 4" ABOVE HATCH.
  - PUMP DISCHARGE SUPPORT BRACKET FOR DUCTILE IRON, OVER 10" MIN. ONE REQD. MIDWAY.
  - ACCESS HATCHES SHALL BE PAD LOCKABLE FRAME & COVER, WITH 1/2" ALUMINUM PLATE AND 1/2" THICK x 3" WIDE STAINLESS STEEL HINGES MIN. AND POSITIVE LOCKING DOOR RESTRAINT, HINGE ON DISCHARGE SIDE OF WET WELL AND VALVE BOX. (HALLIDAY PROD. OR EQUAL, SIZE AS REQ'D).
  - PLUG VALVES TO BE DeZURIK (FIG. 118) ECCENTRIC, CAST IRON BODY AWWA C504 WITH 4" HAND WHEEL & NON RISING STEM, SWING CHECK VALVES TO BE MUELLER IRON BODY, BRONZE MOUNTED AWWA C508 WITH OUTSIDE SPRING & LEVER.
  - ELEVATION OF TOP OF WET WELL AND ELEC. CONDUITS SHALL BE 2.0 FEET ABOVE THE 100 YEAR FLOOD ELEVATION.
  - CONCRETE PAD (36" MINIMUM WIDTH W/45° CHAMFER) AROUND OUTSIDE DIAMETER OF WET WELL.



REV:	DESCRIPTION	DATE:
A	CFPUA Revisions	05/14/08
B	Engineering Revisions	02/18/09
C	CFPUA Revisions	03/11/09
D	CFPUA Revisions	08/22/09

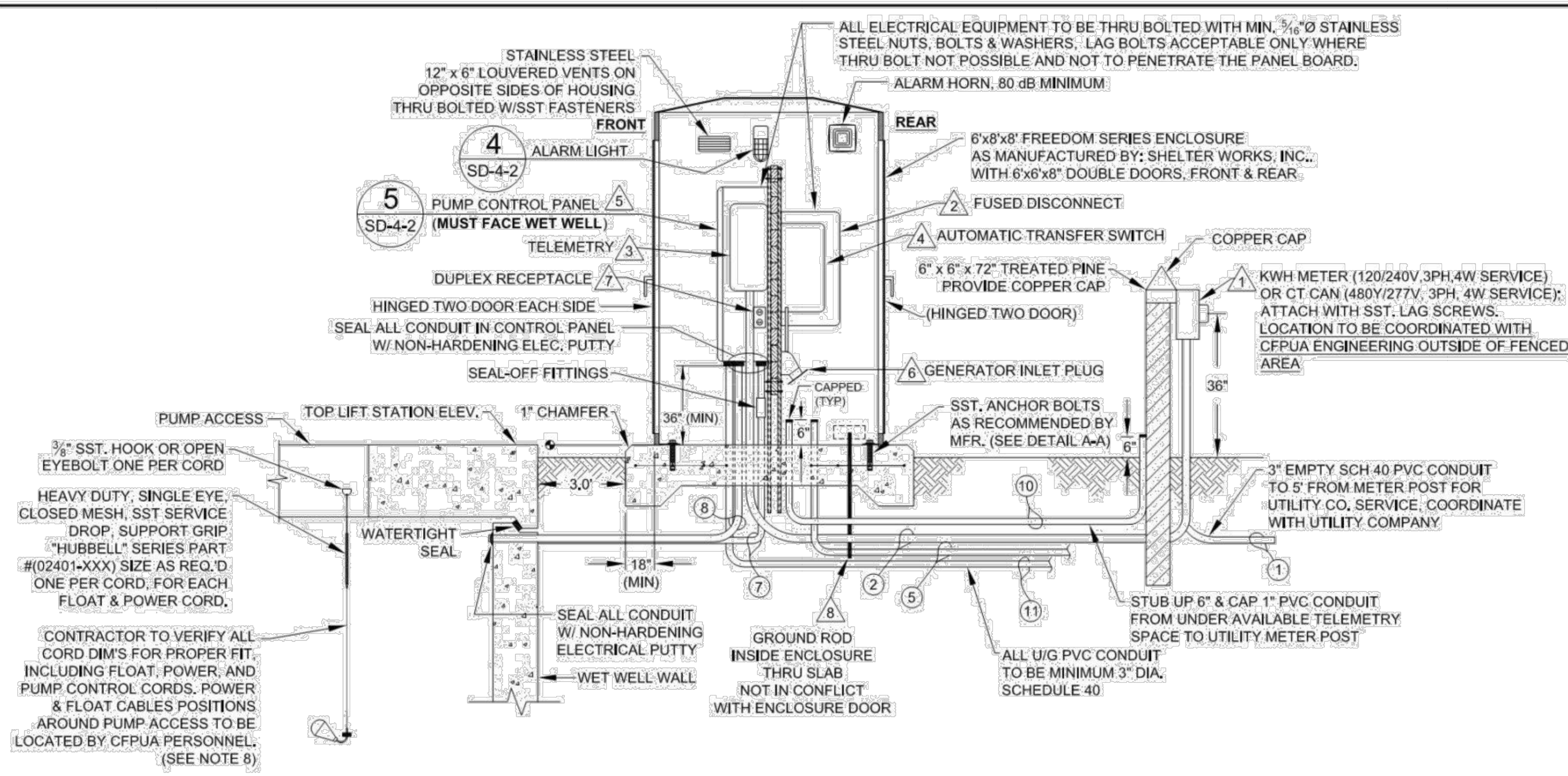
**PUMP STATION / SITE PLAN STANDARD DETAILS**

**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
**PUMP STATION / SITE PLAN STANDARD DETAILS**  
**SD-4**

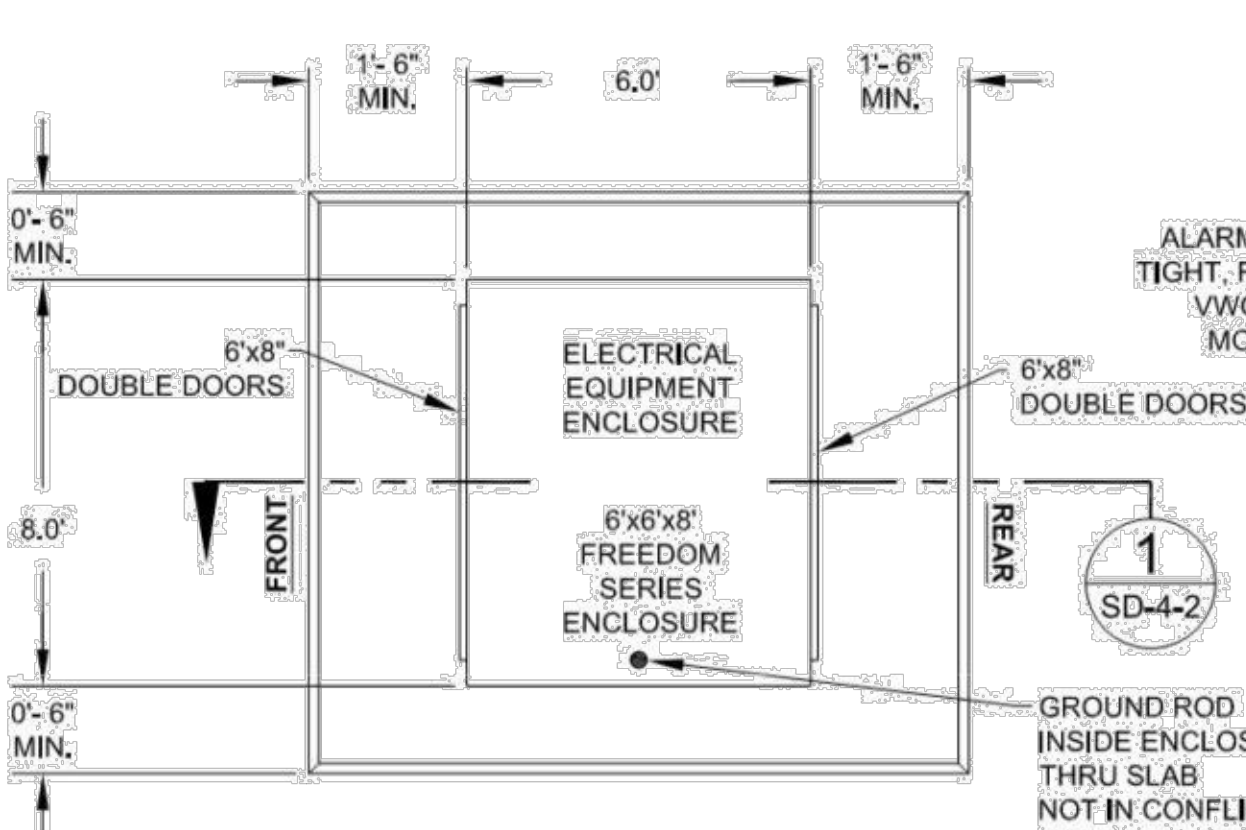
CAPE FEAR PUBLIC UTILITY AUTHORITY  
 235 GOVERNMENT CENTER DRIVE  
 WILMINGTON, NC 28403  
 OFFICE: (910)332-6560

DATE: 05-12-08  
 SCALE: N/A  
 DRAWN BY: jkorobin  
 CHECKED BY:  
 PROJECT NO.:

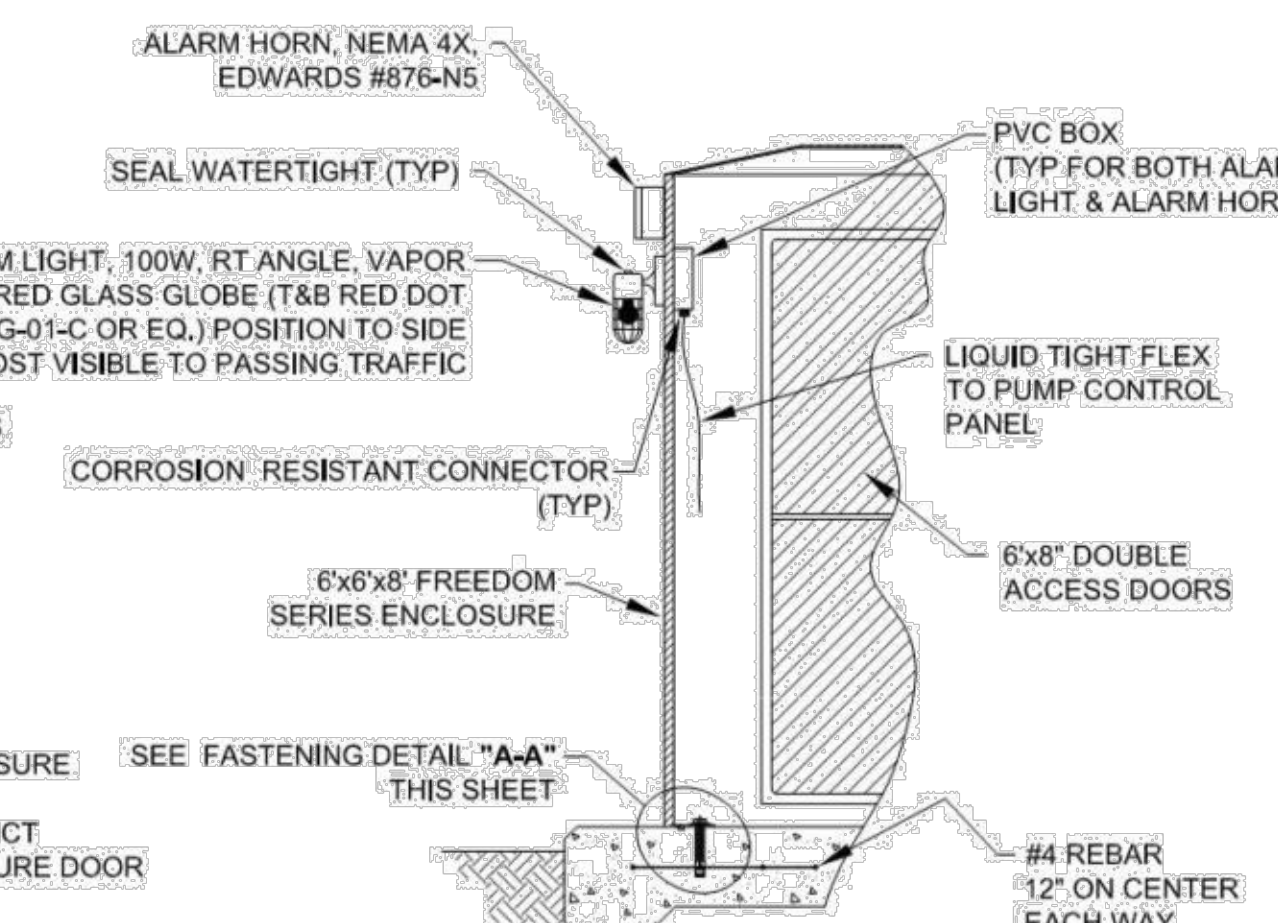
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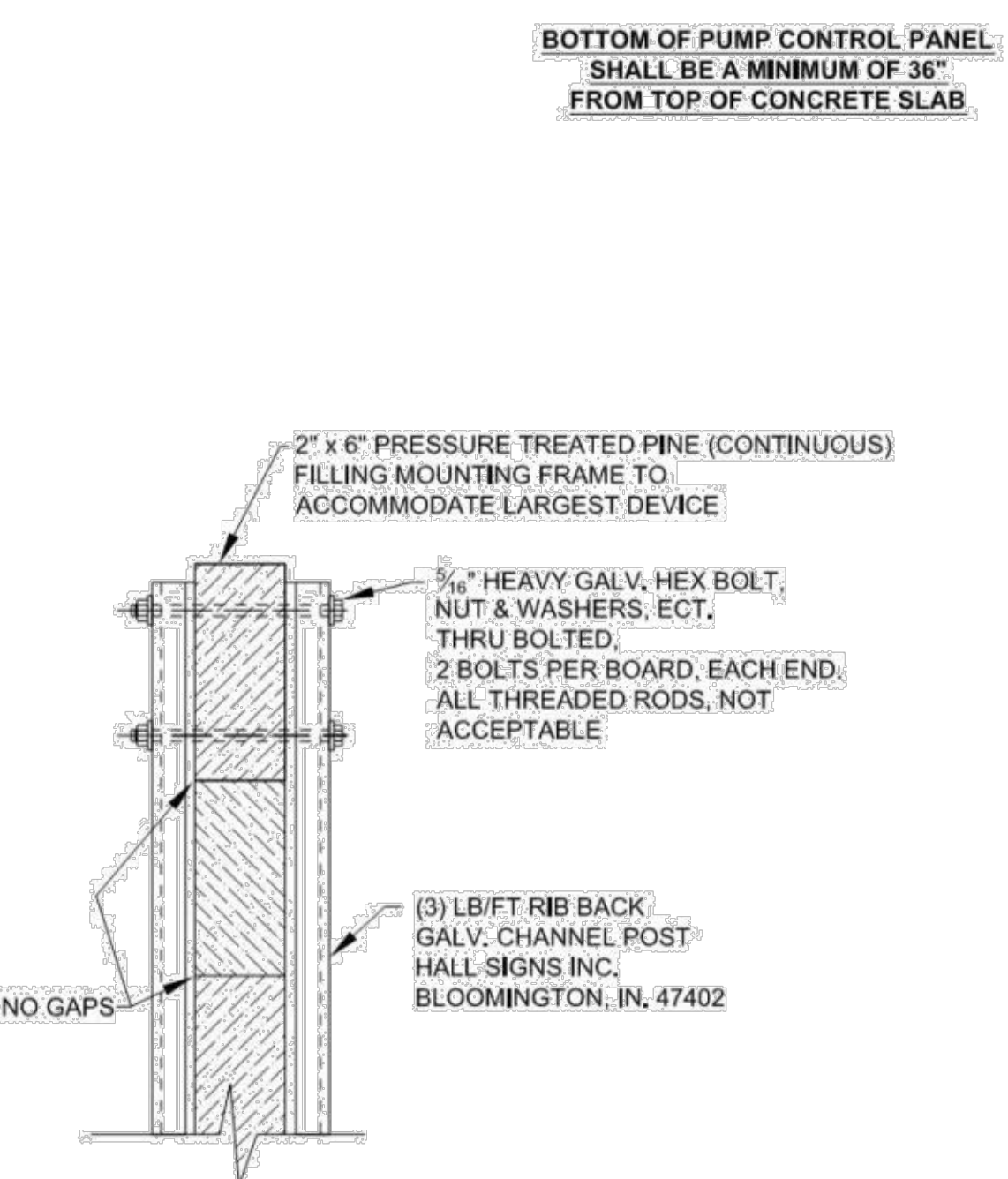
**1 EQUIPMENT PAD SECTION**  
NOT TO SCALE



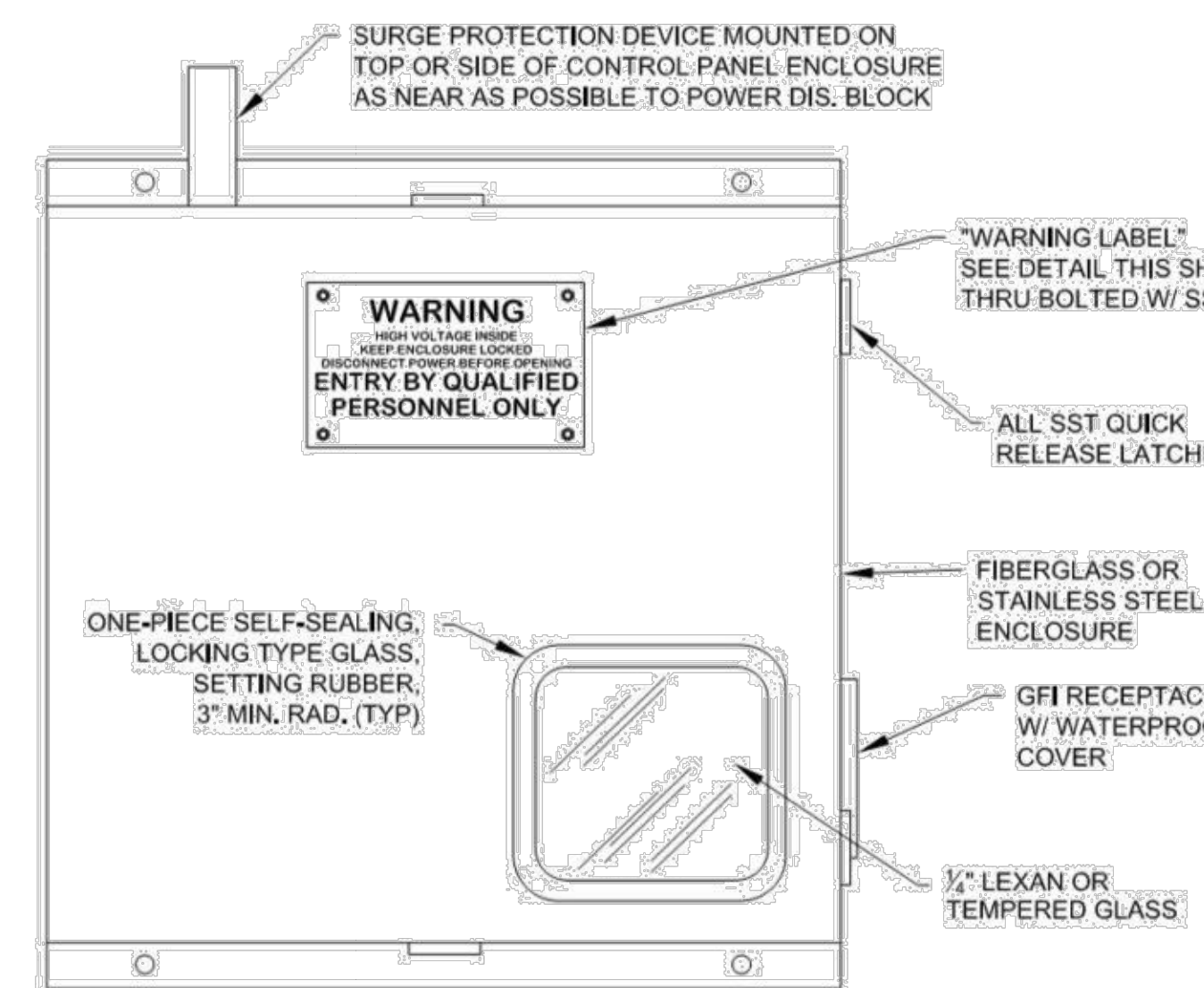
**2 EQUIPMENT PAD PLAN**  
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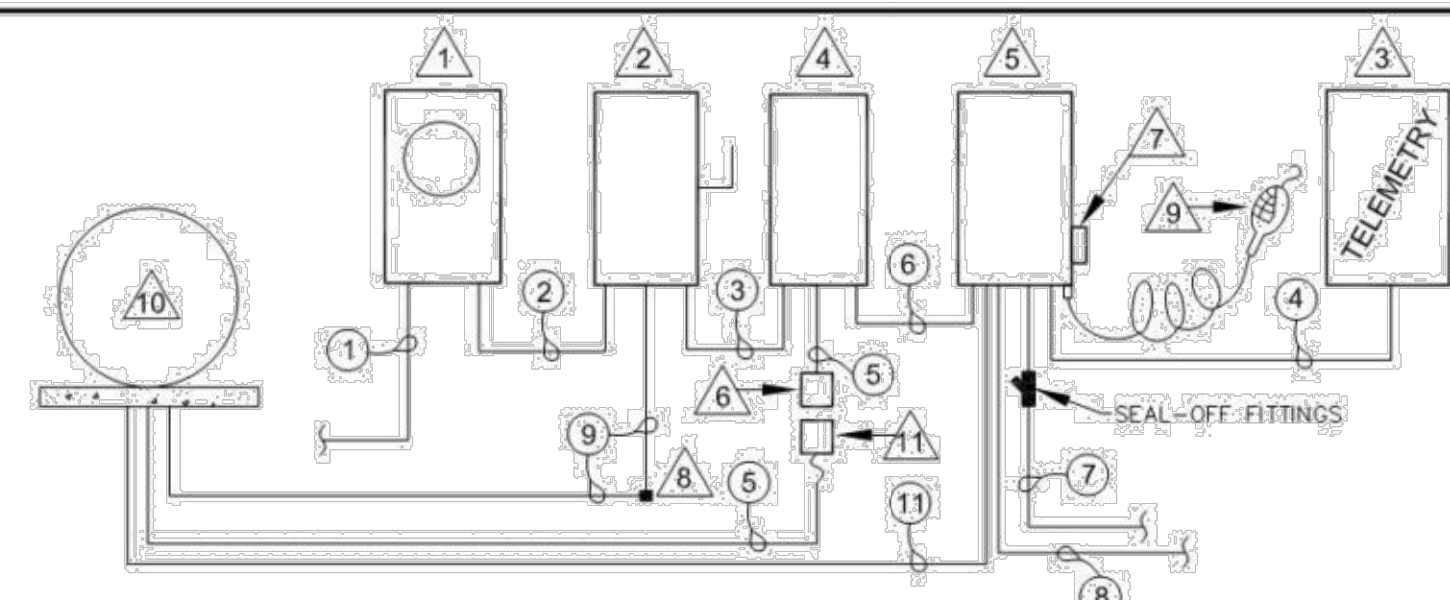
**4 ALARM LIGHT MTG. DETAIL**  
NOT TO SCALE



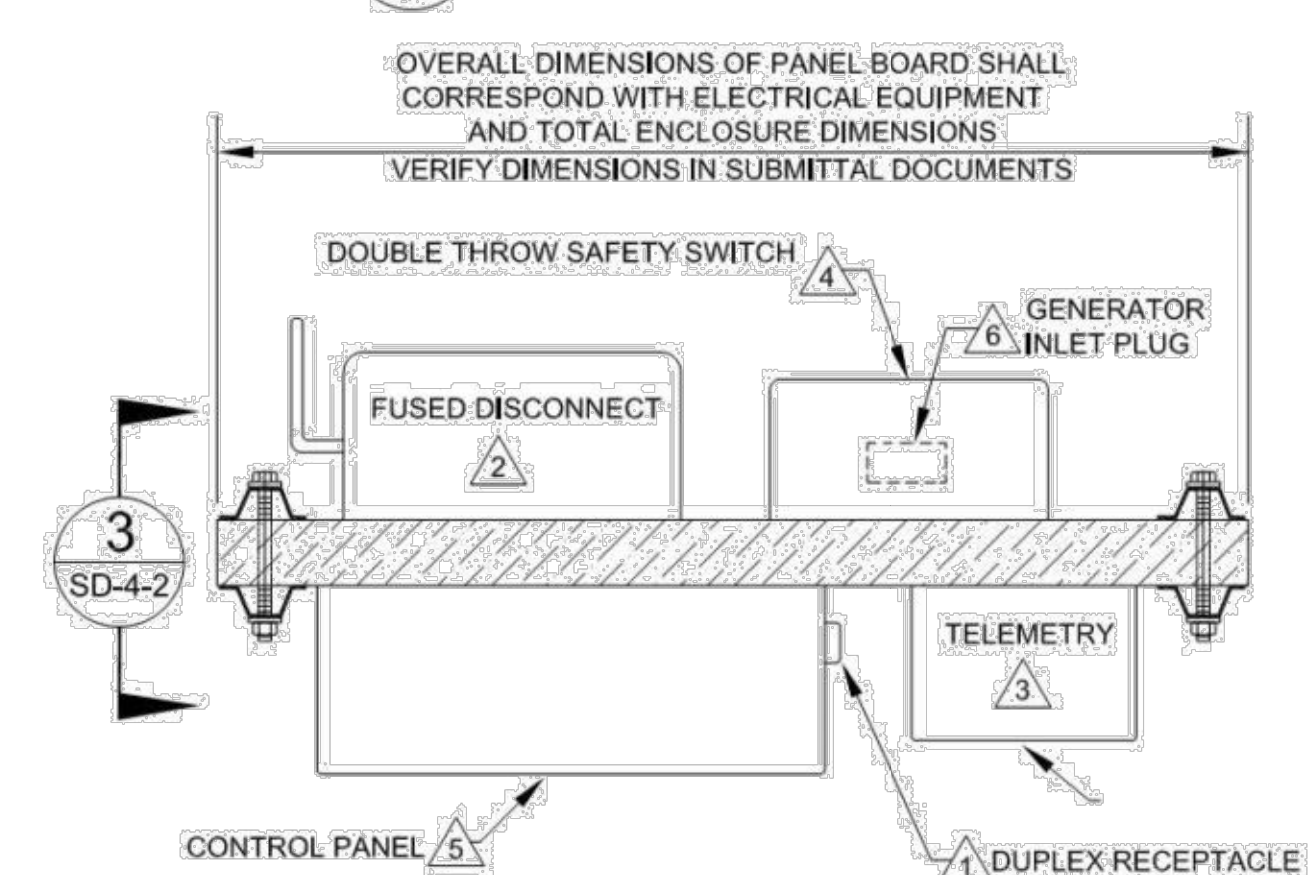
**3 MOUNTING FRAME DETAIL**  
NOT TO SCALE



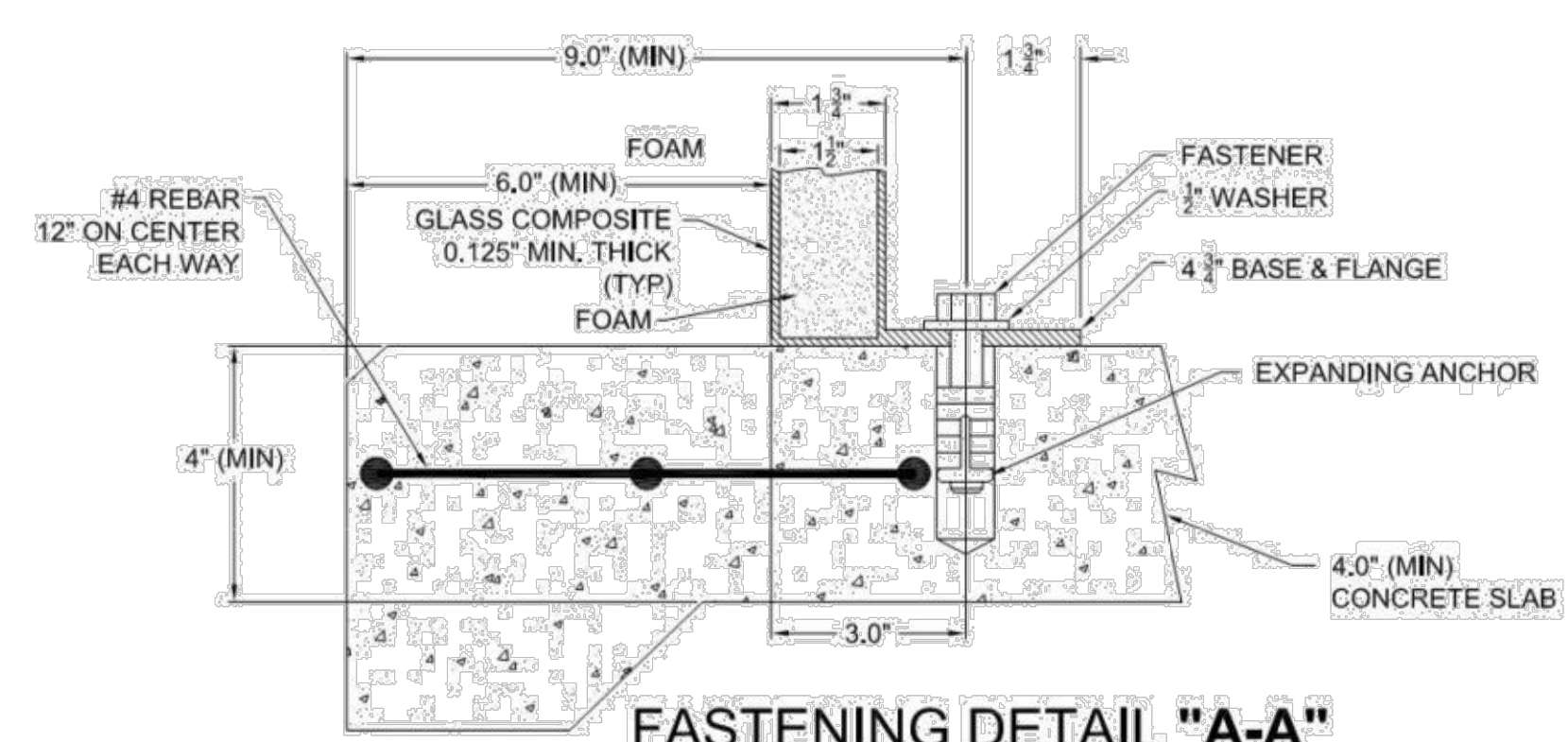
**5 PUMP CONTROL PANEL ENCLOSURE**  
NOT TO SCALE



**6 POWER RISER DIAGRAM**  
NOT TO SCALE



**7 MOUNTING FRAME PLAN W/ DOUBLE THROW SAFETY SWITCH**  
NOT TO SCALE



**FASTENING DETAIL "A-A"**  
NOT TO SCALE



**8 WARNING LABEL DETAIL**  
NOT TO SCALE

ELECTRICAL EQUIPMENT SCHEDULE		
MARK	DESCRIPTION	REMARKS
1	METERING EQUIPMENT	FURNISHED AND INSTALLED BY CONTRACTOR
2	SERVICE RATED _____ A FUSED DISCONNECT _____ A FUSES, 3P, HEAVY DUTY W/ SOLID NEUTRAL & GROUND BAR KIT	NEMA 4X STAINLESS STEEL, MIN. 100A (SIZE AS REQ'D) SQUARE D: #H32_DS (240V); #H36_DS (480V)
3	TELEMETRY EQUIPMENT	FURNISHED BY DEVELOPER / OWNER AS SPECIFIED BY CFPUA DEPT. OF ENGINEERING
4	_____ A, 3 POLE AUTOMATIC TRANSFER SWITCH, _____ W/ SOLID NEUTRAL	NEMA 4X STAINLESS STEEL, MIN. 100A (SIZE AS REQ'D) MATCH SERVICE VOLTAGE
5	PUMP CONTROLLER - SEE SHEET _____	NEMA 4X - FIBERGLASS OR STAINLESS STEEL
6	4P, 5W PIN & SLEEVE MALE POWER INLET FOR STANDBY POWER CONNECTION, COORDINATE MELTRIC PART NUMBERS WITH CFPUA	60A: # _____ W/ J-BOX, 60° ANGLE # _____ 100A: # _____ W/ J-BOX, 60° ANGLE # _____ 200A: # _____ W/ J-BOX, 60° ANGLE # _____
7	120V, 20A, DUPLEX GFI RECEPTACLE WITH WATERPROOF COVER	MOUNTED IN CONTROL PANEL
8	3/4" x 10" COPPER CLAD GROUND ROD	CONNECTION W/ SUITABLE BRONZE CLAMP RATED FOR BURIAL
9	100W GROUNDED HEAD LAMP W/ SWITCH AND RECEPTACLE, APPLETON #RE-HLGR OR EQUAL, 25' CORD W/ STRAIN RELIEF.	GFI CIRCUIT
10	STANDBY GENERATOR; SEE SPECIFICATIONS	GFI CIRCUIT
11	4P, 5W PIN & SLEEVE FEMALE POWER CONNECTOR FOR STANDBY POWER	MATCH MELTRIC DEVICE FOR ITEM #6 ABOVE

ELECTRICAL CIRCUIT SCHEDULE				
MARK	CIRCUIT TYPE	WIRE	CONDUIT	REMARKS
1	**120 / 240V, 3φ, 4W 480Y / 277V, 3φ, 4W		3" MINIMUM	U.G. BY UTILITY
2	**120 / 240V, 3φ, 4W 480Y / 277V, 3φ, 4W	3# _____ N, # _____ EG		* U.G. SCH 40 PVC
3	**120 / 240V, 3φ, 4W 480Y / 277V, 3φ, 4W	3# _____ N, # _____ EG		* SCH 40 PVC
4	120V	#12, #12 N, #12 EG	1"	SCH 40 PVC
5	**120 / 240V, 3φ, 4W 480Y / 277V, 3φ, 4W	3# _____ N, # _____ EG		* STANDBY POWER FEEDERS; SCH 40 PVC
6	**120 / 240V, 3φ, 4W 480Y / 277V, 3φ, 4W	3# _____ N, # _____ EG		* SCH 40 PVC
7	** 240V, 3φ 480V, 3φ	POWER CABLES	3" MINIMUM (2) REQUIRED	U.G. RIGID STEEL OR IMC; CABLES SUPPLIED BY PUMP MFR.
8	CONTROL	FLOAT CABLES	3" MINIMUM	U.G. SCH 40 PVC; CABLES SUPPLIED BY FLOAT MFR.
9	EARTH GROUND	# _____ BARE COPPER		* SCH 40 PVC TO FUSED DISCONNECT OR C/B & GENSET
10	SPARE	NONE	3"	U.G. SCH 40 PVC CAP & SEAL ENDS
11	*** 120V	2#12, 2#12N, #12EG		120V FOR GEN BLOCK HEATER & BATTERY CHARGER; SCH 40 PVC

\* WIRE & CONDUIT SIZE (1" MIN) AS REQUIRED  
 \*\* SELECT APPLICABLE SERVICE VOLTAGE  
 \*\*\* VERIFY BLOCK HEATER WATTAGE & VOLTAGE; REVISE CIRCUITRY ACCORDINGLY

**GENERAL NOTES:**

- IF AVAILABLE, A TRUE 3φ, 240V SERVICE IS PREFERRED FOR PUMP STATION POWER.
- IF A TRUE 3φ SERVICE IS NOT AVAILABLE, UTILITY POWER SHALL BE 120/240V, 3φ, 4-WIRE, 60Hz DELTA HI-LEG UNLESS OTHERWISE NOTED.
- CONDUITS FROM WET WELL TO PUMP CONTROL PANEL FOR PUMP MOTOR CABLES SHALL BE RIGID STEEL OR IMC. ALL OTHER CONDUITS SHALL BE PVC UNLESS OTHERWISE NOTED.
- ALL WIRE SHALL BE THWN-2 STRANDED COPPER UNLESS OTHERWISE NOTED, OR DIRECTED.
- NO FLEXIBLE CONDUIT IS ALLOWED EXCEPT FOR THE END OF THE GENERATOR FEEDER WITH THE PIN & SLEEVE CONNECTOR. DISCONNECT, MOTOR STARTER, AND OVERLOAD DEVICES AND FUSES SHALL BE SIZED BY THE ENGINEER AND SHOWN IN SUBMITTAL DOCUMENTS.
- 120 / 240V, 3φ POWER AFTER METER BASE, HIGH LEG PHASE SHALL BE PROPERLY MARKED AND LOCATED IN THE "B" PHASE POSITION, THROUGHOUT DEVICES.
- ALL CORDS SHALL BE ONE PIECE CONTINUOUS, NO JOINTS, SPLICES, OR JUNCTION BOXES ALLOWED BETWEEN CONTROL PANEL AND WET WELL DEVICES.

**PUMP STATION / ELECTRICAL EQUIPMENT PAD STANDARD DETAILS**

CAPE FEAR PUBLIC UTILITY AUTHORITY  
PUMP STATION / ELEC. EQPT. PAD DETAILS  
**SD-4**

CAPE FEAR PUBLIC UTILITY AUTHORITY  
235 GOVERNMENT CENTER DRIVE  
WILMINGTON, NC 28403  
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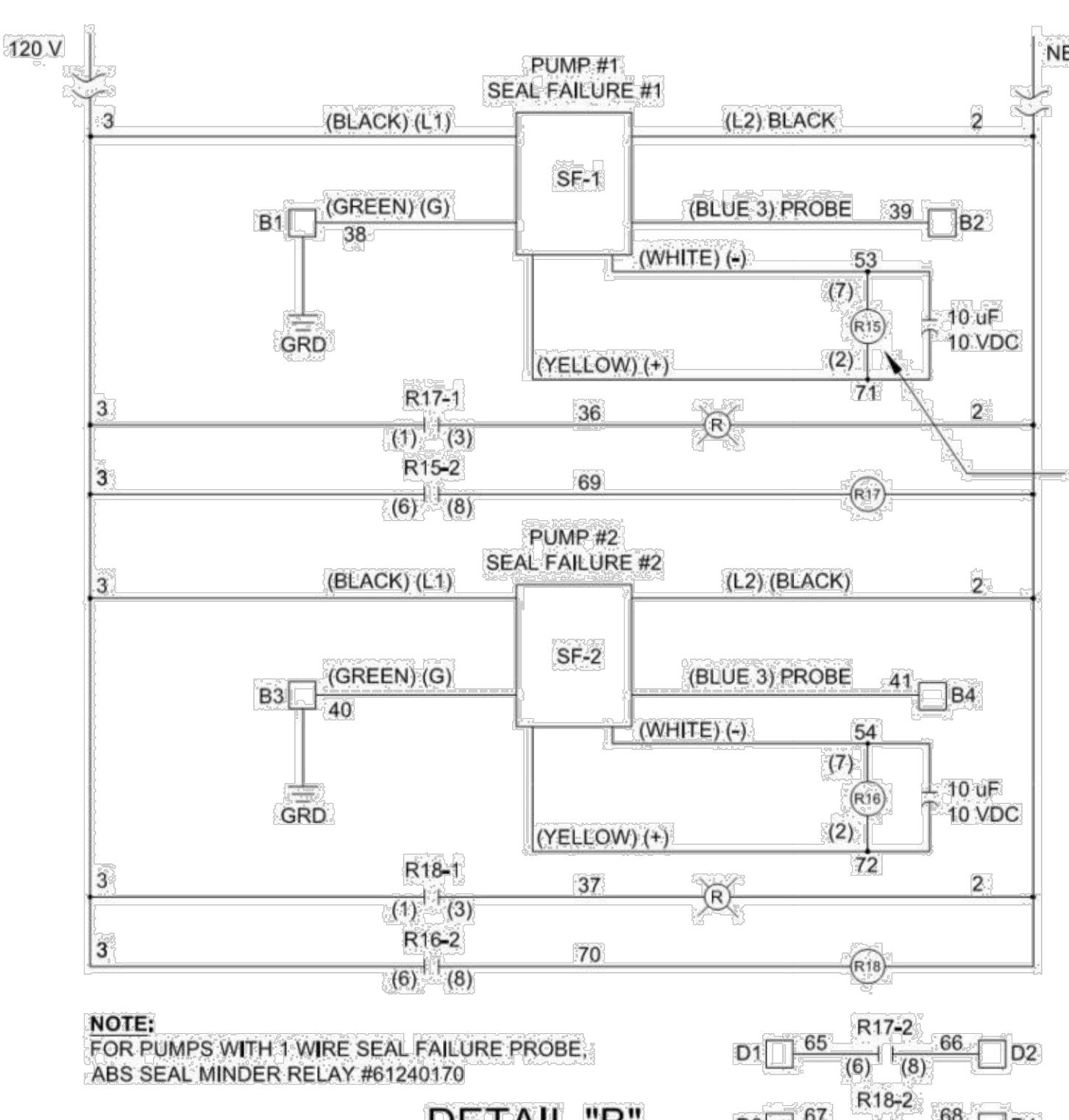
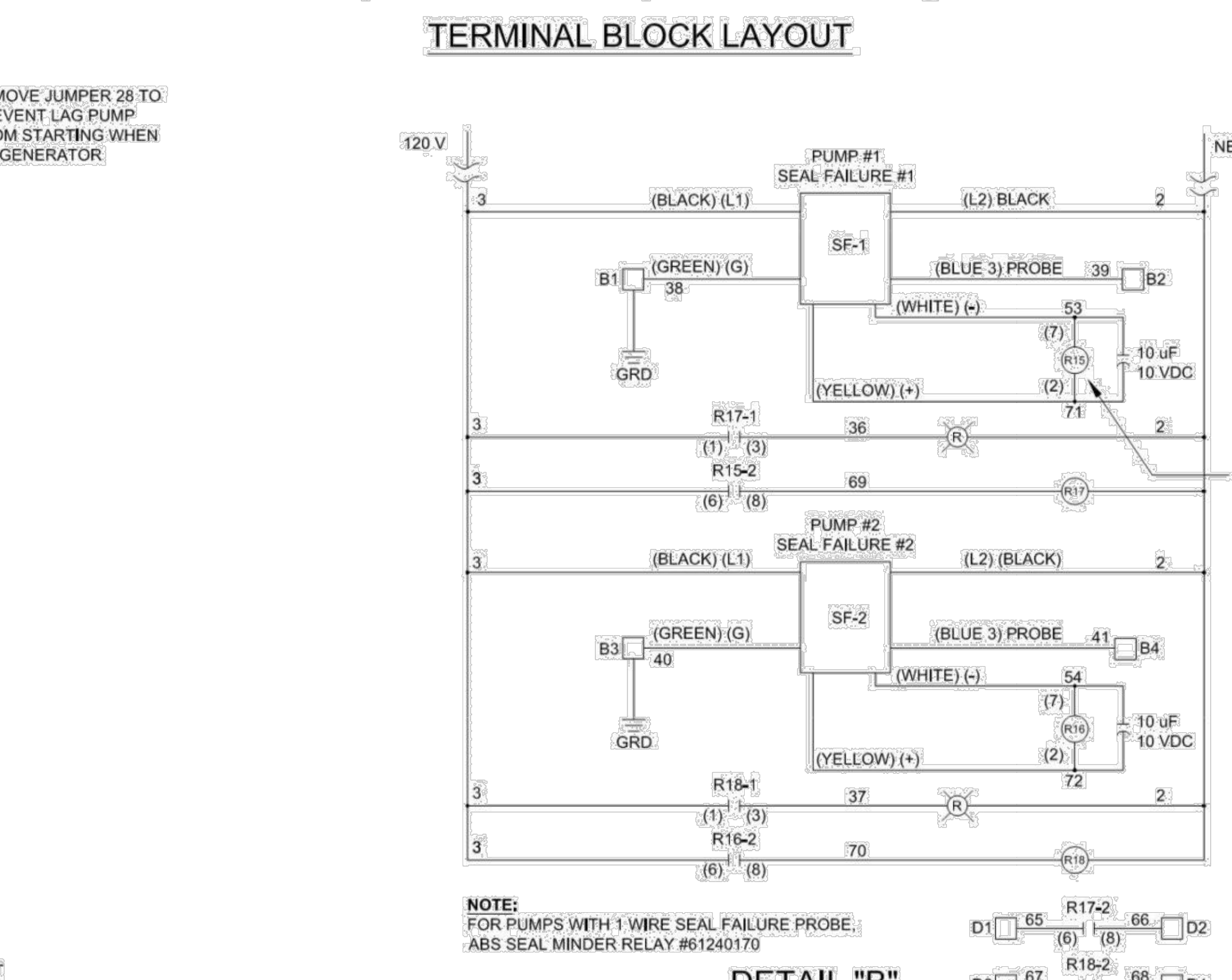
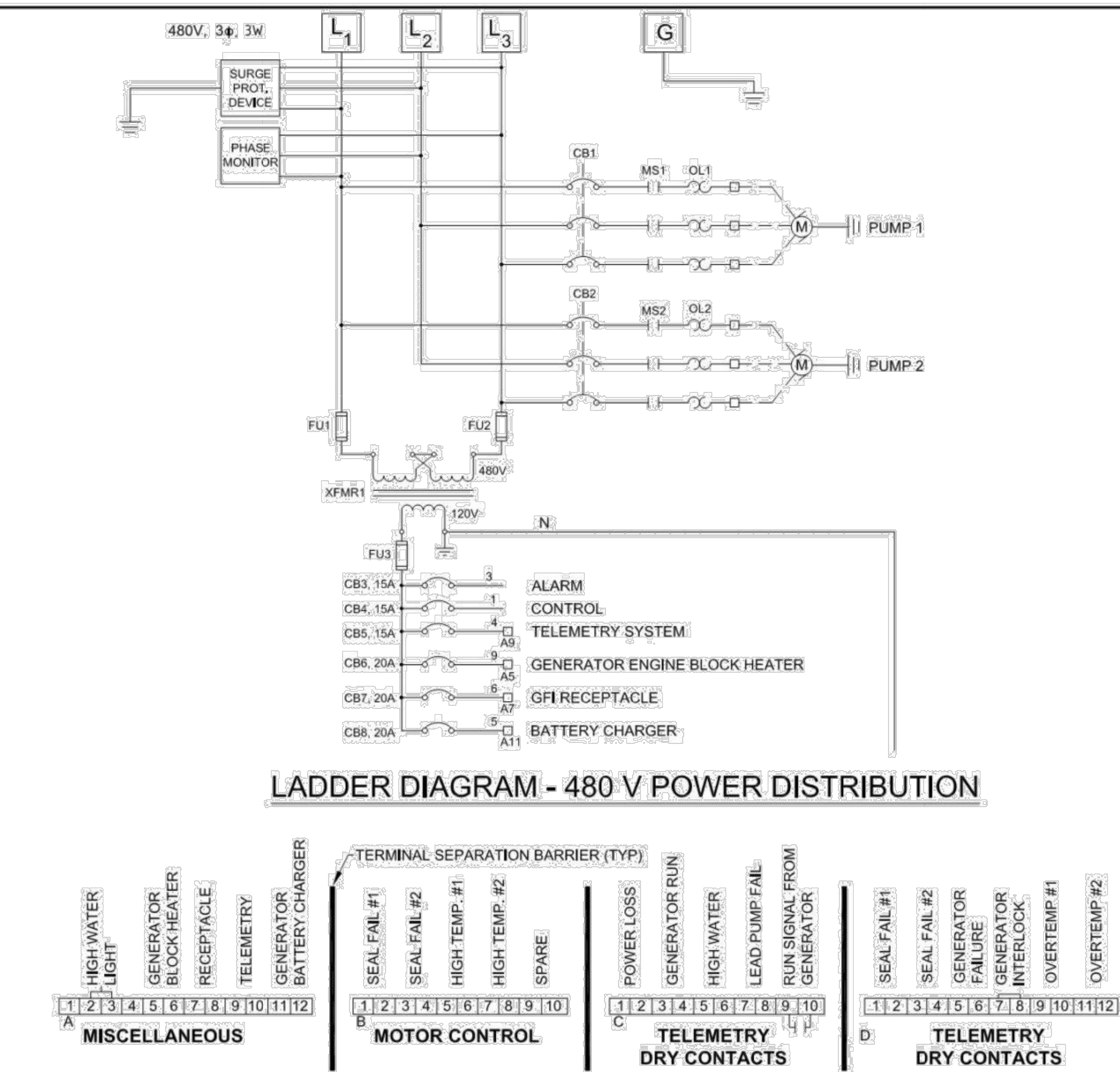
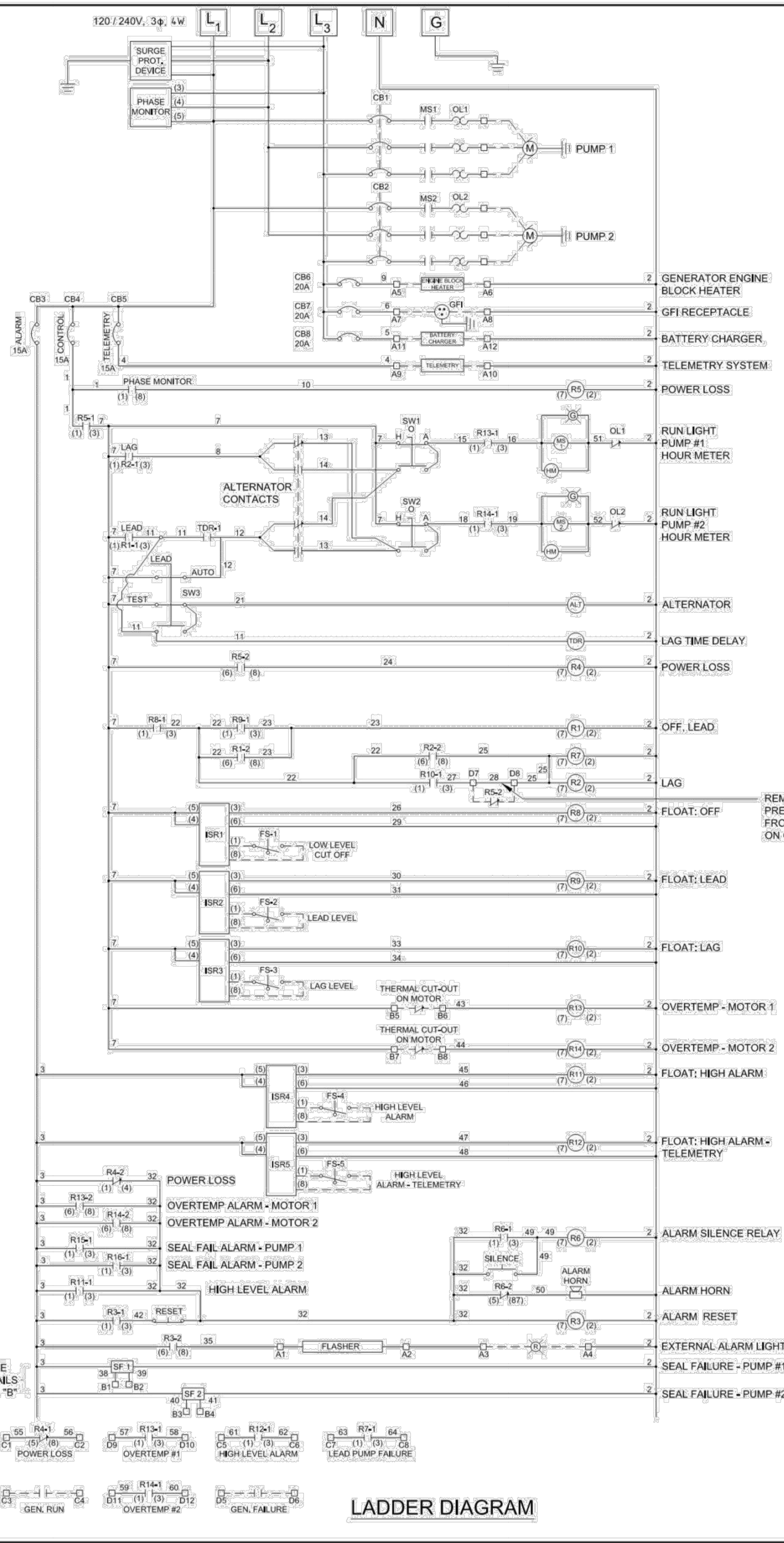
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SCALE: N/A  
DRAWN BY: j.korabir  
CHECKED BY:  
PROJECT NO.:

SHEET NO:  
**2 / 4**



REV:	DESCRIPTION	DATE:
A	RECORD DRAWING	10/15/91
B	RE-DRAFTED IN AUTOCAD	12/01/04
C	REVIEWED AND UP-DATED SHEETS 1, 2 & 3	05/11/07
D	ENGINEERING REVISIONS	02/18/09
E	CFPUA REVISIONS	03/12/09





**NOTES:**

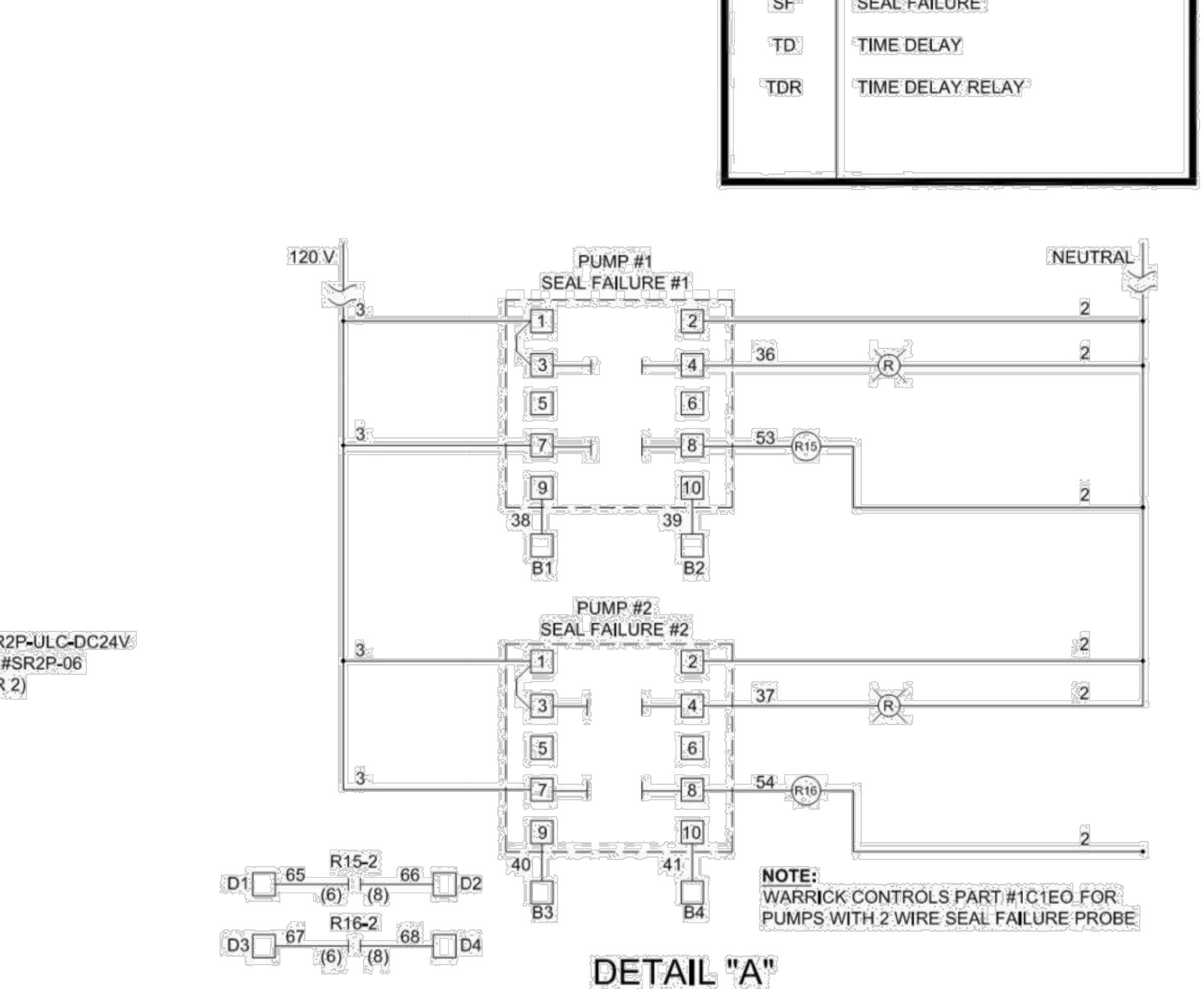
- PRINT POCKET SHALL BE SECURED TO INSIDE PANEL DOOR WITH SILICONE ADHESIVE.
- AS-BUILT ELECTRICAL SCHEMATIC (LADDER DIAGRAM) SHALL BE CLEAR PLASTIC LAMINATED AND PLACED IN PRINT POCKET.
- PROVIDE THERMAL OVERLOAD ELEMENT INFORMATION FOR MOTOR STARTERS. CLEAR PLASTIC LAMINATED, AND SECURE TO INSIDE PANEL DOOR.
- ENCLOSURE BACK PANEL SHALL BE DRILLED AND TAPPED 6-32, 8-32 AND 1/4-28 THD'S, NO SELF TAPPING SCREWS FOR MOUNTING COMPONENTS.
- OPERATOR CONTROL BOX SHALL BE MOUNTED WITH HINGE SIDE DOWN WITH 1" DIA. GROMMET OPENING ON LEFT SIDE OF BOX. VERIFY ALL OPERATOR COMPONENT DIMENSIONS FOR SUITABLE CLEARANCES IN REGARDS TO LAYOUT.
- ENCLOSURE VIEW WINDOW SHALL BE POSITIONED TO ALIGN WITH BACK PANEL OPERATORS CONTROL BOX FOR VIEWING HOUR METERS, PILOT LIGHTS, ETC.
- WIRE SPLICES IN WIRE DUCTS ARE NOT ACCEPTABLE. TERMINAL BLOCKS SHALL BE PROVIDED FOR PREWIRED DEVICES.
- SQUEEZE ON AND CRIMPED TYPE INSULATED WIRE TERMINALS SHALL BE PERMITTED IF DEVICE DOES NOT HAVE MEANS FOR DIRECT WIRE TERMINATION.
- GROUND WIRE JUMPER AROUND HINGE POINT OF OPERATOR CONTROL BOX IS REQUIRED.
- MOTOR CABLE CONDUCTORS SHALL BE COPPER, STRANDED, (SIZED AS REQUIRED).
- ALL CONTROL WIRE SHALL BE 14 AWG, TINNED COPPER, STRANDED, MTW OR AWM, RED, WHITE FOR NEUTRAL, AND GREEN FOR GROUND.
- GFI CONVENIENCE RECEPTACLE SHALL HAVE NON-METALLIC BOX (FD TYPE) ON INSIDE OF ENCLOSURE TO PREVENT ACCIDENTAL CONTACT OF TERMINALS AND WIRED VIA WIRE DUCT TO RECEPTACLE TERMINALS A7 & A8 ON MISC. TERMINAL STRIP.
- SINGLE POLE CIRCUIT BREAKER MOUNTING BRACKET IS TO REMAIN IN ONE PIECE TO ALLOW FOR FUTURE USE.
- LAMINATED PLASTIC COMPONENT LABELS SHALL BE SECURED IN APPROXIMATE LOCATION AS SHOWN IN CONTROL PANEL LAYOUT WITH SUITABLE STAINLESS STEEL MACHINE SCREWS AND NUTS, STAINLESS STEEL RIVETS, OR ADHESIVE.
- USE OF MOTOR STARTER AUXILIARY CONTACTS WILL NOT BE ACCEPTED.
- AN AS-BUILT REPRODUCTION MYLAR OF PUMP CONTROL PANEL (ELEC. SCH. LADDER DIAGRAM) SHALL BE PROVIDED AS AN OFFICE COPY TO CFPUA DEPARTMENT OF ENGINEERING, (17"x22" MIN.)
- WIRE MARKERS TO BE T&B SHUR-CODE SLEEVE MARKERS, NO EXCEPTIONS.
- FOR STATIONS WITHOUT STANDBY GENERATOR, PROVIDE JUMPER FROM D7 TO D8. ON STATIONS WITH STANDBY GENERATOR, CONNECT AUXILIARY RUN DELAY (CLOSE-GEN., OFF, OPEN-GEN., RUN) FROM D7 TO D8.

**TEST - LEAD - AUTO SWITCH (SW3)**

CONTACTS	POSITION		
	TEST	LEAD	AUTO
1			
2			
3			

**ELECTRICAL LEGEND**

SYMBOLS	DESCRIPTION
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	RELAY COIL
	CIRCUIT BREAKER
	INDICATOR LIGHT - R=RED, G=GREEN
	HOUR METER
	FLOAT SWITCH
	ALTERNATOR
	FLOAT SWITCH
	GROUND FAULT INTERRUPTER
	HAND - OFF - AUTO
	INTRINSICALLY SAFE RELAY
	MOTOR STARTER
	PHASE MONITOR
	SEAL FAILURE
	TIME DELAY
	TIME DELAY RELAY



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C	REVIEWED AND UP-DATED SHEETS 1, 2 &	05/11/07
D	ENGINEERING REVISIONS	02/18/09

**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
PUMP STATION / ELEC. EQPT. PAD DETAILS  
**SD-4**

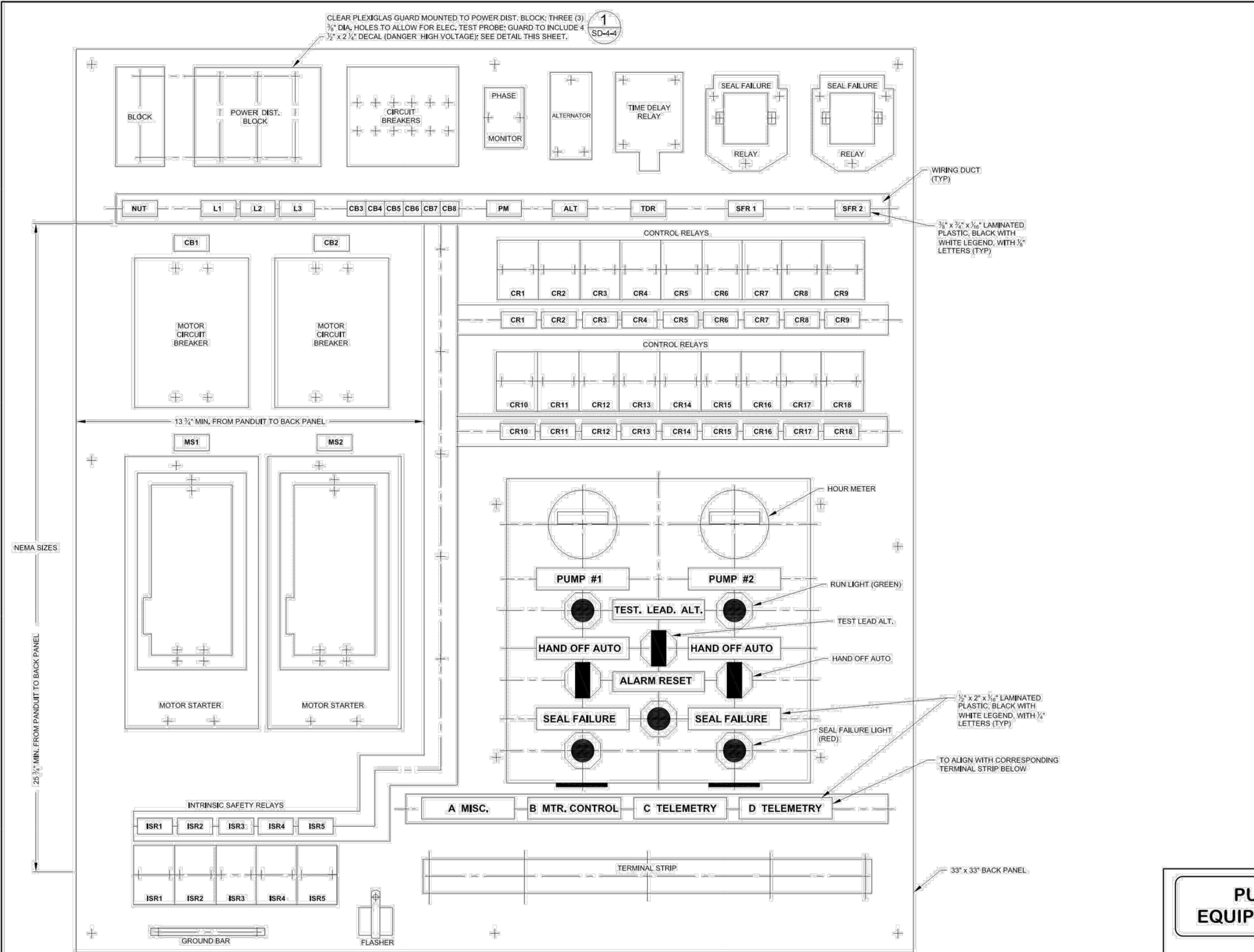
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SCALE: N/A  
DRAWN BY: jkarabin  
CHECKED BY:  
PROJECT NO.:

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235 GOVERNMENT CENTER DRIVE  
WILMINGTON, NC 28403  
OFFICE: (910)332-6560

**SHEET NO. 3 / 4**



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### CONTROL PANEL MATERIALS LIST

ITEM	QTY.	MANUFACTURERS
HINGED COVER BOX	1	HOFFMANN #A-1212CH
ENCLOSURE	1	HOFFMANN #A36H3612GQRLP
BACK PANEL	1	HOFFMANN #A36P36
TIME DELAY RELAY	1	SQUARE D #9050A010E
ALTERNATOR	1	POTTER & BRUMFIELD #S90R11ABD1
RELAY, 120 VAC	16	IDEC #RR2P-ULC-AC120
RELAY SOCKET	19	IDEC #SR2P-06
SEAL FAILURE MODULES	2	WARRICK #1C1E0 / ABS #61240170
HOUR METER, ROUND	2	ENGLER #AC 20010N - G7
SURGE PROTECTION DEVICE	1	DELTA #LA303 (240V); #LA603 (480V)
PHASE MONITOR	1	TIME MARK #258B (240V); #A258B (480V)
EXT. RESET BUTTON	2	SQUARE D #9001KR-1RH6
H.O.A. SWITCH	2	SQUARE D #9001KS-43BH13
TEST, LEAD, AUTO SWITCH	1	SQUARE D #9001KS-63BH2
PILOT LIGHT	4	SQUARE D #9001-KP38LR31
3-POLE C.B.	2	SQUARE D FA (15-100 AMP); KA (100-250 AMP)
SINGLE POLE C.B.	3	SQUARE D #QOU115
SINGLE POLE C.B.	3	SQUARE D 3QOU120
MOUNTING BRACKET	1	SQUARE D #QOU6
MAGNETIC STARTER	2	SQUARE D #536SCO-3 (MIN.)
POWER DIST. BLOCK 3 POLE	1	SQUARE D #LBA364108
POWER DIST. BLOCK 1 POLE	1	SQUARE D #LBA164108
TERMINAL SECTIONS	44	SQUARE D #9080GK6
END BARRIER	4	SQUARE D #9080GK6B
CORROSION INHIBITOR	2	HOFFMANN #A-C1-10E
MOUNTING CHANNEL	1	SQUARE D #9080GH136
FLASHER & MTG. BRACKET	1	SSAC #FS126
RELAY, 24 VDC	2	IDEC #RR2P-ULC-DC24V, PLUS CAPACITOR
FUSES, XFMR PRIMARY	2	BUSSMAN OR FERRAZ SHAWMUT
FUSES, XFMR SECONDARY	2	BUSSMAN OR FERRAZ SHAWMUT
TRANSFORMER	1	SQUARE D TYPE T SERIES
INTRINSIC SAFETY RELAY SOCKET	5	DIVERSIFIED #PF083A
INTRINSIC SAFETY RELAY	5	DIVERSIFIED #ISO-120-AFA
INTRINSIC SAFETY RELAY (SPARES)	5	DIVERSIFIED #ISO-120-AFA (PROVIDE 5 SPARES)

MISCELLANEOUS:		
20A GFI RECEPTACLE	1	
GROUND BAR STRIP	1	
RECEPT. COVER	1	
WIRE MARKERS		T & B SHUR-CODE SLEEVE MARKER
GLASS SETTING RUBBER		SEE DETAIL 5 (SHT 2 / 4)
12" x 12" VIEW WINDOW	1	SEE DETAIL 5 (SHT 2 / 4)
LEGEND PLATES	1	SEE PANEL LAYOUT NOTES (THIS SHEET)
WARNING LABEL, OUTSIDE	1	SEE DETAIL 8 (SHT 2 / 4)
WARNING LABEL, INSIDE	1	SEE PANEL LAYOUT NOTES (THIS SHEET)
WIRE DUCT & COVER 1 1/2" W x 3" H (MAX)	1	PANDUIT OR EQUAL
GROMMET MATERIAL	1	

\* HOFFMAN MODEL NUMBERS DESIGNATE SPECIFIC DIMENSIONS. ENCLOSURE & BACK PANEL PROVIDED SHALL BE SIZED TO ACCOMMODATE THE COMPONENTS TO BE INSTALLED WITHIN.  
 ● SIZE AS REQUIRED PER MANUFACTURER'S RECOMMENDATIONS FOR PUMP SIZE

# DANGER

# HIGH VOLTAGE

1

VOLTAGE LABEL DETAIL

NOT TO SCALE

**CONTROL PANEL LAYOUT**  
NOT TO SCALE



REV.	DESCRIPTION	DATE
A	CFPUA Revisions	05/14/08
B	Engineering Revisions	02/18/09

## PUMP STATION / ELECTRICAL EQUIPMENT PAD STANDARD DETAILS

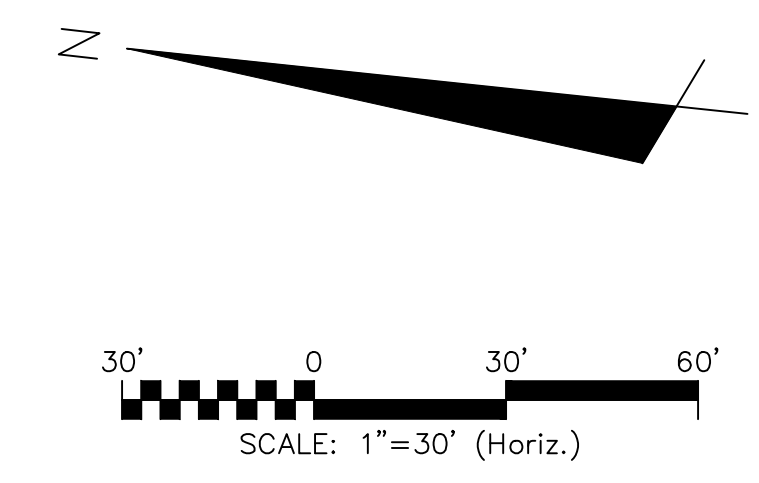
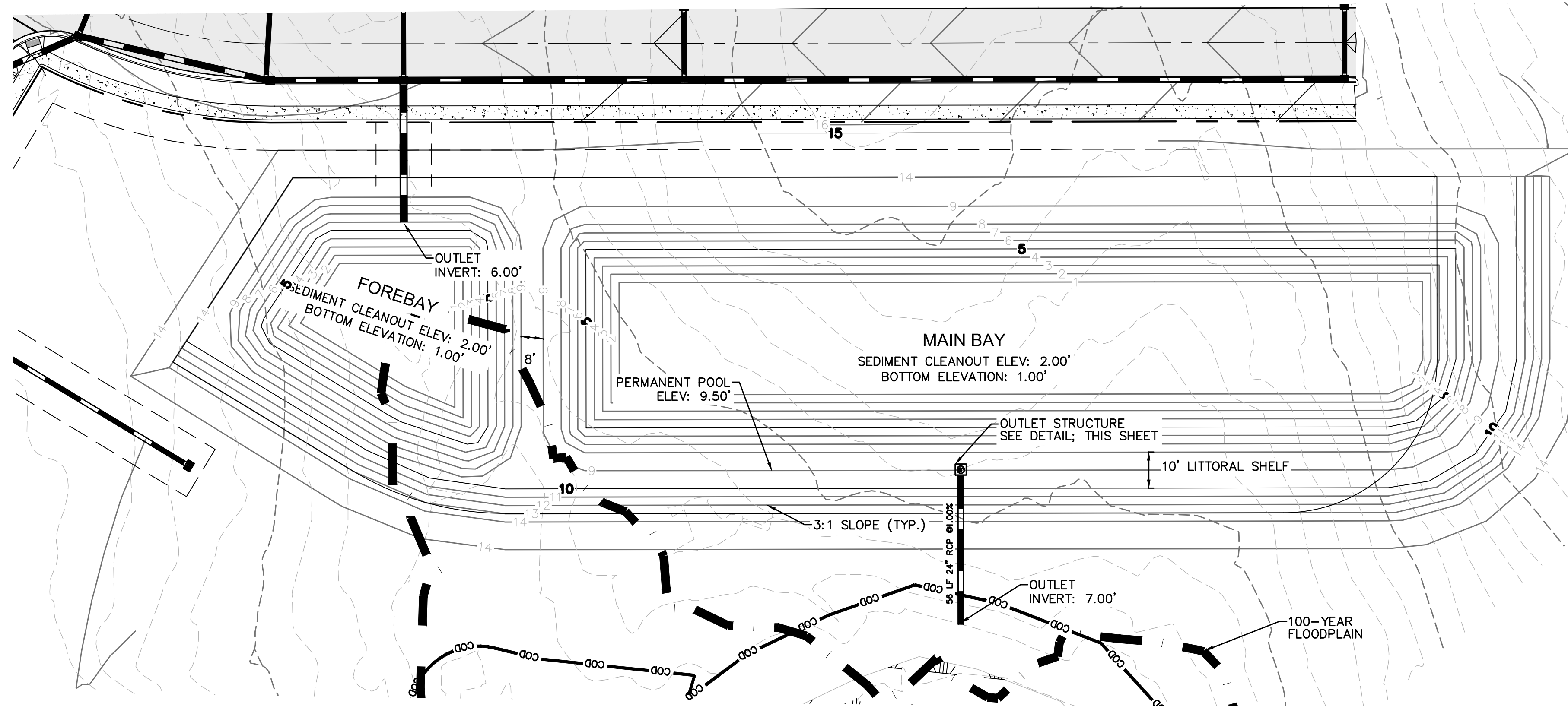
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WILMINGTON, NC 28403  
OFFICE: (910)332-6560

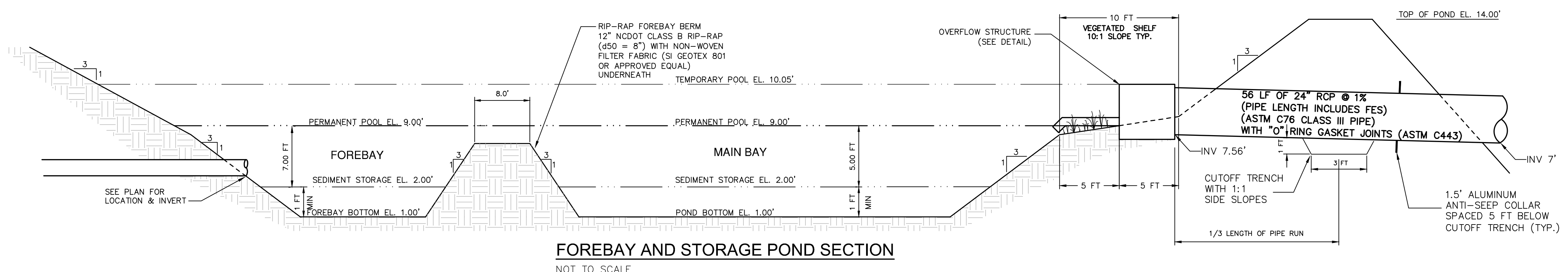
DATE: 05-12-08  
SCALE: N/A  
DRAWN BY: jkorabin  
CHECKED BY:  
PROJECT NO.:

SHEET NO:  
4 / 4

S:\256\0129 Ph 1 SP-06\Drawings\DETAILS\07350129.dwg, 5/5/2016 11:24:34 AM, emamur



STORM ELEVATIONS	
<b>WET POND</b>	
1.0" PROPOSED DEPTH =	9.90'
<b>DESIGN STORM</b>	
10-YEAR =	11.15'
25-YEAR =	12.08'
100-YEAR =	12.84'



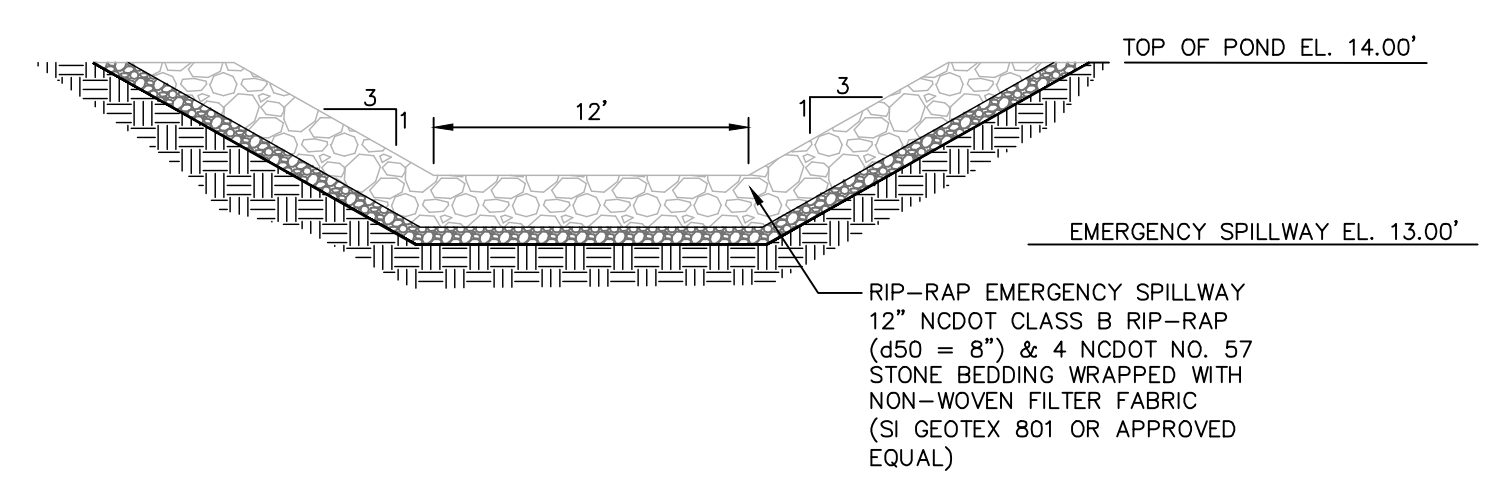
**FOREBAY AND STORAGE POND SECTION**  
NOT TO SCALE

**WET DETENTION POND NOTES**

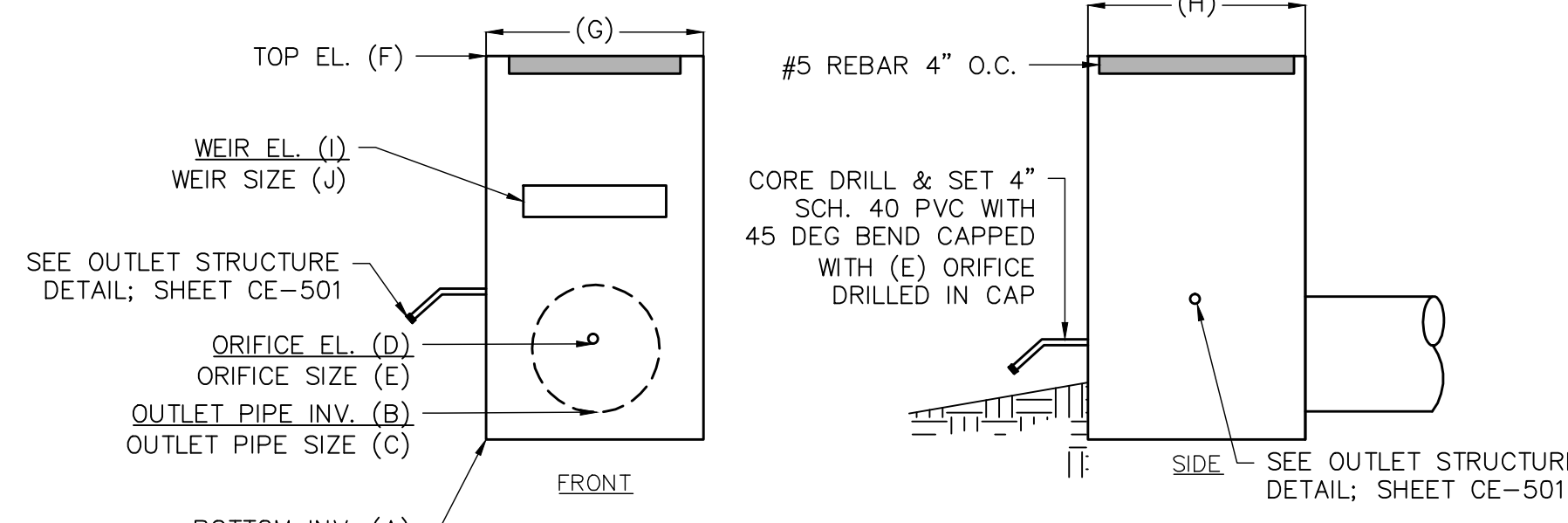
- TEMPORARY PUMP WILL BE PROVIDED BY OWNER TO DRAIN POND/FOREBAY FOR ROUTINE MAINTENANCE OR IN AN EMERGENCY.
- SOD SLOPES ABOVE THE PERMANENT POOL AROUND THE INSIDE OF THE FOREBAY, ABOVE THE VEGETATED SHELF AROUND THE MAIN BAY AND SLOPES OUTSIDE OF THE POND.
- CONTRACTOR SHALL EXCAVATE VEGETATED SHELF AS NECESSARY TO PROVIDE ADEQUATE CLEARANCE AROUND RISER FOR PVC PIPE INVERT.
- THE SEASONAL HIGH WATER TABLE WAS FOUND TO BE ~ EL. 9.35 IN THE MAIN BAY OF THE WET DETENTION POND.

**GENERAL NOTES**

- CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES.
- THE IMPROVEMENTS SHOWN ON THIS SITE PLAN CANNOT DEVIATE FROM THE PLAN ONCE APPROVED WITHOUT WRITTEN APPROVAL OF ENGINEER.
- SITE WILL REQUIRE A STATE EROSION CONTROL PERMIT AND STATE STORMWATER PERMIT.
- IMPERVIOUS AREA SHALL DRAIN TO PROPOSED STATE PERMITTED STORMWATER POND.

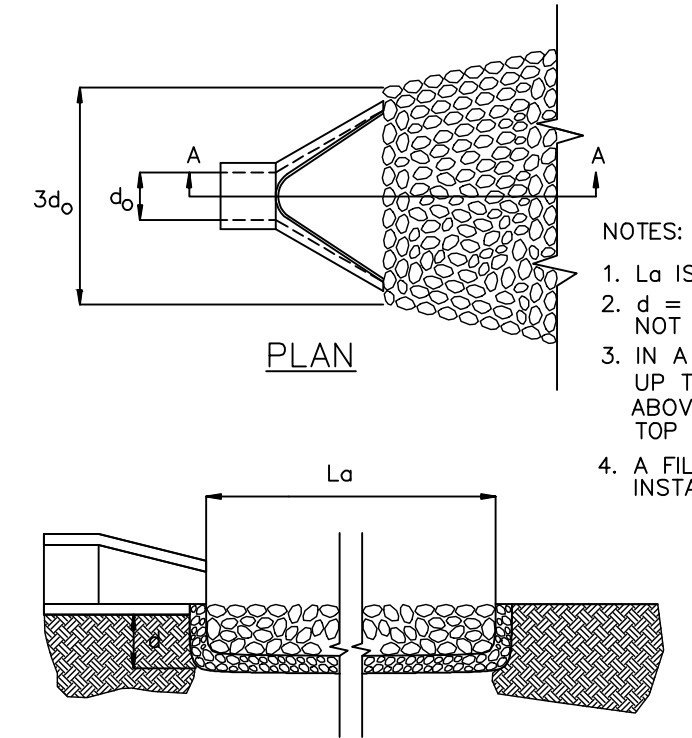


**EMERGENCY SPILLWAY SECTION**  
NOT TO SCALE



**WET POND OUTLET STRUCTURE**  
NOT TO SCALE

WET POND OUTLET STRUCTURE	
WET POND 1	
A	7.53'
B	7.53'
C	2'-0"
D	9.00'
E	4"
F	11.20'
G	48"
H	48"
I	9.90'
J	12"X36"

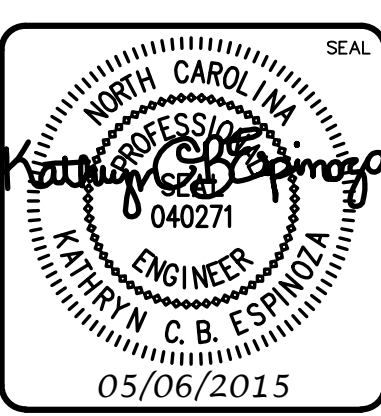


PIPE OUTLET PROTECTION	
OUTLET PIPE DIA.	24"
OUTLET FLOW RATE	15.4 CFS
OUTLET VELOCITY	7.8 FT/S
MATERIAL	CLASS A
LENGTH	8'
WIDTH	6'
STONE DIA.	3"
THICKNESS	9"

**PIPE OUTLET PROTECTION**  
NOT TO SCALE

REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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by Newland COMMUNITIES

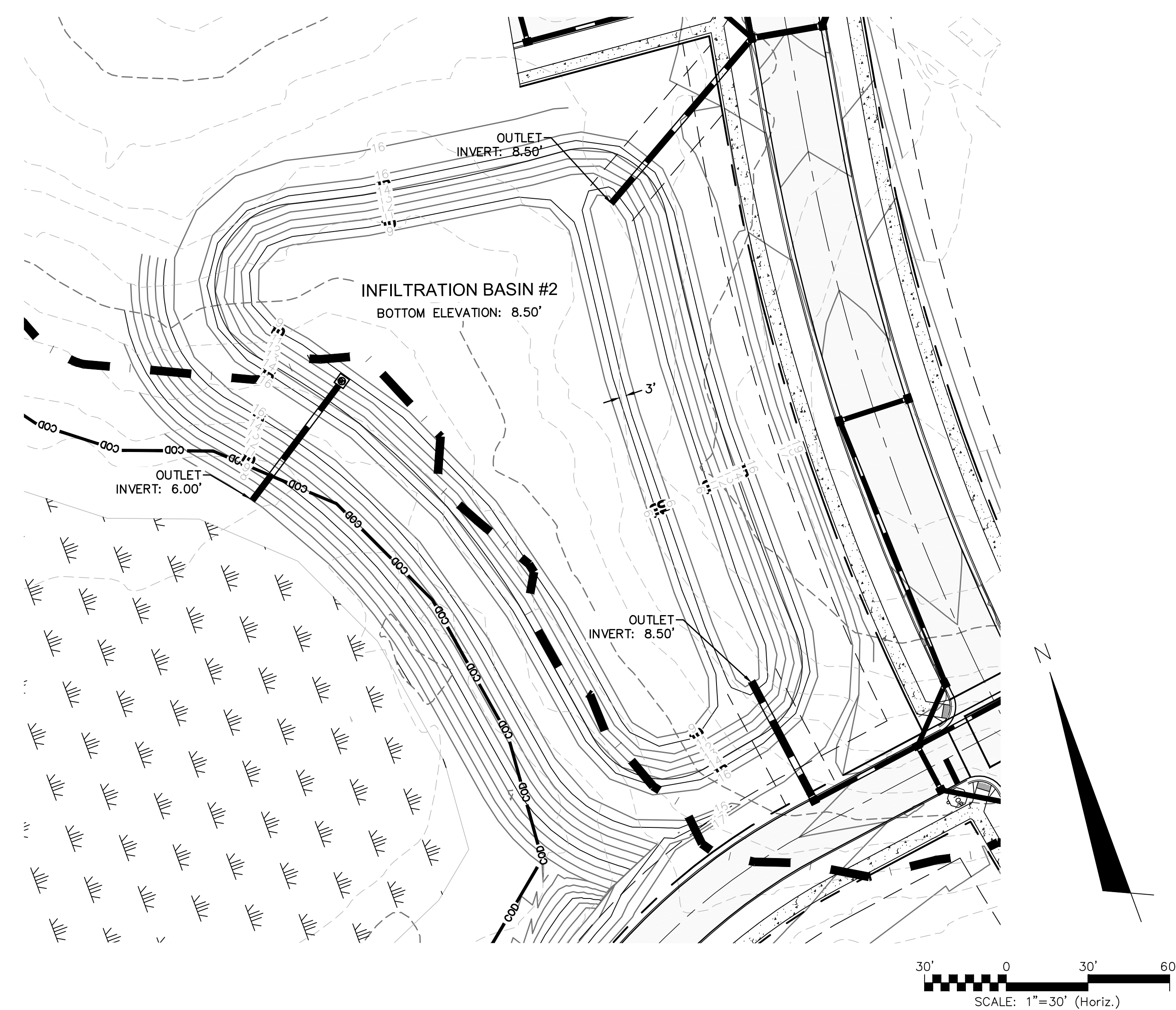
**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**  
**STORMWATER MANAGEMENT DETAILS**

DATE: 04-29-2015  
MCE PROJ. #: 02735-0129  
DRAWN: EEM/KCBE  
DESIGNED: KCBE  
CHECKED: NJL  
PROJ. MGR: RMC

SCALE: HORIZONTAL: 1"=50'  
VERTICAL: N/A

STATUS: **FINAL DESIGN**  
NOT FOR CONSTRUCTION

MAC FILE NUMBER: **CN-501**  
DRAWING NUMBER: **43**  
REVISION: **B**



**STORM ELEVATIONS**

**INFILTRATION**

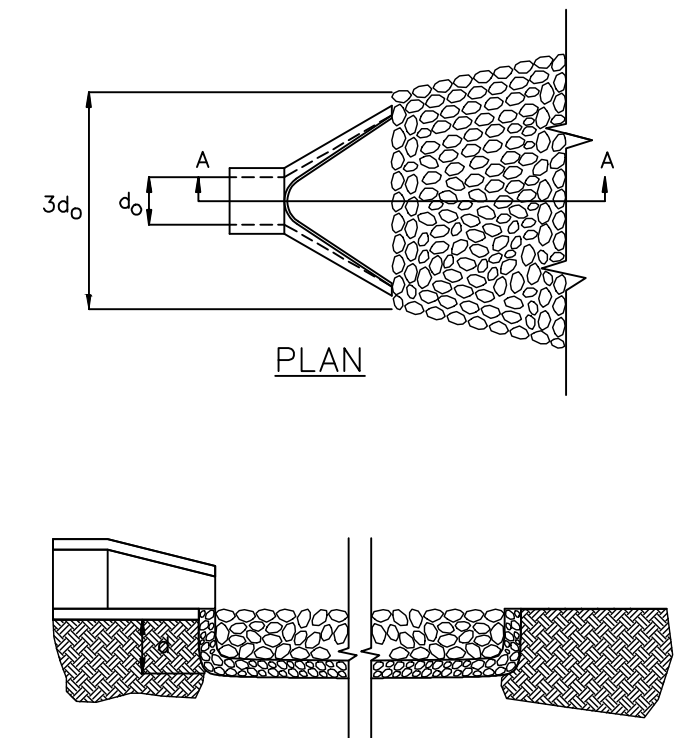
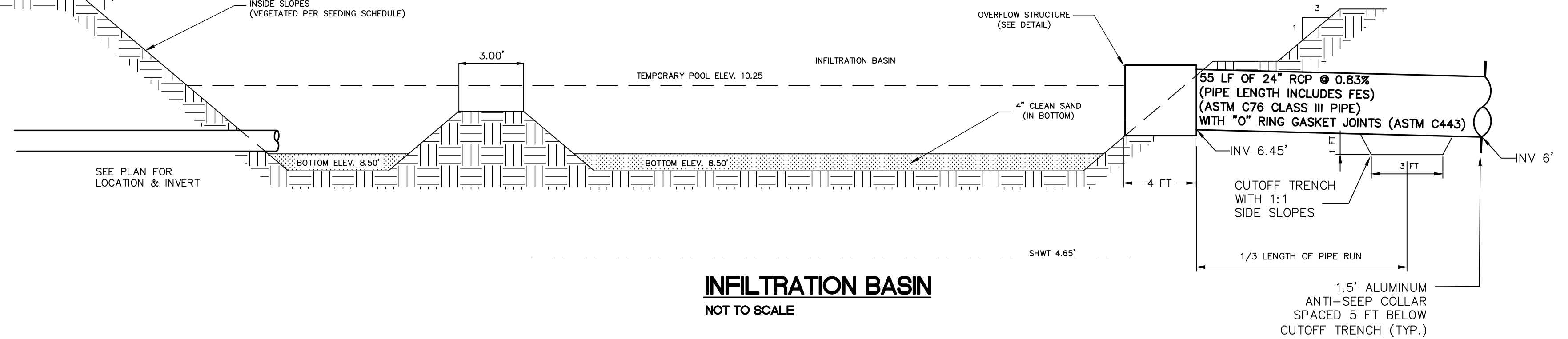
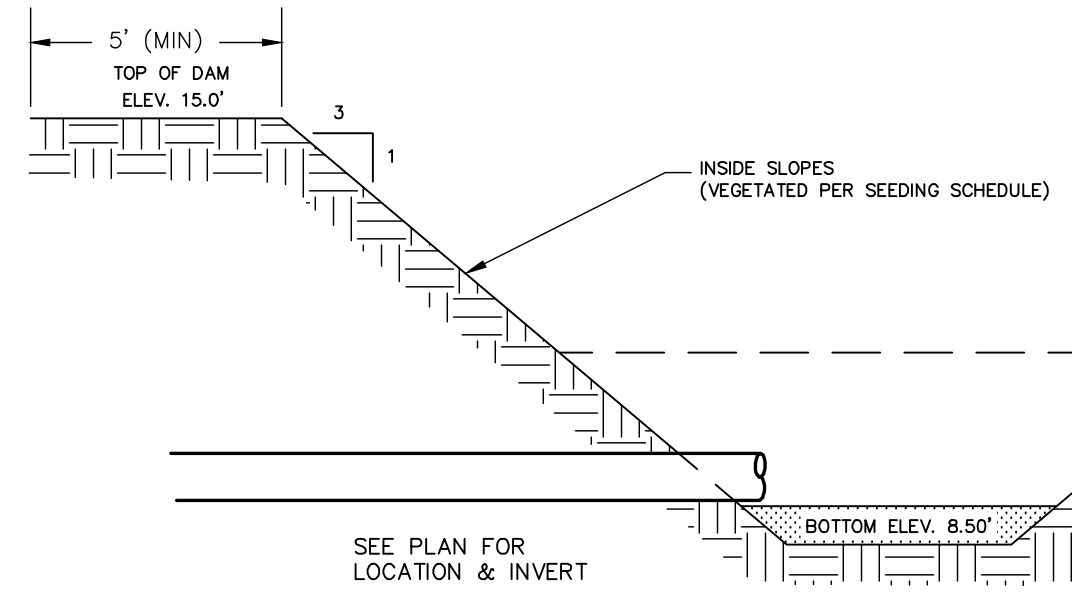
1.0" PROPOSED DEPTH = 10.25'

**DESIGN STORM**

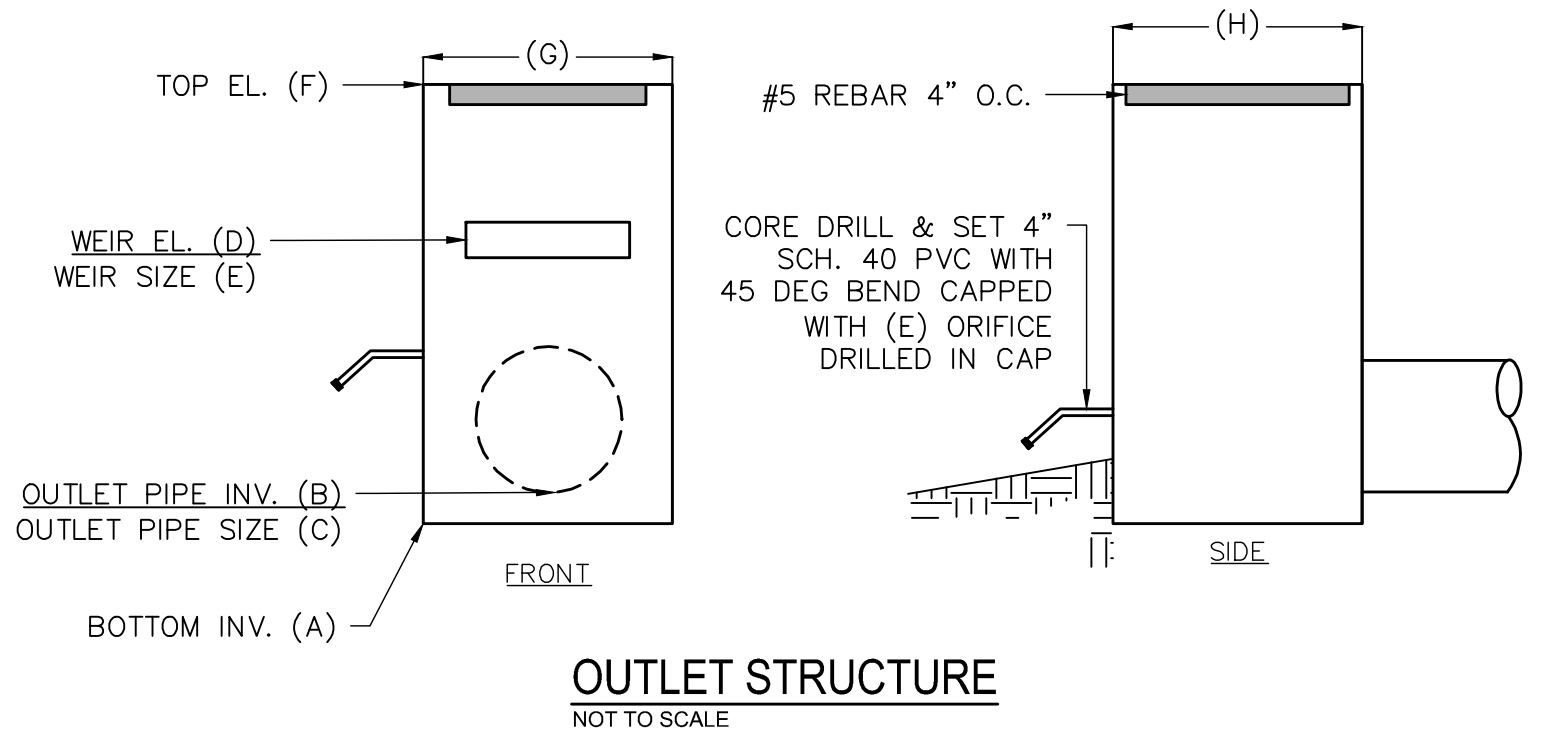
10-YEAR = 11.15'

25-YEAR = 11.90'

100-YEAR = 12.04'



- NOTES**
- THE ENTIRE INFILTRATION BASIN SHALL BE SEED PER THE SEEDING SCHEDULE IMMEDIATELY FOLLOWING THE COMPLETION OF CONSTRUCTION.
  - THE BOTTOM SHALL BE OVEREXCAVATED 4" AND BACKFILLED WITH CLEAN SAND TO THE BOTTOM ELEVATION SPECIFIED.
  - IF HARDPAN OR OTHER UNSUITABLE SOILS ARE ENCOUNTERED, OVEREXCAVATE THE BOTTOM A MINIMUM OF 2' AND BACKFILL WITH ENGINEER APPROVED SANDY SOIL MATERIAL.
  - IF THE BASIN IS USED AS AN EROSION CONTROL DEVICE, THE BOTTOM MUST BE COMPLETELY CLEANED OUT, OVEREXCAVATED 6" AND BACKFILLED WITH AN ENGINEER APPROVED SANDY SOIL MATERIAL.
  - 10-YR DISCHARGE THROUGH WEIR ASSUMING THE BASIN WILL NOT INFILTRATE.  
WEIR EQUATION:  $Q_{10} = C_w L^{0.6} h^{1.5} / 2$   
 $Q_{10} = 1.973 cfs = 3.0 * 8.0 ft^{1.5} / 2$   
 $h = 0.189' = 2.27"$



**INFILTRATION OUTLET STRUCTURE**

	POND 2
A	6.45'
B	6.45'
C	24" RCP
D	10.25'
E	6"x36"
F	12.75'
G	48"
H	48"

**OUTLET PROTECTION**

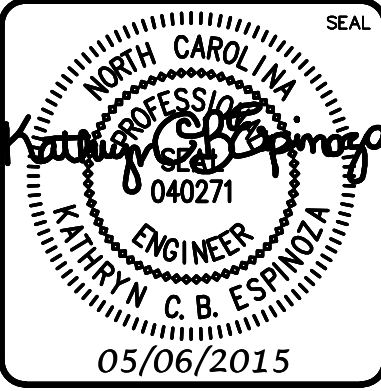
OUTLET PIPE DIA.	24"
OUTLET FLOW RATE	8.2 CFS
OUTLET VELOCITY	6.2 FT/S
MATERIAL	CLASS A
LENGTH	8'
WIDTH	6'
STONE DIA.	3"
THICKNESS	9"

- NOTES:**
- $L_p$  IS THE LENGTH OF THE RIPRAP APRON.
  - $d_{50}$  IS 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
  - IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
  - A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

**PIPE OUTLET PROTECTION**  
NOT TO SCALE

REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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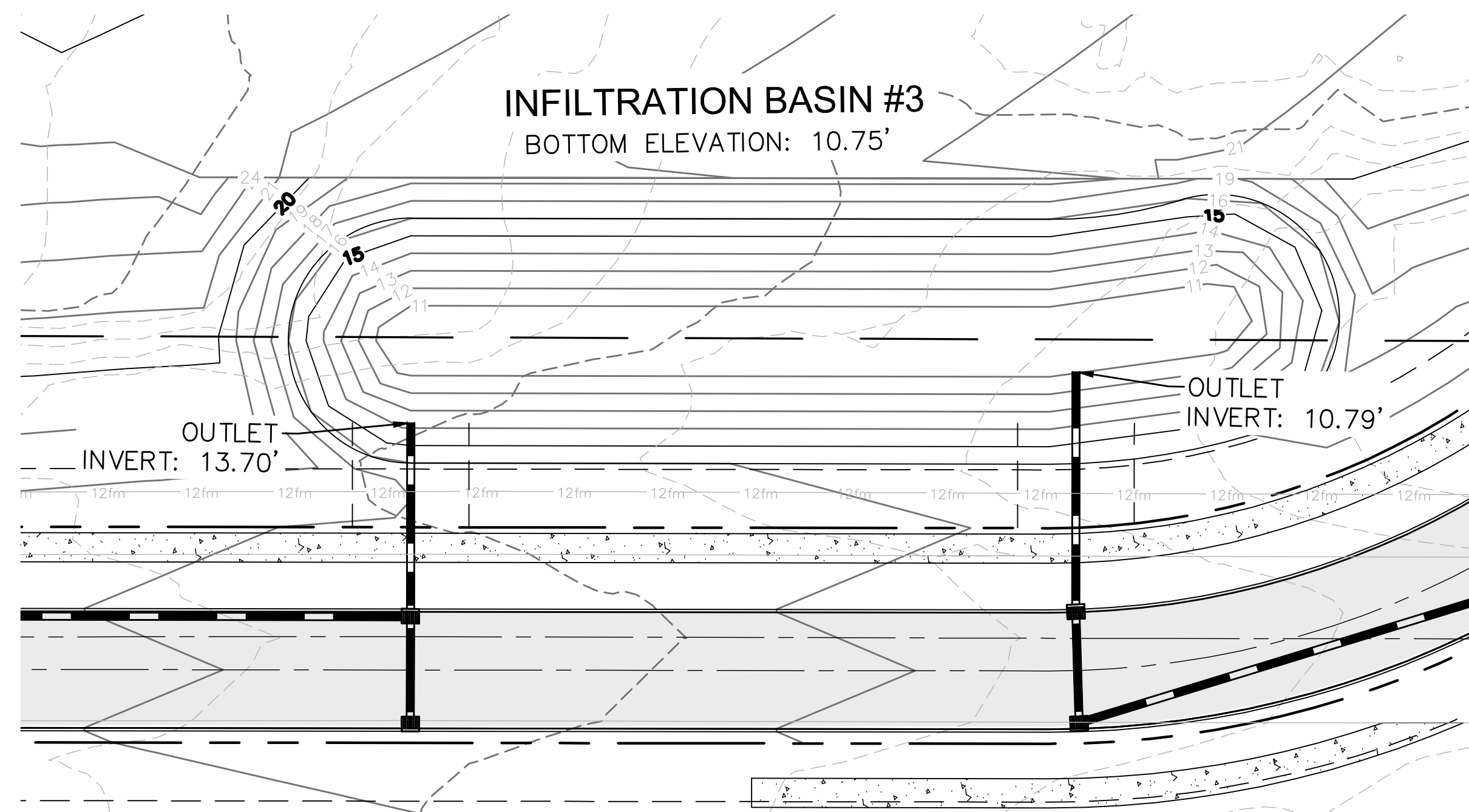
**RIVERLIGHTS**  
by Newland COMMUNITIES

**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**

**STORMWATER MANAGEMENT DETAILS**

DATE:	04-29-2015	SCALE:	1"=50'	MAC FILE NUMBER:	CN-502
MCE PROJ. #	02735-0129	DRAWN:	EEM/KCBE	DRAWING NUMBER:	44
DESIGNED:	KCBE	CHECKED:	NJL	REVISION:	B
PROJ. MGR.:	RMC	VERTICAL:	N/A	STATUS:	FINAL DESIGN
					NOT FOR CONSTRUCTION

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**STORM ELEVATIONS**

**INFILTRATION**

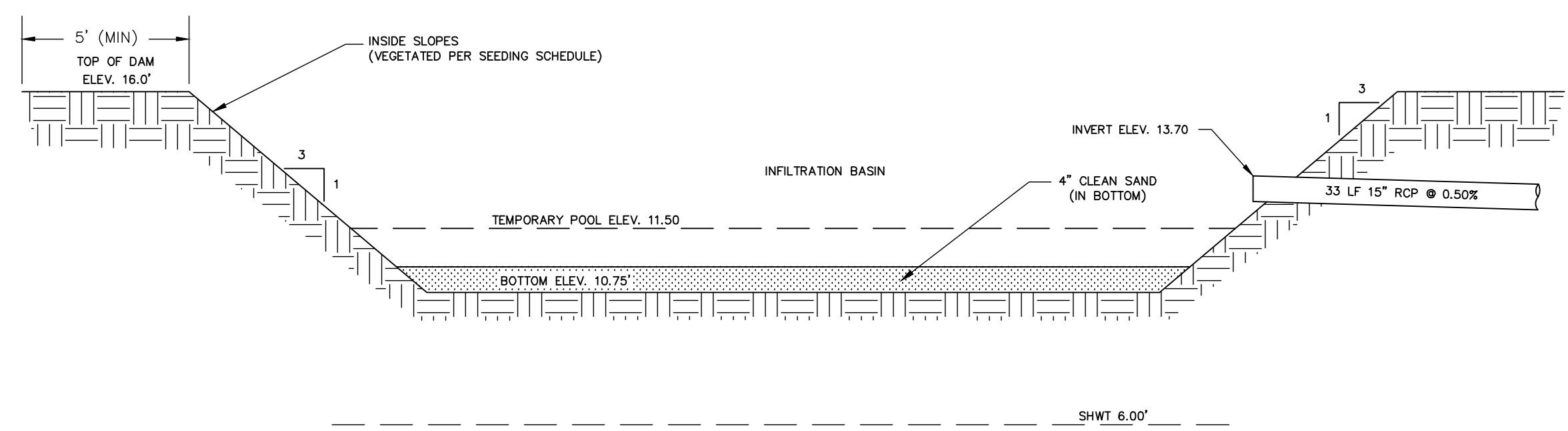
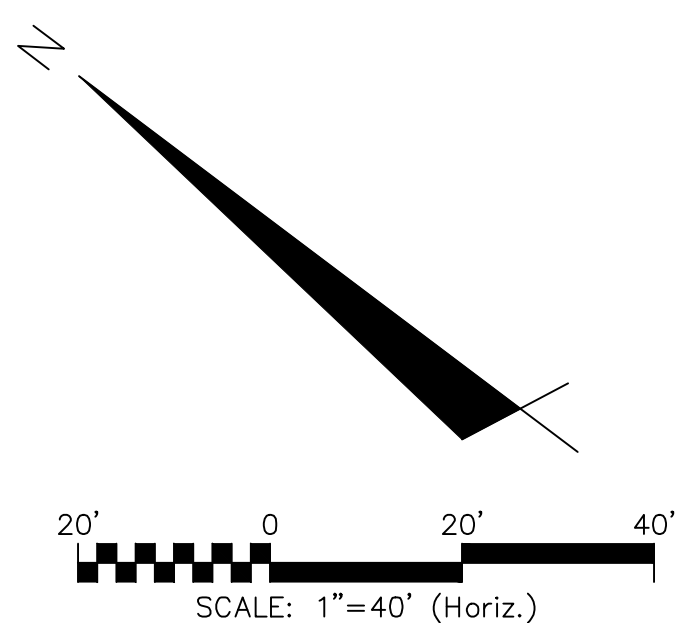
1.0" PROPOSED DEPTH = 11.50'

**DESIGN STORM**

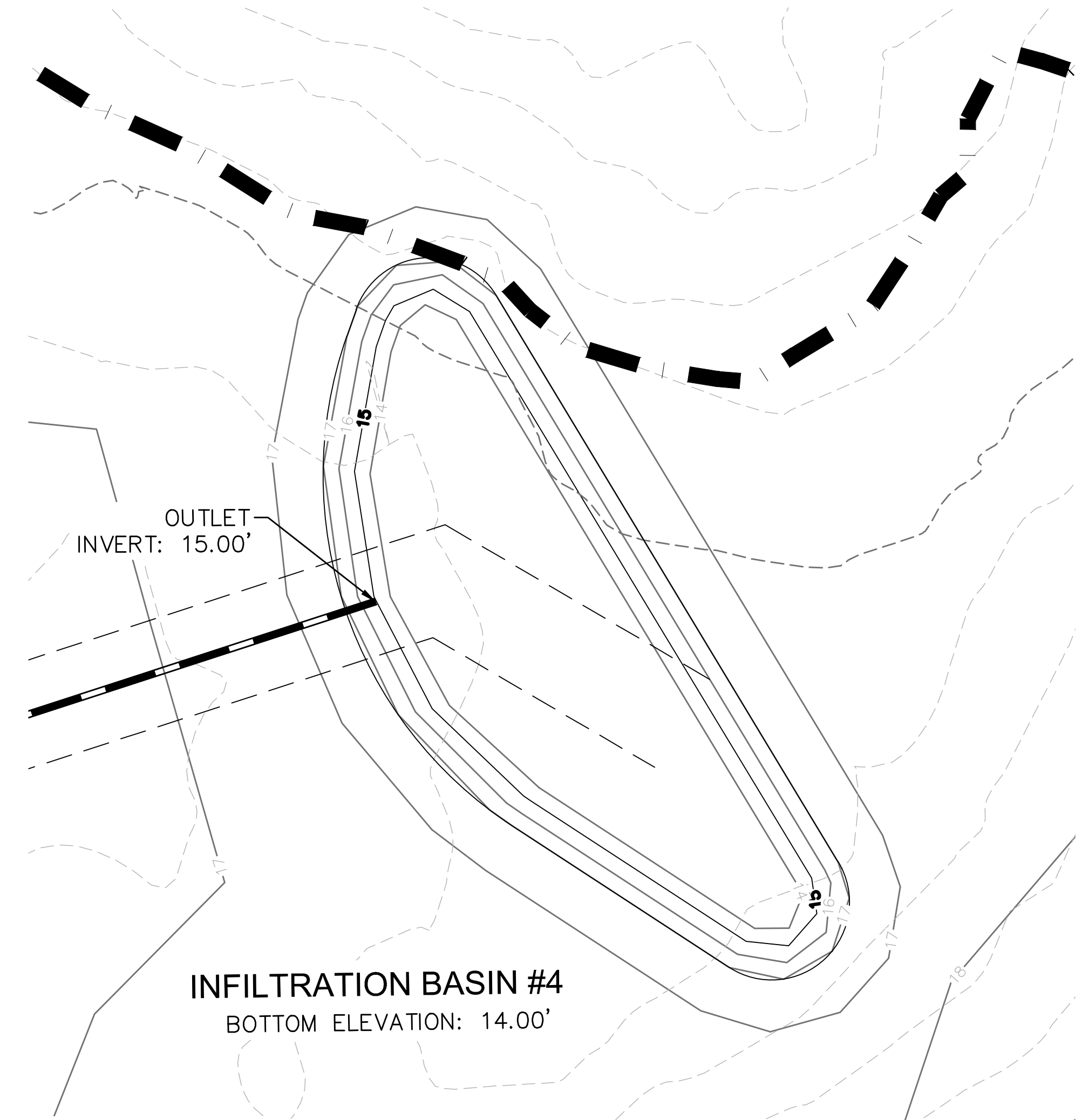
10-YEAR = 12.75'

25-YEAR = 14.02'

100-YEAR = 14.31'



**INFILTRATION BASIN**  
NOT TO SCALE



**STORM ELEVATIONS**

**INFILTRATION**

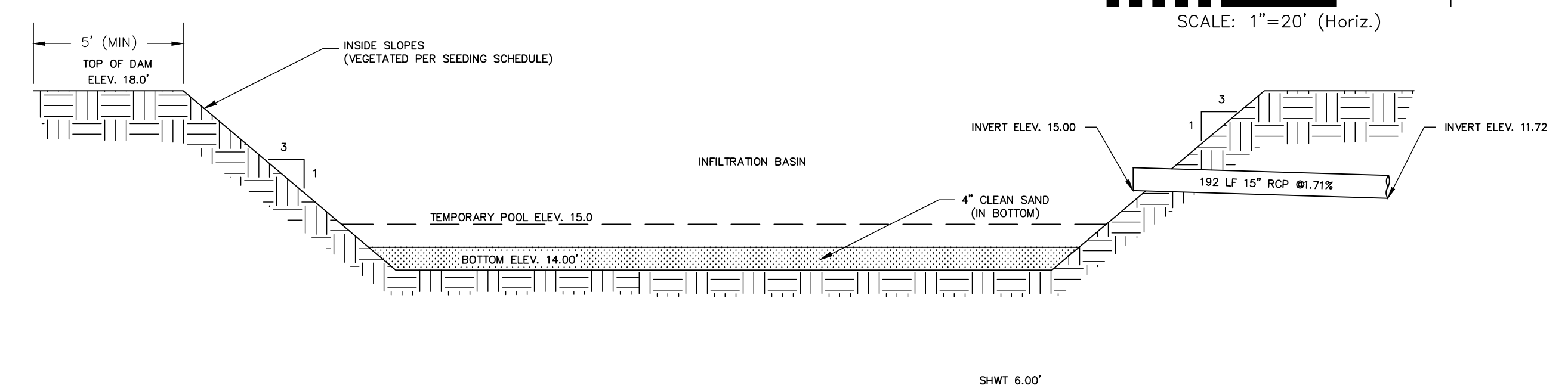
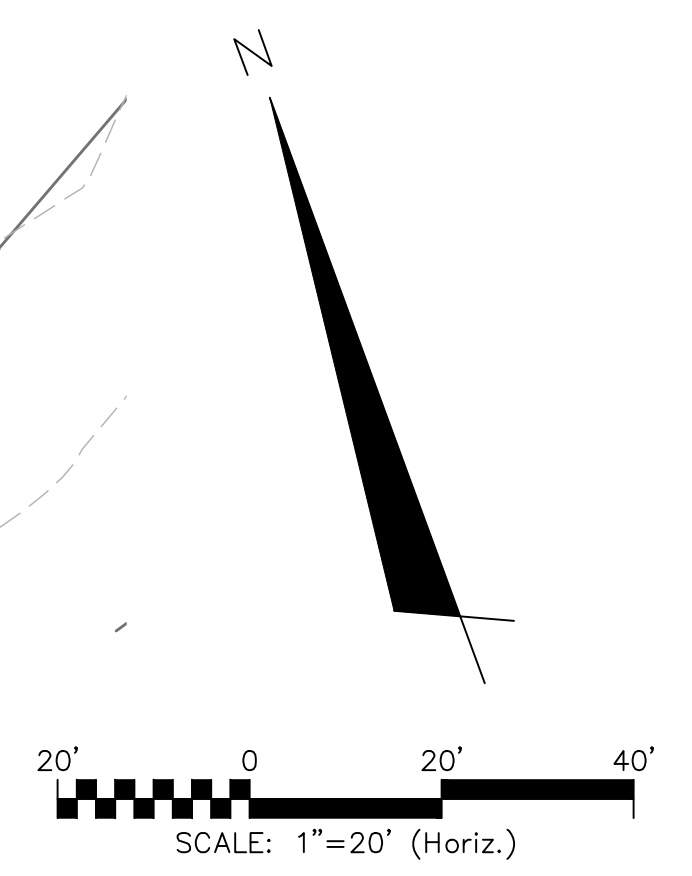
1.0" PROPOSED DEPTH = 15.0'

**DESIGN STORM**

10-YEAR = 15.66'

25-YEAR = 16.02'

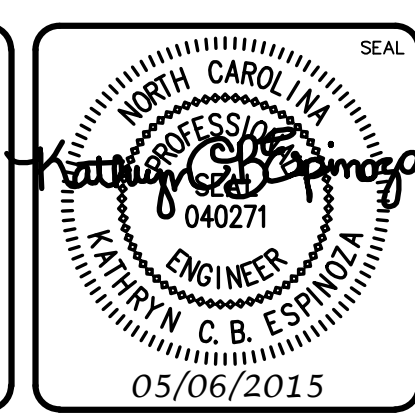
100-YEAR = 16.25'



**INFILTRATION BASIN**  
NOT TO SCALE

REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
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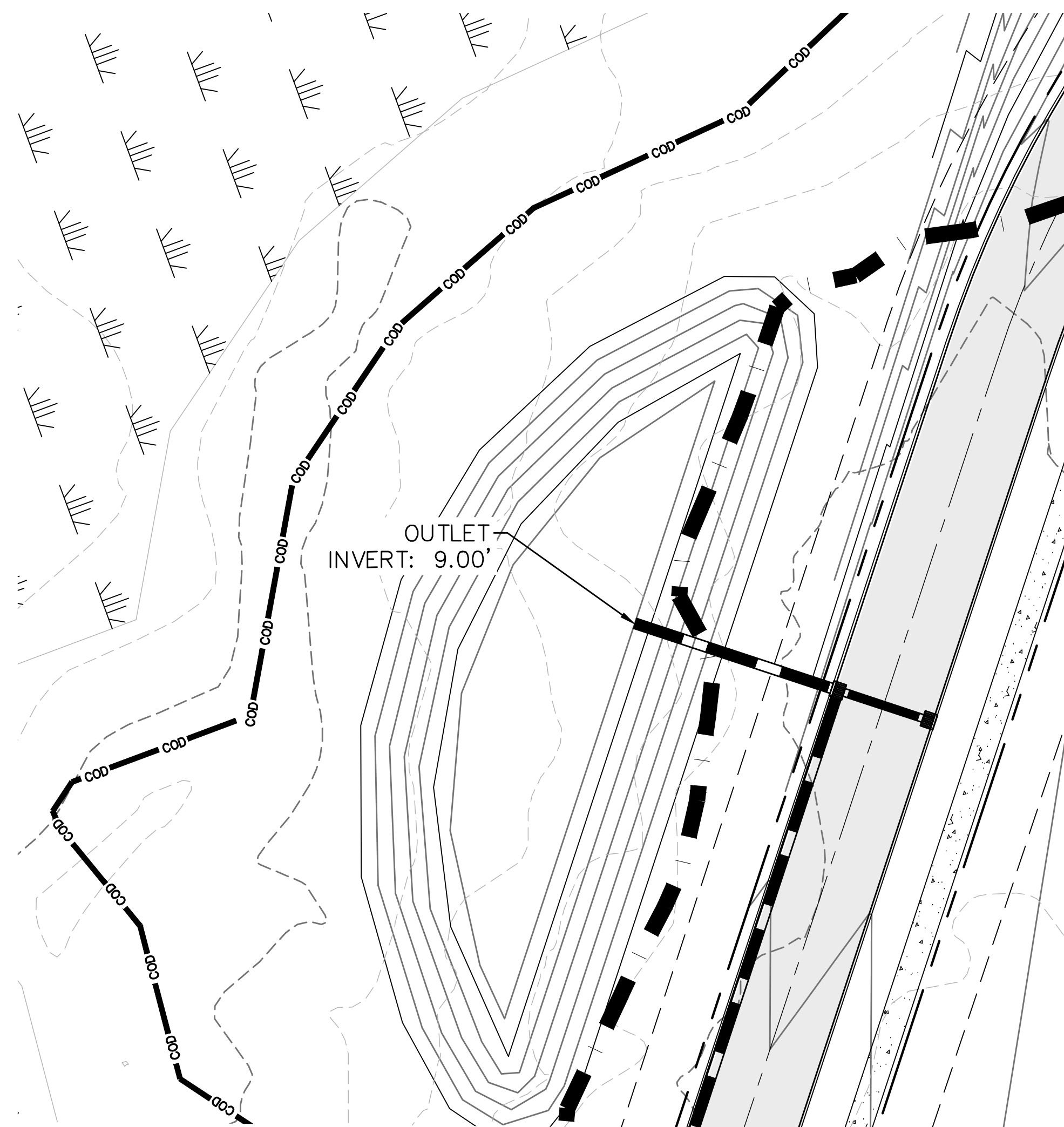
**RIVERLIGHTS**  
by Newland COMMUNITIES

**RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1**

**STORMWATER MANAGEMENT DETAILS**

DATE: 04-29-2015	SCALE: 1"=50'	MAC FILE NUMBER: CN-503
MCE PROJ. # 02735-0129	HORIZONTAL: 1"=50'	DRAWING NUMBER: 45
DRAWN: EEM/KCBE	VERTICAL: N/A	REVISION: B
DESIGNED: KCBE	STATUS: FINAL DESIGN	
CHECKED: NJL	NOT FOR CONSTRUCTION	
PROJ. MGR: RMC		

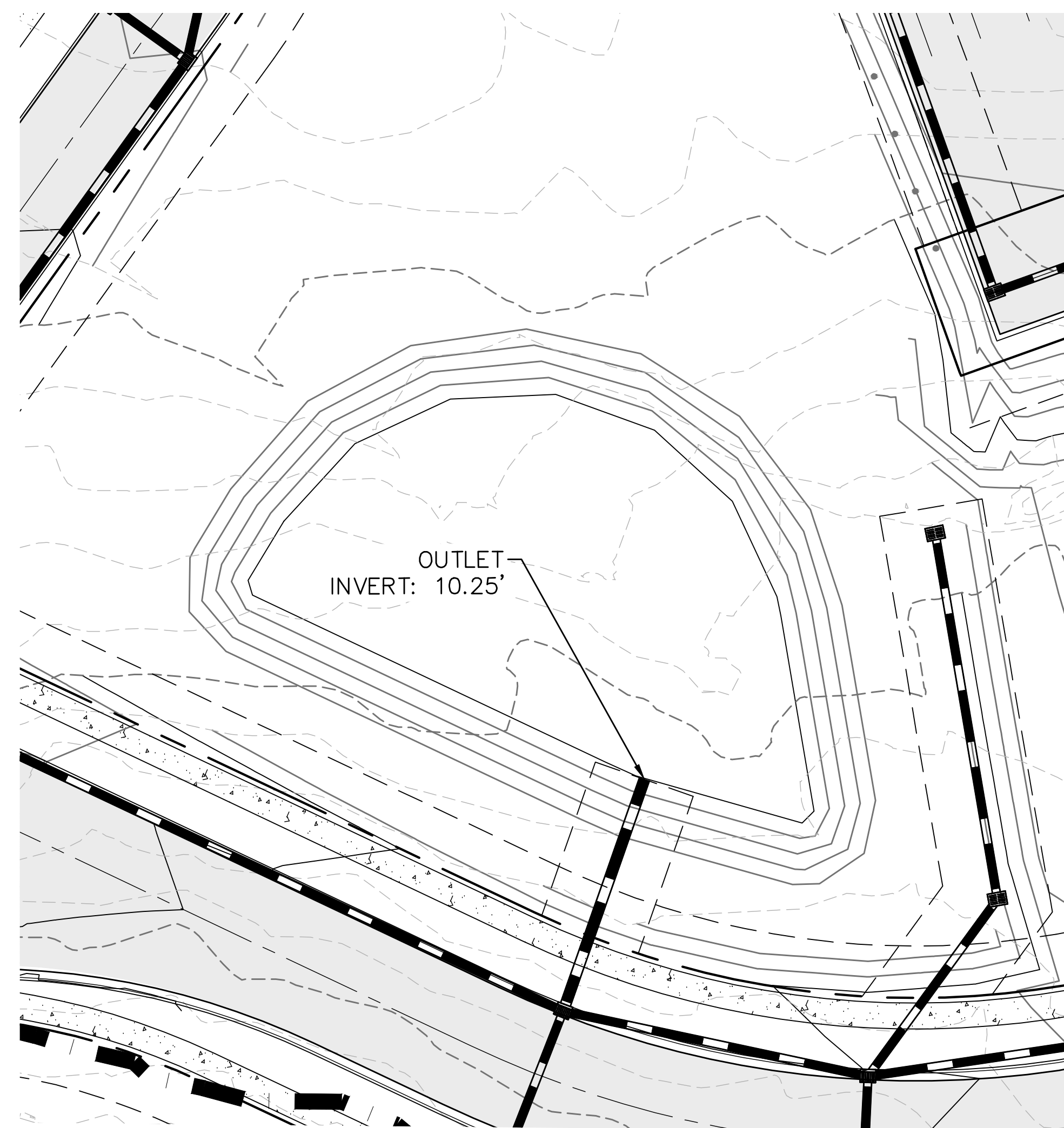
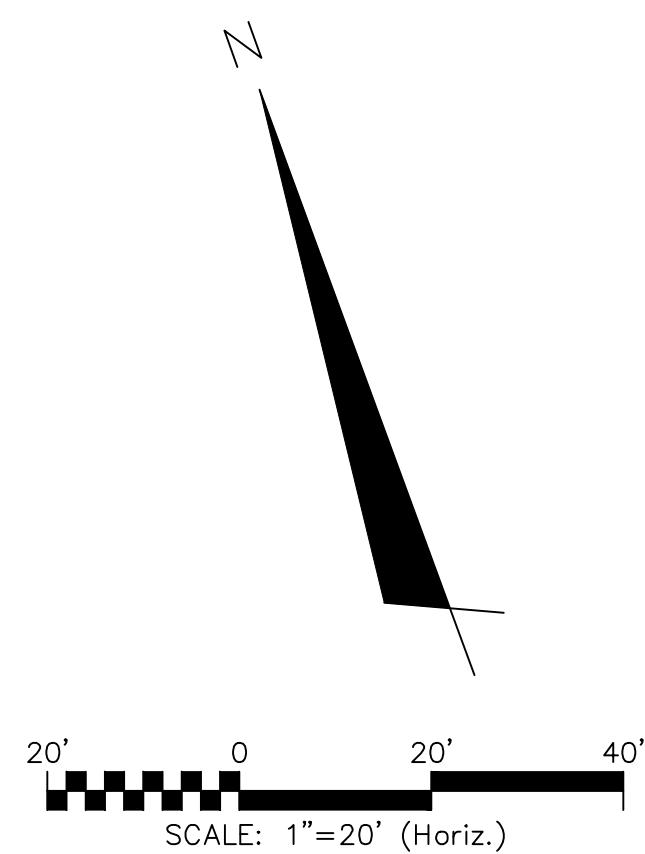
S:\2726\0129 Ph. 1\_SFB\Drawings\CN501-02735\0129.dwg, 5/6/2015 11:26:56 PM, emcathur



INFILTRATION BASIN #2B

OUTLET PROTECTION	
OUTLET PIPE DIA.	18"
OUTLET FLOW RATE	7.3 CFS
OUTLET VELOCITY	11.6 FT/S
MATERIAL	CLASS A
LENGTH	6'
WIDTH	4.5'
STONE DIA.	3"
THICKNESS	9"

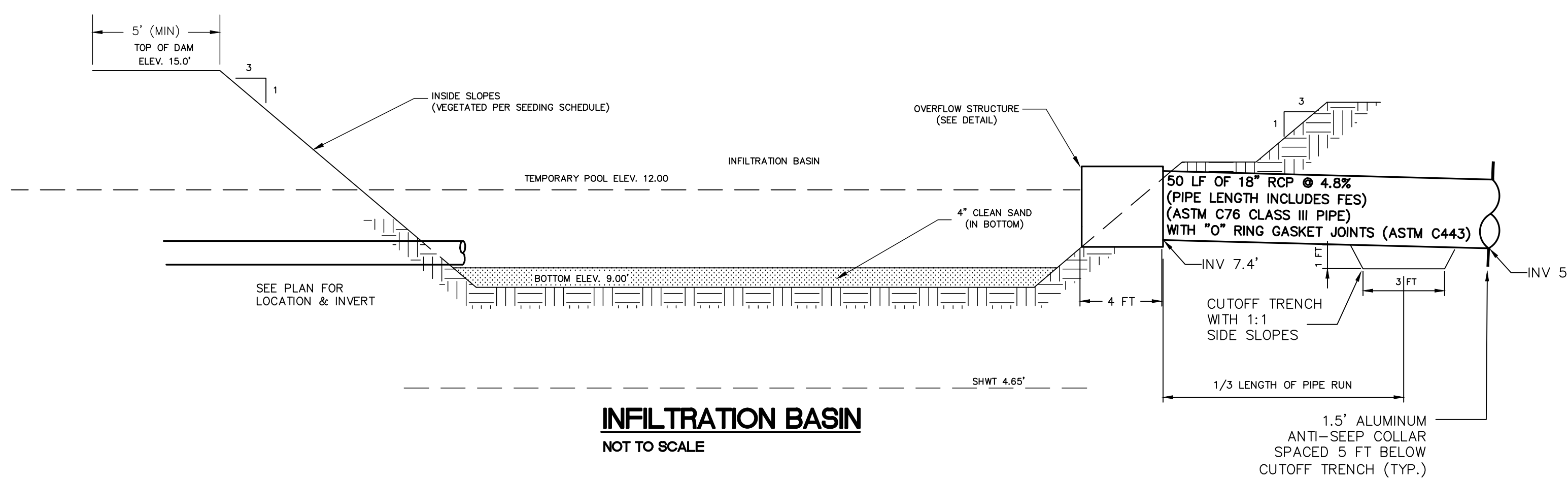
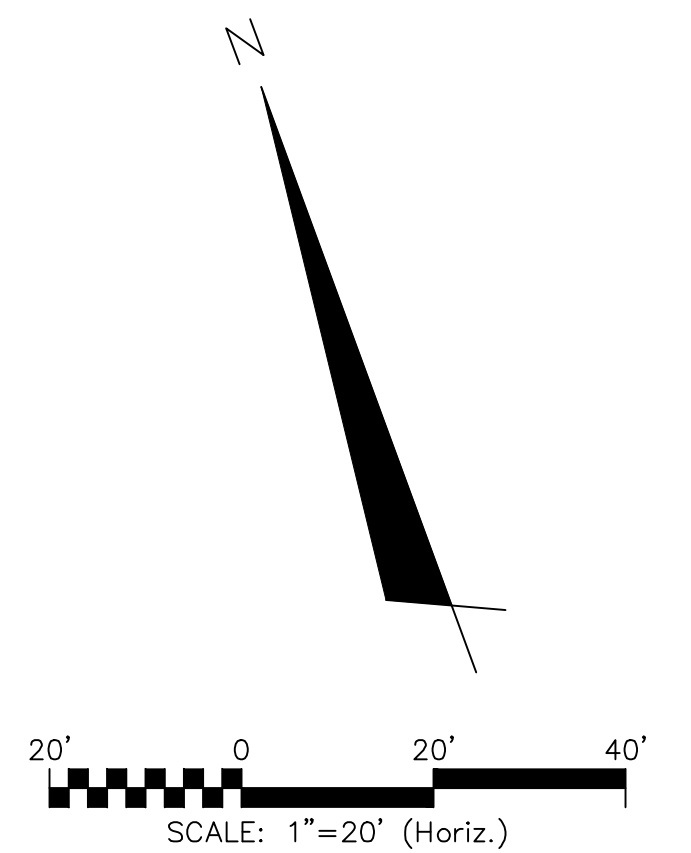
STORM ELEVATIONS	
INFILTRATION	
1.0" PROPOSED DEPTH = 12.00'	
DESIGN STORM	
10-YEAR	= 13.05'
25-YEAR	= 13.26'
100-YEAR	= 13.34'



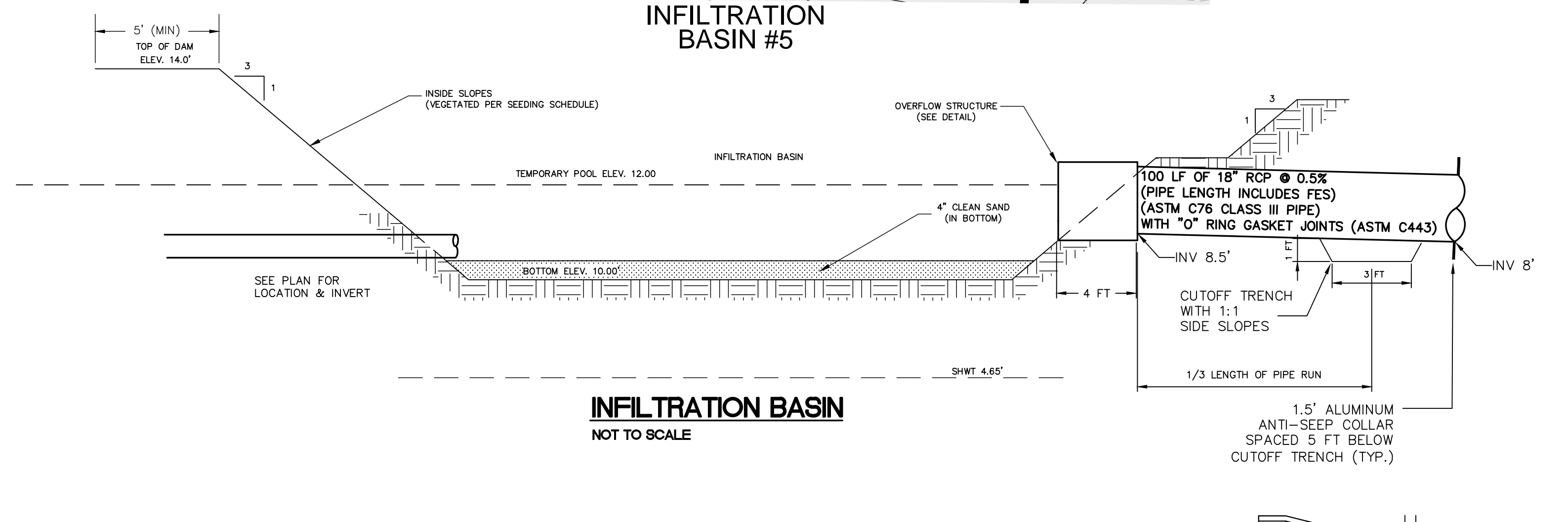
INFILTRATION BASIN #5

OUTLET PROTECTION	
OUTLET PIPE DIA.	18"
OUTLET FLOW RATE	6.1 CFS
OUTLET VELOCITY	6.2 FT/S
MATERIAL	CLASS A
LENGTH	6'
WIDTH	4.5'
STONE DIA.	3"
THICKNESS	9"

STORM ELEVATIONS	
INFILTRATION	
1.0" PROPOSED DEPTH = 12.00'	
DESIGN STORM	
10-YEAR	= 12.72'
25-YEAR	= 12.85'
100-YEAR	= 12.94'



INFILTRATION BASIN  
NOT TO SCALE

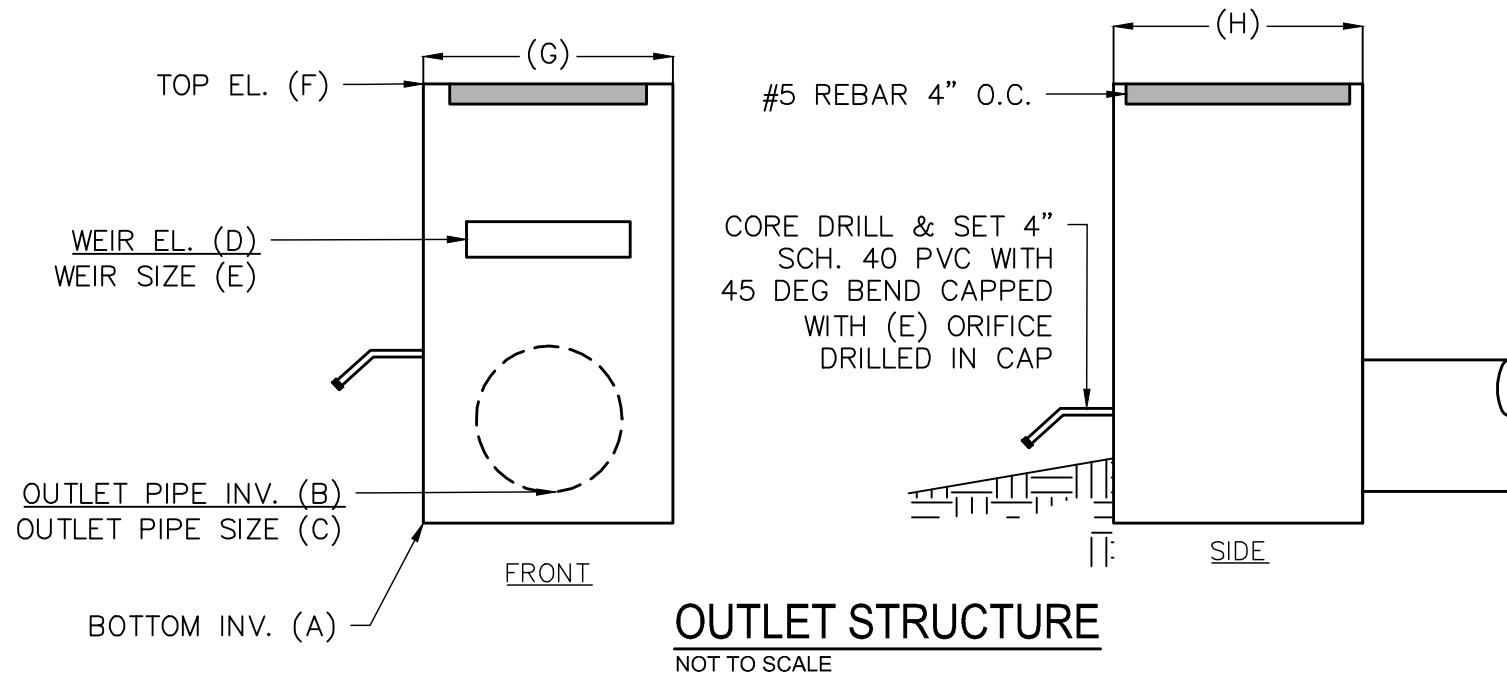


INFILTRATION BASIN  
NOT TO SCALE

NOTES

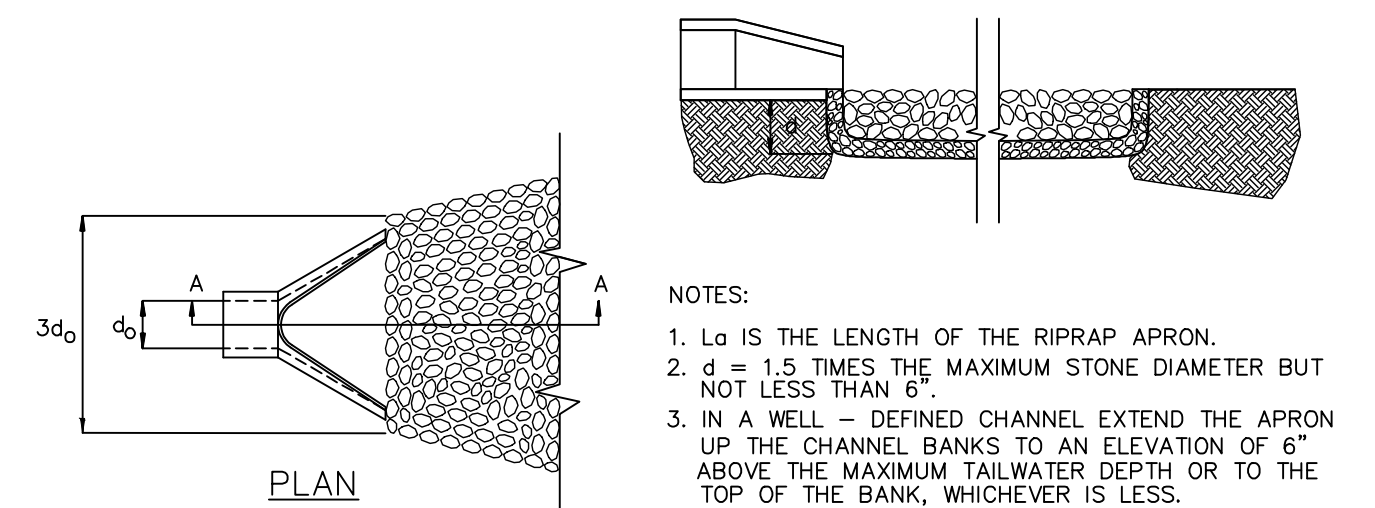
- THE ENTIRE INFILTRATION BASIN SHALL BE SEED PER THE SEEDING SCHEDULE IMMEDIATELY FOLLOWING THE COMPLETION OF CONSTRUCTION.
- THE BOTTOM SHALL BE OVERCAVATED 4" AND BACKFILLED WITH CLEAN SAND TO THE BOTTOM ELEVATION SPECIFIED.
- IF HARDPAN OR OTHER UNSUITABLE SOILS ARE ENCOUNTERED, OVERCAVATE THE BOTTOM A MINIMUM OF 2" AND BACKFILL WITH ENGINEER APPROVED SANDY SOIL MATERIAL.
- IF THE BASIN IS USED AS AN EROSION CONTROL DEVICE, THE BOTTOM MUST BE COMPLETELY CLEANED OUT, OVERCAVATED 6" AND BACKFILLED WITH AN ENGINEER APPROVED SANDY SOIL MATERIAL.
- 10-YR DISCHARGE THROUGH WEIR ASSUMING THE BASIN WILL NOT INFILTRATE:  
WEIR EQUATION:  $Q_{10} = C_w L^3 h^{3/2}$   
 $Q_{10} = 1.973cfs = 3.0 * 0.8 * 11^3 * 3/2$   
 $h = 0.189' = 2.27"$

INFILTRATION OUTLET STRUCTURE	
	POND 2B
A	7.40'
B	7.40'
C	18" RCP
D	12.00'
E	6"x36"
F	13.10'
G	48"
H	48"



OUTLET STRUCTURE  
NOT TO SCALE

INFILTRATION OUTLET STRUCTURE	
	POND 5
A	8.50'
B	8.50'
C	18" RCP
D	12.00'
E	6"x36"
F	12.75'
G	48"
H	48"

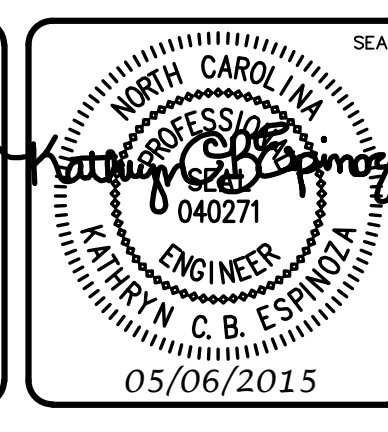


PIPE OUTLET PROTECTION  
NOT TO SCALE

- NOTES:
- L<sub>g</sub> IS THE LENGTH OF THE RIPRAP APRON.
  - d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
  - IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
  - A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

REV. NO.	DESCRIPTIONS	DATE
B	CITY OF WILMINGTON TECHNICAL REVIEW COMMITTEE SUBMITTAL	05/06/2015
A	CITY OF WILMINGTON SUBDIVISION REVIEW BOARD SUBMITTAL	03/06/2015

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**RIVERLIGHTS**  
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RIVERLIGHTS  
CONVENTIONAL NEIGHBORHOOD PH. 1  
STORMWATER MANAGEMENT DETAILS

DATE: _____	SCALE: _____	MAC FILE NUMBER: <b>CN-504</b>
MCE PROJ. # _____	HORIZONTAL: 1"=50'	DRAWING NUMBER: _____
DRAWN: EEM/KCBE	VERTICAL: N/A	REVISION: <b>46</b>
DESIGNED: KCBE		
CHECKED: NJL		
PROJ. MGR: RMC		
STATUS: <b>FINAL DESIGN</b>		REVISION: <b>B</b>
NOT FOR CONSTRUCTION		